

RF EXPOSURE

Test Report

Report No. : MTi250117022-0102E5
Date of Issue : 2025-04-14
Applicant : Guangzhou Havit Technology Co., Ltd.
Product : Smart Projector
Model(s) : PJ600Plus
FCC ID : 2AI6I-PJ600PLUS

Shenzhen Microtest Co., Ltd.

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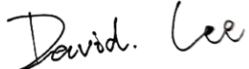
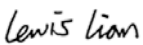
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Test Result Certification		
Applicant	Guangzhou Havit Technology Co., Ltd.	
Applicant Address	ROOM 1307, 13F, PHASE 2 B, C BUILDING OF POLY WORLD TRADE CENTER, NO.1000, XINGANG EAST ROAD, HAIZHU GUANGDONG China	
Manufacturer	Guangzhou Havit Technology Co., Ltd.	
Manufacturer Address	ROOM 1307, 13F, PHASE 2 B, C BUILDING OF POLY WORLD TRADE CENTER, NO.1000, XINGANG EAST ROAD, HAIZHU GUANGDONG China	
Product description		
Product name	Smart Projector	
Trademark	HAVIT	
Model name	PJ600Plus	
Series Model(s)	N/A	
Standards	47 CFR Part 2.1091	
Test method	KDB 447498 D01 v06	
Testing Information		
Date of test	2025-03-31 to 2025-04-10	
Test Result	Pass	
Prepared by	Maleah Deng	
Reviewed by	David Lee	
Approved by	Lewis Lian	

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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/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: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

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.

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2 Measurement Result

BT:

Operation Frequency: 2402-2480MHz,
Power density limited: 1mW/ cm²

2.4GWiFi:

Operation Frequency: WIFI 802.11b/g/n HT20: 2412-2462MHz, n HT40: 2422-2452
Power density limited: 1mW/ cm²

5GWiFi:

802.11a: 20 MHz
802.11n: 20 MHz, 40 MHz
802.11ac: 20 MHz, 40 MHz, 80MHz

Antenna Type: FPC antenna

Antenna gain:

Bluetooth: 4.08dBi

2.4G WIFI: Ant1: 5.44dBi; Ant2: 4.36dBi; Ant1+Ant2=7.98dBi

5G U-NII 1: Ant1: 5.34dBi, Ant2: 6.43dBi, Ant1+Ant2: 8.88dBi;

5G U-NII 3: Ant1: 4.98dBi, Ant2: 5.19dBi; Ant1+Ant2: 8.09dBi

R=20cm

$mW=10^{(dBi/10)}$

BT: antenna gain Numeric= $10^{(dBi/10)}=10^{(4.08/10)}=2.56$

2.4G WIFI: Ant1 antenna gain Numeric= $10^{(dBi/10)}=10^{(5.44/10)}=3.5$; Ant2 antenna gain Numeric= $10^{(dBi/10)}=10^{(4.36/10)}=2.73$

ANT1+ANT2 antenna gain Numeric= $10^{(dBi/10)}=10^{(7.98/10)}=6.28$

5G WIFI U-NII 1: Ant1 antenna gain Numeric= $10^{(dBi/10)}=10^{(5.34/10)}=3.42$; Ant2 antenna gain Numeric= $10^{(dBi/10)}=10^{(6.43/10)}=4.40$

ANT1+ANT2 antenna gain Numeric= $10^{(dBi/10)}=10^{(8.88/10)}=7.73$

5G WIFI U-NII 3: Ant1 antenna gain Numeric= $10^{(dBi/10)}=10^{(4.98/10)}=3.15$; Ant2 antenna gain Numeric= $10^{(dBi/10)}=10^{(5.19/10)}=3.30$

ANT1+ANT2 antenna gain Numeric= $10^{(dBi/10)}=10^{(8.09/10)}=6.44$

BR&EDR:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power		Gain		(mW/cm ²)	(mW/cm ²)
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	1.74	1±1	2	1.585	4.08	2.56	0.0008	1
2441		1.47	1±1	2	1.585	4.08	2.56	0.0008	1
2480		2.33	2±1	3	1.995	4.08	2.56	0.0010	1
2402	π/4-DQPSK	1.78	1±1	2	1.585	4.08	2.56	0.0008	1
2441		1.54	1±1	2	1.585	4.08	2.56	0.0008	1
2480		2.39	2±1	3	1.995	4.08	2.56	0.0010	1
2402	8DPSK	2.01	2±1	3	1.995	4.08	2.56	0.0010	1
2441		1.53	1±1	2	1.585	4.08	2.56	0.0008	1
2480		2.53	2±1	3	1.995	4.08	2.56	0.0010	1

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BLE:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power	Gain		(mW/cm ²)	(mW/cm ²)	
				(dBm)	(mW)	(dBi)			Numeric
2402	GFSK-1M	-0.18	0±1	1	1.259	4.08	2.56	0.0006	1
2440		0.30	0±1	1	1.259	4.08	2.56	0.0006	1
2480		2.28	2±1	3	1.995	4.08	2.56	0.0010	1
2402	GFSK-2M	1.76	1±1	1	1.259	4.08	2.56	0.0006	1
2440		1.89	2±1	3	1.995	4.08	2.56	0.0010	1
2480		2.23	2±1	3	1.995	4.08	2.56	0.0010	1

2.4GWiFi:

SISO:

Channel Freq. (MHz)	modulation	conducted power		Tune-up power		Max				Antenna		Evaluation result at 20cm			Power density Limits
		(dBm)		(dBm)		tune-up power				Gain		Power density(mW/cm2)			(mW/cm2)
						(dBm)		(mW)		Numeric					
		Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	
2412	802.11 b	20.94	20.98	21±1	21±1	22	22	158.49	158.49	3.50	2.73	0.1103	0.0860	/	1
2437		20.78	20.97	20±1	21±1	21	22	125.89	158.49	3.50	2.73	0.0876	0.0860	/	1
2462		21.32	21.45	21±1	21±1	22	22	158.49	158.49	3.50	2.73	0.1103	0.0860	/	1
2412	802.11 g	24.42	24.8	24±1	24±1	25	25	316.23	316.23	3.50	2.73	0.2202	0.1717	/	1
2437		24.13	24.54	24±1	24±1	25	25	316.23	316.23	3.50	2.73	0.2202	0.1717	/	1
2462		24.82	25.13	25±1	25±1	26	26	398.11	398.11	3.50	2.73	0.2772	0.2161	/	1
2412	802.11 n H20	23.3	23.4	23±1	23±1	24	24	251.19	251.19	3.50	2.73	0.1749	0.1364	/	1
2437		23.11	23.24	23±1	23±1	24	24	251.19	251.19	3.50	2.73	0.1749	0.1364	/	1
2462		23.68	23.98	23±1	24±1	24	25	251.19	316.23	3.50	2.73	0.1749	0.1717	/	1
2422	802.11 n H40	23.75	23.9	23±1	24±1	24	25	251.19	316.23	3.50	2.73	0.1749	0.1717	/	1
2437		23.46	23.6	23±1	23±1	24	24	251.19	251.19	3.50	2.73	0.1749	0.1364	/	1
2452		23.14	23.38	23±1	23±1	24	24	251.19	251.19	3.50	2.73	0.1749	0.1364	/	1

MIMO:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power	Max		Antenna	Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain	Power density(mW/cm²)	(mW/cm²)
				(dBm)	(mW)	Numeric		
2412	802.11n H20	26.82	26±1	27	501.187	7.73	0.77042	1
2437		26.37	26±1	27	501.187	7.73	0.77042	1
2462		26.88	26±1	27	501.187	7.73	0.77042	1
2422	802.11n H40	26.98	27±1	28	630.957	7.73	0.96991	1
2437		26.77	27±1	28	630.957	7.73	0.96991	1
2452		26.47	26±1	27	501.187	7.73	0.77042	1

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5G WIFI: UNII-1

SISO:

Channel Freq. (MHz)	modulation	conducted power		Tune-up power		Max				Antenna		Evaluation result at 20cm			Power density Limits
		(dBm)		(dBm)		tune-up power				Gain		Power density(mW/cm2)			(mW/cm2)
						(dBm)		(mW)		Numeric					
		Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	
5180	802.11a	11.96	9.12	12±1	9±1	13	10	19.95	10.00	3.42	4.40	0.0136	0.0087	/	
5200		11.33	8.99	11±1	9±1	12	10	15.85	10.00	3.42	4.40	0.0108	0.0087	/	1
5240		10.30	8.97	10±1	9±1	11	10	12.59	10.00	3.42	4.40	0.0086	0.0087	/	1
5180	802.11n 20	10.63	8.08	10±1	8±1	11	9	12.59	7.94	3.42	4.40	0.0086	0.0069	/	1
5200		9.88	7.81	9±1	7±1	10	8	10.00	6.31	3.42	4.40	0.0068	0.0055	/	1
5240		9.03	7.66	9±1	7±1	10	8	10.00	6.31	3.42	4.40	0.0068	0.0055	/	1
5190	802.11n 40	10.42	7.81	10±1	7±1	11	8	12.59	6.31	3.42	4.40	0.0086	0.0055	/	1
5230		9.62	7.83	9±1	7±1	10	8	10.00	6.31	3.42	4.40	0.0068	0.0055	/	1
5180	802.11a c 20	9.69	7.98	9±1	8±1	10	9	10.00	7.94	3.42	4.40	0.0068	0.0069	/	1
5200		9.04	8.00	9±1	8±1	10	9	10.00	7.94	3.42	4.40	0.0068	0.0069	/	1
5240		8.06	7.82	8±1	7±1	9	8	7.94	6.31	3.42	4.40	0.0054	0.0055	/	1
5190	802.11a c 40	9.51	12.36	9±1	12±1	10	13	10.00	19.95	3.42	4.40	0.0068	0.0174	/	1
5230		8.68	12.3	8±1	12±1	9	13	7.94	15.85	3.42	4.40	0.0054	0.0139	/	1
5210	802.11a c 80	7.43	12.36	7±1	12±1	8	13	6.31	10.00	3.42	4.40	0.0043	0.0087	/	1

MIMO:

Channel Freq. (MHz)	modulation	conducted power	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		
5180	802.11n 20	14.39	14±1	15	31.623	7.73	0.04861	1
5200		12.94	13±1	14	25.119	7.73	0.03861	1
5240		13.02	13±1	14	25.119	7.73	0.03861	1
5190	802.11n 40	13.03	13±1	14	25.119	7.73	0.03861	1
5230		13.27	13±1	14	25.119	7.73	0.03861	1
5180	802.11ac 20	13.05	13±1	14	25.119	7.73	0.03861	1
5200		12.97	13±1	14	25.119	7.73	0.03861	1
5240		13.06	13±1	14	25.119	7.73	0.03861	1
5190	802.11ac 40	13.05	13±1	14	25.119	7.73	0.03861	1
5230		13.19	13±1	14	25.119	7.73	0.03861	1
5210	802.11ac 80	13.11	13±1	14	25.119	7.73	0.03861	1

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5G WIFI: UNII-3

SISO:

Channel Freq. (MHz)	modulation	conducted power		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)
		Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Sum	
5745	802.11a	12.49	13.11	12±1	13±1	13	14	19.95	25.12	3.15	3.30	0.0125	0.0165	/	1
5785		12.36	13.1	12±1	13±1	13	14	19.95	25.12	3.15	3.30	0.0125	0.0165	/	1
5825		12.51	12.98	12±1	13±1	13	14	19.95	25.12	3.15	3.30	0.0125	0.0165	/	1
5745	802.11n20	11.38	11.96	11±1	12±1	12	13	15.85	19.95	3.15	3.30	0.0099	0.0131	/	1
5785		11.25	11.92	11±1	12±1	12	13	15.85	19.95	3.15	3.30	0.0099	0.0131	/	1
5825		11.33	11.9	11±1	12±1	12	13	15.85	19.95	3.15	3.30	0.0099	0.0131	/	1
5755	802.11n40	7.24	10.24	7±1	10±1	8	11	6.31	12.59	3.15	3.30	0.0040	0.0083	/	1
5795		7.42	10.21	7±1	10±1	8	11	6.31	12.59	3.15	3.30	0.0040	0.0083	/	1
5745	802.11ac20	11.32	11.94	11±1	11±1	12	12	15.85	15.85	3.15	3.30	0.0099	0.0104	/	1
5785		11.24	11.82	11±1	11±1	12	12	15.85	15.85	3.15	3.30	0.0099	0.0104	/	1
5825		11.33	11.87	11±1	11±1	12	12	15.85	15.85	3.15	3.30	0.0099	0.0104	/	1
5755	802.11ac40	10.23	12.12	10±1	12±1	11	13	12.59	19.95	3.15	3.30	0.0079	0.0131	/	1
5795		11.43	11.91	11±1	12±1	12	13	15.85	15.85	3.15	3.30	0.0099	0.0104	/	1
5775	802.11ac80	11.56	12.16	11±1	12±1	12	13	15.849	10	3.15	3.30	0.0099	0.0066	/	1

MIMO:

Channel Freq. (MHz)	modulation n	conducted power	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)	Numeri c		
5745	802.11n 20	14.42	14±1	15	31.62	6.44	0.0405	1
5785		13.79	13±1	14	25.12	6.44	0.0322	1
5825		13.91	14±1	15	31.62	6.44	0.0405	1
5755	802.11n 40	13.99	14±1	15	31.62	6.44	0.0405	1
5795		13.85	13±1	14	25.12	6.44	0.0322	1
5745	802.11ac 20	13.89	14±1	15	31.62	6.44	0.0405	1
5785		13.78	13±1	14	25.12	6.44	0.0322	1
5825		13.83	13±1	14	25.12	6.44	0.0322	1
5755	802.11ac 40	13.98	14±1	15	31.62	6.44	0.0405	1
5795		13.85	13±1	14	25.12	6.44	0.0322	1
5775	802.11ac 80	13.97	14±1	15	31.62	6.44	0.0405	1

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SIMULTANEOUS TRANSMISSIONS

When a number of sources at different frequencies, and/or broadband sources, contribute to the total exposure, it becomes necessary to weigh each contribution relative to the MPE. To comply with the MPE, the fraction of the MPE in terms of E2, H2 (or power density) incurred within each frequency interval should be determined and the sum of all such fractions should not exceed unity. In order to ensure compliance with the MPE for a controlled environment, the sum of the ratios of the power density to the corresponding MPE should not exceed unity. That is

$$\sum_{i=1}^n \frac{S_i}{MPE_i} \leq 1$$

Simultaneous transmit:

Operating Band	The MPE ratio
Bluetooth	0.001
2.4G WIFI	0.9699
5G WIFI	0.0486

Bluetooth+2.4G WIFI=0.001+0.9699=0.9709

Bluetooth+5G WIFI =0.001+0.0486=0.0496

Conclusion:

Note: 2.4GWIFI and 5GWIFI cannot work at the same time

For the max result: $0.9709 \leq 1.0$ test exclusion threshold, No SAR is required.

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Statement

1. This report is invalid without the seal and signature of the laboratory.
2. The test results of this report are only responsible for the samples submitted. Client shall be responsible for representativeness of the sample and authenticity of the material.
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***** END OF REPORT *****