

# CCSDS Historical Document

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## TC Synchronization and Channel Coding

### TECHNICAL CORRIGENDUM 1

The Management Council of the Consultative Committee for Space Data Systems (CCSDS) has authorized the publication of technical corrigendum 1 to CCSDS 231.0-B-2, issued September 2010.

*Page 1-3*

1.6.1.3 Terms Defined in This Recommended Standard, delete terms:

**asynchronous:** not *synchronous*.

**synchronous:** a sequence of events occurring in a fixed time relationship (within specified tolerance) to another sequence of events.

*Page 2-1*

2.1 ARCHITECTURE, add new paragraph as paragraph 2:

The Physical Layer provides the RF channel and the techniques required to operate it as e.g. modulation, demodulation and bit/symbol synchronization. This Recommended Standard includes also the Physical Layer Operations Procedures (PLOP) performed in the Physical Layer that are used to transmit CLTUs specified in this document. The other specifications of the Physical Layer are contained in reference [4].

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CCSDS HISTORICAL DOCUMENT  
**TECHNICAL CORRIGENDUM 1 TO CCSDS 231.0-B-2 (Continued)**

*Page 2-1 (continued)*

Figure 2-1: Relationship with OSI Layers, modify figure as follows:

In the 3rd column show that CCSDS 231.0-B-2 covers part of the Physical Layer while the remaining part is covered by the 401 book.

*Page 2-2*

2.2.2 ERROR-CONTROL CODING, 2nd paragraph, change last sentence:

from:

If the modified BCH code is decoded in an error-detecting mode, the Frame Error Control Field (FECEF) defined in reference [1] may be used to reduce the probability of undetected errors.

to:

The Frame Error Control Field (FECEF) defined in reference [1] may be used to reduce the probability of undetected errors, particularly when the modified BCH code is decoded in an error-correcting mode.

*Page 2-3*

2.3.1 SENDING END, first paragraph, change:

from:

“Figure 2-2 shows the internal organization of the Synchronization and Channel Coding Sublayer of the sending end. This figure identifies functions performed by the sublayer and shows logical relationships among these functions. The figure is not intended to imply any hardware or software configuration in a real system.”

to:

Figure 2-2 shows the internal organization of the Synchronization and Channel Coding Sublayer of the sending end together with the Physical Layer. This figure identifies functions performed by the sublayer and by the Physical Layer and shows logical relationships among these functions. The figure is not intended to imply any hardware or software configuration in a real system.

CCSDS HISTORICAL DOCUMENT  
**TECHNICAL CORRIGENDUM 1 TO CCSDS 231.0-B-2 (Continued)**

*Page 2-3 (continued)*

Figure 2-2: Internal Organization of the Sublayer at the Sending End, change title:

from:

Internal Organization of the Sublayer at the Sending End

to:

Internal Organization of the Sublayer at the Sending End and Interaction with the Physical Layer

*Page B-1*

B2 TERMS, replace term:

from:

**Synchronization and Channel Coding Sublayer:** That sublayer of the Data Link Layer used by CCSDS space link protocols which uses a prescribed coding technique to reliably transfer Transfer Frames through the potentially noisy Physical Layer.

to:

**Channel Coding Sublayer:** (See **Synchronization and Channel Coding Sublayer.**)

*Page B-2*

B2 TERMS (continued), after term 'Codeblock' add term:

**Coding Sublayer:** (See **Synchronization and Channel Coding Sublayer.**)

CCSDS HISTORICAL DOCUMENT  
**TECHNICAL CORRIGENDUM 1 TO CCSDS 231.0-B-2 (Continued)**

*Page B-3*

B2 TERMS (continued), at term 'Physical Layer' change 1st sentence:

from:

The lower layer of the Synchronization and Channel Coding Sublayer which provides the RF channel.

to:

The layer below the Synchronization and Channel Coding Sublayer which provides the RF channel.

B2 TERMS (continued), after term 'Symbol' add:

**Synchronization and Channel Coding Sublayer:** That sublayer of the Data Link Layer used by CCSDS space link protocols which uses a prescribed coding technique to reliably transfer Transfer Frames through the potentially noisy Physical Layer.