

From: King, KJ (Ken) SPIRE-RAL-COM-001000
Sent: 22 October 2001 10:39
To: Stefan.Thuerey@esa.int; patrice.couzin@space.alcatel.fr;
Keithrobert_Hibberd@vzmta01.netfr.alcatel.fr
Cc: Anders.Elfving@esa.int; Andrei.Oganessian@esa.int; Astrid.Heske@esa.int;
Farid.Guettache@esa.int; John.Dodsworth@esa.int; Karim.Mellab@esa.int;
FWECHSLE@estec.esa.nl; fgr@iac.es; jhl@iac.es; charra@ias.u-psud.fr;
orfei@ifsi.rm.cnr.it; stassi@isn.in2p3.fr; beney@lal.in2p3.fr;
fgb@mpe.mpg.de; ohb@mpe.mpg.de; King, KJ (Ken) ; Parker, DJ (Dave) -
SSTD; Swinyard, BM (Bruce) ; Long, JA (Judy) ; butler@tesre.bo.cnr.it;
mmiccolis@webmail.laben.it
Subject: Response to Action Items from Data Management WG #8
Dear all,

Here are SPIRE's answers to the CDMS #8 Actions:

AI#1

Current estimate is that SPIRE housekeeping will have approximately 250 16 bit parameters reported every two seconds. It is possible that these will be split into up into two types of housekeeping packet: a safety information packet that could be reported every second; and a nominal housekeeping packet reported every 2 seconds

AI#5

This has to be agreed for all Herschel instruments - but SPIRE prefers that the DPU time is synchronized using the SDB features

AI#6

There are no SPIRE TM packets that require action by the spacecraft within 500ms

AI#7

SPIRE will request at least 25 subframes per second to be available when we are the prime instrument.

Justification for the two main operating modes are shown in the attached tables

Cheers

Ken



Telemetry Data
Rate POF1.pdf



Telemetry Data
Rate SOF1.pdf

SPIRE Telemetry Data Rate
POF1

DCU Science	Nominal	
Number of data channels	270	
Number of engineering channels	30	
Bits per channel	16	bits
Frame size	4800	bits
Frames per packet	1	
Packet size	4976	bits
Sampling rate	16	frames/sec
Packets per sec	16	

MCU Science	Nominal	
Number of data channels	0	
Number of engineering channels	10	
Bits per channel	16	bits
Frame size	160	bits
Frames per packet	16	
Packet size	2736	bits
Sampling rate	64	frames/sec
Packets per sec	4	

SCU Science	Nominal	
Number of data channels	0	
Number of engineering channels	20	
Bits per channel	16	bits
Frame size	320	bits
Frames per packet	4	
Packet size	1456	bits
Sampling rate	4	frames/sec
Packets per sec	1	

DPU Science	Nominal	
Number of data channels	0	
Number of engineering channels	16	
Bits per channel	16	bits
Frame size	256	bits
Frames per packet	4	
Packet size	1200	bits
Sampling rate	4	frames/sec
Packets per sec	1	

Housekeeping	Nominal	
Number of DCU data channels	32	
Number of MCU data channels	32	
Number of SCU data channels	64	
Number of DPU data channels	122	
Bits per channel	16	bits
Frame size	4000	bits
Frames per packet	1	
Packet size	4176	bits
Sampling rate	0.5	frames/sec
Packets per sec	0.5	

Total packet rate	22.5	
Total data rate	95304	

SPIRE Telemetry Data Rate
POF1

50
100000
8144
1760

SPIRE Telemetry Data Rate
SOF1

DCU Science	Nominal	
Number of data channels	56	
Number of engineering channels	4	
Bits per channel	16	bits
Frame size	960	bits
Frames per packet	8	
Packet size	7856	bits
Sampling rate	80	frames/sec
Packets per sec	10	

MCU Science	Nominal	
Number of data channels	0	
Number of engineering channels	2	
Bits per channel	32	bits
Frame size	64	bits
Frames per packet	120	
Packet size	7856	bits
Sampling rate	240	frames/sec
Packets per sec	2	

SCU Science	Nominal	
Number of data channels	0	
Number of engineering channels	20	
Bits per channel	16	bits
Frame size	320	bits
Frames per packet	4	
Packet size	1456	bits
Sampling rate	4	frames/sec
Packets per sec	1	

DPU Science	Nominal	
Number of data channels	0	
Number of engineering channels	16	
Bits per channel	16	bits
Frame size	256	bits
Frames per packet	4	
Packet size	1200	bits
Sampling rate	4	frames/sec
Packets per sec	1	

Housekeeping	Nominal	
Number of DCU data channels	32	
Number of MCU data channels	32	
Number of SCU data channels	64	
Number of DPU data channels	122	
Bits per channel	16	bits
Frame size	4000	bits
Frames per packet	1	
Packet size	4176	bits
Sampling rate	0.5	frames/sec
Packets per sec	0.5	

Total packet rate	14.5	
Total data rate	99016	

SPIRE Telemetry Data Rate
SOF1