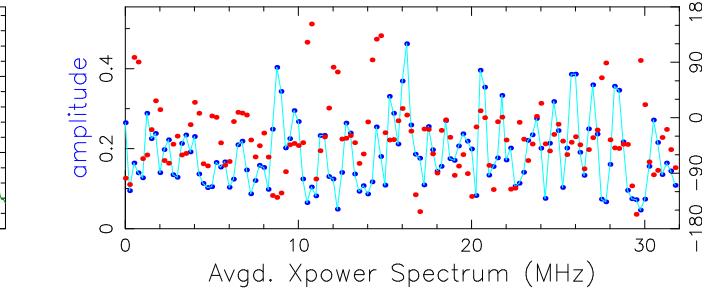
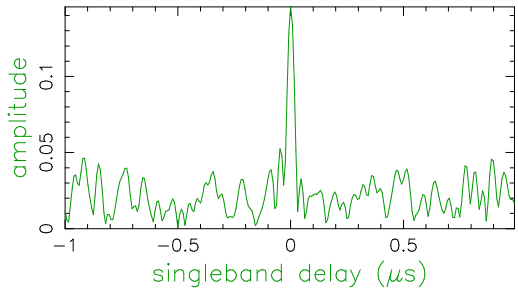


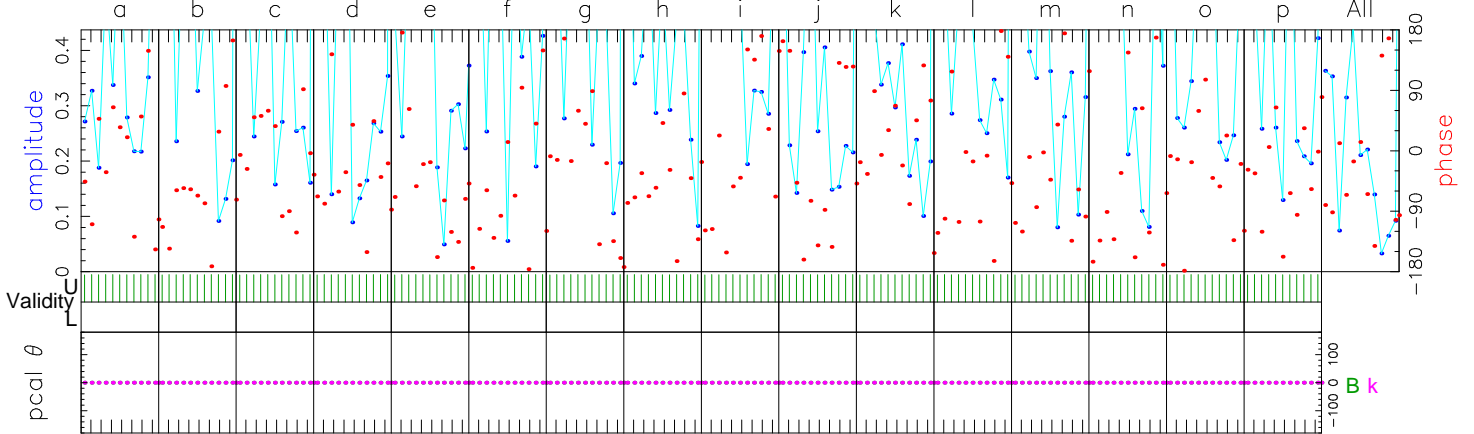
Fringe quality 9

SNR 8.1  
Int time 415.050  
Amp 0.146  
Phase -61.7  
PFD 1.7e-07  
Delays (us)  
SBD 0.000653  
MBD 0.004442  
Fringe rate (Hz)  
-0.031408  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512



Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100733  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All	
	-16.2	-100.5	2.7	-50.3	-45.3	-131.0	8.9	-51.8	-83.3	-152.8	10.6	-99.6	-71.8	-140.0	-4.6	-31.3		Phase	-61.7
	0.1	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.3		Ampl.	0.2
	229.8	129.6	127.8	127.9	66.2	129.7	127.8	19.2	128.9	172.5	239.3	188.9	129.7	129.3	128.6	129.7		Sbd box	129.1
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0		APs used	
B	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC freqs	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC freqs	
B:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		PC phase	
B:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		ManI PC	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC amp	
B	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000			
B	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Chan ids	
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Tracks	

Group delay (usec)(sbd)	6.26789169973E+02	Apriori delay (usec)	6.26784727886E+02	Resid mbdelay (usec)	4.44209E-03	+/-	1.3E-04
Sband delay (usec)	6.26785380386E+02	Apriori clock (usec)	1.7218384E+01	Resid sbdelay (usec)	6.52500E-04	+/-	2.1E-03
Phase delay (usec)	6.26784725896E+02	Apriori clockrate (us/s)	-5.4210100E-09	Resid phdelay (usec)	-1.99004E-06	+/-	4.6E-07
Delay rate (us/s)	-1.90865450233E+00	Apriori rate (us/s)	-1.90865413771E+00	Resid rate (us/s)	-3.64617E-07	+/-	1.9E-09
Total phase (deg)	103.9	Apriori accel (us/s/s)	4.41974888650E-06	Resid phase (deg)	-61.7	+/-	14.1

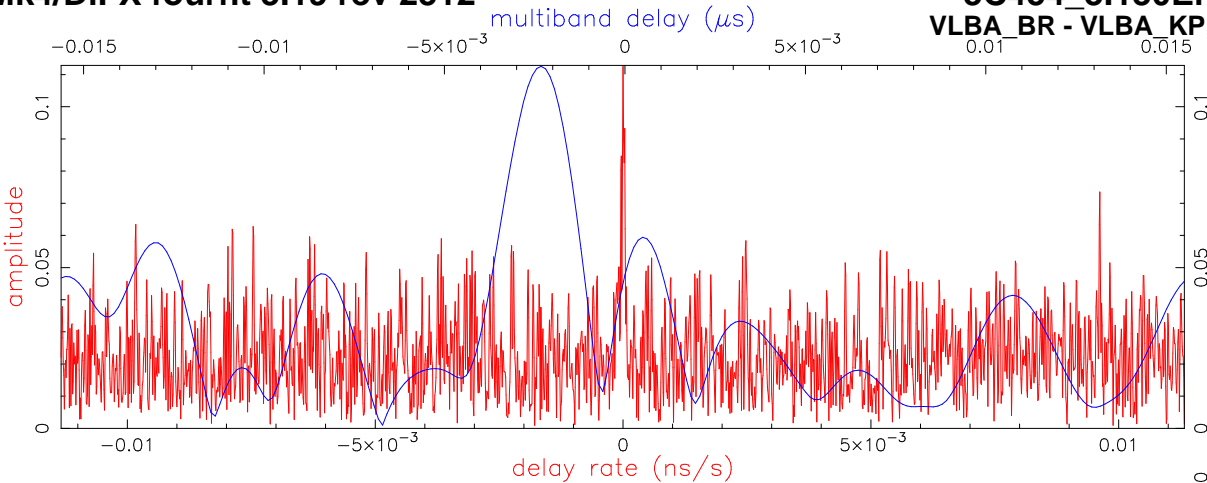
ph/seg (deg)	RMS 76.3	Theor. 24.5	Amplitude Search (2048X64)	0.146 +/- 0.018	Pcal mode: MANUAL, MANUAL	PC period (AP's) 5, 5
amp/seg (%)	104.8	42.7	Interp.	0.000	Pcal rate: 0.000E+00, 0.000E+00 (us/s)	sb window (us) -1.000 1.000
ph/frq (deg)	56.0	28.2	Inc. seg. avg.	0.194	Bits/sample: 2x2	SampCntNorm: enabled
amp/frq (%)	71.4	49.3	Inc. frq. avg.	0.202	Sample rate(MISamp/s): 64	dr window (ns/s) -0.016 0.016
					Data rate(Mb/s): 2048	ion window (TEC) 0.00 0.00
					nlags: 128	t_cohere infinite

B: az 252.6 el 34.4 pa 39.2 k: az 89.3 el 30.8 pa -62.0 u,v (fr/asec) 11392.345 2096.186 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/Bk..130EN2 Output file: /Exps/c192b/v2/1234/No0141/Bk.W.13.130EN2

Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, bk  
VLBA\_BR - VLBA\_KP, fgroup W, pol RR



Fringe quality 0

SNR 6.3

Int time 414.032

Amp 0.113

Phase 109.8

PFD 8.7e-02

Delays (us)

SBD -0.001313

MBD -0.002322

Fringe rate (Hz)

0.000190

Ion TEC 0.000

Ref freq (MHz)

86140.0000

AP (sec) 0.512

Exp. c192b

Exper # 16383

Yr:day 2019:278

Start 011502.56

Stop 012159.84

FRT 011830.00

Corr/FF/build

2020:079:134246

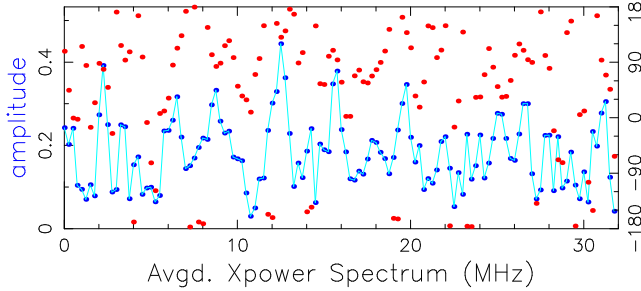
2020:086:100735

2020:014:135814

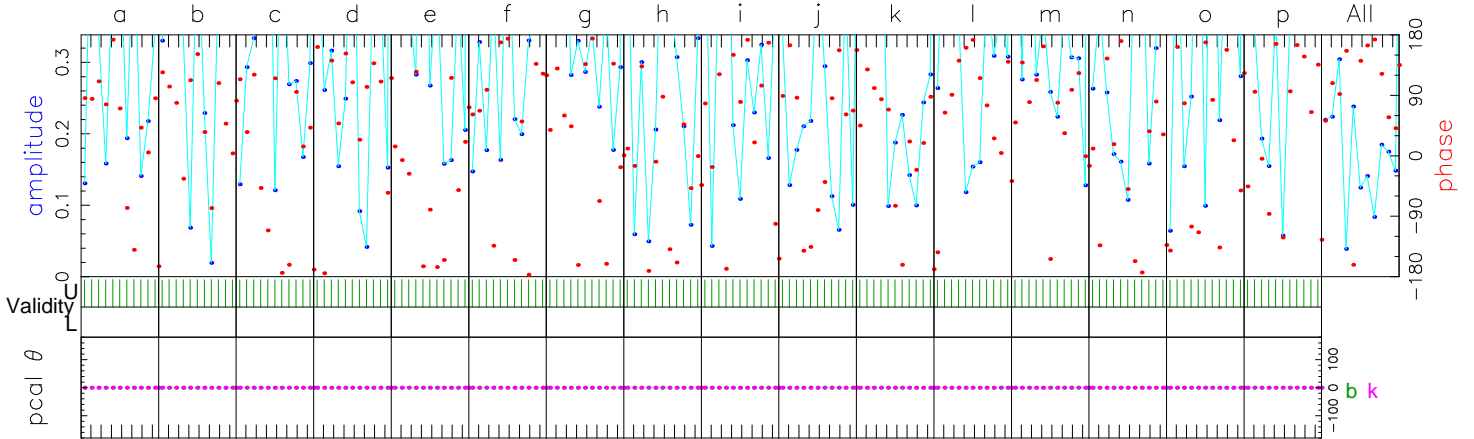
RA & Dec (J2000)

22h53m57.747940s

+16°08'53.560909"



Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
	101.9	81.3	-154.9	131.5	-70.3	146.7	102.4	46.6	144.5	77.6	85.4	91.4	88.7	104.1	166.0	128.9	Phase	109.8
	0.2	0.2	0.0	0.2	0.1	0.2	0.2	0.1	0.2	0.0	0.2	0.2	0.3	0.1	0.1	0.1	Ampl.	0.1
	106.3	128.9	36.5	202.7	41.9	31.8	243.1	25.2	255.6	101.1	68.2	130.3	130.1	76.4	43.0	22.4	Sbd box	128.8
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	APs used	
b	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC phase	
b:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	Mani PC	
b:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC amp	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	Chan ids	
b	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Tracks	
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Chan ids	
																	Tracks	
Group delay (usec)(sbd)	-2.19932088043E+03			Apriori delay (usec)			-2.19931855858E+03			Resid mbdelay (usec)			-2.32184E-03			+/- 1.7E-04		
Sband delay (usec)	-2.19931987158E+03			Apriori clock (usec)			-2.1606946E-01			Resid sbdelay (usec)			-1.31300E-03			+/- 2.7E-03		
Phase delay (usec)	-2.19931855504E+03			Apriori clockrate (us/s)			-4.7816091E-08			Resid phdelay (usec)			3.54195E-06			+/- 5.9E-07		
Delay rate (us/s)	-1.82116669539E-01			Apriori rate (us/s)			-1.82116671740E-01			Resid rate (us/s)			2.20149E-09			+/- 2.4E-09		
Total phase (deg)	-119.3			Apriori accel (us/s/s)			1.84927364247E-05			Resid phase (deg)			109.8			+/- 18.2		

ph/seg (deg) 51.4 31.6 Amplitude 0.113 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5

amp/seg (%) 82.8 55.2 Search (2048X64) 0.110 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000

ph/frq (deg) 62.9 36.5 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016

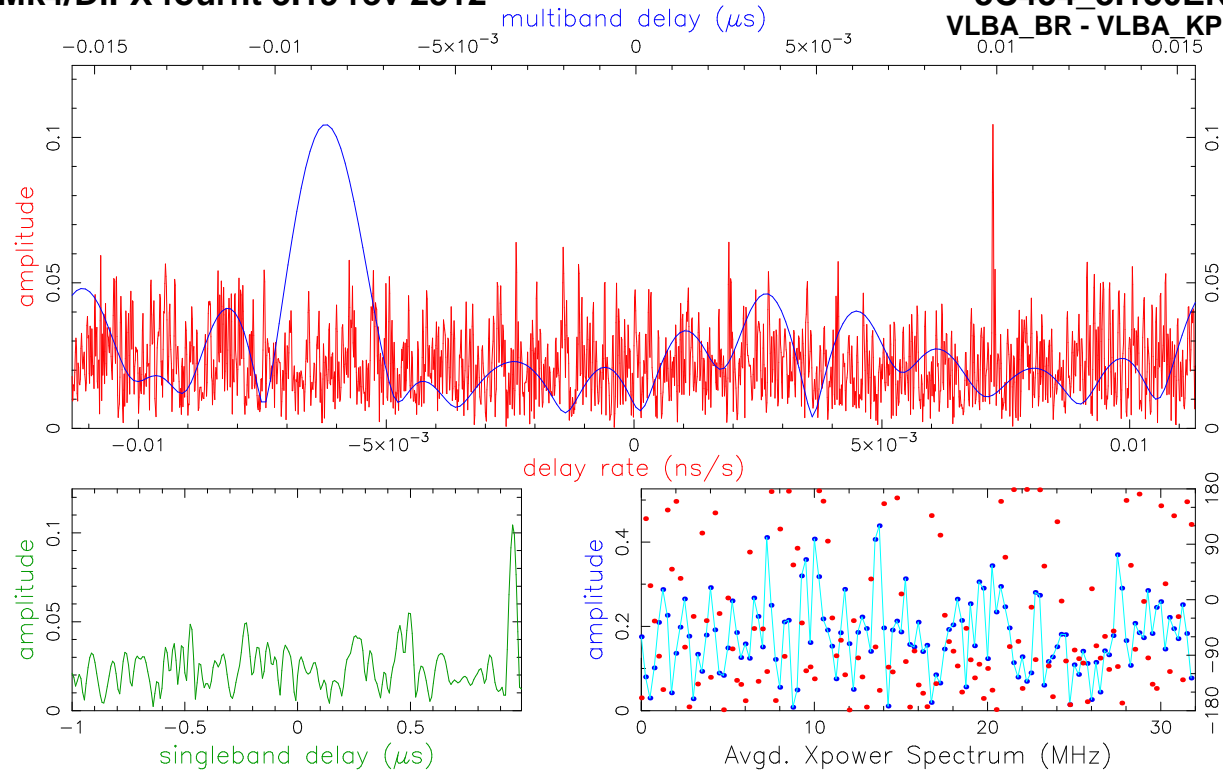
amp/frq (%) 67.0 63.7 Inc. seg. avg. 0.149 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011

b: az 92.5 el 24.3 pa -44.0 k: az 89.3 el 30.8 pa -62.0 u,v (fr/asec) 1117.122 2248.392 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00

Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/bk..130EN2 Output file: /Exps/c192b/v2/1234/No0141/bk.W.23.130EN2 simultaneous interpolator

Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, bk  
VLBA\_BR - VLBA\_KP, fgroup W, pol LL

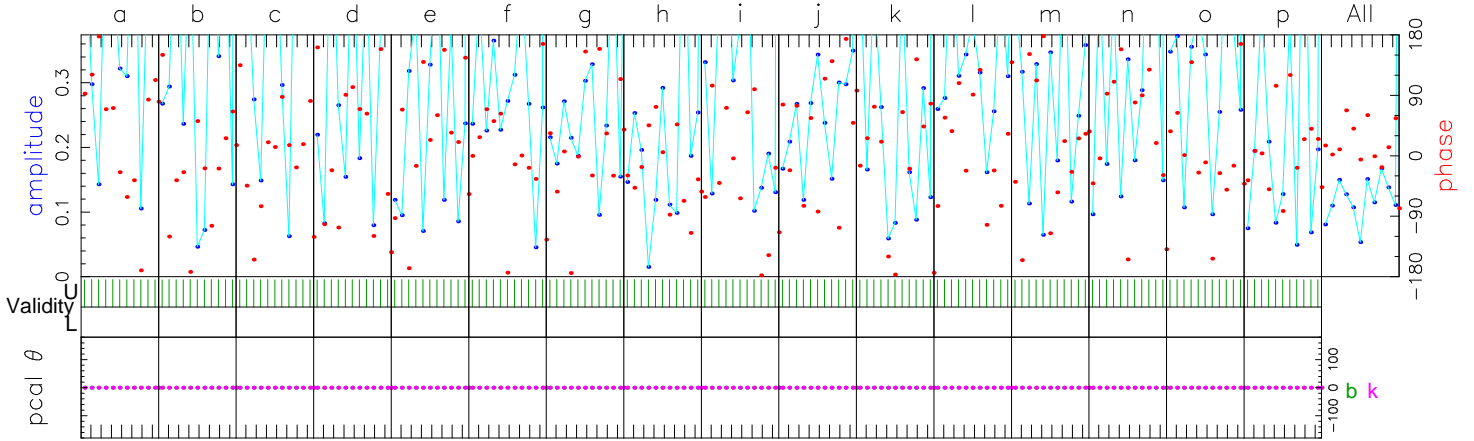


Fringe quality 0

SNR 5.8  
Int time 414.032  
Amp 0.125  
Phase 21.6  
PFD 7.5e-01  
Delays (us)  
SBD 0.954738  
MBD -0.008565  
Fringe rate (Hz) 0.624518  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512

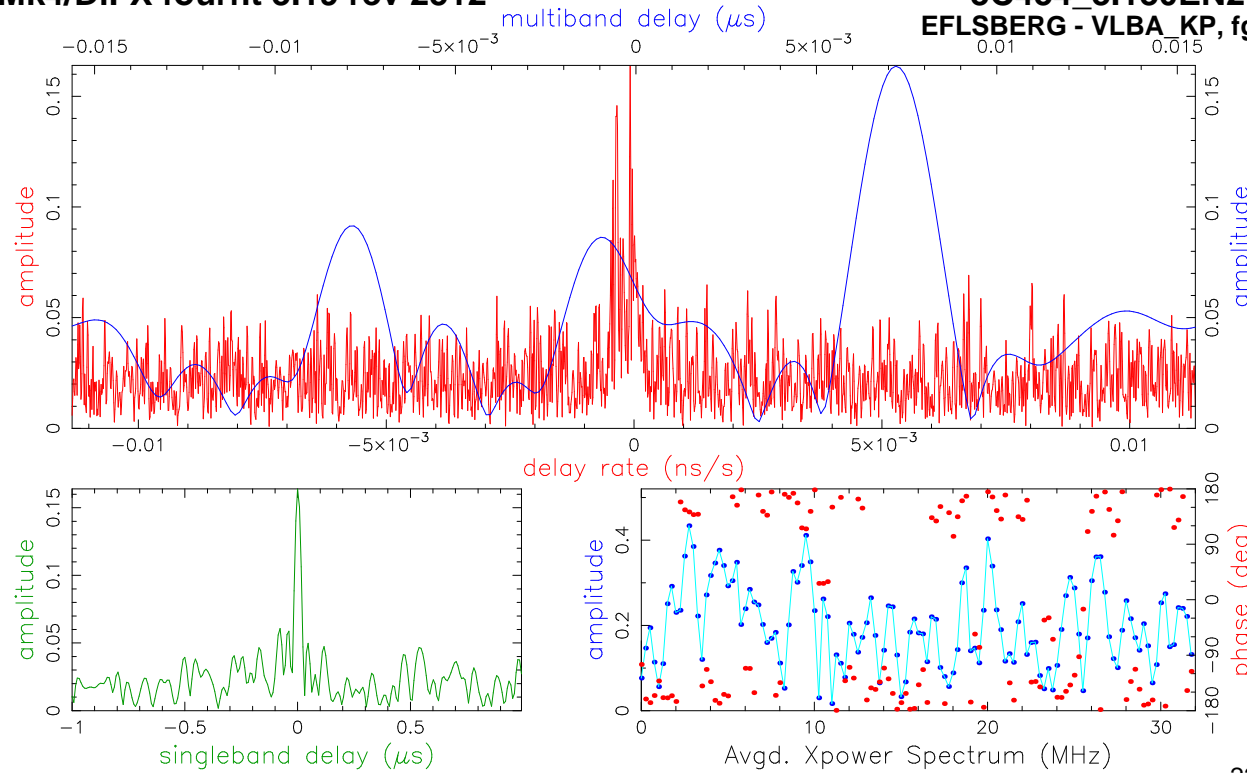
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100731  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
69.0	-54.7	17.4	33.1	48.3	24.5	-0.5	-41.2	13.4	71.9	41.3	25.0	0.8	80.3	-4.8	19.1	19.1	Phase	21.6
0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	Ampl.	0.1
245.2	208.2	251.8	55.0	155.6	214.6	86.3	78.6	84.0	1.4	99.4	98.6	139.0	172.5	242.8	253.4	253.4	Sbd box	251.2
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	APs used	
b	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC phase	
b:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	Mani PC	
b:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC amp	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	Chan ids	
b	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Tracks	
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Chan ids	
Group delay (usec)(sbd)	-2.19835837400E+03			Apriori delay (usec)			-2.19931855858E+03			Resid mbdelay (usec)			-8.56542E-03			+/- 1.9E-04		
Sband delay (usec)	-2.19836382008E+03			Apriori clock (usec)			-2.1606946E-01			Resid sbdelay (usec)			9.54738E-01			+/- 3.0E-03		
Phase delay (usec)	-2.19931855789E+03			Apriori clockrate (us/s)			-4.7816091E-08			Resid phdelay (usec)			6.97371E-07			+/- 6.3E-07		
Delay rate (us/s)	-1.82109421711E-01			Apriori rate (us/s)			-1.82116671740E-01			Resid rate (us/s)			7.25003E-06			+/- 2.6E-09		
Total phase (deg)	-207.5			Apriori accel (us/s/s)			1.84927364247E-05			Resid phase (deg)			21.6			+/- 19.7		

ph/seg (deg) 28.1 34.0 Search (2048X64) 0.125 +/- 0.021 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
amp/seg (%) 42.1 59.4 Interp. 0.102 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
ph/frq (deg) 38.7 39.3 Inc. seg. avg. 0.122 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
amp/frq (%) 47.1 68.6 Inc. frq. avg. 0.122 Sample rate(MISamp/s): 64 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite dr window (ns/s) -0.011 0.011  
b: az 92.5 el 24.3 pa -44.0 k: az 89.3 el 30.8 pa -62.0 u,v (fr/asec) 1117.122 2248.392 simultaneous interpolator  
Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/bk..130EN2 Output file: /Exps/c192b/v2/1234/No0141/bk.W.3.130EN2

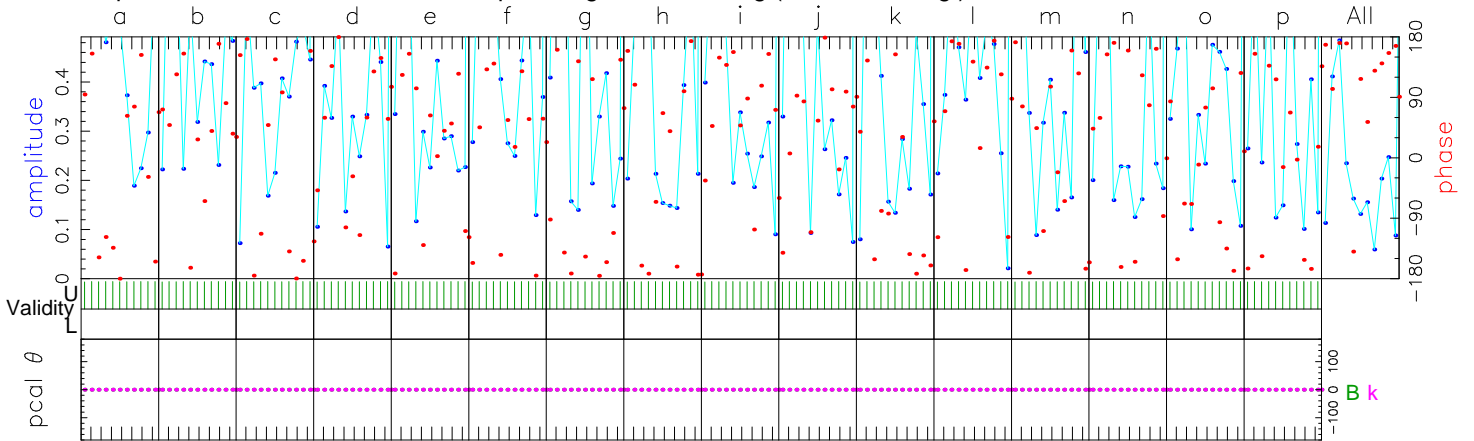


Fringe quality 9

SNR 9.1  
Int time 415.049  
Amp 0.164  
Phase 146.8  
PFD 2.5e-11  
Delays (us)  
SBD 0.001106  
MBD 0.007228  
Fringe rate (Hz)  
-0.006832  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512

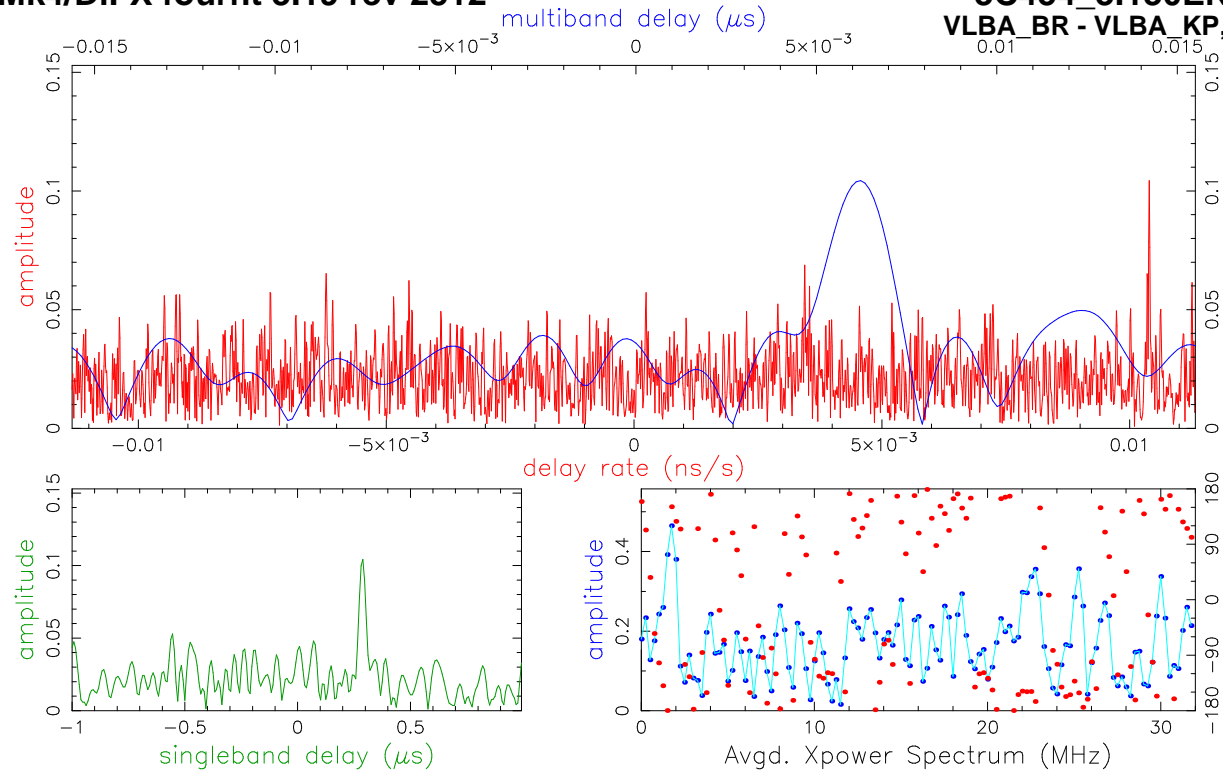
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100739  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0		
B	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
B:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
B:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
B	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
B	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Chan ids
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Tracks
Group delay (usec)(sbd)	6.26791955454E+02			Apriori delay (usec)			6.26784727886E+02			Resid mbdelay (usec)			7.22757E-03			+/-	1.2E-04	
Sband delay (usec)	6.26785833386E+02			Apriori clock (usec)			1.7218384E+01			Resid sbdelay (usec)			1.10550E-03			+/-	1.9E-03	
Phase delay (usec)	6.26784732619E+02			Apriori clockrate (us/s)			-5.4210100E-09			Resid phdelay (usec)			4.73277E-06			+/-	4.0E-07	
Delay rate (us/s)	-1.90865421702E+00			Apriori rate (us/s)			-1.90865413771E+00			Resid rate (us/s)			-7.93089E-08			+/-	1.7E-09	
Total phase (deg)	312.4			Apriori accel (us/s/s)			4.41974888650E-06			Resid phase (deg)			146.8			+/-	12.5	

ph/seg (deg) 42.0 21.7 Search (2048X64) 0.161 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 82.5 37.9 Interp. 0.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 48.1 25.1 Inc. seg. avg. 0.195 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 amp/frq (%) 53.9 43.8 Inc. frq. avg. 0.198 Sample rate(MISamp/s): 64 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite dr window (ns/s) -0.011 0.011  
 B: az 252.6 el 34.4 pa 39.2 k: az 89.3 el 30.8 pa -62.0 u,v (fr/asec) 11392.345 2096.186 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/Bk..130EN2 Output file: /Exps/c192b/v2/1234/No0141/Bk.W.35.130EN2

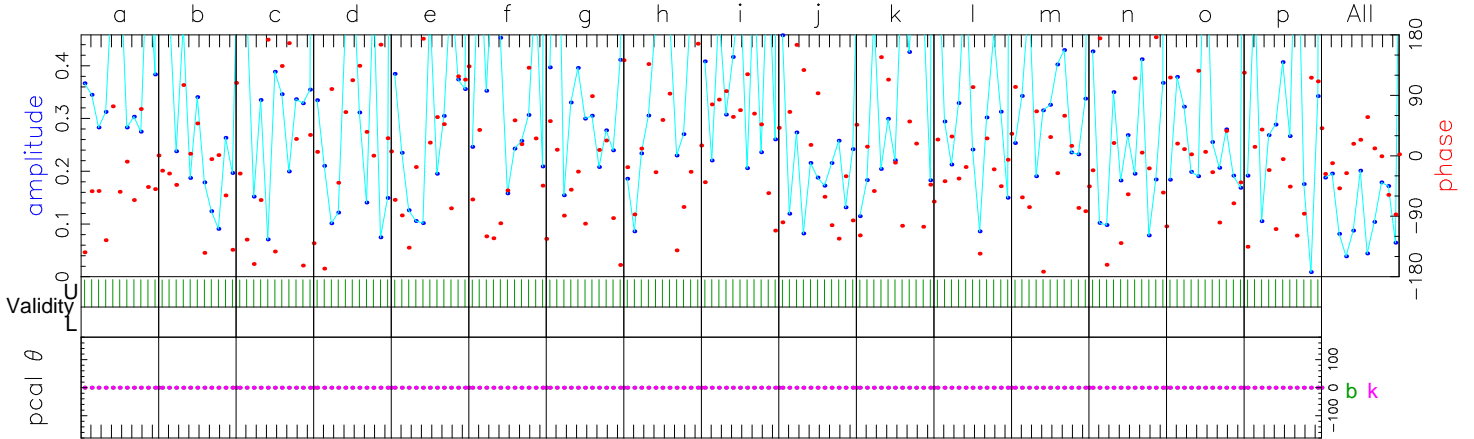


Fringe quality 0

SNR 5.9  
Int time 414.032  
Amp 0.153  
Phase -12.5  
PFD 7.1e-01  
Delays (us)  
SBD 0.286858  
MBD 0.006181  
Fringe rate (Hz) 0.896585  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100740  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All					
	-45.6	-12.7	-114.9	63.7	0.3	-33.4	-10.7	30.1	51.0	-100.3	-35.8	-4.2	-26.9	-31.0	4.4	-52.2		Phase	-12.5				
	0.3	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.3	0.1	0.2	0.4	0.2	0.2	0.3	0.2		Ampl.	0.2				
	166.2	186.7	17.8	59.8	158.5	179.8	18.3	244.0	173.6	5.3	23.1	165.6	210.7	156.8	57.1	242.2		Sbd box	165.7				
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0		APs used					
b	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC freqs					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC freqs					
b:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		PC phase					
b:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		ManI PC					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC amp					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC amp					
b	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Chan ids					
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Tracks					
																		Chan ids					
																		Tracks					
Group delay (usec)(sbd)			-2.19903112784E+03															Apriori delay (usec)	-2.19931855858E+03	Resid mbdelay (usec)	6.18075E-03	+/-	1.8E-04
Sband delay (usec)			-2.19903170008E+03															Apriori clock (usec)	-2.1606946E-01	Resid sbdelay (usec)	2.86858E-01	+/-	2.9E-03
Phase delay (usec)			-2.19931855899E+03															Apriori clockrate (us/s)	-4.7816091E-08	Resid phdelay (usec)	-4.02839E-07	+/-	6.3E-07
Delay rate (us/s)			-1.82106263283E-01															Apriori rate (us/s)	-1.82116671740E-01	Resid rate (us/s)	1.04085E-05	+/-	2.6E-09
Total phase (deg)																		Apriori accel (us/s/s)	1.84927364247E-05	Resid phase (deg)	-12.5	+/-	19.6

ph/seg (deg) 39.6 33.9  
amp/seg (%) 63.4 59.2  
ph/frq (deg) 49.7 39.2  
amp/frq (%) 60.2 68.4

RMS Theor. Amplitude 0.153 +/- 0.026  
Search (2048X64) 0.102  
Interp. 0.000  
Inc. seg. avg. 0.153  
Inc. frq. avg. 0.161

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(MISamp/s): 64  
Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite

sb window (us) -1.000 1.000  
mb window (us) -0.016 0.016  
dr window (ns/s) -0.011 0.011  
ion window (TEC) 0.00 0.00

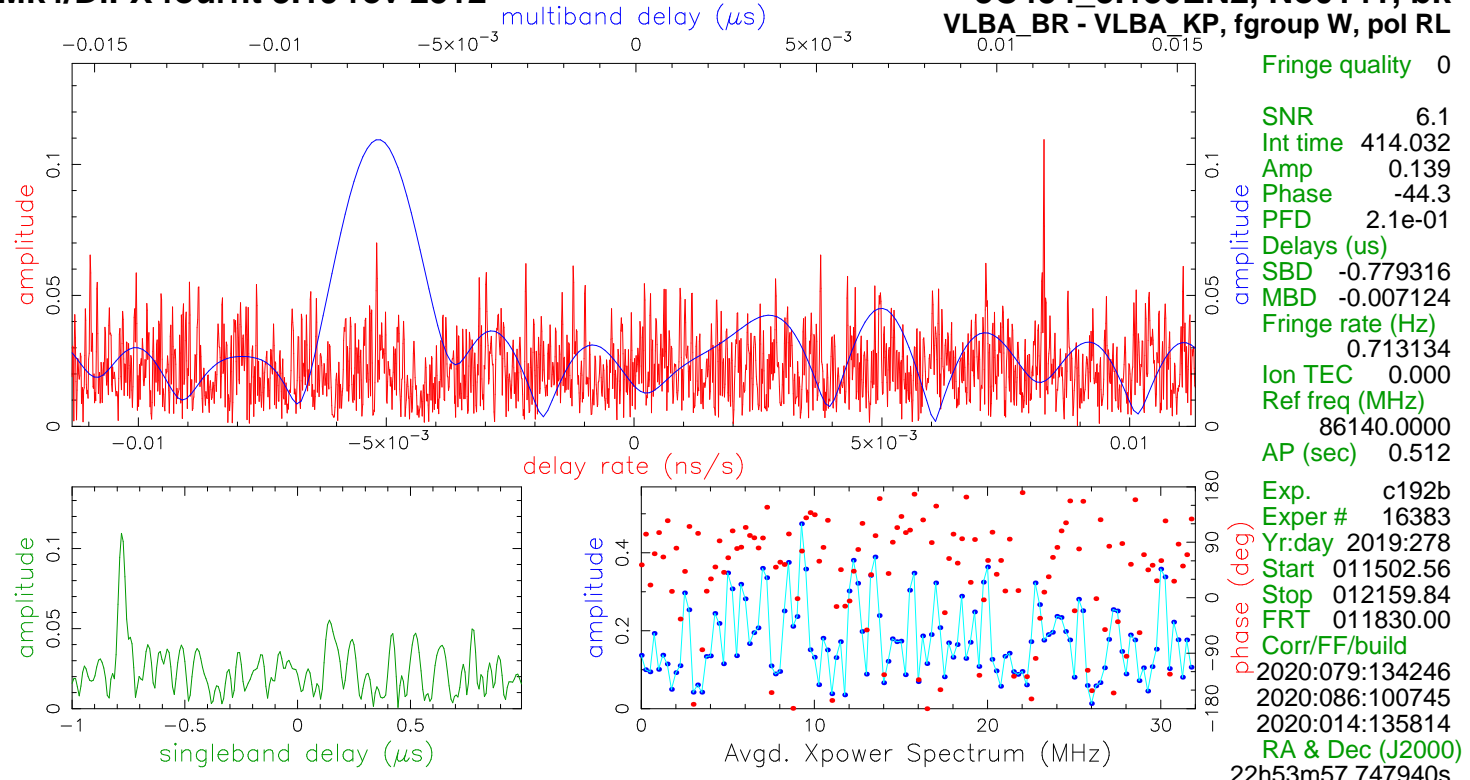
b: az 92.5 el 24.3 pa -44.0 k: az 89.3 el 30.8 pa -62.0 u,v (fr/asec) 1117.122 2248.392 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/bk..130EN2 Output file: /Exps/c192b/v2/1234/No0141/bk.W.38.130EN2

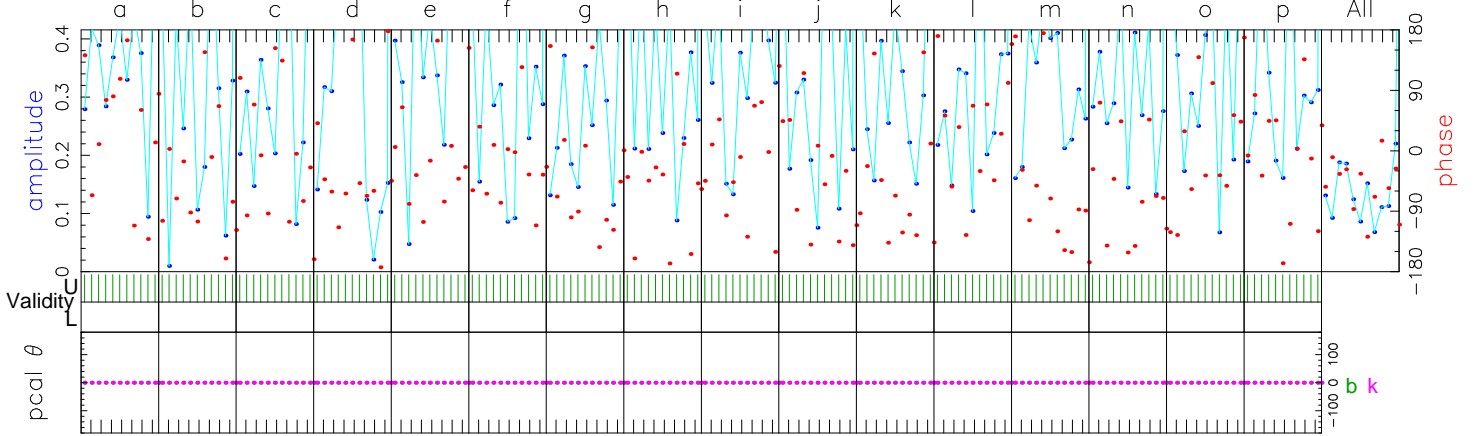


Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, bk  
VLBA\_BR - VLBA\_KP, fgroup W, pol RL

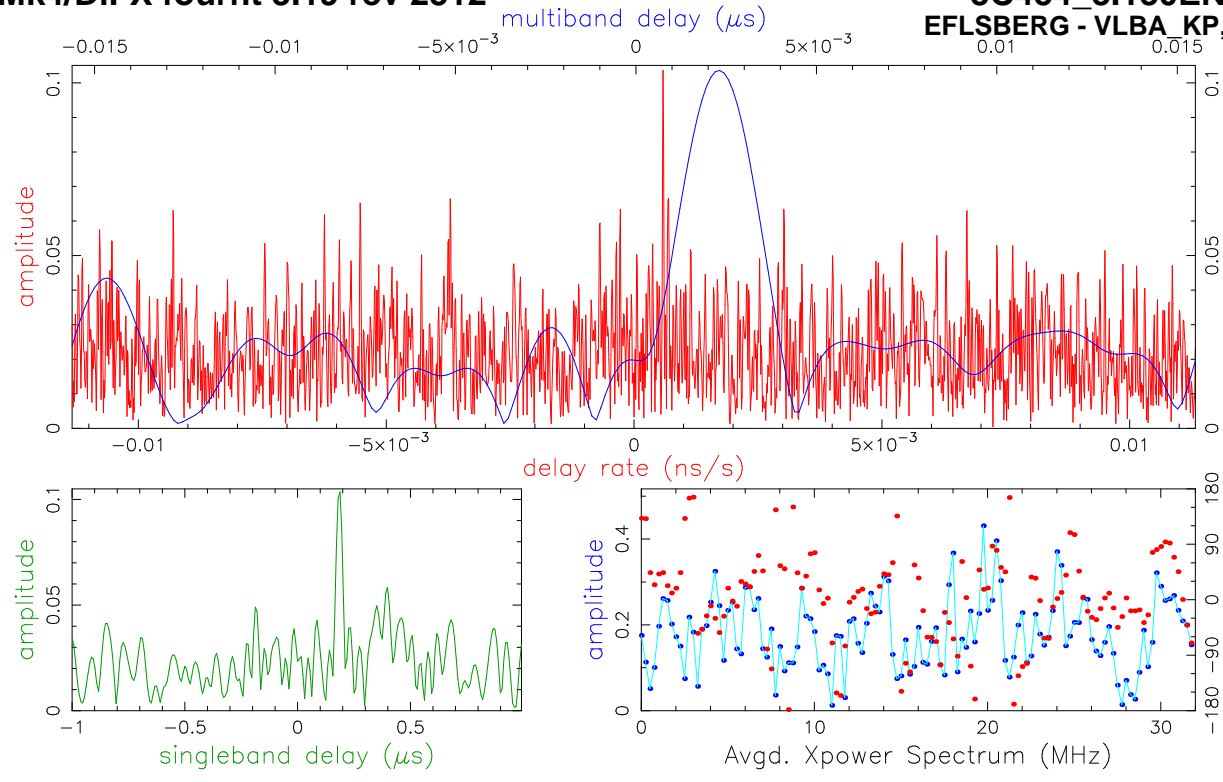


Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All				
	59.4	-63.4	-67.2	-78.8	-23.3	-44.6	-74.7	-49.1	11.3	-22.7	-72.2	14.4	-109.6	-31.8	-26.0	-28.9	Phase	-44.3				
	0.1	0.2	0.1	0.2	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.1	0.1	Ampl.	0.1				
	42.0	77.7	135.1	255.5	165.9	74.4	101.1	50.6	140.5	180.0	32.7	144.0	27.5	192.5	145.8	122.5	Sbd box	29.2				
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	APs used					
b	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
b:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase					
b:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
b	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000						
b	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Chan ids					
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Tracks					
																	Chan ids					
																	Tracks					
Group delay (usec)(sbd)			-2.20010693306E+03														Apriori delay (usec)	-2.19931855858E+03	Resid mbdelay (usec)	-7.12447E-03	+/-	1.8E-04
Sband delay (usec)			-2.20009787458E+03														Apriori clock (usec)	-2.1606946E-01	Resid sbdelay (usec)	-7.79316E-01	+/-	2.8E-03
Phase delay (usec)			-2.19931856001E+03														Apriori clockrate (us/s)	-4.7816091E-08	Resid phdelay (usec)	-1.42732E-06	+/-	6.0E-07
Delay rate (us/s)			-1.82108392962E-01														Apriori rate (us/s)	-1.82116671740E-01	Resid rate (us/s)	8.27878E-06	+/-	2.5E-09
Total phase (deg)																	Apriori accel (us/s/s)	1.84927364247E-05	Resid phase (deg)	-44.3	+/-	18.7

ph/seg (deg) 37.1 32.4 Search (2048X64) 0.107 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 51.1 56.5 Interp. 0.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 43.9 37.4 Inc. seg. avg. 0.146 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 amp/frq (%) 51.9 65.3 Inc. frq. avg. 0.146 Sample rate(MISamp/s): 64 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite dr window (ns/s) -0.011 0.011  
 b: az 92.5 el 24.3 pa -44.0 k: az 89.3 el 30.8 pa -62.0 u,v (fr/asec) 1117.122 2248.392 ion window (TEC) 0.00 0.00 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/bk..130EN2 Output file: /Exps/c192b/v2/1234/No0141/bk.W.58.130EN2

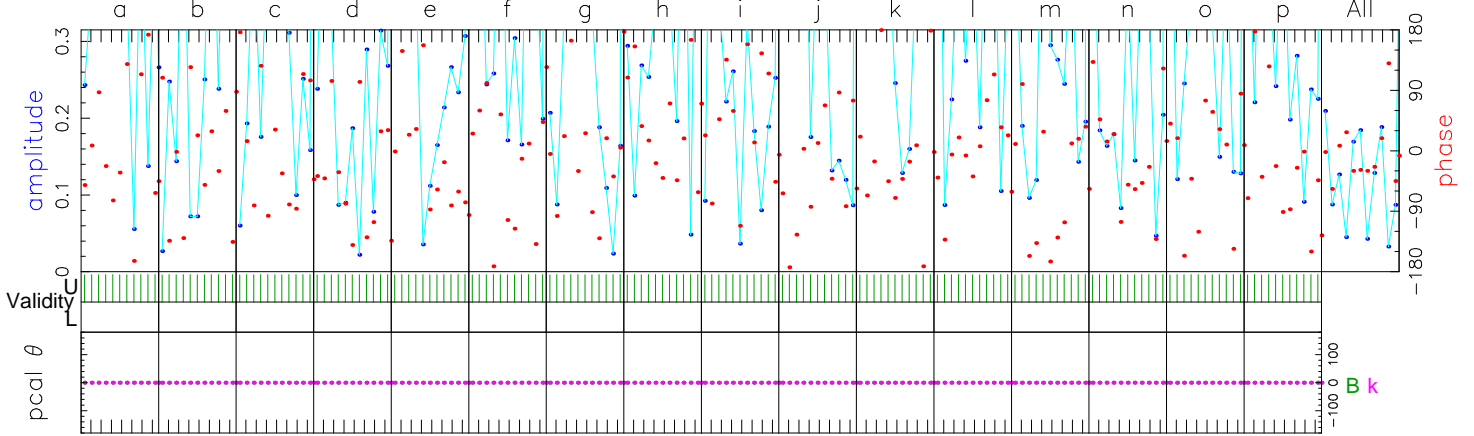


Fringe quality 0

SNR 5.8  
Int time 415.049  
Amp 0.105  
Phase -13.4  
PFD 7.2e-01  
Delays (us)  
SBD 0.184821  
MBD 0.002287  
Fringe rate (Hz) 0.050543  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100746  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All	
	-23.2	-28.4	-46.3	-30.0	-25.0	36.6	-10.6	-0.8	19.7	-16.2	-55.1	9.4	7.6	-11.7	28.9	-68.0		Phase	-13.4
	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.2		Ampl.	0.1
	50.1	207.7	179.2	183.6	127.7	210.8	175.3	203.9	193.7	194.2	39.9	152.4	160.2	163.6	186.4	230.4		Sbd box	152.7
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0		APs used	
B	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC freqs	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC freqs	
B:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		PC phase	
B:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		ManI PC	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC amp	
B	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC amp	
B	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Chan ids	
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Tracks	

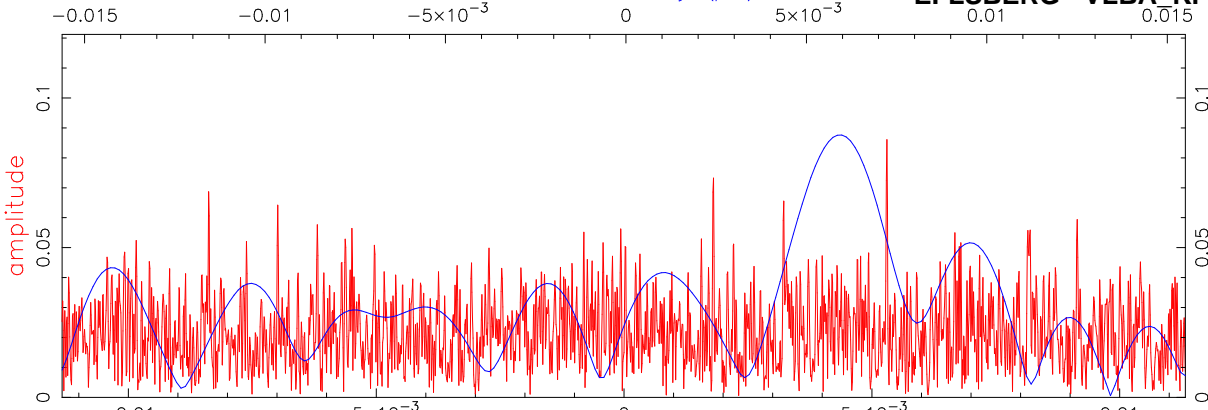
Group delay (usec)(sbd) 6.26974515019E+02 Apriori delay (usec) 6.26784727886E+02 Resid mbdelay (usec) 2.28713E-03 +/- 1.8E-04  
 Sband delay (usec) 6.26969548386E+02 Apriori clock (usec) 1.7218384E+01 Resid sbdelay (usec) 1.84821E-01 +/- 2.9E-03  
 Phase delay (usec) 6.26784727455E+02 Apriori clockrate (us/s) -5.4210100E-09 Resid phdelay (usec) -4.30801E-07 +/- 6.3E-07  
 Delay rate (us/s) -1.90865355096E+00 Apriori rate (us/s) -1.90865413771E+00 Resid rate (us/s) 5.86750E-07 +/- 2.6E-09  
 Total phase (deg) 152.3 Apriori accel (us/s/s) 4.41974888650E-06 Resid phase (deg) -13.4 +/- 19.6

ph/seg (deg) RMS Theor. Amplitude 0.105 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 60.0 59.3 Search (2048X64) 0.101 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 30.5 39.2 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 amp/frq (%) 50.6 68.4 Inc. seg. avg. 0.101 Sample rate(MISamp/s): 64 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite dr window (ns/s) -0.011 0.011  
 Inc. frq. avg. 0.097 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00

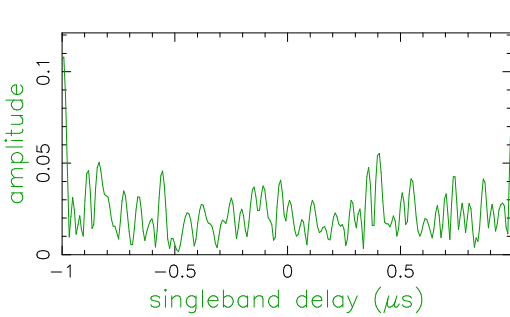
B: az 252.6 el 34.4 pa 39.2 k: az 89.3 el 30.8 pa -62.0 u,v (fr/asec) 11392.345 2096.186 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/Bk..130EN2 Output file: /Exps/c192b/v2/1234/No0141/Bk.W.64.130EN2

multiband delay ( $\mu$ s)

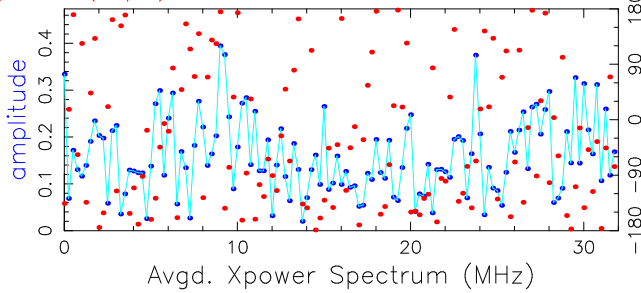
Fringe quality 0



SNR 6.2  
Int time 415.050  
Amp 0.121  
Phase -148.1  
PFD 1.8e-01  
Delays (us)  
SBD -0.995737  
MBD 0.005670  
Fringe rate (Hz)  
0.457417  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512

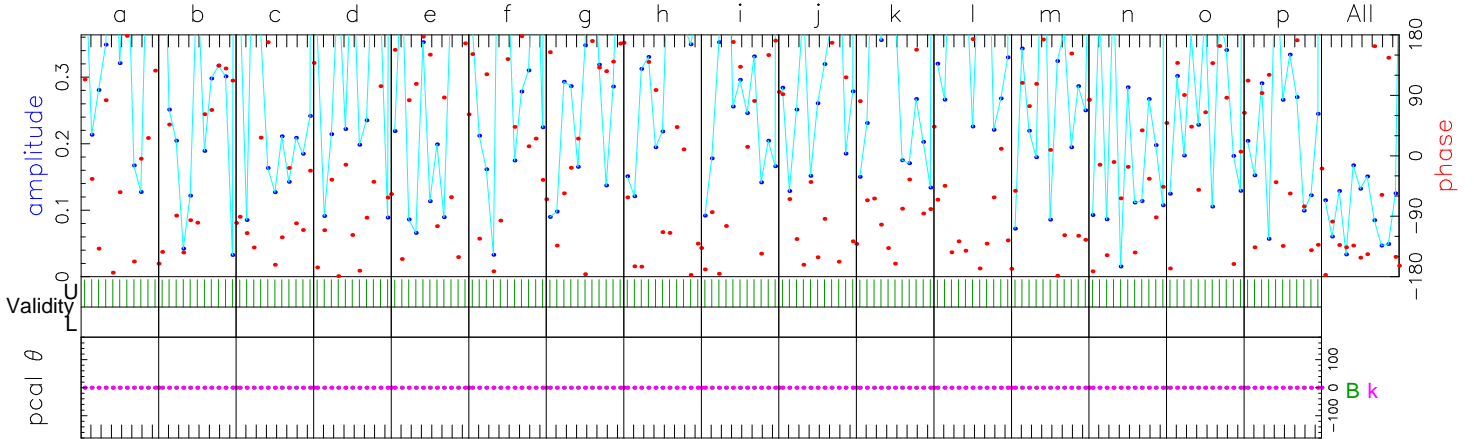


delay rate (ns/s)



Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100751  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



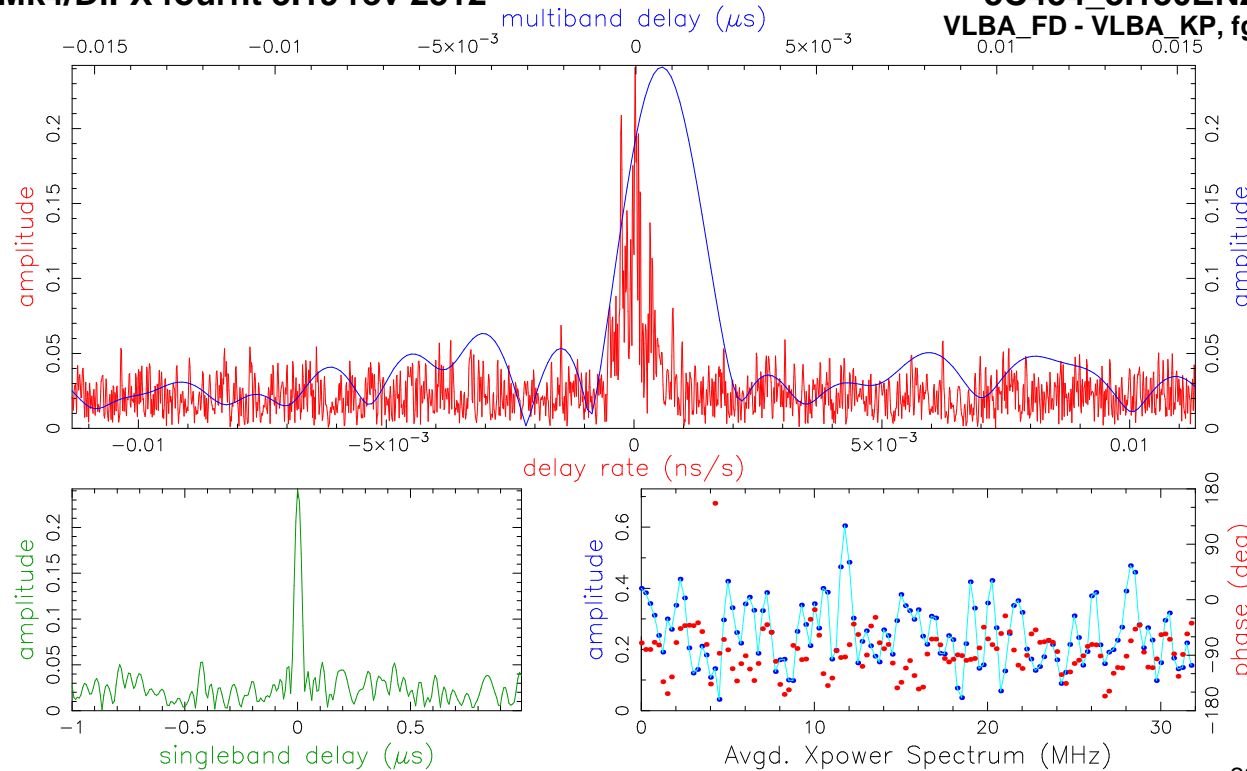
	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0		
B	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
B:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
B:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
B	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
B	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Chan ids
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Tracks

Group delay (usec)(sbd)	6.25790397556E+02	Apriori delay (usec)	6.26784727886E+02	Resid mbdelay (usec)	5.66967E-03	+/-	1.8E-04
Sband delay (usec)	6.25788990636E+02	Apriori clock (usec)	1.7218384E+01	Resid sbdelay (usec)	-9.95737E-01	+/-	2.8E-03
Phase delay (usec)	6.26784723112E+02	Apriori clockrate (us/s)	-5.4210100E-09	Resid phdelay (usec)	-4.77430E-06	+/-	6.0E-07
Delay rate (us/s)	-1.90864882755E+00	Apriori rate (us/s)	-1.90865413771E+00	Resid rate (us/s)	5.31016E-06	+/-	2.5E-09
Total phase (deg)	17.6	Apriori accel (us/s/s)	4.41974888650E-06	Resid phase (deg)	-148.1	+/-	18.6

ph/seg (deg)	41.4	RMS	42.9	Theor.	56.2	Amplitude	0.121 +/- 0.020	Pcal mode:	MANUAL, MANUAL	PC period (AP's)	5, 5	
amp/seg (%)	42.9	Search (2048X64)	0.104	Interp.	0.000	Pcal rate:	0.000E+00, 0.000E+00 (us/s)	sb window (us)	-1.000	1.000		
ph/frq (deg)	55.3	Inc. seg. avg.	0.095	Inc. frq. avg.	0.116	Bits/sample:	2x2	SampCntNorm: enabled	mb window (us)	-0.016	0.016	
amp/frq (%)	53.2	Inc. frq. avg.	0.116	Sample rate (MSamp/s):	64	Data rate (Mb/s):	2048	nlags: 128	t_cohere infinite	ion window (TEC)	0.00	0.00

B: az 252.6 el 34.4 pa 39.2 k: az 89.3 el 30.8 pa -62.0 u,v (fr/asec) 11392.345 2096.186 simultaneous interpolator  
Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/Bk..130EN2 Output file: /Exps/c192b/v2/1234/No0141/Bk.W.80.130EN2



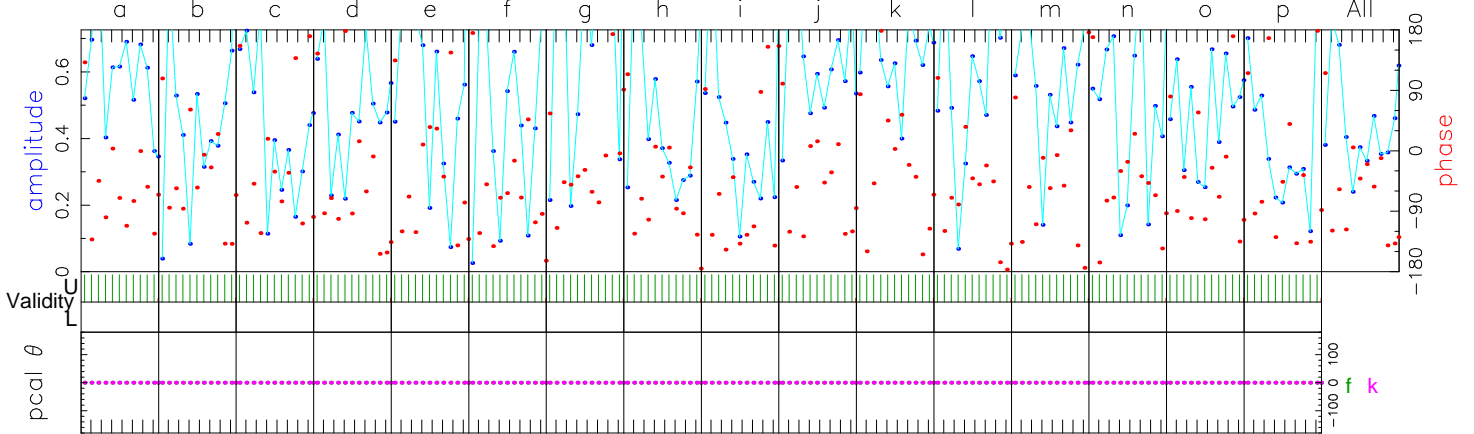


Fringe quality 9

SNR 13.5  
Int time 412.893  
Amp 0.242  
Phase -80.5  
PFD 1.6e-32  
Delays (us)  
SBD 0.001755  
MBD 0.000747  
Fringe rate (Hz) 0.002375  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011503.58  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100801  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 73 APs / seg (37.38 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All	
	-69.4	-72.6	-107.9	-98.6	-80.3	-81.8	-57.8	-79.2	-135.2	-65.3	-61.2	-86.6	-85.3	-70.1	-68.2	-139.0		Phase	-80.5
	0.4	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.1		Ampl.	0.2
	128.6	129.8	250.1	129.5	129.5	129.1	129.1	130.0	42.8	129.1	156.0	128.2	227.3	130.1	216.0	79.2		Sbd box	129.2
U/L	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0		APs used	
f	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC freqs	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC freqs	
f:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		PC phase	
f:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		ManI PC	
f	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC amp	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC amp	
f	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Chan ids	
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Tracks	

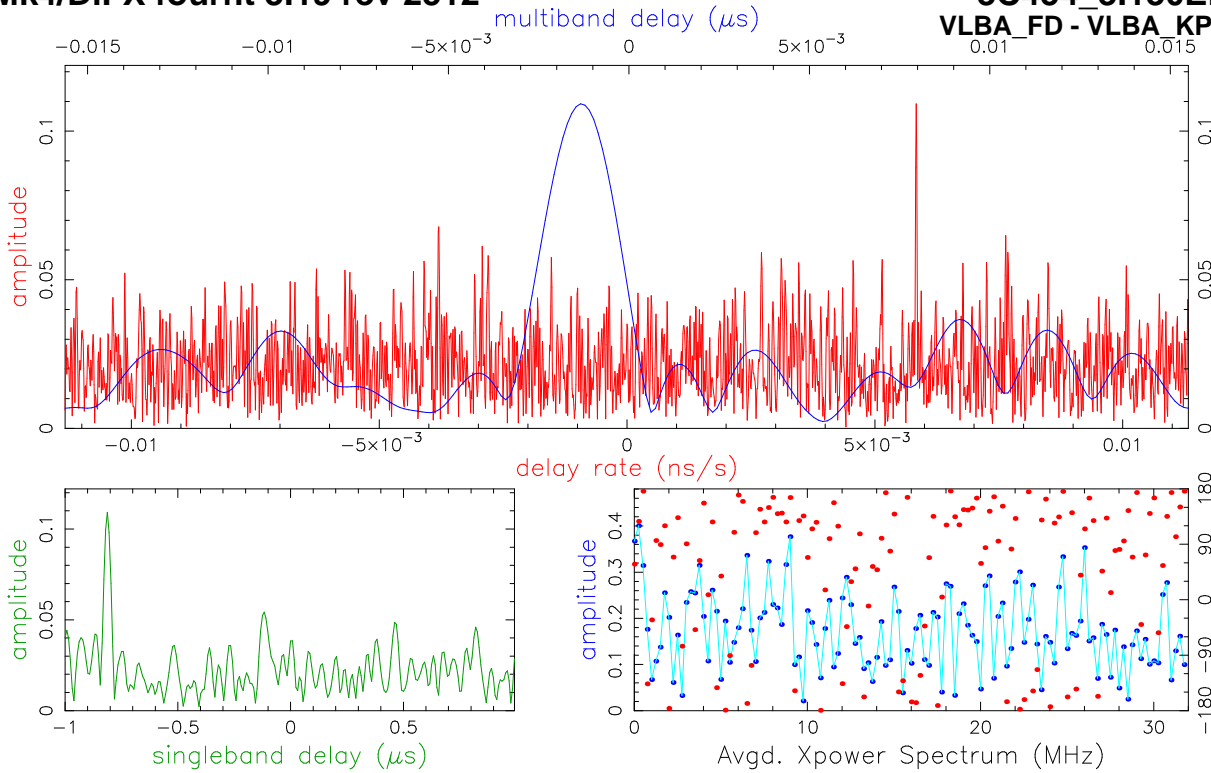
Group delay (usec)(sbd) 2.00186382981E+03 Apriori delay (usec) 2.00186308244E+03 Resid mbdelay (usec) 7.47377E-04 +/- 8.0E-05  
 Sband delay (usec) 2.00186483794E+03 Apriori clock (usec) 8.6817360E-01 Resid sbdelay (usec) 1.75550E-03 +/- 1.3E-03  
 Phase delay (usec) 2.00186307984E+03 Apriori clockrate (us/s) 1.0362949E-07 Resid phdelay (usec) -2.59731E-06 +/- 2.7E-07  
 Delay rate (us/s) -7.40716607036E-02 Apriori rate (us/s) -7.40716882693E-02 Resid rate (us/s) 2.75657E-08 +/- 1.1E-09  
 Total phase (deg) 251.0 Apriori accel (us/s/s) -1.12625588825E-05 Resid phase (deg) -80.5 +/- 8.5

RMS Theor. Amplitude 0.242 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 70.5 14.8 Search (2048X64) 0.226 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 amp/seg (%) 101.9 25.7 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 ph/frq (deg) 25.5 17.0 Inc. seg. avg. 0.426 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011  
 amp/frq (%) 30.1 29.7 Inc. frq. avg. 0.246 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00

f: az 92.5 el 37.4 pa -63.5 k: az 89.3 el 30.8 pa -62.0 u,v (fr/asec) 423.483 -428.217 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/fk..130EN2 Output file: /Exps/c192b/v2/1234/No0141/fk.W.109.130EN2

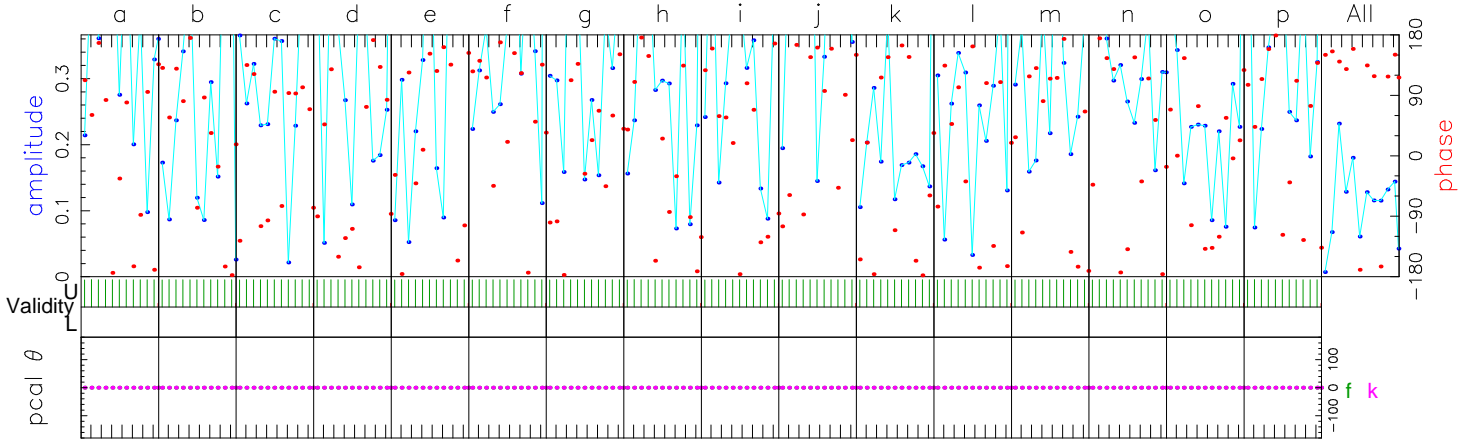
Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, fk  
VLBA\_FD - VLBA\_KP, fgroup W, pol LR



Fringe quality 0  
SNR 6.1  
Int time 412.893  
Amp 0.122  
Phase 145.4  
PFD 2.9e-01  
Delays (us)  
SBD -0.812823  
MBD -0.001321  
Fringe rate (Hz) 0.503078  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512  
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011503.58  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build 2020:079:134246  
2020:086:100807  
2020:014:135814  
RA & Dec (J2000) 22h53m57.747940s +16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 73 APs / seg (37.38 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
U/L	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0		
f	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
f:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
f:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
f	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
f	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Chan ids
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Tracks

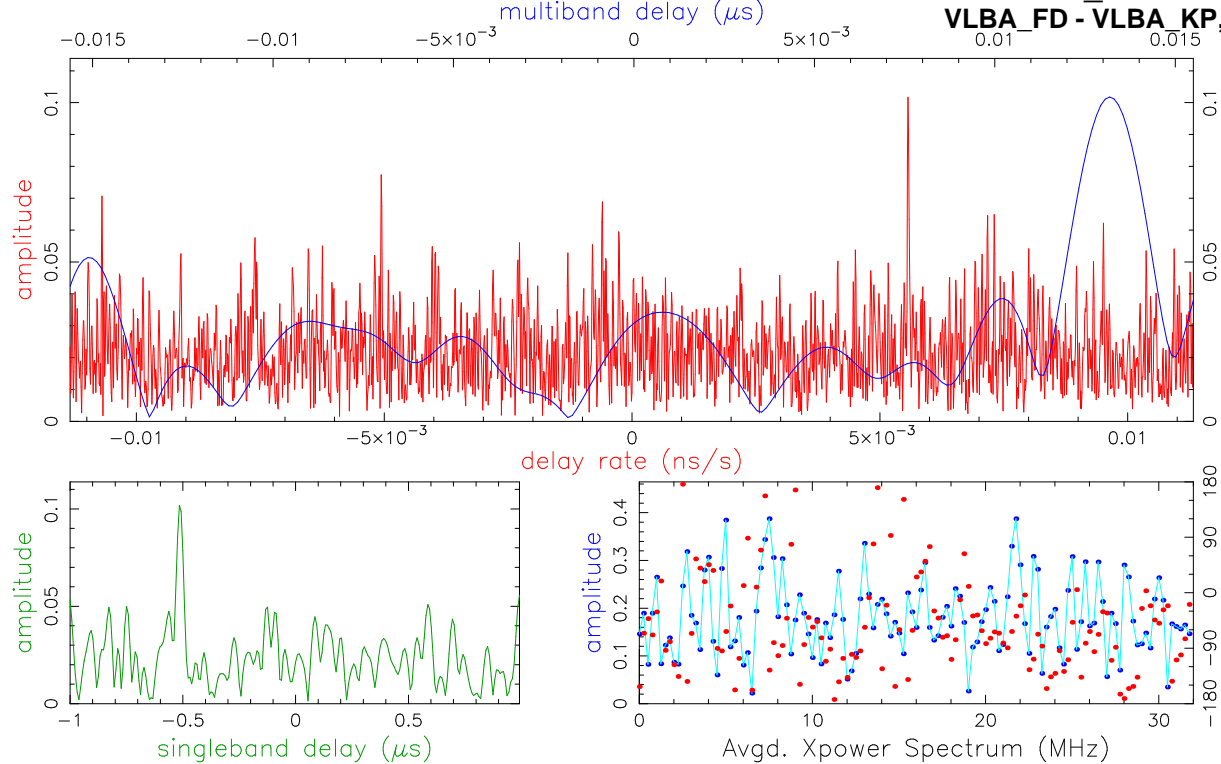
Group delay (usec)(sbd) 2.00104926147E+03 Apriori delay (usec) 2.00186308244E+03 Resid mbdelay (usec) -1.32096E-03 +/- 1.8E-04  
Sband delay (usec) 2.00105025894E+03 Apriori clock (usec) 8.6817360E-01 Resid sbdelay (usec) -8.12823E-01 +/- 2.8E-03  
Phase delay (usec) 2.00186308712E+03 Apriori clockrate (us/s) 1.0362949E-07 Resid phdelay (usec) 4.68803E-06 +/- 6.1E-07  
Delay rate (us/s) -7.40658480271E-02 Apriori rate (us/s) -7.40716882693E-02 Resid rate (us/s) 5.84024E-06 +/- 2.5E-09  
Total phase (deg) 116.9 Apriori accel (us/s/s) -1.12625588825E-05 Resid phase (deg) 145.4 +/- 18.9

RMS Theor. Amplitude 0.122 +/- 0.020 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
ph/seg (deg) 24.8 32.7 Search (2048X64) 0.103 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
amp/seg (%) 53.3 57.1 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
ph/frq (deg) 37.8 37.8 Inc. seg. avg. 0.114 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011  
amp/frq (%) 36.8 65.9 Inc. frq. avg. 0.112 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00

f: az 92.5 el 37.4 pa -63.5 k: az 89.3 el 30.8 pa -62.0 u,v (fr/asec) 423.483 -428.217 simultaneous interpolator  
Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/fk..130EN2 Output file: /Exps/c192b/v2/1234/No0141/fk.W.134.130EN2

Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, fk  
VLBA\_FD - VLBA\_KP, fgroup W, pol RL

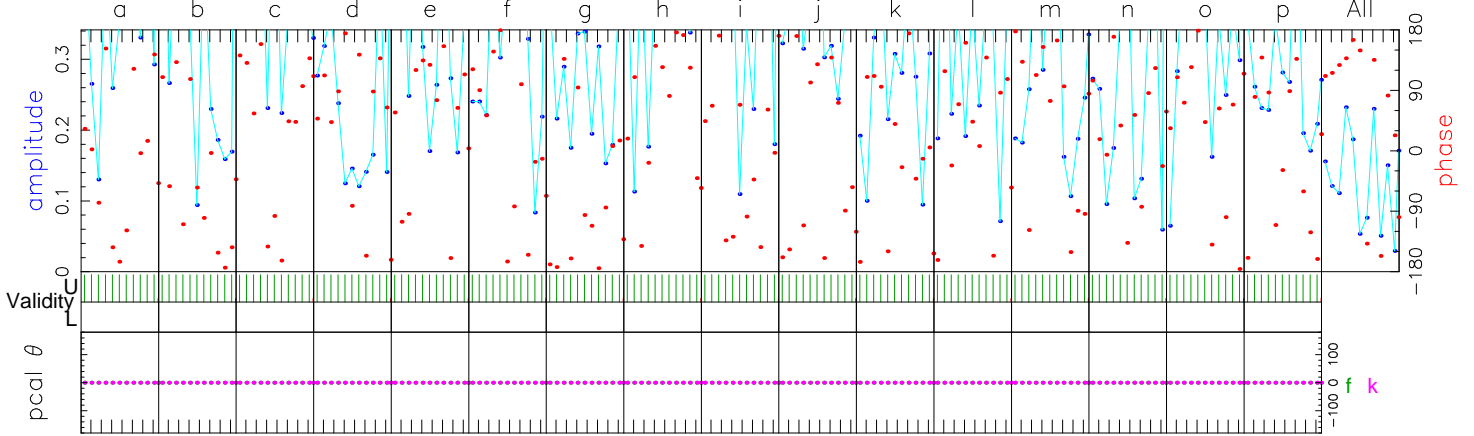


Fringe quality 0

SNR 5.7  
Int time 412.893  
Amp 0.114  
Phase 134.9  
PFD 9.3e-01  
Delays (us)  
SBD -0.512936  
MBD 0.013219  
Fringe rate (Hz) 0.480497  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011503.58  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build 2020:079:134246  
2020:086:100813  
2020:014:135814  
RA & Dec (J2000) 22h53m57.747940s +16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 73 APs / seg (37.38 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
93.1	-178.4	114.8	102.5	134.9	153.8	-158.8	138.6	-164.0	-176.2	96.8	107.2	149.2	92.1	110.0	160.0	134.9	Phase	134.9
0.0	0.1	0.3	0.1	0.2	0.1	0.1	0.2	0.0	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	Ampl.	0.1
215.2	114.2	63.2	176.0	180.8	78.9	229.8	248.4	155.0	2.4	167.3	252.0	148.3	204.0	64.1	5.8	63.3	Sbd box	63.3
U/L	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	APs used	
f	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
f:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase	
f:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC	
f	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
f	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Chan ids	
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Tracks	

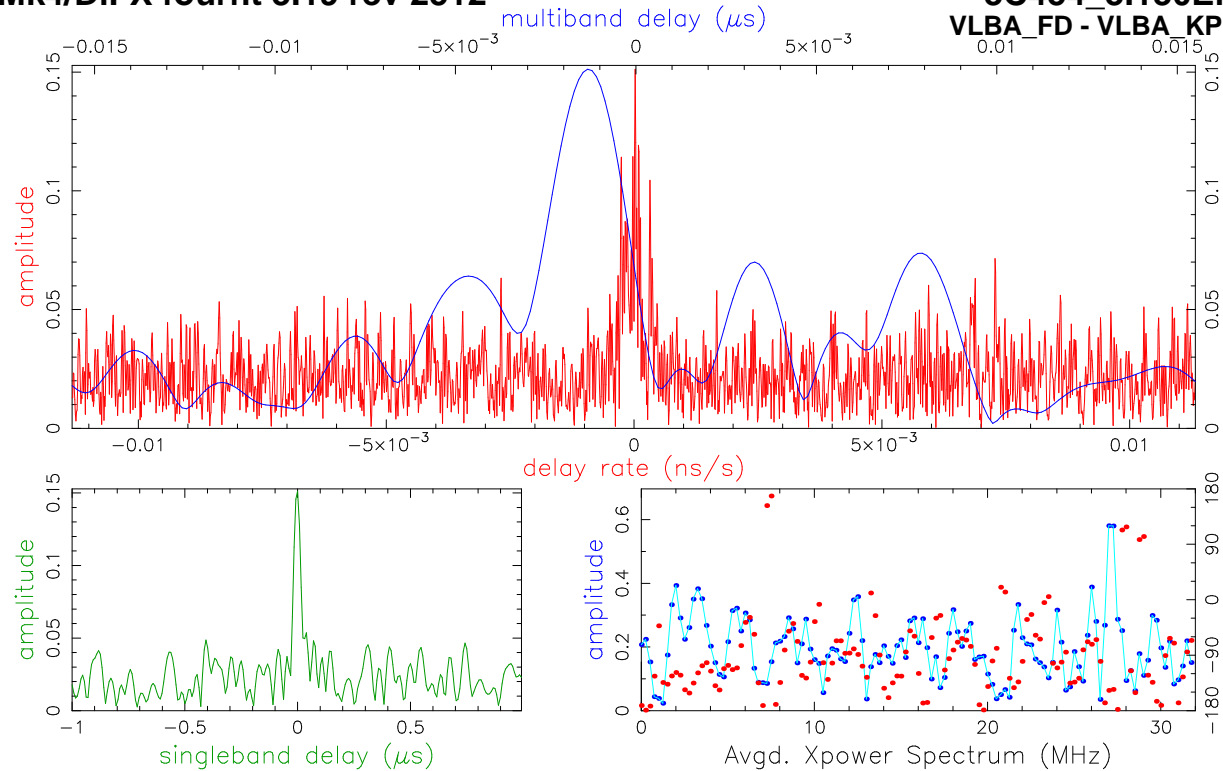
Group delay (usec)(sbd) 2.00134505110E+03 Apriori delay (usec) 2.00186308244E+03 Resid mbdelay (usec) 1.32187E-02 +/- 1.9E-04  
 Sband delay (usec) 2.00135014594E+03 Apriori clock (usec) 8.6817360E-01 Resid sbdelay (usec) -5.12936E-01 +/- 3.0E-03  
 Phase delay (usec) 2.00186308679E+03 Apriori clockrate (us/s) 1.0362949E-07 Resid phdelay (usec) 4.34917E-06 +/- 6.5E-07  
 Delay rate (us/s) -7.40661101707E-02 Apriori rate (us/s) -7.40716882693E-02 Resid rate (us/s) 5.57810E-06 +/- 2.7E-09  
 Total phase (deg) 106.4 Apriori accel (us/s/s) -1.1262558825E-05 Resid phase (deg) 134.9 +/- 20.0

RMS Theor. Amplitude 0.114 +/- 0.020 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 53.4 34.7 Search (2048X64) 0.100 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 amp/seg (%) 69.7 60.6 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 ph/frq (deg) 39.4 40.1 Inc. seg. avg. 0.119 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011  
 amp/frq (%) 57.0 70.0 Inc. frq. avg. 0.106 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00

f: az 92.5 el 37.4 pa -63.5 k: az 89.3 el 30.8 pa -62.0 u,v (fr/asec) 423.483 -428.217 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/fk..130EN2 Output file: /Exps/c192b/v2/1234/No0141/fk.W.158.130EN2

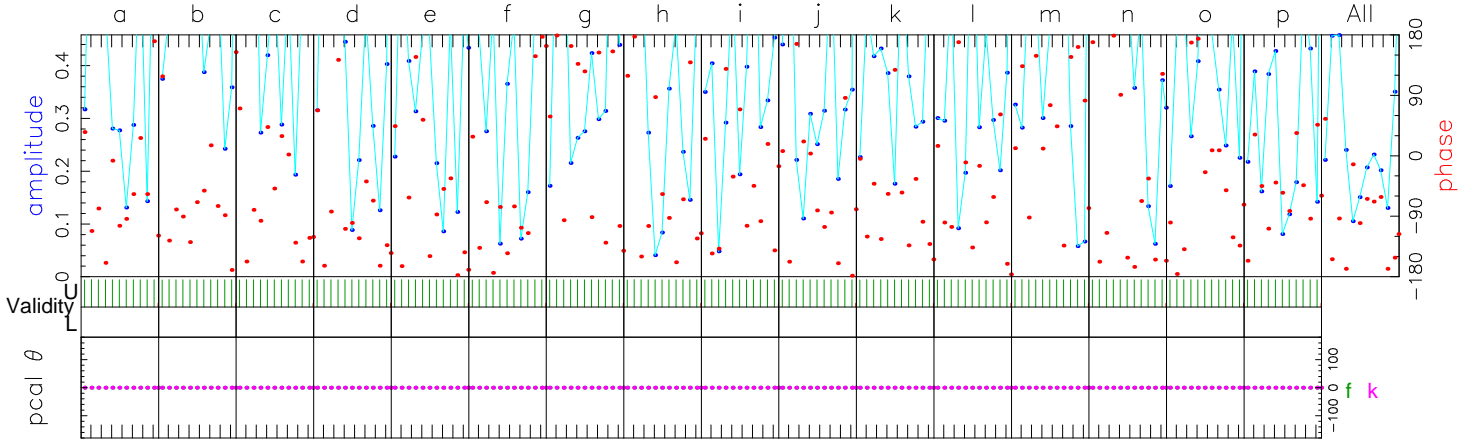
Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, fk  
VLBA\_FD - VLBA\_KP, fgroup W, pol LL



Fringe quality 9  
SNR 8.5  
Int time 412.893  
Amp 0.153  
Phase -113.4  
PFD 7.4e-09  
Delays (us)  
SBD -0.002507  
MBD -0.001308  
Fringe rate (Hz) 0.002116  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512  
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011503.58  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100756  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

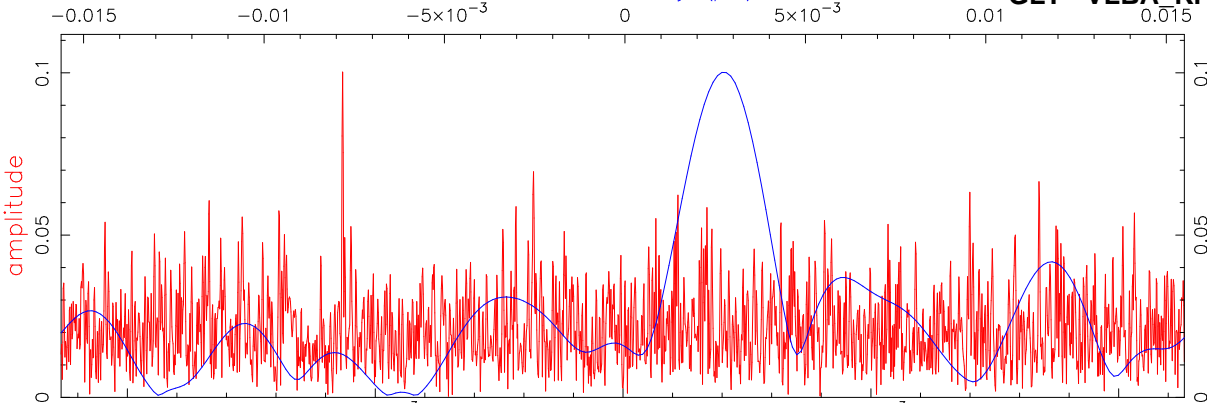
Amp. and Phase vs. time for each freq., 12 segs, 73 APs / seg (37.38 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
	-95.0	-90.4	-83.1	-122.6	-131.7	-147.9	-164.2	-149.2	-56.1	-116.8	-92.3	-100.9	132.0	-163.5	-98.4	-52.1	Phase	-113.4
	0.2	0.3	0.2	0.2	0.1	0.1	0.3	0.2	0.2	0.1	0.3	0.2	0.2	0.2	0.1	0.2	Ampl.	0.2
	126.9	129.2	94.1	128.8	188.8	210.9	128.2	128.3	110.3	86.9	128.7	190.4	246.5	129.3	191.4	127.9	Sbd box	128.7
U/L	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	APs used	
f	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
f:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase	
f:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC	
f	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
f	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Chan ids	
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Tracks	
																	Chan ids	
																	Tracks	
Group delay (usec)(sbd)	2.00186177431E+03			Apriori delay (usec)			2.00186308244E+03			Resid mbdelay (usec)			-1.30812E-03			+/- 1.3E-04		
Sband delay (usec)	2.00186057544E+03			Apriori clock (usec)			8.6817360E-01			Resid sbdelay (usec)			-2.50700E-03			+/- 2.0E-03		
Phase delay (usec)	2.00186307878E+03			Apriori clockrate (us/s)			1.0362949E-07			Resid phdelay (usec)			-3.65765E-06			+/- 4.4E-07		
Delay rate (us/s)	-7.40716637008E-02			Apriori rate (us/s)			-7.40716882693E-02			Resid rate (us/s)			2.45685E-08			+/- 1.8E-09		
Total phase (deg)	218.1			Apriori accel (us/s/s)			-1.12625588825E-05			Resid phase (deg)			-113.4			+/- 13.5		

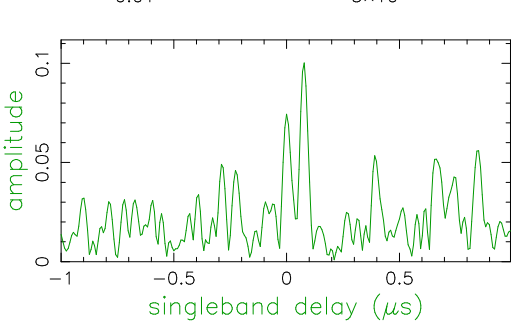
ph/seg (deg) 70.4 23.4 Search (2048X64) 0.148 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
amp/seg (%) 103.3 40.8 Interp. 0.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
ph/frq (deg) 46.9 27.0 Inc. seg. avg. 0.235 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
amp/frq (%) 47.1 47.1 Inc. frq. avg. 0.169 Sample rate(MISamp/s): 64 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite dr window (ns/s) -0.011 0.011  
f: az 92.5 el 37.4 pa -63.5 k: az 89.3 el 30.8 pa -62.0 u,v (fr/asec) 423.483 -428.217 simultaneous interpolator  
Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/fk..130EN2 Output file: /Exps/c192b/v2/1234/No0141/fk.W.90.130EN2

multiband delay ( $\mu$ s)

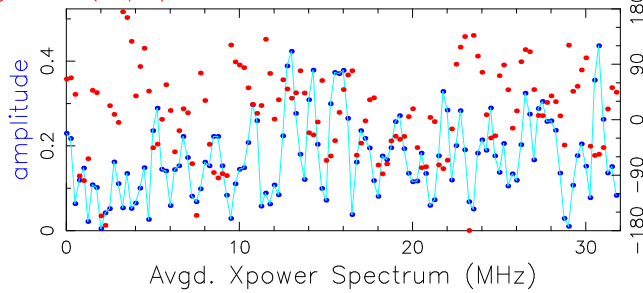


Fringe quality 0

SNR 5.6  
Int time 414.722  
Amp 0.112  
Phase 73.9  
PFD 9.9e-01  
Delays (us)  
SBD 0.076278  
MBD 0.002745  
Fringe rate (Hz)  
-0.487952  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512

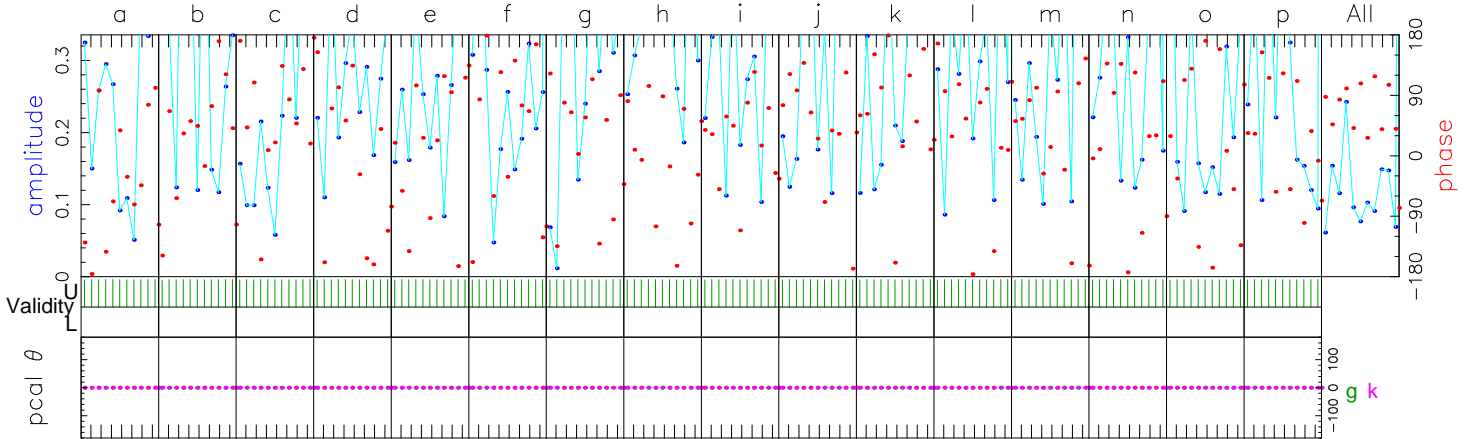


delay rate (ns/s)



Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100759  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All						
	-120.2	40.9	83.6	120.2	99.3	125.2	76.9	0.4	30.3	94.7	101.8	68.1	76.1	73.7	51.3	67.7		Phase	73.9					
	0.0	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.1		Ampl.	0.1					
	177.5	215.2	142.2	239.7	83.8	123.5	224.3	121.3	81.8	13.8	180.4	236.6	137.5	116.5	52.5	212.4		Sbd box	138.8					
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0		APs used						
g	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		PC freqs						
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC freqs						
g:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		PC phase						
g:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		ManI PC						
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC amp						
g	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Chan ids						
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Tracks						
																			Tracks					
Group delay (usec)(sbd)			-9.28932804313E+02																Apriori delay (usec)	-9.28998049180E+02	Resid mbdelay (usec)	2.74487E-03	+/-	1.9E-04
Sband delay (usec)			-9.28921771180E+02																Apriori clock (usec)	1.7018846E+00	Resid sbdelay (usec)	7.62780E-02	+/-	3.1E-03
Phase delay (usec)			-9.28998046796E+02																Apriori clockrate (us/s)	2.6957898E-07	Resid phdelay (usec)	2.38345E-06	+/-	6.6E-07
Delay rate (us/s)			-1.00478474360E+00																Apriori rate (us/s)	-1.00477907896E+00	Resid rate (us/s)	-5.66464E-06	+/-	2.7E-09
Total phase (deg)				-270.4															Apriori accel (us/s/s)	1.89680412092E-05	Resid phase (deg)	73.9	+/-	20.4

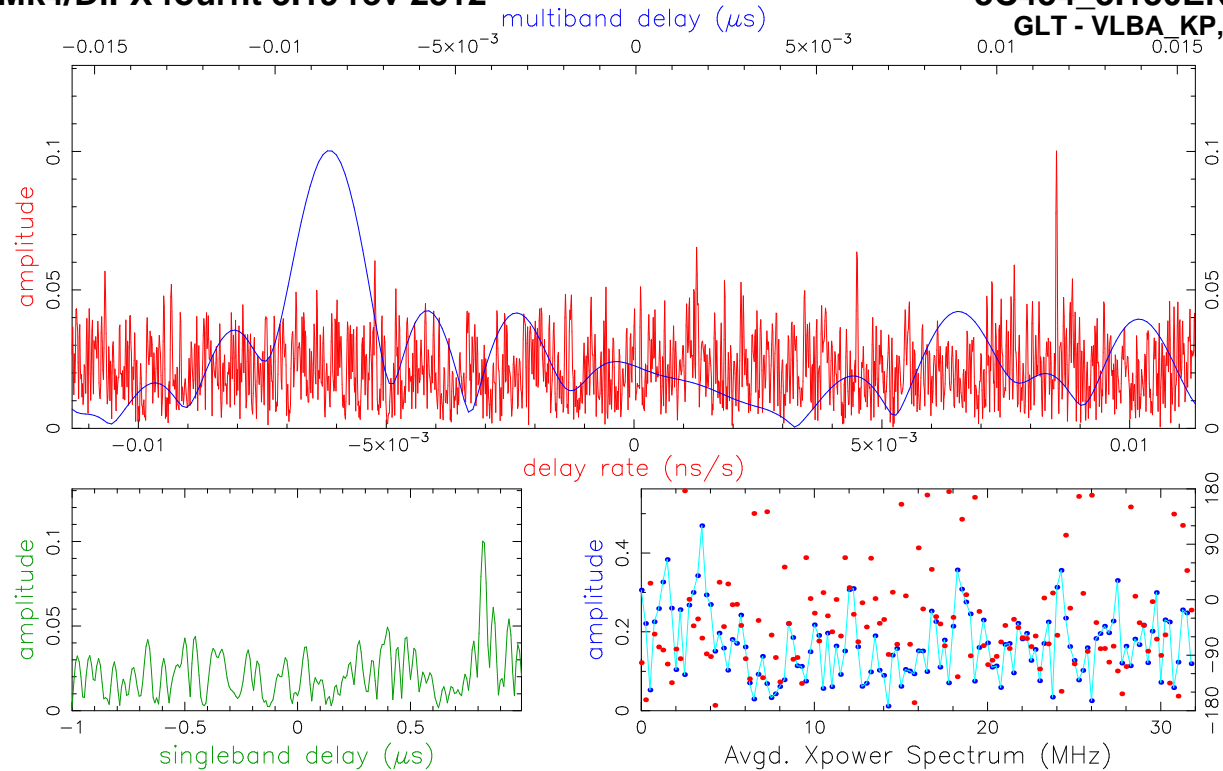
ph/seg (deg)	RMS	Theor.	Amplitude	0.112 +/- 0.020	Pcal mode:	MANUAL, MANUAL	PC period (AP's)	5, 5	
amp/seg (%)	32.6	35.4	Search (2048X64)	0.097	Pcal rate:	0.000E+00, 0.000E+00 (us/s)	sb window (us)	-1.000 1.000	
ph/frq (deg)	59.7	61.8	Interp.	0.000	Bits/sample:	2x2	SampCntNorm: enabled	mb window (us)	-0.016 0.016
amp/frq (%)	55.6	40.9	Inc. seg. avg.	0.112	Sample rate(MISamp/s):	64	dr window (ns/s)	-0.011 0.011	
	54.7	71.3	Inc. frq. avg.	0.103	Data rate(Mb/s):	2048	ion window (TEC)	0.00 0.00	

g: az 157.5 el 28.8 pa -5.2      k: az 89.3 el 30.8 pa -62.0      u,v (fr/asec) 6025.652 4174.408      simultaneous interpolator



Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, gk  
GLT - VLBA\_KP, fgroup W, pol RR

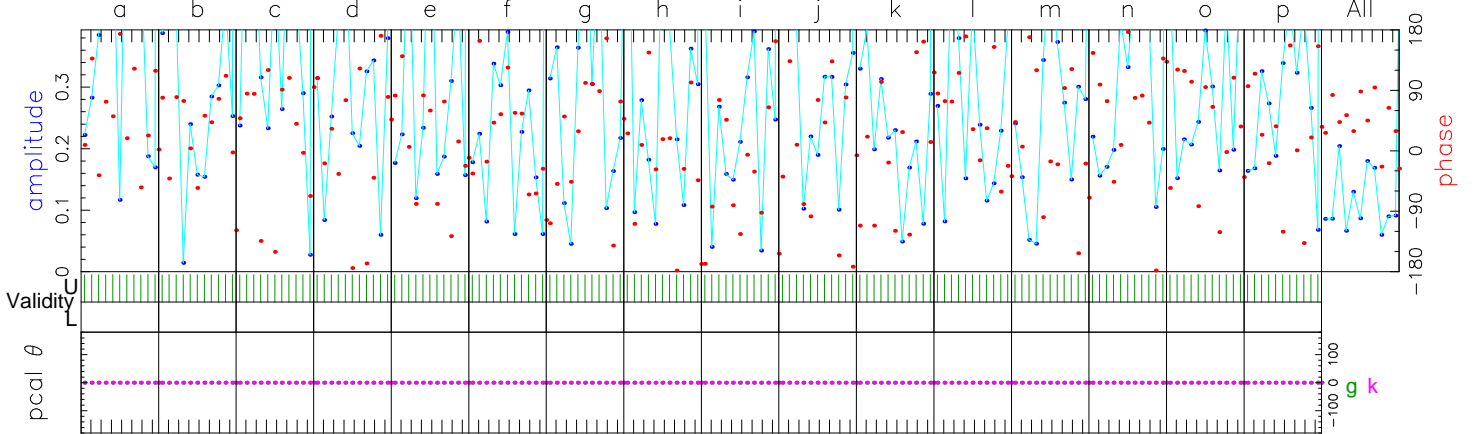


Fringe quality 0

SNR 5.7  
Int time 414.546  
Amp 0.131  
Phase 51.3  
PFD 9.4e-01  
Delays (us)  
SBD 0.823862  
MBD -0.008418  
Fringe rate (Hz) 0.735317  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100803  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



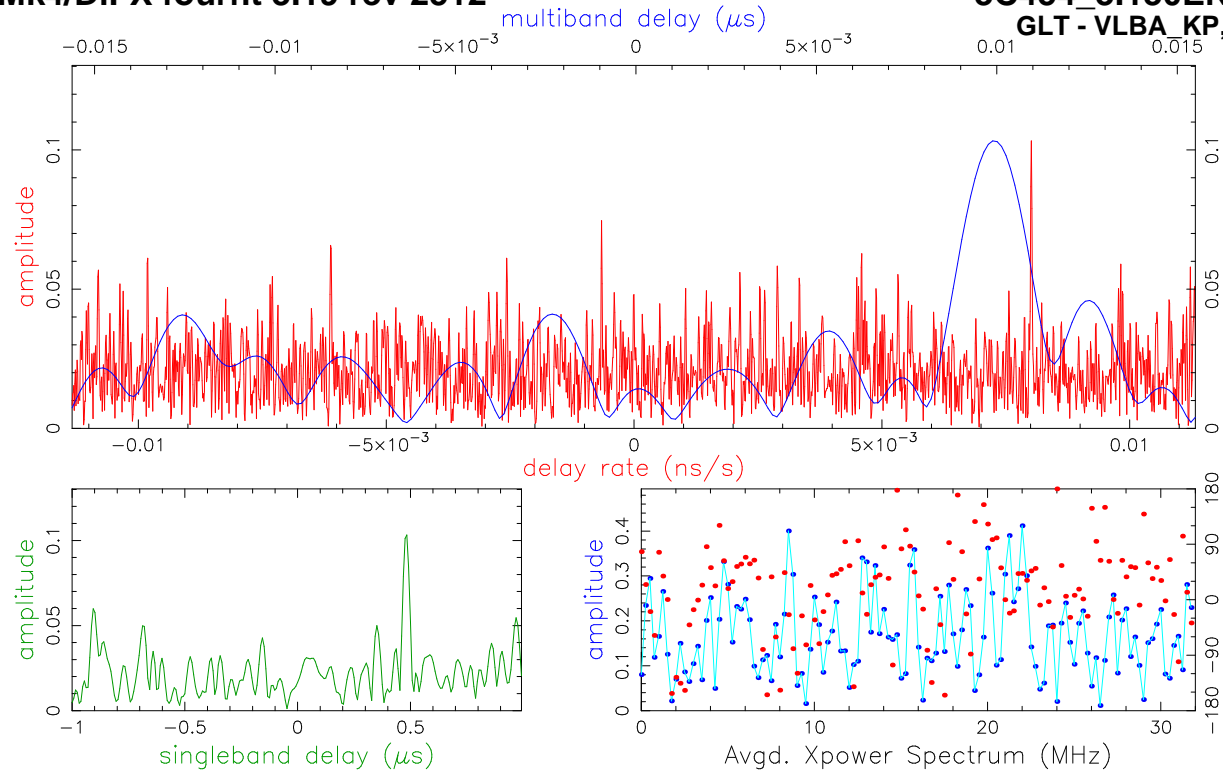
	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All	
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0			
g	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000			
g:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0			
g:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0			
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000			
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000			
g	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Chan ids		
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Tracks		
Group delay (usec)(sbd)			-9.28162717677E+02																
Sband delay (usec)			-9.28174187180E+02																
Phase delay (usec)			-9.28998047524E+02																
Delay rate (us/s)			-1.00477054266E+00																
Total phase (deg)					-292.9														
Apriori delay (usec)																			
Apriori clock (usec)																			
Apriori clockrate (us/s)																			
Apriori rate (us/s)																			
Apriori accel (us/s/s)																			
Resid mbdelay (usec)																			
Resid sbdelay (usec)																			
Resid phdelay (usec)																			
Resid rate (us/s)																			
Resid phase (deg)																			
PCal mode: MANUAL, MANUAL																			
PCal rate: 0.000E+00, 0.000E+00 (us/s)																			
Bits/sample: 2x2																			
Sample rate(MISamp/s): 64																			
Data rate(Mb/s): 2048																			
nlags: 128																			
t_cohere infinite																			
ion window (TEC)																			
sb window (us)																			
mb window (us)																			
dr window (ns/s)																			
ion window (TEC)																			

ph/seg (deg) 32.6 34.7  
amp/seg (%) 48.7 60.6  
ph/frq (deg) 39.5 40.1  
amp/frq (%) 59.4 70.0

g: az 157.5 el 28.8 pa -5.2  
k: az 89.3 el 30.8 pa -62.0  
u,v (fr/asec) 6025.652 4174.408

Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/gk..130EN2 Output file: /Exps/c192b/v2/1234/No0141/gk.W.120.130EN2

simultaneous interpolator

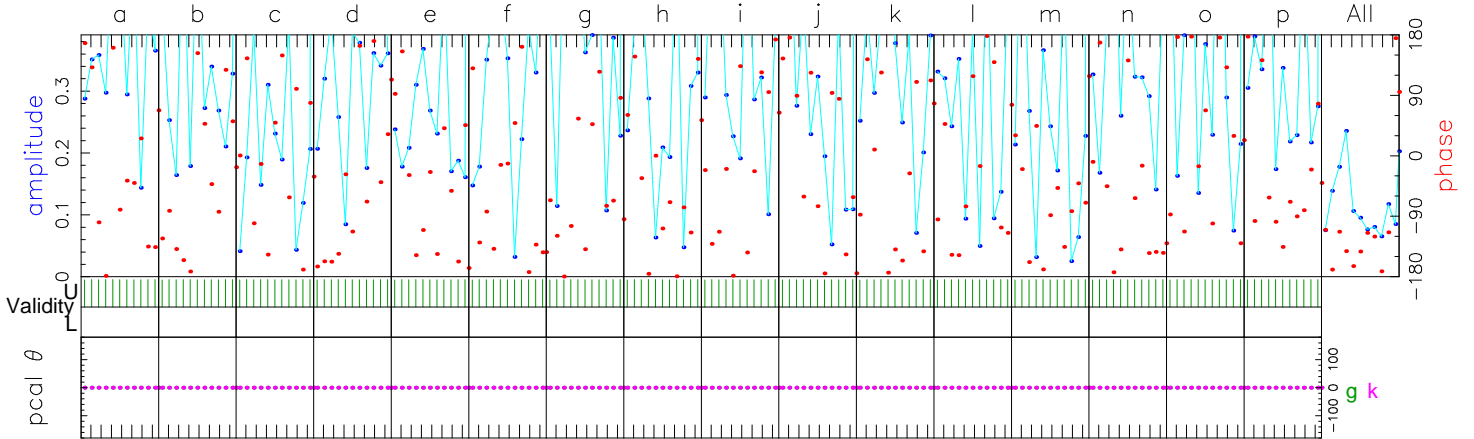


Fringe quality 0

SNR 5.9  
Int time 414.722  
Amp 0.130  
Phase -139.6  
PFD 7.1e-01  
Delays (us)  
SBD 0.481193  
MBD 0.009897  
Fringe rate (Hz) 0.691537  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512

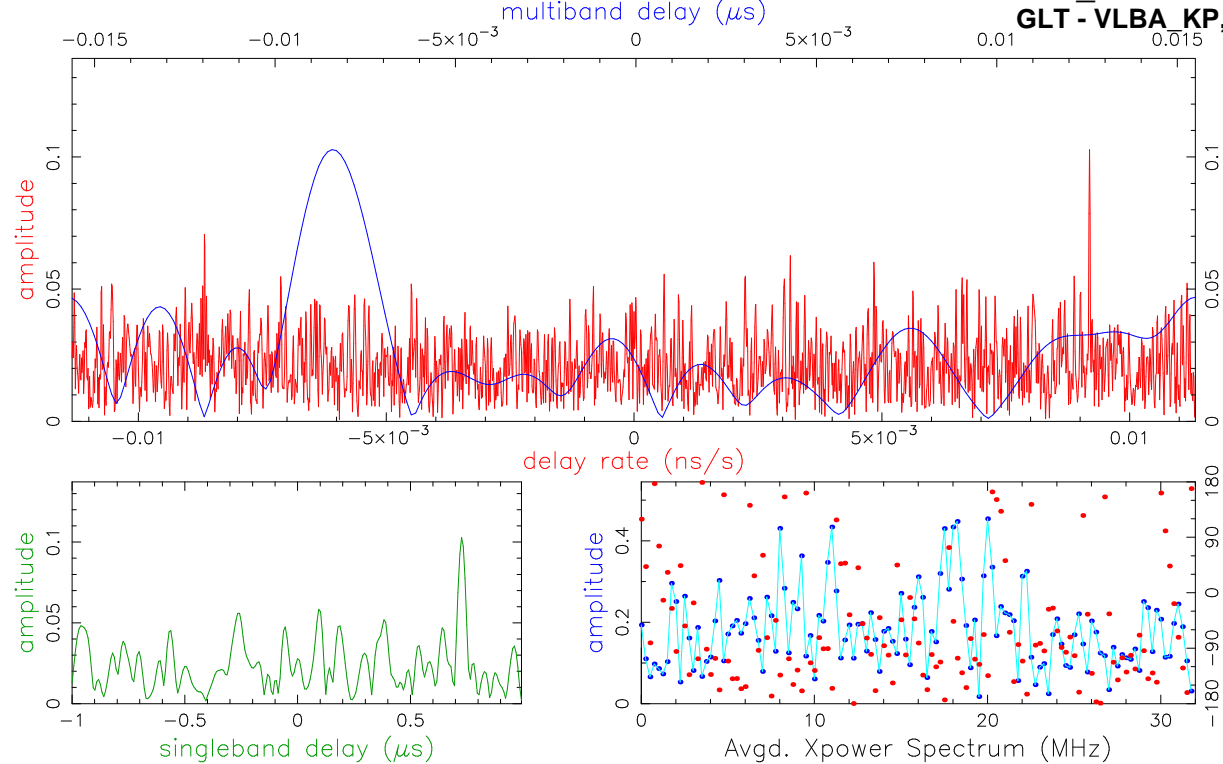
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build 2020:079:134246  
2020:086:100807  
2020:014:135814  
RA & Dec (J2000) 22h53m57.747940s +16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All				
	-128.7	-148.7	-115.1	-146.7	-79.4	-125.3	-136.5	-159.5	-138.8	159.3	173.4	-154.1	-85.7	-135.1	-160.2	-93.1	Phase	-139.6				
	0.2	0.1	0.0	0.2	0.0	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.2	Ampl.	0.1				
	22.6	6.5	239.4	106.2	12.9	242.0	114.8	129.6	197.0	68.8	180.1	66.6	19.4	230.0	185.6	189.9	Sbd box	190.6				
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	APs used					
g	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	PC freqs					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
g:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase					
g:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
g	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Chan ids					
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Tracks					
																	Chan ids					
																	Tracks					
Group delay (usec)(sbd)			-9.28519401847E+02														Apriori delay (usec)	-9.28998049180E+02	Resid mbdelay (usec)	9.89733E-03	+/-	1.8E-04
Sband delay (usec)			-9.28516856180E+02														Apriori clock (usec)	1.7018846E+00	Resid sbdelay (usec)	4.81193E-01	+/-	2.9E-03
Phase delay (usec)			-9.28998053680E+02														Apriori clockrate (us/s)	2.6957898E-07	Resid phdelay (usec)	-4.50023E-06	+/-	6.3E-07
Delay rate (us/s)			-1.00477105090E+00														Apriori rate (us/s)	-1.00477907896E+00	Resid rate (us/s)	8.02806E-06	+/-	2.6E-09
Total phase (deg)					-123.8												Apriori accel (us/s/s)	1.89680412092E-05	Resid phase (deg)	-139.6	+/-	19.6

ph/seg (deg) 27.1 33.9 Search (2048X64) 0.130 +/- 0.022 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 48.1 59.2 Interp. 0.103 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 34.6 39.2 Inc. seg. avg. 0.120 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 amp/frq (%) 45.7 68.4 Inc. frq. avg. 0.119 Sample rate(MISamp/s): 64 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite dr window (ns/s) -0.011 0.011  
 g: az 157.5 el 28.8 pa -5.2 k: az 89.3 el 30.8 pa -62.0 u,v (fr/asec) 6025.652 4174.408 ion window (TEC) 0.00 0.00 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/gk..130EN2 Output file: /Exps/c192b/v2/1234/No0141/gk.W.135.130EN2

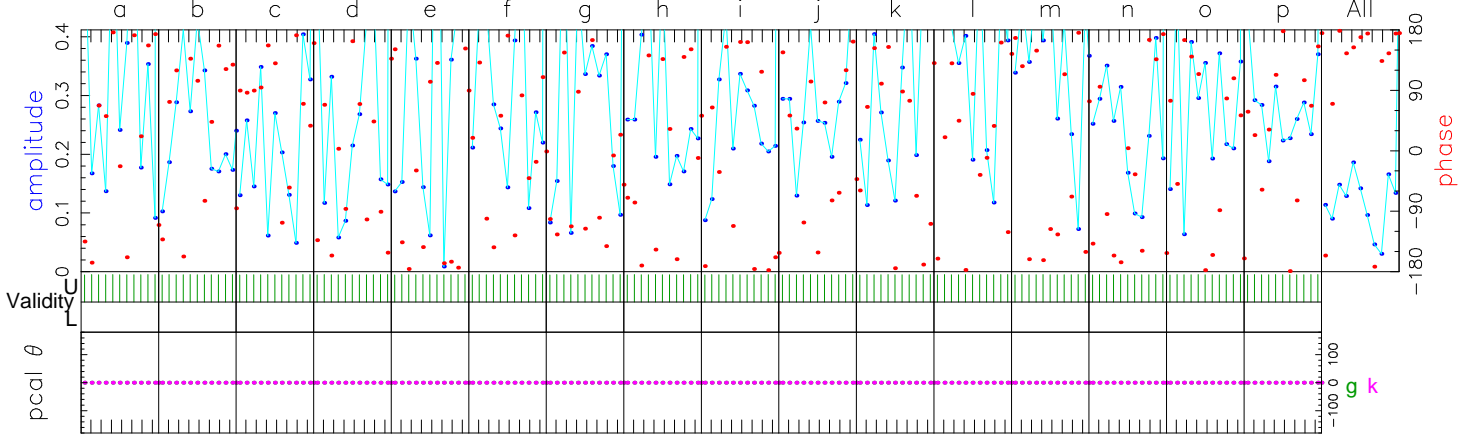


Fringe quality 0

SNR 5.7  
Int time 414.546  
Amp 0.137  
Phase 161.4  
PFD 9.1e-01  
Delays (us)  
SBD 0.727817  
MBD -0.008395  
Fringe rate (Hz)  
0.792694  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100812  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All				
	-179.5	135.9	85.3	-139.8	166.8	124.0	-172.9	169.5	173.2	134.7	152.1	149.1	-174.7	-173.4	134.8	91.4	Phase	161.4				
	0.3	0.2	0.2	0.1	0.3	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.3	0.2	0.1	0.1	Ampl.	0.1				
	221.3	34.7	155.2	121.9	11.0	28.7	56.9	204.4	43.1	174.6	187.2	50.9	209.6	14.1	196.2	176.1	Sbd box	222.2				
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	APs used					
g	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	PC freqs					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
g:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase					
g:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
g	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Chan ids					
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Tracks					
																	Tracks					
Group delay (usec)(sbd)			-9.28256443737E+02														Apriori delay (usec)	-9.28998049180E+02	Resid mbdelay (usec)	-8.39456E-03	+/-	1.9E-04
Sband delay (usec)			-9.28270232680E+02														Apriori clock (usec)	1.7018846E+00	Resid sbdelay (usec)	7.27817E-01	+/-	3.0E-03
Phase delay (usec)			-9.28998043974E+02														Apriori clockrate (us/s)	2.6957898E-07	Resid phdelay (usec)	5.20580E-06	+/-	6.4E-07
Delay rate (us/s)			-1.00476987656E+00														Apriori rate (us/s)	-1.00477907896E+00	Resid rate (us/s)	9.20240E-06	+/-	2.7E-09
Total phase (deg)					-182.8												Apriori accel (us/s/s)	1.89680412092E-05	Resid phase (deg)	161.4	+/-	20.0

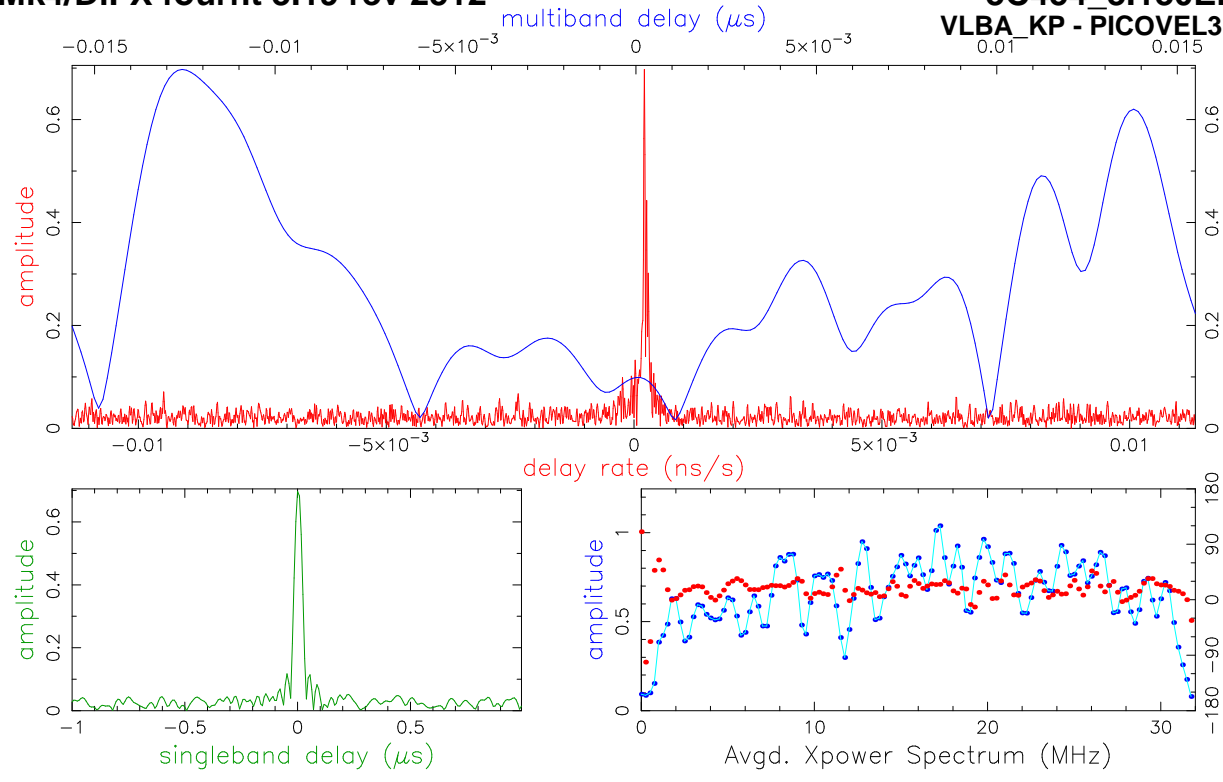
ph/seg (deg) 34.3 34.6  
amp/seg (%) 48.6 60.4  
ph/frq (deg) 38.1 40.0  
amp/frq (%) 58.3 69.8

RMS Theor. Amplitude 0.137 +/- 0.024  
Search (2048X64) 0.101  
Interp. 0.000  
Inc. seg. avg. 0.132  
Inc. frq. avg. 0.130

g: az 157.5 el 28.8 pa -5.2 k: az 89.3 el 30.8 pa -62.0 u,v (fr/asec) 6025.652 4174.408

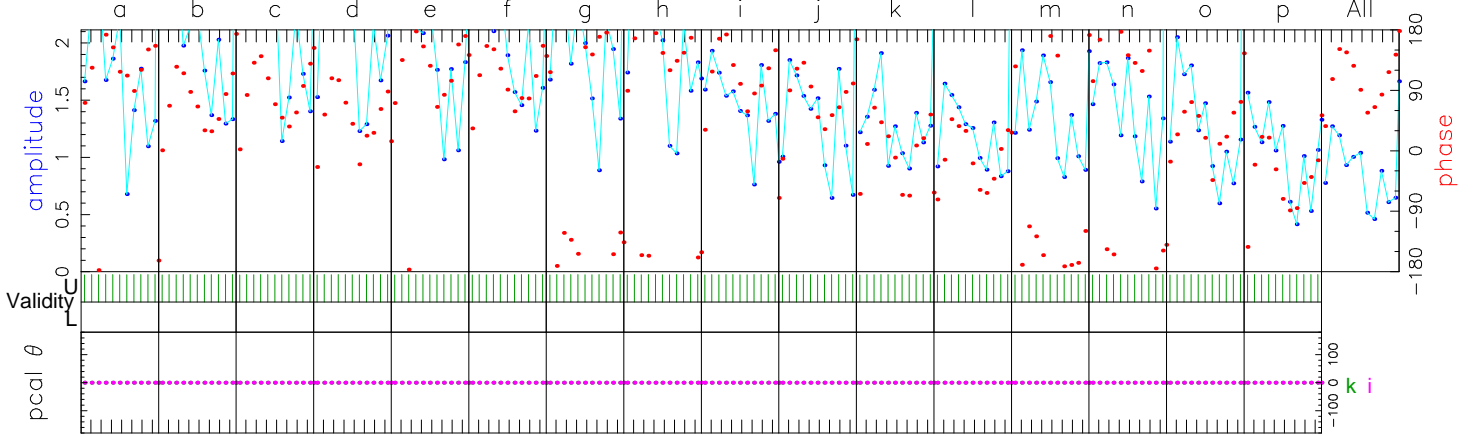
PCal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
PCal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011  
Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00

Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/gk..130EN2 Output file: /Exps/c192b/v2/1234/No0141/gk.W.152.130EN2 simultaneous interpolator



Fringe quality 3  
SNR 39.3  
Int time 415.056  
Amp 0.705  
Phase 108.4  
PFD 0.0e+00  
Delays (us)  
SBD 0.002886  
MBD -0.012576  
Fringe rate (Hz) 0.018494  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512  
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100819  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec

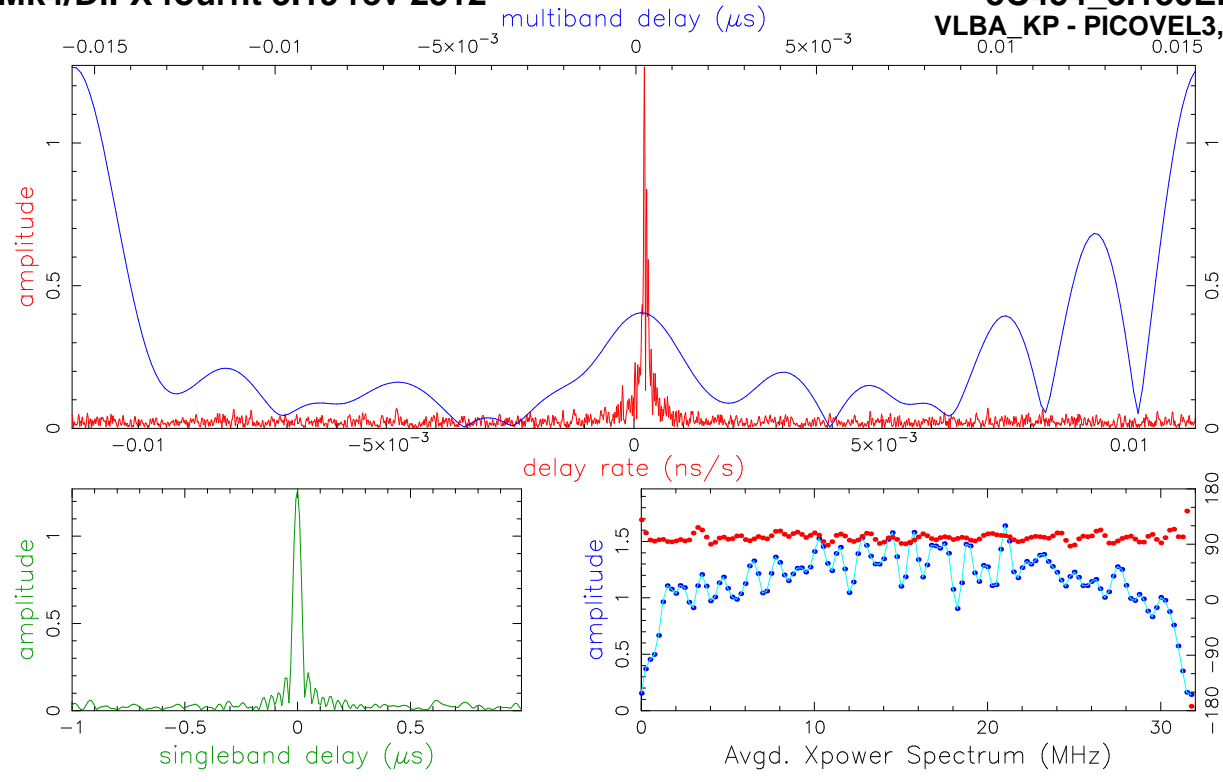


	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	108.4
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1.3
i	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	129.4
ki	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	
ki	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
i	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Chan ids
i	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Tracks
Group delay (usec)(sbd)	-3.72283609770E+03			Apriori delay (usec)			-3.72282352171E+03			Resid mbdelay (usec)			-1.25760E-02			+/- 2.7E-05		
Sband delay (usec)	-3.72282063521E+03			Apriori clock (usec)			1.2258480E-01			Resid sbdelay (usec)			2.88650E-03			+/- 4.4E-04		
Phase delay (usec)	-3.72282351822E+03			Apriori clockrate (us/s)			1.5842101E-07			Resid phdelay (usec)			3.49624E-06			+/- 9.4E-08		
Delay rate (us/s)	1.97545678816E+00			Apriori rate (us/s)			1.97545657346E+00			Resid rate (us/s)			2.14692E-07			+/- 3.9E-10		
Total phase (deg)	50.6			Apriori accel (us/s/s)			1.74748580135E-05			Resid phase (deg)			108.4			+/- 2.9		

ph/seg (deg) 37.5 5.1 Search (2048X64) 0.670 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
amp/seg (%) 42.1 8.8 Interp. 0.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
ph/frq (deg) 74.1 5.8 Inc. seg. avg. 0.847 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
amp/frq (%) 94.4 10.2 Inc. frq. avg. 1.284 Sample rate(MISamp/s): 64 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite dr window (ns/s) -0.011 0.011  
k: az 89.3 el 30.8 pa -62.0 i: az 254.5 el 45.4 pa 53.0 u,v (fr/asec) -11754.602 -154.213 simultaneous interpolator  
Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/ki..130EN2 Output file: /Exps/c192b/v2/1234/No0141/ki.W.174.130EN2

Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, ki  
VLBA\_KP - PICOVEL3, fgroup W, pol RR

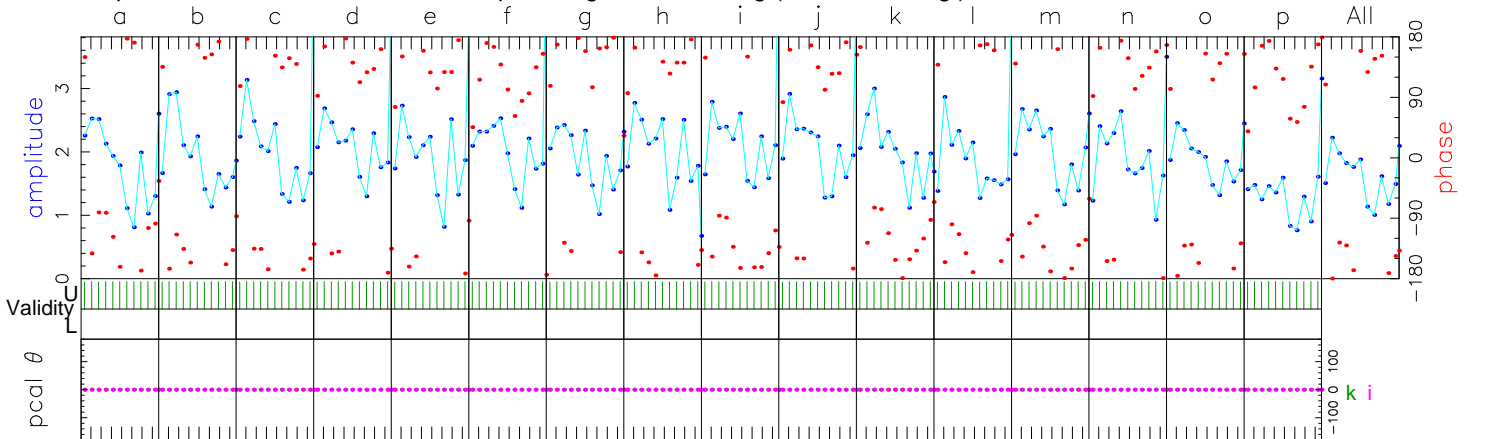


Fringe quality 3

SNR 70.8  
Int time 415.055  
Amp 1.272  
Phase -179.5  
PFD 0.0e+00  
Delays (us)  
SBD -0.001782  
MBD -0.015592  
Fringe rate (Hz) 0.018571  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100824  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



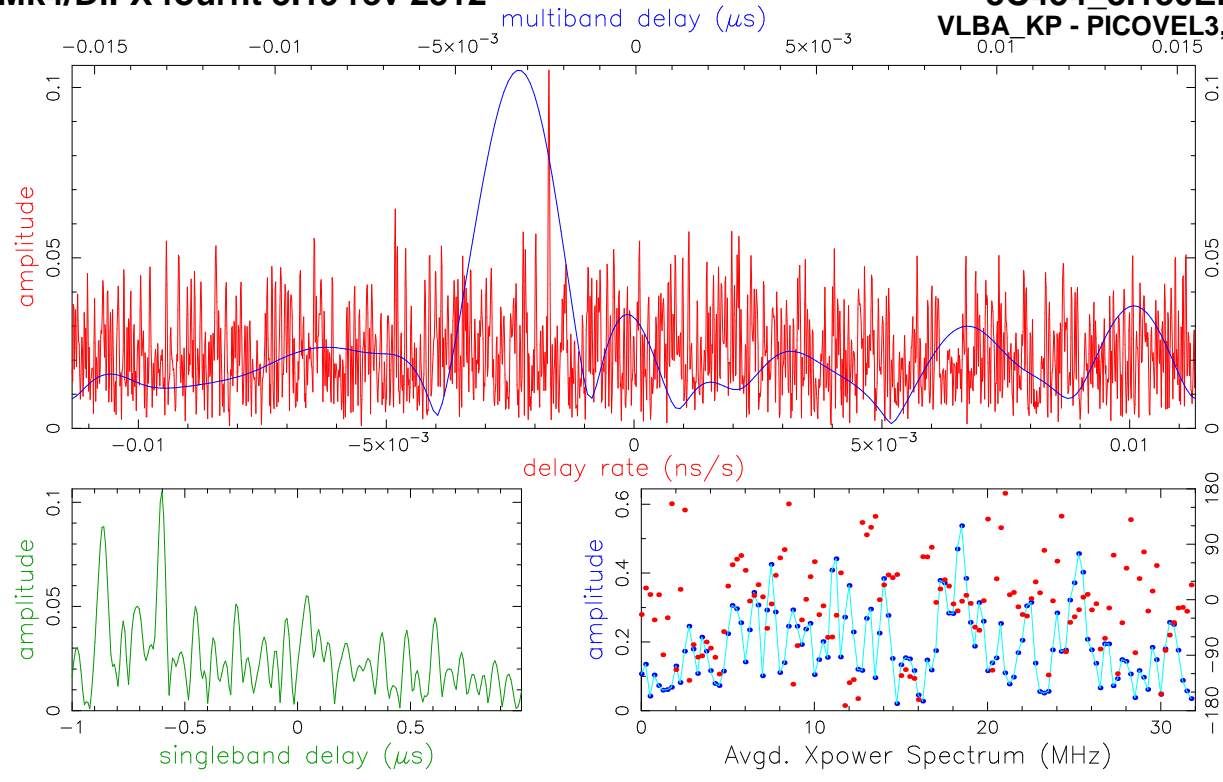
	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All	
	-135.7	-165.9	175.7	160.9	152.6	121.1	176.1	166.7	-142.1	158.7	-124.2	-155.0	-143.7	159.3	-178.0	118.3		Phase	-179.5
	1.3	1.6	1.6	1.6	1.5	1.6	1.4	1.7	1.7	1.6	1.6	1.5	1.6	1.5	1.4	0.9		Ampl.	1.5
	128.0	128.8	128.8	128.8	128.8	128.5	128.9	128.8	128.4	128.4	128.6	128.8	128.2	128.1	128.7	127.1		Sbd box	128.8
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0		APs used	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC freqs	
i	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC freqs	
ki	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		PC phase	
ki	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		ManI PC	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC amp	
i	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC amp	
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Chan ids	
i	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Tracks	

Group delay (usec)(sbd) -3.72283911382E+03 Apriori delay (usec) -3.72282352171E+03 Resid mbdelay (usec) -1.55921E-02 +/- 1.5E-05  
 Sband delay (usec) -3.72282530371E+03 Apriori clock (usec) 1.2258480E-01 Resid sbdelay (usec) -1.78200E-03 +/- 2.4E-04  
 Phase delay (usec) -3.72282352750E+03 Apriori clockrate (us/s) 1.5842101E-07 Resid phdelay (usec) -5.78789E-06 +/- 5.2E-08  
 Delay rate (us/s) 1.97545678906E+00 Apriori rate (us/s) 1.97545657346E+00 Resid rate (us/s) 2.15596E-07 +/- 2.2E-10  
 Total phase (deg) -237.3 Apriori accel (us/s/s) 1.74748580135E-05 Resid phase (deg) -179.5 +/- 1.6

RMS Theor. Amplitude 1.272 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 39.1 2.8 Search (2048X64) 1.195 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 amp/seg (%) 38.6 4.9 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 ph/frq (deg) 36.0 3.2 Inc. seg. avg. 1.600 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011  
 amp/frq (%) 22.7 5.6 Inc. frq. avg. 1.492 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00

k: az 89.3 el 30.8 pa -62.0 i: az 254.5 el 45.4 pa 53.0 u,v (fr/asec) -11754.602 -154.213 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/ki..130EN2 Output file: /Exps/c192b/v2/1234/No0141/ki.W.193.130EN2



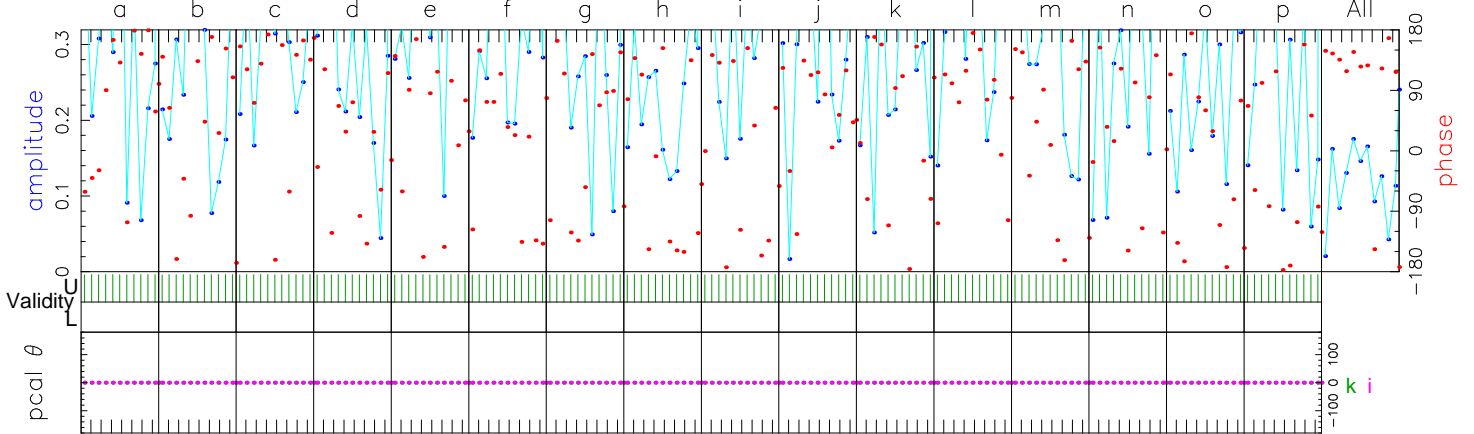


Fringe quality 0

SNR 5.9  
Int time 415.056  
Amp 0.106  
Phase 136.9  
PFD 6.6e-01  
Delays (us)  
SBD -0.603218  
MBD -0.003259  
Fringe rate (Hz)  
-0.148224  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100828  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All				
	136.6	138.9	152.9	112.7	116.2	127.8	154.3	172.5	140.3	99.6	165.8	118.7	136.8	145.7	132.4	-167.5	Phase	136.9				
	0.1	0.1	0.2	0.0	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.0	0.1	Ampl.	0.1				
	42.1	2.9	51.7	132.4	16.0	122.4	222.3	16.5	158.7	51.7	12.2	95.0	49.5	124.2	18.6	19.2	Sbd box	51.8				
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	APs used					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
i	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
ki	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase					
ki	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	Mani PC					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
i	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Chan ids					
i	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Tracks					
																	Chan ids					
																	Tracks					
Group delay (usec)(sbd)			-3.72342053113E+03														Apriori delay (usec)	-3.72282352171E+03	Resid mbdelay (usec)	-3.25941E-03	+/-	1.8E-04
Sband delay (usec)			-3.72342673971E+03														Apriori clock (usec)	1.2258480E-01	Resid sbdelay (usec)	-6.03218E-01	+/-	2.9E-03
Phase delay (usec)			-3.72282351730E+03														Apriori clockrate (us/s)	1.5842101E-07	Resid phdelay (usec)	4.41544E-06	+/-	6.3E-07
Delay rate (us/s)			1.97545485273E+00														Apriori rate (us/s)	1.97545657346E+00	Resid rate (us/s)	-1.72073E-06	+/-	2.6E-09
Total phase (deg)					79.1												Apriori accel (us/s/s)	1.74748580135E-05	Resid phase (deg)	136.9	+/-	19.5

ph/seg (deg) 27.5 33.8  
amp/seg (%) 46.4 59.0  
ph/frq (deg) 24.9 39.0  
amp/frq (%) 53.3 68.1

RMS Theor. Amplitude 0.106 +/- 0.018  
Search (2048X64) 0.099  
Interp. 0.000  
Inc. seg. avg. 0.099  
Inc. frq. avg. 0.093

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(MISamp/s): 64  
Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite

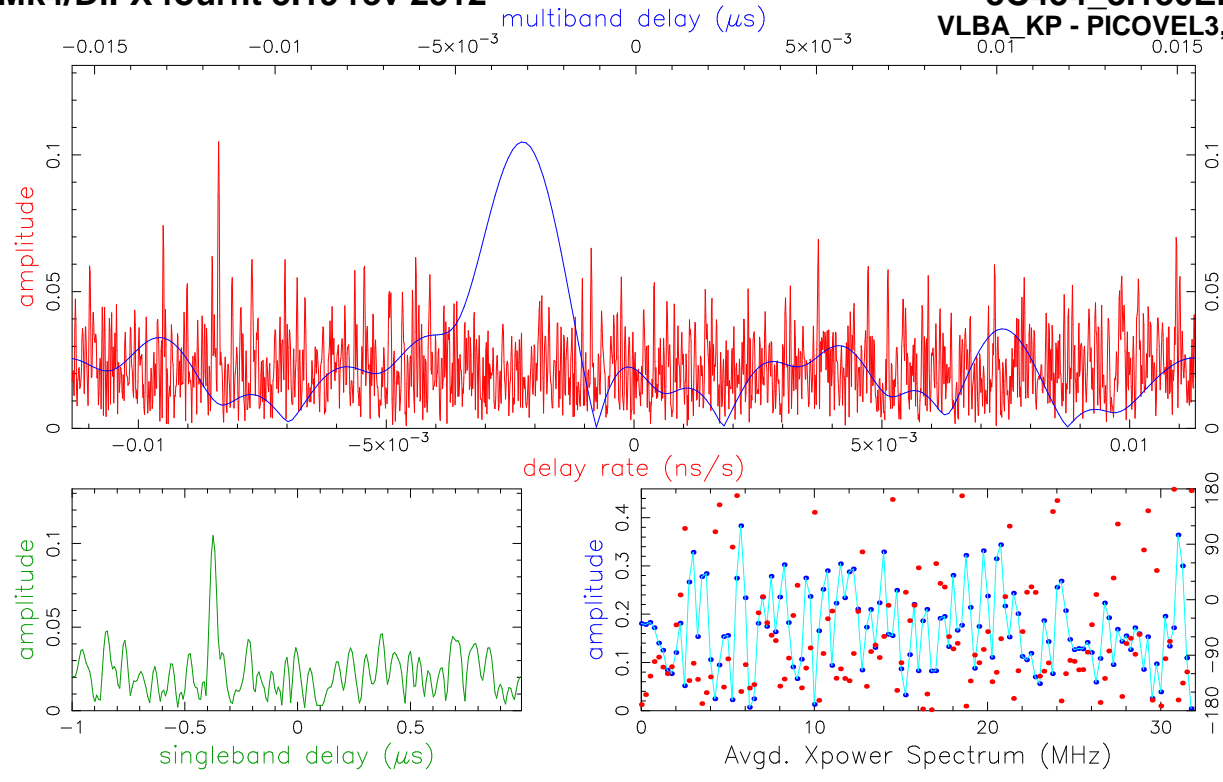
sb window (us) -1.000 1.000  
mb window (us) -0.016 0.016  
dr window (ns/s) -0.011 0.011  
ion window (TEC) 0.00 0.00

k: az 89.3 el 30.8 pa -62.0 i: az 254.5 el 45.4 pa 53.0 u,v (fr/asec) -11754.602 -154.213 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/ki..130EN2 Output file: /Exps/c192b/v2/1234/No0141/ki.W.207.130EN2

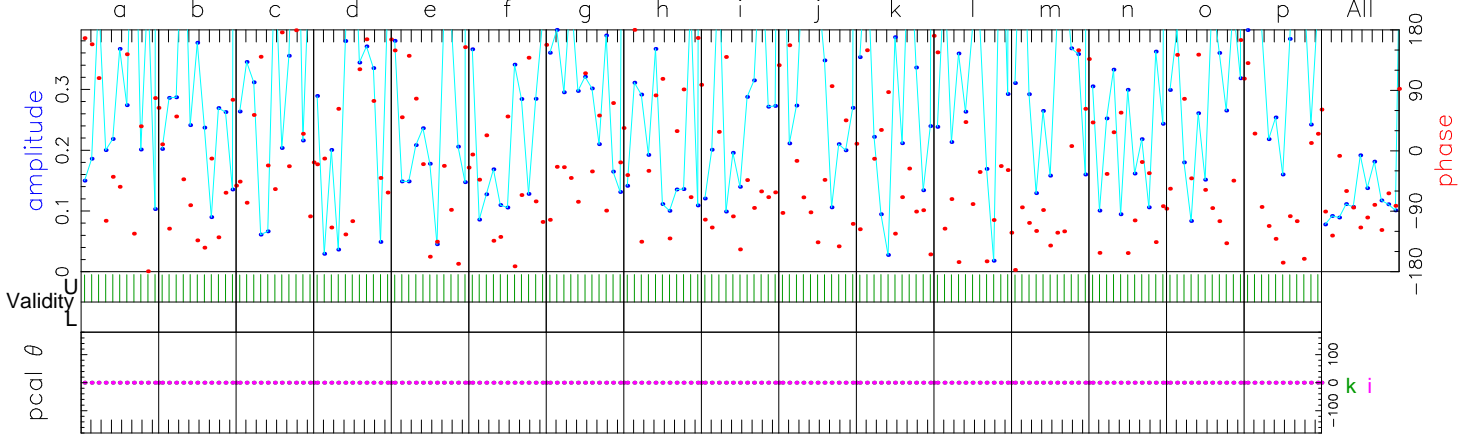
Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, ki  
VLBA\_KP - PICOVEL3, fgroup W, pol RL



Fringe quality 0  
SNR 5.8  
Int time 415.055  
Amp 0.133  
Phase -88.1  
PFD 7.4e-01  
Delays (us)  
SBD -0.374518  
MBD -0.003138  
Fringe rate (Hz)  
-0.722796  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512  
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100834  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All				
	-165.4	-73.9	-80.2	-116.9	-128.3	-88.4	-39.5	-129.7	-63.9	-89.0	-97.3	-69.4	-115.5	-56.2	-112.8	-99.8	Phase	-88.1				
	0.1	0.2	0.1	0.0	0.0	0.1	0.2	0.0	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	Ampl.	0.1				
	171.1	65.3	114.1	160.3	56.7	8.4	231.4	227.4	53.7	80.3	20.3	160.2	197.4	217.9	255.6	3.1	Sbd box	81.1				
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	APs used					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
i	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC phase					
ki	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	Mani PC					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
i	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000						
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Chan ids					
i	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Tracks					
																	Chan ids					
																	Tracks					
Group delay (usec)(sbd)			-3.72320165959E+03														Apriori delay (usec)	-3.72282352171E+03	Resid mbdelay (usec)	-3.13787E-03	+/-	1.8E-04
Sband delay (usec)			-3.72319803921E+03														Apriori clock (usec)	1.2258480E-01	Resid sbdelay (usec)	-3.74518E-01	+/-	3.0E-03
Phase delay (usec)			-3.72282352455E+03														Apriori clockrate (us/s)	1.5842101E-07	Resid phdelay (usec)	-2.83965E-06	+/-	6.3E-07
Delay rate (us/s)			1.97544818252E+00														Apriori rate (us/s)	1.97545657346E+00	Resid rate (us/s)	-8.39094E-06	+/-	2.6E-09
Total phase (deg)																	Apriori accel (us/s/s)	1.74748580135E-05	Resid phase (deg)	-88.1	+/-	19.6

ph/seg (deg) 32.4 34.0  
amp/seg (%) 38.3 59.3  
ph/frq (deg) 34.1 39.3  
amp/frq (%) 54.0 68.5

RMS Theor. Amplitude 0.133 +/- 0.023  
Search (2048X64) 0.103  
Interp. 0.000  
Inc. seg. avg. 0.129  
Inc. frq. avg. 0.122

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(MISamp/s): 64  
Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite

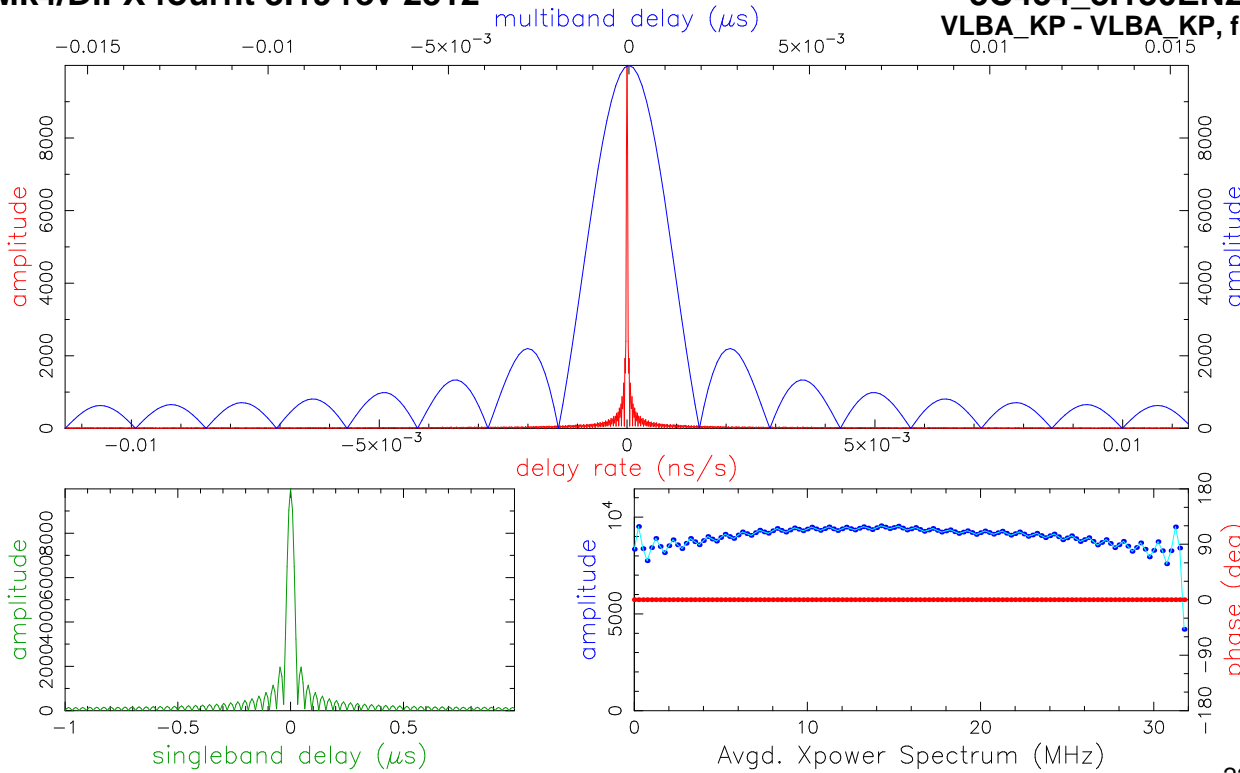
sb window (us) -1.000 1.000  
mb window (us) -0.016 0.016  
dr window (ns/s) -0.011 0.011  
ion window (TEC) 0.00 0.00

k: az 89.3 el 30.8 pa -62.0 i: az 254.5 el 45.4 pa 53.0 u,v (fr/asec) -11754.602 -154.213 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/ki..130EN2 Output file: /Exps/c192b/v2/1234/No0141/ki.W.227.130EN2

Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, kk  
VLBA\_KP - VLBA\_KP, fgroup W, pol LL

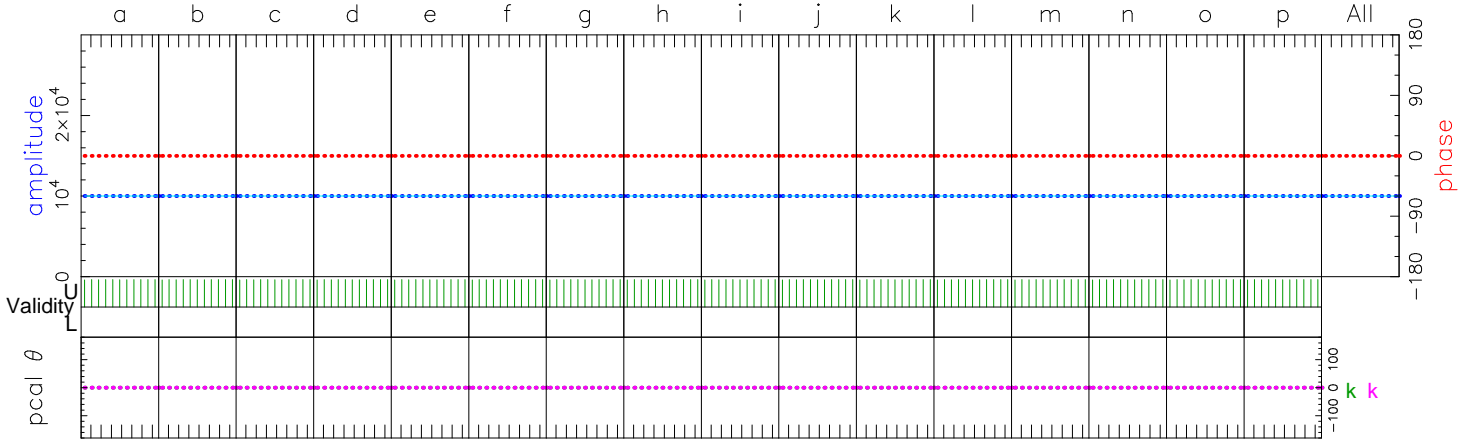


Fringe quality 9

SNR 557121.9  
Int time 415.056  
Amp 9999.986  
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. c192b  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100818  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All	
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
k:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL			
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL			

Group delay (usec)(sbd)	0.0000000000E+00	Apriori delay (usec)	0.0000000000E+00	Resid mbdelay (usec)	0.00000E+00	+/-	1.9E-09
Sband delay (usec)	0.0000000000E+00	Apriori clock (usec)	0.0000000E+00	Resid sbdelay (usec)	0.00000E+00	+/-	3.1E-08
Phase delay (usec)	5.24657138680E-21	Apriori clockrate (us/s)	0.0000000E+00	Resid phdelay (usec)	5.24657E-21	+/-	6.6E-12
Delay rate (us/s)	0.0000000000E+00	Apriori rate (us/s)	0.0000000000E+00	Resid rate (us/s)	0.00000E+00	+/-	2.8E-14
Total phase (deg)	0.0	Apriori accel (us/s/s)	0.0000000000E+00	Resid phase (deg)	0.0	+/-	0.0

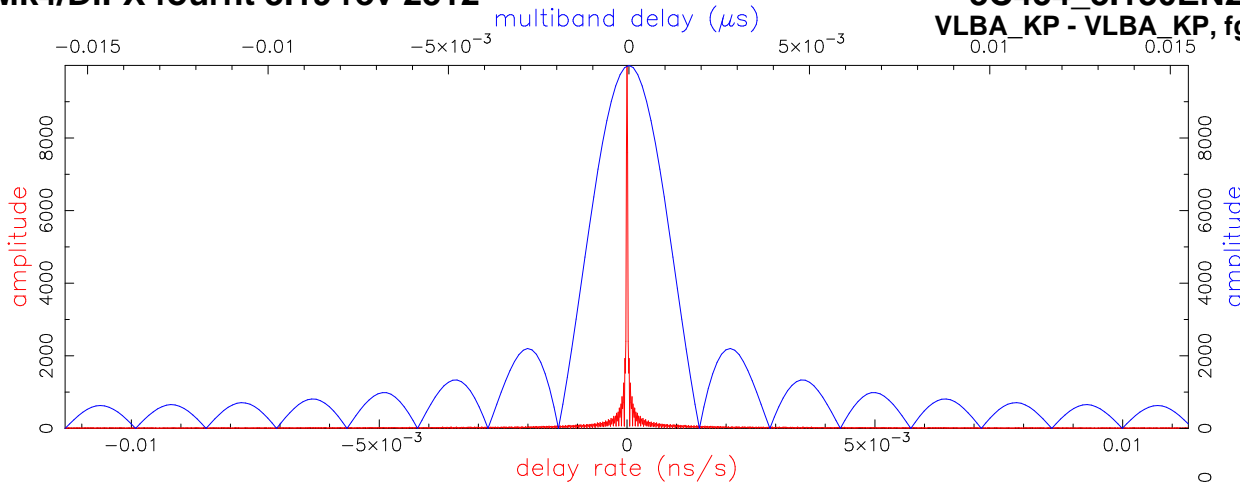
ph/seg (deg)	0.0	RMS	Theor.	Amplitude	9999.986 +/- 0.018	Pcal mode:	MANUAL, MANUAL	PC period (AP's)	5, 5	
amp/seg (%)	0.0	0.0	0.0	Search (2048X64)	9999.987	Pcal rate:	0.000E+00, 0.000E+00 (us/s)	sb window (us)	-1.000 1.000	
ph/frq (deg)	0.0	0.0	0.0	Interp.	0.000	Bits/sample:	2x2	SampCntNorm: enabled	mb window (us)	-0.016 0.016
amp/frq (%)	0.0	0.0	0.0	Inc. seg. avg.	10000.000	Sample rate (MSamp/s):	64	dr window (ns/s)	-0.011 0.011	
				Inc. frq. avg.	9999.986	Data rate (Mb/s):	2048	ion window (TEC)	0.00 0.00	

k: az 89.3 el 30.8 pa -62.0      k: az 89.3 el 30.8 pa -62.0      u,v (fr/asec) 0.000 0.000      simultaneous interpolator

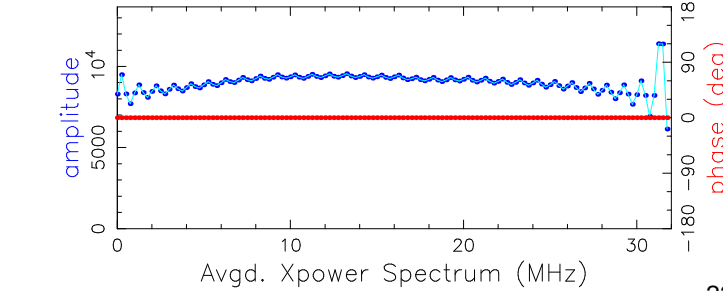
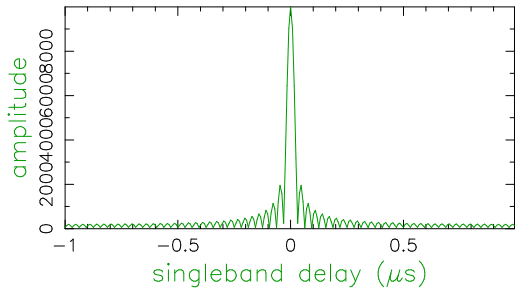
Control file: cf\_1234\_gmva    Input file: /Exps/c192b/v2/1234/No0141/kk..130EN2    Output file: /Exps/c192b/v2/1234/No0141/kk.W.171.130EN2

Mk4/DiFX fourfit 3.19 rev 2512

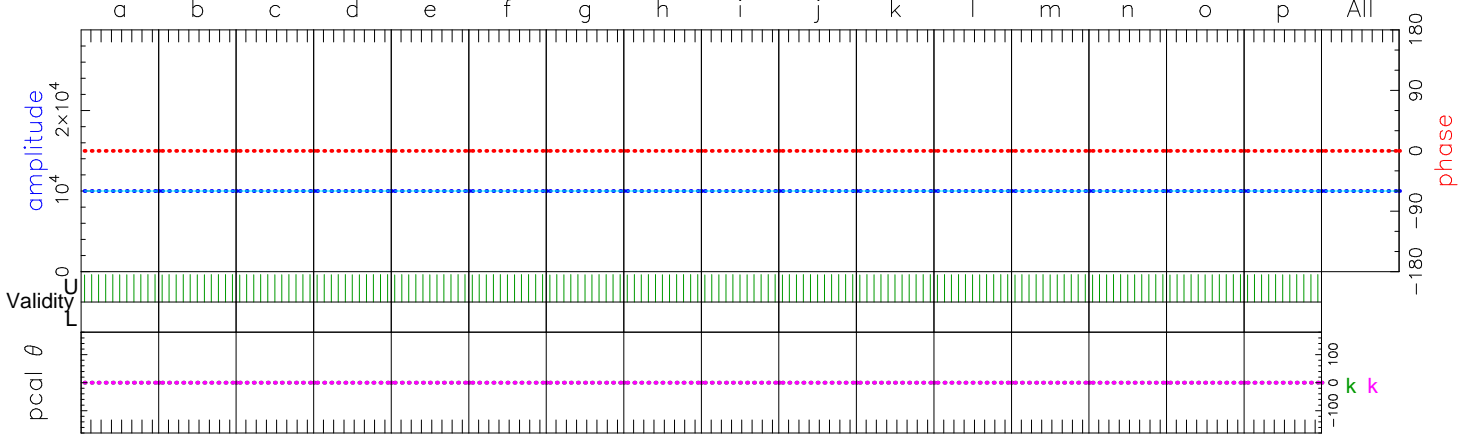
3C454\_3.130EN2, No0141, kk  
VLBA\_KP - VLBA\_KP, fgroup W, pol RR



Fringe quality 9  
SNR 557122.2  
Int time 415.055  
Amp 9999.996  
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. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100823  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"



Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec

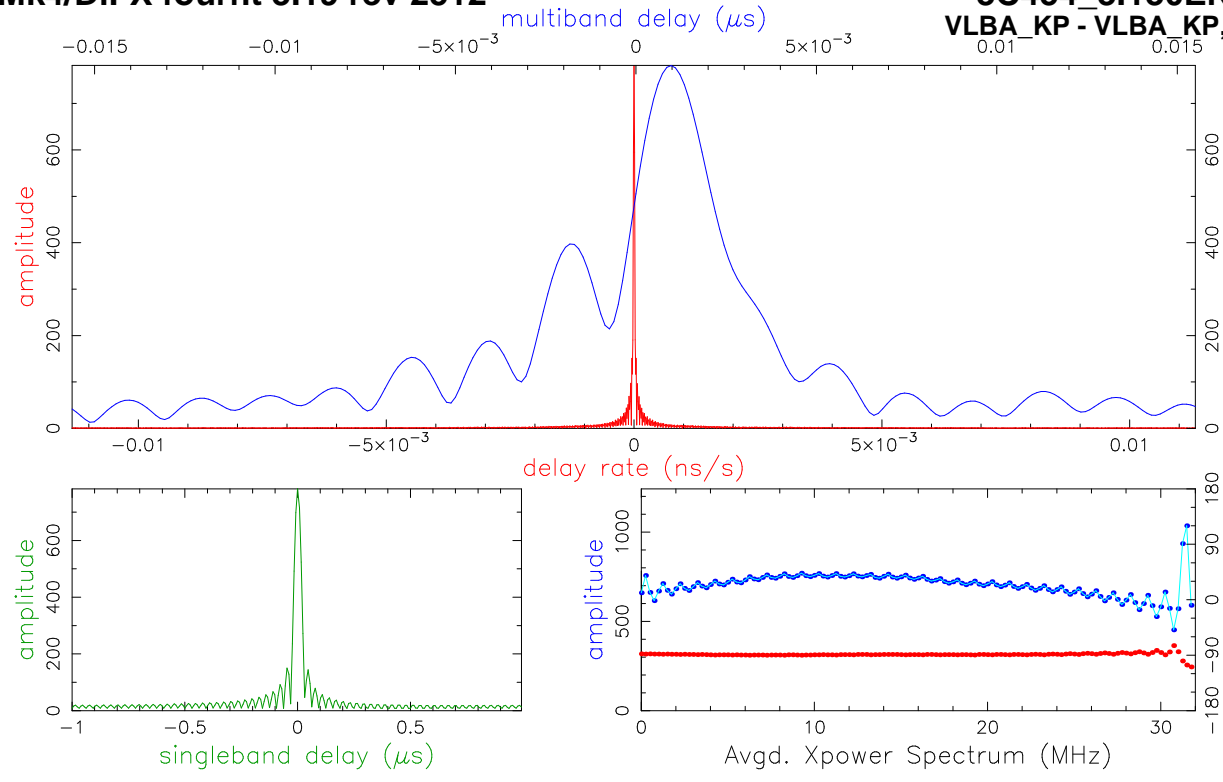


86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All	
0.0	-0.0	0.0	0.0	0.0	-0.0	0.0	-0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.0	-0.0	Phase	0.0	
10000.0	10000.0	10000.0	10000.0	10000.0	10000.0	10000.0	10000.0	10000.0	10000.0	10000.0	10000.0	10000.0	10000.0	10000.0	10000.0	Ampl.	10000.0	
129.0	129.0	129.0	129.0	129.0	129.0	129.0	129.0	129.0	129.0	129.0	129.0	129.0	129.0	129.0	129.0	Sbd box	129.0	
U/L 815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	APs used		
k 1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs		
k 1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC phase		
k:k 0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC		
k:k 0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC amp		
k 1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	Chan ids		
k 1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	Tracks		
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Chan ids	
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Tracks	
Group delay (usec)(sbd)	0.0000000000E+00			Apriori delay (usec)			0.0000000000E+00			Resid mbdelay (usec)			0.00000E+00			+/-	1.9E-09	
Sband delay (usec)	0.0000000000E+00			Apriori clock (usec)			0.0000000E+00			Resid sbdelay (usec)			0.00000E+00			+/-	3.1E-08	
Phase delay (usec)	5.70638922986E-20			Apriori clockrate (us/s)			0.0000000E+00			Resid phdelay (usec)			5.70639E-20			+/-	6.6E-12	
Delay rate (us/s)	0.0000000000E+00			Apriori rate (us/s)			0.0000000000E+00			Resid rate (us/s)			0.00000E+00			+/-	2.8E-14	
Total phase (deg)	0.0			Apriori accel (us/s/s)			0.0000000000E+00			Resid phase (deg)			0.0			+/-	0.0	

ph/seg (deg) 0.0 0.0 Theor. Amplitude 9999.996 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
amp/seg (%) 0.0 0.0 Search (2048X64) 9999.996 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
ph/frq (deg) 0.0 0.0 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
amp/frq (%) 0.0 0.0 Inc. seg. avg. 10000.000 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011  
k: az 89.3 el 30.8 pa -62.0 k: az 89.3 el 30.8 pa -62.0 u,v (fr/asec) 0.000 0.000 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00  
Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kk..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kk.W.188.130EN2 simultaneous interpolator

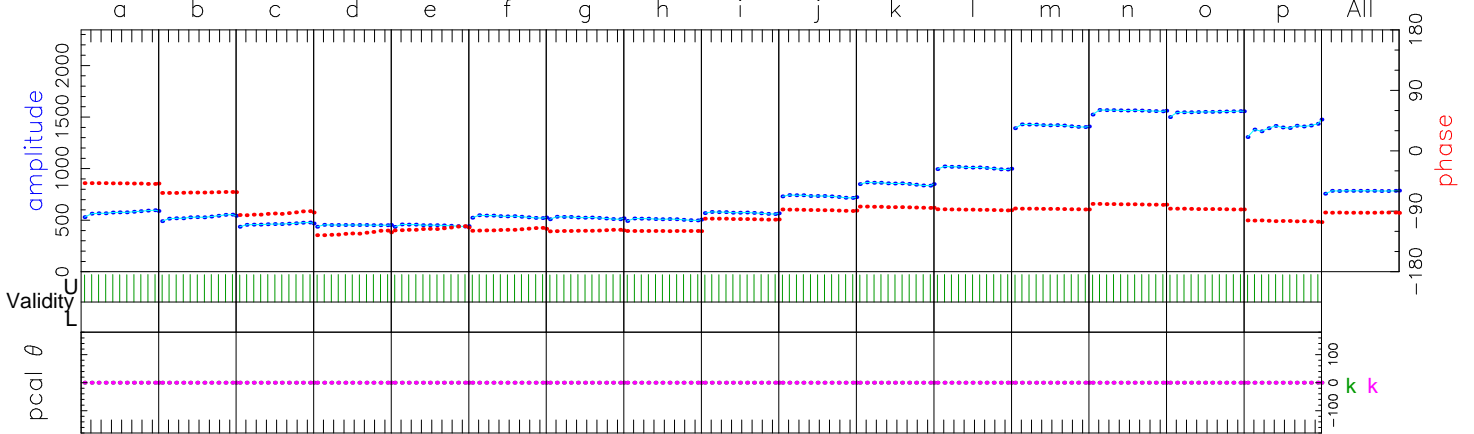
Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, kk  
VLBA\_KP - VLBA\_KP, fgroup W, pol LR



Fringe quality 6  
SNR 43573.5  
Int time 415.056  
Amp 782.117  
Phase -92.0  
PFD 0.0e+00  
Delays (us)  
SBD 0.000473  
MBD 0.000971  
Fringe rate (Hz) 0.000003  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512  
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build 2020:079:134246  
2020:086:100828  
2020:014:135814  
RA & Dec (J2000) 22h53m57.747940s +16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



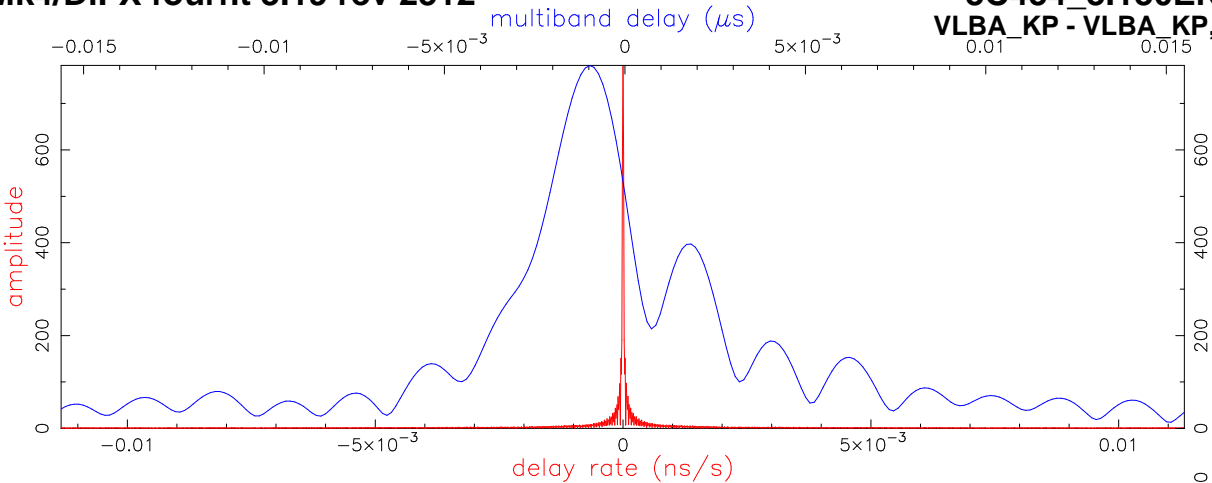
	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
	-48.6	-62.1	-93.3	-122.9	-115.9	-117.3	-118.9	-119.3	-101.6	-88.3	-83.9	-87.7	-86.6	-79.6	-86.6	-104.4		Phase -92.0
	573.8	528.3	462.1	450.9	448.8	534.5	522.3	507.4	571.2	731.9	852.7	1006.9	1416.3	1559.8	1546.3	1393.1		Ampl. 819.1
	129.0	128.9	128.7	128.9	129.1	129.1	129.2	129.2	129.3	129.2	129.1	129.0	129.2	129.2	128.9	128.6		Sbd box 129.1
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0		APs used
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC freqs
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC freqs
k:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		PC phase
k:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		ManI PC
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC amp
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC amp
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Chan ids
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Tracks
																		Chan ids
																		Tracks
Group delay (usec)(sbd)	9.708125000000E-04			Apriori delay (usec)			0.000000000000E+00			Resid mbdelay (usec)			9.70813E-04			+/- 2.5E-08		
Sband delay (usec)	4.730000000000E-04			Apriori clock (usec)			0.0000000E+00			Resid sbdelay (usec)			4.73000E-04			+/- 4.0E-07		
Phase delay (usec)	-2.96700359803E-06			Apriori clockrate (us/s)			0.0000000E+00			Resid phdelay (usec)			-2.96700E-06			+/- 8.5E-11		
Delay rate (us/s)	2.90508624030E-11			Apriori rate (us/s)			0.000000000000E+00			Resid rate (us/s)			2.90509E-11			+/- 3.5E-13		
Total phase (deg)				-92.0			Apriori accel (us/s/s)			0.000000000000E+00			Resid phase (deg)			-92.0 +/- 0.0		

ph/seg (deg) 0.1 0.0 Theor. Amplitude 782.117 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
amp/seg (%) 1.0 0.0 Search (2048X64) 781.809 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
ph/frq (deg) 22.3 0.0 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
amp/frq (%) 52.5 0.0 Inc. seg. avg. 781.836 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011  
k: az 89.3 el 30.8 pa -62.0 k: az 89.3 el 30.8 pa -62.0 u,v (fr/asec) 0.000 0.000 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00  
Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kk..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kk.W.205.130EN2 simultaneous interpolator



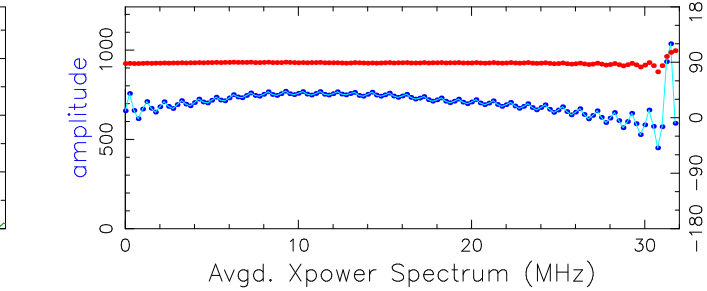
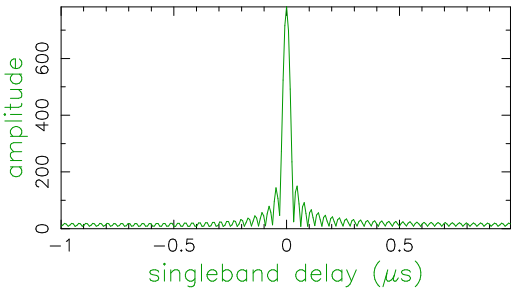
Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, kk  
VLBA\_KP - VLBA\_KP, fgroup W, pol RL



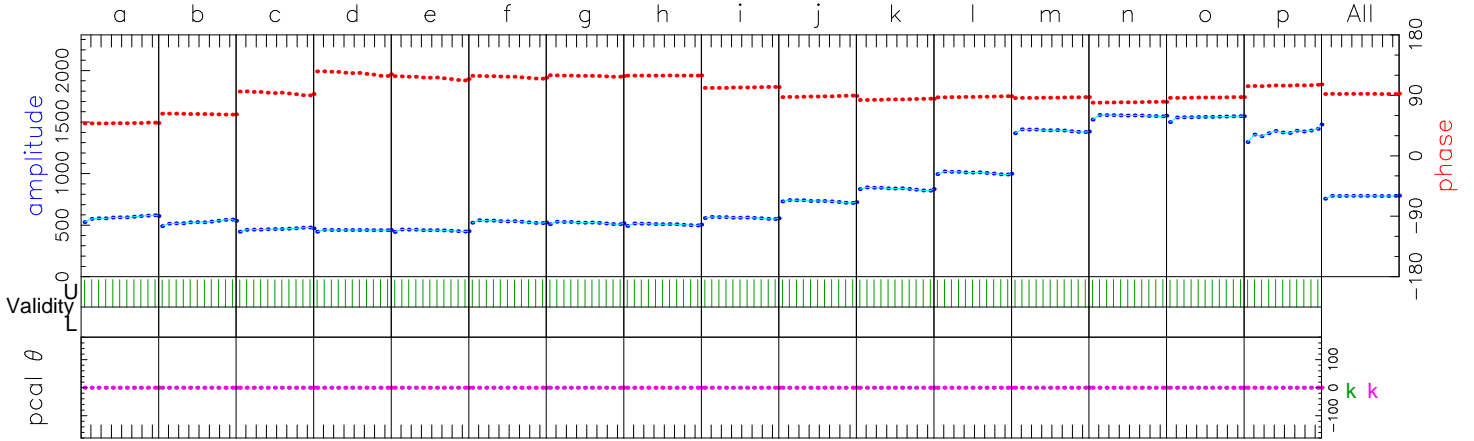
Fringe quality 6

SNR 43573.5  
Int time 415.055  
Amp 782.117  
Phase 92.0  
PFD 0.0e+00  
Delays (us)  
SBD -0.000473  
MBD -0.000971  
Fringe rate (Hz)  
-0.000003  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512



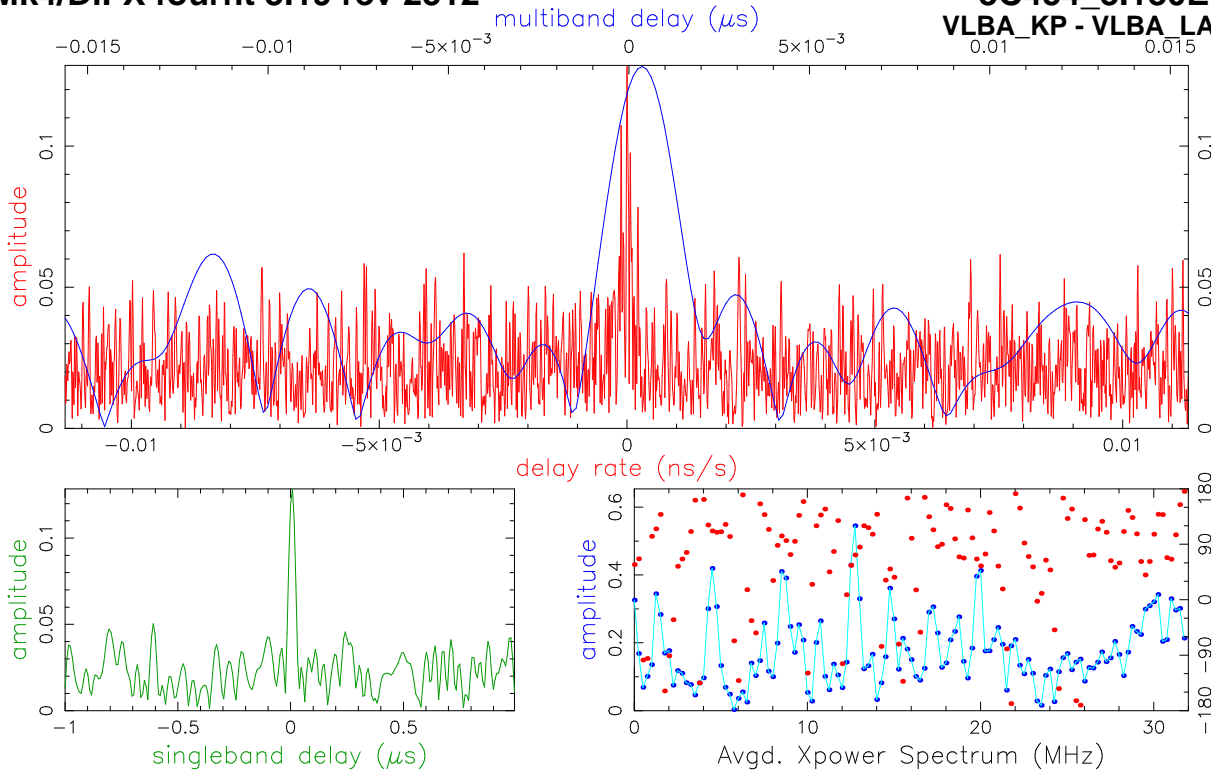
Exp. c192b  
Yr:day 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100832  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
k:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
k:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Chan ids
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Tracks
Group delay (usec)(sbd)	-9.70812500000E-04			Apriori delay (usec)			0.00000000000E+00			Resid mbdelay (usec)			-9.70813E-04			+/- 2.5E-08		
Sband delay (usec)	-4.73000000000E-04			Apriori clock (usec)			0.0000000E+00			Resid sbdelay (usec)			-4.73000E-04			+/- 4.0E-07		
Phase delay (usec)	2.96700359804E-06			Apriori clockrate (us/s)			0.0000000E+00			Resid phdelay (usec)			2.96700E-06			+/- 8.5E-11		
Delay rate (us/s)	-2.90508624030E-11			Apriori rate (us/s)			0.00000000000E+00			Resid rate (us/s)			-2.90509E-11			+/- 3.5E-13		
Total phase (deg)	92.0			Apriori accel (us/s/s)			0.00000000000E+00			Resid phase (deg)			92.0			+/- 0.0		

ph/seg (deg) 0.1 0.0 Theor. Amplitude 782.117 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 1.0 0.0 Search (2048X64) 781.810 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 22.3 0.0 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 amp/frq (%) 52.5 0.0 Inc. seg. avg. 781.835 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011  
 k: az 89.3 el 30.8 pa -62.0 k: az 89.3 el 30.8 pa -62.0 u,v (fr/asec) 0.000 0.000 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kk..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kk.W.221.130EN2 simultaneous interpolator

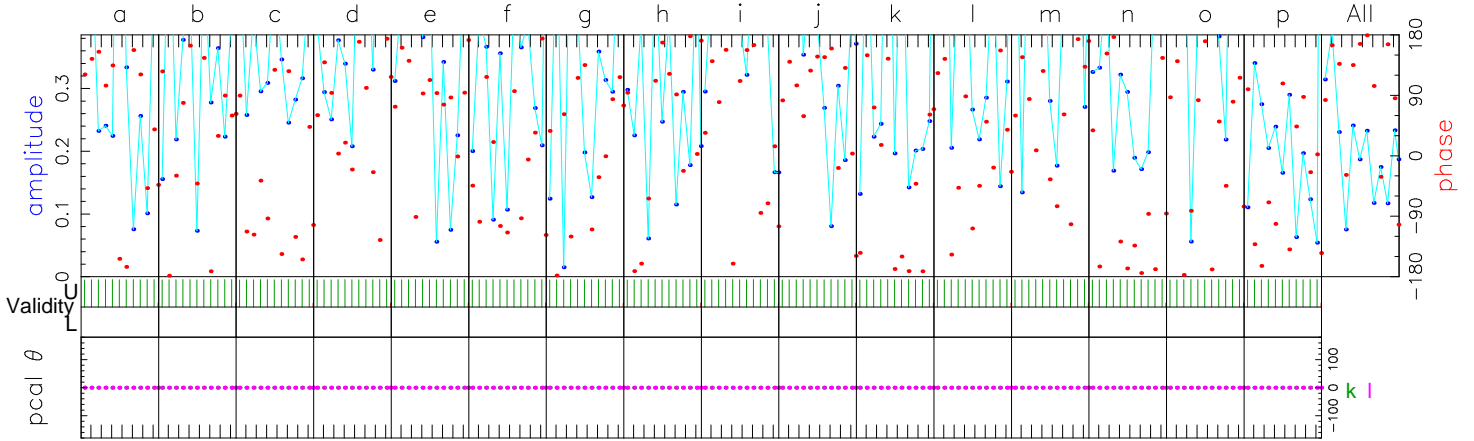


Fringe quality 0

SNR 7.1  
Int time 413.591  
Amp 0.129  
Phase 134.7  
PFD 2.7e-04  
Delays (us)  
SBD 0.006407  
MBD 0.000353  
Fringe rate (Hz) 0.000161  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011503.58  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build 2020:079:134246  
2020:086:100818  
2020:014:135814  
RA & Dec (J2000) 22h53m57.747940s +16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 73 APs / seg (37.38 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All				
	150.8	121.6	-157.4	127.7	110.8	-70.4	141.4	123.6	151.4	103.7	156.4	87.3	100.0	-177.3	121.9	-138.7	Phase	134.7				
	0.2	0.2	0.1	0.1	0.2	0.0	0.1	0.1	0.2	0.3	0.2	0.1	0.2	0.2	0.3	0.1	Ampl.	0.1				
	65.3	163.3	114.4	145.9	191.9	178.8	35.0	8.7	4.5	130.7	120.2	28.0	127.0	130.2	130.4	193.9	Sbd box	129.8				
UL	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	APs used					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
l	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
k:l	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase					
k:l	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
l	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Chan ids					
l	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Tracks					
																	Chan ids					
																	Tracks					
Group delay (usec)(sbd)			-1.31696345319E+03														Apriori delay (usec)	-1.31696380569E+03	Resid mbdelay (usec)	3.52500E-04	+/-	1.5E-04
Sband delay (usec)			-1.31695739919E+03														Apriori clock (usec)	3.5570174E-01	Resid sbdelay (usec)	6.40650E-03	+/-	2.4E-03
Phase delay (usec)			-1.31696380135E+03														Apriori clockrate (us/s)	1.5689301E-07	Resid phdelay (usec)	4.34465E-06	+/-	5.2E-07
Delay rate (us/s)			1.06122029584E-01														Apriori rate (us/s)	1.06122027712E-01	Resid rate (us/s)	1.87201E-09	+/-	2.2E-09
Total phase (deg)				54.8													Apriori accel (us/s/s)	5.25811342157E-06	Resid phase (deg)	134.7	+/-	16.0

ph/seg (deg) 77.7 27.8  
amp/seg (%) 92.4 48.5  
ph/frq (deg) 56.6 32.1  
amp/frq (%) 59.4 55.9

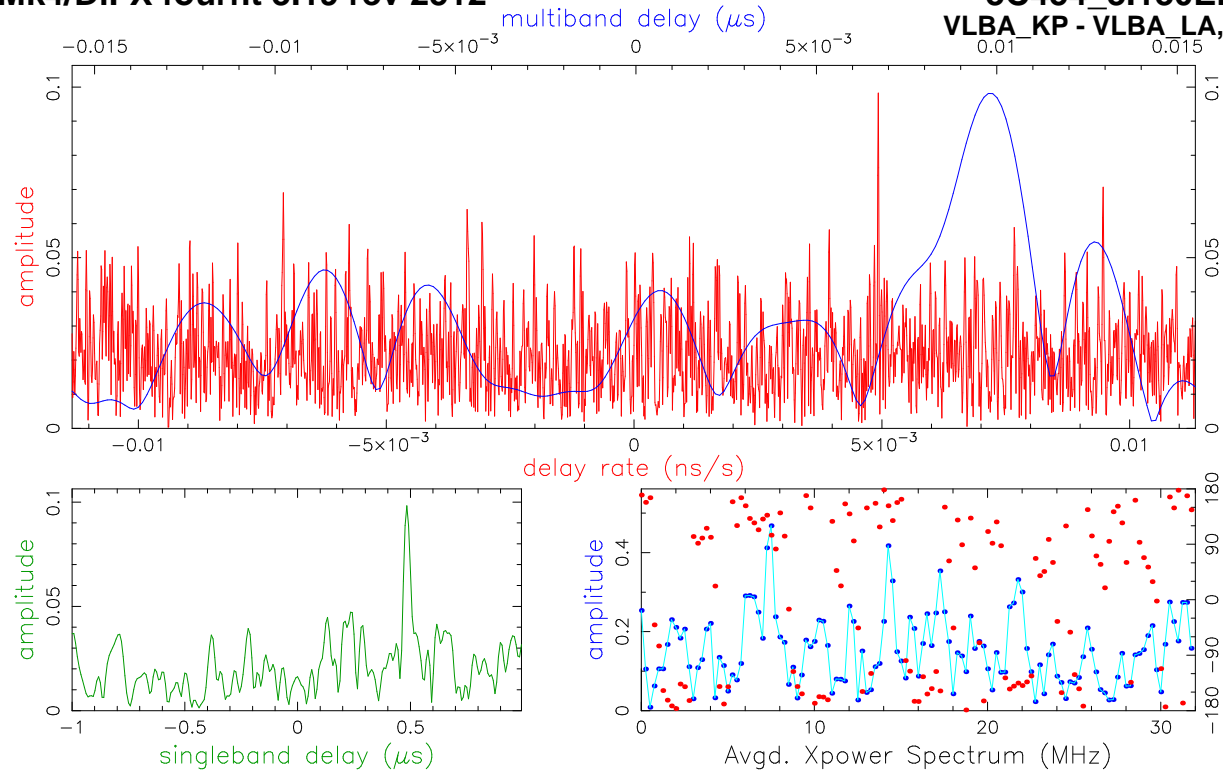
RMS Theor. Amplitude 0.129 +/- 0.018  
Search (2048X64) 0.126  
Interp. 0.000  
Inc. seg. avg. 0.188  
Inc. frq. avg. 0.135

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(MISamp/s): 64  
Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite

sb window (us) -1.000 1.000  
mb window (us) -0.016 0.016  
dr window (ns/s) -0.011 0.011  
ion window (TEC) 0.00 0.00

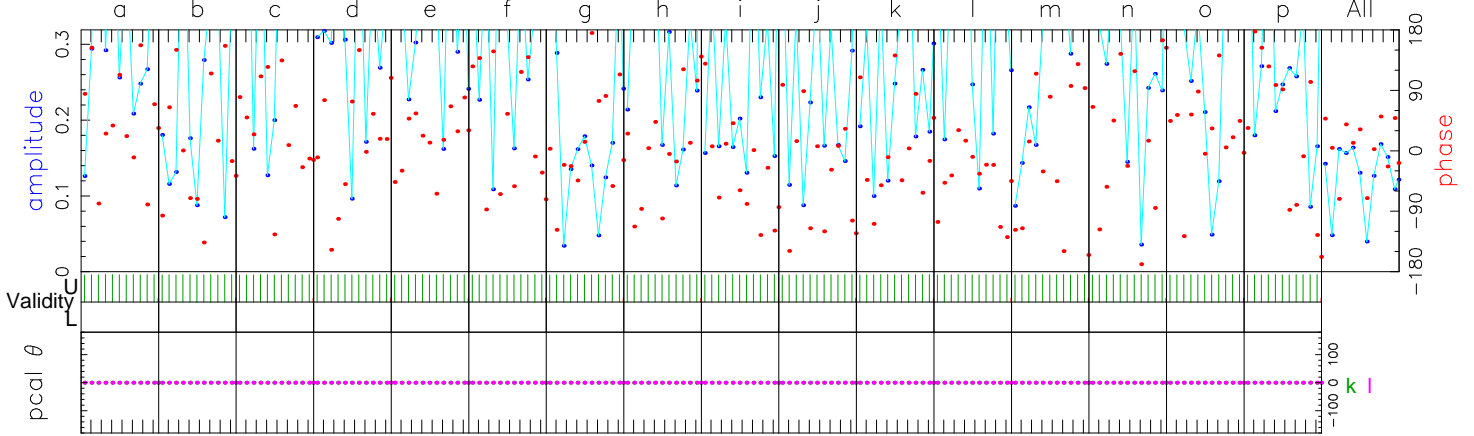
k: az 89.3 el 30.8 pa -62.0 l: az 94.9 el 35.2 pa -57.2 u,v (fr/asec) -624.696 -346.257 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kl..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kl.W.167.130EN2



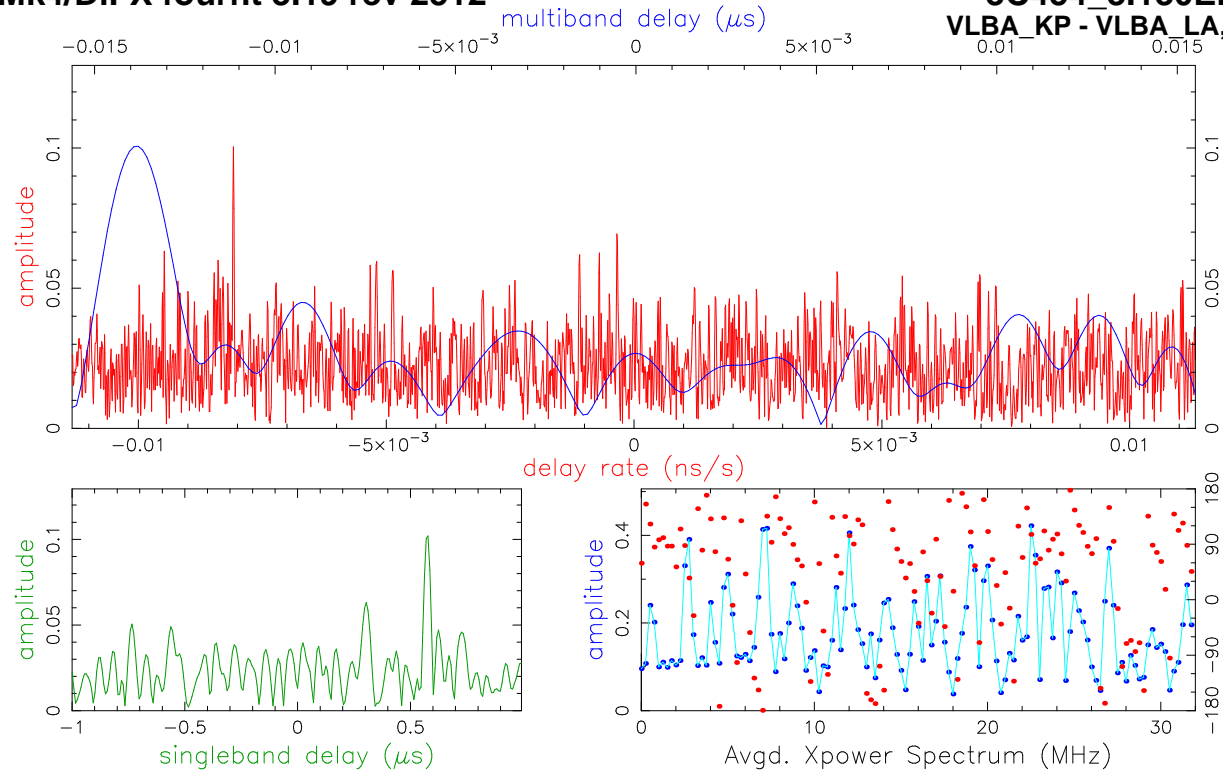
Fringe quality 0  
SNR 5.5  
Int time 413.591  
Amp 0.106  
Phase 14.4  
PFD 1.0e+00  
Delays (us)  
SBD 0.484219  
MBD 0.009820  
Fringe rate (Hz)  
0.425454  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512  
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011503.58  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100822  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 73 APs / seg (37.38 sec / seg.), time ticks 60 sec



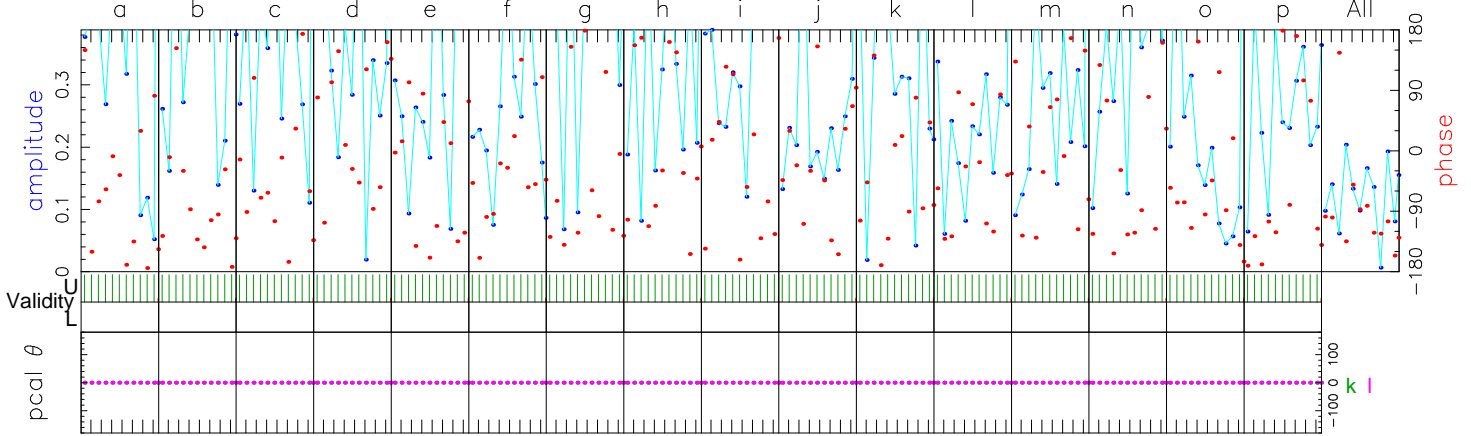
	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
U/L	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
l	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
k:l	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
k:l	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
l	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		
l	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		
Group delay (usec)(sbd)			-1.31648523525E+03															
Sband delay (usec)			-1.31647958669E+03															
Phase delay (usec)			-1.31696380522E+03															
Delay rate (us/s)			1.06126966809E-01															
Total phase (deg)					-65.5													
Apriori delay (usec)																		
Apriori clock (usec)																		
Apriori clockrate (us/s)																		
Apriori rate (us/s)																		
Apriori accel (us/s/s)																		
Resid mbdelay (usec)																		
Resid sbdelay (usec)																		
Resid phdelay (usec)																		
Resid rate (us/s)																		
Resid phase (deg)																		
Pcal mode: MANUAL, MANUAL																		
Pcal rate: 0.000E+00, 0.000E+00 (us/s)																		
Bits/sample: 2x2																		
Sample rate(MISamp/s): 64																		
Data rate(Mb/s): 2048																		
nlags: 128																		
t_cohere infinite																		
sb window (us)																	-1.000	1.000
mb window (us)																	-0.016	0.016
dr window (ns/s)																	-0.011	0.011
ion window (TEC)																	0.00	0.00

ph/seg (deg) 43.4 36.3  
amp/seg (%) 52.3 63.4  
ph/frq (deg) 45.7 41.9  
amp/frq (%) 76.6 73.2  
RMS Theor. Amplitude 0.106 +/- 0.019  
Search (2048X64) 0.097  
Interp. 0.000  
Inc. seg. avg. 0.115  
Inc. frq. avg. 0.107  
Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
Sb window (us) -1.000 1.000  
Mb window (us) -0.016 0.016  
Dr window (ns/s) -0.011 0.011  
Ion window (TEC) 0.00 0.00  
k: az 89.3 el 30.8 pa -62.0 l: az 94.9 el 35.2 pa -57.2 u,v (fr/asec) -624.696 -346.257 simultaneous interpolator  
Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kl..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kl.W.182.130EN2



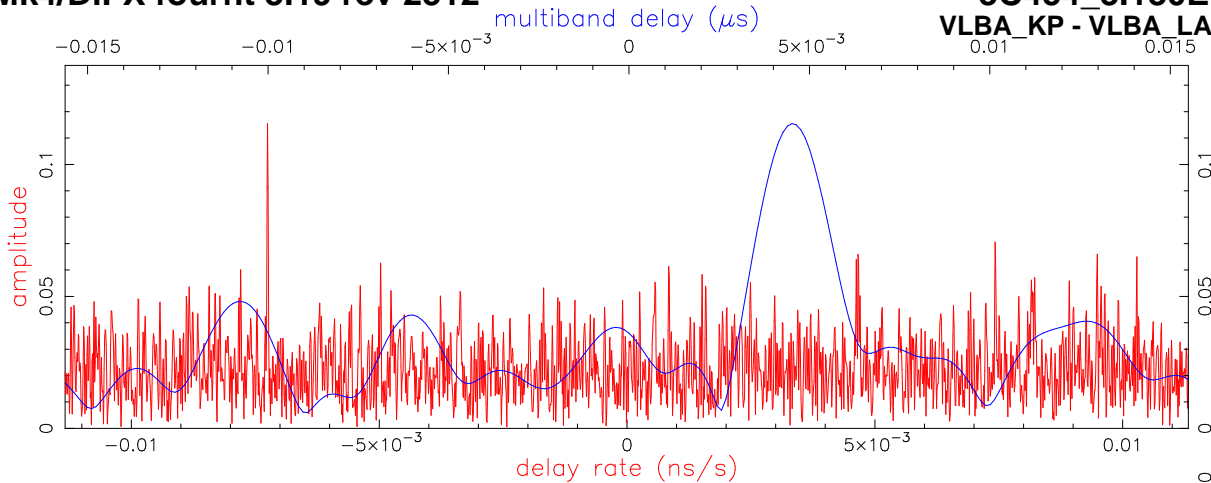
Fringe quality 0  
SNR 5.8  
Int time 413.591  
Amp 0.129  
Phase -107.2  
PFD 8.4e-01  
Delays (us)  
SBD 0.574760  
MBD -0.013766  
Fringe rate (Hz)  
-0.696940  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512  
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011503.58  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100827  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747900s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 73 APs / seg (37.38 sec / seg.), time ticks 60 sec



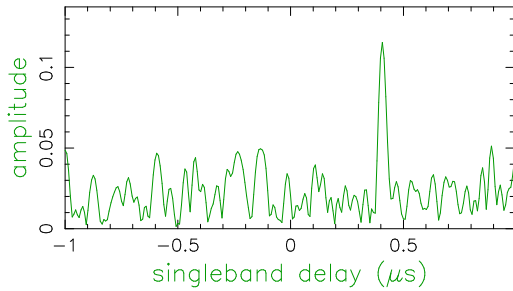
	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All				
	-109.2	-131.1	-85.5	-39.2	-113.4	-39.9	-128.6	-143.0	-109.4	-50.6	-112.6	-48.0	-81.4	-136.7	-90.7	-154.5	Phase	-107.2				
	0.2	0.3	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.0	0.1	0.2	0.2	Ampl.	0.1				
	222.0	201.0	17.5	11.4	103.1	33.9	114.8	250.4	153.1	180.4	20.4	139.0	167.3	7.8	85.7	143.5	Sbd box	202.6				
U/L	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	APs used					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
l	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
k:l	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase					
k:l	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
l	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Chan ids					
l	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Tracks					
																	Chan ids					
																	Tracks					
Group delay (usec)(sbd)			-1.31638382203E+03														Apriori delay (usec)	-1.31696380569E+03	Resid mbdelay (usec)	-1.37663E-02	+/-	1.9E-04
Sband delay (usec)			-1.31638904569E+03														Apriori clock (usec)	3.5570174E-01	Resid sbdelay (usec)	5.74760E-01	+/-	3.0E-03
Phase delay (usec)			-1.31696380915E+03														Apriori clockrate (us/s)	1.5689301E-07	Resid phdelay (usec)	-3.45569E-06	+/-	6.4E-07
Delay rate (us/s)			1.06113936932E-01														Apriori rate (us/s)	1.06122027712E-01	Resid rate (us/s)	-8.09078E-06	+/-	2.7E-09
Total phase (deg)					-187.1												Apriori accel (us/s/s)	5.25811342157E-06	Resid phase (deg)	-107.2	+/-	19.8

ph/seg (deg) 41.8 34.3 Search (2048X64) 0.099 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 55.6 59.9 Interp. 0.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 40.3 39.6 Inc. seg. avg. 0.127 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 amp/frq (%) 53.8 69.1 Inc. frq. avg. 0.122 Sample rate(MISamp/s): 64 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite dr window (ns/s) -0.011 0.011  
 k: az 89.3 el 30.8 pa -62.0 l: az 94.9 el 35.2 pa -57.2 u,v (fr/asec) -624.696 -346.257 ion window (TEC) 0.00 0.00 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kl..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kl.W.200.130EN2

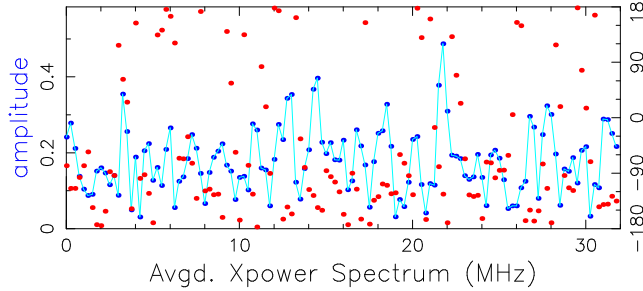


Fringe quality 0

SNR 6.4  
Int time 413.591  
Amp 0.138  
Phase 19.4  
PFD 3.6e-02  
Delays (us)  
SBD 0.406138  
MBD 0.004536  
Fringe rate (Hz)  
-0.625286  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512

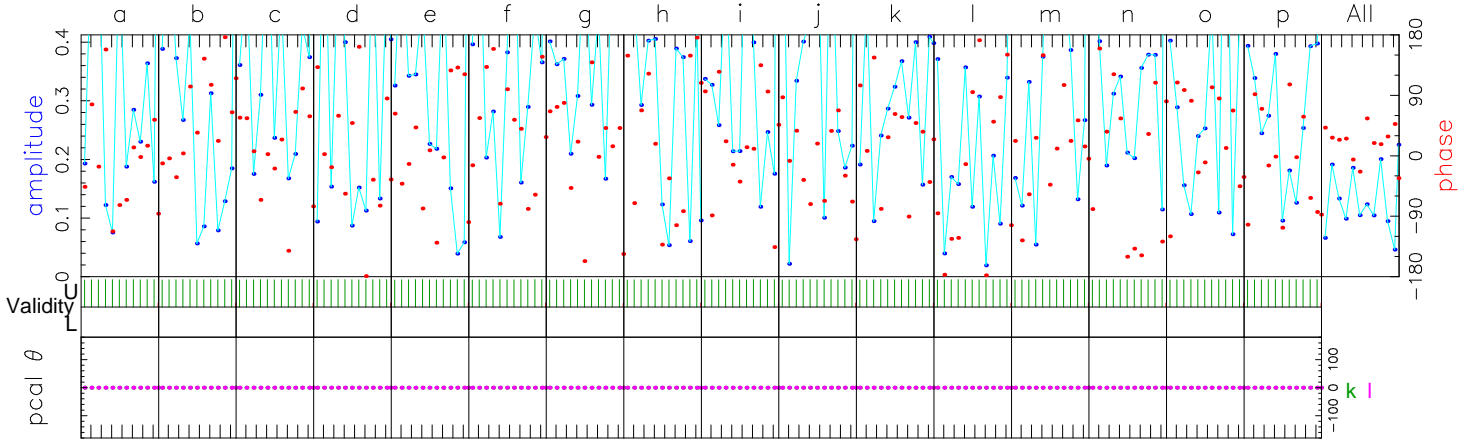


delay rate (ns/s)



Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011503.58  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100831  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 73 APs / seg (37.38 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All	
	-10.1	31.6	31.2	10.1	-15.7	53.8	46.3	-162.1	25.8	14.9	21.0	-146.4	9.9	137.0	18.5	-21.7		Phase	19.4
	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.0	0.2	0.1	0.2	0.1		Ampl.	0.1
	27.7	73.1	182.0	197.0	195.9	199.4	119.3	239.8	101.7	181.9	5.0	207.9	92.0	43.2	87.6	40.8		Sbd box	181.0
U/L	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0	813/0		APs used	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC freqs	
l	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC phase	
k:l	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		ManI PC	
k:l	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		PC amp	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		Chan ids	
l	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		Tracks	
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Chan ids	
l	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Tracks	

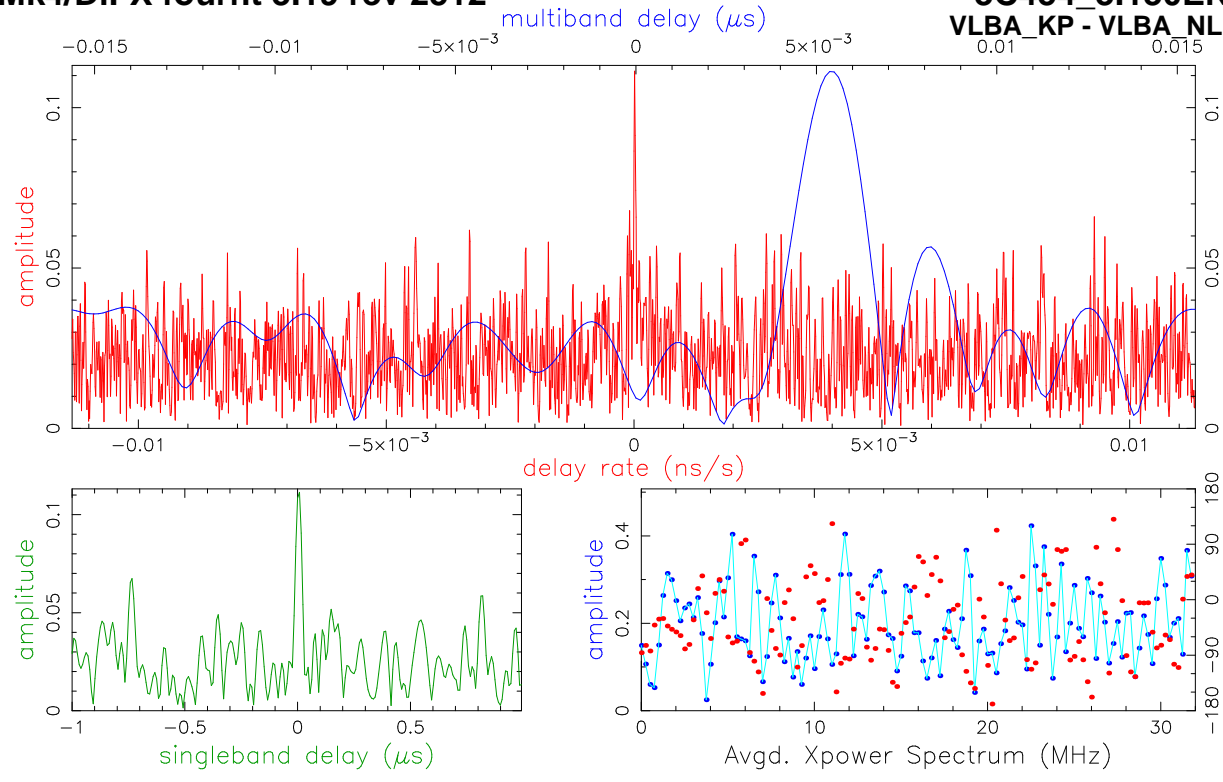
Group delay (usec)(sbd)	-1.31655301988E+03	Apriori delay (usec)	-1.31696380569E+03	Resid mbdelay (usec)	4.53581E-03	+/-	1.7E-04
Sband delay (usec)	-1.31655766769E+03	Apriori clock (usec)	3.5570174E-01	Resid sbdelay (usec)	4.06138E-01	+/-	2.7E-03
Phase delay (usec)	-1.31696380507E+03	Apriori clockrate (us/s)	1.5689301E-07	Resid phdelay (usec)	6.24627E-07	+/-	5.8E-07
Delay rate (us/s)	1.06114768763E-01	Apriori rate (us/s)	1.06122027712E-01	Resid rate (us/s)	-7.25895E-06	+/-	2.4E-09
Total phase (deg)	-60.6	Apriori accel (us/s/s)	5.25811342157E-06	Resid phase (deg)	19.4	+/-	17.8

ph/seg (deg)	RMS	Theor.	Amplitude	0.138 +/- 0.021	Pcal mode: MANUAL, MANUAL	PC period (AP's)	5, 5	
amp/seg (%)	22.5	30.9	Search (2048X64)	0.111	Pcal rate: 0.000E+00, 0.000E+00 (us/s)	sb window (us)	-1.000 1.000	
ph/frq (deg)	43.5	53.9	Interp.	0.000	Bits/sample: 2x2	SampCntNorm: enabled	mb window (us)	-0.016 0.016
amp/frq (%)	75.3	35.7	Inc. seg. avg.	0.129	Sample rate(MISamp/s): 64	dr window (ns/s)	-0.011 0.011	
	50.0	62.3	Inc. frq. avg.	0.142	Data rate(Mb/s): 2048	nlags: 128 t_cohere infinite	ion window (TEC)	0.00 0.00

k: az 89.3 el 30.8 pa -62.0 l: az 94.9 el 35.2 pa -57.2 u,v (fr/asec) -624.696 -346.257 simultaneous interpolator

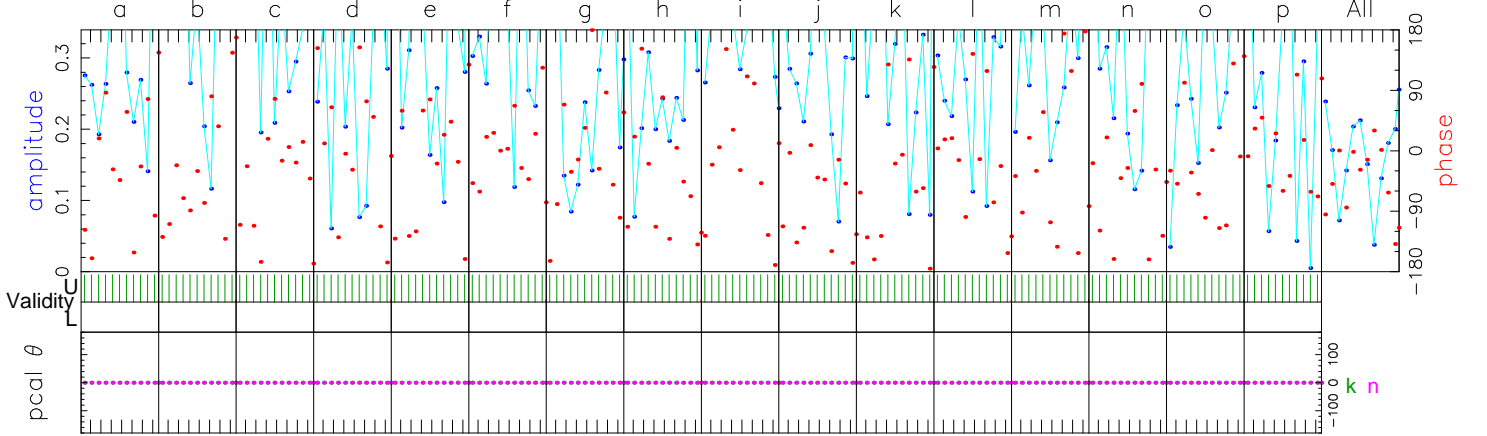
Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kl..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kl.W.217.130EN2





Fringe quality 0  
SNR 6.3  
Int time 410.700  
Amp 0.113  
Phase -49.4  
PFD 9.1e-02  
Delays (us)  
SBD 0.004841  
MBD 0.005401  
Fringe rate (Hz) 0.000697  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512  
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011505.63  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100818  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 73 APs / seg (37.38 sec / seg.), time ticks 60 sec

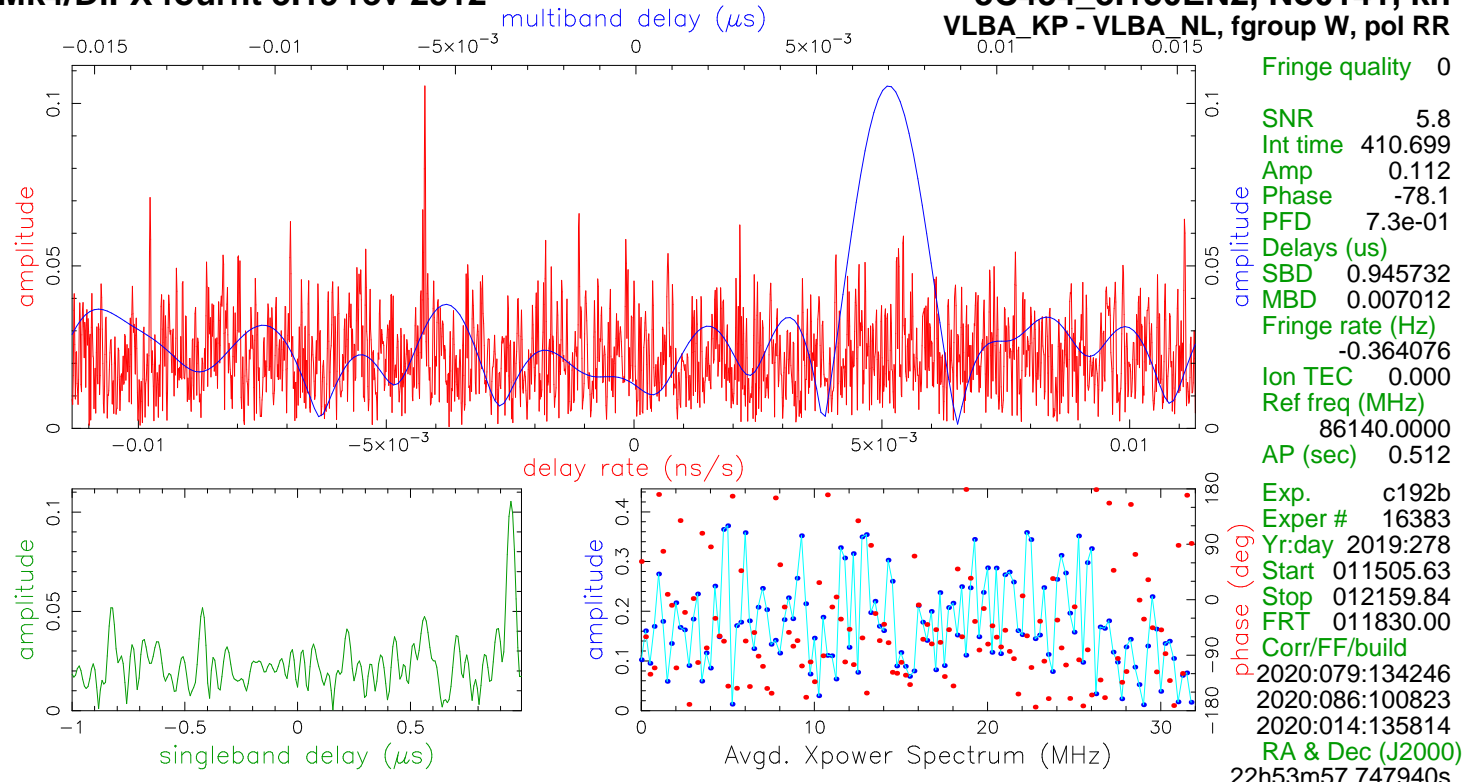


	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
	-54.9	-76.4	-32.6	-53.6	-69.5	-1.8	-76.1	-80.3	-5.5	-71.6	-83.3	-37.2	-144.9	-57.2	-44.3	-13.0	Phase	-49.4
	0.1	0.2	0.2	0.0	0.0	0.3	0.1	0.1	0.0	0.2	0.1	0.1	0.1	0.2	0.1	0.2	Ampl.	0.1
	38.8	222.3	130.0	209.0	246.2	29.2	45.9	217.3	169.2	60.1	18.1	84.2	108.1	92.1	30.2	129.6	Sbd box	129.6
U/L	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	APs used	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
n	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
k:n	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase	
k:n	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
n	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Chan ids	
n	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Tracks	
																	Tracks	
Group delay (usec)(sbd)	-4.06317834982E+03			Apriori delay (usec)			-4.06318375064E+03			Resid mbdelay (usec)			5.40082E-03			+/- 1.7E-04		
Sband delay (usec)	-4.06317890914E+03			Apriori clock (usec)			-2.6913656E+01			Resid sbdelay (usec)			4.84150E-03			+/- 2.7E-03		
Phase delay (usec)	-4.06318375223E+03			Apriori clockrate (us/s)			-3.2880250E-07			Resid phdelay (usec)			-1.59170E-06			+/- 5.9E-07		
Delay rate (us/s)	3.72108391262E-01			Apriori rate (us/s)			3.72108383168E-01			Resid rate (us/s)			8.09385E-09			+/- 2.5E-09		
Total phase (deg)	-150.2			Apriori accel (us/s/s)			1.71456045297E-05			Resid phase (deg)			-49.4			+/- 18.3		

ph/seg (deg) 49.6 31.6 Search (2048X64) 0.113 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
amp/seg (%) 65.5 55.2 Interp. 0.109 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
ph/frq (deg) 37.5 36.5 Inc. seg. avg. 0.138 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
amp/frq (%) 59.0 63.8 Inc. frq. avg. 0.108 Sample rate(MSamp/s): 64 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite dr window (ns/s) -0.011 0.011  
k: az 89.3 el 30.8 pa -62.0 n: az 111.2 el 45.0 pa -46.3 u,v (fr/asec) -2192.291 -756.871 simultaneous interpolator  
Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kn..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kn.W.169.130EN2

Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, kn  
VLBA\_KP - VLBA\_NL, fgroup W, pol RR



Fringe quality 0

SNR 5.8

Int time 410.699

Amp 0.112

Phase -78.1

PFD 7.3e-01

Delays (us)

SBD 0.945732

MBD 0.007012

Fringe rate (Hz)

-0.364076

Ion TEC 0.000

Ref freq (MHz)

86140.0000

AP (sec) 0.512

Exp. c192b

Exper # 16383

Yr:day 2019:278

Start 011505.63

Stop 012159.84

FRT 011830.00

Corr/FF/build

2020:079:134246

2020:086:100823

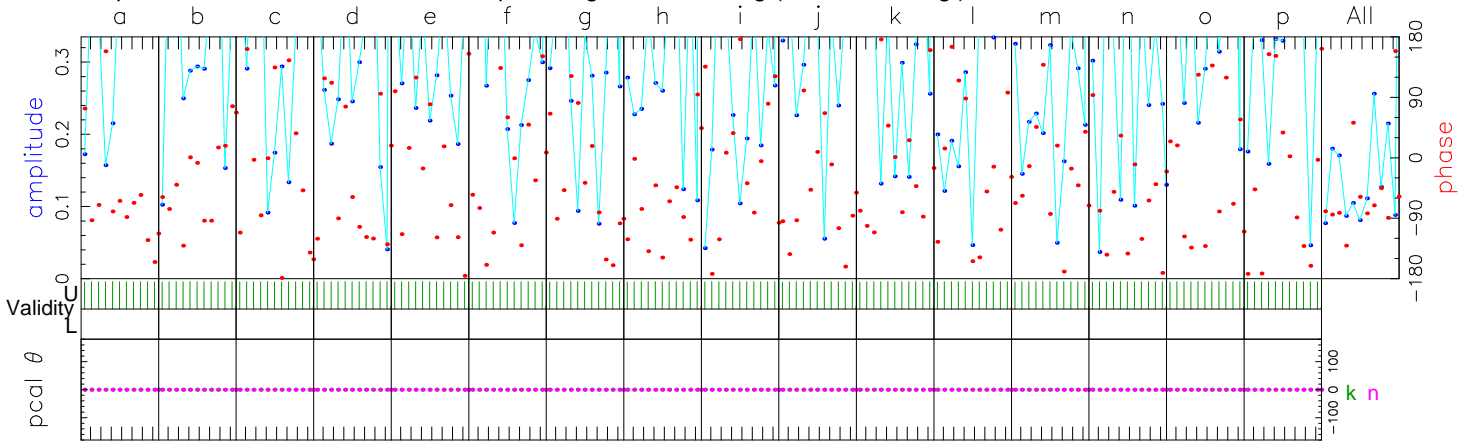
2020:014:135814

RA & Dec (J2000)

22h53m57.747940s

+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 73 APs / seg (37.38 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All				
	-90.2	-32.8	-87.5	-124.8	7.4	-94.8	-83.8	-82.0	-54.6	-78.9	-75.3	-70.6	-36.8	-109.9	-87.0	-79.2	Phase	-78.1				
	0.3	0.2	0.1	0.1	0.0	0.1	0.1	0.2	0.0	0.2	0.2	0.1	0.1	0.1	0.1	0.1	Ampl.	0.1				
	249.9	158.1	117.2	84.5	67.0	66.9	22.5	124.9	182.9	205.4	239.4	158.6	1.4	182.6	3.3	104.3	Sbd box	250.1				
U/L	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	APs used					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
n	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
k:n	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase					
k:n	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
n	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Chan ids					
n	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Tracks					
																	Chan ids					
																	Tracks					
Group delay (usec)(sbd)			-4.06223923831E+03														Apriori delay (usec)	-4.06318375064E+03	Resid mbdelay (usec)	7.01233E-03	+/-	1.8E-04
Sband delay (usec)			-4.06223801814E+03														Apriori clock (usec)	-2.6913656E+01	Resid sbdelay (usec)	9.45732E-01	+/-	2.9E-03
Phase delay (usec)			-4.06318375316E+03														Apriori clockrate (us/s)	-3.2880250E-07	Resid phdelay (usec)	-2.51884E-06	+/-	6.3E-07
Delay rate (us/s)			3.72104156607E-01														Apriori rate (us/s)	3.72108383168E-01	Resid rate (us/s)	-4.22656E-06	+/-	2.6E-09
Total phase (deg)																	Apriori accel (us/s/s)	1.71456045297E-05	Resid phase (deg)	-78.1	+/-	19.6

ph/seg (deg) RMS Theor. Amplitude 0.112 +/- 0.019 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5

amp/seg (%) 57.6 34.0 Search (2048X64) 0.102 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000

ph/frq (deg) 73.9 59.3 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016

amp/frq (%) 33.3 39.2 Inc. seg. avg. 0.126 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011

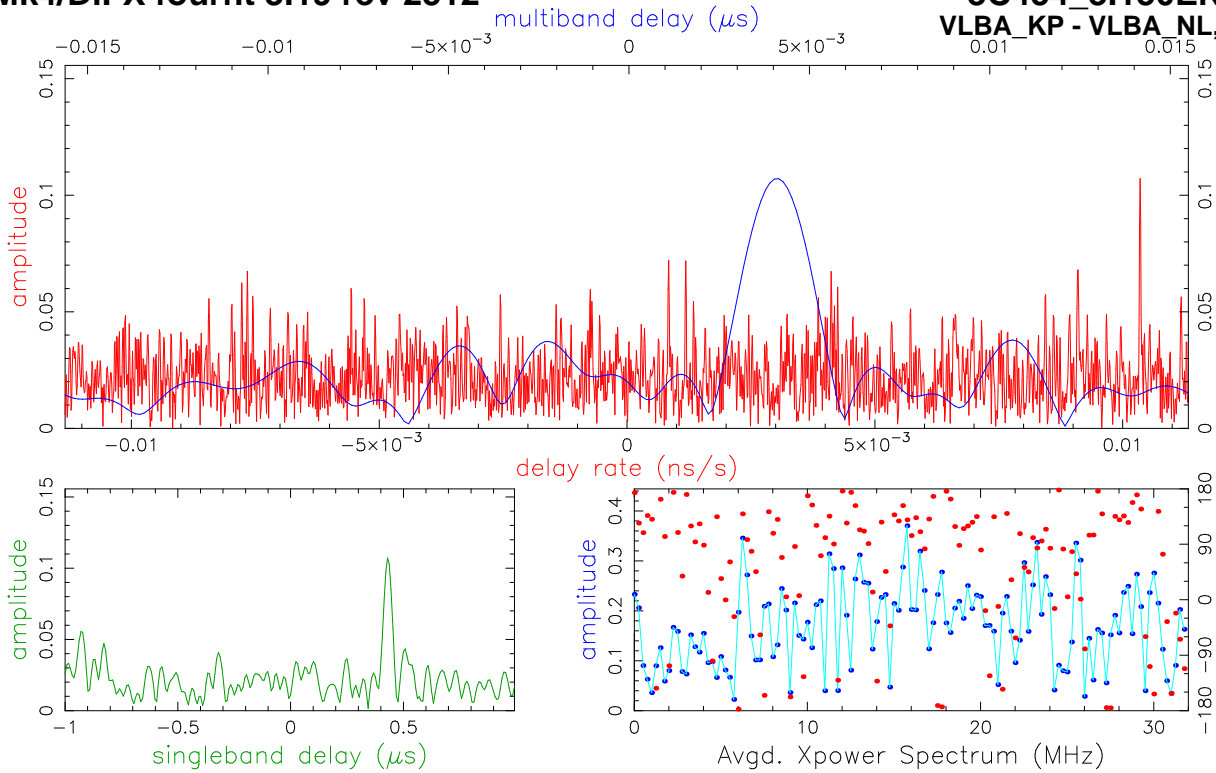
amp/frq (%) 63.6 68.5 Inc. frq. avg. 0.101 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00

k: az 89.3 el 30.8 pa -62.0 n: az 111.2 el 45.0 pa -46.3 u,v (fr/asec) -2192.291 -756.871 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kn..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kn.W.186.130EN2

Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, kn  
VLBA\_KP - VLBA\_NL, fgroup W, pol LR

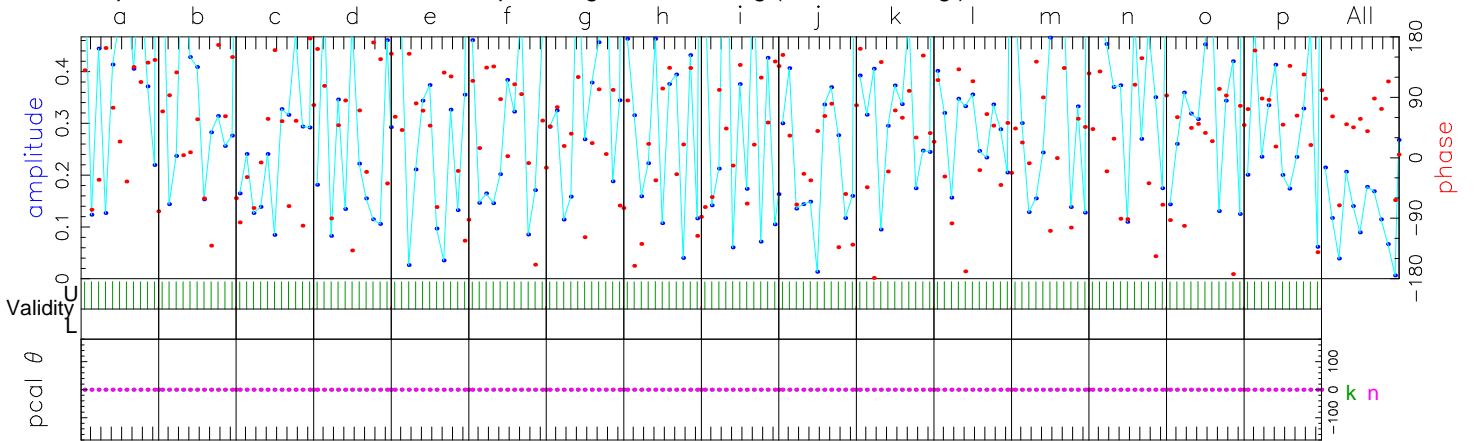


Fringe quality 0

SNR 6.0  
Int time 410.700  
Amp 0.156  
Phase 63.4  
PFD 4.9e-01  
Delays (us)  
SBD 0.431275  
MBD 0.004136  
Fringe rate (Hz) 0.892621  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011505.63  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build 2020:079:134246  
2020:086:100828  
2020:014:135814  
RA & Dec (J2000) 22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 73 APs / seg (37.38 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All				
91.8	57.6	-4.2	101.4	61.6	83.9	51.5	89.2	33.3	46.3	85.4	67.9	53.6	28.7	53.3	80.0	80.0	Phase	63.4				
0.2	0.2	0.1	0.1	0.2	0.3	0.2	0.0	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.3	0.3	Ampl.	0.1				
142.3	22.1	82.0	248.8	1.9	193.3	7.9	24.2	185.9	98.8	28.3	118.9	172.4	19.3	52.6	159.7	159.7	Sbd box	184.2				
U/L	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	APs used					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
n	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
k:n	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase					
k:n	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
n	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Chan ids					
n	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Tracks					
																	Tracks					
Group delay (usec)(sbd)			-4.06274211441E+03														Apriori delay (usec)	-4.06318375064E+03	Resid mbdelay (usec)	4.13624E-03	+/-	1.8E-04
Sband delay (usec)			-4.06275247564E+03														Apriori clock (usec)	-2.6913656E+01	Resid sbdelay (usec)	4.31275E-01	+/-	2.9E-03
Phase delay (usec)			-4.06318374860E+03														Apriori clockrate (us/s)	-3.2880250E-07	Resid phdelay (usec)	2.04472E-06	+/-	6.2E-07
Delay rate (us/s)			3.72118745610E-01														Apriori rate (us/s)	3.72108383168E-01	Resid rate (us/s)	1.03624E-05	+/-	2.6E-09
Total phase (deg)																	Apriori accel (us/s/s)	1.71456045297E-05	Resid phase (deg)	63.4	+/-	19.2

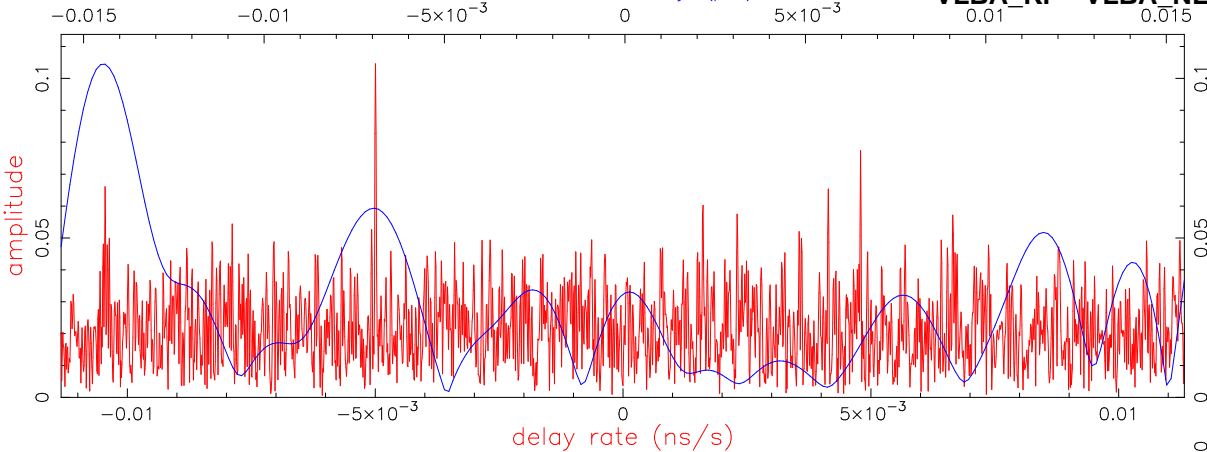
ph/seg (deg) RMS Theor. Amplitude 0.156 +/- 0.026 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 59.5 33.3 Search (2048X64) 0.106 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 62.6 58.2 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 amp/frq (%) 28.6 38.5 Inc. seg. avg. 0.152 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011  
 47.4 67.2 Inc. frq. avg. 0.137 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00

k: az 89.3 el 30.8 pa -62.0 n: az 111.2 el 45.0 pa -46.3 u,v (fr/asec) -2192.291 -756.871 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kn..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kn.W.208.130EN2

Mk4/DiFX fourfit 3.19 rev 2512

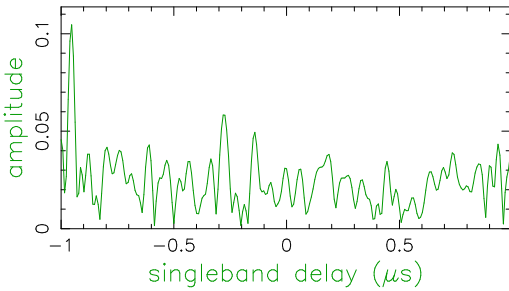
3C454\_3.130EN2, No0141, kn  
VLBA\_KP - VLBA\_NL, fgroup W, pol RL

multiband delay ( $\mu$ s)

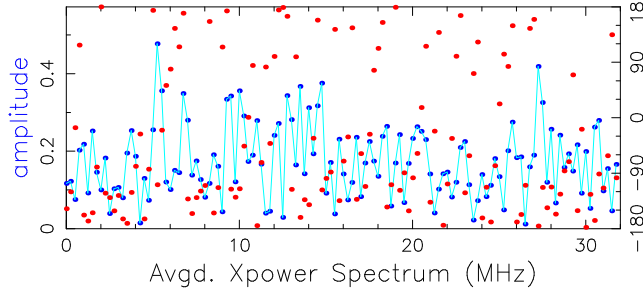


Fringe quality 0

SNR 5.8  
Int time 410.699  
Amp 0.114  
Phase -157.0  
PFD 7.8e-01  
Delays (us)  
SBD -0.954405  
MBD -0.014450  
Fringe rate (Hz)  
-0.430946  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512

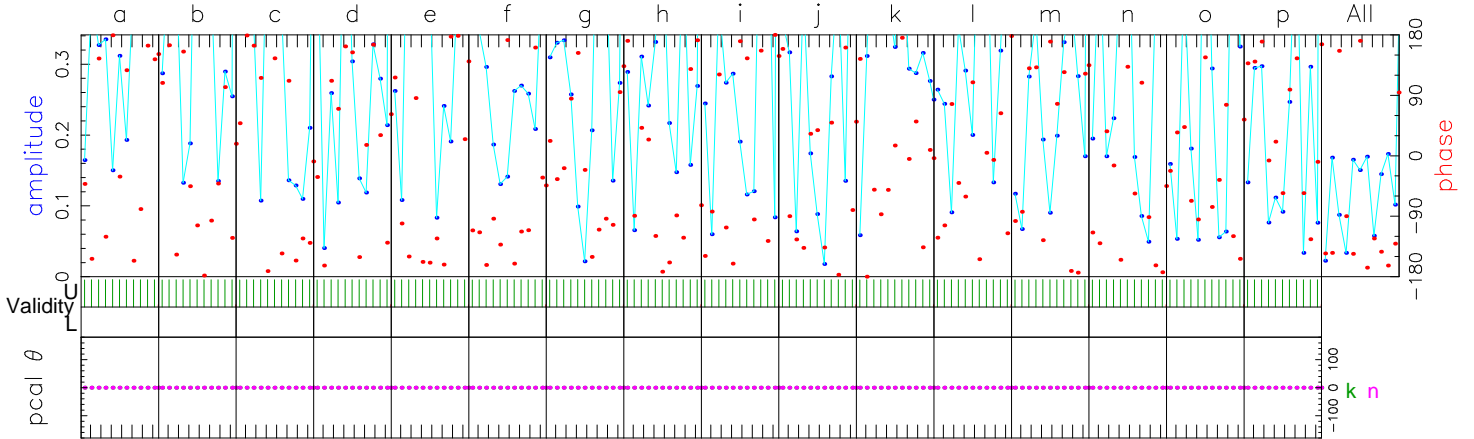


delay rate (ns/s)



Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011505.63  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100833  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 73 APs / seg (37.38 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All				
	-154.1	-144.8	172.9	143.9	178.9	-118.1	-73.1	-153.0	-169.3	-131.4	-57.9	-82.8	154.8	-161.1	-130.0	151.1	Phase	-157.0				
	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	Ampl.	0.1				
	4.6	33.4	197.1	144.3	98.7	33.3	175.3	2.8	7.9	153.9	95.3	163.2	202.4	82.5	82.6	69.2	Sbd box	6.8				
U/L	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	809/0	APs used					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
n	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
k:n	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase					
k:n	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
n	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Chan ids					
n	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Tracks					
																	Tracks					
Group delay (usec)(sbd)			-4.06413570040E+03														Apriori delay (usec)	-4.06318375064E+03	Resid mbdelay (usec)	-1.44498E-02	+/-	1.9E-04
Sband delay (usec)			-4.06413815614E+03														Apriori clock (usec)	-2.6913656E+01	Resid sbdelay (usec)	-9.54405E-01	+/-	3.0E-03
Phase delay (usec)			-4.06318375570E+03														Apriori clockrate (us/s)	-3.2880250E-07	Resid phdelay (usec)	-5.06389E-06	+/-	6.4E-07
Delay rate (us/s)			3.72103380314E-01														Apriori rate (us/s)	3.72108383168E-01	Resid rate (us/s)	-5.00285E-06	+/-	2.7E-09
Total phase (deg)					-257.9												Apriori accel (us/s/s)	1.71456045297E-05	Resid phase (deg)	-157.0	+/-	19.7

ph/seg (deg) 32.0 34.1  
amp/seg (%) 57.2 59.6  
ph/frq (deg) 50.4 39.4  
amp/frq (%) 54.4 68.8

RMS Theor. Amplitude 0.114 +/- 0.020  
Search (2048X64) 0.101  
Interp. 0.000  
Inc. seg. avg. 0.109  
Inc. frq. avg. 0.120

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(MISamp/s): 64  
Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite

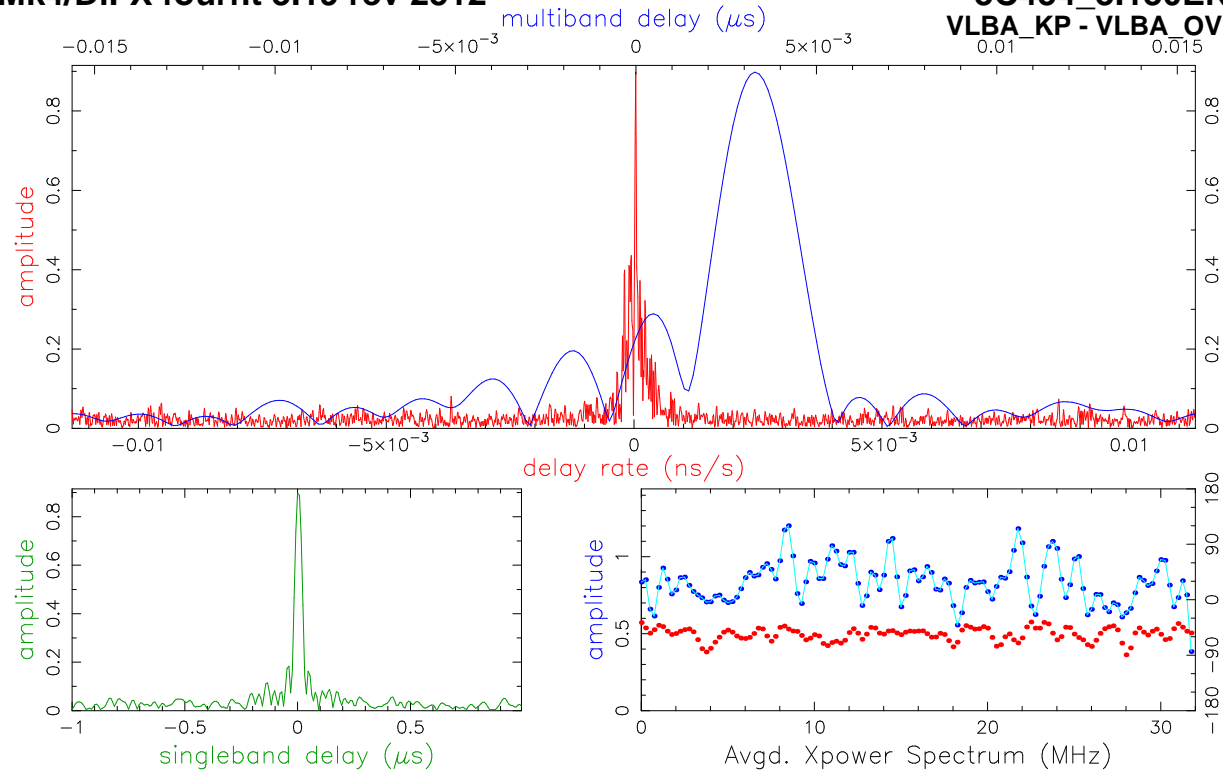
sb window (us) -1.000 1.000  
mb window (us) -0.016 0.016  
dr window (ns/s) -0.011 0.011  
ion window (TEC) 0.00 0.00

k: az 89.3 el 30.8 pa -62.0 n: az 111.2 el 45.0 pa -46.3 u,v (fr/asec) -2192.291 -756.871 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kn..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kn.W.223.130EN2

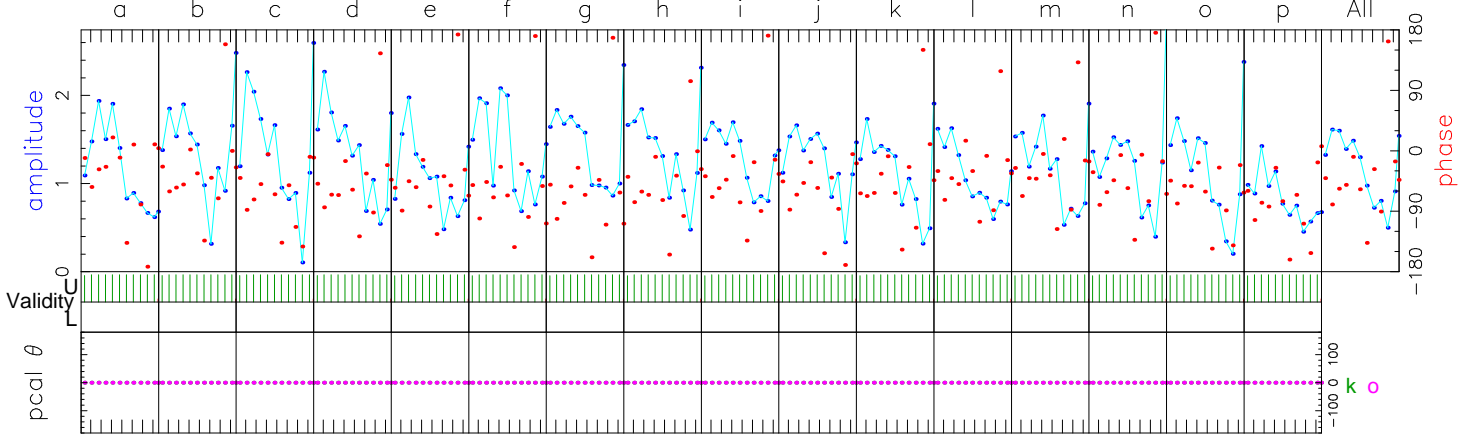
Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, ko  
VLBA\_KP - VLBA\_OV, fgroup W, pol LL



Fringe quality 4  
SNR 50.7  
Int time 410.725  
Amp 0.915  
Phase -55.4  
PFD 0.0e+00  
Delays (us)  
SBD 0.003451  
MBD 0.003333  
Fringe rate (Hz) 0.003202  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512  
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011504.61  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100822  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 73 APs / seg (37.38 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All	
	-23.0	-42.7	-61.9	-65.1	-62.1	-67.4	-73.8	-53.9	-53.3	-60.3	-54.8	-39.4	-40.7	-51.1	-54.5	-76.4		Phase	-55.4
	0.8	1.0	1.1	1.1	0.9	1.1	1.0	1.0	1.0	0.9	0.8	0.8	0.8	0.9	0.9	0.7		Ampl.	0.9
	129.4	129.5	129.2	129.4	129.1	129.4	129.7	129.8	129.4	129.3	129.7	129.0	129.1	129.4	129.1	129.6		Sbd box	129.4
U/L	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0		APs used	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC freqs	
o	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC phase	
k:o	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		ManI PC	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC amp	
o	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000			
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Chan ids	
o	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Tracks	

Group delay (usec)(sbd) 1.75357190303E+03 Apriori delay (usec) 1.75356857028E+03 Resid mbdelay (usec) 3.33275E-03 +/- 2.1E-05  
 Sband delay (usec) 1.75357202078E+03 Apriori clock (usec) -1.7056349E+01 Resid sbdelay (usec) 3.45050E-03 +/- 3.4E-04  
 Phase delay (usec) 1.75356856849E+03 Apriori clockrate (us/s) -1.9555999E-07 Resid phdelay (usec) -1.78780E-06 +/- 7.3E-08  
 Delay rate (us/s) 1.18173742762E-02 Apriori rate (us/s) 1.18173371074E-02 Resid rate (us/s) 3.71688E-08 +/- 3.0E-10  
 Total phase (deg) 176.3 Apriori accel (us/s/s) -1.18045681031E-05 Resid phase (deg) -55.4 +/- 2.3

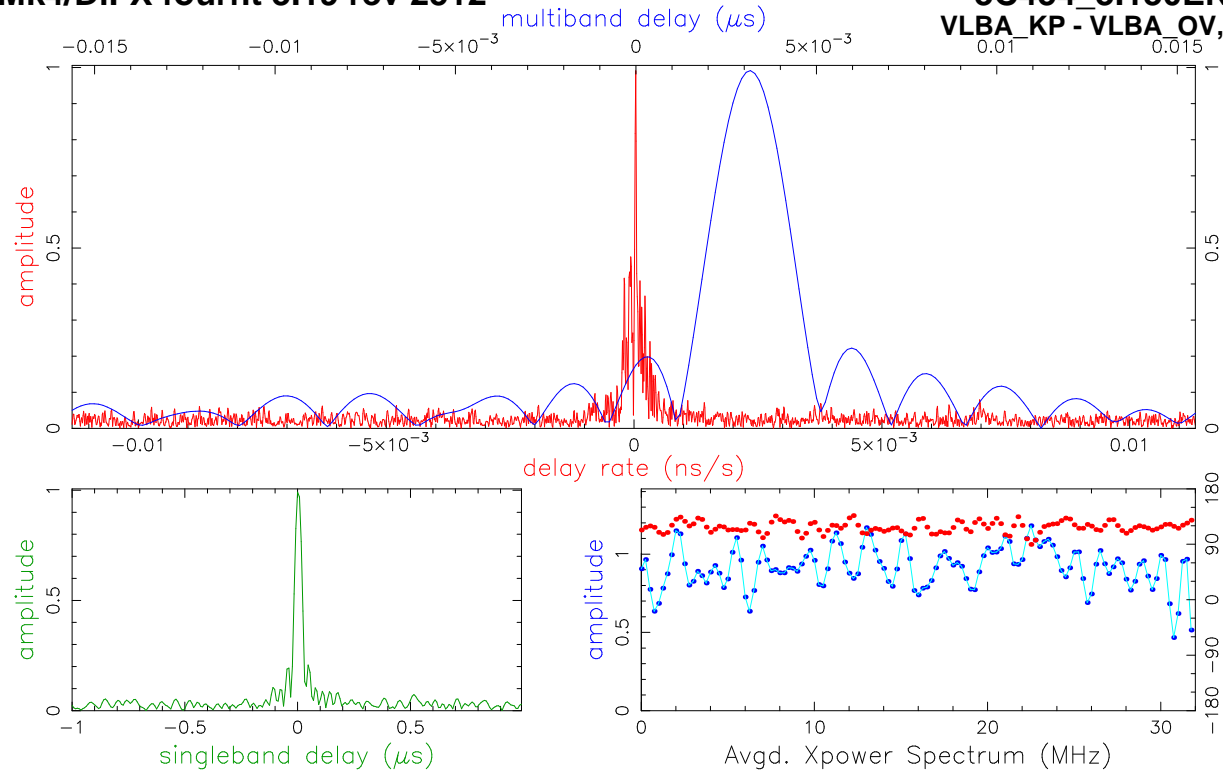
RMS Theor. Amplitude 0.915 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 54.9 3.9 Search (2048X64) 0.871 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 amp/seg (%) 47.5 6.8 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 ph/frq (deg) 14.2 4.5 Inc. seg. avg. 1.150 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011  
 amp/frq (%) 12.2 7.9 Inc. frq. avg. 0.918 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00

k: az 89.3 el 30.8 pa -62.0 o: az 88.4 el 25.5 pa -56.0 u,v (fr/asec) -89.930 -913.537 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/ko..130EN2 Output file: /Exps/c192b/v2/1234/No0141/ko.W.180.130EN2



Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, ko  
VLBA\_KP - VLBA\_OV, fgroup W, pol RR

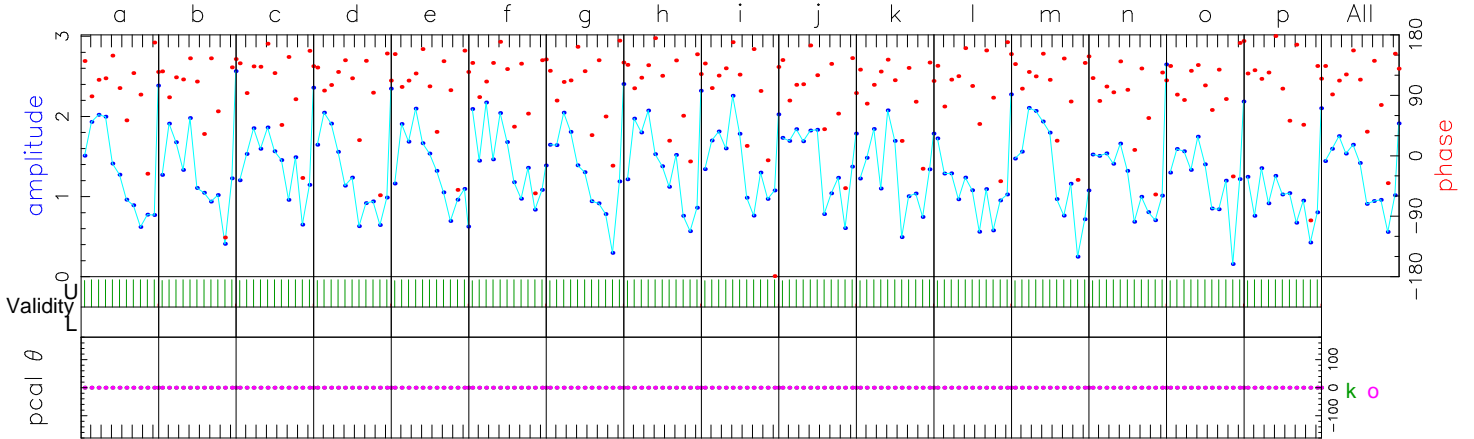


Fringe quality 5

SNR 55.8  
Int time 410.724  
Amp 1.006  
Phase 116.5  
PFD 0.0e+00  
Delays (us)  
SBD 0.003019  
MBD 0.003180  
Fringe rate (Hz)  
0.003290  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011504.61  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100826  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 73 APs / seg (37.38 sec / seg.), time ticks 60 sec



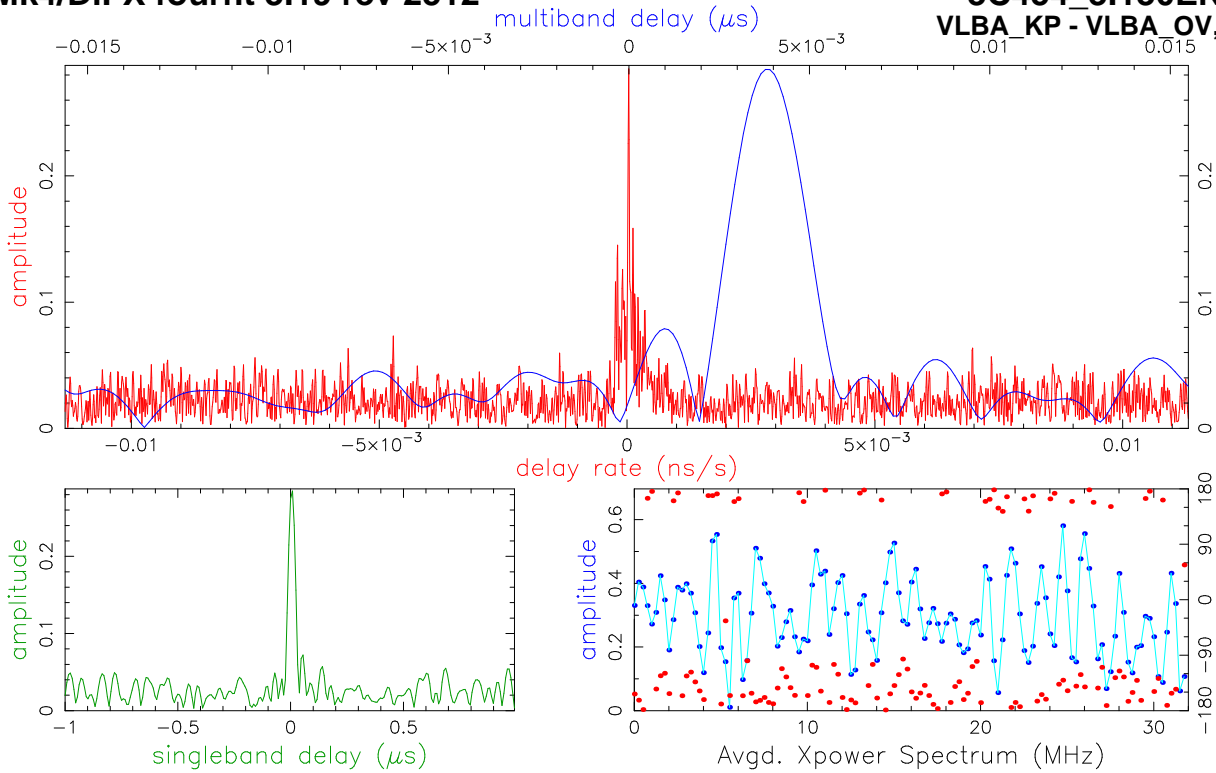
	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All	
U/L	112.0	113.7	122.3	116.2	118.7	120.8	115.6	120.5	125.3	114.6	111.7	120.9	118.1	102.0	112.9	118.6	116.5	Phase	
k	1.0	1.0	1.1	1.0	1.0	1.1	1.0	1.0	1.0	1.1	1.0	0.7	1.1	0.9	1.0	0.7	1.0	Ampl.	
o	129.2	129.7	129.5	129.3	129.6	129.3	129.5	129.4	129.3	129.4	129.1	129.8	129.2	129.5	129.2	129.6	129.6	129.4	Sbd box
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	APs used
o	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs
k:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase
o:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp
o	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR			Chan ids
o	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR			Tracks
																			Tracks
Group delay (usec)(sbd)	1.75357175059E+03			Apriori delay (usec)			1.75356857028E+03			Resid mbdelay (usec)			3.18031E-03			+/- 1.9E-05			
Sband delay (usec)	1.75357158928E+03			Apriori clock (usec)			-1.7056349E+01			Resid sbdelay (usec)			3.01900E-03			+/- 3.1E-04			
Phase delay (usec)	1.75356857403E+03			Apriori clockrate (us/s)			-1.9555999E-07			Resid phdelay (usec)			3.75568E-06			+/- 6.6E-08			
Delay rate (us/s)	1.18173752986E-02			Apriori rate (us/s)			1.18173371074E-02			Resid rate (us/s)			3.81913E-08			+/- 2.8E-10			
Total phase (deg)	348.2			Apriori accel (us/s/s)			-1.18045681031E-05			Resid phase (deg)			116.5			+/- 2.1			

ph/seg (deg) 58.1 3.6 Search (2048X64) 0.931 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
amp/seg (%) 44.9 6.2 Interp. 0.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
ph/frq (deg) 5.7 4.1 Inc. seg. avg. 1.257 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
amp/frq (%) 11.3 7.2 Inc. frq. avg. 0.993 Sample rate(MISamp/s): 64 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite dr window (ns/s) -0.011 0.011  
k: az 89.3 el 30.8 pa -62.0 o: az 88.4 el 25.5 pa -56.0 u,v (fr/asec) -89.930 -913.537 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/ko..130EN2 Output file: /Exps/c192b/v2/1234/No0141/ko.W.199.130EN2

Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, ko  
VLBA\_KP - VLBA\_OV, fgroup W, pol LR

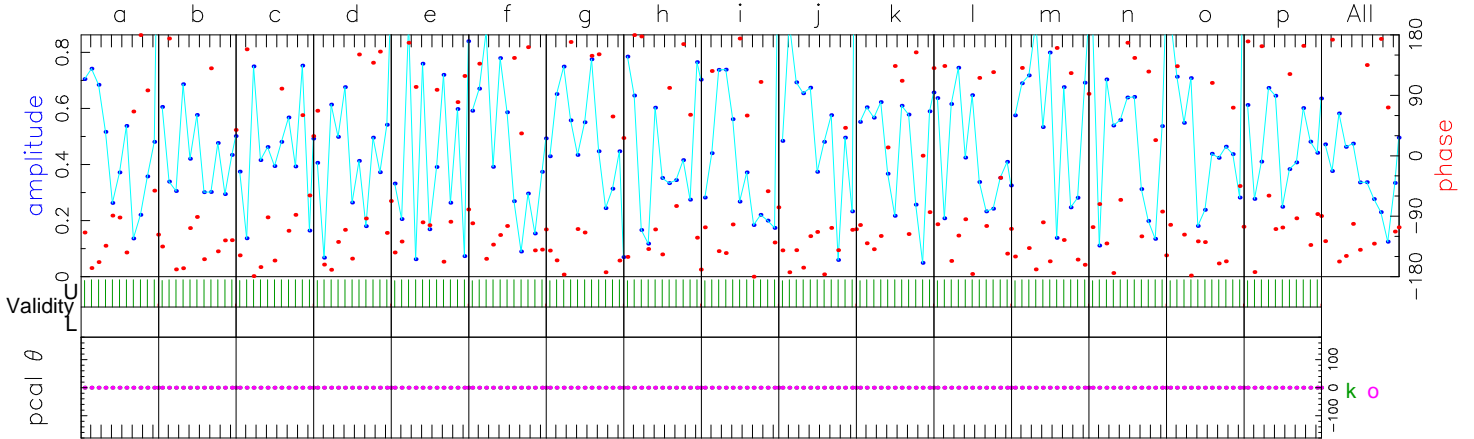


Fringe quality 9

SNR 15.9  
Int time 410.724  
Amp 0.288  
Phase -148.4  
PFD 0.0e+00  
Delays (us)  
SBD 0.005334  
MBD 0.003821  
Fringe rate (Hz) 0.003217  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512

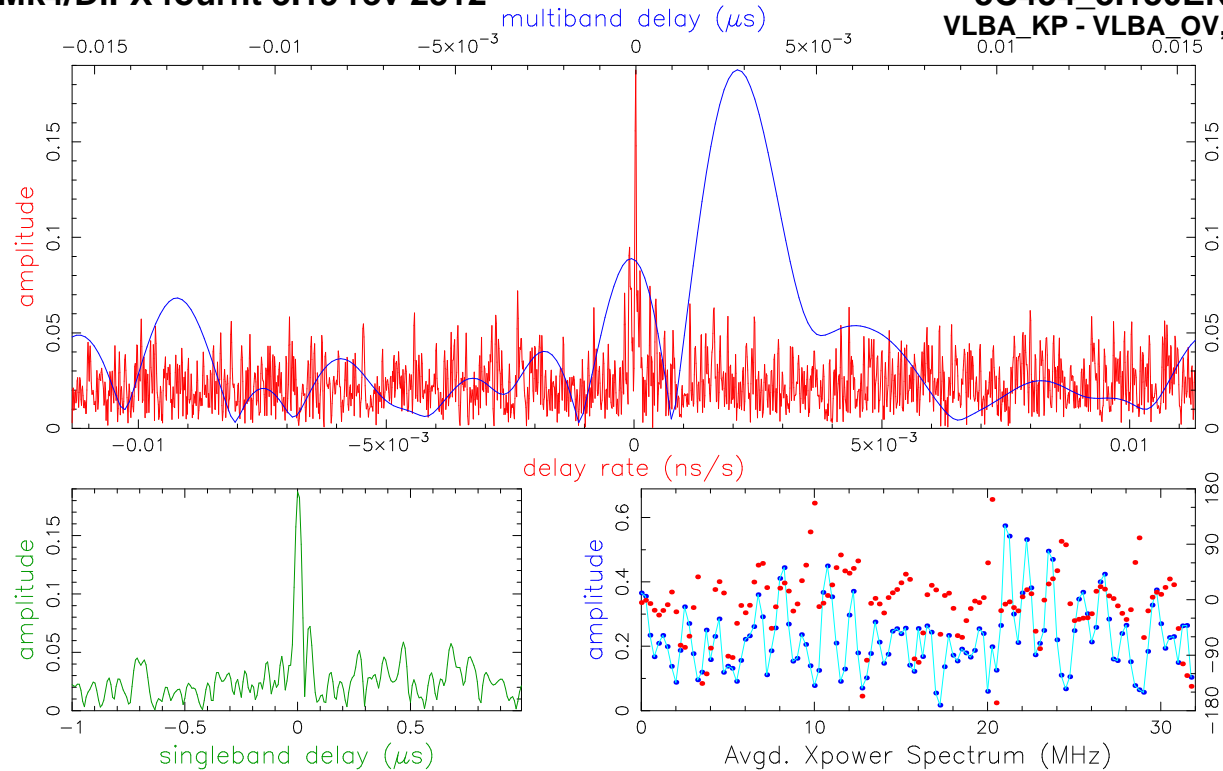
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011504.61  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100831  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 73 APs / seg (37.38 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
	-135.2	-143.0	-155.5	-158.7	-164.0	-144.5	-170.3	-151.2	-147.7	-142.1	-129.6	-138.6	-159.3	-136.2	-158.1	-138.6	Phase	-148.4
	0.3	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.4	0.2	0.3	0.5	0.3	0.3	0.3	Ampl.	0.3
	129.8	129.6	232.1	129.9	191.8	129.3	129.6	129.4	47.3	129.5	129.9	129.3	129.6	130.2	129.8	128.3	Sbd box	129.7
U/L	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	APs used	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
o	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
k:o	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase	
k:o	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
o	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Chan ids	
o	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Tracks	
																	Chan ids	
																	Tracks	
Group delay (usec)(sbd)			1.75357239090E+03					Apriori delay (usec)	1.75356857028E+03				Resid mbdelay (usec)	3.82063E-03			+/-	6.8E-05
Sband delay (usec)			1.75357390428E+03					Apriori clock (usec)	-1.7056349E+01				Resid sbdelay (usec)	5.33400E-03			+/-	1.1E-03
Phase delay (usec)			1.75356856549E+03					Apriori clockrate (us/s)	-1.9555999E-07				Resid phdelay (usec)	-4.78562E-06			+/-	2.3E-07
Delay rate (us/s)			1.18173744519E-02					Apriori rate (us/s)	1.18173371074E-02				Resid rate (us/s)	3.73445E-08			+/-	9.7E-10
Total phase (deg)				83.4				Apriori accel (us/s/s)	-1.18045681031E-05				Resid phase (deg)	-148.4			+/-	7.2

ph/seg (deg) 54.5 12.5 Theor. Amplitude 0.288 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 50.7 21.7 Search (2048X64) 0.274 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 12.1 14.4 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 amp/frq (%) 25.6 25.1 Inc. seg. avg. 0.357 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011  
 k: az 89.3 el 30.8 pa -62.0 o: az 88.4 el 25.5 pa -56.0 u,v (fr/asec) -89.930 -913.537 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/ko..130EN2 Output file: /Exps/c192b/v2/1234/No0141/ko.W.219.130EN2 simultaneous interpolator

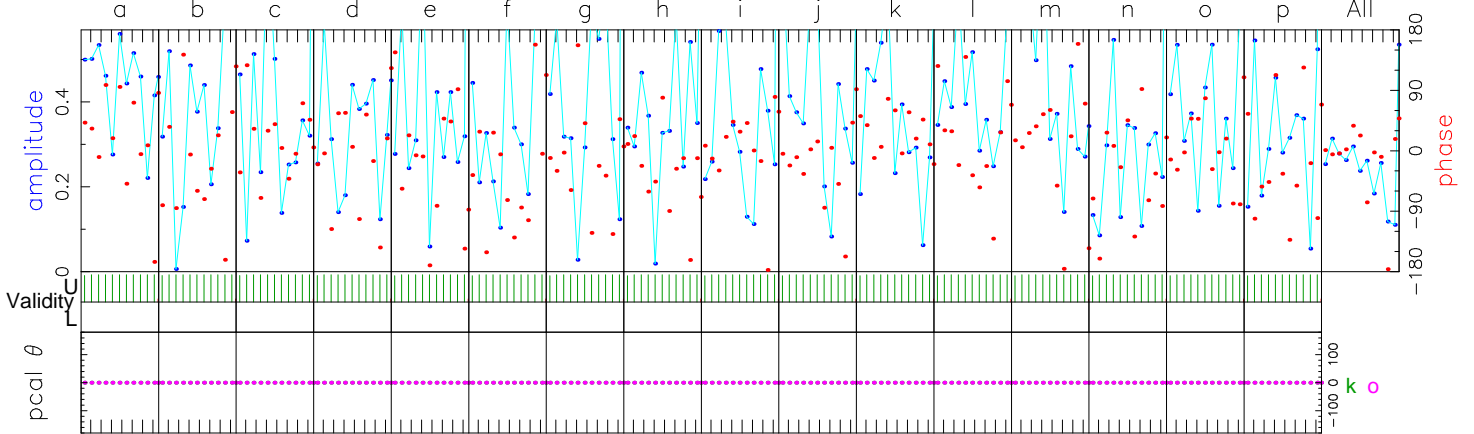


Fringe quality 9

SNR 10.5  
Int time 410.724  
Amp 0.190  
Phase 0.1  
PFD 2.8e-17  
Delays (us)  
SBD 0.002892  
MBD 0.002870  
Fringe rate (Hz) 0.003042  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011504.61  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100836  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 73 APs / seg (37.38 sec / seg.), time ticks 60 sec

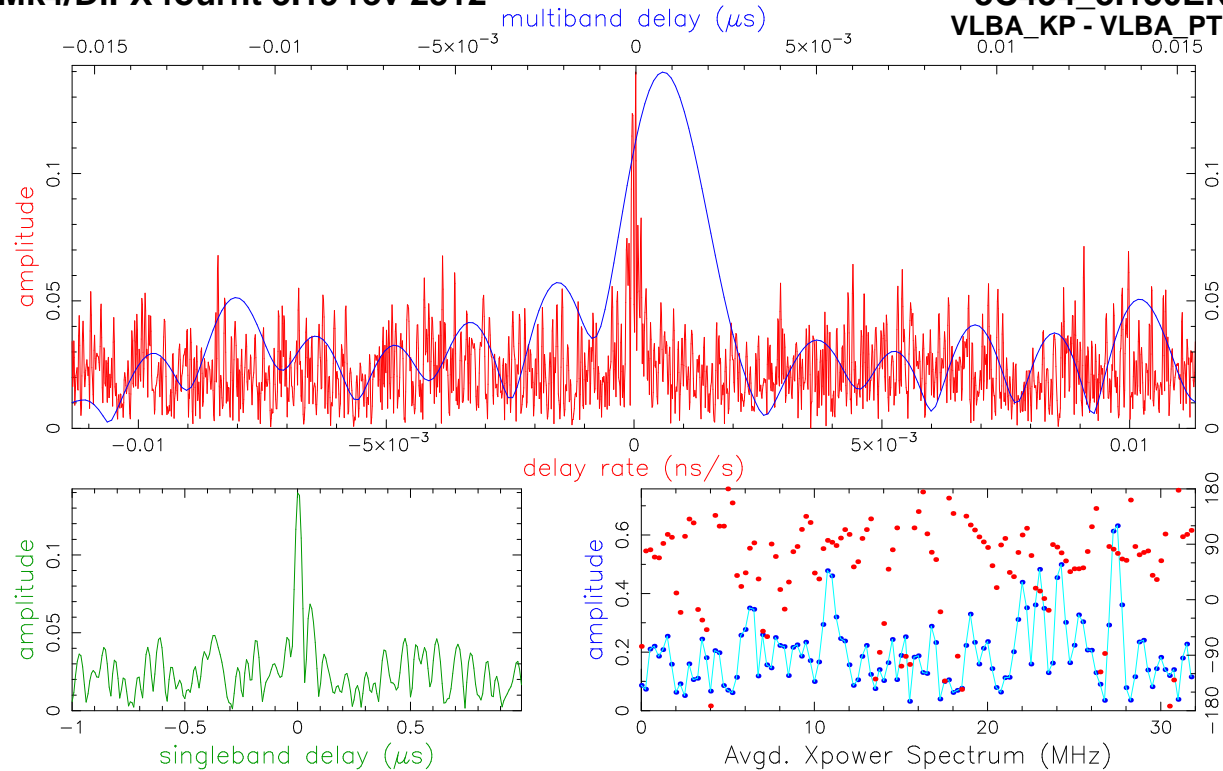


	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
U/L	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0	811/0		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
o	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
k:o	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
k:o	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
o	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		
o	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		
Group delay (usec)(sbd)		1.75357144053E+03																
Sband delay (usec)		1.75357146178E+03																
Phase delay (usec)		1.75356857028E+03																
Delay rate (us/s)		1.18173724219E-02																
Total phase (deg)			231.9															
Apriori delay (usec)																		
Apriori clock (usec)																		
Apriori clockrate (us/s)																		
Apriori rate (us/s)																		
Apriori accel (us/s/s)																		
Resid mbdelay (usec)																		
Resid sbdelay (usec)																		
Resid phdelay (usec)																		
Resid rate (us/s)																		
Resid phase (deg)																		
PCal mode: MANUAL, MANUAL																		
PCal rate: 0.000E+00, 0.000E+00 (us/s)																		
Bits/sample: 2x2																		
Sample rate(MISamp/s): 64																		
Data rate(Mb/s): 2048																		
nlags: 128																		
t_cohere infinite																		
ion window (TEC)																		
sb window (us)																		
mb window (us)																		
dr window (ns/s)																		
ion window (TEC)																		

ph/seg (deg) 59.8 18.8 Search (2048X64) 0.186 PCal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
amp/seg (%) 44.6 32.9 Interp. 0.000 PCal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
ph/frq (deg) 36.7 21.8 Inc. seg. avg. 0.225 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
amp/frq (%) 41.4 38.0 Inc. frq. avg. 0.201 Sample rate(MISamp/s): 64 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite dr window (ns/s) -0.011 0.011  
k: az 89.3 el 30.8 pa -62.0 o: az 88.4 el 25.5 pa -56.0 u,v (fr/asec) -89.930 -913.537 simultaneous interpolator  
Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/ko..130EN2 Output file: /Exps/c192b/v2/1234/No0141/ko.W.235.130EN2

Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, kp  
VLBA\_KP - VLBA\_PT, fgroup W, pol LL

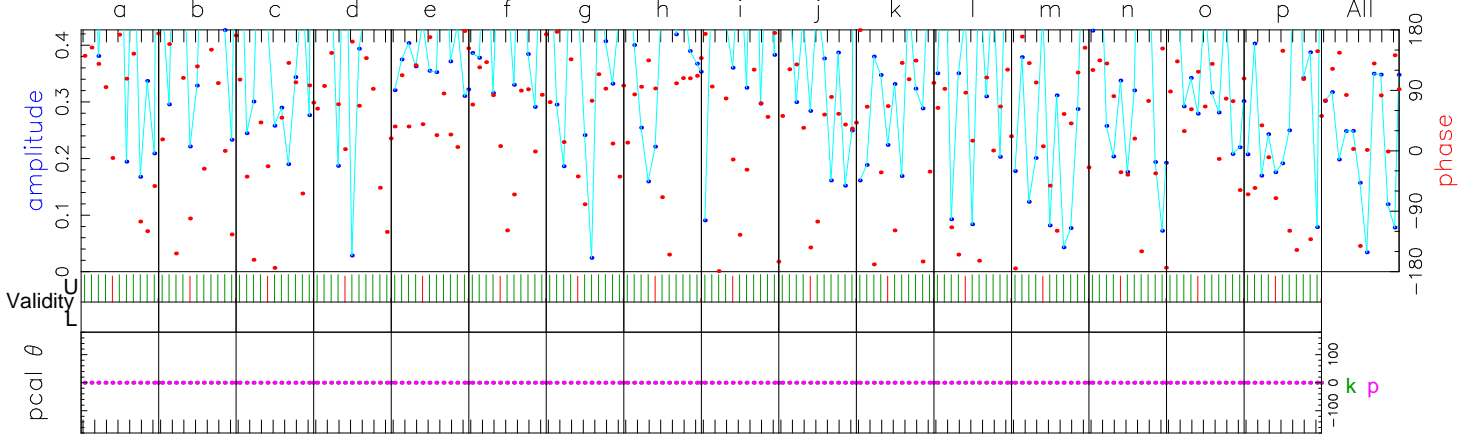


Fringe quality 9

SNR 7.5  
Int time 366.266  
Amp 0.142  
Phase 97.4  
PFD 2.9e-05  
Delays (us)  
SBD 0.003460  
MBD 0.000756  
Fringe rate (Hz) 0.003151  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011549.66  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build 2020:079:134246  
2020:086:100821  
2020:014:135814  
RA & Dec (J2000) 22h53m57.747940s +16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 65 APs / seg (33.28 sec / seg.), time ticks 60 sec

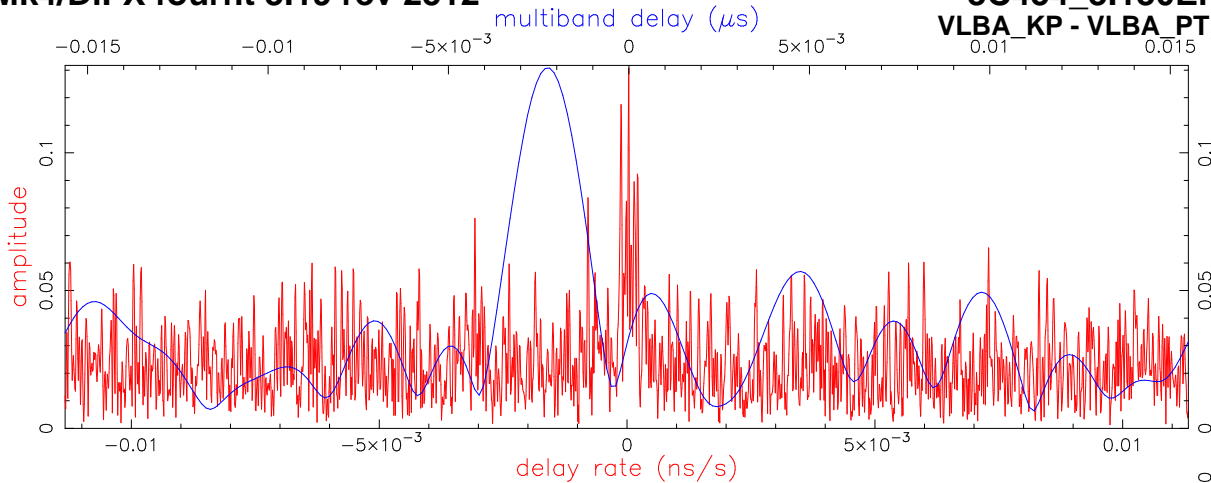


	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All				
U/L	148.4	130.6	67.6	80.7	67.9	82.4	68.5	102.6	113.0	65.8	141.9	98.6	143.7	121.8	80.9	-118.6	Phase	97.4				
k	0.3	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.3	0.1	Ampl.	0.1				
p	66.7	181.4	111.8	155.0	166.1	130.2	28.6	76.9	255.6	147.1	19.5	156.9	148.2	12.8	129.3	112.1	Sbd box	129.4				
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	APs used					
p	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
k:p	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase					
k:p	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
p	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000						
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Chan ids					
p	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Tracks					
Group delay (usec)(sbd)			-9.01717680675E+02														Apriori delay (usec)	-9.01718437054E+02	Resid mbdelay (usec)	7.56379E-04	+/-	1.4E-04
Sband delay (usec)			-9.01714976554E+02														Apriori clock (usec)	-1.2351935E+01	Resid sbdelay (usec)	3.46050E-03	+/-	2.3E-03
Phase delay (usec)			-9.01718433913E+02														Apriori clockrate (us/s)	-3.9846558E-07	Resid phdelay (usec)	3.14124E-06	+/-	5.0E-07
Delay rate (us/s)			6.62455365247E-02														Apriori rate (us/s)	6.62454999440E-02	Resid rate (us/s)	3.65807E-08	+/-	2.3E-09
Total phase (deg)				37.0													Apriori accel (us/s/s)	3.64635486145E-06	Resid phase (deg)	97.4	+/-	15.4

RMS Theor. Amplitude 0.142 +/- 0.019  
ph/seg (deg) 66.5 26.6 Search (2048X64) 0.135 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
amp/seg (%) 91.5 46.4 Interp. 0.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
ph/frq (deg) 49.1 30.8 Inc. seg. avg. 0.198 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
amp/frq (%) 49.2 53.7 Inc. frq. avg. 0.148 Sample rate(MISamp/s): 64 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite dr window (ns/s) -0.011 0.011  
k: az 89.3 el 30.8 pa -62.0 p: az 92.7 el 33.7 pa -59.2 u,v (fr/asec) -389.372 -205.777 ion window (TEC) 0.00 0.00 simultaneous interpolator  
Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kp..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kp.W.176.130EN2

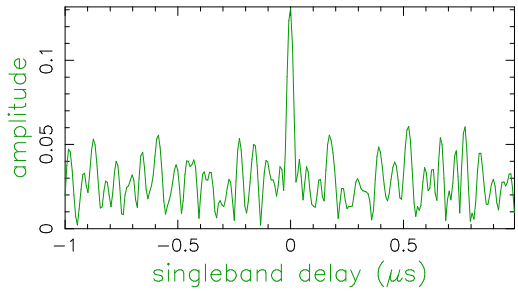
Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, kp  
VLBA\_KP - VLBA\_PT, fgroup W, pol RR

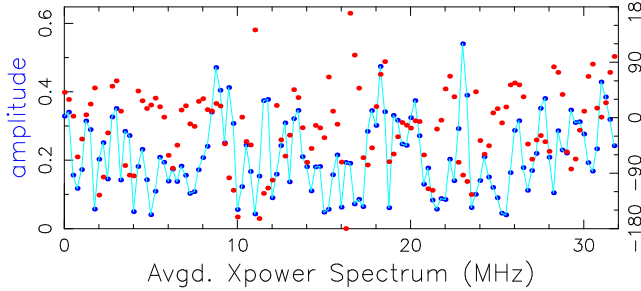


Fringe quality 0

SNR 6.9  
Int time 366.265  
Amp 0.132  
Phase -10.0  
PFD 1.6e-03  
Delays (us)  
SBD -0.002018  
MBD -0.002306  
Fringe rate (Hz)  
0.003284  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512

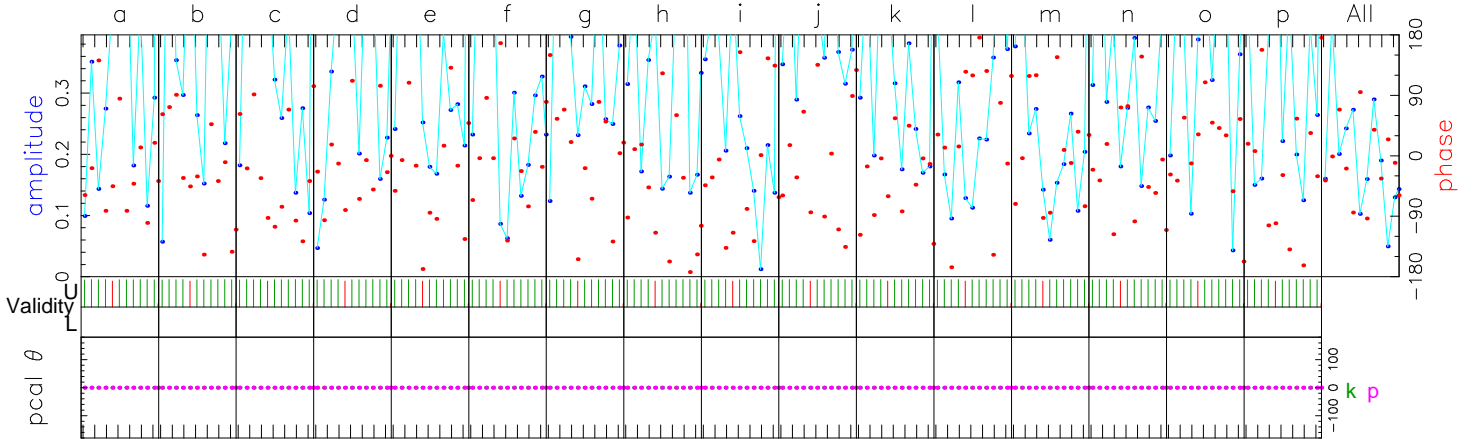


delay rate (ns/s)



Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011549.66  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100826  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 65 APs / seg (33.28 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All					
	-30.0	7.9	-34.4	-25.6	-3.0	6.2	39.7	-38.5	-80.2	-16.4	-24.5	69.8	-10.1	-40.7	37.2	-62.5		Phase -10.0					
	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.3	0.1		Ampl. 0.1					
	3.7	196.8	116.7	240.6	85.2	151.4	187.2	242.9	237.7	41.6	123.5	131.0	235.6	83.8	129.6	81.3		Sbd box 128.7					
U/L	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0		APs used					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC freqs					
p	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC freqs					
k:p	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		PC phase					
k:p	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		ManI PC					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC amp					
p	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC amp					
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Chan ids					
p	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Tracks					
																		Chan ids					
																		Tracks					
Group delay (usec)(sbd)			-9.01720743143E+02															Apriori delay (usec)	-9.01718437054E+02	Resid mbdelay (usec)	-2.30609E-03	+/-	1.6E-04
Sband delay (usec)			-9.01720455054E+02															Apriori clock (usec)	-1.2351935E+01	Resid sbdelay (usec)	-2.01800E-03	+/-	2.5E-03
Phase delay (usec)			-9.01718437377E+02															Apriori clockrate (us/s)	-3.9846558E-07	Resid phdelay (usec)	-3.23215E-07	+/-	5.4E-07
Delay rate (us/s)			6.62455380637E-02															Apriori rate (us/s)	6.62454999440E-02	Resid rate (us/s)	3.81197E-08	+/-	2.5E-09
Total phase (deg)					-70.4													Apriori accel (us/s/s)	3.64635486145E-06	Resid phase (deg)	-10.0	+/-	16.6

RMS Theor. Amplitude 0.132 +/- 0.019  
 ph/seg (deg) 55.9 28.7 Search (2048X64) 0.124  
 amp/seg (%) 90.3 50.2 Interp. 0.000  
 ph/frq (deg) 40.2 33.2 Inc. seg. avg. 0.178  
 amp/frq (%) 41.5 58.0 Inc. frq. avg. 0.137

Group delay (usec)(sbd) -9.01720743143E+02 Apriori delay (usec) -9.01718437054E+02 Resid mbdelay (usec) -2.30609E-03 +/- 1.6E-04  
 Sband delay (usec) -9.01720455054E+02 Apriori clock (usec) -1.2351935E+01 Resid sbdelay (usec) -2.01800E-03 +/- 2.5E-03  
 Phase delay (usec) -9.01718437377E+02 Apriori clockrate (us/s) -3.9846558E-07 Resid phdelay (usec) -3.23215E-07 +/- 5.4E-07  
 Delay rate (us/s) 6.62455380637E-02 Apriori rate (us/s) 6.62454999440E-02 Resid rate (us/s) 3.81197E-08 +/- 2.5E-09  
 Total phase (deg) -70.4 Apriori accel (us/s/s) 3.64635486145E-06 Resid phase (deg) -10.0 +/- 16.6

PCal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 PCal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011  
 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00

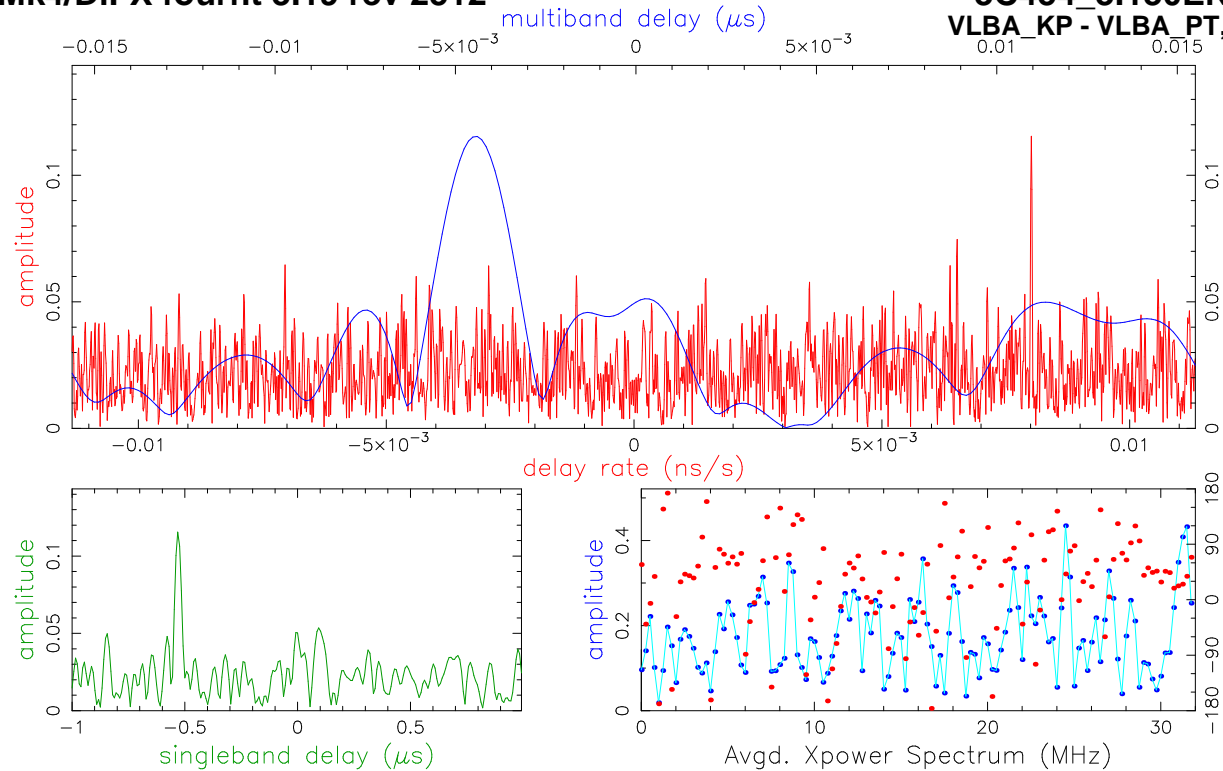
k: az 89.3 el 30.8 pa -62.0 p: az 92.7 el 33.7 pa -59.2 u,v (fr/asec) -389.372 -205.777 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kp..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kp.W.198.130EN2



Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, kp  
VLBA\_KP - VLBA\_PT, fgroup W, pol LR

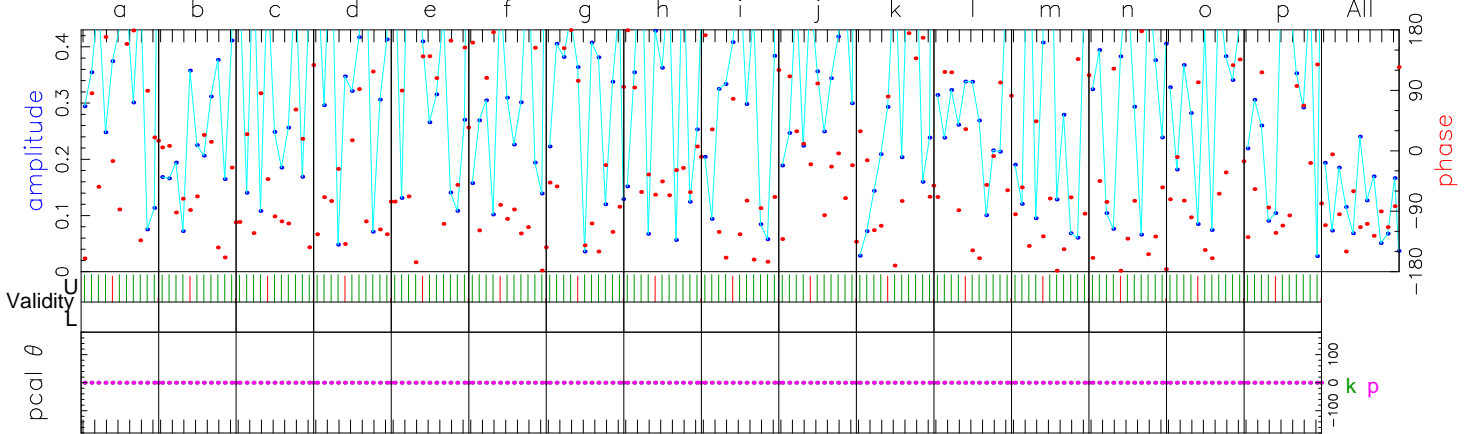


Fringe quality 0

SNR 6.1  
Int time 366.265  
Amp 0.143  
Phase -104.6  
PFD 3.1e-01  
Delays (us)  
SBD -0.530330  
MBD -0.004437  
Fringe rate (Hz) 0.691772  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011549.66  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build 2020:079:134246  
2020:086:100830  
2020:014:135814  
RA & Dec (J2000) 22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 65 APs / seg (33.28 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All				
	-138.3	-55.0	-96.8	-101.1	-148.8	-126.9	-125.6	-44.2	-137.5	-14.9	-173.7	-73.4	-111.5	-126.1	-91.0	-81.4	Phase	-104.6				
	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.3	0.3	0.1	0.1	Ampl.	0.2				
	1.4	157.6	128.8	49.8	23.2	88.1	80.8	61.8	141.9	6.5	244.9	76.6	251.1	196.0	42.8	240.6	Sbd box	61.1				
U/L	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	APs used					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
p	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
k:p	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase					
k:p	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
p	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Chan ids					
p	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Tracks					
																	Chan ids					
																	Tracks					
Group delay (usec)(sbd)			-9.02254124151E+02														Apriori delay (usec)	-9.01718437054E+02	Resid mbdelay (usec)	-4.43710E-03	+/-	1.8E-04
Sband delay (usec)			-9.02248767554E+02														Apriori clock (usec)	-1.2351935E+01	Resid sbdelay (usec)	-5.30330E-01	+/-	2.8E-03
Phase delay (usec)			-9.01718440427E+02														Apriori clockrate (us/s)	-3.9846558E-07	Resid phdelay (usec)	-3.37309E-06	+/-	6.1E-07
Delay rate (us/s)			6.62535307255E-02														Apriori rate (us/s)	6.62454999440E-02	Resid rate (us/s)	8.03078E-06	+/-	2.9E-09
Total phase (deg)					-165.0												Apriori accel (us/s/s)	3.64635486145E-06	Resid phase (deg)	-104.6	+/-	18.9

ph/seg (deg) 39.7 32.8  
amp/seg (%) 54.1 57.2  
ph/frq (deg) 43.4 37.9  
amp/frq (%) 52.9 66.1

RMS Theor. Amplitude 0.143 +/- 0.024  
Search (2048X64) 0.111  
Interp. 0.000  
Inc. seg. avg. 0.140  
Inc. frq. avg. 0.153

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(MISamp/s): 64  
Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite

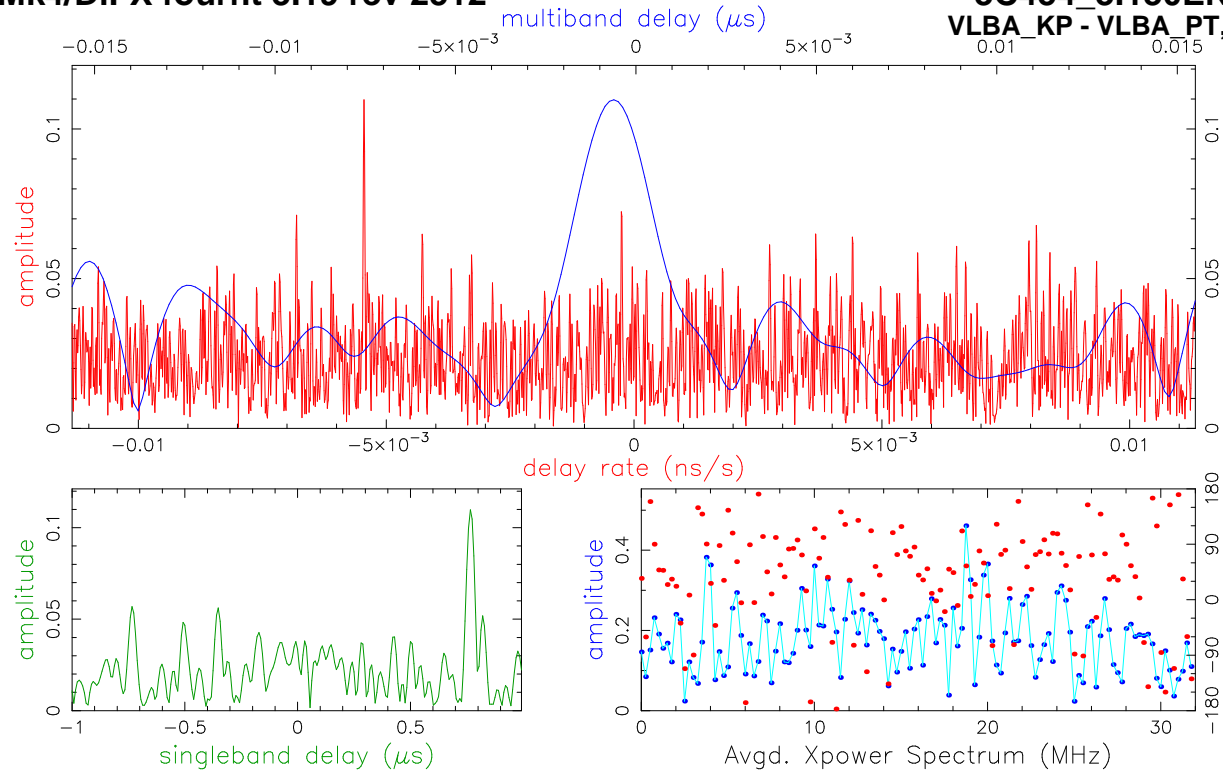
sb window (us) -1.000 1.000  
mb window (us) -0.016 0.016  
dr window (ns/s) -0.011 0.011  
ion window (TEC) 0.00 0.00

k: az 89.3 el 30.8 pa -62.0 p: az 92.7 el 33.7 pa -59.2 u,v (fr/asec) -389.372 -205.777 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kp..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kp.W.215.130EN2

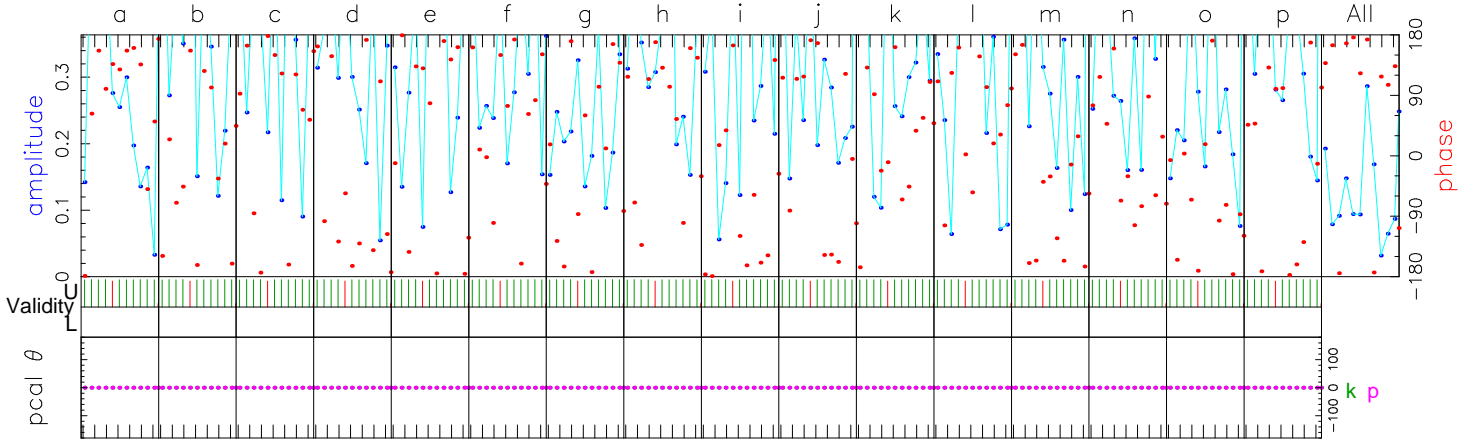
Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, kp  
VLBA\_KP - VLBA\_PT, fgroup W, pol RL



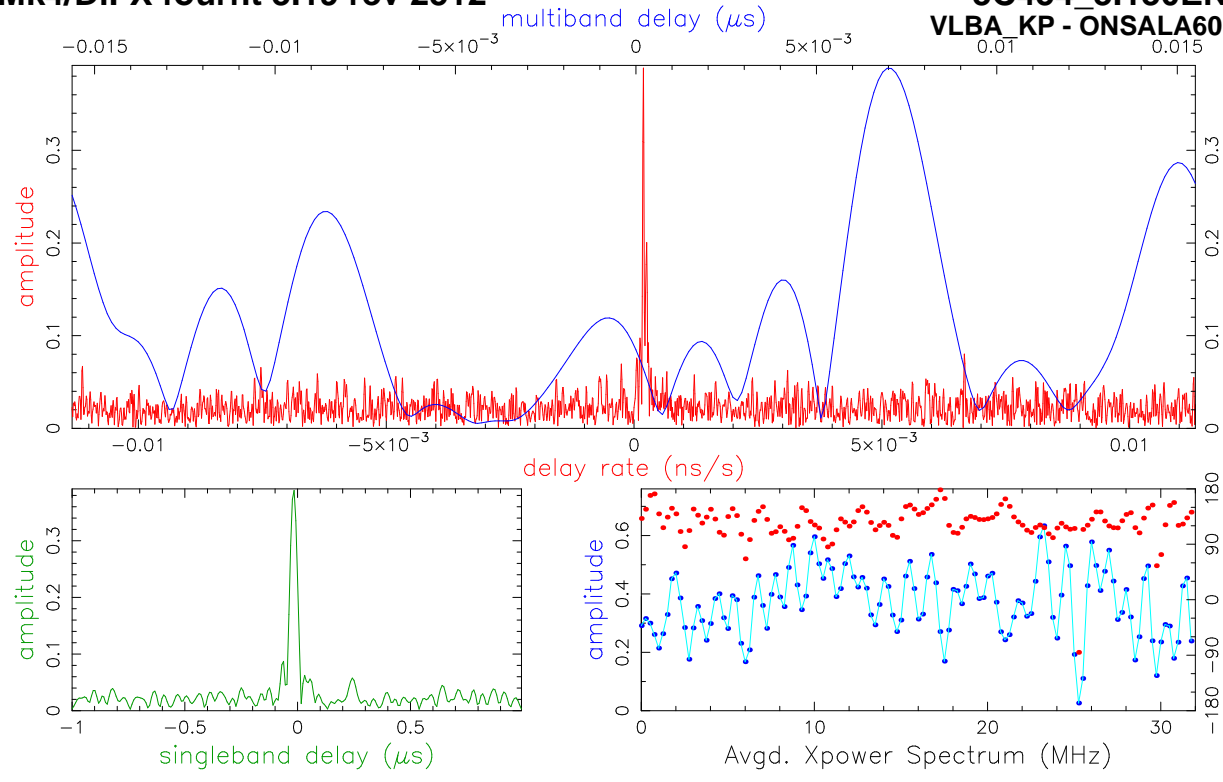
Fringe quality 0  
SNR 5.8  
Int time 366.266  
Amp 0.121  
Phase 160.9  
PFD 8.8e-01  
Delays (us)  
SBD 0.767044  
MBD -0.000599  
Fringe rate (Hz)  
-0.470380  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512  
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011549.66  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100835  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 65 APs / seg (33.28 sec / seg.), time ticks 60 sec



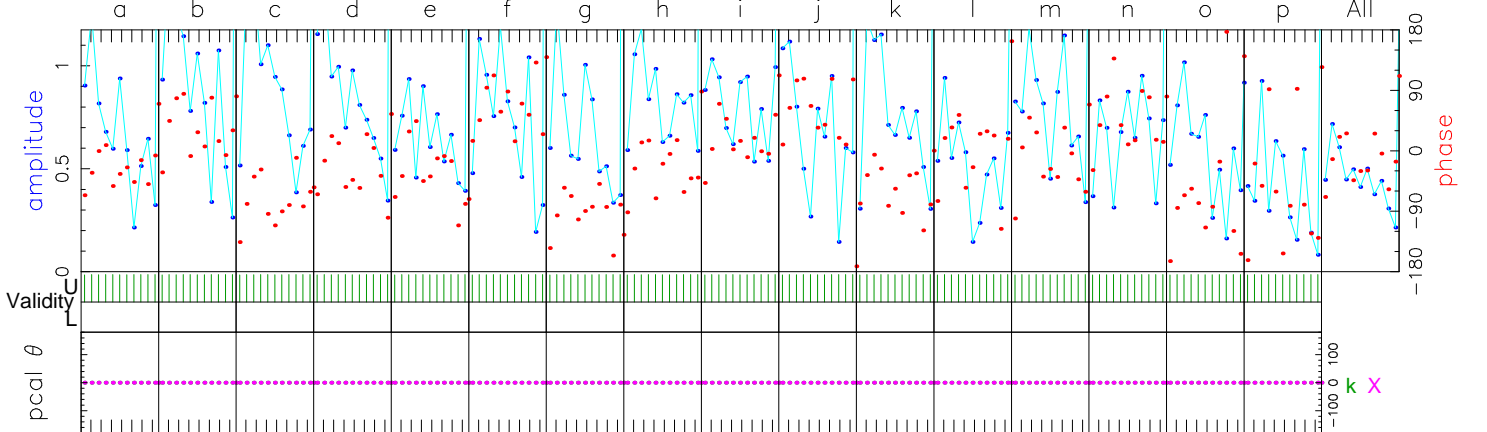
	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All				
	126.9	177.8	152.4	-142.9	158.7	133.0	175.4	139.3	-165.8	160.2	70.9	82.4	-154.3	45.7	-114.3	138.4	Phase	160.9				
	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	Ampl.	0.1				
	208.2	41.6	27.7	245.1	26.1	217.3	144.1	224.9	85.0	113.4	93.6	174.4	142.9	52.1	14.0	229.1	Sbd box	227.2				
U/L	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	721/0	APs used					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
p	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
k:p	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase					
k:p	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
p	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Chan ids					
p	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Tracks					
																	Chan ids					
																	Tracks					
Group delay (usec)(sbd)			-9.00937785632E+02														Apriori delay (usec)	-9.01718437054E+02	Resid mbdelay (usec)	-5.98578E-04	+/-	1.9E-04
Sband delay (usec)			-9.00951393054E+02														Apriori clock (usec)	-1.2351935E+01	Resid sbdelay (usec)	7.67044E-01	+/-	3.0E-03
Phase delay (usec)			-9.01718431866E+02														Apriori clockrate (us/s)	-3.9846558E-07	Resid phdelay (usec)	5.18814E-06	+/-	6.4E-07
Delay rate (us/s)			6.62400392931E-02														Apriori rate (us/s)	6.62454999440E-02	Resid rate (us/s)	-5.46065E-06	+/-	3.0E-09
Total phase (deg)				100.5													Apriori accel (us/s/s)	3.64635486145E-06	Resid phase (deg)	160.9	+/-	19.9

ph/seg (deg) RMS Theor. Amplitude 0.121 +/- 0.021 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 30.6 34.4 Search (2048X64) 0.107 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 64.5 60.1 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 amp/frq (%) 56.4 39.8 Inc. seg. avg. 0.115 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011  
 amp/frq (%) 60.7 69.5 Inc. frq. avg. 0.133 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00  
 k: az 89.3 el 30.8 pa -62.0 p: az 92.7 el 33.7 pa -59.2 u,v (fr/asec) -389.372 -205.777 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kp..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kp.W.230.130EN2



Fringe quality 6  
SNR 21.8  
Int time 415.056  
Amp 0.392  
Phase -15.3  
PFD 0.0e+00  
Delays (us)  
SBD -0.017792  
MBD 0.006989  
Fringe rate (Hz) 0.016160  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512  
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100824  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec

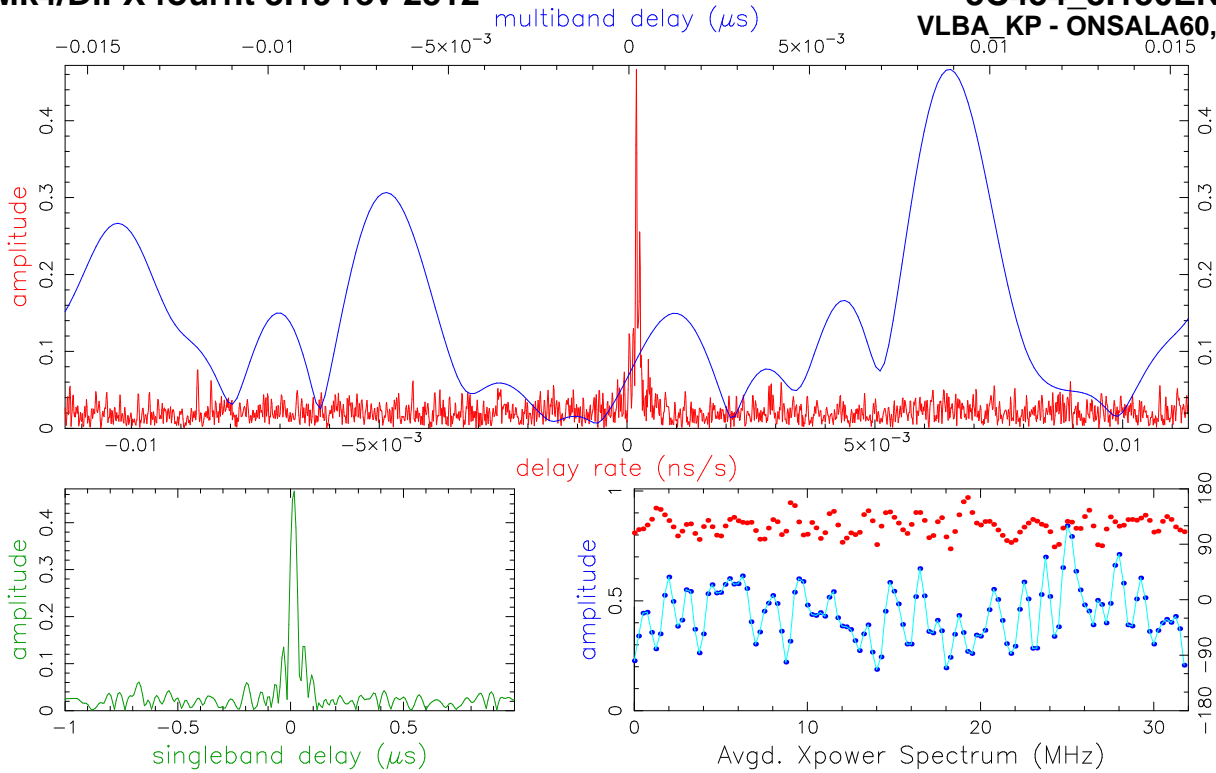


	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
	-29.8	32.1	-73.0	-23.2	-26.6	63.2	-88.6	-24.8	14.4	62.3	-48.6	9.0	-7.3	44.2	-91.5	-83.6	Phase	-15.3
	0.6	0.7	0.8	0.7	0.5	0.6	0.6	0.7	0.7	0.5	0.6	0.4	0.6	0.5	0.4	0.2	Ampl.	0.6
	126.8	126.9	126.9	126.5	126.6	126.7	126.1	127.1	127.0	126.4	126.6	126.1	126.3	126.1	125.9	125.0	Sbd box	126.7
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	APs used	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
X	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC phase	
k:X	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
X	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Chan ids	
X	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Tracks	

Group delay (usec)(sbd) 8.68856906542E+02 Apriori delay (usec) 8.68881167735E+02 Resid mbdelay (usec) 6.98881E-03 +/- 4.9E-05  
 Sband delay (usec) 8.68863376235E+02 Apriori clock (usec) -3.2776161E+01 Resid sbdelay (usec) -1.77915E-02 +/- 7.9E-04  
 Phase delay (usec) 8.68881167242E+02 Apriori clockrate (us/s) -7.2257901E-07 Resid phdelay (usec) -4.92555E-07 +/- 1.7E-07  
 Delay rate (us/s) 1.82541224170E+00 Apriori rate (us/s) 1.82541205410E+00 Resid rate (us/s) 1.87605E-07 +/- 7.0E-10  
 Total phase (deg) 268.7 Apriori accel (us/s/s) -1.46868545843E-05 Resid phase (deg) -15.3 +/- 5.3

RMS Theor. Amplitude 0.392 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 31.4 9.1 Search (2048X64) 0.384 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 amp/seg (%) 37.1 15.9 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 ph/frq (deg) 53.6 10.5 Inc. seg. avg. 0.447 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011  
 amp/frq (%) 57.9 18.3 Inc. frq. avg. 0.563 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00

k: az 89.3 el 30.8 pa -62.0 X: az 253.2 el 29.6 pa 32.5 u,v (fr/asec) -10912.783 -2935.290 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kX..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kX.W.191.130EN2

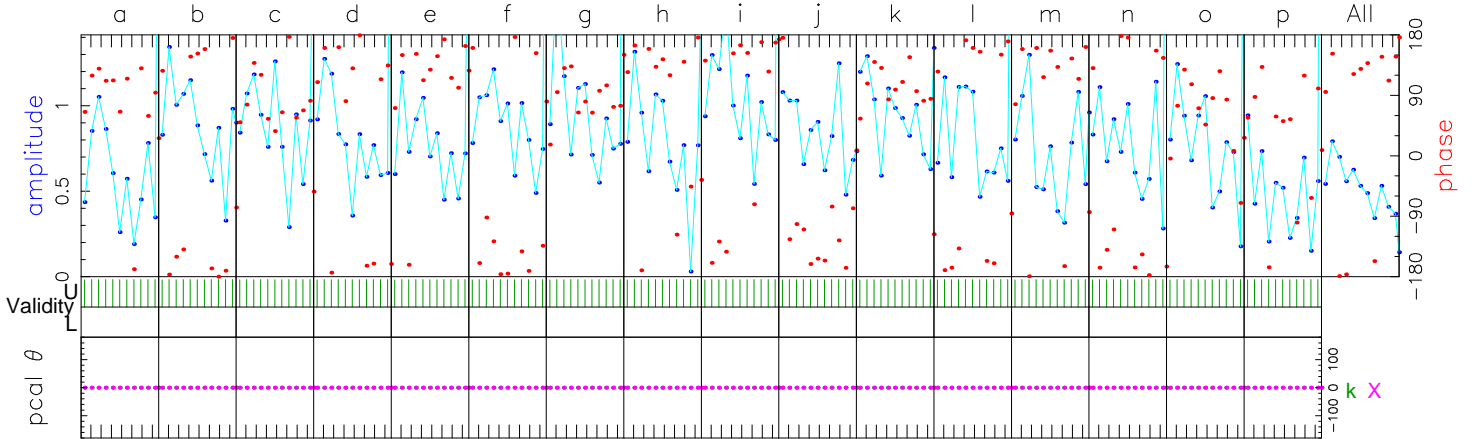


Fringe quality 6

SNR 26.3  
Int time 415.055  
Amp 0.472  
Phase 146.1  
PFD 0.0e+00  
Delays (us)  
SBD 0.013127  
MBD 0.008850  
Fringe rate (Hz) 0.016168  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100829  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

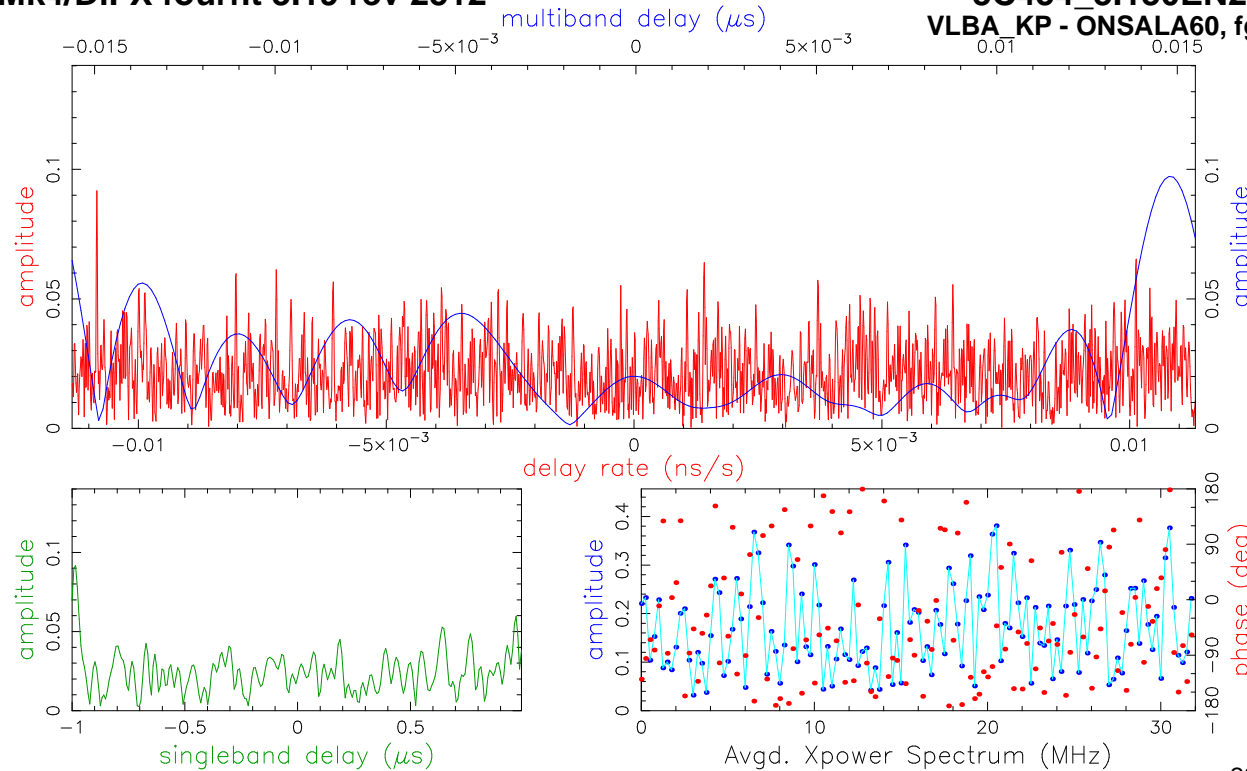
Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
X	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
k:X	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
X:k	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
X	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Chan ids
X	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Tracks
Group delay (usec)(sbd)		8.68890018104E+02																
Sband delay (usec)		8.68894294735E+02																
Phase delay (usec)		8.68881172446E+02																
Delay rate (us/s)		1.82541224179E+00																
Total phase (deg)				70.0														
ph/seg (deg)		RMS 31.1		Theor. 7.6														
amp/seg (%)		30.8		13.2														
ph/frq (deg)		50.9		8.7														
amp/frq (%)		50.5		15.2														
k: az 89.3 el 30.8 pa -62.0																		
X: az 253.2 el 29.6 pa 32.5																		
u,v (fr/asec) -10912.783 -2935.290																		
Control file: cf_1234_gmva																		
Input file: /Exps/c192b/v2/1234/No0141/kX..130EN2																		
Output file: /Exps/c192b/v2/1234/No0141/kX.W.211.130EN2																		

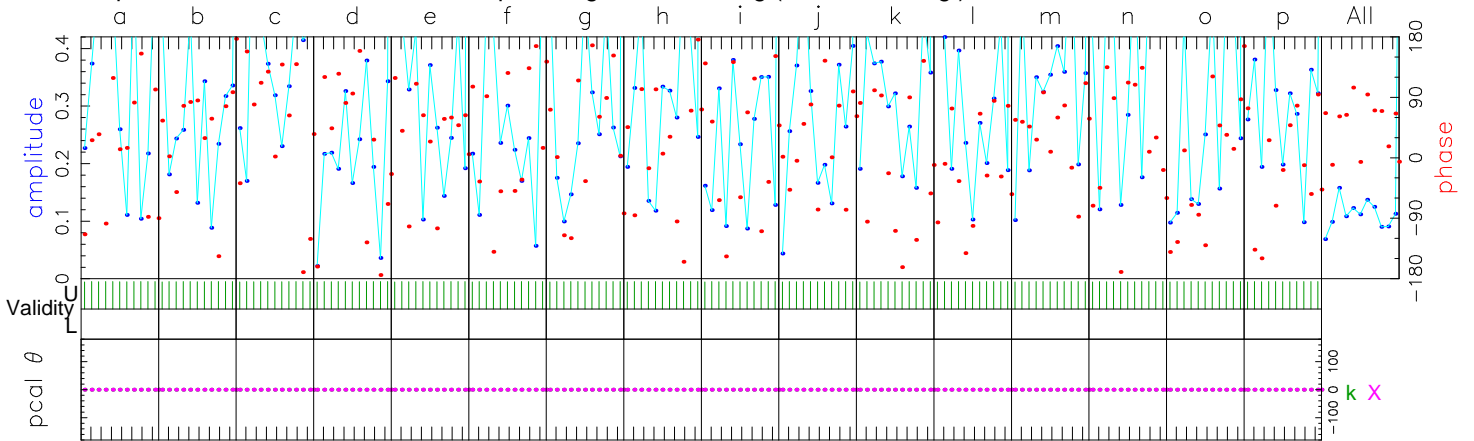
Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, kX  
VLBA\_KP - ONSALA60, fgroup W, pol LR



Fringe quality 0  
SNR 5.2  
Int time 415.056  
Amp 0.140  
Phase 58.0  
PFD 1.0e+00  
Delays (us)  
SBD -0.987404  
MBD -0.016113  
Fringe rate (Hz)  
-0.934836  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512  
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100834  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec

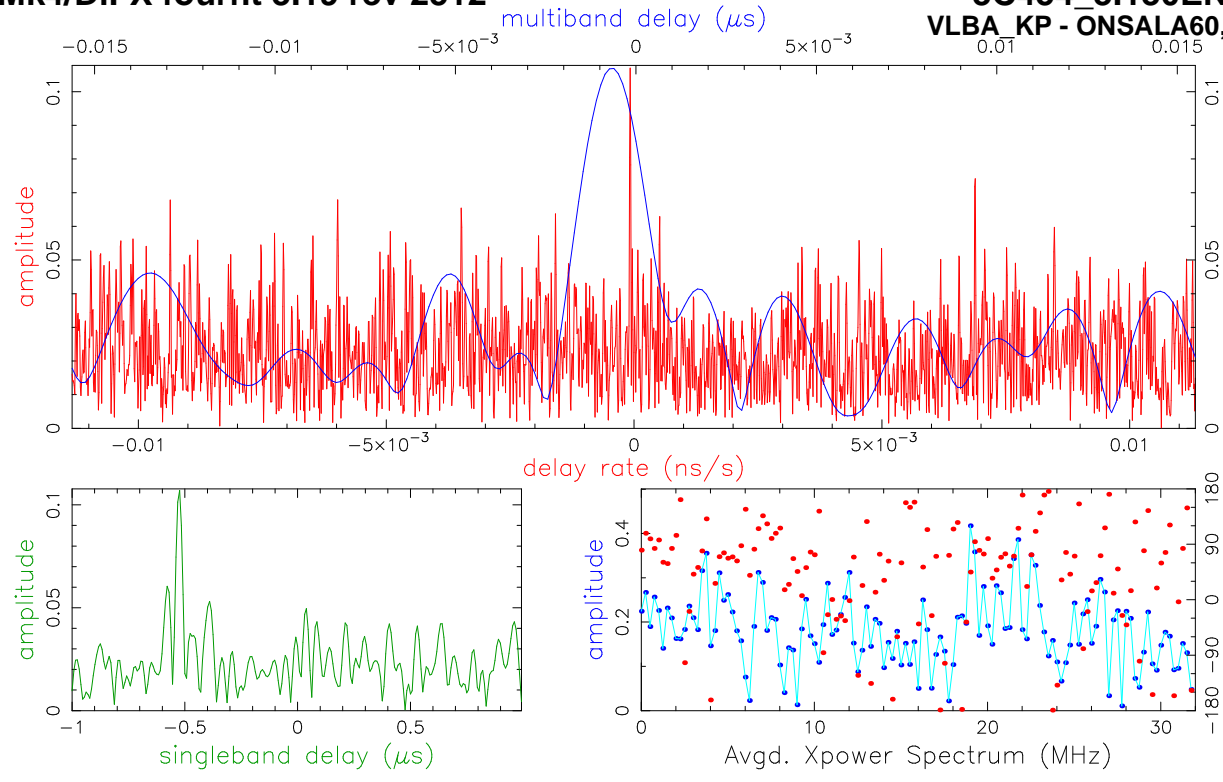


	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All	
	63.2	63.7	117.2	112.9	63.8	63.0	72.7	72.3	-127.2	43.0	154.9	-17.1	45.0	59.9	35.6	16.0	Phase	58.0	
	0.2	0.3	0.3	0.1	0.3	0.1	0.2	0.1	0.0	0.2	0.0	0.2	0.4	0.2	0.2	0.1	Ampl.	0.1	
	88.4	252.0	201.2	251.8	112.1	201.6	207.9	88.7	212.3	192.0	193.0	225.0	3.1	173.8	150.0	165.2	Sbd box	2.6	
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	APs used		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs		
X	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs		
k:X	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase		
k:X	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp		
X	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp		
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Chan ids		
X	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Tracks		
																	Chan ids		
																	Tracks		
Group delay (usec)(sbd)			8.67896304454E+02						Apriori delay (usec)	8.68881167735E+02							Resid mbdelay (usec)	-1.61133E-02	+/- 2.1E-04
Sband delay (usec)			8.67893763735E+02						Apriori clock (usec)	-3.2776161E+01							Resid sbdelay (usec)	-9.87404E-01	+/- 3.3E-03
Phase delay (usec)			8.68881169605E+02						Apriori clockrate (us/s)	-7.2257901E-07							Resid phdelay (usec)	1.87023E-06	+/- 7.1E-07
Delay rate (us/s)			1.82540120158E+00						Apriori rate (us/s)	1.82541205410E+00							Resid rate (us/s)	-1.08525E-05	+/- 3.0E-09
Total phase (deg)				341.9					Apriori accel (us/s/s)	-1.46868545843E-05							Resid phase (deg)	58.0	+/- 22.1

	RMS	Theor.	Amplitude	0.140 +/- 0.027	Pcal mode: MANUAL, MANUAL	PC period (AP's) 5, 5			
ph/seg (deg)	36.3	38.3	Search (2048X64)	0.097	Pcal rate: 0.000E+00, 0.000E+00 (us/s)	sb window (us)	-1.000	1.000	
amp/seg (%)	40.1	66.9	Interp.	0.000	Bits/sample: 2x2	SampCntNorm: enabled	mb window (us)	-0.016	0.016
ph/frq (deg)	62.9	44.2	Inc. seg. avg.	0.138	Sample rate(MISamp/s): 64	dr window (ns/s)	-0.011	0.011	
amp/frq (%)	67.6	77.2	Inc. frq. avg.	0.131	Data rate(Mb/s): 2048	nlags: 128 t_cohere infinite	ion window (TEC)	0.00	0.00

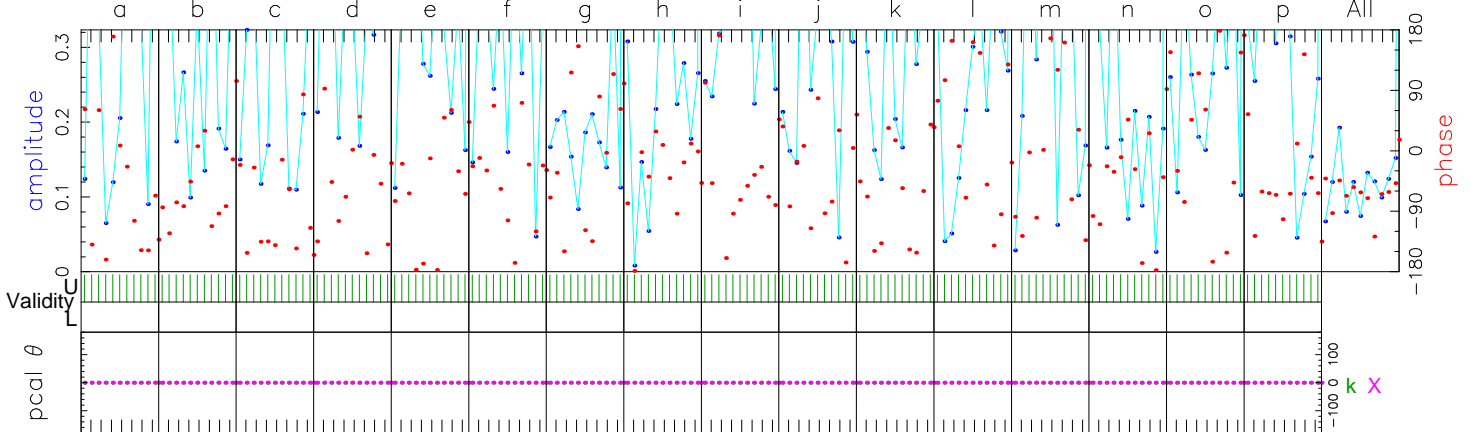
k: az 89.3 el 30.8 pa -62.0 X: az 253.2 el 29.6 pa 32.5 u,v (fr/asec) -10912.783 -2935.290 simultaneous interpolator  
Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kX..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kX.W.229.130EN2





Fringe quality 0  
SNR 6.0  
Int time 415.055  
Amp 0.108  
Phase -64.6  
PFD 3.9e-01  
Delays (us)  
SBD -0.525442  
MBD -0.000675  
Fringe rate (Hz)  
-0.006546  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512  
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100839  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec

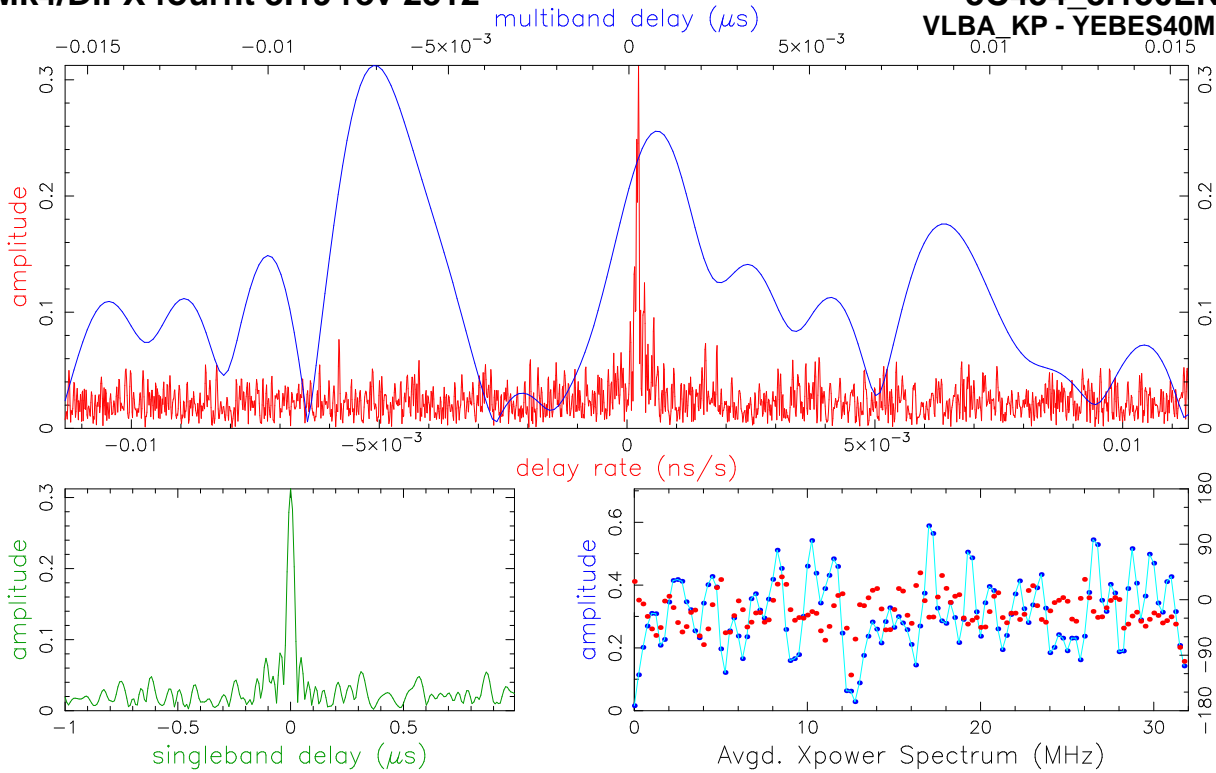


	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
	-84.3	-71.8	-101.8	-51.8	-68.6	-27.3	153.9	-21.4	-72.2	-34.6	-53.0	-176.4	-84.2	-47.3	-152.8	-71.0	Phase	-64.6
	0.1	0.2	0.1	0.1	0.1	0.2	0.0	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	Ampl.	0.1
	15.0	102.0	207.7	46.3	55.5	49.9	174.0	211.1	62.1	71.2	207.4	45.5	42.8	168.3	208.1	61.1	Sbd box	61.7
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	APs used	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
X	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
k:X	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase	
k:X	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
X	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Chan ids	
X	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Tracks	

Group delay (usec)(sbd) 8.68349242835E+02 Apriori delay (usec) 8.68881167735E+02 Resid mbdelay (usec) -6.74900E-04 +/- 1.8E-04  
 Sband delay (usec) 8.68355726235E+02 Apriori clock (usec) -3.2776161E+01 Resid sbdelay (usec) -5.25442E-01 +/- 2.9E-03  
 Phase delay (usec) 8.68881165651E+02 Apriori clockrate (us/s) -7.2257901E-07 Resid phdelay (usec) -2.08366E-06 +/- 6.2E-07  
 Delay rate (us/s) 1.82541197811E+00 Apriori rate (us/s) 1.82541205410E+00 Resid rate (us/s) -7.59914E-08 +/- 2.6E-09  
 Total phase (deg) 219.3 Apriori accel (us/s/s) -1.46868545843E-05 Resid phase (deg) -64.6 +/- 19.1

RMS Theor. Amplitude 0.108 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 23.8 33.0 Search (2048X64) 0.104 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 amp/seg (%) 41.7 57.7 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 ph/frq (deg) 58.2 38.2 Inc. seg. avg. 0.101 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011  
 amp/frq (%) 59.2 66.6 Inc. frq. avg. 0.105 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00

k: az 89.3 el 30.8 pa -62.0 X: az 253.2 el 29.6 pa 32.5 u,v (fr/asec) -10912.783 -2935.290 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kX..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kX.W.244.130EN2

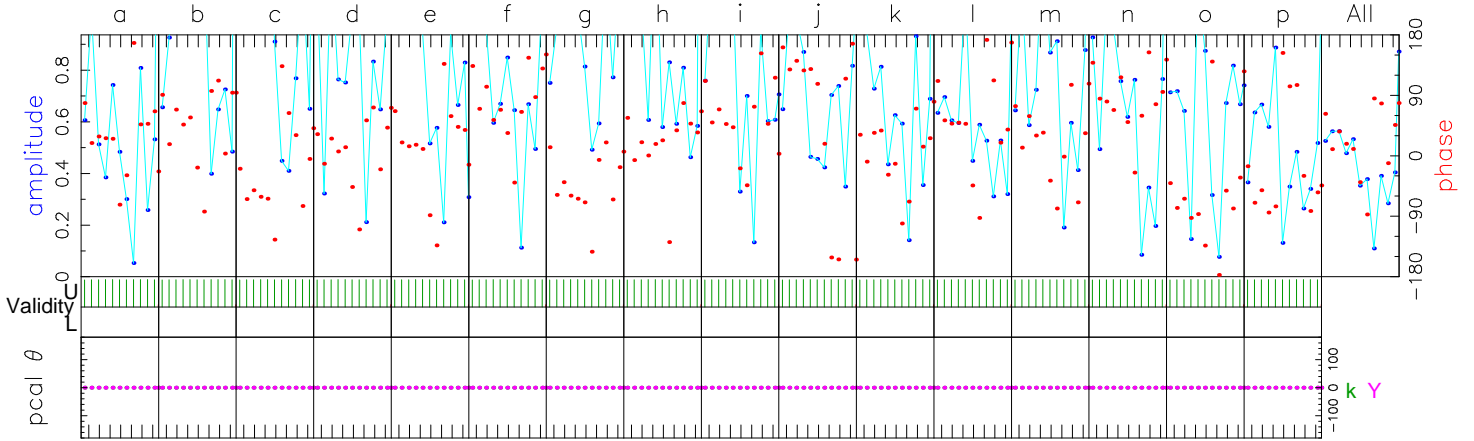


Fringe quality 9

SNR 17.1  
Int time 400.498  
Amp 0.312  
Phase 22.7  
PFD 0.0e+00  
Delays (us)  
SBD 0.000258  
MBD -0.007039  
Fringe rate (Hz) 0.019708  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011516.90  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100823  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 71 APs / seg (36.35 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
U/L	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
Y	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
k:Y	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
k:Y	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
Y	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Chan ids
Y	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Tracks

Group delay (usec)(sbd) -3.41233806370E+03 Apriori delay (usec) -3.41233102454E+03 Resid mbdelay (usec) -7.03916E-03 +/- 6.3E-05  
 Sband delay (usec) -3.41233076604E+03 Apriori clock (usec) -1.0069795E+01 Resid sbdelay (usec) 2.58500E-04 +/- 1.0E-03  
 Phase delay (usec) -3.41233102381E+03 Apriori clockrate (us/s) -4.1457899E-07 Resid phdelay (usec) 7.31228E-07 +/- 2.2E-07  
 Delay rate (us/s) 1.93903431502E+00 Apriori rate (us/s) 1.93903408623E+00 Resid rate (us/s) 2.28786E-07 +/- 9.3E-10  
 Total phase (deg) -140.7 Apriori accel (us/s/s) 1.42897386593E-05 Resid phase (deg) 22.7 +/- 6.7

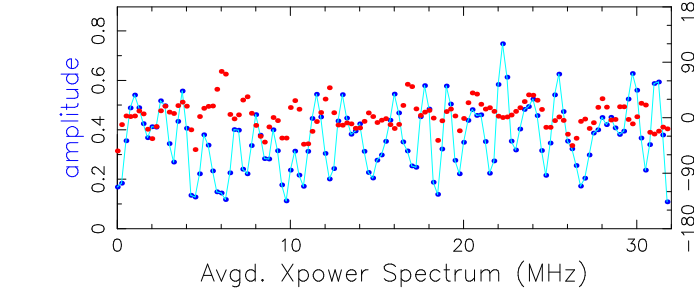
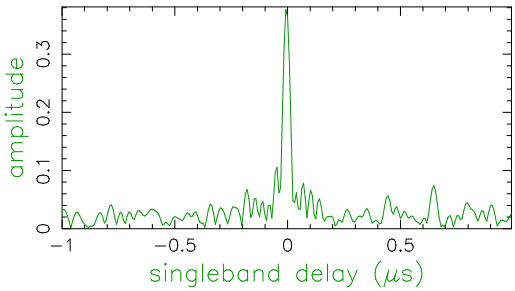
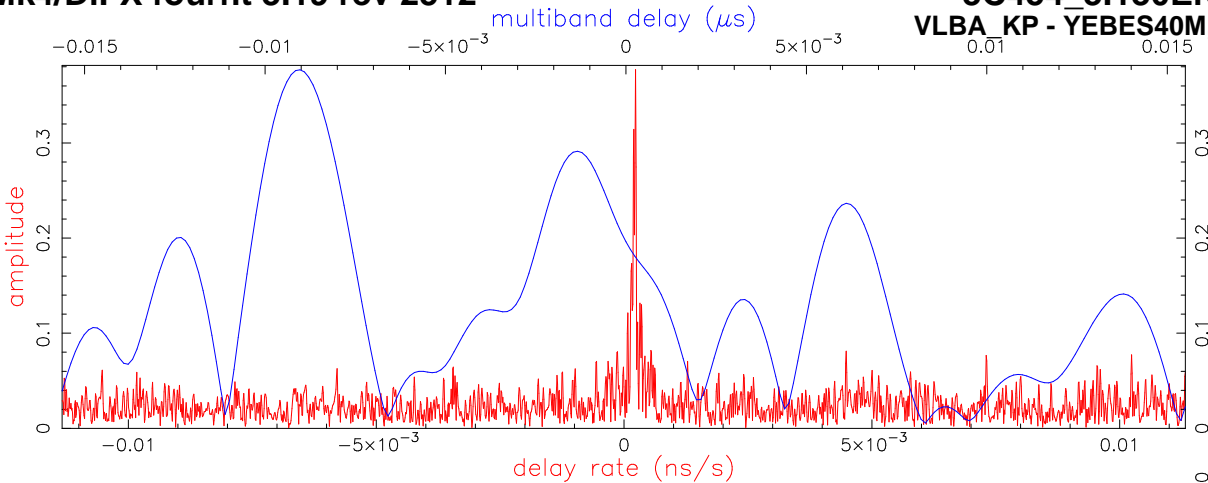
ph/seg (deg) RMS Theor. Amplitude 0.312 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 49.3 11.6 Search (2048X64) 0.297 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 55.9 20.3 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 amp/frq (%) 61.7 13.4 Inc. seg. avg. 0.412 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011  
 amp/frq (%) 75.4 23.4 Inc. frq. avg. 0.503 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00

k: az 89.3 el 30.8 pa -62.0 Y: az 251.5 el 44.2 pa 48.5 u,v (fr/asec) -11542.727 -627.088 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/KY..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kY.W.184.130EN2

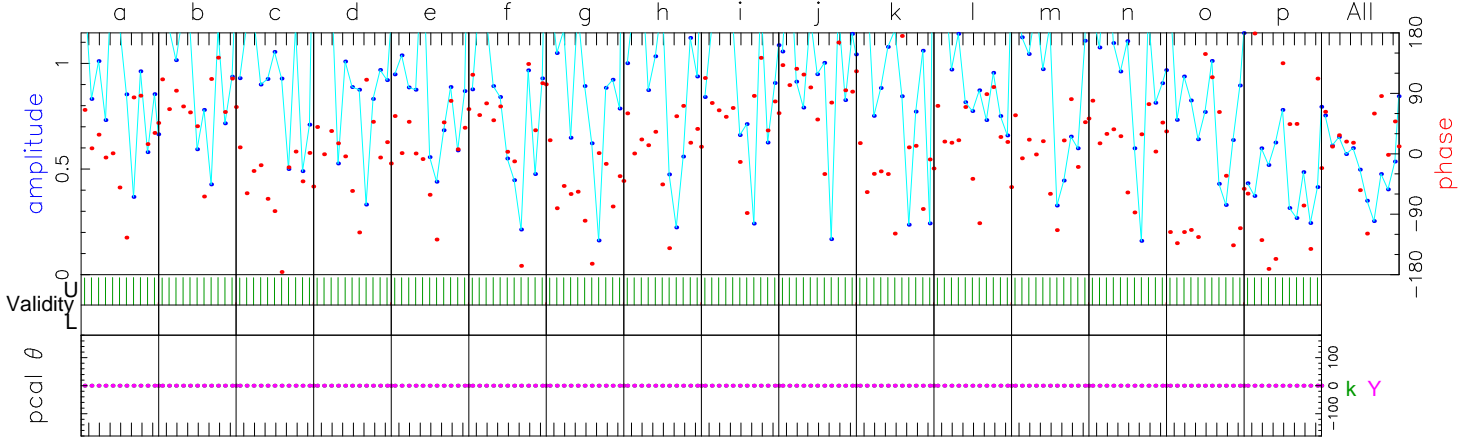
Fringe quality 5

SNR 20.9  
Int time 400.497  
Amp 0.382  
Phase 25.7  
PFD 0.0e+00  
Delays (us)  
SBD -0.005185  
MBD -0.009050  
Fringe rate (Hz)  
0.019905  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011516.90  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100827  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"



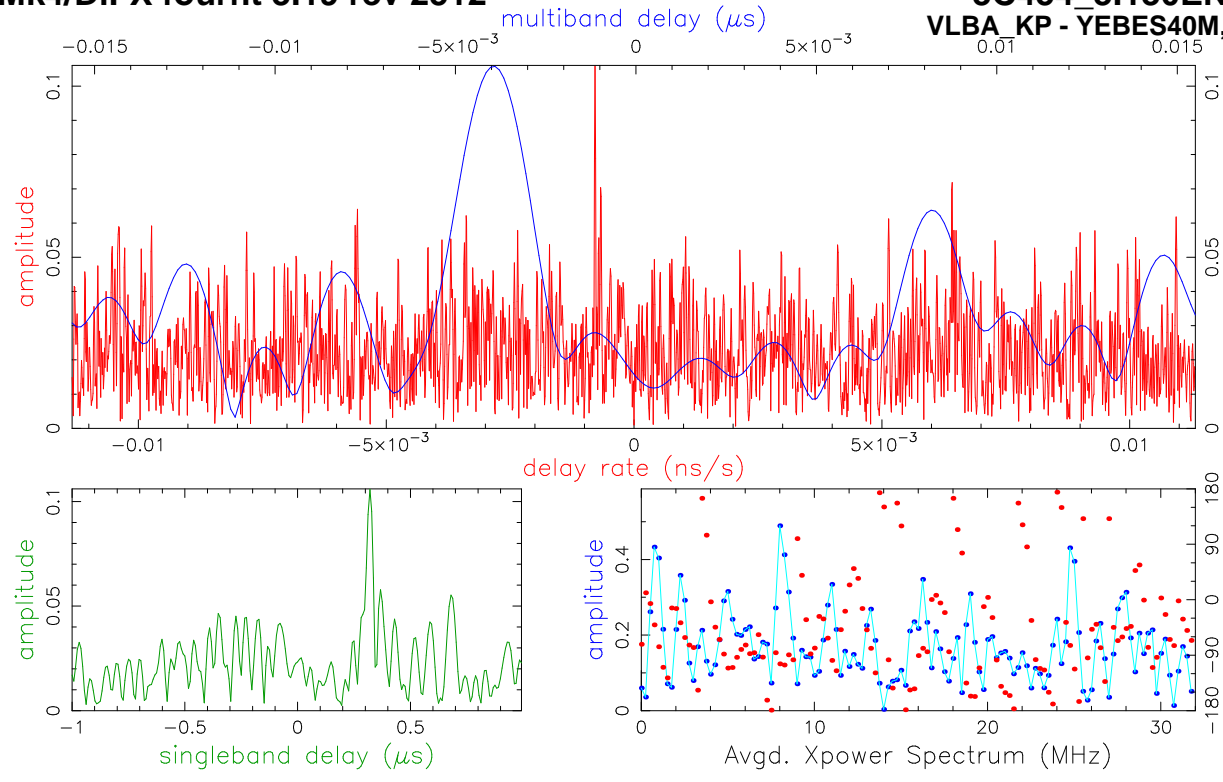
Amp. and Phase vs. time for each freq., 12 segs, 71 APs / seg (36.35 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All				
U/L	18.7	85.3	-35.4	9.2	21.0	75.3	-52.0	18.3	73.0	104.6	-39.4	35.5	15.2	28.7	-133.6	-166.5	Phase	25.7				
k	0.6	0.7	0.6	0.7	0.6	0.6	0.7	0.7	0.6	0.7	0.6	0.6	0.7	0.7	0.5	0.2	Ampl.	0.6				
Y	127.9	128.6	128.5	127.9	129.1	128.6	128.9	128.3	128.0	128.2	128.5	128.1	128.0	127.9	127.4	126.3	Sbd box	128.3				
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	APs used					
Y	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
k:Y	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase					
k:Y	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp					
Y	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000						
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Chan ids					
Y	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Tracks					
Group delay (usec)(sbd)			-3.41234007427E+03														Apriori delay (usec)	-3.41233102454E+03	Resid mbdelay (usec)	-9.04973E-03	+/-	5.2E-05
Sband delay (usec)			-3.41233620954E+03														Apriori clock (usec)	-1.0069795E+01	Resid sbdelay (usec)	-5.18500E-03	+/-	8.3E-04
Phase delay (usec)			-3.41233102371E+03														Apriori clockrate (us/s)	-4.1457899E-07	Resid phdelay (usec)	8.28625E-07	+/-	1.8E-07
Delay rate (us/s)			1.93903431731E+00														Apriori rate (us/s)	1.93903408623E+00	Resid rate (us/s)	2.31079E-07	+/-	7.6E-10
Total phase (deg)																	Apriori accel (us/s/s)	1.42897386593E-05	Resid phase (deg)	25.7	+/-	5.5

ph/seg (deg) 56.2 9.5  
amp/seg (%) 51.6 16.6  
ph/frq (deg) 76.8 11.0  
amp/frq (%) 70.6 19.2  
RMS Theor. Amplitude 0.382 +/- 0.018  
Search (2048X64) 0.370  
Interp. 0.000  
Inc. seg. avg. 0.514  
Inc. frq. avg. 0.605  
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(MISamp/s): 64  
Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite  
sb window (us) -1.000 1.000  
mb window (us) -0.016 0.016  
dr window (ns/s) -0.011 0.011  
ion window (TEC) 0.00 0.00

k: az 89.3 el 30.8 pa -62.0 Y: az 251.5 el 44.2 pa 48.5 u,v (fr/asec) -11542.727 -627.088 simultaneous interpolator  
Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kY..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kY.W.203.130EN2

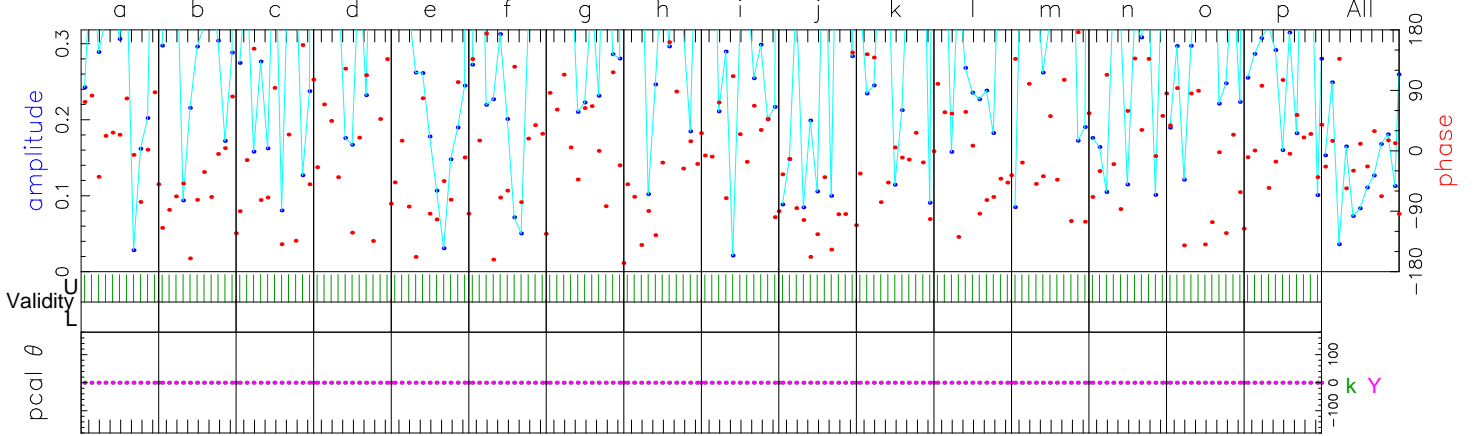


Fringe quality 0

SNR 5.8  
Int time 400.498  
Amp 0.106  
Phase -10.7  
PFD 8.2e-01  
Delays (us)  
SBD 0.320787  
MBD -0.003932  
Fringe rate (Hz)  
-0.068039  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011516.90  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100833  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

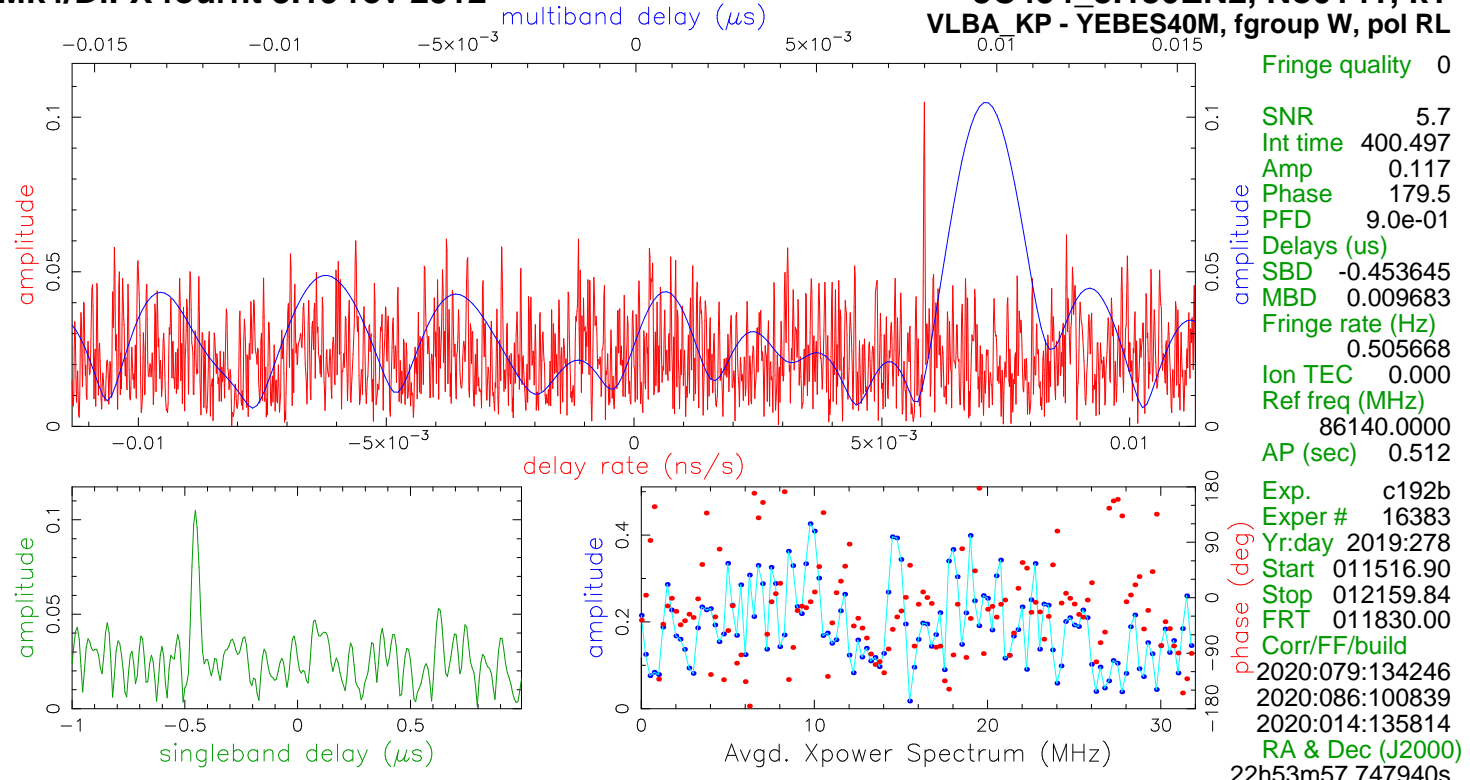
Amp. and Phase vs. time for each freq., 12 segs, 71 APs / seg (36.35 sec / seg.), time ticks 60 sec



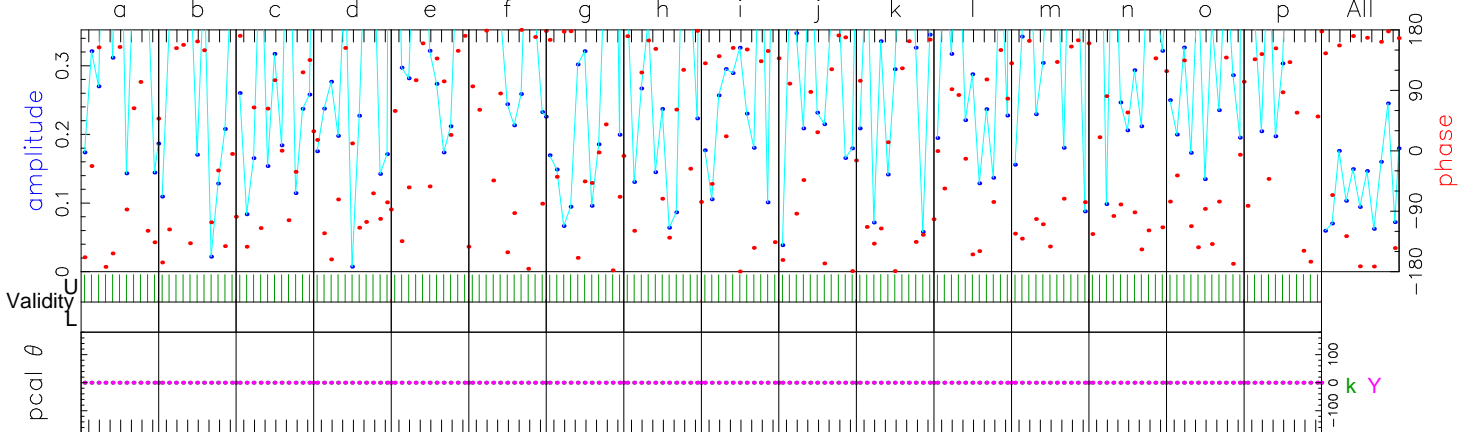
	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
U/L	46.1	-65.7	-47.0	31.3	-44.2	13.8	37.2	-44.0	1.1	-91.6	-21.3	-18.7	-24.2	42.0	-54.4	12.8		Phase -10.7
k	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.2		Ampl. 0.1
Y	168.7	169.2	28.7	216.1	209.9	70.4	171.8	135.2	171.4	20.0	78.2	5.5	240.6	61.4	177.7	69.6		Sbd box 170.1
k	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0		APs used
Y	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC freqs
k:Y	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		PC phase
k:Y	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0		ManI PC
Y	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		PC amp
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Chan ids	
W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Tracks	
Group delay (usec)(sbd) -3.41202245694E+03 Apriori delay (usec) -3.41233102454E+03 Resid mbdelay (usec) -3.93240E-03 +/- 1.9E-04																		
Sband delay (usec) -3.41201023754E+03 Apriori clock (usec) -1.0069795E+01 Resid sbdelay (usec) 3.20787E-01 +/- 3.0E-03																		
Phase delay (usec) -3.41233102488E+03 Apriori clockrate (us/s) -4.1457899E-07 Resid phdelay (usec) -3.44403E-07 +/- 6.4E-07																		
Delay rate (us/s) 1.93903329637E+00 Apriori rate (us/s) 1.93903408623E+00 Resid rate (us/s) -7.89862E-07 +/- 2.7E-09																		
Total phase (deg) -174.1 Apriori accel (us/s/s) 1.42897386593E-05 Resid phase (deg) -10.7 +/- 19.8																		
ph/seg (deg)	RMS	Theor.	Amplitude		0.106 +/- 0.018		Pcal mode: MANUAL, MANUAL		PC period (AP's) 5, 5		sb window (us)		-1.000	1.000				
amp/seg (%)	53.9	34.3	Search (2048X64)		0.101		Pcal rate: 0.000E+00, 0.000E+00 (us/s)		SampCntNorm: enabled		mb window (us)		-0.016	0.016				
ph/frq (deg)	60.0	59.8	Interp.		0.000		Bits/sample: 2x2		Sample rate(MISamp/s): 64		dr window (ns/s)		-0.011	0.011				
amp/frq (%)	43.7	39.6	Inc. seg. avg.		0.114		Data rate(Mb/s): 2048		nlags: 128		ion window (TEC)		0.00	0.00				
	66.9	69.0	Inc. frq. avg.		0.114													
k: az 89.3 el 30.8 pa -62.0 Y: az 251.5 el 44.2 pa 48.5 u,v (fr/asec) -11542.727 -627.088 simultaneous interpolator																		
Control file: cf_1234_gmva Input file: /Exps/c192b/v2/1234/No0141/KY..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kY.W.222.130EN2																		

Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, kY  
VLBA\_KP - YEBES40M, fgroup W, pol RL



Amp. and Phase vs. time for each freq., 12 segs, 71 APs / seg (36.35 sec / seg.), time ticks 60 sec



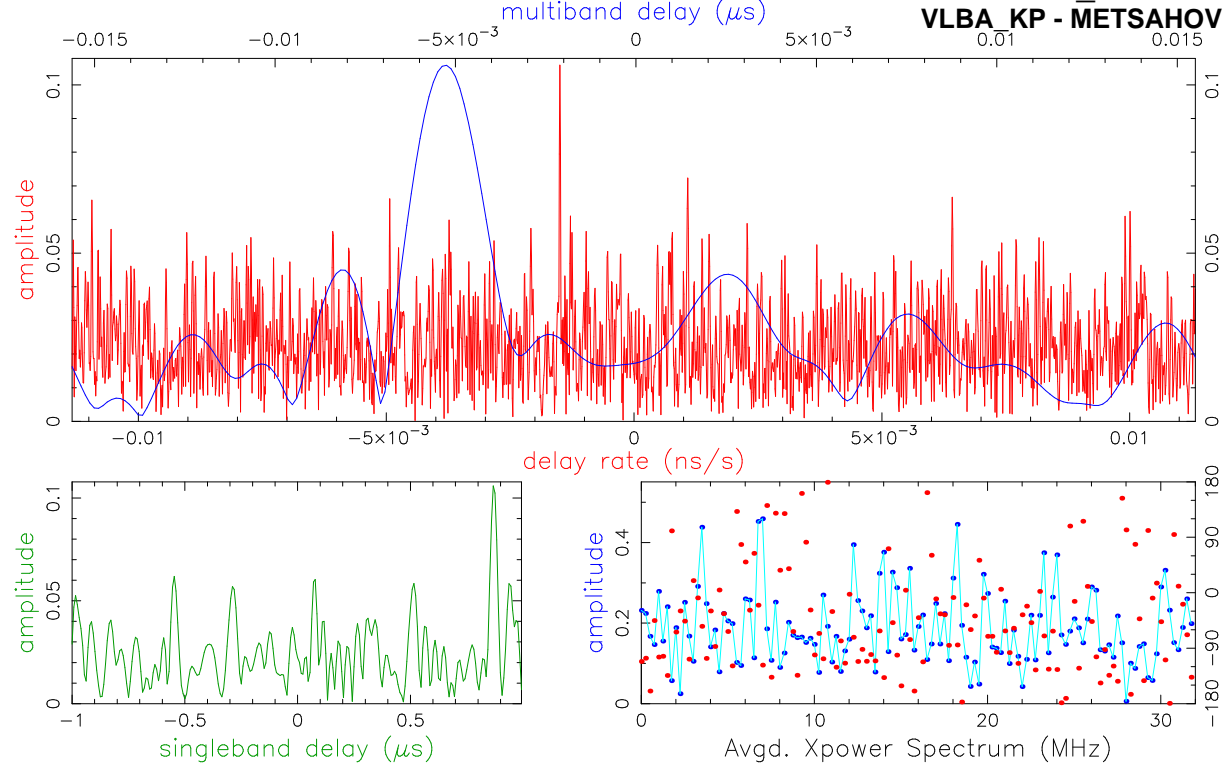
	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
	171.8	-170.5	-166.0	-106.1	129.9	157.9	-119.6	160.3	167.0	135.5	-175.6	98.4	-168.8	-101.6	-144.8	133.9	Phase	179.5
	0.2	0.2	0.1	0.2	0.2	0.1	0.0	0.1	0.2	0.1	0.2	0.1	0.3	0.2	0.1	0.1	Ampl.	0.1
	215.7	42.2	209.0	182.9	73.5	2.9	234.0	175.4	72.4	93.6	60.0	59.9	70.4	149.7	243.3	16.2	Sbd box	70.9
U/L	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	787/0	APs used	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
Y	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
k:Y	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase	
k:Y	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC	
Y	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR		Chan ids	
Y	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL		Tracks

Group delay (usec)(sbd) -3.41279009149E+03 Apriori delay (usec) -3.41233102454E+03 Resid mbdelay (usec) 9.68305E-03 +/- 1.9E-04  
 Sband delay (usec) -3.41278467004E+03 Apriori clock (usec) -1.0069795E+01 Resid sbdelay (usec) -4.53645E-01 +/- 3.0E-03  
 Phase delay (usec) -3.41233101875E+03 Apriori clockrate (us/s) -4.1457899E-07 Resid phdelay (usec) 5.78926E-06 +/- 6.4E-07  
 Delay rate (us/s) 1.93903995654E+00 Apriori rate (us/s) 1.93903408623E+00 Resid rate (us/s) 5.87031E-06 +/- 2.8E-09  
 Total phase (deg) 16.1 Apriori accel (us/s/s) 1.42897386593E-05 Resid phase (deg) 179.5 +/- 20.0

RMS Theor. Amplitude 0.117 +/- 0.020 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 ph/seg (deg) 42.1 34.6 Search (2048X64) 0.102 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 amp/seg (%) 56.0 60.3 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 ph/frq (deg) 47.3 39.9 Inc. seg. avg. 0.116 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011  
 amp/frq (%) 58.3 69.7 Inc. frq. avg. 0.123 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00

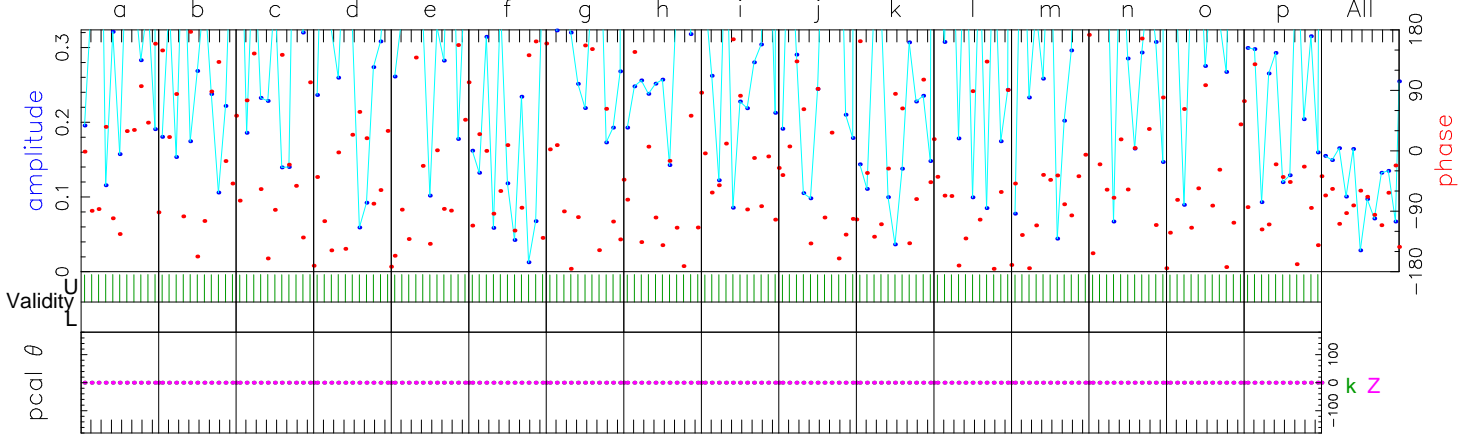
k: az 89.3 el 30.8 pa -62.0 Y: az 251.5 el 44.2 pa 48.5 u,v (fr/asec) -11542.727 -627.088 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/KY..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kY.W.239.130EN2





Fringe quality 0  
SNR 6.0  
Int time 414.814  
Amp 0.108  
Phase -78.7  
PFD 4.7e-01  
Delays (us)  
SBD 0.869851  
MBD -0.005253  
Fringe rate (Hz)  
-0.129013  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512  
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100823  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec

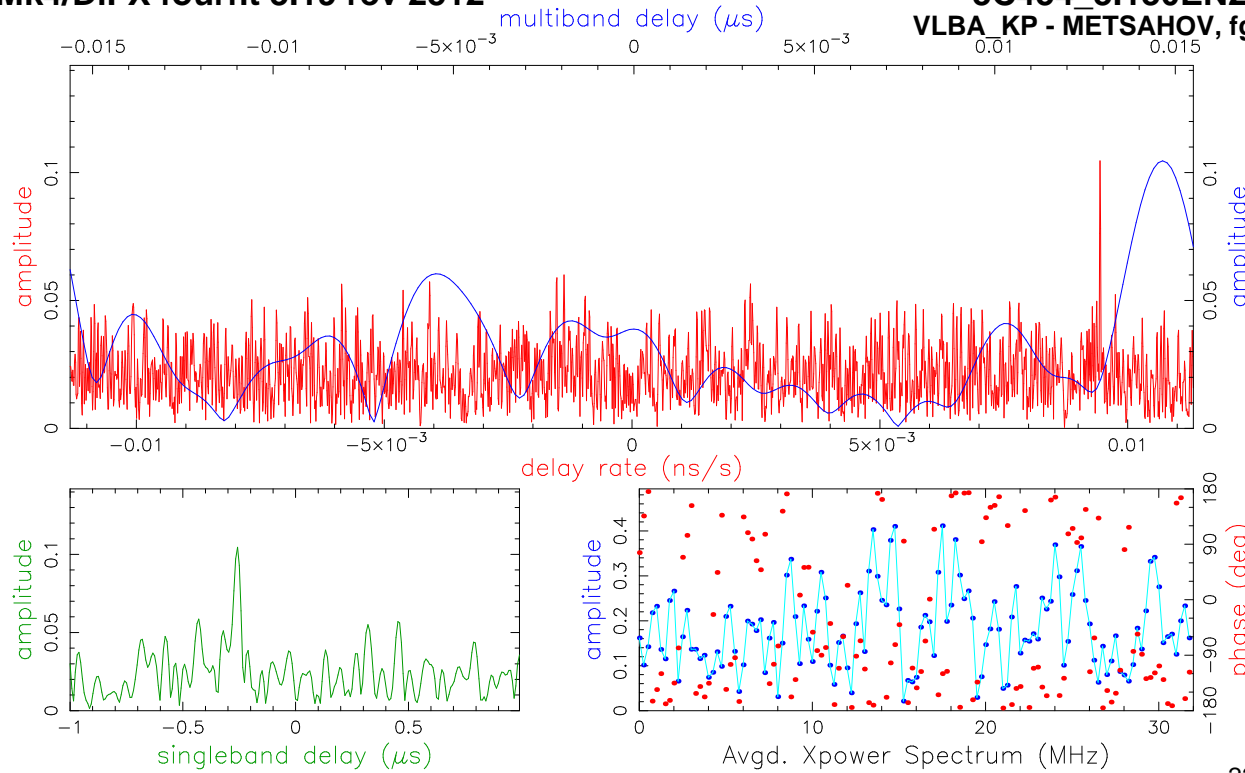


	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All	
	-30.5	-80.6	-96.3	-66.3	-94.9	-72.2	-123.1	-125.0	-26.1	-98.9	-111.4	-103.4	-63.7	-36.3	-81.6	-97.1	Phase	-78.7	
	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.1	0.2	0.2	0.1	0.2	0.1	Ampl.	0.1	
	144.1	207.8	7.3	92.1	149.2	179.7	248.2	94.6	140.0	161.2	53.6	194.4	239.8	199.7	250.7	106.2	Sbd box	240.3	
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	APs used		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs		
Z	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs		
k:Z	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC phase		
k:Z	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	Mani PC		
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp		
Z	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp		
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Chan ids		
Z	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Tracks		
																	Chan ids		
																	Tracks		
Group delay (usec)(sbd)		3.20436175483E+03									3.20349200821E+03						Resid mbdelay (usec)	-5.25338E-03	+/- 1.8E-04
Sband delay (usec)		3.20436185871E+03									-5.8447427E-01						Resid sbdelay (usec)	8.69851E-01	+/- 2.9E-03
Phase delay (usec)		3.20349200567E+03									-2.1087179E-07						Resid phdelay (usec)	-2.53659E-06	+/- 6.2E-07
Delay rate (us/s)		1.83204690038E+00									1.83204839809E+00						Resid rate (us/s)	-1.49771E-06	+/- 2.6E-09
Total phase (deg)				132.7							-2.77381163532E-05						Resid phase (deg)	-78.7	+/- 19.2

ph/seg (deg) RMS Theor. Amplitude 0.108 +/- 0.018 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 25.3 33.3 Search (2048X64) 0.103 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 41.4 58.1 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 amp/frq (%) 32.1 38.4 Inc. seg. avg. 0.099 Sample rate(MISamp/s): 64 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite dr window (ns/s) -0.011 0.011  
 amp/frq (%) 47.1 67.0 Inc. frq. avg. 0.101 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00  
 k: az 89.3 el 30.8 pa -62.0 Z: az 263.1 el 22.7 pa 30.9 u,v (fr/asec) -10973.594 -3451.635 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kZ..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kZ.W.185.130EN2

Mk4/DiFX fourfit 3.19 rev 2512

3C454\_3.130EN2, No0141, kZ  
VLBA\_KP - METSAHOV, fgroup W, pol RR



Fringe quality 0

SNR 5.8

Int time 414.814

Amp 0.142

Phase 69.1

PFD 7.5e-01

Delays (us)

SBD -0.258465

MBD 0.014649

Fringe rate (Hz)

0.814599

Ion TEC 0.000

Ref freq (MHz)

86140.0000

AP (sec) 0.512

Exp. c192b

Exper # 16383

Yr:day 2019:278

Start 011502.56

Stop 012159.84

FRT 011830.00

Corr/FF/build

2020:079:134246

2020:086:100827

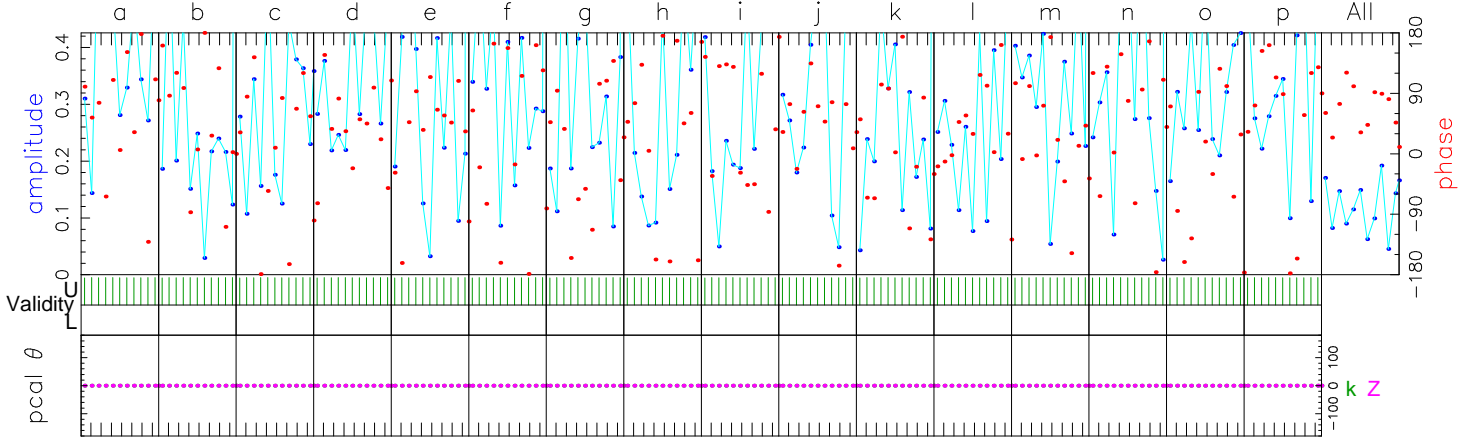
2020:014:135814

RA & Dec (J2000)

22h53m57.747940s

+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
	90.6	87.3	90.9	32.9	60.3	141.7	-3.6	111.8	17.8	59.0	32.8	33.8	34.3	119.1	1.3	106.8	Phase	69.1
	0.2	0.2	0.1	0.2	0.3	0.1	0.1	0.2	0.1	0.3	0.1	0.2	0.2	0.2	0.1	0.3	Ampl.	0.1
	66.1	56.1	154.1	102.5	31.9	7.9	13.0	37.3	72.7	96.6	75.2	197.3	207.3	66.4	213.7	163.2	Sbd box	95.9
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	APs used	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
Z	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC phase	
k:Z	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	ManI PC	
k:Z	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC amp	
Z	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000		
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Chan ids	
Z	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Tracks	
Group delay (usec)(sbd)	3.20322540694E+03			Apriori delay (usec)			3.20349200821E+03			Resid mbdelay (usec)			1.46487E-02			+/- 1.9E-04		
Sband delay (usec)	3.20323354271E+03			Apriori clock (usec)			-5.8447427E-01			Resid sbdelay (usec)			-2.58465E-01			+/- 3.0E-03		
Phase delay (usec)	3.20349201044E+03			Apriori clockrate (us/s)			-2.1087179E-07			Resid phdelay (usec)			2.22824E-06			+/- 6.3E-07		
Delay rate (us/s)	1.83205785478E+00			Apriori rate (us/s)			1.83204839809E+00			Resid rate (us/s)			9.45669E-06			+/- 2.6E-09		
Total phase (deg)	280.4			Apriori accel (us/s/s)			-2.77381163532E-05			Resid phase (deg)			69.1			+/- 19.7		

RMS Theor. Amplitude 0.142 +/- 0.024

ph/seg (deg) 29.3 34.0 Search (2048X64) 0.103

amp/seg (%) 44.1 59.4 Interp. 0.000

ph/frq (deg) 46.3 39.3 Inc. seg. avg. 0.136

amp/frq (%) 63.8 68.6 Inc. frq. avg. 0.145

Group delay (usec)(sbd) 3.20322540694E+03 Apriori delay (usec) 3.20349200821E+03 Resid mbdelay (usec) 1.46487E-02 +/- 1.9E-04

Sband delay (usec) 3.20323354271E+03 Apriori clock (usec) -5.8447427E-01 Resid sbdelay (usec) -2.58465E-01 +/- 3.0E-03

Phase delay (usec) 3.20349201044E+03 Apriori clockrate (us/s) -2.1087179E-07 Resid phdelay (usec) 2.22824E-06 +/- 6.3E-07

Delay rate (us/s) 1.83205785478E+00 Apriori rate (us/s) 1.83204839809E+00 Resid rate (us/s) 9.45669E-06 +/- 2.6E-09

Total phase (deg) 280.4 Apriori accel (us/s/s) -2.77381163532E-05 Resid phase (deg) 69.1 +/- 19.7

PCal mode: MANUAL, MANUAL PC period (AP's) 5, 5

PCal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000

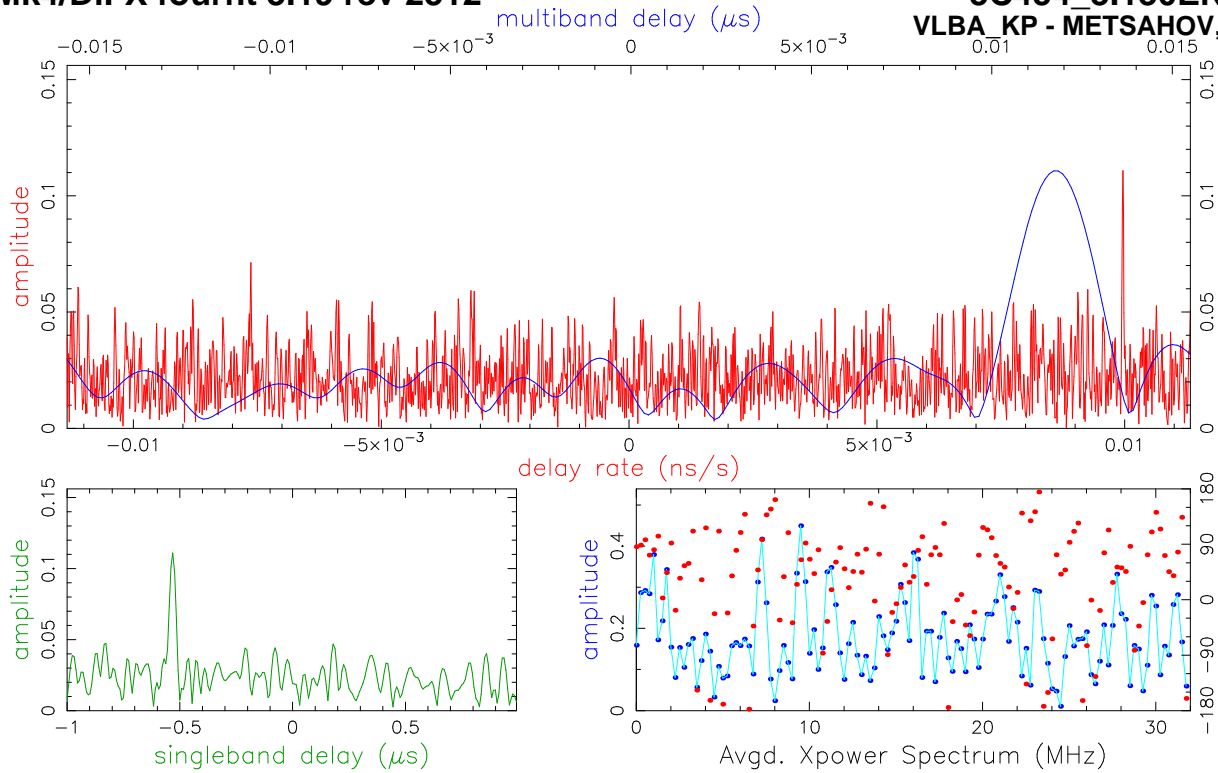
Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016

Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011

Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00

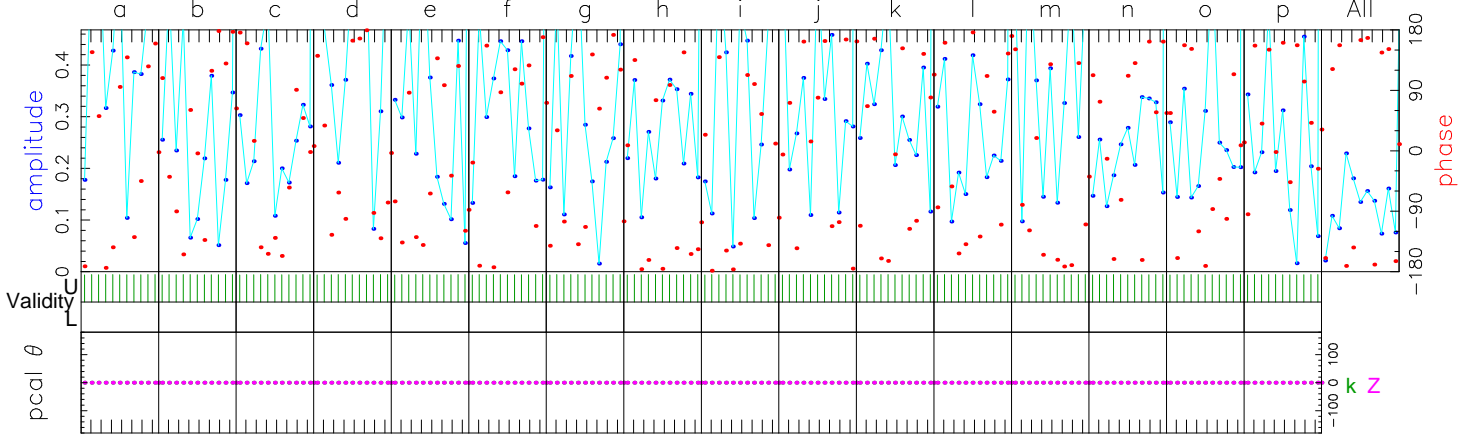
k: az 89.3 el 30.8 pa -62.0 Z: az 263.1 el 22.7 pa 30.9 u,v (fr/asec) -10973.594 -3451.635 simultaneous interpolator

Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kZ..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kZ.W.202.130EN2



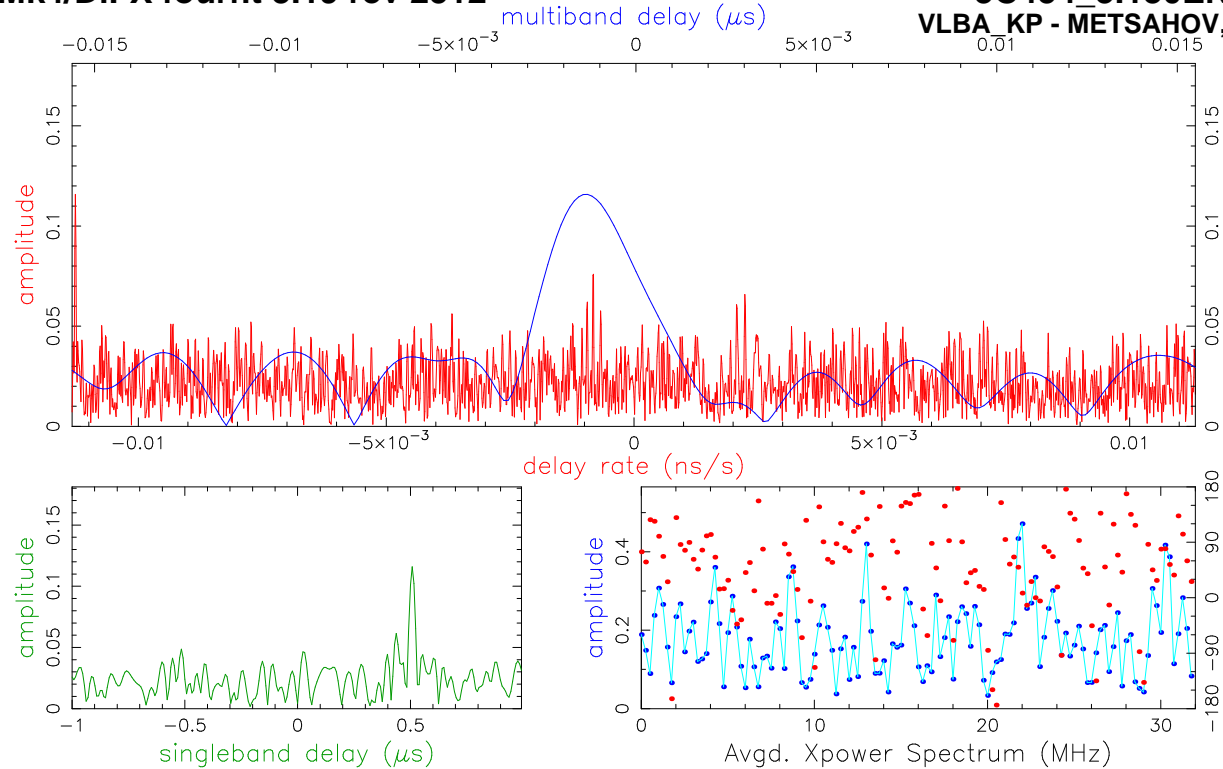
Fringe quality 0  
SNR 6.2  
Int time 414.814  
Amp 0.156  
Phase 174.5  
PFD 1.6e-01  
Delays (us)  
SBD -0.531948  
MBD 0.011772  
Fringe rate (Hz) 0.859121  
Ion TEC 0.000  
Ref freq (MHz) 86140.0000  
AP (sec) 0.512  
Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100831  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All
	144.3	-169.7	-166.3	-152.3	-153.8	151.9	157.9	167.6	163.5	157.4	-178.2	-169.5	-165.6	133.3	-130.8	115.6	Phase	174.5
	0.3	0.1	0.1	0.3	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.1	0.1	0.1	Ampl.	0.1
	39.4	70.0	76.3	248.2	66.4	112.1	135.9	181.9	143.7	152.8	191.0	102.4	63.1	237.2	158.1	72.0	Sbd box	60.9
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	APs used	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs	
Z	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC phase	
k:Z	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	Mani PC	
k:Z	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC amp	
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	Chan ids	
Z	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	Tracks	
k	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Chan ids	
Z	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Tracks	
Group delay (usec)(sbd)		3.20297252975E+03				Apriori delay (usec)		3.20349200821E+03				Resid mbdelay (usec)		1.17715E-02			+/-	1.7E-04
Sband delay (usec)		3.20296006021E+03				Apriori clock (usec)		-5.8447427E-01				Resid sbdelay (usec)		-5.31948E-01			+/-	2.8E-03
Phase delay (usec)		3.20349201384E+03				Apriori clockrate (us/s)		-2.1087179E-07				Resid phdelay (usec)		5.62769E-06			+/-	6.0E-07
Delay rate (us/s)		1.83205837163E+00				Apriori rate (us/s)		1.83204839809E+00				Resid rate (us/s)		9.97354E-06			+/-	2.5E-09
Total phase (deg)					25.8	Apriori accel (us/s/s)		-2.77381163532E-05				Resid phase (deg)		174.5			+/-	18.5

ph/seg (deg) RMS Theor. Amplitude 0.156 +/- 0.025 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 27.5 32.1 Search (2048X64) 0.109 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 52.9 56.1 Interp. 0.000 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 amp/frq (%) 31.3 37.1 Inc. seg. avg. 0.151 Sample rate(MISamp/s): 64 dr window (ns/s) -0.011 0.011  
 amp/frq (%) 44.4 64.7 Inc. frq. avg. 0.144 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite ion window (TEC) 0.00 0.00  
 k: az 89.3 el 30.8 pa -62.0 Z: az 263.1 el 22.7 pa 30.9 u,v (fr/asec) -10973.594 -3451.635 simultaneous interpolator  
 Control file: cf\_1234\_gmva Input file: /Exps/c192b/v2/1234/No0141/kZ..130EN2 Output file: /Exps/c192b/v2/1234/No0141/kZ.W.220.130EN2

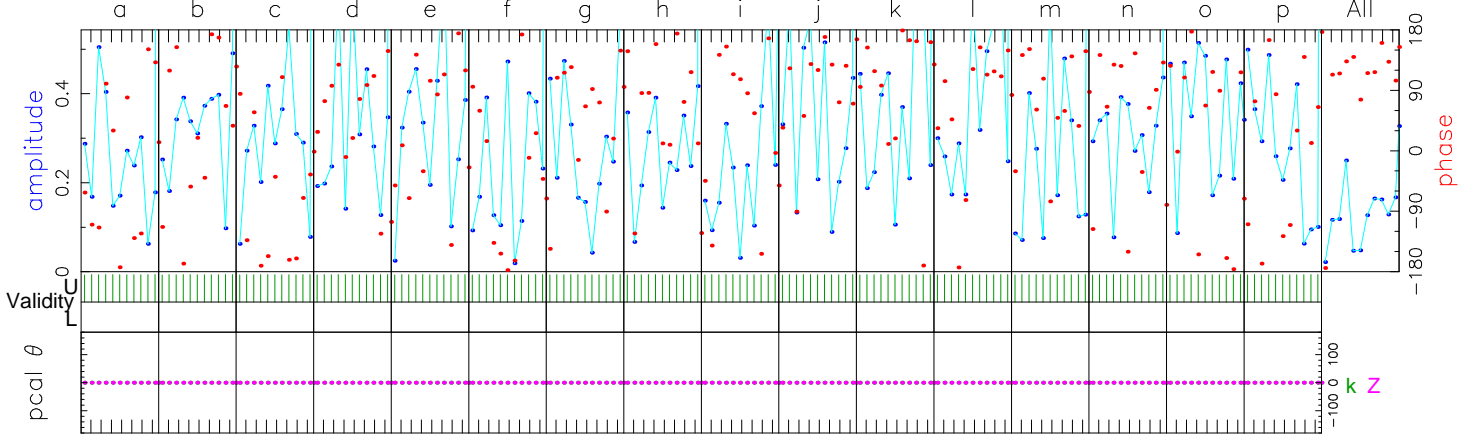


Fringe quality 0

SNR 6.5  
Int time 414.814  
Amp 0.181  
Phase 124.9  
PFD 3.0e-02  
Delays (us)  
SBD 0.508001  
MBD -0.001390  
Fringe rate (Hz)  
-0.972360  
Ion TEC 0.000  
Ref freq (MHz)  
86140.0000  
AP (sec) 0.512

Exp. c192b  
Exper # 16383  
Yr:day 2019:278  
Start 011502.56  
Stop 012159.84  
FRT 011830.00  
Corr/FF/build  
2020:079:134246  
2020:086:100835  
2020:014:135814  
RA & Dec (J2000)  
22h53m57.747940s  
+16°08'53.560909"

Amp. and Phase vs. time for each freq., 12 segs, 74 APs / seg (37.89 sec / seg.), time ticks 60 sec



	86012.00	86044.00	86076.00	86108.00	86140.00	86172.00	86204.00	86236.00	86268.00	86300.00	86332.00	86364.00	86396.00	86428.00	86460.00	86492.00	Freq (MHz)	All				
	-147.2	165.8	-156.2	88.2	106.7	9.5	125.9	95.2	152.0	107.1	142.4	117.6	88.8	129.6	139.4	165.9	Phase	124.9				
	0.1	0.1	0.2	0.3	0.2	0.1	0.2	0.2	0.2	0.4	0.3	0.4	0.1	0.2	0.4	0.1	Ampl.	0.2				
	231.4	204.3	30.1	159.9	98.1	190.7	176.6	255.5	27.5	193.9	213.1	194.8	165.3	153.3	30.0	45.4	Sbd box	194.0				
U/L	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	815/0	APs used					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC freqs					
Z	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	PC phase					
k:Z	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	Mani PC					
k:Z	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	0:0	PC amp					
k	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	Chan ids					
Z	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	Tracks					
k	W00UR	W01UR	W02UR	W03UR	W04UR	W05UR	W06UR	W07UR	W08UR	W09UR	W10UR	W11UR	W12UR	W13UR	W14UR	W15UR	Chan ids					
Z	W00UL	W01UL	W02UL	W03UL	W04UL	W05UL	W06UL	W07UL	W08UL	W09UL	W10UL	W11UL	W12UL	W13UL	W14UL	W15UL	Tracks					
Group delay (usec)(sbd)			3.20399061855E+03														Apriori delay (usec)	3.20349200821E+03	Resid mbdelay (usec)	-1.38965E-03	+/-	1.7E-04
Sband delay (usec)			3.20400000921E+03														Apriori clock (usec)	-5.8447427E-01	Resid sbdelay (usec)	5.08001E-01	+/-	2.7E-03
Phase delay (usec)			3.20349201223E+03														Apriori clockrate (us/s)	-2.1087179E-07	Resid phdelay (usec)	4.02623E-06	+/-	5.7E-07
Delay rate (us/s)			1.83203710995E+00														Apriori rate (us/s)	1.83204839809E+00	Resid rate (us/s)	-1.12881E-05	+/-	2.4E-09
Total phase (deg)				336.2													Apriori accel (us/s/s)	-2.77381163532E-05	Resid phase (deg)	124.9	+/-	17.8

ph/seg (deg) 27.7 30.8 Search (2048X64) 0.110 Pcal mode: MANUAL, MANUAL PC period (AP's) 5, 5  
 amp/seg (%) 54.7 53.7 Interp. 0.000 Pcal rate: 0.000E+00, 0.000E+00 (us/s) sb window (us) -1.000 1.000  
 ph/frq (deg) 50.8 35.5 Inc. seg. avg. 0.168 Bits/sample: 2x2 SampCntNorm: enabled mb window (us) -0.016 0.016  
 amp/frq (%) 66.7 62.0 Inc. frq. avg. 0.183 Sample rate(MISamp/s): 64 Data rate(Mb/s): 2048 nlags: 128 t\_cohere infinite dr window (ns/s) -0.011 0.011  
 k: az 89.3 el 30.8 pa -62.0 Z: az 263.1 el 22.7 pa 30.9 u,v (fr/asec) -10973.594 -3451.635 ion window (TEC) 0.00 0.00  
 simultaneous interpolator