

FCC Report (WIFI)

Product Name : IEEE 802.11a/b/g/n/ac(2T2R) USB WLAN and BT Module
Trade mark : LB-LINK
Model No. : BL-R8822BU1-A
FCC ID : 2AL6K-R8822BU1-A
Report Number : BLA-EMC-201910-A52-01
Date of sample receipt : October 31, 2019
Date of Test : October 31, 2019 –November 15, 2019
Date of Issue : November 18, 2019
Test standard : FCC CFR Title 47 Part 15 Subpart C Section 15.247
Test result : PASS

Prepared for:

Shenzhen Bilian Electronic Co., Ltd
Building B1, Zhongxing Industrial Zone, Juling, Jutang Community,
Guanlan street, Longhua New District, Shenzhen, Guangdong,
P.R. China

Prepared by:

BlueAsia of Technical Services(Shenzhen) Co., Ltd.
IOT Test Centre of BlueAsia
No. 448 Bulong Road, Bantian Street, Longgang District, Shenzhen,
China
TEL: +86-755-28682673
FAX: +86-755-28682673

Compiled by:

Bason

Review by:

Sweet. Wang

Approved by:

Emen - li

Date: November 18, 2019



2 Version

Version No.	Date	Description
00	November 18, 2019	Original

BlueAsia



3 Contents

	Page
1 COVER PAGE	1
2 VERSION	2
3 CONTENTS	3
4 TEST SUMMARY	4
5 GENERAL INFORMATION	5
5.1 GENERAL DESCRIPTION OF EUT	5
5.2 TEST MODE	7
5.3 DESCRIPTION OF SUPPORT UNITS	7
5.4 TEST FACILITY	7
5.5 TEST LOCATION	7
6 TEST INSTRUMENTS LIST	8
7 TEST RESULTS AND MEASUREMENT DATA	10
7.1 ANTENNA REQUIREMENT	10
7.2 CONDUCTED EMISSION	11
7.3 CONDUCTED PEAK OUTPUT POWER	15
7.4 CHANNEL BANDWIDTH	16
7.5 POWER SPECTRAL DENSITY	21
7.6 BAND EDGES	31
7.6.1 Conducted Emission Method	31
7.6.2 Radiated Emission Method	36
7.7 SPURIOUS EMISSION	43
7.7.1 Conducted Emission Method	43
7.7.2 Radiated Emission Method	52
8 TEST SETUP PHOTO	69
9 EUT CONSTRUCTIONAL DETAILS	71



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 4 of 73

4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(3)	Pass
Channel Bandwidth	15.247 (a)(2)	Pass
Power Spectral Density	15.247 (e)	Pass
Band Edge	15.247(d)	Pass
Spurious Emission	15.205/15.209	Pass

Remark: Test according to ANSI C63.10:2013.

Pass: The EUT complies with the essential requirements in the standard.

N/A: Not applicable.

Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz ~ 30MHz	± 4.34dB	(1)
Radiated Emission	30MHz ~ 1000MHz	± 4.24dB	(1)
Radiated Emission	1GHz ~ 26.5GHz	± 4.68dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	± 3.45dB	(1)

Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 5 of 73

5 General Information

5.1 General Description of EUT

Product Name:	IEEE 802.11a/b/g/n/ac(2T2R) USB WLAN and BT Module
Model No.:	BL-R8822BU1-A
Serial No.:	N/A
Sample(s) Status	Engineer sample
Operation Frequency:	2412MHz~2462MHz (802.11b/802.11g/802.11n(H20)) 2422MHz~2452MHz (802.11n(H40))
Channel numbers:	802.11b/802.11g /802.11n(HT20): 11; 802.11n(H40): 7
Channel separation:	5MHz
Modulation technology:	802.11b: Direct Sequence Spread Spectrum (DSSS) 802.11g/802.11n(H20)/ 802.11n(H40) Orthogonal Frequency Division Multiplexing (OFDM)
Data speed (IEEE 802.11b):	1Mbps, 2Mbps, 5.5Mbps, 11Mbps
Data speed (IEEE 802.11g):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps
Data speed (IEEE 802.11n):	Up to 300 Mbps
Antenna Type:	External Antenna
Antenna gain:	2.0dBi(declare by applicant)
Power supply:	DC 3.3V

Note:

Antenna number : 2

SISO mode: 802.11b/802.11g

MIMO mode: 802.11n(H20) /802.11n(H40)

Directional gain of MIMO mode : $2+10\log_2=5.01\text{dBi}$



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 6 of 73

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Test channel	Frequency (MHz)
	802.11b/802.11g/802.11n(HT20)
Lowest channel	2412MHz
Middle channel	2437MHz
Highest channel	2462MHz
Test channel	802.11n(HT40)
Lowest channel	2422MHz
Middle channel	2437MHz
Highest channel	2452MHz



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 7 of 73

5.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode
<i>Remark: During the test, the dutycycle >98%, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.</i>	

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:										
Pre-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.										
<table border="1"><tr><td>Mode</td><td>802.11b</td><td>802.11g</td><td>802.11n(HT20)</td><td>802.11n(HT40)</td></tr><tr><td>Data rate</td><td>1Mbps</td><td>6Mbps</td><td>6.5Mbps</td><td>13.5Mbps</td></tr></table>	Mode	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)	Data rate	1Mbps	6Mbps	6.5Mbps	13.5Mbps
Mode	802.11b	802.11g	802.11n(HT20)	802.11n(HT40)						
Data rate	1Mbps	6Mbps	6.5Mbps	13.5Mbps						

5.3 Description of Support Units

Manufacturer	Description	Model	Serial Number
DELL	MONITOR	S2817Q	N/A
DELL	KEYBOARD	KB216d	05HDWJ
Lenovo	MOUSE	SM-8823	SM50L24506
DELL	PC	Vostro3668	B070NR2
Lenovo	Notebook computer	E470C	PF-10FB5C

5.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations: • FCC — Designation No.: CN1252 Qianhai BlueAsia of Technical Services(Shenzhen) Co., Ltd has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Designation CN1252. • ISED — CAB identifier No.: CN0028 Qianhai BlueAsia of Technical Services(Shenzhen) Co., Ltd has been registered by Certification and Engineering Bureau of ISED for radio equipment testing with CAB identifier CN0028

5.5 Test Location

All tests were performed at: All tests were performed at: BlueAsia of Technical Services(Shenzhen) Co., Ltd. IOT Test Centre of BlueAsia No. 448 Bulong Road, Bantian Street, Longgang District, Shenzhen, China Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673 No tests were sub-contracted.



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 8 of 73

6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m SAC	SKET	9m*6m*6m	966	06-10-2018	06-09-2023
2	Broadband Antenna	SCHWARZBECK	VULB9168	00836 P:00227	07-14-2019	07-13-2020
3	Horn Antenna	SCHWARZBECK	9120D	01892 P:00331	07-14-2019	07-13-2020
4	EMI Test Software	EZ	EZ	N/A	N/A	N/A
5	Pre-amplifier	SKET	N/A	N/A	07-19-2019	07-18-2020
6	Spectrum analyzer	Rohde & Schwarz	FSP40	100817	05-24-2019	05-23-2020
7	EMI Test Receiver	Rohde & Schwarz	ESR7	101199	03-21-2019	03-20-2020
8	Controller	SKET	N/A	N/A	N/A	N/A
9	Vector Signal Generator	Agilent	E4438C	MY4509258 2	05-24-2019	05-23-2020
10	Signal Generator	Agilent	E8257D	MY4432025 0	05-24-2019	05-23-2020
11	Coaxial Cable	BlueAsia	BLA-XC-02	N/A	N/A	N/A
12	Coaxial Cable	BlueAsia	BLA-XC-03	N/A	N/A	N/A
13	Coaxial Cable	BlueAsia	BLA-XC-01	N/A	N/A	N/A

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	EMI Test Receiver	Rohde & Schwarz	ESPI3	101082	06-10-2019	06-09-2020
2	LISN	CHASE	MN2050D	1447	12-18-2018	12-17-2019
3	LISN	Rohde & Schwarz	ENV216	3560.6550.15	07-19-2019	07-18-2020
4	EMI Test Software	EZ	EZ	N/A	N/A	N/A
5	Temperature Humidity Chamber	Mingle	TH101B	N/A	07-19-2019	07-18-2020
6	Coaxial Cable	BlueAsia	BLA-XC-05	N/A	N/A	N/A

RF Conducted Test:						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Spectrum Analyzer	Agilent	N9030A	MY50510123	05-24-2019	05-23-2020
2	Spectrum analyzer	Rohde & Schwarz	FSP40	100817	05-24-2019	05-23-2020
3	Vector Signal Generator	Agilent	E4438C	MY45092582	05-24-2019	05-23-2020
4	Signal Generator	Agilent	E8257D	MY44320250	05-24-2019	05-23-2020
5	Power Sensor	D.A.R.E	RPR3006W	17I00015SNO 27	05-24-2019	05-23-2020
6	Power Sensor	D.A.R.E	RPR3006W	17I00015SNO 28	05-24-2019	05-23-2020
7	DC Power Supply	LODESTAR	LP305DE	N/A	07-19-2019	07-18-2020
8	Temperature Humidity Chamber	Mingle	TH101B	N/A	07-19-2019	07-18-2020



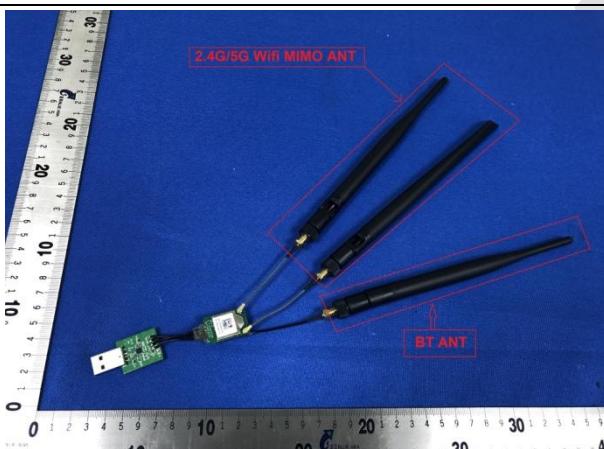
蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 10 of 73

7 Test results and Measurement Data

7.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203 /247(c)
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
15.247(c) (1)(i) requirement: (i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.	
EUT Antenna:	
<i>The antenna is External Antenna, the best case gain of the antenna is 2.0dBi</i>	
 A photograph of the EUT (Equipment Under Test) showing a green PCB with a white USB connector and two black antennas. A red dashed box highlights the antennas. Labels indicate "2.4G/5G WiFi MIMO ANT" and "BT ANT". A metric ruler is visible at the bottom.	 A photograph showing three black antennas standing upright next to a metric ruler. The ruler shows markings from 0 to 10 cm.



7.2 Conducted Emission

Test Requirement:	FCC Part15 C Section 15.207		
Test Method:	ANSI C63.10: 2013		
Test Frequency Range:	150kHz to 30MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9kHz, VBW=30kHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
	* Decreases with the logarithm of the frequency.		
Test procedure	<ol style="list-style-type: none"> The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement. 		
Test setup:	<p>Reference Plane</p> <p>LISN → AUX Equipment → E.U.T</p> <p>LISN → Filter → AC power → EMI Receiver</p> <p>Test table/Insulation plane</p> <p>Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>		
Test Instruments:	Refer to section 6.0 for details		
Test mode:	Refer to section 5.2 for details		
Test results:	Pass		



蓝亚 BLUE ASIA

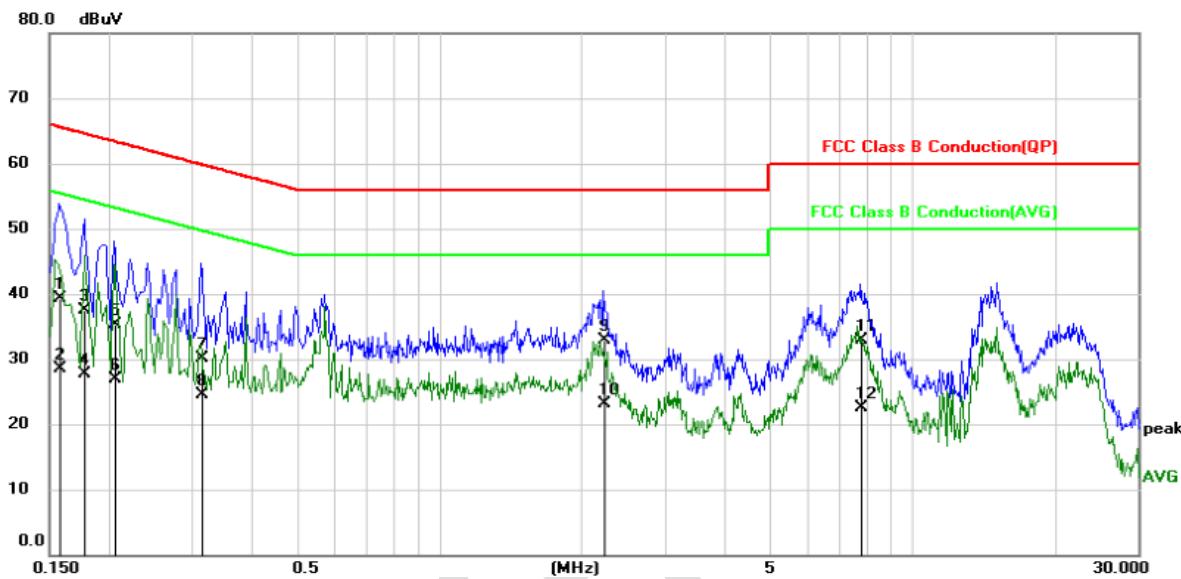
Report No. : BLA-EMC-201910-A52-01

Page 12 of 73

Measurement data

Line:

EUT:	IEEE 802.11a/b/g/n/ac(2T2R) USB WLAN and BT Module	Probe:	L1
Model:	BL-R8822BU1-A	Power Source:	AC120V/60Hz
Mode:	Wifi mode	Test by:	Eason
Temp./Hum.(%H):	26°C/60%RH		



No.	Mk.	Freq.	Reading	Correct Factor	Measure- ment	Limit	Over	
			Level					
		MHz	dBuV	dB	dBuV	dB	Detector	
1		0.1580	29.35	9.89	39.24	65.57	-26.33	QP
2		0.1580	18.59	9.89	28.48	55.57	-27.09	AVG
3		0.1780	27.63	9.89	37.52	64.58	-27.06	QP
4		0.1780	17.77	9.89	27.66	54.58	-26.92	AVG
5		0.2060	25.51	9.88	35.39	63.37	-27.98	QP
6		0.2060	17.01	9.88	26.89	53.37	-26.48	AVG
7		0.3140	20.27	9.78	30.05	59.86	-29.81	QP
8		0.3140	14.63	9.78	24.41	49.86	-25.45	AVG
9		2.2340	23.02	9.82	32.84	56.00	-23.16	QP
10 *		2.2340	13.37	9.82	23.19	46.00	-22.81	AVG
11		7.8100	22.98	9.87	32.85	60.00	-27.15	QP
12		7.8100	12.62	9.87	22.49	50.00	-27.51	AVG



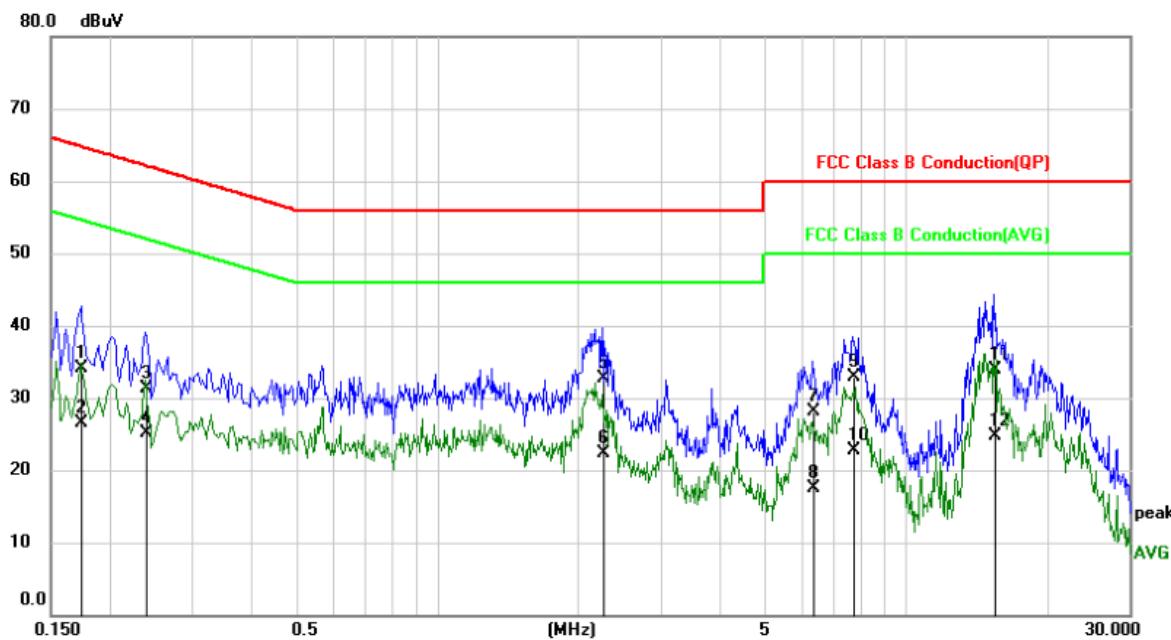
蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 13 of 73

Neutral:

EUT:	IEEE 802.11a/b/g/n/ac(2T2R) USB WLAN and BT Module	Probe:	N
Model:	BL-R8822BU1-A	Power Source:	AC120V/60Hz
Mode:	Wifi mode	Test by:	Eason
Temp./Hum.(%H):	26°C/60%RH		



No.	Mk.	Freq. MHz	Reading	Correct	Measure-	Limit	Over	Detector
			Level dBuV	Factor dB	ment dBuV			
1		0.1740	24.28	9.87	34.15	64.77	-30.62	QP
2		0.1740	16.60	9.87	26.47	54.77	-28.30	AVG
3		0.2380	21.38	9.85	31.23	62.17	-30.94	QP
4		0.2380	15.28	9.85	25.13	52.17	-27.04	AVG
5 *		2.2580	22.76	9.86	32.62	56.00	-23.38	QP
6		2.2580	12.51	9.86	22.37	46.00	-23.63	AVG
7		6.3220	18.29	9.86	28.15	60.00	-31.85	QP
8		6.3220	7.62	9.86	17.48	50.00	-32.52	AVG
9		7.7060	23.08	9.86	32.94	60.00	-27.06	QP
10		7.7060	12.76	9.86	22.62	50.00	-27.38	AVG
11		15.4260	23.84	10.01	33.85	60.00	-26.15	QP
12		15.4260	14.79	10.01	24.80	50.00	-25.20	AVG

Notes:

- An initial pre-scan was performed on the line and neutral lines with peak detector.

BlueAsia of Technical Services(Shenzhen) Co., Ltd.

IOT Test Centre of BlueAsia,

No. 448 Bulong Road, Bantian Street, Longgang District, Shenzhen, China

Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673

Report No. : BLA-EMC-201910-A52-01

Page 14 of 73

2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.

3. *Final Level = Receiver Read level + Correct factor*

4. *Correct factor = LISN Factor + Cable Loss*

If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

BlueAsia

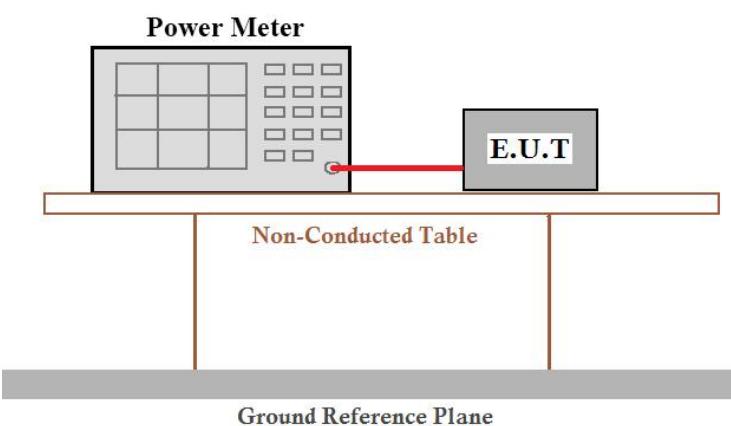


蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 15 of 73

7.3 Conducted Peak Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	KDB558074 D01 DTS Meas Guidance V05
Limit:	30dBm
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data

Test Mode	Frequency MHz	Power of ANT1 dBm	Power of ANT2 dBm	Total Power dBm	Limit dBm
802.11b	2412	12.95	14.55	N/A	30
	2437	15.62	14.22	N/A	30
	2462	14.41	13.93	N/A	30
802.11g	2412	14.41	14.25	N/A	30
	2437	15.94	16.01	N/A	30
	2462	16.42	14.78	N/A	30
802.11n (HT20) MIMO	2412	10.52	10.29	13.42	30
	2437	9.91	9.84	12.89	30
	2462	9.52	9.54	12.54	30
802.11n (HT40) MIMO	2422	10.52	11.16	13.86	30
	2437	10.28	10.63	13.47	30
	2452	10.06	10.45	13.27	30

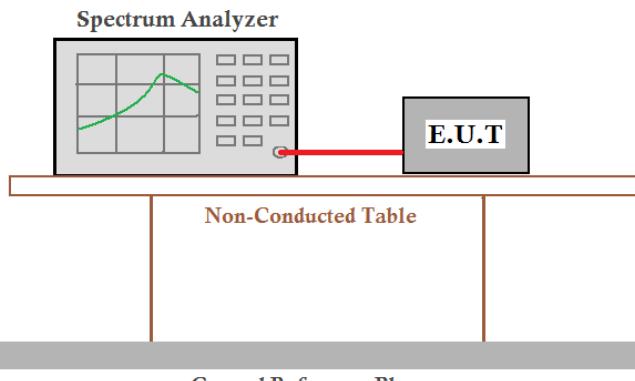


蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 16 of 73

7.4 Channel Bandwidth

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	KDB558074 D01 DTS Meas Guidance V05
Limit:	>500KHz
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data

Test CH ANT1	6dB Emission Bandwidth (MHz)				Limit(kHz)	Result
	802.11b	802.11g	802.11n(H20)	802.11n(H40)		
Lowest	9.52	16.48	17.36	36.32	>500	Pass
Middle	9.92	16.32	17.36	36.32		
Highest	10.08	16.48	17.28	36.32		

Remark:

During the test, found the ANT1 port, which it is worse case.



蓝亚 BLUE ASIA

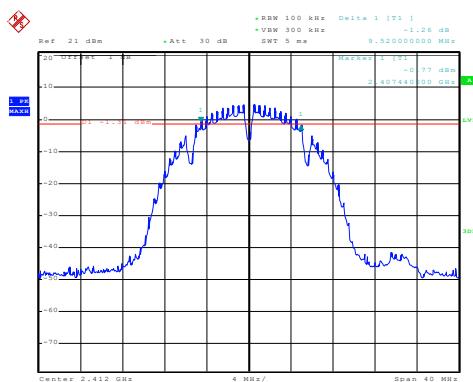
Report No. : BLA-EMC-201910-A52-01

Page 17 of 73

Test plot as follows:

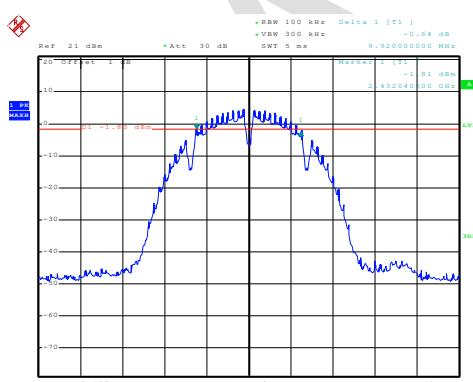
Test mode:802.11b

6dBEBW



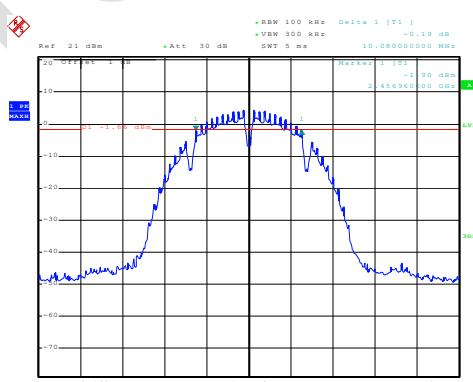
Date: 8.NOV.2019 17:23:07

Lowest channel



Date: 8.NOV.2019 17:24:57

Middle channel



Date: 8.NOV.2019 17:27:24

Highest channel



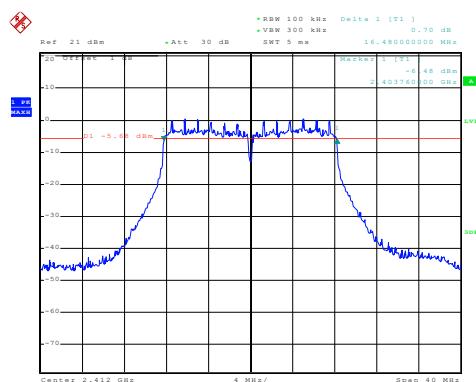
蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 18 of 73

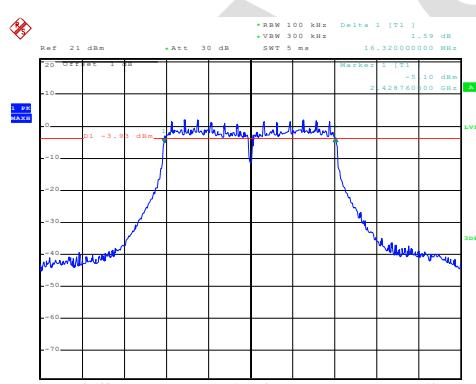
Test mode:802.11g

6dBEBW



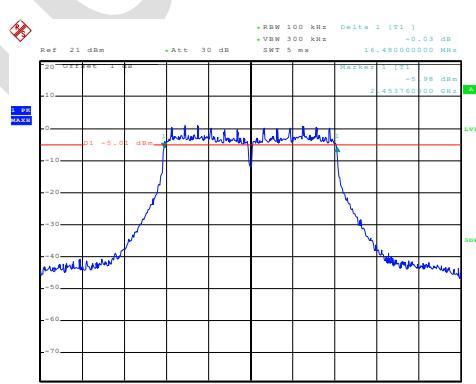
Date: 8.NOV.2019 17:21:36

Lowest channel



Date: 8.NOV.2019 17:20:38

Middle channel



Date: 8.NOV.2019 17:19:40

Highest channel



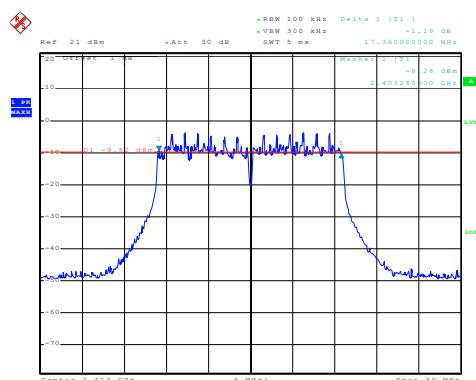
蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 19 of 73

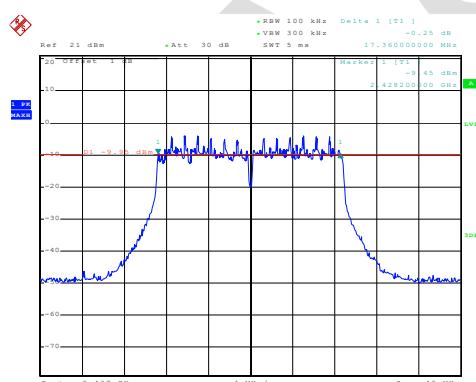
Test mode:802.11n(HT20)

6dBEBW



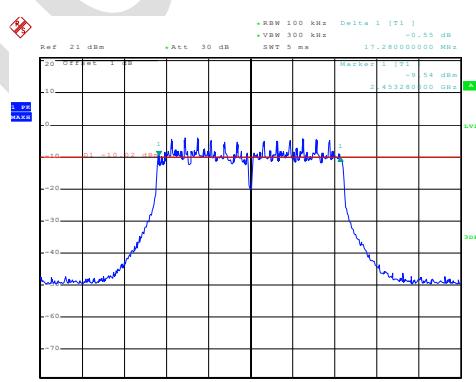
Date: 8.NOV.2019 17:15:49

Lowest channel



Date: 8.NOV.2019 17:16:42

Middle channel



Date: 8.NOV.2019 17:17:44

Highest channel



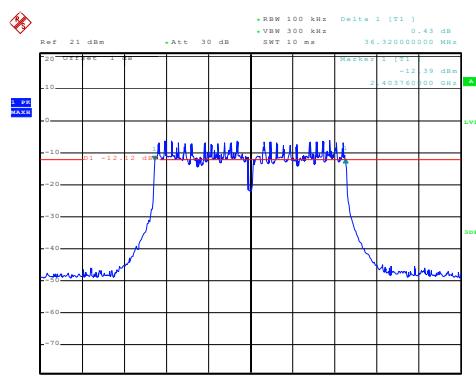
蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 20 of 73

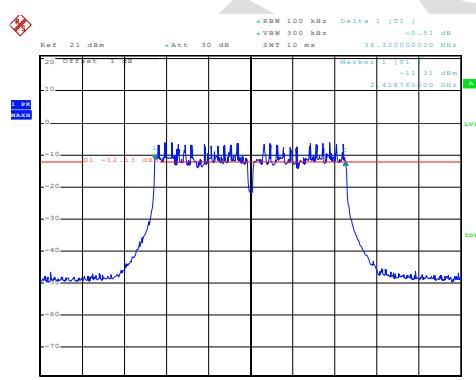
Test mode:802.11n(HT40)

6dBEBW



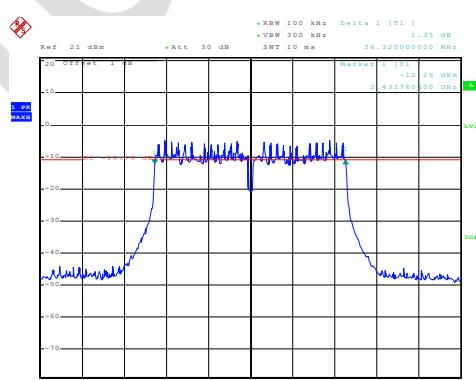
Date: 8.NOV.2019 17:14:28

Lowest channel



Date: 8.NOV.2019 17:12:32

Middle channel



Date: 8.NOV.2019 17:11:17

Highest channel

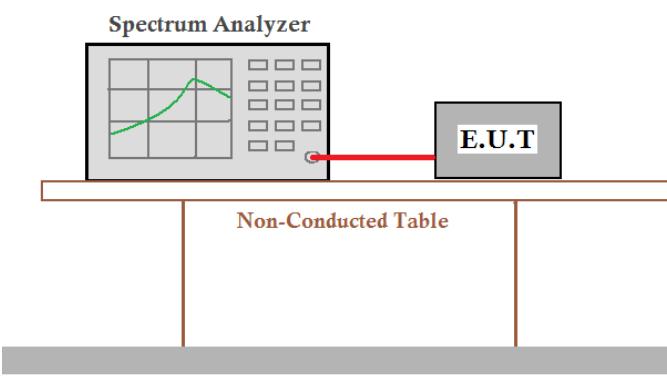


蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 21 of 73

7.5 Power Spectral Density

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	KDB558074 D01 DTS Meas Guidance V05
Limit:	8dBm/3KHz
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is positioned at the top left, displaying a green waveform on its screen. A red cable connects it to a grey rectangular box labeled 'E.U.T'. This 'E.U.T' box rests on a light-colored rectangular platform labeled 'Non-Conducted Table'. Below the table is a dark grey horizontal bar labeled 'Ground Reference Plane'.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data

Test Mode	Test Channel MHz	Power Spectral Density dBm			Limit dBm/3kHz
		ANT 1	ANT 2	Total	
802.11b	2412	-9.37	-8.90	N/A	8
	2437	-9.25	-9.76	N/A	8
	2462	-9.26	-9.14	N/A	8
802.11g	2412	-13.63	-12.72	N/A	8
	2437	-11.74	-11.35	N/A	8
	2462	-12.71	-12.39	N/A	8
802.11n HT20MIMO	2412	-16.48	-16.59	-13.52	8
	2437	-16.76	-16.84	-13.79	8
	2462	-16.76	-17.08	-13.91	8
802.11n HT40MIMO	2422	-18.89	-18.47	-15.66	8
	2437	-19.57	-18.23	-15.84	8



Report No. : BLA-EMC-201910-A52-01

Page 22 of 73

	2452	-20.21	-18.62	-16.33	8
--	------	--------	--------	--------	---

BlueAsia



蓝亚 BLUE ASIA

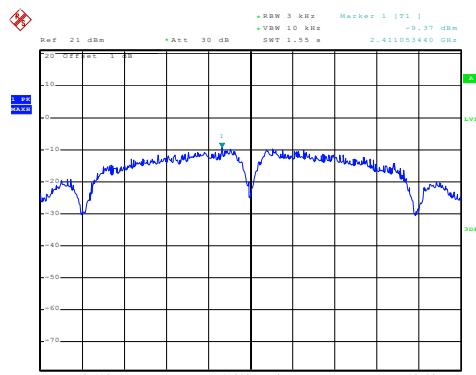
Report No. : BLA-EMC-201910-A52-01

Page 23 of 73

Test plot as follows:

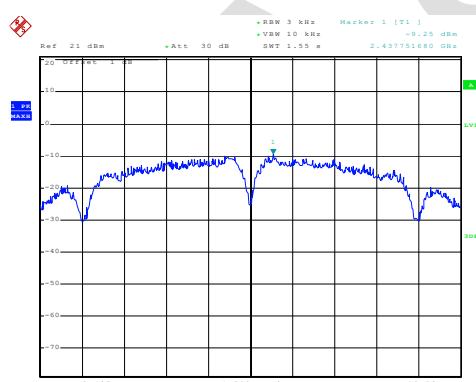
ANT1:

Test mode:	802.11b
------------	---------



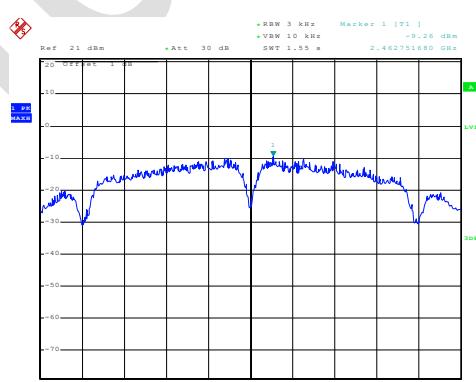
Date: 8.NOV.2019 12:17:29

Lowest channel



Date: 8.NOV.2019 12:21:17

Middle channel



Date: 8.NOV.2019 12:21:53

Highest channel



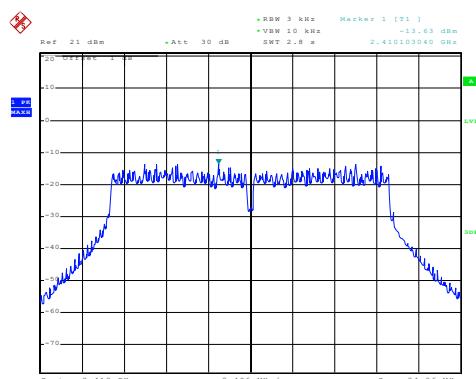
蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 24 of 73

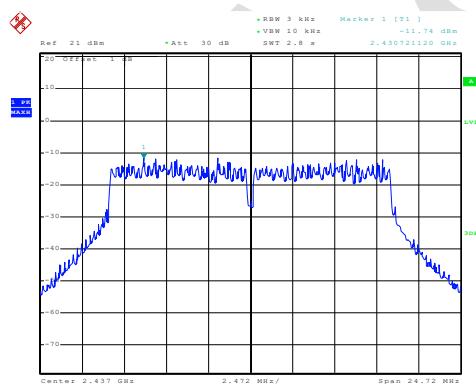
Test mode:

802.11g



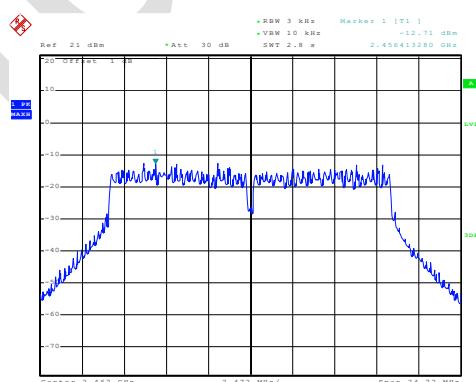
Date: 8.NOV.2019 12:13:30

Lowest channel



Date: 8.NOV.2019 12:15:12

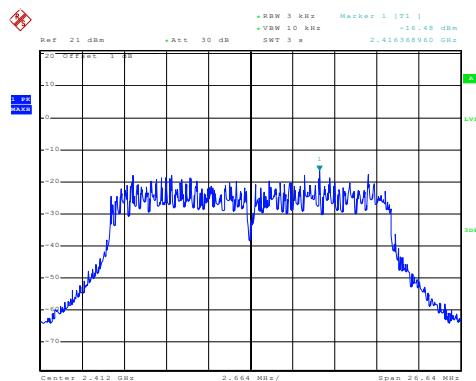
Middle channel



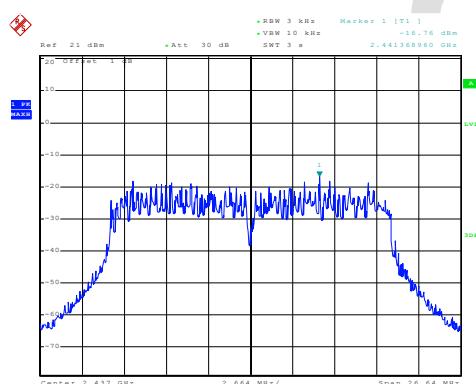
Date: 8.NOV.2019 12:16:01

Highest channel

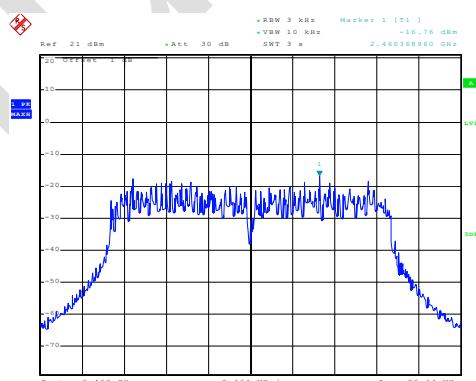
Test mode:	802.11n(HT20)
------------	---------------



Date: 8.NOV.2019 12:09:07
Lowest channel



Date: 8.NOV.2019 12:09:53
Middle channel



Date: 8.NOV.2019 12:11:40
Highest channel

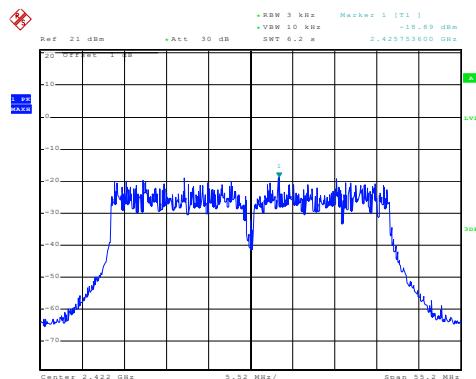


蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

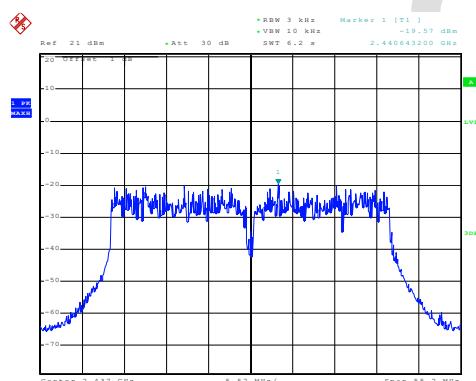
Page 26 of 73

Test mode:	802.11n(HT40)
------------	---------------



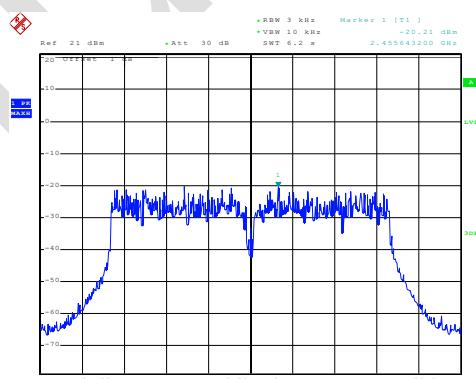
Date: 8.NOV.2019 12:05:13

Lowest channel



Date: 8.NOV.2019 12:06:43

Middle channel



Date: 8.NOV.2019 12:07:35

Highest channel



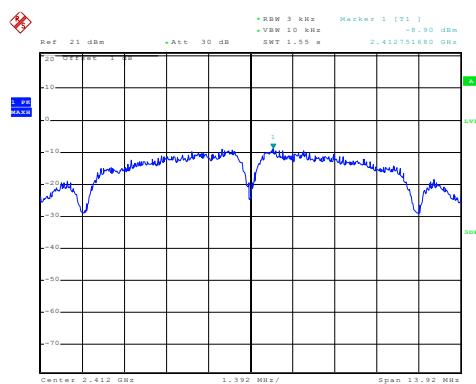
蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 27 of 73

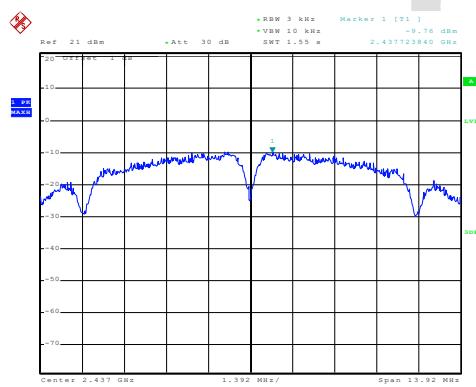
ANT2:

Test mode:	802.11b
------------	---------



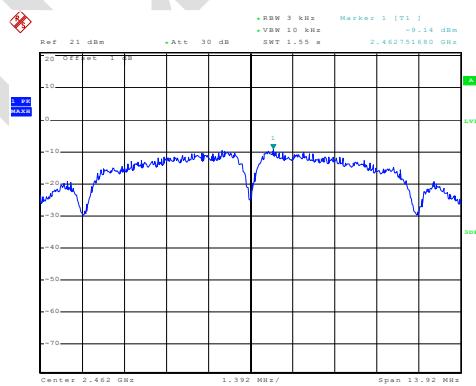
Date: 8.NOV.2019 11:12:46

Lowest channel



Date: 8.NOV.2019 11:14:10

Middle channel



Date: 8.NOV.2019 11:17:28

Highest channel



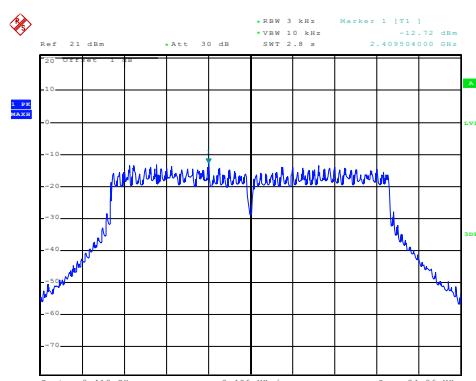
蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 28 of 73

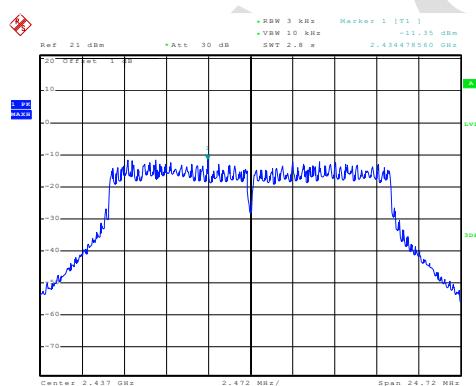
Test mode:

802.11g



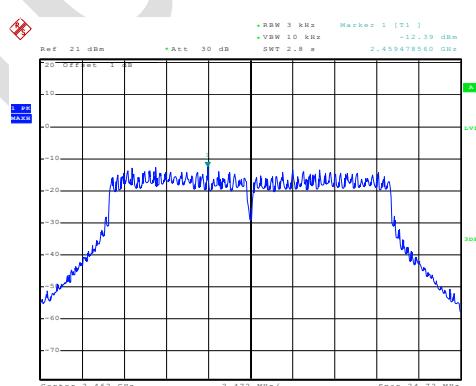
Date: 8.NOV.2019 11:33:58

Lowest channel



Date: 8.NOV.2019 11:36:22

Middle channel



Date: 8.NOV.2019 11:37:23

Highest channel

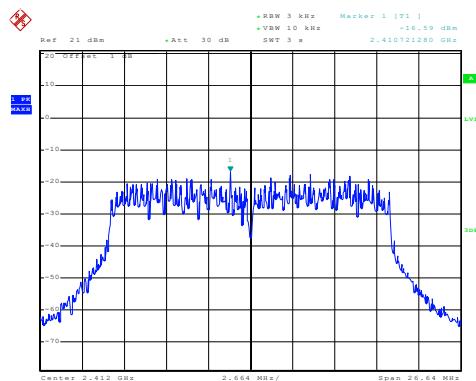


蓝亚 BLUE ASIA

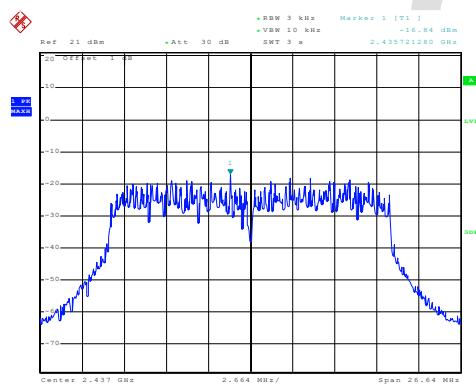
Report No. : BLA-EMC-201910-A52-01

Page 29 of 73

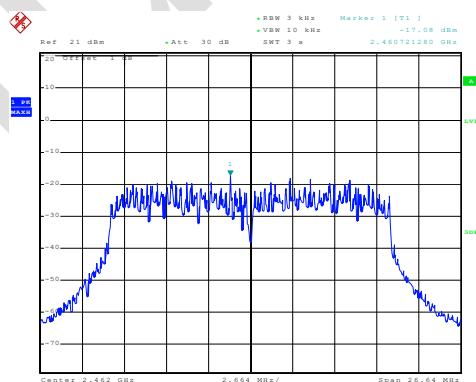
Test mode:	802.11n(HT20)
------------	---------------



Date: 8.NOV.2019 11:39:17
Lowest channel



Date: 8.NOV.2019 11:41:04
Middle channel



Date: 8.NOV.2019 11:43:34
Highest channel

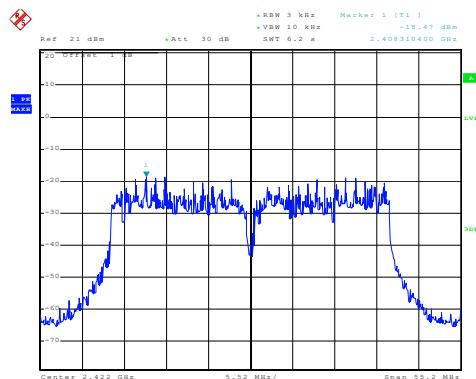


蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

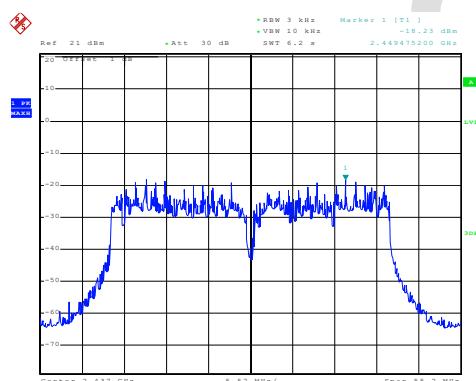
Page 30 of 73

Test mode:	802.11n(HT40)
------------	---------------



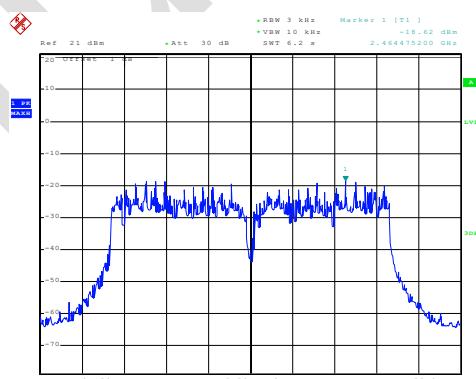
Date: 8.NOV.2019 11:45:29

Lowest channel



Date: 8.NOV.2019 11:48:35

Middle channel

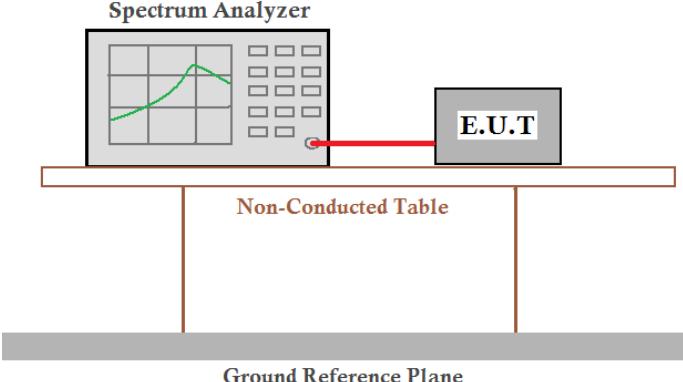


Date: 8.NOV.2019 11:58:35

Highest channel

7.6 Band edges

7.6.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074 D01 DTS Meas Guidance V05
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	<p style="text-align: center;">Spectrum Analyzer</p>  <p style="text-align: center;">Non-Conducted Table</p> <p style="text-align: center;">Ground Reference Plane</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass



蓝亚 BLUE ASIA

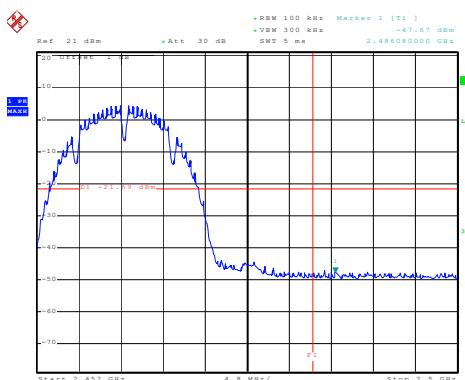
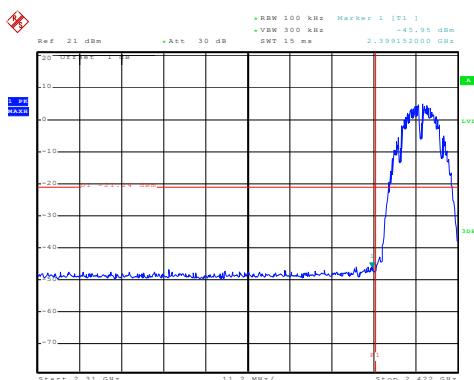
Report No. : BLA-EMC-201910-A52-01

Page 32 of 73

Test plot as follows:

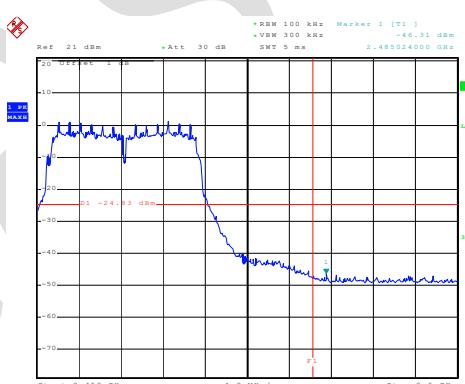
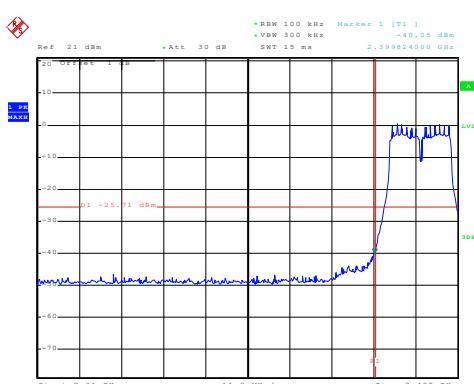
ANT1:

Test mode:	802.11b
------------	---------



Lowest channel	Highest channel
----------------	-----------------

Test mode:	802.11g
------------	---------



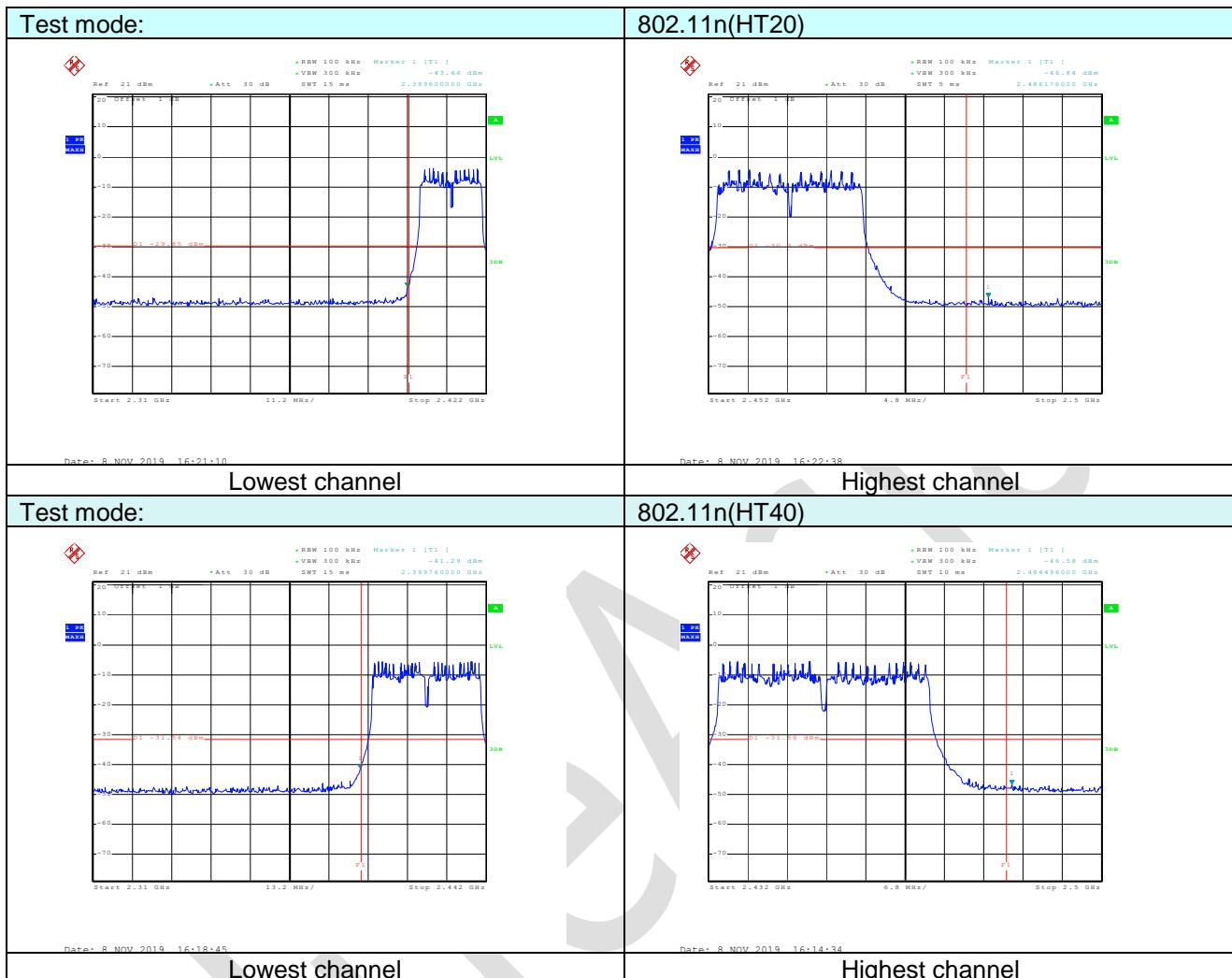
Date: 8.NOV.2019 16:25:48 Lowest channel Date: 8.NOV.2019 16:24:25 Highest channel



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 33 of 73





蓝亚 BLUE ASIA

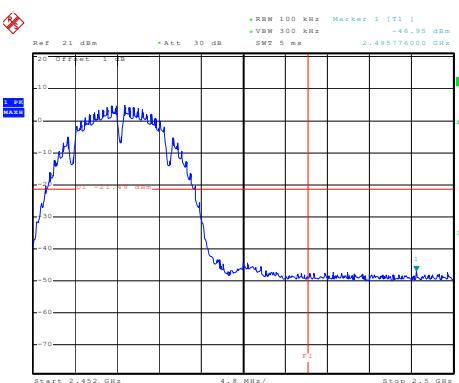
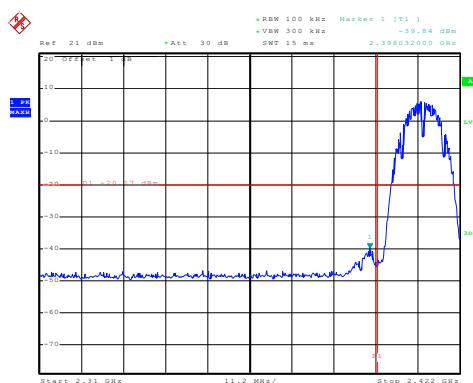
Report No. : BLA-EMC-201910-A52-01

ANT2:

Page 34 of 73

Test mode:

802.11b



Date: 8 NOV 2019 15:55:36

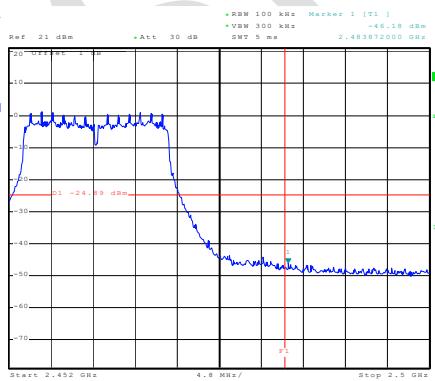
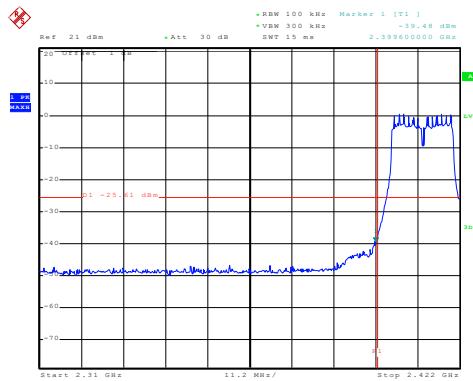
Lowest channel

Date: 8 NOV 2019 15:57:33

Highest channel

Test mode:

802.11g



Date: 8 NOV 2019 15:59:50

Lowest channel

Date: 8 NOV 2019 16:01:33

Highest channel

BlueAsia of Technical Services(Shenzhen) Co., Ltd.

IOT Test Centre of BlueAsia,

No. 448 Bulong Road, Bantian Street, Longgang District, Shenzhen, China

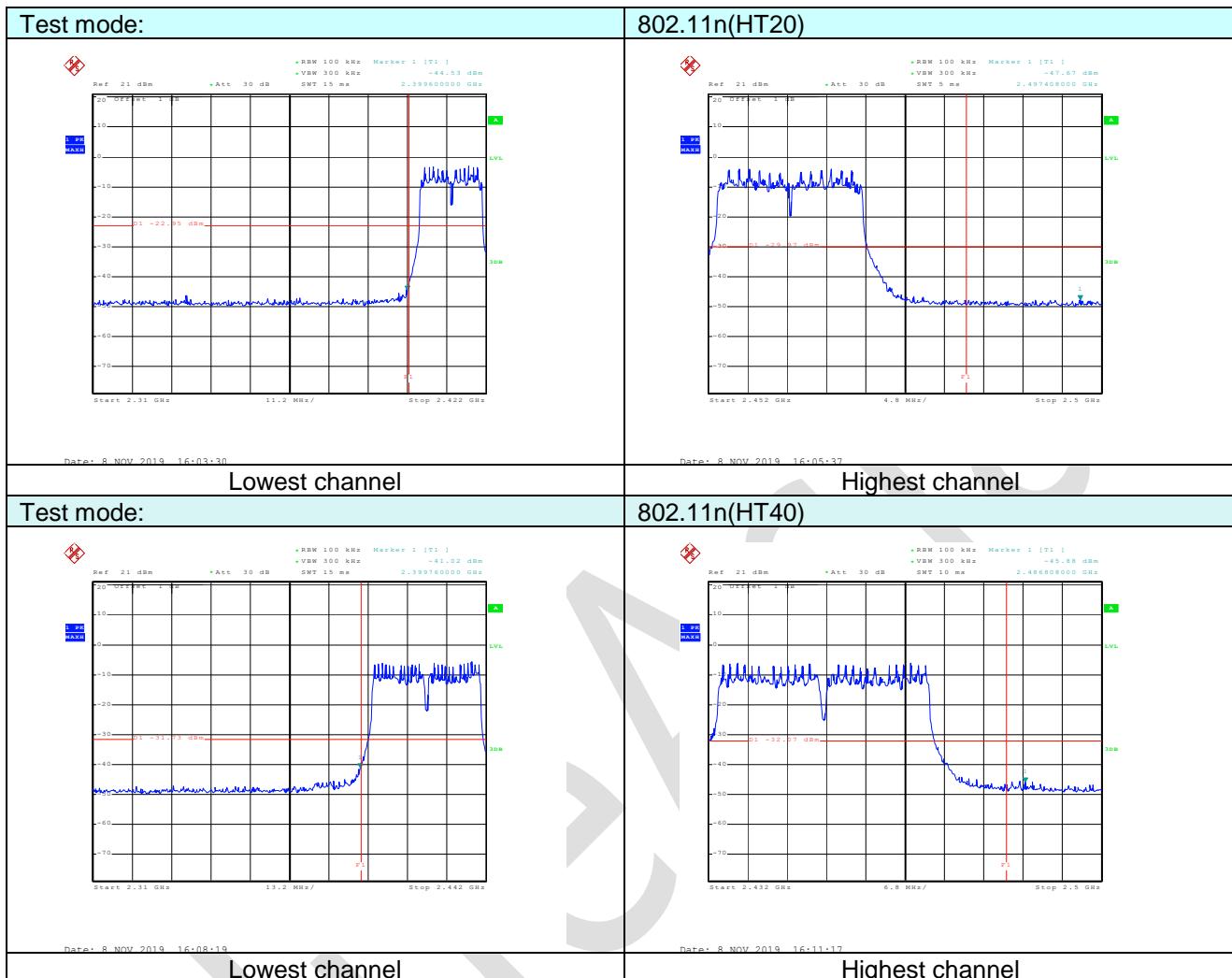
Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 35 of 73





7.6.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205								
Test Method:	ANSI C63.10:2013								
Test Frequency Range:	All of the restrict bands were tested, only the worst band's (2310MHz to 2390MHz, 2483.5MHz to 2500MHz) data was showed.								
Test site:	Measurement Distance: 3m								
Receiver setup:	Frequency	Detector	RBW	VBW	Value				
	Above 1GHz	Peak	1MHz	3MHz	Peak				
		RMS	1MHz	3MHz	Average				
Limit:	Frequency	Limit (dBuV/m @3m)		Value					
	Above 1GHz	54.00		Average					
		74.00		Peak					
Test setup:									
Test Procedure:	<ol style="list-style-type: none"> The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. The radiation measurements are performed in X, Y, Z axis positioning. And found the Y axis positioning which it is worse case, only the test worst case mode is recorded in the report. 								
Test Instruments:	Refer to section 6.0 for details								
Test mode:	Refer to section 5.2 for details								



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 37 of 73

Test results:	Pass
---------------	------

Measurement data:

Remark: The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.

ANT1:

Test mode:	802.11b	Test channel:	Lowest
------------	---------	---------------	--------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2310.00	55.34	-14.42	40.92	74.00	-33.08	Horizontal
2390.00	58.42	-14.11	44.31	74.00	-29.69	Horizontal
2310.00	55.97	-14.71	41.26	74.00	-32.74	Vertical
2390.00	60.48	-14.44	46.04	74.00	-27.96	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2310.00	43.39	-14.42	28.97	54.00	-25.03	Horizontal
2390.00	44.57	-14.11	30.46	54.00	-23.54	Horizontal
2310.00	44.58	-14.71	29.87	54.00	-24.13	Vertical
2390.00	47.88	-14.44	33.44	54.00	-20.56	Vertical

Test channel:	Highest
---------------	---------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	56.21	-13.61	42.60	74.00	-31.40	Horizontal
2500.00	56.14	-13.53	42.61	74.00	-31.39	Horizontal
2483.50	57.37	-14.00	43.37	74.00	-30.63	Vertical
2500.00	56.22	-13.93	42.29	74.00	-31.71	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	44.46	-13.61	30.85	54.00	-23.15	Horizontal
2500.00	44.57	-13.53	31.04	54.00	-22.96	Horizontal
2483.50	45.52	-14.00	31.52	54.00	-22.48	Vertical
2500.00	44.89	-13.93	30.96	54.00	-23.04	Vertical

Remark:

- Final Level = Receiver Read level + Correct factor
- The emission levels of other frequencies are very lower than the limit and not show in test report.
- Correct factor= Antenna Factor + Cable Loss – Preamplifier Factor

BlueAsia of Technical Services(Shenzhen) Co., Ltd.

IOT Test Centre of BlueAsia,

No. 448 Bulong Road, Bantian Street, Longgang District, Shenzhen, China

Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 38 of 73

Test mode:	802.11g	Test channel:	Lowest
------------	---------	---------------	--------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2310.00	55.25	-14.42	40.83	74.00	-33.17	Horizontal
2390.00	71.64	-14.11	57.53	74.00	-16.47	Horizontal
2310.00	56.60	-14.71	41.89	74.00	-32.11	Vertical
2390.00	58.89	-14.44	44.45	74.00	-29.55	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2310.00	41.44	-14.42	27.02	54.00	-26.98	Horizontal
2390.00	55.22	-14.11	41.11	54.00	-12.89	Horizontal
2310.00	42.05	-14.71	27.34	54.00	-26.66	Vertical
2390.00	44.72	-14.44	30.28	54.00	-23.72	Vertical

Test mode:	802.11g	Test channel:	Highest
------------	---------	---------------	---------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	59.49	-14.00	45.49	74.00	-28.51	Horizontal
2500.00	56.74	-13.93	42.81	74.00	-31.19	Horizontal
2483.50	70.60	-14.00	56.60	74.00	-17.40	Vertical
2500.00	56.57	-13.93	42.64	74.00	-31.36	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	42.55	-14.00	28.55	54.00	-25.45	Horizontal
2500.00	41.40	-13.93	27.47	54.00	-26.53	Horizontal
2483.50	53.55	-14.00	39.55	54.00	-14.45	Vertical
2500.00	44.61	-13.93	30.68	54.00	-23.32	Vertical

Remark:

1. Final Level = Receiver Read level + Correct factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.
3. Correct factor= Antenna Factor + Cable Loss – Preamplifier Factor



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 39 of 73

ANT2:

Test mode:	802.11b	Test channel:	Lowest
------------	---------	---------------	--------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2310.00	54.26	-14.42	39.84	74.00	-34.16	Horizontal
2390.00	57.34	-14.11	43.23	74.00	-30.77	Horizontal
2310.00	56.59	-14.71	41.88	74.00	-32.12	Vertical
2390.00	59.47	-14.44	45.03	74.00	-28.97	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2310.00	44.23	-14.42	29.81	54.00	-24.19	Horizontal
2390.00	45.16	-14.11	31.05	54.00	-22.95	Horizontal
2310.00	44.73	-14.71	30.02	54.00	-23.98	Vertical
2390.00	47.81	-14.44	33.37	54.00	-20.63	Vertical

Test channel:	Highest
---------------	---------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	57.03	-13.61	43.42	74.00	-30.58	Horizontal
2500.00	56.85	-13.53	43.32	74.00	-30.68	Horizontal
2483.50	57.44	-14.00	43.44	74.00	-30.56	Vertical
2500.00	57.91	-13.93	43.98	74.00	-30.02	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	45.53	-13.61	31.92	54.00	-22.08	Horizontal
2500.00	44.78	-13.53	31.25	54.00	-22.75	Horizontal
2483.50	45.34	-14.00	31.34	54.00	-22.66	Vertical
2500.00	44.63	-13.93	30.70	54.00	-23.30	Vertical

Remark:

1. Final Level = Receiver Read level + Correct factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.
3. Correct factor= Antenna Factor + Cable Loss – Preamplifier Factor



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 40 of 73

Test mode:	802.11g	Test channel:	Lowest
------------	---------	---------------	--------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2310.00	55.38	-14.42	40.96	74.00	-33.04	Horizontal
2390.00	70.54	-14.11	56.43	74.00	-17.57	Horizontal
2310.00	57.16	-14.71	42.45	74.00	-31.55	Vertical
2390.00	59.36	-14.44	44.92	74.00	-29.08	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2310.00	43.64	-14.42	29.22	54.00	-24.78	Horizontal
2390.00	54.28	-14.11	40.17	54.00	-13.83	Horizontal
2310.00	43.69	-14.71	28.98	54.00	-25.02	Vertical
2390.00	45.14	-14.44	30.70	54.00	-23.30	Vertical

Test mode:	802.11g	Test channel:	Highest
------------	---------	---------------	---------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	60.01	-14.00	46.01	74.00	-27.99	Horizontal
2500.00	57.14	-13.93	43.21	74.00	-30.79	Horizontal
2483.50	69.63	-14.00	55.63	74.00	-18.37	Vertical
2500.00	57.24	-13.93	43.31	74.00	-30.69	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	43.37	-14.00	29.37	54.00	-24.63	Horizontal
2500.00	42.25	-13.93	28.32	54.00	-25.68	Horizontal
2483.50	52.25	-14.00	38.25	54.00	-15.75	Vertical
2500.00	45.50	-13.93	31.57	54.00	-22.43	Vertical

Remark:

1. Final Level = Receiver Read level + Correct factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.
3. Correct factor= Antenna Factor + Cable Loss – Preamplifier Factor



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 41 of 73

MIMO:

Test mode:	802.11n(HT20)	Test channel:	Lowest
------------	---------------	---------------	--------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2310.00	55.47	-14.42	41.05	74.00	-32.95	Horizontal
2390.00	71.14	-14.11	57.03	74.00	-16.97	Horizontal
2310.00	56.70	-14.71	41.99	74.00	-32.01	Vertical
2390.00	62.17	-14.44	47.73	74.00	-26.27	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2310.00	41.75	-14.42	27.33	54.00	-26.67	Horizontal
2390.00	56.10	-14.11	41.99	54.00	-12.01	Horizontal
2310.00	42.40	-14.71	27.69	54.00	-26.31	Vertical
2390.00	44.62	-14.44	30.18	54.00	-23.82	Vertical

Test mode:	802.11n(HT20)	Test channel:	Highest
------------	---------------	---------------	---------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	69.05	-13.61	55.44	74.00	-18.56	Horizontal
2500.00	56.50	-13.53	42.97	74.00	-31.03	Horizontal
2483.50	56.60	-14.00	42.60	74.00	-31.40	Vertical
2500.00	56.89	-13.93	42.96	74.00	-31.04	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	55.94	-13.61	42.33	54.00	-11.67	Horizontal
2500.00	44.40	-13.53	30.87	54.00	-23.13	Horizontal
2483.50	43.84	-14.00	29.84	54.00	-24.16	Vertical
2500.00	43.98	-13.93	30.05	54.00	-23.95	Vertical

Remark:

1. Final Level = Receiver Read level + Correct factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.
3. Correct factor= Antenna Factor + Cable Loss – Preamplifier Factor

BlueAsia of Technical Services(Shenzhen) Co., Ltd.

IOT Test Centre of BlueAsia,

No. 448 Bulong Road, Bantian Street, Longgang District, Shenzhen, China

Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 42 of 73

MIMO:

Test mode:	802.11n(HT40)	Test channel:	Lowest
------------	---------------	---------------	--------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2310.00	58.96	-14.42	44.54	74.00	-29.46	Horizontal
2390.00	83.22	-14.11	69.11	74.00	-4.89	Horizontal
2310.00	58.73	-14.71	44.02	74.00	-29.98	Vertical
2390.00	69.55	-14.44	55.11	74.00	-18.89	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2310.00	43.82	-14.42	29.40	54.00	-24.60	Horizontal
2390.00	62.79	-14.11	48.68	54.00	-5.32	Horizontal
2310.00	43.65	-14.71	28.94	54.00	-25.06	Vertical
2390.00	56.81	-14.44	42.37	54.00	-11.63	Vertical

Test mode:	802.11n(HT40)	Test channel:	Highest
------------	---------------	---------------	---------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	75.25	-13.61	61.64	74.00	-12.36	Horizontal
2500.00	67.51	-13.53	53.98	74.00	-20.02	Horizontal
2483.50	60.17	-14.00	46.17	74.00	-27.83	Vertical
2500.00	60.54	-13.93	46.61	74.00	-27.39	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	59.95	-13.61	46.34	54.00	-7.66	Horizontal
2500.00	52.50	-13.53	38.97	54.00	-15.03	Horizontal
2483.50	45.22	-14.00	31.32	54.00	-22.78	Vertical
2500.00	46.57	-13.93	32.64	54.00	-21.36	Vertical

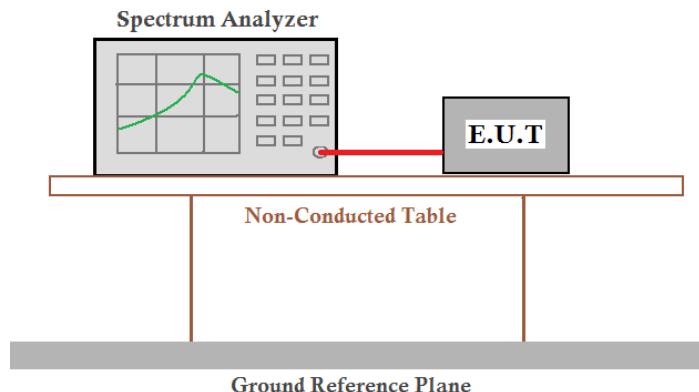
Remark:

1. Final Level = Receiver Read level + Correct factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.
3. Correct factor= Antenna Factor + Cable Loss – Preamplifier Factor



7.7 Spurious Emission

7.7.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074 D01 DTS Meas Guidance V04
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	 <p>The diagram illustrates the test setup for conducted emission testing. A Spectrum Analyzer is connected to the E.U.T (Equipment Under Test) via a cable. The E.U.T is placed on a Non-Conducted Table. The entire assembly sits on a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 44 of 73

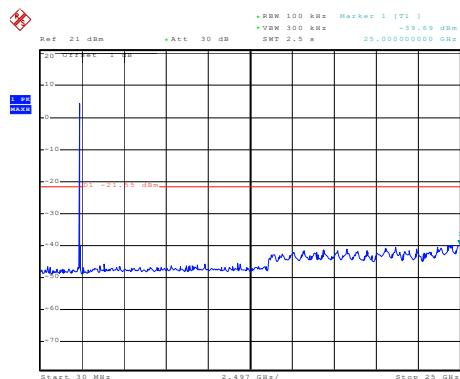
Test plot as follows:

ANT1:

Test mode:

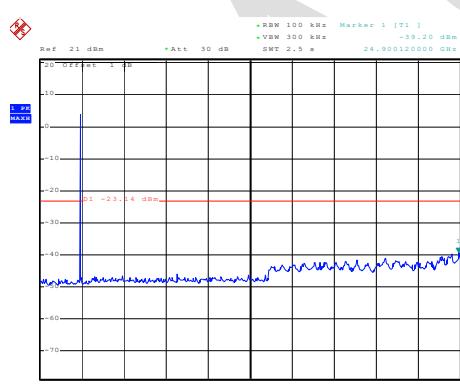
802.11b

Lowest channel



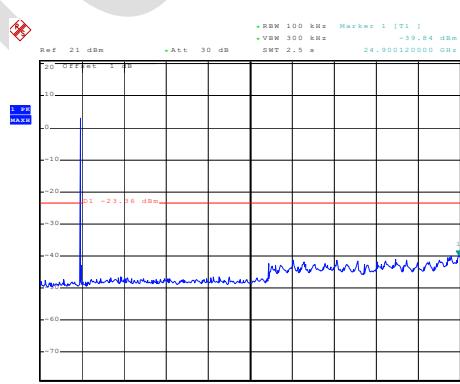
Date: 8.NOV.2019 14:29:17
30MHz~25GHz

Middle channel



Date: 8.NOV.2019 14:32:08
30MHz~25GHz

Highest channel



Date: 8.NOV.2019 14:34:04
30MHz~25GHz



蓝亚 BLUE ASIA

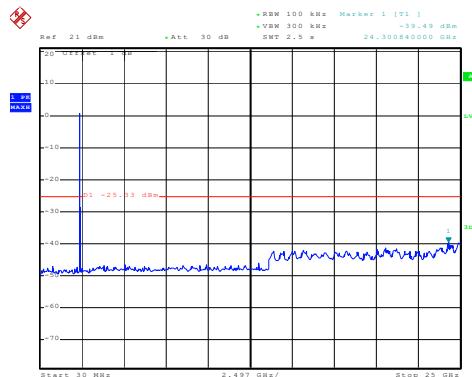
Report No. : BLA-EMC-201910-A52-01

Page 45 of 73

Test mode:

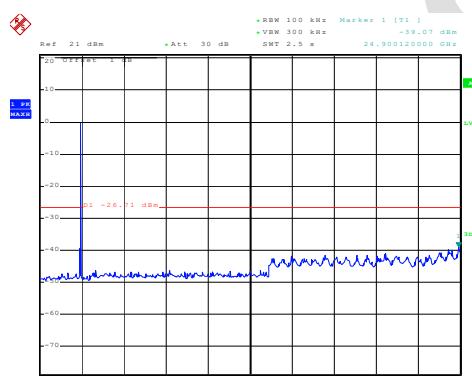
802.11g

Lowest channel



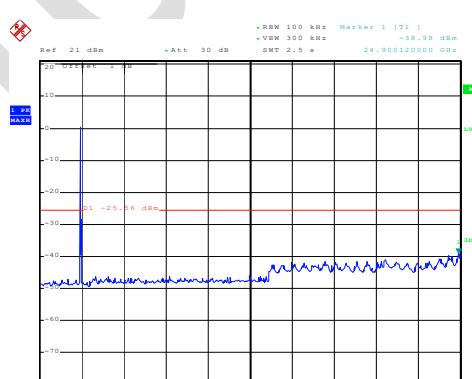
Date: 8.NOV.2019 15:07:00
30MHz~25GHz

Middle channel



Date: 8.NOV.2019 15:09:22
30MHz~25GHz

Highest channel



Date: 8.NOV.2019 15:10:14
30MHz~25GHz



蓝亚 BLUE ASIA

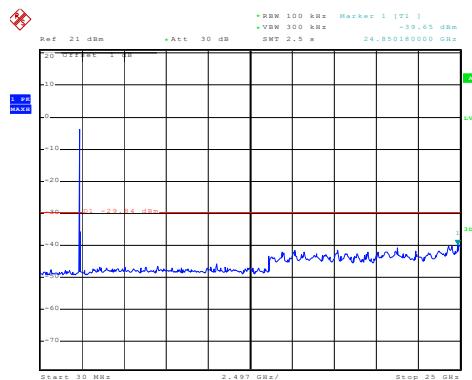
Report No. : BLA-EMC-201910-A52-01

Page 46 of 73

Test mode:

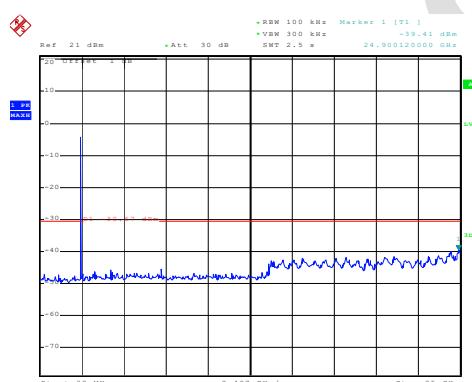
802.11n(HT20)

Lowest channel



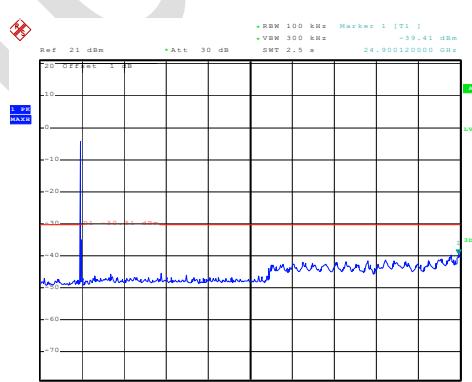
Date: 8.NOV.2019 15:12:57
30MHz~25GHz

Middle channel



Date: 8.NOV.2019 15:17:00
30MHz~25GHz

Highest channel



Date: 8.NOV.2019 15:17:53
30MHz~25GHz



蓝亚 BLUE ASIA

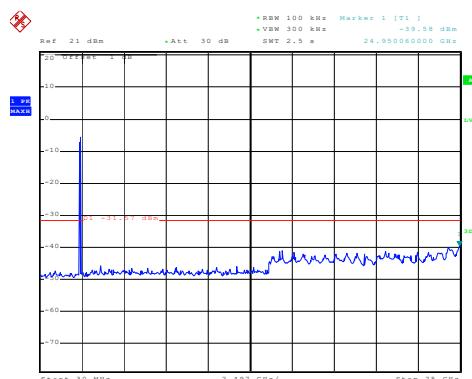
Report No. : BLA-EMC-201910-A52-01

Page 47 of 73

Test mode:

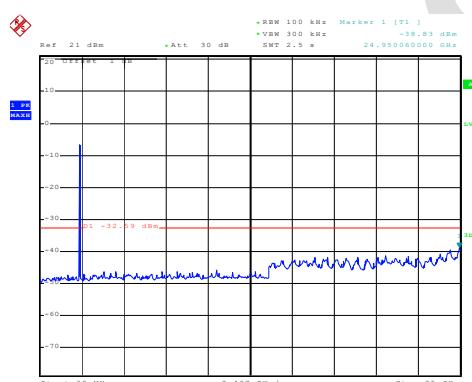
802.11n(HT40)

Lowest channel



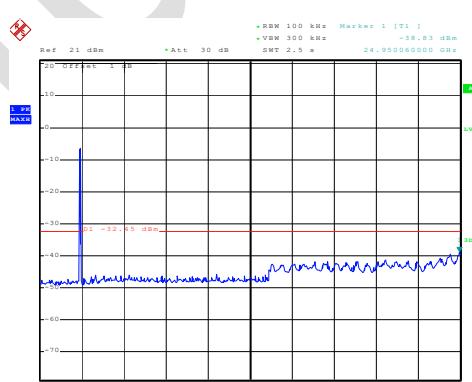
Date: 8.NOV.2019 15:20:25
30MHz~25GHz

Middle channel



Date: 8.NOV.2019 15:22:12
30MHz~25GHz

Highest channel



Date: 8.NOV.2019 15:23:36
30MHz~25GHz



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

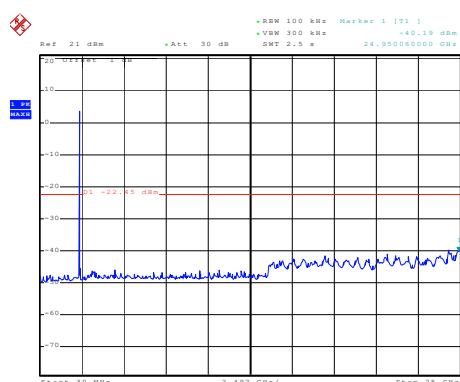
ANT2:

Page 48 of 73

Test mode:

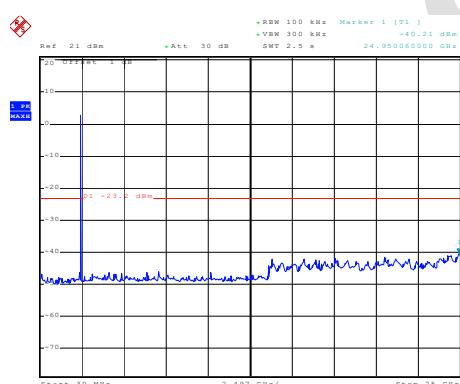
802.11b

Lowest channel



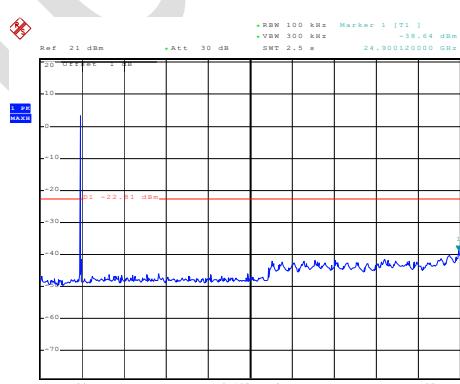
Date: 8.NOV.2019 15:40:11 30MHz~25GHz

Middle channel



Date: 8.NOV.2019 15:41:08 30MHz~25GHz

Highest channel



Date: 8.NOV.2019 15:42:13 30MHz~25GHz



蓝亚 BLUE ASIA

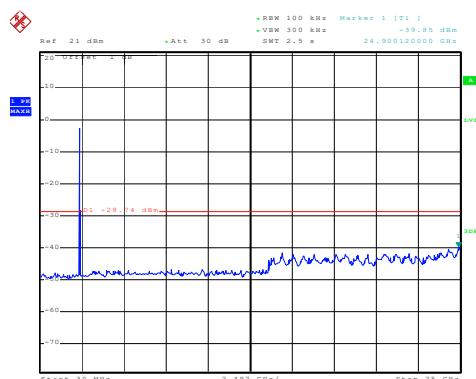
Report No. : BLA-EMC-201910-A52-01

Page 49 of 73

Test mode:

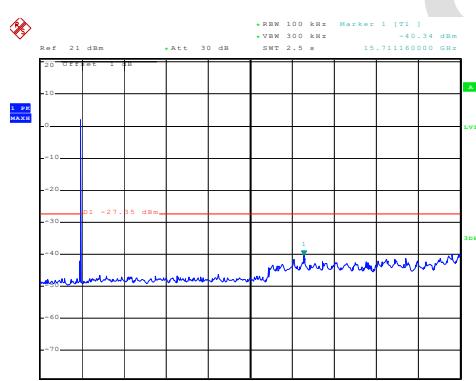
802.11g

Lowest channel



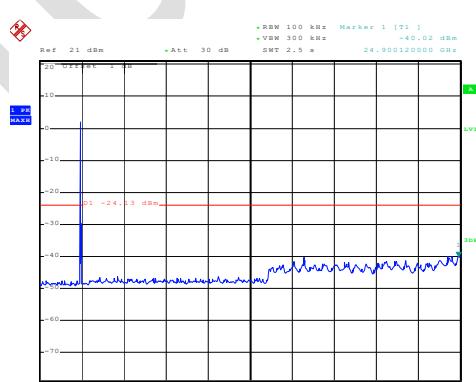
Date: 8.NOV.2019 15:34:56 30MHz~25GHz

Middle channel



Date: 8.NOV.2019 15:37:57 30MHz~25GHz

Highest channel



Date: 8.NOV.2019 15:39:01 30MHz~25GHz



蓝亚 BLUE ASIA

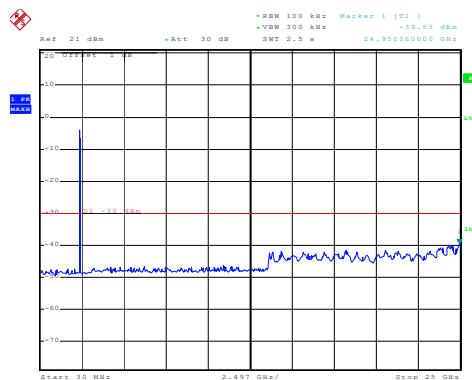
Report No. : BLA-EMC-201910-A52-01

Page 50 of 73

Test mode:

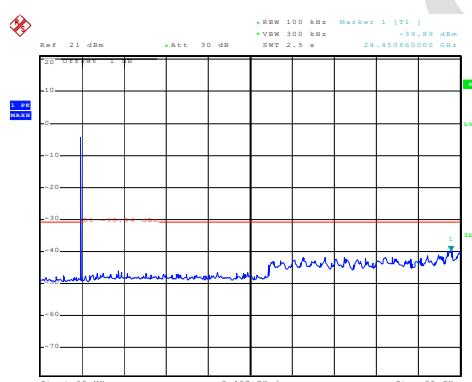
802.11n(HT20)

Lowest channel



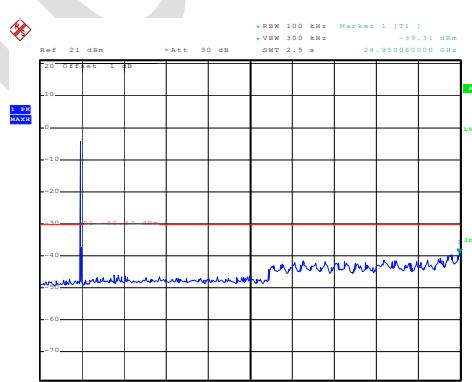
Date: 8.NOV.2019 15:32:06
30MHz~25GHz

Middle channel



Date: 8.NOV.2019 15:33:31
30MHz~25GHz

Highest channel



Date: 8.NOV.2019 15:34:15
30MHz~25GHz



蓝亚 BLUE ASIA

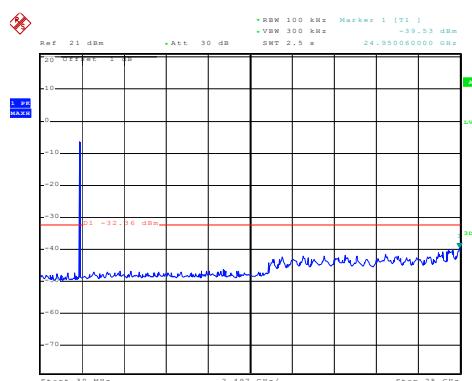
Report No. : BLA-EMC-201910-A52-01

Page 51 of 73

Test mode:

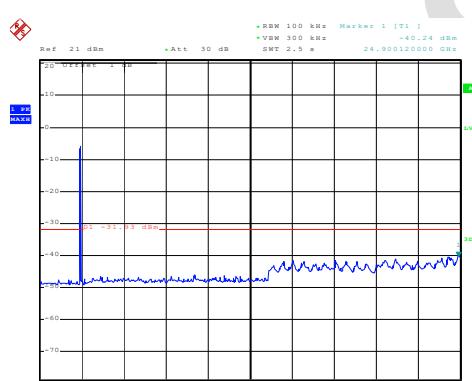
802.11n(HT40)

Lowest channel



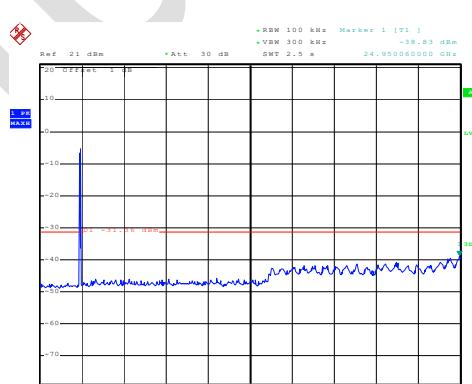
Date: 8.NOV.2019 15:31:02 30MHz~25GHz

Middle channel



Date: 8.NOV.2019 15:29:34 30MHz~25GHz

Highest channel



Date: 8.NOV.2019 15:26:42 30MHz~25GHz



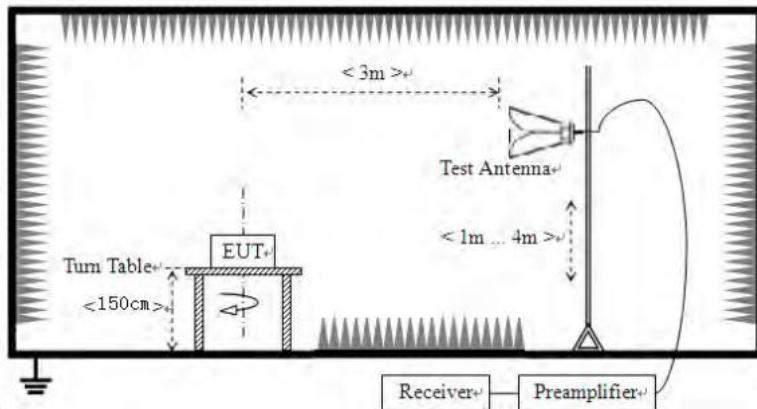
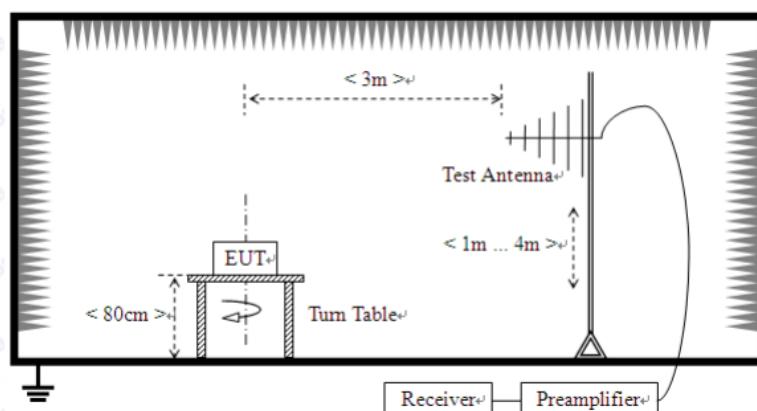
蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 52 of 73

7.7.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209						
Test Method:	ANSI C63.10:2013						
Test Frequency Range:	9kHz to 25GHz						
Test site:	Measurement Distance: 3m						
Receiver setup:	Frequency	Detector	RBW	VBW	Value		
	9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak		
	150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak		
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak		
	Above 1GHz	Peak	1MHz	3MHz	Peak		
		Peak	1MHz	10Hz	Average		
Limit:	Frequency	Limit (uV/m)	Value	Measurement Distance			
	0.009MHz-0.490MHz	2400/F(KHz)	QP	300m			
	0.490MHz-1.705MHz	24000/F(KHz)	QP	30m			
	1.705MHz-30MHz	30	QP	30m			
	30MHz-88MHz	100	QP	3m			
	88MHz-216MHz	150	QP				
	216MHz-960MHz	200	QP				
	960MHz-1GHz	500	QP				
	Above 1GHz	500	Average				
		5000	Peak				
Test setup:	For radiated emissions from 9kHz to 30MHz						
	For radiated emissions from 30MHz to1GHz						

**Test Procedure:**

1. The EUT was placed on the top of a rotating table (0.8m for below 1G and 1.5m for above 1G) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass
Test voltage:	AC120V 60Hz

Remark:

Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

Measurement data:

■ **9kHz~30MHz**

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.



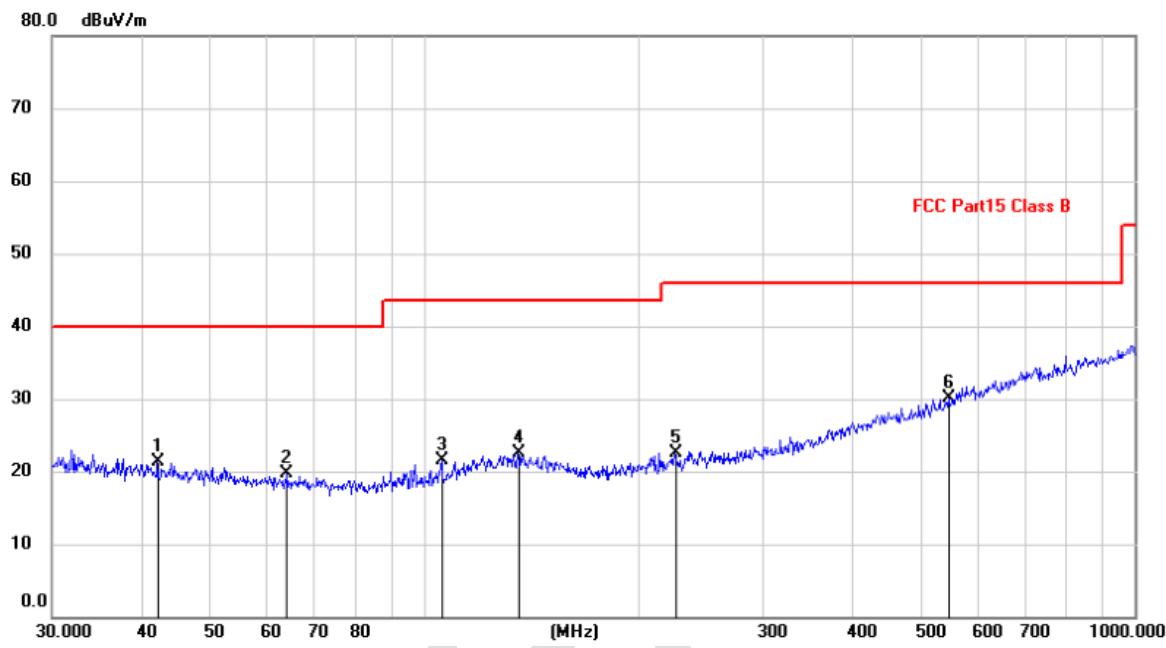
蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 55 of 73

■ Below 1GHz

Mode:	Transmitting mode	Polarization:	Horizontal
Temp./Hum.(%H): 26°C/56%RH			



No.	Mk.	Freq.	Reading	Correct Factor	Measure-ment	Limit	Over	Detector
			Level					
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		42.1542	7.12	14.21	21.33	40.00	-18.67	QP
2		64.2074	7.40	12.34	19.74	40.00	-20.26	QP
3		106.0126	10.37	11.17	21.54	43.50	-21.96	QP
4		135.5062	9.46	13.05	22.51	43.50	-20.99	QP
5		225.3080	10.64	11.83	22.47	46.00	-23.53	QP
6	*	547.0977	10.31	19.89	30.20	46.00	-15.80	QP

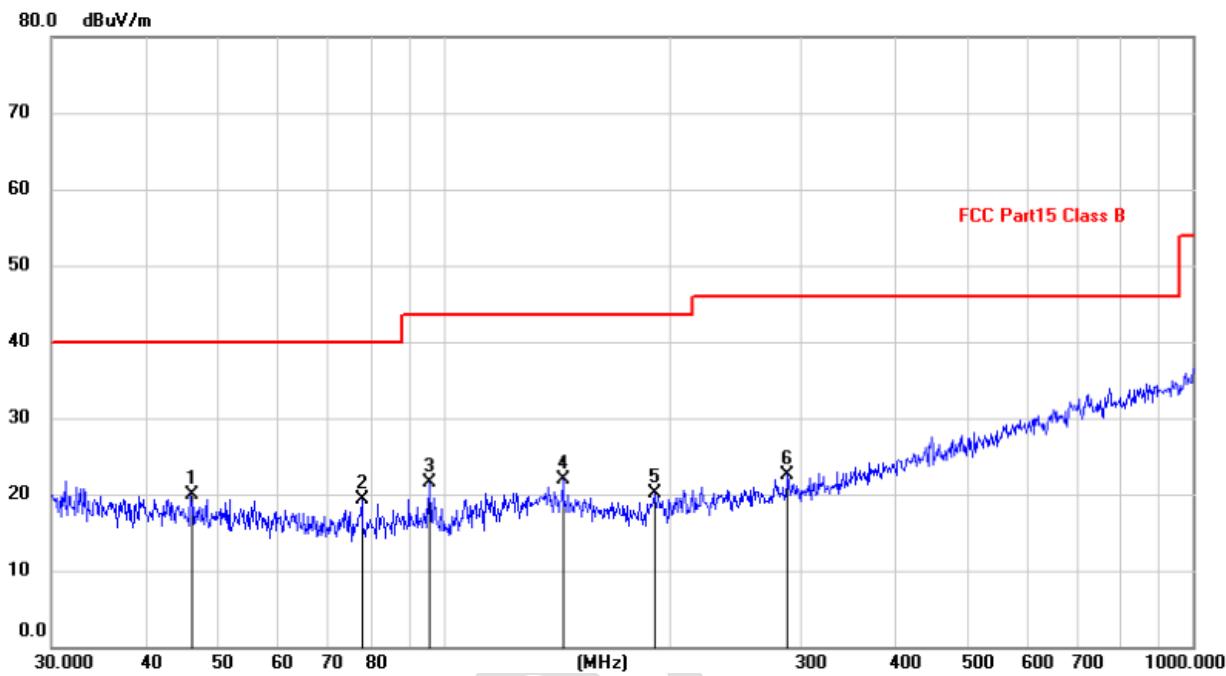


蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 56 of 73

Mode:	Transmitting mode	Polarization:	Vertical
Temp./Hum.(%H):	26°C/56%RH		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Over Detector
1	*	46.0164	5.61	14.29	19.90	40.00	-20.10	QP
2		77.8654	9.96	9.42	19.38	40.00	-20.62	QP
3		95.7622	11.34	10.10	21.44	43.50	-22.06	QP
4		144.3348	8.72	13.16	21.88	43.50	-21.62	QP
5		191.0738	9.71	10.34	20.05	43.50	-23.45	QP
6		287.9904	9.24	13.36	22.60	46.00	-23.40	QP



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 57 of 73

■ Above 1GHz

ANT1:

Test mode:	802.11b	Test channel:	Lowest
------------	---------	---------------	--------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4824.00	60.28	-8.42	51.86	74.00	-22.14	Vertical
7236.00	56.35	-3.23	53.12	74.00	-20.88	Vertical
9648.00	57.02	-3.18	53.84	74.00	-20.16	Vertical
12060.00	*			74.00		Vertical
14472.00	*			74.00		Vertical
4824.00	59.48	-8.42	51.06	74.00	-22.94	Horizontal
7236.00	56.39	-3.23	53.16	74.00	-20.84	Horizontal
9648.00	56.81	-3.18	53.63	74.00	-20.37	Horizontal
12060.00				74.00		Horizontal
14472.00	*			74.00		Horizontal

Test mode:	802.11b	Test channel:	Middle
------------	---------	---------------	--------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	56.15	-9.77	46.38	74.00	-27.62	Vertical
7311.00	56.89	-3.21	53.68	74.00	-20.32	Vertical
9748.00	55.76	-3.17	52.59	74.00	-21.41	Vertical
12185.00	*			74.00		Vertical
14622.00	*			74.00		Vertical
4874.00	56.26	-9.77	46.49	74.00	-27.51	Horizontal
7311.00	56.27	-3.21	53.06	74.00	-20.94	Horizontal
9748.00	56.63	-3.17	53.46	74.00	-20.54	Horizontal
12185.00	*			74.00		Horizontal
14622.00	*			74.00		Horizontal



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 58 of 73

Test mode:	802.11b	Test channel:	Highest
------------	---------	---------------	---------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4924.00	55.71	-10.24	45.47	74.00	-28.53	Vertical
7386.00	56.74	-3.20	53.54	74.00	-20.46	Vertical
9848.00	56.03	-3.16	52.87	74.00	-21.13	Vertical
12310.00	*			74.00		Vertical
14772.00	*			74.00		Vertical
4924.00	56.08	-10.24	45.84	74.00	-28.16	Horizontal
7386.00	57.01	-3.20	53.81	74.00	-20.19	Horizontal
9848.00	56.47	-3.16	53.31	74.00	-20.69	Horizontal
12310.00	*			74.00		Horizontal
14772.00	*			74.00		Horizontal

Remark:

1. Final Level = Receiver Read level + Correct factor
2. “*”, means this data is the too weak instrument of signal is unable to test.
3. Correct factor = Antenna Factor + Cable Loss – Preamplifier Factor
4. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 59 of 73

Test mode:	802.11g	Test channel:	lowest
------------	---------	---------------	--------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4824.00	59.26	-8.42	50.84	74.00	-23.16	Vertical
7236.00	57.12	-3.23	53.89	74.00	-20.11	Vertical
9648.00	56.77	-3.18	53.59	74.00	-20.41	Vertical
12060.00	*			74.00		Vertical
14472.00	*			74.00		Vertical
4824.00	59.69	-8.42	51.27	74.00	-22.73	Horizontal
7236.00	56.81	-3.23	53.58	74.00	-20.42	Horizontal
9648.00	57.03	-3.18	53.85	74.00	-20.15	Horizontal
12060.00	*			74.00		Horizontal
14472.00	*			74.00		Horizontal

Test mode:	802.11g	Test channel:	Middle
------------	---------	---------------	--------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	55.77	-9.77	46.00	74.00	-28.00	Vertical
7311.00	56.71	-3.21	53.50	74.00	-20.50	Vertical
9748.00	55.89	-3.17	52.72	74.00	-21.28	Vertical
12185.00	*			74.00		Vertical
14622.00	*			74.00		Vertical
4874.00	55.75	-9.77	45.98	74.00	-28.02	Horizontal
7311.00	56.25	-3.21	53.04	74.00	-20.96	Horizontal
9748.00	56.08	-3.17	52.91	74.00	-21.09	Horizontal
12185.00	*			74.00		Horizontal
14622.00	*			74.00		Horizontal

Test mode:	802.11g	Test channel:	Highest
------------	---------	---------------	---------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4924.00	55.62	-10.24	45.38	74.00	-28.62	Vertical
7386.00	56.28	-3.20	53.08	74.00	-20.92	Vertical
9848.00	56.03	-3.16	52.87	74.00	-21.13	Vertical
12310.00	*			74.00		Vertical
14772.00	*			74.00		Vertical
4924.00	55.76	-10.24	45.52	74.00	-28.48	Horizontal
7386.00	56.48	-3.20	43.28	74.00	-20.72	Horizontal
9848.00	55.76	-3.16	52.60	74.00	-21.40	Horizontal
12310.00	*			74.00		Horizontal
14772.00	*			74.00		Horizontal

Remark:

1. Final Level = Receiver Read level + Correct factor
2. "", means this data is the too weak instrument of signal is unable to test.
3. Correct factor = Antenna Factor + Cable Loss – Preamplifier Factor
4. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 61 of 73

ANT2:

Test mode:	802.11b	Test channel:	Lowest
------------	---------	---------------	--------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4824.00	59.42	-8.42	51.00	74.00	-23.00	Vertical
7236.00	56.43	-3.23	53.20	74.00	-20.80	Vertical
9648.00	57.00	-3.18	53.82	74.00	-20.18	Vertical
12060.00	*			74.00		Vertical
14472.00	*			74.00		Vertical
4824.00	59.75	-8.42	51.33	74.00	-22.67	Horizontal
7236.00	56.51	-3.23	53.28	74.00	-20.72	Horizontal
9648.00	56.79	-3.18	53.61	74.00	-20.39	Horizontal
12060.00				74.00		Horizontal
14472.00	*			74.00		Horizontal

Test mode:	802.11b	Test channel:	Middle
------------	---------	---------------	--------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	57.23	-9.77	47.46	74.00	-26.54	Vertical
7311.00	56.56	-3.21	53.35	74.00	-20.65	Vertical
9748.00	55.85	-3.17	52.68	74.00	-21.32	Vertical
12185.00	*			74.00		Vertical
14622.00	*			74.00		Vertical
4874.00	56.47	-9.77	46.70	74.00	-27.30	Horizontal
7311.00	56.11	-3.21	52.90	74.00	-21.10	Horizontal
9748.00	56.54	-3.17	53.37	74.00	-20.63	Horizontal
12185.00	*			74.00		Horizontal
14622.00	*			74.00		Horizontal

Test mode:	802.11b	Test channel:	Highest
------------	---------	---------------	---------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4924.00	56.03	-10.24	45.79	74.00	-28.21	Vertical
7386.00	56.52	-3.20	53.32	74.00	-20.68	Vertical
9848.00	56.01	-3.16	52.85	74.00	-21.15	Vertical
12310.00	*			74.00		Vertical
14772.00	*			74.00		Vertical
4924.00	56.47	-10.24	46.23	74.00	-27.77	Horizontal
7386.00	56.68	-3.20	53.48	74.00	-20.52	Horizontal
9848.00	56.24	-3.16	53.08	74.00	-20.92	Horizontal
12310.00	*			74.00		Horizontal
14772.00	*			74.00		Horizontal

Remark:

1. Final Level = Receiver Read level + Correct factor
2. ***, means this data is the too weak instrument of signal is unable to test.
3. Correct factor = Antenna Factor + Cable Loss – Preamplifier Factor
4. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 63 of 73

Test mode:	802.11g	Test channel:	lowest
------------	---------	---------------	--------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4824.00	58.74	-8.42	50.32	74.00	-23.68	Vertical
7236.00	55.36	-3.23	52.13	74.00	-21.87	Vertical
9648.00	56.43	-3.18	53.25	74.00	-20.75	Vertical
12060.00	*			74.00		Vertical
14472.00	*			74.00		Vertical
4824.00	59.70	-8.42	51.28	74.00	-22.72	Horizontal
7236.00	56.91	-3.23	53.68	74.00	-20.32	Horizontal
9648.00	57.04	-3.18	53.86	74.00	-20.14	Horizontal
12060.00	*			74.00		Horizontal
14472.00	*			74.00		Horizontal

Test mode:	802.11g	Test channel:	Middle
------------	---------	---------------	--------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	57.48	-9.77	47.71	74.00	-26.29	Vertical
7311.00	56.56	-3.21	53.35	74.00	-20.65	Vertical
9748.00	56.24	-3.17	53.07	74.00	-20.93	Vertical
12185.00	*			74.00		Vertical
14622.00	*			74.00		Vertical
4874.00	56.71	-9.77	46.94	74.00	-27.06	Horizontal
7311.00	56.49	-3.21	53.28	74.00	-20.72	Horizontal
9748.00	56.36	-3.17	53.19	74.00	-20.81	Horizontal
12185.00	*			74.00		Horizontal
14622.00	*			74.00		Horizontal



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 64 of 73

Test mode:	802.11g	Test channel:	Highest
------------	---------	---------------	---------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4924.00	56.23	-10.24	45.99	74.00	-28.01	Vertical
7386.00	56.51	-3.20	53.31	74.00	-20.69	Vertical
9848.00	56.73	-3.16	53.57	74.00	-20.43	Vertical
12310.00	*			74.00		Vertical
14772.00	*			74.00		Vertical
4924.00	56.23	-10.24	45.99	74.00	-28.01	Horizontal
7386.00	56.55	-3.20	53.35	74.00	-20.65	Horizontal
9848.00	56.37	-3.16	53.21	74.00	-20.79	Horizontal
12310.00	*			74.00		Horizontal
14772.00	*			74.00		Horizontal

Remark:

1. Final Level = Receiver Read level + Correct factor
2. "", means this data is the too weak instrument of signal is unable to test.
3. Correct factor = Antenna Factor + Cable Loss – Preamplifier Factor
4. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 65 of 73

MIMO:

Test mode:	802.11n(HT20)	Test channel:	Lowest
------------	---------------	---------------	--------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4824.00	60.35	-8.42	51.93	74.00	-22.07	Vertical
7236.00	56.23	-3.23	53.00	74.00	-21.00	Vertical
9648.00	56.65	-3.18	53.47	74.00	-20.53	Vertical
12060.00	*			74.00		Vertical
14472.00	*			74.00		Vertical
4824.00	60.02	-8.42	51.60	74.00	-22.40	Horizontal
7236.00	56.27	-3.23	53.04	74.00	-20.96	Horizontal
9648.00	55.89	-3.18	52.71	74.00	-21.29	Horizontal
12060.00	*			74.00		Horizontal
14472.00	*			74.00		Horizontal

Test mode:	802.11n(HT20)	Test channel:	Middle
------------	---------------	---------------	--------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	57.29	-9.77	47.52	74.00	-26.48	Vertical
7311.00	56.31	-3.21	53.10	74.00	-20.90	Vertical
9748.00	55.47	-3.17	52.30	74.00	-21.70	Vertical
12185.00	*			74.00		Vertical
14622.00	*			74.00		Vertical
4874.00	57.21	-9.77	47.77	74.00	-26.56	Horizontal
7311.00	56.85	-3.21	53.64	74.00	-20.36	Horizontal
9748.00	56.03	-3.17	52.86	74.00	-21.14	Horizontal
12185.00	*			74.00		Horizontal
14622.00	*			74.00		Horizontal

BlueAsia of Technical Services(Shenzhen) Co., Ltd.

IOT Test Centre of BlueAsia,

No. 448 Bulong Road, Bantian Street, Longgang District, Shenzhen, China

Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 66 of 73

Test mode:	802.11n(HT20)	Test channel:	Highest
------------	---------------	---------------	---------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4924.00	55.50	-10.24	45.26	74.00	-28.74	Vertical
7386.00	56.77	-3.20	53.57	74.00	-20.43	Vertical
9848.00	56.01	-3.16	52.85	74.00	-21.15	Vertical
12310.00	*			74.00		Vertical
14772.00	*			74.00		Vertical
4924.00	55.76	-10.24	45.52	74.00	-28.48	Horizontal
7386.00	56.63	-3.20	53.43	74.00	-20.57	Horizontal
9848.00	55.86	-3.16	52.70	74.00	-21.30	Horizontal
12310.00	*			74.00		Horizontal
14772.00	*			74.00		Horizontal

Remark:

- 1 Final Level = Receiver Read level + Correct factor
- 2 “*”, means this data is the too weak instrument of signal is unable to test.
- 3 Correct factor= Antenna Factor + Cable Loss – Preamplifier Factor
4. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 67 of 73

MIMO:

Test mode:	802.11n(HT40)	Test channel:	Lowest
------------	---------------	---------------	--------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4844.00	60.63	-8.96	51.67	74.00	-22.33	Vertical
7266.00	57.10	-3.23	53.87	74.00	-20.13	Vertical
9688.00	56.43	-3.18	53.25	74.00	-20.75	Vertical
12110.00	*			74.00		Vertical
14532.00	*			74.00		Vertical
4844.00	60.49	-8.96	51.53	74.00	-22.47	Horizontal
7266.00	56.42	-3.23	53.19	74.00	-20.81	Horizontal
9688.00	56.67	-3.18	53.49	74.00	-20.51	Horizontal
12110.00	*			74.00		Horizontal
14532.00	*			74.00		Horizontal

Test mode:	802.11n(HT40)	Test channel:	Middle
------------	---------------	---------------	--------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4874.00	56.53	-9.77	46.76	74.00	-27.24	Vertical
7311.00	56.84	-3.21	53.63	74.00	-20.37	Vertical
9748.00	56.26	-3.17	53.09	74.00	-20.91	Vertical
12185.00	*			74.00		Vertical
14622.00	*			74.00		Vertical
4874.00	56.68	-9.77	46.91	74.00	-27.09	Horizontal
7311.00	57.14	-3.21	53.93	74.00	-20.07	Horizontal
9748.00	56.52	-3.17	53.35	74.00	-20.65	Horizontal
12185.00	*			74.00		Horizontal
14622.00	*			74.00		Horizontal

BlueAsia of Technical Services(Shenzhen) Co., Ltd.

IOT Test Centre of BlueAsia,

No. 448 Bulong Road, Bantian Street, Longgang District, Shenzhen, China

Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673



蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 68 of 73

Test mode:	802.11n(HT40)	Test channel:	Highest
------------	---------------	---------------	---------

Peak value:

Frequency (MHz)	Read Level (dBuV)	Correct factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4924.00	55.98	-10.46	45.52	74.00	-28.48	Vertical
7386.00	57.08	-3.20	53.88	74.00	-20.12	Vertical
9848.00	56.72	-3.16	53.56	74.00	-20.44	Vertical
12310.00	*			74.00		Vertical
14772.00	*			74.00		Vertical
4924.00	57.58	-10.46	47.12	74.00	-26.88	Horizontal
7386.00	56.68	-3.20	53.48	74.00	-20.52	Horizontal
9848.00	56.17	-3.16	53.01	74.00	-20.99	Horizontal
12310.00	*			74.00		Horizontal
14772.00	*			74.00		Horizontal

Remark:

- 1 Final Level = Receiver Read level + Correct factor
- 2 “*”, means this data is the too weak instrument of signal is unable to test.
- 3 Correct factor= Antenna Factor + Cable Loss – Preamplifier Factor
- 4 As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.



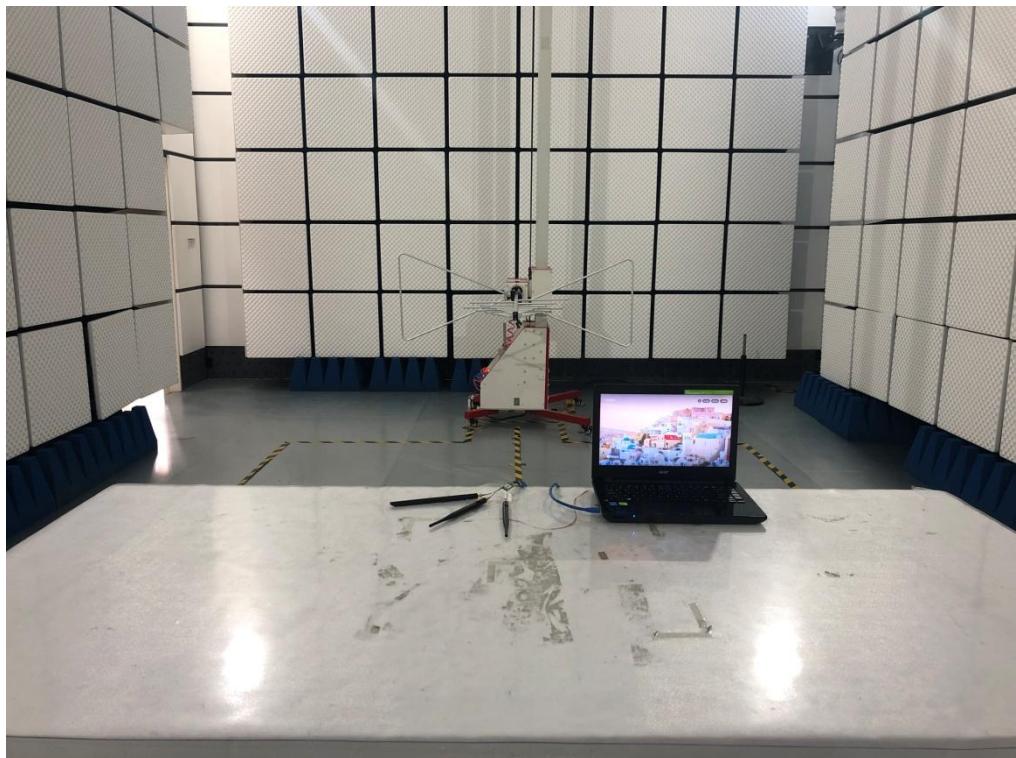
蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 69 of 73

8 Test Setup Photo

Radiated Emission

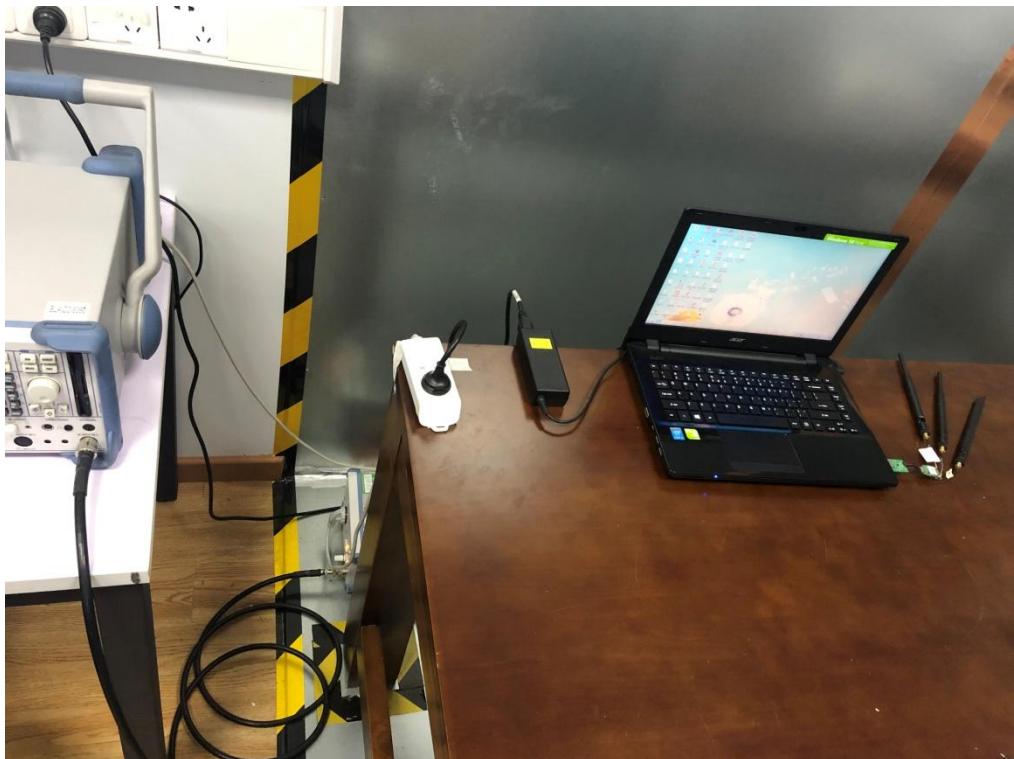




蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01
Conducted Emission

Page 70 of 73



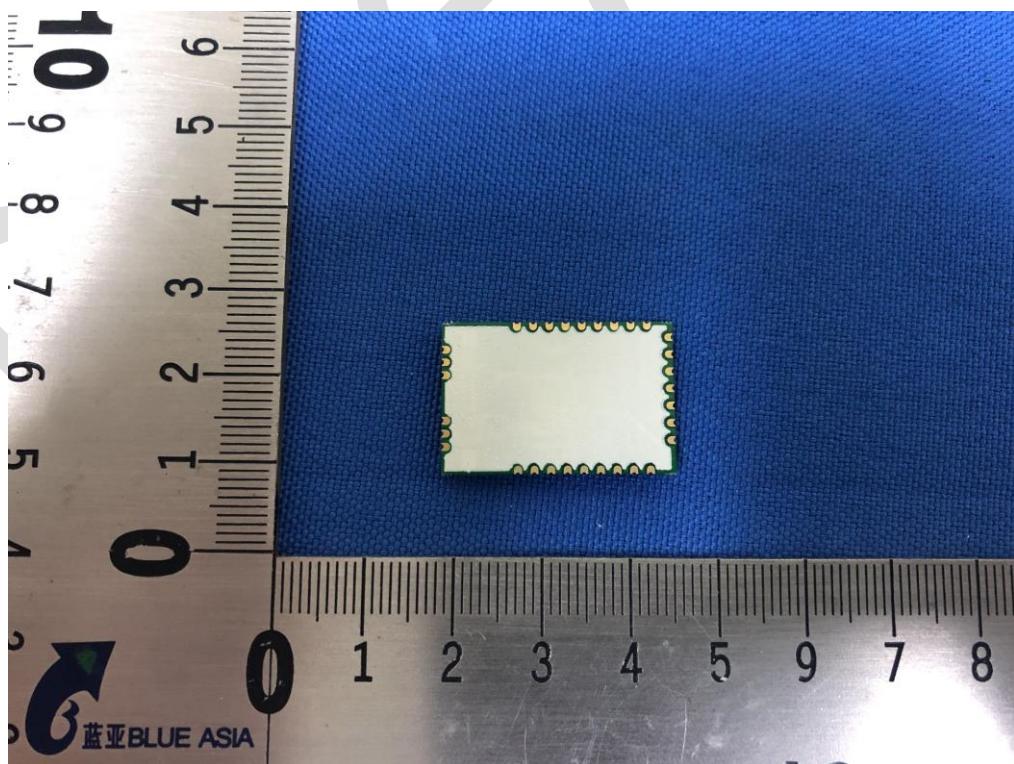
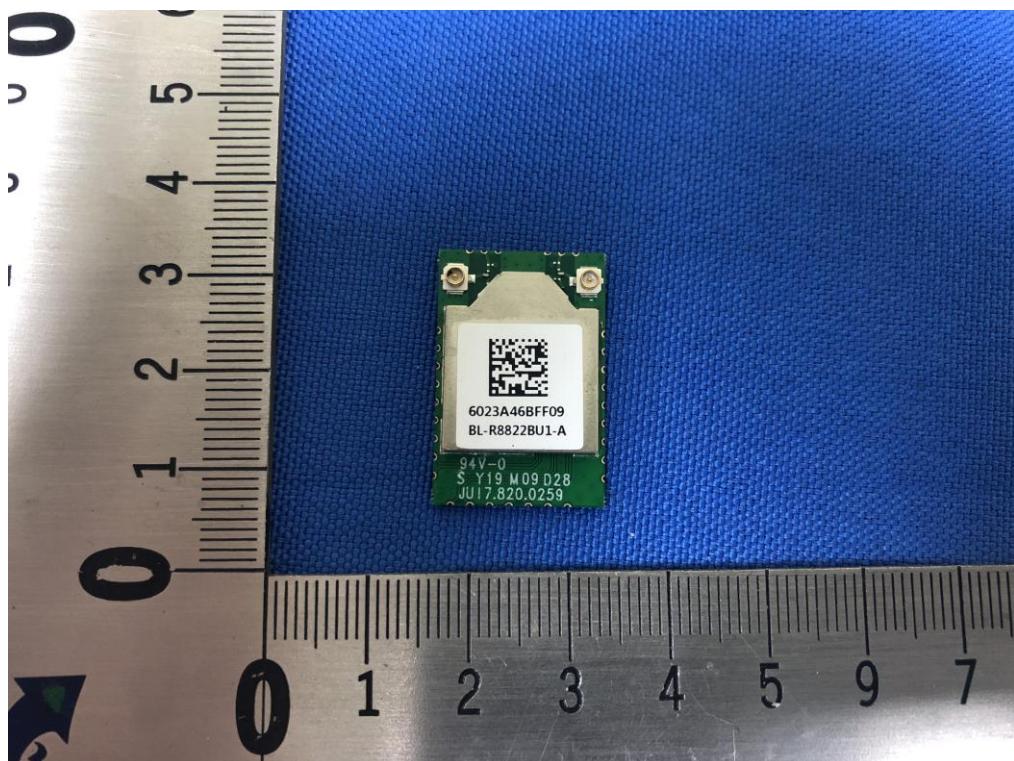


蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 71 of 73

9 EUT Constructional Details

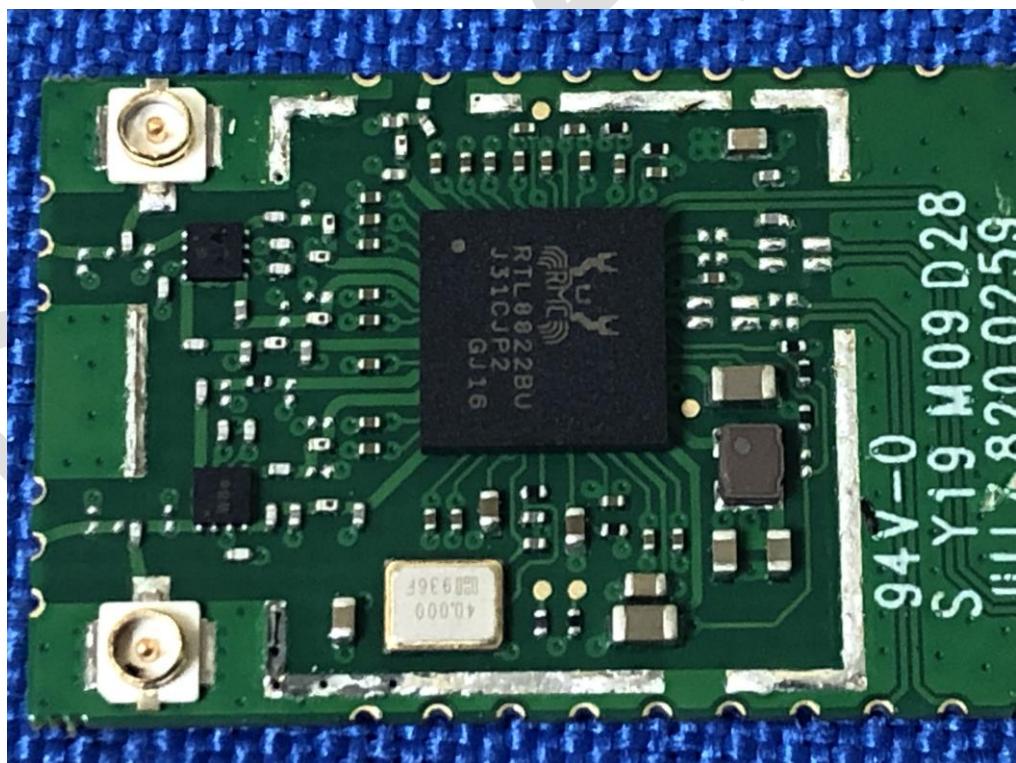
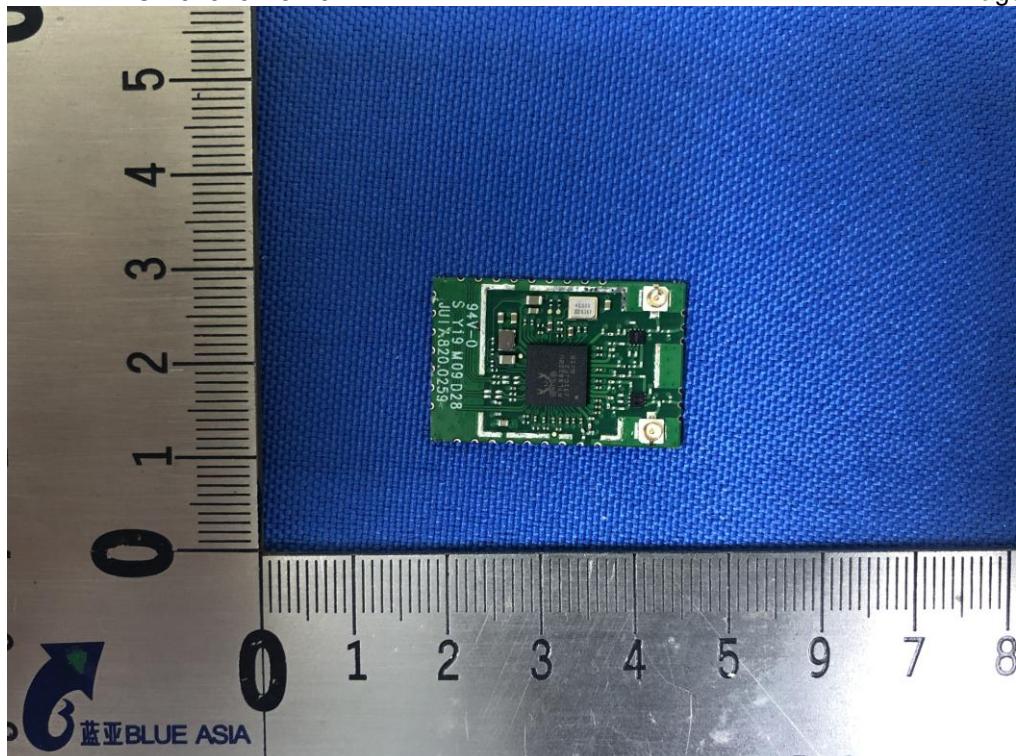




蓝亚 BLUE ASIA

Report No. : BLA-EMC-201910-A52-01

Page 72 of 73





Report No. : BLA-EMC-201910-A52-01

Page 73 of 73

*** End of Report ***

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of BlueAsia, this report can't be reproduced except in full.

BlueAsia