TELEMETRY GROUP

IRIG STANDARD 106-19

TELEMETRY STANDARDS

ABERDEEN TEST CENTER
DUGWAY PROVING GROUND
REAGAN TEST SITE
REDSTONE TEST CENTER
WHITE SANDS TEST CENTER
YUMA PROVING GROUND

NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION PATUXENT RIVER
NAVAL AIR WARFARE CENTER WEAPONS DIVISION CHINA LAKE
NAVAL AIR WARFARE CENTER WEAPONS DIVISION POINT MUGU
NAVAL SURFACE WARFARE CENTER DAHLGREN DIVISION
NAVAL UNDERSEA WARFARE CENTER DIVISION KEYPORT
NAVAL UNDERSEA WARFARE CENTER DIVISION NEWPORT
PACIFIC MISSILE RANGE FACILITY

30TH SPACE WING
45TH SPACE WING
96TH TEST WING
412TH TEST WING
ARNOLD ENGINEERING DEVELOPMENT COMPLEX

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

This page intentionally left blank.

DOCUMENT 106-19

TELEMETRY STANDARDS

July 2019

Prepared by

TELEMETRY GROUP

Published by

Secretariat
Range Commanders Council
US Army White Sands Missile Range,
New Mexico 88002-5110

This page intentionally left blank.

TABLE OF CONTENTS

CHAPTERS

* Changed

APPENDIXES

Beginning with RCC 106-17, the appendixes that were previously stand-alone documents are now integrated with the chapters that cover the same material. This does not include four appendixes that are retired but maintained for historical purposes; these four remain stand-alone files and are renamed as annexes. The following lists new locations for the appendixes.

Changes in This Edition

This document is an updated version of and replaces Range Commanders Council (RCC) Document 106-17. The RCC Telemetry Group (TG) made an extensive effort to produce a well-coordinated and useful document. The following is a summary of these efforts.

a. Task TG-148: 2019 Updates to Digital Telemetry Recorder Standards.

   OBJECTIVE/SCOPE: Update IRIG 106 Chapter 10 and 11 to include both network and non-network (legacy) data recorder capabilities required by the RCC range members.

b. Task TG-150: Updates to TMATS for 106-19.

   OBJECTIVE/SCOPE: To enhance the content of the Telemetry Attributes Transfer Standard (TMATS) as needed to keep it current with the data standards in the remainder of 106.

c. Task TG-154: Update to IRIG 106 Appendix 2E (Space Time Coding for Telemetry Systems).

   OBJECTIVE/SCOPE: This is a stand-alone task to add sample detection curves (E_b/N_o vs. BEP) to Appendix 2E for consistency in Chapter 2 appendixes.

d. Task TG-158: Update Chapter 7 for IRIG 106-19.

   OBJECTIVE/SCOPE: Update Chapter 7 to better support troubleshooting and small weapons systems. Update language of document because the many acronyms are confusing.

e. Task TG-159: Add Telemetry Network System (TmNS) Frequency Band Plan to IRIG 106.

   OBJECTIVE/SCOPE: Incorporate the recently approved Frequency Band Plan for TmNS deployment in IRIG 106 Chapter 2 and Chapter 27.

f. Task TG-161: DQM/DQE Data Inversion.

   OBJECTIVE/SCOPE: Add a clear definition of the function of how implementing data inversion in a telemetry receiver should be implemented when data quality encapsulation is used.

g. Task TG-163: Update, clarify, and repair portions of the Telemetry Networks Standards for publication in IRIG 106-19.

   OBJECTIVE/SCOPE: To provide user and developer clarification and fixes to small issues in the published IRIG 106-17 version of the Telemetry Network Standards. In addition, a forward-looking enhancement is proposed for the standards with a plan to maintain backward compatibility for the near term.

This page intentionally left blank.

Preface

The TG of the RCC has prepared this document to foster the compatibility of telemetry transmitting, receiving, and signal processing equipment at the member ranges under the cognizance of the RCC. The range commanders highly recommend that telemetry equipment operated by the ranges and telemetry equipment used in programs that require range support conform to these standards.

These standards do not necessarily define the existing capability of any test range, but constitute a guide for the orderly implementation of telemetry systems for both ranges and range users. The scope of capabilities attainable with the utilization of these standards requires the careful consideration of tradeoffs. Guidance concerning these tradeoffs is provided in the text. The standards provide the necessary criteria on which to base equipment design and modification. The ultimate purpose is to ensure efficient spectrum utilization, interference-free operation, interoperability between ranges, and compatibility of range user equipment with the ranges.

This standard is complemented by a companion series: RCC Document 118, Test Methods for Telemetry Systems and Subsystems; RCC Document 119, Telemetry Applications Handbook; RCC Document 123, IRIG 106 Chapter 10 Programmers Handbook; and RCC Document 124, Telemetry Attributes Transfer Standard (TMATS) Handbook.

The policy of the TG is to update the telemetry standards and test methods documents as required to be consistent with advances in technology.

Please direct any questions to:

Secretariat, Range Commanders Council
ATTN: TEWS-RCC
1510 Headquarters Avenue
White Sands Missile Range, New Mexico 88002-5110
Telephone: (575) 678-1107, DSN 258-1107
E-mail: usarmy.wsmr.atec.list.rcc@mail.mil

******** NOTHING FOLLOWS ********