



# SPORTON International Inc.

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## FCC RADIO TEST REPORT

Applicant's company	Abocom Systems, Inc.
Applicant Address	No.77, Yu-Yih Rd., Chu-Nan, Miao-Lih County 35059, Taiwan R.O.C.
FCC ID	MQ4CB1522M
Manufacturer's company	Abocom Systems, Inc.
Manufacturer Address	No.77, Yu-Yih Rd., Chu-Nan, Miao-Lih County 35059, Taiwan R.O.C.

Product Name	IP camera
Brand Name	AboCom
Model No.	CA1522M, CB1522M, CB1522MC
Test Rule	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz
Received Date	Aug. 15, 2014
Final Test Date	Sep. 02, 2014
Submission Type	Original Equipment

### Statement

Test result included in this report is for the IEEE 802.11n and IEEE 802.11b/g of the product.

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in ANSI C63.10-2013, 47 CFR FCC Part 15 Subpart C, KDB 558074 D01 v03r02 and KDB 662911 D01 v02r01.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.



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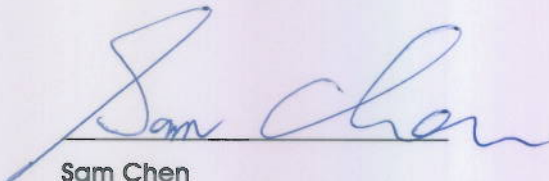
## History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR431011-01	Rev. 01	Initial issue of report	Sep. 22, 2014

## 1. CERTIFICATE OF COMPLIANCE

Product Name : IP camera  
Brand Name : AboCom  
Model No. : CA1522M, CB1522M, CB1522MC  
Applicant : Abocom Systems, Inc.  
Test Rule Part(s) : 47 CFR FCC Part 15 Subpart C § 15.247

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Aug. 15, 2014 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.



Sam Chen

SPORTON INTERNATIONAL INC.

## 2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart C				
Part	Rule Section	Description of Test	Result	Under Limit
4.1	15.207	AC Power Line Conducted Emissions	Complies	8.41 dB
4.2	15.247(b)(3)	Maximum Conducted Output Power	Complies	7.69 dB
4.3	15.247(e)	Power Spectral Density	Complies	13.95 dB
4.4	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
4.5	15.247(d)	Radiated Emissions	Complies	0.03 dB
4.6	15.247(d)	Band Edge Emissions	Complies	0.02 dB
4.7	15.203	Antenna Requirements	Complies	-

### 3. GENERAL INFORMATION

#### 3.1. Product Details

##### IEEE 802.11n

Items	Description
Product Type	WLAN (1TX/2TX, 1RX/2RX)
Radio Type	Intentional Transceiver
Power Type	From power adapter
Modulation	see the below table for IEEE 802.11n
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	see the below table for IEEE 802.11n
Frequency Range	2400 ~ 2483.5MHz
Channel Number	11 for 20MHz bandwidth ; 7 for 40MHz bandwidth
Channel Band Width (99%)	For 1TX: For Ant. 1 MCS0 (HT20): 18.14 MHz ; MCS0 (HT40): 36.41 MHz For Ant. 2 MCS0 (HT20): 18.01 MHz ; MCS0 (HT40): 36.41 MHz For 2TX: For Ant. 1 + Ant. 2 MCS0 (HT20): 17.82 MHz ; MCS0 (HT40): 36.41 MHz
Maximum Conducted Output Power	For 1TX: For Ant. 1 MCS0 (HT20): 22.21 dBm ; MCS0 (HT40): 19.11 dBm For Ant. 2 MCS0 (HT20): 22.18 dBm ; MCS0 (HT40): 17.04 dBm For 2TX: For Ant. 1 + Ant. 2 MCS0 (HT20): 20.96 dBm ; MCS0 (HT40): 19.65 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

**IEEE 802.11b/g**

Items	Description
Product Type	802.11b/g: WLAN (1TX, 1RX)
Radio Type	Intentional Transceiver
Power Type	From power adapter
Modulation	DSSS for IEEE 802.11b ; OFDM for IEEE 802.11g
Data Modulation	DSSS (BPSK / QPSK / CCK) ; OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	DSSS (1/ 2/ 5.5/11) ; OFDM (6/9/12/18/24/36/48/54)
Frequency Range	2400 ~ 2483.5MHz
Channel Number	11
Channel Band Width (99%)	11b: 12.30 MHz ; 11g: 17.62 MHz
Maximum Conducted Output Power	11b: 21.37 dBm ; 11g: 22.31 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Items	Description	
Beamforming Function	<input type="checkbox"/> With beamforming	<input checked="" type="checkbox"/> Without beamforming

**Antenna and Band width**

Antenna	Single (TX)		Two (TX)	
	20 MHz	40 MHz	20 MHz	40 MHz
IEEE 802.11b	V	X	X	X
IEEE 802.11g	V	X	X	X
IEEE 802.11n	V	V	V	V

**IEEE 11n Spec.**

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	1	MCS 0-7
802.11n (HT40)	1	MCS 0-7
802.11n (HT20)	2	MCS 0-15
802.11n (HT40)	2	MCS 0-15

Note 1: IEEE Std. 802.11n modulation consists of HT20 and HT40 (HT: High Throughput).  
Then EUT support HT20 and HT40.

Note 2: Modulation modes consist of below configuration: HT20/HT40: IEEE 802.11n

### 3.2. Accessories

Power	Brand	Model	Rating
Adapter	DVE	DSA-6PFE-05 FJP 050 100	INPUT: 100-240V, 50/60Hz, 0.2A OUTPUT: 5V, 1A

### 3.3. Table for Filed Antenna

Ant.	Brand Holder	Model Name	Antenna Type	Connector	Gain (dBi)
1	Walsin Technology Corporation	-	Metal Antenna	N/A	2.70
2	Walsin Technology Corporation	-	Metal Antenna	N/A	2.64

Note:

**For IEEE 802.11b/g mode (1TX/1RX):**

Only Ant. 1 can be used as transmitting antenna and receiving antenna.

**For IEEE 802.11n mode (1TX/2TX, 1RX/2RX):**

**For 1TX**

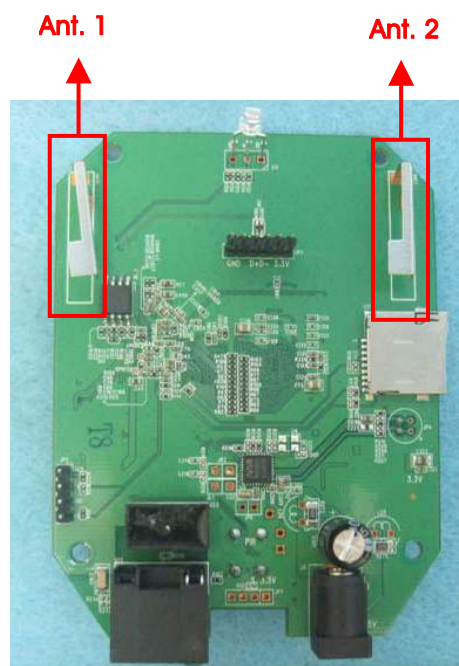
The EUT supports the antenna with TX and RX diversity functions.

Both Ant. 1 and Ant. 2 support transmit and receive functions, but only one of them will be used at one time.

**For 2TX**

Both Ant. 1 and Ant. 2 can be used as transmitting/receiving antenna.

Ant. 1 and Ant. 2 could both transmit/receive simultaneously.





### 3.4. Table for Carrier Frequencies

There are two bandwidth systems.

For 20MHz bandwidth systems, use Channel 1~Channel 11.

For 40MHz bandwidth systems, use Channel 3~Channel 9.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
2400~2483.5MHz	1	2412 MHz	7	2442 MHz
	2	2417 MHz	8	2447 MHz
	3	2422 MHz	9	2452 MHz
	4	2427 MHz	10	2457 MHz
	5	2432 MHz	11	2462 MHz
	6	2437 MHz	-	-

### 3.5. Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate	Channel	Antenna
AC Power Line Conducted Emissions	Normal Link	-	-	-
Maximum Conducted Output Power	802.11n HT20	MCS0	1/6/11	1
	802.11n HT40	MCS0	3/6/9	1
	802.11n HT20	MCS0	1/6/11	2
	802.11n HT40	MCS0	3/6/9	2
	802.11n HT20	MCS0	1/6/11	1+2
	802.11n HT40	MCS0	3/6/9	1+2
	11b/BPSK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
Power Spectral Density	802.11n HT20	MCS0	1/6/11	1
	802.11n HT40	MCS0	3/6/9	1
	802.11n HT20	MCS0	1/6/11	2
	802.11n HT40	MCS0	3/6/9	2
	802.11n HT20	MCS0	1/6/11	1+2
	802.11n HT40	MCS0	3/6/9	1+2
	11b/BPSK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
6dB Spectrum Bandwidth	802.11n HT20	MCS0	1/6/11	1
	802.11n HT40	MCS0	3/6/9	1
	802.11n HT20	MCS0	1/6/11	2
	802.11n HT40	MCS0	3/6/9	2
	802.11n HT20	MCS0	1/6/11	1+2
	802.11n HT40	MCS0	3/6/9	1+2
	11b/BPSK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1

Radiated Emissions 9kHz~1GHz	Normal Link	-	-	-
Radiated Emissions 1GHz~10 <sup>th</sup> Harmonic	802.11n HT20	MCS0	1/6/11	1
	802.11n HT40	MCS0	3/6/9	1
	802.11n HT20	MCS0	1/6/11	2
	802.11n HT40	MCS0	3/6/9	2
	802.11n HT20	MCS0	1/6/11	1+2
	802.11n HT40	MCS0	3/6/9	1+2
	11b/BPSK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1
Band Edge Emissions	802.11n HT20	MCS0	1/6/11	1
	802.11n HT40	MCS0	3/6/9	1
	802.11n HT20	MCS0	1/6/11	2
	802.11n HT40	MCS0	3/6/9	2
	802.11n HT20	MCS0	1/6/11	1+2
	802.11n HT40	MCS0	3/6/9	1+2
	11b/BPSK	1 Mbps	1/6/11	1
	11g/BPSK	6 Mbps	1/6/11	1

The following test modes were performed for all tests:

**For Conducted Emission test:**

Mode 1. EUT 1 with adapter

Mode 2. EUT 3 with adapter

Mode 2 is the worst case, so it was selected to record in this test report.

**For Radiated Emission below 1GHz test:**

Mode 1. EUT 1 standing with adapter

Mode 2. EUT 1 laying with adapter

Mode 1 has been evaluated to be the worst case between Mode 1~2, thus measurement for Mode 3 will follow this same test mode.

Mode 3. EUT 3 standing with adapter

Mode 3 generated the worst test result, so it was recorded in this report.

**For Radiated Emission above 1GHz test:**

There are two modes of EUT, one is standing, the other one is Laying position.

Standing has been evaluated to be the worst case after evaluating.

Consequently, measurement for Radiated Emission above 1GHz test will follow this same test mode.

Mode 1. CTX - EUT 3 standing

### 3.6. Table for Testing Locations

Test Site Location				
Address:	No.8, Lane 724, Bo-ai St., Jhubei City, Hsinchu County 302, Taiwan, R.O.C.			
TEL:	886-3-656-9065			
FAX:	886-3-656-9085			
Test Site No.	Site Category	Location	FCC Reg. No.	IC File No.
03CH01-CB	SAC	Hsin Chu	262045	IC 4086D
CO01-CB	Conduction	Hsin Chu	262045	IC 4086D
TH01-CB	OVEN Room	Hsin Chu	-	-

Open Area Test Site (OATS); Semi Anechoic Chamber (SAC).

### 3.7. Table for Multiple Listing

The brand/model names in the following table are all refer to the identical product.

EUT	Model Name	Description
EUT 1	CB1522MC	Day + Night vision IP camera with LED cover
EUT 2	CB1522M	Day + Night vision IP camera
EUT 3	CA1522M	Day vision IP camera

#### For Conducted Emission and Radiated Emission below 1GHz test:

From the above, EUT 1 and EUT 3 was selected as representative model for the test and its data was recorded in this report.

#### For Radiated Emission above 1GHz test:

From the above, EUT 3 was selected as representative model for the test and its data was recorded in this report.

### 3.8. Table for Supporting Units

#### For Test Site No: CO01-CB and 03CH01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E6430	DoC
AP Router	Planex	GW-AP54SGX	KA220030603014-1
iPhone 4	Apple	A1332	BCG-E2380a
SD Card	Apacer	Micro SD	N/A

#### For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E6430	DoC

### 3.9. Table for Parameters of Test Software Setting

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

#### Power Parameters of IEEE 802.11n

For 1TX:

Test Software Version	MT7620 QA V1.0.6.0		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 HT20 for Ant. 1	13	24	15
MCS0 HT20 for Ant. 2	14	24	16
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 HT40 for Ant. 1	11	1A	13
MCS0 HT40 for Ant. 2	0D	16	13

For 2TX:

Test Software Version	MT7620 QA V1.0.6.0		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 HT20	10/13	18/1B	13/16
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 HT40	0C/0F	15/18	11/13

#### Power Parameters of IEEE 802.11b/g

Test Software Version	MT7620 QA V1.0.6.0		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	17	19	15
IEEE 802.11g	16	24	16

### 3.10. EUT Operation during Test

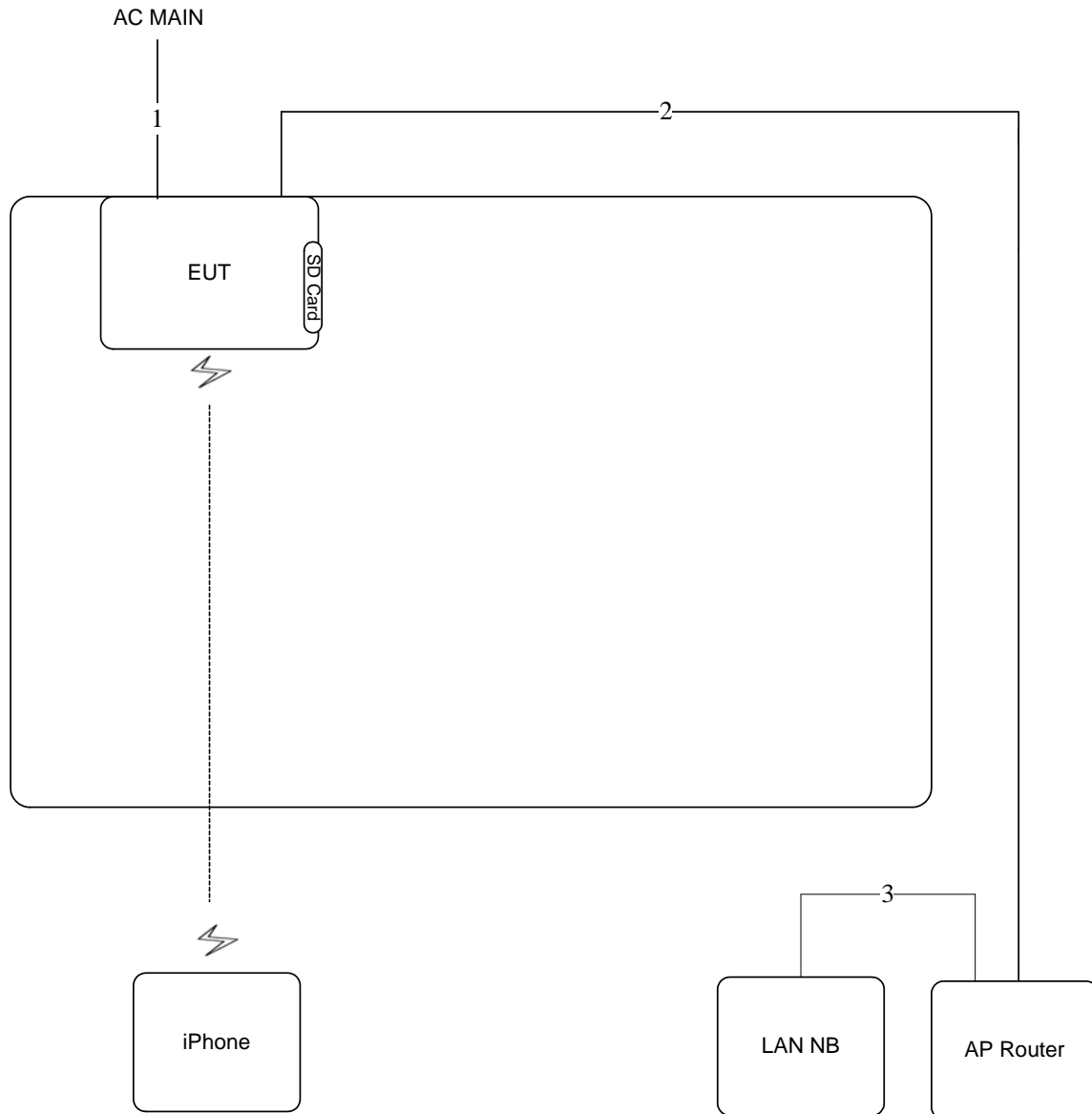
The EUT was programmed to be in continuously transmitting mode.

### 3.11. Duty Cycle

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11n MCS0 HT20	1.000	1.000	100	0.00	0.01
802.11n MCS0 HT40	1.000	1.000	100	0.00	0.01
802.11b	1.000	1.000	100	0.00	0.01
802.11g	1.000	1.000	100	0.00	0.01

### 3.12. Test Configurations

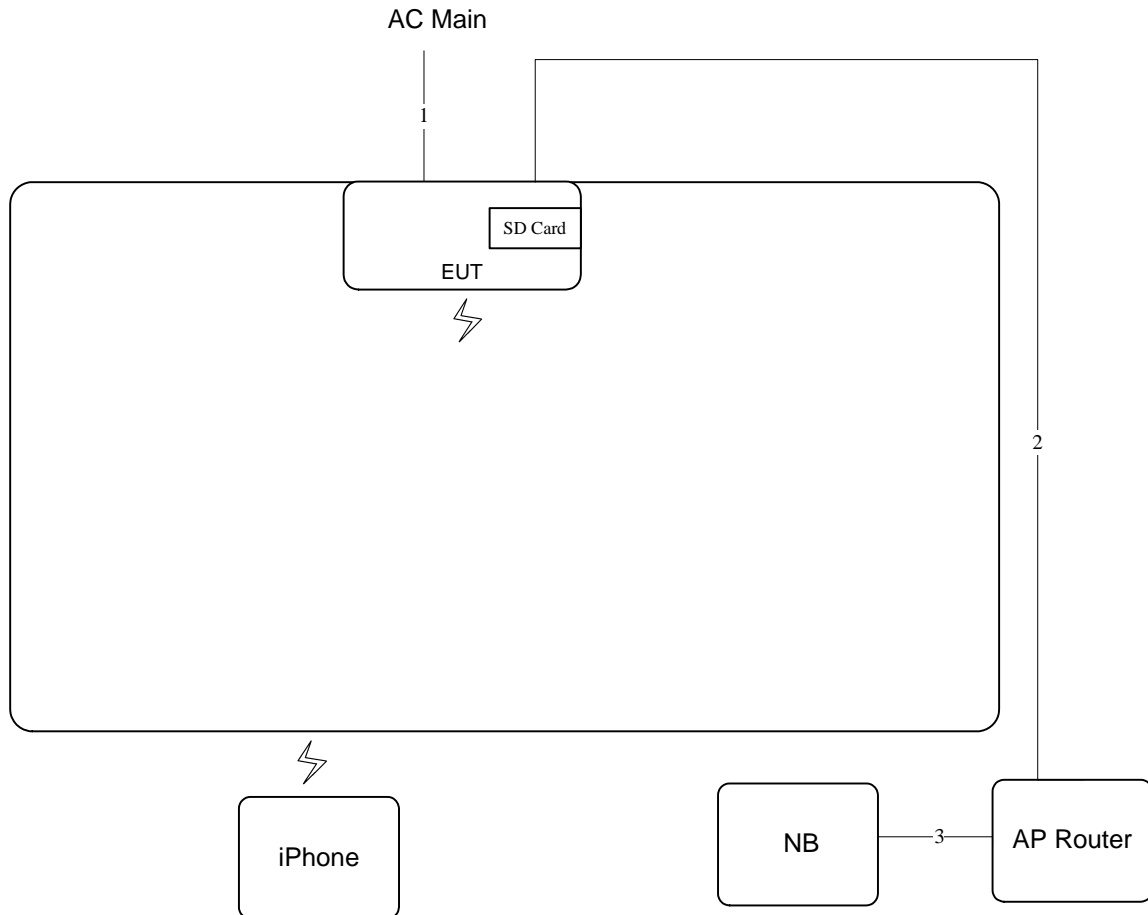
#### 3.12.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	1.5m

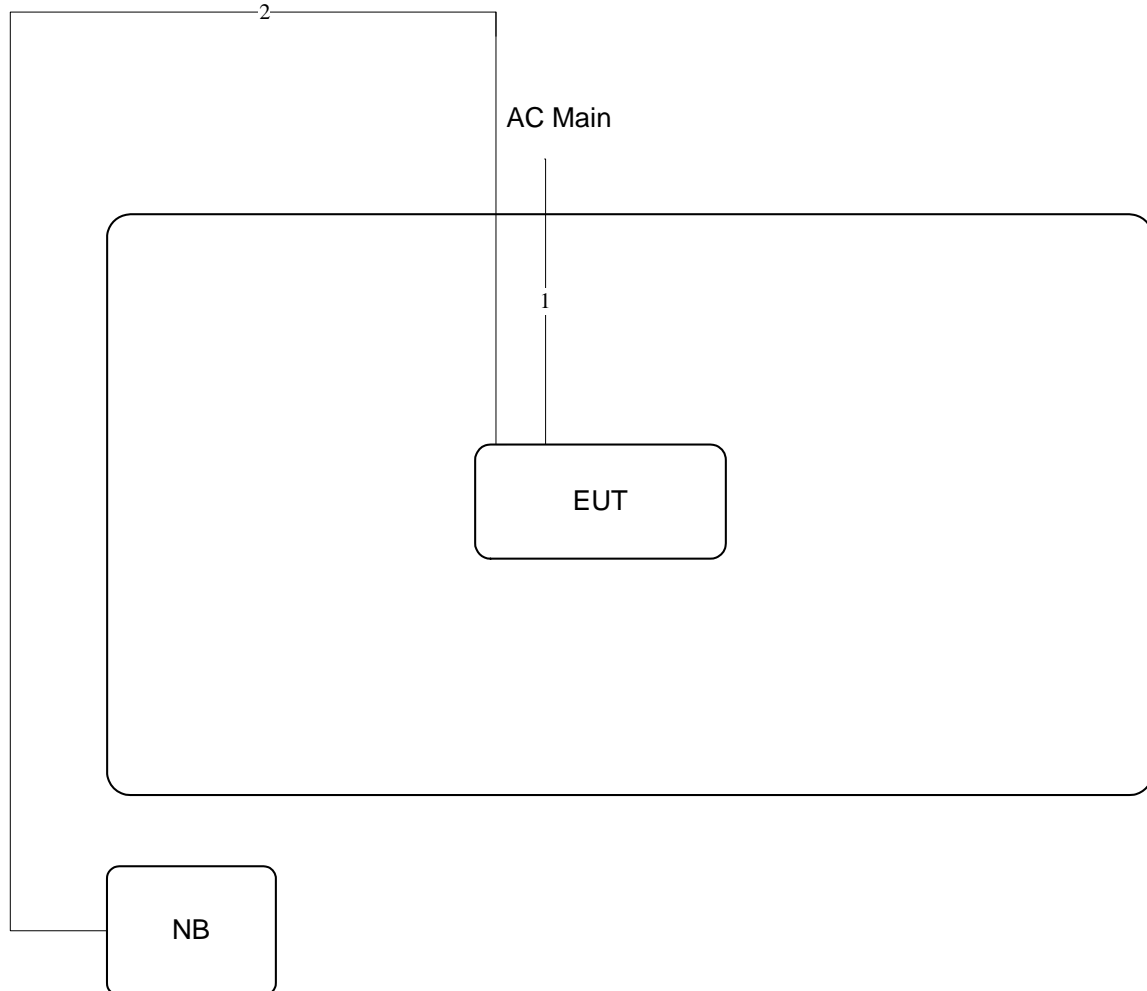
### 3.12.2. Radiation Emissions Test Configuration

Test Configuration: 30MHz~1GHz



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	1m

Test Configuration: above 1GHz



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	10m



## 4. TEST RESULT

### 4.1. AC Power Line Conducted Emissions Measurement

#### 4.1.1. Limit

For this product which is designed to be connected to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

#### 4.1.2. Measuring Instruments and Setting

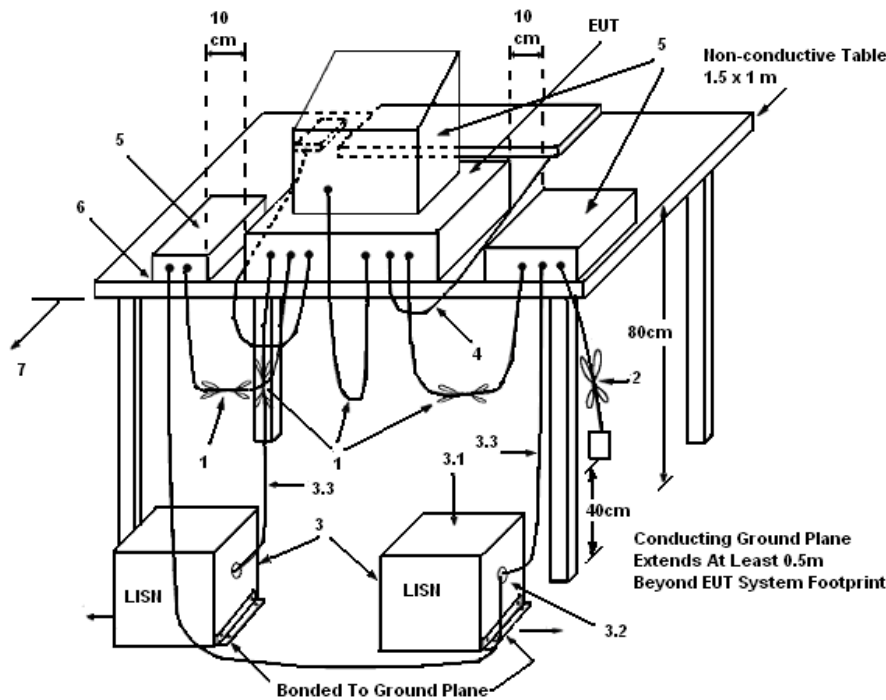
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

#### 4.1.3. Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 kHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

#### 4.1.4. Test Setup Layout



#### LEGEND:

- (1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- (2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- (3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50  $\Omega$ . LISN can be placed on top of, or immediately beneath, reference ground plane.
- (3.1) All other equipment powered from additional LISN(s).
- (3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
- (3.3) LISN at least 80 cm from nearest part of EUT chassis.
- (4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
- (5) Non-EUT components of EUT system being tested.
- (6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.
- (7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

#### 4.1.5. Test Deviation

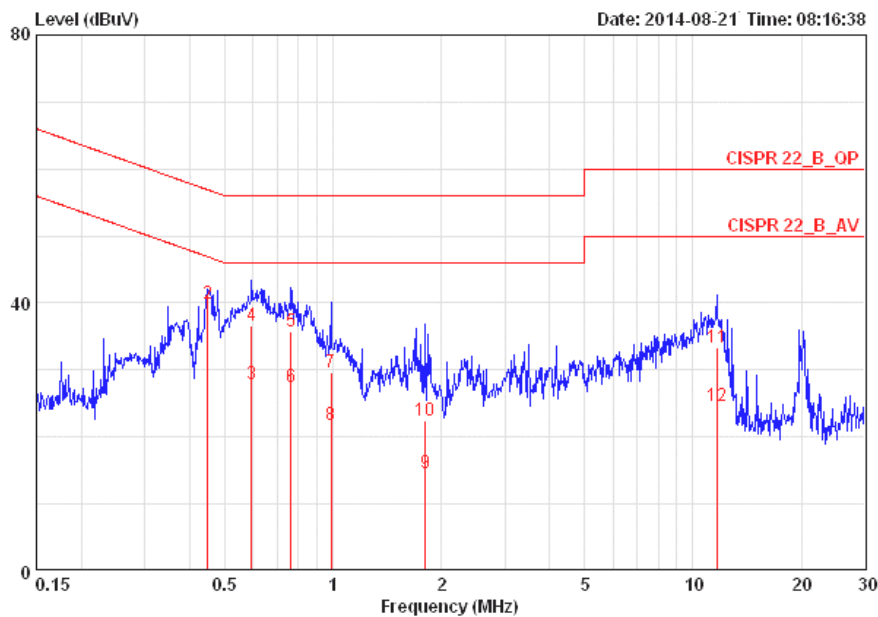
There is no deviation with the original standard.

#### 4.1.6. EUT Operation during Test

The EUT was placed on the test table and programmed in normal function.

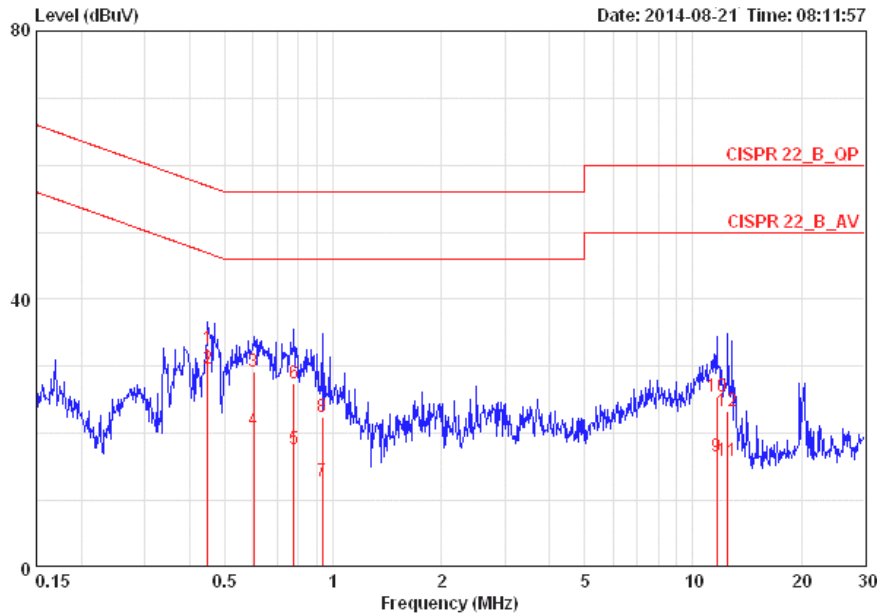
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	24°C	Humidity	53%
Test Engineer	Ryo Fan	Phase	Line
Test Mode	Mode 2	Configuration	Normal Link



	Freq	Level	Over Limit	Limit Line	LISN Factor	Read Level	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dB	dBuV	dB		
1	0.44916	38.48	-8.41	46.89	0.10	38.19	0.18	LINE	AVERAGE
2	0.44916	39.88	-17.01	56.89	0.10	39.59	0.18	LINE	QP
3	0.59478	27.86	-18.14	46.00	0.11	27.56	0.19	LINE	AVERAGE
4	0.59478	36.59	-19.41	56.00	0.11	36.29	0.19	LINE	QP
5	0.76297	35.64	-20.36	56.00	0.12	35.33	0.19	LINE	QP
6	0.76297	27.51	-18.49	46.00	0.12	27.20	0.19	LINE	AVERAGE
7	0.98914	29.75	-26.25	56.00	0.13	29.42	0.20	LINE	QP
8	0.98914	21.71	-24.29	46.00	0.13	21.38	0.20	LINE	AVERAGE
9	1.810	14.66	-31.34	46.00	0.16	14.26	0.24	LINE	AVERAGE
10	1.810	22.49	-33.51	56.00	0.16	22.09	0.24	LINE	QP
11	11.621	33.30	-26.70	60.00	0.37	32.53	0.40	LINE	QP
12	11.621	24.58	-25.42	50.00	0.37	23.81	0.40	LINE	AVERAGE

Temperature	24°C	Humidity	53%
Test Engineer	Ryo Fan	Phase	Neutral
Test Mode	Mode 2	Configuration	Normal Link



	Freq	Level	Over Limit	Limit Line	LISN Factor	Read Level	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dB	dBuV	dB		
1	0.44916	32.67	-24.22	56.89	0.09	32.39	0.18	NEUTRAL	QP
2	0.44916	29.63	-17.26	46.89	0.09	29.35	0.18	NEUTRAL	AVERAGE
3	0.60112	29.14	-26.86	56.00	0.10	28.85	0.19	NEUTRAL	QP
4	0.60112	20.52	-25.48	46.00	0.10	20.23	0.19	NEUTRAL	AVERAGE
5	0.77931	17.75	-28.25	46.00	0.11	17.44	0.19	NEUTRAL	AVERAGE
6	0.77931	27.46	-28.54	56.00	0.11	27.15	0.19	NEUTRAL	QP
7	0.93314	12.94	-33.06	46.00	0.12	12.62	0.20	NEUTRAL	AVERAGE
8	0.93314	22.49	-33.51	56.00	0.12	22.17	0.20	NEUTRAL	QP
9	11.621	16.60	-33.40	50.00	0.35	15.86	0.40	NEUTRAL	AVERAGE
10	11.621	25.55	-34.45	60.00	0.35	24.81	0.40	NEUTRAL	QP
11	12.516	15.86	-34.14	50.00	0.36	15.09	0.41	NEUTRAL	AVERAGE
12	12.516	23.34	-36.66	60.00	0.36	22.57	0.41	NEUTRAL	QP

Note:

Level = Read Level + LISN Factor + Cable Loss.

## 4.2. Maximum Conducted Output Power Measurement

### 4.2.1. Limit

For systems using digital modulation in the 2400-2483.5MHz, the limit for output power is 30dBm. The limited has to be reduced by the amount in dB that the gain of the antenna exceed 6dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

### 4.2.2. Measuring Instruments and Settingw

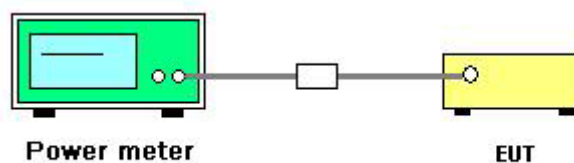
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Bandwidth	50MHz bandwidth is greater than the EUT emission bandwidth
Detector	Average

### 4.2.3. Test Procedures

1. Test procedures refer KDB 558074 D01 v03r02 section 9.2.3.2 Measurement using a power meter (PM).
2. Multiple antenna systems was performed in accordance with KDB 662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
3. This procedure provides an alternative for determining the RMS output power using a broadband RF average power meter with a thermocouple detector.

### 4.2.4. Test Setup Layout



### 4.2.5. Test Deviation

There is no deviation with the original standard.

### 4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

#### 4.2.7. Test Result of Maximum Conducted Output Power

Temperature	26°C	Humidity	63%
Test Engineer	Wen Chao	Configurations	IEEE 802.11n
Test Date	Sep. 02, 2014		

For 1TX

Configuration IEEE 802.11n MCS0 HT20 / Ant. 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	17.33	30.00	Complies
6	2437 MHz	22.21	30.00	Complies
11	2462 MHz	17.67	30.00	Complies

Configuration IEEE 802.11n MCS0 HT40 / Ant. 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	15.93	30.00	Complies
6	2437 MHz	19.11	30.00	Complies
9	2452 MHz	16.38	30.00	Complies

Configuration IEEE 802.11n MCS0 HT20 / Ant. 2

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	16.74	30.00	Complies
6	2437 MHz	22.18	30.00	Complies
11	2462 MHz	17.21	30.00	Complies

Configuration IEEE 802.11n MCS0 HT40 / Ant. 2

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	13.21	30.00	Complies
6	2437 MHz	17.04	30.00	Complies
9	2452 MHz	15.62	30.00	Complies

For 2TX

Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Total		
1	2412 MHz	15.07	15.83	18.48	30.00	Complies
6	2437 MHz	17.38	18.45	20.96	30.00	Complies
11	2462 MHz	15.86	16.73	19.33	30.00	Complies

Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Total		
3	2422 MHz	12.59	13.68	16.18	30.00	Complies
6	2437 MHz	16.45	16.82	19.65	30.00	Complies
9	2452 MHz	14.45	14.92	17.70	30.00	Complies

<b>Temperature</b>	26°C	<b>Humidity</b>	63%
<b>Test Engineer</b>	Wen Chao	<b>Configurations</b>	IEEE 802.11b/g
<b>Test Date</b>	Sep. 02, 2014		

**Configuration IEEE 802.11b / Ant. 1**

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	20.56	30.00	<b>Complies</b>
6	2437 MHz	21.37	30.00	<b>Complies</b>
11	2462 MHz	19.42	30.00	<b>Complies</b>

**Configuration IEEE 802.11g / Ant. 1**

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	18.66	30.00	<b>Complies</b>
6	2437 MHz	22.31	30.00	<b>Complies</b>
11	2462 MHz	18.17	30.00	<b>Complies</b>



### 4.3. Power Spectral Density Measurement

#### 4.3.1. Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

#### 4.3.2. Measuring Instruments and Setting

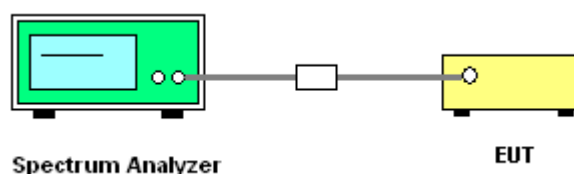
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Set the span to 1.5 times the DTS channel bandwidth.
RBW	$3 \text{ kHz} \leq \text{RBW} \leq 100\text{kHz}$
VBW	$\geq 3 \times \text{RBW}$
Detector	Peak
Trace	Max Hold
Sweep Time	Auto couple

#### 4.3.3. Test Procedures

1. Test was performed in accordance with KDB 558074 D01 v03r02 for Performing Compliance Measurements on Digital Transmission Systems (DTS) - section 10.2 Method PKPSD (peak PSD) and KDB 662911 D01 v02r01 section In-Band Power Spectral Density (PSD) Measurements option (b) Measure and sum spectral maximal across the outputs.
2. Use this procedure when the maximum conducted output power in the fundamental emission is used to demonstrate compliance. The EUT must be configured to transmit continuously at full power over the measurement duration.
3. Ensure that the number of measurement points in the sweep  $\geq 2 \times \text{span}/\text{RBW}$  (use of a greater number of measurement points than this minimum requirement is recommended).
4. Use the peak marker function to determine the maximum level in any 3 kHz band segment within the fundamental EBW.
5. The resulting PSD level must be  $\leq 8 \text{ dBm}$ .

#### 4.3.4. Test Setup Layout



#### 4.3.5. Test Deviation

There is no deviation with the original standard.

#### 4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

#### 4.3.7. Test Result of Power Spectral Density

Temperature	26°C	Humidity	63%
Test Engineer	Wen Chao	Configurations	IEEE 802.11n

For 1TX

Configuration IEEE 802.11n MCS0 HT20 / Ant. 1

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
1	2412 MHz	-10.49	8.00	Complies
6	2437 MHz	-6.17	8.00	Complies
11	2462 MHz	-11.15	8.00	Complies

Configuration IEEE 802.11n MCS0 HT40 / Ant. 1

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
3	2422 MHz	-13.21	8.00	Complies
6	2437 MHz	-10.76	8.00	Complies
9	2452 MHz	-12.45	8.00	Complies

Configuration IEEE 802.11n MCS0 HT20 / Ant. 2

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
1	2412 MHz	-11.60	8.00	Complies
6	2437 MHz	-6.62	8.00	Complies
11	2462 MHz	-11.07	8.00	Complies

Configuration IEEE 802.11n MCS0 HT40 / Ant. 2

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
3	2422 MHz	-16.46	8.00	Complies
6	2437 MHz	-12.69	8.00	Complies
9	2452 MHz	-14.96	8.00	Complies

For 2TX

Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Ant. 1	Ant. 2	Total		
1	2412 MHz	-13.36	-11.34	-9.22	8.00	Complies
6	2437 MHz	-10.31	-10.12	-7.20	8.00	Complies
11	2462 MHz	-12.89	-11.67	-9.23	8.00	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.68\text{dBi} < 6\text{dBi}$ , so the limit doesn't reduce.

Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Ant. 1	Ant. 2	Total		
3	2422 MHz	-15.87	-16.39	-13.11	8.00	Complies
6	2437 MHz	-13.30	-13.99	-10.62	8.00	Complies
9	2452 MHz	-14.76	-14.49	-11.61	8.00	Complies

Note:  $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right] = 5.68\text{dBi} < 6\text{dBi}$ , so the limit doesn't reduce.

<b>Temperature</b>	26°C	<b>Humidity</b>	63%
<b>Test Engineer</b>	Wen Chao	<b>Configurations</b>	IEEE 802.11b/g

**Configuration IEEE 802.11b / Ant. 1**

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
1	2412 MHz	-9.23	8.00	Complies
6	2437 MHz	-8.37	8.00	Complies
11	2462 MHz	-10.15	8.00	Complies

**Configuration IEEE 802.11g / Ant. 1**

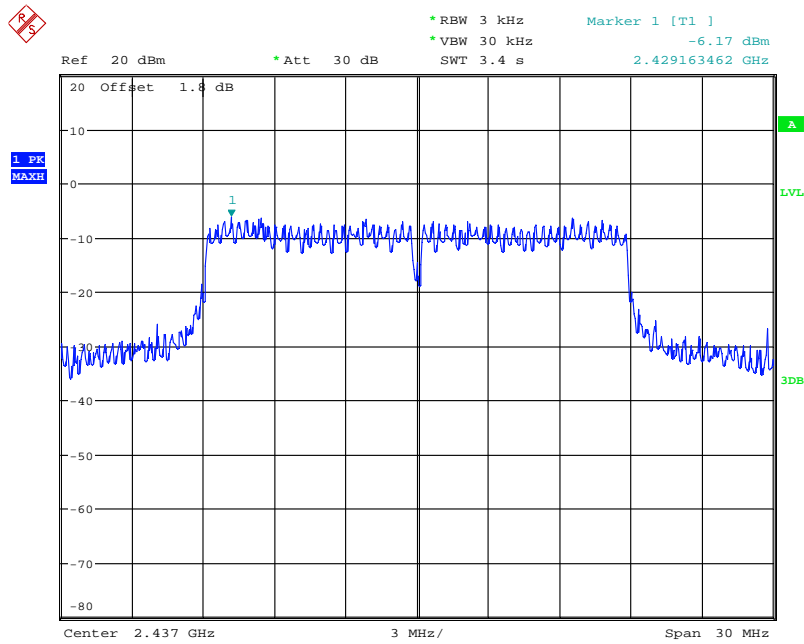
Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
1	2412 MHz	-9.96	8.00	Complies
6	2437 MHz	-5.95	8.00	Complies
11	2462 MHz	-10.07	8.00	Complies

Note: All the test values were listed in the report.

For plots, only the channel with worse result was shown.

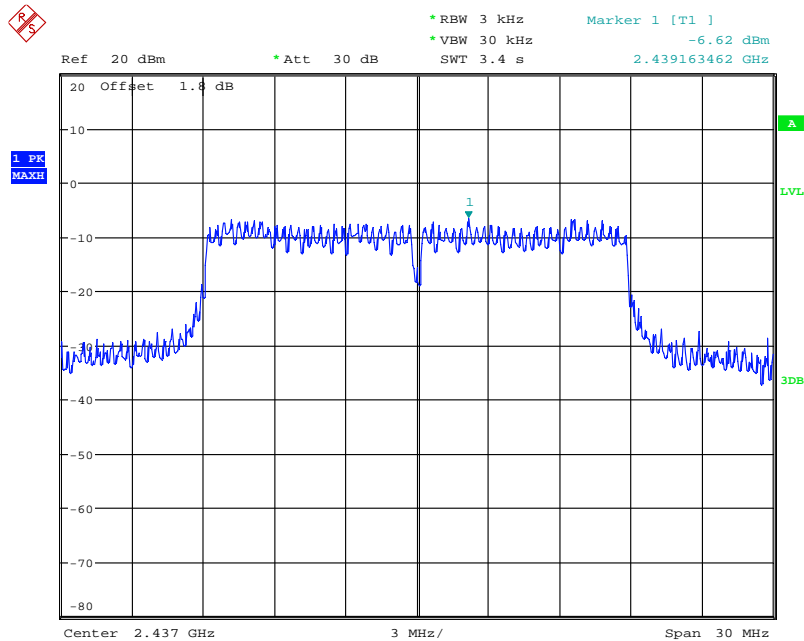
For 1TX

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Ant. 1



Date: 2.SEP.2014 20:57:23

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Ant. 2

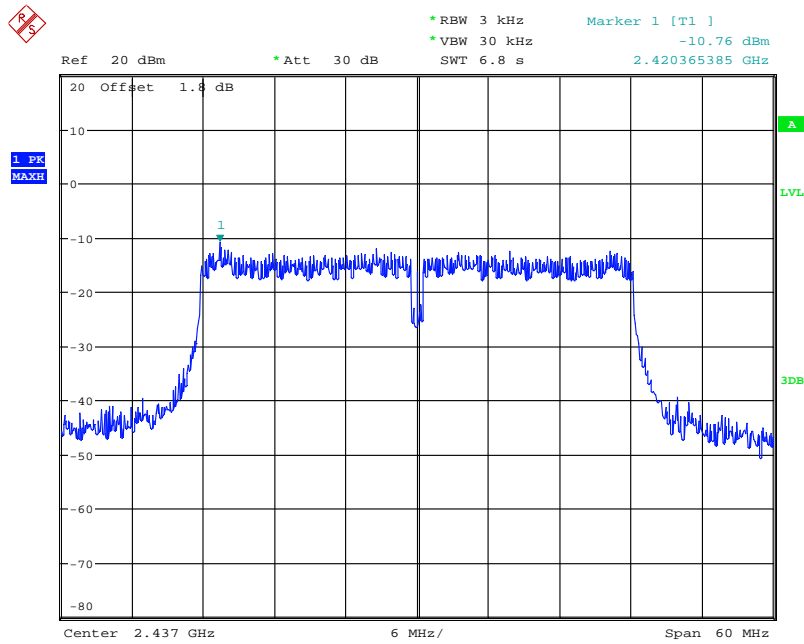


Date: 2.SEP.2014 21:13:45



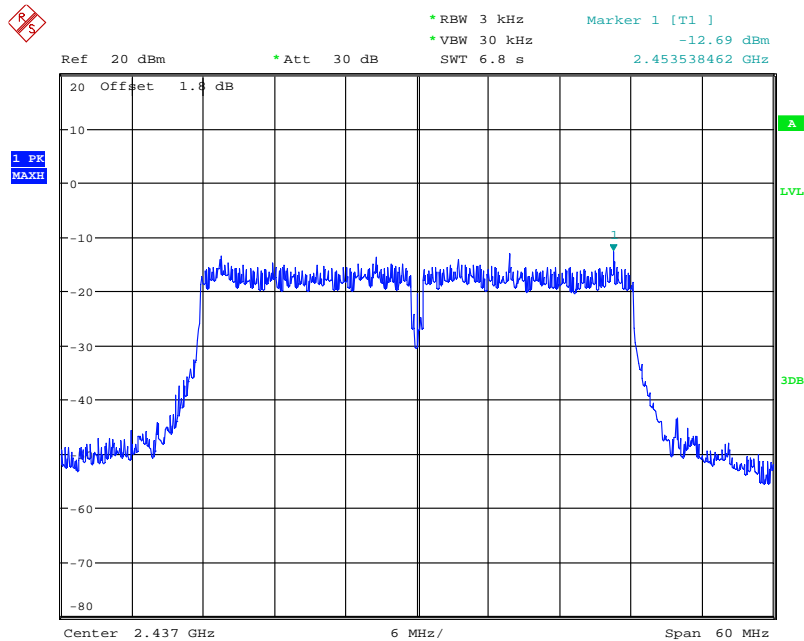
For 1TX

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Ant. 1



Date: 2.SEP.2014 21:00:25

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Ant. 2

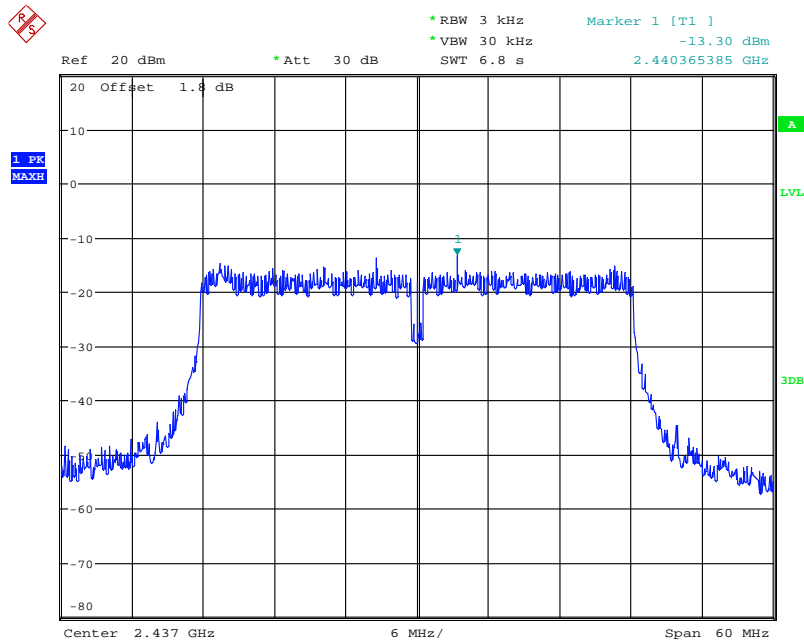


Date: 2.SEP.2014 21:11:12



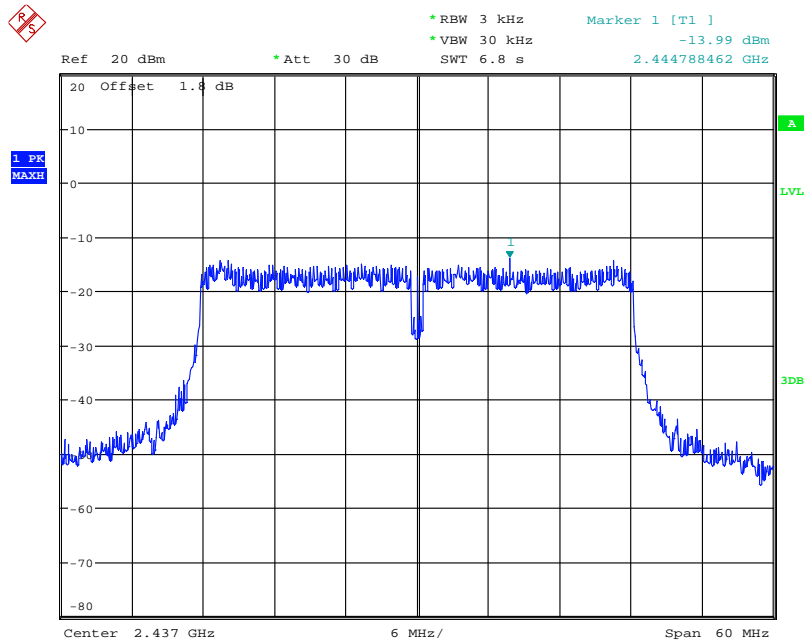
For 2TX

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Ant. 1



Date: 2.SEP.2014 21:23:33

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Ant. 2



Date: 2.SEP.2014 21:22:49



## 4.4. 6dB Spectrum Bandwidth Measurement

### 4.4.1. Limit

For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

### 4.4.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the Spectrum Analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	100kHz
VBW	$\geq 3 \times \text{RBW}$
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

### 4.4.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB 558074 D01 v03r02 for Performing Compliance Measurements on Digital Transmission Systems (DTS) - section 8.0 DTS bandwidth=> 8.1 Option 1.
3. Multiple antenna system was performed in accordance with KDB 662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. Measured the spectrum width with power higher than 6dB below carrier.

### 4.4.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

This test setup layout is the same as that shown in section 4.5.4.

### 4.4.5. Test Deviation

There is no deviation with the original standard.

### 4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

#### 4.4.7. Test Result of 6dB Spectrum Bandwidth

Temperature	26°C	Humidity	63%
Test Engineer	Wen Chao	Configurations	IEEE 802.11n

For 1TX

Configuration IEEE 802.11n MCS0 HT20 / Ant. 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.69	17.62	500	Complies
6	2437 MHz	17.69	18.14	500	Complies
11	2462 MHz	17.75	17.69	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Ant. 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	36.41	36.28	500	Complies
6	2437 MHz	36.66	36.41	500	Complies
9	2452 MHz	36.41	36.41	500	Complies

Configuration IEEE 802.11n MCS0 HT20 / Ant. 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.75	17.62	500	Complies
6	2437 MHz	17.75	18.01	500	Complies
11	2462 MHz	17.62	17.69	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Ant. 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	36.41	36.41	500	Complies
6	2437 MHz	36.53	36.41	500	Complies
9	2452 MHz	36.41	36.41	500	Complies

For 2TX

Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.62	17.75	500	Complies
6	2437 MHz	17.69	17.82	500	Complies
11	2462 MHz	17.62	17.82	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	36.53	36.41	500	Complies
6	2437 MHz	36.41	36.41	500	Complies
9	2452 MHz	36.41	36.41	500	Complies

<b>Temperature</b>	26°C	<b>Humidity</b>	63%
<b>Test Engineer</b>	Wen Chao	<b>Configurations</b>	IEEE 802.11b/g

**Configuration IEEE 802.11b / Ant. 1**

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	10.12	12.30	500	Complies
6	2437 MHz	10.00	12.30	500	Complies
11	2462 MHz	10.00	12.30	500	Complies

**Configuration IEEE 802.11g / Ant. 1**

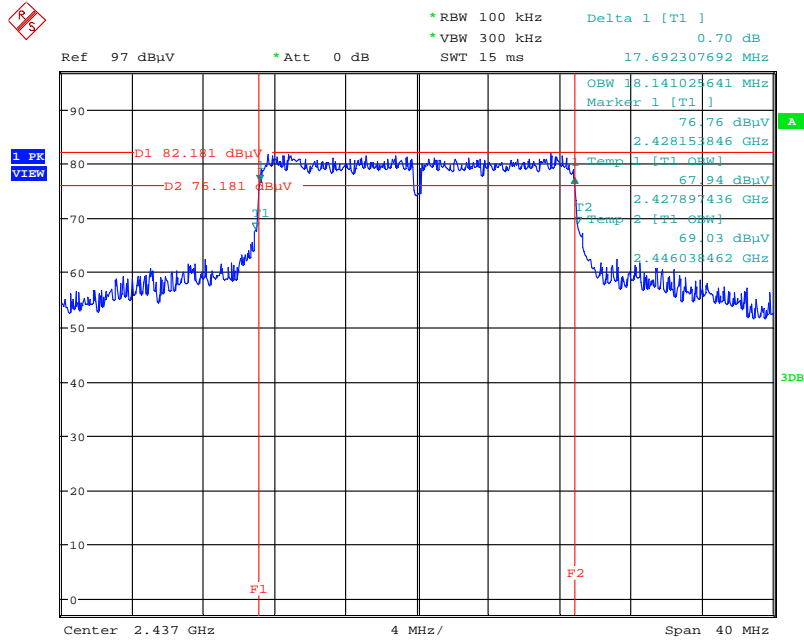
Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	16.53	16.53	500	Complies
6	2437 MHz	16.53	17.62	500	Complies
11	2462 MHz	16.53	16.53	500	Complies

Note: All the test values were listed in the report.

For plots, only the channel with worse result was shown.

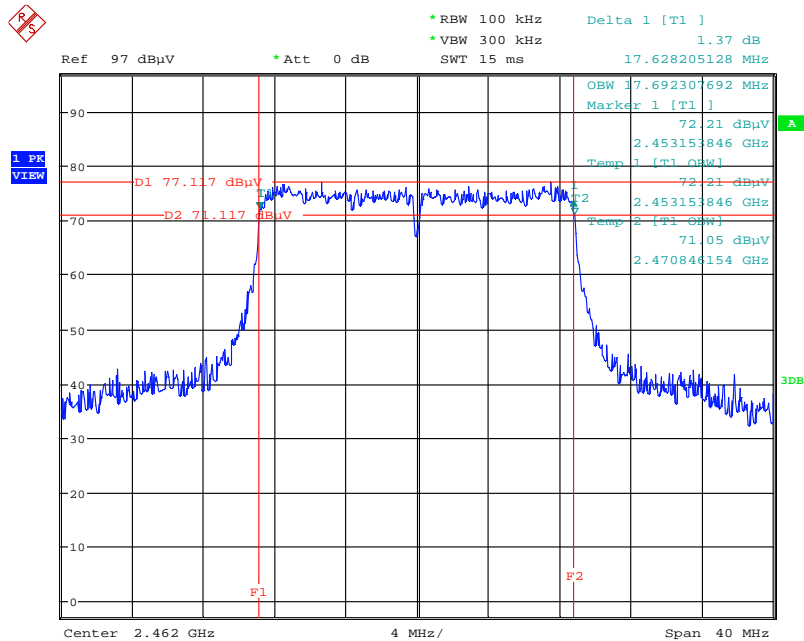
For 1TX

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Ant. 1



Date: 2.SEP.2014 22:03:42

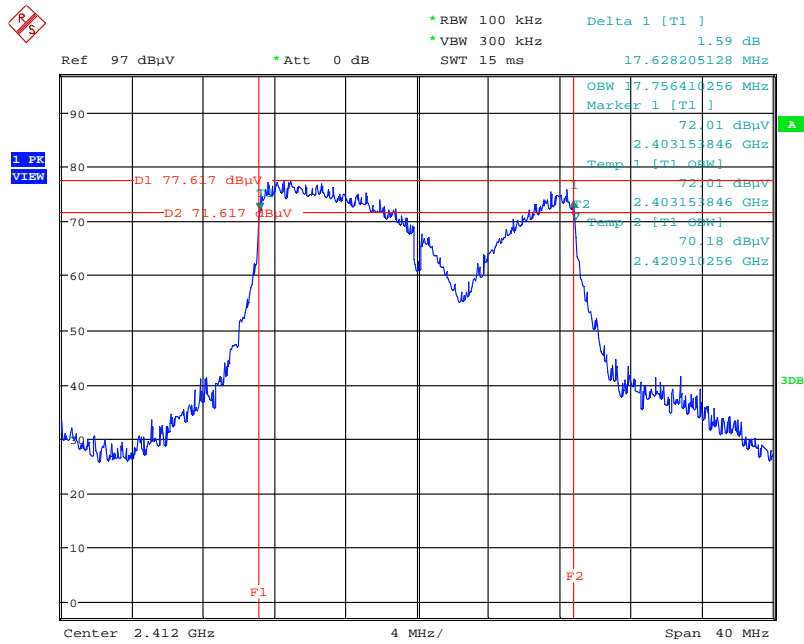
6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 2462 MHz / Ant. 2



Date: 2.SEP.2014 22:14:17

For 2TX

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 2412 MHz / Ant. 1 + Ant. 2

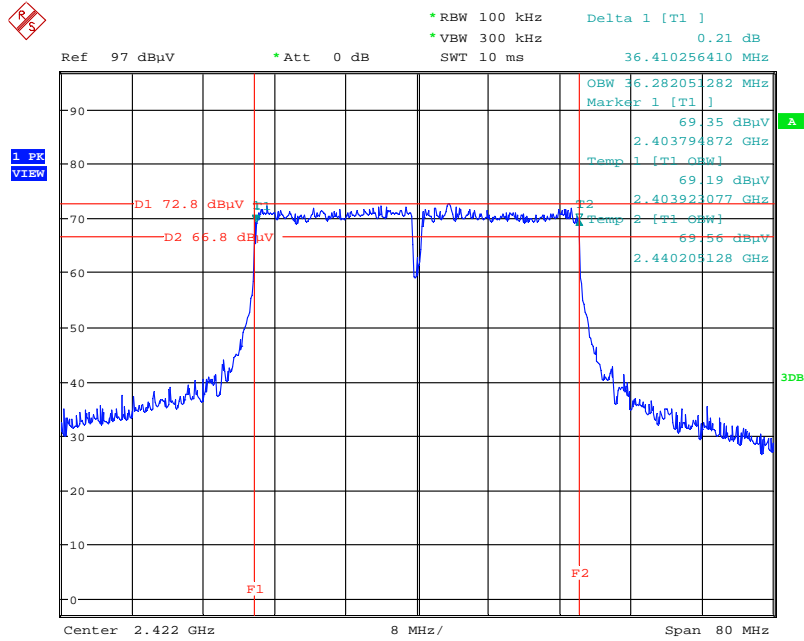


Date: 2.SEP.2014 21:51:24



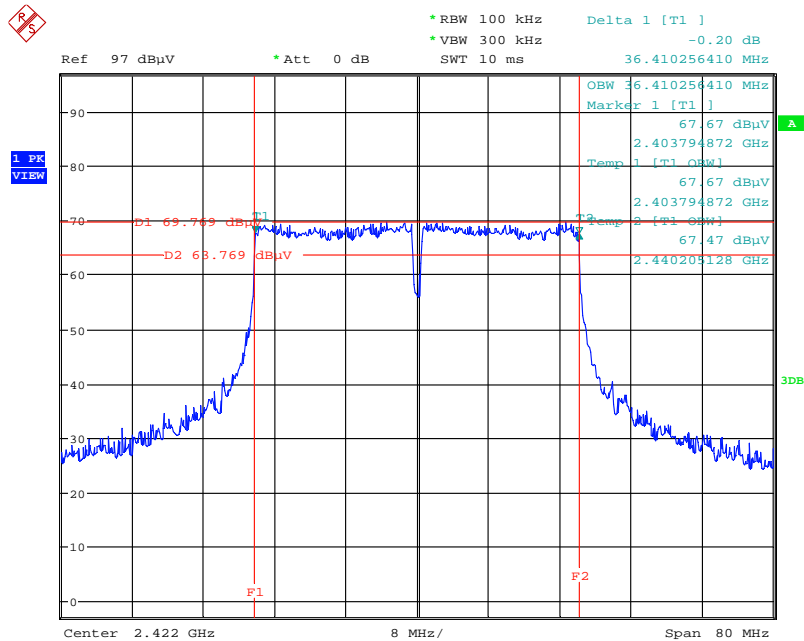
For 1TX

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 2422 MHz / Ant. 1



Date: 2.SEP.2014 22:05:24

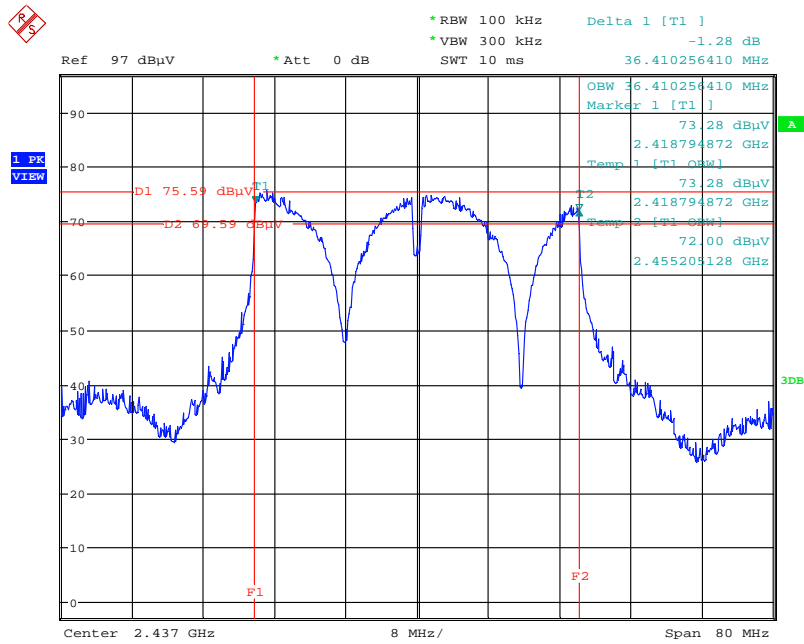
6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 2422 MHz / Ant. 2



Date: 2.SEP.2014 22:09:50

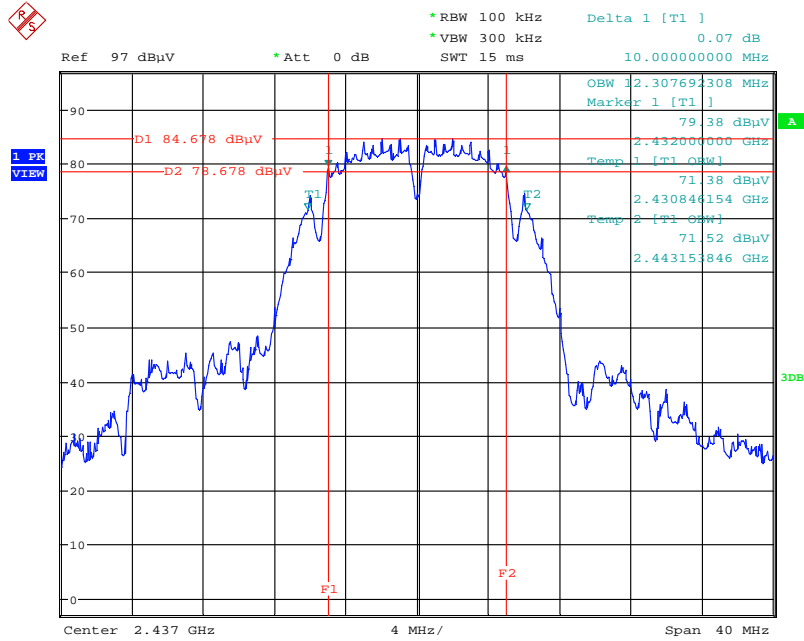
For 2TX

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Ant. 1 + Ant. 2



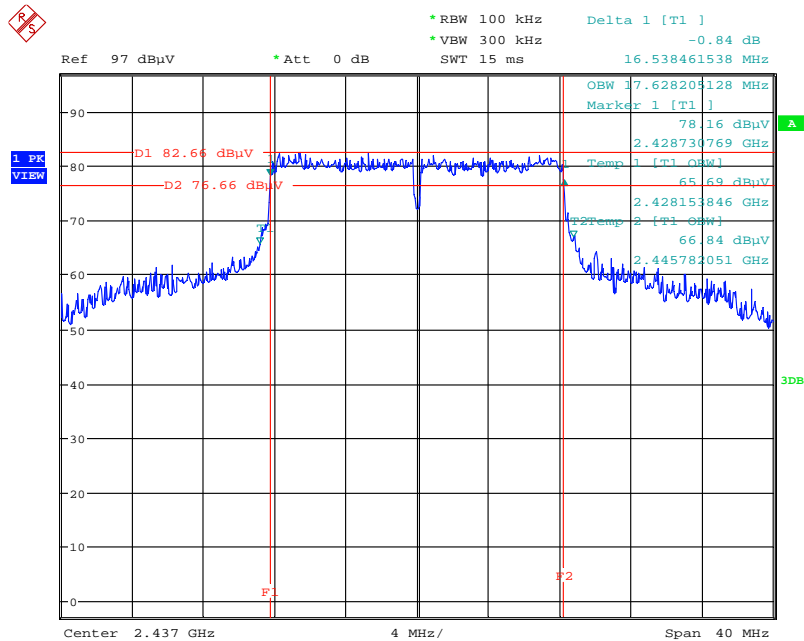
Date: 2.SEP.2014 21:48:57

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2437 MHz / Ant. 1



Date: 2.SEP.2014 21:58:14

6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2437 MHz / Ant. 1



Date: 2.SEP.2014 22:00:38

## 4.5. Radiated Emissions Measurement

### 4.5.1. Limit

30dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

### 4.5.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average
RBW / VBW (Emission in non-restricted band)	100kHz / 300kHz for peak

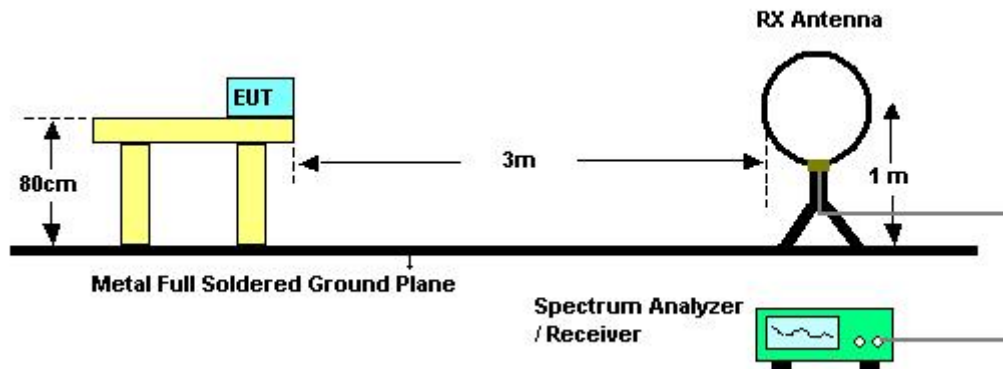
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

#### 4.5.3. Test Procedures

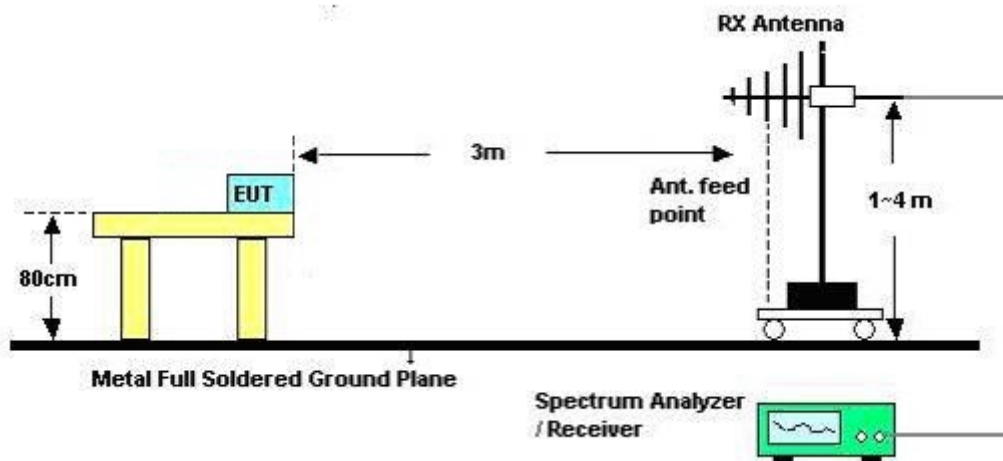
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 m to 4 m) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and 3MHz RBW for peak reading. Then 1MHz RBW and 1/T VBW for average reading in spectrum analyzer.
7. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
8. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
9. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

#### 4.5.4. Test Setup Layout

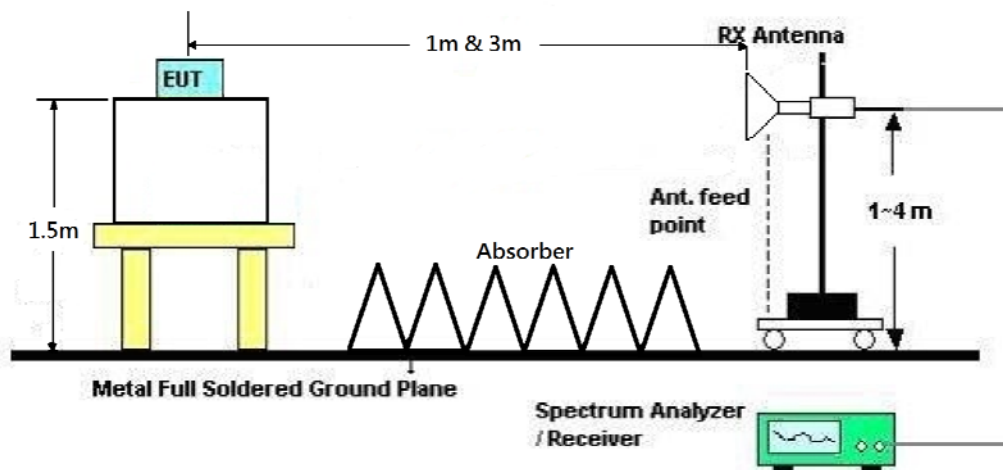
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



#### 4.5.5. Test Deviation

There is no deviation with the original standard.

#### 4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

#### 4.5.7. Results of Radiated Emissions (9kHz~30MHz)

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	Normal Link
Test Date	Aug. 29, 2014	Test Mode	Mode 3

Freq. (MHz)	Level (dBuV)	Over Limit (Db)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

**Note:**

The amplitude of spurious emissions which are attenuated by more than 20 Db below the permissible value has no need to be reported.

Distance extrapolation factor =  $40 \log(\text{specific distance} / \text{test distance})$  (Db);

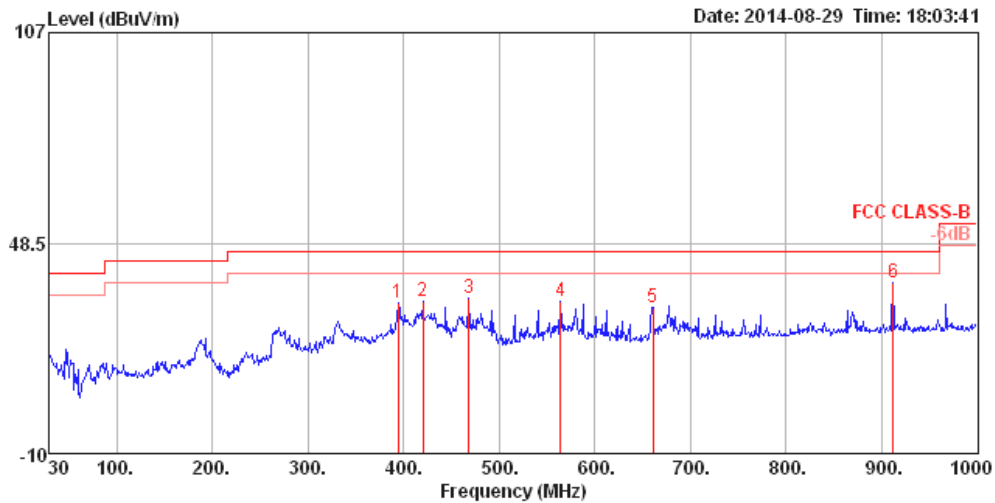
Limit line = specific limits (dBuV) + distance extrapolation factor.



4.5.8. Results of Radiated Emissions (30MHz~1GHz)

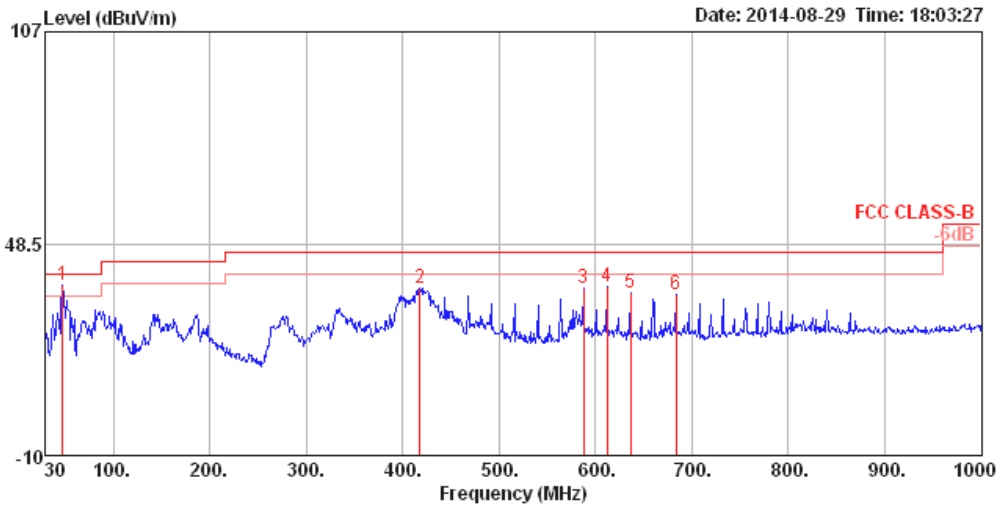
Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	Normal Link
Test Mode	Mode 3		

Horizontal



	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	394.72	31.96	46.00	-14.04	45.32	2.48	15.61	31.45	100	169	HORIZONTAL Peak
2	419.94	32.40	46.00	-13.60	44.65	2.56	16.45	31.26	100	312	HORIZONTAL Peak
3	468.44	33.16	46.00	-12.84	45.06	2.71	16.62	31.23	100	161	HORIZONTAL Peak
4	564.47	32.36	46.00	-13.64	42.23	2.98	18.38	31.23	100	137	HORIZONTAL Peak
5	660.50	30.56	46.00	-15.44	39.94	3.29	18.76	31.43	150	134	HORIZONTAL Peak
6	911.73	37.44	46.00	-8.56	43.96	3.98	20.69	31.19	125	169	HORIZONTAL Peak

**Vertical**



	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	47.46	36.99	40.00	-3.01	59.36	0.82	8.62	31.81	100	203	VERTICAL	Peak
2	418.00	36.25	46.00	-9.75	48.56	2.55	16.43	31.29	100	199	VERTICAL	Peak
3	587.75	36.17	46.00	-9.83	45.96	3.08	18.33	31.20	100	141	VERTICAL	Peak
4	612.00	36.78	46.00	-9.22	46.48	3.16	18.47	31.33	100	108	VERTICAL	Peak
5	636.25	35.00	46.00	-11.00	44.61	3.20	18.63	31.44	100	108	VERTICAL	Peak
6	683.78	34.54	46.00	-11.46	43.79	3.35	18.73	31.33	100	174	VERTICAL	Peak

**Note:**

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

#### 4.5.9. Results for Radiated Emissions (1GHz~10<sup>th</sup> Harmonic)

For 1TX

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT20 CH 1 / Ant. 1
<b>Test Date</b>	Aug. 23, 2014		

##### Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	7234.00	42.72	54.00	-11.28	33.99	7.03	37.10	35.40	100	83	HORIZONTAL	Average
2	7234.25	51.29	74.00	-22.71	42.56	7.03	37.10	35.40	100	83	HORIZONTAL	Peak

##### Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4824.30	38.25	54.00	-15.75	35.10	5.69	32.76	35.30	211	220	VERTICAL	Average
2	4825.25	47.54	74.00	-26.46	44.38	5.69	32.77	35.30	211	220	VERTICAL	Peak

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT20 CH 6 / Ant. 1
<b>Test Date</b>	Aug. 23, 2014		

### Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4867.75	49.63	74.00	-24.37	46.40	5.74	32.80	35.31	112	150	HORIZONTAL	Peak
2	4873.40	40.37	54.00	-13.63	37.13	5.75	32.80	35.31	112	150	HORIZONTAL	Average
3	7315.25	51.52	54.00	-2.48	42.70	7.06	37.12	35.36	100	242	HORIZONTAL	Average
4	7317.55	62.24	74.00	-11.76	53.41	7.06	37.13	35.36	100	242	HORIZONTAL	Peak

### Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4870.56	52.52	74.00	-21.48	49.29	5.74	32.80	35.31	219	177	VERTICAL	Peak
2	4873.78	43.63	54.00	-10.37	40.39	5.75	32.80	35.31	219	177	VERTICAL	Average
3	7297.60	58.61	74.00	-15.39	49.81	7.05	37.12	35.37	100	120	VERTICAL	Peak
4	7311.40	48.47	54.00	-5.53	39.65	7.06	37.12	35.36	100	120	VERTICAL	Average

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT20 CH 11 / Ant. 1
<b>Test Date</b>	Aug. 23, 2014		

### Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4923.66	39.97	54.00	-14.03	36.65	5.81	32.84	35.33	138	177	HORIZONTAL	Average
2	4928.36	49.71	74.00	-24.29	46.39	5.81	32.84	35.33	138	177	HORIZONTAL	Peak
3	7376.28	52.04	74.00	-21.96	43.13	7.08	37.15	35.32	101	221	HORIZONTAL	Peak
4	7385.70	42.98	54.00	-11.02	34.05	7.09	37.16	35.32	101	221	HORIZONTAL	Average

### Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4917.38	48.58	74.00	-25.42	45.28	5.80	32.83	35.33	163	114	VERTICAL	Peak
2	4923.78	39.64	54.00	-14.36	36.32	5.81	32.84	35.33	163	114	VERTICAL	Average
3	7381.84	43.16	54.00	-10.84	34.24	7.08	37.16	35.32	118	166	VERTICAL	Average
4	7382.04	53.14	74.00	-20.86	44.22	7.08	37.16	35.32	118	166	VERTICAL	Peak



<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT20 CH 1 / Ant. 2
<b>Test Date</b>	Aug. 23, 2014		

**Horizontal**

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4811.45	47.18	74.00	-26.82	44.04	5.67	32.76	35.29	145	44	HORIZONTAL	Peak
2	4829.55	37.58	54.00	-16.42	34.42	5.69	32.77	35.30	145	44	HORIZONTAL	Average

**Vertical**

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4814.30	46.87	74.00	-27.13	43.73	5.67	32.76	35.29	100	125	VERTICAL	Peak
2	4815.80	37.35	54.00	-16.65	34.20	5.68	32.76	35.29	100	125	VERTICAL	Average

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT20 CH 6 / Ant. 2
<b>Test Date</b>	Aug. 23, 2014		

### Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4873.70	42.28	54.00	-11.72	39.04	5.75	32.80	35.31	206	180	HORIZONTAL	Average
2	4874.50	52.48	74.00	-21.52	49.24	5.75	32.80	35.31	206	180	HORIZONTAL	Peak
3	7315.35	43.19	54.00	-10.81	34.37	7.06	37.12	35.36	100	261	HORIZONTAL	Average
4	7317.70	52.54	74.00	-21.46	43.71	7.06	37.13	35.36	100	261	HORIZONTAL	Peak

### Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4874.00	39.43	54.00	-14.57	36.19	5.75	32.80	35.31	231	301	VERTICAL	Average
2	4882.45	47.59	74.00	-26.41	44.34	5.76	32.81	35.32	231	301	VERTICAL	Peak
3	7290.80	51.58	74.00	-22.42	42.78	7.05	37.12	35.37	100	35	VERTICAL	Peak
4	7316.05	42.94	54.00	-11.06	34.11	7.06	37.13	35.36	100	35	VERTICAL	Average

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT20 CH 11 / Ant. 2
<b>Test Date</b>	Aug. 23, 2014		

### Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4924.30	38.43	54.00	-15.57	35.11	5.81	32.84	35.33	100	120	HORIZONTAL	Average
2	4928.90	47.42	74.00	-26.58	44.10	5.81	32.84	35.33	100	120	HORIZONTAL	Peak
3	7381.95	42.40	54.00	-11.60	33.48	7.08	37.16	35.32	100	251	HORIZONTAL	Average
4	7403.55	51.90	74.00	-22.10	42.95	7.09	37.17	35.31	100	251	HORIZONTAL	Peak

### Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4921.80	47.64	74.00	-26.36	44.33	5.81	32.83	35.33	255	186	VERTICAL	Peak
2	4924.35	38.78	54.00	-15.22	35.46	5.81	32.84	35.33	255	186	VERTICAL	Average
3	7370.55	42.28	54.00	-11.72	33.38	7.08	37.15	35.33	106	338	VERTICAL	Average
4	7386.25	51.00	74.00	-23.00	42.07	7.09	37.16	35.32	106	338	VERTICAL	Peak



## For 2TX

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT20 CH 1 / Ant. 1 + Ant. 2
<b>Test Date</b>	Aug. 25, 2014		

**Horizontal**

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	deg	cm	
1	4826.70	39.84	54.00	-14.16	37.65	4.21	32.56	34.58	168	196	HORIZONTAL
2	4828.40	54.51	74.00	-19.49	52.32	4.21	32.56	34.58	168	196	HORIZONTAL

**Vertical**

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	deg	cm	
1	4832.50	38.82	54.00	-15.18	36.63	4.21	32.56	34.58	187	229	VERTICAL
2	4834.40	55.24	74.00	-18.76	53.02	4.21	32.59	34.58	187	229	VERTICAL

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT20 CH 6 / Ant. 1 + Ant. 2
<b>Test Date</b>	Aug. 25, 2014		

### Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4873.40	46.81	74.00	-27.19	44.50	4.22	32.66	34.57	Peak	355	100	HORIZONTAL
2	4873.80	35.07	54.00	-18.93	32.76	4.22	32.66	34.57	Average	355	100	HORIZONTAL
3	7302.60	52.06	74.00	-21.94	44.47	5.34	37.07	34.82	Peak	173	100	HORIZONTAL
4	7315.80	38.25	54.00	-15.75	30.64	5.35	37.09	34.83	Average	173	100	HORIZONTAL

### Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4872.40	54.38	74.00	-19.62	52.07	4.22	32.66	34.57	Peak	222	100	VERTICAL
2	4874.00	39.95	54.00	-14.05	37.64	4.22	32.66	34.57	Average	222	100	VERTICAL
3	7302.70	49.93	74.00	-24.07	42.34	5.34	37.07	34.82	Peak	98	100	VERTICAL
4	7302.70	36.02	54.00	-17.98	28.43	5.34	37.07	34.82	Average	98	100	VERTICAL



<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT20 CH 11 / Ant. 1 + Ant. 2
<b>Test Date</b>	Aug. 25, 2014		

**Horizontal**

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4924.00	34.70	54.00	-19.30	32.26	4.23	32.76	34.55	Average	229	100	HORIZONTAL
2	4932.70	45.54	74.00	-28.46	43.10	4.23	32.76	34.55	Peak	229	100	HORIZONTAL
3	7384.00	37.13	54.00	-16.87	29.43	5.36	37.18	34.84	Average	128	100	HORIZONTAL
4	7401.00	50.08	74.00	-23.92	42.36	5.36	37.20	34.84	Peak	128	100	HORIZONTAL

**Vertical**

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4923.40	52.06	74.00	-21.94	49.62	4.23	32.76	34.55	Peak	176	184	VERTICAL
2	4923.90	39.16	54.00	-14.84	36.72	4.23	32.76	34.55	Average	176	184	VERTICAL
3	7390.10	37.24	54.00	-16.76	29.54	5.36	37.18	34.84	Average	112	100	VERTICAL
4	7397.70	50.35	74.00	-23.65	42.65	5.36	37.18	34.84	Peak	112	100	VERTICAL

## For ITX

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT40 CH 3 / Ant. 1
<b>Test Date</b>	Aug. 23, 2014		

**Horizontal**

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4805.80	45.65	74.00	-28.35	42.54	5.66	32.74	35.29	100	144	HORIZONTAL Peak
2	4843.20	37.71	54.00	-16.29	34.52	5.71	32.78	35.30	100	144	HORIZONTAL Average
3	7235.40	51.41	74.00	-22.59	42.68	7.03	37.10	35.40	108	182	HORIZONTAL Peak
4	7266.40	43.31	54.00	-10.69	34.55	7.04	37.11	35.39	108	182	HORIZONTAL Average

**Vertical**

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4888.20	37.93	54.00	-16.07	34.68	5.76	32.81	35.32	112	236	VERTICAL Average
2	4890.80	47.09	74.00	-26.91	43.83	5.77	32.81	35.32	112	236	VERTICAL Peak
3	7227.60	51.85	74.00	-22.15	43.18	7.02	37.06	35.41	101	207	VERTICAL Peak
4	7258.80	42.72	54.00	-11.28	33.96	7.04	37.11	35.39	101	207	VERTICAL Average

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT40 CH 6 / Ant. 1
<b>Test Date</b>	Aug. 23, 2014		

### Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4873.86	39.20	54.00	-14.80	35.96	5.75	32.80	35.31	103	115	HORIZONTAL	Average
2	4874.34	48.78	74.00	-25.22	45.54	5.75	32.80	35.31	103	115	HORIZONTAL	Peak
3	7312.10	52.86	74.00	-21.14	44.04	7.06	37.12	35.36	100	74	HORIZONTAL	Peak
4	7314.78	43.60	54.00	-10.40	34.78	7.06	37.12	35.36	100	74	HORIZONTAL	Average

### Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4873.66	39.95	54.00	-14.05	36.71	5.75	32.80	35.31	155	33	VERTICAL	Average
2	4874.54	47.56	74.00	-26.44	44.32	5.75	32.80	35.31	155	33	VERTICAL	Peak
3	7307.10	44.16	54.00	-9.84	35.35	7.05	37.12	35.36	100	172	VERTICAL	Average
4	7311.66	53.31	74.00	-20.69	44.49	7.06	37.12	35.36	100	172	VERTICAL	Peak

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT40 CH 9 / Ant. 1
<b>Test Date</b>	Aug. 23, 2014		

### Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4898.64	47.47	74.00	-26.53	44.19	5.78	32.82	35.32	115	281	HORIZONTAL Peak
2	4911.72	37.76	54.00	-16.24	34.47	5.79	32.83	35.33	115	281	HORIZONTAL Average
3	7350.84	51.42	74.00	-22.58	42.55	7.07	37.14	35.34	138	333	HORIZONTAL Peak
4	7364.36	42.66	54.00	-11.34	33.76	7.08	37.15	35.33	138	333	HORIZONTAL Average

### Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4913.00	37.75	54.00	-16.25	34.45	5.80	32.83	35.33	164	246	VERTICAL Average
2	4913.32	47.12	74.00	-26.88	43.82	5.80	32.83	35.33	164	246	VERTICAL Peak
3	7349.98	51.37	74.00	-22.63	42.50	7.07	37.14	35.34	102	148	VERTICAL Peak
4	7364.08	42.34	54.00	-11.66	33.44	7.08	37.15	35.33	102	148	VERTICAL Average

## For ITX

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT40 CH 3 / Ant. 2
<b>Test Date</b>	Aug. 23, 2014		

**Horizontal**

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4821.00	37.54	54.00	-16.46	34.40	5.68	32.76	35.30	219	58	HORIZONTAL	Average
2	4861.20	47.84	74.00	-26.16	44.63	5.73	32.79	35.31	219	58	HORIZONTAL	Peak
3	7262.95	42.89	54.00	-11.11	34.13	7.04	37.11	35.39	100	188	HORIZONTAL	Average
4	7264.65	51.77	74.00	-22.23	43.01	7.04	37.11	35.39	100	188	HORIZONTAL	Peak

**Vertical**

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4820.50	37.53	54.00	-16.47	34.39	5.68	32.76	35.30	193	61	VERTICAL	Average
2	4846.50	46.71	74.00	-27.29	43.52	5.71	32.78	35.30	193	61	VERTICAL	Peak
3	7259.15	42.83	54.00	-11.17	34.07	7.04	37.11	35.39	136	131	VERTICAL	Average
4	7273.00	51.44	74.00	-22.56	42.67	7.04	37.11	35.38	136	131	VERTICAL	Peak



<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT40 CH 6 / Ant. 2
<b>Test Date</b>	Aug. 23, 2014		

**Horizontal**

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4876.60	38.01	54.00	-15.99	34.78	5.75	32.80	35.32	118	201	HORIZONTAL	Average
2	4877.65	47.20	74.00	-26.80	43.97	5.75	32.80	35.32	118	201	HORIZONTAL	Peak
3	7323.40	43.07	54.00	-10.93	34.23	7.06	37.13	35.35	100	343	HORIZONTAL	Average
4	7325.95	53.12	74.00	-20.88	44.28	7.06	37.13	35.35	100	343	HORIZONTAL	Peak

**Vertical**

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4868.60	47.10	74.00	-26.90	43.87	5.74	32.80	35.31	101	57	VERTICAL	Peak
2	4882.05	38.13	54.00	-15.87	34.88	5.76	32.81	35.32	101	57	VERTICAL	Average
3	7301.50	52.37	74.00	-21.63	43.57	7.05	37.12	35.37	144	192	VERTICAL	Peak
4	7316.25	42.97	54.00	-11.03	34.14	7.06	37.13	35.36	144	192	VERTICAL	Average



<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT40 CH 9 / Ant. 2
<b>Test Date</b>	Aug. 23, 2014		

### Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4892.95	48.15	74.00	-25.85	44.89	5.77	32.81	35.32	137	212	HORIZONTAL	Peak
2	4923.10	38.34	54.00	-15.66	35.03	5.81	32.83	35.33	137	212	HORIZONTAL	Average
3	7332.15	42.82	54.00	-11.18	33.98	7.06	37.13	35.35	101	256	HORIZONTAL	Average
4	7367.75	51.38	74.00	-22.62	42.48	7.08	37.15	35.33	101	256	HORIZONTAL	Peak

### Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4894.35	47.81	74.00	-26.19	44.55	5.77	32.81	35.32	100	168	VERTICAL	Peak
2	4928.00	38.53	54.00	-15.47	35.21	5.81	32.84	35.33	100	168	VERTICAL	Average
3	7331.40	43.00	54.00	-11.00	34.16	7.06	37.13	35.35	108	210	VERTICAL	Average
4	7353.80	51.87	74.00	-22.13	42.99	7.07	37.14	35.33	108	210	VERTICAL	Peak

## For 2TX

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT40 CH 3 / Ant. 1 + Ant. 2
<b>Test Date</b>	Aug. 25, 2014		

**Horizontal**

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	deg	cm	
1	4843.98	32.09	54.00	-21.91	29.87	4.21	32.59	34.58	225	100	HORIZONTAL
2	4844.30	43.55	74.00	-30.45	41.33	4.21	32.59	34.58	23	100	HORIZONTAL

**Vertical**

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	deg	cm	
1	4843.46	44.20	74.00	-29.80	41.98	4.21	32.59	34.58	225	100	VERTICAL
2	4843.81	31.99	54.00	-22.01	29.77	4.21	32.59	34.58	225	100	VERTICAL

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT40 CH 6 / Ant. 1 + Ant. 2
<b>Test Date</b>	Aug. 25, 2014		

### Horizontal

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	4873.69	44.87	74.00	-29.13	42.56	4.22	32.66	34.57	Peak	329	100 HORIZONTAL
2	4873.93	33.21	54.00	-20.79	30.90	4.22	32.66	34.57	Average	329	100 HORIZONTAL
3	7309.79	49.47	74.00	-24.53	41.88	5.34	37.07	34.82	Peak	106	100 HORIZONTAL
4	7312.09	36.35	54.00	-17.65	28.77	5.34	37.07	34.83	Average	106	100 HORIZONTAL

### Vertical

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm	
1	4873.15	47.75	74.00	-26.25	45.44	4.22	32.66	34.57	Peak	224	100 VERTICAL
2	4873.76	35.76	54.00	-18.24	33.45	4.22	32.66	34.57	Average	224	100 VERTICAL
3	7310.64	49.99	74.00	-24.01	42.40	5.34	37.07	34.82	Peak	14	100 VERTICAL
4	7312.89	36.40	54.00	-17.60	28.82	5.34	37.07	34.83	Average	14	100 VERTICAL

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT40 CH 9 / Ant. 1 + Ant. 2
<b>Test Date</b>	Aug. 25, 2014		

### Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4903.93	32.93	54.00	-21.07	30.54	4.22	32.73	34.56	Average	233	100	HORIZONTAL
2	4904.37	45.10	74.00	-28.90	42.71	4.22	32.73	34.56	Peak	233	100	HORIZONTAL
3	7356.09	49.67	74.00	-24.33	42.02	5.35	37.13	34.83	Peak	149	100	HORIZONTAL
4	7357.65	36.14	54.00	-17.86	28.49	5.35	37.13	34.83	Average	149	100	HORIZONTAL

### Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	4905.36	44.46	74.00	-29.54	42.07	4.22	32.73	34.56	Peak	151	100	VERTICAL
2	4905.92	31.53	54.00	-22.47	29.14	4.22	32.73	34.56	Average	152	100	VERTICAL
3	7354.90	49.06	74.00	-24.94	41.41	5.35	37.13	34.83	Peak	326	100	VERTICAL
4	7355.36	36.06	54.00	-17.94	28.41	5.35	37.13	34.83	Average	326	100	VERTICAL

### Note:

The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11b CH 1 / Ant. 1
<b>Test Date</b>	Aug. 23, 2014		

**Horizontal**

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4823.96	51.69	54.00	-2.31	48.54	5.69	32.76	35.30	198	126	HORIZONTAL Average
2	4824.08	53.84	74.00	-20.16	50.69	5.69	32.76	35.30	198	126	HORIZONTAL Peak

**Vertical**

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	4823.96	53.97	54.00	-0.03	50.82	5.69	32.76	35.30	190	171	VERTICAL Average
2	4824.14	56.03	74.00	-17.97	52.88	5.69	32.76	35.30	190	171	VERTICAL Peak

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11b CH 6 / Ant. 1
<b>Test Date</b>	Aug. 23, 2014		

### Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4874.00	53.13	54.00	-0.87	49.89	5.75	32.80	35.31	197	144	HORIZONTAL	Average
2	4874.00	55.86	74.00	-18.14	52.62	5.75	32.80	35.31	197	144	HORIZONTAL	Peak
3	7310.14	53.81	54.00	-0.19	44.99	7.06	37.12	35.36	101	243	HORIZONTAL	Average
4	7312.12	58.70	74.00	-15.30	49.88	7.06	37.12	35.36	101	243	HORIZONTAL	Peak

### Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4874.02	53.54	54.00	-0.46	50.30	5.75	32.80	35.31	192	178	VERTICAL	Average
2	4874.14	56.74	74.00	-17.26	53.50	5.75	32.80	35.31	192	178	VERTICAL	Peak
3	7310.06	50.43	54.00	-3.57	41.61	7.06	37.12	35.36	102	119	VERTICAL	Average
4	7312.62	56.32	74.00	-17.68	47.50	7.06	37.12	35.36	102	119	VERTICAL	Peak



<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11b CH 11 / Ant. 1
<b>Test Date</b>	Aug. 23, 2014		

**Horizontal**

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4923.96	51.55	54.00	-2.45	48.23	5.81	32.84	35.33	138	166	HORIZONTAL	Average
2	4924.10	54.12	74.00	-19.88	50.80	5.81	32.84	35.33	138	166	HORIZONTAL	Peak
3	7384.58	56.47	74.00	-17.53	47.54	7.09	37.16	35.32	169	243	HORIZONTAL	Peak
4	7385.08	49.45	54.00	-4.55	40.52	7.09	37.16	35.32	169	243	HORIZONTAL	Average

**Vertical**

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4923.96	56.13	74.00	-17.87	52.81	5.81	32.84	35.33	212	166	VERTICAL	Peak
2	4924.00	53.89	54.00	-0.11	50.57	5.81	32.84	35.33	212	166	VERTICAL	Average
3	7382.94	53.59	74.00	-20.41	44.67	7.08	37.16	35.32	100	120	VERTICAL	Peak
4	7385.20	45.37	54.00	-8.63	36.44	7.09	37.16	35.32	100	120	VERTICAL	Average

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11g CH 1 / Ant. 1
<b>Test Date</b>	Aug. 23, 2014		

**Horizontal**

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4822.00	38.02	54.00	-15.98	34.88	5.68	32.76	35.30	121	315	HORIZONTAL	Average
2	4842.85	46.78	74.00	-27.22	43.59	5.71	32.78	35.30	121	315	HORIZONTAL	Peak

**Vertical**

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4823.25	39.32	54.00	-14.68	36.18	5.68	32.76	35.30	100	196	VERTICAL	Average
2	4824.35	47.60	74.00	-26.40	44.45	5.69	32.76	35.30	100	196	VERTICAL	Peak



<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11g CH 6 / Ant. 1
<b>Test Date</b>	Aug. 23, 2014		

### Horizontal

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4860.80	46.53	74.00	-27.47	43.32	5.73	32.79	35.31	108	290	HORIZONTAL	Peak
2	4874.00	38.02	54.00	-15.98	34.78	5.75	32.80	35.31	108	290	HORIZONTAL	Average
3	7303.05	61.63	74.00	-12.37	52.82	7.05	37.12	35.36	170	247	HORIZONTAL	Peak
4	7313.05	52.81	54.00	-1.19	43.99	7.06	37.12	35.36	170	247	HORIZONTAL	Average

### Vertical

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4874.05	43.77	54.00	-10.23	40.53	5.75	32.80	35.31	202	181	VERTICAL	Average
2	4875.85	52.05	74.00	-21.95	48.82	5.75	32.80	35.32	202	181	VERTICAL	Peak
3	7302.20	57.92	74.00	-16.08	49.11	7.05	37.12	35.36	236	152	VERTICAL	Peak
4	7313.00	48.99	54.00	-5.01	40.17	7.06	37.12	35.36	236	152	VERTICAL	Average

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11g CH 11 / Ant. 1
<b>Test Date</b>	Aug. 23, 2014		

### Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4899.70	47.01	74.00	-26.99	43.73	5.78	32.82	35.32	100	82	HORIZONTAL	Peak
2	4924.00	38.99	54.00	-15.01	35.67	5.81	32.84	35.33	100	82	HORIZONTAL	Average
3	7379.50	53.85	74.00	-20.15	44.93	7.08	37.16	35.32	132	180	HORIZONTAL	Peak
4	7383.00	45.42	54.00	-8.58	36.50	7.08	37.16	35.32	132	180	HORIZONTAL	Average

### Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	4924.00	39.96	54.00	-14.04	36.64	5.81	32.84	35.33	206	198	VERTICAL	Average
2	4925.00	48.06	74.00	-25.94	44.74	5.81	32.84	35.33	206	198	VERTICAL	Peak
3	7382.60	43.24	54.00	-10.76	34.32	7.08	37.16	35.32	100	115	VERTICAL	Average
4	7384.60	52.66	74.00	-21.34	43.73	7.09	37.16	35.32	100	115	VERTICAL	Peak

### Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

## 4.6. Emissions Measurement

### 4.6.1. Limit

30dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micovolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

### 4.6.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RBW / VBW (Emission in restricted band)	1 MHz / 3MHz for Peak, 1 MHz / 1/T for Average
RBW / VBW (30dBc in any 100 kHz bandwidth emission)	100 kHz / 300 kHz for Peak

### 4.6.3. Test Procedures

#### For Radiated band edges Measurement:

1. The test procedure is the same as section 4.5.3, only the frequency range investigated is limited to 100MHz around band edges.

#### For Radiated Out of Band Emission Measurement:

1. Test was performed in accordance with KDB 558074 D01 v03r02 for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 10.1 Unwanted Emissions into Non-Restricted Frequency Bands Measurement Procedure.
2. The radiated emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit.  
Only worst data of each operating mode is presented.

#### 4.6.4. Test Setup Layout

For Radiated band edges Measurement:

This test setup layout is the same as that shown in section 4.5.4.

For Radiated Out of Band Emission Measurement:

This test setup layout is the same as that shown in section 4.5.4.

#### 4.6.5. Test Deviation

There is no deviation with the original standard.

#### 4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

#### 4.6.7. Test Result of Band Edge and Fundamental Emissions

For 1TX

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT20 CH 1, 6, 11 / Ant. 1
<b>Test Date</b>	Aug. 23, 2014		

##### Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2390.00	53.72	54.00	-0.28	22.14	3.68	27.90	0.00	248	32	VERTICAL	Average
2	2390.20	69.30	74.00	-4.70	37.72	3.68	27.90	0.00	248	32	VERTICAL	Peak
3	2419.40	98.86			67.26	3.70	27.90	0.00	248	32	VERTICAL	Average
4	2419.40	105.15			73.55	3.70	27.90	0.00	248	32	VERTICAL	Peak

Item 3, 4 are the fundamental frequency at 2412 MHz.

##### Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2388.60	60.71	74.00	-13.29	29.13	3.68	27.90	0.00	263	26	VERTICAL	Peak
2	2390.00	46.76	54.00	-7.24	15.18	3.68	27.90	0.00	263	26	VERTICAL	Average
3	2444.60	103.36			71.75	3.71	27.90	0.00	263	26	VERTICAL	Average
4	2444.60	110.12			78.51	3.71	27.90	0.00	263	26	VERTICAL	Peak
5	2483.50	46.56	54.00	-7.44	14.93	3.73	27.90	0.00	263	26	VERTICAL	Average
6	2483.50	60.02	74.00	-13.98	28.39	3.73	27.90	0.00	263	26	VERTICAL	Peak

Item 3, 4 are the fundamental frequency at 2437 MHz.

##### Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2454.60	99.63			68.01	3.72	27.90	0.00	245	26	VERTICAL	Average
2	2457.20	106.43			74.81	3.72	27.90	0.00	245	26	VERTICAL	Peak
3	2483.50	53.94	54.00	-0.06	22.31	3.73	27.90	0.00	245	26	VERTICAL	Average
4	2483.50	69.37	74.00	-4.63	37.74	3.73	27.90	0.00	245	26	VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 2462 MHz.

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT20 CH 1, 6, 11 / Ant. 2
<b>Test Date</b>	Aug. 23, 2014		

**Channel 1**

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2389.50	69.22	74.00	-4.78	37.64	3.68	27.90	0.00	246	335	VERTICAL	Peak
2	2390.00	53.51	54.00	-0.49	21.93	3.68	27.90	0.00	246	335	VERTICAL	Average
3	2419.50	101.24			69.64	3.70	27.90	0.00	246	335	VERTICAL	Peak
4	2419.60	94.89			63.29	3.70	27.90	0.00	246	335	VERTICAL	Average

Item 3, 4 are the fundamental frequency at 2412 MHz.

**Channel 6**

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2388.20	62.21	74.00	-11.79	30.63	3.68	27.90	0.00	246	341	VERTICAL	Peak
2	2390.00	48.87	54.00	-5.13	17.29	3.68	27.90	0.00	246	341	VERTICAL	Average
3	2429.40	103.74			72.14	3.70	27.90	0.00	246	341	VERTICAL	Average
4	2429.60	110.66			79.06	3.70	27.90	0.00	246	341	VERTICAL	Peak
5	2483.50	45.90	54.00	-8.10	14.27	3.73	27.90	0.00	246	341	VERTICAL	Average
6	2485.10	58.44	74.00	-15.56	26.81	3.73	27.90	0.00	246	341	VERTICAL	Peak

Item 3, 4 are the fundamental frequency at 2437 MHz.

**Channel 11**

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2454.60	99.05			67.43	3.72	27.90	0.00	245	333	VERTICAL	Average
2	2454.60	106.06			74.44	3.72	27.90	0.00	245	333	VERTICAL	Peak
3	2483.50	53.83	54.00	-0.17	22.20	3.73	27.90	0.00	245	333	VERTICAL	Average
4	2483.60	68.57	74.00	-5.43	36.94	3.73	27.90	0.00	245	333	VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 2462 MHz.

## For 2TX

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT20 CH 1, 6, 11 / Ant. 1 + Ant. 2
<b>Test Date</b>	Aug. 23, 2014		

## Channel 1

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2389.60	70.43	74.00	-3.57	38.85	3.68	27.90	0.00	100	0 HORIZONTAL	Peak
2	2390.00	53.98	54.00	-0.02	22.40	3.68	27.90	0.00	100	0 HORIZONTAL	Average
3	2404.50	107.76			76.17	3.69	27.90	0.00	100	0 HORIZONTAL	Peak
4	2404.70	100.59			69.00	3.69	27.90	0.00	100	0 HORIZONTAL	Average

Item 3, 4 are the fundamental frequency at 2412 MHz.

## Channel 6

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2386.00	60.01	74.00	-13.99	28.43	3.68	27.90	0.00	273	340 VERTICAL	Peak
2	2390.00	45.68	54.00	-8.32	14.10	3.68	27.90	0.00	273	340 VERTICAL	Average
3	2437.20	109.09			77.48	3.71	27.90	0.00	273	340 VERTICAL	Peak
4	2438.00	102.35			70.74	3.71	27.90	0.00	273	340 VERTICAL	Average
5	2483.50	44.07	54.00	-9.93	12.44	3.73	27.90	0.00	273	340 VERTICAL	Average
6	2485.90	57.39	74.00	-16.61	25.76	3.73	27.90	0.00	273	340 VERTICAL	Peak

Item 3, 4 are the fundamental frequency at 2437 MHz.

## Channel 11

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2459.00	108.36			76.74	3.72	27.90	0.00	247	360 VERTICAL	Peak
2	2460.90	101.26			69.64	3.72	27.90	0.00	247	360 VERTICAL	Average
3	2483.50	53.57	54.00	-0.43	21.94	3.73	27.90	0.00	247	360 VERTICAL	Average
4	2484.30	66.29	74.00	-7.71	34.66	3.73	27.90	0.00	247	360 VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 2462 MHz.

## For ITX

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT40 CH 3, 6, 9 / Ant. 1
<b>Test Date</b>	Aug. 23, 2014		

## Channel 3

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2388.80	65.27	74.00	-8.73	33.69	3.68	27.90	0.00	260	29 VERTICAL	Peak
2	2390.00	53.59	54.00	-0.41	22.01	3.68	27.90	0.00	260	29 VERTICAL	Average
3	2438.60	100.27			68.66	3.71	27.90	0.00	260	29 VERTICAL	Peak
4	2438.80	93.29			61.68	3.71	27.90	0.00	260	29 VERTICAL	Average

Item 3, 4 are the fundamental frequency at 2422 MHz.

## Channel 6

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2389.10	65.43	74.00	-8.57	33.85	3.68	27.90	0.00	249	33 VERTICAL	Peak
2	2390.00	53.80	54.00	-0.20	22.22	3.68	27.90	0.00	249	33 VERTICAL	Average
3	2453.50	97.14			65.53	3.71	27.90	0.00	249	33 VERTICAL	Average
4	2453.50	104.42			72.81	3.71	27.90	0.00	249	33 VERTICAL	Peak
5	2483.50	53.14	54.00	-0.86	21.51	3.73	27.90	0.00	249	33 VERTICAL	Average
6	2484.10	63.92	74.00	-10.08	32.29	3.73	27.90	0.00	249	33 VERTICAL	Peak

Item 3, 4 are the fundamental frequency at 2437 MHz.

## Channel 9

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2449.80	101.94			70.33	3.71	27.90	0.00	253	32 VERTICAL	Peak
2	2457.60	94.54			62.92	3.72	27.90	0.00	253	32 VERTICAL	Average
3	2483.50	53.62	54.00	-0.38	21.99	3.73	27.90	0.00	253	32 VERTICAL	Average
4	2485.50	63.68	74.00	-10.32	32.05	3.73	27.90	0.00	253	32 VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 2452 MHz.



<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT40 CH 3, 6, 9 / Ant. 2
<b>Test Date</b>	Aug. 23, 2014		

### Channel 3

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2389.40	64.95	74.00	-9.05	33.37	3.68	27.90	0.00	244	340	VERTICAL	Peak
2	2390.00	53.88	54.00	-0.12	22.30	3.68	27.90	0.00	244	340	VERTICAL	Average
3	2405.60	94.22			62.63	3.69	27.90	0.00	244	340	VERTICAL	Average
4	2407.00	101.10			69.51	3.69	27.90	0.00	244	340	VERTICAL	Peak

Item 3, 4 are the fundamental frequency at 2422 MHz.

### Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2389.40	66.30	74.00	-7.70	34.72	3.68	27.90	0.00	259	330	VERTICAL	Peak
2	2390.00	53.72	54.00	-0.28	22.14	3.68	27.90	0.00	259	330	VERTICAL	Average
3	2420.80	96.73			65.13	3.70	27.90	0.00	259	330	VERTICAL	Average
4	2429.50	103.48			71.88	3.70	27.90	0.00	259	330	VERTICAL	Peak
5	2483.50	50.31	54.00	-3.69	18.68	3.73	27.90	0.00	259	330	VERTICAL	Average
6	2483.50	61.18	74.00	-12.82	29.55	3.73	27.90	0.00	259	330	VERTICAL	Peak

Item 3, 4 are the fundamental frequency at 2437 MHz.

### Channel 9

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2450.00	102.38			70.77	3.71	27.90	0.00	232	334	VERTICAL	Peak
2	2450.40	94.79			63.18	3.71	27.90	0.00	232	334	VERTICAL	Average
3	2483.50	53.68	54.00	-0.32	22.05	3.73	27.90	0.00	232	334	VERTICAL	Average
4	2487.50	65.36	74.00	-8.64	33.73	3.73	27.90	0.00	232	334	VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 2452 MHz.

## For 2TX

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11n MCS0 HT40 CH 3, 6, 9 / Ant. 1 + Ant. 2
<b>Test Date</b>	Aug. 23, 2014		

## Channel 3

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2388.80	64.83	74.00	-9.17	33.25	3.68	27.90	0.00	100	0	HORIZONTAL	Peak
2	2390.00	53.70	54.00	-0.30	22.12	3.68	27.90	0.00	100	0	HORIZONTAL	Average
3	2410.80	102.07			70.48	3.69	27.90	0.00	100	0	HORIZONTAL	Peak
4	2411.40	94.75			63.16	3.69	27.90	0.00	100	0	HORIZONTAL	Average

Item 3, 4 are the fundamental frequency at 2422 MHz.

## Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2389.40	66.97	74.00	-7.03	35.39	3.68	27.90	0.00	262	349	VERTICAL	Peak
2	2390.00	53.85	54.00	-0.15	22.27	3.68	27.90	0.00	262	349	VERTICAL	Average
3	2429.50	105.79			74.19	3.70	27.90	0.00	262	349	VERTICAL	Peak
4	2430.10	98.00			66.40	3.70	27.90	0.00	262	349	VERTICAL	Average
5	2483.50	49.12	54.00	-4.88	17.49	3.73	27.90	0.00	262	349	VERTICAL	Average
6	2484.40	61.38	74.00	-12.62	29.75	3.73	27.90	0.00	262	349	VERTICAL	Peak

Item 3, 4 are the fundamental frequency at 2437 MHz.

## Channel 9

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2457.80	97.20			65.58	3.72	27.90	0.00	239	341	VERTICAL	Average
2	2459.00	104.56			72.94	3.72	27.90	0.00	239	341	VERTICAL	Peak
3	2483.50	53.94	54.00	-0.06	22.31	3.73	27.90	0.00	239	341	VERTICAL	Average
4	2483.50	62.53	74.00	-11.47	30.90	3.73	27.90	0.00	239	341	VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 2452 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11b CH 1, 6, 11 / Ant. 1
<b>Test Date</b>	Aug. 23, 2014		

**Channel 1**

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2388.80	57.32	74.00	-16.68	25.74	3.68	27.90	0.00	243	32 VERTICAL	Peak
2	2389.10	46.16	54.00	-7.84	14.58	3.68	27.90	0.00	243	32 VERTICAL	Average
3	2413.80	104.41			72.82	3.69	27.90	0.00	243	32 VERTICAL	Average
4	2414.80	106.39			74.80	3.69	27.90	0.00	243	32 VERTICAL	Peak

Item 3, 4 are the fundamental frequency at 2412 MHz.

**Channel 6**

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2385.40	57.88	74.00	-16.12	26.30	3.68	27.90	0.00	230	42 VERTICAL	Peak
2	2390.00	44.26	54.00	-9.74	12.68	3.68	27.90	0.00	230	42 VERTICAL	Average
3	2434.40	107.04			75.44	3.70	27.90	0.00	230	42 VERTICAL	Peak
4	2435.20	105.11			73.51	3.70	27.90	0.00	230	42 VERTICAL	Average
5	2483.50	44.45	54.00	-9.55	12.82	3.73	27.90	0.00	230	42 VERTICAL	Average
6	2485.10	57.72	74.00	-16.28	26.09	3.73	27.90	0.00	230	42 VERTICAL	Peak

Item 3, 4 are the fundamental frequency at 2437 MHz.

**Channel 11**

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg	
1	2459.30	106.47			74.85	3.72	27.90	0.00	246	12 VERTICAL	Peak
2	2460.20	104.65			73.03	3.72	27.90	0.00	246	12 VERTICAL	Average
3	2483.50	46.52	54.00	-7.48	14.89	3.73	27.90	0.00	246	12 VERTICAL	Average
4	2484.00	57.94	74.00	-16.06	26.31	3.73	27.90	0.00	246	12 VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 2462 MHz.

<b>Temperature</b>	26°C	<b>Humidity</b>	68%
<b>Test Engineer</b>	Mars Lin	<b>Configurations</b>	IEEE 802.11g CH 1, 6, 11 / Ant. 1
<b>Test Date</b>	Aug. 23, 2014		

**Channel 1**

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2390.00	53.81	54.00	-0.19	22.23	3.68	27.90	0.00	246	34	VERTICAL	Average
2	2390.00	66.92	74.00	-7.08	35.34	3.68	27.90	0.00	246	34	VERTICAL	Peak
3	2418.70	106.72			75.12	3.70	27.90	0.00	246	34	VERTICAL	Peak
4	2419.00	100.55			68.95	3.70	27.90	0.00	246	34	VERTICAL	Average

Item 3, 4 are the fundamental frequency at 2412 MHz.

**Channel 6**

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2382.60	59.09	74.00	-14.91	27.51	3.68	27.90	0.00	249	35	VERTICAL	Peak
2	2390.00	47.19	54.00	-6.81	15.61	3.68	27.90	0.00	249	35	VERTICAL	Average
3	2429.60	104.39			72.79	3.70	27.90	0.00	249	35	VERTICAL	Average
4	2430.40	111.45			79.85	3.70	27.90	0.00	249	35	VERTICAL	Peak
5	2483.50	46.87	54.00	-7.13	15.24	3.73	27.90	0.00	249	35	VERTICAL	Average
6	2485.10	61.70	74.00	-12.30	30.07	3.73	27.90	0.00	249	35	VERTICAL	Peak

Item 3, 4 are the fundamental frequency at 2437 MHz.

**Channel 11**

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2466.10	106.46			74.84	3.72	27.90	0.00	217	32	VERTICAL	Peak
2	2469.50	100.14			68.52	3.72	27.90	0.00	217	32	VERTICAL	Average
3	2483.50	53.57	54.00	-0.43	21.94	3.73	27.90	0.00	217	32	VERTICAL	Average
4	2483.80	66.59	74.00	-7.41	34.96	3.73	27.90	0.00	217	32	VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 2462 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

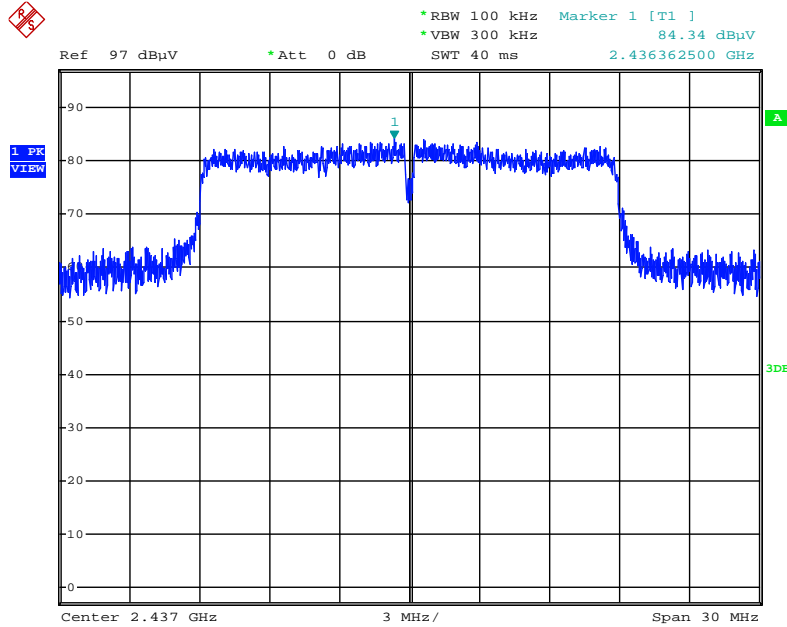
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

For Emission not in Restricted Band

For 1TX

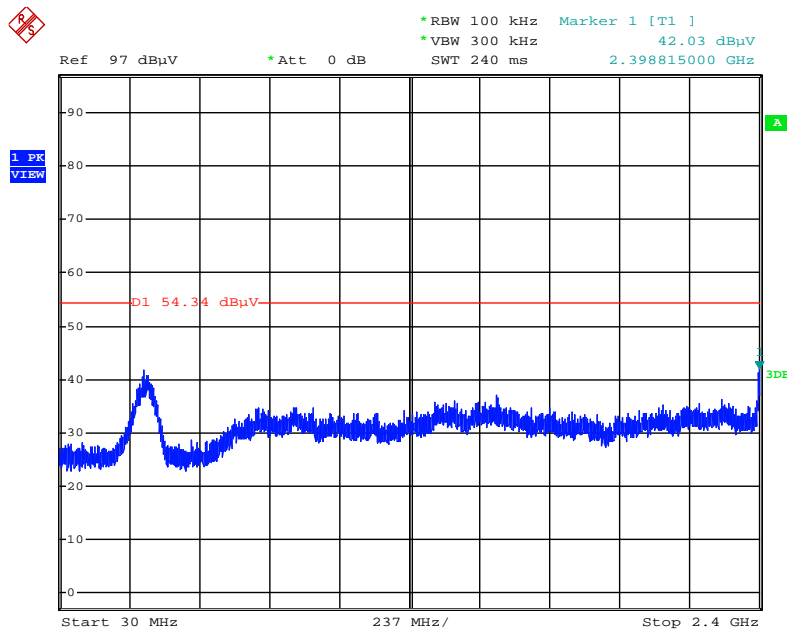
For Ant. 1

Plot on Configuration IEEE 802.11n MCS0 HT20 / Reference Level



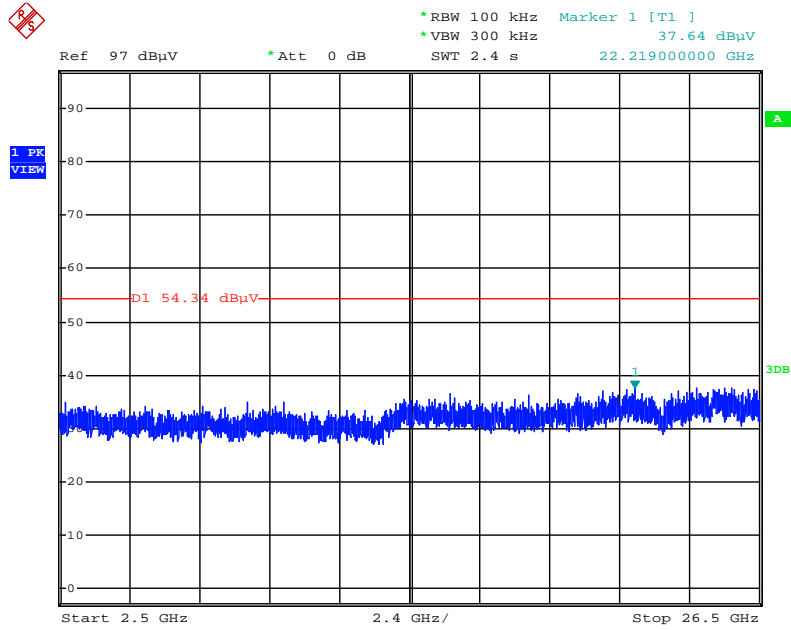
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Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 1 / 30MHz~2400MHz (down 30dBc)



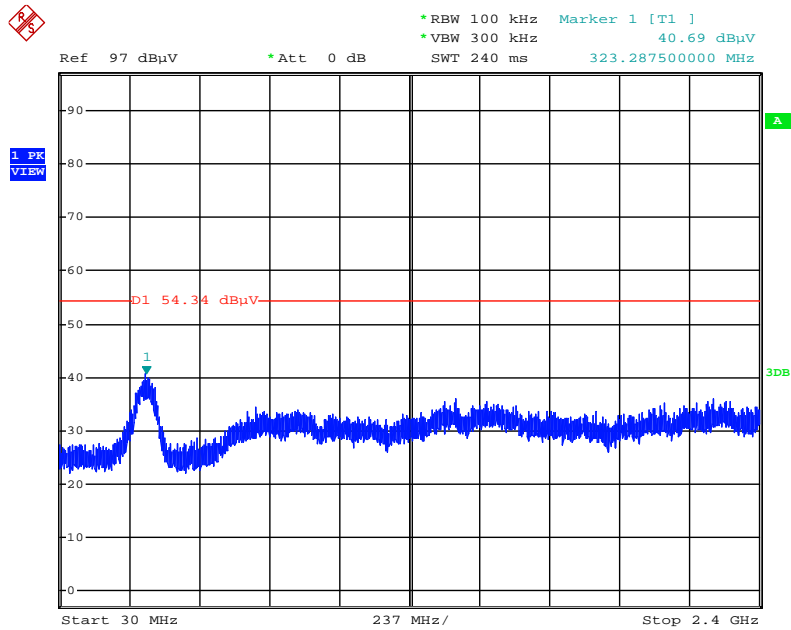
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Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 1 / 2500MHz~26500MHz (down 30dBc)



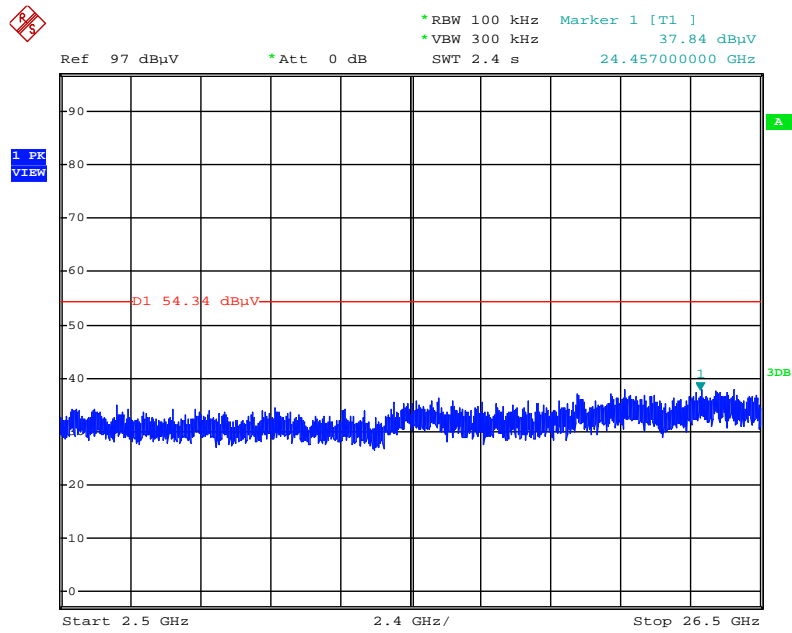
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Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 11 / 30MHz~2400MHz (down 30dBc)



Date: 26.AUG.2014 01:21:07

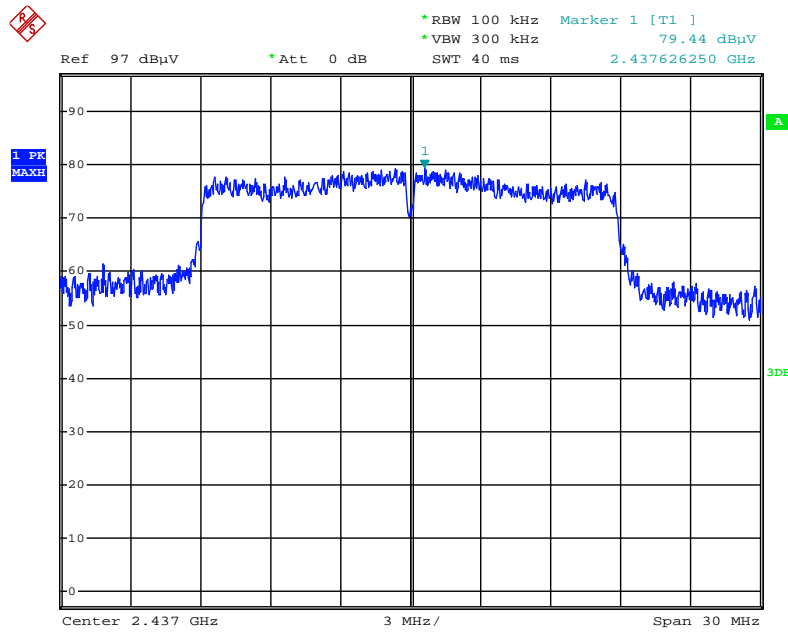
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 11 / 2500MHz~26500MHz (down 30dBc)



Date: 26.AUG.2014 01:20:47

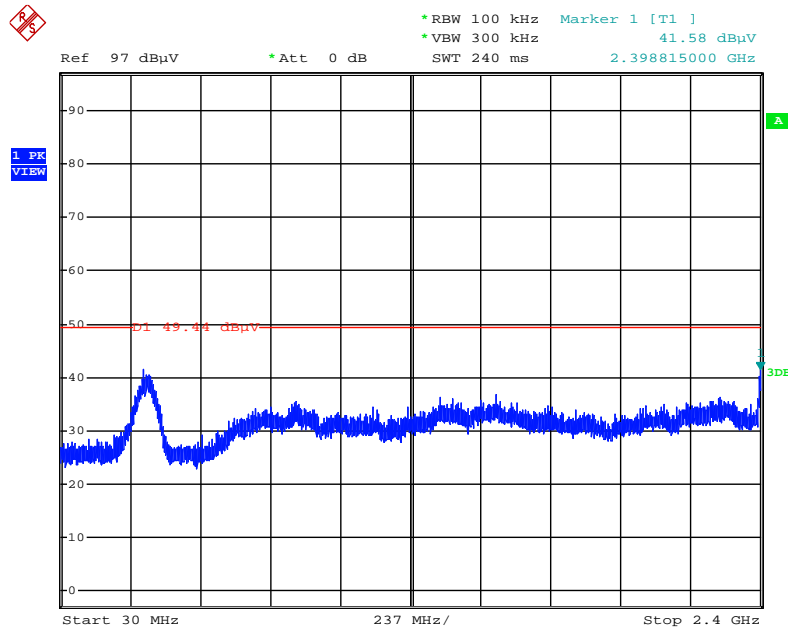
For Ant. 2

Plot on Configuration IEEE 802.11n MCS0 HT20 / Reference Level



Date: 26.AUG.2014 01:27:42

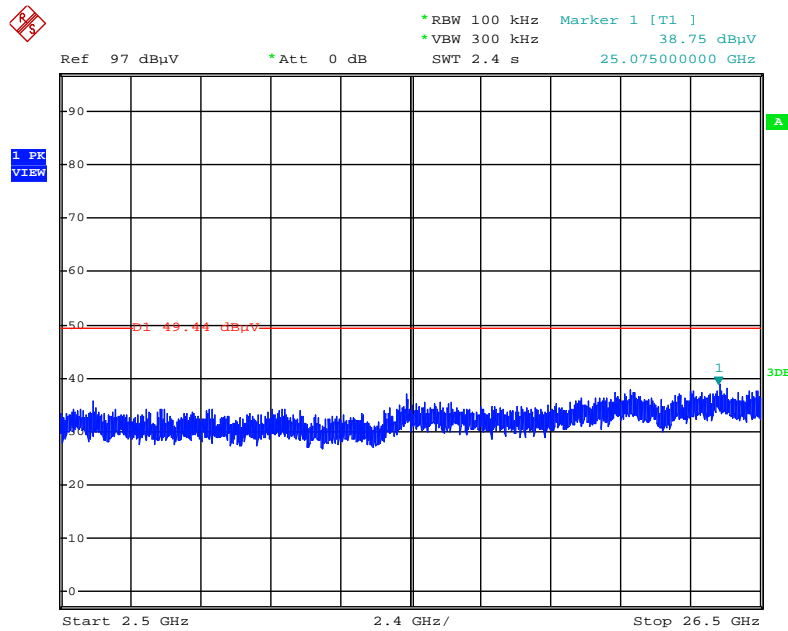
Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 1 / 30MHz~2400MHz (down 30dBc)



Date: 26.AUG.2014 01:32:51

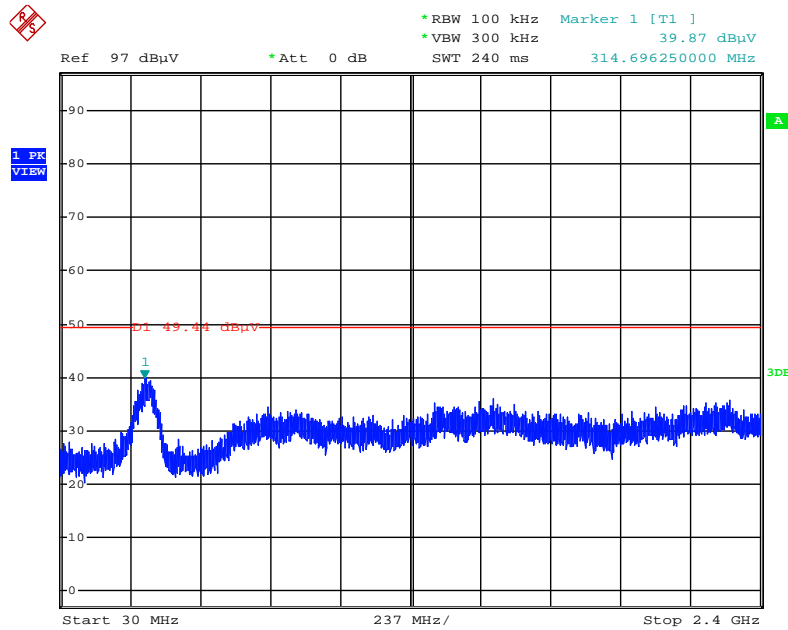


Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 1 / 2500MHz~26500MHz (down 30dBc)



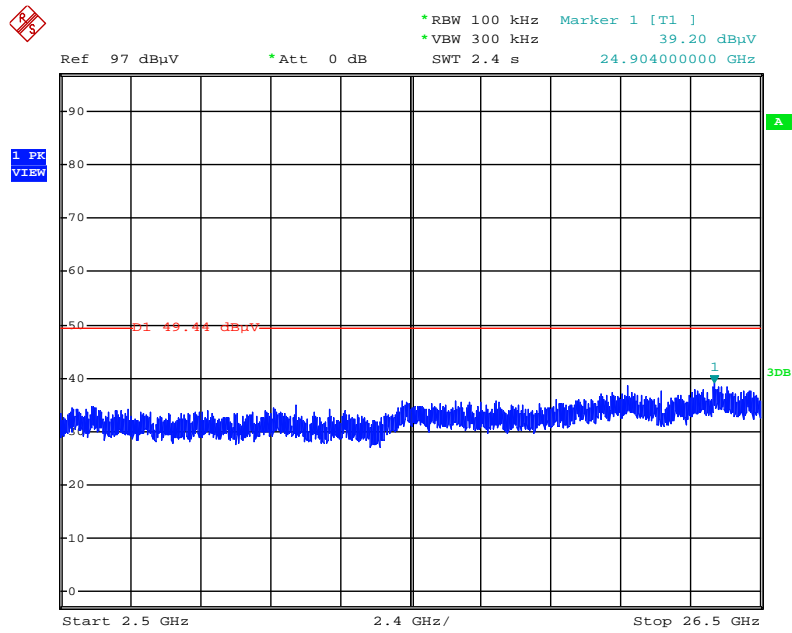
Date: 26.AUG.2014 01:33:17

Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 11 / 30MHz~2400MHz (down 30dBc)



Date: 26.AUG.2014 01:34:17

Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 11 / 2500MHz~26500MHz (down 30dBc)

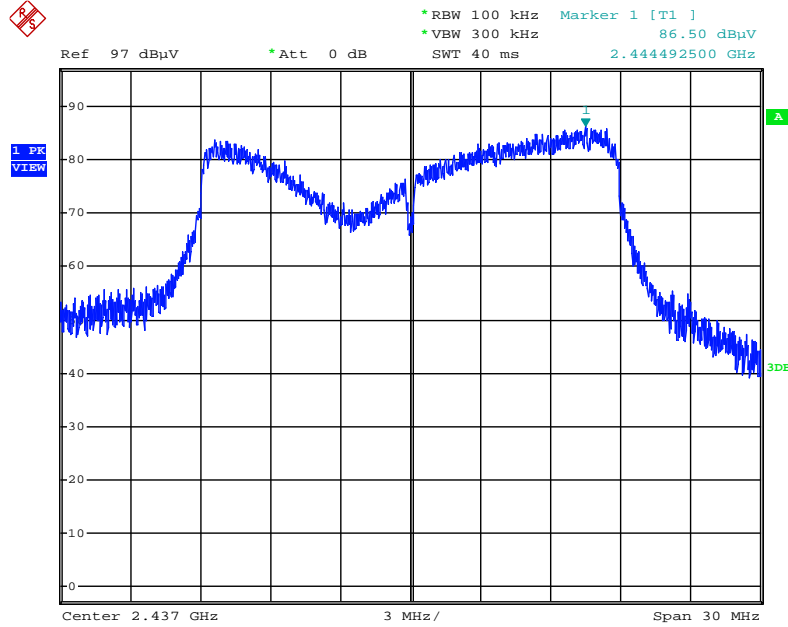


Date: 26.AUG.2014 01:33:59

For 2TX

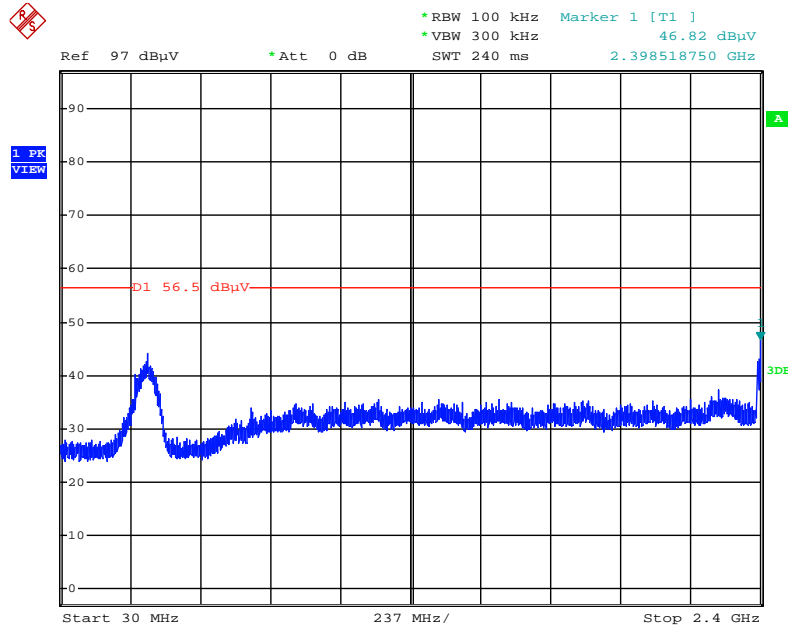
For Ant. 1 + Ant. 2

Plot on Configuration IEEE 802.11n MCS0 HT20 / Reference Level



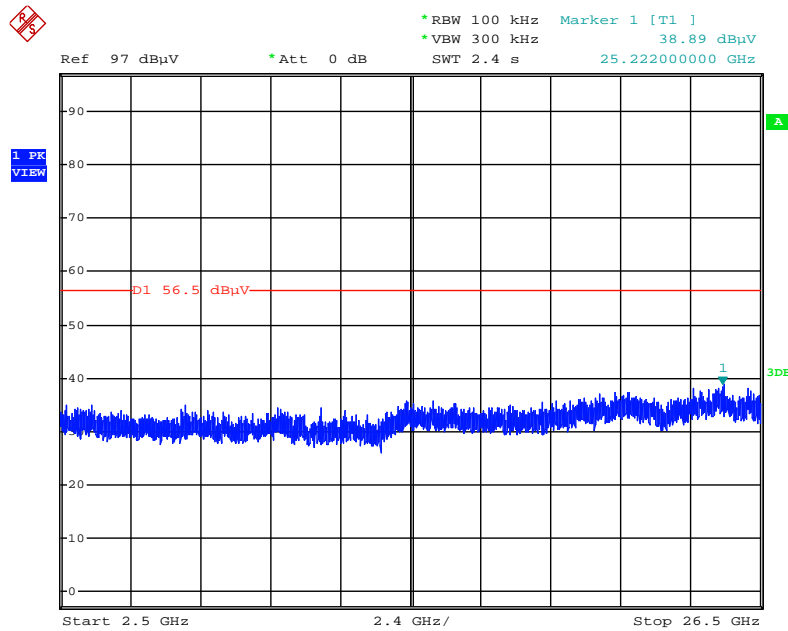
Date: 26.AUG.2014 01:45:25

Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 1 / 30MHz~2400MHz (down 30dBc)



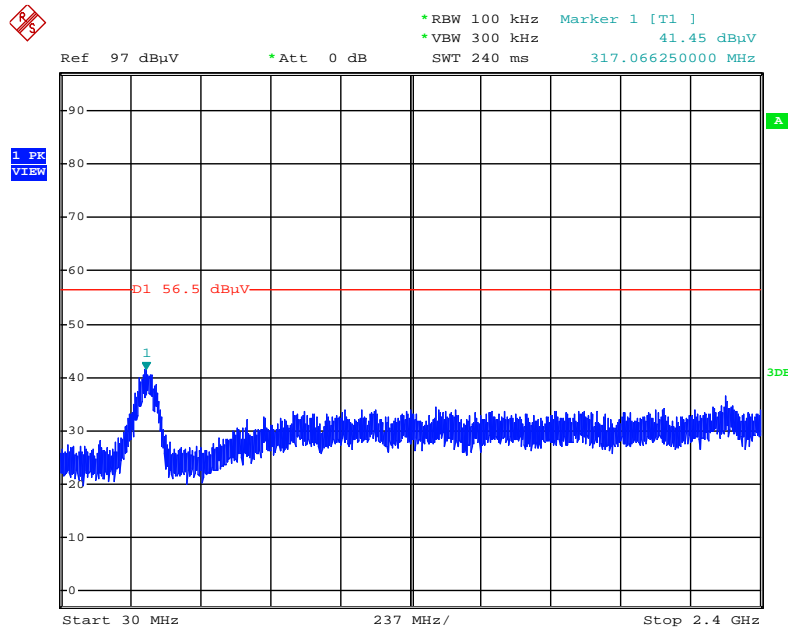
Date: 26.AUG.2014 01:48:09

Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 1 / 2500MHz~26500MHz (down 30dBc)



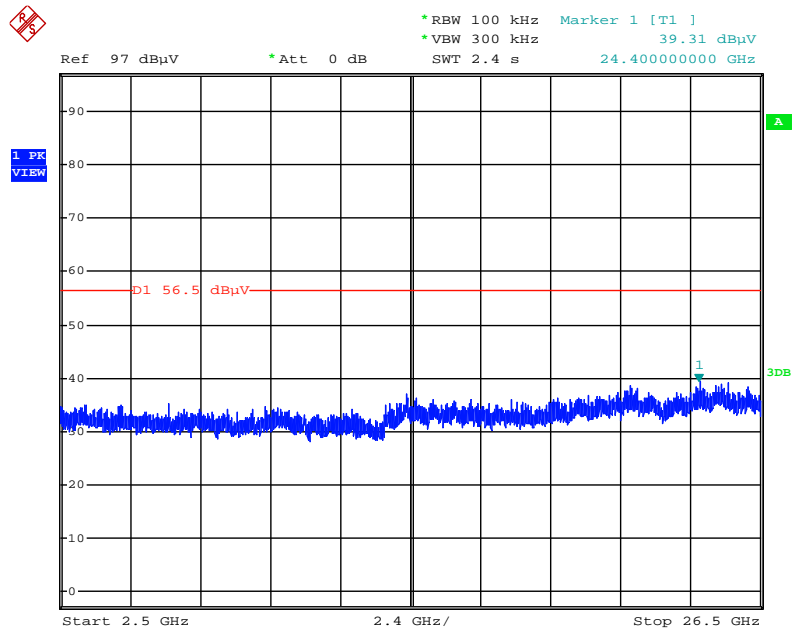
Date: 26.AUG.2014 01:48:33

Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 11 / 30MHz~2400MHz (down 30dBc)



Date: 26.AUG.2014 01:49:23

Plot on Configuration IEEE 802.11n MCS0 HT20 / CH 11 / 2500MHz~26500MHz (down 30dBc)

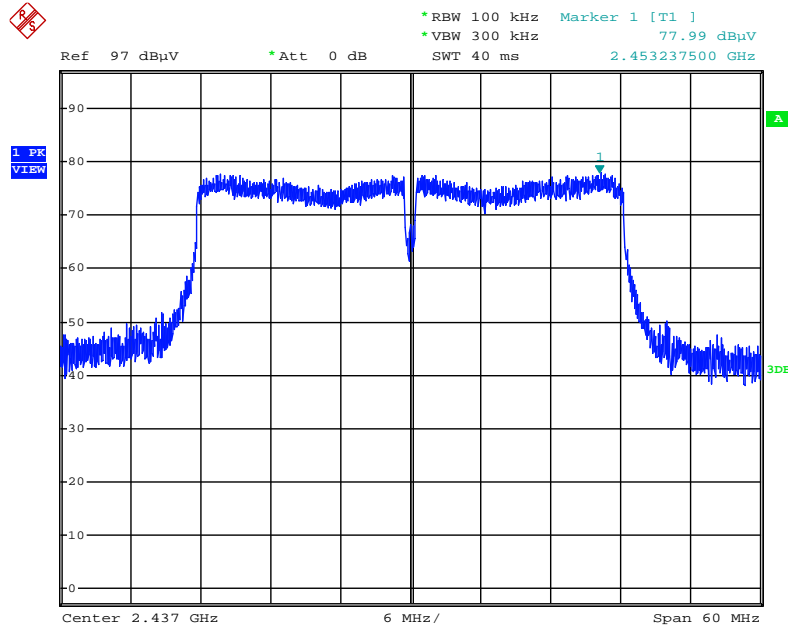


Date: 26.AUG.2014 01:49:09

For ITX

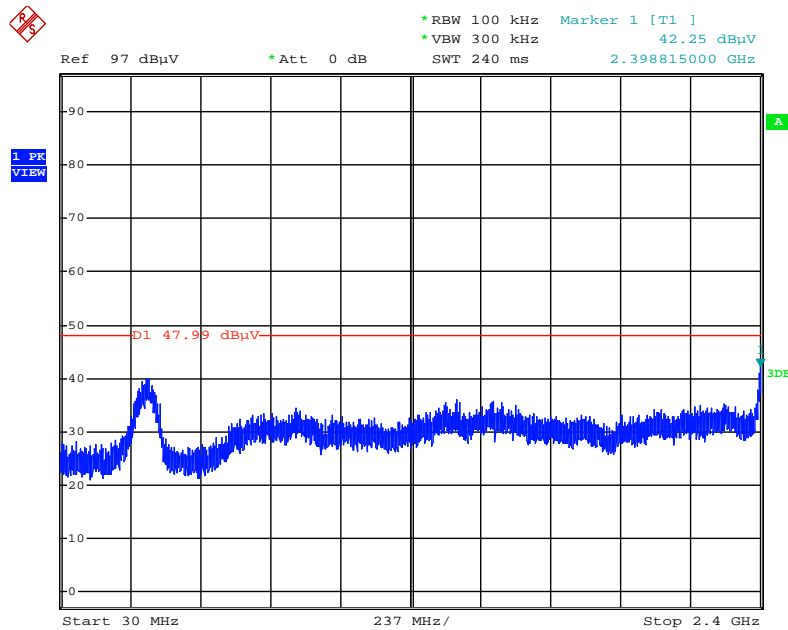
For Ant. 1

Plot on Configuration IEEE 802.11n MCS0 HT40 / Reference Level



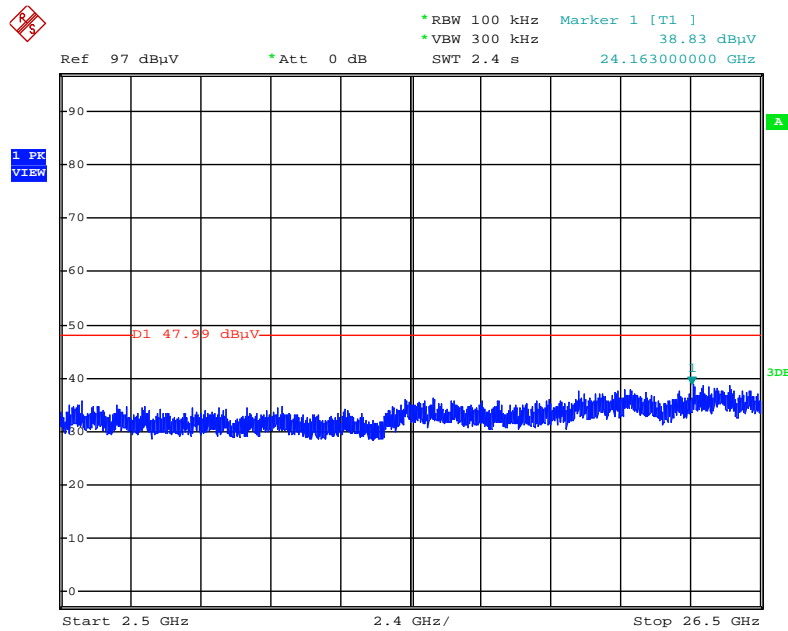
Date: 26.AUG.2014 01:22:27

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 3 / 30MHz~2400MHz (down 30dBc)



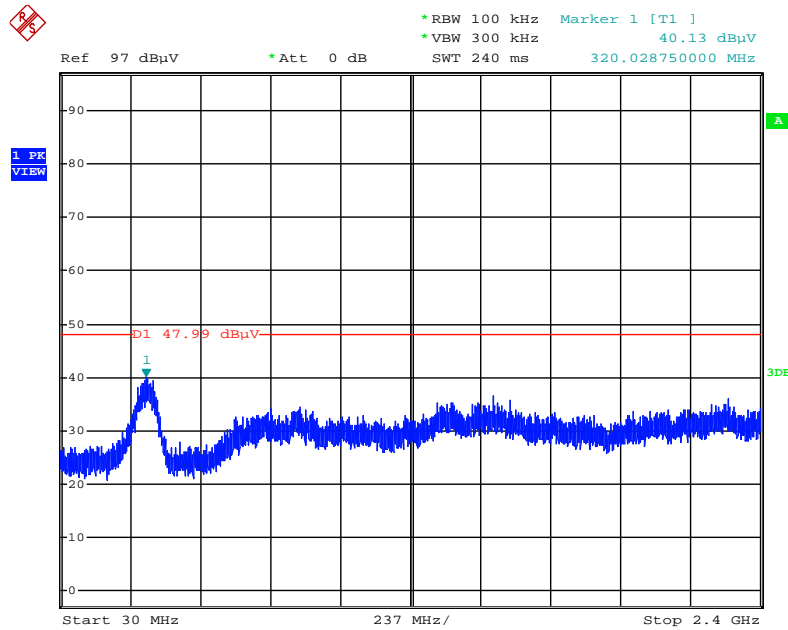
Date: 26.AUG.2014 01:23:26

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 3 / 2500MHz~26500MHz (down 30dBc)



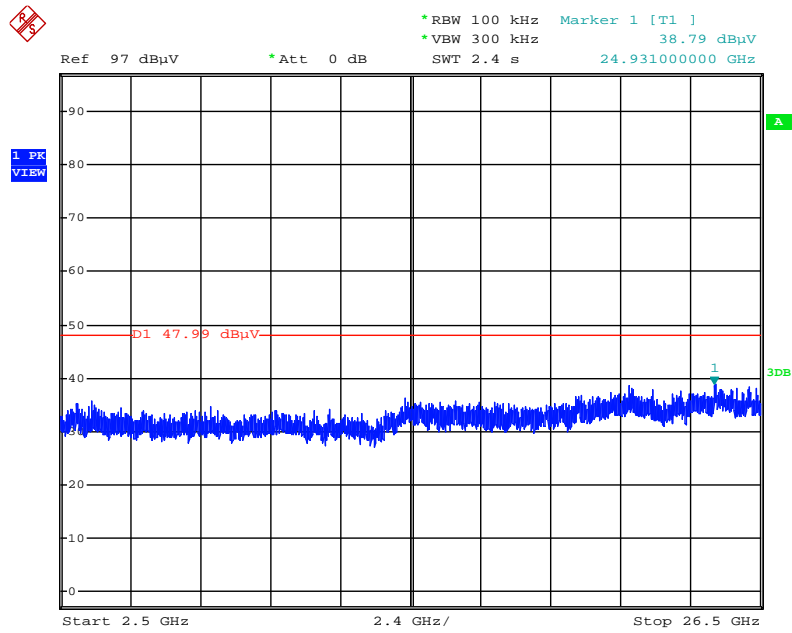
Date: 26.AUG.2014 01:24:25

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 9 / 30MHz~2400MHz (down 30dBc)



Date: 26.AUG.2014 01:25:27

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 9 / 2500MHz~26500MHz (down 30dBc)

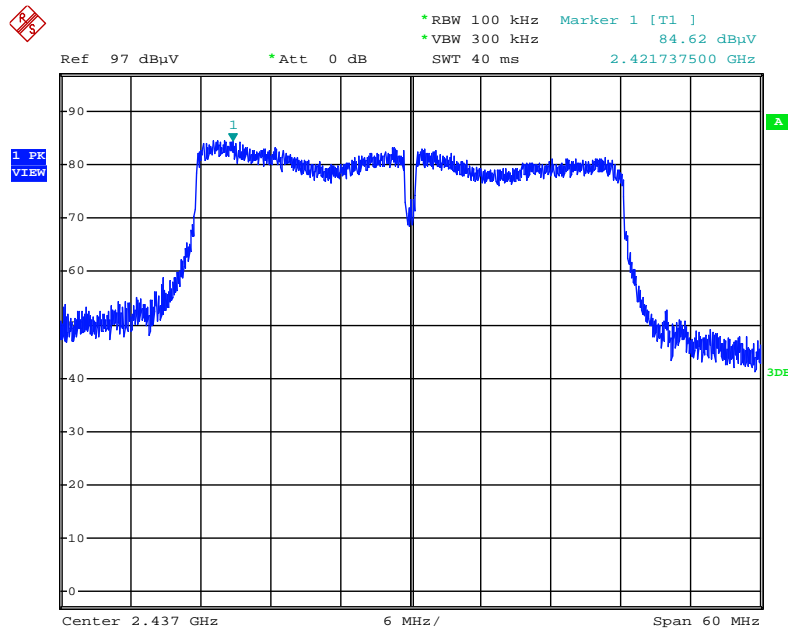


Date: 26.AUG.2014 01:25:07



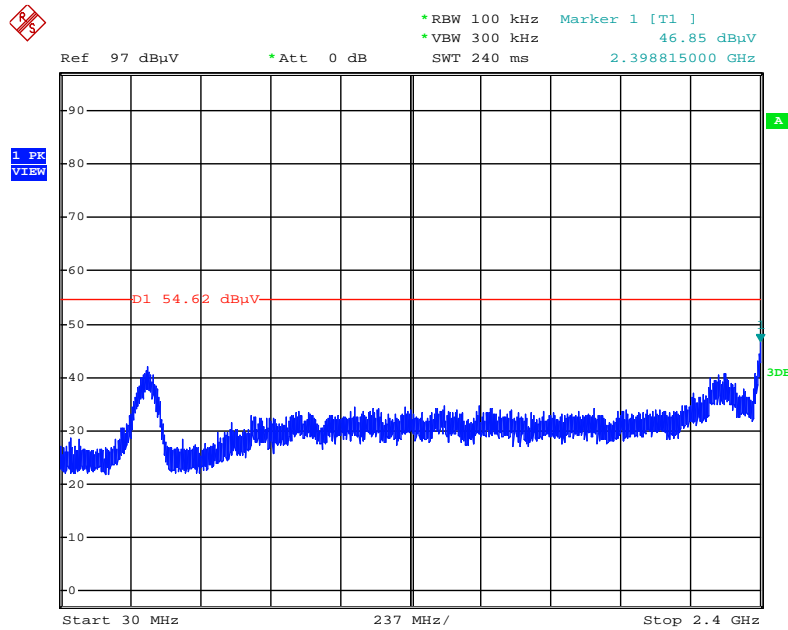
For Ant. 2

Plot on Configuration IEEE 802.11n MCS0 HT40 / Reference Level



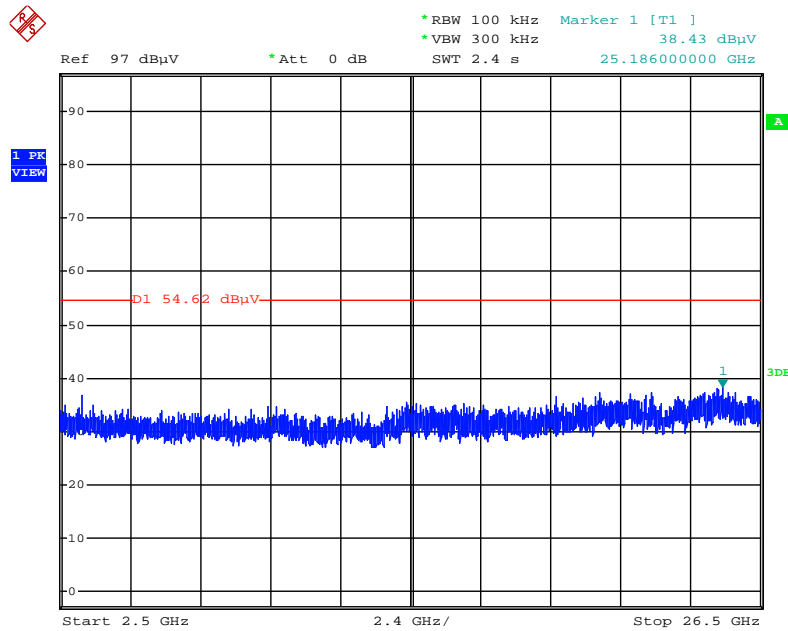
Date: 26.AUG.2014 01:37:31

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 3 / 30MHz~2400MHz (down 30dBc)



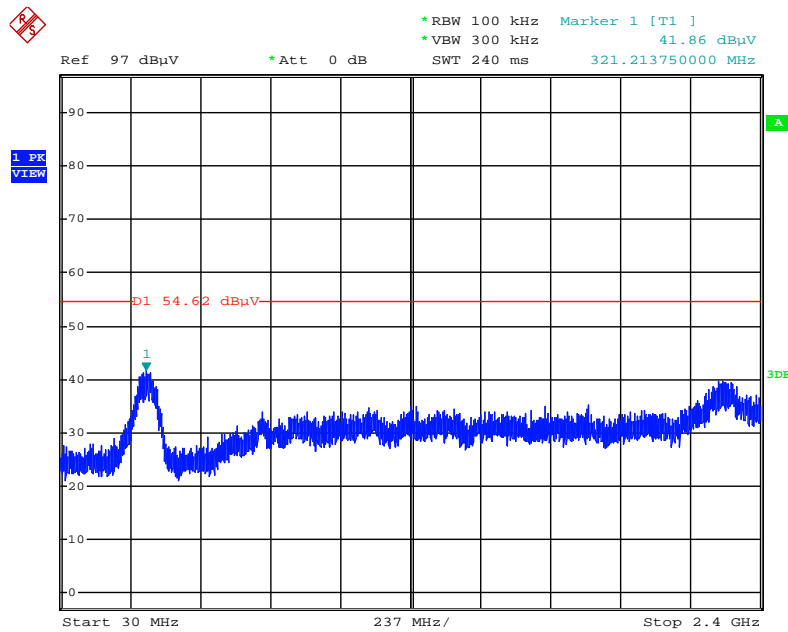
Date: 26.AUG.2014 01:38:42

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 3 / 2500MHz~26500MHz (down 30dBc)



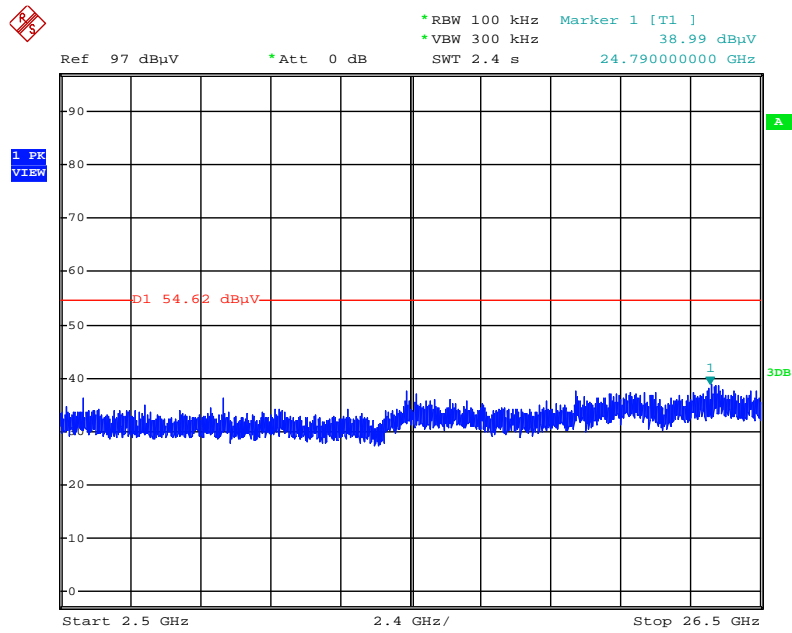
Date: 26.AUG.2014 01:39:04

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 9 / 30MHz~2400MHz (down 30dBc)



Date: 26.AUG.2014 01:40:15

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 9 / 2500MHz~26500MHz (down 30dBc)

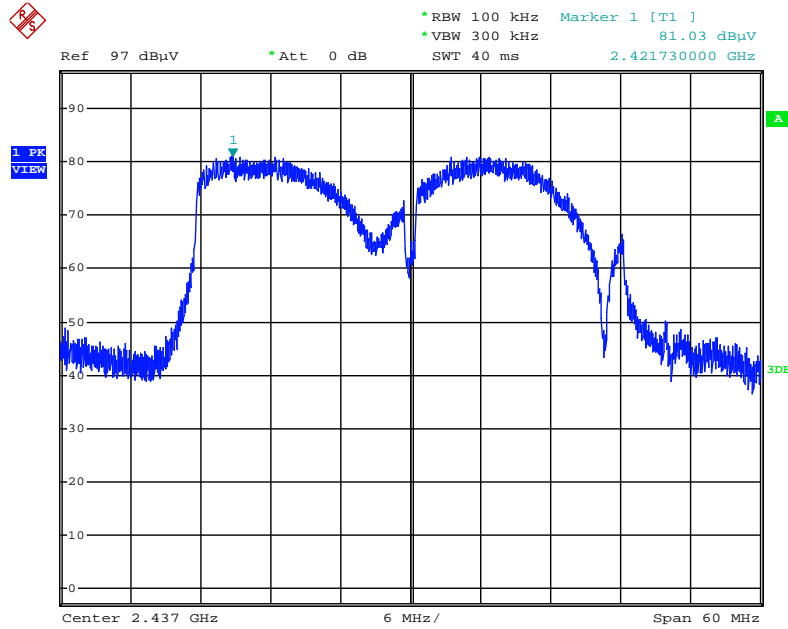


Date: 26.AUG.2014 01:39:45

For 2TX

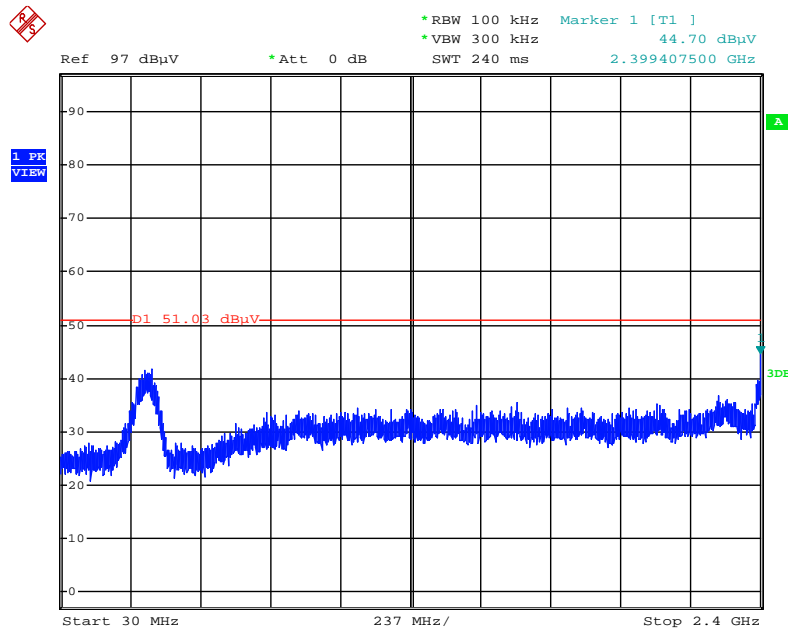
For Ant. 1 + Ant. 2

Plot on Configuration IEEE 802.11n MCS0 HT40 / Reference Level



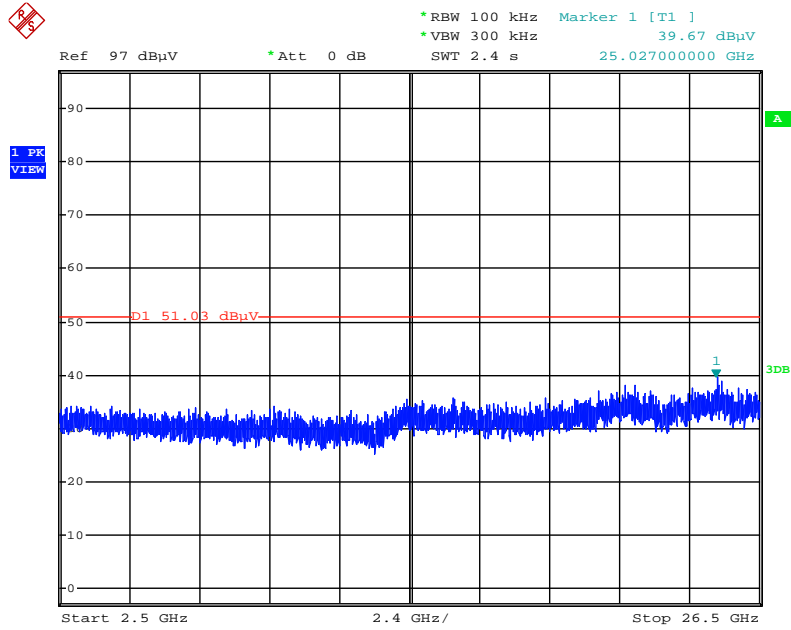
Date: 26.AUG.2014 01:50:41

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 3 / 30MHz~2400MHz (down 30dBc)



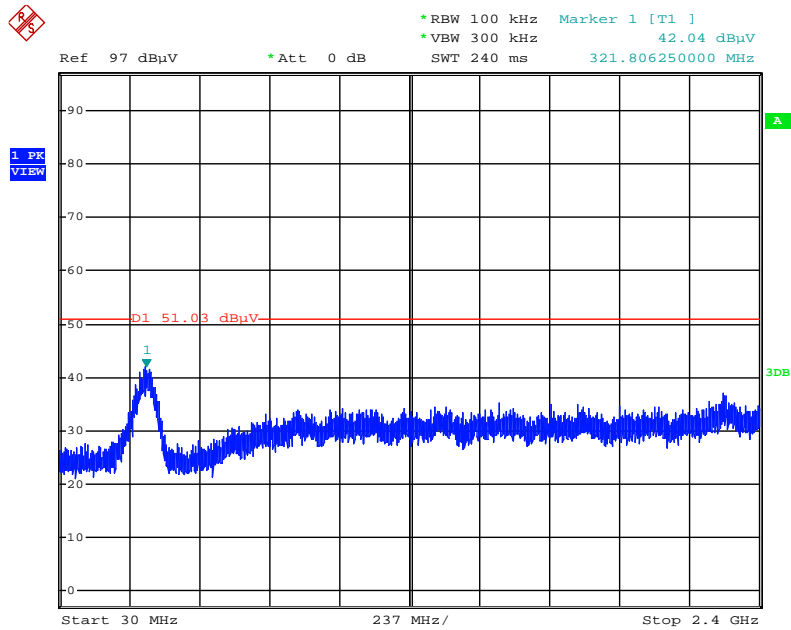
Date: 26.AUG.2014 01:51:41

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 3 / 2500MHz~26500MHz (down 30dBc)



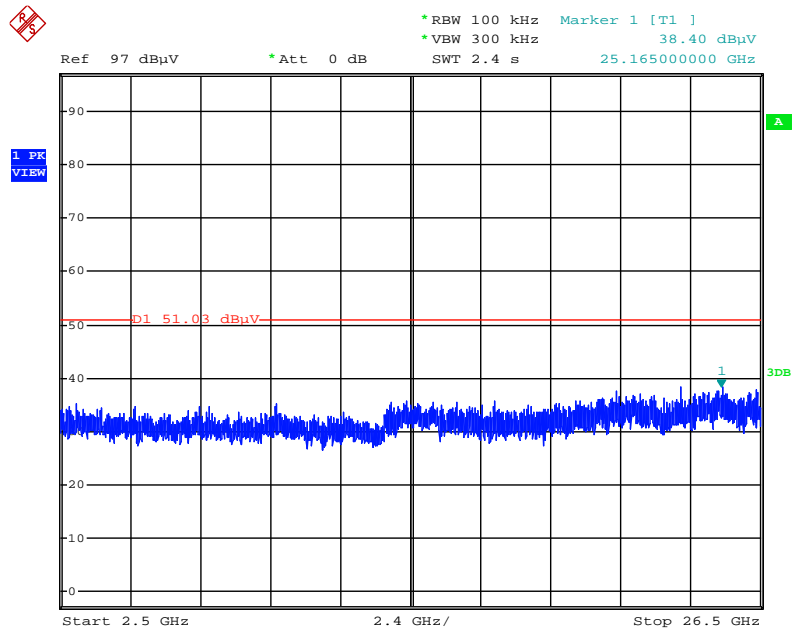
Date: 26.AUG.2014 01:52:01

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 9 / 30MHz~2400MHz (down 30dBc)



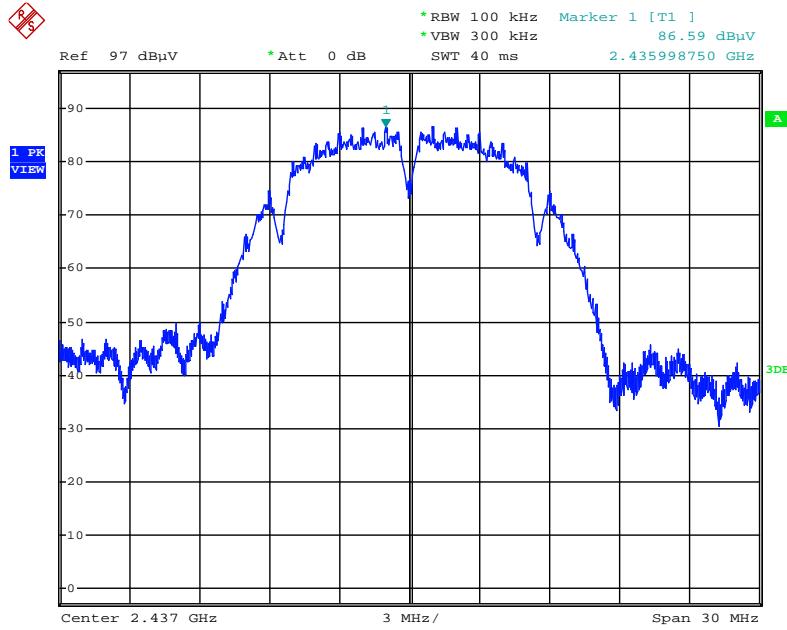
Date: 26.AUG.2014 01:53:10

Plot on Configuration IEEE 802.11n MCS0 HT40 / CH 9 / 2500MHz~26500MHz (down 30dBc)



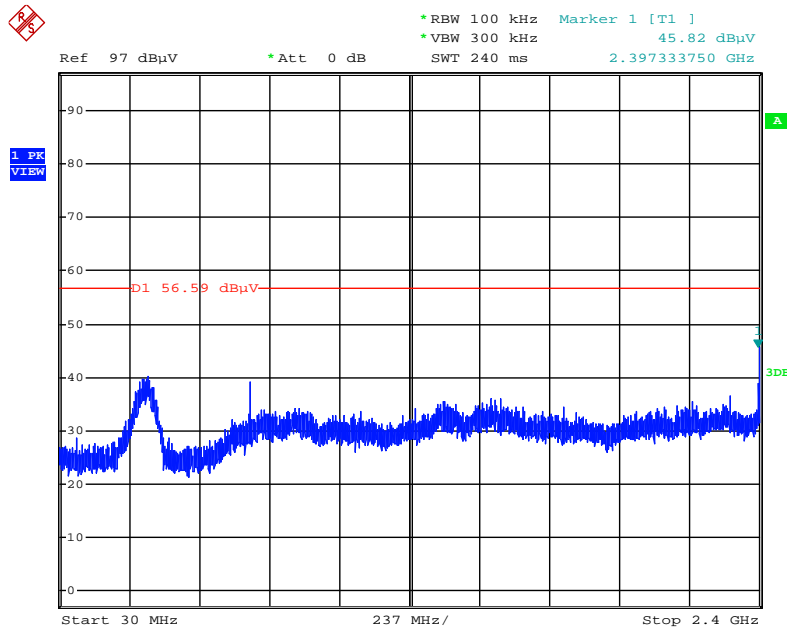
Date: 26.AUG.2014 01:52:48

Plot on Configuration IEEE 802.11b / Reference Level



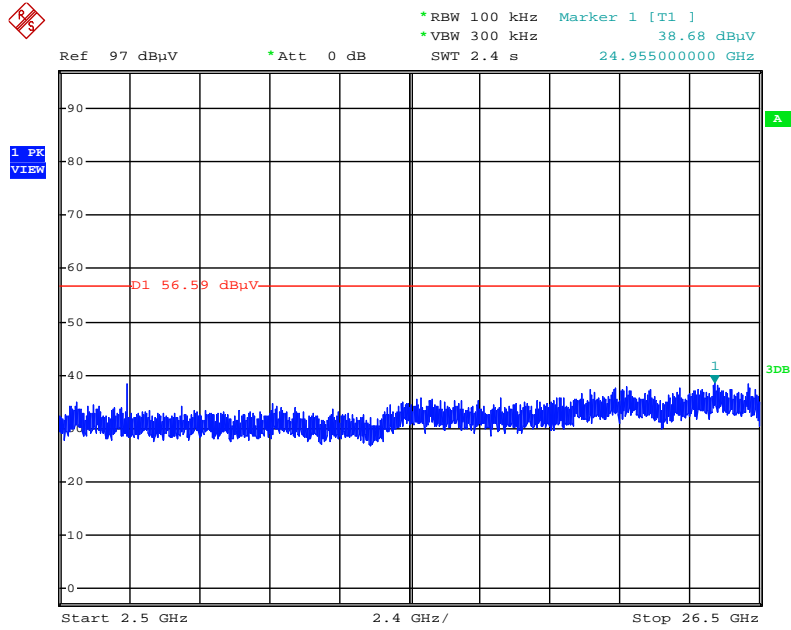
Date: 26.AUG.2014 01:12:36

Plot on Configuration IEEE 802.11b / CH 1 / 30MHz~2400MHz (down 30dBc)



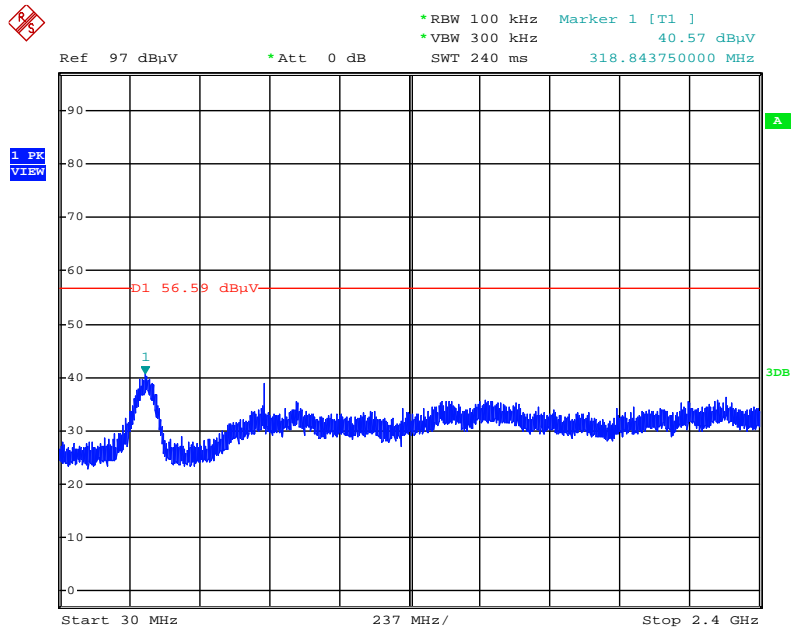
Date: 26.AUG.2014 01:14:00

Plot on Configuration IEEE 802.11b / CH 1 / 2500MHz~26500MHz (down 30dBc)



Date: 26.AUG.2014 01:14:23

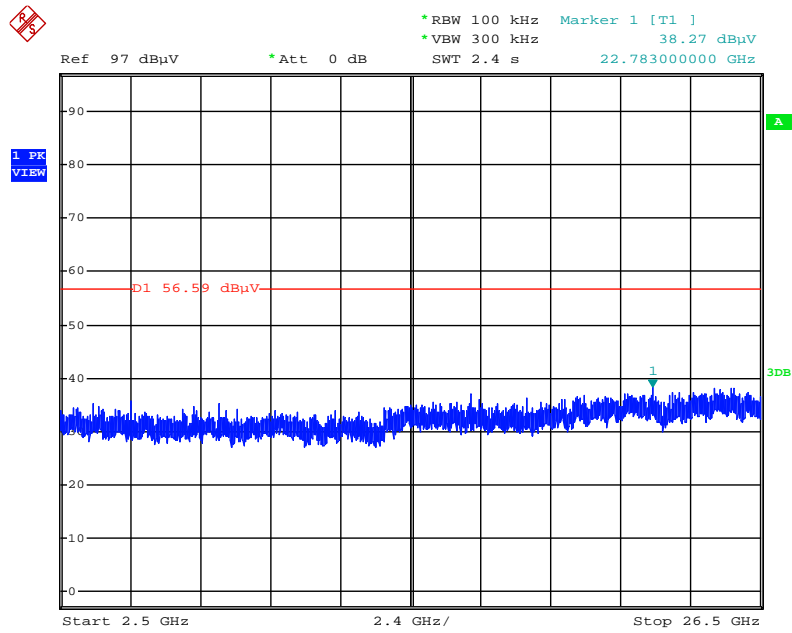
Plot on Configuration IEEE 802.11b / CH 11 / 30MHz~2400MHz (down 30dBc)



Date: 26.AUG.2014 01:15:33

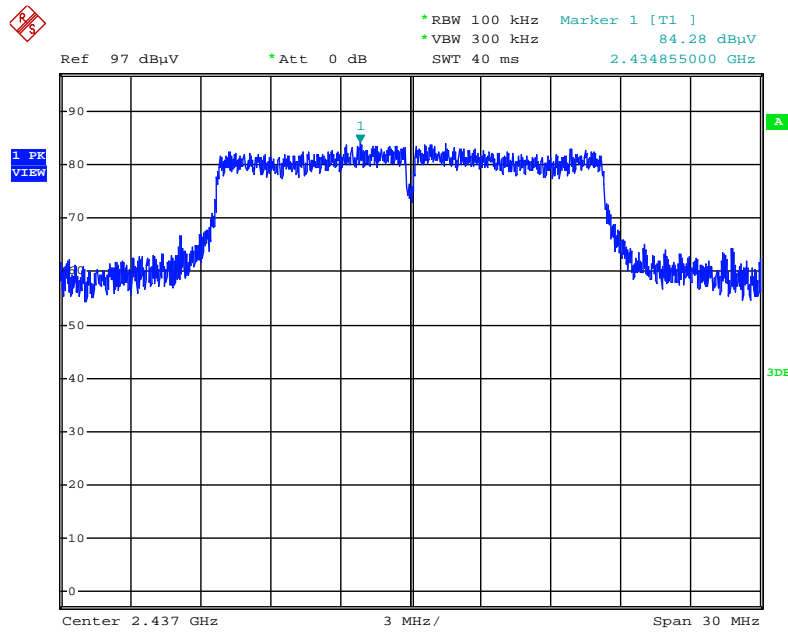


Plot on Configuration IEEE 802.11b / CH 11 / 2500MHz~26500MHz (down 30dBc)



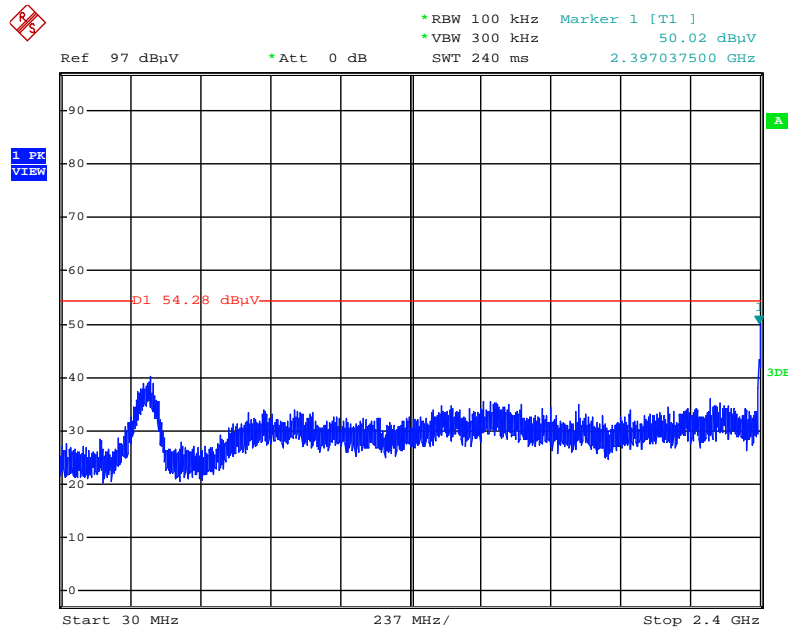
Date: 26.AUG.2014 01:15:01

Plot on Configuration IEEE 802.11g / Reference Level



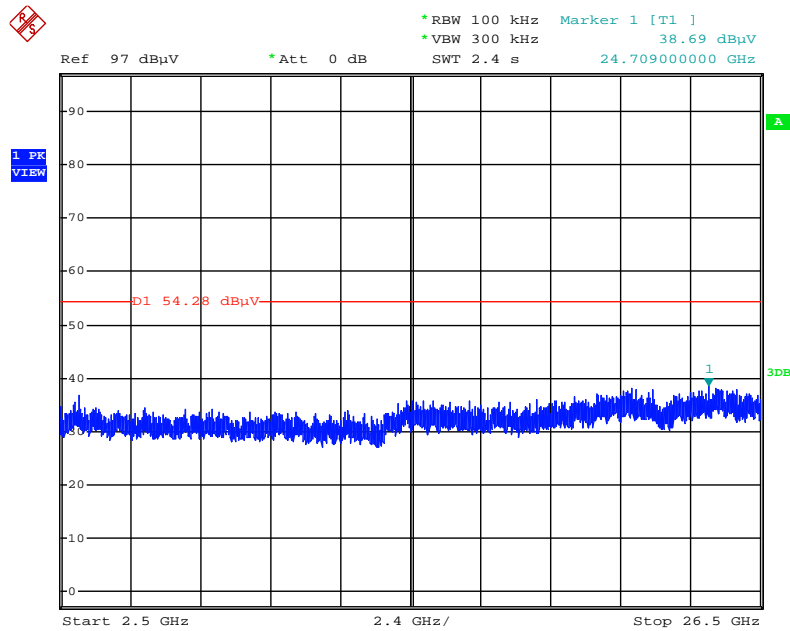
Date: 26.AUG.2014 01:16:36

Plot on Configuration IEEE 802.11g / CH 1 / 30MHz~2400MHz (down 30dBc)



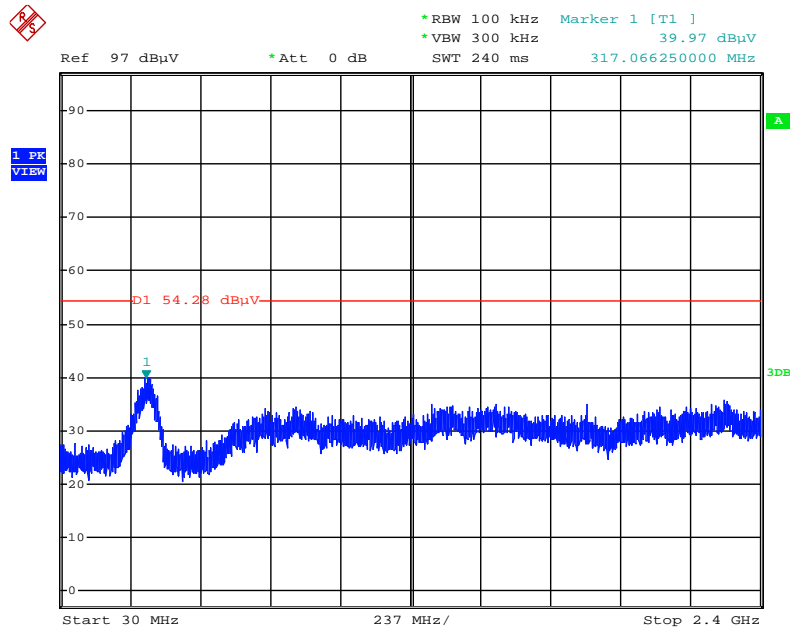
Date: 26.AUG.2014 01:17:22

Plot on Configuration IEEE 802.11g / CH 1 / 2500MHz~26500MHz (down 30dBc)



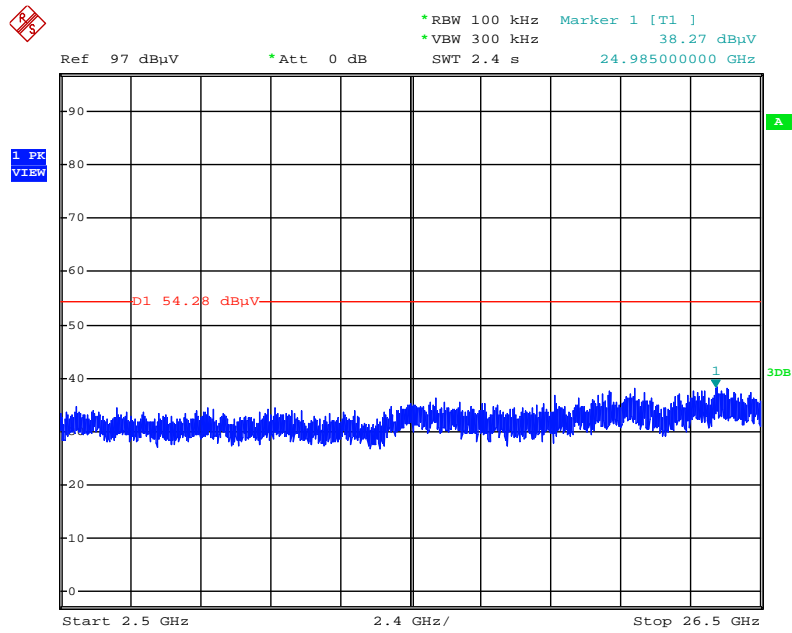
Date: 26.AUG.2014 01:17:45

Plot on Configuration IEEE 802.11g / CH 11 / 30MHz~2400MHz (down 30dBc)



Date: 26.AUG.2014 01:18:33

Plot on Configuration IEEE 802.11g / CH 11 / 2500MHz~26500MHz (down 30dBc)



Date: 26.AUG.2014 01:18:17

## 4.7. Antenna Requirements

### 4.7.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. 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 shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

### 4.7.2. Antenna Connector Construction

Please refer to section 3.3 in this test report; antenna connector complied with the requirements.

## 5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Test Receiver	R&S	ESCS 30	100355	9kHz ~ 2.75GHz	Apr. 23, 2014	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Nov. 23, 2013	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Nov. 23, 2013	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	Dec. 04, 2013	Conduction (CO01-CB)
Software	Audix	E3	5.410e	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	May 26, 2014	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9 kHz - 30 MHz	Nov. 05, 2012*	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz~18GHz	Nov. 01, 2013	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2014	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 12, 2013	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Dec. 16, 2013	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Oct. 23, 2013	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100019	9kHz~40GHz	Dec. 02, 2013	Radiation (03CH01-CB)
EMI Test Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8GHz	Dec. 12, 2013	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N.C.R.	Radiation (03CH01-CB)
Antenna Mast	INN CO	CO 2000	N/A	1 m - 4 m	N.C.R.	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz - 1 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-1	N/A	1 GHz – 26.5 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-2	N/A	1 GHz – 26.5 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
Signal analyzer	R&S	FSV40	100979	9kHz~40GHz	Nov. 29, 2013	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 03, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-7	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-8	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-9	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-10	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-11	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Power Sensor	Anritsu	MA2411B	0917223	300MHz~40GHz	Sep. 18, 2013	Conducted (TH01-CB)
Power Meter	Anritsu	ML2495A	1035008	300MHz~40GHz	Sep. 18, 2013	Conducted (TH01-CB)

Note: Calibration Interval of instruments listed above is one year.

“\*” Calibration Interval of instruments listed above is two years.

N.C.R. means Non-Calibration required.

## 6. MEASUREMENT UNCERTAINTY

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	2.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%