Maximum Permissible Exposure Evaluation
FCC ID: 2BCTE-TS-3

1. Client Information

Applicant	:	Shenzhen Feichang Huapin Technology Co., Ltd.
Address	:	11th Floor, Xingbaohe Building, Xianian, Gongmingshang Village, Guangming District, Shenzhen City, Guangdong Province, China
Manufacturer	:	Shenzhen Feichang Huapin Technology Co., Ltd.
Address	:	11th Floor, Xingbaohe Building, Xianian, Gongmingshang Village, Guangming District, Shenzhen City, Guangdong Province, China

2. General Description of EUT

EUT Name	:	projector	
Model(s) No.	:	TS-3, TS-2, TS-5, TS-6, TS-7, TS-8, TS-9	
Model Difference	:	All PCB boards and circuit diagrams are the same, the only difference is that appearance.	
Product Description	:	Operation Frequency:	Bluetooth: 2402MHz~2480MHz 802.11b/g/n(HT20)/ax(HE20):2412MHz~2462MHz 802.11n(HT40)/ax(HE40): 2422MHz~2452MHz U-NII-1: 5180MHz~5240MHz U-NII-3: 5745MHz~5825MHz
Power Supply	:	Input: AC 110-230V	
Software Version	:	----	
Hardware Version	:	----	
Remark: The antenna gain and the adapter provided by the applicant, verified for the RF conduction test and adapter provided by TOBY test lab.			

Note: More test information about the EUT please refer the RF Test Report.

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MPE Calculations

1. Antenna Gain:

Band	Antenna Type	Antenna Gain(dBi)
Bluetooth	PCB	1.59
2.4G Wi-Fi	PCB	1.59
5G Wi-Fi U-NII-1	PCB	4.31
5G Wi-Fi U-NII-3	PCB	4.18

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

$$S=(PG)/4\pi R^2$$

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. Test Result:

Bluetooth MPE Result									
Mode	N_{TX}	Freq. (MHz)	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]	limit (mW/cm2)
GFSK	1	2402	7.49	7±1	8	1.59	20	0.0018	1
		2441	6.72	7±1	8	1.59	20	0.0018	1
		2480	6.45	6±1	7	1.59	20	0.0014	1
π /4-DQPSK	1	2402	4.88	5±1	6	1.59	20	0.0011	1
		2441	5.08	5±1	6	1.59	20	0.0011	1
		2480	4.66	5±1	6	1.59	20	0.0011	1
8-DPSK	1	2402	5.03	5±1	6	1.59	20	0.0011	1
		2441	5.24	5±1	6	1.59	20	0.0011	1
		2480	4.92	5±1	6	1.59	20	0.0011	1
Note: N_{TX}= Number of Transmit Antennas RF Output power specifies that Maximum Conducted Peak Output Power.									

BLE MPE Result									
Mode	N_{TX}	Freq. (MHz)	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]	limit (mW/cm2)
BLE (1Mbps)	1	2402	7.69	8±1	9	1.59	20	0.0023	1
		2440	7.95	8±1	9	1.59	20	0.0023	1
		2480	7.14	7±1	8	1.59	20	0.0018	1
BLE (2Mbps)	1	2402	7.73	8±1	9	1.59	20	0.0023	1
		2440	7.96	8±1	9	1.59	20	0.0023	1
		2480	7.17	7±1	8	1.59	20	0.0018	1
Note: N_{TX}= Number of Transmit Antennas RF Output power specifies that Maximum Conducted Peak Output Power.									

2.4G Wi-Fi MPE Result									
Mode	N_{TX}	Freq. (MHz)	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]	limit (mW/cm2)
802.11b	1	2412	15.37	15±1	16	1.59	20	0.0114	1
		2437	15.81	16±1	17	1.59	20	0.0144	1
		2462	15.1	15±1	16	1.59	20	0.0114	1
802.11g	1	2412	16.87	17±1	18	1.59	20	0.0181	1
		2437	17.44	17±1	18	1.59	20	0.0181	1
		2462	14.72	15±1	16	1.59	20	0.0114	1
802.11n20	1	2412	14.42	14±1	15	1.59	20	0.0091	1
		2437	14.61	15±1	16	1.59	20	0.0114	1
		2462	14.94	15±1	16	1.59	20	0.0114	1
802.11n40	1	2422	15.14	15±1	16	1.59	20	0.0114	1
	1	2437	15.21	15±1	16	1.59	20	0.0114	1
	1	2452	15.17	15±1	16	1.59	20	0.0114	1
802.11ax20	1	2412	14.19	14±1	15	1.59	20	0.0091	1
	1	2437	14.59	15±1	16	1.59	20	0.0114	1
	1	2462	15.05	15±1	16	1.59	20	0.0114	1
802.11ax40	1	2422	15.33	15±1	16	1.59	20	0.0114	1
	1	2437	15.55	16±1	17	1.59	20	0.0144	1
	1	2452	15.79	16±1	17	1.59	20	0.0144	1

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

5.2G Wi-Fi MPE Result									
Mode	N_{TX}	Freq. (MHz)	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]	limit (mW/cm2)
802.11a	1	5180	14.92	15±1	16	4.31	20	0.0214	1
		5200	15.18	15±1	16	4.31	20	0.0214	1
		5240	15.22	15±1	16	4.31	20	0.0214	1
802.11n20	1	5180	15.01	15±1	16	4.31	20	0.0214	1
		5200	15.23	15±1	16	4.31	20	0.0214	1
		5240	14.81	15±1	16	4.31	20	0.0214	1
802.11n40	1	5190	15.24	15±1	16	4.31	20	0.0214	1
		5230	15.03	15±1	16	4.31	20	0.0214	1
802.11ac20	1	5180	14.71	15±1	16	4.31	20	0.0214	1
		5200	15.08	15±1	16	4.31	20	0.0214	1
		5240	15.03	15±1	16	4.31	20	0.0214	1
802.11ac40	1	5190	14.39	15±1	16	4.31	20	0.0214	1
		5230	14.94	15±1	16	4.31	20	0.0214	1
802.11ax20		5180	14.78	15±1	16	4.31	20	0.0214	1
		5200	15.14	15±1	16	4.31	20	0.0214	1
		5240	15.44	15±1	16	4.31	20	0.0214	1
802.11ax40		5190	15.06	15±1	16	4.31	20	0.0214	1
		5230	15.51	16±1	17	4.31	20	0.0269	1

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

5.8G Wi-Fi MPE Result									
Mode	N_{TX}	Freq. (MHz)	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]	limit (mW/cm2)
802.11a	1	5745	14.27	14±1	15	4.18	20	0.0165	1
		5785	14.97	15±1	16	4.18	20	0.0207	1
		5825	13.95	14±1	15	4.18	20	0.0165	1
802.11n20	1	5745	14.21	14±1	15	4.18	20	0.0165	1
		5785	14.72	15±1	16	4.18	20	0.0207	1
		5825	13.75	14±1	15	4.18	20	0.0165	1
802.11n40	1	5755	13.29	13±1	14	4.18	20	0.0131	1
		5795	14.77	15±1	16	4.18	20	0.0207	1
802.11ac20	1	5745	14.17	14±1	15	4.18	20	0.0165	1
		5785	14.93	15±1	16	4.18	20	0.0207	1
		5825	13.95	14±1	15	4.18	20	0.0165	1
802.11ac40	1	5755	16.09	16±1	17	4.18	20	0.0261	1
		5795	14.21	14±1	15	4.18	20	0.0165	1
802.11ax20	1	5745	14.06	14±1	15	4.18	20	0.0165	1
		5785	14.93	15±1	16	4.18	20	0.0207	1
		5825	14.23	14±1	15	4.18	20	0.0165	1
802.11ax40	1	5755	16.52	17±1	18	4.18	20	0.0329	1
		5795	14.86	15±1	16	4.18	20	0.0207	1

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

5. 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

6. Summary simultaneous transmission results

Bluetooth and 2.4G/5G Wi-Fi support simultaneous transmit the

Bluetooth MPE (Ratio)	2.4G/5G Wi-Fi MPE (Ratio)	simultaneous MPE (Ratio)	MPE Limits (Ratio)
0.0023	0.0329	0.0352	1.0000

So, RF exposure limit warning or SAR test are not required.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR2.1091 (b). The RF Exposure Information page from the manual is included here for reference.

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