



CTC Laboratories, Inc.

1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

Tel: +86-755- 27521059 Fax: +86-755- 27521011 Http://www.sz-ctc.org.cn

Maximum Permissible Exposure Evaluation

FCC ID: 2AC88-GLMB20A01

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b)

EUT Specification

Product Name:	LTE Module
Trade Mark:	GlocalMe
Model/Type reference:	SC20-A
Listed Model(s):	N/A
Frequency band (Operating)	GSM850: UL: 824.2MHz~848.8MHz, DL: 869.2MHz~893.8MHz PCS1900: UL: 1850.2MHz~1909.8, DL: 1930.2MHz~1989.8MHz WCDMA Band II: UL: 1852.4MHz~1907.6MHz, DL: 1932.4MHz~1987.6MHz WCDMA Band IV: UL: 1712.4MHz~1752.6MHz, DL: 2112.4MHz~2152.6MHz WCDMA Band V: UL: 826.4MHz~846.6MHz, DL: 871.4MHz~891.6MHz LTE Band 2: UL: 1850.7MHz~1909.3MHz, DL: 1930.7MHz~1989.3MHz LTE Band 4: UL: 1710.7MHz~1754.3MHz, DL: 2110.7MHz~2154.3MHz LTE Band 5: UL: 824.7MHz~848.3MHz, DL: 869.7MHz~893.3MHz LTE Band 7: UL: 2502.5MHz~2567.5MHz, DL: 2622.5MHz~2687.5MHz LTE Band 12: UL: 699.7MHz~715.3MHz, DL: 729.7MHz~745.3MHz LTE Band 13: UL: 779.5MHz~784.5MHz, DL: 748.5MHz~753.5MHz LTE Band 25: UL: 1850.7MHz~1914.3MHz, DL: 1930.7MHz~1994.3MHz LTE Band 26: UL: 814.7MHz~823.3MHz, DL: 859.7MHz~868.3MHz LTE Band 26: UL: 824.7MHz~848.3MHz, DL: 869.7MHz~893.3MHz
Device category	<input type="checkbox"/> Portable (<5mm separation) <input type="checkbox"/> Mobile (>20cm separation) <input checked="" type="checkbox"/> Fixed (>20cm separation) <input type="checkbox"/> Others _____
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure (S=5mW/cm2) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm2)
Antenna diversity	<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
Antenna gain (Max)	GPRS/EDGE850: 2.18dBi Max GPRS/EDGE1900: 3.49dBi Max WCDMA II: 3.49dBi Max WCDMA IV: 4.95dBi Max WCDMA V: 2.20dBi Max LTE FDD Band 2: 3.49dBi Max LTE FDD Band 4: 4.95dBi Max LTE FDD Band 5: 2.18dBi Max LTE FDD Band 7: 4.03dBi Max LTE FDD Band 12: 1.78dBi Max LTE FDD Band 13: 3.10dBi Max LTE FDD Band 25: 3.49dBi Max LTE FDD Band 26: 2.18dBi Max
Evaluation applied	<input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> SAR Evaluation

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Limits for Maximum Permissible Exposure (MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm ²)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d the limit of MPE 1mW/cm². If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Maximum Output Power Limit (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
GSM850 (1 Tx slot)	824.2	2.18	33.0	35.18	3.2961	7.000	501.187	0.100	0.549	0.182
GPRS850 (1 Tx slot)	824.2	2.18	33.0	35.18	3.2961	7.000	501.187	0.100	0.549	0.182
GPRS850 (2 Tx slots)	824.2	2.18	33.0	35.18	3.2961	7.000	1000.000	0.199	0.549	0.362
GPRS850 (3 Tx slots)	824.2	2.18	31.5	33.68	2.3335	7.000	1056.818	0.210	0.549	0.383
GPRS850 (4 Tx slots)	824.2	2.18	30.0	32.18	1.6520	7.000	1000.000	0.199	0.549	0.362
EGPRS850 (1 Tx slot)	824.2	2.18	27.0	29.18	0.8279	7.000	125.893	0.025	0.549	0.046
EGPRS850 (2 Tx slots)	824.2	2.18	27.0	29.18	0.8279	7.000	251.189	0.050	0.549	0.091
EGPRS850 (3 Tx slots)	824.2	2.18	27.0	29.18	0.8279	7.000	374.973	0.075	0.549	0.136
EGPRS850 (4 Tx slots)	824.2	2.18	27.0	29.18	0.8279	7.000	501.187	0.100	0.549	0.182
GSM1900 (1 Tx slot)	1850.2	3.49	30.5	33.99	2.5061	2.000	251.189	0.050	1.000	0.050
GPRS1900 (1 Tx slot)	1850.2	3.49	30.5	33.99	2.5061	2.000	251.189	0.050	1.000	0.050
GPRS1900 (2 Tx slots)	1850.2	3.49	30.5	33.99	2.5061	2.000	501.187	0.100	1.000	0.100
GPRS1900 (3 Tx slots)	1850.2	3.49	30.5	33.99	2.5061	2.000	748.170	0.149	1.000	0.149
GPRS1900 (4 Tx slots)	1850.2	3.49	30.5	33.99	2.5061	2.000	1000.000	0.199	1.000	0.199
EGPRS1900 (1 Tx slot)	1850.2	3.49	26.5	29.99	0.9977	2.000	100.000	0.020	1.000	0.020
EGPRS1900 (2 Tx slots)	1850.2	3.49	26.5	29.99	0.9977	2.000	199.526	0.040	1.000	0.040
EGPRS1900 (3 Tx slots)	1850.2	3.49	26.5	29.99	0.9977	2.000	297.852	0.059	1.000	0.059
EGPRS1900 (4 Tx slots)	1850.2	3.49	26.5	29.99	0.9977	2.000	398.107	0.079	1.000	0.079
WCDMA Band II	1852.4	3.49	24.0	27.49	0.5610	2.000	446.684	0.089	1.000	0.089
WCDMA Band IV	1712.4	4.95	24.0	28.95	0.7852	1.000	794.328	0.158	1.000	0.158
WCDMA Band V	826.4	2.20	24.0	26.20	0.4169	7.000	501.187	0.100	0.551	0.181

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LTE Band 2	1850.7	3.49	24.0	27.49	0.5610	2.000	446.684	0.089	1.000	0.089
LTE Band 4	1710.7	4.95	24.5	29.45	0.8810	1.000	891.251	0.177	1.000	0.177
LTE Band 5	824.7	2.18	24.5	26.68	0.4656	7.000	562.341	0.112	0.550	0.204
LTE Band 7	2502.5	4.03	24.5	28.53	0.7129	2.000	1995.262	0.397	1.000	0.397
LTE Band 12	699.7	1.78	24.0	25.78	0.3784	3.000	1000.000	0.199	0.466	0.427
LTE Band 13	779.5	3.10	24.0	27.1	0.5129	3.000	1000.000	0.199	0.520	0.383
LTE Band 25	1850.7	3.49	24.0	27.49	0.5610	2.000	446.684	0.089	1.000	0.089
LTE Band 26	814.7	2.18	24.0	26.18	0.4150	7.000	501.187	0.100	0.543	0.184

Note

For a more detailed features description, please refer to the RF Test Report.

*****THE END*****