

Precipitation Processing System (PPS) Product Format Description

Hybrid Scan Reflectivity (HSR)

Change History Log		
Author	Date	Build
Kelley Miles	3/8/2005	8
Jihong Liu	3/31/2005	correction

Setting	Value	Comment
Product type	16-level	
Time generated	Once every volume scan	
Product size	N/A	
Compression	None	
Range of data level values (dBZ)	Variable with operation mode, area climatology, and season, and with NEXRAD system adaptation data	
Range of reflectivity	-32 to +95 dBZ	
AWIPS ID	WSRHSRxxx	xxx is site ID for originating WFO
Description/Purpose: HSR's Symbology block only has one layer.		

The following table provides a detailed specification of the HSR product.

[Note: a half-word (INT*2) is 16 bits]

MESSAGE HEADER

References

2620001F (Class I User ICD):
Fig 3-3 "Message Header"

HALF-WORD	FIELDNAME	TYPE	UNITS	VALUE	PRECISION/ACCURACY	NOTES
01	Message Code	INT*2	N/A	33	N/A	
02	Date of Message	INT*2	Julian Date	1 to 32,767	1	

03-04	Time of Message	INT*4	Seconds	0 to 86,399	1	
05-06	Length of Message	INT*4	N/A	18 to 409856	1	
07	Source ID	INT*2	N/A	0 to 999	1	
08	Destination ID	INT*2	N/A	0 to 999	1	
09	Number of Blocks	INT*2	N/A	3	1	

PRODUCT DESCRIPTION BLOCK

References

2620001F (Class I Users ICD):

Fig 3-6 “Graphic Product Message” Sheet 2, Sheet 6, Sheet 7

Table III “Message Codes for Products”

Table V “Product Dependent Halfword Definition for Product Description Block”

2620003F (Product Spec ICD):

1-2 Color Level Code Table

HALF-WORD	FIELDNAME	TYPE	UNITS	VALUE	PRECISION/ACCURACY	NOTES
10	Block Divider	INT*2	NA	-1	N/A	
11-12	Latitude of Radar	INT*4	Degrees	-90 to +90	0.001	
13-14	Longitude of Radar	INT*4	Degrees	-180 to +180	0.001	
15	Height of Radar	INT*2	Feet	-100 to +11000	1	
16	Product Code	INT*2	N/A	33		
17	Operational Mode	INT*2	N/A	0 to 2	N/A	
18	Volume Coverage Pattern	INT*2	N/A	1 to 767	N/A	
19	Sequence Number	INT*2	N/A	-13, 0 to 32767	1	
20	Volume Scan Number	INT*2	N/A	1 to 80	1	
21	Volume Scan Date	INT*2	Julian Date	1 to 32767	1	
22-23	Volume Scan Start Time	INT*4	Seconds GMT	0 to 86399	1	
24	Product Generation Date	INT*2	Julian Date	1 to 32767	1	
25-26	Product Generation Time	INT*4	Seconds	0 to 86399	1	
27	Not used	INT*2	N/A	0	N/A	
28	Not used	INT*2	N/A	0	N/A	
29	Elevation Number	INT*2	N/A	0 to 20	1	
30	Not used	INT*2	N/A	0	N/A	

HALF-WORD	FIELDNAME	TYPE	UNITS	VALUE	PRECISION/ACCURACY	NOTES
31	Data Level Threshold 1	INT*2	dBZ	ND	N/A	
32	Data Level Threshold 2	INT*2	dBZ	5	N/A	
33	Data Level Threshold 3	INT*2	dBZ	10	N/A	
34	Data Level Threshold 4	INT*2	dBZ	15	N/A	
35	Data Level Threshold 5	INT*2	dBZ	20	N/A	
36	Data Level Threshold 6	INT*2	dBZ	25	N/A	
37	Data Level Threshold 7	INT*2	dBZ	30	N/A	
38	Data Level Threshold 8	INT*2	dBZ	35	N/A	
39	Data Level Threshold 9	INT*2	dBZ	40	N/A	
40	Data Level Threshold 10	INT*2	dBZ	45	N/A	
41	Data Level Threshold 11	INT*2	dBZ	50	N/A	
42	Data Level Threshold	INT*2	dBZ	55	N/A	
43	Data Level Threshold 13	INT*2	dBZ	60	N/A	
44	Data Level Threshold 14	INT*2	dBZ	65	N/A	
45	Data Level Threshold 15	INT*2	dBZ	70	N/A	
46	Data Level Threshold 16	INT*2	dBZ	75	N/A	
47	Maximum Reflectivity	INT*2	dBZ	95	1	
48	Date of Scan	INT*2	Julian Date	1 to 32767	1	
49	Average Time of Hybrid Scan	INT*2	Minutes	1 – 1439	1	
50	Not Used	INT*2	N/A	0	N/A	
51	Not Used	INT*2	N/A	0	N/A	
52	Not used	INT*2	N/A	0	N/A	
53	Not used	INT*2	N/A	0	N/A	
54	Version	INT*1	N/A	0	1	

HALF-WORD	FIELDNAME	TYPE	UNITS	VALUE	PRECISION/ACCURACY	NOTES
54	Spot Blank	INT*1	N/A	0 to 1	1	
55-56	Offset to Product Symbology block	INT*4	Half-words	60	1	
57-58	Offset to Graphic Attributes block	INT*4	Half-words	0	1	
59-60	Offset to Graphic Alphanumeric block	INT*4	Half-words	0	1	

PRODUCT SYMBOLOGY BLOCK

References

2620001F (Class I User ICD):

- Section 3.2.1.2 “Product Symbology Block”
- Fig 3-6 “Graphic Product Message” (Sheet 8)
- Fig 3-8b “Text and Special Symbol Packets”
- Fig 3-10 “Radial Data Packet”

2620003 (ICD for Product Specification):

33-1 HSR Product Description

HALF-WORD	FIELDNAME	TYPE	UNITS	VALUE	PRECISION/ACCURACY	NOTES
61	Block Divider	INT*2	N/A	-1	N/A	
62	Block ID	INT*2	N/A	1	N/A	
63-64	Length of Block	INT*4	Bytes	1 to 400000	1	
65	Number of Layers	INT*2	N/A	1	1	
66	Layer Divider	INT*2	N/A	-1	N/A	
67-68	Length of Data Layer not including layer divider and layer length	INT*4	N/A	1 to 400000	1	
69	Packet Code	INT*2	N/A	AF1F(Hex)	N/A	
70	Index of First Range Bin	INT*2	N/A	0	1	
71	Number of Range Bins	INT*2	N/A	230	1	
72	I Center of Sweep	INT*2	Km/4	256	1	
73	J Center of Sweep	INT*2	Km/4	280	1	
74	Scale Factor	Scaled Integer	Pixels	1.0	0.001	

HALF-WORD	FIELDNAME	TYPE	UNITS	VALUE	PRECISION/ACCURACY	NOTES
75	Number of Radials	INT*2	N/A	360	1	
76	Number of RLE Halfword in Radial	INT*2	N/A	1 to 230	1	}Repeat
77	Radial Start Angle	Scaled Integer	Degrees	0.0 to 359.0	0.1	} Each } of }
78	Radial Angle Delta	Scaled Integer	Degrees	1.0 to 2.0	0.1	} Radial } }
79	Run (0)	4 Bit INT	N/A	0 to 15	1	} }
79	Color Code (0)	4 Bit INT	N/A	0 to 15	1	} }
79	Run (1)	4 Bit INT	N/A	0 to 15	1	} }
79	Color Code (1)	4 Bit INT	N/A	0 to 15	1	} }
...	}
	Run (N)	4 Bit INT	N/A	0 to 15	1	} }
	Color Code (N)	4 Bit INT	N/A	0 to 15	1	}
	End of Block	4 Bit INT	N/A	0000	N/A	End of } block } marker }
	End of Block	4 Bit INT	N/A	0000	N/A	End of } block } marker }

[GRAPHIC ALPHANUMERIC BLOCK IS NOT USED BY HSR]

[TABULAR ALPHANUMERIC BLOCK IS NOT USED BY HSR]