

RF Exposure Evaluation Report

Report Reference No...... : **MTEB26030053-H**

FCC ID..... : **O89GW4**

Compiled by

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Representative Laboratory Name.: **Shenzhen Most Technology Service Co., Ltd.**

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Applicant's name..... : **Xiamen Pinnacle Electrical Co.,Ltd.**

Address..... : 4F, Guang Xia Building, Torch High-Tech Zone, Xiamen, China

Test specification/ Standard..... : **47 CFR Part 1.1307;47 CFR Part 1.1310**
KDB447498D01 General RF Exposure Guidance v06

TRF Originator..... : Shenzhen Most Technology Service Co., Ltd.

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Test item description.....: Controller

Trade Mark.....: ACLAS

Model/Type reference.....: GW4

Listed Models: N/A

Modulation Type.....: b: DSSS
g/n: OFDM
FSK

Operation Frequency.....: From 2412MHz~2462MHz
From 2402-2480MHz

Rating.....: DC 9V by Adapter

Hardware version.....: EPGW4MB

Software version: /

Result.....: **PASS**

TEST REPORT

Equipment under Test : Controller

Model /Type : GW4

Listed Models : N/A

Remark : N/A

Applicant : **Xiamen Pinnacle Electrical Co.,Ltd.**

Address : 4F, Guang Xia Building, Torch High-Tech Zone, Xiamen, China

Manufacturer : **Xiamen Pinnacle Electrical Co.,Ltd.**

Address : 4F, Guang Xia Building, Torch High-Tech Zone, Xiamen, China

Test Result:	PASS
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

1. Revision History

Revision	Issue Date	Revisions	Revised By
00	2026.03.06	Initial Issue	Alisa Luo

2. SAR Evaluation

2.1 RF Exposure Compliance Requirement

2.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

2.1.2 Limits

According to FCC Part1.1310: 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 part1.1307(b)

TABLE 1—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 Exposures				
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				
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

Friis Formula

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 = gain of antenna in linear scale

π = 3.1416

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

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

2.1.3 EUT RF Exposure

WIFI 2.4G

802.11b			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	13.74	13.74 ± 1	14.74
Middle(2437MHz)	12.57	12.57 ± 1	13.57
Highest(2462MHz)	13.59	13.59 ± 1	14.59

802.11g			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	13.73	13.73 ± 1	14.73
Middle(2437MHz)	12.84	12.84 ± 1	13.84
Highest(2462MHz)	13.90	13.90 ± 1	14.9

802.11n(H20)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	12.43	12.43 ± 1	13.43
Middle(2437MHz)	11.89	11.89 ± 1	12.89
Highest(2462MHz)	13.18	13.18 ± 1	14.18

802.11n(H40)			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2422MHz)	13.13	13.13 ± 1	14.13
Middle(2437MHz)	12.10	12.10 ± 1	13.1
Highest(2452MHz)	13.74	13.74 ± 1	14.74

WIFI 2.4G

Worst case: 802.11g						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Highest(2462MHz)	14.9	30.90	0.75	0.0073	1.0	Pass

Note: 1) Refer to report MTEB26030053-R1 for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (30.90 \cdot 1.19) / (4 \cdot 3.1416 \cdot 20^2) = 0.0073$

2.4G:

Field strength=83.79dBuV/m

EIRP =83.79dBuV/m-95.2= -11.41dBm

Worst case: FSK						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
2402MHz	-11.41	0.07	-0.83	0.000012	1.0	Pass

Note: 1) Refer to report MTEB26030053-R for EUT test Max Conducted average Output Power value.

Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (0.07 \cdot 0.83) / (4 \cdot 3.1416 \cdot 20^2) = 0.000012$

Simultaneous TX (2.4G+WIFI2.4G)

Mode	Power Density(mW/m ²)		Conclusion
	Results	Limit	
Simultaneous TX	0.007312	1.0	PASS

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

Results (wifi2.4G+2.4G) =0.0073/1+0.000012/1=0.007312

.....THE END OF REPORT.....