Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

Telephone: +86-755-26648640
Fax: +86-755-26648637
Website: www.cqa-cert.com

Report Template Version: V05
Report Template Revision Date: 2021-11-03

RF Exposure Evaluation Report

Report No.:	CQASZ20231102142E-04
Applicant:	Guangzhou Havit Technology Co.,LTD
Address of Applicant:	ROOM 1307,13F,PHASE 2 B,C BUILDING OF POLY WORLD TRADE CENTER,NO.1000,XINGANG EAST ROAD,HAIZHU,GUANGDONG,China 510000
Equipment Under Test (EUT):	
EUT Name:	Projector
Model No.:	PJ209 PRO, PJ209, PJ202 PRO, PJ205 PRO, PJ206 PRO, PJ207, PJ207 PRO, PJ208, PJ210 PRO, PJ211, PJ211 PRO, PJ212, PJ212 PRO, PJ216 PRO, PJ217, PJ217 PRO, PJ218 PRO, PJ219 PRO
Test Model No.:	PJ209 PRO
Brand Name:	HAVIT
FCC ID:	2AI6I-PJ209PRO
Standards:	47 CFR Part 1.1307 47 CFR Part 1.1310 447498 D04 Interim General RF Exposure Guidance v01
Date of Receipt:	2023-11-28
Date of Test:	2023-11-28 to 2023-12-25
Date of Issue:	2023-12-28
Test Result:	**PASS***

***In the configuration tested, the EUT complied with the standards specified above**

Tested By: Lewis Zhou

(Lewis Zhou)

Reviewed By: Timo Lei

(Timo Lei)

Approved By:

(Jack Ai)

SHENZHEN HUAXIA TESTING TECHNOLOGY CO.,LTD 华夏准测 APPROVED

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20231102142E-04	Rev.01	Initial report	2023-12-28

2 Contents

Page

1 VERSION 2
2 CONTENTS 3
..... 3
3 GENERAL INFORMATION 4
3.1 CLIENT INFORMATION 4
3.2 GENERAL DESCRIPTION OF EUT 4
3.3 GENERAL DESCRIPTION OF BT CLASSIC 4
3.4 GENERAL DESCRIPTION OF 2.4G WIFI CLASSIC 5
3.5 GENERAL DESCRIPTION OF 5G WIFI CLASSIC 5
4 MPE EVALUATION 6
4.1 RF EXPOSURE COMPLIANCE REQUIREMENT 6
4.1.1 Limits 6
4.1.2 Test Procedure 6
4.1.3 EUT RF Exposure 7

3 General Information

3.1 Client Information

Applicant:	Guangzhou Havit Technology Co.,LTD
Address of Applicant:	ROOM 1307,13F,PHASE 2 B,C BUILDING OF POLY WORLD TRADE CENTER,NO.1000,XINGANG EAST ROAD,HAIZHU,GUANGDONG,China 510000
Manufacturer:	Guangzhou Havit Technology Co.,LTD
Address of Manufacturer:	ROOM 1307,13F,PHASE 2 B,C BUILDING OF POLY WORLD TRADE CENTER,NO.1000,XINGANG EAST ROAD,HAIZHU,GUANGDONG,China 510000
Factory:	Guangzhou Havit Technology Co.,LTD
Address of Factory:	ROOM 1307,13F,PHASE 2 B,C BUILDING OF POLY WORLD TRADE CENTER,NO.1000,XINGANG EAST ROAD,HAIZHU,GUANGDONG,China 510000

3.2 General Description of EUT

Product Name:	Projector
Model No.:	PJ209 PRO, PJ209, PJ202 PRO, PJ205 PRO, PJ206 PRO, PJ207, PJ207 PRO, PJ208, PJ210 PRO, PJ211, PJ211 PRO, PJ212, PJ212 PRO, PJ216 PRO, PJ217, PJ217 PRO, PJ218 PRO, PJ219 PRO
Test Model No.:	PJ209 PRO
Trade Mark:	HAVIT
Software Version:	PJ209 PRO
Hardware Version:	20231122-105508
EUT Power Supply:	Power supply AC100V~240V

3.3 General Description of BT Classic

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	Bluetooth Spec
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK
Number of Channel:	79
Transfer Rate:	1Mbps/2Mbps
Hopping Channel Type:	Adaptive Frequency Hopping systems
Sample Type:	☒ Mobile ☐ Portable
Antenna Type:	FPC Antenna
Antenna Gain:	3.77dBi

3.4 General Description of 2.4G WIFI Classic

Operation Frequency:	2412MHz~2462MHz
Type of Modulation:	IEEE for 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g : OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n(HT20 and HT40) : OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channel:	IEEE 802.11b/g, IEEE 802.11n HT20: 11 Channels IEEE 802.11n HT40: 7 Channels
Channel Separation:	5MHz
Transfer Rate:	IEEE for 802.11b: 1Mbps/2Mbps/5.5Mbps/11Mbps IEEE for 802.11g : 6Mbps/9Mbps/12Mbps/18Mbps/24Mbps/36Mbps/48Mbps/54Mbps IEEE for 802.11n(HT20) : 6.5Mbps/13Mbps/19.5Mbps/26Mbps/39Mbps/52Mbps/58.5Mbps/65Mbps IEEE for 802.11n(HT40) : 13.5Mbps/27Mbps/40.5Mbps/54Mbps/81Mbps/108Mbps/121.5Mbps/135Mbps
Sample Type:	☒ Mobile ☐ Portable
Antenna Type:	FPC Antenna
Antenna Gain:	3.77dBi

3.5 General Description of 5G WIFI Classic

Operation Frequency:	5150MHz ~5250 MHz, 5.725-5.850GHz
Type of Modulation:	OFDM
Number of Channel:	IEEE 802.11a/n/ac(20M): 5180MHz ~5240MHz/ 4 channel IEEE 802.11n/ac(40M): 5180MHz ~5240MHz/ 2 channel IEEE 802.11a/n/ac(20M): 5745MHz ~5825MHz/ 5 channel IEEE 802.11n/ac(40M): 5745MHz ~5825MHz/ 2 channel
Channel Separation:	5MHz
Operation Frequency:	IEEE 802.11a/n/ac(20M): 5180MHz ~5240 MHz IEEE802.11n/ac(40M): 5180MHz ~5240 MHz IEEE 802.11a/n/ac(20M): 5745MHz ~5825 MHz IEEE802.11n/ac(40M): 5745MHz ~5825 MHz
Sample Type:	☒ Mobile ☐ Portable
Antenna Type:	FPC Antenna
Antenna Gain:	4.63dBi

Note：

The above parameters will directly affect the test results. The information is provided by the applicant.

4 MPE Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Limits

The table applies to any RF source (i.e., single fixed, mobile, and portable transmitters) and specifies power and distance criteria for each of the five frequency ranges used for the MPE limits. These criteria apply at separation distances from any part of the radiating structure of at least $\lambda/2\pi$. The thresholds are based on the general population MPE limits with a single perfect reflection, outside of the reactive near-field, and in the main beam of the radiator.For mobile devices that are not exempt per Table B.1 [Table 1 of § 1.1307(b)(1)(i)(C)] at distances from 20 cm to 40 cm and in 0.3 GHz to 6 GHz, evaluation of compliance with the exposure limits in § 1.1310 is necessary if the ERP of the device is greater than ERP20cm inFormula (B.1) [repeated from § 2.1091(c)(1) and § 1.1307(b)(1)(i)(B)].

$$P_{\text{th}}\,(\text{mW}) = ERP_{20\,\text{cm}}\,(\text{mW}) = \begin{cases} 2040f & 0.3\ \text{GHz} \le f < 1.5\ \text{GHz} \\ 3060 & 1.5\ \text{GHz} \le f \le 6\ \text{GHz} \end{cases}$$

If the ERP is not easily obtained, then the available maximum time-averaged power may be used (i.e., without consideration of ERP only if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave Dipole.
SAR-based exemptions are constant at separation distances between 20 cm and 40 cm to avoid discontinuities in the threshold when transitioning between SAR-based and MPE-based exemption criteria at 40 cm, considering the importance of reflections.

4.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

4.1.3 EUT RF Exposure

1) For BT Classic

Measurement Data

GFSK mode					
Test channel	EIRP (dBm)	ERP (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
				(dBm)	(mW)
Lowest(2402MHz)	4.4	2.25	2.5±1	3.5	2.24
Middle(2441MHz)	4.71	2.56	2.5±1	3.5	2.24
Highest(2480MHz)	5.01	2.86	3.0±1	4.0	2.51
π/4DQPSK mode					
Test channel	EIRP (dBm)	ERP (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
				(dBm)	(mW)
Lowest(2402MHz)	4.36	2.21	2.5±1	3.5	2.24
Middle(2441MHz)	4.7	2.55	2.5±1	3.5	2.24
Highest(2480MHz)	4.94	2.79	2.5±1	3.5	2.24

The ERP of this product is less than 3060mW

Note: 1) Refer to report No. CQASZ20231102142E-01 for EUT test Max Conducted Peak Output Power value.
2) EUT's module is more than 20cm away from the human body.

2) **For 2.4G WIFI Classic**

Measurement Data

11B mode					
Test channel	EIRP (dBm)	ERP (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
				(dBm)	(mW)
Lowest(2412MHz)	19.16	17.01	17.0±1	18.0	63.10
Middle(2437MHz)	17.94	15.79	15.5±1	16.5	44.67
Highest(2462MHz)	17.11	14.96	15.0±1	16.0	39.81
11G mode					
Test channel	EIRP (dBm)	ERP (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
				(dBm)	(mW)
Lowest(2412MHz)	12.85	10.7	10.0±1	11.0	12.59
Middle(2437MHz)	11.79	9.64	10.0±1	11.0	12.59
Highest(2462MHz)	12.17	10.02	10.0±1	11.0	12.59
11N20 mode					
Test channel	EIRP (dBm)	ERP (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
				(dBm)	(mW)
Lowest(2412MHz)	13.19	11.04	11.0±1	12.0	15.85
Middle(2437MHz)	11.79	9.64	9.5±1	10.5	11.22
Highest(2462MHz)	11.41	9.26	9.0±1	10.0	10.00
11N40 mode					
Test channel	EIRP (dBm)	ERP (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
				(dBm)	(mW)
Lowest(2422MHz)	12.16	10.01	10.0±1	11.0	12.59
Middle(2437MHz)	11.88	9.73	9.5±1	10.5	11.22
Highest(2452MHz)	11.31	9.16	9.0±1	10.0	10.00

The ERP of this product is less than 3060mW

Note: 1) Refer to report No. CQASZ20231102142E-02 for EUT test Max Conducted AV Output Power value.
2) EUT's module is more than 20cm away from the human body.

3) For 5G WIFI Classic

Measurement Data

11A mode					
Test channel	EIRP (dBm)	ERP (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
				(dBm)	(mW)
Lowest(5745MHz)	11.54	9.39	9.5±1	10.5	11.22
Middle(5785MHz)	12.84	10.69	10.5±1	11.5	14.13
Highest(5825MHz)	13.27	11.12	11.0±1	12.0	15.85
11N20 mode					
Test channel	EIRP (dBm)	ERP (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
				(dBm)	(mW)
Lowest(5745MHz)	13.18	11.03	11.0±1	12.0	15.85
Middle(5785MHz)	13.59	11.44	11.5±1	12.5	17.78
Highest(5825MHz)	14.12	11.97	12.0±1	13.0	19.95
11N40 mode					
Test channel	EIRP (dBm)	ERP (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
				(dBm)	(mW)
Lowest(5755MHz)	9.4	7.25	7.5±1	8.5	7.08
Highest(5795MHz)	11.69	9.54	9.5±1	10.5	11.22
11AC20 mode					
Test channel	EIRP (dBm)	ERP (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
				(dBm)	(mW)
Lowest(5745MHz)	11.32	9.17	9.0±1	10.0	10.00
Middle(5785MHz)	12.25	10.1	10.0±1	11.0	12.59
Highest(5825MHz)	12.78	10.63	10.5±1	11.5	14.13
11AC40 mode					
Test channel	EIRP (dBm)	ERP (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
				(dBm)	(mW)
Lowest(5755MHz)	10.69	8.54	8.5±1	9.5	8.91
Highest(5795MHz)	11.7	9.55	9.5±1	10.5	11.22

11A mode					
Test channel	EIRP (dBm)	ERP (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
				(dBm)	(mW)
Lowest(5180MHz)	13.81	11.66	11.5±1	12.5	17.78
Middle(5200MHz)	14.73	12.58	12.5±1	13.5	22.39
Highest(5240MHz)	14.92	12.77	12.5±1	13.5	22.39
11N20 mode					
Test channel	EIRP (dBm)	ERP (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
				(dBm)	(mW)
Lowest(5180MHz)	14.46	12.31	12.5±1	13.5	22.39
Middle(5200MHz)	15.74	13.59	13.5±1	14.5	28.18
Highest(5240MHz)	15.75	13.6	13.5±1	14.5	28.18
11N40 mode					
Test channel	EIRP (dBm)	ERP (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
				(dBm)	(mW)
Lowest(5190MHz)	14.42	12.27	12.5±1	13.5	22.39
Highest(5230MHz)	14.47	12.32	12.5±1	13.5	22.39
11AC20 mode					
Test channel	EIRP (dBm)	ERP (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
				(dBm)	(mW)
Lowest(5180MHz)	13.84	11.69	11.5±1	12.5	17.78
Middle(5200MHz)	14.5	12.35	12.5±1	13.5	22.39
Highest(5240MHz)	14.66	12.51	12.5±1	13.5	22.39
11AC40 mode					
Test channel	EIRP (dBm)	ERP (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
				(dBm)	(mW)
Lowest(5190MHz)	13.52	11.37	11.5±1	12.5	17.78
Highest(5230MHz)	14.63	12.48	12.5±1	13.5	22.39

The ERP of this product is less than 3060mW

Note: 1) Refer to report No. CQASZ20231102142E-03 for EUT test Max Conducted AV Output Power value.
2) EUT's module is more than 20cm away from the human body.

Result:

BT+2.4G WiFi + 5G WiFi=2.51+63.11+28.18=93.8<3060(mW)

*** END OF REPORT ***