CMC Final Minutes
Fall 2016 Meetings
ASI, Rome, Italy
24-26 October 2016

1. **Call to Order – Welcome/Opening Remarks**

James Afarin, CCSDS Management Council (CMC) Chair, called the meeting to order at 0845h and welcomed everyone to the CMC meetings. J. Afarin initiated the roll call of delegates after the brief introduction.

2. **Roll Call of Delegates**

Introductions followed. CMC Attendees were:

1. ESA – Juan Miro, Nestor Peccia
2. DLR – Osvaldo Peinado, Martin Pilgram
3. JAXA – Tsutomu Shigeta
4. NASA - Wallace Tai, Dr. James Afarin
5. INPE - Eduardo Bergamini
6. UKSA – Christopher Perry
7. CNES - Jean-Marc Soula
8. CSA – Siamak Tafazoli
9. ASI – Massimo Calabrese
10. CNSA –Rusheng Zhang, Yonghui Huang
11. ROSCOSMOS – Dmitry Barannikov
12. Secretariat - David Ross, Thomas Gannett

3. **Agenda Review and Approval (October 2016 CMC Draft Agenda Fall 2016_v6)**

The CMC agenda was reviewed and approved by the CMC members.

4. **Secretariat Resources**

The CMC discussed Secretariat resources and Dr. Afarin indicated the primary focus of the Secretariat is to retain current services with the possibility for additional help for the Chief Technical Editor later on in the contract of the current Secretariat. J. Miro asked a question about the prioritization of resources and James responded that as the technical lead for the Secretariat contract he is responsible for the delegation of priorities based upon the available budget for the Secretariat. J. Miro brought up the possibility of having a yearly membership fee for participation in the CCSDS Management Council. The management council discussed the primary drawback of the membership fee is that there are not currently systems in place to handle transfers of funding between agencies. M. Pilgram brought up the idea that the organizations currently pay for ANSI as a legal entity and J. Miro suggested considering making the CCSDS a legal entity that can charge for participation. The group expressed concern that this may also increase bureaucratic overhead to ensure such a legal enterprise followed required regulations and that member bodies contributed as required.

5. **Informal 49th ISO TC 20 / SC 13 Meeting**

See ISO TC 20 / SC 13 Subcommittee meeting minutes.

6. **Dubai – Observer Agency Request**

The CMC discussed the approval of MBRSC as an observer agency request. M. Pilgram pointed out that MBRSC is not the UAE space agency, and J.M. Soula added that this is a research center. The CMC discussed whether or not it seemed there would be any conflict if Dubai were to join as an observer agency later on, but it was agreed amongst CMC members that this would be an internal matter to be discussed between MBRSC and Dubai, not for the CMC

to determine. J. Afarin asked if anyone objected to MBRSC's approval as an observer agency, no objections were brought forward and the action was passed.

__Resolution 2016-10-01:__
__The CMC approved a resolution recognizing MBRSC as an observer agency to the CCSDS.__

7. **Agency Report on Other Activities**

7.1 ASI (CMC ASI Report - Rome Fall 2016 + OpenUniverse)
M. Calabrese provided the ASI report on agency activities. Dr. Paolo Giommi provided a presentation as well on Open Universe, an initiative under the United Nations Committee on the Peaceful Uses of Outer Space (COPUS).

7.2 CNES (CNES report to the CMC _ Rome October 2016)
J.M. Soula provided the CNES report on agency activities.

7.3 CNSA (CMC DLR Report-October 2016)
Y. Huang provided the CNSA report on agency activities.

7.4 CSA (CSA 2016 agency report to CCSDS)
S. Tafazoli provided the CSA report on agency activities.

7.5 DLR (CMC DLR Report-October 2016)
O. Peinado provided the DLR report on agency activities.

7.6 ESA (ESA Agency Report CMC Fall 2016)
J. Miro provided the ESA report on agency activities.

The remaining reports were concluded on the third day of the Management Council meetings due to time constraints – they are continued under agenda item number 24 below.

11. **CESG Area Reports, Summary from Rome, Italy** (**d02-CESG-Report-to-CMC-Fall2016**)

11.1 CESG Chair Introduction

N. Peccia provided an introduction and overview of the CESG report to the CMC. N. Peccia noted that the SOIS Wireless working group (WG) chair must be replaced and that the Deputy Area Director and Area Director also needed to be nominated during the Management Council meetings. Further, N. Peccia reviewed the current active publications and the space missions utilizing those standards. After this review, N. Peccia reviewed all current open CESG issues and the CCSDS documents currently in the Chief Technical Editor's queue.

11.2 MOIMS Area Report (slides 9-24)

M. Merri provided his report and an overview of work for the MOIMS area. M. Merri noted that the DAI working group was working on the revision of two standards, the OAIS and the audit and certification of trustworthy digital repositories. M. Merri indicated the WG has opened their review to the entire community of interest. M. Merri noted that the WG is working on long-term data preservation issues as well as working with MOIMS, SOIS and SE on the architecture project. The CMC then discussed a number of resolutions proposed by the M. Merri per the DAI WG, resolutions as follows:

__Resolution 2016-10-01:__
__The CMC agrees to remove the resource prototype by CNES for the MOIMS/DAI WG - DEDSL-XML/XSD.__

__Resolution 2016-10-02:__
__The CMC waived the requirement of 30 days to find a candidate for the MOIMS DAI Deputy Chair and the CMC approved John Garrett (Associate – NASA) as the DAI Deputy Chair. This resolution recognizes that the deputy chair will not be funded by CNES after this year.__

Following the closure of the resolutions from the DAI WG, M. Merri continued with a review of a concern from the DAI working group regarding a lack of support from the CMC space agencies and their request for formal recognition of the value of the work being conducted by the DAI WG and their future work towards developing international standards for the archiving of scientific mission data in support of big data science activities. The CMC members discussed the high value provided by the DAI working group and also the context of the DAI WG request to pursue projects on archiving activities that encompass a broad community beyond just space data systems. As a result of this discussion the CMC released the following resolution:

__Resolution 2016-10-03:__
__The CMC acknowledges that in today's Data Economy, space systems generating and transporting large amounts of relevant data; be it science (GAIA is generating 50 GB/day) earth observation (Sentinel-2A generating 1 TB/ h), navigation or telecommunication satellites, constitute key assets for the Data industry.__

__In this context, standards supporting proper storage and preservation of data, open access to the space data, merging of data from different sources, analysis and processing big data and all related processes and mechanisms are of paramount importance.__

__Scientific communities are already for quite some time working nationally and internationally to define adequate standards for their data, be it astronomy, planetary exploration or earth observation.__

__The question is what should the CCSDS organization do and how should it position itself in the wake of such space data revolution and how could the work done over the years to standardize data storage and archiving be leveraged at the service of the new paradigms.__

__In this context, and following the request of the DAI WG to the CMC for support, CMC would like to encourage the DAI WG to address the following questions within a short paper to be delivered to CMC by 1 February 2017:__

> *__1. What is the current DAI roadmap and how does it make a valuable contribution to the data issue, taking into account what has already been produced including the overall worldwide efforts in this area?__*
>
> *__2. Taking into account that there are dedicated international organizations working on archiving and merging scientific data, astronomy data, as well as Earth data, what should be the role of CCSDS in general and that of the DAI WG in particular?__*
>
> *__3. Is the long term data preservation of the housekeeping data properly addressed in these initiatives? Is there a need for developing this part of the data preservation?__*
>
> *__4. In this context, what would be the next project for the DAI WG in the future, should resources be available, and how would this project fit with the current CCSDS reference architecture and work plan?__*

Following the discussion of the DAI WG, M. Merri provided an overview of the Mission Planning and Scheduling working group, noting that the group has been working diligently both online and offline and has nearly completed its Mission Planning and Scheduling Green Book and that the WG is currently seeking resources to make a resolution to transition this book to Blue. M. Merri also reviewed the Navigation working group's progress and indicated the Navigation WG has finalized the direction of the Pointing Request message book and has identified prototyping for this book (eliminating one of the Approved Projects without Prototype 2). M. Merri noted the group also agreed to cancel the Spacecraft Maneuver Message project and is still determining options for the Navigation Hardware Message project.

__Resolution 2016-10-4:__
__The CMC agrees to cancel the MOIMS/NAV WG Spacecraft Maneuver Message (SMM) Project.__

Resolution 2016-10-5:
The CMC member agencies submit their collective appreciation and thanks to ASI for hosting the fall 2016 CMC meeting and fall 2016 CCSDS Technical Plenary Meetings in Rome, Italy.

Resolution 2016-10-6:
The CMC approves the inclusion of the second prototype for the MOIMS/NAV WG Pointing Request Messages Book. The prototype two is not a single agency, it is four agencies, NASA, CNES, JAXA and AGI whom provide the second prototyping.

AI-CMC-A-2016-10-01 The CMC requests that Mario Merri clarify the CNES conditions placed upon the Re-entry data message for the approval of the project. Due Date – 30 November 2016

AI-CMC-A-2016-10-07 the CMC instructs the Secretariat to allow more than one prototype in the resource column on the CCSDS framework. Due Date – Mid-term teleconference.

After reviewing the Navigation WG, M. Merri proceeded to review the progress of the Spacecraft Monitor and Control (SM&C) working group. M. Merri noted one problem/restriction within this working group was that the group was encountering programmatic restrictions as a result of a public license agreement which were impacting some SM&C WG prototyping activities. M. Merri continued by identifying some overlap with the EDS and MAL binding projects and noting that the WG has decided to initiate work to compare the two projects and to map the work packages.

Resolution 2016-10-7:
The CMC approved a resolution to identify CNES as the second prototype of the MOIMS/SM&C Mission Data product distribution services.

AI-CMC-A-2016-10-02 The CMC instructs the Spacecraft Monitor and Control Working Group (SM&C WG) to propose a new name for MAL binding to ZeroMQ transport and binary encoding. Due Date 30 November 2016.

M. Merri briefly discussed the Telerobotics WG and the fact that the WG is currently inactive. The CMC held a brief discussion about the status of the Telerobotics blue book, indicating that the project was previously approved but did not have a second prototype. The CMC agreed that the Telerobotics WG should remain active for another 6 months, but after which time if still inactive the WG would be disbanded.

Resolution 2016-10-7:
The CMC approved a resolution to demote the MOIMS/TEL Telerobotics BB to draft project.

11.3   SIS Area Report (slides 25-40)

K. Scott provided his report and an overview of work for the SIS area. K. Scott reviewed the CFDP Working Group progress, indicating that the working group was currently awaiting interoperability testing. K. Scott indicated delays in interoperability testing associated with the development of a second implementation for the CFDP revisions. K. Scott made a note that the associated ISO CFDP document should be delayed until the completion of Version 5 of the CCSDS CFDP revisions were completed.

AI-CMC-A-2016-10-03 Action placed upon ESA to confirm that the resources are available to complete the CFDP v1 review to complete publication of the blue book. Due Date – End of November 2016. Due Date 30 November 2016.

K. Scott continued his review by discussing the progress made in the DTN working group. K. Scott indicated that the WG is currently producing two books, the security protocol for bundle security and schedule aware routing (formerly contact graph routing). K. Scott discussed the possibility that the CCSDS version of DTN may migrate to a document that is compatible with the Internet Engineering Task Force's version of DTN. A request for resolution from the WG was made to make DLR the second prototype for DTN Bundle Security Protocol.

Resolution 2016-10-8:
The CMC approved a resolution identifying DLR as the second prototyper for SIS/DTN Bundle Security Protocol (BSP).

J. Miro asked a question regarding DTN's goals in terms of a broader context of an internet of things and the strategic goals that are laid out by the SIS Area and DTN WG, and asked if the Area felt the strategic goals required any updates. K. Scott indicated that the goals were updated approximately one year ago, and that he did not feel enough had changed within the industry or within the working group to warrant any updates to the Area goals at this time.

11.4 SLS Area Report (slides 41-65)

G. Calzolari provided the Space Link Services (SLS) area report and an overview of work for the SLS area. G. Calzolari provided an overview of the Radio Frequency (RF) and Modulation (RF & Mod) executive summary and N. Peccia noted that there should be no problems reconfirming 415.1-B-1 Data Transmission and PN Ranging for 2 GHz CDMA Link via Data Relay Satellite. T. Gannett, confirmed that there should be no issues with the reconfirmation of this book.

Resolution 2016-10-8:
The CMC approved a resolution to reconfirm SLS/RFM 415.1-B-1 - Data Transmission and PN Ranging for 2 GHz CDMA link via Data Relay Satellite book.

G. Calzolari continued with a discussion of the work completed by the RF & Mod WG during the Fall technical meeting series, noting the WG's removal of higher order modulations for deep space applications to be approved by the CMC. The rationale for this decision was provided by P. Shames whom indicated that at this time there is no requirement for any additional modulations above what are currently being used.

Resolution 2016-10-9:
The CMC approved a resolution to remove two bullets, as requested by the RF & Mod WG and the CESG Chair from the SLS RFM charter ("higher order modulations for deep space applications" and "On communications in Emergency communications").

G. Calzolari then reviewed the Coding and Synchronization (C&S) working group progress from the fall technical meeting series. G. Calzolari noted the C&S WG completed agency review for uplink and LDPC slicing, and that they had good discussions on variable coding and modulation (VCM). Other books are ongoing, while the Adaptive Coding and Modulation project is currently on-hold within the WG, as well as the USLP draft project, which only has one prototype identified. G. Calzolari then reviewed the Space Link Protocol (SLP) WG indicating that the WG complete the disposition of a larger number of RIDs from the Universal Space Link Protocol RED-1 review. The WG also worked through three reconfirmations for resolution by the CMC. Those reconfirmations were approved by the CMC and are as follows:

Resolution 2016-10-10:
The CMC approved the reconfirmation of SLS/SLP 133.1-B-2 - CCSDS Encapsulation Service.

Resolution 2016-10-11:
The CMC approved the reconfirmation of SLS/SLP 700.0-G-3 - of AOS GB

Resolution 2016-10-12:
The CMC approved the reconfirmation of SLS/SLP SLS/SLP 200.0-G-6 - of TC GB

G. Moury provided an overview of the Multispectral Hyperspectral Data Compression (MHDC) WG. G. Moury indicated several documents nearing RED-1 or Agency reviews. N. Peccia indicated that the CWE must be updated to reflect actual completion dates for the WG.

G. Calzolari provided an update of the Optical Communications (Optical) WG. The Optical WG achieved consensus on the blue books for the two layers including low complexity and high photon efficiency. They have produced a

Green Book on atmospheric characterization and forecasting optical link operations as well, which is in the Chief Technical Editors queue. Problems and issues were identified regarding the orange books for the High Data Rate scenarios. Further discussion was provided on day 3 of the meetings below.

Resolution 2016-10-13:
The CMC approved the SLS/OPT project for the magenta book on atmospheric characterization and forecasting for the optical link operations.

AI-CMC-A-2017-10-7 The CMC placed an action upon the SLS Area Director, Gian Paolo Calzolari, to confirm with the Optical Communications Working Group about the agencies that will provide the prototypes for the two blue books approved at the Fall 2016 meeting. Due Date 28 February 2017.

- **AI Response (From Day 3) -** there is a clear identification of who is going to provide prototypes for the high photon efficiency. There are candidates for the low complexity. And considering that the low complexity scenario is less mature than the HPE and the work will not be balanced, it is suggested that the current projects are limited the HPE and that two draft projects for Issue 2 of the blue books are entered into the CWE to add the low complexity. This is as agreed by the groups via consensus. The group has agreed to this. The charter and projects will be modified and submitted to CMC for approval.

G. Calzolari concluded the SLS area presentations by providing an overview of the approved project statuses and a brief overview of the new work items from the SLS area.

11.5   SOIS Area Report (slides 66-81)
N. Peccia provided the SOIS area report on behalf of the SOIS Area Director.

N Peccia reviewed the SOIS area demographics and indicated the SOIS Wireless WG (WWG) achieved consensus on RFID encoding interoperability testing between Roscosmos and NASA, to be completed by 1 April 2017. The working group did not find interest on high data rate wireless onboard the ISS from the members and as such, requested a resolution from the CMC to move the high data rate wireless project form approved to draft project status, due to resources.

Resolution 2016-10-14:
The CMC approved the demotion of the SOIS/WIR High Data Rate Project from Active to Draft project status. See also associated action – NASA to check with ISS.

The CMC discussed the reasoning behind keeping the HDR project if it has no resources. It was agreed amongst the CMC members that if no resources for the high data rate book were identified by San Antonio, then the WWG HDR project would be deleted due to lack of interest.

AI–CMC-A-2016-10-04 – The CMC placed an action on NASA and DLR to confirm with the ISS the possibility for providing resources for the SOIS/WIR high data rate book (HDR) by San Antonio. If resources cannot be provided the SOIS/WIR HDR project may be deleted. Due Date – 8 May 2017.

N. Peccia continued by providing an overview of the SOIS Application (App) WG accomplishments, indicating that their main goal was to update the SOIS architecture and that the WG will be passing seven books to historical status. Per a question from J. Miro, it was indicated that these books are being moved to historical status because they are sets of abstracts and even though the WG feels there is value in the abstracts, they do not provide enough value to merit their preservation. So the WG is preserving the books' concepts by moving them into a separate green book, CCSDS 850.0-G-2, which is currently being updated and will be re-issued along with the corresponding ISO publication.

Resolution 2016-10-15:
The CMC approved the request to silverize the following CCSDS publications:

- *CCSDS 871.0-M-1, Spacecraft Onboard Interface Services—Device Access Service (Magenta Book, Issue 1, March 2013)*
- *CCSDS 871.1-M-1, Spacecraft Onboard Interface Services—Device Data Pooling Service (Magenta Book, Issue 1, November 2012)*
- *CCSDS 871.2-M-1, Spacecraft Onboard Interface Services—Device Virtualization Service (Magenta Book, Issue 1, March 2014)*
- *CCSDS 871.3-M-1, Spacecraft Onboard Interface Services—Device Enumeration Service (Magenta Book, Issue 1, October 2014)*
- *CCSDS 872.0-M-1, Spacecraft Onboard Interface Services—Time Access Service (Magenta Book, Issue 1, January 2011)*
- *CCSDS 873.0-M-1, Spacecraft Onboard Interface Services—File and Packet Store Services (Magenta Book, Issue 1, September 2012)*
- *CCSDS 875.0-M-1, Spacecraft Onboard Interface Services—Message Transfer Service (Magenta Book, Issue 1, November 2012)*

N. Peccia continued with a discussion of the SOIS Electronic Data Sheets, and also indicated successful joint area meetings between SOIS and MOIMs during the technical meetings. N. Peccia noted that the DOT and electronic data sheets projects are still missing resources and requested that the CMC consider an action item for NASA and ESA to confirm resources for the completion of these projects.

AI–CMC-A-2016-10-05 - The CMC asks that NASA confirm the 2017 resources [1 WM] for the DOT Green Book. Due Date – 28 February 2017.

AI–CMC-A-2016-10-06 The CMC asks that ESA confirm the 2017 resources [4 WM - for Book Editor and Prototype 1] for the XML Specification for Electronic Data Sheets (EDS) Blue Book. Due Date – 28 February 2017.

N. Peccia continued the SOIS overview with a discussion of SOIS SUBNET activities and the WG's plans to kick off their five year book review and to develop a plan for the commitment of resources. A resolution was also requested for the CMC to delete the SOIS SUBNET deterministic networking services project. N. Peccia provided an overview of the projects with issues for SOIS, indicating Wireless Local Area Network had no resources, but noted the resolution to downgrade this project to draft, and that the SOIS App GB and BB required NASA and ESA to confirm their resources. N. Peccia concluded with an overview of the upcoming working items, and noted the tasks for the forthcoming Area Director for the SOIS area in terms of identifying resources.

Resolution 2016-10-16:
The CMC approved a resolution to delete the Magenta Book project on SOIS deterministic network services 856.0-M.

11.6   SE Area Report (slides 82-96)

P. Shames provided the Systems Engineering area report to the CMC, starting with the Security Working Group and their work on key management rationale and adaptation profile and also a project on standard credentials. P. Shames added that the SDLS WG is also working with the DTN WG to develop a network layer security approach. In the future they will complete a yellow book on cloud testing as well. P. Shames noted that the Delta DOR WG currently has two documents out for agency review, and that the WG is currently running into an issue on the CWE where they have multiple prototypes, but the website is configured to only allow the addition of 2 prototypes.

AI–CMC-A-2016-10-07 - The CMC instructs the Secretariat to allow more than one prototype in the resource column. Due Date – 28 February 2017.

P. Shames continued with a review of the Systems Architecture WG, indicating that the WG had worked with the MOIMs and SOIS areas and had made very good progress on their work in unifying the architectures. The joint

meetings were well attended and the group has come up with a good roadmap for a collection of standards that it feels fits together in a logical manner. P. Shames continued to discuss active documents regarding Spacecraft identifiers, currently in queue for CMC approval, and noted that SANA is currently out of type 2 identifiers, but is in the process of re-using them now. The SANA Steering Group also reviewed the current re-engineered SANA website and changes occurring with the change to Object Identifiers for the SANA registries. The SE area requested three resolutions regarding a proposed adoption of the new contacts and organizations registries, a request for agencies to update information on the organizations and contacts registries, and a request for IOAG to add a unique OID to their RF assets register. The CMC approved the following resolutions:

Resolution 2016-10-17:
The CMC approved a resolution to delete the SEA/SAWG Application and Support Architecture Magenta Book project and to approve the Application and Support Architecture Green Book project.

Resolution 2016-10-18:
The CMC resolved to request that the IOAG liaison ask that the IOAG add an explicit, unique, OID to each of the RF Assets that they register. CCSDS and the SANA registries can then unambiguously connect the IOAG info to the CCSDS sites & apertures database info. See associated action on CCSDS Liaison.

AI- CMC-A-2016-10-08 - The CMC asks Nestor Peccia to contact the IOAG with respect to the Object Identifier (OID) addition to each of their RF assets in the SANA RF Assets database. Due Date – 30 November 2016.

P. Shames conclude with a review of the SE area issues, and noted that the XML SIG could be closed.

Resolution 2016-10-19:
The CMC approved a resolution to close and archive the XML SIG and to introduce XML Guidelines as a draft project in the SEA/SAWG.

AI-CMC-A-2016-10-09 - The CMC instructs Peter Shames to put draft xml guideline as a draft project on the SEA System Architecture Working Group. Due Date – 30 November 2016.

AI-CMC-A-2016-10-10 - The CMC instructs the Secretariat to delete the XML SIG and to archive the information. Due Date – 30 November 2016.

J. Miro asked if anything has changed in terms of the goals in the Systems Engineering area. P. Shames responded that from a strategic view, the goals are adequate for the work that has been done and the work that is coming, but that optical communications should be addressed. P. Shames indicated this is not an area that is currently covered in the Cross Support Services architecture at this time.

11.7   CSS Area Report (slides 97-107)

E. Barkley provided the Cross Support Services overview. E. Barkley indicated that the Cross Support Transfer Services (CSTS) WG made good progress through the fall meetings on a forward frame book and indicated that the working group is in good shape with projects originally established now nearing their conclusion. E. Barkley continued with a review of the Cross Support Service Management (CSSM) WG, indicating slips across all projects in this WG due to resource issues which were identified in the presentation. E. Barkley noted progress in regards to registry sessions with SANA for the Schedule of Services, the identification of resources for the planning information format, and a new resource for the development of the XFDU portion of the terrestrial generic file transfer project. The group also reviewed the current draft of the Service Management Utilization Request Format to assess its readiness for RED-1 review. E. Barkley provided an overview of the CSS approved projects and their statuses and also of new work items for the future. J. Afarin asked if the area required additional resources for new work items, and E. Barkley confirmed that they did not need new resources for new work items, as current resources would be utilized at the completion of their projects for the development of new work items. E. Barkley reviewed

the CSS area issues. J. Miro asked if anything needed to be changed in the area's strategic goals, and E. Barkley responded he did not think so at this time.

11.8   Summary/Meeting Statistics (d01-CESG-Report-to-CMC-Fall 16 Extra Items)(slides 1-8)

N. Peccia reviewed the summary statistics for the weeks' meetings and noted that the meetings were again over-sized and could use further coordination and tailoring of the schedule. J. Afarin noted that any trading of rooms should be executed by the CESG without the Secretariat, as the CESG meets regularly prior to the meetings and has a closer understanding of the individuals required to participate in the meetings and has all AD's available to make schedule changes as needed. Changes can then be coordinated with the Secretariat without using the Secretariat as the middle-man for discussions.

AI- CMC-A-2016-10-11 - The CMC instructs the secretariat to add a WebEx Only Registration button and to look at a possibility for a de-registration button (to remain available after the close of registration?). Due Date – prepared for the Spring 17 meetings.

11.9   Items Brought to the Attention of the CMC (d01-CESG-Report-to-CMC-Fall 16 Extra Items)(slides 9-12)

N. Peccia led a discussion with the CESG regarding CESG Poll conditions, and noted that the CESG suggests that the AD/DAD's minimize their conditions at the time of CESG book publication polls as opportunities are made available prior to the polls or during agency reviews. N. Peccia also noted that poll conditions are unable to be rejected and recommended to raise Poll Item Discrepancy for show-stopper conditions during polls and to identify conditions being raised in polls that are not to be considered show-stoppers for publications to continue. N. Peccia also noted that there should be a better way to produce all of the books and to reduce the 'tax time' of book production during stages such as RID dispositions and during the technical editing queue. P. Shames suggested another way to reduce 'tax time' is to increase the technical quality of the publications being produced.

AI-CMC-A-2016-10-12 - The CMC asks the CESG Chair, Nestor Peccia, to find ways within the CESG to improve the technical quality of documents. Due Date – Spring 2017 Technical Meetings. Due Date – Spring 17 Technical Meetings.

N. Peccia noted other issues included Non-CCSDS members/observers/sponsors attempting to subscribe to WG mailing lists with no clear rules to manage this type of subscription request.

AI-CMC-A-2016-10-13 - The CMC instructs the Secretariat to propose to the CMC, for approval, a request to amend the Procedures Yellow Book - to provide criteria for joining the working group mailing lists. (Regarding external requests for individuals with no sponsoring agency). Due Date – 28 February 2017.

N. Peccia continued to note other items of concern including – DAI WG on long term preservation, John Garrett as DAI WG Chair, support for the MOIMS Telerobotics WG, and support for the SOIS WIR HDR future work. Discussion of these topics was completed during the area presentations and is identified above.

11.10   Technical Meetings Experiment (12 rooms, 5 days)

N. Peccia noted that the technical meetings room experiment revealed that for five day technical meetings, it is possible to hold the meetings using only 12 rooms. For four day technical meetings, the CCSDS will require 15 rooms.

11.11   SOIS Area Viability

J. Afarin noted that from the NASA point of view the SOIS area is still a viable area and NASA would like to continue the work. CNSA added that they would like to nominate a Deputy Area Director for the SOIS area. J. Miro added that from the planning area, the question that the CMC should consider, is whether they have enough work beyond what is currently in the queue of projects after they are completed. N. Peccia noted that the Wireless WG is the only group that has draft blue book projects, while SUBNET has only five magenta books. J. Afarin noted that the current WG chair of SUBNET would also like to keep SOIS open, and is also willing to be the SOIS Area

Director. J. Miro added that he expects a reduction in support for SOIS from ESA, except in the area of the production of the electronic data sheets.

Resolution 2016-10-20:
The CMC approved the nomination of Jonathan Wilmot as the SOIS Area Director and resolved that the SOIS area will remain open.

Resolution 2016-10-21:
The CMC approved the nomination of He Xiongwen as the SOIS Deputy Area Director.

12. **IOAG Presentation and ICPA Update ([d01-CESG-Report-to-CMC-Fall 16 Extra Items](#))(slides 13-16)**

N. Peccia reviewed the IOAG/ICPA presentation and indicated that CCSDS shall not take any action on the ICPA with regards to Service Catalogue 1 on new file services, the SM functions and the radiometric service. These items will be dealt with by the SC#1 WG. N. Peccia noted that the CSS area will not produce any future projects on validated radiometric data because it is not clear what it is meant by this at this time. Further. N. Peccia added that for monitored data, the final publication date is expected to be July 2017. N. Peccia continued, noting that existing file service ghost projects shall be deleted and that CFDP publication date is to be updated to the end of 2018. Regarding CESG comments on the IOAG MOSSG draft report and draft Service Catalogue #3, N. Peccia added that, since it will take more than one year to receive an approved IOAG SC #3, MOIMS SM&C will continue with its work from the priorities, resources and current schedule point of view. Service Catalogue #2 is expected to have an approved update by Q2 of 2017.

13. **Strategic Plan (updates)**

J. Miro discussed updates to the strategic plan and noted that at this time he does not feel that there are any major changes to the areas technical goals. J. Miro added that there is a resolution requesting DAI response (Resolution 2016-10-03), and that the CMC provides its support to the working group and understands the situation today facing the WG, which places more emphasis on space data; and also that there are multiple Standardization organizations that are working on these issues. The DAI response will thus be used to identify the appropriate direction of the DAI WG and any updates to their goals as required.

14. **Discussion of Projects with Disproportionate Delays**

Not discussed.

15. **Agency Report on Priorities ([Draft Projects 18-10-2016](#))**

M. Pilgram provided an overview of the Agency Report on priorities. The CMC reviewed the list and discussed the different rankings, noting that there were only a few projects with two priority one ratings and that of the current priority one ratings, some are not aligned. The CMC discussed the ratings criteria and what it means to be a priority one vs. a priority two project. J.M. Soula noted that CNES may still apply resources for projects that it has not ranked a priority one, and J. Afarin added that NASA does the same. M. Merri requested a definition for each of the priority rankings. The CMC agreed that once the priorities are determined based upon the definitions and the availability of budgets/resources, that the CMC will again review the agency report on priorities (during the mid-term telecom). The CMC agreed it would be beneficial to review the agency report on priorities at all subsequent CMC meetings or teleconferences.

AI-CMC-A-2016-10-14 - The CMC asked all CMC Members to review the New Work Item priorities and determine the resource availability and to then return those priorities to O. Peinado and M. Pilgram for review at the mid-term teleconference in February. Due Date – 13 February 2017.

AI-CMC-A-2016-10-15 - The CMC asks the CESG Chair, Nestor Peccia, to send an email to the CMC indicating the definitions of each Priority (what does priority 1 mean, priority 2, priority 3). (*Complete*)

AI-CMC-A-2016-10-15 - The CMC instructs the Secretariat to add to the mid-term Agenda an item to review the revised Agency Resource priorities. Due Date – 13 February 2017.

16. **IOAG and CMC Action Item to Coordinate Lunar and Mars Missions (IOAG Lunar-Mars coordination team summary 10-26-2016) (IOAG LunarMars mission data sheet 10-26-2016)**

W. Tai provided an updated overview and presentation of the IOAG and CMC action item to coordinate on Lunar and Mars missions. W. Tai also provided an overview of the mission characteristics of all future Lunar and Mars missions, for those missions/agencies that provided such information to the IOAG.

19. **Resources Topics**

19.1   CESG Report on Resources Status (projects with issues) (d01-CESG-Report-to-CMC-Fall 16 Extra Items)(slides 18-22)

N. Peccia provided an overview of all current projects with resource issues.

20. **Near Future Project Review and Approval**

Near Future Projects by the WGs were presented during the CESG presentations to the CMC and are now a part of the regular CESG reporting template to the CMC.

21. **CMC Review of Action Items and Resolutions**

The CMC reviewed all actions and resolutions from the prior days' meetings. All actions and resolutions are included in the Minutes of Meeting.

22. **Meeting Planning**

22.1   Spring 2017 Technical Plenary (SwRI/USA – San Antonio)
J. Afarin provided an overview of the spring 2017 technical meetings at SwRI and indicated that preparations are already well underway for the Spring 2017 technical meetings.

22.2   Spring 2017 CMC (ROSCOSMOS CMC Report_Rome_Oct.2016 ver.22.10)(Roscosmos/Russia – Saint Petersburg)

D. Barannikov provided a presentation of the CMC meeting to be held in Saint Petersburg, Russia from 13-16 June 2017. D. Barannikov provided an overview of logistics for the spring 2017 meeting, map and locations of the area near the meeting site, and information on the meeting site itself. The CMC expressed their thanks to Roscosmos for working on the preparations for the spring 2017 meeting and indicated that they look forward to the meetings in Saint Petersburg.

The CMC agreed that the list of participants for the Spring 2017 CMC meeting should be provided to the Secretariat for aggregation and delivery to D. Barannikov and his staff whom are overseeing the planning of the Spring 2017 CMC meetings.

The formal, 50th ISO TC20/SC13 Subcommittee meeting is planned to be held at the same place and to be scheduled in an adequate segment of time of the overall agenda of the CMC meeting.

22.3   Fall 2017 Tech Plenary & CMC (ESA/Noordwijk)

N. Peccia provided confirmation that the fall 2017 technical meetings would be held in Noordwijk. The agreed upon meeting dates are 6-9 November 2017 for the technical meetings and 13-15 November 2017 for the joint CMC/CESG meetings to follow the technical meetings.

22.4   Spring 2018 Tech Plenary & CMC (USA)

J. Afarin announced that NASA will be hosting the spring 2018 technical meetings in Gaithersburg, MD at the National Institute for Standards and Technology (NIST). The CMC may be hosted by CNSA, with a presumed location of Beijing, though details and dates are still being discussed.

22.5   Fall 2018 Tech Plenary & CMC (DLR)

O. Peinado confirmed no changes to the current plans for the fall 2018 technical meetings. The planned week of the technical plenary meetings will be on the 15 October 2018 and the joint CMC/CESG meetings will follow on the next week.

22.6   Schedule for next CMC mid-term teleconference

The CMC agreed to hold the next CMC mid-term teleconference on 13 February 2017.

23.   SANA Overview

M. Blanchet provided an overview of the current work of the SANA registries and provided a demonstration of the new SANA registries website that implements the Object Identifier (OID) tree structure.

24.   Agency Reports Overflow

24.1   ROSCOSMOS (ROSCOSMOS CMC Report_Rome_Oct.2016 ver.22.10)
D. Barranikov provided the Roscosmos report on agency activities. D. Barranikov indicated that due to changes within the FSA, the agency will now be referred to as Roscosmos. W. Tai asked if D. Barranikov could say anything about the details for Roscosmos' planned future Lunar and Mars missions. D. Barranikov responded that the parameters of the spreadsheet can be reviewed and filled in when all restructuring activities are completed by Roscosmos.

24.2   JAXA (JAXA input to Roma CMC October 2016)
T. Shigeta provided the JAXA report on agency activities. T. Shigeta also provided an overview of their new CCSDS Japanese webpage. This webpage provides an overview of CCSDS standards, using translated abstracts of CCSDS documentation.

24.3   NASA
J. Afarin provided the NASA report on agency activities.

24.4   INPE (INPE-Report.to.CCSDS-CMC.Meeting.at.ASI.Rome.Italy.20.10.2016.ppt)
E. Bergamini provided the INPE report on agency activities.

25.   Overflow Topics

25.1   Optical Communications Overflow Topic

The CMC held a discussion on the options for the High Data Rate (HDR) orange books and the scenarios that were discussed by the Working Group. J.M. Soula provided a presentation of the scenarios and a possible path forward (CNES inputs on SLS-OPT OB way forward discussion). A discussion of the issues with the production of a single set of orange books vs. two sets of orange books was discussed and it was agreed that many resources had been utilized to get the point that the Working Group was in at this time. N. Peccia noted that the CESG discussed the issue and decided to leave the WG some time to reflect about the situation and to recommend that the WG deliver to the CESG, prior to the next technical meetings, an in depth analysis of the pros and cons of each recommendation and to come to a conclusion on a recommendation. J. Miro noted that the proposal put forth by CNES is not to follow the proposed 6 months by the CESG, but to instruct the SLS optical working on the path to take. The CMC reached a consensus that it wishes to instruct the optical working group on the path forward. T. Shigeta noted that JAXA is in need of a document to deliver for their next data relay satellite, and as such, the proposed solution by CNES is preferred. As all CMC members agreed, the following resolution was passed:

Resolution 2016-10-21:

The CMC acknowledges the progress made in the SLS optical communications working group towards the establishment of blue books for the high photon efficiency and the low complexity optical standards. CMC welcomes the intention expressed by the working group to document the high data rate options into orange books. The CMC is however concerned about the pace of progress in the production of such orange books. Due to the lack of agreement on the structure of the orange book, the CMC has debated the issue and has concluded on the structure of the orange books that is considered to be the preferred solution.

- *One Orange Book of the NASA Led Option and*
- *One Orange Book of the ESA/DLR Led Option*

The CMC expects however that the entire working group will work together to create these orange books. Considering the above, the CMC instructs the CESG to implement the CMC recommendation identified above down to the working group level. It is understood that none of these orange books can become blue books without consensus of the CCSDS agencies at all levels of the CCSDS organization (as is defined by the CCSDS Procedures manual – CCSDS A02.1-Y-4).

26. Secretariat Report (CCSDS Action Item Tracker)

26.1 Action Item Status (only open items)
D. Ross reviewed completed action items with the CMC for closure and closed all relevant action items.

27. Adjourn