

FCC REPORT

Applicant: AZUMI S.A

Address of Applicant: Avenida Aquilino de la Guardia con Calle 47, PH Ocean Plaza,
Piso 16 of. 16-01, Marbella, Ciudad de Panamá City, Rep.
Panamá

Equipment Under Test (EUT)

Product Name: Mobile phone

Model No.: LT50

FCC ID: QRP-AZUMILT50

Applicable standards: FCC CFR Title 47 Part 15 Subpart E Section 15.407

Date of sample receipt: 12 Jan., 2015

Date of Test: 12 Jan., to 29 Jan., 2015

Date of report issued: 30 Jan., 2015

Test Result: PASS*

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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2 Version

Version No.	Date	Description
00	30 Jan., 2015	Original

Prepared by:

Sera Xiang

Date:

30 Jan., 2015

Report Clerk

Reviewed by:

Wimer Zhang

Date:

30 Jan., 2015

Project Engineer

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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.407 (g)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Output Power	15.407 (a)	Pass
26dB Emission Bandwidth	15.407 (a)	Pass
6dB Emission Bandwidth	15.407(e)	Pass
Power Spectral Density	15.407 (a)	Pass
Band Edge	15.407(b)	Pass
Spurious Emission	15.205/15.209	Pass
Frequency Stability	15.407(g)	Pass

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

5 General Information

5.1 Client Information

Applicant:	AZUMI S.A
Address of Applicant:	Avenida Aquilino de la Guardia con Calle 47, PH Ocean Plaza, Piso 16 of. 16-01, Marbella, Ciudad de Panamá City, Rep. Panamá
Manufacturer:	AZUMI (HK) LTD
Address of Manufacturer:	FLAT/RM 18 BLK 1 14/F GOLDEN INDUSTRIAL BUILDING 16-26 KWAI TAK STREET KWAI CHUNG, HK
Factory:	G. Credit industrial (shenzhen) co., LTD.
Address of Factory:	Zhida Industrial park, west longping RD, Cenkal city, Longgang Town, Shenzhen City.

5.2 General Description of E.U.T.

Product Name:	Mobile phone
Model No.:	LT50
Operation Frequency:	Band 1: 5150MHz-5250MHz Band 4: 5725MHz-5850MHz
Operation mode:	Mobile operation
Channel numbers:	Band 1: 802.11a/802.11n20:4, 802.11n40:2 Band 4: 802.11a/802.11n20:5, 802.11n40:2
Channel separation:	802.11a/802.11n20:20MHz, 802.11n40:40MHz
Modulation technology: (IEEE 802.11a)	BPSK,QPSK,16-QAM,64-QAM
Modulation technology: (IEEE 802.11n)	BPSK,QPSK,16-QAM, 64-QAM
Data speed(IEEE 802.11a):	6Mbps, 9Mbps,12Mbps,18Mbps, 24Mbps,36Mbps,48Mbps, 54Mbps
Data speed (IEEE 802.11n20):	MCS0: 6.5Mbps, MCS1:13Mbps, MCS2:19.5Mbps, MCS3:26Mbps, MCS4:39Mbps, MCS5:52Mbps, MCS6:58.5Mbps, MCS7:65Mbps
Data speed (IEEE 802.11n40):	MCS0:15Mbps, MCS1:30Mbps, MCS2:45Mbps, MCS3:60Mbps, MCS4:90Mbps, MCS5:120Mbps, MCS6:135Mbps, MCS7:150Mbps
Antenna Type:	Integral Antenna
Antenna gain:	2.3 dBi
Power supply:	Rechargeable Li-ion Battery DC3.8V, 8.6Wh
AC adapter:	Model No.: LT50 Input:100-240V AC,50/60Hz, 0.2A Output: DC5V, 1000mA

Operation Frequency each of channel

Band 1			
802.11a/802.11n20		802.11n40	
Channel	Frequency	Channel	Frequency
36	5180MHz	38	5190MHz
40	5200MHz	46	5230MHz
44	5220MHz		
48	5240MHz		
Band 4			
802.11a/802.11n20		802.11n40	
Channel	Frequency	Channel	Frequency
149	5745MHz	151	5755MHz
153	5765MHz	159	5795MHz
157	5785MHz		
161	5805MHz		
165	5825MHz		

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:

Band 1			
802.11a/802.11n20		802.11n40	
Channel	Frequency	Channel	Frequency
The lowest channel	5180MHz	The lowest channel	5190MHz
The middle channel	5200MHz	The highest channel	5230MHz
The highest channel	5240MHz		
Band 4			
802.11a/802.11n20		802.11n40	
Channel	Frequency	Channel	Frequency
The lowest channel	5745MHz	The lowest channel	5755MHz
The middle channel	5785MHz	The highest channel	5795MHz
The highest channel	5825MHz		

5.3 Test environment and mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test mode:	
Continuously transmitting mode	Keep the EUT in 100% duty cycle transmitting with modulation in SISO mode.

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:

Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	Data rate
802.11a	6 Mbps
802.11n20	6.5 Mbps
802.11n40	13 Mbps

Final Test Mode:

According to ANSI C63.4 standards, the test results are both the “worst case” and “worst setup” 6 Mbps for 802.11a, 6.5 Mbps for 802.11n20 and 13 Mbps for 802.11n40. All test items for 802.11a and 802.11n were performed in MIMO mode and duty cycle all above 98%, meet the requirements of KDB789033.

5.4 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Registration No.: 817957**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. EMC Laboratory 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 out files. Registration 817957, February 27, 2012.

- **IC - Registration No.: 10106A-1**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

5.5 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Tel: +86-755-23118282
Fax: +86-755-23116366

5.6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	08-23-2014	08-23-2017
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	CCIS0002	N/A	N/A
3	Loop antenna	Laplace instrument	RF300	EMC0701	08-11-2014	08-10-2015
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	05-25-2014	05-24-2015
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	05-25-2014	05-24-2015
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	03-30-2014	03-29-2015
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	04-01-2014	03-31-2015
9	Amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	06-09-2014	06-08-2015
10	Pre-amplifier (18-40GHz)	A.H System	PAM-1840	GTS219	04-01-2014	03-31-2015
11	Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP	CCIS0023	05-25-2014	05-24-2015
12	EMI Test Receiver	Rohde & Schwarz	ESPI	CCIS0022	04-01-2014	03-31-2015
13	Spectrum Analyzer	HP	8564E	CCIS0150	05-24-2014	05-23-2015

Conducted Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	06-09-2014	06-08-2015
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	05-25-2014	05-24-2015
3	LISN	CHASE	MN2050D	CCIS0074	04-01-2014	03-31-2015
4	Coaxial Cable	CCIS	N/A	CCIS0086	04-01-2014	03-31-2015
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

6 Test results and Measurement Data

6.1 Antenna requirement

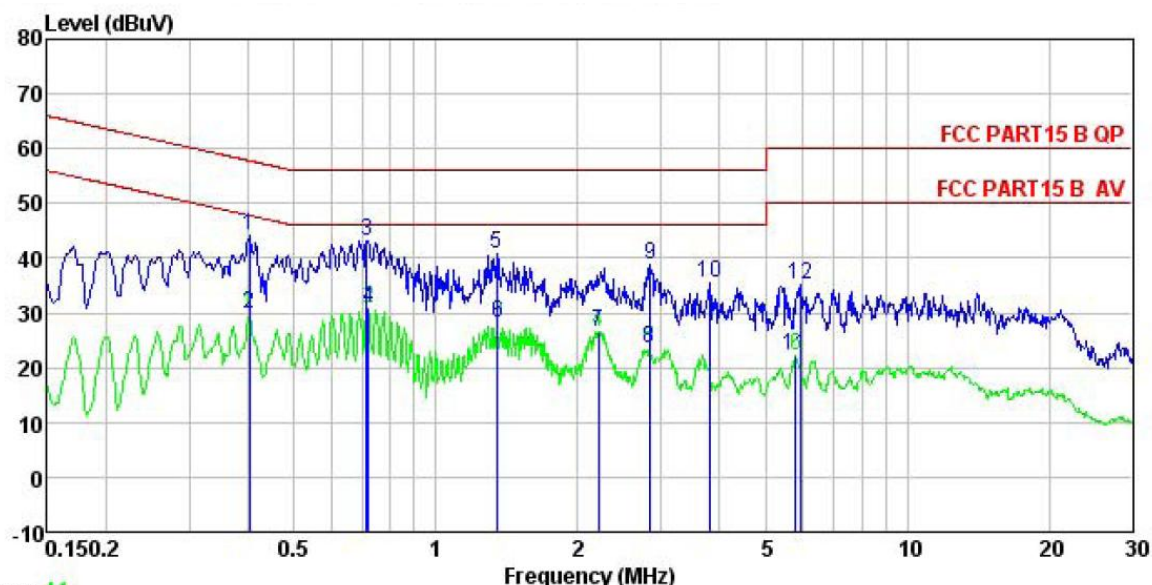
Standard requirement:	FCC Part 15 E Section 15.203 /407(a)
15.203 requirement: <i>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses 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.</i> <i>This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.</i>	
E.U.T Antenna:	
The WiFi antenna is an internal antenna which cannot replace by end-user, the best case gain of the antenna is 2.3 dBi.	
	

6.2 Conducted Emission

Test Requirement:	FCC Part 15 C Section 15.207			
Test Method:	ANSI C63.10: 2009			
Test Frequency Range:	150 kHz to 30 MHz			
Class / Severity:	Class B			
Receiver setup:	RBW=9 kHz, VBW=30 kHz			
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	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). It provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. 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). 3. 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: 2003 on conducted measurement.			
Test setup:	Reference Plane LISN AUX Equipment E.U.T 40cm 80cm Filter AC power EMI Receiver Test table/Insulation plane Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m			
Test Instruments:	Refer to section 5.6 for details			
Test mode:	Refer to section 5.3 for details.			
Test results:	Passed			

Measurement Data

Line:

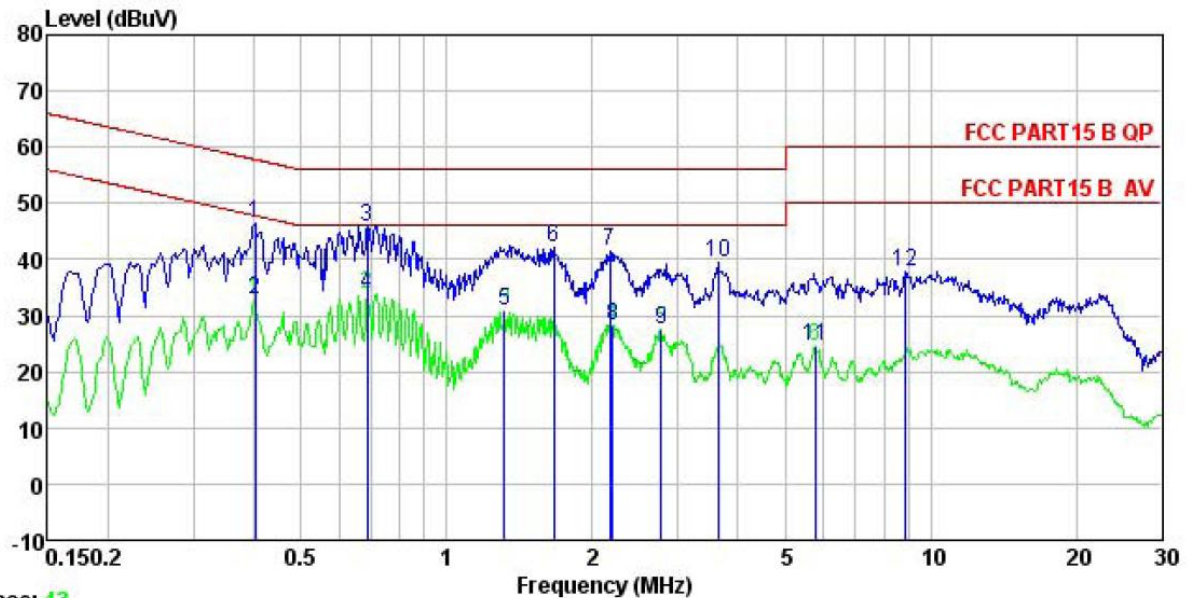


Trace: 41

Site : CCIS Shielding Room
 Condition : FCC PART15 B QP LISN LINE
 EUT : Mobile phone
 Model : LT50
 Test Mode : Wifi Mode
 Power Rating : AC 120V/60Hz
 Environment : Temp: 23 °C Humi:56% Atmos:101KPa
 Test Engineer: Ffy
 Remark : 5.0G

	Read	LISN	Cable	Limit	Over	
Freq	Level	Factor	Loss	Line	Limit	Remark
MHz	dBuV	dB	dB	dBuV	dB	
1	0.402	33.13	0.28	10.72	44.13	57.81 -13.68 QP
2	0.402	18.99	0.28	10.72	29.99	47.81 -17.82 Average
3	0.712	32.29	0.22	10.78	43.29	56.00 -12.71 QP
4	0.720	19.85	0.22	10.78	30.85	46.00 -15.15 Average
5	1.345	29.72	0.25	10.91	40.88	56.00 -15.12 QP
6	1.352	17.09	0.25	10.91	28.25	46.00 -17.75 Average
7	2.213	15.39	0.26	10.95	26.60	46.00 -19.40 Average
8	2.839	12.26	0.27	10.93	23.46	46.00 -22.54 Average
9	2.854	27.56	0.27	10.92	38.75	56.00 -17.25 QP
10	3.799	24.45	0.28	10.90	35.63	56.00 -20.37 QP
11	5.805	11.03	0.31	10.83	22.17	50.00 -27.83 Average
12	5.961	24.05	0.31	10.82	35.18	60.00 -24.82 QP

Neutral:



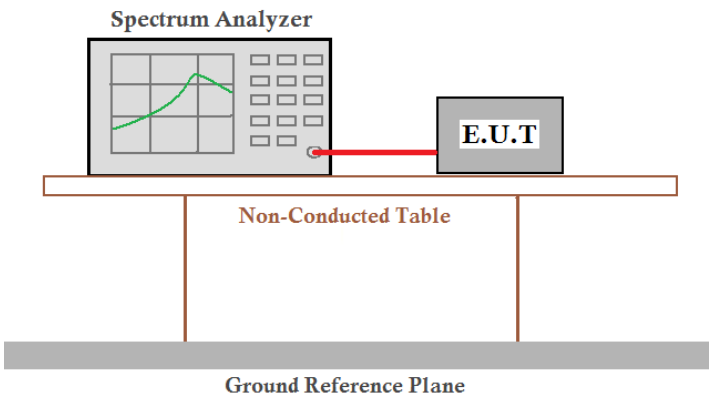
Site : CCIS Shielding Room
 Condition : FCC PART15 B QP LISN NEUTRAL
 EUT : Mobile phone
 Model : LT50
 Test Mode : Wifi Mode
 Power Rating : AC 120V/60Hz
 Environment : Temp: 23 °C Humi:56% Atmos:101KPa
 Test Engineer: Ffy
 Remark : 5.0G

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.402	35.53	0.25	10.72	46.50	57.81	-11.31	QP
2	0.402	21.80	0.25	10.72	32.77	47.81	-15.04	Average
3	0.686	34.84	0.19	10.77	45.80	56.00	-10.20	QP
4	0.686	22.77	0.19	10.77	33.73	46.00	-12.27	Average
5	1.317	19.53	0.25	10.91	30.69	46.00	-15.31	Average
6	1.662	30.83	0.27	10.94	42.04	56.00	-13.96	QP
7	2.178	30.19	0.29	10.95	41.43	56.00	-14.57	QP
8	2.201	17.08	0.29	10.95	28.32	46.00	-17.68	Average
9	2.779	16.25	0.29	10.93	27.47	46.00	-18.53	Average
10	3.642	28.15	0.29	10.90	39.34	56.00	-16.66	QP
11	5.774	13.37	0.27	10.83	24.47	50.00	-25.53	Average
12	8.822	26.66	0.25	10.89	37.80	60.00	-22.20	QP

Notes:

1. An initial pre-scan was performed on the live and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Loss

6.3 Conducted Output Power

Test Requirement:	FCC Part 15 E Section 15.407 (a)
Test Method:	ANSI C63.10:2009, KDB 789033 D02
Limit:	Band 5150MHz~5250MHz: 250mW (If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi); Band 5725MHz~5850MHz: 1W (If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.)
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.
Test Instruments:	Refer to section 5.6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

Band 1:

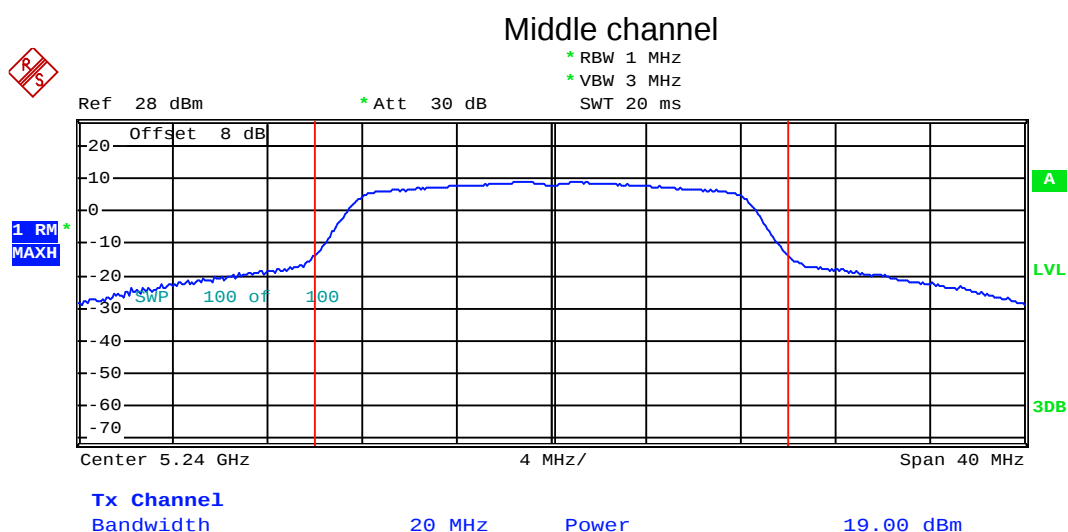
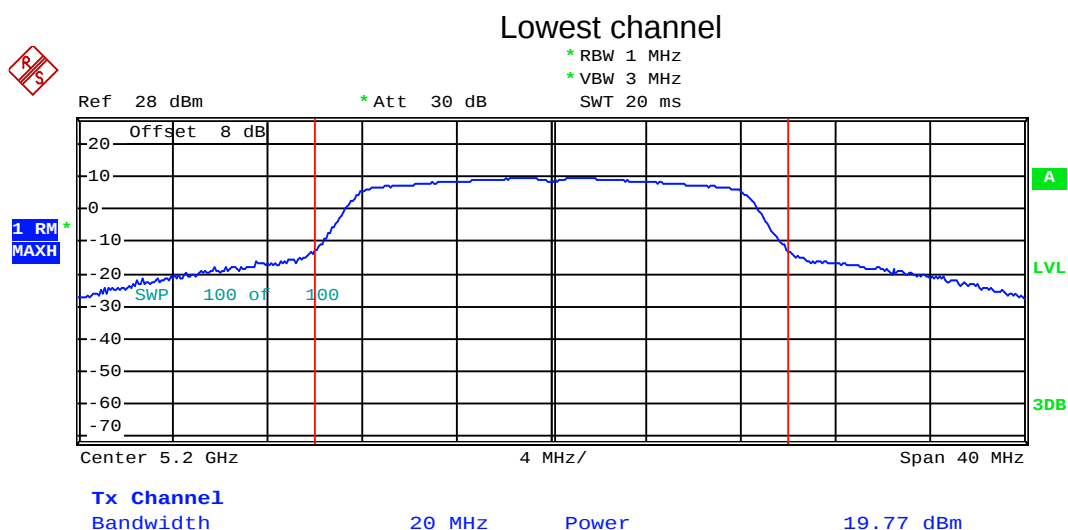
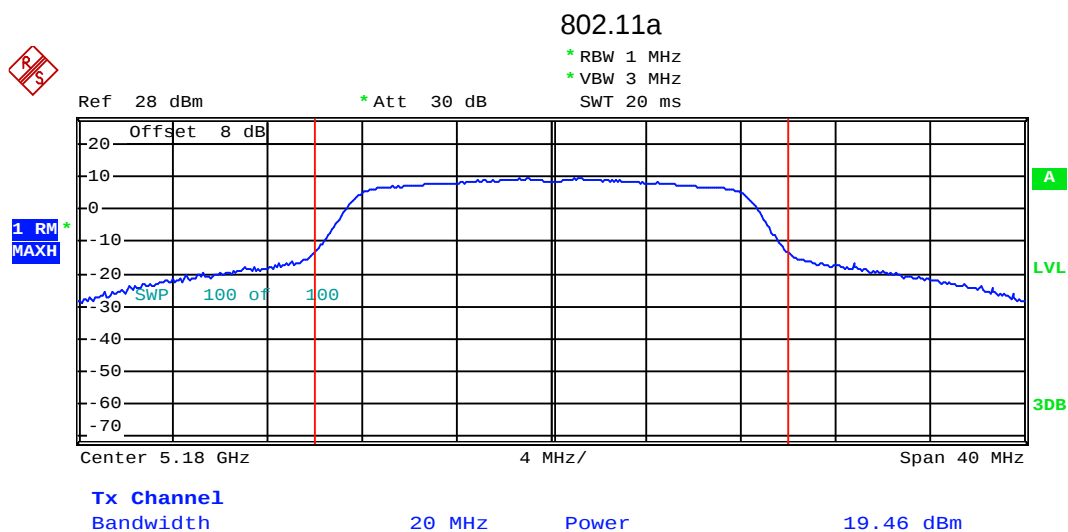
Test CH	Maximum Conducted Output Power (dBm)			Limit(dBm)	Result
	802.11a	802.11n20	802.11n40		
Lowest	19.46	19.48	20.13	24.00	Pass
Middle	19.77	19.59	--		
Highest	19.00	18.07	19.30		
Note: For the band 5150MHZ-5250MHZ, it used for mobile and portable client devices.					

Band 4:

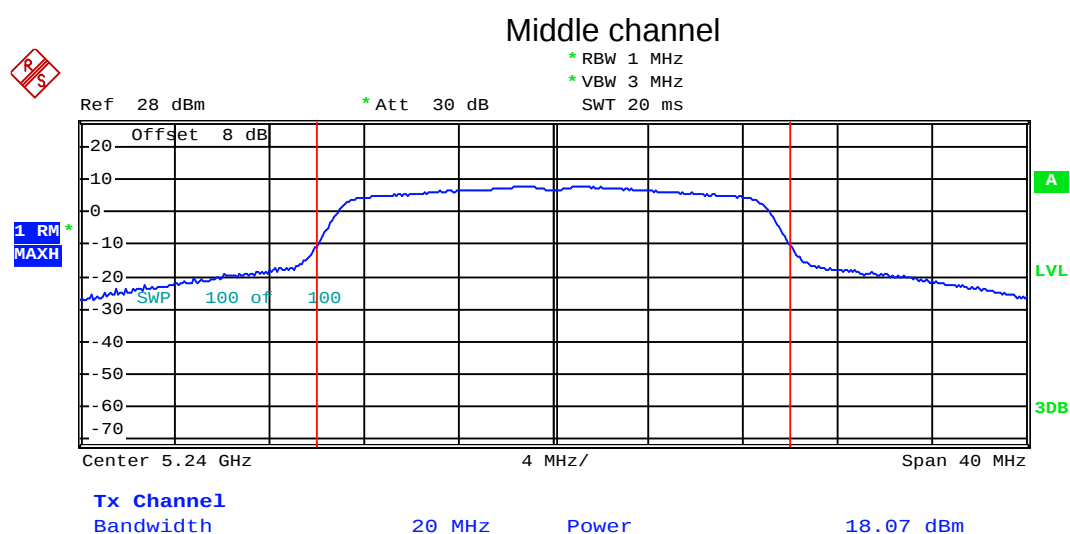
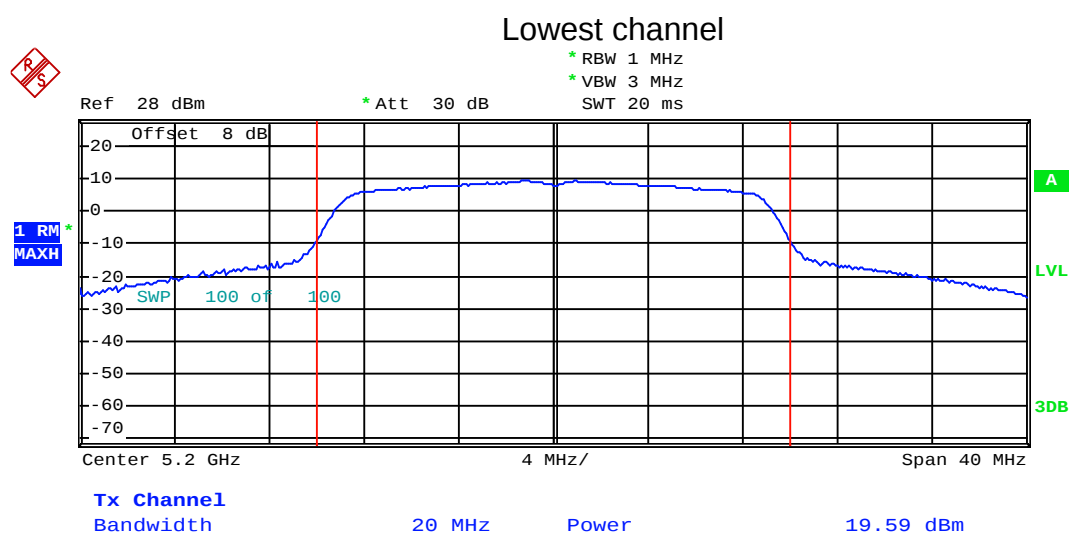
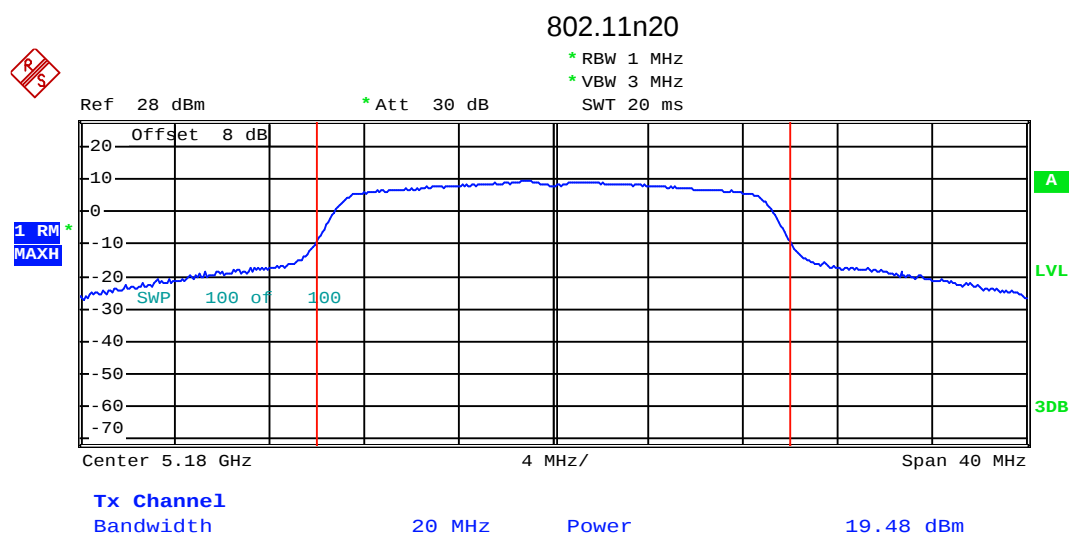
Test CH	Maximum Conducted Output Power (dBm)			Limit(dBm)	Result
	802.11a	802.11n20	802.11n40		
Lowest	18.93	19.60	19.39	30.00	Pass
Middle	18.56	18.91	--		
Highest	18.51	18.62	18.79		
Note: For the Band 5725MHz-5850MHz, the antenna gain of EUT is less than 6 dBi.					

Test plot as follows:

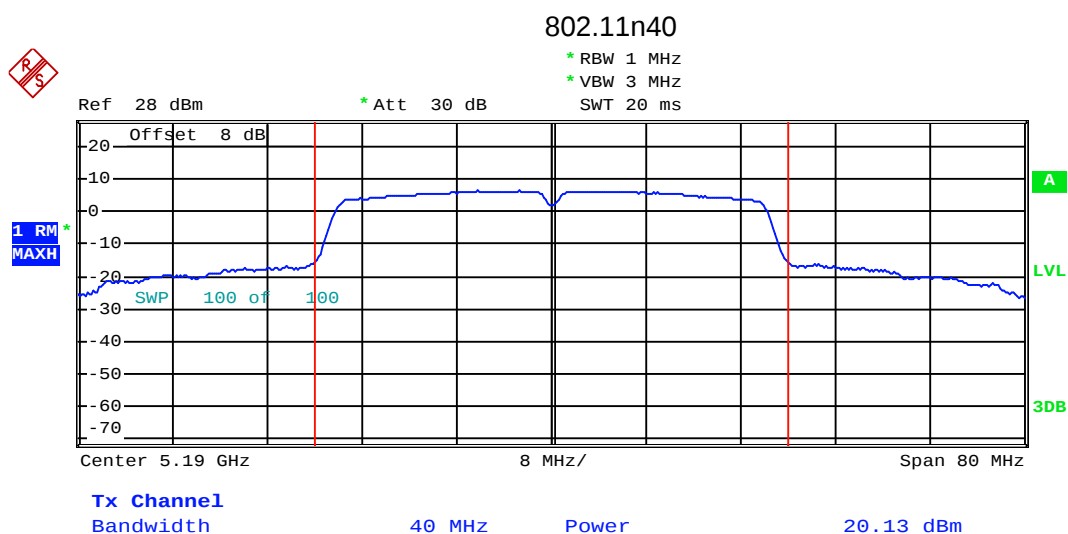
Band 1:



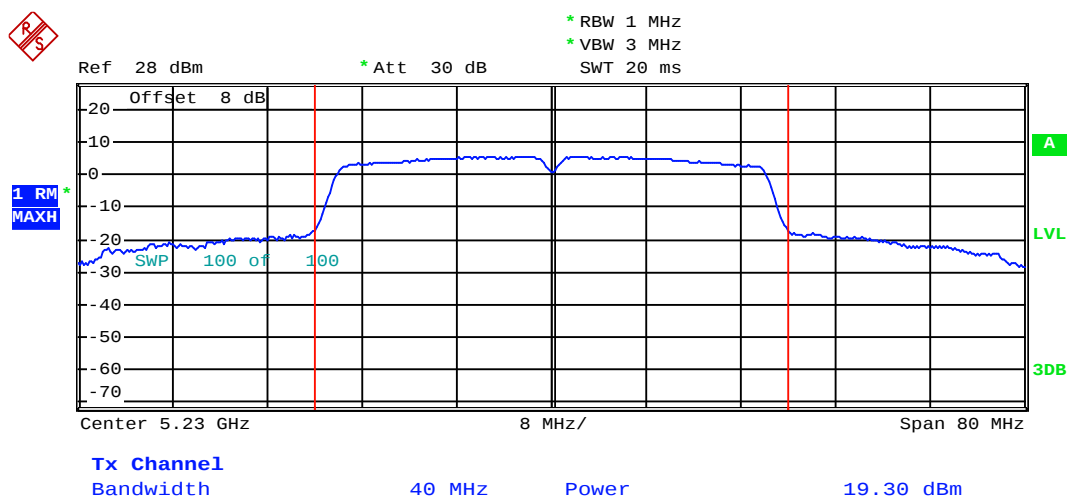
Highest channel



Highest channel

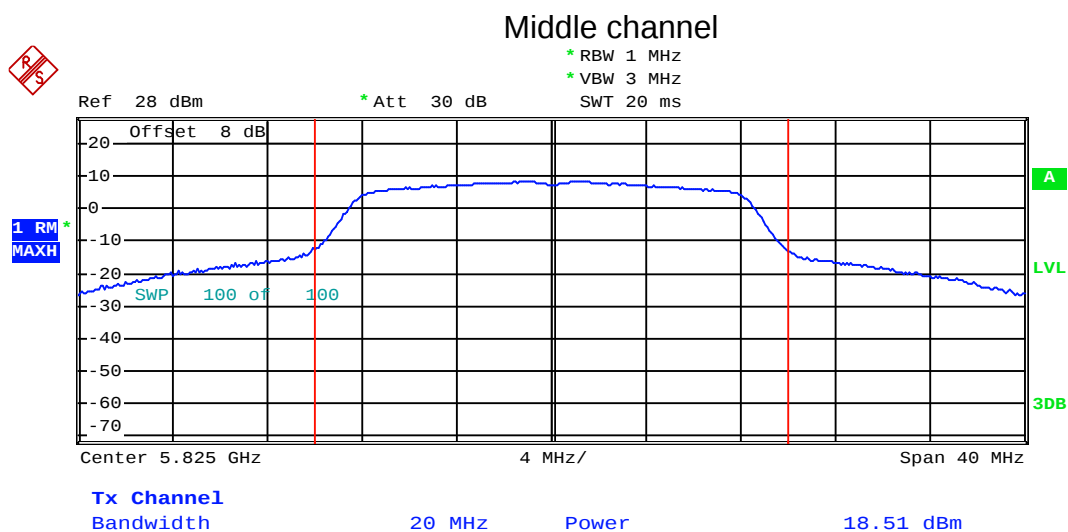
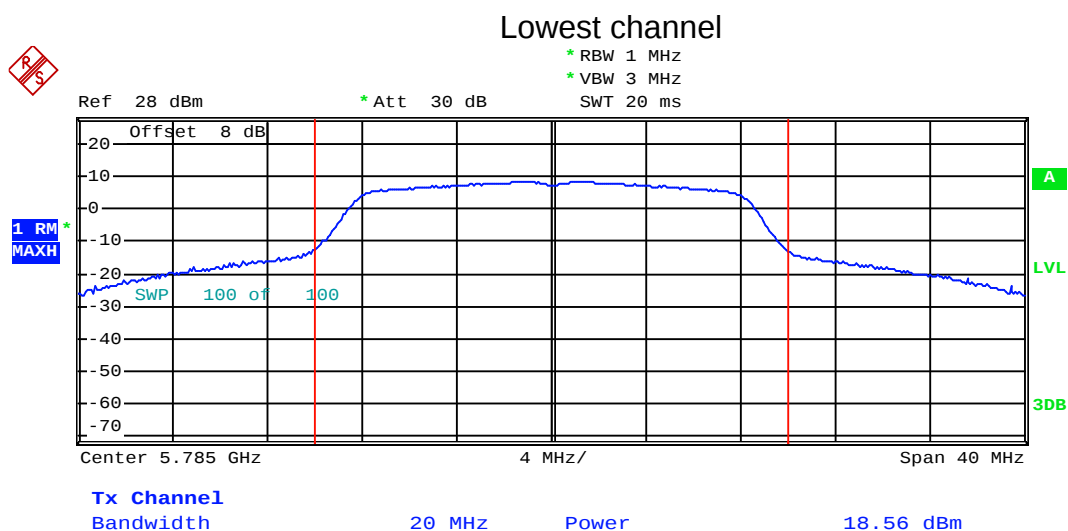
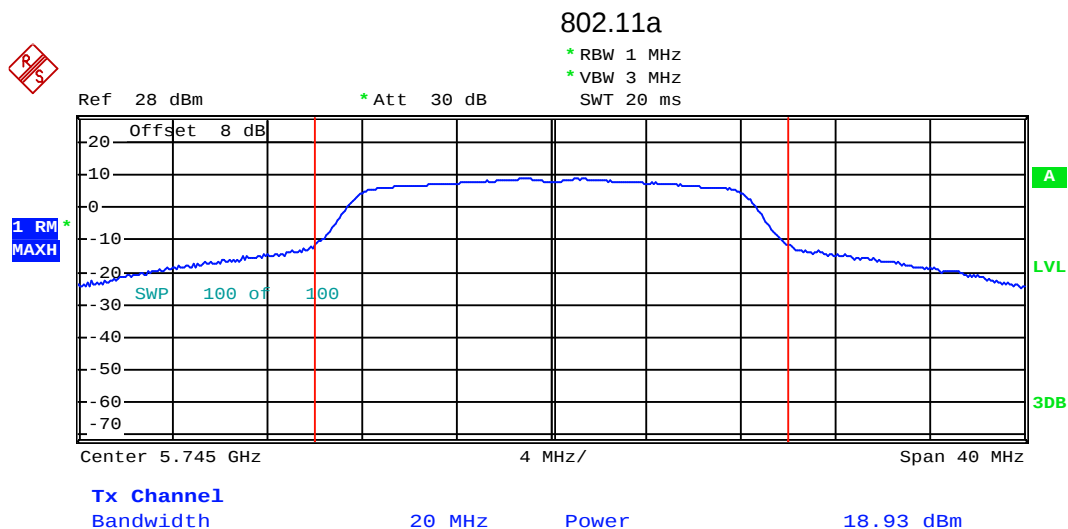


Lowest channel

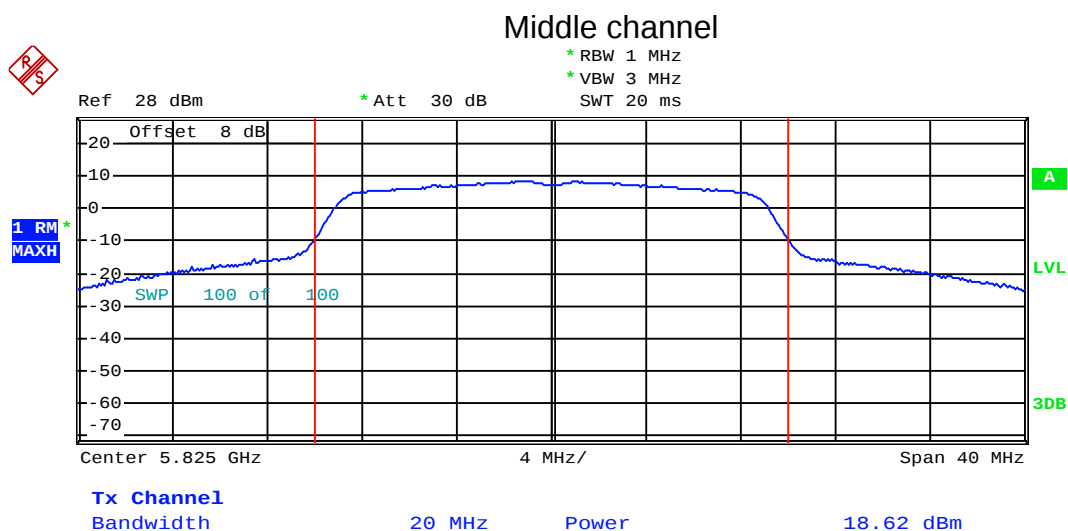
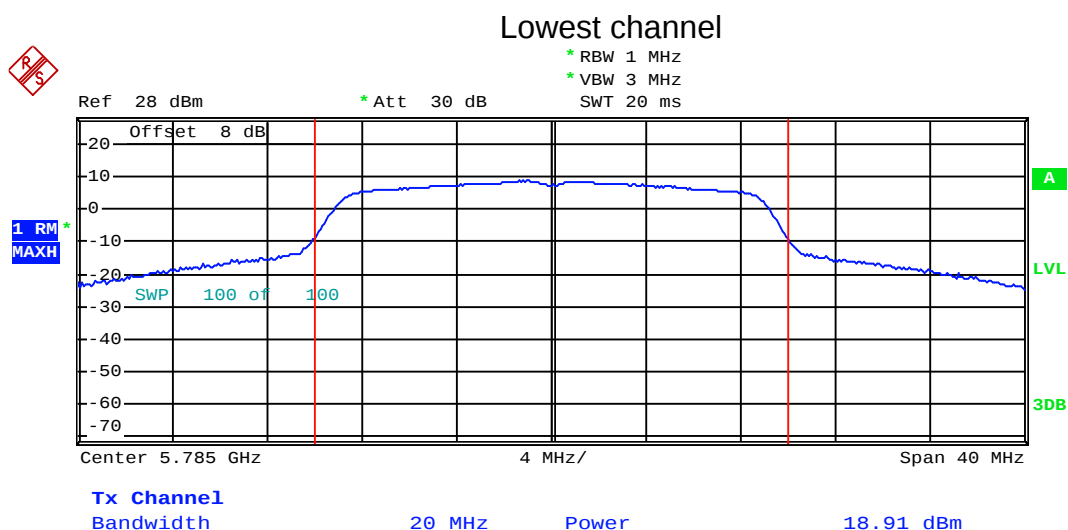
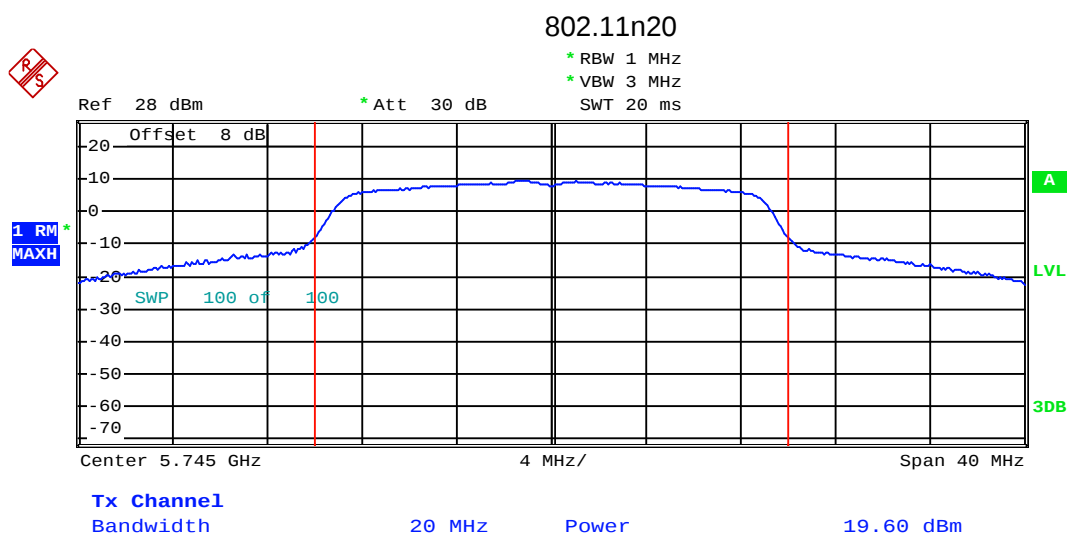


Highest channel

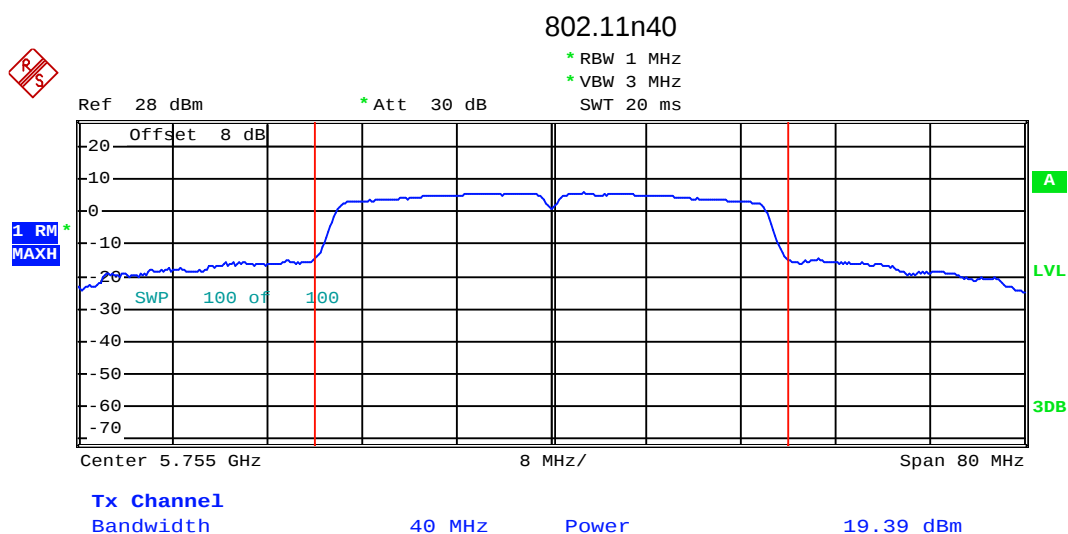
Band 4:



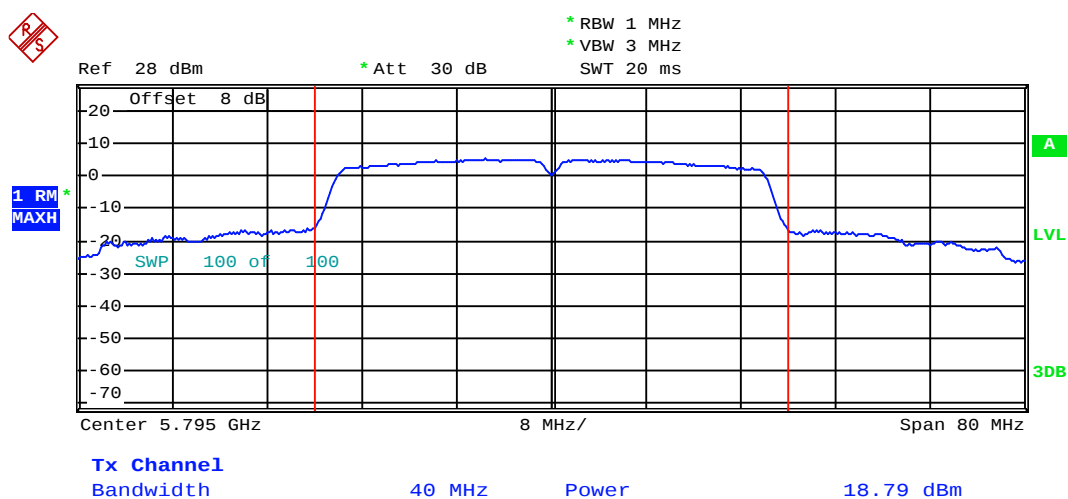
Highest channel



Highest channel

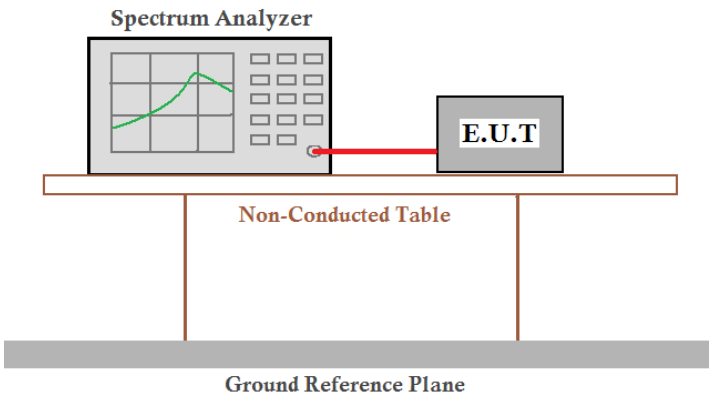


Lowest channel



Highest channel

6.4 Emission Bandwidth

Test Requirement:	FCC Part15 E Section 15.407 (a) and Section 15.407 (e)
Test Method:	ANSI C63.10: 2009 and KDB 789033 D02
Limit:	Band 1: N/A(26dB Emission Bandwidth and 99% Occupy Bandwidth) Band 4: N/A(26dB Emission Bandwidth and 99% Occupy Bandwidth) Band 4: >500kHz(6dB Bandwidth)
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.
Test Instruments:	Refer to section 5.6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

Band 1:

Test Channel	26dB Emission Bandwidth (MHz)			Limit	Result
	802.11a	802.11n20	802.11n40		
Lowest	24.00	26.56	49.92	For report purpose	
Middle	25.36	25.84	---		
Highest	25.68	26.08	49.44		

Test Channel	99% Occupy Bandwidth (MHz)			Limit	Result
	802.11a	802.11n20	802.11n40		
Lowest	17.28	18.32	36.48	For report purpose	
Middle	17.44	18.16	---		
Highest	17.36	18.16	36.32		

Band 4:

Test Channel	26dB Emission Bandwidth (MHz)			Limit	Result
	802.11a	802.11n20	802.11n40		
Lowest	28.56	31.20	64.32	For report purpose	
Middle	29.12	31.12	---		
Highest	29.36	30.96	65.44		

Test Channel	99% Occupy Bandwidth (MHz)			Limit	Result
	802.11a	802.11n20	802.11n40		
Lowest	17.92	18.64	36.80	For report purpose	
Middle	17.76	18.40	---		
Highest	17.84	18.72	36.80		

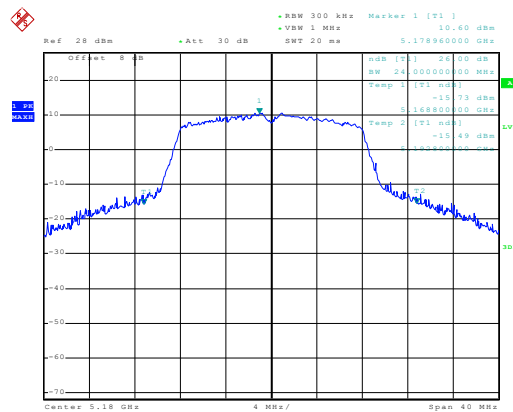
Test Channel	6dB Emission Bandwidth (MHz)			Limit	Result
	802.11a	802.11n20	802.11n40		
Lowest	15.68	15.60	35.52	>500kHz	Pass
Middle	15.36	15.36	---		
Highest	15.60	17.04	35.52		

Test plot as follows:

Band 1:

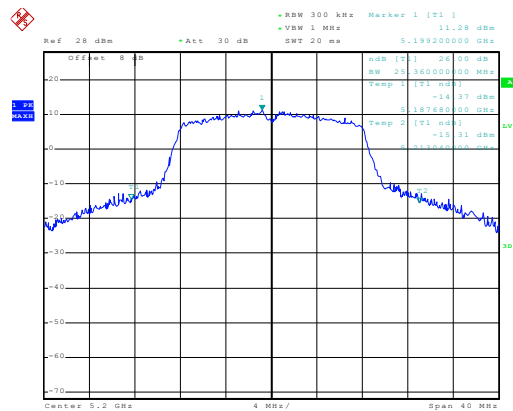
Test mode: 26dB EBW

802.11a



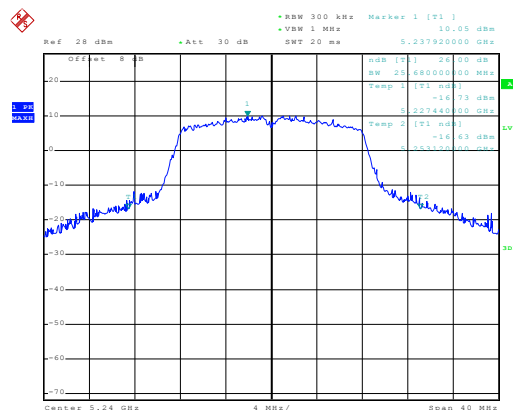
Date: 19.JAN.2015 17:04:41

Lowest channel



Date: 19.JAN.2015 17:05:05

Middle channel

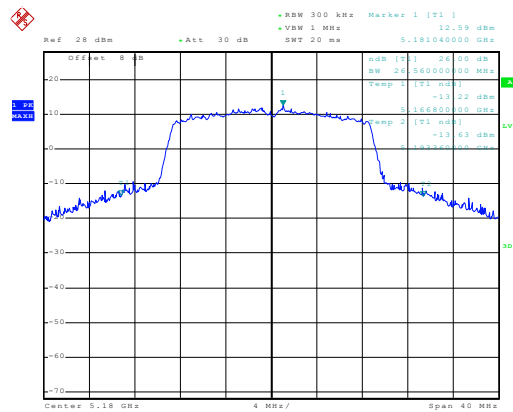


Date: 19.JAN.2015 17:05:49

Highest channel

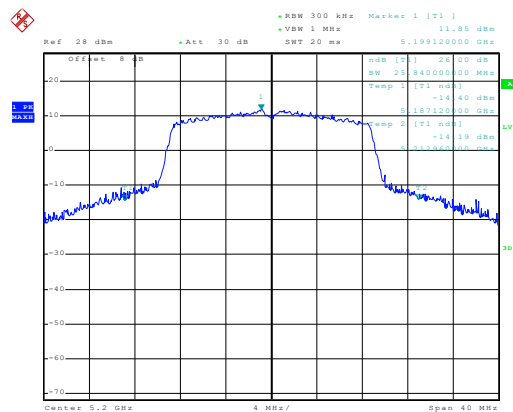
Test mode: 26dB EBW

802.11n20



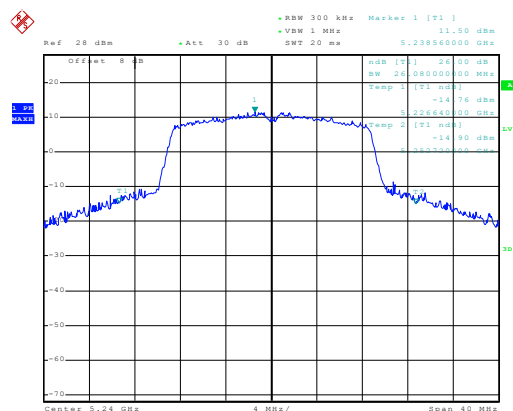
Date: 19.JAN.2015 17:13:51

Lowest channel



Date: 19.JAN.2015 17:14:43

Middle channel

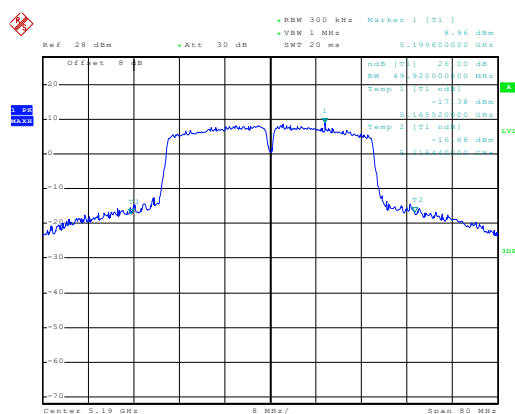


Date: 19.JAN.2015 17:15:33

Highest channel

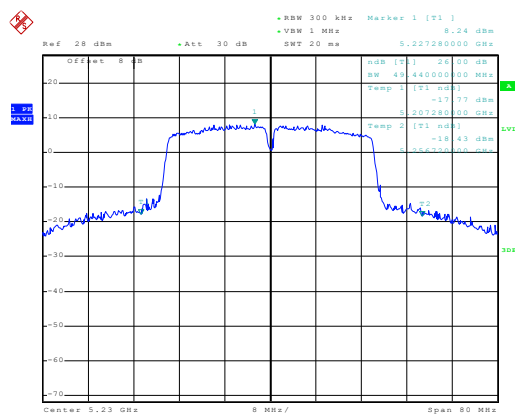
Test mode: 26dB EBW

802.11n40



Date: 19.JAN.2015 17:22:57

Lowest channel

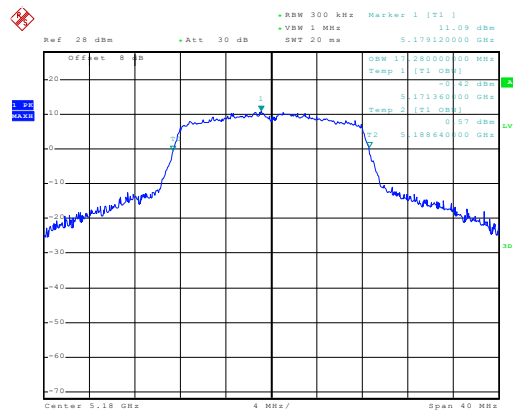


Date: 19.JAN.2015 17:23:57

Highest channel

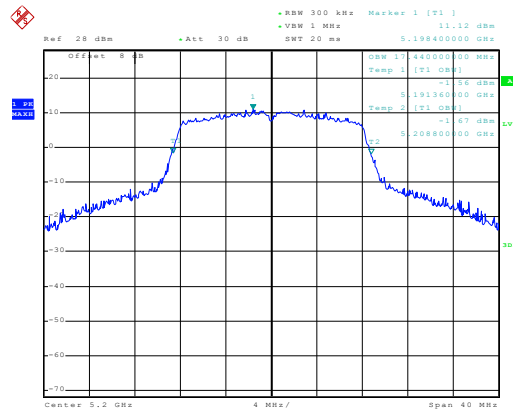
Test mode:99% OBW

802.11a



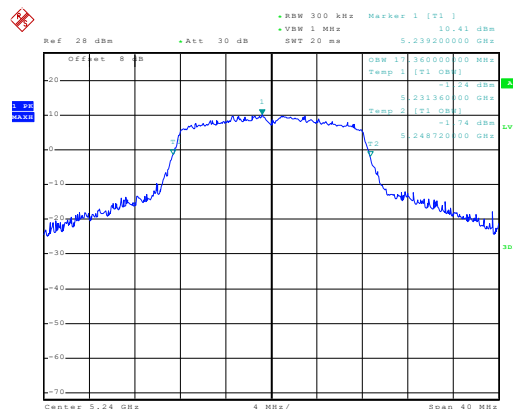
Date: 19.JAN.2015 17:04:21

Lowest channel



Date: 19.JAN.2015 17:05:16

Middle channel

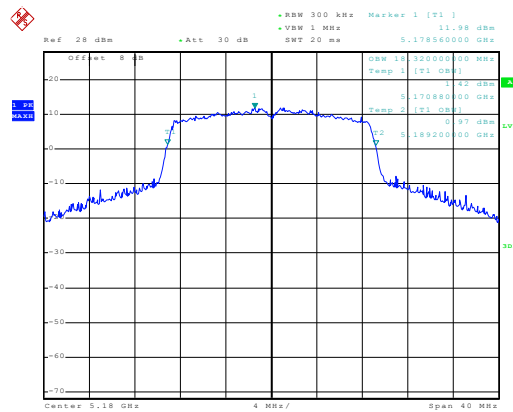


Date: 19.JAN.2015 17:05:37

Highest channel

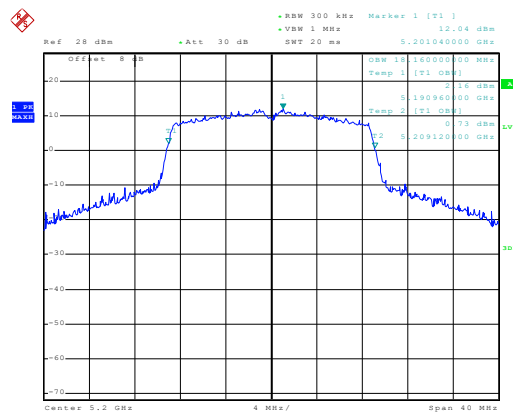
Test mode: 99% OBW

802.11n20



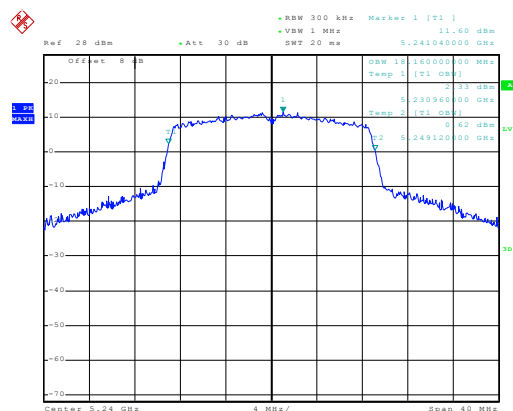
Date: 19.JAN.2015 17:14:02

Lowest channel



Date: 19.JAN.2015 17:14:28

Middle channel

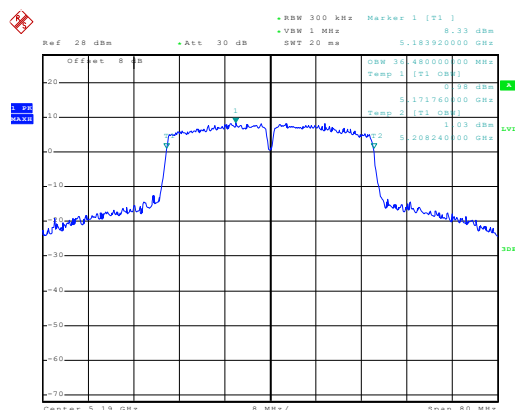


Date: 19.JAN.2015 17:15:47

Highest channel

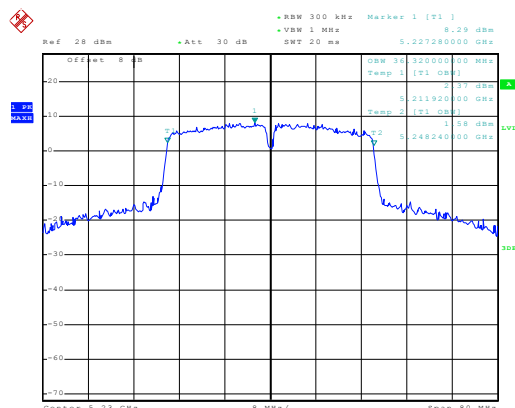
Test mode: 99% OBW

802.11n40



Date: 19.JAN.2015 17:23:11

Lowest channel



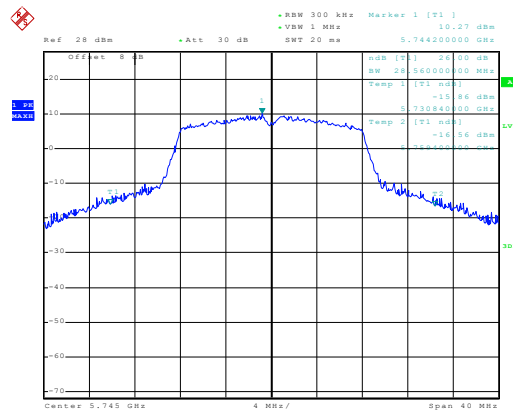
Date: 19.JAN.2015 17:23:44

Highest channel

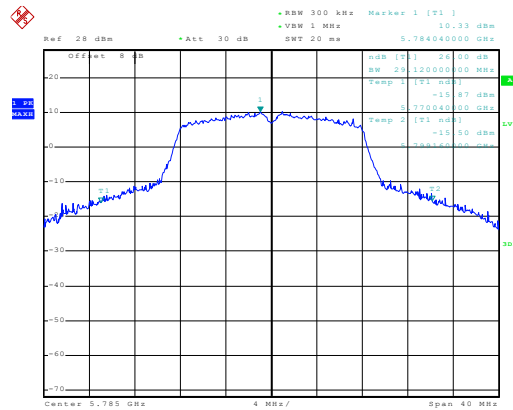
Band 4:

Test mode: 26dB EBW

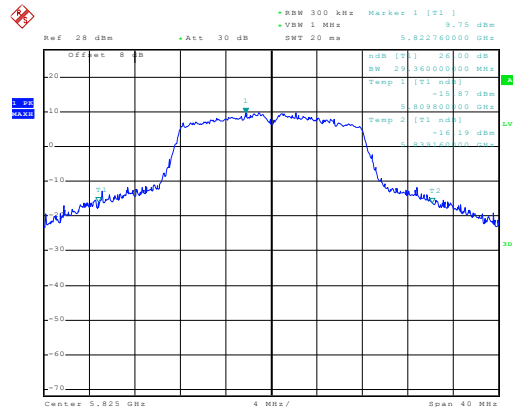
802.11a



Date: 20..JAN.2015 08:03:25

Lowest channel

Date: 20..JAN.2015 08:02:35

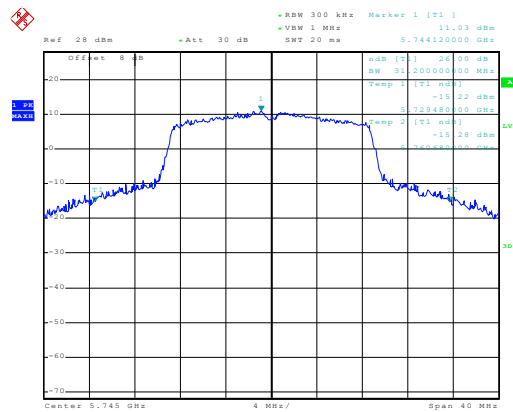
Middle channel

Date: 20..JAN.2015 08:02:10

Highest channel

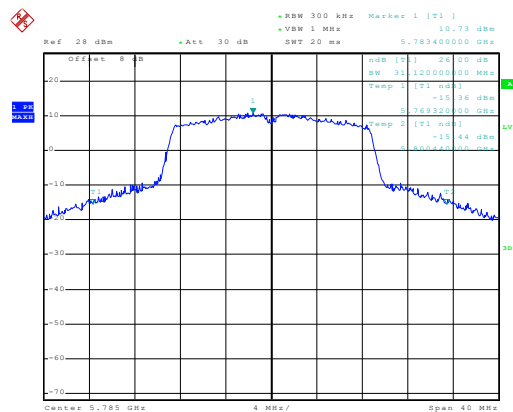
Test mode: 26dB EBW

802.11n20



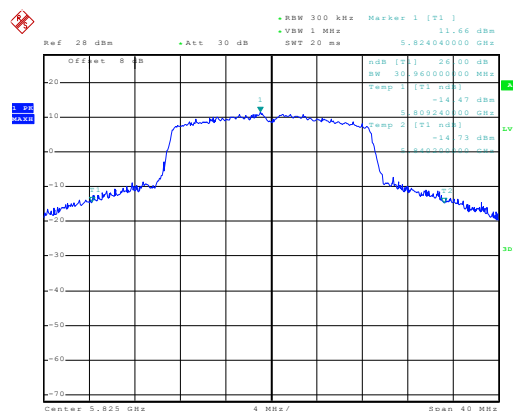
Date: 20.JAN.2015 08:17:15

Lowest channel



Date: 20.JAN.2015 08:16:31

Middle channel

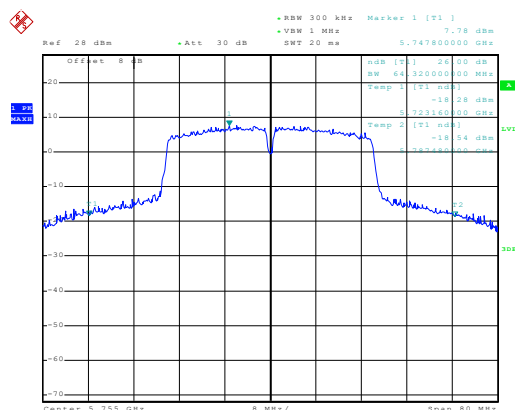


Date: 20.JAN.2015 08:16:11

Highest channel

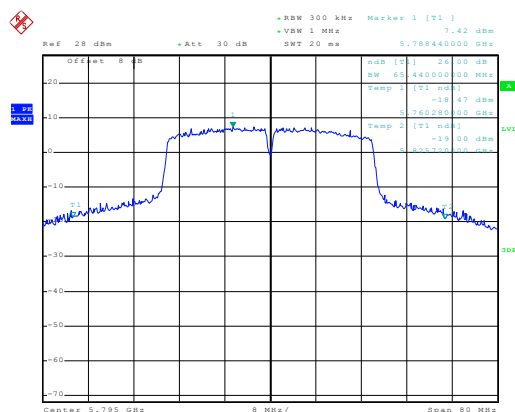
Test mode: 26dB EBW

802.11n40



Date: 20.JAN.2015 08:23:15

Lowest channel

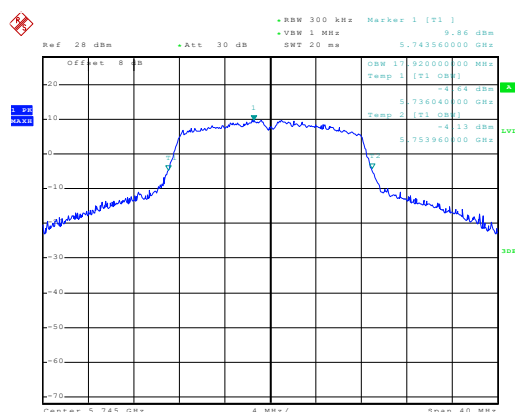


Date: 20.JAN.2015 08:22:50

Highest channel

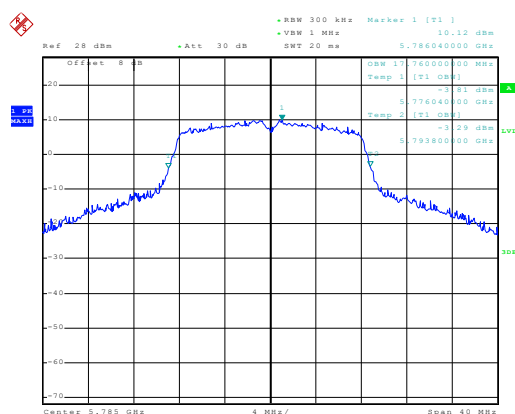
Test mode:99% OBW

802.11a



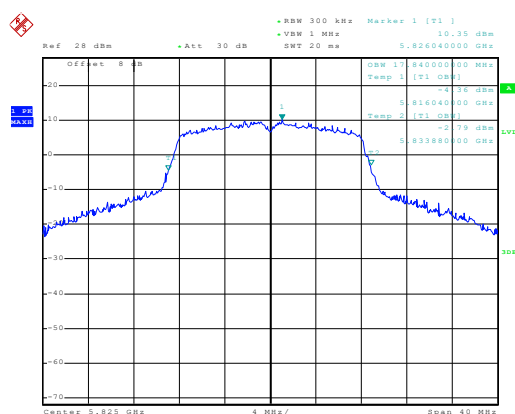
Date: 20.JAN.2015 08:03:10

Lowest channel



Date: 20 JAN 2015 08:02:46

Middle channel

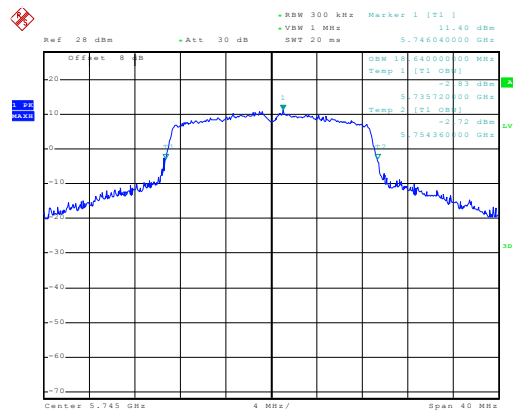


Date: 20.JAN.2015 08:01:58

Highest channel

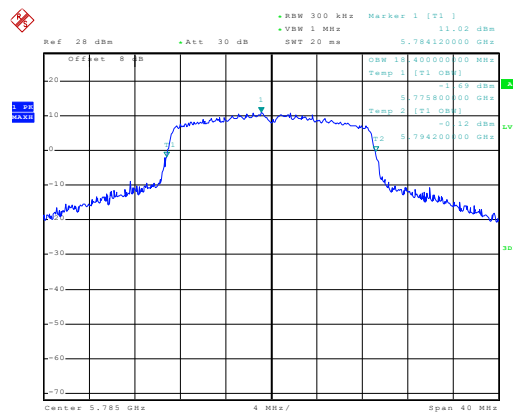
Test mode: 99% OBW

802.11n20



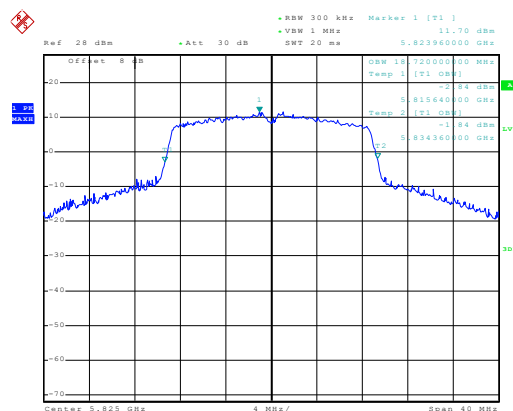
Date: 20.JAN.2015 08:17:05

Lowest channel



Date: 20.JAN.2015 08:16:43

Middle channel

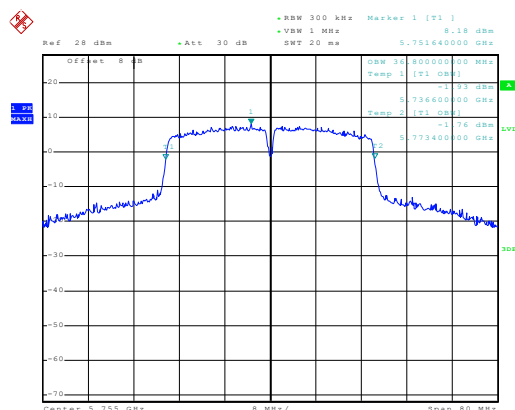


Date: 20.JAN.2015 08:15:59

Highest channel

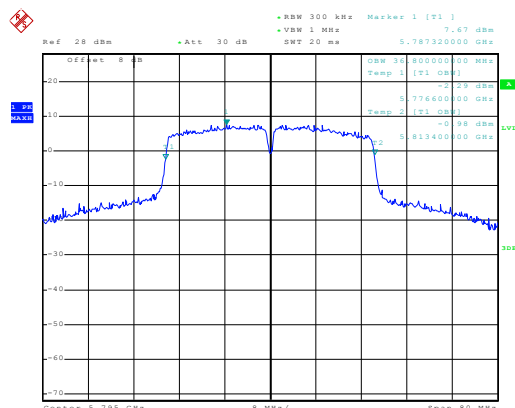
Test mode: 99% OBW

802.11n40



Date: 20.JAN.2015 08:23:26

Lowest channel

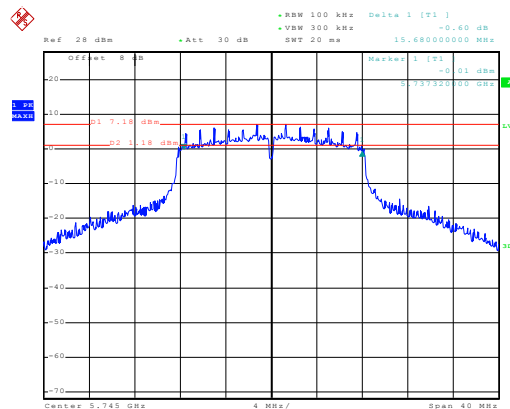


Date: 20.JAN.2015 08:22:40

Highest channel

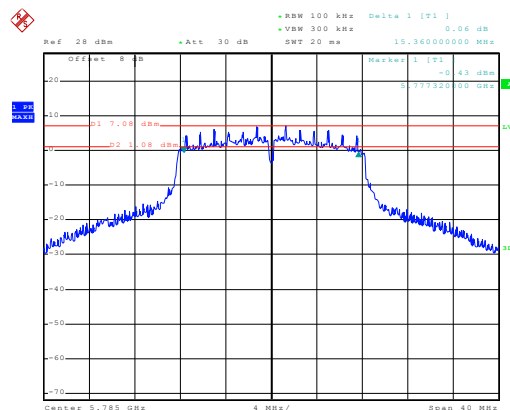
Test mode:6dB BW

802.11a



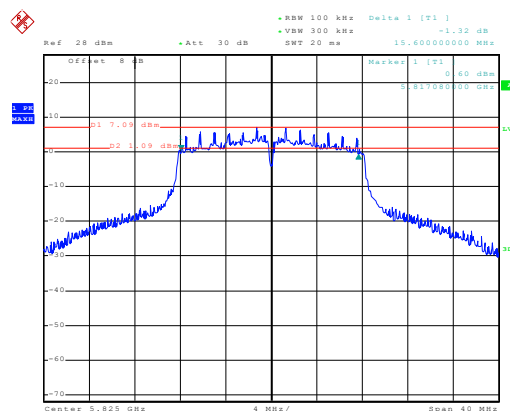
Date: 20.JAN.2015 07:51:40

Lowest channel



Date: 20.JAN.2015 07:56:30

Middle channel

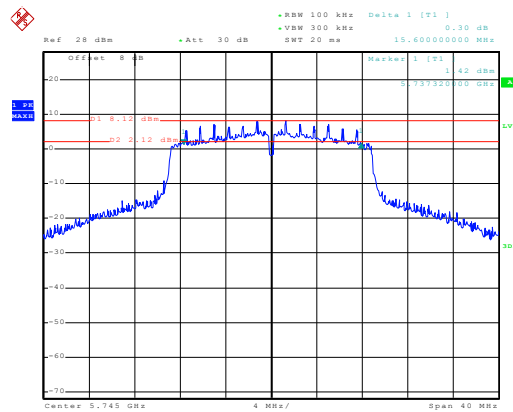


Date: 20.JAN.2015 08:00:23

Highest channel

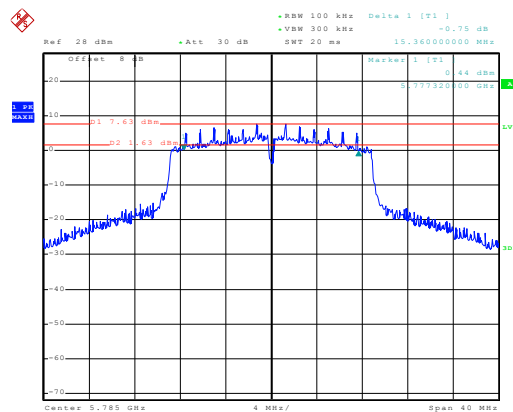
Test mode: 6dB BW

802.11n20



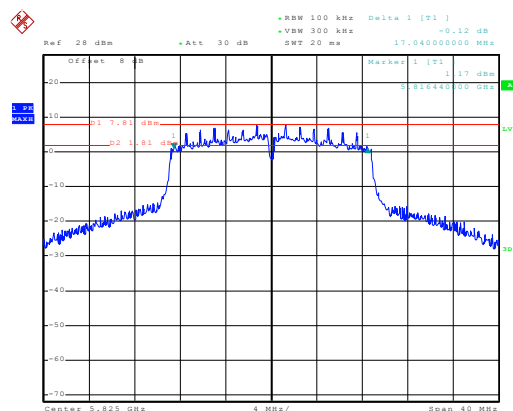
Date: 23.JAN.2015 16:54:24

Lowest channel



Date: 23.JAN.2015 16:55:21

Middle channel

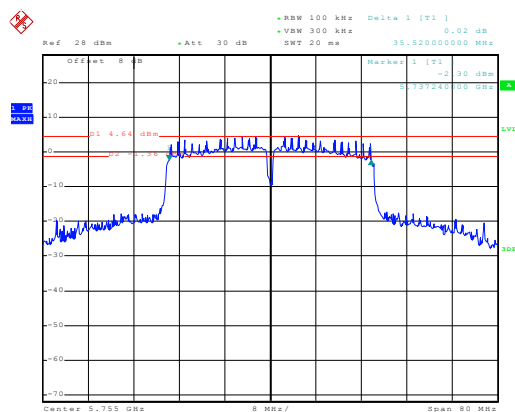


Date: 23.JAN.2015 16:59:22

Highest channel

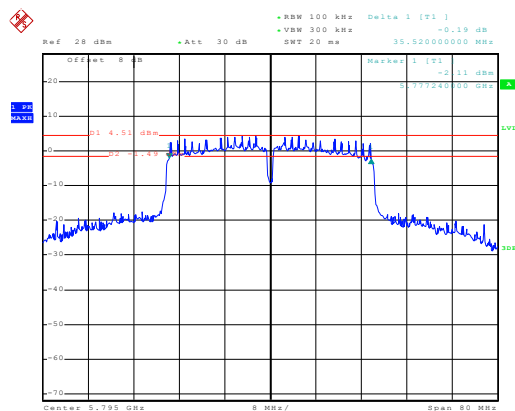
Test mode: 6dB BW

802.11n40



Date: 20.JAN.2015 08:20:43

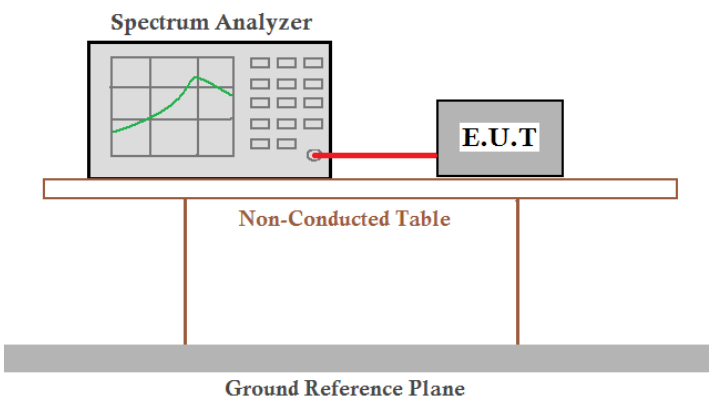
Lowest channel



Date: 20.JAN.2015 08:22:05

Highest channel

6.5 Power Spectral Density

Test Requirement:	FCC Part 15 E Section 15.407 (a)
Test Method:	ANSI C63.10: 2009 , KDB 789033 D02
Limit:	Band 5150MHz-5250MHz: 11 dBm/MHz (If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi); Band 5725MHz-5850MHz: 30dBm/500kHz (If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.)
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.
Test Instruments:	Refer to section 5.6 for details
Test mode:	Refer to section 5.3 for details.
Test results:	Passed

Measurement Data

Band 1:

Test CH	Power Spectral Density (dBm)			Limit(dBm)	Result
	802.11a	802.11n 20	802.11n 40		
Lowest	9.47	9.59	6.03	11.00	Pass
Middle	9.89	9.52	--		
Highest	9.38	9.07	5.83		
Note: For the band 5150MHz-5250MHz, it used for mobile and portable client devices.					

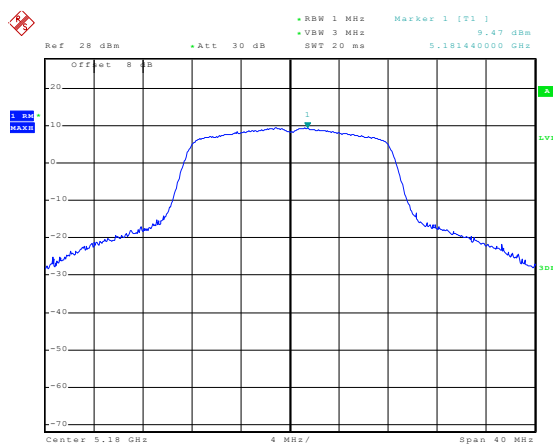
Band 4:

Power Spectral Density (dBm)					
Test CH	802.11a	802.11n 20	802.11n 40	Limit(dBm)	Result
Lowest	7.90	9.96	6.19	30.00	Pass
Middle	8.41	9.95	--		
Highest	8.49	10.06	6.10		
Note: Factor=10log (500 kHz/RBW) =7, RBW=100 kHz.					

Test plot as follows:

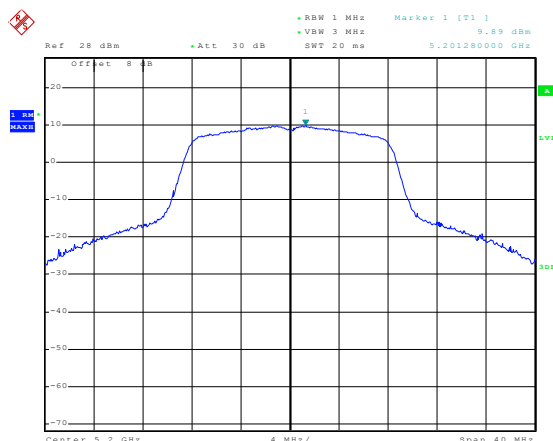
Band 1:

802.11a



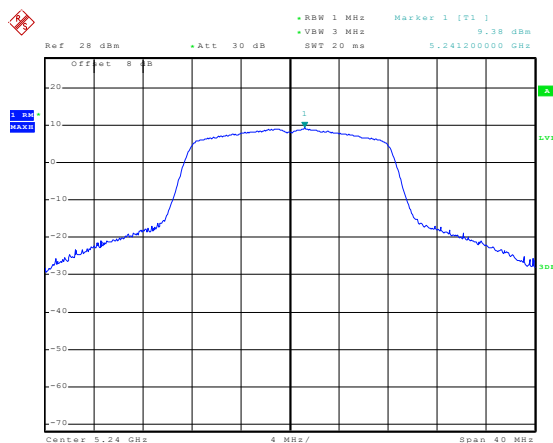
Date: 19.JAN.2015 17:03:48

Lowest channel



Date: 19.JAN.2015 17:03:26

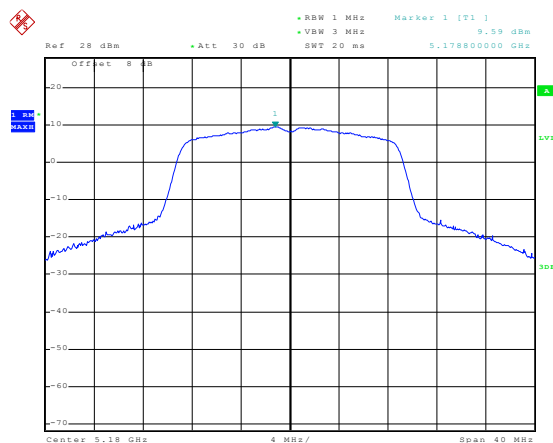
Middle channel



Date: 19.JAN.2015 17:03:00

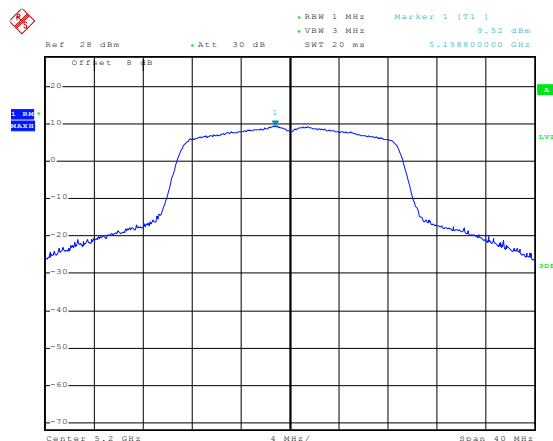
Highest channel

802.11n20



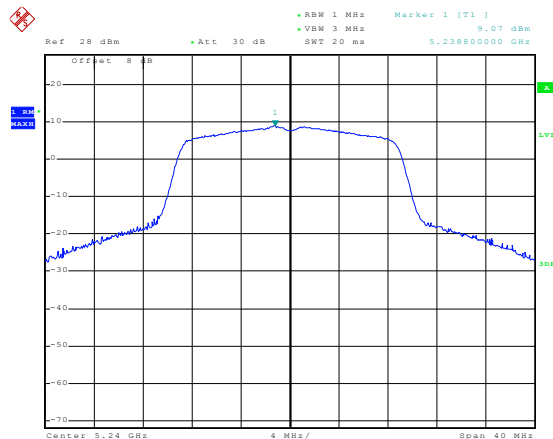
Date: 19.JAN.2015 17:13:10

Lowest channel



Date: 19.JAN.2015 17:17:25

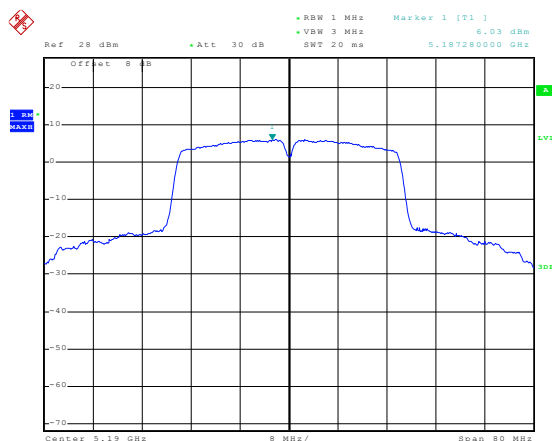
Middle channel



Date: 19.JAN.2015 17:17:46

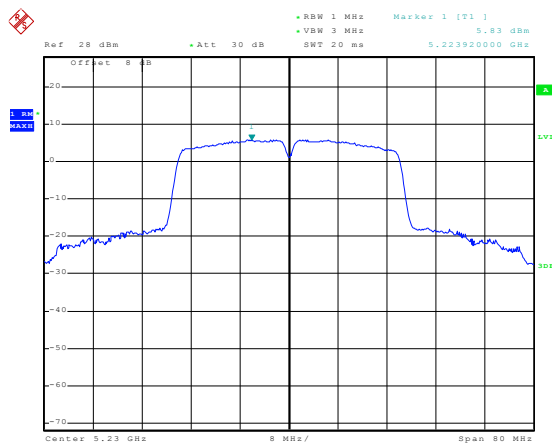
Highest channel

802.11n40



Date: 19.JAN.2015 17:22:07

Lowest channel

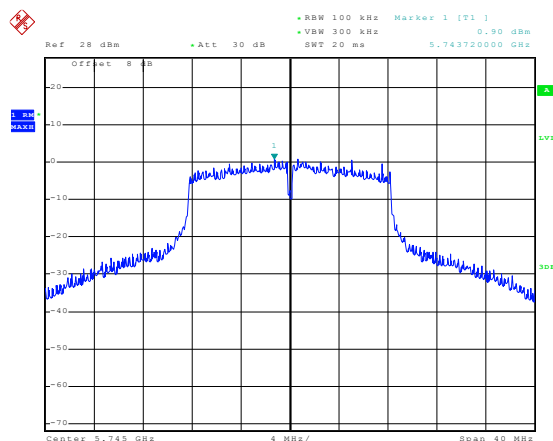


Date: 19.JAN.2015 17:21:22

Highest channel

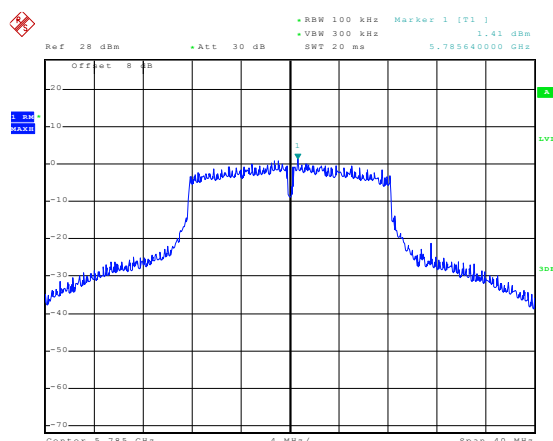
Band 4:

802.11a



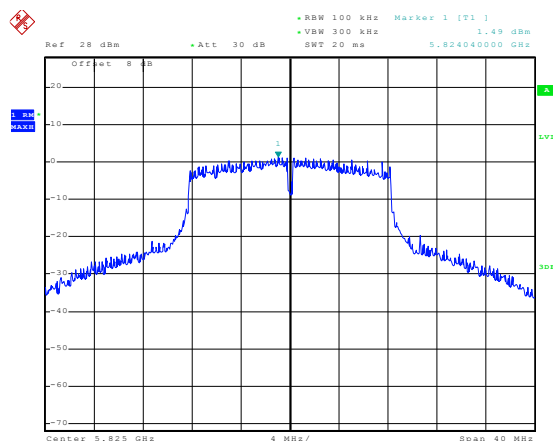
Date: 20..JAN..2015 07:50:30

Lowest channel



Date: 20..JAN..2015 07:50:08

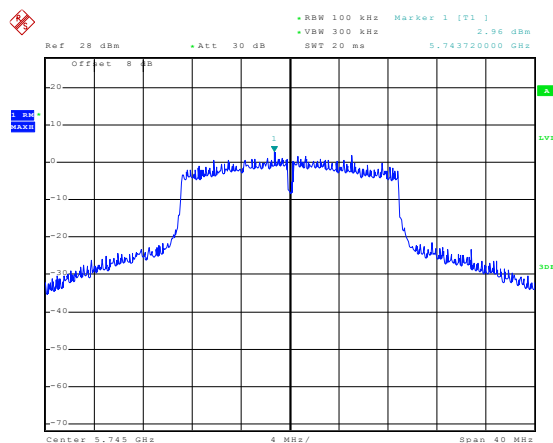
Middle channel



Date: 20..JAN..2015 07:49:27

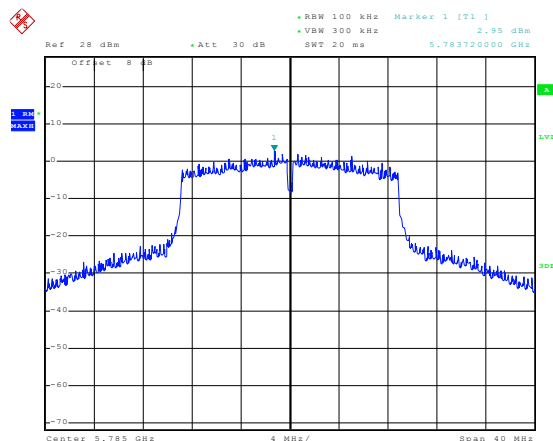
Highest channel

802.11n20



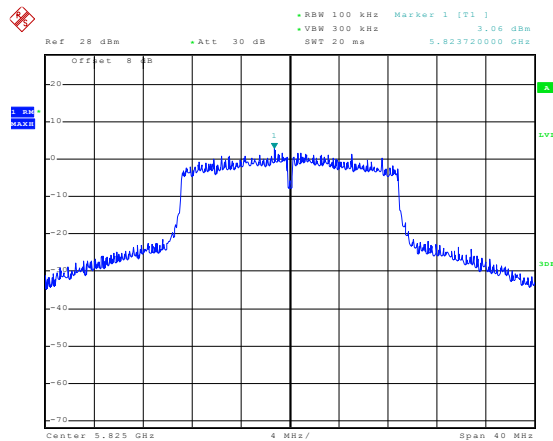
Date: 20.JAN.2015 08:07:19

Lowest channel



Date: 20.JAN.2015 08:07:00

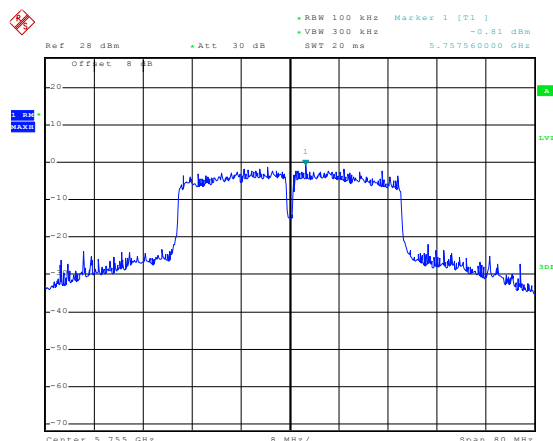
Middle channel



Date: 20.JAN.2015 08:06:34

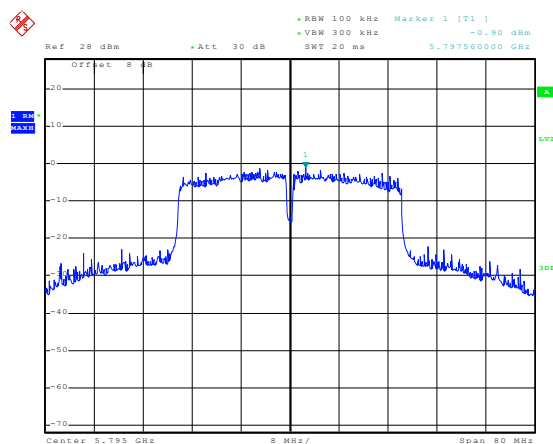
Highest channel

802.11n40



Date: 20.JAN.2015 08:19:42

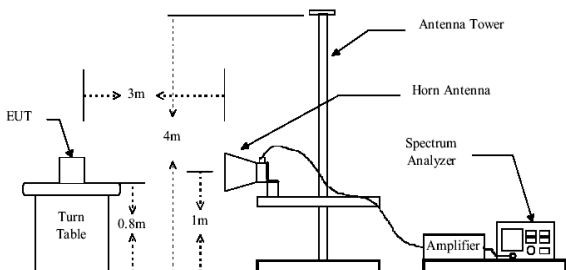
Lowest channel



Date: 20.JAN.2015 08:19:22

Highest channel

6.6 Band Edge

Test Requirement:	FCC Part15 E Section 15.407 (b)				
Test Method:	ANSI C63.10:2009 , KDB 789033 D02				
Receiver setup:		Detector	RBW	VBW	Remark
		Peak	1MHz	3MHz	Peak Value
		RMS	1MHz	3MHz	Average Value
Limit:	Band		Limit (dBuV/m @3m)		Remark
	Band 1		68.20		Peak Value
			54.00		Average Value
	Band 4		78.20		Peak Value
			54.00		Average Value
	Remark: 1. Band 1 limit: $E[\text{dB}\mu\text{V}/\text{m}] = \text{EIRP}[\text{dBm}] + 95.2 = 68.2 \text{ dBuV}/\text{m}$, for $\text{EIPR}[\text{dBm}] = -27\text{dBm}$. 2. Band 4 limit: $E[\text{dB}\mu\text{V}/\text{m}] = \text{EIRP}[\text{dBm}] + 95.2 = 78.2 \text{ dBuV}/\text{m}$, for $\text{EIPR}[\text{dBm}] = -17\text{dBm}$.				
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters 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 setup:					
Test Instruments:	Refer to section 5.6 for details				
Test mode:	Refer to section 5.3 for details				
Test results:	Passed				

Band 1:

802.11a								
Test channel		Lowest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	31.25	32.07	9.13	40.06	32.39	68.20	-35.81	Horizontal
5150.00	32.55	32.07	9.13	40.06	33.69	68.20	-34.51	Vertical
802.11a								
Test channel		Lowest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	25.30	32.07	9.13	40.06	26.44	54.00	-27.56	Horizontal
5150.00	26.40	32.07	9.13	40.06	27.54	54.00	-26.46	Vertical

802.11a								
Test channel		Highest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	33.36	31.78	9.15	40.18	34.11	68.20	-34.09	Horizontal
5350.00	32.68	31.78	9.15	40.18	33.43	68.20	-34.77	Vertical
802.11a								
Test channel		Highest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	26.35	31.78	9.15	40.18	27.10	54.00	-26.90	Horizontal
5350.00	25.80	31.78	9.15	40.18	26.55	54.00	-27.45	Vertical

802.11n-HT20								
Test channel		Lowest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	32.55	32.07	9.13	40.06	33.69	68.20	-34.51	Horizontal
5150.00	33.66	32.07	9.13	40.06	34.80	68.20	-33.40	Vertical
802.11n-HT20								
Test channel		Lowest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	26.35	32.07	9.13	40.06	27.49	54.00	-26.51	Horizontal
5150.00	27.52	32.07	9.13	40.06	28.66	54.00	-25.34	Vertical

802.11n-HT20								
Test channel		Highest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	33.65	31.78	9.15	40.18	34.40	68.20	-33.80	Horizontal
5350.00	33.15	31.78	9.15	40.18	33.90	68.20	-34.30	Vertical
802.11n-HT20								
Test channel		Highest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	26.78	31.78	9.15	40.18	27.53	54.00	-26.47	Horizontal
5350.00	26.77	31.78	9.15	40.18	27.52	54.00	-26.48	Vertical

Remark:

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

802.11n-HT40								
Test channel		Lowest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	32.54	32.07	9.13	40.06	33.68	68.20	-34.52	Horizontal
5150.00	32.63	32.07	9.13	40.06	33.77	68.20	-34.43	Vertical
802.11n-HT40								
Test channel		Lowest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5150.00	26.45	32.07	9.13	40.06	27.59	54.00	-26.41	Horizontal
5150.00	26.77	32.07	9.13	40.06	27.91	54.00	-26.09	Vertical
802.11n-HT40								
Test channel		Highest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	33.69	31.78	9.15	40.18	34.44	68.20	-33.76	Horizontal
5350.00	35.24	31.78	9.15	40.18	35.99	68.20	-32.21	Vertical
802.11n-HT40								
Test channel		Highest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	26.45	31.78	9.15	40.18	27.20	54.00	-26.80	Horizontal
5350.00	27.52	31.78	9.15	40.18	28.27	54.00	-25.73	Vertical

Remark:

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

Band 4:

802.11a								
Test channel		Lowest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	36.58	32.27	9.30	40.54	37.61	78.20	-40.59	Horizontal
5725.00	37.52	32.27	9.30	40.54	38.55	78.20	-39.65	Vertical

802.11a								
Test channel		Lowest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	28.65	32.27	9.30	40.54	29.68	54.00	-24.32	Horizontal
5725.00	29.57	32.27	9.30	40.54	30.60	54.00	-23.40	Vertical

802.11a								
Test channel		Highest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	37.52	32.71	9.37	40.69	38.91	78.20	-39.29	Horizontal
5850.00	38.50	32.71	9.37	40.69	39.89	78.20	-38.31	Vertical

802.11a								
Test channel		Highest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	29.65	32.71	9.37	40.69	31.04	54.00	-22.96	Horizontal
5850.00	28.74	32.71	9.37	40.69	30.13	54.00	-23.87	Vertical

802.11n-HT20								
Test channel		Lowest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	36.54	32.27	9.30	40.54	37.57	78.20	-40.63	Horizontal
5725.00	37.88	32.27	9.30	40.54	38.91	78.20	-39.29	Vertical

802.11n-HT20								
Test channel		Lowest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	29.56	32.27	9.30	40.54	30.59	54.00	-23.41	Horizontal
5725.00	28.47	32.27	9.30	40.54	29.50	54.00	-24.50	Vertical

802.11n-HT20								
Test channel		Highest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	37.25	32.71	9.37	40.69	38.64	78.20	-39.56	Horizontal
5850.00	36.39	32.71	9.37	40.69	37.78	78.20	-40.42	Vertical

802.11n-HT20								
Test channel		Highest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	29.63	32.71	9.37	40.69	31.02	54.00	-22.98	Horizontal
5850.00	28.47	32.71	9.37	40.69	29.86	54.00	-24.14	Vertical

Remark:

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

802.11n-HT40								
Test channel		Lowest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	36.32	32.27	9.30	40.54	37.35	78.20	-40.85	Horizontal
5725.00	37.89	32.27	9.30	40.54	38.92	78.20	-39.28	Vertical
802.11n-HT40								
Test channel		Lowest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.00	29.63	32.27	9.30	40.54	30.66	54.00	-23.34	Horizontal
5725.00	27.58	32.27	9.30	40.54	28.61	54.00	-25.39	Vertical

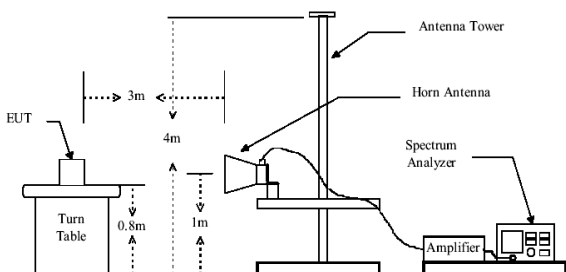
802.11n-HT40								
Test channel		Highest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	36.98	32.71	9.37	40.69	38.37	78.20	-39.83	Horizontal
5850.00	37.45	32.71	9.37	40.69	38.84	78.20	-39.36	Vertical
802.11n-HT40								
Test channel		Highest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5850.00	27.69	32.71	9.37	40.69	29.08	54.00	-24.92	Horizontal
5850.00	28.65	32.71	9.37	40.69	30.04	54.00	-23.96	Vertical

Remark:

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

6.7 Spurious Emission

6.7.1 Restricted Band

Test Requirement:	FCC Part15 E Section 15.407(b)				
Test Method:	ANSI C63.10: 2009				
Test Frequency Range:	Band 1: 4.5 GHz to 5.15 GHz and 5.35GHz to 5.46GHz Band 4: 5.35 GHz to 5.46 GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		RMS	1MHz	3MHz	Average Value
Limit:	Frequency		Limit (dBuV/m @3m)		Remark
	Above 1GHz		54.00		Average Value
			74.00		Peak Value
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters 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 setup:					
Test Instruments:	Refer to section 5.6 for details				
Test mode:	Refer to section 5.3 for details				
Test results:	Passed				

Band 1:

802.11a								
Test channel		Lowest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	36.65	30.72	8.54	40.67	35.24	74.00	-38.76	Horizontal
5150.00	37.52	32.07	9.13	40.06	38.66	74.00	-35.34	Horizontal
4500.00	36.12	30.72	8.54	40.67	34.71	74.00	-39.29	Vertical
5150.00	37.52	32.07	9.13	40.06	38.66	74.00	-35.34	Vertical
Test channel		Lowest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	26.35	30.72	8.54	40.67	24.94	54.00	-29.06	Horizontal
5150.00	27.52	32.07	9.13	40.06	28.66	54.00	-25.34	Horizontal
4500.00	26.36	30.72	8.54	40.67	24.95	54.00	-29.05	Vertical
5150.00	27.58	32.07	9.13	40.06	28.72	54.00	-25.28	Vertical

802.11a								
Test channel		Highest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	36.95	31.78	9.15	40.18	37.70	74.00	-36.30	Horizontal
5460.00	37.52	31.99	9.16	40.23	38.44	74.00	-35.56	Horizontal
5350.00	36.32	31.78	9.15	40.18	37.07	74.00	-36.93	Vertical
5460.00	37.45	31.99	9.16	40.23	38.37	74.00	-35.63	Vertical
Test channel		Highest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	26.65	31.78	9.15	40.18	27.40	54.00	-26.60	Horizontal
5460.00	27.52	31.99	9.16	40.23	28.44	54.00	-25.56	Horizontal
5350.00	26.67	31.78	9.15	40.18	27.42	54.00	-26.58	Vertical
5460.00	27.54	31.99	9.16	40.23	28.46	54.00	-25.54	Vertical

Remark:

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

802.11n-HT20								
Test channel		Lowest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	36.99	30.72	8.54	40.67	35.58	74.00	-38.42	Horizontal
5150.00	37.57	32.07	9.13	40.06	38.71	74.00	-35.29	Horizontal
4500.00	36.74	30.72	8.54	40.67	35.33	74.00	-38.67	Vertical
5150.00	37.25	32.07	9.13	40.06	38.39	74.00	-35.61	Vertical
Test channel		Lowest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	26.87	30.72	8.54	40.67	25.46	54.00	-28.54	Horizontal
5150.00	27.65	32.07	9.13	40.06	28.79	54.00	-25.21	Horizontal
4500.00	26.36	30.72	8.54	40.67	24.95	54.00	-29.05	Vertical
5150.00	27.57	32.07	9.13	40.06	28.71	54.00	-25.29	Vertical

802.11n-HT20								
Test channel		Highest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	36.58	31.78	9.15	40.18	37.33	74.00	-36.67	Horizontal
5460.00	37.65	31.99	9.16	40.23	38.57	74.00	-35.43	Horizontal
5350.00	36.84	31.78	9.15	40.18	37.59	74.00	-36.41	Vertical
5460.00	37.17	31.99	9.16	40.23	38.09	74.00	-35.91	Vertical
Test channel		Highest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	26.59	31.78	9.15	40.18	27.34	54.00	-26.66	Horizontal
5460.00	27.54	31.99	9.16	40.23	28.46	54.00	-25.54	Horizontal
5350.00	26.36	31.78	9.15	40.18	27.11	54.00	-26.89	Vertical
5460.00	27.88	31.99	9.16	40.23	28.80	54.00	-25.20	Vertical

Remark:

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

802.11n-HT40								
Test channel		Lowest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	36.65	30.72	8.54	40.67	35.24	74.00	-38.76	Horizontal
5150.00	37.24	32.07	9.13	40.06	38.38	74.00	-35.62	Horizontal
4500.00	36.25	30.72	8.54	40.67	34.84	74.00	-39.16	Vertical
5150.00	37.84	32.07	9.13	40.06	38.98	74.00	-35.02	Vertical
Test channel		Lowest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4500.00	26.36	30.72	8.54	40.67	24.95	54.00	-29.05	Horizontal
5150.00	27.54	32.07	9.13	40.06	28.68	54.00	-25.32	Horizontal
4500.00	26.39	30.72	8.54	40.67	24.98	54.00	-29.02	Vertical
5150.00	27.52	32.07	9.13	40.06	28.66	54.00	-25.34	Vertical

802.11n-HT40								
Test channel		Highest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	36.96	31.78	9.15	40.18	37.71	74.00	-36.29	Horizontal
5460.00	37.95	31.99	9.16	40.23	38.87	74.00	-35.13	Horizontal
5350.00	36.68	31.78	9.15	40.18	37.43	74.00	-36.57	Vertical
5460.00	37.54	31.99	9.16	40.23	38.46	74.00	-35.54	Vertical
Test channel		Highest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	26.98	31.78	9.15	40.18	27.73	54.00	-26.27	Horizontal
5460.00	27.54	31.99	9.16	40.23	28.46	54.00	-25.54	Horizontal
5350.00	26.40	31.78	9.15	40.18	27.15	54.00	-26.85	Vertical
5460.00	27.17	31.99	9.16	40.23	28.09	54.00	-25.91	Vertical

Remark:

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

Band 4:

802.11a								
Test channel		Lowest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	43.65	31.78	9.15	40.18	44.40	74.00	-29.60	Horizontal
5460.00	44.21	31.99	9.16	40.23	45.13	74.00	-28.87	Horizontal
5350.00	43.57	31.78	9.15	40.18	44.32	74.00	-29.68	Vertical
5460.00	44.24	31.99	9.16	40.23	45.16	74.00	-28.84	Vertical
Test channel		Lowest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	32.35	31.78	9.15	40.18	33.10	54.00	-20.90	Horizontal
5460.00	33.32	31.99	9.16	40.23	34.24	54.00	-19.76	Horizontal
5350.00	32.54	31.78	9.15	40.18	33.29	54.00	-20.71	Vertical
5460.00	33.74	31.99	9.16	40.23	34.66	54.00	-19.34	Vertical
802.11n-HT20								
Test channel		Lowest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	43.65	31.78	9.15	40.18	44.40	74.00	-29.60	Horizontal
5460.00	44.58	31.99	9.16	40.23	45.50	74.00	-28.50	Horizontal
5350.00	43.65	31.78	9.15	40.18	44.40	74.00	-29.60	Vertical
5460.00	44.58	31.99	9.16	40.23	45.50	74.00	-28.50	Vertical
Test channel		Lowest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	32.35	31.78	9.15	40.18	33.10	54.00	-20.90	Horizontal
5460.00	33.35	31.99	9.16	40.23	34.27	54.00	-19.74	Horizontal
5350.00	32.69	31.78	9.15	40.18	33.44	54.00	-20.57	Vertical
5460.00	33.68	31.99	9.16	40.23	34.60	54.00	-19.40	Vertical

Remark:

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

802.11n-HT40								
Test channel		Lowest			Level		Peak	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	43.51	31.78	9.15	40.18	44.26	74.00	-29.74	Horizontal
5460.00	44.28	31.99	9.16	40.23	45.20	74.00	-28.80	Horizontal
5350.00	43.65	31.78	9.15	40.18	44.40	74.00	-29.60	Vertical
5460.00	44.15	31.99	9.16	40.23	45.07	74.00	-28.93	Vertical
Test channel		Lowest			Level		Average	
Frequency (MHz)	Read Level (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5350.00	33.24	31.78	9.15	40.18	33.99	54.00	-20.02	Horizontal
5460.00	34.25	31.99	9.16	40.23	35.17	54.00	-18.83	Horizontal
5350.00	33.65	31.78	9.15	40.18	34.40	54.00	-19.60	Vertical
5460.00	34.21	31.99	9.16	40.23	35.13	54.00	-18.87	Vertical

Remark:

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

6.7.2 Radiated Spurious Emission

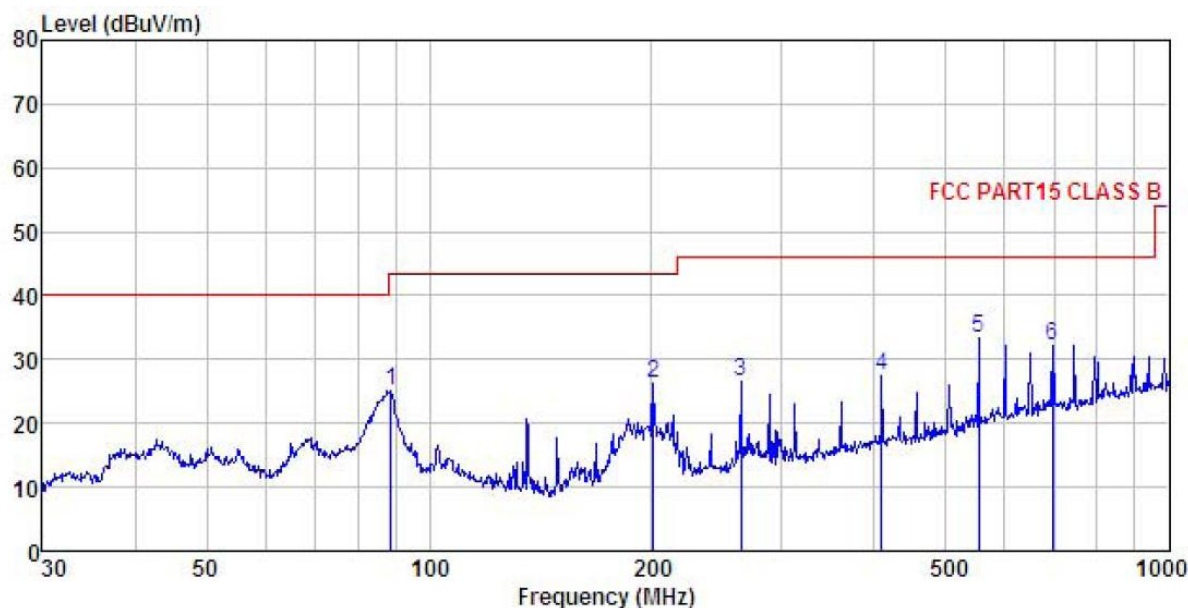
Test Requirement:	FCC Part15 C Section 15.209 and 15.205				
Test Method:	ANSI C63.10: 2009				
Test Frequency Range:	30MHz to 40GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	100kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		RMS	1MHz	3MHz	Average Value
Limit:	Frequency		Limit (dBuV/m @3m)		Remark
	30MHz-88MHz		40.00		Quasi-peak Value
	88MHz-216MHz		43.50		Quasi-peak Value
	216MHz-960MHz		46.00		Quasi-peak Value
	960MHz-1GHz		54.00		Quasi-peak Value
	Above 1GHz		68.20		Peak Value
			54.00		Average Value
	Remark: 3. Above 1GHz limit: E [dBμV/m] = EIRP [dBm] + 95.2=68.2 dBuV/m, for EIPR [dBm] =-27dBm.				
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters 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 setup:	Below 1GHz Above 1GHz
Test Instruments:	Refer to section 5.6 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Band 1:

Below 1GHz

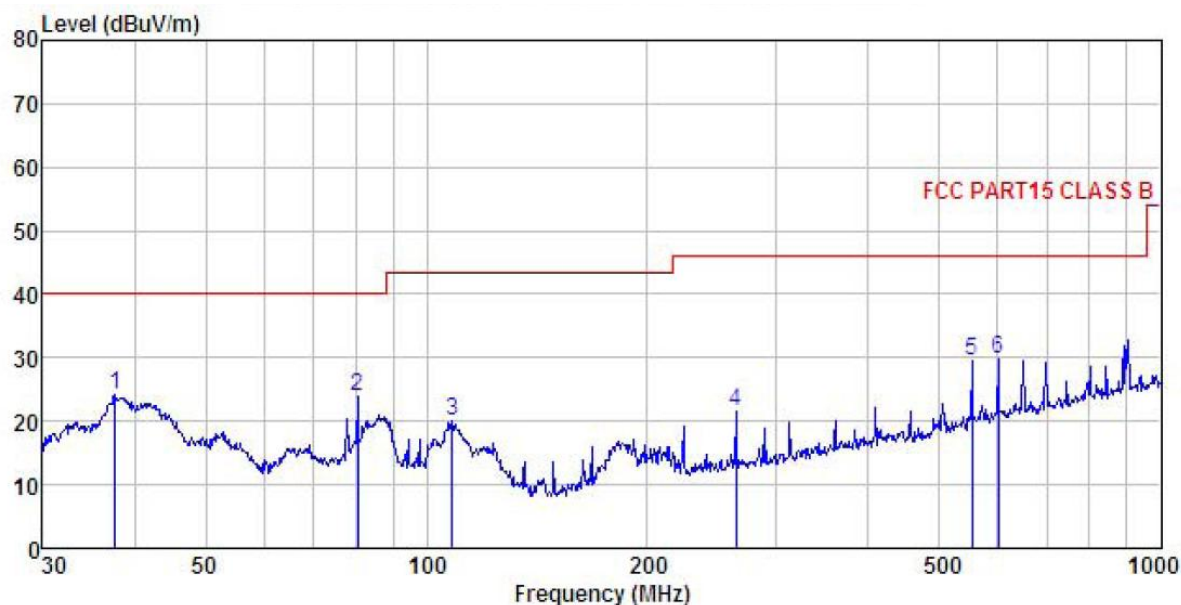
Horizontal:



Site : 3m chamber
 Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) HORIZONTAL
 EUT : Mobile phone
 Model : LT50
 Test mode : Wifi Mode
 Power Rating : AC120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Ffy
 REMARK : 5G

	Freq	ReadAntenna Level	Cable Factor	Preamplifier Loss	Level	Limit	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	
1	88.652	42.39	11.47	0.90	29.58	25.18	-18.32	QP
2	200.688	43.09	10.57	1.38	28.83	26.21	-17.29	QP
3	263.819	41.22	12.17	1.66	28.51	26.54	-19.46	QP
4	408.946	38.81	15.27	2.14	28.80	27.42	-18.58	QP
5	552.883	42.38	17.62	2.54	29.09	33.45	-12.55	QP
6	696.857	39.17	18.80	2.90	28.68	32.19	-13.81	QP

Vertical:



Site : 3m chamber
 Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) VERTICAL
 EUT : Mobile phone
 Model : LT50
 Test mode : Wifi Mode
 Power Rating : AC120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Ffy
 REMARK : 5G

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	37.680	40.73	13.01	0.50	29.92	24.32	40.00	-15.68	QP
2	80.644	43.80	8.84	0.85	29.64	23.85	40.00	-16.15	QP
3	108.267	36.26	12.39	1.03	29.47	20.21	43.50	-23.29	QP
4	263.819	36.20	12.17	1.66	28.51	21.52	46.00	-24.48	QP
5	552.883	38.53	17.62	2.54	29.09	29.60	46.00	-16.40	QP
6	601.427	37.58	18.46	2.63	28.93	29.74	46.00	-16.26	QP

Above 1GHz:

Band 1:

802.11a mode Lowest channel (Peak Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	44.65	39.23	13.84	41.34	56.38	68.20	-11.82	Vertical
10360.00	45.62	39.23	13.84	41.34	57.35	68.20	-10.85	Horizontal
802.11a mode Lowest channel (Average Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	26.36	39.23	13.84	41.34	38.09	54.00	-15.91	Vertical
10360.00	27.85	39.23	13.84	41.34	39.58	54.00	-14.42	Horizontal

802.11a mode Middle channel (Peak Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	45.63	39.36	13.85	41.27	57.57	68.20	-10.63	Vertical
10400.00	44.25	39.36	13.85	41.27	56.19	68.20	-12.01	Horizontal
802.11a mode Middle channel (Average Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	26.33	39.36	13.85	41.27	38.27	54.00	-15.73	Vertical
10400.00	26.54	39.36	13.85	41.27	38.48	54.00	-15.52	Horizontal

802.11a mode Highest channel (Peak Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	44.63	39.56	13.90	41.06	57.03	68.20	-11.17	Vertical
10480.00	44.85	39.56	13.90	41.06	57.25	68.20	-10.95	Horizontal
802.11a mode Highest channel (Average Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	26.53	39.56	13.90	41.06	38.93	54.00	-15.07	Vertical
10480.00	27.58	39.56	13.90	41.06	39.98	54.00	-14.02	Horizontal

Remark:

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

802.11n20 mode Lowest channel (Peak Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	44.25	39.23	13.84	41.34	55.98	68.20	-12.22	Vertical
10360.00	43.69	39.23	13.84	41.34	55.42	68.20	-12.78	Horizontal
802.11n20 mode Lowest channel (Average Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	26.52	39.23	13.84	41.34	38.25	54.00	-15.75	Vertical
10360.00	27.52	39.23	13.84	41.34	39.25	54.00	-14.75	Horizontal

802.11n20 mode Middle channel (Peak Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	43.69	39.36	13.85	41.27	55.63	68.20	-12.57	Vertical
10400.00	44.36	39.36	13.85	41.27	56.30	68.20	-11.90	Horizontal
802.11n20 mode Middle channel (Average Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400.00	26.60	39.36	13.85	41.27	38.54	54.00	-15.46	Vertical
10400.00	27.85	39.36	13.85	41.27	39.79	54.00	-14.21	Horizontal

802.11n20 mode Highest channel (Peak Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	44.25	39.56	13.90	41.06	56.65	68.20	-11.55	Vertical
10480.00	45.32	39.56	13.90	41.06	57.72	68.20	-10.48	Horizontal
802.11n20 mode Highest channel (Average Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480.00	27.52	39.56	13.90	41.06	39.92	54.00	-14.08	Vertical
10480.00	26.93	39.56	13.90	41.06	39.33	54.00	-14.67	Horizontal

Remark:

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

802.11n40 mode Lowest channel (Peak Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10380.00	44.63	39.29	13.84	41.31	56.45	68.20	-11.75	Vertical
10380.00	45.69	39.29	13.84	41.31	57.51	68.20	-10.69	Horizontal
802.11n40 mode Lowest channel (Average Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10380.00	27.65	39.29	13.84	41.31	39.47	54.00	-14.53	Vertical
10380.00	27.45	39.29	13.84	41.31	39.27	54.00	-14.73	Horizontal

802.11n40 mode Highest channel (Peak Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10460.00	44.87	39.54	13.88	41.17	57.12	68.20	-11.08	Vertical
10460.00	44.78	39.54	13.88	41.17	57.03	68.20	-11.17	Horizontal
802.11n40 mode Highest channel (Average Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10460.00	26.36	39.54	13.88	41.17	38.61	54.00	-15.39	Vertical
10460.00	26.72	39.54	13.88	41.17	38.97	54.00	-15.03	Horizontal

Remark:

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

Band 4:

802.11a mode Lowest channel (Peak Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11490.00	42.36	40.25	13.82	40.75	55.68	68.20	-12.52	Vertical
11490.00	41.60	40.25	13.82	40.75	54.92	68.20	-13.28	Horizontal
802.11a mode Lowest channel (Average Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11490.00	27.65	40.25	13.82	40.75	40.97	54.00	-13.03	Vertical
11490.00	26.97	40.25	13.82	40.75	40.29	54.00	-13.71	Horizontal

802.11a mode Middle channel (Peak Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11570.00	41.36	40.17	13.78	40.91	54.40	68.20	-13.80	Vertical
11570.00	42.55	40.17	13.78	40.91	55.59	68.20	-12.61	Horizontal
802.11a mode Middle channel (Average Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11570.00	27.69	40.17	13.78	40.91	40.73	54.00	-13.27	Vertical
11570.00	28.66	40.17	13.78	40.91	41.70	54.00	-12.31	Horizontal

802.11a mode Highest channel (Peak Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11650.00	41.63	39.89	13.74	41.06	54.20	68.20	-14.00	Vertical
11650.00	41.89	39.89	13.74	41.06	54.46	68.20	-13.74	Horizontal
802.11a mode Highest channel (Average Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11650.00	26.36	39.89	13.74	41.06	38.93	54.00	-15.07	Vertical
11650.00	27.54	39.89	13.74	41.06	40.11	54.00	-13.89	Horizontal

Remark:

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

802.11n20 mode Lowest channel (Peak Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11490.00	42.63	40.25	13.82	40.75	55.95	68.20	-12.25	Vertical
11490.00	41.85	40.25	13.82	40.75	55.17	68.20	-13.03	Horizontal
802.11n20 mode Lowest channel (Average Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11490.00	27.65	40.25	13.82	40.75	40.97	54.00	-13.03	Vertical
11490.00	28.63	40.25	13.82	40.75	41.95	54.00	-12.05	Horizontal

802.11n20 mode Middle channel (Peak Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11570.00	41.55	40.17	13.78	40.91	54.59	68.20	-13.61	Vertical
11570.00	41.66	40.17	13.78	40.91	54.70	68.20	-13.50	Horizontal
802.11n20 mode Middle channel (Average Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11570.00	27.69	40.17	13.78	40.91	40.73	54.00	-13.27	Vertical
11570.00	28.69	40.17	13.78	40.91	41.73	54.00	-12.27	Horizontal

802.11n20 mode Highest channel (Peak Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11650.00	41.25	39.89	13.74	41.06	53.82	68.20	-14.38	Vertical
11650.00	42.40	39.89	13.74	41.06	54.97	68.20	-13.23	Horizontal
802.11n20 mode Highest channel (Average Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11650.00	27.65	39.89	13.74	41.06	40.22	54.00	-13.78	Vertical
11650.00	26.58	39.89	13.74	41.06	39.15	54.00	-14.85	Horizontal

Remark:

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

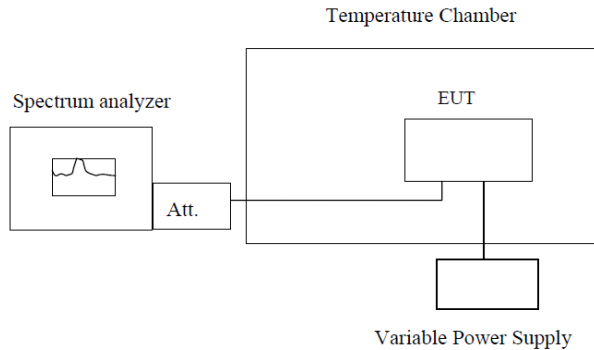
802.11n40 mode Lowest channel (Peak Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11510.00	42.65	40.26	13.83	40.77	55.97	68.20	-12.23	Vertical
11510.00	41.25	40.26	13.83	40.77	54.57	68.20	-13.63	Horizontal
802.11n40 mode Lowest channel (Average Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11510.00	27.65	40.26	13.83	40.77	40.97	54.00	-13.03	Vertical
11510.00	27.98	40.26	13.83	40.77	41.30	54.00	-12.70	Horizontal

802.11n40 mode Highest channel (Peak Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11590.00	42.36	40.08	13.77	40.95	55.26	68.20	-12.94	Vertical
11590.00	42.55	40.08	13.77	40.95	55.45	68.20	-12.75	Horizontal
802.11n40 mode Highest channel (Average Value)								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11590.00	27.68	40.08	13.77	40.95	40.58	54.00	-13.42	Vertical
11590.00	27.60	40.08	13.77	40.95	40.50	54.00	-13.50	Horizontal

Remark:

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

6.8 Frequency stability

Test Requirement:	FCC Part15 E Section 15.407 (g)
Limit:	Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.
Test setup:	 Note : Measurement setup for testing on Antenna connector
Test procedure:	1. The EUT is installed in an environment test chamber with external power source. 2. Set the chamber to operate at 50 centigrade and external power source to output at nominal voltage of EUT. 3. A sufficient stabilization period at each temperature is used prior to each frequency measurement. 4. When temperature is stabled, measure the frequency stability. 5. The test shall be performed under -30 to 50 centigrade and 85 to 115 percent of the nominal voltage. Change setting of chamber and external power source to complete all conditions.
Test Instruments:	Refer to section 5.6 for details
Test mode:	Refer to section 5.3 for details, and all channels have been tested, only shows the worst channel data in this report.
Test results:	Passed

Measurement Data (the worst channel):

Band 1:

Voltage vs. Frequency Stability (Lowest channel=5180MHz)

Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Temp(°C)	Voltage(AC /60Hz)		
20	138	5179.987800	-2.36
	120	5179.990400	-1.85
	102	5179.986500	-2.61

Temperature vs. Frequency Stability (Lowest channel=5180MHz)

Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Voltage(AC /60Hz)	Temp(°C)		
120	-20	5179.9858	-2.74
	-10	5179.9854	-2.82
	0	5179.9911	-1.72
	10	5179.9845	-2.99
	20	5179.9847	-2.95
	30	5179.9869	-2.53
	40	5179.9895	-2.03
	50	5179.9907	-1.80

Band 4:

Voltage vs. Frequency Stability (Lowest channel=5745MHz)

Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Temp(°C)	Voltage(AC /60Hz)		
20	138	5744.986500	-2.35
	120	5744.984700	-2.66
	102	5744.986200	-2.40

Temperature vs. Frequency Stability (Lowest channel=5748MHz)

Test conditions		Frequency(MHz)	Max. Deviation (ppm)
Voltage(AC /60Hz)	Temp(°C)		
120	-20	5744.986200	2.40
	-10	5744.985400	2.54
	0	5744.983200	2.92
	10	5744.983100	2.94
	20	5744.983400	2.89
	30	5744.987400	8.19
	40	5744.985800	2.47
	50	5744.986800	2.30