中认信通
CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)

ACCREDITED
TESTING LABORATORY
CERTIFICATE # 6356.01

RF EXPOSURE EVALUATION

Applicant: **BTECH (BaoFeng Tech)**

Address: 702 N Industrial Ave Arlington,South Dakota,United States 57212

FCC ID: **2AGND-GMRS-50PRO**

Product Name: **GMRS Mobile Radio**

Standard(s): **47 CFR §1.1310, 47 CFR §2.1091**
447498 D01 General RF Exposure Guidance v06

The above device has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: **CR231169585-00E**

Date Of Issue: **2024/1/16**

Reviewed By: **Calvin Chen**
Title: RF Engineer

Approved By: **Sun Zhong**
Title: Manager

Test Laboratory: **China Certification ICT Co., Ltd (Dongguan)**
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Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 442868, the FCC Designation No. : CN1314.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol "▲". Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR231169585-00E	Original Report	2024/1/16

2. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

2.1 Applicable Standard

According to 1.1310, 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for Maximum Permissible Exposure (MPE)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f^2)	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;

2.2 Calculation For Test Exclusion:

Prediction of power density at the distance of the applicable MPE limit
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
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);

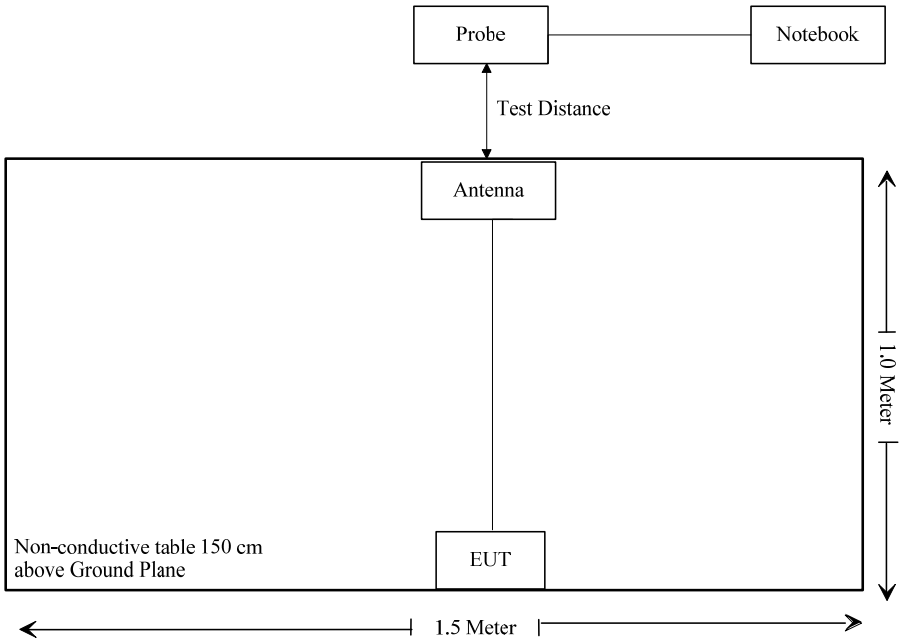
For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

2.3 MPE Test Procedure

1. Place the EUT`s antenna was vertical polarization on the table.
2. The EUT was set to transmit at the frequency at maximum RF power.
3. The Distance between the test probe and the investigated EUT`s antenna equal to the distance be specified as safety distance in the user manual.
4. Power density measurements were taken at different heights of the probe from the ground (0.8 to 2.8 meters) while rotating versus azimuth (from 0° to 360°) the antenna.
5. adjusted the distance between the test probe and the tested antenna to the real safe distance, R_{real}, such that the measured highest power density in the “worst case” position was the same or slightly less than the test limit.
6. The measurement results of final measurements conducted at the chosen azimuth and different heights of the probe above the ground.

2.4 Block Diagram of Test Setup



2.5 Test Data:

Serial Number:	2E6J-1	Test Date:	2024/1/12
Test Site:	RF	Test Mode:	Transmitting
Tester:	Morpheus Shi	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	20.3	Relative Humidity: (%)	35	ATM Pressure: (kPa)	102.6

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Narda	Field Probe	NBM-520	C-0150	2023-11-25	2024-11-25

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:
462.6250MHz

Measuring Probe Height(cm)	Power Density(mW/cm²)				
	40cm	50cm	60cm	70cm	80cm
80	0.178	0.184	0.181	0.121	0.061
90	0.204	0.109	0.186	0.103	0.101
100	0.130	0.063	0.130	0.114	0.115
110	0.209	0.167	0.169	0.142	0.142
120	0.208	0.168	0.188	0.131	0.142
130	0.216	0.140	0.141	0.106	0.115
140	0.313	0.249	0.158	0.112	0.079
150	0.416	0.352	0.156	0.115	0.091
160	0.449	0.305	0.187	0.150	0.135
170	0.472	0.319	0.194	0.156	0.144
180	**0.548**	0.314	0.159	0.166	0.143
190	0.436	0.273	0.195	0.179	0.159
200	0.235	0.216	0.209	0.211	0.186
210	0.157	0.154	0.202	0.223	0.210
220	0.165	0.114	0.170	0.198	0.195
230	0.129	0.073	0.115	0.143	0.143
240	0.102	0.054	0.126	0.074	0.070
250	0.120	0.058	0.091	0.359	0.069
260	0.110	0.086	0.058	0.318	0.038
270	0.117	0.082	0.079	0.346	0.035
280	0.086	0.075	0.090	0.314	0.033

Test Result Summary:

Maximum Power Density (mW/cm²)	0.548
Measured Conducted Output Power (dBm)	46.54
Maximum Rated Power Including Tolerance (dBm)	47
Scaled Maximum Power Density(50% duty Cycle) (mW/cm²)	0.30
Limit(mW/cm²))	0.31
Safety Distance (cm)	40
Result	Compliance

467.6250MHz

Measuring Probe Height(cm)	Power Density(mW/cm²)				
	40cm	50cm	60cm	70cm	80cm
80	0.276	0.209	0.165	0.116	0.099
90	0.142	0.242	0.164	0.115	0.094
100	0.149	0.224	0.143	0.118	0.099
110	0.155	0.257	0.154	0.133	0.105
120	0.222	0.188	0.153	0.130	0.112
130	0.199	0.213	0.154	0.133	0.092
140	0.207	0.203	0.180	0.134	0.101
150	0.195	0.206	0.183	0.142	0.112
160	0.255	0.217	0.173	0.150	0.124
170	0.276	0.249	0.194	0.182	0.141
180	0.335	0.290	0.234	0.225	0.158
190	**0.391**	0.349	0.278	0.241	0.161
200	0.306	0.305	0.258	0.245	0.239
210	0.287	0.257	0.227	0.210	0.195
220	0.127	0.218	0.191	0.201	0.224
230	0.155	0.151	0.123	0.130	0.151
240	0.079	0.075	0.055	0.063	0.070
250	0.066	0.047	0.048	0.046	0.044
260	0.075	0.050	0.051	0.052	0.065
270	0.129	0.102	0.069	0.057	0.050
280	0.095	0.090	0.079	0.061	0.045

Test Result Summary:

Maximum Power Density (mW/cm^2)	0.391
Measured Conducted Output Power (dBm)	46.61
Maximum Rated Power Including Tolerance (dBm)	47
Scaled Maximum Power Density(50% duty Cycle) (mW/cm^2)	0.21
Limit(mW/cm^2))	0.31
Safety Distance (cm)	40
Result	Compliant

For Bluetooth/BLE:

Frequency (MHz)	Antenna Gain		Conducted output power including Tune-up Tolerance		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
	(dBi)	(numeric)	(dBm)	(mW)			
2402-2480	2.15	1.64	-2	0.63	20.00	0.0002	1.0

Result: **Compliant**, the Stand-alone Maximum Permissible Exposure was compliant at the distance more than 20cm.

simultaneously transmit:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

$=S_{UHF}/S_{limit\text{-}UHF} + S_{BT}/S_{limit\text{-}BT}$

=0.30/0.31+0.0002/1.0

=0.97

Result: The device meet FCC MPE at 40 cm distance for General Population/Uncontrolled use.

===== END OF REPORT =====