



RF EXPOSURE Test Report

Report No.: MTi241126003-01E2

Date of issue: 2024-12-30

Applicant: IpAlarm Ltd

Product: voip gateway

Model(s): IPALARM-C

FCC ID: 2APB8-IPALARM-C

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.cn>



Instructions

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Test Result Certification	
Applicant:	IpAlarm Ltd
Address:	402 West Ojai Ave, Suite 202, Ojai CA 93023 USA
Manufacturer:	Shenzhen HouTian Network Communication Technology Co., Ltd
Address:	3rd Floor, Building B, Building 1, No. 29 Longfeng Road, Longgang District, Shenzhen
Product description	
Product name:	voip gateway
Trademark:	VirtuAlarm
Model name:	IPALARM-C
Serial Model:	N/A
Standards:	N/A
Test procedure:	KDB 447498 D01 v06
Date of Test	
Date of test:	2024-12-20 to 2024-12-30
Test result:	Pass

Test Engineer	:	Letter. Lan.
		(Letter Lan)
Reviewed By	:	David. Lee
		(David Lee)
Approved By	:	Leon Chen
		(Leon Chen)

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/cm ²)	Averaging time (minutes)
(A) 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
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
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
300-1,500			f/1500	30
1,500-100,000			1.0	30

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

MPE Calculation Method

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 = 3.1415926

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

Measurement Result

LTE:

Operation frequency:

LTE FDD Band 2: 1850.7 – 1909.3MHz

LTE FDD Band 4: 1710.7 – 1754.3MHz

LTE FDD Band 5: 824.7 – 848.3MHz

LTE FDD Band 12: 699.7 – 715.3MHz

LTE FDD Band 13: 779.5 – 784.5MHz

LTE FDD Band 25: 1850.7- 1914.3MHz

LTE FDD Band 26(90): 814.7 – 823.3 MHz

LTE FDD Band 26(22H): 824.7 – 848.3 MHz

ANT Gain:

LTE FDD Band 2: 2.94 dBi

LTE FDD Band 4: 2.27 dBi

LTE FDD Band 5: 2.95 dBi

LTE FDD Band 12: 2.18dBi

LTE FDD Band 13: 2.18 dBi

LTE FDD Band 25: 2.94 dBi

LTE FDD Band 26: 2.95 dBi

Channel Freq. (MHz)	modulation	conducted power	Max Tune-up power	Max		Antenna	Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain	Power density(mW/cm ²)	(mW/cm ²)
				(dBm)	(mW)	Numeric		
1880	Band2	26.06	26 ± 1	27	501.187	1.97	0.1964	1
1754.3	Band4	24.36	24 ± 1	25	316.228	1.69	0.1063	1
847.5	Band5	24.41	24 ± 1	25	316.228	1.97	0.1239	0.57
707.5	Band12	25.76	25 ± 1	26	398.107	1.65	0.1307	0.47
784.5	Band13	22.71	22 ± 1	23	199.526	1.65	0.0655	0.52
1882	Band25	25.61	25 ± 1	26	398.107	1.97	0.1560	1
819	Band26 (Part 90S)	23.09	23 ± 1	24	251.189	1.97	0.0984	0.55
848.3	Band26 (Part 22)	24.9	24 ± 1	25	316.228	1.97	0.1239	0.57

Conclusion:

For the max result: 0.1307 ≤ 0.47 test exclusion threshold, No SAR is required.

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