



SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

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FCC ID: OJFDLRU1719235

Product operation frequency range and FCC ID number information.

Model number: dLRU-17192325

Operation frequency band:

AWS-1

Uplink: 1710MHz to 1755MHz

Downlink: 2110MHz to 2155MHz

AWS-2

Uplink: 1755MHz to 1780MHz

Downlink: 2155MHz to 2180MHz

Broadband PCS

Uplink: 1850MHz to 1915MHz

Downlink: 1930MHz to 1995MHz

WCS

Uplink: 2305MHz to 2315MHz

Downlink: 2350MHz to 2360MHz

BRS/EBS

Uplink: 2496MHz to 2690MHz

Downlink: 2496MHz to 2690MHz

Supported signal modulation type:

3G WCDMA

LTE

5G NR

Input signal channel space:

Band	Technology	Supported Bandwidth
AWS-1/AWS-2/ Broadband PCS	3G	5MHz
	4G	5/10/15/20MHz
	5G	5/10/15/20MHz
WCS	4G	5/10MHz
	5G	5/10MHz
BRS/EBS	4G	5/10/15/20MHz
	5G	5/10/15/20/40/60MHz

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RF Exposure Compliance Requirement



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1. Standard requirement

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 limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

(a) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S)(mW/cm ²)	Averaging Times $ E ^2, H ^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100000			5	6

(b) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S)(mW/cm ²)	Averaging Times $ E ^2, H ^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100000			1.0	30

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



1. MPE Calculation Method

$$R = \sqrt{\frac{PG}{4\pi S}}$$

$$S \text{ (mW/cm}^2\text{)} = P \cdot G / 4\pi R^2$$

S= Power Density (mW/cm²)

P=Peak RF conducted output Power (mW)

G=EUT Antenna numeric gain (numeric)

R= Separation distance between radiator and human body (cm);

From the maximum EUT RF output power, as well as the gain of the used antenna, according to the RF power density limit above, the minimum distance between the antenna and human body will be calculated.

2. Calculated Result

The permitted max antenna gain for the device is 12.5dBi.

Take the Limits for General Population / Uncontrolled Exposure.

The limit for Power Density (S)(mW/cm²) = 1

3. Conclusion

1. For AWS-1 (Downlink Only)

According to the test report GZEM201101673702, the tested max. total conducted power for 2x2 MIMO is 20.21dBm+20.21dBm=210.0mW

Frequency (MHz)	Maximum Antenna Gain (Numeric)	Total conducted power (mW)	Limit of Power Density (S) (mW/cm ²)	Minimum Distance to human body (cm)
2132.5	17.78	210.0	1	17.24

2. For AWS-2 (Downlink Only)

According to the test report GZEM201101673702, the tested max. total conducted power for 2x2 MIMO is 20.36dBm+20.36dBm=217.3mW

Frequency (MHz)	Maximum Antenna Gain (Numeric)	Total conducted power (mW)	Limit of Power Density (S) (mW/cm ²)	Minimum Distance to human body (cm)
2171.0	17.78	217.3	1	17.54



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3. For Broadband PCS (Downlink Only)

According to the test report GZEM201101673702, the tested max. total conducted power for 2x2 MIMO is $20.35\text{dBm}+20.35\text{dBm}=216.8\text{mW}$

Frequency (MHz)	Maximum Antenna Gain (Numeric)	Total conducted power (mW)	Limit of Power Density (S) (mW/cm ²)	Minimum Distance to human body (cm)
1930.5	17.78	216.8	1	17.52

4. For WCS (Downlink Only)

According to the test report GZEM201101673702, the tested max. total conducted power for 2x2 MIMO is $18.22\text{dBm}+18.22\text{dBm}=132.7\text{mW}$

Frequency (MHz)	Maximum Antenna Gain (Numeric)	Total conducted power (mW)	Limit of Power Density (S) (mW/cm ²)	Minimum Distance to human body (cm)
2356.7	17.78	132.7	1	13.71

5. For BRS/EBS (Downlink Only)

According to the test report GZEM201101673702, the tested max. total conducted power for 2x2 MIMO is $20.24\text{dBm}+20.24\text{dBm}=211.4\text{mW}$

Frequency (MHz)	Maximum Antenna Gain (Numeric)	Total conducted power (mW)	Limit of Power Density (S) (mW/cm ²)	Minimum Distance to human body (cm)
2629.86	17.78	211.4	1	17.30

So the recommend use distance away from EUT external antenna is larger than 17.54cm for MIMO transmission.