General Single Dish Spectral Line Format

Parameter	Pointer Name	Location
Basic Information		
Scan Number	KSNO	1
Type of Data-Observing Mode (Note 1)	KSTC	2
Length of Header (in 8-byte words)	KHLN	3
Length of Data (in 8-byte words)	KDLN	4
Source Name (16 characters)	KSNA	5-6
Observer Name (16 characters)	KONA	7-8
Observer Initials/Operator Initials	KOBS	9
Receiver Descriptor (8 characters)	KRCV	10
Spectrometer Descriptor (8 characters)	KSPT	11
Telescope Descriptor (8 characters)	KTEL	12
Project Identification (8 characters)	KPID	13
Telescope Parameters		
Horizontal Pointing Correction	KHPC	16
Vertical Pointing Correction	KVPC	17
Collimation Error	KCE	18
Bend or Other Pointing Error	KBE	19
Antenna Aperture Efficiency	KAAE	20
Antenna Beam Efficiency	KABE	21
Observing Parameters		
Sample Rate (sec of time)	KSRT	24
Scan Integration Time (Note 2)	KINT	25
Universal Time Date (yyyy.mmdd)	KDAT	26
Universal Time (decimal hours)	KUT	27
LST (decimal hours)	KLST	28
Calibration Temperature (Note 3)	KCAL	29
Receiver Temperature	KRT	30
Source System Temperature	KSTP	31
Reference System Temperature	KRTP	32
Off Scan Number	KOSN	33
Positions		
Coordinate System Code (Note 4)	KCSC	36
Epoch	KEPH	37
Description of Origin (3)	KDSO	38-40
Source Lambda	KSL	41
Source Beta	KSB	42
Reference Lambda	KRL	43
Reference Beta	KRB	44
Epoch Right Ascension	KR50	45
Epoch Declination	KD50	46
Galactic Longitude	KGL	47
Galactic Latitude	KGB	48
Azimuth	KAZ	49

Elevation		KEL	50

Frequency

Rest Frequency		KRF	53
Sky Frequencies(3)		KCF	54-56
Velocity wrt LSR		KVL	57
Velocity wrt SUN		KVH	58
Current Spectral Resolution		KCSR	59
Velocity Definition & Reference (Note 5)		KVRD	60

Frontend

Number of Receivers		KNR	63
Signal Polarization		KSP	64
Reference Polarization		KRP	65
Polarization Code (Note 8)		KPC	66

Environment

Ambient Temperature		KAT	68
Pressure		KPRS	69
Relative Humidity		KRH	70
Index of Refraction		KIR	71
Total Opacity		KTO	72
H20 Opacity		KWO	73
H20 Temperature		KWT	74
02 Temperature		KOT	75

Data Parameters

Bad Channel Value (Note 6)		KBCV	78
Number of Phases		KNPH	79
Number of Data Points per Phase		KNDP	80
Reference Channel Number		KRCN	81
Data Precision Code (Note 7)		KDCP	82
X-axis Code (8 characters)		KXC	83
X-axis Value at Reference Channel		KXRC	84
Delta X		KDX	85

Telescope Dependent Parameters

L1,L1F1,L1F2	(NRAO-GB)	KL1	88-90
L2,L2F1,L2F2	(NRAO-GB)	KL2	91-93
LA,LB,LC,LD	(NRAO-GB)	KLA	94-97
Center Frequency Formula	(NRAO-GB)	KCFF	98-100
Apparent Right Ascension	(NRAO)	KARA	101
Apparent Declination	(NRAO)	KADC	102
LO IF	(NRAO-TUC)	KLOF	88
First IF	(NRAO-TUC)	KFIF	89
Synthesizer Frequency	(NRAO-TUC)	KSYN	90
Sideband & LO Factor	(NRAO-TUC)	KSDB	91
Harmonic	(NRAO-TUC)	KHM	92
VLSR	(NRAO-TUC)	KVR	93
Source Offsets	(NRAO-TUC)	KSOF	94-95
Reference Offsets	(NRAO-TUC)	KROF	96-97
Reference Name-8char	(NRAO-TUC)	KRN	98

Antenna Loss Efficiency	(NRAO-TUC)	KALE	99
Forward Spillover &Scat	(NRAO-TUC)	KFSS	100
Telescope Longitude	(IRAM-BURE)	KTLG	88
Telescope Latitude	(IRAM-BURE)	KTLT	89
Telescope Elevation	(IRAM-BURE)	KTE	90

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Reduction Parameters

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Line Amplitude	KAMP	105
Line Width	KLW	106
Integrated Line Intensity	KILI	107
RMS Noise	KRMS	108
Opacity Fit	KOPF	109
Number of Scans Stacked	KNSS	110
Scaling	KSCL	111
History (72 characters)	KHIS	112-120

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Spectral Values

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Spectrum [Ph1(ch1),Ph2(ch2),....]	KSS	KHLN+1

Note 1: Codes for observing modes (Negative value implies Continuum Data)
- a) 1 = position switched
- b) 2 = frequency switched
- c) 3 = load switched
- d) 4 = beam switched
- e) 5 = sky - horn
- f) 6 = total power
- g) 7 = polarization
- h) 8 = correlation front end

Note 2: Scan integration time will represent all time integrated including time on reference but excluding blanking time. When scans are stacked, scan integration time reflects the total integration time of the sum.

Note 3: Calibration temperature is the noise tube temperature or calibration scale value.

Note 4: Coordinate codes are as follows
- a) 0 = Galactic (LII,BII)
- b) 1 = 1950 RA, DEC
- c) 2 = Epoch RA, DEC
- d) 3 = Mean RA, DEC at start of scan
- e) 4 = Apparent RA, DEC
- f) 5 = Apparent HA, DEC
- g) 6 = 1950 Ecliptic

h) 7 = Epoch Ecliptic
i) 8 = Mean Ecliptic at start of scan
j) 9 = Apparent Ecliptic
k) 10 = Azimuth, Elevation
l) 11 = User Defined Coordinate System

Note 5: Velocity Definition
a) 0 = Radio
b) 1 = Optical
Velocity Reference
a) 0 = LSR
b) 1 = Heliocentric
c) 2 = EARTH
d) 3 = Baricentric

Note 6: Bad Channels are identified by some small value as 1.0E-37

Note 7: Data precision codes are:
L1,I2,I4,R4,R8,R16,C8,C16

Note 8: Signal Polarization = RC ,LC ,LIN
Reference Polarization = RC ,LC ,LIN