



Maximum Permissible Exposure Report

1. Product Information

FCC ID:	2ACUGUCV50SERIAL
Product name	IP Phone
Test Model	UCV50
Additional Model No.	UCV52, UCV53, UCV54, UCV10, UCV20S
Model Declaration	PCB board, structure and internal of these model(s) are the same, So no additional models were tested
Power supply	Input: 12.0V $\pm$ 2.0A For AC Adapter Input: 100-240V~, 50/60Hz, 0.7A Adapter Output: 12.0V $\pm$ 2.0A, 24.0W
Hardware Version	1.0
Software Version	1.0
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, 3.8dBi(Max.)
2.4G WLAN	
Frequency Range	2412MHz~2462MHz
Channel Spacing	5MHz
Channel Number	11 Channels for 20MHz bandwidth (2412~2462MHz) 7 Channels for 40MHz bandwidth (2422~2452MHz)
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	Antenna0: Internal Antenna, 3.8dBi(Max.) Antenna1: Internal Antenna, 3.8dBi(Max.)
5G WLAN	
Frequency Range	5180-5240MHz, 5260-5320MHz, 5500-5700MHz
Channel Number	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) 2 channels for 40MHz bandwidth(5270MHz~5310MHz) 5 Channels for 40MHz bandwidth(5510MHz-5670MHz) 1 channels for 80MHz bandwidth(5210MHz)



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

Scan code to check authenticity



	1 channels for 80MHz bandwidth(5290MHz) 2 Channels for 80MHz bandwidth(5530MHz, 5610MHz)
Modulation Type	IEEE 802.11a/n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	Antenna0: Internal Antenna, 3.8dBi(Max.) Antenna1: Internal Antenna, 3.8dBi(Max.)
5.8G WLAN	
Frequency Range	5745MHz-5825MHz
Channel Number	5 channels for 20MHz bandwidth(5745MHz~5825MHz) 2 channels for 40MHz bandwidth(5755MHz~5795MHz) 1 channels for 80MHz bandwidth(5775MHz)
Modulation Type	IEEE 802.11a/n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Description	Antenna0: Internal Antenna, 3.8dBi(Max.) Antenna1: Internal Antenna, 3.8dBi(Max.)
Exposure category	General population/uncontrolled environment
EUT Type	Production Unit
Device Type	Portable Device

2. Evaluation Method

According to KDB447498 D01 General RF Exposure Guidance v06 Section 4.3.1 Standalone SAR test exclusion considerations: "Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Test Exclusion Threshold condition, listed below, is satisfied. These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.22 The minimum test separation distance is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander (see 5) of section 4.1). To qualify for SAR test exclusion, the test separation distances applied must be fully explained and justified by the operating configurations and exposure conditions of the transmitter and applicable host platform requirements, typically in the SAR measurement or SAR analysis report, according to the required published RF exposure KDB procedures. When no other RF exposure testing or reporting is required, a statement of justification and compliance must be included in the equipment approval, in lieu of the SAR report, to qualify for the SAR test exclusion. When required, the device specific conditions described in the other published RF exposure KDB procedures must be satisfied before applying these SAR test exclusion provisions; for example, handheld PTT two-way radios, handsets, laptops & tablets etc."

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f \text{ (GHz)}}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where:}$$

- f (GHz) is the RF channel transmit frequency in GHz
 - Power and distance are rounded to the nearest mW and mm before calculation
 - The result is rounded to one decimal place for comparison
 - 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below
- The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to f) in section 4.1 is applied to determine SAR test exclusion.



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

Scan code to check authenticity



When one of the following test exclusion conditions is satisfied for all combinations of simultaneous transmission configurations, further equipment approval is not required to incorporate transmitter modules in host devices that operate in the mixed mobile and portable host platform exposure conditions. The grantee is responsible for documenting this according to Class I permissive change requirements. Antennas that qualify for standalone SAR test exclusion must apply the estimated standalone SAR to determine simultaneous transmission test exclusion.

- a) The $[\sum \text{ of (the highest measured or estimated SAR for each standalone antenna configuration, adjusted for maximum tune-up tolerance) / 1.6 W/kg} + [\sum \text{ of MPE ratios}]]$ is ≤ 1.0 .
- b) The SAR to peak location separation ratios of all simultaneously transmitting antenna pairs operating in portable device exposure conditions are all ≤ 0.04 , and the $[\sum \text{ of MPE ratios}]$ is ≤ 1.0 .

3. Limit

3.1 Refer Evaluation Method

[ANSI C95.1-1999](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

[FCC KDB publication 447498 D01 General 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 2.1093](#): Radiofrequency radiation exposure evaluation: portable 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

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

Scan code to check authenticity



6. Conducted Power

[BT Max Conducted Power]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	0	2402	2.36
	39	2441	1.95
	78	2480	2.12
$\pi/4$ DQPSK	0	2402	1.65
	39	2441	1.18
	78	2480	1.50
8DPSK	0	2402	1.51
	19	2441	1.06
	39	2480	1.44

[BLE Max Conducted Power]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
BLE_1M	0	2402	-2.46
	19	2440	-2.18
	39	2480	-1.96

[2.4GWIFI Max Conducted Power]

Mode	Channel	Frequency (MHz)	Ant 0 Max Conducted Power(dBm)	Ant 1 Max Conducted Power(dBm)
11B	1	2412	8.41	8.55
	6	2437	8.72	8.73
	11	2462	8.73	8.37
11G	1	2412	8.62	8.47
	6	2437	8.81	8.30
	11	2462	7.59	8.34
11N20 SISO	1	2412	8.63	8.34
	6	2437	8.66	8.15
	11	2462	8.14	8.67
11N40 SISO	3	2422	8.58	8.76
	6	2437	8.84	8.69
	9	2452	8.01	8.89



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

Scan code to check authenticity



[5.2GWIFI Max Conducted Power]

Mode	Channel	Frequency (MHz)	Ant 0 Max Conducted Power(dBm)	Ant 1 Max Conducted Power(dBm)
11A	36	5180	6.28	6.26
	40	5200	6.23	6.61
	48	5240	6.71	6.81
11N20 SISO	36	5180	5.8	7.22
	40	5200	6.17	6.67
	48	5240	6.4	7.11
11N40 SISO	38	5190	6.67	6.83
	46	5230	6.47	7.34
11AC20 SISO	36	5180	6.23	6.6
	40	5200	6.22	5.71
	48	5240	5.7	6.56
11AC40 SISO	38	5190	6.6	7.43
	46	5230	6.23	5.70
11AC80 SISO	42	5210	7.33	6.61

[5.3GWIFI Max Conducted Power]

Mode	Channel	Frequency (MHz)	Ant 0 Max Conducted Power(dBm)	Ant 1 Max Conducted Power(dBm)
IEEE 802.11a	52	5260	6.68	6.58
	60	5280	7.13	7.00
	64	5320	6.73	6.00
IEEE 802.11n HT20	52	5260	6.2	6.32
	60	5280	6.95	6.44
	64	5320	7.11	6.98
IEEE 802.11n HT40	54	5270	6.37	6.86
	62	5310	7.15	6.42
IEEE 802.11ac VHT20	52	5260	6.28	6.3
	60	5280	6.89	6.48
	64	5320	7.01	6.54
IEEE 802.11ac VHT40	54	5270	6.48	6.75
	62	5310	7.19	6.17
IEEE 802.11ac VHT80	58	5290	7.17	7.35



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

Scan code to check authenticity



[5.5WIFI Max Conducted Power]

Mode	Channel	Frequency (MHz)	Ant 0 Max Conducted Power(dBm)	Ant 1 Max Conducted Power(dBm)
11A	100	5500	6.33	6.46
	116	5580	6.76	6.82
	140	5700	6.72	6.71
11N20 SISO	100	5500	6.28	6.31
	116	5580	6.61	6.62
	140	5700	6.55	6.54
11N40 SISO	102	5510	6.21	6.24
	110	5550	7.15	7.26
	134	5670	6.29	6.77
11AC20 SISO	100	5500	6.19	6.32
	116	5580	6.08	6.65
	140	5700	6.58	6.64
11AC40 SISO	102	5510	6.27	6.21
	110	5550	6.77	6.80
	134	5670	6.32	6.74
11AC80 SISO	106	5530	6.96	6.92
	122	5610	6.39	7.52

[5.8WIFI Max Conducted Power]

Mode	Channel	Frequency (MHz)	Ant 0 Max Conducted Power(dBm)	Ant 1 Max Conducted Power(dBm)
11A	149	5745	6.26	6.37
	157	5785	6.74	6.78
	165	5825	6.12	6.34
11N20 SISO	149	5745	6.17	6.58
	157	5785	6.39	6.63
	165	5825	6.13	6.36
11N40 SISO	151	5755	6.76	6.41
	159	5795	6.15	6.33
11AC20 SISO	149	5745	5.60	6.32
	157	5785	6.01	6.51
	165	5825	5.79	6.80
11AC40 SISO	151	5755	6.48	6.14
	159	5795	6.45	6.29
11AC80 SISO	155	5775	6.59	6.98



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

Scan code to check authenticity



7. Measurement Results

Ant2:

BT

GFSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	2.0	1.0	2.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
π /4DQPSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	1.0	1.0	1.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
8DPSK (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	1.0	1.0	1.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

BLE

BT LE (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	-2.0	-2.0	-1.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

Ant0:

2.4GWIFI

11B (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	8.0	8.0	8.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11G (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	8.0	8.0	7.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	8.0	8.0	8.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 (Peak)			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	8.0	8.0	8.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

5.2GWIFI

11A (Peak)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	6.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	5.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 (Peak)			
Channel	Channel 38	Channel 46	
Target (dBm)	6.0	6.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20 (Peak)			



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

Scan code to check authenticity



Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	6.0	6.0	5.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40 (Peak)			
Channel	Channel 38	Channel 46	
Target (dBm)	6.0	6.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC80 (Peak)			
Channel	Channel 42		
Target (dBm)	7.0		
Tolerance $\pm$ (dB)	1.0		

5.3GWIFI

11A (Peak)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	6.0	7.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	6.0	6.0	7.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 (Peak)			
Channel	Channel 54	Channel 62	
Target (dBm)	6.0	7.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20 (Peak)			
Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	6.0	6.0	7.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40 (Peak)			
Channel	Channel 54	Channel 62	
Target (dBm)	6.0	7.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC80 (Peak)			
Channel	Channel 58		
Target (dBm)	7.0		
Tolerance $\pm$ (dB)	1.0		

5.5GWIFI

11A (Peak)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	6.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	6.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 Peak)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	6.0	7.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0



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

Scan code to check authenticity



11AC20 (Peak)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	6.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40 (Peak)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	6.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC80 (Peak)			
Channel	Channel 106	Channel 122	
Target (dBm)	6.0	6.0	
Tolerance $\pm$ (dB)	1.0	1.0	

5.8GWIFI

11A (Peak)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	6.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	6.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 (Peak)			
Channel	Channel 151	Channel 159	
Target (dBm)	6.0	6.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20 (Peak)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	5.0	6.0	5.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40 (Peak)			
Channel	Channel 151	Channel 159	
Target (dBm)	6.0	6.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC80 (Peak)			
Channel	Channel 155		
Target (dBm)	6.0		
Tolerance $\pm$ (dB)	1.0		

Ant1:

2.4GWIFI

11B (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	8.0	8.0	8.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11G (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	8.0	8.0	8.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	8.0	8.0	8.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 (Peak)			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	8.0	8.0	8.0



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

Scan code to check authenticity



Tolerance $\pm$ (dB)	1.0	1.0	1.0
----------------------	-----	-----	-----

5.2GWIFI

11A (Peak)

Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	6.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

11N20 (Peak)

Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	7.0	6.0	7.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

11N40 (Peak)

Channel	Channel 38	Channel 46
Target (dBm)	6.0	7.0
Tolerance $\pm$ (dB)	1.0	1.0

11AC20 (Peak)

Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	6.0	5.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

11AC40 (Peak)

Channel	Channel 38	Channel 46
Target (dBm)	7.0	5.0
Tolerance $\pm$ (dB)	1.0	1.0

11AC80 (Peak)

Channel	Channel 42
Target (dBm)	6.0
Tolerance $\pm$ (dB)	1.0

5.3GWIFI

11A (Peak)

Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	6.0	7.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

11N20 (Peak)

Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	6.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

11N40 (Peak)

Channel	Channel 54	Channel 62
Target (dBm)	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0

11AC20 (Peak)

Channel	Channel 52	Channel 60	Channel 64
Target (dBm)	6.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

11AC40 (Peak)

Channel	Channel 54	Channel 62
Target (dBm)	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0

11AC80 (Peak)

Channel	Channel 58
Target (dBm)	7.0
Tolerance $\pm$ (dB)	1.0



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

Scan code to check authenticity



5.5GWIFI

11A (Peak)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	6.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	6.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 Peak)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	6.0	7.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC20 (Peak)			
Channel	Channel 100	Channel 116	Channel 140
Target (dBm)	6.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40 (Peak)			
Channel	Channel 102	Channel 110	Channel 134
Target (dBm)	6.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC80 (Peak)			
Channel	Channel 106	Channel 122	
Target (dBm)	6.0	7.0	
Tolerance $\pm$ (dB)	1.0	1.0	

5.8GWIFI

11A (Peak)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	6.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	6.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 (Peak)			
Channel	Channel 151	Channel 159	
Target (dBm)	6.0	6.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20 (Peak)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	6.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40 (Peak)			
Channel	Channel 151	Channel 159	
Target (dBm)	6.0	6.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC80 (Peak)			
Channel	Channel 155		
Target (dBm)	6.0		
Tolerance $\pm$ (dB)	1.0		



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

Scan code to check authenticity



8. Evaluation Results

8.1 Standalone MPE Evaluation

<BT>(Ant2)

Band/Mode		f (GHz)	Antenna Distance (mm)	RF output power		SAR Test Exclusion Threshold	SAR Test Exclusion
				dBm	mW		
BT	GFSK	2.5	5	3.0	1.9953	0.6310< 3.0	Yes
	$\pi/4$ DQPSK	2.5	5	2.0	1.5849	0.5012< 3.0	Yes
	8DPSK	2.5	5	2.0	1.5849	0.5012< 3.0	Yes

<BLE>(Ant2)

Band/Mode		f (GHz)	Antenna Distance (mm)	RF output power		SAR Test Exclusion Threshold	SAR Test Exclusion
				dBm	mW		
BT	GFSK	2.5	5	-1.0	0.7943	0.2512< 3.0	Yes

<2.4GWIFI>(Ant0)

Band/Mode		f (GHz)	Antenna Distance (mm)	RF output power		SAR Test Exclusion Threshold	SAR Test Exclusion
				dBm	mW		
2.4G WIFI	IEEE 802.11b	2.5	5	9.0	7.9433	2.5119< 3.0	Yes
	IEEE 802.11g	2.5	5	9.0	7.9433	2.5119< 3.0	Yes
	IEEE 802.11n HT20	2.5	5	9.0	7.9433	2.5119< 3.0	Yes
	IEEE 802.11n HT40	2.5	5	9.0	7.9433	2.5119< 3.0	Yes

<5.2GWIFI>(Ant0)

Band/Mode		f (GHz)	Antenna Distance (mm)	RF output power		SAR Test Exclusion Threshold	SAR Test Exclusion
				dBm	mW		
5.2G WIFI	IEEE 802.11a	5.2	5	7.0	5.0119	2.2858< 3.0	Yes
	IEEE 802.11n20	5.2	5	7.0	5.0119	2.2858< 3.0	Yes
	IEEE 802.11n40	5.2	5	7.0	5.0119	2.2858< 3.0	Yes
	IEEE 802.11ac20	5.2	5	7.0	5.0119	2.2858< 3.0	Yes
	IEEE 802.11ac40	5.2	5	7.0	5.0119	2.2858< 3.0	Yes
	IEEE 802.11ac80	5.2	5	8.0	6.3096	2.8776< 3.0	Yes



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

Scan code to check authenticity



<5.3GWIFI>(Ant0)

Band/Mode		f (GHz)	Antenna Distance (mm)	RF output power		SAR Test Exclusion Threshold	SAR Test Exclusion
				dBm	mW		
5.3G WIFI	IEEE 802.11a	5.3	5	8.0	6.3096	2.9051< 3.0	Yes
	IEEE 802.11n20	5.3	5	8.0	6.3096	2.9051< 3.0	Yes
	IEEE 802.11n40	5.3	5	8.0	6.3096	2.9051< 3.0	Yes
	IEEE 802.11ac20	5.3	5	8.0	6.3096	2.9051< 3.0	Yes
	IEEE 802.11ac40	5.3	5	8.0	6.3096	2.9051< 3.0	Yes
	IEEE 802.11ac80	5.3	5	8.0	6.3096	2.9051< 3.0	Yes

<5.5GWIFI>(Ant0)

Band/Mode		f (GHz)	Antenna Distance (mm)	RF output power		SAR Test Exclusion Threshold	SAR Test Exclusion
				dBm	mW		
5.5G WIFI	IEEE 802.11a	5.5	5	7.0	5.0119	2.3508< 3.0	Yes
	IEEE 802.11n20	5.5	5	7.0	5.0119	2.3508< 3.0	Yes
	IEEE 802.11n40	5.5	5	8.0	6.3096	2.9595< 3.0	Yes
	IEEE 802.11ac20	5.5	5	7.0	5.0119	2.3508< 3.0	Yes
	IEEE 802.11ac40	5.5	5	7.0	5.0119	2.3508< 3.0	Yes
	IEEE 802.11ac80	5.5	5	7.0	5.0119	2.3508< 3.0	Yes

<5.8GWIFI>(Ant0)

Band/Mode		f (GHz)	Antenna Distance (mm)	RF output power		SAR Test Exclusion Threshold	SAR Test Exclusion
				dBm	mW		
5.8G WIFI	IEEE 802.11a	5.8	5	7.0	5.0119	2.4140< 3.0	Yes
	IEEE 802.11n20	5.8	5	7.0	5.0119	2.4140< 3.0	Yes
	IEEE 802.11n40	5.8	5	7.0	5.0119	2.4140< 3.0	Yes
	IEEE 802.11ac20	5.8	5	7.0	5.0119	2.4140< 3.0	Yes
	IEEE 802.11ac40	5.8	5	7.0	5.0119	2.4140< 3.0	Yes
	IEEE 802.11ac80	5.8	5	7.0	5.0119	2.4140< 3.0	Yes



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

Scan code to check authenticity



<2.4GWIFI>(Ant1)

Band/Mode		f (GHz)	Antenna Distance (mm)	RF output power		SAR Test Exclusion Threshold	SAR Test Exclusion
				dBm	mW		
2.4G WIFI	IEEE 802.11b	2.5	5	9.0	7.9433	2.5119< 3.0	Yes
	IEEE 802.11g	2.5	5	9.0	7.9433	2.5119< 3.0	Yes
	IEEE 802.11n HT20	2.5	5	9.0	7.9433	2.5119< 3.0	Yes
	IEEE 802.11n HT40	2.5	5	9.0	7.9433	2.5119< 3.0	Yes

<5.2GWIFI>(Ant1)

Band/Mode		f (GHz)	Antenna Distance (mm)	RF output power		SAR Test Exclusion Threshold	SAR Test Exclusion
				dBm	mW		
5.2G WIFI	IEEE 802.11a	5.2	5	7.0	5.0119	2.2858< 3.0	Yes
	IEEE 802.11n20	5.2	5	8.0	6.3096	2.8776< 3.0	Yes
	IEEE 802.11n40	5.2	5	8.0	6.3096	2.8776< 3.0	Yes
	IEEE 802.11ac20	5.2	5	7.0	5.0119	2.2858< 3.0	Yes
	IEEE 802.11ac40	5.2	5	8.0	6.3096	2.8776< 3.0	Yes
	IEEE 802.11ac80	5.2	5	7.0	5.0119	2.2858< 3.0	Yes

<5.3GWIFI>(Ant1)

Band/Mode		f (GHz)	Antenna Distance (mm)	RF output power		SAR Test Exclusion Threshold	SAR Test Exclusion
				dBm	mW		
5.3G WIFI	IEEE 802.11a	5.3	5	8.0	6.3096	2.9051< 3.0	Yes
	IEEE 802.11n20	5.3	5	7.0	5.0119	2.3076< 3.0	Yes
	IEEE 802.11n40	5.3	5	7.0	5.0119	2.3076< 3.0	Yes
	IEEE 802.11ac20	5.3	5	7.0	5.0119	2.3076< 3.0	Yes
	IEEE 802.11ac40	5.3	5	7.0	5.0119	2.3076< 3.0	Yes
	IEEE 802.11ac80	5.3	5	8.0	6.3096	2.9051< 3.0	Yes



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

Scan code to check authenticity



<5.5GWIFI>(Ant1)

Band/Mode		f (GHz)	Antenna Distance (mm)	RF output power		SAR Test Exclusion Threshold	SAR Test Exclusion
				dBm	mW		
5.5G WIFI	IEEE 802.11a	5.5	5	7.0	5.0119	2.3508< 3.0	Yes
	IEEE 802.11n20	5.5	5	7.0	5.0119	2.3508< 3.0	Yes
	IEEE 802.11n40	5.5	5	8.0	6.3096	2.9595< 3.0	Yes
	IEEE 802.11ac20	5.5	5	7.0	5.0119	2.3508< 3.0	Yes
	IEEE 802.11ac40	5.5	5	7.0	5.0119	2.3508< 3.0	Yes
	IEEE 802.11ac80	5.5	5	8.0	6.3096	2.9595< 3.0	Yes

<5.8GWIFI>(Ant1)

Band/Mode		f (GHz)	Antenna Distance (mm)	RF output power		SAR Test Exclusion Threshold	SAR Test Exclusion
				dBm	mW		
5.8G WIFI	IEEE 802.11a	5.8	5	7.0	5.0119	2.4140< 3.0	Yes
	IEEE 802.11n20	5.8	5	7.0	5.0119	2.4140< 3.0	Yes
	IEEE 802.11n40	5.8	5	7.0	5.0119	2.4140< 3.0	Yes
	IEEE 802.11ac20	5.8	5	7.0	5.0119	2.4140< 3.0	Yes
	IEEE 802.11ac40	5.8	5	7.0	5.0119	2.4140< 3.0	Yes
	IEEE 802.11ac80	5.8	5	7.0	5.0119	2.4140< 3.0	Yes



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

Scan code to check authenticity



8.2 Simultaneous Transmission MPE

The sample support one BT antenna and two WLAN antenna, they supports difference antenna, need consider simultaneous transmission;

$$\sum \text{of (the highest measured or estimated SARant0+SARant1+ SARant2)}/1.6 = (0.3946+0.3946+0.0841)/1.6 = 0.55 < 1.0;$$

9. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 v06.

-----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

Scan code to check authenticity