

# **A LETTER OF AGREEMENT CONCERNING THE REALIGNMENT OF FUNDING RESPONSIBILITIES BETWEEN THE SCIENCE MISSION DIRECTORATE AND THE SPACE COMMUNICATIONS AND NAVIGATION PROGRAM.**

## SUMMARY:

On April 29, 2015, Science Mission Directorate (SMD) and Space Communications and Navigation (SCaN) program held discussions and have agreed to a revised set of SCaN Mission Planning and Integration (MP&I) services to SMD missions as well as financial responsibilities applicable to each organization. This new cost attribution policy will be effective starting October 1, 2015, (FY 2016) for all new missions and those currently in development.

The changes agreed to for network services and funding responsibility will be included in the service level agreements established between each mission/project and the network service provider being utilized following the release of this letter. When using the Space Network (SN) or Near Earth Network (NEN) that are managed by Goddard Space Flight Center (GSFC) a Project Service Level Agreement (PSLA) is utilized to identify specific services and cost. When using the Deep Space Network (DSN) managed by Jet Propulsion Laboratory (JPL) a DSN Service Agreement (DSA) identifies services and cost. The PSLA and DSA updates for missions in formulation will reflect the changes agreed to. The DSN also utilizes "task plans" for all new non-JPL missions requiring services. These task plans will also be updated accordingly.

The MP&I services considered unique to each flight mission project that will change are:

## COVERAGE ANALYSIS:

Coverage analysis involves the definition of the Radio Frequency (RF) interface between the satellite and the network aperture planned for mission use. Mission specific link characteristics are provided by the flight mission project. These characteristics include for example, transponder/transmitter power and flux density, data rates, modulation techniques, error correction and coding scheme. The analysis results establish that the RF link can be closed using the network's assets. The flight mission project will be responsible for the cost associated with this analysis.

## COMPATIBILITY TESTING:

Compatibility testing between the satellite/spacecraft transponder and the networks is accomplished using test equipment at GSFC and JPL that emulates the utilization of a network asset. Completion of the required testing will result in certification of the transponder/transmitter being tested. The flight mission project will be responsible for the cost associated with this testing. If a previously tested and identical model transponder/transmitter is to be flown on a mission and it has not been modified since the

last compatibility test, it will not have to be retested. An example would be the ATLAS-V launch vehicle transponder that is repeatedly flown without transponder modification.  
END-TO-END VALIDATION TESTING:

End-to-End Validation testing includes the mission operations control center(s), communications circuits/paths, and the network service provider. While these costs are typically operations costs for the conduct of the test and some pre-test work in the preparation of the test briefing message and timeline, SCaN shall undertake to perform one (1) End-to-End Validation test without charge to the project/mission. Additionally, if a test were to be considered a failure as a result of a network problem, the rerun of the end-to-end test would be accomplished at no cost to the flight/mission. For additional tests and runs, the flight/mission project will be responsible for the cost associated with the performance of this test.

NETWORK INTEGRATION MANAGEMENT:

This functionality is broken into two (2) parts, one (1) overseen by GSFC and the other by JPL.

The GSFC Network Integration Management Office provides Network Integration managers (NIM) to integrate network services for missions using the SN and NEN. These are NASA employees that are institutionally funded by SCaN. SMD flight missions are not responsible for their cost.

Contractor personnel out of the Mission Service Planning & Management group will perform the JPL network integration for the DSN. These individuals are called Mission Interface Managers (MIM). Depending on the mission complexity and phase-E requirements, the cost of a MIM's effort will vary in tenths of a Work Year Equivalent. The flight mission project will be responsible for the cost of a MIM's participation.

The table in Appendix A to this document shows graphically the changes in cost allocation being agreed to. The costs that have been associated with these various activities should be regarded as maximum costs that the individual SMD projects and missions can use as basis for their negotiations with the SCaN organization. These costs at the program/mission level will be captured in the annual Planning, Programming, Budget, and Execution (PPBE) cycle.

The SCaN program will continue to waive the DSN aperture fees, per minute SN fees, and NEN per pass fees, as well as the operations costs associated with the collection and distribution of data and telemetry for NASA SMD sponsored missions without cost to those missions. The assigned SMD/Program Executive and SCaN Mission Commitment Manager will discuss exceptions to this approach involving interagency relationships such as with National Oceanic and Atmospheric Administration, National Science Foundation, or international collaborations documented in a Memorandum of Understanding.

This document will be reviewed every two (2) years for accuracy and applicability and coordinated with the PPBE cycle.

Questions on the above noted policy and requests for clarification or changes should be directed to SMD/Dr. Jeffrey Hayes at (202) 358-0353 and SCaN/Mr. Gary A. Morse at (202) 358-0504.

## Appendix A

### New Cost Alignment

The following table shows the changes in allocation of cost responsibility between SMD projects and SCaN. The table is broken up to show the GSFC/NEN and JPL/DSN activities, with the cells highlighted in green showing where cost obligations have been moved from one organization to another.

There are dollar values associated with the changes, which are assigned to specific missions/projects. These values have not be included here because they are subject to negotiation between the SMD project and the SCaN organization.

Activity	Alignment of Responsibility			
	CURRENT		FUTURE	
	GSFC	JPL	GSFC	JPL
Non-recurring Engineering	MISSION	MISSION	MISSION	MISSION
RF ICD Development	MISSION	MISSION	MISSION	MISSION
Coverage analysis	SCaN	SCaN	MISSION	MISSION
Compatibility Testing	SCaN	SCaN	MISSION	MISSION
End-to-end Validation Test	SCaN	SCaN	MISSION	MISSION
Network Integration Management	MISSION	MISSION	SCaN	MISSION
Loading Analysis	SCaN	SCaN	SCaN	SCaN
Verification Testing	SCaN	SCaN	SCaN	SCaN
Service Level Agreements (DSA or PSLA)	SCaN	SCaN	SCaN	SCaN
Anomaly Resolution	SCaN	SCaN	SCaN	SCaN
Access to Service Management Capabilities (Schedule, Performance Data)	SCaN	SCaN	SCaN	SCaN
Readiness Reviews	SCaN	SCaN	SCaN	SCaN
Post Mission Reporting	SCaN	SCaN	SCaN	SCaN
Space Comm Mission Model (SCMM)	SCaN	SCaN	SCaN	SCaN
Flight Dynamics/ Navigation Support	MISSION	MISSION	MISSION	MISSION
OCIO/NISN Tail Circuits	MISSION	MISSION	MISSION	MISSION
Hosting Unique Project Equipment/ Modifications	MISSION	MISSION	MISSION	MISSION 4