



Maximum Permissible Exposure Report

1. Product Information

FCC ID	: 2ASFLSML5045W
EUT	: IPTV Set-Top Box
Test Model	: SML-5045W
Power Supply	: Input: 12V===1.0A Output: USB 5V===1.0A
Hardware Version	: JUW7.820.00293831 V2
Software Version	: V20220305.010058
Bluetooth	:
Frequency Range	: 2402MHz ~ 2480MHz
Channel Number	: 79 channels for Bluetooth V5.0(DSS) 40 channels for Bluetooth V5.0(DTS)
Channel Spacing	: 1MHz for Bluetooth V5.0 (DSS) 2MHz for Bluetooth V5.0 (DTS)
Modulation Type	: GFSK, $\pi/4$ -DQPSK, 8-DPSK for Bluetooth V5.0(DSS) GFSK for Bluetooth V5.0(DTS)
Bluetooth Version	: V5.0
Antenna Description	: Internal Antenna 1, 2.0dBi (max.)
WIFI(2.4G Band)	:
Frequency Range	: 2412 – 2462 MHz
Channel Spacing	: 11 Channels for 20MHz bandwidth (2412~2462MHz) 7 Channels for 40MHz bandwidth (2422~2452MHz)
Channel Number	: 5MHz
Modulation Type	: IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Antenna Description	: Internal Antenna 0, 2.0dBi (max.) Internal Antenna 1, 2.0dBi (max.)
5G WLAN	:
Frequency Range	: 5180-5240MHz, 5260-5320MHz, 5500-5700MHz 4 Channels for 20MHz bandwidth(5180MHz-5240MHz) 4 Channels for 20MHz bandwidth(5260MHz-5320MHz) 11 Channels for 20MHz bandwidth(5500MHz-5700MHz) 2 channels for 40MHz bandwidth(5190MHz~5230MHz)
Channel Number	: 2 channels for 40MHz bandwidth(5270MHz~5310MHz) 5 Channels for 40MHz bandwidth(5510MHz-5670MHz) 1 channels for 80MHz bandwidth(5210MHz) 1 channels for 80MHz bandwidth(5290MHz) 2 Channels for 80MHz bandwidth(5530MHz, 5610MHz)
Modulation Type	: IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)





Antenna Description	: Internal Antenna 0, 2.0dBi (max.) : Internal Antenna 1, 2.0dBi (max.)
5.8G WLAN	:
Frequency Range	: 5745MHz-5825MHz 5 channels for 20MHz bandwidth (5745-5825MHz)
Channel Number	: 2 channels for 40MHz bandwidth (5755~5795MHz) 1 channels for 80MHz bandwidth (5775MHz)
Modulation Type	: IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	: Internal Antenna 0, 2.0dBi (max.) : Internal Antenna 1, 2.0dBi (max.)
DFS Operation Mode	: ☐ Master ☐ Client with Radar detection capability ☒ Client without radar detection capability
Exposure category	: General population/uncontrolled environment
EUT Type	: Production Unit
Device Type	: Mobile Device

2. Evaluation Method

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

In accordance with KDB447498D01 for 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 modelled or measured field strengths or power density, is ≤ 1.0 . The MPE ratio of each antenna is determined at the minimum test separation distance required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to MPE limit, at the test frequency. Either the maximum peak or spatially averaged results from measurements or numerical simulations may be used to determine the MPE ratios. Spatial averaging does not apply when MPE is estimated using simple calculations based on far-field plane-wave equivalent conditions. The antenna installation and operating requirements for the host device must meet the minimum test separation distances required by all antennas, in both standalone and simultaneous transmission operations, to satisfy compliance.

3. Limit

3.1 Refer Evaluation Method

[ANSI C95.1-2019](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz

[FCC KDB publication 447498 D01 General 1 RF Exposure Guidance v06](#): Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

[FCC CFR 47 part1 1.1310](#): Radiofrequency radiation exposure limits.

[FCC CFR 47 part2 2.1091](#): Radiofrequency radiation exposure evaluation: mobile devices.



Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

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3.2 Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f ²)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Uncontrolled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f ²)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

F=frequency in MHz

*=Plane-wave equivalent power density

4. MPE Calculation Method

Predication of MPE limit at a given distance

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 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

5. Antenna Information

KE2EM-Plus can only use antennas certificated as follows provided by manufacturer;

Internal/External Identification	Antenna type and antenna number	Operate frequency band	Maximum antenna gain	Notes
Antenna 0	Internal antenna	2400-6000 MHz	2.0 dBi	WIFI Antenna
Antenna 1	Internal antenna	2400-6000 MHz	2.0 dBi	BT/WIFI Antenna



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6. Conducted Power

[BT]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	00	2402	3.74
	39	2441	4.23
	79	2480	4.28
$\pi/4$ -DQPSK	00	2402	3.52
	39	2441	4.04
	79	2480	4.13
8-DPSK	00	2402	3.73
	39	2441	4.18
	79	2480	4.22

[BT LE]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	00	2402	-1.43
	19	2440	-1.85
	39	2480	-1.93

[2.4G WLAN]

Mode	Channel	Frequency (MHz)	Ant 0 Peak Conducted Output Power (dBm)	Ant 1 Peak Conducted Output Power (dBm)
IEEE 802.11b	1	2412	13.9	13.45
	6	2437	14.21	13.15
	11	2462	14.32	14.5
IEEE 802.11g	1	2412	15.88	15.6
	6	2437	16.21	16.68
	11	2462	16.15	15.7
IEEE 802.11n HT20	1	2412	14.44	16.74
	6	2437	15.29	15.38
	11	2462	16.82	15.58
IEEE 802.11n HT40	3	2422	14.47	14.74
	6	2437	15.2	14.28
	9	2462	14.4	13.49

[2.4GWIFI Max Conducted Power] ANT 0+ANT1

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
11N20 MIMO	1	2412	18.75
	6	2437	18.35
	11	2462	19.25
11N40 MIMO	3	2422	17.62
	6	2437	17.77
	9	2452	16.98





[5.2GHz WLAN]

Mode	Channel	Frequency (MHz)	Ant 0 Average Conducted Output Power (dBm)	Ant 1 Average Conducted Output Power (dBm)
IEEE 802.11a	36	5180	14.95	13.48
	40	5200	14.99	14.53
	48	5240	13.85	13.15
IEEE 802.11n HT20	36	5180	14.01	13.15
	40	5200	14.17	12.29
	48	5240	12.94	12.67
IEEE 802.11n HT40	38	5190	14.26	12.66
	46	5230	12.98	13.37
IEEE 802.11ac VHT20	36	5180	13.94	13.33
	40	5200	14.3	13.6
	48	5240	13.39	13.38
IEEE 802.11ac VHT40	38	5190	14.23	12.56
	46	5230	12.87	12.61
IEEE 802.11ac VHT80	42	5210	12.21	10.82

[5.2GWIFI Max Conducted Power] Ant 0+Ant 1

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
11N20 MIMO	36	5180	16.61
	40	5200	16.34
	48	5240	15.82
11N40 MIMO	38	5190	16.54
	46	5230	16.19
11AC20 MIMO	36	5180	16.66
	40	5200	16.97
	48	5240	16.40
11AC40 MIMO	38	5190	16.49
	46	5230	15.75
11AC80 MIMO	42	5210	14.58



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[5.3GHz WLAN]

Mode	Channel	Frequency (MHz)	Ant 0 Average Conducted Output Power (dBm)	Ant 1 Average Conducted Output Power (dBm)
IEEE 802.11a	52	5260	10.66	7.19
	60	5280	9.93	9.02
	64	5320	9.93	8.13
IEEE 802.11n HT20	52	5260	9.06	7.35
	60	5280	8.6	7.7
	64	5320	8.98	8.58
IEEE 802.11n HT40	54	5270	9.07	8.14
	62	5310	9.17	10.68
IEEE 802.11ac VHT20	52	5260	9.72	7.9
	60	5280	9.48	7.62
	64	5320	8.74	8.49
IEEE 802.11ac VHT40	54	5270	9.4	7.33
	62	5310	9.09	10.08
IEEE 802.11ac VHT80	58	5290	8.95	9.26

[5.3GWIFI Max Conducted Power] Ant 0+Ant 1

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
11N20 MIMO	52	5260	11.30
	60	5280	11.18
	64	5320	11.79
11N40 MIMO	54	5270	11.64
	62	5310	13.00
11AC20 MIMO	52	5260	11.91
	60	5280	11.66
	64	5320	11.63
11AC40 MIMO	54	5270	11.50
	62	5310	12.62
11AC80 MIMO	58	5290	12.12





[5.5GHz WLAN]

Mode	Channel	Frequency (MHz)	Ant 0 Average Conducted Output Power (dBm)	Ant 1 Average Conducted Output Power (dBm)
IEEE 802.11a	100	5500	12.57	12.33
	116	5580	11.69	12.25
	140	5700	9.12	9.53
IEEE 802.11n HT20	100	5500	10.88	10.37
	116	5580	10.51	9.06
	140	5700	7.71	8.87
IEEE 802.11n HT40	102	5510	11.08	10.72
	110	5550	10.43	11.67
	134	5670	7.14	11.09
IEEE 802.11ac VHT20	100	5500	10.54	9.4
	116	5580	10.29	10.78
	140	5700	6.85	9.11
IEEE 802.11ac VHT40	102	5510	10.94	9.88
	110	5550	10.94	10.01
	134	5670	7.1	10.24
IEEE 802.11ac VHT80	106	5530	10.14	9.07
	122	5610	8.58	8.5

[5.5GWIFI Max Conducted Power] Ant 0+Ant 1

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
11N20 MIMO	100	5500	13.64
	116	5580	12.86
	140	5700	11.34
11N40 MIMO	102	5510	13.91
	110	5550	14.10
	134	5670	12.56
11AC20 MIMO	100	5500	13.02
	116	5580	13.55
	140	5700	11.14
11AC40 MIMO	102	5510	13.45
	110	5550	13.51
	134	5670	11.96
11AC80 MIMO	106	5530	12.65
	122	5610	11.55





[5.8GHz WLAN]

Mode	Channel	Frequency (MHz)	Ant 0 Average Conducted Output Power (dBm)	Ant 1 Average Conducted Output Power (dBm)
IEEE 802.11a	149	5745	11.14	8.97
	157	5785	6.97	7.72
	165	5825	9.87	8.95
IEEE 802.11n HT20	149	5745	7.18	8.62
	157	5785	6.85	8.37
	165	5825	8.82	8.94
IEEE 802.11n HT40	151	5755	9.5	7.88
	159	5795	8.15	9.78
IEEE 802.11ac VHT20	149	5745	9.81	8.4
	157	5785	8.8	8.94
	165	5825	9.41	8.49
IEEE 802.11ac VHT40	151	5755	8.96	8.06
	159	5795	8.62	9.14
IEEE 802.11ac VHT80	155	5775	7.92	6.38

[5.8WIFI Max Conducted Power]Ant 0+Ant 1

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
11N20 MIMO	149	5745	10.97
	157	5785	10.69
	165	5825	11.89
11N40 MIMO	151	5755	11.78
	159	5795	12.05
11AC20 MIMO	149	5745	12.17
	157	5785	11.88
	165	5825	11.98
11AC40 MIMO	151	5755	11.54
	159	5795	11.90
11AC80 MIMO	155	5775	10.23





7. Manufacturing Tolerance

GFSK(Peak)			
Channel	Channel 00	Channel 39	Channel 78
Target (dBm)	3.0	4.0	4.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
$\pi/4$ -DQPSK(Peak)			
Channel	Channel 00	Channel 39	Channel 78
Target (dBm)	3.0	4.0	4.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
8-DPSK(Peak)			
Channel	Channel 00	Channel 39	Channel 78
Target (dBm)	3.0	4.0	4.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

BT LE(Peak)			
Channel	Channel 00	Channel 19	Channel 39
Target (dBm)	-1.0	-1.0	-1.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

IEEE 802.11b(Peak)			
Channel	Channel 01	Channel 06	Channel 11
Target (dBm)	13.0	14.0	14.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11g(Peak)			
Channel	Channel 01	Channel 06	Channel 11
Target (dBm)	15.0	16.0	16.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n20(Peak)			
Channel	Channel 01	Channel 06	Channel 11
Target (dBm)	18.0	18.0	19.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n40(Peak)			
Channel	Channel 03	Channel 06	Channel 09
Target (dBm)	17.0	17.0	16.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0





[5.2GHz WLAN]			
IEEE 802.11a (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	14.0	14.0	13.0
Tolerance ± (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	16.0	16.0	15.0
Tolerance ± (dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (Average)			
Channel	Channel 38	Channel 46	
Target (dBm)	16.0	16.0	
Tolerance ± (dB)	1.0	1.0	
IEEE 802.11ac VHT20 (Average)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	16.0	16.0	16.0
Tolerance ± (dB)	1.0	1.0	1.0
IEEE 802.11ac VHT40 (Average)			
Channel	Channel 38	Channel 46	
Target (dBm)	16.0	15.0	
Tolerance ± (dB)	1.0	1.0	
IEEE 802.11ac VHT80(Average)			
Channel	Channel 42		
Target (dBm)	14.0		
Tolerance ± (dB)	1.0		

[5.3GHz WLAN]			
IEEE 802.11a (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	10.0	9.0	9.0
Tolerance ± (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	11.0	11.0	11.0
Tolerance ± (dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (Average)			
Channel	Channel 54	Channel 62	
Target (dBm)	11.0	13.0	
Tolerance ± (dB)	1.0	1.0	
IEEE 802.11ac VHT20 (Average)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	11.0	11.0	11.0
Tolerance ± (dB)	1.0	1.0	1.0
IEEE 802.11ac VHT40 (Average)			
Channel	Channel 54	Channel 62	
Target (dBm)	11.0	12.0	
Tolerance ± (dB)	1.0	1.0	
IEEE 802.11ac VHT80(Average)			
Channel	Channel 58		
Target (dBm)	12.0		
Tolerance ± (dB)	1.0		



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[5.5GHz WLAN]			
IEEE 802.11a (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	12.0	11.0	9.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	13.0	12.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (Average)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	13.0	14.0	12.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ac VHT20 (Average)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	13.0	13.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ac HT40 (Average)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	13.0	13.0	11.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11ac VHT80(Average)			
Channel	Channel 106	Channel 122	
Target (dBm)	12.0	11.0	
Tolerance $\pm$ (dB)	1.0	1.0	

[5.8GHz WLAN]			
IEEE 802.11a (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	11.0	6.0	9.0
Tolerance ± (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	10.0	10.0	11.0
Tolerance ± (dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	11.0	12.0	
Tolerance ± (dB)	1.0	1.0	
IEEE 802.11ac VHT20 (Average)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	12.0	11.0	11.0
Tolerance ± (dB)	1.0	1.0	1.0
IEEE 802.11ac VHT40 (Average)			
Channel	Channel 151	Channel 159	
Target (dBm)	11.0	11.0	
Tolerance ± (dB)	1.0	1.0	
IEEE 802.11ac VHT80(Average)			
Channel	Channel 155		
Target (dBm)	10.0		
Tolerance ± (dB)	1.0		



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8. Measurement Results

8.1 Standalone MPE Evaluation

As declared by the Applicant, the EUT is a wireless device used in a fix application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum separation distance, $r=20\text{cm}$, as well as the gain of the used antenna refer to antenna information, the RF power density can be obtained.

[BT]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
GFSK	5.0	3.1623	2.0	1.5849	0.0010	1.0000
$\pi/4$ -DQPSK	5.0	3.1623	2.0	1.5849	0.0010	1.0000
8-DPSK	5.0	3.1623	2.0	1.5849	0.0010	1.0000

[BT LE]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
BT LE	0	1.0000	2.0	1.5849	0.0003	1.0000

[2.4G WLAN]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11b	14.0	25.1189	2.0	1.5849	0.0079	1.0000
IEEE 802.11g	17.0	50.1187	2.0	1.5849	0.0158	1.0000
IEEE 802.11n HT20	20.0	100.0000	2.0	1.5849	0.0315	1.0000
IEEE 802.11n HT40	18.0	63.0957	2.0	1.5849	0.0199	1.0000

[5.2GHz WLAN]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	15.0	31.6228	2.0	1.5849	0.0100	1.0000
IEEE 802.11n HT20	17.0	50.1187	2.0	1.5849	0.0158	1.0000
IEEE 802.11n HT40	17.0	50.1187	2.0	1.5849	0.0158	1.0000
IEEE 802.11ac VHT20	17.0	50.1187	2.0	1.5849	0.0158	1.0000
IEEE 802.11ac VHT40	17.0	50.1187	2.0	1.5849	0.0158	1.0000
IEEE 802.11ac VHT80	15.0	31.6228	2.0	1.5849	0.0100	1.0000

[5.3GHz WLAN]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	11.0	12.5893	2.0	1.5849	0.0040	1.0000
IEEE 802.11n HT20	12.0	15.8489	2.0	1.5849	0.0050	1.0000
IEEE 802.11n HT40	14.0	25.1189	2.0	1.5849	0.0079	1.0000
IEEE 802.11ac VHT20	12.0	15.8489	2.0	1.5849	0.0050	1.0000
IEEE 802.11ac VHT40	13.0	19.9526	2.0	1.5849	0.0063	1.0000
IEEE 802.11ac VHT80	13.0	19.9526	2.0	1.5849	0.0063	1.0000



Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com

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**[5.5GHz WLAN]**

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	13.0	19.9526	2.0	1.5849	0.0063	1.0000
IEEE 802.11n HT20	14.0	25.1189	2.0	1.5849	0.0079	1.0000
IEEE 802.11n HT40	15.0	31.6228	2.0	1.5849	0.0100	1.0000
IEEE 802.11ac VHT20	14.0	25.1189	2.0	1.5849	0.0079	1.0000
IEEE 802.11ac VHT40	14.0	25.1189	2.0	1.5849	0.0079	1.0000
IEEE 802.11ac VHT80	13.0	19.9526	2.0	1.5849	0.0063	1.0000

[5.8GHz WLAN]

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
IEEE 802.11a	12.0	15.8489	2.0	1.5849	0.0050	1.0000
IEEE 802.11n HT20	12.0	15.8489	2.0	1.5849	0.0050	1.0000
IEEE 802.11n HT40	13.0	19.9526	2.0	1.5849	0.0063	1.0000
IEEE 802.11ac VHT20	13.0	19.9526	2.0	1.5849	0.0063	1.0000
IEEE 802.11ac VHT40	12.0	15.8489	2.0	1.5849	0.0050	1.0000
IEEE 802.11ac VHT80	11.0	12.5893	2.0	1.5849	0.0040	1.0000

Remark:

1. Output power including turn-up tolerance;
2. Output power was adjust to duty cycle at 100% if measured duty cycle less than 98%;
3. MPE evaluate distance is 20cm from user manual provide by manufacturer.





8.2 Simultaneous Transmission MPE Evaluation

The sample support one 2.4GWLAN&5.2G WLAN&5.3G WLAN&5.5G WLAN&5.8G WLAN, another one 2.4GWLAN&5.2G WLAN&5.3G WLAN&5.5G WLAN&5.8G WLAN and another one BT transmit antenna, so need consider simultaneous transmission;

Simultaneous transmission MPE

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

Σ of MPE ratios ≤ 1.0

Mode	MPE1 (mW/cm ²)	MPE2 (mW/cm ²)	Σ MPE ratios	Limit	Results
BT+2.4G WIFI	0.0010	0.0315	0.0325	1.0	PASS
BT+5.2G WIFI	0.0010	0.0158	0.0168	1.0	PASS
BT+5.3G WIFI	0.0010	0.0079	0.0089	1.0	PASS
BT+5.5G WIFI	0.0010	0.0100	0.0110	1.0	PASS
BT+5.8G WIFI	0.0010	0.0063	0.0073	1.0	PASS
BLE+2.4G WIFI	0.0003	0.0315	0.0318	1.0	PASS
BLE+5.2G WIFI	0.0003	0.0158	0.0161	1.0	PASS
BLE+5.3G WIFI	0.0003	0.0079	0.0082	1.0	PASS
BLE+5.5G WIFI	0.0003	0.0100	0.0103	1.0	PASS
BLE+5.8G WIFI	0.0003	0.0063	0.0066	1.0	PASS
2.4G WIFI+2.4G WIFI	0.0315	0.0315	0.0630	1.0	PASS
2.4G WIFI+5.2G WIFI	0.0315	0.0158	0.0473	1.0	PASS
2.4G WIFI+5.3G WIFI	0.0315	0.0079	0.0394	1.0	PASS
2.4G WIFI+5.5G WIFI	0.0315	0.0100	0.0415	1.0	PASS
2.4G WIFI+5.8G WIFI	0.0315	0.0063	0.0378	1.0	PASS
5.2G WIFI+5.2G WIFI	0.0158	0.0158	0.0316	1.0	PASS
5.2G WIFI+5.3G WIFI	0.0158	0.0079	0.0237	1.0	PASS
5.2G WIFI+5.5G WIFI	0.0158	0.0100	0.0258	1.0	PASS
5.2G WIFI+5.8G WIFI	0.0158	0.0063	0.0221	1.0	PASS
5.3G WIFI+5.3G WIFI	0.0079	0.0079	0.0158	1.0	PASS
5.3G WIFI+5.5G WIFI	0.0079	0.0100	0.0179	1.0	PASS
5.3G WIFI+5.8G WIFI	0.0079	0.0063	0.0142	1.0	PASS
5.5G WIFI+5.5G WIFI	0.0100	0.0100	0.0200	1.0	PASS
5.5G WIFI+5.8G WIFI	0.0100	0.0063	0.0163	1.0	PASS
5.8G WIFI+5.8G WIFI	0.0063	0.0063	0.0126	1.0	PASS

Remark:

1. Output power including turn-up tolerance;
2. Output power is burst average power;
3. MPE evaluate distance is 20cm from user manual provide by manufacturer;
4. MPE values = $PG/4\pi R^2$

9. Conclusion

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

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



Shenzhen LCS Compliance Testing Laboratory Ltd.
Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China
Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com
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