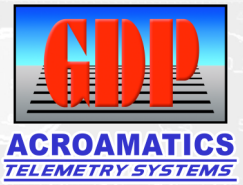# RCC IRIG 106 Chapter 7 & Chapter 10/11
Product Line Support

Using RCC IRIG 106 Chapter 10/11 (Ch10/11) for distribution of telemetry data over Ethernet has been growing in popularity. The aging range coax infrastructure can no longer support today's high rate telemetry data. Sending telemetry data over Ethernet alleviates this problem.

Ch11 defines the data multiplexing scheme that allows multiple channels of different data types to be merged in a single time synchronized format. Ch10 defines a method of transmitting the Ch11 packets over an Internet Protocol (IP) network.

RCC IRIG 106 Chapter 7 (Ch7) provides a method of transmitting packetized data, such as Ch10/11, over an RCC IRIG 106 Chapter 4 (Ch4) data link. Ch4 is the traditional PCM data formatting standard for transmission of RF data links. Ch7 provides a method of sending bursty packetized data over the constant data rate RF data link. On the ground, the Ch7 formatting must first be stripped off of the data stream in order to get to the Ch10/11 packet data, which is then forwarded over Ethernet.

RCC IRIG 106 Chapter 10/11 Streaming Product Offerings

GDP Space Systems and Acroamatics were among the first in the industry to embrace Ethernet as a primary method of transport for telemetry data. In addition to Ethernet support of RCC IRIG 218-20 Telemetry over IP (TMoIP), our range of telemetry receivers, bit synchronizers, and gateway units provide a variety of processing solutions, including Ch7 and Ch10/11 Ethernet transport capability.

In cases where Ch7 data is transmitted, the GDP Space Systems and Acroamatics products first strip off the Ch7 formatting in order to access the embedded Ch10/11 or other packet-based data. The Ch10/11 or other Ethernet data is then output from the receiving device and forwarded over the ground Ethernet network. All units support Ch7 2015 and 2019 versions.

Any embedded PCM data in the Ch7 2019 multiplex can also be output on the ground network as Ch10/11 data streams. All units also support Ch10 Throughput and Packed Modes. Throughput Mode is most appropriate for transport applications where frame alignment is not required. The Packed Modes offer frame alignment for those applications where receiving equipment will be decommutating the PCM data.

In addition to driving Ch10/11 data to the Acroamatics' Telemetry Data Processing Products for decommutation processing and display, the GDP Space Systems' generated Ch10/11 streams have been integrated and tested with software products such as IADS and Dewesoft.

GDP Space Systems' Model 44XX Telemetry Receivers

The Model 44XX series of Telemetry Receivers include the ability to output received PCM data directly to Ethernet in Ch10/11 format. This includes the output of our 2-channel and 4-channel combiners.

Multi-channel receivers can output Ch10/11 streams from each channel and the I and Q streams from UQPSK modulated downlinks can be combined into a single time aligned multi-channel Ch10/11 stream.

MD4426 3U

MD4426 1U

IRIG 218-20 & IRIG 106 Ch7 Compatible

MD4426 2U

GDP Space Systems' Model 2350 Telemetry Gateway

The Model 2350-M2 Telemetry Gateway offers Ch10/11 formatting as one of the output packetization options. Taking serial PCM data and clock as inputs, the unit can be configured to output to Ethernet in Ch10/11 in Throughput or Packed modes.
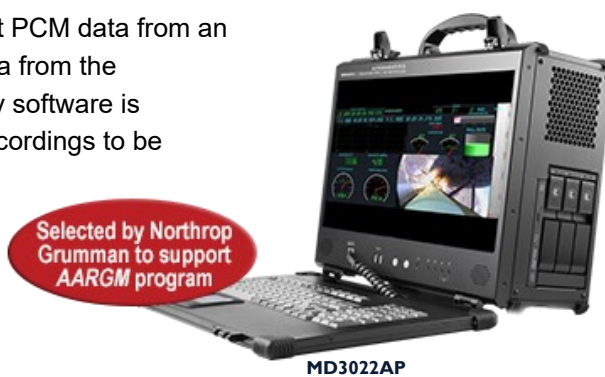
The Model 2350-M2 can also accept Ch10/11 streams over Ethernet and convert the PCM channels back into serial data and clock signals for driving legacy equipment.

IRIG 218-20 & IRIG 106 Ch7 Compatible

MD2350-M2

Acroamatics' Telemetry Data Processor Series

Acroamatics' Telemetry Data Processor (TDP) series accepts Ch10/11 data streams over Ethernet. The TDP extracts the PCM data from the Ch10/11 multiplex and applies each stream to a decom. The results of decommutation can then be processed into engineering or derived parameters and then displayed on real-time graphic and tabular displays.

The TDP series perform decommutation and processing in specialized high-performance hardware, thus offloading those tasks from the host computer system which is free to present displays and perform data recording functions. The series also has the capability to extract PCM data from an Ch10/11 file and output that data from the integrated PCM simulator. Utility software is provided to allow native TDP recordings to be converted to Ch10/11 files.

MD4032AP

MD2500AP

Replacement for L3 550 & Avalon end-of-life processing products

Selected by Northrop Grumman to support AARGM program

MD3022AP

MD2900AP

Ampex Data Systems' miniR Solid State Recorder & AMux Data Acquisition Units
GDP Space Systems' & Acroamatics' Sister Company, a division of Delta Information Systems, Inc.

The miniRv2 Solid State Recorder can be used as a stand alone unit or configured with one or more AMux Data Acquisition Units to provide an airborne data acquisition and Ch10/11 recording subsystem.

The miniRv2 offers the ability to output the Ch10/11 data as a Ch7 serial PCM stream. This allows the real-time transmission of the acquired airborne sensor data.

miniRv2

AMux1000