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Maximum Permissible Exposure Evaluation

FCC ID: PADWF129

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)

EUT Specification

EUT	LED TV
Frequency band (Operating)	☒ WLAN: 2.412GHz ~ 2.462GHz ☒ EDR: 2.402GHz ~ 2.480GHz ☒ BLE: 2.402GHz ~ 2.480GHz ☐ Others
Device category	☐ Portable (<20cm separation) ☐ Mobile (>20cm separation) ☒ fixed (>20cm separation) ☐ Others
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm ²) ☒ General Population/Uncontrolled exposure (S=1mW/cm ²)
Antenna diversity	☒ Single antenna ☐ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity
Max. output power	EDR: 6.16dBm($\pi/4$ -DQPSK) BLE: -0.18dBm(2480MHz) WLAN: 802.11n (HT20): 17..18dBm
Antenna gain (Max)	0dBi
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

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

Where

P_d = Power density in mW/cm^2

P_{out} = output power to antenna in Mw

G = gain of antenna in linear scale

$\pi = 3.1416$

R = distance between observation point and center of the radiator in cm

P_d the limit of MPE $1mW/cm^2$. 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

EDR:

Support type	Operating Mode	Channel Frequency (MHz)	Max. Measured Power (dBm)	Tune up tolerance (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/cm^2)	Power density Limits (mW/cm^2)
EDR	GFSK	2402	5.22	5.22 ± 1	6.22	0	0.0008	1
EDR	GFSK	2441	6.91	6.91 ± 1	7.91	0	0.0012	1
EDR	GFSK	2480	7.93	7.93 ± 1	8.93	0	0.0016	1
EDR	$\pi/4$ -DQPSK	2402	5.61	5.61 ± 1	6.61	0	0.0009	1
EDR	$\pi/4$ -DQPSK	2441	6.19	6.19 ± 1	7.19	0	0.0010	1
EDR	$\pi/4$ -DQPSK	2480	7.31	7.31 ± 1	8.31	0	0.0013	1
EDR	8-DPSK	2402	5.86	5.86 ± 1	6.86	0	0.0010	1
EDR	8-DPSK	2441	7.03	7.03 ± 1	8.03	0	0.0013	1
EDR	8-DPSK	2480	7.60	7.60 ± 1	8.60	0	0.0014	1

BLE:

Support type	Operating Mode	Channel Frequency (MHz)	Max. Measured Power (dBm)	Tune up tolerance (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/cm^2)	Power density Limits (mW/cm^2)
BLE	GFSK	2402	-0.76	-0.76 ± 1	0.24	0	0.0002	1
BLE	GFSK	2442	-0.80	-0.80 ± 1	0.20	0	0.0002	1
BLE	GFSK	2480	-0.18	-0.18 ± 1	0.82	0	0.0002	1

2.4G WIFI:

Support type	Operating Mode	Channel Frequency (MHz)	Max. Measured Power (dBm)	Tune up tolerance (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/cm ²)	Power density Limits (mW/cm ²)
WIFI	802.11b	2412	15.66	15.66 ± 1	16.66	0	0.0092	1
WIFI	802.11b	2437	15.42	15.42 ± 1	16.42	0	0.0087	1
WIFI	802.11b	2462	15.54	15.54 ± 1	16.54	0	0.0090	1
WIFI	802.11g	2412	15.78	15.78 ± 1	16.78	0	0.0095	1
WIFI	802.11g	2437	15.36	15.36 ± 1	16.36	0	0.0086	1
WIFI	802.11g	2462	16.07	16.07 ± 1	17.07	0	0.0101	1
WIFI	802.11n (HT20)	2412	16	16 ± 1	17	0	0.0100	1
WIFI	802.11n (HT20)	2437	15.86	15.86 ± 1	16.86	0	0.0097	1
WIFI	802.11n (HT20)	2462	17.18	17.18 ± 1	18.18	0	0.0131	1
WIFI	802.11n (HT40)	2422	15.51	15.51 ± 1	16.51	0	0.0089	1
WIFI	802.11n (HT40)	2437	16.41	16.41 ± 1	17.41	0	0.0110	1
WIFI	802.11n (HT40)	2452	16.19	16.19 ± 1	17.19	0	0.0104	1

Note

The transmitter signals are correlated:

For a more detailed features description, please refer to the RF Test Report.

*****THE END*****