



Maximum Permissible Exposure Evaluation

FCC ID: 2BGY7-HRSZ03

1. Client Information

Applicant	:	Huizhou Huizhi Technology Co., Ltd
Address	:	356 Longhai Fourth Road, Dayawan West District, Huizhou City, China
Manufacturer	:	Huizhou Huizhi Technology Co., Ltd
Address	:	356 Longhai Fourth Road, Dayawan West District, Huizhou City, China

2. General Description of EUT

EUT Name	:	projector
Models No.	:	HRSZ03, HRSZ01, HRSZ02, HRSZ04, HRSZ05, HRSZ06, HRSZ07, HRSZ08, HRSZ09, HRSZ10, P1, P2, P3, P4, P5, P6, P7, P8, P9, P10
Model Difference	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is appearance.
Sample ID	:	HC-C-202407-0282-01-01-1#&HC-C-202407-0282-01-01-2#
Product Description	:	Operation Frequency: Bluetooth 5.0: 2402MHz~2480MHz 802.11b/g/n(HT20): 2412MHz~2462MHz 802.11ax(HE20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz 802.11ax(HE40): 2422MHz~2452MHz U-NII-1: 5180MHz~5240MHz U-NII-3: 5745MHz~5825MHz
Power Rating	:	INPUT: 15V/3A, 15V/2A
Software Version	:	H196_352V27_P3 A240308
Hardware Version	:	ANDROID 9.0
Connecting I/O Port(S)	:	Please refer to the User's Manual
Remark	:	the MPE report used the EUT-2(HC-C-202407-0282-01-01-2#).

MPE Calculations for FCC

1. Antenna Gain:

Antenna	Brand	Model Name	Type	Antenna Gain(dBi)
Bluetooth	N/A	N/A	FPC	1.49
2.4G WIFI	N/A	N/A	FPC	1.49
U-NII-1	N/A	N/A	FPC	1.81
U-NII-3	N/A	N/A	FPC	2.34

2. EUT Operation Condition:

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

3. Exposure Evaluation:

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

Where

S: power density

P: power input to the antenna

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

4. Simultaneous transmission MPE Considerations

According to KDB447498: All transmitters and antennas in the host must be either evaluated for MPE compliance, by measurement or computational modeling, or qualify for the standalone MPE test exclusion in section 7.1. Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is ≤ 1.0 .

This means that:

$$\sum \text{ of MPE ratios } \leq 1.0$$



5. Standalone MPE Evaluation:

Bluetooth Worst Maximum MPE Result							
Mode	N _{TX}	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm ²) [S]
BT	1	5.888	5±1	6	1.49	20	0.00112
BLE	1	4.198	4±1	5	1.49	20	0.00089

Note:
 N_{TX}= Number of Transmit Antennas
 RF Output power specifies that Maximum Conducted Peak Output Power.

2.4G WIFI Worst Maximum MPE Result							
Mode	N _{TX}	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm ²) [S]
802.11b	1	15.22	15±1	16	1.49	20	0.01116
802.11g	1	14.53	14±1	15	1.49	20	0.00887
802.11n20	1	14.65	14±1	15	1.49	20	0.00887
802.11n40	1	15.50	15±1	16	1.49	20	0.01116
802.11ax20	1	14.59	14±1	15	1.49	20	0.00887
802.11ax40	1	15.19	15±1	16	1.49	20	0.01116

Note:
 N_{TX}= Number of Transmit Antennas
 RF Output power specifies that Maximum Conducted Output Power.



5.2G WIFI Worst Maximum MPE Result

Mode	N _{TX}	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/cm ²) [S]
802.11a	1	13.16	13±1	14	1.81	20	0.00758
802.11n20	1	13.32	13±1	14	1.81	20	0.00758
802.11n40	1	12.93	12±1	13	1.81	20	0.00602
802.11ac20	1	13.97	13±1	14	1.81	20	0.00758
802.11ac40	1	13.78	13±1	14	1.81	20	0.00758
802.11ax20	1	13.26	13±1	14	1.81	20	0.00758
802.11ax40	1	14.13	14±1	15	1.81	20	0.00954

Note:

 N_{TX}= Number of Transmit Antennas

RF Output power specifies that Maximum Conducted Output Power.

5.8G WIFI Worst Maximum MPE Result

Mode	N _{TX}	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/cm ²) [S]
802.11a	1	12.10	12±1	13	2.34	20	0.00680
802.11n20	1	13.03	13±1	14	2.34	20	0.00857
802.11n40	1	12.37	12±1	13	2.34	20	0.00680
802.11ac20	1	12.95	12±1	13	2.34	20	0.00680
802.11ac40	1	12.54	12±1	13	2.34	20	0.00680
802.11ax20	1	13.32	13±1	14	2.34	20	0.00857
802.11ax40	1	13.05	13±1	14	2.34	20	0.00857

Note:

 N_{TX}= Number of Transmit Antennas

RF Output power specifies that Maximum Conducted Output Power.



6. Conclusion:

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

Limits for General Population/ Uncontrolled Exposure

Frequency Range (MHz)	Power density (mW/ cm ²)
300-1,500	F/1500
1,500-100,000	1.0

7. Summary simultaneous transmission information

The sample supports two antennas for Bluetooth Antenna and (2.4G&5G) WIFI Antenna.

The Bluetooth Antenna and (2.4G&5G) WIFI Antenna can transmit simultaneous.

The Bluetooth Antenna and (2.4G&5G) WIFI Antenna with four different Antenna.

According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;

Σ of MPE ratios ≤ 1.0

8. Summary simultaneous transmission results

Bluetooth Antenna +(2.4G&5G) WIFI Antenna Maximum Simultaneous transmission MPE Ratios is $0.00112+0.01116=0.01228 \leq 1.0$.

9. Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

-----END OF THE REPORT-----

