

FCC ID : PJ7-N728LA

1. RF EXPOSURE EVALUATION

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).

Limits for Maximum Permissible Exposure (MPE).

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm²)	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: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where

P_d = Power density in mW/cm².

P_{out} =output power to antenna in mW.

G = Numeric gain of the antenna relative to isotropic antenna.

π =3.1416.

R = distance between observation point and center of the radiator in 20cm.

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.

2. EUT TECHNICAL DESCRIPTION

Characteristics	Description
Product	LTE Module
Model Number	N728-LA
Power Supply	AC 100-240V~50/60Hz by Adapter
Temperature Range	-30°C~75°C

Support Networks:	GSM/GPRS/EGPRS
Support Bands:	GSM/GPRS/EGPRS850 GSM/GPRS/EGPRS1900
Frequency Range:	GSM/GPRS/EGPRS850: Tx: 824~849MHz/ Rx: 869~894MHz GSM/GPRS/EGPRS1900: Tx: 1850~1910MHz/ Rx: 1930~1990MHz
Modulation Mode:	GMSK (GSM/GPRS), GMSK/8PSK (EGPRS)
GPRS Class:	Class 12
EGPRS Class:	Class 12
Type of Antenna:	External Antenna
Antenna Gain:	GSM/GPRS/EGPRS 850: 1.02 dBi GSM/GPRS/EGPRS 1900: 1.44 dBi

Operation Band:	WCDMA Band 2 WCDMA Band 4 WCDMA Band 5
Modulation:	QPSK for WCDMA/HSUPA/HSDPA
Operating Frequency Range(s):	WCDMA Band 2: Tx: 1850~1910MHz/ Rx: 1930~1990MHz WCDMA Band 4: Tx: 1710~1755MHz/ Rx: 2110~2155MHz WCDMA Band 5: Tx: 824~849MHz/ Rx: 869~894MHz
Supported Channel Bandwidth:	5 MHz
Antenna Type:	External Antenna
Antenna Gain:	WCDMA B2: 1.78 dBi WCDMA B4: 1.84 dBi WCDMA B5: 1.02 dBi

Operation Band:	LTE Band 2 LTE Band 4 LTE Band 5
-----------------	--

	LTE Band 7 LTE Band 10 LTE Band 38 LTE Band 41 LTE Band 66
Modulation:	QPSK/16QAM for LTE
Operating Frequency Range(s):	LTE Band 2: Tx: 1850~1910MHz/ Rx: 1930~1990MHz LTE Band 4: Tx:1710~1755MHz/ Rx: 2110~2155MHz LTE Band 5: Tx: 824~849MHz/ Rx: 875~885MHz LTE Band 7: Tx: 2500~2570MHz/ Rx: 2620~2690MHz LTE Band 10: Tx: 1710~1770MHz/ Rx: 2110~2170MHz LTE Band 38: Tx/Rx: 2570~2620MHz LTE Band 41: Tx/Rx: 2535~2655MHz LTE Band 66: Tx/Rx: 1710~1780MHz
Antenna Type:	External Antenna
Antenna Gain:	LTE Band 2: 1.78 dBi LTE Band 4: 1.84 dBi LTE Band 5: 1.02 dBi LTE Band 7: 3.74 dBi LTE Band 10: 1.84 dBi LTE Band 38: 3.74 dBi LTE Band 41: 3.74 dBi LTE Band 66: 1.84 dBi

3. Measurement Result

Mode	Frequency	Max Conducted Power (dBm)	Tune-up (dBm)	Antenna gain (dBi)	Antenna Gain Numeric	R (cm)	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
GSM/GPRS/EGPRS850	824.2	32.61	33	1.02	1.26	20	0.5020	0.5495
GSM/GPRS/EGPRS1900	1850.2	29.87	30	1.44	1.39	20	0.2772	1.0000
WCDMA Band 2	1852.4	22.77	24	1.78	1.51	20	0.0753	1.0000
WCDMA Band 4	1712.4	22.69	24	1.84	1.53	20	0.0763	1.0000
WCDMA Band 5	826.4	23.75	24	1.02	1.26	20	0.0632	0.5509
LTE Band 2	1860	23.27	24	1.78	1.51	20	0.0753	1.0000
LTE Band 4	1720	23.04	24	1.84	1.53	20	0.0763	1.0000
LTE Band 5	829	23.88	24	1.02	1.26	20	0.0632	0.5527
LTE Band 7	2510	23.12	24	3.74	2.37	20	0.1182	1.0000
LTE Band 10	1710	22.91	24	1.84	1.53	20	0.0763	1.0000
LTE Band 38	2580	22.56	24	3.74	2.37	20	0.1182	1.0000
LTE Band 41	2535	23.19	24	3.74	2.37	20	0.1182	1.0000
LTE Band 66	1720	22.83	24	1.84	1.53	20	0.0763	1.0000

Note: All the modes are tested, only the worst data are described in the table.

----- The End -----