TESTING LABORATORY
CERTIFICATE #4820.01

MAXIMUM PERMISSIBLE EXPOSURE

TEST REPORT

For

Hytera Communications Corporation Limited

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FCC ID: YAMHM78XVHFS

Report Type:	**Product Name:**
Original Report	DIGITAL MOBILE RADIO

Report Number:	RDG2210702-26804E-20A
Report Date:	2021-07-23
Reviewed By:	Gavin Xu RF Engineer
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FCC §1.1310 &FCC §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Product Description for Equipment under Test (EUT)

EUT Name:	DIGITAL MOBILE RADIO
EUT Model:	HM782 VHF
Multiple Models:	HM785 VHF, HM786 VHF, HM788 VHF HDM782 VHF, HDM785 VHF, HDM786 VHF, HDM788 VHF
Model Difference:	Refer to the DOS letter
Rated Input Voltage:	DC 13.6V
Serial Number:	DG2210702-26804E-RF-S1
EUT Received Date:	2021.07.03
EUT Received Status:	Good

Declarations

BACL 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.

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

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Applicable Standard

According to 1.1307 (b)(1), 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)

Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
(i) Limits for Occupational/Controlled Exposure				
0.3- 3.0	614	1.63	(100)*	6
3.0 - 30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	f/300	6
1500-100,000	/	/	5	6

(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;

MPE Calculation

Prediction of power density at the distance of the applicable MPE limit

$$S = PG/4\pi R^2$$

Where: S = 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
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:

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

MPE Results

VHF:

Frequency (MHz)	Maximum Allowable Antenna Gain (dBi)	Cable Loss (dB)	Maximum Average output power including Tune-up Tolerance (dBm)	Operation Duty Cycle (%)	Evaluation Distance (cm)	Power Density (mW/cm^2)	Power Density Limit (mW/cm^2)
136-174	0	1	47.5	50	50	0.713	1.000

Result: For VHF, the device meet FCC MPE requirement at 50 cm distance away from Antenna.

Bluetooth:

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	0	1.00	5	3.16	20.00	0.0006	1.0

Result: For Bluetooth, the device meet FCC MPE requirement at 20 cm distance away from EUT.

Simultaneous Transmission:

The Bluetooth and VHF can transmit simultaneously:

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

$=S_{BT}/S_{limit-BT}+ S_{VHF}/S_{limit-VHF}$

$=0.0006/1+0.713/1$

$=0.7136$

< 1.0

Result: Compliance

******* END OF REPORT *******