

US Tech Test Report:  
 FCC ID:  
 IC:  
 Test Report Number:  
 Issue Date:  
 Customer:  
 Model:

FCC Part 15 Certification/ RSS 247  
 HSW-CCT24  
 4492A-CCT24  
 17-0439  
 April 9, 2018  
 Murata Electronics North America  
 CCT24

## Maximum Public Exposure to RF (MPE) CFR 15.247 (i), CFR 1.1310 (e)

The maximum exposure level to the public from the RF power of the EUT shall not exceed a power density, **S** as per the respective limits in Table 1 below, at a distance, d, of 20 cm (Mobile condition) from the EUT.

**TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

| Frequency range (MHz)                                      | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm <sup>2</sup> ) | Averaging time (minutes) |
|------------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| <b>Limits for General Population/Uncontrolled Exposure</b> |                               |                               |                                     |                          |
| 0.3-1.34                                                   | 614                           | 1.63                          | *100                                | 30                       |
| 1.34-30                                                    | 824/f                         | 2.19/f                        | *180/f <sup>2</sup>                 | 30                       |
| 30-300                                                     | 27.5                          | 0.073                         | 0.2                                 | 30                       |
| 300-1,500                                                  |                               |                               | f/1500                              | 30                       |
| 1,500-100,000                                              |                               |                               | 1.0                                 | 30                       |

f = frequency in MHz \* = Plane-wave equivalent power density

Therefore, for:

### MPE for 2400 MHz – 2483.5 MHz

Limit: 1.0 mW/cm<sup>2</sup>

Peak Power (dBm) = 17.7 dBm

Peak Power (Watts) = 0.059 W

Gain of Transmit Antenna = 14 dBi = 25.11, numeric

d = Distance = 20 cm = 0.2 m

$$\begin{aligned}
 S &= (PG / 4\pi d^2) = \text{EIRP} / 4A = 0.059(25.11) / 4\pi * 0.2^2 \\
 &= 1.4815 / 0.5030 = 2.9453 \text{ W/m}^2 \\
 &= (2.9453 \text{ W/m}^2) (1\text{m}^2/\text{W}) (0.1 \text{ mW/cm}^2) \\
 &= 0.29453 \text{ mW/cm}^2
 \end{aligned}$$

which is << less than S = 1.0 mW/cm<sup>2</sup>

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## RF Exposure Evaluation – IC

According to RSS-102, 2.5.2 Exemption Limits for Routine Evaluation

At or above 300 MHz and below 6 GHz and the source based time averaged maximum EIRP of the device is equal to or less than  $1.31 \times 10^{-2} \times f^{0.6834}$  in Watts (adjusted for tune up tolerance where applicable), where f= frequency in MHz

For 2.4 GHz Band:

$$\text{Limit} = 1.31 \times 10^{-2} \times 2440^{0.6834} = 2.7 \text{ Watts}$$

$$\text{Max EIRP} = 17.7 \text{ dBm} + 14 \text{ dB} = 31.7 \text{ dBm} = 1479.10 \text{ mW} \ll 2700 \text{ mW}$$