



# RF EXPOSURE

## MEASUREMENT AND TEST REPORT

For

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**FCC ID: 2AJULC15F-5B**

<b>Report Type:</b> Original Report	<b>Product Type:</b> Repeater
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<b>Report Number:</b> <u>RSC161201003B</u>	
<b>Report Date:</b> <u>2017-08-02</u> Henry Ding  <b>Reviewed By:</b> <u>EMC Leader</u>	
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## **FCC §1.1307(b) & §2.1091 - MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

### Applicable Standard

According to subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minutes)
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
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

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

According to §1.1310 and §2.1091 RF exposure is calculated.

### Calculated Formulary:

Predication of MPE limit at a given distance

$S = PG/4\pi R^2$  = power density (in appropriate units, e.g. mW/cm<sup>2</sup>);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

**Calculated Data:**

Mode	Frequency Band	Antenna Gain		Cable Loss	Max Tune-up Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
		(dBi)	(numeric)		dB	(dBm)			
Uplink	824-849	7.0	5.01	2.44	24.0	251.19	20.00	0.143	0.55
	1850-1910	7.0	5.01	2.95	24.0	251.19	20.00	0.127	1.00
	1710-1755	7.0	5.01	2.78	24.0	251.19	20.00	0.132	1.00
	704-716	7.0	5.01	2.13	24.0	251.19	20.00	0.153	0.47
	776-787	7.0	5.01	2.25	24.0	251.19	20.00	0.149	0.52
Downlink	869-894	9.0	7.94	2.63	5.0	3.16	20.00	0.003	0.58
	1930-1990	9.0	7.94	3.13	5.0	3.16	20.00	0.002	1.00
	2110-2155	9.0	7.94	3.25	5.0	3.16	20.00	0.002	1.00
	734-746	9.0	7.94	2.21	5.0	3.16	20.00	0.003	0.49
	746-757	9.0	7.94	2.32	5.0	3.16	20.00	0.003	0.50

Note: The power used for evaluation is rated power including tolerance.

The worst antenna kitting is option 1 for outdoor antenna and option 1 for indoor antenna.  
Please refer the user manual.

**Result:** The device meet FCC MPE at 20 cm distance.