FCC Part 15C
Measurement and Test Report
For

Shenzhen Qiyue Optronics Company Limited

Flat3,Tower 3, Excellence Meilin Center Plaza, Zhongkang Road 128, Shangmeilin, Futian District, Shenzhen, China

FCC ID: XOMIRTUOSOXX60XX

FCC Rule(s):	FCC Part 15C
Product Description:	60” UHD LED IPTV
Tested Model:	D60RWA14-U-A-I RNSMU6036 XXXXXXXXXXXX60XXXXXXXXXXXX (Where "X"can be any alphanumeric of a-z, A-Z or 0-9 or blank &"-".)
Report No.:	SEM18098093-1
Sample Receipt Date:	Aug 30, 2018
Tested Date:	August 30 ~ September 21, 2018
Issued Date:	September 22, 2018
Tested By:	Jason Su/ Engineer
Reviewed By:	Silin Chen / EMC Manager
Approved & Authorized By:	Jandy So / PSQ Manager

Prepared By:

Shenzhen SEM Test Technology Co., Ltd
1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road,
Bao'an District, Shenzhen, P.R.C. 518101, China
Tel.: +86-755-33663308 Fax.: +86-755-33663309 Website: www.semtest.com.cn

TABLE OF CONTENTS

1. GENERAL INFORMATION 3
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) 3
1.2 TEST STANDARDS 5
1.3 TEST METHODOLOGY 5
1.4 TEST FACILITY 5
1.5 EUT SETUP AND TEST MODE 6
1.6 MEASUREMENT UNCERTAINTY 7
1.7 TEST EQUIPMENT LIST AND DETAILS 7

2. SUMMARY OF TEST RESULTS 8

3. RF EXPOSURE 9
3.1 STANDARD APPLICABLE 9
3.2 TEST RESULT 9

4. ANTENNA REQUIREMENT 10
4.1 STANDARD APPLICABLE 10
4.2 EVALUATION INFORMATION 10

5. POWER SPECTRAL DENSITY 11
5.1 STANDARD APPLICABLE 11
5.2 TEST PROCEDURE 11
5.3 ENVIRONMENTAL CONDITIONS 11
5.4 SUMMARY OF TEST RESULTS/PLOTS 12

6. 6DB BANDWIDTH 25
6.1 STANDARD APPLICABLE 25
6.2 TEST PROCEDURE 25
6.3 ENVIRONMENTAL CONDITIONS 25
6.4 SUMMARY OF TEST RESULTS/PLOTS 25

7. RF OUTPUT POWER 39
7.1 STANDARD APPLICABLE 39
7.2 TEST PROCEDURE 39
7.3 ENVIRONMENTAL CONDITIONS 39
7.4 SUMMARY OF TEST RESULTS/PLOTS 40

8. FIELD STRENGTH OF SPURIOUS EMISSIONS 41
8.1 MEASUREMENT UNCERTAINTY 41
8.2 STANDARD APPLICABLE 41
8.3 TEST PROCEDURE 41
8.4 CORRECTED AMPLITUDE & MARGIN CALCULATION 43
8.5 ENVIRONMENTAL CONDITIONS 43
8.6 SUMMARY OF TEST RESULTS/PLOTS 43

9. OUT OF BAND EMISSIONS 54
9.1 STANDARD APPLICABLE 54
9.2 TEST PROCEDURE 54
9.3 ENVIRONMENTAL CONDITIONS 55
9.4 SUMMARY OF TEST RESULTS/PLOTS 56

10. CONDUCTED EMISSIONS 96
10.1 MEASUREMENT UNCERTAINTY 96
10.2 TEST PROCEDURE 96
10.3 BASIC TEST SETUP BLOCK DIAGRAM 96
10.4 ENVIRONMENTAL CONDITIONS 96
10.5 TEST RECEIVER SETUP 97
10.6 SUMMARY OF TEST RESULTS/PLOTS 97
10.7 CONDUCTED EMISSIONS TEST DATA 97

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information	
Applicant:	**Shenzhen Qiyue Optronics Company Limited**
Address of applicant:	Flat3,Tower 3, Excellence Meilin Center Plaza, Zhongkang Road 128, Shangmeilin, Futian District, Shenzhen, China
Manufacturer:	**SHENZHEN QIYUE OPTRONICS COMPANY LIMITED BRANCH**
Address of manufacturer:	SEIYU INDUSTRIAL PARK, DA SAN VILLAGE, DA SHUI KENG, GUANLAN TOWN, LONGHUA NEW DISTRICT, SHENZHEN, P.R.C

General Description of EUT	
Product Name:	60” UHD LED IPTV
Trade Name:	RCA, RCA smarTVirtuoso, RCA SCENIUM, PROSCAN, TECHNICOLOR, SYLVANIA
Model No.:	D60RWA14-U-A-I RNSMU6036 XXXXXXXXXXXX60XXXXXXXXXXXX (Where "X"can be any alphanumeric of a-z, A-Z or 0-9 or blank &"-".)
Rated Voltage:	Input: AC 100-240V
Power Adapter Model:	/
Note: The test data is gathered from a production sample provided by the manufacturer.	

Technical Characteristics of EUT	
Frequency Range:	IEEE 802.11b/ g / nHT20: 2412MHz~2462MHz IEEE802.11nHT40: 2422MHz~2452MHz
RF Output Power:	12.62dBm (Conducted)
Modulation:	IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK,BPSK) IEEE 802.11n HT40: OFDM (64QAM, 16QAM, QPSK,BPSK)
Quantity of Channels:	11 for 802.11b/g/n(HT20); 7 for 802.11n(HT40)

Type of Antenna:	Wi-Fi Antenna
Antenna Gain:	Antenna 1: 3 dBi Antenna 2: 3 dBi

1.2 Test Standards

The following report is prepared on behalf of the **Shenzhen Qiyue Optronics Company Limited** in accordance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 of the Federal Communication Commission rules.

The objective is to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 of the Federal Communication Commission rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard for Testing Unlicensed Wireless Devices.

1.4 Test Facility

FCC – Registration No.: 125990
Shenzhen SEM Test Technology Co., Ltd. Laboratory has been recognized to perform compliance testing on equipment subject to the Commissions Declaration of Conformity (DOC). The Designation Number is CN5010, and Test Firm Registration Number is 125990.

Industry Canada (IC) Registration No.: 11464A
The 3m Semi-anechoic chamber of Shenzhen SEM. Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

1.5 EUT Setup and Test Mode

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. All testing shall be performed under maximum output power condition, and to measure its highest
possible emissions level, more detailed description as follows:

Test Mode List		
Test Mode	Description	Remark
TM1	802.11b	2412MHz, 2437MHz, 2462MHz
TM2	802.11g	2412MHz, 2437MHz, 2462MHz
TM3	802.11n-HT20	2412MHz, 2437MHz, 2462MHz
TM4	802.11n-HT40	2422MHz, 2437MHz, 2452MHz
Note: All test modes (different data rate and different modulation) are performed, but only the worst case is recorded in this report.		

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Core
AC Net Cord	1.5	Unshielded	With Core

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/
/	/	/	/

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
/	/	/	/
/	/	/	/

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
RF Output Power	Conducted	±0.42dB
Occupied Bandwidth	Conducted	±1.5%
Power Spectral Density	Conducted	±1.8dB
Conducted Spurious Emission	Conducted	±2.17dB
Conducted Emissions	Conducted	±2.88dB
Transmitter Spurious Emissions	Radiated	±5.1dB

1.7 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2018-06-11	2019-06-10
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2018-06-11	2019-06-10
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2018-06-11	2019-06-10
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2018-06-11	2019-06-10
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2018-06-11	2019-06-10
SEMT-1011	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2018-06-07	2019-06-06
SEMT-1042	Horn Antenna	ETS	3117	00086197	2018-06-07	2019-06-06
SEMT-1121	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170582	2018-06-07	2019-06-06
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2018-06-07	2019-06-06
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2018-06-11	2019-06-10
SEMT-1003	L.I.S.N	Schwarz beck	NSLK8126	8126-224	2018-06-11	2019-06-10
SEMT-1002	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2018-06-11	2019-06-10

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 2.1093	RF Exposure	Compliant
§15.203;§15.247(b)(4)(i)	Antenna Requirement	Compliant
§15.205	Restricted Band of Operation	Compliant
§15.207(a)	Conducted Emission	Compliant
§15.247(e)	Power Spectral Density	Compliant
§15.247(a)(2)	6 dB Bandwidth	Compliant
§15.247(b)(3)	RF Output Power	Compliant
§15.209(a)	Radiated Emission	Compliant
§15.247(d)	Band Edge (Out of Band Emissions)	Compliant

N/A: not applicable

3. RF Exposure

3.1 Standard Applicable

According to§1.1307 and §2.1091, the mobile transmitter must comply the RF exposure requirements.

3.2 Test Result

This product complied with the requirement of the RF Exposure, please see the MPE Report.

4. Antenna Requirement

4.1 Standard Applicable

According to FCC Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

4.2 Evaluation Information

This product has two internal Antenna, fulfill the requirement of this section.

5. Power Spectral Density

5.1 Standard Applicable

According to 15.247(a)(1)(iii), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

5.2 Test Procedure

According to the KDB 558074 D01 V05, such specifications require that the same method as used to determine the conducted output power shall also be used to determine the power spectral density. The test method of power spectral density as below:

a) Set instrument center frequency to DTS channel center frequency.
b) Set span to at least 1.5 times the OBW.
c) Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz. .
d) Set VBW ≥3 x RBW.
e) Detector = power averaging (RMS) or sample detector (when RMS not available).
f) Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
g) Sweep time = auto couple.
h) Employ trace averaging (RMS) mode over a minimum of 100 traces.
i) Use the peak marker function to determine the maximum amplitude level.
j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat (note that this may require zooming in on the emission of interest and reducing the span in order to meet the minimum measurement point requirement as the RBW is reduced).

5.3 Environmental Conditions

Temperature:	26° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

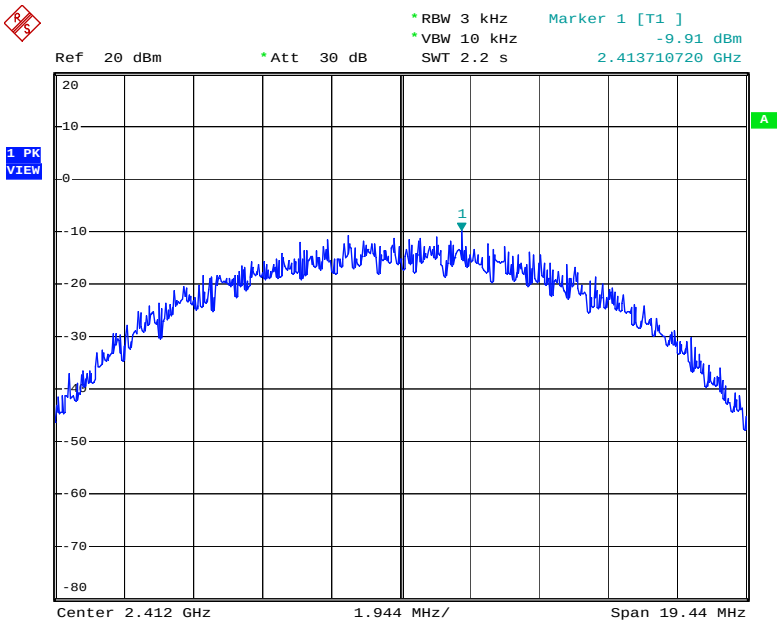
5.4 Summary of Test Results/Plots

Test Mode	Test Channel MHz	Power Spectral Density dBm/3kHz			Limit dBm/3kHz
		Antenna 1	Antenna 2	total	
802.11b	2412	-9.91	-10.00	-6.94	8
	2437	-10.63	-10.94	-7.77	8
	2462	-10.05	-10.27	-7.15	8
802.11g	2412	-18.41	-20.92	-16.48	8
	2437	-17.86	-21.38	-16.26	8
	2462	-18.22	-20.58	-16.23	8
802.11n HT20	2412	-22.42	-22.66	-19.53	8
	2437	-22.13	-22.45	-19.28	8
	2462	-23.66	-22.39	-19.97	8
802.11n HT40	2422	-26.14	-26.17	-23.14	8
	2437	-26.33	-26.07	-23.19	8
	2452	-24.82	-25.89	-22.31	8

Please refer to the following test plots:

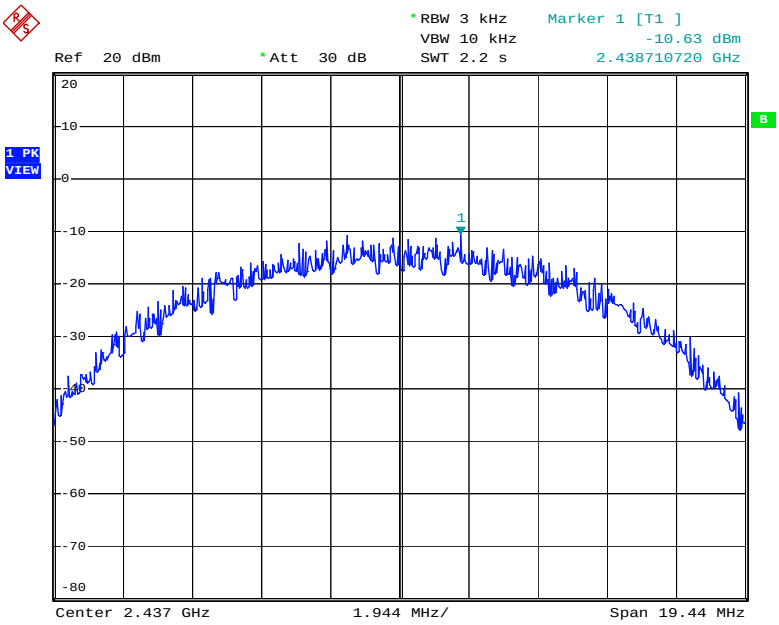
Antenna 1

802.11b-Low Channel



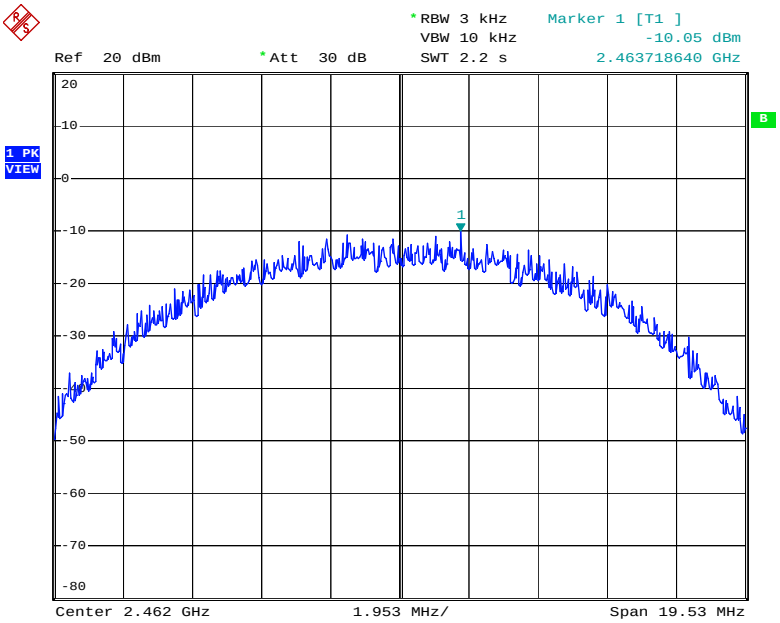
Date: 20.SEP.2018 16:49:39

802.11b-Middle Channel



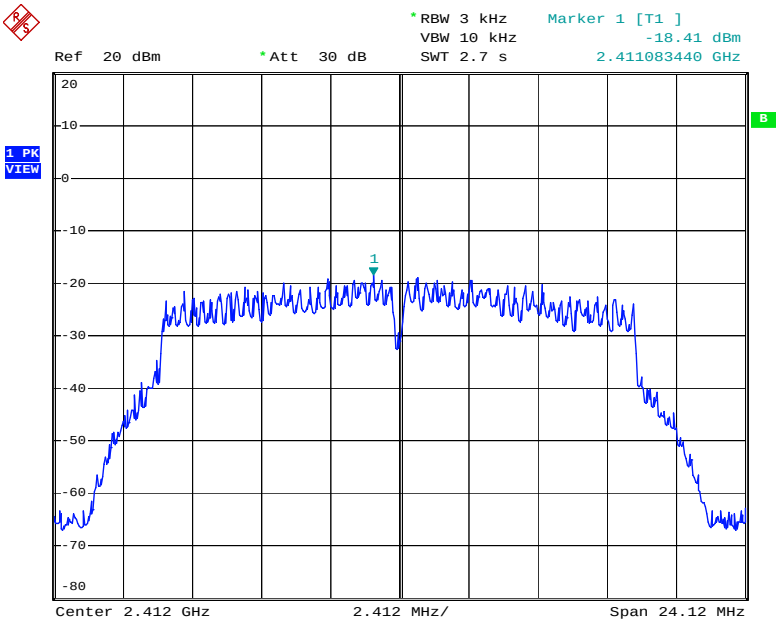
Date: 21.SEP.2018 08:50:20

802.11b-High Channel



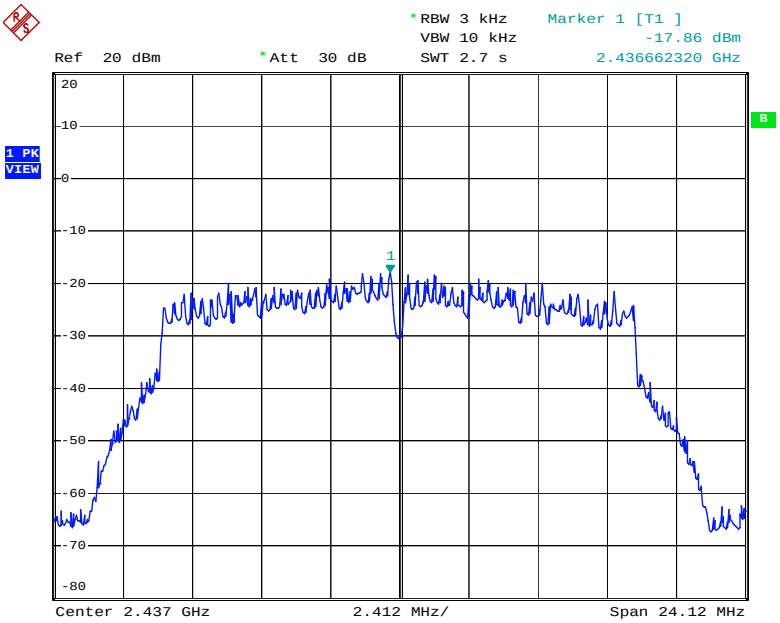
Date: 21.SEP.2018 08:57:50

802.11g-Low Channel



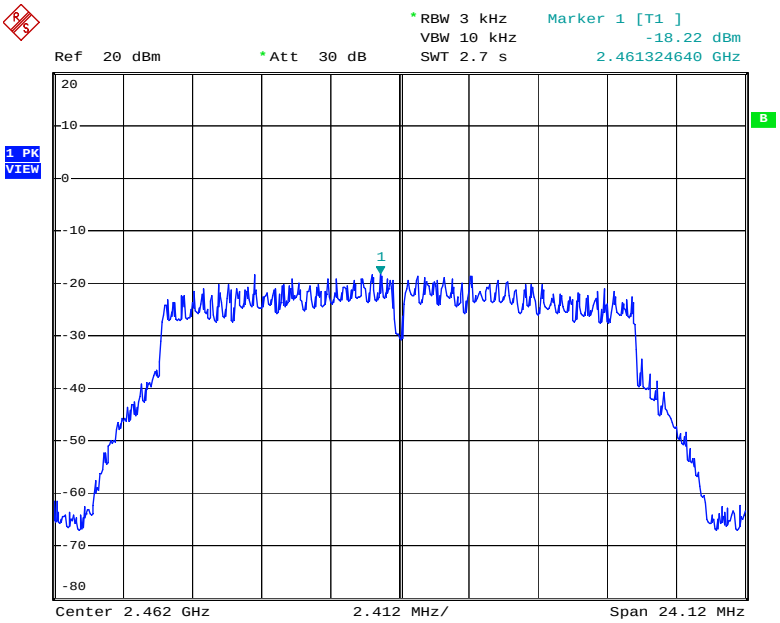
Date: 21.SEP.2018 09:03:58

802.11g-Middle Channel



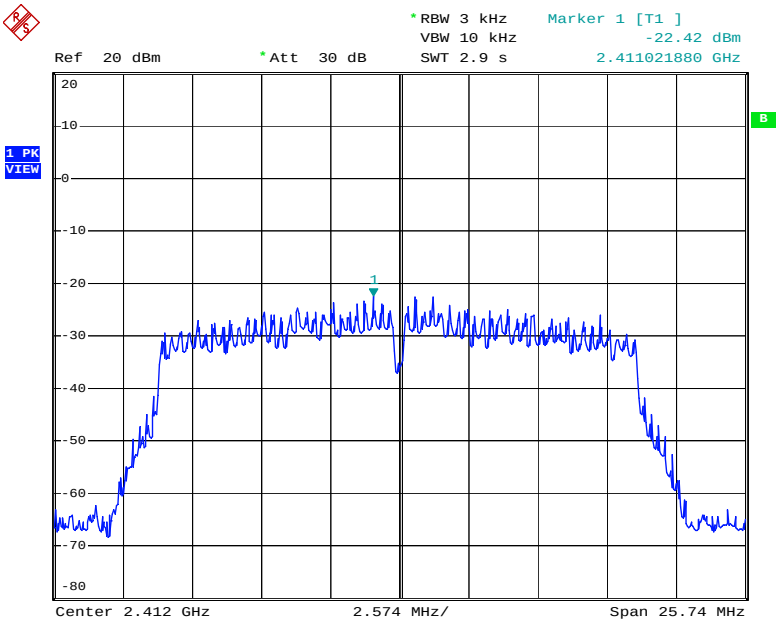
Date: 21.SEP.2018 09:02:10

802.11g-High Channel



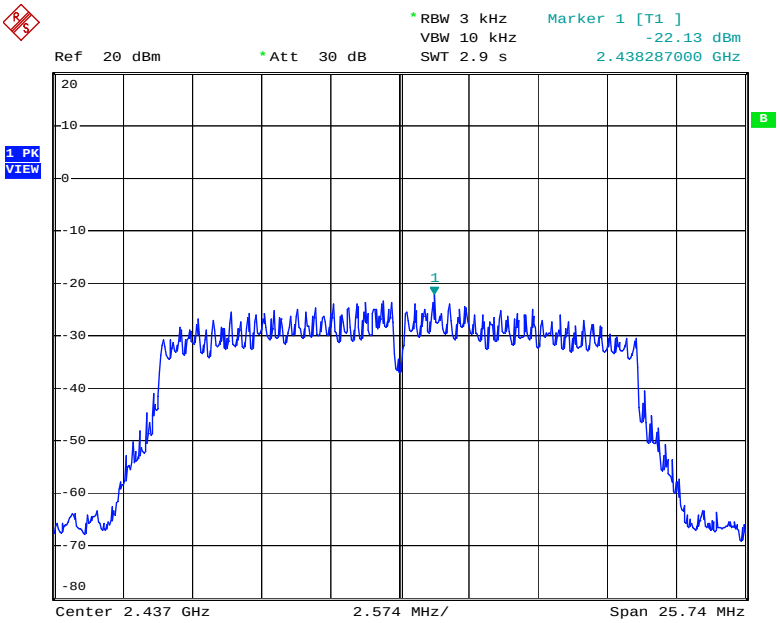
Date: 21.SEP.2018 09:00:03

802.11n-HT20-Low Channel



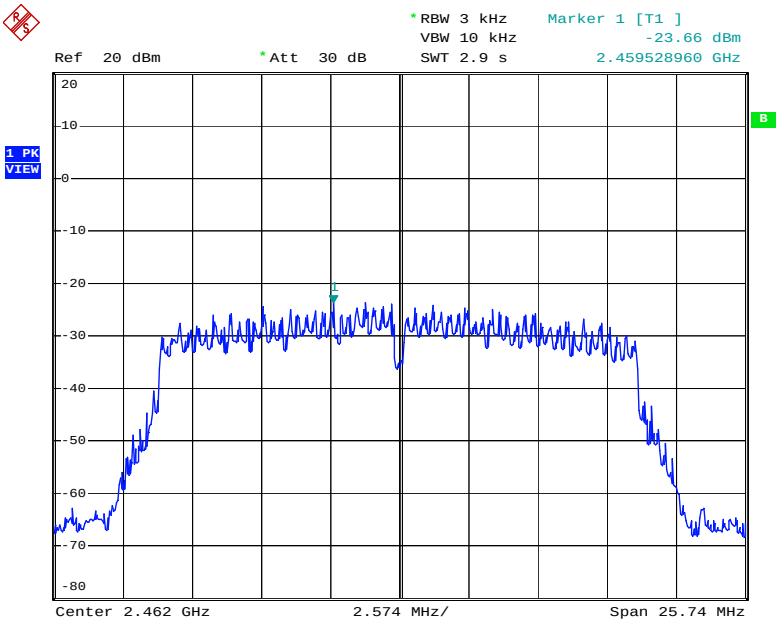
Date: 21.SEP.2018 09:07:08

802.11n-HT20-Middle Channel



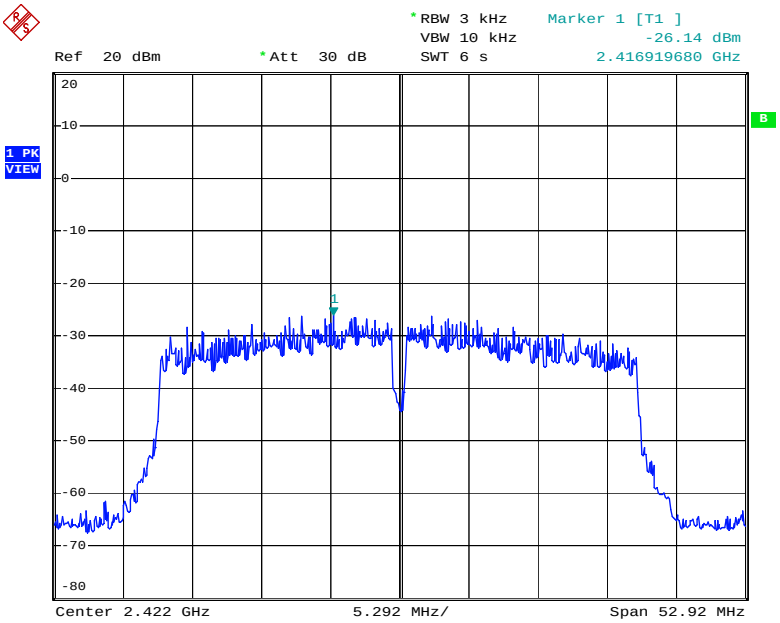
Date: 21.SEP.2018 09:10:02

802.11n-HT20-High Channel



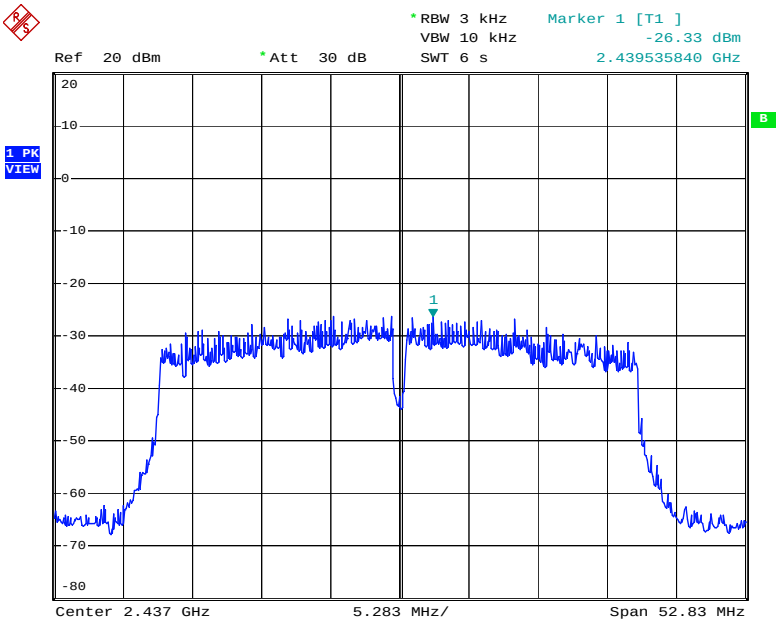
Date: 21.SEP.2018 09:11:38

802.11n-HT40-Low Channel



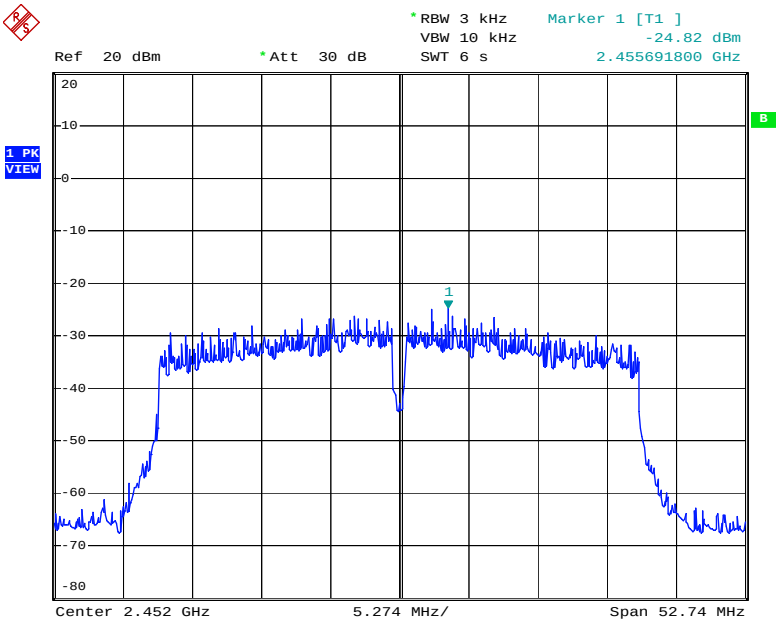
Date: 21.SEP.2018 09:15:49

802.11n-HT40-Middle Channel



Date: 21.SEP.2018 09:18:40

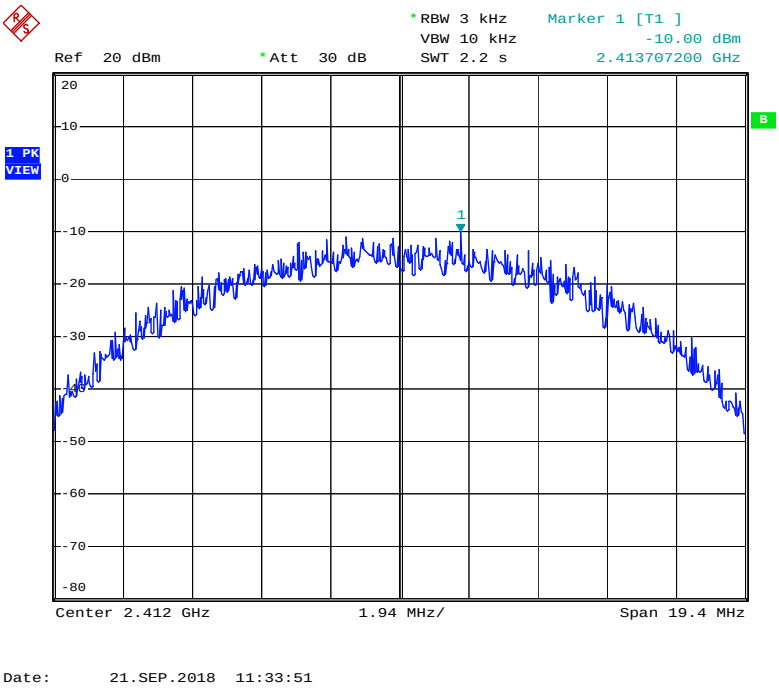
802.11n-HT40-High Channel



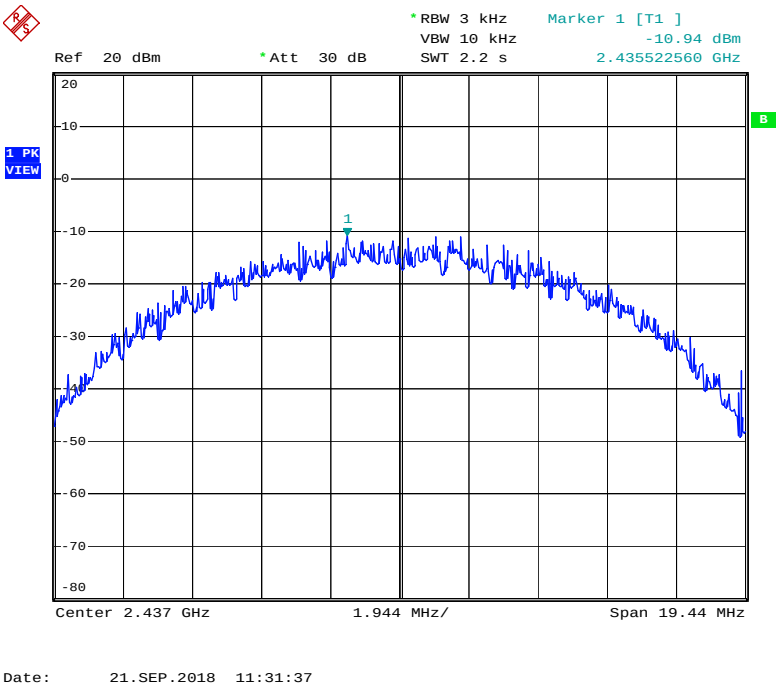
Date: 21.SEP.2018 09:21:23

Antenna 2

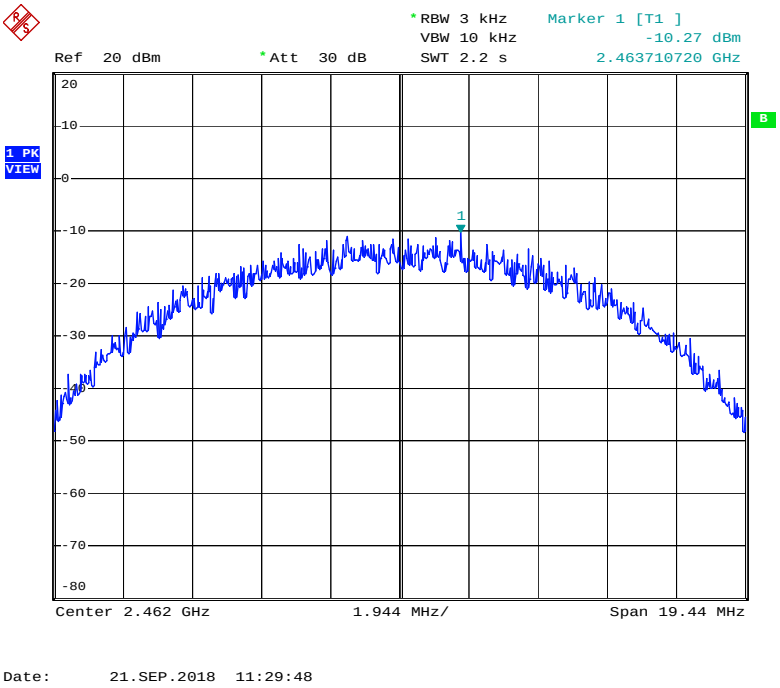
802.11b-Low Channel



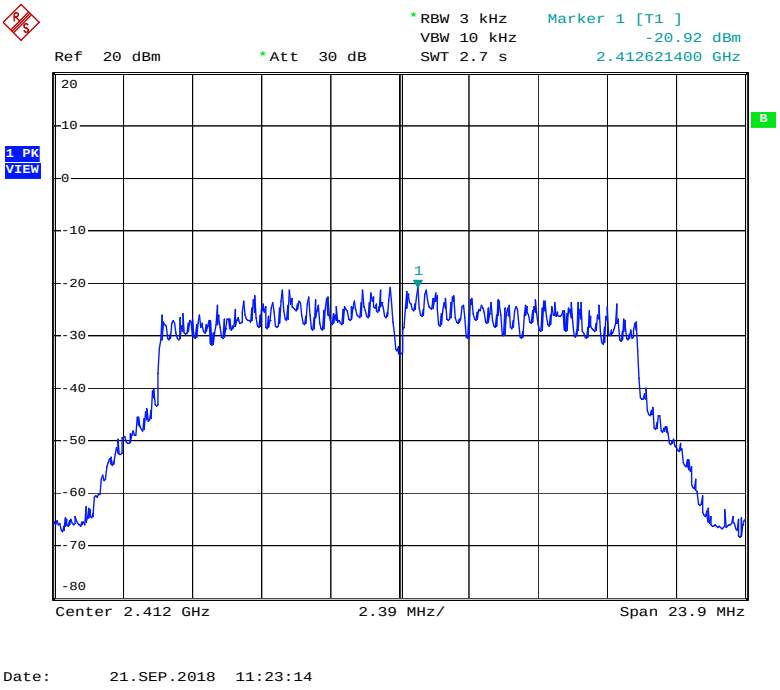
802.11b-Middle Channel



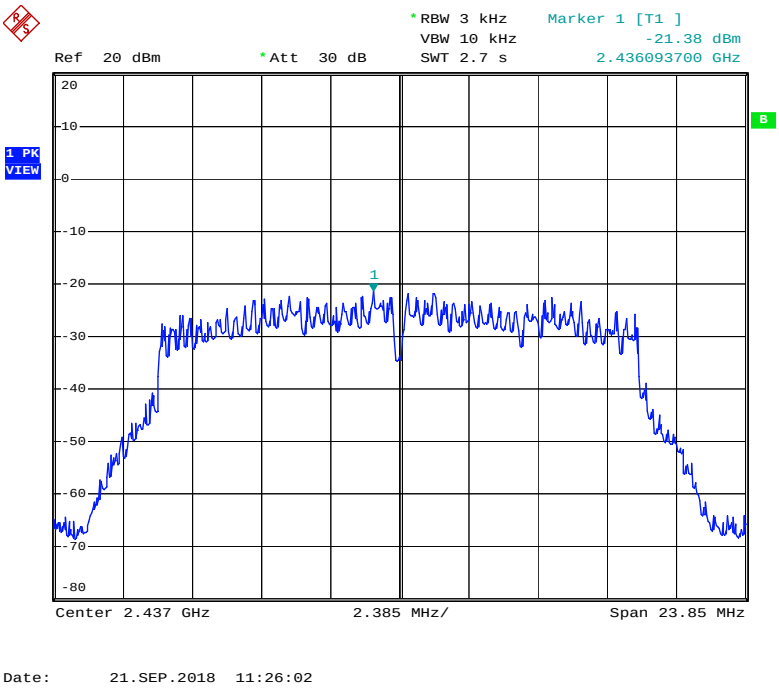
802.11b-High Channel



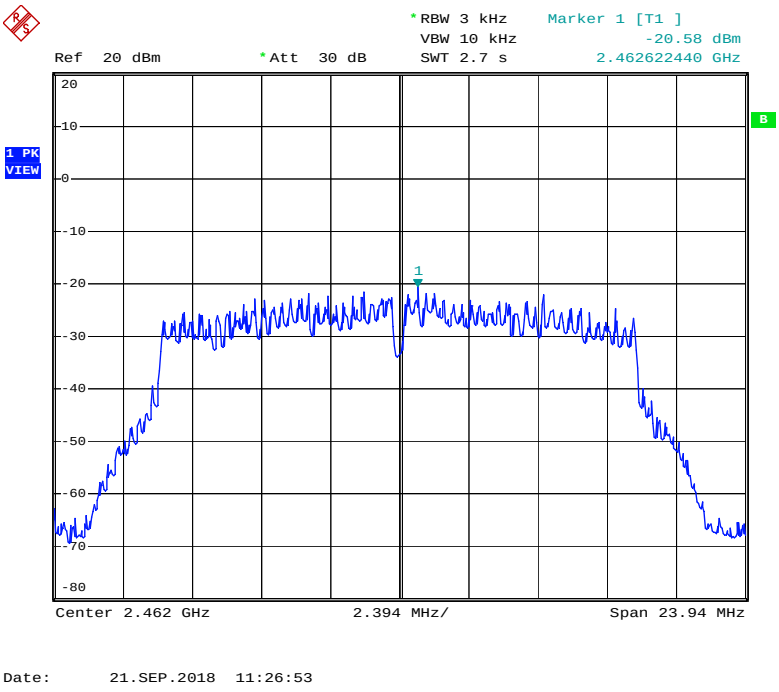
802.11g-Low Channel



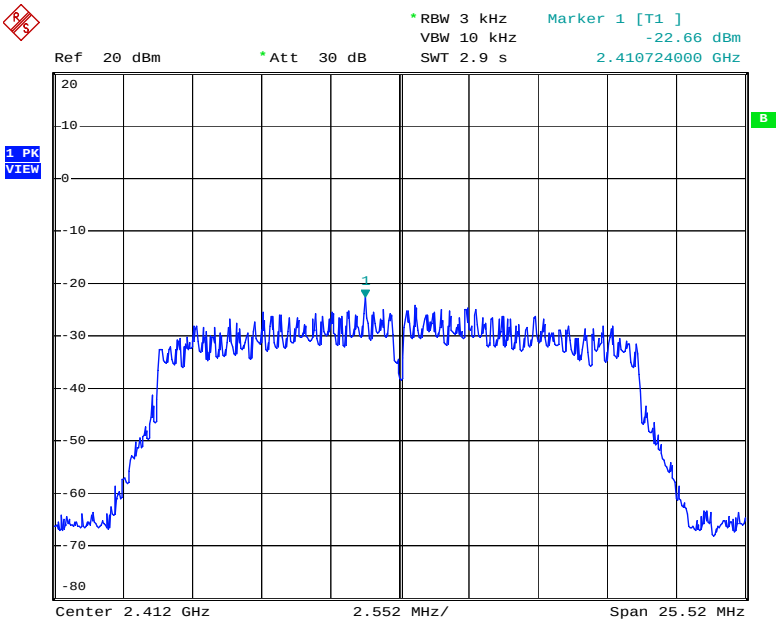
802.11g-Middle Channel



802.11g-High Channel

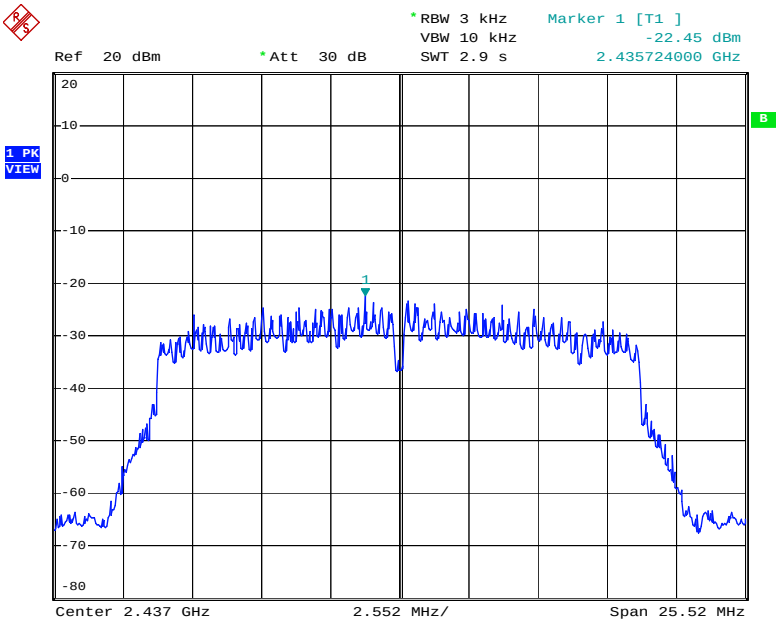


802.11n-HT20-Low Channel



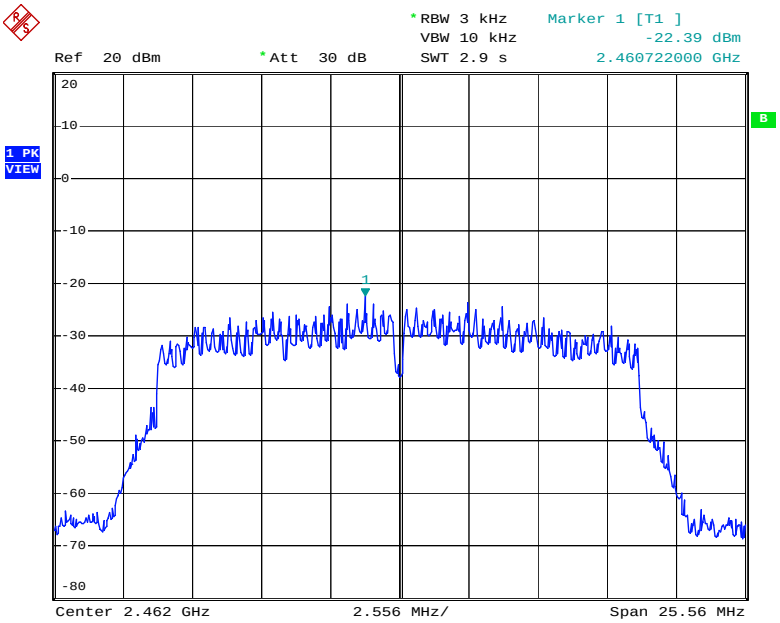
Date: 21.SEP.2018 11:19:40

802.11n-HT20-Middle Channel



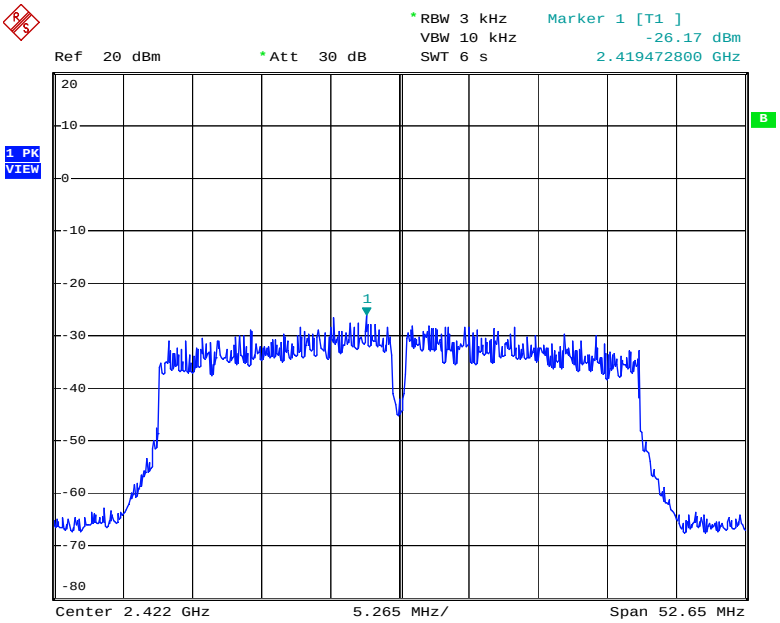
Date: 21.SEP.2018 11:17:33

802.11n-HT20-High Channel



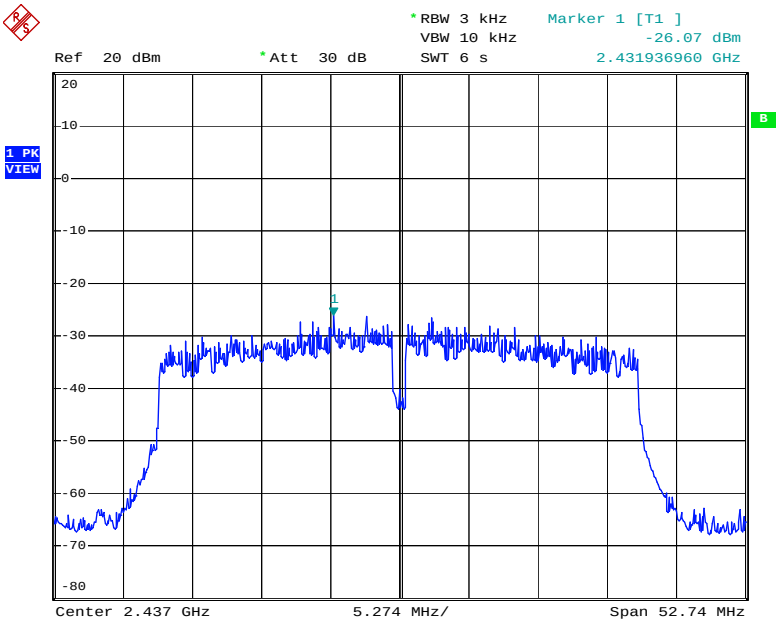
Date: 21.SEP.2018 09:35:39

802.11n-HT40-Low Channel



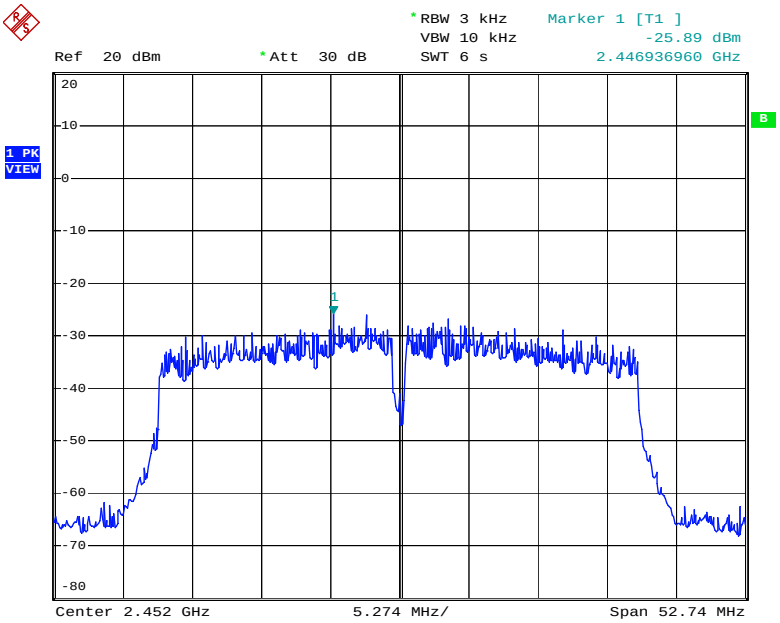
Date: 21.SEP.2018 09:30:05

802.11n-HT40-Middle Channel



Date: 21.SEP.2018 09:27:12

802.11n-HT40-High Channel



Date: 21.SEP.2018 09:25:04

6. 6dB Bandwidth

6.1 Standard Applicable

According to 15.247(a) (2). Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz. The minimum 6 dB bandwidth shall be at least 500 kHz.

6.2 Test Procedure

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.3 Environmental Conditions

Temperature:	25° C
Relative Humidity:	53%
ATM Pressure:	1018 mbar

6.4 Summary of Test Results/Plots

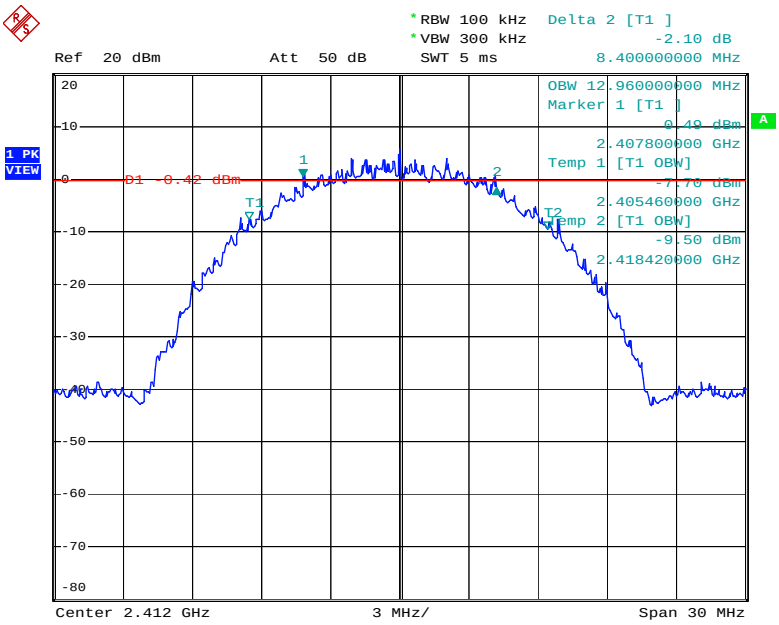
Test Mode	Test Channel MHz	6 dB Bandwidth MHz		99% Bandwidth MHz		Limit kHz
		Antenna1	Antenna 2	Antenna1	Antenna 2	
802.11b	2412	8.40	8.34	12.96	12.93	≥500
	2437	8.40	8.40	12.96	12.96	≥500
	2462	8.40	8.34	13.02	12.96	≥500
802.11g	2412	15.18	15.06	16.08	15.93	≥500
	2437	15.18	15.12	16.08	15.90	≥500
	2462	15.18	15.12	16.08	15.96	≥500
802.11n-HT20	2412	15.18	15.12	17.16	17.01	≥500
	2437	15.18	15.12	17.16	17.01	≥500
	2462	16.62	15.06	17.16	17.04	≥500
802.11n-HT40	2422	35.40	35.16	35.28	35.10	≥500

	2437	35.16	35.16	35.22	35.16	≥500
	2452	35.16	35.16	35.16	35.16	≥500

Please refer to the following test plots:

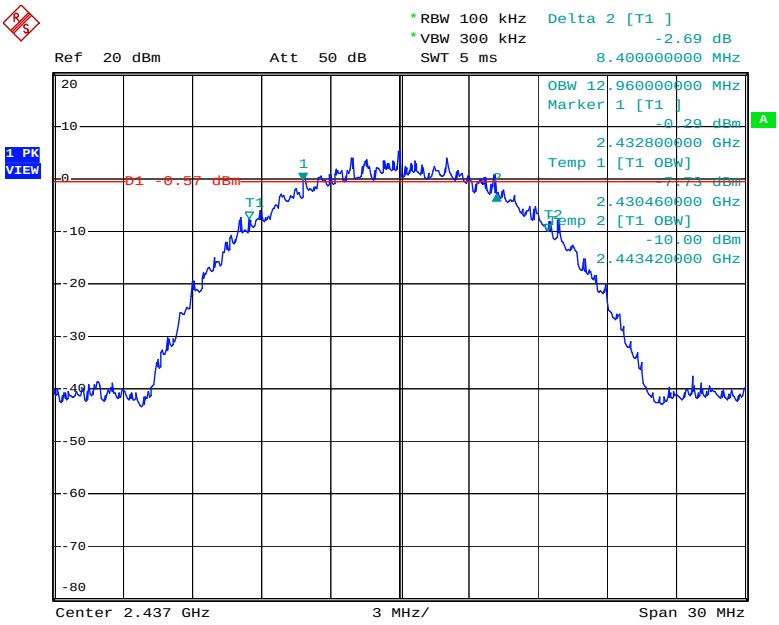
Antenna 1

802.11b-Low Channel



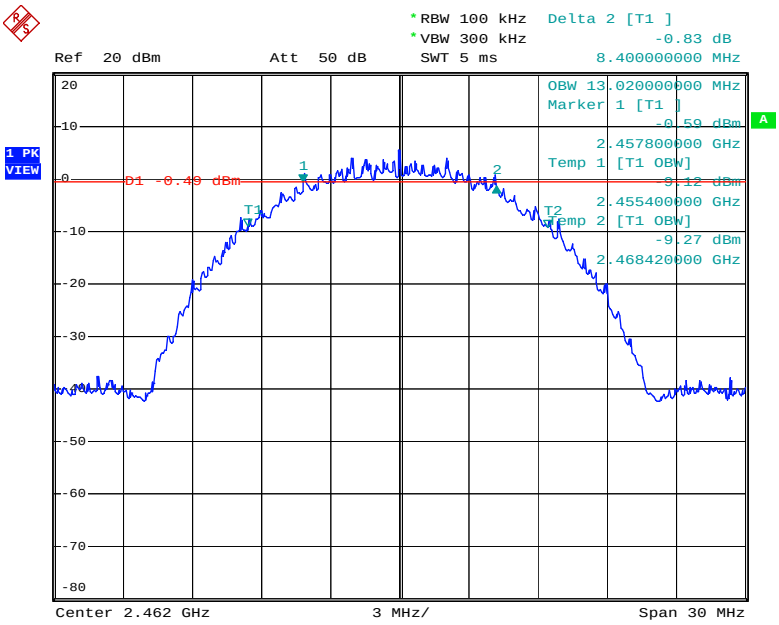
Date: 19.SEP.2018 11:13:13

802.11b-Middle Channel



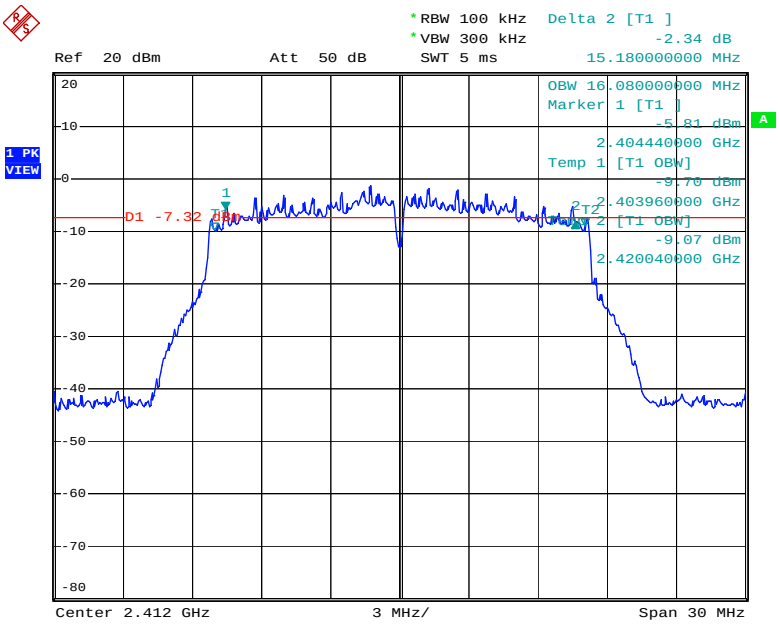
Date: 19.SEP.2018 11:21:50

802.11b-High Channel



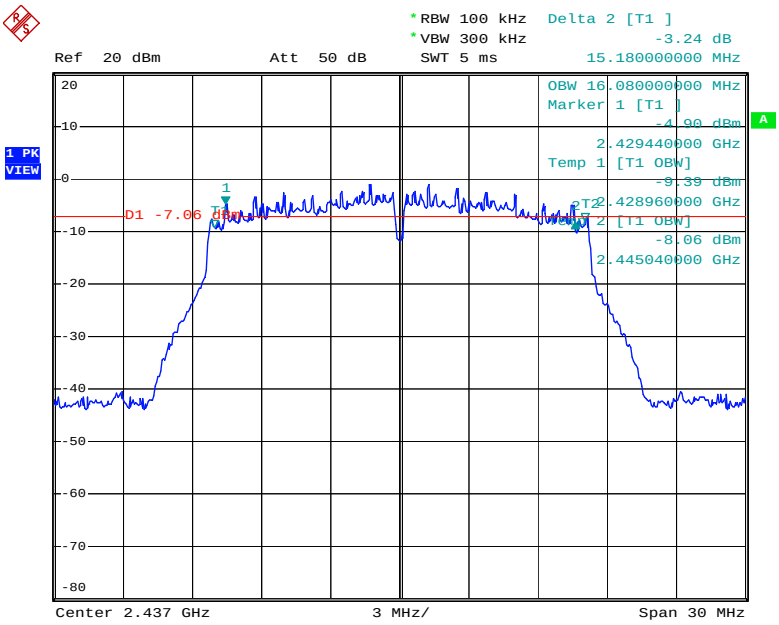
Date: 19.SEP.2018 11:30:07

802.11 g-Low Channel



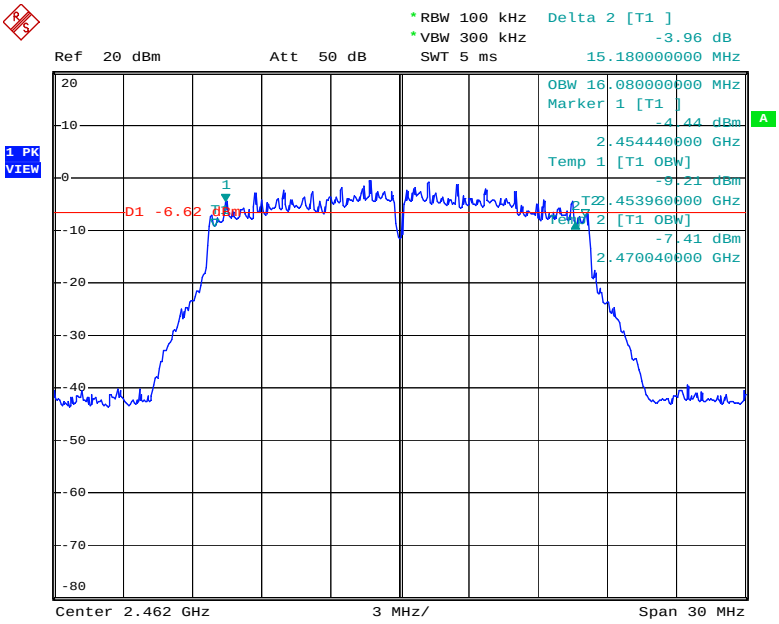
Date: 19.SEP.2018 11:56:09

802.11g-Middle Channel



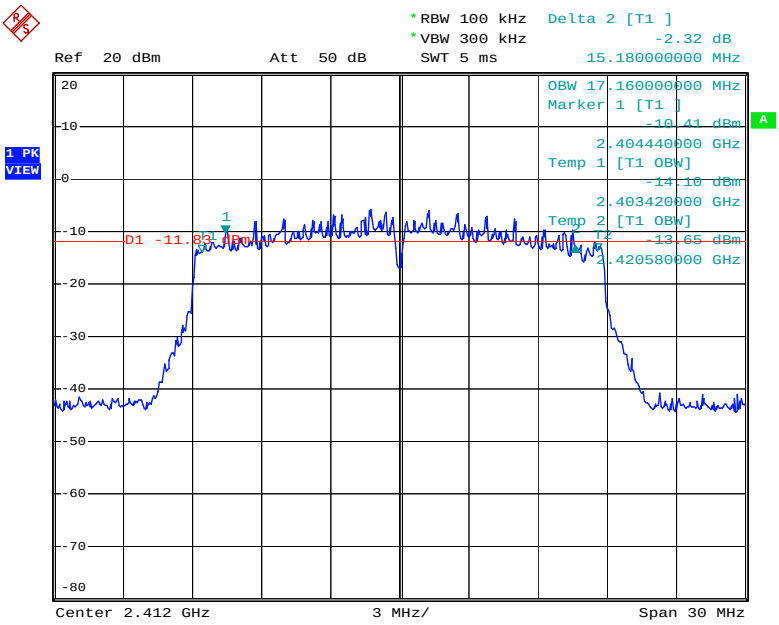
Date: 19.SEP.2018 11:48:58

802.11g-High Channel



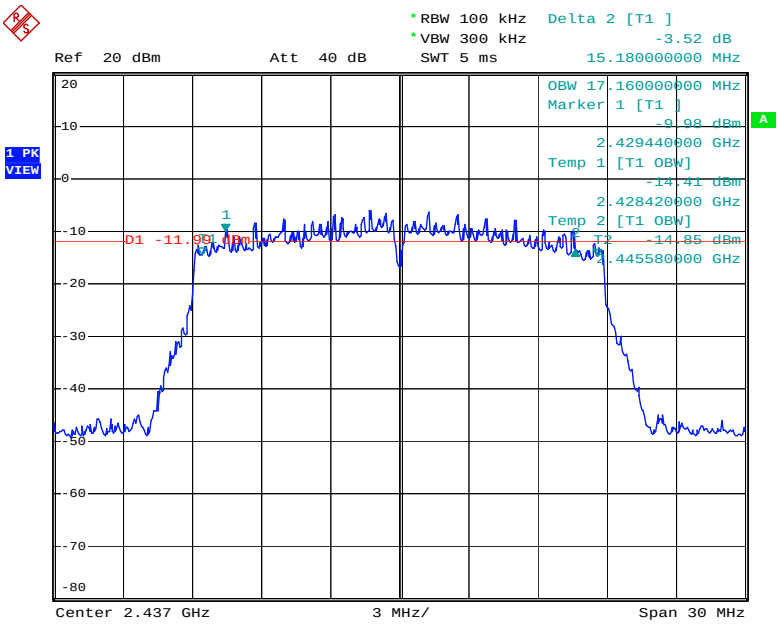
Date: 19.SEP.2018 11:39:57

802.11n-HT20-Low Channel



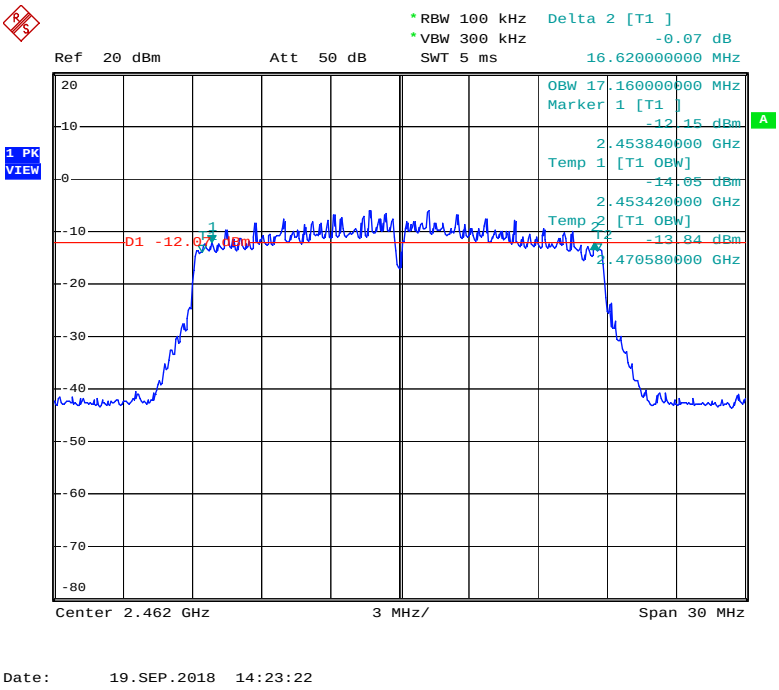
Date: 19.SEP.2018 13:55:20

802.11n-HT20-Middle Channel

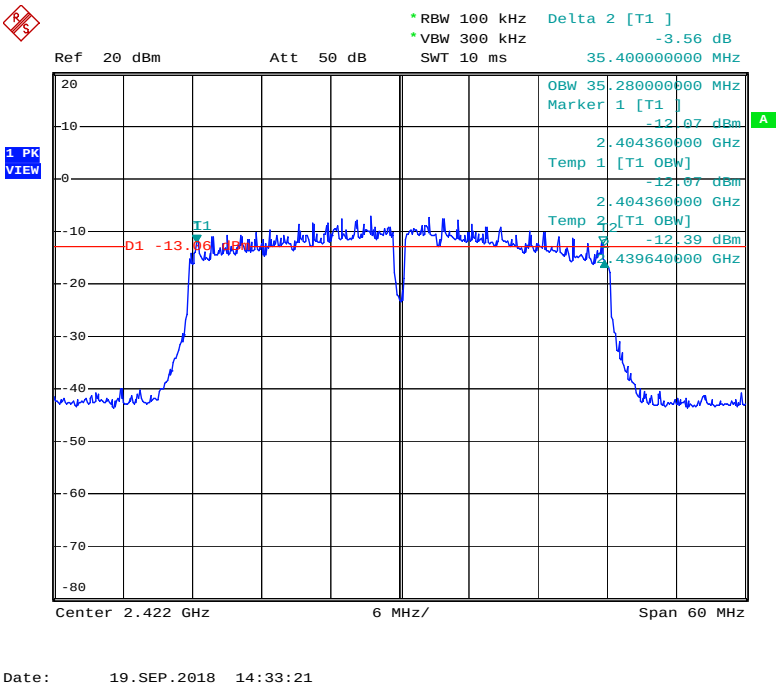


Date: 19.SEP.2018 14:03:35

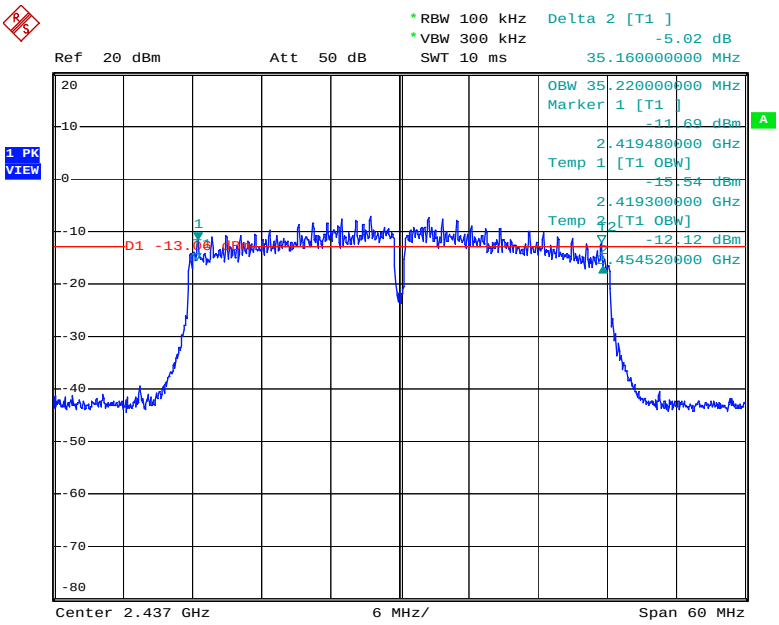
802.11n-HT20-High Channel



802.11n-HT40-Low Channel

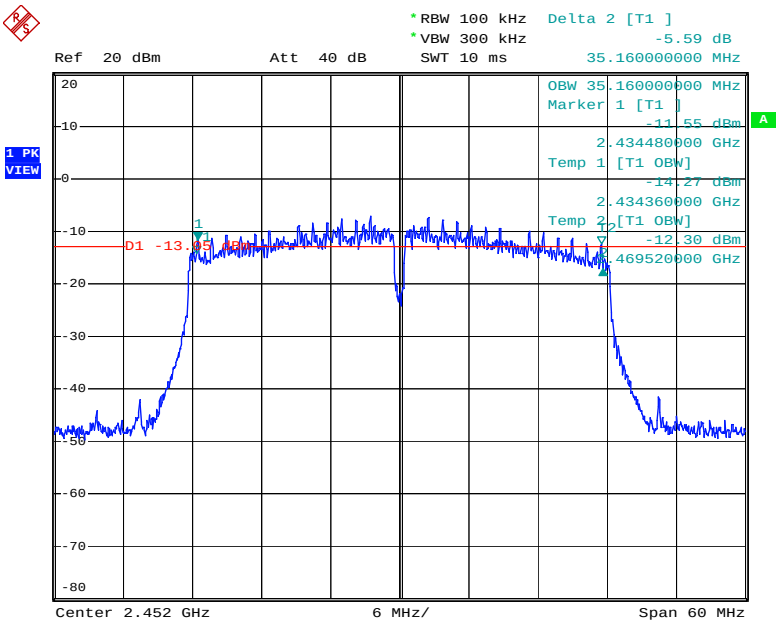


802.11n-HT40-Middle Channel



Date: 19.SEP.2018 14:42:48

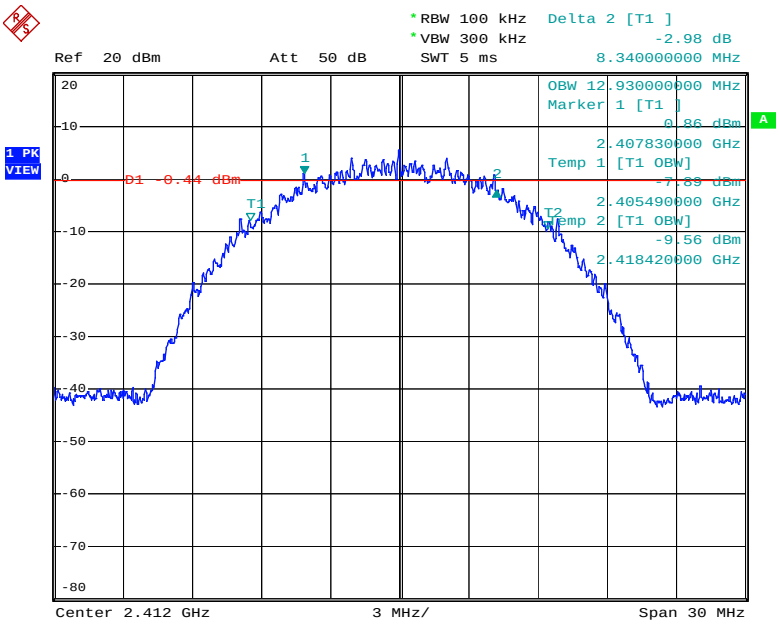
802.11n-HT40-High Channel



Date: 19.SEP.2018 14:54:31

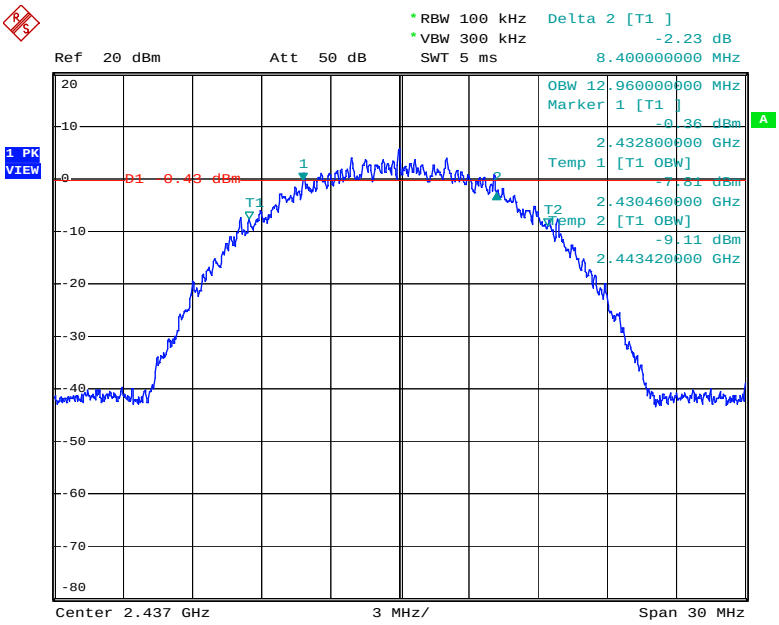
Antenna 2

802.11b-Low Channel



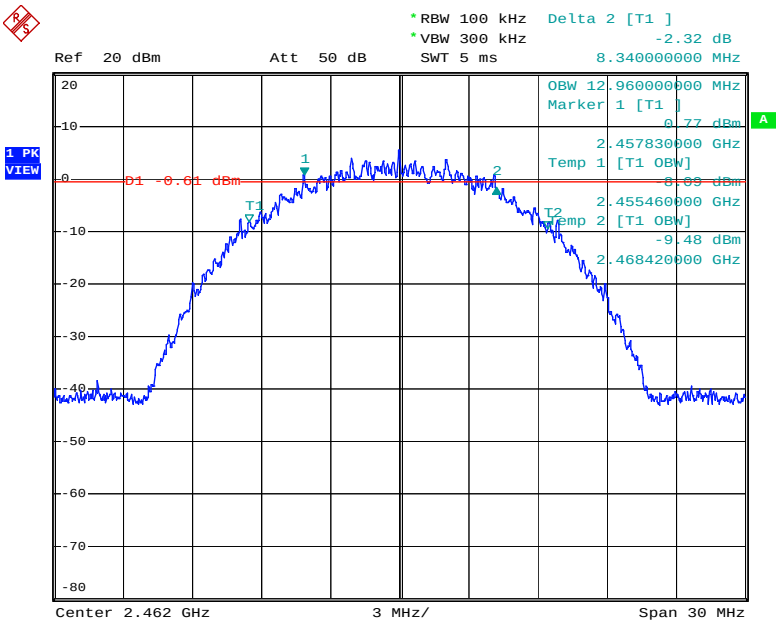
Date: 19.SEP.2018 17:05:26

802.11b-Middle Channel



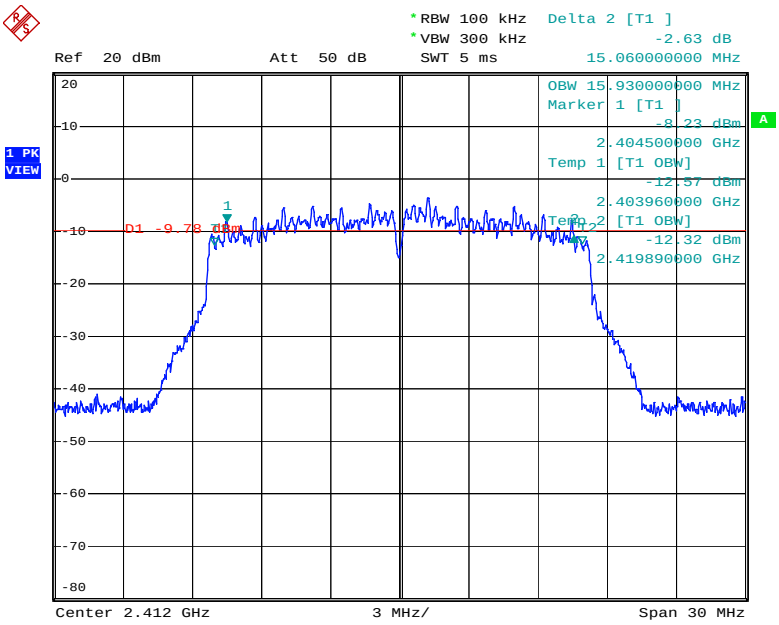
Date: 19.SEP.2018 16:53:59

802.11b-High Channel



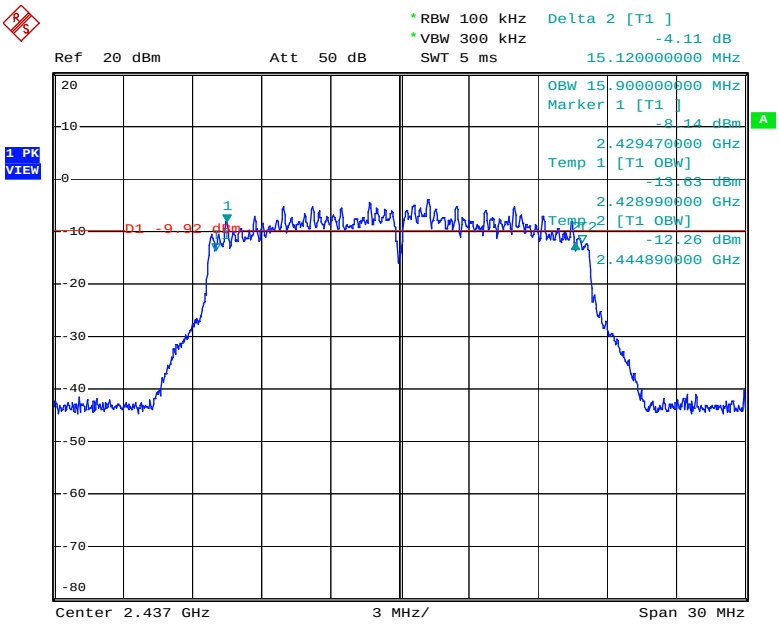
Date: 19.SEP.2018 16:45:51

802.11 g-Low Channel



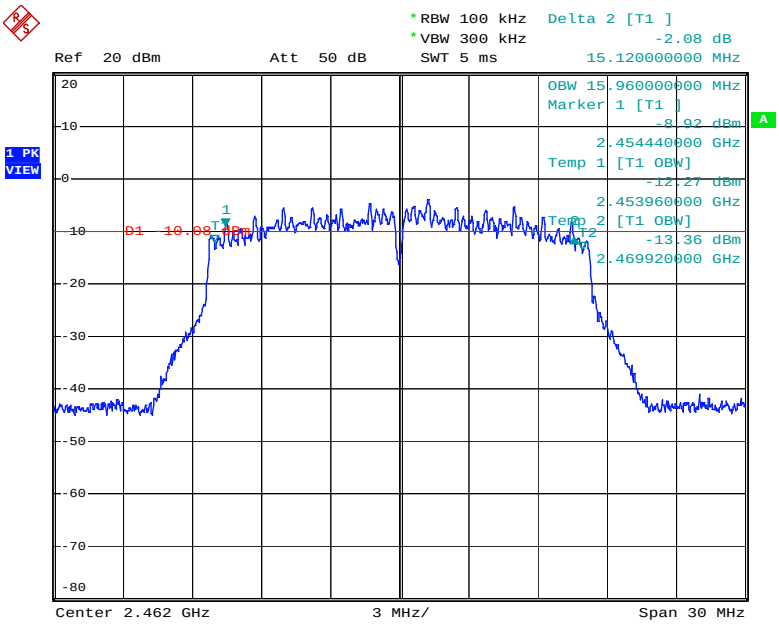
Date: 19.SEP.2018 16:18:54

802.11g-Middle Channel



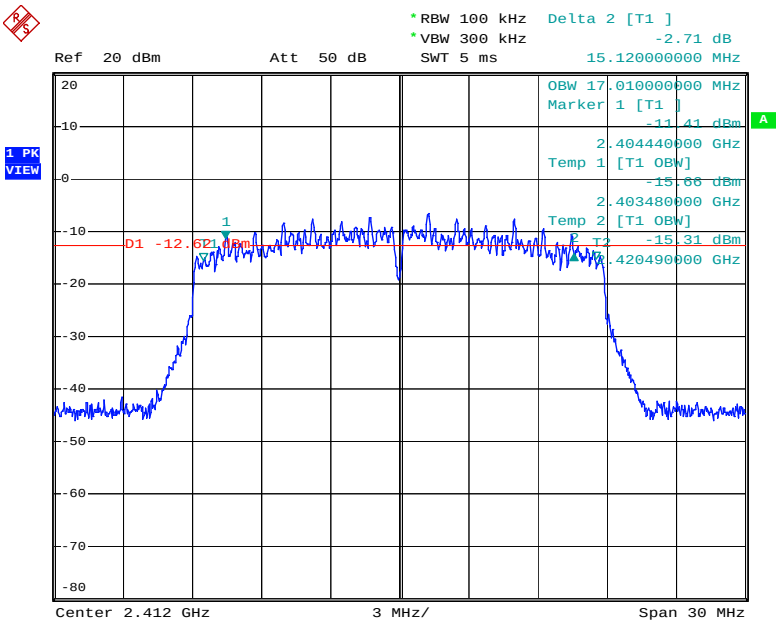
Date: 19.SEP.2018 16:26:56

802.11g-High Channel



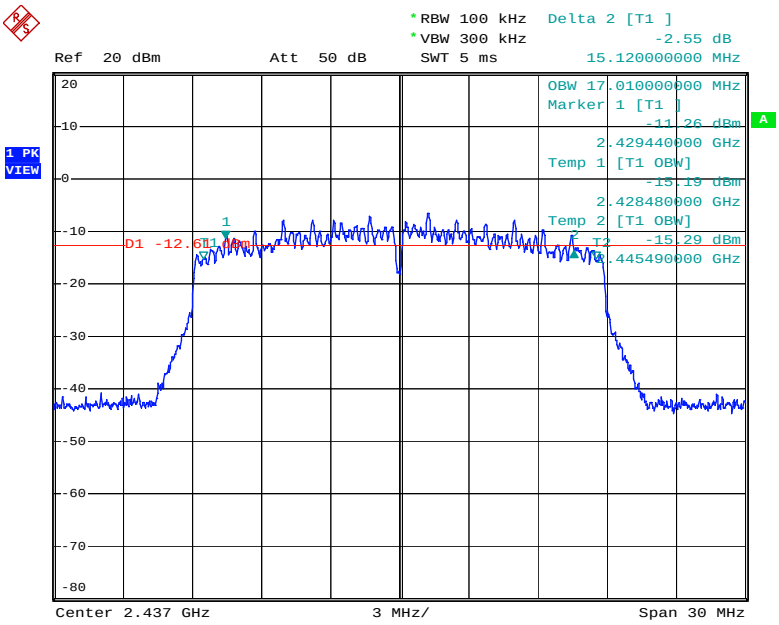
Date: 19.SEP.2018 16:35:57

802.11n-HT20-Low Channel



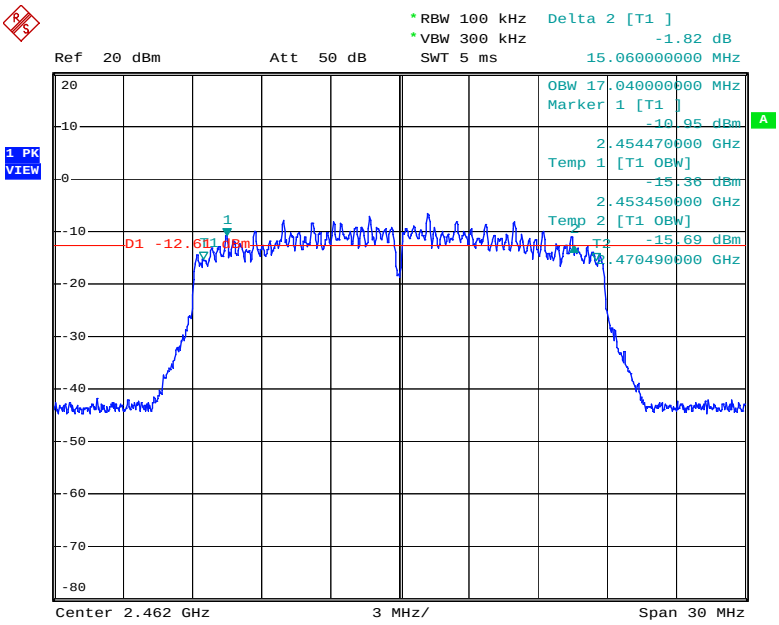
Date: 19.SEP.2018 16:09:26

802.11n-HT20-Middle Channel



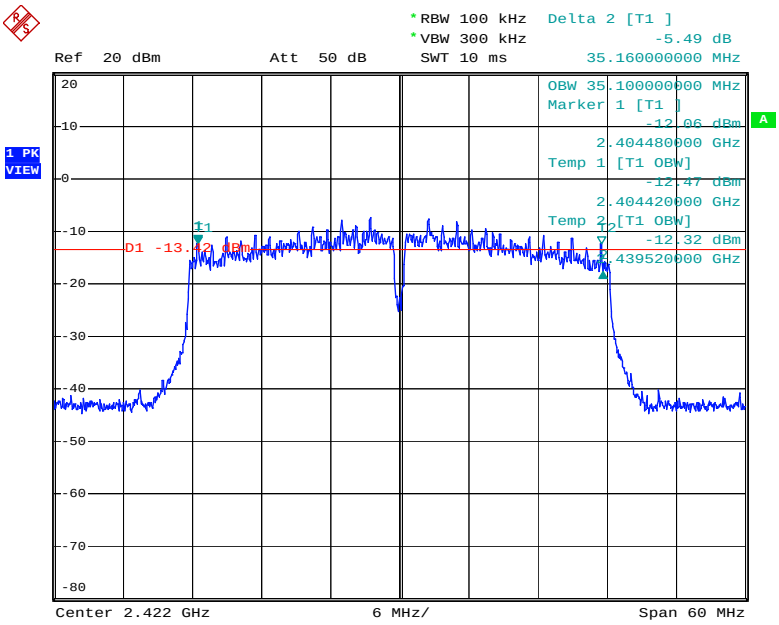
Date: 19.SEP.2018 16:01:22

802.11n-HT20-High Channel



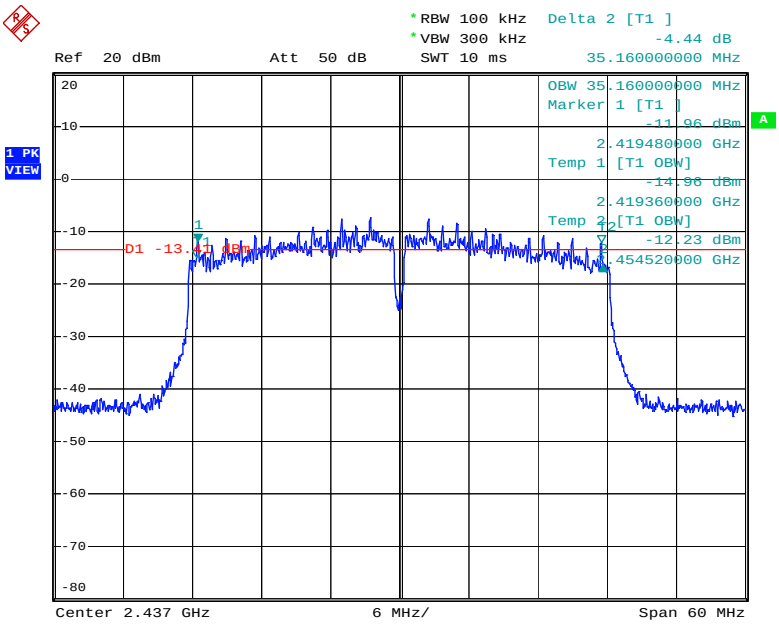
Date: 19.SEP.2018 15:54:26

802.11n-HT40-Low Channel



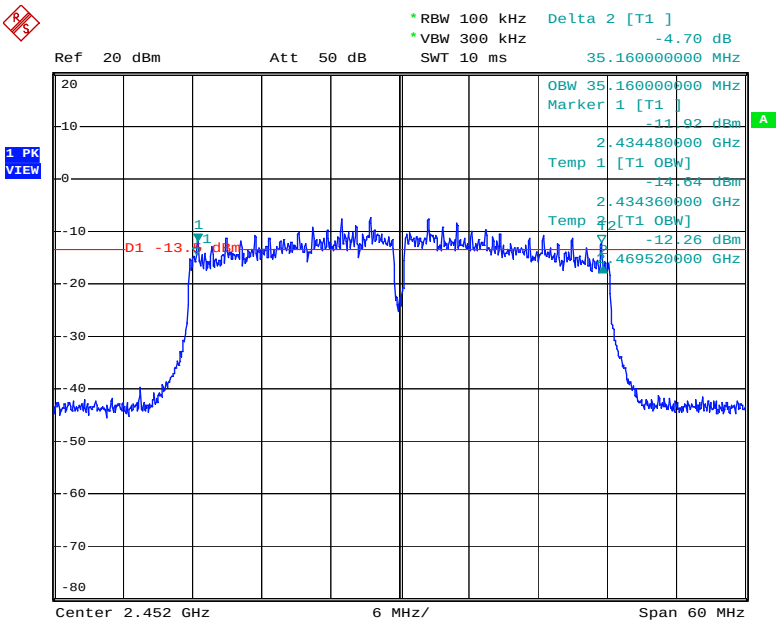
Date: 19.SEP.2018 15:19:46

802.11n-HT40-Middle Channel



Date: 19.SEP.2018 15:28:06

802.11n-HT40-High Channel



Date: 19.SEP.2018 15:41:58

7. RF Output Power

7.1 Standard Applicable

According to 15.247(b)(3). For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz bands: 1 Watt.

7.2 Test Procedure

According to KDB-558074 D01 V05, (channel integration method) When this option is exercised, the measured power is to be referenced to the OBW rather than the DTS bandwidth

a) Set span to at least 1.5 times the OBW.
b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz.
c) Set VBW ≥ 3 x RBW.
d) Number of points in sweep ≥ 2 × span / RBW. (This gives bin-to-bin spacing ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)
e) Sweep time = auto.
f) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
g) If transmit duty cycle < 98 %, use a sweep trigger with the level set to enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98 %, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run”.
h) Trace average at least 100 traces in power averaging (i.e., RMS) mode.
i) Compute power by integrating the spectrum across the OBW of the signal using the instrument’s band power measurement function, with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

7.3 Environmental Conditions

Temperature:	26° C
Relative Humidity:	57%
ATM Pressure:	1011 mbar

7.4 Summary of Test Results/Plots

Test Mode	Frequency MHz	Power dBm		Output Power mW		Limit mW
		Antenna 1	Antenna 2	Antenna 1	Antenna 2	
802.11b	2412	11.28	11.31	13.40	13.50	1000
	2437	11.48	11.37	14.10	13.70	1000
	2462	11.08	11.14	12.80	13.00	1000
802.11g	2412	7.87	7.80	6.10	6.00	1000
	2437	7.51	7.64	5.60	5.80	1000
	2462	8.51	7.61	7.10	5.80	1000

Test Mode	Frequency MHz	Power dBm			Output Power mW	Limit mW
		Antenna 1	Antenna 2	total	total	
802.11n HT20	2412	7.85	7.38	10.63	11.60	1000
	2437	7.98	7.46	10.74	11.90	1000
	2462	7.63	7.35	10.50	11.20	1000
802.11n HT40	2422	9.36	9.85	12.62	18.30	1000
	2437	9.34	9.44	12.40	17.40	1000
	2452	9.27	9.21	12.25	16.80	1000

8. Field Strength of Spurious Emissions

8.1 Measurement Uncertainty

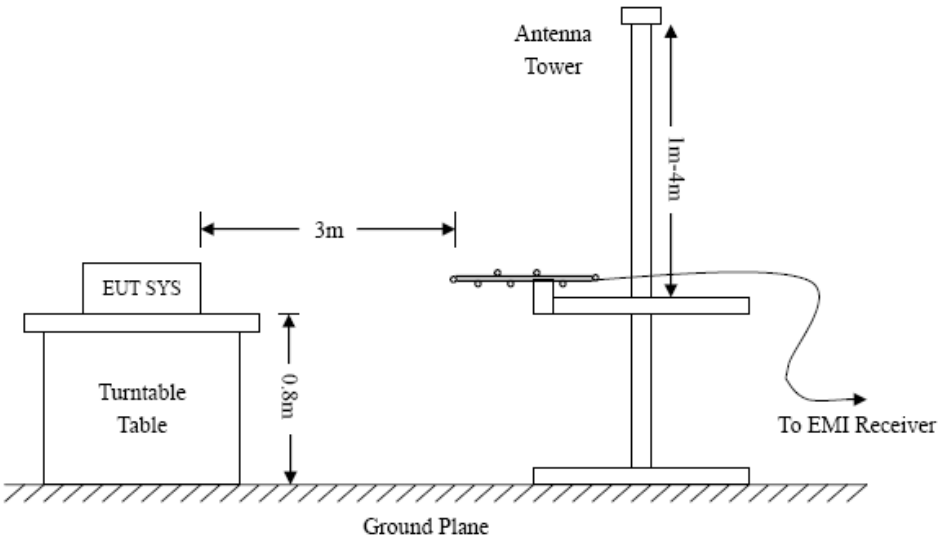
Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is ±5.10 dB.

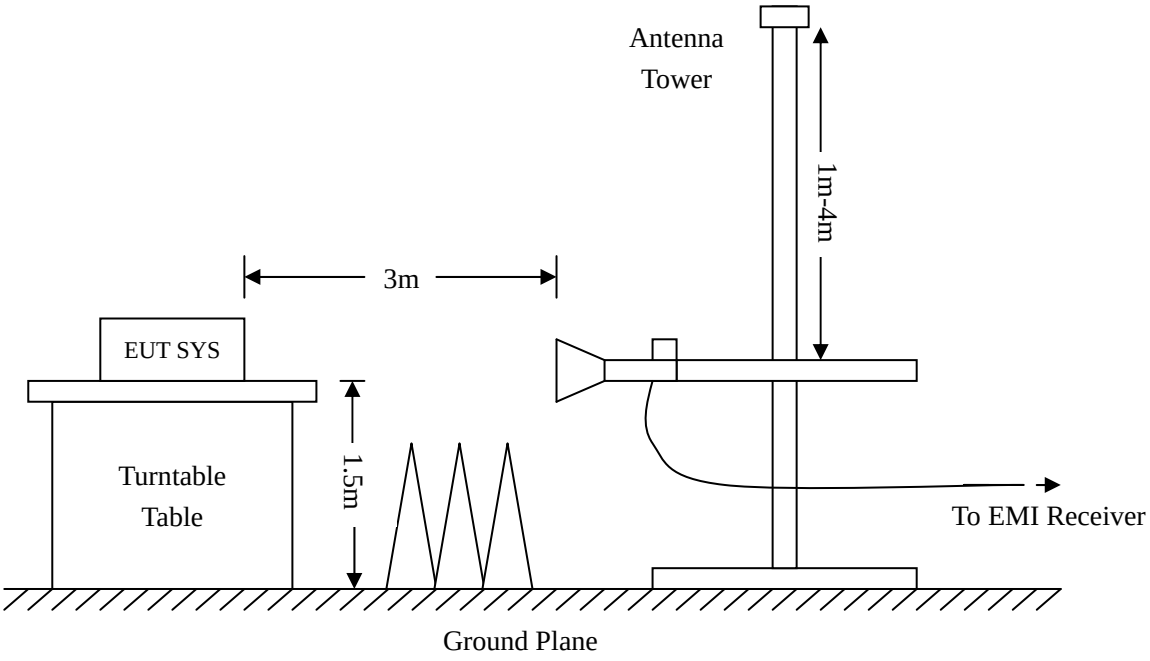
8.2 Standard Applicable

According to §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).
The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply. Spurious Radiated Emissions measurements starting below or at the lowest crystal frequency.

8.3 Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.205 15.247(a) and FCC Part 15.209 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.





Frequency: 9kHz-30MHz	Frequency: 30MHz-1GHz	Frequency: Above 1GHz
RBW=10 KHz,	RBW=120 KHz,	RBW=1MHz,
VBW =30 KHz	VBW=300 KHz	VBW=3MHz (Peak), 10Hz
(AV)		
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	Detector function = peak, AV

8.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Ant. Factor + Cable Loss – Ampl. Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15 Limit

8.5 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

8.6 Summary of Test Results/Plots

According to the data below, the FCC Part 15.205, 15.209 and 15.247 standards, and had the worst cases:

Note: The worst mode IEEE 802.11b (channel low, middle, high)) data was reported.

Plot of Radiated Emissions Test Data (30MHz to 1GHz)

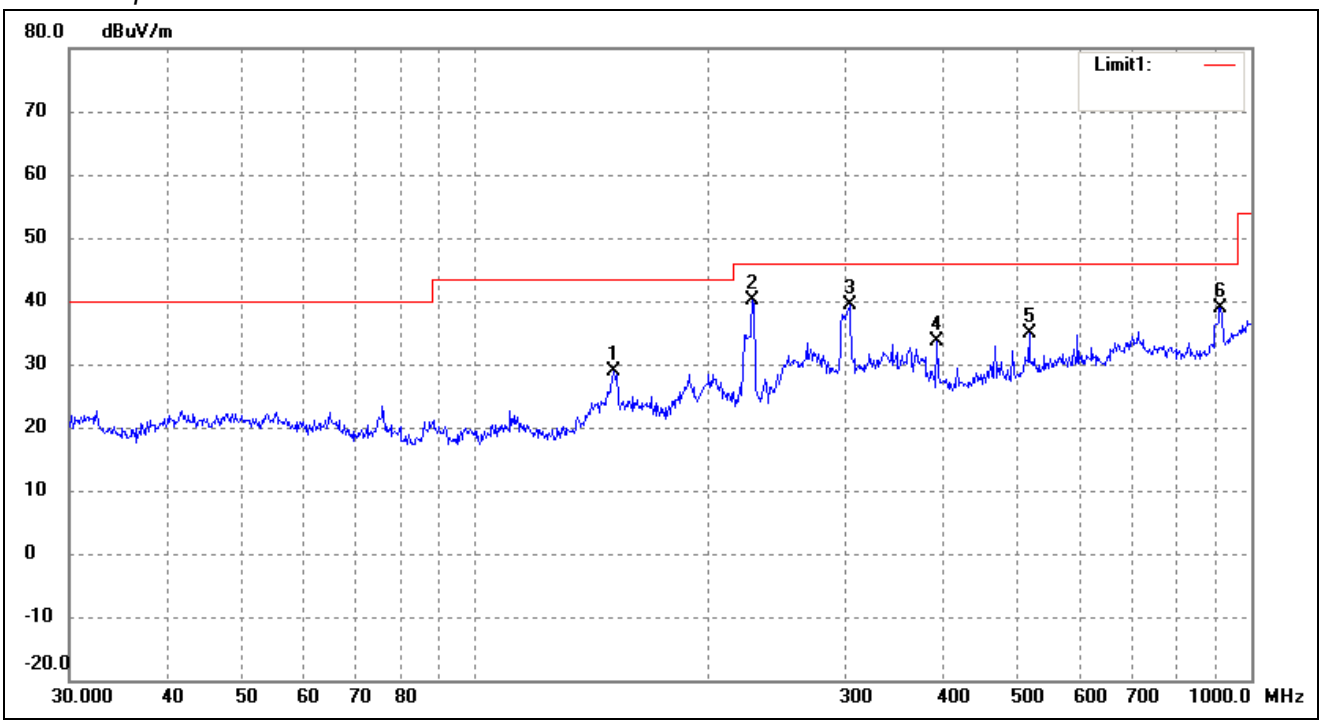
EUT: *60" UHD LED IPTV*
D60RWA14-U-A-I RNSMU6036

Tested Model: *XXXXXXXXXXXX60XXXXXXXXXXXX*
(Where "X"can be any alphanumeric of a-z, A-Z or 0-9 or blank &"-".)

Operating Condition: *802.11b Transmitting Low Channel-2412MHz*

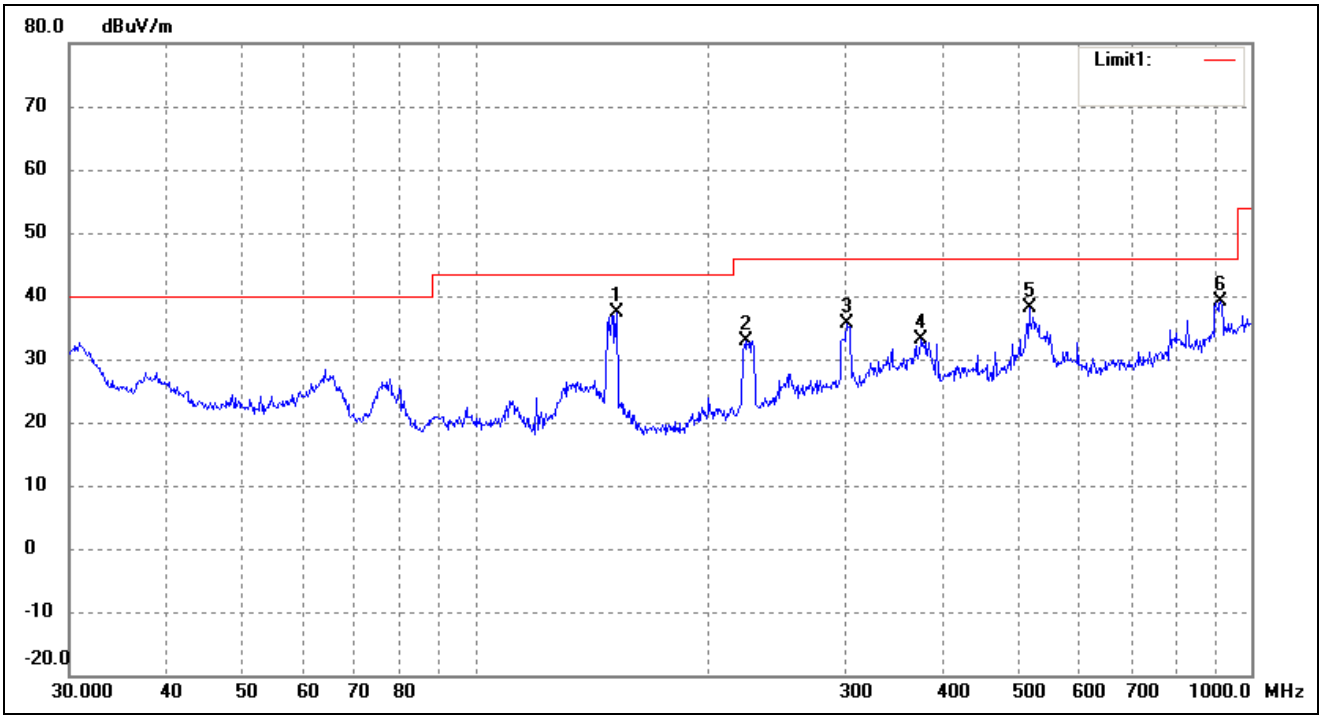
Comment: *120V/60Hz*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	151.0666	45.59	-16.69	28.90	43.50	-14.60	9	100	peak
2	227.6906	51.03	-10.96	40.07	46.00	-5.93	45	100	peak
3	303.5437	46.61	-7.35	39.26	46.00	-6.74	123	100	peak
4	393.4723	40.39	-6.69	33.70	46.00	-12.30	110	100	peak
5	517.2480	40.77	-5.87	34.90	46.00	-11.10	54	100	peak
6	912.8620	37.27	1.72	38.99	46.00	-7.01	77	100	peak

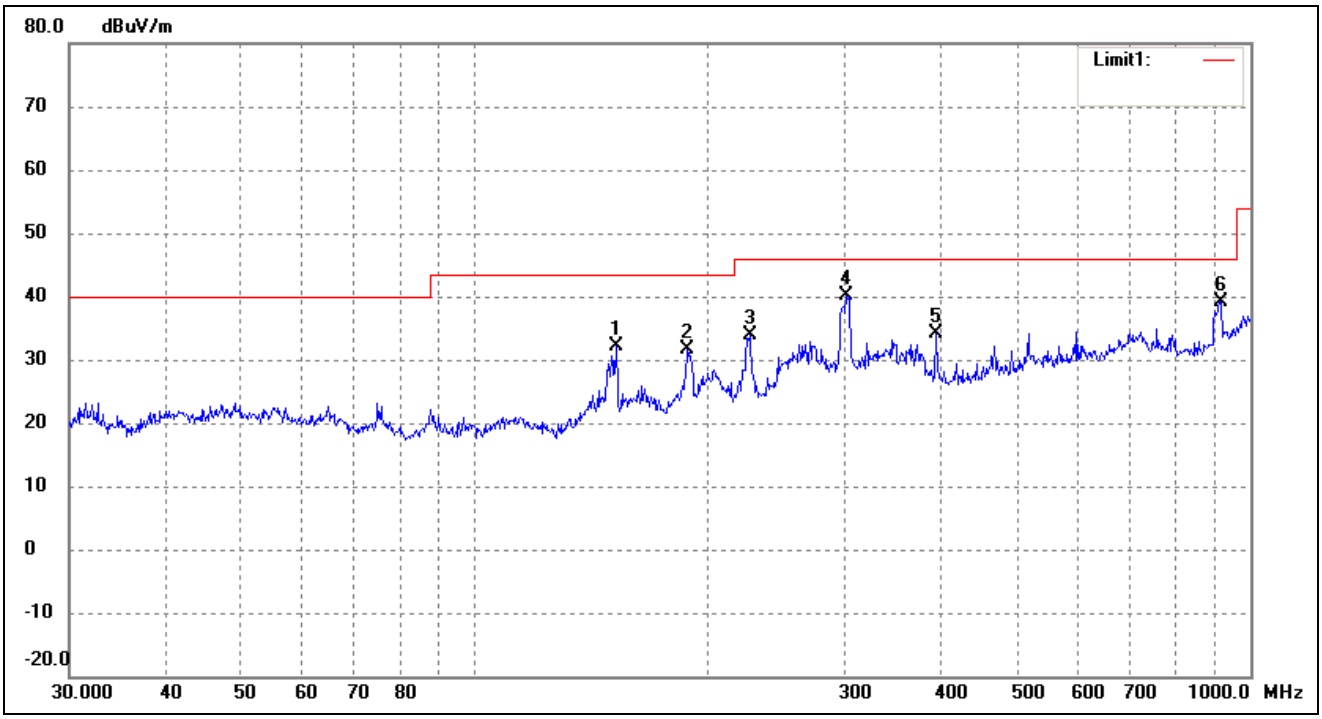
Test Specification: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	152.1297	53.89	-16.61	37.28	43.50	-6.22	3	100	peak
2	223.7334	44.04	-11.22	32.82	46.00	-13.18	12	100	peak
3	301.4224	43.04	-7.40	35.64	46.00	-10.36	147	100	peak
4	375.9385	39.90	-6.76	33.14	46.00	-12.86	246	100	peak
5	517.2480	44.11	-5.87	38.24	46.00	-7.76	205	100	peak
6	912.8620	37.52	1.72	39.24	46.00	-6.76	307	100	peak

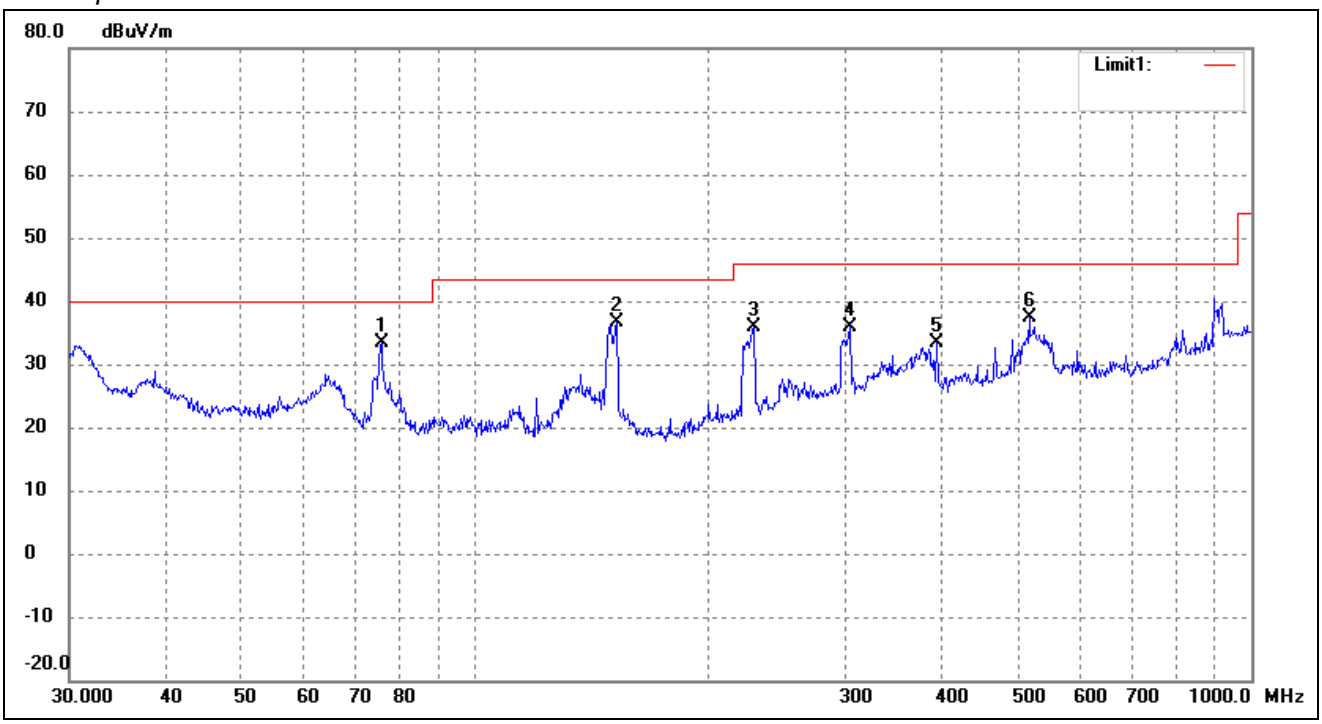
Operating Condition: *802.11b Transmitting Middle Channel-2437MHz*
Comment: *120V/60Hz*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	152.1297	48.72	-16.61	32.11	43.50	-11.39	47	100	peak
2	187.7530	45.02	-13.47	31.55	43.50	-11.95	12	100	peak
3	226.0994	44.90	-11.09	33.81	46.00	-12.19	120	100	peak
4	301.4224	47.46	-7.40	40.06	46.00	-5.94	106	100	peak
5	393.4723	40.72	-6.69	34.03	46.00	-11.97	99	100	peak
6	916.0687	37.31	1.80	39.11	46.00	-6.89	85	100	peak

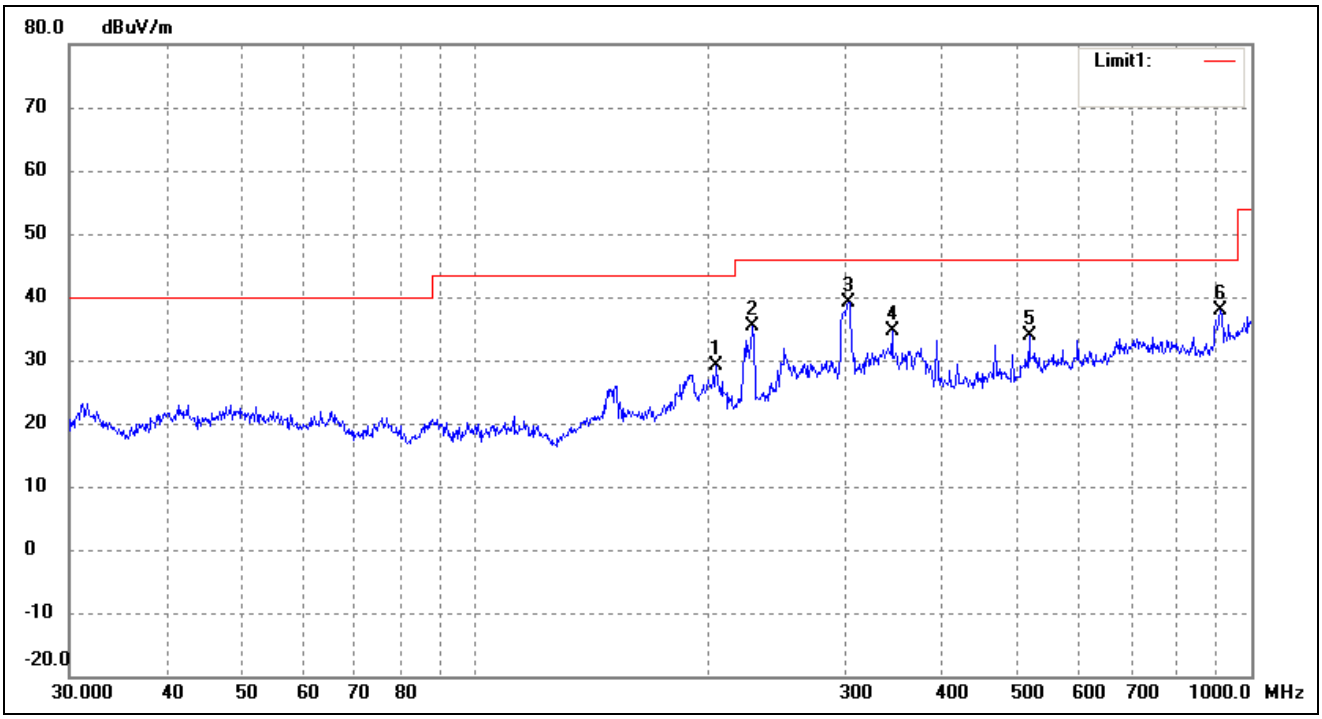
Test Specification: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	75.7114	52.02	-18.65	33.37	40.00	-6.63	4	100	peak
2	152.1297	53.12	-16.61	36.51	43.50	-6.99	124	100	peak
3	228.4904	46.87	-10.90	35.97	46.00	-10.03	24	100	peak
4	304.6099	43.33	-7.33	36.00	46.00	-10.00	37	100	peak
5	393.4723	39.98	-6.69	33.29	46.00	-12.71	49	100	peak
6	517.2480	43.21	-5.87	37.34	46.00	-8.66	244	100	peak

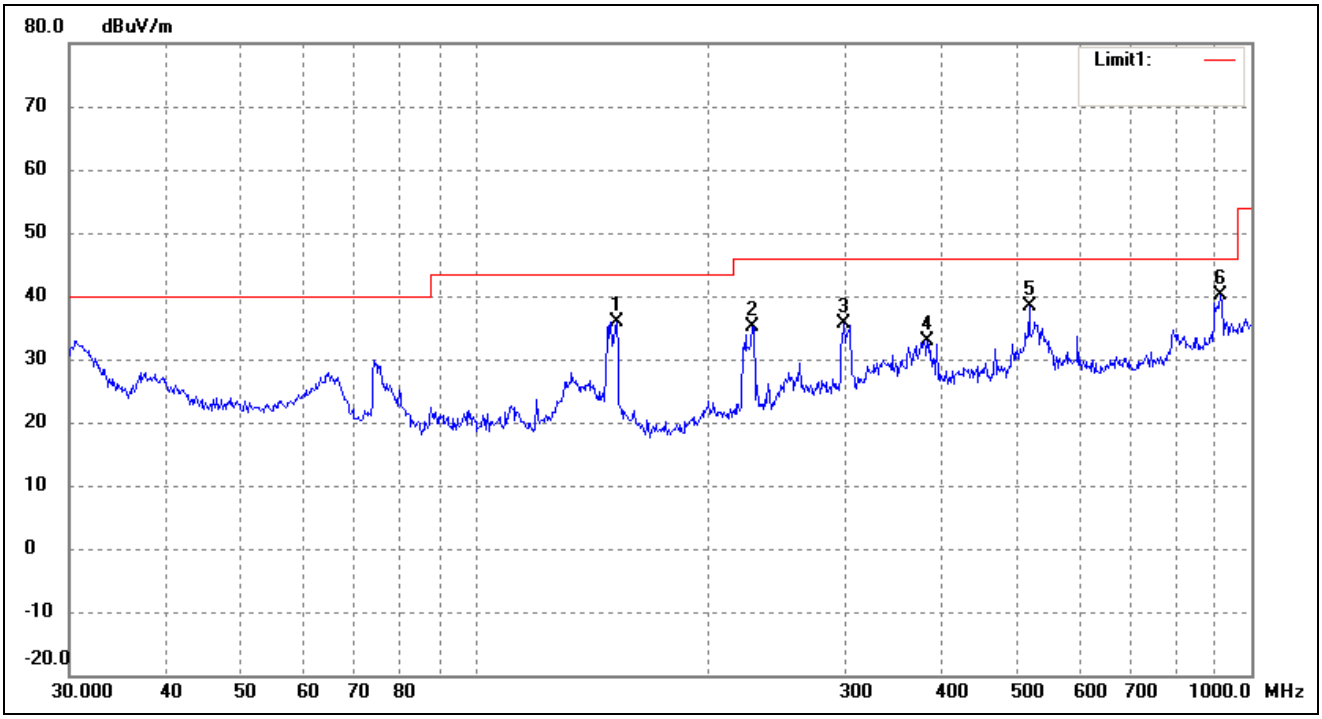
Operating Condition: *802.11b Transmitting High Channel-2462MHz*
Comment: *120V/60Hz*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	204.2377	41.30	-12.25	29.05	43.50	-14.45	55	100	peak
2	227.6906	46.39	-10.96	35.43	46.00	-10.57	132	100	peak
3	302.4812	46.51	-7.37	39.14	46.00	-6.86	168	100	peak
4	344.3855	41.06	-6.49	34.57	46.00	-11.43	189	100	peak
5	517.2480	39.78	-5.87	33.91	46.00	-12.09	100	100	peak
6	912.8620	36.16	1.72	37.88	46.00	-8.12	76	100	peak

Test Specification: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	152.1297	52.58	-16.61	35.97	43.50	-7.53	15	100	peak
2	227.6906	46.16	-10.96	35.20	46.00	-10.80	103	100	peak
3	298.2681	43.10	-7.47	35.63	46.00	-10.37	126	100	peak
4	382.5879	39.62	-6.64	32.98	46.00	-13.02	245	100	peak
5	517.2480	44.21	-5.87	38.34	46.00	-7.66	269	100	peak
6	912.8620	38.39	1.72	40.11	46.00	-5.89	306	100	peak

Test Mode: 802.11b

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2412MHz							
4824	60.97	-3.87	57.10	74	-16.90	H	Peak
4824	41.72	-3.87	37.85	54	-16.15	H	AV
7236	54.31	1.14	55.45	74	-18.55	H	Peak
7236	40.29	1.19	41.48	54	-12.52	H	AV
4824	61.61	-3.86	57.75	74	-16.25	V	Peak
4824	43.06	-3.86	39.20	54	-14.80	V	AV
7236	55.38	1.10	56.48	74	-17.52	V	Peak
7236	38.12	1.10	39.22	54	-14.78	V	AV
Middle Channel-2437MHz							
4874	61.16	-3.74	57.42	74	-16.58	H	Peak
4874	42.37	-3.74	38.63	54	-15.37	H	AV
7311	55.65	1.47	57.12	74	-16.88	H	Peak
7311	40.76	1.47	42.23	54	-11.77	H	AV
4874	61.01	-3.74	57.27	74	-16.73	V	Peak
4874	42.81	-3.74	39.07	54	-14.93	V	AV
7311	53.67	1.47	55.14	74	-18.86	V	Peak
7311	39.37	1.47	40.84	54	-13.16	V	AV
High Channel-2462MHz							
4924	58.74	-3.59	55.15	74	-18.85	H	Peak
4924	43.18	-3.59	39.59	54	-14.41	H	AV
7386	53.11	1.79	54.90	74	-19.10	H	Peak
7386	38.40	1.79	40.19	54	-13.81	H	AV
4924	60.89	-3.59	57.30	74	-16.70	V	Peak
4924	43.11	-3.59	39.52	54	-14.48	V	AV
7386	55.22	1.79	57.01	74	-16.99	V	Peak
7386	38.10	1.79	39.89	54	-14.11	V	AV

Test Mode: 802.11g

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2412MHz							
4824	60.58	-3.87	56.71	74	-17.29	H	Peak
4824	42.45	-3.87	38.58	54	-15.42	H	AV
7236	55.65	1.14	56.79	74	-17.21	H	Peak
7236	39.38	1.19	40.57	54	-13.43	H	AV
4824	61.07	-3.86	57.21	74	-16.79	V	Peak
4824	43.76	-3.86	39.90	54	-14.10	V	AV
7236	52.85	1.10	53.95	74	-20.05	V	Peak
7236	38.69	1.10	39.79	54	-14.21	V	AV
Middle Channel-2437MHz							
4874	59.13	-3.74	55.39	74	-18.61	H	Peak
4874	41.63	-3.74	37.89	54	-16.11	H	AV
7311	54.92	1.47	56.39	74	-17.61	H	Peak
7311	39.81	1.47	41.28	54	-12.72	H	AV
4874	59.75	-3.74	56.01	74	-17.99	V	Peak
4874	43.10	-3.74	39.36	54	-14.64	V	AV
7311	53.70	1.47	55.17	74	-18.83	V	Peak
7311	40.60	1.47	42.07	54	-11.93	V	AV
High Channel-2462MHz							
4924	61.62	-3.59	58.03	74	-15.97	H	Peak
4924	42.48	-3.59	38.89	54	-15.11	H	AV
7386	54.80	1.79	56.59	74	-17.41	H	Peak
7386	40.31	1.79	42.10	54	-11.90	H	AV
4924	60.00	-3.59	56.41	74	-17.59	V	Peak
4924	43.87	-3.59	40.28	54	-13.72	V	AV
7386	55.22	1.79	57.01	74	-16.99	V	Peak
7386	40.35	1.79	42.14	54	-11.86	V	AV

Test Mode: 802.11n-HT20

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2412MHz							
4824	58.21	-3.87	54.34	74	-19.66	H	Peak
4824	43.01	-3.87	39.14	54	-14.86	H	AV
7236	53.03	1.14	54.17	74	-19.83	H	Peak
7236	38.35	1.19	39.54	54	-14.46	H	AV
4824	58.92	-3.86	55.06	74	-18.94	V	Peak
4824	42.23	-3.86	38.37	54	-15.63	V	AV
7236	52.84	1.10	53.94	74	-20.06	V	Peak
7236	40.57	1.10	41.67	54	-12.33	V	AV
Middle Channel-2437MHz							
4874	61.69	-3.74	57.95	74	-16.05	H	Peak
4874	43.26	-3.74	39.52	54	-14.48	H	AV
7311	55.29	1.47	56.76	74	-17.24	H	Peak
7311	38.05	1.47	39.52	54	-14.48	H	AV
4874	58.34	-3.74	54.60	74	-19.40	V	Peak
4874	43.24	-3.74	39.50	54	-14.50	V	AV
7311	53.00	1.47	54.47	74	-19.53	V	Peak
7311	38.16	1.47	39.63	54	-14.37	V	AV
High Channel-2462MHz							
4924	58.99	-3.59	55.40	74	-18.60	H	Peak
4924	43.95	-3.59	40.36	54	-13.64	H	AV
7386	53.98	1.79	55.77	74	-18.23	H	Peak
7386	38.34	1.79	40.13	54	-13.87	H	AV
4924	60.45	-3.59	56.86	74	-17.14	V	Peak
4924	42.88	-3.59	39.29	54	-14.71	V	AV
7386	54.71	1.79	56.50	74	-17.50	V	Peak
7386	38.96	1.79	40.75	54	-13.25	V	AV

Test Mode: 802.11n-HT40

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
Low Channel-2422MHz							
4844	58.10	-3.87	54.23	74	-19.77	H	PK
4824	43.01	-3.87	39.14	54	-14.86	H	AV
7266	52.89	1.14	54.03	74	-19.97	H	PK
7266	39.08	1.19	40.27	54	-13.73	H	AV
4844	58.15	-3.86	54.29	74	-19.71	V	PK
4824	41.90	-3.86	38.04	54	-15.96	V	AV
7266	55.01	1.10	56.11	74	-17.89	V	PK
7266	38.92	1.10	40.02	54	-13.98	V	AV
Middle Channel-2437MHz							
4874	60.50	-3.74	56.76	74	-17.24	H	PK
4874	41.03	-3.74	37.29	54	-16.71	H	AV
7311	53.22	1.47	54.69	74	-19.31	H	PK
7311	40.16	1.47	41.63	54	-12.37	H	AV
4874	60.95	-3.74	57.21	74	-16.79	V	PK
4874	41.04	-3.74	37.30	54	-16.70	V	AV
7311	54.26	1.47	55.73	74	-18.27	V	PK
7311	40.93	1.47	42.40	54	-11.60	V	AV
High Channel-2452MHz							
4904	61.51	-3.59	57.92	74	-16.08	H	PK
4904	43.31	-3.59	39.72	54	-14.28	H	AV
7356	55.78	1.79	57.57	74	-16.43	H	PK
7356	38.90	1.79	40.69	54	-13.31	H	AV
4904	58.51	-3.59	54.92	74	-19.08	V	PK
4904	42.10	-3.59	38.51	54	-15.49	V	AV
7356	52.27	1.79	54.06	74	-19.94	V	PK
7356	39.89	1.79	41.68	54	-12.32	V	AV

Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, which above 3th Harmonics are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
The measurements greater than 20dB below the limit from 9kHz to 30MHz.

9. Out of Band Emissions

9.1 Standard Applicable

According to §15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

9.2 Test Procedure

According to the KDB 558074D01 V05, the band-edge radiated test method as follows:

Set span = wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation (2310MHz to 2420MHz for low bandedge, 2460MHz to 2500MHz for the high bandedge)
RBW = 1MHz, VBW = 1MHz for peak value measured
RBW = 1MHz, VBW = 10Hz for average value measured
Sweep = auto; Detector function = peak/average; Trace = max hold
All the trace to stabilize, set the marker on the emission at the bandedge, or on the highest modulation product
outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the
marker-to-peak function to move the marker to the peak of the in-band emission. Those emission must comply
with the 15.209 limit for fall in the restricted bands listed in section 15.205. Note that the method of measurement
KDB publication number: 913591 may be used for the radiated bandedge measurements.

According to the KDB 558074 D01 V05, the conducted spurious emissions test method as follows:
1. Set start frequency to DTS channel edge frequency.
2. Set stop frequency so as to encompass the spectrum to be examined.
3. Set RBW = 100 kHz.
4. Set VBW ≥ 300 kHz.
5. Detector = peak.
6. Trace Mode = max hold.

7. Sweep = auto couple.
8. Allow the trace to stabilize (this may take some time, depending on the extent of the span).
9. Use peak marker function to determine maximum amplitude of all unwanted emissions within any 100 kHz bandwidth.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding
restricted frequency bands) are attenuated by at least the minimum requirements specified in section 8.1. Report
the three highest emissions relative to the limit.

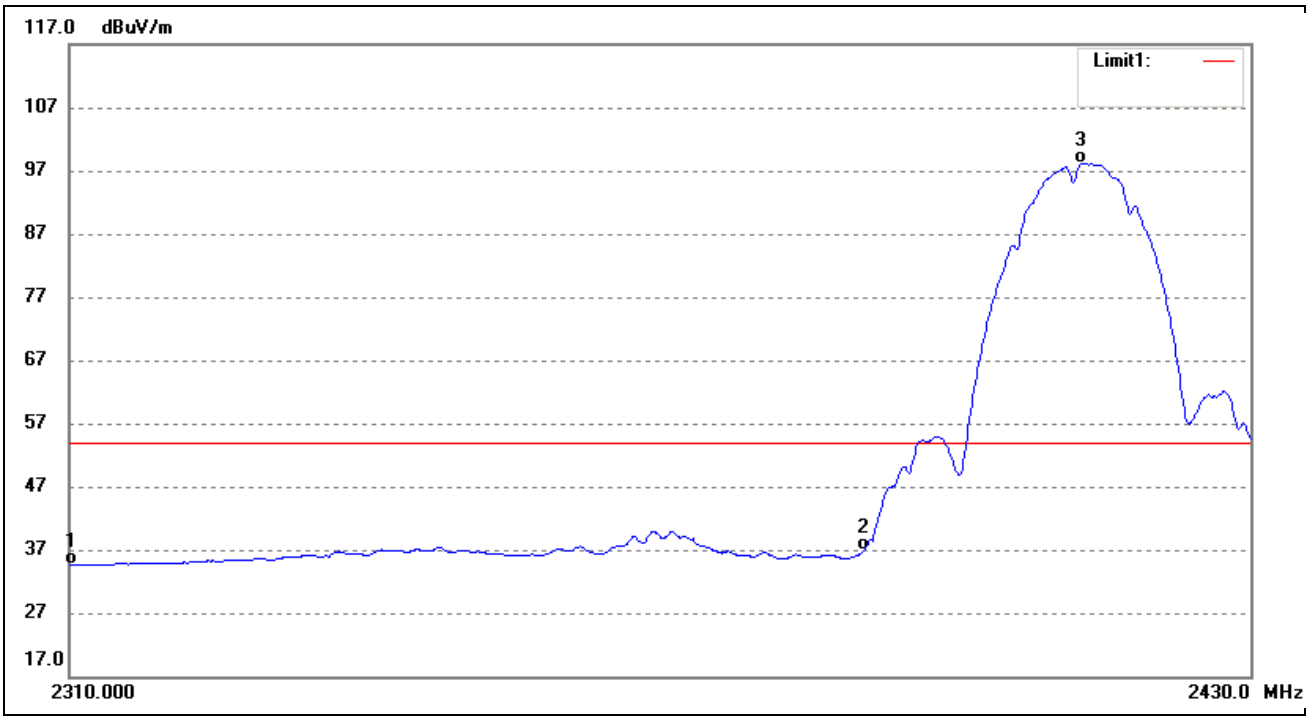
9.3 Environmental Conditions

Temperature:	23°C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

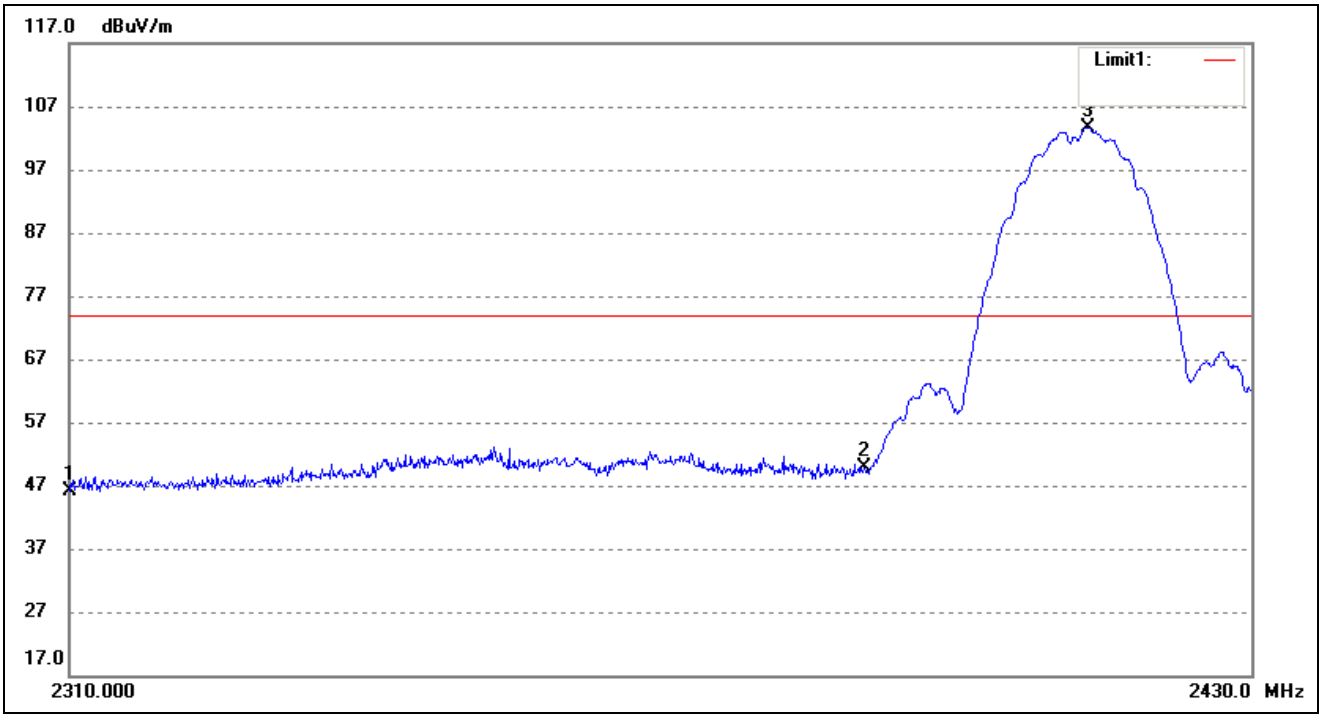
9.4 Summary of Test Results/Plots

802.11b-Lowest Band edge

Vertical (Worst case)



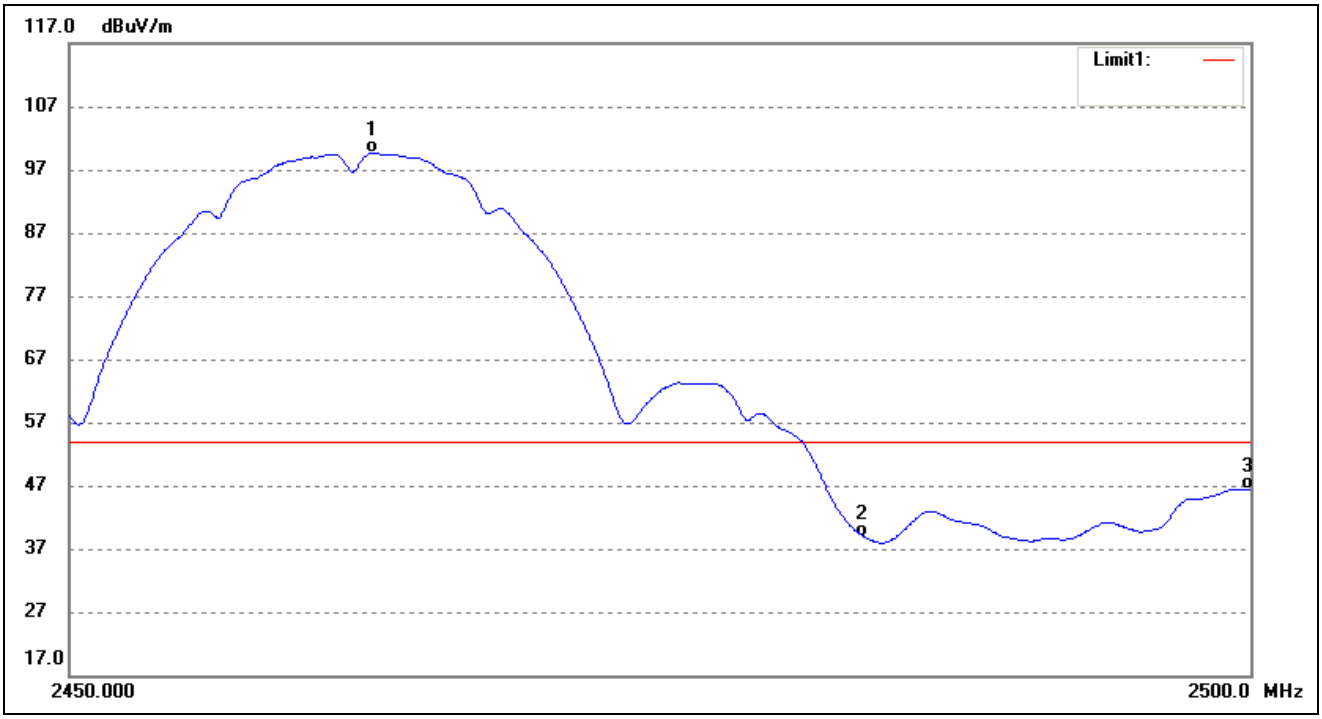
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2310.000	42.37	-7.78	34.59	54.00	-19.41	4	100	AVG
2	2390.000	44.30	-7.32	36.98	54.00	-17.02	16	100	AVG
3	2412.465	105.37	-7.19	98.18	/	/	241	100	AVG



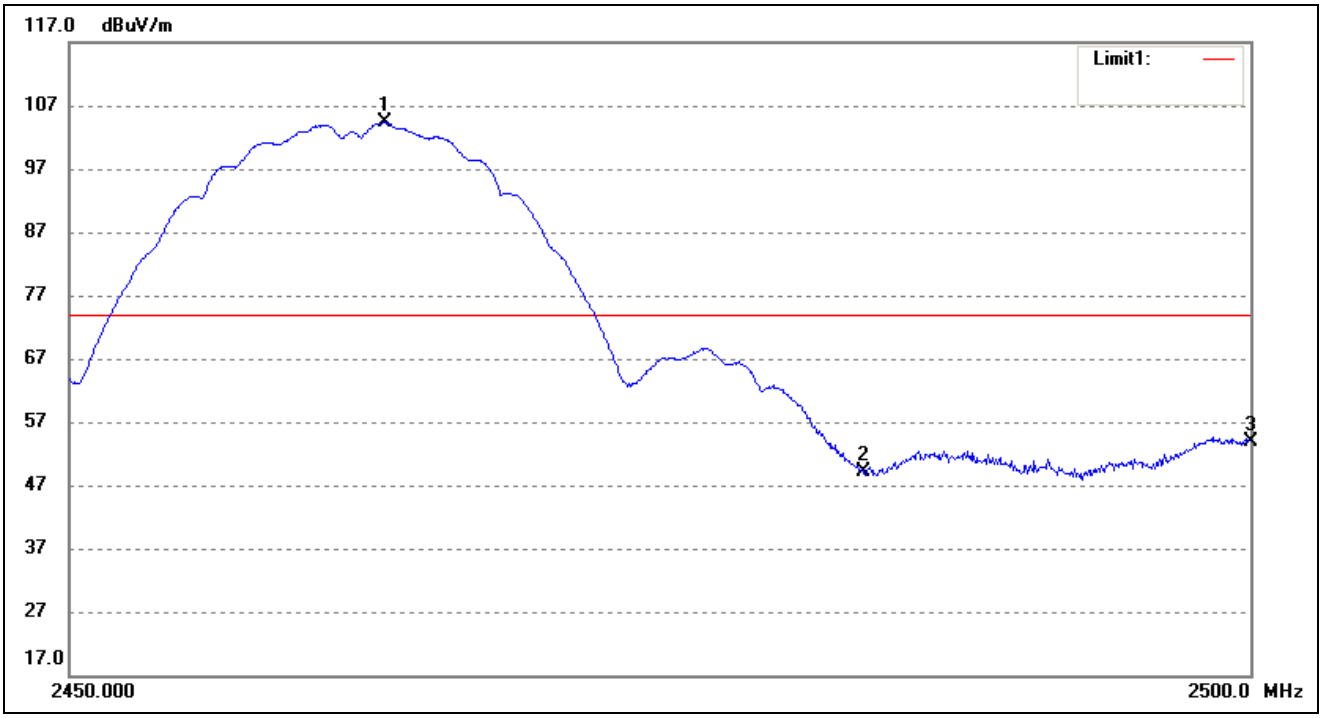
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2310.000	53.97	-7.78	46.19	74.00	-27.81	35	100	peak
2	2390.000	57.13	-7.32	49.81	74.00	-24.19	148	100	peak
3	2413.076	110.81	-7.18	103.63	/	/	305	100	peak

802.11b-Highest Band edge

Vertical (Worst case)



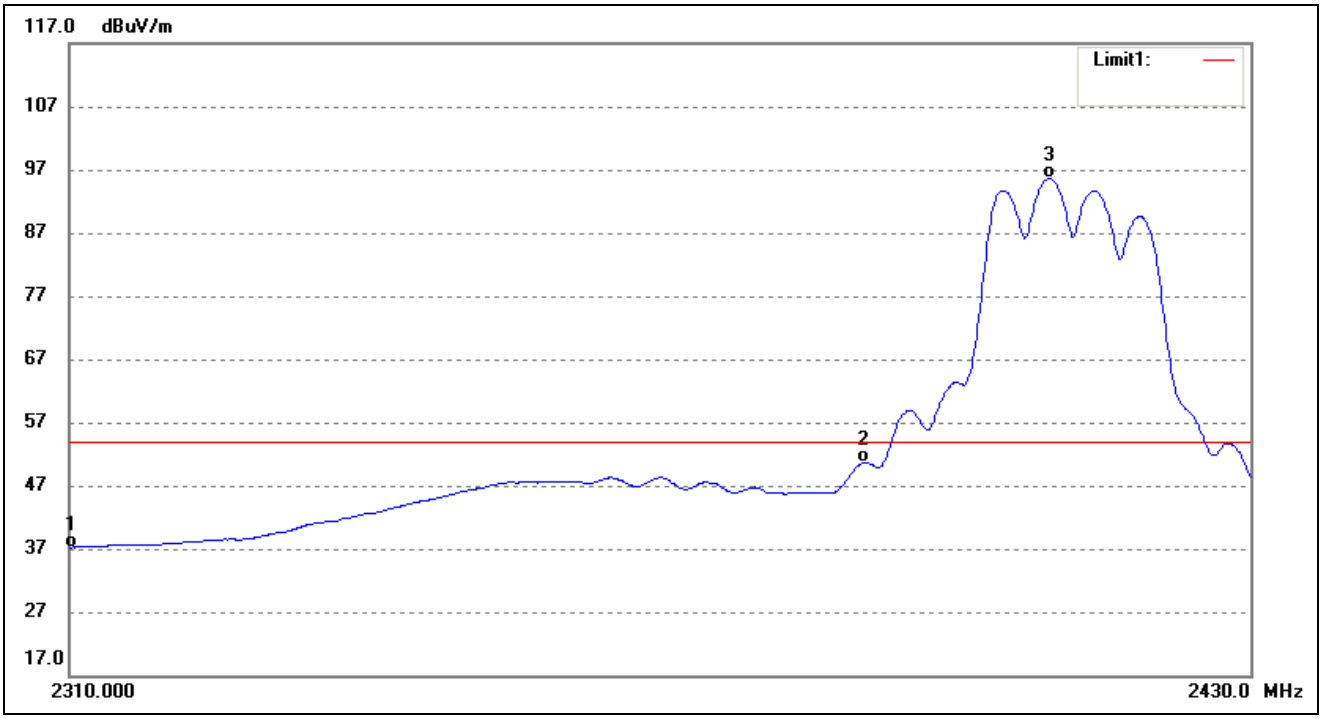
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2462.704	106.51	-6.89	99.62	/	/	46	100	AVG
2	2483.500	45.70	-6.77	38.93	54.00	-15.07	256	100	AVG
3	2500.000	53.09	-6.67	46.42	54.00	-7.58	140	100	AVG



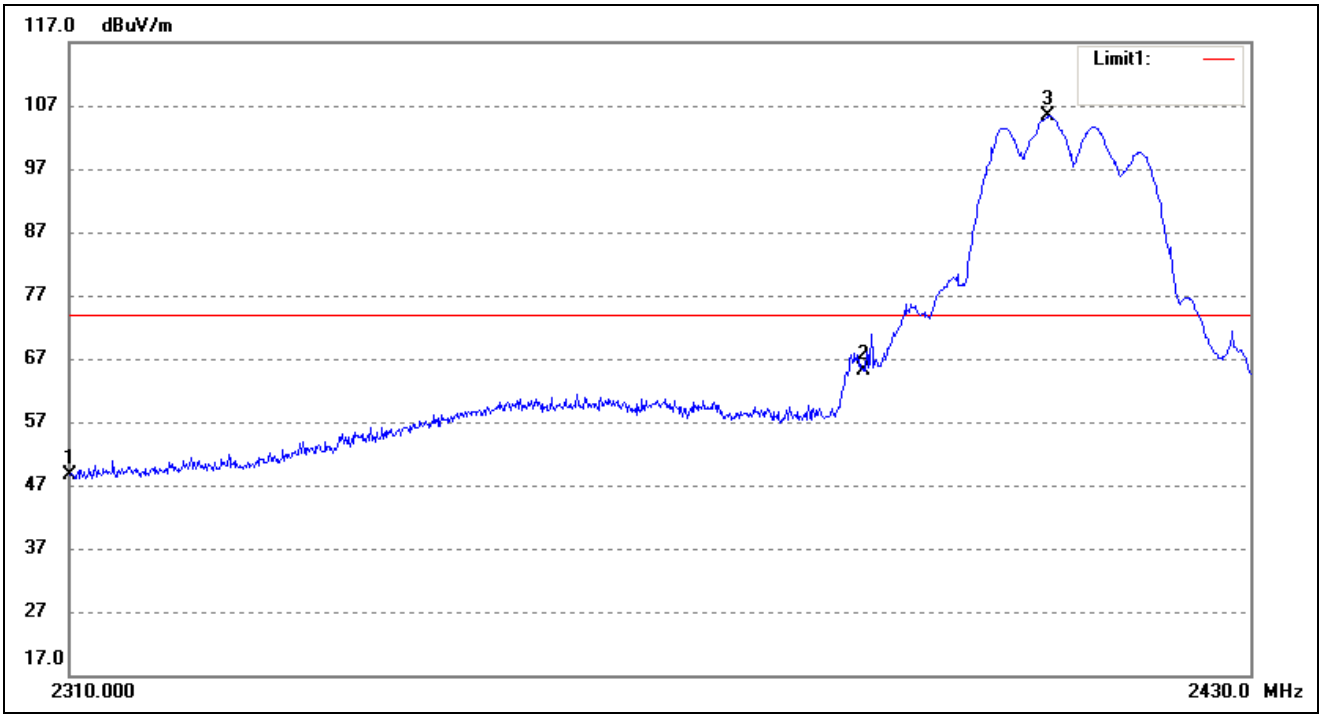
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2463.251	111.22	-6.89	104.33	/	/	145	100	peak
2	2483.500	55.89	-6.77	49.12	74.00	-24.88	58	100	peak
3	2500.000	60.55	-6.67	53.88	74.00	-20.12	9	100	peak

802.11g-Lowest Band edge

Vertical (Worst case)



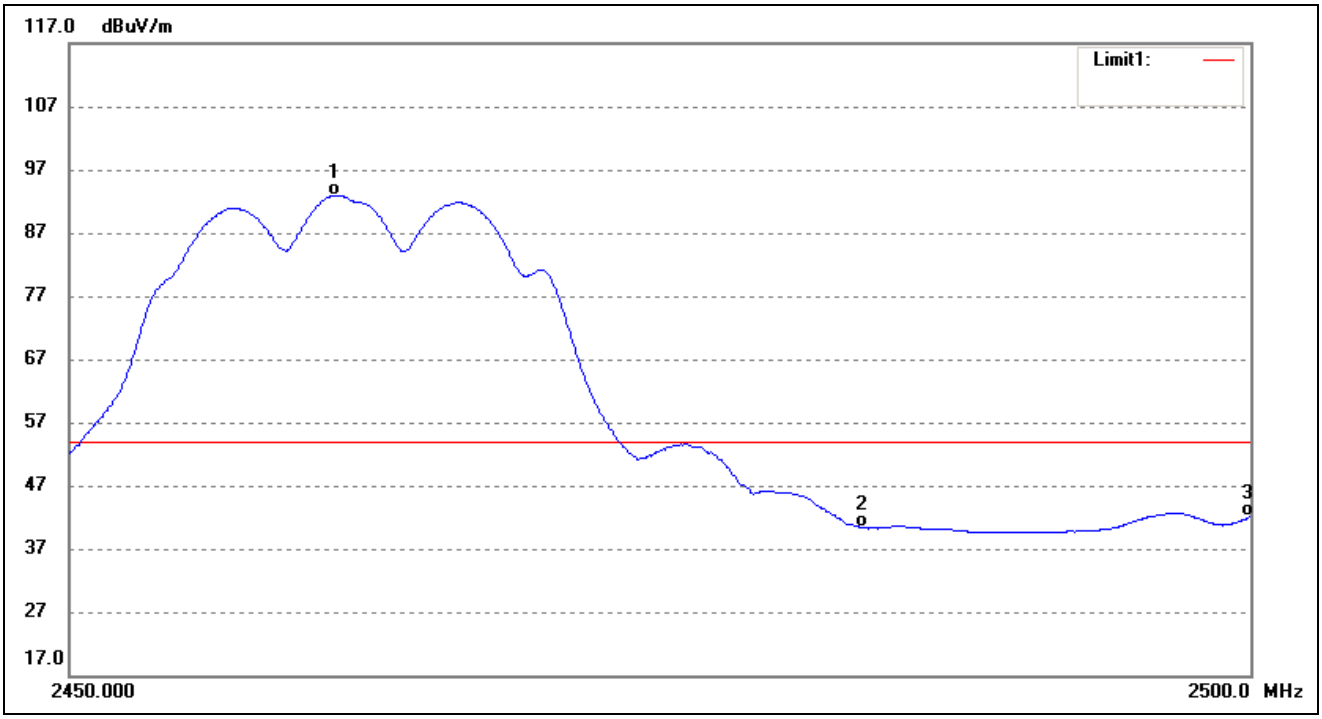
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2310.000	44.97	-7.78	37.19	54.00	-16.81	47	100	AVG
2	2390.000	58.05	-7.32	50.73	54.00	-3.27	29	100	AVG
3	2409.169	102.74	-7.21	95.53	/	/	33	100	AVG



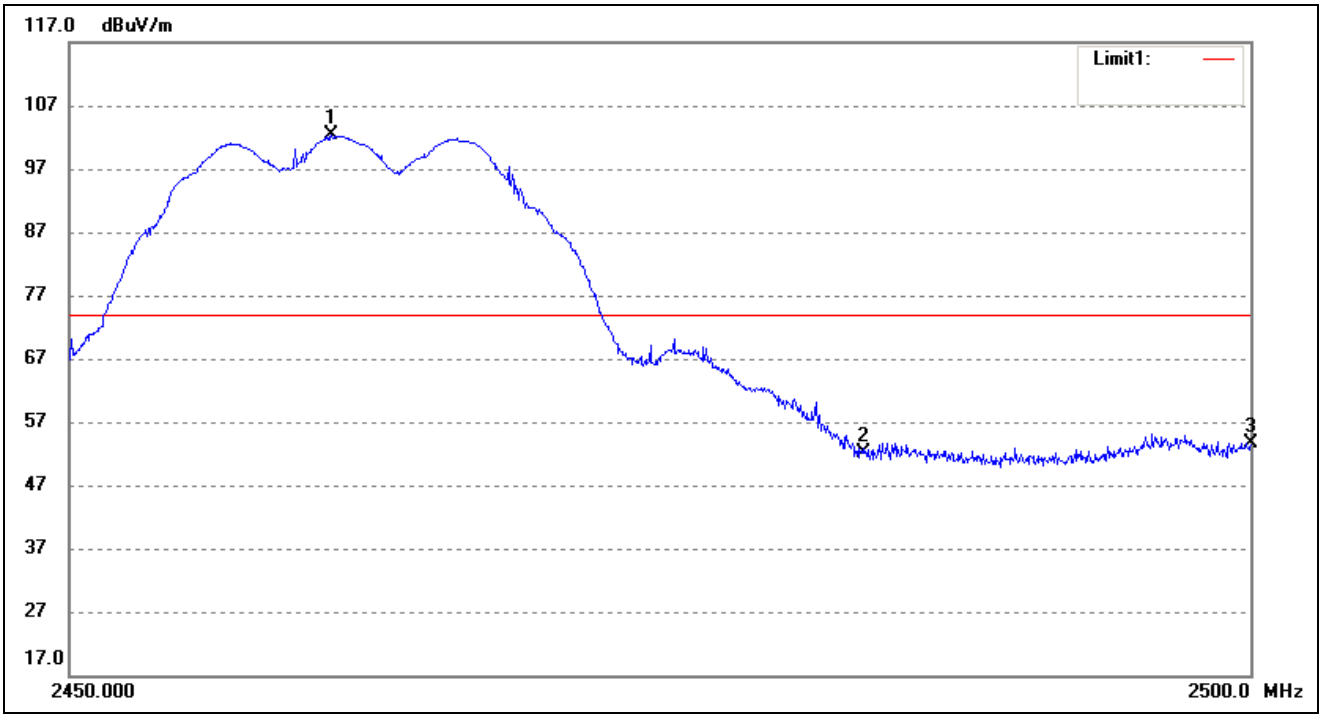
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2310.000	56.40	-7.78	48.62	74.00	-25.38	40	100	peak
2	2390.000	72.35	-7.32	65.03	74.00	-8.97	8	100	peak
3	2409.047	112.64	-7.21	105.43	/	/	11	100	peak

802.11g-Highest Band edge

Vertical (Worst case)



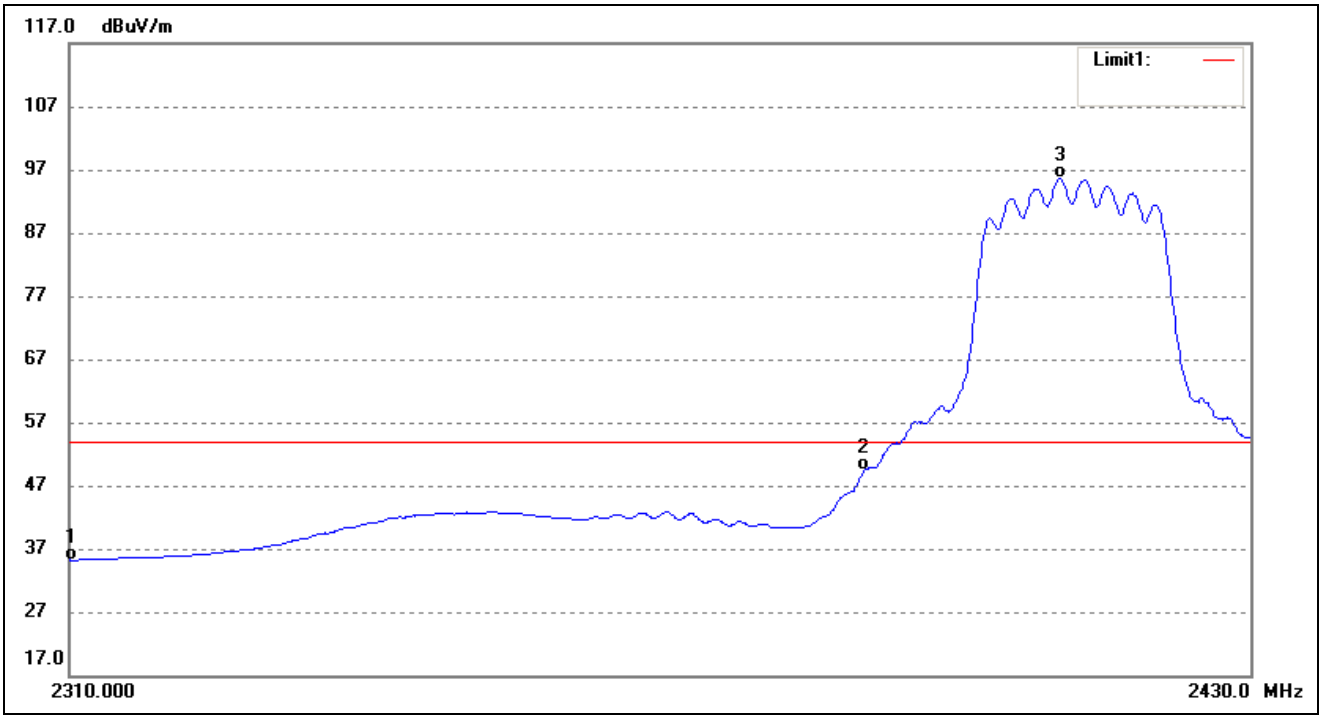
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2461.162	99.90	-6.90	93.00	/	/	144	100	AVG
2	2483.500	47.11	-6.77	40.34	54.00	-13.66	240	100	AVG
3	2500.000	48.84	-6.67	42.17	54.00	-11.83	164	100	AVG



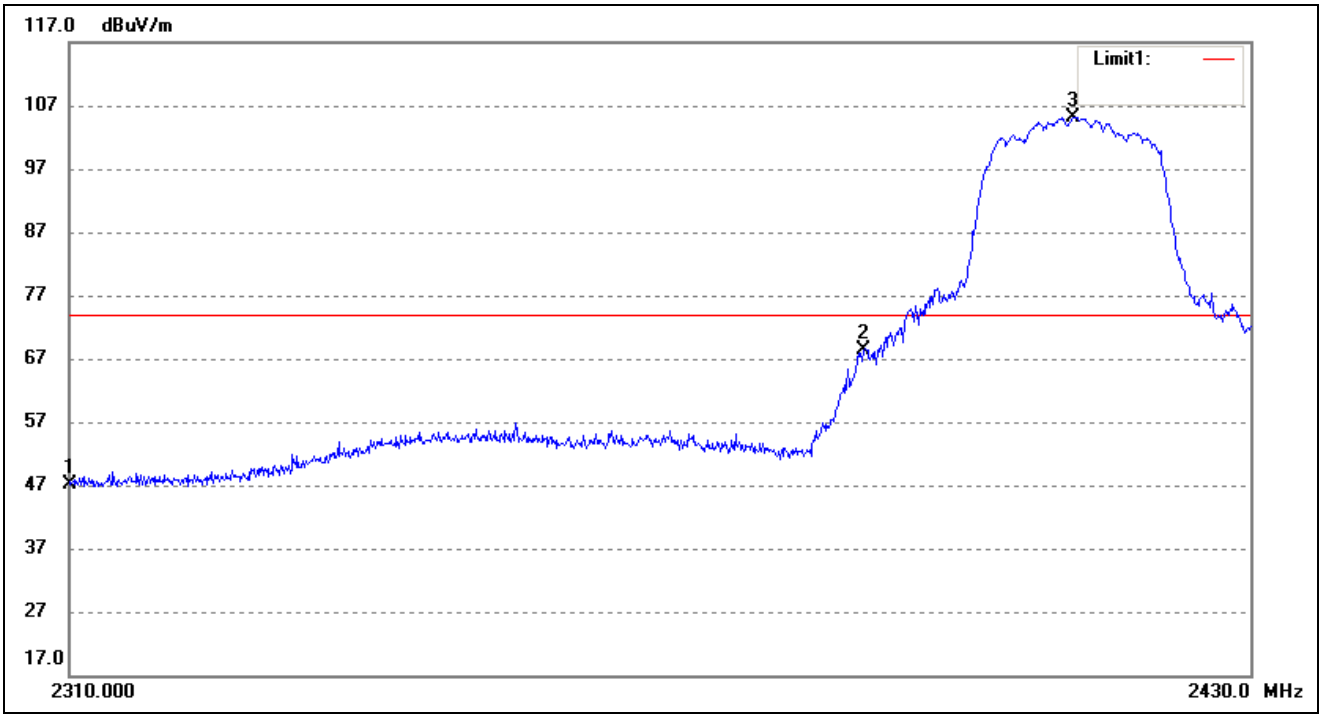
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2461.013	109.33	-6.90	102.43	/	/	36	100	peak
2	2483.500	58.82	-6.77	52.05	74.00	-21.95	183	100	peak
3	2500.000	60.32	-6.67	53.65	74.00	-20.35	230	100	peak

802.11n-HT20-Lowest Band edge

Vertical (Worst case)



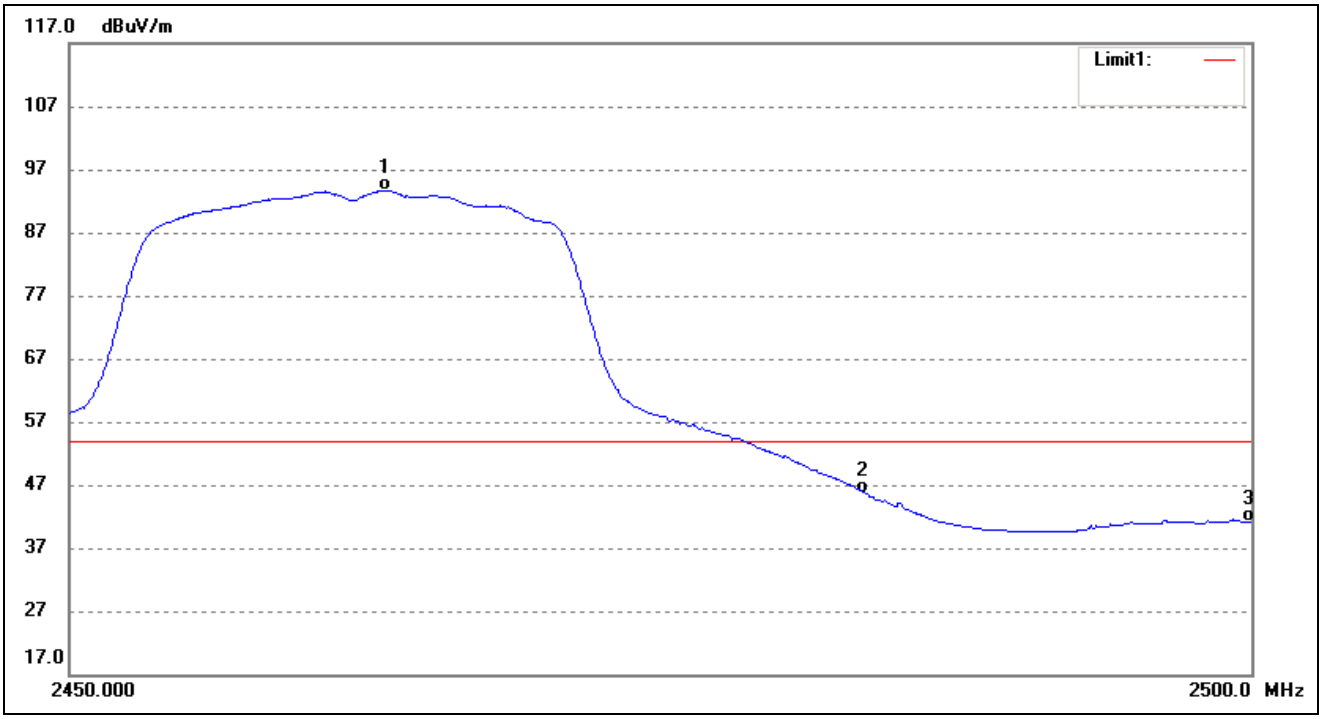
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2310.000	43.00	-7.78	35.22	54.00	-18.78	1	100	AVG
2	2390.000	56.69	-7.32	49.37	54.00	-4.63	245	100	AVG
3	2410.267	102.75	-7.19	95.56	/	/	175	100	AVG



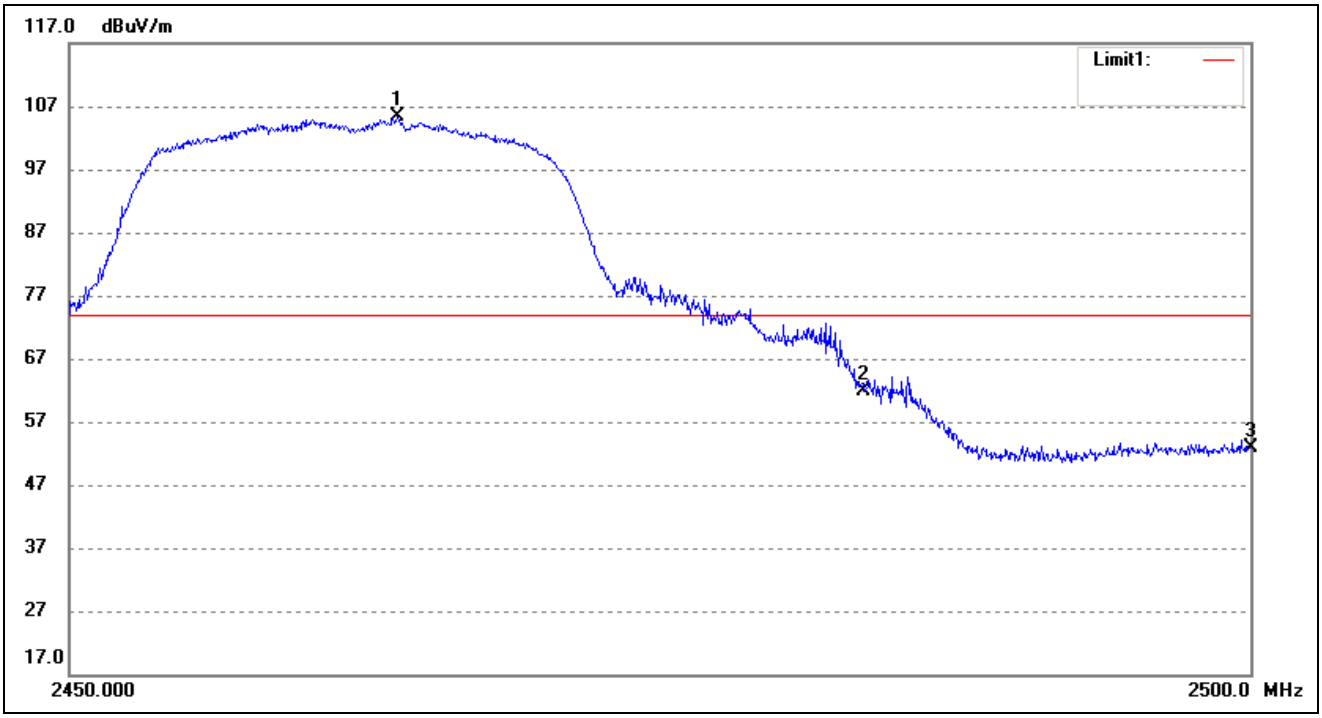
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2310.000	54.85	-7.78	47.07	74.00	-26.93	88	100	peak
2	2390.000	75.79	-7.32	68.47	74.00	-5.53	17	100	peak
3	2411.610	112.37	-7.19	105.18	/	/	23	100	peak

802.11n-HT20-Highest Band edge

Vertical (Worst case)



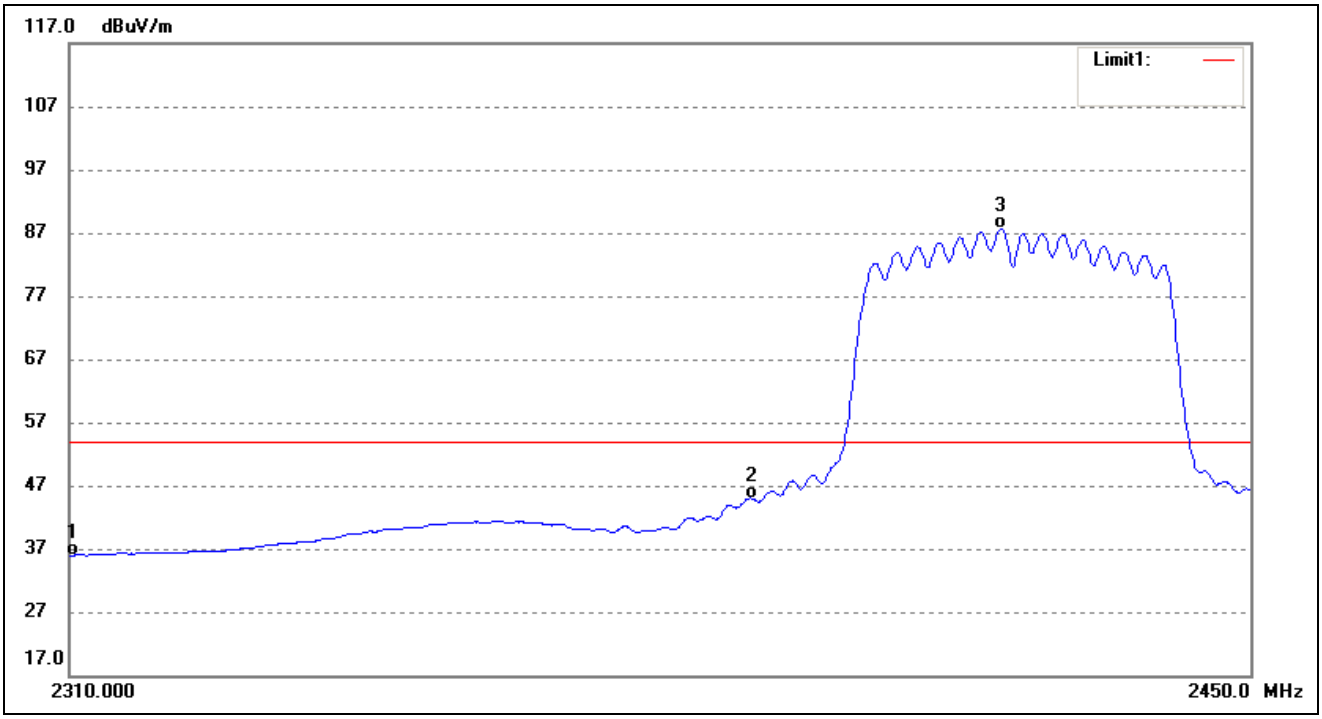
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2463.251	100.59	-6.89	93.70	/	/	77	100	AVG
2	2483.500	52.52	-6.77	45.75	54.00	-8.25	109	100	AVG
3	2500.000	47.72	-6.67	41.05	54.00	-12.95	200	100	AVG



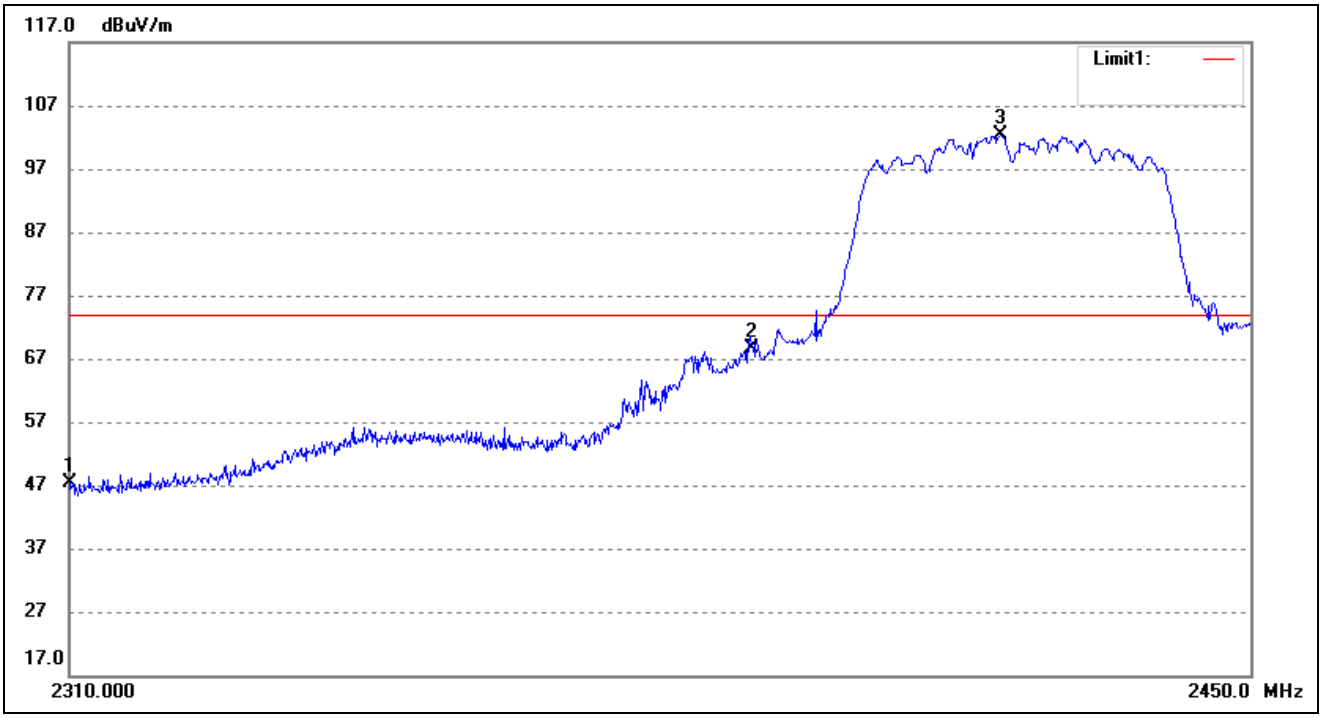
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2463.799	112.15	-6.89	105.26	/	/	40	100	peak
2	2483.500	68.75	-6.77	61.98	74.00	-12.02	65	100	peak
3	2500.000	59.43	-6.67	52.76	74.00	-21.24	118	100	peak

802.11n-HT40-Lowest Band edge

Vertical (Worst case)



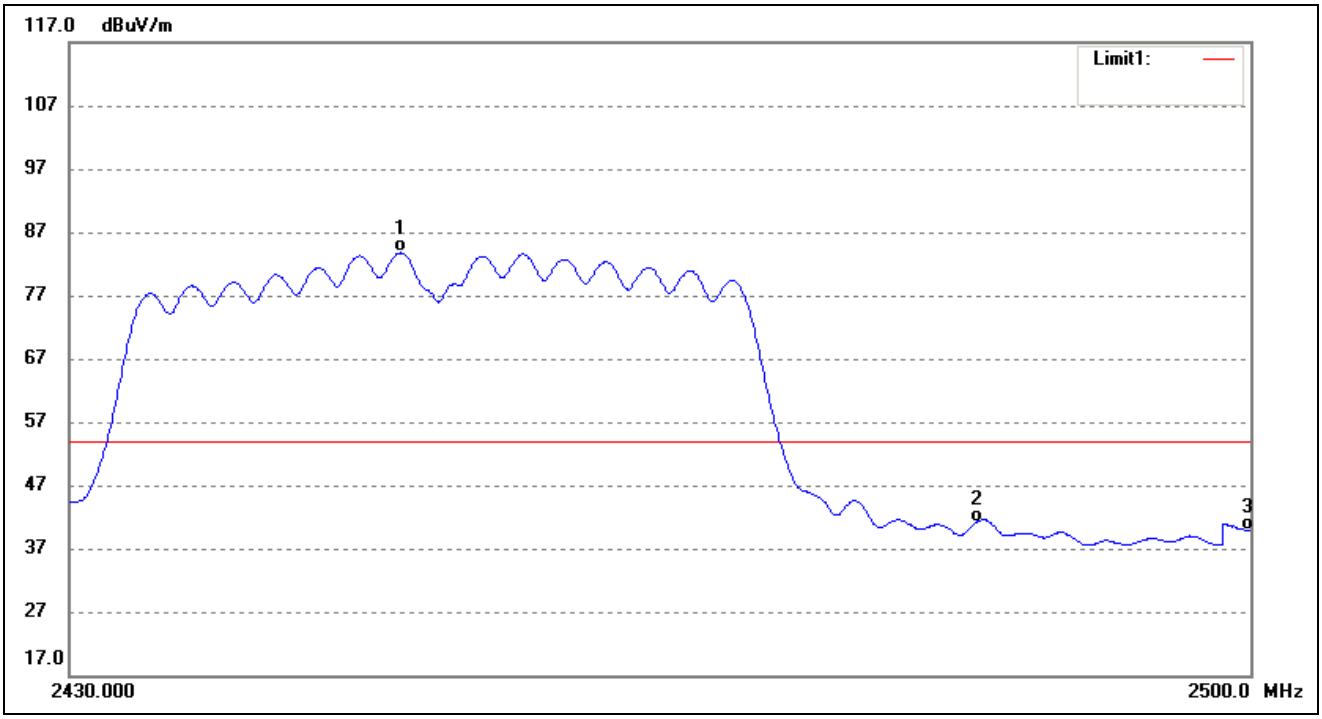
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2310.000	43.71	-7.78	35.93	54.00	-18.07	106	100	AVG
2	2390.000	52.26	-7.32	44.94	54.00	-9.06	257	100	AVG
3	2419.770	94.83	-7.14	87.69	/	/	304	100	AVG



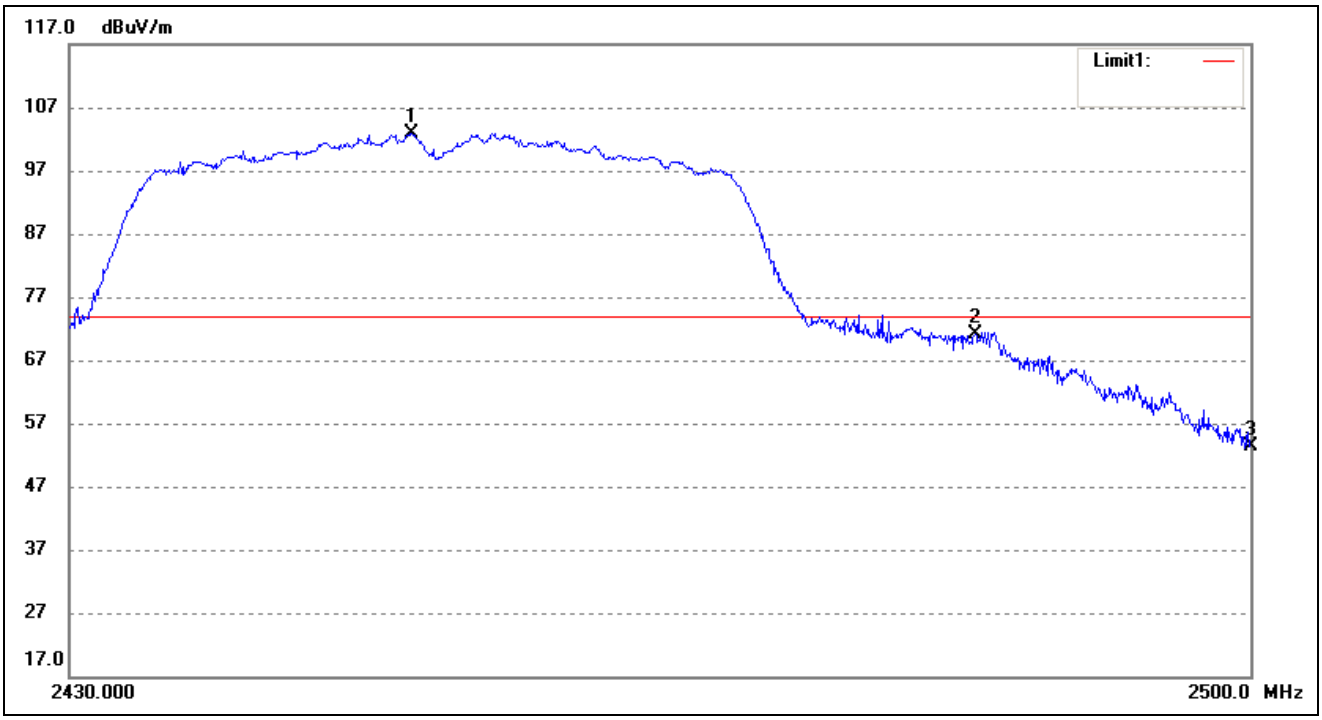
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2310.000	55.15	-7.78	47.37	74.00	-26.63	14	100	peak
2	2390.000	75.91	-7.32	68.59	74.00	-5.41	36	100	peak
3	2419.628	109.57	-7.14	102.43	/	/	10	100	peak

802.11n-HT40-Highest Band edge

Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2449.400	90.75	-6.96	83.79	/	/	147	100	AVG
2	2483.500	47.82	-6.77	41.05	54.00	-12.95	265	100	AVG
3	2500.000	46.60	-6.67	39.93	54.00	-14.07	300	100	AVG



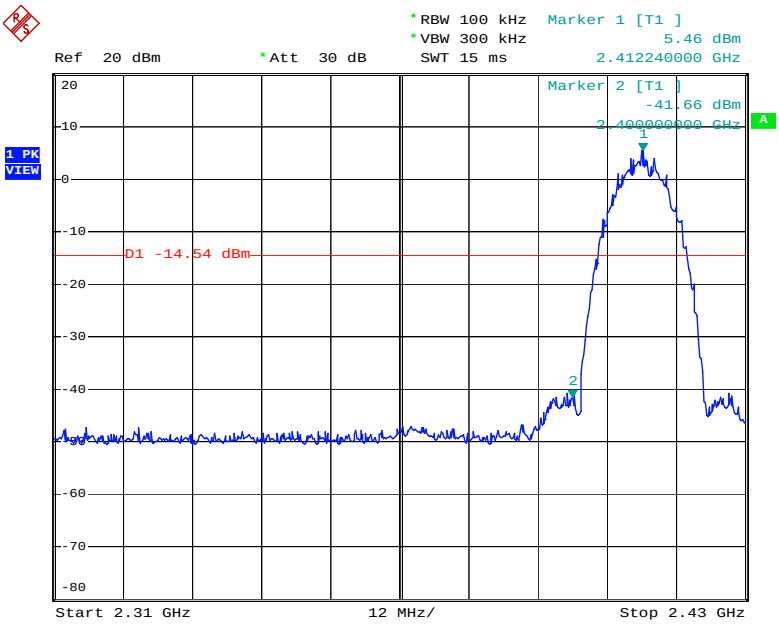
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	2450.096	109.85	-6.96	102.89	/	/	114	100	peak
2	2483.500	77.99	-6.77	71.22	74.00	-2.78	78	100	peak
3	2500.000	60.15	-6.67	53.48	74.00	-20.52	60	100	peak

Out-of-Band and Spurious Emission (Conducted)

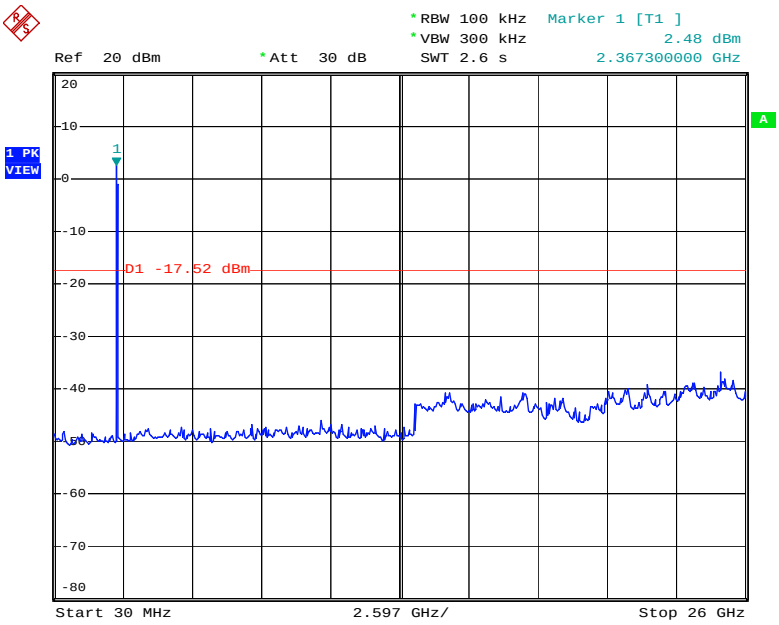
Antenna 1

802.11b

Low Channel

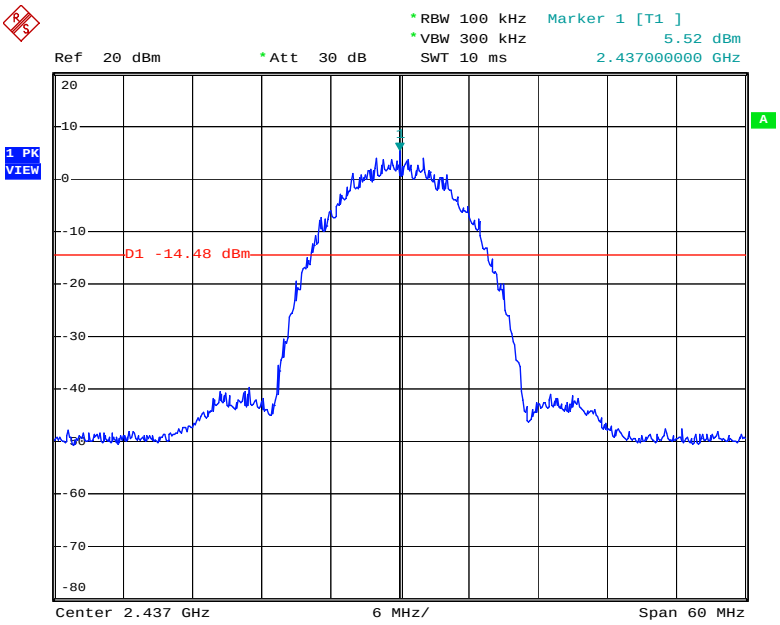


Date: 20.SEP.2018 16:18:51

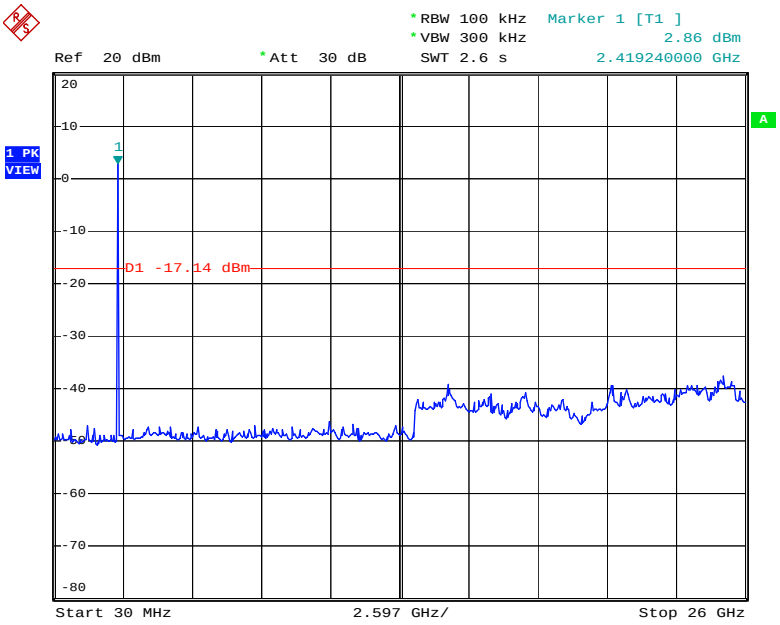


Date: 20.SEP.2018 16:15:42

Middle Channel

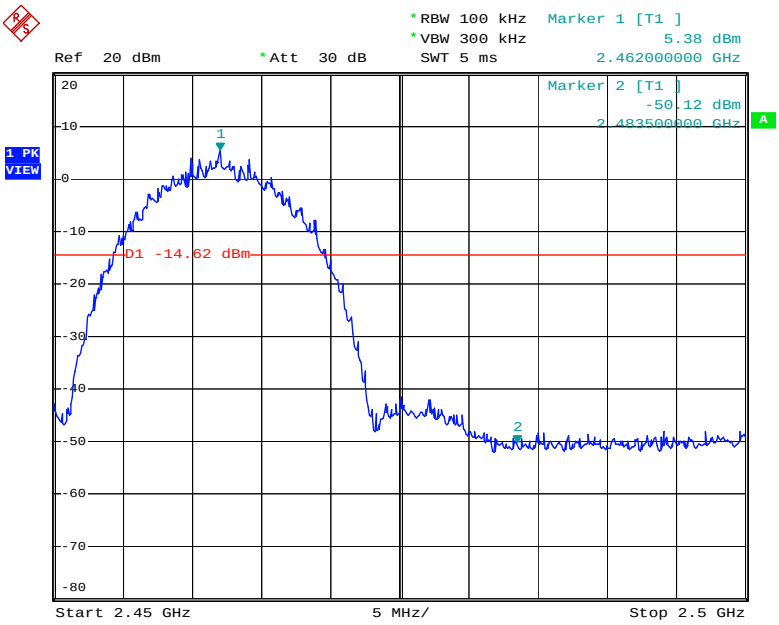


Date: 20.SEP.2018 16:21:28

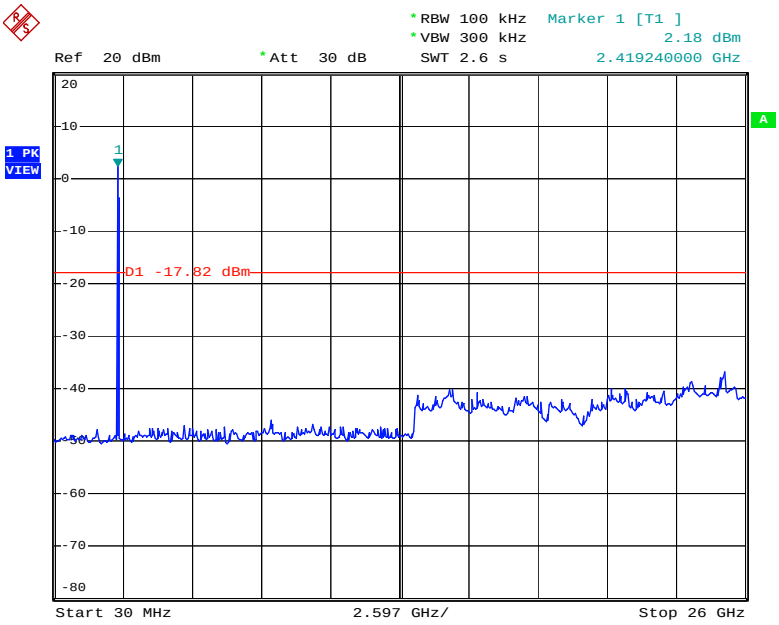


Date: 20.SEP.2018 16:12:46

High Channel



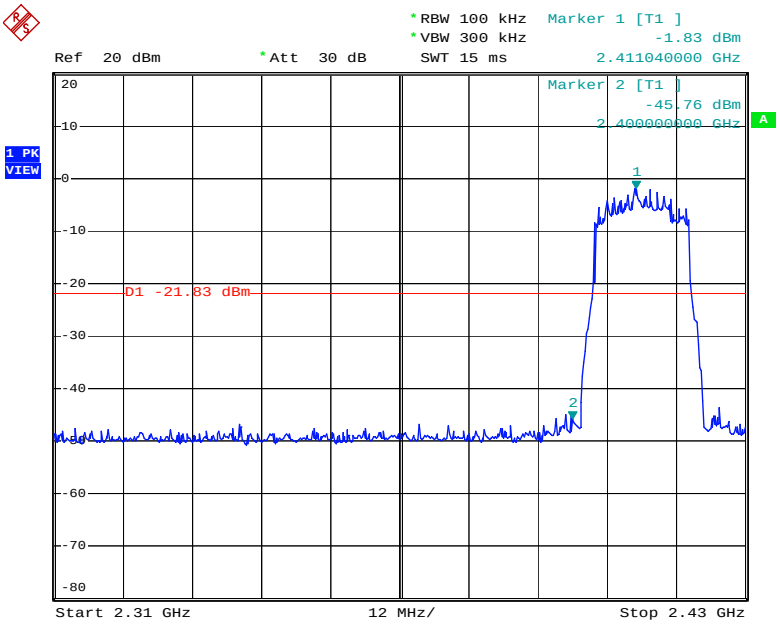
Date: 20.SEP.2018 16:06:08



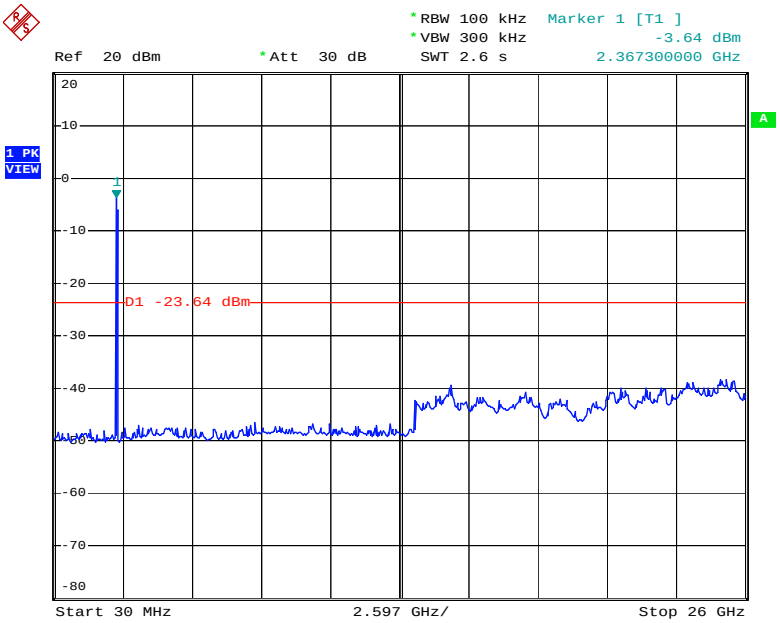
Date: 20.SEP.2018 16:09:49

802.11g

Low Channel

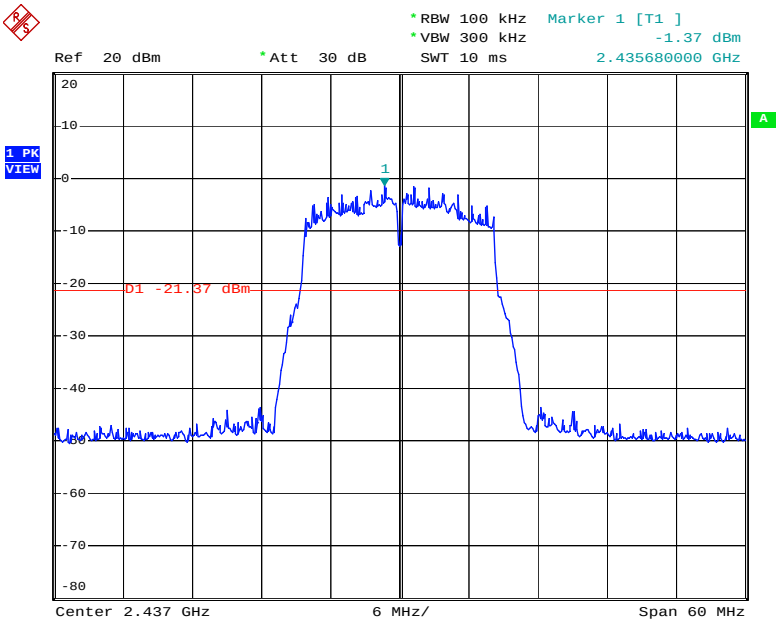


Date: 20.SEP.2018 13:50:34

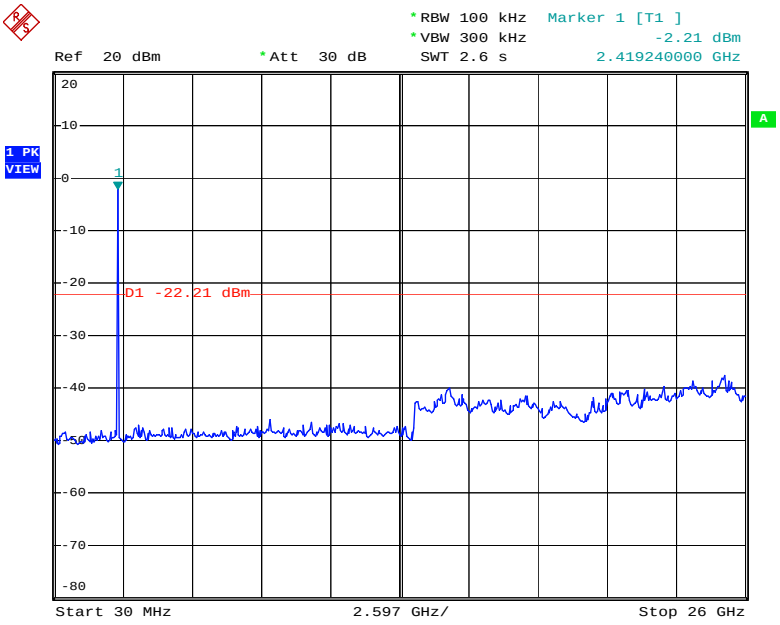


Date: 20.SEP.2018 13:46:38

Middle Channel

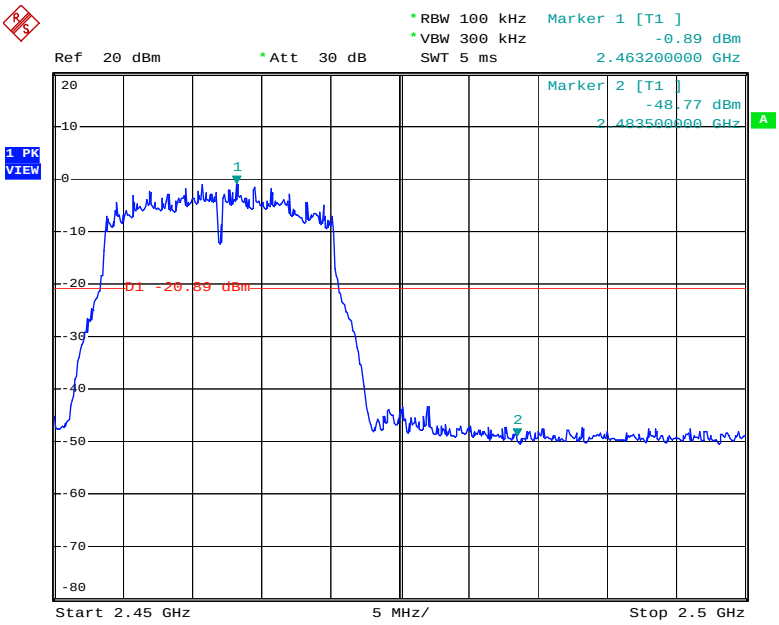


Date: 20.SEP.2018 13:55:53

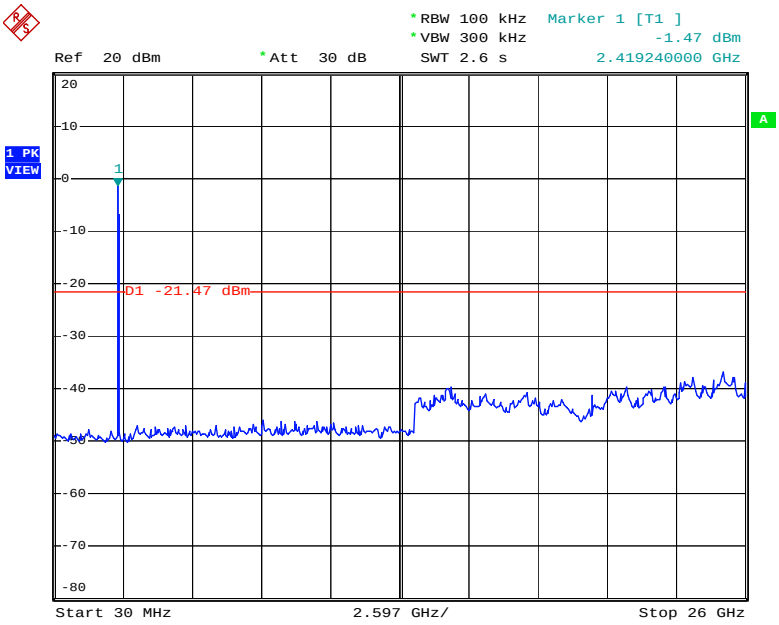


Date: 20.SEP.2018 13:58:40

High Channel



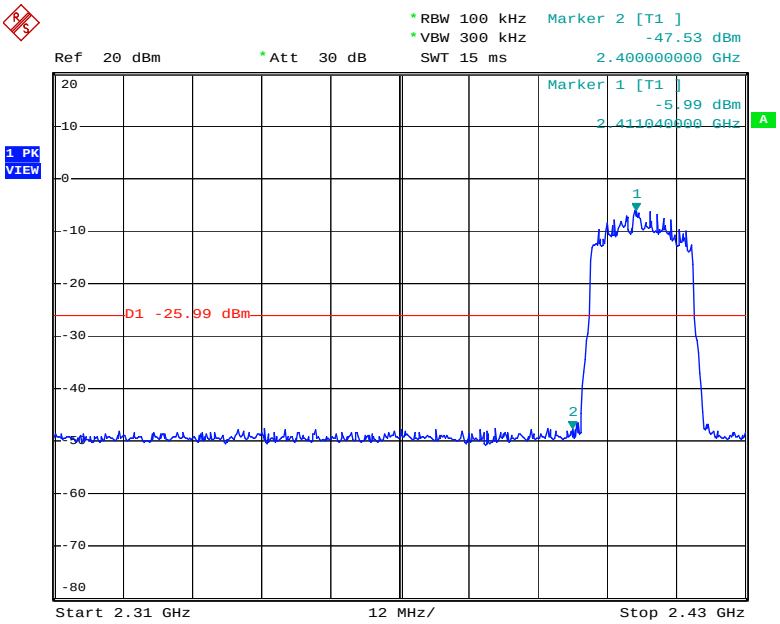
Date: 20.SEP.2018 16:01:52



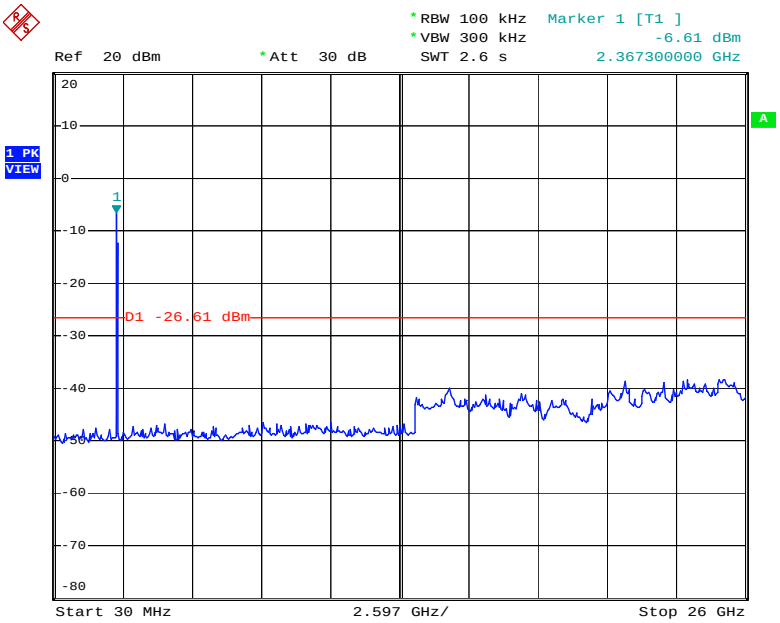
Date: 20.SEP.2018 14:03:13

11n-HT20

Low Channel

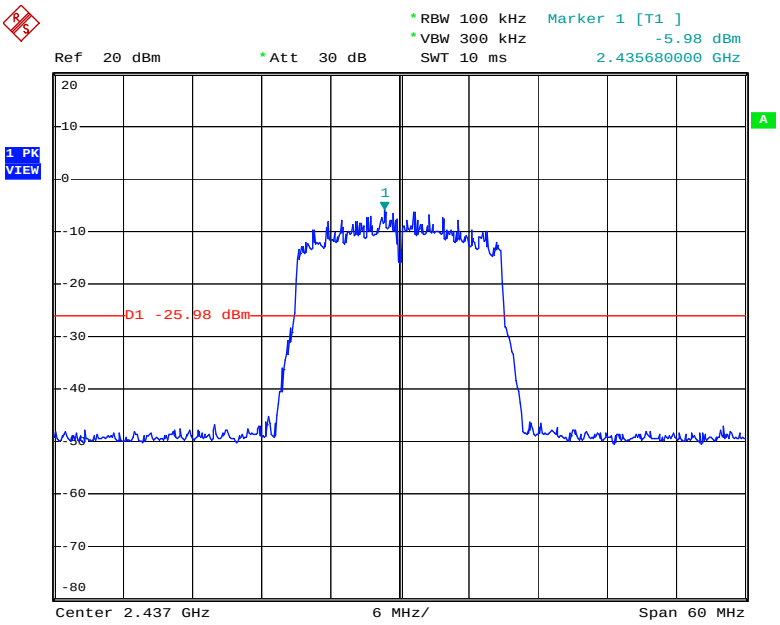


Date: 20.SEP.2018 11:57:12

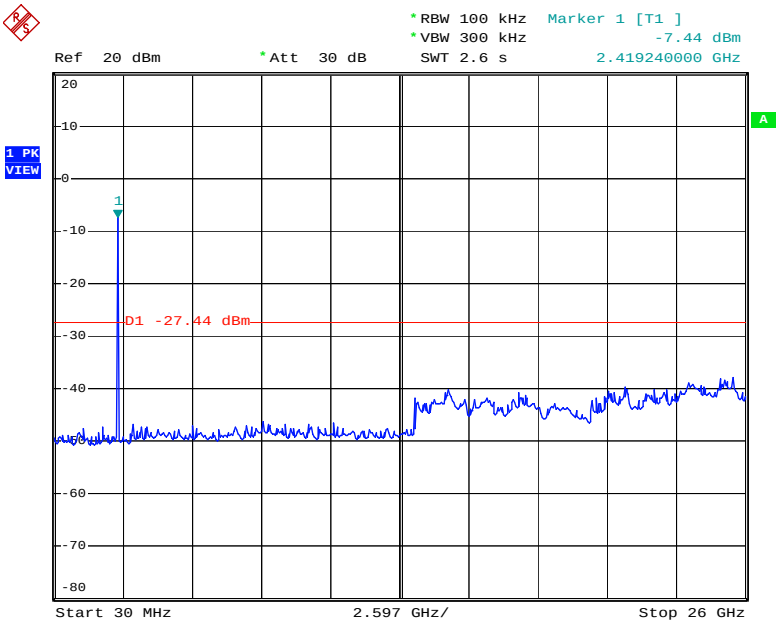


Date: 20.SEP.2018 13:41:21

Middle Channel

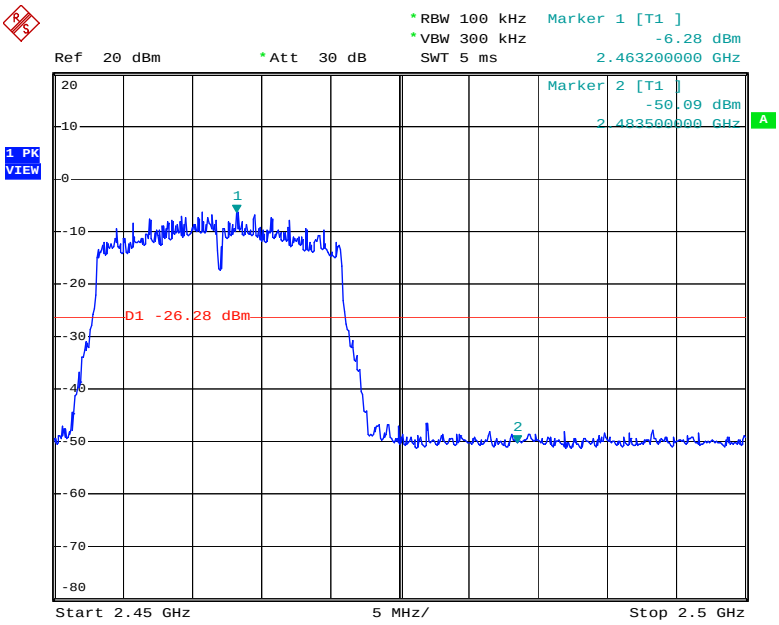


Date: 20.SEP.2018 11:47:56

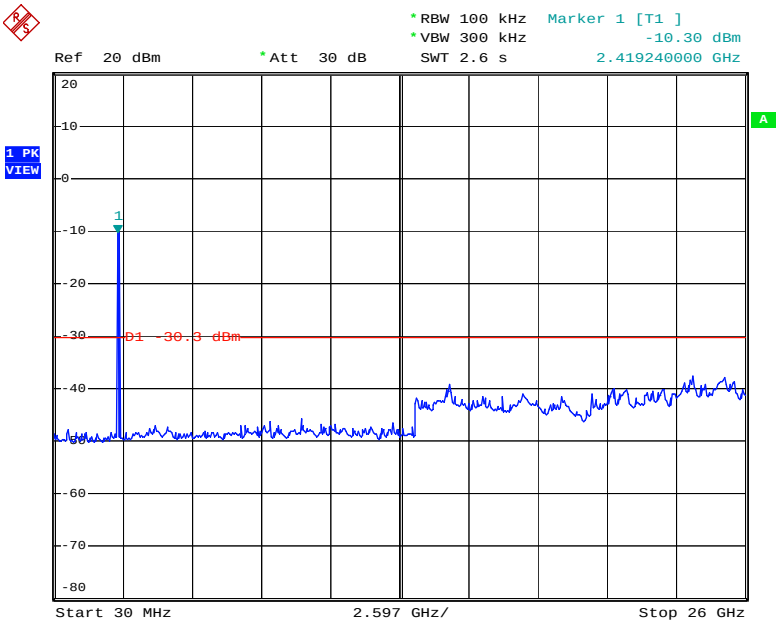


Date: 20.SEP.2018 11:44:38

High Channel



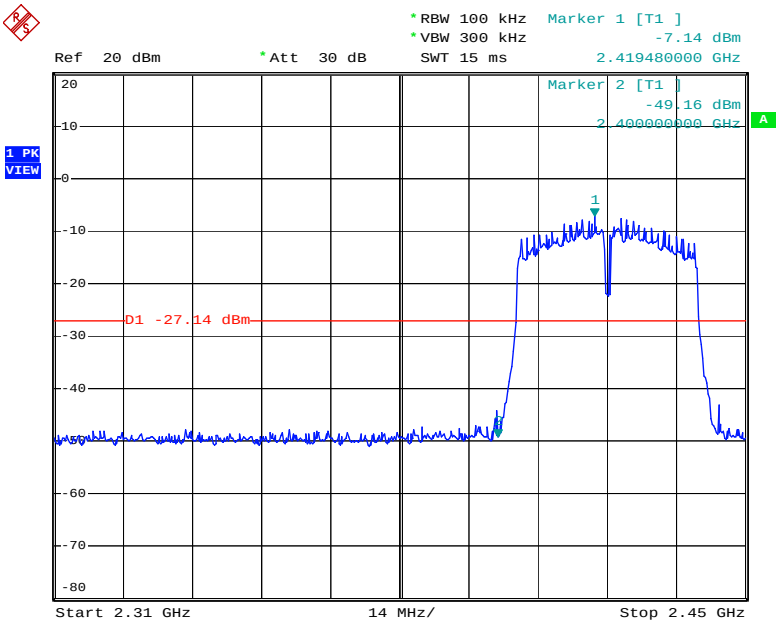
Date: 20.SEP.2018 11:38:05



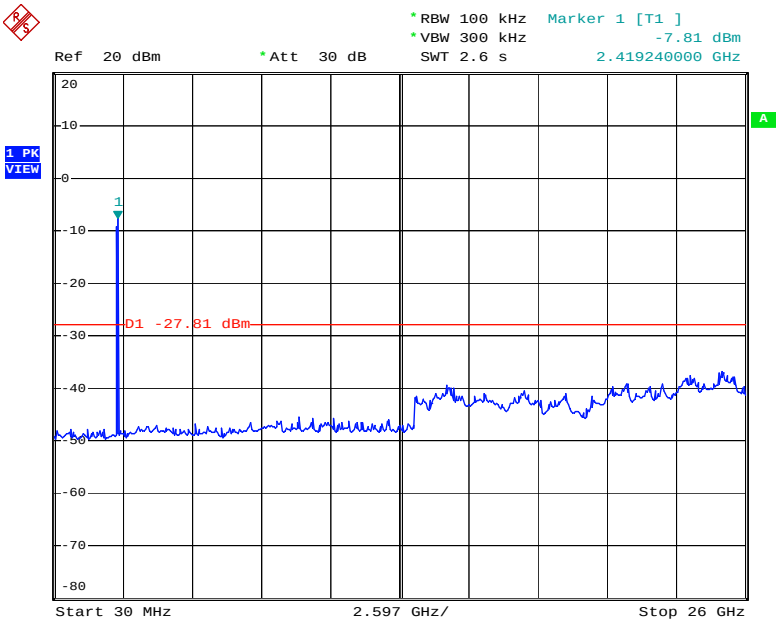
Date: 20.SEP.2018 11:41:30

11n-HT40

Low Channel

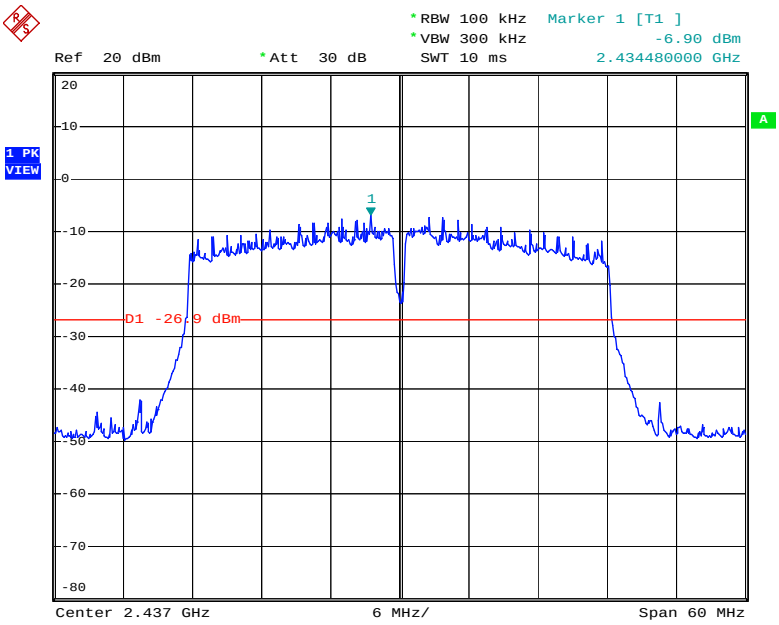


Date: 20.SEP.2018 11:31:09

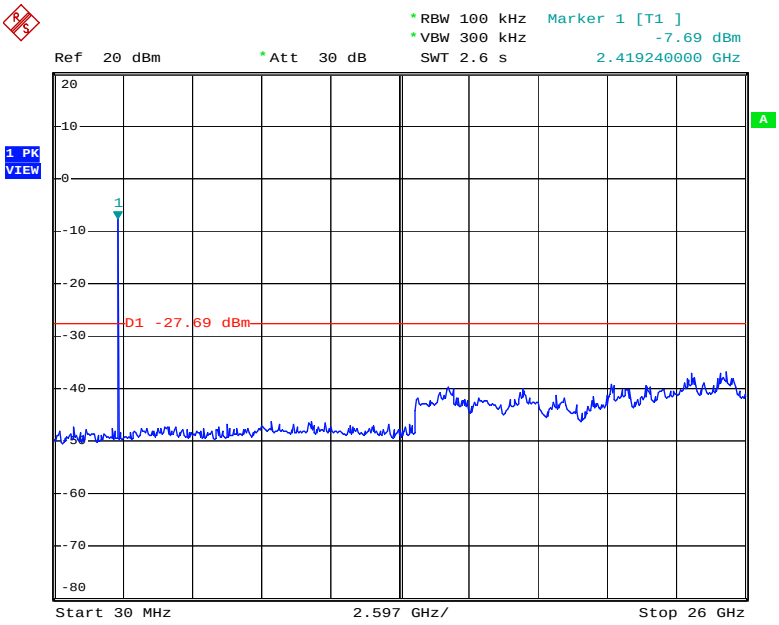


Date: 20.SEP.2018 11:26:18

Middle Channel

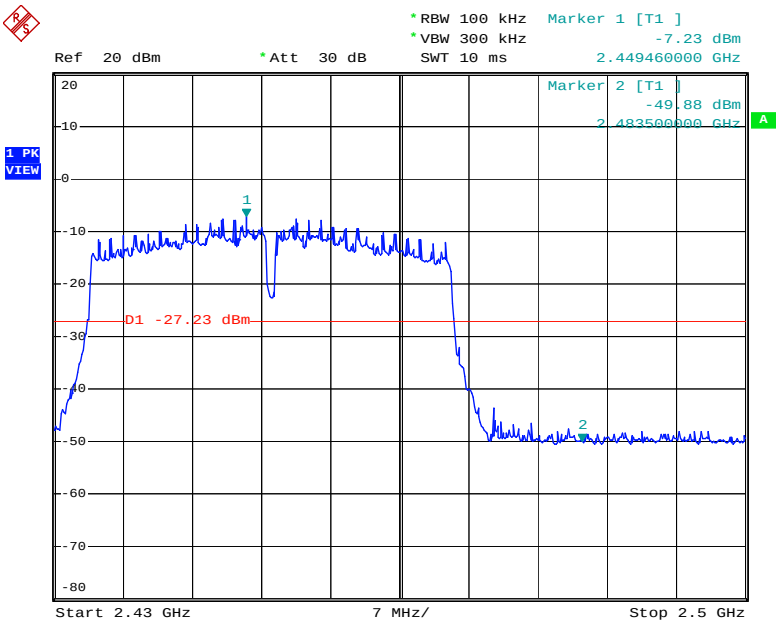


Date: 20.SEP.2018 11:13:41

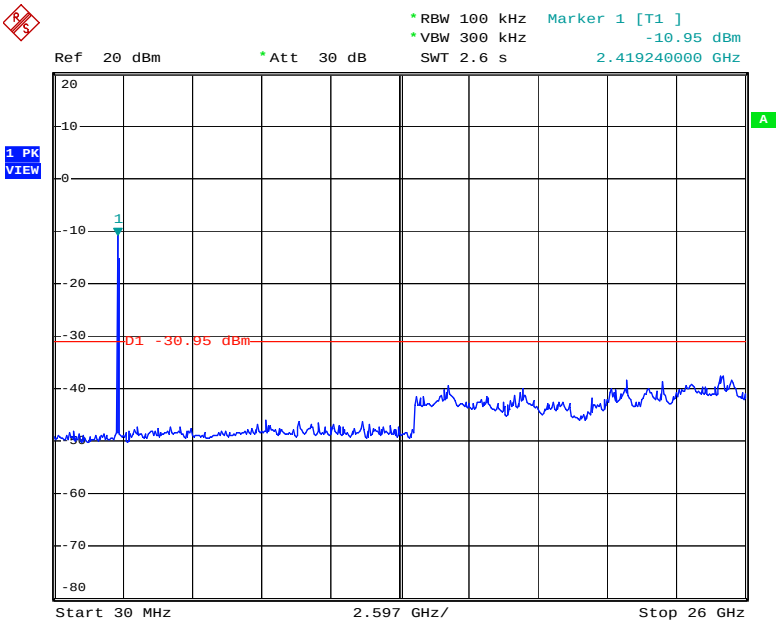


Date: 20.SEP.2018 11:18:40

High Channel



Date: 20.SEP.2018 11:07:37

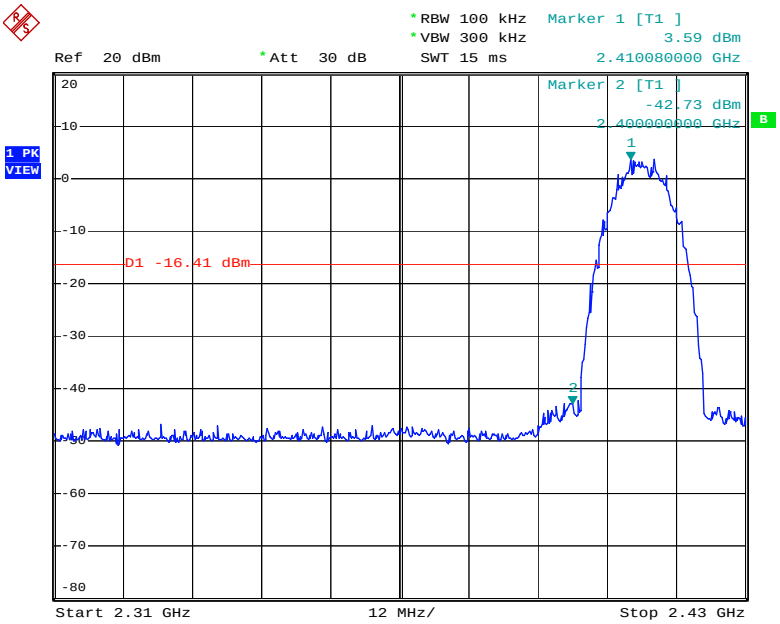


Date: 20.SEP.2018 11:04:00

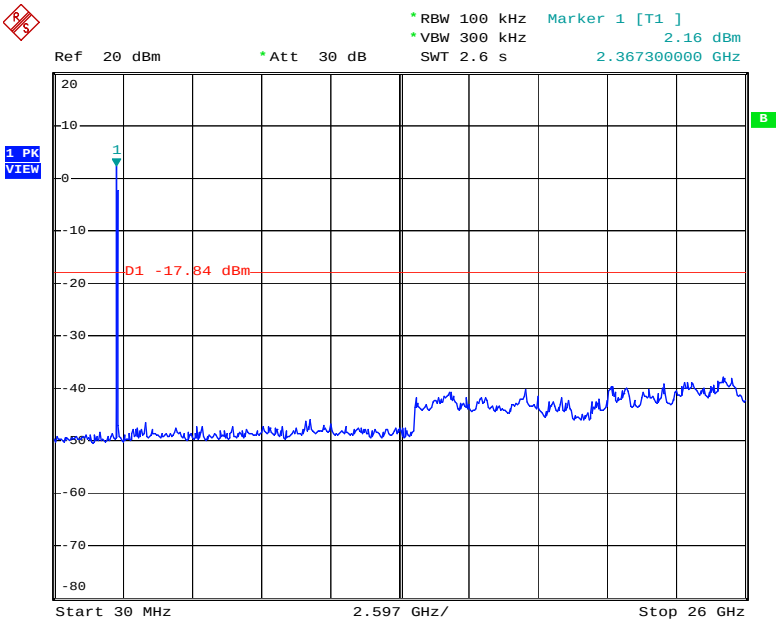
Antenna 2

802.11b

Low Channel

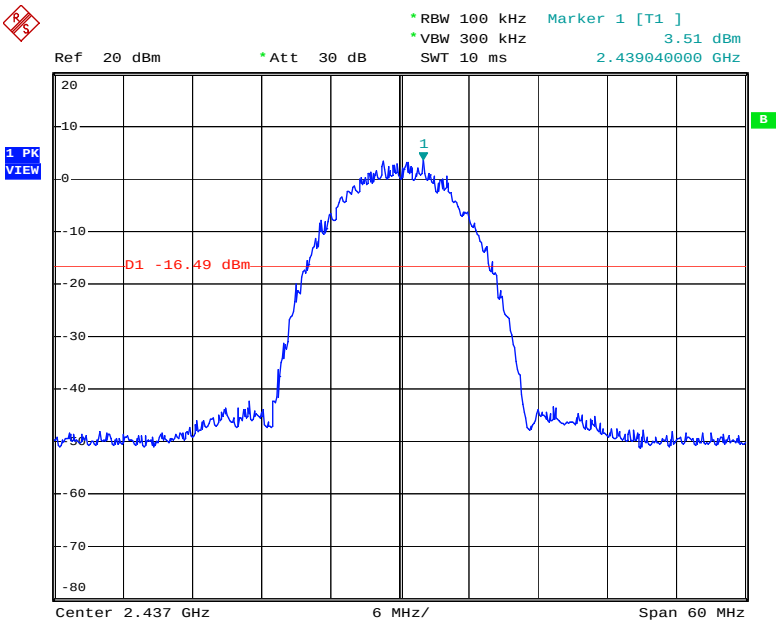


Date: 20.SEP.2018 08:56:04

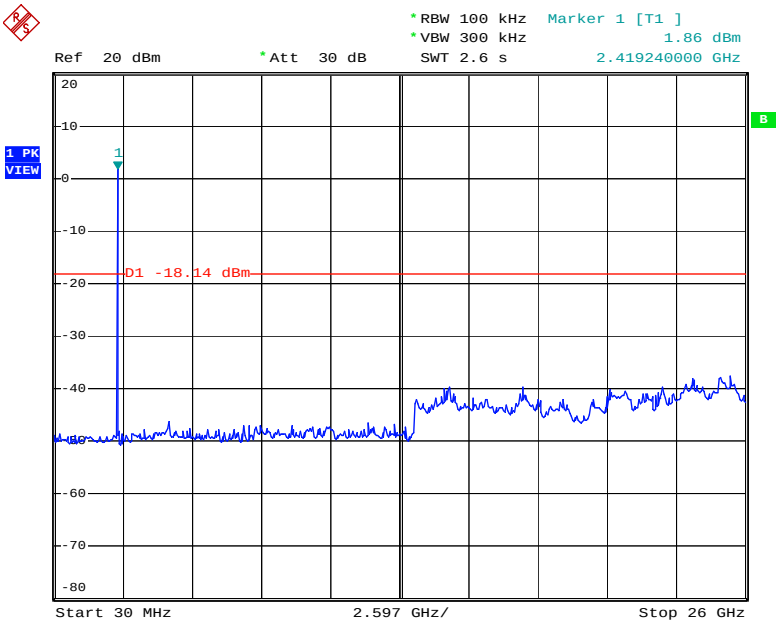


Date: 20.SEP.2018 08:51:43

Middle Channel

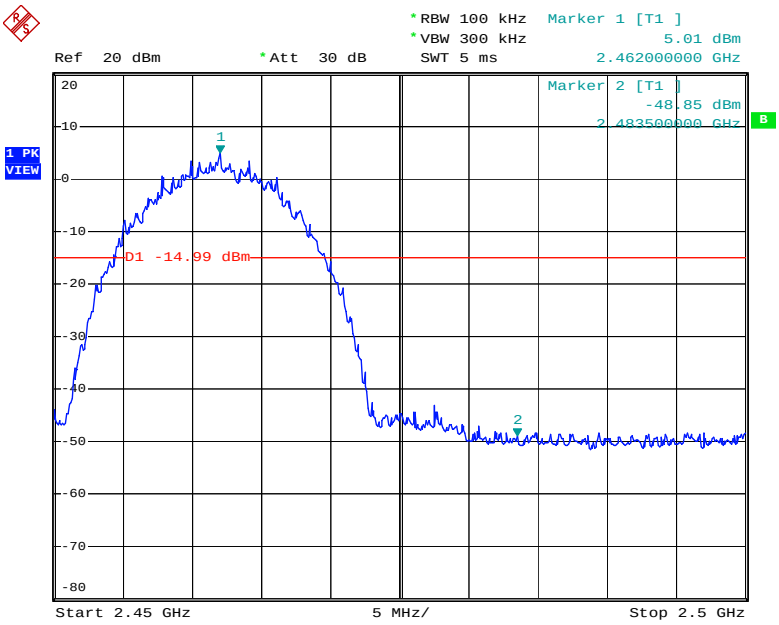


Date: 20.SEP.2018 09:00:35

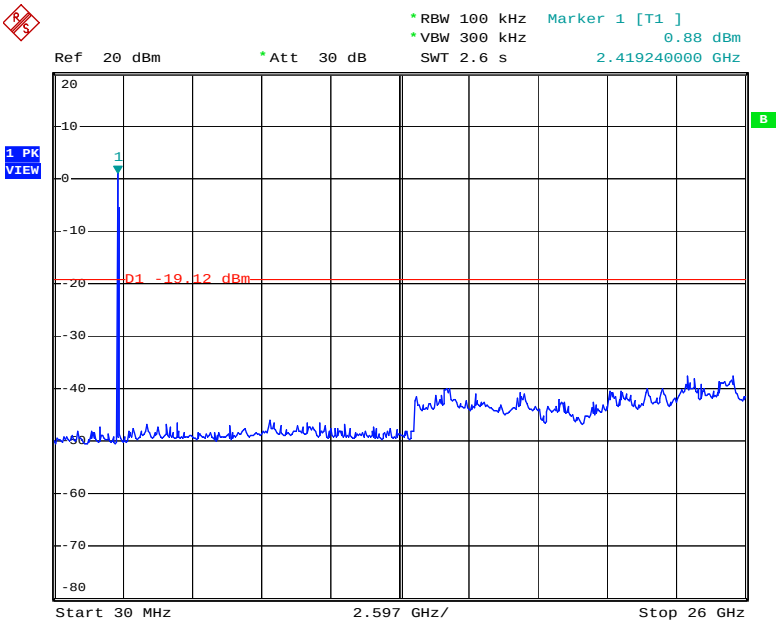


Date: 20.SEP.2018 09:05:08

High Channel



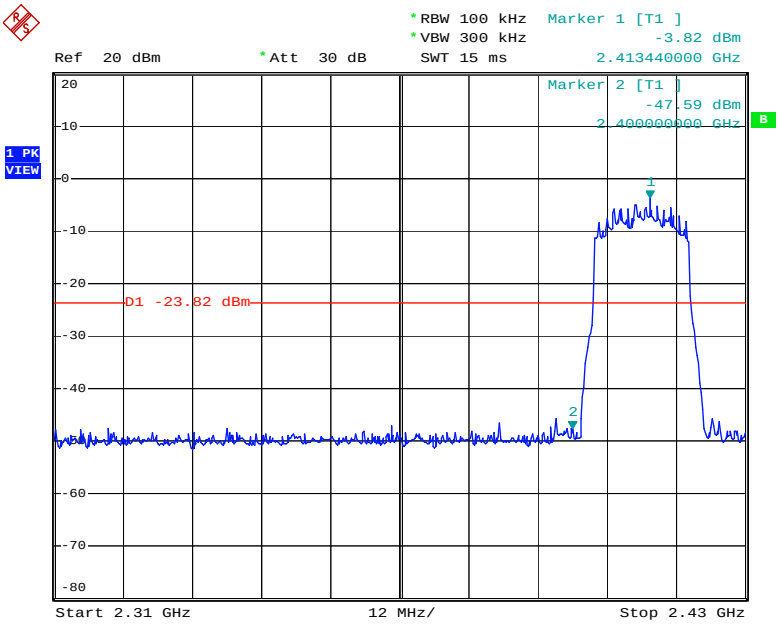
Date: 20.SEP.2018 09:14:25



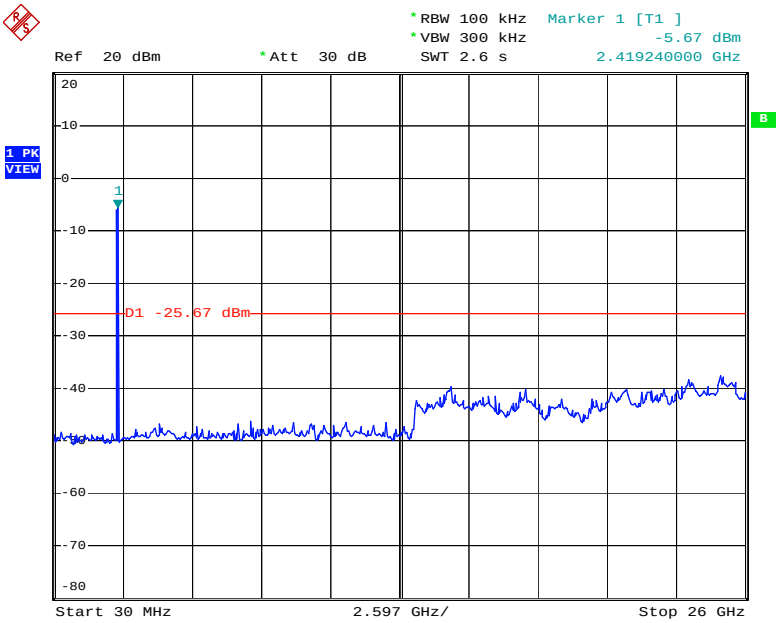
Date: 20.SEP.2018 09:08:11

802.11g

Low Channel

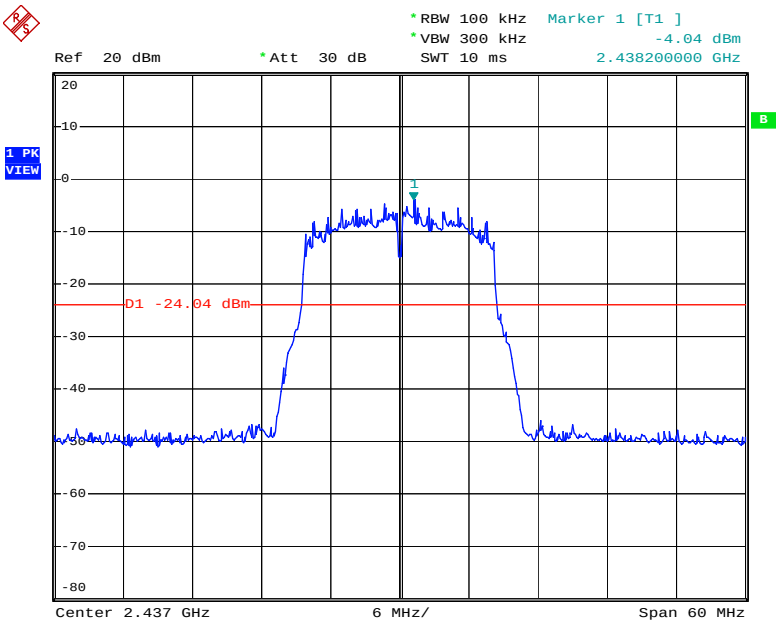


Date: 20.SEP.2018 09:37:17

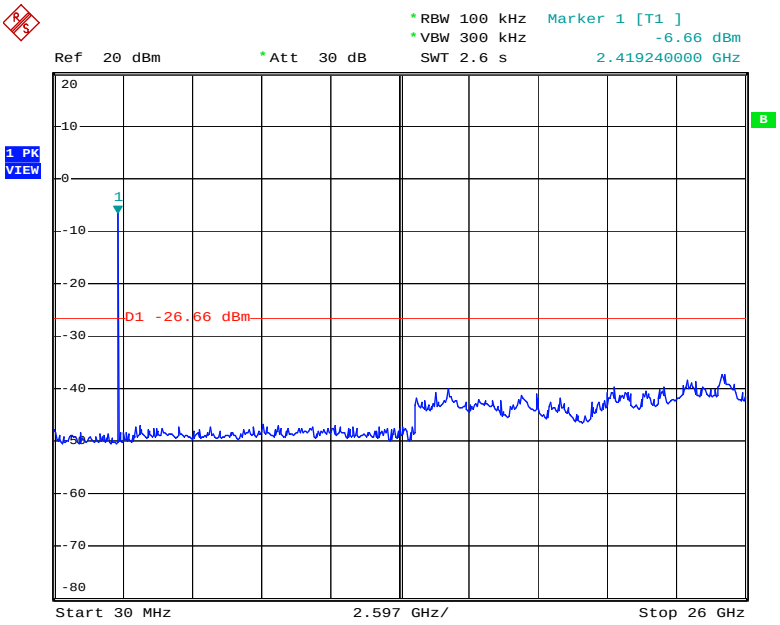


Date: 20.SEP.2018 09:40:29

Middle Channel

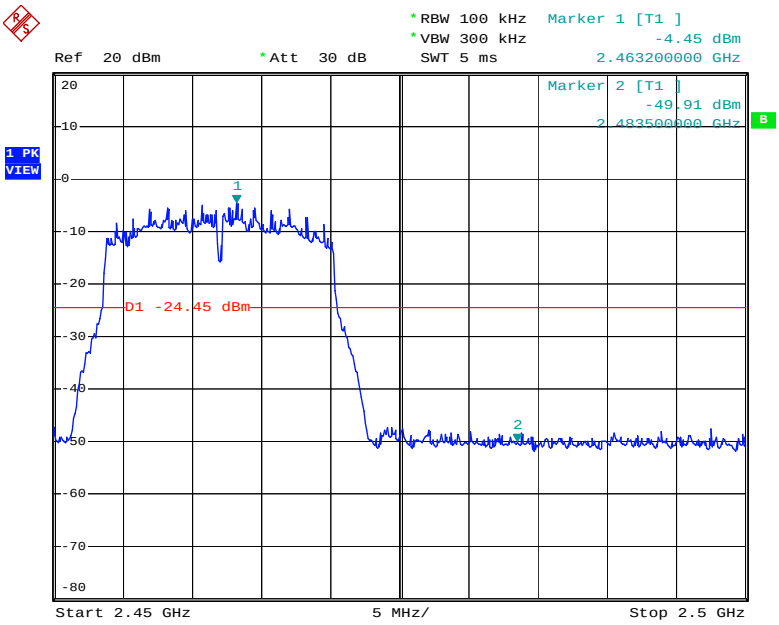


Date: 20.SEP.2018 09:32:29

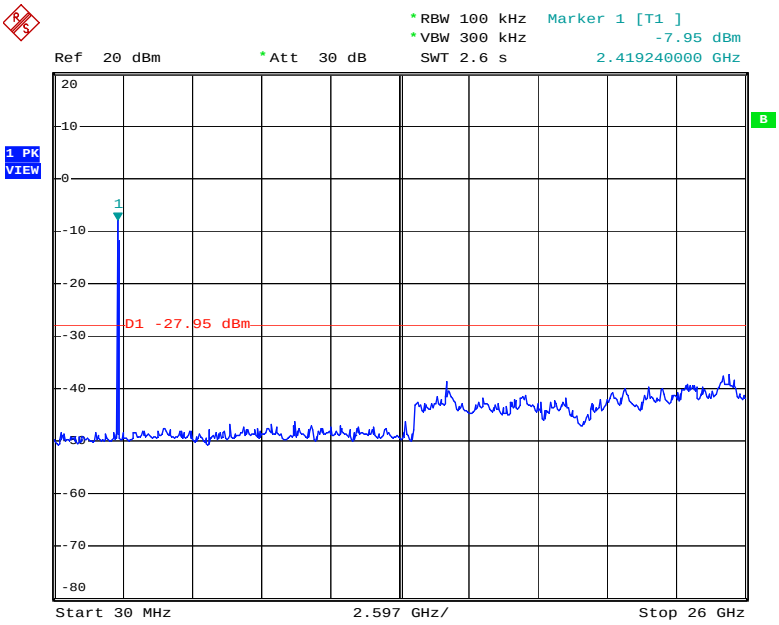


Date: 20.SEP.2018 09:27:58

High Channel

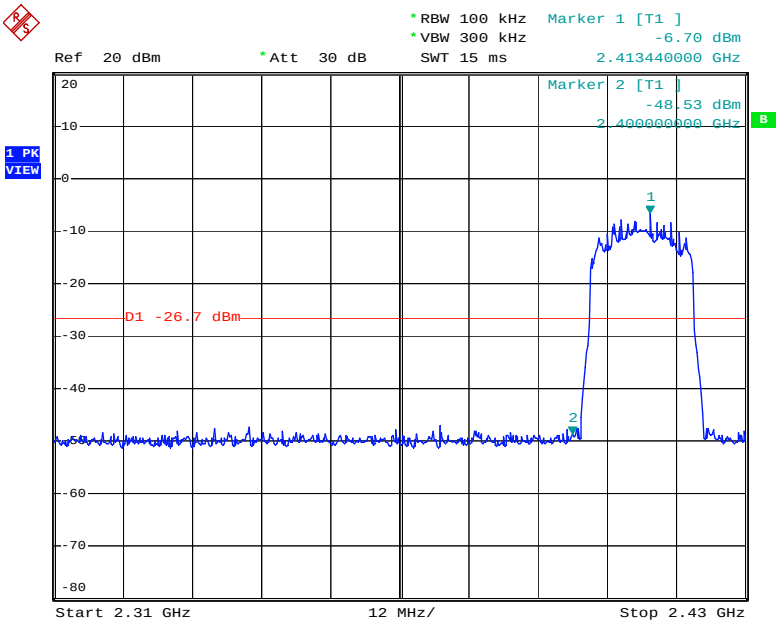


Date: 20.SEP.2018 09:20:23

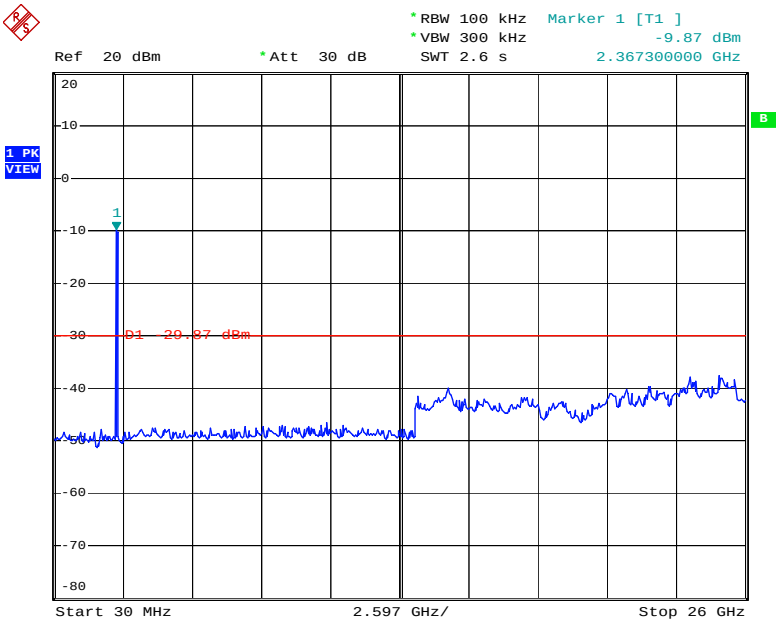


Date: 20.SEP.2018 09:24:25

11n-HT20
Low Channel

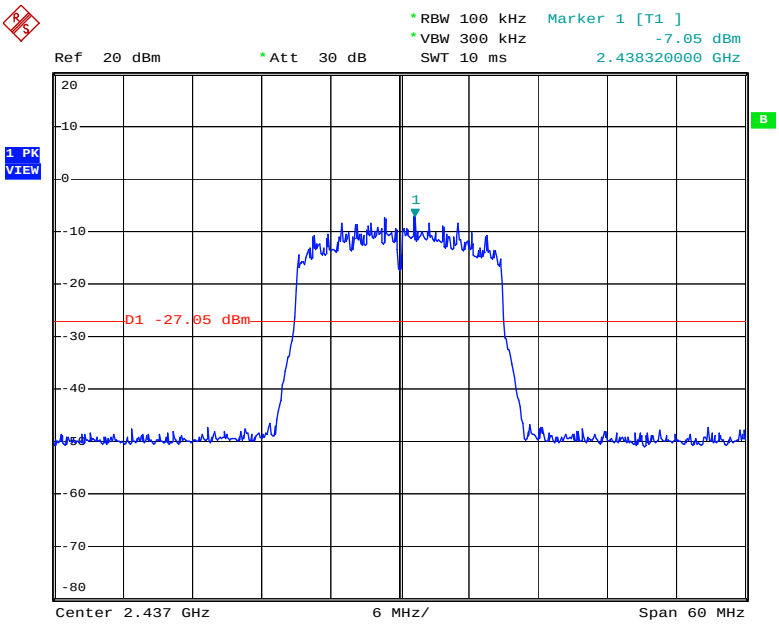


Date: 20.SEP.2018 09:48:32

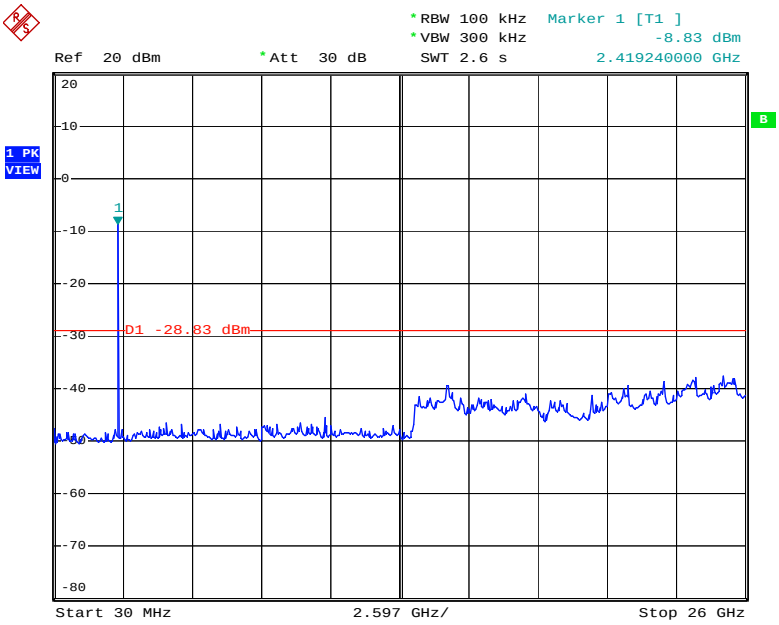


Date: 20.SEP.2018 09:44:52

Middle Channel

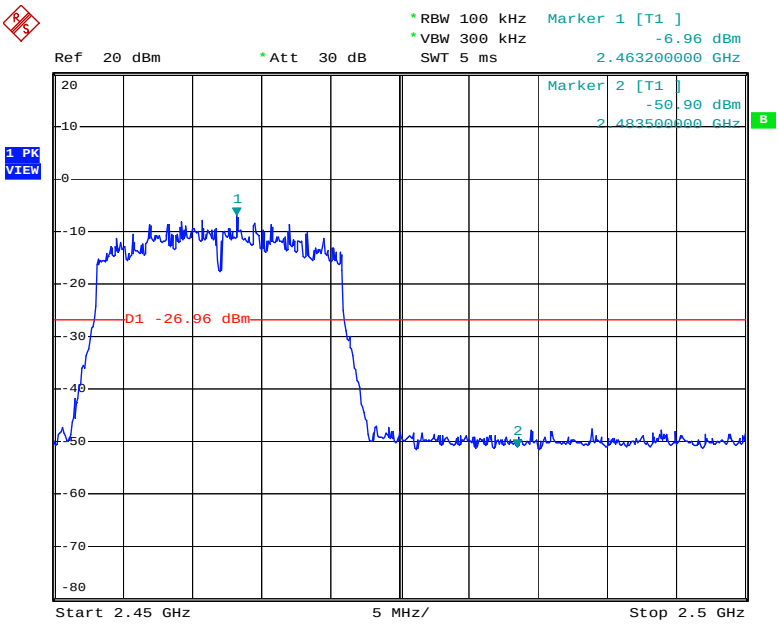


Date: 20.SEP.2018 09:52:21

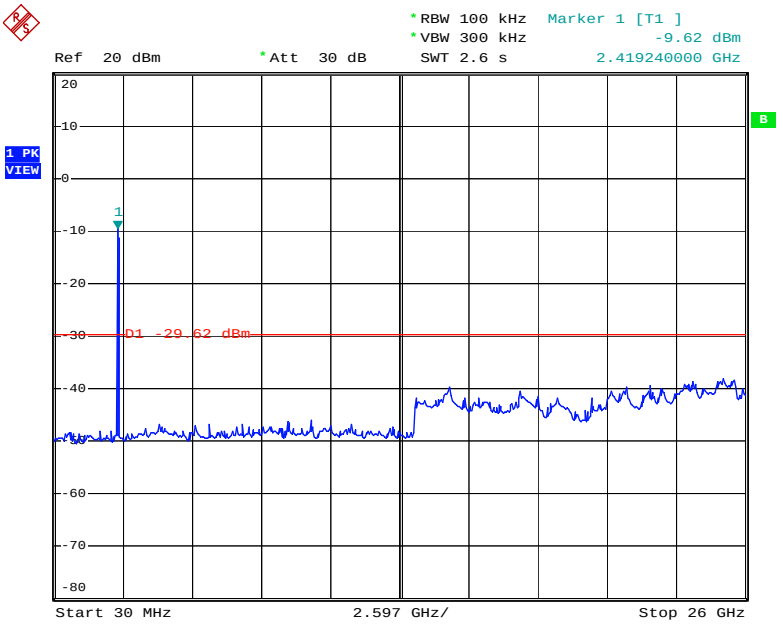


Date: 20.SEP.2018 09:55:47

High Channel



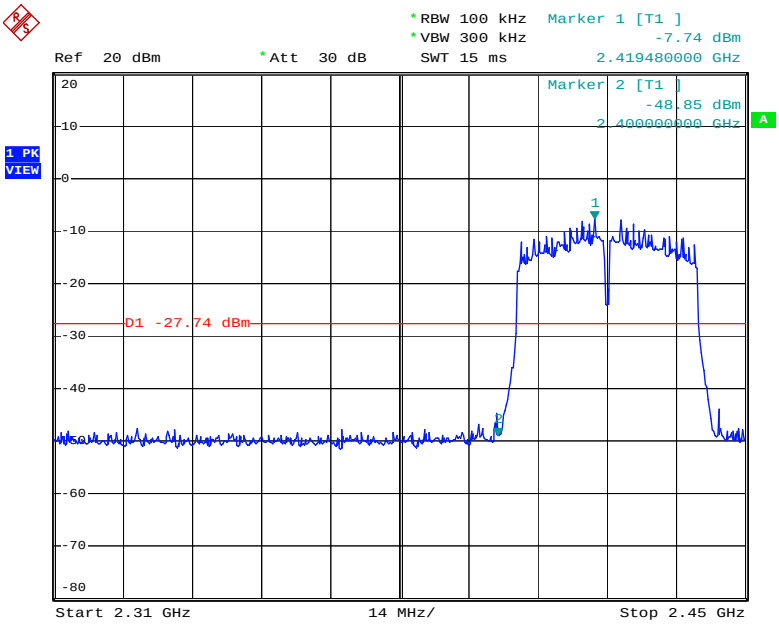
Date: 20.SEP.2018 10:09:46



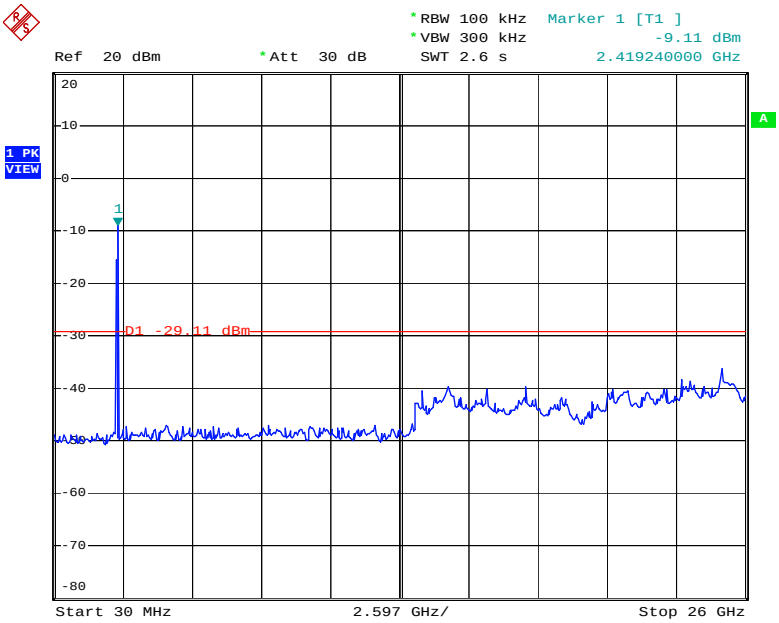
Date: 20.SEP.2018 10:05:05

11n-HT40

Low Channel

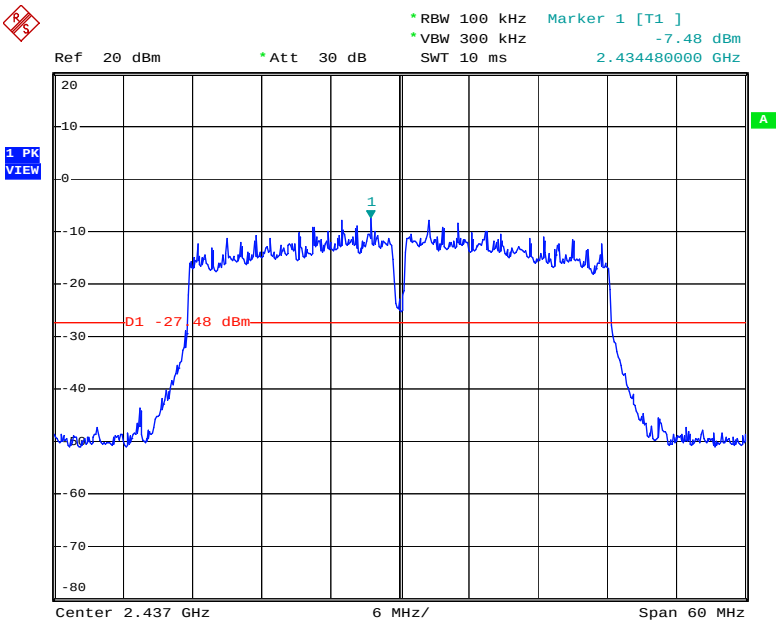


Date: 20.SEP.2018 10:39:38

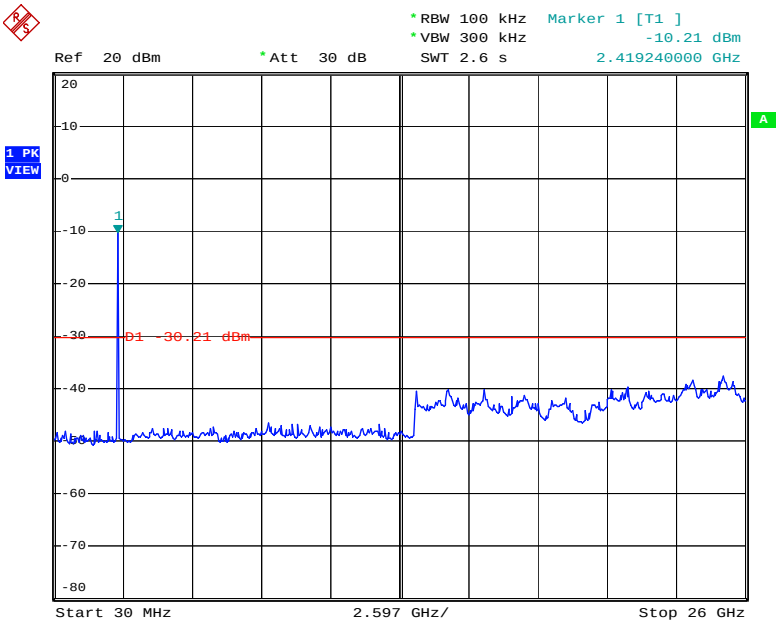


Date: 20.SEP.2018 10:43:27

Middle Channel

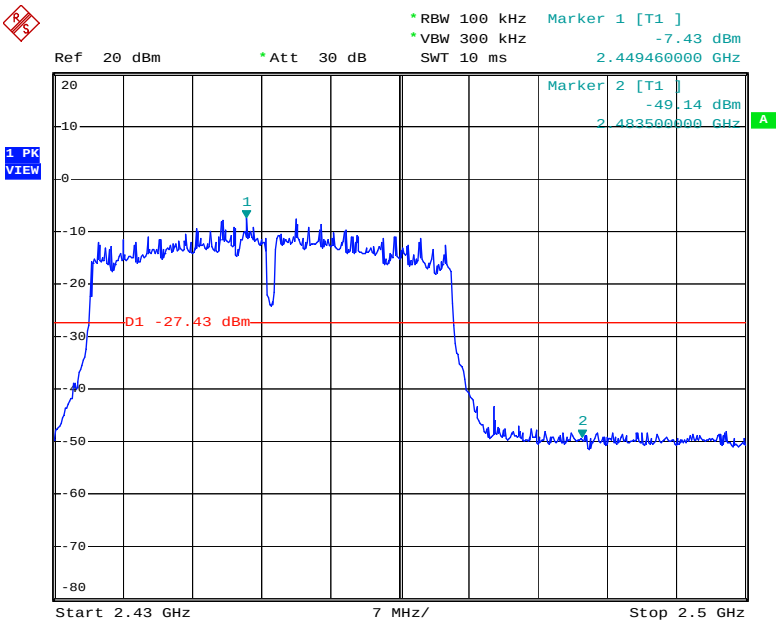


Date: 20.SEP.2018 10:50:02

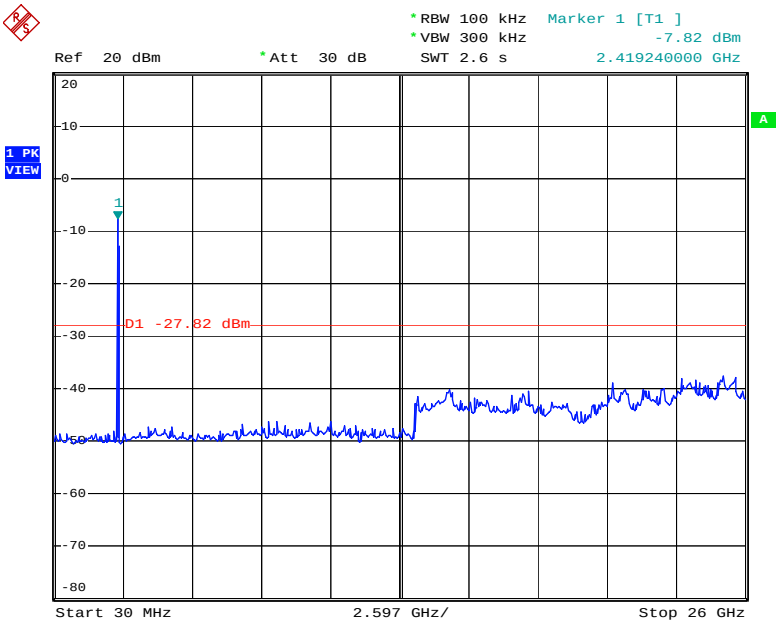


Date: 20.SEP.2018 10:46:39

High Channel



Date: 20.SEP.2018 10:53:28



Date: 20.SEP.2018 10:56:07

10. Conducted Emissions

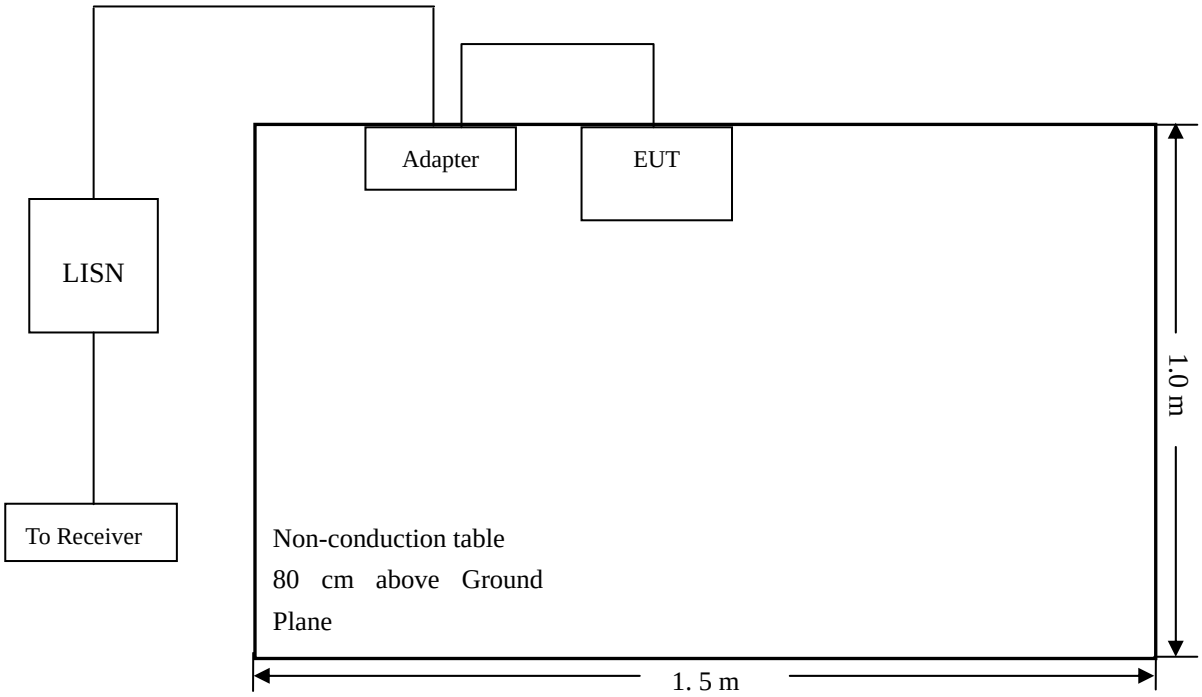
10.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 2.88 dB.

10.2 Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.

10.3 Basic Test Setup Block Diagram



10.4 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

10.5 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

Start Frequency .....150 kHz
Stop Frequency .....30 MHz
Sweep Speed .....Auto
IF Bandwidth.....10 kHz
Quasi-Peak Adapter Bandwidth.....9 kHz
Quasi-Peak Adapter Mode.....Normal

10.6 Summary of Test Results/Plots

According to the data in section 10.7, the EUT complied with the FCC Part 15.207 Conducted margin for this device, with the *worst* margin:

10.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

EUT: 60” UHD LED IPTV

D60RWA14-U-A-I RNSMU6036

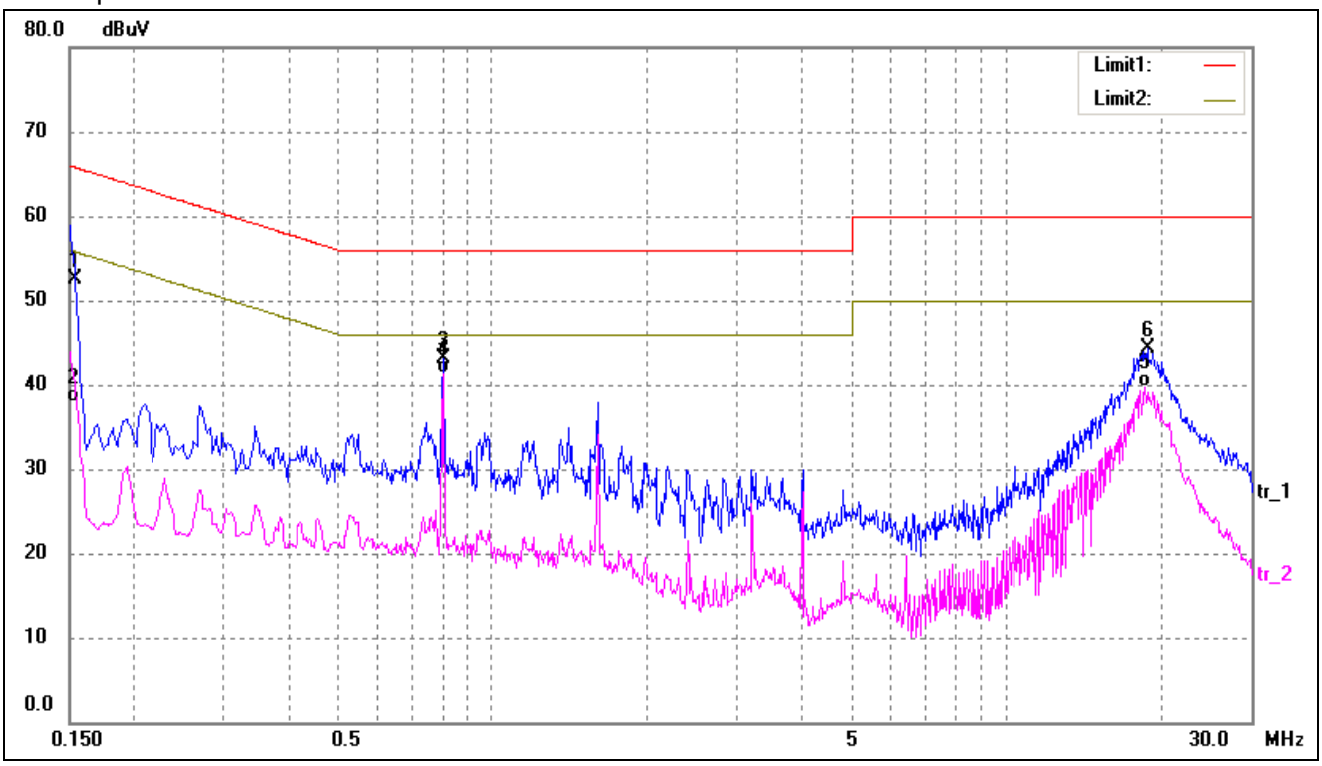
Tested Model: *XXXXXXXXXXXX60XXXXXXXXXXXX*

(Where "X"can be any alphanumeric of a-z, A-Z or 0-9 or blank &"-".)

Operating Condition: Transmitting

Comment: AC 120V/60Hz

Test Specification: Neutral

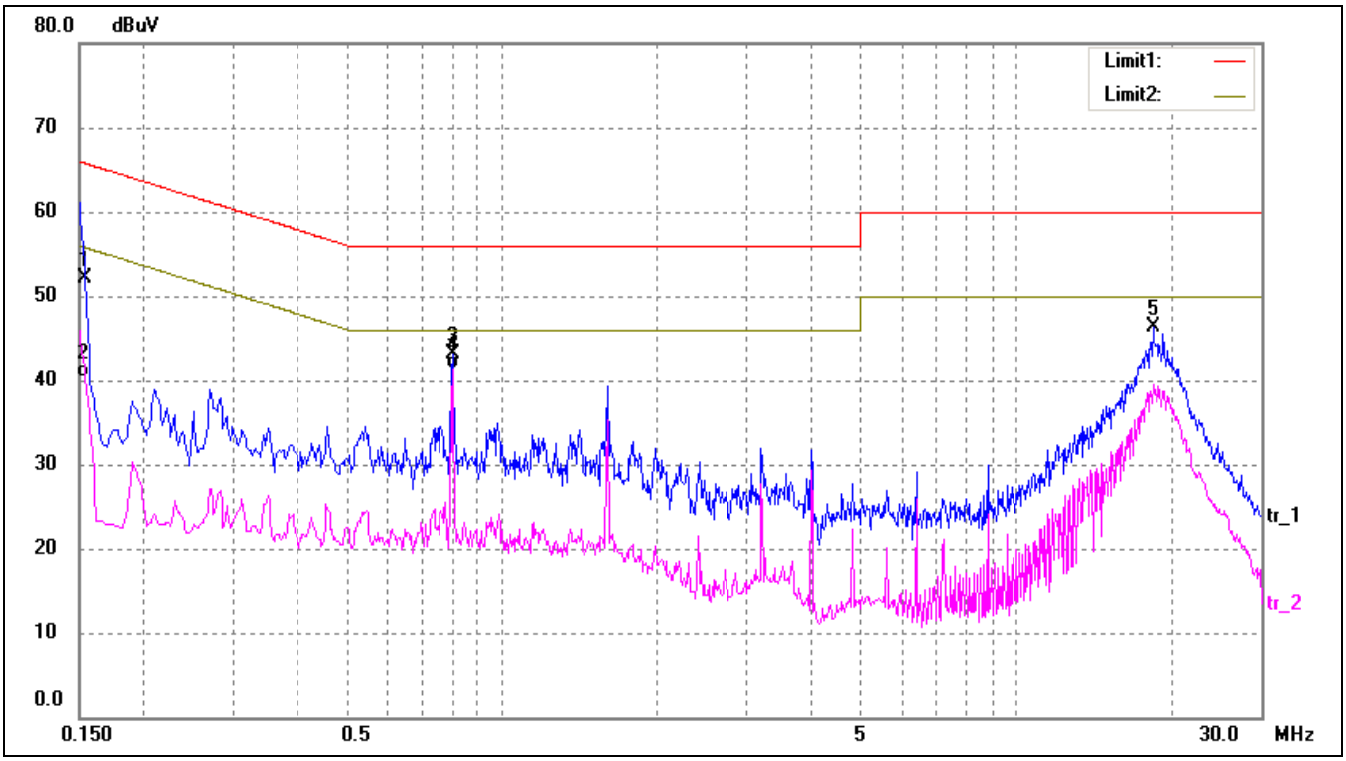


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1539	42.34	10.10	52.44	65.78	-13.34	peak
2	0.1539	27.75	10.10	37.85	55.78	-17.93	AVG
3	0.8020	32.71	10.43	43.14	56.00	-12.86	peak
4*	0.8020	30.96	10.43	41.39	46.00	-4.61	AVG
5	18.7139	28.63	11.13	39.76	50.00	-10.24	AVG
6	18.8500	33.18	11.14	44.32	60.00	-15.68	peak

Note:

1. Result Level = Read Level +LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz), Step size: 4 kHz, Scan time: auto.

EUT:	60” UHD LED IPTV
	D60RWA14-U-A-I RNSMU6036
Tested Model:	*XXXXXXXXXXXX60XXXXXXXXXXXX*
	(Where "X"can be any alphanumeric of a-z, A-Z or 0-9 or blank &"-".)
Operating Condition:	Transmitting
Comment:	AC 120V/60Hz
Test Specification:	Line



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1539	42.02	10.10	52.12	65.78	-13.66	peak
2	0.1539	30.23	10.10	40.33	55.78	-15.45	AVG
3	0.8020	32.59	10.43	43.02	56.00	-12.98	peak
4*	0.8020	30.94	10.43	41.37	46.00	-4.63	AVG
5	18.4420	35.17	11.12	46.29	60.00	-13.71	peak

Note:

1. Result Level = Read Level +LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz), Step size: 4 kHz, Scan time: auto.

******* END OF REPORT *******