Mk4/DiFX fourfit 3.23 rev 3383
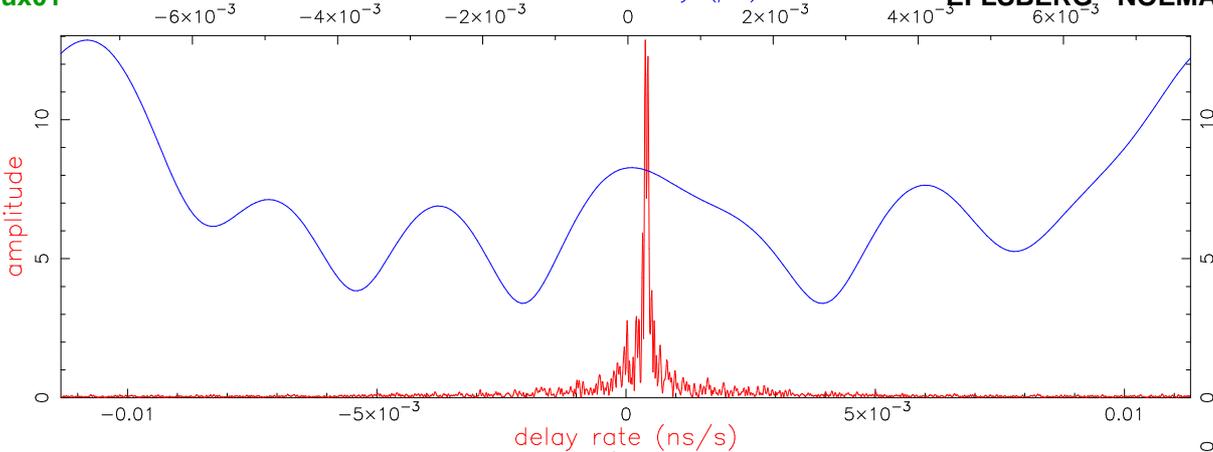
aux01

BLLAC.24ULKL, No0004, BN
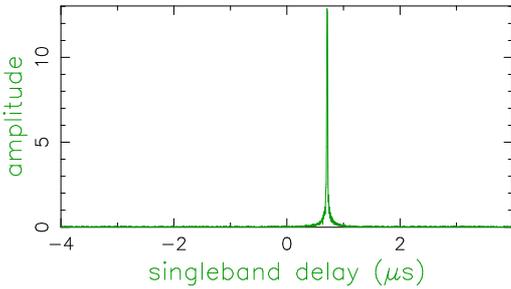
EFLSBERG - NOEMA, fgroup W, pol LL

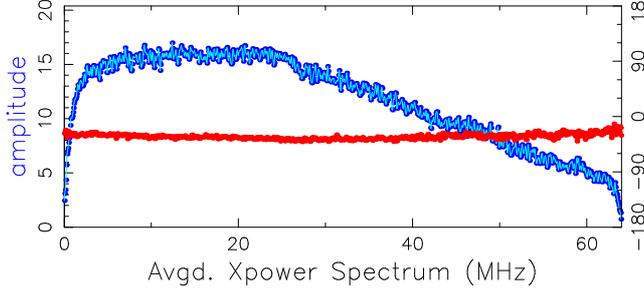multiband delay (μs)

delay rate (ns/s)

singleband delay (μs)

Avgd. Xpower Spectrum (MHz)

Fringe quality		1
SNR		616.7
Int time		299.968
Amp		13.028
Phase		-23.1
PFD		0.0e+00
Delays (us)		
SBD		0.712439
MBD		-0.007450
Fringe rate (Hz)		
		0.033689
Ion TEC		0.000
Ref freq (MHz)		
		86140.0000
AP (sec)		0.512
Exp.		f221a
Exper #		1234
Yr:day		2022:090
Start		124500.00
Stop		125000.03
FRT		124730.00
Corr/FF/build		
2022:090:145148		
2022:090:145428		
2021:308:113728		
RA & Dec (J2000)		
22h02m43.291370s		
+42°16'39.979885"		

Amp. and Phase vs. time for each freq., 23 segs, 26 APs / seg (13.31 sec / seg.), time ticks 10 sec

a b c d e f g h All

Validity

pcal θ

B N
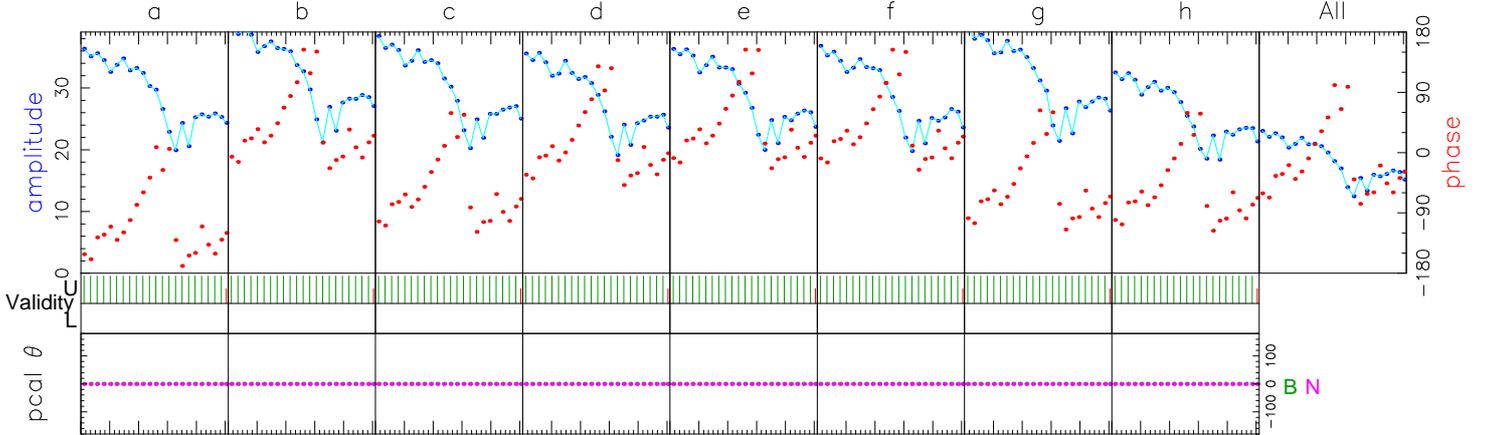
Freq (MHz)	86012.00	86076.00	86140.00	86204.00	86268.00	86332.00	86396.00	86460.00		All
Phase	-114.1	30.5	-65.2	4.8	29.7	28.5	-60.6	-62.8		-23.1
Ampl.	20.3	22.5	21.1	20.0	20.4	20.4	22.2	18.4		20.6
Sbd box	1206.0	1207.1	1208.0	1208.1	1208.2	1208.0	1207.6	1206.5		1207.4
U/L APs used	586/0	586/0	586/0	586/0	586/0	586/0	586/0	586/0		
B PC freqs	1000	1000	1000	1000	1000	1000	1000	1000		
N PC freqs	1000	1000	1000	1000	1000	1000	1000	1000		
B:N PC phase	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
B:N Manl PC	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
B PC amp	1000	1000	1000	1000	1000	1000	1000	1000		
N PC amp	1000	1000	1000	1000	1000	1000	1000	1000		
B Chan ids Tracks	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL		
N Chan ids Tracks	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL		

Group delay (usec) (SBD)	1.59261693178E+02	Apriori delay (usec)	1.58550393560E+02	Resid mbdelay (usec)	-7.45038E-03	+/- 1.8E-06
Sband delay (usec)	1.59262832560E+02	Apriori clock (usec)	-1.6620516E+01	Resid sbdelay (usec)	7.12439E-01	+/- 1.4E-05
Phase delay (usec)	1.58550392815E+02	Apriori clockrate (us/s)	-1.8100002E-07	Resid phdelay (usec)	-7.44813E-07	+/- 6.0E-09
Delay rate (us/s)	6.50950803400E-02	Apriori rate (us/s)	6.50946892453E-02	Resid rate (us/s)	3.91095E-07	+/- 3.5E-11
Total phase (deg)	301.4	Apriori accel (us/s/s)	4.32952971250E-06	Resid phase (deg)	-23.1	+/- 0.2

	RMS	Theor.	Amplitude	13.028 +/- 0.021	Pcal mode: MANUAL, MANUAL	PC period (AP's) 5, 5	
ph/seg (deg)	51.5	0.4	Search (2048X32)	12.439	Pcal rate: 0.000E+00, 0.000E+00 (us/s)	sb window (us)	-4.000 4.000
amp/seg (%)	48.0	0.8	Interp.	0.000	Bits/sample: 2x2	SampCntNorm: enabled	mb window (us) -0.008 0.008
ph/frq (deg)	60.7	0.3	Inc. seg. avg.	18.399	Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us	dr window (ns/s) -0.011 0.011
amp/frq (%)	59.2	0.5	Inc. frq. avg.	20.648	Data rate(Mb/s): 2048 nlags: 1024 t_cohere infinite	ion window (TEC) 0.00 0.00

B: az 280.1 el 51.6 pa 57.8   N: az 286.7 el 50.9 pa 67.1   u,v (fr/asec) -496.429 768.985   simultaneous interpolator

Control file: cf_1234_gmva   Input file: /Exps/f221a/FRINGE/1234/No0004//BN..24ULKL   Output file: /Exps/f221a/FRINGE/1234/No0004//BN.W.13.24ULKL

Mk4/DiFX fourfit 3.23 rev 3383
aux01

BLLAC.24ULKL, No0004, BN
EFLSBERG - NOEMA, fgroup W, pol RR

multiband delay (µs)

$-6×10^{-3}$ $-4×10^{-3}$ $-2×10^{-3}$ 0 $2×10^{-3}$ $4×10^{-3}$ $6×10^{-3}$

amplitude

delay rate (ns/s)

singleband delay (µs)

Avgd. Xpower Spectrum (MHz)

Fringe quality 1

SNR 594.6
Int time 299.968
Amp 12.560
Phase -53.6
PFD 0.0e+00
Delays (us)
SBD 0.712222
MBD 0.007178
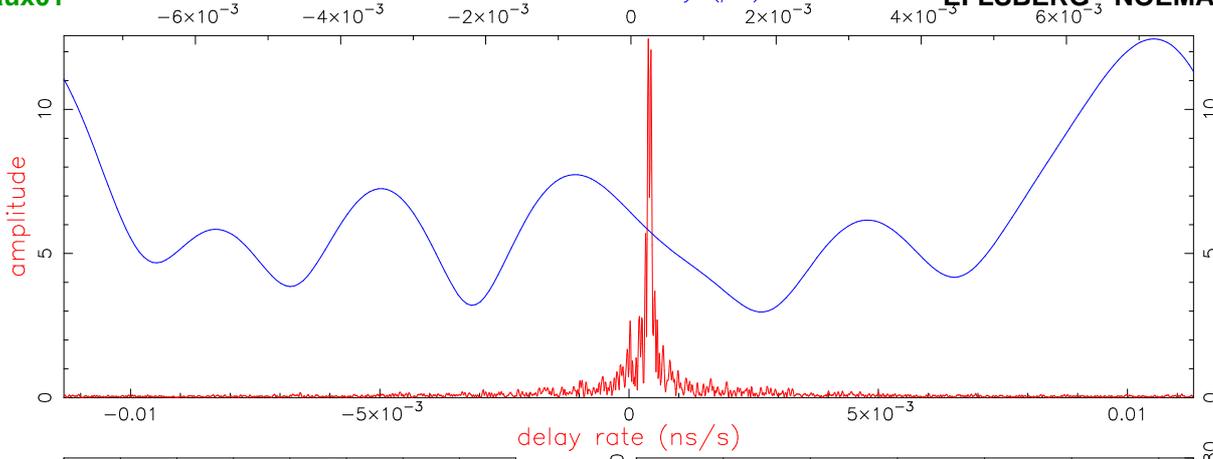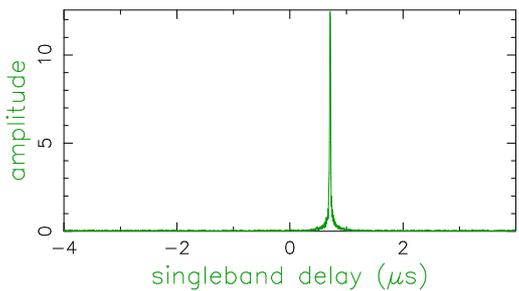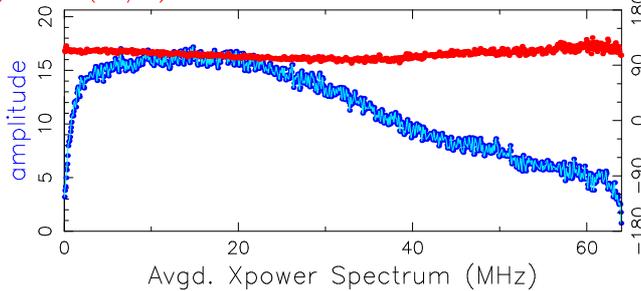Fringe rate (Hz)
0.033676
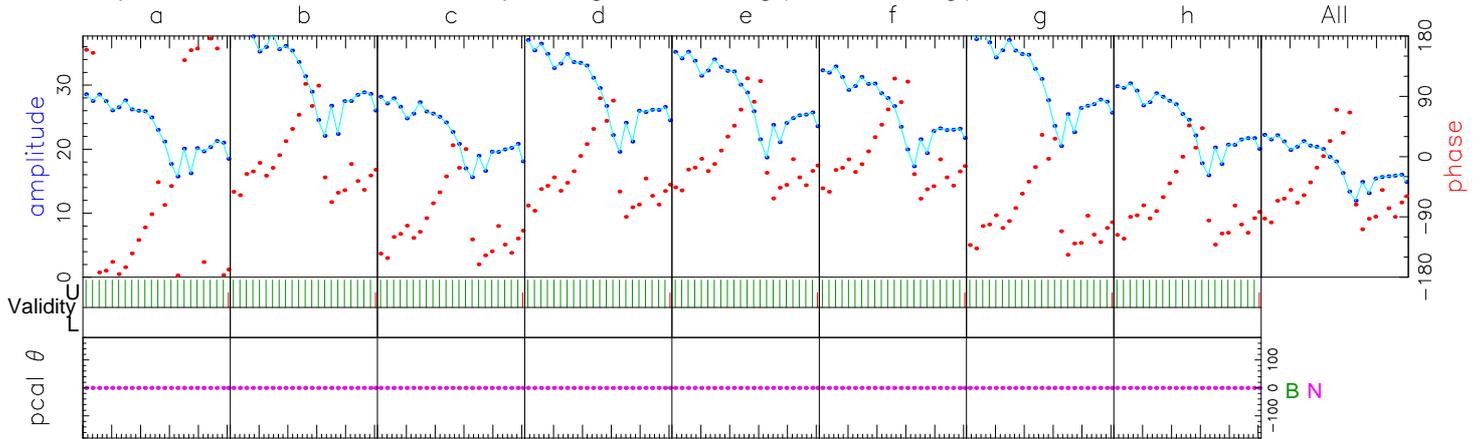Ion TEC 0.000
Ref freq (MHz)
86140.0000
AP (sec) 0.512

Exp. f221a
Exper # 1234
Yr:day 2022:090
Start 124500.00
Stop 125000.03
FRT 124730.00
Corr/FF/build
2022:090:145148
2022:090:145440
2021:308:113728
RA & Dec (J2000)
22h02m43.291370s
+42˚16'39.979885"

Amp. and Phase vs. time for each freq., 23 segs, 26 APs / seg (13.31 sec / seg.), time ticks 10 sec

a b c d e f g h All

Validity

pcal θ

B N

								Freq (MHz)	All
86012.00	86076.00	86140.00	86204.00	86268.00	86332.00	86396.00	86460.00		
-161.0	-13.4	-106.9	-35.6	-6.9	-7.8	-92.0	-77.2	Phase	-53.6
16.1	22.2	15.8	20.6	19.8	18.2	21.5	16.8	Ampl.	18.9
1205.2	1207.1	1207.9	1207.7	1208.0	1207.8	1207.6	1206.1	Sbd box	1207.3
U/L 586/0	586/0	586/0	586/0	586/0	586/0	586/0	586/0	APs used	
B 1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
N 1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
B:N 0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase	
B:N 0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	Manl PC	
B 1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
N 1000	1000	1000	1000	1000	1000	1000	1000		
B W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	Chan ids Tracks	
N W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	Chan ids Tracks	

Group delay (usec) (SBD)	1.59260696335E+02	Apriori delay (usec)	1.58550393560E+02	Resid mbdelay (usec)	7.17777E-03	+/- 1.8E-06
Sband delay (usec)	1.59262615560E+02	Apriori clock (usec)	-1.6620516E+01	Resid sbdelay (usec)	7.12222E-01	+/- 1.4E-05
Phase delay (usec)	1.58550391832E+02	Apriori clockrate (us/s)	-1.8100002E-07	Resid phdelay (usec)	-1.72795E-06	+/- 6.2E-09
Delay rate (us/s)	6.50950801877E-02	Apriori rate (us/s)	6.50946892453E-02	Resid rate (us/s)	3.90942E-07	+/- 3.6E-11
Total phase (deg)	270.9	Apriori accel (us/s/s)	4.32952971250E-06	Resid phase (deg)	-53.6	+/- 0.2

	RMS	Theor.	Amplitude	12.560 +/- 0.021	Pcal mode: MANUAL, MANUAL	PC period (AP's) 5, 5		
ph/seg (deg)	51.7	0.5	Search (2048X32)	12.071	Pcal rate: 0.000E+00, 0.000E+00 (us/s)		sb window (us)	-4.000 4.000
amp/seg (%)	49.1	0.8	Interp.	0.000	Bits/sample: 2x2		mb window (us)	-0.008 0.008
ph/frq (deg)	61.4	0.3	Inc. seg. avg.	17.882	Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us		dr window (ns/s)	-0.011 0.011
amp/frq (%)	53.5	0.5	Inc. frq. avg.	18.871	Data rate(Mb/s): 2048	nlags: 1024 t_cohere infinite	ion window (TEC)	0.00 0.00

B: az 280.1 el 51.6 pa 57.8   N: az 286.7 el 50.9 pa 67.1   u,v (fr/asec) -496.429 768.985   simultaneous interpolator

Control file: cf_1234_gmva   Input file: /Exps/f221a/FRINGE/1234/No0004//BN..24ULKL   Output file: /Exps/f221a/FRINGE/1234/No0004//BN.W.29.24ULKL
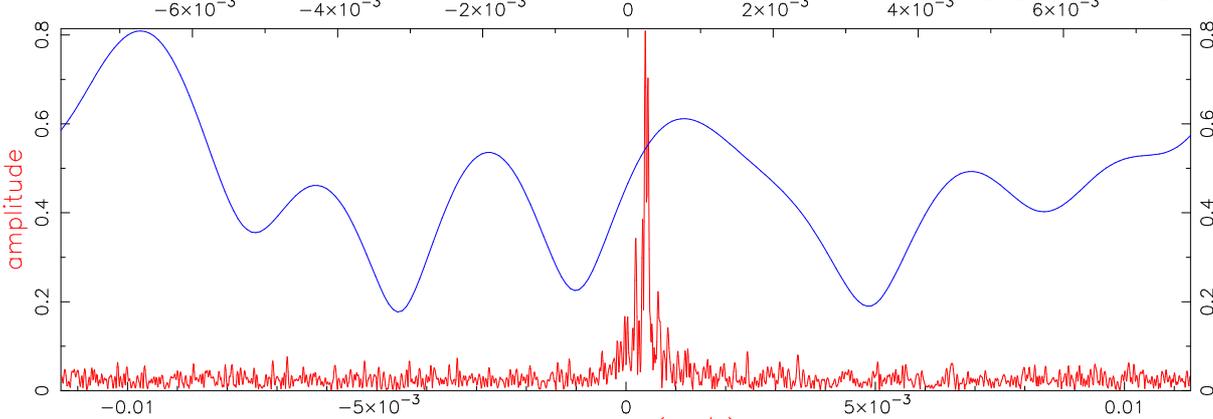
Mk4/DiFX fourfit 3.23 rev 3383
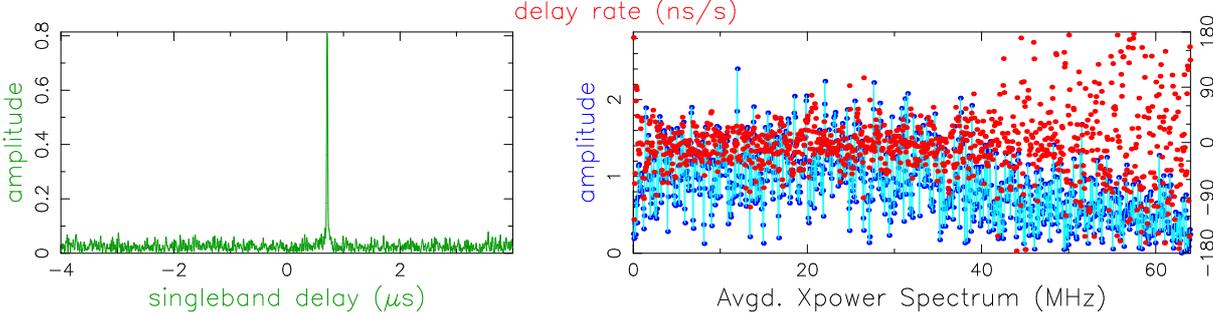
aux01

BLLAC.24ULKL, No0004, BN
### EFLSBERG - NOEMA, fgroup W, pol LR

multiband delay (μs)

amplitude

delay rate (ns/s)

amplitude

singleband delay (μs)

amplitude   phase (deg)

Avgd. Xpower Spectrum (MHz)

Fringe quality	3
SNR	38.5
Int time	299.968
Amp	0.814
Phase	-6.6
PFD	0.0e+00
Delays (us)	
SBD	0.712088
MBD	-0.006723
Fringe rate (Hz)	
	0.033659
Ion TEC	0.000
Ref freq (MHz)	
	86140.0000
AP (sec)	0.512
Exp.	f221a
Exper #	1234
Yr:day	2022:090
Start	124500.00
Stop	125000.03
FRT	124730.00
Corr/FF/build	
	2022:090:145148
	2022:090:145452
	2021:308:113728
RA & Dec (J2000)	
22h02m43.291370s	
+42°16'39.979885"	

Amp. and Phase vs. time for each freq., 23 segs, 26 APs / seg (13.31 sec / seg.), time ticks 10 sec

amplitude   phase

a b c d e f g h All

Validity

pcal θ   B N
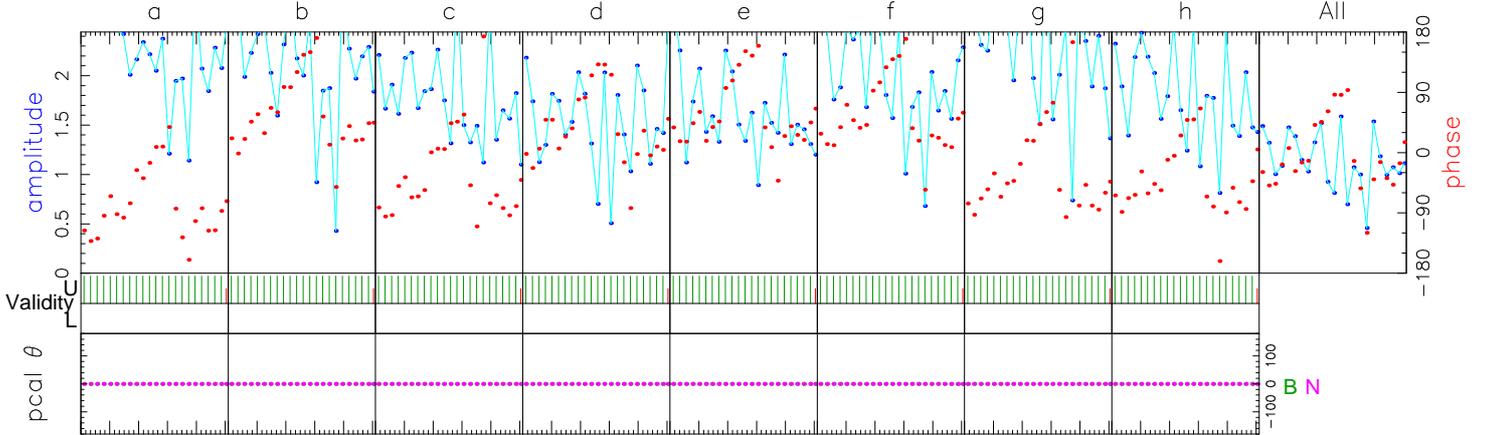
	86012.00	86076.00	86140.00	86204.00	86268.00	86332.00	86396.00	86460.00	Freq (MHz)	All
	-83.7	51.6	-50.8	31.1	49.8	51.5	-45.3	-45.3	Phase	-6.6
	1.6	1.5	1.2	1.1	1.2	1.4	1.6	1.3	Ampl.	1.3
	1206.1	1207.4	1208.1	1208.4	1208.5	1208.0	1207.7	1206.9	Sbd box	1207.3
U/L	586/0	586/0	586/0	586/0	586/0	586/0	586/0	586/0	APs used	
B	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
N	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
B:N	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase	
B:N	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	Manl PC	
B	1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
N	1000	1000	1000	1000	1000	1000	1000	1000		
B	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	Chan ids Tracks	
N	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	Chan ids Tracks	

Group delay (usec) (SBD)	1.59262420928E+02	Apriori delay (usec)	1.58550393560E+02	Resid mbdelay (usec)	-6.72263E-03 +/- 2.8E-05
Sband delay (usec)	1.59262481810E+02	Apriori clock (usec)	-1.6620516E+01	Resid sbdelay (usec)	7.12088E-01 +/- 2.2E-04
Phase delay (usec)	1.58550393346E+02	Apriori clockrate (us/s)	-1.8100002E-07	Resid phdelay (usec)	-2.13969E-07 +/- 9.6E-08
Delay rate (us/s)	6.50950799978E-02	Apriori rate (us/s)	6.50946892453E-02	Resid rate (us/s)	3.90753E-07 +/- 5.5E-10
Total phase (deg)	317.8	Apriori accel (us/s/s)	4.32952971250E-06	Resid phase (deg)	-6.6 +/- 3.0

	RMS	Theor.	Amplitude	0.814 +/- 0.021			
ph/seg (deg)	52.0	7.1	Search (2048X32)	0.793	Pcal mode: MANUAL, MANUAL	PC period (AP's) 5, 5	
amp/seg (%)	53.1	12.4	Interp.	0.000	Pcal rate: 0.000E+00, 0.000E+00 (us/s)	sb window (us)	-4.000 4.000
ph/frq (deg)	60.9	4.2	Inc. seg. avg.	1.134	Bits/sample: 2x2	SampCntNorm: enabled	mb window (us)	-0.008 0.008
amp/frq (%)	70.1	7.3	Inc. frq. avg.	1.348	Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us	dr window (ns/s)	-0.011 0.011
					Data rate(Mb/s): 2048	nlags: 1024 t_cohere infinite	ion window (TEC)	0.00 0.00

B: az 280.1 el 51.6 pa 57.8   N: az 286.7 el 50.9 pa 67.1   u,v (fr/asec) -496.429 768.985   simultaneous interpolator

Control file: cf_1234_gmva   Input file: /Exps/f221a/FRINGE/1234/No0004//BN..24ULKL   Output file: /Exps/f221a/FRINGE/1234/No0004//BN.W.43.24ULKL
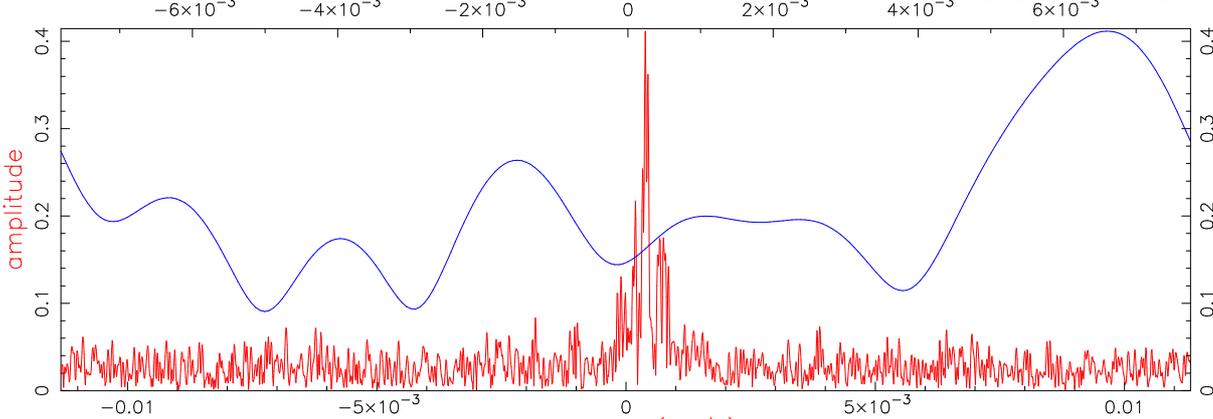
Mk4/DiFX fourfit 3.23 rev 3383
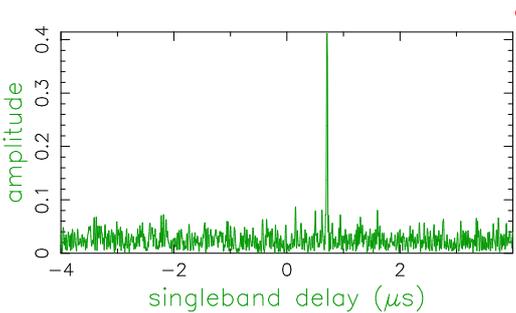**aux01**

BLLAC.24ULKL, No0004, BN
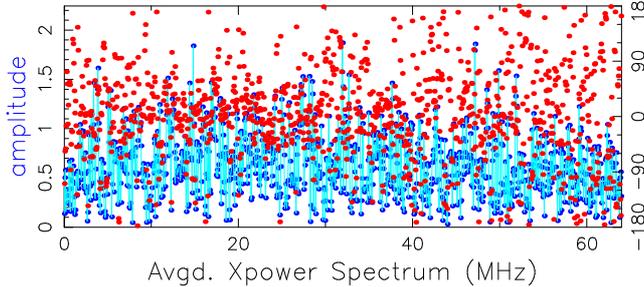**EFLSBERG - NOEMA, fgroup W, pol RL**

multiband delay (µs)

-6×10^{-3} -4×10^{-3} -2×10^{-3} 0 2×10^{-3} 4×10^{-3} 6×10^{-3}

delay rate (ns/s)

singleband delay (µs)

Avgd. Xpower Spectrum (MHz)

Fringe quality	7
SNR	19.6
Int time	299.968
Amp	0.415
Phase	-169.8
PFD	0.0e+00
Delays (us)	
SBD	0.709715
MBD	0.006659
Fringe rate (Hz)	0.033705
Ion TEC	0.000
Ref freq (MHz)	86140.0000
AP (sec)	0.512
Exp.	f221a
Exper #	1234
Yr:day	2022:090
Start	124500.00
Stop	125000.03
FRT	124730.00
Corr/FF/build	
	2022:090:145148
	2022:090:145503
	2021:308:113728
RA & Dec (J2000)	
	22h02m43.291370s
	+42°16'39.979885"

Amp. and Phase vs. time for each freq., 23 segs, 26 APs / seg (13.31 sec / seg.), time ticks 10 sec

a b c d e f g h All

Validity

pcal θ

B N
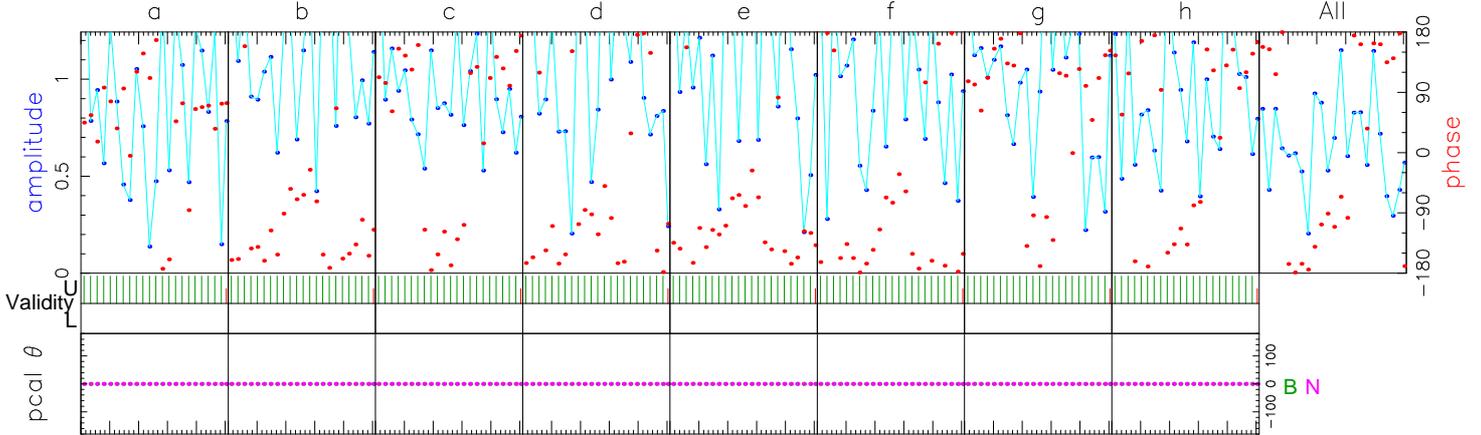
	a	b	c	d	e	f	g	h		All
Freq (MHz)	86012.00	86076.00	86140.00	86204.00	86268.00	86332.00	86396.00	86460.00		All
Phase	71.3	-133.8	145.8	-141.1	-122.5	-150.5	138.8	161.5		-169.8
Ampl.	0.6	0.8	0.6	0.7	0.8	0.6	0.5	0.5		0.6
Sbd box	1205.5	1206.8	1206.8	1207.4	1207.6	1207.6	1207.5	1205.8		1206.7
U/L APs used	586/0	586/0	586/0	586/0	586/0	586/0	586/0	586/0		
B PC freqs	1000	1000	1000	1000	1000	1000	1000	1000		
N PC freqs	1000	1000	1000	1000	1000	1000	1000	1000		
B:N PC phase	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
B:N Manl PC	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
B PC amp	1000	1000	1000	1000	1000	1000	1000	1000		
N PC amp	1000	1000	1000	1000	1000	1000	1000	1000		
B Chan ids Tracks	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR		
N Chan ids Tracks	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL		

Group delay (usec) (SBD)	1.59260177835E+02	Apriori delay (usec)	1.58550393560E+02	Resid mbdelay (usec)	6.65927E-03	+/- 5.5E-05
Sband delay (usec)	1.59260108560E+02	Apriori clock (usec)	-1.6620516E+01	Resid sbdelay (usec)	7.09715E-01	+/- 4.4E-04
Phase delay (usec)	1.58550388083E+02	Apriori clockrate (us/s)	-1.8100002E-07	Resid phdelay (usec)	-5.47713E-06	+/- 1.9E-07
Delay rate (us/s)	6.50950805250E-02	Apriori rate (us/s)	6.50946892453E-02	Resid rate (us/s)	3.91280E-07	+/- 1.1E-09
Total phase (deg)	154.6	Apriori accel (us/s/s)	4.32952971250E-06	Resid phase (deg)	-169.8	+/- 5.8

	RMS	Theor.	Amplitude	0.415 +/- 0.021	Pcal mode: MANUAL, MANUAL	PC period (AP's) 5, 5		
ph/seg (deg)	56.0	14.0	Search (2048X32)	0.400	Pcal rate: 0.000E+00, 0.000E+00 (us/s)	sb window (us)	-4.000	4.000
amp/seg (%)	84.0	24.4	Interp.	0.000	Bits/sample: 2x2	mb window (us)	-0.008	0.008
ph/frq (deg)	63.6	8.3	Inc. seg. avg.	0.647	Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us	dr window (ns/s)	-0.011	0.011
amp/frq (%)	57.8	14.4	Inc. frq. avg.	0.628	Data rate(Mb/s): 2048 nlags: 1024 t_cohere infinite	ion window (TEC)	0.00	0.00

B: az 280.1 el 51.6 pa 57.8   N: az 286.7 el 50.9 pa 67.1   u,v (fr/asec) -496.429 768.985   simultaneous interpolator

Control file: cf_1234_gmva   Input file: /Exps/f221a/FRINGE/1234/No0004//BN..24ULKL   Output file: /Exps/f221a/FRINGE/1234/No0004//BN.W.57.24ULKL
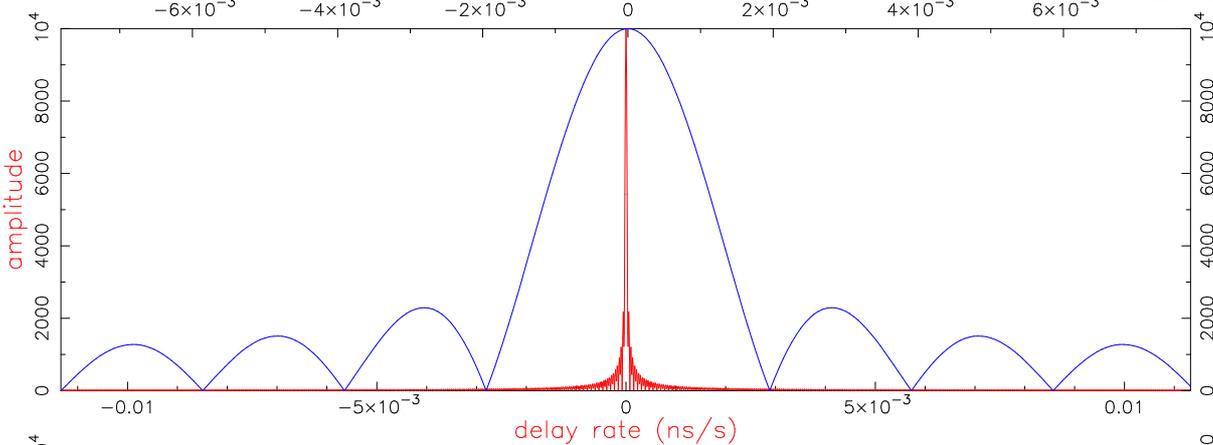
aux01

BLLAC.24ULKL, No0004, NN
NOEMA - NOEMA, fgroup W, pol RR
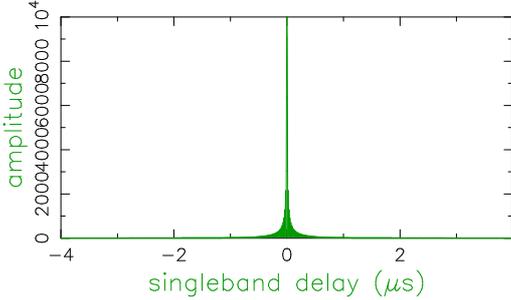
multiband delay (µs)

-6×10^{-3} -4×10^{-3} -2×10^{-3} 0 2×10^{-3} 4×10^{-3} 6×10^{-3}

delay rate (ns/s)

singleband delay (µs)

Avgd. Xpower Spectrum (MHz)
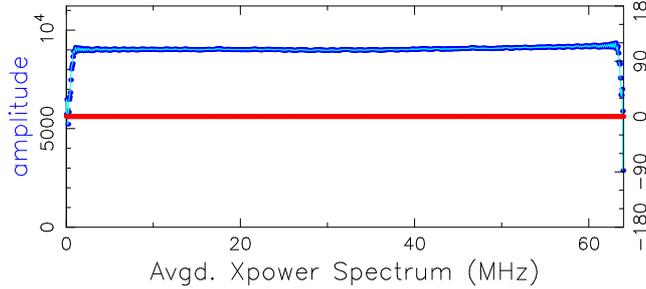
Fringe quality   9

SNR   473637.2
Int time 299.983
Amp   10000.000
Phase   0.0
PFD   0.0e+00
Delays (us)
SBD   0.000000
MBD   0.000000
Fringe rate (Hz)
       0.000000
Ion TEC   0.000
Ref freq (MHz)
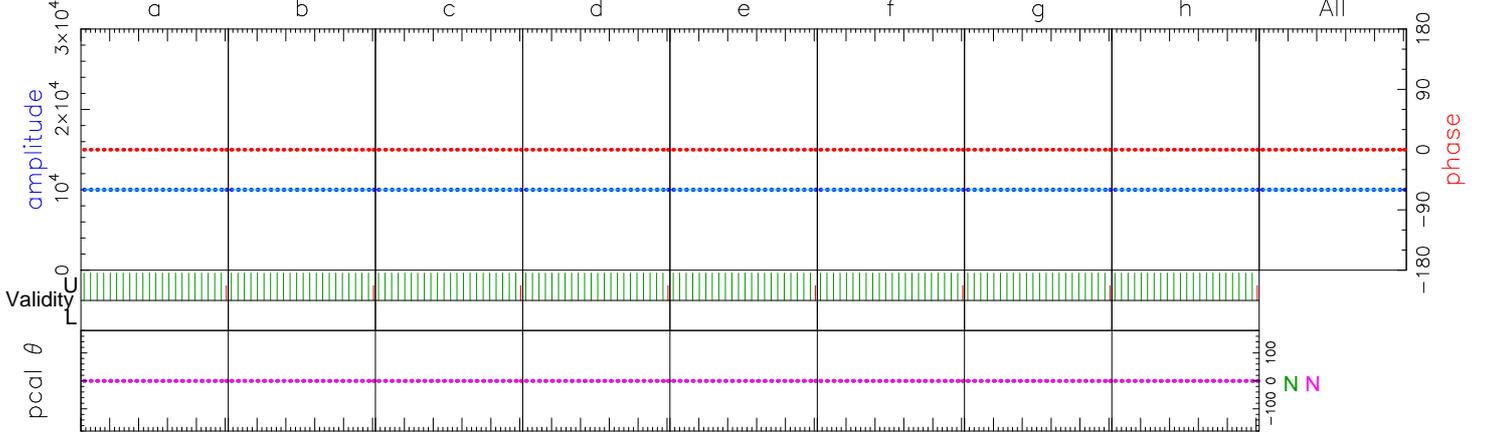   86140.0000
AP (sec)   0.512

Exp.   f221a
Exper #   1234
Yr:day   2022:090
Start   124500.00
Stop   125000.03
FRT   124730.00
Corr/FF/build
2022:090:145148
2022:090:145438
2021:308:113728
RA & Dec (J2000)
22h02m43.291370s
+42°16'39.979885"

Amp. and Phase vs. time for each freq., 23 segs, 26 APs / seg (13.31 sec / seg.), time ticks 10 sec

a   b   c   d   e   f   g   h   All

Validity
U
L

pcal θ

N N

86012.00	86076.00	86140.00	86204.00	86268.00	86332.00	86396.00	86460.00	Freq (MHz)	All
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Phase	0.0
10000.0	10000.0	10000.0	10000.0	10000.0	10000.0	10000.0	10000.0	Ampl.	10000.0
1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	Sbd box	1025.0
586/0	586/0	586/0	586/0	586/0	586/0	586/0	586/0	U/L APs used	
1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase	
0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	Manl PC	
1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
1000	1000	1000	1000	1000	1000	1000	1000		
W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	Chan ids Tracks	
W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	Chan ids Tracks	

Group delay (usec) (SBD)	0.00000000000E+00	Apriori delay (usec)	0.00000000000E+00	Resid mbdelay (usec) 0.00000E+00 +/- 2.3E-09
Sband delay (usec)	0.00000000000E+00	Apriori clock (usec)	0.0000000000E+00	Resid sbdelay (usec) 0.00000E+00 +/- 1.8E-08
Phase delay (usec)	0.00000000000E+00	Apriori clockrate (us/s)	0.0000000000E+00	Resid phdelay (usec) 0.00000E+00 +/- 7.8E-12
Delay rate (us/s)	0.00000000000E+00	Apriori rate (us/s)	0.00000000000E+00	Resid rate (us/s) 0.00000E+00 +/- 4.5E-14
Total phase (deg)	0.0	Apriori accel (us/s/s)	0.00000000000E+00	Resid phase (deg) 0.0 +/- 0.0

	RMS	Theor.	Amplitude	10000.000 +/- 0.021	Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5	
ph/seg (deg)	0.0	0.0	Search (2048X32)	10000.000	Pcal rate: 0.000E+00, 0.000E+00 (us/s)	sb window (us) -4.000 4.000
amp/seg (%)	0.0	0.0	Interp.	0.000	Bits/sample: 2x2 SampCntNorm: enabled	mb window (us) -0.008 0.008
ph/frq (deg)	0.0	0.0	Inc. seg. avg.	10000.000	Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us	dr window (ns/s) -0.011 0.011
amp/frq (%)	0.0	0.0	Inc. frq. avg.	10000.000	Data rate(Mb/s): 2048 nlags: 1024 t_cohere infinite	ion window (TEC) 0.00 0.00

N: az 286.7 el 50.9 pa 67.1   N: az 286.7 el 50.9 pa 67.1   u,v (fr/asec) 0.000 0.000   simultaneous interpolator
Control file: cf_1234_gmva   Input file: /Exps/f221a/FRINGE/1234/No0004//NN..24ULKL   Output file: /Exps/f221a/FRINGE/1234/No0004//NN.W.18.24ULKL

Mk4/DiFX fourfit 3.23 rev 3383

aux01

multiband delay (µs)

−6×10⁻³   −4×10⁻³   −2×10⁻³   0   2×10⁻³   4×10⁻³   6×10⁻³

BLLAC.24ULKL, No0004, NN
NOEMA - NOEMA, fgroup W, pol LL

delay rate (ns/s)

singleband delay (µs)

Avgd. Xpower Spectrum (MHz)

Fringe quality	9
SNR	473637.2
Int time	299.983
Amp	10000.000
Phase	0.0
PFD	0.0e+00
Delays (us)	
SBD	0.000000
MBD	0.000000
Fringe rate (Hz)	
	0.000000
Ion TEC	0.000
Ref freq (MHz)	
	86140.0000
AP (sec)	0.512
Exp.	f221a
Exper #	1234
Yr:day	2022:090
Start	124500.00
Stop	125000.03
FRT	124730.00
Corr/FF/build	
2022:090:145148	
2022:090:145426	
2021:308:113728	
RA & Dec (J2000)	
22h02m43.291370s	
+42°16'39.979885"	

Amp. and Phase vs. time for each freq., 23 segs, 26 APs / seg (13.31 sec / seg.), time ticks 10 sec

a   b   c   d   e   f   g   h   All

Validity

pcal θ

N N

86012.00	86076.00	86140.00	86204.00	86268.00	86332.00	86396.00	86460.00	Freq (MHz)	All
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Phase	0.0
10000.0	10000.0	10000.0	10000.0	10000.0	10000.0	10000.0	10000.0	Ampl.	10000.0
1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	1025.0	Sbd box	1025.0
586/0	586/0	586/0	586/0	586/0	586/0	586/0	586/0	APs used	
1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase	
0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	Manl PC	
1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
1000	1000	1000	1000	1000	1000	1000	1000		
W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	Chan ids	
								Tracks	
W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	Chan ids	
								Tracks	

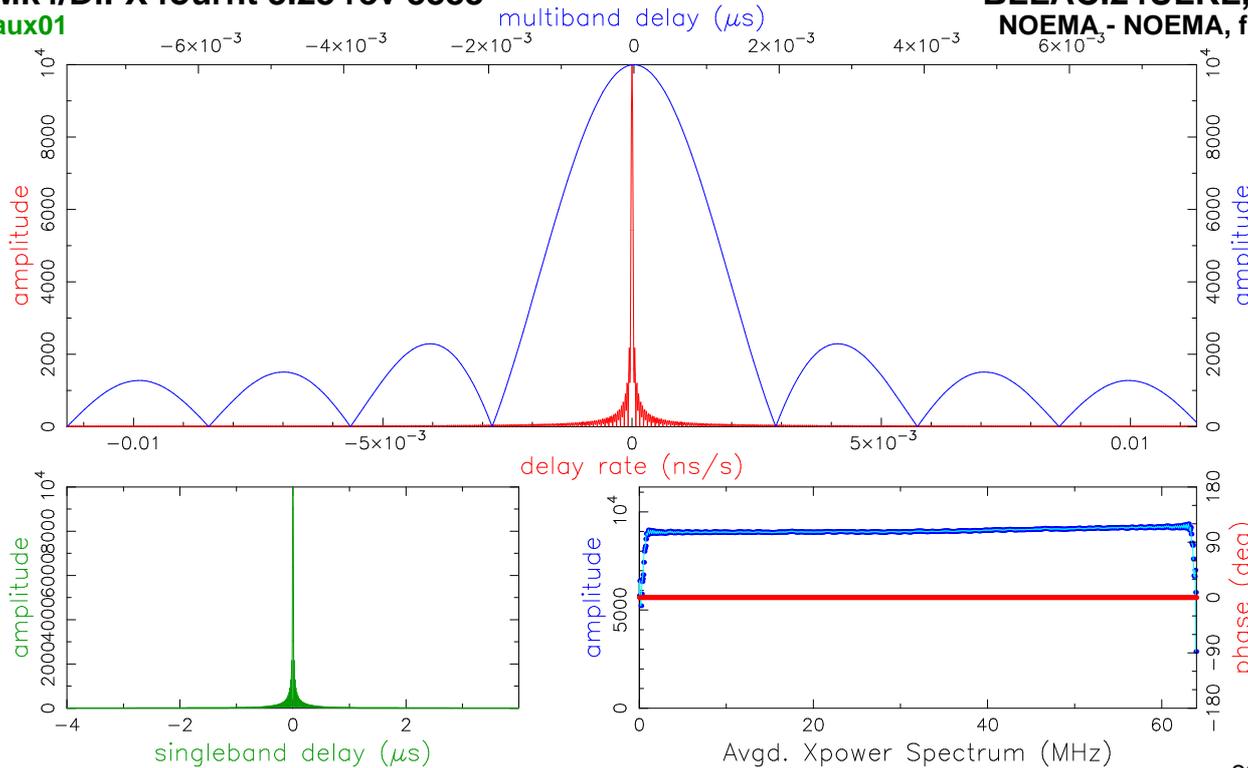|					
Group delay (usec) (SBD)	0.00000000000E+00	Apriori delay (usec)	0.00000000000E+00	Resid mbdelay (usec)	0.00000E+00 +/- 2.3E-09
Sband delay (usec)	0.00000000000E+00	Apriori clock (usec)	0.0000000000E+00	Resid sbdelay (usec)	0.00000E+00 +/- 1.8E-08
Phase delay (usec)	0.00000000000E+00	Apriori clockrate (us/s)	0.0000000000E+00	Resid phdelay (usec)	0.00000E+00 +/- 7.8E-12
Delay rate (us/s)	0.00000000000E+00	Apriori rate (us/s)	0.00000000000E+00	Resid rate (us/s)	0.00000E+00 +/- 4.5E-14
Total phase (deg)	0.0	Apriori accel (us/s/s)	0.00000000000E+00	Resid phase (deg)	0.0 +/- 0.0

	RMS	Theor.	Amplitude	10000.000 +/- 0.021	Pcal mode: MANUAL, MANUAL	PC period (AP's) 5, 5		
ph/seg (deg)	0.0	0.0	Search (2048X32)	10000.000	Pcal rate: 0.000E+00, 0.000E+00 (us/s)		sb window (us)	-4.000 4.000
amp/seg (%)	0.0	0.0	Interp.	0.000	Bits/sample: 2x2	SampCntNorm: enabled	mb window (us)	-0.008 0.008
ph/frq (deg)	0.0	0.0	Inc. seg. avg.	10000.000	Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us	dr window (ns/s)	-0.011 0.011
amp/frq (%)	0.0	0.0	Inc. frq. avg.	10000.000	Data rate(Mb/s): 2048	nlags: 1024 t_cohere infinite	ion window (TEC)	0.00 0.00

N: az 286.7 el 50.9 pa 67.1   N: az 286.7 el 50.9 pa 67.1   u,v (fr/asec) 0.000 0.000   simultaneous interpolator

Control file: cf_1234_gmva   Input file: /Exps/f221a/FRINGE/1234/No0004//NN..24ULKL   Output file: /Exps/f221a/FRINGE/1234/No0004//NN.W.3.24ULKL

Mk4/DiFX fourfit 3.23 rev 3383
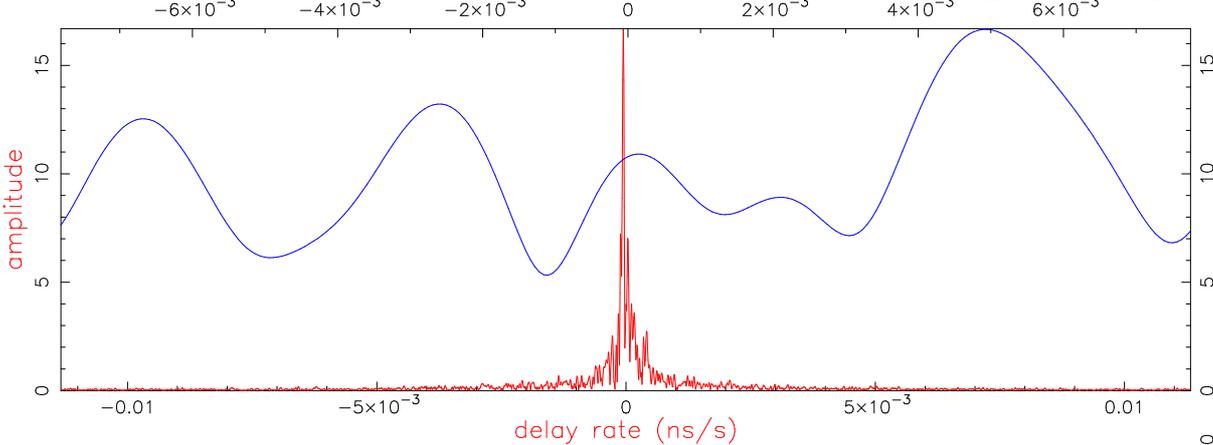
aux01

multiband delay (µs)

-6×10^{-3} -4×10^{-3} -2×10^{-3} 0 2×10^{-3} 4×10^{-3} 6×10^{-3}

BLLAC.24ULKL, No0004, NX

NOEMA - ONSALA60, fgroup W, pol RR

delay rate (ns/s)

singleband delay (µs)

Avgd. Xpower Spectrum (MHz)

Fringe quality	2
SNR	790.5
Int time	299.920
Amp	16.692
Phase	-128.1
PFD	0.0e+00
Delays (us)	
SBD	0.003295
MBD	0.004935
Fringe rate (Hz)	
	-0.005192
Ion TEC	0.000
Ref freq (MHz)	
	86140.0000
AP (sec)	0.512
Exp.	f221a
Exper #	1234
Yr:day	2022:090
Start	124500.00
Stop	125000.03
FRT	124730.00
Corr/FF/build	
2022:090:145148	
2022:090:145439	
2021:308:113728	
RA & Dec (J2000)	
22h02m43.291370s	
+42˚16'39.979885"	

Amp. and Phase vs. time for each freq., 23 segs, 26 APs / seg (13.31 sec / seg.), time ticks 10 sec

a b c d e f g h All

Validity

pcal θ

N X
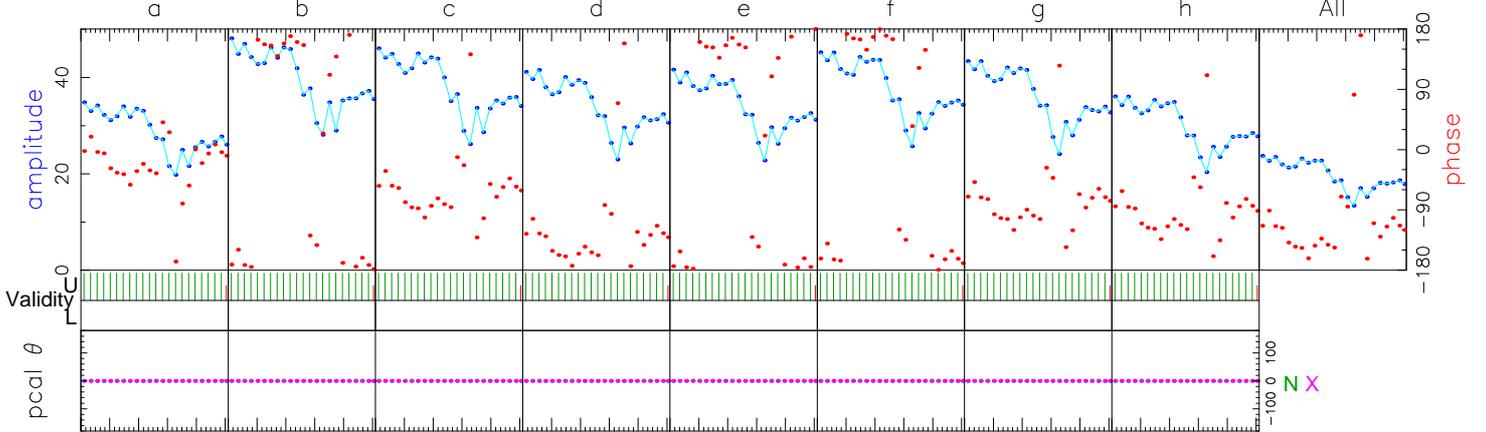
86012.00	86076.00	86140.00	86204.00	86268.00	86332.00	86396.00	86460.00	Freq (MHz)	All
-17.7	173.6	-68.6	-139.9	171.0	-177.1	-85.2	-99.3	Phase	-128.1
24.3	33.3	32.2	28.9	28.9	31.9	30.6	25.4	Ampl.	29.4
1027.1	1025.9	1025.6	1025.2	1025.0	1025.5	1025.7	1026.7	Sbd box	1025.8
U/L 586/0	586/0	586/0	586/0	586/0	586/0	586/0	586/0	APs used	
N 1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
X 1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
N:X 0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase	
N:X 0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	Manl PC	
N 1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
X 1000	1000	1000	1000	1000	1000	1000	1000		
N W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	Chan ids Tracks	
X W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	Chan ids Tracks	

Group delay (usec) (SBD)	2.05375458859E+02	Apriori delay (usec)	2.05370523867E+02	Resid mbdelay (usec)	4.93499E-03 +/- 1.4E-06
Sband delay (usec)	2.05373819117E+02	Apriori clock (usec)	-8.6602798E+01	Resid sbdelay (usec)	3.29525E-03 +/- 1.1E-05
Phase delay (usec)	2.05370519736E+02	Apriori clockrate (us/s)	-6.3100003E-07	Resid phdelay (usec)	-4.13058E-06 +/- 4.7E-09
Delay rate (us/s)	-1.30135970864E-01	Apriori rate (us/s)	-1.30135910586E-01	Resid rate (us/s)	-6.02784E-08 +/- 2.7E-11
Total phase (deg)	205.2	Apriori accel (us/s/s)	-1.21864448685E-05	Resid phase (deg)	-128.1 +/- 0.1

	RMS	Theor.	Amplitude	16.692 +/- 0.021	Pcal mode: MANUAL, MANUAL	PC period (AP's) 5, 5
ph/seg (deg)	41.4	0.3	Search (2048X32)	16.152	Pcal rate: 0.000E+00, 0.000E+00 (us/s)	sb window (us) -4.000 4.000
amp/seg (%)	25.3	0.6	Interp.	0.000	Bits/sample: 2x2	SampCntNorm: enabled	mb window (us) -0.008 0.008
ph/frq (deg)	68.4	0.2	Inc. seg. avg.	19.699	Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us	dr window (ns/s) -0.011 0.011
amp/frq (%)	78.5	0.4	Inc. frq. avg.	29.448	Data rate(Mb/s): 2048	nlags: 1024 t_cohere infinite	ion window (TEC) 0.00 0.00

N: az 286.7 el 50.9 pa 67.1   X: az 275.4 el 49.6 pa 46.5   u,v (fr/asec) 986.323 -1800.345   simultaneous interpolator

Control file: cf_1234_gmva   Input file: /Exps/f221a/FRINGE/1234/No0004//NX..24ULKL   Output file: /Exps/f221a/FRINGE/1234/No0004//NX.W.25.24ULKL

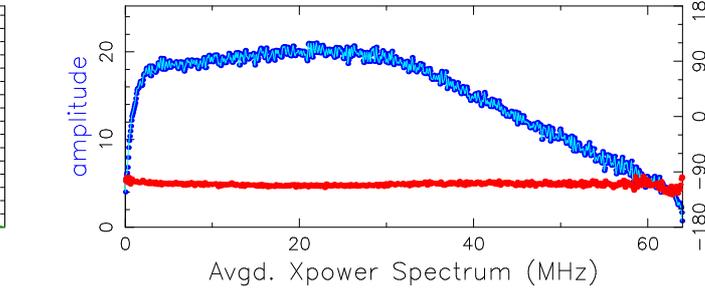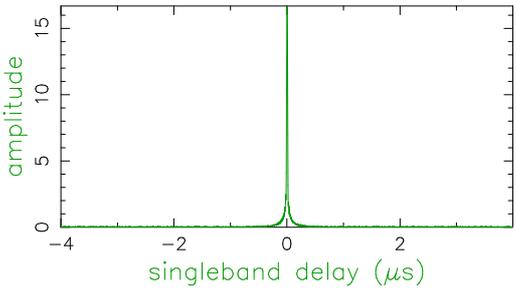# Mk4/DiFX fourfit 3.23 rev 3383
aux01

BLLAC.24ULKL, No0004, NX
NOEMA - ONSALA60, fgroup W, pol LR

multiband delay (µs)

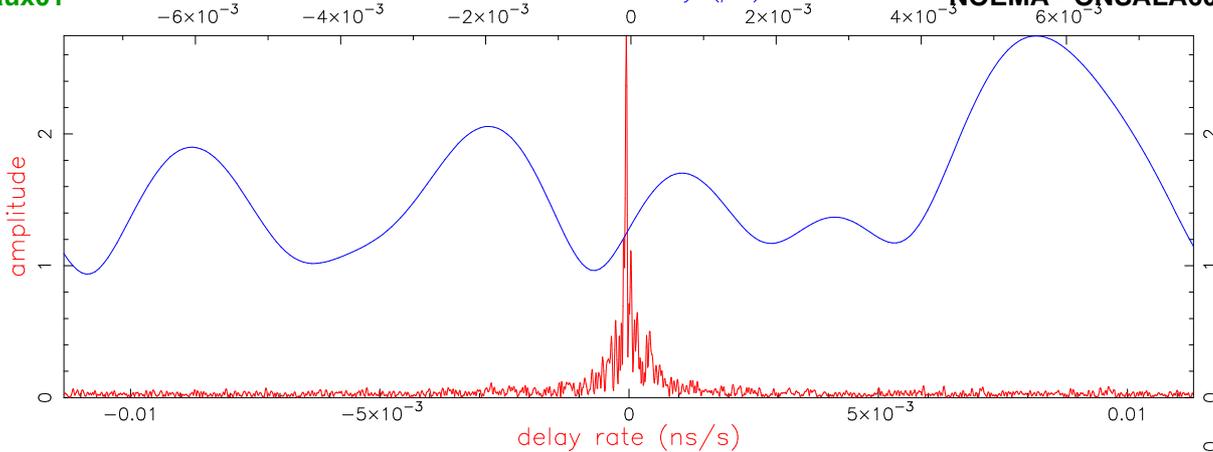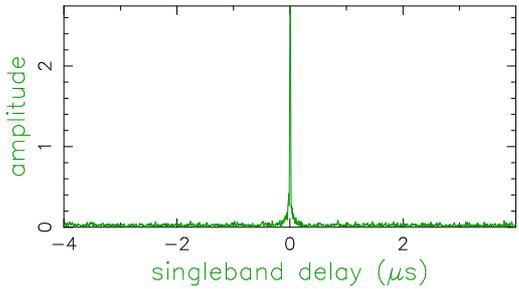-6×10^{-3} -4×10^{-3} -2×10^{-3} 0 2×10^{-3} 4×10^{-3} 6×10^{-3}
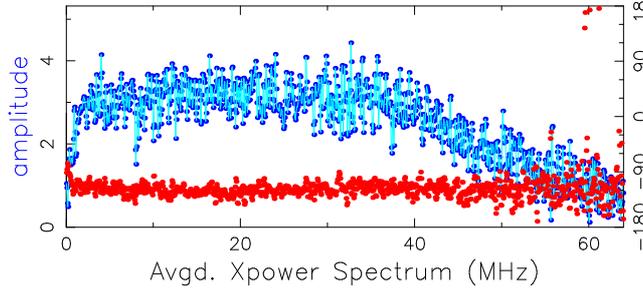
Fringe quality 2

SNR 130.0
Int time 299.920
Amp 2.745
Phase -134.3
PFD 0.0e+00
Delays (us)
SBD 0.004275
MBD 0.005579
Fringe rate (Hz)
-0.005242
Ion TEC 0.000
Ref freq (MHz)
86140.0000
AP (sec) 0.512

delay rate (ns/s)

singleband delay (µs)

Avgd. Xpower Spectrum (MHz)

Exp. f221a
Exper # 1234
Yr:day 2022:090
Start 124500.00
Stop 125000.03
FRT 124730.00
Corr/FF/build
2022:090:145148
2022:090:145451
2021:308:113728
RA & Dec (J2000)
22h02m43.291370s
+42°16'39.979885"

Amp. and Phase vs. time for each freq., 23 segs, 26 APs / seg (13.31 sec / seg.), time ticks 10 sec

a   b   c   d   e   f   g   h   All

Validity

pcal θ   N X
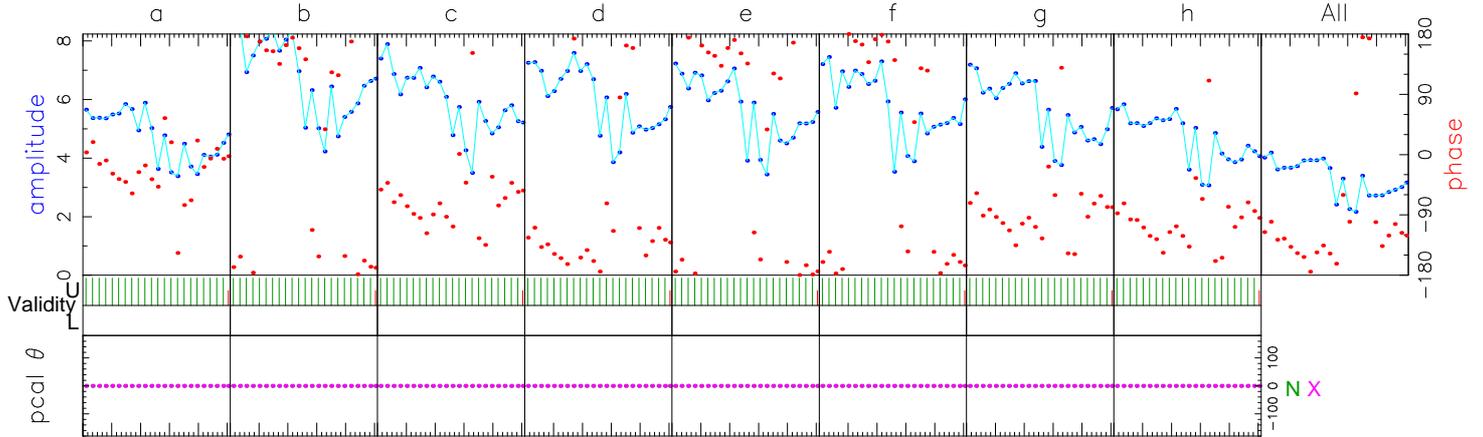
								Freq (MHz)	All
86012.00	86076.00	86140.00	86204.00	86268.00	86332.00	86396.00	86460.00		
-19.5	173.5	-74.3	-144.8	168.8	-178.7	-92.8	-105.6	Phase	-134.3
3.9	5.6	4.9	4.9	4.7	4.8	4.6	3.9	Ampl.	4.7
1027.2	1026.3	1025.6	1025.4	1025.1	1025.6	1025.9	1026.8	Sbd box	1026.1
U/L 586/0	586/0	586/0	586/0	586/0	586/0	586/0	586/0	APs used	
N 1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
X 1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
N:X 0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase	
N:X 0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	Manl PC	
N 1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
X 1000	1000	1000	1000	1000	1000	1000	1000		
N W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	Chan ids Tracks	
X W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	Chan ids Tracks	

			Resid	+/-
Group delay (usec) (SBD)	2.05376103359E+02	Apriori delay (usec)	2.05370523867E+02	Resid mbdelay (usec)	5.57949E-03	+/- 8.3E-06
Sband delay (usec)	2.05374798367E+02	Apriori clock (usec)	-8.6602798E+01	Resid sbdelay (usec)	4.27450E-03	+/- 6.6E-05
Phase delay (usec)	2.05370519535E+02	Apriori clockrate (us/s)	-6.3100003E-07	Resid phdelay (usec)	-4.33195E-06	+/- 2.8E-08
Delay rate (us/s)	-1.30135971436E-01	Apriori rate (us/s)	-1.30135910586E-01	Resid rate (us/s)	-6.08502E-08	+/- 1.6E-10
Total phase (deg)	199.0	Apriori accel (us/s/s)	-1.21864448685E-05	Resid phase (deg)	-134.3	+/- 0.9

	RMS	Theor.	Amplitude	2.745 +/- 0.021	Pcal mode: MANUAL, MANUAL	PC period (AP's) 5, 5		
ph/seg (deg)	40.9	2.1	Search (2048X32)	2.611	Pcal rate: 0.000E+00, 0.000E+00 (us/s)	sb window (us)	-4.000	4.000
amp/seg (%)	30.0	3.7	Interp.	0.000	Bits/sample: 2x2	mb window (us)	-0.008	0.008
ph/frq (deg)	67.5	1.2	Inc. seg. avg.	3.302	Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us	dr window (ns/s)	-0.011	0.011
amp/frq (%)	72.6	2.2	Inc. frq. avg.	4.663	Data rate(Mb/s): 2048 nlags: 1024 t_cohere infinite	ion window (TEC)	0.00	0.00

N: az 286.7 el 50.9 pa 67.1   X: az 275.4 el 49.6 pa 46.5   u,v (fr/asec) 986.323 -1800.345   simultaneous interpolator

Control file: cf_1234_gmva   Input file: /Exps/f221a/FRINGE/1234/No0004//NX..24ULKL   Output file: /Exps/f221a/FRINGE/1234/No0004//NX.W.41.24ULKL

Mk4/DiFX fourfit 3.23 rev 3383
aux01

multiband delay (µs)

BLLAC.24ULKL, No0004, NX
NOEMA - ONSALA60, fgroup W, pol RL
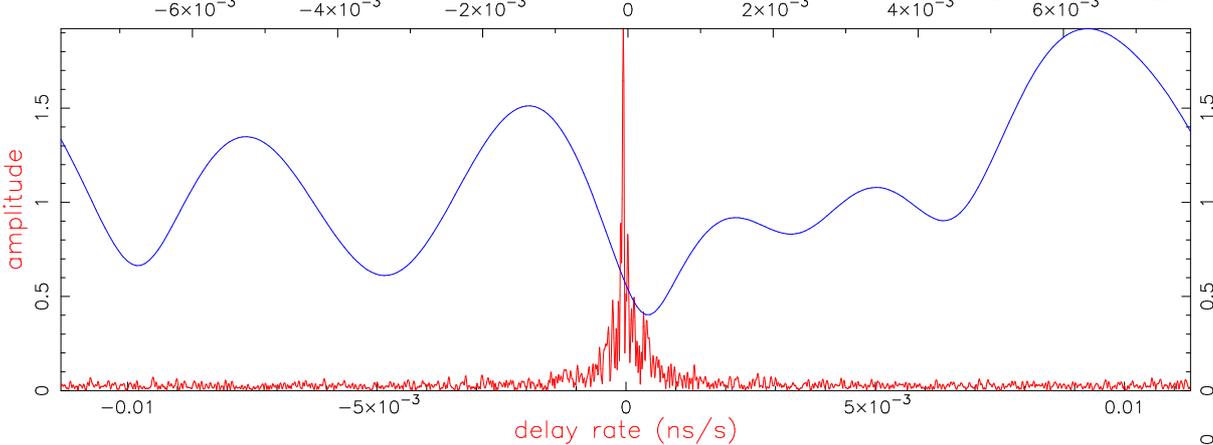
Fringe quality 2

SNR	91.0
Int time	299.920
Amp	1.922
Phase	5.8
PFD	0.0e+00
Delays (us)	
SBD	-0.027222
MBD	0.006327
Fringe rate (Hz)	
	-0.005190
Ion TEC	0.000
Ref freq (MHz)	
	86140.0000
AP (sec)	0.512

Exp.	f221a
Exper #	1234
Yr:day	2022:090
Start	124500.00
Stop	125000.03
FRT	124730.00
Corr/FF/build	
	2022:090:145148
	2022:090:145503
	2021:308:113728
RA & Dec (J2000)	
	22h02m43.291370s
	+42°16'39.979885"

delay rate (ns/s)

singleband delay (µs)

Avgd. Xpower Spectrum (MHz)

Amp. and Phase vs. time for each freq., 23 segs, 26 APs / seg (13.31 sec / seg.), time ticks 10 sec

a b c d e f g h All

Validity

pcal θ   N X

	86012.00	86076.00	86140.00	86204.00	86268.00	86332.00	86396.00	86460.00	Freq (MHz)	All
	133.9	-39.9	63.6	-13.4	-49.4	-34.9	54.8	29.7	Phase	5.8
	2.4	3.5	3.8	3.5	3.1	3.8	3.4	2.4	Ampl.	3.2
	1019.9	1018.0	1018.0	1017.5	1017.6	1017.8	1018.1	1018.6	Sbd box	1018.0
U/L	586/0	586/0	586/0	586/0	586/0	586/0	586/0	586/0	APs used	
N	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
X	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
N:X	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase	
N:X	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	Manl PC	
N	1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
X	1000	1000	1000	1000	1000	1000	1000	1000		
N	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	Chan ids Tracks	
X	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	Chan ids Tracks	

Group delay (usec) (SBD)	2.05345601015E+02	Apriori delay (usec)	2.05370523867E+02	Resid mbdelay (usec)	6.32715E-03 +/- 1.2E-05
Sband delay (usec)	2.05343302367E+02	Apriori clock (usec)	-8.6602798E+01	Resid sbdelay (usec)	-2.72215E-02 +/- 9.5E-05
Phase delay (usec)	2.05370524055E+02	Apriori clockrate (us/s)	-6.3100003E-07	Resid phdelay (usec)	1.87521E-07 +/- 4.1E-08
Delay rate (us/s)	-1.30135970835E-01	Apriori rate (us/s)	-1.30135910586E-01	Resid rate (us/s)	-6.02494E-08 +/- 2.3E-10
Total phase (deg)	339.1	Apriori accel (us/s/s)	-1.21864448685E-05	Resid phase (deg)	5.8 +/- 1.3

	RMS	Theor.	Amplitude	1.922 +/- 0.021	Pcal mode: MANUAL, MANUAL	PC period (AP's) 5, 5	
ph/seg (deg)	42.7	3.0	Search (2048X32)	1.864	Pcal rate: 0.000E+00, 0.000E+00 (us/s)	sb window (us)	-4.000 4.000
amp/seg (%)	32.8	5.3	Interp.	0.000	Bits/sample: 2x2	SampCntNorm: enabled	mb window (us)	-0.008 0.008
ph/frq (deg)	70.6	1.8	Inc. seg. avg.	2.382	Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us	dr window (ns/s)	-0.011 0.011
amp/frq (%)	74.1	3.1	Inc. frq. avg.	3.247	Data rate(Mb/s): 2048	nlags: 1024 t_cohere infinite	ion window (TEC)	0.00 0.00

N: az 286.7 el 50.9 pa 67.1   X: az 275.4 el 49.6 pa 46.5   u,v (fr/asec) 986.323 -1800.345   simultaneous interpolator

Control file: cf_1234_gmva   Input file: /Exps/f221a/FRINGE/1234/No0004/NX..24ULKL   Output file: /Exps/f221a/FRINGE/1234/No0004//NX.W.56.24ULKL
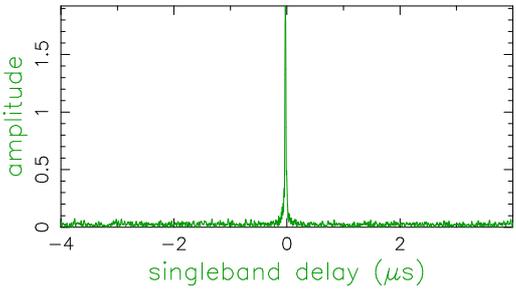
Mk4/DiFX fourfit 3.23 rev 3383
aux01

multiband delay (µs)

−6×10⁻³   −4×10⁻³   −2×10⁻³   0   2×10⁻³   4×10⁻³   6×10⁻³

BLLAC.24ULKL, No0004, NX
NOEMA - ONSALA60, fgroup W, pol LL

delay rate (ns/s)

singleband delay (µs)

Avgd. Xpower Spectrum (MHz)

Fringe quality	2
SNR	844.8
Int time	299.920
Amp	17.838
Phase	122.7
PFD	0.0e+00
Delays (us)	
SBD	-0.026903
MBD	0.007068
Fringe rate (Hz)	
	-0.005211
Ion TEC	0.000
Ref freq (MHz)	
	86140.0000
AP (sec)	0.512
Exp.	f221a
Exper #	1234
Yr:day	2022:090
Start	124500.00
Stop	125000.03
FRT	124730.00
Corr/FF/build	
2022:090:145148	
2022:090:145427	
2021:308:113728	
RA & Dec (J2000)	
22h02m43.291370s	
+42°16'39.979885"	
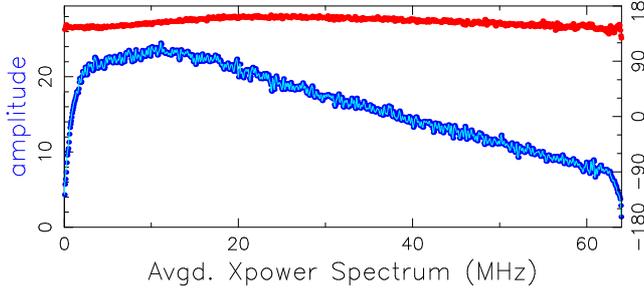
Amp. and Phase vs. time for each freq., 23 segs, 26 APs / seg (13.31 sec / seg.), time ticks 10 sec

a   b   c   d   e   f   g   h   All

Validity

pcal θ

N X
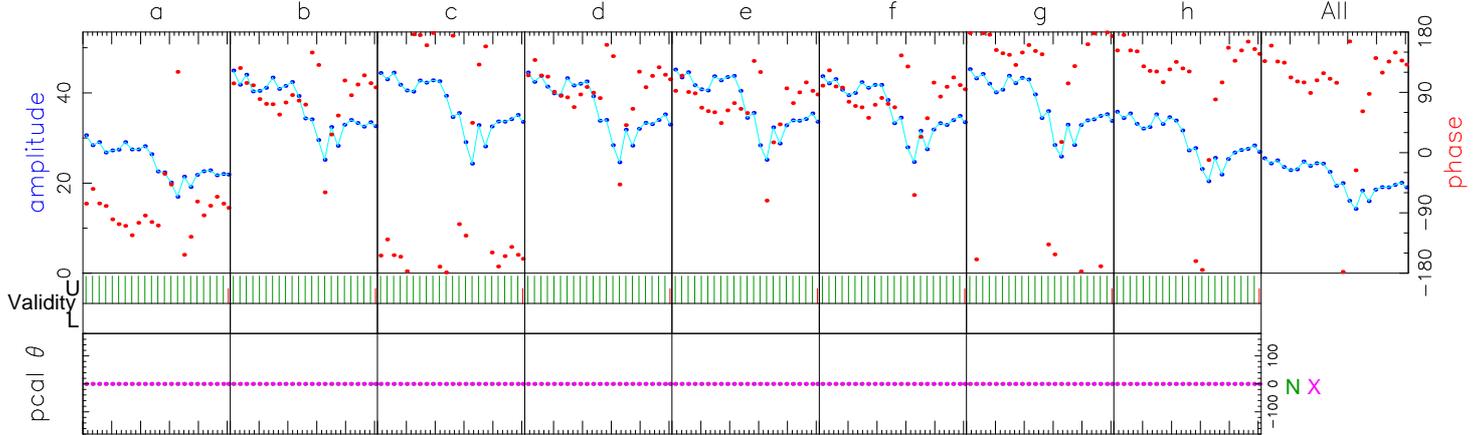
Freq (MHz)	86012.00	86076.00	86140.00	86204.00	86268.00	86332.00	86396.00	86460.00	All
Phase	-90.6	89.5	-166.6	101.3	77.7	86.0	164.5	139.3	122.7
Ampl.	20.8	31.1	31.4	31.1	31.7	30.7	31.6	25.0	29.2
Sbd box	1020.0	1018.3	1018.1	1017.6	1017.9	1017.8	1018.2	1019.0	1018.1
U/L APs used	586/0	586/0	586/0	586/0	586/0	586/0	586/0	586/0	
N PC freqs	1000	1000	1000	1000	1000	1000	1000	1000	
X PC freqs	1000	1000	1000	1000	1000	1000	1000	1000	
N:X PC phase	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	
N:X Manl PC	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	
N PC amp	1000	1000	1000	1000	1000	1000	1000	1000	
X	1000	1000	1000	1000	1000	1000	1000	1000	
N Chan ids Tracks	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	
X Chan ids Tracks	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	

Group delay (usec) (SBD)	2.05346341422E+02	Apriori delay (usec)	2.05370523867E+02	Resid mbdelay (usec)	7.06755E-03	+/- 1.3E-06
Sband delay (usec)	2.05343620867E+02	Apriori clock (usec)	-8.6602798E+01	Resid sbdelay (usec)	-2.69030E-02	+/- 1.0E-05
Phase delay (usec)	2.05370527825E+02	Apriori clockrate (us/s)	-6.3100003E-07	Resid phdelay (usec)	3.95790E-06	+/- 4.4E-09
Delay rate (us/s)	-1.30135971077E-01	Apriori rate (us/s)	-1.30135910586E-01	Resid rate (us/s)	-6.04910E-08	+/- 2.5E-11
Total phase (deg)	96.1	Apriori accel (us/s/s)	-1.21864448685E-05	Resid phase (deg)	122.7	+/- 0.1

	RMS	Theor.	Amplitude	17.838 +/- 0.021	Pcal mode: MANUAL, MANUAL	PC period (AP's) 5, 5		
ph/seg (deg)	41.4	0.3	Search (2048X32)	17.098	Pcal rate: 0.000E+00, 0.000E+00 (us/s)	sb window (us)	-4.000	4.000
amp/seg (%)	25.5	0.6	Interp.	0.000	Bits/sample: 2x2	mb window (us)	-0.008	0.008
ph/frq (deg)	74.7	0.2	Inc. seg. avg.	21.064	Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us	dr window (ns/s)	-0.011	0.011
amp/frq (%)	67.0	0.3	Inc. frq. avg.	29.177	Data rate(Mb/s): 2048 nlags: 1024 t_cohere infinite	ion window (TEC)	0.00	0.00

N: az 286.7 el 50.9 pa 67.1   X: az 275.4 el 49.6 pa 46.5   u,v (fr/asec) 986.323 -1800.345   simultaneous interpolator

Control file: cf_1234_gmva   Input file: /Exps/f221a/FRINGE/1234/No0004//NX..24ULKL   Output file: /Exps/f221a/FRINGE/1234/No0004//NX.W.8.24ULKL
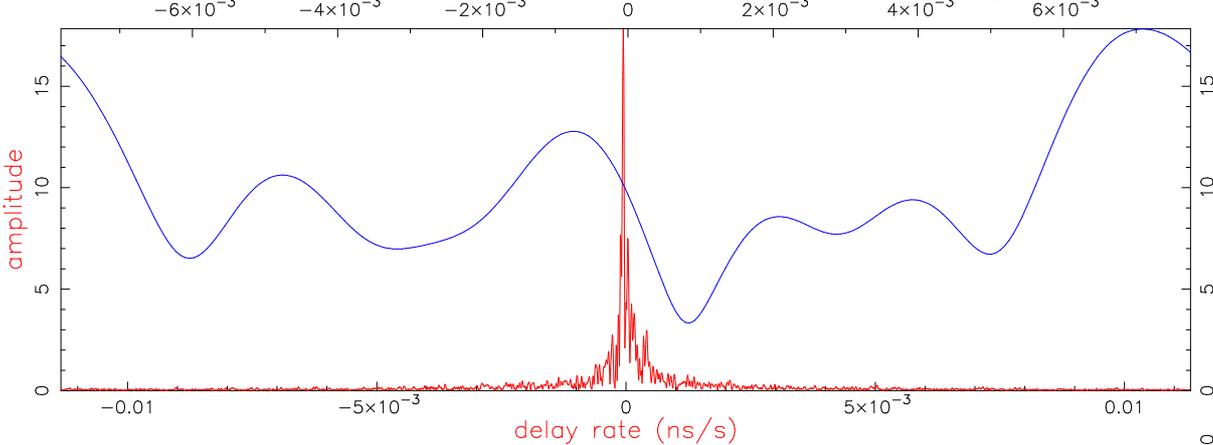
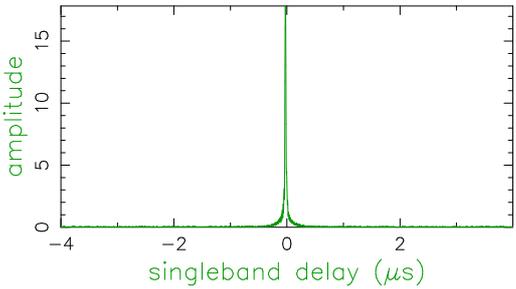# Mk4/DiFX fourfit 3.23 rev 3383
aux01

BLLAC.24ULKL, No0004, NY
NOEMA – YEBES40M, fgroup W, pol RR

multiband delay (μs)
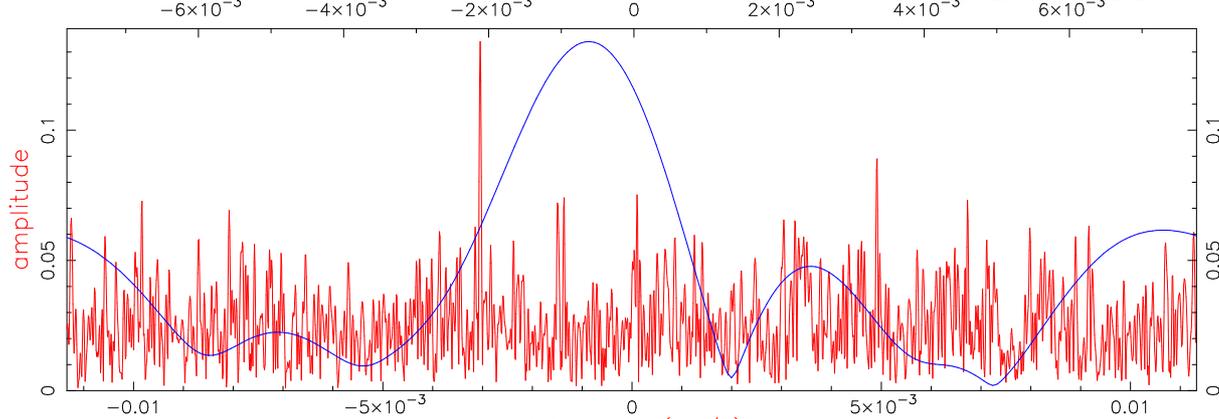
Fringe quality	0
SNR	6.2
Int time	281.867
Amp	0.139
Phase	-23.6
PFD	4.7e-01
Delays (us)	
SBD	0.643550
MBD	-0.000621
Fringe rate (Hz)	-0.262814
Ion TEC	0.000
Ref freq (MHz)	86140.0000
AP (sec)	0.512
Exp.	f221a
Exper #	1234
Yr:day	2022:090
Start	124517.41
Stop	125000.03
FRT	124730.00
Corr/FF/build	
2022:090:145148	
2022:090:145439	
2021:308:113728	
RA & Dec (J2000)	
22h02m43.291370s	
+42°16'39.979885"	

delay rate (ns/s)

singleband delay (μs)

Avgd. Xpower Spectrum (MHz)

Amp. and Phase vs. time for each freq., 23 segs, 25 APs / seg (12.80 sec / seg.), time ticks 10 sec

a b c d e f g h All

Validity

pcal θ
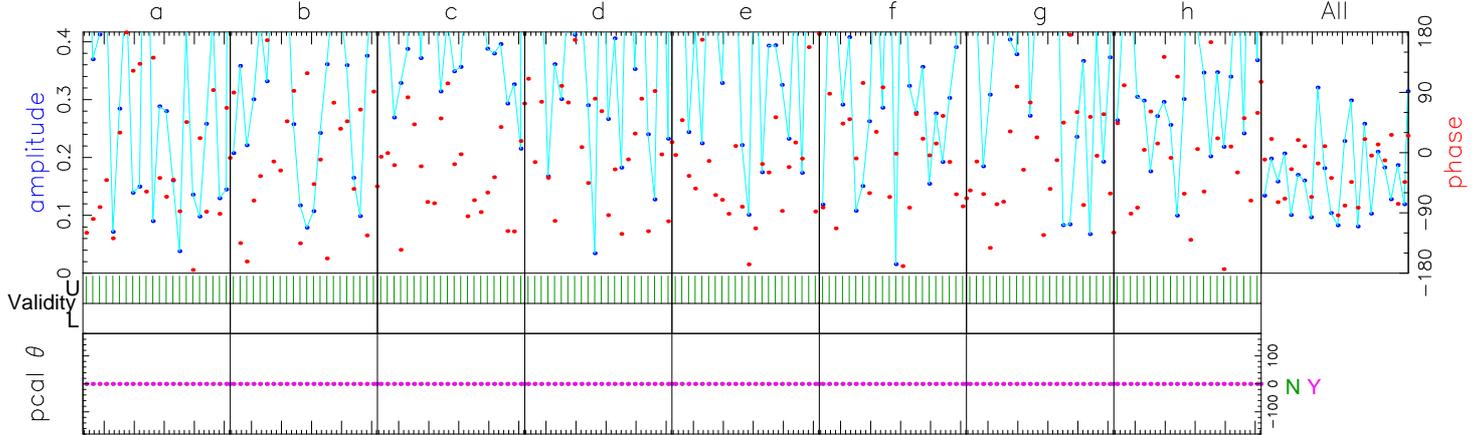
86012.00	86076.00	86140.00	86204.00	86268.00	86332.00	86396.00	86460.00	Freq (MHz)	All
-69.9	14.2	-31.3	29.7	-40.2	-14.5	-32.0	-27.5	Phase	-23.6
0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.1	Ampl.	0.1
824.0	260.1	1189.1	1070.7	648.2	280.6	1190.6	1858.5	Sbd box	1189.7
552/0	552/0	552/0	552/0	552/0	552/0	552/0	552/0	U/L APs used	
1000	1000	1000	1000	1000	1000	1000	1000	N PC freqs	
1000	1000	1000	1000	1000	1000	1000	1000	Y PC freqs	
0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	N:Y PC phase	
0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	N:Y Manl PC	
1000	1000	1000	1000	1000	1000	1000	1000	N PC amp	
1000	1000	1000	1000	1000	1000	1000	1000	Y	
W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	N Chan ids Tracks	
W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	Y Chan ids Tracks	

Group delay (usec) (SBD)	-1.14498671791E+03	Apriori delay (usec)	-1.14562672150E+03	Resid mbdelay (usec)	-6.21404E-04 +/- 1.8E-04
Sband delay (usec)	-1.14498317150E+03	Apriori clock (usec)	-1.3957782E+01	Resid sbdelay (usec)	6.43550E-01 +/- 1.4E-03
Phase delay (usec)	-1.14562672226E+03	Apriori clockrate (us/s)	1.4800002E-06	Resid phdelay (usec)	-7.60255E-07 +/- 6.0E-07
Delay rate (us/s)	-3.99118831572E-02	Apriori rate (us/s)	-3.99088321428E-02	Resid rate (us/s)	-3.05101E-06 +/- 3.7E-09
Total phase (deg)	-308.1	Apriori accel (us/s/s)	1.00503087747E-05	Resid phase (deg)	-23.6 +/- 18.5

	RMS	Theor.	Amplitude		
ph/seg (deg)	39.3	44.4	Search (2048X32)	0.139 +/- 0.022	
amp/seg (%)	55.1	77.5	Interp.	0.130	
ph/frq (deg)	34.0	26.2	Inc. seg. avg.	0.000	
amp/frq (%)	39.5	45.7	Inc. frq. avg.	0.134	
				0.140	

Pcal mode: MANUAL, MANUAL   PC period (AP's) 5, 5
Pcal rate: 0.000E+00, 0.000E+00 (us/s)   sb window (us) -4.000 4.000
Bits/sample: 2x2   SampCntNorm: enabled   mb window (us) -0.008 0.008
Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us   dr window (ns/s) -0.011 0.011
Data rate(Mb/s): 2048   nlags: 1024 t_cohere infinite ion window (TEC) 0.00 0.00

N: az 286.7 el 50.9 pa 67.1   Y: az 288.6 el 56.0 pa 76.9   u,v (fr/asec) 327.271 1063.559   simultaneous interpolator

Control file: cf_1234_gmva   Input file: /Exps/f221a/FRINGE/1234/No0004//NY..24ULKL   Output file: /Exps/f221a/FRINGE/1234/No0004//NY.W.23.24ULKL
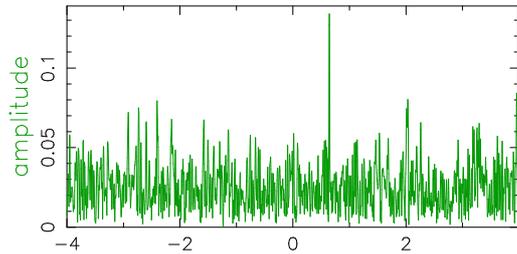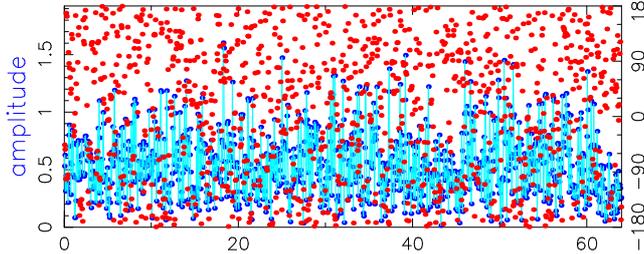
Mk4/DiFX fourfit 3.23 rev 3383

aux01

multiband delay (µs)

BLLAC.24ULKL, No0004, NY

NOEMA - YEBES40M, fgroup W, pol LR
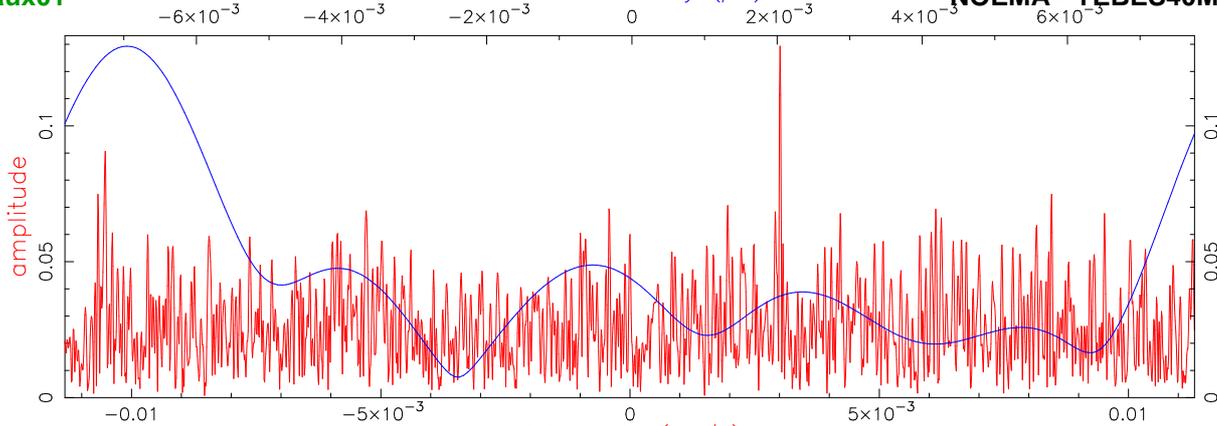
Fringe quality	0
SNR	5.9
Int time	281.867
Amp	0.133
Phase	48.4
PFD	9.5e-01
Delays (us)	
SBD	1.871266
MBD	-0.006949
Fringe rate (Hz)	
	0.259826
Ion TEC	0.000
Ref freq (MHz)	
	86140.0000
AP (sec)	0.512
Exp.	f221a
Exper #	1234
Yr:day	2022:090
Start	124517.41
Stop	125000.03
FRT	124730.00
Corr/FF/build	
2022:090:145148	
2022:090:145450	
2021:308:113728	
RA & Dec (J2000)	
22h02m43.291370s	
+42°16'39.979885"	

Amp. and Phase vs. time for each freq., 23 segs, 25 APs / seg (12.80 sec / seg.), time ticks 10 sec

	a	b	c	d	e	f	g	h	Freq (MHz)	All
	86012.00	86076.00	86140.00	86204.00	86268.00	86332.00	86396.00	86460.00	Freq (MHz)	All
	44.3	99.5	36.9	18.6	45.4	38.9	87.7	53.4	Phase	48.4
	0.1	0.1	0.1	0.2	0.1	0.3	0.1	0.1	Ampl.	0.1
	1067.3	1419.4	724.3	1901.0	2027.3	1504.7	298.6	1541.3	Sbd box	1504.0
U/L	552/0	552/0	552/0	552/0	552/0	552/0	552/0	552/0	APs used	
N	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
Y	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
N:Y	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase	
N:Y	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	Manl PC	
N	1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
Y	1000	1000	1000	1000	1000	1000	1000	1000		
N	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	Chan ids Tracks	
Y	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	Chan ids Tracks	

Group delay (usec) (SBD)	-1.14375867034E+03	Apriori delay (usec)	-1.14562672150E+03	Resid mbdelay (usec)	-6.94883E-03	+/- 1.8E-04
Sband delay (usec)	-1.14375545550E+03	Apriori clock (usec)	-1.3957782E+01	Resid sbdelay (usec)	1.87127E+00	+/- 1.5E-03
Phase delay (usec)	-1.14562671995E+03	Apriori clockrate (us/s)	1.4800002E-06	Resid phdelay (usec)	1.55932E-06	+/- 6.2E-07
Delay rate (us/s)	-3.99058158230E-02	Apriori rate (us/s)	-3.99088321428E-02	Resid rate (us/s)	3.01632E-06	+/- 3.8E-09
Total phase (deg)	-236.2	Apriori accel (us/s/s)	1.00503087747E-05	Resid phase (deg)	48.4	+/- 19.3

	RMS	Theor.	Amplitude	0.133 +/- 0.022	Pcal mode: MANUAL, MANUAL	PC period (AP's) 5, 5		
ph/seg (deg)	56.3	46.3	Search (2048X32)	0.125	Pcal rate: 0.000E+00, 0.000E+00 (us/s)		sb window (us)	-4.000 4.000
amp/seg (%)	59.6	80.8	Interp.	0.000	Bits/sample: 2x2	SampCntNorm: enabled	mb window (us)	-0.008 0.008
ph/frq (deg)	29.8	27.3	Inc. seg. avg.	0.126	Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us		dr window (ns/s)	-0.011 0.011
amp/frq (%)	48.5	47.6	Inc. frq. avg.	0.133	Data rate(Mb/s): 2048	nlags: 1024 t_cohere infinite	ion window (TEC)	0.00 0.00

N: az 286.7 el 50.9 pa 67.1   Y: az 288.6 el 56.0 pa 76.9   u,v (fr/asec) 327.271 1063.559   simultaneous interpolator

Control file: cf_1234_gmva   Input file: /Exps/f221a/FRINGE/1234/No0004//NY..24ULKL   Output file: /Exps/f221a/FRINGE/1234/No0004//NY.W.37.24ULKL
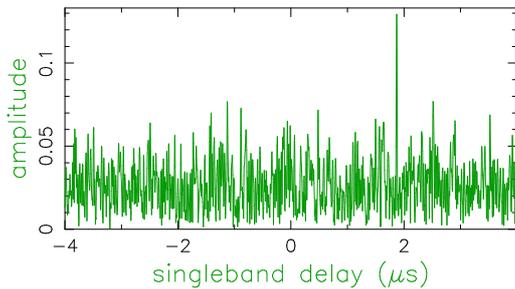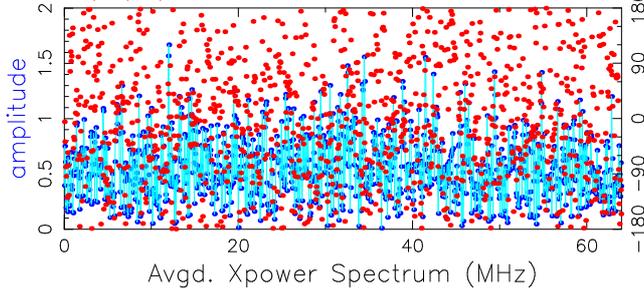
Mk4/DiFX fourfit 3.23 rev 3383
aux01

multiband delay (μs)

$-6×10^{-3}$ $-4×10^{-3}$ $-2×10^{-3}$ 0 $2×10^{-3}$ $4×10^{-3}$ $6×10^{-3}$

BLLAC.24ULKL, No0004, NY
NOEMA - YEBES40M, fgroup W, pol RL

delay rate (ns/s)

singleband delay (μs)

Avgd. Xpower Spectrum (MHz)

Fringe quality	0	
SNR	6.0	
Int time	281.867	
Amp	0.169	
Phase	135.0	
PFD	8.7e-01	
Delays (us)		
SBD	-2.860409	
MBD	-0.004095	
Fringe rate (Hz)		
	-0.753174	
Ion TEC	0.000	
Ref freq (MHz)		
	86140.0000	
AP (sec)	0.512	
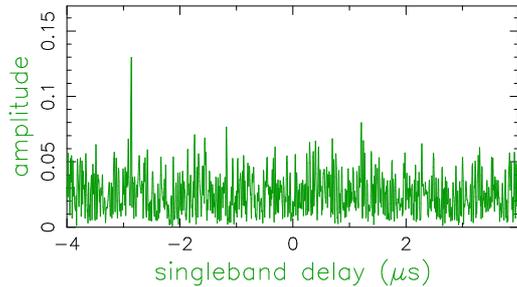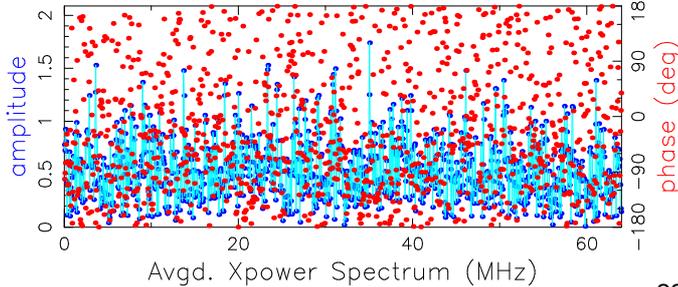
Exp.   f221a
Exper #   1234
Yr:day   2022:090
Start   124517.41
Stop   125000.03
FRT   124730.00
Corr/FF/build
2022:090:145148
2022:090:145502
2021:308:113728
RA & Dec (J2000)
22h02m43.291370s
+42°16'39.979885"

Amp. and Phase vs. time for each freq., 23 segs, 25 APs / seg (12.80 sec / seg.), time ticks 10 sec

a   b   c   d   e   f   g   h   All

Validity

pcal θ   N Y
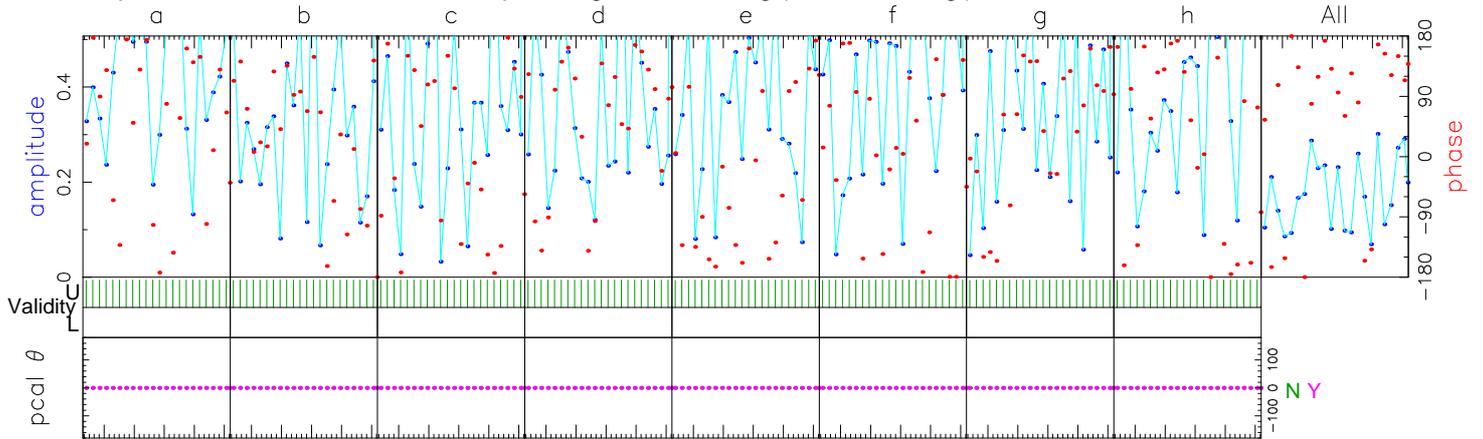
								Freq (MHz)	All
86012.00	86076.00	86140.00	86204.00	86268.00	86332.00	86396.00	86460.00	Freq (MHz)	
139.5	100.8	150.9	130.4	-168.5	108.3	106.2	150.2	Phase	135.0
0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	Ampl.	0.2
1244.5	1594.8	1716.2	1795.9	600.2	841.9	302.9	902.0	Sbd box	292.7
U/L 552/0	552/0	552/0	552/0	552/0	552/0	552/0	552/0	APs used	
N 1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
Y 1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
N:Y 0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase	
N:Y 0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	Manl PC	
N 1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
Y 1000	1000	1000	1000	1000	1000	1000	1000		
N W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	Chan ids Tracks	
Y W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	Chan ids Tracks	

Group delay (usec) (SBD)	-1.14849019173E+03	Apriori delay (usec)	-1.14562672150E+03	Resid mbdelay (usec)	-4.09523E-03 +/- 1.8E-04
Sband delay (usec)	-1.14848713100E+03	Apriori clock (usec)	-1.3957782E+01	Resid sbdelay (usec)	-2.86041E+00 +/- 1.4E-03
Phase delay (usec)	-1.14562671715E+03	Apriori clockrate (us/s)	1.4800002E-06	Resid phdelay (usec)	4.35402E-06 +/- 6.2E-07
Delay rate (us/s)	-3.99175757510E-02	Apriori rate (us/s)	-3.99088321428E-02	Resid rate (us/s)	-8.74361E-06 +/- 3.8E-09
Total phase (deg)	-149.5	Apriori accel (us/s/s)	1.00503087747E-05	Resid phase (deg)	135.0 +/- 19.1

	RMS	Theor.	Amplitude	0.169 +/- 0.028	Pcal mode: MANUAL, MANUAL	PC period (AP's) 5, 5		
ph/seg (deg)	47.5	45.8	Search (2048X32)	0.128	Pcal rate: 0.000E+00, 0.000E+00 (us/s)		sb window (us)	-4.000 4.000
amp/seg (%)	67.3	79.9	Interp.	0.000	Bits/sample: 2x2	SampCntNorm: enabled	mb window (us)	-0.008 0.008
ph/frq (deg)	32.7	27.0	Inc. seg. avg.	0.173	Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us		dr window (ns/s)	-0.011 0.011
amp/frq (%)	23.8	47.1	Inc. frq. avg.	0.168	Data rate(Mb/s): 2048	nlags: 1024 t_cohere infinite	ion window (TEC)	0.00 0.00

N: az 286.7 el 50.9 pa 67.1   Y: az 288.6 el 56.0 pa 76.9   u,v (fr/asec) 327.271 1063.559   simultaneous interpolator

Control file: cf_1234_gmva   Input file: /Exps/f221a/FRINGE/1234/No0004//NY..24ULKL   Output file: /Exps/f221a/FRINGE/1234/No0004//NY.W.51.24ULKL
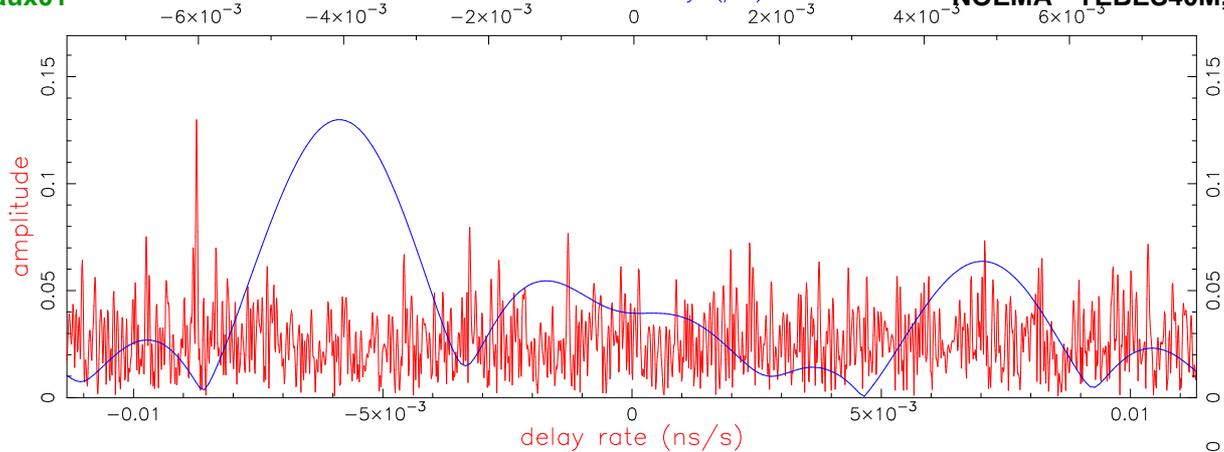
Mk4/DiFX fourfit 3.23 rev 3383

aux01

multiband delay (μs)

−6×10⁻³   −4×10⁻³   −2×10⁻³   0   2×10⁻³   4×10⁻³   6×10⁻³

BLLAC.24ULKL, No0004, NY
NOEMA - YEBES40M, fgroup W, pol LL

Fringe quality   0
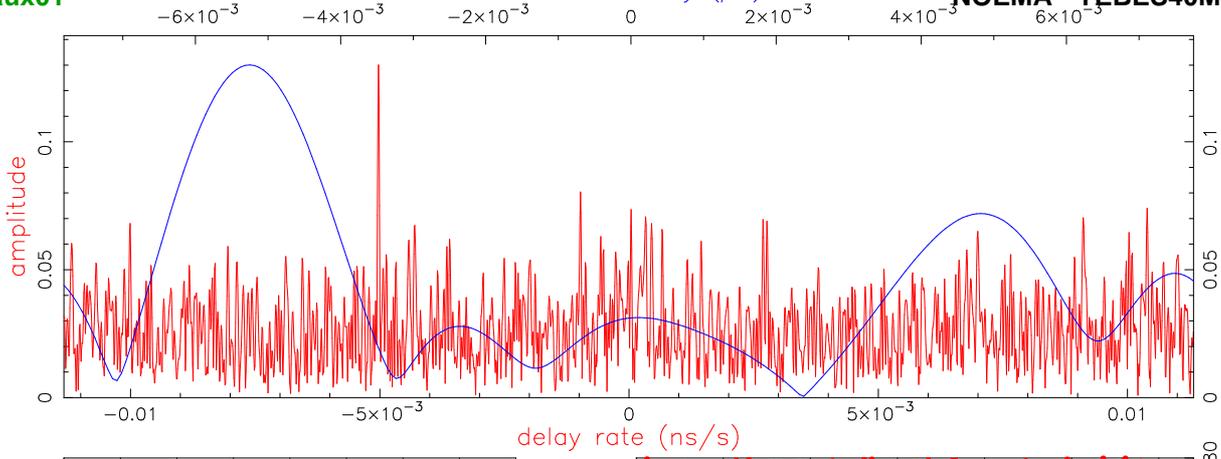
SNR	6.0
Int time	281.867
Amp	0.142
Phase	-20.3
PFD	9.0e-01
Delays (us)	
SBD	3.604821
MBD	-0.005258
Fringe rate (Hz)	
	-0.433964
Ion TEC	0.000
Ref freq (MHz)	
	86140.0000
AP (sec)	0.512
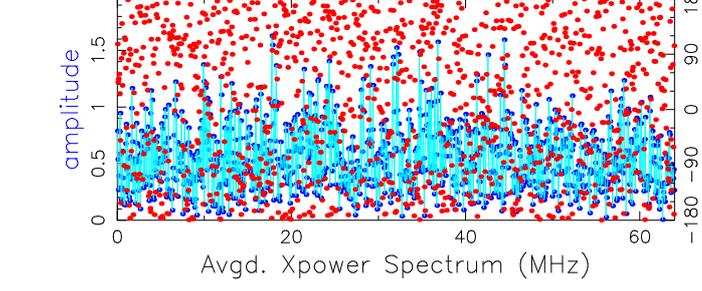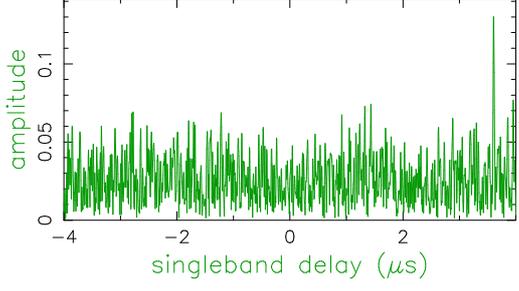
Exp.	f221a
Exper #	1234
Yr:day	2022:090
Start	124517.41
Stop	125000.03
FRT	124730.00
Corr/FF/build	
2022:090:145148	
2022:090:145427	
2021:308:113728	
RA & Dec (J2000)	
22h02m43.291370s	
+42°16'39.979885"	

delay rate (ns/s)

singleband delay (μs)

Avgd. Xpower Spectrum (MHz)

Amp. and Phase vs. time for each freq., 23 segs, 25 APs / seg (12.80 sec / seg.), time ticks 10 sec

a   b   c   d   e   f   g   h   All

Validity

pcal θ   N Y
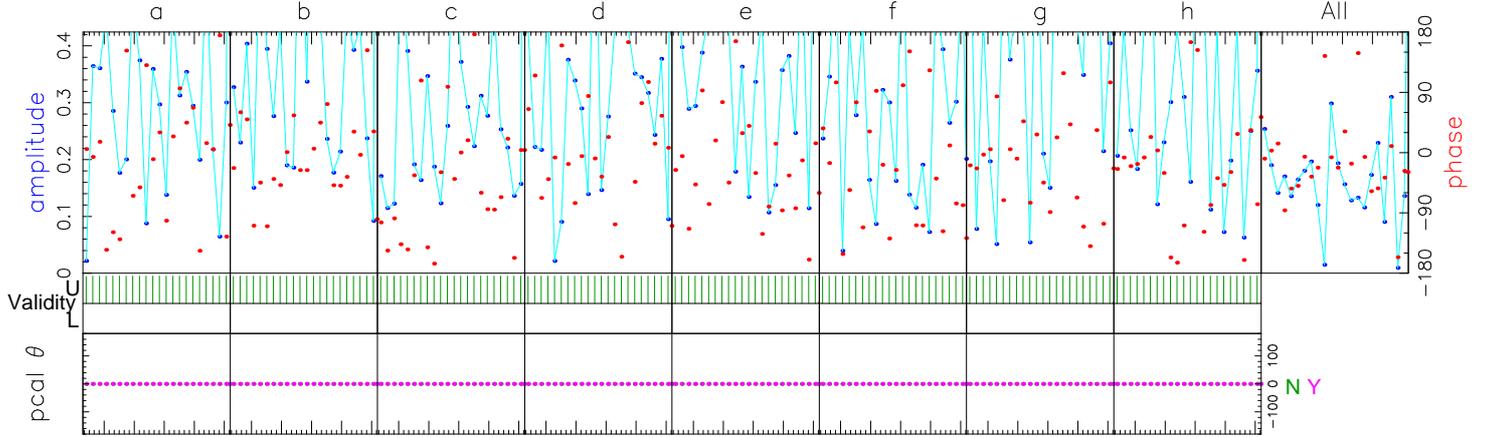
86012.00	86076.00	86140.00	86204.00	86268.00	86332.00	86396.00	86460.00	Freq (MHz)	All
-9.4	-11.2	-80.3	-2.4	-19.5	-44.7	0.3	-34.9	Phase	-20.3
0.1	0.3	0.1	0.1	0.2	0.1	0.2	0.1	Ampl.	0.1
808.0	1947.7	1712.3	477.1	1390.6	1487.9	1928.7	1978.8	Sbd box	1947.8
552/0	552/0	552/0	552/0	552/0	552/0	552/0	552/0	U/L APs used	
1000	1000	1000	1000	1000	1000	1000	1000	N PC freqs	
1000	1000	1000	1000	1000	1000	1000	1000	Y PC freqs	
0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	N:Y PC phase	
0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	N:Y Manl PC	
1000	1000	1000	1000	1000	1000	1000	1000	N PC amp	
1000	1000	1000	1000	1000	1000	1000	1000	Y	
W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	N Chan ids Tracks	
W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	Y Chan ids Tracks	

Group delay (usec) (SBD)	-1.14202260410E+03	Apriori delay (usec)	-1.14562672150E+03	Resid mbdelay (usec) -5.25760E-03 +/- 1.8E-04
Sband delay (usec)	-1.14202190025E+03	Apriori clock (usec)	-1.3957782E+01	Resid sbdelay (usec) 3.60482E+00 +/- 1.4E-03
Phase delay (usec)	-1.14562672216E+03	Apriori clockrate (us/s)	1.4800002E-06	Resid phdelay (usec) -6.54357E-07 +/- 6.2E-07
Delay rate (us/s)	-3.99138700350E-02	Apriori rate (us/s)	-3.99088321428E-02	Resid rate (us/s) -5.03789E-06 +/- 3.8E-09
Total phase (deg)	-304.8	Apriori accel (us/s/s)	1.00503087747E-05	Resid phase (deg) -20.3 +/- 19.2

	RMS	Theor.	Amplitude	0.142 +/- 0.024	Pcal mode: MANUAL, MANUAL	PC period (AP's) 5, 5	
ph/seg (deg)	63.7	45.9	Search (2048X32)	0.128	Pcal rate: 0.000E+00, 0.000E+00 (us/s)	sb window (us)	-4.000 4.000
amp/seg (%)	62.7	80.2	Interp.	0.000	Bits/sample: 2x2	SampCntNorm: enabled	mb window (us) -0.008 0.008
ph/frq (deg)	29.9	27.1	Inc. seg. avg.	0.133	Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us	dr window (ns/s) -0.011 0.011
amp/frq (%)	46.2	47.3	Inc. frq. avg.	0.138	Data rate(Mb/s): 2048	nlags: 1024 t_cohere infinite	ion window (TEC) 0.00 0.00

N: az 286.7 el 50.9 pa 67.1   Y: az 288.6 el 56.0 pa 76.9   u,v (fr/asec) 327.271 1063.559   simultaneous interpolator

Control file: cf_1234_gmva   Input file: /Exps/f221a/FRINGE/1234/No0004//NY..24ULKL   Output file: /Exps/f221a/FRINGE/1234/No0004//NY.W.7.24ULKL

# Mk4/DiFX fourfit 3.23 rev 3383
aux01

BLLAC.24ULKL, No0004, ZN
METSAHOV₃ - NOEMA, fgroup W, pol LL

multiband delay (µs)
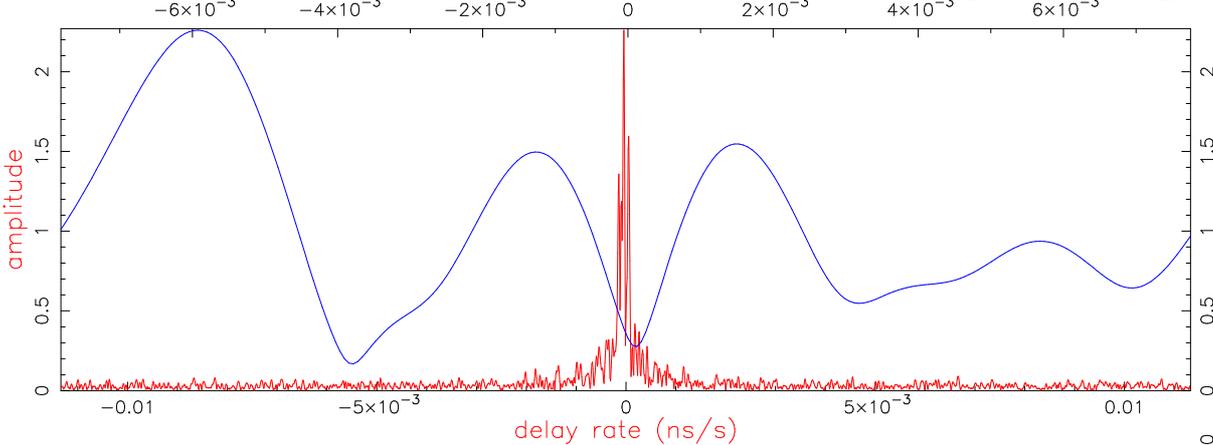
Fringe quality	1
SNR	104.9
Int time	285.841
Amp	2.270
Phase	-74.2
PFD	0.0e+00
Delays (us)	
SBD	0.557720
MBD	-0.005930
Fringe rate (Hz)	-0.003440
Ion TEC	0.000
Ref freq (MHz)	86140.0000
AP (sec)	0.512
Exp.	f221a
Exper #	1234
Yr:day	2022:090
Start	124513.31
Stop	125000.03
FRT	124730.00
Corr/FF/build	
	2022:090:145148
	2022:090:145428
	2021:308:113728
RA & Dec (J2000)	
	22h02m43.291370s
	+42˚16'39.979885"

delay rate (ns/s)

singleband delay (µs)

Avgd. Xpower Spectrum (MHz)

Amp. and Phase vs. time for each freq., 23 segs, 25 APs / seg (12.80 sec / seg.), time ticks 10 sec

a b c d e f g h All

Validity U L

pcal θ

Z N
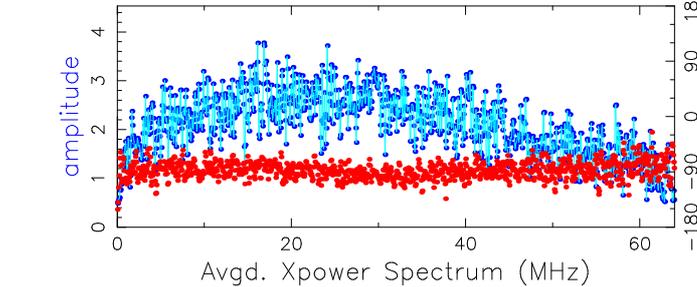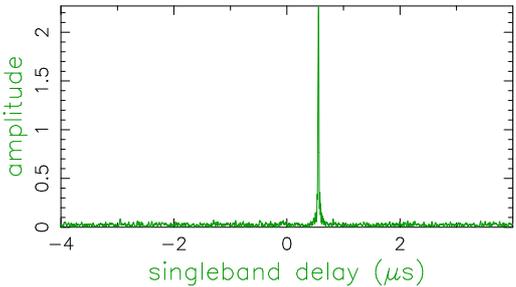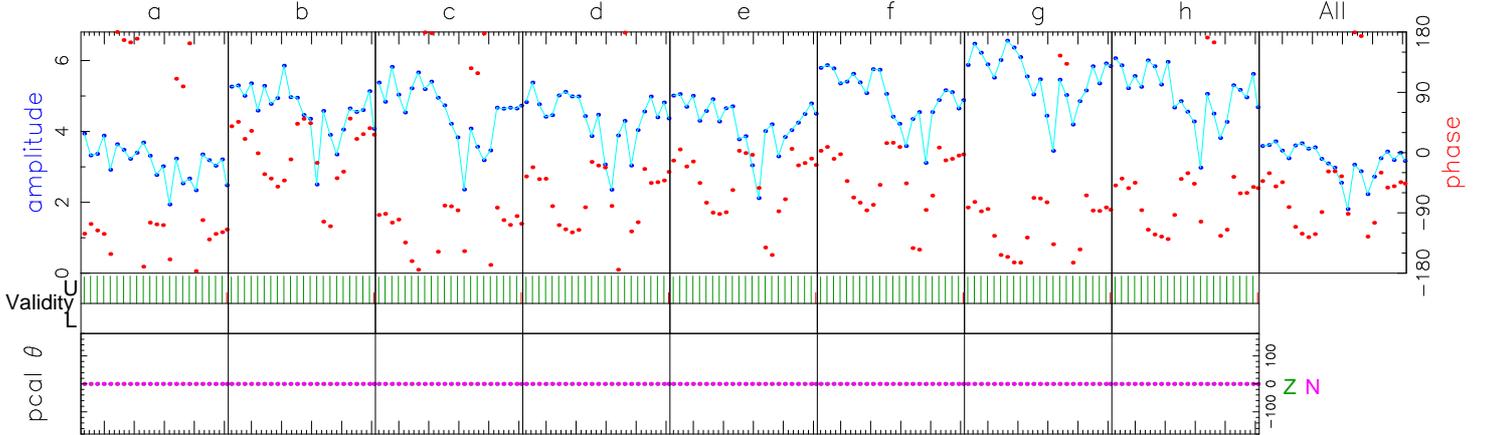
Freq (MHz)	86012.00	86076.00	86140.00	86204.00	86268.00	86332.00	86396.00	86460.00	All
Phase	-147.1	4.1	-128.2	-67.7	-41.3	-32.2	-114.1	-80.2	-74.2
Ampl.	2.3	3.4	3.2	3.0	3.1	3.6	3.9	3.6	3.3
Sbd box	1165.9	1167.4	1168.0	1168.5	1168.7	1168.4	1168.3	1167.6	1167.8
U/L	560/0	560/0	560/0	560/0	560/0	560/0	560/0	560/0	APs used
Z PC freqs	1000	1000	1000	1000	1000	1000	1000	1000	
N PC freqs	1000	1000	1000	1000	1000	1000	1000	1000	
Z:N PC phase	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	
Z:N Manl PC	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	
Z PC amp	1000	1000	1000	1000	1000	1000	1000	1000	
N	1000	1000	1000	1000	1000	1000	1000	1000	
Z Chan ids Tracks	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	
N Chan ids Tracks	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	

Group delay (usec) (SBD)	-1.80144970242E+03	Apriori delay (usec)	-1.80200627247E+03	Resid mbdelay (usec)	-5.92995E-03	+/- 1.0E-05
Sband delay (usec)	-1.80144855297E+03	Apriori clock (usec)	1.3039521E+01	Resid sbdelay (usec)	5.57720E-01	+/- 8.2E-05
Phase delay (usec)	-1.80200627486E+03	Apriori clockrate (us/s)	1.8299999E-07	Resid phdelay (usec)	-2.39200E-06	+/- 3.5E-08
Delay rate (us/s)	1.26292282210E-01	Apriori rate (us/s)	1.26292322144E-01	Resid rate (us/s)	-3.99343E-08	+/- 2.1E-10
Total phase (deg)	-186.0	Apriori accel (us/s/s)	2.22318511411E-05	Resid phase (deg)	-74.2	+/- 1.1

	RMS	Theor.	Amplitude	2.270 +/- 0.022			
ph/seg (deg)	47.6	2.6	Search (2048X32)	2.205	Pcal mode: MANUAL, MANUAL	PC period (AP's) 5, 5	
amp/seg (%)	45.0	4.6	Interp.	0.000	Pcal rate: 0.000E+00, 0.000E+00 (us/s)	sb window (us)	-4.000 4.000
ph/frq (deg)	56.1	1.5	Inc. seg. avg.	3.171	Bits/sample: 2x2 SampCntNorm: enabled	mb window (us)	-0.008 0.008
amp/frq (%)	47.9	2.7	Inc. frq. avg.	3.256	Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us	dr window (ns/s)	-0.011 0.011
					Data rate(Mb/s): 2048 nlags: 1024 t_cohere infinite	ion window (TEC)	0.00 0.00

Z: az 282.1 el 43.6 pa 41.0   N: az 286.7 el 50.9 pa 67.1   u,v (fr/asec) -938.914 2687.316   simultaneous interpolator

Control file: cf_1234_gmva   Input file: /Exps/f221a/FRINGE/1234/No0004//ZN..24ULKL   Output file: /Exps/f221a/FRINGE/1234/No0004//ZN.W.15.24ULKL

Mk4/DiFX fourfit 3.23 rev 3383
aux01

multiband delay (µs)
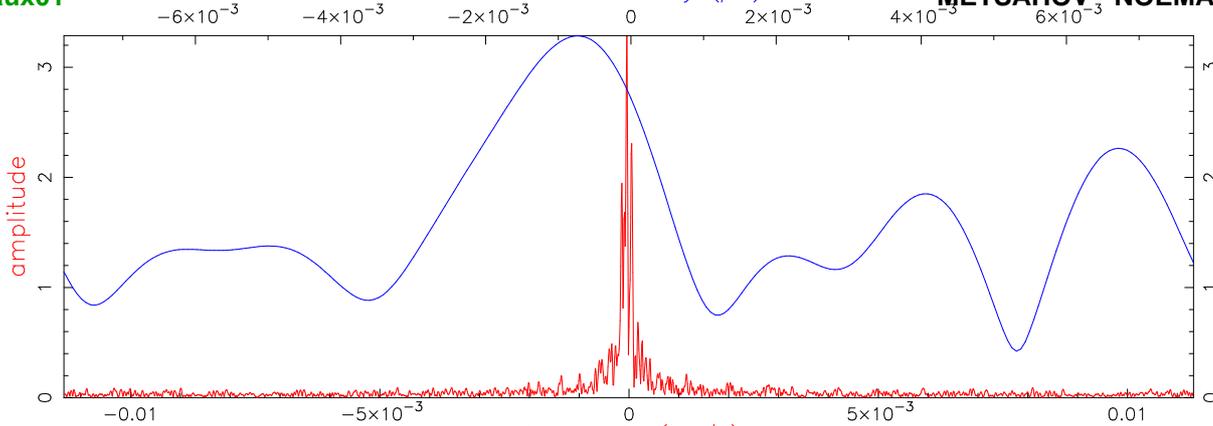
Fringe quality	1
SNR	152.0
Int time	285.841
Amp	3.287
Phase	107.2
PFD	0.0e+00
Delays (us)	
SBD	0.562860
MBD	-0.000740
Fringe rate (Hz)	
	-0.003462
Ion TEC	0.000
Ref freq (MHz)	
	86140.0000
AP (sec)	0.512
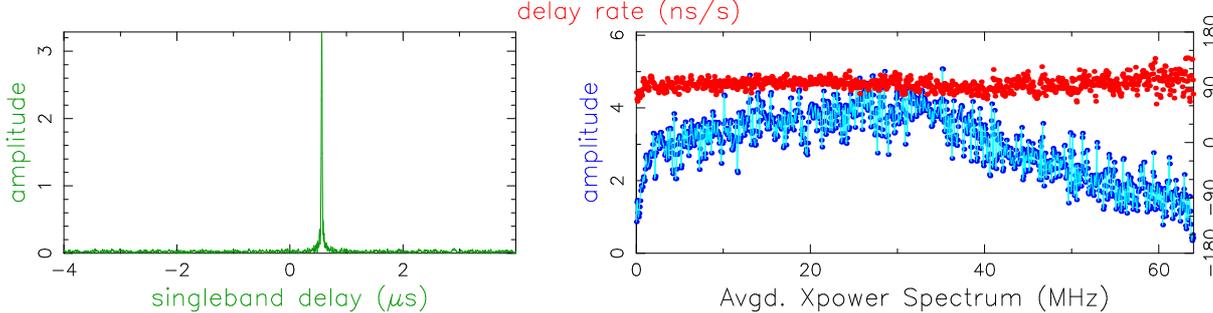
Exp.	f221a
Exper #	1234
Yr:day	2022:090
Start	124513.31
Stop	125000.03
FRT	124730.00
Corr/FF/build	
2022:090:145148	
2022:090:145440	
2021:308:113728	
RA & Dec (J2000)	
22h02m43.291370s	
+42°16'39.979885"	

delay rate (ns/s)

singleband delay (µs)

Avgd. Xpower Spectrum (MHz)

Amp. and Phase vs. time for each freq., 23 segs, 25 APs / seg (12.80 sec / seg.), time ticks 10 sec

	a	b	c	d	e	f	g	h	All

									Freq (MHz)	All
	86012.00	86076.00	86140.00	86204.00	86268.00	86332.00	86396.00	86460.00		
	13.7	168.4	60.2	127.5	152.1	138.8	58.1	98.2	Phase	107.2
	3.9	4.9	4.8	4.6	5.0	5.2	5.3	5.2	Ampl.	4.9
	1167.5	1168.9	1169.4	1169.8	1169.9	1169.6	1169.6	1168.7	Sbd box	1169.1
U/L	560/0	560/0	560/0	560/0	560/0	560/0	560/0	560/0	APs used	
Z	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
N	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
Z:N	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase	
Z:N	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	Manl PC	
Z	1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
N	1000	1000	1000	1000	1000	1000	1000	1000		
Z	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	Chan ids Tracks	
N	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	Chan ids Tracks	

Group delay (usec) (SBD)	-1.80144451204E+03	Apriori delay (usec)	-1.80200627247E+03	Resid mbdelay (usec) -7.39573E-04 +/- 7.1E-06
Sband delay (usec)	-1.80144341272E+03	Apriori clock (usec)	1.3039521E+01	Resid sbdelay (usec) 5.62860E-01 +/- 5.7E-05
Phase delay (usec)	-1.80200626901E+03	Apriori clockrate (us/s)	1.8299999E-07	Resid phdelay (usec) 3.45570E-06 +/- 2.4E-08
Delay rate (us/s)	1.26292281953E-01	Apriori rate (us/s)	1.26292322144E-01	Resid rate (us/s) -4.01908E-08 +/- 1.5E-10
Total phase (deg)	-4.7	Apriori accel (us/s/s)	2.22318511411E-05	Resid phase (deg) 107.2 +/- 0.8

	RMS	Theor.	Amplitude	3.287 +/- 0.022	Pcal mode: MANUAL, MANUAL	PC period (AP's) 5, 5	
ph/seg (deg)	47.7	1.8	Search (2048X32)	3.163	Pcal rate: 0.000E+00, 0.000E+00 (us/s)	sb window (us)	-4.000 4.000
amp/seg (%)	44.7	3.2	Interp.	0.000	Bits/sample: 2x2	SampCntNorm: enabled	mb window (us) -0.008 0.008
ph/frq (deg)	58.6	1.1	Inc. seg. avg.	4.594	Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us	dr window (ns/s) -0.011 0.011
amp/frq (%)	49.5	1.9	Inc. frq. avg.	4.855	Data rate(Mb/s): 2048 nlags: 1024 t_cohere infinite	ion window (TEC) 0.00 0.00

Z: az 282.1 el 43.6 pa 41.0   N: az 286.7 el 50.9 pa 67.1   u,v (fr/asec) -938.914 2687.316   simultaneous interpolator

Control file: cf_1234_gmva   Input file: /Exps/f221a/FRINGE/1234/No0004//ZN..24ULKL   Output file: /Exps/f221a/FRINGE/1234/No0004//ZN.W.28.24ULKL

# Mk4/DiFX fourfit 3.23 rev 3383
aux01

BLLAC.24ULKL, No0004, ZN
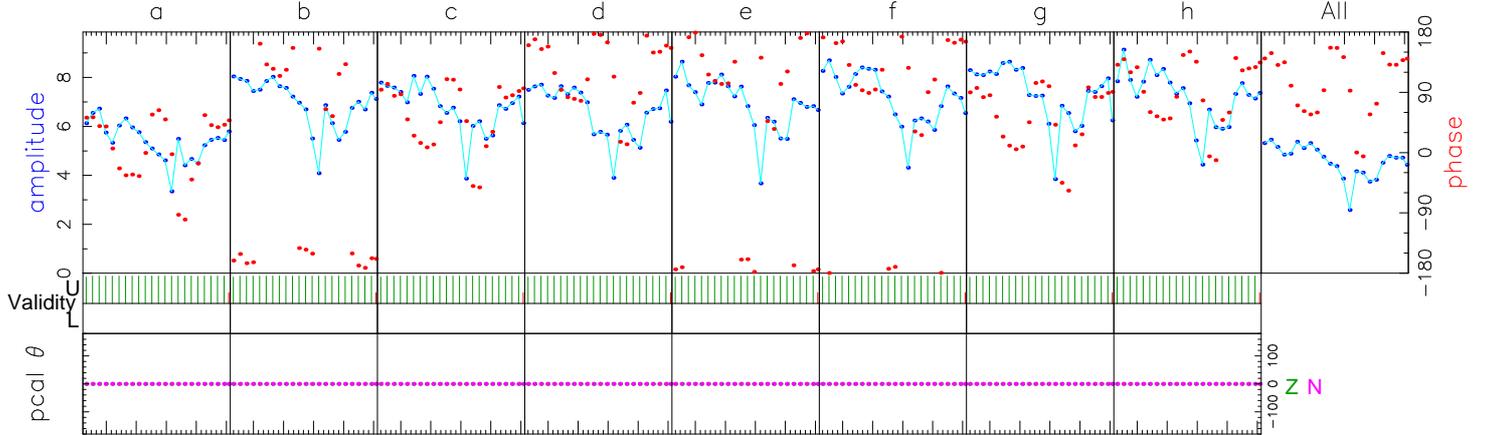**METSAHOV - NOEMA, fgroup W, pol LR**

multiband delay (µs)
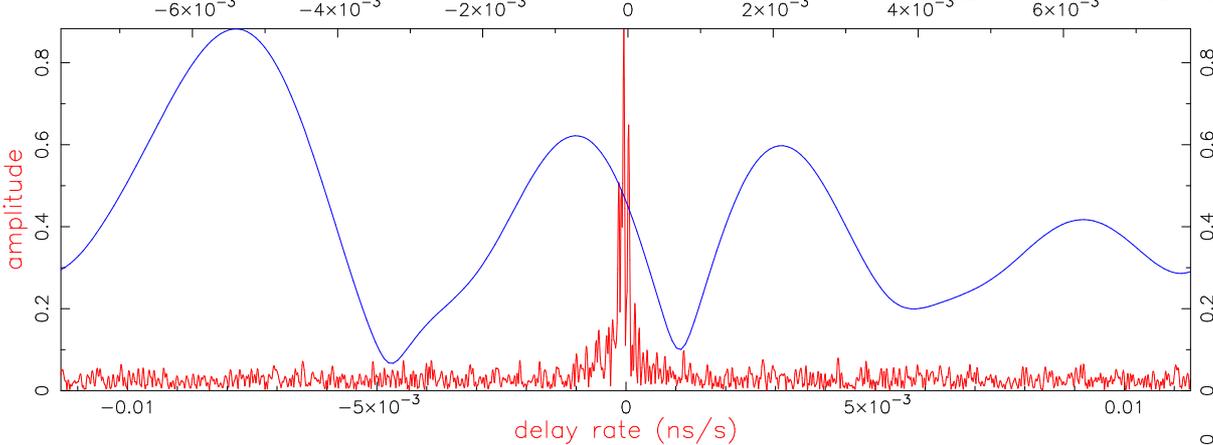
Fringe quality 3

SNR	40.8
Int time	285.841
Amp	0.883
Phase	6.5
PFD	0.0e+00
Delays (us)	
SBD	0.558221
MBD	-0.005400
Fringe rate (Hz)	
	-0.003504
Ion TEC	0.000
Ref freq (MHz)	
	86140.0000
AP (sec)	0.512
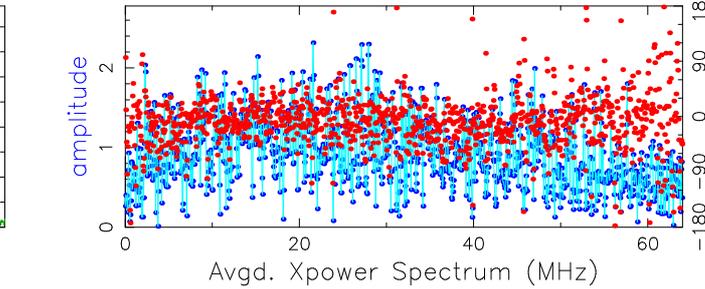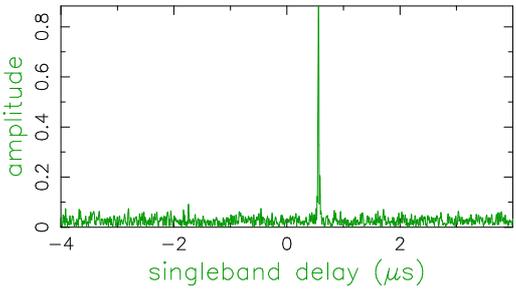
delay rate (ns/s)

singleband delay (µs)

Avgd. Xpower Spectrum (MHz)

Exp.	f221a
Exper #	1234
Yr:day	2022:090
Start	124513.31
Stop	125000.03
FRT	124730.00
Corr/FF/build	
	2022:090:145148
	2022:090:145451
	2021:308:113728
RA & Dec (J2000)	
	22h02m43.291370s
	+42°16'39.979885"

Amp. and Phase vs. time for each freq., 23 segs, 25 APs / seg (12.80 sec / seg.), time ticks 10 sec

	a	b	c	d	e	f	g	h	All

Validity

pcal θ

Z N
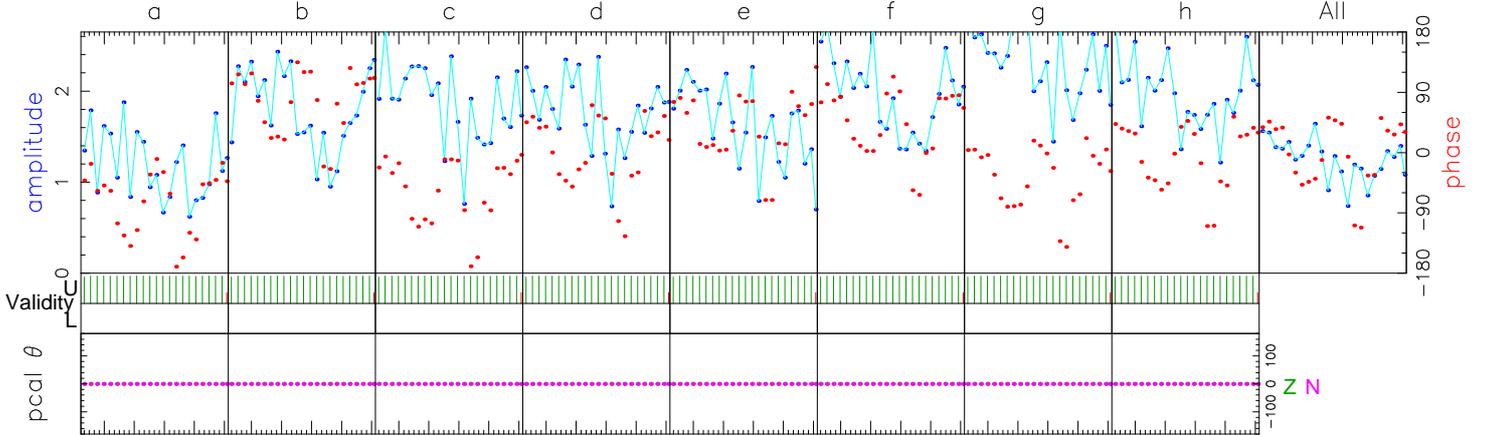
Freq (MHz)	86012.00	86076.00	86140.00	86204.00	86268.00	86332.00	86396.00	86460.00	All
Phase	-69.6	82.8	-50.7	9.5	43.2	53.5	-32.7	1.4	6.5
Ampl.	0.8	1.3	1.3	1.2	1.2	1.4	1.7	1.4	1.3
Sbd box	1165.9	1167.7	1168.2	1168.6	1168.9	1168.6	1168.4	1167.6	1167.9
U/L APs used	560/0	560/0	560/0	560/0	560/0	560/0	560/0	560/0	
Z PC freqs	1000	1000	1000	1000	1000	1000	1000	1000	
N PC freqs	1000	1000	1000	1000	1000	1000	1000	1000	
Z:N PC phase	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	
Z:N Manl PC	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	
Z PC amp	1000	1000	1000	1000	1000	1000	1000	1000	
N	1000	1000	1000	1000	1000	1000	1000	1000	
Z Chan ids Tracks	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	
N Chan ids Tracks	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	

Group delay (usec) (SBD)	-1.80144917295E+03	Apriori delay (usec)	-1.80200627247E+03	Resid mbdelay (usec) -5.40048E-03 +/- 2.7E-05
Sband delay (usec)	-1.80144805172E+03	Apriori clock (usec)	1.3039521E+01	Resid sbdelay (usec) 5.58221E-01 +/- 2.1E-04
Phase delay (usec)	-1.80200627226E+03	Apriori clockrate (us/s)	1.8299999E-07	Resid phdelay (usec) 2.09136E-07 +/- 9.0E-08
Delay rate (us/s)	1.26292281471E-01	Apriori rate (us/s)	1.26292322144E-01	Resid rate (us/s) -4.06738E-08 +/- 5.5E-10
Total phase (deg)	-105.3	Apriori accel (us/s/s)	2.22318511411E-05	Resid phase (deg) 6.5 +/- 2.8

	RMS	Theor.	Amplitude	0.883 +/- 0.022	Pcal mode: MANUAL, MANUAL	PC period (AP's) 5, 5
ph/seg (deg)	49.2	6.7	Search (2048X32)	0.868	Pcal rate: 0.000E+00, 0.000E+00 (us/s)	sb window (us) -4.000 4.000
amp/seg (%)	49.0	11.7	Interp.	0.000	Bits/sample: 2x2 SampCntNorm: enabled	mb window (us) -0.008 0.008
ph/frq (deg)	57.7	4.0	Inc. seg. avg.	1.247	Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us	dr window (ns/s) -0.011 0.011
amp/frq (%)	53.7	6.9	Inc. frq. avg.	1.294	Data rate(Mb/s): 2048 nlags: 1024 t_cohere infinite	ion window (TEC) 0.00 0.00

Z: az 282.1 el 43.6 pa 41.0   N: az 286.7 el 50.9 pa 67.1   u,v (fr/asec) -938.914 2687.316   simultaneous interpolator
Control file: cf_1234_gmva   Input file: /Exps/f221a/FRINGE/1234/No0004//ZN..24ULKL   Output file: /Exps/f221a/FRINGE/1234/No0004//ZN.W.42.24ULKL

Mk4/DiFX fourfit 3.23 rev 3383
aux01

BLLAC.24ULKL, No0004, ZN
**METSAHOV - NOEMA, fgroup W, pol RL**

multiband delay (μs)

−6×10⁻³ −4×10⁻³ −2×10⁻³ 0 2×10⁻³ 4×10⁻³ 6×10⁻³

amplitude

−0.01   −5×10⁻³   0   5×10⁻³   0.01

delay rate (ns/s)

amplitude

−4   −2   0   2

singleband delay (μs)

Avgd. Xpower Spectrum (MHz)

0   20   40   60

Fringe quality	1
SNR	57.8
Int time	285.841
Amp	1.249
Phase	-163.2
PFD	0.0e+00
Delays (us)	
SBD	0.562088
MBD	-0.001364
Fringe rate (Hz)	
	-0.003413
Ion TEC	0.000
Ref freq (MHz)	
	86140.0000
AP (sec)	0.512
Exp.	f221a
Exper #	1234
Yr:day	2022:090
Start	124513.31
Stop	125000.03
FRT	124730.00
Corr/FF/build	
	2022:090:145148
	2022:090:145503
	2021:308:113728
RA & Dec (J2000)	
22h02m43.291370s	
+42°16'39.979885"	

Amp. and Phase vs. time for each freq., 23 segs, 25 APs / seg (12.80 sec / seg.), time ticks 10 sec

a   b   c   d   e   f   g   h   All

amplitude

phase

Validity

U
L

pcal θ

Z N

	86012.00	86076.00	86140.00	86204.00	86268.00	86332.00	86396.00	86460.00	Freq (MHz)	All
	105.0	-102.0	152.6	-143.1	-114.5	-129.1	144.8	-173.1	Phase	-163.2
	1.6	1.9	1.8	1.8	1.9	2.0	2.1	2.0	Ampl.	1.9
	1167.5	1168.6	1169.2	1169.7	1169.6	1169.4	1169.3	1168.5	Sbd box	1168.9
U/L	560/0	560/0	560/0	560/0	560/0	560/0	560/0	560/0	APs used	
Z	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
N	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
Z:N	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase	
Z:N	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	Manl PC	
Z	1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
N	1000	1000	1000	1000	1000	1000	1000	1000		
Z	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	Chan ids Tracks	
N	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	Chan ids Tracks	

Group delay (usec) (SBD)	-1.80144513689E+03	Apriori delay (usec)	-1.80200627247E+03	Resid mbdelay (usec)	-1.36442E-03 +/- 1.9E-05
Sband delay (usec)	-1.80144418397E+03	Apriori clock (usec)	1.3039521E+01	Resid sbdelay (usec)	5.62088E-01 +/- 1.5E-04
Phase delay (usec)	-1.80200627773E+03	Apriori clockrate (us/s)	1.8299999E-07	Resid phdelay (usec)	-5.26213E-06 +/- 6.4E-08
Delay rate (us/s)	1.26292282524E-01	Apriori rate (us/s)	1.26292322144E-01	Resid rate (us/s)	-3.96204E-08 +/- 3.9E-10
Total phase (deg)	-275.0	Apriori accel (us/s/s)	2.22318511411E-05	Resid phase (deg)	-163.2 +/- 2.0

	RMS	Theor.	Amplitude	1.249 +/- 0.022	Pcal mode: MANUAL, MANUAL	PC period (AP's) 5, 5	
ph/seg (deg)	47.7	4.8	Search (2048X32)	1.212	Pcal rate: 0.000E+00, 0.000E+00 (us/s)	sb window (us)	-4.000 4.000
amp/seg (%)	48.1	8.3	Interp.	0.000	Bits/sample: 2x2	mb window (us)	-0.008 0.008
ph/frq (deg)	59.0	2.8	Inc. seg. avg.	1.763	Data rate(MSamp/s): 128 MBpts 32 Amb 0.016 us	dr window (ns/s)	-0.011 0.011
amp/frq (%)	51.6	4.9	Inc. frq. avg.	1.873	Data rate(Mb/s): 2048 nlags: 1024 t_cohere infinite	ion window (TEC)	0.00 0.00

Z: az 282.1 el 43.6 pa 41.0   N: az 286.7 el 50.9 pa 67.1   u,v (fr/asec) -938.914 2687.316   simultaneous interpolator

Control file: cf_1234_gmva   Input file: /Exps/f221a/FRINGE/1234/No0004//ZN..24ULKL   Output file: /Exps/f221a/FRINGE/1234/No0004//ZN.W.54.24ULKL