



EMC Test Data

Client:	RxCap Inc.	PR Number:	PR130924
Model:	LTE Hub	T-Log Number:	TL130924-RA-Hub
Contact:	David MacVittie	Project Manager:	Christine Krebill
Standard:	FCC Part 15, Subpart B and §15.247	Project Engineer:	David Bare
		Class:	N/A

Maximum Permissible Exposure / SAR Exclusion

Specific Details

Objective: Evaluate the RF Exposure requirements per FCC 1.1310, 2.1091, 2.1093 and RSS-102.

Date of Test: 9/9/2021

Test Engineer: David W. Bare

General Test Configuration

Calculation uses the free space transmission formula:

$$S = (PG)/(4 \pi d^2)$$

Where: S is power density (W/m^2), P is output power (W), G is antenna gain relative to isotropic, d is separation distance from the transmitting antenna (m).

SAR exclusion calculation formula is from FCC KDB 447498 D01 v06 section 4.3:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{\text{GHz}}}]$$

Where: f_{GHz} is the RF transmit channel frequency

Summary of Results

Device complies with Power Density requirements at 20cm separation:	Yes
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Device complies with SAR exclusion at 5mm separation:	Yes
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Deviations From The Standard

No deviations were made from the requirements of the standard.



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FCC SAR Exclusion Calculation (BLE radio)

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Separation Distance (mm)	SAR Exclusion Calc.	SAR Exclusion Limit
2480	3.3	2.1	0	0.5	3.3	2.40	5.0	0.67	3.0

Industry Canada SAR Exclusion Calculation (Highest of output power or EIRP) (BLE radio)

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Separation Distance (mm)	Maximum Power or EIRP	SAR Exclusion Limit (mW)
2480	3.3	2.1	0	0.5	3.3	2.40	5.0	2.40	4.0



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FCC MPE Calculation (LTE radio)

Use: General

Antenna: 1.1 dBi

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 20 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²
777	dBm	mW*						
777	24.0	251.2	0	1.1	24.0	323.59	0.064	0.518
782	24.0	251.2	0	1.1	24.0	323.59	0.064	0.521
787	24.0	251.2	0	1.1	24.0	323.59	0.064	0.525

For the cases where S > the MPE Limit

Freq. MHz	Power Density (S) at 20 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²	Distance where S <= MPE Limit cm
777	0.064	0.518	7.1
782	0.064	0.521	7.0
787	0.064	0.525	7.0

Antenna: 2.4 dBi

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 20 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²
	dBm	mW*						
1710	24.0	251.2	0	2.4	24.0	436.52	0.087	1.000
1732.5	24.0	251.2	0	2.4	24.0	436.52	0.087	1.000
1755	24.0	251.2	0	2.4	24.0	436.52	0.087	1.000

For the cases where S > the MPE Limit

Freq. MHz	S @ 20 cm mW/cm ²	MPE Limit mW/cm ²	Distance where S <= MPE Limit
1710	0.087	1.000	5.9cm
1732.5	0.087	1.000	5.9cm
1755	0.087	1.000	5.9cm



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Industry Canada MPE Calculation (LTE radio)

Use: General

Antenna: 1.1 or 2.4 dBi depending on band

Freq. MHz	EUT Power		Cable Loss Loss dB	Ant Gain dBi	Power at Ant dBm	EIRP mW	Power Density (S) at 20 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²
777	24.0	251.2	0	1.1	24.0	323.59	0.064	0.247
782	24.0	251.2	0	1.1	24.0	323.59	0.064	0.249
787	24.0	251.2	0	1.1	24.0	323.59	0.064	0.250
1710	24.0	251.2	0	2.4	24.0	436.52	0.087	0.424
1732.5	24.0	251.2	0	2.4	24.0	436.52	0.087	0.428
1755	24.0	251.2	0	2.4	24.0	436.52	0.087	0.432

For the cases where S > the MPE Limit

Freq. MHz	Power Density (S) at 20 cm mW/cm ²	MPE Limit at 20 cm mW/cm ²	Distance where S ≤ MPE Limit cm
777	0.064	0.247	10.2
782	0.064	0.249	10.2
787	0.064	0.250	10.2
1710	0.087	0.424	9.0
1732.5	0.087	0.428	9.0
1755	0.087	0.432	9.0