**Present:**
**Bruce Swinyard; Christophe Cara; Frederic Pinsard**

**Actions in RED**

*o*) Frederic will provide response to comments on DCU documentation in electronic form in SPIRE-RAL-NOT-001399.

*i)* Fast interface: Christophe notes that the DPU is probably not compliant with its own specification – an NCR should be raised by IFSI on this interface. If the DPU hardware cannot be fixed Christophe says that SAp can make the DRCU generic interface work properly but the fix is not elegant.

*ii)* Low speed interface: Christophe acknowledges that he has misinterpreted the timing diagram and SAp will fix the DRCU hardware to be compliant with the IFSI documentation. Christophe will update the DRCU/DPU ICD and add a timing diagram to make the interface explicit.

*iii)* Protocol (SYN0): IFSI have provided in the protocol the possibility that there will be no acknowledgement of commands sent to the DRCU. That a command is sent and not checked by the DPU for correct receipt by the DRCU is not acceptable (and this is made explicit in the requirements on the OBS). Christophe was attempting to make it impossible for there to be no acknowledgement by always setting SYN0=1 – IFSI don't want this so the idea will be dropped as long as the procedure for checking the command receipt is present in the OBS.

*iv)* MCU Frame Contents: Christophe accepts the frame contents as described in an e-mail from Bruce on 02/12/02 – here is the vital bit….

> *Frame contents:*
> *Ken has calculated that with the slightly increased data available (130 kbs) we can have 6 or 7 parameters for the SMEC frame and "a lot" of parameters for the BSM packet - Trace is discussed below.*
>
> *So SMEC packet contents:*
> *Length*
> *Frame#*
> *Acq Date MSW*
> *Acq Date LSW*
> *Opt Encoder Coarse Position*
> *Opt Encoder Fine Position*
> *LVDT Fine Position*
> *Commanded Current to the actuator*
> *Actuator Back e.m.f.*
> *Trans. Date MSW*
> *Trans Date LSW*
> *Checksum*
>
> *You'll see we have removed the LVDT coarse position and replaced it with the commanded current from the control loop and the back e.m.f. - this allows us to striaghtforwardly detect any errors in the SMEC operation during normal data processing. The coarse position of the LVDT is reported through the housekeeping once per second (every 500 um at standard velocity). Also we will know where the LVDT is crudely because the 16 bit number will wrap round.*
>
> *BSM:*

*Length*
*Frame #*
*Acq Date MSW*
*Acq Date LSW*
*Chop Position*
*Chop Commanded Current*
*Chop Back e.m.f.*
*Jiggle Position*
*Jiggle Commanded Current*
*Jiggle Back em.f.*
*Transmission date MSW*
*Transmission data LSW*
*Checksum*

*Again we've added the commanded current and back e.m.f. to allow for error checking during normal processing*

The "Trace" mode data contents still need to be defined meanwhile Christophe will update the contents lists for the MCU frames in the DRCU/DPU ICD.

*v)* MCU Commanding: BMS explained need to maintain the ability to update the control parameters in flight. Christophe accepts that this is required and doesn't mind whether it is by direct command or by updating a RAM address. Discussion with Didier is on-going on the definition of the flight command set.

*vi)* PMW Routing through LIAs: BMS demonstrated Doug Griffin's spreadsheet that gives the routing of the pixels through the harnesses and electronics. This appears to show that both the prime and back-up chop pixels for PMW go through two halves of a single LIA card. As these share a power supply there is the possibility of a single point failure. It is possible to do something about this by re-ordering the connectors - Doug will provide the spreadsheet to Frederic and Christophe for comment and to confirm the correct ordering of the connectors.

*vii)* Order of data in frames: Christophe has colour coded the table giving the detector data frame content in the ICD – this will appear in the next version.

*viii)* Requirements on SCOS2000: ESA have requested definition of the requirements on the display algorithms for SCOS2000 (logs; trig functions etc) – are these required for the conversion curves for the DRCU housekeeping? BMS to send a separate request to Christophe on this matter.

*ix)* LIA Power Switch on Procedure: This is explained in more detail in the PSU specification – BMS has this and will update the "reactions" document accordingly. Christophe points up that we cannot switch on both the LIA-S and LIA-P lines because this may draw too much current from the PSU. There should be a hardware OR system to prevent this – Christophe will look at the possibility. If not the DPU command procedure must take care of the safe operation. Note also that the MCU is now switched on via a command to the SCU.

*xi)* DCU Voltage Measurement: BMS pointed out that the DCU was not the same as the other sub-systems as it did not directly measure and report any power rail voltages. Christophe agreed this was anomalous and would look at the possibility of measuring the primary supply from the PSU and reporting this as a housekeeping parameter.

| Action | Description | Responsible | Due Date | Status/Disposition |
|---|---|---|---|---|
| 1484-1 | Frederic will provide response to comments on DCU documentation in electronic form in SPIRE-RAL-NOT-001399. | FP | 24 Jan 2003 | Open |
| 1484-2 | Christophe will update the DRCU/DPU ICD and add a timing diagram to make the interface explicit. | CC | 24 Jan 2003 | Open |
| 1484-3 | Christophe will update the contents lists for the MCU frames in the DRCU/DPU ICD. | CC | 24 Jan 2003 | Open |
| 1484-4 | Doug will provide the spreadsheet to Frederic and Christophe for comment and to confirm the correct ordering of the connectors | DKG | 24 Jan 2003 | Partly closed – Doug has confirmed connector order is o.k. |
| 1484-5 | BMS to send a separate request to Christophe on subject of SCOS2000 requirements | BMS | 10 Jan 2003 | Closed |