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Subject: RF Exposure Considerations for Radio Board 60556C-F-915

FCC ID: 2A3M2-25A083, Contains Pre approved Cellular Module FCC ID: XMR201912BG77

The FCC requires that the Maximum ERP be less than the threshold value at a distance of 20 cm from a device to the body of a user.

The transmitter operation for the Radio Board 60556C-F-915 utilizes different technologies:

- Sub-GHz → 915 MHz LoRa or 915 MHz FSK
- LTE → Cat M1 or NB2

Simultaneous transmission of LoRa and FSK, as that of Cat M1 and NB2, cannot take place. While the simultaneous transmission of Sub-GHz and LTE technologies is avoided by the application.

The following FCC Rule Parts and procedures are applicable:

Part 1.1310 – Radiofrequency radiation exposure limits

Part 2.1091 – Radiofrequency radiation exposure evaluation: mobile devices

KDB447498 D01 v07

Mobile and Portable Devices RF Exposure Procedures and Equipment Authorisation Policies

## EIRP Calculation

### For 915 MHz FSK

Transmitter frequency range = 915.25 MHz to 927.5MHz

Maximum measured ERP = +85.37 dBuV/mm = -9.86 dBm = **(0.103mW)**

### For 915 MHz LoRa

Transmitter frequency range = 915.25 MHz to 927.5MHz

Maximum Conducted Power = 22dBm

Antenna gain: +2dBi

EIRP = 22dBm + 2dBi = 24dBm

ERP = EIRP-2.15dBm = +21.85dBm **(153.11mW)**

## Power Thresholds

From Appendix A of KDB 447498 Do1 v07. RF exemption applies if the maximum transmitted power is less than the maximum of the following three criteria:

- i) Less than 1 mw Blanket exemption. PTH = 0.001 W (the Radio Board 60556C-F-915 is not compliant)
- ii) determination of exemption under the MPE-based §1.1307(b)(3)(i)(C), if i) not meet
- iii) determination of exemption under the SAR-based §1.1307(b)(3)(i)(B) if both i) and ii) are not met.

Determination of threshold power (PTH) under the MPE-based §1.1307(b)(3)(i)(C)  
From table 1 - § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation for 915 MHz:

Threshold ERP (watts)  $PTH = 0.0128 * R^2 * f$  (f in MHz)

For

$$R = 0.2 \text{ m}$$

$$f = 915 \text{ MHz}$$

$$PTH = 0.0128 * 0.22 * 915$$

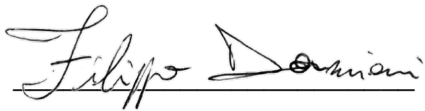
$$PTH = 0.0128 * 0.04 * 915$$

$$PTH = 0.468 \text{ W (468mW)}$$

## Conclusion

The maximum ERP is below the applicable 0.468W threshold for operation at 915MHz, and therefore RF Exposure Evaluation is not required for the Radio Board 60556C-F-915 with a user/antenna separation distance of 20cm and is exempt from evaluation in accordance with §1.1307(b)(3).

It's important to emphasize that the device acknowledge the use of cellular modem, which has been installed iaw the grant conditions, so it doesn't transmit simultaneously with it.



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