

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Report No: CCIS14060047901

FCC REPORT

Applicant: Deliberant LLC

Address of Applicant: 138 Mountain Brook Dr Canton, GA 30115 United States

Equipment Under Test (EUT)

Product Name: Broadband Digital Transmission System

Model No.: DLB 5-15

FCC ID: UB8-DLB515

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247

Date of sample receipt: 18 Jun., 2014

Date of Test: 18 Jun., to 26 Aug., 2014

Date of report issued: 26 Aug., 2014

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.

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Version

Version No.	Date	Description
00	26 Aug., 2014	Original

Sera Ximy
Report Clerk Prepared by: Date: 26 Aug., 2014

Reviewed by: Date: 26 Aug., 2014

Project Engineer



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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
6dB Occupied 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

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



5 General Information

5.1 Client Information

Applicant:	Deliberant LLC
Address of Applicant:	138 Mountain Brook Dr Canton, GA 30115 United States
Manufacturer/ Factory:	Deliberant LLC
Address of Manufacturer/ Factory:	138 Mountain Brook Dr Canton, GA 30115 United States

5.2 General Description of E.U.T.

<u> </u>		
Product Name:	Broadband Digital Transmission System	
Model No.:	DLB 5-15	
Operation Frequency:	5745MHz-5825MHz :802.11a&802.11nHT20 ; 5755MHz-5795MHz :802.11nHT40	
Operation mode:	Fixed point-to-point operation MIMO 2x2	
Channel numbers:	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)	6MHz,9MHz,12MHz,18MHz,24MHz,36MHz,48MHz,54MHz	
Data speed (IEEE 802.11n20):	MCS0: 6.5MHz,MCS1:13MHz,MCS2:19.5MHz,MCS3:26MHz, MCS4:39MHz,MCS5:52MHz,MCS6:58.5MHz,MCS7:65MHz	
Data speed (IEEE 802.11n40):	MCS0:15MHz,MCS1:30MHz,MCS2:45MHz,MCS3:60MHz, MCS4:90MHz,MCS5:120MHz,MCS6:135MHz,MCS7:150MHz	
Antenna Type:	Panel	
Antenna gain:	15 dBi for each antenna	
Power supply:	Adapter 1: Model: GRT-240050 Input:100-240V AC,50/60Hz 0.5A Output:24V DC MAX0.5A Adapter 2: Model: AY012E-ZF243 Input:100-240V AC,50/60Hz 0.5A Output:24V DC MAX0.5A	



Operation Frequency each of channel

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:

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 MIMO 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 KDB 558074.

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

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
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Telephone: +86 (0) 755 23118282 Fax: +86 (0) 755 23116366



5.6 Test Instruments list

Radia	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	Aug. 23 2014	Aug. 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	Aug. 11 2014	Aug. 10 2015
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	May 25 2014	May 24 2015
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	May 25 2014	May 24 2015
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 30 2014	Mar. 29 2015
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	Apr. 01 2014	Mar. 31 2015
9	Amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	June 09 2014	June 08 2015
10	Pre-amplifier (18-40GHz)	A.H System	PAM-1840	GTS219	Apr. 01 2014	Mar. 31 2015
11	Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP	CCIS0023	May. 25 2014	May. 24 2015
12	EMI Test Receiver	Rohde & Schwarz	ESPI	CCIS0022	Apr 01 2014	Mar. 31 2015
13	Spectrum Analyzer	HP	8564E	CCIS0150	May 24 2014	May 23 2015

Cond	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	June 09 2014	June 08 2015
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	May 25 2014	May 24 2015
3	LISN	CHASE	MN2050D	CCIS0074	Apr 01 2014	Mar. 31 2015
4	Coaxial Cable	CCIS	N/A	CCIS0086	Apr. 01 2014	Mar. 31 2015
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A



6 Test results and Measurement Data

6.1 Justification

Remark: Because all transmit signals are completely uncorrelated with each other, So Directional gain =15dBi

6.2 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.

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.

E.U.T Antenna:

The product is a professionally installed device which has one type of antenna for the application. The antenna information as below table:

Antenna No.	Antenna Type	Antenna Gain (dBi)
Antenna	Panel/Internal	15

According to above information, the antennas meet the requirements of this section. The details of antenna plots please refer to section 8 of this report.

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6.3 Conducted Emission

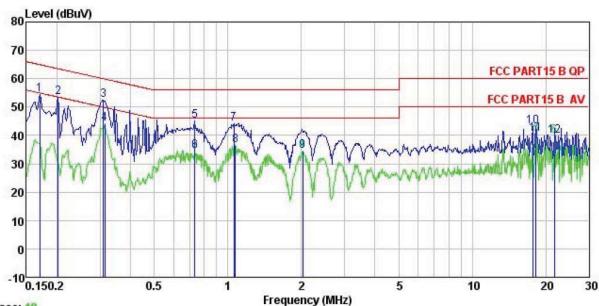
Test Requirement:	FCC Part15 C Section 15.207	7					
Test Method:	ANSI C63.4: 2003						
Test Frequency Range:	150 kHz to 30 MHz						
Class / Severity:	Class B						
Receiver setup:	RBW=9 kHz, VBW=30 kHz						
Limit:		Limit (c	dBuV)				
	Frequency range (MHz)	Quasi-peak	Average				
	0.15-0.5	66 to 56*	56 to 46*				
	0.5-5	56	46				
	5-30	60	50				
Test procedure	* Decreases with the logarithm The E.U.T and simulator						
	50ohm/50uH coupling im 2. The peripheral devices through a LISN that provided the set of the set o	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					
Test setup:	Refer	ence Plane					
	AUX Equipment Test table/Insulation pl Remark: E.U.T. Equipment Under Test LISN: Line Impedence Stabilization Test table height=0.8m	U.T EMI Receiver	er — AC power				
Test Instruments:	Refer to section 5.6 for details	3					
Test mode:	MIMO mode						
Test results:	Passed						

Measurement Data



Adapter 1: GRT-240050

Line:



Trace: 19

Site Condition : CCIS Shielding Room : ICES-003 QP LISN LINE : Broadband Digital Transmission System

EUT

Model : DLB 5-15
Test Mode : WIFI TX mode
Power Rating : AC 120V/60Hz

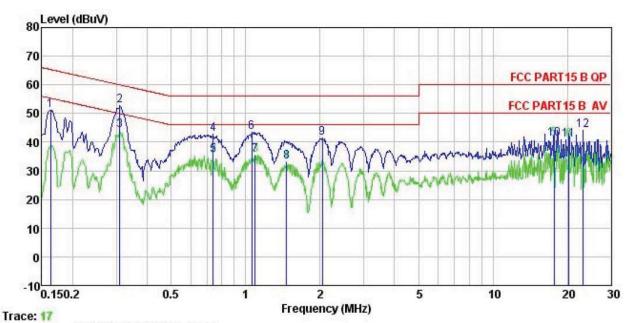
Environment : Temp: 23 °C Huni:56% Atmos:101KPa Test Engineer: Winner

: POE: GRT-240050 Remark

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
-	MHz	dBu∀	dB	₫B	dBu₹	dBu₹	<u>dB</u>	
1	0.170	43.48	0.27	10.77	54.52	64.94	-10.42	QP
2	0.202	42.29	0.28	10.76	53.33	63.54	-10.21	QP
3	0.310	41.51	0.26	10.74	52.51	59.97	-7.46	QP
4	0.313	33.00	0.26	10.74	44.00	49.88	-5.88	Average
5	0.731	34.23	0.22	10.78	45.23	56.00	-10.77	QP
2 3 4 5 6 7 8 9	0.731	23.62	0.22	10.78	34.62	46.00	-11.38	Average
7	1.060	32.90	0.25	10.88	44.03		-11.97	
8	1.071	25.46	0.25	10.88	36.59	46.00	-9.41	Average
9	2.023	23.40	0.26	10.96	34.62			Average
10	17.661	31.89	0.33	10.90	43.12	60.00	-16.88	QP
11	18.232	29.18	0.33	10.91	40.42	50.00	-9.58	Average
12	21.715	28.64	0.40	10.91	39.95			Average



Neutral:



Site : CCIS Shielding Room Condition : ICES-003 QP LISN NEUTRAL

EUT : Broadband Digital Transmission System

Model : DLB 5-15 Test Mode : WIFI TX mode Power Rating : AC 120V/60Hz

Environment : Temp: 23 °C Huni: 56% Atmos: 101KPa

Test Engineer: Winner

Remark : POE: GRT-240050

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBu∜	<u>dB</u>	<u>ab</u>	dBu₹	dBu₹	<u>dB</u>	
1	0.162	40.24	0.25	10.77	51.26	65.34	-14.08	QP
2	0.310	41.69	0.26	10.74	52.69	59.97	-7.28	QP
3	0.310	33.16	0.26	10.74	44.16	49.97	-5.81	Average
4	0.739	31.86	0.19	10.79	42.84	56.00	-13.16	QP
2 3 4 5 6 7	0.739	24.66	0.19	10.79	35.64	46.00	-10.36	Average
6	1.060	32.34	0.23	10.88	43.45	56.00	-12.55	QP
7	1.094	24.38	0.23	10.88	35.49	46.00	-10.51	Average
8	1.464	22.04	0.26	10.92	33.22	46.00	-12.78	Average
9	2.044	30.09	0.29	10.96	41.34	56.00	-14.66	QP
10	17.661	30.10	0.26	10.90	41.26	50.00	-8.74	Average
11	20.270	29.61	0.22	10.93	40.76			Average
12	23.140	32.82	0.42	10.89	44.13	60.00	-15.87	QP

Notes:

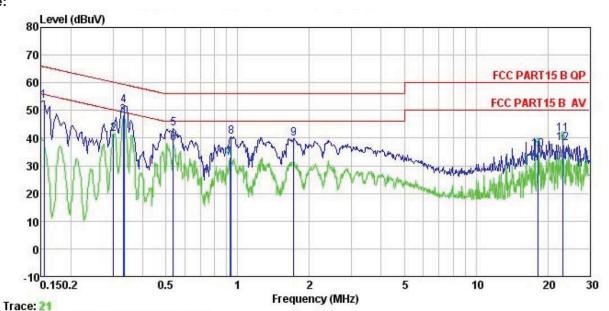
- 1. An initial pre-scan was performed on the live and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level =Receiver Read level + LISN Factor + Cable Loss

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Adapter 2: AY012E-ZF243

Line:



: CCIS Shielding Room : ICES-003 QP LISN LINE : Broadband Digital Transmission System Site Condition

EUT

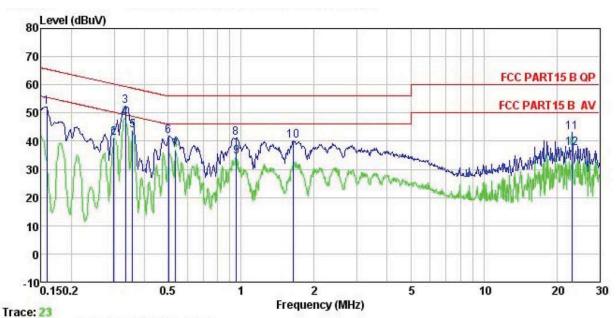
Model : DLB 5-15
Test Mode : WIFI TX mode
Power Rating : AC 120V/60Hz
Environment : Temp: 23 °C Huni:56% Atmos:101KPa
Test Engineer: Wine AVOICE 78243

: POE: AYO12E-ZF243 Read LISN Cable Remark

COMMITK		LOE. U	TOTZE ZE	240				
	Freq	Read	LISN Factor	Cable Loss		Limit Line	Over	Remark
	MHz	dBuV	dB		dBuV	dBuV	dB	
	nurz	and,	ш.	ш	abay	and,	ш	
1	0.154	42.40	0.27	10.78	53.45	65.78	-12.33	QP
2	0.302	30.59	0.26	10.74	41.59	50.19	-8.60	Average
3	0.330	37.11	0.27	10.73	48.11	49.44	-1.33	Average
4	0.334	40.79	0.27	10.73	51.79	59.35	-7.56	QP
2 3 4 5 6 7 8 9	0.538	32.27	0.28	10.76	43.31		-12.69	The second secon
6	0.538	27.04	0.28	10.76	38.08			Average
7	0.928	21.89	0.24	10.85	32.98			Average
8	0.938	29.29	0.24	10.85	40.38		-15.62	3-1-1-1-13-5
	1.716	28.60	0.26	10.94	39.80		-16.20	
10	18.232	24.54	0.33	10.91	35.78			Average
11	23.140	30.09	0.46	10.89	41.44		-18.56	
12	23.140	26.68	0.46	10.89	38.03	50.00	-11.97	Average



Neutral:



Site

Condition

: CCIS Shielding Room : ICES-003 QP LISN NEUTRAL : Broadband Digital Transmission System EUT

Model : DLB 5-15 Test Mode : WIFI TX mode Power Rating : AC 120V/60Hz

Environment : Temp: 23 °C Huni:56% Atmos:101KPa

Test Engineer: Winner

: POE: AY012E-ZF243 Remark

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
-	MHz	dBu∇	<u>dB</u>	<u>d</u> B	dBu₹	—dBuV	<u>dB</u>	
1	0.158	41.09	0.25	10.78	52.12	65.56	-13.44	
2	0.299	30.14	0.26	10.74	41.14	50.28	-9.14	Average
2	0.334	41.33	0.26	10.73	52.32	59.35	-7.03	
4	0.334	37.25	0.26	10.73	48.24	49.35	-1.11	Average
5	0.358	32.83	0.25	10.73	43.81	48.78	-4.97	Average
6	0.502	30.86	0.29	10.76	41.91	56.00	-14.09	QP
7	0.538	25.73	0.27	10.76	36.76	46.00	-9.24	Average
8	0.953	30.21	0.21	10.86	41.28	56.00	-14.72	QP
9	0.958	23.35	0.21	10.86	34.42	46.00	-11.58	Average
10	1.636	28.95	0.27	10.93	40.15	56.00	-15.85	QP
11	23.140	31.77	0.42	10.89	43.08	60.00	-16.92	QP
12	23.140	26.02	0.42	10.89	37.33	50.00	-12.67	Average

Notes:

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



6.4 Conducted Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)				
Test Method:	ANSI C63.4:2003 and KDB558074				
Limit:	30dBm				
Test setup:	Constant Annalysis				
	Spectrum Analyzer E.U.T Non-Conducted Table 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



Mode	Test CH	Ant. Port	Conducted Output power (dBm)	Total power	Limit (dBm)	Result
	Lowest	TX0	20.86	23.79	30.00	Pass
	Lowest	TX1	20.70	20.70	30.00	1 433
000.44	. A	TX0	26.80	00.00	00.00	
802.11a	Middle	TX1	26.44	29.63	30.00	Pass
		TX0	24.35			
	Highest	TX1	24.33	27.35	30.00	Pass
	Lowest	TX0	18.79			_
		TX1	18.59	21.70	30.00	Pass
000 44 00		TX0	26.56			
802.11n20	Middle	TX1	26.11	29.35	30.00	Pass
		TX0	24.88	07.70	00.00	_
	Highest	TX1	24.55	27.73	30.00	Pass
	1	TX0	18.45	04.50	00.00	
000 11 15	Lowest	TX1	18.52	21.50	30.00	Pass
802.11n40		TX0	25.40	00.40		
	Highest	TX1	24.83	28.13	30.00	Pass



Test plot as follows:





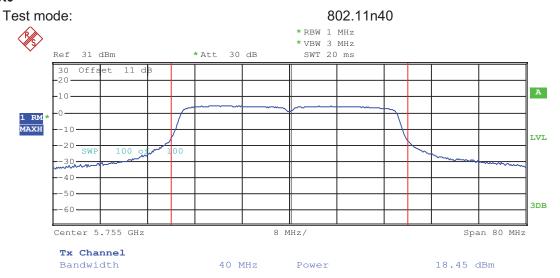




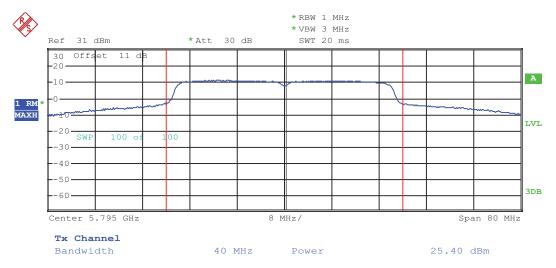




TX0

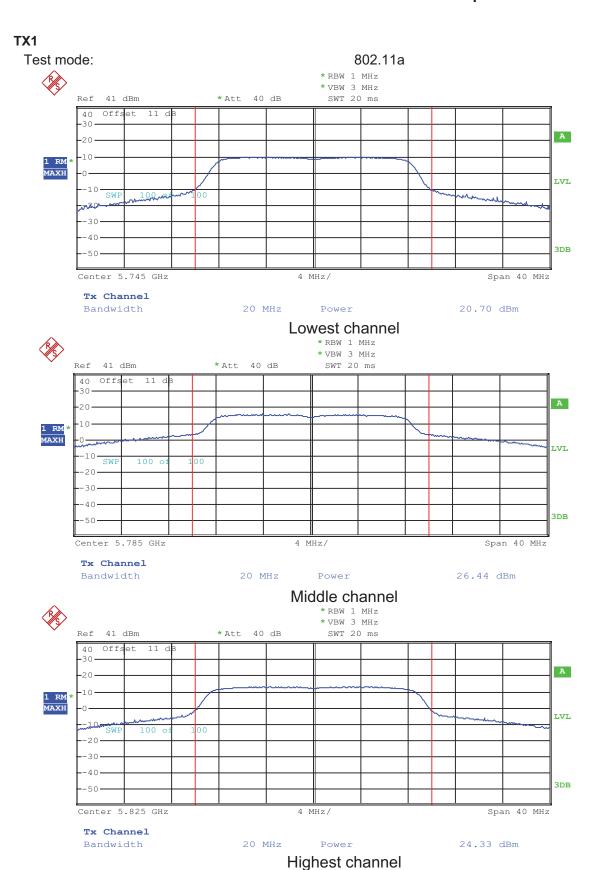


Lowest channel



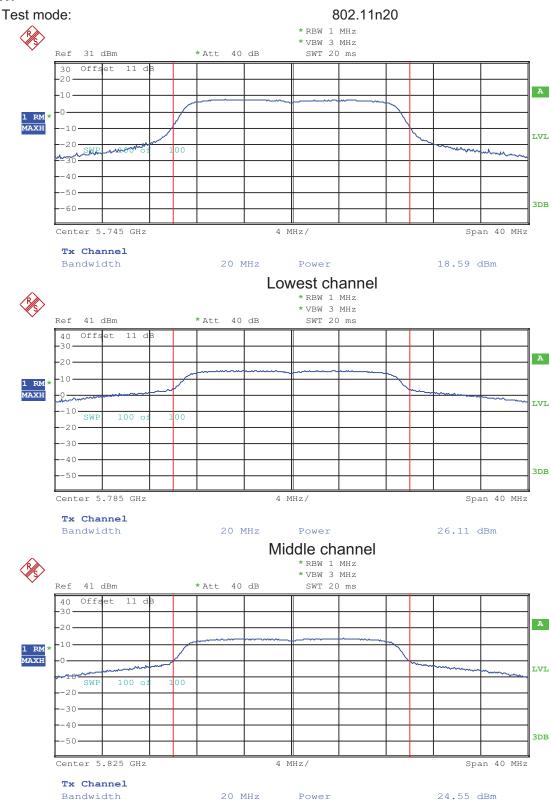
Highest channel







TX1



Highest channel



TX1



Highest channel



6.5 6dB EBW and 99% OBW

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)		
Test Method:	ANSI C63.4:2003 and KDB558074		
Limit:	>500kHz		
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table 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

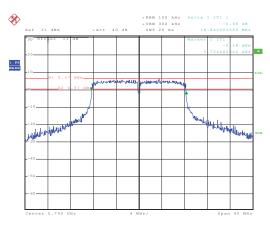
Test CH	802.11a	802.11n20	802.11n40	Limit(kHz)	Result
Lowest	16.64	17.76	36.80		
Middle	16.64	17.84		>500	Pass
Highest	16.64	17.92	36.80		

T O			- "		
Test CH	802.11a	802.11n20	802.11n40	Limit(kHz)	Result
Lowest	16.64	17.68	36.48		
Middle	28.56	29.92		N/A	N/A
Highest	23.52	24.80	50.72		

Test plot as follows:

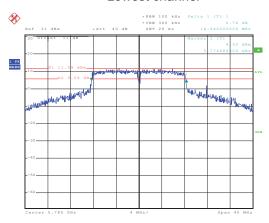


6 dB EBW Test mode: 802.11a



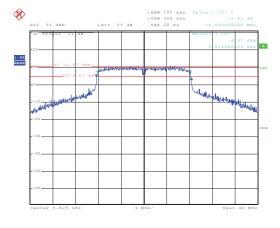
Date: 23.AUG.2014 14:18:23

Lowest channel



Date: 23.AUG.2014 13:15:03

Middle channel



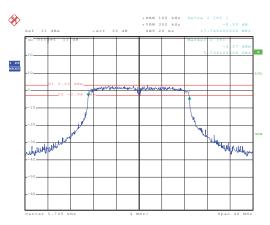
Date: 23.AUG.2014 16:03:08

Highest channel

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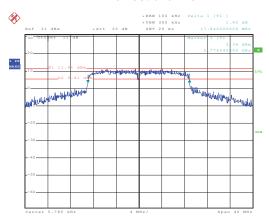


Test mode: 802.11n20



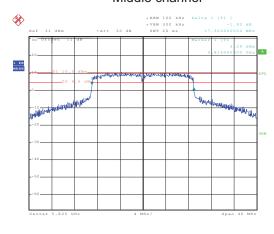
Date: 23.AUG.2014 15:41:57

Lowest channel



Date: 23.AUG.2014 16:26:21

Middle channel

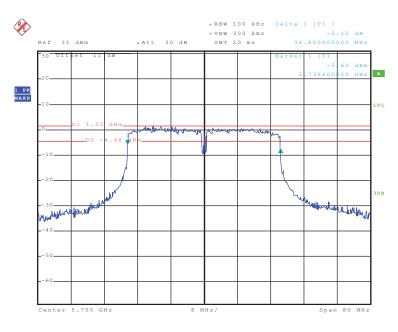


Date: 23.AUG.2014 15:35:44

Highest channel

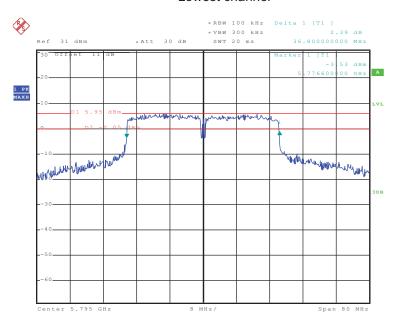


Test mode: 802.11n40



Date: 23.AUG.2014 17:07:10

Lowest channel

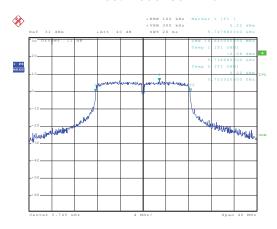


Date: 23.AUG.2014 17:17:01

Highest channel

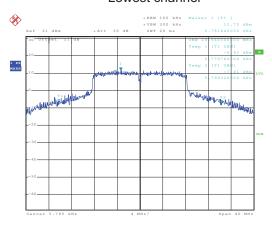


99% OBWTest mode: 802.11a



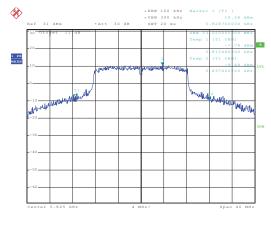
Date: 23 AUG 2014 14:17:40

Lowest channel



Date: 23.AUG.2014 16:13:38

Middle channel

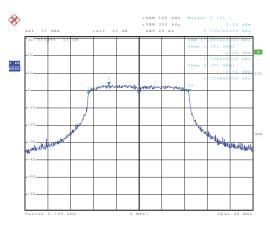


Date: 23.AUG.2014 16:12:12

Highest channel

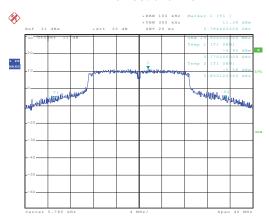


Test mode: 802.11n20



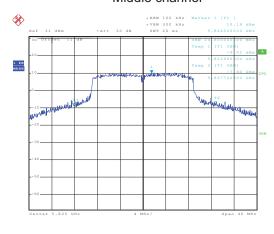
Date: 23.AUG.2014 15:40:40

Lowest channel



Date: 23.AUG.2014 16:23:54

Middle channel

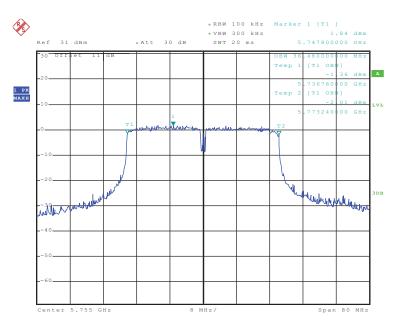


Date: 23.AHG.2014 15:36:44

Highest channel

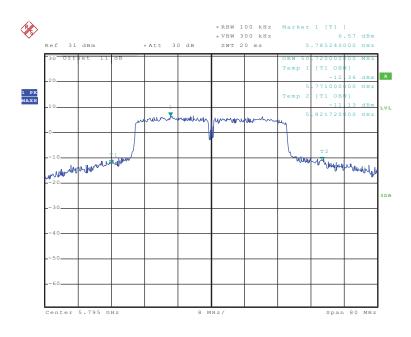


Test mode: 802.11n40



Date: 23.AUG.2014 17:10:33

Lowest channel



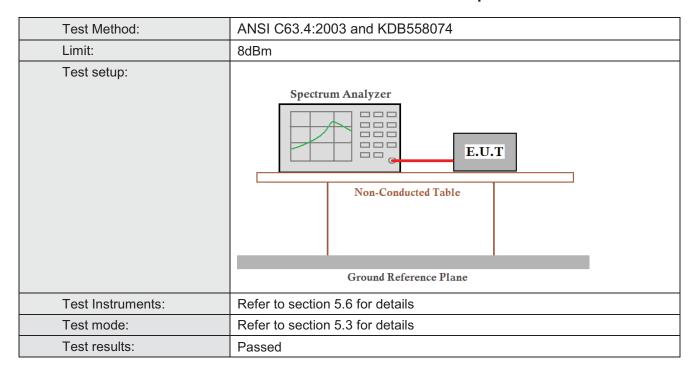
Date: 23.AUG.2014 17:15:44

Highest channel

6.6 Power Spectral Density

Test Requirement:	FCC Part15 C Section 15.247 (e)
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Measurement Data

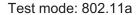


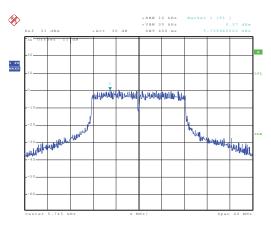
Mode	Test CH	Ant. Port	PSD (dBm)	Total PSD (dBm)	Limit (dBm)	Result
		TX0	0.37	0.04	0.00	
	Lowest	TX1	-0.62	2.91	8.00	Pass
000.44		TX0	3.64	0.50		_
802.11a	Middle	TX1	3.33	6.50	8.00	Pass
		TX0	2.71	- 40		_
	Highest	TX1	2.22	5.48	8.00	Pass
	Lowest	TX0	-2.95			_
		TX1	-2.92	0.08	8.00	Pass
222 44 22		TX0	3.54	0.55		_
802.11n20	Middle	TX1	3.58	6.57	8.00	Pass
		TX0	2.40			
	Highest	TX1	2.66	5.54	8.00	Pass
		TX0	-5.07	4.04		_
000 44 45	Lowest	TX1	-4.64	-1.84	8.00	Pass
802.11n40		TX0	1.84			_
	Highest	TX1	0.75	4.34	8.00	Pass

Test plot as follows:



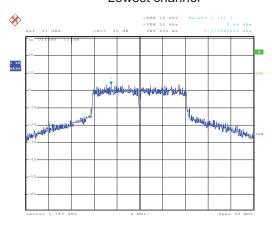
TX0





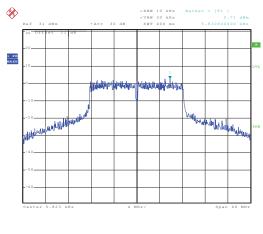
Date: 23 ANG 2014 14:31:5

Lowest channel



Date: 23.AUG.2014 14:10:16

Middle channel

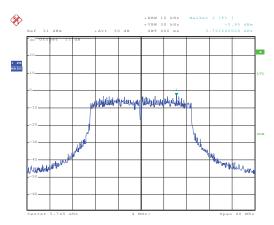


Date: 23.AUG.2014 15:58:56

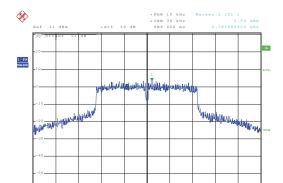
Highest channel



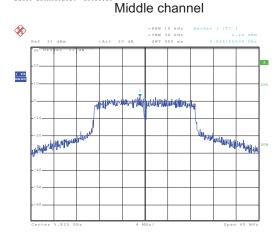
Test mode: 802.11n20



Lowest channel



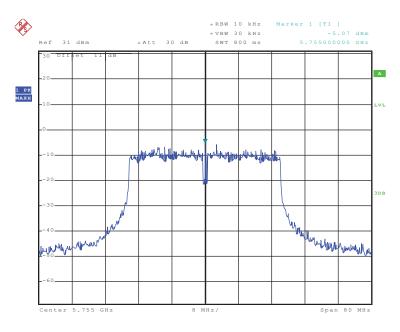
Date: 23.AUG.2014 15:55:10



Date: 23.AUG.2014 15:56:10 Highest channel

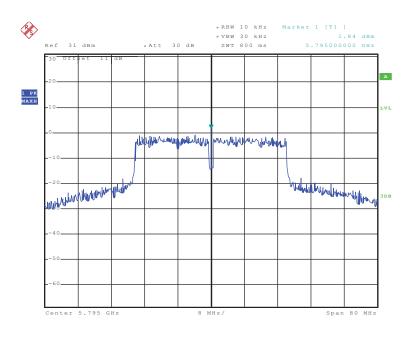


Test mode: 802.11n40



Date: 23.AUG.2014 17:13:26

Lowest channel

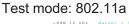


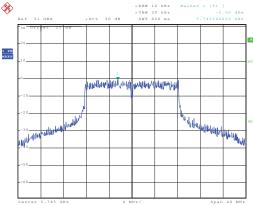
Date: 23.AUG.2014 17:19:01

Highest channel

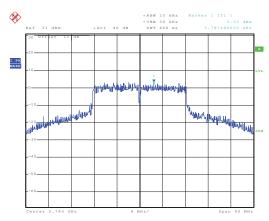


TX1

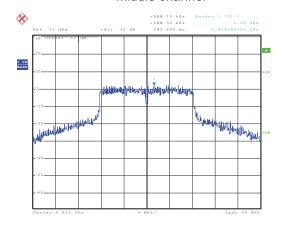




Lowest channel



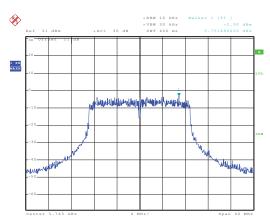
Middle channel



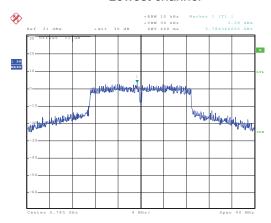
Date: 23.AUG.2014 15:57:26 Highest channel



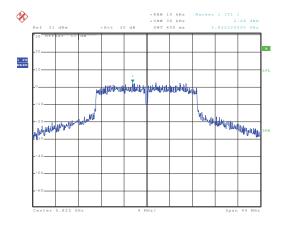
Test mode: 802.11n20



Lowest channel



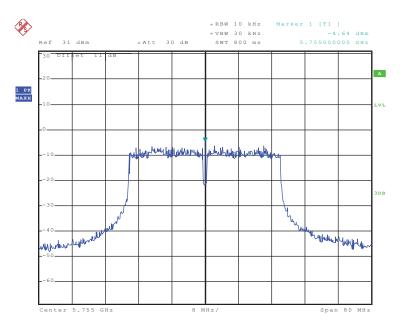
Date: 23.AUG.2014 15:54:07 Middle channel



Date: 23.AUG.2014 15:56:40 Highest channel

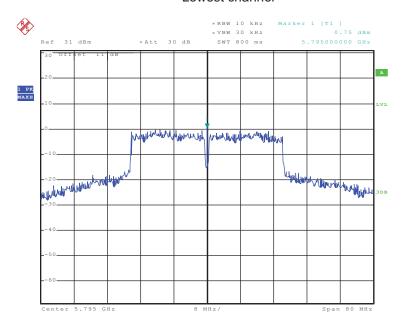


Test mode: 802.11n40



Date: 23.AUG.2014 17:13:56

Lowest channel



Date: 23.AUG.2014 17:18:30

Highest channel



6.7 Band Edge

6.7.1 Conducted Emission Method

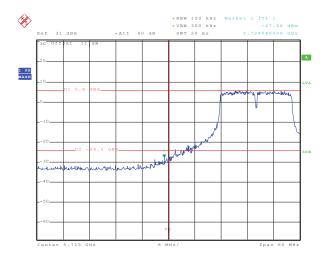
Test Requirement:	FCC Part15 C Section 15.247 (d)						
Test Method:	ANSI C63.4:2003 and KDB 558074						
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall 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:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane						
Test Instruments:	Refer to section 5.6 for details						
Test mode:	Refer to section 5.3 for details						
Test results:	Passed						

Test plot as follows:



TX0

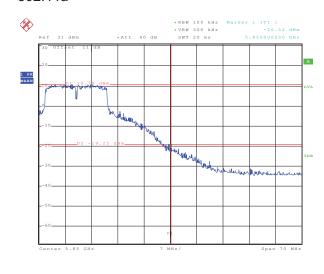
Test mode:



Date: 23.AUG.2014 13:53:48

Lowest channel

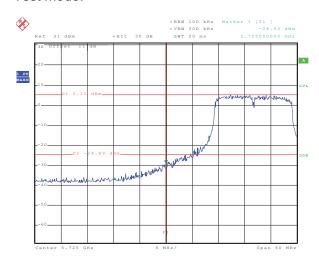
802.11a



Date: 23.AUG.2014 14:00:04

Highest channel

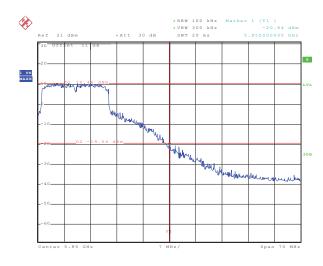
Test mode:



Date: 23.AUG.2014 15:23:45

Lowest channel

802.11n20

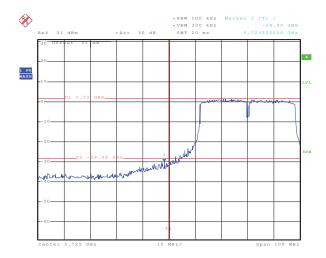


Date: 23.AUG.2014 15:26:23

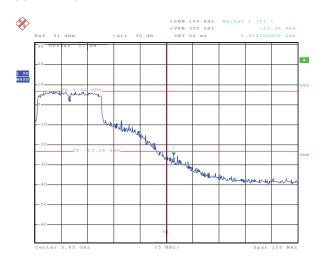
Highest channel



Test mode:



802.11n40



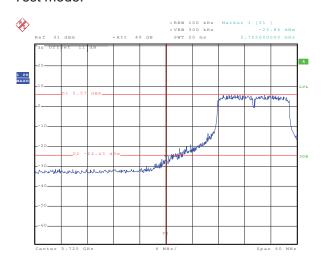
Date: 23.AUG.2014 16:52:33

Lowest channel

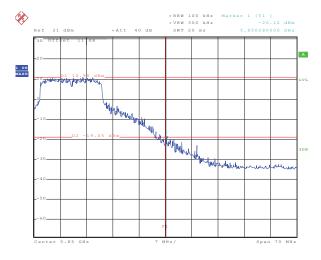
Date: 23.AUG.2014 16:56:46

Highest channel

TX1 Test mode:



802.11a



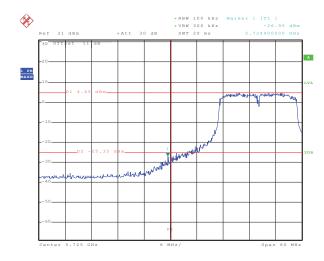
Date: 23.AUG.2014 13:52:05

Lowest channel

Date: 23.AUG.2014 14:04:29 Highest channel

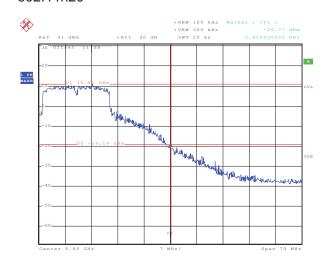


Test mode:



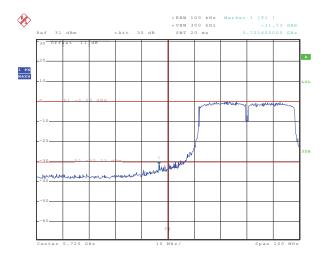
Date: 23.AUG.2014 15:22:29 Lowest channel

802.11n20



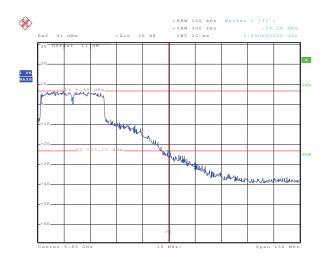
Date: 23.AUG.2014 15:28:14 Highest channel

Test mode:



Date: 23.AUG.2014 16:51:32 Lowest channel

802.11n40



Date: 23.AUG.2014 16:58:14

Highest channel



6.7.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205							
Test Method:	ANSI C63.4: 20	03						
Test Frequency Range:	5.35 GHz to 5.4	6 GHz						
Test site:	Measurement D	istance: 3m						
Receiver setup:	Frequency Above 1GHz	Detector Peak	RBW 1MHz	VBW 3MHz	Remark Peak Value			
I include		Peak	1MHz	10Hz	Average Value			
Limit:	Freque Above 1		Limit (dBuV/ 54.0 74.0	0	Remark Average Value Peak Value			
Test Procedure:	 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. 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, quasipeak or average method as specified and then reported in a data 							
Test setup:	peak or average method as specified and then reported in a data sheet. Antenna Tower Horn Antenna Spectrum Analyzer Amplifier							
Test Instruments:	Refer to section	5.6 for details						
Test mode:	Keeping MIMO TX	mode						
Test results:	Passed							



Test me	ode: 802.1	1a	Test channe	el: Lowest	Lev	vel:	ſ	Peak	
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	
5350.00	48.33	31.78	9.15	40.18	49.08	74.00	-24.93	Horizontal	
5460.00	49.65	31.99	9.16	40.23	50.57	74.00	-23.43	Horizontal	
5350.00	48.65	31.78	9.15	40.18	49.40	74.00	-24.60	Vertical	
5460.00	49.65	31.99	9.16	40.23	50.57	74.00	-23.43	Vertical	
Test mo	de: 802.11	la	Test channe	el: Lowest	Lev	vel:	Average		
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	
5350.00	37.85	31.78	9.15	40.18	38.60	54.00	-15.40	Horizontal	
5460.00	38.65	31.99	9.16	40.23	39.57	54.00	-14.43	Horizontal	
5350.00	37.54	31.78	9.15	40.18	38.29	54.00	-15.71	Vertical	
5460.00	38.65	31.99	9.16	40.23	39.57	54.00	-14.43	Vertical	

Test mode	: 802.11n-	HT20	Test channe	el: Lowest	Le	vel:	ı	Peak
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
5350.00	48.65	31.78	9.15	40.18	49.40	74.00	-24.60	Horizontal
5460.00	49.58	31.99	9.16	40.23	50.50	74.00	-23.50	Horizontal
5350.00	48.68	31.78	9.15	40.18	49.43	74.00	-24.57	Vertical
5460.00	49.58	31.99	9.16	40.23	50.50	74.00	-23.50	Vertical
Test mode:	802.11 n-	HT20	Test channe	I: Lowest	Leve	el:	Av	erage
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
5350.00	37.89	31.78	9.15	40.18	38.64	54.00	-15.36	Horizontal
5460.00	38.65	31.99	9.16	40.23	39.57	54.00	-14.43	Horizontal
5350.00	37.65	31.78	9.15	40.18	38.40	54.00	-15.60	Vertical
5460.00	38.54	31.99	9.16	40.23	39.46	54.00	-14.54	Vertical

Test mode	e: 802.11n-	HT40	Test channe	el: Lowest	Lev	vel:	ſ	Peak
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
5350.00	48.65	31.78	9.15	40.18	49.40	74.00	-24.60	Horizontal
5460.00	49.88	31.99	9.16	40.23	50.80	74.00	-23.20	Horizontal
5350.00	48.65	31.78	9.15	40.18	49.40	74.00	-24.60	Vertical
5460.00	49.24	31.99	9.16	40.23	50.16	74.00	-23.84	Vertical
Test mode:	: 802.11 n-	HT40	Test channe	I: Lowest	Leve	el:	Av	erage
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
5350.00	37.65	31.78	9.15	40.18	38.40	54.00	-15.60	Horizontal
5460.00	38.14	31.99	9.16	40.23	39.06	54.00	-14.94	Horizontal
5350.00	37.47	31.78	9.15	40.18	38.22	54.00	-15.78	Vertical
5460.00	38.94	31.99	9.16	40.23	39.86	54.00	-14.14	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.

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
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6.8 Spurious Emission

6.8.1 Conducted Emission Method

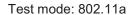
Test Requirement:	FCC Part15 C Section 15.247 (d)						
Test Method:	ANSI C63.4:2003 and KDB558074						
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall 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:							
	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane						
Test Instruments:	Refer to section 5.6 for details						
Test mode:	Refer to section 5.3 for details						
Test results:	Passed						

Test plot as follows:

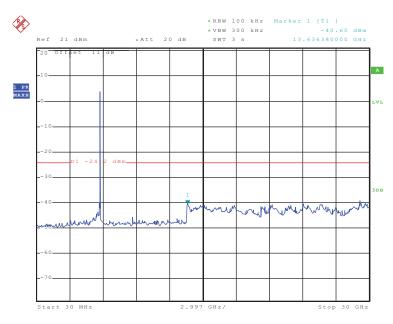
Remark: No emission found from 30GHz to 40GHz band, so only reported the worse case.



TX0



Lowest channel

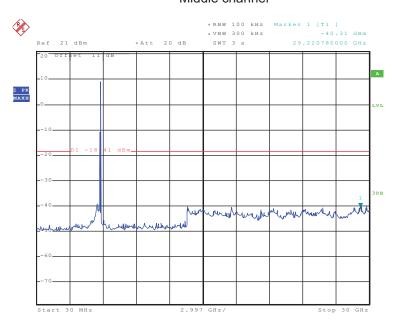


Date: 23.AUG.2014 17:41:51

30MHz~30GHz



Middle channel

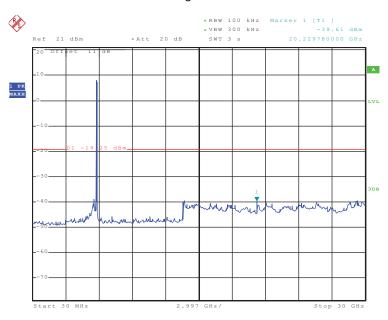


Date: 23.AUG.2014 17:48:28

30MHz~30GHz



Highest channel



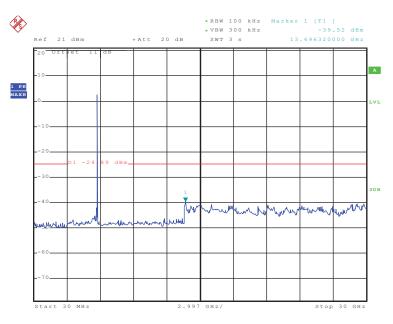
Date: 23.AUG.2014 17:46:33

30MHz~30GHz



Test mode: 802.11n20

Lowest channel

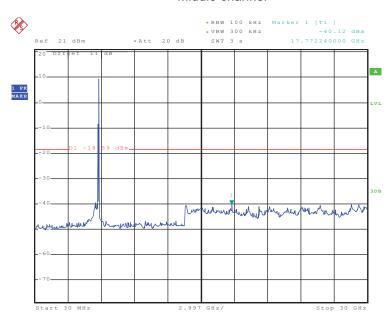


Date: 23.AUG.2014 17:36:34

30MHz~30GHz



Middle channel

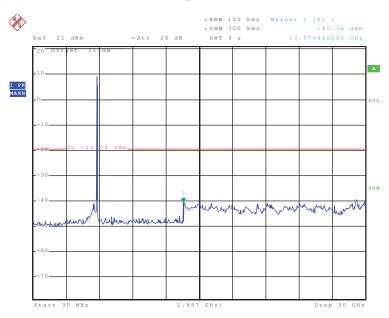


Date: 23.AUG.2014 17:38:48

30MHz~30GHz



Highest channel



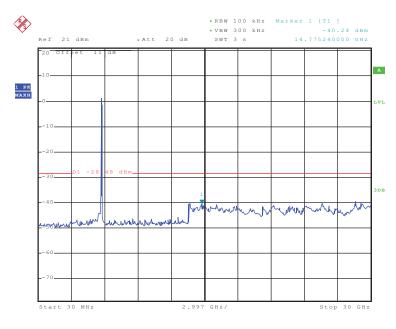
Date: 23.AUG.2014 17:39:30

30MHz~30GHz



Test mode: 802.11n40

Lowest channel

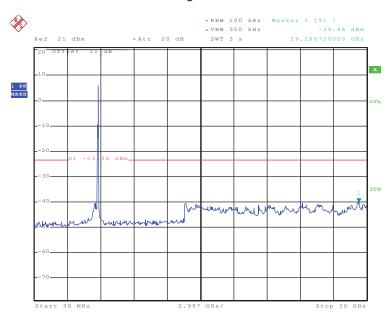


Date: 23.AUG.2014 17:55:07

30MHz~30GHz



Highest channel



Date: 23.AUG.2014 17:57:25

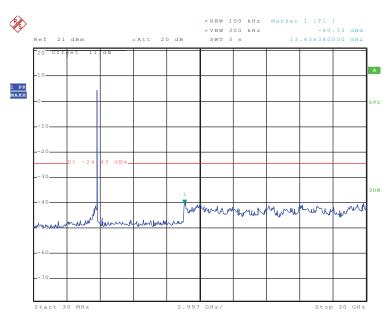
30MHz~30GHz



TX1

Test mode: 802.11a

Lowest channel

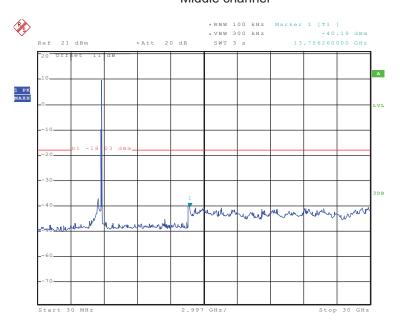


Date: 23.AUG.2014 17:41:01

30MHz~30GHz



Middle channel

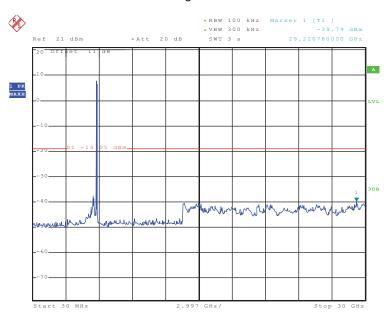


Date: 23.AUG.2014 17:47:52

30MHz~30GHz



Highest channel



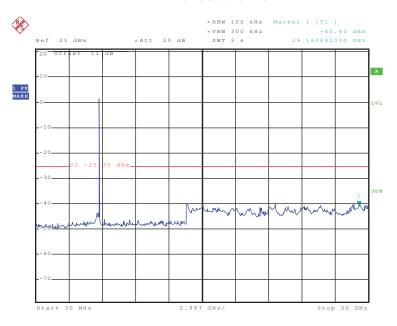
Date: 23.AUG.2014 17:47:16

30MHz~30GHz



Test mode: 802.11n20

Lowest channel

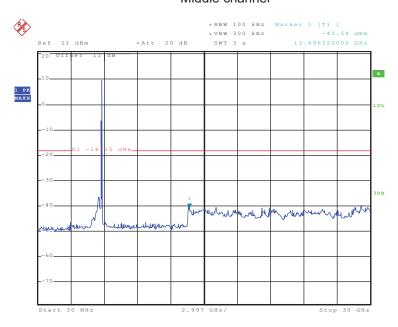


Date: 23.AUG.2014 17:37:29

30MHz~30GHz



Middle channel

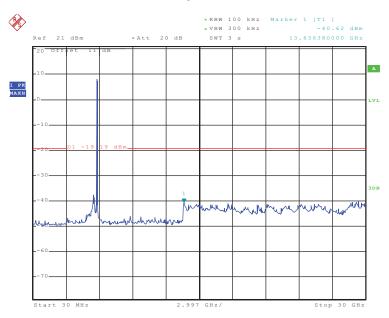


Date: 23.AUG.2014 17:38:12

30MHz~30GHz



Highest channel



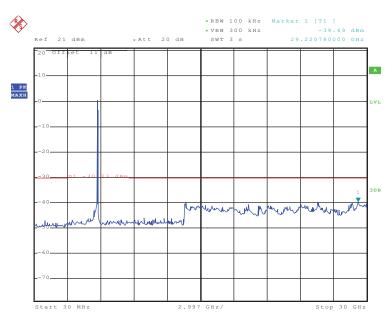
Date: 23.AUG.2014 17:40:09

30MHz~30GHz



Test mode: 802.11n40

Lowest channel

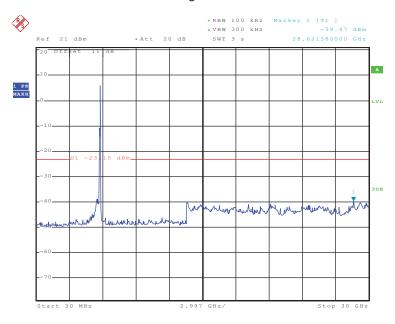


Date: 23.AUG.2014 17:56:03

30MHz~30GHz



Highest channel



Date: 23.AUG.2014 17:56:44

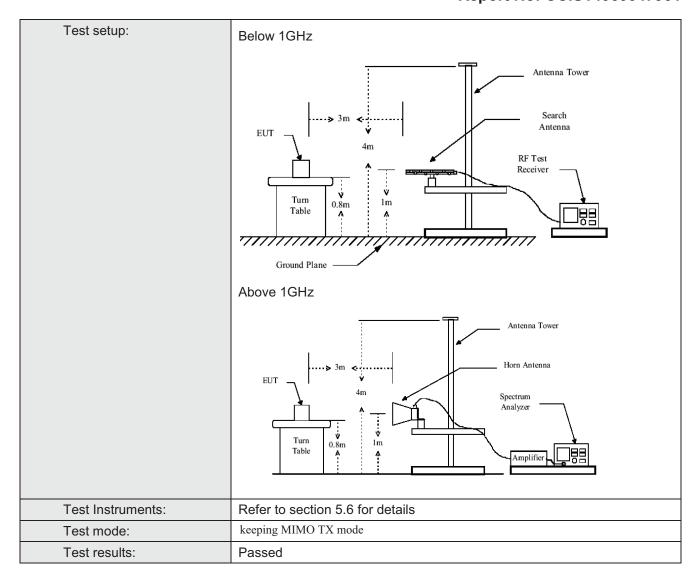
30MHz~30GHz



6.8.2 Radiated Emission Method

Test Requirement:	FCC Part15 C S	Section 15.209	and 15.205		
Test Method:	ANSI C63.4:200)3			
Test Frequency Range:	30MHz to 40GH	lz			
Test site:	Measurement D	istance: 3m			
Receiver setup:					
	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
	7,0000 10112	Peak	1MHz	10Hz	Average Value
Limit:		1			
	Freque		Limit (dBuV		Remark
	30MHz-8		40.0		Quasi-peak Value
	88MHz-21		43.5		Quasi-peak Value
	216MHz-9		46.0 54.0		Quasi-peak Value
	960MHz-	IGHZ	54.0 54.0		Quasi-peak Value Average Value
	Above 1	GHz	74.0		Peak Value
Test Procedure:	the ground to determin 2. The EUT wantenna, wantenna, wantenna and the ground Both horizon make the numbers and to find the number of the emission of the EUT have 10dB	at a 3 meter cane the position of the position of the position of the position of the position and height is varied and vertical and vertical and vertical and vertical easurement. If the rota table maximum readiceiver system of the position level of the ecified, then test would be reposition to the position of the po	ne top of a reamber. The amber. The amber. The amber. The set of the highest away from the defendence of the following ambers and the following. The set of the following ambers are to Period of the following could be the following could be the following of the following ambers and the following ambers are the following ambers and the following ambers are the following ambers and the following ambers are the following	otating table table was rost radiation. the interferop of a variate meter to for value of the ons of the art to heights from 0 degreak Detect old Mode. It mode was the emitione by one	e 0.8 meters above obtated 360 degrees rence-receiving able-height antenna our meters above are field strength. Intenna are set to a from 1 meter to 4 ees to 360 degrees



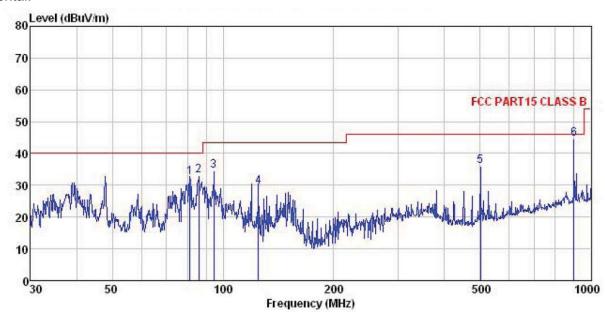




Below 1GHz

Adapter 1: GRT-240050

Horizontal:



Site : 3m chamber

Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) HORIZONTAL

Job No. : 479RF

EUT : Broadband Digital Transmission System

Model : DLB 5-15 Test mode : WIFI TX mode Power Rating : AC 120V/60Hz

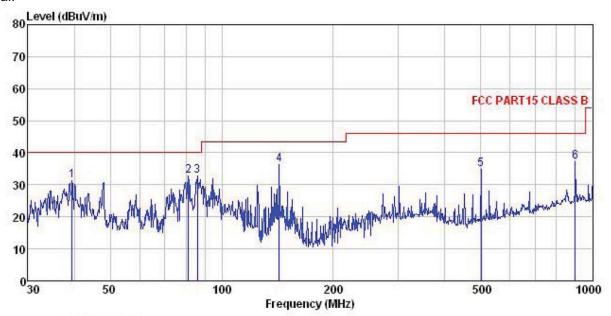
Environment : Temp:25.5°C Huni:55% Test Engineer: Winner

: POE: GRT-240050 Remark

	(88)	Read	Antenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
-	MHz	dBu∀	dB/m	d₿	<u>dB</u>	dBuV/m	dBuV/m	<u>dB</u>	
1	81.212	52.33	8.98	0.86	29.63	32.54	40.00	-7.46	QP
2	85.898	51.26	10.60	0.89	29.59	33.16	40.00	-6.84	QP
2	94.428	50.39	12.75	0.93	29.55	34.52	43.50	-8.98	QP
4	125.007	48.09	9.70	1.16	29.36	29.59	43.50	-13.91	QP
5	501.179	45.97	16.63	2.41	28.96	36.05	46.00	-9.95	QP
6	900.147	47.87	21.09	3, 35	27.88	44.43	46.00	-1.57	QP



Vertical:



Site

: 3m chamber : FCC PART15 CLASS B 3m VULB9163(30M1G) VERTICAL Condition

Job No. : 479RF

EUT : Broadband Digital Transmission System

Model : DLB 5-15
Test mode : WIFI TX mode
Power Rating : AC 120V/60Hz

Environment : Temp: 25.5°C Huni: 55% Test Engineer: Winner

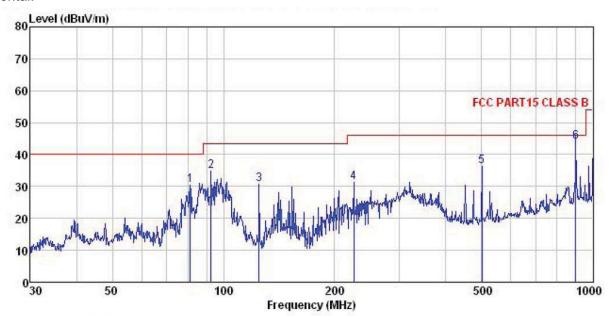
Remark : POE: GRT-240050

	Freq		Antenna Factor					Over Limit	Remark
-	MHz	dBu₹	dB/m	₫B	dB	dBuV/m	dBuV/m	<u>d</u> B	
1	39.437	47.18	13.44	0.52	29.91	31.23	40.00	-8.77	QP
2	81.212	52.62	8.98	0.86	29.63	32.83	40.00	-7.17	QP
2	85.898	50.84	10.60	0.89	29.59	32.74	40.00	-7.26	QP
4	142.824	56.14	8.21	1.28	29.26	36.37	43.50	-7.13	QP
5	501.179	44.77	16.63	2.41	28.96	34.85	46.00	-11.15	QP
6	900.147	40.54	21.09	3.35	27.88	37.10	46.00	-8.90	QP



Adapter 2: AY012E-ZF243

Horizontal:



Site

: 3m chamber : FCC_PART15 CLASS B 3m VULB9163(30M1G) HORIZONTAL Condition

Job No. 479RF

EUT Broadband Digital Transmission System

Model : DLB 5-15
Test mode : WIFI TX mode
Power Rating : AC 120V/60Hz

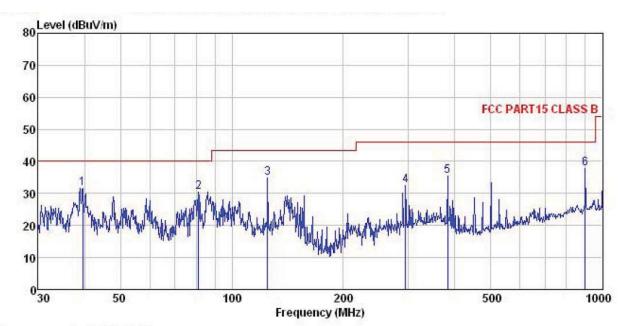
Environment : Temp: 25.5°C Huni: 55%

Test Engineer: Winner
Remark : POE: AY012E-ZF243

CHITIK		IVE. A	TOISE EL	240					
	Fred		Antenna Factor					Over	Remark
	rreq	Level	ractor	LUSS	ractor	rever	Line	TIMIL	Remark
	MHz	dBu∀	dB/m	₫B	dB	dBuV/m	dBuV/m	₫B	
1	81.212	50.34	8.98	0.86	29.63	30.55	40.00	-9.45	QP
2	92.462	51.08	12.41	0.92	29.56	34.85	43.50	-8.65	QP
3	125.007	49.07	9.70	1.16	29.36	30.57	43.50	-12.93	QP
4 5	225.308	47.06	11.41	1.51	28.68	31.30	46.00	-14.70	QP
5	501.179	46.28	16.63	2.41	28.96	36.36	46.00	-9.64	QP
6	900.147	47.46	21.09	3.35	27.88	44.02	46.00	-1.98	QP



Vertical:



Site

: 3m chamber : FCC PART15 CLASS B 3m VULB9163(30M1G) VERTICAL Condition

Job No. : 479RF

EUT : Broadband Digital Transmission System
Model : DLB 5-15
Test mode : WIFI TX mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5°C Huni:55%

Test Engineer: Winner
Remark : POE: AY012E-ZF243

		. ~						
Freq							Over Limit	
MHz	dBu₹	<u>dB</u> /m	<u>ab</u>	dB	dBuV/m	dBuV/m	dB	
39.576	47.57	13.49	0.52	29.90	31.68	40.00	-8.32	QP
81.212	50.07	8.98	0.86	29.63	30.28	40.00	-9.72	QP
125.007	53.32	9.70	1.16	29.36	34.82	43.50	-8.68	QP
294.114	46.18	12.95	1.75	28.46	32.42	46.00	-13.58	QP
382.588	47.48	14.68	2.06	28.70	35.52	46.00	-10.48	QP
900.147	41.11	21.09	3.35	27.88	37.67	46.00	-8.33	QP
	MHz 39.576 81.212 125.007 294.114 382.588	Freq Level MHz dBuV 39.576 47.57 81.212 50.07 125.007 53.32 294.114 46.18 382.588 47.48	Freq Level Factor MHz dBuV dB/m 39.576 47.57 13.49 81.212 50.07 8.98 125.007 53.32 9.70 294.114 46.18 12.95 382.588 47.48 14.68	MHz dBuV dB/m dB 39.576 47.57 13.49 0.52 81.212 50.07 8.98 0.86 125.007 53.32 9.70 1.16 294.114 46.18 12.95 1.75 382.588 47.48 14.68 2.06	MHz dBuV dB/m dB dB 39.576 47.57 13.49 0.52 29.90 81.212 50.07 8.98 0.86 29.63 125.007 53.32 9.70 1.16 29.36 294.114 46.18 12.95 1.75 28.46 382.588 47.48 14.68 2.06 28.70	MHz dBuV dB/m dB dB dBuV/m 39.576 47.57 13.49 0.52 29.90 31.68 81.212 50.07 8.98 0.86 29.63 30.28 125.007 53.32 9.70 1.16 29.36 34.82 294.114 46.18 12.95 1.75 28.46 32.42 382.588 47.48 14.68 2.06 28.70 35.52	MHz dBuV dB/m dB dB dBuV/m dBuV/m 39.576 47.57 13.49 0.52 29.90 31.68 40.00 81.212 50.07 8.98 0.86 29.63 30.28 40.00 125.007 53.32 9.70 1.16 29.36 34.82 43.50 294.114 46.18 12.95 1.75 28.46 32.42 46.00 382.588 47.48 14.68 2.06 28.70 35.52 46.00	Freq Level Factor Loss Factor Level Line Limit MHz dBuV dB/m dB dB dBuV/m dBuV/m dB 39.576 47.57 13.49 0.52 29.90 31.68 40.00 -8.32 81.212 50.07 8.98 0.86 29.63 30.28 40.00 -9.72 125.007 53.32 9.70 1.16 29.36 34.82 43.50 -8.68 294.114 46.18 12.95 1.75 28.46 32.42 46.00 -13.58 382.588 47.48 14.68 2.06 28.70 35.52 46.00 -10.48



Above 1GHz

Test n	Test mode: 802.11a		Test channel: Lowest		Lev	/el:	Peak		
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	38.23	40.23	13.81	40.73	51.54	74.00	-22.46	Vertical	
11490.00	38.52	40.23	13.81	40.73	51.83	74.00	-22.17	Horizontal	
Test n	node: 802.	11a	Test chan	nel: Lowest	Lev	/el:	Ave	erage	
				1					
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	
	Level	Factor	Loss	Factor		Line		Polarization Vertical	

Test mode: 802.11a			Test channel: Middle		Level:		Peak	
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	39.35	40.17	13.78	40.91	52.39	74.00	-21.61	Vertical
11570.00	39.24	40.17	13.78	40.91	52.28	74.00	-21.72	Horizontal
Test n	node: 802.	11a	Test channel: Middle		Level:		Average	
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	28.47	40.17	13.78	40.91	41.51	54.00	-12.49	Vertical
11570.00	28.78	40.17	13.78	40.91	41.82	54.00	-12.18	Horizontal

Test mode: 802.11a			Test channel: Highest		Level:		Peak	
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	39.77	39.75	13.71	41.13	52.10	74.00	-21.90	Vertical
11650.00	39.47	39.75	13.71	41.13	51.80	74.00	-22.20	Horizontal
Test n	node: 802.	11a	Test channel: Highest		Level:		Average	
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	28.75	39.75	13.71	41.13	41.08	54.00	-12.92	Vertical
11650.00	28.58	39.75	13.71	41.13	40.91	54.00	-13.09	Horizontal

Remark.

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. "*", means average level is not recorded when its peak level is less than average limit.
- 3. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test mode: 802.11n-HT20			Test channel: Lowest		Level:		Peak	
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	38.51	40.23	13.81	40.73	51.82	74.00	-22.18	Vertical
11490.00	38.14	40.23	13.81	40.73	51.45	74.00	-22.55	Horizontal
Test mod	le: 802.11r	n-HT20	Test channel: Lowest		Level:		Average	
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	27.53	40.23	13.81	40.73	40.84	54.00	-13.16	Vertical
11490.00	27.59	40.23	13.81	40.73	40.90	54.00	-13.10	Horizontal

Test mode: 802.11n-HT20			Test channel: Middle		Level:		Peak	
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	39.55	40.17	13.78	40.91	52.59	74.00	-21.41	Vertical
11570.00	39.46	40.17	13.78	40.91	52.50	74.00	-21.50	Horizontal
Test mod	le: 802.11r	n-HT20	Test channel: Middle		Level:		Average	
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	28.36	40.17	13.78	40.91	41.40	54.00	-12.60	Vertical
11570.00	28.47	40.17	13.78	40.91	41.51	54.00	-12.49	Horizontal

Test mode: 802.11n-HT20		Test channel: Highest		Level:		Peak		
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	39.28	39.75	13.71	41.13	51.61	74.00	-22.39	Vertical
11650.00	39.48	39.75	13.71	41.13	51.81	74.00	-22.19	Horizontal
Test mod	le: 802.11r	n-HT20	Test channel: Highest		Level:		Average	
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	28.39	39.75	13.71	41.13	40.72	54.00	-13.28	Vertical
11650.00	28.99	39.75	13.71	41.13	41.32	54.00	-12.68	Horizontal

Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. "*", means average level is not recorded when its peak level is less than average limit.
- 3. The emission levels of other frequencies are very lower than the limit and not show in test report.



Test mode: 802.11n-HT40			Test channel: Lowest		Level:		Peak	
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	38.65	40.25	13.82	40.75	51.97	74.00	-22.03	Vertical
11510.00	38.26	40.25	13.82	40.75	51.58	74.00	-22.42	Horizontal
Test mod	le: 802.11r	n-HT40	Test channel: Lowest		Level:		Average	
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	27.52	40.25	13.82	40.75	40.84	54.00	-13.16	Vertical
11510.00	27.85	40.25	13.82	40.75	41.17	54.00	-12.83	Horizontal

Test mode: 802.11n-HT40			Test channel: Highest		Level:		Peak	
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	38.65	40.17	13.78	40.91	51.69	74.00	-22.31	Vertical
11590.00	39.15	40.17	13.78	40.91	52.19	74.00	-21.81	Horizontal
Test mod	Test mode: 802.11n-HT40		Test channel: Highest		Level:		Average	
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	27.89	40.17	13.78	40.91	40.93	54.00	-13.07	Vertical
11590.00	27.18	40.17	13.78	40.91	40.22	54.00	-13.78	Horizontal

Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. "*", means average level is not recorded when its peak level is less than average limit.
- 3. The emission levels of other frequencies are very lower than the limit and not show in test report.