

Table 2-40: “EMITTER CATEGORY” Encoding

Base-40 Digit (decimal)	Meaning	Base-40 Digit (decimal)	Meaning
0	No aircraft type information	20	Cluster Obstacle
1	Light (ICAO) < 15 500 lbs	21	Line Obstacle
2	Small - 15 500 to 75 000 lbs	22	(reserved)
3	Large - 75 000 to 300 000 lbs	23	(reserved)
4	High Vortex Large (e.g., aircraft such as B757)	24	(reserved)
5	Heavy (ICAO) - > 300 000 lbs	25	(reserved)
6	Highly Maneuverable > 5G acceleration and high speed	26	(reserved)
7	Rotocraft	27	(reserved)
8	(Unassigned)	28	(reserved)
9	Glider/sailplane	29	(reserved)
10	Lighter than air	30	(reserved)
11	Parachutist/sky diver	31	(reserved)
12	Ultra light/hang glider/paraglider	32	(reserved)
13	(Unassigned)	33	(reserved)
14	Unmanned aerial vehicle	34	(reserved)
15	Space/transatmospheric vehicle	35	(reserved)
16	(Unassigned)	36	(reserved)
17	Surface vehicle — emergency vehicle	37	(reserved)
18	Surface vehicle — service vehicle	38	(reserved)
19	Point Obstacle (includes tethered balloons)	39	(reserved)

2.2.4.5.4.2 “CALL SIGN/FLIGHT PLAN ID” Field

The “CALL SIGN/FLIGHT PLAN ID” field consists of eight characters, ~~which must contain only decimal digits 0-9, the capital letters A-Z, and — as trailing pad characters only — the “space” character. The 37 possible different characters are represented as Base 40 digits in the range from 0 to 36.~~ Each character of the “CALL SIGN/FLIGHT PLAN ID” field shall be encoded as Base-40 code values as shown in [Table 2-41](#). The left-most character of the “CALL SIGN/FLIGHT PLAN ID” field (as depicted on a cockpit display unit) Call Sign corresponds to Character #1; the right-most corresponds to Character #8.

The CSID field (see §2.2.4.5.4.15) identifies which type of data is contained in the “CALL SIGN/FLIGHT PLAN ID” field.

When representing the Call Sign, if-if the Call Sign is not available, then all eight characters of the “CALL SIGN” Field shall be set to the Base-40 digit code 37.

When representing the Call Sign, The-the 8 characters of the “CALL SIGN” field shall be encoded with an identifier appropriate for the Emitter Category, operating rules, and procedures under which the A/V is operating. For aircraft, the “Call Sign” could be an abbreviation of the authorized radiotelephone Call Sign for that aircraft as assigned by ATS, the aircraft registration marking, or other authorized identifier for special operations.

Note 1: *A Call Sign of less than 8 characters should be padded with spaces in the right-most (trailing) positions. The formatting of the Call Sign field is outside the scope of this document. It is expected that the 'space' character will only be used as trailing pad characters. Any characters that are not provided to the UAT equipment should be encoded as either the 'Not Available' code, or the 'Space' character. The first character should not be a space.*

Table 2-41: “Call Sign” Character Encoding

Base-40 Digit (decimal)	Character	Base-40 Digit (decimal)	Character
0	0	20	K
1	1	21	L
2	2	22	M
3	3	23	N
4	4	24	O
5	5	25	P
6	6	26	Q
7	7	27	R
8	8	28	S
9	9	29	T
10	A	30	U
11	B	31	V
12	C	32	W
13	D	33	X
14	E	34	Y
15	F	35	Z
16	G	36	SPACE
17	H	37	Not Available
18	I	38	(reserved)
19	J	39	(reserved)

When representing a Flight Plan ID, characters 1 through 4 of the Flight Plan ID shall be selected from the Base-40 encoding for the digits 0 through 7. Characters 5 and 6 of the Flight Plan ID shall be either the Base-40 digit code 37, or a digit from the range 0 through 7, as appropriate for the intended application. Characters 7 and 8 of the Flight Plan ID shall be set to the Base-40 digit code 37. If the Flight Plan ID input is not available, then all eight characters of the field shall be set to the Base-40 digit code 37.

Note 2: *This encoding of the Flight Plan ID allows for the first 4 characters to convey the 12-bit Mode 3/A code. The Mode 3/A code contains 12 bits labeled $A_4A_2A_1B_4B_2B_1C_4C_2C_1D_4D_2D_1$. When representing the Mode 3/A code in the Flight Plan ID field, the Base-40 digits are derived from the sum of the subscripts of the code pulses. Character 1 consists of the sum of code group “A” subscripts, character 2 consists of the sum of code group “B” subscripts, and so forth. The next two characters allow for expansion of the Mode 3/A code to 18 bits, where this may be desirable and allowed. The Mode 3/A code is assigned to the aircraft for transponder identity code reporting to ATC. When a Mode 3/A code is assigned to an aircraft, the same value should be used for the Flight Plan ID.*

Note 3: The Mode Status Element always contains the Emitter Category, encoded as defined in §2.2.4.5.4.1 and Table 2-40, regardless of whether the Call Sign or the Flight Plan ID is being conveyed.

2.2.4.5.4.3 Compressed Format Encoding for “EMITTER CATEGORY” and “CALL SIGN/FLIGHT PLAN ID”

Six bytes (byte 18 through byte 23) are used to encode the “EMITTER CATEGORY” and “CALL SIGN/FLIGHT PLAN ID” fields. Each of three byte pairs are encoded as the binary equivalent of the Base-40 numeral generated as:

$$B_2 \times 40^2 + B_1 \times 40 + B_0$$

Where the values B_2 , B_1 and B_0 are given in §2.2.4.5.4.3.1 through §2.2.4.5.4.3.3.

2.2.4.5.4.3.1 Bytes 18 and 19

Bytes 18 and 19 **shall** be encoded such that:

B_2 - Represents the “EMITTER CATEGORY” field (§2.2.4.5.4.1)

B_1 - Represents Character #1 of the “CALL SIGN/FLIGHT PLAN ID” field (§2.2.4.5.4.2)

B_0 - Represents Character #2 of the “CALL SIGN/FLIGHT PLAN ID” field (§2.2.4.5.4.2)

2.2.4.5.4.3.2 Bytes 20 and 21

Bytes 20 and 21 **shall** be encoded such that:

B_2 - Represents Character #3 of the “CALL SIGN/FLIGHT PLAN ID” field (§2.2.4.5.4.2)

B_1 - Represents Character #4 of the “CALL SIGN/FLIGHT PLAN ID” field (§2.2.4.5.4.2)

B_0 - Represents Character #5 of the “CALL SIGN/FLIGHT PLAN ID” field (§2.2.4.5.4.2)

2.2.4.5.4.3 Bytes 22 and 23

Bytes 22 and 23 **shall** be encoded such that:

- B₂ - Represents Character #6 of the “CALL SIGN/FLIGHT PLAN ID” field (§2.2.4.5.4.2)
- B₁ - Represents Character #7 of the “CALL SIGN/FLIGHT PLAN ID” field (§2.2.4.5.4.2)
- B₀ - Represents Character #8 of the “CALL SIGN/FLIGHT PLAN ID” field (§2.2.4.5.4.2)

2.2.4.5.4.4 “EMERGENCY/PRIORITY STATUS” Field Encoding

The “EMERGENCY/PRIORITY STATUS” field is a 3-bit (bits 1 through 3 of byte 24) field. The encoding of this field **shall** be as indicated in [Table 2-42](#).

If the Emergency/Priority Status Selection Input is “unavailable” for the “Data Lifetime” value listed for this input in [Table 2-64](#), then the “EMERGENCY/PRIORITY STATUS” field **shall** default to a value of ALL ZEROS.

Table 2-42: “EMERGENCY/PRIORITY STATUS” Encoding

Status Code bits <small>MSB(Binary)</small> _{LSB}	Status Code bits (Decimal)	Meaning
000	0	No emergency/Not reported
001	1	General emergency
010	2	Lifeguard/medical emergency
011	3	Minimum fuel
100	4	No communications
101	5	Unlawful interference
110	6	Downed Aircraft
111	7	(Reserved)

2.2.4.5.4.5 “UAT MOPS VERSION” Field Encoding

The “UAT MOPS VERSION” field is a 3-bit (bits 4 through 6 of byte 24) field. The encoding of this field **shall** be internally hard coded to ONE (binary 001) by all ADS-B Transmitting Subsystems for equipment complying with this MOPS.