

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)

FCC ID: 2BCAX-T08

EUT Specification

EUT	Smart Projector
Frequency band (Operating)	☒ BT: 2.402GHz ~ 2.480GHz ☒ WIFI: 2.412GHz ~ 2.462GHz ☒ WIFI: 5.18GHz ~ 5.24GHz ☒ WIFI: 5.745GHz ~ 5.825GHz
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation)
Exposure classification	☐ Occupational/Controlled exposure ($S = 5\text{mW/cm}^2$) ☒ General Population/Uncontrolled exposure ($S=1\text{mW/cm}^2$)
Antenna diversity	☒ Single antenna ☐ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity
Max. output power (peak power)	BT GFSK: 7.58 dBm $\pi/4$ -DQPSK: 7.57 dBm 8DPSK: 7.69 dBm 2.4G WIFI 802.11b: 16.59 dBm 802.11g: 16.16 dBm 802.11n HT20: 16.17 dBm 802.11n HT40: 15.83 dBm 802.11ax HE20: 16.44 dBm 802.11ax HE40: 16.02 dBm 5G WIFI U-NII-1 802.11a: 13.95 dBm 802.11n HT20: 13.81 dBm 802.11n HT40: 10.73 dBm 802.11ac VHT20: 13.66 dBm 802.11ac VHT40: 10.06 dBm 802.11ax HE20: 13.97 dBm 802.11ax HE40: 10.44 dBm

	U-NII-3 802.11a: 11.91 dBm 802.11n HT20: 11.53 dBm 802.11n HT40: 11.35 dBm 802.11ac VHT20: 11.78 dBm 802.11ac VHT40: 11.53 dBm 802.11ax HE20: 11.65 dBm 802.11ax HE40: 10.94 dBm
Antenna gain (Max)	BT: -3.91dBi 2.4G WIFI:-3.91dBi 5G WIFI: U-NII-1: 4.45dBi, U-NII-3: 1.68dBi
Evaluation applied	☒ MPE Evaluation ☐ SAR Evaluation

Limits for Maximum Permissible Exposure(MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm ²)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

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= gain of antenna in linear scale, π =3.1416

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.

Measurement Result

BT:

Mode	Max Measured Power (dBm)	Tune up tolerance (dBm)	Max tune up conducted power(dBm)	Output Peak power (mW)	Ant. Gain (dBi)	Ant. Gain (numeric)	Power density at 20cm (mW/ cm ²)	Power density Limits (mW/ cm ²)
GFSK	7.58	8±1	9	7.943	-3.91	0.406	0.000642	1
π/4-DQPSK	7.57	8±1	9	7.943	-3.91	0.406	0.000642	1
8DPSK	7.69	8±1	9	7.943	-3.91	0.406	0.000642	1

2.4G WIFI:

Mode	Max Measured Power (dBm)	Tune up tolerance (dBm)	Max tune up conducted power(dBm)	Output Peak power (mW)	Ant. Gain (dBi)	Ant. Gain (numeric)	Power density at 20cm (mW/ cm ²)	Power density Limits (mW/ cm ²)
802.11b	16.59	17 ± 1	18	63.096	-3.91	0.406	0.005096	1
802.11g	16.16	17 ± 1	18	63.096	-3.91	0.406	0.005096	1
802.11n HT20	16.17	17 ± 1	18	63.096	-3.91	0.406	0.005096	1
802.11n HT40	15.83	16 ± 1	17	50.119	-3.91	0.406	0.004048	1
802.11ax HE20	16.44	17 ± 1	18	63.096	-3.91	0.406	0.005096	1
802.11ax HE40	16.02	17 ± 1	18	63.096	-3.91	0.406	0.005096	1

5G WIFI:
U-NII-1

Mode	Max Measured Power (dBm)	Tune up tolerance (dBm)	Max tune up conducted power(dBm)	Output Peak power (mW)	Ant. Gain (dBi)	Ant. Gain (numeric)	Power density at 20cm (mW/ cm ²)	Power density Limits (mW/ cm ²)
802.11a	13.95	14±1	15	31.623	4.45	2.786	0.017527	1
802.11n HT20	13.81	14±1	15	31.623	4.45	2.786	0.017527	1
802.11n HT40	10.73	11±1	12	15.849	4.45	2.786	0.008784	1
802.11ac VHT20	13.66	14±1	15	31.623	4.45	2.786	0.017527	1
802.11ac VHT40	10.06	11±1	12	15.849	4.45	2.786	0.008784	1
802.11ax HE20	13.97	14±1	15	31.623	4.45	2.786	0.017527	1
802.11ax HE40	10.44	11±1	12	15.849	4.45	2.786	0.008784	1

U-NII-3

Mode	Max Measured Power (dBm)	Tune up tolerance (dBm)	Max tune up conducted power(dBm)	Output Peak power (mW)	Ant. Gain (dBi)	Ant. Gain (numeric)	Power density at 20cm (mW/ cm ²)	Power density Limits (mW/ cm ²)
802.11a	11.91	12 ± 1	13	19.953	1.68	1.472	0.005843	1
802.11n HT20	11.53	12 ± 1	13	19.953	1.68	1.472	0.005843	1
802.11n HT40	11.35	12 ± 1	13	19.953	1.68	1.472	0.005843	1
802.11ac VHT20	11.78	12 ± 1	13	19.953	1.68	1.472	0.005843	1
802.11ac VHT40	11.53	12 ± 1	13	19.953	1.68	1.472	0.005843	1
802.11ax HE20	11.65	12 ± 1	13	19.953	1.68	1.472	0.005843	1
802.11ax HE40	10.94	11 ± 1	12	15.849	1.68	1.472	0.004641	1

The Product unsupported at the same time to Transmitting. According to KDB 447498, and no simultaneous SAR measurement is required.

Signature:



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