K5 Software Correlator Output Format
(FORMAT 7)

line#	items
1	"#FORMAT7" comments — "#FORMAT7" (fixed letters) + comments
	(comments are program name and fringe rotation parameters)
A1~A5 are inserted when filtering processing is carried out by "fx_cor"	
A1	# BPF parameters folowing shows set M-times BPF)
A2(1)	# flow(MHz)-fhigh(MHz) factor : 1.250000-1.450000 1.000000
	(1st BPF parameters)
repeat M times	
A2(M)	# flow(MHz)-fhigh(MHz) factor : 1.650000-1.850000 1.000000
	(last (M times) BPF parameters)
A3	# Adopted frequency resolution (MHz) = 0.040000
A4	# Output lag size = 2048
A5	# FFT size for processing = 2048
line# shown below is that for the case without filtering parameters	
2	host name — host PC name
3	experiment code
4	scan# (starting from 1)
5	baseline ID
6	date and time of correlation processing (year totalday hour minute second month day)
7	X station name
8	X station position (x,y,z) (m)
9	X data file name
10	Y station name
11	Y station position (x,y,z) (m)
12	Y data file name
13	radio source name
14	radio source right ascension (hour minute second)
15	radio source declination (degree minute second)
16	epoch of radio source position (year)
17	Greenwhich apparent sidereal time at PRT (processing reference time) (hour minute second)
18	scan start time (year totalday hour minute second)
19	scan stop time (year totalday hour minute second)
20	PRT (year totalday hour minute second)
21	a-priori delay τ (sec) at PRT
22	a-priori delay rate $\dot{\tau}$ (s/s) at PRT
23	a-priori delay 2-dots $\ddot{\tau}$ (s/s^2) at PRT
24	a-priori delay 3-dots $d\ddot{\tau}/dt$ (s/s^3) at PRT
25	clock offset (sec) and , clock error of X station (sec)
	(Positive value menas Y clock tic earlier than X clock tic) (Positive value menas X clock tic earlier than UTC clock tic)
26	clock rate (s/s)
27	UT1-UTC (sec) Wob X (arcsec) Wob Y (arcsec) — earth orientation parameters
28	# of channels [N]
29	CH-1 RF frequency (Hz), PCAL frequency (Hz), sideband (1:USB, 0:LSB)
	...
.	CH-N RF frequency (Hz), PCAL frequency (Hz), sideband (1:USB, 0:LSB)
29+N	sampling frequency (Hz)
30+N	X station AD resolution (1, 2, 4 or 8) Y station AD resolution (can be omitted)

31+N	unit integration period of PP (parameter period) (sec)
32+N	total integration period (sec)
33+N	# of lags [L]
34+N	total # of PP [K]
35+N	"PP# 1" — PP#1 start of correlation result
36+N	lag#, CH#, real part of correlation data, imaginary part of correlation data

repeat N×L times

36+N(1+L)	"VALIDITY FLAG, FRACTIONAL BIT and FRINGE PHASE (APRIORI)" — fixed letters
37+N(1+L)	vflag dtime ibit fbit frphase1 [frphase2 frphase3 frphase4 .... frphaseN]

where

vflag – data validity flag
    (1: OK, 0: error occurred at the previous PP)
dtime – time at BOPP (beginning of PP) (seconds from 0h UTC)
ibit – integer delay at BOPP (in unit of sampling period)
fbit – fractional portion of delay at BOPP (in unit of sampling period)
frphase1 – apriori fringe pahse (deg) at BOPP for ch #1
frphase2 – apriori fringe pahse (deg) at BOPP for ch #2
frphase3 – apriori fringe pahse (deg) at BOPP for ch #3
frphase4 – apriori fringe pahse (deg) at BOPP for ch #4
....
frphaseN – apriori fringe pahse (deg) at BOPP for ch #N

38+N(1+L)	"X-PCAL" — fixed letters to show start of PCAL information for X station
39+N(1+L)	m ns PCALR PCALI AMP PHASE

where

m – channel #
ns – # of samples used for PCAL detection
PCALR – real part of PCAL detection
PCALI – imaginary part of PCAL detection
AMP – PCAL amplitude
PHASE – PCAL phase (deg)

repeat N (# of channels) times

39+N(2+L)	"Y-PCAL" — fixed letters to show start of PCAL information for X station
40+N(2+L)	m ns PCALR PCALI AMP PHASE — PCAL data for Y station

repeat N (# of channels) times

40+N(3+L)	"PP# 2" — PP#2 start of correlation result

repeat K (total # of PPs) times
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