

# 15 Morse code characters (0..9, A..Z)

| Satellite ID | ORESAT1 | 8           | 9              | Batt Temp |
|--------------|---------|-------------|----------------|-----------|
|              |         | Bus Voltage | Bus Current Hi |           |
| 1            | A       | 2.0         | -4.096         | < -150    |
| 2            | B       | 2.1         | -2.048         | -140      |
| 3            | C       | 2.2         | -1.024         | -130      |
| 4            | D       | 2.3         | -0.512         | -120      |
| 5            | E       | 2.4         | -0.256         | -110      |
| 6            | F       | 2.5         | -0.128         | -100      |
| 7            | G       | 2.6         | -0.064         | -90       |
| 8            | H       | 2.7         | -0.032         | -80       |
| 9            | I       | 2.8         | -0.016         | -70       |
| 10           | J       | 2.9         | -0.008         | -60       |
| 11           | K       | 3.0         | -0.004         | -50       |
| 12           | L       | 3.1         | -0.002         | -40       |
| 13           | M       | 3.2         | -0.001         | -30       |
| 14           | N       | 3.3         | 0.001          | -20       |
| 15           | O       | 3.4         | 0.002          | -10       |
| 16           | P       | 3.5         | 0.004          | 0         |
| 17           | Q       | 3.6         | 0.008          | 10        |
| 18           | R       | 3.7         | 0.016          | 20        |
| 19           | S       | 3.8         | 0.032          | 30        |
| 20           | T       | 3.9         | 0.064          | 40        |
| 21           | U       | 4.0         | 0.128          | 50        |
| 22           | V       | 4.1         | 0.256          | 60        |
| 23           | W       | 4.2         | 0.512          | 70        |
| 24           | X       | 4.3         | 1.024          | 80        |
| 25           | Y       | 4.4         | 2.048          | 90        |
| 26           | Z       | 4.5         | 4.096          | 100       |
| 27           | 0       | 4.6         | 8.192          | 110       |
| 28           | 1       | 4.7         | 16.384         | 120       |
| 29           | 2       | 4.8         | 32.768         | 130       |
| 30           | 3       | 4.9         | 65.536         | 140       |
| 31           | 4       | 5.0         | -              | 150       |
| 32           | 5       | 5.1         | -              | 160       |
| 33           | 6       | 5.2         | -              | 170       |
| 34           | 7       | 5.3         | -              | 180       |
| 35           | 8       | 5.4         | -              | 190       |
| 36           | 9       | 5.5         | -              | > 190     |

|       |       |       |
|-------|-------|-------|
| min   | 2.0   | 0     |
| Max   | 5.0   | 10    |
| Range | 3.0   | 5.0   |
| V/bit | 0.094 | 0.156 |

| Batt Temp<br>Lo | 11 | 12             | 13      | 14       | 15 | Uptime  |
|-----------------|----|----------------|---------|----------|----|---------|
|                 |    | Up time (S)    | Rx Code | Err Code | 5  | D H M S |
| < -150          |    | 0.2 TBD        | TBD     |          | 0  | #####   |
| -140            |    | 0.4 TBD        | TBD     |          | 1  | #####   |
| -130            |    | 0.8 TBD        | TBD     |          | 2  | #####   |
| -120            |    | 1.6 TBD        | TBD     |          | 3  | #####   |
| -110            |    | 3.2 TBD        | TBD     |          | 4  | #####   |
| -100            |    | 6.4 TBD        | TBD     |          | 5  | #####   |
| -90             |    | 12.8 TBD       | TBD     |          | 6  | #####   |
| -80             |    | 25.6 TBD       | TBD     |          | 7  | #####   |
| -70             |    | 51.2 TBD       | TBD     |          | 8  | #####   |
| -60             |    | 102.4 TBD      | TBD     |          | 9  | #####   |
| -50             |    | 204.8 TBD      | TBD     |          | 10 | #####   |
| -40             |    | 409.6 TBD      | TBD     |          | 11 | #####   |
| -30             |    | 819.2 TBD      | TBD     |          | 12 | #####   |
| -20             |    | 1638.4 TBD     | TBD     |          | 13 | #####   |
| -10             |    | 3276.8 TBD     | TBD     |          | 14 | #####   |
| 0               |    | 6553.6 TBD     | TBD     |          | 15 | #####   |
| 10              |    | 13107.2 TBD    | TBD     |          | 16 | #####   |
| 20              |    | 26214.4 TBD    | TBD     |          | 17 | #####   |
| 30              |    | 52428.8 TBD    | TBD     |          | 18 | #####   |
| 40              |    | 104857.6 TBD   | TBD     |          | 19 | #####   |
| 50              |    | 209715.2 TBD   | TBD     |          | 20 | #####   |
| 60              |    | 419430.4 TBD   | TBD     |          | 21 | #####   |
| 70              |    | 838860.8 TBD   | TBD     |          | 22 | #####   |
| 80              |    | 1677721.6 TBD  | TBD     |          | 23 | #####   |
| 90              |    | 3355443.2 TBD  | TBD     |          | 24 | #####   |
| 100             |    | 6710886.4 TBD  | TBD     |          | 25 | #####   |
| 110             |    | 13421772.8 TBD | TBD     |          | 26 | #####   |
| 120             |    | 26843545.6 TBD | TBD     |          | 27 | #####   |
| 130             |    | - TBD          | TBD     |          | 28 | - - - - |
| 140             |    | - TBD          | TBD     |          | 29 | - - - - |
| 150             |    | - TBD          | TBD     |          | 30 | - - - - |
| 160             |    | - TBD          | TBD     |          | 31 | - - - - |
| 170             |    | - TBD          | TBD     |          | -  | - - - - |
| 180             |    | - TBD          | TBD     |          | -  | - - - - |
| 190             |    | - TBD          | TBD     |          | -  | - - - - |
| > 190           |    | - TBD          | TBD     |          | -  | - - - - |

**CRC Polynomial**  
 $X^5 + X^4 + X^3 + X^2 + X^0$