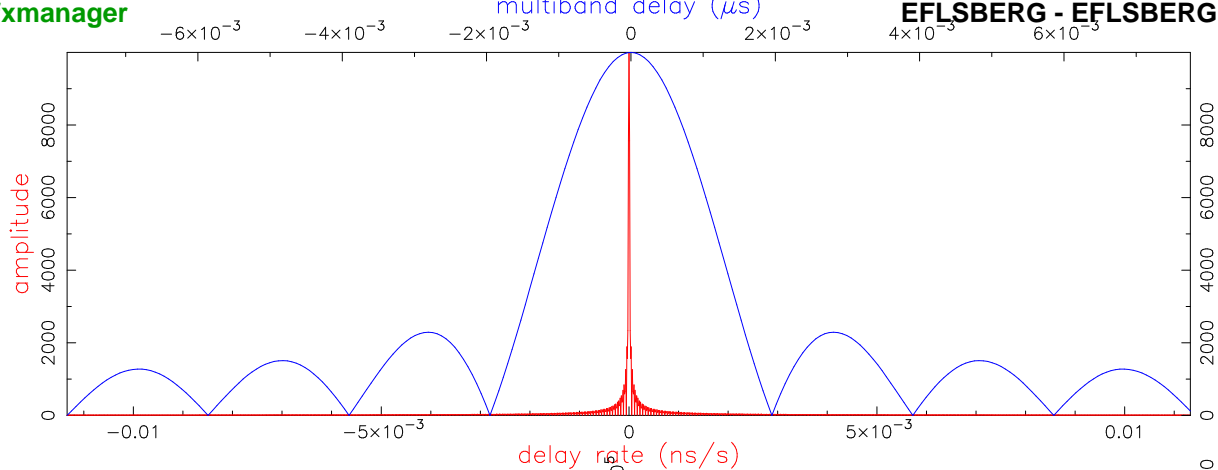


Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

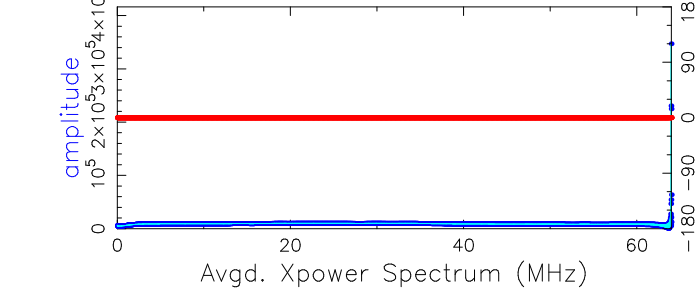
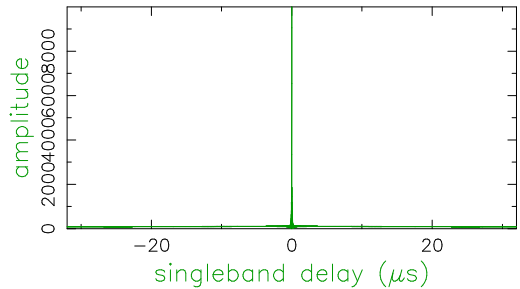
1156+295.1VK7WS, No0021, BB

EFLSBERG - EFLSBERG, fgroup W, pol LL



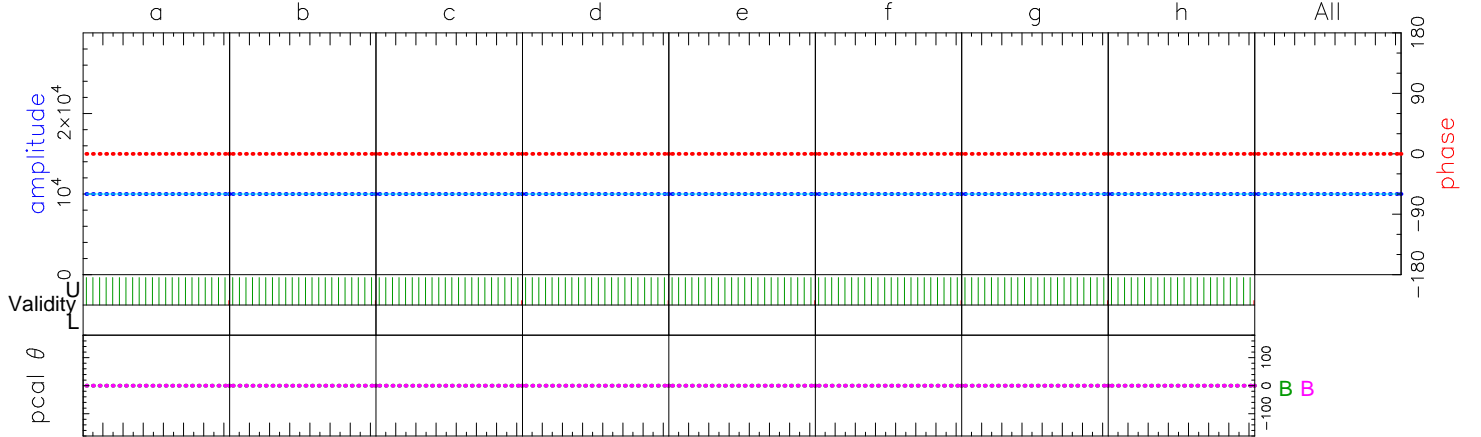
Fringe quality 9

SNR 560292.8  
 Int time 419.793  
 Amp 9999.999  
 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)  
 86140.0000  
 AP (sec) 0.512



Exp. f212a  
 Yr:day 16383  
 Start 2021:274  
 Stop 2021:274  
 FRT 090331.00  
 Corr/FF/build  
 2021:275:011005  
 2021:275:012115  
 2021:252:122852  
 RA & Dec (J2000)  
 11h59m31.833912s  
 +29°14'43.826900"

Amp. and Phase vs. time for each freq., 23 segs, 37 APs / seg (18.94 sec / seg.), time ticks 30 sec



|                         | 86012.00           | 86076.00 | 86140.00                 | 86204.00 | 86268.00           | 86332.00 | 86396.00             | 86460.00 | Freq (MHz)  | All         |
|-------------------------|--------------------|----------|--------------------------|----------|--------------------|----------|----------------------|----------|-------------|-------------|
| U/L                     | 820/0              | 820/0    | 820/0                    | 820/0    | 820/0              | 820/0    | 820/0                | 820/0    | 8193.0      | 8193.0      |
| B                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | 10000.0     | 10000.0     |
| B:B                     | 0:0                | 0:0      | 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     | 10000.0     | 10000.0     |
| B                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | 10000.0     | 10000.0     |
| B                       | W00UL              | W01UL    | W02UL                    | W03UL    | W04UL              | W05UL    | W06UL                | W07UL    |             |             |
| B                       | W00UL              | W01UL    | W02UL                    | W03UL    | W04UL              | W05UL    | W06UL                | W07UL    |             |             |
| Group delay (usec)(sbd) | 0.000000000000E+00 |          | Apriori delay (usec)     |          | 0.000000000000E+00 |          | Resid mbdelay (usec) |          | 0.00000E+00 | +/- 1.9E-09 |
| Sband delay (usec)      | 0.000000000000E+00 |          | Apriori clock (usec)     |          | 0.0000000E+00      |          | Resid sbdelay (usec) |          | 0.00000E+00 | +/- 1.5E-08 |
| Phase delay (usec)      | 0.000000000000E+00 |          | Apriori clockrate (us/s) |          | 0.0000000E+00      |          | Resid phdelay (usec) |          | 0.00000E+00 | +/- 6.6E-12 |
| Delay rate (us/s)       | 0.000000000000E+00 |          | Apriori rate (us/s)      |          | 0.000000000000E+00 |          | Resid rate (us/s)    |          | 0.00000E+00 | +/- 2.7E-14 |
| Total phase (deg)       | 0.0                |          | Apriori accel (us/s/s)   |          | 0.000000000000E+00 |          | Resid phase (deg)    |          | 0.0         | +/- 0.0     |

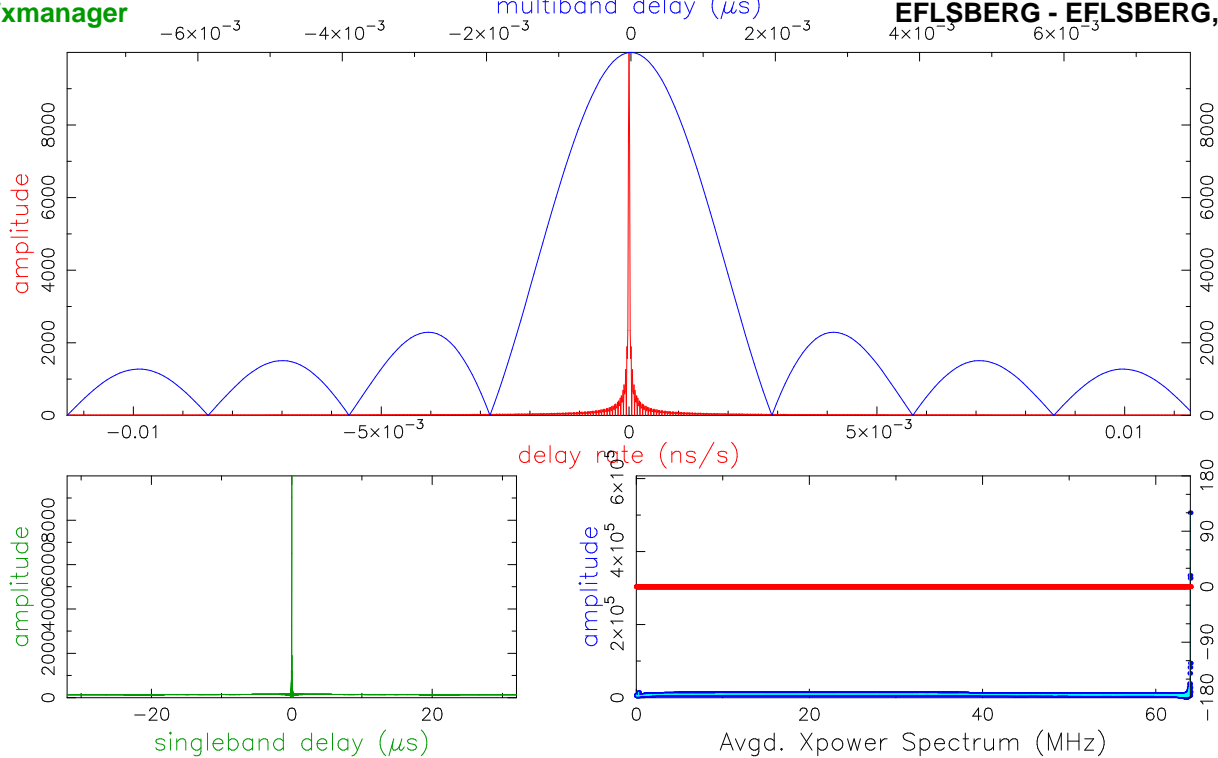
RMS Theor. Amplitude 9999.999 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 0.0 0.0 Search (2048X32) 10000.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -32.000 32.000  
 amp/seg (%) 0.0 0.0 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 ph/frq (deg) 0.0 0.0 Inc. seg. avg. 10000.000 Sample rate(MISamp/s): 128 dr window (ns/s) -0.011 0.011  
 amp/frq (%) 0.0 0.0 Inc. frq. avg. 10000.000 Data rate(Mb/s): 2048 nlags: 8192 t\_cohere infinite ion window (TEC) 0.00 0.00  
 B: az 124.9 el 60.0 pa -36.7 B: az 124.9 el 60.0 pa -36.7 u,v (fr/asec) 0.000 0.000 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/f212a/FRINGE/1234/No0021/BB..1VK7WS Output file: /Exps/f212a/FRINGE/1234/No0021/BB.W.1.1VK7WS

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

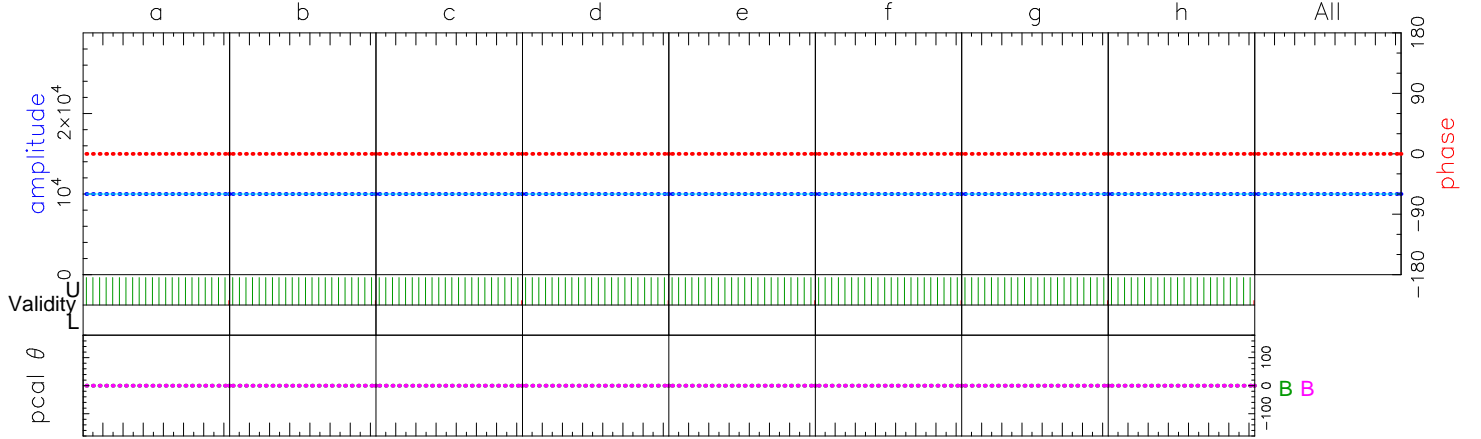
1156+295.1VK7WS, No0021, BB

EFLSBERG - EFLSBERG, fgroup W, pol RR



Fringe quality 9  
 SNR 560292.8  
 Int time 419.793  
 Amp 9999.999  
 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) 86140.0000  
 AP (sec) 0.512  
 Exp. f212a  
 Exper # 16383  
 Yr:day 2021:274  
 Start 090001.00  
 Stop 090700.84  
 FRT 090331.00  
 Corr/FF/build  
 2021:275:011005  
 2021:275:012239  
 2021:252:122852  
 RA & Dec (J2000) 11h59m31.833912s +29°14'43.826900"

Amp. and Phase vs. time for each freq., 23 segs, 37 APs / seg (18.94 sec / seg.), time ticks 30 sec



|     | 86012.00 | 86076.00 | 86140.00 | 86204.00 | 86268.00 | 86332.00 | 86396.00 | 86460.00 | Freq (MHz) | All     |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|---------|
| U/L | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 8193.0     | 8193.0  |
| B   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 10000.0    | 10000.0 |
| B:B | 0:0      | 0:0      | 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     | 1000       | 1000    |
| B   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000       | 1000    |
| B   | W00UR    | W01UR    | W02UR    | W03UR    | W04UR    | W05UR    | W06UR    | W07UR    |            |         |
| B   | W00UR    | W01UR    | W02UR    | W03UR    | W04UR    | W05UR    | W06UR    | W07UR    |            |         |

|                         |                    |                          |                    |                      |              |     |         |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec)(sbd) | 0.000000000000E+00 | Apriori delay (usec)     | 0.000000000000E+00 | Resid mbdelay (usec) | 0.000000E+00 | +/- | 1.9E-09 |
| Sband delay (usec)      | 0.000000000000E+00 | Apriori clock (usec)     | 0.0000000E+00      | Resid sbdelay (usec) | 0.000000E+00 | +/- | 1.5E-08 |
| Phase delay (usec)      | 0.000000000000E+00 | Apriori clockrate (us/s) | 0.0000000E+00      | Resid phdelay (usec) | 0.000000E+00 | +/- | 6.6E-12 |
| Delay rate (us/s)       | 0.000000000000E+00 | Apriori rate (us/s)      | 0.000000000000E+00 | Resid rate (us/s)    | 0.000000E+00 | +/- | 2.7E-14 |
| Total phase (deg)       | 0.0                | Apriori accel (us/s/s)   | 0.000000000000E+00 | Resid phase (deg)    | 0.0          | +/- | 0.0     |

|              |     |     |     |        |     |                  |                    |                        |                             |                               |                  |              |
|--------------|-----|-----|-----|--------|-----|------------------|--------------------|------------------------|-----------------------------|-------------------------------|------------------|--------------|
| ph/seg (deg) | 0.0 | RMS | 0.0 | Theor. | 0.0 | Amplitude        | 9999.999 +/- 0.018 | Pcal mode:             | MANUAL, MANUAL              | PC period (AP's)              | 5, 5             |              |
| amp/seg (%)  | 0.0 |     | 0.0 |        | 0.0 | Search (2048X32) | 10000.000          | Pcal rate:             | 0.000E+00, 0.000E+00 (us/s) | sb window (us)                | -32.000 32.000   |              |
| ph/frq (deg) | 0.0 |     | 0.0 |        | 0.0 | Interp.          | 0.000              | Bits/sample:           | 2x2                         | SampCntNorm: enabled          | mb window (us)   | -0.008 0.008 |
| amp/frq (%)  | 0.0 |     | 0.0 |        | 0.0 | Inc. seg. avg.   | 10000.000          | Sample rate (MSamp/s): | 128                         |                               | dr window (ns/s) | -0.011 0.011 |
|              |     |     |     |        |     | Inc. frq. avg.   | 10000.000          | Data rate (Mb/s):      | 2048                        | nlags: 8192 t_cohere infinite | ion window (TEC) | 0.00 0.00    |

B: az 124.9 el 60.0 pa -36.7      B: az 124.9 el 60.0 pa -36.7      u,v (fr/asec) 0.000 0.000      simultaneous interpolator

Control file: cf\_1234\_gmva    Input file: /Exps/f212a/FRINGE/1234/No0021/BB..1VK7WS    Output file: /Exps/f212a/FRINGE/1234/No0021/BB.W.7.1VK7WS

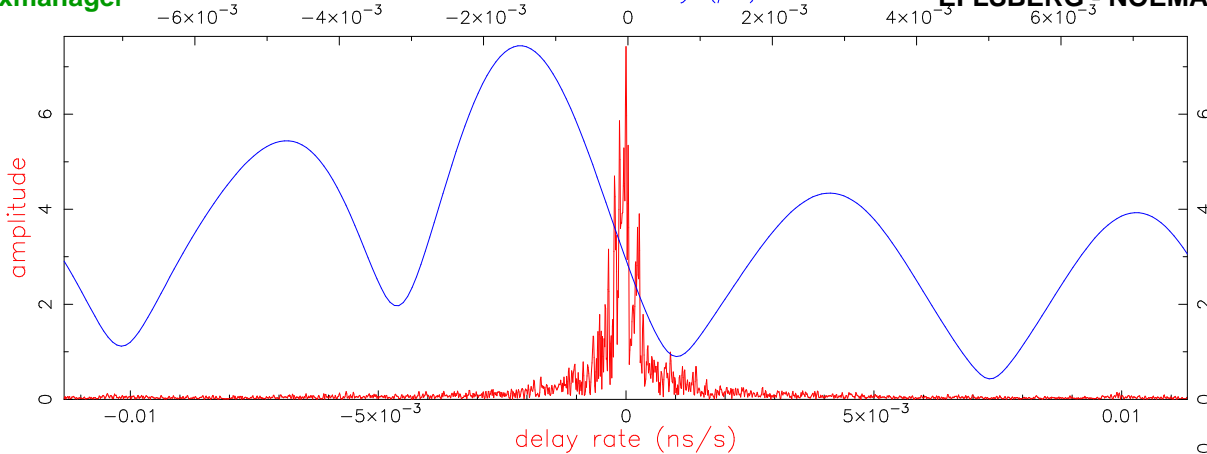
Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

1156+295.1VK7WS, No0021, BN

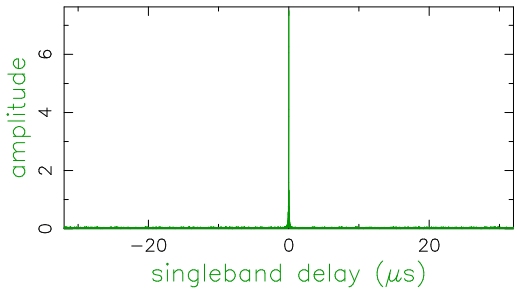
EFLSBERG - NOEMA, fgroup W, pol RR

multiband delay ( $\mu$ s)

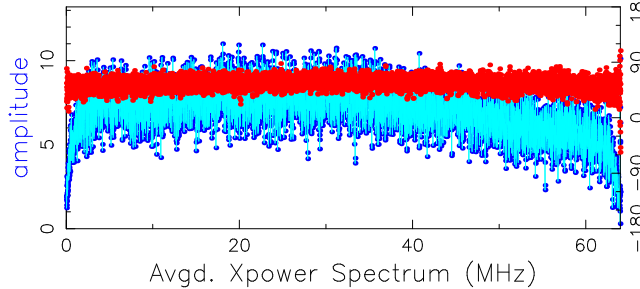


Fringe quality 1

SNR 427.9  
 Int time 419.793  
 Amp 7.638  
 Phase 95.5  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.001724  
 MBD -0.001576  
 Fringe rate (Hz)  
 -0.000055  
 Ion TEC 0.000  
 Ref freq (MHz)  
 86140.0000  
 AP (sec) 0.512

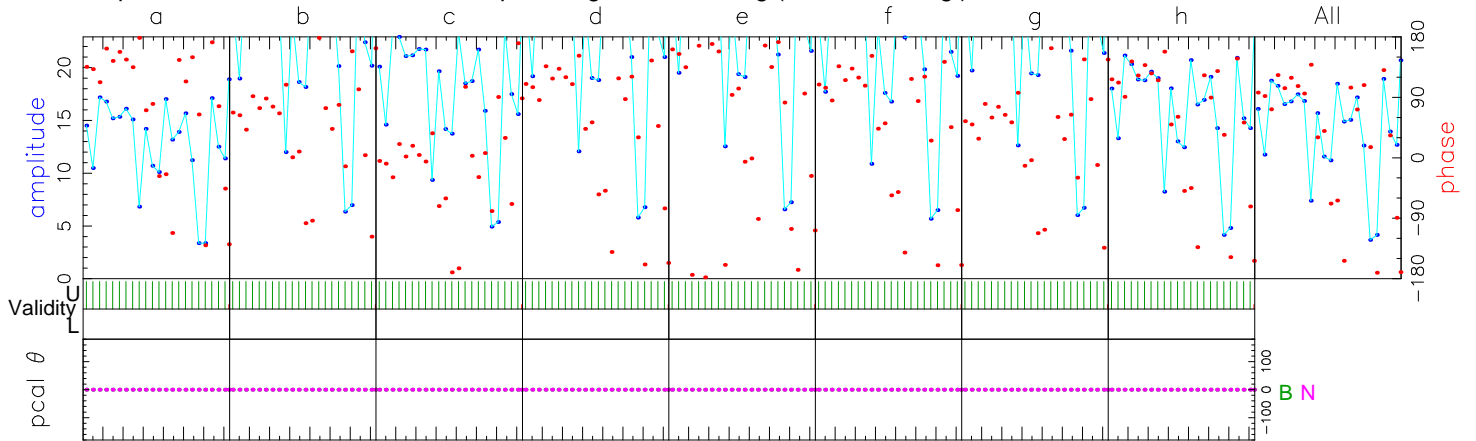


delay rate (ns/s)



Exp. f212a  
 Exper # 16383  
 Yr:day 2021:274  
 Start 090001.00  
 Stop 090700.84  
 FRT 090331.00  
 Corr/FF/build  
 2021:275:011005  
 2021:275:012256  
 2021:252:122852  
 RA & Dec (J2000)  
 11h59m31.833912s  
 +29°14'43.826900"

Amp. and Phase vs. time for each freq., 23 segs, 37 APs / seg (18.94 sec / seg.), time ticks 30 sec



|                         | 86012.00           | 86076.00 | 86140.00                 | 86204.00 | 86268.00           | 86332.00 | 86396.00             | 86460.00 | Freq (MHz)   | All         |
|-------------------------|--------------------|----------|--------------------------|----------|--------------------|----------|----------------------|----------|--------------|-------------|
|                         | 135.3              | 65.4     | -6.0                     | 109.1    | 158.7              | 108.2    | 52.3                 | 114.8    | Phase        | 95.5        |
|                         | 6.8                | 12.0     | 9.4                      | 12.3     | 12.6               | 11.3     | 12.5                 | 8.3      | Ampl.        | 10.7        |
|                         | 8191.3             | 8193.3   | 8193.9                   | 8193.8   | 8194.2             | 8193.9   | 8193.7               | 8192.3   | Sbd box      | 8193.4      |
| U/L                     | 820/0              | 820/0    | 820/0                    | 820/0    | 820/0              | 820/0    | 820/0                | 820/0    | APs used     |             |
| B                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | PC freqs     |             |
| N                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | PC freqs     |             |
| B:N                     | 0:0                | 0:0      | 0:0                      | 0:0      | 0:0                | 0:0      | 0:0                  | 0:0      | PC phase     |             |
| B:N                     | 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       |             |
| N                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     |              |             |
| B                       | W00UR              | W01UR    | W02UR                    | W03UR    | W04UR              | W05UR    | W06UR                | W07UR    | Chan ids     |             |
| N                       | W00UR              | W01UR    | W02UR                    | W03UR    | W04UR              | W05UR    | W06UR                | W07UR    | Tracks       |             |
|                         |                    |          |                          |          |                    |          |                      |          | Tracks       |             |
| Group delay (usec)(sbd) | -4.23500222217E+02 |          | Apriori delay (usec)     |          | -4.23498646123E+02 |          | Resid mbdelay (usec) |          | -1.57609E-03 | +/- 2.5E-06 |
| Sband delay (usec)      | -4.23496921873E+02 |          | Apriori clock (usec)     |          | 1.5491023E+01      |          | Resid sbdelay (usec) |          | 1.72425E-03  | +/- 2.0E-05 |
| Phase delay (usec)      | -4.23498643043E+02 |          | Apriori clockrate (us/s) |          | 4.9599999E-06      |          | Resid phdelay (usec) |          | 3.08023E-06  | +/- 8.6E-09 |
| Delay rate (us/s)       | -6.14931881638E-02 |          | Apriori rate (us/s)      |          | -6.14931875204E-02 |          | Resid rate (us/s)    |          | -6.43370E-10 | +/- 3.6E-11 |
| Total phase (deg)       |                    |          | Apriori accel (us/s/s)   |          | 6.13417526681E-06  |          | Resid phase (deg)    |          | 95.5         | +/- 0.3     |

|              | RMS   | Theor. | Amplitude        | 7.638 +/- 0.018 | Pcal mode: MANUAL, MANUAL              | PC period (AP's) 5, 5         | sb window (us)   | -32.000 | 32.000 |
|--------------|-------|--------|------------------|-----------------|--|-------------------------------|------------------|---------|--------|
| ph/seg (deg) | 76.3  | 0.6    | Search (2048X32) | 7.434           | Pcal rate: 0.000E+00, 0.000E+00 (us/s) |                               | mb window (us)   | -0.008  | 0.008  |
| amp/seg (%)  | 102.2 | 1.1    | Interp.          | 0.000           | Bits/sample: 2x2                       | SampCntNorm: enabled          | dr window (ns/s) | -0.011  | 0.011  |
| ph/frq (deg) | 56.8  | 0.4    | Inc. seg. avg.   | 14.135          | Sample rate(MISamp/s): 128             |                               | ion window (TEC) | 0.00    | 0.00   |
| amp/frq (%)  | 47.8  | 0.7    | Inc. frq. avg.   | 10.650          | Data rate(Mb/s): 2048                  | nlags: 8192 t_cohere infinite |                  |         |        |

B: az 124.9 el 60.0 pa -36.7 N: az 114.3 el 62.4 pa -47.5 u,v (fr/asec) 411.601 800.935 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/f212a/FRINGE/1234/No0021/BN..1VK7WS Output file: /Exps/f212a/FRINGE/1234/No0021/BN.W.10.1VK7WS



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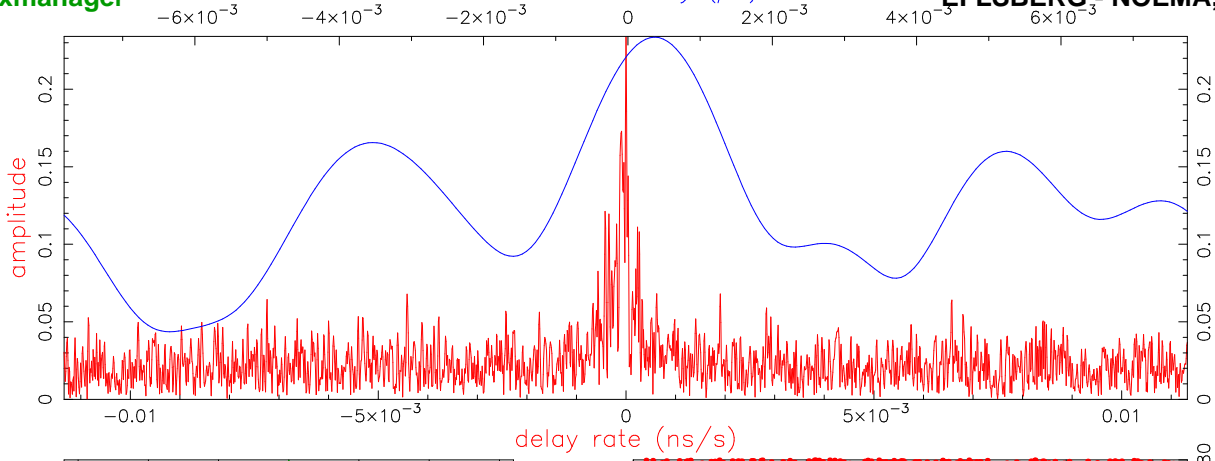
fxmanager

1156+295.1VK7WS, No0021, BN

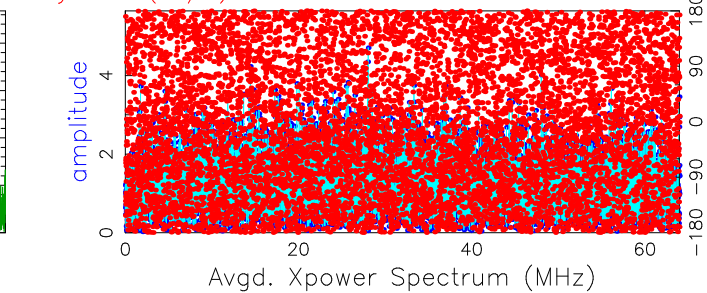
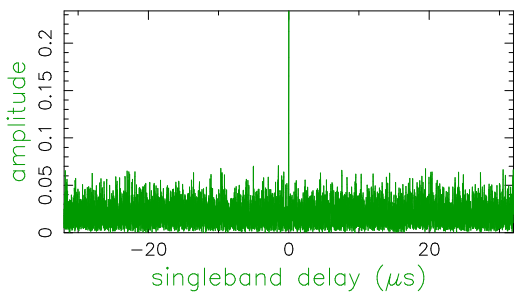
EFLSBERG - NOEMA, fgroup W, pol RL

multiband delay ( $\mu$ s)

Fringe quality 9

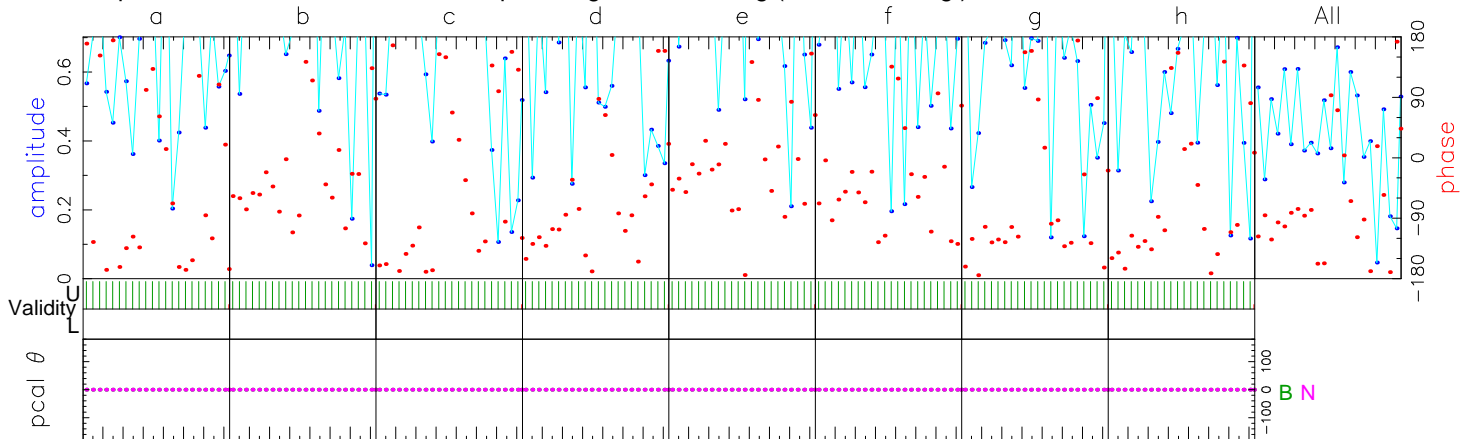


SNR 13.1  
 Int time 419.793  
 Amp 0.234  
 Phase -101.4  
 PFD 4.7e-29  
 Delays (us)  
 SBD -0.000694  
 MBD 0.000363  
 Fringe rate (Hz)  
 -0.000236  
 Ion TEC 0.000  
 Ref freq (MHz)  
 86140.0000  
 AP (sec) 0.512



Exp. f212a  
 Exper # 16383  
 Yr:day 2021:274  
 Start 090001.00  
 Stop 090700.84  
 FRT 090331.00  
 Corr/FF/build  
 2021:275:011005  
 2021:275:012609  
 2021:252:122852  
 RA & Dec (J2000)  
 11h59m31.833912s  
 +29°14'43.826900"

Amp. and Phase vs. time for each freq., 23 segs, 37 APs / seg (18.94 sec / seg.), time ticks 30 sec



|                         | 86012.00           | 86076.00 | 86140.00                 | 86204.00 | 86268.00           | 86332.00 | 86396.00             | 86460.00 | Freq (MHz)   | All         |
|-------------------------|--------------------|----------|--------------------------|----------|--------------------|----------|----------------------|----------|--------------|-------------|
|                         | -179.2             | -54.9    | -152.9                   | -114.1   | -23.8              | -57.8    | -134.5               | -141.3   | Phase        | -101.4      |
|                         | 0.3                | 0.4      | 0.3                      | 0.4      | 0.5                | 0.4      | 0.4                  | 0.3      | Ampl.        | 0.4         |
|                         | 8190.7             | 8192.5   | 8193.4                   | 8193.6   | 8193.9             | 8193.8   | 8193.6               | 8192.6   | Sbd box      | 8192.8      |
| U/L                     | 820/0              | 820/0    | 820/0                    | 820/0    | 820/0              | 820/0    | 820/0                | 820/0    | APs used     |             |
| B                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | PC freqs     |             |
| N                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | PC freqs     |             |
| B:N                     | 0:0                | 0:0      | 0:0                      | 0:0      | 0:0                | 0:0      | 0:0                  | 0:0      | PC phase     |             |
| B:N                     | 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       |             |
| N                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     |              |             |
| B                       | W00UR              | W01UR    | W02UR                    | W03UR    | W04UR              | W05UR    | W06UR                | W07UR    | Chan ids     |             |
| N                       | W00UL              | W01UL    | W02UL                    | W03UL    | W04UL              | W05UL    | W06UL                | W07UL    | Tracks       |             |
|                         |                    |          |                          |          |                    |          |                      |          | Tracks       |             |
| Group delay (usec)(sbd) | -4.23498282998E+02 |          | Apriori delay (usec)     |          | -4.23498646123E+02 |          | Resid mbdelay (usec) |          | 3.63125E-04  | +/- 8.3E-05 |
| Sband delay (usec)      | -4.23499340123E+02 |          | Apriori clock (usec)     |          | 1.5491023E+01      |          | Resid sbdelay (usec) |          | -6.94000E-04 | +/- 6.6E-04 |
| Phase delay (usec)      | -4.23498649395E+02 |          | Apriori clockrate (us/s) |          | 4.9599999E-06      |          | Resid phdelay (usec) |          | -3.27145E-06 | +/- 2.8E-07 |
| Delay rate (us/s)       | -6.14931902653E-02 |          | Apriori rate (us/s)      |          | -6.14931875204E-02 |          | Resid rate (us/s)    |          | -2.74495E-09 | +/- 1.2E-09 |
| Total phase (deg)       |                    |          | Apriori accel (us/s/s)   |          | 6.13417526681E-06  |          | Resid phase (deg)    |          | -101.4       | +/- 8.7     |

|              | RMS   | Theor. | Amplitude        | 0.234 +/- 0.018 | Pcal mode: MANUAL, MANUAL              | PC period (AP's) 5, 5         |
|--------------|-------|--------|------------------|-----------------|--|-------------------------------|
| ph/seg (deg) | 72.0  | 21.0   | Search (2048X32) | 0.230           | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -32.000 32.000 |
| amp/seg (%)  | 102.5 | 36.6   | Interp.          | 0.000           | Bits/sample: 2x2                       | SampCntNorm: enabled          |
| ph/frq (deg) | 60.1  | 12.4   | Inc. seg. avg.   | 0.390           | Sample rate(MISamp/s): 128             | dr window (ns/s) -0.011 0.011 |
| amp/frq (%)  | 62.6  | 21.6   | Inc. frq. avg.   | 0.360           | Data rate(Mb/s): 2048                  | nlags: 8192 t_cohere infinite |
|              |       |        |                  |                 |  | ion window (TEC) 0.00 0.00    |

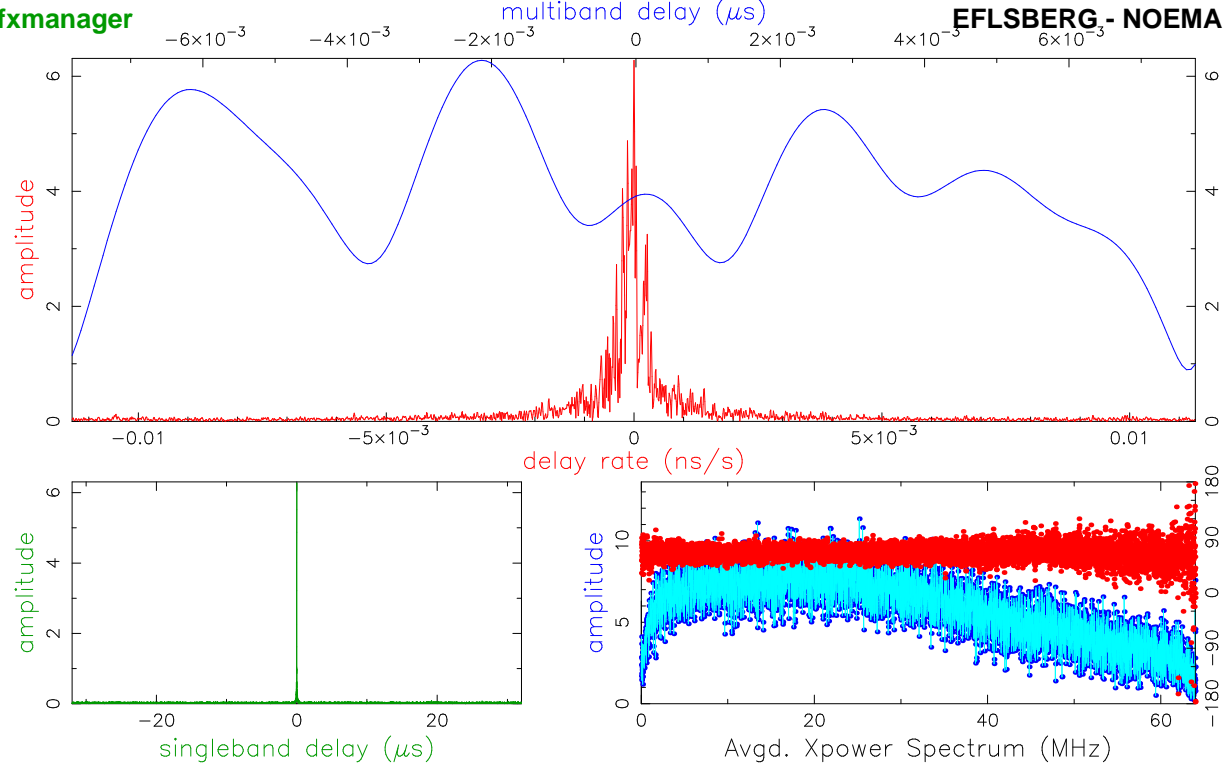
B: az 124.9 el 60.0 pa -36.7 N: az 114.3 el 62.4 pa -47.5 u,v (fr/asec) 411.601 800.935 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/f212a/FRINGE/1234/No0021/BN..1VK7WS Output file: /Exps/f212a/FRINGE/1234/No0021/BN.W.18.1VK7WS

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

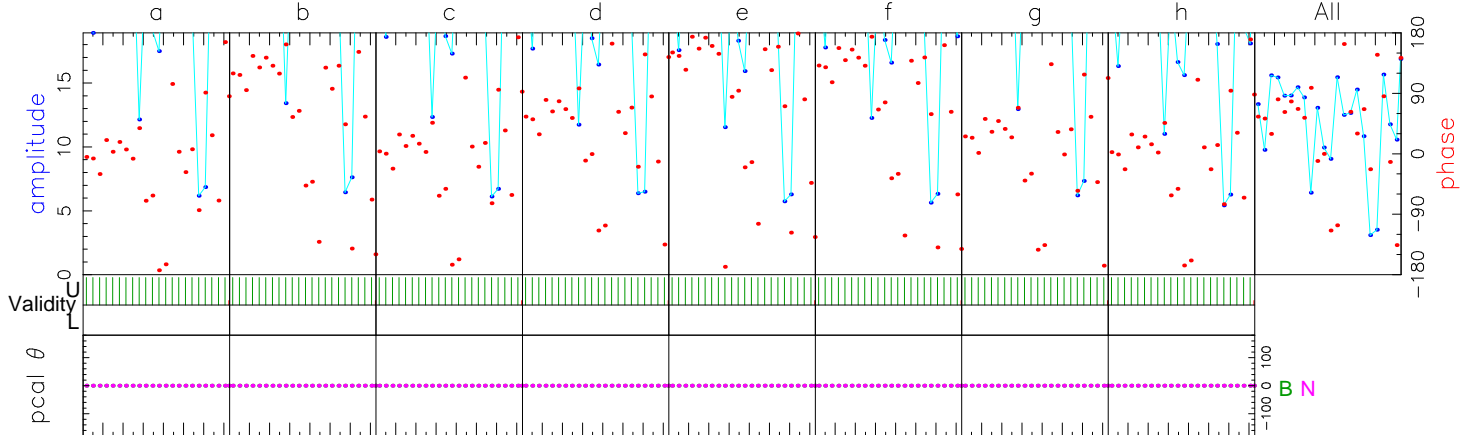
1156+295.1VK7WS, No0021, BN

EFLSBERG<sub>3</sub>- NOEMA, fgroup W, pol LL



Fringe quality 1  
 SNR 353.5  
 Int time 419.793  
 Amp 6.310  
 Phase 54.6  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.002889  
 MBD -0.002113  
 Fringe rate (Hz)  
 -0.000030  
 Ion TEC 0.000  
 Ref freq (MHz)  
 86140.0000  
 AP (sec) 0.512  
 Exp. f212a  
 Exper # 16383  
 Yr:day 2021:274  
 Start 090001.00  
 Stop 090700.84  
 FRT 090331.00  
 Corr/FF/build  
 2021:275:011005  
 2021:275:012125  
 2021:252:122852  
 RA & Dec (J2000)  
 11h59m31.833912s  
 +29°14'43.826900"

Amp. and Phase vs. time for each freq., 23 segs, 37 APs / seg (18.94 sec / seg.), time ticks 30 sec



|                         | 86012.00           | 86076.00 | 86140.00                 | 86204.00 | 86268.00           | 86332.00 | 86396.00             | 86460.00 | Freq (MHz)   | All         |
|-------------------------|--------------------|----------|--------------------------|----------|--------------------|----------|----------------------|----------|--------------|-------------|
|                         | -5.5               | 119.7    | 3.4                      | 54.4     | 149.0              | 131.3    | 25.2                 | 2.0      | Phase        | 54.6        |
|                         | 12.1               | 13.4     | 11.9                     | 11.6     | 11.4               | 11.5     | 12.9                 | 10.6     | Ampl.        | 11.9        |
|                         | 8191.2             | 8192.2   | 8193.2                   | 8193.2   | 8193.4             | 8193.2   | 8192.8               | 8191.6   | Sbd box      | 8192.3      |
| U/L                     | 820/0              | 820/0    | 820/0                    | 820/0    | 820/0              | 820/0    | 820/0                | 820/0    | APs used     |             |
| B                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | PC freqs     |             |
| N                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | PC freqs     |             |
| B:N                     | 0:0                | 0:0      | 0:0                      | 0:0      | 0:0                | 0:0      | 0:0                  | 0:0      | PC phase     |             |
| B:N                     | 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       |             |
| N                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     |              |             |
| B                       | W00UL              | W01UL    | W02UL                    | W03UL    | W04UL              | W05UL    | W06UL                | W07UL    | Chan ids     |             |
| N                       | W00UL              | W01UL    | W02UL                    | W03UL    | W04UL              | W05UL    | W06UL                | W07UL    | Tracks       |             |
|                         |                    |          |                          |          |                    |          |                      |          | Tracks       |             |
| Group delay (usec)(sbd) | -4.23500759155E+02 |          | Apriori delay (usec)     |          | -4.23498646123E+02 |          | Resid mbdelay (usec) |          | -2.11303E-03 | +/- 3.1E-06 |
| Sband delay (usec)      | -4.23501535123E+02 |          | Apriori clock (usec)     |          | 1.5491023E+01      |          | Resid sbdelay (usec) |          | -2.88900E-03 | +/- 2.4E-05 |
| Phase delay (usec)      | -4.23498644361E+02 |          | Apriori clockrate (us/s) |          | 4.9599999E-06      |          | Resid phdelay (usec) |          | 1.76212E-06  | +/- 1.0E-08 |
| Delay rate (us/s)       | -6.14931878740E-02 |          | Apriori rate (us/s)      |          | -6.14931875204E-02 |          | Resid rate (us/s)    |          | -3.53570E-10 | +/- 4.3E-11 |
| Total phase (deg)       |                    |          | Apriori accel (us/s/s)   |          | 6.13417526681E-06  |          | Resid phase (deg)    |          | 54.6         | +/- 0.3     |

ph/seg (deg) 76.1 0.8      Theor. Amplitude 6.310 +/- 0.018      Pcal mode: MANUAL, MANUAL      PC period (AP's) 5, 5  
 amp/seg (%) 104.6 1.4      Search (2048X32) 6.178      Pcal rate: 0.000E+00, 0.000E+00 (us/s)      sb window (us) -32.000 32.000  
 ph/frq (deg) 69.4 0.5      Interp. 0.000      Bits/sample: 2x2      SampCntNorm: enabled      mb window (us) -0.008 0.008  
 amp/frq (%) 89.8 0.8      Inc. seg. avg. 11.845      Sample rate(MISamp/s): 128      Data rate(Mb/s): 2048      nlags: 8192 t\_cohere infinite      dr window (ns/s) -0.011 0.011  
 B: az 124.9 el 60.0 pa -36.7      N: az 114.3 el 62.4 pa -47.5      u,v (fr/asec) 411.601 800.935      ion window (TEC) 0.00 0.00  
 Control file: cf\_1234\_gmva      Input file: /Exps/f212a/FRINGE/1234/No0021/BN..1VK7WS      Output file: /Exps/f212a/FRINGE/1234/No0021/BN.W.4.1VK7WS      simultaneous interpolator

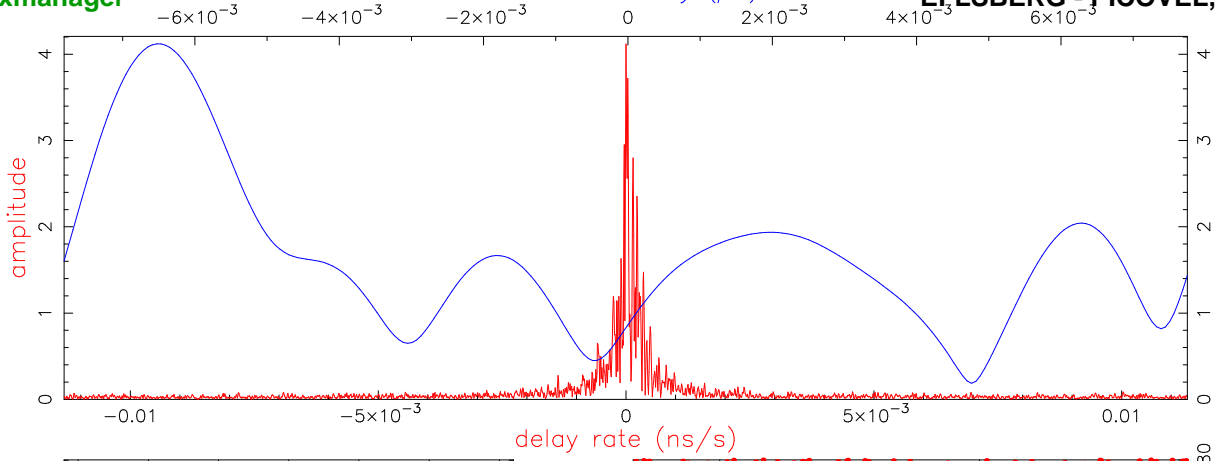
Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

1156+295.1VK7WS, No0021, BP

EFLSBERG - PICOVEL, fgroup W, pol RR

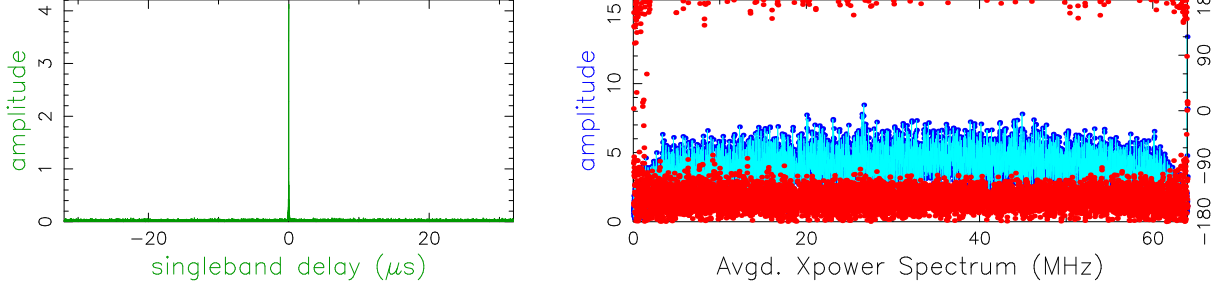
multiband delay ( $\mu$ s)



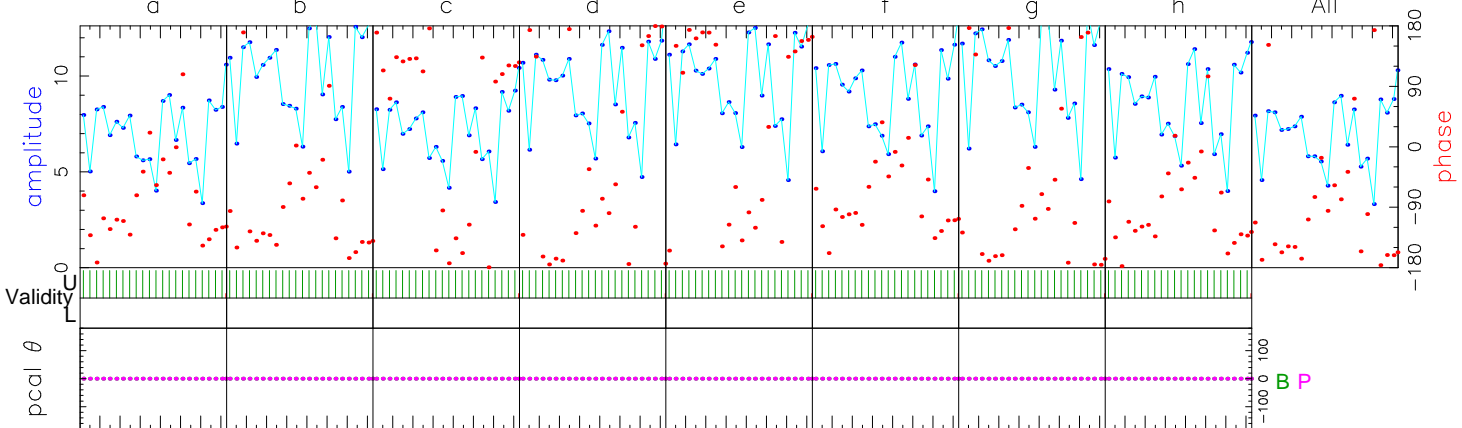
Fringe quality 2

SNR 235.7  
 Int time 419.793  
 Amp 4.207  
 Phase -135.1  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.005841  
 MBD -0.006555  
 Fringe rate (Hz) 0.000047  
 Ion TEC 0.000  
 Ref freq (MHz) 86140.0000  
 AP (sec) 0.512

Exp. f212a  
 Exper # 16383  
 Yr:day 2021:274  
 Start 090001.00  
 Stop 090700.84  
 FRT 090331.00  
 Corr/FF/build  
 2021:275:011005  
 2021:275:012258  
 2021:252:122852  
 RA & Dec (J2000)  
 11h59m31.833912s  
 +29°14'43.826900"



Amp. and Phase vs. time for each freq., 23 segs, 37 APs / seg (18.94 sec / seg.), time ticks 30 sec



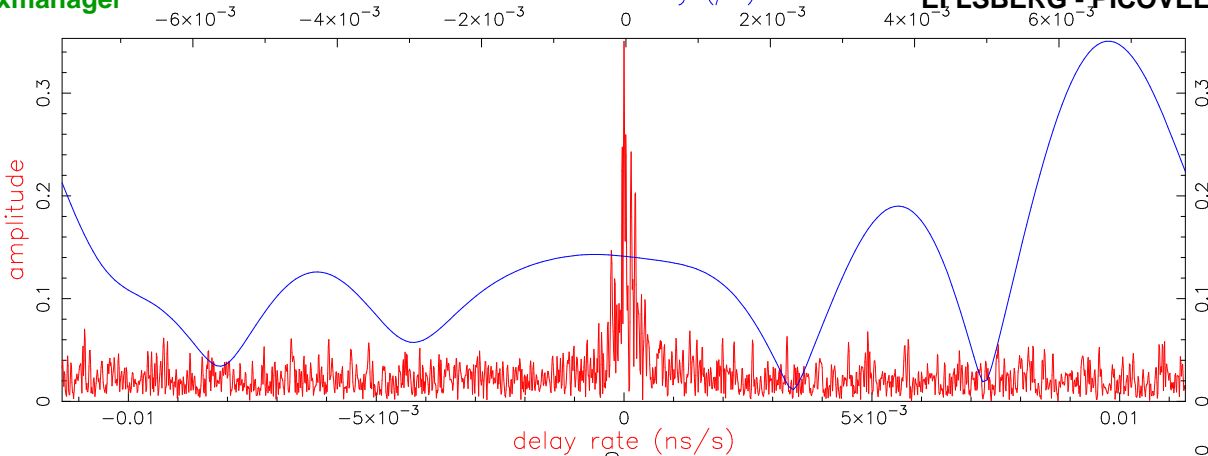
|                         | 86012.00           | 86076.00 | 86140.00                 | 86204.00 | 86268.00           | 86332.00 | 86396.00             | 86460.00 | Freq (MHz)   | All         |
|-------------------------|--------------------|----------|--------------------------|----------|--------------------|----------|----------------------|----------|--------------|-------------|
|                         | -97.0              | -116.1   | 146.7                    | -154.4   | -176.0             | -84.1    | -149.1               | -103.0   | Phase        | -135.1      |
|                         | 4.1                | 6.0      | 4.3                      | 5.6      | 5.8                | 5.4      | 6.1                  | 5.0      | Ampl.        | 5.3         |
|                         | 8189.8             | 8191.5   | 8191.9                   | 8192.1   | 8192.9             | 8192.0   | 8192.3               | 8190.8   | Sbd box      | 8191.5      |
| U/L                     | 820/0              | 820/0    | 820/0                    | 820/0    | 820/0              | 820/0    | 820/0                | 820/0    | APs used     |             |
| B                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | PC freqs     |             |
| P                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | PC freqs     |             |
| B:P                     | 0:0                | 0:0      | 0:0                      | 0:0      | 0:0                | 0:0      | 0:0                  | 0:0      | PC phase     |             |
| B:P                     | 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       |             |
| P                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     |              |             |
| B                       | W00UR              | W01UR    | W02UR                    | W03UR    | W04UR              | W05UR    | W06UR                | W07UR    | Chan ids     |             |
| P                       | W00UR              | W01UR    | W02UR                    | W03UR    | W04UR              | W05UR    | W06UR                | W07UR    | Tracks       |             |
|                         |                    |          |                          |          |                    |          |                      |          | Tracks       |             |
| Group delay (usec)(sbd) | 4.82559614050E+02  |          | Apriori delay (usec)     |          | 4.82566168706E+02  |          | Resid mbdelay (usec) |          | -6.55466E-03 | +/- 4.6E-06 |
| Sband delay (usec)      | 4.82560327956E+02  |          | Apriori clock (usec)     |          | 2.8409653E+00      |          | Resid sbdelay (usec) |          | -5.84075E-03 | +/- 3.7E-05 |
| Phase delay (usec)      | 4.82566164350E+02  |          | Apriori clockrate (us/s) |          | -3.8300000E-07     |          | Resid phdelay (usec) |          | -4.35659E-06 | +/- 1.6E-08 |
| Delay rate (us/s)       | -2.64208008677E-01 |          | Apriori rate (us/s)      |          | -2.64208009229E-01 |          | Resid rate (us/s)    |          | 5.51258E-10  | +/- 6.5E-11 |
| Total phase (deg)       | 143.0              |          | Apriori accel (us/s/s)   |          | 6.73386270425E-06  |          | Resid phase (deg)    |          | -135.1       | +/- 0.5     |

ph/seg (deg) 59.6 1.2 Theor. Amplitude 4.207 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 75.7 2.0 Search (2048X32) 4.076 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -32.000 32.000  
 ph/frq (deg) 48.0 0.7 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 amp/frq (%) 30.4 1.2 Inc. seg. avg. 6.941 Sample rate(MISamp/s): 128 dr window (ns/s) -0.011 0.011  
 Data rate(Mb/s): 2048 nlags: 8192 t\_cohere infinite ion window (TEC) 0.00 0.00

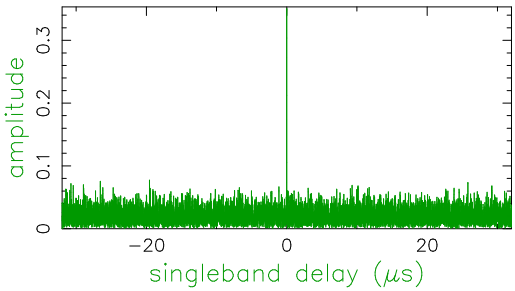
B: az 124.9 el 60.0 pa -36.7 P: az 92.7 el 57.2 pa -65.9 u,v (fr/asec) 1741.229 1590.209 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/f212a/FRINGE/1234/No0021/BP..1VK7WS Output file: /Exps/f212a/FRINGE/1234/No0021/BP.W.12.1VK7WS

multiband delay ( $\mu$ s)

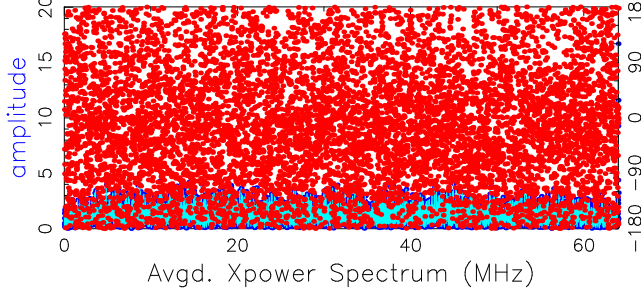
Fringe quality 8



SNR 19.8  
Int time 419.793  
Amp 0.353  
Phase 154.7  
PFD 0.0e+00  
Delays (us)  
SBD -0.008988  
MBD 0.006664  
Fringe rate (Hz)  
0.000135  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512

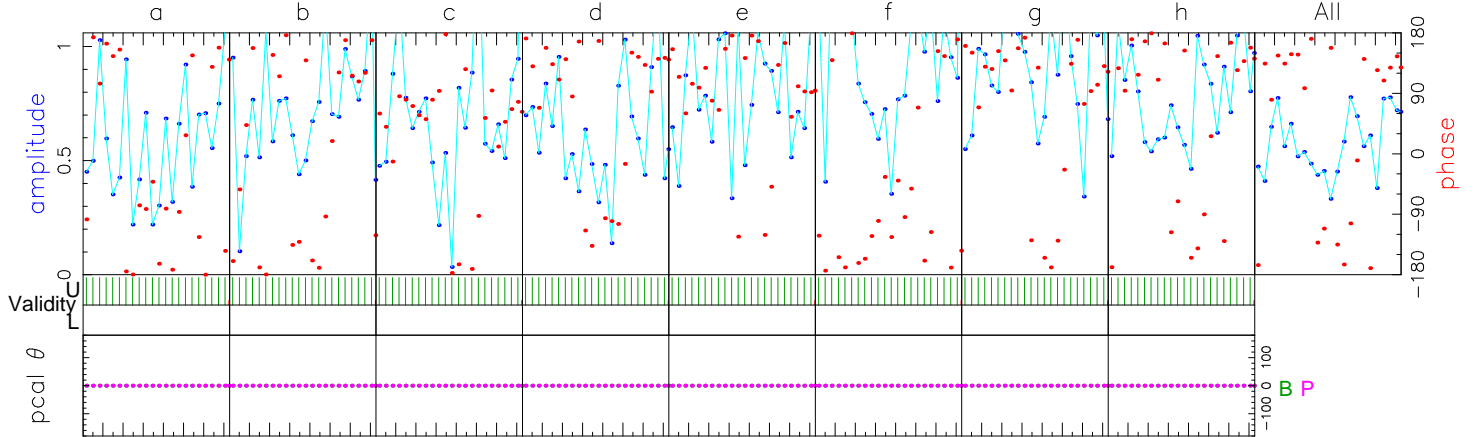


delay rate (ns/s)



Exp. f212a  
Exper # 16383  
Yr:day 2021:274  
Start 090001.00  
Stop 090700.84  
FRT 090331.00  
Corr/FF/build  
2021:275:011005  
2021:275:012427  
2021:252:122852  
RA & Dec (J2000)  
11h59m31.833912s  
+29°14'43.826900"

Amp. and Phase vs. time for each freq., 23 segs, 37 APs / seg (18.94 sec / seg.), time ticks 30 sec

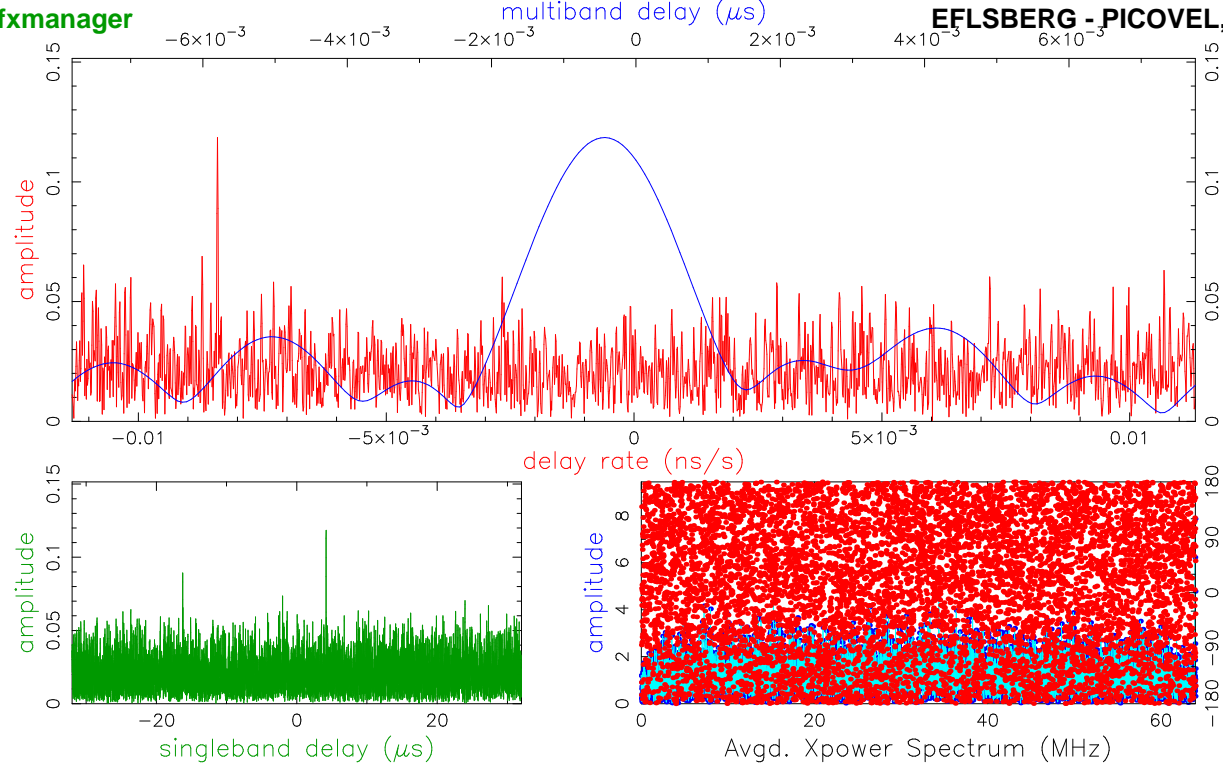


|                         | 86012.00           | 86076.00 | 86140.00                 | 86204.00 | 86268.00           | 86332.00 | 86396.00             | 86460.00 | Freq (MHz)   | All         |
|-------------------------|--------------------|----------|--------------------------|----------|--------------------|----------|----------------------|----------|--------------|-------------|
|                         | -167.2             | 165.0    | 73.2                     | 145.6    | 127.1              | -154.4   | 140.2                | 163.9    | Phase        | 154.7       |
|                         | 0.3                | 0.5      | 0.3                      | 0.3      | 0.5                | 0.5      | 0.6                  | 0.5      | Ampl.        | 0.4         |
|                         | 8189.1             | 8191.3   | 8192.5                   | 8190.7   | 8191.8             | 8191.3   | 8191.4               | 8190.8   | Sbd box      | 8190.7      |
| U/L                     | 820/0              | 820/0    | 820/0                    | 820/0    | 820/0              | 820/0    | 820/0                | 820/0    | APs used     |             |
| B                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | PC freqs     |             |
| P                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | PC freqs     |             |
| B:P                     | 0:0                | 0:0      | 0:0                      | 0:0      | 0:0                | 0:0      | 0:0                  | 0:0      | PC phase     |             |
| B:P                     | 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       |             |
| P                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     |              |             |
| B                       | W00UL              | W01UL    | W02UL                    | W03UL    | W04UL              | W05UL    | W06UL                | W07UL    | Chan ids     |             |
| P                       | W00UR              | W01UR    | W02UR                    | W03UR    | W04UR              | W05UR    | W06UR                | W07UR    | Tracks       |             |
|                         |                    |          |                          |          |                    |          |                      |          | Chan ids     |             |
|                         |                    |          |                          |          |                    |          |                      |          | Tracks       |             |
| Group delay (usec)(sbd) | 4.82557207831E+02  |          | Apriori delay (usec)     |          | 4.82566168706E+02  |          | Resid mbdelay (usec) |          | 6.66412E-03  | +/- 5.5E-05 |
| Sband delay (usec)      | 4.82557180706E+02  |          | Apriori clock (usec)     |          | 2.8409653E+00      |          | Resid sbdelay (usec) |          | -8.98800E-03 | +/- 4.4E-04 |
| Phase delay (usec)      | 4.82566173694E+02  |          | Apriori clockrate (us/s) |          | -3.8300000E-07     |          | Resid phdelay (usec) |          | 4.98776E-06  | +/- 1.9E-07 |
| Delay rate (us/s)       | -2.64208007661E-01 |          | Apriori rate (us/s)      |          | -2.64208009229E-01 |          | Resid rate (us/s)    |          | 1.56733E-09  | +/- 7.7E-10 |
| Total phase (deg)       | 72.7               |          | Apriori accel (us/s/s)   |          | 6.73386270425E-06  |          | Resid phase (deg)    |          | 154.7        | +/- 5.8     |

|              | RMS  | Theor. | Amplitude        | 0.353 +/- 0.018 | Pcal mode: MANUAL, MANUAL              | PC period (AP's) 5, 5         |
|--------------|------|--------|------------------|-----------------|--|-------------------------------|
| ph/seg (deg) | 58.2 | 13.9   | Search (2048X32) | 0.344           | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -32.000 32.000 |
| amp/seg (%)  | 73.6 | 24.2   | Interp.          | 0.000           | Bits/sample: 2x2                       | SampCntNorm: enabled          |
| ph/frq (deg) | 44.6 | 8.2    | Inc. seg. avg.   | 0.559           | Sample rate(MISamp/s): 128             | dr window (ns/s) -0.011 0.011 |
| amp/frq (%)  | 34.6 | 14.3   | Inc. frq. avg.   | 0.425           | Data rate(Mb/s): 2048                  | nlags: 8192 t_cohere infinite |
|              |      |        |                  |                 |  | ion window (TEC) 0.00 0.00    |

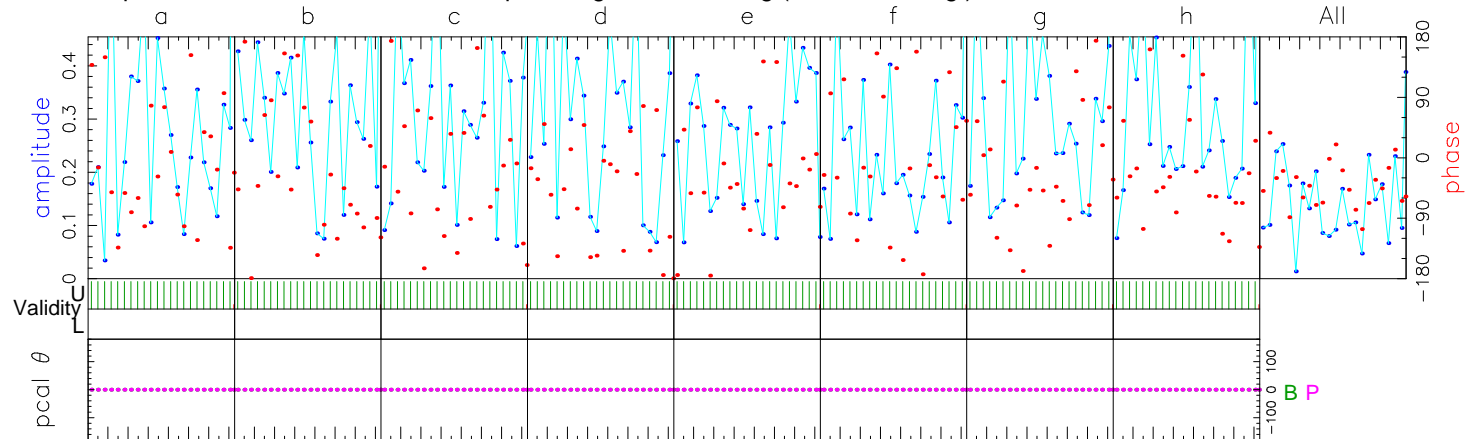
B: az 124.9 el 60.0 pa -36.7 P: az 92.7 el 57.2 pa -65.9 u,v (fr/asec) 1741.229 1590.209 simultaneous interpolator  
Control file: cf\_1234\_gmva Input file: /Exps/f212a/FRINGE/1234/No0021/BP..1VK7WS Output file: /Exps/f212a/FRINGE/1234/No0021/BP.W.13.1VK7WS





Fringe quality 0  
SNR 6.7  
Int time 419.793  
Amp 0.152  
Phase -40.0  
PFD 1.8e-01  
Delays (us)  
SBD 4.174701  
MBD -0.000463  
Fringe rate (Hz)  
-0.725289  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512  
Exp. f212a  
Exper # 16383  
Yr:day 2021:274  
Start 090001.00  
Stop 090700.84  
FRT 090331.00  
Corr/FF/build  
2021:275:011005  
2021:275:012559  
2021:252:122852  
RA & Dec (J2000)  
11h59m31.833912s  
+29°14'43.826900"

Amp. and Phase vs. time for each freq., 23 segs, 37 APs / seg (18.94 sec / seg.), time ticks 30 sec



|                         | 86012.00           | 86076.00 | 86140.00                 | 86204.00 | 86268.00           | 86332.00 | 86396.00             | 86460.00 | Freq (MHz)   | All         |
|-------------------------|--------------------|----------|--------------------------|----------|--------------------|----------|----------------------|----------|--------------|-------------|
|                         | -48.4              | -49.2    | -39.5                    | -36.6    | -28.0              | -36.4    | -45.3                | -43.0    | Phase        | -40.0       |
|                         | 0.1                | 0.1      | 0.1                      | 0.2      | 0.2                | 0.1      | 0.1                  | 0.2      | Ampl.        | 0.1         |
|                         | 14149.5            | 168.7    | 11418.5                  | 8605.8   | 14787.3            | 4510.0   | 11317.1              | 12460.2  | Sbd box      | 9261.7      |
| U/L                     | 820/0              | 820/0    | 820/0                    | 820/0    | 820/0              | 820/0    | 820/0                | 820/0    | APs used     |             |
| B                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | PC freqs     |             |
| P                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | PC freqs     |             |
| B:P                     | 0:0                | 0:0      | 0:0                      | 0:0      | 0:0                | 0:0      | 0:0                  | 0:0      | PC phase     |             |
| B:P                     | 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       |             |
| P                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     |              |             |
| B                       | W00UR              | W01UR    | W02UR                    | W03UR    | W04UR              | W05UR    | W06UR                | W07UR    | Chan ids     |             |
| P                       | W00UL              | W01UL    | W02UL                    | W03UL    | W04UL              | W05UL    | W06UL                | W07UL    | Tracks       |             |
|                         |                    |          |                          |          |                    |          |                      |          | Tracks       |             |
| Group delay (usec)(sbd) | 4.86737580260E+02  |          | Apriori delay (usec)     |          | 4.82566168706E+02  |          | Resid mbdelay (usec) |          | -4.63446E-04 | +/- 1.6E-04 |
| Sband delay (usec)      | 4.86740869706E+02  |          | Apriori clock (usec)     |          | 2.8409653E+00      |          | Resid sbdelay (usec) |          | 4.17470E+00  | +/- 1.3E-03 |
| Phase delay (usec)      | 4.82566167416E+02  |          | Apriori clockrate (us/s) |          | -3.8300000E-07     |          | Resid phdelay (usec) |          | -1.29017E-06 | +/- 5.5E-07 |
| Delay rate (us/s)       | -2.64216429110E-01 |          | Apriori rate (us/s)      |          | -2.64208009229E-01 |          | Resid rate (us/s)    |          | -8.41988E-06 | +/- 2.3E-09 |
| Total phase (deg)       | 238.0              |          | Apriori accel (us/s/s)   |          | 6.73386270425E-06  |          | Resid phase (deg)    |          | -40.0        | +/- 17.1    |

ph/seg (deg) 35.0 41.1 Search (2048X32) 0.109 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
amp/seg (%) 60.1 71.7 Interp. 0.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -32.000 32.000  
ph/frq (deg) 7.7 24.2 Inc. seg. avg. 0.141 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
amp/frq (%) 32.8 42.3 Inc. frq. avg. 0.139 Sample rate(MISamp/s): 128 Data rate(Mb/s): 2048 nlags: 8192 t\_cohere infinite dr window (ns/s) -0.011 0.011  
B: az 124.9 el 60.0 pa -36.7 P: az 92.7 el 57.2 pa -65.9 u,v (fr/asec) 1741.229 1590.209 simultaneous interpolator  
Control file: cf\_1234\_gmva Input file: /Exps/f212a/FRINGE/1234/No0021/BP..1VK7WS Output file: /Exps/f212a/FRINGE/1234/No0021/BP.W.16.1VK7WS

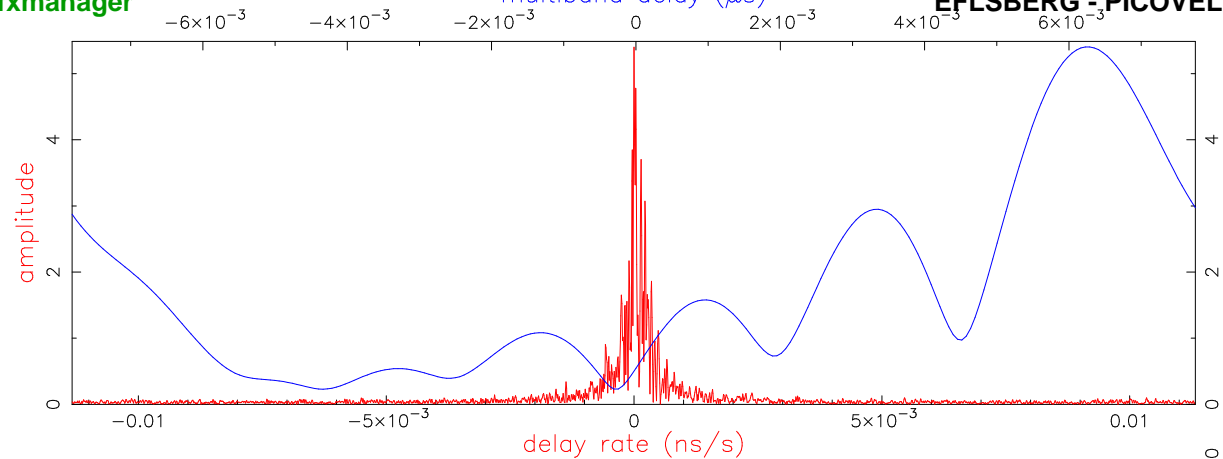
Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

1156+295.1VK7WS, No0021, BP

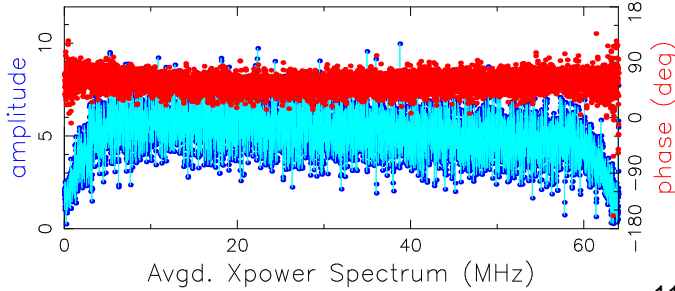
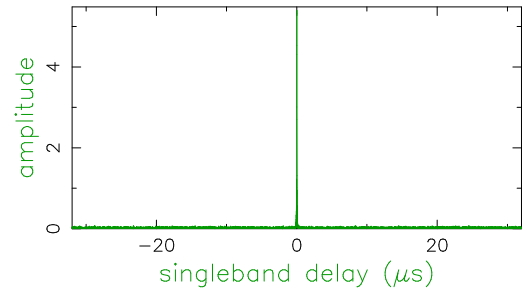
EFLSBERG - PICOVEL, fgroup W, pol LL

multiband delay ( $\mu$ s)



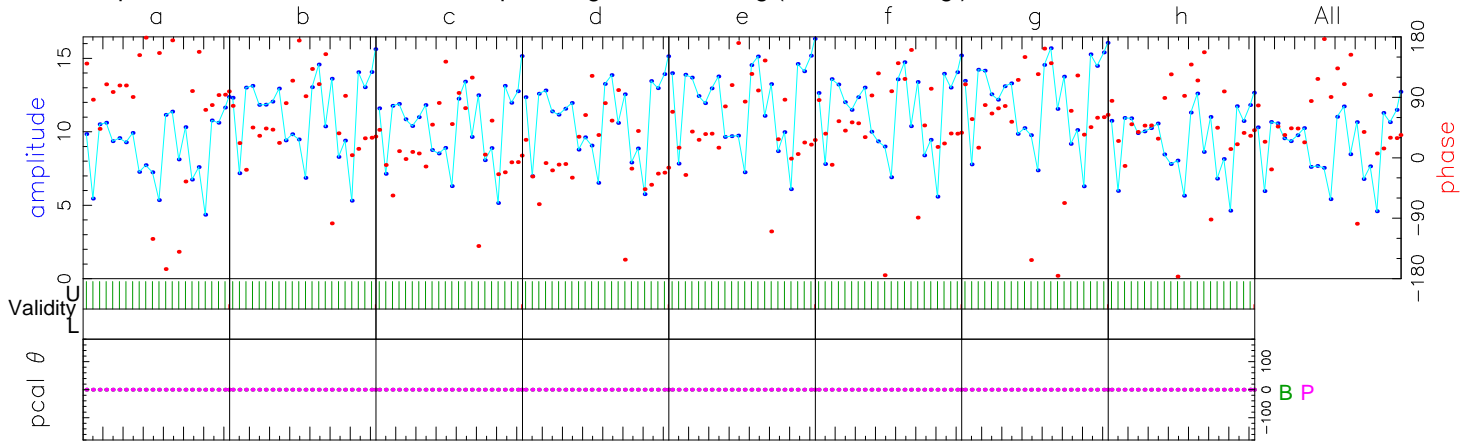
Fringe quality 2

SNR 307.5  
 Int time 419.793  
 Amp 5.488  
 Phase 56.1  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.006181  
 MBD 0.006212  
 Fringe rate (Hz)  
 0.000083  
 Ion TEC 0.000  
 Ref freq (MHz)  
 86140.0000  
 AP (sec) 0.512



Exp. f212a  
 Exper # 16383  
 Yr:day 2021:274  
 Start 090001.00  
 Stop 090700.84  
 FRT 090331.00  
 Corr/FF/build  
 2021:275:011005  
 2021:275:012126  
 2021:252:122852  
 RA & Dec (J2000)  
 11h59m31.833912s  
 +29°14'43.826900"

Amp. and Phase vs. time for each freq., 23 segs, 37 APs / seg (18.94 sec / seg.), time ticks 30 sec



|     | 86012.00 | 86076.00 | 86140.00 | 86204.00 | 86268.00 | 86332.00 | 86396.00 | 86460.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    |            |     |
| B   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| P   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| B:P | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      |            |     |
| B:P | 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     |            |     |
| P   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| B   | W00UL    | W01UL    | W02UL    | W03UL    | W04UL    | W05UL    | W06UL    | W07UL    |            |     |
| P   | W00UL    | W01UL    | W02UL    | W03UL    | W04UL    | W05UL    | W06UL    | W07UL    |            |     |

|                         |                    |                          |                    |                      |             |     |         |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|-------------|-----|---------|
| Group delay (usec)(sbd) | 4.82572381081E+02  | Apriori delay (usec)     | 4.82566168706E+02  | Resid mbdelay (usec) | 6.21238E-03 | +/- | 3.5E-06 |
| Sband delay (usec)      | 4.82572349956E+02  | Apriori clock (usec)     | 2.8409653E+00      | Resid sbdelay (usec) | 6.18125E-03 | +/- | 2.8E-05 |
| Phase delay (usec)      | 4.82566170514E+02  | Apriori clockrate (us/s) | -3.8300000E-07     | Resid phdelay (usec) | 1.80809E-06 | +/- | 1.2E-08 |
| Delay rate (us/s)       | -2.64208008268E-01 | Apriori rate (us/s)      | -2.64208009229E-01 | Resid rate (us/s)    | 9.60804E-10 | +/- | 5.0E-11 |
| Total phase (deg)       | 334.1              | Apriori accel (us/s/s)   | 6.73386270425E-06  | Resid phase (deg)    | 56.1        | +/- | 0.4     |

|              |      |     |                  |       |  |                               |                  |         |        |
|--------------|------|-----|------------------|-------|--|-------------------------------|------------------|---------|--------|
| ph/seg (deg) | 59.5 | 0.9 | Search (2048X32) | 5.376 | Pcal mode: MANUAL, MANUAL              | PC period (AP's) 5, 5         | sb window (us)   | -32.000 | 32.000 |
| amp/seg (%)  | 75.4 | 1.6 | 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) | 39.5 | 0.5 | Inc. seg. avg.   | 9.072 | Bits/sample: 2x2                       | Sample rate(MISamp/s): 128    | dr window (ns/s) | -0.011  | 0.011  |
| amp/frq (%)  | 20.2 | 0.9 | Inc. frq. avg.   | 6.392 | Data rate(Mb/s): 2048                  | nlags: 8192 t_cohere infinite | ion window (TEC) | 0.00    | 0.00   |

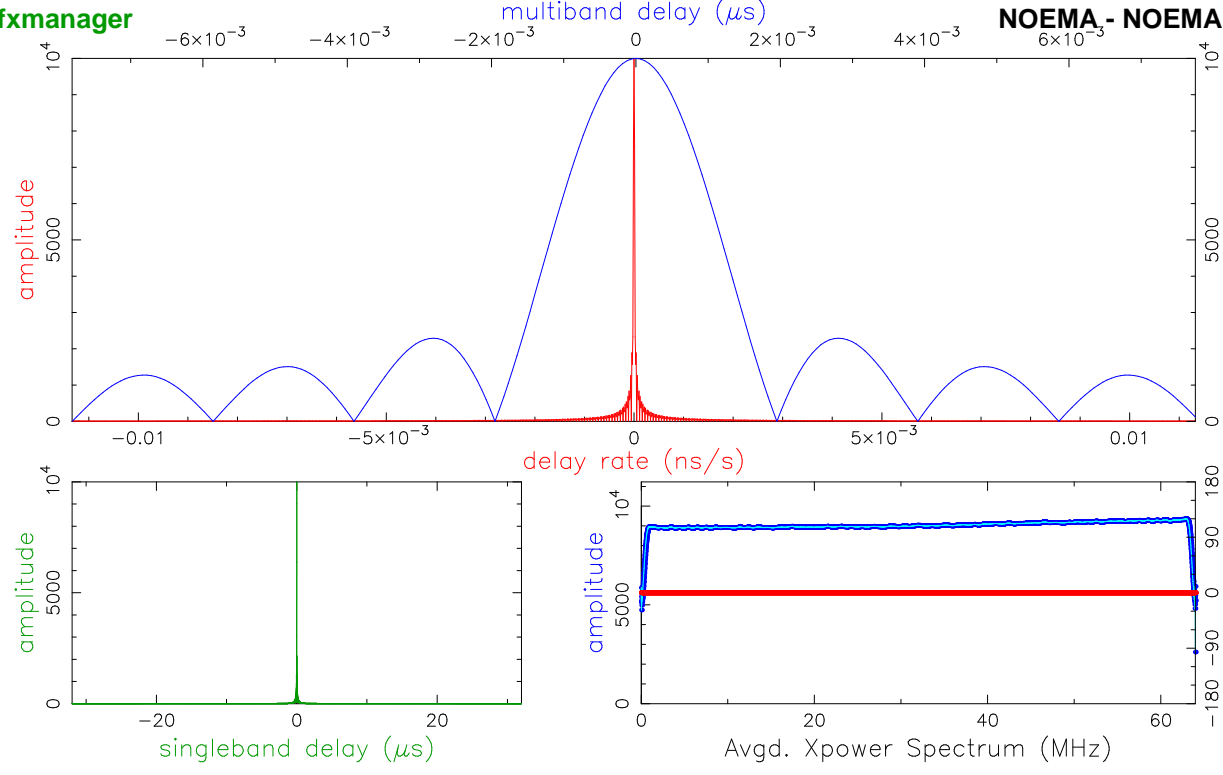
B: az 124.9 el 60.0 pa -36.7 P: az 92.7 el 57.2 pa -65.9 u,v (fr/asec) 1741.229 1590.209 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/f212a/FRINGE/1234/No0021/BP..1VK7WS Output file: /Exps/f212a/FRINGE/1234/No0021/BP.W.6.1VK7WS

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

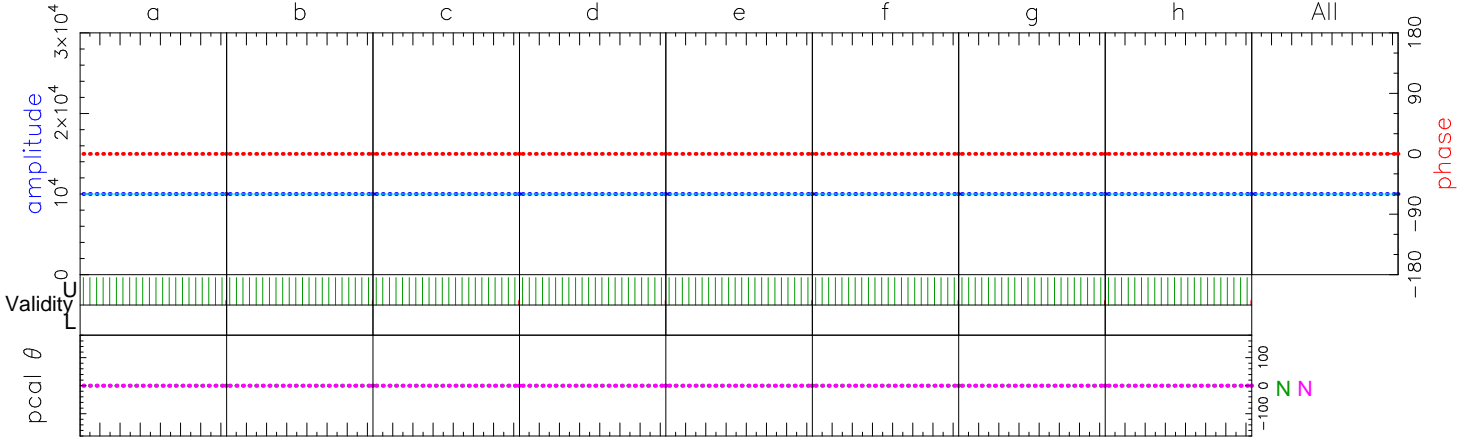
1156+295.1VK7WS, No0021, NN

NOEMA - NOEMA, fgroup W, pol LL



Fringe quality 9  
 SNR 560311.8  
 Int time 419.821  
 Amp 10000.001  
 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) 86140.0000  
 AP (sec) 0.512  
 Exp. f212a  
 Yr:day 16383  
 Start 2021:274  
 Stop 2021:274  
 FRT 090001.00  
 Start 090001.00  
 Stop 090700.84  
 FRT 090331.00  
 Corr/FF/build  
 2021:275:011005  
 2021:275:012122  
 2021:252:122852  
 RA & Dec (J2000) 11h59m31.833912s +29°14'43.826900"

Amp. and Phase vs. time for each freq., 23 segs, 37 APs / seg (18.94 sec / seg.), time ticks 30 sec



|     | 86012.00 | 86076.00 | 86140.00 | 86204.00 | 86268.00 | 86332.00 | 86396.00 | 86460.00 | Freq (MHz) | All     |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|---------|
| U/L | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 8193.0     | 8193.0  |
| N   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 10000.0    | 10000.0 |
| N:N | 0:0      | 0:0      | 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     | 10000.0    | 10000.0 |
| N   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 8193.0     | 8193.0  |
| N   | W00UL    | W01UL    | W02UL    | W03UL    | W04UL    | W05UL    | W06UL    | W07UL    |            |         |

Group delay (usec)(sbd) 0.000000000000E+00 Apriori delay (usec) 0.000000000000E+00 Resid mbdelay (usec) 0.000000E+00 +/- 1.9E-09  
 Sband delay (usec) 0.000000000000E+00 Apriori clock (usec) 0.0000000E+00 Resid sbdelay (usec) 0.000000E+00 +/- 1.5E-08  
 Phase delay (usec) 0.000000000000E+00 Apriori clockrate (us/s) 0.0000000E+00 Resid phdelay (usec) 0.000000E+00 +/- 6.6E-12  
 Delay rate (us/s) 0.000000000000E+00 Apriori rate (us/s) 0.000000000000E+00 Resid rate (us/s) 0.000000E+00 +/- 2.7E-14  
 Total phase (deg) 0.0 Apriori accel (us/s/s) 0.000000000000E+00 Resid phase (deg) 0.0 +/- 0.0

RMS Theor. Amplitude 10000.001 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 0.0 0.0 Search (2048X32) 10000.001 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -32.000 32.000  
 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 Sample rate(MISamp/s): 128 dr window (ns/s) -0.011 0.011  
 amp/frq (%) 0.0 0.0 Inc. frq. avg. 10000.001 Data rate(Mb/s): 2048 nlags: 8192 t\_cohere infinite ion window (TEC) 0.00 0.00

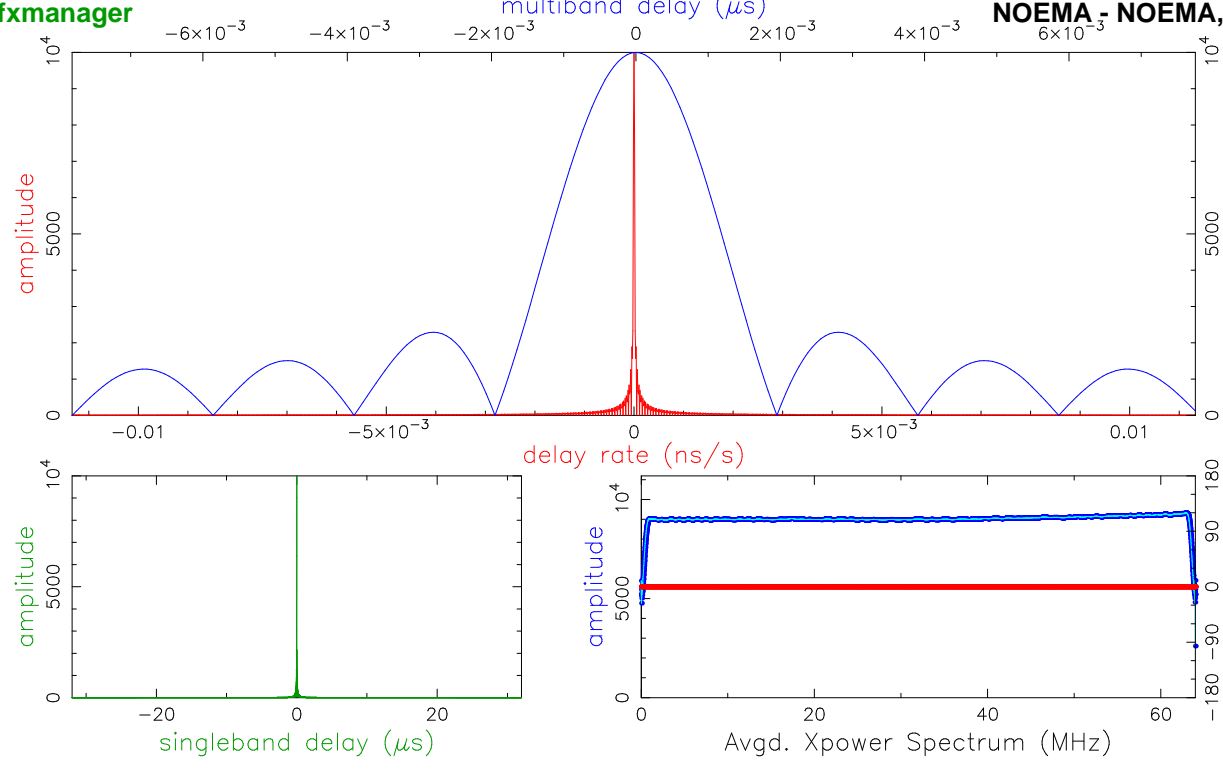
N: az 114.3 el 62.4 pa -47.5 N: az 114.3 el 62.4 pa -47.5 u,v (fr/asec) 0.000 0.000 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/f212a/FRINGE/1234/No0021/NN..1VK7WS Output file: /Exps/f212a/FRINGE/1234/No0021/NN.W.3.1VK7WS

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

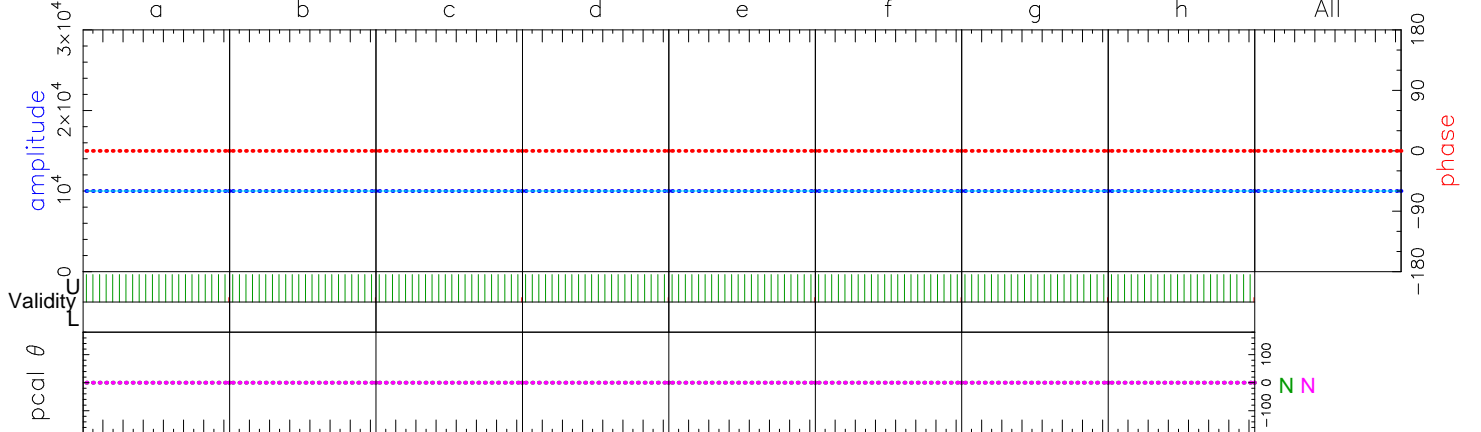
1156+295.1VK7WS, No0021, NN

NOEMA - NOEMA, fgroup W, pol RR



Fringe quality 9  
 SNR 560311.8  
 Int time 419.821  
 Amp 10000.001  
 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) 86140.0000  
 AP (sec) 0.512  
 Exp. f212a  
 Yr:day 16383  
 Start 2021:274  
 Stop 2021:274  
 FRT 090001.00  
 FRT 090700.84  
 FRT 090331.00  
 Corr/FF/build  
 2021:275:011005  
 2021:275:012252  
 2021:252:122852  
 RA & Dec (J2000)  
 11h59m31.833912s  
 +29°14'43.826900"

Amp. and Phase vs. time for each freq., 23 segs, 37 APs / seg (18.94 sec / seg.), time ticks 30 sec



|     | 86012.00 | 86076.00 | 86140.00 | 86204.00 | 86268.00 | 86332.00 | 86396.00 | 86460.00 | Freq (MHz) | All     |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|---------|
| U/L | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 8193.0     | 8193.0  |
| N   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 10000.0    | 10000.0 |
| N:N | 0:0      | 0:0      | 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     | 10000.0    | 10000.0 |
| N   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 8193.0     | 8193.0  |
| N   | W00UR    | W01UR    | W02UR    | W03UR    | W04UR    | W05UR    | W06UR    | W07UR    |            |         |

Group delay (usec)(sbd) 0.0000000000E+00 Apriori delay (usec) 0.0000000000E+00 Resid mbdelay (usec) 0.00000E+00 +/- 1.9E-09  
 Sband delay (usec) 0.0000000000E+00 Apriori clock (usec) 0.0000000E+00 Resid sbdelay (usec) 0.00000E+00 +/- 1.5E-08  
 Phase delay (usec) 0.0000000000E+00 Apriori clockrate (us/s) 0.0000000E+00 Resid phdelay (usec) 0.00000E+00 +/- 6.6E-12  
 Delay rate (us/s) 0.0000000000E+00 Apriori rate (us/s) 0.0000000000E+00 Resid rate (us/s) 0.00000E+00 +/- 2.7E-14  
 Total phase (deg) 0.0 Apriori accel (us/s/s) 0.0000000000E+00 Resid phase (deg) 0.0 +/- 0.0

ph/seg (deg) 0.0 0.0 RMS Theor. Amplitude 10000.001 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 0.0 0.0 Search (2048X32) 10000.001 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -32.000 32.000  
 ph/frq (deg) 0.0 0.0 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 amp/frq (%) 0.0 0.0 Inc. seg. avg. 10000.000 Sample rate(MISamp/s): 128 dr window (ns/s) -0.011 0.011  
 Data rate(Mb/s): 2048 nlags: 8192 t\_cohere infinite ion window (TEC) 0.00 0.00

N: az 114.3 el 62.4 pa -47.5 N: az 114.3 el 62.4 pa -47.5 u,v (fr/asec) 0.000 0.000 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/f212a/FRINGE/1234/No0021/NN..1VK7WS Output file: /Exps/f212a/FRINGE/1234/No0021/NN.W.9.1VK7WS

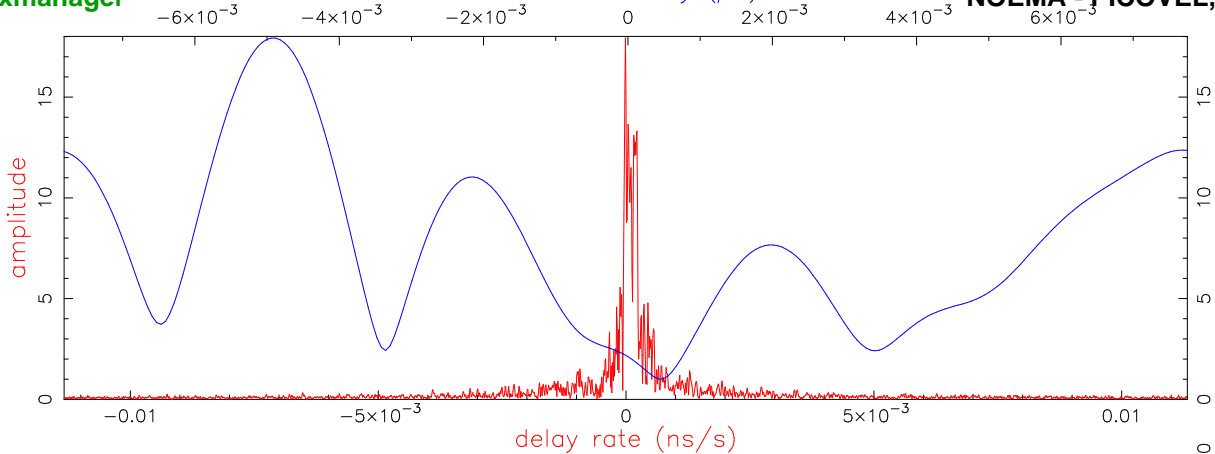
Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

1156+295.1VK7WS, No0021, NP

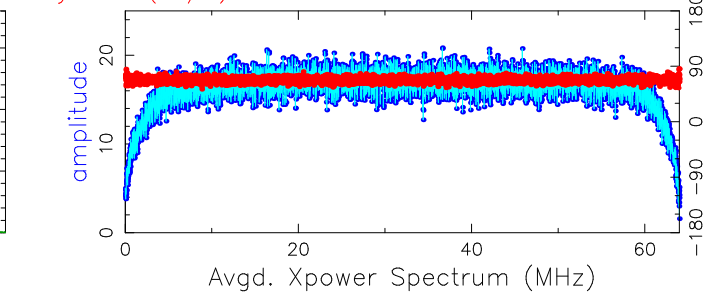
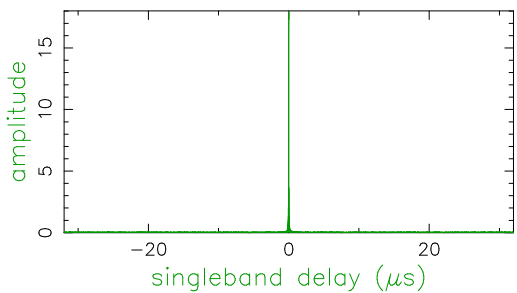
NOEMA - PICOVEL, fgroup W, pol RR

multiband delay ( $\mu$ s)



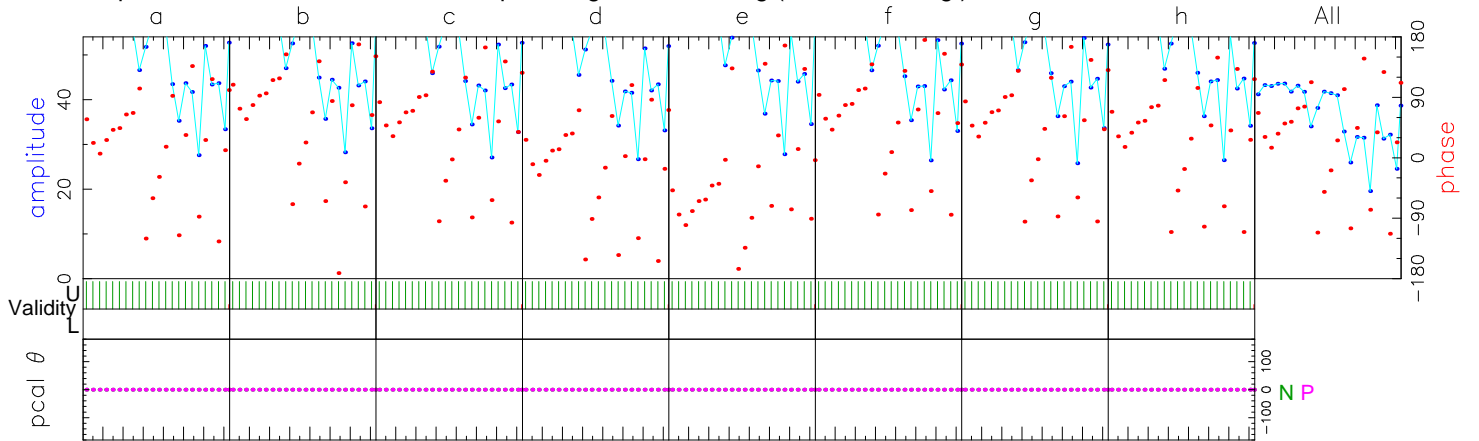
Fringe quality 2

SNR 1009.3  
 Int time 419.821  
 Amp 18.013  
 Phase 43.9  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.006984  
 MBD -0.004909  
 Fringe rate (Hz)  
 -0.001107  
 Ion TEC 0.000  
 Ref freq (MHz)  
 86140.0000  
 AP (sec) 0.512



Exp. f212a  
 Exper # 16383  
 Yr:day 2021:274  
 Start 090001.00  
 Stop 090700.84  
 FRT 090331.00  
 Corr/FF/build  
 2021:275:011005  
 2021:275:012258  
 2021:252:122852  
 RA & Dec (J2000)  
 11h59m31.833912s  
 +29°14'43.826900"

Amp. and Phase vs. time for each freq., 23 segs, 37 APs / seg (18.94 sec / seg.), time ticks 30 sec



|     | 86012.00 | 86076.00 | 86140.00 | 86204.00 | 86268.00 | 86332.00 | 86396.00 | 86460.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|-----|
| U/L | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    |            |     |
| N   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | APs used   |     |
| P   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |     |
| N:P | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |     |
| N:P | 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     |     |
| P   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |     |
| N   | W00UR    | W01UR    | W02UR    | W03UR    | W04UR    | W05UR    | W06UR    | W07UR    | Chan ids   |     |
| P   | W00UR    | W01UR    | W02UR    | W03UR    | W04UR    | W05UR    | W06UR    | W07UR    | Tracks     |     |

|                         |                    |                          |                    |                      |              |     |         |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec)(sbd) | 9.06059905414E+02  | Apriori delay (usec)     | 9.06064814830E+02  | Resid mbdelay (usec) | -4.90942E-03 | +/- | 1.1E-06 |
| Sband delay (usec)      | 9.06057830830E+02  | Apriori clock (usec)     | -1.2650058E+01     | Resid sbdelay (usec) | -6.98400E-03 | +/- | 8.5E-06 |
| Phase delay (usec)      | 9.06064816245E+02  | Apriori clockrate (us/s) | -5.3429999E-06     | Resid phdelay (usec) | 1.41558E-06  | +/- | 3.7E-09 |
| Delay rate (us/s)       | -2.02714834556E-01 | Apriori rate (us/s)      | -2.02714821708E-01 | Resid rate (us/s)    | -1.28483E-08 | +/- | 1.5E-11 |
| Total phase (deg)       | 97.7               | Apriori accel (us/s/s)   | 5.99687437441E-07  | Resid phase (deg)    | 43.9         | +/- | 0.1     |

|              |          |            |                            |  |                               |                               |
|--------------|----------|------------|----------------------------|--|-------------------------------|-------------------------------|
| ph/seg (deg) | RMS 76.4 | Theor. 0.3 | Amplitude 18.013 +/- 0.018 | Pcal mode: MANUAL, MANUAL              | PC period (AP's) 5, 5         |                               |
| amp/seg (%)  | 110.3    | 0.5        | Search (2048X32) 17.839    | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -32.000 32.000 |                               |
| ph/frq (deg) | 54.8     | 0.2        | Interp. 0.000              | Bits/sample: 2x2                       | SampCntNorm: enabled          | mb window (us) -0.008 0.008   |
| amp/frq (%)  | 36.5     | 0.3        | Inc. seg. avg. 36.655      | Sample rate(MISamp/s): 128             |                               | dr window (ns/s) -0.011 0.011 |
|              |          |            | Inc. frq. avg. 24.571      | Data rate(Mb/s): 2048                  | nlags: 8192 t_cohere infinite | ion window (TEC) 0.00 0.00    |

N: az 114.3 el 62.4 pa -47.5 P: az 92.7 el 57.2 pa -65.9 u,v (fr/asec) 1329.628 789.275 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/f212a/FRINGE/1234/No0021/NP..1VK7WS Output file: /Exps/f212a/FRINGE/1234/No0021/NP.W.11.1VK7WS

Mk4/DiFX fourfit 3.21 rev 2937

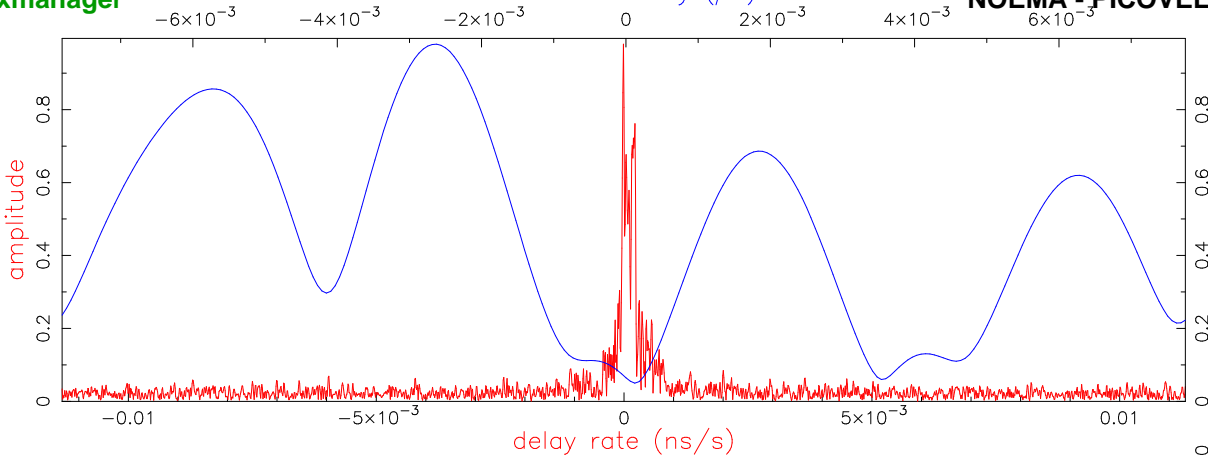
fxmanager

1156+295.1VK7WS, No0021, NP

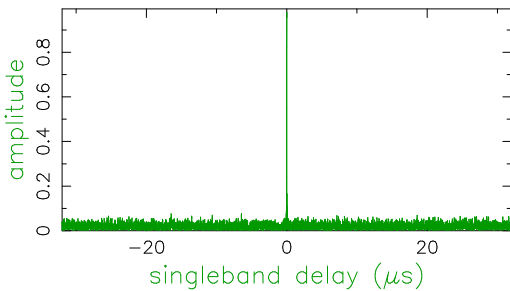
NOEMA - PICOVEL, fgroup W, pol LR

multiband delay ( $\mu$ s)

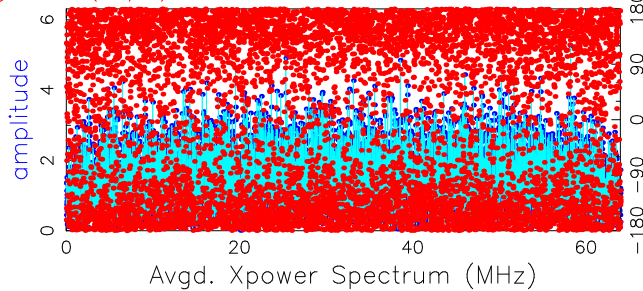
Fringe quality 1



SNR 55.8  
 Int time 419.821  
 Amp 0.995  
 Phase 145.3  
 PFD 0.0e+00  
 Delays (us)  
 SBD -0.005553  
 MBD -0.002643  
 Fringe rate (Hz)  
 -0.001182  
 Ion TEC 0.000  
 Ref freq (MHz)  
 86140.0000  
 AP (sec) 0.512

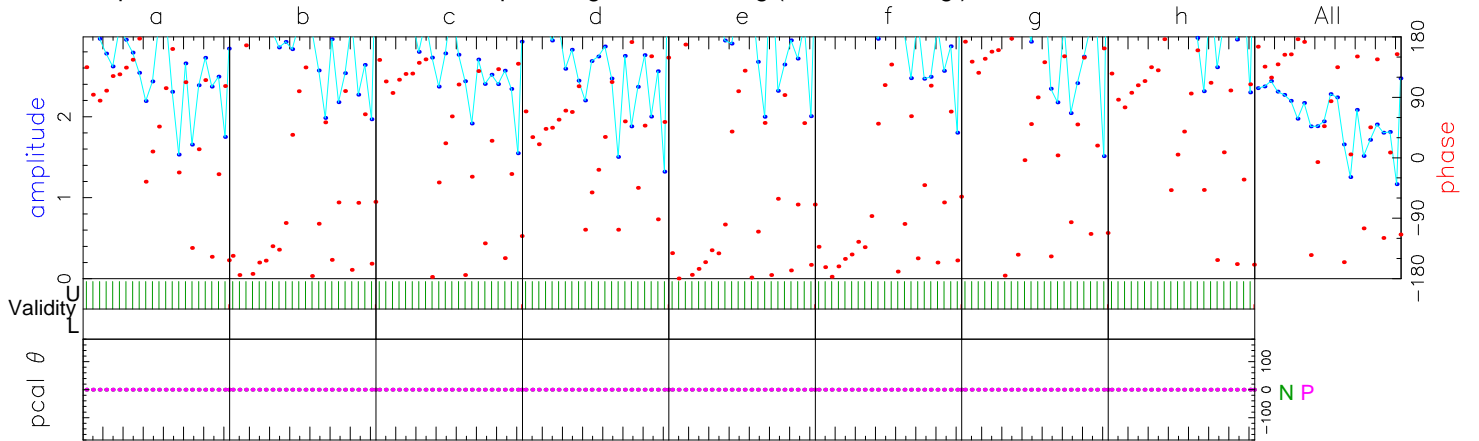


delay rate (ns/s)



Exp. f212a  
 Exper # 16383  
 Yr:day 2021:274  
 Start 090001.00  
 Stop 090700.84  
 FRT 090331.00  
 Corr/FF/build  
 2021:275:011005  
 2021:275:012428  
 2021:252:122852  
 RA & Dec (J2000)  
 11h59m31.833912s  
 +29°14'43.826900"

Amp. and Phase vs. time for each freq., 23 segs, 37 APs / seg (18.94 sec / seg.), time ticks 30 sec



|     | 86012.00 | 86076.00 | 86140.00 | 86204.00 | 86268.00 | 86332.00 | 86396.00 | 86460.00 | Freq (MHz) | All    |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|--------|
|     | 109.1    | -164.4   | 122.9    | 44.1     | -169.4   | -155.1   | 151.0    | 101.1    | Phase      | 145.3  |
|     | 1.3      | 1.5      | 1.4      | 1.3      | 1.7      | 1.6      | 1.5      | 1.8      | Ampl.      | 1.5    |
|     | 8191.7   | 8192.0   | 8190.9   | 8191.3   | 8191.8   | 8191.3   | 8191.4   | 8192.0   | Sbd box    | 8191.6 |
| U/L | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | APs used   |        |
| N   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |        |
| P   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |        |
| N:P | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | PC phase   |        |
| N:P | 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     |        |
| P   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     |            |        |
| N   | W00UL    | W01UL    | W02UL    | W03UL    | W04UL    | W05UL    | W06UL    | W07UL    | Chan ids   |        |
| P   | W00UR    | W01UR    | W02UR    | W03UR    | W04UR    | W05UR    | W06UR    | W07UR    | Tracks     |        |

|                         |                    |                          |                    |                      |              |     |         |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec)(sbd) | 9.06062171851E+02  | Apriori delay (usec)     | 9.06064814830E+02  | Resid mbdelay (usec) | -2.64298E-03 | +/- | 1.9E-05 |
| Sband delay (usec)      | 9.06059261580E+02  | Apriori clock (usec)     | -1.2650058E+01     | Resid sbdelay (usec) | -5.55325E-03 | +/- | 1.5E-04 |
| Phase delay (usec)      | 9.06064819516E+02  | Apriori clockrate (us/s) | -5.3429999E-06     | Resid phdelay (usec) | 4.68669E-06  | +/- | 6.6E-08 |
| Delay rate (us/s)       | -2.02714835427E-01 | Apriori rate (us/s)      | -2.02714821708E-01 | Resid rate (us/s)    | -1.37184E-08 | +/- | 2.7E-10 |
| Total phase (deg)       | 199.1              | Apriori accel (us/s/s)   | 5.99687437441E-07  | Resid phase (deg)    | 145.3        | +/- | 2.1     |

|              |          |            |                            |                 |                             |                               |                       |                |         |        |
|--------------|----------|------------|----------------------------|-----------------|-----------------------------|-------------------------------|-----------------------|----------------|---------|--------|
| ph/seg (deg) | RMS 73.4 | Theor. 4.9 | Amplitude Search (2048X32) | 0.995 +/- 0.018 | 0.951                       | Pcal mode: MANUAL, MANUAL     | PC period (AP's) 5, 5 | sb window (us) | -32.000 | 32.000 |
| amp/seg (%)  | 103.7    | 8.6        | Interp.                    | 0.000           | 0.000E+00, 0.000E+00 (us/s) | SampCntNorm: enabled          | mb window (us)        | -0.008         | 0.008   |        |
| ph/frq (deg) | 60.8     | 2.9        | Inc. seg. avg.             | 1.961           | Bits/sample: 2x2            | Sample rate(MISamp/s): 128    | dr window (ns/s)      | -0.011         | 0.011   |        |
| amp/frq (%)  | 54.1     | 5.1        | Inc. frq. avg.             | 1.508           | Data rate(Mb/s): 2048       | nlags: 8192 t_cohere infinite | ion window (TEC)      | 0.00           | 0.00    |        |

N: az 114.3 el 62.4 pa -47.5 P: az 92.7 el 57.2 pa -65.9 u,v (fr/asec) 1329.628 789.275 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/f212a/FRINGE/1234/No0021/NP..1VK7WS Output file: /Exps/f212a/FRINGE/1234/No0021/NP.W.14.1VK7WS

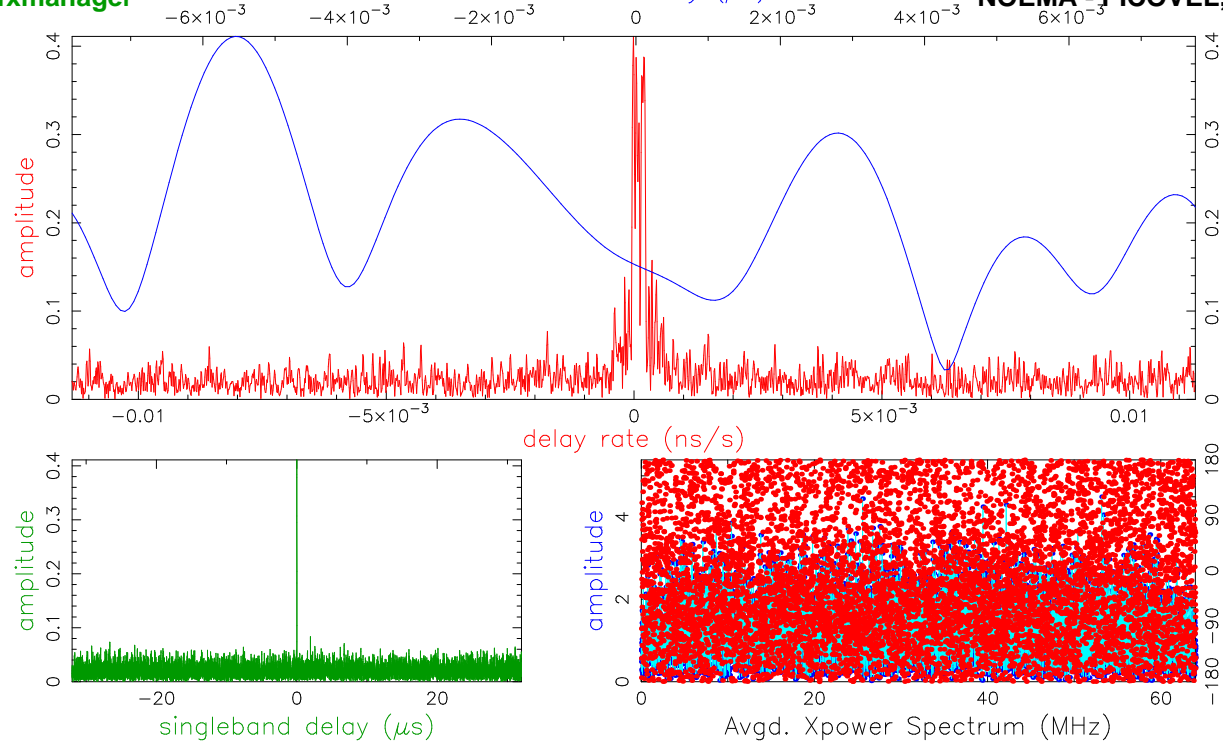
Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

1156+295.1VK7WS, No0021, NP

NOEMA - PICOVEL, fgroup W, pol RL

multiband delay ( $\mu$ s)

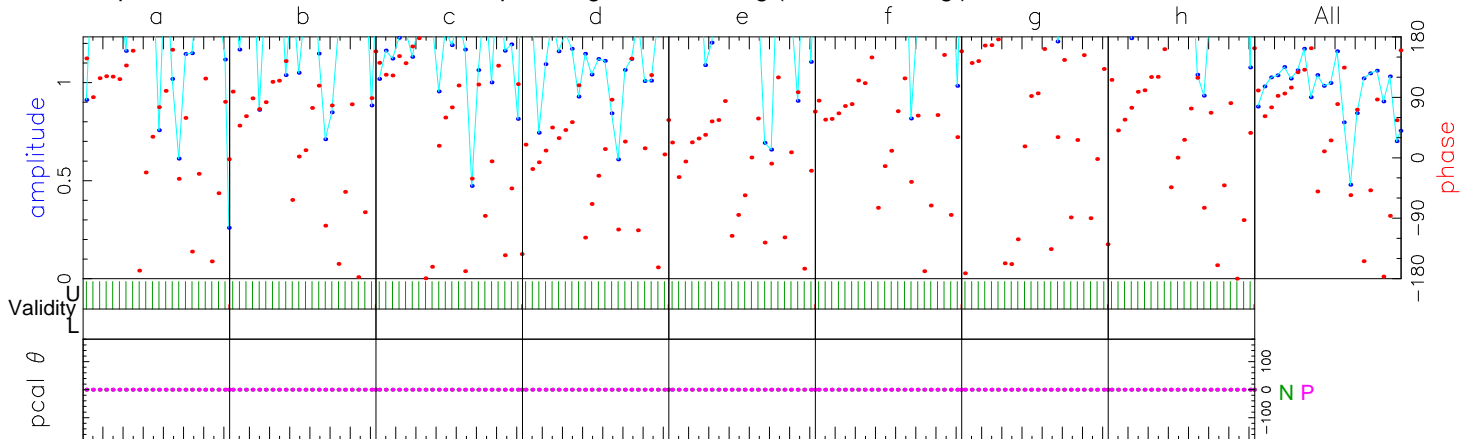


Fringe quality 7

SNR 23.0  
 Int time 419.821  
 Amp 0.411  
 Phase 90.8  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.007965  
 MBD -0.005540  
 Fringe rate (Hz)  
 -0.001100  
 Ion TEC 0.000  
 Ref freq (MHz)  
 86140.0000  
 AP (sec) 0.512

Exp. f212a  
 Exper # 16383  
 Yr:day 2021:274  
 Start 090001.00  
 Stop 090700.84  
 FRT 090331.00  
 Corr/FF/build  
 2021:275:011005  
 2021:275:012600  
 2021:252:122852  
 RA & Dec (J2000)  
 11h59m31.833912s  
 +29°14'43.826900"

Amp. and Phase vs. time for each freq., 23 segs, 37 APs / seg (18.94 sec / seg.), time ticks 30 sec



|                         | 86012.00           | 86076.00 | 86140.00                 | 86204.00 | 86268.00           | 86332.00 | 86396.00             | 86460.00 | Freq (MHz)   | All         |
|-------------------------|--------------------|----------|--------------------------|----------|--------------------|----------|----------------------|----------|--------------|-------------|
|                         | 112.1              | 84.0     | 144.0                    | 18.4     | 15.0               | 71.9     | 168.1                | 78.6     | Phase        | 90.8        |
|                         | 0.5                | 0.6      | 0.5                      | 0.5      | 0.5                | 0.8      | 0.9                  | 0.6      | Ampl.        | 0.6         |
|                         | 8195.0             | 8194.6   | 8194.0                   | 8193.7   | 8194.3             | 8194.7   | 8195.1               | 8194.1   | Sbd box      | 8195.0      |
| U/L                     | 820/0              | 820/0    | 820/0                    | 820/0    | 820/0              | 820/0    | 820/0                | 820/0    | APs used     |             |
| N                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | PC freqs     |             |
| P                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     | PC freqs     |             |
| N:P                     | 0:0                | 0:0      | 0:0                      | 0:0      | 0:0                | 0:0      | 0:0                  | 0:0      | PC phase     |             |
| N:P                     | 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       |             |
| P                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     |              |             |
| N                       | W00UR              | W01UR    | W02UR                    | W03UR    | W04UR              | W05UR    | W06UR                | W07UR    | Chan ids     |             |
| P                       | W00UL              | W01UL    | W02UL                    | W03UL    | W04UL              | W05UL    | W06UL                | W07UL    | Tracks       |             |
|                         |                    |          |                          |          |                    |          |                      |          | Tracks       |             |
| Group delay (usec)(sbd) | 9.06074900226E+02  |          | Apriori delay (usec)     |          | 9.06064814830E+02  |          | Resid mbdelay (usec) |          | -5.53960E-03 | +/- 4.7E-05 |
| Sband delay (usec)      | 9.06072780080E+02  |          | Apriori clock (usec)     |          | -1.2650058E+01     |          | Resid sbdelay (usec) |          | 7.96525E-03  | +/- 3.7E-04 |
| Phase delay (usec)      | 9.06064817759E+02  |          | Apriori clockrate (us/s) |          | -5.3429999E-06     |          | Resid phdelay (usec) |          | 2.92952E-06  | +/- 1.6E-07 |
| Delay rate (us/s)       | -2.02714834481E-01 |          | Apriori rate (us/s)      |          | -2.02714821708E-01 |          | Resid rate (us/s)    |          | -1.27725E-08 | +/- 6.6E-10 |
| Total phase (deg)       | 144.6              |          | Apriori accel (us/s/s)   |          | 5.99687437441E-07  |          | Resid phase (deg)    |          | 90.8         | +/- 5.0     |

ph/seg (deg) 79.1 11.9 Search (2048X32) 0.404 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 139.6 20.8 Interp. 0.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -32.000 32.000  
 ph/frq (deg) 58.9 7.0 Inc. seg. avg. 0.944 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.008 0.008  
 amp/frq (%) 61.8 12.3 Inc. frq. avg. 0.621 Sample rate(MISamp/s): 128 Data rate(Mb/s): 2048 nlags: 8192 t\_cohere infinite dr window (ns/s) -0.011 0.011  
 N: az 114.3 el 62.4 pa -47.5 P: az 92.7 el 57.2 pa -65.9 u,v (fr/asec) 1329.628 789.275 ion window (TEC) 0.00 0.00  
 Control file: cf\_1234\_gmva Input file: /Exps/f212a/FRINGE/1234/No0021/NP..1VK7WS Output file: /Exps/f212a/FRINGE/1234/No0021/NP.W.17.1VK7WS simultaneous interpolator

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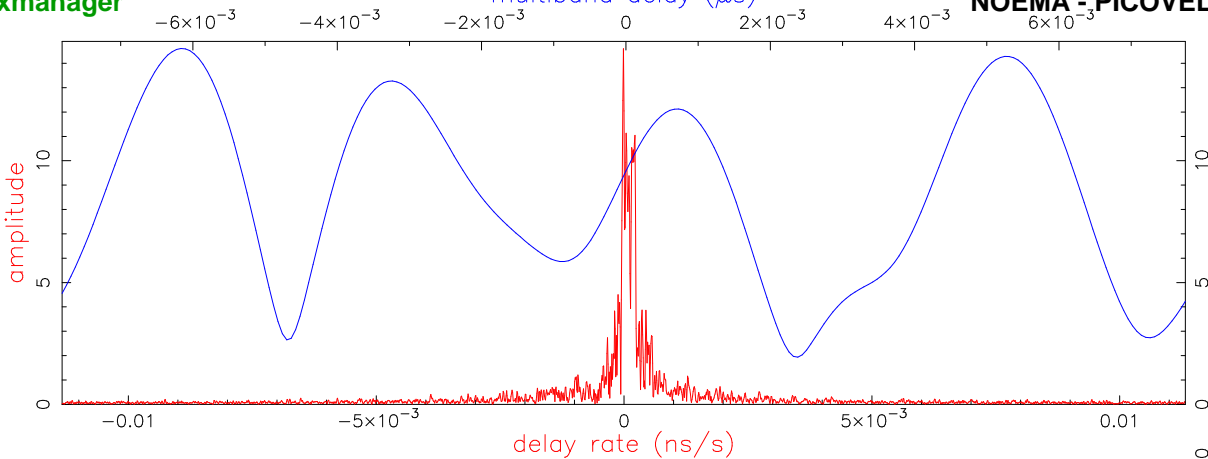
fxmanager

1156+295.1VK7WS, No0021, NP

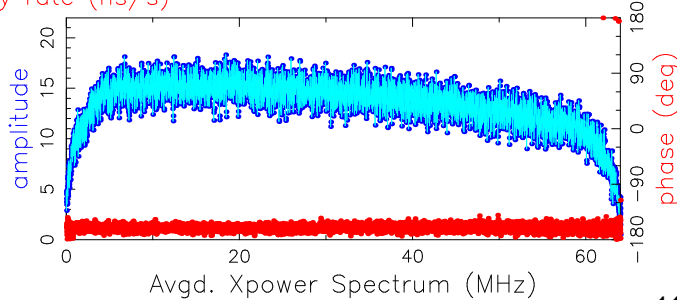
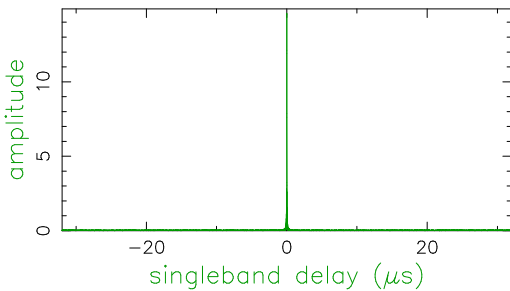
NOEMA - PICOVEL, fgroup W, pol LL

multiband delay ( $\mu$ s)

Fringe quality 1

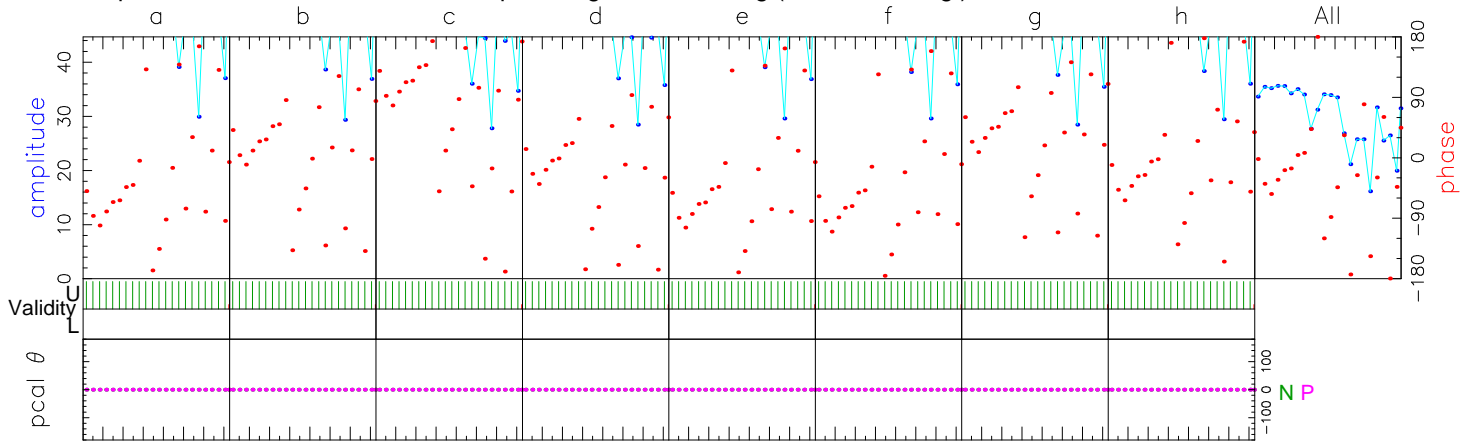


SNR 834.9  
 Int time 419.821  
 Amp 14.900  
 Phase -25.3  
 PFD 0.0e+00  
 Delays (us)  
 SBD 0.005732  
 MBD -0.006129  
 Fringe rate (Hz)  
 -0.001084  
 Ion TEC 0.000  
 Ref freq (MHz)  
 86140.0000  
 AP (sec) 0.512



Exp. f212a  
 Exper # 16383  
 Yr:day 2021:274  
 Start 090001.00  
 Stop 090700.84  
 FRT 090331.00  
 Corr/FF/build  
 2021:275:011005  
 2021:275:012126  
 2021:252:122852  
 RA & Dec (J2000)  
 11h59m31.833912s  
 +29°14'43.826900"

Amp. and Phase vs. time for each freq., 23 segs, 37 APs / seg (18.94 sec / seg.), time ticks 30 sec



|                         | 86012.00           | 86076.00 | 86140.00                 | 86204.00 | 86268.00           | 86332.00 | 86396.00             | 86460.00 | Freq (MHz)   | All            |
|-------------------------|--------------------|----------|--------------------------|----------|--------------------|----------|----------------------|----------|--------------|----------------|
|                         | -73.2              | 17.3     | 105.3                    | -10.6    | -76.0              | -80.8    | 37.1                 | -34.3    |              | Phase -25.3    |
|                         | 27.4               | 27.1     | 25.4                     | 25.5     | 26.8               | 26.7     | 26.1                 | 26.6     |              | Ampl. 26.4     |
|                         | 8194.4             | 8194.5   | 8193.9                   | 8194.4   | 8194.4             | 8194.3   | 8194.8               | 8194.6   |              | Sbd box 8194.5 |
| U/L                     | 820/0              | 820/0    | 820/0                    | 820/0    | 820/0              | 820/0    | 820/0                | 820/0    |              | APs used       |
| N                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     |              | PC freqs       |
| P                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     |              | PC freqs       |
| N:P                     | 0:0                | 0:0      | 0:0                      | 0:0      | 0:0                | 0:0      | 0:0                  | 0:0      |              | PC phase       |
| N:P                     | 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         |
| P                       | 1000               | 1000     | 1000                     | 1000     | 1000               | 1000     | 1000                 | 1000     |              |                |
| N                       | W00UL              | W01UL    | W02UL                    | W03UL    | W04UL              | W05UL    | W06UL                | W07UL    |              | Chan ids       |
| P                       | W00UL              | W01UL    | W02UL                    | W03UL    | W04UL              | W05UL    | W06UL                | W07UL    |              | Tracks         |
|                         |                    |          |                          |          |                    |          |                      |          |              | Tracks         |
| Group delay (usec)(sbd) | 9.06074311195E+02  |          | Apriori delay (usec)     |          | 9.06064814830E+02  |          | Resid mbdelay (usec) |          | -6.12863E-03 | +/- 1.3E-06    |
| Sband delay (usec)      | 9.06070546830E+02  |          | Apriori clock (usec)     |          | -1.2650058E+01     |          | Resid sbdelay (usec) |          | 5.73200E-03  | +/- 1.0E-05    |
| Phase delay (usec)      | 9.06064814013E+02  |          | Apriori clockrate (us/s) |          | -5.3429999E-06     |          | Resid phdelay (usec) |          | -8.16510E-07 | +/- 4.4E-09    |
| Delay rate (us/s)       | -2.02714834293E-01 |          | Apriori rate (us/s)      |          | -2.02714821708E-01 |          | Resid rate (us/s)    |          | -1.25847E-08 | +/- 1.8E-11    |
| Total phase (deg)       | 28.5               |          | Apriori accel (us/s/s)   |          | 5.99687437441E-07  |          | Resid phase (deg)    |          | -25.3        | +/- 0.1        |

|              | RMS   | Theor. | Amplitude        | 14.900 +/- 0.018 | Pcal mode: MANUAL, MANUAL              | PC period (AP's) 5, 5         |                               |
|--------------|-------|--------|------------------|------------------|--|-------------------------------|-------------------------------|
| ph/seg (deg) | 76.3  | 0.3    | Search (2048X32) | 14.276           | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -32.000 32.000 |                               |
| amp/seg (%)  | 107.8 | 0.6    | Interp.          | 0.000            | Bits/sample: 2x2                       | SampCntNorm: enabled          | mb window (us) -0.008 0.008   |
| ph/frq (deg) | 71.9  | 0.2    | Inc. seg. avg.   | 29.952           | Sample rate(MISamp/s): 128             |                               | dr window (ns/s) -0.011 0.011 |
| amp/frq (%)  | 77.6  | 0.3    | Inc. frq. avg.   | 26.438           | Data rate(Mb/s): 2048                  | nlags: 8192 t_cohere infinite | ion window (TEC) 0.00 0.00    |

N: az 114.3 el 62.4 pa -47.5 P: az 92.7 el 57.2 pa -65.9 u,v (fr/asec) 1329.628 789.275 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/f212a/FRINGE/1234/No0021/NP..1VK7WS Output file: /Exps/f212a/FRINGE/1234/No0021/NP.W.5.1VK7WS

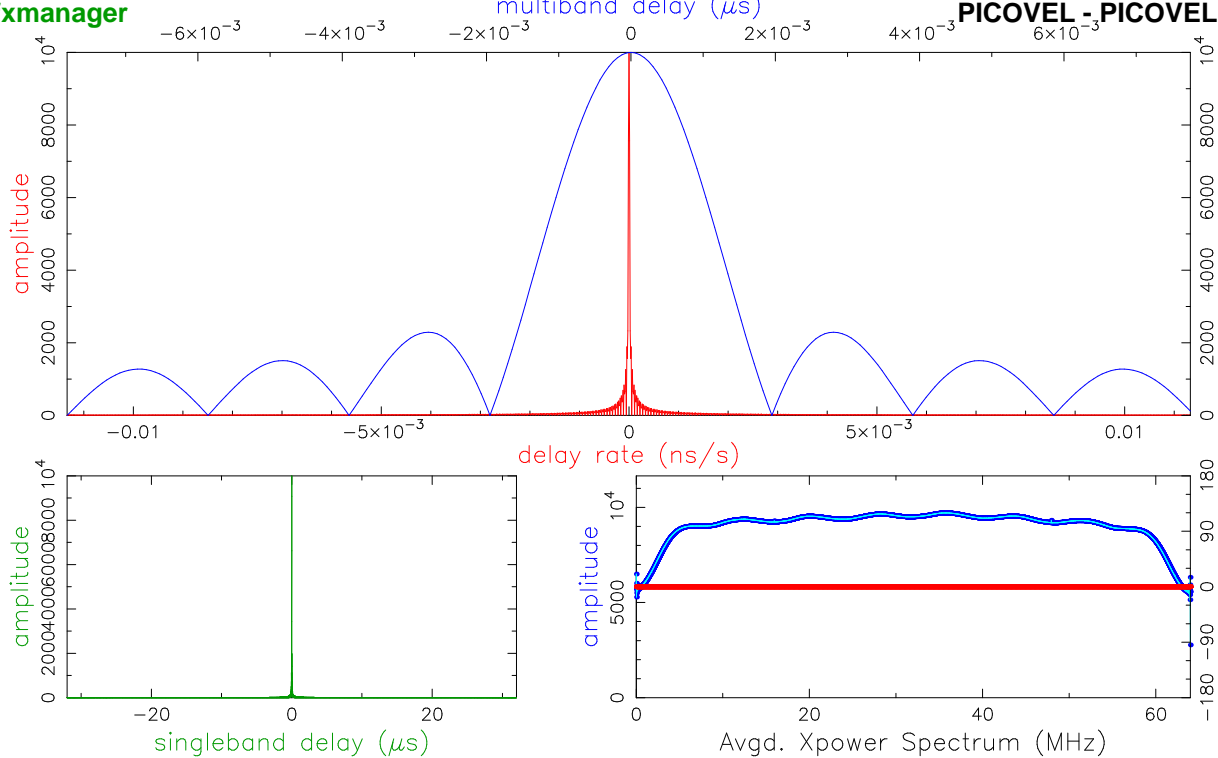


Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

1156+295.1VK7WS, No0021, PP

PICOVEL - PICOVEL, fgroup W, pol LL

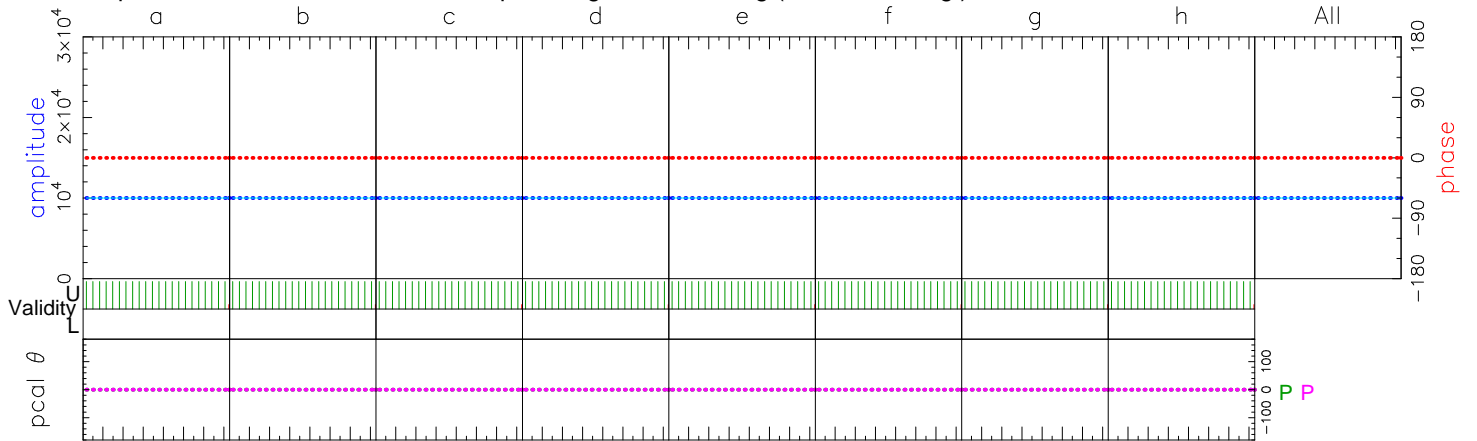


Fringe quality 9

SNR 560312.4  
 Int time 419.822  
 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) 86140.0000  
 AP (sec) 0.512

Exp. f212a  
 Exper # 16383  
 Yr:day 2021:274  
 Start 090001.00  
 Stop 090700.84  
 FRT 090331.00  
 Corr/FF/build  
 2021:275:011005  
 2021:275:012121  
 2021:252:122852  
 RA & Dec (J2000) 11h59m31.833912s +29°14'43.826900"

Amp. and Phase vs. time for each freq., 23 segs, 37 APs / seg (18.94 sec / seg.), time ticks 30 sec



|     | 86012.00 | 86076.00 | 86140.00 | 86204.00 | 86268.00 | 86332.00 | 86396.00 | 86460.00 | Freq (MHz) | All     |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|---------|
| U/L | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 8193.0     | 8193.0  |
| P   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 10000.0    | 10000.0 |
| P:P | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0        | 0:0     |
| P   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 10000.0    | 10000.0 |
| P   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 8193.0     | 8193.0  |
| P   | W00UL    | W01UL    | W02UL    | W03UL    | W04UL    | W05UL    | W06UL    | W07UL    |            |         |

Group delay (usec)(sbd) 0.0000000000E+00 Apriori delay (usec) 0.0000000000E+00 Resid mbdelay (usec) 0.00000E+00 +/- 1.9E-09  
 Sband delay (usec) 0.0000000000E+00 Apriori clock (usec) 0.0000000E+00 Resid sbdelay (usec) 0.00000E+00 +/- 1.5E-08  
 Phase delay (usec) 0.0000000000E+00 Apriori clockrate (us/s) 0.0000000E+00 Resid phdelay (usec) 0.00000E+00 +/- 6.6E-12  
 Delay rate (us/s) 0.0000000000E+00 Apriori rate (us/s) 0.0000000000E+00 Resid rate (us/s) 0.00000E+00 +/- 2.7E-14  
 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 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 0.0 0.0 Search (2048X32) 10000.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -32.000 32.000  
 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 Sample rate(MISamp/s): 128 dr window (ns/s) -0.011 0.011  
 amp/frq (%) 0.0 0.0 Inc. frq. avg. 10000.000 Data rate(Mb/s): 2048 nlags: 8192 t\_cohere infinite ion window (TEC) 0.00 0.00

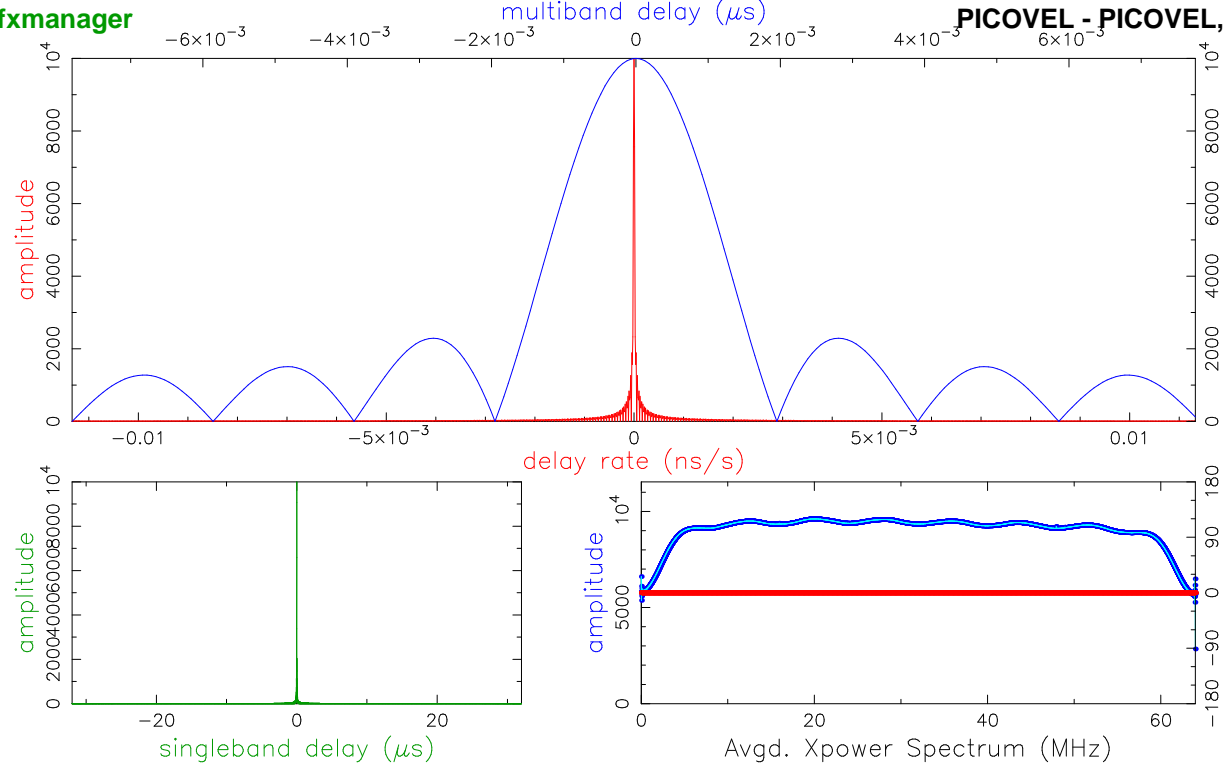
P: az 92.7 el 57.2 pa -65.9 P: az 92.7 el 57.2 pa -65.9 u,v (fr/asec) 0.000 0.000 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/f212a/FRINGE/1234/No0021/PP..1VK7WS Output file: /Exps/f212a/FRINGE/1234/No0021/PP.W.2.1VK7WS

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

1156+295.1VK7WS, No0021, PP

PICOVEL - PICOVEL, fgroup W, pol RR

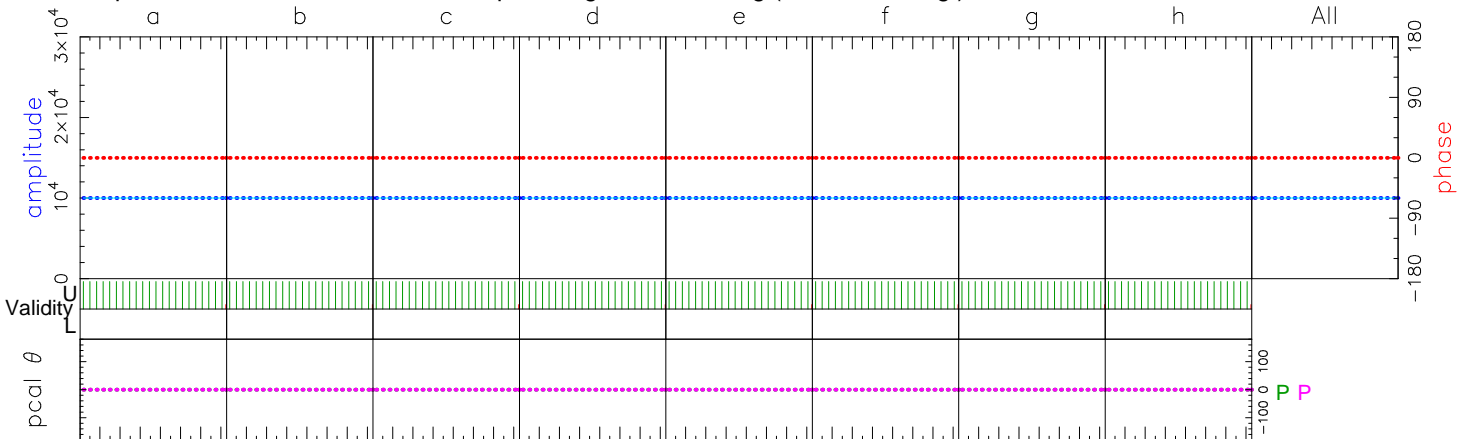


Fringe quality 9

SNR 560312.4  
 Int time 419.822  
 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) 86140.0000  
 AP (sec) 0.512

Exp. f212a  
 Exper # 16383  
 Yr:day 2021:274  
 Start 090001.00  
 Stop 090700.84  
 FRT 090331.00  
 Corr/FF/build  
 2021:275:011005  
 2021:275:012249  
 2021:252:122852  
 RA & Dec (J2000) 11h59m31.833912s +29°14'43.826900"

Amp. and Phase vs. time for each freq., 23 segs, 37 APs / seg (18.94 sec / seg.), time ticks 30 sec



|     | 86012.00 | 86076.00 | 86140.00 | 86204.00 | 86268.00 | 86332.00 | 86396.00 | 86460.00 | Freq (MHz) | All     |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|------------|---------|
| U/L | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    | 820/0    |            |         |
| P   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | Ampl.      | 10000.0 |
| P:P | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | Sbd box    | 8193.0  |
| P:P | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | 0:0      | APs used   |         |
| P   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC freqs   |         |
| P   | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | 1000     | PC phase   |         |
| P   | W00UR    | W01UR    | W02UR    | W03UR    | W04UR    | W05UR    | W06UR    | W07UR    | Mani PC    |         |
| P   | W00UR    | W01UR    | W02UR    | W03UR    | W04UR    | W05UR    | W06UR    | W07UR    | PC amp     |         |
|     |          |          |          |          |          |          |          |          | Chan ids   |         |
|     |          |          |          |          |          |          |          |          | Tracks     |         |
|     |          |          |          |          |          |          |          |          | Chan ids   |         |
|     |          |          |          |          |          |          |          |          | Tracks     |         |

Group delay (usec)(sbd) 0.0000000000E+00 Apriori delay (usec) 0.0000000000E+00 Resid mbdelay (usec) 0.00000E+00 +/- 1.9E-09  
 Sband delay (usec) 0.0000000000E+00 Apriori clock (usec) 0.0000000E+00 Resid sbdelay (usec) 0.00000E+00 +/- 1.5E-08  
 Phase delay (usec) 0.0000000000E+00 Apriori clockrate (us/s) 0.0000000E+00 Resid phdelay (usec) 0.00000E+00 +/- 6.6E-12  
 Delay rate (us/s) 0.0000000000E+00 Apriori rate (us/s) 0.0000000000E+00 Resid rate (us/s) 0.00000E+00 +/- 2.7E-14  
 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 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 0.0 0.0 Search (2048X32) 10000.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -32.000 32.000  
 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 Sample rate(MISamp/s): 128 dr window (ns/s) -0.011 0.011  
 amp/frq (%) 0.0 0.0 Inc. frq. avg. 10000.000 Data rate(Mb/s): 2048 nlags: 8192 t\_cohere infinite ion window (TEC) 0.00 0.00

P: az 92.7 el 57.2 pa -65.9 P: az 92.7 el 57.2 pa -65.9 u,v (fr/asec) 0.000 0.000 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/f212a/FRINGE/1234/No0021/PP..1VK7WS Output file: /Exps/f212a/FRINGE/1234/No0021/PP.W.8.1VK7WS