—œ‡°±•>˛ˇ
áâ˛˘˘˘ÖÜ˘˘˘
˘˘˘
˘˘˘
˘˘Ï·
¡Åb ø™ jbjb^≈^≈ êúßúß™ ˘˘˘˘˘˘àîîîîîîîî@'@'@'@'$d'îU3j)))))fl)fl)fl)Ã2Œ2Œ2Œ2Œ2Œ2Œ2Œ2,ø4R7t˙2îfl)fl)
fl)fl)fl)˙2Û)îî))€3Û)Û)Û)fl)
î)î)Ã2Û)®DÏ,îîîîfl)Ã2Û)Û)l,îî∏,¯(ø∏ÿƒ@'È)
Ñ,∏,%30U3å,,Ö7Û)Ö7∏,Û)îD\"‰\"United Kingdom report to ISO TC20/SC13, June 2008
P Allan, 17 June 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. This panel was formed by merging the BSi ACE/68/-/7 panel and the Software Strategy Group (SSG) of the BNSC Space Technology Advisory Board (STAB).

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 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. The most recent meeting of SSSP was held on 4 September 2007.

It has been announced that BNSC will be moving from London to be co-located with the research councils at Swindon. This involves approximately 20 staff. Operational assets, such as ground stations, are owned by the BNSC partner organisations, not by BNSC itself, and so are not affected by the move.

Areas of Agency Involvement
At present, it is not clear whether SC13 activities will be funded by BNSC or by STFC for the current year. The funding for the larger CCSDS activities in the UK is provided by BNSC, by industrial self funding, and through the EC Framework 6 project CASPAR.

Just before this SC13 meeting, BNSC has applied to become a member of IOAG.
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 studying options 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:

ISOBS ZDocument111031Radio metric and orbit data11104Time code formats11754Telemetry channel coding12171Telecommand ñ Channel service12172Telecommand ñ Data routing service 12173Telecommand ñ Command operations procedures12174Telecommand ñ Architectural specification for the data management service121754SFDUs Structure and construction rules 13419Packet telemetry134209AOS Network and data links ñ Architectural specification137645SFDUs Control authority procedures14721Open archival information systems ñ Reference model14961Parameter value language specification149627ASCII encoded English1539510SFDUs Control authority data structures15396Cross Support Reference Model ñ SLE1588717Data systems ñ Lossless data compression1588818Standard formatted data units ñ Referencing environment15889Data description language. EAST specification.15891Protocol specification for space communications. Network protocol15892Protocol specification for space communications. Security protocol15893Protocol specification for space communications. Transport protocol15894Protocol specification for space communications. File protocol17355CCSDS file delivery protocol17433Packet telemetry services20652Producer-archive interface - Methodology abstract standard21459Proximity-1 space link protocol. Coding and synchronization sublayer.21460Proximity-1 space link protocol ó Physical layer21961Data entity dictionary specification language (DEDSL). Abstract syntax.21962Data entity dictionary specification language (DEDSL). PVL syntax.22641TM (telemetry) synchronization and channel coding22642TC (telecommand) synchronization and channel coding22643Data entity dictionary specification language (DEDSL). XML/DTD syntax22644Orbit data messages22645TM (telemetry) space data link protocol22646Space packet protocol22647Space Link Identifiers22663Proximity-1 space link protocol. Data link.22664TC space data link protocol22666AOS space data link protocol22667Communication operations ñ Procedure 122669Space Link Extension (SLE) ñ Return all frames service22670Space Link Extension (SLE) ñ Return channel frames service22671Space Link Extension (SLE) ó Forward command link transmission unit (CLTU)22672Space Link Extension (SLE) ñ Forward space packet service. 26143Space Link Extension (SLE) ó 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.

(12=>GITk~°… ∫∆N ! dÄ’Îœ
•
LMÛÊŸÛŸÃŸÛº≥Û¶ÛôÛôÛå¶ulul\LhòA5h5,5ÅCJOJQJ^JhòA5h5,5Å6ÅOJQJ^JhòA5h5,^Jh5,OJQJ^JhòA5h5
,OJQJ^JhòA5hò/%OJQJ^JhòA5h≥(}OJQJ^JhòA5h¨
›OJQJ^JhòA5hPP^JhòA5hPP6ÅCJOJQJ^JhòA5h¿LøOJQJ^JhòA5hÆ7@OJQJ^JhòA5h
,“OJQJ^JhòA5hPPOJQJ^J2HITkNOf g d
e
67cdÄÇ
É
œ
•
LMgããd˝˚ˆÙÚÌÎÎÎÎÎÎÎÎÎÚÎÎÎÚÊ‰ÙÚ‰ﬂgd5,$a$gd5,a™ ˛Mgã
z{ÍWbeê=Â˛"yzæø—“ˆ˜12WXÉÑ∑∏
ÔÊ◊»◊º◊º◊Ê◊»ÔØ·Ø◊Ø◊ën[n[n◊n◊n◊n◊n◊%hòA5h5,B*CJOJQJ^Jph˘ hòA5h5,CJOJQJ^JaJ"hòA5h5,5ÅCJOJQJ
\Å^J&hòA5h5,5ÅCJOJQJ\Å^JaJh5,OJQJ^JhòA5h5,OJQJ^Jh5,CJOJQJ^Jh… ãh5,CJOJQJ^JhòA5h5
,CJOJQJ^JhòA5h5,^JhòA5h5,6ÅCJOJQJ^J#deê£⁄€<=„‰Â˛yzæø√»—˝˚˝˝˝˝ˆˆˆˆ˝ÙÚ˝Ú˝ÏÏÏIfa$—“ÿ⁄ˆyssm
IfIfÜkd$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆˆ˜˝˛yssmIfIfÜkd´$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆ1ysss$IfÜkdV$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆ1289Wysss$IfÜkd$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆWXˆ_Éysss$IfÜkd¨$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆÉÑäã∑ysss$IfÜkdW$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆ∑∏æø ysss$IfÜkd$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆ
;ysss$IfÜkd≠$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆ
;<TUñó√ƒ˘./MNÄÅ¨≠ﬂ‡!"XY¢£ÌÓ9:ÄÅ·¶«»
XYëí·,,-efg¢£Ò
<=Z[yz≠Æ—“ˆ˜%&deß®˚¸>?
Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡ÔƒÔ‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡Ô‡7hòA5h5
,5ÅB*CJOJQJ\Å^JaJnH ph˘tH hòA5h5,CJOJQJ^J hòA5h5,CJOJQJ^JaJM;<BCTysss$IfÜkdX$
$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆTU[]ñysss$IfÜkd$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆñóùü√ysss$IfÜkdÆ$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆ√ƒ À˘ysss$IfÜkdY$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆ˘.ysss$IfÜkd$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆ./57Mysss$IfÜkdØ$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆMNTWÄysss$IfÜkdZ $$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆÄÅáà¨ysss$IfÜkd
$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆ¨≠≥∂ﬂysss$IfÜkd∞
$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆﬂ‡ÊÈ!ysss$IfÜkd[$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆ!"()Xysss$IfÜkd$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆXY_`¢ysss$IfÜkd±$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆ¢£©™Ìysss$IfÜkd\
$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆÌÓÙı9ysss$IfÜkd$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆ9:@AÄysss$IfÜkd≤$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆÄÅáà·ysss$IfÜkd]$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆ·¶¨≠«ysss$IfÜkd$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆ«»Œœ
ysss$IfÜkd≥$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆ
Xysss$IfÜkdˆ$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆXY_`ëyssj $Ifgd5,$IfÜkd $$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆëíòô·ysss$IfÜkd¥$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆ·,ËÈ,ysss$IfÜkd_$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆ,-34fysss$IfÜkd
$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
laˆfgmn¢ysss$IfÜkdµ$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘ˆ6ˆˆ÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷

la^¢£©™ ysss$IfÜkd`$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘˘6^^÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
la^Ò˜¯ysss$IfÜkd$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘˘6^^÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
la^
<ysss$IfÜkd∂$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘˘6^^÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
la^<=CDZysss$IfÜkda$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘˘6^^÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
la^Z[abyysss$IfÜkd$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘˘6^^÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
la^yzÄÅ≠ysss$IfÜkd∑$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘˘6^^÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
la^≠Æ¥µ—ysss$IfÜkdb$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘˘6^^÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
la^—“ÿŸ^ysss$IfÜkd
$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘˘6^^÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
la^˜˜˝¸%ysss$IfÜkd∏$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘˘6^^÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
la^%&,-dysss$IfÜkdc$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘˘6^^÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
la^deklßysss$IfÜkd$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘˘6^^÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
la^ß®ÆØ°ysss$IfÜkdπ$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘˘6^^÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
la°¸>ysss$IfÜkdd$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘˘6^^÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
la^>?EFçyssj $Ifgd5,$IfÜkd$$Ifñl÷÷Fî˘—yç!©÷0˘˘˘˘˘˘˘6^^÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
la^?çCXoüæÑ° © ™ Ô‡—«‡«‡«‡∏©h6Jgh5,6ÅB*CJph˘h… ãh5,CJOJQJ^JhòA5h5,^JhòA5h5
,6ÅCJOJQJ^JhòA5h5,CJOJQJ^J hòA5h5,CJOJQJ^JaJçéèABCXoüæÑ°© ywrrwpnrnrnr$a$ÜkdÒ$$Ifñl÷÷Fî˘—yç!
©÷0˘˘˘˘˘˘˘6^^÷˘˘˘÷˘˘˘÷˘˘˘÷˘˘˘4÷
la^© ™ ˙gd5,∞—/ ∞‡=!∞"∞#ê†$ê†%∞© $$Ifñ!vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!vh5
÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $
$Ifñ!vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!
vh5÷<5÷© 5÷#v#v© #v<:Vñl÷0˘˘˘˘˘˘˘6^5÷5÷© 5÷4÷© $$Ifñ!

vh5÷<5÷©5÷#v#v©#v<:Vñl÷0˜˜˜˜˜˜˜^6^5÷5÷©5÷4÷©$$Ifñ!
vh5÷<5÷©5÷#v#v©#v<:Vñl÷0˜˜˜˜˜˜˜^6^5÷5÷©5÷4÷©$$Ifñ!
vh5÷<5÷©5÷#v#v©#v<:Vñl÷0˜˜˜˜˜˜˜^6^5÷5÷©5÷4÷©$$Ifñ!
vh5÷<5÷©5÷#v#v©#v<:Vñl÷0˜˜˜˜˜˜˜^6^5÷5÷©5÷4÷·8@Ò˜8Normal_HmH
sH tH >@> Heading 1$@&
5Å6ÅCJN@N Heading 2$§$<@&5Å6ÅCJOJQJ<@< Heading 3$@&6ÅCJ8@8
Heading 4$@&CJDA@Ú˜°DDefault Paragraph FontVi@Û˜≥VTable Normal :V^4÷4÷
la^(kÙ˜ï(No List8B@Ú8 Body Text$a$CJ6P@6Body Text 2CJ6>@6Title$a$
5Å>*CJ6J@"6Subtitle$a$CJÇ¸O¢1Ç(technicalcommitteestandardslist-content1CJOJQJaJo(ph%ó™ê˜˜˜˜˜
˜˜†zô ˜˜†zô ˜˜†zô ˜˜†zôœÑB™ ~2HITkNOfgde67cdÄÇÉœ·LMgãådeê£∫⁄€<=„‰Â¸y
z
æ
ø
√
»
—
“
ÿ
⁄
ˆ
˜
˝
¸
1289WX^_ÉÑäã∑∏æø
;<BCTU[]ñóùü√ƒ À˜./57MNTWÄÅáà¨≠≥∂fl‡ÊÈ!"()XY_`¢£©™ÌÓÙı9:@AÄÅáà·¶¨≠«»Œœ
XY_`ëíòô·,ËÈ,-34fgmn¢£©™ÒÒ˜¯
<=CDZ[abyzÄÅ≠Æ¥µ∂—“ÿŸˆ˜˝¸%&,-deklß®ÆØ°¸>?EFçéèABCXoüæÑ°
©¨ò0ÄÄ0ò0ÄÄò0ÄÄ0ÄÄ0ÄIò0ÄTò0ÄTxò0ÄTÄò0ÄTò0ÄTò0ÄTÄò0ÄTò0ÄTÄò0ÄTò0ÄT0ÄIò0Ädò0Ädxò0Äd0ÄI0ÄÄÄò0Ä
·0ÄÄ0ÄMò0ÄgÄò0ÄgÄò0Ägx0ÄMò0Äeò0Äeò0Äeò0Äeò0ÄeÄò0Äeò0ÄeÄò0ÄeÄ0ÄÄÄò0ÄÂÄò0ÄÂ Äò0ÄÂ Äò0ÄÂ Ä
©0ÄÂà ©0ÄÂà ©0ÄÂà ô0ÄÂå ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂà ©0ÄÂà ô0ÄÂå ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ
©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ†©0
ÄÂ‡ ©0ÄÂ‡ ô0ÄÂ†©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂà ©0ÄÂà ©0ÄÂà ô0ÄÂå ©0ÄÂà ©0Ä
Âà ©0ÄÂà ô0ÄÂå ©0ÄÂà ©0ÄÂà ©0ÄÂà ô0ÄÂå ©0ÄÂà ©0ÄÂà ©0ÄÂà ô0ÄÂå ©0ÄÂà ©0ÄÂà ©0ÄÂà ô0ÄÂå ©
0ÄÂà ©0ÄÂ†©0ÄÂà ô0ÄÂå ©0ÄÂà ©0ÄÂà ©0ÄÂà ô0ÄÂå ©0ÄÂà ©0ÄÂà ©0ÄÂà ô0ÄÂå ©0ÄÂà ©0ÄÂà ©0ÄÂà
ô0ÄÂå ©0ÄÂà ©0ÄÂà ©0ÄÂà ô0ÄÂå ©0ÄÂà ©0ÄÂà ©0ÄÂà ô0ÄÂå ©0ÄÂà ©0ÄÂà ©0ÄÂà ô0ÄÂå ©0ÄÂ ©0ÄÂ
©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ†©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0
ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ†ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ
©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0
ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ
©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ©0
ÄÂ ©0ÄÂ ô0ÄÂ ©0ÄÂ ô0ÄÂ†ô0ÄÂ ò0ÄÂ¯Äò0ÄÂÄò0ÄÂ Äò0ÄÂ Ä0ÄÄê0ÄCàò0ÄXê0ÄC Äò0Äüê0ÄCÄò0ÄÑx0Ä
Ä«»
XYëí,-fg¢£ÒÒ
<=Z[yz—“^˜%&de°¸>?çé¨@00ñ»@û00Ëñ∏ @00ñ»@û00Ëñ∏†»@00ÄñÄ{óú00Ëñ∏† @00ÄñÄ
{óú00Ëñ∏†ú00Ëñ§ÛÄû00Ëñ∏ û00Ëñ∏∫@0ñÒjÅ˜˜ @00ñ®@p0ñÒjÅ†û00ËñêM∫p0ñÒjÅ @00ñxõp0ñÒjÅ û00Ëñ;pp0
ñÒjÅ û00Ëñƒ_∫@0d´@ û0
0Ëñq∫@‡ªó
¸˜˜˜˜˜˜˜˜˜†û0
0Ëñ®u∫@‡ªó
¸˜˜˜˜˜˜˜˜˜†û00Ëñtq∫@‡ªó
¸˜˜˜˜˜˜˜˜˜†û0
0ËñH^∫@‡ªó
¸˜˜˜˜˜˜˜˜˜ û00Ëñ|ò∫@0f.bf†û00Ëñ|ò∫@0f.bf »@0"0Äñ»~ó»@0#0Äñ‰~ @0#0Äñ‰~óò0ÄÄS# öÄÄ£#M
?™ Ed—^1WÉ∑ ;Tñ√˘.MÄ¨fl!X¢Ì9Ä·«
Xë·,f¢Ò<Zy≠—^%dß°>ç© ™ !"#$%&'()*+,-./0123456789:;<=>?@ABCDFG™ Ò8Ò@Ò˜˜˜ÄÄÄ˜ÒíÒÒ0Ò(
Ò
ÒÒB
ÒSÒøÀ˜ ?Ò¨¨PÚPëfiÒ˜˜˜˜˜˜˜˜˜hÑ—Ñò¸Δ—^Ñ—`Ñò¸OJQJo(∑ÒêhÑ†Ñò¸Δ†^Ñ†`Ñò¸OJQJo
(oêhÑpÑò¸Δp^Ñp`Ñò¸OJQJo(ßÒêhÑ@Ñò¸Δ@^Ñ@`Ñò¸OJQJo(∑ÒêhÑÑò¸Δ^Ñ`Ñò¸OJQJo(oêhÑ‡Ñò¸Δ‡^Ñ‡`Ñò¸OJQJo
(ßÒêhÑ∞Ñò¸Δ∞^Ñ∞`Ñò¸OJQJo(∑ÒêhÑÄÑò¸ΔÄ^ÑÄ`Ñò¸OJQJo(oêhÑPÑò¸ΔP^ÑP`Ñò¸OJQJo(ßÒPÚ˜˜˜˜˜˜˜˜

æ
ø
√
»
—
"
ÿ
⁄
ˆ
˜
˝
˛
1289WX^_ÉÑäã∑∏æø
;<BCTU[]ñóùü√ƒ À˘./57MNTWÄÅáà¨≠≥∂ﬂ‡ÊÈ!"()XY_`¢£©™ ÌÓÙı9:@AÄÅáà·¶¨≠«»Œœ
XY_`ëíòô·,ËÈ,-34fgmn¢£©™ Ò˘˘
<=CDZ[abyzÄÅ≠Æ¥µ—"ÿŸˆ˜˝˛%&,-deklß®ÆØ˚¸>?
EFçéü¨ûûûñsù0˘@Ä‡6fC£O™ P@˘˘Unknown˘˘˘˘˘˘˘˘˘˘˘GêTimes New Roman5êÄSymbol3êArial7êVerdana?ê Courier New;êÄWingdings"Òà—hﬁÀ»&ﬁÀ»&√õ©F€¸.˙∞0!
·¿¥¥Är4d˘™ 3ÉQﬂﬂH(˘?‰˘˘˘˘˘˘˘˘˘˘˘˘˘˘˘˘˘˘˘âY˛˘˘UK Report to SC13Peter Allan
Craig Day˛˘
‡ÖüÚ˘Oh´ë+'≥Ÿ0Äêò¥¿'‡
0<H
T`hpx'UK Report to SC13Peter AllanNormalCraig Day2Microsoft Word 11.5.0@F√#@äó9‹∆@1"ˆË…@1"ˆË…€¸˛˘
'Õ'ú.ìó+,˘Æ0hpÑåîú§¨¥º
ƒ,'CCLRC/RAL.˘UK Report to SC13Title
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGH˛˘˘˘JKLMNOPQRSTUVWX˛˘˘˘Z[\]
^_`abcdefghijklmnopqrst˛˘˘˘vwxyz{|
˛˘˘˘~ÄÅÇÉÑ˛˘˘˘˝˘˘˘˘˝˘˘˘à˛˘˘˘˛˘˘˘˛˘˘˘
˘˘Root Entry˘˘˘˘˘˘˘˘
¿FÄÈÌs«…äÄData
˘˘˘˘˘˘˘˘˘˘˘Ie1Table˘˘˘˘˘˘˘˘Yï7WordDocument˘˘˘˘êSummaryInformation
(˘˘˘˘˘˘˘˘˘˘˘uDocumentSummaryInformation8˘˘˘˘˘˘˘˘}CompObj˘˘˘˘XObjectPool˘˘˘˘˘˘˘˘˘˘˘ÄÈÌs«…ÄÈÌs«…
˛
˘˘ ˘˘˘˘˘
˛
¿FMicrosoft Word Document˛˘˘˘NB6WWord.Document.8