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FCC RADIO TEST REPORT

Applicant's company	**Motorola Solutions, Inc.**
Applicant Address	One Motorola Plaza Holtsville, NY 11742 USA
FCC ID	**UZ7KHAP800**
Manufacturer's company	**Wistron NeWeb Corporation**
Manufacturer Address	20 Park Avenue II, Hsinchu Science Park, Hsinchu 308,Taiwan,R.O.C.

Product Name	802.11 a/b/g/n Module
Brand Name	MOTOROLA
Model No.	KHAP-800
Test Rule Part(s)	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Received Date	Apr. 02, 2012
Final Test Date	Oct. 23, 2014
Submission Type	Class II Change

Statement

Test result included is only for the IEEE 802.11n, IEEE 802.11b/g and IEEE 802.11a 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 C63.10-2009**, **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.

TAF
Testing Laboratory
1190

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR240223-12AA	Rev. 01	Initial issue of report	Nov. 21, 2014

Certificate No.: CB10310201

1. CERTIFICATE OF COMPLIANCE

Product Name	:	802.11 a/b/g/n Module
Brand Name	:	MOTOROLA
Model No.	:	KHAP-800
Applicant	:	Motorola Solutions, 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 Apr. 02, 2012 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	15.247(b)(3)	Maximum Conducted Output Power	Complies	0.02 dB
4.2	15.247(e)	Power Spectral Density	Complies	2.40 dB
4.3	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
4.4	15.247(d)	Radiated Emissions	Complies	1.01 dB
4.5	15.247(d)	Band Edge Emissions	Complies	1.00 dB
4.6	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

IEEE 802.11n

Items	Description
Product Type	WLAN (1/2/3TX, 3RX)
Radio Type	Intentional Transceiver
Power Type	powered by PC and DC power supply
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 / 5725 ~ 5850MHz
Channel Number	For 2.4GHz Band: 11 for 20MHz bandwidth ; 7 for 40MHz bandwidth For 5GHz Band: 5 for 20MHz bandwidth ; 2 for 40MHz bandwidth
Channel Band Width (99%)	For 2.4GHz Band: Mode 1 (Ant.1 Dipole antenna / 9dBi) For Beamforming Mode For 2TX MCS0 (HT20): 17.92 MHz ; MCS0 (HT40): 36.64 MHz For 3TX MCS0 (HT20): 18.16 MHz ; MCS0 (HT40): 36.32 MHz Mode 2 (Ant.3 Panel antenna / 14dBi) For Beamforming Mode For 2TX MCS0 (HT20): 17.92 MHz ; MCS0 (HT40): 36.64 MHz For 3TX MCS0 (HT20): 18.08 MHz ; MCS0 (HT40): 36.80 MHz Mode 3 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 8, Chain 2: 5.1, Chain 3: 8.2dBi) For Beamforming Mode For 3TX MCS0 (HT20): 18.08 MHz ; MCS0 (HT40): 36.64 MHz For Non-Beamforming Mode For 1TX MCS0 (HT20): 17.88 MHz ; MCS0 (HT40): 36.41 MHz

	For 2TX MCS0 (HT20): 17.92 MHz ; MCS0 (HT40): 36.64 MHz For 3TX MCS0 (HT20): 17.52 MHz ; MCS0 (HT40): 36.80 MHz For 5GHz Band: Mode 4 (Ant.6 Dipole antenna / 8dBi) For Beamforming Mode For 2TX MCS0 (HT20): 29.36 MHz ; MCS0 (HT40): 72.00 MHz For 3TX MCS0 (HT20): 21.92 MHz ; MCS0 (HT40): 45.44 MHz Mode 5 (Ant.16 Panel antenna / 3.5dBi) For Beamforming Mode For 2TX MCS0 (HT20): 28.64 MHz ; MCS0 (HT40): 65.44 MHz For 3TX MCS0 (HT20): 30.48 MHz ; MCS0 (HT40): 64.96 MHz Mode 6 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 6.7, Chain 2: 4.3, Chain 3: 6.6dBi) For Beamforming Mode For 3TX MCS0 (HT20): 29.36 MHz ; MCS0 (HT40): 64.32 MHz For Non-Beamforming Mode For 1TX MCS0 (HT20): 30.76 MHz ; MCS0 (HT40): 64.87 MHz For 2TX MCS0 (HT20): 29.12 MHz ; MCS0 (HT40): 70.40 MHz For 3TX MCS0 (HT20): 30.72 MHz ; MCS0 (HT40): 64.64 MHz
Maximum Conducted Output Power	For 2.4GHz Band: Mode 1 (Ant.1 Dipole antenna / 9dBi) For Beamforming Mode For 2TX MCS0 (HT20): 16.41 dBm ; MCS0 (HT40): 13.68 dBm For 3TX MCS0 (20MHz): 10.06 dBm ; MCS0 (40MHz): 10.49 dBm

	Mode 2 (Ant.3 Panel antenna / 14dBi) For Beamforming Mode For 2TX MCS0 (HT20): 15.39 dBm ; MCS0 (HT40): 12.06 dBm For 3TX MCS0 (20MHz): 10.22 dBm ; MCS0 (40MHz): 9.98 dBm Mode 3 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 8, Chain 2: 5.1, Chain 3: 8.2dBi) For Beamforming Mode For 3TX MCS0 (20MHz): 19.81 dBm ; MCS0 (40MHz): 16.99 dBm For Non-Beamforming Mode For 1TX MCS0 (20MHz): 24.84 dBm ; MCS0 (40MHz): 19.93 dBm For 2TX MCS0 (20MHz): 25.20 dBm ; MCS0 (40MHz): 19.11 dBm For 3TX MCS0 (20MHz): 24.41 dBm ; MCS0 (40MHz): 20.79 dBm For 5GHz Band: Mode 4 (Ant.6 Dipole antenna / 8dBi) For Beamforming Mode For 2TX MCS0 (HT20): 23.86 dBm ; MCS0 (HT40): 23.81 dBm For 3TX MCS0 (HT20): 23.21 dBm ; MCS0 (HT40): 23.19 dBm Mode 5 (Ant.16 Panel antenna / 3.5dBi) For Beamforming Mode For 2TX MCS0 (HT20): 23.86 dBm ; MCS0 (HT40): 23.81 dBm For 3TX MCS0 (HT20): 24.01 dBm ; MCS0 (HT40): 23.84 dBm Mode 6 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 6.7, Chain 2: 4.3, Chain 3: 6.6dBi) For Beamforming Mode For 3TX MCS0 (HT20): 24.01 dBm ; MCS0 (HT40): 24.01 dBm

	For Non-Beamforming Mode For 1TX MCS0 (HT20): 22.16 dBm ; MCS0 (HT40): 21.98 dBm For 2TX MCS0 (HT20): 23.86 dBm ; MCS0 (HT40): 23.81 dBm For 3TX MCS0 (HT20): 24.01 dBm ; MCS0 (HT40): 23.84 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

IEEE 802.11a/b/g

Items	Description
Product Type	802.11b/g: WLAN (1/2/3TX, 3RX) 802.11a: WLAN (1/2/3TX, 3RX) Note: PIFA Antenna (Model Name: RAI-INT-ANT and KAP-I INT ANT) only 1TX1RX of 11a function
Radio Type	Intentional Transceiver
Power Type	powered by PC and DC power supply
Modulation	DSSS for IEEE 802.11b ; OFDM for IEEE 802.11a/g
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 / 5725 ~ 5850MHz
Channel Number	11b/g: 11 ; 11a: 5
Channel Band Width (99%)	For 2.4GHz Band: Mode 3 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 8, Chain 2: 5.1, Chain 3: 8.2dBi) For Non-Beamforming Mode For 1TX 11b: 17.05 MHz For 2TX 11b: 12.56 MHz For 3TX 11b: 14.40 MHz
Maximum Conducted Output Power	For 2.4GHz Band: Mode 3 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 8, Chain 2: 5.1, Chain 3: 8.2dBi) For Non-Beamforming Mode For 1TX 11b: 26.54 dBm 11g: 25.27 dBm For 2TX 11b: 26.79 dBm 11g: 25.91 dBm For 3TX 11b: 21.66 dBm 11g: 25.39 dBm

	<u>For 5GHz Band:</u> Mode 6 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 6.7, Chain 2: 4.3, Chain 3: 6.6dBi) For 1TX 11a: 22.23 dBm For 2TX 11a: 23.89 dBm For 3TX 11a: 24.03 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Items	Description	
Beamforming Function	☒ With beamforming	☐ Without beamforming

Note: The product has beamforming function for 802.11n in 2.4GHz/5GHz.

Antenna and Band width

Antenna	Single (TX)		Two (TX)		Three (TX)	
Band width Mode	20 MHz	40 MHz	20 MHz	40 MHz	20 MHz	40 MHz
IEEE 802.11a	V	X	V	X	V	X
IEEE 802.11b	V	X	V	X	V	X
IEEE 802.11g	V	X	V	X	V	X
IEEE 802.11n	V	V	V	V	V	V

IEEE 11n Spec.

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	1, 2, 3	MCS 0-23
802.11n (HT40)	1, 2, 3	MCS 0-23
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

N/A

3.3. Table for Filed Antenna

Ant.	Model Name	Antenna Type	Chip/Radio	Antenna Gain		Cable loss		True Gain (dBi)	
				2.4GHz	5GHz	2.4GHz	5GHz	2.4GHz	5GHz
1	ML-2499-FHPA9-01R	Dipole	Radio1/2-CH1/2/3	10.5	-	1.5	-	9	-
2	ML-2499-SD3-01R	Patch	Radio1/2-CH1/2/3	4	-	1	-	3	-
3	ML-2499-BPNA3-01R	Panel	Radio1/2-CH1/2/3	15	-	1	-	14	-
4	ML-2499-BYGA2-01R	Yagi	Radio1/2-CH1/2/3	14.5	-	1	-	13.5	-
5	KAP-FACADE-ANT	Facade	Radio1/2-CH1/2/3	3.5	4	1	1.5	2.5	2.5
6	ML-5299-FHPA10-01R	Dipole	Radio1/2-CH1/2/3	-	10.5	-	2.5	-	8
7	ML-5299-PTA1-01R	Patch	Radio1/2-CH1/2/3	-	3.8	-	1.5	-	2.3
8	ML-2452-PNA7-01R	Panel	Radio1/2-CH1/2/3	8	12	-	1.5	8	10.5
9	ML-5299-BYGA15-012	Yagi	Radio1/2-CH1/2/3	-	10.5	-	2.5	-	8
10	ML-2499-5PNL-72-N	Panel	Radio1/2-CH1/2/3	6.5	-	-	-	6.5	-
11	ML-2499-APA2-01	Dipole	Radio1/2-CH1/2/3	3.2	-	-	-	3.2	-
12	ML-2499-HPA3-01R	Dipole	Radio1/2-CH1/2/3	4	-	-	-	4	-
13	ML-5299-APA1-01R	Dipole	Radio1/2-CH1/2/3	-	4	-	-	-	4
14	ML-5299-HPA1-01R	Dipole	Radio1/2-CH1/2/3	-	6	-	-	-	6
15	ML-2452-APA2-01	Dipole	Radio1/2-CH1/2/3	3	5	-	-	3	5
16	ML-2452-PNA5-01R	Panel	Radio1/2-CH1/2/3	5.5	6	1.5	2.5	4	3.5
17	ML-2452-HPA5-036	Dipole	Radio1/2-CH1/2/3	3	5	-	-	3	5
18	ML-2452-APAG2A1-01	Dipole	Radio1/2-CH1/2/3	2.7	2	-	-	2.7	2
19	RAI-INT-ANT	PIFA	Radio1/2-CH1/2/3	4.3	-	-	-	4.3	-
20	ML-2499-HPA4-01	Dipole	Radio1/2-CH1/2/3	4.5	-	1.5	-	3	-
21	ML-2499-HPA8-01	Dipole	Radio1/2-CH1/2/3	8	-	1.5	-	6.5	-
22	ML-5299-HPA5-01	Dipole	Radio1/2-CH1/2/3	-	5.6	-	2.5	-	3.1
23	ML-5299-HPA10-01	Dipole	Radio1/2-CH1/2/3	-	10.5	-	2.5	-	8
24	ML-2452-HPAG5A8-01	Dipole	Radio1/2-CH1/2/3	5	8	1.5	2.5	3.5	5.5
25	ML-2499-HPA3-02R	Dipole	Radio1/2-CH1/2/3	5	-	1	-	4	-
26	ML-2452-HPAG4A6-01	Dipole	Radio1/2-CH1/2/3	4	7.3	1.5	2.5	2.5	4.8
27	ML-2452-HPA6X6-036	Dipole	Radio1/2-CH1/2/3	4	6	1	1.5	3	4.5
28	ML-2452-HPA6M6-072	Dipole	Radio1/2-CH1/2/3	2.8	6.5	1	1.5	1.8	5
29	ML-2452-PNL9M3-036	Panel	Radio1/2-CH1/2/3	11	10.7	1	1.5	10	9.2
30	ML-2452-PTA6M6-036	Panel	Radio1/2-CH1/2/3	5	6	1	1.5	4	4.5
31	KAP-I INT ANT	PIFA	Radio1/2-CH1/2/3	4.4	4.7	-	-	4.4	4.7

Ant.	Model Name	Antenna Type	Chip/Radio	Antenna Gain		Cable loss		True Gain (dBi)	
				2.4GHz	5GHz	2.4GHz	5GHz	2.4GHz	5GHz
32	ML-2452-PNL3M3-1	3-Port Dual-Band Directional Panel	Radio1/2-CH1/2/3	Note 1					

Note 1:

Antenna	Antenna Gain		Cable loss		True Gain (dBi)	
	2.4GHz	5GHz	2.4GHz	5GHz	2.4GHz	5GHz
A	9.5	9.2	1.5	2.5	8	6.7
B	6.6	6.8	1.5	2.5	5.1	4.3
C	9.7	9.1	1.5	2.5	8.2	6.6

Table of TX/RX Function in each antenna:

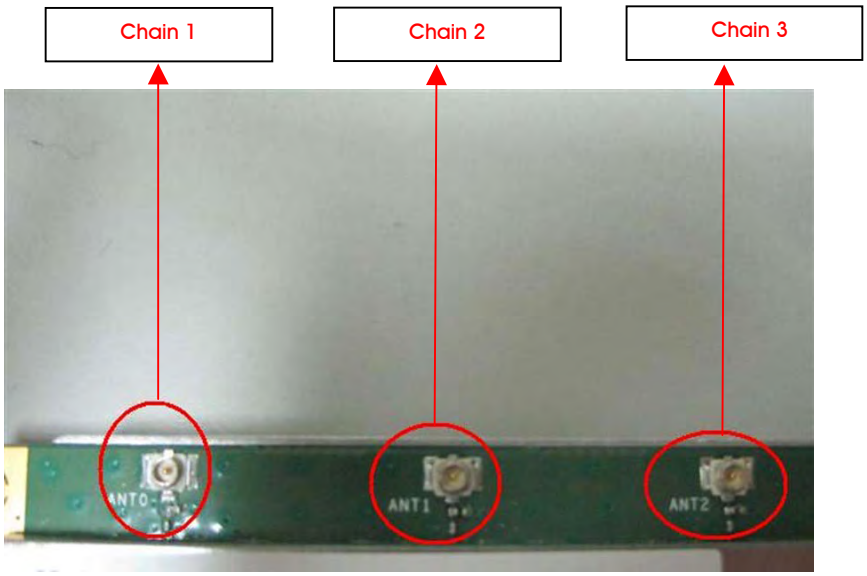
Item			Module					
			Chain 1		Chain 2		Chain 3	
			TX	RX	TX	RX	TX	RX
Ant. 1	2.4GHz	11b	V	V	V	V	V	V
		11g	V	V	V	V	V	V
		11n	V	V	V	V	V	V
Ant.3	2.4GHz	11b	V	V	V	V	V	V
		11g	V	V	V	V	V	V
		11n	V	V	V	V	V	V
Ant.6	5GHz	11a	V	V	V	V	V	V
		11n	V	V	V	V	V	V
Ant.16	5GHz	11a	V	V	V	V	V	V
		11n	V	V	V	V	V	V
Ant.32	2.4GHz	11b	V	V	V	V	V	V
		11g	V	V	V	V	V	V
		11n	V	V	V	V	V	V
	5GHz	11a	V	V	V	V	V	V
		11n	V	V	V	V	V	V

Note : Marked "-" on behalf of no function.

Module	Required 1TX Port
2.4G / 5G	Chain 1

Module	Required 2TX Port
2.4G / 5G	Chain 1 and Chain 2

Module	Required 3TX Port
2.4G / 5G	Chain 1 and Chain 2 and Chain 3



3.4. Table for Carrier Frequencies

For 2.4GHz Band:

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	-	-

For 5GHz Band:

There are two bandwidth systems.

For 20MHz bandwidth systems, use Channel 149, 153, 157, 161, 165.

For 40MHz bandwidth systems, use Channel 151, 159.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5725~5850 MHz Band 4	149	5745 MHz	159	5795 MHz
	151	5755 MHz	161	5805 MHz
	153	5765 MHz	165	5825 MHz
	157	5785 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.

For 2.4GHz Band

Test Items	Mode	Data Rate	Channel	Chain
Maximum Conducted Output Power	For Beamforming Mode			
	11n HT20	MCS0	1/6/11	1+2 1+2+3
	11n HT40	MCS0	3/6/9	1+2 1+2+3
	For Non-Beamforming Mode for Ant. 32 only			
	11n HT20	MCS0	1/6/11	1 1+2 1+2+3
	11n HT40	MCS0	3/6/9	1 1+2 1+2+3
	11b/CCK	1 Mbps	1/6/11	1 1+2 1+2+3
	11g/BPSK	6 Mbps	1/6/11	1 1+2 1+2+3
Power Spectral Density	For Beamforming Mode			
	11n HT20	MCS0	1/6/11	1+2 1+2+3
	11n HT40	MCS0	3/6/9	1+2 1+2+3
	For Non-Beamforming Mode for Ant. 32 only			
	11n HT20	MCS0	1/6/11	1 1+2 1+2+3
	11n HT40	MCS0	3/6/9	1 1+2 1+2+3
	11b/CCK	1 Mbps	1/6/11	1 1+2 1+2+3

6dB Spectrum Bandwidth	For Beamforming Mode			
	11n HT20	MCS0	1/6/11	1+2 1+2+3
	11n HT40	MCS0	3/6/9	1+2 1+2+3
	For Non-Beamforming Mode for Ant. 32 only			
	11n HT20	MCS0	1/6/11	1 1+2 1+2+3
	11n HT40	MCS0	3/6/9	1 1+2 1+2+3
	11b/CCK	1 Mbps	1/6/11	1 1+2 1+2+3
Radiated Emissions Above 1GHz	For Beamforming Mode			
	11n HT20	MCS0	1/6/11	1+2 1+2+3
	11n HT40	MCS0	3/6/9	1+2 1+2+3
	For Non-Beamforming Mode for Ant. 32 only			
	11n HT20	MCS0	1/6/11	1 1+2 1+2+3
	11n HT40	MCS0	3/6/9	1 1+2 1+2+3
	11b/CCK	1 Mbps	1/6/11	1 1+2 1+2+3
Band Edge Emissions	For Beamforming Mode			
	11n HT20	MCS0	1/6/11	1+2 1+2+3
	11n HT40	MCS0	3/6/9	1+2 1+2+3
	For Non-Beamforming Mode for Ant. 32 only			
	11n HT20	MCS0	1/6/11	1 1+2 1+2+3
	11n HT40	MCS0	3/6/9	1 1+2 1+2+3
	11b/CCK	1 Mbps	1/6/11	1 1+2 1+2+3
	11g/BPSK	6 Mbps	1/6/11	1 1+2 1+2+3

For 5GHz Band

Test Items	Mode	Data Rate	Channel	Chain
Maximum Conducted Output Power	For Beamforming Mode			
	11n HT20	MCS0	149/157/165	1+2 1+2+3
	11n HT40	MCS0	151/159	1+2 1+2+3
	For Non-Beamforming Mode for Ant. 32 only			
	11n HT20	MCS0	149/157/165	1 1+2 1+2+3
	11n HT40	MCS0	151/159	1 1+2 1+2+3
	11a/BPSK	6 Mbps	149/157/165	1 1+2 1+2+3
Power Spectral Density	For Beamforming Mode			
	11n HT20	MCS0	149/157/165	1+2 1+2+3
	11n HT40	MCS0	151/159	1+2 1+2+3
	For Non-Beamforming Mode for Ant. 32 only			
	11n HT20	MCS0	149/157/165	1 1+2 1+2+3
	11n HT40	MCS0	151/159	1 1+2 1+2+3
6dB Spectrum Bandwidth	For Beamforming Mode			
	11n HT20	MCS0	149/157/165	1+2 1+2+3
	11n HT40	MCS0	151/159	1+2 1+2+3
	For Non-Beamforming Mode for Ant. 32 only			
	11n HT20	MCS0	149/157/165	1 1+2 1+2+3
	11n HT40	MCS0	151/159	1 1+2 1+2+3

Radiated Emissions Above 1GHz	For Beamforming Mode			
	11n HT20	MCS0	149/157/165	1+2 1+2+3
	11n HT40	MCS0	151/159	1+2 1+2+3
	For Non-Beamforming Mode for Ant. 32 only			
	11n HT20	MCS0	149/157/165	1 1+2 1+2+3
	11n HT40	MCS0	151/159	1 1+2 1+2+3
Band Edge Emissions	For Beamforming Mode			
	11n HT20	MCS0	149/157/165	1+2 1+2+3
	11n HT40	MCS0	151/159	1+2 1+2+3
	For Non-Beamforming Mode for Ant. 32 only			
	11n HT20	MCS0	149/157/165	1 1+2 1+2+3
	11n HT40	MCS0	151/159	1 1+2 1+2+3
	11a/BPSK	6 Mbps	149/157/165	1 1+2 1+2+3

The following test modes were performed for Radiated emission above 1GHz tests:

Antenna/Radio Mode		11b 1TX	11b 2TX	11b 3TX	11a/g 1TX	11a/g 2TX	11a/g 3TX	H20/40 1TX (MCS0)	H20/40 2TX (MCS0)	H20/40 3TX (MCS0)
Mode 1	For Beamforming Mode Dipole-2.4G, Antenna 1	-	-	-	-	-	-	-	v	v
Mode 2	For Beamforming Mode Panel -2.4G, Antenna 3	-	-	-	-	-	-	-	v	v
Mode 3	For Beamforming Mode 3-Port Dual-Band Directional Panel-2.4G, Antenna 32	-	-	-	-	-	-	-	-	v
	For Non-Beamforming Mode 3-Port Dual-Band Directional Panel-2.4G, Antenna 32	v	v	v	v	v	v	v	v	v
Mode 4	For Beamforming Mode Dipole-5G, Antenna 6	-	-	-	-	-	-	-	v	v
Mode 5	For Beamforming Mode Patch-5G, Antenna 16	-	-	-	-	-	-	-	v	v
Mode 6	For Beamforming Mode 3-Port Dual-Band Directional Panel-5G, Antenna 32	-	-	-	-	-	-	-	-	v
	For Non-Beamforming Mode 3-Port Dual-Band Directional Panel-5G, Antenna 32	v	v	v	v	v	v	v	v	v

Note 1: For Ant. 32's Non-Beamforming Mode 11g/a 1/2/3 TX just evaluate output power and bandedge,The other test items are covered by 802.11n HT20 1Tx/2TX/3TX MCS0 due to same modulation and bandwidth.

Note 2: For Ant. 32's Maximum Conducted Output Power, Power Spectral Density and 6dB Spectrum Bandwidth tests, non-Beamforming 2TX covers beamforming 2TX due to the array gain is zero.

Note 3: There are two modes of EUT, one is beamforming mode, and the other is non-beamforming mode for 802 11n in 2.4GHz/5GHz. Beamforming mode and non-beamforming mode have been tested and recorded in this test report for Ant. 32 only.

Expected Array Gain Adjustment to Antenna Directivity for 2TX / 3TX Configurations and Supported Operational Modes

In the FCC regulatory domain,conducted testing of systems with multiple transmitters (2Tx transmitter configurations) was performed in accordance with KDB 662911 requires adjustment of antenna directivity by an array gain factor. The array gain factor is dependent on correlation of the multiple tx signals, and is therefore a function of operational mode.

The following table establishes the expected array gain for the 2Tx and 3TX transmitter configuration case for each supported operational mode.

Operational Mode > Tx Config ^	11b (DSSS-CCK)	11a/g (Legacy OFDM)	HT20 1 Stream (MCS0-7)	HT40 1 Stream (MCS0-7)	HT20 2 Stream (MCS8-15)	HT40 2 Stream (MCS8-15)	HT20 3 Stream (MCS16-23)	HT40 3 Stream (MCS16-23)
2TX	3.01dB	3.01dB	3.01dB	3.01dB	NA	NA	NA	NA
3TX	4.77dB	4.77dB	4.77dB	4.77dB	3.01dB	3.01dB	NA	NA

For MPE Test

The module (Model number: KHAP-800) is Limited Module Approval and only limited to install to the AP (MOTOROLA / AP-8132)、(MOTOROLA / AP-8122)、(MOTOROLA / AP-8163)、(MOTOROLA / AP-8232)、(MOTOROLA / AP-8222) and (MOTOROLA / AP-8263), it verified MPE test.

1. MOTOROLA / AP-8132

The AP (MOTOROLA / AP-8132) could be applied with Radio A (2.4G) RF module (FCC ID: UZ7KHAP800), Radio B (5G) RF module (FCC ID: UZ7KHAP800) and 2.4G/5G USB dongle (FCC ID: UZ7KHUSB600); therefore Maximum Permissible Exposure (Please refer to Appendix B) tests are added for simultaneously transmit between 2.4GHz, 5GHz WLAN function and 2.4G, 5G USB dongle.

2. MOTOROLA / AP-8122

The AP (MOTOROLA / AP-8122) could be applied with Radio A (2.4G) RF module (FCC ID: UZ7KHAP800), and Radio B (5G) RF module (FCC ID: UZ7KHAP800); therefore Maximum Permissible Exposure (Please refer to Appendix B) tests are added for simultaneously transmit between 2.4GHz and 5GHz WLAN function.

3. MOTOROLA / AP-8163

The AP (MOTOROLA / AP-8163) could be applied with Radio A (2.4G) RF module (FCC ID: UZ7KHAP800), Radio B (5G) RF module (FCC ID: UZ7KHAP800) and 2.4G/5G USB dongle (FCC ID: UZ7KHUSB601); therefore Maximum Permissible Exposure (Please refer to Appendix B) tests are added for simultaneously transmit between 2.4GHz, 5GHz WLAN function and 2.4G, 5G USB dongle.

4. MOTOROLA / AP-8232

The AP (MOTOROLA / AP-8232) could be applied with Radio A (2.4G) RF module (FCC ID: UZ7KHAP800), Radio B (5G) RF module (FCC ID: UZ7RAAP800) and 2.4G/5G USB dongle (FCC ID: UZ7KHUSB600); therefore Maximum Permissible Exposure (Please refer to Appendix B) tests are added for simultaneously transmit between 2.4GHz, 5GHz WLAN function and 2.4G, 5G USB dongle.

5. MOTOROLA / AP-8222

The AP (MOTOROLA / AP-8222) could be applied with Radio A (2.4G) RF module (FCC ID: UZ7KHAP800), and Radio B (5G) RF module (FCC ID: UZ7RAAP800); therefore Maximum Permissible Exposure (Please refer to Appendix B) tests are added for simultaneously transmit between 2.4GHz WLAN function and 5GHz WLAN function.

6. MOTOROLA / AP-8263

The AP (MOTOROLA / AP-8263) could be applied with Radio A (2.4G) RF module (FCC ID: UZ7KHAP800), Radio B (5G) RF module (FCC ID: UZ7RAAP800) and 2.4G/5G USB dongle (FCC ID: UZ7KHUSB601); therefore Maximum Permissible Exposure (Please refer to Appendix B) tests are added for simultaneously transmit between 2.4GHz, 5GHz WLAN function and 2.4G, 5G USB dongle.

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
TH01-CB	OVEN Room	Hsin Chu	-	-

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

3.7. Table for Class II Change

This product is an extension of original one reported under Sporton project number: 240223-04

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
1. Adding beamforming funiction for certified antenna (Model: ML-2499-FHPA9-01R, ML-2499-BPNA3-01R, ML-5299-FHPA10-01R and ML-2452-PNA5-01R) at 802.11n. 2. Adding an antenna (Model: ML-2452-PNL3M3-1).	1. Maximum Conducted Output Power Measurement 2. Power Spectral Density Measurement 3. 6dB Spectrum Bandwidth Measurement 4. Radiated Emissions Measurement 5. Emissions Measurement 6. Maximum Permissible Exposure

Note:

The model name shall be same as before. There is no change in hardware or in existing RF relevant portion.

3.8. Table for Supporting Units

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E6430	DoC
Test Fixture	WNC	Express card adapter	N/A

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.

For 2.4GHz Band

Mode 1 (Ant.1 Dipole antenna / 9dBi)

For Beamforming Mode

For 2TX

Power Parameters of IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

Test Software Version	ART2-GUI V2.3		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 HT20	9.5	13	7.5

Power Parameters of IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2

Test Software Version	ART2-GUI V2.3		
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 HT40	7.5	9.5	3.5

For 3TX

Power Parameters of IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI V2.3		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 HT20	2.5	5.5	4

Power Parameters of IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI V2.3		
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 HT40	1	5	0.5

Mode 2 (Ant.3 Panel antenna / 14dBi)

For Beamforming Mode

For 2TX

Power Parameters of IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

Test Software Version	ART2-GUI V2.3		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 HT20	9.5	11.5	9.5

Power Parameters of IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2

Test Software Version	ART2-GUI V2.3		
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 HT40	6.5	7.5	3.5

For 3TX

Power Parameters of IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI V2.3		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 HT20	2	5	3

Power Parameters of IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI V2.3		
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 HT40	1.5	4	0.5

Mode 3 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 8, Chain 2: 5.1, Chain 3: 8.2dBi)

For Beamforming Mode

For 3TX

Power Parameters of IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI V2.3		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 HT20	10.5	14.5	10

Power Parameters of IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI V2.3		
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 HT40	8	11	6

For Non-Beamforming Mode

For 1TX

Power Parameters of IEEE 802.11n MCS0 HT20 / Chain 1

Test Software Version	ART2-GUI V2.3		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 HT20	19.5	24.5	17.5

Power Parameters of IEEE 802.11n MCS0 HT40 / Chain 1

Test Software Version	ART2-GUI V2.3		
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 HT40	14.5	18.5	14.5

Power Parameters of IEEE 802.11b/g / Chain 1

Test Software Version	ART2-GUI V2.3		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	18	24.5	18.5
IEEE 802.11g	19.5	25	18

For 2TX

Power Parameters of IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

Test Software Version	ART2-GUI V2.3		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 HT20	15	21	15

Power Parameters of IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2

Test Software Version	ART2-GUI V2.3		
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 HT40	9.5	14	8.5

Power Parameters of IEEE 802.11b/g / Chain 1 + Chain 2

Test Software Version	ART2-GUI V2.3		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	16	22.5	15.5
IEEE 802.11g	16	21.5	13

For 3TX

Power Parameters of IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI V2.3		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 HT20	13	18.5	15

Power Parameters of IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI V2.3		
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 HT40	11	14.5	8

Power Parameters of IEEE 802.11b/g / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI V2.3		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	15	16	15
IEEE 802.11g	13	19.5	14

For 5GHz Band

Mode 4 (Ant.6 Dipole antenna / 8dBi)

For Beamforming Mode

For 2TX

Power Parameters of IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

Test Software Version	ART2-GUI V2.3		
Frequency	5745 MHz	5785 MHz	5825 MHz
MCS0 HT20	23	25	25

Power Parameters of IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2

Test Software Version	ART2-GUI V2.3	
Frequency	5755 MHz	5795 MHz
MCS0 HT40	19	25

For 3TX

Power Parameters of IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI V2.3		
Frequency	5745 MHz	5785 MHz	5825 MHz
MCS0 HT20	18.5	19	19

Power Parameters of IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI V2.3	
Frequency	5755 MHz	5795 MHz
MCS0 HT40	19	19

Mode 5 (Ant.16 Panel antenna / 3.5dBi)

For Beamforming Mode

For 2TX

Power Parameters of IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

Test Software Version	ART2-GUI V2.3		
Frequency	5745 MHz	5785 MHz	5825 MHz
MCS0 HT20	23	25	25

Power Parameters of IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2

Test Software Version	ART2-GUI V2.3	
Frequency	5755 MHz	5795 MHz
MCS0 HT40	16	25

For 3TX

Power Parameters of IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI V2.3		
Frequency	5745 MHz	5785 MHz	5825 MHz
MCS0 HT20	21.5	21.5	22

Power Parameters of IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI V2.3	
Frequency	5755 MHz	5795 MHz
MCS0 HT40	17	21

Mode 6 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 6.7, Chain 2: 4.3, Chain 3: 6.6dBi)

For Beamforming Mode

For 3TX

Power Parameters of IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI V2.3		
Frequency	5745 MHz	5785 MHz	5825 MHz
MCS0 HT20	21.5	21.5	22

Power Parameters of IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI V2.3	
Frequency	5755 MHz	5795 MHz
MCS0 HT40	21	21

For Non-Beamforming Mode

For 1TX

Power Parameters of IEEE 802.11n MCS0 HT20 / Chain 1

Test Software Version	ART2-GUI V2.3		
Frequency	5745 MHz	5785 MHz	5825 MHz
MCS0 HT20	21	25	25

Power Parameters of IEEE 802.11n MCS0 HT40 / Chain 1

Test Software Version	ART2-GUI V2.3	
Frequency	5755 MHz	5795 MHz
MCS0 HT40	17.5	25

Power Parameters of IEEE 802.11a / Chain 1

Test Software Version	ART2-GUI V2.3		
Frequency	5745 MHz	5785 MHz	5825 MHz
IEEE 802.11a	24	25	25

For 2TX

Power Parameters of IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

Test Software Version	ART2-GUI V2.3		
Frequency	5745 MHz	5785 MHz	5825 MHz
MCS0 HT20	19	25	25

Power Parameters of IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2

Test Software Version	ART2-GUI V2.3	
Frequency	5755 MHz	5795 MHz
MCS0 HT40	17	25

Power Parameters of IEEE 802.11a / Chain 1 + Chain 2

Test Software Version	ART2-GUI V2.3		
Frequency	5745 MHz	5785 MHz	5825 MHz
IEEE 802.11a	23	23	23

For 3TX

Power Parameters of IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI V2.3		
Frequency	5745 MHz	5785 MHz	5825 MHz
MCS0 HT20	21.5	21.5	22

Power Parameters of IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI V2.3	
Frequency	5755 MHz	5795 MHz
MCS0 HT40	17.5	21

Power Parameters of IEEE 802.11a / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI V2.3		
Frequency	5745 MHz	5785 MHz	5825 MHz
IEEE 802.11a	23.5	23.5	23.5

3.10. EUT Operation during Test

For non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

For Conducted Mode:

The EUT was programmed to be in continuously transmitting mode.

The measured result was added array gain 10*log(2)=3.01dBi as worse case in beamforming mode.

The measured result was added array gain 10*log(3)=4.77dBi as worse case in beamforming mode.

For Radiated Mode:

The EUT was programmed to be in continuously transmitting mode.

The measured result was added array gain 10*log(2)=3.01dBi as worse case in beamforming mode.

The measured result was added array gain 10*log(3)=4.77dBi as worse case in beamforming mode.

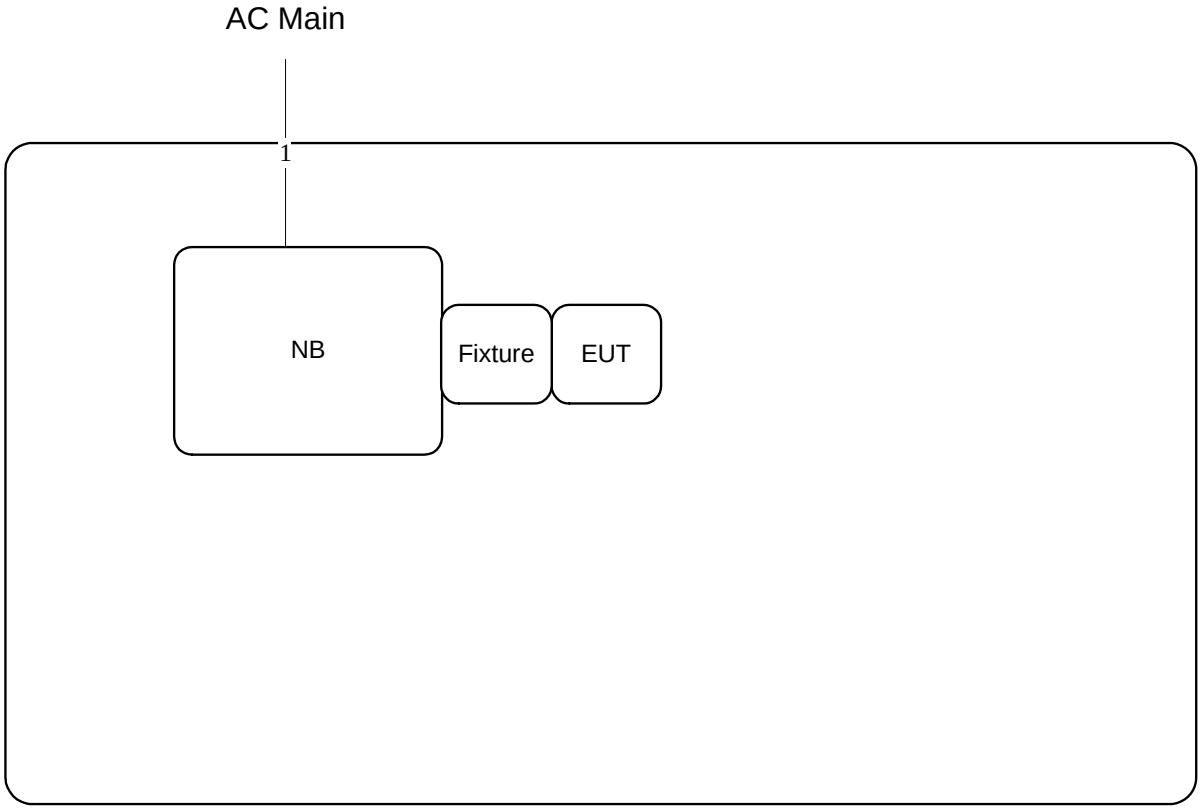
3.11. Duty Cycle

Band	Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
2.4G	802.11n MCS0 HT20	1.280	1.325	96.60	0.15	0.78
	802.11n MCS0 HT40	0.640	0.670	95.52	0.20	1.56
	802.11b	8.220	8.240	99.76	0.01	0.01
	802.11g	1.370	1.415	96.82	0.14	0.73
5G	802.11n MCS0 HT20	1.285	1.320	97.35	0.12	0.78
	802.11n MCS0 HT40	0.640	0.665	96.24	0.17	1.56
	802.11a	1.370	1.405	97.51	0.11	0.73

3.12. Test Configurations

3.12.1. Radiation Emissions Test Configuration

Test Configuration: above 1GHz



Item	Connection	Shielded	Length(m)
1	Power cable	No	2.6m

4. TEST RESULT

4.1. Maximum Conducted Output Power Measurement

4.1.1. 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. Systems operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter output power.

4.1.2. Measuring Instruments and Setting

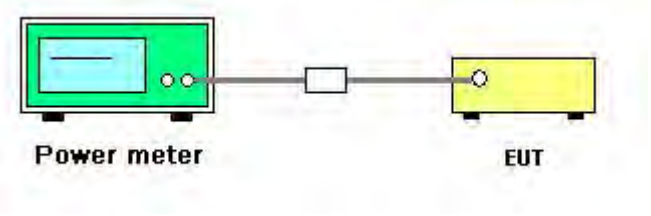
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

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

4.1.3. 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.

4.1.4. Test Setup Layout



4.1.5. Test Deviation

There is no deviation with the original standard.

4.1.6. EUT Operation during Test

For non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

The measured result was added array gain 10*log(2)=3.01dBi as worse case in beamforming mode.

The measured result was added array gain 10*log(3)=4.77dBi as worse case in beamforming mode.

4.1.7. Test Result of Maximum Conducted Output Power

Temperature	26°C	Humidity	63%
Test Engineer	Wen Chao / YC Chen	Configurations	IEEE 802.11b/g/n
Test Date	Oct. 09, 2014 ~ Oct. 23, 2014		

For 2.4GHz Band

Mode 1 (Ant.1 Dipole antenna / 9dBi)

For Beamforming Mode

For 2TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
1	2412 MHz	9.92	9.54	12.74	23.99	Complies
6	2437 MHz	13.32	13.48	16.41	23.99	Complies
11	2462 MHz	8.46	7.97	11.23	23.99	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =12.01dBi>6dBi, So Limit=30-(12.01-6)=23.99dBm

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
3	2422 MHz	8.89	7.89	11.43	23.99	Complies
6	2437 MHz	10.67	10.66	13.68	23.99	Complies
9	2452 MHz	3.99	4.52	7.27	23.99	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =12.01dBi>6dBi, So Limit=30-(12.01-6)=23.99dBm

For 3TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
1	2412 MHz	1.58	1.81	2.21	6.65	22.23	Complies
6	2437 MHz	5.71	5.18	4.95	10.06	22.23	Complies
11	2462 MHz	4.79	4.65	4.01	9.27	22.23	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =13.77dBi>6dBi, So Limit=30-(13.77-6)=22.23dBm

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
3	2422 MHz	2.09	1.03	0.81	6.12	22.23	Complies
6	2437 MHz	6.39	5.66	4.99	10.49	22.23	Complies
9	2452 MHz	1.02	1.07	0.01	5.50	22.23	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =13.77dBi>6dBi, So Limit=30-(13.77-6)=22.23dBm

Mode 2 (Ant.3 Panel antenna / 14dBi)

For Beamforming Mode

For 2TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
1	2412 MHz	9.92	9.54	12.74	18.99	Complies
6	2437 MHz	12.44	12.31	15.39	18.99	Complies
11	2462 MHz	10.85	10.72	13.80	18.99	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =17.01dBi>6dBi, So Limit=30-(17.01-6)=18.99dBm

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
3	2422 MHz	8.01	7.44	10.74	18.99	Complies
6	2437 MHz	8.73	9.35	12.06	18.99	Complies
9	2452 MHz	5.12	4.88	8.01	18.99	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =17.01dBi>6dBi, So Limit=30-(17.01-6)=18.99dBm

For 3TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
1	2412 MHz	3.27	2.69	2.31	7.55	17.23	Complies
6	2437 MHz	5.96	5.23	5.1	10.22	17.23	Complies
11	2462 MHz	3.92	4.39	3.51	8.73	17.23	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =18.77dBi>6dBi, So Limit=30-(18.77-6)=17.23dBm

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
3	2422 MHz	3.29	2.85	2.44	7.65	17.23	Complies
6	2437 MHz	5.68	5.42	4.43	9.98	17.23	Complies
9	2452 MHz	1.33	1.81	0.56	6.03	17.23	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =18.77dBi>6dBi, So Limit=30-(18.77-6)=17.23dBm

Mode 3 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 8, Chain 2: 5.1, Chain 3: 8.2dBi)

For Beamforming Mode

For 3TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
1	2412 MHz	11.52	10.85	10.85	15.86	26.93	Complies
6	2437 MHz	15.35	15.25	14.45	19.81	26.93	Complies
11	2462 MHz	11.25	11.06	10.82	15.82	26.93	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =9.07dBi>6dBi, So Limit=30-(9.07-6)=26.93dBm

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
3	2422 MHz	9.72	8.65	8.56	13.78	26.93	Complies
6	2437 MHz	12.45	12.42	11.75	16.99	26.93	Complies
9	2452 MHz	7.18	7.51	6.42	11.83	26.93	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =9.07dBi>6dBi, So Limit=30-(9.07-6)=26.93dBm

For Non-Beamforming Mode

For 1TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	20.27	28.00	Complies
6	2437 MHz	24.84	28.00	Complies
11	2462 MHz	18.88	28.00	Complies

Note: Max Gain =8dBi>6dBi, So Limit=30-(8-6)=28dBm

Configuration IEEE 802.11n MCS0 HT40 / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
3	2422 MHz	16.02	28.00	Complies
6	2437 MHz	19.93	28.00	Complies
9	2452 MHz	15.82	28.00	Complies

Note: Max Gain =8dBi>6dBi, So Limit=30-(8-6)=28dBm

Configuration IEEE 802.11b / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	18.65	28.00	Complies
6	2437 MHz	26.54	28.00	Complies
11	2462 MHz	19.43	28.00	Complies

Note: Max Gain =8dBi>6dBi, So Limit=30-(8-6)=28dBm

Configuration IEEE 802.11g / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
1	2412 MHz	20.43	28.00	Complies
6	2437 MHz	25.27	28.00	Complies
11	2462 MHz	19.41	28.00	Complies

Note: Max Gain =8dBi>6dBi, So Limit=30-(8-6)=28dBm

For 2TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
1	2412 MHz	16.08	15.84	18.97	28.00	Complies
6	2437 MHz	21.81	22.54	25.20	28.00	Complies
11	2462 MHz	16.51	16.99	19.77	28.00	Complies

Note: Max Gain =8dBi>6dBi, So Limit=30-(8-6)=28dBm

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
3	2422 MHz	11.81	11.34	14.59	28.00	Complies
6	2437 MHz	16.09	16.11	19.11	28.00	Complies
9	2452 MHz	10.29	10.71	13.52	28.00	Complies

Note: Max Gain =8dBi>6dBi, So Limit=30-(8-6)=28dBm

Configuration IEEE 802.11b

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
1	2412 MHz	17.23	17.01	20.13	28.00	Complies
6	2437 MHz	23.81	23.74	26.79	28.00	Complies
11	2462 MHz	16.50	17.41	19.99	28.00	Complies

Note: Max Gain =8dBi>6dBi, So Limit=30-(8-6)=28dBm

Configuration IEEE 802.11g

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
1	2412 MHz	17.08	16.85	19.98	28.00	Complies
6	2437 MHz	22.61	23.18	25.91	28.00	Complies
11	2462 MHz	14.76	15.14	17.96	28.00	Complies

Note: Max Gain =8dBi>6dBi, So Limit=30-(8-6)=28dBm

For 3TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
1	2412 MHz	14.36	14.42	13.43	18.86	27.80	Complies
6	2437 MHz	19.85	20.23	18.69	24.41	27.80	Complies
11	2462 MHz	16.31	16.77	15.20	20.91	27.80	Complies

Note: Max Gain =8.2dBi>6dBi, So Limit=30-(8.2-6)=27.8dBm

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
3	2422 MHz	13.08	12.89	11.63	17.35	27.80	Complies
6	2437 MHz	16.32	16.56	15.03	20.79	27.80	Complies
9	2452 MHz	9.96	9.91	7.93	14.13	27.80	Complies

Note: Max Gain =8.2dBi>6dBi, So Limit=30-(8.2-6)=27.8dBm

Configuration IEEE 802.11b

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
1	2412 MHz	16.17	15.92	15.04	20.51	27.80	Complies
6	2437 MHz	17.07	17.29	16.24	21.66	27.80	Complies
11	2462 MHz	15.97	16.28	15.41	20.67	27.80	Complies

Note: Max Gain =8.2dBi>6dBi, So Limit=30-(8.2-6)=27.8dBm

Configuration IEEE 802.11g

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
3	2422 MHz	14.51	14.21	13.51	18.87	27.80	Complies
6	2437 MHz	20.95	20.76	20.11	25.39	27.80	Complies
9	2452 MHz	15.56	15.88	14.85	20.22	27.80	Complies

Note: Max Gain =8.2dBi>6dBi, So Limit=30-(8.2-6)=27.8dBm

Temperature	26°C	Humidity	63%
Test Engineer	Wen Chao / YC Chen	Configurations	IEEE 802.11a/n
Test Date	Oct. 14, 2014 ~ Oct. 23, 2014		

For 5GHz Band

Mode 4 (Ant.6 Dipole antenna / 8dBi)

For Beamforming Mode

For 2TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
149	5745 MHz	20.26	20.44	23.36	24.99	Complies
157	5785 MHz	20.84	20.86	23.86	24.99	Complies
165	5825 MHz	20.38	20.70	23.55	24.99	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =11.01dBi>6dBi, So Limit=30-(11.01-6)=24.99dBm

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
151	5755 MHz	18.75	19.02	21.90	24.99	Complies
159	5795 MHz	20.68	20.92	23.81	24.99	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =11.01dBi>6dBi, So Limit=30-(11.01-6)=24.99dBm

For 3TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
149	5745 MHz	18.35	18.83	18.05	23.19	23.23	Complies
157	5785 MHz	18.38	19.15	17.65	23.21	23.23	Complies
165	5825 MHz	18.12	19.18	17.65	23.14	23.23	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =12.77dBi>6dBi, So Limit=30-(12.77-6)=23.23dBm

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
151	5755 MHz	18.45	18.85	17.92	23.19	23.23	Complies
159	5795 MHz	18.52	18.82	17.45	23.07	23.23	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =12.77dBi>6dBi, So Limit=30-(12.77-6)=23.23dBm

Mode 5 (Ant.16 Panel antenna / 3.5dBi)

For Beamforming Mode

For 2TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
149	5745 MHz	20.26	20.44	23.36	29.49	Complies
157	5785 MHz	20.84	20.86	23.86	29.49	Complies
165	5825 MHz	20.38	20.70	23.55	29.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{SS}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =6.51dBi>6dBi, So Limit=30-(6.51-6)=29.49dBm

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
151	5755 MHz	17.02	17.33	20.19	29.49	Complies
159	5795 MHz	20.68	20.92	23.81	29.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{SS}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =6.51dBi>6dBi, So Limit=30-(6.51-6)=29.49dBm

For 3TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
149	5745 MHz	19.31	19.29	19.12	24.01	27.73	Complies
157	5785 MHz	19.32	19.27	18.84	23.92	27.73	Complies
165	5825 MHz	18.67	19.21	18.98	23.73	27.73	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.27dBi>6dBi, So Limit=30-(8.27-6)=27.73dBm

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
151	5755 MHz	17.77	17.84	17.01	22.33	27.73	Complies
159	5795 MHz	19.19	19.54	18.41	23.84	27.73	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =8.27dBi>6dBi, So Limit=30-(8.27-6)=27.73dBm

Mode 6 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 6.7, Chain 2: 4.3, Chain 3: 6.6dBi)

For Beamforming Mode

For 3TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
149	5745 MHz	19.31	19.29	19.12	24.01	28.24	Complies
157	5785 MHz	19.32	19.27	18.84	23.92	28.24	Complies
165	5825 MHz	18.67	19.21	18.98	23.73	28.24	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{SS}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.76dBi>6dBi, So Limit=30-(7.76-6)=28.24dBm

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
151	5755 MHz	19.45	19.23	19.03	24.01	28.24	Complies
159	5795 MHz	19.19	19.54	18.41	23.84	28.24	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{SS}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =7.76dBi>6dBi, So Limit=30-(7.76-6)=28.24dBm

For Non-Beamforming Mode

For 1TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	20.62	29.30	Complies
157	5785 MHz	22.16	29.30	Complies
165	5825 MHz	21.71	29.30	Complies

Note: Max Gain =6.7dBi>6dBi, So Limit=30-(6.7-6)=29.3dBm

Configuration IEEE 802.11n MCS0 HT40 / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
151	5755 MHz	18.43	29.30	Complies
159	5795 MHz	21.98	29.30	Complies

Note: Max Gain =6.7dBi>6dBi, So Limit=30-(6.7-6)=29.3dBm

Configuration IEEE 802.11a / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
149	5745 MHz	22.11	29.30	Complies
157	5785 MHz	22.23	29.30	Complies
165	5825 MHz	21.72	29.30	Complies

Note: Max Gain =6.7dBi>6dBi, So Limit=30-(6.7-6)=29.3dBm

For 2TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
149	5745 MHz	19.42	19.58	22.51	29.30	Complies
157	5785 MHz	20.84	20.86	23.86	29.30	Complies
165	5825 MHz	20.38	20.70	23.55	29.30	Complies

Note: Max Gain =6.7dBi>6dBi, So Limit=30-(6.7-6)=29.3dBm

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
151	5755 MHz	18.01	18.72	21.39	29.30	Complies
159	5795 MHz	20.68	20.92	23.81	29.30	Complies

Note: Max Gain =6.7dBi>6dBi, So Limit=30-(6.7-6)=29.3dBm

Configuration IEEE 802.11a

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
149	5745 MHz	20.91	20.73	23.83	29.30	Complies
157	5785 MHz	20.91	20.84	23.89	29.30	Complies
165	5825 MHz	20.87	20.78	23.84	29.30	Complies

Note: Max Gain =6.7dBi>6dBi, So Limit=30-(6.7-6)=29.3dBm

For 3TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
149	5745 MHz	19.31	19.29	19.12	24.01	29.30	Complies
157	5785 MHz	19.32	19.27	18.84	23.92	29.30	Complies
165	5825 MHz	18.67	19.21	18.98	23.73	29.30	Complies

Note: Max Gain =6.7dBi>6dBi, So Limit=30-(6.7-6)=29.3dBm

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
151	5755 MHz	17.39	16.62	16.44	21.61	29.30	Complies
159	5795 MHz	19.19	19.54	18.41	23.84	29.30	Complies

Note: Max Gain =6.7dBi>6dBi, So Limit=30-(6.7-6)=29.3dBm

Configuration IEEE 802.11a

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
149	5745 MHz	19.32	19.21	19.17	24.01	29.30	Complies
157	5785 MHz	19.61	19.01	18.78	23.92	29.30	Complies
165	5825 MHz	19.11	19.34	19.31	24.03	29.30	Complies

Note: Max Gain =6.7dBi>6dBi, So Limit=30-(6.7-6)=29.3dBm

4.2. Power Spectral Density Measurement

4.2.1. Limit

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

4.2.2. Measuring Instruments and Setting

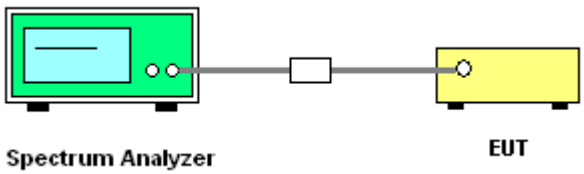
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Set the span to 1.5 times the DTS channel bandwidth.
RBW	3 kHz ≤ RBW ≤ 100kHz
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto couple

4.2.3. 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 ≥ 2 x span/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 ≤ 8 dBm.

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

For non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

The measured result was added array gain 10*log(2)=3.01dBi as worse case in beamforming mode.

The measured result was added array gain 10*log(3)=4.77dBi as worse case in beamforming mode.

4.2.7. Test Result of Power Spectral Density

Temperature	26°C	Humidity	63%
Test Engineer	Wen Chao / YC Chen	Configurations	IEEE 802.11b/n

For 2.4GHz Band

Mode 1 (Ant.1 Dipole antenna / 9dBi)

For Beamforming Mode

For 2TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
1	2412 MHz	-14.71	-14.32	-11.50	1.99	Complies
6	2437 MHz	-9.94	-12.27	-7.94	1.99	Complies
11	2462 MHz	-18.11	-16.98	-14.50	1.99	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =12.01dBi>6dBi, So Limit=8-(12.01-6)=1.99dBm/3kHz

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
3	2422 MHz	-19.36	-17.27	-15.18	1.99	Complies
6	2437 MHz	-17.05	-15.60	-13.25	1.99	Complies
9	2452 MHz	-24.34	-22.88	-20.54	1.99	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =12.01dBi>6dBi, So Limit=8-(12.01-6)=1.99dBm/3kHz

For 3TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
1	2412 MHz	-22.19	-22.43	-23.22	-17.82	0.23	Complies
6	2437 MHz	-19.45	-19.61	-21.05	-15.21	0.23	Complies
11	2462 MHz	-19.75	-21.17	-21.80	-16.05	0.23	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =13.77dBi>6dBi, So Limit=8-(13.77-6)=0.23dBm/3kHz

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
3	2422 MHz	-25.56	-25.05	-26.80	-20.97	0.23	Complies
6	2437 MHz	-20.74	-20.81	-21.92	-16.35	0.23	Complies
9	2452 MHz	-26.55	-27.48	-27.83	-22.48	0.23	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =13.77dBi>6dBi, So Limit=8-(13.77-6)=0.23dBm/3kHz

Mode 2 (Ant.3 Panel antenna / 14dBi)

For Beamforming Mode

For 2TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
1	2412 MHz	-14.43	-14.71	-11.56	-3.01	Complies
6	2437 MHz	-12.90	-13.80	-10.32	-3.01	Complies
11	2462 MHz	-14.03	-15.10	-11.52	-3.01	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =17.01dBi>6dBi, So Limit=8-(17.01-6)=-3.01dBm/3kHz

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
3	2422 MHz	-19.88	-20.81	-17.31	-3.01	Complies
6	2437 MHz	-18.65	-19.70	-16.13	-3.01	Complies
9	2452 MHz	-23.07	-22.80	-19.92	-3.01	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =17.01dBi>6dBi, So Limit=8-(17.01-6)=-3.01dBm/3kHz

For 3TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
1	2412 MHz	-22.36	-23.63	-23.35	-18.31	-4.77	Complies
6	2437 MHz	-19.71	-20.91	-20.73	-15.65	-4.77	Complies
11	2462 MHz	-21.05	-21.94	-23.03	-17.16	-4.77	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =18.77dBi>6dBi, So Limit=8-(18.77-6)=-4.77dBm/3kHz

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
3	2422 MHz	-25.13	-26.03	-26.39	-21.05	-4.77	Complies
6	2437 MHz	-22.15	-22.34	-23.66	-17.90	-4.77	Complies
9	2452 MHz	-26.65	-27.46	-27.82	-22.51	-4.77	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =18.77dBi>6dBi, So Limit=8-(18.77-6)=-4.77dBm/3kHz

Mode 3 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 8, Chain 2: 5.1, Chain 3: 8.2dBi)

For Beamforming Mode

For 3TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
1	2412 MHz	-13.55	-13.12	-14.00	-8.77	4.93	Complies
6	2437 MHz	-8.43	-9.55	-9.95	-4.49	4.93	Complies
11	2462 MHz	-13.80	-14.84	-15.30	-9.83	4.93	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =9.07dBi>6dBi, So Limit=8-(9.07-6)=-4.93dBm/3kHz

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
3	2422 MHz	-17.89	-18.55	-19.50	-13.83	4.93	Complies
6	2437 MHz	-14.78	-15.43	-16.95	-10.86	4.93	Complies
9	2452 MHz	-20.64	-20.25	-20.90	-15.82	4.93	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =9.07dBi>6dBi, So Limit=8-(9.07-6)=-4.93dBm/3kHz

For Non-Beamforming Mode

For 1TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
1	2412 MHz	-3.19	6.00	Complies
6	2437 MHz	1.16	6.00	Complies
11	2462 MHz	-5.31	6.00	Complies

Note: Max Gain =8dBi>6dBi, So Limit=8-(8-6)=6dBm/3kHz

Configuration IEEE 802.11n MCS0 HT40 / Chain 1

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
3	2422 MHz	-9.04	6.00	Complies
6	2437 MHz	-5.93	6.00	Complies
9	2452 MHz	-9.97	6.00	Complies

Note: Max Gain =8dBi>6dBi, So Limit=8-(8-6)=6dBm/3kHz

Configuration IEEE 802.11b / Chain 1

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
1	2412 MHz	-3.88	6.00	Complies
6	2437 MHz	2.65	6.00	Complies
11	2462 MHz	-2.52	6.00	Complies

Note: Max Gain =8dBi>6dBi, So Limit=8-(8-6)=6dBm/3kHz

For 2TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
1	2412 MHz	-8.58	-8.71	-5.63	6.00	Complies
6	2437 MHz	-4.25	-2.18	-0.08	6.00	Complies
11	2462 MHz	-9.35	-9.53	-6.43	6.00	Complies

Note: Max Gain =8dBi>6dBi, So Limit=8-(8-6)=6dBm/3kHz

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
3	2422 MHz	-15.62	-14.98	-12.28	6.00	Complies
6	2437 MHz	-11.37	-12.80	-9.02	6.00	Complies
9	2452 MHz	-16.12	-18.65	-14.19	6.00	Complies

Note: Max Gain =8dBi>6dBi, So Limit=8-(8-6)=6dBm/3kHz

Configuration IEEE 802.11b

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
1	2412 MHz	-6.24	-7.38	-3.76	6.00	Complies
6	2437 MHz	-0.46	-0.96	2.31	6.00	Complies
11	2462 MHz	-7.04	-7.70	-4.35	6.00	Complies

Note: Max Gain =8dBi>6dBi, So Limit=8-(8-6)=6dBm/3kHz

For 3TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
1	2412 MHz	-9.70	-11.74	-12.57	-6.39	4.93	Complies
6	2437 MHz	-5.50	-6.28	-6.04	-1.16	4.93	Complies
11	2462 MHz	-9.65	-9.08	-10.01	-4.79	4.93	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =9.07dBi>6dBi, So Limit=8-(9.07-6)=-4.93dBm/3kHz

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
3	2422 MHz	-14.75	-15.20	-16.64	-10.69	4.93	Complies
6	2437 MHz	-11.08	-12.15	-12.81	-7.18	4.93	Complies
9	2452 MHz	-19.65	-18.32	-20.12	-14.52	4.93	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =9.07dBi>6dBi, So Limit=8-(9.07-6)=-4.93dBm/3kHz

Configuration IEEE 802.11b

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
1	2412 MHz	-8.37	-8.65	-8.80	-3.83	4.93	Complies
6	2437 MHz	-6.78	-7.20	-8.07	-2.55	4.93	Complies
11	2462 MHz	-8.18	-7.87	-8.06	-3.26	4.93	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =9.07dBi>6dBi, So Limit=8-(9.07-6)=-4.93dBm/3kHz

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

For 5GHz Band

Mode 4 (Ant.6 Dipole antenna / 8dBi)

For Beamforming Mode

For 2TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
149	5745 MHz	-3.53	-4.17	-0.83	2.99	Complies
157	5785 MHz	-4.57	-3.83	-1.17	2.99	Complies
165	5825 MHz	-4.14	-6.71	-2.23	2.99	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =11.01dBi>6dBi, So Limit=8-(11.01-6)=2.99dBm/3kHz

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
151	5755 MHz	-9.24	-13.86	-7.95	2.99	Complies
159	5795 MHz	-6.23	-8.02	-4.02	2.99	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =11.01dBi>6dBi, So Limit=8-(11.01-6)=2.99dBm/3kHz

For 3TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
149	5745 MHz	-6.76	-6.19	-7.06	-1.88	1.23	Complies
157	5785 MHz	-5.76	-7.06	-5.82	-1.40	1.23	Complies
165	5825 MHz	-5.02	-7.18	-5.90	-1.17	1.23	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =12.77dBi>6dBi, So Limit=8-(12.77-6)=1.23dBm/3kHz

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
151	5755 MHz	-7.92	-7.80	-8.13	-3.18	1.23	Complies
159	5795 MHz	-7.93	-9.60	-8.42	-3.82	1.23	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =12.77dBi>6dBi, So Limit=8-(12.77-6)=1.23dBm/3kHz

Mode 5 (Ant.16 Panel antenna / 3.5dBi)

For Beamforming Mode

For 2TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
149	5745 MHz	-4.03	-4.12	-1.06	7.49	Complies
157	5785 MHz	-4.32	-2.46	-0.28	7.49	Complies
165	5825 MHz	-4.58	-4.19	-1.37	7.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =6.51dBi>6dBi, So Limit=8-(6.51-6)=7.49dBm/3kHz

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
151	5755 MHz	-11.13	-10.86	-7.98	7.49	Complies
159	5795 MHz	-7.11	-6.48	-3.77	7.49	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =6.51dBi>6dBi, So Limit=8-(6.51-6)=7.49dBm/3kHz

For 3TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
149	5745 MHz	-5.02	-3.89	-6.26	-0.18	5.73	Complies
157	5785 MHz	-4.57	-4.67	-4.68	0.13	5.73	Complies
165	5825 MHz	-4.56	-5.11	-5.18	-0.17	5.73	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =8.27dBi>6dBi, So Limit=8-(8.27-6)=5.73dBm/3kHz

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
151	5755 MHz	-10.63	-9.23	-11.20	-5.50	5.73	Complies
159	5795 MHz	-7.20	-6.44	-8.22	-2.46	5.73	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =8.27dBi>6dBi, So Limit=8-(8.27-6)=5.73dBm/3kHz

Mode 6 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 6.7, Chain 2: 4.3, Chain 3: 6.6dBi)

For Beamforming Mode

For 3TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
149	5745 MHz	-4.30	-6.05	-4.76	-0.20	6.24	Complies
157	5785 MHz	-4.44	-5.72	-5.06	-0.27	6.24	Complies
165	5825 MHz	-4.77	-6.76	-5.42	-0.80	6.24	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =7.76dBi>6dBi, So Limit=8-(7.76-6)=6.24dBm/3kHz

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
151	5755 MHz	-7.53	-6.74	-5.55	-1.76	6.24	Complies
159	5795 MHz	-5.27	-7.82	-7.26	-1.87	6.24	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =7.76dBi>6dBi, So Limit=8-(7.76-6)=6.24dBm/3kHz

For Non-Beamforming Mode

For 1TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
149	5745 MHz	-3.84	7.30	Complies
157	5785 MHz	-2.33	7.30	Complies
165	5825 MHz	-1.58	7.30	Complies

Note: Max Gain =6.7dBi>6dBi, So Limit=8-(6.7-6)=7.3dBm/3kHz

Configuration IEEE 802.11n MCS0 HT40 / Chain 1

Channel	Frequency	Power Density (dBm/3kHz)	Power Density Limit (dBm/3kHz)	Result
151	5755 MHz	-7.47	7.30	Complies
159	5795 MHz	-7.62	7.30	Complies

Note: Max Gain =6.7dBi>6dBi, So Limit=8-(6.7-6)=7.3dBm/3kHz

For 2TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
149	5745 MHz	-6.49	-6.00	-3.23	7.30	Complies
157	5785 MHz	-2.60	-3.74	-0.12	7.30	Complies
165	5825 MHz	-4.61	-5.19	-1.88	7.30	Complies

Note: Max Gain =6.7dBi>6dBi, So Limit=8-(6.7-6)=7.3dBm/3kHz

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Power Density (dBm/3kHz)			Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Total		
151	5755 MHz	-10.83	-10.24	-7.51	7.30	Complies
159	5795 MHz	-7.87	-5.43	-3.47	7.30	Complies

Note: Max Gain =6.7dBi>6dBi, So Limit=8-(6.7-6)=7.3dBm/3kHz

For 3TX

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
149	5745 MHz	-5.59	-5.07	-5.10	-0.48	6.24	Complies
157	5785 MHz	-3.66	-4.43	-4.77	0.51	6.24	Complies
165	5825 MHz	-4.86	-3.83	-4.82	0.29	6.24	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =7.76dBi>6dBi, So Limit=8-(7.76-6)=6.24dBm/3kHz

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Power Density (dBm/3kHz)				Power Density Limit (dBm/3kHz)	Result
		Chain 1	Chain 2	Chain 3	Total		
151	5755 MHz	-9.66	-10.22	-10.53	-5.35	6.24	Complies
159	5795 MHz	-7.19	-4.93	-7.24	-1.54	6.24	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{jk}\right\}^2}{N_{ANT}}\right]$ =7.76dBi>6dBi, So Limit=8-(7.76-6)=6.24dBm/3kHz

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

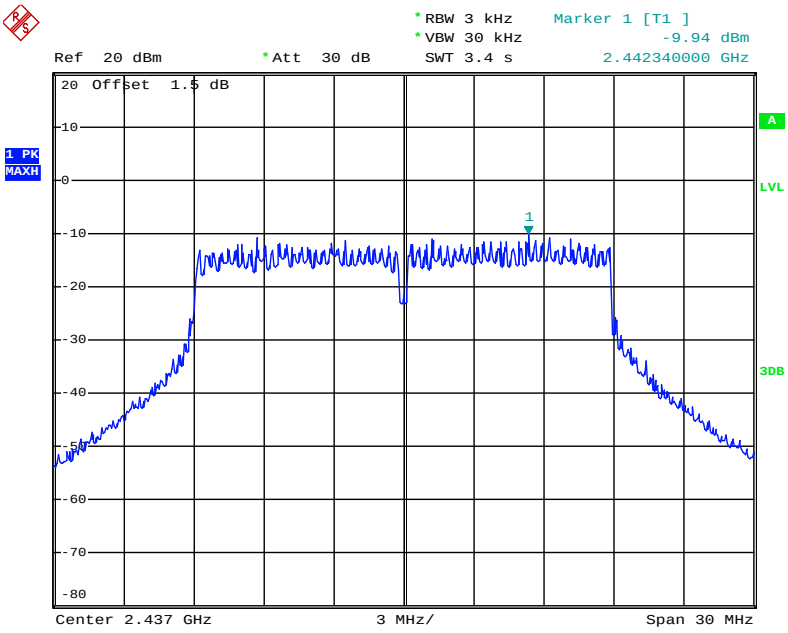
For plots, only the channel with worse result was shown.

Mode 1 (Ant.1 Dipole antenna / 9dBi)

For Beamforming Mode

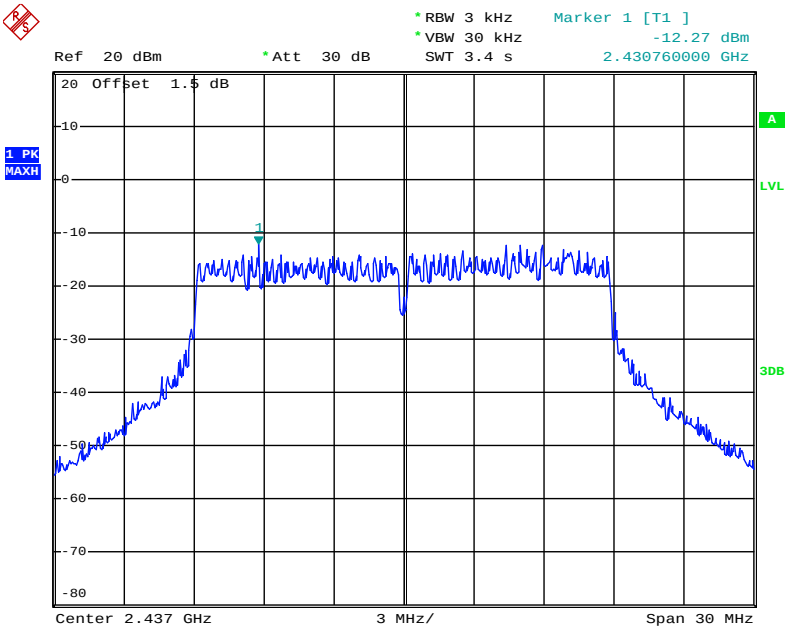
For 2TX

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



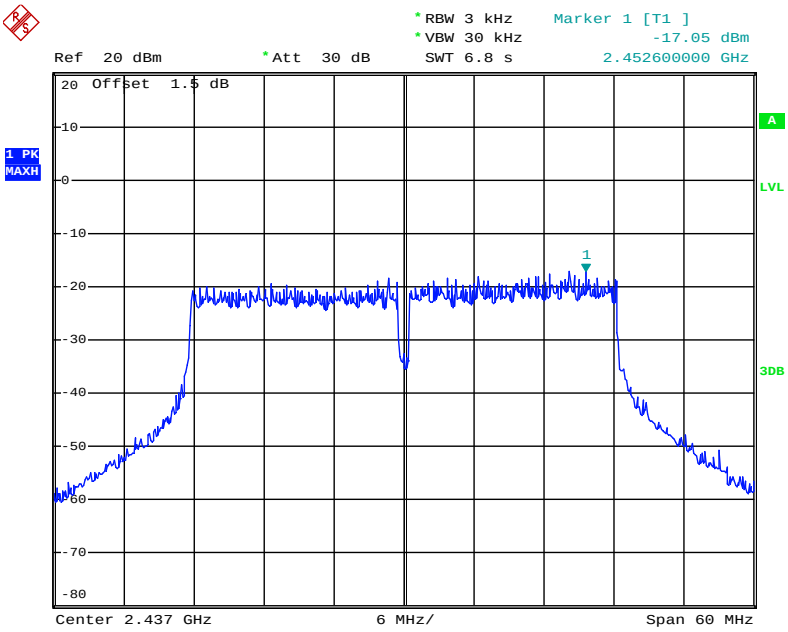
Date: 15.OCT.2014 00:15:49

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



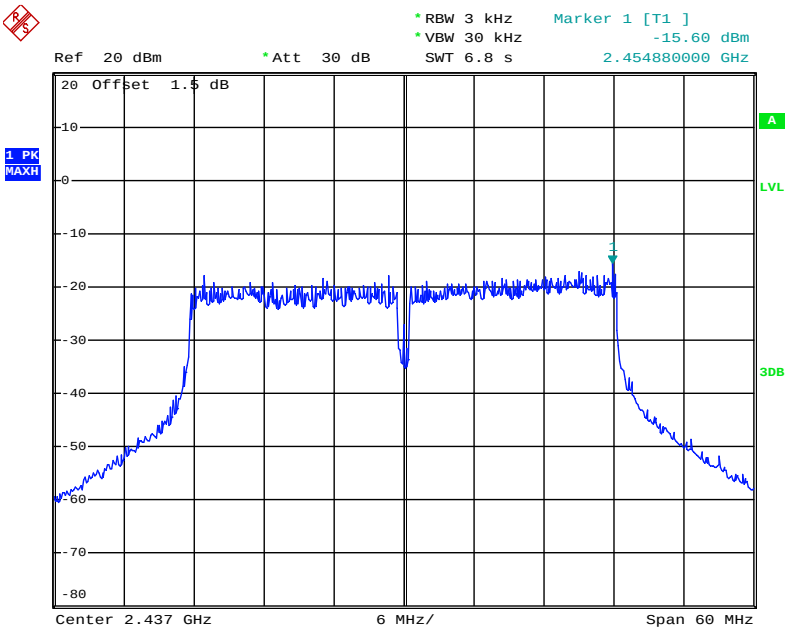
Date: 15.OCT.2014 00:13:14

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



Date: 15.OCT.2014 00:19:57

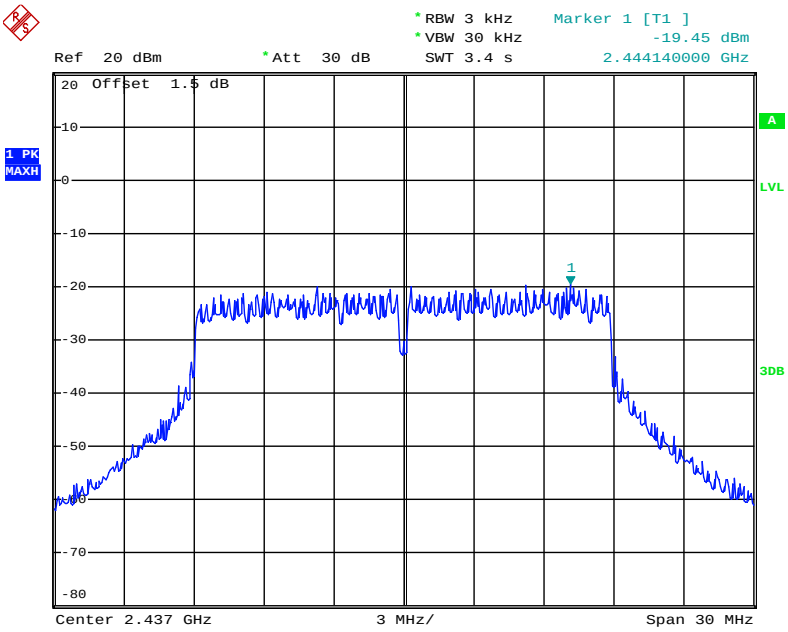
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Chain 2



Date: 15.OCT.2014 00:21:18

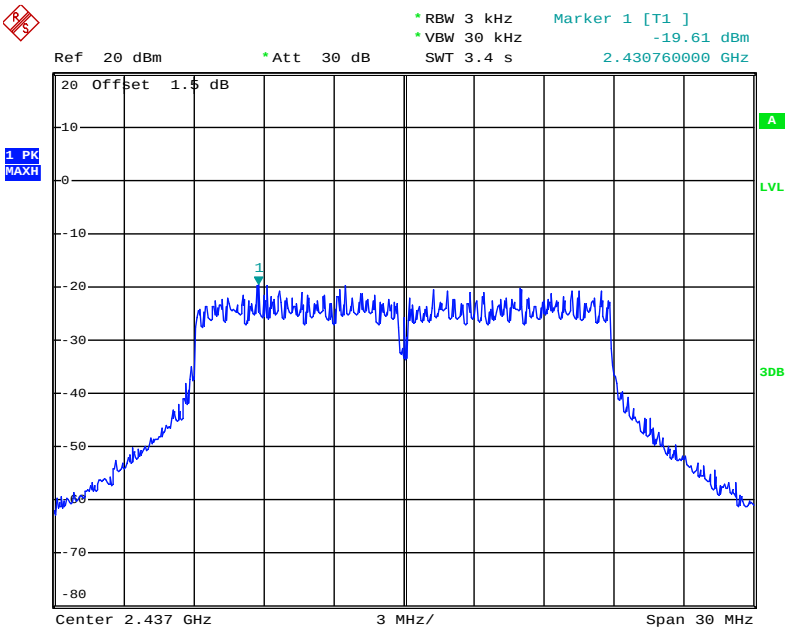
For 3TX

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



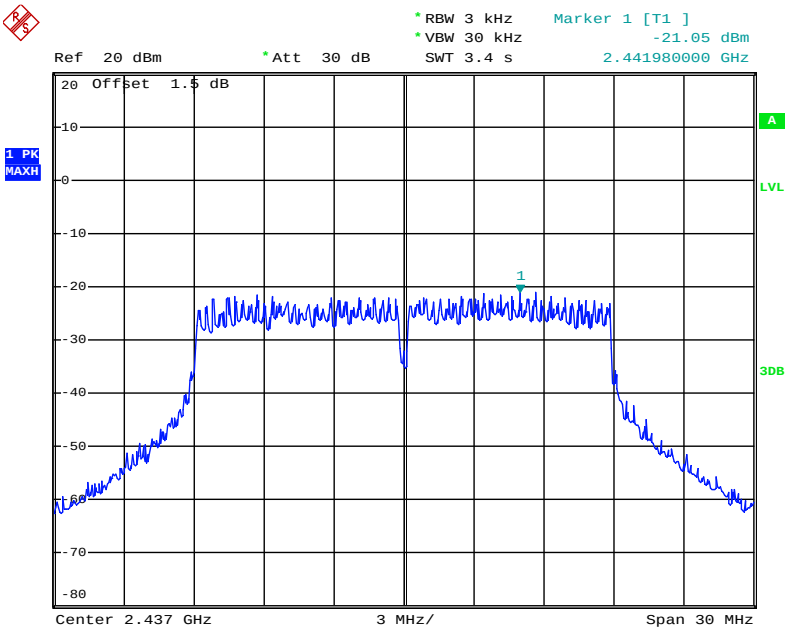
Date: 14.OCT.2014 23:59:44

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



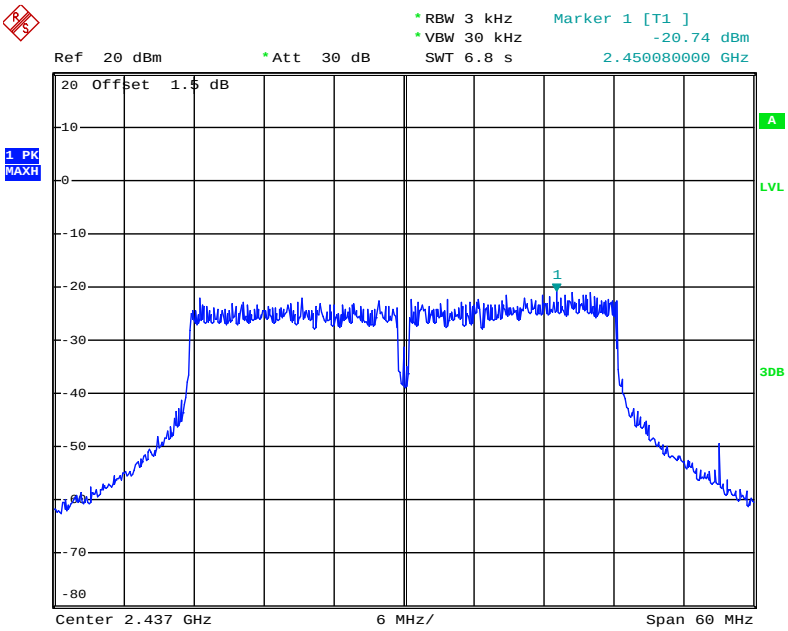
Date: 14.OCT.2014 23:59:02

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Chain 3



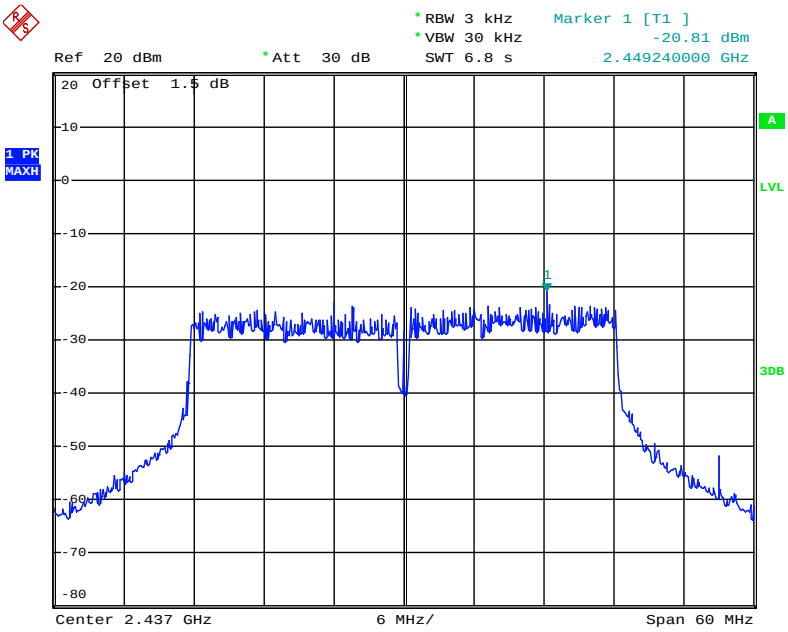
Date: 14.OCT.2014 23:58:13

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



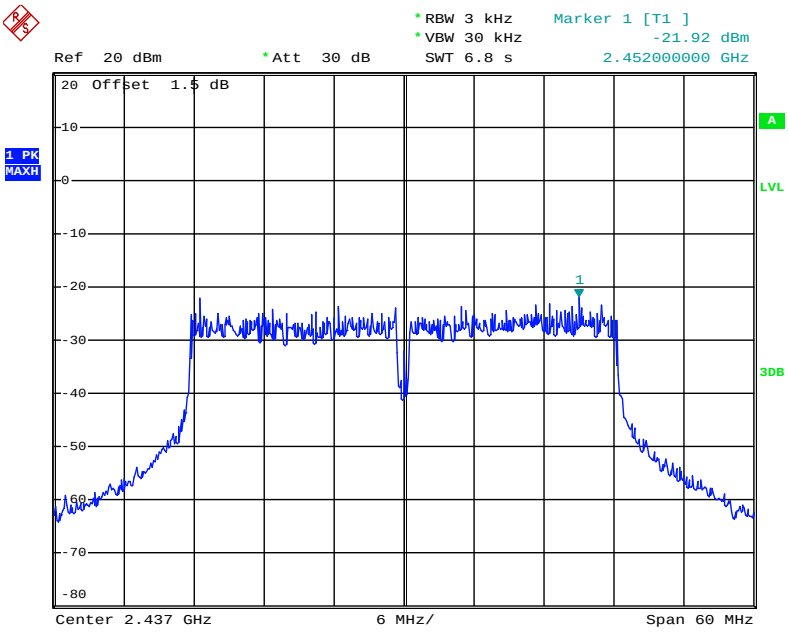
Date: 15.OCT.2014 00:05:48

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



Date: 15.OCT.2014 00:06:26

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Chain 3



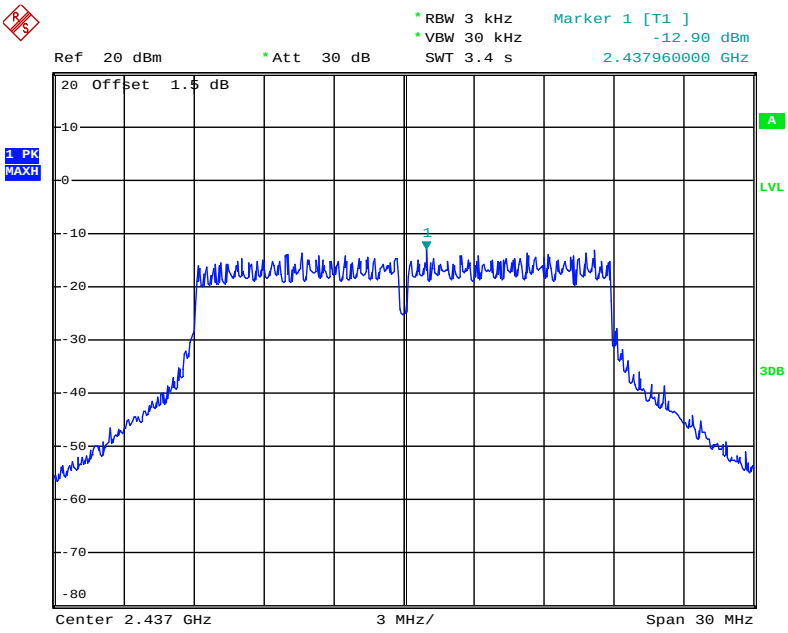
Date: 15.OCT.2014 00:07:05

Mode 2 (Ant.3 Panel antenna / 14dBi)

For Beamforming Mode

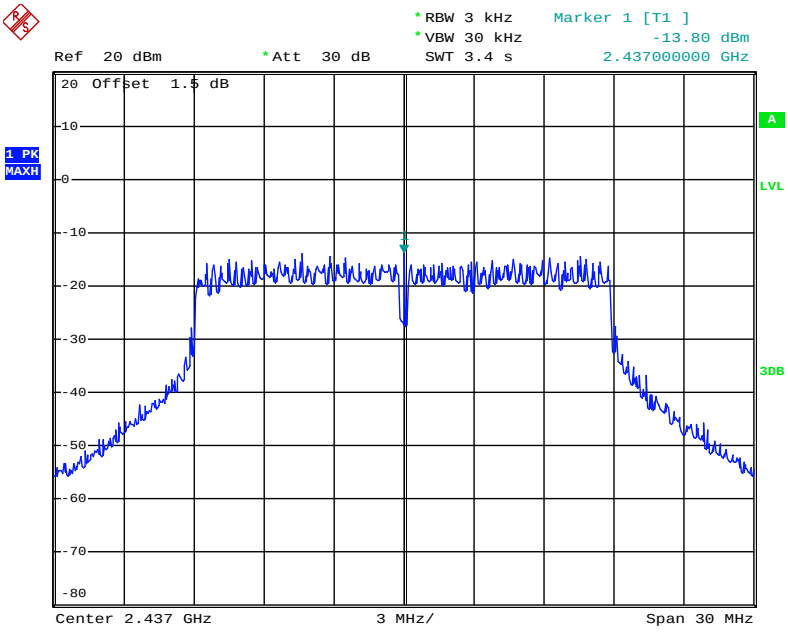
For 2TX

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



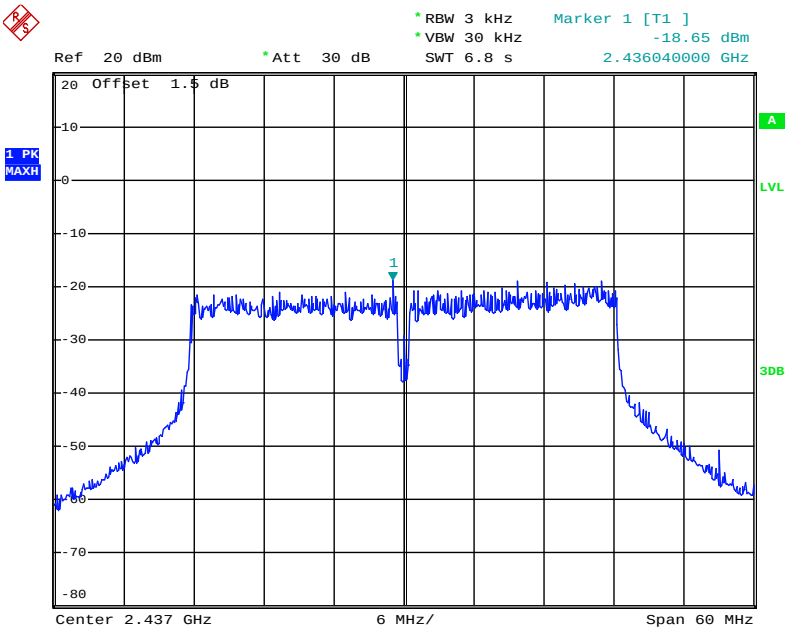
Date: 15.OCT.2014 01:41:34

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



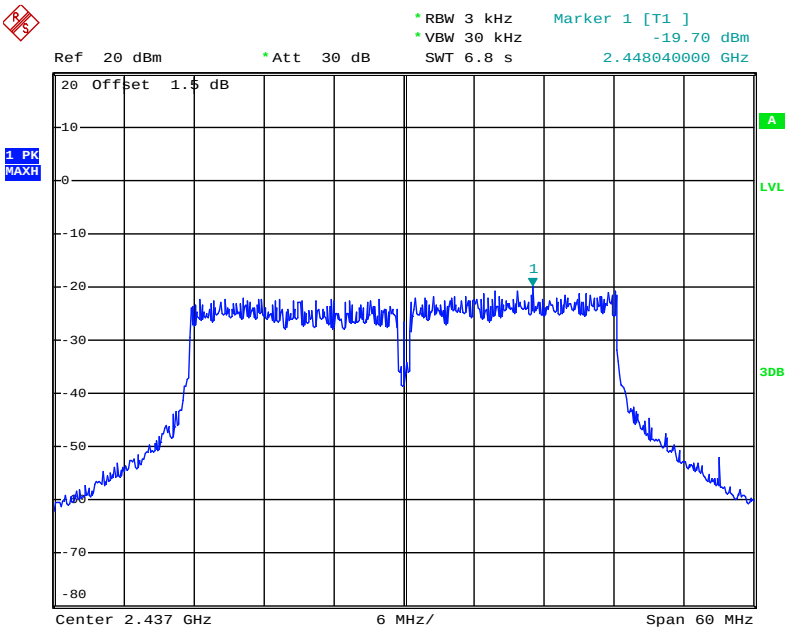
Date: 15.OCT.2014 01:40:44

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



Date: 15.OCT.2014 01:46:27

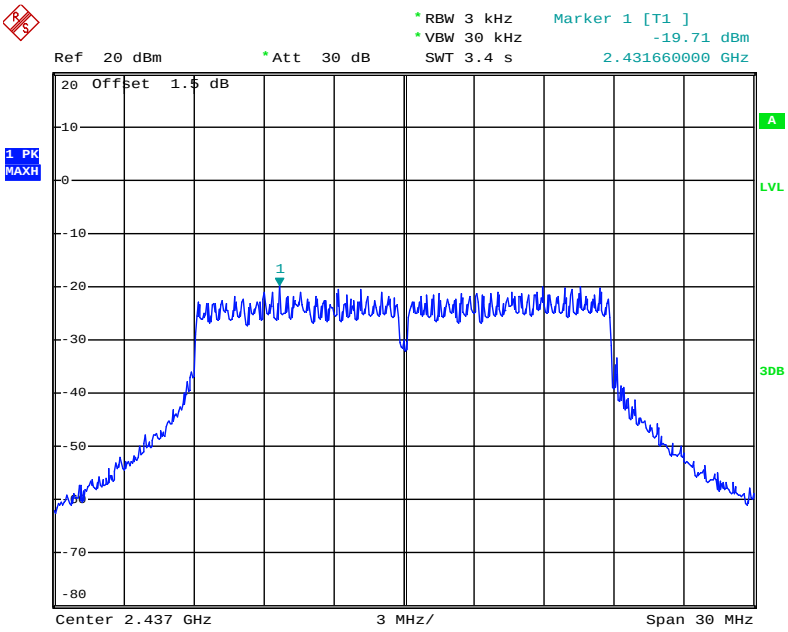
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Chain 2



Date: 15.OCT.2014 01:47:12

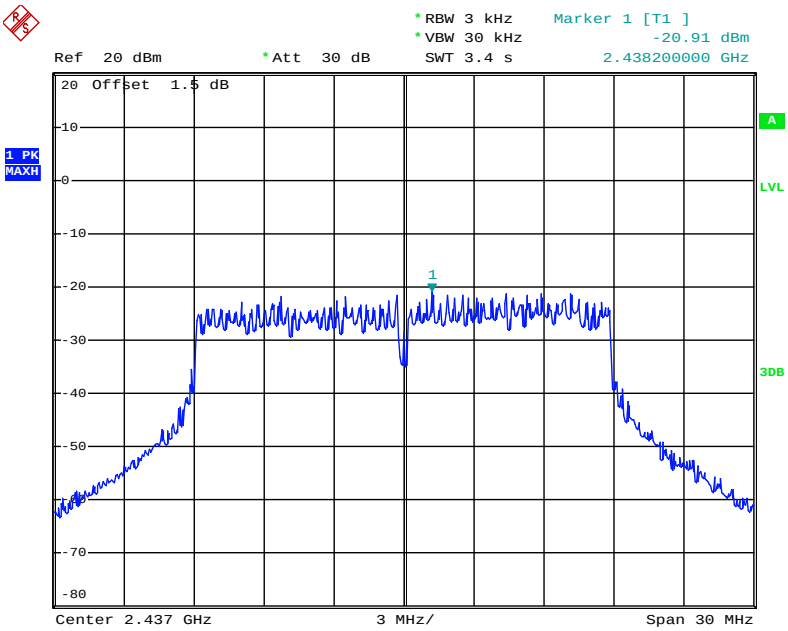
For 3TX

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



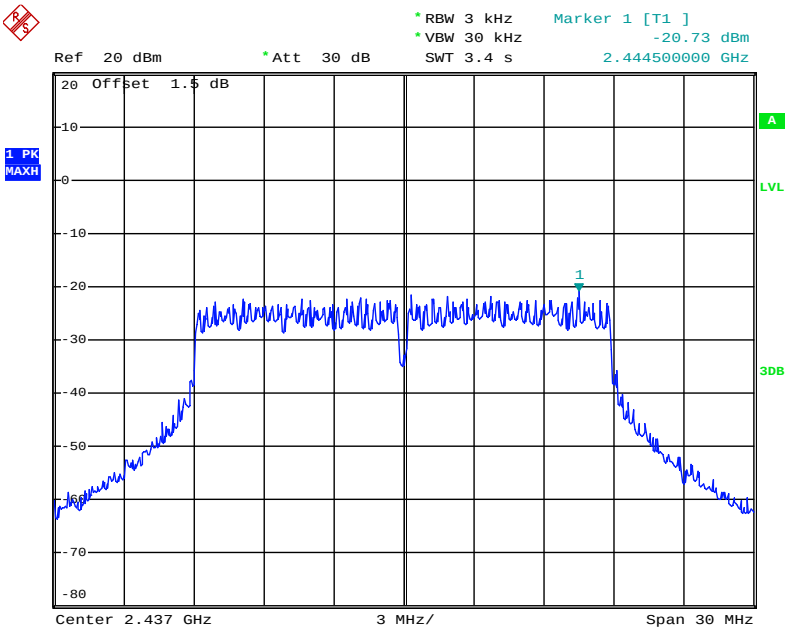
Date: 15.OCT.2014 01:27:43

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



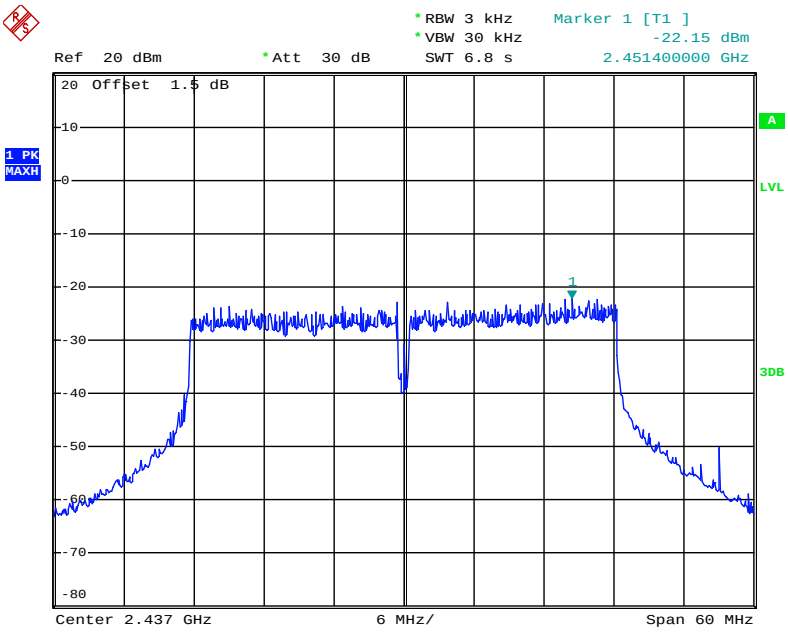
Date: 15.OCT.2014 01:27:05

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Chain 3



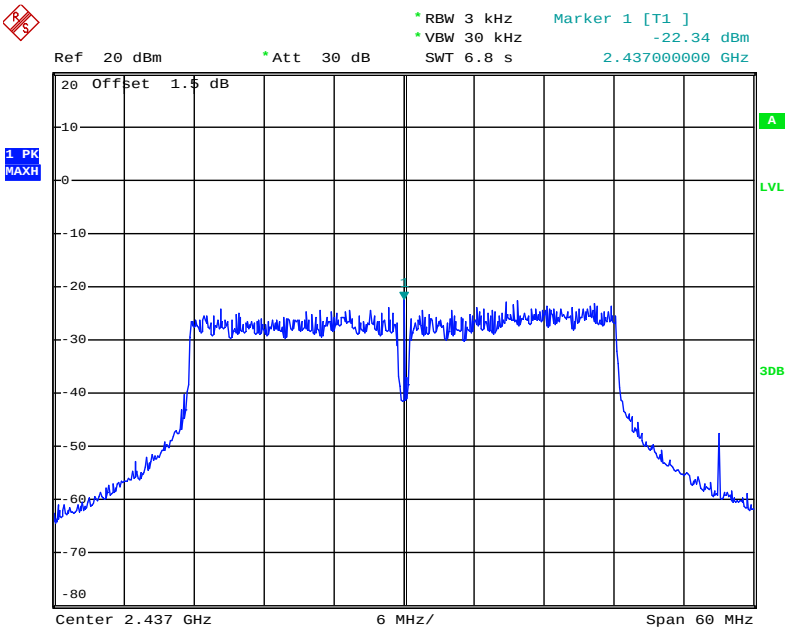
Date: 15.OCT.2014 01:26:19

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



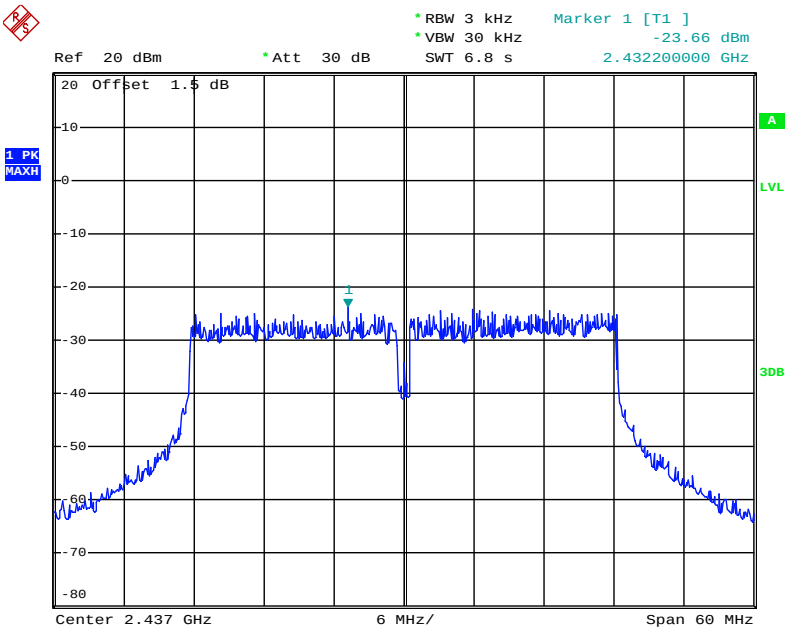
Date: 15.OCT.2014 01:33:24

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



Date: 15.OCT.2014 01:34:39

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Chain 3



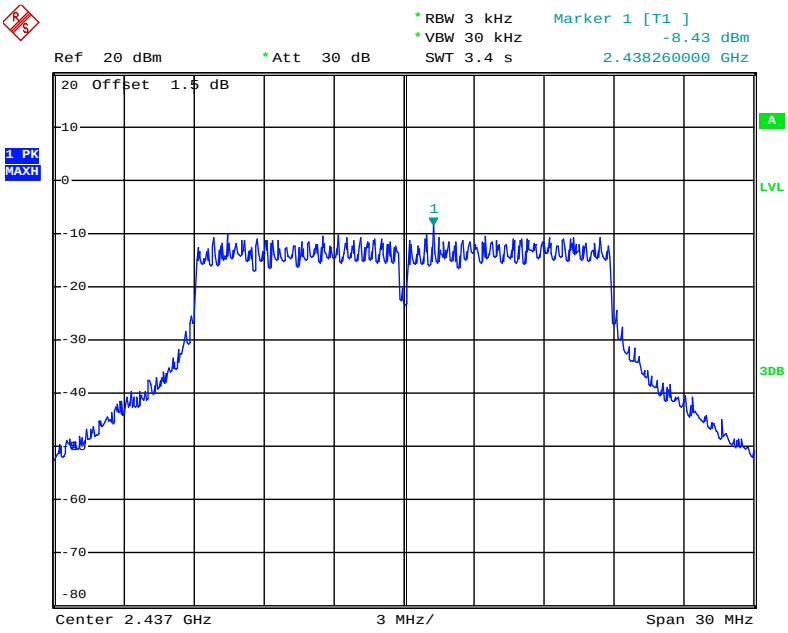
Date: 15.OCT.2014 01:35:28

Mode 3 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 8, Chain 2: 5.1, Chain 3: 8.2dBi)

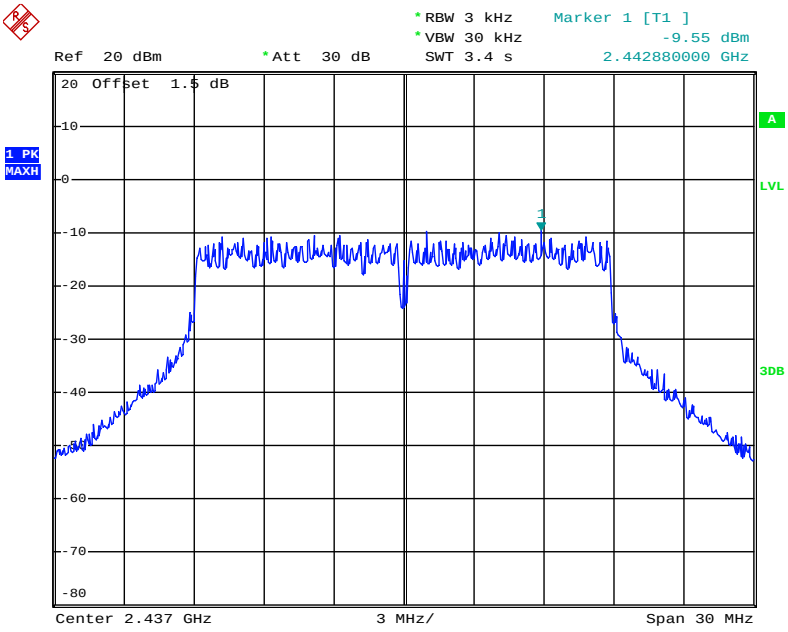
For Beamforming Mode

For 3TX

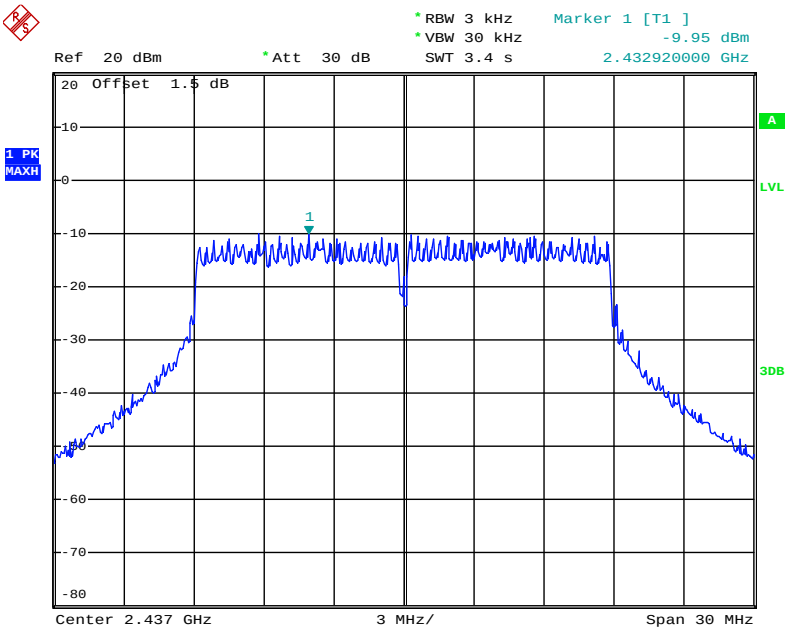
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Chain 1



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

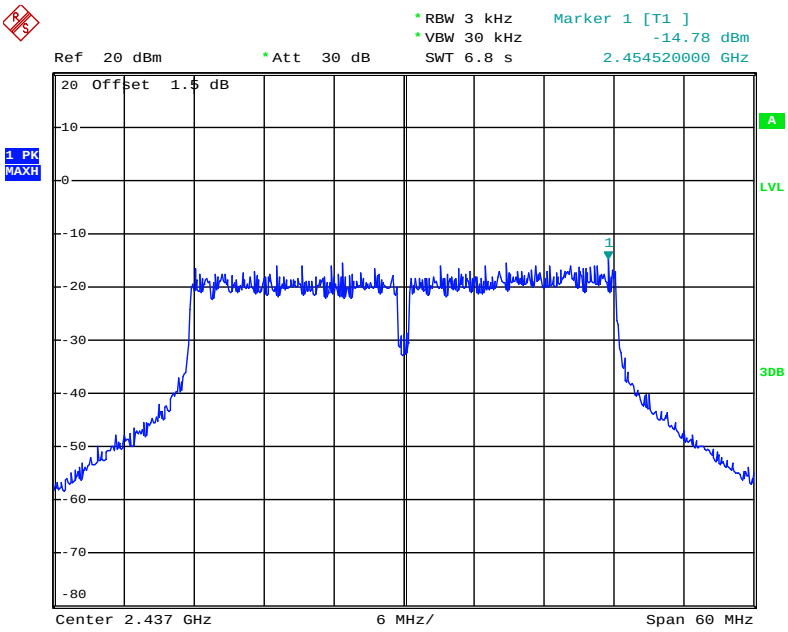


Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Chain 3



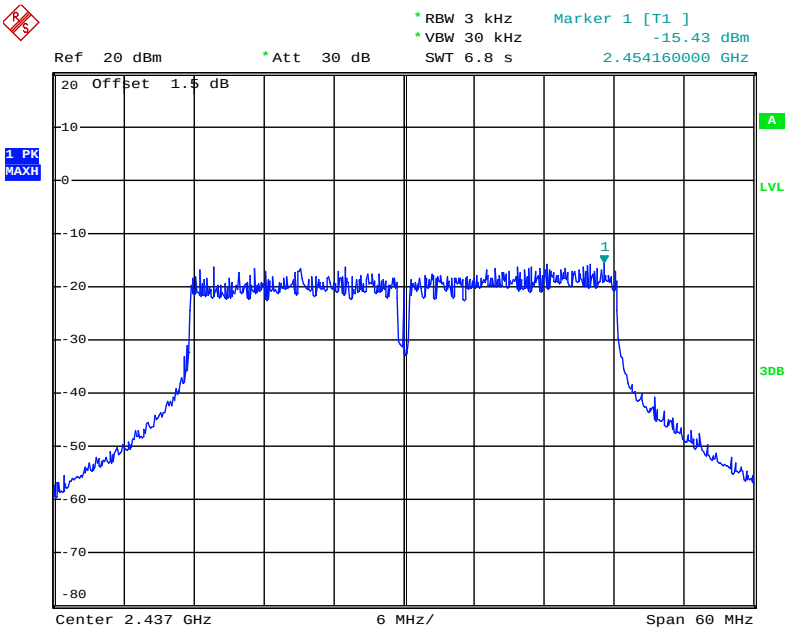
Date: 14.OCT.2014 20:27:00

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



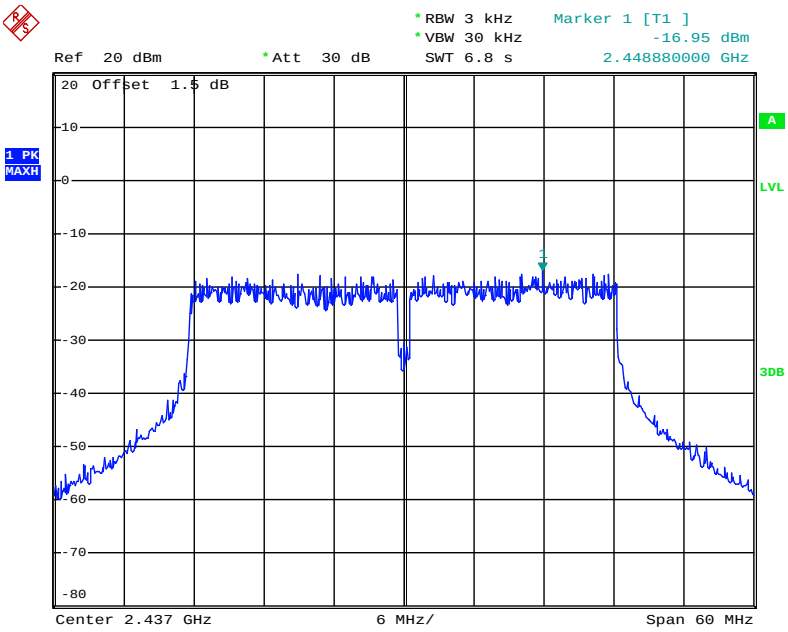
Date: 14.OCT.2014 20:33:52

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



Date: 14.OCT.2014 20:34:46

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Chain 3

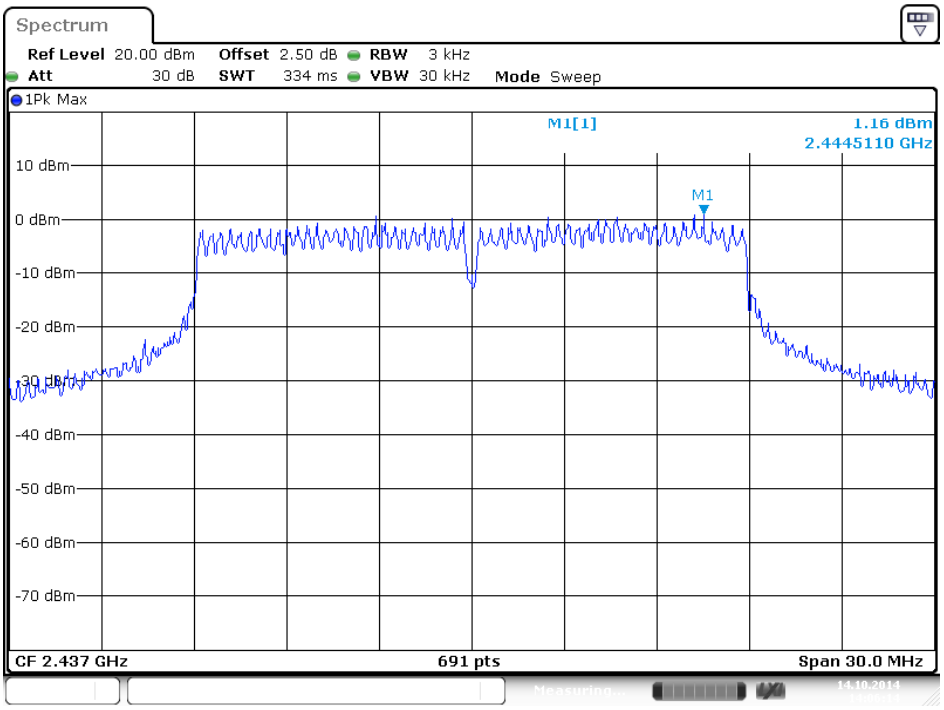


Date: 14.OCT.2014 20:35:22

For Non-Beamforming Mode

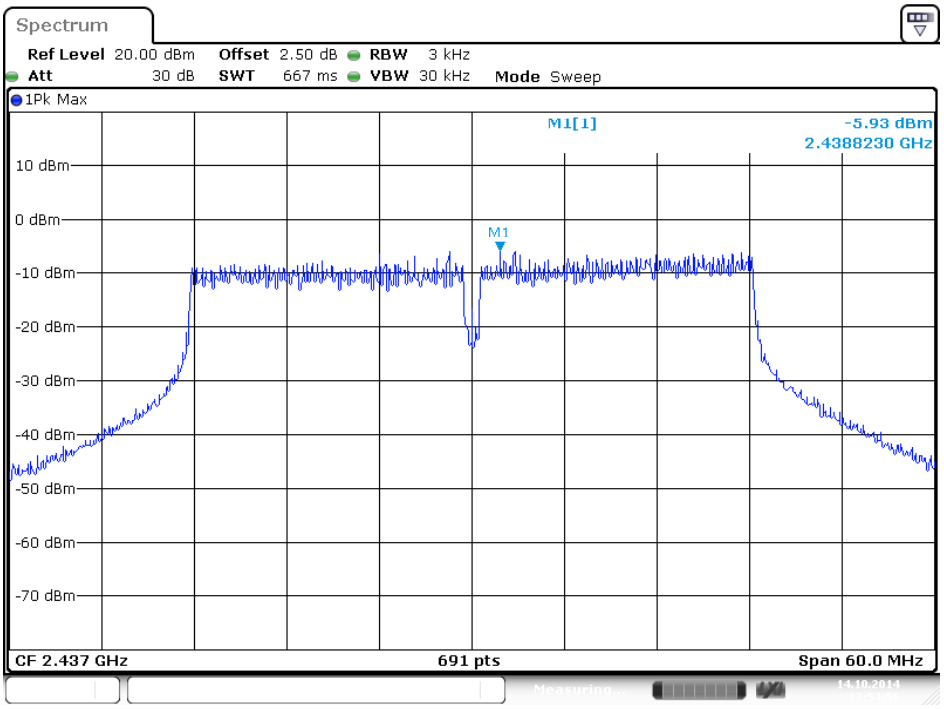
For 1TX

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



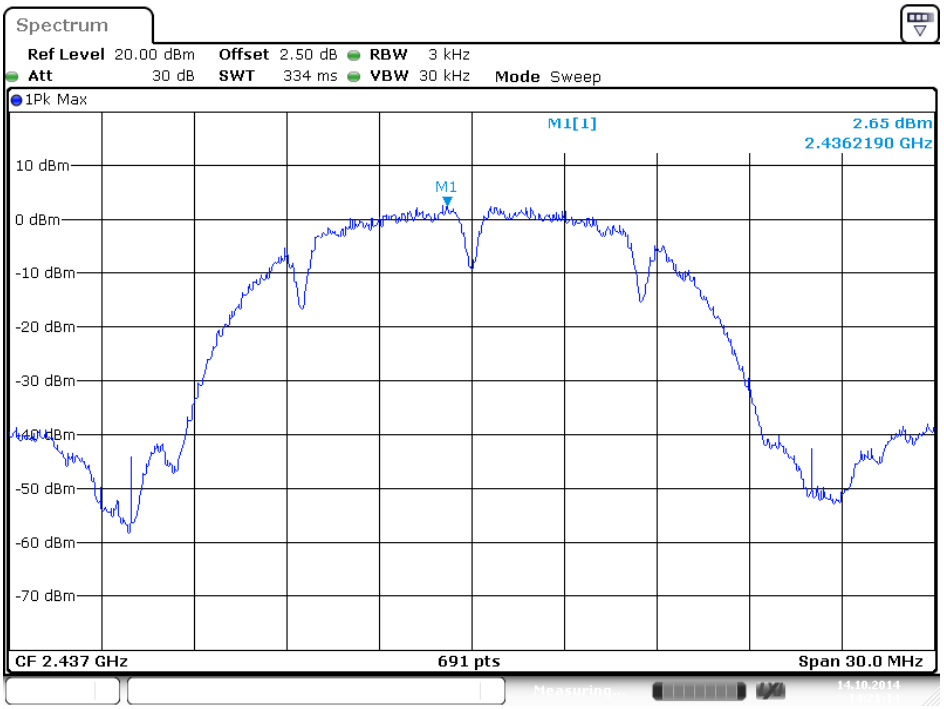
Date: 14.OCT.2014 14:06:14

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



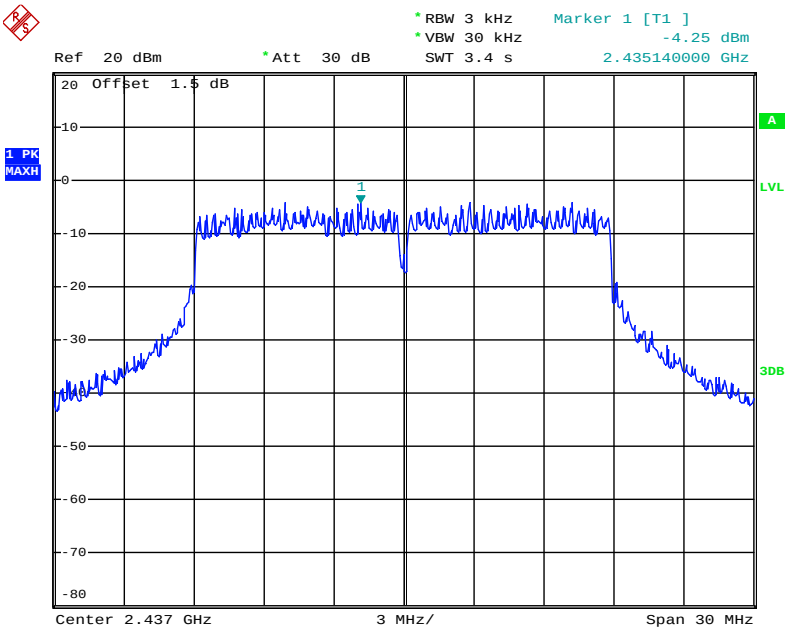
Date: 14.OCT.2014 13:54:55

Power Density Plot on Configuration IEEE 802.11b / 2437 MHz / Chain 1



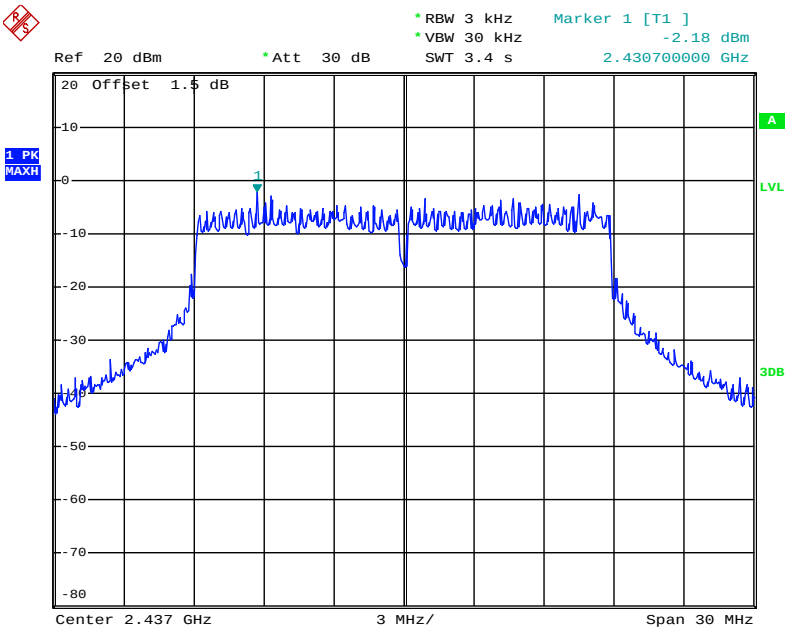
For 2TX

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



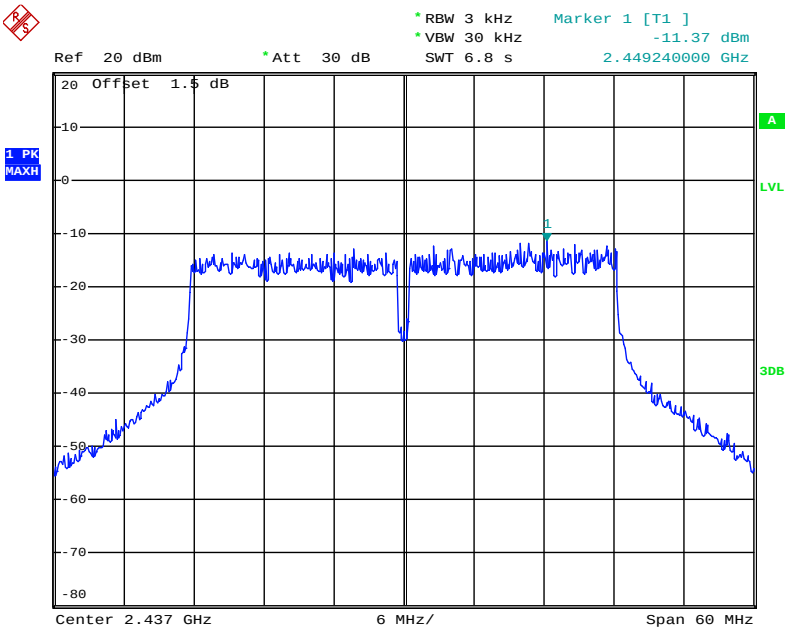
Date: 9.OCT.2014 22:34:22

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



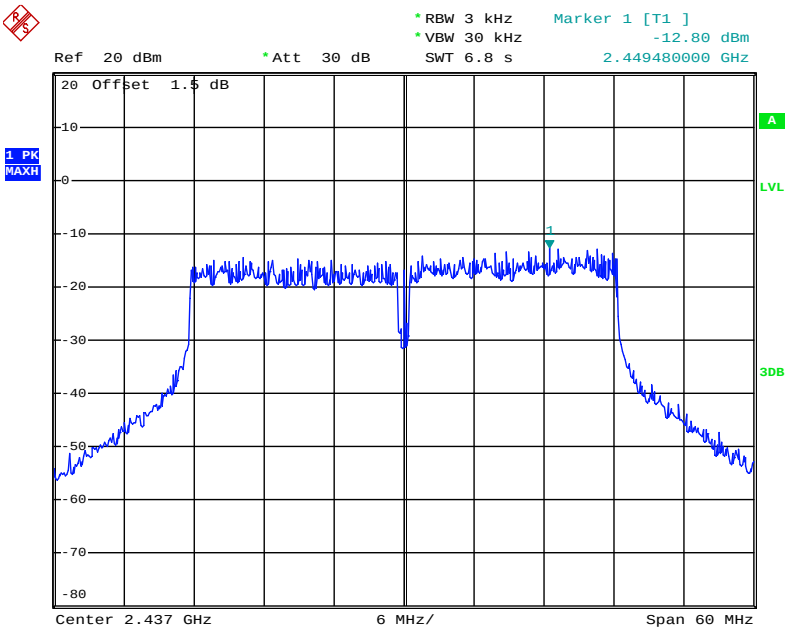
Date: 9.OCT.2014 22:33:48

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



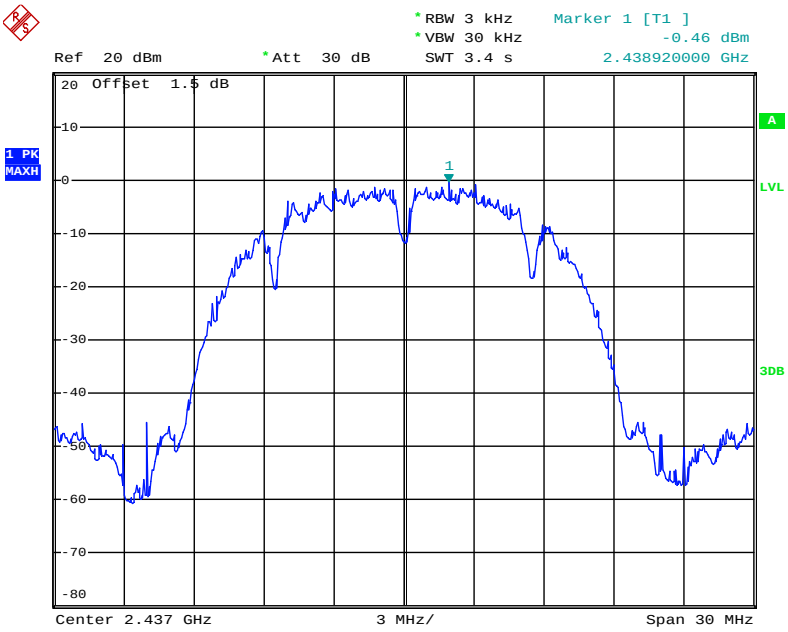
Date: 9.OCT.2014 22:50:38

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



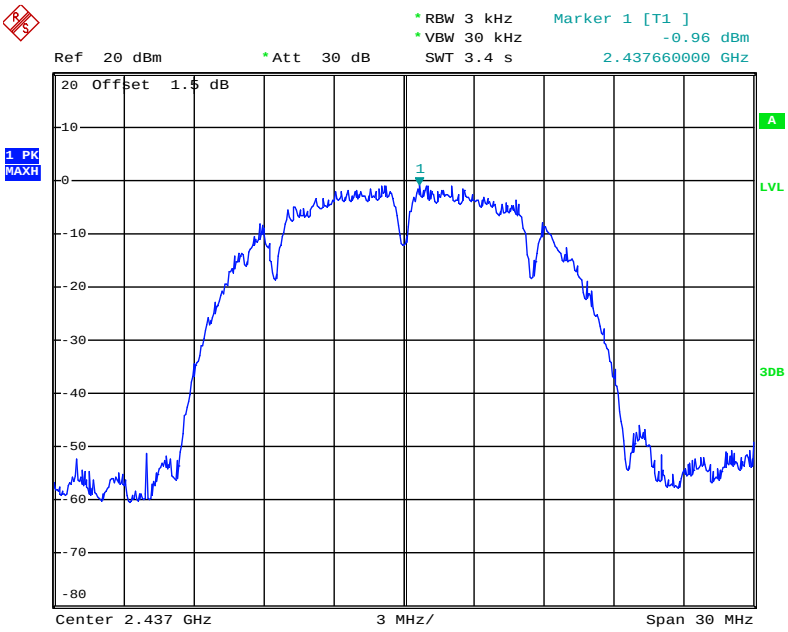
Date: 9.OCT.2014 22:51:54

Power Density Plot on Configuration IEEE 802.11b / 2437 MHz / Chain 1



Date: 9.OCT.2014 22:23:10

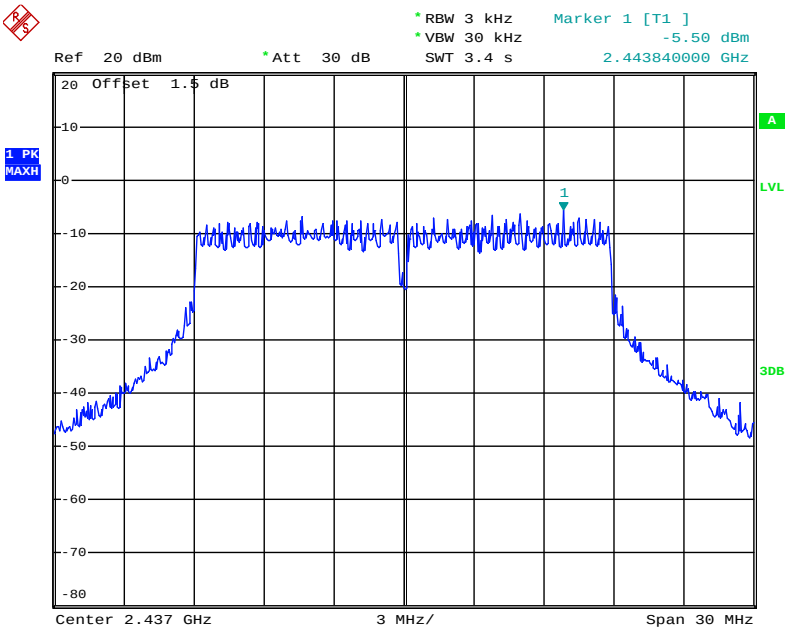
Power Density Plot on Configuration IEEE 802.11b / 2437 MHz / Chain 2



Date: 9.OCT.2014 22:22:29

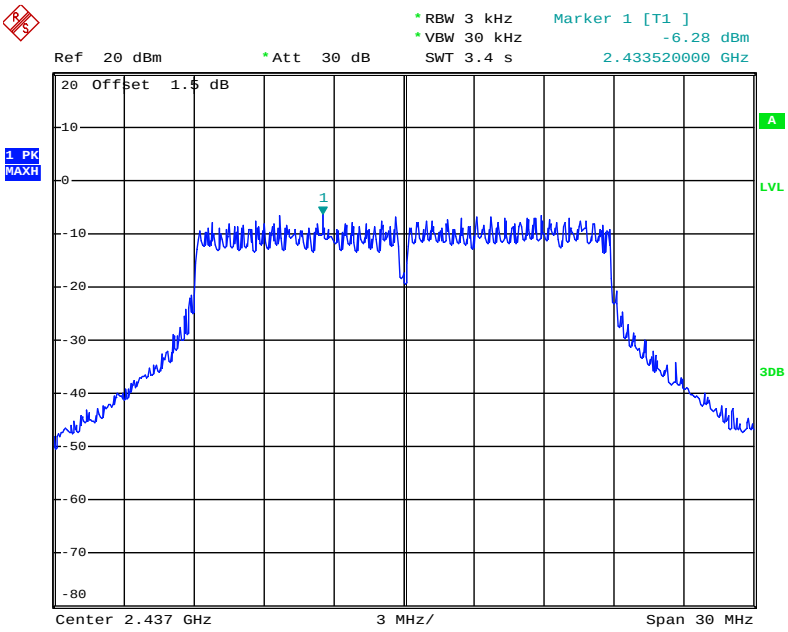
For 3TX

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



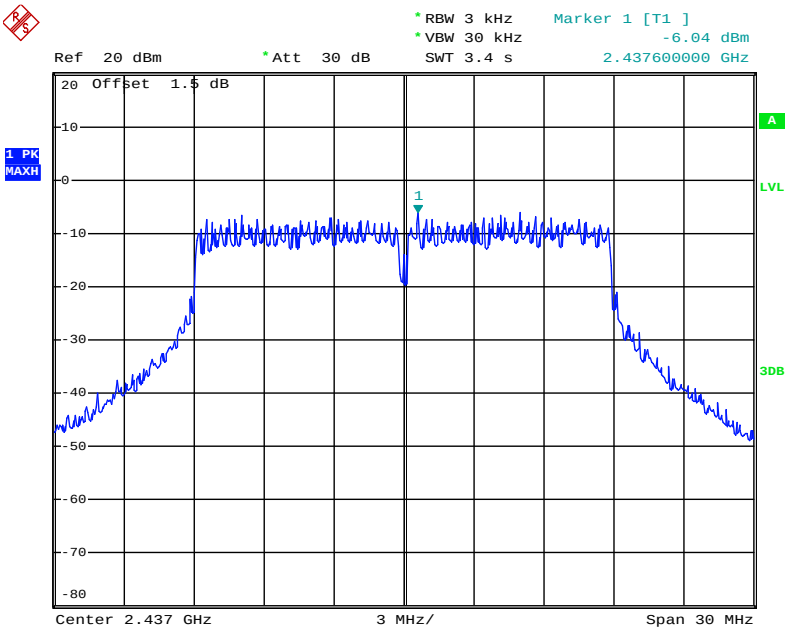
Date: 13.OCT.2014 23:19:11

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



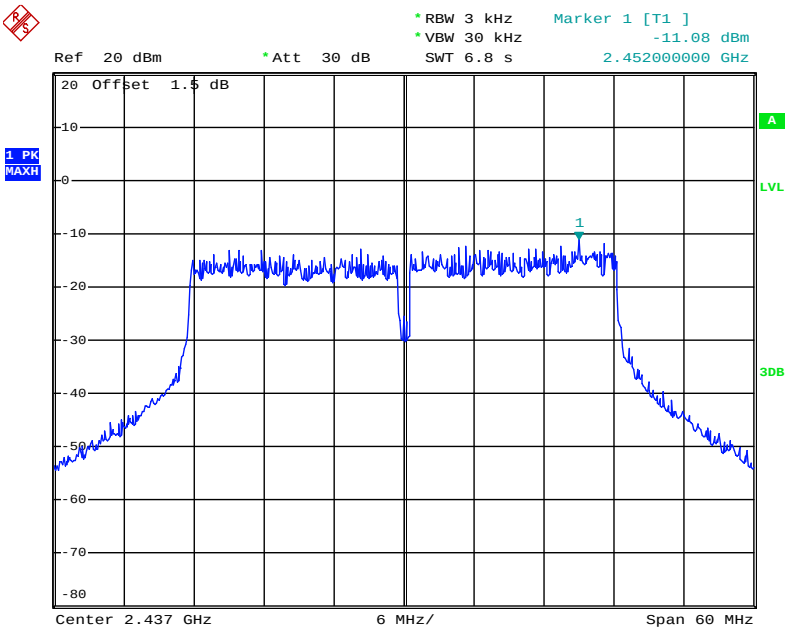
Date: 13.OCT.2014 23:18:35

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Chain 3



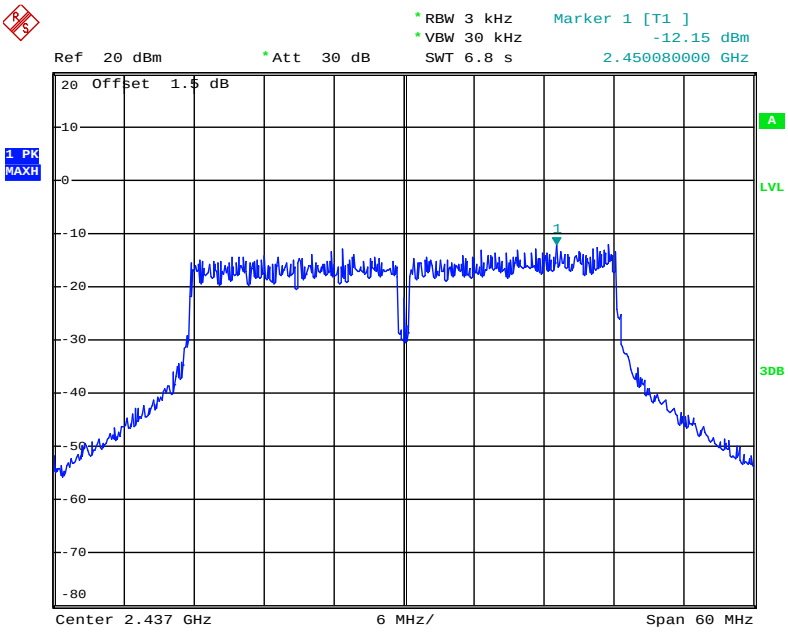
Date: 13.OCT.2014 23:17:55

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



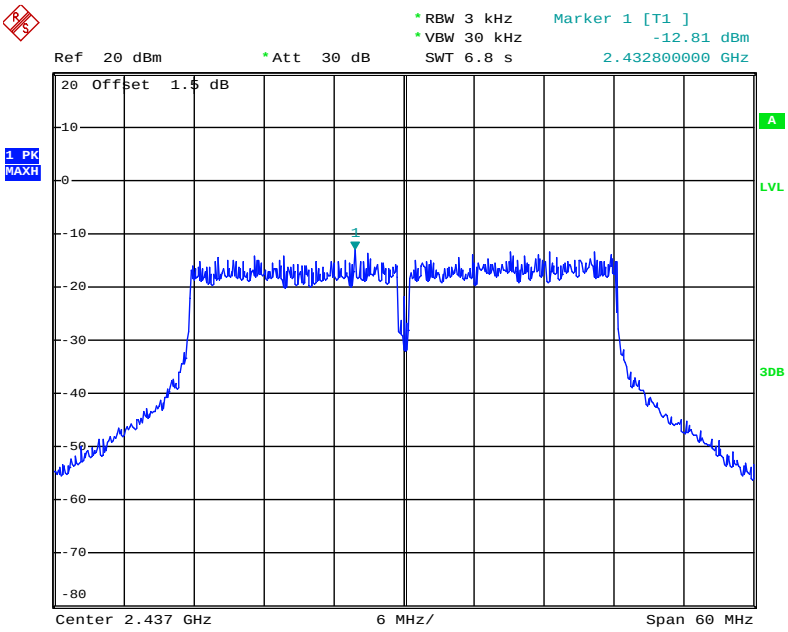
Date: 13.OCT.2014 23:24:20

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



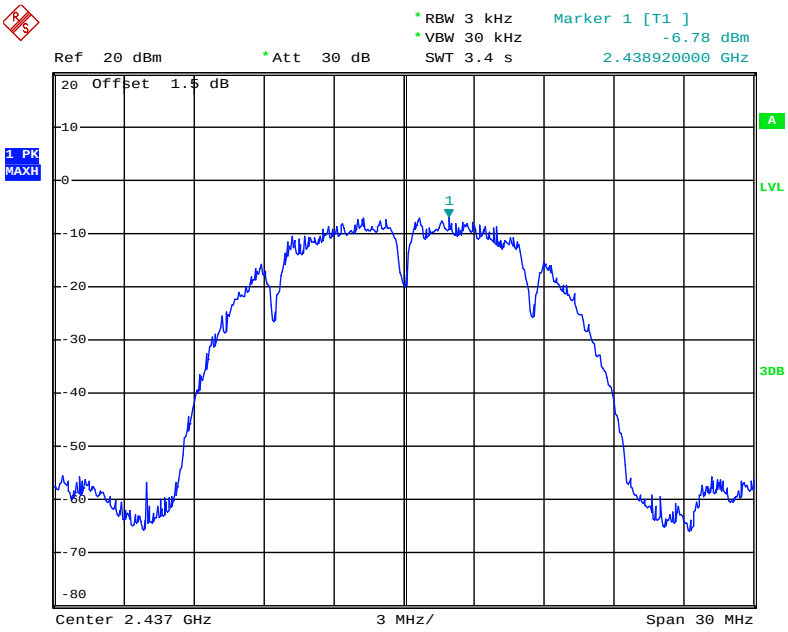
Date: 13.OCT.2014 23:25:07

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Chain 3



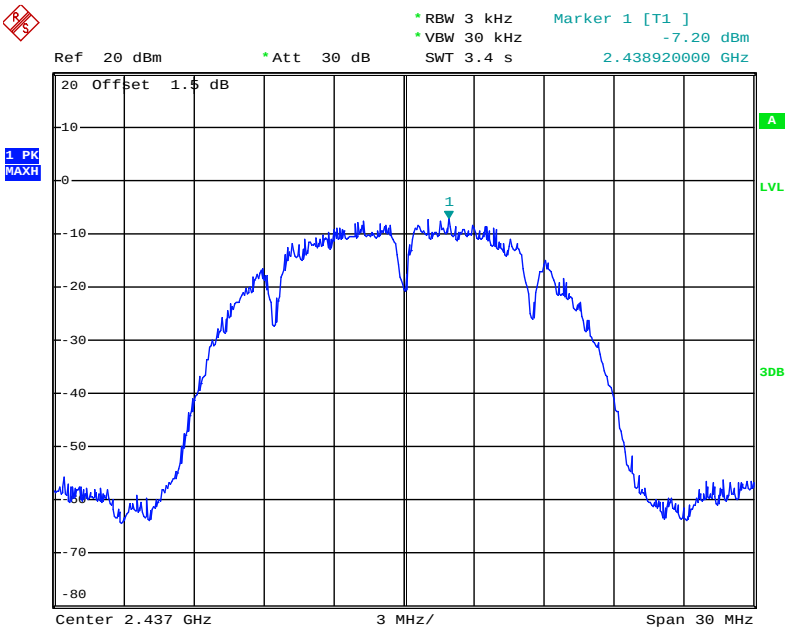
Date: 13.OCT.2014 23:25:50

Power Density Plot on Configuration IEEE 802.11b / 2437 MHz / Chain 1



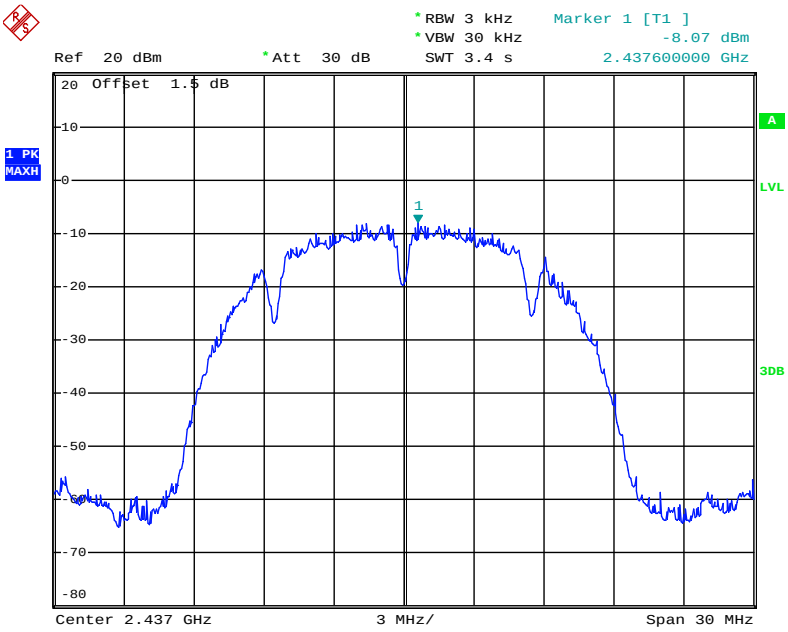
Date: 13.OCT.2014 23:06:11

Power Density Plot on Configuration IEEE 802.11b / 2437 MHz / Chain 2



Date: 13.OCT.2014 23:05:38

Power Density Plot on Configuration IEEE 802.11b / 2437 MHz / Chain 3



Date: 13.OCT.2014 23:05:04

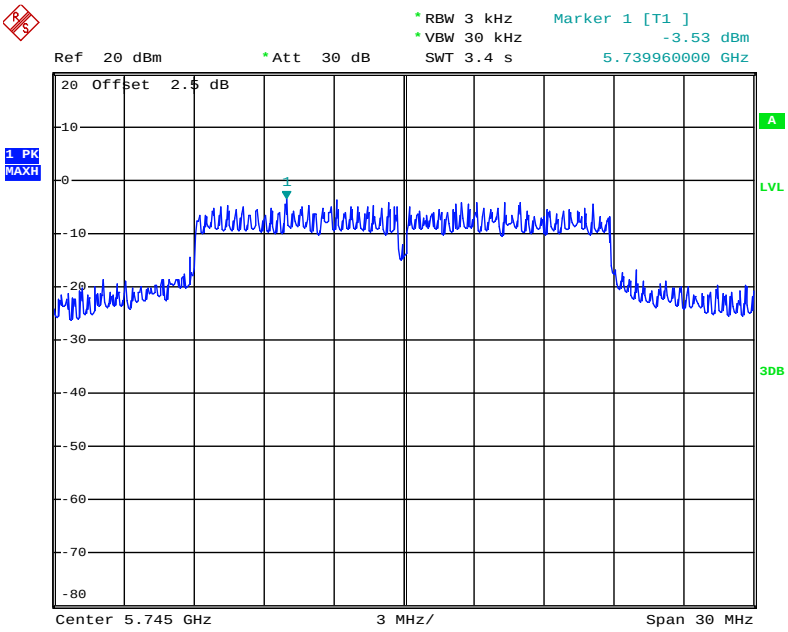
For 5GHz Band

Mode 4 (Ant.6 Dipole antenna / 8dBi)

For Beamforming Mode

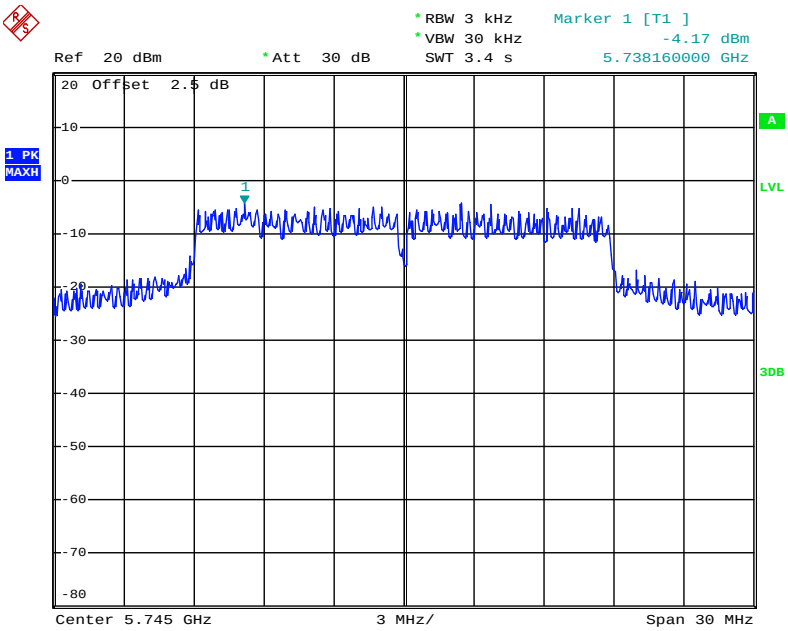
For 2TX

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5745 MHz / Chain 1



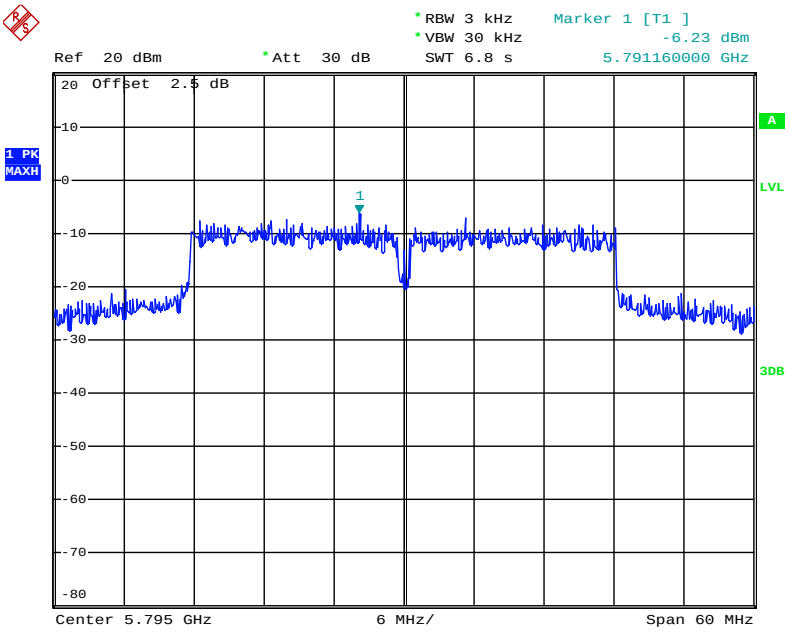
Date: 23.OCT.2014 12:10:55

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5745 MHz / Chain 2



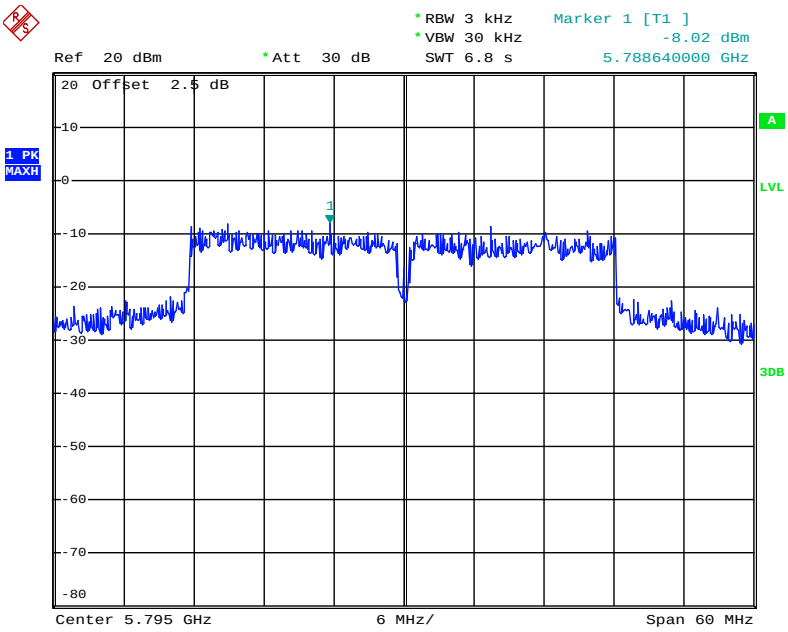
Date: 23.OCT.2014 12:11:47

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5795 MHz / Chain 1



Date: 23.OCT.2014 13:47:14

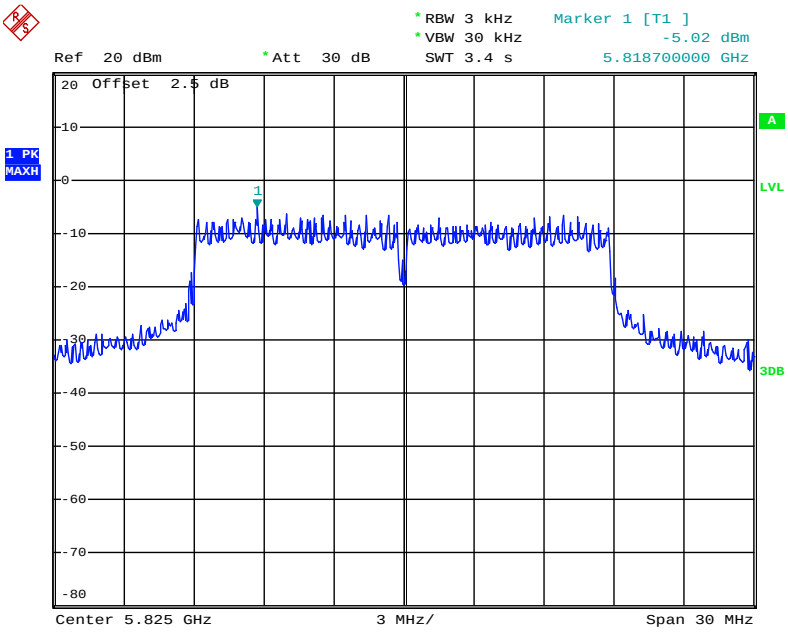
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5795 MHz / Chain 2



Date: 23.OCT.2014 13:48:10

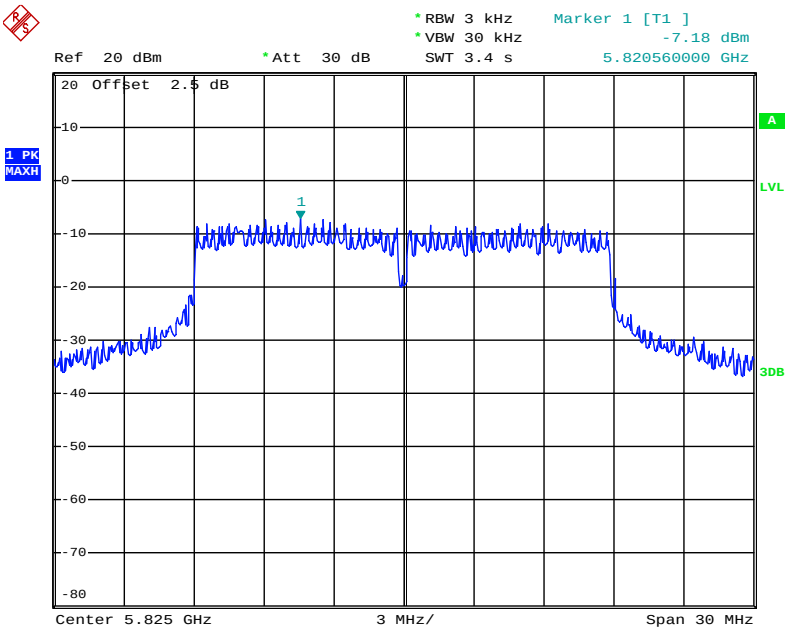
For 3TX

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5825 MHz / Chain 1



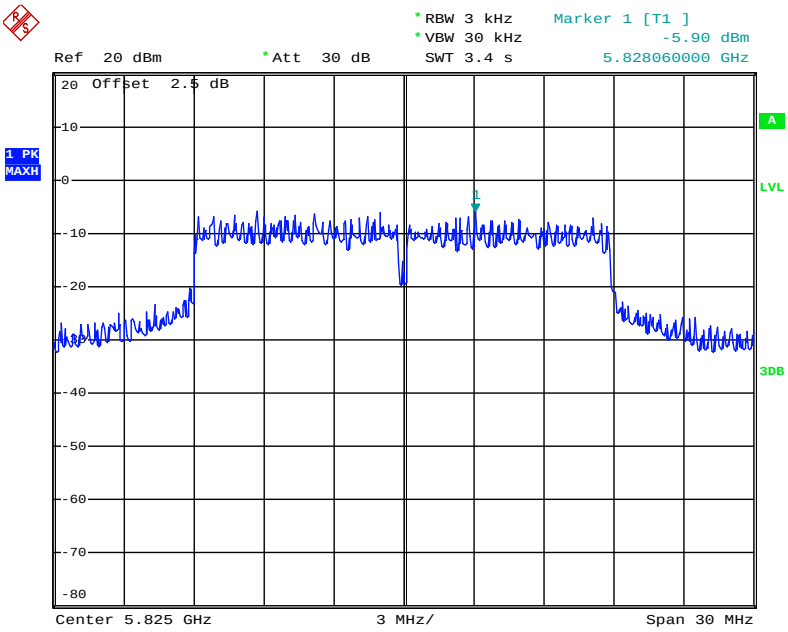
Date: 15.OCT.2014 20:16:53

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5825 MHz / Chain 2



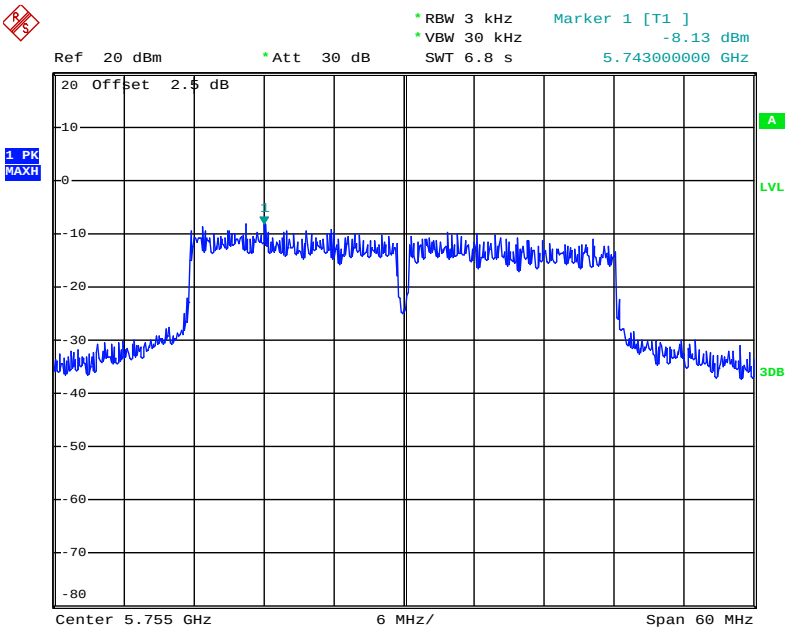
Date: 15.OCT.2014 20:15:52

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5825 MHz / Chain 3



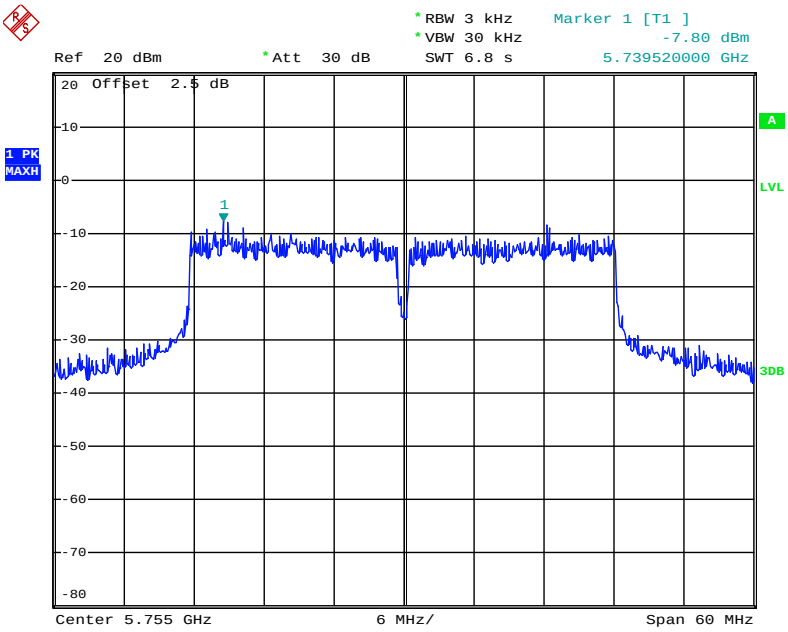
Date: 15.OCT.2014 20:14:26

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5755 MHz / Chain 1



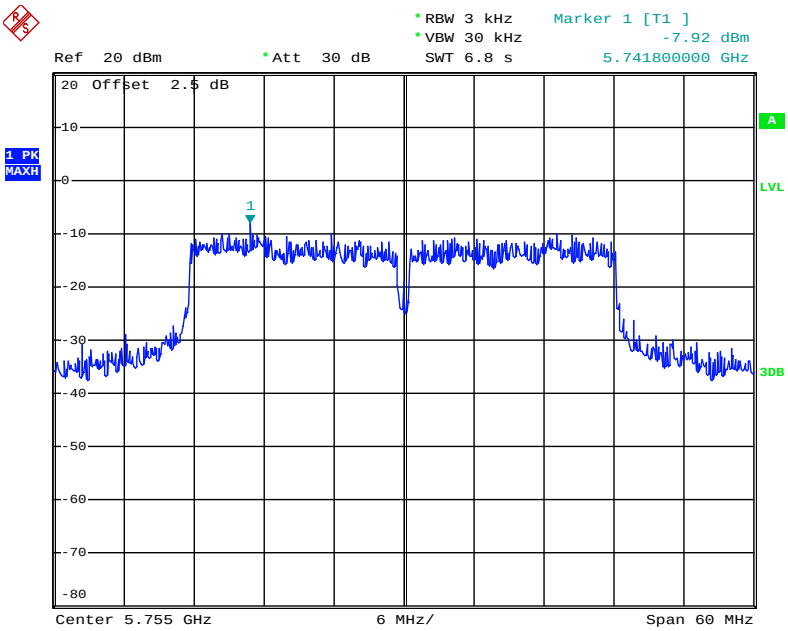
Date: 15.OCT.2014 20:23:49

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5755 MHz / Chain 2



Date: 15.OCT.2014 20:23:04

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5755 MHz / Chain 3



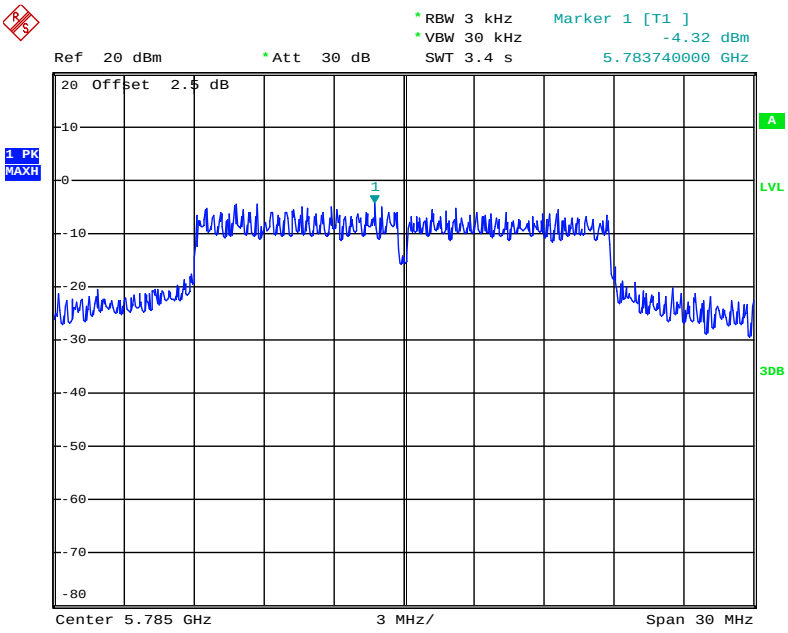
Date: 15.OCT.2014 20:21:54

Mode 5 (Ant.16 Panel antenna / 3.5dBi)

For Beamforming Mode

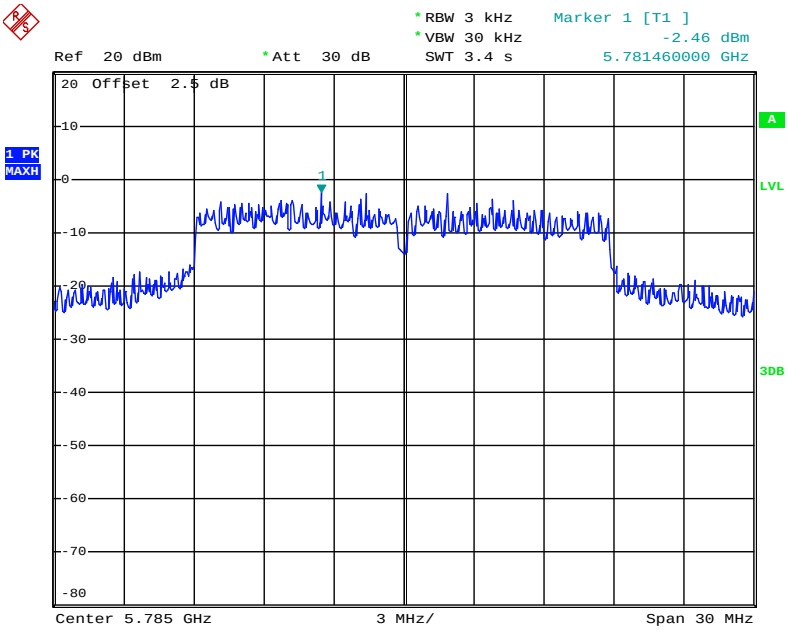
For 2TX

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5785 MHz / Chain 1



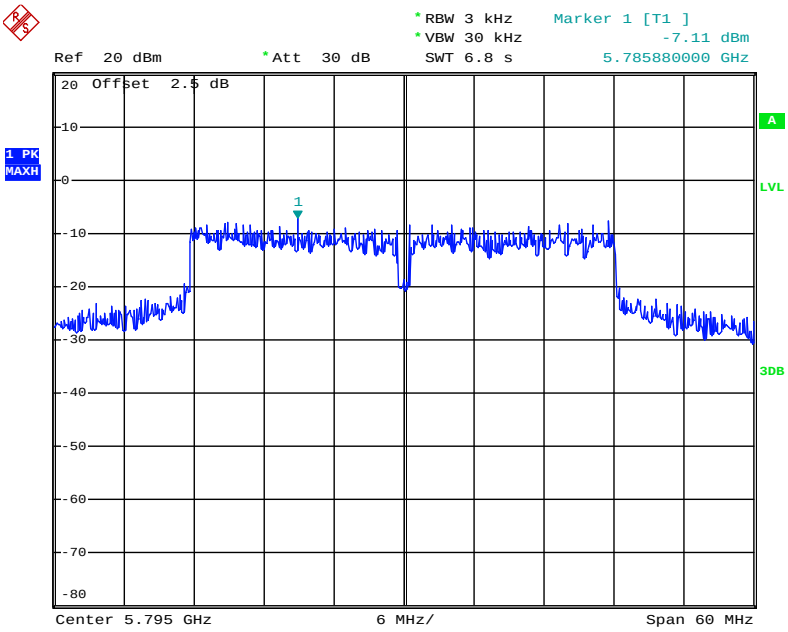
Date: 16.OCT.2014 20:41:54

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5785 MHz / Chain 2



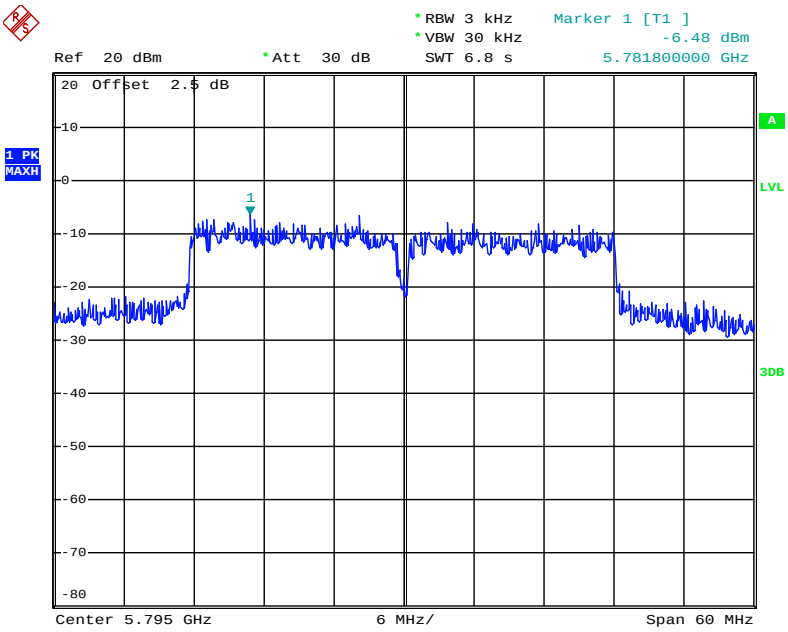
Date: 16.OCT.2014 20:41:02

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5795 MHz / Chain 1



Date: 16.OCT.2014 20:49:38

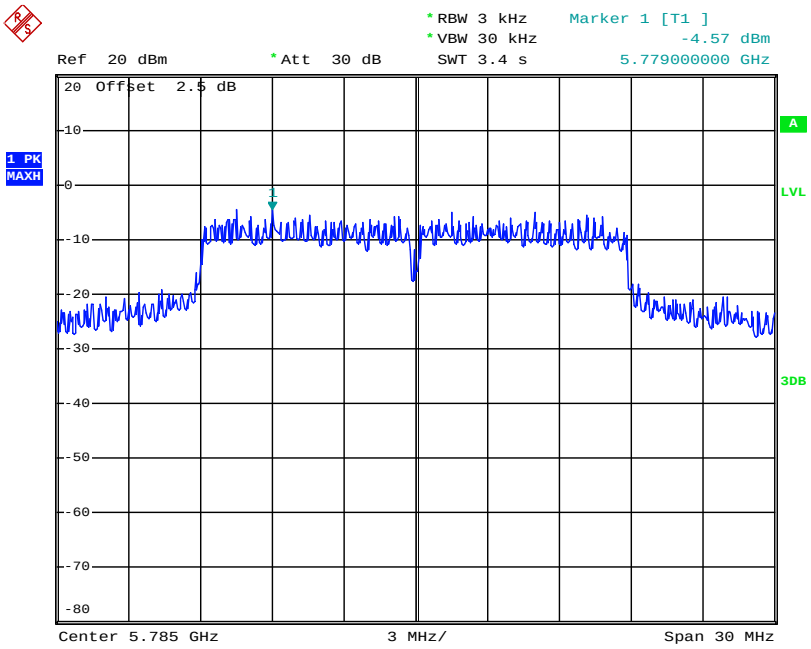
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5795 MHz / Chain 2



Date: 16.OCT.2014 20:51:41

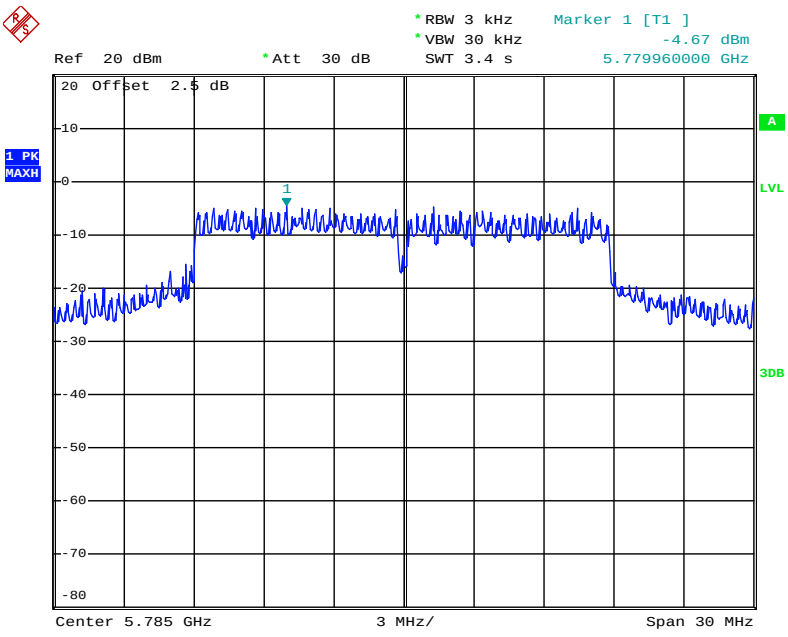
For 3TX

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5785 MHz / Chain 1



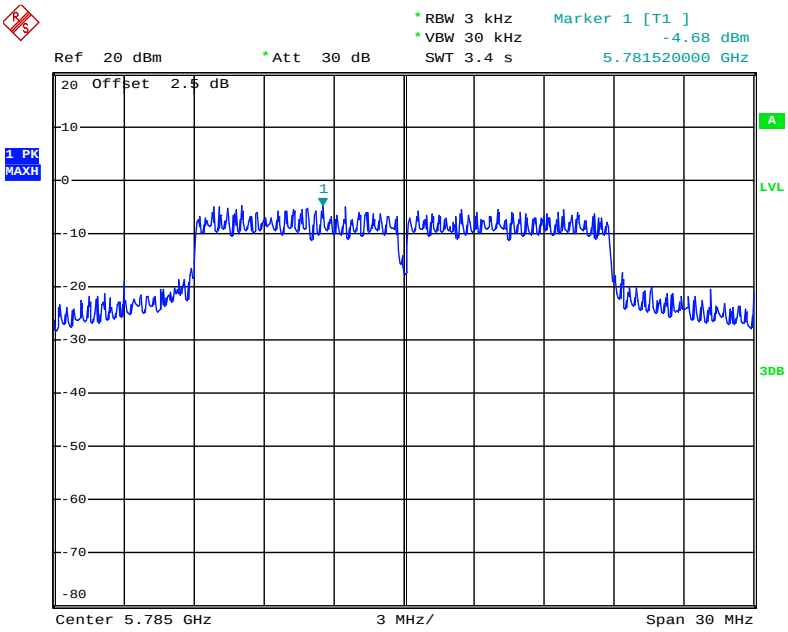
Date: 16.OCT.2014 16:53:12

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5785 MHz / Chain 2



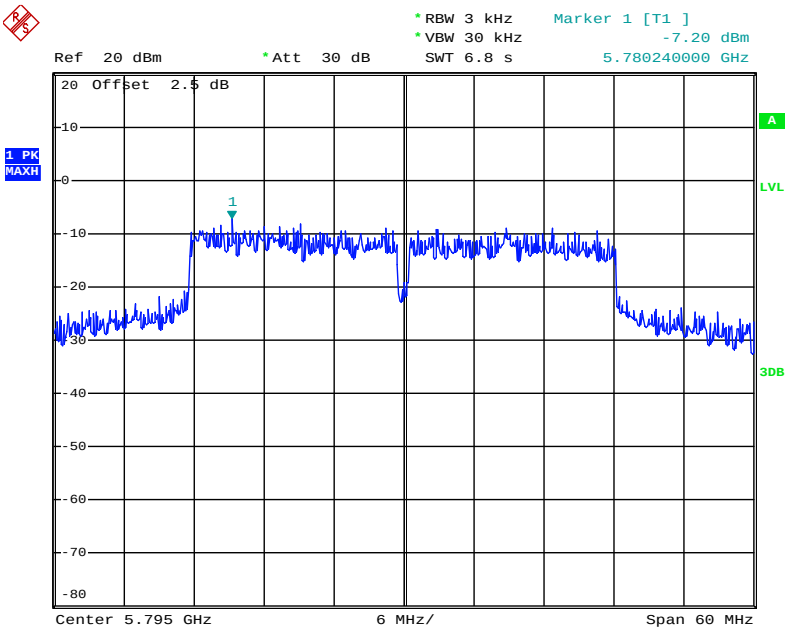
Date: 16.OCT.2014 16:52:19

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5785 MHz / Chain 3



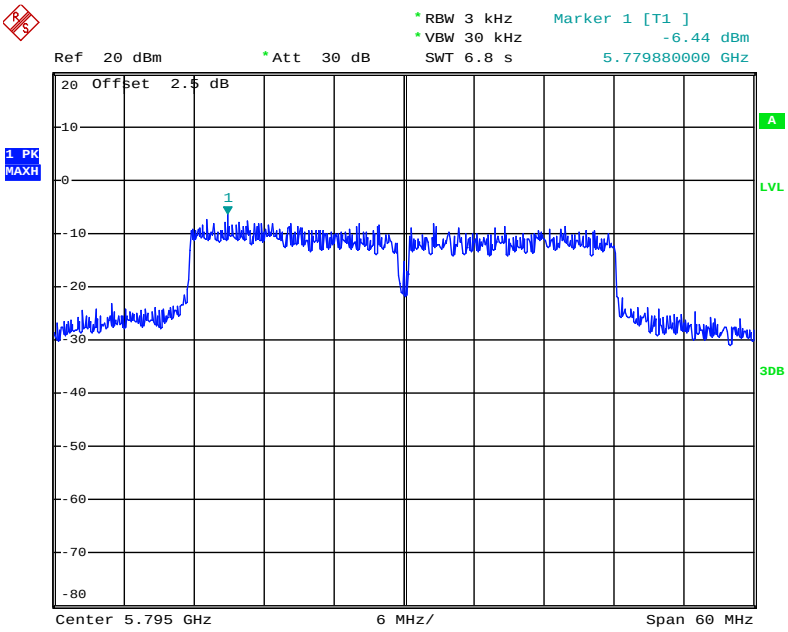
Date: 16.OCT.2014 16:50:54

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5795 MHz / Chain 1



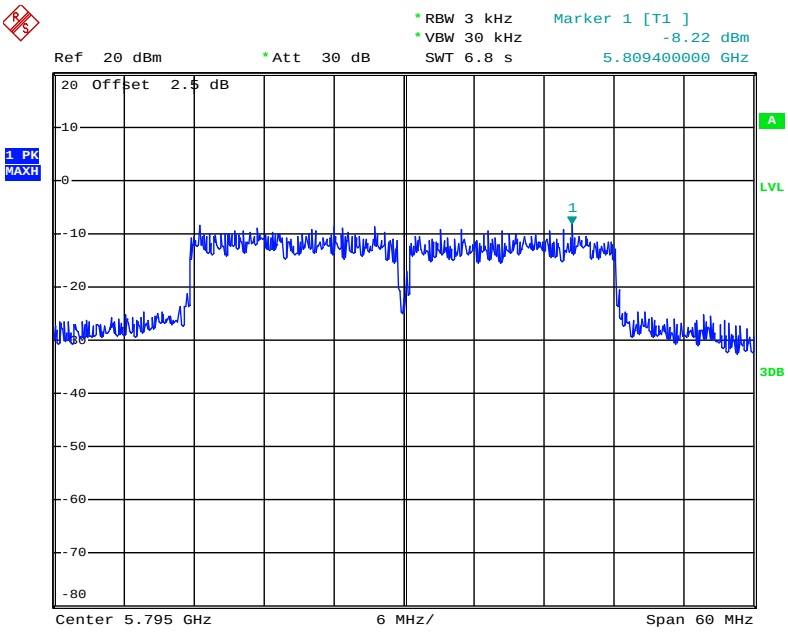
Date: 16.OCT.2014 17:02:59

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5795 MHz / Chain 2



Date: 16.OCT.2014 17:04:32

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5795 MHz / Chain 3



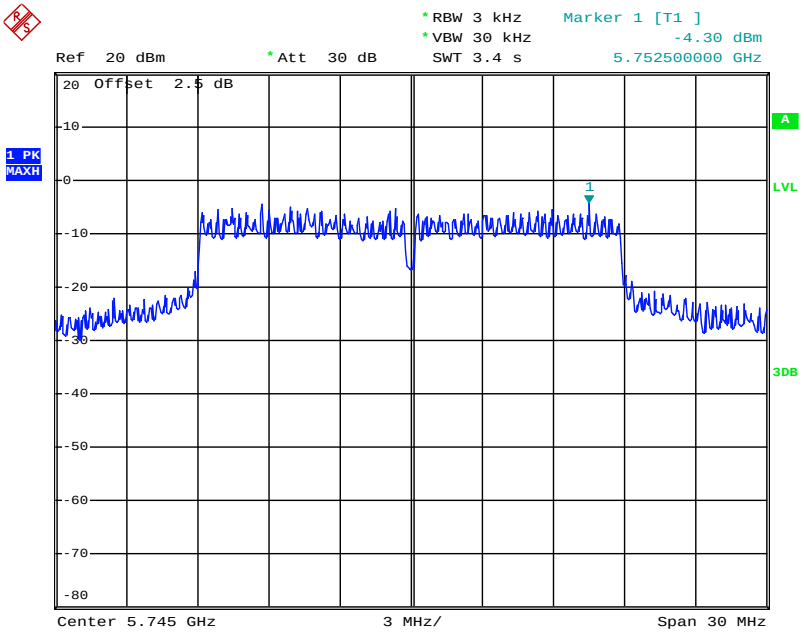
Date: 16.OCT.2014 17:05:32

Mode 6 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 6.7, Chain 2: 4.3, Chain 3: 6.6dBi)

For Beamforming Mode

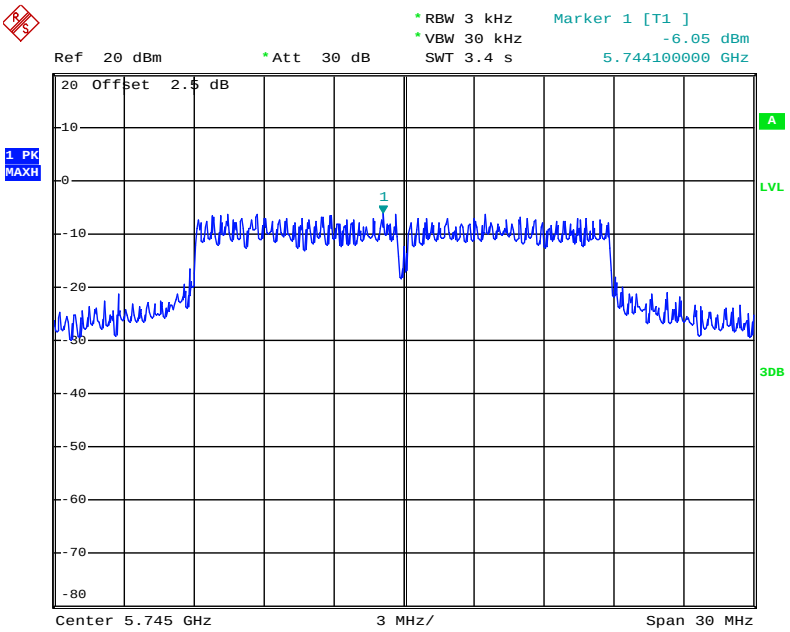
For 3TX

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5745 MHz / Chain 1



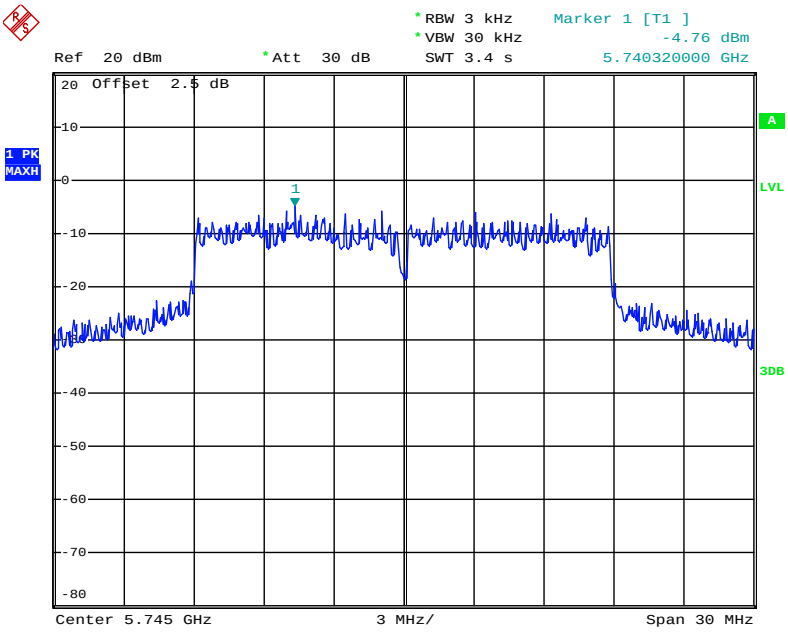
Date: 14.OCT.2014 20:47:24

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5745 MHz / Chain 2



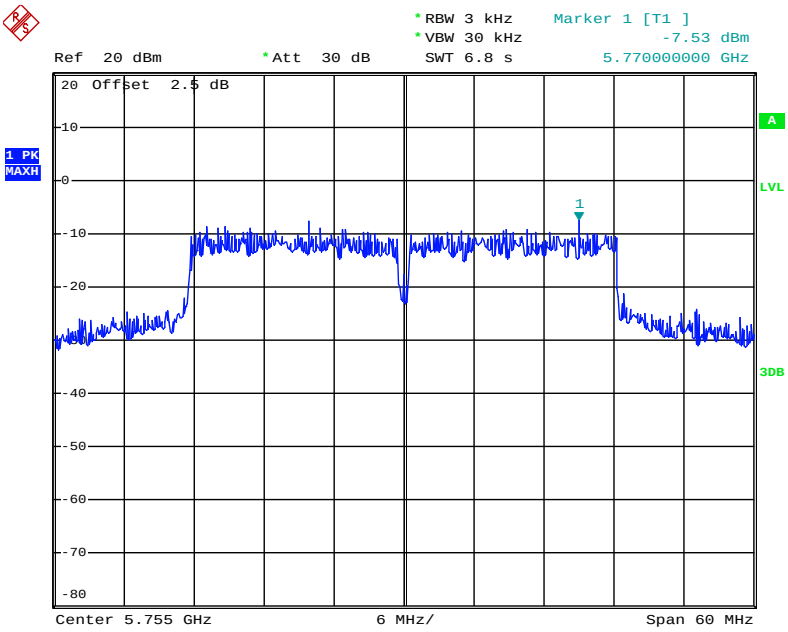
Date: 14.OCT.2014 20:48:05

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5745 MHz / Chain 3



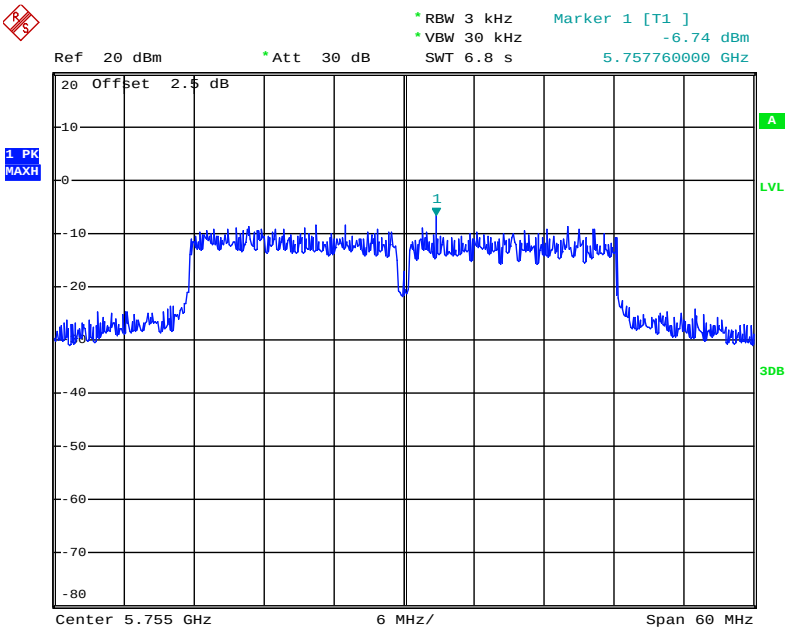
Date: 14.OCT.2014 20:48:37

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5755 MHz / Chain 1



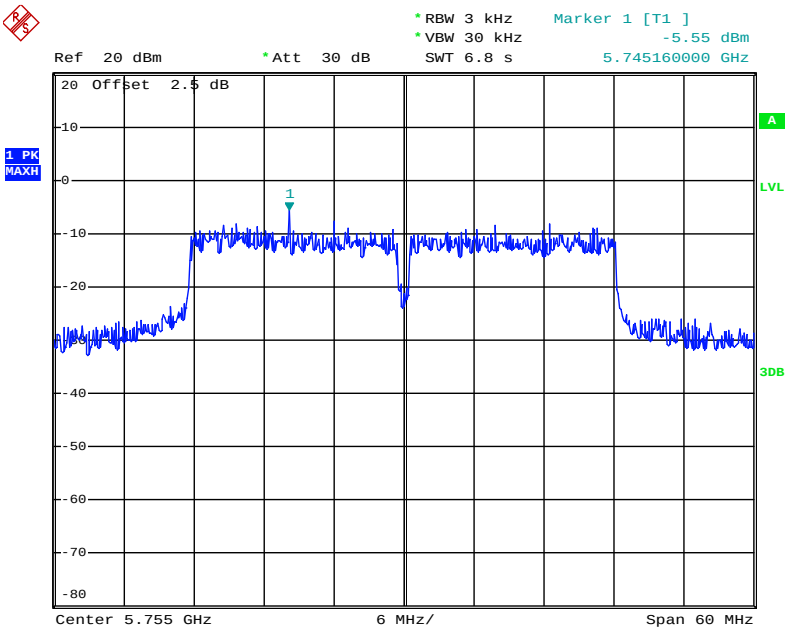
Date: 14.OCT.2014 20:55:22

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5755 MHz / Chain 2



Date: 14.OCT.2014 20:54:40

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5755 MHz / Chain 3

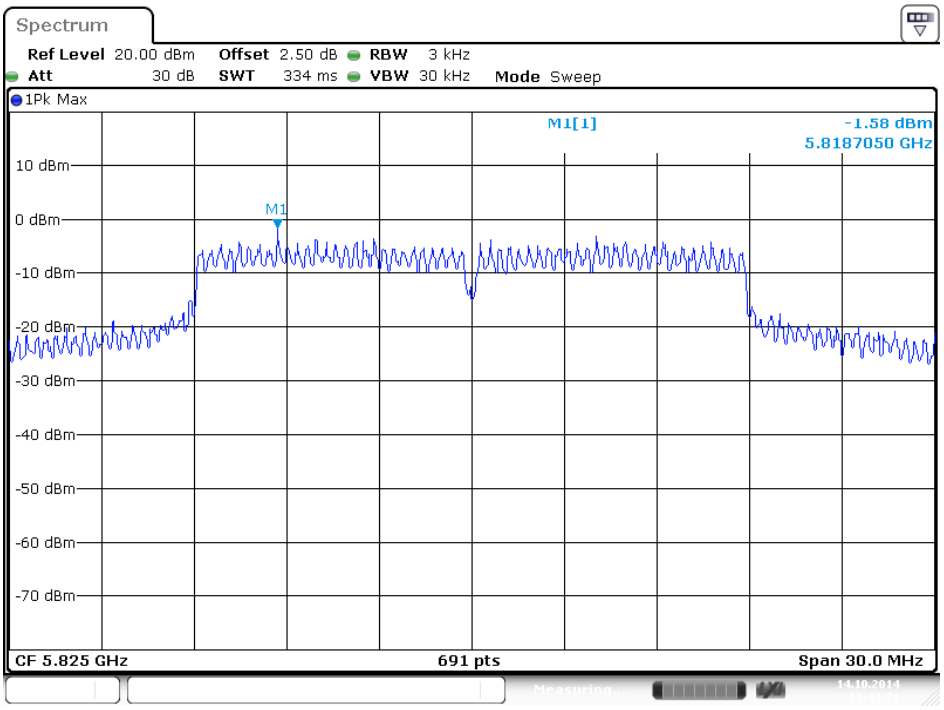


Date: 14.OCT.2014 20:53:58

For Non-Beamforming Mode

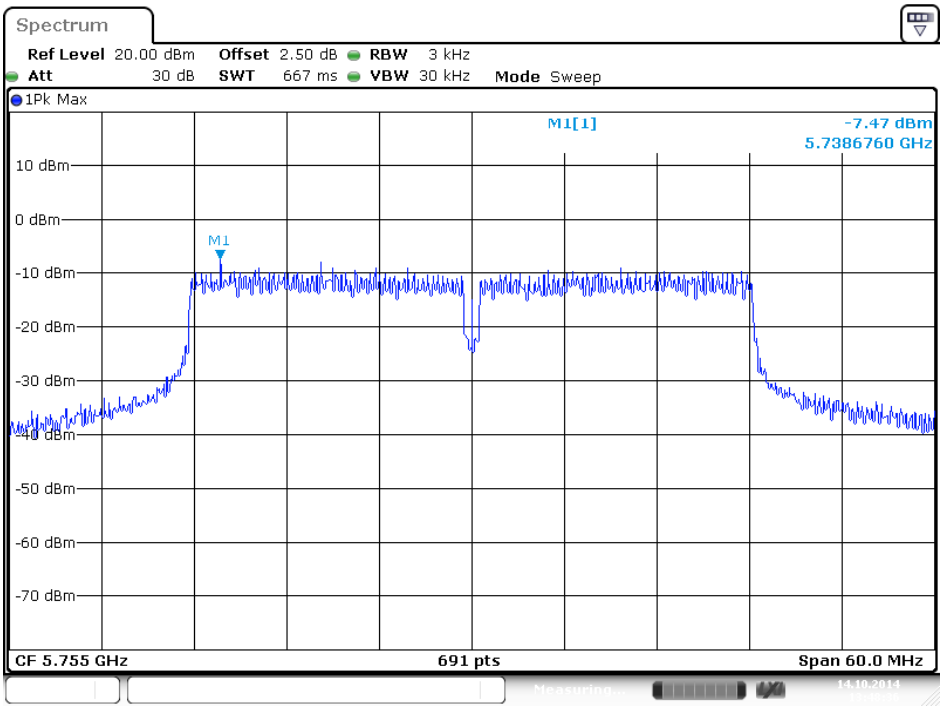
For 1TX

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5825 MHz / Chain 1



Date: 14.OCT.2014 13:43:21

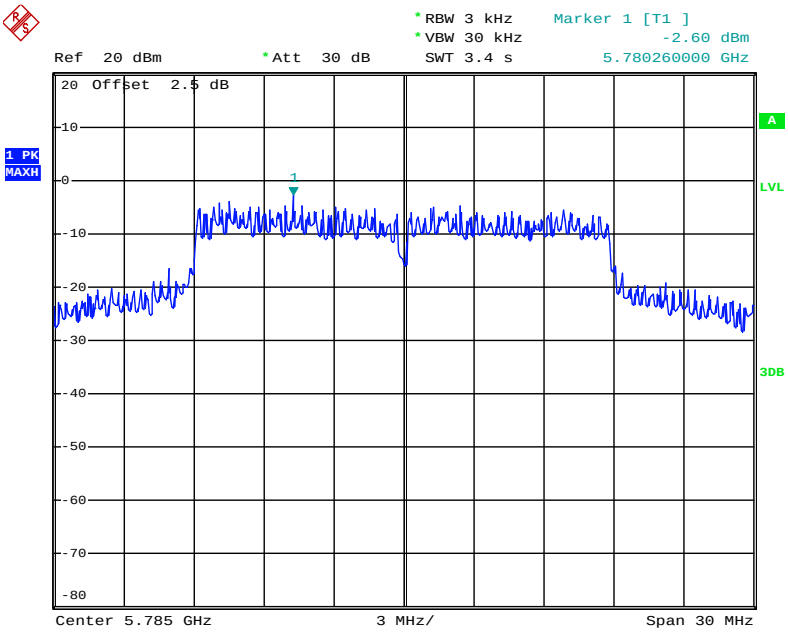
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5755 MHz / Chain 1



Date: 14.OCT.2014 13:48:36

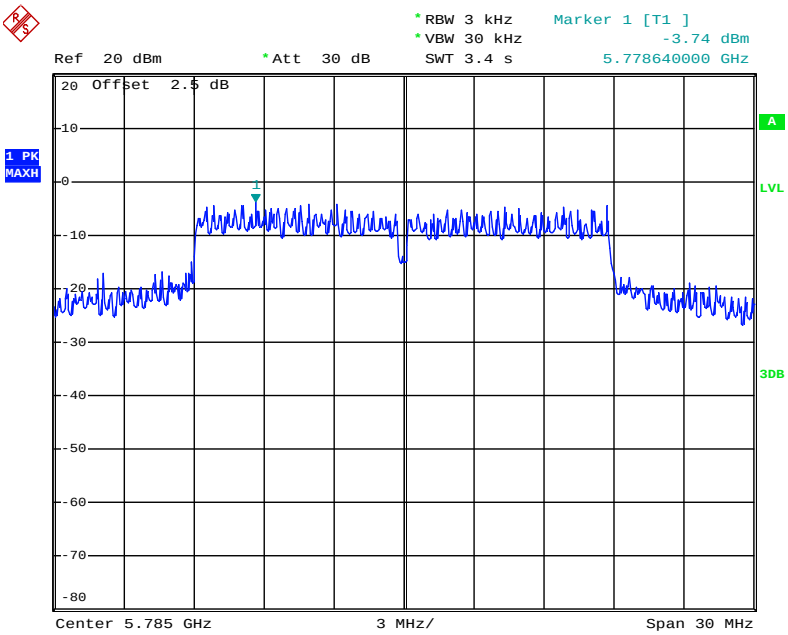
For 2TX

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5785 MHz / Chain 1



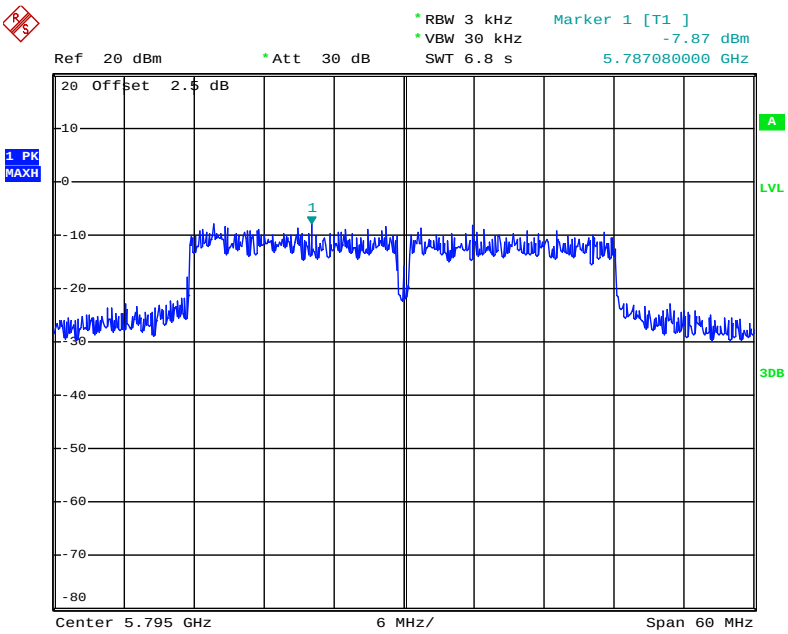
Date: 9.OCT.2014 23:00:45

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5785 MHz / Chain 2



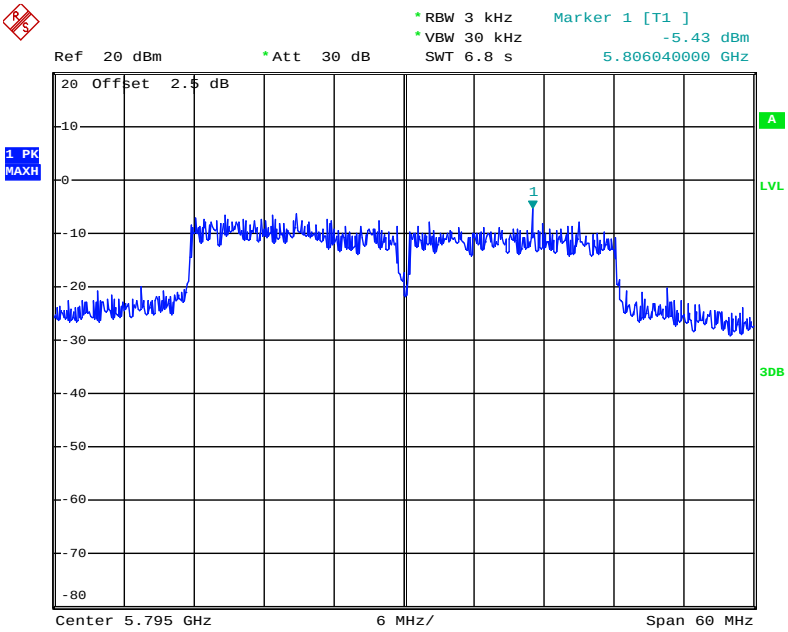
Date: 9.OCT.2014 23:01:18

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5795 MHz / Chain 1



Date: 9.OCT.2014 23:05:57

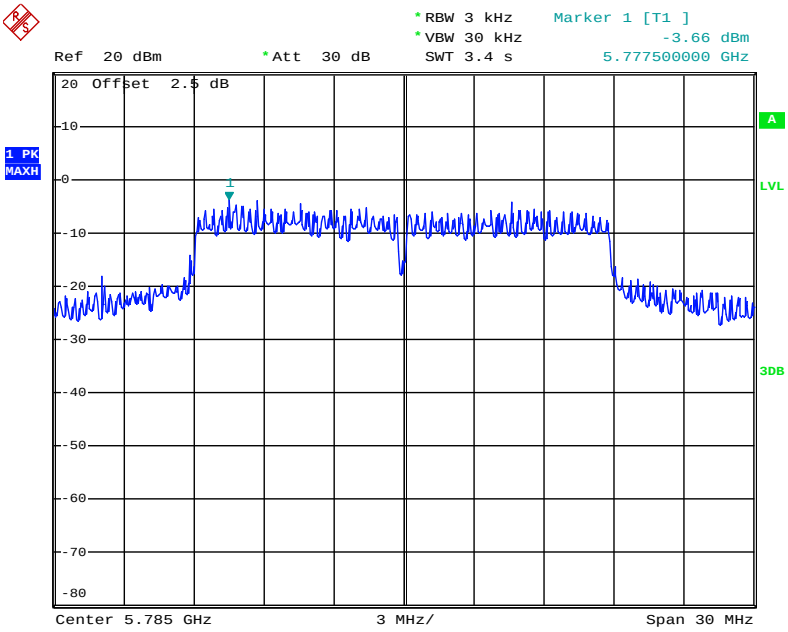
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5795 MHz / Chain 2



Date: 9.OCT.2014 23:05:19

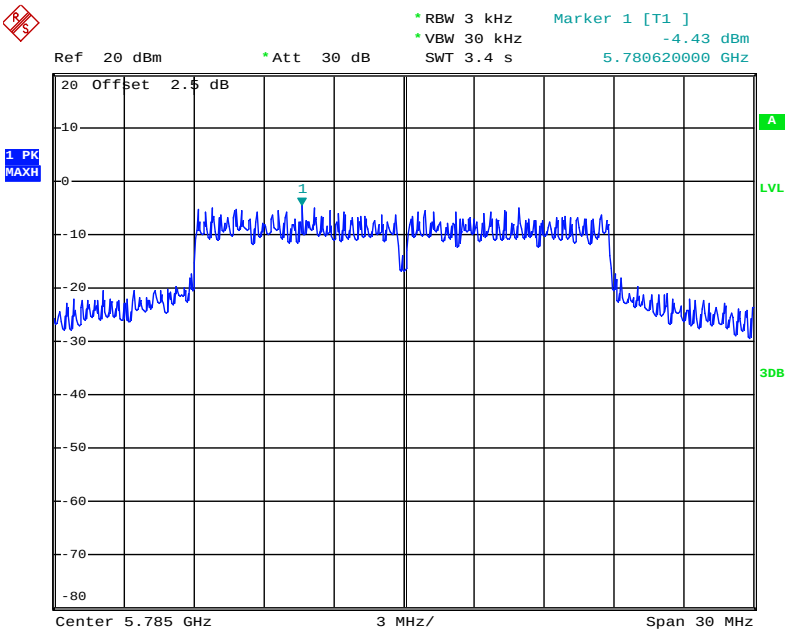
For 3TX

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5785 MHz / Chain 1



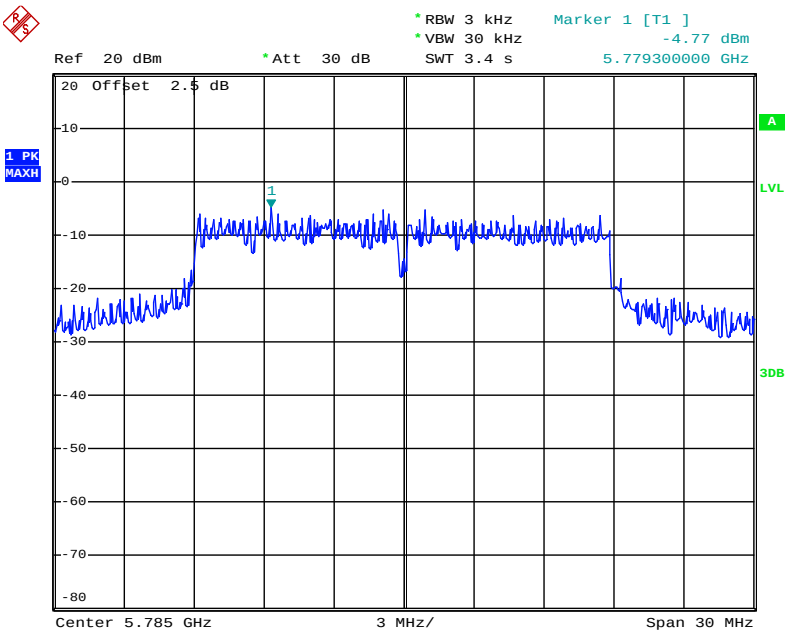
Date: 13.OCT.2014 23:36:52

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5785 MHz / Chain 2



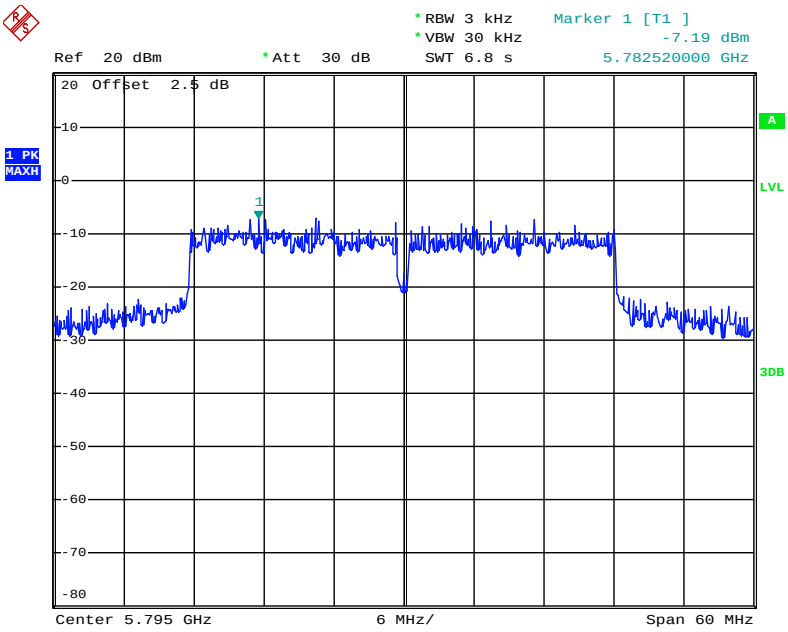
Date: 13.OCT.2014 23:37:26

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / 5785 MHz / Chain 3



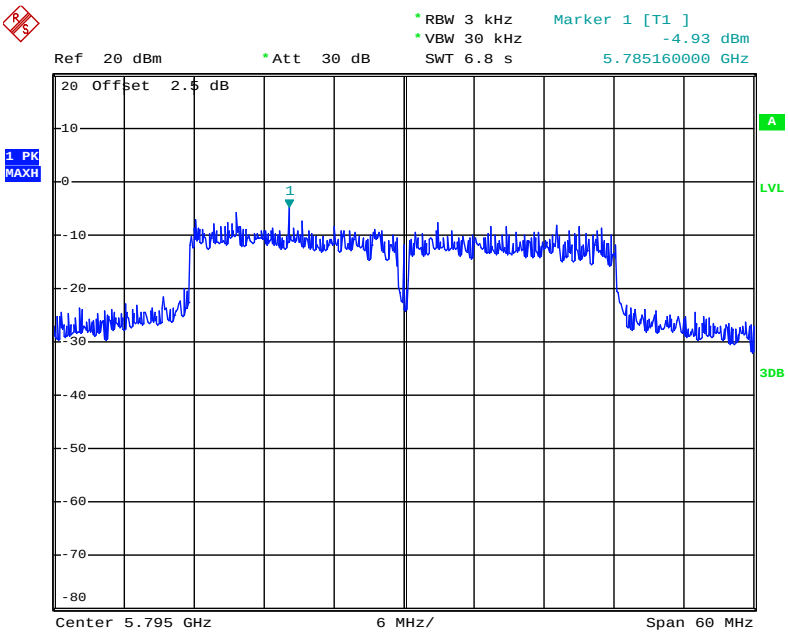
Date: 13.OCT.2014 23:37:58

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5795 MHz / Chain 1



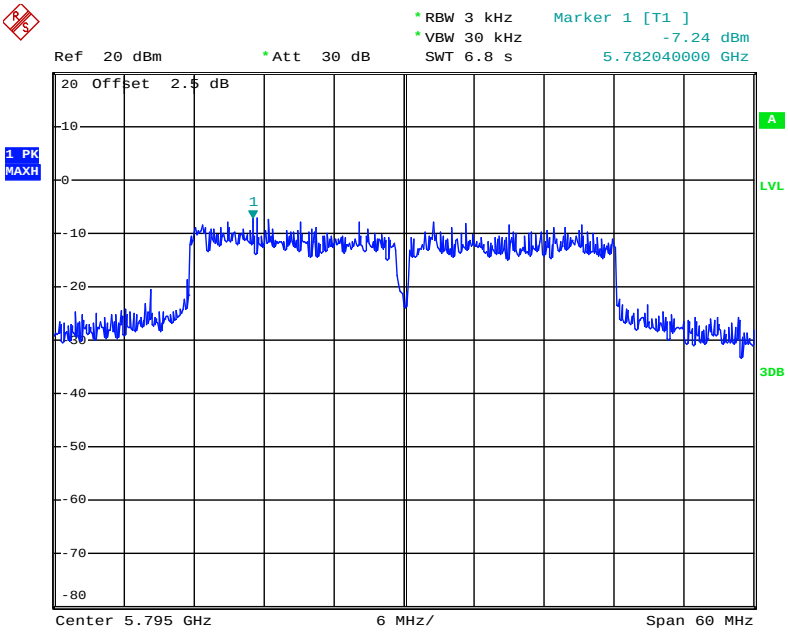
Date: 13.OCT.2014 23:44:27

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5795 MHz / Chain 2



Date: 13.OCT.2014 23:43:47

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / 5795 MHz / Chain 3



Date: 13.OCT.2014 23:43:08

4.3. 6dB Spectrum Bandwidth Measurement

4.3.1. Limit

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

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 Parameters	Setting
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	100kHz
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.3.3. 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.

4.3.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

This test setup layout is the same as that shown in section 4.4.4.

4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

For non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of 6dB Spectrum Bandwidth

Temperature	26°C	Humidity	63%
Test Engineer	Wen Chao / YC Chen	Configurations	IEEE 802.11b/n

For 2.4GHz Band

Mode 1 (Ant.1 Dipole antenna / 9dBi)

For Beamforming Mode

For 2TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.60	17.92	500	Complies
6	2437 MHz	17.68	17.92	500	Complies
11	2462 MHz	17.60	17.92	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	36.32	36.64	500	Complies
6	2437 MHz	35.84	36.64	500	Complies
9	2452 MHz	36.32	36.48	500	Complies

For 3TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.60	18.00	500	Complies
6	2437 MHz	17.60	17.92	500	Complies
11	2462 MHz	17.76	18.16	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	35.84	36.32	500	Complies
6	2437 MHz	35.84	36.32	500	Complies
9	2452 MHz	34.56	36.16	500	Complies

Mode 2 (Ant.3 Panel antenna / 14dBi)

For Beamforming Mode

For 2TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.60	17.92	500	Complies
6	2437 MHz	17.60	17.92	500	Complies
11	2462 MHz	17.60	17.92	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	33.28	36.64	500	Complies
6	2437 MHz	34.56	36.64	500	Complies
9	2452 MHz	36.32	36.64	500	Complies

For 3TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.68	18.00	500	Complies
6	2437 MHz	17.20	18.00	500	Complies
11	2462 MHz	16.32	18.08	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	36.48	36.80	500	Complies
6	2437 MHz	36.16	36.48	500	Complies
9	2452 MHz	36.48	36.64	500	Complies

Mode 3 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 8, Chain 2: 5.1, Chain 3: 8.2dBi)

For Beamforming Mode

For 3TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.60	17.92	500	Complies
6	2437 MHz	17.60	17.92	500	Complies
11	2462 MHz	17.60	18.08	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	36.16	36.64	500	Complies
6	2437 MHz	36.48	36.48	500	Complies
9	2452 MHz	35.84	36.64	500	Complies

For Non-Beamforming Mode

For 1TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.56	17.69	500	Complies
6	2437 MHz	17.30	17.88	500	Complies
11	2462 MHz	17.56	17.75	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	36.02	36.41	500	Complies
6	2437 MHz	35.76	36.28	500	Complies
9	2452 MHz	36.41	36.41	500	Complies

Configuration IEEE 802.11b / Chain 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	16.34	16.53	500	Complies
6	2437 MHz	16.15	17.05	500	Complies
11	2462 MHz	16.34	16.53	500	Complies

For 2TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.60	17.92	500	Complies
6	2437 MHz	17.60	17.92	500	Complies
11	2462 MHz	17.60	17.92	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	36.48	36.64	500	Complies
6	2437 MHz	34.72	36.64	500	Complies
9	2452 MHz	36.00	36.48	500	Complies

Configuration IEEE 802.11b / Chain 1 + Chain 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	8.08	12.48	500	Complies
6	2437 MHz	8.56	12.56	500	Complies
11	2462 MHz	8.64	12.48	500	Complies

For 3TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	16.64	17.52	500	Complies
6	2437 MHz	15.92	17.52	500	Complies
11	2462 MHz	16.32	17.52	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	36.48	36.80	500	Complies
6	2437 MHz	36.48	36.48	500	Complies
9	2452 MHz	36.48	36.64	500	Complies

Configuration IEEE 802.11b / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	10.08	14.40	500	Complies
6	2437 MHz	9.76	14.00	500	Complies
11	2462 MHz	11.20	14.16	500	Complies

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

For 5GHz Band

Mode 4 (Ant.6 Dipole antenna / 8dBi)

For Beamforming Mode

For 2TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	17.68	29.36	500	Complies
157	5785 MHz	17.52	28.64	500	Complies
165	5825 MHz	17.60	28.24	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	36.32	72.00	500	Complies
159	5795 MHz	36.32	72.00	500	Complies

For 3TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	15.76	18.72	500	Complies
157	5785 MHz	16.40	21.52	500	Complies
165	5825 MHz	16.00	21.92	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	35.84	45.44	500	Complies
159	5795 MHz	35.04	36.48	500	Complies

Mode 5 (Ant.16 Panel antenna / 3.5dBi)

For Beamforming Mode

For 2TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	12.64	27.44	500	Complies
157	5785 MHz	17.60	28.64	500	Complies
165	5825 MHz	17.60	27.84	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	35.36	36.32	500	Complies
159	5795 MHz	33.92	65.44	500	Complies

For 3TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	15.68	29.28	500	Complies
157	5785 MHz	15.76	29.76	500	Complies
165	5825 MHz	15.60	30.48	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	35.84	36.64	500	Complies
159	5795 MHz	31.36	64.96	500	Complies

Mode 6 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 6.7, Chain 2: 4.3, Chain 3: 6.6dBi)

For Beamforming Mode

For 3TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	16.00	27.84	500	Complies
157	5785 MHz	15.44	29.36	500	Complies
165	5825 MHz	15.36	28.88	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	32.80	63.84	500	Complies
159	5795 MHz	34.72	64.32	500	Complies

For Non-Beamforming Mode

For 1TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	17.56	25.19	500	Complies
157	5785 MHz	17.56	30.76	500	Complies
165	5825 MHz	17.56	30.70	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	36.41	36.92	500	Complies
159	5795 MHz	36.41	64.87	500	Complies

For 2TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	17.04	21.44	500	Complies
157	5785 MHz	17.60	29.12	500	Complies
165	5825 MHz	17.52	27.52	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	34.56	36.96	500	Complies
159	5795 MHz	36.32	70.40	500	Complies

For 3TX

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	15.84	27.92	500	Complies
157	5785 MHz	15.68	30.72	500	Complies
165	5825 MHz	15.76	29.84	500	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	35.04	36.48	500	Complies
159	5795 MHz	34.40	64.64	500	Complies

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

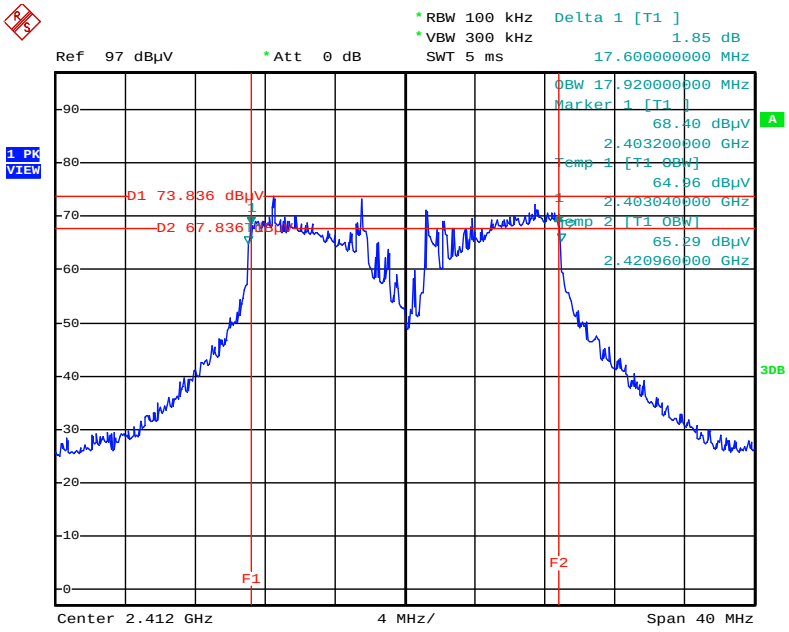
For plots, only the channel with worse result was shown.

Mode 1 (Ant.1 Dipole antenna / 9dBi)

For Beamforming Mode

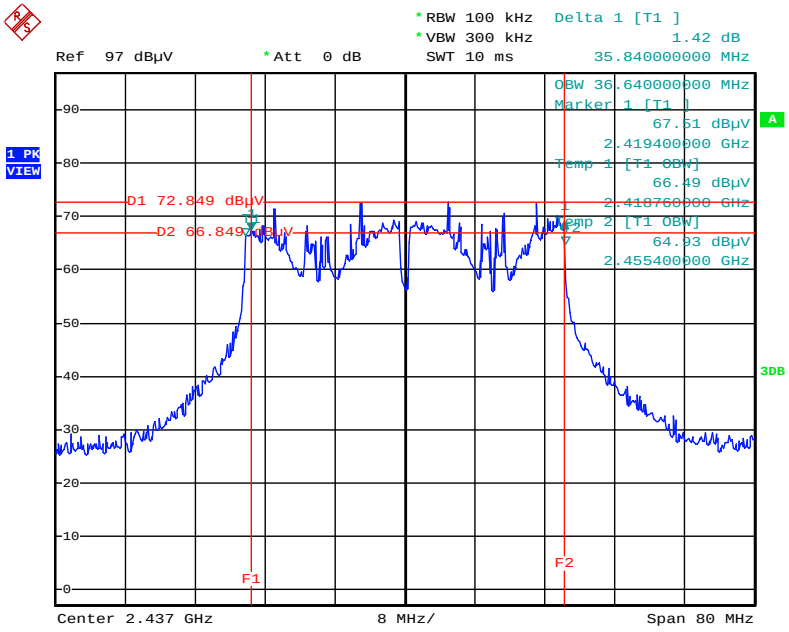
For 2TX

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



Date: 15.OCT.2014 00:32:49

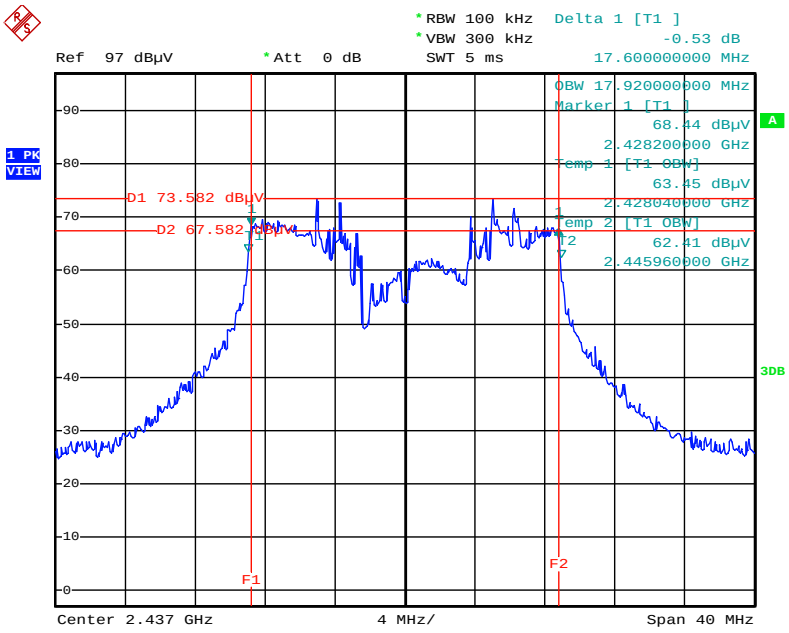
6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Chain 1 + Chain 2



Date: 15.OCT.2014 00:31:38

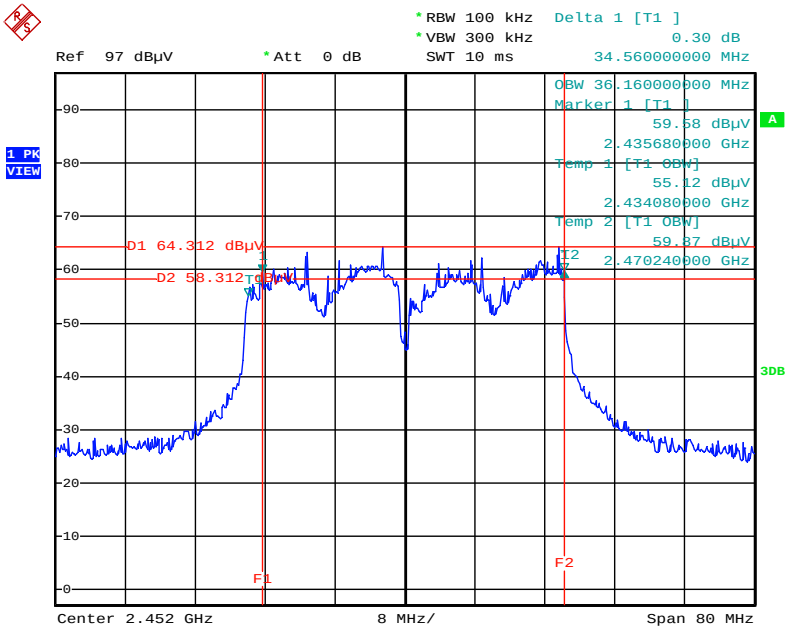
For 3TX

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Chain 1 + Chain 2 + Chain 3



Date: 15.OCT.2014 00:27:19

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 2452 MHz / Chain 1 + Chain 2 + Chain 3



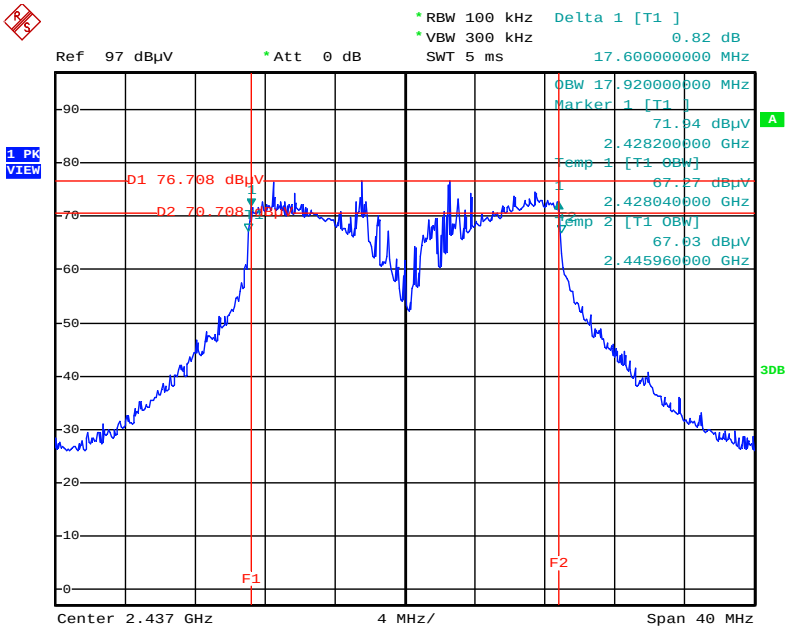
Date: 15.OCT.2014 00:30:00

Mode 2 (Ant.3 Panel antenna / 14dBi)

For Beamforming Mode

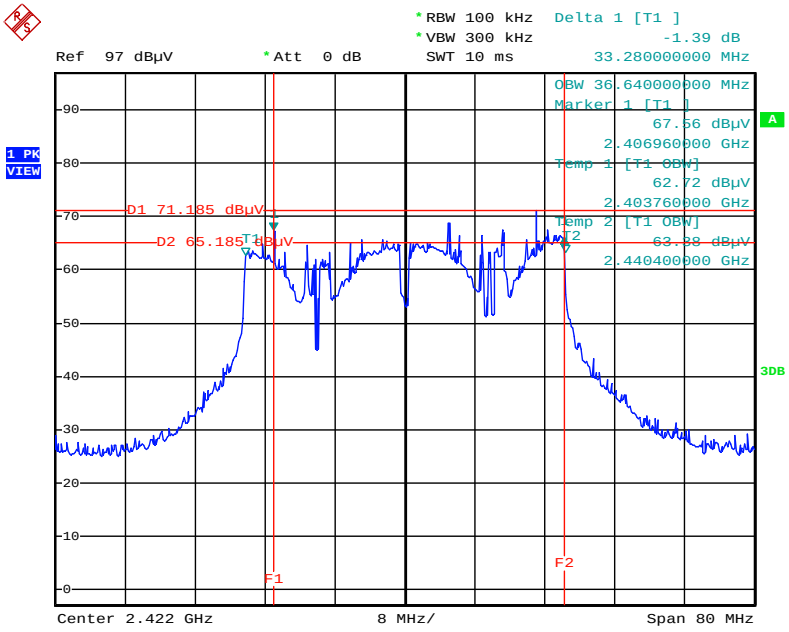
For 2TX

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Chain 1 + Chain 2



Date: 15.OCT.2014 02:01:29

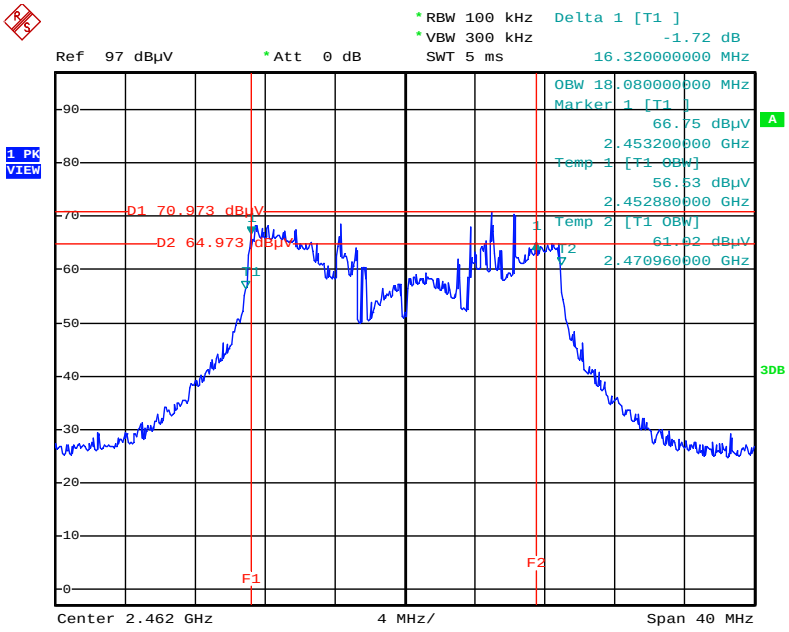
6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 2422 MHz / Chain 1 + Chain 2



Date: 15.OCT.2014 02:00:06

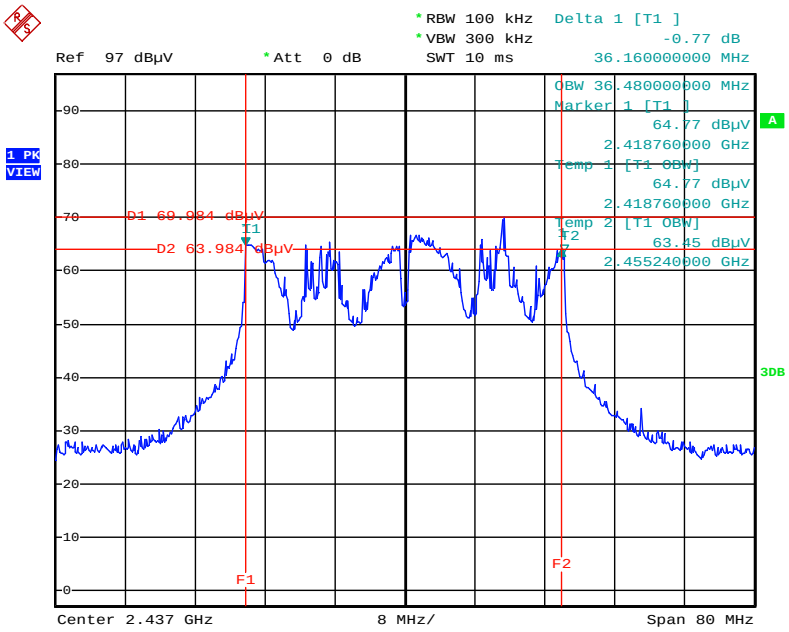
For 3TX

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 2462 MHz / Chain 1 + Chain 2 + Chain 3



Date: 15.OCT.2014 01:55:35

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Chain 1 + Chain 2 + Chain 3



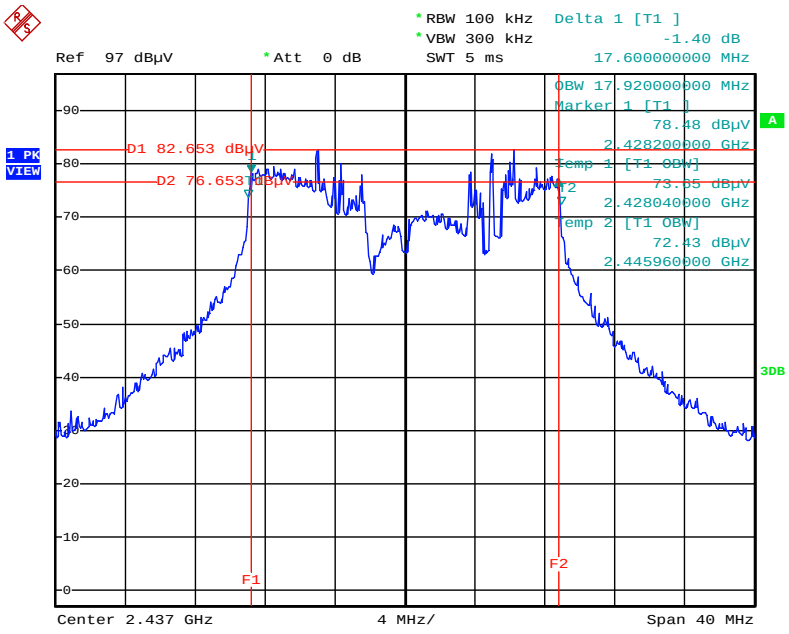
Date: 15.OCT.2014 01:57:22

Mode 3 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 8, Chain 2: 5.1, Chain 3: 8.2dBi)

For Beamforming Mode

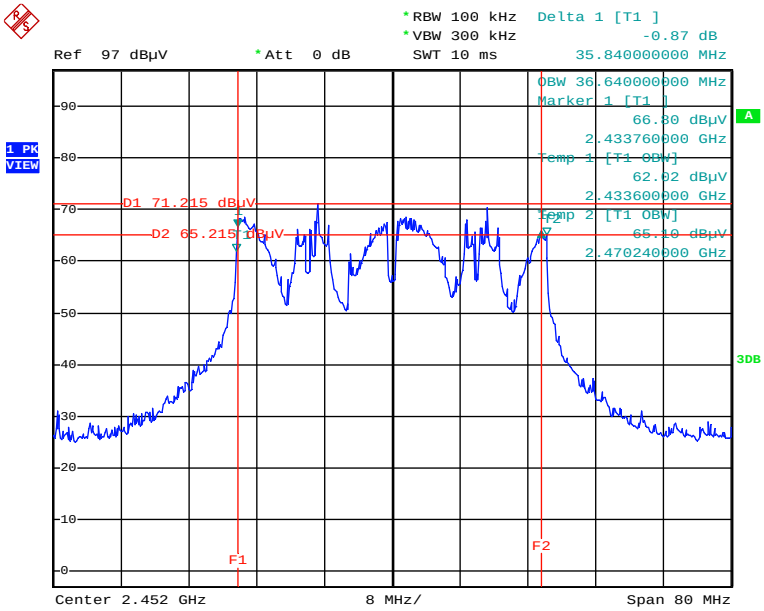
For 3TX

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Chain 1 + Chain 2 + Chain 3



Date: 14.OCT.2014 21:03:22

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 2452 MHz / Chain 1 + Chain 2 + Chain 3

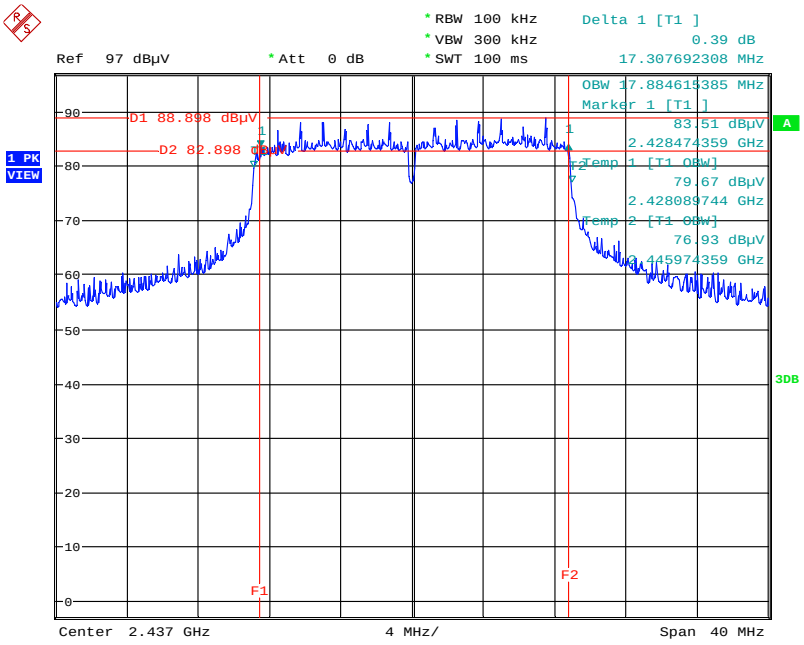


Date: 14.OCT.2014 21:07:04

For Non-Beamforming Mode

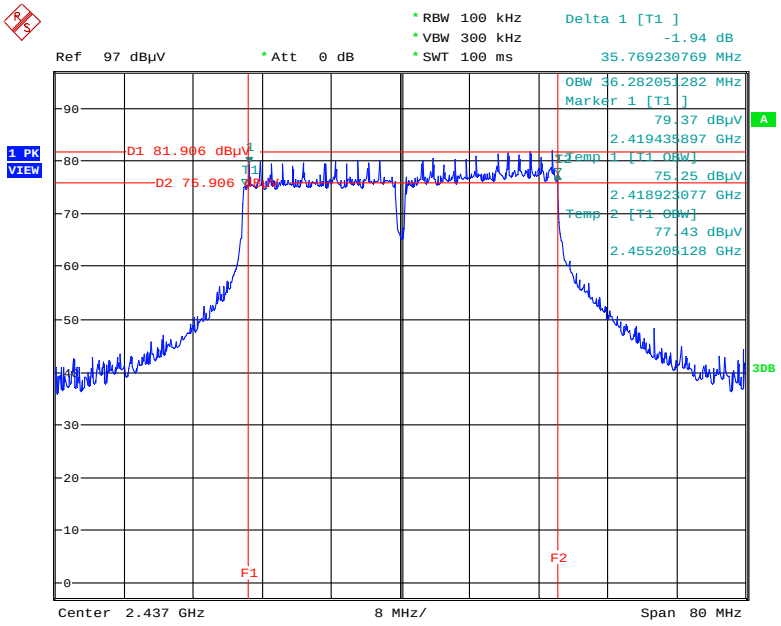
For 1TX

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



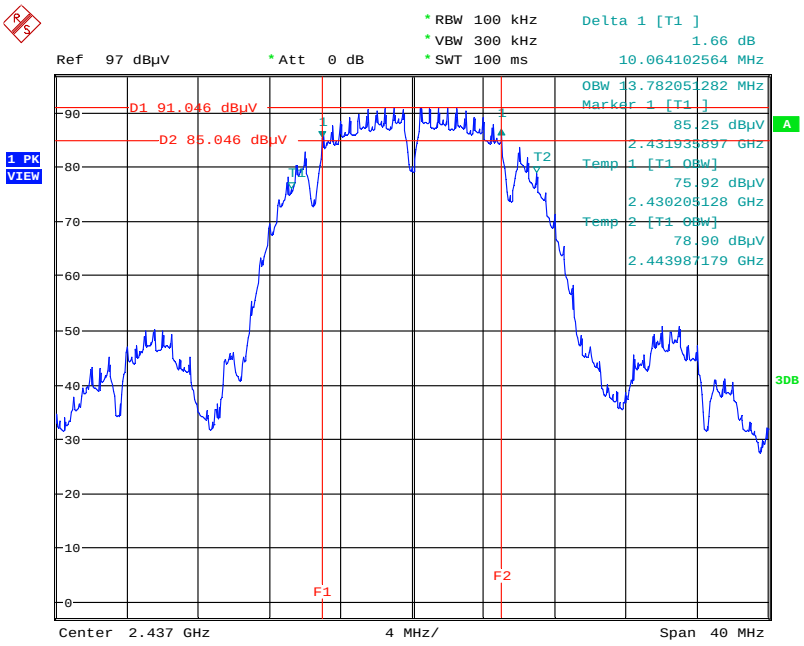
Date: 14.OCT.2014 16:48:50

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Chain 1



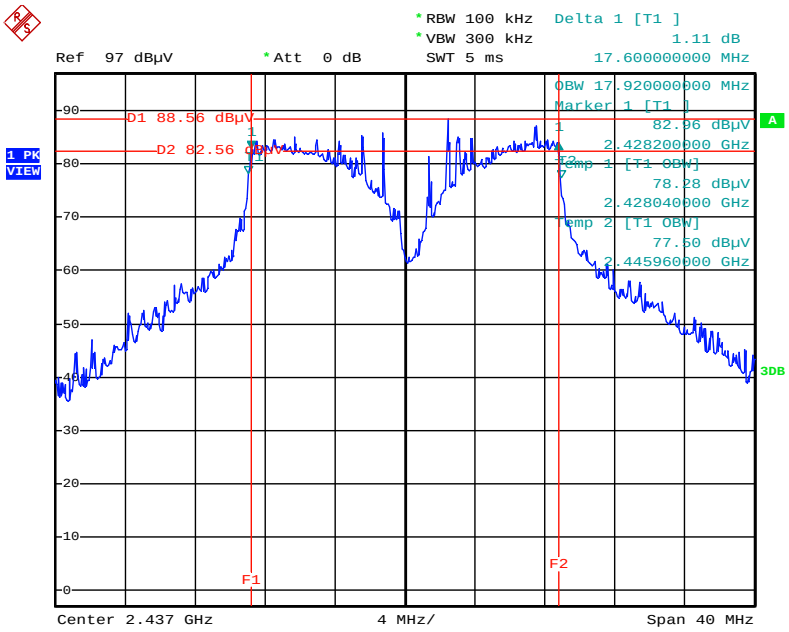
Date: 14.OCT.2014 16:52:45

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



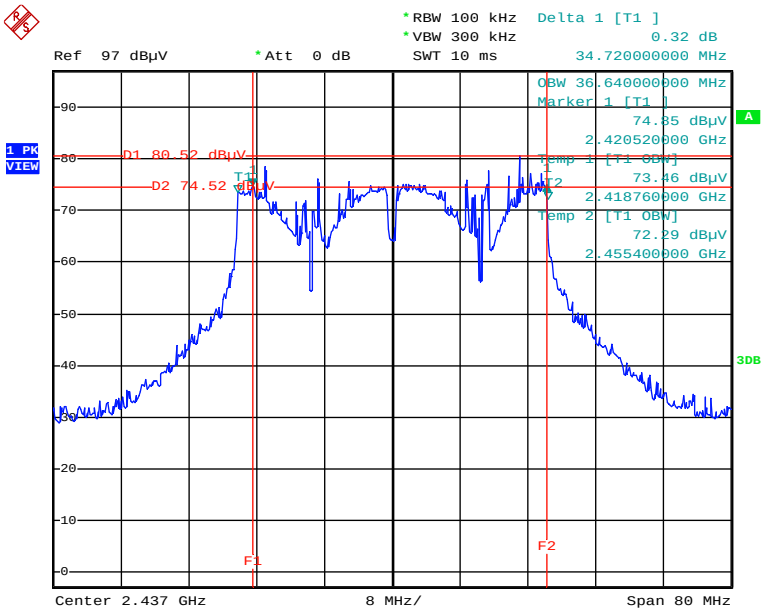
For 2TX

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Chain 1 + Chain 2



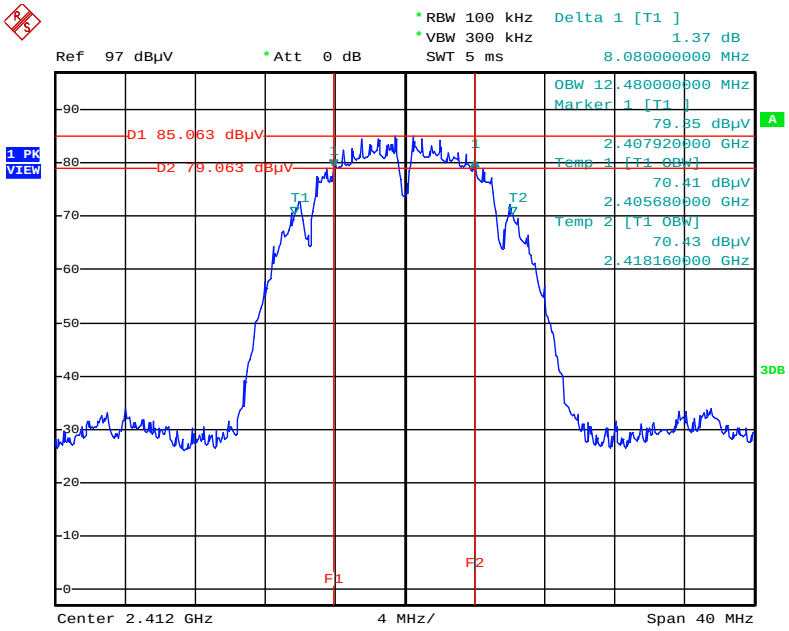
Date: 9.OCT.2014 23:14:56

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



Date: 9.OCT.2014 23:16:48

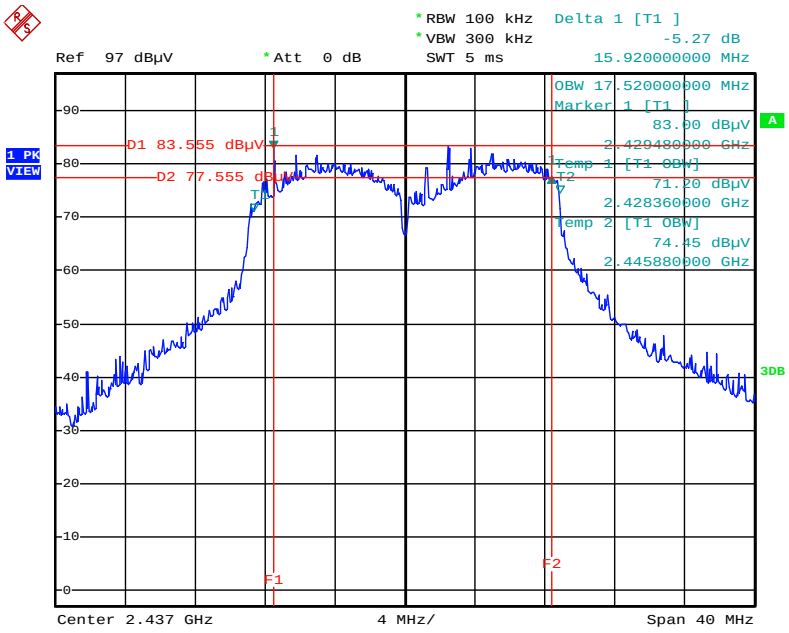
6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2412 MHz / Chain 1 + Chain 2



Date: 9.OCT.2014 23:09:55

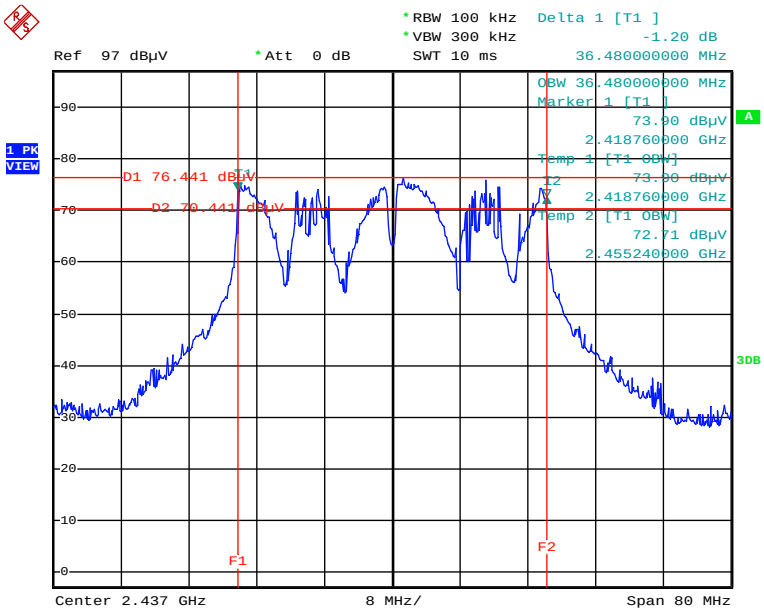
For 3TX

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 2437 MHz / Chain 1 + Chain 2 + Chain 3



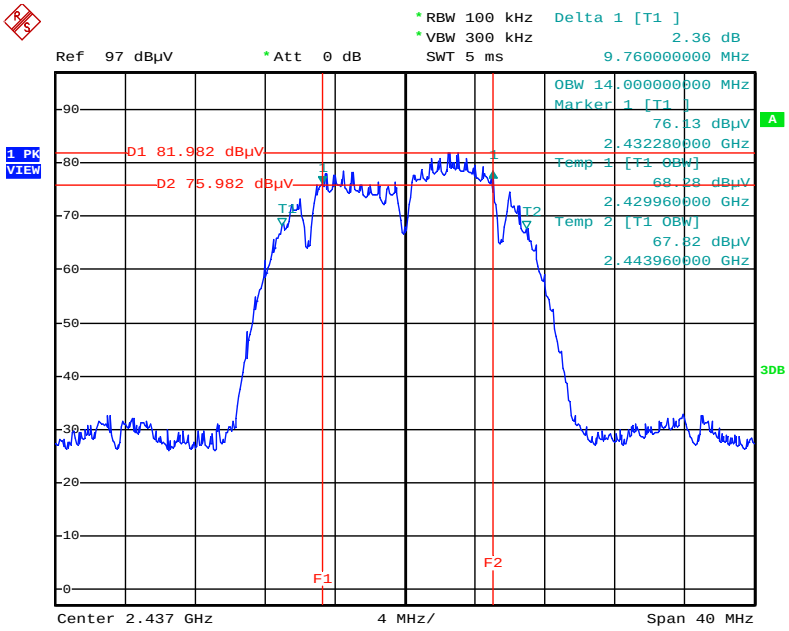
Date: 14.OCT.2014 00:10:04

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 2437 MHz / Chain 1 + Chain 2 + Chain 3



Date: 14.OCT.2014 00:12:21

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2437 MHz / Chain 1 + Chain 2 + Chain 3



Date: 14.OCT.2014 00:06:23

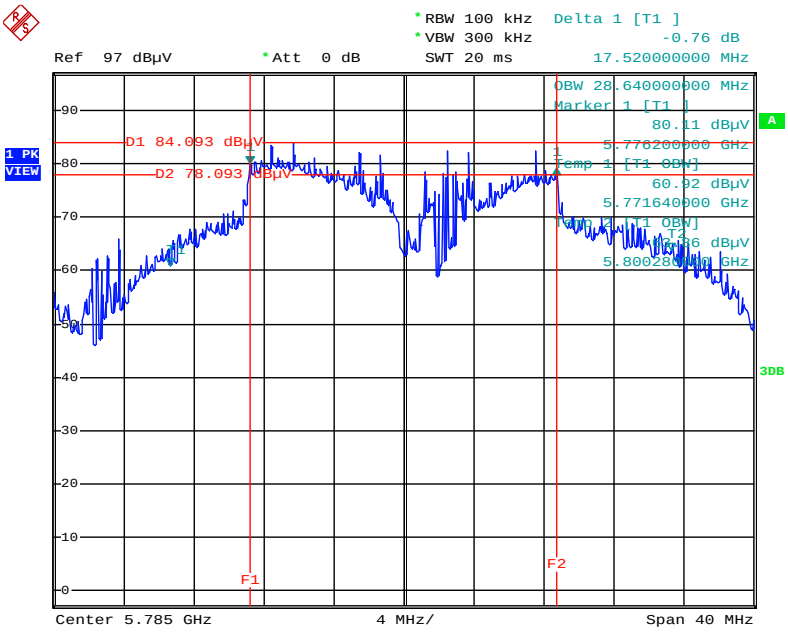
For 5GHz Band

Mode 4 (Ant.6 Dipole antenna / 8dBi)

For Beamforming Mode

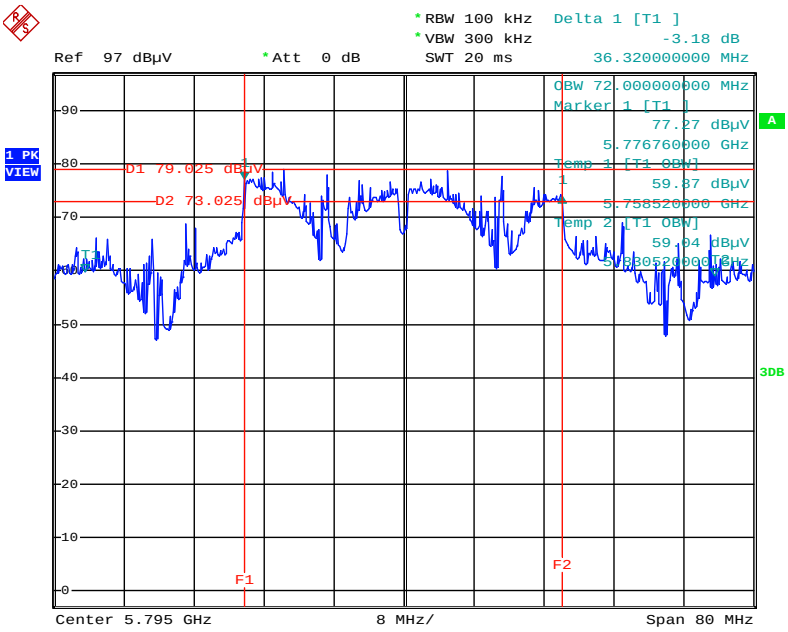
For 2TX

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 5785 MHz / Chain 1 + Chain 2



Date: 23.OCT.2014 11:33:19

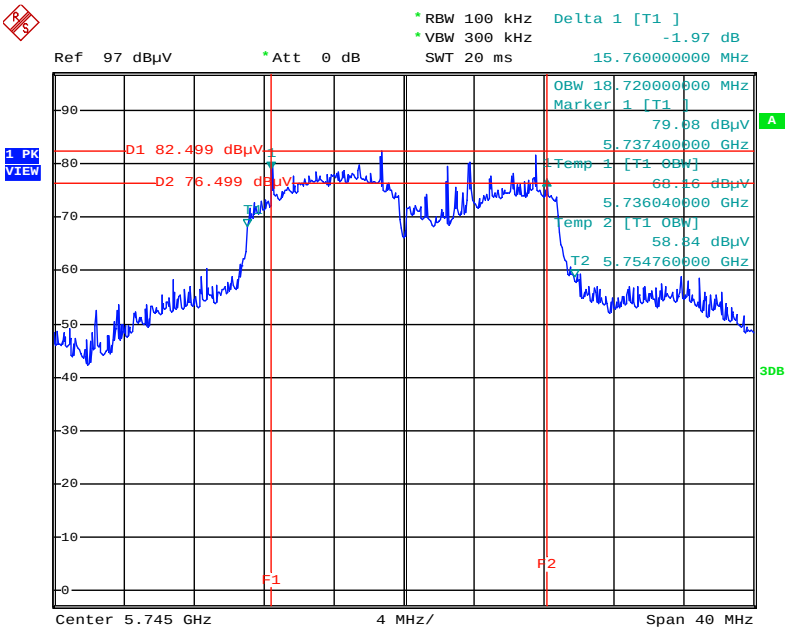
6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 5755 MHz / Chain 1 + Chain 2



Date: 23.OCT.2014 11:41:41

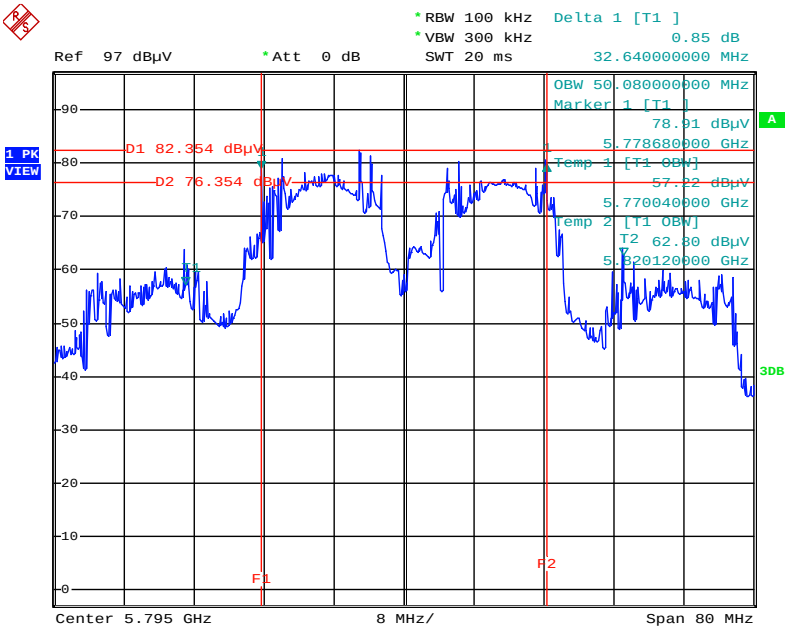
For 3TX

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 5745 MHz / Chain 1 + Chain 2 + Chain 3



Date: 15.OCT.2014 20:37:18

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 5795 MHz / Chain 1 + Chain 2 + Cahin 3



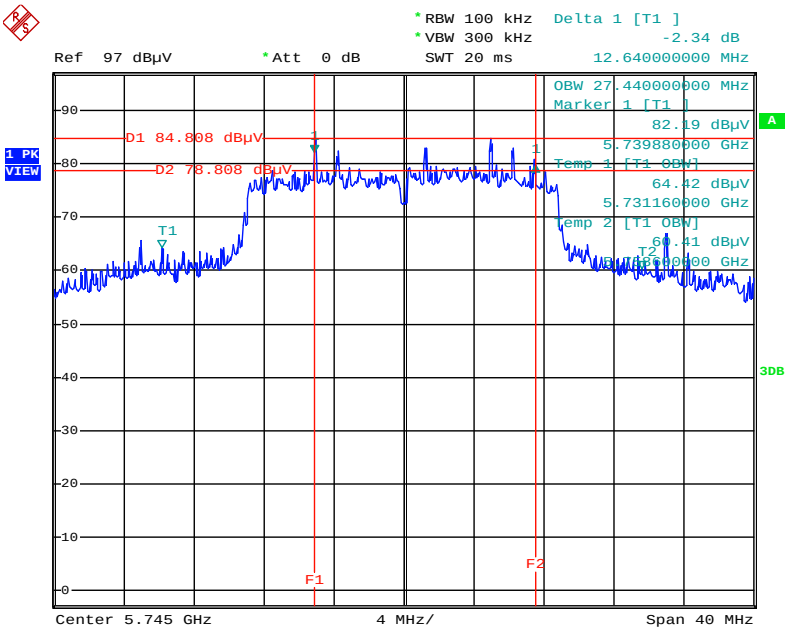
Date: 15.OCT.2014 20:30:17

Mode 5 (Ant.16 Panel antenna / 3.5dBi)

For Beamforming Mode

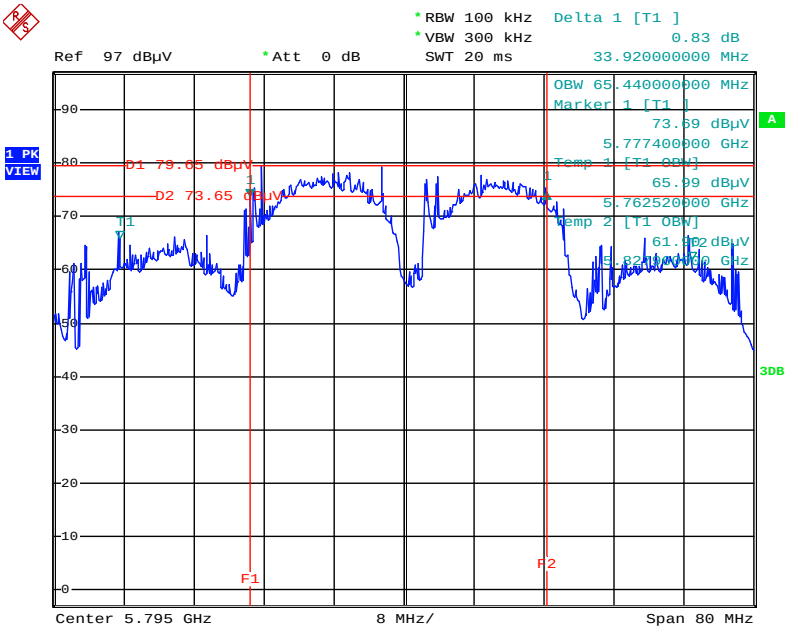
For 2TX

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 5745 MHz / Chain 1 + Chain 2



Date: 16.OCT.2014 18:08:46

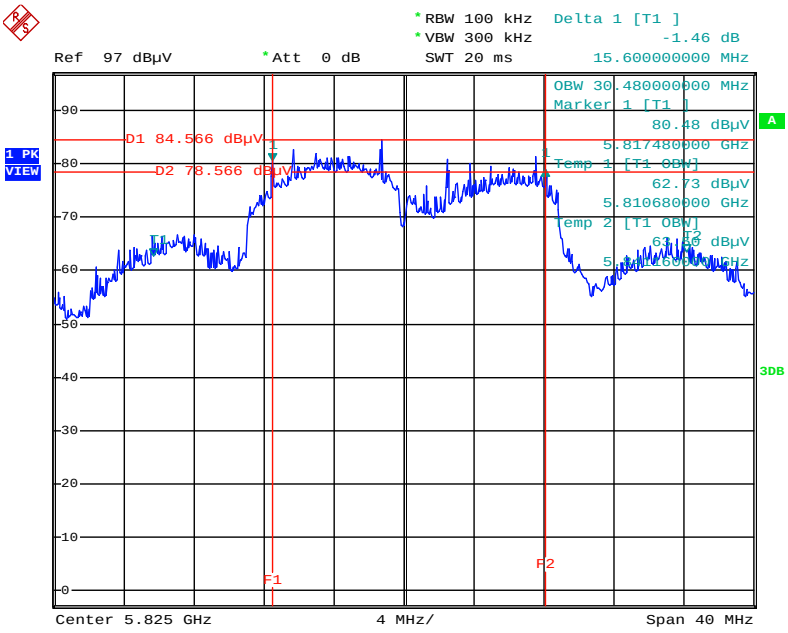
6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 5795 MHz / Chain 1 + Chain 2



Date: 16.OCT.2014 18:03:53

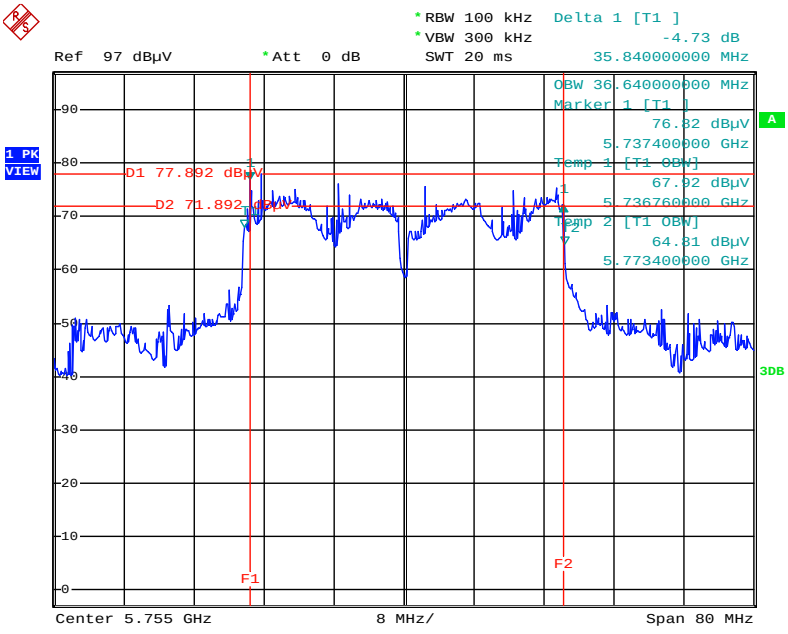
For 3TX

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 5825 MHz / Chain 1 + Chain 2 + Chain 3



Date: 16.OCT.2014 15:57:20

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 5795 MHz / Chain 1 + Chain 2 + Cahin 3



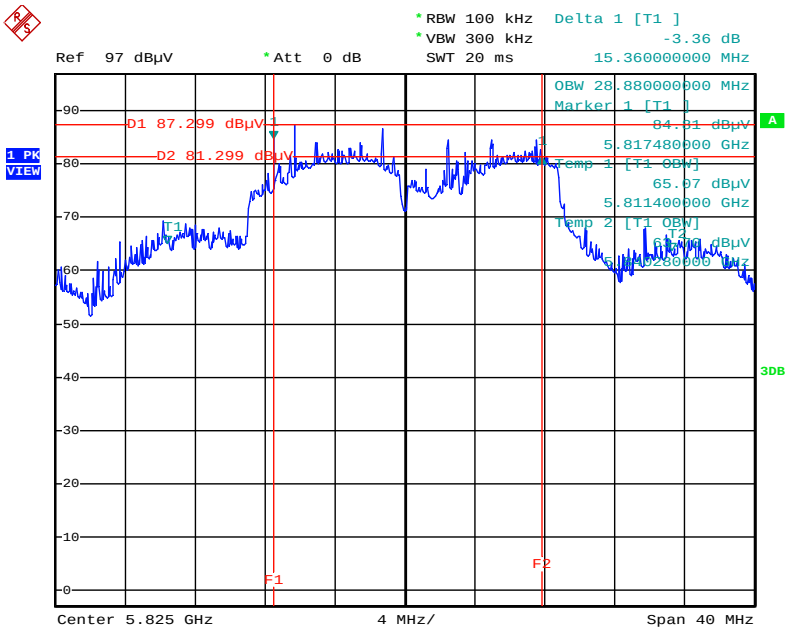
Date: 16.OCT.2014 15:54:05

Mode 6 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 6.7, Chain 2: 4.3, Chain 3: 6.6dBi)

For Beamforming Mode

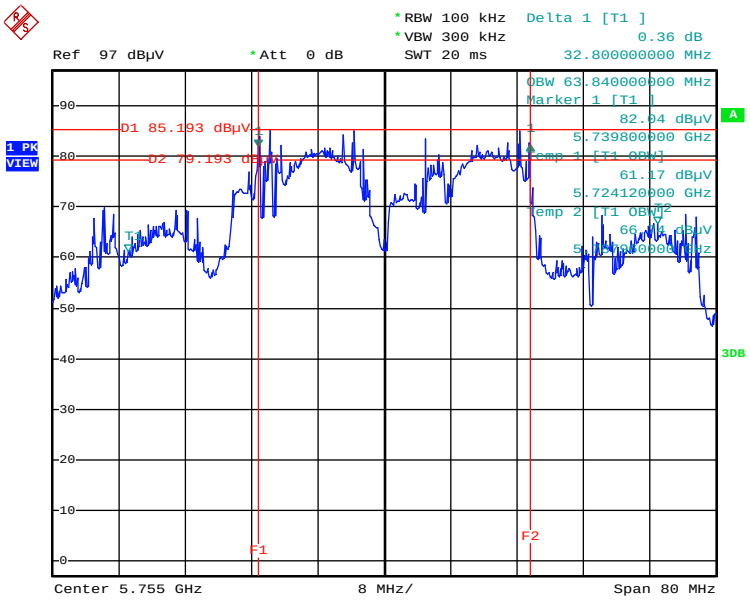
For 3TX

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 5825 MHz / Chain 1 + Chain 2 + Chain 3



Date: 14.OCT.2014 21:09:28

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 5755 MHz / Chain 1 + Chain 2 + Cahin 3

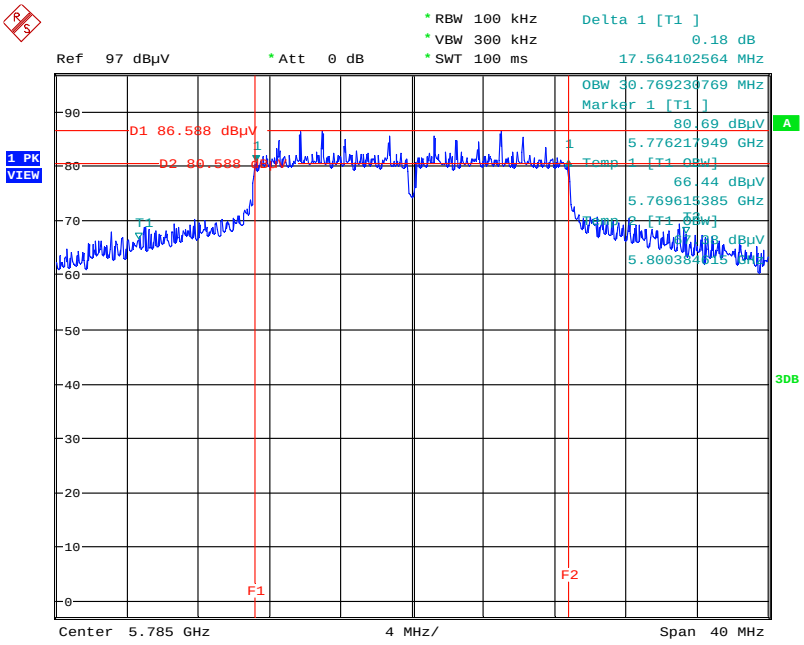


Date: 14.OCT.2014 21:10:02

For Non-Beamforming Mode

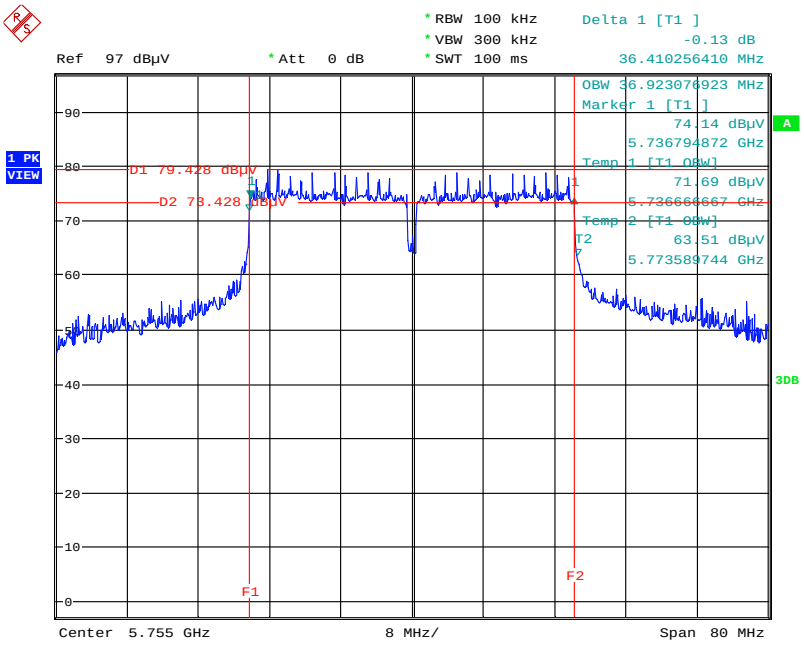
For 1TX

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 5785 MHz / Chain 1



Date: 14.OCT.2014 17:01:56

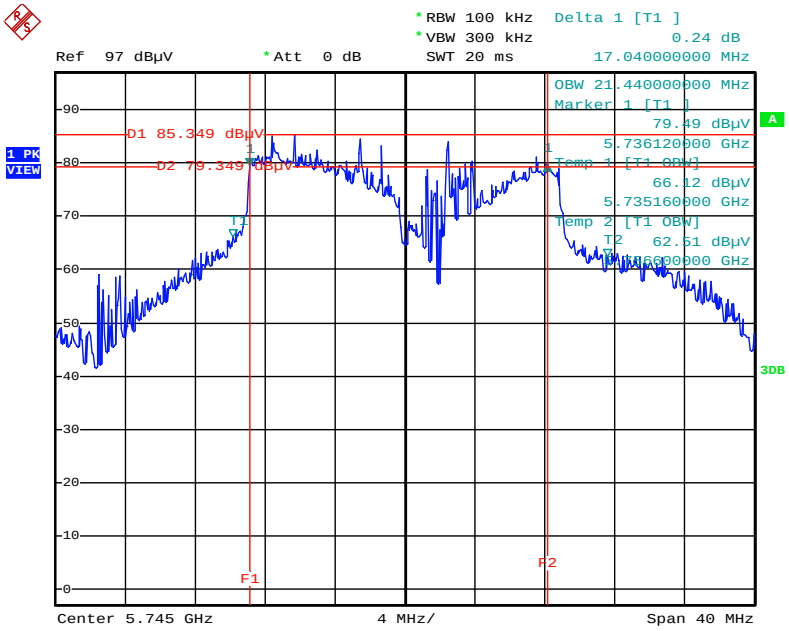
6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 5755 MHz / Chain 1



Date: 14.OCT.2014 17:05:37

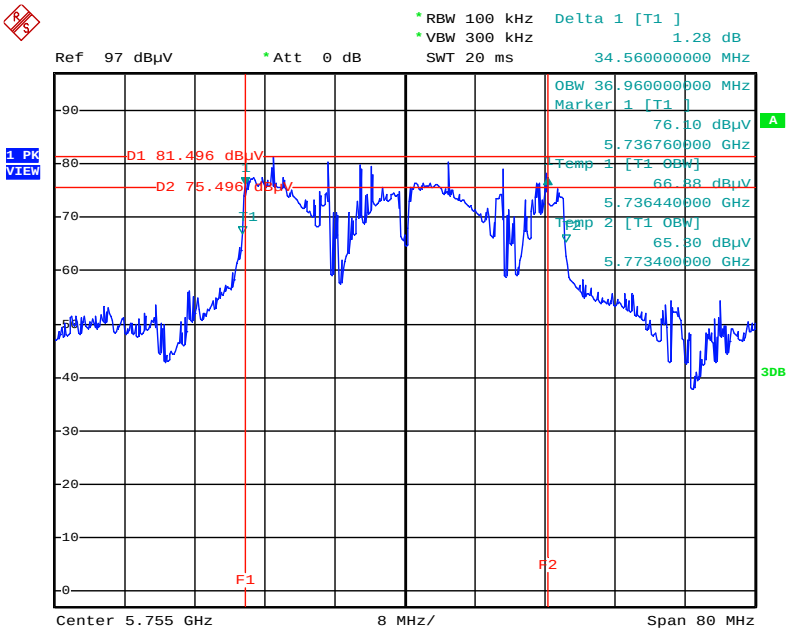
For 2TX

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 5745 MHz / Chain 1 + Chain 2



Date: 9.OCT.2014 23:21:47

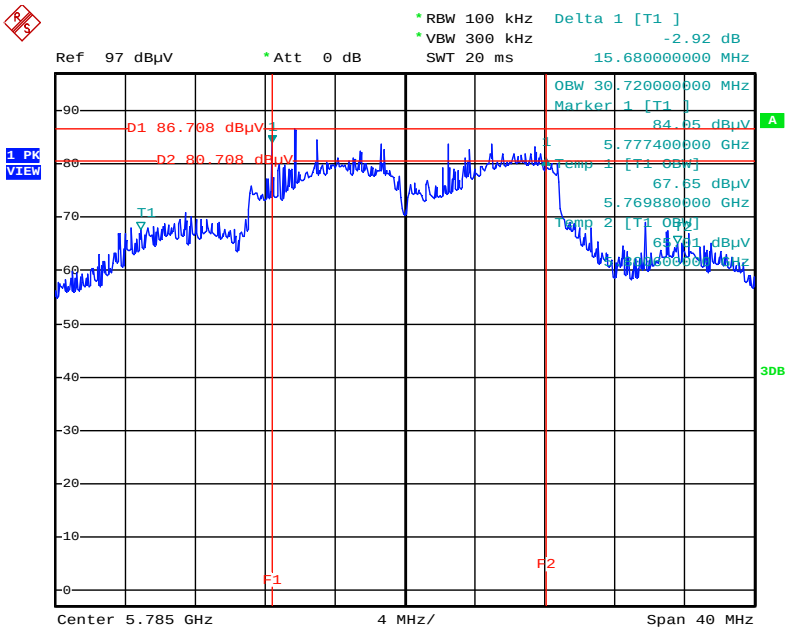
6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 5755 MHz / Chain 1 + Chain 2



Date: 9.OCT.2014 23:22:27

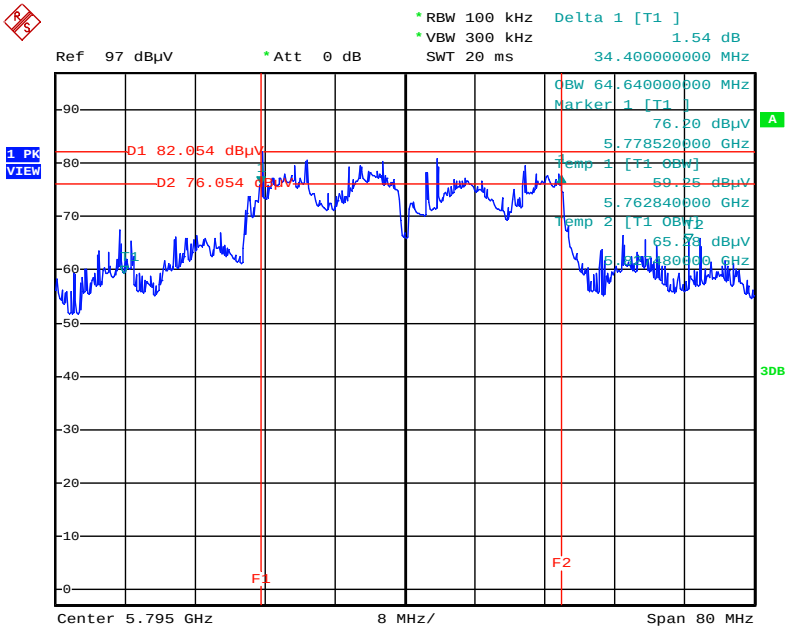
For 3TX

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / 5785 MHz / Chain 1 + Chain 2 + Chain 3



Date: 14.OCT.2014 00:16:50

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / 5795 MHz / Chain 1 + Chain 2 + Cahin 3



Date: 14.OCT.2014 00:18:53

4.4. Radiated Emissions Measurement

4.4.1. 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

4.4.2. 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

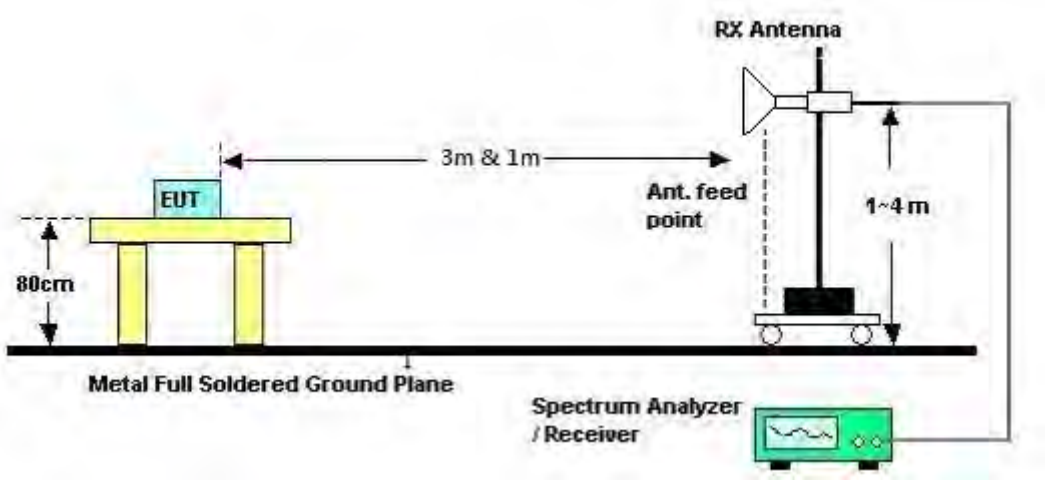
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.4.3. Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 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.

4.4.4. Test Setup Layout

For Radiated Emissions: Above 1GHz



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

For non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

The measured result was added array gain 10*log(2)=3.01dBi as worse case in beamforming mode.

The measured result was added array gain 10*log(3)=4.77dBi as worse case in beamforming mode.

4.4.7. Results for Radiated Emissions (1GHz~10th Harmonic)

For 2.4GHz Band

Mode 1 (Ant.1 Dipole antenna / 9dBi)

For Beamforming Mode

For 2TX

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 1 / Chain 1 + Chain 2
Test Date	Sep. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4816.32	35.28	54.00	-18.72	30.57	6.11	33.52	34.92	Average	102	240	HORIZONTAL
2	4833.16	47.53	74.00	-26.47	42.78	6.11	33.56	34.92	Peak	102	240	HORIZONTAL
3	7233.16	53.08	74.00	-20.92	43.55	8.22	36.48	35.17	Peak	103	292	HORIZONTAL
4	7235.72	40.12	54.00	-13.88	30.58	8.24	36.48	35.18	Average	103	292	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4816.24	35.27	54.00	-18.73	30.56	6.11	33.52	34.92	Average	101	316	VERTICAL
2	4830.64	47.43	74.00	-26.57	42.68	6.11	33.56	34.92	Peak	101	316	VERTICAL
3	7227.72	40.20	54.00	-13.80	30.71	8.22	36.44	35.17	Average	106	269	VERTICAL
4	7240.80	52.92	74.00	-21.08	43.38	8.24	36.48	35.18	Peak	106	269	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 6 / Chain 1 + Chain 2
Test Date	Sep. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4869.40	47.79	74.00	-26.21	42.97	6.08	33.66	34.92	Peak	101	103	HORIZONTAL
2	4876.56	35.07	54.00	-18.93	30.25	6.08	33.66	34.92	Average	101	103	HORIZONTAL
3	7303.40	39.09	54.00	-14.91	29.36	8.28	36.64	35.19	Average	102	196	HORIZONTAL
4	7314.60	52.11	74.00	-21.89	42.36	8.30	36.64	35.19	Peak	102	196	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4872.60	47.25	74.00	-26.75	42.43	6.08	33.66	34.92	Peak	100	208	VERTICAL
2	4876.80	35.23	54.00	-18.77	30.41	6.08	33.66	34.92	Average	100	208	VERTICAL
3	7302.84	39.10	54.00	-14.90	29.37	8.28	36.64	35.19	Average	100	75	VERTICAL
4	7309.32	51.32	74.00	-22.68	41.59	8.28	36.64	35.19	Peak	100	75	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 11 / Chain 1 + Chain 2
Test Date	Sep. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4915.00	48.21	74.00	-25.79	43.34	6.05	33.73	34.91	Peak	101	137	HORIZONTAL
2	4918.64	35.04	54.00	-18.96	30.14	6.05	33.76	34.91	Average	101	137	HORIZONTAL
3	7378.40	39.94	54.00	-14.06	30.00	8.34	36.81	35.21	Average	101	285	HORIZONTAL
4	7384.16	52.98	74.00	-21.02	43.00	8.34	36.85	35.21	Peak	101	285	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4914.96	35.05	54.00	-18.95	30.18	6.05	33.73	34.91	Average	101	313	VERTICAL
2	4919.40	47.42	74.00	-26.58	42.52	6.05	33.76	34.91	Peak	101	313	VERTICAL
3	7382.12	39.97	54.00	-14.03	30.03	8.34	36.81	35.21	Average	101	80	VERTICAL
4	7384.44	53.13	74.00	-20.87	43.15	8.34	36.85	35.21	Peak	101	80	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 3 / Chain 1 + Chain 2
Test Date	Sep. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4842.96	47.71	74.00	-26.29	42.94	6.10	33.59	34.92	Peak	101	153	HORIZONTAL
2	4853.04	35.12	54.00	-18.88	30.32	6.10	33.62	34.92	Average	101	153	HORIZONTAL
3	7256.00	39.91	54.00	-14.09	30.33	8.24	36.52	35.18	Average	101	27	HORIZONTAL
4	7261.16	52.34	74.00	-21.66	42.75	8.26	36.52	35.19	Peak	101	27	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4852.92	47.68	74.00	-26.32	42.88	6.10	33.62	34.92	Peak	101	42	VERTICAL
2	4853.48	35.00	54.00	-19.00	30.20	6.10	33.62	34.92	Average	101	42	VERTICAL
3	7261.08	39.90	54.00	-14.10	30.31	8.26	36.52	35.19	Average	114	327	VERTICAL
4	7263.64	52.65	74.00	-21.35	43.06	8.26	36.52	35.19	Peak	114	327	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 6 / Chain 1 + Chain 2
Test Date	Sep. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4867.20	47.44	74.00	-26.56	42.66	6.08	33.62	34.92	Peak	105	245	HORIZONTAL
2	4876.16	35.02	54.00	-18.98	30.20	6.08	33.66	34.92	Average	105	245	HORIZONTAL
3	7305.68	39.13	54.00	-14.87	29.40	8.28	36.64	35.19	Average	100	197	HORIZONTAL
4	7315.64	51.84	74.00	-22.16	42.04	8.30	36.69	35.19	Peak	100	197	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4876.28	35.14	54.00	-18.86	30.32	6.08	33.66	34.92	Average	100	291	VERTICAL
2	4876.28	47.34	74.00	-26.66	42.52	6.08	33.66	34.92	Peak	100	291	VERTICAL
3	7302.16	39.11	54.00	-14.89	29.38	8.28	36.64	35.19	Average	100	251	VERTICAL
4	7305.40	52.00	74.00	-22.00	42.27	8.28	36.64	35.19	Peak	100	251	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 9 / Chain 1 + Chain 2
Test Date	Sep. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4898.56	48.44	74.00	-25.56	43.59	6.07	33.69	34.91	Peak	101	123	HORIZONTAL
2	4901.68	34.89	54.00	-19.11	30.00	6.07	33.73	34.91	Average	101	123	HORIZONTAL
3	7365.16	52.30	74.00	-21.70	42.40	8.34	36.77	35.21	Peak	100	150	HORIZONTAL
4	7365.44	39.65	54.00	-14.35	29.75	8.34	36.77	35.21	Average	100	150	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4901.04	35.16	54.00	-18.84	30.31	6.07	33.69	34.91	Average	100	204	VERTICAL
2	4901.96	48.82	74.00	-25.18	43.93	6.07	33.73	34.91	Peak	100	204	VERTICAL
3	7363.96	52.19	74.00	-21.81	42.29	8.34	36.77	35.21	Peak	100	204	VERTICAL
4	7366.00	39.61	54.00	-14.39	29.71	8.34	36.77	35.21	Average	100	204	VERTICAL

For 3TX

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 1 / Chain 1 + Chain 2 + Chain 3
Test Date	Sep. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4814.56	48.84	74.00	-25.16	44.13	6.11	33.52	34.92	Peak	101	173	HORIZONTAL
2	4816.24	36.72	54.00	-17.28	32.01	6.11	33.52	34.92	Average	101	173	HORIZONTAL
3	7234.36	41.52	54.00	-12.48	31.99	8.22	36.48	35.17	Average	105	319	HORIZONTAL
4	7238.28	53.71	74.00	-20.29	44.17	8.24	36.48	35.18	Peak	105	319	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4819.60	36.87	54.00	-17.13	32.12	6.11	33.56	34.92	Average	100	324	VERTICAL
2	4820.52	48.88	74.00	-25.12	44.13	6.11	33.56	34.92	Peak	100	324	VERTICAL
3	7229.44	55.56	74.00	-18.44	46.07	8.22	36.44	35.17	Peak	100	205	VERTICAL
4	7231.56	41.62	54.00	-12.38	32.09	8.22	36.48	35.17	Average	100	205	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 6 / Chain 1 + Chain 2 + Chain 3
Test Date	Sep. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4874.20	36.61	54.00	-17.39	31.79	6.08	33.66	34.92	Average	100	110	HORIZONTAL
2	4883.36	50.40	74.00	-23.60	45.58	6.08	33.66	34.92	Peak	100	110	HORIZONTAL
3	7311.92	40.49	54.00	-13.51	30.74	8.30	36.64	35.19	Average	100	180	HORIZONTAL
4	7318.56	54.05	74.00	-19.95	44.25	8.30	36.69	35.19	Peak	100	180	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4866.08	49.72	74.00	-24.28	44.94	6.08	33.62	34.92	Peak	100	107	VERTICAL
2	4874.04	36.80	54.00	-17.20	31.98	6.08	33.66	34.92	Average	100	107	VERTICAL
3	7301.16	40.67	54.00	-13.33	30.94	8.28	36.64	35.19	Average	100	234	VERTICAL
4	7320.80	53.17	74.00	-20.83	43.37	8.30	36.69	35.19	Peak	100	234	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 11 / Chain 1 + Chain 2 + Chain 3
Test Date	Sep. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4916.44	36.28	54.00	-17.72	31.41	6.05	33.73	34.91	Average	100	295	HORIZONTAL
2	4916.88	49.08	74.00	-24.92	44.21	6.05	33.73	34.91	Peak	100	295	HORIZONTAL
3	7376.64	41.22	54.00	-12.78	31.28	8.34	36.81	35.21	Average	100	318	HORIZONTAL
4	7395.32	54.21	74.00	-19.79	44.20	8.37	36.85	35.21	Peak	100	318	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4914.16	50.40	74.00	-23.60	45.51	6.07	33.73	34.91	Peak	134	19	VERTICAL
2	4926.24	36.51	54.00	-17.49	31.61	6.05	33.76	34.91	Average	134	19	VERTICAL
3	7377.64	54.49	74.00	-19.51	44.55	8.34	36.81	35.21	Peak	100	274	VERTICAL
4	7379.12	41.27	54.00	-12.73	31.33	8.34	36.81	35.21	Average	100	274	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 3 / Chain 1 + Chain 2 + Chain 3
Test Date	Sep. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4841.24	36.37	54.00	-17.63	31.60	6.10	33.59	34.92	Average	101	204	HORIZONTAL
2	4852.52	49.51	74.00	-24.49	44.71	6.10	33.62	34.92	Peak	101	204	HORIZONTAL
3	7257.64	41.43	54.00	-12.57	31.85	8.24	36.52	35.18	Average	101	301	HORIZONTAL
4	7260.32	54.01	74.00	-19.99	44.42	8.26	36.52	35.19	Peak	101	301	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4860.10	36.98	54.00	-17.02	32.18	6.10	33.62	34.92	Average	101	273	VERTICAL
2	4867.40	49.55	74.00	-24.45	44.77	6.08	33.62	34.92	Peak	101	273	VERTICAL
3	7256.84	41.40	54.00	-12.60	31.82	8.24	36.52	35.18	Average	101	124	VERTICAL
4	7257.52	54.95	74.00	-19.05	45.37	8.24	36.52	35.18	Peak	101	124	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 6 / Chain 1 + Chain 2 + Chain 3
Test Date	Sep. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4863.00	49.03	74.00	-24.97	44.23	6.10	33.62	34.92	Peak	101	38	HORIZONTAL
2	4866.10	36.75	54.00	-17.25	31.97	6.08	33.62	34.92	Average	101	38	HORIZONTAL
3	7286.20	41.07	54.00	-12.93	31.38	8.28	36.60	35.19	Average	101	127	HORIZONTAL
4	7313.40	53.32	74.00	-20.68	43.57	8.30	36.64	35.19	Peak	101	127	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4886.40	49.50	74.00	-24.50	44.65	6.08	33.69	34.92	Peak	101	318	VERTICAL
2	4888.50	36.93	54.00	-17.07	32.08	6.08	33.69	34.92	Average	101	318	VERTICAL
3	7286.20	41.47	54.00	-12.53	31.78	8.28	36.60	35.19	Average	101	126	VERTICAL
4	7299.80	52.82	74.00	-21.18	43.09	8.28	36.64	35.19	Peak	101	126	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 9 / Chain 1 + Chain 2 + Chain 3
Test Date	Sep. 26, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4895.80	48.92	74.00	-25.08	44.07	6.07	33.69	34.91	Peak	100	19	HORIZONTAL
2	4900.40	36.88	54.00	-17.12	32.03	6.07	33.69	34.91	Average	100	19	HORIZONTAL
3	7358.50	54.53	74.00	-19.47	44.64	8.32	36.77	35.20	Peak	100	219	HORIZONTAL
4	7376.20	41.52	54.00	-12.48	31.58	8.34	36.81	35.21	Average	100	219	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4888.00	36.83	54.00	-17.17	31.98	6.08	33.69	34.92	Average	100	287	VERTICAL
2	4896.40	49.22	74.00	-24.78	44.37	6.07	33.69	34.91	Peak	100	287	VERTICAL
3	7361.80	53.41	74.00	-20.59	43.52	8.32	36.77	35.20	Peak	100	118	VERTICAL
4	7376.90	41.38	54.00	-12.62	31.44	8.34	36.81	35.21	Average	100	118	VERTICAL

Mode 2 (Ant.3 Panel antenna / 14dBi)

For Beamforming Mode

For 2TX

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 1 / Chain 1 + Chain 2
Test Date	Oct. 03, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4821.88	49.02	74.00	-24.98	44.27	6.11	33.56	34.92	101	101	Peak	HORIZONTAL
2	4828.88	35.86	54.00	-18.14	31.11	6.11	33.56	34.92	101	101	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4828.44	35.97	54.00	-18.03	31.22	6.11	33.56	34.92	154	121	Average	VERTICAL
2	4829.88	49.33	74.00	-24.67	44.58	6.11	33.56	34.92	154	121	Peak	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 6 / Chain 1 + Chain 2
Test Date	Oct. 03, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4874.56	36.12	54.00	-17.88	31.30	6.08	33.66	34.92	154	131	Average	HORIZONTAL
2	4878.64	48.81	74.00	-25.19	43.99	6.08	33.66	34.92	154	131	Peak	HORIZONTAL
3	7312.92	40.79	54.00	-13.21	31.04	8.30	36.64	35.19	259	107	Average	HORIZONTAL
4	7315.80	54.01	74.00	-19.99	44.21	8.30	36.69	35.19	259	107	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4874.00	36.25	54.00	-17.75	31.43	6.08	33.66	34.92	310	132	Average	VERTICAL
2	4874.72	49.11	74.00	-24.89	44.29	6.08	33.66	34.92	310	132	Peak	VERTICAL
3	7303.36	53.83	74.00	-20.17	44.10	8.28	36.64	35.19	187	105	Peak	VERTICAL
4	7315.72	40.75	54.00	-13.25	30.95	8.30	36.69	35.19	187	105	Average	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 11 / Chain 1 + Chain 2
Test Date	Oct. 03, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4916.32	35.59	54.00	-18.41	30.72	6.05	33.73	34.91	243	142	Average	HORIZONTAL
2	4918.64	48.86	74.00	-25.14	43.96	6.05	33.76	34.91	243	142	Peak	HORIZONTAL
3	7387.80	54.56	74.00	-19.44	44.55	8.37	36.85	35.21	34	110	Peak	HORIZONTAL
4	7394.52	41.21	54.00	-12.79	31.20	8.37	36.85	35.21	34	110	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4914.52	35.48	54.00	-18.52	30.61	6.05	33.73	34.91	308	112	Average	VERTICAL
2	4929.64	48.13	74.00	-25.87	43.23	6.05	33.76	34.91	308	112	Peak	VERTICAL
3	7390.20	54.35	74.00	-19.65	44.34	8.37	36.85	35.21	180	100	Peak	VERTICAL
4	7395.40	41.20	54.00	-12.80	31.19	8.37	36.85	35.21	180	100	Average	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 3 / Chain 1 + Chain 2
Test Date	Oct. 03, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4850.40	48.40	74.00	-25.60	43.63	6.10	33.59	34.92	127	100	Peak	HORIZONTAL
2	4850.88	35.60	54.00	-18.40	30.80	6.10	33.62	34.92	127	100	Average	HORIZONTAL
3	7256.64	53.15	74.00	-20.85	43.57	8.24	36.52	35.18	326	121	Peak	HORIZONTAL
4	7274.44	40.49	54.00	-13.51	30.86	8.26	36.56	35.19	326	121	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4834.96	48.77	74.00	-25.23	43.99	6.11	33.59	34.92	280	111	Peak	VERTICAL
2	4848.44	35.68	54.00	-18.32	30.91	6.10	33.59	34.92	280	111	Average	VERTICAL
3	7267.20	53.65	74.00	-20.35	44.02	8.26	36.56	35.19	81	100	Peak	VERTICAL
4	7273.56	40.39	54.00	-13.61	30.76	8.26	36.56	35.19	81	100	Average	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 6 / Chain 1 + Chain 2
Test Date	Oct. 03, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4873.12	35.75	54.00	-18.25	30.93	6.08	33.66	34.92	186	100	Average	HORIZONTAL
2	4874.84	48.44	74.00	-25.56	43.62	6.08	33.66	34.92	186	100	Peak	HORIZONTAL
3	7319.32	40.63	54.00	-13.37	30.83	8.30	36.69	35.19	235	109	Average	HORIZONTAL
4	7319.56	53.76	74.00	-20.24	43.96	8.30	36.69	35.19	235	109	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4869.64	48.54	74.00	-25.46	43.72	6.08	33.66	34.92	338	136	Peak	VERTICAL
2	4875.36	35.67	54.00	-18.33	30.85	6.08	33.66	34.92	338	136	Average	VERTICAL
3	7314.92	40.40	54.00	-13.60	30.65	8.30	36.64	35.19	150	101	Average	VERTICAL
4	7317.16	53.57	74.00	-20.43	43.77	8.30	36.69	35.19	150	101	Peak	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 9 / Chain 1 + Chain 2
Test Date	Oct. 03, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4902.68	48.69	74.00	-25.31	43.80	6.07	33.73	34.91	146	106	Peak	HORIZONTAL
2	4911.52	35.61	54.00	-18.39	30.72	6.07	33.73	34.91	146	106	Average	HORIZONTAL
3	7346.20	53.83	74.00	-20.17	43.98	8.32	36.73	35.20	7	113	Peak	HORIZONTAL
4	7356.80	40.79	54.00	-13.21	30.90	8.32	36.77	35.20	7	113	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4898.64	35.77	54.00	-18.23	30.92	6.07	33.69	34.91	39	118	Average	VERTICAL
2	4899.88	48.58	74.00	-25.42	43.73	6.07	33.69	34.91	39	118	Peak	VERTICAL
3	7352.12	40.68	54.00	-13.32	30.79	8.32	36.77	35.20	121	101	Average	VERTICAL
4	7353.84	54.51	74.00	-19.49	44.62	8.32	36.77	35.20	121	101	Peak	VERTICAL

For 3TX

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 1 / Chain 1 + Chain 2 + Chain 3
Test Date	Oct. 03, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4806.10	35.92	54.00	-18.08	31.19	6.13	33.52	34.92	178	108	Average	HORIZONTAL
2	4809.50	48.55	74.00	-25.45	43.82	6.13	33.52	34.92	178	108	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4802.70	48.07	74.00	-25.93	43.34	6.13	33.52	34.92	257	119	Peak	VERTICAL
2	4830.00	35.96	54.00	-18.04	31.21	6.11	33.56	34.92	257	119	Average	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 6 / Chain 1 + Chain 2 + Chain 3
Test Date	Oct. 03, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4868.90	49.23	74.00	-24.77	44.41	6.08	33.66	34.92	79	100	Peak	HORIZONTAL
2	4874.70	36.13	54.00	-17.87	31.31	6.08	33.66	34.92	79	100	Average	HORIZONTAL
3	7287.80	41.15	54.00	-12.85	31.46	8.28	36.60	35.19	39	124	Average	HORIZONTAL
4	7301.40	54.25	74.00	-19.75	44.52	8.28	36.64	35.19	39	124	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4850.10	48.86	74.00	-25.14	44.09	6.10	33.59	34.92	279	106	Peak	VERTICAL
2	4898.30	36.11	54.00	-17.89	31.26	6.07	33.69	34.91	279	106	Average	VERTICAL
3	7318.80	54.25	74.00	-19.75	44.45	8.30	36.69	35.19	171	100	Peak	VERTICAL
4	7334.60	41.27	54.00	-12.73	31.43	8.30	36.73	35.19	171	100	Average	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 11 / Chain 1 + Chain 2 + Chain 3
Test Date	Oct. 03, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4901.40	36.63	54.00	-17.37	31.78	6.07	33.69	34.91	125	133	Average	HORIZONTAL
2	4916.40	49.45	74.00	-24.55	44.58	6.05	33.73	34.91	125	133	Peak	HORIZONTAL
3	7402.80	41.99	54.00	-12.01	31.94	8.37	36.89	35.21	45	101	Average	HORIZONTAL
4	7406.50	54.66	74.00	-19.34	44.61	8.37	36.89	35.21	45	101	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4900.30	36.64	54.00	-17.36	31.79	6.07	33.69	34.91	221	128	Average	VERTICAL
2	4931.40	49.21	74.00	-24.79	44.31	6.05	33.76	34.91	221	128	Peak	VERTICAL
3	7403.20	54.29	74.00	-19.71	44.24	8.37	36.89	35.21	142	101	Peak	VERTICAL
4	7410.00	41.89	54.00	-12.11	31.84	8.37	36.89	35.21	142	101	Average	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 3 / Chain 1 + Chain 2 + Chain 3
Test Date	Oct. 03, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4843.10	50.13	74.00	-23.87	45.36	6.10	33.59	34.92	111	134	Peak	HORIZONTAL
2	4867.20	36.55	54.00	-17.45	31.77	6.08	33.62	34.92	111	134	Average	HORIZONTAL
3	7269.70	40.99	54.00	-13.01	31.36	8.26	36.56	35.19	77	101	Average	HORIZONTAL
4	7284.30	53.73	74.00	-20.27	44.06	8.26	36.60	35.19	77	101	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4854.20	49.68	74.00	-24.32	44.88	6.10	33.62	34.92	251	143	Peak	VERTICAL
2	4864.20	36.75	54.00	-17.25	31.97	6.08	33.62	34.92	251	143	Average	VERTICAL
3	7286.60	53.67	74.00	-20.33	43.98	8.28	36.60	35.19	160	101	Peak	VERTICAL
4	7290.60	41.17	54.00	-12.83	31.48	8.28	36.60	35.19	160	101	Average	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 6 / Chain 1 + Chain 2 + Chain 3
Test Date	Oct. 03, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4874.40	49.93	74.00	-24.07	45.11	6.08	33.66	34.92	62	100	Peak	HORIZONTAL
2	4876.10	36.78	54.00	-17.22	31.96	6.08	33.66	34.92	62	100	Average	HORIZONTAL
3	7287.50	41.36	54.00	-12.64	31.67	8.28	36.60	35.19	18	132	Average	HORIZONTAL
4	7289.00	53.72	74.00	-20.28	44.03	8.28	36.60	35.19	18	132	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4876.30	50.42	74.00	-23.58	45.60	6.08	33.66	34.92	291	121	Peak	VERTICAL
2	4898.60	36.94	54.00	-17.06	32.09	6.07	33.69	34.91	291	121	Average	VERTICAL
3	7295.00	54.55	74.00	-19.45	44.86	8.28	36.60	35.19	88	139	Peak	VERTICAL
4	7335.70	41.70	54.00	-12.30	31.86	8.30	36.73	35.19	88	139	Average	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 9 / Chain 1 + Chain 2 + Chain 3
Test Date	Oct. 03, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4888.90	49.56	74.00	-24.44	44.71	6.07	33.69	34.91	256	117	Peak	HORIZONTAL
2	4898.00	36.59	54.00	-17.41	31.74	6.07	33.69	34.91	256	117	Average	HORIZONTAL
3	7337.80	41.49	54.00	-12.51	31.64	8.32	36.73	35.20	73	100	Average	HORIZONTAL
4	7365.00	53.96	74.00	-20.04	44.06	8.34	36.77	35.21	73	100	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	4890.10	49.46	74.00	-24.54	44.61	6.07	33.69	34.91	224	114	Peak	VERTICAL
2	4897.00	36.68	54.00	-17.32	31.83	6.07	33.69	34.91	224	114	Average	VERTICAL
3	7337.30	41.43	54.00	-12.57	31.58	8.32	36.73	35.20	147	100	Average	VERTICAL
4	7360.40	54.56	74.00	-19.44	44.67	8.32	36.77	35.20	147	100	Peak	VERTICAL

Mode 3 (Ant.32 3-Port Dual-Band Directional Panel antenna / Chain 1: 8, Chain 2: 5.1, Chain 3: 8.2dBi)

For Beamforming Mode

For 3TX

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 1 / Chain 1 + Chain 2 + Chain 3
Test Date	Sep. 22, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.20	50.08	74.00	-23.92	45.33	6.11	33.56	34.92	Peak	100	323	HORIZONTAL
2	4824.79	37.25	54.00	-16.75	32.50	6.11	33.56	34.92	Average	100	323	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.16	50.15	74.00	-23.85	45.40	6.11	33.56	34.92	Peak	100	95	VERTICAL
2	4824.17	37.01	54.00	-16.99	32.26	6.11	33.56	34.92	Average	100	95	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 6 / Chain 1 + Chain 2 + Chain 3
Test Date	Sep. 22, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.42	50.06	74.00	-23.94	45.24	6.08	33.66	34.92	Peak	100	89	HORIZONTAL
2	4874.51	37.13	54.00	-16.87	32.31	6.08	33.66	34.92	Average	100	89	HORIZONTAL
3	7310.65	40.21	54.00	-13.79	30.48	8.28	36.64	35.19	Average	100	179	HORIZONTAL
4	7310.97	53.47	74.00	-20.53	43.74	8.28	36.64	35.19	Peak	100	179	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.49	37.36	54.00	-16.64	32.54	6.08	33.66	34.92	Average	100	219	VERTICAL
2	4874.33	50.29	74.00	-23.71	45.47	6.08	33.66	34.92	Peak	100	219	VERTICAL
3	7310.95	40.23	54.00	-13.77	30.50	8.28	36.64	35.19	Average	100	249	VERTICAL
4	7311.18	53.95	74.00	-20.05	44.22	8.28	36.64	35.19	Peak	100	249	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 11 / Chain 1 + Chain 2 + Chain 3
Test Date	Sep. 22, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.35	49.63	74.00	-24.37	44.73	6.05	33.76	34.91	Peak	100	92	HORIZONTAL
2	4923.66	36.43	54.00	-17.57	31.53	6.05	33.76	34.91	Average	100	92	HORIZONTAL
3	7385.63	41.04	54.00	-12.96	31.06	8.34	36.85	35.21	Average	100	230	HORIZONTAL
4	7385.77	53.71	74.00	-20.29	43.73	8.34	36.85	35.21	Peak	100	230	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.08	36.55	54.00	-17.45	31.65	6.05	33.76	34.91	Average	100	339	VERTICAL
2	4924.84	49.78	74.00	-24.22	44.88	6.05	33.76	34.91	Peak	100	339	VERTICAL
3	7385.36	41.11	54.00	-12.89	31.13	8.34	36.85	35.21	Average	100	119	VERTICAL
4	7385.92	54.63	74.00	-19.37	44.65	8.34	36.85	35.21	Peak	100	119	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 3 / Chain 1 + Chain 2 + Chain 3
Test Date	Sep. 22, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4843.22	49.09	74.00	-24.91	44.32	6.10	33.59	34.92	Peak	100	84	HORIZONTAL
2	4843.55	36.30	54.00	-17.70	31.53	6.10	33.59	34.92	Average	100	84	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4843.51	36.35	54.00	-17.65	31.58	6.10	33.59	34.92	Average	100	203	VERTICAL
2	4843.56	49.54	74.00	-24.46	44.77	6.10	33.59	34.92	Peak	100	203	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 6 / Chain 1 + Chain 2 + Chain 3
Test Date	Sep. 22, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.11	36.82	54.00	-17.18	32.00	6.08	33.66	34.92	Average	100	251	HORIZONTAL
2	4873.12	50.29	74.00	-23.71	45.47	6.08	33.66	34.92	Peak	100	251	HORIZONTAL
3	7310.98	53.89	74.00	-20.11	44.16	8.28	36.64	35.19	Peak	100	342	HORIZONTAL
4	7311.68	40.19	54.00	-13.81	30.44	8.30	36.64	35.19	Average	100	342	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.15	36.86	54.00	-17.14	32.04	6.08	33.66	34.92	Average	100	88	VERTICAL
2	4873.34	50.88	74.00	-23.12	46.06	6.08	33.66	34.92	Peak	100	88	VERTICAL
3	7311.81	52.97	74.00	-21.03	43.22	8.30	36.64	35.19	Peak	100	194	VERTICAL
4	7311.86	40.38	54.00	-13.62	30.63	8.30	36.64	35.19	Average	100	194	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 9 / Chain 1 + Chain 2 + Chain 3
Test Date	Sep. 22, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4903.53	36.69	54.00	-17.31	31.80	6.07	33.73	34.91	Average	100	313	HORIZONTAL
2	4904.09	49.92	74.00	-24.08	45.03	6.07	33.73	34.91	Peak	100	313	HORIZONTAL
3	7356.46	41.19	54.00	-12.81	31.30	8.32	36.77	35.20	Average	100	190	HORIZONTAL
4	7357.00	53.97	74.00	-20.03	44.08	8.32	36.77	35.20	Peak	100	190	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4903.58	36.82	54.00	-17.18	31.93	6.07	33.73	34.91	Average	100	18	VERTICAL
2	4904.13	50.18	74.00	-23.82	45.29	6.07	33.73	34.91	Peak	100	18	VERTICAL
3	7356.36	54.10	74.00	-19.90	44.21	8.32	36.77	35.20	Peak	100	83	VERTICAL
4	7356.74	40.88	54.00	-13.12	30.99	8.32	36.77	35.20	Average	100	83	VERTICAL

For Non-Beamforming Mode

For 1TX

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 1 / Chain 1
Test Date	Sep. 23, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4824.55	44.93	74.00	-29.07	40.18	6.11	33.56	34.92	Peak	100	224	HORIZONTAL
2	4826.39	31.00	54.00	-23.00	26.25	6.11	33.56	34.92	Average	100	224	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4826.42	31.75	54.00	-22.25	27.00	6.11	33.56	34.92	Average	100	180	VERTICAL
2	4826.48	46.31	74.00	-27.69	41.56	6.11	33.56	34.92	Peak	100	180	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 6 / Chain 1
Test Date	Sep. 23, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.02	32.24	54.00	-21.76	27.42	6.08	33.66	34.92	Average	101	188	HORIZONTAL
2	4873.88	46.23	74.00	-27.77	41.41	6.08	33.66	34.92	Peak	101	188	HORIZONTAL
3	7310.20	36.09	54.00	-17.91	26.36	8.28	36.64	35.19	Average	100	95	HORIZONTAL
4	7310.54	50.77	74.00	-23.23	41.04	8.28	36.64	35.19	Peak	100	95	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4869.98	51.04	74.00	-22.96	46.22	6.08	33.66	34.92	Peak	122	193	VERTICAL
2	4873.04	36.78	54.00	-17.22	31.96	6.08	33.66	34.92	Average	122	193	VERTICAL
3	7311.54	42.31	54.00	-11.69	32.56	8.30	36.64	35.19	Average	100	203	VERTICAL
4	7312.08	61.25	74.00	-12.75	51.50	8.30	36.64	35.19	Peak	100	203	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 11 / Chain 1
Test Date	Sep. 23, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4922.92	31.94	54.00	-22.06	27.04	6.05	33.76	34.91	Average	100	138	HORIZONTAL
2	4926.76	44.89	74.00	-29.11	39.99	6.05	33.76	34.91	Peak	100	138	HORIZONTAL
3	7381.46	48.58	74.00	-25.42	38.64	8.34	36.81	35.21	Peak	100	34	HORIZONTAL
4	7390.84	35.81	54.00	-18.19	25.80	8.37	36.85	35.21	Average	100	34	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.50	45.34	74.00	-28.66	40.44	6.05	33.76	34.91	Peak	101	174	VERTICAL
2	4923.76	33.35	54.00	-20.65	28.45	6.05	33.76	34.91	Average	101	174	VERTICAL
3	7385.48	50.65	74.00	-23.35	40.67	8.34	36.85	35.21	Peak	101	202	VERTICAL
4	7390.70	36.09	54.00	-17.91	26.08	8.37	36.85	35.21	Average	101	202	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 3 / Chain 1
Test Date	Sep. 23, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4840.28	31.86	54.00	-22.14	27.09	6.10	33.59	34.92	Average	100	65	HORIZONTAL
2	4846.32	44.67	74.00	-29.33	39.90	6.10	33.59	34.92	Peak	100	65	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4839.54	32.05	54.00	-21.95	27.28	6.10	33.59	34.92	Average	100	186	VERTICAL
2	4840.72	45.72	74.00	-28.28	40.95	6.10	33.59	34.92	Peak	100	186	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 6 / Chain 1
Test Date	Sep. 23, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4875.54	32.22	54.00	-21.78	27.40	6.08	33.66	34.92	Average	100	137	HORIZONTAL
2	4875.88	44.90	74.00	-29.10	40.08	6.08	33.66	34.92	Peak	100	137	HORIZONTAL
3	7309.36	48.94	74.00	-25.06	39.21	8.28	36.64	35.19	Peak	100	84	HORIZONTAL
4	7312.44	35.86	54.00	-18.14	26.11	8.30	36.64	35.19	Average	100	84	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4872.62	45.10	74.00	-28.90	40.28	6.08	33.66	34.92	Peak	100	212	VERTICAL
2	4873.66	32.82	54.00	-21.18	28.00	6.08	33.66	34.92	Average	100	212	VERTICAL
3	7309.52	36.18	54.00	-17.82	26.45	8.28	36.64	35.19	Average	100	179	VERTICAL
4	7312.62	49.51	74.00	-24.49	39.76	8.30	36.64	35.19	Peak	100	179	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 9 / Chain 1
Test Date	Sep. 23, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4899.48	32.08	54.00	-21.92	27.23	6.07	33.69	34.91	Average	100	154	HORIZONTAL
2	4908.16	45.67	74.00	-28.33	40.78	6.07	33.73	34.91	Peak	100	154	HORIZONTAL
3	7354.20	36.19	54.00	-17.81	26.30	8.32	36.77	35.20	Average	100	89	HORIZONTAL
4	7354.98	48.71	74.00	-25.29	38.82	8.32	36.77	35.20	Peak	100	89	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4902.24	32.30	54.00	-21.70	27.41	6.07	33.73	34.91	Average	100	157	VERTICAL
2	4904.58	44.92	74.00	-29.08	40.03	6.07	33.73	34.91	Peak	100	157	VERTICAL
3	7354.40	36.32	54.00	-17.68	26.43	8.32	36.77	35.20	Average	100	186	VERTICAL
4	7357.96	49.44	74.00	-24.56	39.55	8.32	36.77	35.20	Peak	100	186	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11b CH 1 / Chain 1
Test Date	Sep. 23, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.85	45.20	74.00	-28.80	40.45	6.11	33.56	34.92	Peak	100	113	HORIZONTAL
2	4823.93	33.80	54.00	-20.20	29.05	6.11	33.56	34.92	Average	100	113	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.98	41.94	54.00	-12.06	37.19	6.11	33.56	34.92	Average	100	182	VERTICAL
2	4823.98	48.68	74.00	-25.32	43.93	6.11	33.56	34.92	Peak	100	182	VERTICAL

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

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.95	44.07	54.00	-9.93	39.25	6.08	33.66	34.92	Average	100	156	HORIZONTAL
2	4873.96	50.22	74.00	-23.78	45.40	6.08	33.66	34.92	Peak	100	156	HORIZONTAL
3	7311.80	37.85	54.00	-16.15	28.10	8.30	36.64	35.19	Average	175	210	HORIZONTAL
4	7313.30	50.06	74.00	-23.94	40.31	8.30	36.64	35.19	Peak	175	210	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.96	52.83	54.00	-1.17	48.01	6.08	33.66	34.92	Average	124	191	VERTICAL
2	4874.00	55.51	74.00	-18.49	50.69	6.08	33.66	34.92	Peak	124	191	VERTICAL
3	7311.67	47.21	54.00	-6.79	37.46	8.30	36.64	35.19	Average	100	190	VERTICAL
4	7311.83	54.85	74.00	-19.15	45.10	8.30	36.64	35.19	Peak	100	190	VERTICAL

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

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.86	46.49	74.00	-27.51	41.59	6.05	33.76	34.91	Peak	129	246	HORIZONTAL
2	4923.98	38.21	54.00	-15.79	33.31	6.05	33.76	34.91	Average	129	246	HORIZONTAL
3	7384.99	48.61	74.00	-25.39	38.63	8.34	36.85	35.21	Peak	100	74	HORIZONTAL
4	7388.07	35.93	54.00	-18.07	25.92	8.37	36.85	35.21	Average	100	74	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.90	50.69	74.00	-23.31	45.79	6.05	33.76	34.91	Peak	143	185	VERTICAL
2	4923.99	45.35	54.00	-8.65	40.45	6.05	33.76	34.91	Average	143	185	VERTICAL
3	7383.54	48.63	74.00	-25.37	38.65	8.34	36.85	35.21	Peak	100	233	VERTICAL
4	7387.12	36.48	54.00	-17.52	26.50	8.34	36.85	35.21	Average	100	233	VERTICAL

For 2TX

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 1 / Chain 1 + Chain 2
Test Date	Sep. 22, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4819.32	31.42	54.00	-22.58	26.67	6.11	33.56	34.92	Average	100	169	HORIZONTAL
2	4819.58	44.52	74.00	-29.48	39.77	6.11	33.56	34.92	Peak	100	169	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4819.32	32.61	54.00	-21.39	27.86	6.11	33.56	34.92	Average	100	183	VERTICAL
2	4820.66	45.47	74.00	-28.53	40.72	6.11	33.56	34.92	Peak	100	183	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 6 / Chain 1 + Chain 2
Test Date	Sep. 22, 2014 ~ Sep. 23, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4869.88	47.54	74.00	-26.46	42.72	6.08	33.66	34.92	Peak	124	201	HORIZONTAL
2	4871.30	32.56	54.00	-21.44	27.74	6.08	33.66	34.92	Average	124	201	HORIZONTAL
3	7315.02	48.65	74.00	-25.35	38.90	8.30	36.64	35.19	Peak	100	162	HORIZONTAL
4	7315.24	34.79	54.00	-19.21	25.04	8.30	36.64	35.19	Average	100	162	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4872.44	36.40	54.00	-17.60	31.58	6.08	33.66	34.92	Average	111	185	VERTICAL
2	4872.44	51.36	74.00	-22.64	46.54	6.08	33.66	34.92	Peak	111	185	VERTICAL
3	7307.42	61.43	74.00	-12.57	51.70	8.28	36.64	35.19	Peak	105	181	VERTICAL
4	7307.54	41.11	54.00	-12.89	31.38	8.28	36.64	35.19	Average	105	181	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 11 / Chain 1 + Chain 2
Test Date	Sep. 23, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4927.30	45.47	74.00	-28.53	40.57	6.05	33.76	34.91	Peak	100	157	HORIZONTAL
2	4928.34	31.05	54.00	-22.95	26.15	6.05	33.76	34.91	Average	100	157	HORIZONTAL
3	7387.86	49.13	74.00	-24.87	39.12	8.37	36.85	35.21	Peak	100	210	HORIZONTAL
4	7388.68	35.37	54.00	-18.63	25.36	8.37	36.85	35.21	Average	100	210	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4920.78	46.24	74.00	-27.76	41.34	6.05	33.76	34.91	Peak	168	198	VERTICAL
2	4922.72	32.46	54.00	-21.54	27.56	6.05	33.76	34.91	Average	168	198	VERTICAL
3	7382.78	35.48	54.00	-18.52	25.54	8.34	36.81	35.21	Average	100	172	VERTICAL
4	7385.28	49.85	74.00	-24.15	39.87	8.34	36.85	35.21	Peak	100	172	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 3 / Chain 1 + Chain 2
Test Date	Sep. 23, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4841.20	31.42	54.00	-22.58	26.65	6.10	33.59	34.92	Average	100	176	HORIZONTAL
2	4848.00	45.20	74.00	-28.80	40.43	6.10	33.59	34.92	Peak	100	176	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4841.30	31.49	54.00	-22.51	26.72	6.10	33.59	34.92	Average	100	236	VERTICAL
2	4846.44	44.63	74.00	-29.37	39.86	6.10	33.59	34.92	Peak	100	236	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 6 / Chain 1 + Chain 2
Test Date	Sep. 23, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4876.26	32.12	54.00	-21.88	27.30	6.08	33.66	34.92	Average	100	208	HORIZONTAL
2	4877.66	44.40	74.00	-29.60	39.58	6.08	33.66	34.92	Peak	100	208	HORIZONTAL
3	7306.40	35.70	54.00	-18.30	25.97	8.28	36.64	35.19	Average	100	137	HORIZONTAL
4	7307.98	48.23	74.00	-25.77	38.50	8.28	36.64	35.19	Peak	100	137	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4874.76	32.11	54.00	-21.89	27.29	6.08	33.66	34.92	Average	100	179	VERTICAL
2	4877.34	45.13	74.00	-28.87	40.31	6.08	33.66	34.92	Peak	100	179	VERTICAL
3	7314.92	35.66	54.00	-18.34	25.91	8.30	36.64	35.19	Average	100	241	VERTICAL
4	7315.46	48.29	74.00	-25.71	38.54	8.30	36.64	35.19	Peak	100	241	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT40 CH 9 / Chain 1 + Chain 2
Test Date	Sep. 23, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4901.40	32.03	54.00	-21.97	27.18	6.07	33.69	34.91	Average	100	110	HORIZONTAL
2	4902.18	45.10	74.00	-28.90	40.21	6.07	33.73	34.91	Peak	100	110	HORIZONTAL
3	7352.08	36.33	54.00	-17.67	26.44	8.32	36.77	35.20	Average	100	218	HORIZONTAL
4	7358.18	49.18	74.00	-24.82	39.29	8.32	36.77	35.20	Peak	100	218	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4904.34	32.16	54.00	-21.84	27.27	6.07	33.73	34.91	Average	100	90	VERTICAL
2	4907.36	44.70	74.00	-29.30	39.81	6.07	33.73	34.91	Peak	100	90	VERTICAL
3	7353.08	49.62	74.00	-24.38	39.73	8.32	36.77	35.20	Peak	100	158	VERTICAL
4	7357.68	36.34	54.00	-17.66	26.45	8.32	36.77	35.20	Average	100	158	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11b CH 1 / Chain 1 + Chain 2
Test Date	Sep. 22, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4824.00	37.95	54.00	-16.05	33.20	6.11	33.56	34.92	Average	112	205	HORIZONTAL
2	4824.07	46.50	74.00	-27.50	41.75	6.11	33.56	34.92	Peak	112	205	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4824.00	42.59	54.00	-11.41	37.84	6.11	33.56	34.92	Average	100	181	VERTICAL
2	4824.15	49.07	74.00	-24.93	44.32	6.11	33.56	34.92	Peak	100	181	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11b CH 6 / Chain 1 + Chain 2
Test Date	Sep. 22, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.97	45.67	54.00	-8.33	40.85	6.08	33.66	34.92	Average	138	198	HORIZONTAL
2	4874.05	50.43	74.00	-23.57	45.61	6.08	33.66	34.92	Peak	138	198	HORIZONTAL
3	7310.18	38.00	54.00	-16.00	28.27	8.28	36.64	35.19	Average	146	123	HORIZONTAL
4	7313.50	50.24	74.00	-23.76	40.49	8.30	36.64	35.19	Peak	146	123	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.92	52.76	54.00	-1.24	47.94	6.08	33.66	34.92	Average	110	184	VERTICAL
2	4874.04	55.05	74.00	-18.95	50.23	6.08	33.66	34.92	Peak	110	184	VERTICAL
3	7310.02	55.32	74.00	-18.68	45.59	8.28	36.64	35.19	Peak	100	184	VERTICAL
4	7310.25	49.10	54.00	-4.90	39.37	8.28	36.64	35.19	Average	100	184	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11b CH 11 / Chain 1 + Chain 2
Test Date	Sep. 22, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.92	34.75	54.00	-19.25	29.85	6.05	33.76	34.91	Average	101	207	HORIZONTAL
2	4924.44	45.67	74.00	-28.33	40.77	6.05	33.76	34.91	Peak	101	207	HORIZONTAL
3	7383.30	35.43	54.00	-18.57	25.49	8.34	36.81	35.21	Average	100	111	HORIZONTAL
4	7385.78	48.33	74.00	-25.67	38.35	8.34	36.85	35.21	Peak	100	111	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.95	48.30	74.00	-25.70	43.40	6.05	33.76	34.91	Peak	141	183	VERTICAL
2	4924.01	42.11	54.00	-11.89	37.21	6.05	33.76	34.91	Average	141	183	VERTICAL
3	7384.97	37.30	54.00	-16.70	27.32	8.34	36.85	35.21	Average	117	196	VERTICAL
4	7386.49	50.00	74.00	-24.00	40.02	8.34	36.85	35.21	Peak	117	196	VERTICAL

For 3TX

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 1 / Chain 1 + Chain 2 + Chain 3
Test Date	Sep. 22, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4803.70	43.53	74.00	-30.47	38.80	6.13	33.52	34.92	Peak	100	106	HORIZONTAL
2	4823.40	34.30	54.00	-19.70	29.55	6.11	33.56	34.92	Average	100	106	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.10	33.32	54.00	-20.68	28.57	6.11	33.56	34.92	Average	145	45	VERTICAL
2	4827.90	45.52	74.00	-28.48	40.77	6.11	33.56	34.92	Peak	145	45	VERTICAL

Temperature	26°C	Humidity	68%
Test Engineer	Mars Lin	Configurations	IEEE 802.11n MCS0 HT20 CH 6 / Chain 1 + Chain 2 + Chain 3
Test Date	Sep. 22, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.20	32.57	54.00	-21.43	27.75	6.08	33.66	34.92	Average	108	160	HORIZONTAL
2	4873.50	45.85	74.00	-28.15	41.03	6.08	33.66	34.92	Peak	108	160	HORIZONTAL
3	7309.40	47.48	74.00	-26.52	37.75	8.28	36.64	35.19	Peak	100	71	HORIZONTAL
4	7335.40	34.51	54.00	-19.49	24.67	8.30	36.73	35.19	Average	100	71	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4871.80	51.51	74.00	-22.49	46.69	6.08	33.66	34.92	Peak	100	38	VERTICAL
2	4872.50	38.86	54.00	-15.14	34.04	6.08	33.66	34.92	Average	100	38	VERTICAL
3	7311.40	38.97	54.00	-15.03	29.22	8.30	36.64	35.19	Average	101	9	VERTICAL
4	7312.00	55.12	74.00	-18.88	45.37	8.30	36.64	35.19	Peak	101	9	VERTICAL