

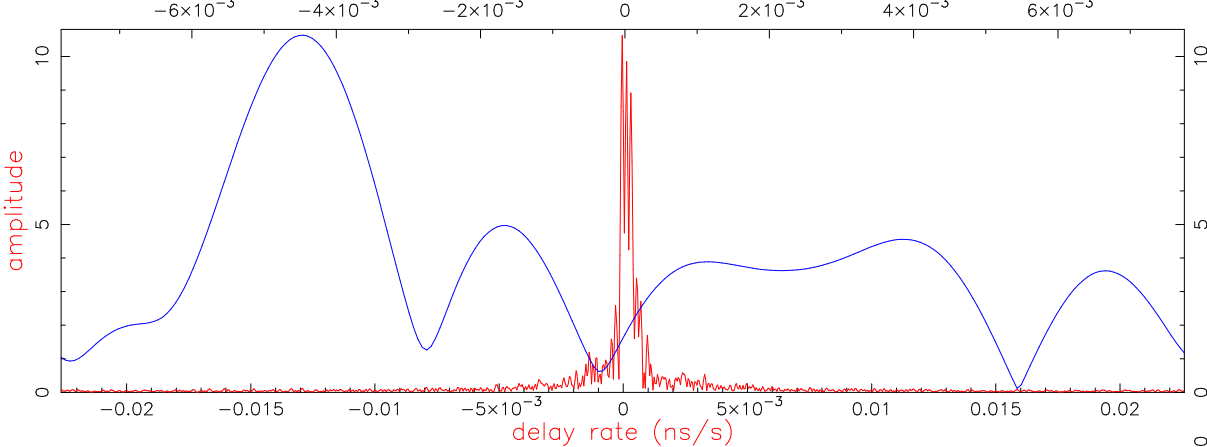
Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, AX

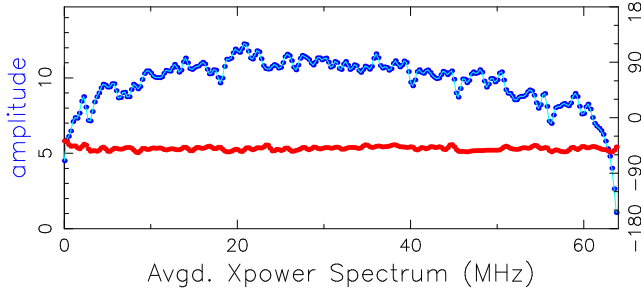
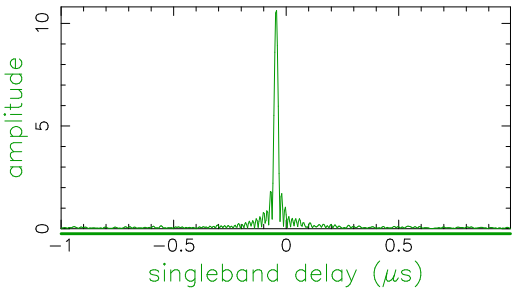
ALMA - ONSALA60, fgroup Q, pol XL

multiband delay ( $\mu$ s)



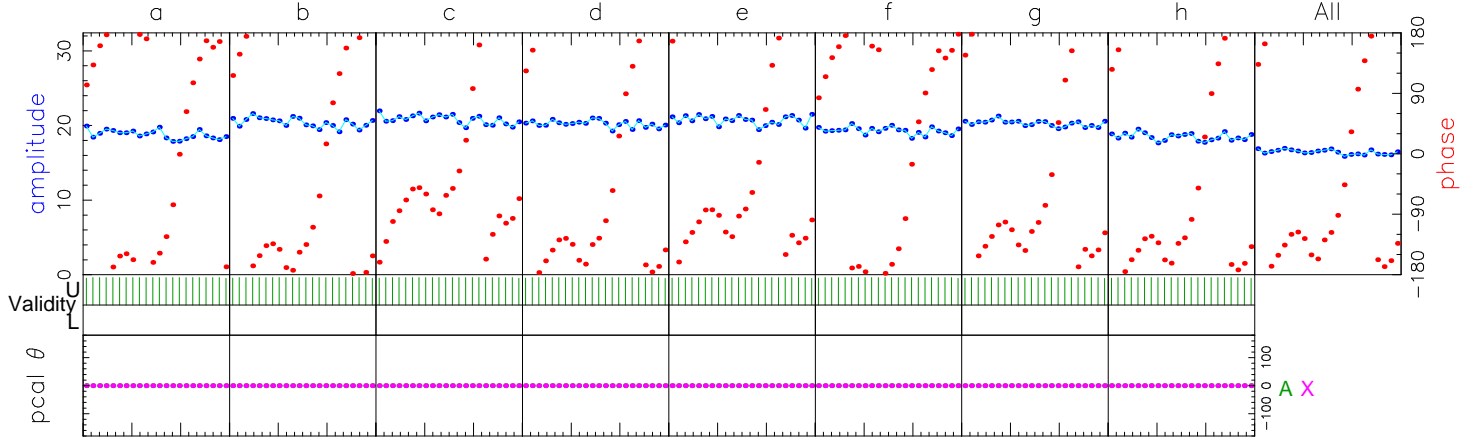
Fringe quality 3

SNR 396.4  
 Int time 179.835  
 Amp 10.808  
 Phase -39.4  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.044679  
 MBD -0.004522  
 Fringe rate (Hz)  
 -0.001112  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151740  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |     |
| A   | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| A:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| A:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| A   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| A   | Q00UX    | Q01UX    | Q02UX    | Q03UX    | Q04UX    | Q05UX    | Q06UX    | Q07UX    |            |     |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -6.98576516091E+03 | Apriori delay (usec)     | -6.98571376382E+03 | Resid mbdelay (usec) | -4.52209E-03 | +/- | 2.7E-06 |
| Sband delay (usec)       | -6.98575844307E+03 | Apriori clock (usec)     | -2.2203430E+03     | Resid sbdelay (usec) | -4.46793E-02 | +/- | 2.2E-05 |
| Phase delay (usec)       | -6.98571377359E+03 | Apriori clockrate (us/s) | -1.2274550E-06     | Resid phdelay (usec) | -9.77781E-06 | +/- | 1.9E-08 |
| Delay rate (us/s)        | 9.04972406562E-01  | Apriori rate (us/s)      | 9.04972432332E-01  | Resid rate (us/s)    | -2.57695E-08 | +/- | 1.8E-10 |
| Total phase (deg)        | -316.9             | Apriori accel (us/s/s)   | -5.87441543305E-05 | Resid phase (deg)    | -39.4        | +/- | 0.3     |

|              |      |     |                  |        |   |                              |                  |        |       |
|--------------|------|-----|------------------|--------|---|------------------------------|------------------|--------|-------|
| ph/seg (deg) | 59.4 | 0.7 | Search (1024X32) | 10.209 | Pcal mode: MANUAL, MANUAL                     | PC period (AP's) 5, 5        |                  |        |       |
| amp/seg (%)  | 52.2 | 1.2 | Interp.          | 0.000  | Pcal rate: 0.000E+00, 0.000E+00 (us/s)        | sb window (us)               | -1.000           | 1.000  |       |
| ph/frq (deg) | 40.1 | 0.4 | Inc. seg. avg.   | 16.441 | Bits/sample: 2x2                              | SampCntNorm: enabled         | mb window (us)   | -0.008 | 0.008 |
| amp/frq (%)  | 19.5 | 0.7 | Inc. frq. avg.   | 12.848 | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us | nlags: 256 t_cohere infinite | dr window (ns/s) | -0.023 | 0.023 |

A: az 14.3 el 27.9 pa -163.6 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -3294.582 -6084.506 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500//AX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500//AX.Q.34.3MP56K

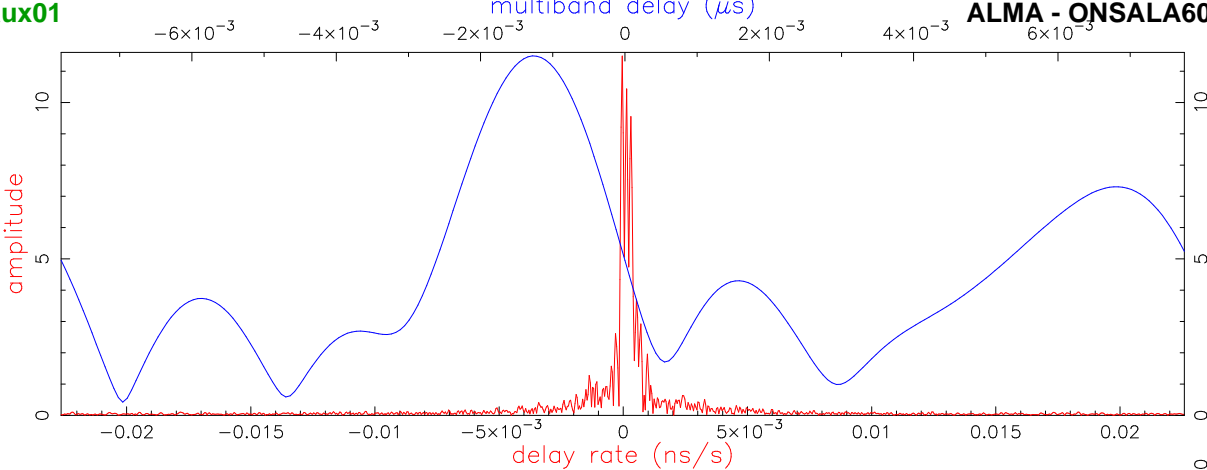
Mk4/DiFX fourfit 3.25 rev 0

aux01

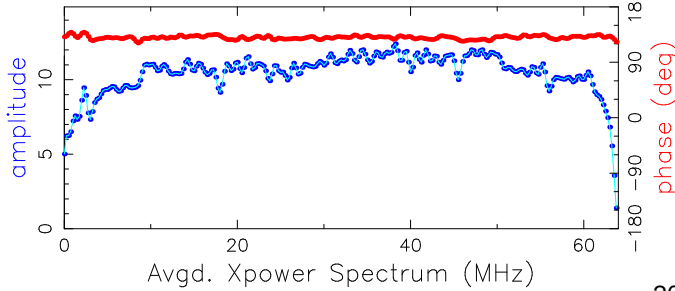
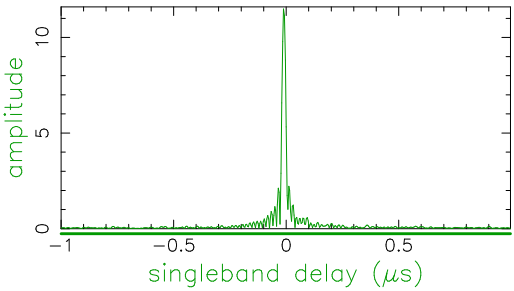
2013+370.3MP56K, No0500, AX

ALMA - ONSALA60, fgroup Q, pol YR

Fringe quality 2

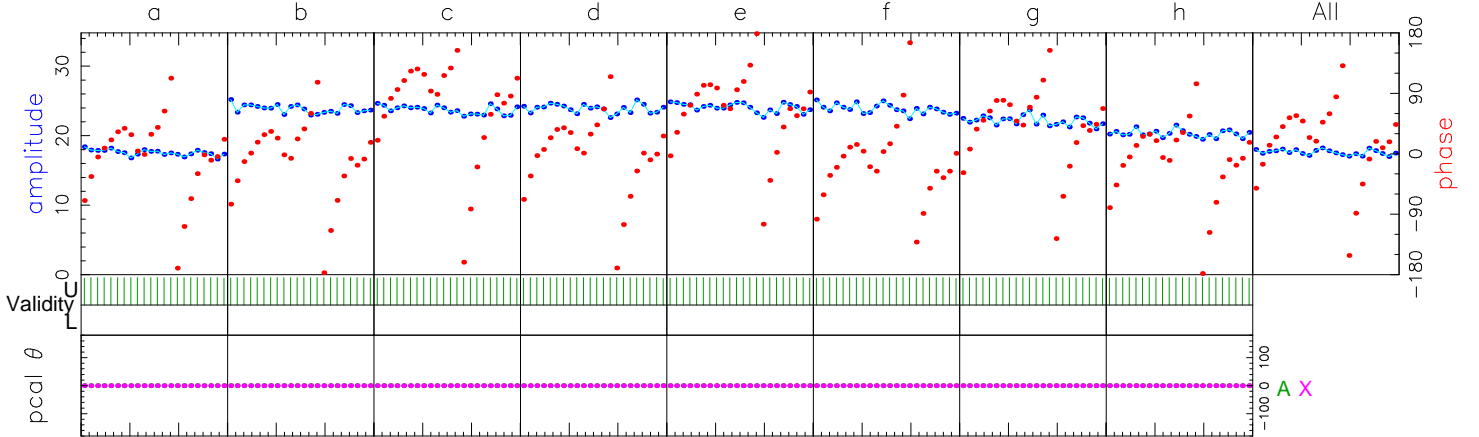


SNR 425.4  
 Int time 179.835  
 Amp 11.601  
 Phase -178.1  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.010428  
 MBD -0.001231  
 Fringe rate (Hz)  
 -0.001123  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151743  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All      |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|----------|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |          |
| A   | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        |            |          |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |          |
| A:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |          |
| A:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |          |
| A   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |          |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |          |
| A   | Q00UY    | Q01UY    | Q02UY    | Q03UY    | Q04UY    | Q05UY    | Q06UY    | Q07UY    |            | Chan ids |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    |            | Tracks   |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -6.98573061994E+03 | Apriori delay (usec)     | -6.98571376382E+03 | Resid mbdelay (usec) | -1.23112E-03 | +/- | 2.6E-06 |
| Sband delay (usec)       | -6.98572419132E+03 | Apriori clock (usec)     | -2.2203430E+03     | Resid sbdelay (usec) | -1.04275E-02 | +/- | 2.0E-05 |
| Phase delay (usec)       | -6.98571376225E+03 | Apriori clockrate (us/s) | -1.2274550E-06     | Resid phdelay (usec) | 1.57001E-06  | +/- | 1.7E-08 |
| Delay rate (us/s)        | 9.04972406291E-01  | Apriori rate (us/s)      | 9.04972432332E-01  | Resid rate (us/s)    | -2.60411E-08 | +/- | 1.7E-10 |
| Total phase (deg)        | -95.7              | Apriori accel (us/s/s)   | -5.87441543305E-05 | Resid phase (deg)    | -178.1       | +/- | 0.3     |

|              |      |     |                  |        |  |   |                  |        |       |
|--------------|------|-----|------------------|--------|--|---|------------------|--------|-------|
| ph/seg (deg) | 59.2 | 0.6 | Search (1024X32) | 10.866 | Pcal mode: MANUAL, MANUAL              | PC period (AP's) 5, 5                         | sb window (us)   | -1.000 | 1.000 |
| amp/seg (%)  | 52.0 | 1.1 | Interp.          | 0.000  | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | SampCntNorm: enabled                          | mb window (us)   | -0.008 | 0.008 |
| ph/frq (deg) | 44.2 | 0.4 | Inc. seg. avg.   | 17.619 | Bits/sample: 2x2                       | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us | dr window (ns/s) | -0.023 | 0.023 |
| amp/frq (%)  | 29.0 | 0.7 | Inc. frq. avg.   | 14.637 | Data rate(Mb/s): 2048                  | nlags: 256 t_cohere infinite                  | ion window (TEC) | 0.00   | 0.00  |

A: az 14.3 el 27.9 pa -163.6 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -3294.582 -6084.506 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500//AX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500//AX.Q.46.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

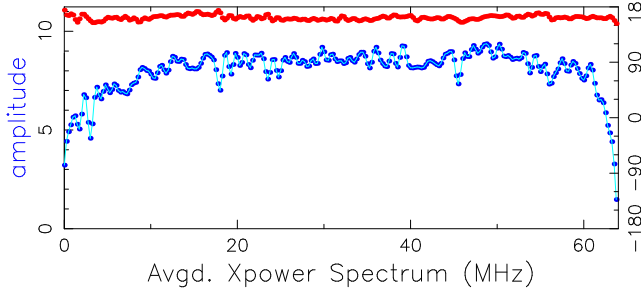
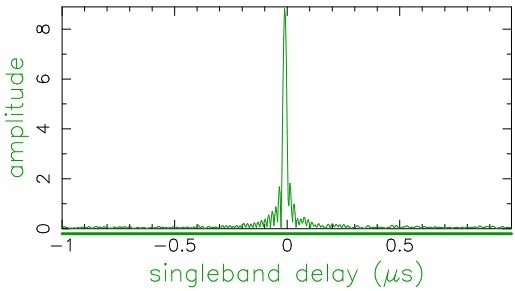
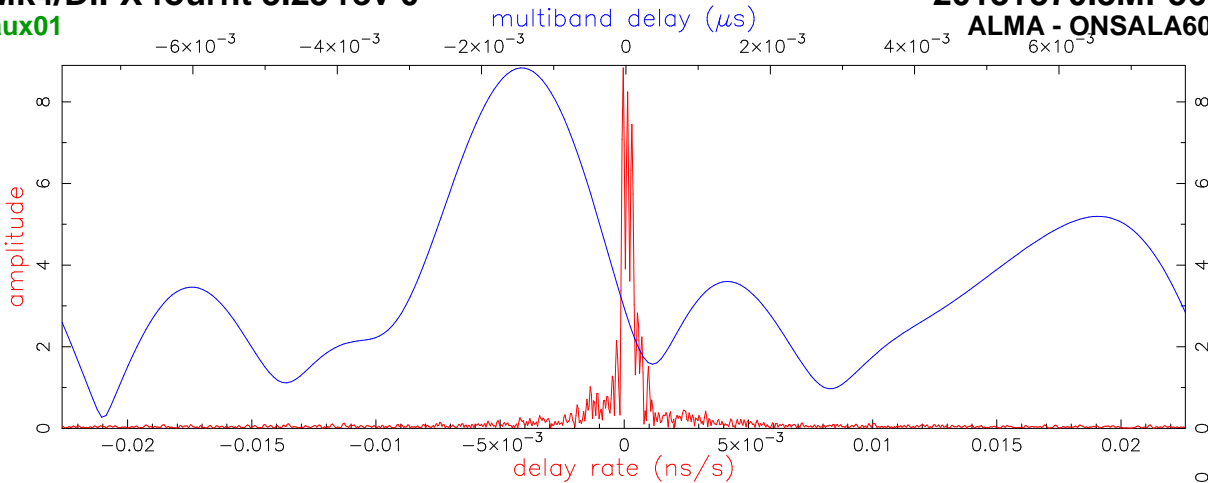
aux01

2013+370.3MP56K, No0500, AX

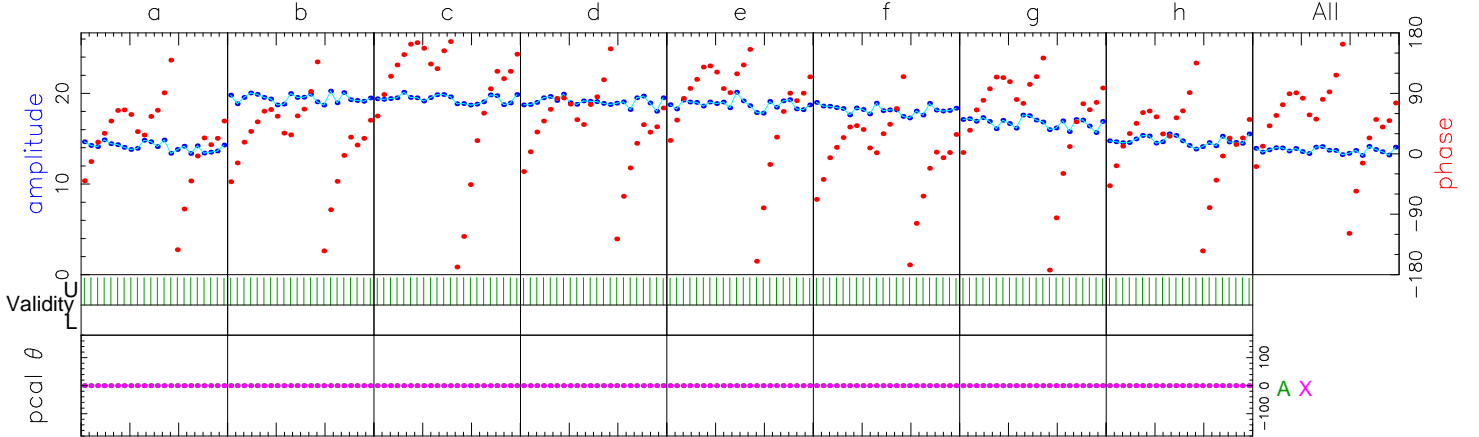
ALMA - ONSALA60, fgroup Q, pol XR

Fringe quality 2

SNR 326.2  
 Int time 179.835  
 Amp 8.894  
 Phase -145.9  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.010630  
 MBD -0.001414  
 Fringe rate (Hz)  
 -0.001093  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512  
 Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151746  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"



Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|                          | 42912.00           | 42976.00 | 43040.00                 | 43104.00 | 43168.00           | 43232.00 | 43296.00             | 43360.00 | Freq (MHz)   | All         |
|--------------------------|--------------------|----------|--------------------------|----------|--------------------|----------|----------------------|----------|--------------|-------------|
|                          | 31.1               | 31.0     | 130.7                    | 49.0     | 96.0               | 7.9      | 80.1                 | 29.3     | Phase        | 56.6        |
|                          | 9.1                | 12.5     | 12.6                     | 12.2     | 12.2               | 11.8     | 10.8                 | 9.6      | Ampl.        | 11.3        |
|                          | 255.3              | 254.2    | 254.0                    | 253.9    | 253.6              | 254.0    | 253.7                | 254.3    | Sbd box      | 254.3       |
| U/L                      | 352/0              | 352/0    | 352/0                    | 352/0    | 352/0              | 352/0    | 352/0                | 352/0    | APs used     |             |
| A                        | 0                  | 0        | 0                        | 0        | 0                  | 0        | 0                    | 0        | PC freqs     |             |
| X                        | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | PC freqs     |             |
| A:X                      | 0:0                | 0:0      | 0:0                      | 0:0      | 0:0                | 0:0      | 0:0                  | 0:0      | PC phase     |             |
| A:X                      | 0:0                | 0:0      | 0:0                      | 0:0      | 0:0                | 0:0      | 0:0                  | 0:0      | Manl PC      |             |
| A                        | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | PC amp       |             |
| X                        | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | PC amp       |             |
| A                        | Q00UX              | Q01UX    | Q02UX                    | Q03UX    | Q04UX              | Q05UX    | Q06UX                | Q07UX    | Chan ids     |             |
| X                        | Q00UR              | Q01UR    | Q02UR                    | Q03UR    | Q04UR              | Q05UR    | Q06UR                | Q07UR    | Tracks       |             |
|                          |                    |          |                          |          |                    |          |                      |          | Tracks       |             |
| Group delay (usec) (SBD) | -6.98573080332E+03 |          | Apriori delay (usec)     |          | -6.98571376382E+03 |          | Resid mbdelay (usec) |          | -1.41450E-03 | +/- 3.3E-06 |
| Sband delay (usec)       | -6.98572439407E+03 |          | Apriori clock (usec)     |          | -2.2203430E+03     |          | Resid sbdelay (usec) |          | -1.06302E-02 | +/- 2.6E-05 |
| Phase delay (usec)       | -6.98571376017E+03 |          | Apriori clockrate (us/s) |          | -1.2274550E-06     |          | Resid phdelay (usec) |          | 3.64190E-06  | +/- 2.3E-08 |
| Delay rate (us/s)        | 9.04972407004E-01  |          | Apriori rate (us/s)      |          | 9.04972432332E-01  |          | Resid rate (us/s)    |          | -2.53280E-08 | +/- 2.2E-10 |
| Total phase (deg)        |                    |          | Apriori accel (us/s/s)   |          | -5.87441543305E-05 |          | Resid phase (deg)    |          | -145.9       | +/- 0.4     |

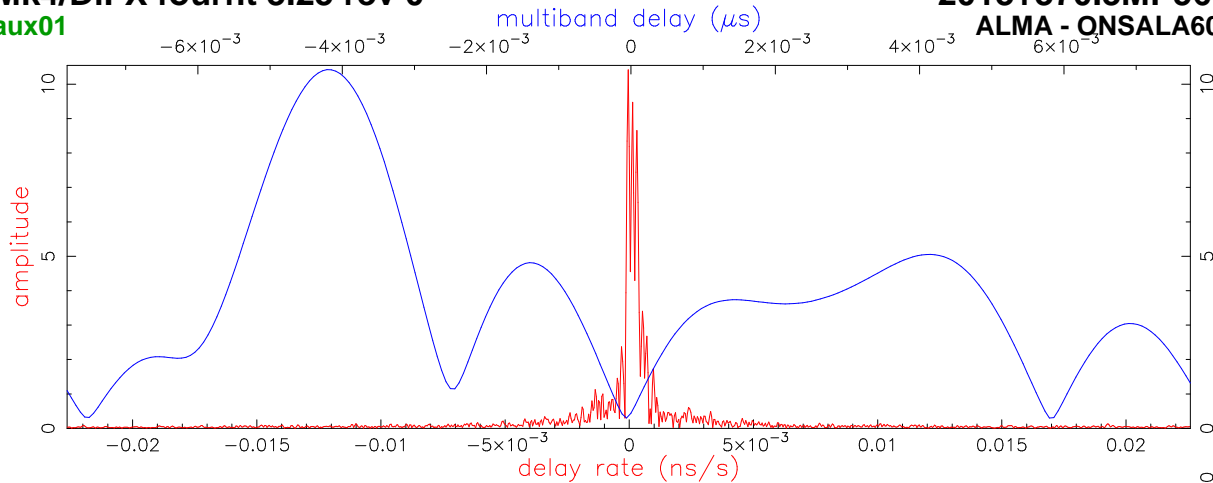
ph/seg (deg) 59.6 0.8 Theor. Amplitude 8.894 +/- 0.027 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 54.3 1.4 Search (1024X32) 8.479 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 44.9 0.5 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 amp/frq (%) 31.0 0.9 Inc. seg. avg. 13.709 Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us dr window (ns/s) -0.023 0.023  
 Inc. frq. avg. 11.342 Data rate(Mb/s): 2048 nlags: 256 t\_cohere infinite ion window (TEC) 0.00 0.00  
 A: az 14.3 el 27.9 pa -163.6 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -3294.582 -6084.506 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500//AX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500//AX.Q.63.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

aux01

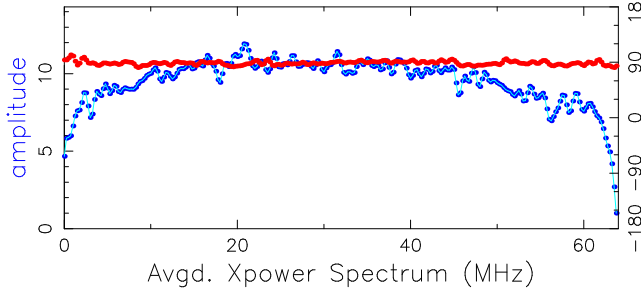
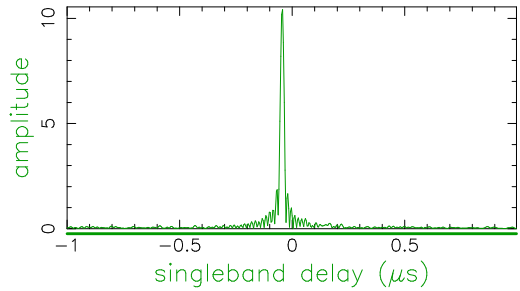
2013+370.3MP56K, No0500, AX

ALMA - ONSALA60, fgroup Q, pol YL



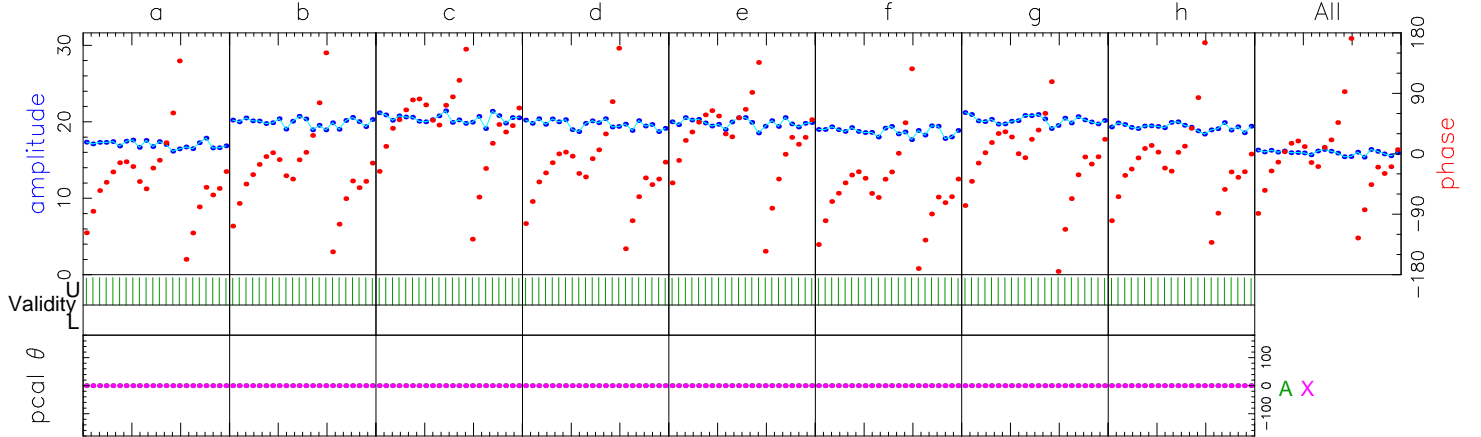
Fringe quality 2

SNR 386.7  
 Int time 179.835  
 Amp 10.546  
 Phase -261.2  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.044422  
 MBD -0.004228  
 Fringe rate (Hz)  
 -0.001146  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151748  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All   |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-------|
|     | -44.2    | -33.1    | 49.0     | -30.0    | 30.7     | -59.3    | -0.1     | -21.4    | Phase      | -13.7 |
|     | 11.1     | 12.9     | 13.3     | 12.8     | 13.0     | 12.3     | 13.2     | 12.7     | Ampl.      | 12.6  |
|     | 247.2    | 245.2    | 245.4    | 245.1    | 245.0    | 244.9    | 245.1    | 245.8    | Sbd box    | 245.6 |
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | APs used   |       |
| A   | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | PC freqs   |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| A:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |       |
| A:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Manl PC    |       |
| A   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |       |
| A   | Q00UY    | Q01UY    | Q02UY    | Q03UY    | Q04UY    | Q05UY    | Q06UY    | Q07UY    | Chan ids   |       |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Tracks     |       |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -6.98576486657E+03 | Apriori delay (usec)     | -6.98571376382E+03 | Resid mbdelay (usec) | -4.22775E-03 | +/- | 2.8E-06 |
| Sband delay (usec)       | -6.98575818557E+03 | Apriori clock (usec)     | -2.2203430E+03     | Resid sbdelay (usec) | -4.44218E-02 | +/- | 2.2E-05 |
| Phase delay (usec)       | -6.98571376470E+03 | Apriori clockrate (us/s) | -1.2274550E-06     | Resid phdelay (usec) | -8.83757E-07 | +/- | 1.9E-08 |
| Delay rate (us/s)        | 9.04972405756E-01  | Apriori rate (us/s)      | 9.04972432332E-01  | Resid rate (us/s)    | -2.65759E-08 | +/- | 1.8E-10 |
| Total phase (deg)        | -178.8             | Apriori accel (us/s/s)   | -5.87441543305E-05 | Resid phase (deg)    | -261.2       | +/- | 0.3     |

|              |      |     |                  |        |   |                              |                  |        |       |
|--------------|------|-----|------------------|--------|---|------------------------------|------------------|--------|-------|
| ph/seg (deg) | 59.0 | 0.7 | Search (1024X32) | 9.856  | Pcal mode: MANUAL, MANUAL                     | PC period (AP's) 5, 5        | sb window (us)   | -1.000 | 1.000 |
| amp/seg (%)  | 51.4 | 1.2 | Interp.          | 0.000  | Pcal rate: 0.000E+00, 0.000E+00 (us/s)        |                              | mb window (us)   | -0.008 | 0.008 |
| ph/frq (deg) | 40.4 | 0.4 | Inc. seg. avg.   | 15.960 | Bits/sample: 2x2                              | SampCntNorm: enabled         | dr window (ns/s) | -0.023 | 0.023 |
| amp/frq (%)  | 20.8 | 0.7 | Inc. frq. avg.   | 12.646 | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us |                              | ion window (TEC) | 0.00   | 0.00  |
|              |      |     |                  |        | Data rate(Mb/s): 2048                         | nlags: 256 t_cohere infinite |                  |        |       |

A: az 14.3 el 27.9 pa -163.6 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -3294.582 -6084.506 simultaneous interpolator

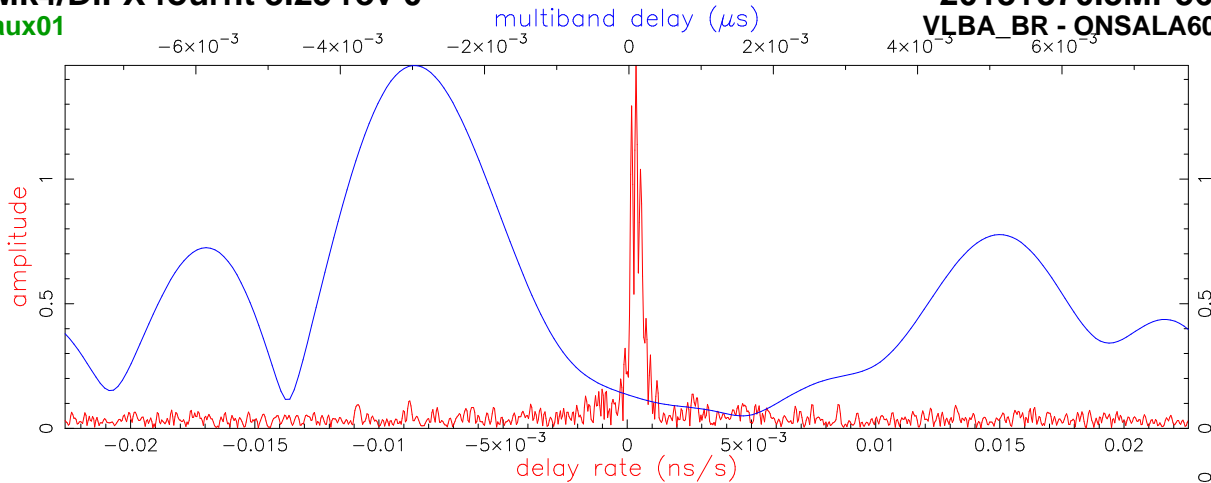
Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500//AX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500//AX.Q.77.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

aux01

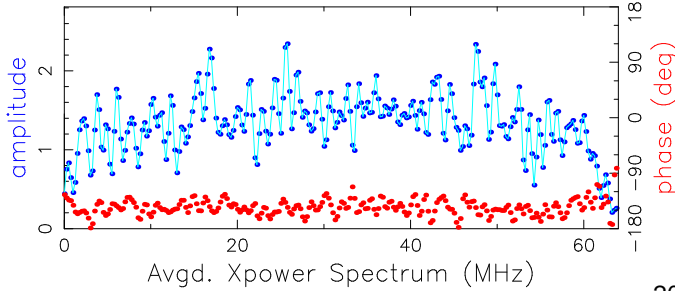
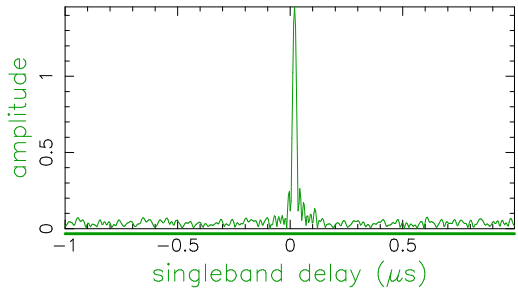
2013+370.3MP56K, No0500, bX

VLBA\_BR - ONSALA60, fgroup Q, pol RL



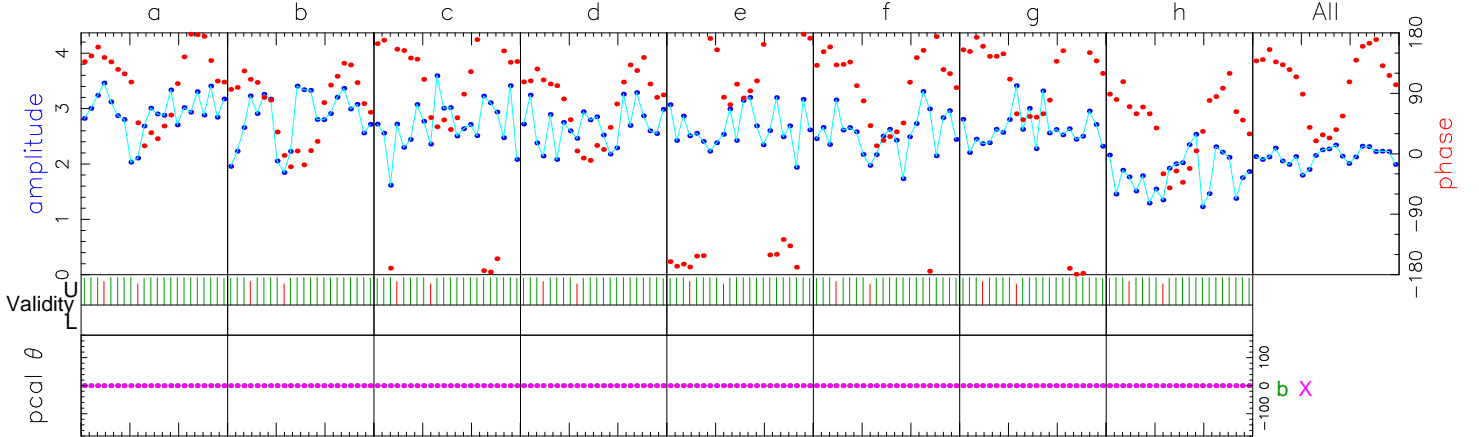
Fringe quality 2

SNR 52.9  
 Int time 176.509  
 Amp 1.456  
 Phase 313.6  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.019320  
 MBD -0.002977  
 Fringe rate (Hz)  
 0.014534  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151755  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|        | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All   |
|--------|----------|----------|----------|----------|----------|----------|----------|----------|------------|-------|
| U/L    | 117.6    | 75.4     | 133.1    | 82.8     | 170.4    | 114.5    | 128.9    | 47.8     | Phase      | 111.1 |
| b      | 2.0      | 1.9      | 1.7      | 1.9      | 1.8      | 1.7      | 1.9      | 1.2      | Ampl.      | 1.7   |
| X      | 261.8    | 261.6    | 261.6    | 261.6    | 261.5    | 261.6    | 261.3    | 260.1    | Sbd box    | 261.9 |
| b:1000 | 348/0    | 348/0    | 348/0    | 348/0    | 348/0    | 348/0    | 348/0    | 348/0    | APs used   |       |
| b:1000 | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| b:X    | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC freqs   |       |
| b:X    | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |       |
| b:1000 | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | Mani PC    |       |
| X:1000 | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| b      | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Chan ids   |       |
| X      | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Tracks     |       |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -1.01370220146E+03 | Apriori delay (usec)     | -1.01371484986E+03 | Resid mbdelay (usec) | -2.97660E-03 | +/- | 2.1E-05 |
| Sband delay (usec)       | -1.01369552961E+03 | Apriori clock (usec)     | -1.0829798E+02     | Resid sbdelay (usec) | 1.93202E-02  | +/- | 1.6E-04 |
| Phase delay (usec)       | -1.01371484271E+03 | Apriori clockrate (us/s) | -6.4018213E-07     | Resid phdelay (usec) | 7.15234E-06  | +/- | 1.4E-07 |
| Delay rate (us/s)        | 1.36294557002E+00  | Apriori rate (us/s)      | 1.36294523312E+00  | Resid rate (us/s)    | 3.36896E-07  | +/- | 1.4E-09 |
| Total phase (deg)        | 89.3               | Apriori accel (us/s/s)   | -1.87442985329E-06 | Resid phase (deg)    | 313.6        | +/- | 2.2     |

|              |      |        |     |                  |                 |   |                               |
|--------------|------|--------|-----|------------------|-----------------|---|-------------------------------|
| ph/seg (deg) | 48.5 | Theor. | 5.1 | Amplitude        | 1.456 +/- 0.028 | Pcal mode: MANUAL, MANUAL                     | PC period (AP's) 5, 5         |
| amp/seg (%)  | 48.2 |        | 8.8 | Search (1024X32) | 1.396           | Pcal rate: 0.000E+00, 0.000E+00 (us/s)        | sb window (us) -1.000 1.000   |
| ph/frq (deg) | 41.7 |        | 3.1 | Inc. seg. avg.   | 2.135           | Bits/sample: 2x2                              | SampCntNorm: enabled          |
| amp/frq (%)  | 25.5 |        | 5.3 | Inc. frq. avg.   | 1.743           | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us | dr window (ns/s) -0.023 0.023 |
|              |      |        |     |                  |                 | Data rate(Mb/s): 2048                         | nlags: 256 t_cohere infinite  |
|              |      |        |     |                  |                 |   | ion window (TEC) 0.00 0.00    |

b: az 76.2 el 40.6 pa -54.6 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -4912.227 -370.316 simultaneous interpolator

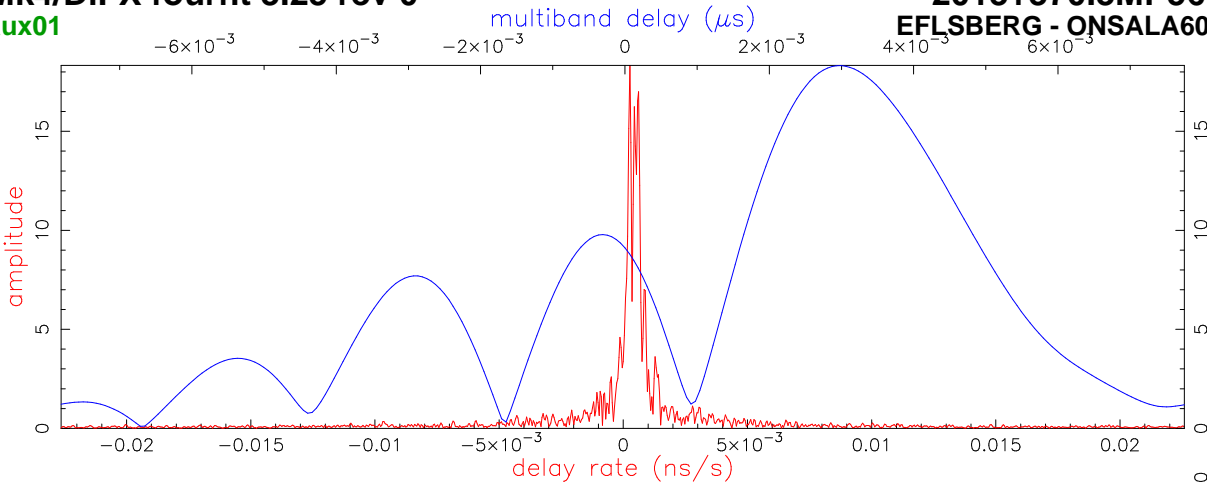
Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/bX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/bX.Q.110.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

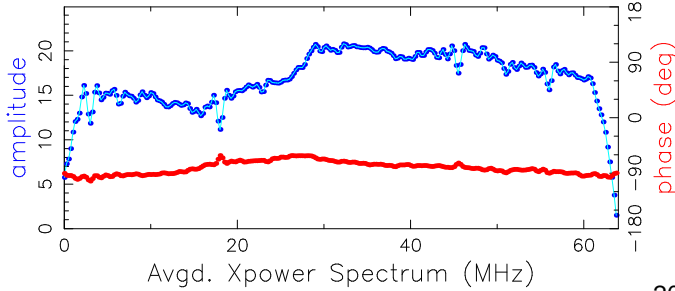
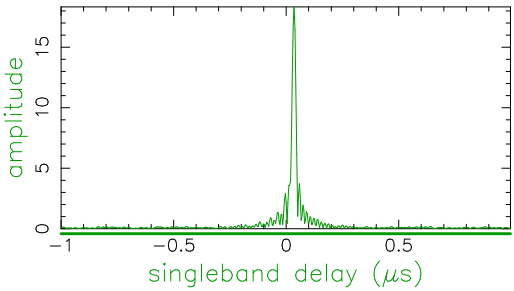
aux01

2013+370.3MP56K, No0500, BX

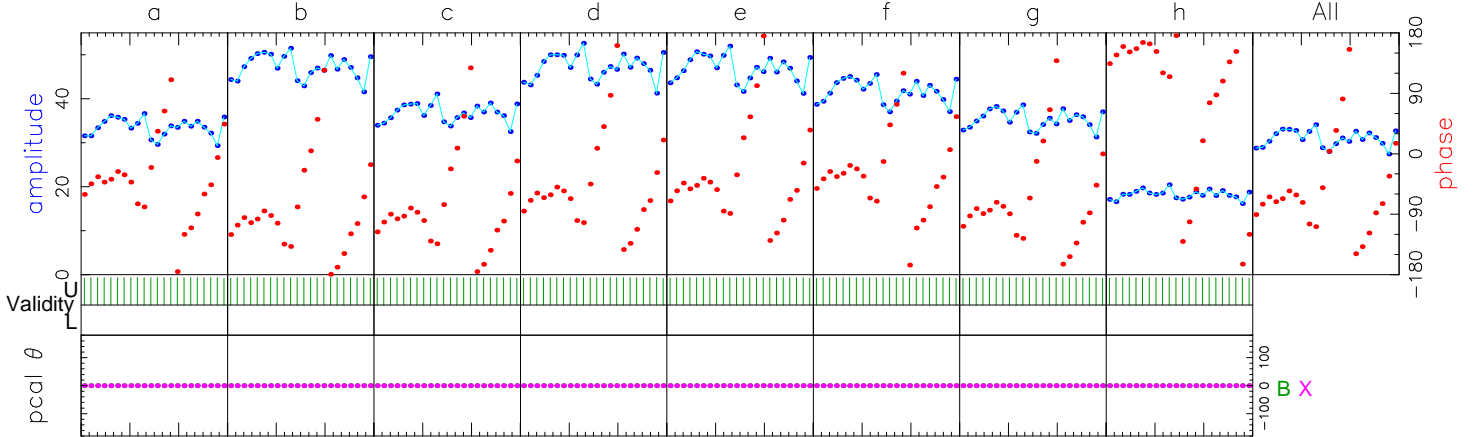
EFLSBERG - ONSALA60, fgroup Q, pol RR



Fringe quality 2  
 Error code G  
 SNR 672.2  
 Int time 179.835  
 Amp 18.331  
 Phase 331.5  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.034836  
 MBD 0.002967  
 Fringe rate (Hz)  
 0.011163  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512  
 Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151756  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"



Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec

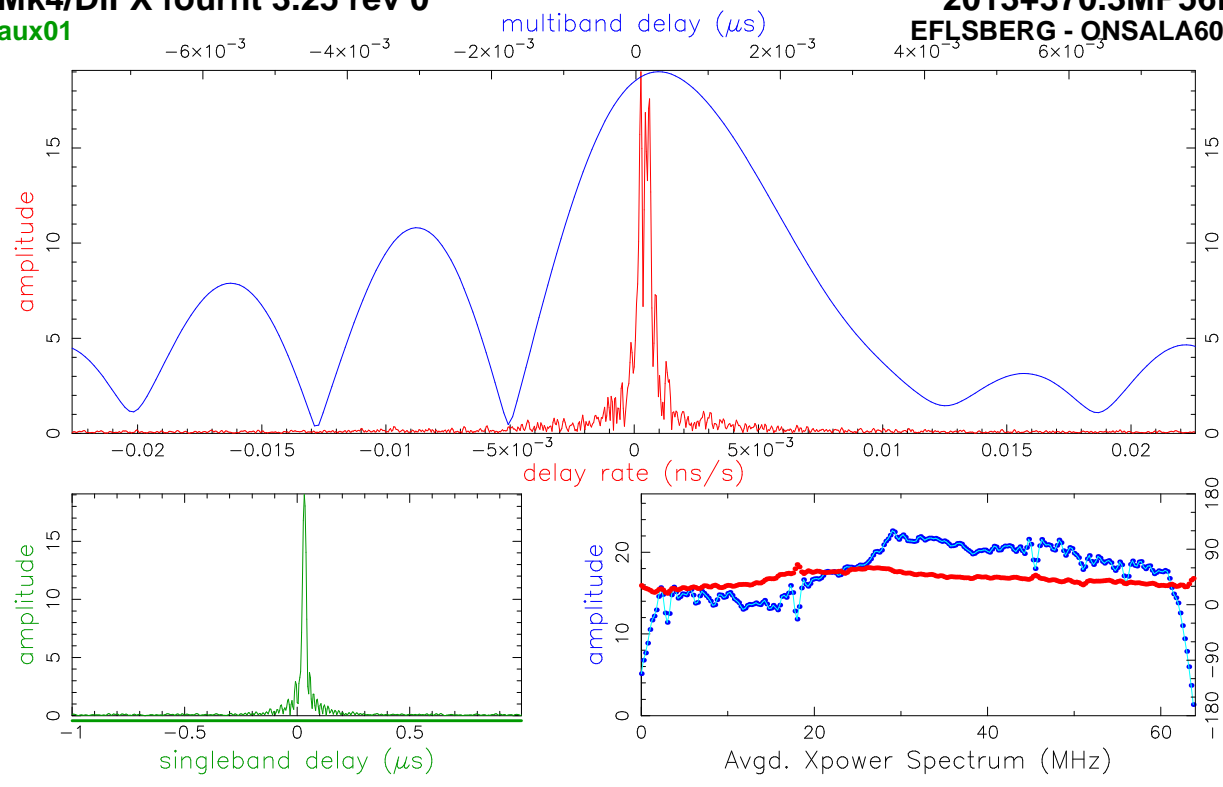


|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All   |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-------|
|     | -44.4    | -103.8   | -99.3    | -68.2    | -54.2    | -35.0    | -89.8    | 150.9    | Phase      | -73.5 |
|     | 19.8     | 27.9     | 21.7     | 27.9     | 27.8     | 24.7     | 20.8     | 10.7     | Ampl.      | 22.7  |
|     | 263.2    | 265.4    | 266.1    | 266.0    | 266.1    | 266.1    | 264.5    | 260.6    | Sbd box    | 265.9 |
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | APs used   |       |
| B   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| B:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |       |
| B:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Manl PC    |       |
| B   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| B   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Chan ids   |       |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Tracks     |       |

Group delay (usec) (SBD) 4.95293974830E+02 Apriori delay (usec) 4.95259757898E+02 Resid mbdelay (usec) 2.96693E-03 +/- 1.6E-06  
 Sband delay (usec) 4.95294594148E+02 Apriori clock (usec) -1.4831381E+02 Resid sbdelay (usec) 3.48363E-02 +/- 1.3E-05  
 Phase delay (usec) 4.95259753163E+02 Apriori clockrate (us/s) -1.4061621E-02 Resid phdelay (usec) -4.73479E-06 +/- 1.1E-08  
 Delay rate (us/s) -7.48360844099E-02 Apriori rate (us/s) -7.48363431656E-02 Resid rate (us/s) 2.58756E-07 +/- 1.1E-10  
 Total phase (deg) 315.5 Apriori accel (us/s/s) -8.24726393256E-06 Resid phase (deg) 331.5 +/- 0.2

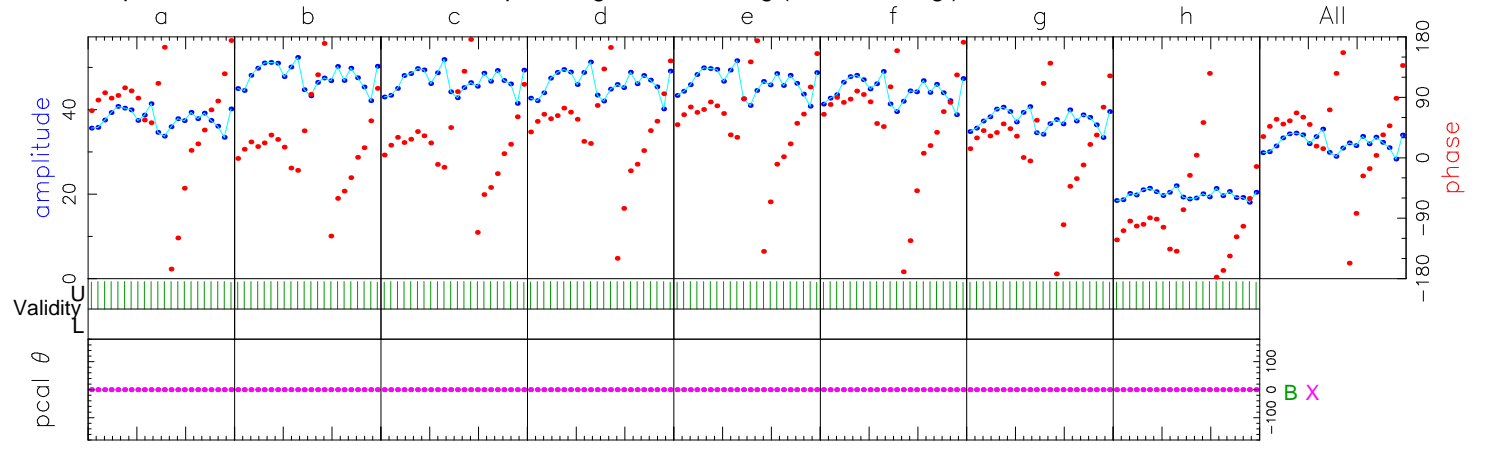
RMS Theor. Amplitude 18.331 +/- 0.027 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 61.8 0.4 Search (1024X32) 18.200 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 amp/seg (%) 69.7 0.7 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 ph/frq (deg) 61.9 0.2 Inc. seg. avg. 30.976 Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us dr window (ns/s) -0.023 0.023  
 amp/frq (%) 38.1 0.4 Inc. frq. avg. 22.655 Data rate(Mb/s): 2048 nlags: 256 t\_cohere infinite ion window (TEC) 0.00 0.00

B: az 275.5 el 46.9 pa 52.6 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) 265.748 -497.945 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/BX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/BX.Q.117.3MP56K



Fringe quality 2  
Error code G  
SNR 699.6  
Int time 179.835  
Amp 19.079  
Phase 93.2  
PFD 0.0e+00  
Delays (us)  
SBD 0.032053  
MBD 0.000325  
Fringe rate (Hz)  
0.011162  
Ion TEC 0.000  
Ref freq (MHz)  
43140.0000  
AP (sec) 0.512  
Exp. c241d  
Exper # 1234  
Yr:day 2024:113  
Start 094000.00  
Stop 094300.22  
FRT 094130.00  
Corr/FF/build  
2024:332:222845  
2025:042:151806  
2024:113:095956  
RA & Dec (J2000)  
20h15m28.729786s  
+37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|                             | 42912.00  | 42976.00 | 43040.00  | 43104.00 | 43168.00           | 43232.00 | 43296.00                                      | 43360.00 | Freq (MHz)                | All               |                  |           |
|-----------------------------|---|----------|---|----------|--------------------|----------|---|----------|---------------------------|-------------------|------------------|-----------|
| U/L                         | 352/0   | 352/0    | 352/0   | 352/0    | 352/0              | 352/0    | 352/0   | 352/0    |                           |                   |                  |           |
| B                           | 1000  | 1000     | 1000  | 1000     | 1000               | 1000     | 1000  | 1000     | APs used                  |                   |                  |           |
| X                           | 1000  | 1000     | 1000  | 1000     | 1000               | 1000     | 1000  | 1000     | PC freqs                  |                   |                  |           |
| B:X                         | 0:0   | 0:0      | 0:0   | 0:0      | 0:0                | 0:0      | 0:0   | 0:0      | PC phase                  |                   |                  |           |
| B:X                         | 0:0   | 0:0      | 0:0   | 0:0      | 0:0                | 0:0      | 0:0   | 0:0      | Mani PC                   |                   |                  |           |
| B                           | 1000  | 1000     | 1000  | 1000     | 1000               | 1000     | 1000  | 1000     | PC amp                    |                   |                  |           |
| X                           | 1000  | 1000     | 1000  | 1000     | 1000               | 1000     | 1000  | 1000     |                           |                   |                  |           |
| B                           | Q00UL   | Q01UL    | Q02UL   | Q03UL    | Q04UL              | Q05UL    | Q06UL   | Q07UL    | Chan ids                  |                   |                  |           |
| X                           | Q00UR   | Q01UR    | Q02UR   | Q03UR    | Q04UR              | Q05UR    | Q06UR   | Q07UR    | Tracks                    |                   |                  |           |
|                             |   |          |   |          |                    |          |   |          | Tracks                    |                   |                  |           |
| Group delay (usec) (SBD)    | 4.95291333392E+02                                     |          | Apriori delay (usec)  |          | 4.95259757898E+02  |          | Resid mbdelay (usec)                          |          | 3.25495E-04               | +/- 1.6E-06       |                  |           |
| Sband delay (usec)          | 4.95291810898E+02                                     |          | Apriori clock (usec)  |          | -1.4831381E+02     |          | Resid sbdelay (usec)                          |          | 3.20530E-02               | +/- 1.2E-05       |                  |           |
| Phase delay (usec)          | 4.95259761002E+02                                     |          | Apriori clockrate (us/s)                                    |          | -1.4061621E-06     |          | Resid phdelay (usec)                          |          | 3.10413E-06               | +/- 1.1E-08       |                  |           |
| Delay rate (us/s)           | -7.48360844325E-02                                    |          | Apriori rate (us/s)   |          | -7.48363431656E-02 |          | Resid rate (us/s)                             |          | 2.58733E-07               | +/- 1.0E-10       |                  |           |
| Total phase (deg)           |   |          | Apriori accel (us/s/s)                                      |          | -8.24726393256E-06 |          | Resid phase (deg)                             |          | 93.2                      | +/- 0.2           |                  |           |
| RMS                         | 61.8  | 0.4      | Amplitude   |          | 19.079 +/- 0.027   |          | Pcal mode: MANUAL, MANUAL                     |          | PC period (AP's) 5, 5     |                   |                  |           |
| amp/seg (%)                 | 69.0  | 0.7      | Search (1024X32)  |          | 18.732             |          | Pcal rate: 0.000E+00, 0.000E+00 (us/s)        |          | sb window (us)            | -1.000 1.000      |                  |           |
| ph/frq (deg)                | 68.4  | 0.2      | Interp.   |          | 0.000              |          | Bits/sample: 2x2                              |          | SampCntNorm: enabled      | mb window (us)    | -0.008 0.008     |           |
| amp/frq (%)                 | 38.1  | 0.4      | Inc. seg. avg.  |          | 32.113             |          | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us |          | dr window (ns/s)          | -0.023 0.023      |                  |           |
|                             |   |          | Inc. frq. avg.  |          | 24.147             |          | Data rate(Mb/s): 2048                         |          | nlags: 256                | t_cohere infinite | ion window (TEC) | 0.00 0.00 |
| B: az 275.5 el 46.9 pa 52.6 | X: az 272.4 el 44.4 pa 42.5                           |          | u,v (fr/asec)   |          | 265.748 -497.945   |          |   |          | simultaneous interpolator |                   |                  |           |
| Control file: cf_1234_gmva  | Input file: /Exps/c241d/v1/7mm/1234/No0500/BX..3MP56K |          | Output file: /Exps/c241d/v1/7mm/1234/No0500/BX.Q.164.3MP56K |          |                    |          |   |          |                           |                   |                  |           |

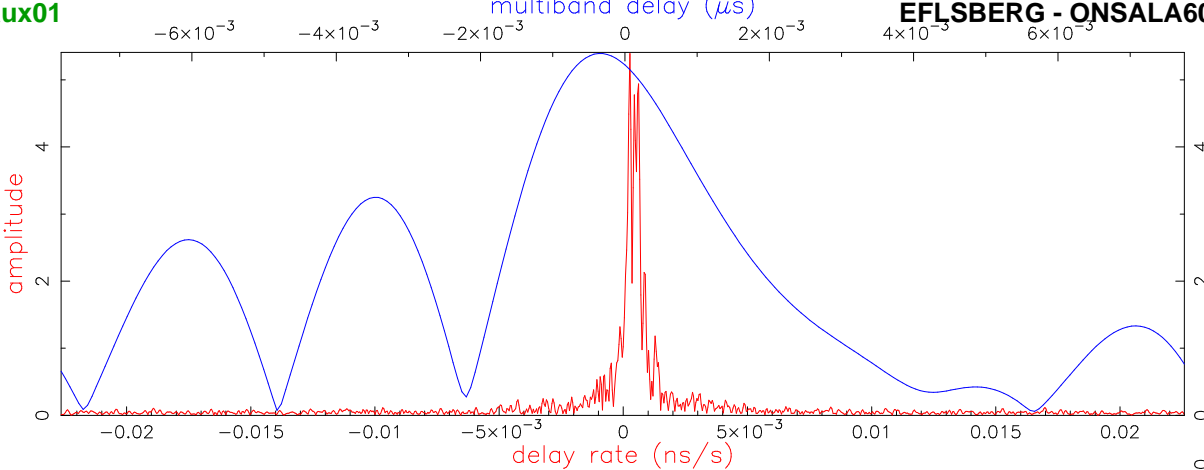
Mk4/DiFX fourfit 3.25 rev 0

aux01

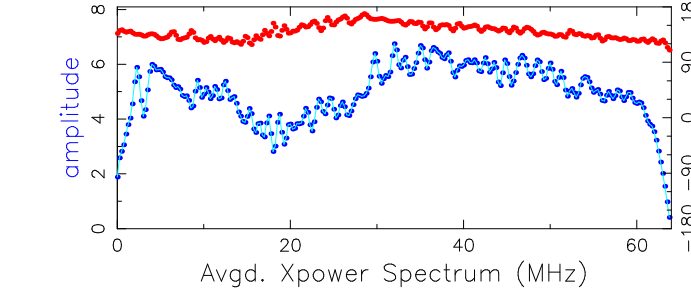
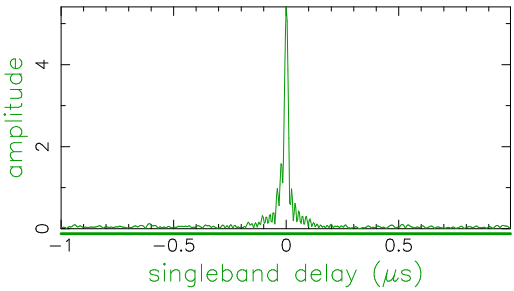
2013+370.3MP56K, No0500, BX

EFLSBERG - ONSALA60, fgroup Q, pol RL

Fringe quality 2

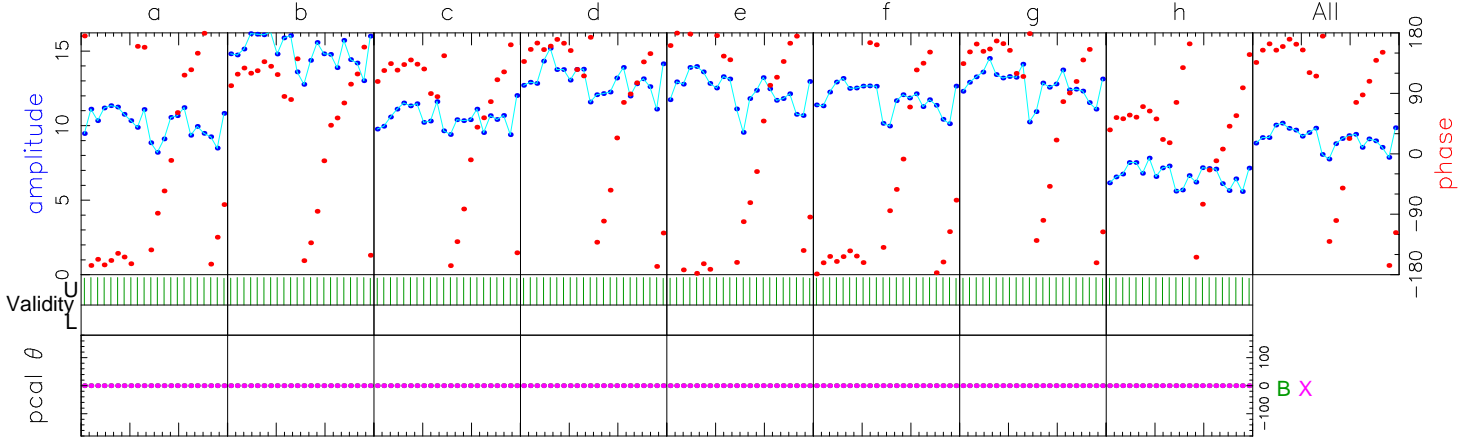


SNR 198.3  
 Int time 179.835  
 Amp 5.408  
 Phase 152.4  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.000683  
 MBD -0.000322  
 Fringe rate (Hz)  
 0.011122  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151808  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All   |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-------|
|     | -166.8   | 118.1    | 123.8    | 152.9    | 176.5    | -161.9   | 151.8    | 51.5     | Phase      | 152.4 |
|     | 5.9      | 8.8      | 6.2      | 7.8      | 7.3      | 6.9      | 7.4      | 3.9      | Ampl.      | 6.8   |
|     | 254.2    | 256.5    | 257.5    | 257.1    | 257.5    | 256.9    | 255.9    | 252.0    | Sbd box    | 257.2 |
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | APs used   |       |
| B   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| B:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |       |
| B:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Manl PC    |       |
| B   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| B   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Chan ids   |       |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Tracks     |       |

Group delay (usec) (SBD) 4.95259436080E+02 Apriori delay (usec) 4.95259757898E+02 Resid mbdelay (usec) -3.21818E-04 +/- 5.5E-06  
 Sband delay (usec) 4.95260440648E+02 Apriori clock (usec) -1.4831381E+02 Resid sbdelay (usec) 6.82750E-04 +/- 4.3E-05  
 Phase delay (usec) 4.95259767713E+02 Apriori clockrate (us/s) -1.4061621E-06 Resid phdelay (usec) 9.81530E-06 +/- 3.7E-08  
 Delay rate (us/s) -7.48360853578E-02 Apriori rate (us/s) -7.48363431656E-02 Resid rate (us/s) 2.57808E-07 +/- 3.6E-10  
 Total phase (deg) 136.5 Apriori accel (us/s/s) -8.24726393256E-06 Resid phase (deg) 152.4 +/- 0.6

RMS Theor. Amplitude 5.408 +/- 0.027 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 62.1 1.4 Search (1024X32) 5.327 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 amp/seg (%) 70.0 2.4 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 ph/frq (deg) 52.5 0.8 Inc. seg. avg. 9.135 Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us dr window (ns/s) -0.023 0.023  
 amp/frq (%) 36.0 1.4 Inc. frq. avg. 6.774 Data rate(Mb/s): 2048 nlags: 256 t\_cohere infinite ion window (TEC) 0.00 0.00

B: az 275.5 el 46.9 pa 52.6 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) 265.748 -497.945 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/BX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/BX.Q.176.3MP56K

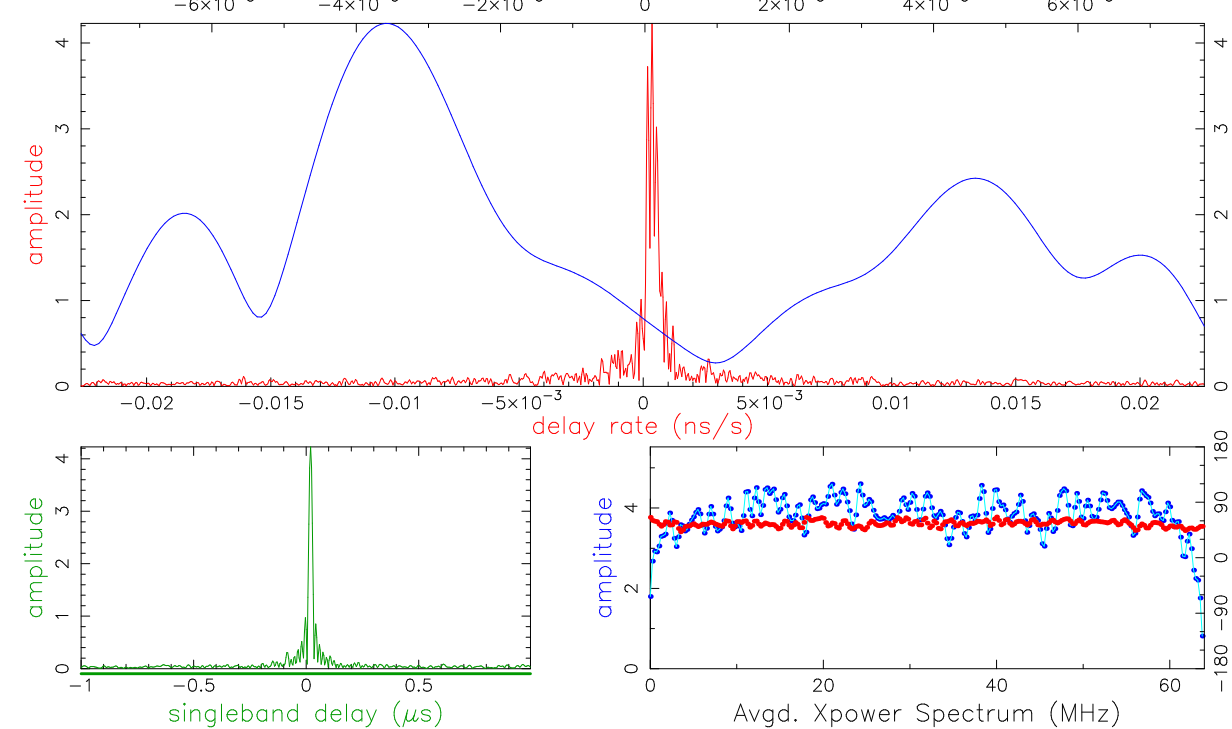


Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, bX

VLBA\_BR - QNSALA60, fgroup Q, pol LL

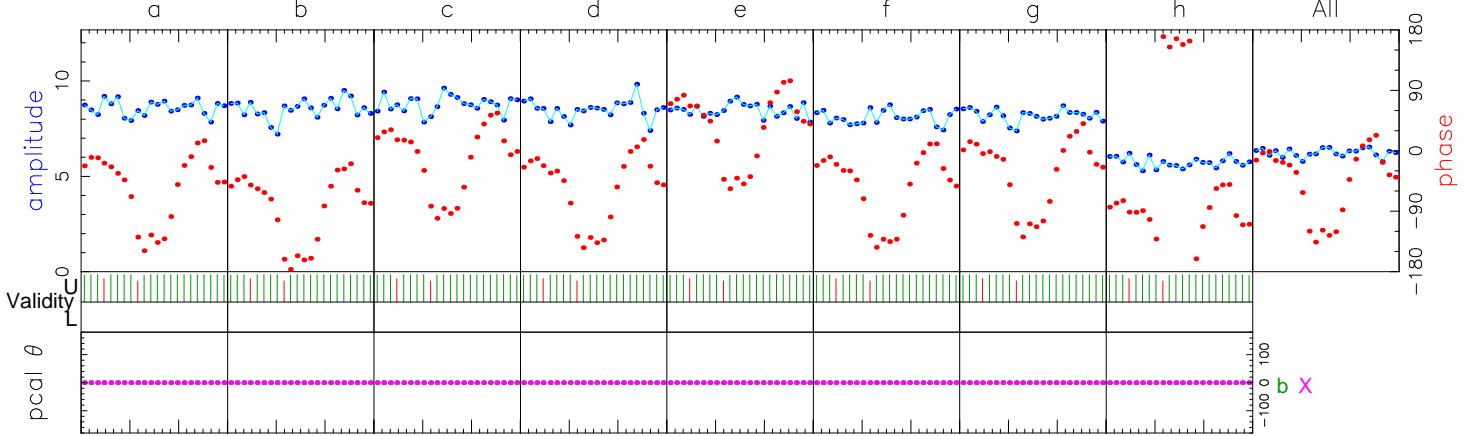


Fringe quality 2

SNR 153.6  
 Int time 176.509  
 Amp 4.227  
 Phase 164.3  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.019537  
 MBD -0.003581  
 Fringe rate (Hz) 0.014500  
 Ion TEC 0.000  
 Ref freq (MHz) 43140.0000  
 AP (sec) 0.512

Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151746  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All   |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-------|
|     | -46.9    | -77.6    | -5.7     | -48.4    | 40.5     | -48.0    | -23.0    | -109.4   | Phase      | -38.2 |
|     | 5.8      | 5.7      | 6.0      | 5.7      | 5.6      | 5.4      | 5.5      | 3.9      | Ampl.      | 5.4   |
|     | 261.9    | 262.0    | 261.7    | 261.3    | 261.1    | 261.0    | 261.3    | 259.6    | Sbd box    | 262.0 |
| U/L | 348/0    | 348/0    | 348/0    | 348/0    | 348/0    | 348/0    | 348/0    | 348/0    | APs used   |       |
| b   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| b:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |       |
| b:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Mani PC    |       |
| b   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |       |
| b   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Chan ids   |       |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Tracks     |       |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -1.01370280599E+03 | Apriori delay (usec)     | -1.01371484986E+03 | Resid mbdelay (usec) | -3.58113E-03 | +/- | 7.1E-06 |
| Sband delay (usec)       | -1.01369531261E+03 | Apriori clock (usec)     | -1.0829798E-02     | Resid sbdelay (usec) | 1.95372E-02  | +/- | 5.6E-05 |
| Phase delay (usec)       | -1.01371485232E+03 | Apriori clockrate (us/s) | -6.4018213E-07     | Resid phdelay (usec) | -2.46249E-06 | +/- | 4.8E-08 |
| Delay rate (us/s)        | 1.36294556923E+00  | Apriori rate (us/s)      | 1.36294523312E+00  | Resid rate (us/s)    | 3.36109E-07  | +/- | 4.7E-10 |
| Total phase (deg)        | -60.0              | Apriori accel (us/s/s)   | -1.87442985329E-06 | Resid phase (deg)    | 164.3        | +/- | 0.7     |

|              |      |     |                  |       |   |                              |                  |        |       |
|--------------|------|-----|------------------|-------|---|------------------------------|------------------|--------|-------|
| ph/seg (deg) | 49.4 | 1.7 | Search (1024X32) | 3.990 | Pcal mode: MANUAL, MANUAL                     | PC period (AP's) 5, 5        | sb window (us)   | -1.000 | 1.000 |
| amp/seg (%)  | 48.0 | 3.0 | Interp.          | 0.000 | Pcal rate: 0.000E+00, 0.000E+00 (us/s)        |                              | mb window (us)   | -0.008 | 0.008 |
| ph/frq (deg) | 48.9 | 1.1 | Inc. seg. avg.   | 6.241 | Bits/sample: 2x2                              | SampCntNorm: enabled         | dr window (ns/s) | -0.023 | 0.023 |
| amp/frq (%)  | 32.4 | 1.8 | Inc. frq. avg.   | 5.446 | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us | nlags: 256 t_cohere infinite | ion window (TEC) | 0.00   | 0.00  |

b: az 76.2 el 40.6 pa -54.6 X: az 272.4 el 44.4 pa 42.5 u, v (fr/asec) -4912.227 -370.316 simultaneous interpolator

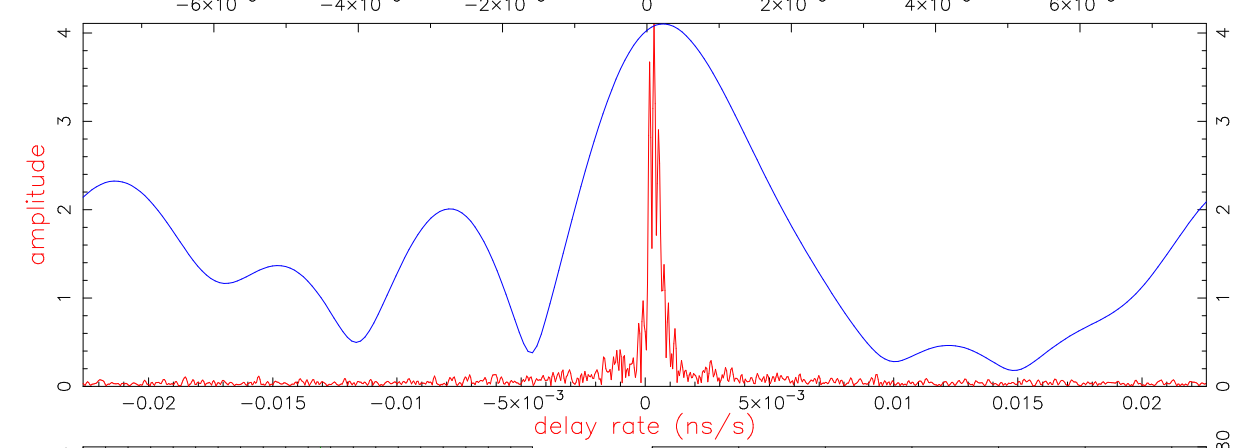
Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/bX...3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/bX.Q.64.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

aux01

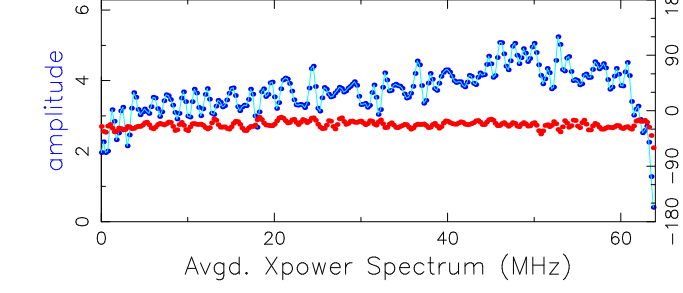
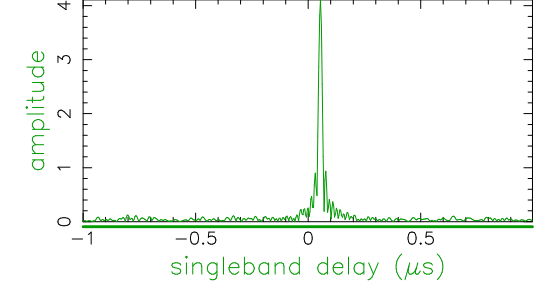
2013+370.3MP56K, No0500, bX

VLBA\_BR - ONSALA60, fgroup Q, pol RR



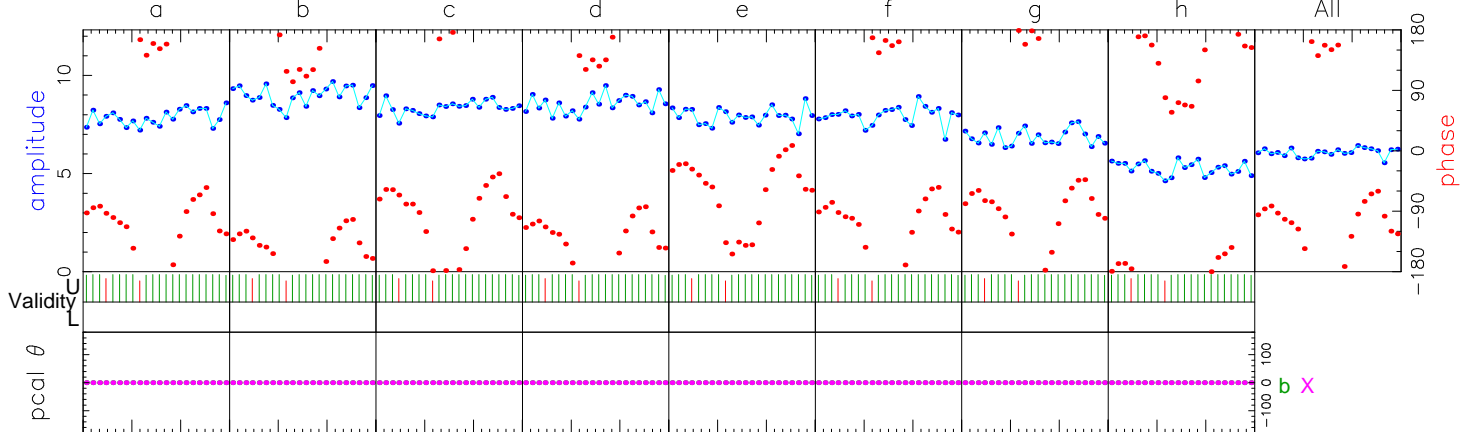
Fringe quality 2

SNR 149.2  
 Int time 176.509  
 Amp 4.108  
 Phase 126.7  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.054209  
 MBD 0.000209  
 Fringe rate (Hz) 0.014527  
 Ion TEC 0.000  
 Ref freq (MHz) 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151749  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All    |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|--------|
|     | -118.7   | -158.0   | -95.8    | -143.2   | -56.6    | -116.8   | -99.2    | 154.2    | Phase      | -120.8 |
|     | 5.3      | 6.1      | 5.6      | 5.8      | 5.4      | 5.4      | 4.6      | 3.6      | Ampl.      | 5.2    |
|     | 270.3    | 270.6    | 270.3    | 270.5    | 270.0    | 270.8    | 269.9    | 268.9    | Sbd box    | 270.9  |
| U/L | 348/0    | 348/0    | 348/0    | 348/0    | 348/0    | 348/0    | 348/0    | 348/0    | APs used   |        |
| b   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |        |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |        |
| b:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |        |
| b:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Manl PC    |        |
| b   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |        |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |        |
| b   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Chan ids   |        |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Tracks     |        |

Group delay (usec) (SBD) -1.01366776606E+03 Apriori delay (usec) -1.01371484986E+03 Resid mbdelay (usec) 2.08805E-04 +/- 7.3E-06  
 Sband delay (usec) -1.01366064086E+03 Apriori clock (usec) -1.0829798E+02 Resid sbdelay (usec) 5.42090E-02 +/- 5.8E-05  
 Phase delay (usec) -1.01371485764E+03 Apriori clockrate (us/s) -6.4018213E-07 Resid phdelay (usec) -7.78012E-06 +/- 4.9E-08  
 Delay rate (us/s) 1.36294556987E+00 Apriori rate (us/s) 1.36294523312E+00 Resid rate (us/s) 3.36749E-07 +/- 4.8E-10  
 Total phase (deg) 262.4 Apriori accel (us/s/s) -1.87442985329E-06 Resid phase (deg) 126.7 +/- 0.8

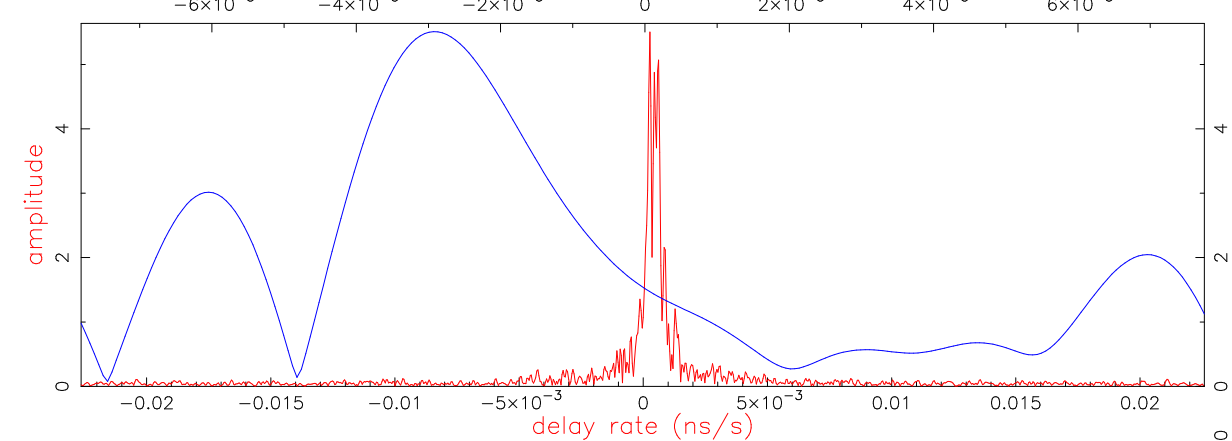
ph/seg (deg) 49.7 1.8 Search (1024X32) 3.886 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 48.3 3.1 Interp. 0.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 48.9 1.1 Inc. seg. avg. 6.078 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 amp/frq (%) 32.3 1.9 Inc. frq. avg. 5.204 Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us dr window (ns/s) -0.023 0.023  
 b: az 76.2 el 40.6 pa -54.6 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -4912.227 -370.316 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/bX...3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/bX.Q.83.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

aux01

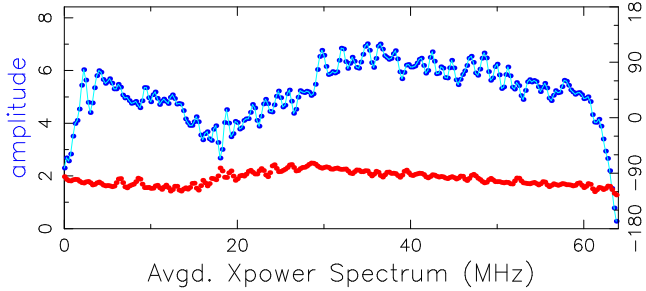
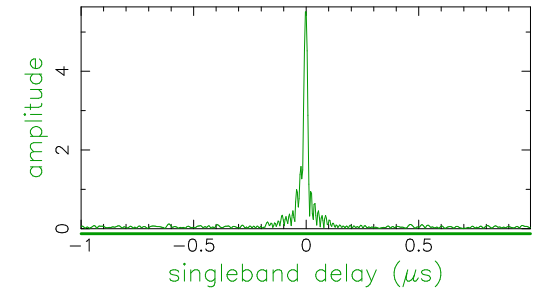
2013+370.3MP56K, No0500, BX

EFLSBERG - QNSALA60, fgroup Q, pol LL



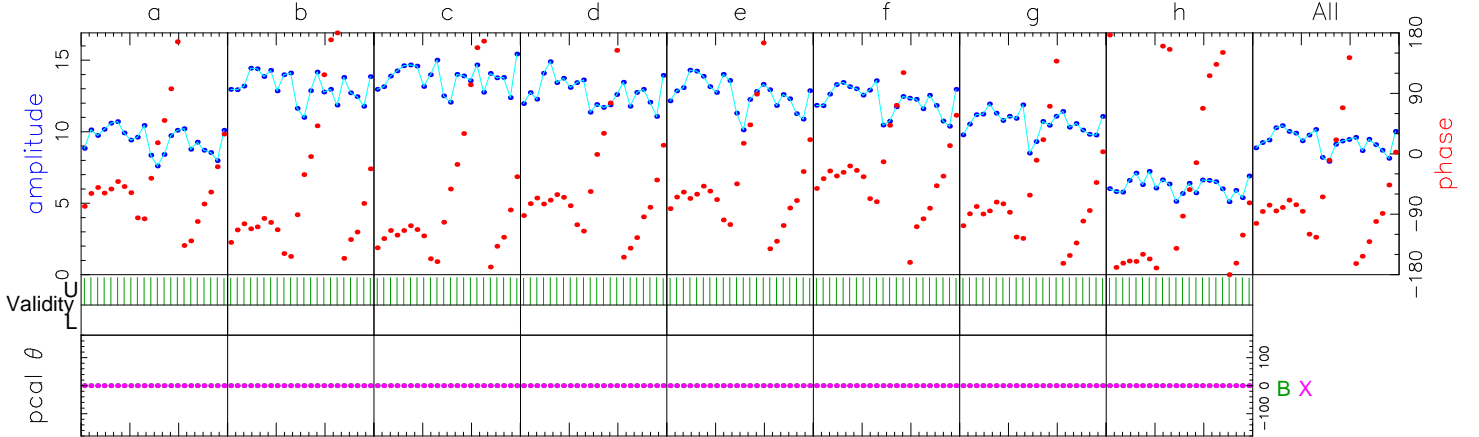
Fringe quality 2

SNR 206.8  
 Int time 179.835  
 Amp 5.639  
 Phase -87.0  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.001967  
 MBD -0.002969  
 Fringe rate (Hz)  
 0.011126  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Yr:day 1234  
 Start 2024:113  
 Stop 2024:113  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151752  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |     |
| B   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| B:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| B:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| B   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| B   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |

Group delay (usec) (SBD) 4.95256788424E+02 Apriori delay (usec) 4.95259757898E+02 Resid mbdelay (usec) -2.96947E-03 +/- 5.2E-06  
 Sband delay (usec) 4.95257790898E+02 Apriori clock (usec) 5.470 Resid sbdelay (usec) -1.96700E-03 +/- 4.2E-05  
 Phase delay (usec) 4.95259752297E+02 Apriori clockrate (us/s) -1.4061621E-02 Resid phdelay (usec) -5.60034E-06 +/- 3.6E-08  
 Delay rate (us/s) -7.48360852531E-02 Apriori rate (us/s) -7.48363431656E-02 Resid rate (us/s) 2.57912E-07 +/- 3.4E-10  
 Total phase (deg) 257.1 Apriori accel (us/s/s) -8.24726393256E-06 Resid phase (deg) -87.0 +/- 0.6

RMS Theor. Amplitude 5.639 +/- 0.027 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 61.9 1.3 Search (1024X32) 5.470 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 amp/seg (%) 66.6 2.3 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 ph/frq (deg) 45.3 0.8 Inc. seg. avg. 9.327 Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us dr window (ns/s) -0.023 0.023  
 amp/frq (%) 31.0 1.4 Inc. frq. avg. 6.662 Data rate(Mb/s): 2048 nlags: 256 t\_cohere infinite ion window (TEC) 0.00 0.00

B: az 275.5 el 46.9 pa 52.6 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) 265.748 -497.945 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/BX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/BX.Q.93.3MP56K

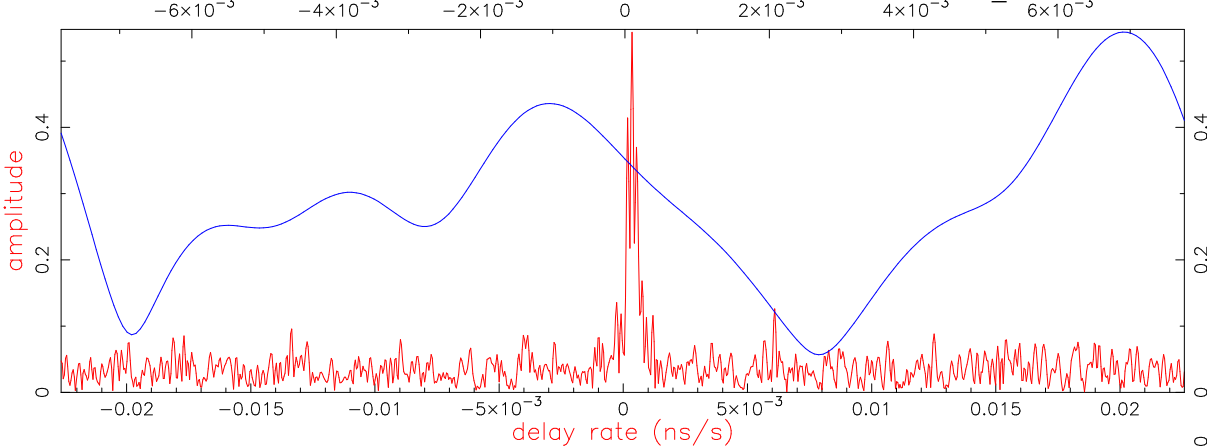
Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, bX

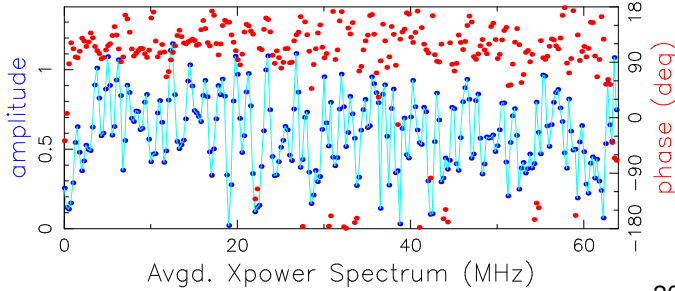
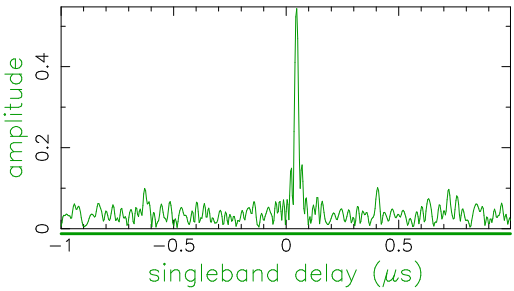
VLBA\_BR - ONSALA60, fgroup Q, pol LR

multiband delay ( $\mu\text{s}$ )



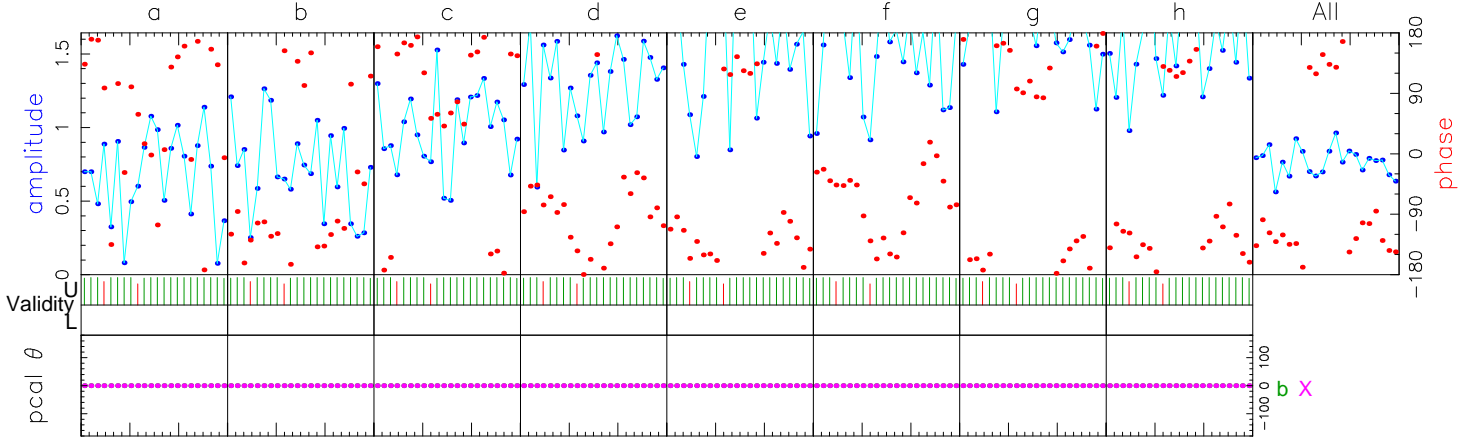
Fringe quality 7

SNR 19.9  
 Int time 176.509  
 Amp 0.548  
 Phase 257.3  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.045740  
 MBD 0.006873  
 Fringe rate (Hz)  
 0.014441  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151753  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All    |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|--------|
|     | 133.7    | -137.9   | 149.1    | -92.0    | -154.3   | -64.8    | 170.1    | -154.1   | Phase      | -147.7 |
|     | 0.3      | 0.4      | 0.6      | 0.9      | 1.0      | 1.1      | 1.2      | 1.1      | Ampl.      | 0.8    |
|     | 496.9    | 270.2    | 269.8    | 269.9    | 269.2    | 269.9    | 269.5    | 268.0    | Sbd box    | 268.7  |
| U/L | 348/0    | 348/0    | 348/0    | 348/0    | 348/0    | 348/0    | 348/0    | 348/0    | APs used   |        |
| b   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |        |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |        |
| b:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |        |
| b:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Manl PC    |        |
| b   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |        |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |        |
| b   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Chan ids   |        |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Tracks     |        |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -1.01367672731E+03 | Apriori delay (usec)     | -1.01371484986E+03 | Resid mbdelay (usec) | 6.87256E-03  | +/- | 5.5E-05 |
| Sband delay (usec)       | -1.01366910961E+03 | Apriori clock (usec)     | -1.0829798E+02     | Resid sbdelay (usec) | 4.57403E-02  | +/- | 4.3E-04 |
| Phase delay (usec)       | -1.01371485937E+03 | Apriori clockrate (us/s) | -6.4018213E-07     | Resid phdelay (usec) | -9.50954E-06 | +/- | 3.7E-07 |
| Delay rate (us/s)        | 1.36294556786E+00  | Apriori rate (us/s)      | 1.36294523312E+00  | Resid rate (us/s)    | 3.34737E-07  | +/- | 3.6E-09 |
| Total phase (deg)        | 33.0               | Apriori accel (us/s/s)   | -1.87442985329E-06 | Resid phase (deg)    | 257.3        | +/- | 5.8     |

|              |      |                  |       |                |       |                |                 |   |                               |
|--------------|------|------------------|-------|----------------|-------|----------------|-----------------|---|-------------------------------|
| ph/seg (deg) | 46.9 | RMS              | 13.4  | Theor.         | 13.4  | Amplitude      | 0.548 +/- 0.028 | Pcal mode: MANUAL, MANUAL                     | PC period (AP's) 5, 5         |
| amp/seg (%)  | 44.2 | Search (1024X32) | 0.518 | Search         | 0.518 | Search         | 0.518           | Pcal rate: 0.000E+00, 0.000E+00 (us/s)        | sb window (us) -1.000 1.000   |
| ph/frq (deg) | 60.7 | Inc. seg. avg.   | 0.750 | Inc. seg. avg. | 0.750 | Inc. seg. avg. | 0.750           | Bits/sample: 2x2                              | mb window (us) -0.008 0.008   |
| amp/frq (%)  | 75.3 | Inc. frq. avg.   | 0.810 | Inc. frq. avg. | 0.810 | Inc. frq. avg. | 0.810           | SampCntNorm: enabled                          | dr window (ns/s) -0.023 0.023 |
|              |      |                  |       |                |       |                |                 | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us | ion window (TEC) 0.00 0.00    |
|              |      |                  |       |                |       |                |                 | Data rate(Mb/s): 2048                         | nlags: 256 t_cohere infinite  |

b: az 76.2 el 40.6 pa -54.6 X: az 272.4 el 44.4 pa 42.5 u, v (fr/asec) -4912.227 -370.316 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/bX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/bX.Q.99.3MP56K

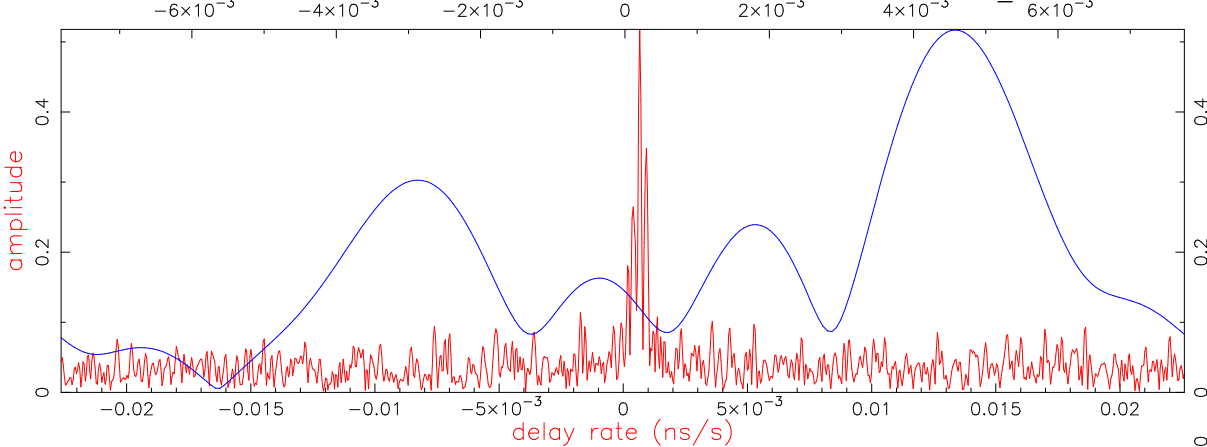
Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, fX

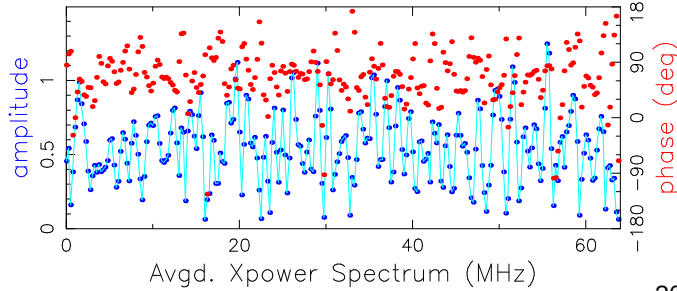
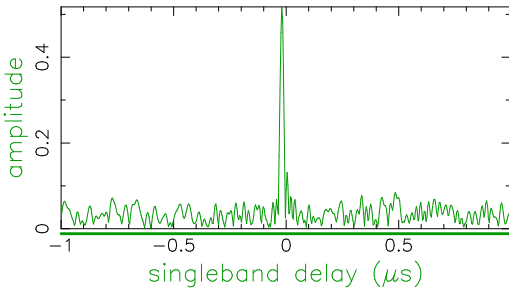
VLBA\_FD - QNSALA60, fgroup Q, pol LL

multiband delay ( $\mu$ s)



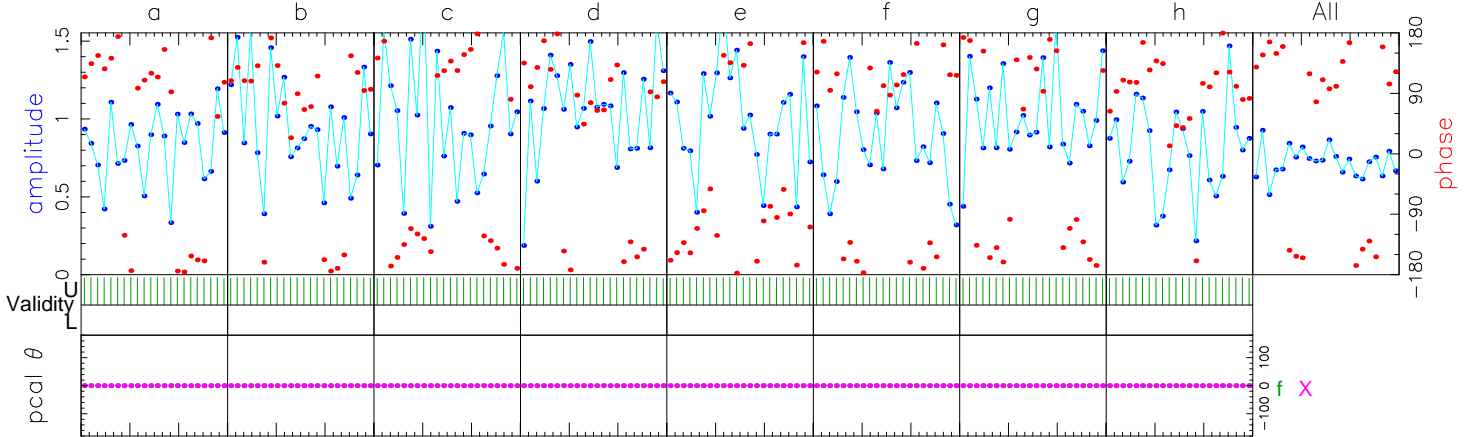
Fringe quality 8

SNR 19.0  
 Int time 179.824  
 Amp 0.518  
 Phase -250.6  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.019027  
 MBD 0.004594  
 Fringe rate (Hz)  
 0.029287  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151800  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All   |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-------|
|     | 149.3    | 120.8    | -172.0   | 129.2    | -144.1   | 155.3    | 179.2    | 98.6     | Phase      | 154.4 |
|     | 0.6      | 0.7      | 0.7      | 0.6      | 0.6      | 0.6      | 0.7      | 0.6      | Ampl.      | 0.6   |
|     | 252.1    | 251.5    | 251.8    | 251.5    | 251.1    | 251.8    | 251.5    | 250.4    | Sbd box    | 252.1 |
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | APs used   |       |
| f   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| f:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |       |
| f:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Manl PC    |       |
| f   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |       |
| f   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Chan ids   |       |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Tracks     |       |

|                          |                   |                          |                    |                      |              |     |         |
|--------------------------|-------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | 6.59263320342E+02 | Apriori delay (usec)     | 6.59289976605E+02  | Resid mbdelay (usec) | 4.59374E-03  | +/- | 5.7E-05 |
| Sband delay (usec)       | 6.59270949105E+02 | Apriori clock (usec)     | -1.1286279E+02     | Resid sbdelay (usec) | -1.90275E-02 | +/- | 4.5E-04 |
| Phase delay (usec)       | 6.59289986548E+02 | Apriori clockrate (us/s) | -1.1664031E-06     | Resid phdelay (usec) | 9.94274E-06  | +/- | 3.9E-07 |
| Delay rate (us/s)        | 1.43529957677E+00 | Apriori rate (us/s)      | 1.43529889788E+00  | Resid rate (us/s)    | 6.78891E-07  | +/- | 3.7E-09 |
| Total phase (deg)        |                   | Apriori accel (us/s/s)   | -2.68444574540E-05 | Resid phase (deg)    | -250.6       | +/- | 6.0     |

|                             |      |                             |       |                      |           |              |                             |                      |                |                   |                  |      |      |
|-----------------------------|------|-----------------------------|-------|----------------------|-----------|--------------|-----------------------------|----------------------|----------------|-------------------|------------------|------|------|
| ph/seg (deg)                | 44.6 | RMS                         | 14.2  | Theor.               | 44.6      | Amplitude    | 0.518 +/- 0.027             | Pcal mode:           | MANUAL, MANUAL | PC period (AP's)  | 5, 5             |      |      |
| amp/seg (%)                 | 43.5 | Search (1024X32)            | 0.496 | Interp.              | 0.000     | Pcal rate:   | 0.000E+00, 0.000E+00 (us/s) | sb window (us)       | -1.000         | 1.000             |                  |      |      |
| ph/frq (deg)                | 41.7 | Inc. seg. avg.              | 0.702 | Inc. frq. avg.       | 0.628     | Bits/sample: | 2x2                         | SampCntNorm: enabled | mb window (us) | -0.008            | 0.008            |      |      |
| amp/frq (%)                 | 24.3 | Inc. frq. avg.              | 0.628 | Data rate (MSamp/s): | 128 MBpts | 32 Amb       | 0.016 us                    | dr window (ns/s)     | -0.023         | 0.023             |                  |      |      |
| f: az 66.6 el 46.8 pa -82.9 |      | X: az 272.4 el 44.4 pa 42.5 |       | u, v (fr/asec)       | -5184.846 | -1945.508    |                             | nlags:               | 256            | t_cohere infinite | ion window (TEC) | 0.00 | 0.00 |

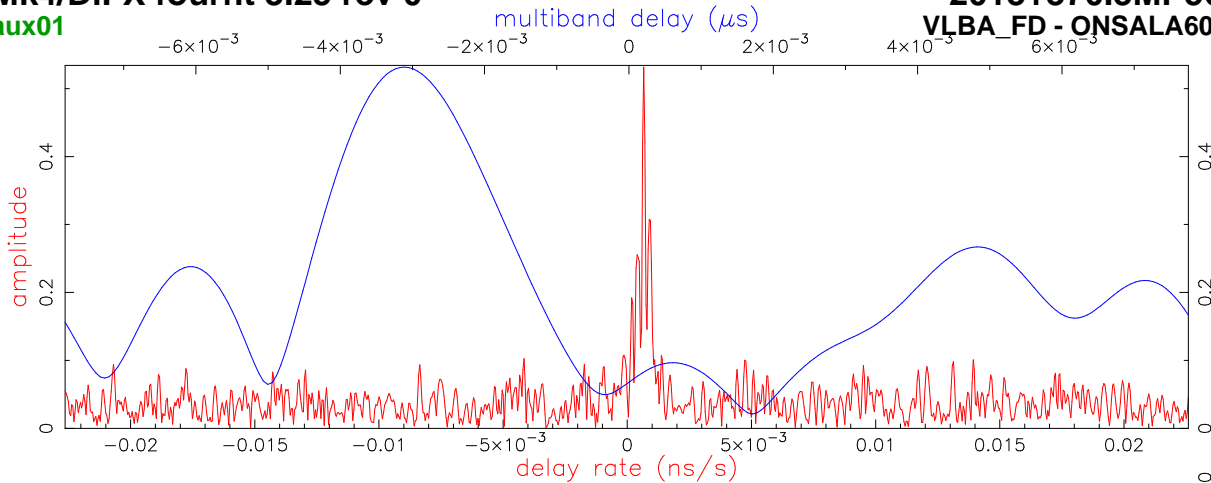
Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/fX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/fX.Q.143.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

aux01

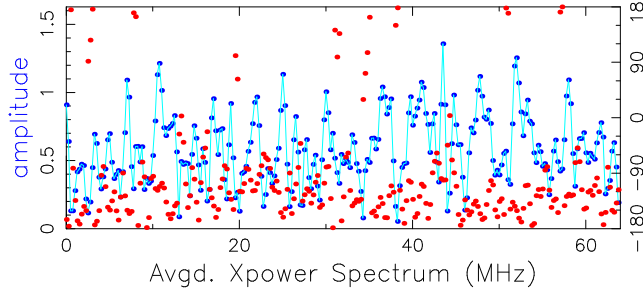
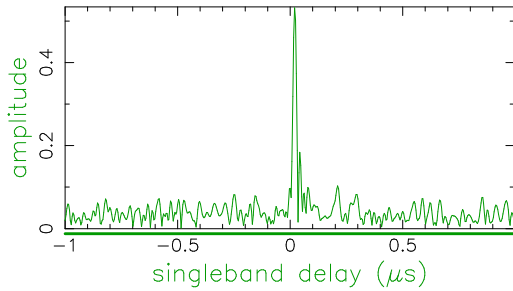
2013+370.3MP56K, No0500, fX

VLBA\_FD - ONSALA60, fgroup Q, pol RR



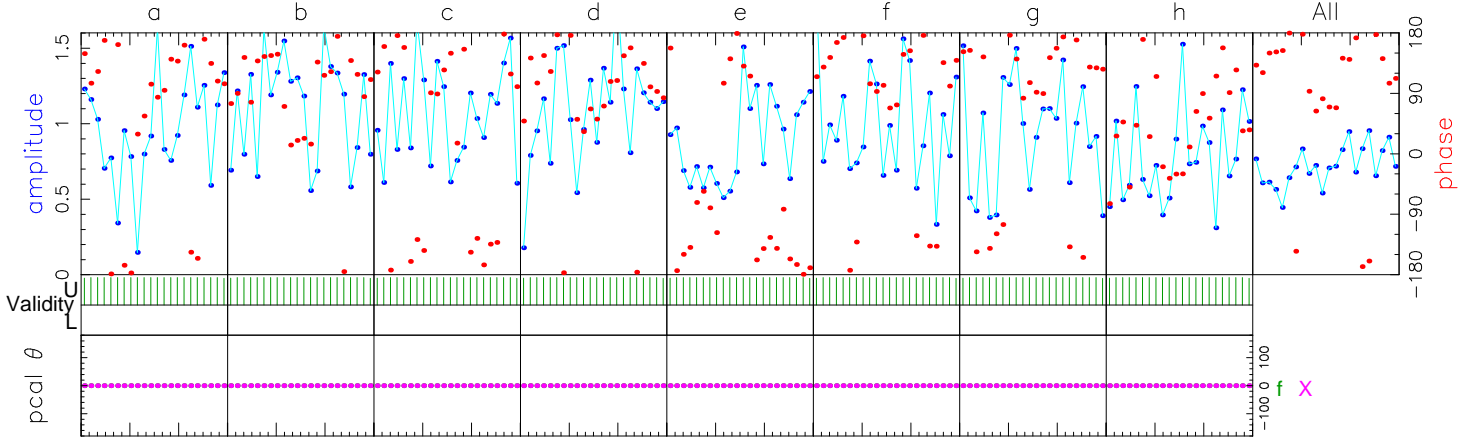
Fringe quality 8

SNR 19.6  
 Int time 179.824  
 Amp 0.534  
 Phase 185.4  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.020367  
 MBD -0.003096  
 Fringe rate (Hz)  
 0.029434  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151805  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |     |
| f   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| f:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| f:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| f   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| f   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    |            |     |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    |            |     |

|                          |                   |                          |                    |                      |              |     |         |
|--------------------------|-------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | 6.59318130967E+02 | Apriori delay (usec)     | 6.59289976605E+02  | Resid mbdelay (usec) | -3.09564E-03 | +/- | 5.5E-05 |
| Sband delay (usec)       | 6.59310343605E+02 | Apriori clock (usec)     | -1.1286279E+02     | Resid sbdelay (usec) | 2.03670E-02  | +/- | 4.4E-04 |
| Phase delay (usec)       | 6.59289985647E+02 | Apriori clockrate (us/s) | -1.1664031E-06     | Resid phdelay (usec) | 9.04153E-06  | +/- | 3.8E-07 |
| Delay rate (us/s)        | 1.43529958017E+00 | Apriori rate (us/s)      | 1.43529889788E+00  | Resid rate (us/s)    | 6.82292E-07  | +/- | 3.6E-09 |
| Total phase (deg)        | 38.1              | Apriori accel (us/s/s)   | -2.68444574540E-05 | Resid phase (deg)    | 185.4        | +/- | 5.9     |

|              |      |        |      |                  |                 |   |                               |
|--------------|------|--------|------|------------------|-----------------|---|-------------------------------|
| ph/seg (deg) | 43.6 | Theor. | 13.7 | Amplitude        | 0.534 +/- 0.027 | Pcal mode: MANUAL, MANUAL                     | PC period (AP's) 5, 5         |
| amp/seg (%)  | 42.8 |        | 24.0 | Search (1024X32) | 0.499           | Pcal rate: 0.000E+00, 0.000E+00 (us/s)        | sb window (us) -1.000 1.000   |
| ph/frq (deg) | 52.2 |        | 8.3  | Interp.          | 0.000           | Bits/sample: 2x2                              | SampCntNorm: enabled          |
| amp/frq (%)  | 32.2 |        | 14.4 | Inc. seg. avg.   | 0.703           | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us | dr window (ns/s) -0.023 0.023 |
|              |      |        |      | Inc. frq. avg.   | 0.659           | Data rate(Mb/s): 2048                         | nlags: 256 t_cohere infinite  |
|              |      |        |      |                  |                 |   | ion window (TEC) 0.00 0.00    |

f: az 66.6 el 46.8 pa -82.9 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -5184.846 -1945.508 simultaneous interpolator

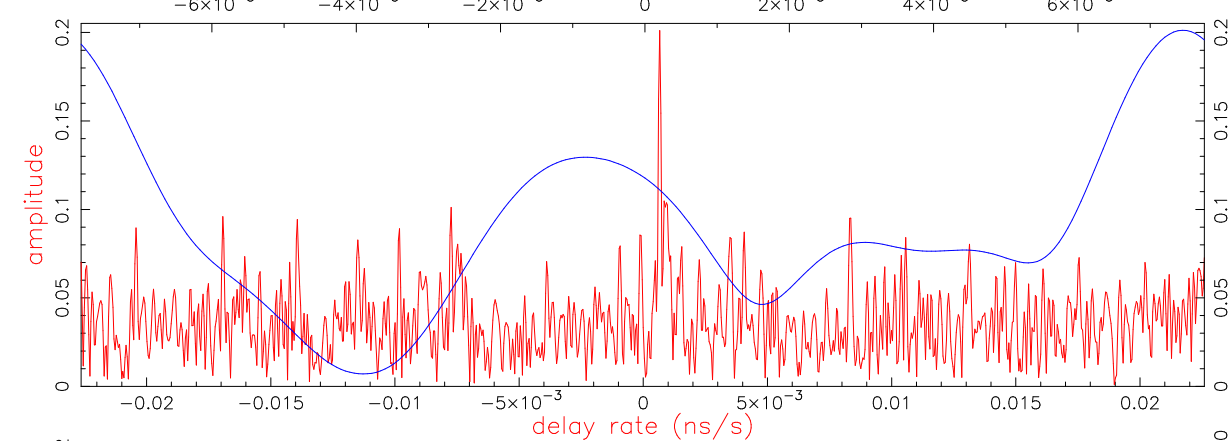
Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/fX...3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/fX.Q.160.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

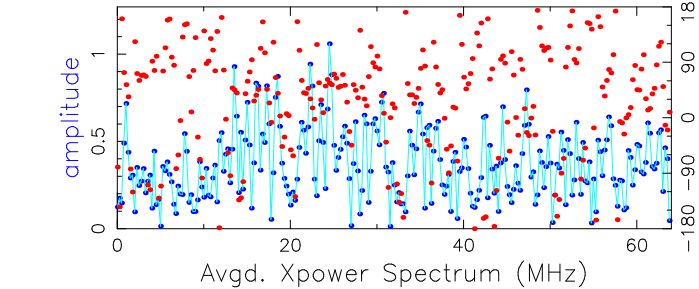
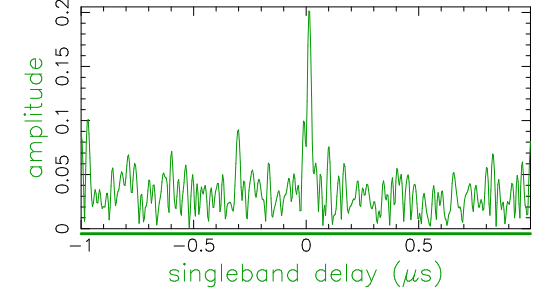
aux01

2013+370.3MP56K, No0500, fX

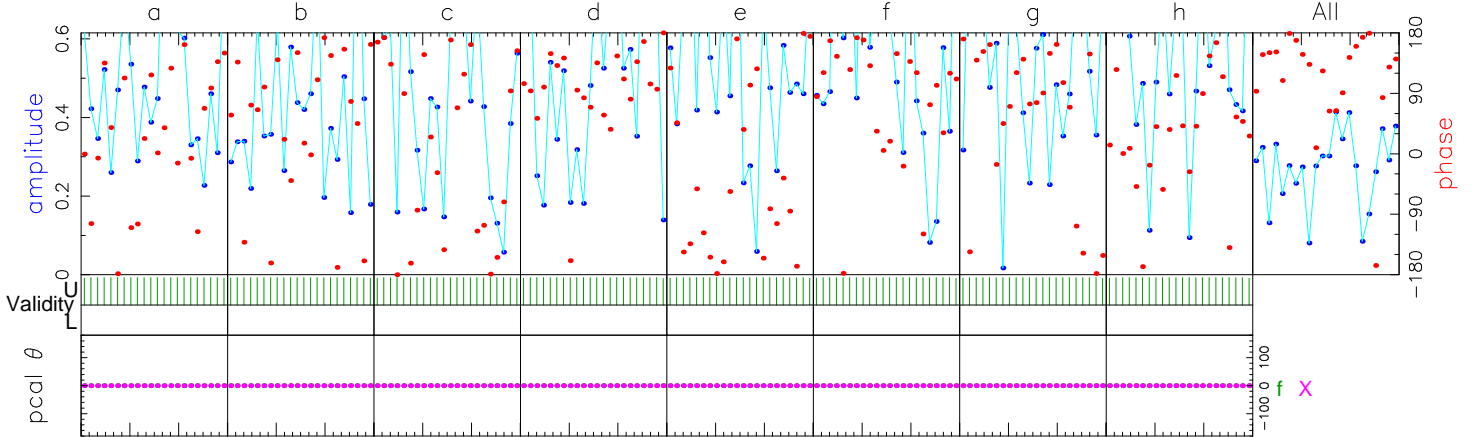
VLBA\_FD - ONSALA60, fgroup Q, pol LR



Fringe quality 9  
 SNR 7.5  
 Int time 179.824  
 Amp 0.205  
 Phase 126.9  
 PFD 8.8e-06  
 Delays (us)  
 SBD 0.013606  
 MBD 0.007504  
 Fringe rate (Hz) 0.029182  
 Ion TEC 0.000  
 Ref freq (MHz) 43140.0000  
 AP (sec) 0.512  
 Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build 2024:332:222845  
 2025:042:151807  
 2024:113:095956  
 RA & Dec (J2000) 20h15m28.729786s +37°10'59.514736"



Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |     |
| f   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| f:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| f:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| f   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| f   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    |            |     |

|                          |                   |                          |                    |                      |             |     |         |
|--------------------------|-------------------|--------------------------|--------------------|----------------------|-------------|-----|---------|
| Group delay (usec) (SBD) | 6.59297480842E+02 | Apriori delay (usec)     | 6.59289976605E+02  | Resid mbdelay (usec) | 7.50424E-03 | +/- | 1.4E-04 |
| Sband delay (usec)       | 6.59303583105E+02 | Apriori clock (usec)     | -1.1286279E+02     | Resid sbdelay (usec) | 1.36065E-02 | +/- | 1.1E-03 |
| Phase delay (usec)       | 6.59289984774E+02 | Apriori clockrate (us/s) | -1.1664031E-06     | Resid phdelay (usec) | 8.16941E-06 | +/- | 9.8E-07 |
| Delay rate (us/s)        | 1.43529957432E+00 | Apriori rate (us/s)      | 1.43529889788E+00  | Resid rate (us/s)    | 6.76443E-07 | +/- | 9.4E-09 |
| Total phase (deg)        | 339.5             | Apriori accel (us/s/s)   | -2.68444574540E-05 | Resid phase (deg)    | 126.9       | +/- | 15.2    |

|              |      |                  |       |                |                 |                      |                             |                      |                   |                  |           |
|--------------|------|------------------|-------|----------------|-----------------|----------------------|-----------------------------|----------------------|-------------------|------------------|-----------|
| ph/seg (deg) | 44.8 | Theor.           | 35.7  | Amplitude      | 0.205 +/- 0.027 | Pcal mode:           | MANUAL, MANUAL              | PC period (AP's)     | 5, 5              |                  |           |
| amp/seg (%)  | 56.0 | Search (1024X32) | 0.197 | Search         | 0.197           | Pcal rate:           | 0.000E+00, 0.000E+00 (us/s) | sb window (us)       | -1.000 1.000      |                  |           |
| ph/frq (deg) | 50.8 | Inc. seg. avg.   | 0.229 | Inc. seg. avg. | 0.229           | Bits/sample:         | 2x2                         | SampCntNorm: enabled | mb window (us)    | -0.008 0.008     |           |
| amp/frq (%)  | 55.8 | Inc. frq. avg.   | 0.254 | Inc. frq. avg. | 0.254           | Data rate (MSamp/s): | 128 MBpts 32 Amb 0.016 us   | dr window (ns/s)     | -0.023 0.023      |                  |           |
|              |      |                  |       |                |                 | Data rate (Mb/s):    | 2048                        | nlags: 256           | t_cohere infinite | ion window (TEC) | 0.00 0.00 |

f: az 66.6 el 46.8 pa -82.9 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -5184.846 -1945.508 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/fX...3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/fX.Q.171.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

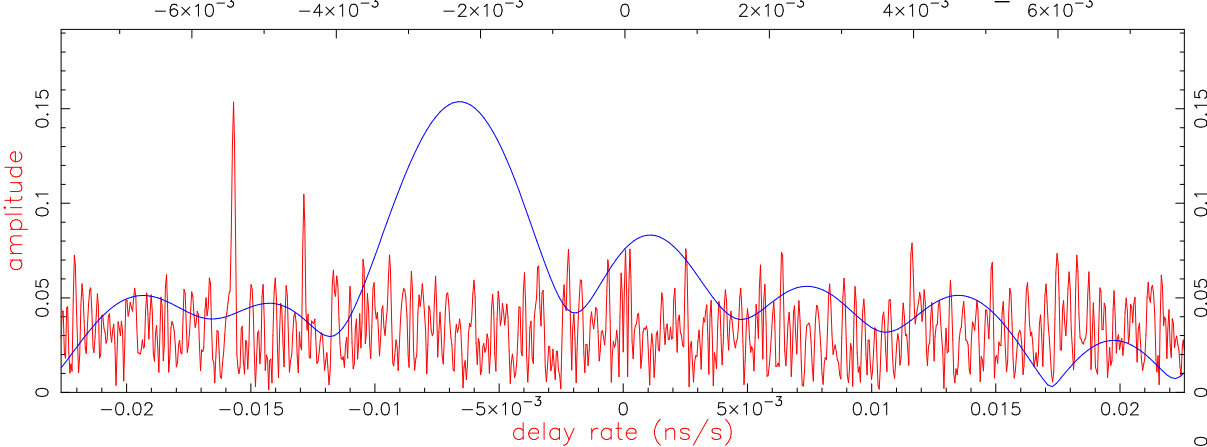
aux01

2013+370.3MP56K, No0500, fX

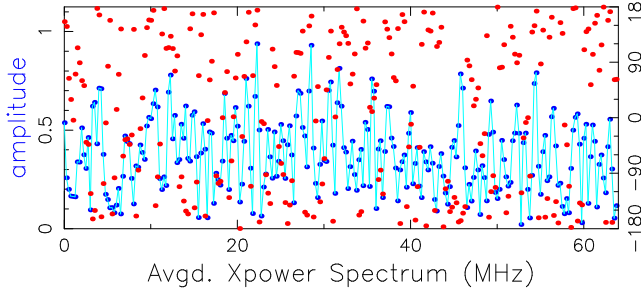
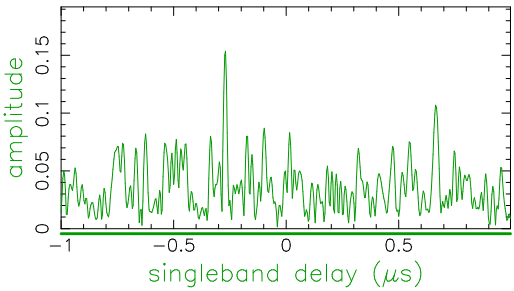
VLBA\_FD - ONSALA60, fgroup Q, pol RL

multiband delay ( $\mu$ s)

Fringe quality 0

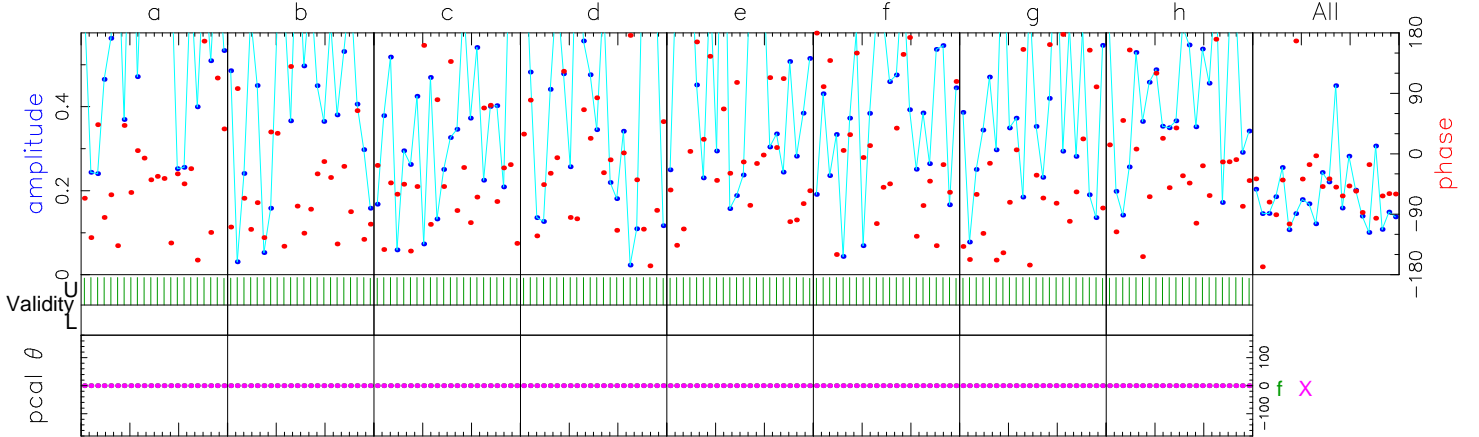


SNR 5.7  
 Int time 179.824  
 Amp 0.192  
 Phase -260.6  
 PFD 7.4e-01  
 Delays (us)  
 SBD -0.271037  
 MBD -0.002348  
 Fringe rate (Hz)  
 -0.680984  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151810  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|                          | 42912.00          | 42976.00 | 43040.00                 | 43104.00 | 43168.00           | 43232.00 | 43296.00             | 43360.00 | Freq (MHz)   | All         |
|--------------------------|-------------------|----------|--------------------------|----------|--------------------|----------|----------------------|----------|--------------|-------------|
|                          | -56.1             | -76.3    | -60.8                    | -26.9    | -33.2              | -107.0   | -102.1               | -28.2    |              | -58.1       |
|                          | 0.3               | 0.3      | 0.2                      | 0.2      | 0.2                | 0.0      | 0.2                  | 0.2      |              | 0.2         |
|                          | 278.9             | 189.1    | 231.7                    | 207.5    | 271.2              | 338.4    | 504.8                | 328.5    |              | 187.6       |
| U/L                      | 352/0             | 352/0    | 352/0                    | 352/0    | 352/0              | 352/0    | 352/0                | 352/0    |              |             |
| f                        | 1000              | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     |              | PC freqs    |
| X                        | 1000              | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     |              | PC freqs    |
| f:X                      | 0:0               | 0:0      | 0:0                      | 0:0      | 0:0                | 0:0      | 0:0                  | 0:0      |              | PC phase    |
| f:X                      | 0:0               | 0:0      | 0:0                      | 0:0      | 0:0                | 0:0      | 0:0                  | 0:0      |              | Manl PC     |
| f                        | 1000              | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     |              | PC amp      |
| X                        | 1000              | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     |              |             |
| f                        | Q00UR             | Q01UR    | Q02UR                    | Q03UR    | Q04UR              | Q05UR    | Q06UR                | Q07UR    |              | Chan ids    |
| X                        | Q00UL             | Q01UL    | Q02UL                    | Q03UL    | Q04UL              | Q05UL    | Q06UL                | Q07UL    |              | Tracks      |
|                          |                   |          |                          |          |                    |          |                      |          |              | Tracks      |
| Group delay (usec) (SBD) | 6.59022004082E+02 |          | Apriori delay (usec)     |          | 6.59289976605E+02  |          | Resid mbdelay (usec) |          | -2.34752E-03 | +/- 1.9E-04 |
| Sband delay (usec)       | 6.59018939855E+02 |          | Apriori clock (usec)     |          | -1.1286279E+02     |          | Resid sbdelay (usec) |          | -2.71037E-01 | +/- 1.5E-03 |
| Phase delay (usec)       | 6.59289972866E+02 |          | Apriori clockrate (us/s) |          | -1.1664031E-06     |          | Resid phdelay (usec) |          | -3.73955E-06 | +/- 1.3E-06 |
| Delay rate (us/s)        | 1.43528311243E+00 |          | Apriori rate (us/s)      |          | 1.43529889788E+00  |          | Resid rate (us/s)    |          | -1.57855E-05 | +/- 1.2E-08 |
| Total phase (deg)        |                   |          | Apriori accel (us/s/s)   |          | -2.68444574540E-05 |          | Resid phase (deg)    |          | -260.6       | +/- 20.1    |

ph/seg (deg) 44.9 47.0 Search (1024X32) 0.152 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 55.3 82.1 Interp. 0.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 34.5 28.4 Inc. seg. avg. 0.174 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 amp/frq (%) 42.4 49.5 Inc. frq. avg. 0.187 Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us dr window (ns/s) -0.023 0.023  
 f: az 66.6 el 46.8 pa -82.9 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -5184.846 -1945.508 nlags: 256 t\_cohere infinite ion window (TEC) 0.00 0.00  
 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/fX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/fX.Q.183.3MP56K

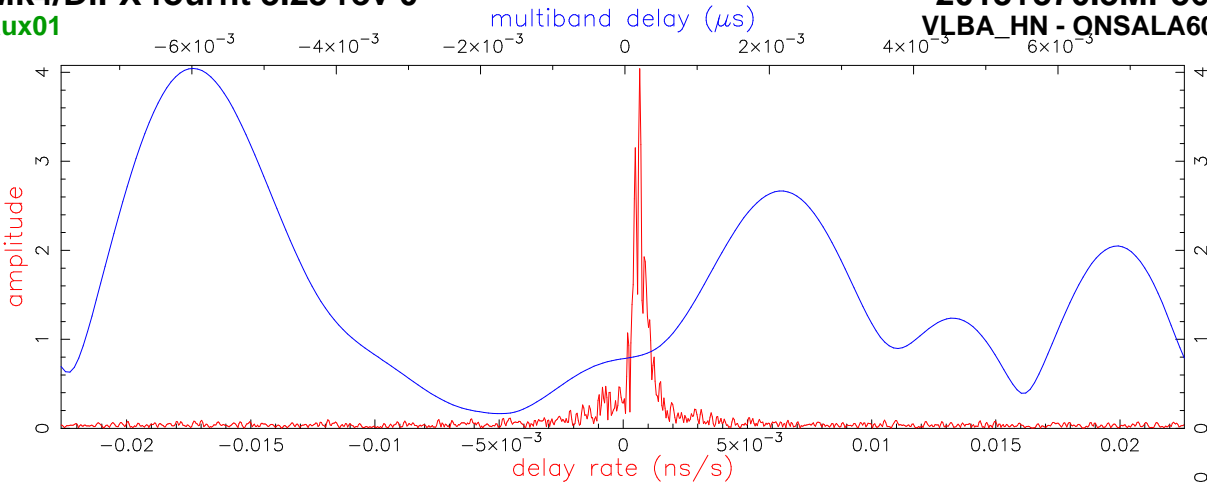


Mk4/DiFX fourfit 3.25 rev 0

aux01

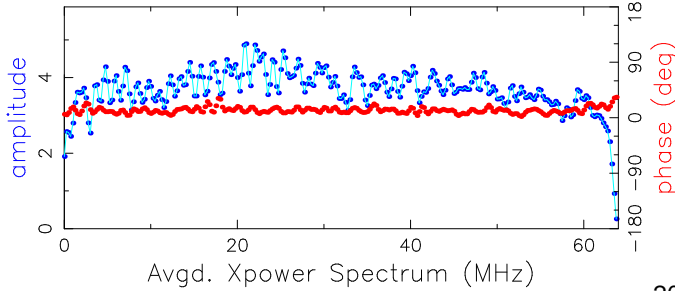
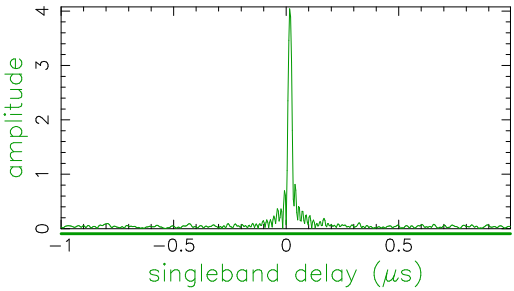
2013+370.3MP56K, No0500, hX

VLBA\_HN - QNSALA60, fgroup Q, pol LL



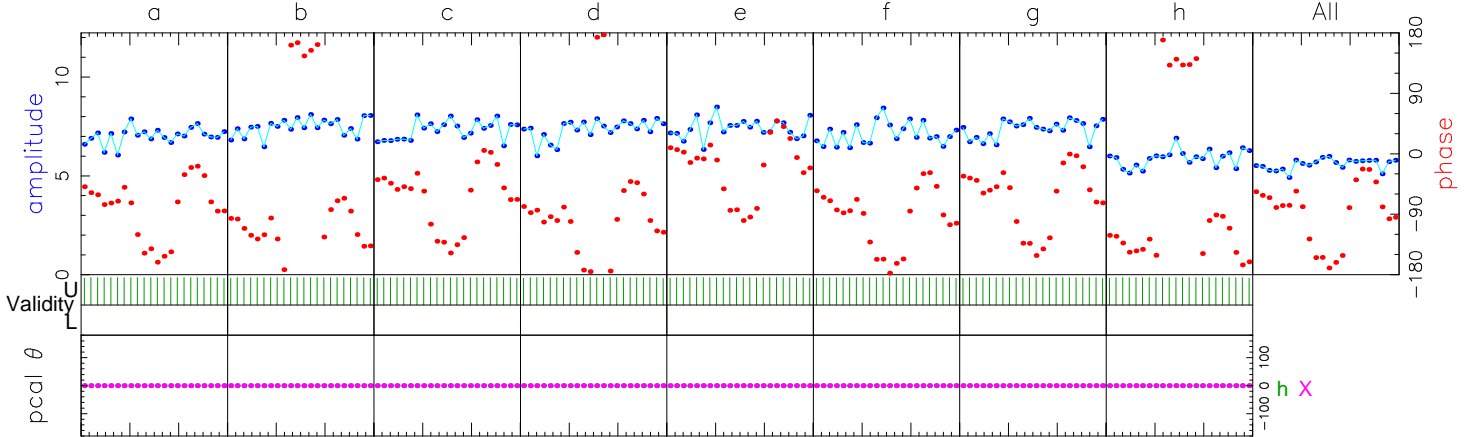
Fringe quality 3

SNR 149.5  
 Int time 179.835  
 Amp 4.078  
 Phase 116.2  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.016802  
 MBD -0.005948  
 Fringe rate (Hz)  
 0.029492  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151808  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |     |
| h   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| h:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| h:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| h   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| h   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |

|                          |                   |                          |                    |                      |              |     |         |
|--------------------------|-------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | 5.52356199659E+03 | Apriori delay (usec)     | 5.52355231942E+03  | Resid mbdelay (usec) | -5.94783E-03 | +/- | 7.3E-06 |
| Sband delay (usec)       | 5.52356912167E+03 | Apriori clock (usec)     | -1.0049802E+02     | Resid sbdelay (usec) | 1.68022E-02  | +/- | 5.8E-05 |
| Phase delay (usec)       | 5.52355231386E+03 | Apriori clockrate (us/s) | -1.1376861E-02     | Resid phdelay (usec) | -5.55531E-06 | +/- | 4.9E-08 |
| Delay rate (us/s)        | 9.06464060538E-01 | Apriori rate (us/s)      | 9.06463376904E-01  | Resid rate (us/s)    | 6.83633E-07  | +/- | 4.7E-10 |
| Total phase (deg)        | 137.7             | Apriori accel (us/s/s)   | -4.09377518787E-05 | Resid phase (deg)    | 116.2        | +/- | 0.8     |

|              |      |                  |                 |                     |                             |                              |                  |              |
|--------------|------|------------------|-----------------|---------------------|-----------------------------|------------------------------|------------------|--------------|
| ph/seg (deg) | 44.5 | RMS              | 4.078 +/- 0.027 | PCal mode:          | MANUAL, MANUAL              | PC period (AP's)             | 5, 5             |              |
| amp/seg (%)  | 37.7 | Theor.           | 3.772           | PCal rate:          | 0.000E+00, 0.000E+00 (us/s) | sb window (us)               | -1.000 1.000     |              |
| ph/frq (deg) | 46.6 | Search (1024X32) | 0.000           | Bits/sample:        | 2x2                         | SampCntNorm: enabled         | mb window (us)   | -0.008 0.008 |
| amp/frq (%)  | 28.2 | Inc. seg. avg.   | 5.588           | Data rate(MSamp/s): | 128 MBpts 32 Amb 0.016 us   | dr window (ns/s)             | -0.023 0.023     |              |
|              |      | Inc. frq. avg.   | 5.176           | Data rate(Mb/s):    | 2048                        | nlags: 256 t_cohere infinite | ion window (TEC) | 0.00 0.00    |

h: az 103.5 el 73.6 pa -63.0 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -3283.547 -1773.900 simultaneous interpolator

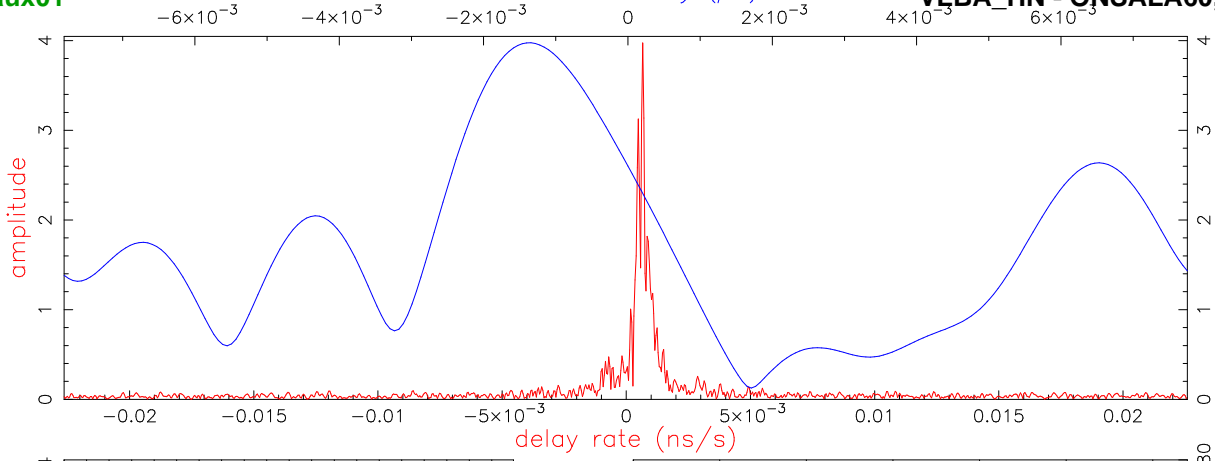
Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/hX...3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/hX.Q.179.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, hX

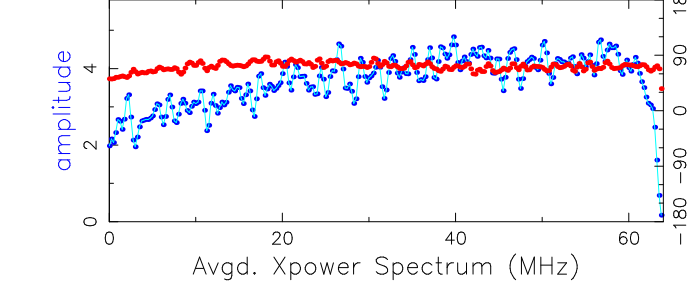
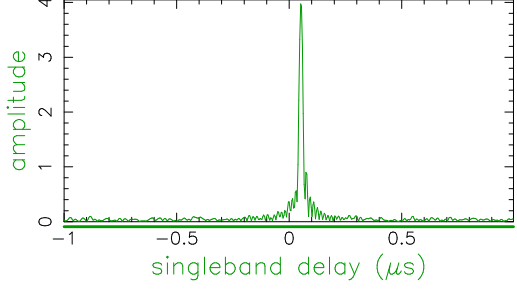
VLBA\_HN - ONSALA60, fgroup Q, pol RR



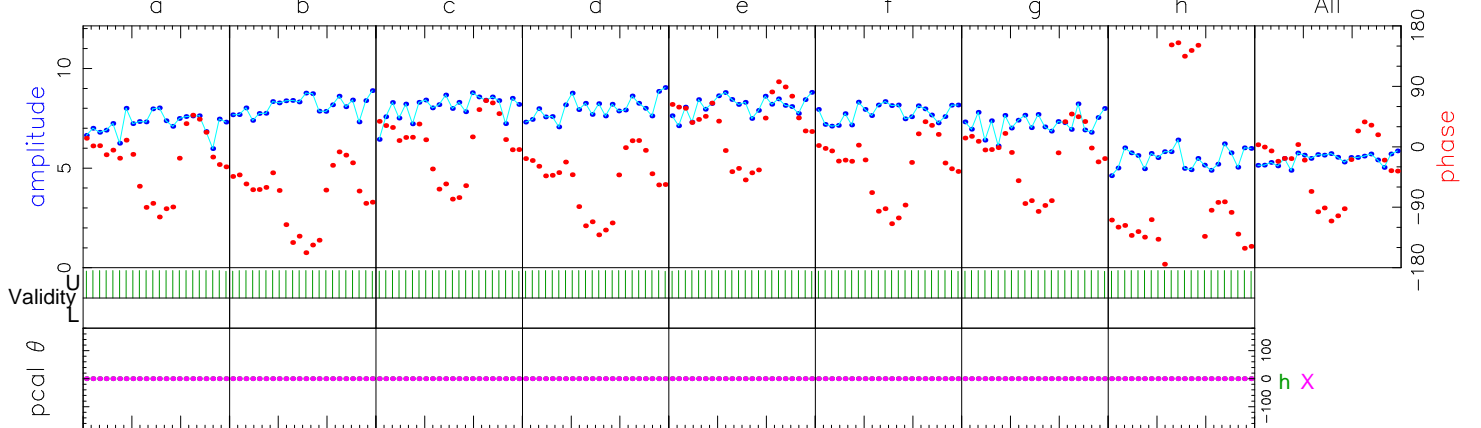
Fringe quality 3

SNR 148.4  
 Int time 179.835  
 Amp 4.047  
 Phase 220.8  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.052510  
 MBD -0.001315  
 Fringe rate (Hz) 0.029473  
 Ion TEC 0.000  
 Ref freq (MHz) 43140.0000  
 AP (sec) 0.512

Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151813  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"



Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |     |
| h   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |     |
| h:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |     |
| h:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Manl PC    |     |
| h   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| h   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Chan ids   |     |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Tracks     |     |

|                          |                   |                          |                    |                      |              |     |         |
|--------------------------|-------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | 5.52359787937E+03 | Apriori delay (usec)     | 5.52355231942E+03  | Resid mbdelay (usec) | -1.31504E-03 | +/- | 7.3E-06 |
| Sband delay (usec)       | 5.52360482892E+03 | Apriori clock (usec)     | -1.0049802E+02     | Resid sbdelay (usec) | 5.25095E-02  | +/- | 5.8E-05 |
| Phase delay (usec)       | 5.52355231770E+03 | Apriori clockrate (us/s) | -1.1376861E-06     | Resid phdelay (usec) | -1.71976E-06 | +/- | 5.0E-08 |
| Delay rate (us/s)        | 9.06464060102E-01 | Apriori rate (us/s)      | 9.06463376904E-01  | Resid rate (us/s)    | 6.83198E-07  | +/- | 4.8E-10 |
| Total phase (deg)        | 242.3             | Apriori accel (us/s/s)   | -4.09377518787E-05 | Resid phase (deg)    | 220.8        | +/- | 0.8     |

|              |      |                  |                 |                     |                             |                              |                  |              |
|--------------|------|------------------|-----------------|---------------------|-----------------------------|------------------------------|------------------|--------------|
| ph/seg (deg) | 44.3 | RMS              | 4.047 +/- 0.027 | PCal mode:          | MANUAL, MANUAL              | PC period (AP's)             | 5, 5             |              |
| amp/seg (%)  | 35.7 | Theor.           | 3.767           | PCal rate:          | 0.000E+00, 0.000E+00 (us/s) | sb window (us)               | -1.000 1.000     |              |
| ph/frq (deg) | 58.4 | Search (1024X32) | 0.000           | Bits/sample:        | 2x2                         | SampCntNorm: enabled         | mb window (us)   | -0.008 0.008 |
| amp/frq (%)  | 38.5 | Inc. seg. avg.   | 5.466           | Data rate(MSamp/s): | 128 MBpts 32 Amb 0.016 us   | dr window (ns/s)             | -0.023 0.023     |              |
|              |      | Inc. frq. avg.   | 5.481           | Data rate(Mb/s):    | 2048                        | nlags: 256 t_cohere infinite | ion window (TEC) | 0.00 0.00    |

h: az 103.5 el 73.6 pa -63.0 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -3283.547 -1773.900 simultaneous interpolator

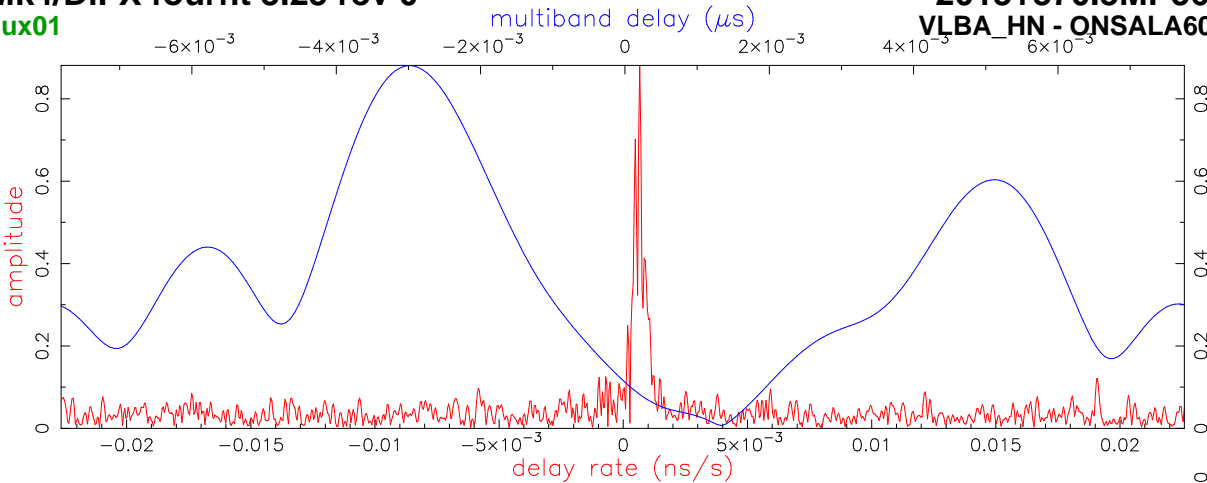
Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/hX...3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/hX.Q.202.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

aux01

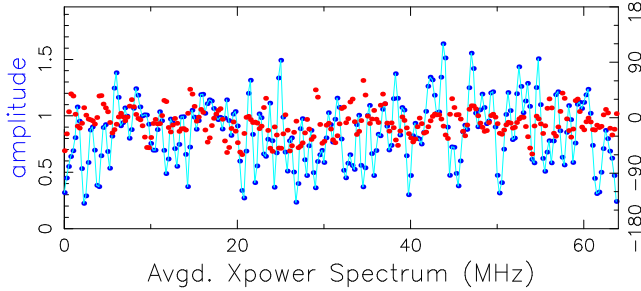
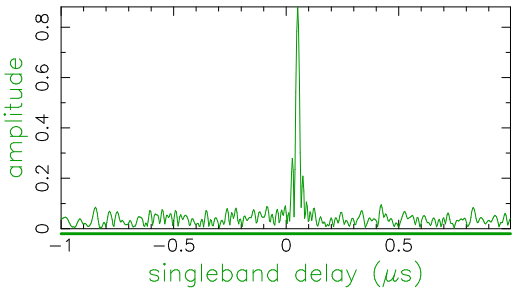
2013+370.3MP56K, No0500, hX

VLBA\_HN - ONSALA60, fgroup Q, pol LR



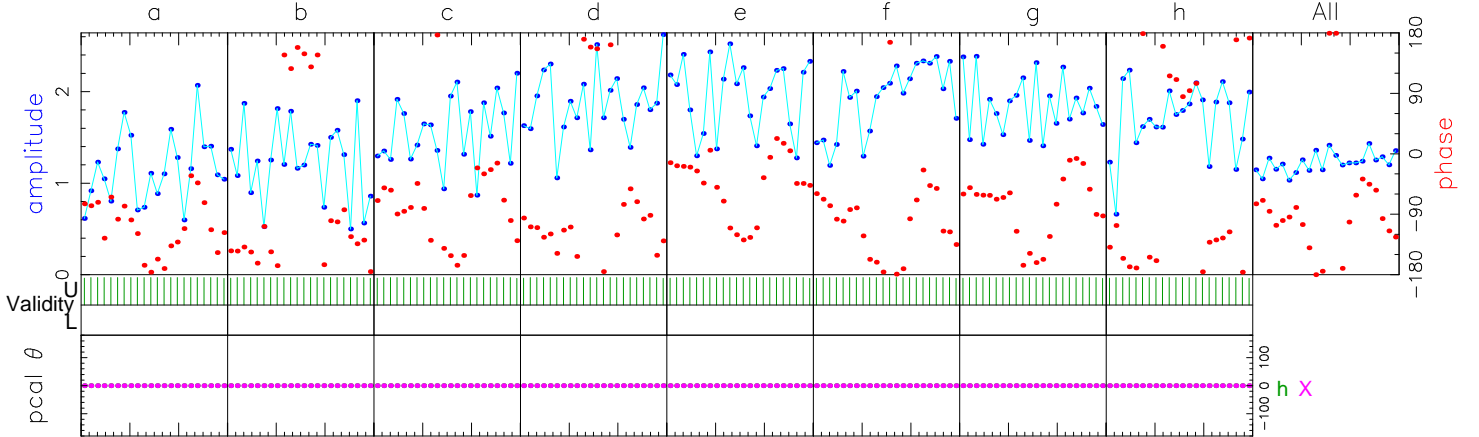
Fringe quality 4

SNR 32.3  
 Int time 179.835  
 Amp 0.881  
 Phase 140.8  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.051027  
 MBD -0.002973  
 Fringe rate (Hz)  
 0.029491  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151814  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All    |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|--------|
|     | -104.4   | -159.4   | -86.6    | -128.9   | -40.2    | -106.3   | -75.6    | -179.6   | Phase      | -106.7 |
|     | 0.9      | 0.9      | 1.1      | 1.4      | 1.4      | 1.3      | 1.3      | 1.2      | Ampl.      | 1.2    |
|     | 270.4    | 269.8    | 269.8    | 269.5    | 269.2    | 269.5    | 269.3    | 268.0    | Sbd box    | 270.1  |
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | APs used   |        |
| h   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |        |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |        |
| h:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |        |
| h:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Manl PC    |        |
| h   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |        |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |        |
| h   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Chan ids   |        |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Tracks     |        |

|                          |                   |                          |                    |                      |              |     |         |
|--------------------------|-------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | 5.52359622097E+03 | Apriori delay (usec)     | 5.52355231942E+03  | Resid mbdelay (usec) | -2.97345E-03 | +/- | 3.4E-05 |
| Sband delay (usec)       | 5.52360334617E+03 | Apriori clock (usec)     | -1.0049802E+02     | Resid sbdelay (usec) | 5.10268E-02  | +/- | 2.7E-04 |
| Phase delay (usec)       | 5.52355231254E+03 | Apriori clockrate (us/s) | -1.1376861E-02     | Resid phdelay (usec) | -6.87164E-06 | +/- | 2.3E-07 |
| Delay rate (us/s)        | 9.06464060507E-01 | Apriori rate (us/s)      | 9.06463376904E-01  | Resid rate (us/s)    | 6.83602E-07  | +/- | 2.2E-09 |
| Total phase (deg)        | 162.2             | Apriori accel (us/s/s)   | -4.09377518787E-05 | Resid phase (deg)    | 140.8        | +/- | 3.5     |

|              |      |     |      |        |     |                  |                 |                     |                             |                              |                  |              |
|--------------|------|-----|------|--------|-----|------------------|-----------------|---------------------|-----------------------------|------------------------------|------------------|--------------|
| ph/seg (deg) | 44.7 | RMS | 44.7 | Theor. | 8.3 | Amplitude        | 0.881 +/- 0.027 | Pcal mode:          | MANUAL, MANUAL              | PC period (AP's)             | 5, 5             |              |
| amp/seg (%)  | 41.2 |     | 41.2 |        | 8.3 | Search (1024X32) | 0.828           | Pcal rate:          | 0.000E+00, 0.000E+00 (us/s) | sb window (us)               | -1.000 1.000     |              |
| ph/frq (deg) | 49.0 |     | 49.0 |        | 8.3 | Interp.          | 0.000           | Bits/sample:        | 2x2                         | SampCntNorm: enabled         | mb window (us)   | -0.008 0.008 |
| amp/frq (%)  | 40.0 |     | 40.0 |        | 8.8 | Inc. seg. avg.   | 1.216           | Data rate(MSamp/s): | 128 MBpts 32 Amb 0.016 us   | dr window (ns/s)             | -0.023 0.023     |              |
|              |      |     |      |        |     | Inc. frq. avg.   | 1.170           | Data rate(Mb/s):    | 2048                        | nlags: 256 t_cohere infinite | ion window (TEC) | 0.00 0.00    |

h: az 103.5 el 73.6 pa -63.0 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -3283.547 -1773.900 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/hX...3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/hX.Q.211.3MP56K

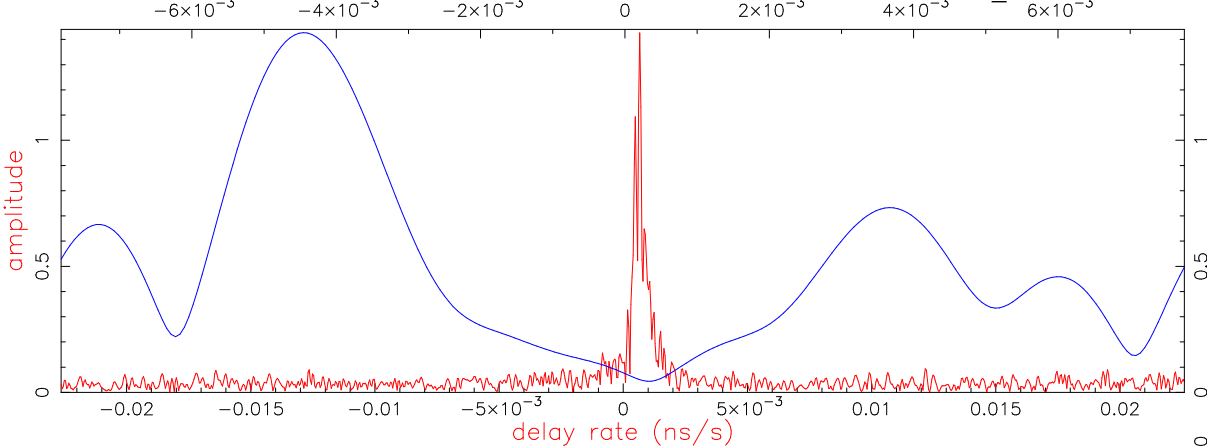
Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, hX

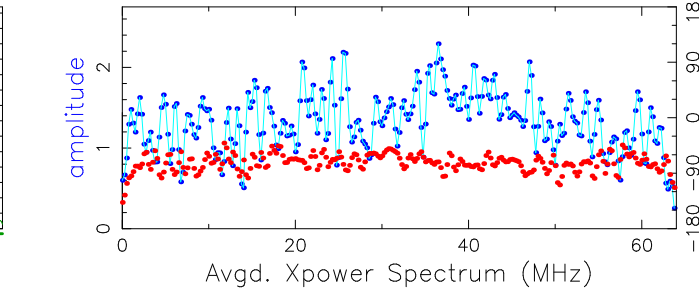
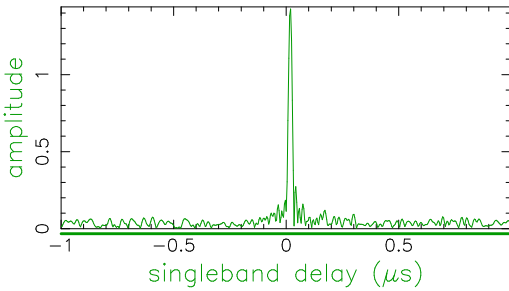
VLBA\_HN - ONSALA60, fgroup Q, pol RL

multiband delay ( $\mu$ s)



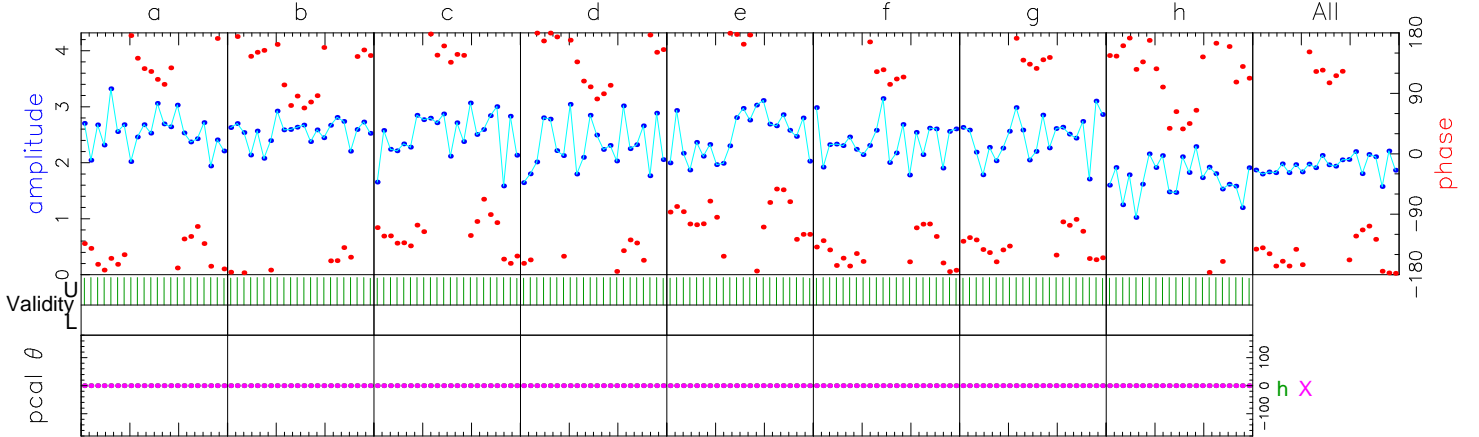
Fringe quality 3

SNR 52.8  
 Int time 179.835  
 Amp 1.440  
 Phase 31.9  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.018288  
 MBD -0.004488  
 Fringe rate (Hz) 0.029501  
 Ion TEC 0.000  
 Ref freq (MHz) 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build 2024:332:222845  
 2025:042:151817  
 2024:113:095956  
 RA & Dec (J2000) 20h15m28.729786s +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |     |
| h   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| h:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| h:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| h   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| h   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    |            |     |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |

|                          |                   |                          |                    |                      |              |     |         |
|--------------------------|-------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | 5.52356345687E+03 | Apriori delay (usec)     | 5.52355231942E+03  | Resid mbdelay (usec) | -4.48754E-03 | +/- | 2.1E-05 |
| Sband delay (usec)       | 5.52357060742E+03 | Apriori clock (usec)     | -1.0049802E+02     | Resid sbdelay (usec) | 1.82880E-02  | +/- | 1.6E-04 |
| Phase delay (usec)       | 5.52355230843E+03 | Apriori clockrate (us/s) | -1.1376861E-02     | Resid phdelay (usec) | -1.09876E-05 | +/- | 1.4E-07 |
| Delay rate (us/s)        | 9.06464060747E-01 | Apriori rate (us/s)      | 9.06463376904E-01  | Resid rate (us/s)    | 6.83843E-07  | +/- | 1.3E-09 |
| Total phase (deg)        | 53.3              | Apriori accel (us/s/s)   | -4.09377518787E-05 | Resid phase (deg)    | 31.9         | +/- | 2.2     |

|              |                           |     |                          |               |                     |                           |                 |                      |                             |                  |         |                  |          |                  |      |      |
|--------------|---------------------------|-----|--------------------------|---------------|---------------------|---------------------------|-----------------|----------------------|-----------------------------|------------------|---------|------------------|----------|------------------|------|------|
| ph/seg (deg) | 43.7                      | RMS | 43.7                     | Theor.        | 5.1                 | Amplitude                 | 1.440 +/- 0.027 | Pcal mode:           | MANUAL, MANUAL              | PC period (AP's) | 5, 5    | sb window (us)   | -1.000   | 1.000            |      |      |
| amp/seg (%)  | 36.9                      |     | 36.9                     |               | 8.9                 | Search (1024X32)          | 1.341           | Pcal rate:           | 0.000E+00, 0.000E+00 (us/s) |                  |         | mb window (us)   | -0.008   | 0.008            |      |      |
| ph/frq (deg) | 41.5                      |     | 41.5                     |               | 3.1                 | Interp.                   | 0.000           | Bits/sample:         | 2x2                         | SampCntNorm:     | enabled | dr window (ns/s) | -0.023   | 0.023            |      |      |
| amp/frq (%)  | 23.9                      |     | 23.9                     |               | 5.4                 | Inc. seg. avg.            | 1.942           | Data rate (MSamp/s): | 128 MBpts 32 Amb 0.016 us   | nlags:           | 256     | t_cohere         | infinite | ion window (TEC) | 0.00 | 0.00 |
| h:           | az 103.5 el 73.6 pa -63.0 | X:  | az 272.4 el 44.4 pa 42.5 | u,v (fr/asec) | -3283.547 -1773.900 | simultaneous interpolator |                 |                      |                             |                  |         |                  |          |                  |      |      |

Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/hX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/hX.Q.224.3MP56K

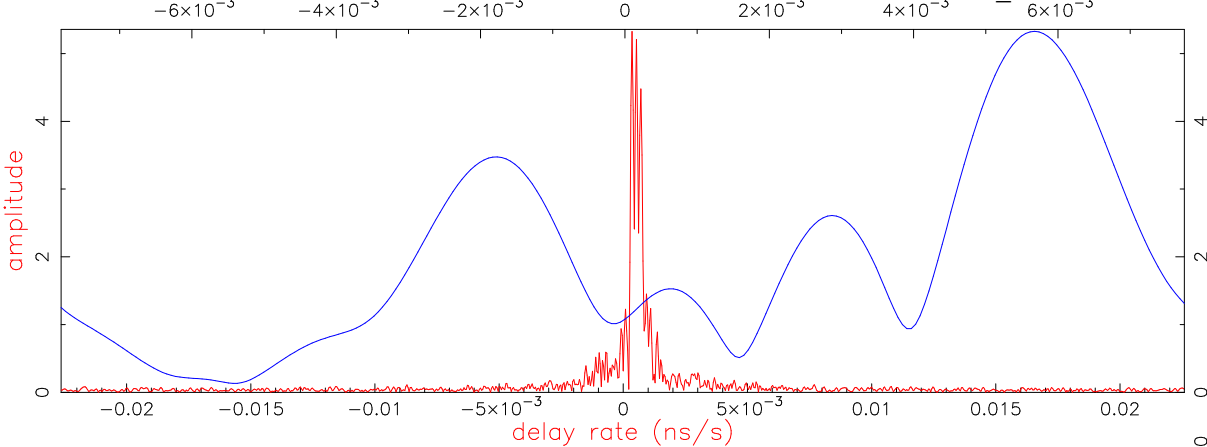
Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, kX

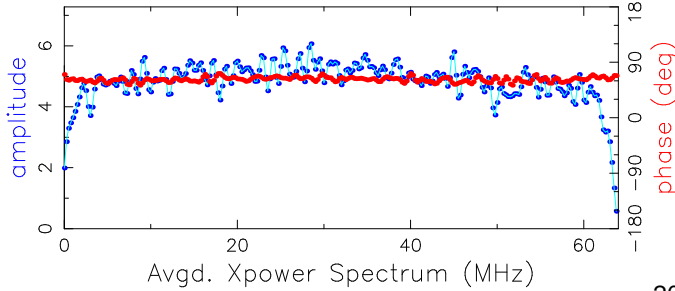
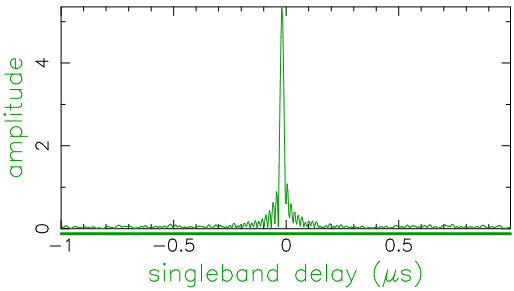
VLBA\_KP - QNSALA60, fgroup Q, pol LL

multiband delay ( $\mu$ s)



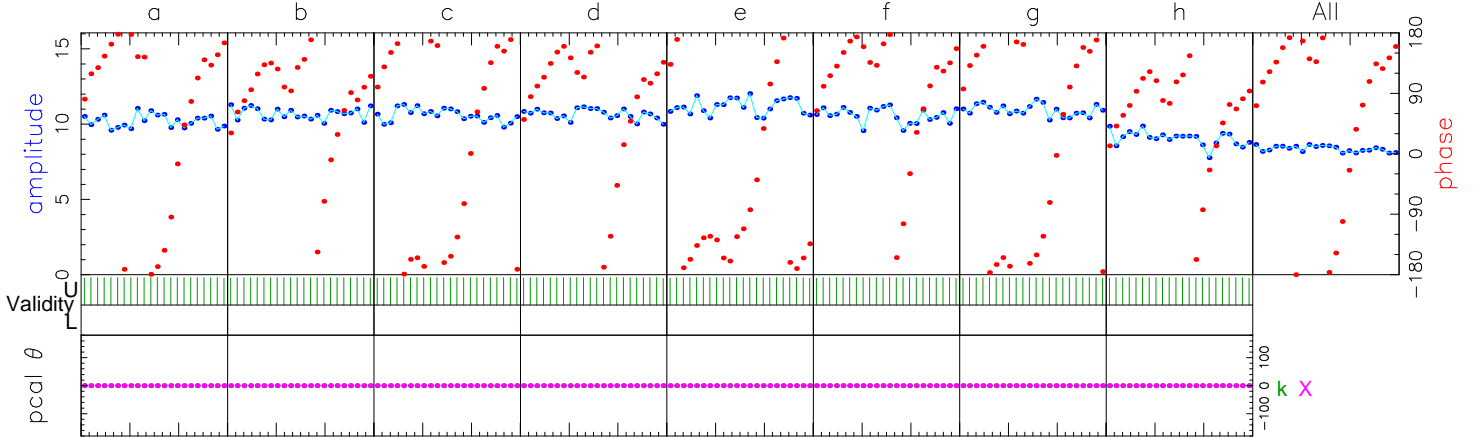
Fringe quality 2

SNR 196.4  
 Int time 179.833  
 Amp 5.357  
 Phase -262.8  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.018581  
 MBD 0.005704  
 Fringe rate (Hz) 0.014680  
 Ion TEC 0.000  
 Ref freq (MHz) 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151811  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |     |
| k   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| k:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| k:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| k   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| k   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -7.98793064421E+02 | Apriori delay (usec)     | -7.98767518163E+02 | Resid mbdelay (usec) | 5.70374E-03  | +/- | 5.5E-06 |
| Sband delay (usec)       | -7.98786098663E+02 | Apriori clock (usec)     | -1.1277026E+02     | Resid sbdelay (usec) | -1.85805E-02 | +/- | 4.4E-05 |
| Phase delay (usec)       | -7.98767509008E+02 | Apriori clockrate (us/s) | -1.0644170E-06     | Resid phdelay (usec) | 9.15581E-06  | +/- | 3.8E-08 |
| Delay rate (us/s)        | 1.50311369190E+00  | Apriori rate (us/s)      | 1.50311335162E+00  | Resid rate (us/s)    | 3.40283E-07  | +/- | 3.6E-10 |
| Total phase (deg)        | -166.9             | Apriori accel (us/s/s)   | -1.77448004325E-05 | Resid phase (deg)    | -262.8       | +/- | 0.6     |

|              |      |     |                  |       |  |   |                  |        |       |
|--------------|------|-----|------------------|-------|--|---|------------------|--------|-------|
| ph/seg (deg) | 59.2 | 1.4 | Search (1024X32) | 5.100 | Pcal mode: MANUAL, MANUAL              | PC period (AP's) 5, 5                         | sb window (us)   | -1.000 | 1.000 |
| amp/seg (%)  | 56.3 | 2.4 | Interp.          | 0.000 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | SampCntNorm: enabled                          | mb window (us)   | -0.008 | 0.008 |
| ph/frq (deg) | 44.4 | 0.8 | Inc. seg. avg.   | 8.364 | Bits/sample: 2x2                       | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us | dr window (ns/s) | -0.023 | 0.023 |
| amp/frq (%)  | 26.2 | 1.4 | Inc. frq. avg.   | 6.708 | Data rate(Mb/s): 2048                  | nlags: 256 t_cohere infinite                  | ion window (TEC) | 0.00   | 0.00  |

k: az 66.3 el 41.3 pa -77.6 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -5425.408 -1602.154 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/kX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/kX.Q.189.3MP56K



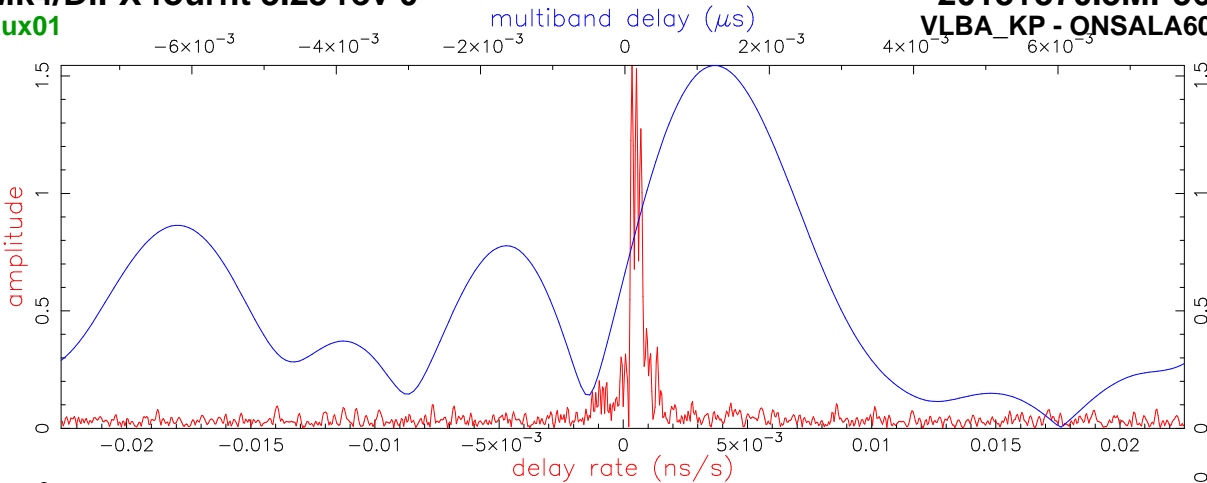


Mk4/DiFX fourfit 3.25 rev 0

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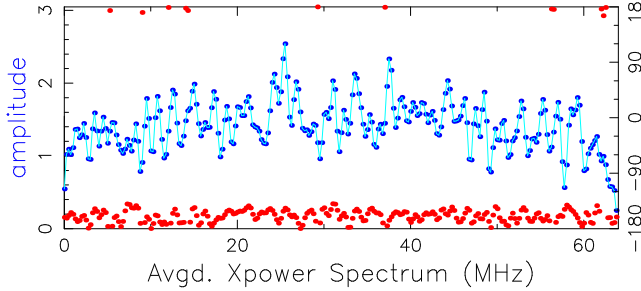
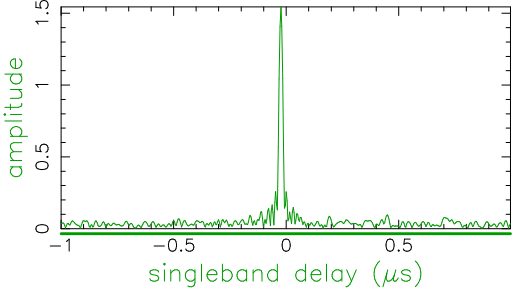
2013+370.3MP56K, No0500, kX

VLBA\_KP - ONSALA60, fgroup Q, pol RL



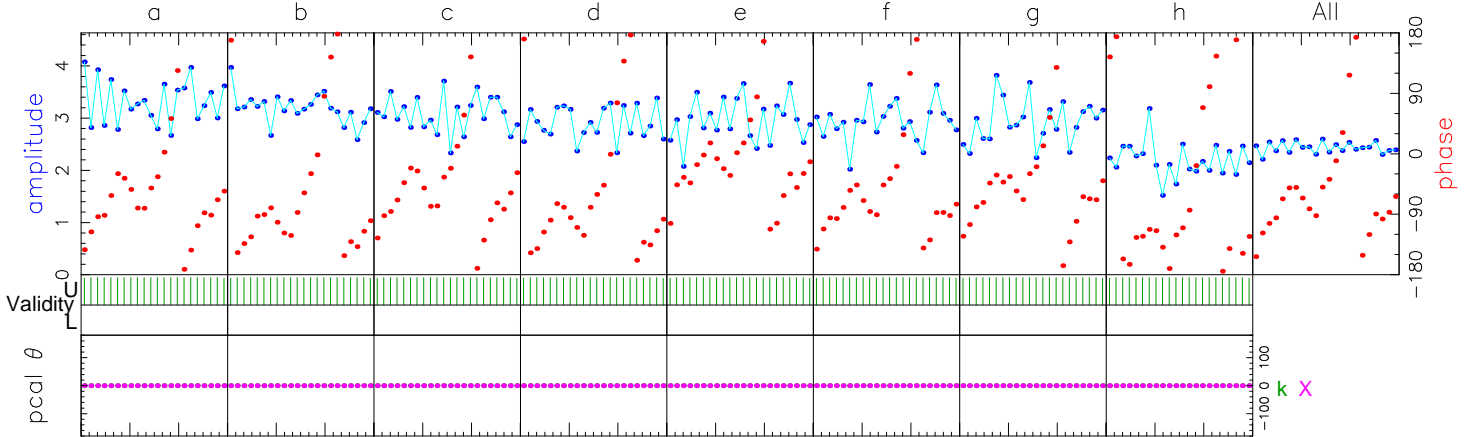
Fringe quality 2

SNR 56.7  
 Int time 179.835  
 Amp 1.545  
 Phase -129.2  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.023428  
 MBD 0.001245  
 Fringe rate (Hz)  
 0.014667  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151826  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |     |
| k   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| k:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| k:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| k   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| k   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    |            |     |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -7.98797523546E+02 | Apriori delay (usec)     | -7.98767518163E+02 | Resid mbdelay (usec) | 1.24462E-03  | +/- | 1.9E-05 |
| Sband delay (usec)       | -7.98790945913E+02 | Apriori clock (usec)     | -1.1277026E+02     | Resid sbdelay (usec) | -2.34278E-02 | +/- | 1.5E-04 |
| Phase delay (usec)       | -7.98767523586E+02 | Apriori clockrate (us/s) | -1.0644170E-06     | Resid phdelay (usec) | -5.42274E-06 | +/- | 1.3E-07 |
| Delay rate (us/s)        | 1.50311369161E+00  | Apriori rate (us/s)      | 1.50311335162E+00  | Resid rate (us/s)    | 3.39992E-07  | +/- | 1.3E-09 |
| Total phase (deg)        | -33.3              | Apriori accel (us/s/s)   | -1.77448004325E-05 | Resid phase (deg)    | -129.2       | +/- | 2.0     |

|              |      |        |     |                  |       |  |   |                  |        |       |
|--------------|------|--------|-----|------------------|-------|--|---|------------------|--------|-------|
| ph/seg (deg) | 57.8 | Theor. | 4.7 | Search (1024X32) | 1.471 | Pcal mode: MANUAL, MANUAL              | PC period (AP's) 5, 5                         | sb window (us)   | -1.000 | 1.000 |
| amp/seg (%)  | 58.1 |        | 8.3 | Interp.          | 0.000 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | SampCntNorm: enabled                          | mb window (us)   | -0.008 | 0.008 |
| ph/frq (deg) | 42.0 |        | 2.9 | Inc. seg. avg.   | 2.428 | Bits/sample: 2x2                       | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us | dr window (ns/s) | -0.023 | 0.023 |
| amp/frq (%)  | 24.0 |        | 5.0 | Inc. frq. avg.   | 1.862 | Data rate(Mb/s): 2048                  | nlags: 256 t_cohere infinite                  | ion window (TEC) | 0.00   | 0.00  |

k: az 66.3 el 41.3 pa -77.6 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -5425.408 -1602.154 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/kX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/kX.Q.272.3MP56K

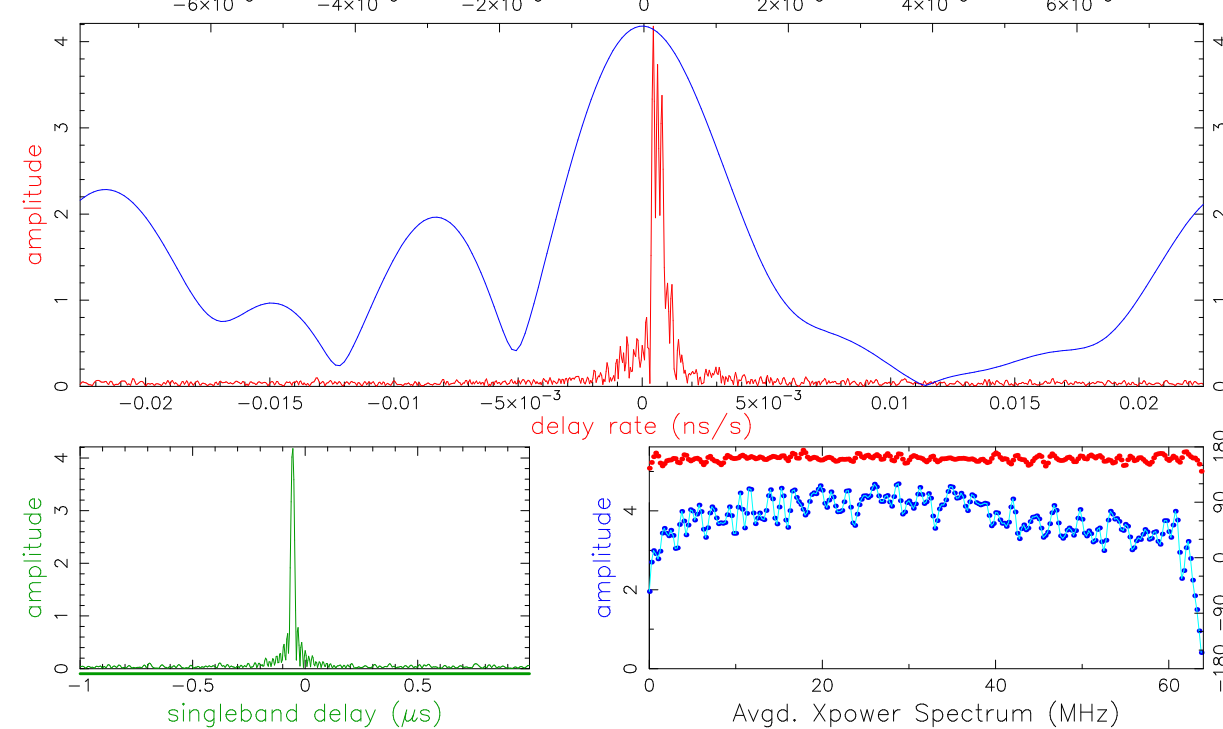


Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, IX

VLBA\_LA - QNSALA60, fgroup Q, pol LL

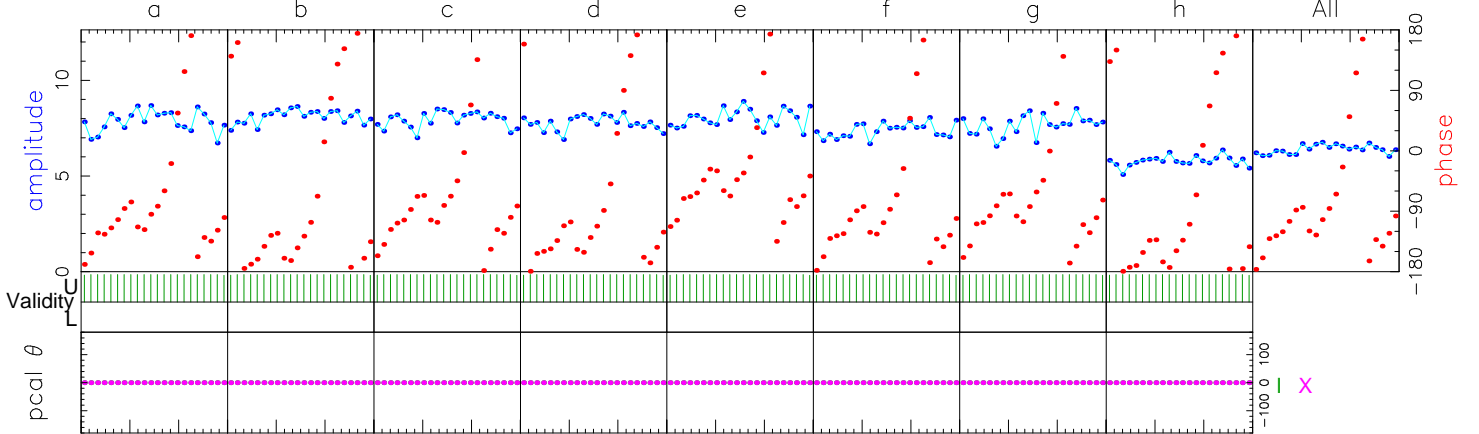


Fringe quality 2

SNR 154.5  
 Int time 179.835  
 Amp 4.213  
 Phase -211.0  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.055824  
 MBD -0.000057  
 Fringe rate (Hz)  
 0.019240  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512

Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151825  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All    |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|--------|
|     | -115.0   | -161.5   | -103.4   | -146.0   | -63.0    | -121.8   | -100.4   | -169.6   | Phase      | -121.0 |
|     | 5.2      | 5.3      | 5.1      | 5.1      | 5.4      | 4.8      | 5.0      | 3.7      | Ampl.      | 4.9    |
|     | 242.7    | 242.3    | 242.5    | 242.3    | 242.2    | 242.0    | 242.2    | 241.1    | Sbd box    | 242.7  |
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | APs used   |        |
| I   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |        |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |        |
| I:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |        |
| I:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | ManI PC    |        |
| I   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |        |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |        |
| I   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Chan ids   |        |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Tracks     |        |

|                          |                   |                          |                    |                      |              |     |         |
|--------------------------|-------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | 6.60834154077E+02 | Apriori delay (usec)     | 6.60896711117E+02  | Resid mbdelay (usec) | -5.70402E-05 | +/- | 7.0E-06 |
| Sband delay (usec)       | 6.60840886867E+02 | Apriori clock (usec)     | -1.2121981E+02     | Resid sbdelay (usec) | -5.58242E-02 | +/- | 5.6E-05 |
| Phase delay (usec)       | 6.60896703328E+02 | Apriori clockrate (us/s) | -1.4506241E-06     | Resid phdelay (usec) | -7.78940E-06 | +/- | 4.8E-08 |
| Delay rate (us/s)        | 1.41221302560E+00 | Apriori rate (us/s)      | 1.41221257962E+00  | Resid rate (us/s)    | 4.45981E-07  | +/- | 4.6E-10 |
| Total phase (deg)        | -168.6            | Apriori accel (us/s/s)   | -2.17743391525E-05 | Resid phase (deg)    | -211.0       | +/- | 0.7     |

|              |      |     |                  |       |  |   |                  |        |       |
|--------------|------|-----|------------------|-------|--|---|------------------|--------|-------|
| ph/seg (deg) | 58.2 | 1.7 | Search (1024X32) | 4.150 | Pcal mode: MANUAL, MANUAL              | PC period (AP's) 5, 5                         | sb window (us)   | -1.000 | 1.000 |
| amp/seg (%)  | 52.2 | 3.0 | Interp.          | 0.000 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | SampCntNorm: enabled                          | mb window (us)   | -0.008 | 0.008 |
| ph/frq (deg) | 38.2 | 1.0 | Inc. seg. avg.   | 6.398 | Bits/sample: 2x2                       | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us | dr window (ns/s) | -0.023 | 0.023 |
| amp/frq (%)  | 21.2 | 1.8 | Inc. frq. avg.   | 4.944 | Data rate(Mb/s): 2048                  | nlags: 256 t_cohere infinite                  | ion window (TEC) | 0.00   | 0.00  |

I: az 71.2 el 46.9 pa -74.8 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -5099.007 -1529.451 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/IX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/IX.Q.265.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

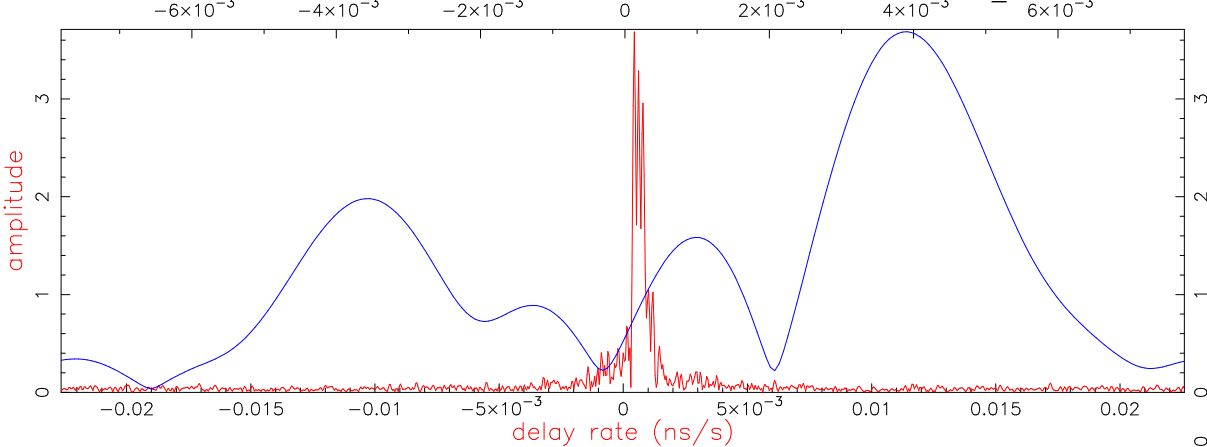
aux01

2013+370.3MP56K, No0500, IX

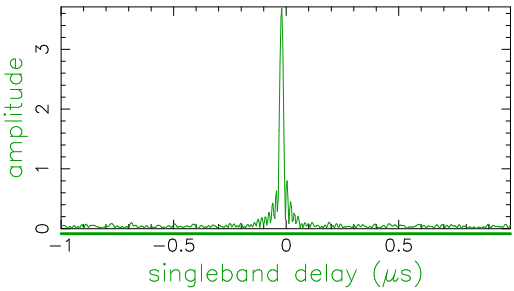
VLBA\_LA - ONSALA60, fgroup Q, pol RR

multiband delay ( $\mu$ s)

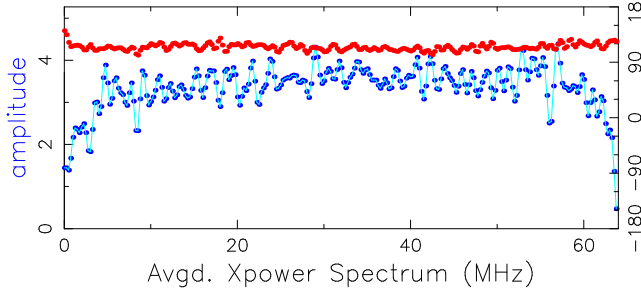
Fringe quality 2



SNR 136.1  
 Int time 179.835  
 Amp 3.711  
 Phase -212.3  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.020592  
 MBD 0.003854  
 Fringe rate (Hz)  
 0.019220  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512

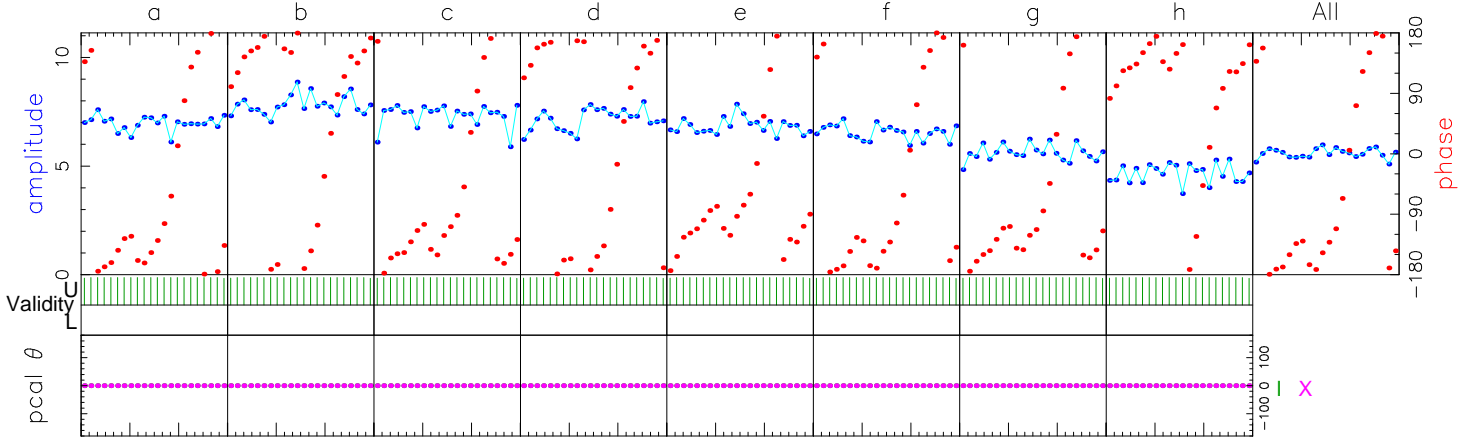


singleband delay ( $\mu$ s)



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151829  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |     |
| I   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| I:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| I:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| I   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| I   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    |            |     |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    |            |     |

|                          |                   |                          |                    |                      |              |     |         |
|--------------------------|-------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | 6.60869315608E+02 | Apriori delay (usec)     | 6.60896711117E+02  | Resid mbdelay (usec) | 3.85449E-03  | +/- | 8.0E-06 |
| Sband delay (usec)       | 6.60876119117E+02 | Apriori clock (usec)     | -1.2121981E+02     | Resid sbdelay (usec) | -2.05920E-02 | +/- | 6.3E-05 |
| Phase delay (usec)       | 6.60896700342E+02 | Apriori clockrate (us/s) | -1.4506241E-06     | Resid phdelay (usec) | -1.07750E-05 | +/- | 5.4E-08 |
| Delay rate (us/s)        | 1.41221302514E+00 | Apriori rate (us/s)      | 1.41221257962E+00  | Resid rate (us/s)    | 4.45523E-07  | +/- | 5.2E-10 |
| Total phase (deg)        | -170.0            | Apriori accel (us/s/s)   | -2.17743391525E-05 | Resid phase (deg)    | -212.3       | +/- | 0.8     |

|              |      |     |     |                |                 |   |                              |                           |                       |                |        |       |
|--------------|------|-----|-----|----------------|-----------------|---|------------------------------|---------------------------|-----------------------|----------------|--------|-------|
| ph/seg (deg) | 58.2 | RMS | 2.0 | Theor.         | 3.711 +/- 0.027 | Search (1024X32)                              | 3.662                        | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 | sb window (us) | -1.000 | 1.000 |
| amp/seg (%)  | 51.0 |     | 3.4 | Interp.        | 0.000           | Bits/sample: 2x2                              | SampCntNorm: enabled         | mb window (us)            | -0.008                | 0.008          |        |       |
| ph/frq (deg) | 39.6 |     | 1.2 | Inc. seg. avg. | 5.587           | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us | nlags: 256 t_cohere infinite | dr window (ns/s)          | -0.023                | 0.023          |        |       |
| amp/frq (%)  | 24.2 |     | 2.1 | Inc. frq. avg. | 4.374           | Data rate(Mb/s): 2048                         |                              | ion window (TEC)          | 0.00                  | 0.00           |        |       |

I: az 71.2 el 46.9 pa -74.8 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -5099.007 -1529.451 simultaneous interpolator

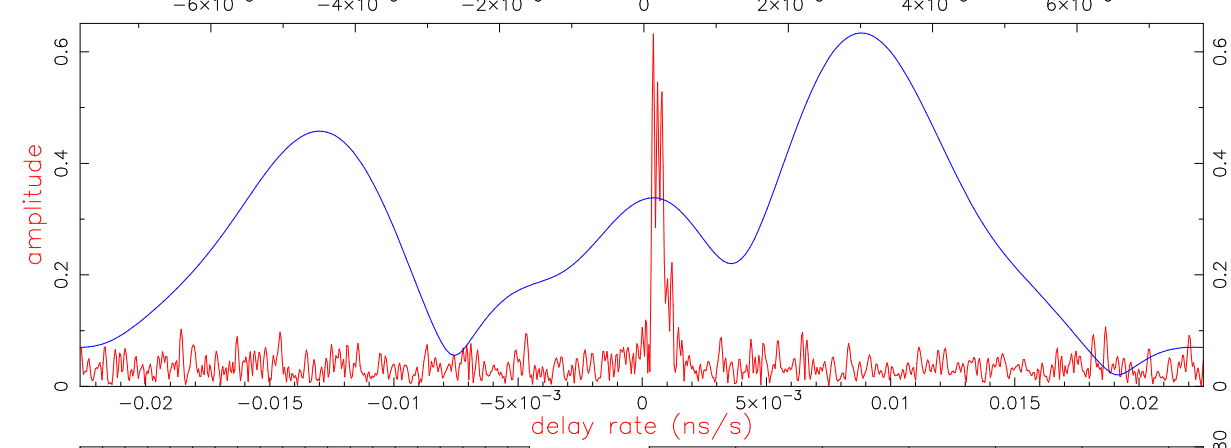
Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/IX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/IX.Q.286.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

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2013+370.3MP56K, No0500, IX

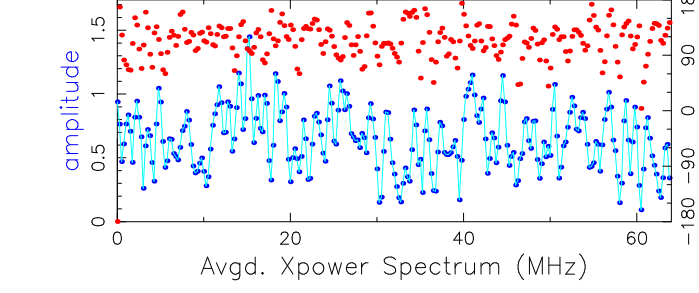
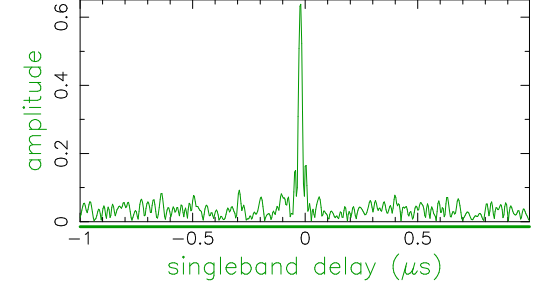
VLBA\_LA - ONSALA60, fgroup Q, pol LR



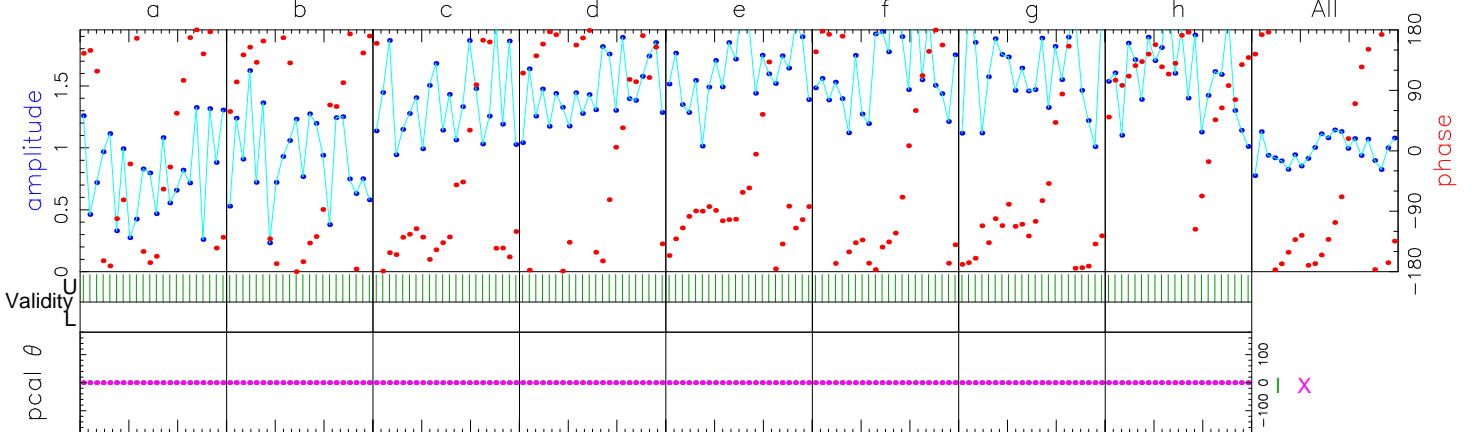
Fringe quality 5

SNR 23.9  
 Int time 179.835  
 Amp 0.651  
 Phase -210.4  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.021298  
 MBD 0.003102  
 Fringe rate (Hz)  
 0.019331  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512

Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151834  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"



Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |     |
| I   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| I:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| I:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| I   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| I   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    |            |     |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | 6.608868563390E+02 | Apriori delay (usec)     | 6.60896711117E+02  | Resid mbdelay (usec) | 3.10227E-03  | +/- | 4.5E-05 |
| Sband delay (usec)       | 6.60875413367E+02  | Apriori clock (usec)     | -1.2121981E+02     | Resid sbdelay (usec) | -2.12977E-02 | +/- | 3.6E-04 |
| Phase delay (usec)       | 6.60896700464E+02  | Apriori clockrate (us/s) | -1.4506241E-06     | Resid phdelay (usec) | -1.06530E-05 | +/- | 3.1E-07 |
| Delay rate (us/s)        | 1.41221302771E+00  | Apriori rate (us/s)      | 1.41221257962E+00  | Resid rate (us/s)    | 4.48092E-07  | +/- | 3.0E-09 |
| Total phase (deg)        | -168.1             | Apriori accel (us/s/s)   | -2.17743391525E-05 | Resid phase (deg)    | -210.4       | +/- | 4.8     |

|                             |      |   |      |   |                     |                     |                             |                              |                  |                           |
|-----------------------------|------|---|------|---|---------------------|---------------------|-----------------------------|------------------------------|------------------|---------------------------|
| ph/seg (deg)                | 58.6 | Theor.  | 11.3 | Amplitude   | 0.651 +/- 0.027     | Pcal mode:          | MANUAL, MANUAL              | PC period (AP's)             | 5, 5             |                           |
| amp/seg (%)                 | 53.3 |   | 19.6 | Search (1024X32)  | 0.628               | Pcal rate:          | 0.000E+00, 0.000E+00 (us/s) | sb window (us)               | -1.000 1.000     |                           |
| ph/frq (deg)                | 47.9 |   | 6.8  | Inc. seg. avg.  | 0.962               | Bits/sample:        | 2x2                         | SampCntNorm: enabled         | mb window (us)   | -0.008 0.008              |
| amp/frq (%)                 | 46.5 |   | 11.8 | Inc. frq. avg.  | 0.857               | Data rate(MSamp/s): | 128 MBpts 32 Amb 0.016 us   | dr window (ns/s)             | -0.023 0.023     |                           |
| I: az 71.2 el 46.9 pa -74.8 |      | X: az 272.4 el 44.4 pa 42.5                           |      | u,v (fr/asec)   | -5099.007 -1529.451 | Data rate(Mb/s):    | 2048                        | nlags: 256 t_cohere infinite | ion window (TEC) | 0.00 0.00                 |
| Control file: cf_1234_gmva  |      | Input file: /Exps/c241d/v1/7mm/1234/No0500/IX..3MP56K |      | Output file: /Exps/c241d/v1/7mm/1234/No0500/IX.Q.311.3MP56K |                     |                     |                             |                              |                  | simultaneous interpolator |

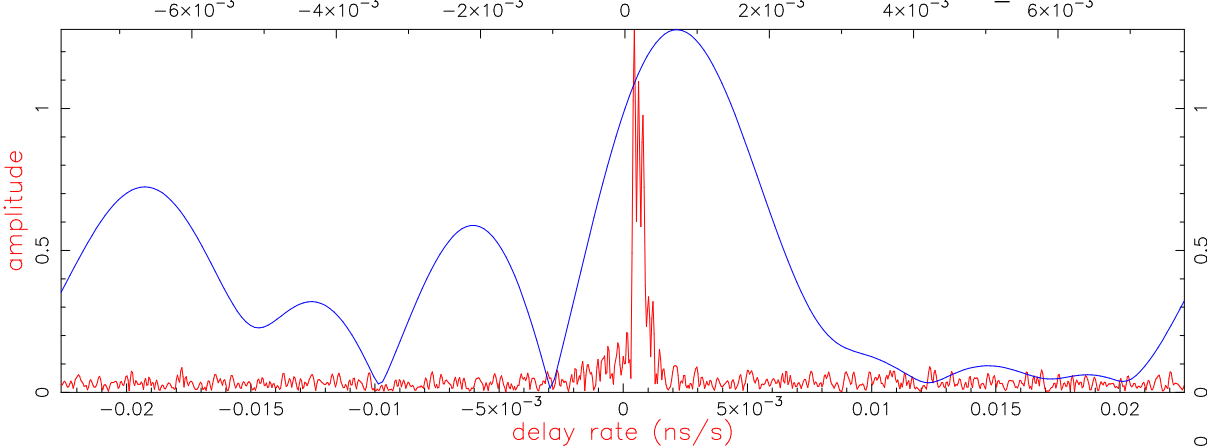
Mk4/DiFX fourfit 3.25 rev 0

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2013+370.3MP56K, No0500, IX

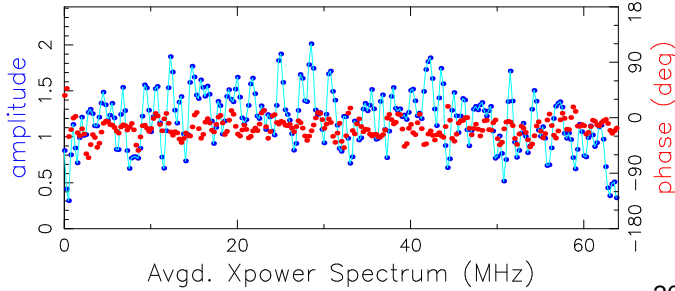
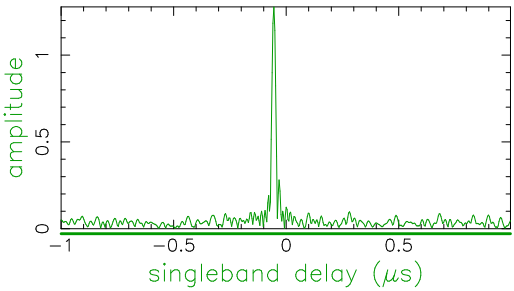
VLBA\_LA - ONSALA60, fgroup Q, pol RL

multiband delay ( $\mu$ s)



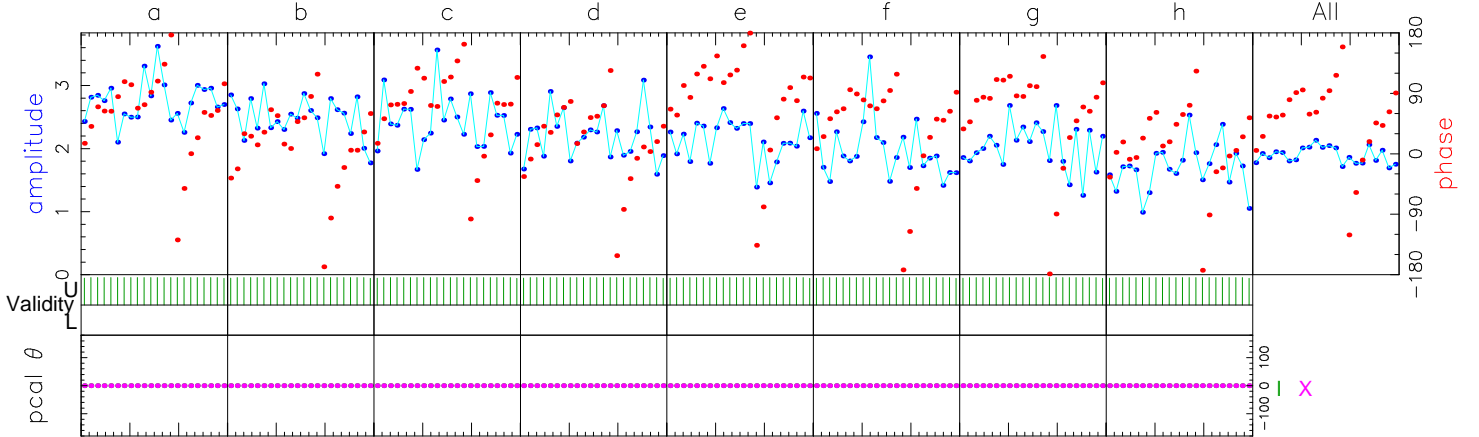
Fringe quality 4

SNR 46.9  
 Int time 179.835  
 Amp 1.279  
 Phase -29.0  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.055041  
 MBD 0.000708  
 Fringe rate (Hz) 0.019201  
 Ion TEC 0.000  
 Ref freq (MHz) 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build 2024:332:222845  
 2025:042:151836  
 2024:113:095956  
 RA & Dec (J2000) 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |     |
| I   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| I:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| I:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| I   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| I   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    |            |     |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |

|                          |                   |                          |                    |                      |              |     |         |
|--------------------------|-------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | 6.60834919577E+02 | Apriori delay (usec)     | 6.60896711117E+02  | Resid mbdelay (usec) | 7.08460E-04  | +/- | 2.3E-05 |
| Sband delay (usec)       | 6.60841669867E+02 | Apriori clock (usec)     | -1.2121981E+02     | Resid sbdelay (usec) | -5.50412E-02 | +/- | 1.8E-04 |
| Phase delay (usec)       | 6.60896715044E+02 | Apriori clockrate (us/s) | -1.4506241E-02     | Resid phdelay (usec) | 3.92667E-06  | +/- | 1.6E-07 |
| Delay rate (us/s)        | 1.41221302470E+00 | Apriori rate (us/s)      | 1.41221257962E+00  | Resid rate (us/s)    | 4.45081E-07  | +/- | 1.5E-09 |
| Total phase (deg)        | -346.7            | Apriori accel (us/s/s)   | -2.17743391525E-05 | Resid phase (deg)    | -29.0        | +/- | 2.4     |

|              |      |        |      |                  |       |  |   |                  |        |       |
|--------------|------|--------|------|------------------|-------|--|---|------------------|--------|-------|
| ph/seg (deg) | 58.5 | Theor. | 5.7  | Search (1024X32) | 1.251 | Pcal mode: MANUAL, MANUAL              | PC period (AP's) 5, 5                         | sb window (us)   | -1.000 | 1.000 |
| amp/seg (%)  | 49.3 |        | 10.0 | Interp.          | 0.000 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | SampCntNorm: enabled                          | mb window (us)   | -0.008 | 0.008 |
| ph/frq (deg) | 36.2 |        | 3.5  | Inc. seg. avg.   | 1.887 | Bits/sample: 2x2                       | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us | dr window (ns/s) | -0.023 | 0.023 |
| amp/frq (%)  | 22.6 |        | 6.0  | Inc. frq. avg.   | 1.481 | Data rate(Mb/s): 2048                  | nlags: 256 t_cohere infinite                  | ion window (TEC) | 0.00   | 0.00  |

I: az 71.2 el 46.9 pa -74.8 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -5099.007 -1529.451 simultaneous interpolator

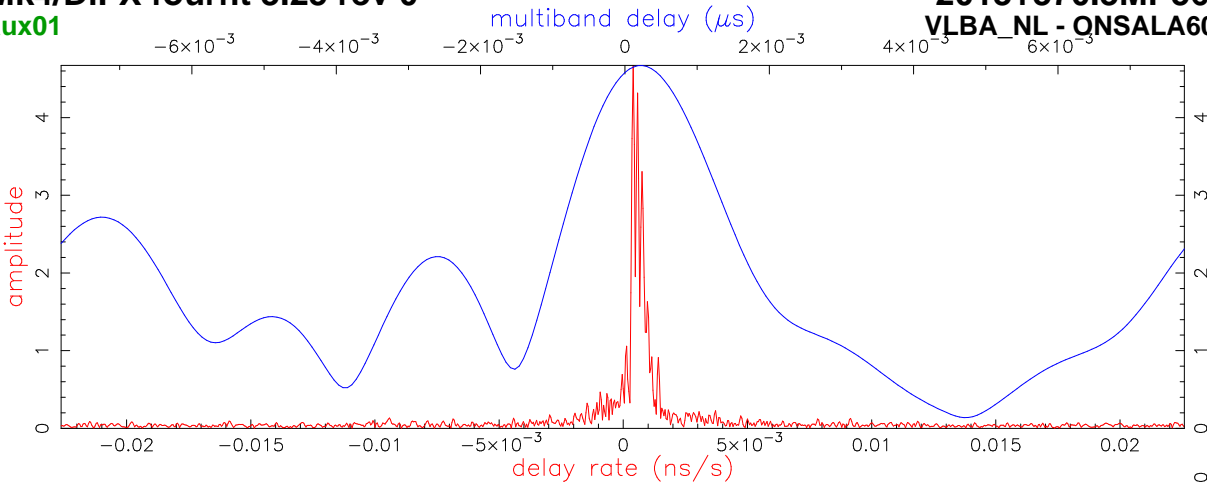
Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/IX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/IX.Q.321.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

aux01

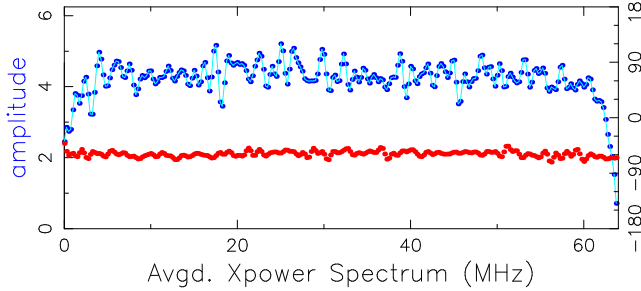
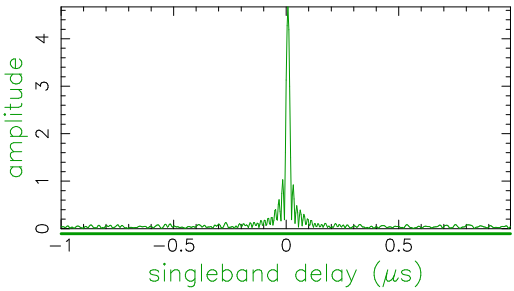
2013+370.3MP56K, No0500, nX

VLBA\_NL - QNSALA60, fgroup Q, pol LL



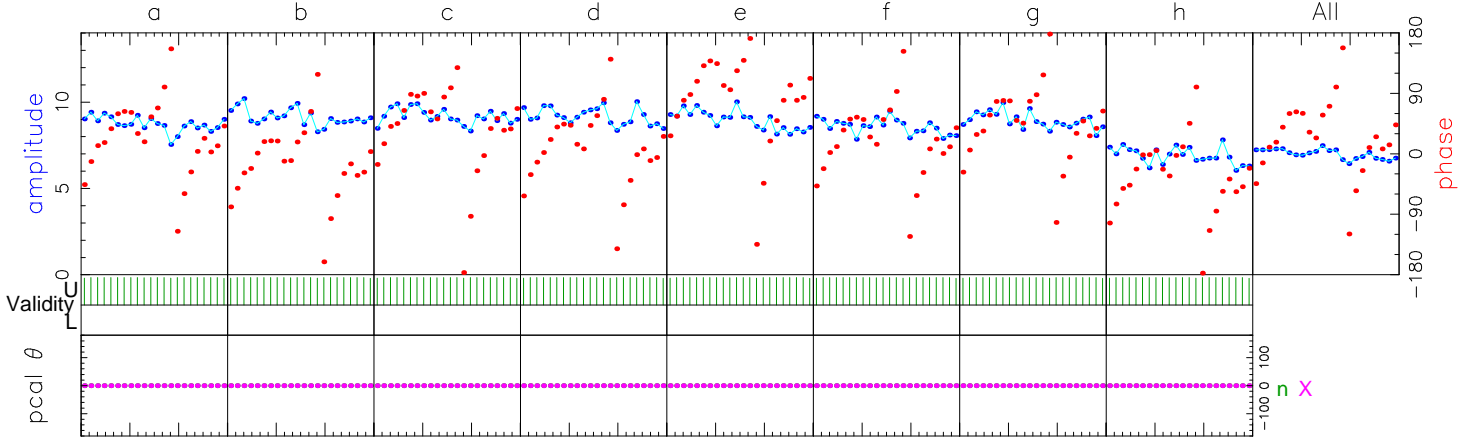
Fringe quality 2

SNR 171.2  
 Int time 179.527  
 Amp 4.673  
 Phase 26.6  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.007613  
 MBD 0.000212  
 Fringe rate (Hz)  
 0.017878  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151823  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |     |
| n   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| n:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| n   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| n   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |

|                          |                   |                          |                    |                      |             |     |         |
|--------------------------|-------------------|--------------------------|--------------------|----------------------|-------------|-----|---------|
| Group delay (usec) (SBD) | 3.41245935101E+03 | Apriori delay (usec)     | 3.41245913939E+03  | Resid mbdelay (usec) | 2.11617E-04 | +/- | 6.3E-06 |
| Sband delay (usec)       | 3.41246675264E+03 | Apriori clock (usec)     | -1.1320757E+02     | Resid sbdelay (usec) | 7.61325E-03 | +/- | 5.0E-05 |
| Phase delay (usec)       | 3.41245914111E+03 | Apriori clockrate (us/s) | -9.1936311E-07     | Resid phdelay (usec) | 1.71248E-06 | +/- | 4.3E-08 |
| Delay rate (us/s)        | 1.18512115161E+00 | Apriori rate (us/s)      | 1.18512073719E+00  | Resid rate (us/s)    | 4.14417E-07 | +/- | 4.1E-10 |
| Total phase (deg)        | 125.0             | Apriori accel (us/s/s)   | -3.08044785848E-05 | Resid phase (deg)    | 26.6        | +/- | 0.7     |

|                             |      |                             |       |                      |                           |                   |                 |              |                             |                  |              |
|-----------------------------|------|-----------------------------|-------|----------------------|---------------------------|-------------------|-----------------|--------------|-----------------------------|------------------|--------------|
| ph/seg (deg)                | 55.4 | RMS                         | 1.6   | Theor.               | 4.448                     | Amplitude         | 4.673 +/- 0.027 | Pcal mode:   | MANUAL, MANUAL              | PC period (AP's) | 5, 5         |
| amp/seg (%)                 | 50.1 | Search (1024X32)            | 4.448 | Interp.              | 0.000                     | Search            | 4.448           | Pcal rate:   | 0.000E+00, 0.000E+00 (us/s) | sb window (us)   | -1.000 1.000 |
| ph/frq (deg)                | 44.6 | Inc. seg. avg.              | 6.995 | Inc. frq. avg.       | 5.826                     | Bits/sample:      | 2x2             | SampCntNorm: | enabled                     | mb window (us)   | -0.008 0.008 |
| amp/frq (%)                 | 27.0 | Inc. frq. avg.              | 5.826 | Data rate (MSamp/s): | 128 MBpts 32 Amb 0.016 us | Data rate (Mb/s): | 2048            | nlags:       | 256                         | dr window (ns/s) | -0.023 0.023 |
| n: az 85.1 el 59.3 pa -68.9 |      | X: az 272.4 el 44.4 pa 42.5 |       | u, v (fr/asec)       | -4283.661 -1517.344       | nlags:            | 256             | t_cohere     | infinite                    | ion window (TEC) | 0.00 0.00    |

Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/nX...3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/nX.Q.257.3MP56K

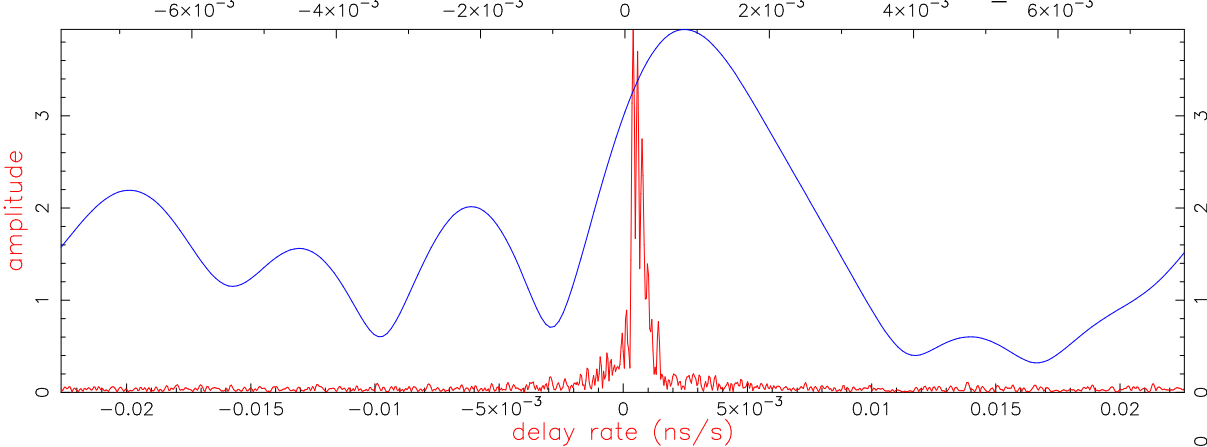
Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, nX

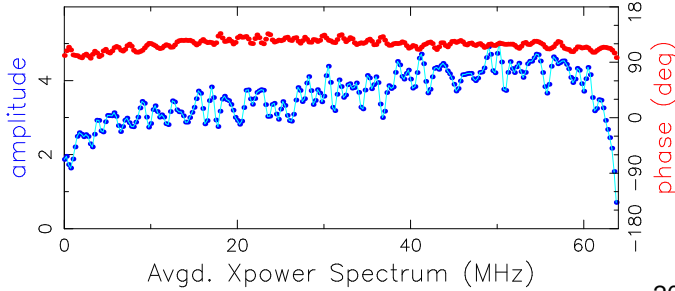
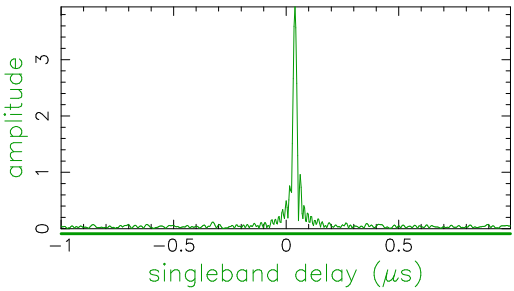
VLBA\_NL - ONSALA60, fgroup Q, pol RR

multiband delay ( $\mu$ s)



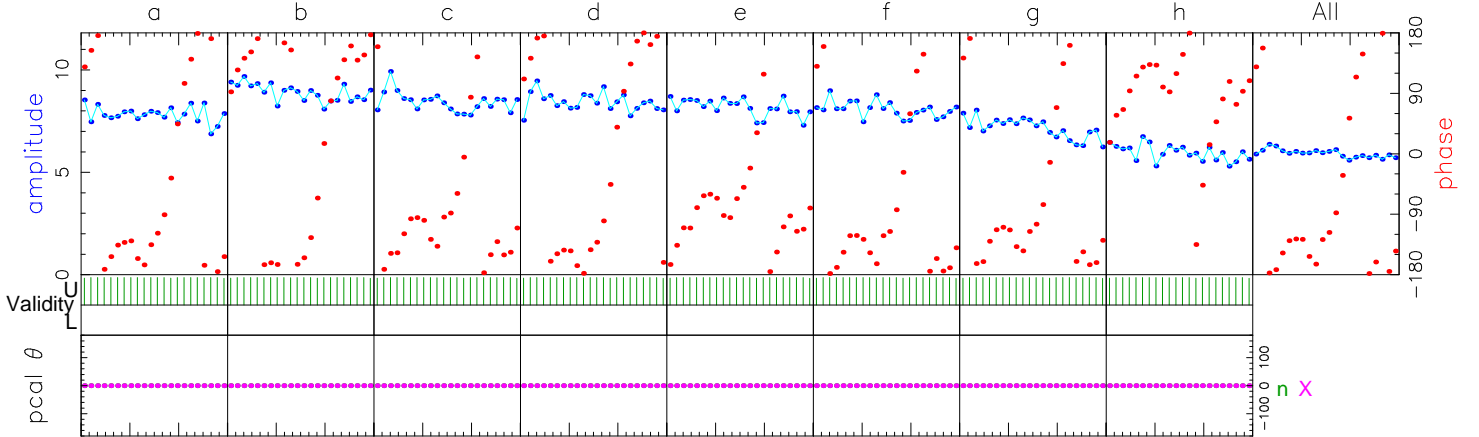
Fringe quality 2

SNR 144.3  
 Int time 179.527  
 Amp 3.937  
 Phase 244.1  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.039004  
 MBD 0.000824  
 Fringe rate (Hz) 0.017875  
 Ion TEC 0.000  
 Ref freq (MHz) 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151826  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All    |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|--------|
|     | -165.2   | 160.1    | -132.1   | -175.9   | -95.7    | -158.1   | -145.9   | 96.8     | Phase      | -160.9 |
|     | 5.1      | 5.9      | 5.7      | 5.5      | 5.5      | 5.4      | 4.7      | 3.8      | Ampl.      | 5.2    |
|     | 266.6    | 267.0    | 266.4    | 266.6    | 266.1    | 266.7    | 266.0    | 264.8    | Sbd box    | 267.0  |
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | APs used   |        |
| n   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |        |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |        |
| n:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |        |
| n:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Manl PC    |        |
| n   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |        |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |        |
| n   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Chan ids   |        |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Tracks     |        |

Group delay (usec) (SBD) 3.41249121304E+03 Apriori delay (usec) 3.41245913939E+03 Resid mbdelay (usec) 8.23648E-04 +/- 7.5E-06  
 Sband delay (usec) 3.41249814339E+03 Apriori clock (usec) -1.1320757E+02 Resid sbdelay (usec) 3.90040E-02 +/- 6.0E-05  
 Phase delay (usec) 3.41245912903E+03 Apriori clockrate (us/s) -9.1936311E-07 Resid phdelay (usec) -1.03627E-05 +/- 5.1E-08  
 Delay rate (us/s) 1.18512115153E+00 Apriori rate (us/s) 1.18512073719E+00 Resid rate (us/s) 4.14340E-07 +/- 4.9E-10  
 Total phase (deg) 342.5 Apriori accel (us/s/s) -3.08044785848E-05 Resid phase (deg) 244.1 +/- 0.8

RMS Theor. Amplitude 3.937 +/- 0.027 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 55.4 1.9 Search (1024X32) 3.764 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 amp/seg (%) 50.8 3.3 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 ph/frq (deg) 54.1 1.1 Inc. seg. avg. 5.924 Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us dr window (ns/s) -0.023 0.023  
 amp/frq (%) 36.3 2.0 Inc. frq. avg. 5.221 Data rate(Mb/s): 2048 nlags: 256 t\_cohere infinite ion window (TEC) 0.00 0.00

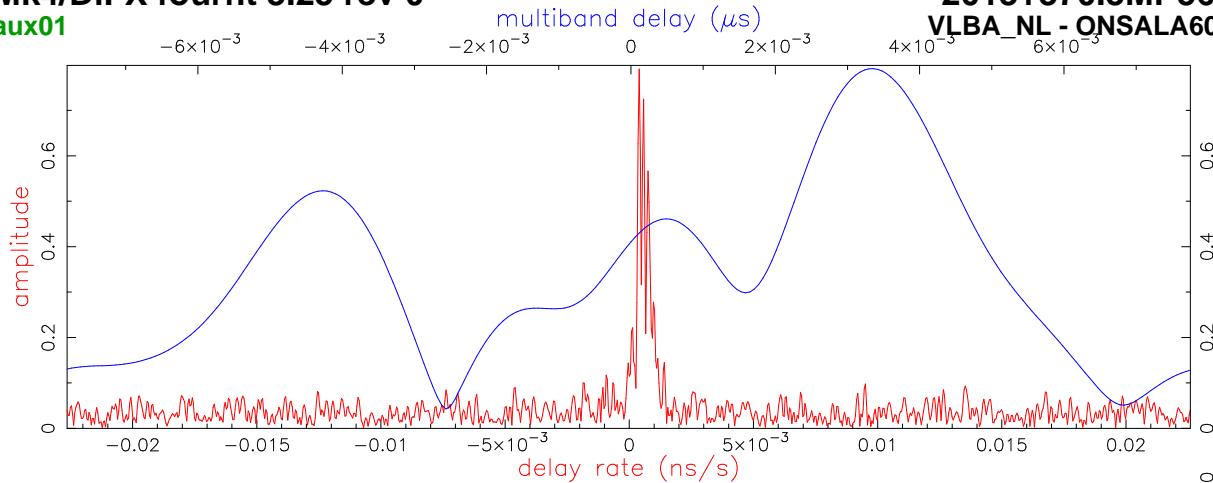
n: az 85.1 el 59.3 pa -68.9 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -4283.661 -1517.344 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/nX...3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/nX.Q.273.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

aux01

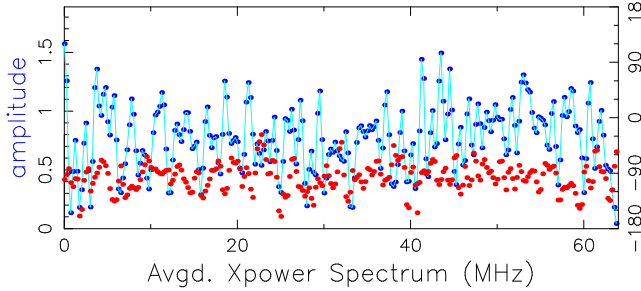
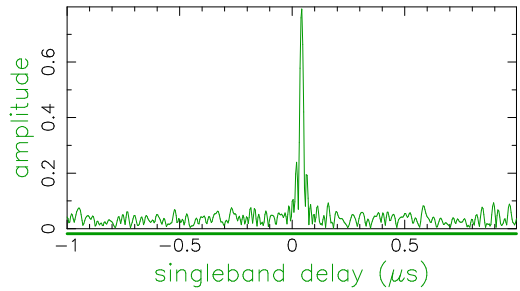
2013+370.3MP56K, No0500, nX

VLBA\_NL - ONSALA60, fgroup Q, pol LR



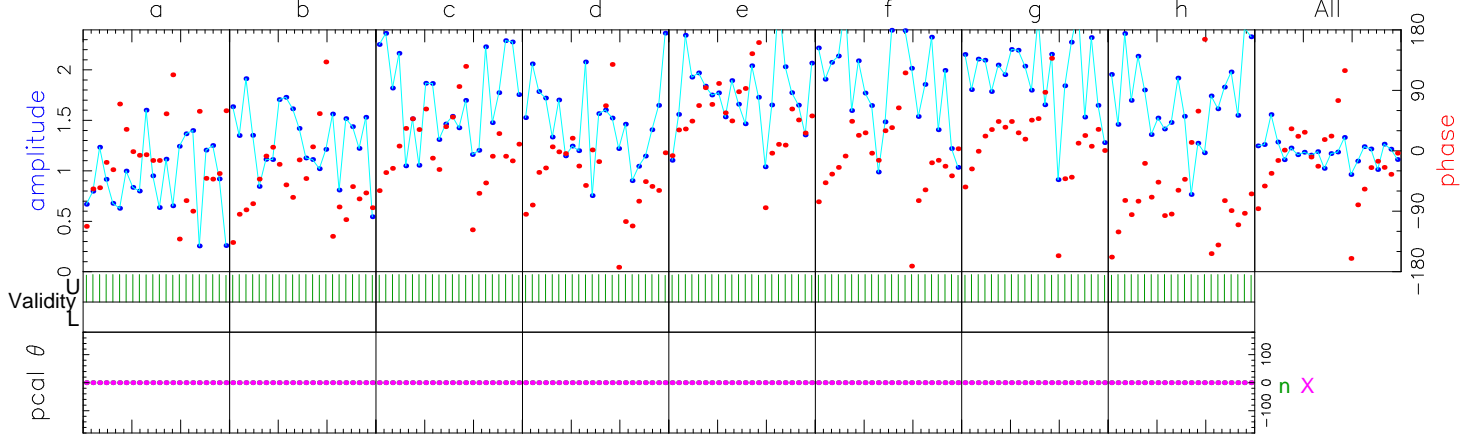
Fringe quality 3

SNR 29.3  
 Int time 179.527  
 Amp 0.799  
 Phase 32.0  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.041765  
 MBD 0.003284  
 Fringe rate (Hz)  
 0.017971  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151832  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All   |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-------|
|     | -29.8    | -61.5    | 0.4      | -35.7    | 53.4     | -6.8     | 19.0     | -85.8    | Phase      | -13.0 |
|     | 0.6      | 0.9      | 1.2      | 0.9      | 1.3      | 1.2      | 1.4      | 1.2      | Ampl.      | 1.1   |
|     | 266.6    | 267.6    | 267.2    | 266.9    | 266.8    | 267.1    | 267.1    | 265.7    | Sbd box    | 267.7 |
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | APs used   |       |
| n   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| n:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |       |
| n:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Mani PC    |       |
| n   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |       |
| n   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Chan ids   |       |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Tracks     |       |

Group delay (usec) (SBD) 3.41249367360E+03 Apriori delay (usec) 3.41245913939E+03 Resid mbdelay (usec) 3.28421E-03 +/- 3.7E-05  
 Sband delay (usec) 3.41250090439E+03 Apriori clock (usec) -1.1320757E+02 Resid sbdelay (usec) 4.17650E-02 +/- 2.9E-04  
 Phase delay (usec) 3.41245913855E+03 Apriori clockrate (us/s) -9.1936311E-07 Resid phdelay (usec) -8.39355E-07 +/- 2.5E-07  
 Delay rate (us/s) 1.18512115377E+00 Apriori rate (us/s) 1.18512073719E+00 Resid rate (us/s) 4.16576E-07 +/- 2.4E-09  
 Total phase (deg) 130.4 Apriori accel (us/s/s) -3.08044785848E-05 Resid phase (deg) 32.0 +/- 3.9

RMS Theor. Amplitude 0.799 +/- 0.027 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 55.8 9.2 Search (1024X32) 0.753 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 amp/seg (%) 51.4 16.0 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 ph/frq (deg) 48.5 5.5 Inc. seg. avg. 1.176 Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us dr window (ns/s) -0.023 0.023  
 amp/frq (%) 46.8 9.7 Inc. frq. avg. 1.068 Data rate(Mb/s): 2048 nlags: 256 t\_cohere infinite ion window (TEC) 0.00 0.00

n: az 85.1 el 59.3 pa -68.9 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -4283.661 -1517.344 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/nX...3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/nX.Q.306.3MP56K



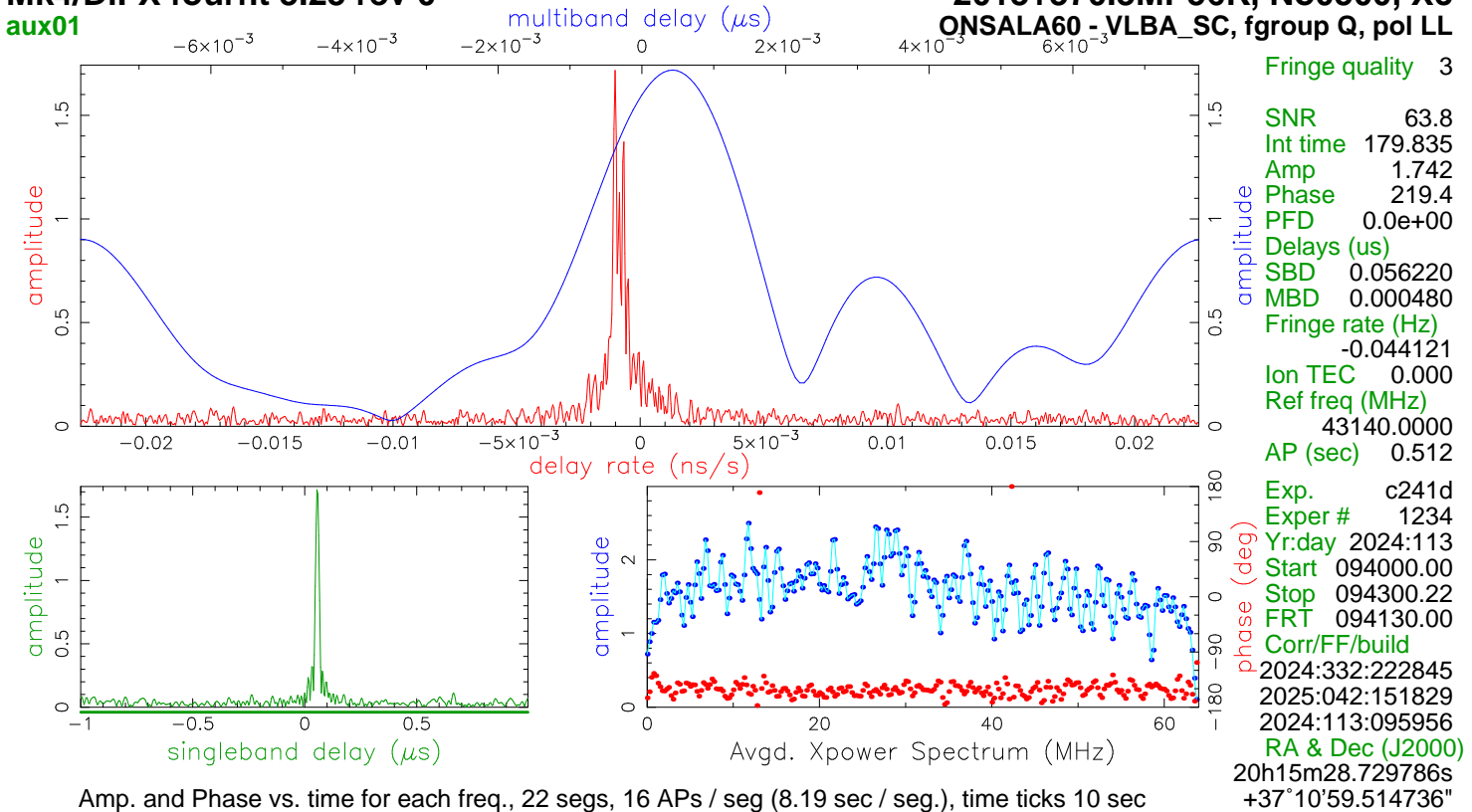


Mk4/DiFX fourfit 3.25 rev 0

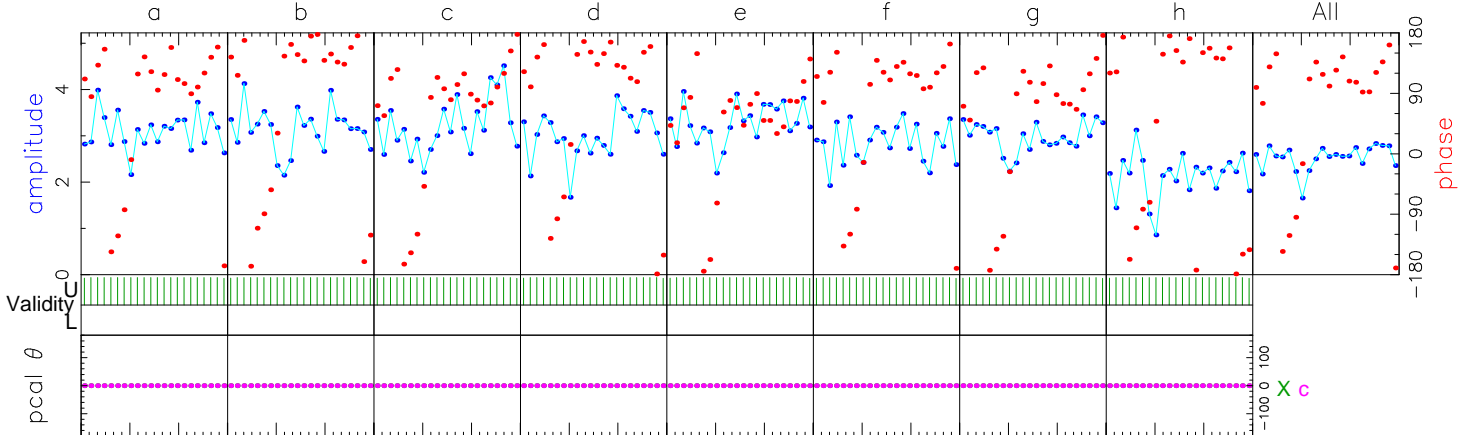
aux01

2013+370.3MP56K, No0500, Xc

ONSALA60 - VLBA\_SC, fgroup Q, pol LL



Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



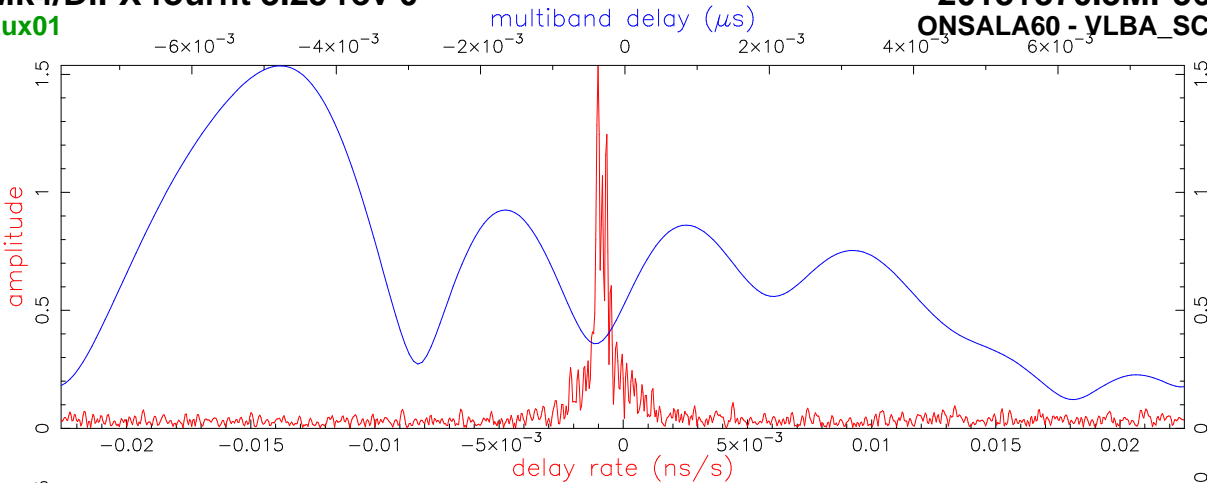
|                             | 42912.00  | 42976.00 | 43040.00  | 43104.00 | 43168.00           | 43232.00 | 43296.00                                      | 43360.00 | Freq (MHz)                | All               |                  |           |
|-----------------------------|---|----------|---|----------|--------------------|----------|---|----------|---------------------------|-------------------|------------------|-----------|
|                             | 132.2   | 167.6    | 107.7   | 152.5    | 73.1               | 131.4    | 109.8   | 174.0    | Phase                     | 129.4             |                  |           |
|                             | 2.1   | 2.1      | 2.2   | 2.1      | 2.2                | 1.9      | 2.0   | 1.5      | Ampl.                     | 2.0               |                  |           |
|                             | 271.5   | 271.8    | 271.4   | 272.1    | 271.7              | 272.2    | 271.9   | 272.9    | Sbd box                   | 271.4             |                  |           |
| U/L                         | 352/0   | 352/0    | 352/0   | 352/0    | 352/0              | 352/0    | 352/0   | 352/0    | APs used                  |                   |                  |           |
| X                           | 1000  | 1000     | 1000  | 1000     | 1000               | 1000     | 1000  | 1000     | PC freqs                  |                   |                  |           |
| c                           | 1000  | 1000     | 1000  | 1000     | 1000               | 1000     | 1000  | 1000     | PC freqs                  |                   |                  |           |
| X:c                         | 0:0   | 0:0      | 0:0   | 0:0      | 0:0                | 0:0      | 0:0   | 0:0      | PC phase                  |                   |                  |           |
| X:c                         | 0:0   | 0:0      | 0:0   | 0:0      | 0:0                | 0:0      | 0:0   | 0:0      | Manl PC                   |                   |                  |           |
| X                           | 1000  | 1000     | 1000  | 1000     | 1000               | 1000     | 1000  | 1000     | PC amp                    |                   |                  |           |
| c                           | 1000  | 1000     | 1000  | 1000     | 1000               | 1000     | 1000  | 1000     |                           |                   |                  |           |
| X                           | Q00UL   | Q01UL    | Q02UL   | Q03UL    | Q04UL              | Q05UL    | Q06UL   | Q07UL    | Chan ids                  |                   |                  |           |
| c                           | Q00UL   | Q01UL    | Q02UL   | Q03UL    | Q04UL              | Q05UL    | Q06UL   | Q07UL    | Tracks                    |                   |                  |           |
|                             |   |          |   |          |                    |          |   |          | Tracks                    |                   |                  |           |
| Group delay (usec) (SBD)    | -4.76195459026E+03                                    |          | Apriori delay (usec)  |          | -4.76201756987E+03 |          | Resid mbdelay (usec)                          |          | 4.79614E-04               | +/- 1.7E-05       |                  |           |
| Sband delay (usec)          | -4.76196134987E+03                                    |          | Apriori clock (usec)  |          | 1.0919189E+02      |          | Resid sbdelay (usec)                          |          | 5.62200E-02               | +/- 1.3E-04       |                  |           |
| Phase delay (usec)          | -4.76201756154E+03                                    |          | Apriori clockrate (us/s)                                    |          | 1.6098931E-02      |          | Resid phdelay (usec)                          |          | 8.33459E-06               | +/- 1.2E-07       |                  |           |
| Delay rate (us/s)           | -8.52087721195E-01                                    |          | Apriori rate (us/s)   |          | -8.52086698456E-01 |          | Resid rate (us/s)                             |          | -1.02274E-06              | +/- 1.1E-09       |                  |           |
| Total phase (deg)           | 232.3   |          | Apriori accel (us/s/s)                                      |          | 6.25903928982E-05  |          | Resid phase (deg)                             |          | 219.4                     | +/- 1.8           |                  |           |
| RMS                         | 57.6  | 4.2      | Amplitude   |          | 1.742 +/- 0.027    |          | Pcal mode: MANUAL, MANUAL                     |          | PC period (AP's) 5, 5     |                   |                  |           |
| ph/seg (deg)                | 57.6  | 4.2      | Search (1024X32)  |          | 1.694              |          | Pcal rate: 0.000E+00, 0.000E+00 (us/s)        |          | sb window (us)            | -1.000 1.000      |                  |           |
| amp/seg (%)                 | 47.8  | 7.3      | Interp.   |          | 0.000              |          | Bits/sample: 2x2                              |          | SampCntNorm: enabled      | mb window (us)    | -0.008 0.008     |           |
| ph/frq (deg)                | 36.6  | 2.5      | Inc. seg. avg.  |          | 2.525              |          | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us |          | dr window (ns/s)          | -0.023 0.023      |                  |           |
| amp/frq (%)                 | 19.4  | 4.4      | Inc. frq. avg.  |          | 2.006              |          | Data rate(Mb/s): 2048                         |          | nlags: 256                | t_cohere infinite | ion window (TEC) | 0.00 0.00 |
| X: az 272.4 el 44.4 pa 42.5 | c: az 27.3 el 67.5 pa -147.2                          |          | u, v (fr/asec)  |          | 3099.482 3749.617  |          |   |          | simultaneous interpolator |                   |                  |           |
| Control file: cf_1234_gmva  | Input file: /Exps/c241d/v1/7mm/1234/No0500/Xc..3MP56K |          | Output file: /Exps/c241d/v1/7mm/1234/No0500/Xc.Q.288.3MP56K |          |                    |          |   |          |                           |                   |                  |           |

Mk4/DiFX fourfit 3.25 rev 0

aux01

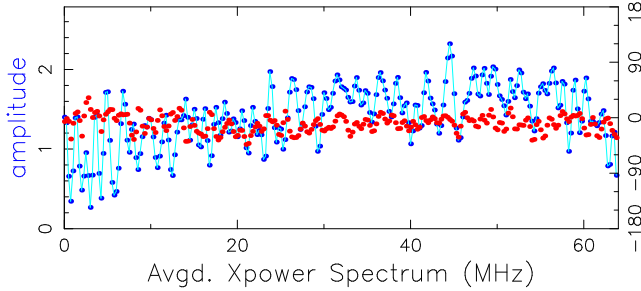
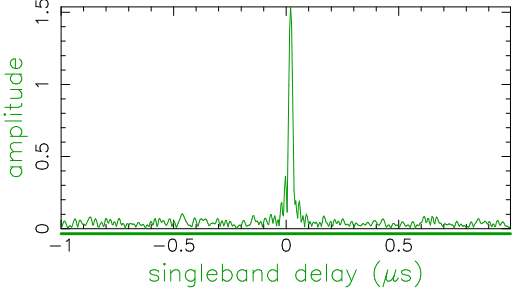
2013+370.3MP56K, No0500, Xc

ONSALA60 - VLBA\_SC, fgroup Q, pol RR



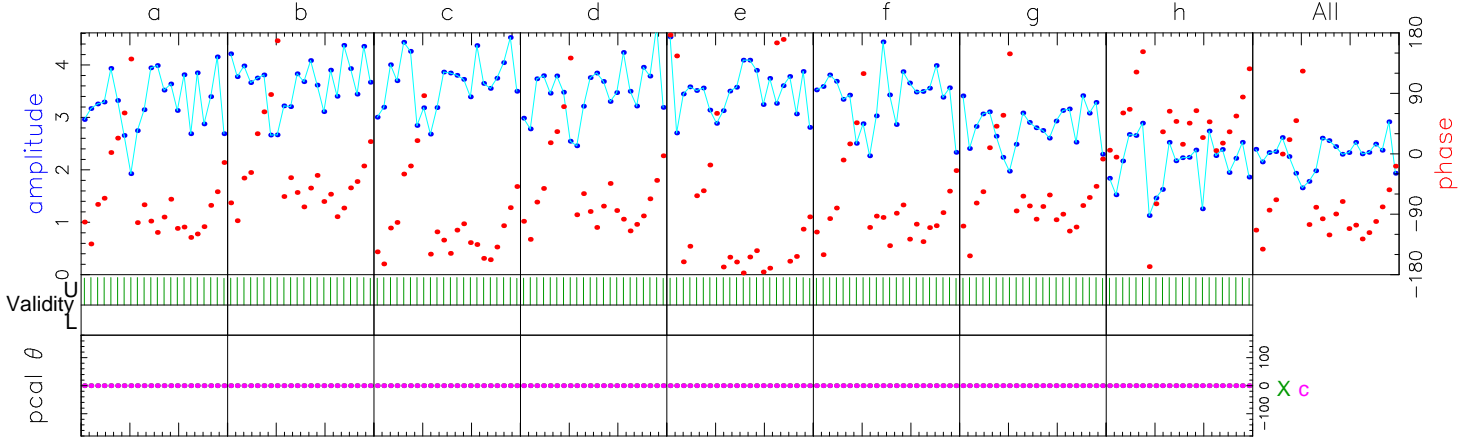
Fringe quality 1

SNR 56.4  
 Int time 179.835  
 Amp 1.538  
 Phase 318.6  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.019799  
 MBD -0.004773  
 Fringe rate (Hz)  
 -0.044165  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151831  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| c   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X:c | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| X:c | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| c   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    |            |     |
| c   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    |            |     |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -4.76199109332E+03 | Apriori delay (usec)     | -4.76201756987E+03 | Resid mbdelay (usec) | -4.77345E-03 | +/- | 1.9E-05 |
| Sband delay (usec)       | -4.76199777112E+03 | Apriori clock (usec)     | 1.0919189E+02      | Resid sbdelay (usec) | 1.97988E-02  | +/- | 1.5E-04 |
| Phase delay (usec)       | -4.76201757544E+03 | Apriori clockrate (us/s) | 1.6098931E-06      | Resid phdelay (usec) | -5.56458E-06 | +/- | 1.3E-07 |
| Delay rate (us/s)        | -8.5208772225E-01  | Apriori rate (us/s)      | -8.52086698456E-01 | Resid rate (us/s)    | -1.02377E-06 | +/- | 1.3E-09 |
| Total phase (deg)        | 331.4              | Apriori accel (us/s/s)   | 6.25903928982E-05  | Resid phase (deg)    | 318.6        | +/- | 2.0     |

ph/seg (deg) 58.7 4.8 Search (1024X32) 1.502 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 53.1 8.3 Interp. 0.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 67.1 2.9 Inc. seg. avg. 2.294 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 amp/frq (%) 45.9 5.0 Inc. frq. avg. 2.168 Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us dr window (ns/s) -0.023 0.023  
 X: az 272.4 el 44.4 pa 42.5 c: az 27.3 el 67.5 pa -147.2 u,v (fr/asec) 3099.482 3749.617 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/Xc..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/Xc.Q.300.3MP56K

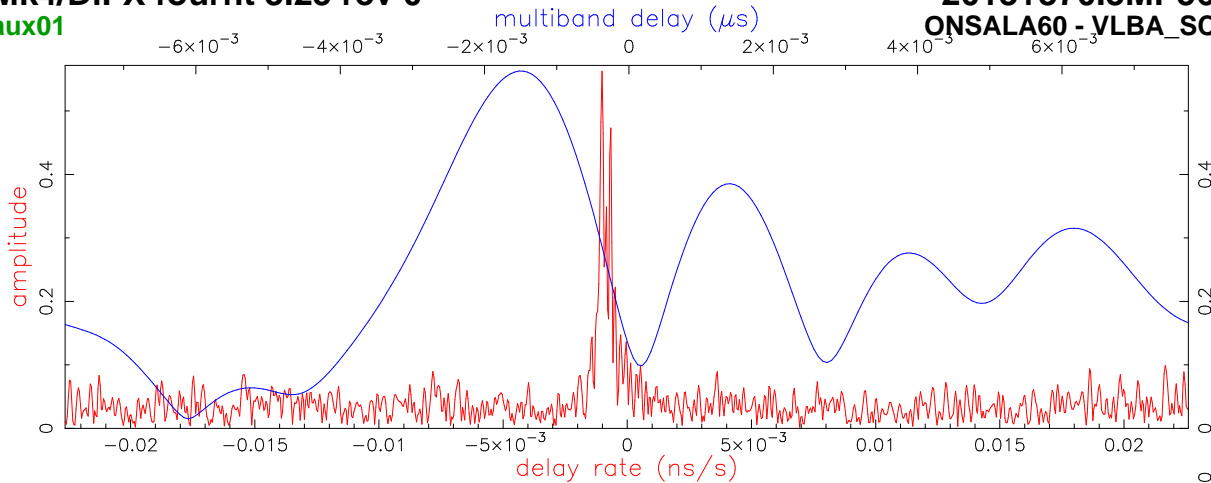
Mk4/DiFX fourfit 3.25 rev 0

aux01

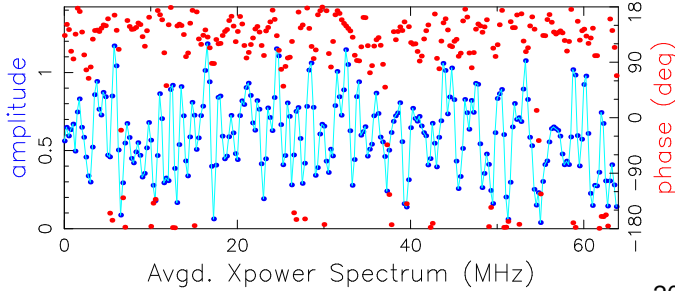
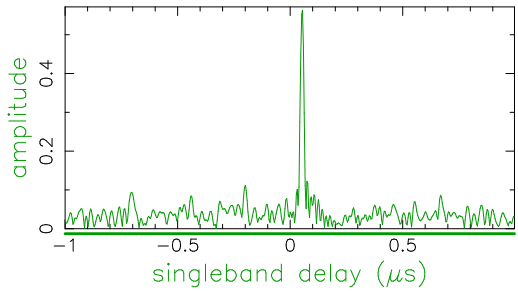
2013+370.3MP56K, No0500, Xc

ONSALA60 - VLBA\_SC, fgroup Q, pol LR

Fringe quality 8

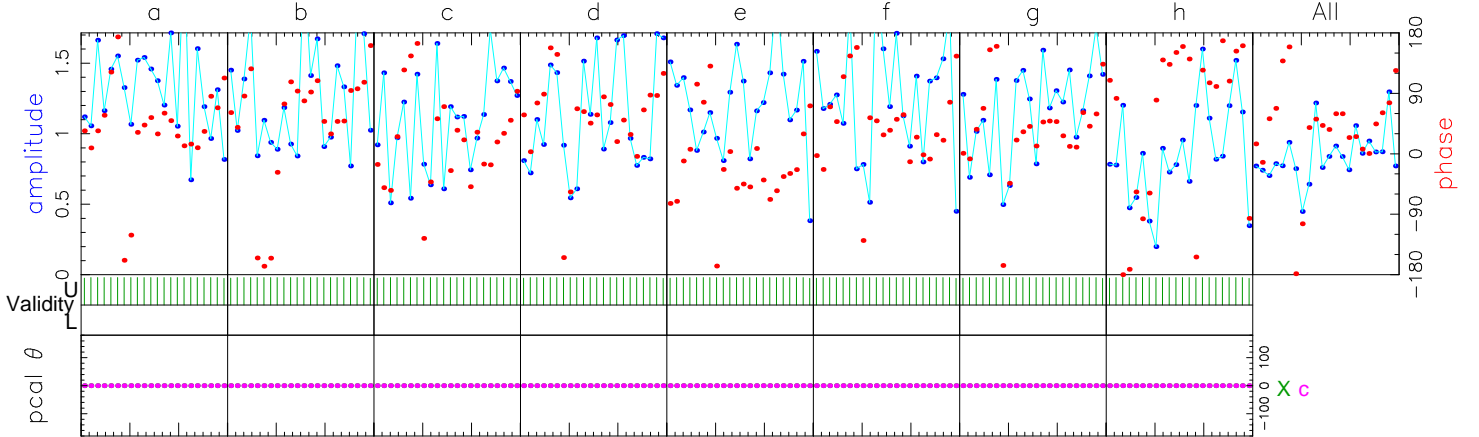


SNR 21.0  
 Int time 179.835  
 Amp 0.572  
 Phase 299.3  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.053133  
 MBD -0.001544  
 Fringe rate (Hz)  
 -0.044028  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151834  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| c   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X:c | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| X:c | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| c   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |
| c   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    |            |     |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -4.76197223845E+03 | Apriori delay (usec)     | -4.76201756987E+03 | Resid mbdelay (usec) | -1.54357E-03 | +/- | 5.2E-05 |
| Sband delay (usec)       | -4.76196443687E+03 | Apriori clock (usec)     | 1.0919189E+02      | Resid sbdelay (usec) | 5.31330E-02  | +/- | 4.1E-04 |
| Phase delay (usec)       | -4.76201756653E+03 | Apriori clockrate (us/s) | 1.6098931E-06      | Resid phdelay (usec) | 3.33764E-06  | +/- | 3.5E-07 |
| Delay rate (us/s)        | -8.52087719031E-01 | Apriori rate (us/s)      | -8.52086698456E-01 | Resid rate (us/s)    | -1.02057E-06 | +/- | 3.4E-09 |
| Total phase (deg)        | 312.2              | Apriori accel (us/s/s)   | 6.25903928982E-05  | Resid phase (deg)    | 299.3        | +/- | 5.5     |

|              |      |                  |       |                |                 |                      |                             |                              |                  |              |
|--------------|------|------------------|-------|----------------|-----------------|----------------------|-----------------------------|------------------------------|------------------|--------------|
| ph/seg (deg) | 59.7 | Theor.           | 12.8  | Amplitude      | 0.572 +/- 0.027 | Pcal mode:           | MANUAL, MANUAL              | PC period (AP's)             | 5, 5             |              |
| amp/seg (%)  | 56.8 | Search (1024X32) | 0.555 | Interp.        | 0.000           | Pcal rate:           | 0.000E+00, 0.000E+00 (us/s) | sb window (us)               | -1.000 1.000     |              |
| ph/frq (deg) | 55.5 | Inc. seg. avg.   | 0.823 | Inc. frq. avg. | 0.757           | Bits/sample:         | 2x2                         | SampCntNorm: enabled         | mb window (us)   | -0.008 0.008 |
| amp/frq (%)  | 38.6 | Inc. frq. avg.   | 0.757 |                |                 | Data rate (MSamp/s): | 128 MBpts 32 Amb 0.016 us   | dr window (ns/s)             | -0.023 0.023     |              |
|              |      |                  |       |                |                 | Data rate (Mb/s):    | 2048                        | nlags: 256 t_cohere infinite | ion window (TEC) | 0.00 0.00    |

X: az 272.4 el 44.4 pa 42.5      c: az 27.3 el 67.5 pa -147.2      u,v (fr/asec) 3099.482 3749.617      simultaneous interpolator

Control file: cf\_1234\_gmva      Input file: /Exps/c241d/v1/7mm/1234/No0500/Xc..3MP56K      Output file: /Exps/c241d/v1/7mm/1234/No0500/Xc.Q.315.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

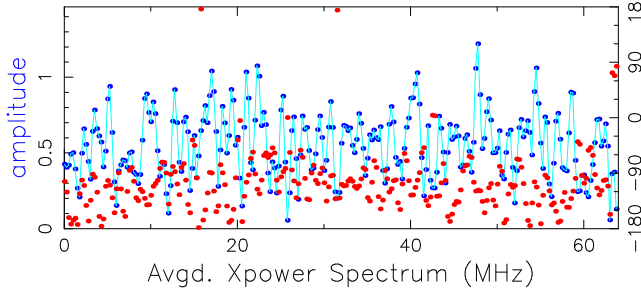
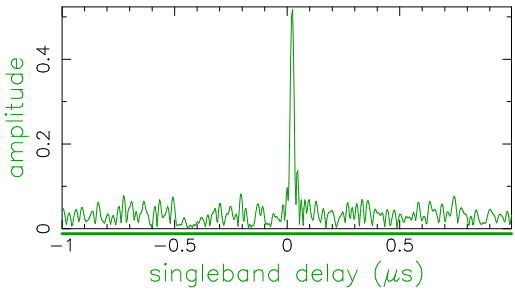
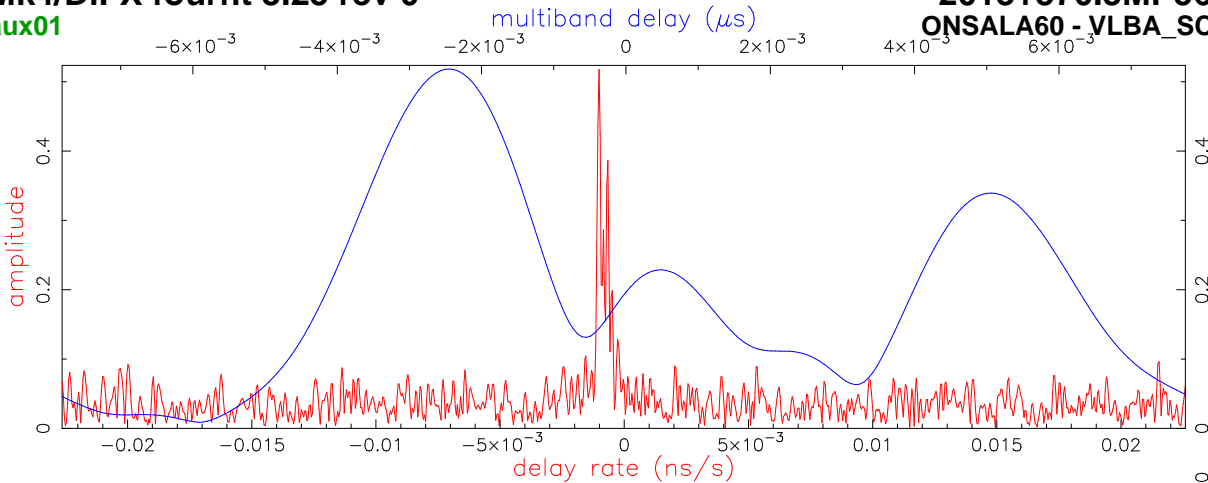
aux01

2013+370.3MP56K, No0500, Xc

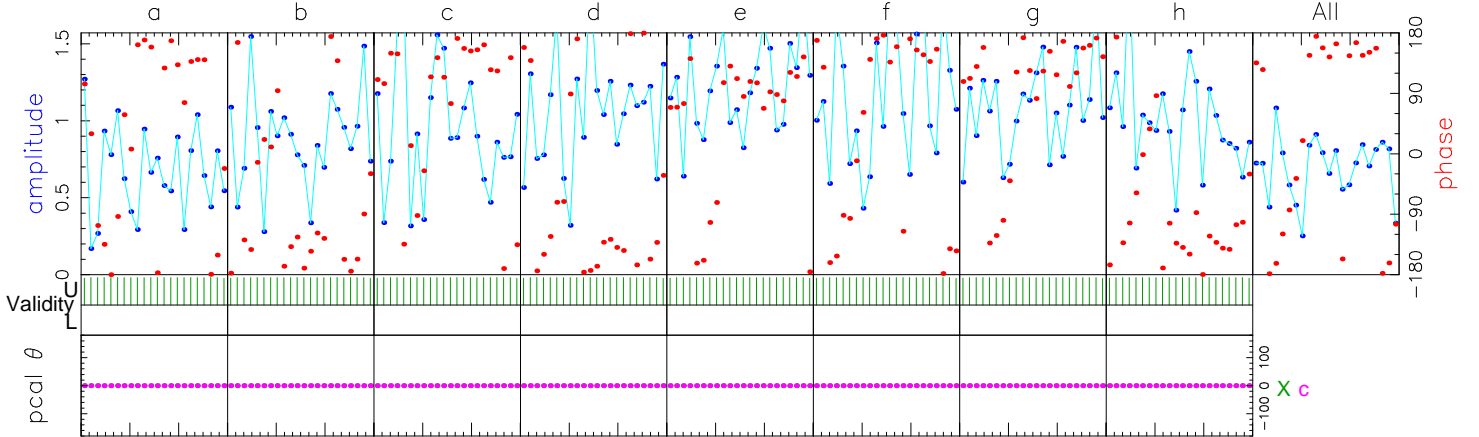
ONSALA60 - VLBA\_SC, fgroup Q, pol RL

Fringe quality 8

SNR 19.2  
 Int time 179.835  
 Amp 0.524  
 Phase 216.9  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.022149  
 MBD -0.002511  
 Fringe rate (Hz)  
 -0.044147  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512  
 Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151837  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"



Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| c   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X:c | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| X:c | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| c   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    |            |     |
| c   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -4.76198883073E+03 | Apriori delay (usec)     | -4.76201756987E+03 | Resid mbdelay (usec) | -2.51085E-03 | +/- | 5.7E-05 |
| Sband delay (usec)       | -4.76199542087E+03 | Apriori clock (usec)     | 1.0919189E+02      | Resid sbdelay (usec) | 2.21490E-02  | +/- | 4.5E-04 |
| Phase delay (usec)       | -4.76201755880E+03 | Apriori clockrate (us/s) | 1.6098931E-06      | Resid phdelay (usec) | 1.10710E-05  | +/- | 3.8E-07 |
| Delay rate (us/s)        | -8.52087721801E-01 | Apriori rate (us/s)      | -8.52086698456E-01 | Resid rate (us/s)    | -1.02334E-06 | +/- | 3.7E-09 |
| Total phase (deg)        | 229.8              | Apriori accel (us/s/s)   | 6.25903928982E-05  | Resid phase (deg)    | 216.9        | +/- | 6.0     |

|                             |                              |                  |                   |                      |                           |                           |                             |                              |                  |              |
|-----------------------------|------------------------------|------------------|-------------------|----------------------|---------------------------|---------------------------|-----------------------------|------------------------------|------------------|--------------|
| ph/seg (deg)                | 59.7                         | Theor.           | 14.0              | Amplitude            | 0.524 +/- 0.027           | Pcal mode:                | MANUAL, MANUAL              | PC period (AP's)             | 5, 5             |              |
| amp/seg (%)                 | 49.6                         | Search (1024X32) | 0.510             | Interp.              | 0.000                     | Pcal rate:                | 0.000E+00, 0.000E+00 (us/s) | sb window (us)               | -1.000 1.000     |              |
| ph/frq (deg)                | 43.4                         | Inc. seg. avg.   | 0.676             | Inc. frq. avg.       | 0.644                     | Bits/sample:              | 2x2                         | SampCntNorm: enabled         | mb window (us)   | -0.008 0.008 |
| amp/frq (%)                 | 37.9                         | Inc. frq. avg.   | 0.644             | Data rate (MSamp/s): | 128 MBpts 32 Amb 0.016 us | Data rate (Mb/s):         | 2048                        | nlags: 256 t_cohere infinite | dr window (ns/s) | -0.023 0.023 |
| X: az 272.4 el 44.4 pa 42.5 | c: az 27.3 el 67.5 pa -147.2 | u, v (fr/asec)   | 3099.482 3749.617 | ion window (TEC)     | 0.00 0.00                 | simultaneous interpolator |                             |                              |                  |              |

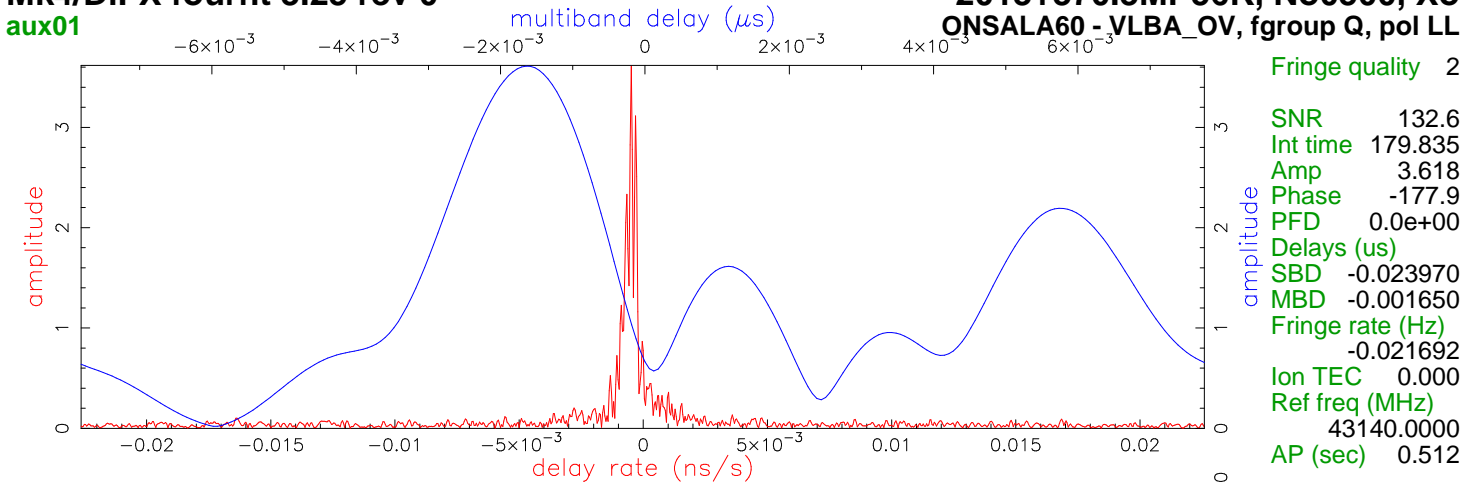
Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/Xc..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/Xc.Q.326.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, Xo

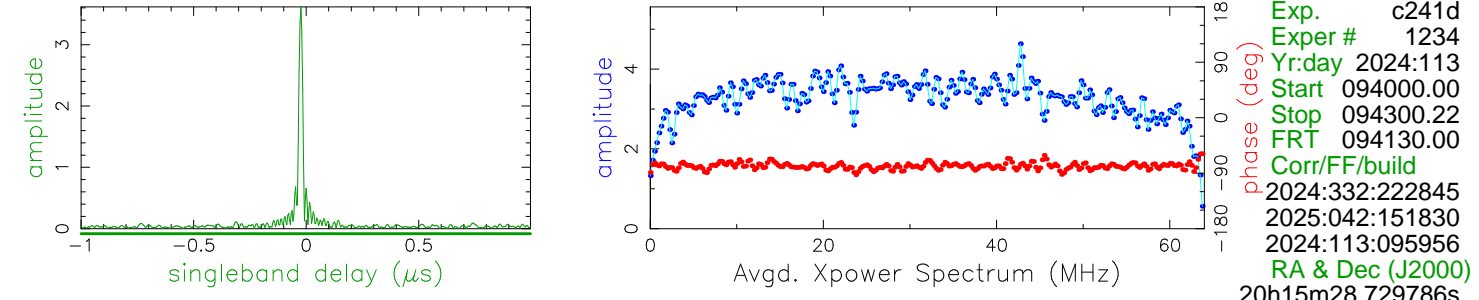
ONSALA60 - VLBA\_OV, fgroup Q, pol LL



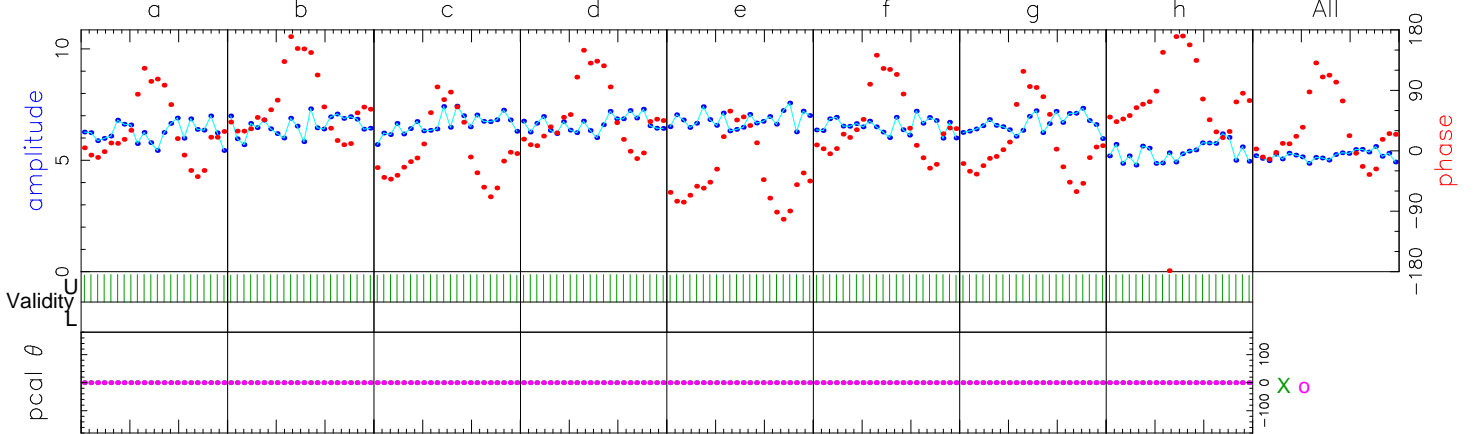
Fringe quality 2

SNR 132.6  
 Int time 179.835  
 Amp 3.618  
 Phase -177.9  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.023970  
 MBD -0.001650  
 Fringe rate (Hz)  
 -0.021692  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512

Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151830  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"



Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



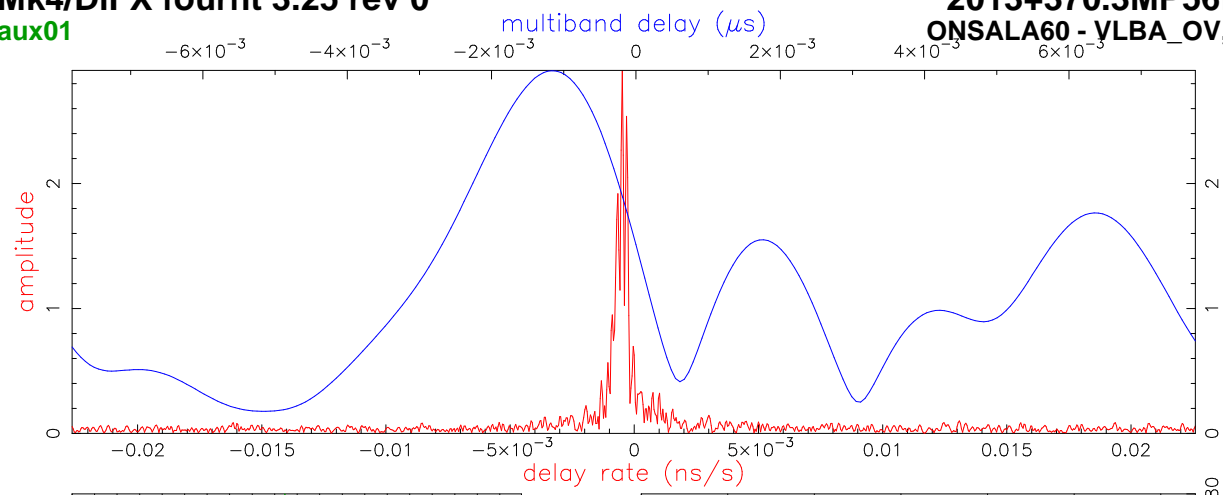
|                             | 42912.00  | 42976.00  | 43040.00                 | 43104.00                  | 43168.00                                      | 43232.00                     | 43296.00         | 43360.00 | Freq (MHz)                | All |
|-----------------------------|---|---|--------------------------|---------------------------|---|------------------------------|------------------|----------|---------------------------|-----|
| 23.1                        | 64.2  | -3.9  | 45.9                     | -40.4                     | 34.4  | 3.5                          | 78.4             | Phase    | 24.6                      |     |
| 4.5                         | 4.4   | 4.6   | 4.7                      | 4.5                       | 4.4   | 4.4                          | 3.6              | Ampl.    | 4.4                       |     |
| 250.8                       | 251.0   | 251.0   | 251.4                    | 251.4                     | 251.5   | 251.2                        | 252.2            | Sbd box  | 250.9                     |     |
| U/L 352/0                   | 352/0   | 352/0   | 352/0                    | 352/0                     | 352/0   | 352/0                        | 352/0            | APs used |                           |     |
| X 1000                      | 1000  | 1000  | 1000                     | 1000                      | 1000  | 1000                         | 1000             | PC freqs |                           |     |
| o 1000                      | 1000  | 1000  | 1000                     | 1000                      | 1000  | 1000                         | 1000             | PC freqs |                           |     |
| X:o 0:0                     | 0:0   | 0:0   | 0:0                      | 0:0                       | 0:0   | 0:0                          | 0:0              | PC phase |                           |     |
| X:o 0:0                     | 0:0   | 0:0   | 0:0                      | 0:0                       | 0:0   | 0:0                          | 0:0              | Manl PC  |                           |     |
| X 1000                      | 1000  | 1000  | 1000                     | 1000                      | 1000  | 1000                         | 1000             | PC amp   |                           |     |
| o 1000                      | 1000  | 1000  | 1000                     | 1000                      | 1000  | 1000                         | 1000             |          |                           |     |
| X Q00UL                     | Q01UL   | Q02UL   | Q03UL                    | Q04UL                     | Q05UL   | Q06UL                        | Q07UL            | Chan ids |                           |     |
| o Q00UL                     | Q01UL   | Q02UL   | Q03UL                    | Q04UL                     | Q05UL   | Q06UL                        | Q07UL            | Tracks   |                           |     |
|                             |   |   |                          |                           |   |                              |                  | Chan ids |                           |     |
|                             |   |   |                          |                           |   |                              |                  | Tracks   |                           |     |
| Group delay (usec) (SBD)    | 1.64716932769E+03                                     |   | Apriori delay (usec)     | 1.64718660306E+03         | Resid mbdelay (usec)                          | -1.65037E-03                 | +/-              | 8.2E-06  |                           |     |
| Sband delay (usec)          | 1.64716263256E+03                                     |   | Apriori clock (usec)     | 8.7867279E+01             | Resid sbdelay (usec)                          | -2.39705E-02                 | +/-              | 6.5E-05  |                           |     |
| Phase delay (usec)          | 1.64718660464E+03                                     |   | Apriori clockrate (us/s) | 7.3535102E-07             | Resid phdelay (usec)                          | 1.58559E-06                  | +/-              | 5.6E-08  |                           |     |
| Delay rate (us/s)           | -1.50011799629E+00                                    |   | Apriori rate (us/s)      | -1.50011749346E+00        | Resid rate (us/s)                             | -5.02834E-07                 | +/-              | 5.3E-10  |                           |     |
| Total phase (deg)           |   | -157.8  | Apriori accel (us/s/s)   | 7.93355489341E-06         | Resid phase (deg)                             | -177.9                       | +/-              | 0.9      |                           |     |
| RMS                         | Theor.  | Amplitude   | 3.618 +/- 0.027          | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5                         |                              |                  |          |                           |     |
| ph/seg (deg)                | 48.8  | 2.0   | Search (1024X32)         | 3.448                     | Pcal rate: 0.000E+00, 0.000E+00 (us/s)        | sb window (us)               | -1.000           | 1.000    |                           |     |
| amp/seg (%)                 | 44.5  | 3.5   | Interp.                  | 0.000                     | Bits/sample: 2x2                              | SampCntNorm: enabled         | mb window (us)   | -0.008   | 0.008                     |     |
| ph/frq (deg)                | 41.8  | 1.2   | Inc. seg. avg.           | 5.212                     | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us | dr window (ns/s)             | -0.023           | 0.023    |                           |     |
| amp/frq (%)                 | 23.8  | 2.1   | Inc. frq. avg.           | 4.418                     | Data rate(Mb/s): 2048                         | nlags: 256 t_cohere infinite | ion window (TEC) | 0.00     | 0.00                      |     |
| X: az 272.4 el 44.4 pa 42.5 | o: az 68.4 el 38.3 pa -68.5                           | u, v (fr/asec)  | 5410.071 1041.532        |                           |   |                              |                  |          | simultaneous interpolator |     |
| Control file: cf_1234_gmva  | Input file: /Exps/c241d/v1/7mm/1234/No0500/Xo..3MP56K | Output file: /Exps/c241d/v1/7mm/1234/No0500/Xo.Q.294.3MP56K |                          |                           |   |                              |                  |          |                           |     |

Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, Xo

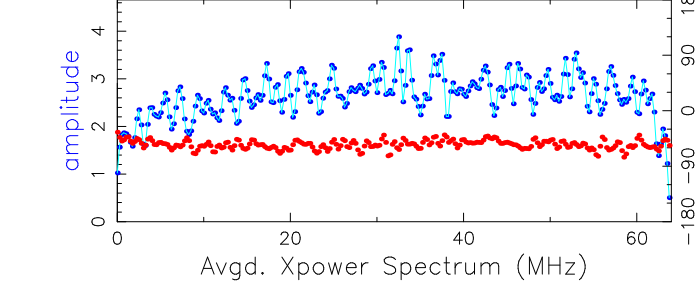
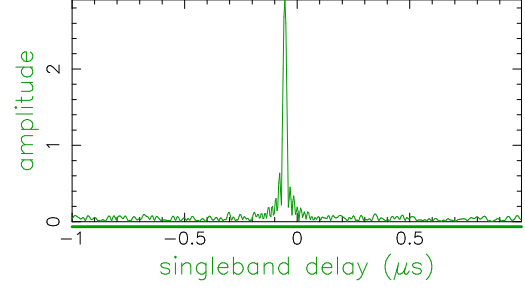
ONSALA60 - VLBA\_OV, fgroup Q, pol RR



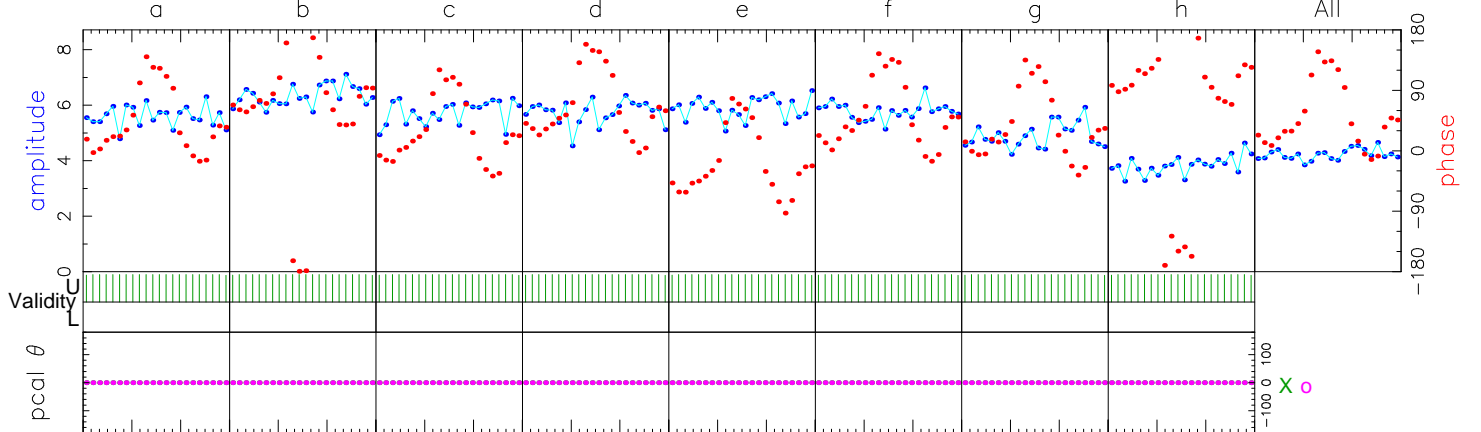
Fringe quality 2

SNR 106.6  
 Int time 179.835  
 Amp 2.906  
 Phase -202.7  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.055003  
 MBD -0.001167  
 Fringe rate (Hz)  
 -0.021647  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512

Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151837  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"



Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



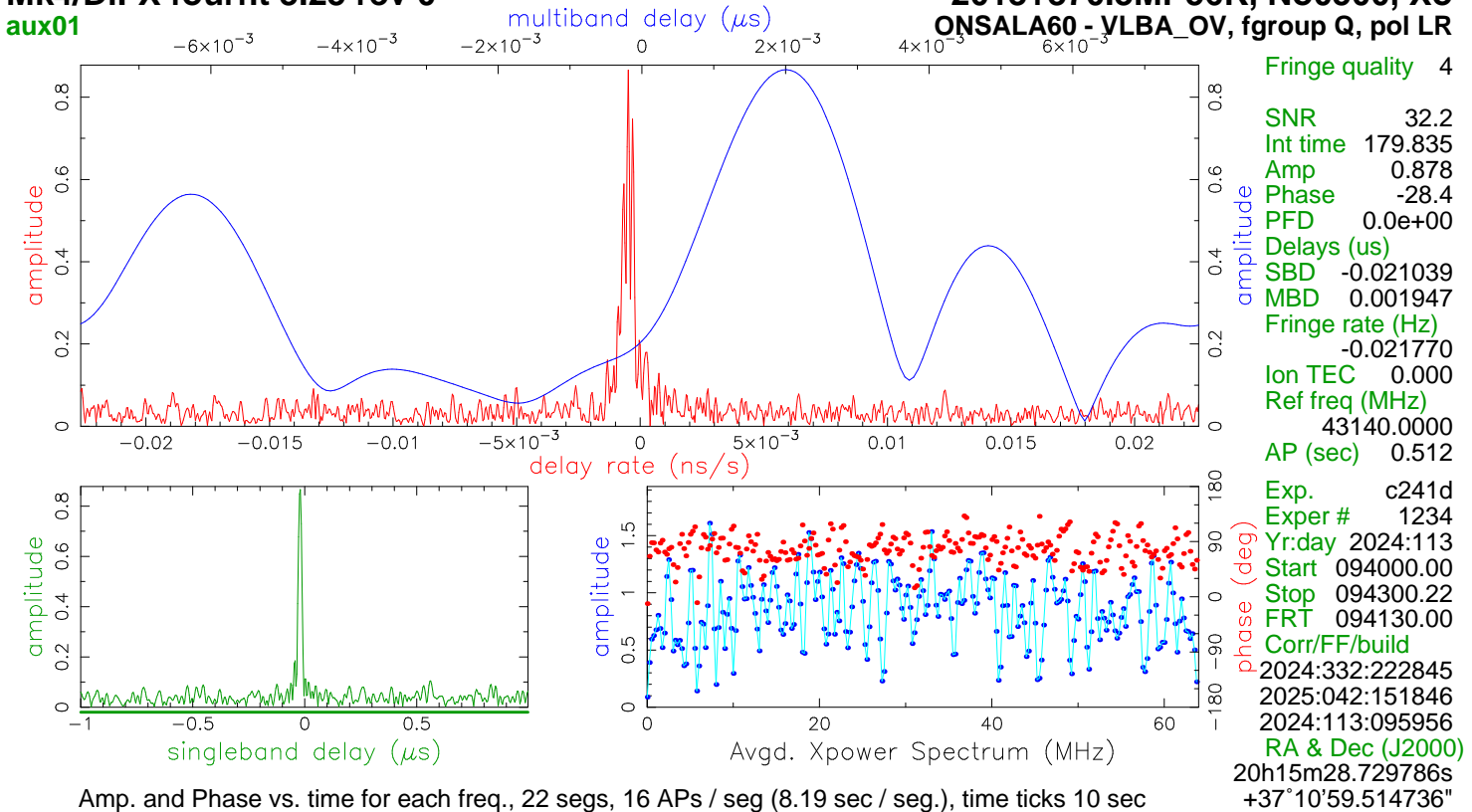
|                             | 42912.00           | 42976.00 | 43040.00  | 43104.00        | 43168.00 | 43232.00  | 43296.00 | 43360.00 | Freq (MHz)                                    | All   |
|-----------------------------|--------------------|----------|---|-----------------|----------|---|----------|----------|---|---|
|                             | 37.5               | 91.5     | 22.5  | 59.7            | -25.4    | 45.4  | 28.1     | 124.7    | Phase   | 44.8  |
|                             | 3.9                | 4.3      | 4.0   | 3.9             | 4.1      | 3.9   | 3.3      | 2.6      | Ampl.   | 3.8   |
|                             | 243.2              | 243.3    | 243.4   | 243.3           | 243.7    | 243.3   | 243.7    | 244.7    | Sbd box                                       | 242.9   |
| U/L                         | 352/0              | 352/0    | 352/0   | 352/0           | 352/0    | 352/0   | 352/0    | 352/0    | APs used                                      |   |
| X                           | 1000               | 1000     | 1000  | 1000            | 1000     | 1000  | 1000     | 1000     | PC freqs                                      |   |
| o                           | 1000               | 1000     | 1000  | 1000            | 1000     | 1000  | 1000     | 1000     | PC freqs                                      |   |
| X:o                         | 0:0                | 0:0      | 0:0   | 0:0             | 0:0      | 0:0   | 0:0      | 0:0      | PC phase                                      |   |
| X:o                         | 0:0                | 0:0      | 0:0   | 0:0             | 0:0      | 0:0   | 0:0      | 0:0      | Manl PC                                       |   |
| X                           | 1000               | 1000     | 1000  | 1000            | 1000     | 1000  | 1000     | 1000     | PC amp  |   |
| o                           | 1000               | 1000     | 1000  | 1000            | 1000     | 1000  | 1000     | 1000     |   |   |
| X                           | Q00UR              | Q01UR    | Q02UR   | Q03UR           | Q04UR    | Q05UR   | Q06UR    | Q07UR    | Chan ids                                      |   |
| o                           | Q00UR              | Q01UR    | Q02UR   | Q03UR           | Q04UR    | Q05UR   | Q06UR    | Q07UR    | Tracks  |   |
|                             |                    |          |   |                 |          |   |          |          | Tracks  |   |
| Group delay (usec) (SBD)    | 1.64713856097E+03  |          |   |                 |          | 1.64718660306E+03   |          |          | Resid mbdelay (usec)                          | -1.16708E-03 +/- 1.0E-05                                |
| Sband delay (usec)          | 1.64713159981E+03  |          |   |                 |          | 8.7867279E+01   |          |          | Resid sbdelay (usec)                          | -5.50032E-02 +/- 8.1E-05                                |
| Phase delay (usec)          | 1.64718660594E+03  |          |   |                 |          | 7.3535102E-07   |          |          | Resid phdelay (usec)                          | 2.88590E-06 +/- 6.9E-08                                 |
| Delay rate (us/s)           | -1.50011799524E+00 |          |   |                 |          | -1.50011749346E+00  |          |          | Resid rate (us/s)                             | -5.01784E-07 +/- 6.7E-10                                |
| Total phase (deg)           |                    |          | -182.6  |                 |          | 7.93355489341E-06   |          |          | Resid phase (deg)                             | -202.7 +/- 1.1  |
|                             | RMS                | Theor.   | Amplitude   | 2.906 +/- 0.027 |          |   |          |          | Pcal mode: MANUAL, MANUAL                     | PC period (AP's) 5, 5                                   |
| ph/seg (deg)                | 49.1               | 2.5      | Search (1024X32)                                      | 2.783           |          |   |          |          | Pcal rate: 0.000E+00, 0.000E+00 (us/s)        | sb window (us) -1.000 1.000                             |
| amp/seg (%)                 | 46.0               | 4.4      | Interp.   | 0.000           |          |   |          |          | Bits/sample: 2x2                              | SampCntNorm: enabled mb window (us) -0.008 0.008        |
| ph/frq (deg)                | 49.3               | 1.5      | Inc. seg. avg.  | 4.226           |          |   |          |          | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us | dr window (ns/s) -0.023 0.023                           |
| amp/frq (%)                 | 34.0               | 2.7      | Inc. frq. avg.  | 3.759           |          |   |          |          | Data rate(Mb/s): 2048                         | nlags: 256 t_cohere infinite ion window (TEC) 0.00 0.00 |
| X: az 272.4 el 44.4 pa 42.5 |                    |          | o: az 68.4 el 38.3 pa -68.5                           |                 |          | u, v (fr/asec) 5410.071 1041.532                            |          |          |   | simultaneous interpolator                               |
| Control file: cf_1234_gmva  |                    |          | Input file: /Exps/c241d/v1/7mm/1234/No0500/Xo..3MP56K |                 |          | Output file: /Exps/c241d/v1/7mm/1234/No0500/Xo.Q.329.3MP56K |          |          |   |   |

Mk4/DiFX fourfit 3.25 rev 0

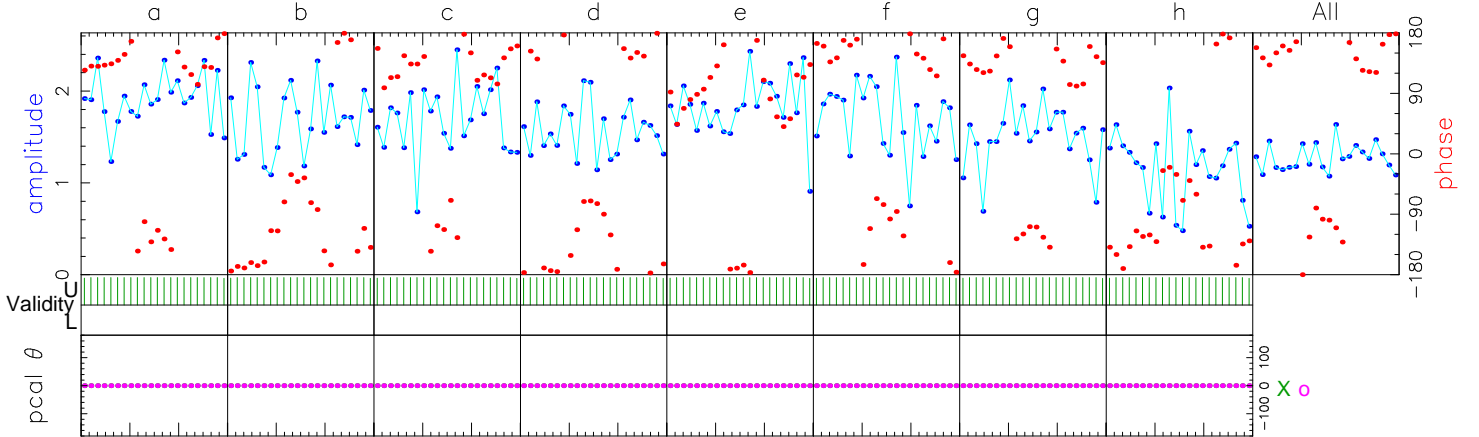
aux01

2013+370.3MP56K, No0500, Xo

ONSALA60 - VLBA\_OV, fgroup Q, pol LR



Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|                             | 42912.00           | 42976.00 | 43040.00  | 43104.00 | 43168.00           | 43232.00 | 43296.00 | 43360.00 | Freq (MHz)                                    | All                           |   |
|-----------------------------|--------------------|----------|---|----------|--------------------|----------|----------|----------|---|-------------------------------|---|
| U/L                         | 160.6              | -133.4   | 150.2   | -166.1   | 110.4              | -175.1   | 162.8    | -128.1   | Phase   | 174.1                         |   |
| X                           | 1.3                | 1.1      | 1.1   | 1.1      | 1.2                | 1.1      | 1.0      | 0.7      | Ampl.   | 1.1                           |   |
| o                           | 251.5              | 252.2    | 252.0   | 251.9    | 252.0              | 252.4    | 252.2    | 253.9    | Sbd box                                       | 251.6                         |   |
| X:0                         | 352/0              | 352/0    | 352/0   | 352/0    | 352/0              | 352/0    | 352/0    | 352/0    | APs used                                      |                               |   |
| X:o                         | 1000               | 1000     | 1000  | 1000     | 1000               | 1000     | 1000     | 1000     | PC freqs                                      |                               |   |
| X:o                         | 0:0                | 0:0      | 0:0   | 0:0      | 0:0                | 0:0      | 0:0      | 0:0      | PC phase                                      |                               |   |
| X                           | 1000               | 1000     | 1000  | 1000     | 1000               | 1000     | 1000     | 1000     | Manl PC                                       |                               |   |
| o                           | 1000               | 1000     | 1000  | 1000     | 1000               | 1000     | 1000     | 1000     | PC amp  |                               |   |
| X                           | Q00UL              | Q01UL    | Q02UL   | Q03UL    | Q04UL              | Q05UL    | Q06UL    | Q07UL    | Chan ids                                      |                               |   |
| o                           | Q00UR              | Q01UR    | Q02UR   | Q03UR    | Q04UR              | Q05UR    | Q06UR    | Q07UR    | Tracks  |                               |   |
| Group delay (usec) (SBD)    | 1.64717292541E+03  |          |   |          | 1.64718660306E+03  |          |          |          | Resid mbdelay (usec)                          | 1.94735E-03 +/- 3.4E-05       |   |
| Sband delay (usec)          | 1.64716556431E+03  |          |   |          | 8.7867279E+01      |          |          |          | Resid sbdelay (usec)                          | -2.10388E-02 +/- 2.7E-04      |   |
| Phase delay (usec)          | 1.64718661427E+03  |          |   |          | 7.3535102E-07      |          |          |          | Resid phdelay (usec)                          | 1.12115E-05 +/- 2.3E-07       |   |
| Delay rate (us/s)           | -1.50011799810E+00 |          |   |          | -1.50011749346E+00 |          |          |          | Resid rate (us/s)                             | -5.04642E-07 +/- 2.2E-09      |   |
| Total phase (deg)           |                    | -8.3     |   |          | 7.93355489341E-06  |          |          |          | Resid phase (deg)                             | -28.4 +/- 3.6                 |   |
| ph/seg (deg)                | 49.0               | 8.3      | Search (1024X32)                                      | 0.823    | 0.878 +/- 0.027    |          |          |          | Pcal mode: MANUAL, MANUAL                     | PC period (AP's) 5, 5         |   |
| amp/seg (%)                 | 48.3               | 14.6     | Interp.   | 0.000    |                    |          |          |          | Pcal rate: 0.000E+00, 0.000E+00 (us/s)        | sb window (us) -1.000 1.000   |   |
| ph/frq (deg)                | 43.9               | 5.0      | Inc. seg. avg.  | 1.263    |                    |          |          |          | Bits/sample: 2x2                              | SampCntNorm: enabled          | mb window (us) -0.008 0.008                                 |
| amp/frq (%)                 | 29.7               | 8.8      | Inc. frq. avg.  | 1.074    |                    |          |          |          | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us | dr window (ns/s) -0.023 0.023 |   |
| X: az 272.4 el 44.4 pa 42.5 |                    |          | o: az 68.4 el 38.3 pa -68.5                           |          |                    |          |          |          | Data rate(Mb/s): 2048                         | nlags: 256 t_cohere infinite  | ion window (TEC) 0.00 0.00                                  |
| Control file: cf_1234_gmva  |                    |          | Input file: /Exps/c241d/v1/7mm/1234/No0500/Xo..3MP56K |          |                    |          |          |          |   |                               | simultaneous interpolator                                   |
|                             |                    |          |   |          |                    |          |          |          |   |                               | Output file: /Exps/c241d/v1/7mm/1234/No0500/Xo.Q.355.3MP56K |

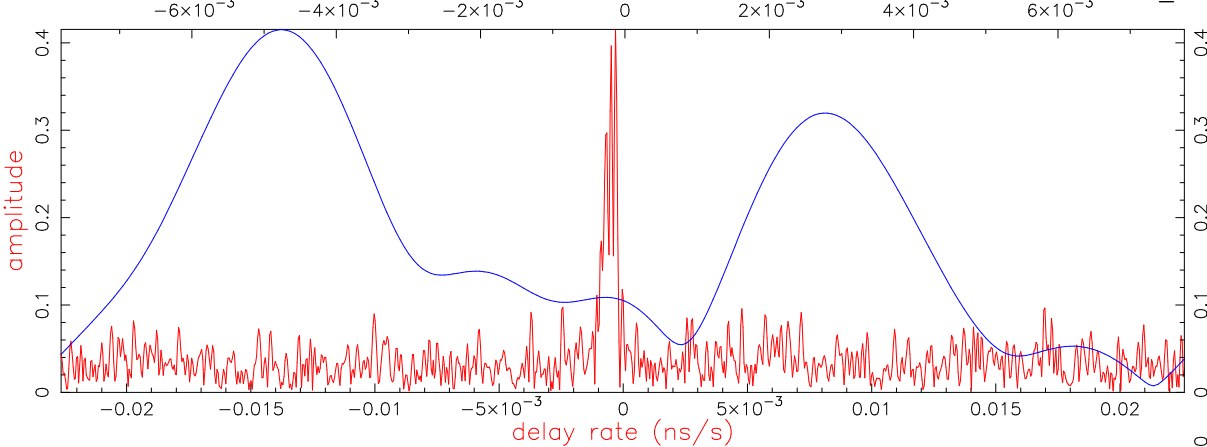
Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, Xo

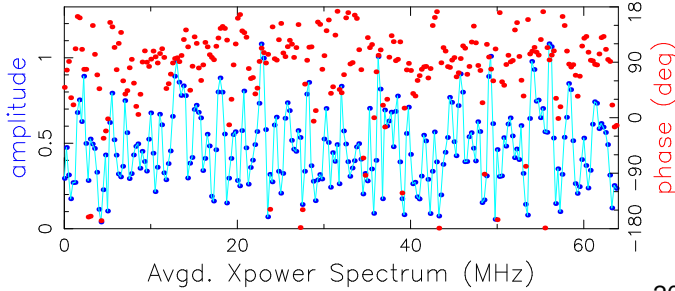
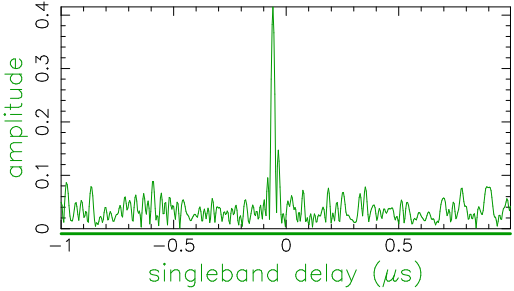
ONSALA60 - VLBA\_OV, fgroup Q, pol RL

multiband delay ( $\mu$ s)



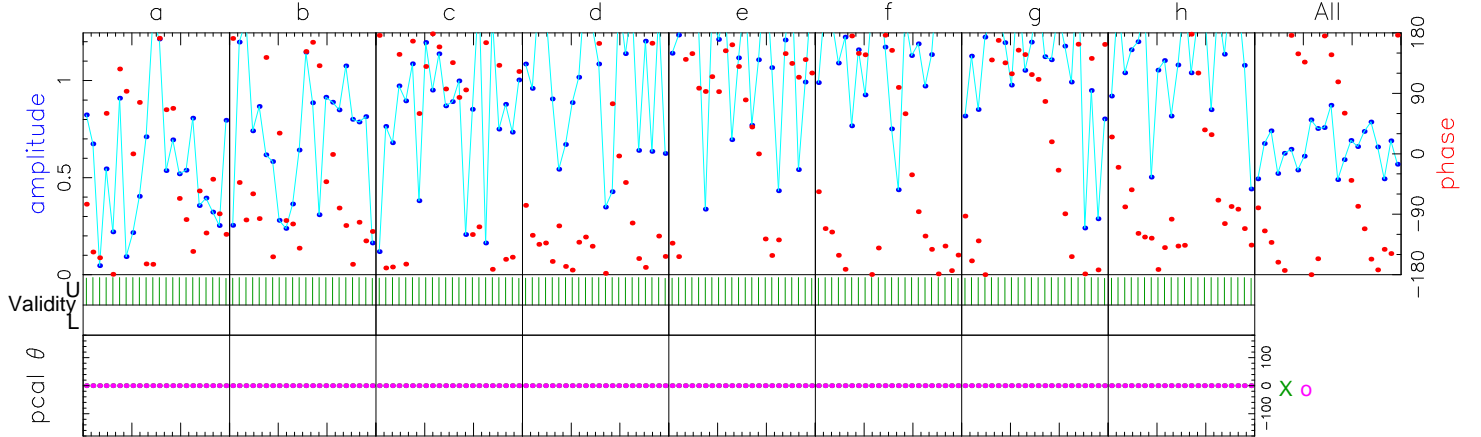
Fringe quality 7

SNR 15.2  
 Int time 179.835  
 Amp 0.415  
 Phase -50.2  
 PFD 7.0e-44  
 Delays (us)  
 SBD -0.058967  
 MBD -0.004782  
 Fringe rate (Hz)  
 -0.013687  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151854  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All    |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|--------|
|     | -153.2   | -110.8   | 166.1    | -132.5   | 139.8    | -154.5   | 156.6    | -100.2   | Phase      | -162.7 |
|     | 0.2      | 0.4      | 0.6      | 0.7      | 0.7      | 0.7      | 0.6      | 0.6      | Ampl.      | 0.5    |
|     | 73.2     | 242.4    | 242.7    | 242.2    | 243.0    | 242.1    | 242.9    | 244.1    | Sbd box    | 241.9  |
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | APs used   |        |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |        |
| o   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |        |
| X:o | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |        |
| X:o | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Manl PC    |        |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |        |
| o   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |        |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Chan ids   |        |
| o   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Tracks     |        |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | 1.64713494572E+03  | Apriori delay (usec)     | 1.64718660306E+03  | Resid mbdelay (usec) | -4.78234E-03 | +/- | 7.1E-05 |
| Sband delay (usec)       | 1.64712763581E+03  | Apriori clock (usec)     | 8.7867279E+01      | Resid sbdelay (usec) | -5.89673E-02 | +/- | 5.7E-04 |
| Phase delay (usec)       | 1.64718659258E+03  | Apriori clockrate (us/s) | 7.3535102E-07      | Resid phdelay (usec) | -1.04743E-05 | +/- | 4.8E-07 |
| Delay rate (us/s)        | -1.50011781071E+00 | Apriori rate (us/s)      | -1.50011749346E+00 | Resid rate (us/s)    | -3.17258E-07 | +/- | 4.7E-09 |
| Total phase (deg)        | -30.1              | Apriori accel (us/s/s)   | 7.93355489341E-06  | Resid phase (deg)    | -50.2        | +/- | 7.5     |

|              |      |        |      |                  |                 |                     |                             |                              |                  |              |
|--------------|------|--------|------|------------------|-----------------|---------------------|-----------------------------|------------------------------|------------------|--------------|
| ph/seg (deg) | 57.6 | Theor. | 17.6 | Amplitude        | 0.415 +/- 0.027 | Pcal mode:          | MANUAL, MANUAL              | PC period (AP's)             | 5, 5             |              |
| amp/seg (%)  | 63.1 |        | 30.8 | Search (1024X32) | 0.408           | Pcal rate:          | 0.000E+00, 0.000E+00 (us/s) | sb window (us)               | -1.000 1.000     |              |
| ph/frq (deg) | 47.6 |        | 10.6 | Interp.          | 0.000           | Bits/sample:        | 2x2                         | SampCntNorm: enabled         | mb window (us)   | -0.008 0.008 |
| amp/frq (%)  | 52.8 |        | 18.6 | Inc. seg. avg.   | 0.625           | Data rate(MSamp/s): | 128 MBpts 32 Amb 0.016 us   | dr window (ns/s)             | -0.023 0.023     |              |
|              |      |        |      | Inc. frq. avg.   | 0.543           | Data rate(Mb/s):    | 2048                        | nlags: 256 t_cohere infinite | ion window (TEC) | 0.00 0.00    |

X: az 272.4 el 44.4 pa 42.5      o: az 68.4 el 38.3 pa -68.5      u,v (fr/asec) 5410.071 1041.532      simultaneous interpolator

Control file: cf\_1234\_gmva      Input file: /Exps/c241d/v1/7mm/1234/No0500/Xo..3MP56K      Output file: /Exps/c241d/v1/7mm/1234/No0500/Xo.Q.370.3MP56K



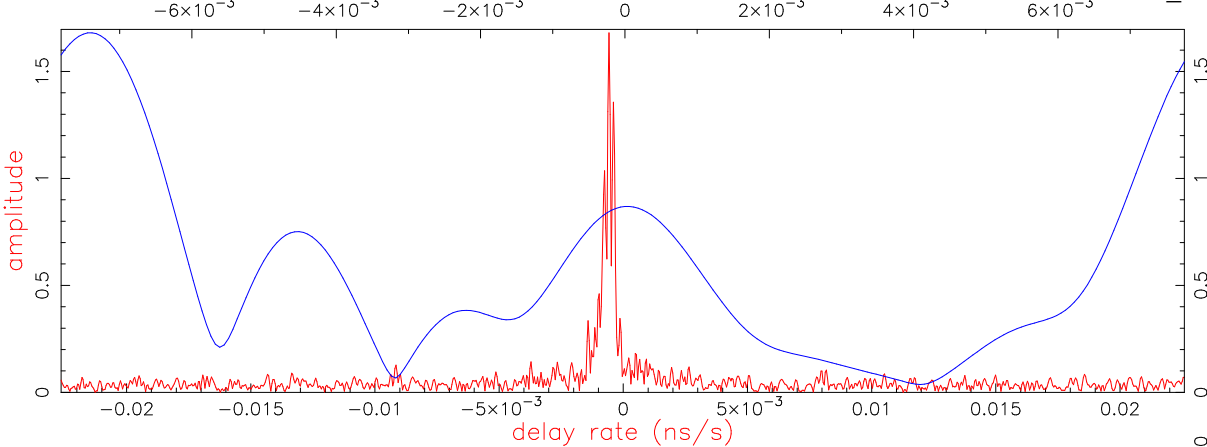
Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, Xp

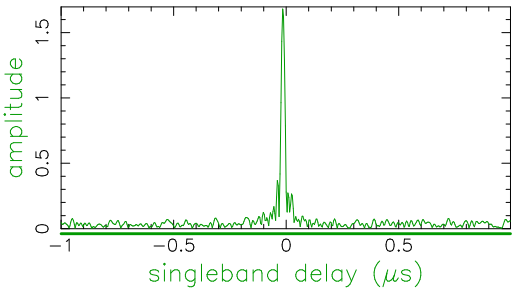
ONSALA60 - VLBA\_PT, fgroup Q, pol LL

multiband delay ( $\mu$ s)

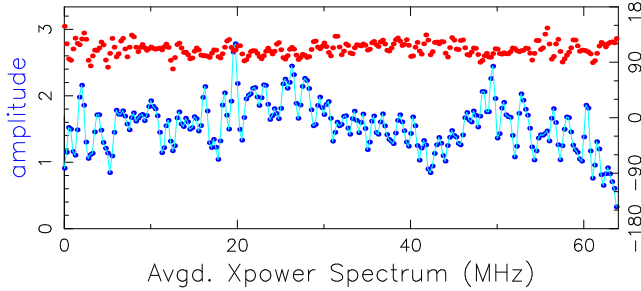


Fringe quality 3

SNR 62.2  
 Int time 179.825  
 Amp 1.697  
 Phase 29.5  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.014379  
 MBD -0.007368  
 Fringe rate (Hz)  
 -0.024914  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



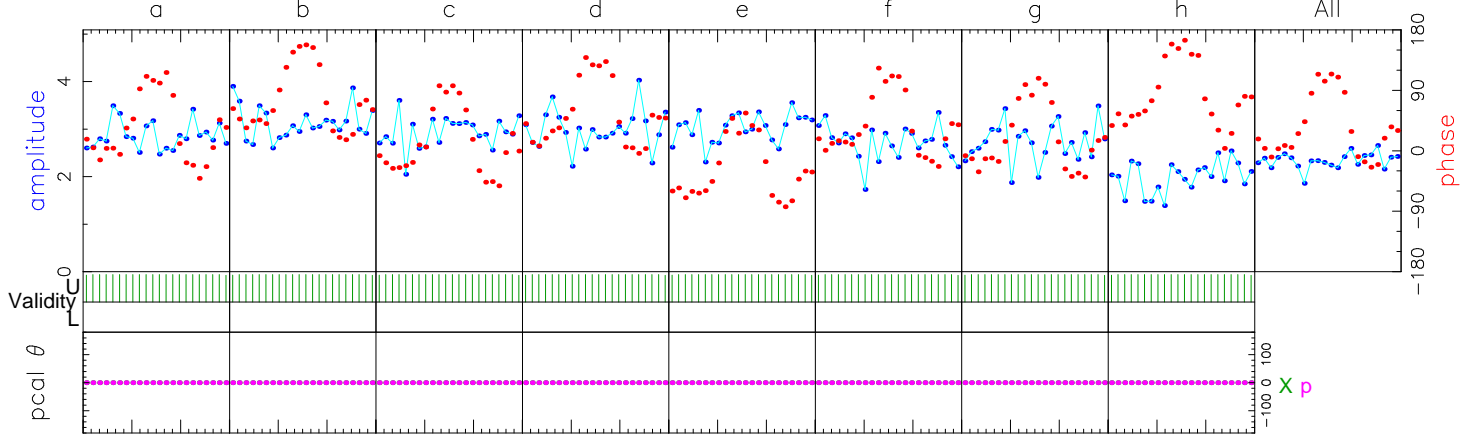
singleband delay ( $\mu$ s)



Avgd. Xpower Spectrum (MHz)

Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151830  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| p   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X:p | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| X:p | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| p   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |
| p   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -1.76866466955E+02 | Apriori delay (usec)     | -1.76859098842E+02 | Resid mbdelay (usec) | -7.36811E-03 | +/- | 1.7E-05 |
| Sband delay (usec)       | -1.76873477592E+02 | Apriori clock (usec)     | 1.0721974E+02      | Resid sbdelay (usec) | -1.43787E-02 | +/- | 1.4E-04 |
| Phase delay (usec)       | -1.76859096940E+02 | Apriori clockrate (us/s) | 8.3792608E-07      | Resid phdelay (usec) | 1.90226E-06  | +/- | 1.2E-07 |
| Delay rate (us/s)        | -1.44616080864E+00 | Apriori rate (us/s)      | -1.44616023112E+00 | Resid rate (us/s)    | -5.77514E-07 | +/- | 1.1E-09 |
| Total phase (deg)        | -159.1             | Apriori accel (us/s/s)   | 2.05616498820E-05  | Resid phase (deg)    | 29.5         | +/- | 1.8     |

|                             |      |                             |       |                      |                           |                   |                             |                              |                           |                  |       |
|-----------------------------|------|-----------------------------|-------|----------------------|---------------------------|-------------------|-----------------------------|------------------------------|---------------------------|------------------|-------|
| ph/seg (deg)                | 45.8 | RMS                         | 4.3   | Theor.               | 4.3                       | Amplitude         | 1.697 +/- 0.027             | Pcal mode:                   | MANUAL, MANUAL            | PC period (AP's) | 5, 5  |
| amp/seg (%)                 | 39.1 | Search (1024X32)            | 1.669 | Interp.              | 0.000                     | Pcal rate:        | 0.000E+00, 0.000E+00 (us/s) | sb window (us)               | -1.000                    | 1.000            |       |
| ph/frq (deg)                | 37.6 | Inc. seg. avg.              | 2.333 | Inc. frq. avg.       | 1.978                     | Bits/sample:      | 2x2                         | SampCntNorm: enabled         | mb window (us)            | -0.008           | 0.008 |
| amp/frq (%)                 | 22.0 | Inc. frq. avg.              | 1.978 | Data rate (MSamp/s): | 128 MBpts 32 Amb 0.016 us | Data rate (Mb/s): | 2048                        | nlags: 256 t_cohere infinite | dr window (ns/s)          | -0.023           | 0.023 |
| X: az 272.4 el 44.4 pa 42.5 |      | p: az 69.2 el 44.9 pa -76.1 |       | u, v (fr/asec)       | 5221.021 1566.636         | ion window (TEC)  | 0.00                        | 0.00                         | simultaneous interpolator |                  |       |

Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/Xp..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/Xp.Q.289.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

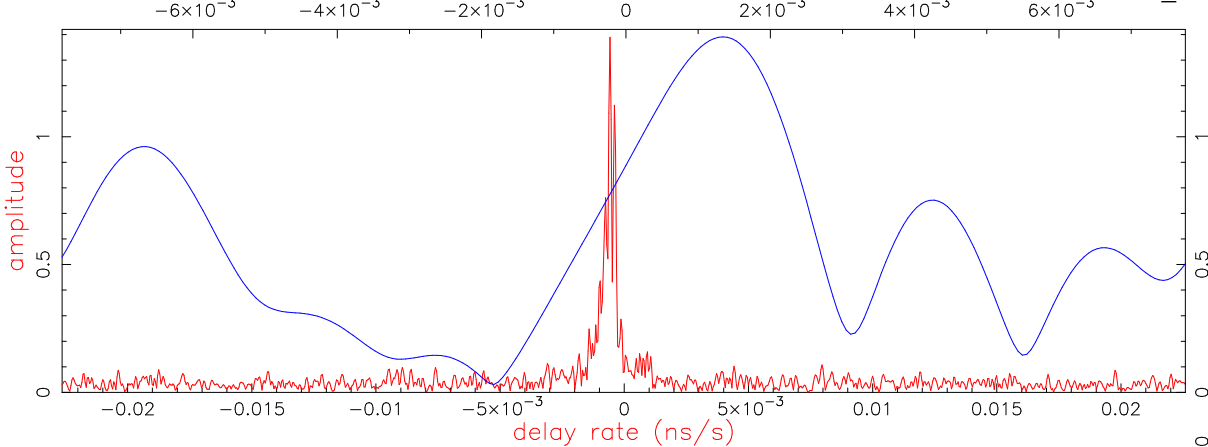
aux01

2013+370.3MP56K, No0500, Xp

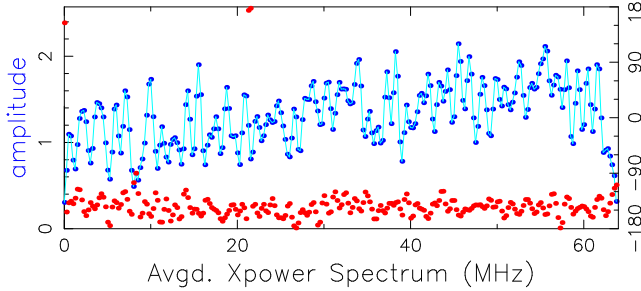
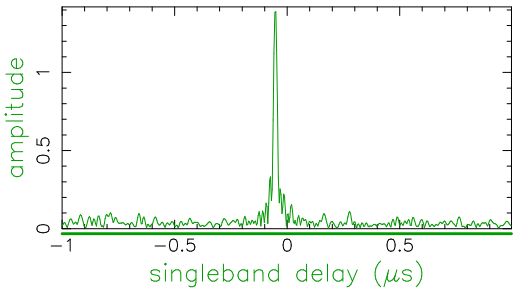
ONSALA60 - VLBA\_PT, fgroup Q, pol RR

multiband delay ( $\mu$ s)

Fringe quality 3

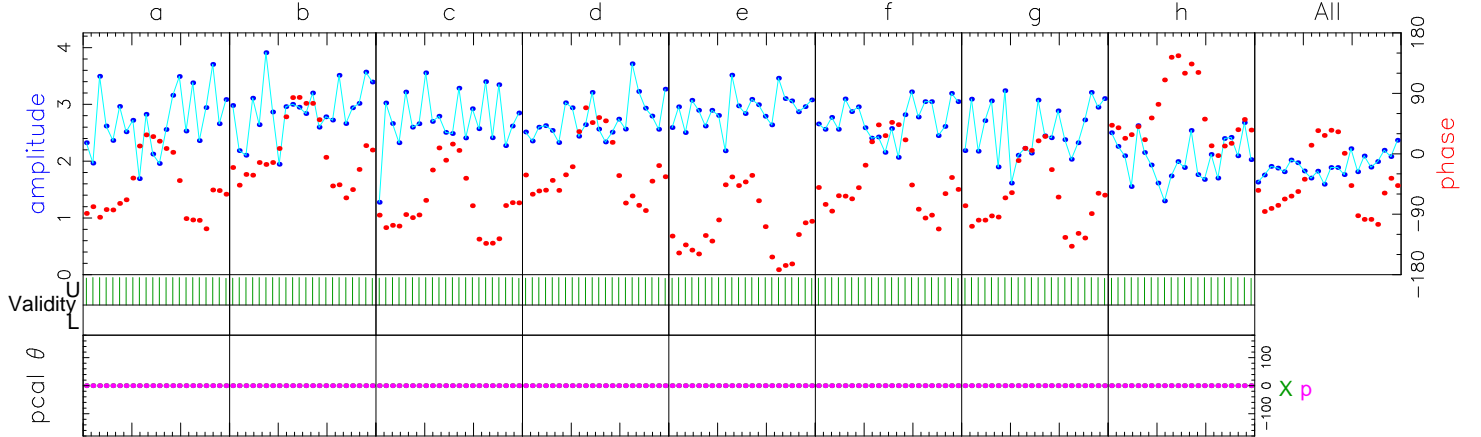


SNR 52.1  
 Int time 179.825  
 Amp 1.420  
 Phase -296.0  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.052639  
 MBD 0.001286  
 Fringe rate (Hz)  
 -0.024875  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151832  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All   |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-------|
|     | -56.8    | -1.1     | -77.8    | -28.2    | -112.3   | -45.6    | -70.2    | 52.4     | Phase      | -48.5 |
|     | 2.0      | 2.0      | 1.9      | 2.0      | 2.1      | 1.9      | 1.8      | 1.5      | Ampl.      | 1.9   |
|     | 243.8    | 243.7    | 244.0    | 244.1    | 244.5    | 243.8    | 244.5    | 245.6    | Sbd box    | 243.5 |
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | APs used   |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| p   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| X:p | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |       |
| X:p | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Manl PC    |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| p   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |       |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Chan ids   |       |
| p   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Tracks     |       |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -1.76904688080E+02 | Apriori delay (usec)     | -1.76859098842E+02 | Resid mbdelay (usec) | 1.28576E-03  | +/- | 2.1E-05 |
| Sband delay (usec)       | -1.76911737592E+02 | Apriori clock (usec)     | 1.0721974E+02      | Resid sbdelay (usec) | -5.26388E-02 | +/- | 1.7E-04 |
| Phase delay (usec)       | -1.76859101968E+02 | Apriori clockrate (us/s) | 8.3792608E-07      | Resid phdelay (usec) | -3.12604E-06 | +/- | 1.4E-07 |
| Delay rate (us/s)        | -1.44616080773E+00 | Apriori rate (us/s)      | -1.44616023112E+00 | Resid rate (us/s)    | -5.76608E-07 | +/- | 1.4E-09 |
| Total phase (deg)        | -124.7             | Apriori accel (us/s/s)   | 2.05616498820E-05  | Resid phase (deg)    | -296.0       | +/- | 2.2     |

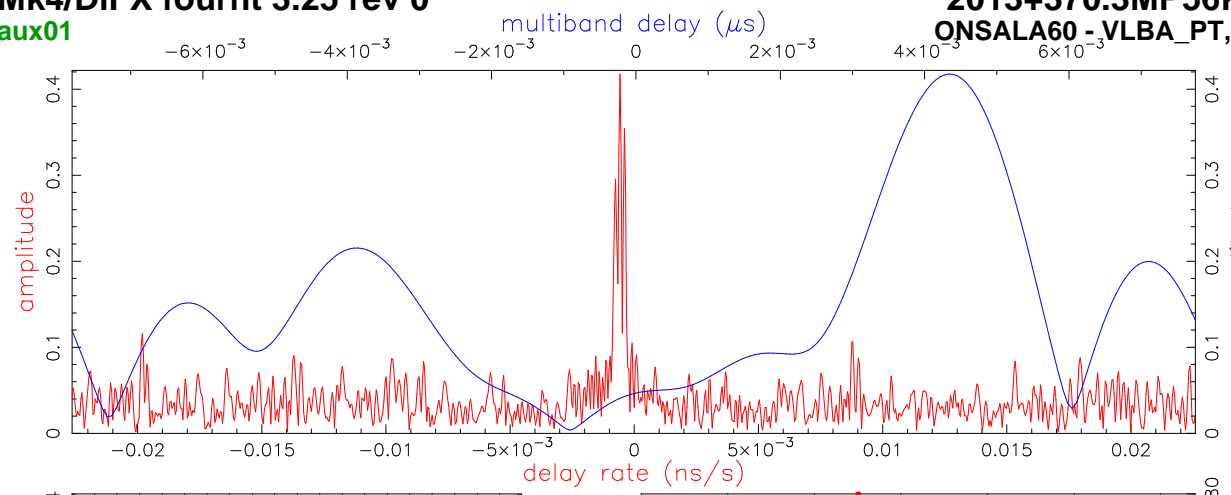
ph/seg (deg) 46.1 5.2 Search (1024X32) 1.379 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 37.3 9.0 Interp. 0.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 55.2 3.1 Inc. seg. avg. 1.907 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 amp/frq (%) 36.3 5.4 Inc. frq. avg. 1.907 Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us dr window (ns/s) -0.023 0.023  
 X: az 272.4 el 44.4 pa 42.5 p: az 69.2 el 44.9 pa -76.1 u,v (fr/asec) 5221.021 1566.636 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/Xp..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/Xp.Q.302.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, Xp

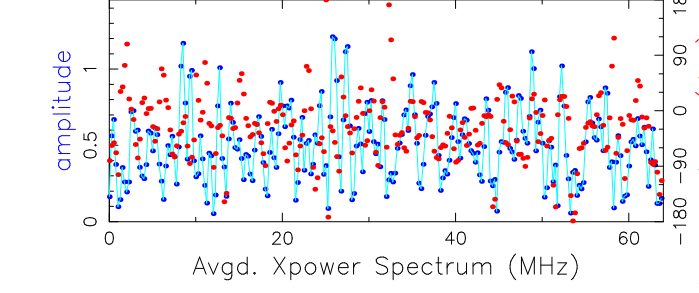
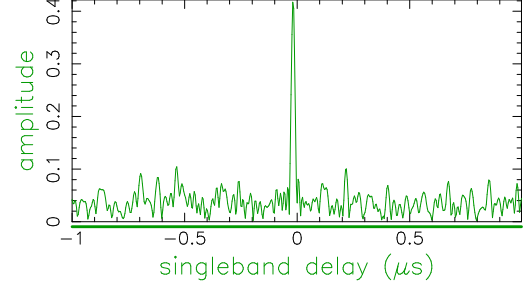
ONSALA60 - VLBA\_PT, fgroup Q, pol LR



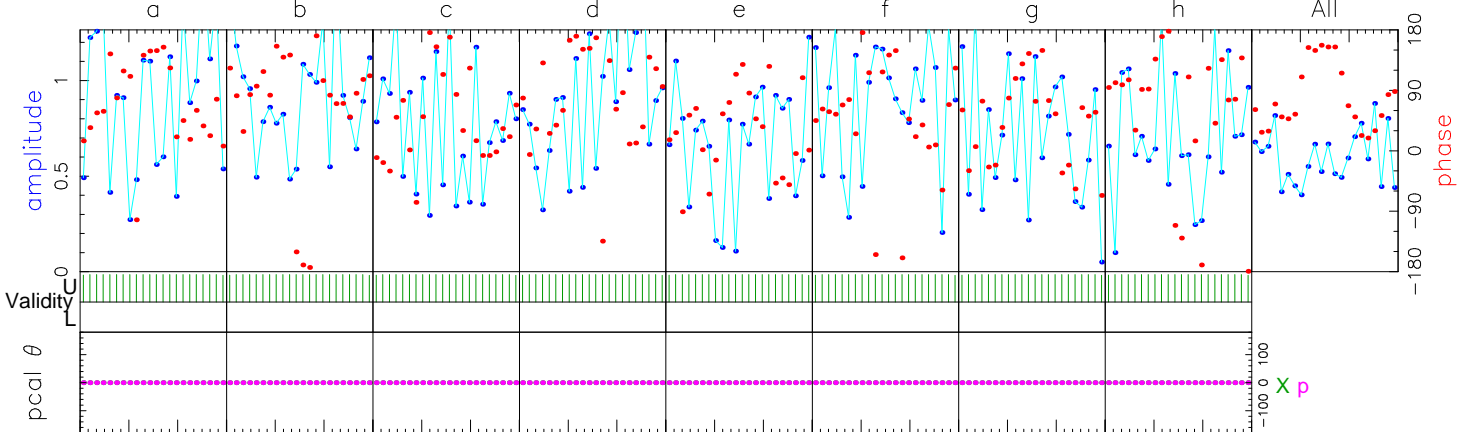
Fringe quality 8

SNR 15.5  
 Int time 179.825  
 Amp 0.422  
 Phase -129.9  
 PFD 1.4e-45  
 Delays (us)  
 SBD -0.018216  
 MBD 0.004378  
 Fringe rate (Hz)  
 -0.024753  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512

Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151836  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"



Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| p   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X:p | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| X:p | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| p   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |     |
| p   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    |            |     |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -1.76870345955E+02 | Apriori delay (usec)     | -1.76859098842E+02 | Resid mbdelay (usec) | 4.37789E-03  | +/- | 7.0E-05 |
| Sband delay (usec)       | -1.76877315092E+02 | Apriori clock (usec)     | 1.0721974E+02      | Resid sbdelay (usec) | -1.82163E-02 | +/- | 5.6E-04 |
| Phase delay (usec)       | -1.76859094169E+02 | Apriori clockrate (us/s) | 8.3792608E-07      | Resid phdelay (usec) | 4.67346E-06  | +/- | 4.8E-07 |
| Delay rate (us/s)        | -1.44616080491E+00 | Apriori rate (us/s)      | -1.44616023112E+00 | Resid rate (us/s)    | -5.73781E-07 | +/- | 4.6E-09 |
| Total phase (deg)        | -318.6             | Apriori accel (us/s/s)   | 2.05616498820E-05  | Resid phase (deg)    | -129.9       | +/- | 7.4     |

ph/seg (deg) 47.8 17.4 Search (1024X32) 0.415 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 53.3 30.3 Interp. 0.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 37.6 10.5 Inc. seg. avg. 0.574 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 amp/frq (%) 27.8 18.3 Inc. frq. avg. 0.477 Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us dr window (ns/s) -0.023 0.023  
 X: az 272.4 el 44.4 pa 42.5 p: az 69.2 el 44.9 pa -76.1 u,v (fr/asec) 5221.021 1566.636 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/Xp..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/Xp.Q.320.3MP56K

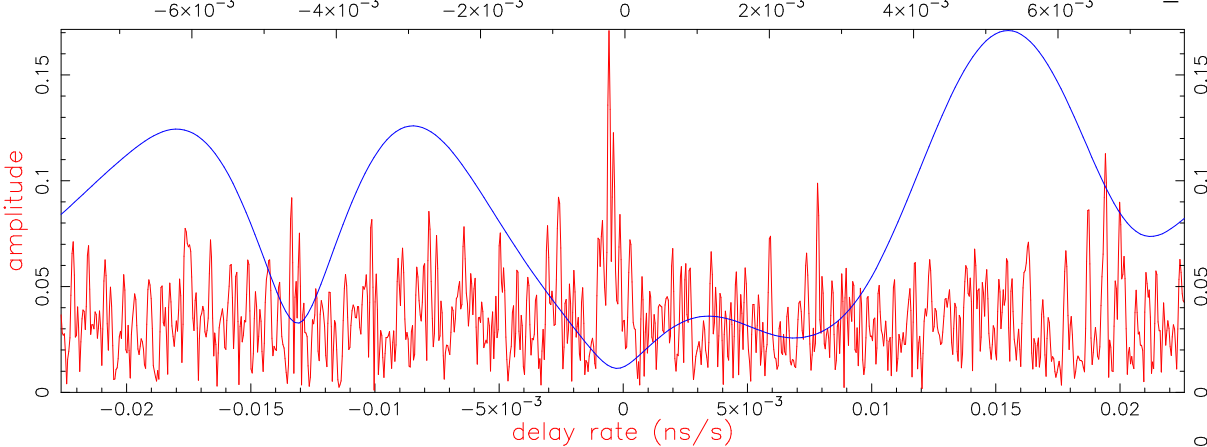
Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, Xp

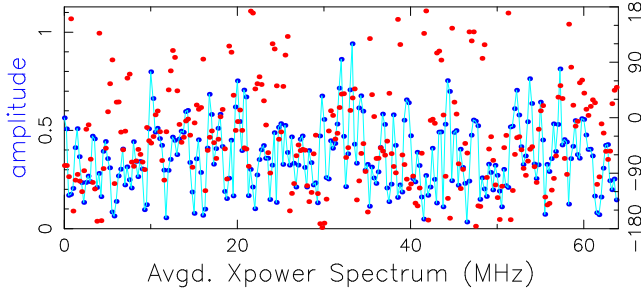
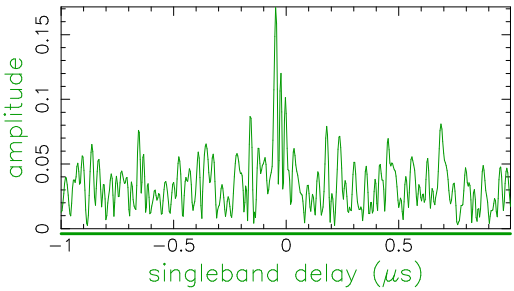
ONSALA60 - VLBA\_PT, fgroup Q, pol RL

multiband delay ( $\mu$ s)



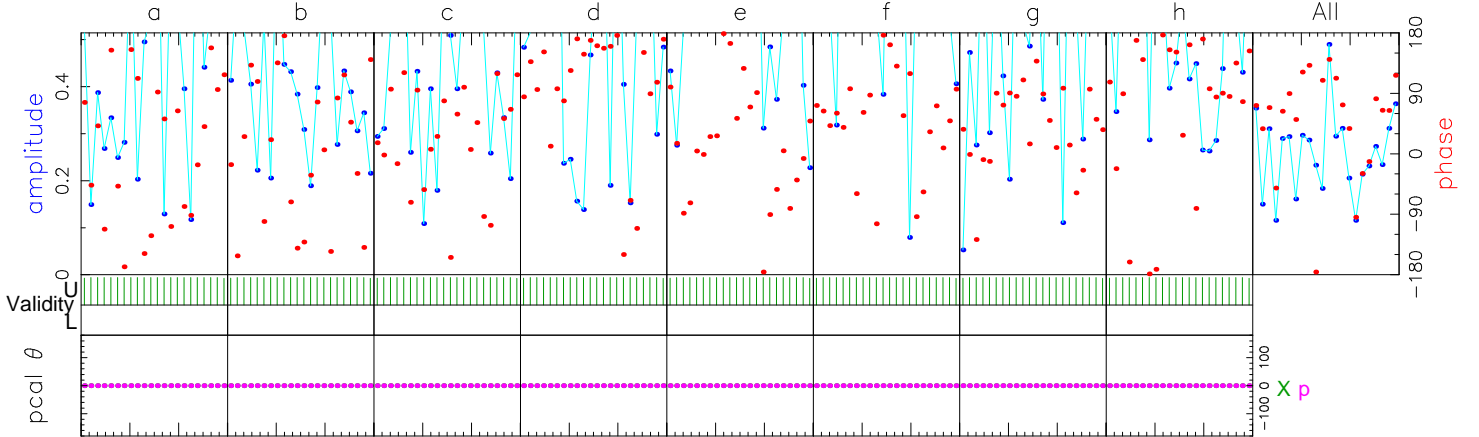
Fringe quality 0

SNR 6.3  
 Int time 179.825  
 Amp 0.172  
 Phase -161.9  
 PFD 4.2e-02  
 Delays (us)  
 SBD -0.046188  
 MBD 0.005347  
 Fringe rate (Hz)  
 -0.024874  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151837  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All   |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-------|
| U/L | 116.5    | 160.8    | 57.2     | 135.4    | 20.7     | 63.7     | 47.6     | 136.2    | Phase      | 85.6  |
| X   | 0.1      | 0.0      | 0.2      | 0.3      | 0.2      | 0.3      | 0.4      | 0.3      | Ampl.      | 0.2   |
| p   | 258.1    | 196.6    | 245.0    | 244.6    | 193.7    | 244.5    | 245.1    | 246.4    | Sbd box    | 245.2 |
| X:p | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | APs used   |       |
| X:p | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| X:p | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |       |
| X:p | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Manl PC    |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| p   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |       |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Chan ids   |       |
| p   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Tracks     |       |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -1.76900626643E+02 | Apriori delay (usec)     | -1.76859098842E+02 | Resid mbdelay (usec) | 5.34720E-03  | +/- | 1.7E-04 |
| Sband delay (usec)       | -1.76905286592E+02 | Apriori clock (usec)     | 1.0721974E+02      | Resid sbdelay (usec) | -4.61878E-02 | +/- | 1.4E-03 |
| Phase delay (usec)       | -1.76859093333E+02 | Apriori clockrate (us/s) | 8.3792608E-07      | Resid phdelay (usec) | 5.50917E-06  | +/- | 1.2E-06 |
| Delay rate (us/s)        | -1.44616080772E+00 | Apriori rate (us/s)      | -1.44616023112E+00 | Resid rate (us/s)    | -5.76591E-07 | +/- | 1.1E-08 |
| Total phase (deg)        | -350.6             | Apriori accel (us/s/s)   | 2.05616498820E-05  | Resid phase (deg)    | -161.9       | +/- | 18.2    |

|                             |      |                             |       |                |                   |                      |                             |                              |                  |              |
|-----------------------------|------|-----------------------------|-------|----------------|-------------------|----------------------|-----------------------------|------------------------------|------------------|--------------|
| ph/seg (deg)                | 67.5 | Theor.                      | 42.7  | Amplitude      | 0.172 +/- 0.027   | Pcal mode:           | MANUAL, MANUAL              | PC period (AP's)             | 5, 5             |              |
| amp/seg (%)                 | 71.8 | Search (1024X32)            | 0.170 | Interp.        | 0.000             | Pcal rate:           | 0.000E+00, 0.000E+00 (us/s) | sb window (us)               | -1.000 1.000     |              |
| ph/frq (deg)                | 55.7 | Inc. seg. avg.              | 0.203 | Inc. seg. avg. | 0.203             | Bits/sample:         | 2x2                         | SampCntNorm: enabled         | mb window (us)   | -0.008 0.008 |
| amp/frq (%)                 | 76.6 | Inc. frq. avg.              | 0.216 | Inc. frq. avg. | 0.216             | Data rate (MSamp/s): | 128 MBpts 32 Amb 0.016 us   | dr window (ns/s)             | -0.023 0.023     |              |
| X: az 272.4 el 44.4 pa 42.5 |      | p: az 69.2 el 44.9 pa -76.1 |       | u, v (fr/asec) | 5221.021 1566.636 | Data rate (Mb/s):    | 2048                        | nlags: 256 t_cohere infinite | ion window (TEC) | 0.00 0.00    |

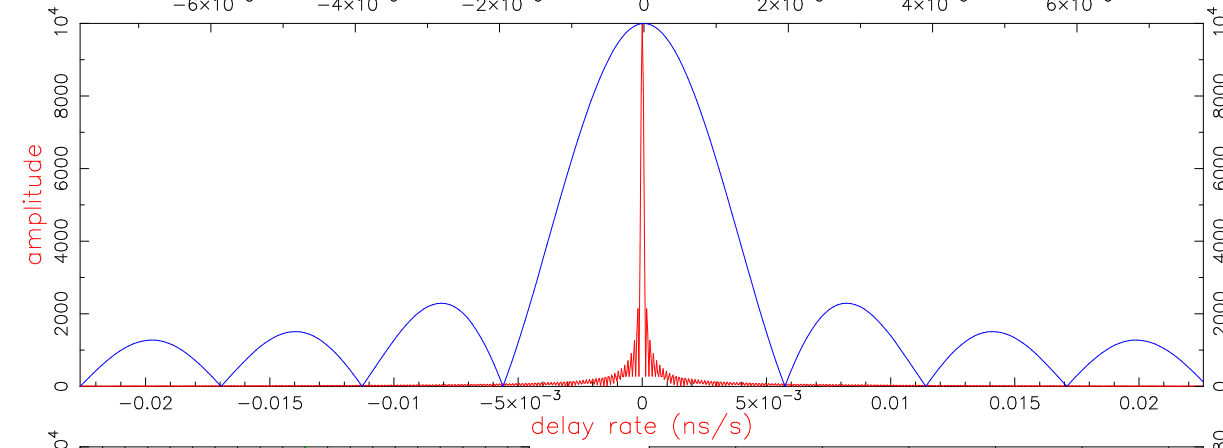
Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/Xp..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/Xp.Q.331.3MP56K simultaneous interpolator

Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, XX

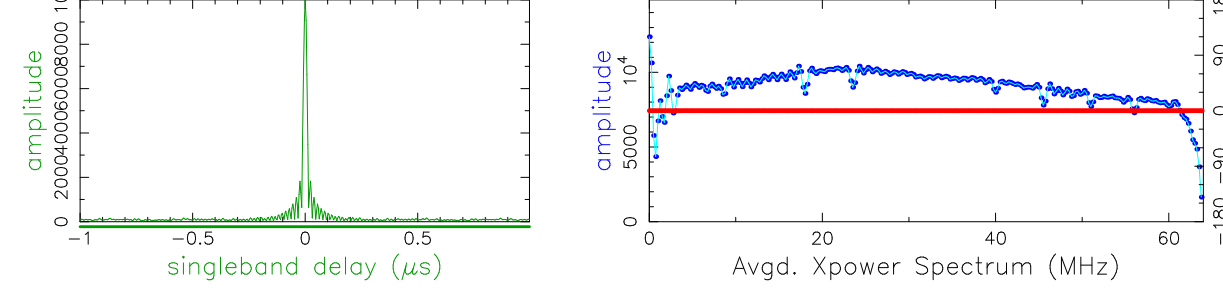
ONSALA60 - ONSALA60, fgroup Q, pol LL



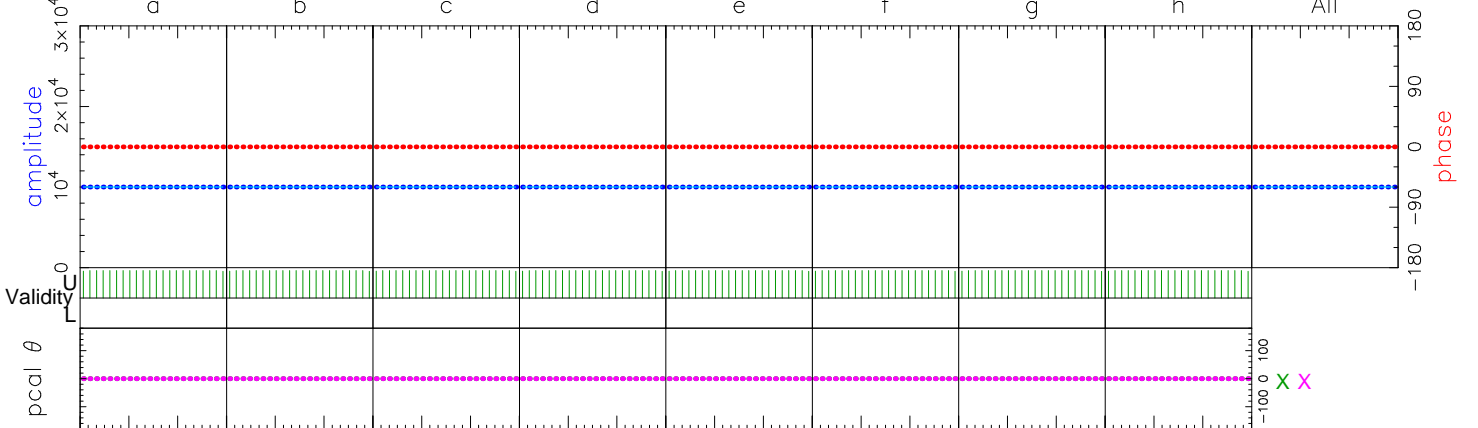
Fringe quality 9

SNR 366719.9  
 Int time 179.835  
 Amp 10000.000  
 Phase 0.0  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.000000  
 MBD 0.000000  
 Fringe rate (Hz) 0.000000  
 Ion TEC 0.000  
 Ref freq (MHz) 43140.0000  
 AP (sec) 0.512

Exp. c241d  
 Yr:day 1234  
 Start 2024:113  
 Stop 2024:113  
 FRT 094130.00  
 Corr/FF/build 2024:332:222845  
 2025:042:151838  
 2024:113:095956  
 RA & Dec (J2000) 20h15m28.729786s +37°10'59.514736"



Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All     |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|---------|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 10000.0    | 10000.0 |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 10000.0    | 10000.0 |
| X:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0.0        | 0.0     |
| X:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0.0        | 0.0     |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 10000.0    | 10000.0 |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 10000.0    | 10000.0 |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |         |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    |            |         |

Group delay (usec) (SBD) 0.0000000000E+00 Apriori delay (usec) 0.0000000000E+00 Resid mbdelay (usec) 0.00000E+00 +/- 3.0E-09  
 Sband delay (usec) 0.0000000000E+00 Apriori clock (usec) 0.0000000E+00 Resid sbdelay (usec) 0.00000E+00 +/- 2.3E-08  
 Phase delay (usec) 0.0000000000E+00 Apriori clockrate (us/s) 0.0000000E+00 Resid phdelay (usec) 0.00000E+00 +/- 2.0E-11  
 Delay rate (us/s) 0.0000000000E+00 Apriori rate (us/s) 0.0000000000E+00 Resid rate (us/s) 0.00000E+00 +/- 1.9E-13  
 Total phase (deg) 0.0 Apriori accel (us/s/s) 0.0000000000E+00 Resid phase (deg) 0.0 +/- 0.0

RMS Theor. Amplitude 10000.000 +/- 0.027 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 0.0 0.0 Search (1024X32) 10000.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 amp/seg (%) 0.0 0.0 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 ph/frq (deg) 0.0 0.0 Inc. seg. avg. 10000.000 Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us dr window (ns/s) -0.023 0.023  
 amp/frq (%) 0.0 0.0 Inc. frq. avg. 10000.000 Data rate(Mb/s): 2048 nlags: 256 t\_cohere infinite ion window (TEC) 0.00 0.00

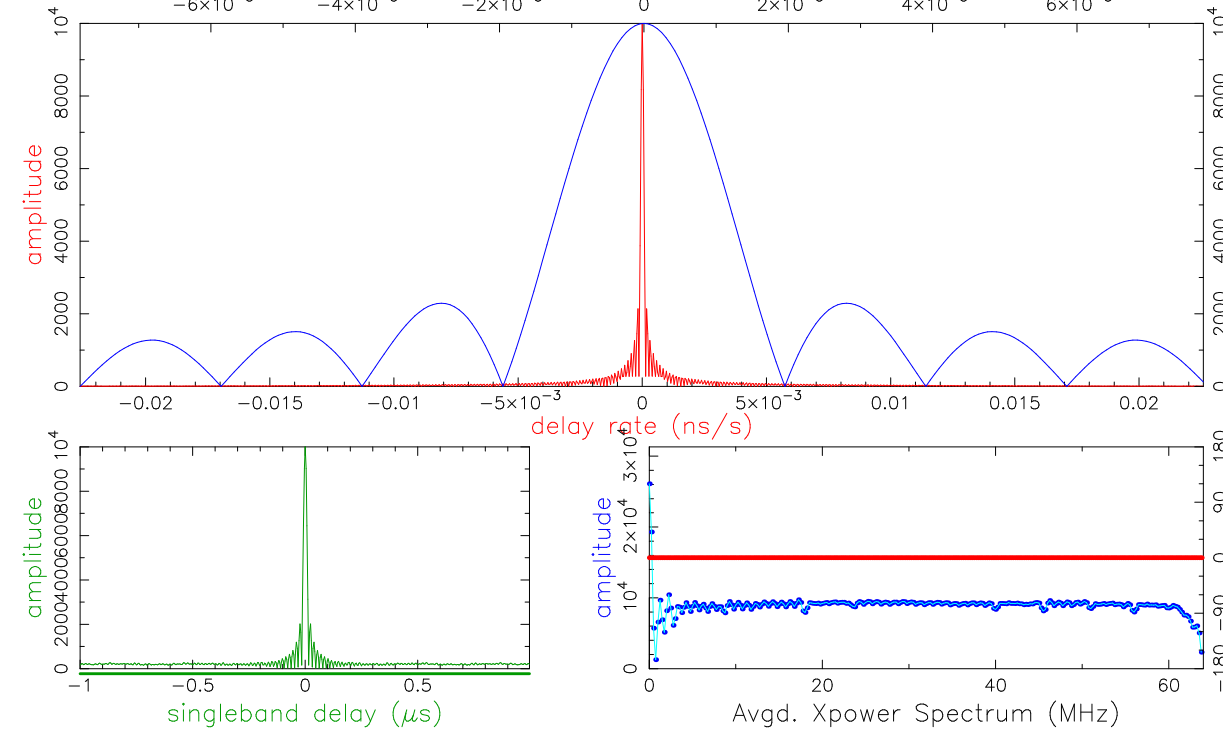
X: az 272.4 el 44.4 pa 42.5 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) 0.000 0.000 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/XX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/XX.Q.332.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

aux01

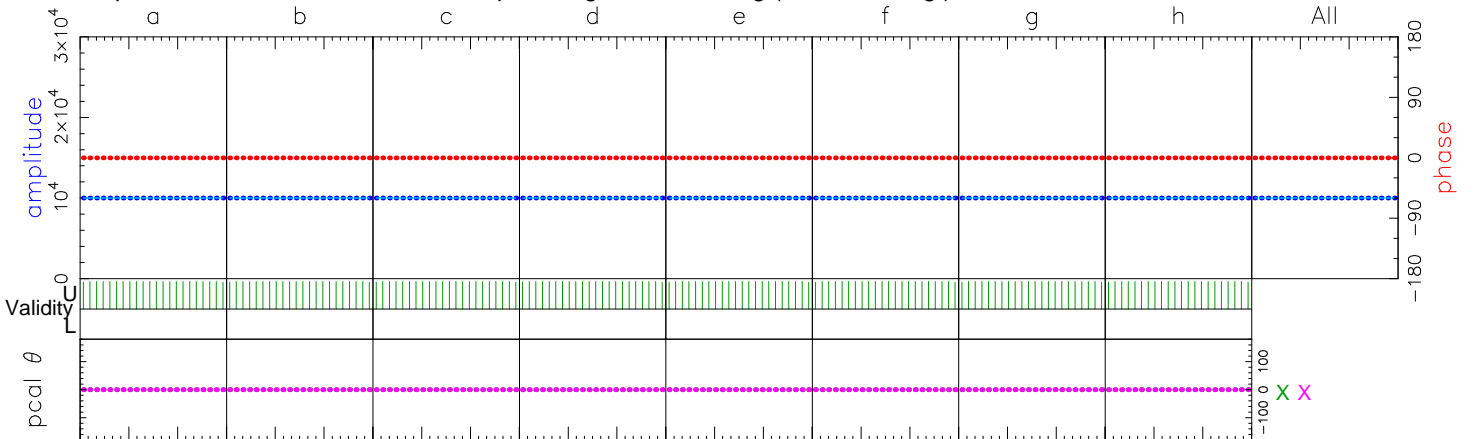
2013+370.3MP56K, No0500, XX

ONSALA60 - ONSALA60, fgroup Q, pol RR



Fringe quality 9  
 SNR 366719.9  
 Int time 179.835  
 Amp 10000.000  
 Phase 0.0  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.000000  
 MBD 0.000000  
 Fringe rate (Hz) 0.000000  
 Ion TEC 0.000  
 Ref freq (MHz) 43140.0000  
 AP (sec) 0.512  
 Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build 2024:332:222845  
 2025:042:151855  
 2024:113:095956  
 RA & Dec (J2000) 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All     |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|---------|
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | Ampl.      | 10000.0 |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | Sbd box    | 257.0   |
| X:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | APs used   |         |
| X:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC freqs   |         |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC phase   |         |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | Mani PC    |         |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | PC amp     |         |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Chan ids   |         |
|     |          |          |          |          |          |          |          |          | Tracks     |         |
|     |          |          |          |          |          |          |          |          | Tracks     |         |

Group delay (usec) (SBD) 0.0000000000E+00 Apriori delay (usec) 0.0000000000E+00 Resid mbdelay (usec) 0.00000E+00 +/- 3.0E-09  
 Sband delay (usec) 0.0000000000E+00 Apriori clock (usec) 0.0000000E+00 Resid sbdelay (usec) 0.00000E+00 +/- 2.3E-08  
 Phase delay (usec) 0.0000000000E+00 Apriori clockrate (us/s) 0.0000000E+00 Resid phdelay (usec) 0.00000E+00 +/- 2.0E-11  
 Delay rate (us/s) 0.0000000000E+00 Apriori rate (us/s) 0.0000000000E+00 Resid rate (us/s) 0.00000E+00 +/- 1.9E-13  
 Total phase (deg) 0.0 Apriori accel (us/s/s) 0.0000000000E+00 Resid phase (deg) 0.0 +/- 0.0

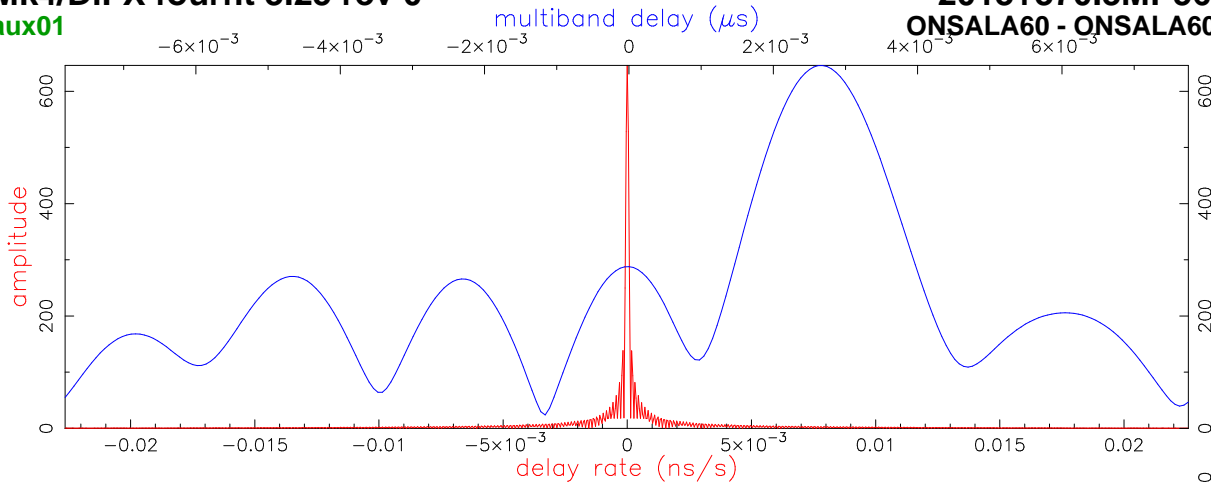
RMS Theor. Amplitude 10000.000 +/- 0.027 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 0.0 0.0 Search (1024X32) 10000.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 amp/seg (%) 0.0 0.0 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 ph/frq (deg) 0.0 0.0 Inc. seg. avg. 10000.000 Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us dr window (ns/s) -0.023 0.023  
 amp/frq (%) 0.0 0.0 Inc. frq. avg. 10000.000 Data rate(Mb/s): 2048 nlags: 256 t\_cohere infinite ion window (TEC) 0.00 0.00  
 X: az 272.4 el 44.4 pa 42.5 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) 0.000 0.000 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/XX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/XX.Q.374.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

aux01

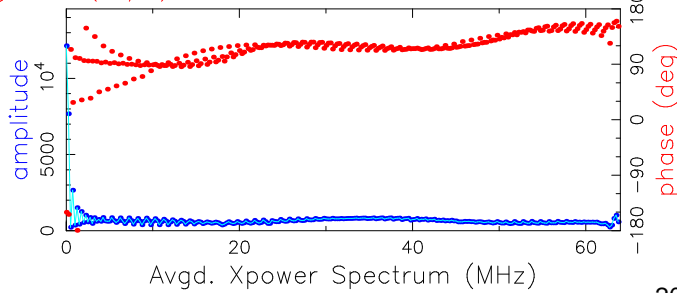
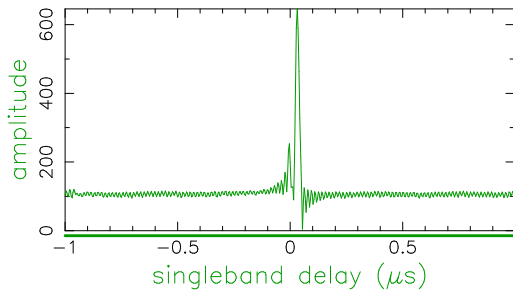
2013+370.3MP56K, No0500, XX

ONSALA60 - ONSALA60, fgroup Q, pol LR



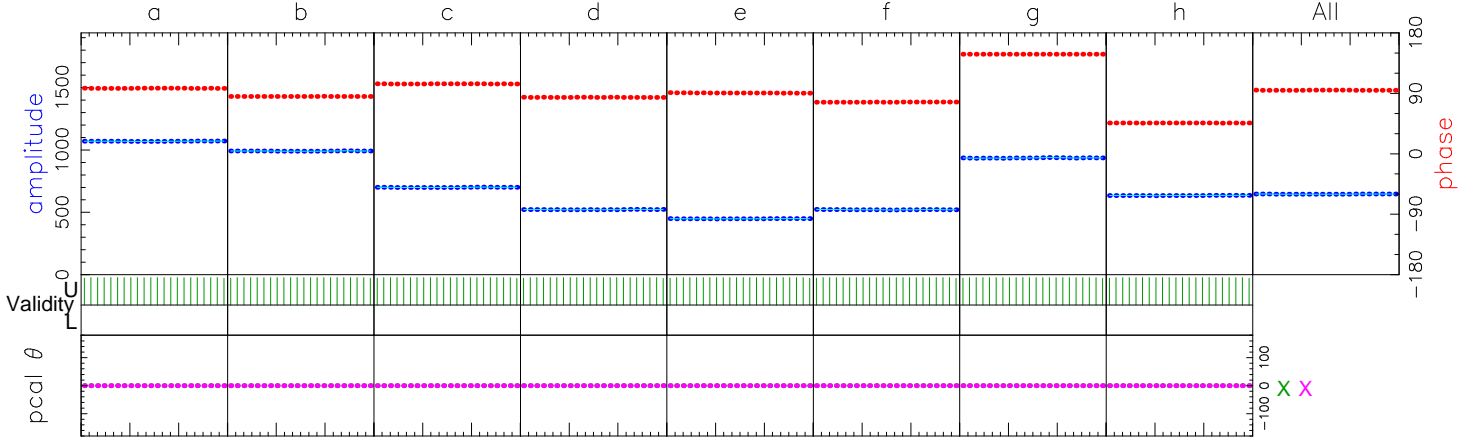
Fringe quality 6

SNR 23696.9  
 Int time 179.835  
 Amp 646.185  
 Phase 139.5  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.031122  
 MBD 0.002655  
 Fringe rate (Hz)  
 -0.000001  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151857  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All   |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-------|
|     | 97.4     | 85.3     | 104.0    | 84.0     | 90.5     | 76.8     | 148.1    | 45.8     | Phase      | 94.5  |
|     | 1069.9   | 991.1    | 700.2    | 522.0    | 448.9    | 521.3    | 935.8    | 635.0    | Ampl.      | 728.0 |
|     | 265.0    | 265.9    | 265.4    | 265.7    | 265.7    | 265.6    | 263.6    | 265.6    | Sbd box    | 265.0 |
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | APs used   |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| X:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |       |
| X:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Mani PC    |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Chan ids   |       |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Tracks     |       |
|     |          |          |          |          |          |          |          |          | Tracks     |       |

|                          |                    |                          |                   |                      |              |     |         |
|--------------------------|--------------------|--------------------------|-------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | 3.39052500000E-02  | Apriori delay (usec)     | 0.00000000000E+00 | Resid mbdelay (usec) | 2.65525E-03  | +/- | 4.6E-08 |
| Sband delay (usec)       | 3.11217500000E-02  | Apriori clock (usec)     | 0.0000000E+00     | Resid sbdelay (usec) | 3.11217E-02  | +/- | 3.6E-07 |
| Phase delay (usec)       | 6.08799621056E-06  | Apriori clockrate (us/s) | 0.0000000E+00     | Resid phdelay (usec) | 6.08800E-06  | +/- | 3.1E-10 |
| Delay rate (us/s)        | -1.41481579395E-11 | Apriori rate (us/s)      | 0.00000000000E+00 | Resid rate (us/s)    | -1.41482E-11 | +/- | 3.0E-12 |
| Total phase (deg)        | 139.5              | Apriori accel (us/s/s)   | 0.00000000000E+00 | Resid phase (deg)    | 139.5        | +/- | 0.0     |

|                             |      |                             |                  |                      |  |  |                  |        |                           |
|-----------------------------|------|-----------------------------|------------------|----------------------|--|--|------------------|--------|---------------------------|
| ph/seg (deg)                | 0.1  | 0.0                         | Search (1024X32) | 632.595              | Pcal mode: MANUAL, MANUAL              | PC period (AP's) 5, 5                          | sb window (us)   | -1.000 | 1.000                     |
| amp/seg (%)                 | 0.1  | 0.0                         | Interp.          | 0.000                | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | SampCntNorm: enabled                           | mb window (us)   | -0.008 | 0.008                     |
| ph/frq (deg)                | 31.3 | 0.0                         | Inc. seg. avg.   | 646.122              | Bits/sample: 2x2                       | Data rate (MSamp/s): 128 MBpts 32 Amb 0.016 us | dr window (ns/s) | -0.023 | 0.023                     |
| amp/frq (%)                 | 36.9 | 0.0                         | Inc. frq. avg.   | 728.041              | Data rate (Mb/s): 2048                 | nlags: 256 t_cohere infinite                   | ion window (TEC) | 0.00   | 0.00                      |
| X: az 272.4 el 44.4 pa 42.5 |      | X: az 272.4 el 44.4 pa 42.5 |                  | u, v (fr/asec) 0.000 | 0.000                                  |  |                  |        | simultaneous interpolator |

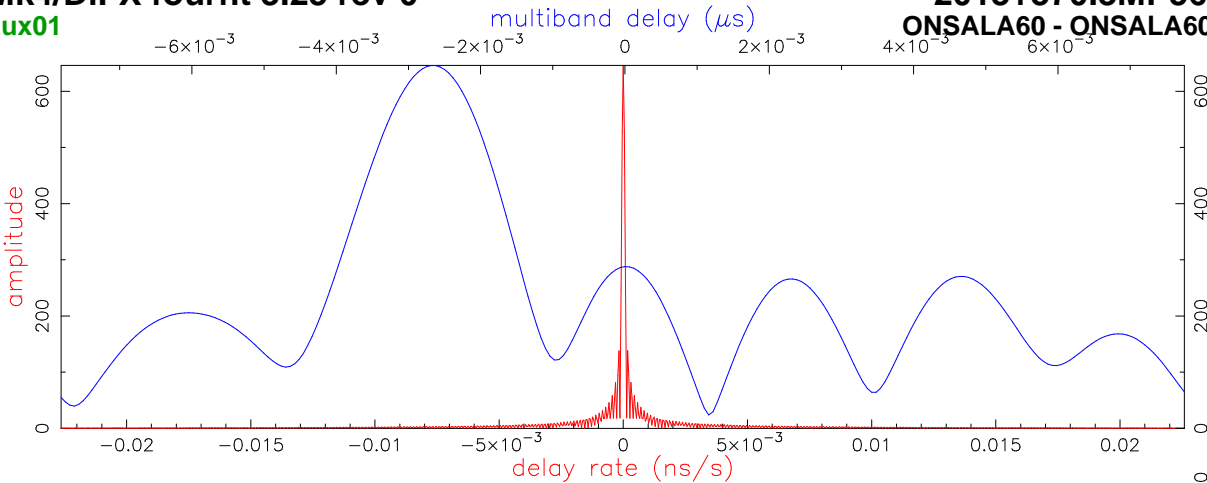
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Mk4/DiFX fourfit 3.25 rev 0

aux01

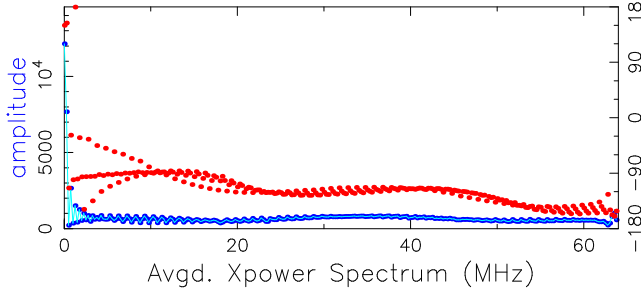
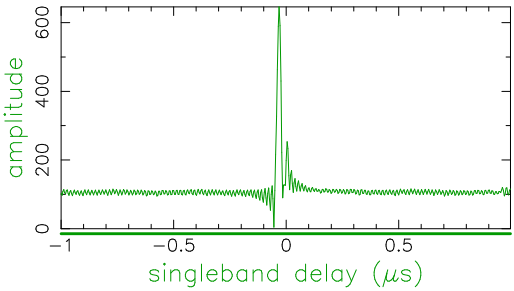
2013+370.3MP56K, No0500, XX

ONSALA60 - ONSALA60, fgroup Q, pol RL



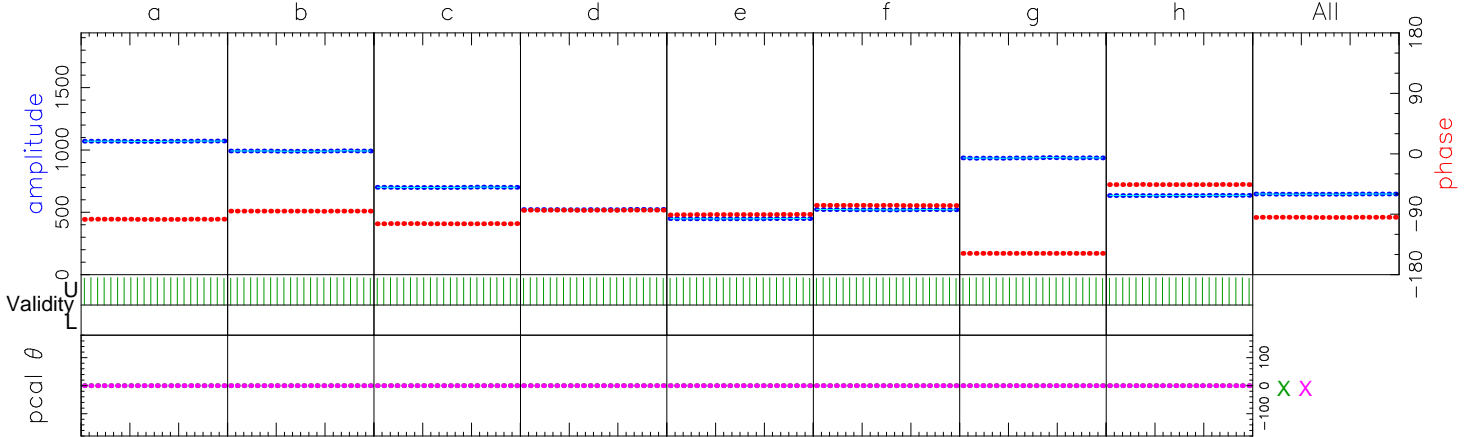
Fringe quality 6

SNR 23696.9  
 Int time 179.835  
 Amp 646.185  
 Phase -139.5  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.031122  
 MBD -0.002655  
 Fringe rate (Hz)  
 0.000001  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151859  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All   |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-------|
|     | -97.4    | -85.3    | -104.0   | -84.0    | -90.5    | -76.8    | -148.1   | -45.8    | Phase      | -94.5 |
|     | 1069.9   | 991.1    | 700.2    | 522.0    | 448.9    | 521.3    | 935.8    | 635.0    | Ampl.      | 728.0 |
|     | 249.0    | 248.1    | 248.6    | 248.3    | 248.3    | 248.4    | 250.4    | 248.4    | Sbd box    | 249.0 |
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | APs used   |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| X:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |       |
| X:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Mani PC    |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Chan ids   |       |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Tracks     |       |

Group delay (usec) (SBD) -3.39052500000E-02 Apriori delay (usec) 0.00000000000E+00 Resid mbdelay (usec) -2.65525E-03 +/- 4.6E-08  
 Sband delay (usec) -3.11217500000E-02 Apriori clock (usec) 0.0000000E+00 Resid sbdelay (usec) -3.11217E-02 +/- 3.6E-07  
 Phase delay (usec) -6.08799621056E-06 Apriori clockrate (us/s) 0.0000000E+00 Resid phdelay (usec) -6.08800E-06 +/- 3.1E-10  
 Delay rate (us/s) 1.41481579395E-11 Apriori rate (us/s) 0.00000000000E+00 Resid rate (us/s) 1.41482E-11 +/- 3.0E-12  
 Total phase (deg) -139.5 Apriori accel (us/s/s) 0.00000000000E+00 Resid phase (deg) -139.5 +/- 0.0

RMS Theor. Amplitude 646.185 +/- 0.027 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 0.1 0.0 Search (1024X32) 632.595 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 amp/seg (%) 0.1 0.0 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 ph/frq (deg) 31.3 0.0 Inc. seg. avg. 646.122 Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us dr window (ns/s) -0.023 0.023  
 amp/frq (%) 36.9 0.0 Inc. frq. avg. 728.041 Data rate(Mb/s): 2048 nlags: 256 t\_cohere infinite ion window (TEC) 0.00 0.00

X: az 272.4 el 44.4 pa 42.5 X: az 272.4 el 44.4 pa 42.5 u, v (fr/asec) 0.000 0.000 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/XX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/XX.Q.393.3MP56K

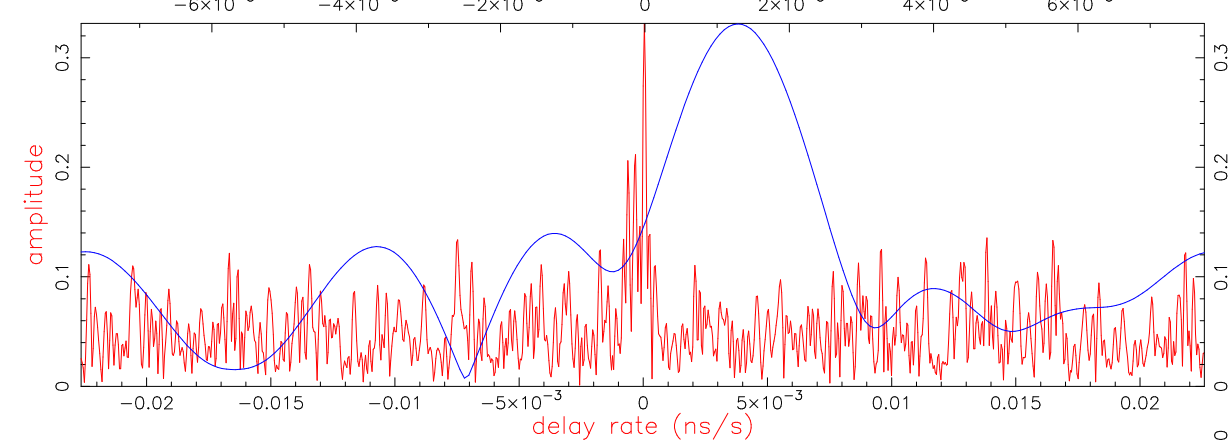


Mk4/DiFX fourfit 3.25 rev 0

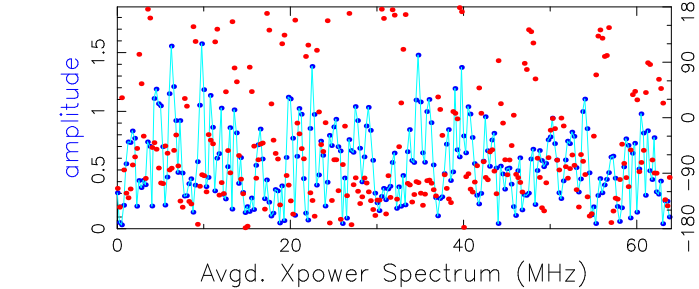
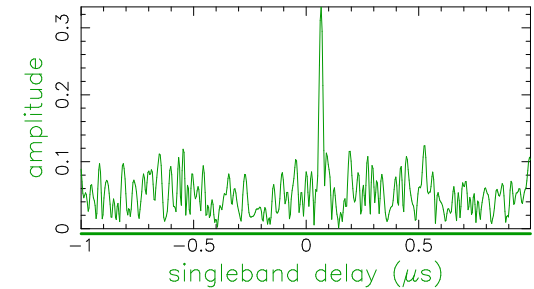
aux01

2013+370.3MP56K, No0500, XY

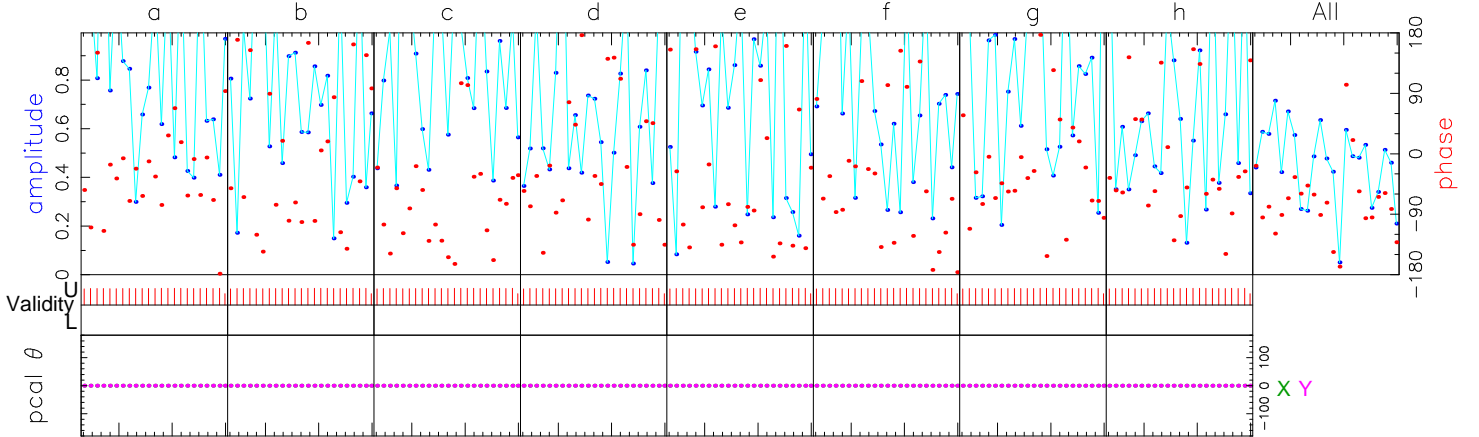
ONSALA60 - YEBES40M, fgroup Q, pol LL



Fringe quality 9  
 SNR 9.0  
 Int time 97.781  
 Amp 0.331  
 Phase 15.9  
 PFD 6.2e-11  
 Delays (us)  
 SBD 0.065838  
 MBD 0.001267  
 Fringe rate (Hz) 0.001356  
 Ion TEC 0.000  
 Ref freq (MHz) 43140.0000  
 AP (sec) 0.512  
 Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094017.41  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build 2024:332:222845  
 2025:042:151842  
 2024:113:095956  
 RA & Dec (J2000) 20h15m28.729786s +37°10'59.514736"



Amp. and Phase vs. time for each freq., 23 segs, 14 APs / seg (7.17 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All   |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-------|
|     | -42.2    | -95.6    | -92.8    | -58.2    | -123.0   | -73.3    | -52.7    | -53.2    | Phase      | -74.1 |
|     | 0.5      | 0.3      | 0.5      | 0.3      | 0.4      | 0.2      | 0.4      | 0.3      | Ampl.      | 0.4   |
|     | 274.4    | 152.2    | 274.2    | 391.5    | 273.3    | 20.9     | 274.8    | 280.1    | Sbd box    | 273.9 |
| U/L | 318/0    | 318/0    | 318/0    | 318/0    | 318/0    | 318/0    | 318/0    | 318/0    | APs used   |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| Y   | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | PC freqs   |       |
| X:Y | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |       |
| X:Y | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Manl PC    |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| Y   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |       |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Chan ids   |       |
| Y   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Tracks     |       |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -1.74611385461E+03 | Apriori delay (usec)     | -1.74617762199E+03 | Resid mbdelay (usec) | 1.26739E-03  | +/- | 1.2E-04 |
| Sband delay (usec)       | -1.74611178399E+03 | Apriori clock (usec)     | 2.2390765E+02      | Resid sbdelay (usec) | 6.58380E-02  | +/- | 9.6E-04 |
| Phase delay (usec)       | -1.74617762677E+03 | Apriori clockrate (us/s) | 2.2253141E-06      | Resid phdelay (usec) | -4.77214E-06 | +/- | 8.2E-07 |
| Delay rate (us/s)        | 1.10755632789E-01  | Apriori rate (us/s)      | 1.10755601354E-01  | Resid rate (us/s)    | 3.14344E-08  | +/- | 8.8E-09 |
| Total phase (deg)        | 155.3              | Apriori accel (us/s/s)   | 2.36470689654E-05  | Resid phase (deg)    | 15.9         | +/- | 12.8    |

|              |      |                  |       |                |                 |                      |                             |                              |                  |              |
|--------------|------|------------------|-------|----------------|-----------------|----------------------|-----------------------------|------------------------------|------------------|--------------|
| ph/seg (deg) | 54.5 | Theor.           | 30.7  | Amplitude      | 0.331 +/- 0.037 | Pcal mode:           | MANUAL, MANUAL              | PC period (AP's)             | 5, 5             |              |
| amp/seg (%)  | 60.8 | Search (1024X32) | 0.320 | Interp.        | 0.000           | Pcal rate:           | 0.000E+00, 0.000E+00 (us/s) | sb window (us)               | -1.000 1.000     |              |
| ph/frq (deg) | 29.9 | Inc. seg. avg.   | 0.402 | Inc. seg. avg. | 0.402           | Bits/sample:         | 2x2                         | SampCntNorm: enabled         | mb window (us)   | -0.008 0.008 |
| amp/frq (%)  | 29.5 | Inc. frq. avg.   | 0.354 | Inc. frq. avg. | 0.354           | Data rate (MSamp/s): | 128 MBpts 32 Amb 0.016 us   | dr window (ns/s)             | -0.023 0.023     |              |
|              |      |                  |       |                |                 | Data rate (Mb/s):    | 2048                        | nlags: 256 t_cohere infinite | ion window (TEC) | 0.00 0.00    |

X: az 272.4 el 44.4 pa 42.5 Y: az 281.3 el 52.4 pa 69.4 u, v (fr/asec) -388.003 1391.009 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/XY..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/XY.Q.351.3MP56K

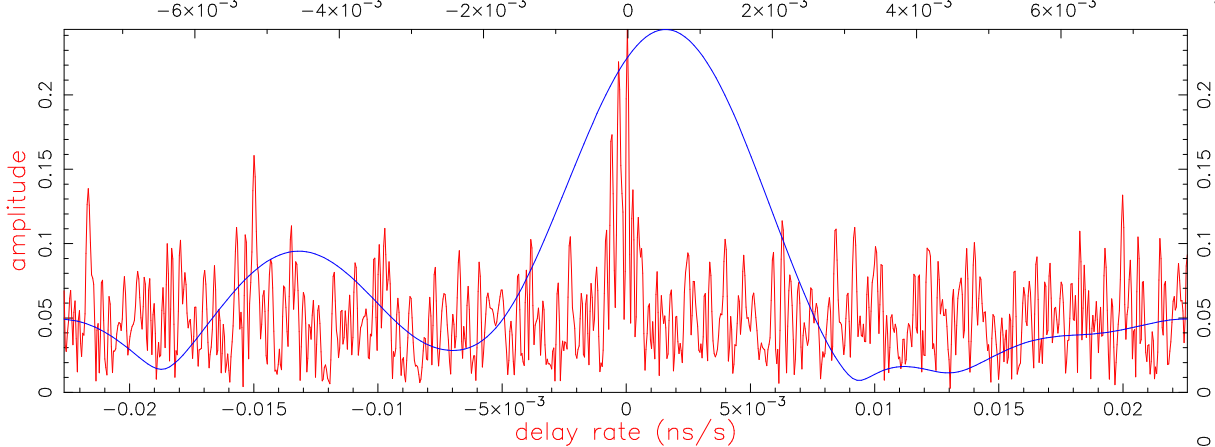
Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, XY

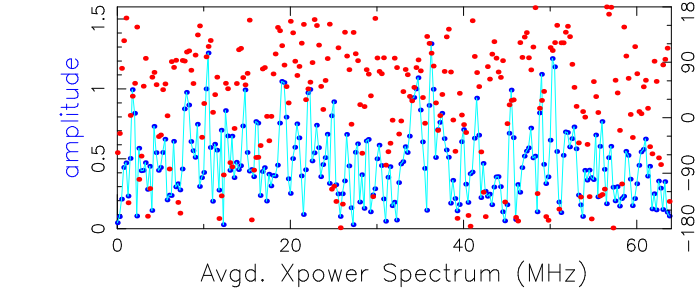
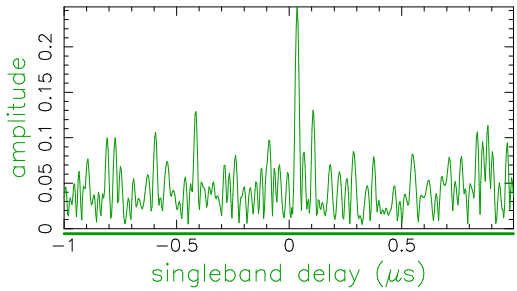
ONŞALA60 - YEBES40M, fgroup Q, pol RR

multiband delay ( $\mu$ s)



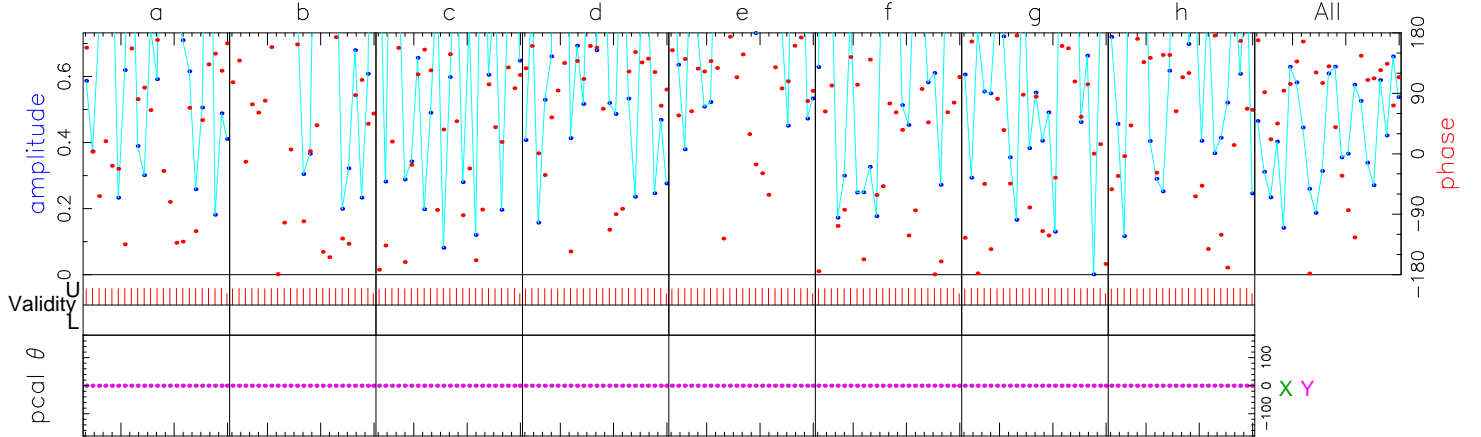
Fringe quality 0

SNR 6.6  
 Int time 97.781  
 Amp 0.244  
 Phase 162.2  
 PFD 5.9e-03  
 Delays (us)  
 SBD 0.035301  
 MBD 0.000525  
 Fringe rate (Hz) 0.001290  
 Ion TEC 0.000  
 Ref freq (MHz) 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094017.41  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build 2024:332:222845  
 2025:042:151848  
 2024:113:095956  
 RA & Dec (J2000) 20h15m28.729786s +37°10'59.514736"

Amp. and Phase vs. time for each freq., 23 segs, 14 APs / seg (7.17 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All   |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-------|
| U/L | 117.8    | 111.0    | 101.1    | 130.3    | 127.0    | 85.3     | 137.7    | 109.8    | Phase      | 117.2 |
| X   | 0.1      | 0.3      | 0.1      | 0.4      | 0.5      | 0.3      | 0.2      | 0.2      | Ampl.      | 0.2   |
| Y   | 59.4     | 41.9     | 25.3     | 266.3    | 266.1    | 267.8    | 156.8    | 476.5    | Sbd box    | 266.0 |
| X:Y | 318/0    | 318/0    | 318/0    | 318/0    | 318/0    | 318/0    | 318/0    | 318/0    | APs used   |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| Y   | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | PC freqs   |       |
| X:Y | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |       |
| X:Y | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Mani PC    |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| Y   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |       |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Chan ids   |       |
| Y   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Tracks     |       |

|                          |                    |                          |                    |                      |             |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|-------------|-----|---------|
| Group delay (usec) (SBD) | -1.74614584723E+03 | Apriori delay (usec)     | -1.74617762199E+03 | Resid mbdelay (usec) | 5.24761E-04 | +/- | 1.6E-04 |
| Sband delay (usec)       | -1.74614232099E+03 | Apriori clock (usec)     | 2.2390765E+02      | Resid sbdelay (usec) | 3.53010E-02 | +/- | 1.3E-03 |
| Phase delay (usec)       | -1.74617761445E+03 | Apriori clockrate (us/s) | 2.2253141E-02      | Resid phdelay (usec) | 7.54483E-06 | +/- | 1.1E-06 |
| Delay rate (us/s)        | 1.10755631246E-01  | Apriori rate (us/s)      | 1.10755601354E-01  | Resid rate (us/s)    | 2.98922E-08 | +/- | 1.2E-08 |
| Total phase (deg)        | 301.6              | Apriori accel (us/s/s)   | 2.36470689654E-05  | Resid phase (deg)    | 162.2       | +/- | 17.4    |

|              |      |                  |       |                |                 |                     |                             |                              |                  |              |
|--------------|------|------------------|-------|----------------|-----------------|---------------------|-----------------------------|------------------------------|------------------|--------------|
| ph/seg (deg) | 65.5 | Theor.           | 41.6  | Amplitude      | 0.244 +/- 0.037 | Pcal mode:          | MANUAL, MANUAL              | PC period (AP's)             | 5, 5             |              |
| amp/seg (%)  | 97.8 | Search (1024X32) | 0.239 | Interp.        | 0.000           | Pcal rate:          | 0.000E+00, 0.000E+00 (us/s) | sb window (us)               | -1.000 1.000     |              |
| ph/frq (deg) | 18.5 | Inc. seg. avg.   | 0.338 | Inc. frq. avg. | 0.233           | Bits/sample:        | 2x2                         | SampCntNorm: enabled         | mb window (us)   | -0.008 0.008 |
| amp/frq (%)  | 52.2 | Inc. frq. avg.   | 0.233 |                |                 | Data rate(MSamp/s): | 128 MBpts 32 Amb 0.016 us   | dr window (ns/s)             | -0.023 0.023     |              |
|              |      |                  |       |                |                 | Data rate(Mb/s):    | 2048                        | nlags: 256 t_cohere infinite | ion window (TEC) | 0.00 0.00    |

X: az 272.4 el 44.4 pa 42.5 Y: az 281.3 el 52.4 pa 69.4 u,v (fr/asec) -388.003 1391.009 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/XY..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/XY.Q.359.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

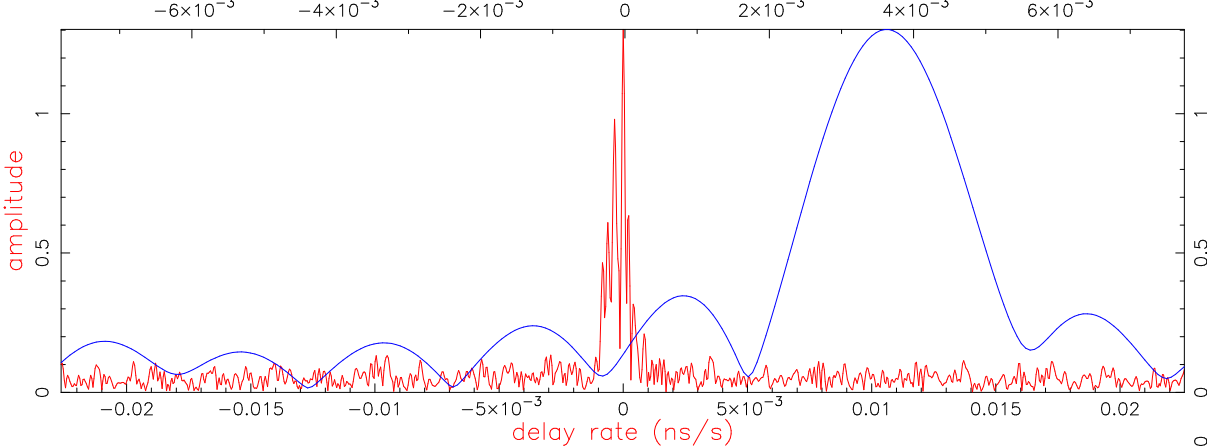
aux01

2013+370.3MP56K, No0500, XY

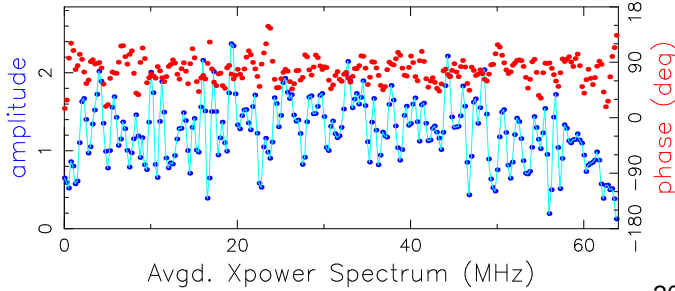
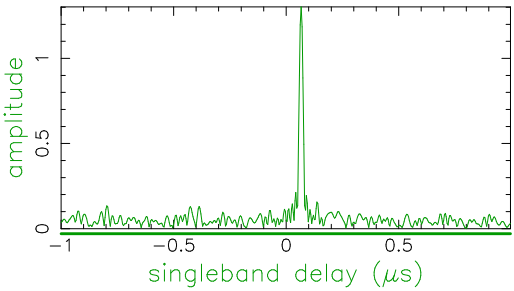
ON5ALA60 - YEBES40M, fgroup Q, pol LR

multiband delay ( $\mu$ s)

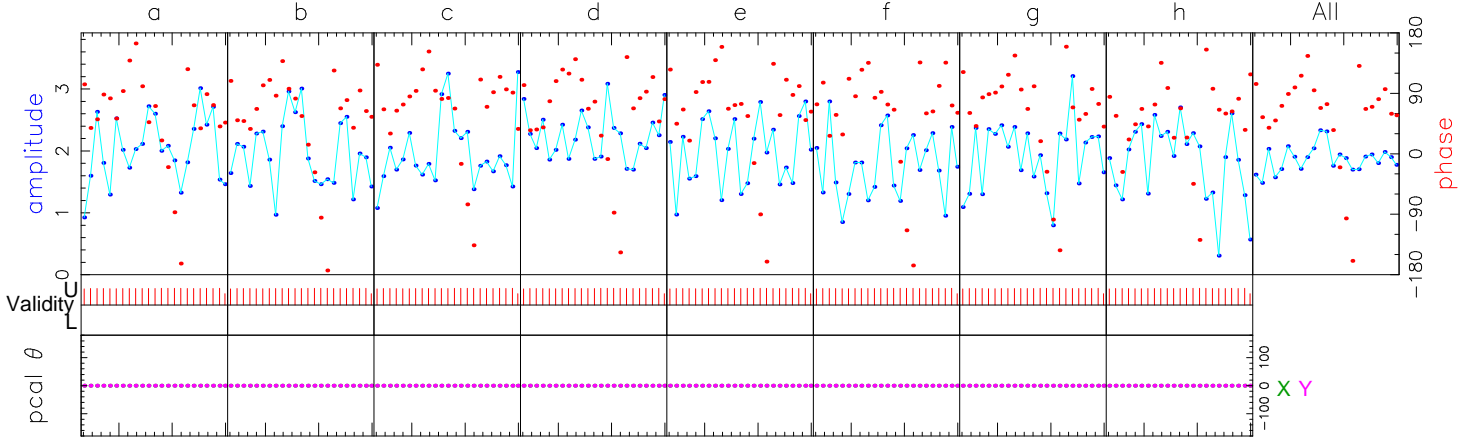
Fringe quality 7



SNR 35.2  
 Int time 97.781  
 Amp 1.303  
 Phase 168.5  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.066308  
 MBD 0.003623  
 Fringe rate (Hz) 0.000928  
 Ion TEC 0.000  
 Ref freq (MHz) 43140.0000  
 AP (sec) 0.512  
 Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094017.41  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151854  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"



Amp. and Phase vs. time for each freq., 23 segs, 14 APs / seg (7.17 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All   |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-------|
|     | 69.6     | 76.8     | 81.2     | 82.3     | 87.7     | 84.3     | 85.2     | 60.6     | Phase      | 78.5  |
|     | 1.4      | 1.4      | 1.3      | 1.4      | 1.2      | 1.2      | 1.3      | 1.2      | Ampl.      | 1.3   |
|     | 274.0    | 273.8    | 274.2    | 274.1    | 273.7    | 274.0    | 273.8    | 273.6    | Sbd box    | 274.0 |
| U/L | 318/0    | 318/0    | 318/0    | 318/0    | 318/0    | 318/0    | 318/0    | 318/0    | APs used   |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| Y   | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | PC freqs   |       |
| X:Y | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |       |
| X:Y | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Manl PC    |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| Y   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |       |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Chan ids   |       |
| Y   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Tracks     |       |

|                          |                    |                          |                    |                      |             |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|-------------|-----|---------|
| Group delay (usec) (SBD) | -1.74611149906E+03 | Apriori delay (usec)     | -1.74617762199E+03 | Resid mbdelay (usec) | 3.62294E-03 | +/- | 3.1E-05 |
| Sband delay (usec)       | -1.74611131449E+03 | Apriori clock (usec)     | 2.2390765E+02      | Resid sbdelay (usec) | 6.63075E-02 | +/- | 2.4E-04 |
| Phase delay (usec)       | -1.74617761694E+03 | Apriori clockrate (us/s) | 2.2253141E-02      | Resid phdelay (usec) | 5.05451E-06 | +/- | 2.1E-07 |
| Delay rate (us/s)        | 1.10755622874E-01  | Apriori rate (us/s)      | 1.10755601354E-01  | Resid rate (us/s)    | 2.15193E-08 | +/- | 2.2E-09 |
| Total phase (deg)        | 307.9              | Apriori accel (us/s/s)   | 2.36470689654E-05  | Resid phase (deg)    | 168.5       | +/- | 3.3     |

|              |      |                  |       |                |                 |                      |                             |                              |                  |              |
|--------------|------|------------------|-------|----------------|-----------------|----------------------|-----------------------------|------------------------------|------------------|--------------|
| ph/seg (deg) | 56.3 | RMS              | 7.8   | Theor.         | 1.303 +/- 0.037 | PCal mode:           | MANUAL, MANUAL              | PC period (AP's)             | 5, 5             |              |
| amp/seg (%)  | 46.4 | Search (1024X32) | 1.224 | Amplitude      | 1.303 +/- 0.037 | PCal rate:           | 0.000E+00, 0.000E+00 (us/s) | sb window (us)               | -1.000 1.000     |              |
| ph/frq (deg) | 9.9  | Interp.          | 0.000 | Search         | 1.224           | Bits/sample:         | 2x2                         | SampCntNorm: enabled         | mb window (us)   | -0.008 0.008 |
| amp/frq (%)  | 6.4  | Inc. seg. avg.   | 1.854 | Inc. seg. avg. | 1.854           | Data rate (MSamp/s): | 128 MBpts 32 Amb 0.016 us   | dr window (ns/s)             | -0.023 0.023     |              |
|              |      | Inc. frq. avg.   | 1.312 | Inc. frq. avg. | 1.312           | Data rate (Mb/s):    | 2048                        | nlags: 256 t_cohere infinite | ion window (TEC) | 0.00 0.00    |

X: az 272.4 el 44.4 pa 42.5 Y: az 281.3 el 52.4 pa 69.4 u,v (fr/asec) -388.003 1391.009 simultaneous interpolator

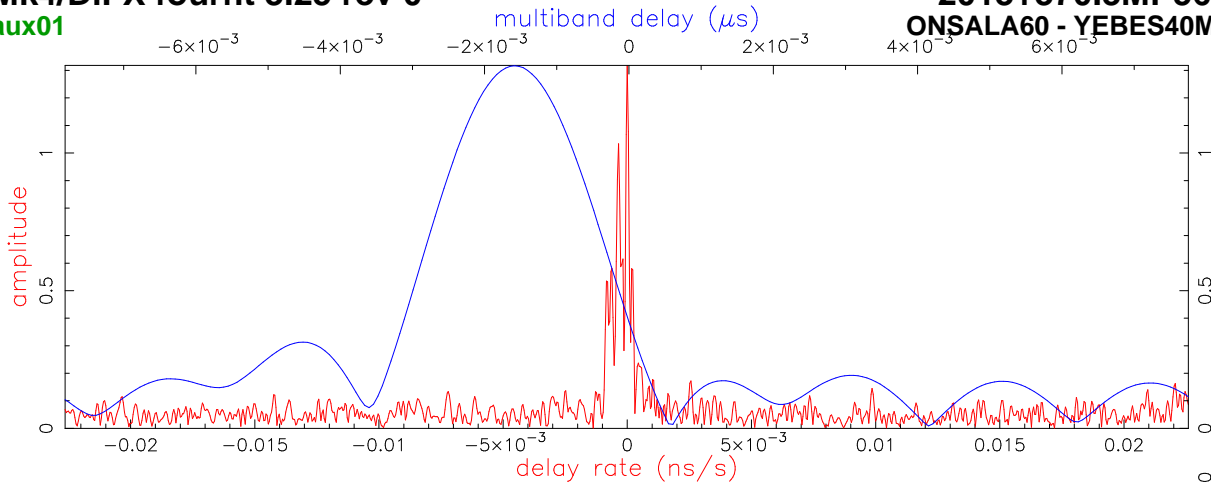
Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/XY..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/XY.Q.369.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

aux01

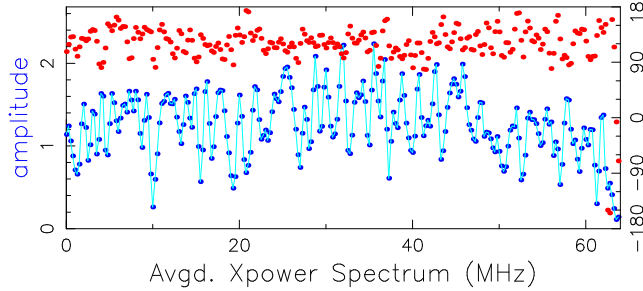
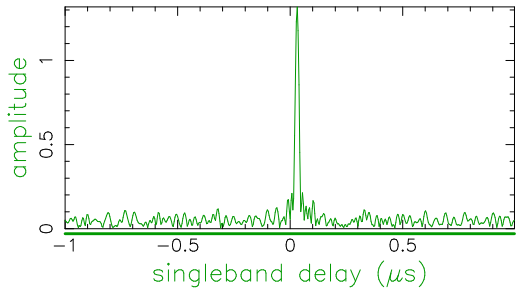
2013+370.3MP56K, No0500, XY

ONŞALA60 - YEBES40M, fgroup Q, pol RL



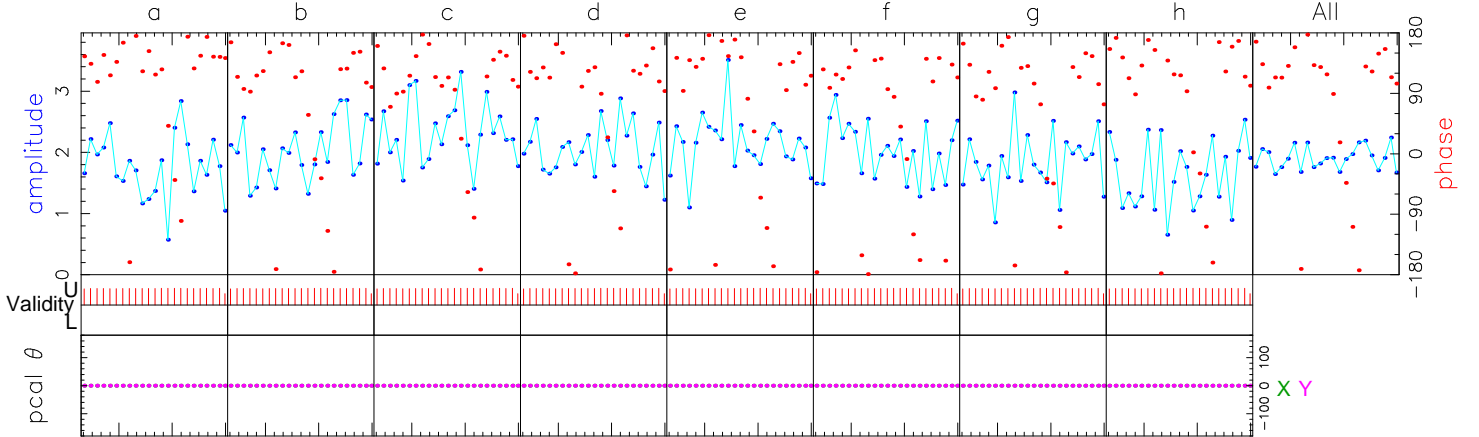
Fringe quality 7

SNR 35.6  
 Int time 97.781  
 Amp 1.318  
 Phase 181.4  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.030790  
 MBD -0.001602  
 Fringe rate (Hz) 0.000951  
 Ion TEC 0.000  
 Ref freq (MHz) 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094017.41  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build 2024:332:222845  
 2025:042:151856  
 2024:113:095956  
 RA & Dec (J2000) 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 23 segs, 14 APs / seg (7.17 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All   |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-------|
| U/L | 149.0    | 131.4    | 122.0    | 135.3    | 145.6    | 134.1    | 132.2    | 144.9    | Phase      | 136.4 |
| X   | 1.2      | 1.3      | 1.6      | 1.4      | 1.5      | 1.4      | 1.1      | 1.1      | Ampl.      | 1.3   |
| Y   | 264.7    | 264.7    | 265.2    | 265.2    | 264.9    | 264.3    | 265.2    | 264.0    | Sbd box    | 264.9 |
| X:Y | 318/0    | 318/0    | 318/0    | 318/0    | 318/0    | 318/0    | 318/0    | 318/0    | APs used   |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| Y   | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | PC freqs   |       |
| X:Y | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |       |
| X:Y | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Mani PC    |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| Y   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |       |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Chan ids   |       |
| Y   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Tracks     |       |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -1.74614797374E+03 | Apriori delay (usec)     | -1.74617762199E+03 | Resid mbdelay (usec) | -1.60175E-03 | +/- | 3.0E-05 |
| Sband delay (usec)       | -1.74614683224E+03 | Apriori clock (usec)     | 2.2390765E+02      | Resid sbdelay (usec) | 3.07897E-02  | +/- | 2.4E-04 |
| Phase delay (usec)       | -1.74617761321E+03 | Apriori clockrate (us/s) | 2.2253141E-02      | Resid phdelay (usec) | 8.78232E-06  | +/- | 2.1E-07 |
| Delay rate (us/s)        | 1.10755623408E-01  | Apriori rate (us/s)      | 1.10755601354E-01  | Resid rate (us/s)    | 2.20541E-08  | +/- | 2.2E-09 |
| Total phase (deg)        | 320.8              | Apriori accel (us/s/s)   | 2.36470689654E-05  | Resid phase (deg)    | 181.4        | +/- | 3.2     |

|              |      |                  |       |                      |                           |                   |                             |                      |                   |                  |       |      |
|--------------|------|------------------|-------|----------------------|---------------------------|-------------------|-----------------------------|----------------------|-------------------|------------------|-------|------|
| ph/seg (deg) | 57.8 | RMS              | 7.7   | Theor.               | 7.7                       | Amplitude         | 1.318 +/- 0.037             | Pcal mode:           | MANUAL, MANUAL    | PC period (AP's) | 5, 5  |      |
| amp/seg (%)  | 47.1 | Search (1024X32) | 1.246 | Interp.              | 0.000                     | Pcal rate:        | 0.000E+00, 0.000E+00 (us/s) | sb window (us)       | -1.000            | 1.000            |       |      |
| ph/frq (deg) | 9.8  | Inc. seg. avg.   | 1.895 | Inc. frq. avg.       | 1.328                     | Bits/sample:      | 2x2                         | SampCntNorm: enabled | mb window (us)    | -0.008           | 0.008 |      |
| amp/frq (%)  | 11.5 | Inc. frq. avg.   | 1.328 | Data rate (MSamp/s): | 128 MBpts 32 Amb 0.016 us | Data rate (Mb/s): | 2048                        | nlags: 256           | t_cohere infinite | ion window (TEC) | 0.00  | 0.00 |

X: az 272.4 el 44.4 pa 42.5 Y: az 281.3 el 52.4 pa 69.4 u,v (fr/asec) -388.003 1391.009 simultaneous interpolator

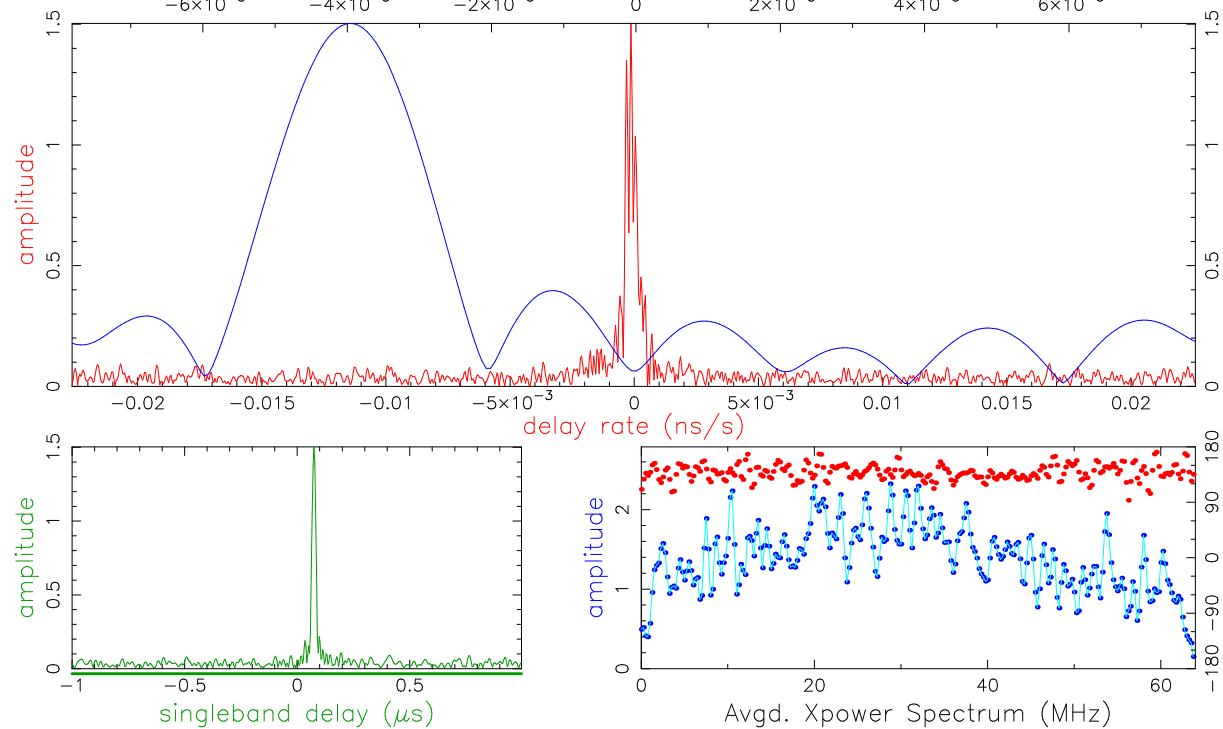
Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/XY..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/XY.Q.378.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, ZX

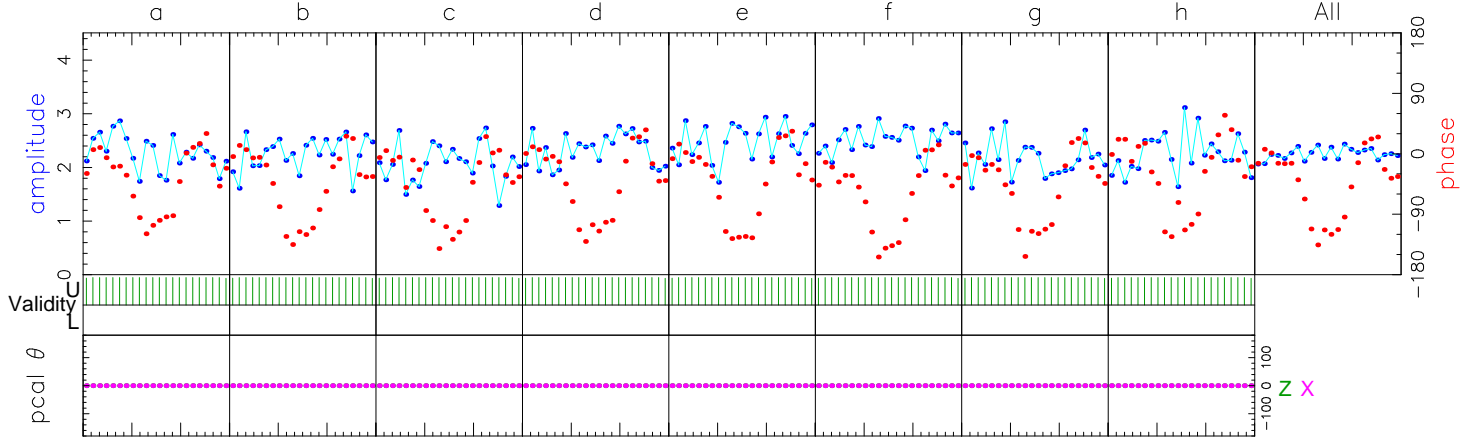
METSALHOV - QNSALA60, fgroup Q, pol LL



Fringe quality 5

SNR 55.1  
 Int time 179.835  
 Amp 1.503  
 Phase 253.2  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.074360  
 MBD -0.003955  
 Fringe rate (Hz)  
 -0.005713  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512  
 Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151823  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All   |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-------|
|     | -33.1    | -40.9    | -43.6    | -36.9    | -35.1    | -54.8    | -41.7    | -26.4    | Phase      | -39.3 |
|     | 1.7      | 1.5      | 1.4      | 1.5      | 1.5      | 1.7      | 1.5      | 1.4      | Ampl.      | 1.5   |
|     | 276.1    | 275.5    | 276.1    | 276.2    | 275.9    | 275.9    | 276.8    | 276.0    | Sbd box    | 276.0 |
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | APs used   |       |
| Z   | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | PC freqs   |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| Z:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |       |
| Z:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Manl PC    |       |
| Z   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |       |
| Z   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Chan ids   |       |
| X   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Tracks     |       |

Group delay (usec) (SBD) -1.82026387423E+03 Apriori delay (usec) -1.82033804455E+03 Resid mbdelay (usec) -3.95468E-03 +/- 2.0E-05  
 Sband delay (usec) -1.82026368455E+03 Apriori clock (usec) -1.1282175E+02 Resid sbdelay (usec) 7.43600E-02 +/- 1.6E-04  
 Phase delay (usec) -1.82033804708E+03 Apriori clockrate (us/s) -6.0676312E-07 Resid phdelay (usec) -2.52781E-06 +/- 1.3E-07  
 Delay rate (us/s) 2.01179634395E-03 Apriori rate (us/s) 2.01192877071E-03 Resid rate (us/s) -1.32427E-07 +/- 1.3E-09  
 Total phase (deg) 166.2 Apriori accel (us/s/s) 1.08277172077E-05 Resid phase (deg) 253.2 +/- 2.1

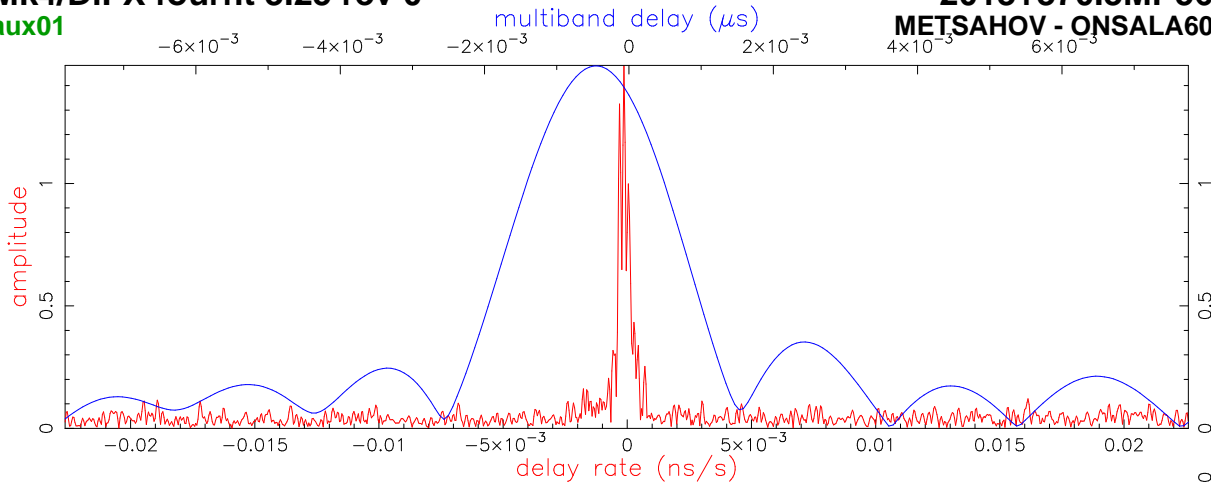
RMS Theor. Amplitude 1.503 +/- 0.027 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 49.6 4.9 Search (1024X32) 1.500 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 amp/seg (%) 50.3 8.5 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 ph/frq (deg) 9.1 2.9 Inc. seg. avg. 2.244 Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us dr window (ns/s) -0.023 0.023  
 amp/frq (%) 7.4 5.1 Inc. frq. avg. 1.516 Data rate(Mb/s): 2048 nlags: 256 t\_cohere infinite ion window (TEC) 0.00 0.00  
 Z: az 280.0 el 38.3 pa 37.9 X: az 272.4 el 44.4 pa 42.5 u,v (fr/asec) -2.747 414.299 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/ZX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/ZX.Q.250.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

aux01

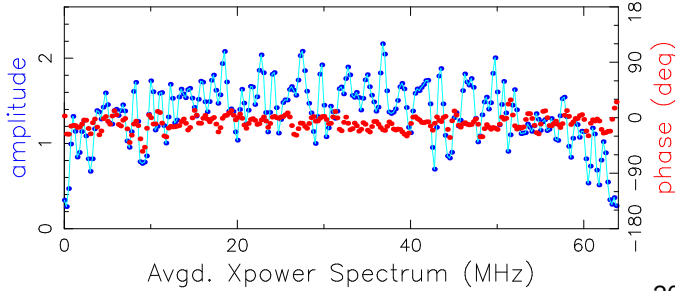
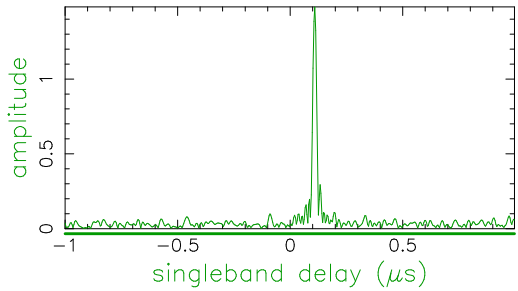
2013+370.3MP56K, No0500, ZX

METSAHOV - ONSALA60, fgroup Q, pol RR



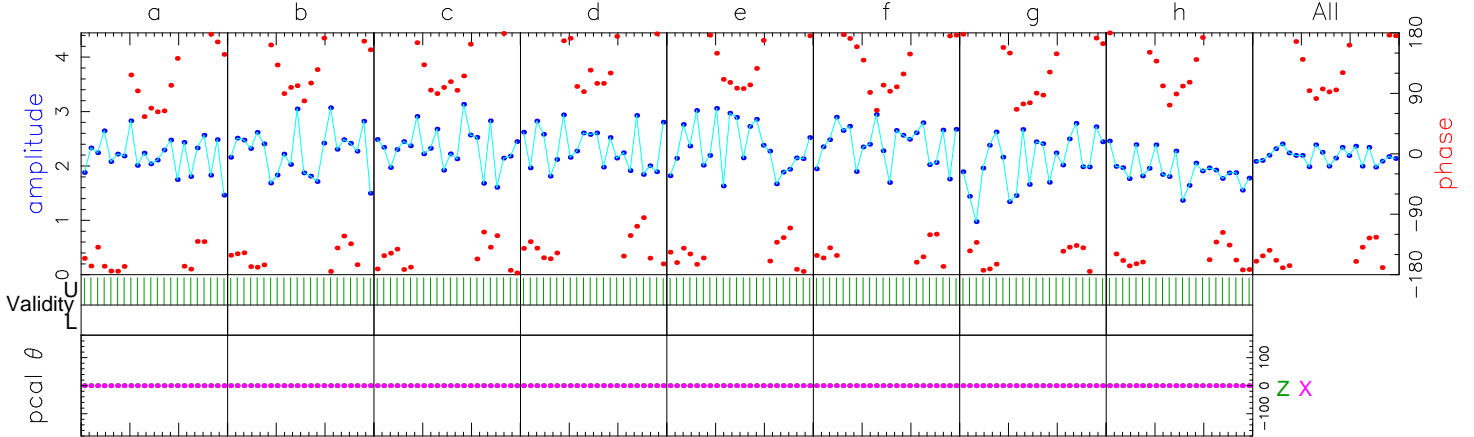
Fringe quality 5

SNR 54.4  
 Int time 179.835  
 Amp 1.482  
 Phase 149.1  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.108896  
 MBD -0.000469  
 Fringe rate (Hz)  
 -0.005781  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512



Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151825  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All   |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-------|
|     | 162.7    | 173.1    | 169.8    | -176.5   | 172.9    | 168.3    | 167.2    | 173.8    | Phase      | 171.6 |
|     | 1.3      | 1.6      | 1.6      | 1.5      | 1.6      | 1.6      | 1.3      | 1.3      | Ampl.      | 1.5   |
|     | 285.1    | 284.6    | 284.8    | 285.2    | 284.7    | 285.0    | 285.2    | 285.1    | Sbd box    | 284.9 |
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | APs used   |       |
| Z   | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | PC freqs   |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| Z:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |       |
| Z:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Manl PC    |       |
| Z   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |       |
| Z   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Chan ids   |       |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Tracks     |       |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -1.82022913880E+03 | Apriori delay (usec)     | -1.82033804455E+03 | Resid mbdelay (usec) | -4.69247E-04 | +/- | 2.0E-05 |
| Sband delay (usec)       | -1.82022914830E+03 | Apriori clock (usec)     | -1.1282175E+02     | Resid sbdelay (usec) | 1.08896E-01  | +/- | 1.6E-04 |
| Phase delay (usec)       | -1.82033803350E+03 | Apriori clockrate (us/s) | -6.0676312E-07     | Resid phdelay (usec) | 1.10490E-05  | +/- | 1.4E-07 |
| Delay rate (us/s)        | 2.01179475935E-03  | Apriori rate (us/s)      | 2.01192877071E-03  | Resid rate (us/s)    | -1.34011E-07 | +/- | 1.3E-09 |
| Total phase (deg)        |                    | Apriori accel (us/s/s)   | 1.08277172077E-05  | Resid phase (deg)    | 149.1        | +/- | 2.1     |

|                             |      |                             |     |                  |                |   |                              |                           |        |       |
|-----------------------------|------|-----------------------------|-----|------------------|----------------|---|------------------------------|---------------------------|--------|-------|
| ph/seg (deg)                | 49.2 | Theor.                      | 4.9 | Search (1024X32) | 1.477          | Pcal mode: MANUAL, MANUAL                     | PC period (AP's) 5, 5        | sb window (us)            | -1.000 | 1.000 |
| amp/seg (%)                 | 48.3 |                             | 8.6 | Interp.          | 0.000          | Pcal rate: 0.000E+00, 0.000E+00 (us/s)        |                              | mb window (us)            | -0.008 | 0.008 |
| ph/frq (deg)                | 6.6  |                             | 3.0 | Inc. seg. avg.   | 2.179          | Bits/sample: 2x2                              | SampCntNorm: enabled         | dr window (ns/s)          | -0.023 | 0.023 |
| amp/frq (%)                 | 9.2  |                             | 5.2 | Inc. frq. avg.   | 1.486          | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us | nlags: 256 t_cohere infinite | ion window (TEC)          | 0.00   | 0.00  |
| Z: az 280.0 el 38.3 pa 37.9 |      | X: az 272.4 el 44.4 pa 42.5 |     | u,v (fr/asec)    | -2.747 414.299 |   |                              | simultaneous interpolator |        |       |

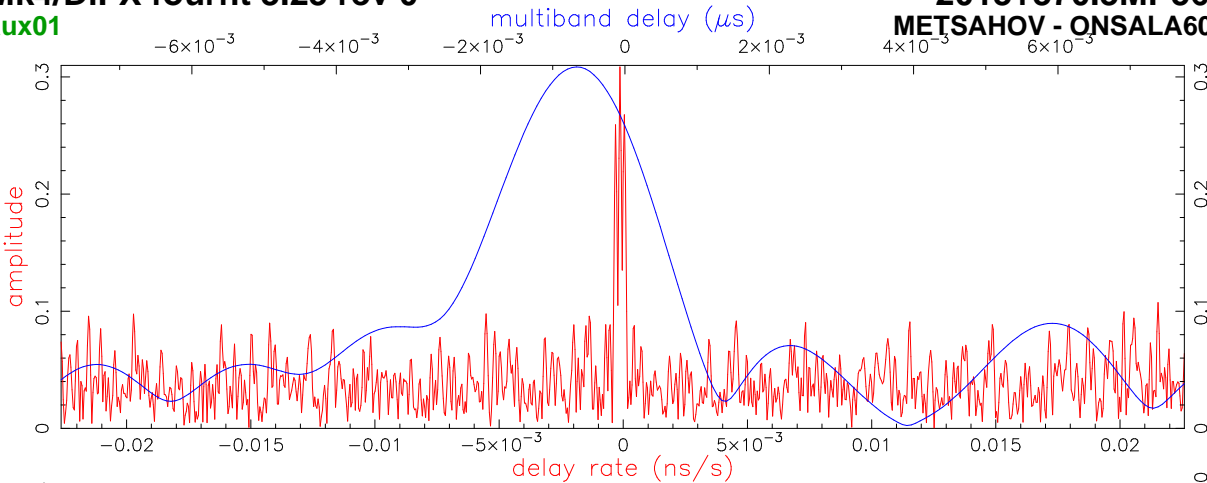
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Mk4/DiFX fourfit 3.25 rev 0

aux01

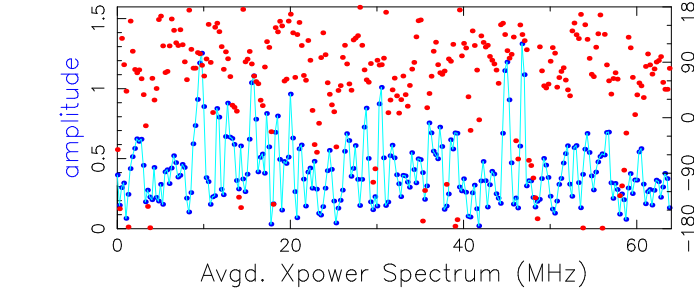
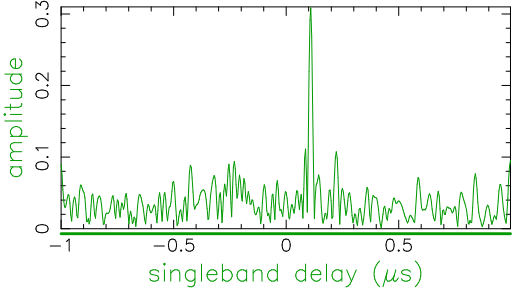
2013+370.3MP56K, No0500, ZX

ME TSAHOV - ONSALA60, fgroup Q, pol LR



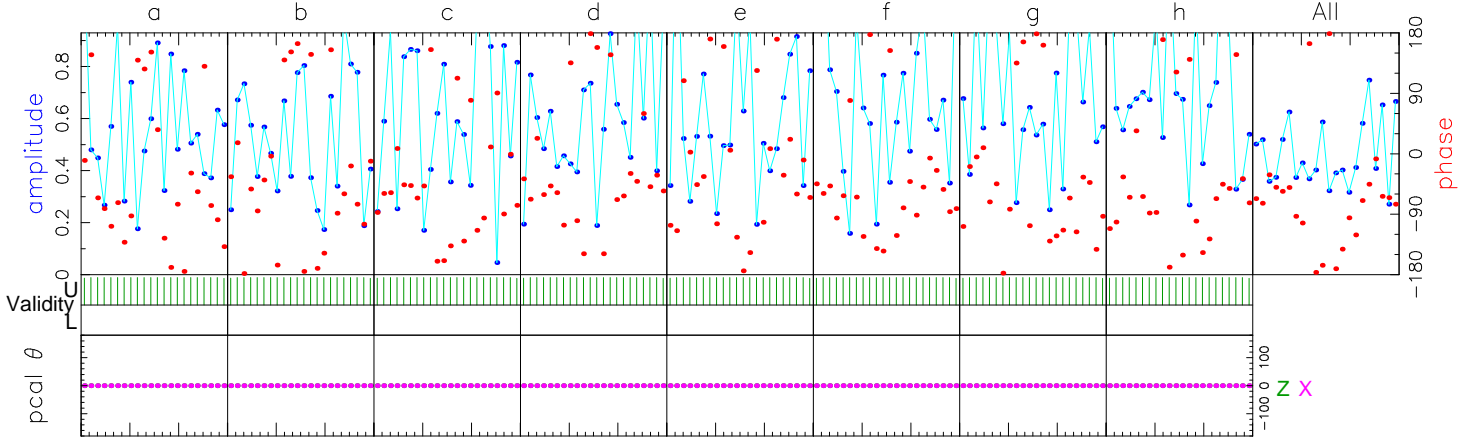
Fringe quality 9

SNR 11.4  
Int time 179.835  
Amp 0.310  
Phase 252.5  
PFD 1.5e-21  
Delays (us)  
SBD 0.108534  
MBD -0.000697  
Fringe rate (Hz)  
-0.005896  
Ion TEC 0.000  
Ref freq (MHz)  
43140.0000  
AP (sec) 0.512



Exp. c241d  
Exper # 1234  
Yr:day 2024:113  
Start 094000.00  
Stop 094300.22  
FRT 094130.00  
Corr/FF/build  
2024:332:222845  
2025:042:151830  
2024:113:095956  
RA & Dec (J2000)  
20h15m28.729786s  
+37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|     | 42912.00 | 42976.00 | 43040.00 | 43104.00 | 43168.00 | 43232.00 | 43296.00 | 43360.00 | Freq (MHz) | All   |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-------|
|     | -102.4   | -107.0   | -80.7    | -68.6    | -89.7    | -74.0    | -86.7    | -94.3    | Phase      | -85.0 |
|     | 0.2      | 0.1      | 0.3      | 0.3      | 0.2      | 0.5      | 0.4      | 0.4      | Ampl.      | 0.3   |
|     | 315.6    | 207.2    | 283.8    | 285.0    | 277.0    | 285.3    | 285.5    | 284.6    | Sbd box    | 284.8 |
| U/L | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | 352/0    | APs used   |       |
| Z   | 0        | 0        | 0        | 0        | 0        | 0        | 0        | 0        | PC freqs   |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |       |
| Z:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |       |
| Z:X | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Manl PC    |       |
| Z   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC amp     |       |
| X   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |       |
| Z   | Q00UL    | Q01UL    | Q02UL    | Q03UL    | Q04UL    | Q05UL    | Q06UL    | Q07UL    | Chan ids   |       |
| X   | Q00UR    | Q01UR    | Q02UR    | Q03UR    | Q04UR    | Q05UR    | Q06UR    | Q07UR    | Tracks     |       |

|                          |                    |                          |                    |                      |              |     |         |
|--------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec) (SBD) | -1.82022936705E+03 | Apriori delay (usec)     | -1.82033804455E+03 | Resid mbdelay (usec) | -6.97497E-04 | +/- | 9.6E-05 |
| Sband delay (usec)       | -1.82022951105E+03 | Apriori clock (usec)     | -1.1282175E+02     | Resid sbdelay (usec) | 1.08534E-01  | +/- | 7.6E-04 |
| Phase delay (usec)       | -1.82033805003E+03 | Apriori clockrate (us/s) | -6.0676312E-07     | Resid phdelay (usec) | -5.47565E-06 | +/- | 6.5E-07 |
| Delay rate (us/s)        | 2.01179210516E-03  | Apriori rate (us/s)      | 2.01192877071E-03  | Resid rate (us/s)    | -1.36666E-07 | +/- | 6.2E-09 |
| Total phase (deg)        | 165.4              | Apriori accel (us/s/s)   | 1.08277172077E-05  | Resid phase (deg)    | 252.5        | +/- | 10.1    |

|                             |                             |  |                |                        |           |  |                           |                       |              |
|-----------------------------|-----------------------------|--|----------------|------------------------|-----------|--|---------------------------|-----------------------|--------------|
| ph/seg (deg)                | 54.1                        | RMS  | 23.6           | Theor.                 | Amplitude | 0.310 +/- 0.027                        | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |              |
| amp/seg (%)                 | 64.6                        | Search (1024X32)                               | 0.304          | Interp.                | 0.000     | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us)            | -1.000 1.000          |              |
| ph/frq (deg)                | 14.8                        | Inc. seg. avg.                                 | 0.428          | Inc. frq. avg.         | 0.305     | Bits/sample: 2x2                       | SampCntNorm: enabled      | mb window (us)        | -0.008 0.008 |
| amp/frq (%)                 | 38.3                        | Data rate (MSamp/s): 128 MBpts 32 Amb 0.016 us |                | Data rate (Mb/s): 2048 |           | nlags: 256                             | t_cohere infinite         | dr window (ns/s)      | -0.023 0.023 |
| Z: az 280.0 el 38.3 pa 37.9 | X: az 272.4 el 44.4 pa 42.5 | u,v (fr/asec)                                  | -2.747 414.299 |                        |           |  |                           | ion window (TEC)      | 0.00 0.00    |

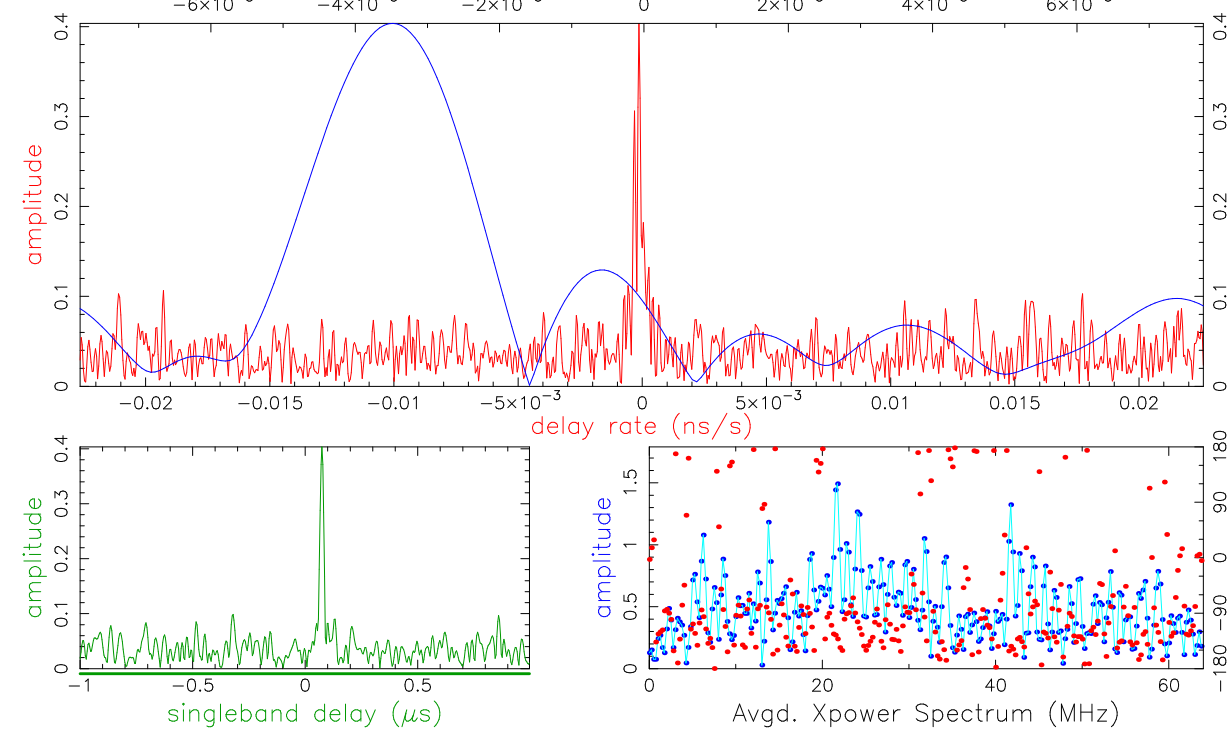
simultaneous interpolator  
Control file: cf\_1234\_gmva Input file: /Exps/c241d/v1/7mm/1234/No0500/ZX..3MP56K Output file: /Exps/c241d/v1/7mm/1234/No0500/ZX.Q.295.3MP56K

Mk4/DiFX fourfit 3.25 rev 0

aux01

2013+370.3MP56K, No0500, ZX

METSALHOV - ONSALA60, fgroup Q, pol RL

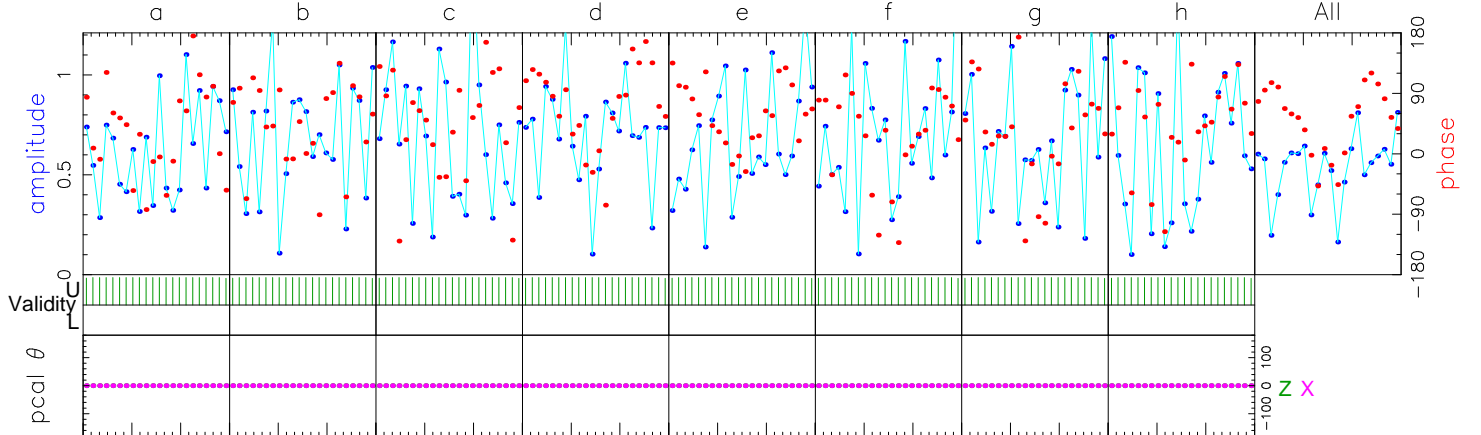


Fringe quality 9

SNR 14.8  
 Int time 179.835  
 Amp 0.404  
 Phase 350.3  
 PFD 4.7e-41  
 Delays (us)  
 SBD 0.074234  
 MBD -0.003485  
 Fringe rate (Hz)  
 -0.005761  
 Ion TEC 0.000  
 Ref freq (MHz)  
 43140.0000  
 AP (sec) 0.512

Exp. c241d  
 Exper # 1234  
 Yr:day 2024:113  
 Start 094000.00  
 Stop 094300.22  
 FRT 094130.00  
 Corr/FF/build  
 2024:332:222845  
 2025:042:151835  
 2024:113:095956  
 RA & Dec (J2000)  
 20h15m28.729786s  
 +37°10'59.514736"

Amp. and Phase vs. time for each freq., 22 segs, 16 APs / seg (8.19 sec / seg.), time ticks 10 sec



|                             | 42912.00  | 42976.00 | 43040.00  | 43104.00 | 43168.00           | 43232.00 | 43296.00                                      | 43360.00 | Freq (MHz)                   | All              |              |
|-----------------------------|---|----------|---|----------|--------------------|----------|---|----------|------------------------------|------------------|--------------|
|                             | 41.3  | 58.1     | 63.9  | 84.5     | 51.7               | 42.8     | 51.2  | 63.9     | Phase                        | 57.8             |              |
|                             | 0.3   | 0.4      | 0.4   | 0.4      | 0.5                | 0.4      | 0.4   | 0.5      | Ampl.                        | 0.4              |              |
|                             | 276.8   | 275.8    | 276.5   | 275.6    | 275.9              | 275.4    | 277.2   | 275.6    | Sbd box                      | 276.0            |              |
| U/L                         | 352/0   | 352/0    | 352/0   | 352/0    | 352/0              | 352/0    | 352/0   | 352/0    | APs used                     |                  |              |
| Z                           | 0   | 0        | 0   | 0        | 0                  | 0        | 0   | 0        | PC freqs                     |                  |              |
| X                           | 1000  | 1000     | 1000  | 1000     | 1000               | 1000     | 1000  | 1000     | PC freqs                     |                  |              |
| Z:X                         | 0:0   | 0:0      | 0:0   | 0:0      | 0:0                | 0:0      | 0:0   | 0:0      | PC phase                     |                  |              |
| Z:X                         | 0:0   | 0:0      | 0:0   | 0:0      | 0:0                | 0:0      | 0:0   | 0:0      | Manl PC                      |                  |              |
| Z                           | 1000  | 1000     | 1000  | 1000     | 1000               | 1000     | 1000  | 1000     | PC amp                       |                  |              |
| X                           | 1000  | 1000     | 1000  | 1000     | 1000               | 1000     | 1000  | 1000     |                              |                  |              |
| Z                           | Q00UR   | Q01UR    | Q02UR   | Q03UR    | Q04UR              | Q05UR    | Q06UR   | Q07UR    | Chan ids                     |                  |              |
| X                           | Q00UL   | Q01UL    | Q02UL   | Q03UL    | Q04UL              | Q05UL    | Q06UL   | Q07UL    | Tracks                       |                  |              |
|                             |   |          |   |          |                    |          |   |          | Tracks                       |                  |              |
| Group delay (usec) (SBD)    | -1.82026340467E+03                                    |          | Apriori delay (usec)  |          | -1.82033804455E+03 |          | Resid mbdelay (usec)                          |          | -3.48512E-03                 | +/- 7.3E-05      |              |
| Sband delay (usec)          | -1.82026381080E+03                                    |          | Apriori clock (usec)  |          | -1.1282175E+02     |          | Resid sbdelay (usec)                          |          | 7.42337E-02                  | +/- 5.8E-04      |              |
| Phase delay (usec)          | -1.82033804083E+03                                    |          | Apriori clockrate (us/s)                                    |          | -6.0676312E-07     |          | Resid phdelay (usec)                          |          | 3.72057E-06                  | +/- 5.0E-07      |              |
| Delay rate (us/s)           | 2.01179523473E-03                                     |          | Apriori rate (us/s)   |          | 2.01192877071E-03  |          | Resid rate (us/s)                             |          | -1.33536E-07                 | +/- 4.8E-09      |              |
| Total phase (deg)           |   |          | 263.2   |          | 1.08277172077E-05  |          | Resid phase (deg)                             |          | 350.3                        | +/- 7.7          |              |
|                             | RMS   | Theor.   | Amplitude   |          | 0.404 +/- 0.027    |          | Pcal mode: MANUAL, MANUAL                     |          | PC period (AP's) 5, 5        |                  |              |
| ph/seg (deg)                | 49.1  | 18.2     | Search (1024X32)  |          | 0.402              |          | Pcal rate: 0.000E+00, 0.000E+00 (us/s)        |          | sb window (us)               | -1.000 1.000     |              |
| amp/seg (%)                 | 51.1  | 31.7     | Interp.   |          | 0.000              |          | Bits/sample: 2x2                              |          | SampCntNorm: enabled         | mb window (us)   | -0.008 0.008 |
| ph/frq (deg)                | 15.1  | 11.0     | Inc. seg. avg.  |          | 0.510              |          | Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us |          | dr window (ns/s)             | -0.023 0.023     |              |
| amp/frq (%)                 | 17.8  | 19.1     | Inc. frq. avg.  |          | 0.407              |          | Data rate(Mb/s): 2048                         |          | nlags: 256 t_cohere infinite | ion window (TEC) | 0.00 0.00    |
| Z: az 280.0 el 38.3 pa 37.9 | X: az 272.4 el 44.4 pa 42.5                           |          | u,v (fr/asec)   |          | -2.747 414.299     |          |   |          | simultaneous interpolator    |                  |              |
| Control file: cf_1234_gmva  | Input file: /Exps/c241d/v1/7mm/1234/No0500/ZX..3MP56K |          | Output file: /Exps/c241d/v1/7mm/1234/No0500/ZX.Q.316.3MP56K |          |                    |          |   |          |                              |                  |              |