

# **IRIG RECORDER/REPRODUCER STANDARDS AND TEST PROCEDURES UPDATE**

*THIC MEETING, DENVER MARRIOTT SOUTHEAST  
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# DISCUSSION

- BACKGROUND OF IRIG AND RCC
- MEMBERS AND OBJECTIVES OF RCC
- RECORDER/REPRODUCER COMMITTEE OF THE TELEMETRY GROUP
- CURRENT SYSTEMS AND TAPES IN IRIG STANDARD
- CURRENT SYSTEMS AND TAPES IN RCC TEST PROCEDURES DOCUMENT
- CURRENT TASKS FOR DEVELOPING NEW STANDARDS AND TEST PROCEDURES
- NEW TASKS
- FUTURE STANDARDS CONSIDERATIONS
- POINT OF CONTACT

# **BACKGROUND**

- IRIG FOUNDED IN AUGUST 1951
- NAME CHANGED TO RCC IN OCTOBER 1963, BUT IRIG RETAINED FOR THE STANDARDS

# **RANGE COMMANDERS COUNCIL**

- WHITE SANDS MISSILE RANGE
- KWAJALIEN MISSILE RANGE
- YUMA PROVING GROUND
- DUGWAY PROVING GROUND
- ABERDEEN TEST CENTER
- ATLANTIC FLEET WEAPONS TRAINING FACILITY
- NAVAL AIR WARFARE CENTER WEAPONS DIVISION
- NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION
- NAVAL UNDERSEA WARFARE CENTER DIVISION, NEWPORT
- PACIFIC MISSILE RANGE FACILITY
- 30TH SPACE WING
- 45TH SPACE WING
- AIR FORCE FLIGHT TEST CENTER
- AIR FORCE DEVELOPMENT TEST CENTER
- AIR WARFARE CENTER
- ARNOLD ENGINEERING DEVELOPMENT CENTER

# MAJOR OBJECTIVES

- EXCHANGE INFORMATION AND RESOLVE COMMON RANGE PROBLEMS
- CONDUCT JOINT INVESTIGATIONS PERTAINING TO RESEARCH, DESIGN, DEVELOPMENT, PROCUREMENT AND TESTING
- COORDINATE MAJOR OR SPECIAL PROCUREMENT ACTIONS
- DEVELOP OPERATIONAL TEST PROCEDURES AND STANDARDS FOR PRESENT AND FUTURE RANGE USE
- ENCOURAGE THE INTERCHANGE OF EXCESS TECHNICAL SYSTEMS AND EQUIPMENT

# RECORDER/ REPRODUCER COMMITTEE

- MEMBERSHIP
  - KEN SCHOECK, CHAIRMAN, SMC WR
  - TIM CHALFANT, AFFTC
  - ROBERT COUCH, YPG
  - ROGER DAVIS, UTTR
  - GARY FEUER, NAWC-ADW
  - DICK KRIZAN, SMC ER
  - JOE LLOYD, NAWCAD
  - JOSE MARTINEZ, NSWC-PHD
  - GORDAN MATTOS, ITT/FSC
  - BILL POLAND JR, NASA/GSFC
  - EARL SWITZER, AFFTC

# **RESPONSIBILITIES**

- UPDATE IRIG STANDARD 106-XX, TELEMETRY STANDARDS, CHAPTERS 6 AND 7
- UPDATE RCC DOCUMENT 118-XX, VOL III, TEST METHODS FOR RECORDER/REPRODUCER SYSTEMS AND MAGNETIC TAPE
- PROMOTE THE EXCHANGE OF INFORMATION BETWEEN RANGES RELATED TO RECORDER/REPRODUCER SYSTEMS

# **CURRENT SYSTEMS IN IRIG STANDARD 106-96**

- LONGITUDINAL FIXED-HEAD
  - WIDEBAND AND DOUBLE DENSITY 4 MHz
  - 14 AND 28 TRACK
  - DIRECT, FM AND PCM RECORDING
- 19-MM DIGITAL CASSETTE HELICAL SCAN
  - BIT RATES OVER 256 MBPS
- 1/2 INCH DIGITAL CASSETTE HELICAL SCAN
  - BIT RATES TO 32 AND 64 MBPS
  - B AND E FORMATS

# **CURRENT SYSTEMS IN IRIG STANDARD 106-96**

- **ADARIO MULTIPLEX/DEMULTIPLEX  
FORMAT**
- **ACCOMMODATES RECORD/PLAYBACK OF  
MULTIPLE CHANNELS OF ASYNCHRONOUS  
DIGITAL AND ANALOG DATA**
- **PRESERVES PHASE COHERENCE BETWEEN  
DATA CHANNELS**

# **CURRENT SYSTEMS IN IRIG STANDARD 106-96**

- **SUBMULTIPLEX/DEMULTIPLEX  
FORMAT**
- **COMBINES MULTIPLE PCM TELEMETRY  
CHANNELS ON SINGLE RADIO CHANNEL**
- **PRESERVES PHASE COHERENCE BETWEEN  
ALL CHANNELS FOR ALL RATES**

# **CURRENT MAGNETIC TAPES IN IRIG STANDARD 106-96**

- INSTRUMENTATION MAGNETIC TAPE
  - 1 IN. WIDTH ON 10.5, 14, 15 AND 16 IN. REELS
  - HIGH RESOLUTION, HIGH DENSITY DIGITAL AND HIGH ENERGY
- 19-MM DIGITAL CASSETTE HELICAL SCAN RECORDING TAPE
  - MEDIUM AND LARGE CASSETTES
- 1/2 INCH DIGITAL CASSETTE HELICAL SCAN RECORDING TAPE
  - S-VHS T-160

# **CURRENT SYSTEMS AND MAGNETIC TAPES IN RCC DOCUMENT 118-89**

- **LONGITUDINAL FIXED HEAD  
SYSTEMS**
- **INSTRUMENTATION MAGNETIC  
TAPES**

# **CURRENT TASK**

- **TG-41: REVISION OF RCC DOCUMENT 118-89, VOL III, TEST METHODS FOR RECORDER/REPRODUCER SYSTEMS AND MAGNETIC TAPE**
- **STATUS: THE DRAFT HAS BEEN SENT TO THE SECRETARIAT FOR EDITING AND PRINTING AND IS EXPECTED TO BE AVAILABLE BY 29 AUGUST.**

# MAJOR CHANGES TO VOL III

- LONGITUDINAL FIXED-HEAD RECORDER/REPRODUCER TESTS REVISED
  - EYE PATTERN TEST ADDED
  - GROUP DELAY TEST DELETED
- DIGITAL CASSETTE HELICAL SCAN RECORDING TESTS ADDED
  - CALIBRATION TAPE (ANSI)
  - BIT ERROR RATE TEST
  - TIME SCALED PLAYBACK TEST
  - POLARITY TEST
  - EYE PATTERN TEST
  - LONGITUDINAL TRACK TESTS

# MAJOR CHANGES TO VOL III

- RECORDER MULTIPLEXER/  
DEMULTIPLEXER SYSTEM TESTS ADDED
  - BIT ERROR RATE TEST
  - DELAY MEASUREMENTS
  - FORMAT VERIFICATION TEST
- DIGITAL CASSETTE TAPE TESTS ADDED
  - BIT ERROR RATE TEST
  - SENSITIVITY
  - SIGNAL-TO-NOISE RATIO

# RELATED CURRENT TASK

- DIGITAL DATA ACQUISITION AND ON-BOARD RECORDING STANDARD
- BASED ON CONSULTATIVE COMMITTEE ON SPACE DATA SYSTEMS (CCSDS) PACKET TELEMETRY RECOMMENDATION
- THE IRIG STANDARD IS TO SUPPORT END-TO-END TRANSPORT OF DOD MISSION DATA FROM THE VEHICLE TO AN ON-BOARD RECORDING DEVICE; THEN PLAYED BACK ON THE GROUND
- STATUS: THE DRAFT WAS CIRCULATED IN APRIL AND COMMENTS WILL BE DISCUSSED AND INCORPORATED AT THE 8-12 SEPT MEETING

# **NEW TASK**

- **REVISE 106-96 TO INCLUDE SOLID STATE RECORDER (SSR) SYSTEMS, ALONG WITH ASSOCIATED INPUT/OUTPUT INTERFACES AND CONNECTIVITY**
- **WILL COVER DATA INPUT CONFIGURATION REQUIRED FOR INSTALLATION IN TEST VEHICLES AND DATA OUTPUT CONFIGURATIONS**
- **COMPLETION DATE: APRIL 1999**

# **NEW TASK**

- **REVISE 106-96 TO INCLUDE RECORDER MULTIPLEXER/DEMULTIPLEXER FORMAT FOR USE WITH THE 1/2 INCH DIGITAL CASSETTE HELICAL SCAN RECORDERS**
- **COMPLETION DATE: APRIL 1998**

# **FUTURE STANDARDS CONSIDERATIONS**

- IS THE EQUIPMENT, PRODUCT, SYSTEM, ETC, USED OR PLANNED TO BE USED BY THE MEMBER RANGES?
- IS THERE ALREADY A STANDARD THAT FULFILLS THE NEED?
- IS THERE A BENEFIT TO THE MEMBER RANGES TO HAVE THE ITEM STANDARDIZED?
- IS THERE SUFFICIENT NON-PROPRIETARY INFORMATION AVAILABLE TO PREPARE A STANDARD?
- WILL INDUSTRY BUILD TO THE STANDARD?

# POINT OF CONTACT

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