United Kingdom report to ISO TC20/SC13, October 2008

P Allan, 21 October 2008

Management

Organization / Changes

Within the UK, the Space Software and Standards Panel handles organization of CCSDS activities, including the discussion of which activities should be supported, by having people attend working group meetings and contribute to the development of CCSDS recommendations, as well as the organization of the review of draft ISO standards.

SSSP reports to both the BSi technical committee ACE/68, which deals with all space related standards activities including liaison with bodies such as ECSS, and to the BNSC Space Technology Advisory Board. Peter Allan remains as the chair of SSSP although it is the chair of ACE/68 who signs off new BSi standards.

Part of the CCSDS and BSi standards work is funded by BNSC. John Davey at BNSC has the responsibility of overseeing international standards development. He attends the meetings of the technical panels and so has a good view of where funding is needed.

Meetings of the SSSP are typically held two times a year and meeting of the technical committee ACE/68 are held approximately four times per year. There has been no meeting of SSSP this year due to lack of financial support.

Areas of Agency Involvement

At present, it is not clear to what level BNSC will fund CCSDS related activities for the current year, including the specific SC13 activities. Co funding for CCSDS activities in the UK is provided by industrial self funding, and through the EC Framework 6 project CASPAR.

Manpower Allotted

The manpower allotted specifically to SC13 and ACE/68 activities amounts to approximately 8 days per year.

Implementation Activities

Spacecraft Utilizing SC13 Standards

Most spacecraft that have a UK involvement are part of international consortia. Examples of missions with a large UK involvement are SOHO, STEREO, XMM Newton, Hinode, Mars Express, Venus Express, Herschel, Planck, JWST, GAIA,

and ExoMars. While these are large spacecraft, the UK has built and operated small spacecraft, an example of which is TOPSAT, jointly funded by BNSC and the Ministry of Defence. It is a technology demonstrator for low cost imaging (2.5m resolution, £15M total cost, including one year of operations). It was successfully launched on 27 October 2005 and is still working successfully, comfortably exceeding its one-year design lifetime. We are presently conducting as phase-A study for a lunar mission (MoonLite).

Ground Facilities Utilizing SC13 Standards

RAL ground station
QinetiQ ground station
Surrey Satellites Ltd (partial)

The above do not use all of the available standards, although the usage is increasing with time.

Since a large part of the UK involvement in missions is building instruments for international missions, standards in the SOIS area are particularly important to us.

Documentation Activities

All of the draft standards from SC13 are reviewed by SSSP and have been approved and passed on for issue as BSi Standards.

The ISO standards currently issued as BSi standards are as follows:

ISO	BS Z	Document
11103	1	Radio metric and orbit data
11754		Telemetry channel coding
12172		Telecommand – Data routing service
12173		Telecommand – Command operations procedures
12174		Telecommand – Architectural specification for the data management service
12175	4	SFDUs Structure and construction rules
13419		Packet telemetry
13420	9	AOS Network and data links – Architectural specification
13764	5	SFDUs Control authority procedures
14721		Open archival information systems – Reference model
14961		Parameter value language specification
14962	7	ASCII encoded English
15395	10	SFDUs Control authority data structures
15396		Cross Support Reference Model – SLE
15887	17	Data systems – Lossless data compression
15888	18	Standard formatted data units – Referencing environment

15889		Data description language. EAST specification.
17355		CCSDS file delivery protocol
17433		Packet telemetry services
20652		Producer-archive interface - Methodology abstract standard
21459		Proximity-1 space link protocol. Coding and synchronization sublayer.
21460		Proximity-1 space link protocol — Physical layer
21961		Data entity dictionary specification language (DEDSL). Abstract syntax.
21962		Data entity dictionary specification language (DEDSL). PVL syntax.
22641		TM (telemetry) synchronization and channel coding
22642		TC (telecommand) synchronization and channel coding
22643		Data entity dictionary specification language (DEDSL). XML/DTD syntax
22645		TM (telemetry) space data link protocol
22646		Space packet protocol
22647		Space Link Identifiers
22664		TC space data link protocol
22667		Communication operations – Procedure 1
22669		Space Link Extension (SLE) – Return all frames service
22670		Space Link Extension (SLE) – Return channel frames service
22671		Space Link Extension (SLE) — Forward command link transmission unit (CLTU)
22672		Space Link Extension (SLE) – Forward space packet service.
26143		Space Link Extension (SLE) — Return operational control fields service

Note that BSi no longer gives ISO documents additional BS Z numbers as is indicated in the above table. As time goes by, old BS Z documents will be replaced by updated ISO ones.

Technical Activities

Status of Action Items

There are no action items that currently apply.

Status of On-Going Assignments

The on-going assignment is to receive documents through the British Standards Institute and to ensure that it is reviewed for BSi and to then approve it (or not) for issuance as a British Standard.

Status of Liaison Activities

The chair of SSSP (Peter Allan) attends meetings of ACE/68, which processes standards relating to space systems and operations. In addition, ACE/68 receives reports on the work taking place in the European Co-operation for Space Standardization (ECSS) committees.