United Kingdom report to ISO TC20/SC13, June 2010

P Allan, 10 June 2010

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 STAB. Peter Allan is the chair of the panel 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 the UK Space Agency. Richard Crowther at the UK Space Agency has taken over the responsibility of overseeing international standards development.

Meetings of the technical committee ACE/68 are held approximately four times per year.

On 1 April 2010, the UK Space Agency came into being, replacing BNSC. While the main role of BNSC was to coordinate the UK space activities, the UK Space Agency will actually fund them.

Areas of Agency Involvement

The funding for CCSDS activities in the UK is provided by the UK Space Agency, 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 3 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, ExoMars. Hence it is difficult to highlight ones that might be considered UK spacecraft. However, one such example is TOPSAT which was 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. Prior to that, the four STRV satellites were used to test several aspects of technology, including some CCSDS protocols.

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.

Since the previous meeting of SC13, the UK has voted to accept the following documents as international standards.

ISO	Document Title
13527	XML formatted data unit (XFDU) structure and construction rules
13537	Reference architecture for space data systems
13541	Attitude data messages

The UK has voted to confirm the following standards as a result of a systematic ISO review.

22669	Space link extension (SLE) -- Return-all-frames service
22671	Space link extension (SLE) -- Forward communications link transmission unit (CLTU) service
26143	Space link extension (SLE) -- Return operational control fields service

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.
[15891]		Protocol specification for space communications. Network protocol
[15892]		Protocol specification for space communications. Security protocol
[15893]		Protocol specification for space communications. Transport protocol
[15894]		Protocol specification for space communications. File protocol
[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
[22644]		Orbit data messages
22645		TM (telemetry) space data link protocol
22646		Space packet protocol
22647		Space Link Identifiers
22663		Proximity-1 space link protocol. Data link.
22664		TC space data link protocol
22666		AOS 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
26868		Image Data Compression

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.

ISO numbers in parentheses are documents that have been withdrawn by ISO and are in the process of being withdrawn by BSi.

ISO numbers in square brackets are documents that have been approved as BSi standards, but for some reason do not yet appear on the internal web site.

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 shadows the work of the European Co-operation for Space Standardization (ECSS) committees.