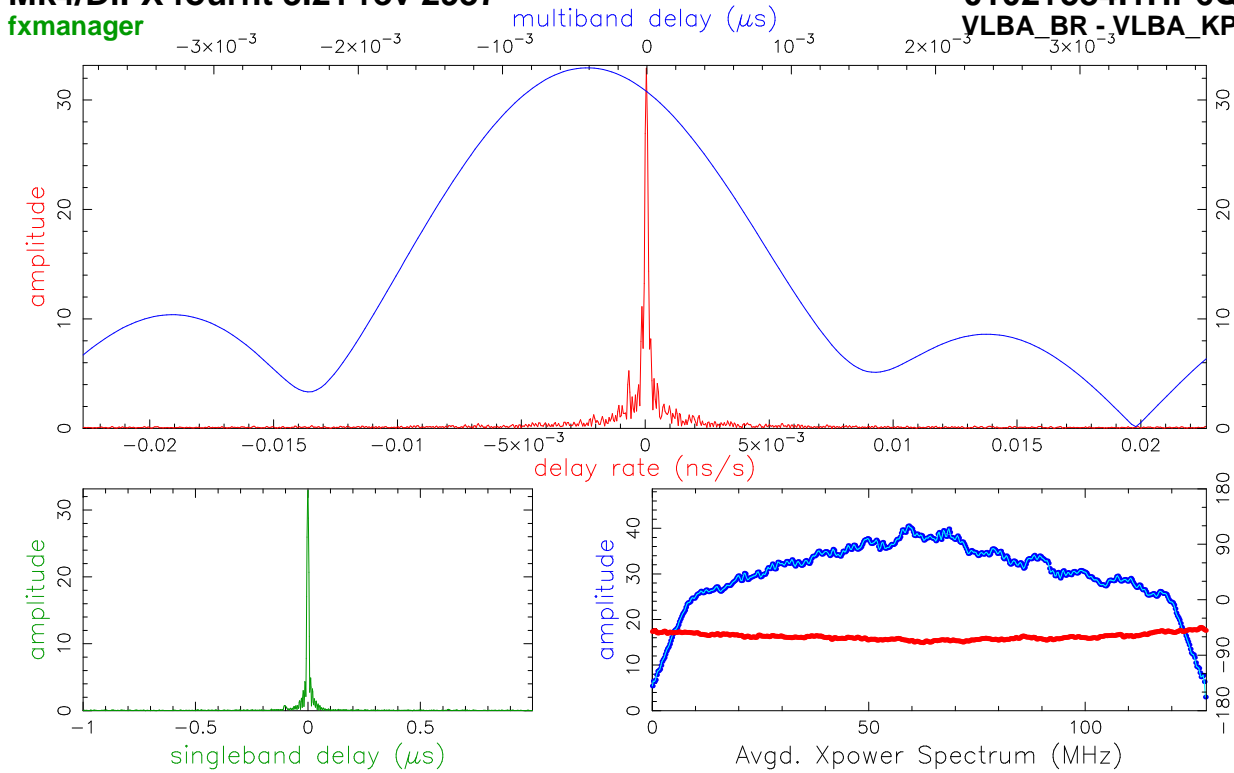


Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, bk

VLBA_BR - VLBA_KP, fgroup Q, pol LL

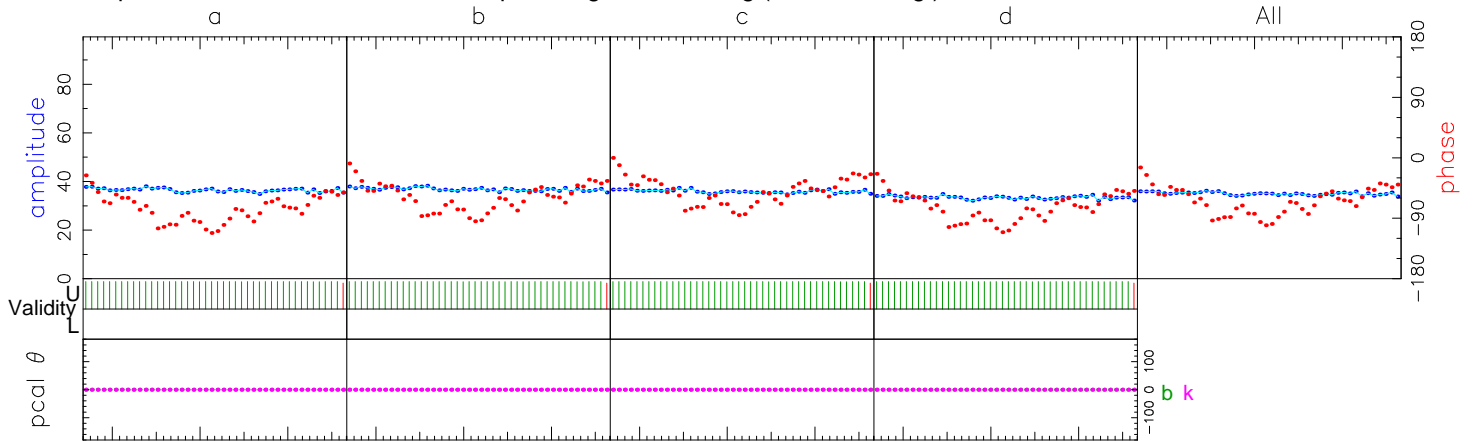


Fringe quality 7

SNR 1216.2
 Int time 179.799
 Amp 33.168
 Phase -64.0
 PFD 0.0e+00
 Delays (us)
 SBD -0.000585
 MBD -0.000449
 Fringe rate (Hz)
 0.002445
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512

Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163101
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-----|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| b | 1000 | 1000 | 1000 | 1000 | APs used | |
| k | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| b:k | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| b:k | 0:0 | 0:0 | 0:0 | 0:0 | Manl PC | |
| b | 1000 | 1000 | 1000 | 1000 | PC amp | |
| k | 1000 | 1000 | 1000 | 1000 | | |
| b | Q00UL | Q01UL | Q02UL | Q03UL | Chan ids | |
| k | Q00UL | Q01UL | Q02UL | Q03UL | Tracks | |

| | 1.58069461263E+03 | Apriori delay (usec) | 1.58069506212E+03 | Resid mbdelay (usec) | -4.49492E-04 | +/- 9.1E-07 |
|-------------------------|-------------------|--------------------------|-------------------|----------------------|--------------|-------------|
| Group delay (usec)(sbd) | 1.58069447762E+03 | Apriori clock (usec) | -2.0373087E+00 | Resid sbdelay (usec) | -5.84500E-04 | +/- 3.5E-06 |
| Sband delay (usec) | 1.58069505799E+03 | Apriori clockrate (us/s) | -9.9999991E-08 | Resid phdelay (usec) | -4.13046E-06 | +/- 6.1E-09 |
| Phase delay (usec) | 2.02223687042E-02 | Apriori rate (us/s) | 2.02223118921E-02 | Resid rate (us/s) | 5.68120E-08 | +/- 5.8E-11 |
| Delay rate (us/s) | | Apriori accel (us/s/s) | 1.22982474377E-05 | Resid phase (deg) | -64.0 | +/- 0.1 |
| Total phase (deg) | 106.5 | | | | | |

| | RMS | Theor. | Amplitude | 33.168 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
|--------------|------|--------|------------------|------------------|--|---|
| ph/seg (deg) | 20.1 | 0.3 | Search (1024X16) | 32.360 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| amp/seg (%) | 5.9 | 0.5 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled mb window (us) -0.004 0.004 |
| ph/frq (deg) | 15.3 | 0.1 | Inc. seg. avg. | 35.032 | Sample rate(MISamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| amp/frq (%) | 4.0 | 0.2 | Inc. frq. avg. | 33.523 | Data rate(Mb/s): 2048 | nlags: 512 t_cohere infinite ion window (TEC) 0.00 0.00 |

b: az 47.6 el 70.3 pa -109.3 k: az 21.3 el 60.1 pa -144.4 u,v (fr/asec) -103.621 1286.486 simultaneous interpolator

Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/bk..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/bk.Q.17.1HP6Q8

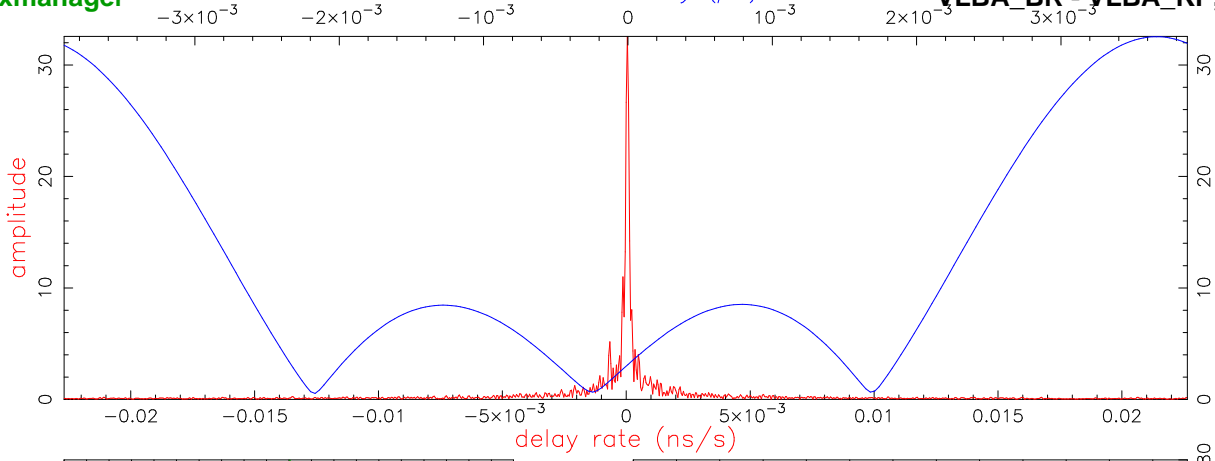
Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

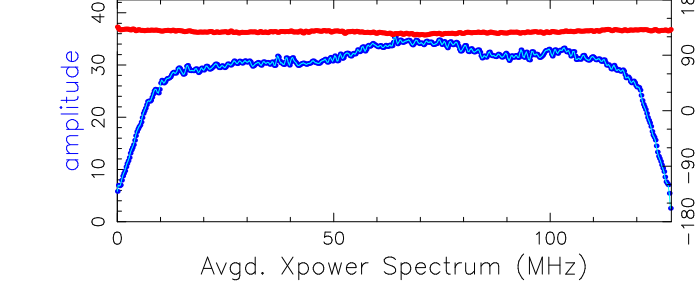
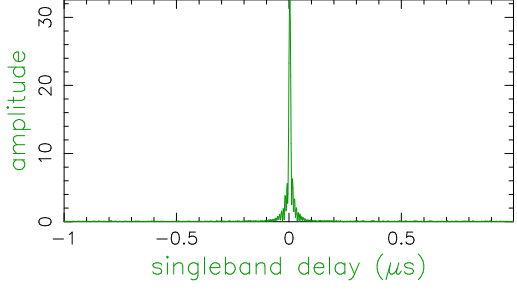
0102+584.1HP6Q8, No0090, bk

VLBA_BR - VLBA_KP, fgroup Q, pol RR

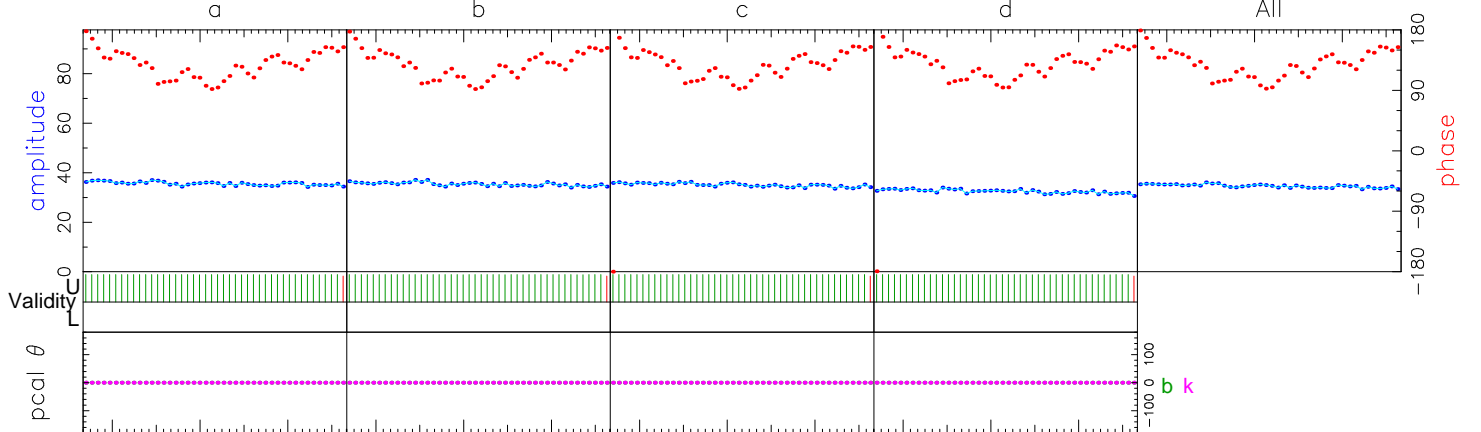
multiband delay (μ s)



Fringe quality 8
 SNR 1194.4
 Int time 179.799
 Amp 32.572
 Phase 129.1
 PFD 0.0e+00
 Delays (us)
 SBD 0.003705
 MBD 0.003652
 Fringe rate (Hz) 0.002432
 Ion TEC 0.000
 Ref freq (MHz) 43040.0000
 AP (sec) 0.512
 Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163104
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"



Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-----|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| b | 1000 | 1000 | 1000 | 1000 | APs used | |
| k | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| b:k | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| b:k | 0:0 | 0:0 | 0:0 | 0:0 | Manl PC | |
| b | 1000 | 1000 | 1000 | 1000 | PC amp | |
| k | 1000 | 1000 | 1000 | 1000 | | |
| b | Q00UR | Q01UR | Q02UR | Q03UR | Chan ids | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | Tracks | |

| | | | | | | | |
|-------------------------|-------------------|--------------------------|-------------------|----------------------|-------------|-----|---------|
| Group delay (usec)(sbd) | 1.58069871363E+03 | Apriori delay (usec) | 1.58069506212E+03 | Resid mbdelay (usec) | 3.65151E-03 | +/- | 9.3E-07 |
| Sband delay (usec) | 1.58069876737E+03 | Apriori clock (usec) | -2.0373087E+00 | Resid sbdelay (usec) | 3.70525E-03 | +/- | 3.6E-06 |
| Phase delay (usec) | 1.58069507045E+03 | Apriori clockrate (us/s) | -9.9999991E-08 | Resid phdelay (usec) | 8.33075E-06 | +/- | 6.2E-09 |
| Delay rate (us/s) | 2.02223683979E-02 | Apriori rate (us/s) | 2.02223118921E-02 | Resid rate (us/s) | 5.65057E-08 | +/- | 6.0E-11 |
| Total phase (deg) | 299.6 | Apriori accel (us/s/s) | 1.22982474377E-05 | Resid phase (deg) | 129.1 | +/- | 0.1 |

| | | | | | | |
|------------------------------|------------------------------|---------------|-------------------|----------------------------|--|-------------------------------|
| ph/seg (deg) | RMS 20.2 | Theor. 0.3 | Amplitude | 32.572 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
| amp/seg (%) | 6.7 | 0.6 | Search (1024X16) | 31.322 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| ph/frq (deg) | 0.9 | 0.1 | Inc. seg. avg. | 34.648 | Bits/sample: 2x2 | SampCntNorm: enabled |
| amp/frq (%) | 3.6 | 0.2 | Inc. frq. avg. | 32.544 | Sample rate(MISamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| b: az 47.6 el 70.3 pa -109.3 | k: az 21.3 el 60.1 pa -144.4 | u,v (fr/asec) | -103.621 1286.486 | Data rate(Mb/s): 2048 | nlags: 512 | t_cohere infinite |
| | | | | ion window (TEC) 0.00 0.00 | | |

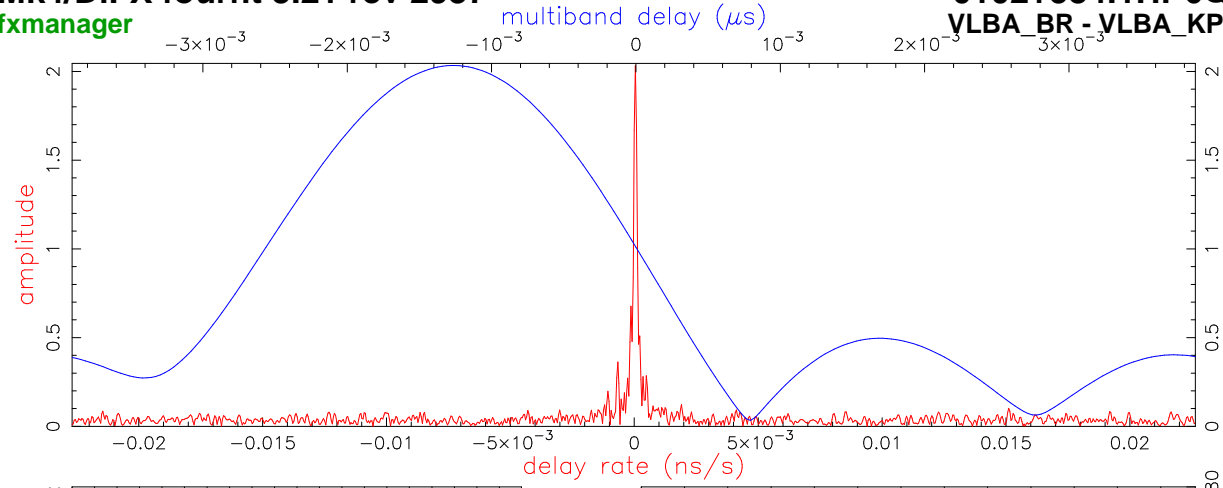
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/bk..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/bk.Q.43.1HP6Q8 simultaneous interpolator

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, bk

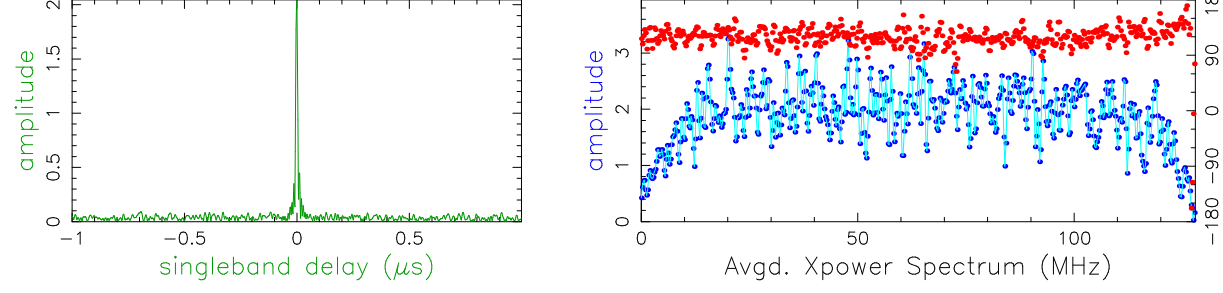
VLBA_BR - VLBA_KP, fgroup Q, pol LR



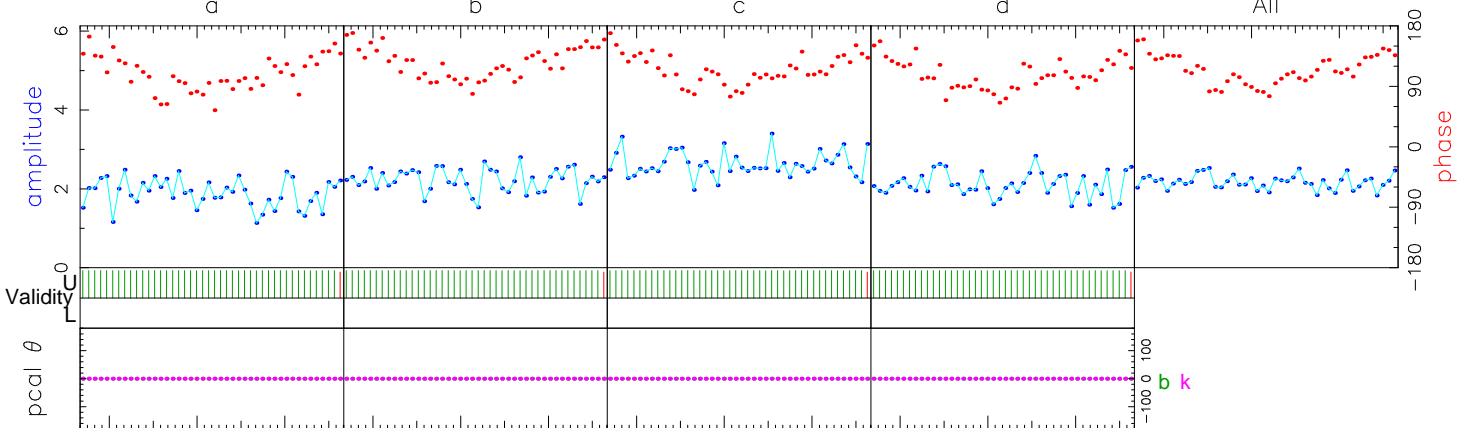
Fringe quality 8

SNR 75.0
 Int time 179.799
 Amp 2.045
 Phase 114.8
 PFD 0.0e+00
 Delays (us)
 SBD -0.001432
 MBD -0.001230
 Fringe rate (Hz) 0.002408
 Ion TEC 0.000
 Ref freq (MHz) 43040.0000
 AP (sec) 0.512

Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163107
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"



Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-----|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| b | 1000 | 1000 | 1000 | 1000 | APs used | |
| k | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| b:k | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| b:k | 0:0 | 0:0 | 0:0 | 0:0 | Manl PC | |
| b | 1000 | 1000 | 1000 | 1000 | PC amp | |
| k | 1000 | 1000 | 1000 | 1000 | | |
| b | Q00UL | Q01UL | Q02UL | Q03UL | Chan ids | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | Tracks | |

| | 1.58069383175E+03 | Apriori delay (usec) | 1.58069506212E+03 | Resid mbdelay (usec) | -1.23037E-03 | +/- 1.5E-05 |
|-------------------------|-------------------|--------------------------|-------------------|----------------------|--------------|-------------|
| Group delay (usec)(sbd) | | | | | | |
| Sband delay (usec) | 1.58069362999E+03 | Apriori clock (usec) | -2.0373087E+00 | Resid sbdelay (usec) | -1.43212E-03 | +/- 5.7E-05 |
| Phase delay (usec) | 1.58069506952E+03 | Apriori clockrate (us/s) | -9.9999991E-08 | Resid phdelay (usec) | 7.40674E-06 | +/- 9.9E-08 |
| Delay rate (us/s) | 2.02223678448E-02 | Apriori rate (us/s) | 2.02223118921E-02 | Resid rate (us/s) | 5.59527E-08 | +/- 9.5E-10 |
| Total phase (deg) | 285.2 | Apriori accel (us/s/s) | 1.22982474377E-05 | Resid phase (deg) | 114.8 | +/- 1.5 |

| | RMS | Theor. | Amplitude | 2.045 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
|--------------|------|--------|------------------|-----------------|--|---|
| ph/seg (deg) | 21.3 | 5.1 | Search (1024X16) | 1.977 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| amp/seg (%) | 10.8 | 8.8 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled mb window (us) -0.004 0.004 |
| ph/frq (deg) | 10.1 | 1.5 | Inc. seg. avg. | 2.168 | Sample rate(MISamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| amp/frq (%) | 13.1 | 2.7 | Inc. frq. avg. | 2.047 | Data rate(Mb/s): 2048 | nlags: 512 t_cohere infinite ion window (TEC) 0.00 0.00 |

b: az 47.6 el 70.3 pa -109.3 k: az 21.3 el 60.1 pa -144.4 u,v (fr/asec) -103.621 1286.486 simultaneous interpolator

Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/bk..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/bk.Q.75.1HP6Q8

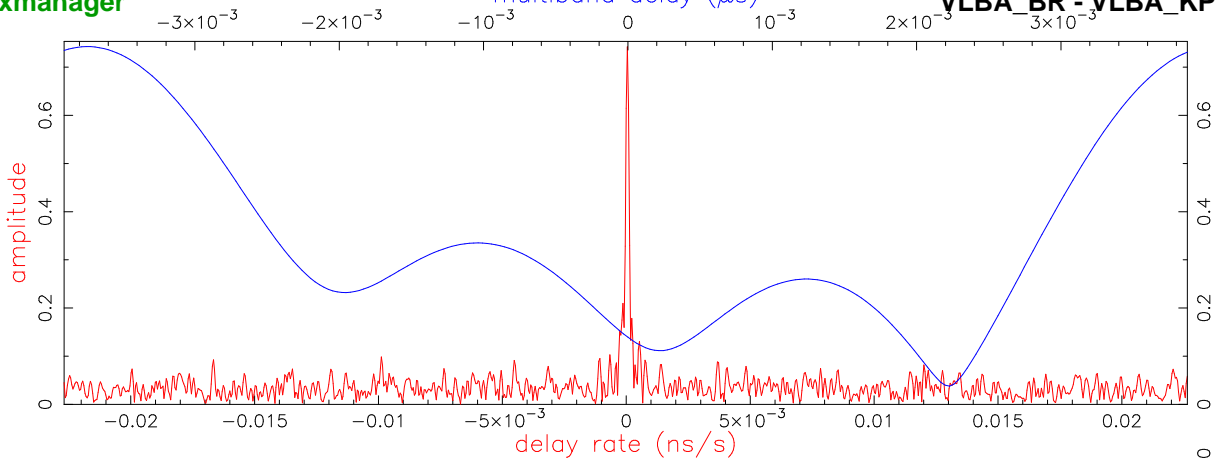
Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, bk

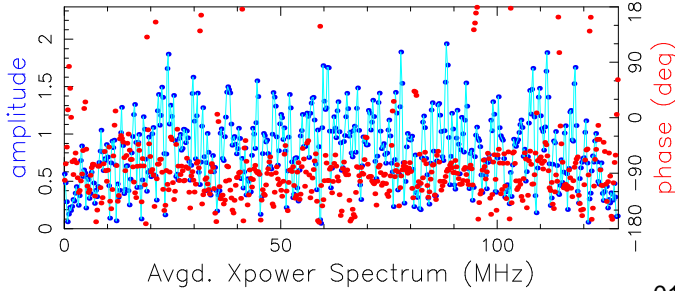
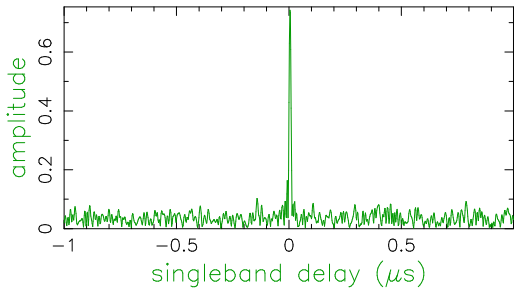
VLBA_BR - VLBA_KP, fgroup Q, pol RL

multiband delay (μ s)



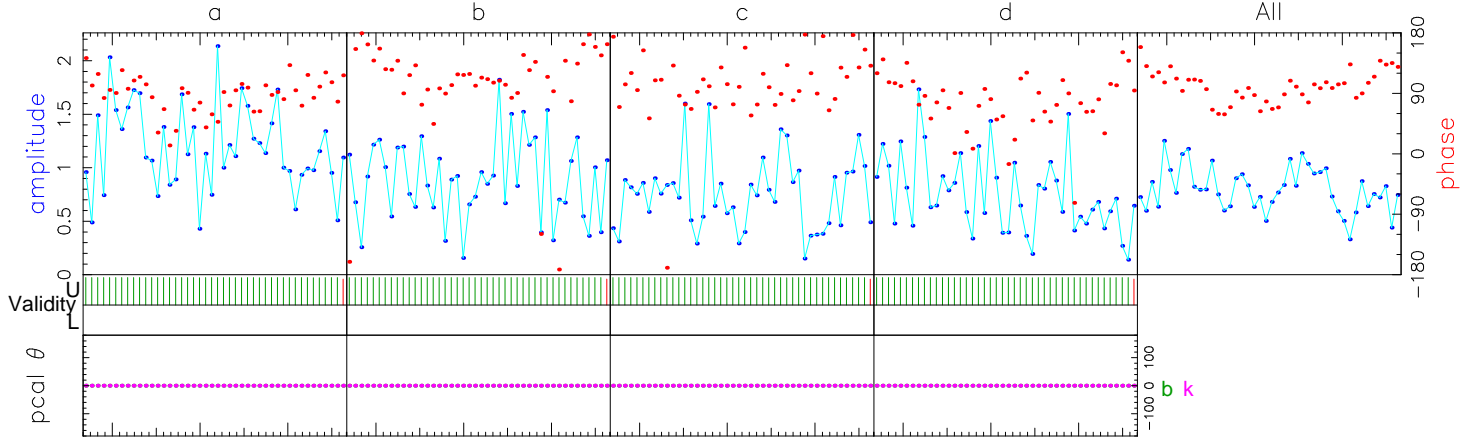
Fringe quality 6

SNR 27.6
 Int time 179.799
 Amp 0.754
 Phase 99.7
 PFD 0.0e+00
 Delays (us)
 SBD 0.004735
 MBD -0.003703
 Fringe rate (Hz)
 0.002389
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512



Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163109
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----------|----------|----------|----------|------------|-------|
| 89.7 | 123.4 | 107.5 | 80.9 | Phase | 99.7 |
| 1.1 | 0.8 | 0.6 | 0.6 | Ampl. | 0.8 |
| 515.7 | 515.4 | 514.7 | 515.7 | Sbd box | 515.4 |
| U/L 352/0 | 352/0 | 352/0 | 352/0 | APs used | |
| b 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k 1000 | 1000 | 1000 | 1000 | PC freqs | |
| b:k 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| b:k 0:0 | 0:0 | 0:0 | 0:0 | ManI PC | |
| b 1000 | 1000 | 1000 | 1000 | PC amp | |
| k 1000 | 1000 | 1000 | 1000 | | |
| b Q00UR | Q01UR | Q02UR | Q03UR | Chan ids | |
| k Q00UL | Q01UL | Q02UL | Q03UL | Tracks | |
| | | | | Chan ids | |
| | | | | Tracks | |

| | | | | | | |
|-------------------------|-------------------|--------------------------|-------------------|----------------------|--------------|-------------|
| Group delay (usec)(sbd) | 1.58069917156E+03 | Apriori delay (usec) | 1.58069506212E+03 | Resid mbdelay (usec) | -3.70305E-03 | +/- 4.0E-05 |
| Sband delay (usec) | 1.58069979699E+03 | Apriori clock (usec) | -2.0373087E+00 | Resid sbdelay (usec) | 4.73488E-03 | +/- 1.6E-04 |
| Phase delay (usec) | 1.58069506855E+03 | Apriori clockrate (us/s) | -9.9999991E-08 | Resid phdelay (usec) | 6.43543E-06 | +/- 2.7E-07 |
| Delay rate (us/s) | 2.02223673995E-02 | Apriori rate (us/s) | 2.02223118921E-02 | Resid rate (us/s) | 5.55074E-08 | +/- 2.6E-09 |
| Total phase (deg) | 270.2 | Apriori accel (us/s/s) | 1.22982474377E-05 | Resid phase (deg) | 99.7 | +/- 4.1 |

| | RMS | Theor. | Amplitude | 0.754 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
|--------------|------|--------|------------------|-----------------|--|---|
| ph/seg (deg) | 23.2 | 13.8 | Search (1024X16) | 0.727 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| amp/seg (%) | 27.4 | 24.0 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled mb window (us) -0.004 0.004 |
| ph/frq (deg) | 23.2 | 4.1 | Inc. seg. avg. | 0.777 | Sample rate(MISamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| amp/frq (%) | 23.9 | 7.2 | Inc. frq. avg. | 0.770 | Data rate(Mb/s): 2048 | nlags: 512 t_cohere infinite ion window (TEC) 0.00 0.00 |

b: az 47.6 el 70.3 pa -109.3 k: az 21.3 el 60.1 pa -144.4 u,v (fr/asec) -103.621 1286.486 simultaneous interpolator

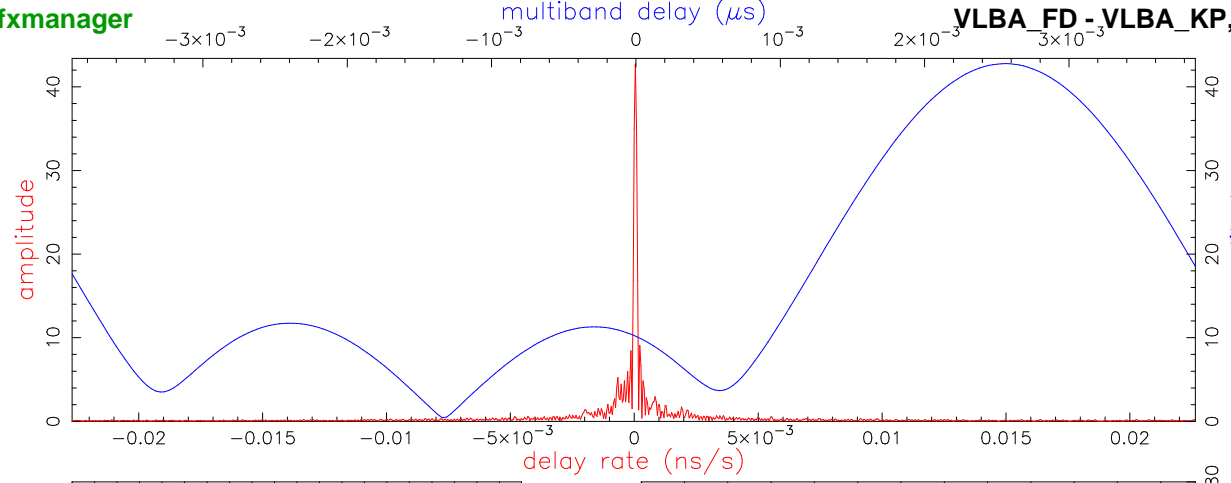
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/bk..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/bk.Q.81.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, fk

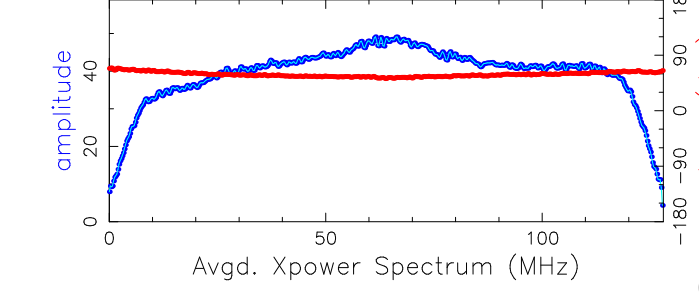
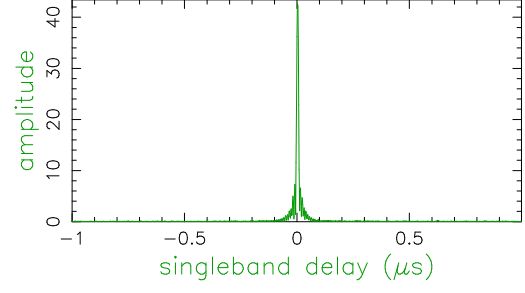
VLBA_FD - VLBA_KP, fgroup Q, pol LL



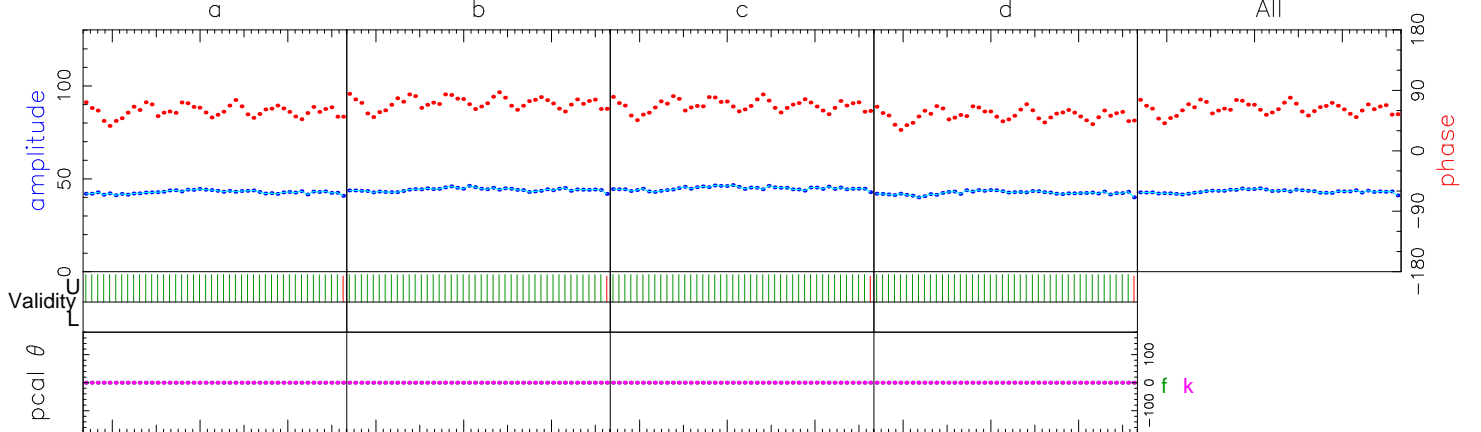
Fringe quality 9

SNR 1591.8
 Int time 179.801
 Amp 43.410
 Phase 62.7
 PFD 0.0e+00
 Delays (us)
 SBD 0.002783
 MBD 0.002606
 Fringe rate (Hz)
 0.001015
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512

Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163101
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"



Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|-------------------------|
| 59.0 | 71.2 | 67.4 | 52.8 | Phase | 62.7 |
| 42.4 | 43.7 | 44.4 | 41.9 | Ampl. | 43.1 |
| 514.7 | 514.5 | 514.2 | 514.3 | Sbd box | 514.4 |
| U/L 352/0 | 352/0 | 352/0 | 352/0 | APs used | |
| f 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k 1000 | 1000 | 1000 | 1000 | PC freqs | |
| f:k 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| f:k 0:0 | 0:0 | 0:0 | 0:0 | ManI PC | |
| f 1000 | 1000 | 1000 | 1000 | PC amp | |
| k 1000 | 1000 | 1000 | 1000 | | |
| f Q00UL | Q01UL | Q02UL | Q03UL | Chan ids | |
| k Q00UL | Q01UL | Q02UL | Q03UL | Tracks | |
| | | | | Chan ids | |
| | | | | Tracks | |
| Group delay (usec)(sbd) | 1.26698141311E+02 | Apriori delay (usec) | 1.26695535646E+02 | Resid mbdelay (usec) | 2.60566E-03 +/- 7.0E-07 |
| Sband delay (usec) | 1.26698319146E+02 | Apriori clock (usec) | 7.5039272E+00 | Resid sbdelay (usec) | 2.78350E-03 +/- 2.7E-06 |
| Phase delay (usec) | 1.26695539696E+02 | Apriori clockrate (us/s) | 2.9999999E-07 | Resid phdelay (usec) | 4.04929E-06 +/- 4.6E-09 |
| Delay rate (us/s) | -8.64906395802E-02 | Apriori rate (us/s) | -8.64906631519E-02 | Resid rate (us/s) | 2.35717E-08 +/- 4.5E-11 |
| Total phase (deg) | 10.3 | Apriori accel (us/s/s) | -2.53003314865E-06 | Resid phase (deg) | 62.7 +/- 0.1 |

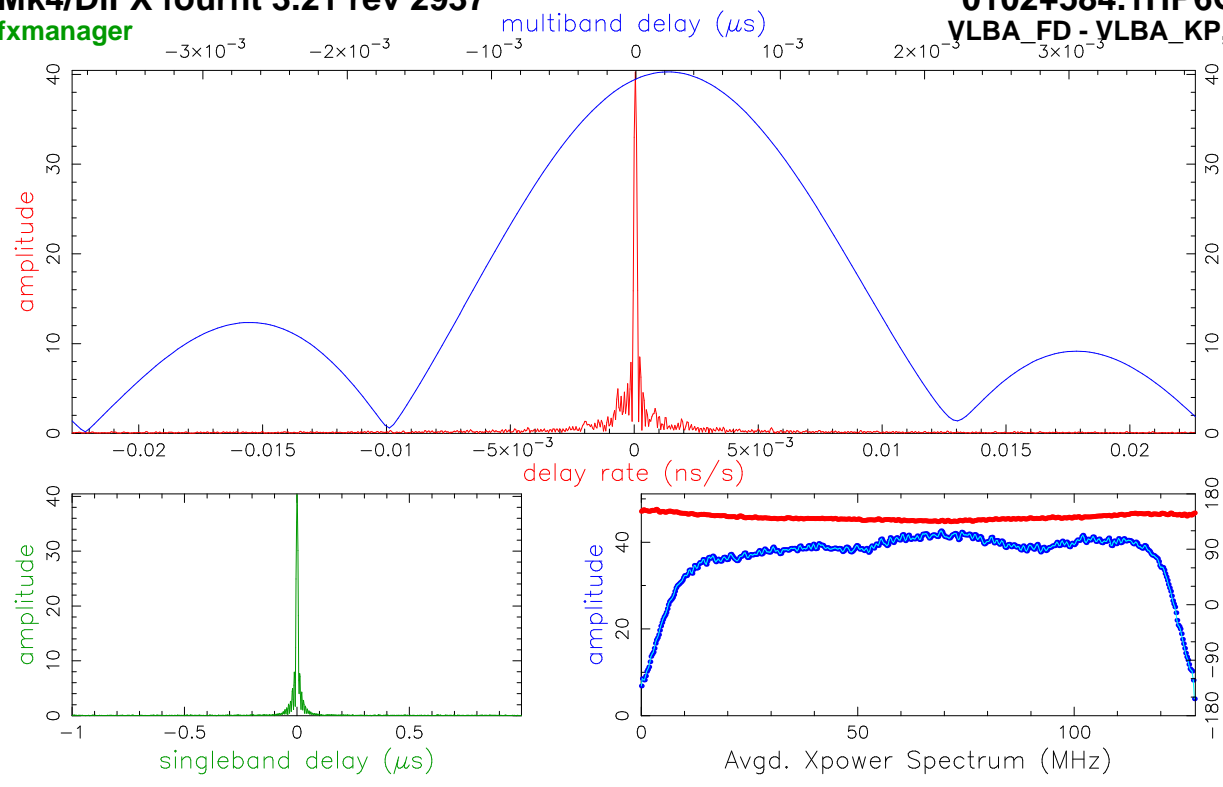
ph/seg (deg) 8.5 0.2 Theor. Amplitude 43.410 +/- 0.027 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5
 amp/seg (%) 2.0 0.4 Search (1024X16) 40.783 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000
 ph/frq (deg) 10.2 0.1 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.004 0.004
 amp/frq (%) 2.4 0.1 Inc. seg. avg. 43.214 Sample rate(MISamp/s): 256 dr window (ns/s) -0.023 0.023
 f: az 13.6 el 60.8 pa -157.8 k: az 21.3 el 60.1 pa -144.4 u,v (fr/asec) 472.289 -210.939 Data rate(Mb/s): 2048 nlags: 512 t_cohere infinite ion window (TEC) 0.00 0.00
 Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/fk..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/fk.Q.13.1HP6Q8 simultaneous interpolator

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, fk

VLBA_FD - VLBA_KP, fgroup Q, pol RR

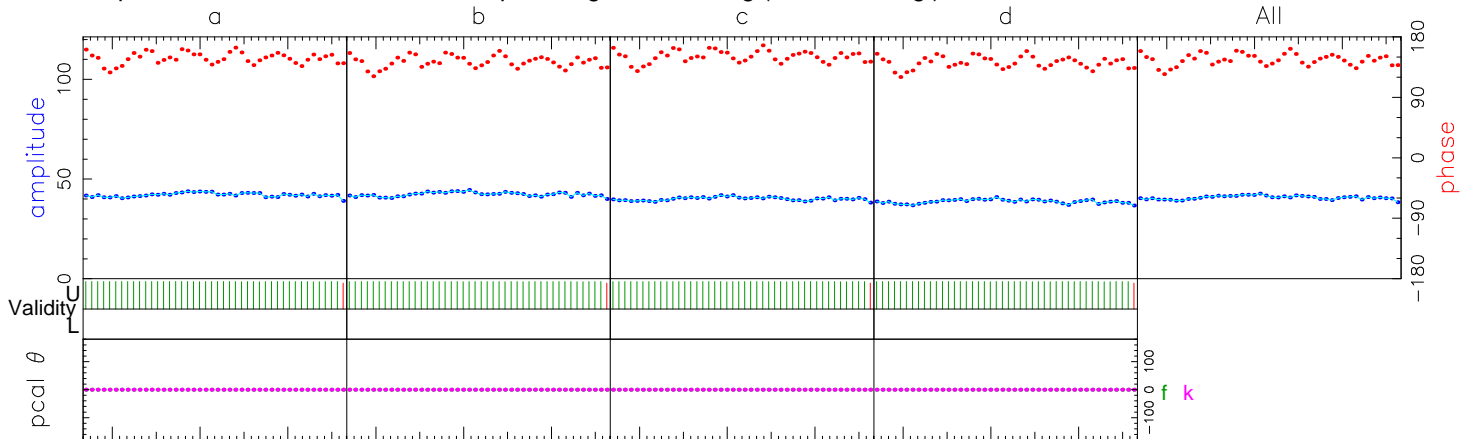


Fringe quality 9

SNR 1483.2
 Int time 179.801
 Amp 40.450
 Phase 145.9
 PFD 0.0e+00
 Delays (us)
 SBD 0.000435
 MBD 0.000247
 Fringe rate (Hz) 0.001021
 Ion TEC 0.000
 Ref freq (MHz) 43040.0000
 AP (sec) 0.512

Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163103
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



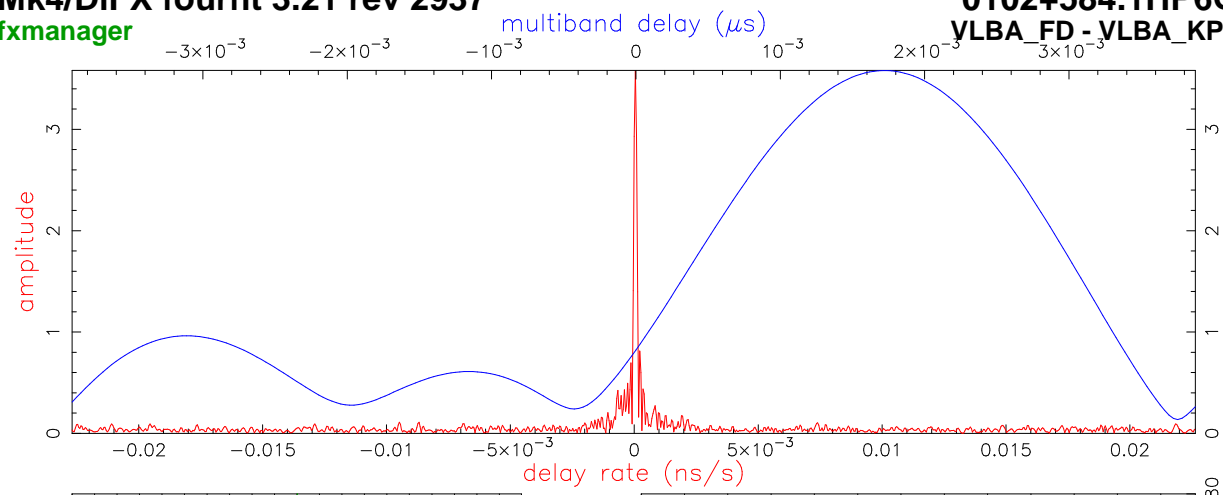
| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-----|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| f | 1000 | 1000 | 1000 | 1000 | APs used | |
| k | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| f:k | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| f:k | 0:0 | 0:0 | 0:0 | 0:0 | ManI PC | |
| f | 1000 | 1000 | 1000 | 1000 | PC amp | |
| k | 1000 | 1000 | 1000 | 1000 | | |
| f | Q00UR | Q01UR | Q02UR | Q03UR | Chan ids | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | Tracks | |

| | 1.26695783061E+02 | Apriori delay (usec) | 1.26695535646E+02 | Resid mbdelay (usec) | 2.47415E-04 | +/- 7.5E-07 |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|-------------|-------------|
| Group delay (usec)(sbd) | | | | | | |
| Sband delay (usec) | 1.26695971021E+02 | Apriori clock (usec) | 7.5039272E+07 | Resid sbdelay (usec) | 4.35375E-04 | +/- 2.9E-06 |
| Phase delay (usec) | 1.26695545061E+02 | Apriori clockrate (us/s) | 2.9999999E-07 | Resid phdelay (usec) | 9.41451E-06 | +/- 5.0E-09 |
| Delay rate (us/s) | -8.64906394242E-02 | Apriori rate (us/s) | -8.64906631519E-02 | Resid rate (us/s) | 2.37277E-08 | +/- 4.8E-11 |
| Total phase (deg) | 93.4 | Apriori accel (us/s/s) | -2.53003314865E-06 | Resid phase (deg) | 145.9 | +/- 0.1 |

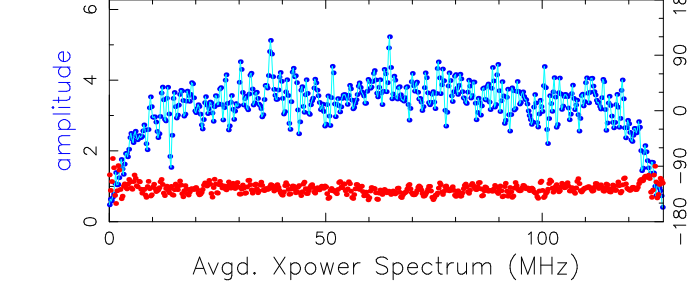
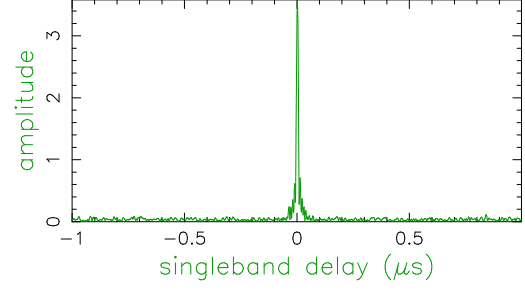
| | RMS | Theor. | Amplitude | 40.450 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
|--------------|-----|--------|------------------|------------------|--|---|
| ph/seg (deg) | 8.5 | 0.3 | Search (1024X16) | 37.887 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| amp/seg (%) | 2.3 | 0.4 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled mb window (us) -0.004 0.004 |
| ph/frq (deg) | 5.3 | 0.1 | Inc. seg. avg. | 40.719 | Sample rate(MISamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| amp/frq (%) | 3.6 | 0.1 | Inc. frq. avg. | 40.357 | Data rate(Mb/s): 2048 | nlags: 512 t_cohere infinite ion window (TEC) 0.00 0.00 |

f: az 13.6 el 60.8 pa -157.8 k: az 21.3 el 60.1 pa -144.4 u,v (fr/asec) 472.289 -210.939 simultaneous interpolator

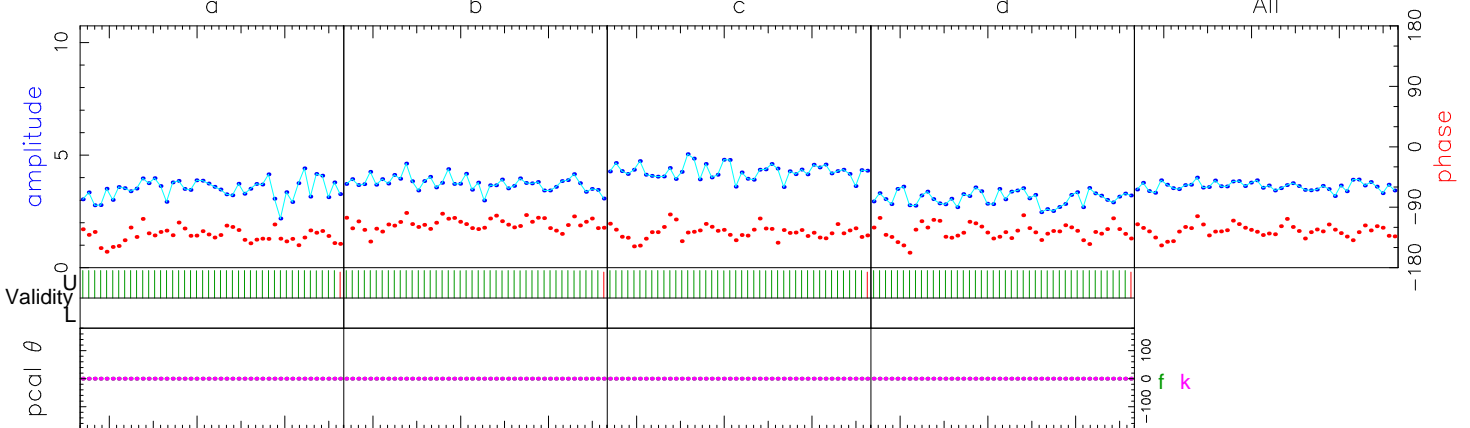
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/fk..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/fk.Q.33.1HP6Q8



Fringe quality 9
SNR 131.3
Int time 179.801
Amp 3.582
Phase -124.9
PFD 0.0e+00
Delays (us)
SBD 0.001810
MBD 0.001712
Fringe rate (Hz) 0.000965
Ion TEC 0.000
Ref freq (MHz) 43040.0000
AP (sec) 0.512
Exp. c202a
Exper # 16383
Yr:day 2020:283
Start 055640.00
Stop 055940.22
FRT 055810.00
Corr/FF/build
2021:005:135111
2021:010:163105
2020:247:085004
RA & Dec (J2000)
01h02m45.762375s
+58°24'11.136621"



Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



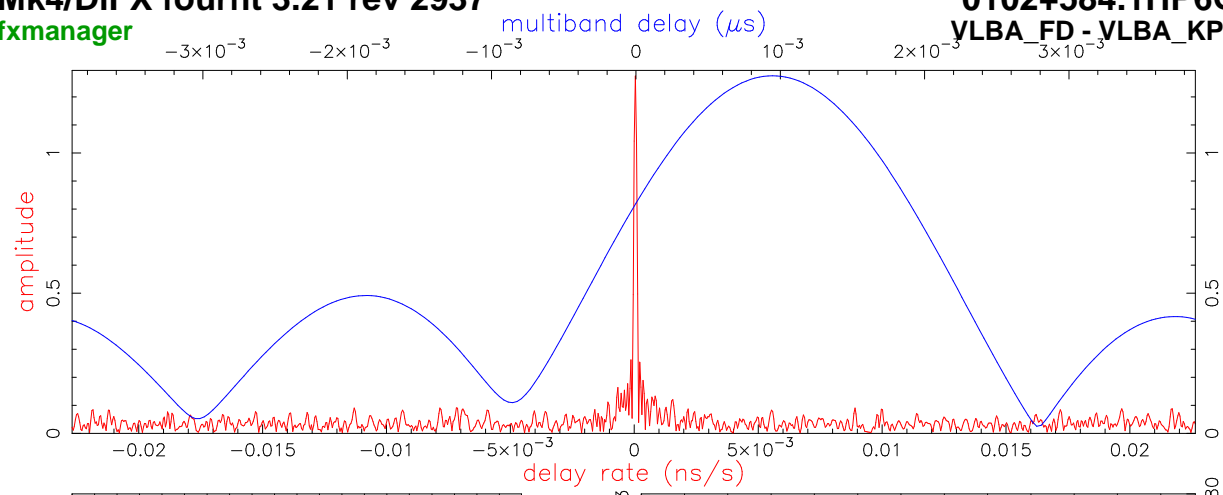
| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-----|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| f | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| f:k | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| f:k | 0:0 | 0:0 | 0:0 | 0:0 | ManI PC | |
| f | 1000 | 1000 | 1000 | 1000 | PC amp | |
| k | 1000 | 1000 | 1000 | 1000 | | |
| f | Q00UL | Q01UL | Q02UL | Q03UL | Chan ids | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | Tracks | |

| | 1.26697247561E+02 | Apriori delay (usec) | 1.26695535646E+02 | Resid mbdelay (usec) | 1.71191E-03 | +/- 8.5E-06 |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-------------|
| Group delay (usec)(sbd) | | | | | | |
| Sband delay (usec) | 1.26697345646E+02 | Apriori clock (usec) | 7.5039272E+00 | Resid sbdelay (usec) | 1.81000E-03 | +/- 3.3E-05 |
| Phase delay (usec) | 1.26695527584E+02 | Apriori clockrate (us/s) | 2.9999999E-07 | Resid phdelay (usec) | -8.06187E-06 | +/- 5.6E-08 |
| Delay rate (us/s) | -8.64906407317E-02 | Apriori rate (us/s) | -8.64906631519E-02 | Resid rate (us/s) | 2.24202E-08 | +/- 5.4E-10 |
| Total phase (deg) | 182.6 | Apriori accel (us/s/s) | -2.53003314865E-06 | Resid phase (deg) | -124.9 | +/- 0.9 |

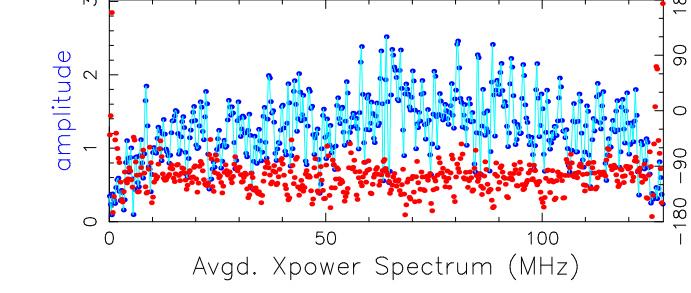
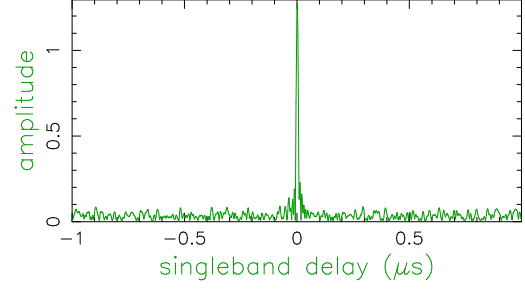
| | RMS | Theor. | Amplitude | 3.582 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
|--------------|------|--------|------------------|-----------------|--|---|
| ph/seg (deg) | 8.9 | 2.9 | Search (1024X16) | 3.343 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| amp/seg (%) | 5.2 | 5.1 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled mb window (us) -0.004 0.004 |
| ph/frq (deg) | 8.9 | 0.9 | Inc. seg. avg. | 3.620 | Sample rate(MISamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| amp/frq (%) | 12.1 | 1.5 | Inc. frq. avg. | 3.602 | Data rate(Mb/s): 2048 | nlags: 512 t_cohere infinite ion window (TEC) 0.00 0.00 |

f: az 13.6 el 60.8 pa -157.8 k: az 21.3 el 60.1 pa -144.4 u,v (fr/asec) 472.289 -210.939 simultaneous interpolator

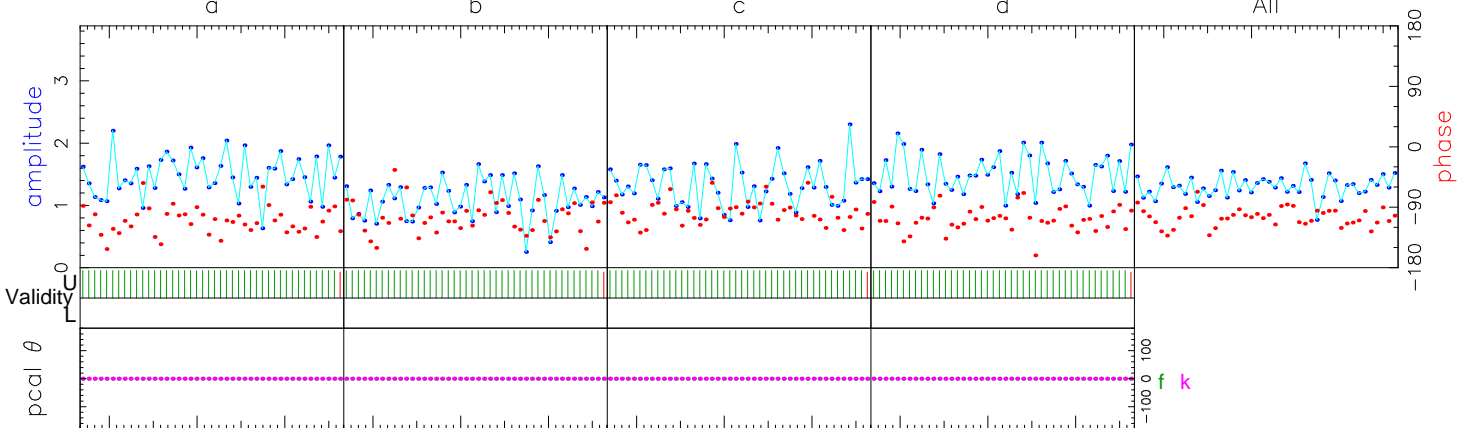
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/fk..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/fk.Q.57.1HP6Q8



Fringe quality 9
SNR 47.5
Int time 179.801
Amp 1.295
Phase -104.7
PFD 0.0e+00
Delays (us)
SBD 0.001108
MBD 0.000907
Fringe rate (Hz) 0.001065
Ion TEC 0.000
Ref freq (MHz) 43040.0000
AP (sec) 0.512
Exp. c202a
Exper # 16383
Yr:day 2020:283
Start 055640.00
Stop 055940.22
FRT 055810.00
Corr/FF/build
2021:005:135111
2021:010:163107
2020:247:085004
RA & Dec (J2000)
01h02m45.762375s
+58°24'11.136621"



Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----------|----------|----------|----------|------------|--------|
| -110.8 | -103.4 | -96.6 | -106.9 | Phase | -104.7 |
| 1.4 | 1.0 | 1.3 | 1.4 | Ampl. | 1.3 |
| 514.1 | 513.4 | 513.6 | 513.1 | Sbd box | 513.6 |
| U/L 352/0 | 352/0 | 352/0 | 352/0 | APs used | |
| f 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k 1000 | 1000 | 1000 | 1000 | PC freqs | |
| f:k 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| f:k 0:0 | 0:0 | 0:0 | 0:0 | ManI PC | |
| f 1000 | 1000 | 1000 | 1000 | PC amp | |
| k 1000 | 1000 | 1000 | 1000 | | |
| f Q00UR | Q01UR | Q02UR | Q03UR | Chan ids | |
| k Q00UL | Q01UL | Q02UL | Q03UL | Tracks | |
| | | | | Chan ids | |
| | | | | Tracks | |

| | | | | | | | |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec)(sbd) | 1.26696442186E+02 | Apriori delay (usec) | 1.26695535646E+02 | Resid mbdelay (usec) | 9.06540E-04 | +/- | 2.3E-05 |
| Sband delay (usec) | 1.26696643771E+02 | Apriori clock (usec) | 7.5039272E+00 | Resid sbdelay (usec) | 1.10812E-03 | +/- | 9.1E-05 |
| Phase delay (usec) | 1.26695528887E+02 | Apriori clockrate (us/s) | 2.9999999E-07 | Resid phdelay (usec) | -6.75933E-06 | +/- | 1.6E-07 |
| Delay rate (us/s) | -8.64906384145E-02 | Apriori rate (us/s) | -8.64906631519E-02 | Resid rate (us/s) | 2.47374E-08 | +/- | 1.5E-09 |
| Total phase (deg) | 202.8 | Apriori accel (us/s/s) | -2.53003314865E-06 | Resid phase (deg) | -104.7 | +/- | 2.4 |

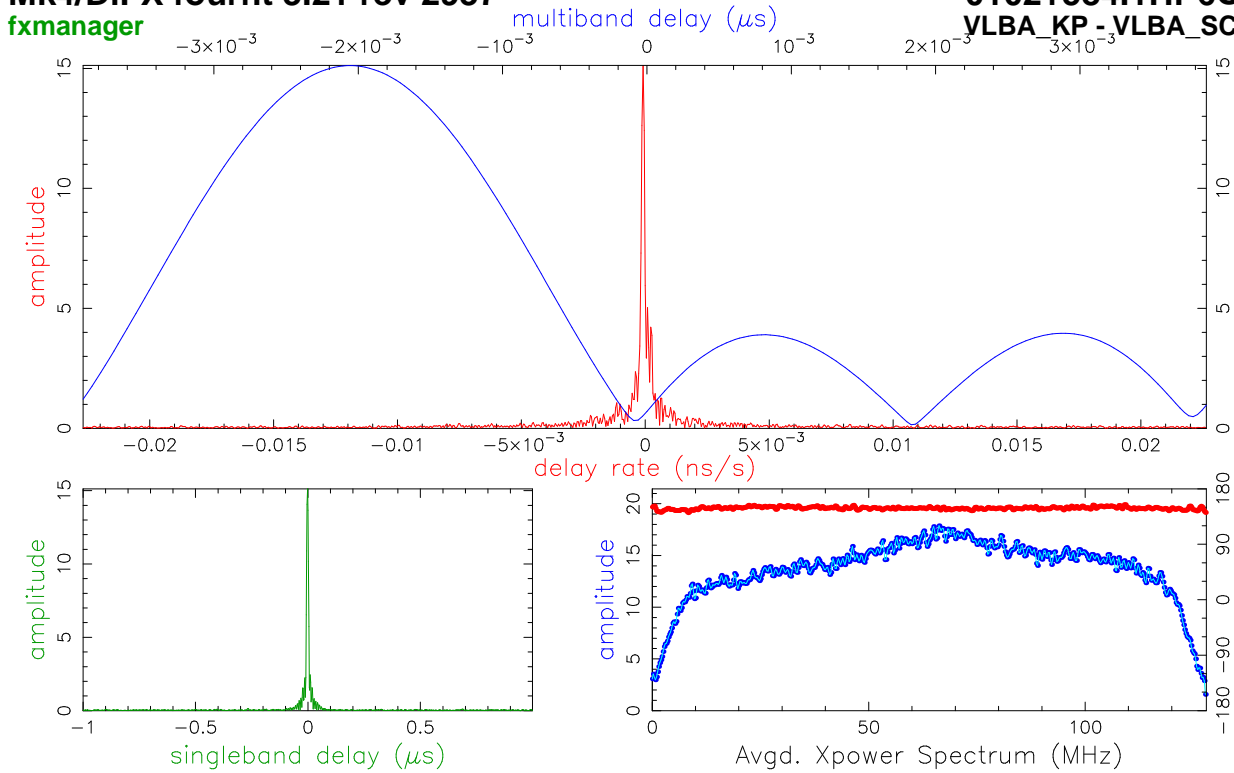
| | | | | | | | |
|------------------------------|------|------------------------------|------|------------------|------------------|--|-------------------------------|
| ph/seg (deg) | 13.6 | Theor. | 8.0 | Amplitude | 1.295 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
| amp/seg (%) | 13.1 | | 14.0 | Search (1024X16) | 1.226 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| ph/frq (deg) | 7.4 | | 2.4 | Inc. seg. avg. | 1.297 | Bits/sample: 2x2 | SampCntNorm: enabled |
| amp/frq (%) | 13.0 | | 4.2 | Inc. frq. avg. | 1.279 | Sample rate(MISamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| f: az 13.6 el 60.8 pa -157.8 | | k: az 21.3 el 60.1 pa -144.4 | | u, v (fr/asec) | 472.289 -210.939 | Data rate(Mb/s): 2048 | nlags: 512 |
| | | | | | | t_cohere infinite | ion window (TEC) 0.00 0.00 |

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, kc

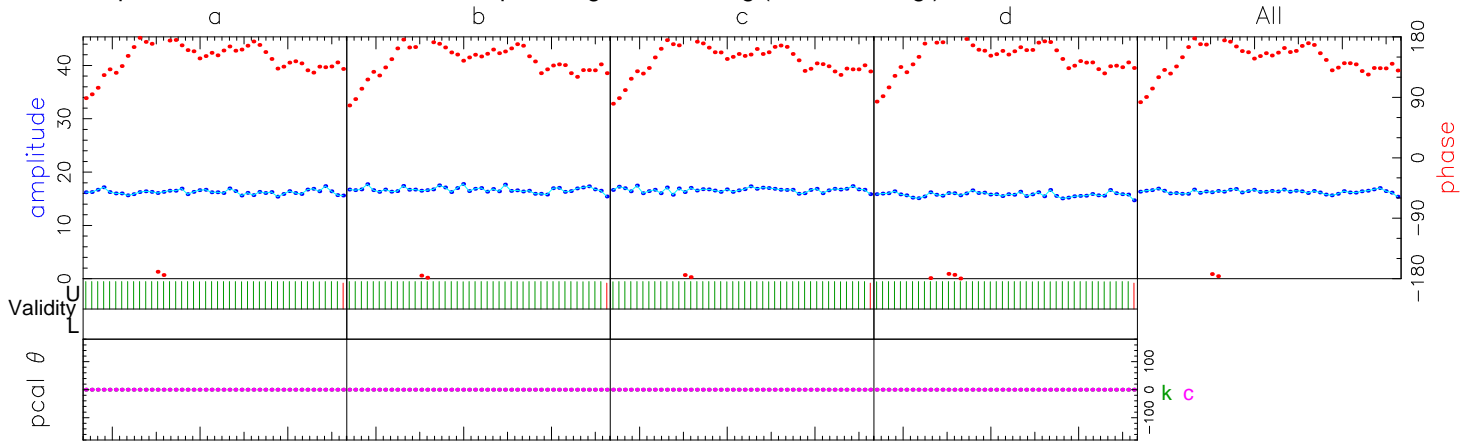
VLBA_KP - VLBA_SC, fgroup Q, pol LL



Fringe quality 8

SNR 554.6
 Int time 179.798
 Amp 15.125
 Phase 147.6
 PFD 0.0e+00
 Delays (us)
 SBD -0.002118
 MBD -0.002066
 Fringe rate (Hz)
 -0.004324
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512
 Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163101
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-----|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| k | 1000 | 1000 | 1000 | 1000 | APs used | |
| c | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k:c | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| k:c | 0:0 | 0:0 | 0:0 | 0:0 | Manl PC | |
| k | 1000 | 1000 | 1000 | 1000 | PC amp | |
| c | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UL | Q01UL | Q02UL | Q03UL | Chan ids | |
| c | Q00UL | Q01UL | Q02UL | Q03UL | Tracks | |

| | 3.51727788698E+03 | Apriori delay (usec) | 3.51727995347E+03 | Resid mbdelay (usec) | -2.06649E-03 | +/- 2.0E-06 |
|-------------------------|-------------------|--------------------------|-------------------|----------------------|--------------|-------------|
| Group delay (usec)(sbd) | 3.51727788698E+03 | Apriori clock (usec) | -8.1192360E+00 | Resid sbdelay (usec) | -2.11788E-03 | +/- 7.8E-06 |
| Sband delay (usec) | 3.51727783559E+03 | Apriori clockrate (us/s) | -4.0000002E-07 | Resid phdelay (usec) | 9.52569E-06 | +/- 1.3E-08 |
| Phase delay (usec) | 3.51727996299E+03 | Apriori rate (us/s) | 5.86379508647E-01 | Resid rate (us/s) | -1.00456E-07 | +/- 1.3E-10 |
| Delay rate (us/s) | 5.86379408191E-01 | Apriori accel (us/s/s) | 2.80168895609E-06 | Resid phase (deg) | 147.6 | +/- 0.2 |
| Total phase (deg) | 218.6 | | | | | |

| | RMS | Theor. | Amplitude | 15.125 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
|--------------|------|--------|------------------|------------------|--|---|
| ph/seg (deg) | 22.6 | 0.7 | Search (1024X16) | 14.845 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| amp/seg (%) | 8.3 | 1.2 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled mb window (us) -0.004 0.004 |
| ph/frq (deg) | 3.1 | 0.2 | Inc. seg. avg. | 16.339 | Sample rate(MISamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| amp/frq (%) | 2.3 | 0.4 | Inc. frq. avg. | 15.127 | Data rate(Mb/s): 2048 | nlags: 512 t_cohere infinite ion window (TEC) 0.00 0.00 |

k: az 21.3 el 60.1 pa -144.4 c: az 340.7 el 44.8 pa 142.6 u,v (fr/asec) -3211.250 719.521 simultaneous interpolator

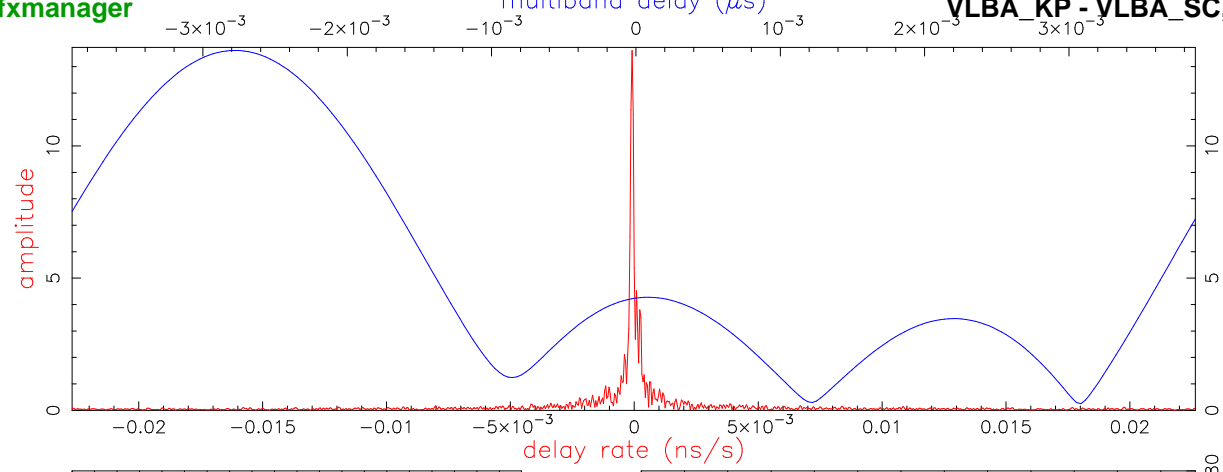
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kc..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kc.Q.14.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, kc

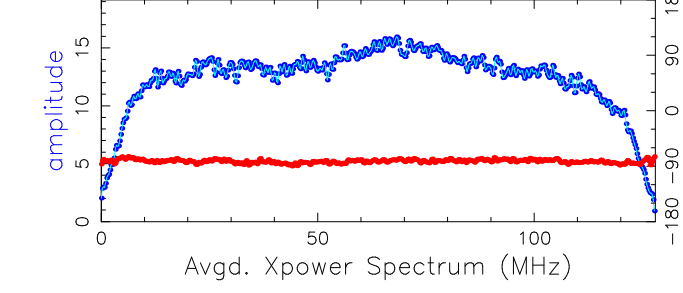
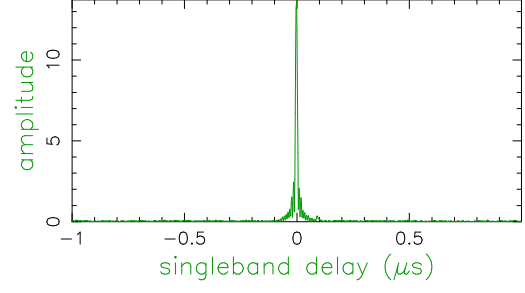
VLBA_KP - VLBA_SC, fgroup Q, pol RR



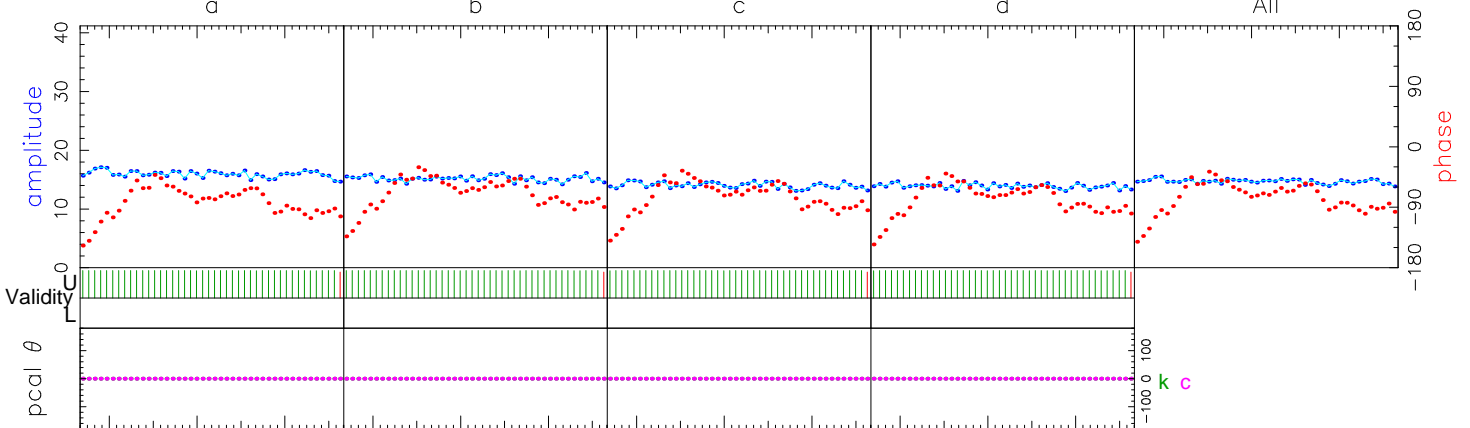
Fringe quality 8

SNR 503.4
 Int time 179.798
 Amp 13.728
 Phase -76.6
 PFD 0.0e+00
 Delays (us)
 SBD -0.002571
 MBD -0.002794
 Fringe rate (Hz)
 -0.004292
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512

Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163102
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"



Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-----|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| k | 1000 | 1000 | 1000 | 1000 | APs used | |
| c | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k:c | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| k:c | 0:0 | 0:0 | 0:0 | 0:0 | ManI PC | |
| k | 1000 | 1000 | 1000 | 1000 | PC amp | |
| c | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | Chan ids | |
| c | Q00UR | Q01UR | Q02UR | Q03UR | Tracks | |

| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | | |
|-------------------------|-------------------|----------|----------|-------------------|----------------------|--------------------------|
| Group delay (usec)(sbd) | 3.51727715936E+03 | | | 3.51727995347E+03 | Resid mbdelay (usec) | -2.79411E-03 +/- 2.2E-06 |
| Sband delay (usec) | 3.51727738284E+03 | | | -8.1192360E+00 | Resid sbdelay (usec) | -2.57062E-03 +/- 8.6E-06 |
| Phase delay (usec) | 3.51727994853E+03 | | | -4.0000002E-07 | Resid phdelay (usec) | -4.94061E-06 +/- 1.5E-08 |
| Delay rate (us/s) | 5.86379408920E-01 | | | 5.86379508647E-01 | Resid rate (us/s) | -9.97267E-08 +/- 1.4E-10 |
| Total phase (deg) | | -5.5 | | 2.80168895609E-06 | Resid phase (deg) | -76.6 +/- 0.2 |

| | RMS | Theor. | Amplitude | 13.728 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
|--------------|------|--------|------------------|------------------|--|---|
| ph/seg (deg) | 22.7 | 0.8 | Search (1024X16) | 13.302 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| amp/seg (%) | 7.7 | 1.3 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled mb window (us) -0.004 0.004 |
| ph/frq (deg) | 7.0 | 0.2 | Inc. seg. avg. | 14.713 | Sample rate(MISamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| amp/frq (%) | 5.7 | 0.4 | Inc. frq. avg. | 13.664 | Data rate(Mb/s): 2048 | nlags: 512 t_cohere infinite ion window (TEC) 0.00 0.00 |

k: az 21.3 el 60.1 pa -144.4 c: az 340.7 el 44.8 pa 142.6 u,v (fr/asec) -3211.250 719.521 simultaneous interpolator

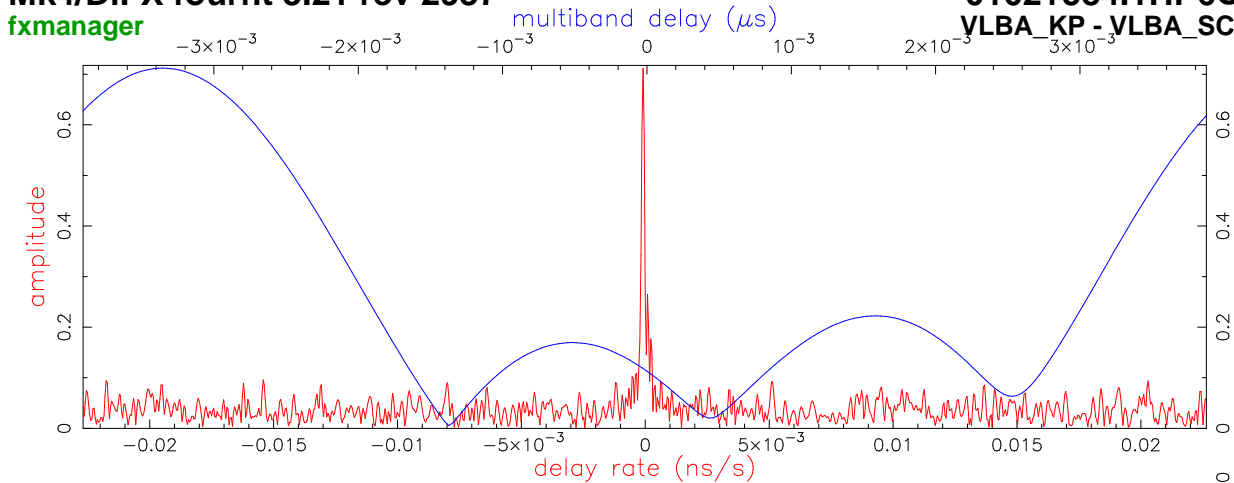
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kc..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kc.Q.28.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

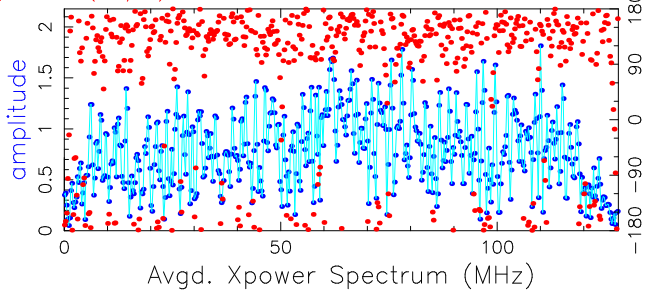
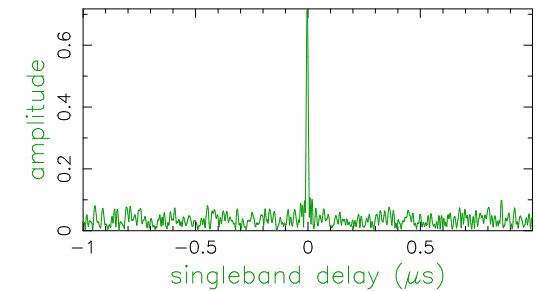
0102+584.1HP6Q8, No0090, kc

VLBA_KP - VLBA_SC, fgroup Q, pol LR



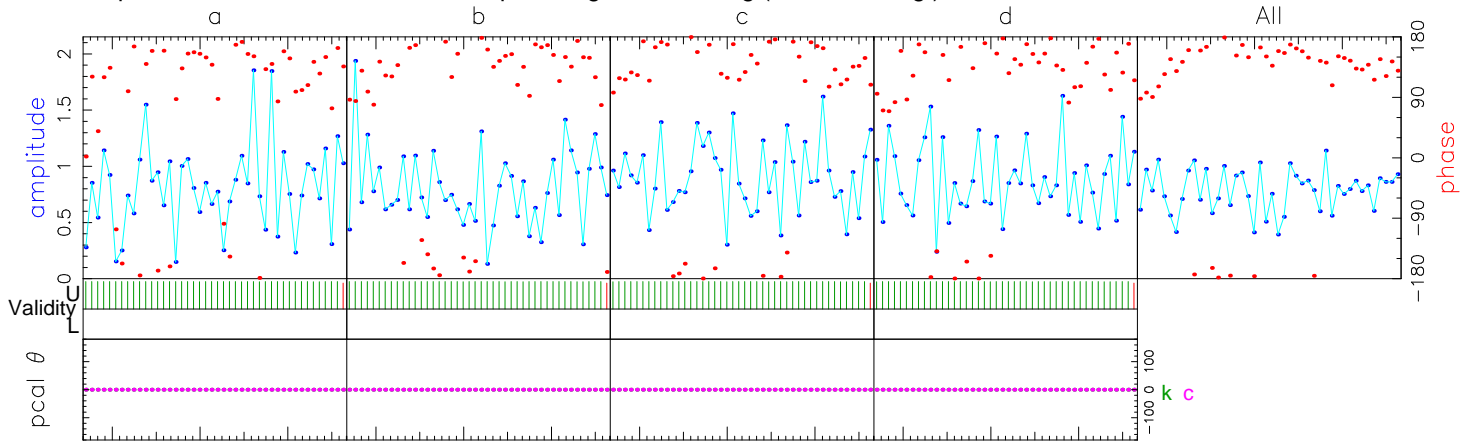
Fringe quality 9

SNR 26.3
 Int time 179.798
 Amp 0.717
 Phase 147.8
 PFD 0.0e+00
 Delays (us)
 SBD -0.003303
 MBD -0.003340
 Fringe rate (Hz)
 -0.004456
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512



Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163104
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----------|----------|----------|----------|------------|-------|
| 146.6 | 147.8 | 153.7 | 142.5 | Phase | 147.8 |
| 0.7 | 0.6 | 0.8 | 0.7 | Ampl. | 0.7 |
| 511.3 | 511.7 | 510.9 | 511.5 | Sbd box | 511.3 |
| U/L 352/0 | 352/0 | 352/0 | 352/0 | APs used | |
| k 1000 | 1000 | 1000 | 1000 | PC freqs | |
| c 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k:c 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| k:c 0:0 | 0:0 | 0:0 | 0:0 | Manl PC | |
| k 1000 | 1000 | 1000 | 1000 | PC amp | |
| c 1000 | 1000 | 1000 | 1000 | | |
| k Q00UL | Q01UL | Q02UL | Q03UL | Chan ids | |
| c Q00UR | Q01UR | Q02UR | Q03UR | Tracks | |
| | | | | Chan ids | |
| | | | | Tracks | |

| | | | | | | | |
|-------------------------|-------------------|--------------------------|-------------------|----------------------|--------------|-----|---------|
| Group delay (usec)(sbd) | 3.51727661298E+03 | Apriori delay (usec) | 3.51727995347E+03 | Resid mbdelay (usec) | -3.34049E-03 | +/- | 4.2E-05 |
| Sband delay (usec) | 3.51727665034E+03 | Apriori clock (usec) | -8.1192360E+00 | Resid sbdelay (usec) | -3.30313E-03 | +/- | 1.6E-04 |
| Phase delay (usec) | 3.51727996301E+03 | Apriori clockrate (us/s) | -4.0000002E-07 | Resid phdelay (usec) | 9.53719E-06 | +/- | 2.8E-07 |
| Delay rate (us/s) | 5.86379405122E-01 | Apriori rate (us/s) | 5.86379508647E-01 | Resid rate (us/s) | -1.03524E-07 | +/- | 2.7E-09 |
| Total phase (deg) | 218.8 | Apriori accel (us/s/s) | 2.80168895609E-06 | Resid phase (deg) | 147.8 | +/- | 4.4 |

| | RMS | Theor. | Amplitude | 0.717 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 | | |
|--------------|------|--------|------------------|-----------------|--|-----------------------|-------------------|----------------------------|
| ph/seg (deg) | 25.5 | 14.4 | Search (1024X16) | 0.694 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) | -1.000 | 1.000 |
| amp/seg (%) | 27.5 | 25.2 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled | mb window (us) | -0.004 0.004 |
| ph/frq (deg) | 5.7 | 4.4 | Inc. seg. avg. | 0.761 | Sample rate(MISamp/s): 256 | | dr window (ns/s) | -0.023 0.023 |
| amp/frq (%) | 7.8 | 7.6 | Inc. frq. avg. | 0.712 | Data rate(Mb/s): 2048 | nlags: 512 | t_cohere infinite | ion window (TEC) 0.00 0.00 |

k: az 21.3 el 60.1 pa -144.4 c: az 340.7 el 44.8 pa 142.6 u,v (fr/asec) -3211.250 719.521 simultaneous interpolator

Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kc..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kc.Q.48.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

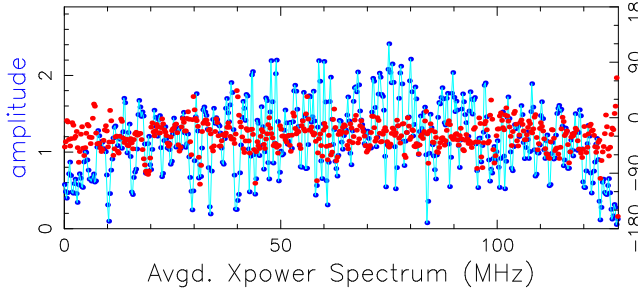
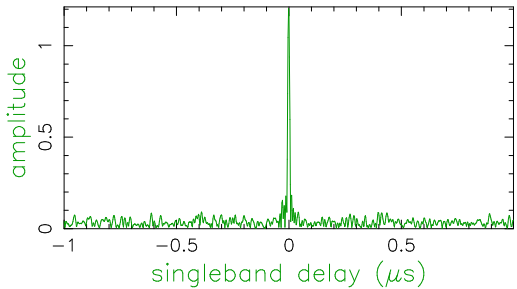
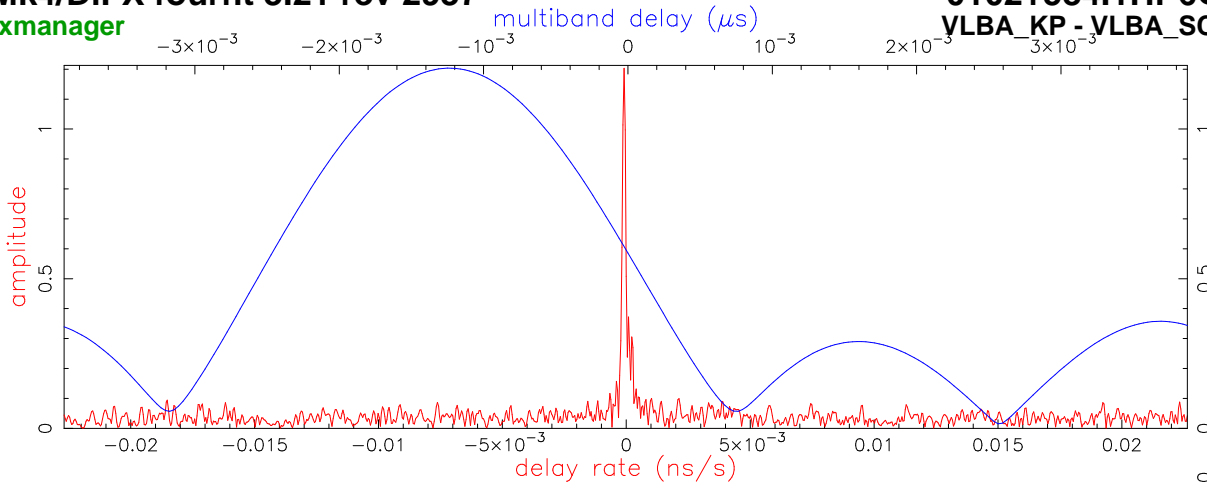
0102+584.1HP6Q8, No0090, kc

VLBA_KP - VLBA_SC, fgroup Q, pol RL

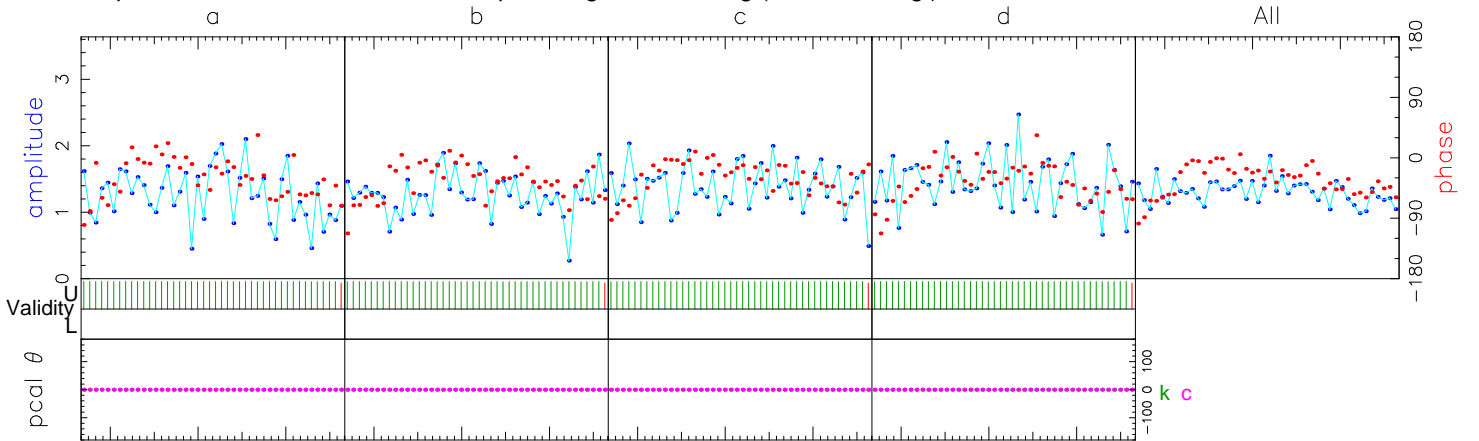
Fringe quality 8

SNR 44.5
 Int time 179.798
 Amp 1.213
 Phase -32.4
 PFD 0.0e+00
 Delays (us)
 SBD -0.001355
 MBD -0.001209
 Fringe rate (Hz)
 -0.004148
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512

Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163107
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"



Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-----|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| k | 1000 | 1000 | 1000 | 1000 | | |
| c | 1000 | 1000 | 1000 | 1000 | | |
| k:c | 0:0 | 0:0 | 0:0 | 0:0 | | |
| k:c | 0:0 | 0:0 | 0:0 | 0:0 | | |
| k | 1000 | 1000 | 1000 | 1000 | | |
| c | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | | |
| c | Q00UL | Q01UL | Q02UL | Q03UL | | |

| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Resid mbdelay (usec) | -1.20867E-03 | +/- 2.5E-05 |
|-------------------------|-------------------|-------------------|-------------------|-------------------|----------------------|--------------|-------------|
| Group delay (usec)(sbd) | 3.51727874480E+03 | 3.51727859797E+03 | 3.51727995347E+03 | 3.51727995347E+03 | Resid sbdelay (usec) | -1.35550E-03 | +/- 9.7E-05 |
| Sband delay (usec) | 3.51727859797E+03 | 3.51727995138E+03 | 3.51727995138E+03 | 3.51727995138E+03 | Resid phdelay (usec) | -2.09105E-06 | +/- 1.7E-07 |
| Phase delay (usec) | 3.51727995138E+03 | 5.86379412267E-01 | 5.86379508647E-01 | 5.86379508647E-01 | Resid rate (us/s) | -9.63799E-08 | +/- 1.6E-09 |
| Delay rate (us/s) | 5.86379412267E-01 | 2.80168895609E-06 | 2.80168895609E-06 | 2.80168895609E-06 | Resid phase (deg) | -32.4 | +/- 2.6 |
| Total phase (deg) | 38.6 | | | | | | |

| | RMS | Theor. | Amplitude | 1.213 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
|--------------|------|--------|------------------|-----------------|--|---|
| ph/seg (deg) | 23.2 | 8.5 | Search (1024X16) | 1.170 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| amp/seg (%) | 16.4 | 14.9 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled mb window (us) -0.004 0.004 |
| ph/frq (deg) | 4.0 | 2.6 | Inc. seg. avg. | 1.292 | Sample rate(MISamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| amp/frq (%) | 6.8 | 4.5 | Inc. frq. avg. | 1.203 | Data rate(Mb/s): 2048 | nlags: 512 t_cohere infinite ion window (TEC) 0.00 0.00 |

k: az 21.3 el 60.1 pa -144.4 c: az 340.7 el 44.8 pa 142.6 u,v (fr/asec) -3211.250 719.521 simultaneous interpolator

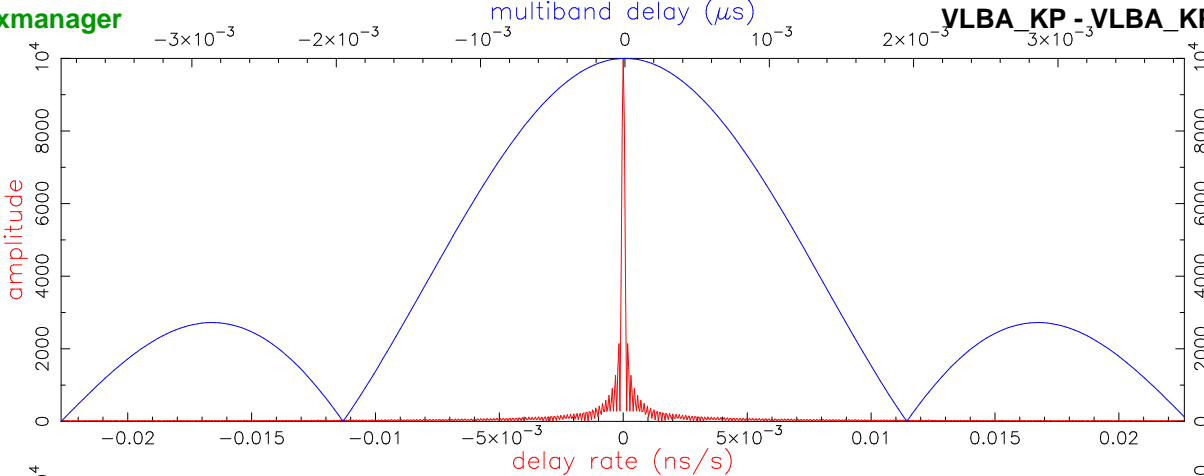
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kc..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kc.Q.70.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

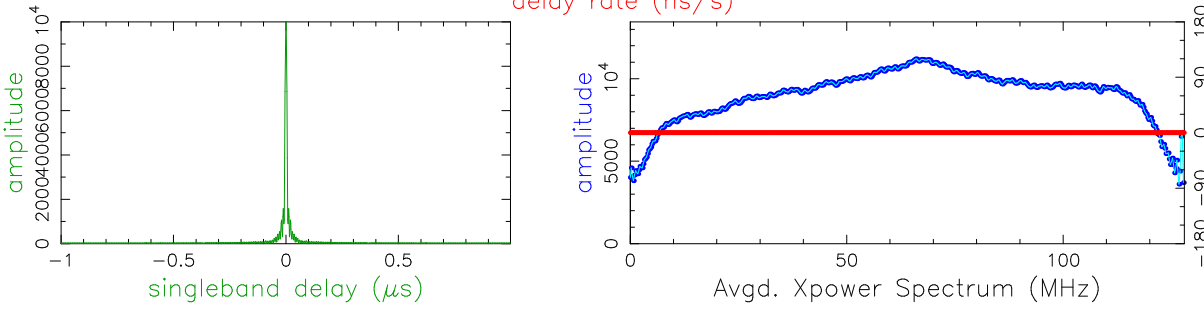
fxmanager

0102+584.1HP6Q8, No0090, kk

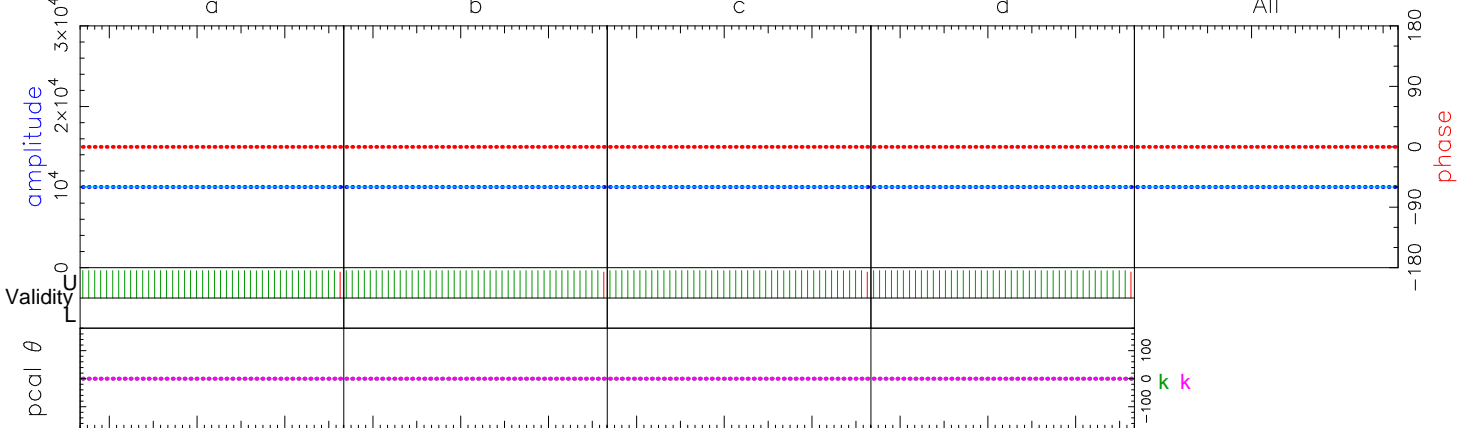
VLBA_KP - VLBA_KP, fgroup Q, pol LL



Fringe quality 9
 SNR 366685.1
 Int time 179.801
 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) 43040.0000
 AP (sec) 0.512
 Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163102
 2020:247:085004
 RA & Dec (J2000) 01h02m45.762375s +58°24'11.136621"



Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-------|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | Sbd box | 513.0 |
| k | 1000 | 1000 | 1000 | 1000 | APs used | 1000 |
| k:k | 0:0 | 0:0 | 0:0 | 0:0 | PC freqs | 1000 |
| k:k | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | 0:0 |
| k | 1000 | 1000 | 1000 | 1000 | ManI PC | 1000 |
| k | 1000 | 1000 | 1000 | 1000 | PC amp | 1000 |
| k | Q00UL | Q01UL | Q02UL | Q03UL | Chan ids | |
| k | Q00UL | Q01UL | Q02UL | Q03UL | Tracks | |

| | 0.0000000000E+00 | 0.0000000000E+00 | 0.0000000000E+00 | 0.0000000000E+00 | 0.000000E+00 | +/- 3.0E-09 |
|-------------------------|------------------|------------------|------------------|------------------|----------------------|--------------|
| Group delay (usec)(sbd) | 0.0000000000E+00 | 0.0000000000E+00 | 0.0000000000E+00 | 0.0000000000E+00 | Resid mbdelay (usec) | 0.000000E+00 |
| Sband delay (usec) | 0.0000000000E+00 | 0.0000000000E+00 | 0.0000000000E+00 | 0.0000000000E+00 | Resid sbdelay (usec) | 0.000000E+00 |
| Phase delay (usec) | 0.0000000000E+00 | 0.0000000000E+00 | 0.0000000000E+00 | 0.0000000000E+00 | Resid phdelay (usec) | 0.000000E+00 |
| Delay rate (us/s) | 0.0000000000E+00 | 0.0000000000E+00 | 0.0000000000E+00 | 0.0000000000E+00 | Resid rate (us/s) | 0.000000E+00 |
| Total phase (deg) | 0.0 | 0.0 | 0.0 | 0.0 | Resid phase (deg) | 0.0 |

| | RMS | Theor. | Amplitude | 10000.000 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
|--------------|-----|--------|------------------|---------------------|--|--|
| ph/seg (deg) | 0.0 | 0.0 | Search (1024X16) | 10000.000 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| amp/seg (%) | 0.0 | 0.0 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled mb window (us) -0.004 0.004 |
| ph/frq (deg) | 0.0 | 0.0 | Inc. seg. avg. | 10000.000 | Sample rate(MISamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| amp/frq (%) | 0.0 | 0.0 | Inc. frq. avg. | 10000.000 | Data rate(Mb/s): 2048 | ion window (TEC) 0.00 0.00 |

k: az 21.3 el 60.1 pa -144.4 k: az 21.3 el 60.1 pa -144.4 u,v (fr/asec) 0.000 0.000 simultaneous interpolator

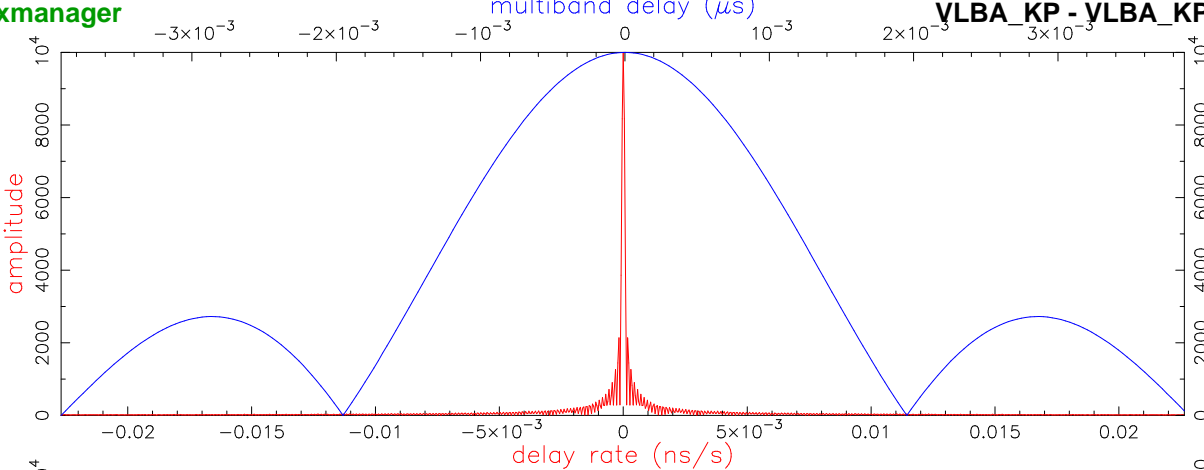
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kk..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kk.Q.23.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

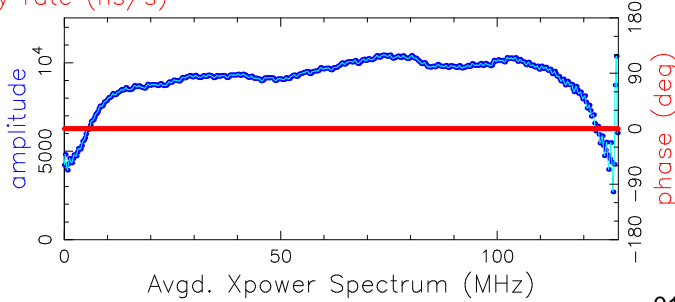
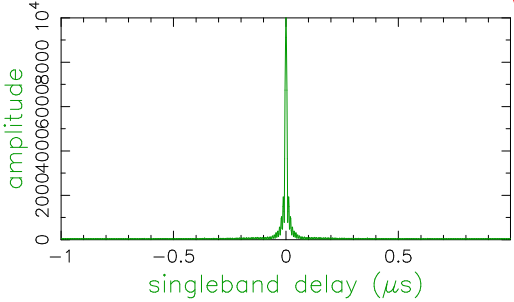
0102+584.1HP6Q8, No0090, kk

VLBA_KP - VLBA_KP, fgroup Q, pol RR



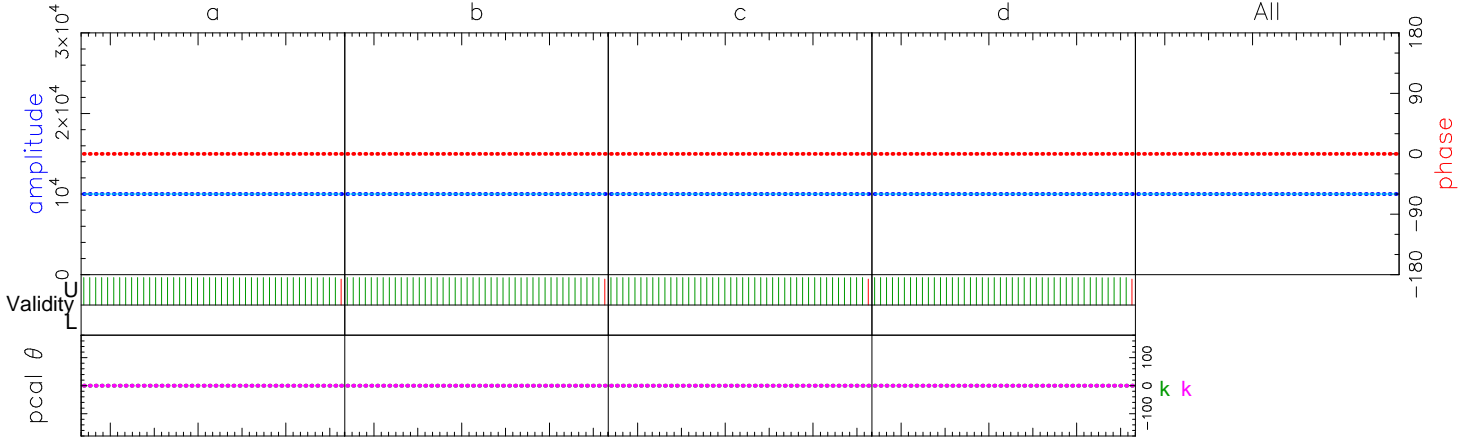
Fringe quality 9

SNR 366685.3
 Int time 179.801
 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)
 43040.0000
 AP (sec) 0.512



Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163104
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-------|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | Sbd box | 513.0 |
| k | 1000 | 1000 | 1000 | 1000 | APs used | |
| k:k | 0:0 | 0:0 | 0:0 | 0:0 | PC freqs | |
| k:k | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| k | 1000 | 1000 | 1000 | 1000 | ManI PC | |
| k | 1000 | 1000 | 1000 | 1000 | PC amp | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | Chan ids | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | Tracks | |

| | 0.000000000000E+00 | 0.000000000000E+00 | 0.000000000000E+00 | 0.000000000000E+00 | 0.000000E+00 | +/- 3.0E-09 |
|-------------------------|--------------------|--------------------|--------------------|--------------------|----------------------|-------------|
| Group delay (usec)(sbd) | 0.000000000000E+00 | 0.000000000000E+00 | 0.000000000000E+00 | 0.000000000000E+00 | Resid mbdelay (usec) | |
| Sband delay (usec) | 0.000000000000E+00 | 0.000000000000E+00 | 0.000000000000E+00 | 0.000000000000E+00 | Resid sbdelay (usec) | +/- 1.2E-08 |
| Phase delay (usec) | 0.000000000000E+00 | 0.000000000000E+00 | 0.000000000000E+00 | 0.000000000000E+00 | Resid phdelay (usec) | +/- 2.0E-11 |
| Delay rate (us/s) | 0.000000000000E+00 | 0.000000000000E+00 | 0.000000000000E+00 | 0.000000000000E+00 | Resid rate (us/s) | +/- 1.9E-13 |
| Total phase (deg) | 0.0 | 0.0 | 0.0 | 0.0 | Resid phase (deg) | +/- 0.0 |

| | RMS | Theor. | Amplitude | 10000.000 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
|--------------|-----|--------|------------------|---------------------|--|--|
| ph/seg (deg) | 0.0 | 0.0 | Search (1024X16) | 10000.000 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| amp/seg (%) | 0.0 | 0.0 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled mb window (us) -0.004 0.004 |
| ph/frq (deg) | 0.0 | 0.0 | Inc. seg. avg. | 10000.000 | Sample rate(MSamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| amp/frq (%) | 0.0 | 0.0 | Inc. frq. avg. | 10000.000 | Data rate(Mb/s): 2048 | ion window (TEC) 0.00 0.00 |

k: az 21.3 el 60.1 pa -144.4 k: az 21.3 el 60.1 pa -144.4 u,v (fr/asec) 0.000 0.000 simultaneous interpolator

Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kk..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kk.Q.41.1HP6Q8

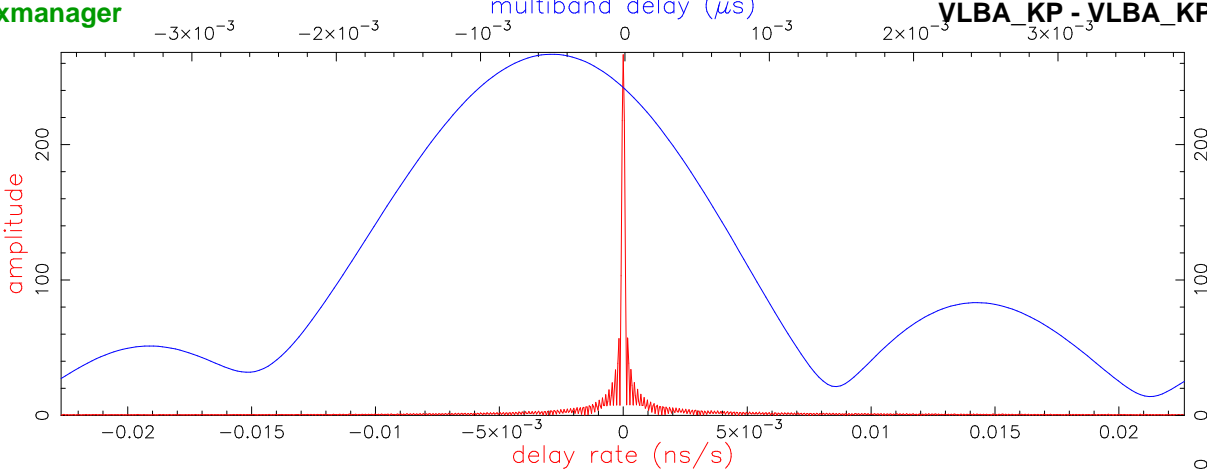
Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

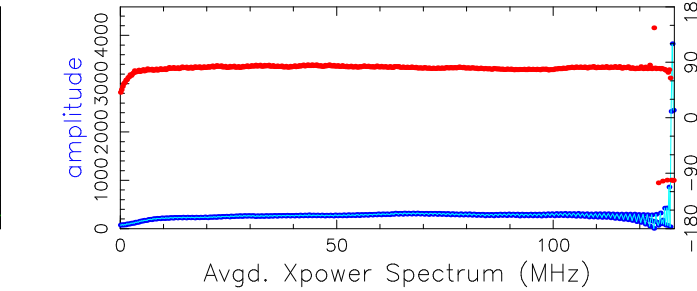
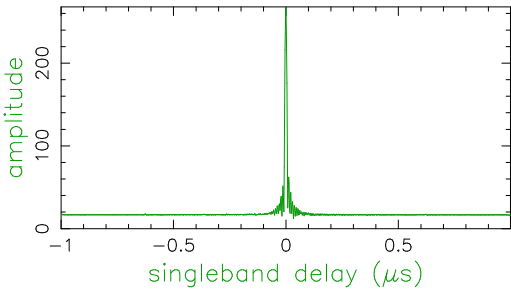
0102+584.1HP6Q8, No0090, kk

VLBA_KP - VLBA_KP, fgroup Q, pol LR

Fringe quality 8

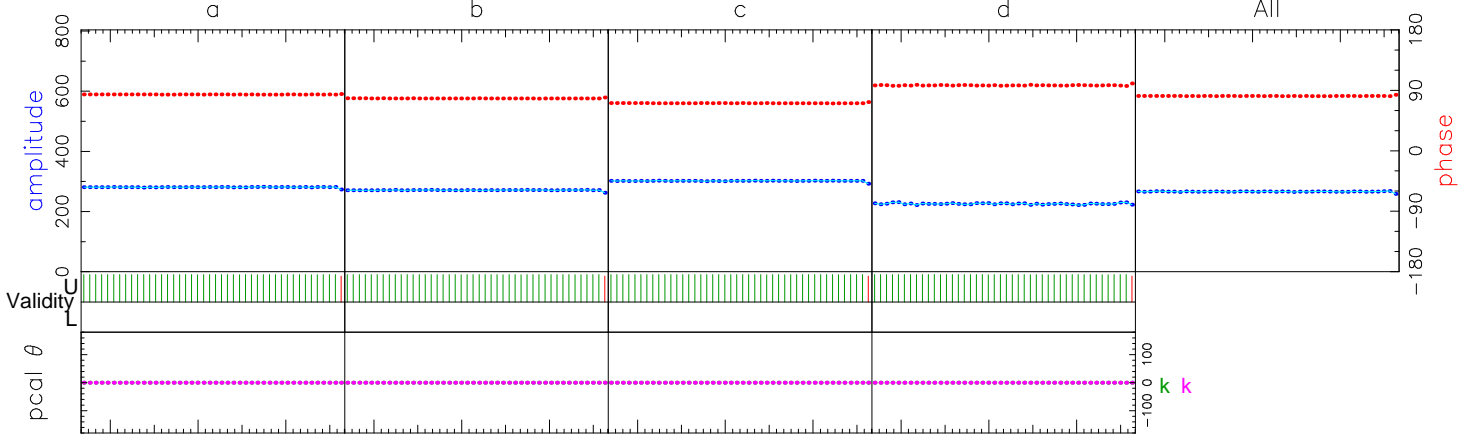


SNR 9829.1
 Int time 179.801
 Amp 268.054
 Phase 81.5
 PFD 0.0e+00
 Delays (us)
 SBD -0.000579
 MBD -0.000562
 Fringe rate (Hz)
 0.000002
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512



Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163105
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|------|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| k | 1000 | 1000 | 1000 | 1000 | APs used | 1000 |
| k:k | 0:0 | 0:0 | 0:0 | 0:0 | PC freqs | 1000 |
| k:k | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | 1000 |
| k | 1000 | 1000 | 1000 | 1000 | ManI PC | 1000 |
| k | 1000 | 1000 | 1000 | 1000 | PC amp | 1000 |
| k | Q00UL | Q01UL | Q02UL | Q03UL | Chan ids | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | Tracks | |

| | | | | | | | |
|-------------------------|---------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec)(sbd) | -5.624375000000E-04 | Apriori delay (usec) | 0.000000000000E+00 | Resid mbdelay (usec) | -5.62438E-04 | +/- | 1.1E-07 |
| Sband delay (usec) | -5.788750000000E-04 | Apriori clock (usec) | 0.000000000000E+00 | Resid sbdelay (usec) | -5.78875E-04 | +/- | 4.4E-07 |
| Phase delay (usec) | 5.26157897583E-06 | Apriori clockrate (us/s) | 0.000000000000E+00 | Resid phdelay (usec) | 5.26158E-06 | +/- | 7.5E-10 |
| Delay rate (us/s) | 4.53792961717E-11 | Apriori rate (us/s) | 0.000000000000E+00 | Resid rate (us/s) | 4.53793E-11 | +/- | 7.2E-12 |
| Total phase (deg) | 81.5 | Apriori accel (us/s/s) | 0.000000000000E+00 | Resid phase (deg) | 81.5 | +/- | 0.0 |

| | | | | | | | | | | |
|--------------|------|--------|-----|------------------|-------------------|--|----------------------|-------------------|------------------|-----------|
| ph/seg (deg) | 0.3 | Theor. | 0.0 | Amplitude | 268.054 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) | 5, 5 | | |
| amp/seg (%) | 0.8 | | 0.1 | Search (1024X16) | 266.652 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) | -1.000 1.000 | | |
| ph/frq (deg) | 13.9 | | 0.0 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled | mb window (us) | -0.004 0.004 | |
| amp/frq (%) | 10.4 | | 0.0 | Inc. seg. avg. | 266.372 | Sample rate(MISamp/s): 256 | dr window (ns/s) | -0.023 0.023 | | |
| | | | | Inc. frq. avg. | 270.018 | Data rate(Mb/s): 2048 | nlags: 512 | t_cohere infinite | ion window (TEC) | 0.00 0.00 |

k: az 21.3 el 60.1 pa -144.4 k: az 21.3 el 60.1 pa -144.4 u,v (fr/asec) 0.000 0.000 simultaneous interpolator

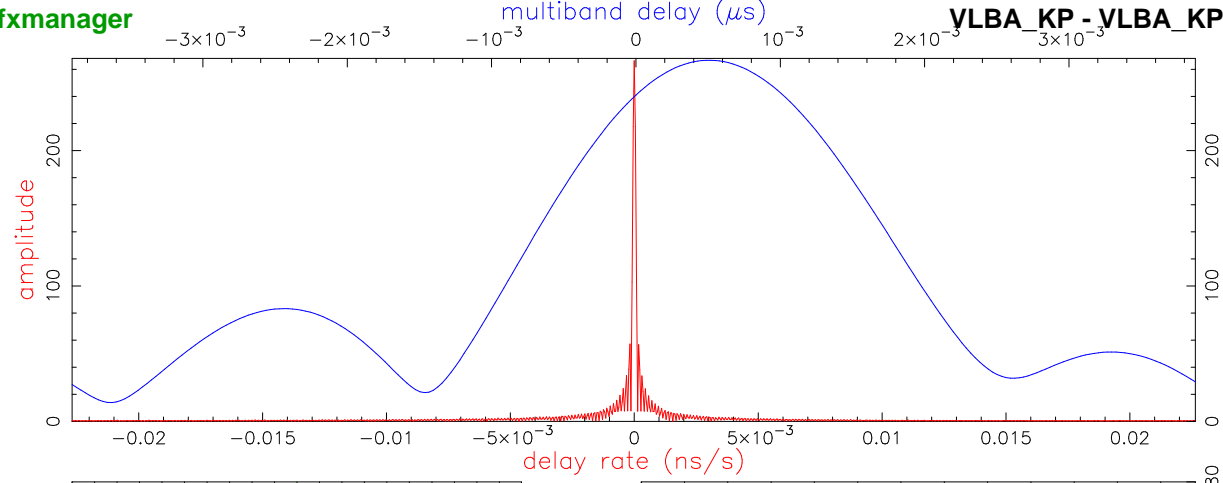
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kk..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kk.Q.54.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, kk

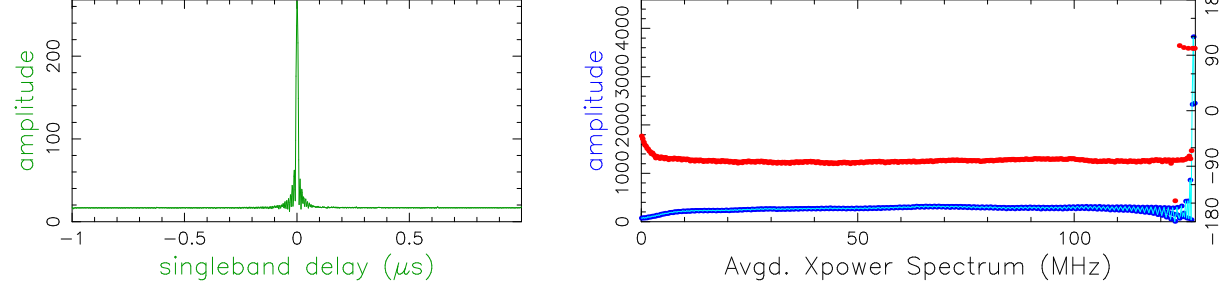
VLBA_KP - VLBA_KP, fgroup Q, pol RL



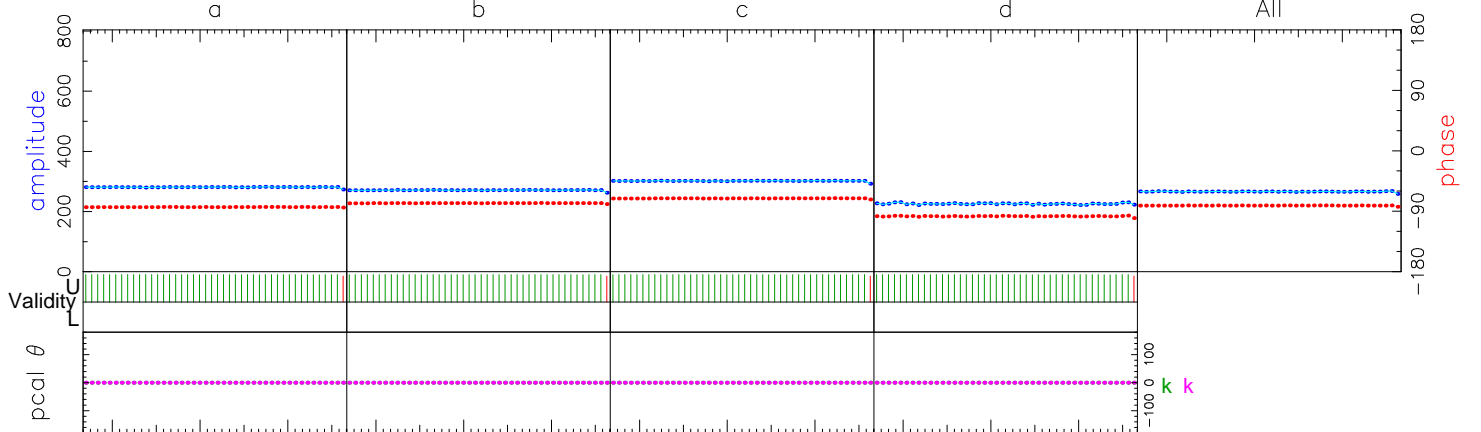
Fringe quality 8

SNR 9829.1
 Int time 179.801
 Amp 268.053
 Phase -81.5
 PFD 0.0e+00
 Delays (us)
 SBD 0.000579
 MBD 0.000562
 Fringe rate (Hz)
 -0.000002
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512

Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163107
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"



Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-------|
| | -83.8 | -78.0 | -70.8 | -97.4 | Phase | -81.5 |
| | 281.1 | 271.2 | 301.9 | 225.9 | Ampl. | 270.0 |
| | 513.1 | 513.7 | 513.2 | 511.7 | Sbd box | 513.3 |
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | APs used | |
| k | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k:k | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| k:k | 0:0 | 0:0 | 0:0 | 0:0 | Manl PC | |
| k | 1000 | 1000 | 1000 | 1000 | PC amp | |
| k | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | Chan ids | |
| k | Q00UL | Q01UL | Q02UL | Q03UL | Tracks | |
| | | | | | Chan ids | |
| | | | | | Tracks | |

| | | | | | | | |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec)(sbd) | 5.624375000000E-04 | Apriori delay (usec) | 0.000000000000E+00 | Resid mbdelay (usec) | 5.62438E-04 | +/- | 1.1E-07 |
| Sband delay (usec) | 5.788750000000E-04 | Apriori clock (usec) | 0.000000000000E+00 | Resid sbdelay (usec) | 5.78875E-04 | +/- | 4.4E-07 |
| Phase delay (usec) | -5.26157897573E-06 | Apriori clockrate (us/s) | 0.000000000000E+00 | Resid phdelay (usec) | -5.26158E-06 | +/- | 7.5E-10 |
| Delay rate (us/s) | -4.53792961717E-11 | Apriori rate (us/s) | 0.000000000000E+00 | Resid rate (us/s) | -4.53793E-11 | +/- | 7.2E-12 |
| Total phase (deg) | -81.5 | Apriori accel (us/s/s) | 0.000000000000E+00 | Resid phase (deg) | -81.5 | +/- | 0.0 |

| | | | | | | | | | |
|--------------|------|-----|------------------|-------------------|--|----------------------|-------------------|------------------|-----------|
| ph/seg (deg) | 0.3 | 0.0 | Amplitude | 268.053 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) | 5, 5 | | |
| amp/seg (%) | 0.8 | 0.1 | Search (1024X16) | 266.651 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) | -1.000 1.000 | | |
| ph/frq (deg) | 13.9 | 0.0 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled | mb window (us) | -0.004 0.004 | |
| amp/frq (%) | 10.4 | 0.0 | Inc. seg. avg. | 266.372 | Sample rate(MISamp/s): 256 | | dr window (ns/s) | -0.023 0.023 | |
| | | | Inc. frq. avg. | 270.017 | Data rate(Mb/s): 2048 | nlags: 512 | t_cohere infinite | ion window (TEC) | 0.00 0.00 |

k: az 21.3 el 60.1 pa -144.4 k: az 21.3 el 60.1 pa -144.4 u,v (fr/asec) 0.000 0.000 simultaneous interpolator

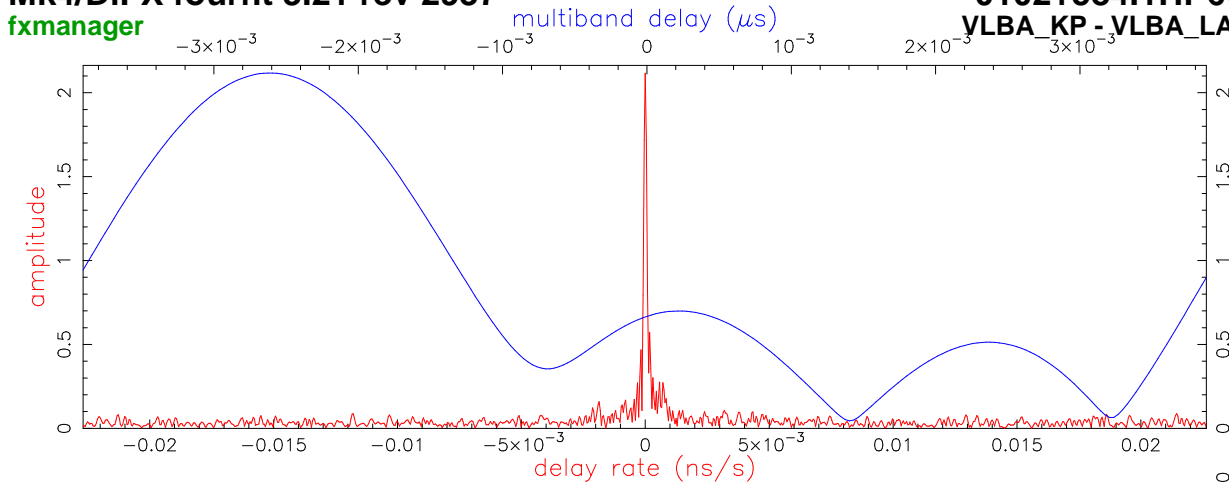
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kk..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kk.Q.71.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

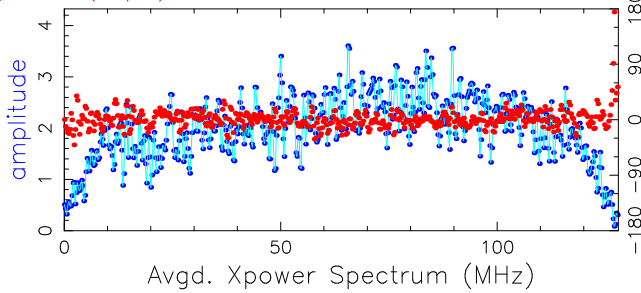
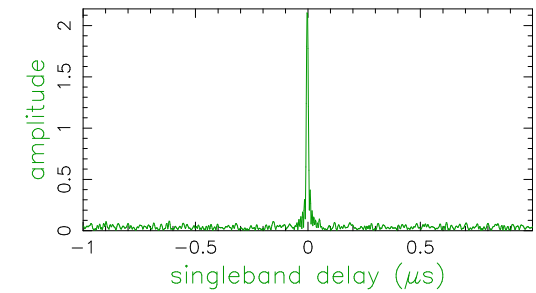
0102+584.1HP6Q8, No0090, kl

VLBA_KP - VLBA_LA, fgroup Q, pol LR



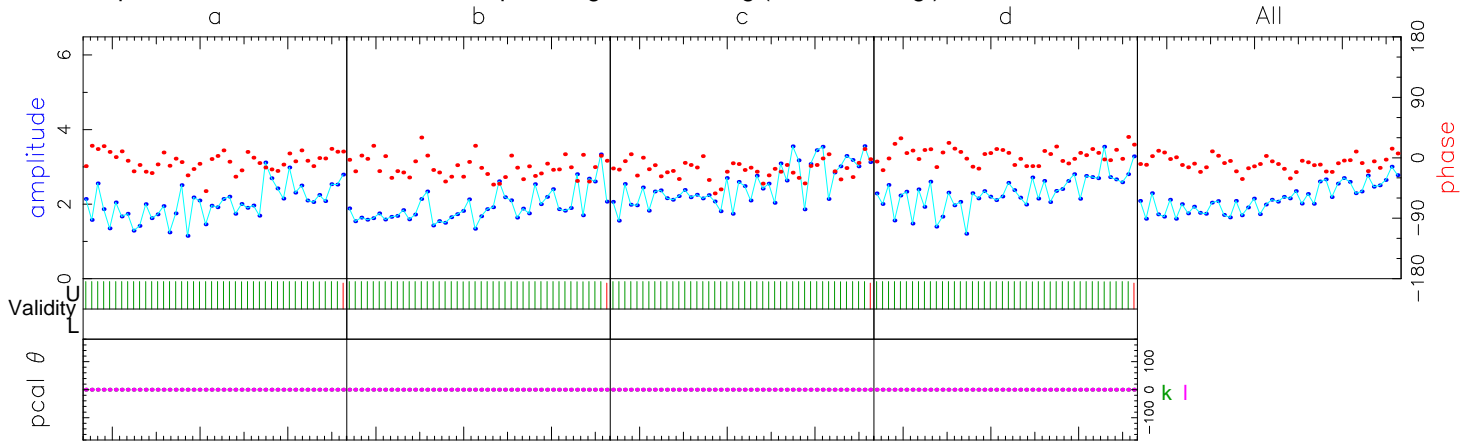
Fringe quality 8

SNR 79.3
 Int time 179.800
 Amp 2.163
 Phase -7.8
 PFD 0.0e+00
 Delays (us)
 SBD -0.002967
 MBD -0.002662
 Fringe rate (Hz)
 -0.000102
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512



Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163111
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----------|----------|----------|----------|------------|-------|
| -4.1 | -14.4 | -16.6 | 4.0 | Phase | -7.8 |
| 2.0 | 1.9 | 2.4 | 2.3 | Ampl. | 2.1 |
| 511.6 | 511.5 | 511.7 | 511.1 | Sbd box | 511.5 |
| U/L 352/0 | 352/0 | 352/0 | 352/0 | APs used | |
| k 1000 | 1000 | 1000 | 1000 | PC freqs | |
| l 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k:l 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| k:l 0:0 | 0:0 | 0:0 | 0:0 | Manl PC | |
| k 1000 | 1000 | 1000 | 1000 | PC amp | |
| l 1000 | 1000 | 1000 | 1000 | | |
| k Q00UL | Q01UL | Q02UL | Q03UL | Chan ids | |
| l Q00UR | Q01UR | Q02UR | Q03UR | Tracks | |
| | | | | Chan ids | |
| | | | | Tracks | |

| | | | | | | |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-------------|
| Group delay (usec)(sbd) | -8.61389583451E+02 | Apriori delay (usec) | -8.61386921295E+02 | Resid mbdelay (usec) | -2.66216E-03 | +/- 1.4E-05 |
| Sband delay (usec) | -8.61389888170E+02 | Apriori clock (usec) | 7.1361828E-01 | Resid sbdelay (usec) | -2.96687E-03 | +/- 5.4E-05 |
| Phase delay (usec) | -8.61386921796E+02 | Apriori clockrate (us/s) | 1.9999998E-07 | Resid phdelay (usec) | -5.00916E-07 | +/- 9.3E-08 |
| Delay rate (us/s) | 6.90660738081E-02 | Apriori rate (us/s) | 6.90660761735E-02 | Resid rate (us/s) | -2.36540E-09 | +/- 9.0E-10 |
| Total phase (deg) | -41.1 | Apriori accel (us/s/s) | -7.36966882147E-07 | Resid phase (deg) | -7.8 | +/- 1.4 |

| | | | | | | | | | | | |
|------------------------------|------|------------------------------|-----|------------------|-------------------|--|----------------------------|-------------------|------------------|-------|---------------------------|
| ph/seg (deg) | 10.4 | Theor. | 4.8 | Amplitude | 2.163 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 | sb window (us) | -1.000 | 1.000 | |
| amp/seg (%) | 16.7 | | 8.4 | Search (1024X16) | 2.092 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | SampCntNorm: enabled | mb window (us) | -0.004 | 0.004 | |
| ph/frq (deg) | 11.7 | | 1.4 | Inc. seg. avg. | 2.144 | Bits/sample: 2x2 | Sample rate(MISamp/s): 256 | dr window (ns/s) | -0.023 | 0.023 | |
| amp/frq (%) | 10.7 | | 2.5 | Inc. frq. avg. | 2.138 | Data rate(Mb/s): 2048 | nlags: 512 | t_cohere infinite | ion window (TEC) | 0.00 | 0.00 |
| k: az 21.3 el 60.1 pa -144.4 | | l: az 18.7 el 65.2 pa -150.7 | | u,v (fr/asec) | -378.683 -172.474 | | | | | | simultaneous interpolator |

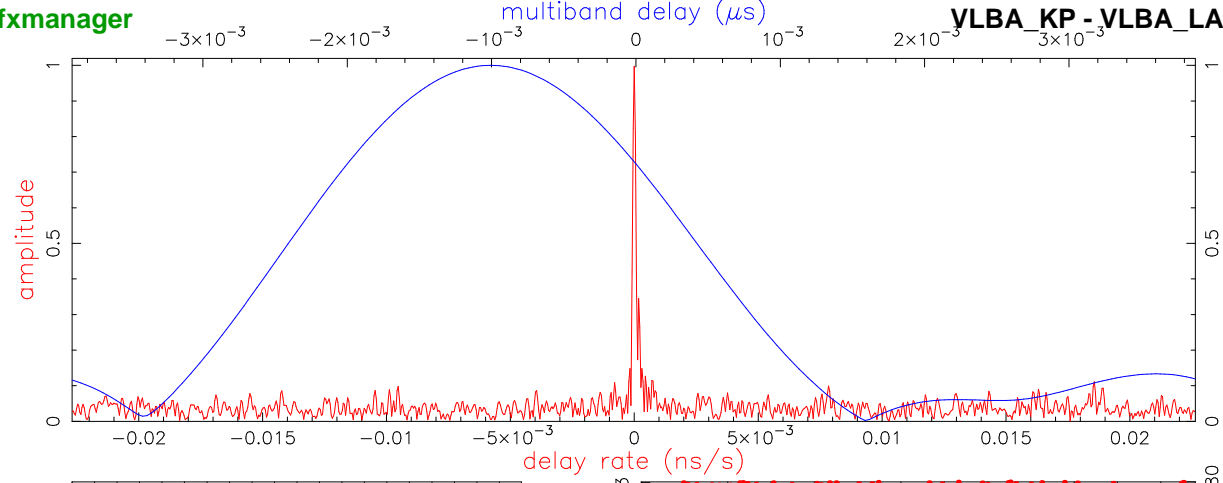
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kl..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kl.Q.100.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, kl

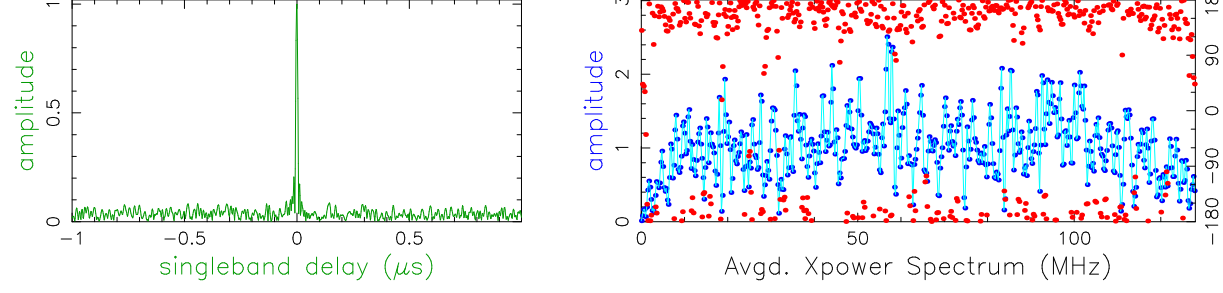
VLBA_KP - VLBA_LA, fgroup Q, pol RL



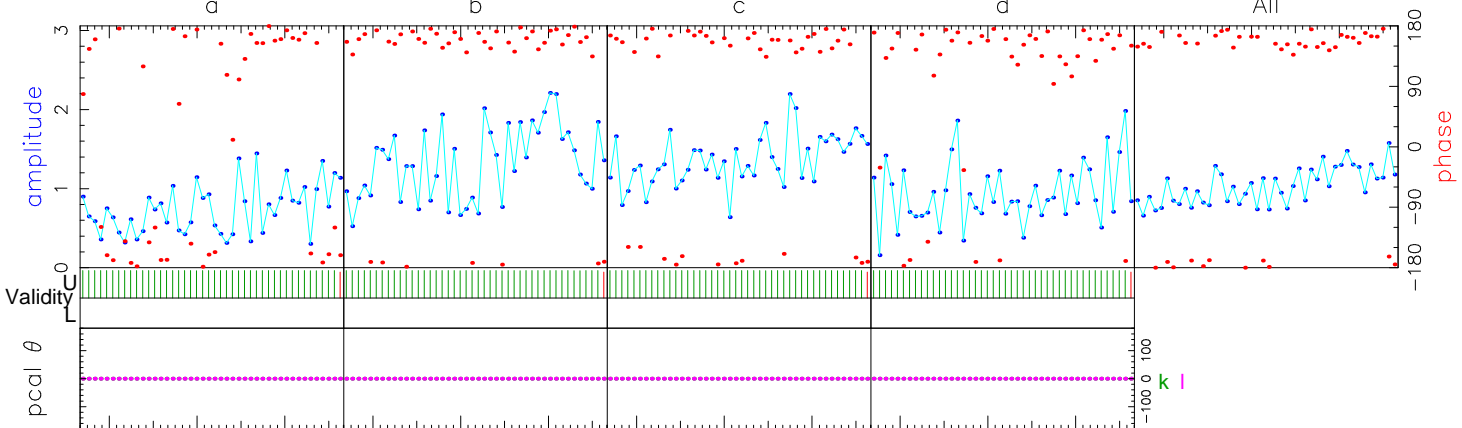
Fringe quality 8

SNR 37.4
 Int time 179.800
 Amp 1.020
 Phase 165.1
 PFD 0.0e+00
 Delays (us)
 SBD -0.000965
 MBD -0.000914
 Fringe rate (Hz)
 -0.000003
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512

Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163113
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"



Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-----|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| k | 1000 | 1000 | 1000 | 1000 | APs used | |
| l | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k:l | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| k:l | 0:0 | 0:0 | 0:0 | 0:0 | Manl PC | |
| k | 1000 | 1000 | 1000 | 1000 | PC amp | |
| l | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | Chan ids | |
| l | Q00UL | Q01UL | Q02UL | Q03UL | Tracks | |

| | | | | | | | |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec)(sbd) | -8.61387835451E+02 | Apriori delay (usec) | -8.61386921295E+02 | Resid mbdelay (usec) | -9.14156E-04 | +/- | 3.0E-05 |
| Sband delay (usec) | -8.61387886545E+02 | Apriori clock (usec) | 7.1361828E-01 | Resid sbdelay (usec) | -9.65250E-04 | +/- | 1.2E-04 |
| Phase delay (usec) | -8.61386910638E+02 | Apriori clockrate (us/s) | 1.9999998E-07 | Resid phdelay (usec) | 1.06571E-05 | +/- | 2.0E-07 |
| Delay rate (us/s) | 6.90660760941E-02 | Apriori rate (us/s) | 6.90660761735E-02 | Resid rate (us/s) | -7.94138E-11 | +/- | 1.9E-09 |
| Total phase (deg) | | Apriori accel (us/s/s) | -7.36966882147E-07 | Resid phase (deg) | 165.1 | +/- | 3.1 |

| | RMS | Theor. | Amplitude | 1.020 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
|--------------|------|--------|------------------|-----------------|--|---|
| ph/seg (deg) | 15.0 | 10.2 | Search (1024X16) | 1.000 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| amp/seg (%) | 22.3 | 17.7 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled mb window (us) -0.004 0.004 |
| ph/frq (deg) | 8.4 | 3.1 | Inc. seg. avg. | 1.017 | Sample rate(MSamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| amp/frq (%) | 30.0 | 5.3 | Inc. frq. avg. | 1.000 | Data rate(Mb/s): 2048 | nlags: 512 t_cohere infinite ion window (TEC) 0.00 0.00 |

k: az 21.3 el 60.1 pa -144.4 l: az 18.7 el 65.2 pa -150.7 u,v (fr/asec) -378.683 -172.474 simultaneous interpolator

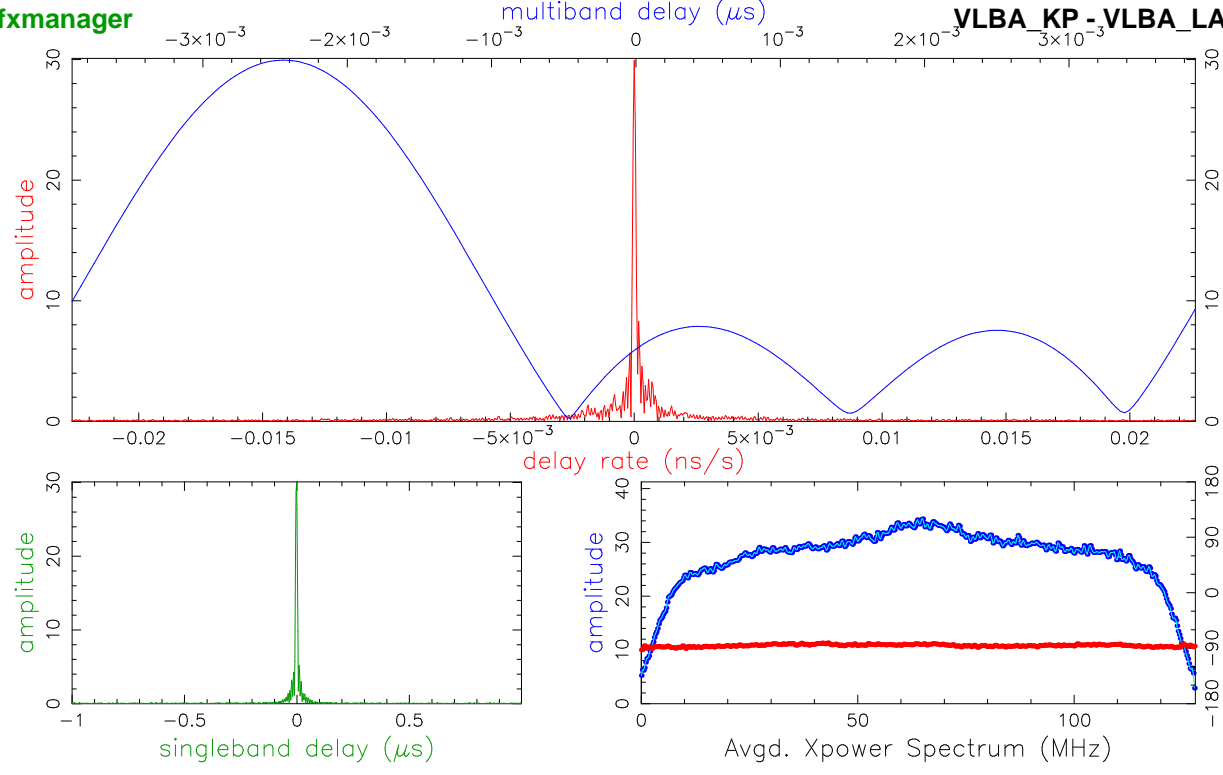
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kl..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kl.Q.118.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, kl

VLBA_KP - VLBA_LA, fgroup Q, pol LL

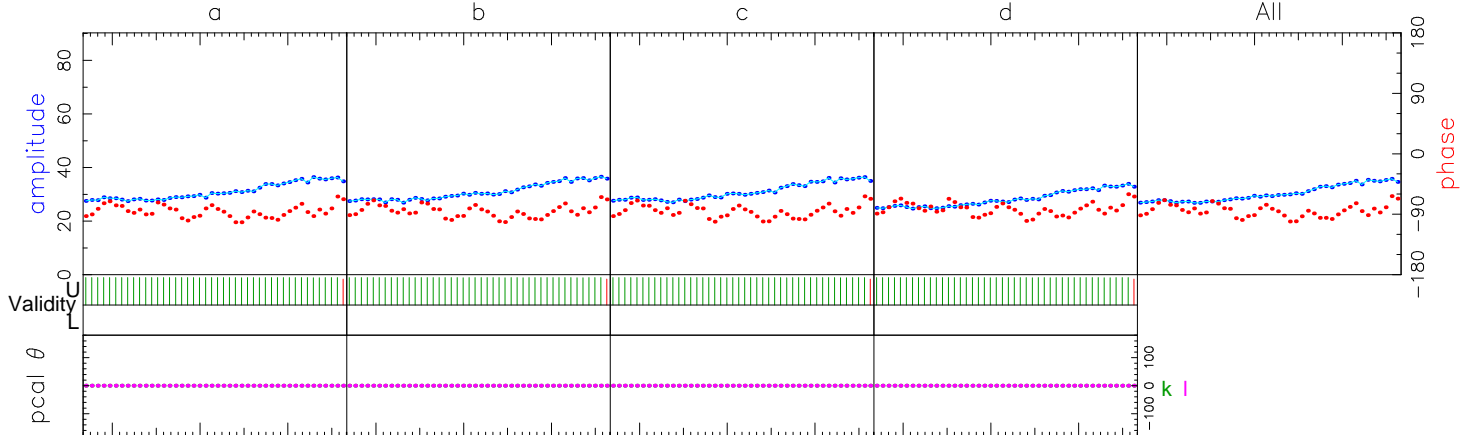


Fringe quality 9

SNR 1103.4
 Int time 179.800
 Amp 30.092
 Phase -84.7
 PFD 0.0e+00
 Delays (us)
 SBD -0.002431
 MBD -0.002464
 Fringe rate (Hz)
 -0.000071
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512

Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163107
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-------|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| k | 1000 | 1000 | 1000 | 1000 | Phase | -84.7 |
| l | 1000 | 1000 | 1000 | 1000 | Ampl. | 29.9 |
| k:l | 0:0 | 0:0 | 0:0 | 0:0 | Sbd box | 511.8 |
| k:l | 0:0 | 0:0 | 0:0 | 0:0 | APs used | |
| k | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| l | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k | Q00UL | Q01UL | Q02UL | Q03UL | PC phase | |
| l | Q00UL | Q01UL | Q02UL | Q03UL | Manl PC | |
| | | | | | PC amp | |
| | | | | | Chan ids | |
| | | | | | Tracks | |
| | | | | | Chan ids | |
| | | | | | Tracks | |

| | | | | | | | |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec)(sbd) | -8.61389385514E+02 | Apriori delay (usec) | -8.61386921295E+02 | Resid mbdelay (usec) | -2.46422E-03 | +/- | 1.0E-06 |
| Sband delay (usec) | -8.61389352545E+02 | Apriori clock (usec) | 7.1361828E-01 | Resid sbdelay (usec) | -2.43125E-03 | +/- | 3.9E-06 |
| Phase delay (usec) | -8.61386926758E+02 | Apriori clockrate (us/s) | 1.9999998E-07 | Resid phdelay (usec) | -5.46341E-06 | +/- | 6.7E-09 |
| Delay rate (us/s) | 6.90660745171E-02 | Apriori rate (us/s) | 6.90660761735E-02 | Resid rate (us/s) | -1.65634E-09 | +/- | 6.4E-11 |
| Total phase (deg) | -118.0 | Apriori accel (us/s/s) | -7.36966882147E-07 | Resid phase (deg) | -84.7 | +/- | 0.1 |

| | RMS | Theor. | Amplitude | 30.092 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 | sb window (us) | -1.000 | 1.000 |
|--------------|------|--------|------------------|------------------|--|-----------------------|------------------|--------|-------|
| ph/seg (deg) | 9.0 | 0.3 | Search (1024X16) | 29.937 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | SampCntNorm: enabled | mb window (us) | -0.004 | 0.004 |
| amp/seg (%) | 10.0 | 0.6 | Interp. | 0.000 | Sample rate(MISamp/s): 256 | nlags: 512 | dr window (ns/s) | -0.023 | 0.023 |
| ph/frq (deg) | 2.0 | 0.1 | Inc. seg. avg. | 30.321 | Data rate(Mb/s): 2048 | t_cohere infinite | ion window (TEC) | 0.00 | 0.00 |
| amp/frq (%) | 3.9 | 0.2 | Inc. frq. avg. | 29.948 | | | | | |

k: az 21.3 el 60.1 pa -144.4 l: az 18.7 el 65.2 pa -150.7 u,v (fr/asec) -378.683 -172.474 simultaneous interpolator

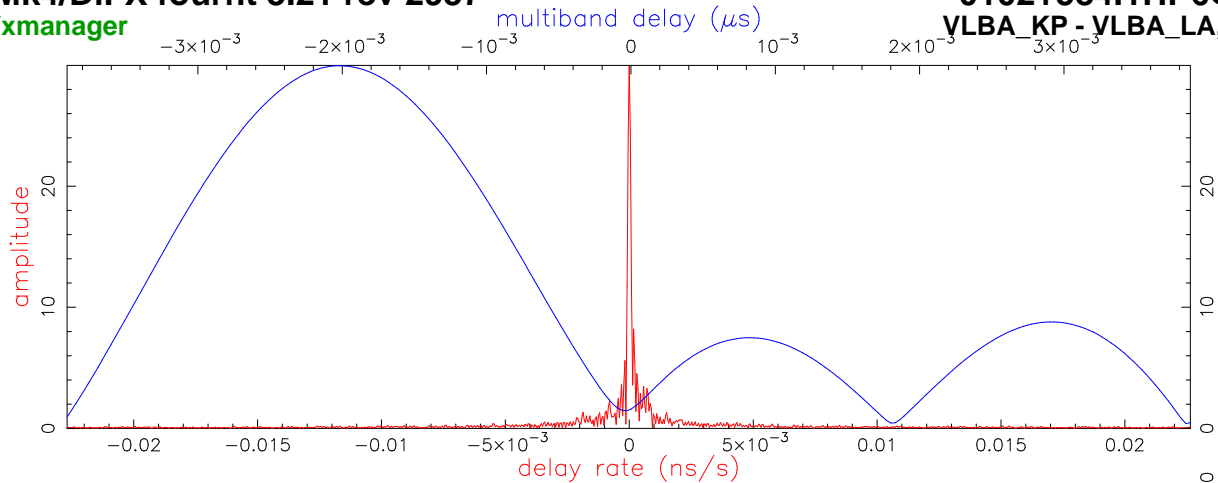
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kl..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kl.Q.77.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

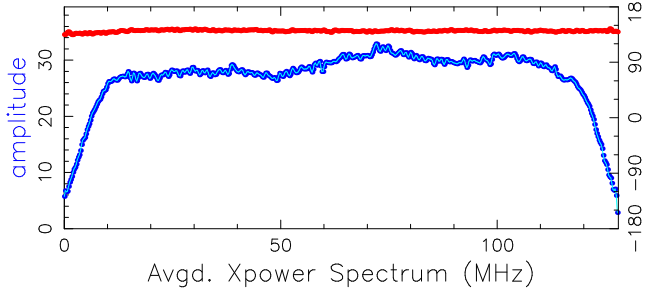
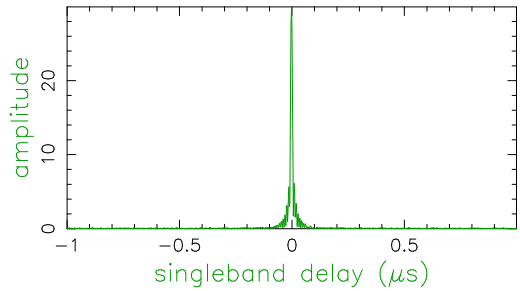
0102+584.1HP6Q8, No0090, kl

VLBA_KP - VLBA_LA, fgroup Q, pol RR



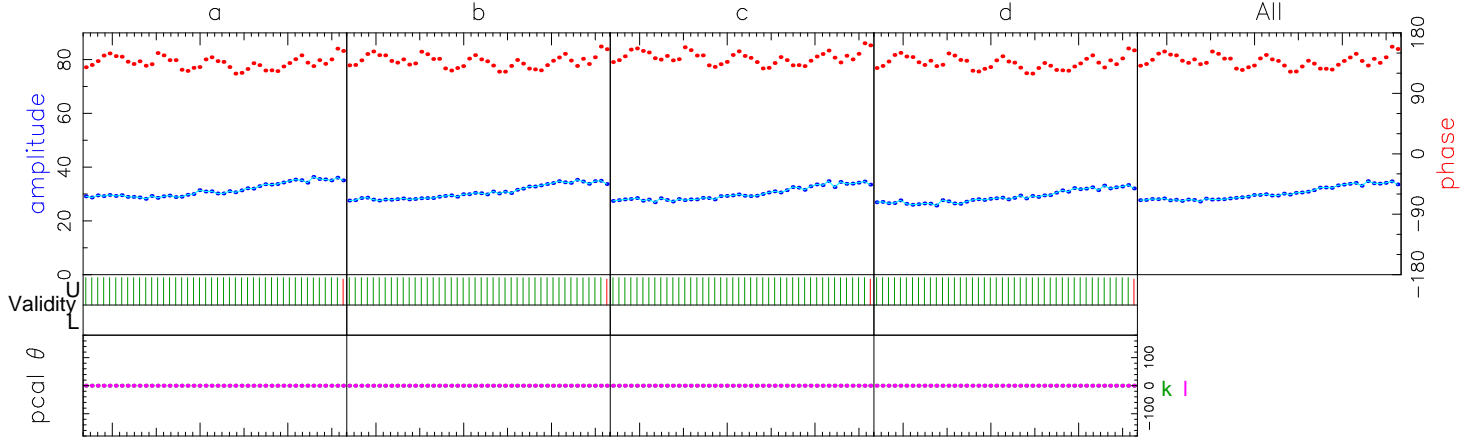
Fringe quality 9

SNR 1099.5
 Int time 179.800
 Amp 29.984
 Phase 137.9
 PFD 0.0e+00
 Delays (us)
 SBD -0.002161
 MBD -0.002029
 Fringe rate (Hz)
 -0.000093
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512



Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163109
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-----|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| k | 1000 | 1000 | 1000 | 1000 | APs used | |
| l | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k:l | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| k:l | 0:0 | 0:0 | 0:0 | 0:0 | ManI PC | |
| k | 1000 | 1000 | 1000 | 1000 | PC amp | |
| l | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | Chan ids | |
| l | Q00UR | Q01UR | Q02UR | Q03UR | Tracks | |

| | -8.61388950014E+02 | Apriori delay (usec) | -8.61386921295E+02 | Resid mbdelay (usec) | -2.02872E-03 | +/- 1.0E-06 |
|--------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-------------|
| Sband delay (usec) | -8.61389082420E+02 | Apriori clock (usec) | 7.1361828E-01 | Resid sbdelay (usec) | -2.16112E-03 | +/- 3.9E-06 |
| Phase delay (usec) | -8.61386912392E+02 | Apriori clockrate (us/s) | 1.9999998E-07 | Resid phdelay (usec) | 8.90318E-06 | +/- 6.7E-09 |
| Delay rate (us/s) | 6.90660740180E-02 | Apriori rate (us/s) | 6.90660761735E-02 | Resid rate (us/s) | -2.15552E-09 | +/- 6.5E-11 |
| Total phase (deg) | 104.6 | Apriori accel (us/s/s) | -7.36966882147E-07 | Resid phase (deg) | 137.9 | +/- 0.1 |

| | RMS | Theor. | Amplitude | 29.984 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
|--------------|-----|--------|------------------|------------------|--|---|
| ph/seg (deg) | 9.0 | 0.3 | Search (1024X16) | 29.891 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| amp/seg (%) | 8.2 | 0.6 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled mb window (us) -0.004 0.004 |
| ph/frq (deg) | 4.4 | 0.1 | Inc. seg. avg. | 30.330 | Sample rate(MISamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| amp/frq (%) | 3.0 | 0.2 | Inc. frq. avg. | 29.998 | Data rate(Mb/s): 2048 | nlags: 512 t_cohere infinite ion window (TEC) 0.00 0.00 |

k: az 21.3 el 60.1 pa -144.4 l: az 18.7 el 65.2 pa -150.7 u,v (fr/asec) -378.683 -172.474 simultaneous interpolator

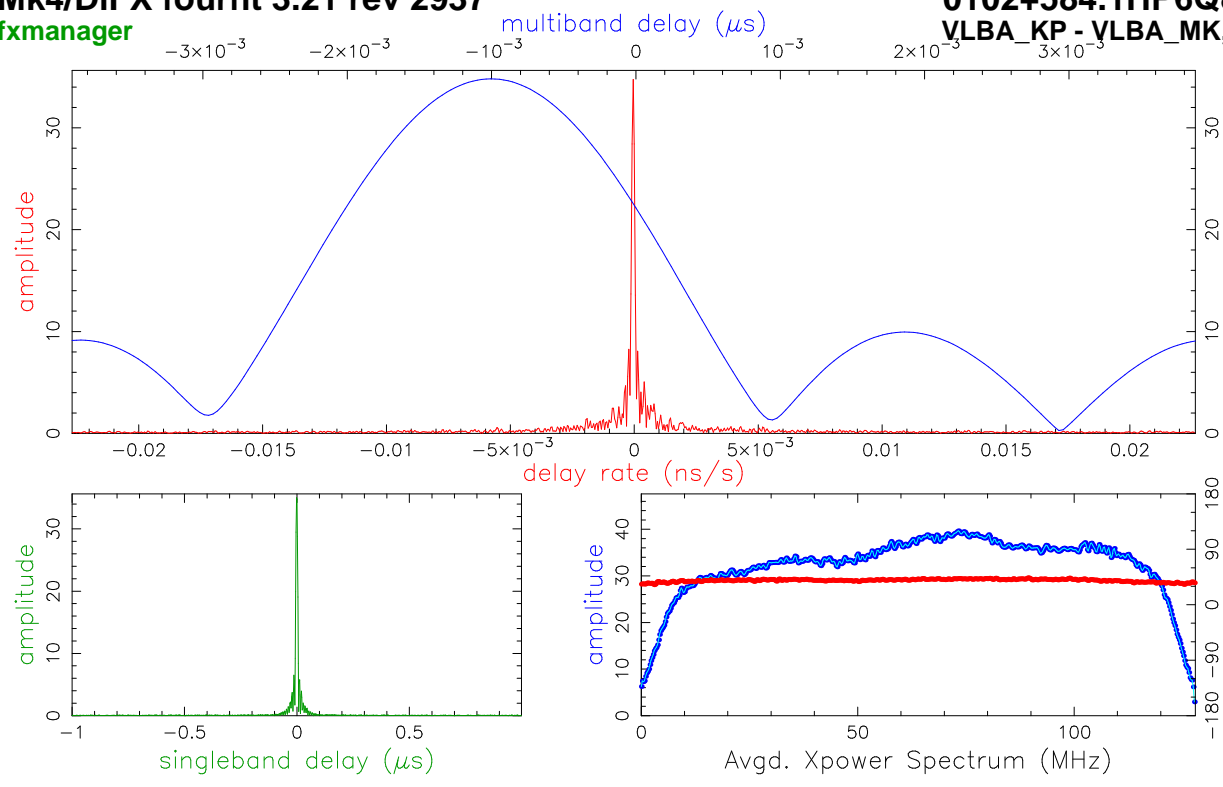
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kl..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kl.Q.82.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, km

VLBA_KP - VLBA_MK, fgroup Q, pol RR

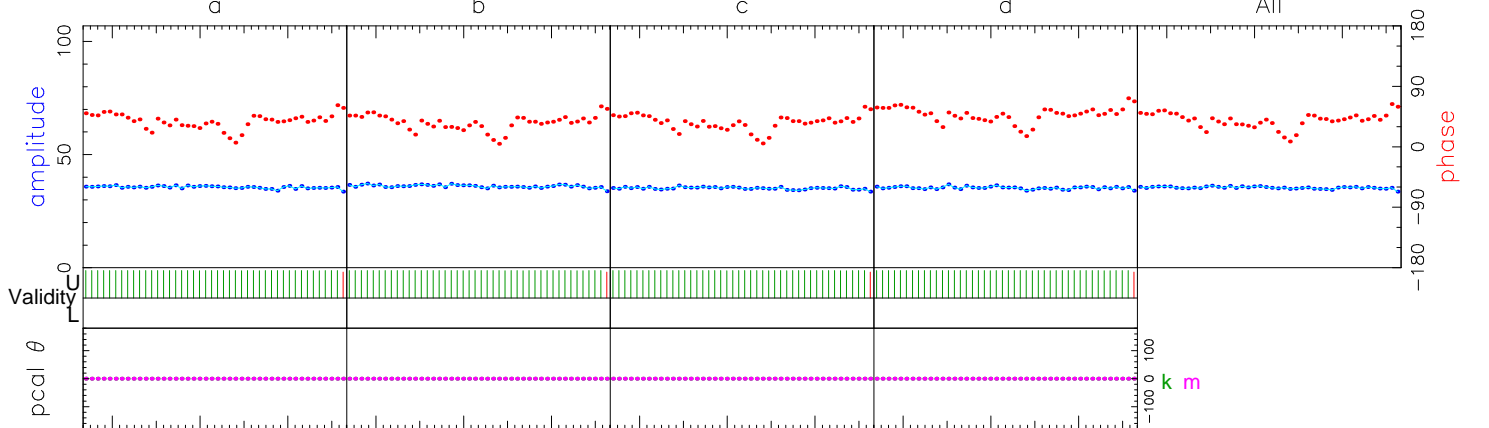


Fringe quality 9

SNR 1306.8
 Int time 179.801
 Amp 35.639
 Phase 39.6
 PFD 0.0e+00
 Delays (us)
 SBD -0.001060
 MBD -0.001068
 Fringe rate (Hz)
 -0.001734
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512

Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163112
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-------------|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| k | 1000 | 1000 | 1000 | 1000 | APs used | 1000 |
| m | 1000 | 1000 | 1000 | 1000 | PC freqs | 1000 |
| k:m | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | 0:0 |
| k:m | 0:0 | 0:0 | 0:0 | 0:0 | ManI PC | 0:0 |
| k | 1000 | 1000 | 1000 | 1000 | PC amp | 1000 |
| m | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | Chan ids | |
| m | Q00UR | Q01UR | Q02UR | Q03UR | Tracks | |
| | | | | | Chan ids | |
| | | | | | Tracks | |
| Group delay (usec)(sbd) | 7.65814381870E+03 | Apriori delay (usec) | 7.65814488627E+03 | Resid mbdelay (usec) | -1.06757E-03 | +/- 8.5E-07 |
| Sband delay (usec) | 7.65814382665E+03 | Apriori clock (usec) | -1.3030001E+01 | Resid sbdelay (usec) | -1.05962E-03 | +/- 3.3E-06 |
| Phase delay (usec) | 7.65814488883E+03 | Apriori clockrate (us/s) | 0.0000000E+00 | Resid phdelay (usec) | 2.55578E-06 | +/- 5.7E-09 |
| Delay rate (us/s) | -4.50792402160E-01 | Apriori rate (us/s) | -4.50792361863E-01 | Resid rate (us/s) | -4.02968E-08 | +/- 5.4E-11 |
| Total phase (deg) | | Apriori accel (us/s/s) | -2.25037271093E-05 | Resid phase (deg) | 39.6 | +/- 0.1 |

ph/seg (deg) 11.1 0.3
 amp/seg (%) 1.5 0.5
 ph/frq (deg) 7.1 0.1
 amp/frq (%) 2.3 0.2

RMS Theor. Amplitude 35.639 +/- 0.027
 Search (1024X16) 34.727
 Interp. 0.000
 Inc. seg. avg. 35.402
 Inc. frq. avg. 34.882

Group delay (usec)(sbd) 7.65814381870E+03
 Sband delay (usec) 7.65814382665E+03
 Phase delay (usec) 7.65814488883E+03
 Delay rate (us/s) -4.50792402160E-01
 Total phase (deg) 5.5

Apriori delay (usec) 7.65814488627E+03
 Apriori clock (usec) -1.3030001E+01
 Apriori clockrate (us/s) 0.0000000E+00
 Apriori rate (us/s) -4.50792361863E-01
 Apriori accel (us/s/s) -2.25037271093E-05

Resid mbdelay (usec) -1.06757E-03
 Resid sbdelay (usec) -1.05962E-03
 Resid phdelay (usec) 2.55578E-06
 Resid rate (us/s) -4.02968E-08
 Resid phase (deg) 39.6

PCal mode: MANUAL, MANUAL PC period (AP's) 5, 5
 PCal rate: 0.000E+00, 0.000E+00 (us/s)
 Bits/sample: 2x2 SampCntNorm: enabled
 Sample rate(MSamp/s): 256
 Data rate(Mb/s): 2048 nlags: 512 t_cohere infinite

sb window (us) -1.000 1.000
 mb window (us) -0.004 0.004
 dr window (ns/s) -0.023 0.023
 ion window (TEC) 0.00 0.00

k: az 21.3 el 60.1 pa -144.4 m: az 32.9 el 30.2 pa -101.9 u,v (fr/asec) 2454.916 -1019.382 simultaneous interpolator

Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/km..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/km.Q.104.1HP6Q8

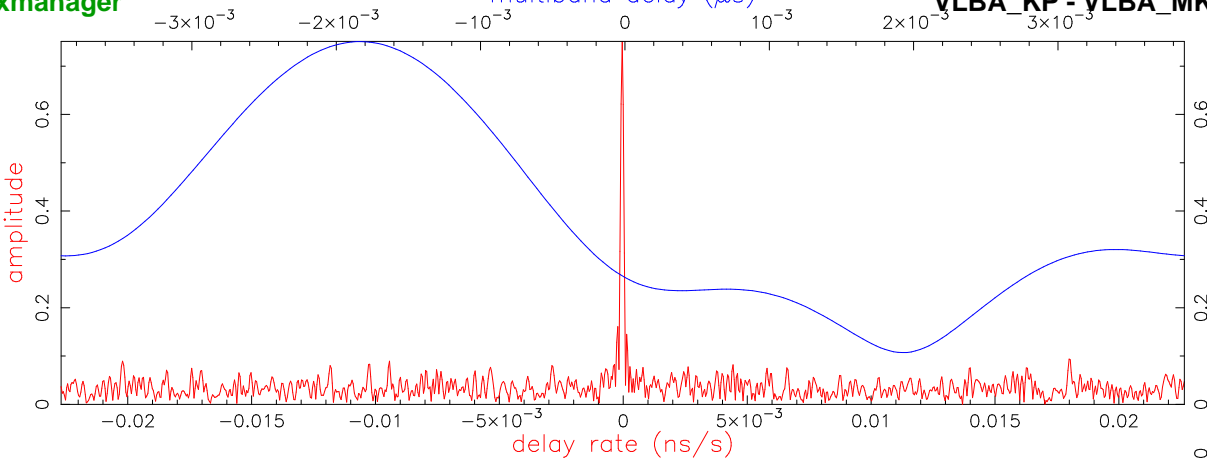
Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, km

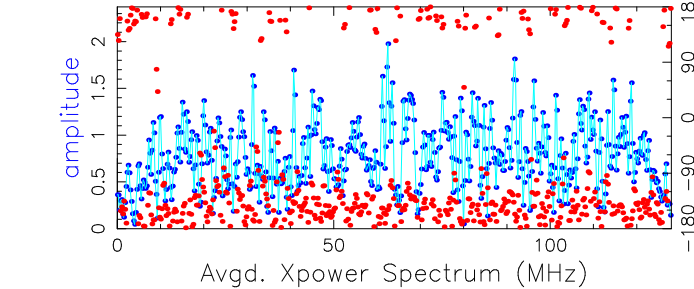
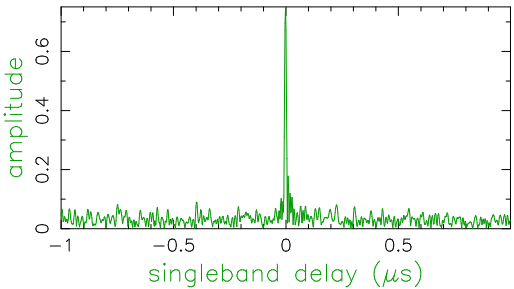
VLBA_KP - VLBA_MK, fgroup Q, pol LR

multiband delay (μ s)



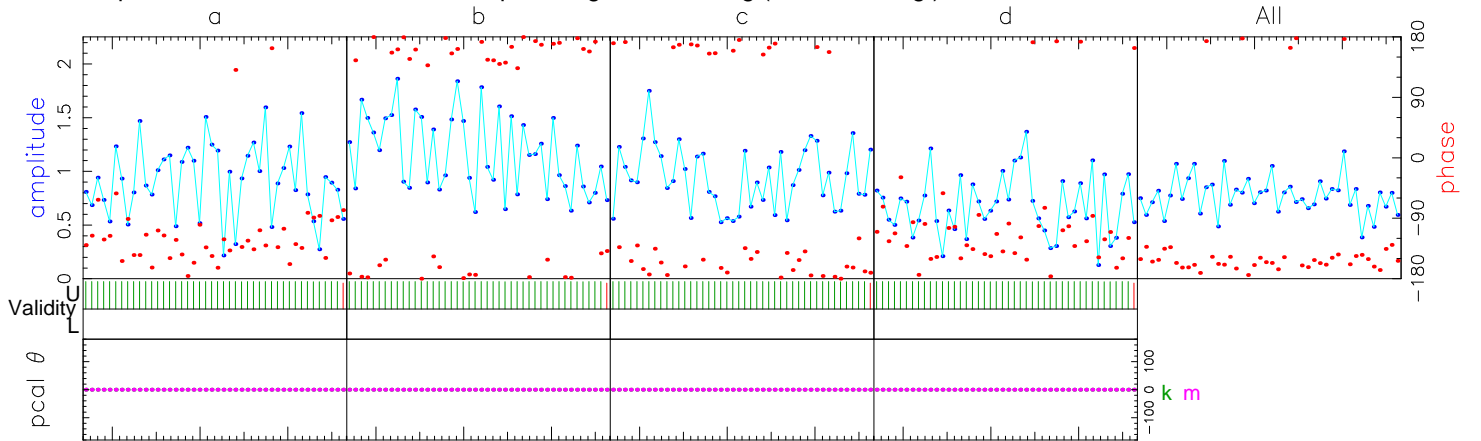
Fringe quality 6

SNR 27.5
 Int time 179.801
 Amp 0.751
 Phase -158.0
 PFD 0.0e+00
 Delays (us)
 SBD -0.002112
 MBD -0.001851
 Fringe rate (Hz)
 -0.001704
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512



Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163115
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-----|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| k | 1000 | 1000 | 1000 | 1000 | | |
| m | 1000 | 1000 | 1000 | 1000 | | |
| k:m | 0:0 | 0:0 | 0:0 | 0:0 | | |
| k:m | 0:0 | 0:0 | 0:0 | 0:0 | | |
| k | 1000 | 1000 | 1000 | 1000 | | |
| m | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UL | Q01UL | Q02UL | Q03UL | | |
| m | Q00UR | Q01UR | Q02UR | Q03UR | | |

| | 7.65814303505E+03 | Apriori delay (usec) | 7.65814488627E+03 | Resid mbdelay (usec) | -1.85123E-03 | +/- 4.0E-05 |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-------------|
| Group delay (usec)(sbd) | 7.65814277377E+03 | Apriori clock (usec) | -1.3030001E+01 | Resid sbdelay (usec) | -2.11250E-03 | +/- 1.6E-04 |
| Sband delay (usec) | 7.65814487608E+03 | Apriori clockrate (us/s) | 0.0000000E+00 | Resid phdelay (usec) | -1.01951E-05 | +/- 2.7E-07 |
| Phase delay (usec) | -4.50792401448E-01 | Apriori rate (us/s) | -4.50792361863E-01 | Resid rate (us/s) | -3.95849E-08 | +/- 2.6E-09 |
| Delay rate (us/s) | | Apriori accel (us/s/s) | -2.25037271093E-05 | Resid phase (deg) | -158.0 | +/- 4.2 |
| Total phase (deg) | 167.9 | | | | | |

| | RMS | Theor. | Amplitude | 0.751 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
|--------------|------|--------|------------------|-----------------|--|---|
| ph/seg (deg) | 14.5 | 13.8 | Search (1024X16) | 0.745 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| amp/seg (%) | 22.2 | 24.1 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled mb window (us) -0.004 0.004 |
| ph/frq (deg) | 37.6 | 4.2 | Inc. seg. avg. | 0.753 | Sample rate(MSamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| amp/frq (%) | 27.2 | 7.3 | Inc. frq. avg. | 0.834 | Data rate(Mb/s): 2048 | nlags: 512 t_cohere infinite ion window (TEC) 0.00 0.00 |

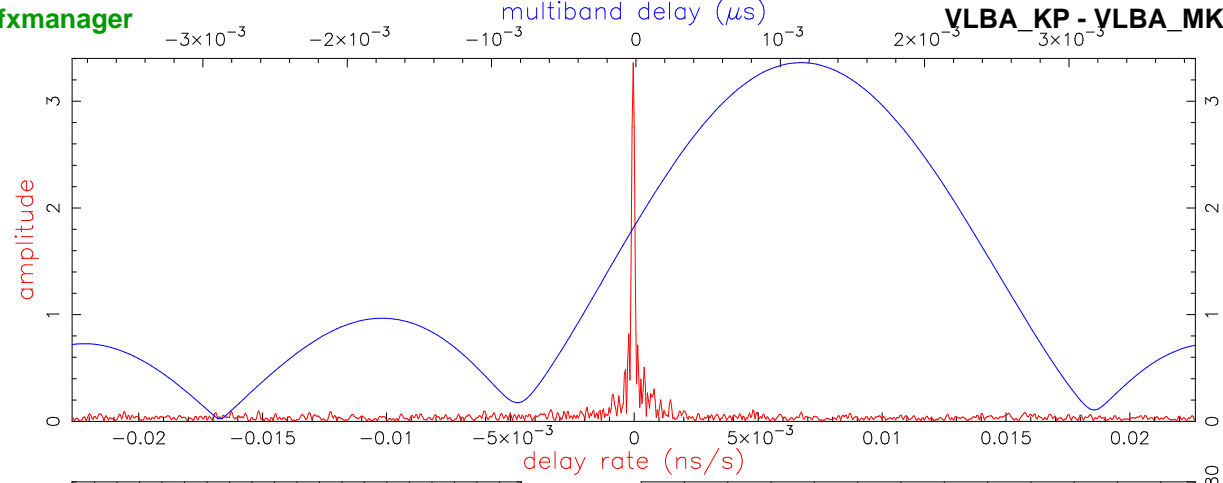
k: az 21.3 el 60.1 pa -144.4 m: az 32.9 el 30.2 pa -101.9 u,v (fr/asec) 2454.916 -1019.382 simultaneous interpolator
 Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/km..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/km.Q.134.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, km

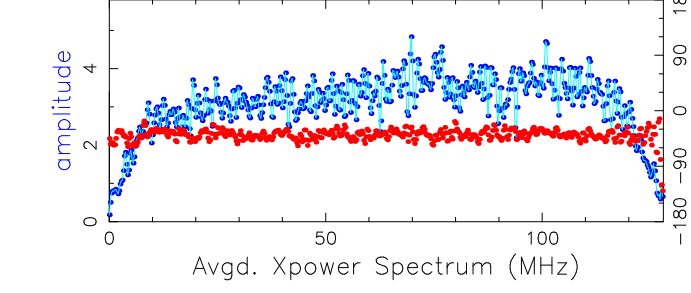
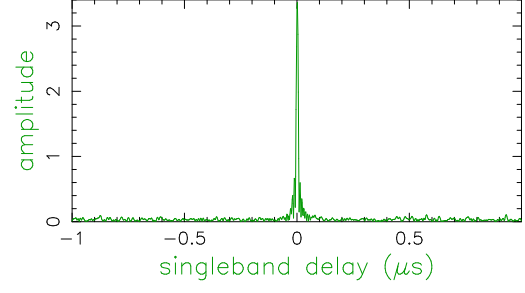
VLBA_KP - VLBA_MK, fgroup Q, pol RL



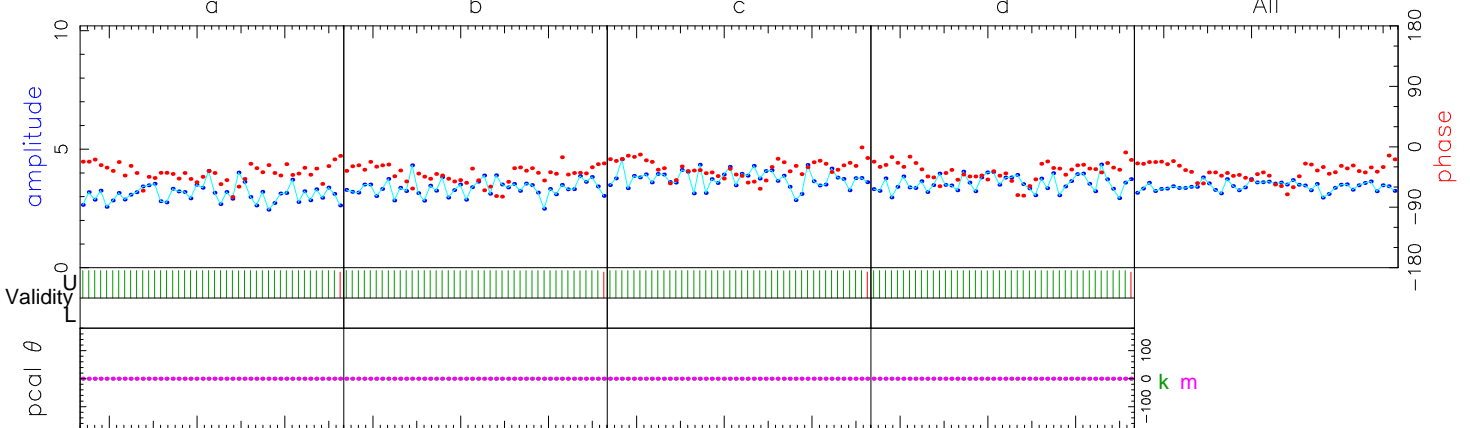
Fringe quality 8

SNR 124.7
 Int time 179.801
 Amp 3.402
 Phase -36.8
 PFD 0.0e+00
 Delays (us)
 SBD 0.001215
 MBD 0.001108
 Fringe rate (Hz)
 -0.001706
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512

Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163117
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"



Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-------|
| | -38.9 | -41.0 | -31.8 | -36.4 | Phase | -36.8 |
| | 3.0 | 3.3 | 3.7 | 3.5 | Ampl. | 3.4 |
| | 513.6 | 513.7 | 513.6 | 513.7 | Sbd box | 513.6 |
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | APs used | |
| k | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| m | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k:m | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| k:m | 0:0 | 0:0 | 0:0 | 0:0 | ManI PC | |
| k | 1000 | 1000 | 1000 | 1000 | PC amp | |
| m | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | Chan ids | |
| m | Q00UL | Q01UL | Q02UL | Q03UL | Tracks | |
| | | | | | Chan ids | |
| | | | | | Tracks | |

| | | | | | | | |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec)(sbd) | 7.65814599445E+03 | Apriori delay (usec) | 7.65814488627E+03 | Resid mbdelay (usec) | 1.10818E-03 | +/- | 8.9E-06 |
| Sband delay (usec) | 7.65814610090E+03 | Apriori clock (usec) | -1.3030001E+01 | Resid sbdelay (usec) | 1.21462E-03 | +/- | 3.5E-05 |
| Phase delay (usec) | 7.65814488390E+03 | Apriori clockrate (us/s) | 0.0000000E+00 | Resid phdelay (usec) | -2.37703E-06 | +/- | 5.9E-08 |
| Delay rate (us/s) | -4.50792401504E-01 | Apriori rate (us/s) | -4.50792361863E-01 | Resid rate (us/s) | -3.96417E-08 | +/- | 5.7E-10 |
| Total phase (deg) | 289.1 | Apriori accel (us/s/s) | -2.25037271093E-05 | Resid phase (deg) | -36.8 | +/- | 0.9 |

| | | | | | | | | | | |
|--------------|------|------------------|-------|----------------|-----------------|--|-----------------------|-------------------|------------------|-----------|
| ph/seg (deg) | 12.0 | Theor. | 3.0 | Amplitude | 3.402 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 | | | |
| amp/seg (%) | 5.4 | Search (1024X16) | 3.314 | Search | 3.314 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) | -1.000 1.000 | | |
| ph/frq (deg) | 4.9 | Inc. seg. avg. | 3.432 | Inc. seg. avg. | 3.432 | Bits/sample: 2x2 | SampCntNorm: enabled | mb window (us) | -0.004 0.004 | |
| amp/frq (%) | 6.9 | Inc. frq. avg. | 3.366 | Inc. frq. avg. | 3.366 | Sample rate(MISamp/s): 256 | dr window (ns/s) | -0.023 0.023 | | |
| | | | | | | Data rate(Mb/s): 2048 | nlags: 512 | t_cohere infinite | ion window (TEC) | 0.00 0.00 |

k: az 21.3 el 60.1 pa -144.4 m: az 32.9 el 30.2 pa -101.9 u,v (fr/asec) 2454.916 -1019.382 simultaneous interpolator

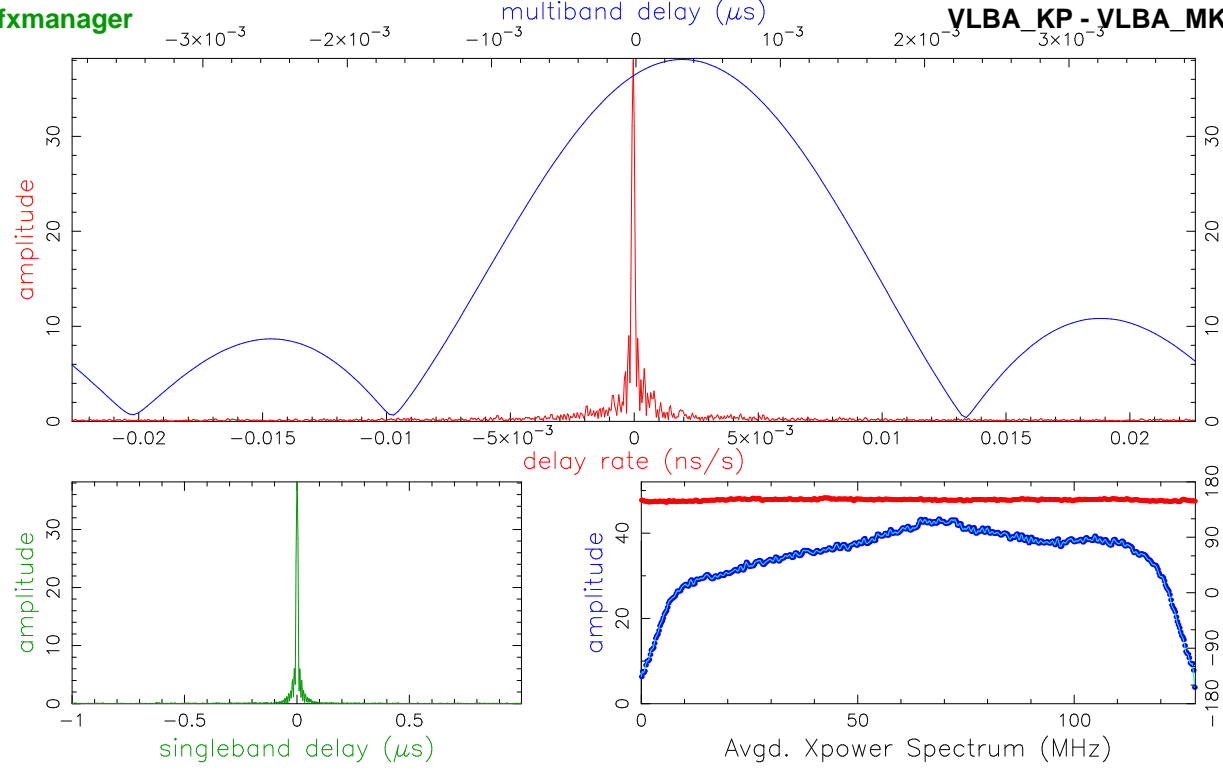
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/km..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/km.Q.155.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, km

VLBA_KP - VLBA_MK, fgroup Q, pol LL

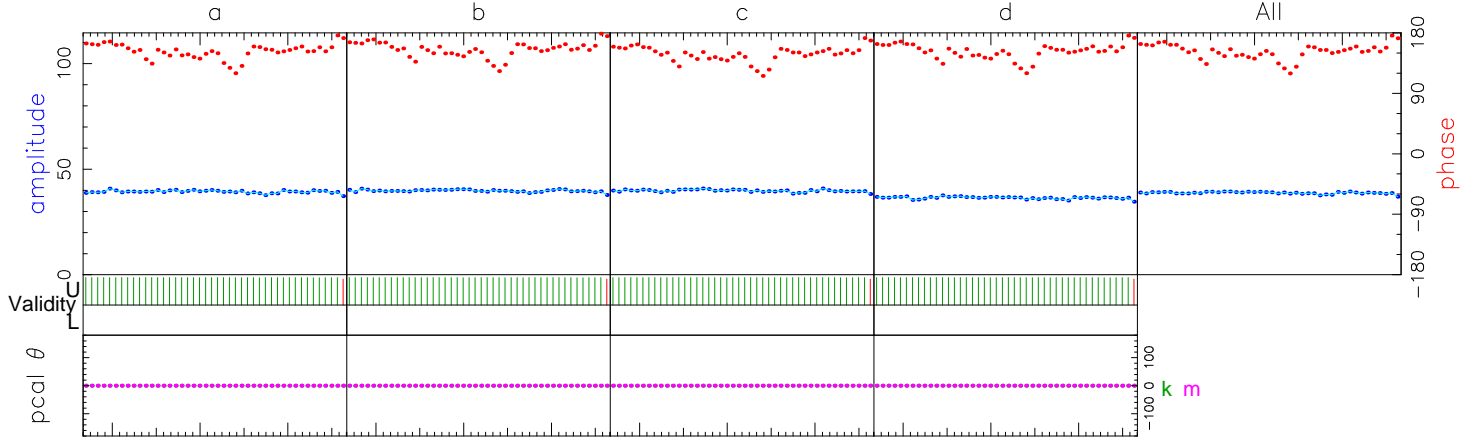


Fringe quality 9

SNR 1400.8
 Int time 179.801
 Amp 38.203
 Phase 152.1
 PFD 0.0e+00
 Delays (us)
 SBD 0.000376
 MBD 0.000339
 Fringe rate (Hz)
 -0.001747
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512

Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163109
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-----|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| k | 1000 | 1000 | 1000 | 1000 | | |
| m | 1000 | 1000 | 1000 | 1000 | | |
| k:m | 0:0 | 0:0 | 0:0 | 0:0 | | |
| k:m | 0:0 | 0:0 | 0:0 | 0:0 | | |
| k | 1000 | 1000 | 1000 | 1000 | | |
| m | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UL | Q01UL | Q02UL | Q03UL | | |
| m | Q00UL | Q01UL | Q02UL | Q03UL | | |
| | | | | | Chan ids | |
| | | | | | Tracks | |
| | | | | | Chan ids | |
| | | | | | Tracks | |

| | | | | | | | |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec)(sbd) | 7.65814522561E+03 | Apriori delay (usec) | 7.65814488627E+03 | Resid mbdelay (usec) | 3.39335E-04 | +/- | 7.9E-07 |
| Sband delay (usec) | 7.65814526240E+03 | Apriori clock (usec) | -1.3030001E+01 | Resid sbdelay (usec) | 3.76125E-04 | +/- | 3.1E-06 |
| Phase delay (usec) | 7.65814489609E+03 | Apriori clockrate (us/s) | 0.0000000E+00 | Resid phdelay (usec) | 9.81522E-06 | +/- | 5.3E-09 |
| Delay rate (us/s) | -4.50792402449E-01 | Apriori rate (us/s) | -4.50792361863E-01 | Resid rate (us/s) | -4.05861E-08 | +/- | 5.1E-11 |
| Total phase (deg) | 118.0 | Apriori accel (us/s/s) | -2.25037271093E-05 | Resid phase (deg) | 152.1 | +/- | 0.1 |

| | | | | | | | | | |
|--------------|------|-----|------------------|------------------|--|----------------------|----------------------|------------------|-----------|
| ph/seg (deg) | 11.1 | 0.3 | Amplitude | 38.203 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) | 5, 5 | | |
| amp/seg (%) | 2.1 | 0.5 | Search (1024X16) | 37.617 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) | -1.000 1.000 | | |
| ph/frq (deg) | 3.5 | 0.1 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled | mb window (us) | -0.004 0.004 | |
| amp/frq (%) | 3.6 | 0.1 | Inc. seg. avg. | 38.803 | Sample rate(MISamp/s): 256 | | dr window (ns/s) | -0.023 0.023 | |
| | | | Inc. frq. avg. | 38.120 | Data rate(Mb/s): 2048 | nlags: 512 | t_coherence infinite | ion window (TEC) | 0.00 0.00 |

k: az 21.3 el 60.1 pa -144.4 m: az 32.9 el 30.2 pa -101.9 u,v (fr/asec) 2454.916 -1019.382 simultaneous interpolator

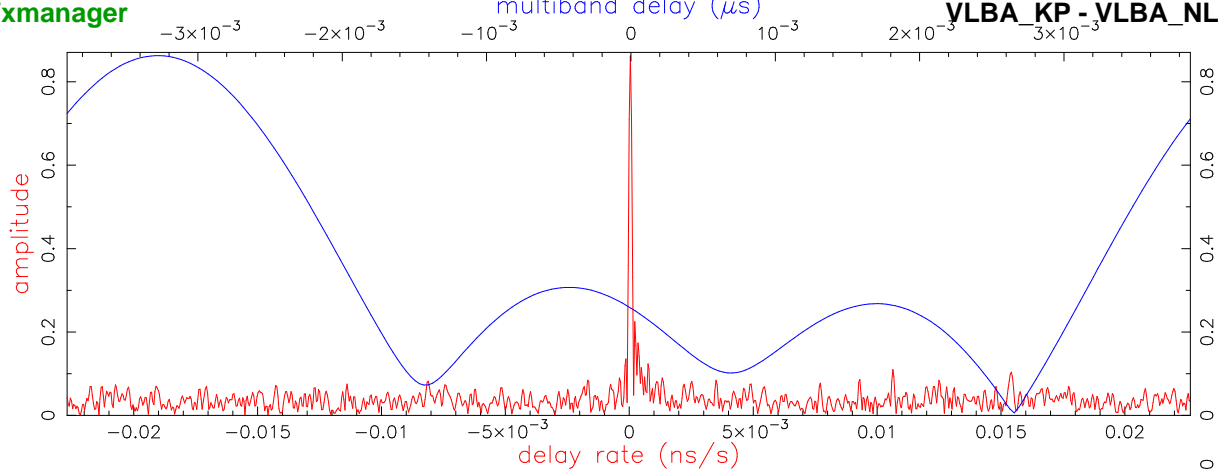
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/km..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/km.Q.83.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

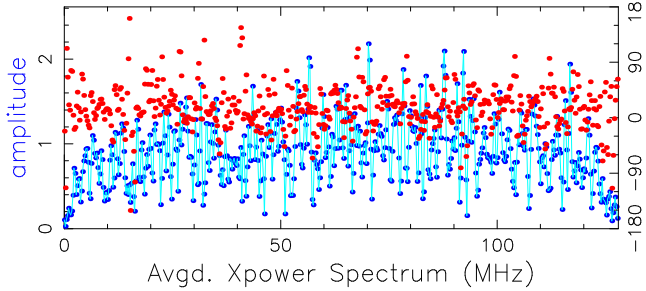
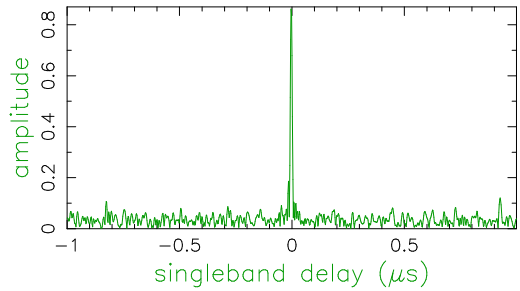
0102+584.1HP6Q8, No0090, kn

VLBA_KP - VLBA_NL, fgroup Q, pol LR



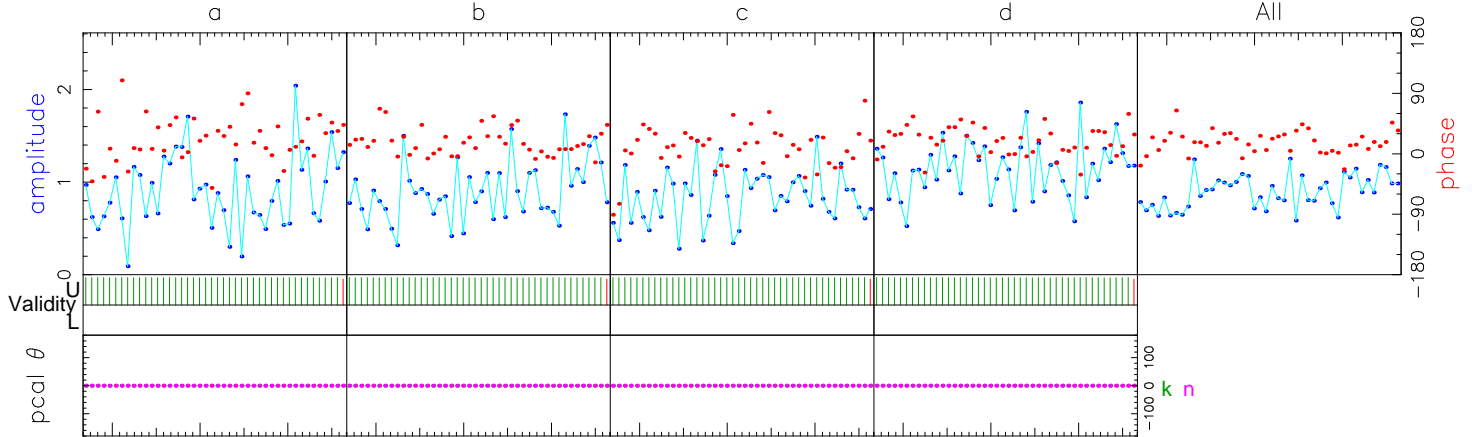
Fringe quality 9

SNR 31.9
 Int time 179.799
 Amp 0.871
 Phase 16.9
 PFD 0.0e+00
 Delays (us)
 SBD -0.003261
 MBD -0.003242
 Fringe rate (Hz)
 0.002174
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512



Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163114
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-------|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| k | 1000 | 1000 | 1000 | 1000 | APs used | 511.3 |
| n | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k:n | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| k:n | 0:0 | 0:0 | 0:0 | 0:0 | ManI PC | |
| k | 1000 | 1000 | 1000 | 1000 | PC amp | |
| n | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UL | Q01UL | Q02UL | Q03UL | Chan ids | |
| n | Q00UR | Q01UR | Q02UR | Q03UR | Tracks | |

| | | | | | | | |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec)(sbd) | -1.88980709337E+03 | Apriori delay (usec) | -1.88980385110E+03 | Resid mbdelay (usec) | -3.24227E-03 | +/- | 3.5E-05 |
| Sband delay (usec) | -1.88980711160E+03 | Apriori clock (usec) | 2.0176315E-01 | Resid sbdelay (usec) | -3.26050E-03 | +/- | 1.3E-04 |
| Phase delay (usec) | -1.88980385001E+03 | Apriori clockrate (us/s) | -4.0000002E-07 | Resid phdelay (usec) | 1.08783E-06 | +/- | 2.3E-07 |
| Delay rate (us/s) | 2.35660785618E-01 | Apriori rate (us/s) | 2.35660735108E-01 | Resid rate (us/s) | 5.05100E-08 | +/- | 2.2E-09 |
| Total phase (deg) | -253.6 | Apriori accel (us/s/s) | -3.10210166430E-06 | Resid phase (deg) | 16.9 | +/- | 3.6 |

| | RMS | Theor. | Amplitude | 0.871 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 | sb window (us) | -1.000 | 1.000 |
|--------------|------|--------|------------------|-----------------|--|----------------------------|------------------|--------|-------|
| ph/seg (deg) | 16.9 | 11.9 | Search (1024X16) | 0.853 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | SampCntNorm: enabled | mb window (us) | -0.004 | 0.004 |
| amp/seg (%) | 20.6 | 20.8 | Interp. | 0.000 | Bits/sample: 2x2 | Sample rate(MISamp/s): 256 | dr window (ns/s) | -0.023 | 0.023 |
| ph/frq (deg) | 7.5 | 3.6 | Inc. seg. avg. | 0.880 | Data rate(Mb/s): 2048 | nlags: 512 | ion window (TEC) | 0.00 | 0.00 |
| amp/frq (%) | 14.3 | 6.3 | Inc. frq. avg. | 0.864 | | | | | |

k: az 21.3 el 60.1 pa -144.4 n: az 360.5 el 73.3 pa -179.4 u,v (fr/asec) -1292.625 -505.883 simultaneous interpolator

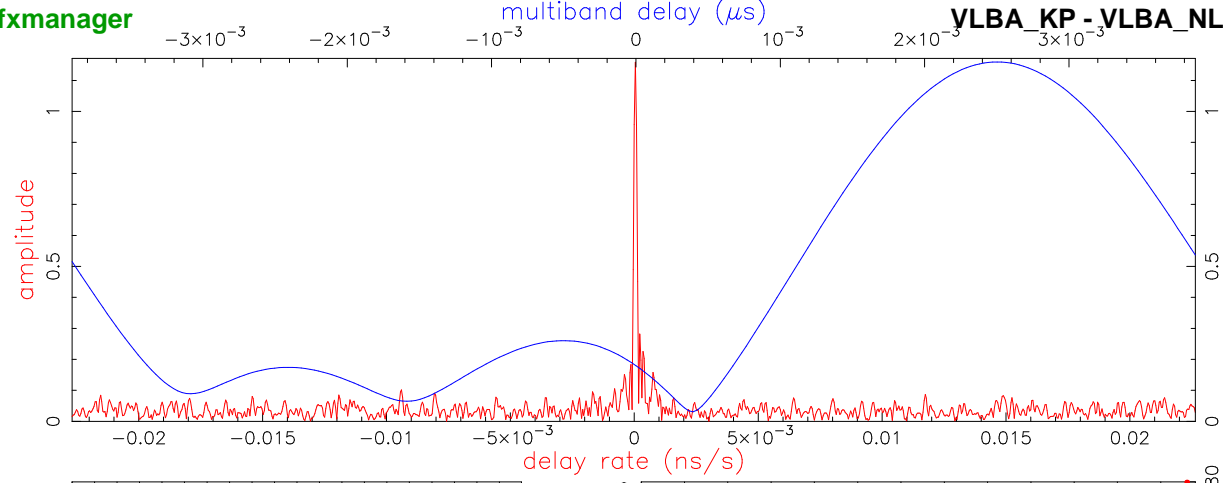
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kn..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kn.Q.123.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, kn

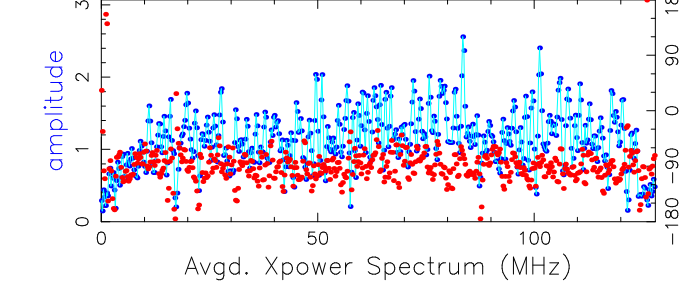
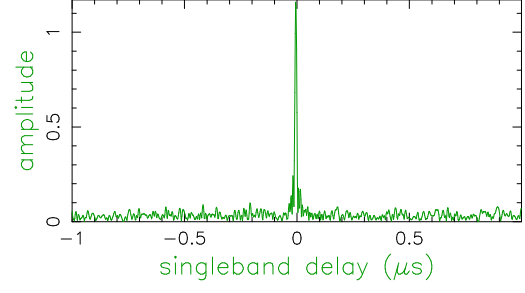
VLBA_KP - VLBA_NL, fgroup Q, pol RL



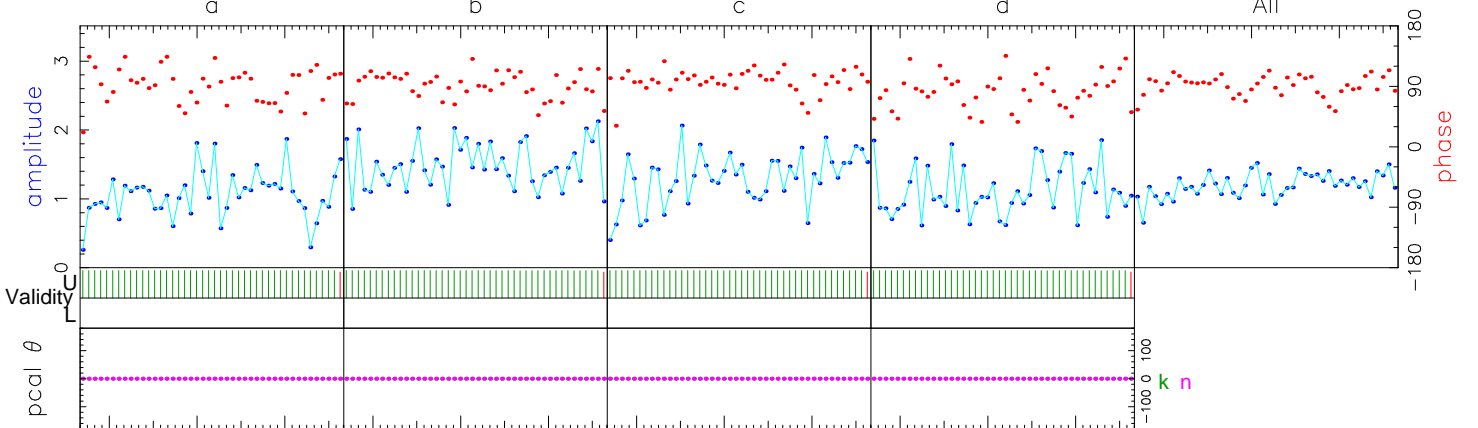
Fringe quality 9

SNR 42.9
 Int time 179.799
 Amp 1.171
 Phase 91.5
 PFD 0.0e+00
 Delays (us)
 SBD -0.005180
 MBD 0.002548
 Fringe rate (Hz)
 0.002656
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512

Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163116
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"



Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-------|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| k | 1000 | 1000 | 1000 | 1000 | APs used | |
| n | 1000 | 1000 | 1000 | 1000 | PC freqs | 510.3 |
| k:n | 0:0 | 0:0 | 0:0 | 0:0 | PC freqs | |
| k:n | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| k | 1000 | 1000 | 1000 | 1000 | Manl PC | |
| n | 1000 | 1000 | 1000 | 1000 | PC amp | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | Chan ids | |
| n | Q00UL | Q01UL | Q02UL | Q03UL | Tracks | |

| | -1.88980911568E+03 | Apriori delay (usec) | -1.88980385110E+03 | Resid mbdelay (usec) | 2.54791E-03 | +/- 2.6E-05 |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-------------|
| Group delay (usec)(sbd) | -1.88980911568E+03 | Apriori clock (usec) | 2.0176315E-01 | Resid sbdelay (usec) | -5.18000E-03 | +/- 1.0E-04 |
| Sband delay (usec) | -1.88980903110E+03 | Apriori clockrate (us/s) | -4.0000002E-07 | Resid phdelay (usec) | 5.90799E-06 | +/- 1.7E-07 |
| Phase delay (usec) | -1.88980384519E+03 | Apriori rate (us/s) | 2.35660735108E-01 | Resid rate (us/s) | 6.17187E-08 | +/- 1.7E-09 |
| Delay rate (us/s) | 2.35660796826E-01 | Apriori accel (us/s/s) | -3.10210166430E-06 | Resid phase (deg) | 91.5 | +/- 2.7 |
| Total phase (deg) | -178.9 | | | | | |

| | RMS | Theor. | Amplitude | 1.171 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
|--------------|------|--------|------------------|-----------------|--|--|
| ph/seg (deg) | 14.9 | 8.9 | Search (1024X16) | 1.124 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| amp/seg (%) | 15.0 | 15.4 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled mb window (us) -0.004 0.004 |
| ph/frq (deg) | 8.6 | 2.7 | Inc. seg. avg. | 1.184 | Sample rate(MISamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| amp/frq (%) | 15.5 | 4.7 | Inc. frq. avg. | 1.164 | Data rate(Mb/s): 2048 | ion window (TEC) 0.00 0.00 |

k: az 21.3 el 60.1 pa -144.4 n: az 360.5 el 73.3 pa -179.4 u,v (fr/asec) -1292.625 -505.883 simultaneous interpolator

Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kn..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kn.Q.145.1HP6Q8

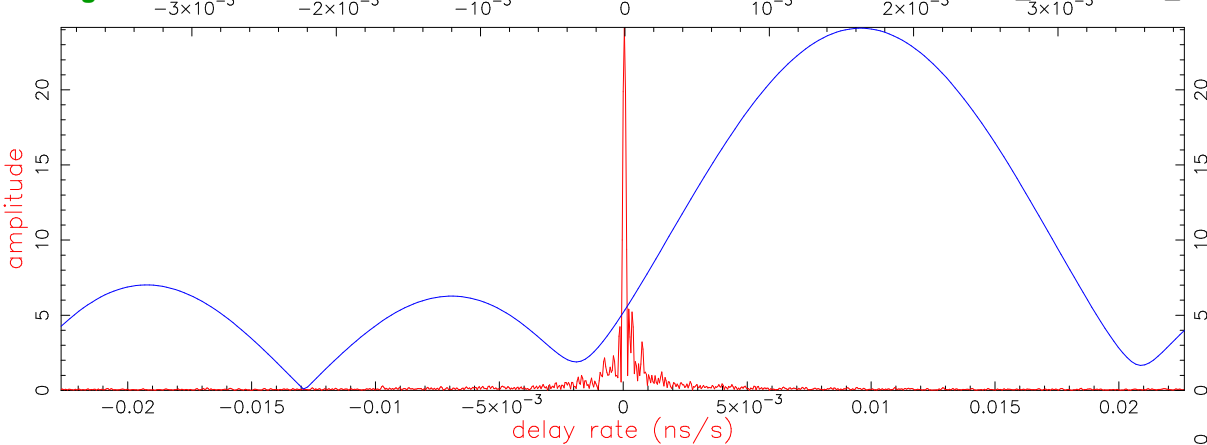
Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, kn

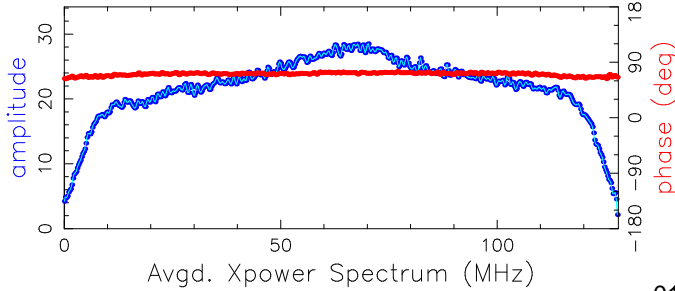
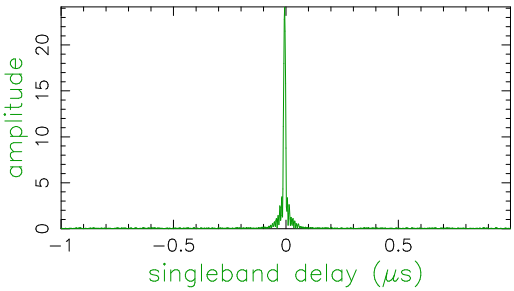
VLBA_KP - VLBA_NL, fgroup Q, pol LL

multiband delay (μ s)



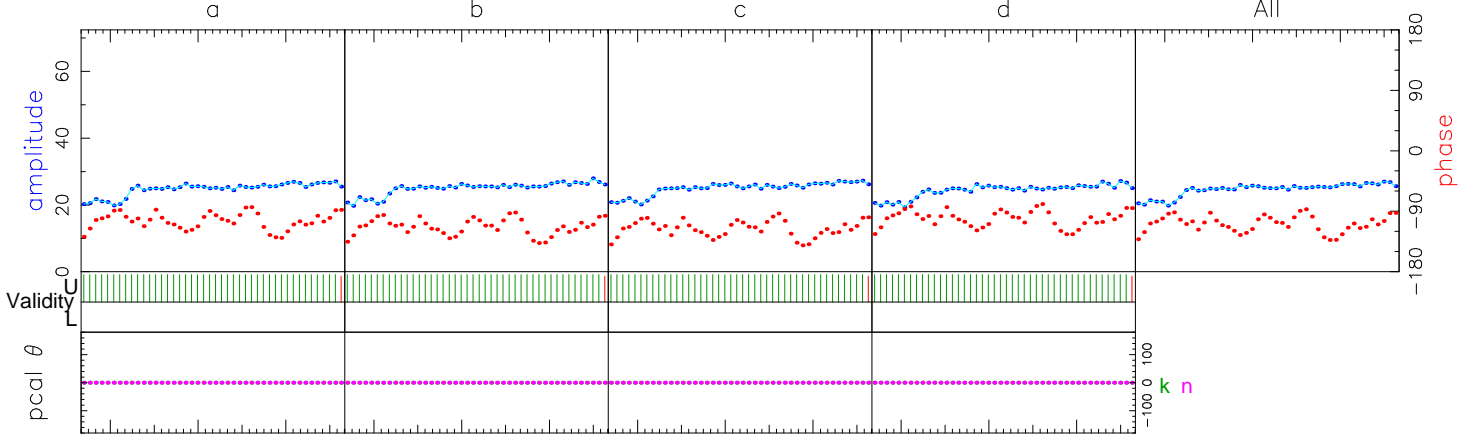
Fringe quality 8

SNR 885.7
 Int time 179.799
 Amp 24.155
 Phase -108.7
 PFD 0.0e+00
 Delays (us)
 SBD -0.006188
 MBD 0.001616
 Fringe rate (Hz)
 0.002370
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512



Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163110
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|--------|
| | -104.4 | -113.1 | -116.0 | -100.9 | Phase | -108.7 |
| | 24.2 | 24.5 | 24.4 | 23.8 | Ampl. | 24.2 |
| | 509.7 | 509.7 | 509.9 | 510.0 | Sbd box | 509.8 |
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | APs used | |
| k | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| n | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k:n | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| k:n | 0:0 | 0:0 | 0:0 | 0:0 | Manl PC | |
| k | 1000 | 1000 | 1000 | 1000 | PC amp | |
| n | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UL | Q01UL | Q02UL | Q03UL | Chan ids | |
| n | Q00UL | Q01UL | Q02UL | Q03UL | Tracks | |
| | | | | | Chan ids | |
| | | | | | Tracks | |

| | | | | | | | |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec)(sbd) | -1.88981004724E+03 | Apriori delay (usec) | -1.88980385110E+03 | Resid mbdelay (usec) | 1.61635E-03 | +/- | 1.3E-06 |
| Sband delay (usec) | -1.88981003885E+03 | Apriori clock (usec) | 2.0176315E-07 | Resid sbdelay (usec) | -6.18775E-03 | +/- | 4.9E-06 |
| Phase delay (usec) | -1.88980385811E+03 | Apriori clockrate (us/s) | -4.0000002E-07 | Resid phdelay (usec) | -7.01229E-06 | +/- | 8.4E-09 |
| Delay rate (us/s) | 2.35660790167E-01 | Apriori rate (us/s) | 2.35660735108E-01 | Resid rate (us/s) | 5.50593E-08 | +/- | 8.0E-11 |
| Total phase (deg) | -19.1 | Apriori accel (us/s/s) | -3.10210166430E-06 | Resid phase (deg) | -108.7 | +/- | 0.1 |

| | | | | | | | | |
|--------------|----------|------------|----------------------------|--|----------------------------|------------------|--------|-------|
| ph/seg (deg) | RMS 11.9 | Theor. 0.4 | Amplitude 24.155 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 | sb window (us) | -1.000 | 1.000 |
| amp/seg (%) | 8.1 | 0.7 | Search (1024X16) 23.566 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | SampCntNorm: enabled | mb window (us) | -0.004 | 0.004 |
| ph/frq (deg) | 8.7 | 0.1 | Interp. 0.000 | Bits/sample: 2x2 | Sample rate(MISamp/s): 256 | dr window (ns/s) | -0.023 | 0.023 |
| amp/frq (%) | 1.1 | 0.2 | Inc. seg. avg. 24.623 | Data rate(Mb/s): 2048 | nlags: 512 | ion window (TEC) | 0.00 | 0.00 |
| | | | Inc. frq. avg. 24.238 | | | | | |

k: az 21.3 el 60.1 pa -144.4 n: az 360.5 el 73.3 pa -179.4 u,v (fr/asec) -1292.625 -505.883 simultaneous interpolator

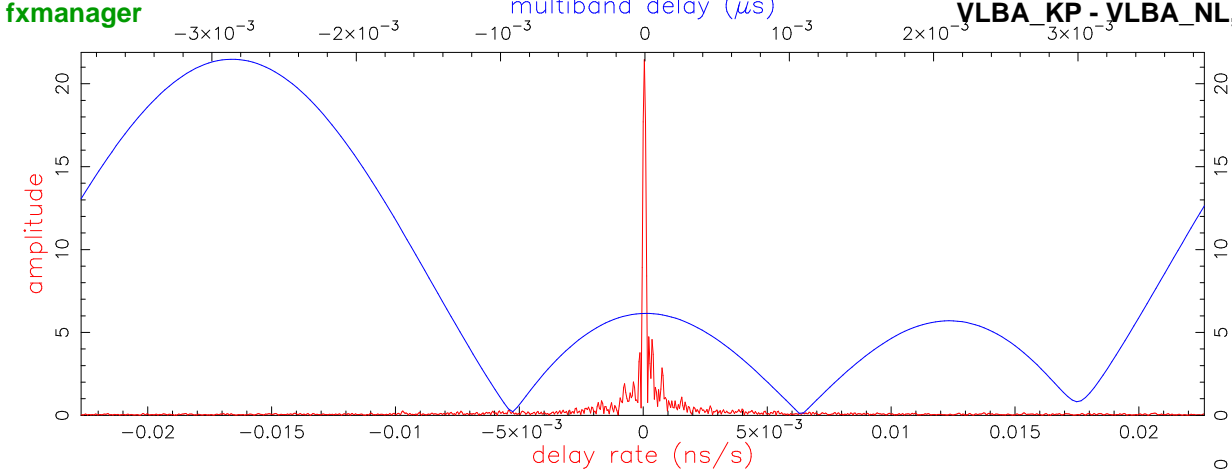
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kn..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kn.Q.84.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

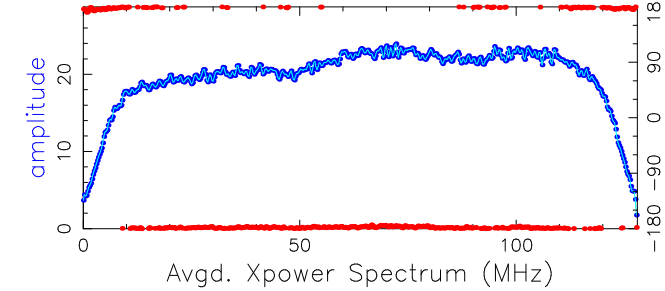
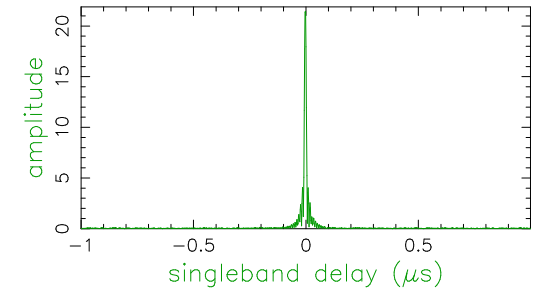
0102+584.1HP6Q8, No0090, kn

VLBA_KP - VLBA_NL, fgroup Q, pol RR



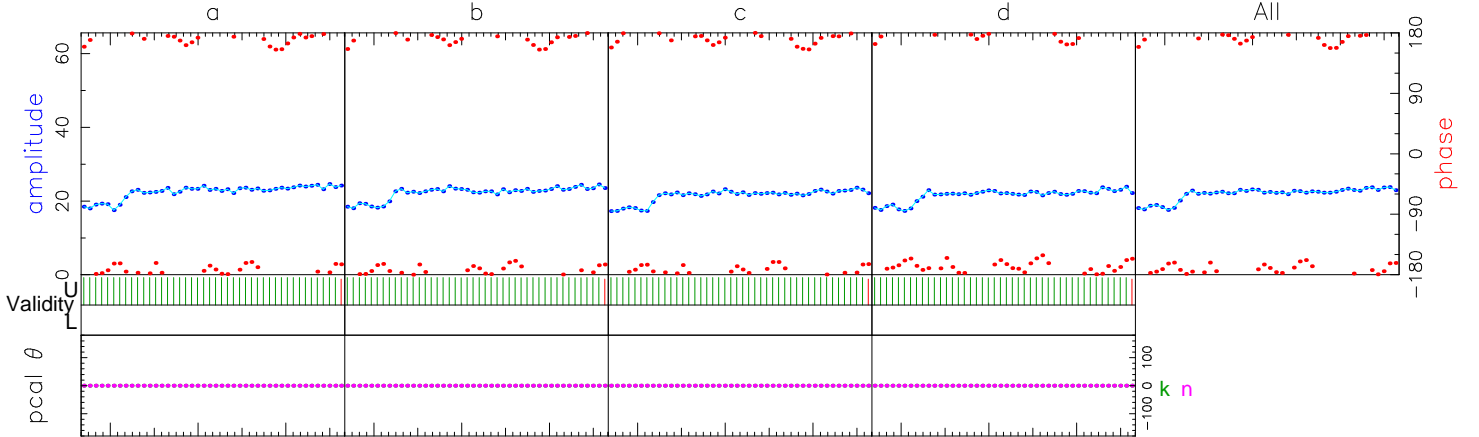
Fringe quality 8

SNR 802.7
 Int time 179.799
 Amp 21.892
 Phase -178.8
 PFD 0.0e+00
 Delays (us)
 SBD -0.002888
 MBD -0.002909
 Fringe rate (Hz) 0.002331
 Ion TEC 0.000
 Ref freq (MHz) 43040.0000
 AP (sec) 0.512



Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163111
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-----|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| k | 1000 | 1000 | 1000 | 1000 | APs used | |
| n | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k:n | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| k:n | 0:0 | 0:0 | 0:0 | 0:0 | ManI PC | |
| k | 1000 | 1000 | 1000 | 1000 | PC amp | |
| n | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | Chan ids | |
| n | Q00UR | Q01UR | Q02UR | Q03UR | Tracks | |

| | | | | | | |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-------------|
| Group delay (usec)(sbd) | -1.88980675984E+03 | Apriori delay (usec) | -1.88980385110E+03 | Resid mbdelay (usec) | -2.90874E-03 | +/- 1.4E-06 |
| Sband delay (usec) | -1.88980673872E+03 | Apriori clock (usec) | 2.0176315E-01 | Resid sbdelay (usec) | -2.88763E-03 | +/- 5.4E-06 |
| Phase delay (usec) | -1.88980386263E+03 | Apriori clockrate (us/s) | -4.0000002E-07 | Resid phdelay (usec) | -1.15382E-05 | +/- 9.2E-09 |
| Delay rate (us/s) | 2.35660789268E-01 | Apriori rate (us/s) | 2.35660735108E-01 | Resid rate (us/s) | 5.41602E-08 | +/- 8.9E-11 |
| Total phase (deg) | -89.2 | Apriori accel (us/s/s) | -3.10210166430E-06 | Resid phase (deg) | -178.8 | +/- 0.1 |

| | RMS | Theor. | Amplitude | 21.892 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
|--------------|------|--------|------------------|------------------|--|---|
| ph/seg (deg) | 11.8 | 0.5 | Search (1024X16) | 21.231 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| amp/seg (%) | 7.9 | 0.8 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled mb window (us) -0.004 0.004 |
| ph/frq (deg) | 4.8 | 0.1 | Inc. seg. avg. | 21.913 | Sample rate(MISamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| amp/frq (%) | 2.7 | 0.2 | Inc. frq. avg. | 21.495 | Data rate(Mb/s): 2048 | nlags: 512 t_cohere infinite ion window (TEC) 0.00 0.00 |

k: az 21.3 el 60.1 pa -144.4 n: az 360.5 el 73.3 pa -179.4 u,v (fr/asec) -1292.625 -505.883 simultaneous interpolator

Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kn..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kn.Q.99.1HP6Q8

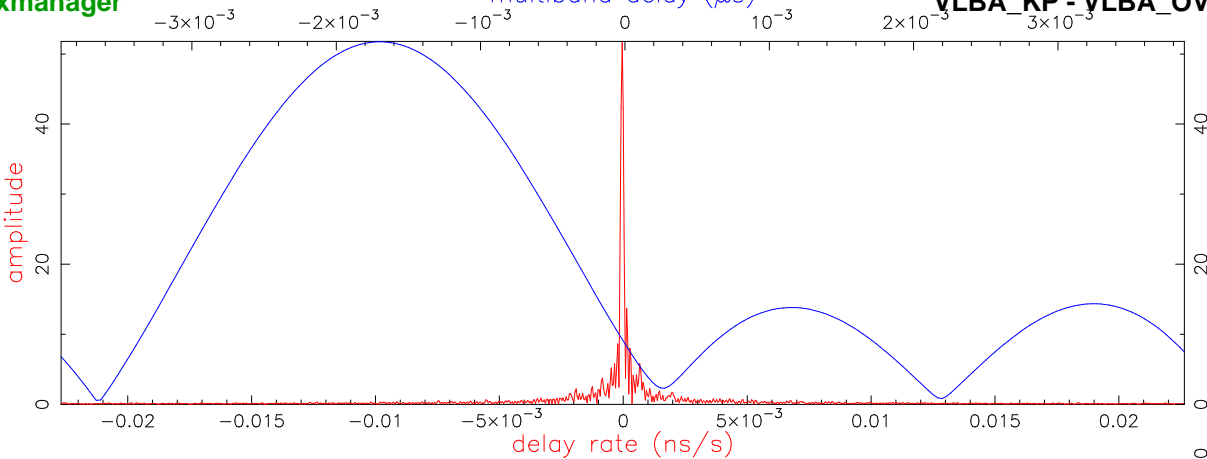
Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, ko

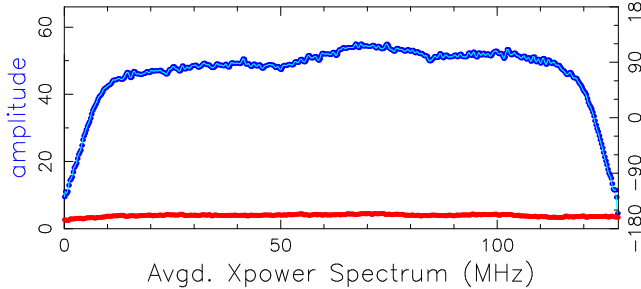
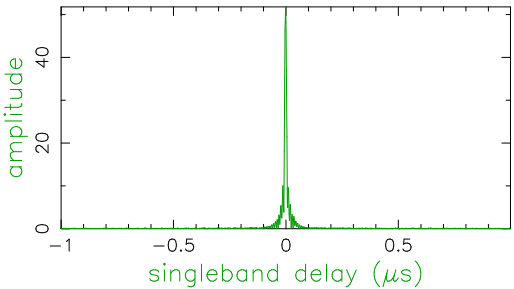
VLBA_KP - VLBA_OV, fgroup Q, pol RR

multiband delay (μ s)



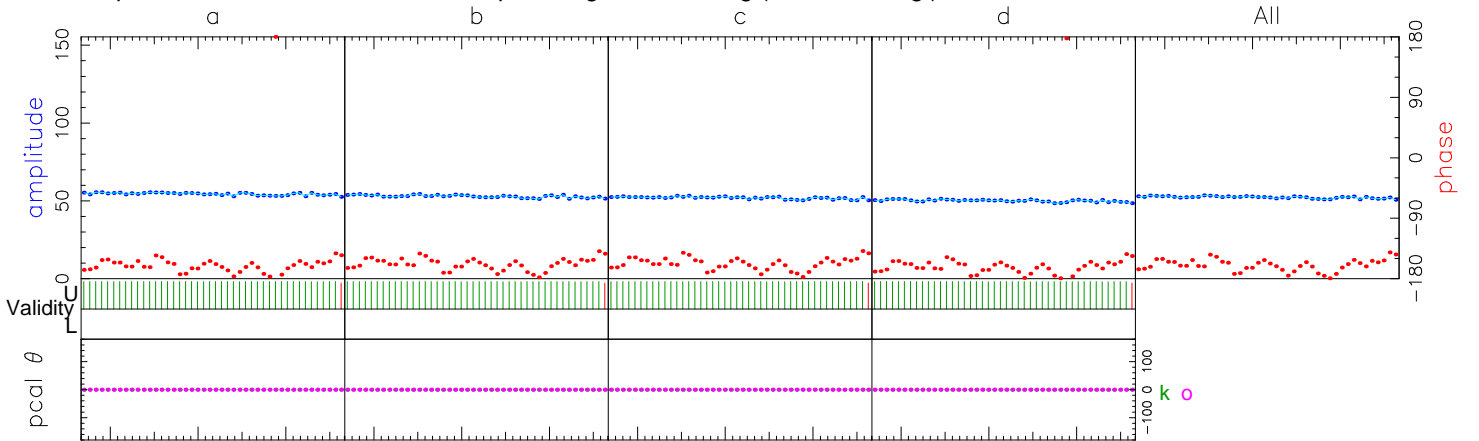
Fringe quality 9

SNR 1899.5
 Int time 179.800
 Amp 51.801
 Phase -159.7
 PFD 0.0e+00
 Delays (us)
 SBD -0.001747
 MBD -0.001687
 Fringe rate (Hz)
 -0.001970
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512



Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163112
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|------|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| k | 1000 | 1000 | 1000 | 1000 | APs used | 1000 |
| o | 1000 | 1000 | 1000 | 1000 | PC freqs | 1000 |
| k:o | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | 0:0 |
| k:o | 0:0 | 0:0 | 0:0 | 0:0 | ManI PC | 0:0 |
| k | 1000 | 1000 | 1000 | 1000 | PC amp | 1000 |
| o | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | Chan ids | |
| o | Q00UR | Q01UR | Q02UR | Q03UR | Tracks | |
| | | | | | Chan ids | |
| | | | | | Tracks | |

| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | | |
|-------------------------|--------------------|----------|----------|----------|----------------------|--------------------------|
| Group delay (usec)(sbd) | -4.40359886474E+02 | -158.0 | -157.3 | -162.9 | Resid mbdelay (usec) | -1.68654E-03 +/- 5.9E-07 |
| Sband delay (usec) | -4.40359946685E+02 | 52.4 | 51.4 | 49.5 | Resid sbdelay (usec) | -1.74675E-03 +/- 2.3E-06 |
| Phase delay (usec) | -4.40358210243E+02 | 511.9 | 511.9 | 512.3 | Resid phdelay (usec) | -1.03083E-05 +/- 3.9E-09 |
| Delay rate (us/s) | -5.47845065774E-02 | 0:0 | 0:0 | 0:0 | Resid rate (us/s) | -4.57650E-08 +/- 3.7E-11 |
| Total phase (deg) | | -132.8 | | | Resid phase (deg) | -159.7 +/- 0.1 |

| | RMS | Theor. | Amplitude | 51.801 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
|--------------|-----|--------|------------------|------------------|--|---|
| ph/seg (deg) | 8.7 | 0.2 | Search (1024X16) | 50.630 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| amp/seg (%) | 1.8 | 0.3 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled mb window (us) -0.004 0.004 |
| ph/frq (deg) | 3.2 | 0.1 | Inc. seg. avg. | 52.354 | Sample rate(MISamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| amp/frq (%) | 3.0 | 0.1 | Inc. frq. avg. | 51.789 | Data rate(Mb/s): 2048 | nlags: 512 t_cohere infinite ion window (TEC) 0.00 0.00 |

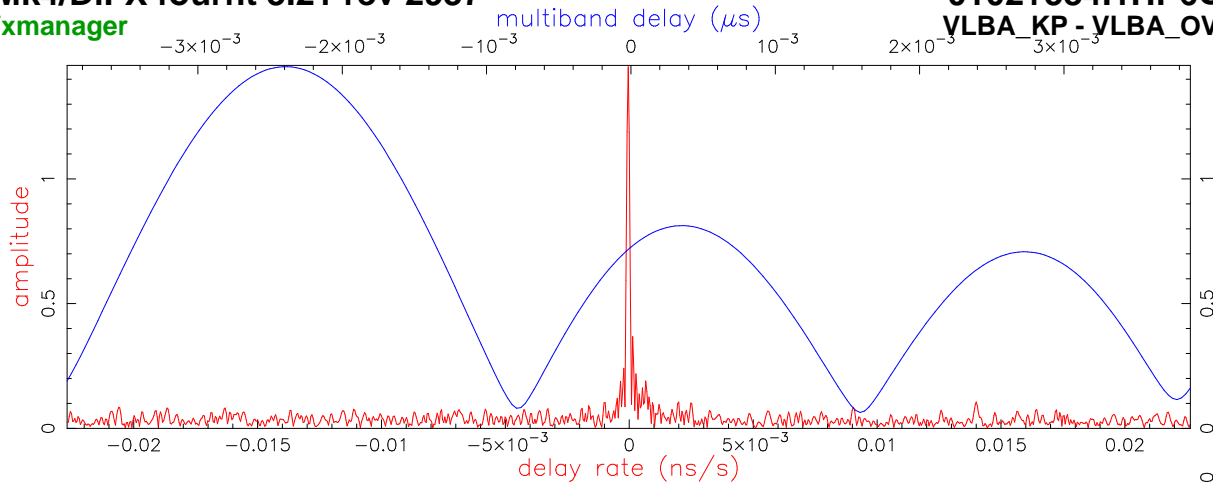
k: az 21.3 el 60.1 pa -144.4 o: az 30.8 el 62.4 pa -129.3 u,v (fr/asec) 297.154 -500.583 simultaneous interpolator
 Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/ko..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/ko.Q.106.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

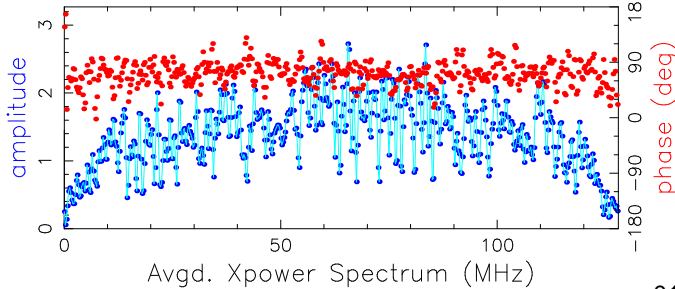
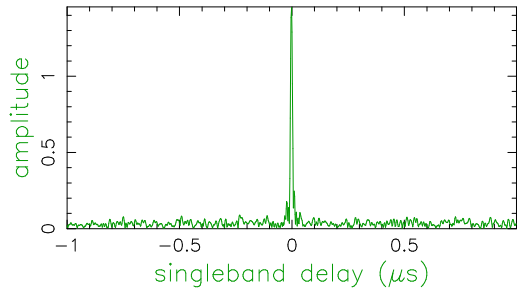
0102+584.1HP6Q8, No0090, ko

VLBA_KP - VLBA_OV, fgroup Q, pol LR



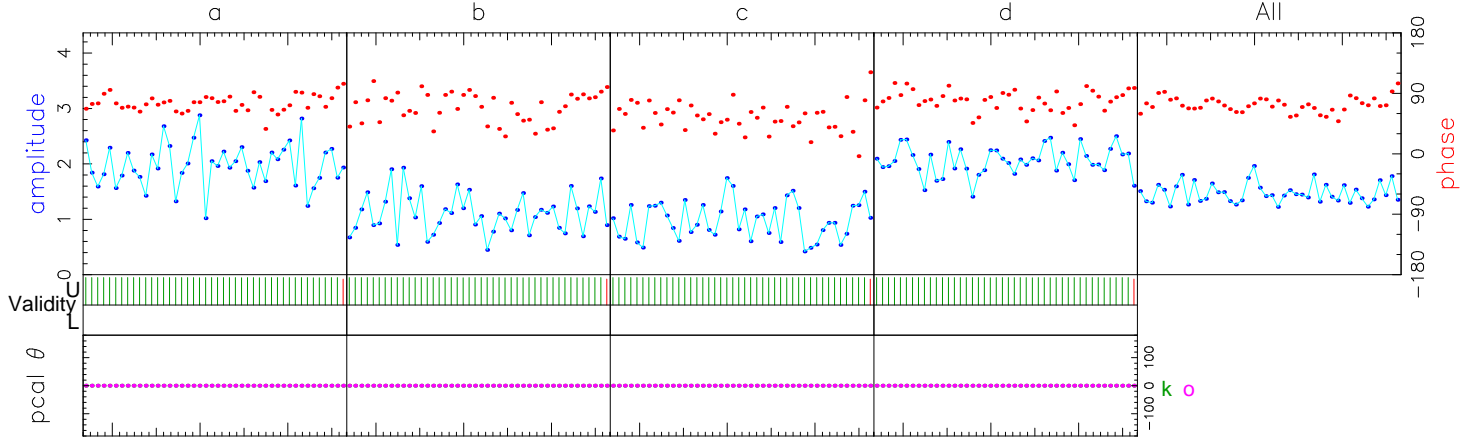
Fringe quality 7

SNR 53.4
 Int time 179.800
 Amp 1.455
 Phase 73.1
 PFD 0.0e+00
 Delays (us)
 SBD -0.002365
 MBD -0.002405
 Fringe rate (Hz)
 -0.001983
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512



Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163113
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----------|----------|----------|----------|------------|-------|
| 75.9 | 70.7 | 54.6 | 79.9 | Phase | 73.1 |
| 1.9 | 1.0 | 0.9 | 2.0 | Ampl. | 1.5 |
| 511.5 | 512.0 | 511.6 | 512.1 | Sbd box | 511.8 |
| U/L 352/0 | 352/0 | 352/0 | 352/0 | APs used | |
| k 1000 | 1000 | 1000 | 1000 | PC freqs | |
| o 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k:o 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| k:o 0:0 | 0:0 | 0:0 | 0:0 | Manl PC | |
| k 1000 | 1000 | 1000 | 1000 | PC amp | |
| o 1000 | 1000 | 1000 | 1000 | | |
| k Q00UL | Q01UL | Q02UL | Q03UL | Chan ids | |
| o Q00UR | Q01UR | Q02UR | Q03UR | Tracks | |
| | | | | Chan ids | |
| | | | | Tracks | |

| | | | | | | | |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec)(sbd) | -4.40360605381E+02 | Apriori delay (usec) | -4.40358199935E+02 | Resid mbdelay (usec) | -2.40545E-03 | +/- | 2.1E-05 |
| Sband delay (usec) | -4.40360565185E+02 | Apriori clock (usec) | -2.1079382E+01 | Resid sbdelay (usec) | -2.36525E-03 | +/- | 8.1E-05 |
| Phase delay (usec) | -4.40358195220E+02 | Apriori clockrate (us/s) | 1.9999998E-07 | Resid phdelay (usec) | 4.71531E-06 | +/- | 1.4E-07 |
| Delay rate (us/s) | -5.47845068780E-02 | Apriori rate (us/s) | -5.47844608123E-02 | Resid rate (us/s) | -4.60657E-08 | +/- | 1.3E-09 |
| Total phase (deg) | -260.0 | Apriori accel (us/s/s) | -5.05031377225E-06 | Resid phase (deg) | 73.1 | +/- | 2.1 |

| | | | | | | | | | | |
|------------------------------|------|------------------------------|------|------------------|------------------|--|-----------------------|-------------------|------------------|-----------|
| ph/seg (deg) | 11.0 | Theor. | 7.1 | Amplitude | 1.455 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 | | | |
| amp/seg (%) | 12.3 | | 12.4 | Search (1024X16) | 1.447 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) | -1.000 1.000 | | |
| ph/frq (deg) | 14.2 | | 2.1 | Inc. seg. avg. | 1.466 | Bits/sample: 2x2 | SampCntNorm: enabled | mb window (us) | -0.004 0.004 | |
| amp/frq (%) | 34.1 | | 3.7 | Inc. frq. avg. | 1.465 | Sample rate(MISamp/s): 256 | | dr window (ns/s) | -0.023 0.023 | |
| k: az 21.3 el 60.1 pa -144.4 | | o: az 30.8 el 62.4 pa -129.3 | | u,v (fr/asec) | 297.154 -500.583 | Data rate(Mb/s): 2048 | nlags: 512 | t_cohere infinite | ion window (TEC) | 0.00 0.00 |

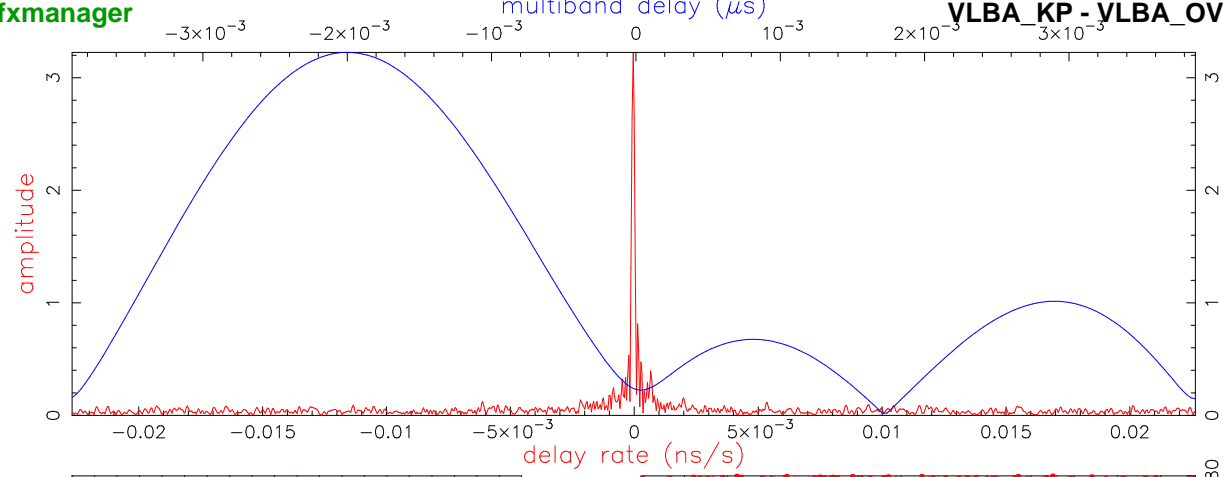
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/ko..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/ko.Q.119.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

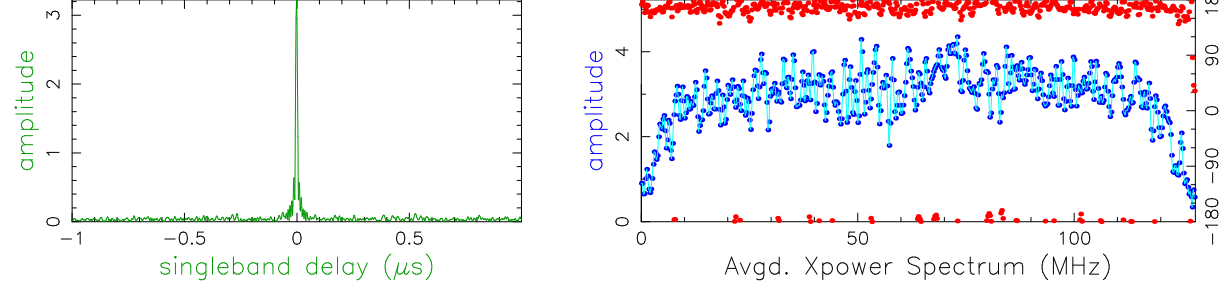
fxmanager

0102+584.1HP6Q8, No0090, ko

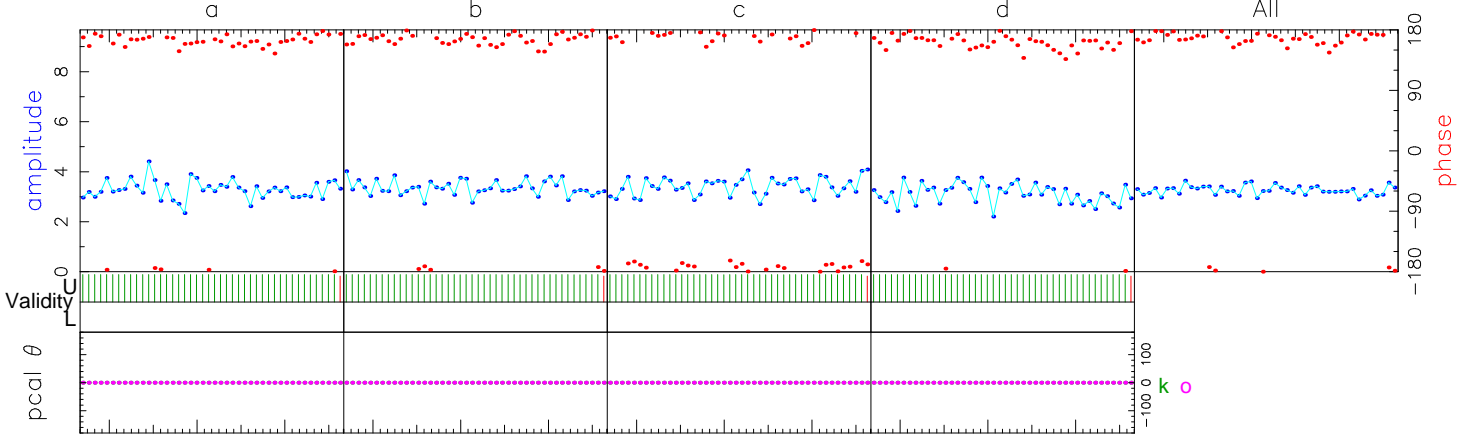
VLBA_KP - VLBA_OV, fgroup Q, pol RL



Fringe quality 9
 SNR 118.3
 Int time 179.800
 Amp 3.225
 Phase 169.0
 PFD 0.0e+00
 Delays (us)
 SBD -0.001979
 MBD -0.002001
 Fringe rate (Hz)
 -0.001926
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512
 Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163115
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"



Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|------|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| k | 1000 | 1000 | 1000 | 1000 | APs used | 1000 |
| o | 1000 | 1000 | 1000 | 1000 | PC freqs | 1000 |
| k:o | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | 0:0 |
| k:o | 0:0 | 0:0 | 0:0 | 0:0 | Manl PC | 0:0 |
| k | 1000 | 1000 | 1000 | 1000 | PC amp | 1000 |
| o | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | Chan ids | |
| o | Q00UL | Q01UL | Q02UL | Q03UL | Tracks | |
| | | | | | Chan ids | |
| | | | | | Tracks | |

| | | | | | | | |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-----|---------|
| Group delay (usec)(sbd) | -4.40360200849E+02 | Apriori delay (usec) | -4.40358199935E+02 | Resid mbdelay (usec) | -2.00091E-03 | +/- | 9.4E-06 |
| Sband delay (usec) | -4.40360178435E+02 | Apriori clock (usec) | -2.1079382E+01 | Resid sbdelay (usec) | -1.97850E-03 | +/- | 3.6E-05 |
| Phase delay (usec) | -4.40358189027E+02 | Apriori clockrate (us/s) | 1.9999998E-07 | Resid phdelay (usec) | 1.09081E-05 | +/- | 6.3E-08 |
| Delay rate (us/s) | -5.47845055535E-02 | Apriori rate (us/s) | -5.47844608123E-02 | Resid rate (us/s) | -4.47411E-08 | +/- | 6.0E-10 |
| Total phase (deg) | -164.1 | Apriori accel (us/s/s) | -5.05031377225E-06 | Resid phase (deg) | 169.0 | +/- | 1.0 |

| | | | | | | | |
|--------------|-----|------------------|-------|----------------------------|-----------------|--|-----------------------------|
| ph/seg (deg) | 8.8 | Theor. | 3.2 | Amplitude | 3.225 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
| amp/seg (%) | 5.7 | Search (1024X16) | 3.221 | Interp. | 0.000 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| ph/frq (deg) | 9.0 | Inc. seg. avg. | 3.258 | Inc. frq. avg. | 3.244 | Bits/sample: 2x2 | SampCntNorm: enabled |
| amp/frq (%) | 3.4 | Inc. frq. avg. | 3.244 | Sample rate(MISamp/s): 256 | | Data rate(Mb/s): 2048 | nlags: 512 |
| | | | | Dr window (ns/s) | -0.023 0.023 | ion window (TEC) | 0.00 0.00 |

k: az 21.3 el 60.1 pa -144.4 o: az 30.8 el 62.4 pa -129.3 u,v (fr/asec) 297.154 -500.583 simultaneous interpolator

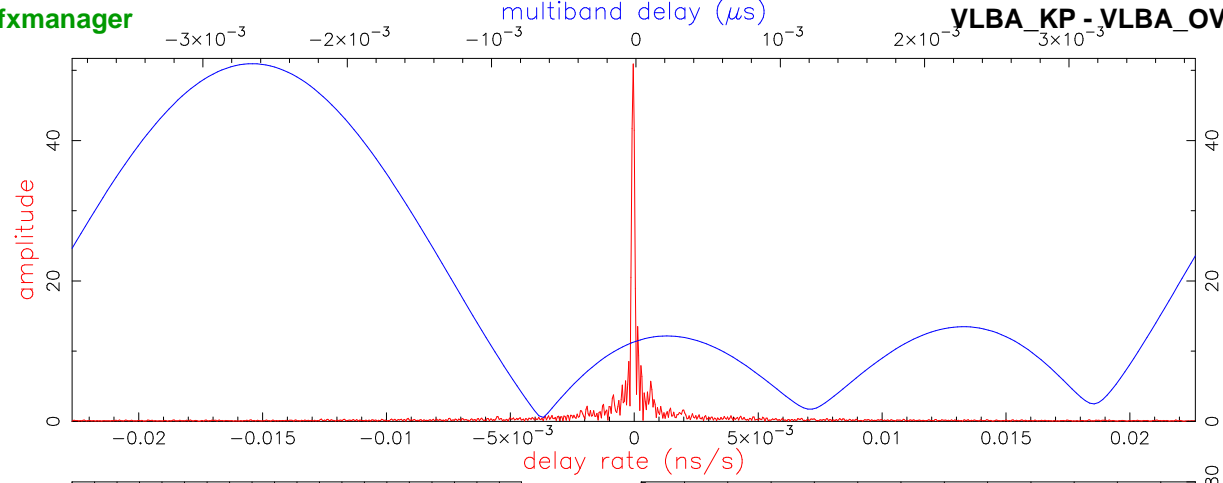
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/ko..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/ko.Q.139.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, ko

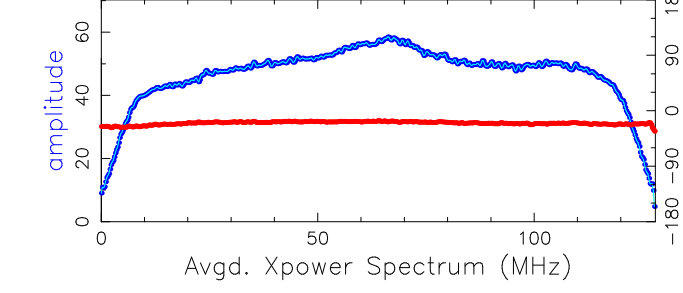
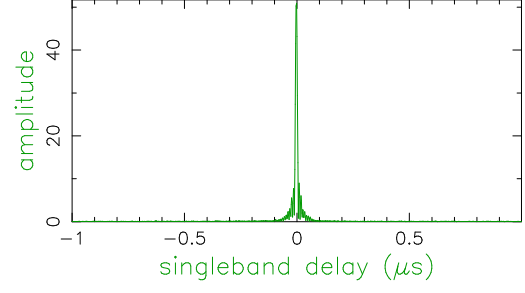
VLBA_KP - VLBA_OV, fgroup Q, pol LL



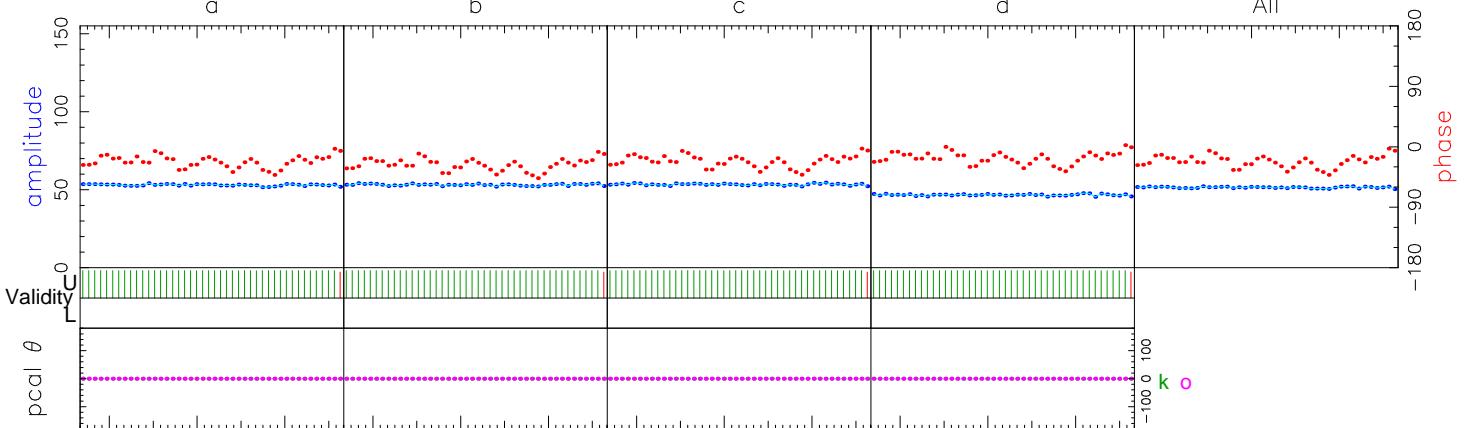
Fringe quality 9

SNR 1896.1
 Int time 179.800
 Amp 51.708
 Phase -21.7
 PFD 0.0e+00
 Delays (us)
 SBD -0.002785
 MBD -0.002702
 Fringe rate (Hz) -0.001984
 Ion TEC 0.000
 Ref freq (MHz) 43040.0000
 AP (sec) 0.512

Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163110
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"



Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|------|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| k | 1000 | 1000 | 1000 | 1000 | APs used | 1000 |
| o | 1000 | 1000 | 1000 | 1000 | PC freqs | 1000 |
| k:o | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | 0:0 |
| k:o | 0:0 | 0:0 | 0:0 | 0:0 | ManI PC | 0:0 |
| k | 1000 | 1000 | 1000 | 1000 | PC amp | 1000 |
| o | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UL | Q01UL | Q02UL | Q03UL | Chan ids | |
| o | Q00UL | Q01UL | Q02UL | Q03UL | Tracks | |

| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | | |
|-------------------------|--------------------|----------|--------------------|----------|----------------------|--------------------------|
| Group delay (usec)(sbd) | -4.40360901974E+02 | | -4.40358199935E+02 | | Resid mbdelay (usec) | -2.70204E-03 +/- 5.9E-07 |
| Sband delay (usec) | -4.40360985310E+02 | | -2.1079382E+01 | | Resid sbdelay (usec) | -2.78538E-03 +/- 2.3E-06 |
| Phase delay (usec) | -4.40358201337E+02 | | 1.9999998E-07 | | Resid phdelay (usec) | -1.40171E-06 +/- 3.9E-09 |
| Delay rate (us/s) | -5.47845069177E-02 | | -5.47844608123E-02 | | Resid rate (us/s) | -4.61054E-08 +/- 3.7E-11 |
| Total phase (deg) | | -354.8 | -5.05031377225E-06 | | Resid phase (deg) | -21.7 +/- 0.1 |

| | RMS | Theor. | Amplitude | 51.708 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
|--------------|-----|--------|------------------|------------------|--|---|
| ph/seg (deg) | 8.8 | 0.2 | Search (1024X16) | 50.014 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| amp/seg (%) | 1.0 | 0.3 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled mb window (us) -0.004 0.004 |
| ph/frq (deg) | 5.0 | 0.1 | Inc. seg. avg. | 51.506 | Sample rate(MISamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| amp/frq (%) | 5.6 | 0.1 | Inc. frq. avg. | 51.003 | Data rate(Mb/s): 2048 | nlags: 512 t_cohere infinite ion window (TEC) 0.00 0.00 |

k: az 21.3 el 60.1 pa -144.4 o: az 30.8 el 62.4 pa -129.3 u,v (fr/asec) 297.154 -500.583 simultaneous interpolator

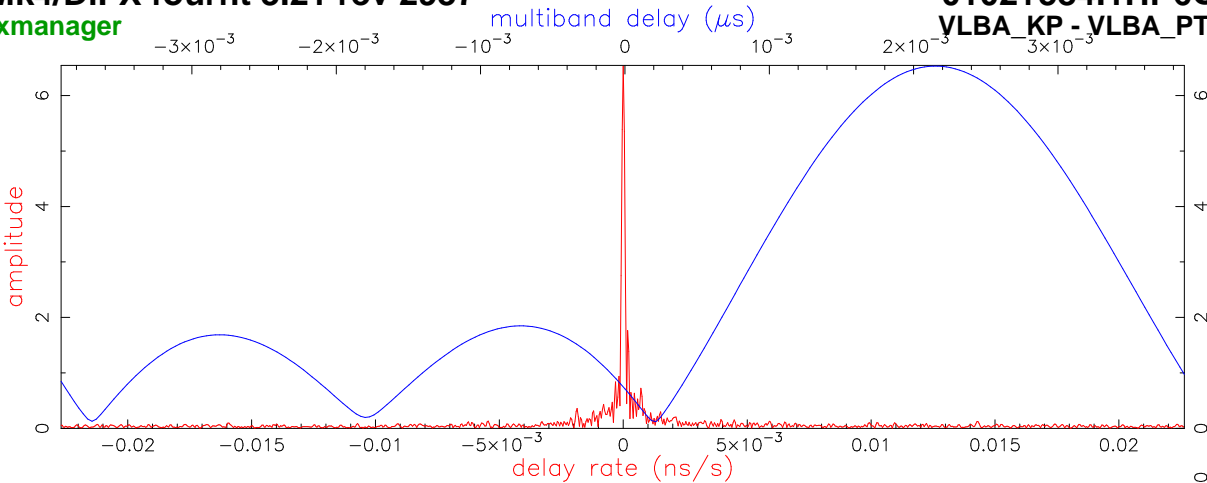
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/ko..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/ko.Q.85.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

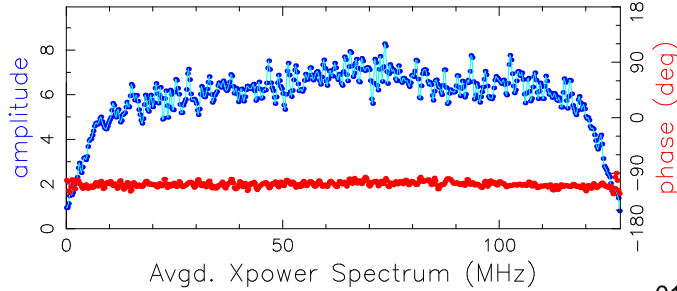
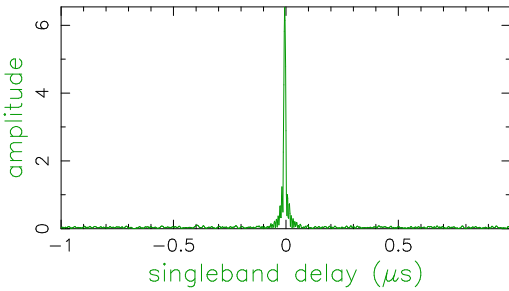
0102+584.1HP6Q8, No0090, kp

VLBA_KP - VLBA_PT, fgroup Q, pol RR



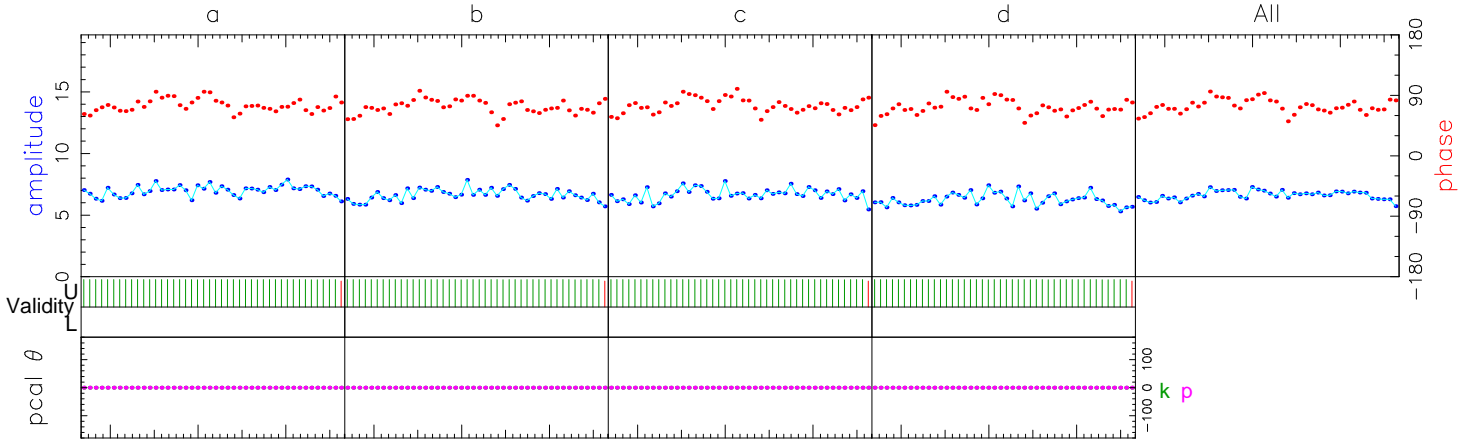
Fringe quality 9

SNR 239.9
 Int time 179.800
 Amp 6.543
 Phase 74.1
 PFD 0.0e+00
 Delays (us)
 SBD -0.005568
 MBD 0.002165
 Fringe rate (Hz)
 -0.000765
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512



Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163112
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-----|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| k | 1000 | 1000 | 1000 | 1000 | | |
| p | 1000 | 1000 | 1000 | 1000 | | |
| k:p | 0:0 | 0:0 | 0:0 | 0:0 | | |
| k:p | 0:0 | 0:0 | 0:0 | 0:0 | | |
| k | 1000 | 1000 | 1000 | 1000 | | |
| p | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UR | Q01UR | Q02UR | Q03UR | | |
| p | Q00UR | Q01UR | Q02UR | Q03UR | | |
| | | | | | Chan ids | |
| | | | | | Tracks | |
| | | | | | Chan ids | |
| | | | | | Tracks | |

| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | | |
|-------------------------|--------------------|----------|----------|----------|--------------------------|--------------------|
| Group delay (usec)(sbd) | -5.61001940327E+02 | | | | Apriori delay (usec) | -5.60996293015E+02 |
| Sband delay (usec) | -5.61001860640E+02 | | | | Apriori clock (usec) | 2.8507328E-01 |
| Phase delay (usec) | -5.60996288229E+02 | | | | Apriori clockrate (us/s) | -2.9999999E-07 |
| Delay rate (us/s) | 4.49491561256E-02 | | | | Apriori rate (us/s) | 4.49491738916E-02 |
| Total phase (deg) | | -88.3 | | | Apriori accel (us/s/s) | -3.14077523953E-07 |
| | | | | | Resid mbdelay (usec) | 2.16519E-03 |
| | | | | | Resid sbdelay (usec) | -5.56763E-03 |
| | | | | | Resid phdelay (usec) | 4.78523E-06 |
| | | | | | Resid rate (us/s) | -1.77660E-08 |
| | | | | | Resid phase (deg) | 74.1 |
| | | | | | | +/- 4.6E-06 |
| | | | | | | +/- 1.8E-05 |
| | | | | | | +/- 3.1E-08 |
| | | | | | | +/- 3.0E-10 |
| | | | | | | +/- 0.5 |

| | RMS | Theor. | Amplitude | 6.543 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
|--------------|-----|--------|------------------|-----------------|--|-------------------------------|
| ph/seg (deg) | 9.9 | 1.6 | Search (1024X16) | 6.233 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| amp/seg (%) | 5.4 | 2.8 | Interp. | 0.000 | Bits/sample: 2x2 | mb window (us) -0.004 0.004 |
| ph/frq (deg) | 1.8 | 0.5 | Inc. seg. avg. | 6.628 | Sample rate(MISamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| amp/frq (%) | 4.0 | 0.8 | Inc. frq. avg. | 6.532 | Data rate(Mb/s): 2048 | ion window (TEC) 0.00 0.00 |
| | | | | | nlags: 512 | t_cohere infinite |

k: az 21.3 el 60.1 pa -144.4 p: az 19.7 el 63.3 pa -148.5 u,v (fr/asec) -246.355 -97.691 simultaneous interpolator

Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kp..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kp.Q.107.1HP6Q8

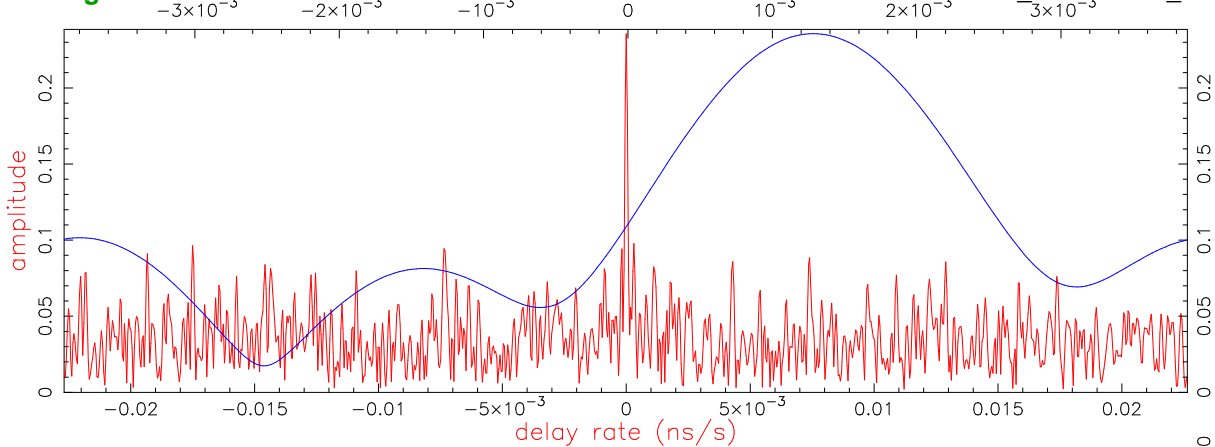
Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, kp

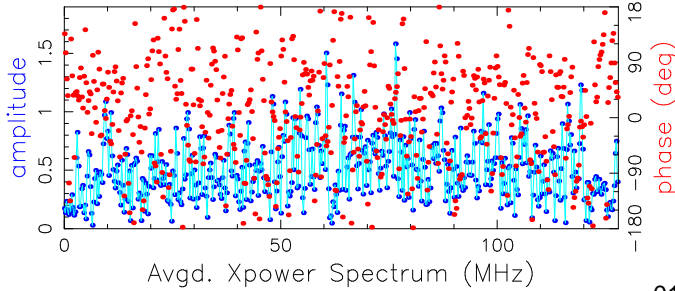
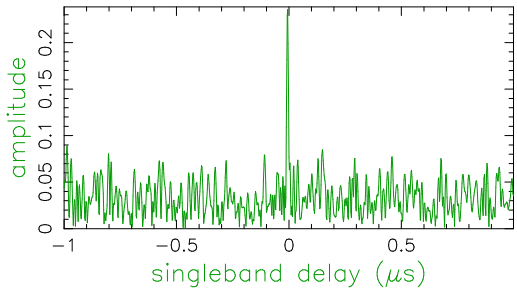
VLBA_KP - VLBA_PT, fgroup Q, pol LR

multiband delay (μ s)



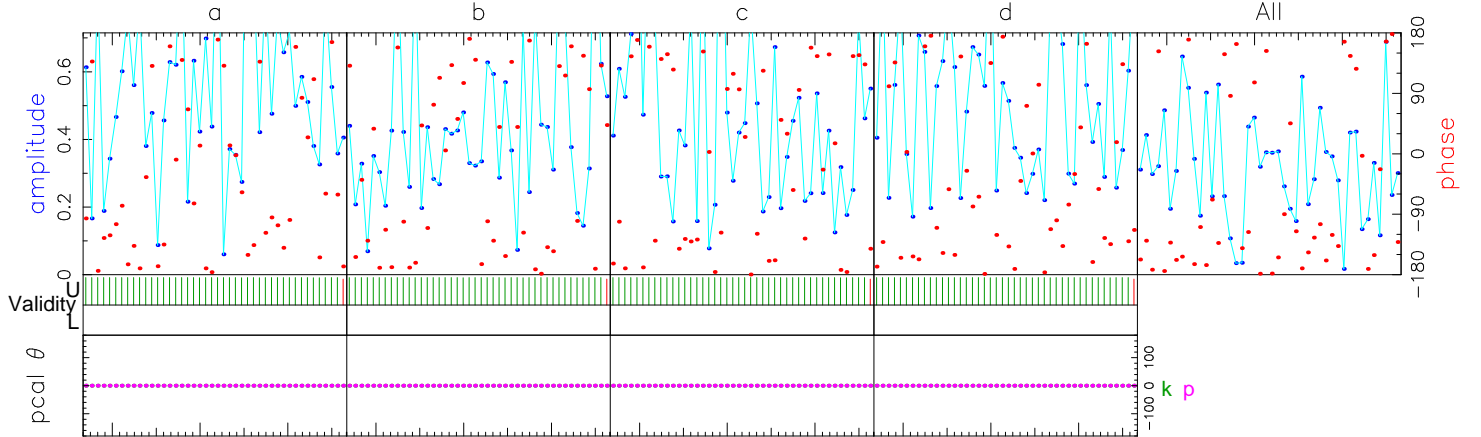
Fringe quality 9

SNR 8.7
 Int time 179.800
 Amp 0.238
 Phase -162.5
 PFD 4.2e-10
 Delays (us)
 SBD -0.006568
 MBD 0.001243
 Fringe rate (Hz)
 -0.000771
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512



Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163113
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----|----------|----------|----------|----------|------------|-----|
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | | |
| k | 1000 | 1000 | 1000 | 1000 | | |
| p | 1000 | 1000 | 1000 | 1000 | | |
| k:p | 0:0 | 0:0 | 0:0 | 0:0 | | |
| k:p | 0:0 | 0:0 | 0:0 | 0:0 | | |
| k | 1000 | 1000 | 1000 | 1000 | | |
| p | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UL | Q01UL | Q02UL | Q03UL | | |
| p | Q00UR | Q01UR | Q02UR | Q03UR | | |

| | | | | | | |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-------------|
| Group delay (usec)(sbd) | -5.61002862483E+02 | Apriori delay (usec) | -5.60996293015E+02 | Resid mbdelay (usec) | 1.24303E-03 | +/- 1.3E-04 |
| Sband delay (usec) | -5.61002861015E+02 | Apriori clock (usec) | 2.8507328E-01 | Resid sbdelay (usec) | -6.56800E-03 | +/- 4.9E-04 |
| Phase delay (usec) | -5.60996303502E+02 | Apriori clockrate (us/s) | -2.9999999E-07 | Resid phdelay (usec) | -1.04874E-05 | +/- 8.5E-07 |
| Delay rate (us/s) | 4.49491559894E-02 | Apriori rate (us/s) | 4.49491738916E-02 | Resid rate (us/s) | -1.79021E-08 | +/- 8.1E-09 |
| Total phase (deg) | -325.0 | Apriori accel (us/s/s) | -3.14077523953E-07 | Resid phase (deg) | -162.5 | +/- 13.1 |

| | | | | | | | |
|--------------|------|------------------|-------|----------------|-----------------|--|-------------------------------|
| ph/seg (deg) | 56.8 | Theor. | 43.5 | Amplitude | 0.238 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 |
| amp/seg (%) | 75.4 | Search (1024X16) | 0.223 | Search | 0.223 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) -1.000 1.000 |
| ph/frq (deg) | 30.4 | Inc. seg. avg. | 0.249 | Inc. seg. avg. | 0.249 | Bits/sample: 2x2 | SampCntNorm: enabled |
| amp/frq (%) | 10.9 | Inc. frq. avg. | 0.246 | Inc. frq. avg. | 0.246 | Sample rate(MISamp/s): 256 | dr window (ns/s) -0.023 0.023 |
| | | | | | | Data rate(Mb/s): 2048 | nlags: 512 |
| | | | | | | | t_cohere infinite |
| | | | | | | | ion window (TEC) 0.00 0.00 |

k: az 21.3 el 60.1 pa -144.4 p: az 19.7 el 63.3 pa -148.5 u,v (fr/asec) -246.355 -97.691 simultaneous interpolator

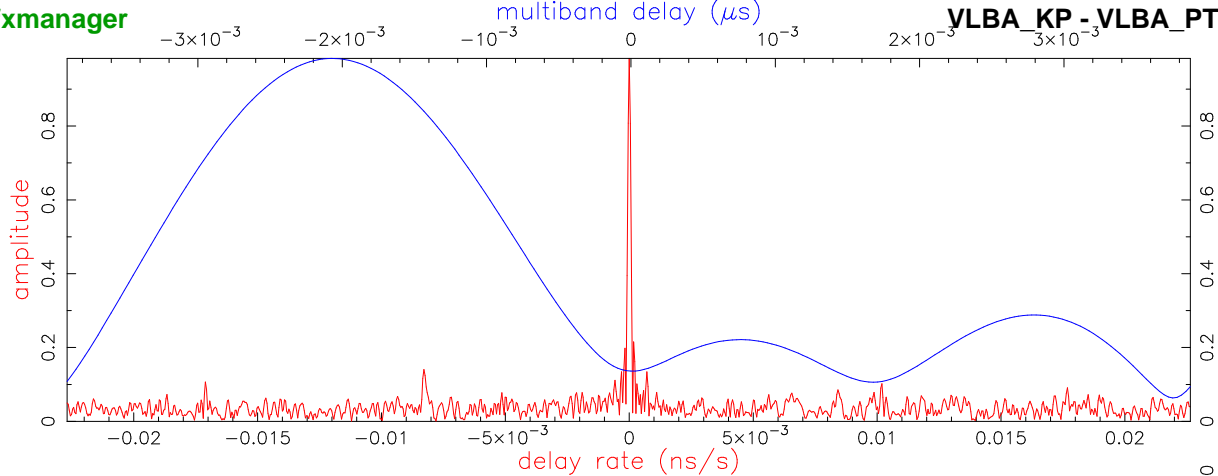
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kp..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kp.Q.121.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

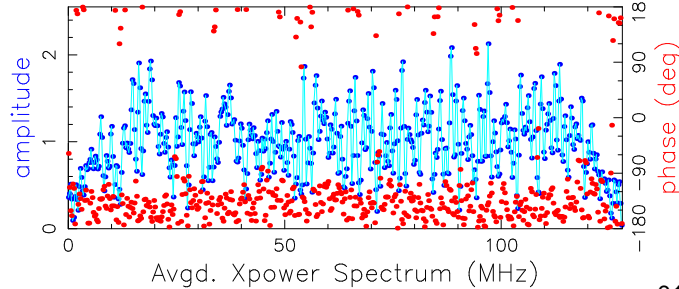
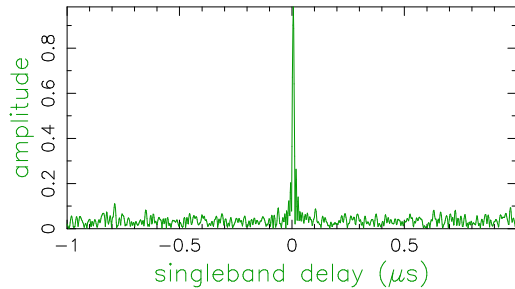
0102+584.1HP6Q8, No0090, kp

VLBA_KP - VLBA_PT, fgroup Q, pol RL



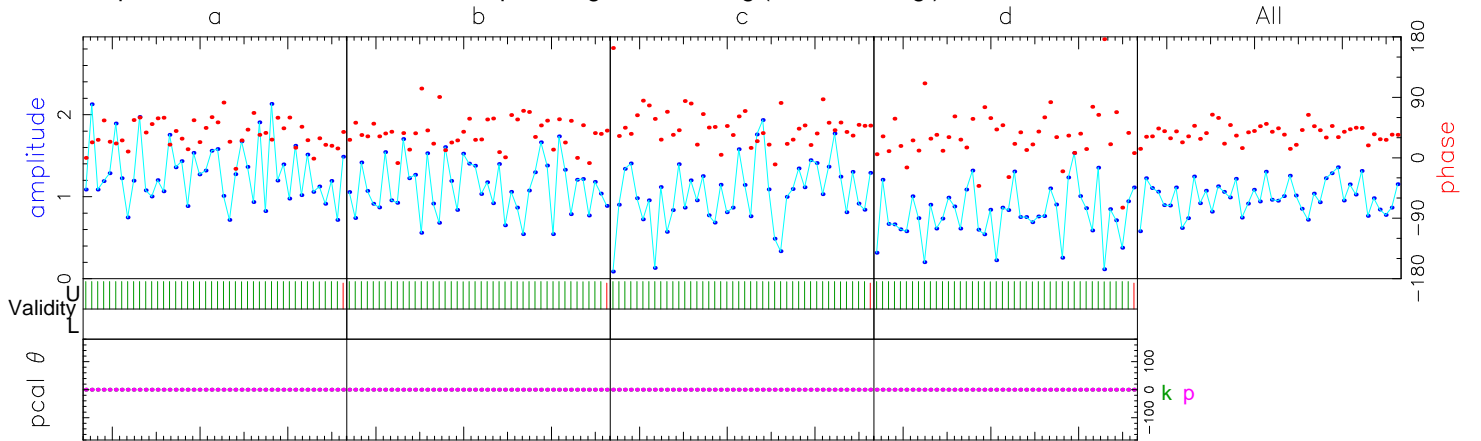
Fringe quality 9

SNR 36.1
 Int time 179.800
 Amp 0.983
 Phase 37.0
 PFD 0.0e+00
 Delays (us)
 SBD 0.005775
 MBD -0.002074
 Fringe rate (Hz)
 -0.000702
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512



Exp. c202a
 Yr:day 16383
 Start 2020:283
 Stop 2020:283
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163116
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-----------|----------|----------|----------|------------|-------|
| 35.0 | 36.9 | 43.8 | 31.2 | Phase | 37.0 |
| 1.2 | 1.0 | 1.0 | 0.7 | Ampl. | 1.0 |
| 516.0 | 516.0 | 516.0 | 515.6 | Sbd box | 516.0 |
| U/L 352/0 | 352/0 | 352/0 | 352/0 | APs used | |
| k 1000 | 1000 | 1000 | 1000 | PC freqs | |
| p 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k:p 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| k:p 0:0 | 0:0 | 0:0 | 0:0 | ManI PC | |
| k 1000 | 1000 | 1000 | 1000 | PC amp | |
| p 1000 | 1000 | 1000 | 1000 | | |
| k Q00UR | Q01UR | Q02UR | Q03UR | Chan ids | |
| p Q00UL | Q01UL | Q02UL | Q03UL | Tracks | |
| | | | | Chan ids | |
| | | | | Tracks | |

| | | | | | | |
|-------------------------|--------------------|--------------------------|--------------------|----------------------|--------------|-------------|
| Group delay (usec)(sbd) | -5.60990554390E+02 | Apriori delay (usec) | -5.60996293015E+02 | Resid mbdelay (usec) | -2.07387E-03 | +/- 3.1E-05 |
| Sband delay (usec) | -5.60990518265E+02 | Apriori clock (usec) | 2.8507328E-01 | Resid sbdelay (usec) | 5.77475E-03 | +/- 1.2E-04 |
| Phase delay (usec) | -5.60996290626E+02 | Apriori clockrate (us/s) | -2.9999999E-07 | Resid phdelay (usec) | 2.38897E-06 | +/- 2.1E-07 |
| Delay rate (us/s) | 4.49491575749E-02 | Apriori rate (us/s) | 4.49491738916E-02 | Resid rate (us/s) | -1.63167E-08 | +/- 2.0E-09 |
| Total phase (deg) | -125.5 | Apriori accel (us/s/s) | -3.14077523953E-07 | Resid phase (deg) | 37.0 | +/- 3.2 |

| | RMS | Theor. | Amplitude | 0.983 +/- 0.027 | Pcal mode: MANUAL, MANUAL | PC period (AP's) 5, 5 | | | |
|--------------|------|--------|------------------|-----------------|--|-----------------------|-------------------|------------------|-----------|
| ph/seg (deg) | 11.9 | 10.5 | Search (1024X16) | 0.952 | Pcal rate: 0.000E+00, 0.000E+00 (us/s) | sb window (us) | -1.000 | 1.000 | |
| amp/seg (%) | 19.3 | 18.4 | Interp. | 0.000 | Bits/sample: 2x2 | SampCntNorm: enabled | mb window (us) | -0.004 0.004 | |
| ph/frq (deg) | 6.5 | 3.2 | Inc. seg. avg. | 0.986 | Sample rate(MISamp/s): 256 | | dr window (ns/s) | -0.023 0.023 | |
| amp/frq (%) | 19.1 | 5.5 | Inc. frq. avg. | 0.984 | Data rate(Mb/s): 2048 | nlags: 512 | t_cohere infinite | ion window (TEC) | 0.00 0.00 |

k: az 21.3 el 60.1 pa -144.4 p: az 19.7 el 63.3 pa -148.5 u,v (fr/asec) -246.355 -97.691 simultaneous interpolator

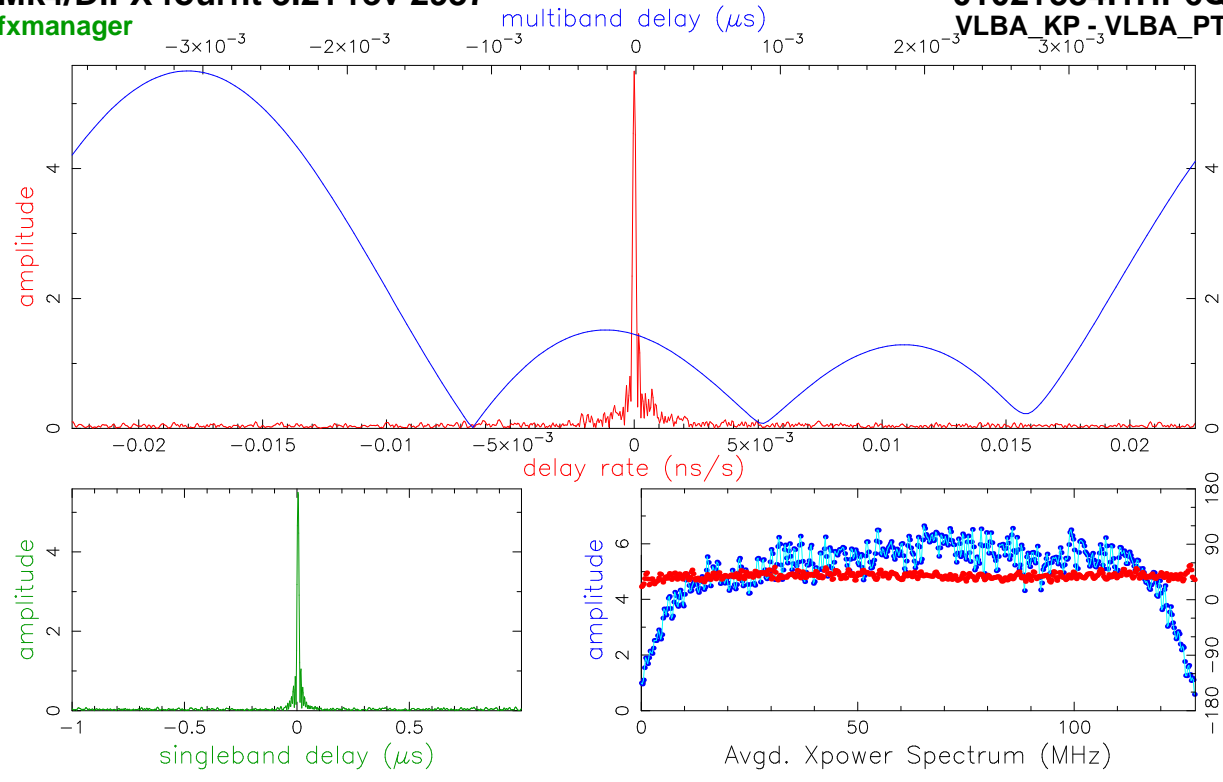
Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kp..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kp.Q.141.1HP6Q8

Mk4/DiFX fourfit 3.21 rev 2937

fxmanager

0102+584.1HP6Q8, No0090, kp

VLBA_KP - VLBA_PT, fgroup Q, pol LL

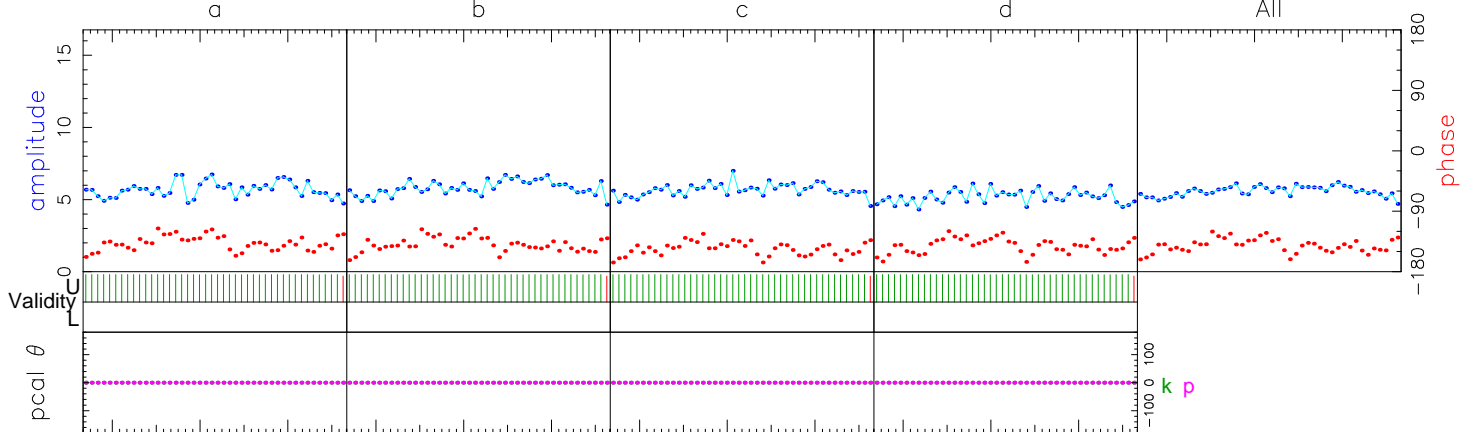


Fringe quality 9

SNR 205.0
 Int time 179.800
 Amp 5.590
 Phase -140.9
 PFD 0.0e+00
 Delays (us)
 SBD 0.004750
 MBD -0.003062
 Fringe rate (Hz)
 -0.000752
 Ion TEC 0.000
 Ref freq (MHz)
 43040.0000
 AP (sec) 0.512

Exp. c202a
 Exper # 16383
 Yr:day 2020:283
 Start 055640.00
 Stop 055940.22
 FRT 055810.00
 Corr/FF/build
 2021:005:135111
 2021:010:163111
 2020:247:085004
 RA & Dec (J2000)
 01h02m45.762375s
 +58°24'11.136621"

Amp. and Phase vs. time for each freq., 44 segs, 8 APs / seg (4.10 sec / seg.), time ticks 5 sec



| | 42912.00 | 43040.00 | 43168.00 | 43296.00 | Freq (MHz) | All |
|-------------------------|--------------------|----------|--------------------------|--------------------|----------------------|--------------------------|
| | -137.2 | -139.3 | -145.8 | -141.3 | Phase | -140.9 |
| | 5.6 | 5.7 | 5.6 | 5.1 | Ampl. | 5.5 |
| | 515.5 | 515.4 | 515.5 | 515.3 | Sbd box | 515.4 |
| U/L | 352/0 | 352/0 | 352/0 | 352/0 | APs used | |
| k | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| p | 1000 | 1000 | 1000 | 1000 | PC freqs | |
| k:p | 0:0 | 0:0 | 0:0 | 0:0 | PC phase | |
| k:p | 0:0 | 0:0 | 0:0 | 0:0 | Manl PC | |
| k | 1000 | 1000 | 1000 | 1000 | PC amp | |
| p | 1000 | 1000 | 1000 | 1000 | | |
| k | Q00UL | Q01UL | Q02UL | Q03UL | Chan ids | |
| p | Q00UL | Q01UL | Q02UL | Q03UL | Tracks | |
| | | | | | Chan ids | |
| | | | | | Tracks | |
| Group delay (usec)(sbd) | -5.60991542233E+02 | | Apriori delay (usec) | -5.60996293015E+02 | Resid mbdelay (usec) | -3.06172E-03 +/- 5.4E-06 |
| Sband delay (usec) | -5.60991543265E+02 | | Apriori clock (usec) | 2.8507328E-01 | Resid sbdelay (usec) | 4.74975E-03 +/- 2.1E-05 |
| Phase delay (usec) | -5.60996302106E+02 | | Apriori clockrate (us/s) | -2.9999999E-07 | Resid phdelay (usec) | -9.09160E-06 +/- 3.6E-08 |
| Delay rate (us/s) | 4.49491564120E-02 | | Apriori rate (us/s) | 4.49491738916E-02 | Resid rate (us/s) | -1.74795E-08 +/- 3.5E-10 |
| Total phase (deg) | | -303.4 | Apriori accel (us/s/s) | -3.14077523953E-07 | Resid phase (deg) | -140.9 +/- 0.6 |

ph/seg (deg) 10.0 1.9 Amplitude 5.590 +/- 0.027 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5

amp/seg (%) 6.1 3.2 Search (1024X16) 5.282 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000

ph/frq (deg) 4.5 0.6 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.004 0.004

amp/frq (%) 4.4 1.0 Inc. seg. avg. 5.582 Sample rate(MISamp/s): 256 dr window (ns/s) -0.023 0.023

amp/seg (%) 4.4 1.0 Inc. frq. avg. 5.509 Data rate(Mb/s): 2048 nlags: 512 t_cohere infinite ion window (TEC) 0.00 0.00

k: az 21.3 el 60.1 pa -144.4 p: az 19.7 el 63.3 pa -148.5 u,v (fr/asec) -246.355 -97.691 simultaneous interpolator

Control file: cf_1234_gmva7mm Input file: /Exps/c202a/v1/v1_7mm/1234/No0090/kp..1HP6Q8 Output file: /Exps/c202a/v1/v1_7mm/1234/No0090/kp.Q.93.1HP6Q8