

CCSDS Spacecraft Identification Field Code Assignment Control Procedures

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 320.0-M-7, issued November 2017.

*Page 1-2,
definition **frequency band**, change*

From:

“frequency band, FB: The discrete sets of frequencies that have been identified as Frequency Bands (FBs) by the International Telecommunication Union (ITU), with letter designations (derived from [5]).”

To:

“frequency band, FB: The discrete ranges of frequencies that have been identified as Frequency Bands (FBs) by the International Telecommunication Union (ITU), with Earth Exploration-Satellite Service (EESS), Space Research Service (SRS), Space Operation Service (SOS), and other article references defined in reference [6].”

*definition **global spacecraft identifier**, change*

From: “2-bit”

To: “2- or 4-bit”

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TECHNICAL CORRIGENDUM 1 TO CCSDS 320.0-M-7 (Continued)

Page 1-2, continued,
*definition **qualified spacecraft identifier**, change*

From: “2-bit”

To: “2- or 4-bit”

Page 1-3,
*definition **version number, VN**, change*

From: “version number, VN”

To: “transfer frame version number, TFCVN”

Table 1-1,
delete last row containing note about reserved values

add new row at end of table:

4	1100	0-65535	16	Ref. [5]
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Note below Table 1-1,
change

From: “There is, in effect, a separate set of . . .”

To: “There is a separate set of ”

change

From: “such as X-band uplink, X, and Ka-band downlink”

To: “such as EESS, SRS, or other downlink”

Page 1-4,
add new reference for USLP:

[5] *Unified Space Data Link Protocol*. Issue 1. Recommendation for Space Data System Standards (Blue Book), CCSDS 732.1-B-1. Washington, D.C.: CCSDS, October 2018.

TECHNICAL CORRIGENDUM 1 TO CCSDS 320.0-M-7 (Continued)

*Page 1-4, continued,
change reference citation*

From:

[6] *IEEE Standard Letter Designations for Radar-Frequency Bands*. IEEE Std. 521-2002. New York: IEEE, 2003.

To:

[6] *Articles*. Vol. 1 in *Radio Regulations*. Edition of 2016. 4 Vols. Geneva: ITU, 2016.

*Page 2-1, subsection 2-1,
first paragraph, second bullet, change*

From: “GSCID”

To: “Q-SCID”

fourth paragraph, change

From: “because the fields are only eight or ten bits long”

To: “because the fields of version 1–3 Transfer Frames are only eight or ten bits long”

*Page 2-2, subsection 2-2,
first paragraph, bulleted list, add new bullet*

– the Unified Space Data Link Protocol (USLP) transfer frame (reference [5])

*Page 2-3,
second paragraph, change*

From:

“Table 2-1 lists the discrete sets of frequencies identified by Frequency Band Designators (FBDs) derived from reference [5].”

To:

“Table 2-1 is based on the currently in-force ITU Radio Regulations (Edition 2016—see reference [6]) and on the frequency bands commonly used by CCSDS Space Agencies for EESS, SRS, and SOS. It does not prevent the use of CCSDS Data Link Layer standards in other bands.”

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Page 2-3, continued,
replace Table 2-1 with the following:

Table 2-1: ITU Frequency Bands

ITU Frequency Ranges	Commonly Used Frequency Band Name ¹	ITU SRS/EESS/SOS Near Earth Downlink Allocations	SANA FBD	ITU SRS Deep Space Downlink Allocations	SANA FBD
0–30M Hz	HF-band		HF		HF
30–300 MHz	VHF-band		VHF		VHF
300–1000 MHz	UHF-band		UHF		UHF
1–2 GHz	L-band	1.525–1.535 GHz SOS	L		L
2–3 GHz	S-Band	2.200–2.290 GHz EESS & SRS & SOS	S-NE	2.290–2.300 GHz SRS-DS	S-DS
3–6 GHz	C-Band		C		C
6–10 GHz	X-Band	8.025–8.400 GHz EESS 8.450–8.500 GHz SRS	X-NE	8.400–8.450 GHz SRS-DS	X-DS
10–17 GHz	Ku-Band	13.400–13.750 GHz EESS & SRS	Ku	12.750–13.250 GHz SRS-DS (secondary)	Ku
17–22 GHz	K-Band		K		K
22–32.5 GHz	Ka-Band	25.250–27.500 GHz ISS* 25.500–27.000 GHz EESS & SRS	Ka-NE	31.800–32.300 GHz SRS-DS	Ka-DS
32.5–40.5 GHz	Ka-Band	37.000–38.000 GHz SRS 37.500–40.500 GHz EESS (secondary)	Ka-S	37.000–38.000 GHz SRS	Ka-S
40.5–75 GHz	V-Band	65.000–66.000 GHz EESS & SRS	V		V
75–112 GHz	W-Band	81.000–84.000 GHz SRS (secondary)	W		W
112–275 GHz	mm	To Be Supplied (TBS) ¹	mm	TBS ²	mm
TBS ²	Optical 1064 nm	TBS ²	O1	TBS ²	O1
TBS ²	Optical 1550 nm	TBS ²	O2	TBS ²	O2

ISS* = Inter-Satellite Service restricted to space research and Earth exploration-satellite data

add footnote at end of column 2 heading:

“The commonly used ‘letter band’ designators, such as X-band or Ka-band, are not defined internationally for satellite communications, and the ITU discourages their use because of the related ambiguities.”

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*Page 2-4,
first paragraph, change*

From: “both in the S-band, 2–4 GHz”

To: “both in the 2–3 GHz EESS or SRS band”

change

From:

“Ka-band downlink and K-band uplink”

To:

“one of the 22–40 GHz EESS or SRS bands for downlink and one of the 6–10 GHz EESS or SRS bands for uplink”

delete

“In some cases, like this last example, these uplink and downlink frequencies may both be referred to as ‘Ka-band’ assignments, but the actual frequency bands that have been assigned are numerically different from that. As a result, ”

change

From: “FBD and the actual frequency range”

To: “ITU assigned frequency range”

change

From: “The actual frequencies in use are not required to be specified”

To: “The actual assigned operating frequencies in use are not required to be specified”

*Page 3-4,
note below 3.3.4, change*

From: “actual numeric frequency range”

To: “actual, ITU-specified, numeric frequency range”

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Page A-1,
table row ‘Version Number(s), column ‘Data Range’, change

From: “1, 2, or 3”

To: “(see table 1-1)”

Page A-2,
*under heading **Registration Rule,***
add at end of item d)

“in one of the ITU designated frequency bands”

add as new item e)

“If a new spacecraft ID request is for a previously unspecified ITU frequency band, such as Article 5.492, Broadcast service, in the 11.7-12.5 GHz band, the SANA shall create a new set of frequency band bins for that frequency range and all TFVNs.”

Page B-1,
change

From: “VN version number”

To: “TFVN Transfer Frame Version Number”

add

“ISS International Space Station”

“SOS Space Operation Service”

Throughout document (these incidental changes made without marginal notation),
change

From: “VN”

To: “TFVN”

where Data Link Layer Documents (references [1]–[4]) are referenced,

add reference to USLP (new reference [5])