About RSP-00 telemetry format

Riemann Sut Project

Page 2

table of contents

1

Page 3

1 Outline

In this document, telemetry data format of CW, AFSK, GMSK distributed by RSP - 00

I will describe. The following data is applicable.

Modulation method	Data type	
CW	Space post text data	[2]
	HK data	[3]
AFSK	HK data	[4]
	Photographed image data	[5] re
GMSK	Photographed image data	[5] re

2 CW Space Post Text Data

Space post text data will be sent with text message as it is in CW. Met

Sage has two patterns of Japanese hiragana, English.

2

Page 4

3 CW HK data

CW's HK data is delivered at 50 second intervals. The transmission format is as follows. The

Fix is a string appended to a number. In addition, there is a space between each content

I will do it.

No.	Contents	suffix	Remarks
1	RSP-00	-	Fixed value
2	Call sign	-	Fixed value
3	Battery voltage	mV	Decimal number display
4	Battery current	mA	Decimal number display
5	Reception level	(lev)	Decimal number display
6	Temperature 1	(t1)	-Z face, decimal number indication (°C)
7	Temperature 2	(t2)	+ Y face, decimal number indication (° C)
8	Temperature 3	(t3)	-X face, decimal number indication (°C)
9	Temperature 4	(t4)	-Y face, decimal number indication (°C)
10	Temperature 5	(t 5)	+ Z face, decimal number indication (° C)
11	Power ON status bit string	: Pow_sw	Bit assignment see below
			Hexadecimal display

3

Page 5

The assignment of each bit of the Power ON status bit string is as follows. The initial value is 0xFF, Power ON
Turn OFF the target bit at the time of execution.

No.	Assignment bit	Contents
1	0x01	Mission power supply
2	0x02	Posture system power supply (always ON for RSP - 00)
3	0x04	Antenna deployment (Nichrome wire heating)
Four	0x08	QPSK transmitter power supply

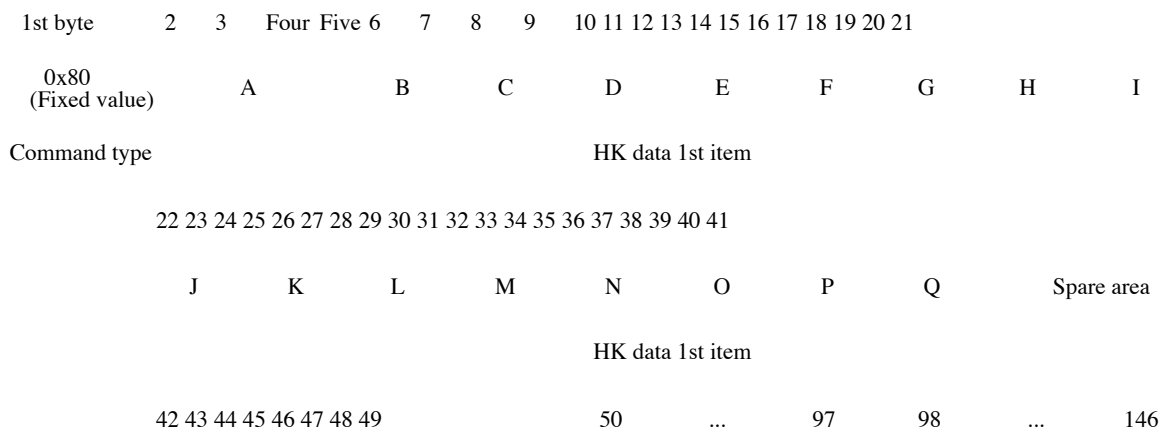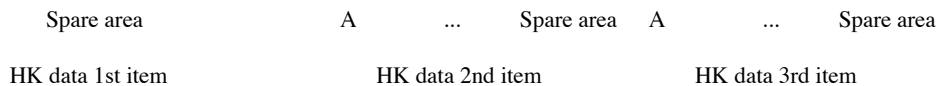Five 0x40   Communication system Transmitting side power supply

Four

Page 6

4 AFSK HK data

The AKK HK data consists of a fixed 1 byte value indicating the command type and 48 bytes × N (N = 1 to 3)

It consists of HK data part. There is no space separator for each data.

1st byte	2	3	Four	Five	6	7	8	9	10 11 12 13 14 15 16 17 18 19 20 21
0x80 (Fixed value)		A		B	C		D	E	F G H I
Command type								HK data 1st item	

22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41									
J	K	L	M	N	O	P	Q		Spare area
				HK data 1st item					

42 43 44 45 46 47 48 49	50	...	97	98	...	146

Spare area		A	…	Spare area	A	…	Spare area

HK data 1st item	HK data 2nd item	HK data 3rd item

The maximum number of HK data is 3. There may be one or two.

The details of HK data are described below.

symbol	Contents	Data size	Remarks
A	time	4 bytes	Elapsed time since startup (sec)
B	Mission consumption current	2 bytes	Unit is mA (decimal number display)
C	Communication (transmission) current consumption	2 bytes	Unit is mA (decimal number display)

Five

Page 7

D	Communication system (reception) current consumption	2 bytes	Unit is mA (decimal number display)
E	C & DH consumption current	2 bytes	Unit is mA (decimal number display)
F	Solar voltage	2 bytes	Unit is mV (decimal number display)
G	Battery 1 voltage	2 bytes	Unit is mV (decimal number display)
H	Battery 1 current	2 bytes	Unit is mA (decimal number display)
I	Battery 2 voltage	2 bytes	Unit is mV (decimal number display)
J	Battery 2 current	2 bytes	Unit is mA (decimal number display)
K	3.5 V voltage	2 bytes	Unit is mV (decimal number display)
L	5 V voltage	2 bytes	Unit is mV (decimal number display)
M	Temp 1	2 bytes	-Z face, decimal number indication (°C)
N	Temp 2	2 bytes	+ Y face, decimal number indication (° C)
O	Temperature 3	2 bytes	-X face, decimal number indication (°C)
P	Temperature 4	2 bytes	-Y face, decimal number indication (°C)

| Q | The temperature 5 | 2 bytes | + Z face, decimal number indication (° C) |

6

5 AFSK / GMSK / QPSK captured image data

In RSP - 00, shot image data is delivered in jpeg format. The jpeg image data is one

Shred the file and downlink it. Format of data to be downlinked

Is a fixed value of 1 byte indicating the command type, 2 bytes of data representing the data size to be transmitted

It consists of data size part and data part. The idea that the data part is within 100 bytes at maximum

It is fixed. The photographed image data includes the first to 100 th bytes of the image file, 101 B

From the 200 th byte to the 200 th byte ..., and so on, one file is divided into multiple responses

It will be divided down and downlinked.

1st byte	2	3	Four	...	4+ data size
0x03 (fixed value)	Data size				Photographed image data
Command type	Data size part				Data section

7