FCC RF Test Report

APPLICANT	:	Nimbocumulous LLC
EQUIPMENT	:	Digital Media Receiver
MODEL NAME	:	QX91KB
		QX91KA
FCC ID	:	2AHUD-3819
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was completed on Feb. 14, 2018. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR741112-01A	Rev. 01	Initial issue of report	May 07, 2018
FR741112-01A	Rev. 02	Revising test data in appendix a, appendix c and appendix d.	Jun. 03, 2018
FR741112-01A	Rev. 03	Revising channel information in section 1.3 and 2.1	Jun. 06, 2018

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result
3.1	15.247(a)(2)	6dB Bandwidth	≥ 0.5MHz	Pass
3.1	-	99% Bandwidth	-	Pass
3.2	15.247(b)	Power Output Measurement	≤ 30dBm	Pass
3.3	15.247(e)	Power Spectral Density	≤ 8dBm/3kHz	Pass
3.4	15.247(d)	Conducted Band Edges	≤ 20dBc	Pass
		Conducted Spurious Emission		Pass
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass
3.6	15.207	AC Conducted Emission	15.207(a)	Pass
3.7	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass

1 General Description

1.1 Applicant

Nimbocumulous LLC
15 Constitution Drive. 1st Floor Bedford, New Hampshire 03110

1.2 Product Feature of Equipment Under Test

Product Feature	
Equipment	Digital Media Receiver
Model Name	QX91KB QX91KA
FCC ID	2AHUD-3819
EUT supports Radios application	WLAN 11b/g/n HT20 WLAN 11a/n HT20HT40 WLAN 11ac VHT20/VHT40/VHT80

1.3 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Channel Frequency Range	2412 MHz ~ 2462MHz
Maximum (Peak) Output Power to antenna	**<Ant. 1>** 802.11b : 24.26 dBm (0.2667 W) 802.11g : 27.81 dBm (0.6039 W) 802.11n HT20 : 27.74 dBm (0.5943 W) **<Ant. 2>** 802.11g : 27.77 dBm (0.5984 W) 802.11n HT20 : 27.12 dBm (0.5152 W) **MIMO <Ant. 1+2>** 802.11g : 29.87 dBm (0.9705 W) 802.11n HT20 : 29.87 dBm (0.9705 W)
99% Occupied Bandwidth	**<Ant. 1>** 802.11b : 11.15MHz 802.11g : 18.30MHz 802.11n HT20 : 18.90MHz **<Ant. 2>** 802.11g : 17.95MHz 802.11n HT20 : 18.60MHz **MIMO <Ant. 1>** 802.11g : 17.85MHz 802.11n HT20 : 18.70MHz **MIMO <Ant. 2>** 802.11g : 17.90MHz 802.11n HT20 : 18.60MHz
Antenna Type / Gain	**Ant. 1 :** Fixed internal Antenna with gain 4.2 dBi **Ant. 2 :** Fixed internal Antenna with gain 6.1 dBi
Antenna Function Description	<table><tr><td></td><td>Ant. 1</td><td>Ant. 2</td></tr><tr><td>802.11 b</td><td>V</td><td>-</td></tr><tr><td>802.11 g/n</td><td>V</td><td>V</td></tr><tr><td>802.11 g/n MIMO</td><td>V</td><td>V</td></tr></table>
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

Note: MIMO Ant. 1+2 is a calculated result from sum of the power MIMO Ant. 1 and MIMO Ant. 2.

1.4 Modification of EUT

No modifications are made to the EUT during all test items.

1.5 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1190 and TW0007 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	**Sporton Site No.**	
	TH05-HY	CO05-HY

Note: The test site complies with ANSI C63.4 2014 requirement.

Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd Rd. Guishan Dist, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	03CH10-HY

Note: The test site complies with ANSI C63.4 2014 requirement.

1.6 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

2 Test Configuration of Equipment Under Test

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	8	2447
	2	2417	9	2452
	3	2422	10	2457
	4	2427	11	2462
	5	2432		
	6	2437		
	7	2442		

2.2 Test Mode

Final test modes are considering the modulation and worse data rates as below table.

Single Antenna

Modulation	Data Rate
802.11b	1 Mbps
802.11g	6 Mbps
802.11n HT20	MCS0

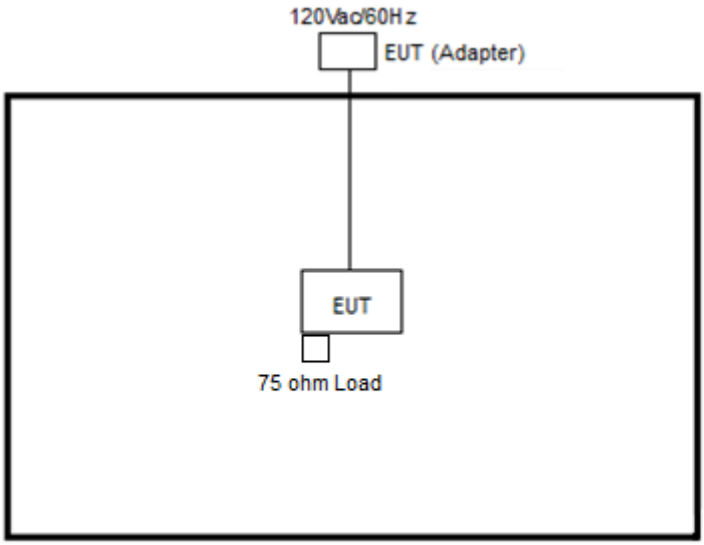
MIMO Antenna

Modulation	Data Rate
802.11g	6 Mbps
802.11n HT20	MCS0

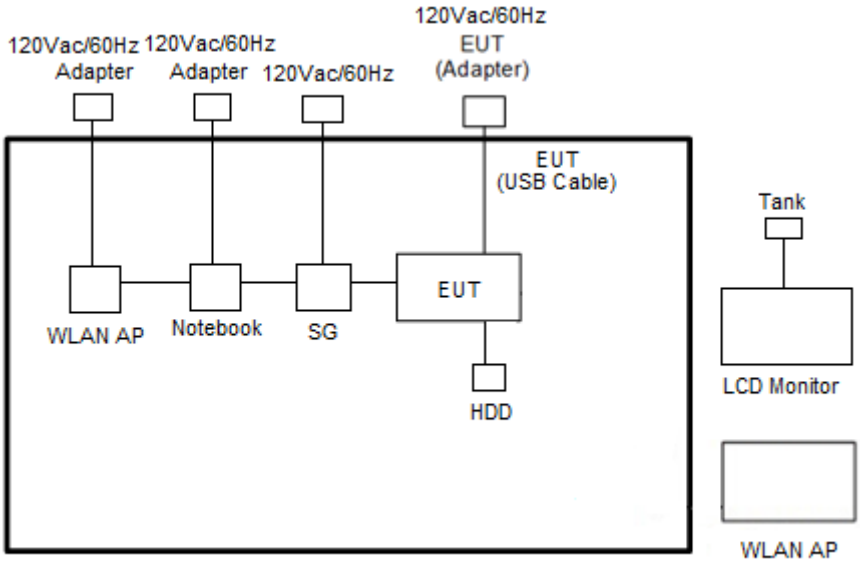
Test Cases	
AC Conducted Emission	Mode 1 :ATSC Rx (Physical connection) WLAN (2.4GHz) Link + Connected HDD + End to End + External HDD R/W

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
2.	Base Station	R&S	SG	N/A	N/A	Unshielded, 1.8 m
3.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
4.	APP Mac	Apple	A1278	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	Notebook	DELL	E5530	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	Mobile Phone	Acer	Z530	N/A	N/A	N/A
7.	LCD MONITOR	DELL	P2715Q	FCC DoC	Shielded, 1.6m	Unshielded, 1.8 m
8.	USB HD	TOSHIBA	DTB310	FCC DoC	Shielded, 0.5m	N/A
9.	Controller	N/A	N/A	N/A	N/A	N/A
10.	Dongle	N/A	N/A	FCC DoC	N/A	N/A

2.5 EUT Operation Test Setup

The RF test items, utility "Command" was installed in Notebook which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

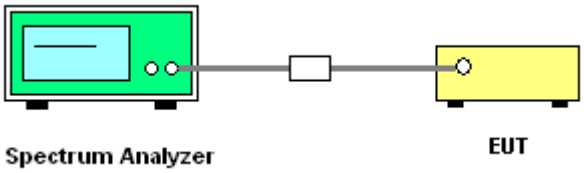
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

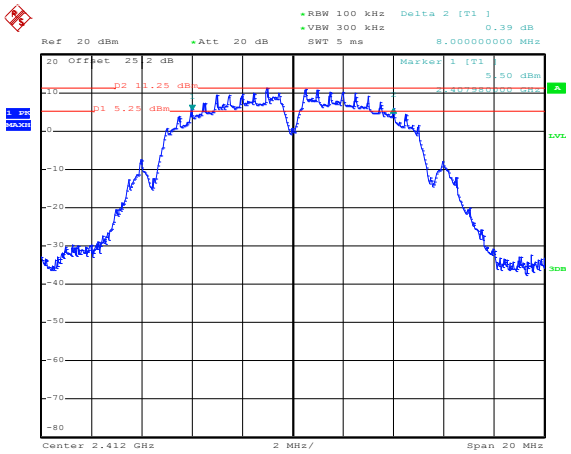
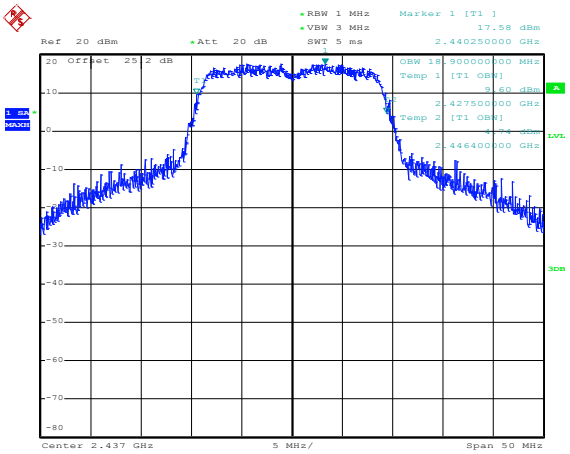
1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v04.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) = 1MHz and set the Video bandwidth (VBW) = 3MHz.
6. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Please refer to Appendix A.

Minimum 6dB Bandwidth	Maximum 99% Occupied Bandwidth
	
Date: 12.FEB.2018 20:03:12	Date: 12.FEB.2018 23:11:42

Note : The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna with directional gain greater than 6dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. 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.

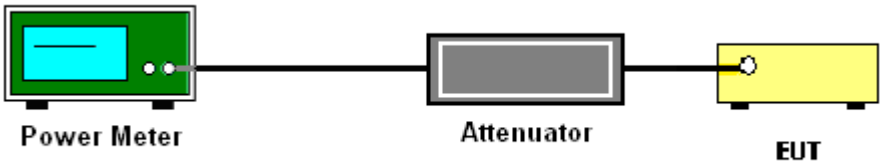
3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v04 section 9.1.3 PKPM1 Peak power meter method.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.
5. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Please refer to Appendix A.

3.2.6 Test Result of Average output Power (Reporting Only)

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.
7. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

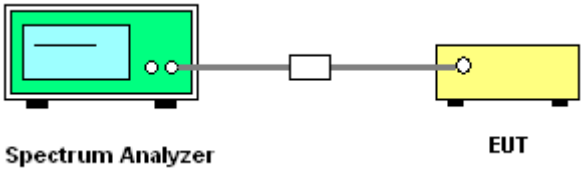
   If measurements performed using method (2) plus 10 log (N) exceeds the emission limit, the test should choose method (1) before declaring that the device fails the emission limit.

   Method (1): Measure and sum the spectra across the outputs.

   The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

   Method (2): Measure and add 10 log (N) dB, where N is the number of outputs. (N=2)

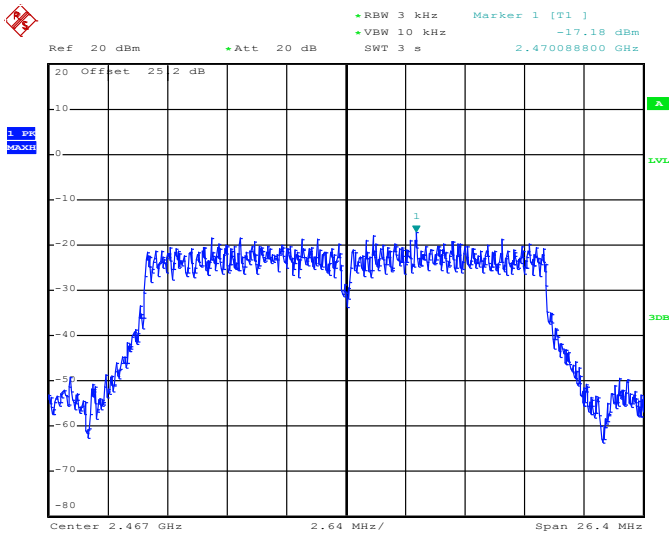
3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

Worst Case Power Density (dBm/3kHz)



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement.

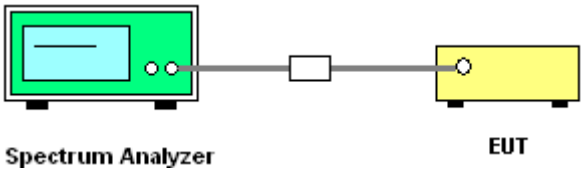
3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.4.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.4.4 Test Setup



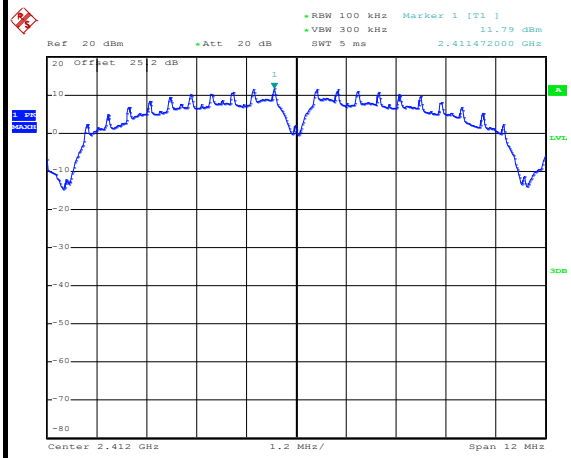
3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Test Engineer :	Kai Liao	**Temperature :**	21~25℃
		Relative Humidity :	51~54%

Number of TX = 1, Ant. 1 (Measured)

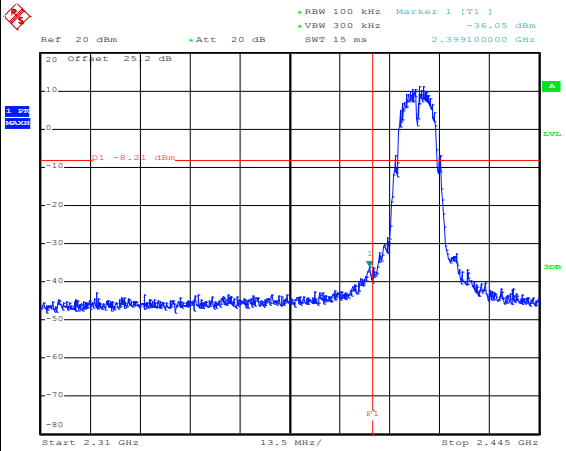
Test Mode :	802.11b	**Test Channel :**	01

100kHz PSD reference Level



Date: 12.FEB.2018 20:10:55

Channel Plot



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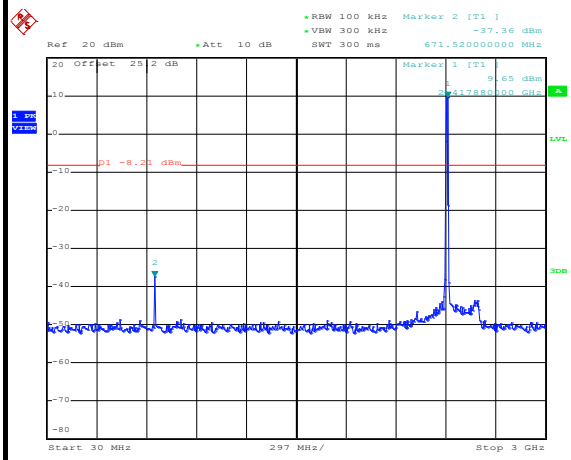
Spurious Emission 30MHz~3GHz



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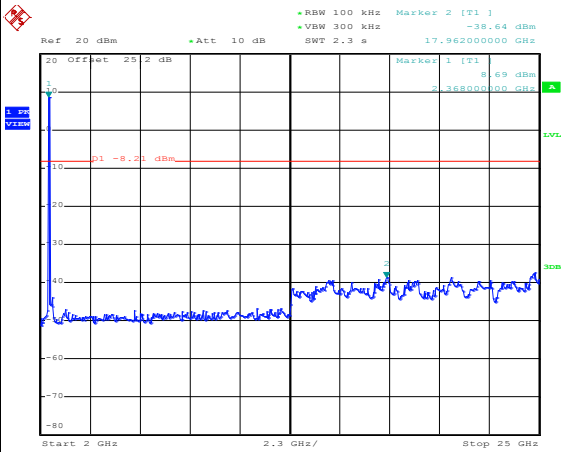
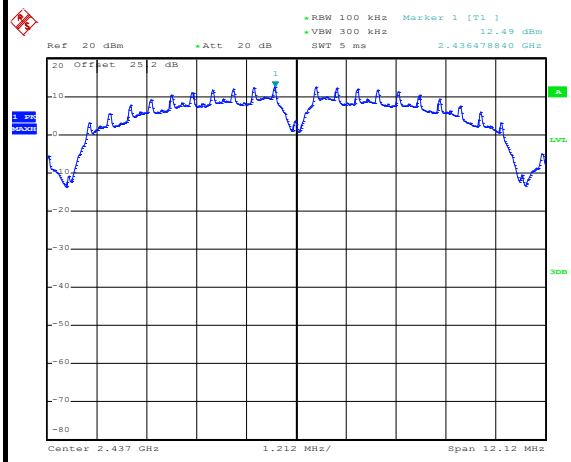
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 20:12:09

Test Mode :	802.11b	Test Channel :	06

100kHz PSD reference Level



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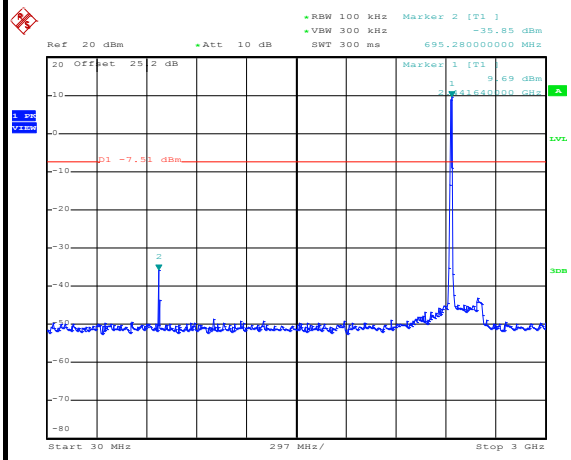
Spurious Emission 30MHz~3GHz



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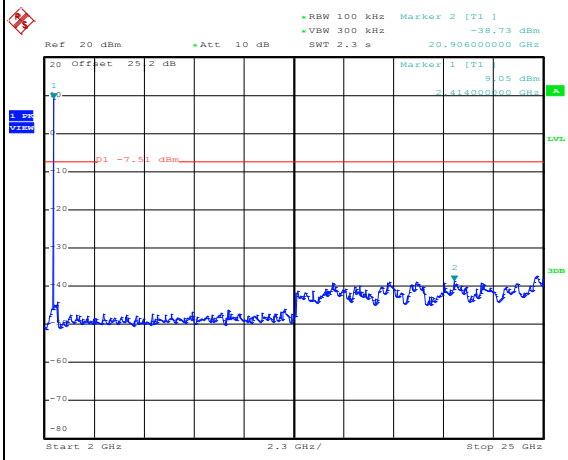
Spurious Emission 2GHz~25GHz



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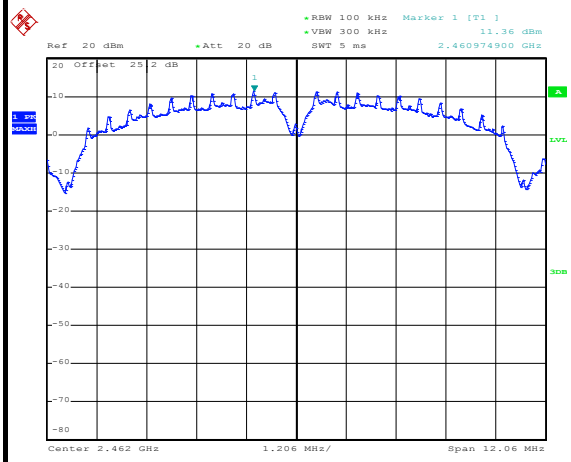
Test Mode :	802.11b	Test Channel :	11

100kHz PSD reference Level



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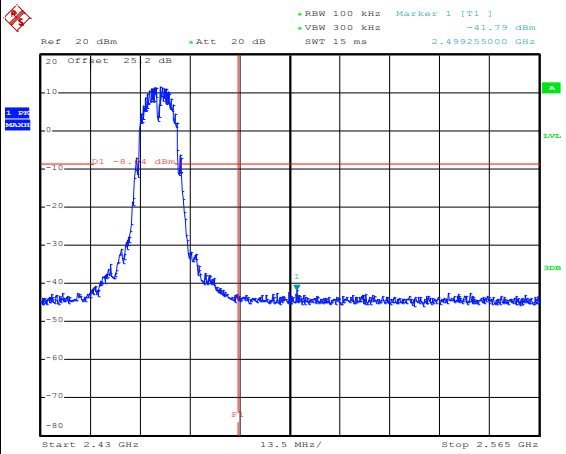
Channel Plot



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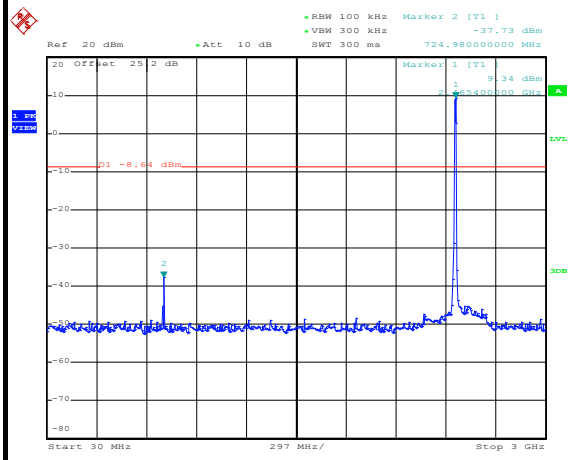
Spurious Emission 30MHz~3GHz



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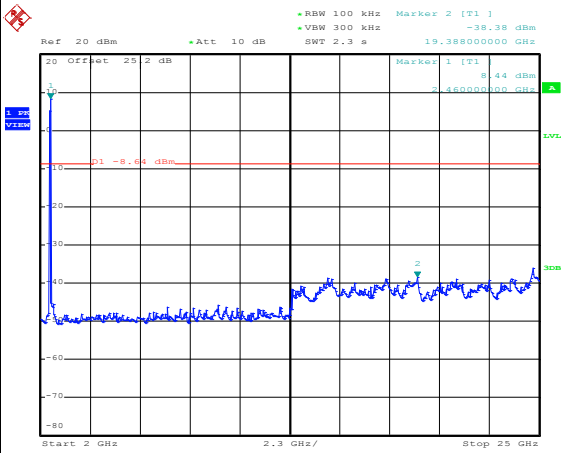
Spurious Emission 2GHz~25GHz



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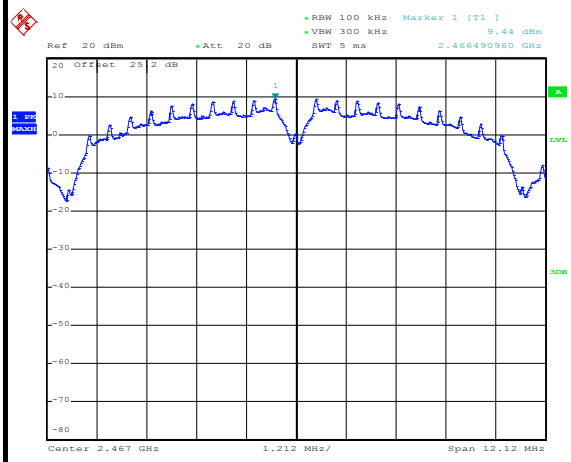
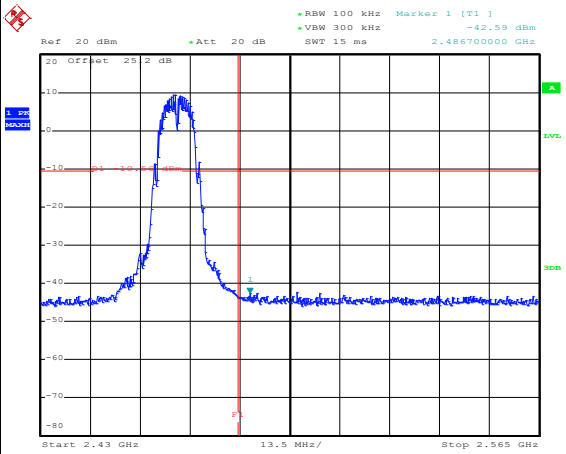
Test Mode :	802.11b	Test Channel :	12

100kHz PSD reference Level



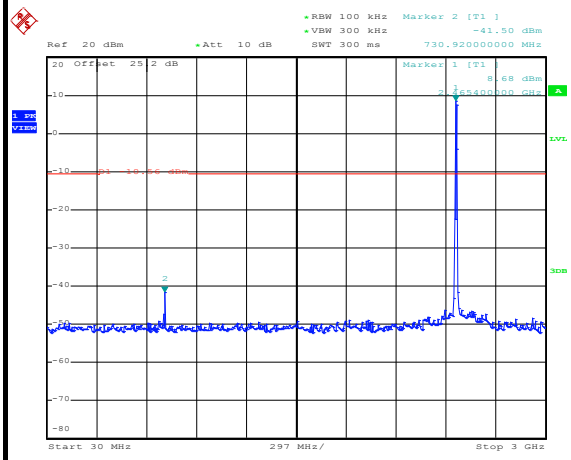
Date: 12.FEB.2018 20:31:57

Channel Plot



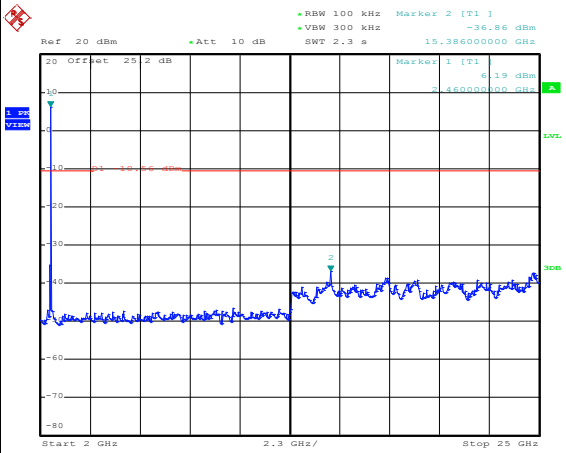
Date: 12.FEB.2018 20:34:46

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 20:35:09

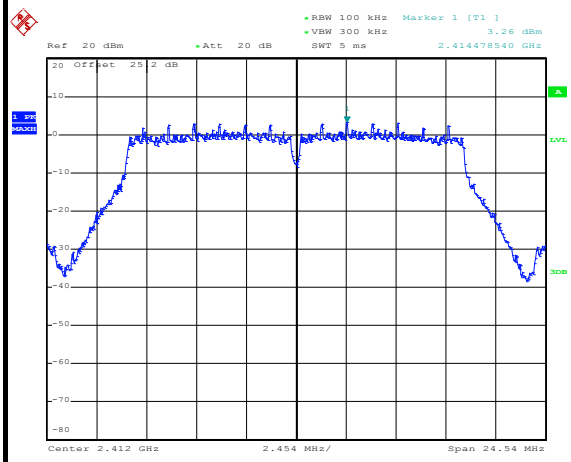
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 20:35:36

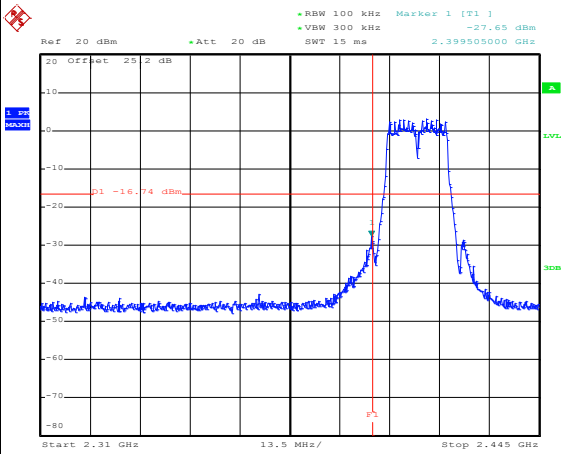
Test Mode :	802.11g	Test Channel :	01

100kHz PSD reference Level



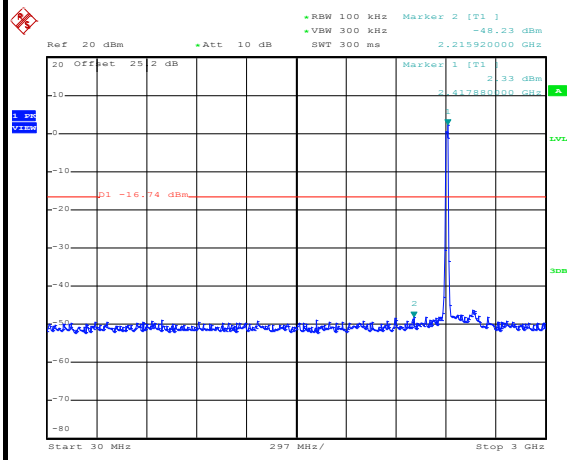
Date: 12.FEB.2018 20:45:05

Channel Plot



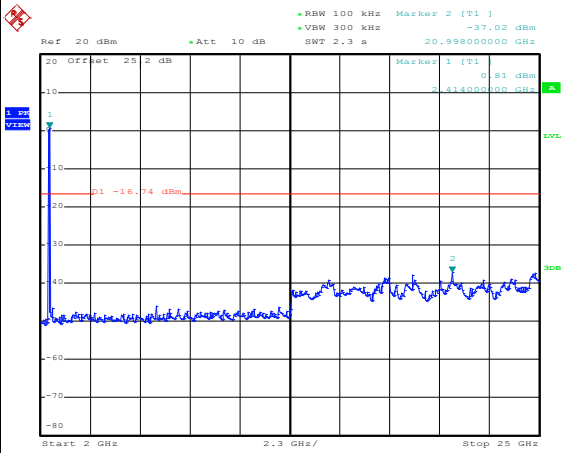
Date: 12.FEB.2018 20:45:45

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 20:46:04

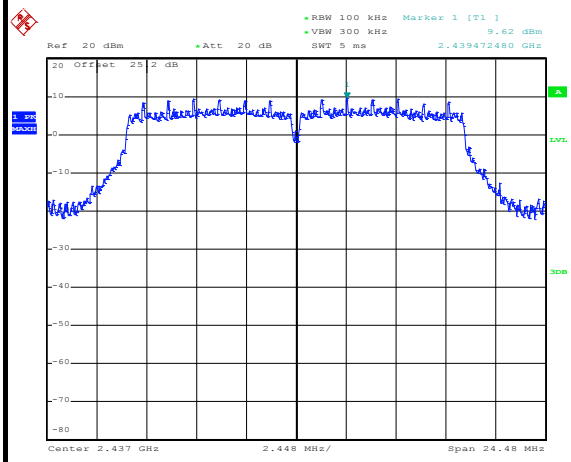
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 20:46:39

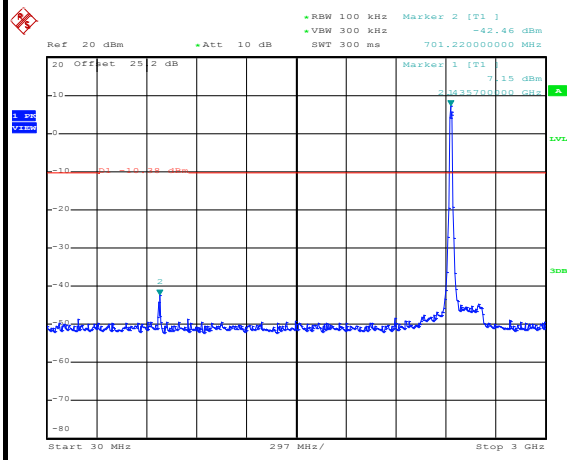
Test Mode :	802.11g	Test Channel :	06

100kHz PSD reference Level



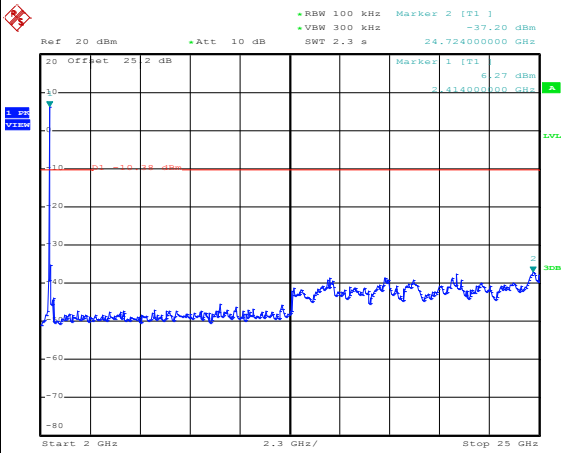
Date: 12.FEB.2018 21:05:54

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 21:06:43

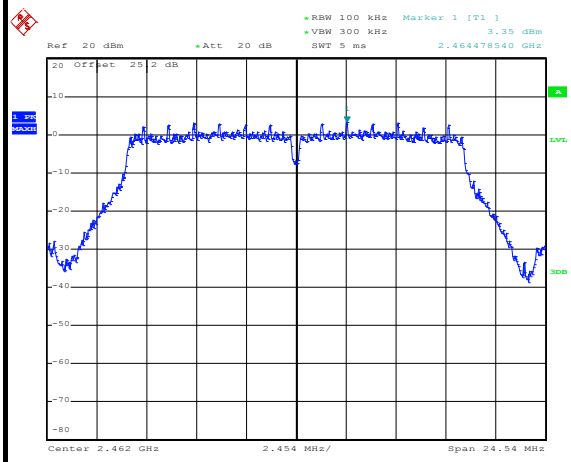
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 21:07:17

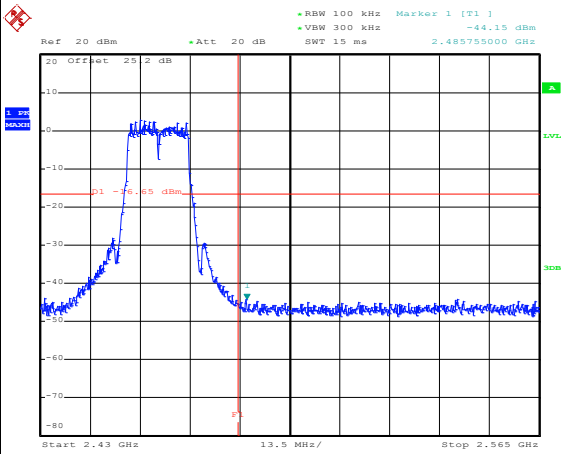
Test Mode :	802.11g	Test Channel :	11

100kHz PSD reference Level



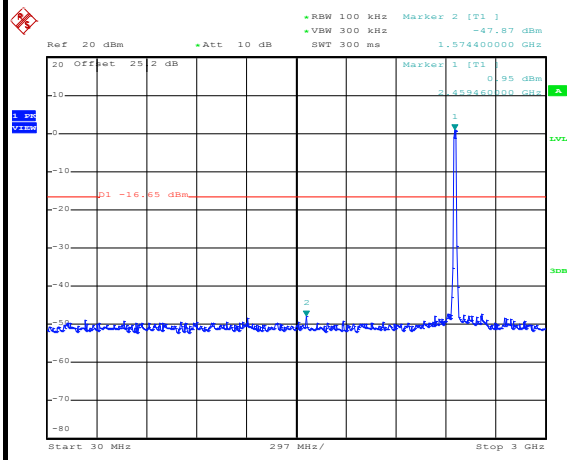
Date: 12.FEB.2018 21:10:05

Channel Plot



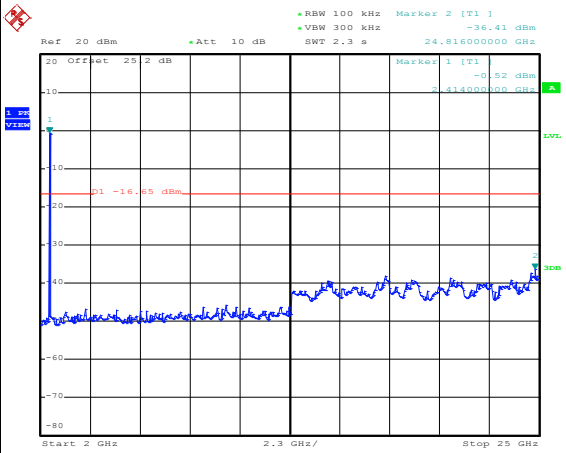
Date: 12.FEB.2018 21:10:24

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 21:10:50

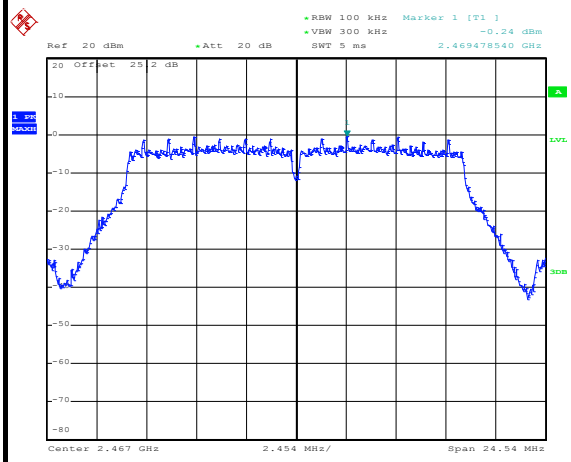
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 21:11:12

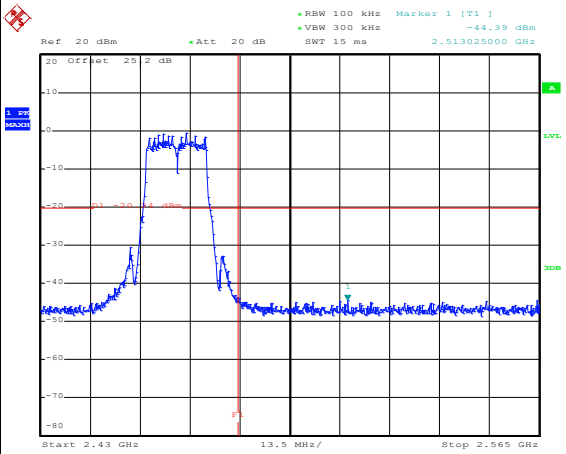
Test Mode :	802.11g	Test Channel :	12

100kHz PSD reference Level



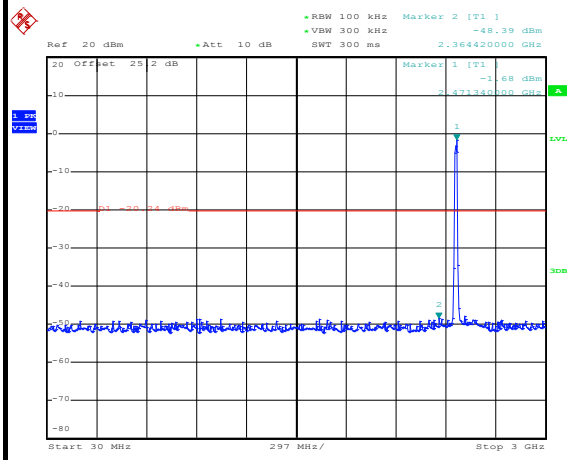
Date: 12.FEB.2018 21:14:50

Channel Plot



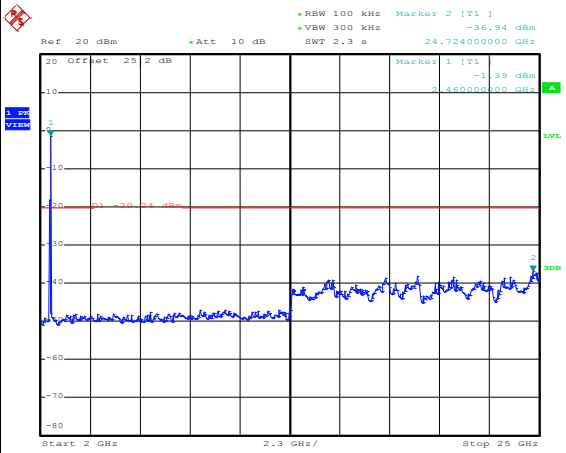
Date: 12.FEB.2018 21:15:23

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 21:15:59

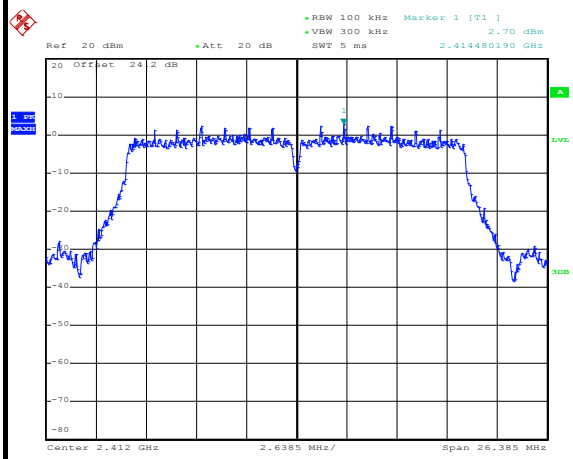
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 21:16:20

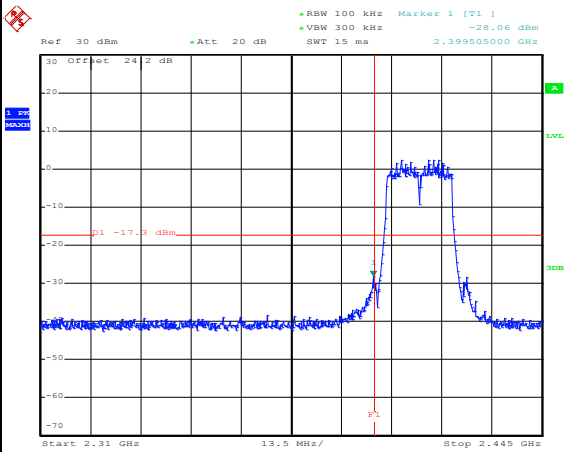
Test Mode :	802.11n HT20	Test Channel :	01

100kHz PSD reference Level



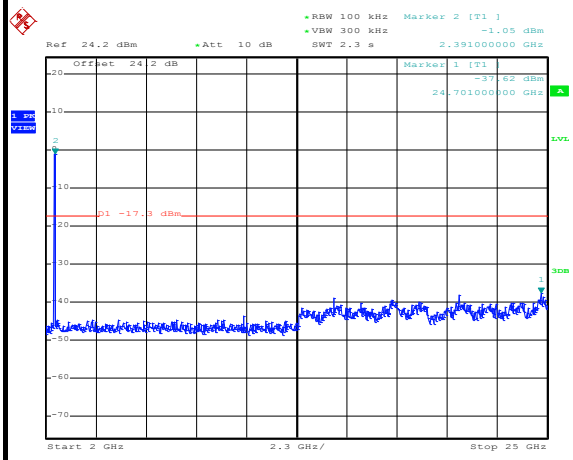
Date: 14.FEB.2018 16:51:24

Channel Plot



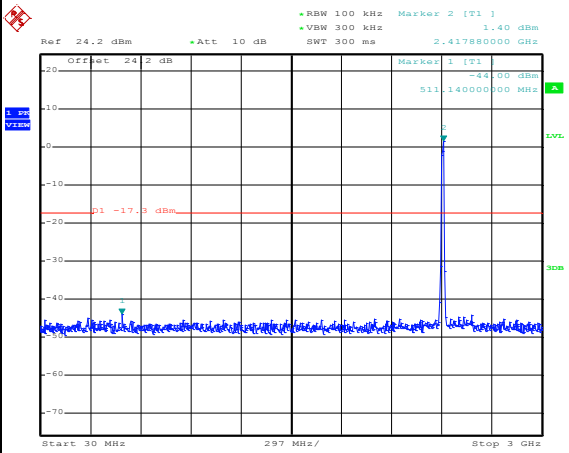
Date: 14.FEB.2018 16:51:39

Spurious Emission 30MHz~3GHz



Date: 14.FEB.2018 16:52:00

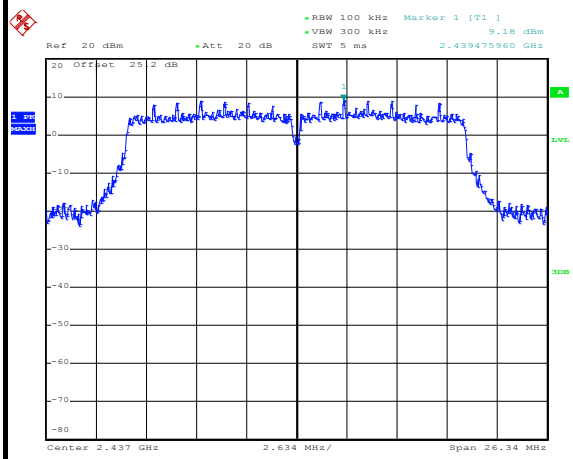
Spurious Emission 2GHz~25GHz



Date: 14.FEB.2018 16:51:51

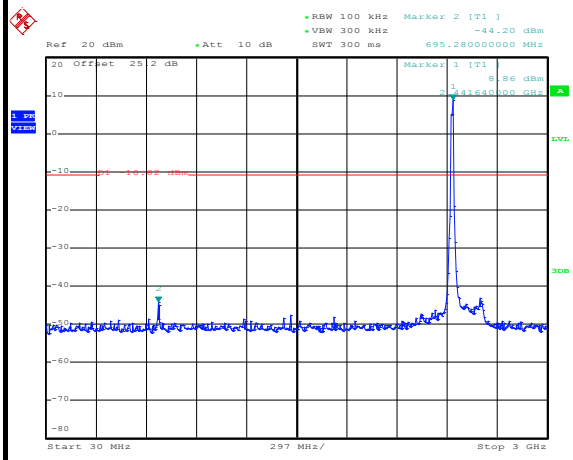
Test Mode :	802.11n HT20	Test Channel :	06

100kHz PSD reference Level



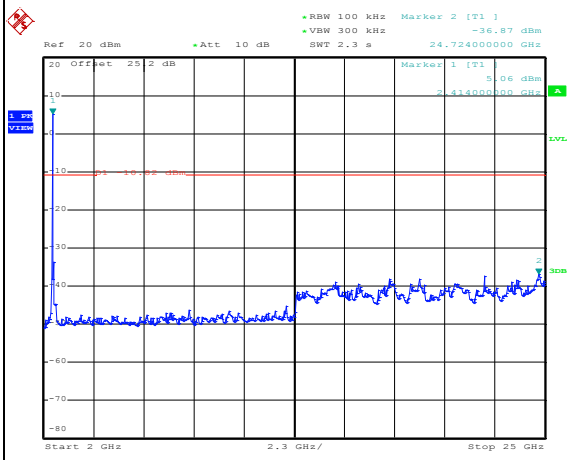
Date: 12.FEB.2018 23:10:37

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 23:11:05

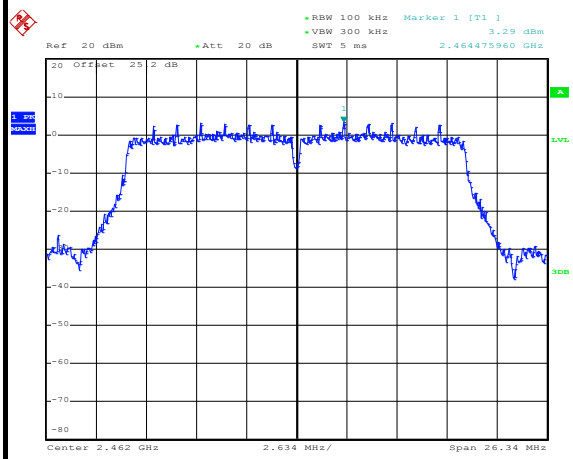
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 23:11:27

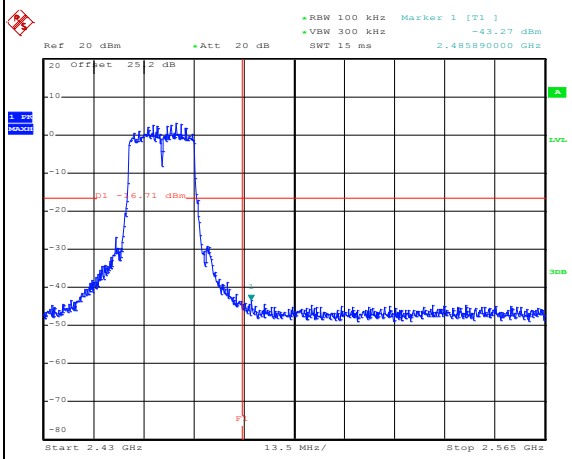
Test Mode :	802.11n HT20	Test Channel :	11

100kHz PSD reference Level



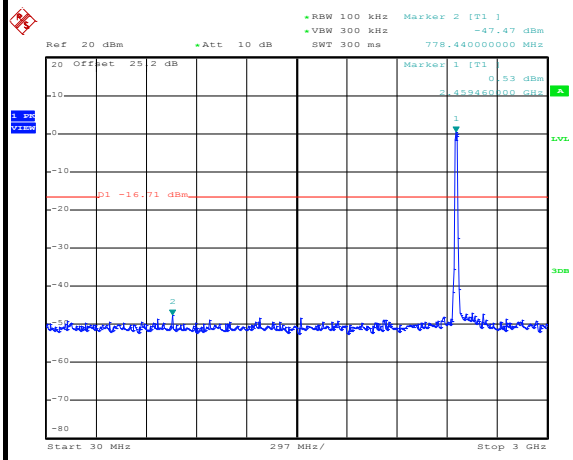
Date: 12.FEB.2018 23:13:15

Channel Plot



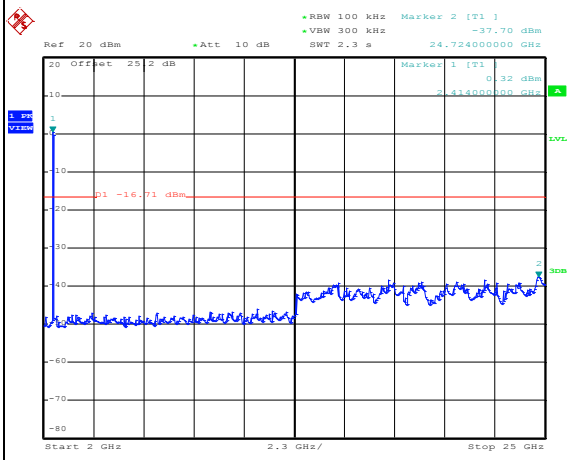
Date: 12.FEB.2018 23:13:29

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 23:13:48

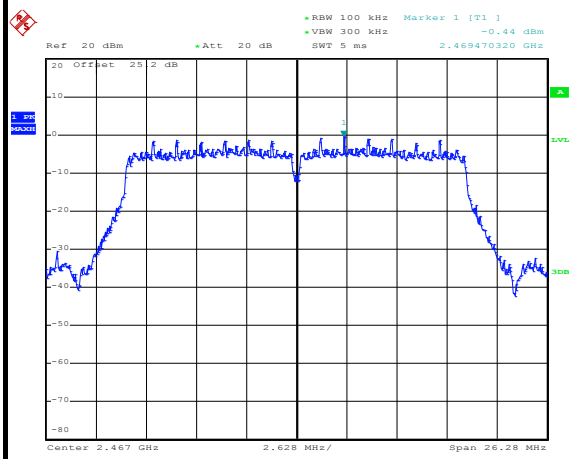
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 23:14:07

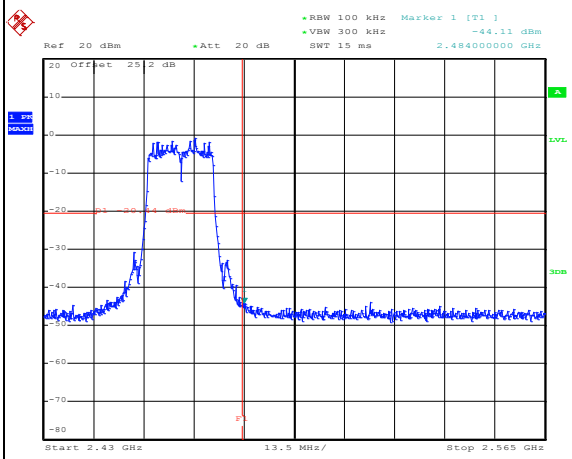
Test Mode :	802.11n HT20	Test Channel :	12

100kHz PSD reference Level



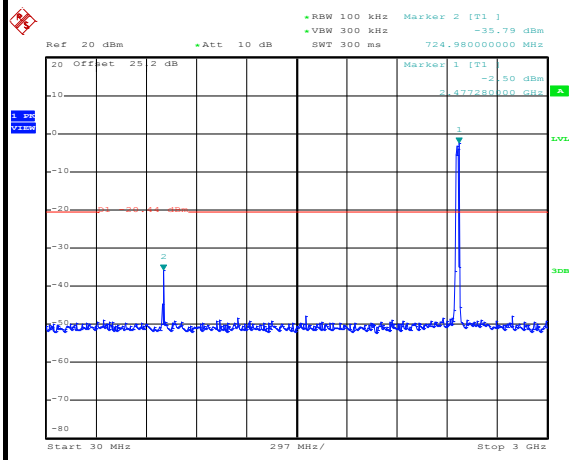
Date: 12.FEB.2018 23:15:55

Channel Plot



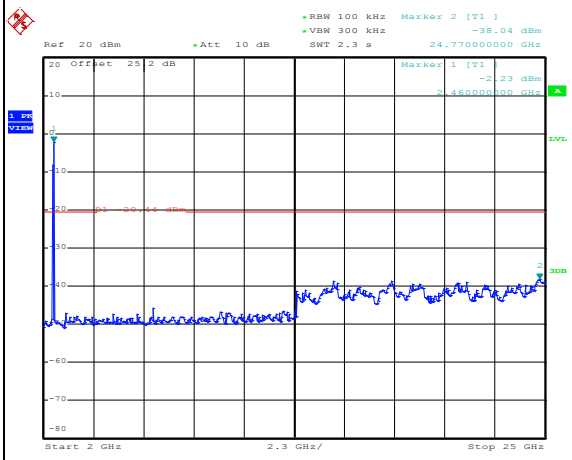
Date: 12.FEB.2018 23:16:22

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 23:16:42

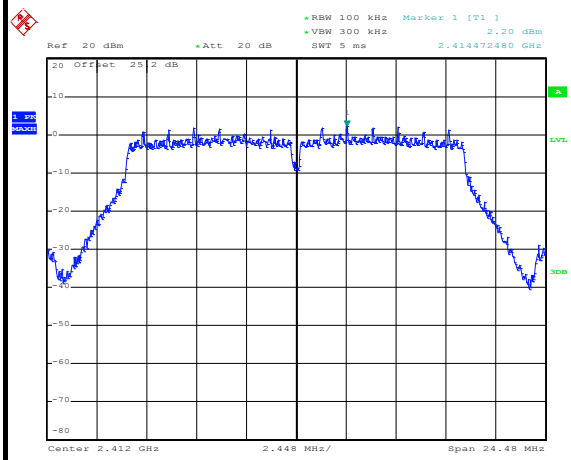
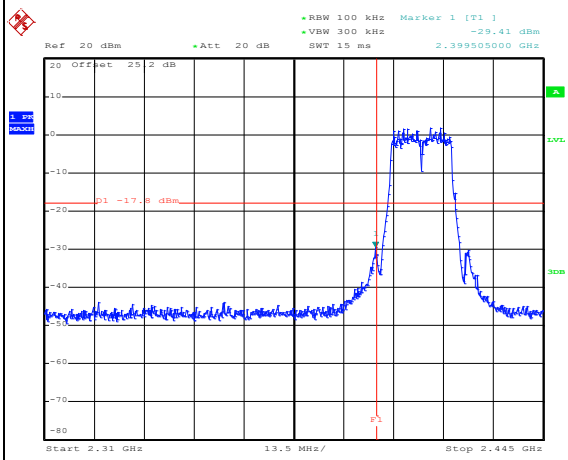
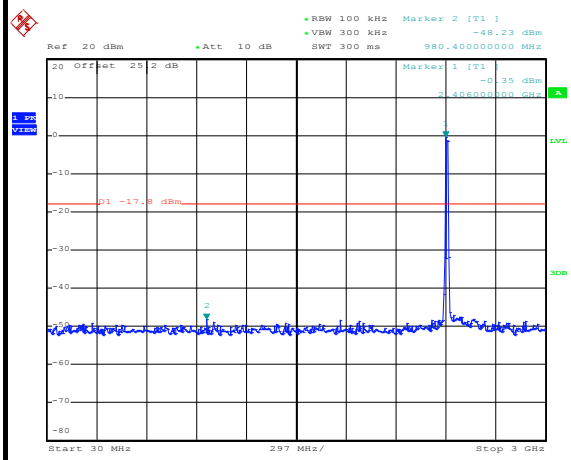
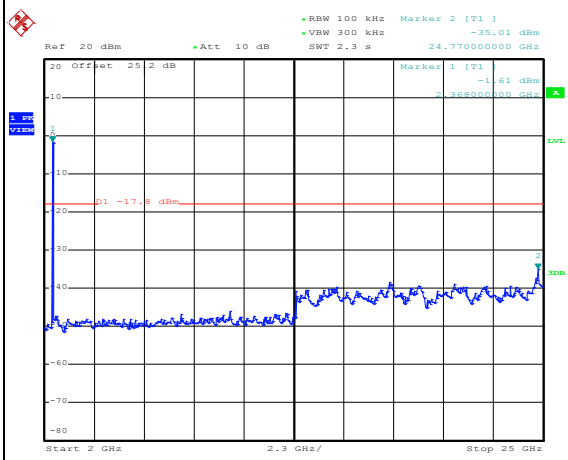
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 23:16:59

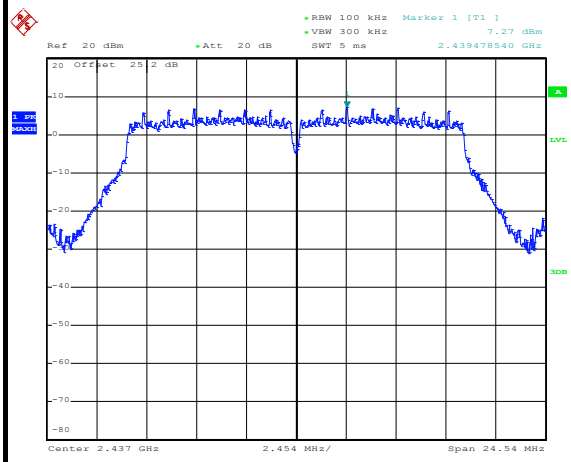
Number of TX = 1, Ant. 2 (Measured)

Test Mode :	802.11g	Test Channel :	01

100kHz PSD reference Level	Channel Plot
	
Date: 12.FEB.2018 21:35:23	Date: 12.FEB.2018 21:35:43
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 12.FEB.2018 21:38:49	Date: 12.FEB.2018 21:39:08

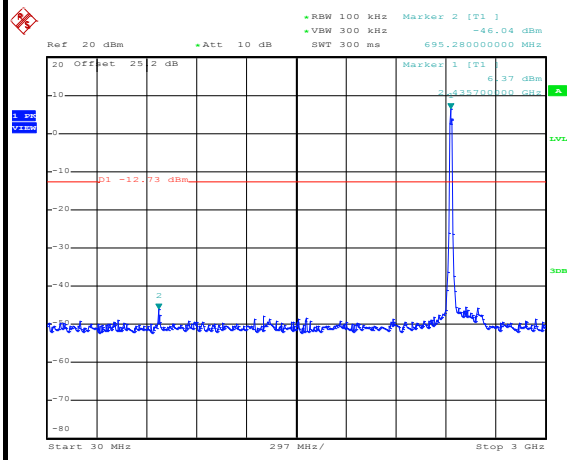
Test Mode :	802.11g	Test Channel :	06

100kHz PSD reference Level



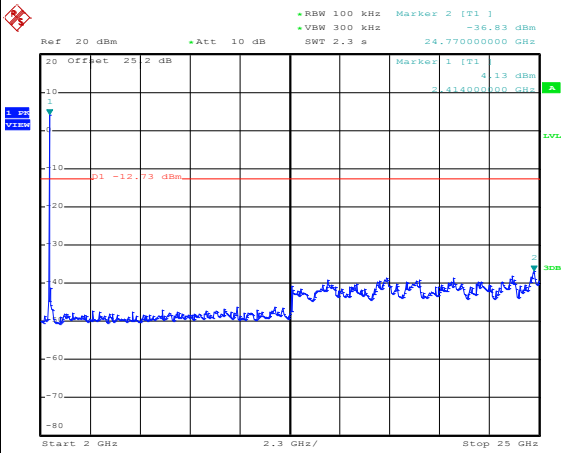
Date: 12.FEB.2018 21:32:02

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 21:32:27

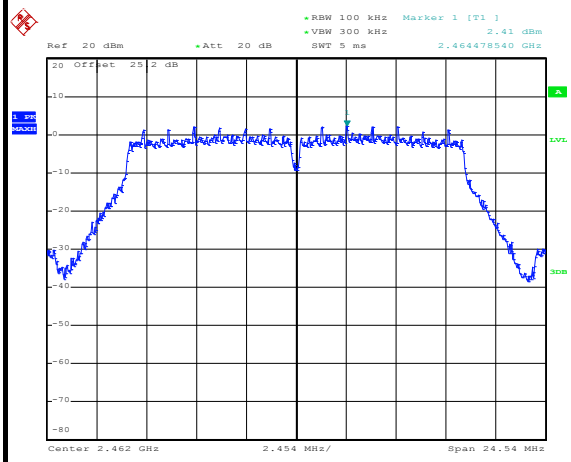
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 21:32:51

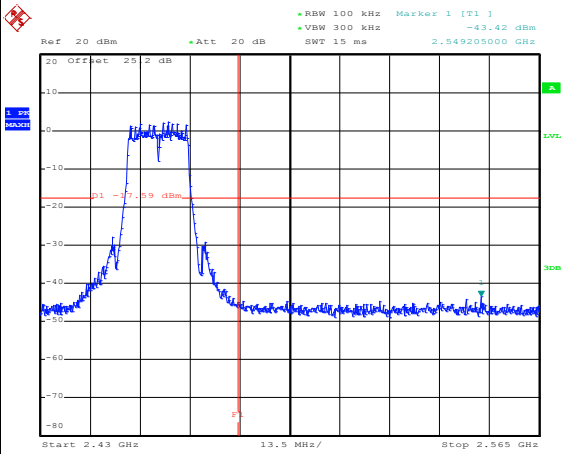
Test Mode :	802.11g	Test Channel :	11

100kHz PSD reference Level



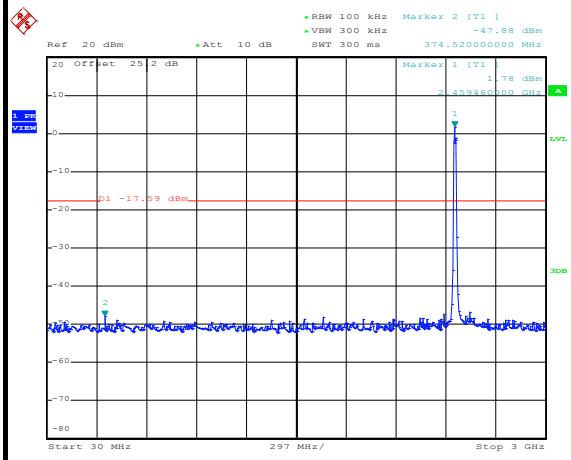
Date: 12.FEB.2018 21:27:55

Channel Plot



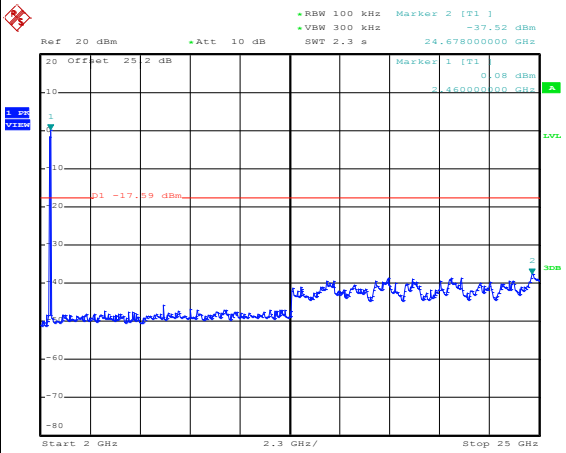
Date: 12.FEB.2018 21:28:16

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 21:28:55

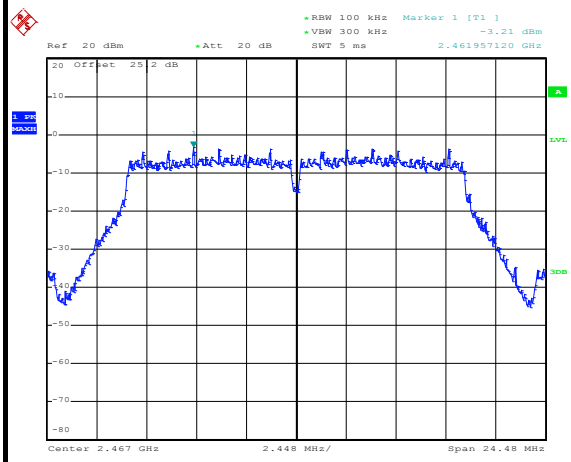
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 21:29:15

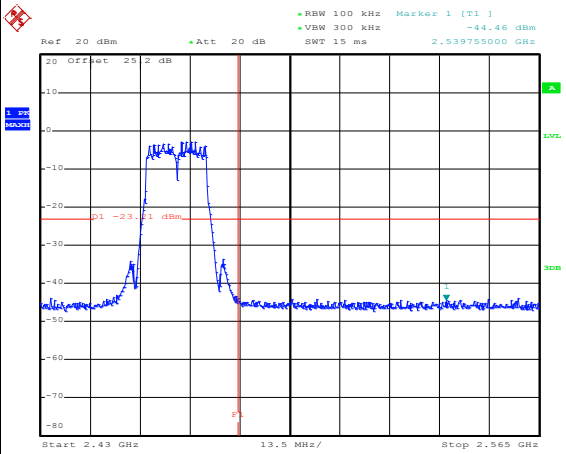
Test Mode :	802.11g	Test Channel :	12

100kHz PSD reference Level



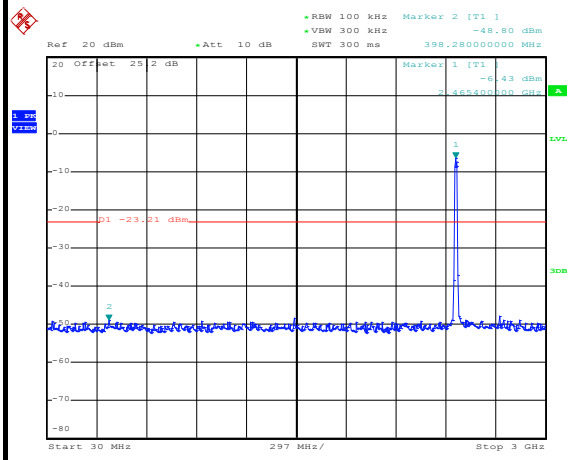
Date: 12.FEB.2018 21:20:56

Channel Plot



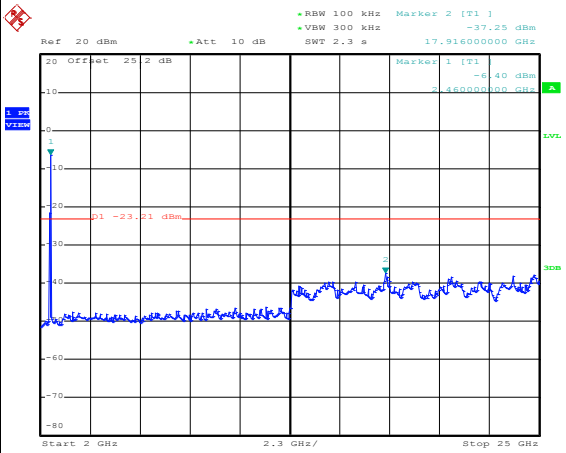
Date: 12.FEB.2018 21:24:50

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 21:25:16

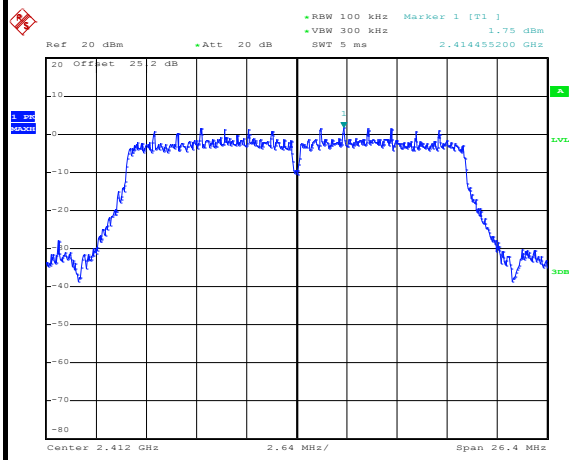
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 21:25:33

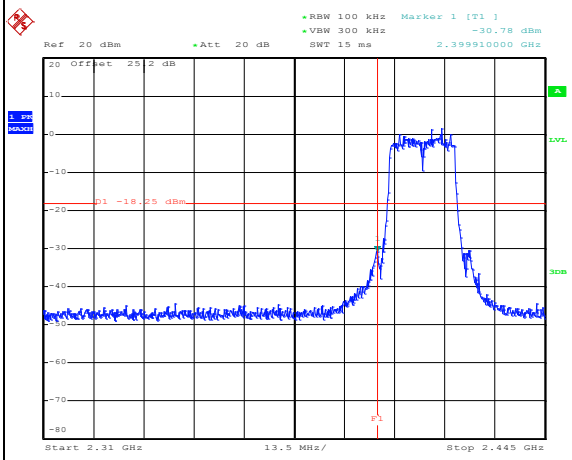
Test Mode :	802.11n HT20	Test Channel :	01

100kHz PSD reference Level



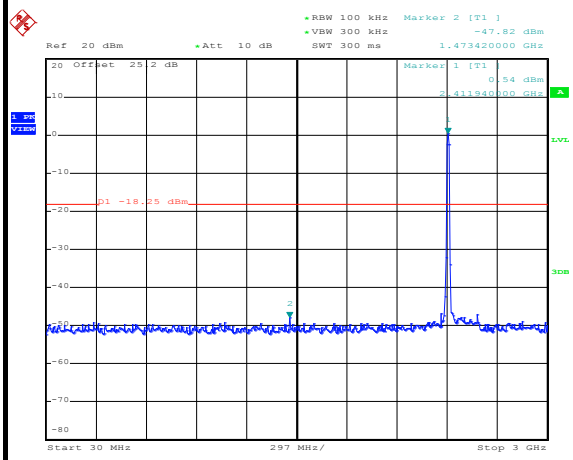
Date: 12.FEB.2018 23:33:20

Channel Plot



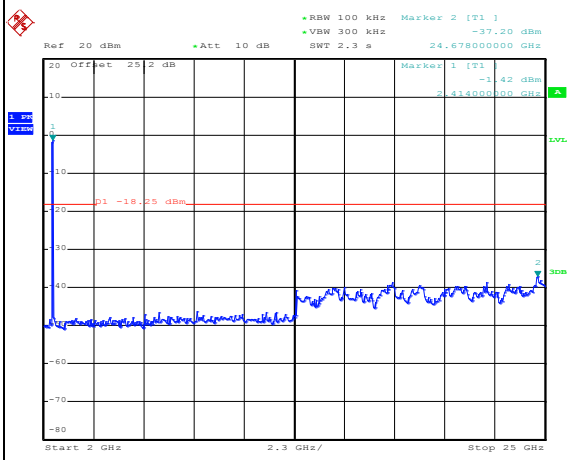
Date: 12.FEB.2018 23:33:34

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 23:33:50

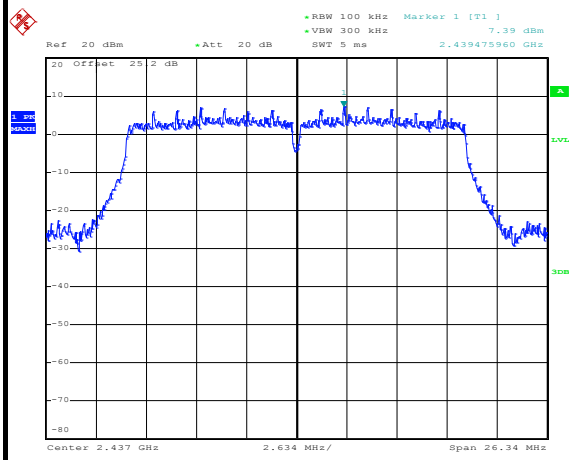
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 23:34:06

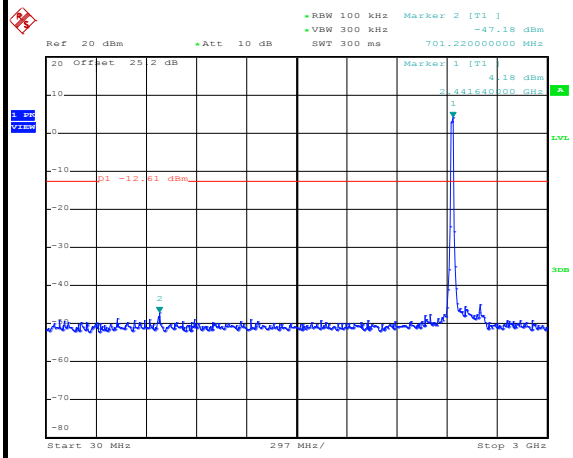
Test Mode :	802.11n HT20	Test Channel :	06

100kHz PSD reference Level



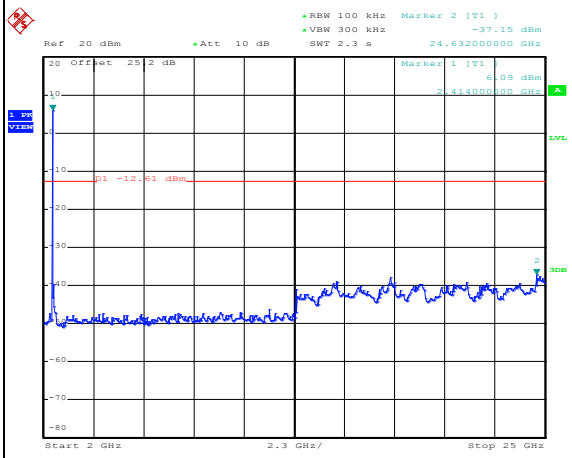
Date: 12.FEB.2018 23:29:25

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 23:30:17

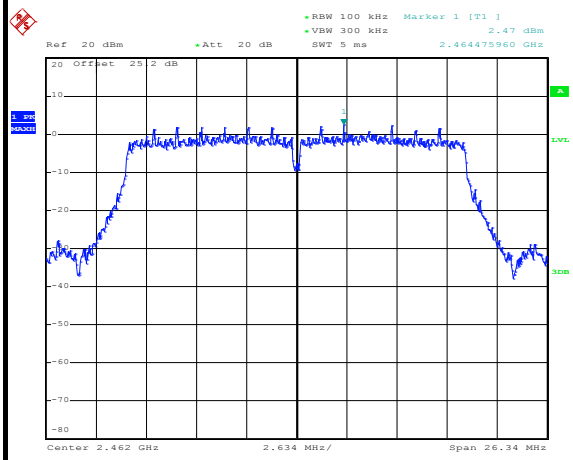
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 23:30:38

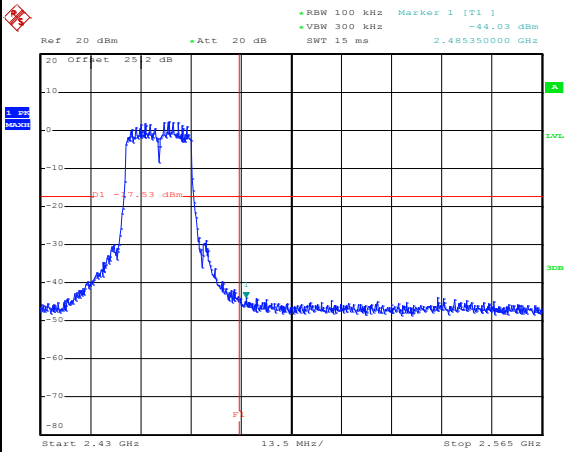
Test Mode :	802.11n HT20	Test Channel :	11

100kHz PSD reference Level



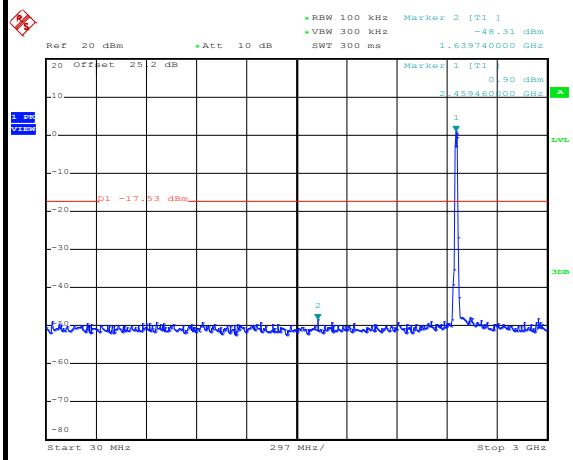
Date: 12.FEB.2018 23:23:26

Channel Plot



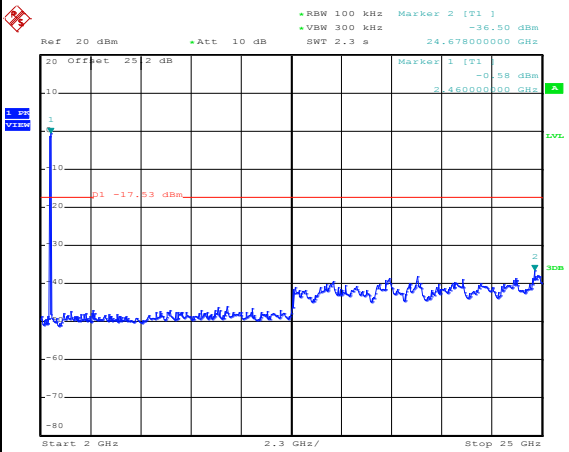
Date: 12.FEB.2018 23:23:44

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 23:24:09

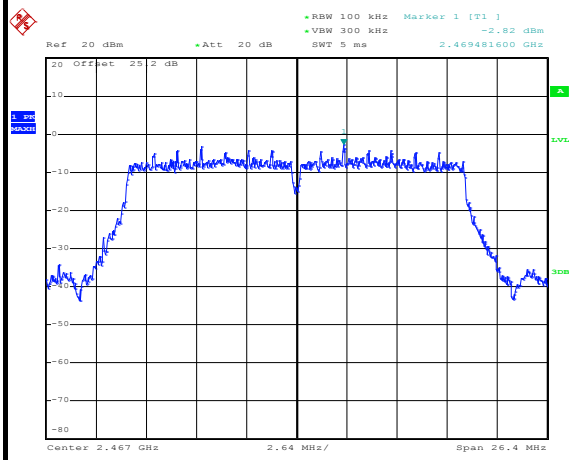
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 23:24:26

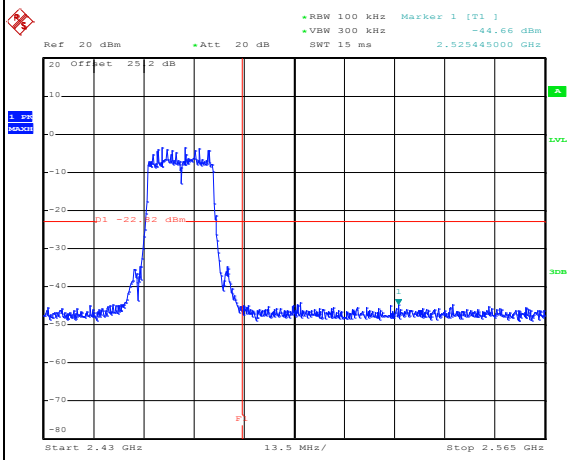
Test Mode :	802.11n HT20	Test Channel :	12

100kHz PSD reference Level



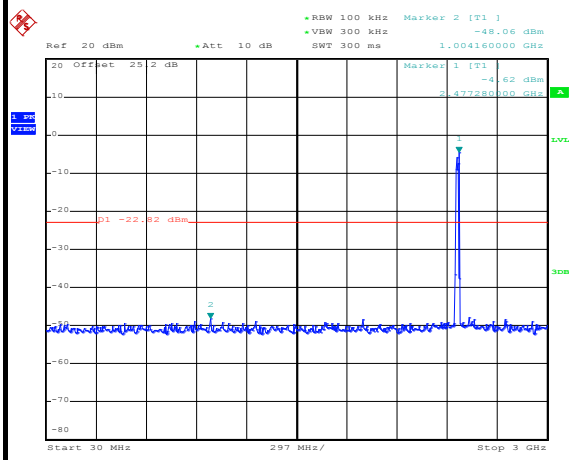
Date: 12.FEB.2018 23:20:18

Channel Plot



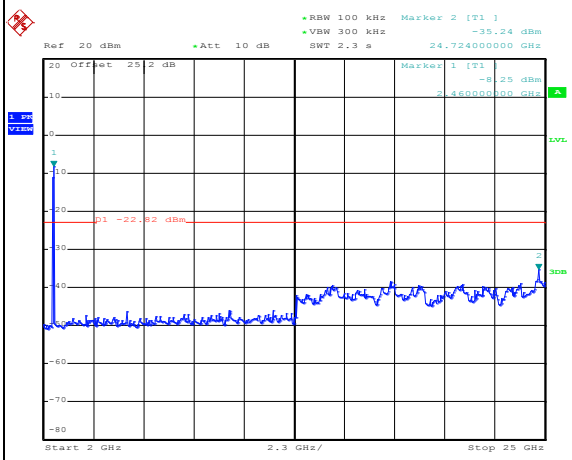
Date: 12.FEB.2018 23:20:39

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 23:21:14

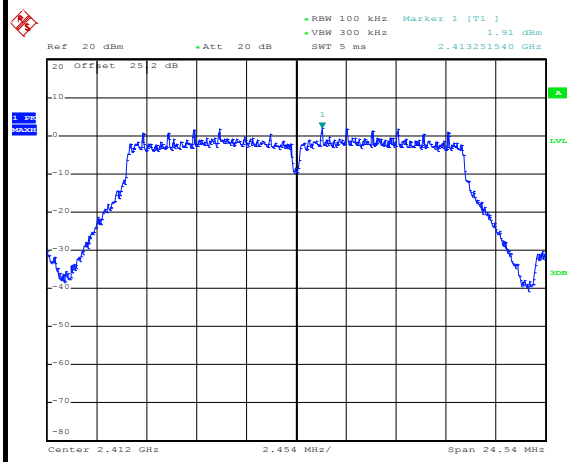
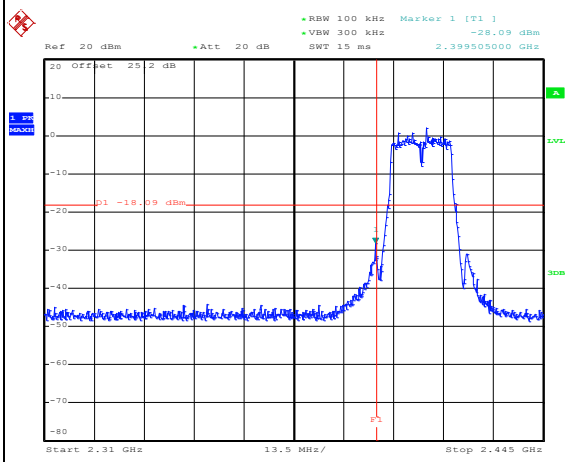
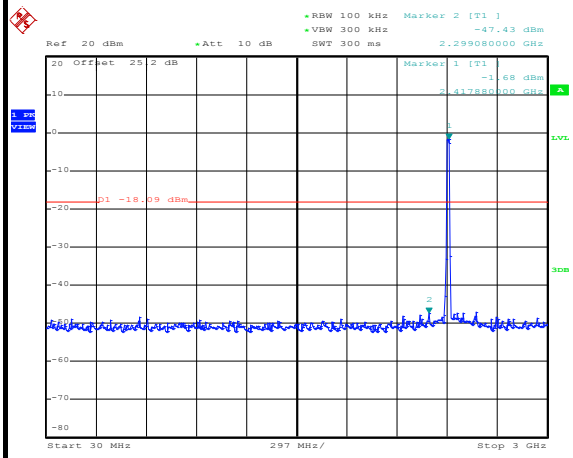
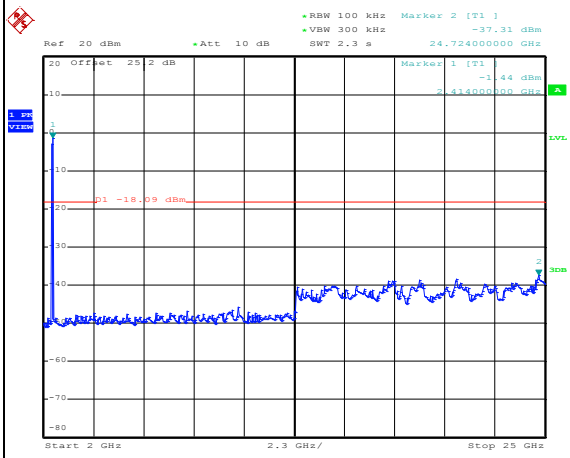
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 23:21:31

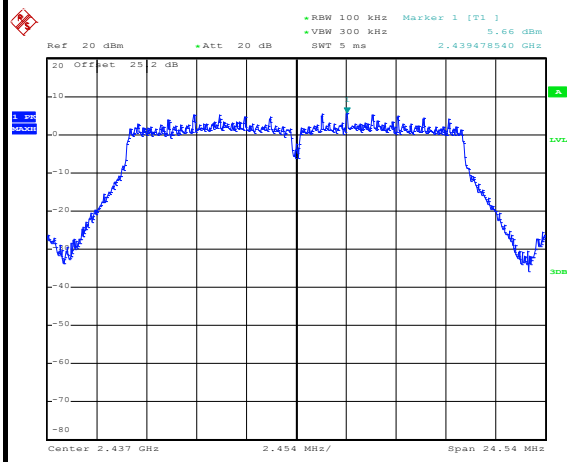
Number of TX = 2, Ant. 1 (Measured)

Test Mode :	802.11g	Test Channel :	01

100kHz PSD reference Level	Channel Plot
	
Date: 12.FEB.2018 21:52:42	Date: 12.FEB.2018 21:52:59
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 12.FEB.2018 21:53:34	Date: 12.FEB.2018 21:53:54

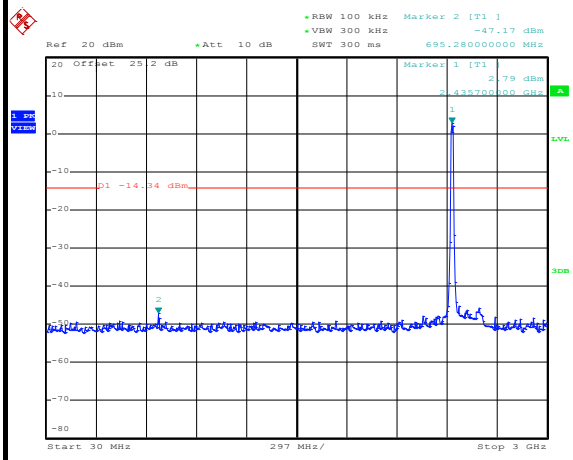
Test Mode :	802.11g	Test Channel :	06

100kHz PSD reference Level



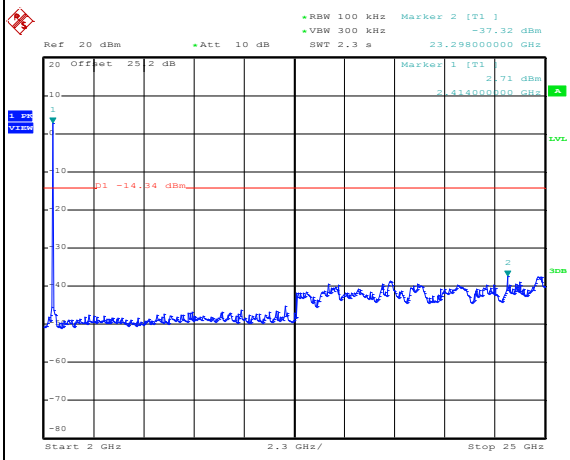
Date: 12.FEB.2018 22:12:43

Spurious Emission 30MHz~3GHz



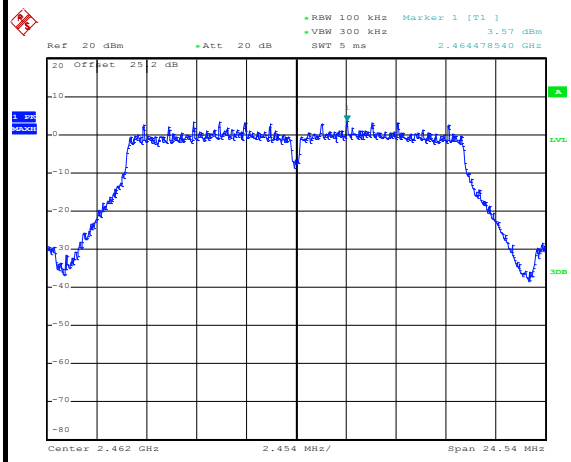
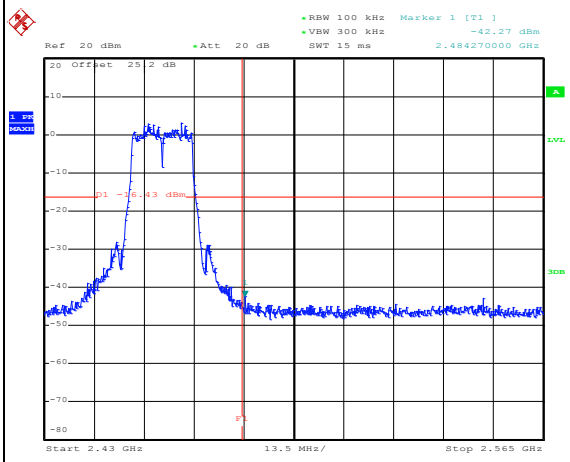
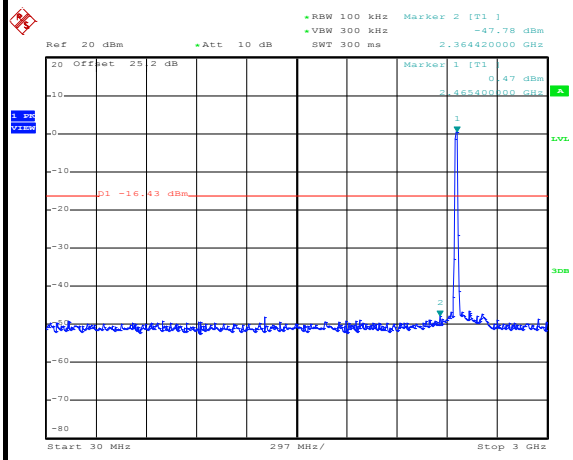
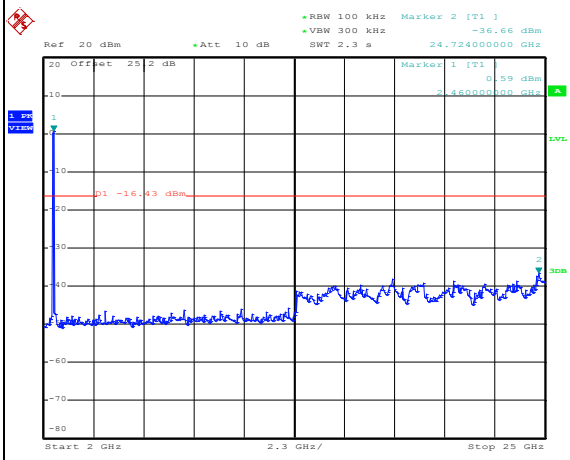
Date: 12.FEB.2018 22:13:05

Spurious Emission 2GHz~25GHz



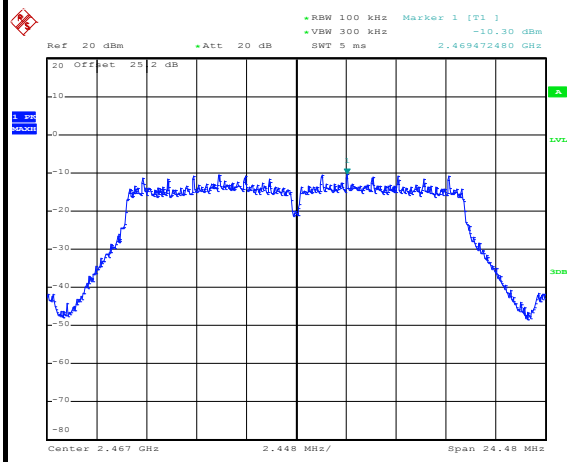
Date: 12.FEB.2018 22:13:23

Test Mode :	802.11g	Test Channel :	11

100kHz PSD reference Level	Channel Plot
	
Date: 12.FEB.2018 22:16:31	Date: 12.FEB.2018 22:16:48
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 12.FEB.2018 22:17:13	Date: 12.FEB.2018 22:17:35

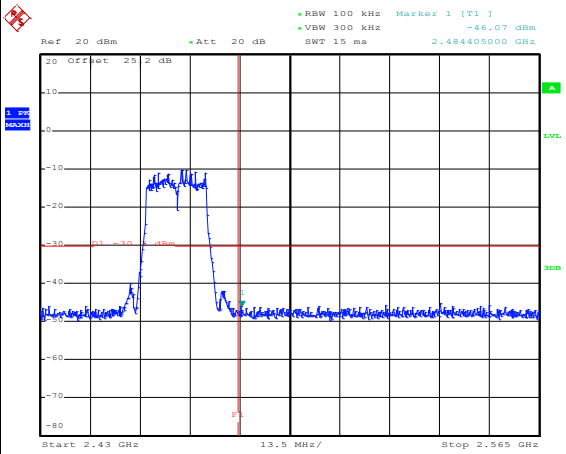
Test Mode :	802.11g	Test Channel :	12

100kHz PSD reference Level



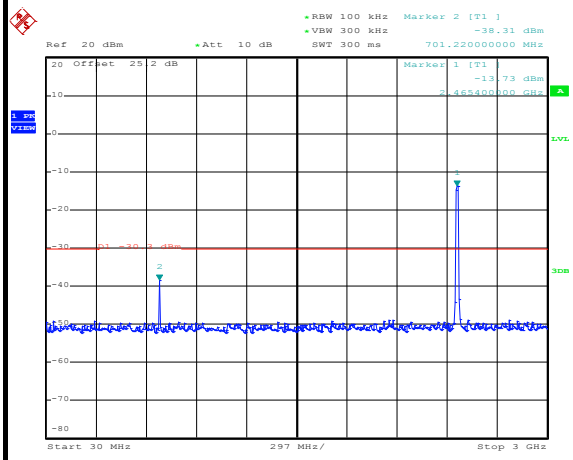
Date: 12.FEB.2018 22:50:02

Channel Plot



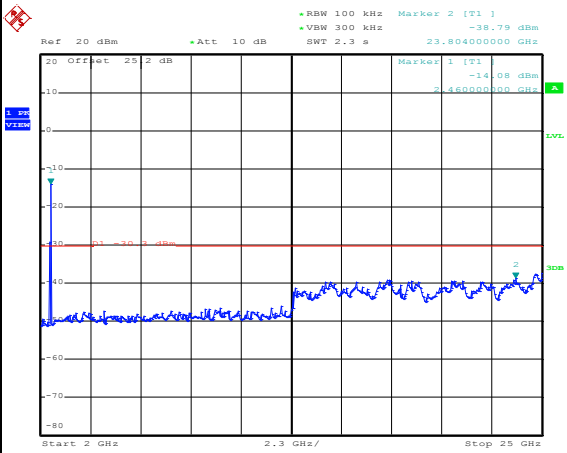
Date: 12.FEB.2018 22:50:52

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 23:00:00

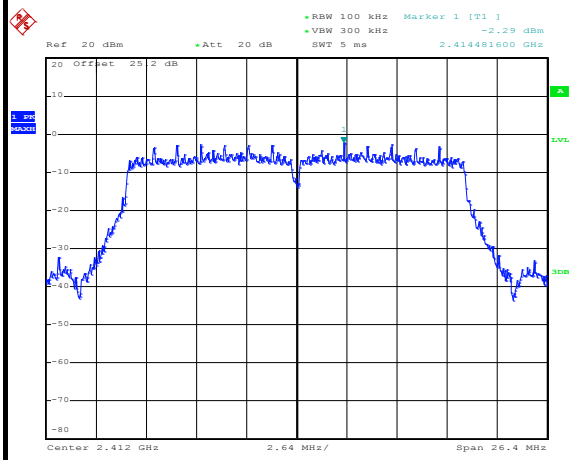
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 23:00:18

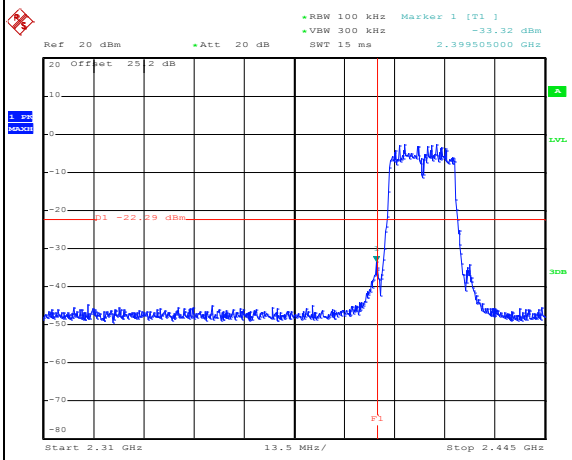
Test Mode :	802.11n HT20	Test Channel :	01

100kHz PSD reference Level



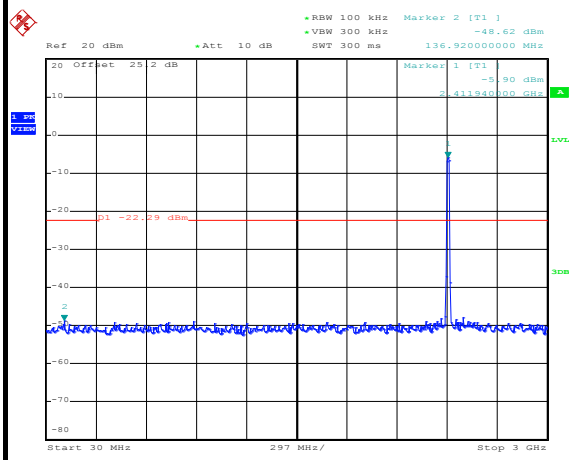
Date: 12.FEB.2018 23:38:31

Channel Plot



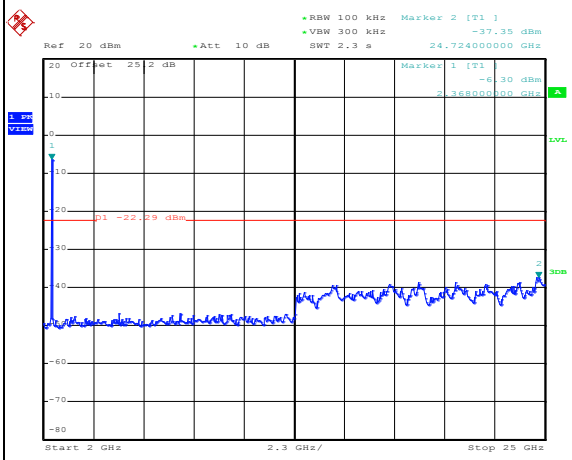
Date: 12.FEB.2018 23:38:54

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 23:39:26

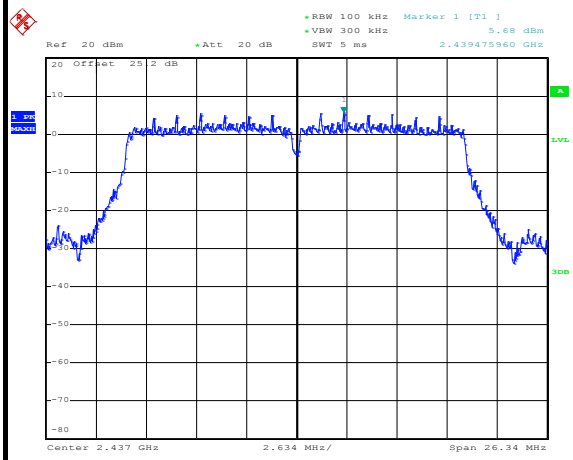
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 23:39:44

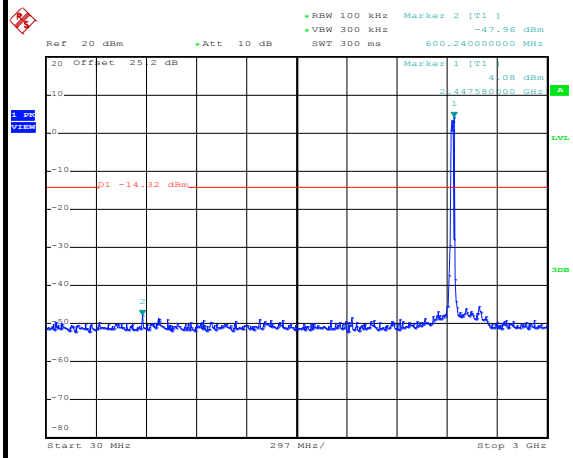
Test Mode :	802.11n HT20	Test Channel :	06

100kHz PSD reference Level



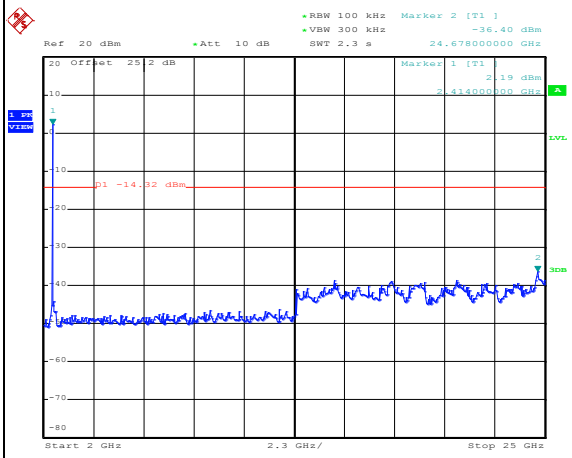
Date: 12.FEB.2018 23:47:11

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 23:50:06

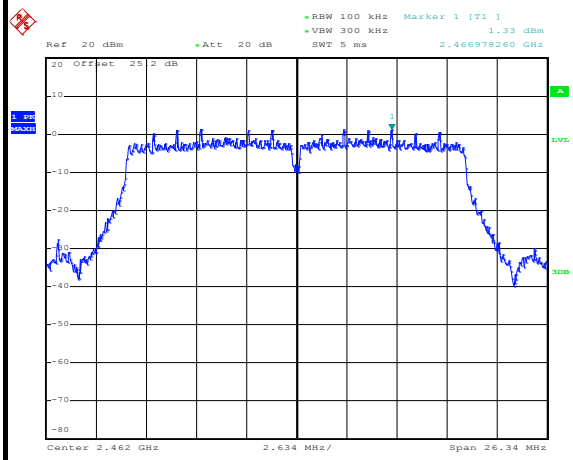
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 23:50:28

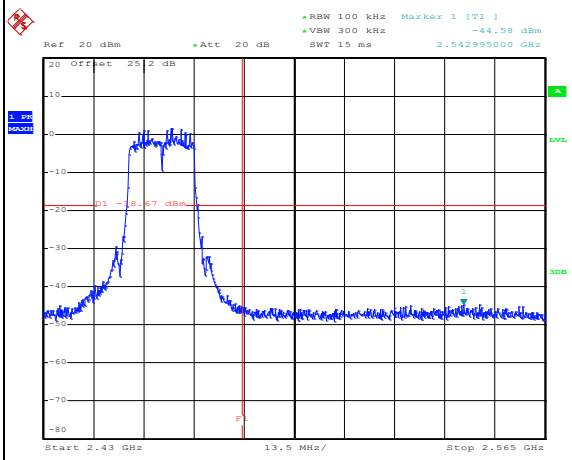
Test Mode :	802.11n HT20	Test Channel :	11

100kHz PSD reference Level



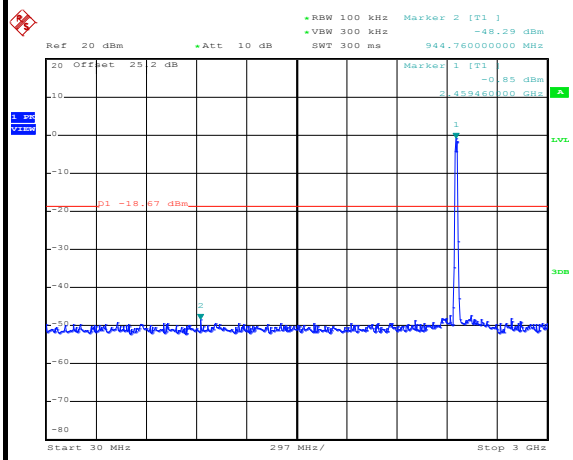
Date: 12.FEB.2018 23:52:40

Channel Plot



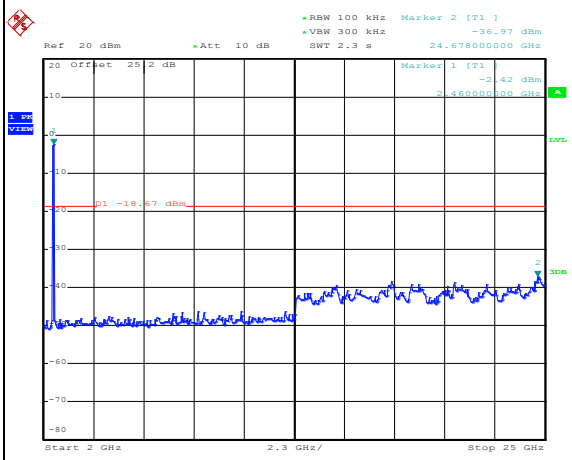
Date: 12.FEB.2018 23:53:47

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 23:53:17

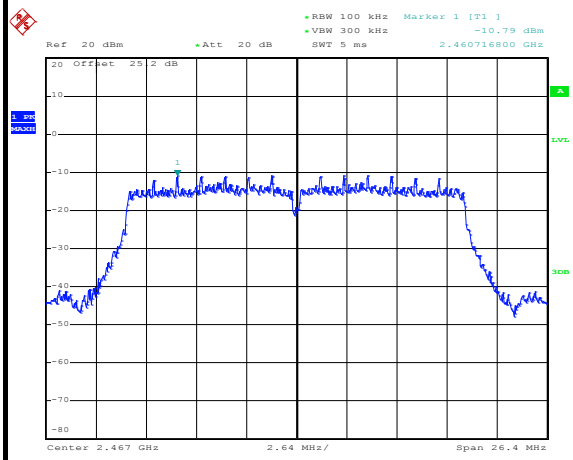
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 23:53:34

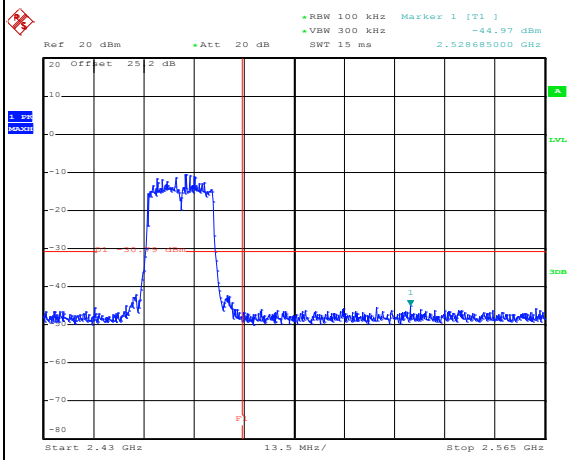
Test Mode :	802.11n HT20	Test Channel :	12

100kHz PSD reference Level



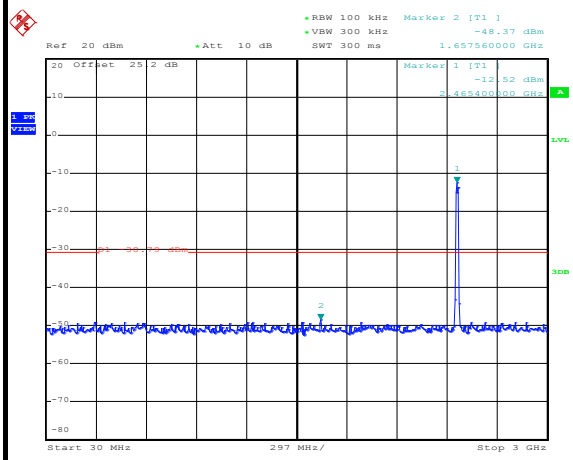
Date: 13.FEB.2018 00:31:26

Channel Plot



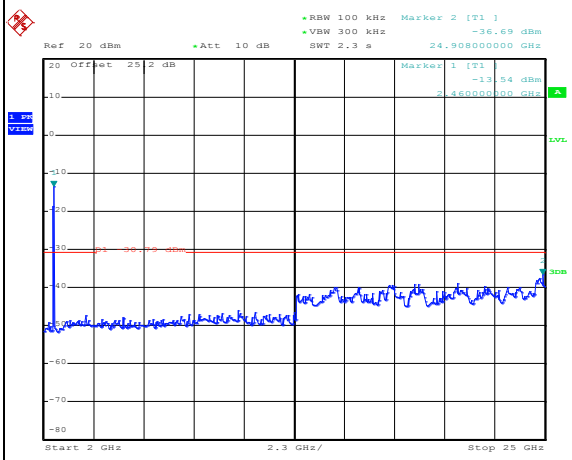
Date: 13.FEB.2018 00:31:43

Spurious Emission 30MHz~3GHz



Date: 13.FEB.2018 00:32:29

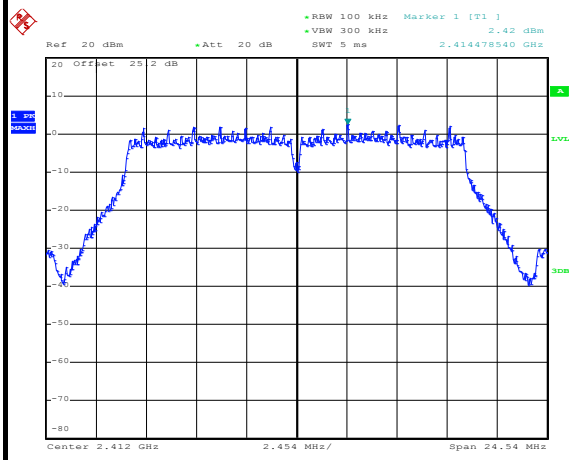
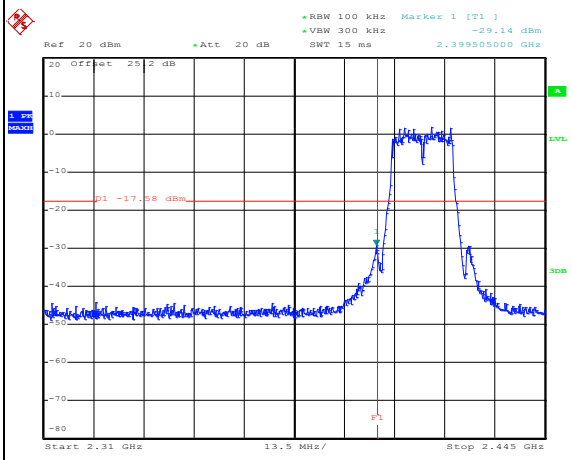
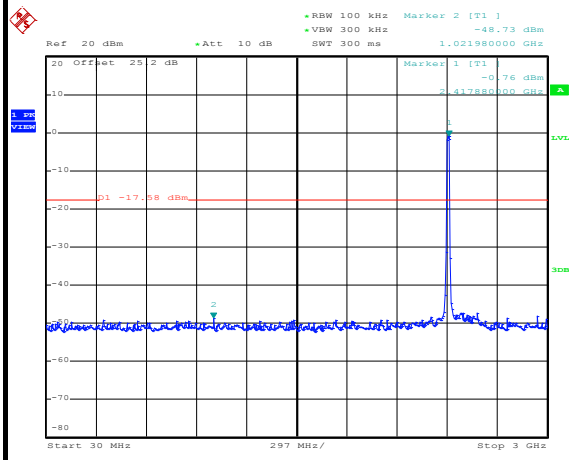
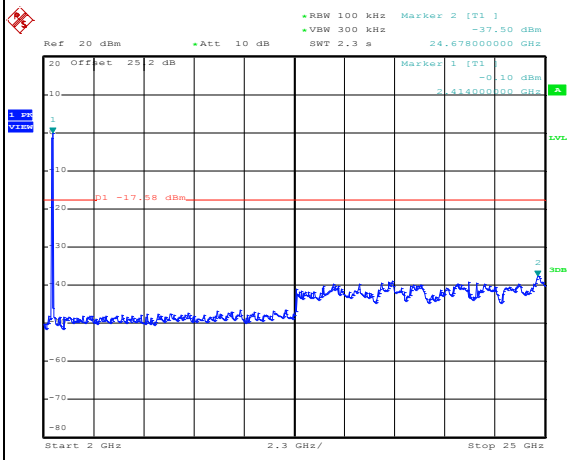
Spurious Emission 2GHz~25GHz



Date: 13.FEB.2018 00:32:59

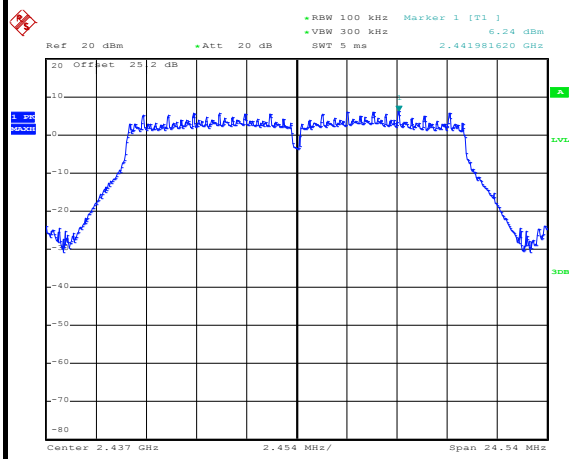
Number of TX = 2, Ant. 2 (Measured)

Test Mode :	802.11g	Test Channel :	01

100kHz PSD reference Level	Channel Plot
	
Date: 12.FEB.2018 21:56:16	Date: 12.FEB.2018 21:56:38
Spurious Emission 30MHz~3GHz	**Spurious Emission 2GHz~25GHz**
	
Date: 12.FEB.2018 21:56:54	Date: 12.FEB.2018 21:57:16

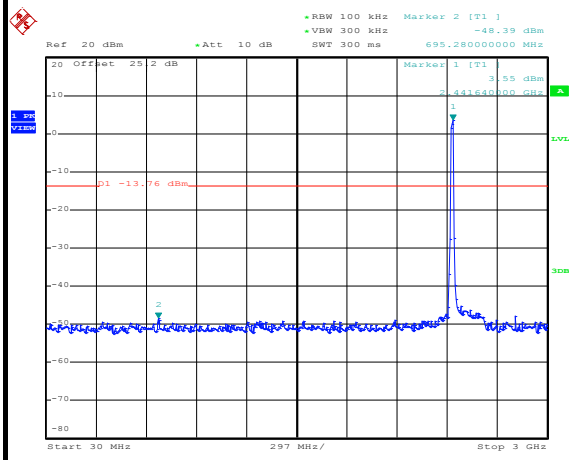
Test Mode :	802.11g	Test Channel :	06

100kHz PSD reference Level



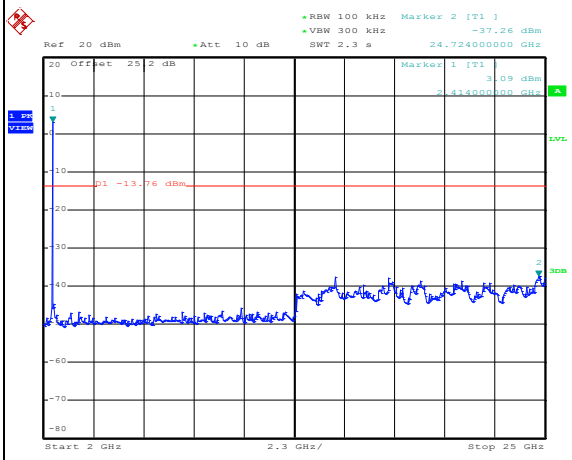
Date: 12.FEB.2018 22:10:00

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 22:11:02

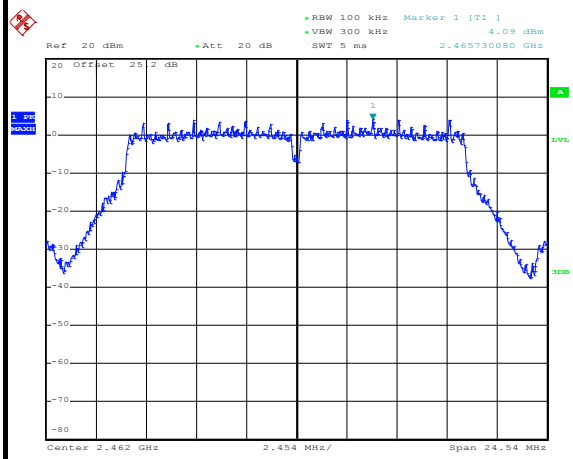
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 22:11:19

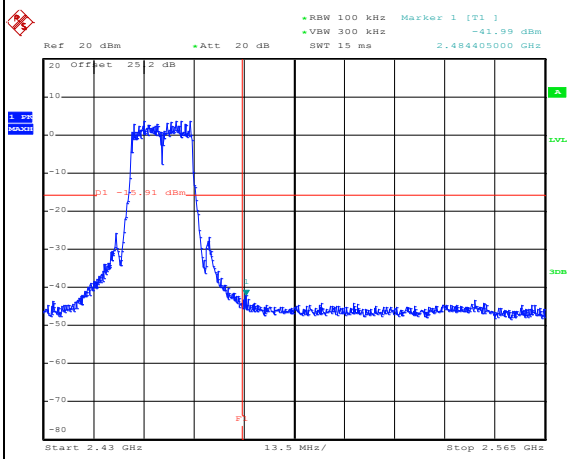
Test Mode :	802.11g	Test Channel :	11

100kHz PSD reference Level



Date: 12.FEB.2018 22:20:08

Channel Plot



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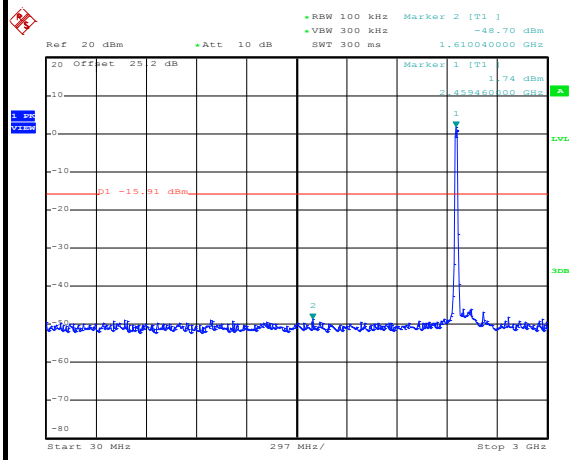
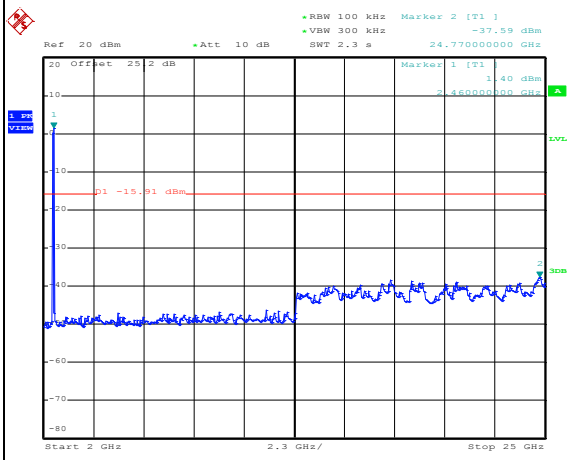
Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 22:31:00

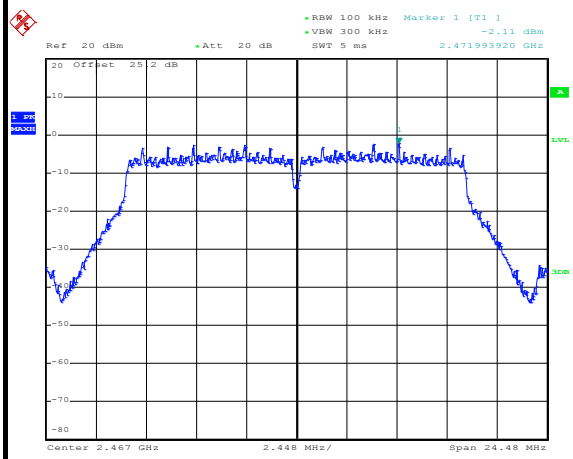
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 22:31:23

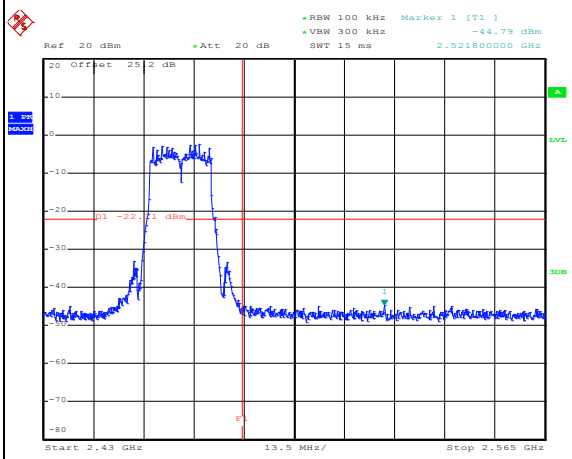
Test Mode :	802.11g	Test Channel :	12

100kHz PSD reference Level



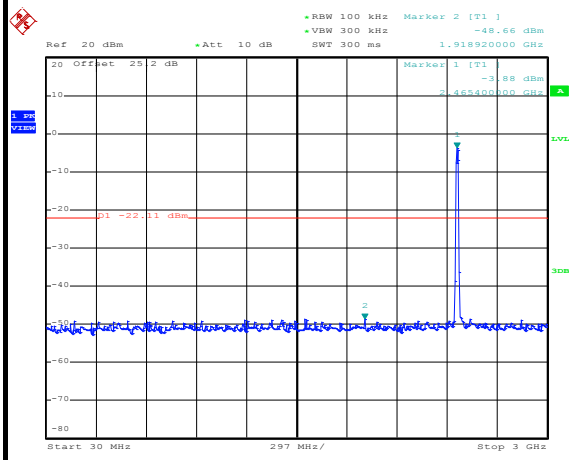
Date: 12.FEB.2018 22:45:38

Channel Plot



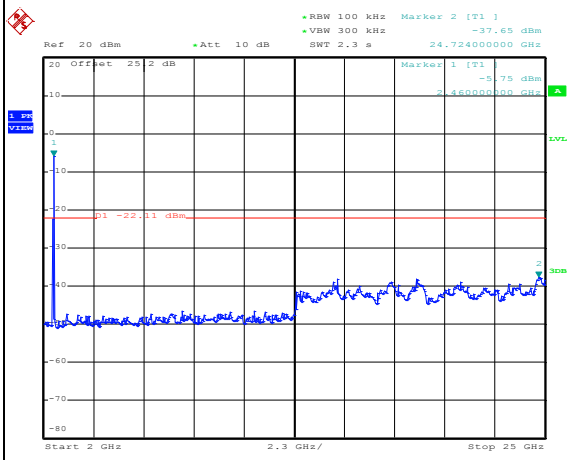
Date: 12.FEB.2018 22:46:04

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 22:46:39

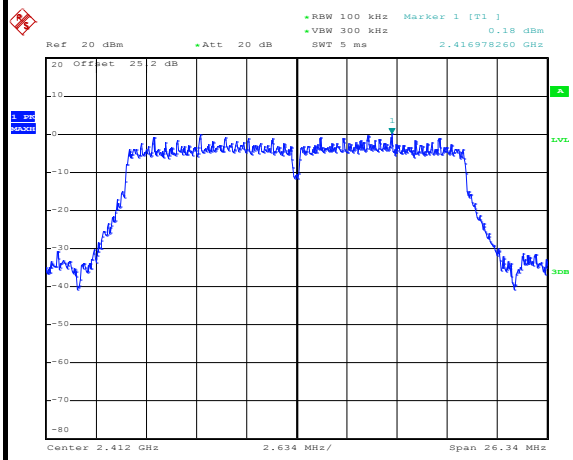
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 22:47:03

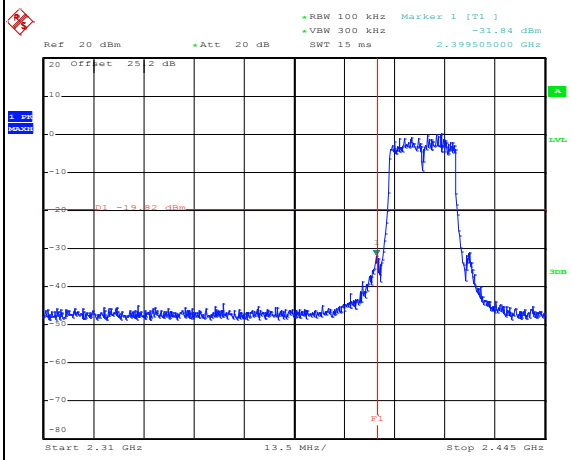
Test Mode :	02.11n HT20	Test Channel :	01

100kHz PSD reference Level



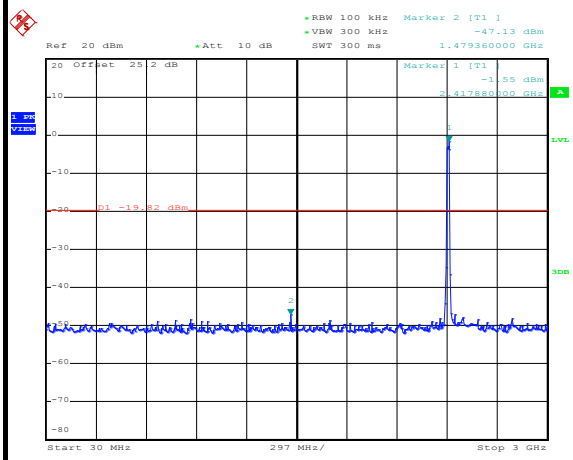
Date: 12.FEB.2018 23:41:21

Channel Plot



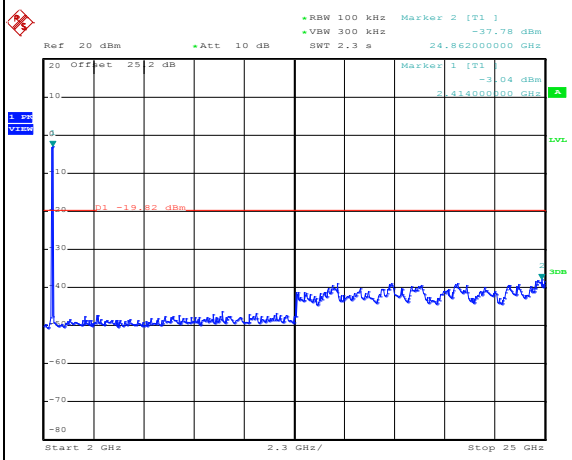
Date: 12.FEB.2018 23:41:38

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 23:41:54

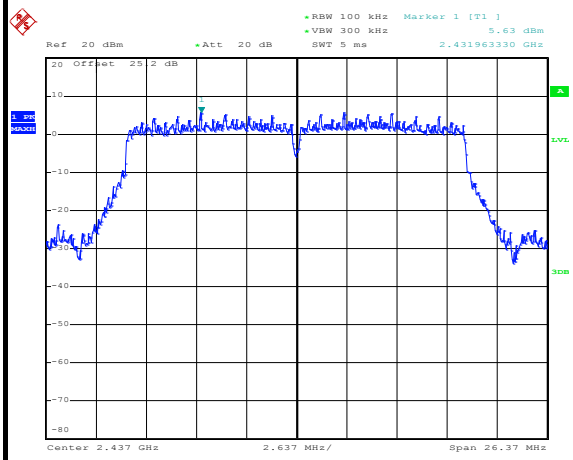
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 23:42:12

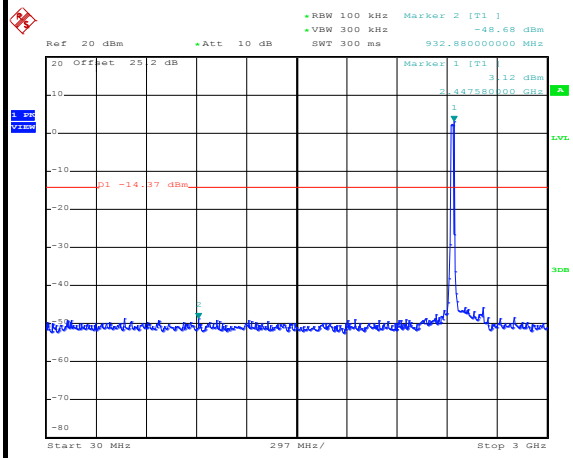
Test Mode :	02.11n HT20	Test Channel :	06

100kHz PSD reference Level



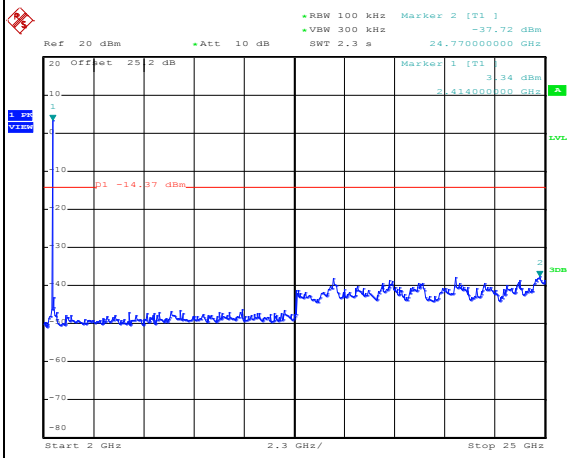
Date: 12.FEB.2018 23:44:12

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 23:44:56

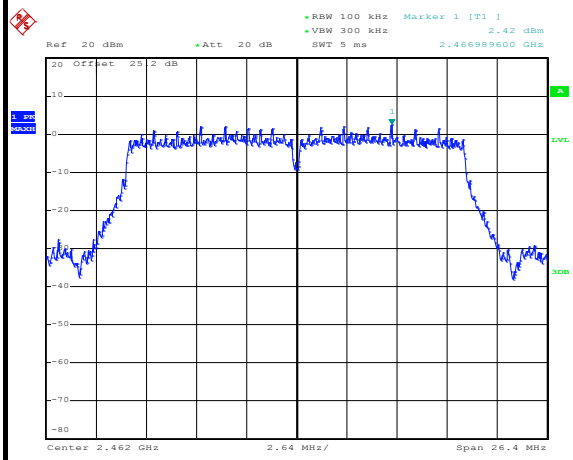
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 23:45:12

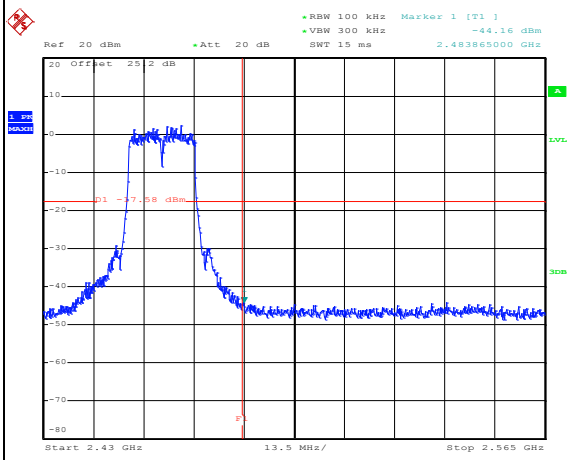
Test Mode :	02.11n HT20	Test Channel :	11

100kHz PSD reference Level



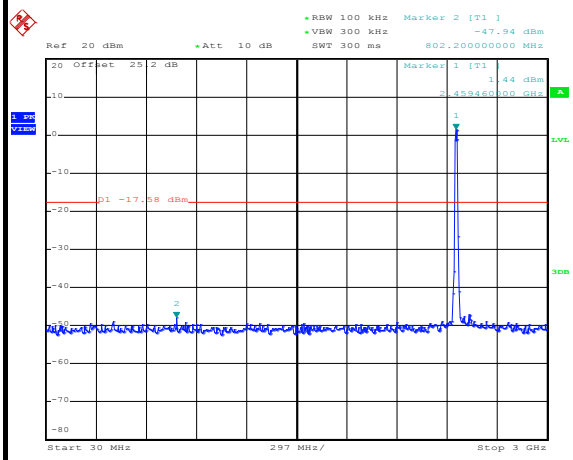
Date: 12.FEB.2018 23:55:19

Channel Plot



Date: 12.FEB.2018 23:55:38

Spurious Emission 30MHz~3GHz



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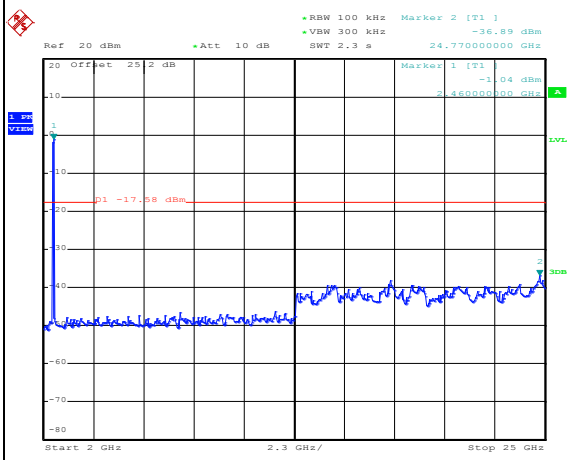
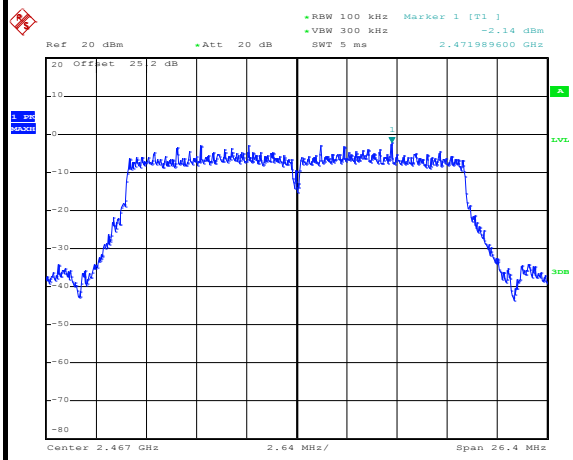
Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 23:56:16

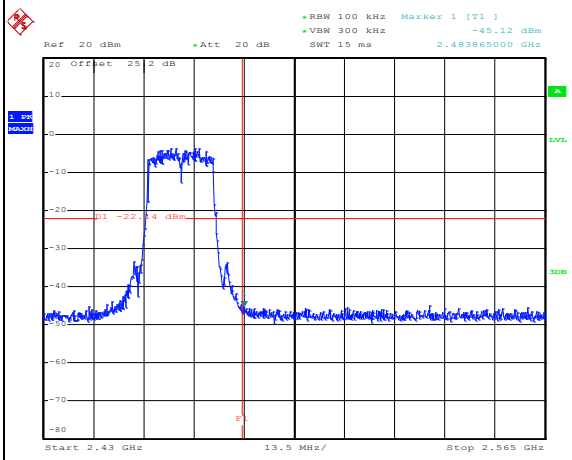
Test Mode :	02.11n HT20	Test Channel :	12

100kHz PSD reference Level



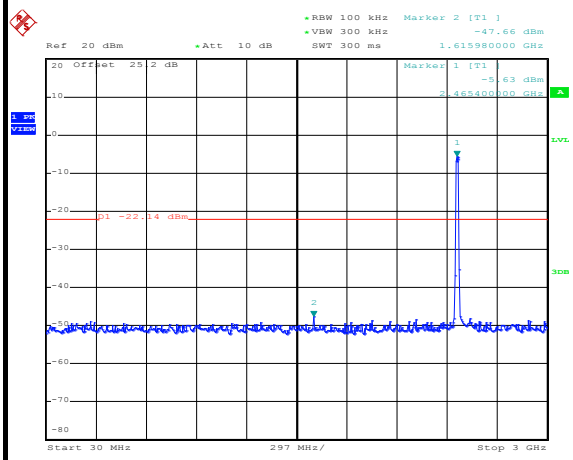
Date: 12.FEB.2018 23:58:41

Channel Plot



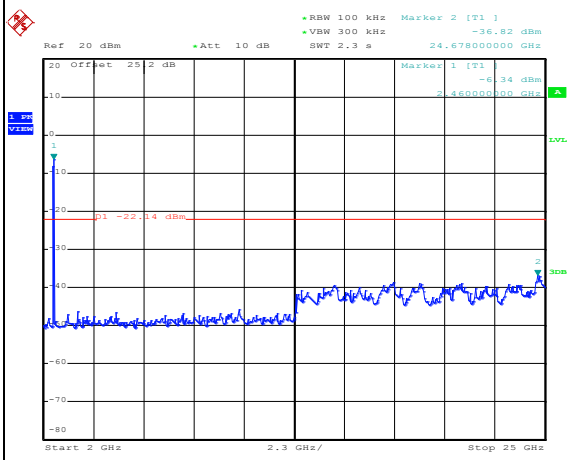
Date: 12.FEB.2018 23:58:59

Spurious Emission 30MHz~3GHz



Date: 12.FEB.2018 23:59:21

Spurious Emission 2GHz~25GHz



Date: 12.FEB.2018 23:59:38

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency (MHz)	Field Strength (microvolts/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

3.5.2 Measuring Instruments

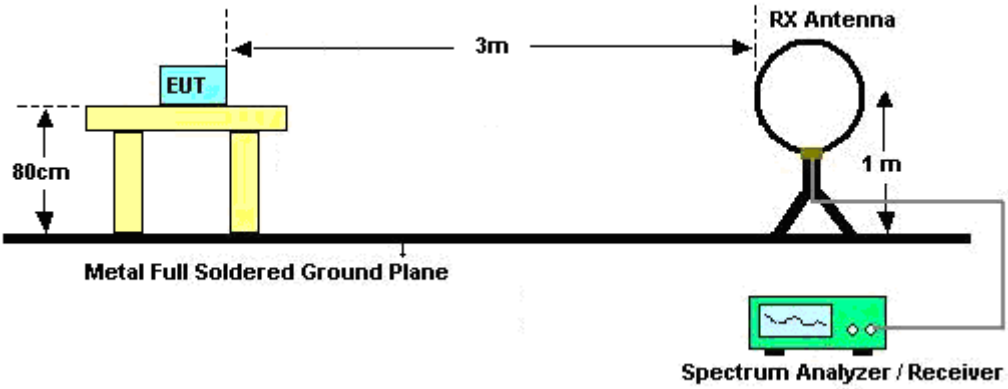
The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

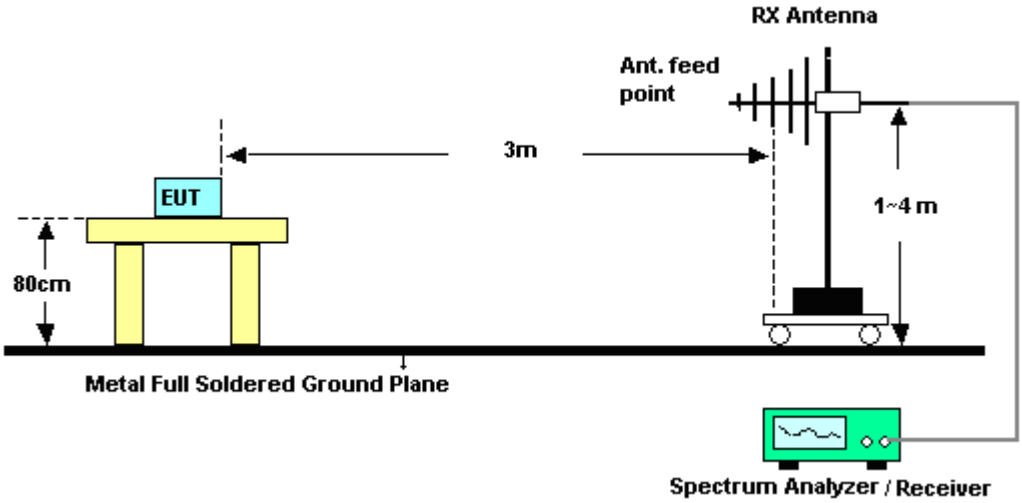
1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
8. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
   (3) Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement.
   For average measurement:
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.5.4 Test Setup

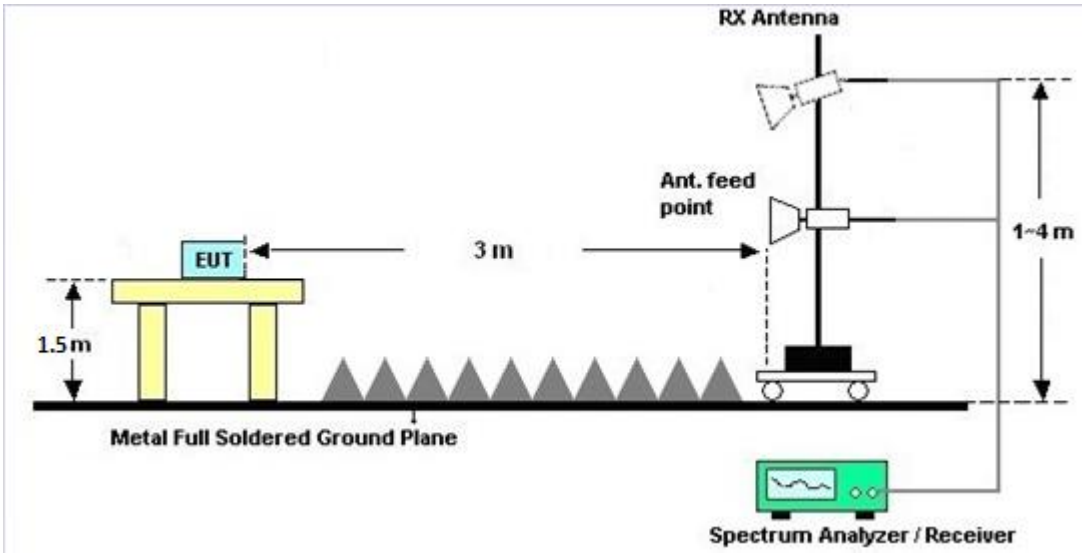
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.5.5 Test Results of Radiated Spurious Emissions (9kHz ~ 30MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C and D.

3.5.7 Duty Cycle

Please refer to Appendix E.

3.5.8 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic)

Please refer to Appendix C and D.

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

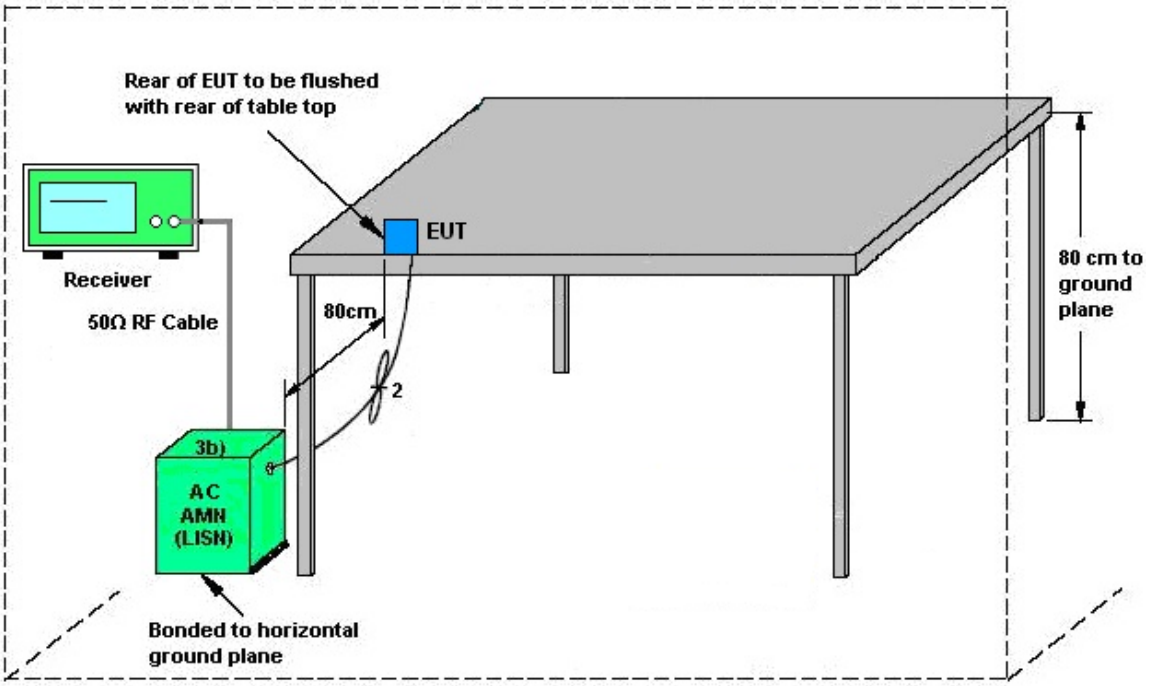
3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.6.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF bandwidth = 9kHz) with Maximum Hold Mode.

3.6.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.7 Antenna Requirements

3.7.1 Standard Applicable

If directional gain of transmitting Antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. 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 rule.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = 10 log(N_{ANT}/N_{SS}=1) dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$.

Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain G_{ANT} is set equal to the antenna having the highest gain, i.e., F)2)f)i).

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain “DG” is calculated as following table.

<CDD Modes>

	Ant. 1 (dBi)	Ant. 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
2.4 GHz	4.20	6.10	6.10	8.21	0.10	2.21

Power Limit Reduction = DG(Power) – 6dBi, (min = 0)

PSD Limit Reduction = DG(PSD) – 6dBi, (min = 0)

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Power Meter	Anritsu	ML2495A	1132003	N/A	Aug. 09, 2017	Jan. 22, 2018 ~ Feb. 14, 2018	Aug. 08, 2018	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1126017	300MHz~40GHz	Aug. 09, 2017	Jan. 22, 2018 ~ Feb. 14, 2018	Aug. 08, 2018	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101067	9kHz ~ 30GHz	Nov. 13, 2017	Jan. 22, 2018 ~ Feb. 14, 2018	Nov. 12, 2018	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Dec. 19, 2017	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Sep. 20, 2017	Dec. 19, 2017	Sep. 19, 2018	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 30, 2017	Dec. 19, 2017	Nov. 29, 2018	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Dec. 08, 2017	Dec. 19, 2017	Dec. 07, 2018	Conduction (CO05-HY)
Amplifier	SONOMA	310N	187311	9kHz~1GHz	Oct. 19, 2017	Feb. 03, 2018 ~ Feb. 08, 2018	Oct. 18, 2018	Radiation (03CH10-HY)
Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz, VSWR : 2.5:1 max	Jul. 18, 2017	Feb. 03, 2018 ~ Feb. 08, 2018	Jul. 17, 2018	Radiation (03CH10-HY)
Bilog Antenna	TESEQ	CBL 6111D&00800N1D01N-06	35413&02	30MHz~1GHz	Dec. 18, 2017	Feb. 03, 2018 ~ Feb. 08, 2018	Dec. 17, 2018	Radiation (03CH10-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1325	1GHz ~ 18GHz	Sep. 27, 2017	Feb. 03, 2018 ~ Feb. 08, 2018	Sep. 26, 2018	Radiation (03CH10-HY)
Preamplifier	Keysight	83017A	MY53270078	1GHz~26.5GHz	Oct. 25, 2017	Feb. 03, 2018 ~ Feb. 08, 2018	Oct. 24, 2018	Radiation (03CH10-HY)
Preamplifier	Jet-Power	JAP00101800-30-10P	160118550004	1GHz~18GHz	Apr. 13, 2017	Feb. 03, 2018 ~ Feb. 08, 2018	Apr. 12, 2018	Radiation (03CH10-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200485	10Hz ~ 44GHz	Oct. 31, 2017	Feb. 03, 2018 ~ Feb. 08, 2018	Oct. 30, 2018	Radiation (03CH10-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Feb. 03, 2018 ~ Feb. 08, 2018	N/A	Radiation (03CH10-HY)
Turn Table	EMEC	TT 2200	N/A	0~360 Degree	N/A	Feb. 03, 2018 ~ Feb. 08, 2018	N/A	Radiation (03CH10-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Nov. 23, 2017	Feb. 03, 2018 ~ Feb. 08, 2018	Nov. 22, 2019	Radiation (03CH10-HY)
EMI Test Receiver	Agilent	N9038A(MXE)	MY53290053	20Hz to 26.5GHz	Jan. 16, 2018	Feb. 03, 2018 ~ Feb. 08, 2018	Jan. 15, 2019	Radiation (03CH10-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170584	18GHz- 40GHz	Nov. 27, 2017	Feb. 03, 2018 ~ Feb. 08, 2018	Nov. 26, 2018	Radiation (03CH10-HY)

5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.70

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.60

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.90

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.20

Appendix A. Conducted Test Results

Test Engineer:	Kai Liao	Temperature:	21~25	°C
Test Date:	2018/1/22 ~ 2018/2/14	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					Ant 1	Ant 2	Ant 1	Ant 2		
11b	1Mbps	1	1	2412	11.15	-	8.00	-	0.50	Pass
11b	1Mbps	1	6	2437	11.15	-	8.08	-	0.50	Pass
11b	1Mbps	1	11	2462	11.10	-	8.04	-	0.50	Pass
11g	6Mbps	1	1	2412	18.05	17.80	16.36	16.32	0.50	Pass
11g	6Mbps	1	6	2437	18.30	17.95	16.32	16.36	0.50	Pass
11g	6Mbps	1	11	2462	18.00	17.75	16.36	16.36	0.50	Pass
HT20	MCS0	1	1	2412	18.80	18.50	17.59	17.60	0.50	Pass
HT20	MCS0	1	6	2437	18.90	18.60	17.56	17.56	0.50	Pass
HT20	MCS0	1	11	2462	18.60	18.60	17.56	17.56	0.50	Pass
11g	6Mbps	2	1	2412	17.80	17.75	16.36	16.36	0.50	Pass
11g	6Mbps	2	6	2437	17.85	17.85	16.36	16.36	0.50	Pass
11g	6Mbps	2	11	2462	17.85	17.90	16.36	16.36	0.50	Pass
HT20	MCS0	2	1	2412	18.70	18.55	17.60	17.56	0.50	Pass
HT20	MCS0	2	6	2437	18.70	18.60	17.56	17.58	0.50	Pass
HT20	MCS0	2	11	2462	18.60	18.60	17.56	17.60	0.50	Pass

Report Number : FR741112-01A

TEST RESULTS DATA
Peak Output Power

2.4GHz Band																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					Ant 1	Ant 2	SUM	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	Ant 1	Ant 2	
11b	1Mbps	1	1	2412	23.78	-	-	30.00	-	4.20	-	27.98	-	36.00	-	Pass
11b	1Mbps	1	6	2437	24.26	-		30.00	-	4.20	-	28.46	-	36.00	-	Pass
11b	1Mbps	1	11	2462	23.48	-		30.00	-	4.20	-	27.68	-	36.00	-	Pass
11g	6Mbps	1	1	2412	25.04	24.12		30.00	29.90	4.20	6.10	29.24	30.22	36.00	36.00	Pass
11g	6Mbps	1	2	2417	27.06	27.20		30.00	29.90	4.20	6.10	31.26	33.30	36.00	36.00	Pass
11g	6Mbps	1	3	2422	27.61	-		30.00	-	4.20	-	31.81	-	36.00	-	Pass
11g	6Mbps	1	6	2437	27.81	27.77		30.00	29.90	4.20	6.10	32.01	33.87	36.00	36.00	Pass
11g	6Mbps	1	9	2452	27.62	-		30.00	-	4.20	-	31.82	-	36.00	-	Pass
11g	6Mbps	1	10	2457	26.25	26.10		30.00	29.90	4.20	6.10	30.45	32.20	36.00	36.00	Pass
11g	6Mbps	1	11	2462	25.21	24.95		30.00	29.90	4.20	6.10	29.41	31.05	36.00	36.00	Pass
HT20	MCS0	1	1	2412	24.78	23.45		30.00	29.90	4.20	6.10	28.98	29.55	36.00	36.00	Pass
HT20	MCS0	1	2	2417	26.94	27.08		30.00	29.90	4.20	6.10	31.14	33.18	36.00	36.00	Pass
HT20	MCS0	1	3	2422	27.01	-		30.00	-	4.20	-	31.21	-	36.00	-	Pass
HT20	MCS0	1	6	2437	27.74	27.12		30.00	29.90	4.20	6.10	31.94	33.22	36.00	36.00	Pass
HT20	MCS0	1	9	2452	27.04	-		30.00	-	4.20	-	31.24	-	36.00	-	Pass
HT20	MCS0	1	10	2457	26.04	27.09		30.00	29.90	4.20	6.10	30.24	33.19	36.00	36.00	Pass
HT20	MCS0	1	11	2462	24.29	24.75		30.00	29.90	4.20	6.10	28.49	30.85	36.00	36.00	Pass
11g	6Mbps	2	1	2412	24.18	25.00	27.62	29.90		6.10		33.72		36.00		Pass
11g	6Mbps	2	2	2417	26.38	26.79	29.60	29.90		6.10		35.70		36.00		Pass
11g	6Mbps	2	6	2437	26.81	26.91	29.87	29.90		6.10		35.97		36.00		Pass
11g	6Mbps	2	10	2457	26.56	26.67	29.63	29.90		6.10		35.73		36.00		Pass
11g	6Mbps	2	11	2462	24.74	25.97	28.41	29.90		6.10		34.51		36.00		Pass
HT20	MCS0	2	1	2412	19.74	22.77	24.52	29.90		6.10		30.62		36.00		Pass
HT20	MCS0	2	2	2417	26.15	26.12	29.15	29.90		6.10		35.25		36.00		Pass
HT20	MCS0	2	6	2437	26.81	26.91	29.87	29.90		6.10		35.97		36.00		Pass
HT20	MCS0	2	10	2457	26.03	26.12	29.09	29.90		6.10		35.19		36.00		Pass
HT20	MCS0	2	11	2462	23.88	24.64	27.29	29.90		6.10		33.39		36.00		Pass

TEST RESULTS DATA
Average Output Power

2.4GHz Band									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)		
					Ant 1	Ant 2	Ant 1	Ant 2	SUM
11b	1Mbps	1	1	2412	0.04	-	20.15	-	-
11b	1Mbps	1	6	2437	0.04	-	20.61	-	
11b	1Mbps	1	11	2462	0.04	-	19.61	-	
11g	6Mbps	1	1	2412	0.30	0.35	15.13	14.26	
11g	6Mbps	1	2	2417	0.30	0.35	18.35	17.66	
11g	6Mbps	1	3	2422	0.30	0.35	19.50	-	
11g	6Mbps	1	6	2437	0.30	0.35	20.87	19.23	
11g	6Mbps	1	9	2452	0.30	0.35	19.49	-	
11g	6Mbps	1	10	2457	0.30	0.35	17.34	17.41	
11g	6Mbps	1	11	2462	0.30	0.35	15.16	14.44	
HT20	MCS0	1	1	2412	0.32	0.38	14.19	12.98	
HT20	MCS0	1	2	2417	0.32	0.38	17.97	17.35	
HT20	MCS0	1	3	2422	0.32	0.38	18.66	-	
HT20	MCS0	1	6	2437	0.32	0.38	20.54	18.97	
HT20	MCS0	1	9	2452	0.32	0.38	18.36	-	
HT20	MCS0	1	10	2457	0.32	0.38	16.75	17.39	
HT20	MCS0	1	11	2462	0.32	0.38	15.07	14.65	
11g	6Mbps	2	1	2412	0.35	0.30	13.39	14.26	16.86
11g	6Mbps	2	2	2417	0.35	0.30	17.12	17.06	20.10
11g	6Mbps	2	6	2437	0.35	0.30	17.35	17.65	20.51
11g	6Mbps	2	10	2457	0.35	0.30	17.32	17.36	20.35
11g	6Mbps	2	11	2462	0.35	0.30	15.22	15.97	18.62
HT20	MCS0	2	1	2412	0.38	0.35	9.59	11.91	13.91
HT20	MCS0	2	2	2417	0.38	0.35	16.62	16.63	19.64
HT20	MCS0	2	6	2437	0.38	0.35	17.42	17.89	20.67
HT20	MCS0	2	10	2457	0.38	0.35	16.45	16.51	19.49
HT20	MCS0	2	11	2462	0.38	0.35	13.02	14.20	16.66

TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
					Ant 1	Ant 2	Worse + 3.01	Ant 1	Ant 2	Ant 1	Ant 2	
11b	1Mbps	1	1	2412	-2.57	-	-	4.20	6.10	8.00	7.90	Pass
11b	1Mbps	1	6	2437	-2.33	-		4.20	6.10	8.00	7.90	Pass
11b	1Mbps	1	11	2462	-1.83	-		4.20	6.10	8.00	7.90	Pass
11g	6Mbps	1	1	2412	-10.43	-12.21		4.20	6.10	8.00	7.90	Pass
11g	6Mbps	1	6	2437	-4.24	-6.18		4.20	6.10	8.00	7.90	Pass
11g	6Mbps	1	11	2462	-9.82	-11.50		4.20	6.10	8.00	7.90	Pass
HT20	MCS0	1	1	2412	-11.39	-12.60		4.20	6.10	8.00	7.90	Pass
HT20	MCS0	1	6	2437	-5.05	-6.18		4.20	6.10	8.00	7.90	Pass
HT20	MCS0	1	11	2462	-10.46	-11.36		4.20	6.10	8.00	7.90	Pass
11g	6Mbps	2	1	2412	-11.97	-10.99	-7.98	8.21		5.79		Pass
11g	6Mbps	2	6	2437	-8.58	-6.40	-3.39	8.21		5.79		Pass
11g	6Mbps	2	11	2462	-10.50	-9.22	-6.21	8.21		5.79		Pass
HT20	MCS0	2	1	2412	-15.59	-14.22	-11.21	8.21		5.79		Pass
HT20	MCS0	2	6	2437	-8.65	-6.84	-3.83	8.21		5.79		Pass
HT20	MCS0	2	11	2462	-11.36	-12.43	-8.35	8.21		5.79		Pass

Measured power density (dBm) has offset with cable loss.

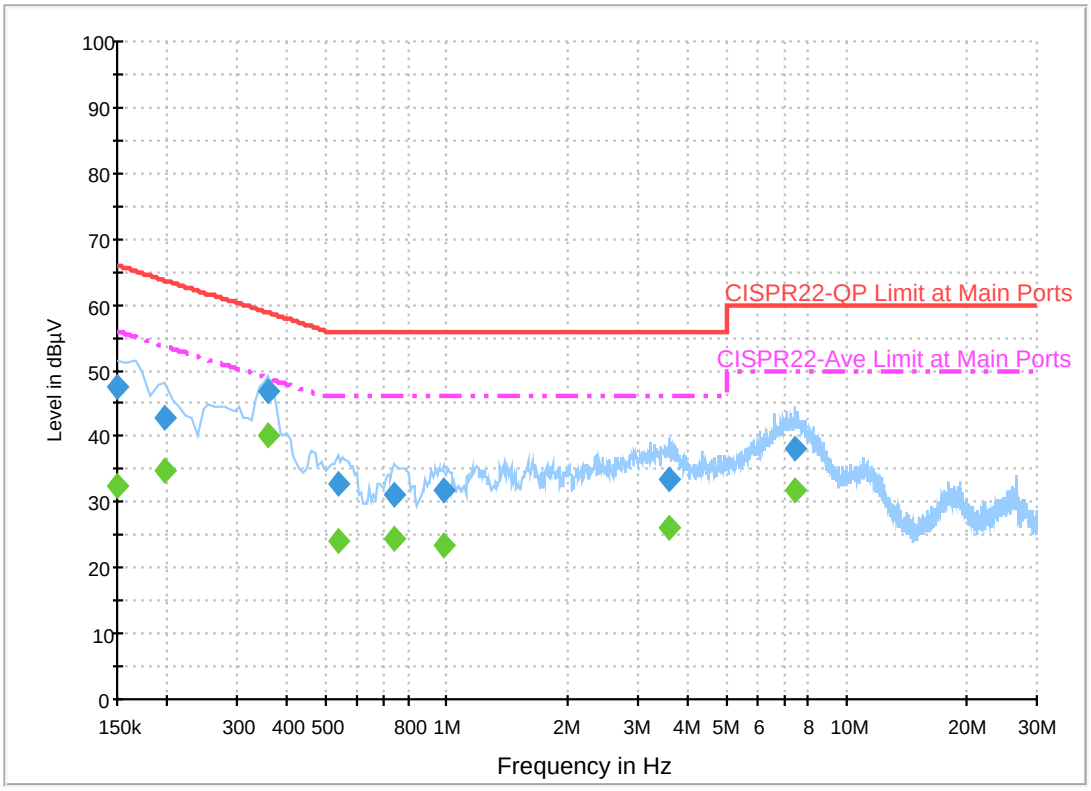
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Shareef Yu	**Temperature :**	21~25℃
		Relative Humidity :	51~55%

EUT Information

Report NO :	741112-01
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Line

ENV216 Auto Test-L



Final Result 1

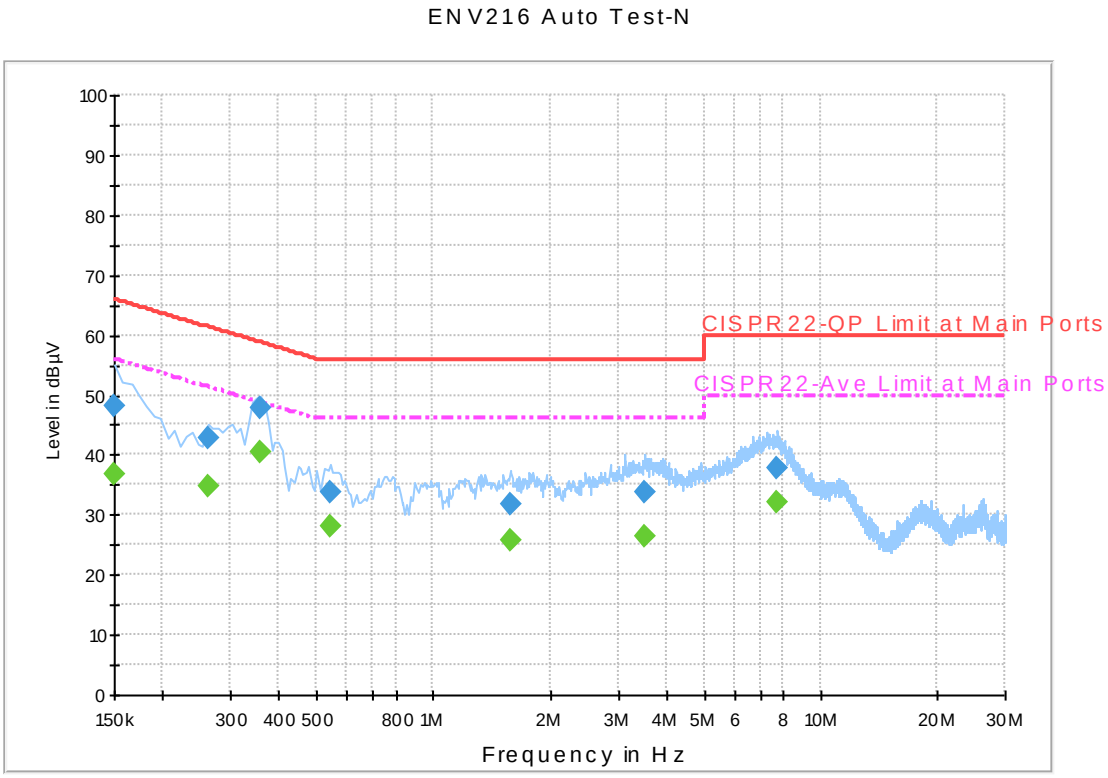
Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	47.4	Off	L1	19.6	18.6	66.0
0.198000	42.7	Off	L1	19.5	21.0	63.7
0.358000	46.7	Off	L1	19.5	12.1	58.8
0.534000	32.7	Off	L1	19.5	23.3	56.0
0.742000	31.0	Off	L1	19.5	25.0	56.0
0.982000	31.7	Off	L1	19.5	24.3	56.0
3.614000	33.3	Off	L1	19.6	22.7	56.0
7.486000	38.0	Off	L1	19.6	22.0	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	32.4	Off	L1	19.6	23.6	56.0
0.198000	34.9	Off	L1	19.5	18.8	53.7
0.358000	40.1	Off	L1	19.5	8.7	48.8
0.534000	24.1	Off	L1	19.5	21.9	46.0
0.742000	24.3	Off	L1	19.5	21.7	46.0
0.982000	23.3	Off	L1	19.5	22.7	46.0
3.614000	26.2	Off	L1	19.6	19.8	46.0
7.486000	31.8	Off	L1	19.6	18.2	50.0

EUT Information

Report NO :	741112-01
Test Mode :	Mode 1
Test Voltage :	120Vac/60Hz
Phase :	Neutral



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	48.2	Off	N	19.5	17.8	66.0
0.262000	42.7	Off	N	19.5	18.7	61.4
0.358000	47.8	Off	N	19.5	11.0	58.8
0.542000	33.7	Off	N	19.5	22.3	56.0
1.582000	31.8	Off	N	19.5	24.2	56.0
3.526000	33.8	Off	N	19.5	22.2	56.0
7.766000	37.7	Off	N	19.7	22.3	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	36.8	Off	N	19.5	19.2	56.0
0.262000	34.7	Off	N	19.5	16.7	51.4
0.358000	40.6	Off	N	19.5	8.2	48.8
0.542000	27.9	Off	N	19.5	18.1	46.0
1.582000	25.8	Off	N	19.5	20.2	46.0
3.526000	26.4	Off	N	19.5	19.6	46.0
7.766000	32.3	Off	N	19.7	17.7	50.0

Appendix C. Radiated Spurious Emission

Test Engineer :	Yun Huang, Daniel Lee, and J.C. Liang	Temperature :	13~18°C
		Relative Humidity :	48~52%

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		2387.672	62.36	-11.64	74	53.04	27.11	5.39	33.16	119	268	P	H
		2389.952	52.22	-1.78	54	42.89	27.11	5.39	33.15	119	268	A	H
	*	2412	115.7	-	-	106.28	27.16	5.43	33.15	119	268	P	H
	*	2412	112.41	-	-	102.99	27.16	5.43	33.15	119	268	A	H
		2492.08	59.94	-14.06	74	50.16	27.4	5.5	33.1	119	268	P	H
		2492.784	49.98	-4.02	54	40.2	27.4	5.5	33.1	119	268	A	H
		2389.192	55.98	-18.02	74	46.66	27.11	5.39	33.16	382	171	P	V
		2389.952	46.42	-7.58	54	37.09	27.11	5.39	33.15	382	171	A	V
	*	2412	109.18	-	-	99.76	27.16	5.43	33.15	382	171	P	V
	*	2412	106	-	-	96.58	27.16	5.43	33.15	382	171	A	V
		2499.56	54.37	-19.63	74	44.59	27.4	5.5	33.1	382	171	P	V
		2499.824	44.59	-9.41	54	34.81	27.4	5.5	33.1	382	171	A	V
802.11b CH 06 2437MHz		2387.824	62.09	-11.91	74	52.77	27.11	5.39	33.16	110	272	P	H
		2389.496	51.48	-2.52	54	42.16	27.11	5.39	33.16	110	272	A	H
	*	2437	115.97	-	-	106.42	27.26	5.45	33.14	110	272	P	H
	*	2437	112.82	-	-	103.27	27.26	5.45	33.14	110	272	A	H
		2492.784	63.41	-10.59	74	53.63	27.4	5.5	33.1	110	272	P	H
		2483.544	52.92	-1.08	54	43.2	27.35	5.5	33.11	110	272	A	H
		2330.216	53.8	-20.2	74	44.76	26.92	5.32	33.18	367	168	P	V
		2372.016	43.78	-10.22	54	34.54	27.06	5.36	33.16	367	168	A	V
	*	2437	111.02	-	-	101.47	27.26	5.45	33.14	367	168	P	V
	*	2437	107.84	-	-	98.29	27.26	5.45	33.14	367	168	A	V
		2492.52	56.12	-17.88	74	46.34	27.4	5.5	33.1	367	168	P	V
		2483.72	46.7	-7.3	54	36.98	27.35	5.5	33.11	367	168	A	V

802.11b CH 11 2462MHz		2389.056	59.26	-14.74	74	49.94	27.11	5.39	33.16	107	281	P	H
		2382.738	48.82	-5.18	54	39.55	27.06	5.39	33.16	107	281	A	H
	*	2462	115.37	-	-	105.75	27.3	5.46	33.12	107	281	P	H
	*	2462	111.87	-	-	102.25	27.3	5.46	33.12	107	281	A	H
		2495.424	62.39	-11.61	74	52.61	27.4	5.5	33.1	107	281	P	H
		2483.544	53.41	-0.59	54	43.69	27.35	5.5	33.11	107	281	A	H
		2360.058	53.12	-20.88	74	43.94	27.01	5.36	33.17	361	168	P	V
		2360.058	42.62	-11.38	54	33.44	27.01	5.36	33.17	361	168	A	V
	*	2462	109.96	-	-	100.34	27.3	5.46	33.12	361	168	P	V
	*	2462	106.57	-	-	96.95	27.3	5.46	33.12	361	168	A	V
		2488.912	56.04	-17.96	74	46.27	27.4	5.5	33.11	361	168	P	V
		2483.544	46.88	-7.12	54	37.16	27.35	5.5	33.11	361	168	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz	-	1498	67.97	-	-	62.33	25.5	4.18	34	323	297	P	H
	-	4485	53.95	-	-	79.5	30.57	7.46	64.09	347	96	P	H
		4824	40.25	-33.75	74	64.52	31.19	8.41	64.36	100	0	P	H
	-	1498	64.89	-	-	59.25	25.5	4.18	34	312	32	P	V
	-	4485	51.85	-	-	77.4	30.57	7.46	64.09	105	284	P	V
		4824	39.72	-34.28	74	63.99	31.19	8.41	64.36	100	0	P	V
802.11b CH 06 2437MHz	-	1498	68.35	-	-	62.71	25.5	4.18	34	328	295	P	H
	-	4485	53.66	-	-	79.21	30.57	7.46	64.09	361	95	P	H
		4874	41.21	-32.79	74	65.47	31.28	8.38	64.4	100	0	P	H
		7311	42.31	-31.69	74	61.16	36.18	10.12	65.55	100	0	P	H
	-	1498	64.95	-	-	59.31	25.5	4.18	34	303	28	P	V
	-	4485	51.07	-	-	76.62	30.57	7.46	64.09	108	303	P	V
		4874	42.29	-31.71	74	66.55	31.28	8.38	64.4	100	0	P	V
		7311	43	-31	74	61.85	36.18	10.12	65.55	100	0	P	V
802.11b CH 11 2462MHz	-	1498	67.87	-	-	62.23	25.5	4.18	34	318	304	P	H
	-	4485	55.11	-	-	80.66	30.57	7.46	64.09	359	96	P	H
		4924	39.86	-34.14	74	64.08	31.38	8.37	64.44	100	0	P	H
		7386	42.94	-31.06	74	61.75	36.37	10.09	65.62	100	0	P	H
	-	1498	64.91	-	-	59.27	25.5	4.18	34	299	28	P	V
	-	4485	52.28	-	-	77.83	30.57	7.46	64.09	106	289	P	V
		4924	39.47	-34.53	74	63.69	31.38	8.37	64.44	100	0	P	V
		7386	43.19	-30.81	74	62	36.37	10.09	65.62	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. Note "-" is unintentional radiator, the single complies with ANSI C63.4 requirement can be ignored.												

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		2387.976	65.99	-8.01	74	56.67	27.11	5.39	33.16	118	271	P	H
		2389.8	53.44	-0.56	54	44.11	27.11	5.39	33.15	118	271	A	H
	*	2412	112.45	-	-	103.03	27.16	5.43	33.15	118	271	P	H
	*	2412	104.7	-	-	95.28	27.16	5.43	33.15	118	271	A	H
		2498.328	57.49	-16.51	74	47.71	27.4	5.5	33.1	118	271	P	H
		2496.128	48.09	-5.91	54	38.31	27.4	5.5	33.1	118	271	A	H
		2389.496	58.5	-15.5	74	49.18	27.11	5.39	33.16	338	185	P	V
		2389.952	46.45	-7.55	54	37.12	27.11	5.39	33.15	338	185	A	V
	*	2412	105.69	-	-	96.27	27.16	5.43	33.15	338	185	P	V
	*	2412	98.08	-	-	88.66	27.16	5.43	33.15	338	185	A	V
		2490.408	53.31	-20.69	74	43.54	27.4	5.5	33.11	338	185	P	V
		2499.296	43.61	-10.39	54	33.83	27.4	5.5	33.1	338	185	A	V
802.11g CH 02 2417MHz		2389.38	65.19	-8.81	74	55.87	27.11	15.37	33.16	142	272	P	H
		2389.8	53.04	-0.96	54	43.71	27.11	15.37	33.15	142	272	A	H
	*	2417	115.09	-	-	105.66	27.16	15.41	33.14	142	272	P	H
	*	2417	107.43	-	-	98	27.16	15.41	33.14	142	272	P	H
		2496.304	59.77	-14.23	74	49.99	27.4	15.48	33.1	142	272	P	H
		2493.576	50.46	-3.54	54	40.68	27.4	15.48	33.1	142	272	A	H
		2386.86	55.32	-18.68	74	46	27.11	15.37	33.16	303	169	P	V
		2389.94	44.53	-9.47	54	35.2	27.11	15.37	33.15	303	169	A	V
	*	2417	108.86	-	-	99.43	27.16	15.41	33.14	303	169	P	V
	*	2417	99.89	-	-	90.46	27.16	15.41	33.14	303	169	A	V
		2495.6	53.17	-20.83	74	43.39	27.4	15.48	33.1	303	169	P	V
		2499.736	43.49	-10.51	54	33.71	27.4	15.48	33.1	303	169	A	V

802.11g CH 03 2422MHz		2389.952	64.95	-9.05	74	55.62	27.11	15.37	33.15	143	271	P	H
		2389.952	53.11	-0.89	54	43.78	27.11	15.37	33.15	143	271	A	H
	*	2422	116.56	-	-	107.08	27.21	15.41	33.14	143	271	P	H
	*	2422	108.81	-	-	99.33	27.21	15.41	33.14	143	271	P	H
		2499.032	60.76	-13.24	74	50.98	27.4	15.48	33.1	143	271	P	H
		2497.712	51.19	-2.81	54	41.41	27.4	15.48	33.1	143	271	A	H
		2389.8	57.26	-16.74	74	47.93	27.11	15.37	33.15	344	172	P	V
		2389.952	47.04	-6.96	54	37.71	27.11	15.37	33.15	344	172	A	V
	*	2422	109.21	-	-	99.73	27.21	15.41	33.14	344	172	P	V
	*	2422	101.17	-	-	91.69	27.21	15.41	33.14	344	172	A	V
		2497.888	53.81	-20.19	74	44.03	27.4	15.48	33.1	344	172	P	V
		2498.416	44.37	-9.63	54	34.59	27.4	15.48	33.1	344	172	A	V
802.11g CH 06 2437MHz		2359.248	61.65	-12.35	74	52.47	27.01	5.36	33.17	112	267	P	H
		2389.8	52.51	-1.49	54	43.18	27.11	5.39	33.15	112	267	A	H
	*	2437	117.75	-	-	108.2	27.26	5.45	33.14	112	267	P	H
	*	2437	110.02	-	-	100.47	27.26	5.45	33.14	112	267	P	H
		2496.958	62.57	-11.43	74	52.79	27.4	5.5	33.1	112	267	P	H
		2484.244	53.13	-0.87	54	43.41	27.35	5.5	33.11	112	267	A	H
		2389.04	53.3	-20.7	74	43.98	27.11	5.39	33.16	369	168	P	V
		2388.432	44.2	-9.8	54	34.88	27.11	5.39	33.16	369	168	A	V
	*	2437	113.05	-	-	103.5	27.26	5.45	33.14	369	168	P	V
	*	2437	105.06	-	-	95.51	27.26	5.45	33.14	369	168	A	V
		2490.016	56.44	-17.56	74	46.67	27.4	5.5	33.11	369	168	P	V
		2483.62	47.2	-6.8	54	37.48	27.35	5.5	33.11	369	168	A	V

802.11g CH 09 2452MHz		2371.104	58.97	-15.03	74	49.73	27.06	15.34	33.16	137	273	P	H
		2374.448	49.41	-4.59	54	40.17	27.06	15.34	33.16	137	273	A	H
	*	2452	115.21	-	-	105.63	27.26	15.44	33.12	137	273	P	H
	*	2452	107.54	-	-	97.96	27.26	15.44	33.12	137	273	P	H
		2483.632	64.94	-9.06	74	55.22	27.35	15.48	33.11	137	273	P	H
		2483.632	53.19	-0.81	54	43.47	27.35	15.48	33.11	137	273	A	H
		2387.216	53	-21	74	43.68	27.11	15.37	33.16	336	171	P	V
		2389.344	43.53	-10.47	54	34.21	27.11	15.37	33.16	336	171	A	V
	*	2452	108.34	-	-	98.76	27.26	15.44	33.12	336	171	P	V
	*	2452	100.26	-	-	90.68	27.26	15.44	33.12	336	171	A	V
		2484.424	57.06	-16.94	74	47.34	27.35	15.48	33.11	336	171	P	V
		2483.544	45.01	-8.99	54	35.29	27.35	15.48	33.11	336	171	A	V
802.11g CH 10 2457MHz		2383.872	58.12	-15.88	74	48.85	27.06	15.37	33.16	109	277	P	H
		2381.44	48.29	-5.71	54	39.02	27.06	15.37	33.16	109	277	A	H
	*	2457	113.83	-	-	104.21	27.3	15.44	33.12	109	277	P	H
	*	2457	106.4	-	-	96.78	27.3	15.44	33.12	109	277	A	H
		2483.632	69.06	-4.94	74	59.34	27.35	15.48	33.11	109	277	P	H
		2484.16	53.17	-0.83	54	43.45	27.35	15.48	33.11	109	277	A	H
		2342.984	52.8	-21.2	74	43.68	26.97	15.32	33.17	374	169	P	V
		2389.8	42.82	-11.18	54	33.49	27.11	15.37	33.15	374	169	A	V
	*	2457	107.64	-	-	98.02	27.3	15.44	33.12	374	169	P	V
	*	2457	100.18	-	-	90.56	27.3	15.44	33.12	374	169	A	V
		2483.632	59.47	-14.53	74	49.75	27.35	15.48	33.11	374	169	P	V
		2483.984	46.18	-7.82	54	36.46	27.35	15.48	33.11	374	169	A	V

802.11g CH 11 2462MHz		2377.792	57.94	-16.06	74	48.67	27.06	5.39	33.16	134	281	P	H
		2385.848	46.73	-7.27	54	37.41	27.11	5.39	33.16	134	281	A	H
	*	2462	112.36	-	-	102.74	27.3	5.46	33.12	134	281	P	H
	*	2462	104.42	-	-	94.8	27.3	5.46	33.12	134	281	A	H
		2483.52	66.77	-7.23	74	57.05	27.35	5.5	33.11	134	281	P	H
		2483.52	52.05	-1.95	54	42.33	27.35	5.5	33.11	134	281	A	H
		2371.104	52.67	-21.33	74	43.43	27.06	5.36	33.16	362	169	P	V
		2388.736	42.41	-11.59	54	33.09	27.11	5.39	33.16	362	169	A	V
	*	2462	106.64	-	-	97.02	27.3	5.46	33.12	362	169	P	V
	*	2462	99.12	-	-	89.5	27.3	5.46	33.12	362	169	A	V
		2485.492	57.64	-16.36	74	47.92	27.35	5.5	33.11	362	169	P	V
		2483.698	45.94	-8.06	54	36.22	27.35	5.5	33.11	362	169	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11g CH 01 2412MHz	-	1498	68.27	-	-	62.63	25.5	4.18	34	298	302	P	H
	-	4485	54.55	-	-	80.1	30.57	7.46	64.09	360	102	P	H
		4824	39.96	-34.04	74	64.23	31.19	8.41	64.36	100	0	P	H
	-	1498	64.77	-	-	59.13	25.5	4.18	34	284	31	P	V
	-	4485	51.61	-	-	77.16	30.57	7.46	64.09	105	294	P	V
		4824	40.84	-33.16	74	65.11	31.19	8.41	64.36	100	0	P	V
802.11g CH 06 2437MHz	-	1498	67.77	-	-	62.13	25.5	4.18	34	100	303	P	H
	-	4485	56.22	-	-	81.77	30.57	7.46	64.09	272	24	P	H
		4874	43.44	-30.56	74	67.7	31.28	8.38	64.4	100	0	P	H
		7311	42.64	-31.36	74	61.49	36.18	10.12	65.55	100	0	P	H
	-	1498	64.78	-	-	59.14	25.5	4.18	34	357	34	P	V
	-	4485	52.81	-	-	78.36	30.57	7.46	64.09	100	345	P	V
		4874	42.46	-31.54	74	66.72	31.28	8.38	64.4	100	0	P	V
		7311	43.23	-30.77	74	62.08	36.18	10.12	65.55	100	0	P	V
802.11g CH 11 2462MHz	-	1498	68.26	-	-	62.62	25.5	4.18	34	292	303	P	H
	-	4485	50.51	-	-	76.06	30.57	7.46	64.09	359	101	P	H
		4924	39.53	-34.47	74	63.75	31.38	8.37	64.44	100	0	P	H
		7386	42.42	-31.58	74	61.23	36.37	10.09	65.62	100	0	P	H
	-	1498	63.13	-	-	57.49	25.5	4.18	34	310	75	P	V
	-	4485	52.65	-	-	78.2	30.57	7.46	64.09	111	285	P	V
		4924	38.64	-35.36	74	62.86	31.38	8.37	64.44	100	0	P	V
		7386	43.5	-30.5	74	62.31	36.37	10.09	65.62	100	0	P	V

Remark

1. No other spurious found.
2. All results are PASS against Peak and Average limit line.
3. Note "-" is unintentional radiator, the single complies with ANSI C63.4 requirement can be ignored.

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 01 2412MHz		2388.54	64.84	-9.16	74	55.52	27.11	5.39	33.16	141	272	P	H
		2389.905	52.76	-1.24	54	43.43	27.11	5.39	33.15	141	272	A	H
	*	2412	111.15	-	-	101.73	27.16	5.43	33.15	141	272	P	H
	*	2412	103.57	-	-	94.15	27.16	5.43	33.15	141	272	A	H
		2494.456	57.01	-16.99	74	47.23	27.4	5.5	33.1	141	272	P	H
		2494.984	47.95	-6.05	54	38.17	27.4	5.5	33.1	141	272	A	H
		2389.275	57.67	-16.33	74	48.35	27.11	5.39	33.16	372	202	P	V
		2390	46.89	-7.11	54	37.56	27.11	5.39	33.15	372	202	A	V
	*	2412	106.12	-	-	96.7	27.16	5.43	33.15	372	202	P	V
	*	2412	98.06	-	-	88.64	27.16	5.43	33.15	372	202	A	V
		2490.32	54.6	-19.4	74	44.83	27.4	5.5	33.11	372	202	P	V
		2499.384	43.83	-10.17	54	34.05	27.4	5.5	33.1	372	202	A	V
802.11n HT20 CH 02 2417MHz		2389.952	64.47	-9.53	74	55.14	27.11	15.37	33.15	140	272	P	H
		2389.648	52.53	-1.47	54	43.21	27.11	15.37	33.16	140	272	A	H
	*	2417	114.49	-	-	105.06	27.16	15.41	33.14	140	272	P	H
	*	2417	106.74	-	-	97.31	27.16	15.41	33.14	140	272	A	H
		2490.056	59.45	-14.55	74	49.68	27.4	15.48	33.11	140	272	P	H
		2494.544	49.66	-4.34	54	39.88	27.4	15.48	33.1	140	272	A	H
		2386.152	56.42	-17.58	74	47.1	27.11	15.37	33.16	304	169	P	V
		2389.952	44.56	-9.44	54	35.23	27.11	15.37	33.15	304	169	A	V
	*	2417	107.02	-	-	97.59	27.16	15.41	33.14	304	169	P	V
	*	2417	99	-	-	89.57	27.16	15.41	33.14	304	169	A	V
		2493.84	52.76	-21.24	74	42.98	27.4	15.48	33.1	304	169	P	V
		2499.296	43.17	-10.83	54	33.39	27.4	15.48	33.1	304	169	A	V

802.11n HT20 CH 03 2422MHz		2389.8	66.32	-7.68	74	56.99	27.11	15.37	33.15	144	270	P	H
		2389.952	52.68	-1.32	54	43.35	27.11	15.37	33.15	144	270	A	H
	*	2422	116.37	-	-	106.89	27.21	15.41	33.14	144	270	P	H
	*	2422	107.73	-	-	98.25	27.21	15.41	33.14	144	270	A	H
		2497.624	60.09	-13.91	74	50.31	27.4	15.48	33.1	144	270	P	H
		2498.24	50.53	-3.47	54	40.75	27.4	15.48	33.1	144	270	A	H
		2388.584	57.37	-16.63	74	48.05	27.11	15.37	33.16	341	175	P	V
		2389.8	45.98	-8.02	54	36.65	27.11	15.37	33.15	341	175	A	V
	*	2422	107.72	-	-	98.24	27.21	15.41	33.14	341	175	P	V
	*	2422	100.08	-	-	90.6	27.21	15.41	33.14	341	175	A	V
		2485.656	54.18	-19.82	74	44.46	27.35	15.48	33.11	341	175	P	V
		2499.648	44.04	-9.96	54	34.26	27.4	15.48	33.1	341	175	A	V
802.11n HT20 CH 06 2437MHz		2358.16	59.68	-14.32	74	50.5	27.01	5.36	33.17	110	272	P	H
		2389.8	50.37	-3.63	54	41.04	27.11	5.39	33.15	110	272	A	H
	*	2437	117.01	-	-	107.46	27.26	5.45	33.14	110	272	P	H
	*	2437	109.26	-	-	99.71	27.26	5.45	33.14	110	272	A	H
		2487.82	61.8	-12.2	74	52.03	27.4	5.5	33.11	110	272	P	H
		2483.69	51.73	-2.27	54	42.01	27.35	5.5	33.11	110	272	A	H
		2352.28	54.8	-19.2	74	45.64	27.01	5.34	33.17	366	180	P	V
		2389.66	44.85	-9.15	54	35.53	27.11	5.39	33.16	366	180	A	V
	*	2437	111.71	-	-	102.16	27.26	5.45	33.14	366	180	P	V
	*	2437	103.21	-	-	93.66	27.26	5.45	33.14	366	180	A	V
		2487.26	56.9	-17.1	74	47.18	27.35	5.5	33.11	366	180	P	V
		2485.09	46.45	-7.55	54	36.73	27.35	5.5	33.11	366	180	A	V

802.11n HT20 CH 09 2452MHz		2387.216	59.26	-14.74	74	49.94	27.11	15.37	33.16	158	277	P	H
		2389.8	48.94	-5.06	54	39.61	27.11	15.37	33.15	158	277	A	H
	*	2452	114.73	-	-	105.15	27.26	15.44	33.12	158	277	P	H
	*	2452	107.1	-	-	97.52	27.26	15.44	33.12	158	277	A	H
		2483.544	66.35	-7.65	74	56.63	27.35	15.48	33.11	158	277	P	H
		2483.544	52.55	-1.45	54	42.83	27.35	15.48	33.11	158	277	A	H
		2386.76	52.88	-21.12	74	43.56	27.11	15.37	33.16	337	170	P	V
		2389.04	43.37	-10.63	54	34.05	27.11	15.37	33.16	337	170	A	V
	*	2452	107.83	-	-	98.25	27.26	15.44	33.12	337	170	P	V
	*	2452	100.06	-	-	90.48	27.26	15.44	33.12	337	170	A	V
		2483.72	57.11	-16.89	74	47.39	27.35	15.48	33.11	337	170	P	V
		2484.336	45.28	-8.72	54	35.56	27.35	15.48	33.11	337	170	A	V
802.11n HT20 CH 10 2457MHz		2386.152	57.85	-16.15	74	48.53	27.11	15.37	33.16	109	277	P	H
		2382.808	48.29	-5.71	54	39.02	27.06	15.37	33.16	109	277	A	H
	*	2457	112.99	-	-	103.37	27.3	15.44	33.12	109	277	P	H
	*	2457	105.27	-	-	95.65	27.3	15.44	33.12	109	277	A	H
		2484.336	66.55	-7.45	74	56.83	27.35	15.48	33.11	109	277	P	H
		2484.336	52.25	-1.75	54	42.53	27.35	15.48	33.11	109	277	A	H
		2389.344	52.3	-21.7	74	42.98	27.11	15.37	33.16	374	171	P	V
		2388.432	42.65	-11.35	54	33.33	27.11	15.37	33.16	374	171	A	V
	*	2457	106.87	-	-	97.25	27.3	15.44	33.12	374	171	P	V
	*	2457	99.13	-	-	89.51	27.3	15.44	33.12	374	171	A	V
		2484.6	56.81	-17.19	74	47.09	27.35	15.48	33.11	374	171	P	V
		2483.544	45.59	-8.41	54	35.87	27.35	15.48	33.11	374	171	A	V

802.11n HT20 CH 11 2462MHz		2386	56.28	-17.72	74	46.96	27.11	5.39	33.16	137	269	P	H
		2385.24	47.2	-6.8	54	37.93	27.06	5.39	33.16	137	269	A	H
	*	2462	112.14	-	-	102.52	27.3	5.46	33.12	137	269	P	H
	*	2462	104.2	-	-	94.58	27.3	5.46	33.12	137	269	A	H
		2484.336	65.95	-8.05	74	56.23	27.35	5.5	33.11	137	269	P	H
		2483.544	53.09	-0.91	54	43.37	27.35	5.5	33.11	137	269	A	H
		2348.912	52.34	-21.66	74	43.22	26.97	5.34	33.17	369	167	P	V
		2389.192	42.31	-11.69	54	32.99	27.11	5.39	33.16	369	167	A	V
	*	2462	106.52	-	-	96.9	27.3	5.46	33.12	369	167	P	V
	*	2462	98.34	-	-	88.72	27.3	5.46	33.12	369	167	A	V
		2484.248	59.38	-14.62	74	49.66	27.35	5.5	33.11	369	167	P	V
		2483.544	47.11	-6.89	54	37.39	27.35	5.5	33.11	369	167	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 01 2412MHz	-	1498	68.94	-	-	63.3	25.5	4.18	34	330	303	P	H
	-	4485	54.39	-	-	79.94	30.57	7.46	64.09	360	91	P	H
		4824	40.17	-33.83	74	64.44	31.19	8.41	64.36	100	0	P	H
	-	1498	64.22	-	-	58.58	25.5	4.18	34	278	42	P	V
	-	4485	51.83	-	-	77.38	30.57	7.46	64.09	111	301	P	V
		4824	40.46	-33.54	74	64.73	31.19	8.41	64.36	100	0	P	V
802.11n HT20 CH 06 2437MHz	-	1498	68.44	-	-	62.8	25.5	4.18	34	221	300	P	H
	-	4485	54.54	-	-	80.09	30.57	7.46	64.09	348	94	P	H
		4874	41.29	-32.71	74	65.55	31.28	8.38	64.4	100	0	P	H
		7311	42.68	-31.32	74	61.53	36.18	10.12	65.55	100	0	P	H
	-	1498	64.11	-	-	58.47	25.5	4.18	34	241	42	P	V
	-	4485	51.82	-	-	77.37	30.57	7.46	64.09	101	298	P	V
		4874	42.17	-31.83	74	66.43	31.28	8.38	64.4	100	0	P	V
		7311	41.89	-32.11	74	60.74	36.18	10.12	65.55	100	0	P	V
802.11n HT20 CH 11 2462MHz	-	1498	68.62	-	-	62.98	25.5	4.18	34	218	298	P	H
	-	4485	54.9	-	-	80.45	30.57	7.46	64.09	351	102	P	H
		4924	38.8	-35.2	74	63.02	31.38	8.37	64.44	100	0	P	H
		7386	42.69	-31.31	74	61.5	36.37	10.09	65.62	100	0	P	H
	-	1498	64.94	-	-	59.3	25.5	4.18	34	232	42	P	V
	-	4485	51.49	-	-	77.04	30.57	7.46	64.09	110	294	P	V
		4924	39.3	-34.7	74	63.52	31.38	8.37	64.44	100	0	P	V
		7386	42.91	-31.09	74	61.72	36.37	10.09	65.62	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. Note "-" is unintentional radiator, the single complies with ANSI C63.4 requirement can be ignored.												

Emission below 1GHz

2.4GHz WIFI 802.11g (LF)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11g LF		76.71	25.14	-14.86	40	43.67	13.03	1	32.73	-	-	P	H
		143.13	30.87	-12.63	43.5	44.62	17.34	1.24	32.68	-	-	P	H
		243.03	40.14	-5.86	46	53.03	17.66	1.66	32.62	100	12	QP	H
		329.4	38.45	-7.55	46	48.98	19.74	1.92	32.59	-	-	P	H
		895.7	42.54	-3.46	46	41.75	29	3.19	32.11	-	-	P	H
		970.6	43.99	-10.01	54	40.14	31.01	3.32	31.29	-	-	P	H
		71.31	31.41	-8.59	40	50.5	12.6	0.88	32.74	-	-	P	V
		143.13	29.27	-14.23	43.5	43.02	17.34	1.24	32.68	-	-	P	V
		243.57	40.45	-5.55	46	53.34	17.66	1.66	32.62	-	-	P	V
		330.8	41.89	-4.11	46	52.39	19.77	1.92	32.59	100	0	P	V
		373.5	34.92	-11.08	46	44.19	20.9	2.02	32.6	-	-	P	V
		599.6	32.35	-13.65	46	36.34	25.67	2.59	32.82	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11g CH 01 2412MHz		2388.28	63.84	-10.16	74	54.52	27.11	5.39	33.16	117	185	P	H
		2389.952	52.85	-1.15	54	43.52	27.11	5.39	33.15	117	185	A	H
	*	2412	111.09	-	-	101.67	27.16	5.43	33.15	117	185	P	H
	*	2412	103.54	-	-	94.12	27.16	5.43	33.15	117	185	A	H
		2490.672	58.65	-15.35	74	48.88	27.4	5.5	33.11	117	185	P	H
		2488.208	49.35	-4.65	54	39.58	27.4	5.5	33.11	117	185	A	H
		2389.8	54.13	-19.87	74	44.8	27.11	5.39	33.15	118	72	P	V
		2389.952	43.77	-10.23	54	34.44	27.11	5.39	33.15	118	72	A	V
	*	2412	100.98	-	-	91.56	27.16	5.43	33.15	118	72	P	V
	*	2412	93.28	-	-	83.86	27.16	5.43	33.15	118	72	A	V
		2483.72	53.73	-20.27	74	44.01	27.35	5.5	33.11	118	72	P	V
		2488.296	43.47	-10.53	54	33.7	27.4	5.5	33.11	118	72	A	V
802.11g CH 02 2417MHz		2389.192	65.85	-8.15	74	56.53	27.11	15.37	33.16	142	180	P	H
		2389.496	53.36	-0.64	54	44.04	27.11	15.37	33.16	142	180	A	H
	*	2417	114.38	-	-	104.95	27.16	15.41	33.14	142	180	P	H
	*	2417	107.32	-	-	97.89	27.16	15.41	33.14	142	180	A	H
		2493.928	61.71	-12.29	74	51.93	27.4	15.48	33.1	142	180	P	H
		2496.128	51.9	-2.1	54	42.12	27.4	15.48	33.1	142	180	A	H
		2389.952	58.01	-15.99	74	48.68	27.11	15.37	33.15	385	266	P	V
		2389.952	46.22	-7.78	54	36.89	27.11	15.37	33.15	385	266	A	V
	*	2417	109.45	-	-	100.02	27.16	15.41	33.14	385	266	P	V
	*	2417	99.76	-	-	90.33	27.16	15.41	33.14	385	266	A	V
		2492.432	53.99	-20.01	74	44.21	27.4	15.48	33.1	385	266	P	V
		2493.488	44.29	-9.71	54	34.51	27.4	15.48	33.1	385	266	A	V

802.11g CH 06 2437MHz		2387.824	60.24	-13.76	74	50.92	27.11	5.39	33.16	112	183	P	H
		2389.344	49.85	-4.15	54	40.53	27.11	5.39	33.16	112	183	A	H
	*	2437	116.72	-	-	107.17	27.26	5.45	33.14	112	183	P	H
	*	2437	108.88	-	-	99.33	27.26	5.45	33.14	112	183	A	H
		2488.296	61.49	-12.51	74	51.72	27.4	5.5	33.11	112	183	P	H
		2484.072	51.85	-2.15	54	42.13	27.35	5.5	33.11	112	183	A	H
		2369.736	52.99	-21.01	74	43.75	27.06	5.36	33.16	111	72	P	V
		2375.816	43.46	-10.54	54	34.19	27.06	5.39	33.16	111	72	A	V
	*	2437	106.55	-	-	97	27.26	5.45	33.14	111	72	P	V
	*	2437	98.41	-	-	88.86	27.26	5.45	33.14	111	72	A	V
		2494.192	54.18	-19.82	74	44.4	27.4	5.5	33.1	111	72	P	V
		2485.304	44.5	-9.5	54	34.78	27.35	5.5	33.11	111	72	A	V
802.11g CH 10 2457MHz		2387.064	56.53	-17.47	74	47.21	27.11	15.37	33.16	137	193	P	H
		2384.48	47.42	-6.58	54	38.15	27.06	15.37	33.16	137	193	A	H
	*	2457	114.14	-	-	104.52	27.3	15.44	33.12	137	193	P	H
	*	2457	103.13	-	-	93.51	27.3	15.44	33.12	137	193	A	H
		2483.808	67.86	-6.14	74	58.14	27.35	15.48	33.11	137	193	P	H
		2483.544	53.27	-0.73	54	43.55	27.35	15.48	33.11	137	193	A	H
		2323.68	52.67	-21.33	74	43.63	26.92	15.3	33.18	368	245	P	V
		2356.056	42.82	-11.18	54	33.66	27.01	15.32	33.17	368	245	A	V
	*	2457	108.54	-	-	98.92	27.3	15.44	33.12	368	245	P	V
	*	2457	96.57	-	-	86.95	27.3	15.44	33.12	368	245	A	V
		2485.568	60.51	-13.49	74	50.79	27.35	15.48	33.11	368	245	P	V
		2483.632	47.04	-6.96	54	37.32	27.35	15.48	33.11	368	245	A	V

802.11g CH 11 2462MHz		2385.848	56.43	-17.57	74	47.11	27.11	5.39	33.16	114	180	P	H
		2388.128	46.43	-7.57	54	37.11	27.11	5.39	33.16	114	180	A	H
	*	2462	111.88	-	-	102.26	27.3	5.46	33.12	114	180	P	H
	*	2462	104.03	-	-	94.41	27.3	5.46	33.12	114	180	A	H
		2483.544	65.29	-8.71	74	55.57	27.35	5.5	33.11	114	180	P	H
		2483.632	53.01	-0.99	54	43.29	27.35	5.5	33.11	114	180	A	H
		2367.304	52.43	-21.57	74	43.24	27.01	5.36	33.16	111	121	P	V
		2382.2	42.39	-11.61	54	33.12	27.06	5.39	33.16	111	121	A	V
	*	2462	102.49	-	-	92.87	27.3	5.46	33.12	111	121	P	V
	*	2462	94.25	-	-	84.63	27.3	5.46	33.12	111	121	A	V
		2485.392	55.11	-18.89	74	45.39	27.35	5.5	33.11	111	121	P	V
		2483.632	44.94	-9.06	54	35.22	27.35	5.5	33.11	111	121	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
2		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11g CH 01 2412MHz	-	1498	67.72	-	-	62.08	25.5	4.18	34	176	299	P	H
	-	4485	54.65	-	-	80.2	30.57	7.46	64.09	359	102	P	H
		4824	40.88	-33.12	74	65.15	31.19	8.41	64.36	100	0	P	H
	-	1498	63.75	-	-	58.11	25.5	4.18	34	337	57	P	V
	-	4485	51.85	-	-	77.4	30.57	7.46	64.09	108	190	P	V
		4824	39.58	-34.42	74	63.85	31.19	8.41	64.36	100	0	P	V
802.11g CH 06 2437MHz	-	1498	68.11	-	-	62.47	25.5	4.18	34	176	299	P	H
	-	4485	55.45	-	-	81	30.57	7.46	64.09	268	24	P	H
		4874	43.55	-30.45	74	67.81	31.28	8.38	64.4	100	0	P	H
		7311	44.6	-29.4	74	63.45	36.18	10.12	65.55	100	0	P	H
	-	1498	63.93	-	-	58.29	25.5	4.18	34	337	59	P	V
	-	4485	52.65	-	-	78.2	30.57	7.46	64.09	100	337	P	V
		4874	42.25	-31.75	74	66.51	31.28	8.38	64.4	100	0	P	V
		7311	42.56	-31.44	74	61.41	36.18	10.12	65.55	100	0	P	V
802.11g CH 11 2462MHz	-	1498	68.16	-	-	62.52	25.5	4.18	34	176	299	P	H
	-	4485	53.96	-	-	79.51	30.57	7.46	64.09	352	96	P	H
		4924	38.96	-35.04	74	63.18	31.38	8.37	64.44	100	0	P	H
		7386	42.75	-31.25	74	61.56	36.37	10.09	65.62	100	0	P	H
	-	1498	63.72	-	-	58.08	25.5	4.18	34	338	57	P	V
	-	4485	52.11	-	-	77.66	30.57	7.46	64.09	108	295	P	V
		4924	38.57	-35.43	74	62.79	31.38	8.37	64.44	100	0	P	V
		7386	42.91	-31.09	74	61.72	36.37	10.09	65.62	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. Note "-" is unintentional radiator, the single complies with ANSI C63.4 requirement can be ignored.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		2389.952	64.88	-9.12	74	55.55	27.11	5.39	33.15	112	190	P	H
		2389.648	53.1	-0.9	54	43.78	27.11	5.39	33.16	112	190	A	H
	*	2412	109.43	-	-	100.01	27.16	5.43	33.15	112	190	P	H
	*	2412	101.78	-	-	92.36	27.16	5.43	33.15	112	190	A	H
		2494.72	59.58	-14.42	74	49.8	27.4	5.5	33.1	112	190	P	H
		2489.88	49.27	-4.73	54	39.5	27.4	5.5	33.11	112	190	A	H
		2389.952	54.74	-19.26	74	45.41	27.11	5.39	33.15	128	124	P	V
		2389.952	44.33	-9.67	54	35	27.11	5.39	33.15	128	124	A	V
	*	2412	100.71	-	-	91.29	27.16	5.43	33.15	337	56	P	V
	*	2412	92.53	-	-	83.11	27.16	5.43	33.15	128	124	A	V
		2489.44	52.92	-21.08	74	43.15	27.4	5.5	33.11	128	124	P	V
		2494.72	43.12	-10.88	54	33.34	27.4	5.5	33.1	128	124	A	V
802.11n HT20 CH 02 2417MHz		2389.496	64.72	-9.28	74	55.4	27.11	15.37	33.16	145	184	P	H
		2389.8	53.46	-0.54	54	44.13	27.11	15.37	33.15	145	184	A	H
	*	2417	113.72	-	-	104.29	27.16	15.41	33.14	145	184	P	H
	*	2417	103.31	-	-	93.88	27.16	15.41	33.14	145	184	A	H
		2497.448	61.2	-12.8	74	51.42	27.4	15.48	33.1	145	184	P	H
		2493.312	51.83	-2.17	54	42.05	27.4	15.48	33.1	145	184	A	H
		2388.888	59.26	-14.74	74	49.94	27.11	15.37	33.16	385	266	P	V
		2389.952	45.88	-8.12	54	36.55	27.11	15.37	33.15	385	266	A	V
	*	2417	108.4	-	-	98.97	27.16	15.41	33.14	385	266	P	V
	*	2417	97.74	-	-	88.31	27.16	15.41	33.14	385	266	A	V
		2489.44	54.67	-19.33	74	44.9	27.4	15.48	33.11	385	266	P	V
		2492.696	44.28	-9.72	54	34.5	27.4	15.48	33.1	385	266	A	V

802.11n HT20 CH 06 2437MHz		2370.496	58.8	-15.2	74	49.56	27.06	5.36	33.16	113	181	P	H
		2389.648	49.55	-4.45	54	40.23	27.11	5.39	33.16	113	181	A	H
	*	2437	116.37	-	-	106.82	27.26	5.45	33.14	113	181	P	H
	*	2437	108.81	-	-	99.26	27.26	5.45	33.14	113	181	A	H
		2499.296	61.79	-12.21	74	52.01	27.4	5.5	33.1	113	181	P	H
		2484.512	52	-2	54	42.28	27.35	5.5	33.11	113	181	A	H
		2341.16	52.25	-21.75	74	43.13	26.97	5.34	33.17	125	121	P	V
		2389.952	42.43	-11.57	54	33.1	27.11	5.39	33.15	125	121	A	V
	*	2437	107.03	-	-	97.48	27.26	5.45	33.14	125	121	P	V
	*	2437	99.13	-	-	89.58	27.26	5.45	33.14	125	121	A	V
		2487.328	54	-20	74	44.28	27.35	5.5	33.11	125	121	P	V
		2484.864	44.57	-9.43	54	34.85	27.35	5.5	33.11	125	121	A	V
802.11n HT20 CH 10 2457MHz		2375.208	57.14	-16.86	74	47.87	27.06	15.37	33.16	164	183	P	H
		2381.288	47.48	-6.52	54	38.21	27.06	15.37	33.16	164	183	A	H
	*	2457	114.03	-	-	104.41	27.3	15.44	33.12	164	183	P	H
	*	2457	103.01	-	-	93.39	27.3	15.44	33.12	139	196	A	H
		2483.72	66.88	-7.12	74	57.16	27.35	15.48	33.11	164	183	P	H
		2484.16	53.1	-0.9	54	43.38	27.35	15.48	33.11	164	183	A	H
		2357.12	53.04	-20.96	74	43.86	27.01	15.34	33.17	361	244	P	V
		2373.84	43.36	-10.64	54	34.12	27.06	15.34	33.16	361	244	A	V
	*	2457	107.72	-	-	98.1	27.3	15.44	33.12	361	244	P	V
	*	2457	96.7	-	-	87.08	27.3	15.44	33.12	365	243	A	V
		2486.624	60.38	-13.62	74	50.66	27.35	15.48	33.11	361	244	P	V
		2483.808	48.07	-5.93	54	38.35	27.35	15.48	33.11	361	244	A	V

802.11n HT20 CH 11 2462MHz		2388.128	56.13	-17.87	74	46.81	27.11	5.39	33.16	114	180	P	H
		2389.344	46.29	-7.71	54	36.97	27.11	5.39	33.16	114	180	A	H
	*	2462	110.79	-	-	101.17	27.3	5.46	33.12	114	180	P	H
	*	2462	103.22	-	-	93.6	27.3	5.46	33.12	114	180	A	H
		2484.072	64.1	-9.9	74	54.38	27.35	5.5	33.11	114	180	P	H
		2483.544	53.4	-0.6	54	43.68	27.35	5.5	33.11	114	180	A	H
		2358.032	52.91	-21.09	74	43.73	27.01	5.36	33.17	112	121	P	V
		2384.48	42.2	-11.8	54	32.93	27.06	5.39	33.16	112	121	A	V
	*	2462	100.88	-	-	91.26	27.3	5.46	33.12	112	121	P	V
	*	2462	93.19	-	-	83.57	27.3	5.46	33.12	112	121	A	V
		2483.72	54.97	-19.03	74	45.25	27.35	5.5	33.11	112	121	P	V
		2483.984	45	-9	54	35.28	27.35	5.5	33.11	112	121	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
2		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 01 2412MHz	-	1498	67.97	-	-	62.33	25.5	4.18	34	171	294	P	H
	-	4485	55.24	-	-	80.79	30.57	7.46	64.09	356	95	P	H
		4824	39.95	-34.05	74	64.22	31.19	8.41	64.36	100	0	P	H
	-	1498	64.03	-	-	58.39	25.5	4.18	34	335	58	P	V
	-	4485	50.85	-	-	76.4	30.57	7.46	64.09	106	297	P	V
		4824	40.35	-33.65	74	64.62	31.19	8.41	64.36	100	0	P	V
802.11n HT20 CH 06 2437MHz	-	1498	67.82	-	-	62.18	25.5	4.18	34	179	295	P	H
	-	4485	55.19	-	-	80.74	30.57	7.46	64.09	360	99	P	H
		4874	40.26	-33.74	74	64.52	31.28	8.38	64.4	100	0	P	H
		7311	43.51	-30.49	74	62.36	36.18	10.12	65.55	100	0	P	H
	-	1498	64	-	-	58.36	25.5	4.18	34	333	54	P	V
	-	4485	52.78	-	-	78.33	30.57	7.46	64.09	108	299	P	V
		4874	41.17	-32.83	74	65.43	31.28	8.38	64.4	100	0	P	V
		7311	42.56	-31.44	74	61.41	36.18	10.12	65.55	100	0	P	V
802.11n HT20 CH 11 2462MHz	-	1498	67.81	-	-	62.17	25.5	4.18	34	171	301	P	H
	-	4485	53.9	-	-	79.45	30.57	7.46	64.09	349	95	P	H
		4924	39.42	-34.58	74	63.64	31.38	8.37	64.44	100	0	P	H
		7386	43.06	-30.94	74	61.87	36.37	10.09	65.62	100	0	P	H
	-	1498	63.51	-	-	57.87	25.5	4.18	34	332	59	P	V
	-	4485	51.44	-	-	76.99	30.57	7.46	64.09	106	290	P	V
		4924	39.06	-34.94	74	63.28	31.38	8.37	64.44	100	0	P	V
		7386	42.14	-31.86	74	60.95	36.37	10.09	65.62	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. Note "-" is unintentional radiator, the single complies with ANSI C63.4 requirement can be ignored.												

Emission below 1GHz

2.4GHz WIFI 802.11n HT20 (LF)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11n HT20 LF		74.55	25.95	-14.05	40	44.8	12.85	0.88	32.74	-	-	P	H
		143.4	31.44	-12.06	43.5	45.19	17.34	1.24	32.68	-	-	P	H
		242.22	39.54	-6.46	46	52.55	17.54	1.66	32.62	100	8	QP	H
		331.5	39.46	-6.54	46	49.93	19.8	1.92	32.59	-	-	P	H
		374.9	34.7	-11.3	46	43.94	20.93	2.02	32.6	-	-	P	H
		899.9	40.53	-5.47	46	39.75	28.97	3.19	32.09	-	-	P	H
		71.58	30.85	-9.15	40	49.94	12.6	0.88	32.74	-	-	P	V
		143.13	28.91	-14.59	43.5	42.66	17.34	1.24	32.68	-	-	P	V
		243.84	42.44	-3.56	46	55.33	17.66	1.66	32.62	100	0	P	V
		330.8	40.09	-5.91	46	50.59	19.77	1.92	32.59	-	-	P	V
		374.9	37.9	-8.1	46	47.14	20.93	2.02	32.6	-	-	P	V
		449.8	32.88	-13.12	46	39.75	23.06	2.24	32.62	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11g CH 01 2412MHz		2386.608	63.52	-10.48	74	54.2	27.11	5.39	33.16	118	191	P	H
		2389.952	53.39	-0.61	54	44.06	27.11	5.39	33.15	118	191	A	H
	*	2412	112.93	-	-	103.51	27.16	5.43	33.15	118	191	P	H
	*	2412	105.4	-	-	95.98	27.16	5.43	33.15	118	191	A	H
		2497.36	61.13	-12.87	74	51.35	27.4	5.5	33.1	118	191	P	H
		2496.216	51.09	-2.91	54	41.31	27.4	5.5	33.1	118	191	A	H
		2389.344	55.01	-18.99	74	45.69	27.11	5.39	33.16	108	351	P	V
		2389.952	45.64	-8.36	54	36.31	27.11	5.39	33.15	108	351	A	V
	*	2412	106.11	-	-	96.69	27.16	5.43	33.15	108	351	P	V
	*	2412	98.57	-	-	89.15	27.16	5.43	33.15	108	351	A	V
		2489.968	54.36	-19.64	74	44.59	27.4	5.5	33.11	108	351	P	V
		2490.936	44.81	-9.19	54	35.04	27.4	5.5	33.11	108	351	A	V
802.11g CH 02 2417MHz		2387.52	69.43	-4.57	74	60.11	27.11	15.37	33.16	147	193	P	H
		2389.952	52.92	-1.08	54	43.59	27.11	15.37	33.15	147	193	A	H
	*	2417	115.77	-	-	106.34	27.16	15.41	33.14	147	193	P	H
	*	2417	101.02	-	-	91.59	27.16	15.41	33.14	147	193	A	H
		2491.552	61.8	-12.2	74	52.03	27.4	15.48	33.11	147	193	P	H
		2496.304	52.95	-1.05	54	43.17	27.4	15.48	33.1	147	193	A	H
		2387.824	59.6	-14.4	74	50.28	27.11	15.37	33.16	386	243	P	V
		2388.128	48.13	-5.87	54	38.81	27.11	15.37	33.16	386	243	A	V
	*	2417	111.96	-	-	102.53	27.16	15.41	33.14	386	243	P	V
	*	2417	98.48	-	-	89.05	27.16	15.41	33.14	386	243	A	V
		2493.136	56.38	-17.62	74	46.6	27.4	15.48	33.1	386	243	P	V
		2498.152	47.03	-6.97	54	37.25	27.4	15.48	33.1	386	243	A	V

802.11g CH 06 2437MHz		2387.216	59.03	-14.97	74	49.71	27.11	5.39	33.16	113	183	P	H
		2389.648	49.86	-4.14	54	40.54	27.11	5.39	33.16	113	183	A	H
	*	2437	116.93	-	-	107.38	27.26	5.45	33.14	113	183	P	H
	*	2437	108.78	-	-	99.23	27.26	5.45	33.14	113	183	A	H
		2490.496	61.48	-12.52	74	51.71	27.4	5.5	33.11	113	183	P	H
		2484.864	51.44	-2.56	54	41.72	27.35	5.5	33.11	113	183	A	H
		2389.8	54.24	-19.76	74	44.91	27.11	5.39	33.15	100	359	P	V
		2370.648	44.16	-9.84	54	34.92	27.06	5.36	33.16	100	359	A	V
	*	2437	109.62	-	-	100.07	27.26	5.45	33.14	100	359	P	V
	*	2437	101.9	-	-	92.35	27.26	5.45	33.14	100	359	A	V
		2487.24	55.1	-18.9	74	45.38	27.35	5.5	33.11	100	359	P	V
		2488.736	45.35	-8.65	54	35.58	27.4	5.5	33.11	100	359	A	V
802.11g CH 10 2457MHz		2381.44	58.26	-15.74	74	48.99	27.06	15.37	33.16	137	198	P	H
		2380.68	48.25	-5.75	54	38.98	27.06	15.37	33.16	137	198	A	H
	*	2457	115.31	-	-	105.69	27.3	15.44	33.12	137	198	P	H
	*	2457	101.83	-	-	92.21	27.3	15.44	33.12	137	198	A	H
		2485.832	66.8	-7.2	74	57.08	27.35	15.48	33.11	137	198	P	H
		2483.544	52.27	-1.73	54	42.55	27.35	15.48	33.11	137	198	A	H
		2380.984	54.29	-19.71	74	45.02	27.06	15.37	33.16	362	243	P	V
		2372.016	44.05	-9.95	54	34.81	27.06	15.34	33.16	362	243	A	V
	*	2457	111.52	-	-	101.9	27.3	15.44	33.12	362	243	P	V
	*	2457	95.47	-	-	85.85	27.3	15.44	33.12	362	243	A	V
		2483.544	60.93	-13.07	74	51.21	27.35	15.48	33.11	362	243	P	V
		2483.544	48.97	-5.03	54	39.25	27.35	15.48	33.11	362	243	A	V

802.11g CH 11 2462MHz		2380.528	58.37	-15.63	74	49.1	27.06	5.39	33.16	137	194	P	H
		2385.24	48.55	-5.45	54	39.28	27.06	5.39	33.16	137	194	A	H
	*	2462	115.24	-	-	105.62	27.3	5.46	33.12	137	194	P	H
	*	2462	106.95	-	-	97.33	27.3	5.46	33.12	137	194	A	H
		2485.128	64.97	-9.03	74	55.25	27.35	5.5	33.11	137	194	P	H
		2483.544	53.25	-0.75	54	43.53	27.35	5.5	33.11	137	194	A	H
		2385.848	53.22	-20.78	74	43.9	27.11	5.39	33.16	100	350	P	V
		2389.8	43.65	-10.35	54	34.32	27.11	5.39	33.15	100	350	A	V
	*	2462	107.27	-	-	97.65	27.3	5.46	33.12	100	350	P	V
	*	2462	99.2	-	-	89.58	27.3	5.46	33.12	100	350	A	V
		2489.352	58.9	-15.1	74	49.13	27.4	5.5	33.11	100	350	P	V
		2484.776	46.01	-7.99	54	36.29	27.35	5.5	33.11	100	350	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11g CH 01 2412MHz	-	1498	68.27	-	-	62.63	25.5	4.18	34	217	289	P	H
	-	4485	54.32	-	-	79.87	30.57	7.46	64.09	349	94	P	H
		4824	40.05	-33.95	74	64.32	31.19	8.41	64.36	100	0	P	H
	-	1498	64.82	-	-	59.18	25.5	4.18	34	329	78	P	V
	-	4485	53.23	-	-	78.78	30.57	7.46	64.09	108	299	P	V
		4824	39.37	-34.63	74	63.64	31.19	8.41	64.36	100	0	P	V
802.11g CH 06 2437MHz	-	1498	68.67	-	-	63.03	25.5	4.18	34	217	289	P	H
	-	4485	54.8	-	-	80.35	30.57	7.46	64.09	352	101	P	H
		4874	40.01	-33.99	74	64.27	31.28	8.38	64.4	100	0	P	H
		7311	42.64	-31.36	74	61.49	36.18	10.12	65.55	100	0	P	H
	-	1498	64.78	-	-	59.14	25.5	4.18	34	328	77	P	V
	-	4485	51.35	-	-	76.9	30.57	7.46	64.09	105	297	P	V
		4874	40.79	-33.21	74	65.05	31.28	8.38	64.4	100	0	P	V
		7311	42.46	-31.54	74	61.31	36.18	10.12	65.55	100	0	P	V
802.11g CH 11 2462MHz	-	1498	68.24	-	-	62.6	25.5	4.18	34	217	289	P	H
	-	4485	55.33	-	-	80.88	30.57	7.46	64.09	350	95	P	H
		4924	39.09	-34.91	74	63.31	31.38	8.37	64.44	100	0	P	H
		7386	42.74	-31.26	74	61.55	36.37	10.09	65.62	100	0	P	H
	-	1498	65.28	-	-	59.64	25.5	4.18	34	329	77	P	V
	-	4485	50.84	-	-	76.39	30.57	7.46	64.09	105	292	P	V
		4924	38.22	-35.78	74	62.44	31.38	8.37	64.44	100	0	P	V
		7386	42.34	-31.66	74	61.15	36.37	10.09	65.62	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. Note "-" is unintentional radiator, the single complies with ANSI C63.4 requirement can be ignored.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		2389.952	64.93	-9.07	74	55.6	27.11	5.39	33.15	112	200	P	H
		2389.952	52.95	-1.05	54	43.62	27.11	5.39	33.15	112	200	A	H
	*	2412	109.89	-	-	100.47	27.16	5.43	33.15	112	200	P	H
	*	2412	101.64	-	-	92.22	27.16	5.43	33.15	112	200	A	H
		2489.352	59.47	-14.53	74	49.7	27.4	5.5	33.11	112	200	P	H
		2497.096	49.59	-4.41	54	39.81	27.4	5.5	33.1	112	200	A	H
		2389.192	54.14	-19.86	74	44.82	27.11	5.39	33.16	106	350	P	V
		2389.04	43.92	-10.08	54	34.6	27.11	5.39	33.16	106	350	A	V
	*	2412	101.06	-	-	91.64	27.16	5.43	33.15	106	350	P	V
	*	2412	94.27	-	-	84.85	27.16	5.43	33.15	106	350	A	V
		2485.392	53.49	-20.51	74	43.77	27.35	5.5	33.11	106	350	P	V
		2489	43.83	-10.17	54	34.06	27.4	5.5	33.11	106	350	A	V
802.11n HT20 CH 02 2417MHz		2389.04	65.15	-8.85	74	55.83	27.11	15.37	33.16	144	197	P	H
		2389.496	53.23	-0.77	54	43.91	27.11	15.37	33.16	144	197	A	H
	*	2417	114.04	-	-	104.61	27.16	15.41	33.14	144	197	P	H
	*	2417	100.31	-	-	90.88	27.16	15.41	33.14	144	197	A	H
		2489.352	61.68	-12.32	74	51.91	27.4	15.48	33.11	144	197	P	H
		2491.992	52.52	-1.48	54	42.74	27.4	15.48	33.1	144	197	A	H
		2389.192	61.64	-12.36	74	52.32	27.11	15.37	33.16	380	240	P	V
		2389.8	48.05	-5.95	54	38.72	27.11	15.37	33.15	380	240	A	V
	*	2417	109.42	-	-	99.99	27.16	15.41	33.14	380	240	P	V
	*	2417	94.74	-	-	85.31	27.16	15.41	33.14	380	240	A	V
		2499.56	54.08	-19.92	74	44.3	27.4	15.48	33.1	380	240	P	V
		2499.824	45.55	-8.45	54	35.77	27.4	15.48	33.1	380	240	A	V

802.11n HT20 CH 06 2437MHz		2360.768	59.04	-14.96	74	49.86	27.01	5.36	33.17	108	187	P	H
		2389.952	49.48	-4.52	54	40.15	27.11	5.39	33.15	108	187	A	H
	*	2437	115.99	-	-	106.44	27.26	5.45	33.14	108	187	P	H
	*	2437	108.12	-	-	98.57	27.26	5.45	33.14	108	187	A	H
		2494.28	61.43	-12.57	74	51.65	27.4	5.5	33.1	108	187	P	H
		2488.12	51.8	-2.2	54	42.03	27.4	5.5	33.11	108	187	A	H
		2382.808	53.57	-20.43	74	44.3	27.06	5.39	33.16	100	359	P	V
		2389.952	43.62	-10.38	54	34.29	27.11	5.39	33.15	100	359	A	V
	*	2437	108.41	-	-	98.86	27.26	5.45	33.14	100	359	P	V
	*	2437	101.13	-	-	91.58	27.26	5.45	33.14	100	359	A	V
		2489.88	55.11	-18.89	74	45.34	27.4	5.5	33.11	100	359	P	V
		2487.152	44.83	-9.17	54	35.11	27.35	5.5	33.11	100	359	A	V
802.11n HT20 CH 10 2457MHz		2381.288	57.49	-16.51	74	48.22	27.06	15.37	33.16	139	196	P	H
		2384.176	48.08	-5.92	54	38.81	27.06	15.37	33.16	139	196	A	H
	*	2457	114.69	-	-	105.07	27.3	15.44	33.12	139	196	P	H
	*	2457	106.61	-	-	96.99	27.3	15.44	33.12	139	196	A	H
		2484.6	65.74	-8.26	74	56.02	27.35	15.48	33.11	139	196	P	H
		2484.512	53.36	-0.64	54	43.64	27.35	15.48	33.11	139	196	A	H
		2347.544	52.94	-21.06	74	43.82	26.97	15.32	33.17	365	243	P	V
		2385.088	43.58	-10.42	54	34.31	27.06	15.37	33.16	365	243	A	V
	*	2457	110.18	-	-	100.56	27.3	15.44	33.12	365	243	P	V
	*	2457	102.5	-	-	92.88	27.3	15.44	33.12	365	243	A	V
		2484.864	59.22	-14.78	74	49.5	27.35	15.48	33.11	365	243	P	V
		2484.688	47.58	-6.42	54	37.86	27.35	15.48	33.11	365	243	A	V

802.11n HT20 CH 11 2462MHz		2386.152	56.51	-17.49	74	47.19	27.11	5.39	33.16	135	188	P	H
		2386.608	46.93	-7.07	54	37.61	27.11	5.39	33.16	135	188	A	H
	*	2462	112.34	-	-	102.72	27.3	5.46	33.12	135	188	P	H
	*	2462	104.19	-	-	94.57	27.3	5.46	33.12	135	188	A	H
		2484.16	63.65	-10.35	74	53.93	27.35	5.5	33.11	135	188	P	H
		2483.72	53.25	-0.75	54	43.53	27.35	5.5	33.11	135	188	A	H
		2384.936	52.43	-21.57	74	43.16	27.06	5.39	33.16	100	352	P	V
		2388.736	43.21	-10.79	54	33.89	27.11	5.39	33.16	100	352	A	V
	*	2462	104.12	-	-	94.5	27.3	5.46	33.12	100	352	P	V
	*	2462	96.19	-	-	86.57	27.3	5.46	33.12	100	352	A	V
		2483.808	56.4	-17.6	74	46.68	27.35	5.5	33.11	100	352	P	V
		2483.72	46.57	-7.43	54	36.85	27.35	5.5	33.11	100	352	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 01 2412MHz	-	1498	68.26	-	-	62.62	25.5	4.18	34	217	289	P	H
	-	4485	55.01	-	-	80.56	30.57	7.46	64.09	358	96	P	H
		4824	39.65	-34.35	74	63.92	31.19	8.41	64.36	100	0	P	H
	-	1498	64.77	-	-	59.13	25.5	4.18	34	329	77	P	V
	-	4485	52.13	-	-	77.68	30.57	7.46	64.09	105	296	P	V
		4824	39.55	-34.45	74	63.82	31.19	8.41	64.36	100	0	P	V
802.11n HT20 CH 06 2437MHz	-	1498	68.61	-	-	62.97	25.5	4.18	34	217	289	P	H
	-	4485	55.62	-	-	81.17	30.57	7.46	64.09	358	101	P	H
		4874	41.23	-32.77	74	65.49	31.28	8.38	64.4	100	0	P	H
		7311	42.3	-31.7	74	61.15	36.18	10.12	65.55	100	0	P	H
	-	1498	65.22	-	-	59.58	25.5	4.18	34	329	77	P	V
	-	4485	52.66	-	-	78.21	30.57	7.46	64.09	104	293	P	V
		4874	41.25	-32.75	74	65.51	31.28	8.38	64.4	100	0	P	V
		7311	43.26	-30.74	74	62.11	36.18	10.12	65.55	100	0	P	V
802.11n HT20 CH 11 2462MHz	-	1498	68.28	-	-	62.64	25.5	4.18	34	217	289	P	H
	-	4485	55.36	-	-	80.91	30.57	7.46	64.09	352	96	P	H
		4924	38.56	-35.44	74	62.78	31.38	8.37	64.44	100	0	P	H
		7386	42.52	-31.48	74	61.33	36.37	10.09	65.62	100	0	P	H
	-	1498	64.89	-	-	59.25	25.5	4.18	34	329	77	P	V
	-	4485	52.96	-	-	78.51	30.57	7.46	64.09	104	296	P	V
		4924	38.3	-35.7	74	62.52	31.38	8.37	64.44	100	0	P	V
		7386	42.44	-31.56	74	61.25	36.37	10.09	65.62	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line. 3. Note "-" is unintentional radiator, the single complies with ANSI C63.4 requirement can be ignored.												

Emission below 1GHz

2.4GHz WIFI 802.11g (LF)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11g LF		74.28	26.17	-13.83	40	45.02	12.85	0.88	32.74	-	-	P	H
		142.86	30.58	-12.92	43.5	44.3	17.38	1.24	32.68	-	-	P	H
		243.03	40.07	-5.93	46	52.96	17.66	1.66	32.62	101	11	QP	H
		329.4	40.12	-5.88	46	50.65	19.74	1.92	32.59	-	-	P	H
		373.5	34.7	-11.3	46	43.97	20.9	2.02	32.6	-	-	P	H
		896.4	40.81	-5.19	46	40.03	28.99	3.19	32.11	-	-	P	H
		73.74	30.28	-9.72	40	49.21	12.77	0.88	32.74	-	-	P	V
		143.67	29.4	-14.1	43.5	43.15	17.34	1.24	32.68	-	-	P	V
		243.3	41.7	-4.3	46	54.59	17.66	1.66	32.62	100	0	P	V
		330.1	41.1	-4.9	46	51.63	19.74	1.92	32.59	-	-	P	V
		373.5	37.77	-8.23	46	47.04	20.9	2.02	32.6	-	-	P	V
		449.8	32.37	-13.63	46	39.24	23.06	2.24	32.62	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Note symbol

*	**Fundamental Frequency** which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
-	The signal is **Unintentional Radiators.**
P/A	**P**eak or **A**verage
H/V	**H**orizontal or **V**ertical

A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
2. Level(dBμV/m) =

Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

3. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.

Appendix D. Radiated Spurious Emission Plots

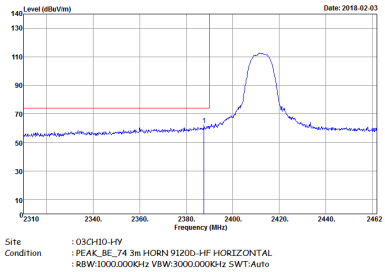
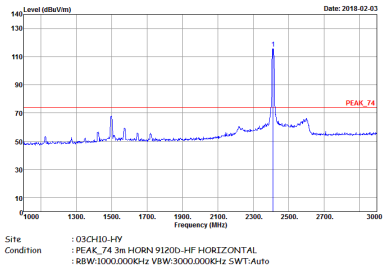
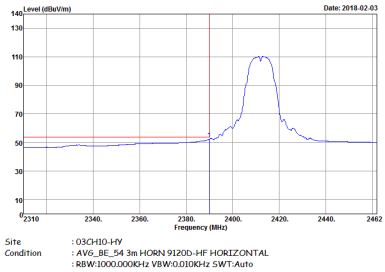
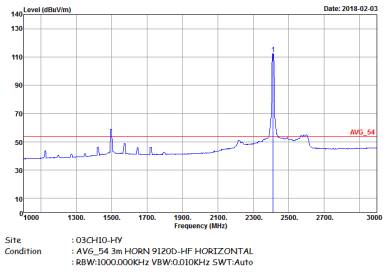
Test Engineer :	Yun Huang, Daniel Lee, and J.C. Liang	**Temperature :**	13~18°C
		Relative Humidity :	48~52%

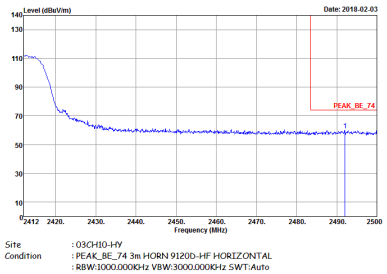
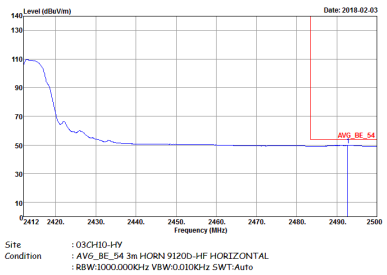
Note symbol

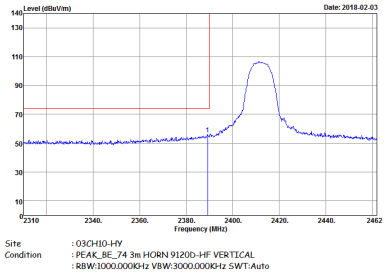
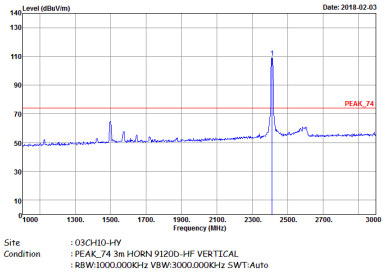
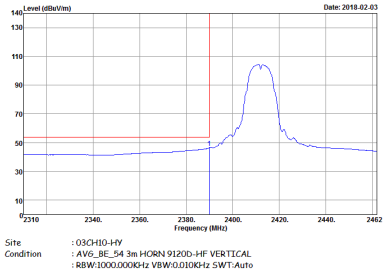
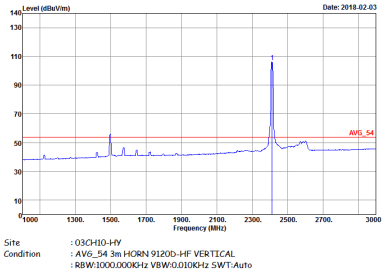
-L	**Low channel location**
-R	**High channel location**

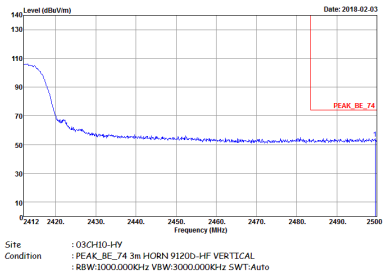
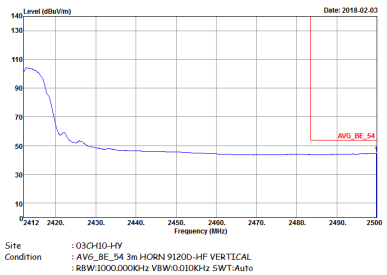
2.4GHz 2400~2483.5MHz

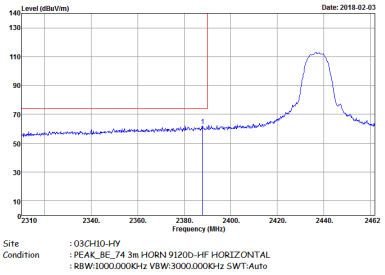
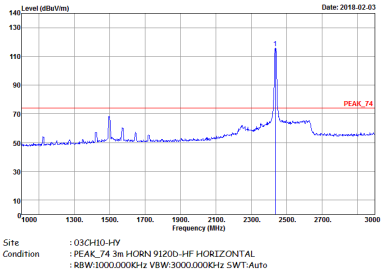
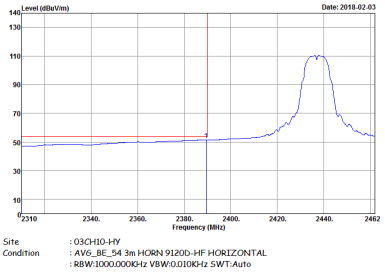
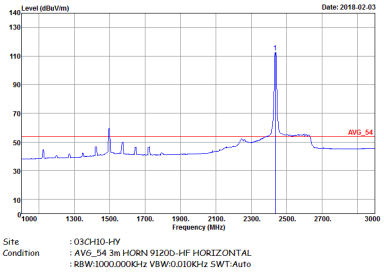
WIFI 802.11b (Band Edge @ 3m)

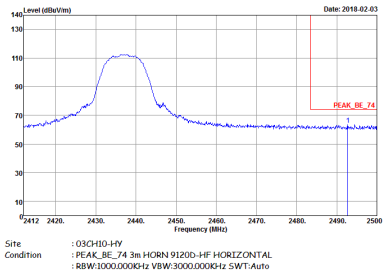
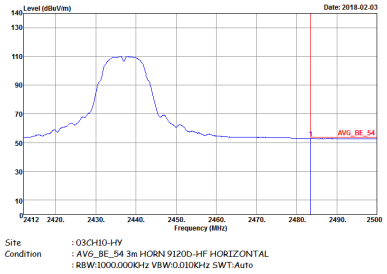
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

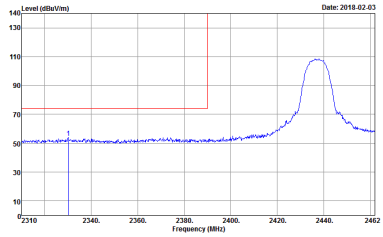
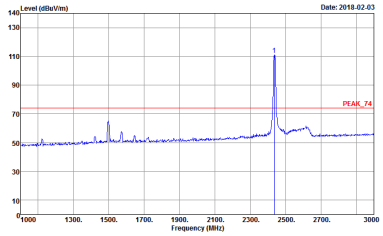
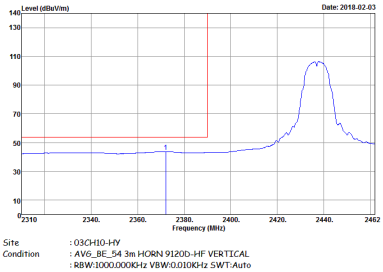
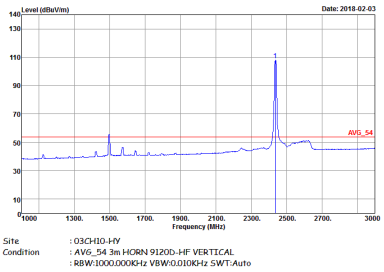
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

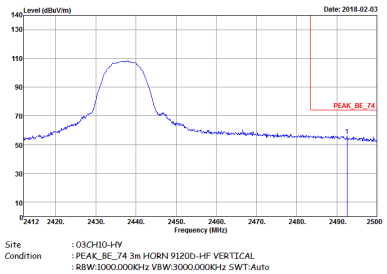
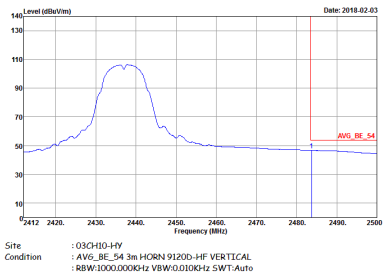
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

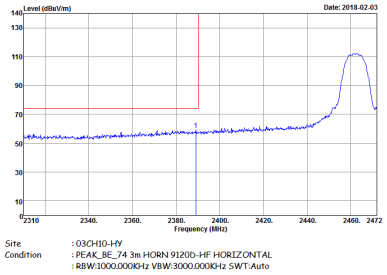
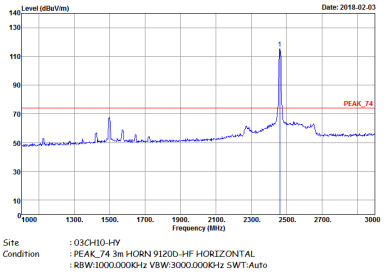
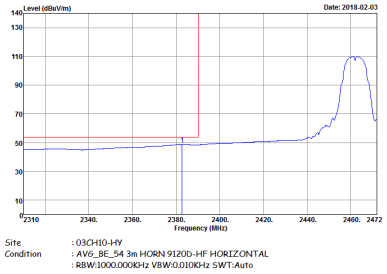
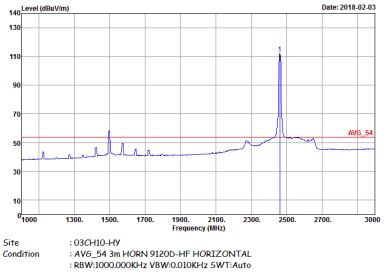
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

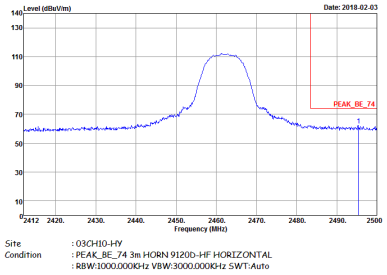
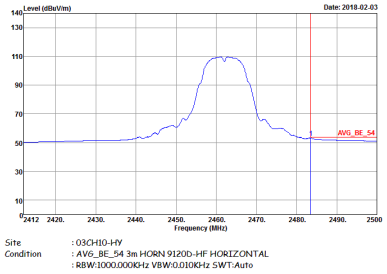
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

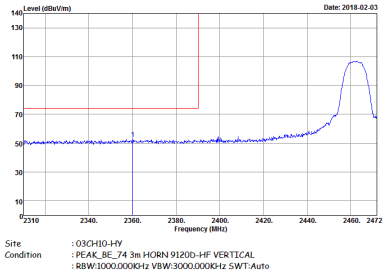
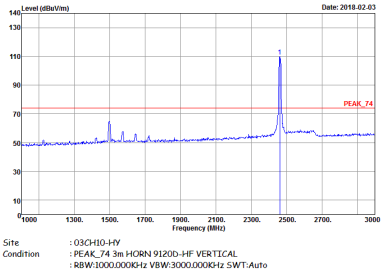
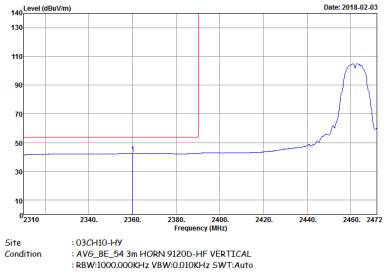
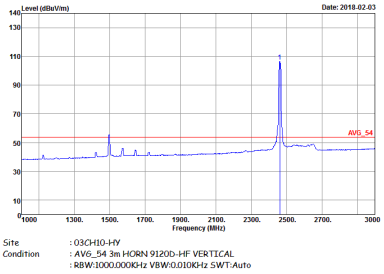
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

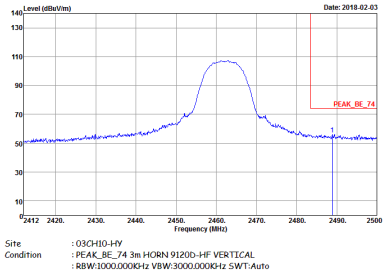
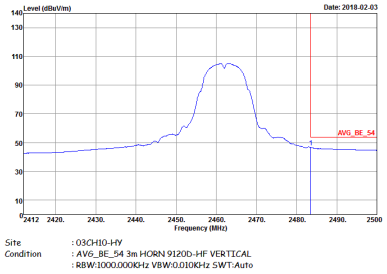
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

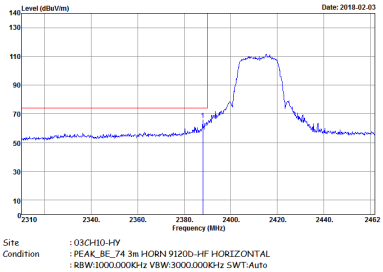
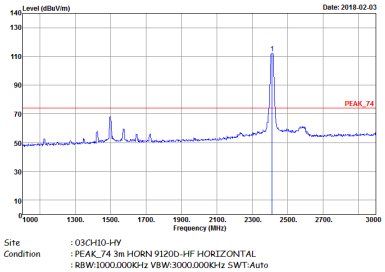
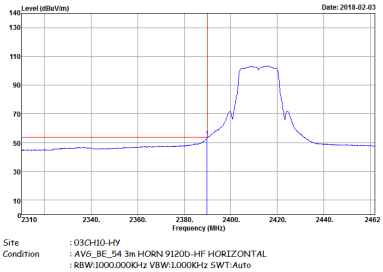
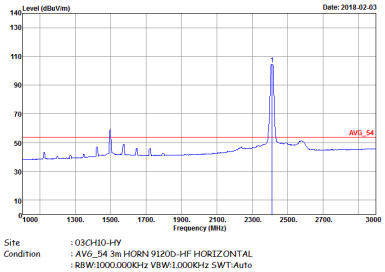
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

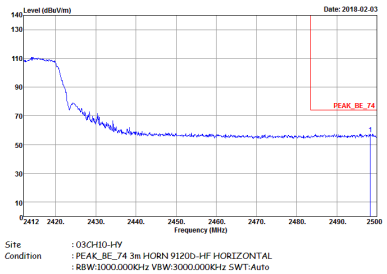
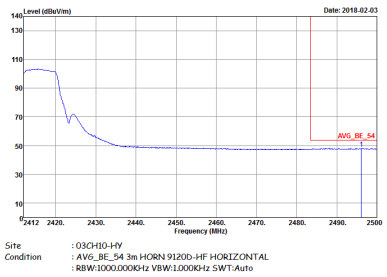
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

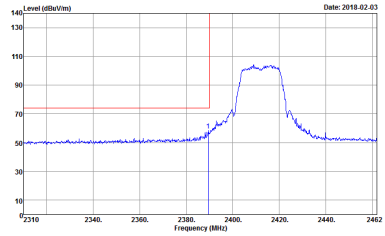
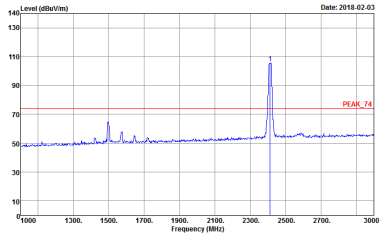
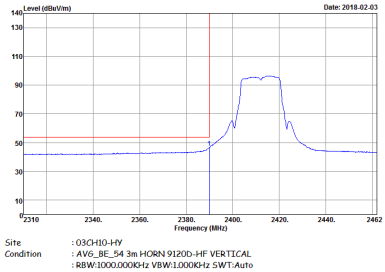
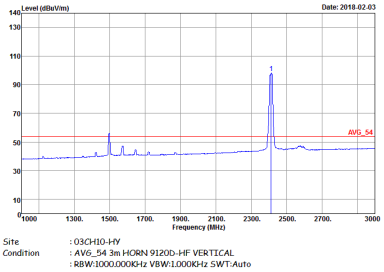
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

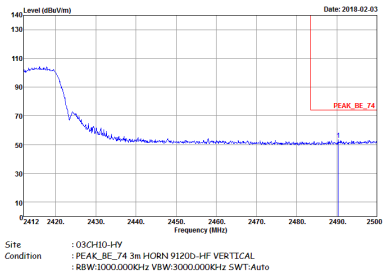
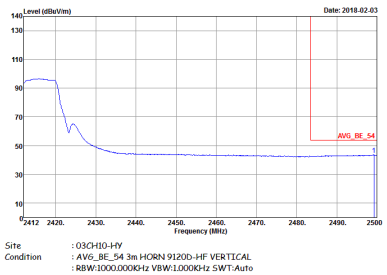
2.4GHz 2400~2483.5MHz

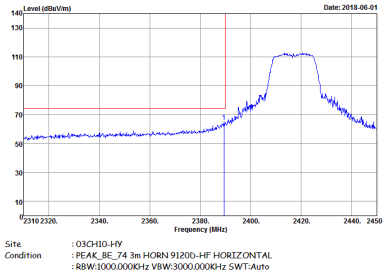
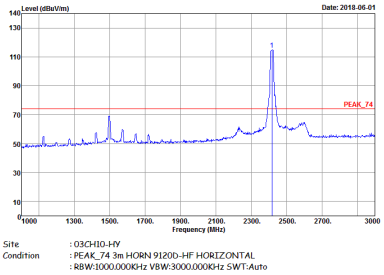
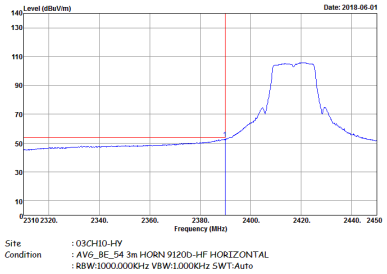
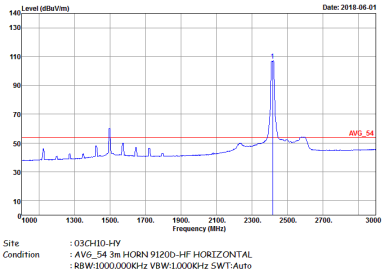
WIFI 802.11g (Band Edge @ 3m)

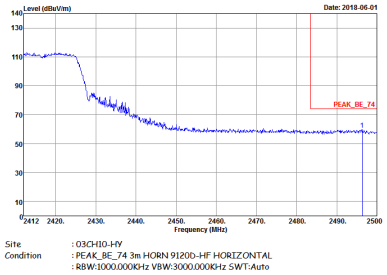
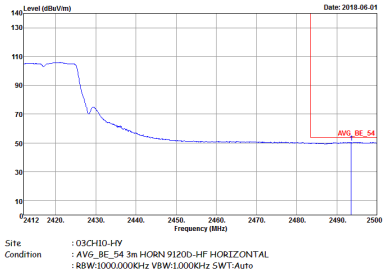
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

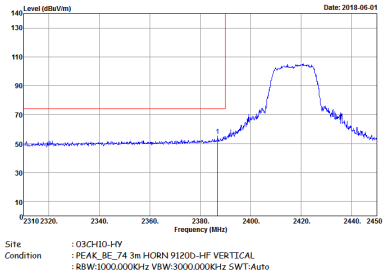
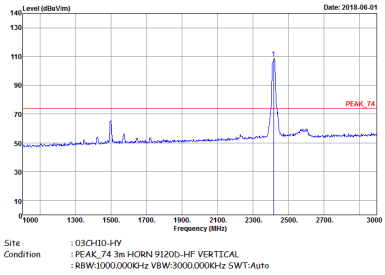
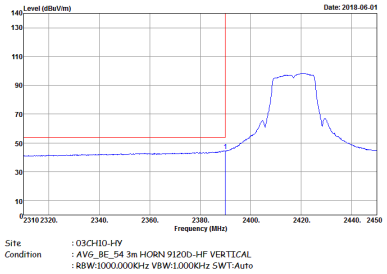
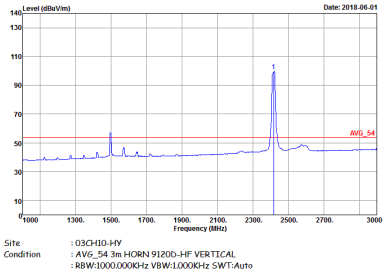
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

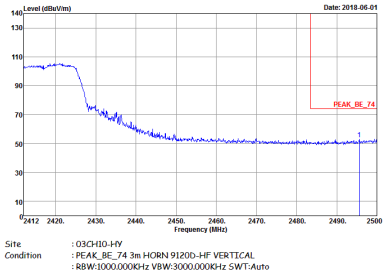
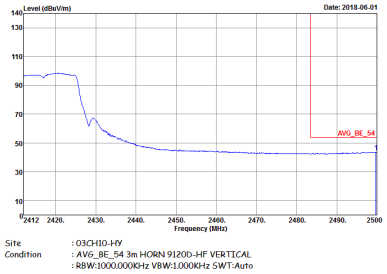
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

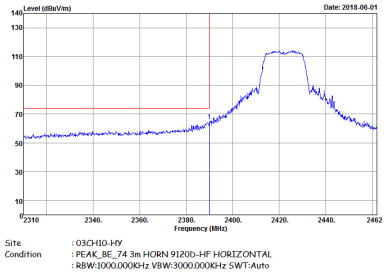
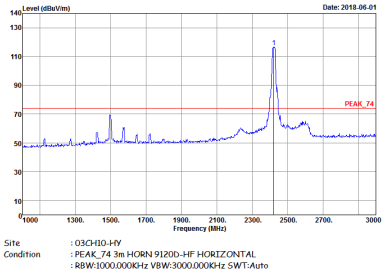
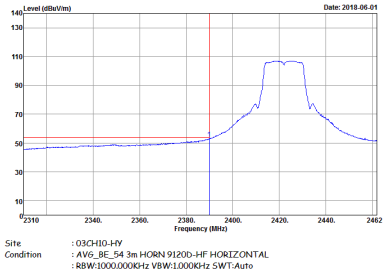
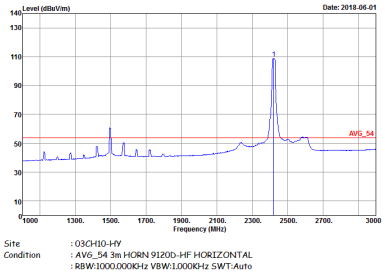
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

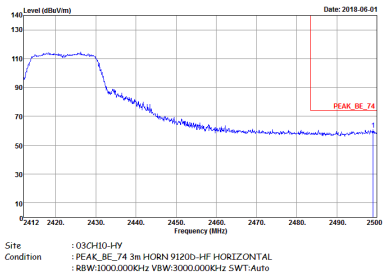
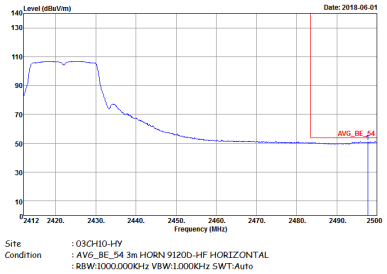
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH02 2417MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

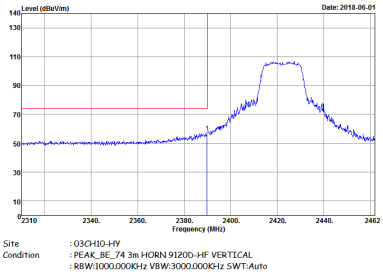
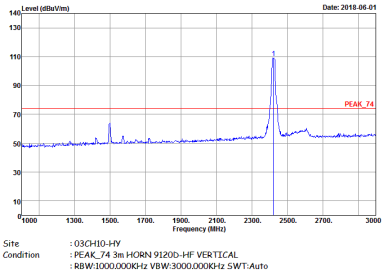
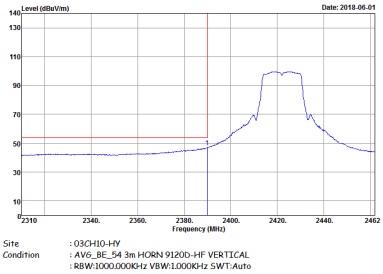
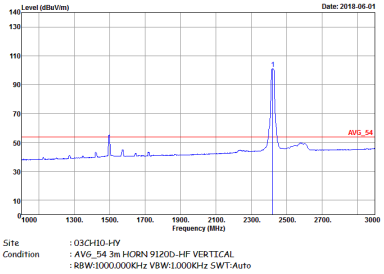
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH02 2417MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

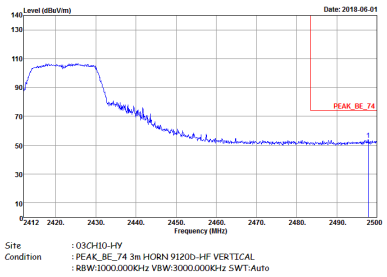
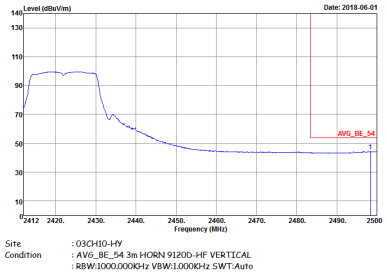
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH02 2417MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

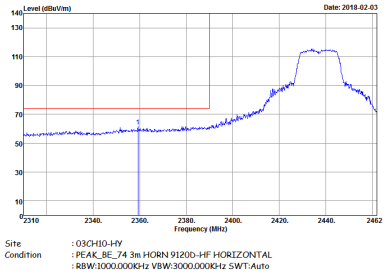
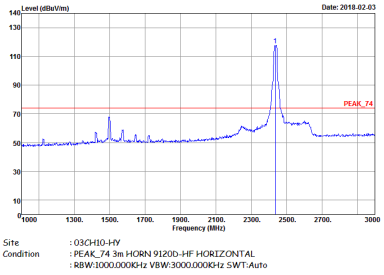
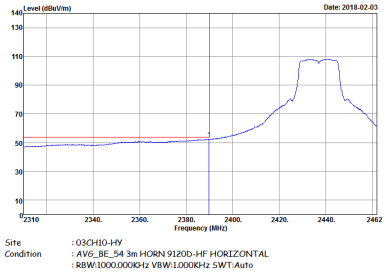
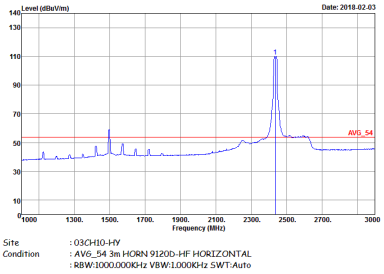
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH02 2417MHz - R	
1	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

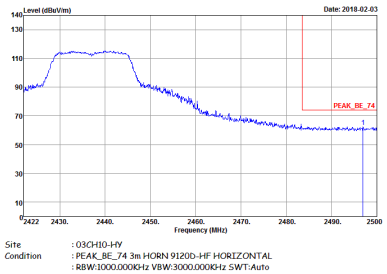
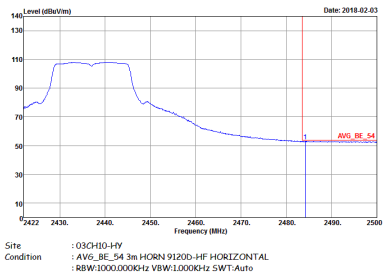
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH03 2422MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

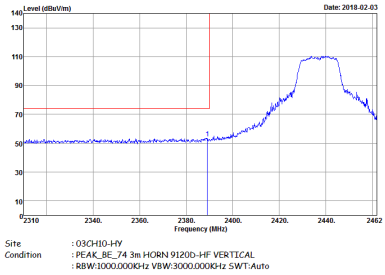
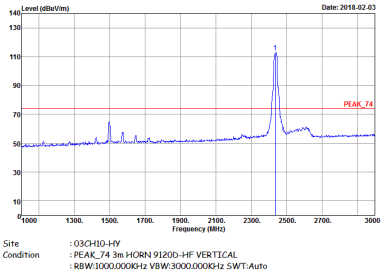
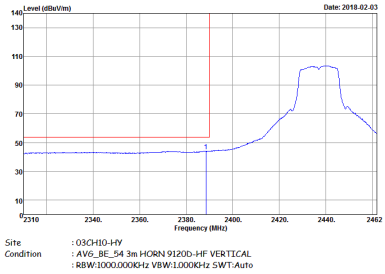
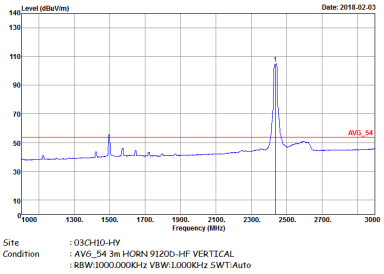
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH03 2422MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

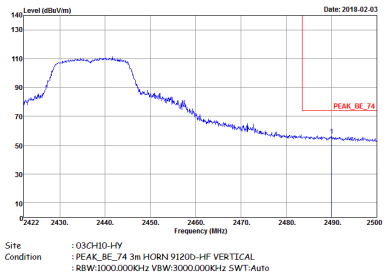
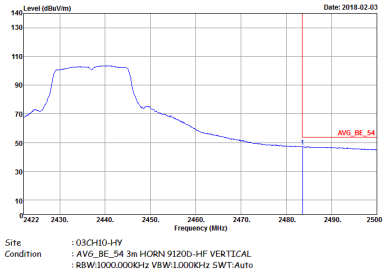
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH03 2422MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

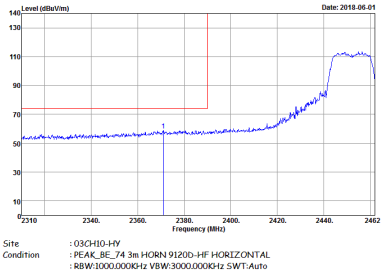
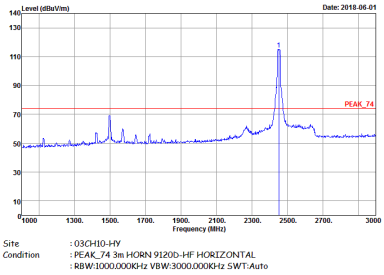
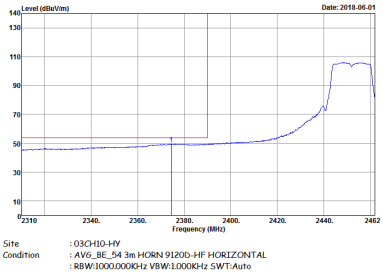
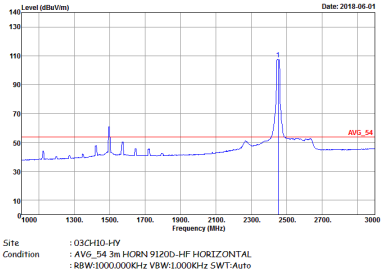
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH03 2422MHz - R	
1	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

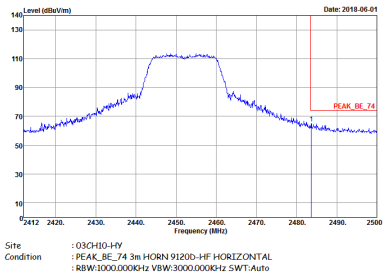
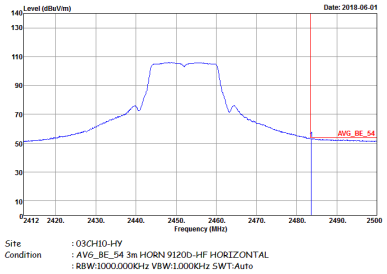
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

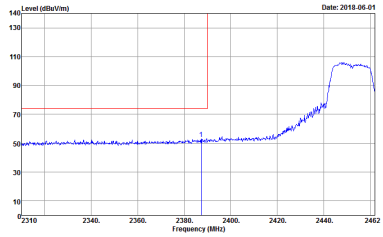
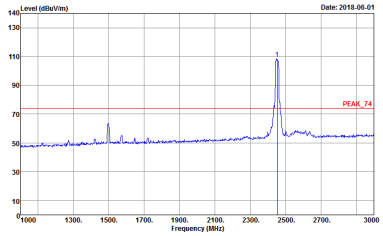
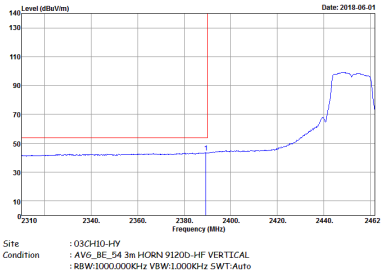
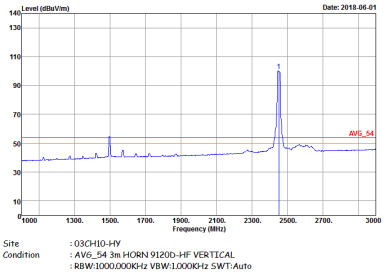
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

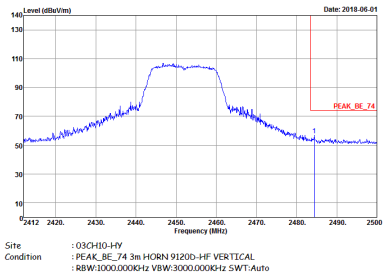
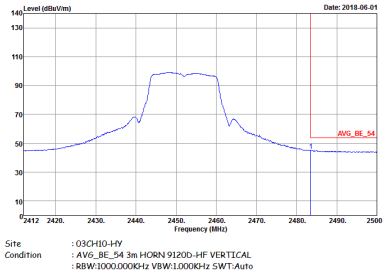
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

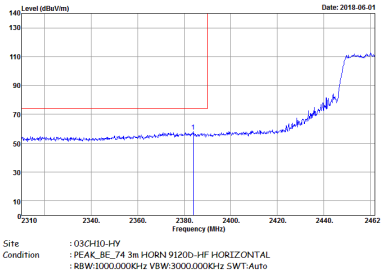
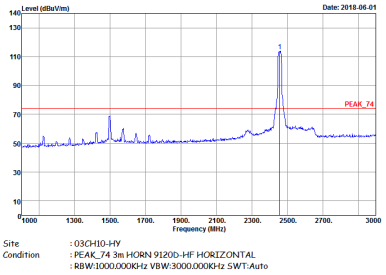
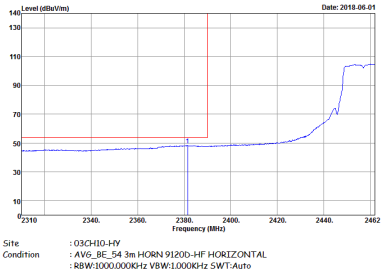
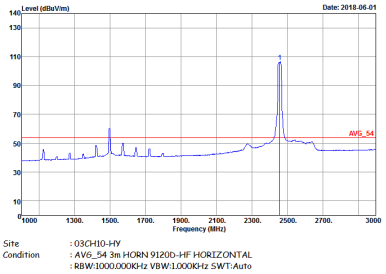
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
1	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

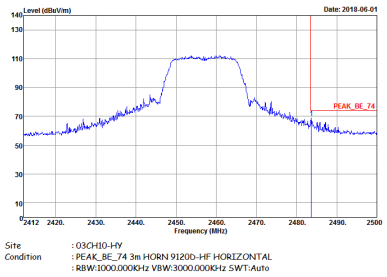
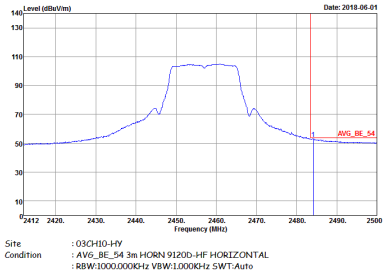
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH09 2452MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

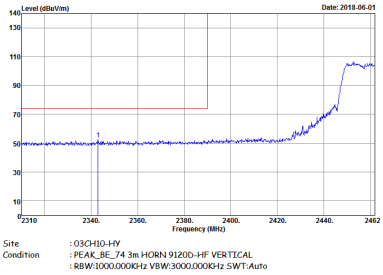
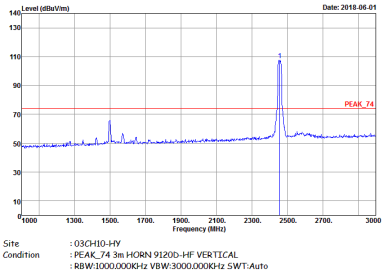
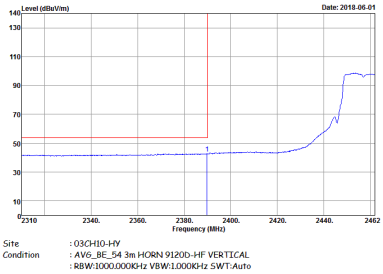
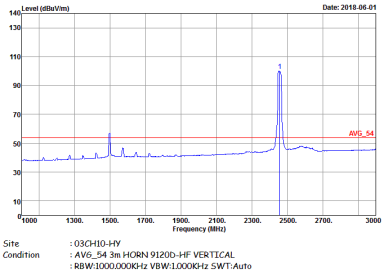
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH09 2452MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

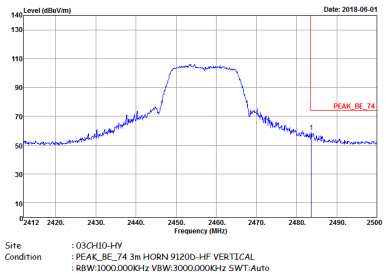
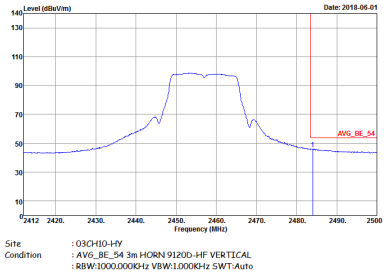
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH09 2452MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

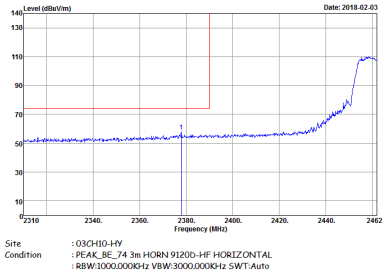
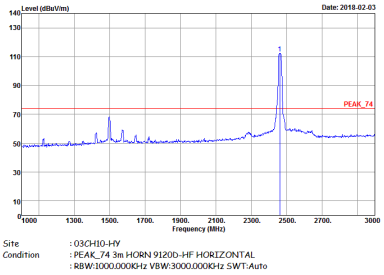
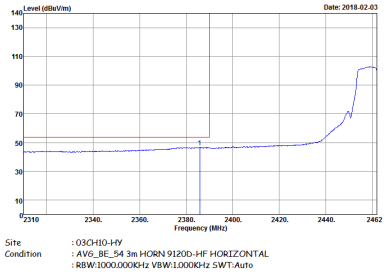
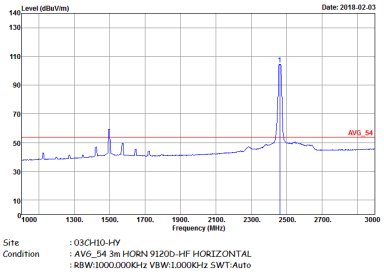
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH09 2452MHz - R	
1	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

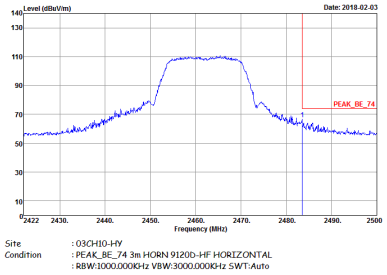
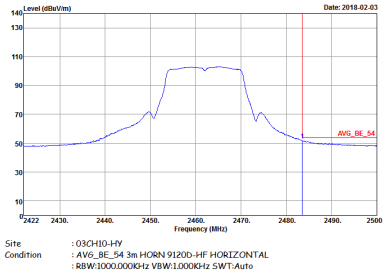
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH10 2457MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

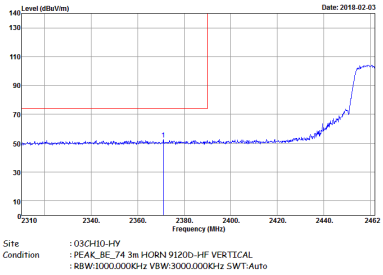
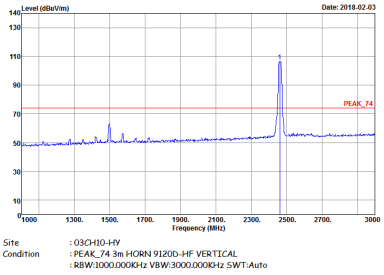
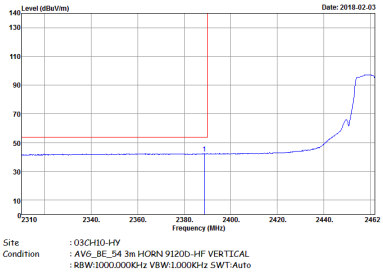
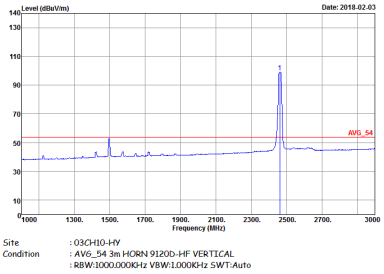
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH10 2457MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

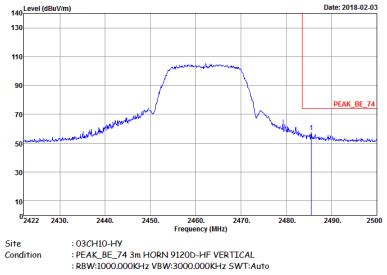
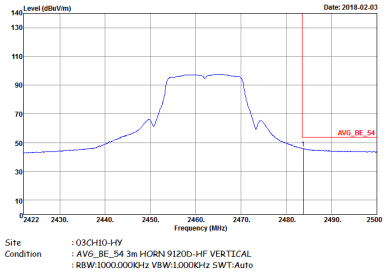
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH10 2457MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH10 2457MHz - R	
1	Vertical	Fundamental
Peak		Left Blank
Avg.		Left Blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

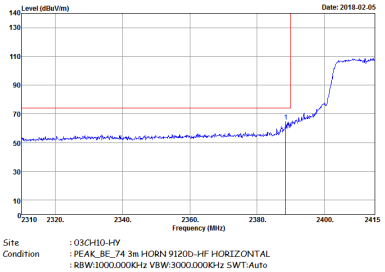
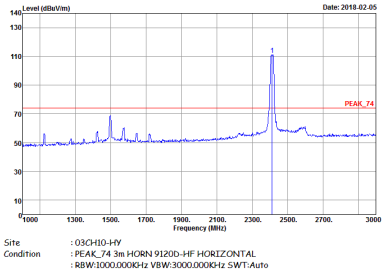
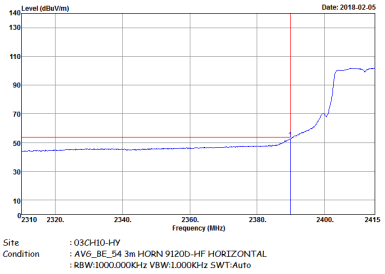
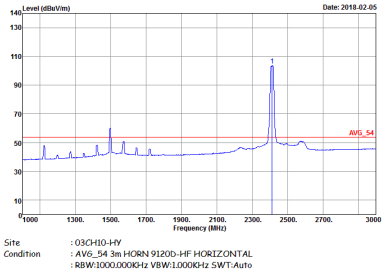
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

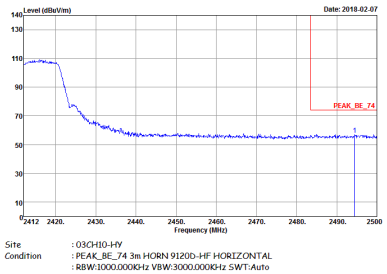
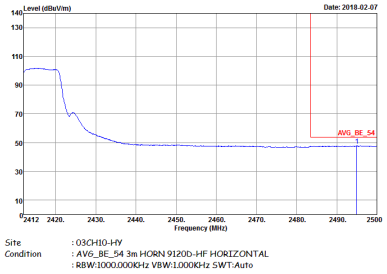
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

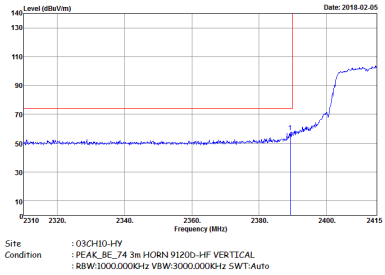
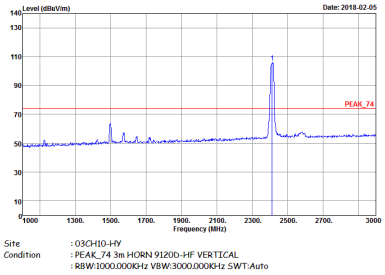
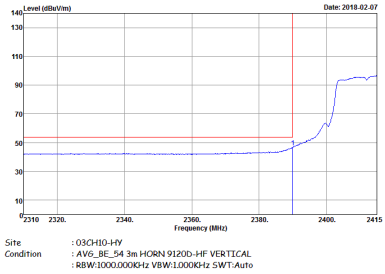
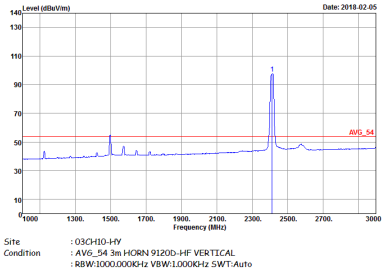
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

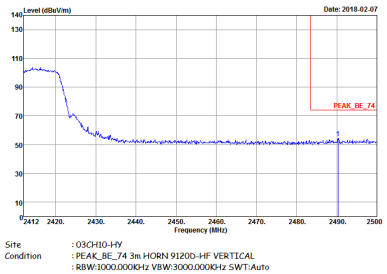
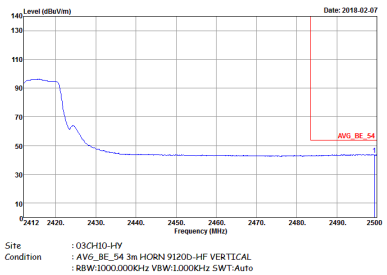
2.4GHz 2400~2483.5MHz

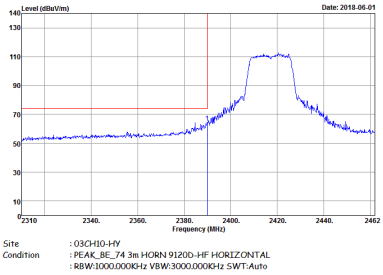
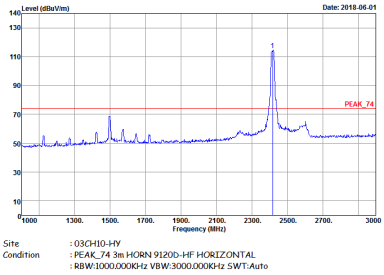
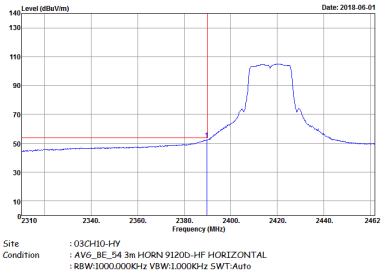
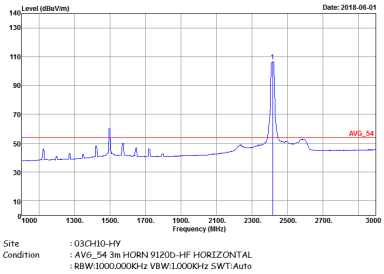
WIFI 802.11n HT20 (Band Edge @ 3m)

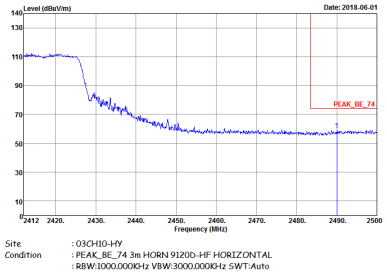
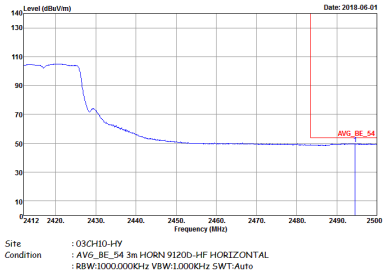
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz - L	
1	Vertical	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH01 2412MHz - R	
1	Vertical	Fundamental
Peak		Left blank
Avg.		Left blank

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH02 2417MHz - L	
1	Horizontal	Fundamental
Peak		
Avg.		

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11n HT20 CH02 2417MHz - R	
1	Horizontal	Fundamental
Peak		Left blank
Avg.		Left blank