

Radio Frequency Exposure Assessment

The power maximum power levels for the CC864DUAL module employed in the design are extracted from the FCC Grant of Authorization dated 03/10/2011 by Nemko Canada Inc. The measured minimum distance between the antenna and the ankle is 30 mm. The figure below demonstrates the minimum separation between the ankle skin point of contact with the device and the nearest point of the antenna. The skin point of contact is the strap back plate and the antenna is measured to be 30 mm from that point.

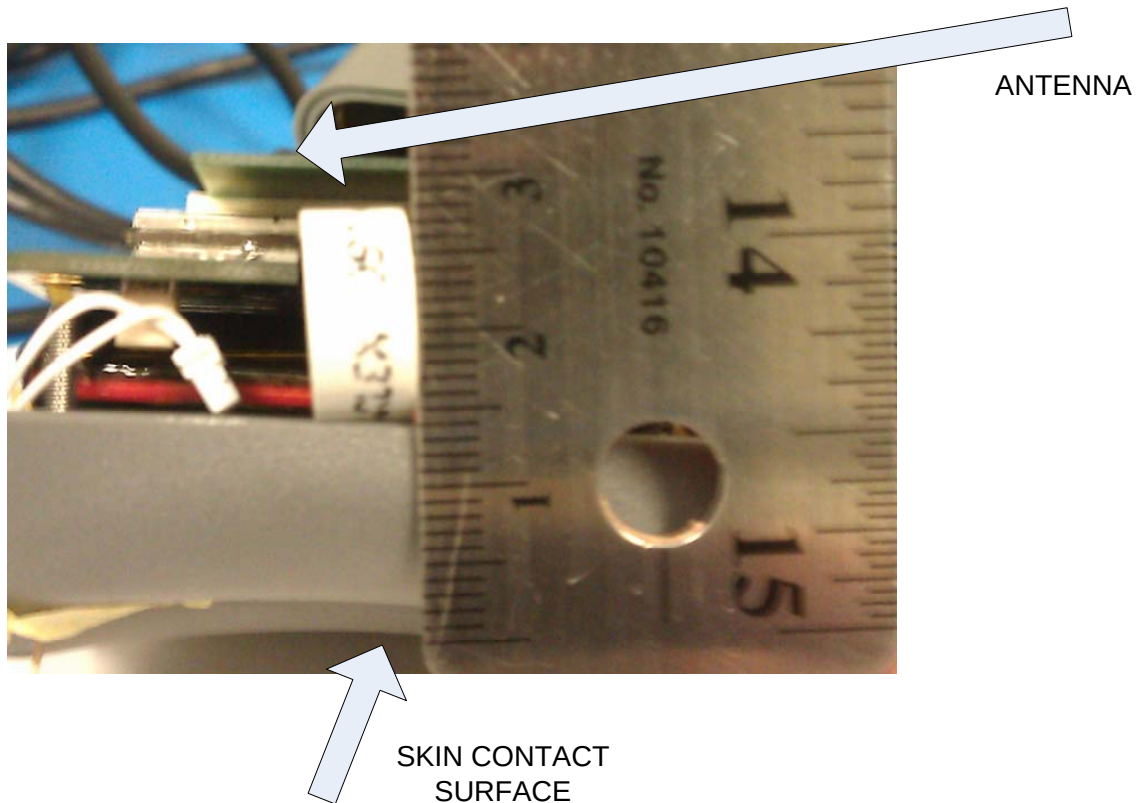
The Telit module is only powered for a short period of time every ten minutes as controlled by the firmware. Firmware in the unit restricts the transmission in order to conserve battery and remain within the acceptable SAR limitations.

The maximum data packet payload is 1100 bytes. Assuming a worst case transmission overhead of 100 percent at the minimum EVDO data transfer rate (38,400 bits per second), the modem would be transmitting for a total of 0.46 seconds. This would translate to a duty cycle of 0.07 percent since the transmissions occur at a minimum of 10 minutes (600 seconds) apart.

The firmware restricts the total on the air time to a maximum of 10 seconds per transmission as a safeguard to minimize battery consumption. This translates to a worst case duty cycle of 1.7% maximum (10 seconds every ten minutes maximum).

The worst case duty cycle of 1.7 percent is then used in accordance with the SAR Exclusion Power Thresholds Table for 100MHZ-6GHZ and distance less than 50mm in Appendix A of FCC Document “447498 D01 General RF Exposure Guidance v05r02”. 10-g Extremity SAR Test Exclusion Power Thresholds apply since the device must only be worn on the ankle.

The table below shows the results of the required calculation. The 1.7 percent maximum duty cycle results in calculated limits below the 10g extremity SAR exclusion limit for both frequency bands.



Frequency (MHZ)	Power (mW)	Minimum d (mm)	Duty Cycle dc (%)	10g Extremity SAR exclusion limit
848	290	30	1.7	4.79
1908	287	30	1.7	7.10

Power On
Spacing (min)
10 minutes

600 Seconds

On Air (max)

10 Seconds

Duty Cycle (%)

1.7

10g Extremity SAR Exclusion Calculation