



FCC RADIO TEST REPORT

FCC ID : NM82Q6U100
Equipment : Smart Hub
Model Name : 2Q6U100
Applicant : HTC Corporation
No.88, Sec. 3, Zhongxing Rd., Xindian
Dist., New Taipei City 231, Taiwan (R.O.C.)
Manufacturer : HTC Corporation
No.88, Sec. 3, Zhongxing Rd., Xindian
Dist., New Taipei City 231, Taiwan (R.O.C.)
Standard : FCC Part 15 Subpart C §15.247

The product was received on Dec. 20, 2018 and testing was started from Dec. 27, 2018 and completed on Mar. 08, 2019. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, 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 report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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

Approved by: Jones Tsai

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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History of this test report

Report No.	Version	Description	Issued Date
FR8D2018C	01	Initial issue of report	Mar. 13, 2019

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.247(a)(2)	6dB Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Reporting only	-
3.2	15.247(b)	Power Output Measurement	Pass	-
3.3	15.247(e)	Power Spectral Density	Pass	-
3.4	15.247(d)	Conducted Band Edges	Pass	-
		Conducted Spurious Emission	Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	Pass	Under limit 0.14 dB at 2483.500 MHz
3.6	15.207	AC Conducted Emission	Pass	Under limit 12.14 dB at 0.409 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	Pass	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Wii Chang

Report Producer: Natasha Hsieh

1 General Description

1.1 Product Feature of Equipment Under Test

LTE, Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n/ac, Wi-Fi 5GHz 802.11a/n/ac, WiGig, and 5G NR.

Product Specification subjective to this standard	
Antenna Type	WWAN: <Ant. 1>: Fixed Internal PIFA Antenna <Ant. 2>: Fixed Internal Dipole Antenna <Ant. 3>: Fixed Internal PCB Antenna WLAN: <Ant. 1>: Fixed Internal PCB Antenna <Ant. 2>: Fixed Internal PIFA Antenna Bluetooth: Fixed Internal PCB Antenna WiGig: Fixed Internal Array Antenna 5G NR: Fixed Internal PCB Antenna

1.2 Modification of EUT

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

1.3 Testing Location

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan 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.	
	03CH15-HY	

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

FCC Designation No. TW1190 and TW0007



1.4 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 v05r01
- ♦ FCC KDB 414788 D01 Radiated Test Site v01r01.
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ♦ ANSI C63.10-2013

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

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). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.
- 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	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437		

2.2 Test Mode

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

Single Antenna

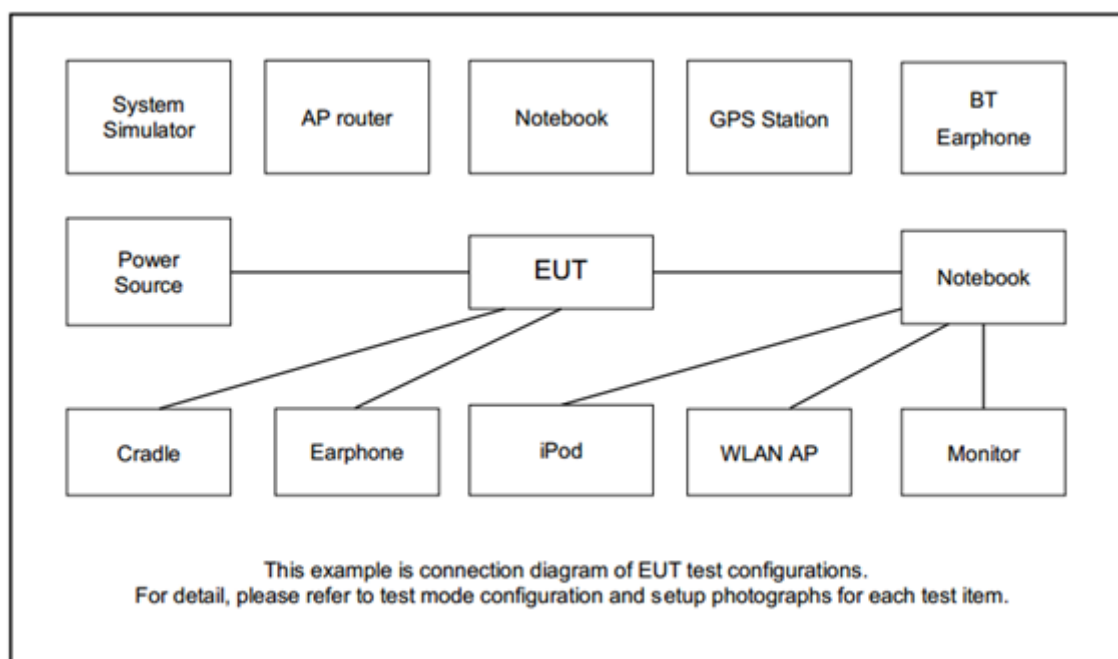
Modulation	Data Rate
802.11b	1 Mbps
802.11g	6 Mbps

MIMO Antenna

Modulation	Data Rate
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20 (Covered by HT20)	MCS0
802.11ac VHT40 (Covered by HT40)	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : LTE Band 5 Idle + Bluetooth Link + WLAN (2.4 GHz) Link + H-Pattern + Adapter + WiGig On + LAN Link + USB Data Link with Notebook
Remark: Data Link with Notebook means data application transferred mode between EUT and Notebook.	

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Base Station	R&S	CBT32	N/A	N/A	Unshielded, 1.8 m
2.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
3.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
4.	WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded, 1.8 m
5.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
6.	Notebook	DELL	P20G	FCC DoC/ Contains FCC ID: QDS-BRCM1051	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
7.	Notebook	DELL	Latitude E6320	FCC DoC/ Contains FCC ID: QDS-BRCM1054	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
8.	Notebook	Lenovo	L570	N/A	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
9.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A

2.5 EUT Operation Test Setup

The RF test items, utility “QRCT” 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.

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 4.2 + 10 = 14.2 \text{ (dB)}\end{aligned}$$

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.

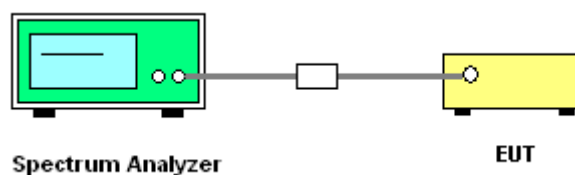
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).
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) is set 1-5% of the emission bandwidth and set the Video bandwidth (VBW) $\geq 3 * RBW$.
6. Measure and record the results in the test report.

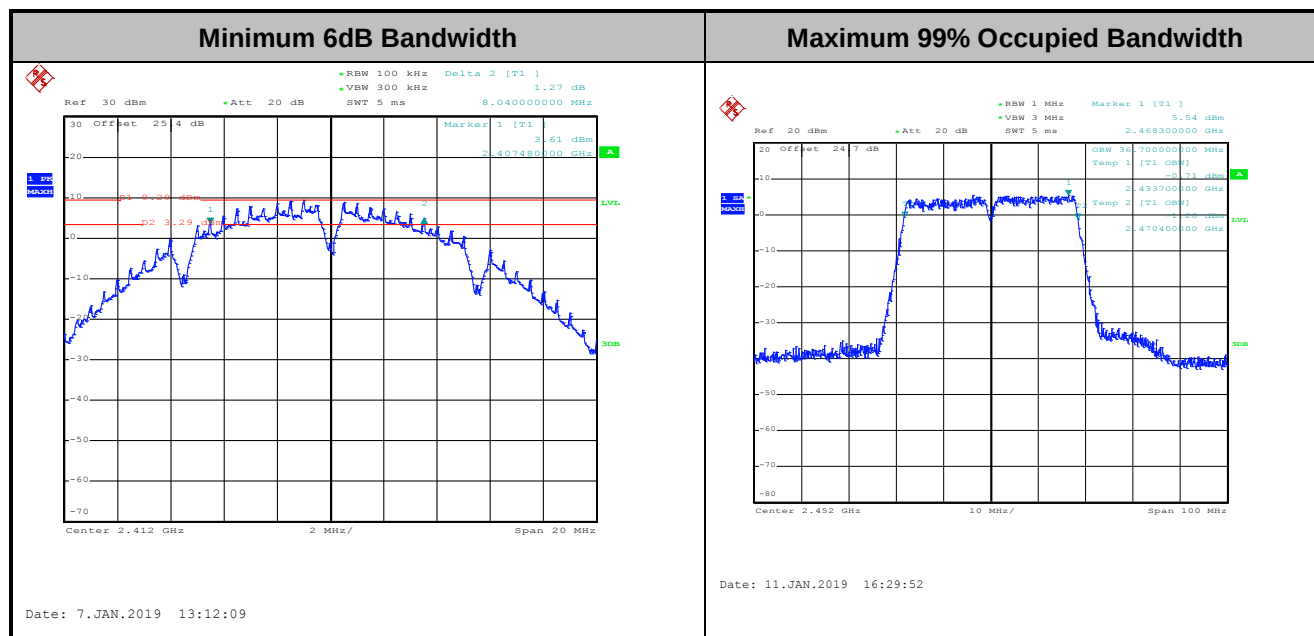
3.1.4 Test Setup





3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Please refer to Appendix A.



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.

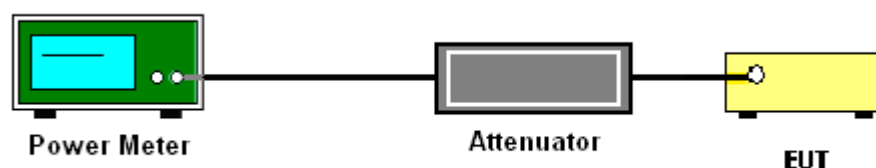
3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

3.2.3 Test Procedures

1. For Peak Power, the testing follows ANSI C63.10 Section 11.9.1.3 PKPM1
2. For Average Power, the testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v05r01 section 9.2.3.1 Method AVGPM.
3. 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.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Measure the conducted output power and record the results in the test report.
6. 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

See list of measuring equipment of this test report.

3.3.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 11.10.2 Method PKPSD.
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.

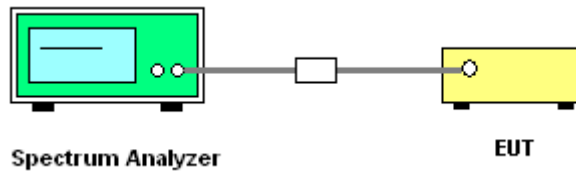
If measurements performed using method (2) plus $10 \log(N)$ exceeds the emission limit, the test should choose method (1) before declaring that the device fails the emission limit.

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.

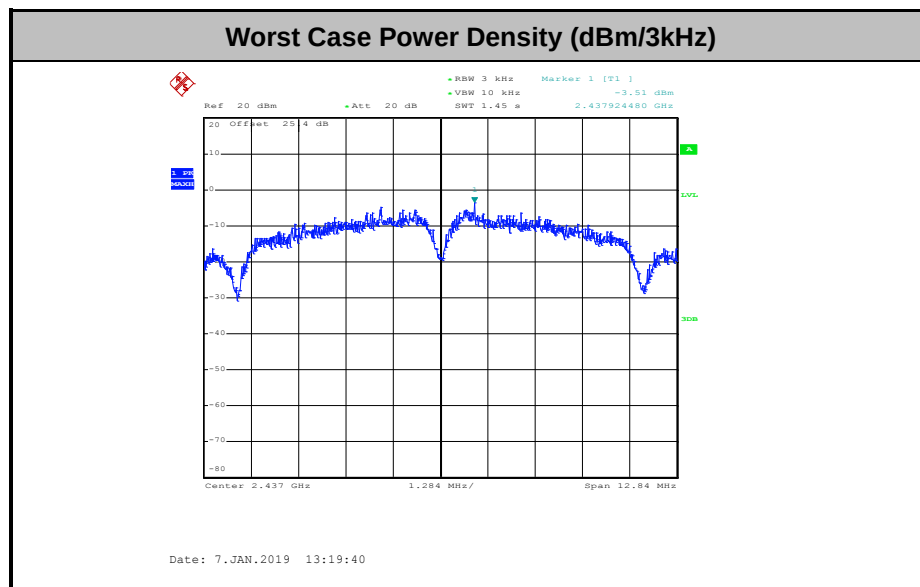
Method (2): Measure and add $10 \log(N)$ dB, where N is the number of outputs. (N=2)

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.



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.

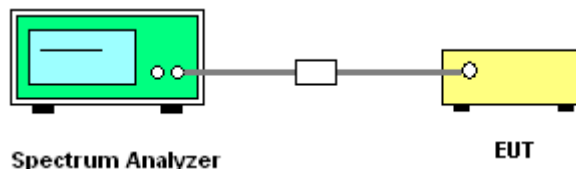
3.4.2 Measuring Instruments

See list of measuring equipment of this test report.

3.4.3 Test Procedures

1. The testing follows the ANSI C63.10 Section 11.11.3 Emission level measurement.
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



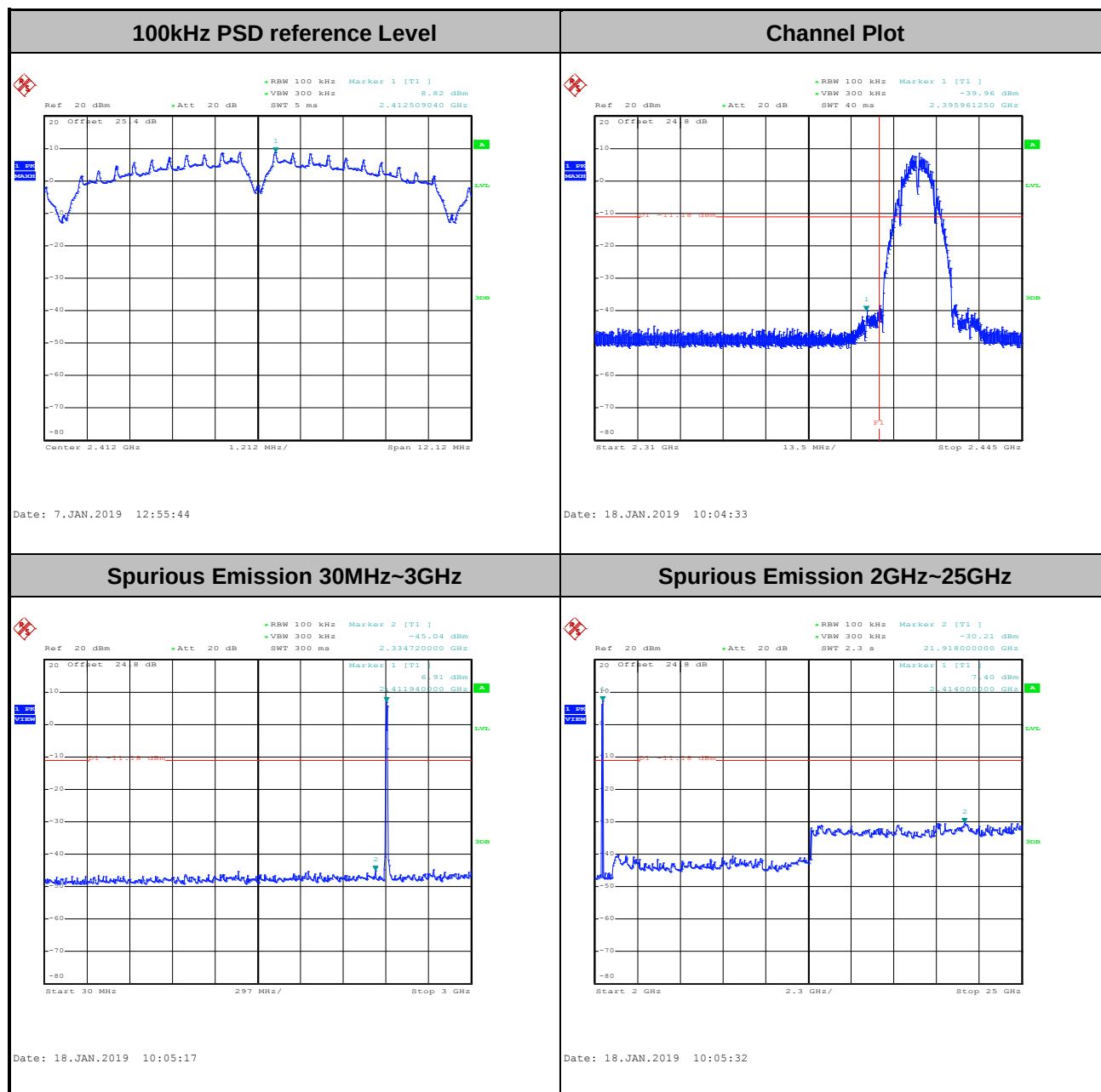


3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Test Engineer :	AnAn Wu and Kai Liao	Temperature :	21~25°C
		Relative Humidity :	51~54%

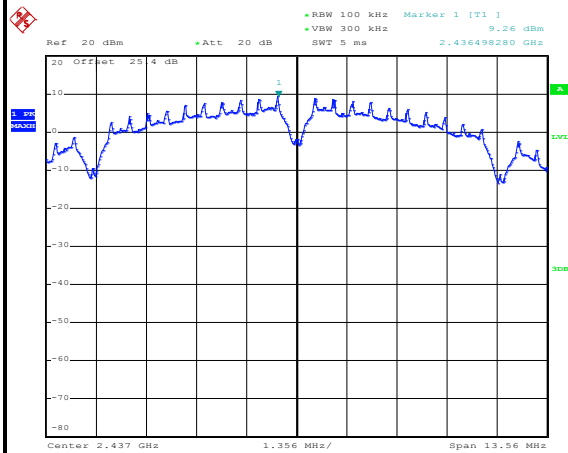
Number of TX = 1, Ant. 1 (Measured)

Test Mode :	802.11b	Test Channel :	01
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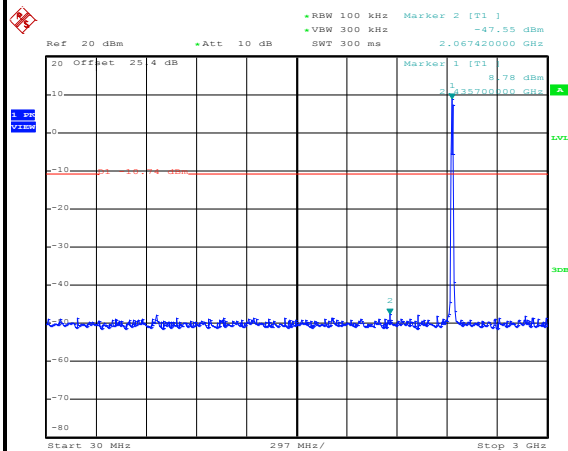
Test Mode :	802.11b	Test Channel :	06
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100kHz PSD reference Level



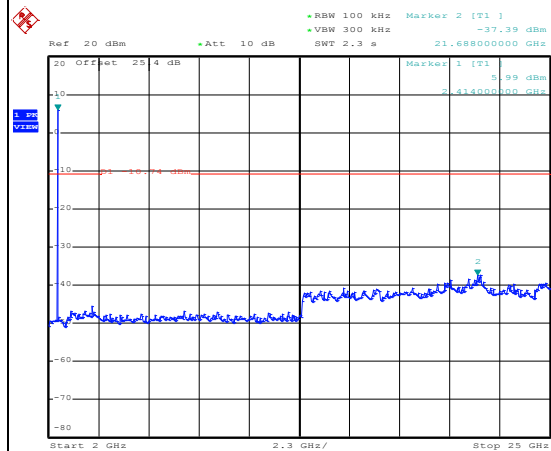
Date: 7.JAN.2019 13:02:22

Channel Plot



Date: 7.JAN.2019 13:03:24

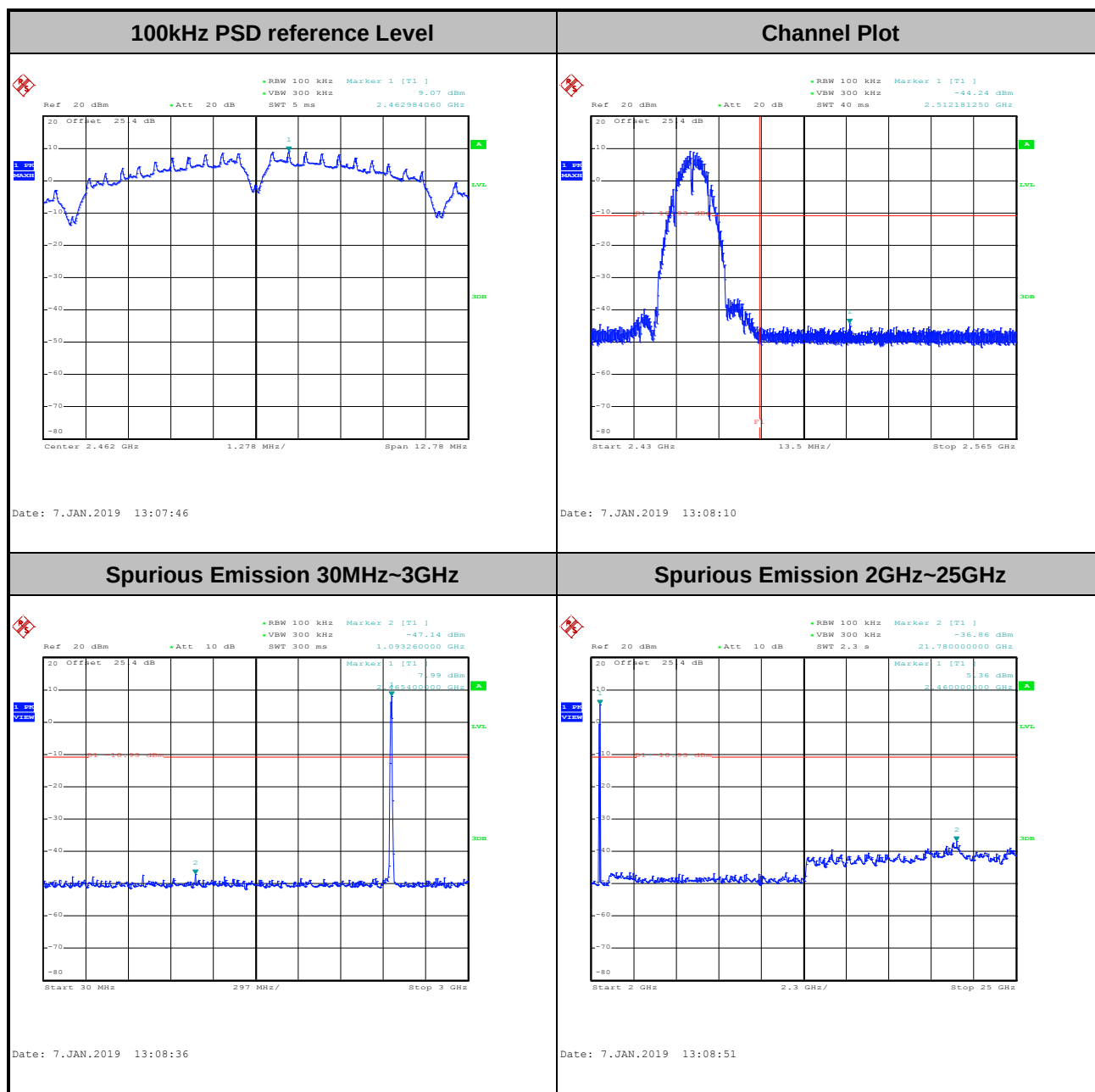
Spurious Emission 2GHz~25GHz

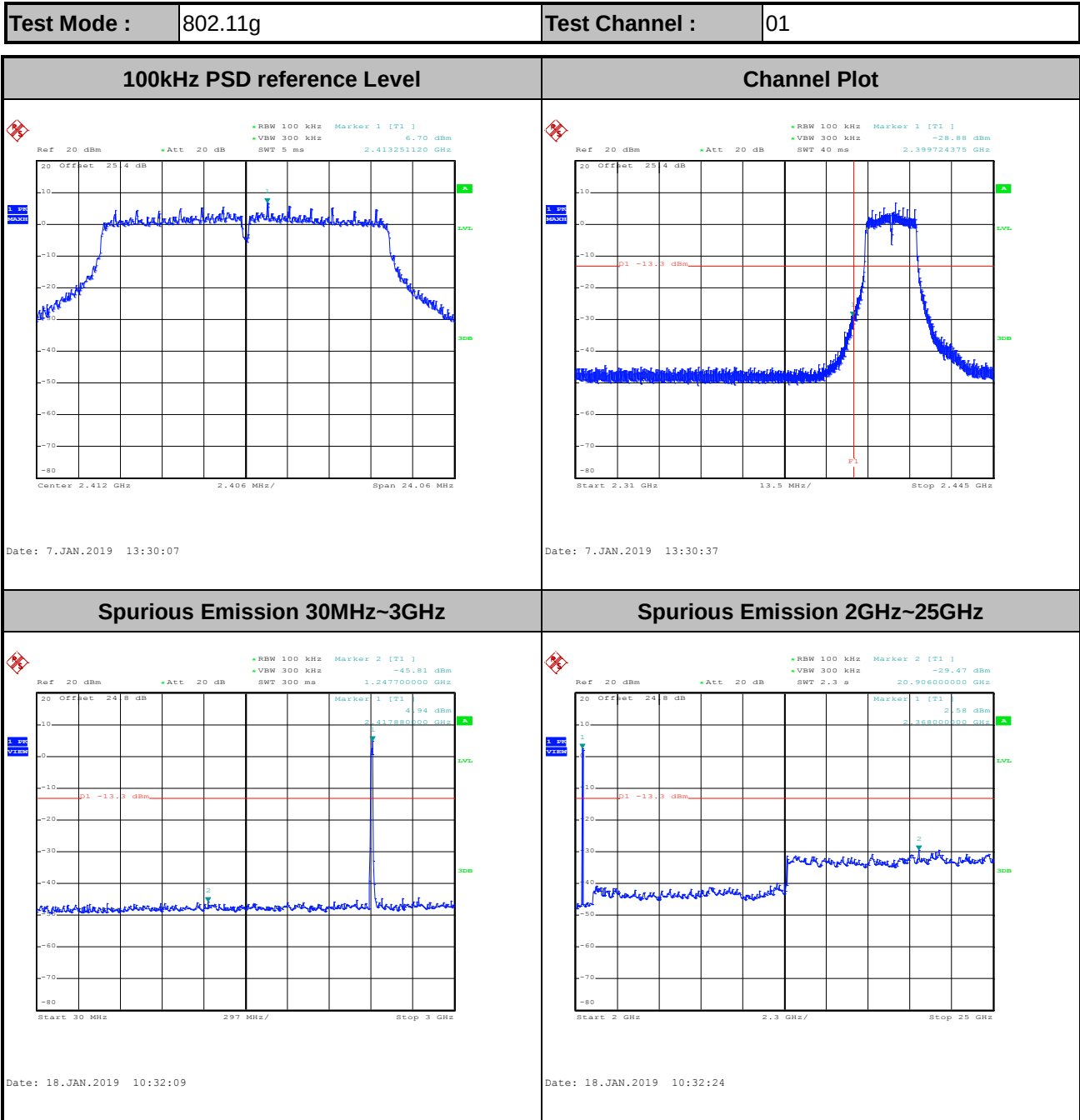


Date: 7.JAN.2019 13:03:44



Test Mode :	802.11b	Test Channel :	11
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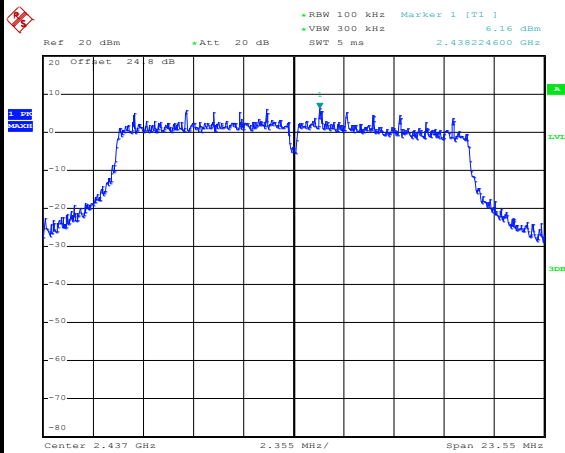






Test Mode :	802.11g	Test Channel :	06
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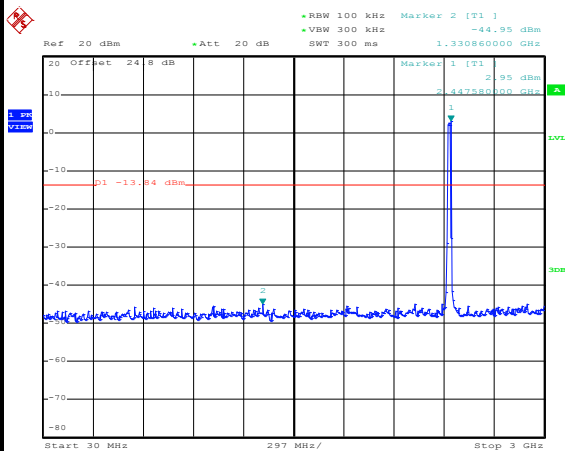
100kHz PSD reference Level



Date: 18.JAN.2019 11:31:28

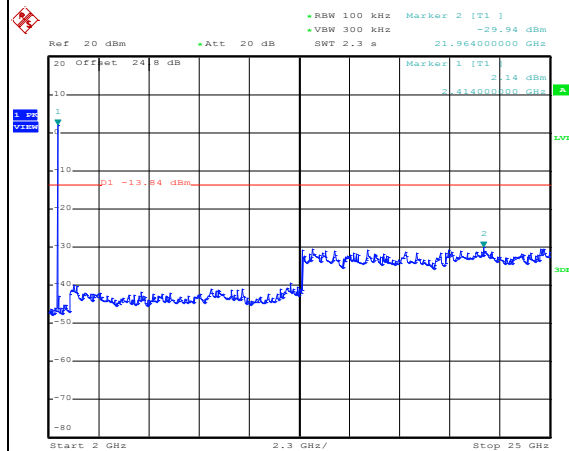
Channel Plot

Spurious Emission 30MHz~3GHz



Date: 18.JAN.2019 11:31:45

Spurious Emission 2GHz~25GHz

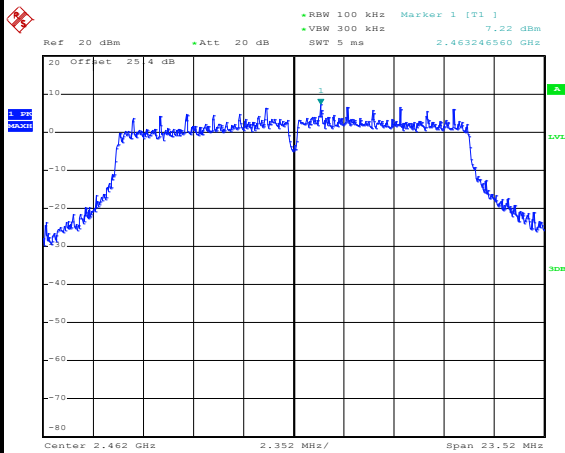


Date: 18.JAN.2019 11:31:59



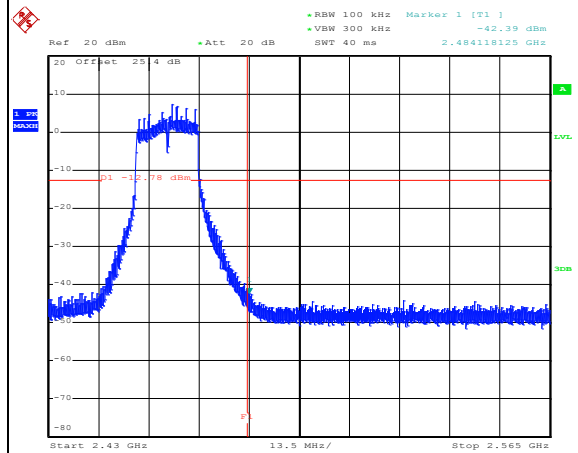
Test Mode :	802.11g	Test Channel :	11
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100kHz PSD reference Level



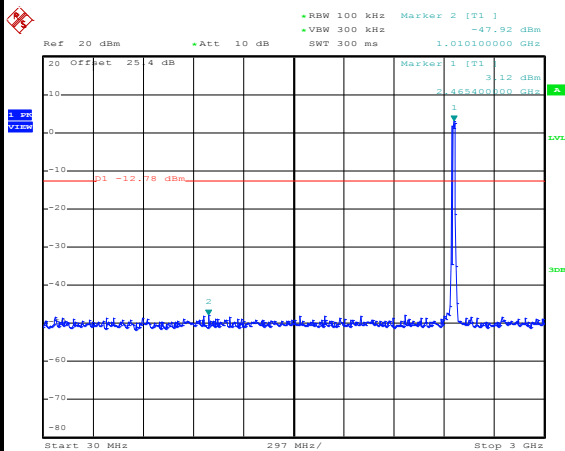
Date: 7.JAN.2019 13:39:31

Channel Plot



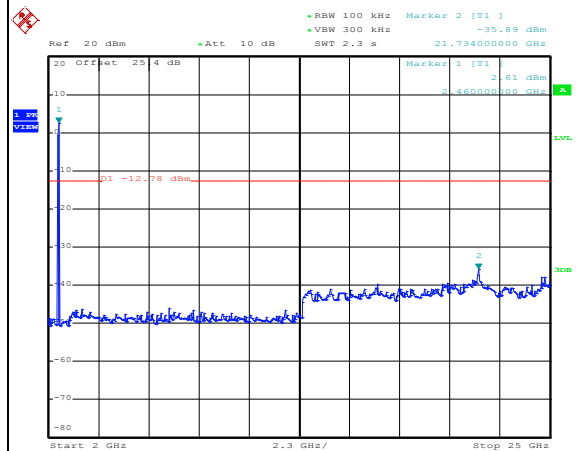
Date: 7.JAN.2019 13:39:57

Spurious Emission 30MHz~3GHz



Date: 7.JAN.2019 13:40:17

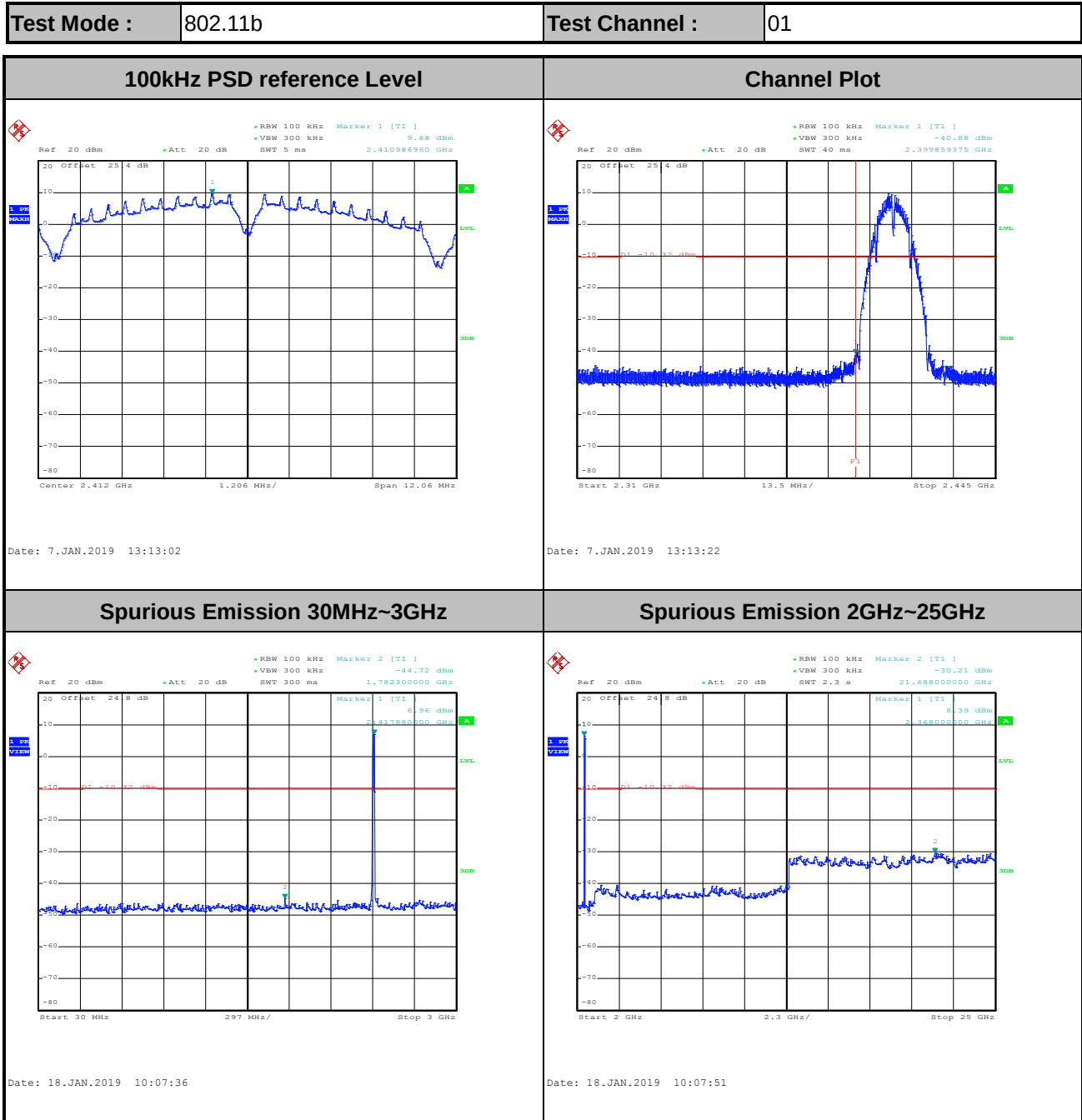
Spurious Emission 2GHz~25GHz



Date: 7.JAN.2019 13:40:32



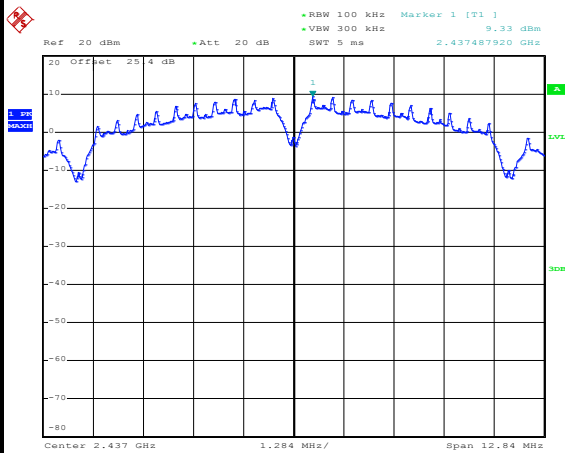
Number of TX = 1, Ant. 2 (Measured)





Test Mode :	802.11b	Test Channel :	06
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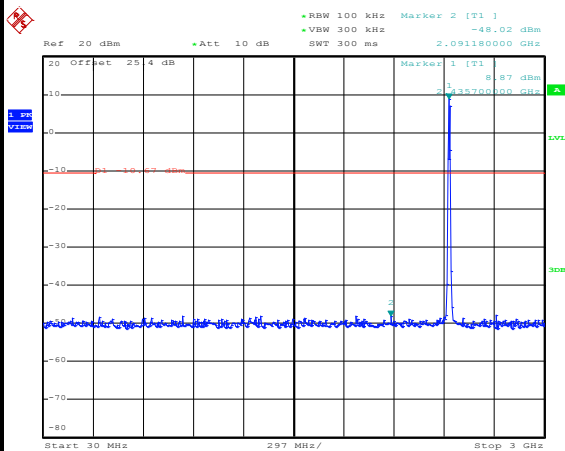
100kHz PSD reference Level



Date: 7.JAN.2019 13:20:02

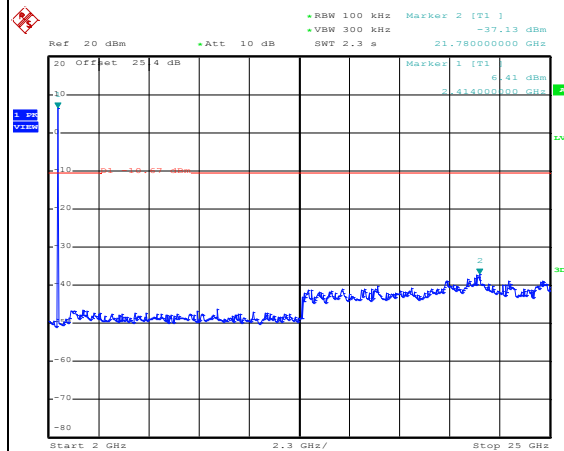
Channel Plot

Spurious Emission 30MHz~3GHz

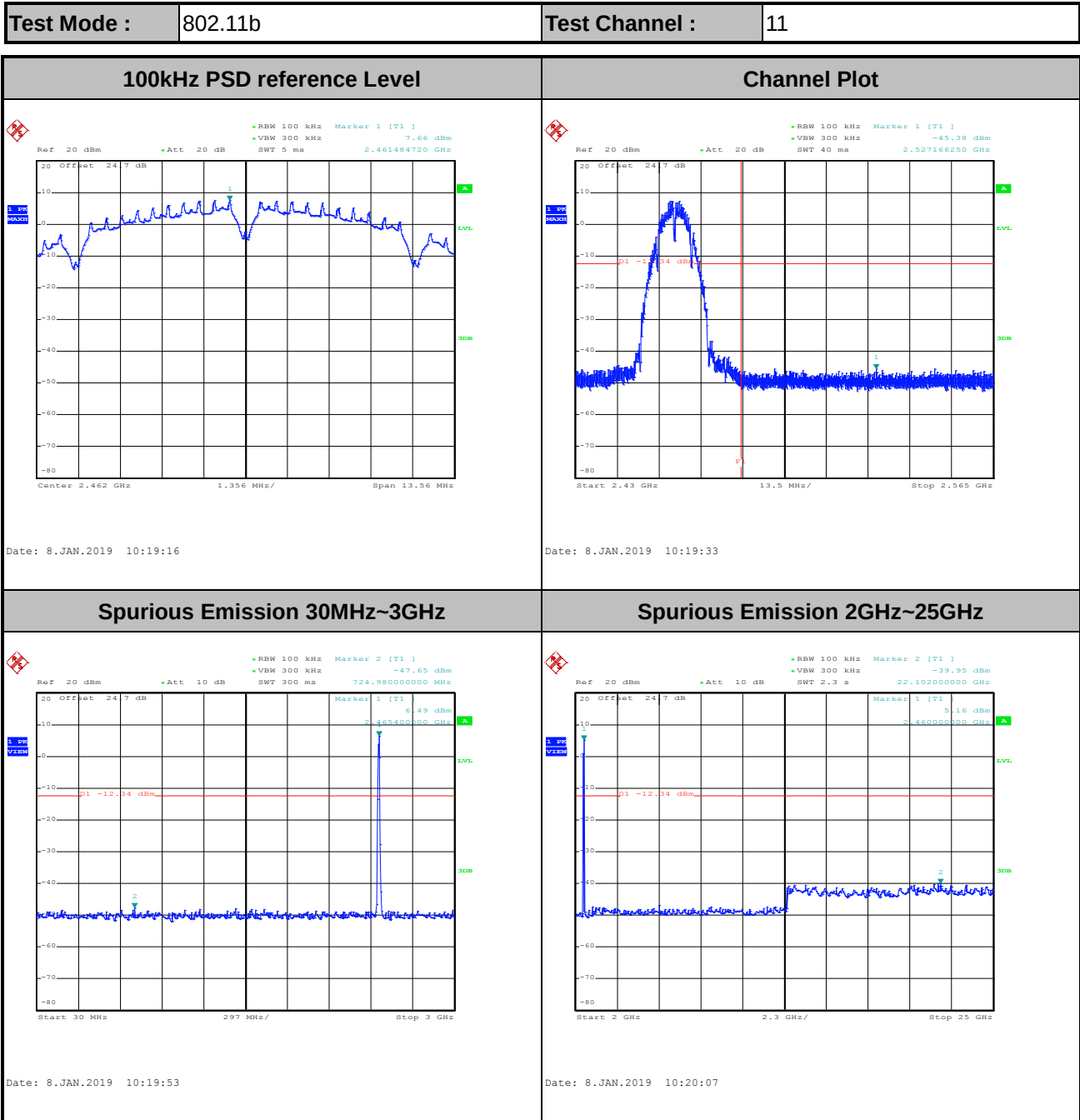


Date: 7.JAN.2019 13:20:23

Spurious Emission 2GHz~25GHz



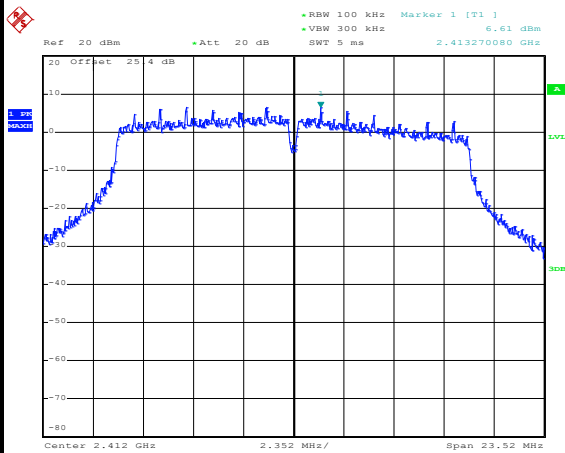
Date: 7.JAN.2019 13:20:38





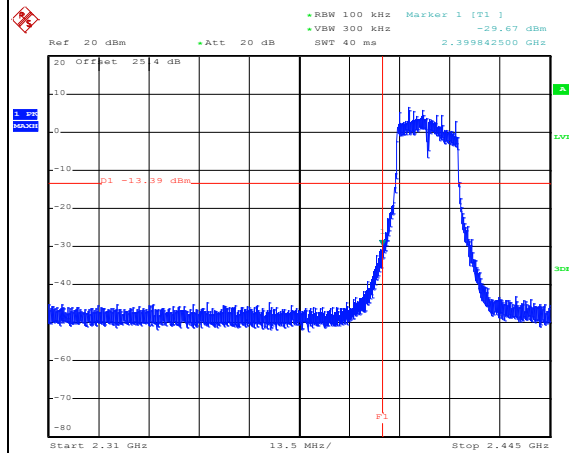
Test Mode :	802.11g	Test Channel :	01
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100kHz PSD reference Level



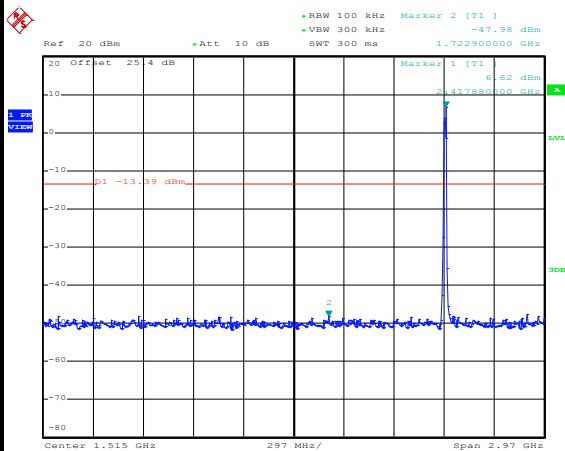
Date: 7.JAN.2019 13:44:08

Channel Plot



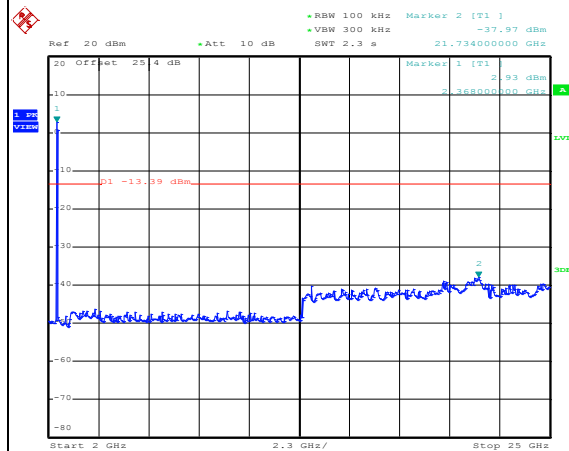
Date: 7.JAN.2019 13:45:07

Spurious Emission 30MHz~3GHz



Date: 7.JAN.2019 13:46:36

Spurious Emission 2GHz~25GHz

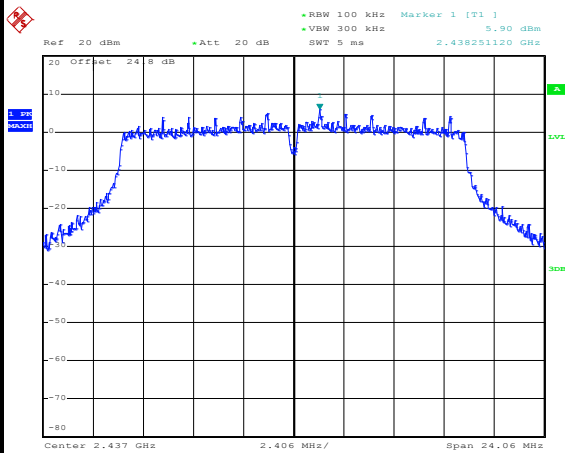


Date: 7.JAN.2019 13:46:51



Test Mode :	802.11g	Test Channel :	06
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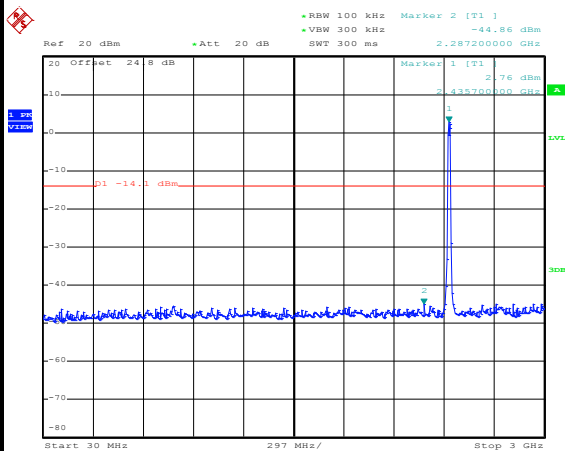
100kHz PSD reference Level



Date: 18.JAN.2019 11:34:39

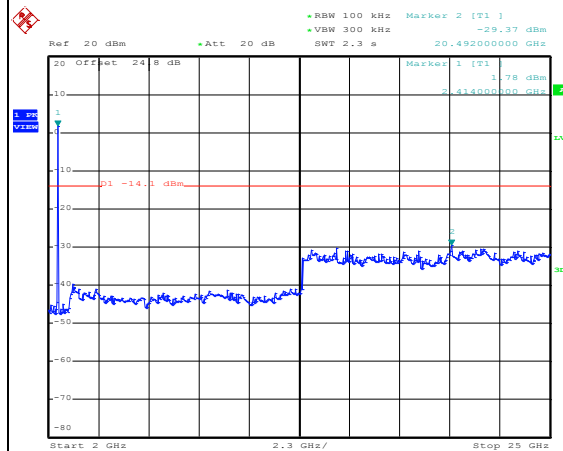
Channel Plot

Spurious Emission 30MHz~3GHz



Date: 18.JAN.2019 11:34:57

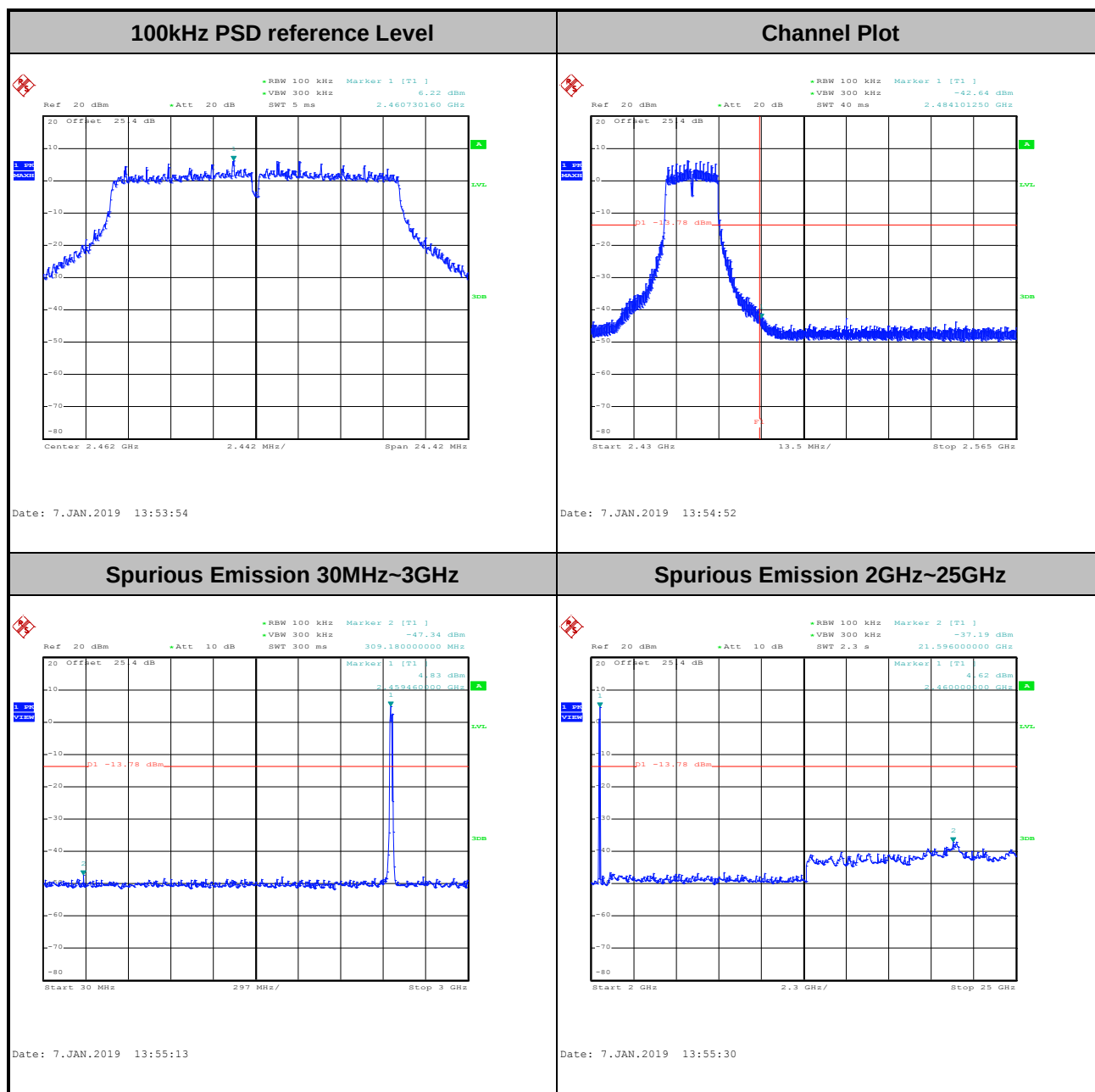
Spurious Emission 2GHz~25GHz



Date: 18.JAN.2019 11:35:11



Test Mode :	802.11g	Test Channel :	11
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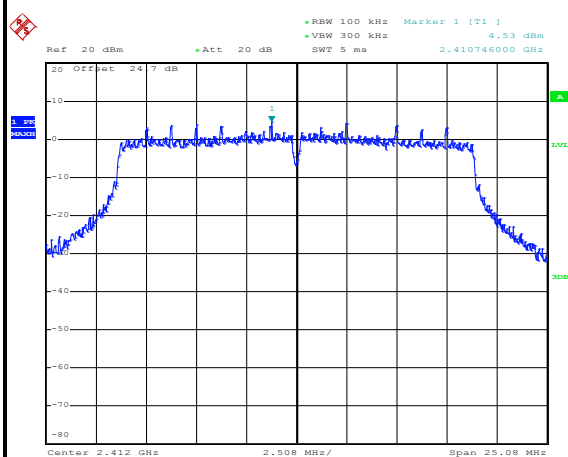




Number of TX = 2, Ant. 1 (Measured)

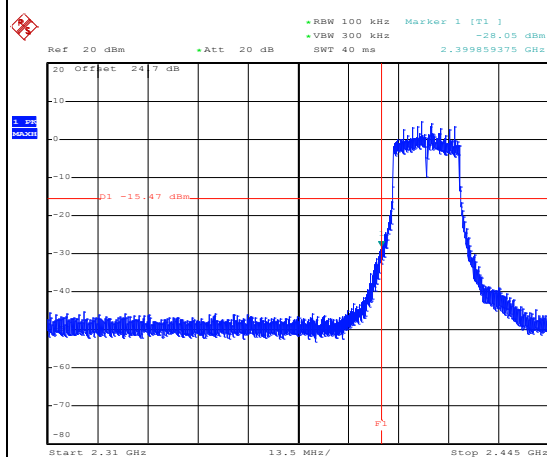
Test Mode :	802.11n HT20	Test Channel :	01
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100kHz PSD reference Level



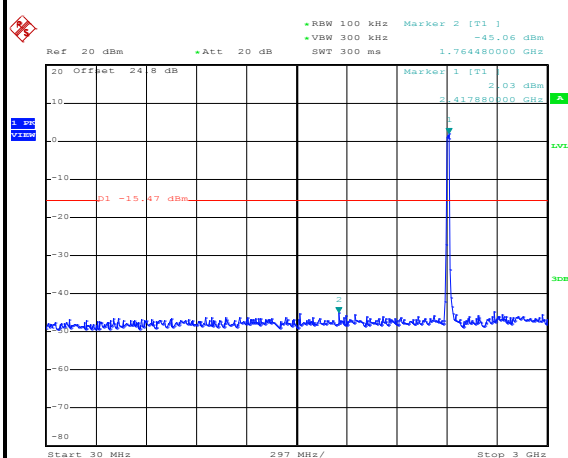
Date: 8.JAN.2019 10:33:23

Channel Plot



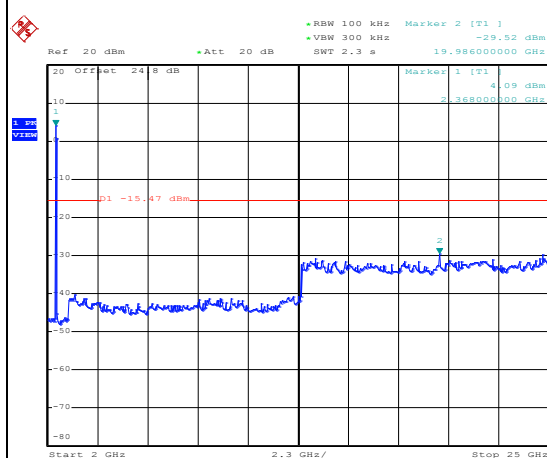
Date: 8.JAN.2019 10:53:58

Spurious Emission 30MHz~3GHz

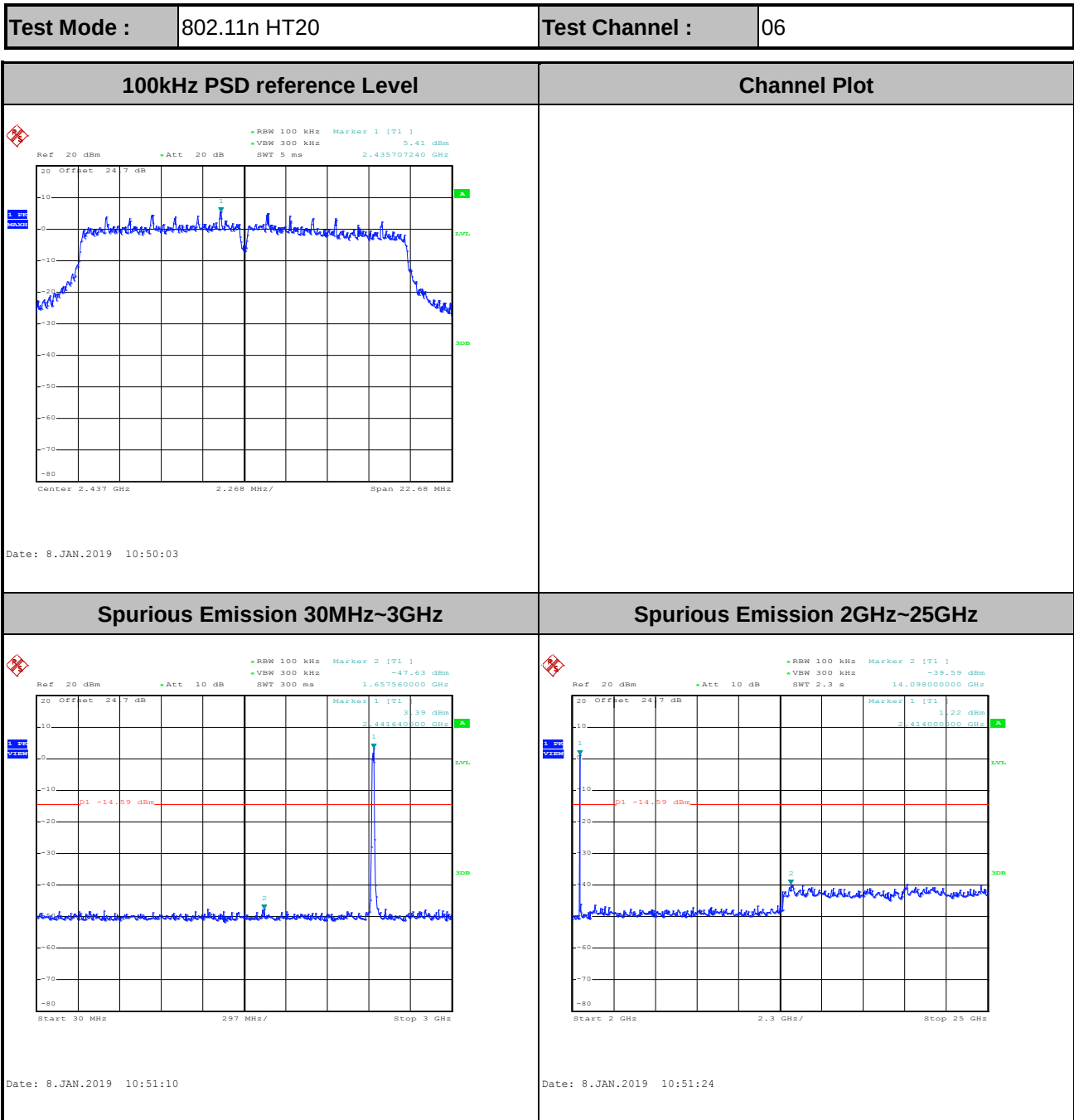


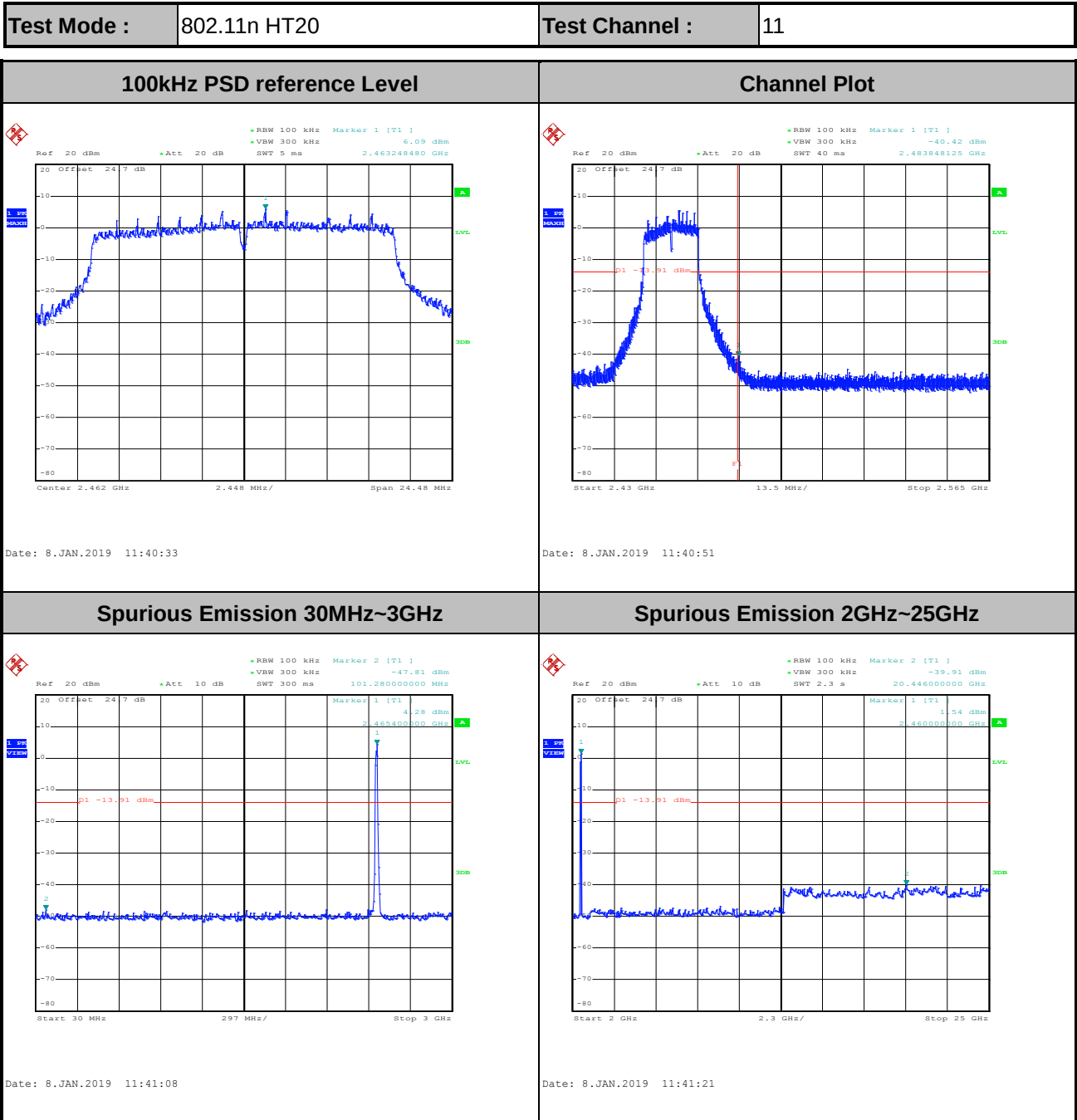
Date: 18.JAN.2019 10:41:29

Spurious Emission 2GHz~25GHz



Date: 18.JAN.2019 10:41:47



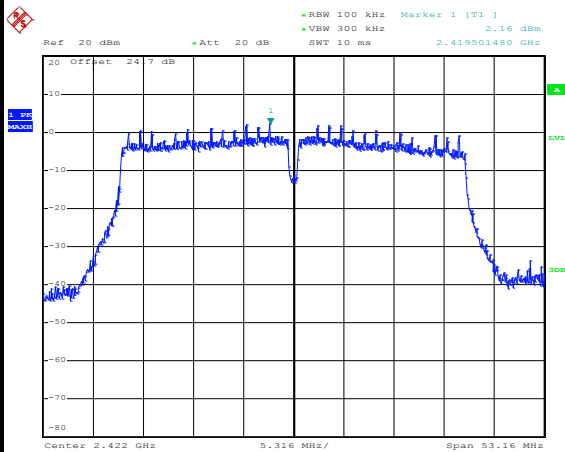




Test Mode : 802.11n HT40

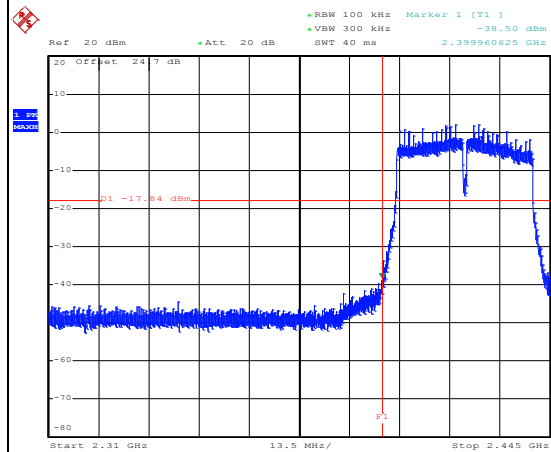
Test Channel : 03

100kHz PSD reference Level



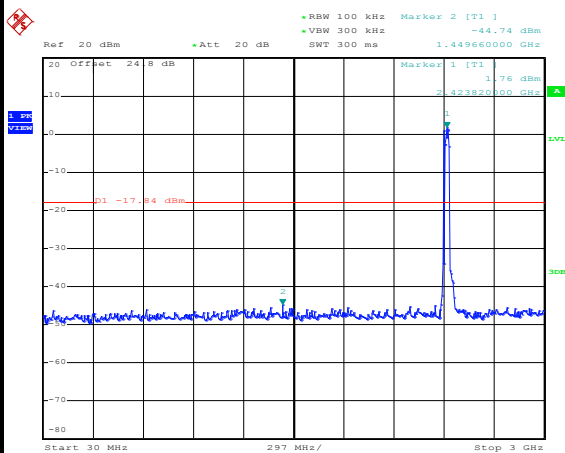
Date: 8.JAN.2019 11:14:28

Channel Plot



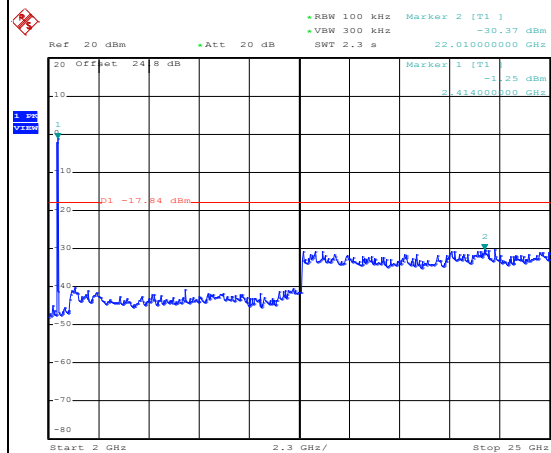
Date: 8.JAN.2019 11:14:47

Spurious Emission 30MHz~3GHz

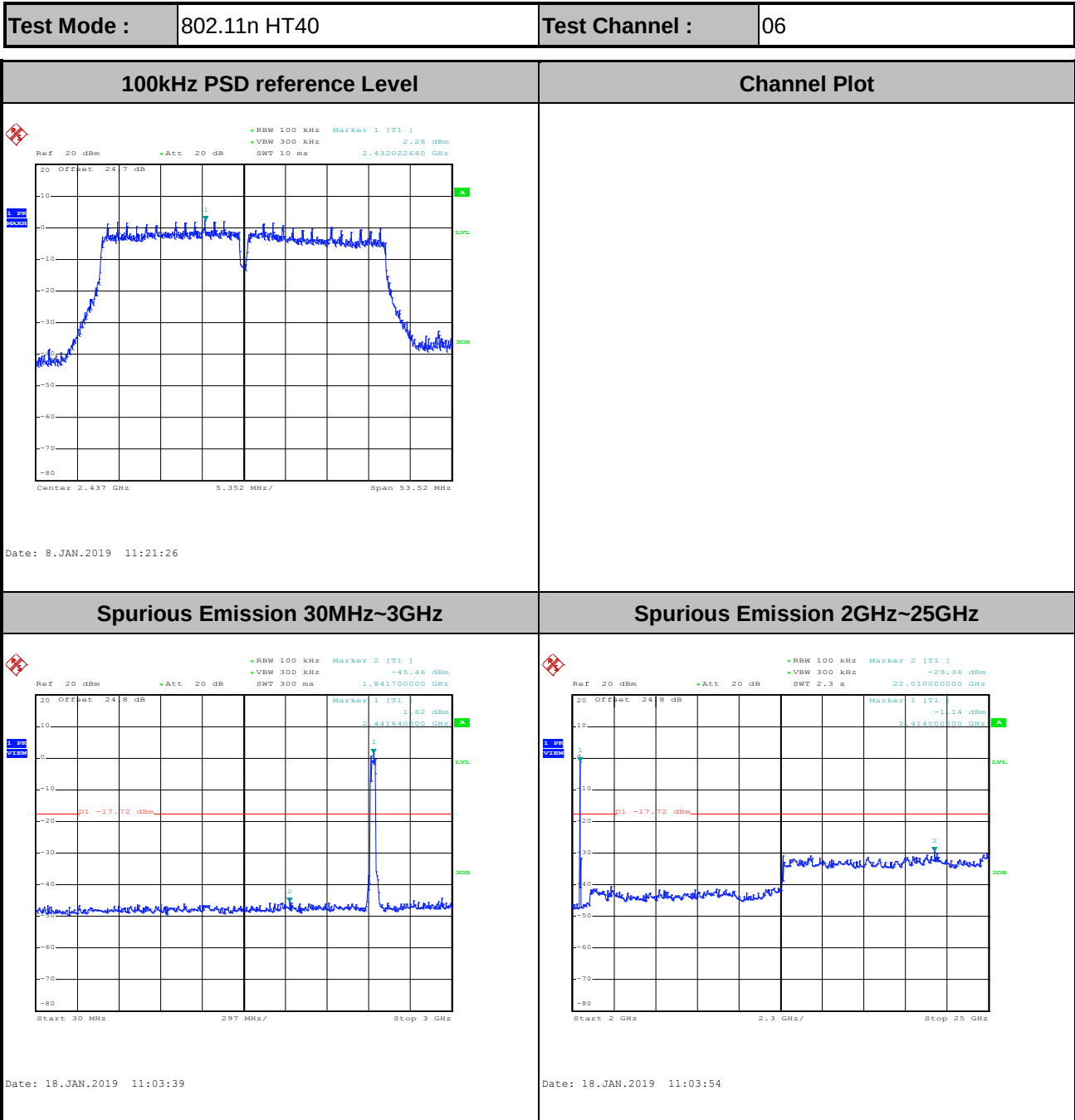


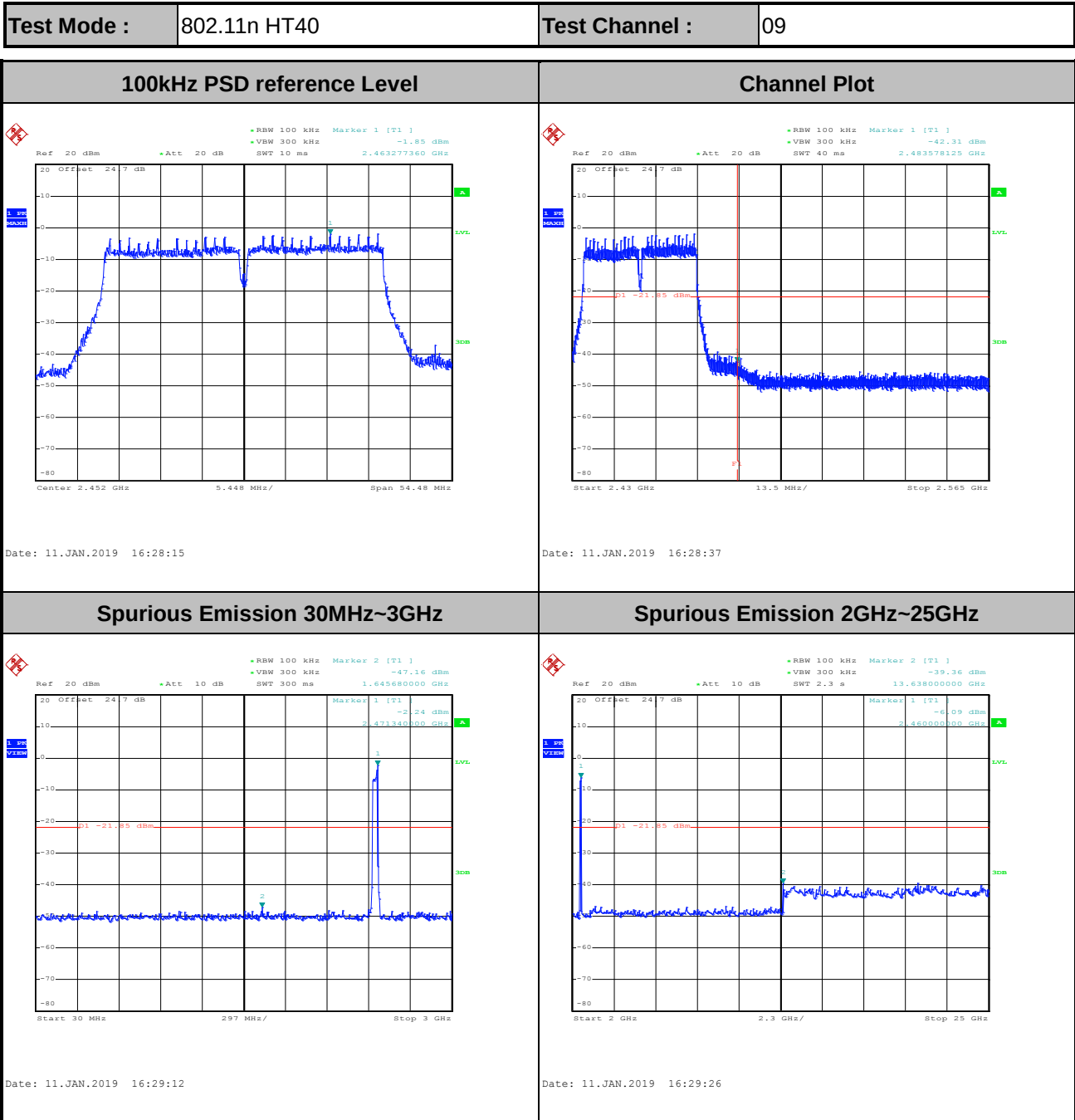
Date: 18.JAN.2019 11:01:26

Spurious Emission 2GHz~25GHz



Date: 18.JAN.2019 11:01:40

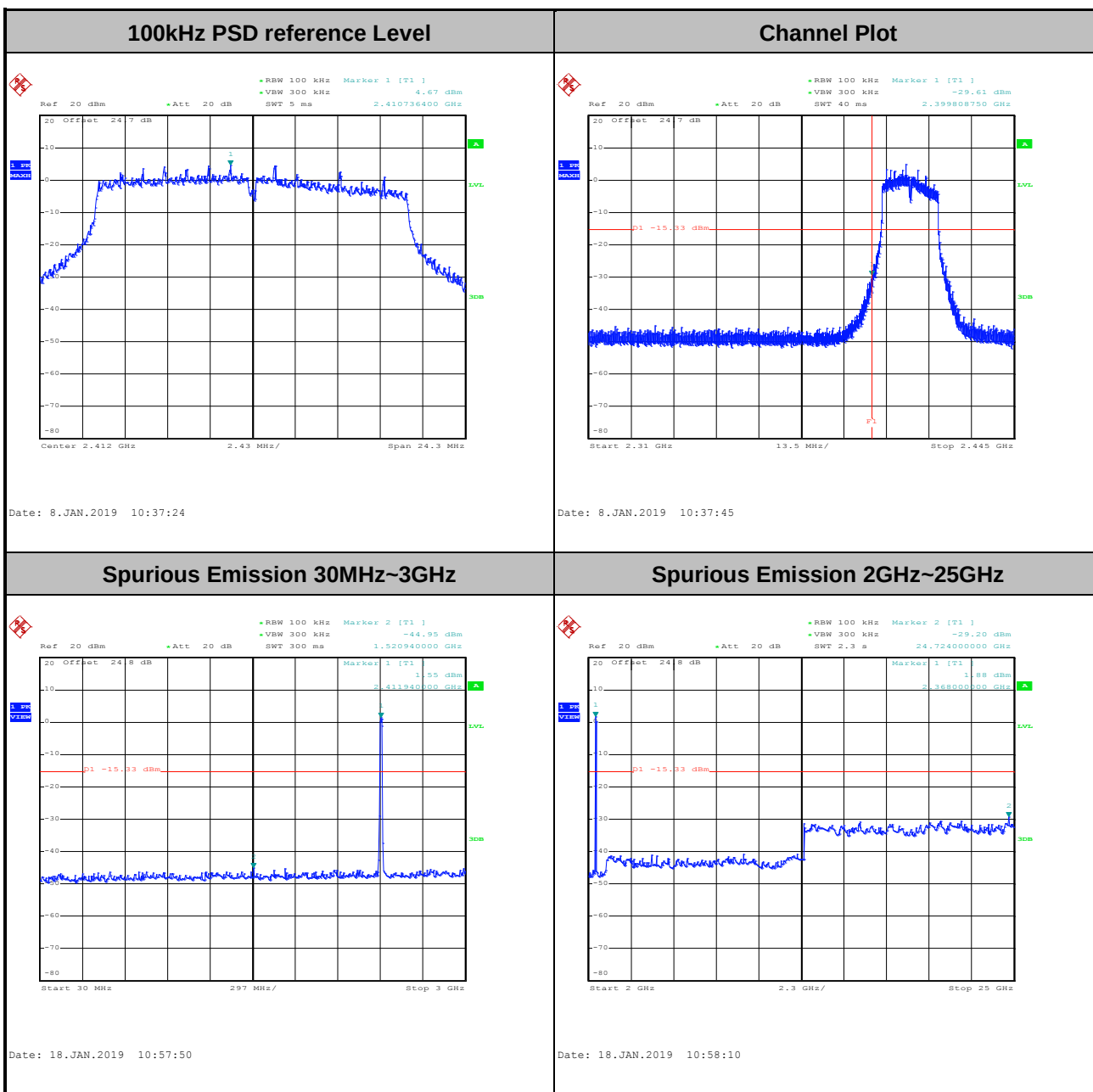


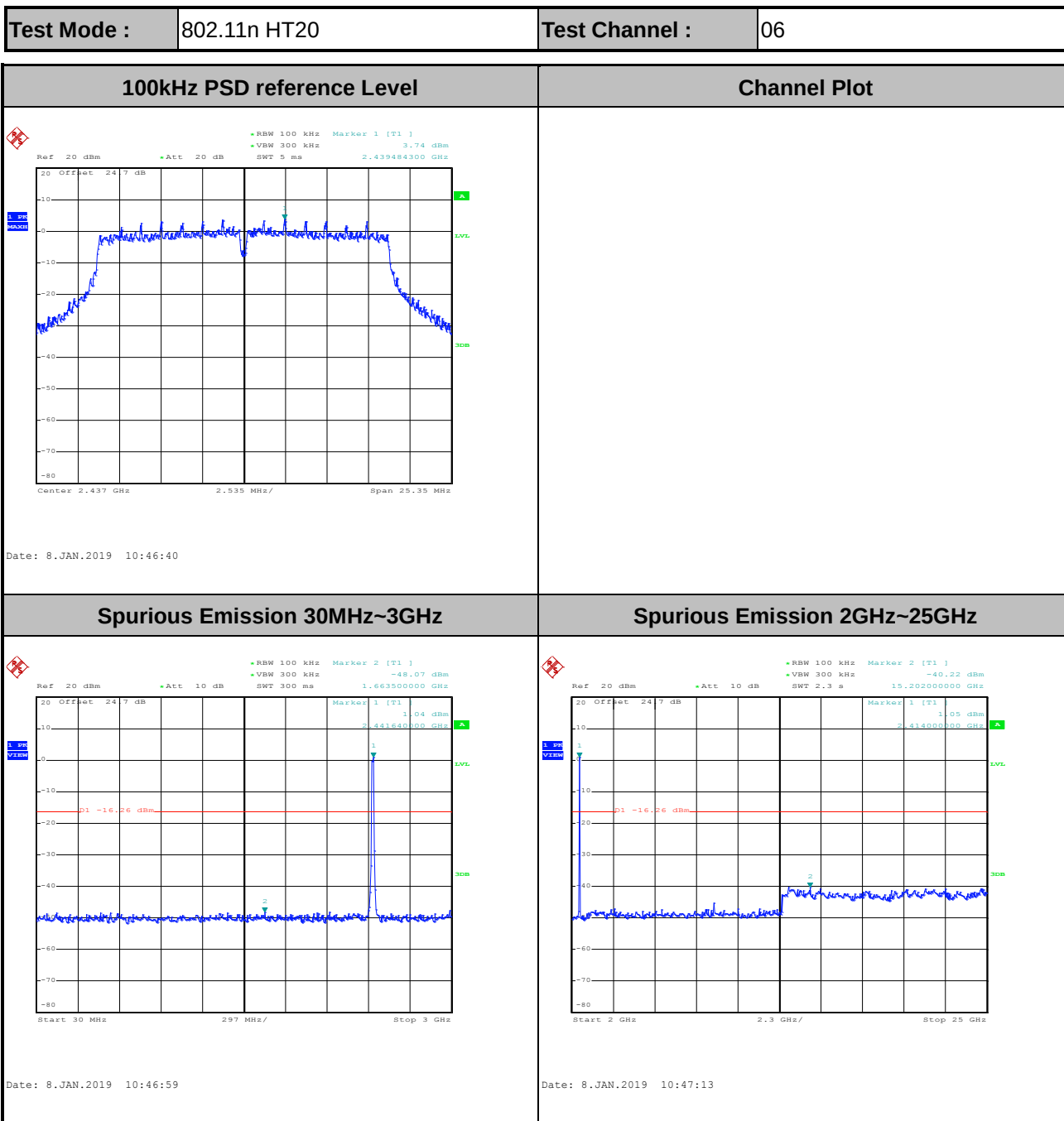


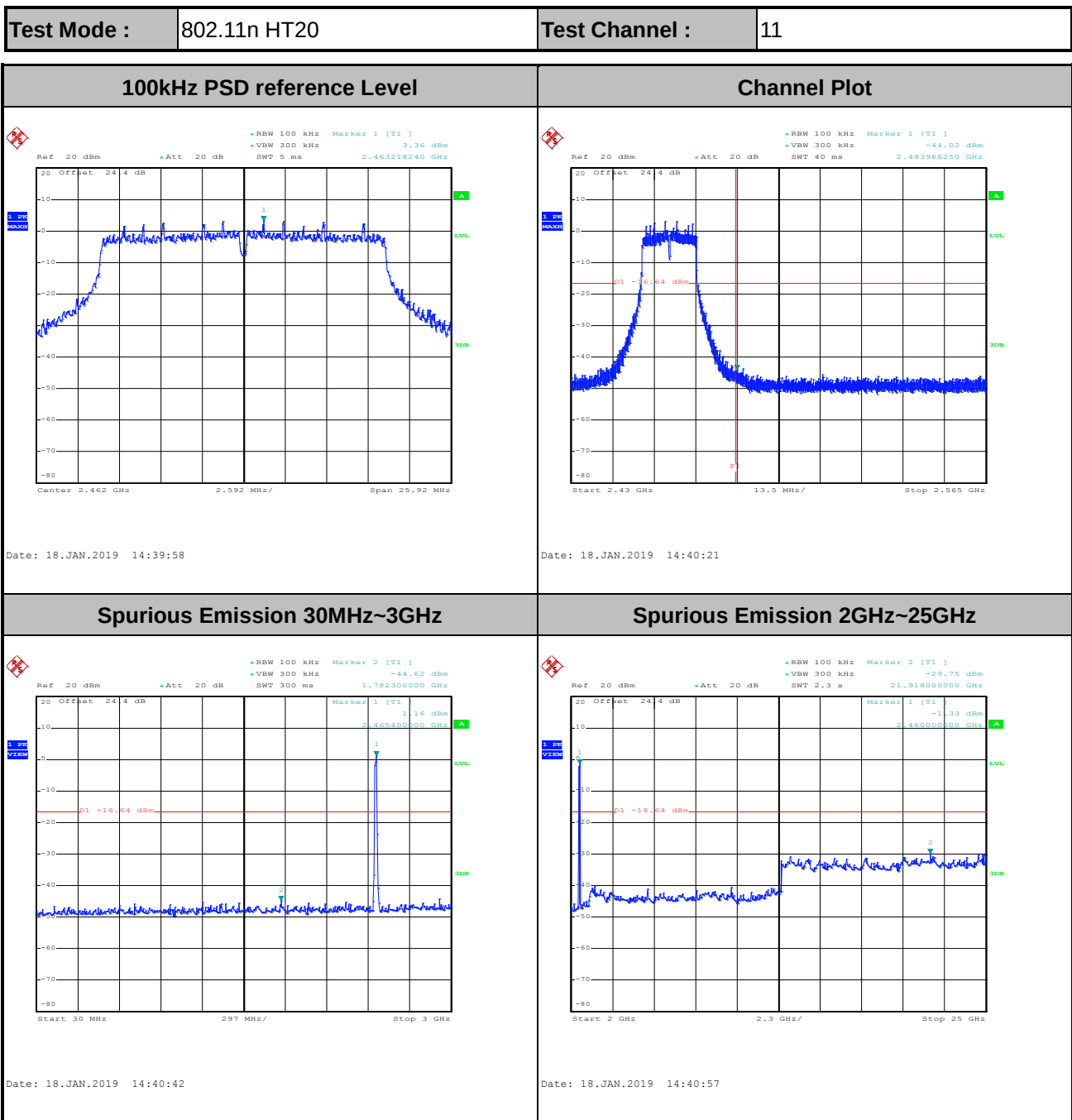


Number of TX = 2, Ant. 2 (Measured)

Test Mode :	802.11n HT20	Test Channel :	01
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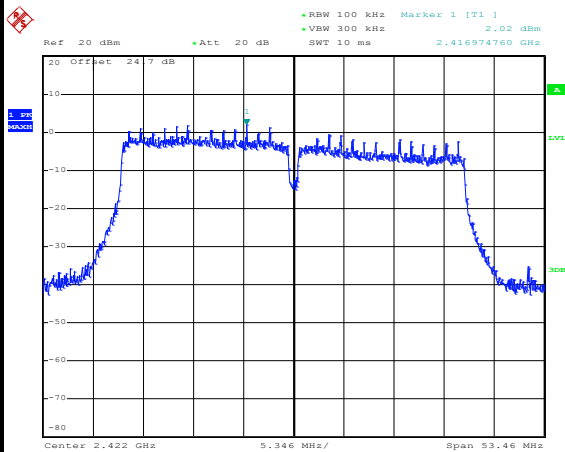




Test Mode : 802.11n HT40

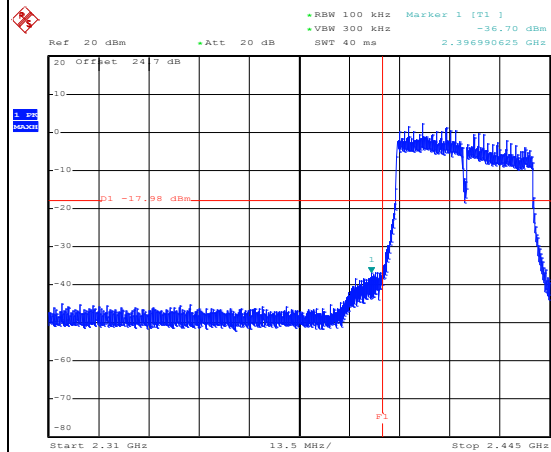
Test Channel : 03

100kHz PSD reference Level



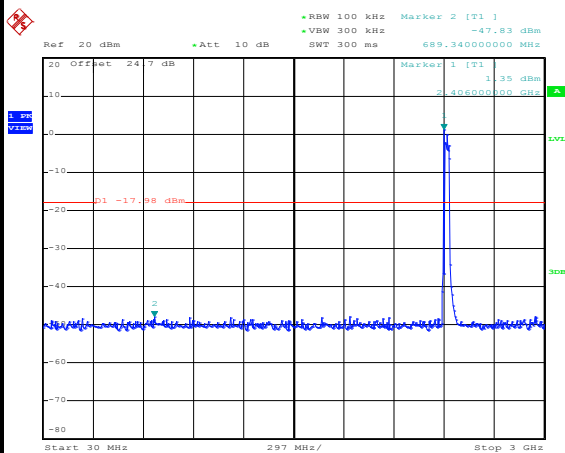
Date: 8.JAN.2019 11:11:41

Channel Plot



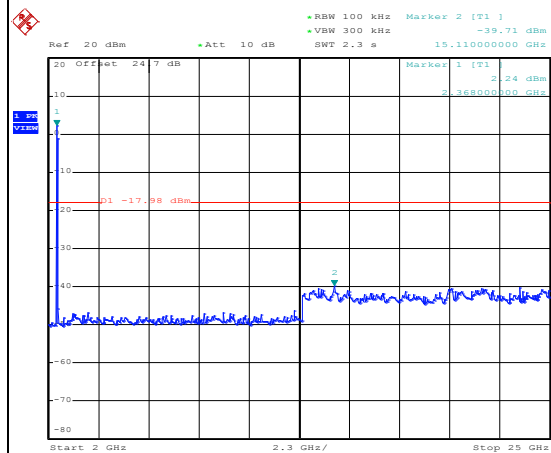
Date: 8.JAN.2019 11:12:01

Spurious Emission 30MHz~3GHz



Date: 8.JAN.2019 11:12:20

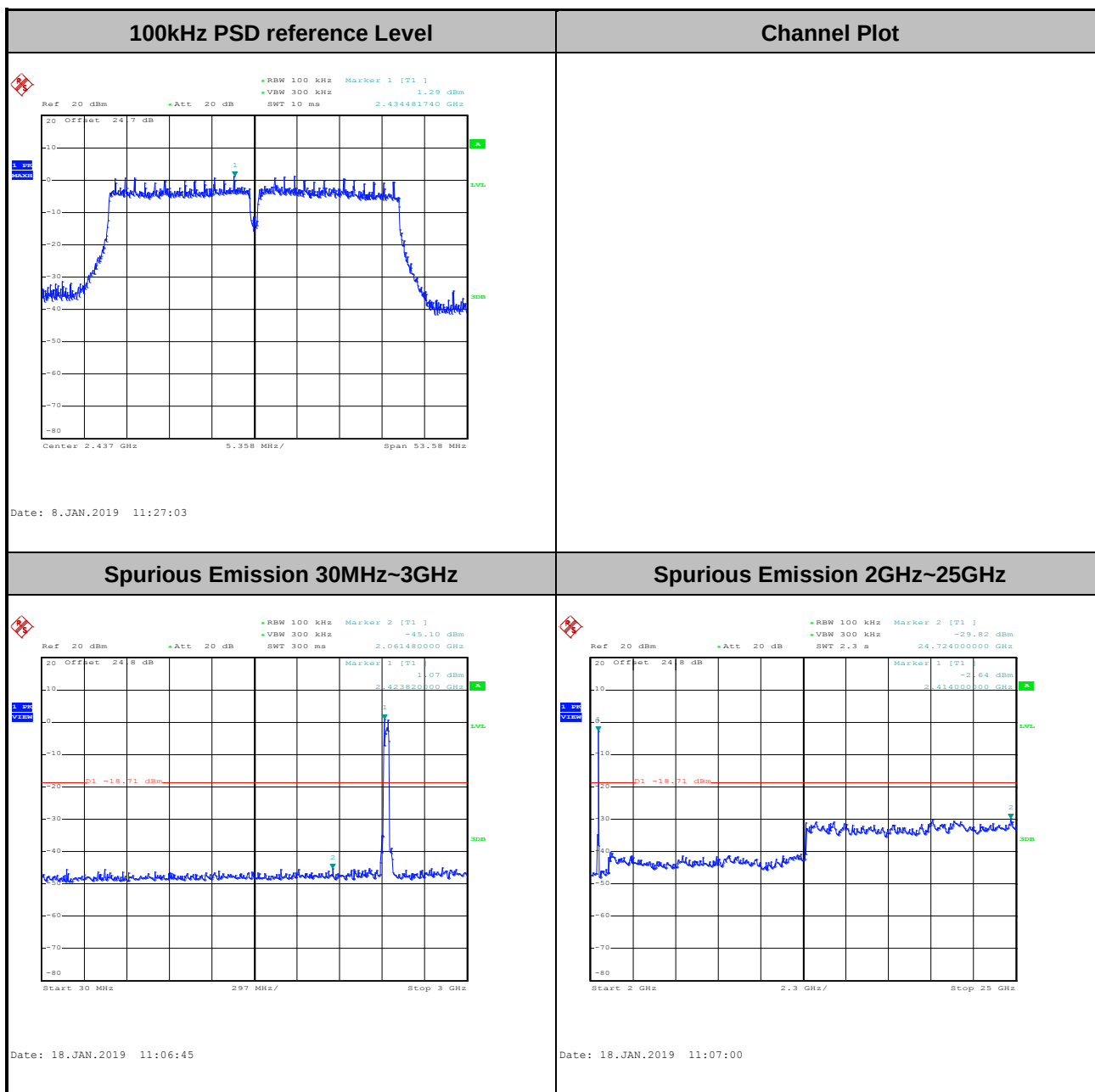
Spurious Emission 2GHz~25GHz

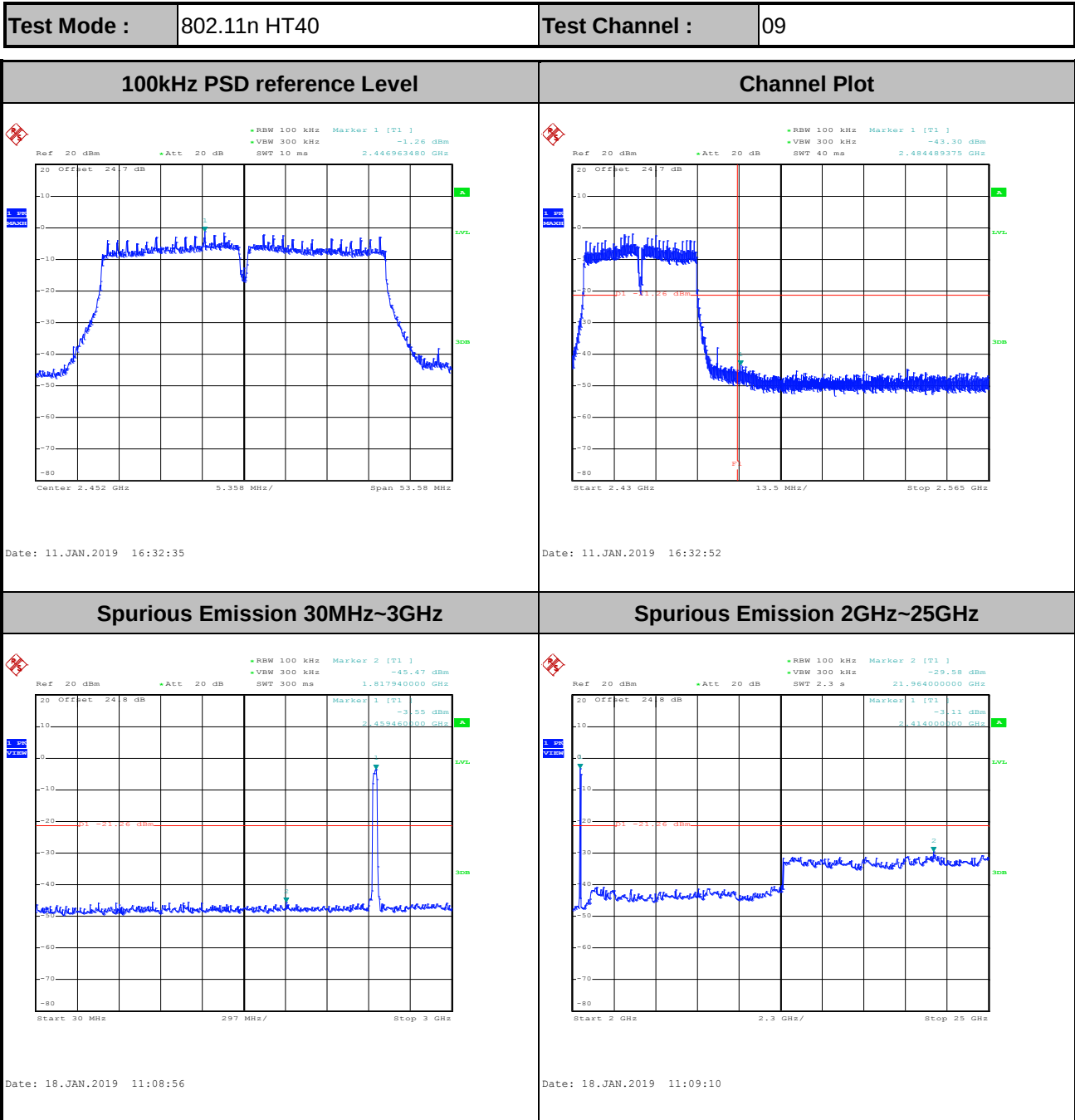


Date: 8.JAN.2019 11:12:33



Test Mode :	802.11n HT40	Test Channel :	06
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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

See list of measuring equipment of this test report.

3.5.3 Test Procedures

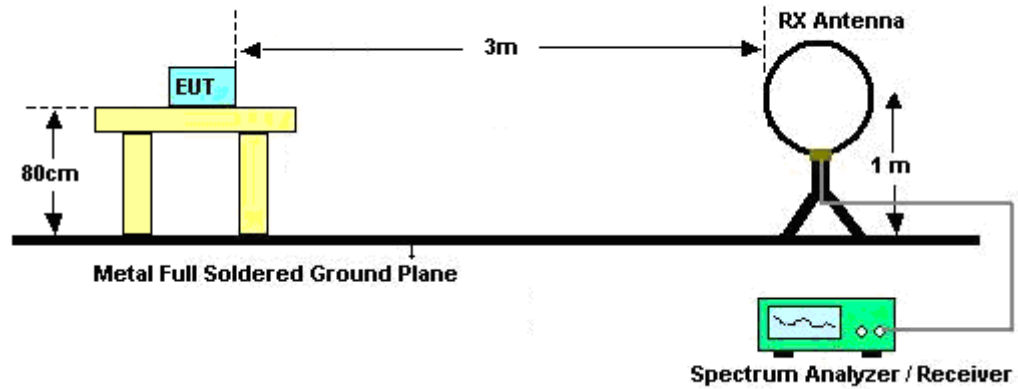
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the 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 $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement.

For average measurement:

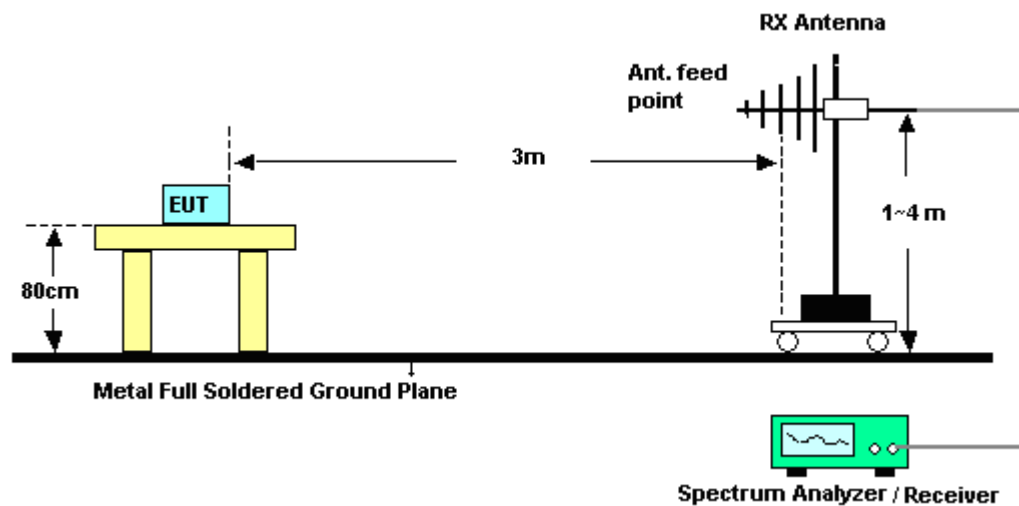
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.5.4 Test Setup

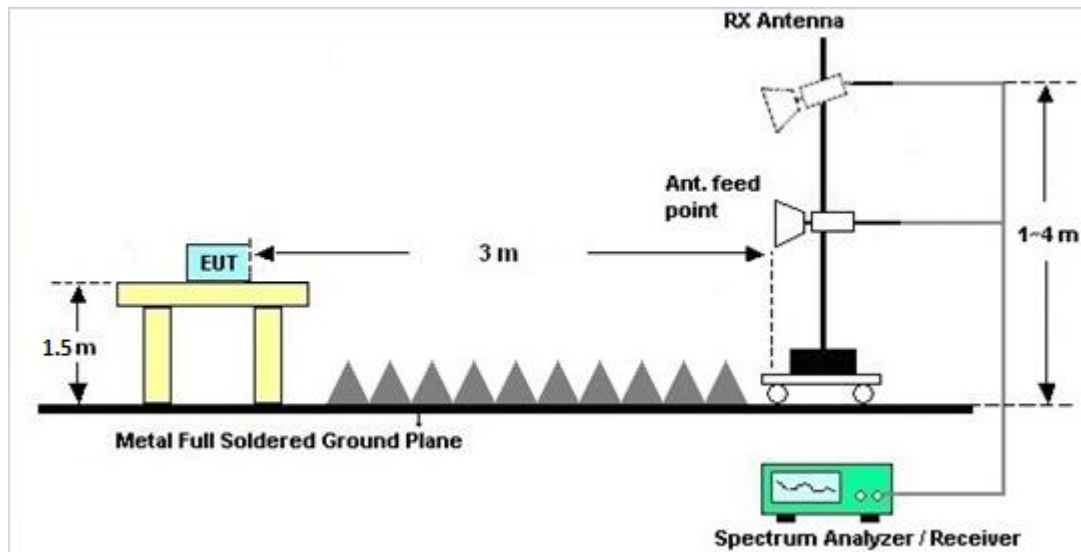
For radiated emissions below 30MHz



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 alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, 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 (dB μ V)	
	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.

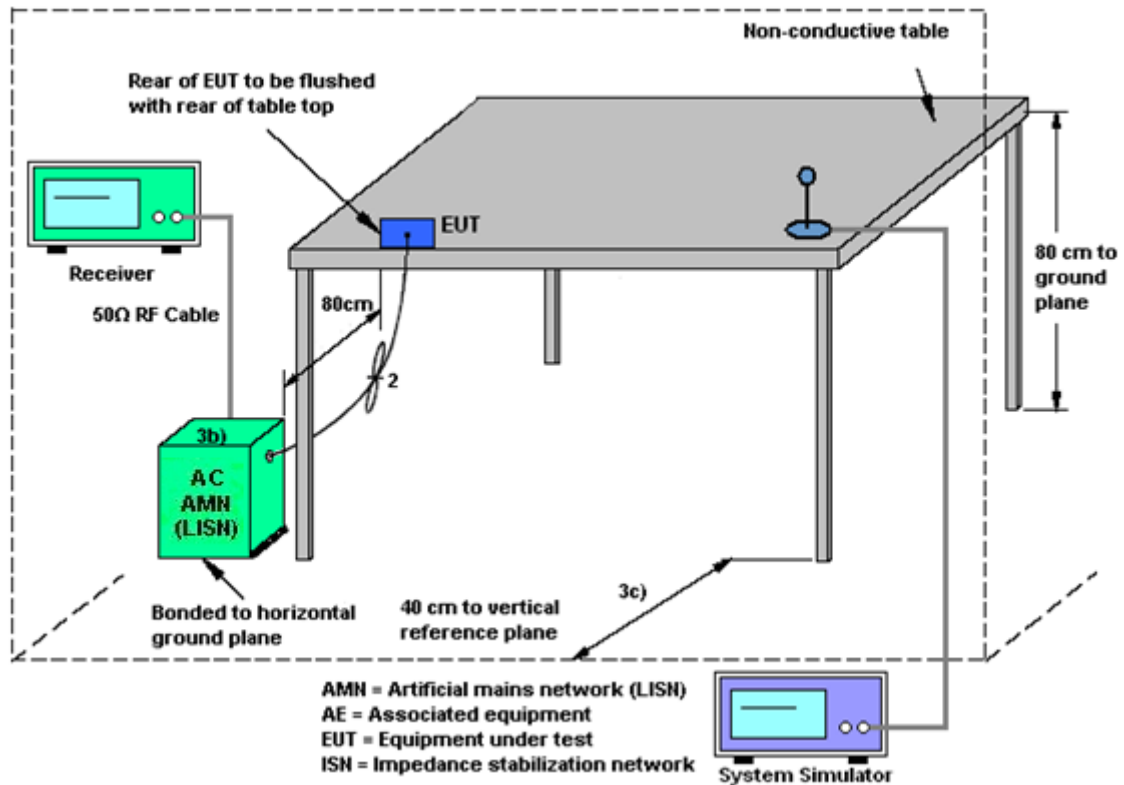
3.6.2 Measuring Instruments

See list of measuring equipment 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



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>						
			DG	DG	Power	PSD
			for	for	Limit	Limit
	Ant. 1	Ant. 2	Power	PSD	Reduction	Reduction
	(dBi)	(dBi)	(dBi)	(dBi)	(dB)	(dB)
2.4 GHz	1.00	-0.58	1.00	3.26	0.00	0.00

Power Limit Reduction = $DG(\text{Power}) - 6\text{dBi}$, (min = 0)

PSD Limit Reduction = $DG(\text{PSD}) - 6\text{dBi}$, (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	1036004	N/A	Jul. 25, 2018	Dec. 27, 2018~ Jan. 18, 2019	Jul. 24, 2019	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1207253	300MHz~40GHz	Jul. 25, 2018	Dec. 27, 2018~ Jan. 18, 2019	Jul. 24, 2019	Conducted (TH05-HY)
Signal Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 14, 2018	Dec. 27, 2018~ Jan. 18, 2019	Jun. 13, 2019	Conducted (TH05-HY)
Temperature Chamber	ESPEC	SH-641	92013720	-40°C ~90°C	Aug. 29, 2018	Dec. 27, 2018~ Jan. 18, 2019	Aug. 28, 2019	Conducted (TH05-HY)
AC Power Source	ChainTek	APC-1000 W	N/A	N/A	N/A	Jan. 16, 2019	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESR3	102388	9KHz~3.6GHz	Nov. 12, 2018	Jan. 16, 2019	Nov. 11, 2019	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 14, 2018	Jan. 16, 2019	Nov. 13, 2019	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Nov. 09, 2018	Jan. 16, 2019	Nov. 08, 2019	Conduction (CO05-HY)
Software	Rohde & Schwarz	EMC32 V10.30	N/A	N/A	N/A	Jan. 16, 2019	N/A	Conduction (CO05-HY)
LF Cable	HUBER + SUHNER	RG-214/U	LF01	N/A	Dec. 31, 2018	Jan. 16, 2019	Dec. 30, 2019	Conduction (CO05-HY)
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100851	N/A	Dec. 31, 2018	Jan. 16, 2019	Dec. 30, 2019	Conduction (CO05-HY)
Loop Antenna	TESEQ	HLA 6120	31244	9 kHz~30 MHz	Mar. 29, 2018	Jan. 06, 2019 ~ Mar. 08, 2019	Mar. 28, 2019	Radiation (03CH15-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz ~ 40GHz	Dec. 06, 2018	Jan. 06, 2019 ~ Mar. 08, 2019	Dec. 05, 2019	Radiation (03CH15-HY)
Bilog Antenna	TESEQ	CBL6111D &00802N1 D01N-06	47020&06	30MHz to 1GHz	Oct. 13, 2018	Jan. 06, 2019 ~ Mar. 08, 2019	Oct. 12, 2019	Radiation (03CH15-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120D	9120D-162 0	1G~18GHz	Oct. 17, 2018	Jan. 06, 2019 ~ Mar. 08, 2019	Oct. 16, 2019	Radiation (03CH15-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170 576	18GHz ~ 40GHz	May 08, 2018	Jan. 06, 2019 ~ Mar. 08, 2019	May 07, 2019	Radiation (03CH15-HY)
Amplifier	SONOMA	310N	363440	9kHz~1GHz	Dec. 28, 2018	Jan. 06, 2019 ~ Mar. 08, 2019	Dec. 27, 2019	Radiation (03CH15-HY)
Preamplifier	Jet-Power	JPA0118-5 5-303	17100018 00055000 6	1GHz~18GHz	Jul. 10, 2018	Jan. 06, 2019 ~ Mar. 08, 2019	Jul. 09, 2019	Radiation (03CH15-HY)
Preamplifier	Jet-Power	JAP001018 00-30-10P	160118550 004	1GHz~18GHz	Apr. 17, 2018	Jan. 06, 2019 ~ Mar. 08, 2019	Apr. 16, 2019	Radiation (03CH15-HY)
Preamplifier	Keysight	83017A	MY532701 95	1GHz~26.5GHz	Aug. 23, 2018	Jan. 06, 2019 ~ Mar. 08, 2019	Aug. 22, 2019	Radiation (03CH15-HY)



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	Keysight	N9038A (MXE)	MY54130085	20Hz ~ 8.4GHz	Nov. 01, 2018	Jan. 06, 2019 ~ Mar. 08, 2019	Oct. 31, 2019	Radiation (03CH15-HY)
Spectrum Analyzer	Agilent	E4446A	MY50180136	3Hz~44GHz	Apr. 25, 2018	Jan. 06, 2019 ~ Mar. 08, 2019	Apr. 24, 2019	Radiation (03CH15-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Jan. 06, 2019 ~ Mar. 08, 2019	N/A	Radiation (03CH15-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Jan. 06, 2019 ~ Mar. 08, 2019	N/A	Radiation (03CH15-HY)
Software	Audix	E3 6.2009-8-24	RK-000451	N/A	N/A	Jan. 06, 2019 ~ Mar. 08, 2019	N/A	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLE X 104	MY36980/4	30M-18G	Apr. 16, 2018	Jan. 06, 2019 ~ Mar. 08, 2019	Apr. 15, 2019	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLE X 104	MY9838/4	30M-18G	Apr. 16, 2018	Jan. 06, 2019 ~ Mar. 08, 2019	Apr. 15, 2019	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	MTJ	000000-MT18A-100D3210	30M-18G	Apr. 16, 2018	Jan. 06, 2019 ~ Mar. 08, 2019	Apr. 15, 2019	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLE X 102	MY2859/2	30MHz-40GHz	Mar. 14, 2018	Jan. 06, 2019 ~ Mar. 08, 2019	Mar. 13, 2019	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLE X 102	MY4274/2	30MHz-40GHz	Mar. 14, 2018	Jan. 06, 2019 ~ Mar. 08, 2019	Mar. 13, 2019	Radiation (03CH15-HY)
Filter	Wainwright	WHKX12-2 700-3000-1 8000-60ST	SN1	3 GHz Highpass	Sep. 16, 2018	Jan. 06, 2019 ~ Mar. 08, 2019	Sep. 15, 2019	Radiation (03CH15-HY)
Filter	Wainwright	WLK4-1000 -1530-8000 -40SS	SN11	1G Low Pass	Sep. 16, 2018	Jan. 06, 2019 ~ Mar. 08, 2019	Sep. 15, 2019	Radiation (03CH15-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.20
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.20
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.50
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.20
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Appendix A. Test Result of Conducted Test Items

Test Engineer:	AnAn Wu / Kai Liao	Temperature:	21~25	°C
Test Date:	2018/12/27~2019/1/18	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band										
Mod.	Data Rate	N _{TX}	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	13.75	13.45	8.08	8.04	0.50	Pass
11b	1Mbps	1	6	2437	13.75	13.80	9.04	8.56	0.50	Pass
11b	1Mbps	1	11	2462	13.75	13.90	8.52	9.04	0.50	Pass
11g	6Mbps	1	1	2412	16.60	16.50	16.04	15.68	0.50	Pass
11g	6Mbps	1	6	2437	16.70	16.75	15.70	16.04	0.50	Pass
11g	6Mbps	1	11	2462	16.70	16.75	15.68	16.28	0.50	Pass
HT20	MCS0	2	1	2412	17.85	17.70	16.72	16.20	0.50	Pass
HT20	MCS0	2	6	2437	17.80	17.85	15.12	16.90	0.50	Pass
HT20	MCS0	2	11	2462	17.85	17.85	16.32	17.28	0.50	Pass
HT40	MCS0	2	3	2422	36.40	36.50	35.44	35.64	0.50	Pass
HT40	MCS0	2	6	2437	36.60	36.70	35.68	35.72	0.50	Pass
HT40	MCS0	2	9	2452	36.70	36.50	36.32	35.72	0.50	Pass

TEST RESULTS DATA
Peak Output Power

2.4GHz Band																
Mod.	Data Rate	N _{Tx}	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	20.18	20.44	-	30.00	30.00	1.00	-0.58	21.18	19.86	36.00	36.00	Pass
11b	1Mbps	1	6	2437	20.26	20.52	-	30.00	30.00	1.00	-0.58	21.26	19.94	36.00	36.00	Pass
11b	1Mbps	1	11	2462	20.38	20.14	-	30.00	30.00	1.00	-0.58	21.38	19.56	36.00	36.00	Pass
11g	6Mbps	1	1	2412	24.02	24.65	-	30.00	30.00	1.00	-0.58	25.02	24.07	36.00	36.00	Pass
11g	6Mbps	1	6	2437	23.97	24.06	-	30.00	30.00	1.00	-0.58	24.97	23.48	36.00	36.00	Pass
11g	6Mbps	1	11	2462	23.91	24.04	-	30.00	30.00	1.00	-0.58	24.91	23.46	36.00	36.00	Pass
HT20	MCS0	1	1	2412	23.33	23.86	-	30.00	30.00	1.00	-0.58	24.33	23.28	36.00	36.00	Pass
HT20	MCS0	1	6	2437	23.35	23.58	-	30.00	30.00	1.00	-0.58	24.35	23.00	36.00	36.00	Pass
HT20	MCS0	1	11	2462	23.34	23.18	-	30.00	30.00	1.00	-0.58	24.34	22.60	36.00	36.00	Pass
HT40	MCS0	1	3	2422	23.62	23.74	-	30.00	30.00	1.00	-0.58	24.62	23.16	36.00	36.00	Pass
HT40	MCS0	1	6	2437	23.72	23.67	-	30.00	30.00	1.00	-0.58	24.72	23.09	36.00	36.00	Pass
HT40	MCS0	1	9	2452	23.37	23.34	-	30.00	30.00	1.00	-0.58	24.37	22.76	36.00	36.00	Pass
VHT20	MCS0	1	1	2412	23.31	23.47	-	30.00	30.00	1.00	-0.58	24.31	22.89	36.00	36.00	Pass
VHT20	MCS0	1	6	2437	23.15	23.08	-	30.00	30.00	1.00	-0.58	24.15	22.50	36.00	36.00	Pass
VHT20	MCS0	1	11	2462	23.32	23.02	-	30.00	30.00	1.00	-0.58	24.32	22.44	36.00	36.00	Pass
VHT40	MCS0	1	3	2422	23.60	23.72	-	30.00	30.00	1.00	-0.58	24.60	23.14	36.00	36.00	Pass
VHT40	MCS0	1	6	2437	23.70	23.65	-	30.00	30.00	1.00	-0.58	24.70	23.07	36.00	36.00	Pass
VHT40	MCS0	1	9	2452	23.34	23.32	-	30.00	30.00	1.00	-0.58	24.34	22.74	36.00	36.00	Pass
HT20	MCS0	2	1	2412	23.51	23.61	26.57	30.00		1.00		27.57		36.00		Pass
HT20	MCS0	2	6	2437	23.35	22.97	26.17	30.00		1.00		27.17		36.00		Pass
HT20	MCS0	2	11	2462	22.73	22.09	25.43	30.00		1.00		26.43		36.00		Pass
HT40	MCS0	2	3	2422	23.98	23.82	26.91	30.00		1.00		27.91		36.00		Pass
HT40	MCS0	2	6	2437	24.00	23.78	26.90	30.00		1.00		27.90		36.00		Pass
HT40	MCS0	2	9	2452	20.46	20.11	23.30	30.00		1.00		24.30		36.00		Pass
VHT20	MCS0	2	1	2412	23.38	23.50	26.45	30.00		1.00		27.45		36.00		Pass
VHT20	MCS0	2	6	2437	23.16	22.85	26.02	30.00		1.00		27.02		36.00		Pass
VHT20	MCS0	2	11	2462	23.32	22.37	25.88	30.00		1.00		26.88		36.00		Pass
VHT40	MCS0	2	3	2422	23.96	23.80	26.89	30.00		1.00		27.89		36.00		Pass
VHT40	MCS0	2	6	2437	23.98	23.72	26.86	30.00		1.00		27.86		36.00		Pass
VHT40	MCS0	2	9	2452	23.63	23.60	26.63	30.00		1.00		27.63		36.00		Pass

Note: Measured power (dBm) has offset with cable loss.

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	0.06	0.06	17.68	17.98	-
11b	1Mbps	1	6	2437	0.06	0.06	17.92	17.99	
11b	1Mbps	1	11	2462	0.06	0.06	17.98	17.72	
11g	6Mbps	1	1	2412	0.07	0.06	17.61	17.87	
11g	6Mbps	1	6	2437	0.07	0.06	17.81	17.62	
11g	6Mbps	1	11	2462	0.07	0.06	17.90	17.57	
HT20	MCS0	1	1	2412	0.09	0.07	16.93	16.92	
HT20	MCS0	1	6	2437	0.09	0.07	16.99	16.87	
HT20	MCS0	1	11	2462	0.09	0.07	16.98	16.70	
HT40	MCS0	1	3	2422	0.22	0.25	16.36	16.10	
HT40	MCS0	1	6	2437	0.22	0.25	16.49	16.09	
HT40	MCS0	1	9	2452	0.22	0.25	16.11	16.05	
VHT20	MCS0	1	1	2412	0.07	0.10	16.82	16.43	
VHT20	MCS0	1	6	2437	0.07	0.10	16.96	16.23	
VHT20	MCS0	1	11	2462	0.07	0.10	16.95	16.20	
VHT40	MCS0	1	3	2422	0.24	0.24	16.35	16.08	
VHT40	MCS0	1	6	2437	0.24	0.24	16.48	16.06	
VHT40	MCS0	1	9	2452	0.24	0.24	16.09	16.01	
HT20	MCS0	2	1	2412	0.07	0.08	17.04	16.56	19.82
HT20	MCS0	2	6	2437	0.07	0.08	17.20	16.43	19.84
HT20	MCS0	2	11	2462	0.07	0.08	16.41	15.60	19.03
HT40	MCS0	2	3	2422	0.22	0.25	16.80	16.11	19.48
HT40	MCS0	2	6	2437	0.22	0.25	16.84	16.10	19.50
HT40	MCS0	2	9	2452	0.22	0.25	13.10	12.80	15.96
VHT20	MCS0	2	1	2412	0.11	0.08	16.89	16.43	19.68
VHT20	MCS0	2	6	2437	0.11	0.08	17.03	16.23	19.66
VHT20	MCS0	2	11	2462	0.11	0.08	17.03	15.89	19.51
VHT40	MCS0	2	3	2422	0.24	0.24	16.80	16.04	19.45
VHT40	MCS0	2	6	2437	0.24	0.24	16.84	16.06	19.48
VHT40	MCS0	2	9	2452	0.24	0.24	16.52	16.02	19.29

Note: Measured power (dBm) has offset with cable loss.

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	-5.65	-4.47	-	1.00	-0.58	8.00	8.00	Pass
11b	1Mbps	1	6	2437	-4.94	-3.51	-	1.00	-0.58	8.00	8.00	Pass
11b	1Mbps	1	11	2462	-4.47	-6.80	-	1.00	-0.58	8.00	8.00	Pass
11g	6Mbps	1	1	2412	-8.62	-7.31	-	1.00	-0.58	8.00	8.00	Pass
11g	6Mbps	1	6	2437	-6.58	-9.20	-	1.00	-0.58	8.00	8.00	Pass
11g	6Mbps	1	11	2462	-6.87	-6.63	-	1.00	-0.58	8.00	8.00	Pass
HT20	MCS0	2	1	2412	-10.02	-9.38	-6.37	3.26		8.00		Pass
HT20	MCS0	2	6	2437	-10.61	-9.85	-6.84	3.26		8.00		Pass
HT20	MCS0	2	11	2462	-8.71	-12.03	-5.70	3.26		8.00		Pass
HT40	MCS0	2	3	2422	-12.62	-13.25	-9.61	3.26		8.00		Pass
HT40	MCS0	2	6	2437	-12.71	-13.10	-9.70	3.26		8.00		Pass
HT40	MCS0	2	9	2452	-17.27	-16.08	-13.07	3.26		8.00		Pass

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



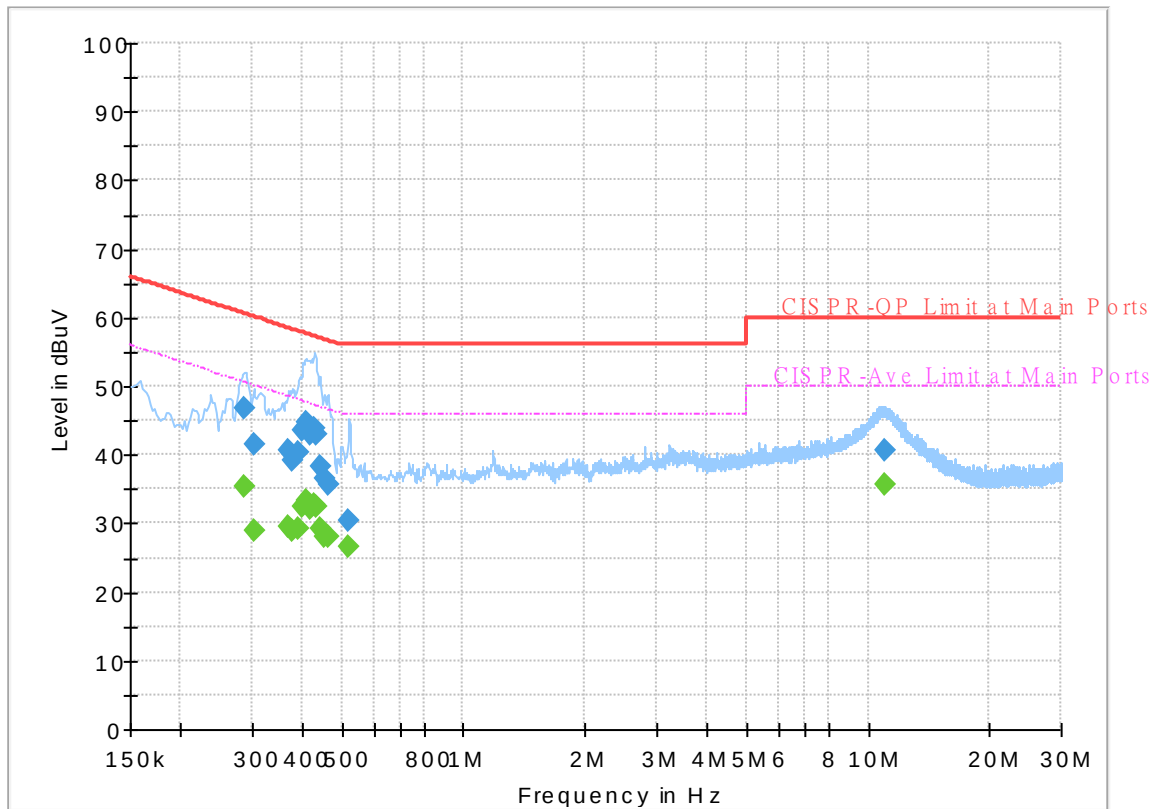
Appendix B. AC Conducted Emission Test Results

Test Engineer :	Rick Lin	Temperature :	22~23℃
		Relative Humidity :	60~62%

EUT Information

Report NO : 8D2018
 Test Mode : Mode 1
 Test Voltage : 120Vac/60Hz
 Phase : Line

Full Spectrum



Final Result

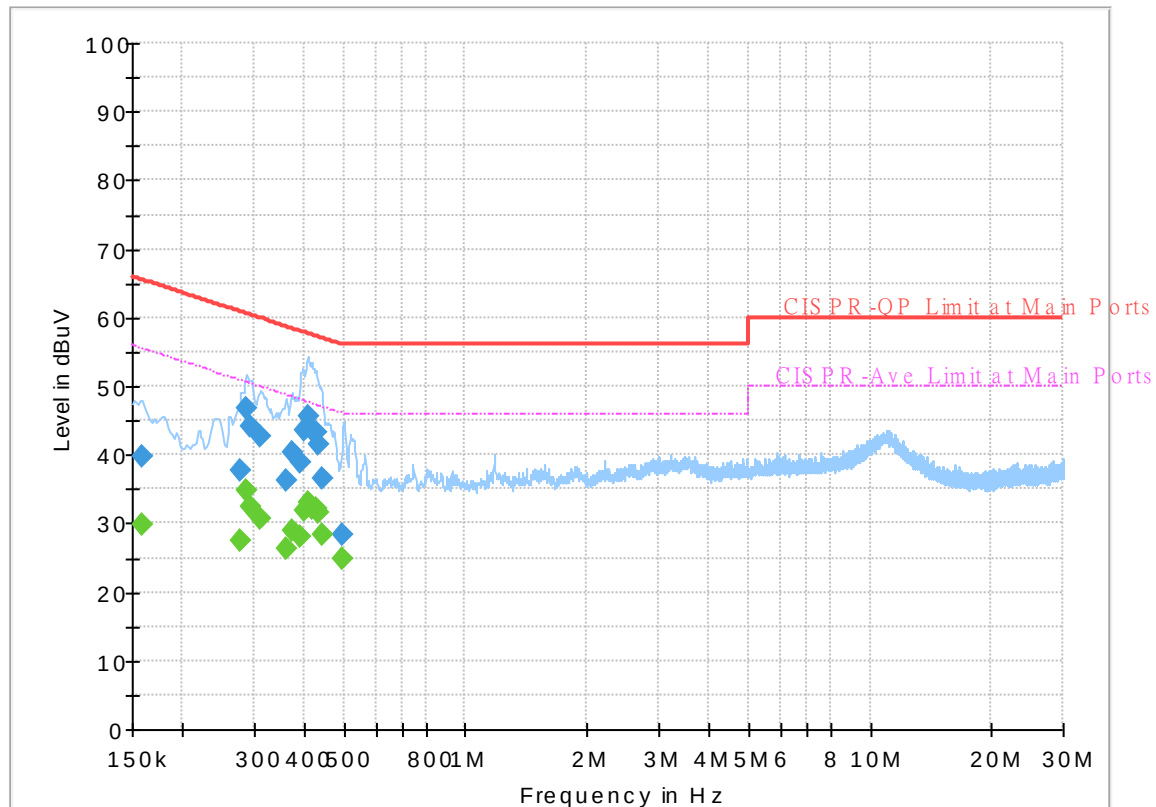
Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.287250	---	35.38	50.60	15.22	L1	OFF	19.5
0.287250	46.81	---	60.60	13.79	L1	OFF	19.5
0.303000	---	28.81	50.16	21.35	L1	OFF	19.5
0.303000	41.60	---	60.16	18.56	L1	OFF	19.5
0.368250	---	29.55	48.54	18.99	L1	OFF	19.5
0.368250	40.60	---	58.54	17.94	L1	OFF	19.5
0.379500	---	28.91	48.29	19.38	L1	OFF	19.5
0.379500	39.19	---	58.29	19.10	L1	OFF	19.5
0.390750	---	29.14	48.05	18.91	L1	OFF	19.5
0.390750	40.49	---	58.05	17.56	L1	OFF	19.5
0.399750	---	32.39	47.86	15.47	L1	OFF	19.5
0.399750	43.68	---	57.86	14.18	L1	OFF	19.5
0.408750	---	33.20	47.67	14.47	L1	OFF	19.5
0.408750	44.72	---	57.67	12.95	L1	OFF	19.5
0.417750	---	32.07	47.49	15.42	L1	OFF	19.5
0.417750	43.08	---	57.49	14.41	L1	OFF	19.5
0.429000	---	32.88	47.27	14.39	L1	OFF	19.5
0.429000	44.00	---	57.27	13.27	L1	OFF	19.5
0.433500	---	32.31	47.19	14.88	L1	OFF	19.5
0.433500	42.88	---	57.19	14.31	L1	OFF	19.5
0.442500	---	29.30	47.02	17.72	L1	OFF	19.5

0.442500	38.38	---	57.02	18.64	L1	OFF	19.5
0.451500	---	27.98	46.85	18.87	L1	OFF	19.5
0.451500	36.51	---	56.85	20.34	L1	OFF	19.5
0.462750	---	27.94	46.64	18.70	L1	OFF	19.5
0.462750	35.73	---	56.64	20.91	L1	OFF	19.5
0.521250	---	26.69	46.00	19.31	L1	OFF	19.5
0.521250	30.30	---	56.00	25.70	L1	OFF	19.5
10.970250	---	35.61	50.00	14.39	L1	OFF	19.9
10.970250	40.71	---	60.00	19.29	L1	OFF	19.9

EUT Information

Report NO : 8D2018
 Test Mode : Mode 1
 Test Voltage : 120Vac/60Hz
 Phase : Neutral

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Line	Filter	Corr. (dB)
0.159000	---	29.71	55.52	25.81	N	OFF	19.5
0.159000	39.69	---	65.52	25.83	N	OFF	19.5
0.278250	---	27.54	50.87	23.33	N	OFF	19.5
0.278250	37.80	---	60.87	23.07	N	OFF	19.5
0.287250	---	34.68	50.60	15.92	N	OFF	19.5
0.287250	46.74	---	60.60	13.86	N	OFF	19.5
0.294000	---	32.50	50.41	17.91	N	OFF	19.5
0.294000	44.04	---	60.41	16.37	N	OFF	19.5
0.312000	---	30.66	49.92	19.26	N	OFF	19.5
0.312000	42.75	---	59.92	17.17	N	OFF	19.5
0.359250	---	26.22	48.75	22.53	N	OFF	19.5
0.359250	36.35	---	58.75	22.40	N	OFF	19.5
0.372750	---	28.93	48.44	19.51	N	OFF	19.5
0.372750	40.44	---	58.44	18.00	N	OFF	19.5
0.390750	---	28.08	48.05	19.97	N	OFF	19.5
0.390750	38.84	---	58.05	19.21	N	OFF	19.5
0.399750	---	31.88	47.86	15.98	N	OFF	19.5
0.399750	43.68	---	57.86	14.18	N	OFF	19.5
0.408750	---	33.06	47.67	14.61	N	OFF	19.5
0.408750	45.53	---	57.67	12.14	N	OFF	19.5
0.417750	---	32.06	47.49	15.43	N	OFF	19.5

0.417750	43.47	---	57.49	14.02	N	OFF	19.5
0.426750	---	32.04	47.32	15.28	N	OFF	19.5
0.426750	43.42	---	57.32	13.90	N	OFF	19.5
0.433500	---	31.63	47.19	15.56	N	OFF	19.5
0.433500	41.44	---	57.19	15.75	N	OFF	19.5
0.442500	---	28.23	47.02	18.79	N	OFF	19.5
0.442500	36.41	---	57.02	20.61	N	OFF	19.5
0.498750	---	25.00	46.02	21.02	N	OFF	19.5
0.498750	28.40	---	56.02	27.62	N	OFF	19.5



Appendix C. Radiated Spurious Emission

Test Engineer :	Watt Tseng, Karl Hou, and BigShow Wang	Temperature :	24~26°C
		Relative Humidity :	47~58%



2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

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		2351.16	53.59	-20.41	74	41.05	27.7	15.72	30.88	330	128	P	H
		2390	42.92	-11.08	54	30.39	27.6	15.78	30.85	330	128	A	H
	*	2412	108.49	-	-	95.93	27.6	15.81	30.85	330	128	P	H
	*	2412	105.24	-	-	92.68	27.6	15.81	30.85	330	128	A	H
													H
													H
		2377.2	54.13	-19.87	74	41.6	27.63	15.76	30.86	362	145	P	V
		2310.21	42.83	-11.17	54	30.24	27.83	15.66	30.9	362	145	A	V
	*	2412	103.97	-	-	91.41	27.6	15.81	30.85	362	145	P	V
	*	2412	100.75	-	-	88.19	27.6	15.81	30.85	362	145	A	V
													V
													V
802.11b CH 06 2437MHz		2314.9	53.87	-20.13	74	41.27	27.83	15.66	30.89	366	125	P	H
		2310	42.83	-11.17	54	30.24	27.83	15.66	30.9	366	125	A	H
	*	2437	109.74	-	-	97.14	27.6	15.84	30.84	366	125	P	H
	*	2437	106.61	-	-	94.01	27.6	15.84	30.84	366	125	A	H
		2487.12	53.55	-20.45	74	40.99	27.47	15.91	30.82	366	125	P	H
		2483.5	43.18	-10.82	54	30.62	27.47	15.91	30.82	366	125	A	H
		2388.82	53.49	-20.51	74	40.98	27.6	15.77	30.86	400	144	P	V
		2322.04	42.8	-11.2	54	30.25	27.77	15.67	30.89	400	144	A	V
	*	2437	104.81	-	-	92.21	27.6	15.84	30.84	400	144	P	V
	*	2437	101.54	-	-	88.94	27.6	15.84	30.84	400	144	A	V
		2491.74	52.99	-21.01	74	40.49	27.4	15.92	30.82	400	144	P	V
		2483.83	42.85	-11.15	54	30.29	27.47	15.91	30.82	400	144	A	V



802.11b CH 11 2462MHz	*	2462	110.45	-	-	97.87	27.53	15.88	30.83	357	117	P	H
	*	2462	107.47	-	-	94.89	27.53	15.88	30.83	357	117	A	H
		2484.72	55.31	-18.69	74	42.75	27.47	15.91	30.82	357	117	P	H
		2483.52	44.87	-9.13	54	32.31	27.47	15.91	30.82	357	117	A	H
													H
													H
	*	2462	107.03	-	-	94.45	27.53	15.88	30.83	395	146	P	V
	*	2462	104.06	-	-	91.48	27.53	15.88	30.83	395	146	A	V
		2493.48	54.03	-19.97	74	41.52	27.4	15.92	30.81	395	146	P	V
		2483.52	43.54	-10.46	54	30.98	27.47	15.91	30.82	395	146	A	V
													V
													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. 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)
802.11b CH 01 2412MHz		4824	41.09	-32.91	74	59.35	31.3	8.5	58.06	100	0	P	H
													H
													H
													H
		4824	39.42	-34.58	74	57.68	31.3	8.5	58.06	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4874	38.02	-35.98	74	56.17	31.3	8.65	58.1	100	0	P	H
		7311	43.34	-30.66	74	54.21	36.2	11.27	58.34	100	0	P	H
													H
													H
		4874	38.14	-35.86	74	56.29	31.3	8.65	58.1	100	0	P	V
		7311	42.61	-31.39	74	53.48	36.2	11.27	58.34	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4924	38.88	-35.12	74	56.85	31.37	8.8	58.14	100	0	P	H
		7386	43.95	-30.05	74	54.49	36.5	11.28	58.32	100	0	P	H
													H
													H
		4924	39.01	-34.99	74	56.98	31.37	8.8	58.14	100	0	P	V
		7386	43	-31	74	53.54	36.5	11.28	58.32	100	0	P	V
													V
													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 (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		2390	55.41	-18.59	74	42.88	27.6	15.78	30.85	331	128	P	H
		2390	45.25	-8.75	54	32.72	27.6	15.78	30.85	331	128	A	H
	*	2412	110.3	-	-	97.74	27.6	15.81	30.85	331	128	P	H
	*	2412	102.68	-	-	90.12	27.6	15.81	30.85	331	128	A	H
													H
													H
		2363.97	53.9	-20.1	74	41.37	27.67	15.74	30.88	365	223	P	V
		2390	43.77	-10.23	54	31.24	27.6	15.78	30.85	365	223	A	V
	*	2412	105.68	-	-	93.12	27.6	15.81	30.85	365	223	P	V
	*	2412	98.17	-	-	85.61	27.6	15.81	30.85	365	223	A	V
													V
													V
802.11g CH 06 2437MHz		2333.8	54.03	-19.97	74	41.46	27.77	15.69	30.89	365	125	P	H
		2389.94	42.96	-11.04	54	30.44	27.6	15.77	30.85	365	125	A	H
	*	2437	111.49	-	-	98.89	27.6	15.84	30.84	365	125	P	H
	*	2437	103.98	-	-	91.38	27.6	15.84	30.84	365	125	A	H
		2484.39	54.41	-19.59	74	41.85	27.47	15.91	30.82	365	125	P	H
		2483.5	44.58	-9.42	54	32.02	27.47	15.91	30.82	365	125	A	H
		2374.26	53.85	-20.15	74	41.33	27.63	15.75	30.86	400	145	P	V
		2311.12	42.79	-11.21	54	30.2	27.83	15.66	30.9	400	145	A	V
	*	2437	107.09	-	-	94.49	27.6	15.84	30.84	400	145	P	V
	*	2437	99.44	-	-	86.84	27.6	15.84	30.84	400	145	A	V
		2487.61	53.53	-20.47	74	41.04	27.4	15.91	30.82	400	145	P	V
		2483.55	43.49	-10.51	54	30.93	27.47	15.91	30.82	400	145	A	V



802.11g CH 11 2462MHz	*	2462	111.44	-	-	98.86	27.53	15.88	30.83	355	119	P	H
	*	2462	104.15	-	-	91.57	27.53	15.88	30.83	355	119	A	H
		2483.56	62.86	-11.14	74	50.3	27.47	15.91	30.82	355	119	P	H
		2483.52	50.96	-3.04	54	38.4	27.47	15.91	30.82	355	119	A	H
													H
													H
	*	2462	107.95	-	-	95.37	27.53	15.88	30.83	400	142	P	V
	*	2462	100.2	-	-	87.62	27.53	15.88	30.83	400	142	A	V
		2483.88	58.6	-15.4	74	46.04	27.47	15.91	30.82	400	142	P	V
		2483.52	47.59	-6.41	54	35.03	27.47	15.91	30.82	400	142	A	V
													V
													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. 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		4824	38.01	-35.99	74	56.27	31.3	8.5	58.06	100	0	P	H
													H
													H
													H
		4824	37.84	-36.16	74	56.1	31.3	8.5	58.06	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4874	37.87	-36.13	74	56.02	31.3	8.65	58.1	100	0	P	H
		7311	42.9	-31.1	74	53.77	36.2	11.27	58.34	100	0	P	H
													H
													H
		4874	37.21	-36.79	74	55.36	31.3	8.65	58.1	100	0	P	V
		7311	43.33	-30.67	74	54.2	36.2	11.27	58.34	100	0	P	V
													V
													V
802.11g CH 11 2462MHz		4924	38.06	-35.94	74	56.03	31.37	8.8	58.14	100	0	P	H
		7386	44.26	-29.74	74	54.8	36.5	11.28	58.32	100	0	P	H
													H
													H
		4924	37.51	-36.49	74	55.48	31.37	8.8	58.14	100	0	P	V
		7386	43.83	-30.17	74	54.37	36.5	11.28	58.32	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

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		30.97	23.27	-16.73	40	30.4	24.81	0.68	32.62	-	-	P	H
		85.29	21.4	-18.6	40	38.57	14.13	1.23	32.53	-	-	P	H
		304.51	25.25	-20.75	46	36.28	19.3	2.21	32.54	-	-	P	H
		399.57	26.21	-19.79	46	34.38	21.88	2.5	32.55	-	-	P	H
		717.73	29.53	-16.47	46	31.56	27.06	3.27	32.36	-	-	P	H
		889.42	32.15	-13.85	46	31.24	28.9	3.72	31.71	100	0	P	H
													H
													H
													H
													H
													H
		30	23.51	-16.49	40	30.26	25.2	0.67	32.62	-	-	P	V
		209.45	18.97	-24.53	43.5	34.38	15.2	1.88	32.49	-	-	P	V
		305.48	23.16	-22.84	46	34.19	19.3	2.21	32.54	-	-	P	V
		568.35	27.61	-18.39	46	30.88	26.33	2.99	32.59	-	-	P	V
		755.56	30.71	-15.29	46	31.26	28.4	3.34	32.29	-	-	P	V
		851.59	31.66	-14.34	46	30.74	29.2	3.63	31.91	100	0	P	V
													V
													V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2368.59	53.22	-20.78	74	40.71	27.63	15.74	30.86	100	40	P	H
		2390	42.79	-11.21	54	30.26	27.6	15.78	30.85	100	40	A	H
	*	2412	109.2	-	-	96.64	27.6	15.81	30.85	100	40	P	H
	*	2412	105.98	-	-	93.42	27.6	15.81	30.85	100	40	A	H
													H
													H
		2348.745	53.4	-20.6	74	40.87	27.7	15.71	30.88	379	117	P	V
		2389.38	42.64	-11.36	54	30.13	27.6	15.77	30.86	379	117	A	V
	*	2412	106.73	-	-	94.17	27.6	15.81	30.85	379	117	P	V
	*	2412	103.66	-	-	91.1	27.6	15.81	30.85	379	117	A	V
													V
													V
802.11b CH 06 2437MHz		2362.78	52.93	-21.07	74	40.41	27.67	15.73	30.88	118	39	P	H
		2389.94	42.7	-11.3	54	30.18	27.6	15.77	30.85	118	39	A	H
	*	2437	107.61	-	-	95.01	27.6	15.84	30.84	118	39	P	H
	*	2437	104.62	-	-	92.02	27.6	15.84	30.84	118	39	A	H
		2494.54	53.49	-20.51	74	40.98	27.4	15.92	30.81	118	39	P	H
		2483.76	42.76	-11.24	54	30.2	27.47	15.91	30.82	118	39	A	H
		2349.48	53.68	-20.32	74	41.15	27.7	15.71	30.88	325	188	P	V
		2360.96	42.59	-11.41	54	30.07	27.67	15.73	30.88	325	188	A	V
	*	2437	105.76	-	-	93.16	27.6	15.84	30.84	325	188	P	V
	*	2437	102.76	-	-	90.16	27.6	15.84	30.84	325	188	A	V
		2483.69	53.35	-20.65	74	40.79	27.47	15.91	30.82	325	188	P	V
		2484.53	42.5	-11.5	54	29.94	27.47	15.91	30.82	325	188	A	V



802.11b CH 11 2462MHz	*	2462	109.09	-	-	96.51	27.53	15.88	30.83	111	37	P	H
	*	2462	105.8	-	-	93.22	27.53	15.88	30.83	111	37	A	H
		2483.92	57.76	-16.24	74	45.2	27.47	15.91	30.82	111	37	P	H
		2486.4	43.77	-10.23	54	31.21	27.47	15.91	30.82	111	37	A	H
													H
													H
	*	2462	105.82	-	-	93.24	27.53	15.88	30.83	400	114	P	V
	*	2462	102.71	-	-	90.13	27.53	15.88	30.83	400	114	A	V
		2499.32	53.12	-20.88	74	40.6	27.4	15.93	30.81	400	114	P	V
		2483.52	42.93	-11.07	54	30.37	27.47	15.91	30.82	400	114	A	V
													V
													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. 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)
802.11b CH 01 2412MHz		4824	38.34	-35.66	74	56.6	31.3	8.5	58.06	100	0	P	H
													H
													H
													H
		4824	38.22	-35.78	74	56.48	31.3	8.5	58.06	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4874	39.57	-34.43	74	57.72	31.3	8.65	58.1	100	0	P	H
		7311	43	-31	74	53.87	36.2	11.27	58.34	100	0	P	H
													H
													H
		4874	38.38	-35.62	74	56.53	31.3	8.65	58.1	100	0	P	V
		7311	42.71	-31.29	74	53.58	36.2	11.27	58.34	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4924	39.11	-34.89	74	57.08	31.37	8.8	58.14	100	0	P	H
		7386	43.16	-30.84	74	53.7	36.5	11.28	58.32	100	0	P	H
													H
													H
		4924	40.24	-33.76	74	58.21	31.37	8.8	58.14	100	0	P	V
		7386	44.09	-29.91	74	54.63	36.5	11.28	58.32	100	0	P	V
													V
													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 (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)
802.11g CH 01 2412MHz		2390	54.21	-19.79	74	41.68	27.6	15.78	30.85	100	36	P	H
		2390	44.79	-9.21	54	32.26	27.6	15.78	30.85	100	36	A	H
	*	2412	110.71	-	-	98.15	27.6	15.81	30.85	100	36	P	H
	*	2412	102.99	-	-	90.43	27.6	15.81	30.85	100	36	A	H
													H
													H
		2319.66	53.58	-20.42	74	41.03	27.77	15.67	30.89	377	115	P	V
		2390	43.48	-10.52	54	30.95	27.6	15.78	30.85	377	115	A	V
	*	2412	108.11	-	-	95.55	27.6	15.81	30.85	377	115	P	V
	*	2412	100.22	-	-	87.66	27.6	15.81	30.85	377	115	A	V
													V
													V
802.11g CH 06 2437MHz		2386.72	53.46	-20.54	74	40.95	27.6	15.77	30.86	119	35	P	H
		2389.94	42.93	-11.07	54	30.41	27.6	15.77	30.85	119	35	A	H
	*	2437	109.09	-	-	96.49	27.6	15.84	30.84	119	35	P	H
	*	2437	101.37	-	-	88.77	27.6	15.84	30.84	119	35	A	H
		2485.23	53.29	-20.71	74	40.73	27.47	15.91	30.82	119	35	P	H
		2483.5	43.05	-10.95	54	30.49	27.47	15.91	30.82	119	35	A	H
		2358.58	53.18	-20.82	74	40.66	27.67	15.73	30.88	326	186	P	V
		2389.94	42.74	-11.26	54	30.22	27.6	15.77	30.85	326	186	A	V
	*	2437	106.96	-	-	94.36	27.6	15.84	30.84	326	186	P	V
	*	2437	99.32	-	-	86.72	27.6	15.84	30.84	326	186	A	V
		2498.95	52.73	-21.27	74	40.21	27.4	15.93	30.81	326	186	P	V
		2484.32	42.68	-11.32	54	30.12	27.47	15.91	30.82	326	186	A	V



802.11g CH 11 2462MHz	*	2462	110.56	-	-	97.98	27.53	15.88	30.83	107	45	P	H
	*	2462	102.97	-	-	90.39	27.53	15.88	30.83	107	45	A	H
		2483.56	63.96	-10.04	74	51.4	27.47	15.91	30.82	107	45	P	H
		2483.52	53.05	-0.95	54	40.49	27.47	15.91	30.82	107	45	A	H
													H
													H
	*	2462	107.82	-	-	95.24	27.53	15.88	30.83	400	114	P	V
	*	2462	100.02	-	-	87.44	27.53	15.88	30.83	400	114	A	V
		2483.52	60.89	-13.11	74	48.33	27.47	15.91	30.82	400	114	P	V
		2483.52	49.39	-4.61	54	36.83	27.47	15.91	30.82	400	114	A	V
													V
													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. 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)
802.11g CH 01 2412MHz		4824	38.68	-35.32	74	56.94	31.3	8.5	58.06	100	0	P	H
													H
													H
													H
		4824	37.64	-36.36	74	55.9	31.3	8.5	58.06	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4874	37.98	-36.02	74	56.13	31.3	8.65	58.1	100	0	P	H
		7311	43.23	-30.77	74	54.1	36.2	11.27	58.34	100	0	P	H
													H
													H
		4874	37.34	-36.66	74	55.49	31.3	8.65	58.1	100	0	P	V
		7311	43.32	-30.68	74	54.19	36.2	11.27	58.34	100	0	P	V
													V
													V
802.11g CH 11 2462MHz		4924	37.82	-36.18	74	55.79	31.37	8.8	58.14	100	0	P	H
		7386	49.33	-24.67	74	59.87	36.5	11.28	58.32	100	0	P	H
													H
													H
		4924	38.26	-35.74	74	56.23	31.37	8.8	58.14	100	0	P	V
		7386	49.53	-24.47	74	60.07	36.5	11.28	58.32	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

Emission below 1GHz

2.4GHz WIFI 802.11g (LF)

[illegible]



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

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+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 01 2412MHz		2389.8	54.9	-19.1	74	42.38	27.6	15.77	30.85	370	117	P	H
		2390	45.66	-8.34	54	33.13	27.6	15.78	30.85	370	117	A	H
	*	2412	109.04	-	-	96.48	27.6	15.81	30.85	370	117	P	H
	*	2412	101.79	-	-	89.23	27.6	15.81	30.85	370	117	A	H
													H
													H
		2390	55.36	-18.64	74	42.83	27.6	15.78	30.85	398	140	P	V
		2390	45.14	-8.86	54	32.61	27.6	15.78	30.85	398	140	A	V
	*	2412	108.75	-	-	96.19	27.6	15.81	30.85	398	140	P	V
	*	2412	101.36	-	-	88.8	27.6	15.81	30.85	398	140	A	V
													V
													V
802.11n HT20 CH 06 2437MHz		2383.78	53.77	-20.23	74	41.23	27.63	15.77	30.86	358	114	P	H
		2389.94	42.81	-11.19	54	30.29	27.6	15.77	30.85	358	114	A	H
	*	2437	110.45	-	-	97.85	27.6	15.84	30.84	358	114	P	H
	*	2437	102.77	-	-	90.17	27.6	15.84	30.84	358	114	A	H
		2484.18	54.49	-19.51	74	41.93	27.47	15.91	30.82	358	114	P	H
		2483.5	44.61	-9.39	54	32.05	27.47	15.91	30.82	358	114	A	H
		2357.74	54.06	-19.94	74	41.54	27.67	15.73	30.88	351	170	P	V
		2389.66	42.74	-11.26	54	30.23	27.6	15.77	30.86	351	170	A	V
	*	2437	110.26	-	-	97.66	27.6	15.84	30.84	351	170	P	V
	*	2437	102.75	-	-	90.15	27.6	15.84	30.84	351	170	A	V
		2484.39	53.69	-20.31	74	41.13	27.47	15.91	30.82	351	170	P	V
		2483.5	43.27	-10.73	54	30.71	27.47	15.91	30.82	351	170	A	V



802.11n HT20 CH 11 2462MHz	*	2462	110.52	-	-	97.94	27.53	15.88	30.83	353	124	P	H
	*	2462	102.94	-	-	90.36	27.53	15.88	30.83	353	124	A	H
		2484	66.71	-7.29	74	54.15	27.47	15.91	30.82	353	124	P	H
		2483.52	53.59	-0.41	54	41.03	27.47	15.91	30.82	353	124	A	H
													H
													H
	*	2462	110.41	-	-	97.83	27.53	15.88	30.83	400	170	P	V
	*	2462	102.35	-	-	89.77	27.53	15.88	30.83	400	170	A	V
		2483.76	62.65	-11.35	74	50.09	27.47	15.91	30.82	400	170	P	V
		2483.52	51.76	-2.24	54	39.2	27.47	15.91	30.82	400	170	A	V
													V
													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. 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		4824	38.19	-35.81	74	56.45	31.3	8.5	58.06	100	0	P	H
													H
													H
													H
		4824	37.54	-36.46	74	55.8	31.3	8.5	58.06	100	0	P	V
													V
													V
													V
802.11n HT20 CH 06 2437MHz		4874	38.96	-35.04	74	57.11	31.3	8.65	58.1	100	0	P	H
		7311	43.15	-30.85	74	54.02	36.2	11.27	58.34	100	0	P	H
													H
													H
		4874	37.78	-36.22	74	55.93	31.3	8.65	58.1	100	0	P	V
		7311	42.71	-31.29	74	53.58	36.2	11.27	58.34	100	0	P	V
													V
													V
802.11n HT20 CH 11 2462MHz		4924	37.94	-36.06	74	55.91	31.37	8.8	58.14	100	0	P	H
		7386	43.53	-30.47	74	54.07	36.5	11.28	58.32	100	0	P	H
													H
													H
		4924	37.57	-36.43	74	55.54	31.37	8.8	58.14	100	0	P	V
		7386	43.05	-30.95	74	53.59	36.5	11.28	58.32	100	0	P	V
													V
													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 HT40 (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 HT40 CH 03 2422MHz		2389.8	60.53	-13.47	74	48.01	27.6	15.77	30.85	328	129	P	H
		2389.94	53.24	-0.76	54	40.72	27.6	15.77	30.85	328	129	A	H
	*	2422	108.36	-	-	95.78	27.6	15.82	30.84	328	129	P	H
	*	2422	100.94	-	-	88.36	27.6	15.82	30.84	328	129	A	H
		2484.11	54.64	-19.36	74	42.08	27.47	15.91	30.82	328	129	P	H
		2483.9	45.7	-8.3	54	33.14	27.47	15.91	30.82	328	129	A	H
		2389.94	59.61	-14.39	74	47.09	27.6	15.77	30.85	360	168	P	V
		2389.94	51.4	-2.6	54	38.88	27.6	15.77	30.85	360	168	A	V
	*	2422	106.22	-	-	93.64	27.6	15.82	30.84	360	168	P	V
	*	2422	98.75	-	-	86.17	27.6	15.82	30.84	360	168	A	V
		2486.98	54.48	-19.52	74	41.92	27.47	15.91	30.82	360	168	P	V
		2485.37	44.87	-9.13	54	32.31	27.47	15.91	30.82	360	168	A	V
802.11n HT40 CH 06 2437MHz		2389.66	55.37	-18.63	74	42.86	27.6	5.85	30.86	360	116	P	H
		2389.94	45.62	-8.38	54	33.1	27.6	5.85	30.85	360	116	A	H
		2437	108.9	-	-	96.3	27.6	5.92	30.84	360	116	P	H
		2437	100.88	-	-	88.28	27.6	5.92	30.84	360	116	A	H
		2483.69	63.3	-10.7	74	50.74	27.47	5.99	30.82	360	116	P	H
		2483.5	53.86	-0.14	54	41.3	27.47	5.99	30.82	360	116	A	H
		2389.94	54.6	-19.4	74	42.08	27.6	5.85	30.85	399	170	P	V
		2389.94	45.42	-8.58	54	32.9	27.6	5.85	30.85	399	170	A	V
		2437	108.25	-	-	95.65	27.6	5.92	30.84	399	170	P	V
		2437	100.58	-	-	87.98	27.6	5.92	30.84	399	170	A	V
		2483.83	56.45	-17.55	74	43.89	27.47	5.99	30.82	399	170	P	V
		2483.5	47.83	-6.17	54	35.27	27.47	5.99	30.82	399	170	A	V



802.11n HT40 CH 09 2452MHz		2312.1	53.43	-20.57	74	40.84	27.83	15.66	30.9	356	117	P	H
		2361.94	44.55	-9.45	54	32.03	27.67	15.73	30.88	356	117	A	H
	*	2452	104.49	-	-	91.86	27.6	15.86	30.83	356	117	P	H
	*	2452	97.01	-	-	84.38	27.6	15.86	30.83	356	117	A	H
		2483.83	62.1	-11.9	74	49.54	27.47	15.91	30.82	356	117	P	H
		2483.55	53.43	-0.57	54	40.87	27.47	15.91	30.82	356	117	A	H
		2322.74	53.86	-20.14	74	41.31	27.77	15.67	30.89	400	171	P	V
		2359.84	44.56	-9.44	54	32.04	27.67	15.73	30.88	400	171	A	V
	*	2452	104.75	-	-	92.12	27.6	15.86	30.83	400	171	P	V
	*	2452	96.75	-	-	84.12	27.6	15.86	30.83	400	171	A	V
		2486.14	58.11	-15.89	74	45.55	27.47	15.91	30.82	400	171	P	V
		2485.72	49.56	-4.44	54	37	27.47	15.91	30.82	400	171	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 HT40 (Harmonic @ 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 HT40 CH 03 2422MHz		4844	38.88	-35.12	74	57.1	31.3	8.56	58.08	100	0	P	H
		7266	43.33	-30.67	74	54.22	36.2	11.26	58.35	100	0	P	H
													H
													H
		4844	37.44	-36.56	74	55.66	31.3	8.56	58.08	100	0	P	V
		7266	43.92	-30.08	74	54.81	36.2	11.26	58.35	100	0	P	V
													V
													V
802.11n HT40 CH 06 2437MHz		4874	38.64	-35.36	74	56.79	31.3	8.65	58.1	100	0	P	H
		7311	43.21	-30.79	74	54.08	36.2	11.27	58.34	100	0	P	H
													H
													H
		4874	38.12	-35.88	74	56.27	31.3	8.65	58.1	100	0	P	V
		7311	43.68	-30.32	74	54.55	36.2	11.27	58.34	100	0	P	V
													V
													V
802.11n HT40 CH 09 2452MHz		4904	37.49	-36.51	74	55.54	31.33	8.74	58.12	100	0	P	H
		7356	42.75	-31.25	74	53.5	36.3	11.28	58.33	100	0	P	H
													H
													H
		4904	38.01	-35.99	74	56.06	31.33	8.74	58.12	100	0	P	V
		7356	43.2	-30.8	74	53.95	36.3	11.28	58.33	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

Emission below 1GHz

2.4GHz WIFI 802.11n HT40 (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 802.11n HT40 LF		30.97	24.93	-15.07	40	32.06	24.81	0.68	32.62	-	-	P	H
		249.22	19.65	-26.35	46	31.63	18.49	2.04	32.51	-	-	P	H
		304.51	25.02	-20.98	46	36.05	19.3	2.21	32.54	-	-	P	H
		407.33	24.86	-21.14	46	32.75	22.15	2.51	32.55	-	-	P	H
		573.2	26.98	-19.02	46	30.4	26.17	3	32.59	-	-	P	H
		894.27	34.14	-11.86	46	33.29	28.81	3.72	31.68	100	0	P	H
													H
													H
													H
													H
													H
		32.91	22.77	-17.23	40	31.04	23.65	0.7	32.62	-	-	P	V
		210.42	19.99	-23.51	43.5	35.44	15.17	1.88	32.5	-	-	P	V
		303.54	23.27	-22.73	46	34.3	19.3	2.21	32.54	-	-	P	V
		421.88	25.36	-20.64	46	32.73	22.64	2.54	32.55	-	-	P	V
		645.95	29.6	-16.4	46	32.29	26.68	3.14	32.51	-	-	P	V
		741.98	32.76	-13.24	46	33.63	28.14	3.31	32.32	100	0	P	V
													V
													V
													V
													V
													V
													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.
!	Test result is over limit line.
P/A	Peak or Average
H/V	Horizontal or Vertical



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		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		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 :	Watt Tseng, Karl Hou, and BigShow Wang	Temperature :	24~26°C
		Relative Humidity :	47~58%

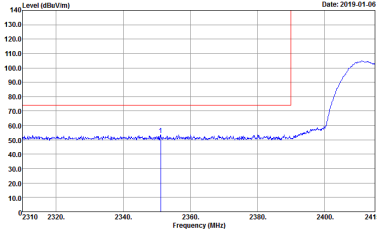
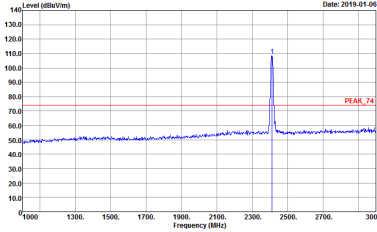
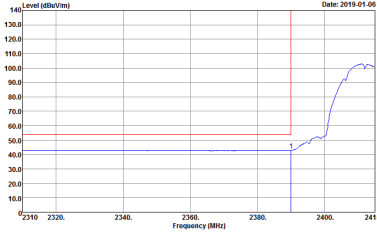
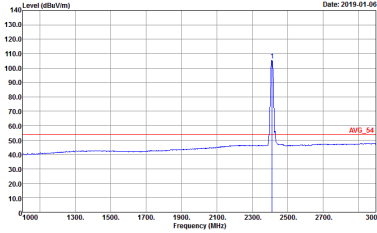
Note symbol

-L	Low channel location
-R	High channel location

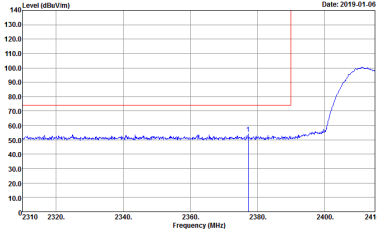
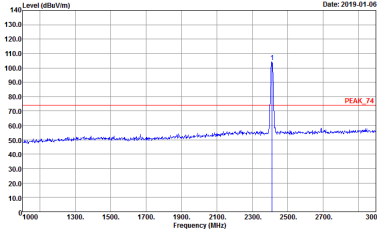
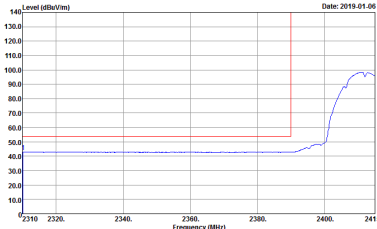
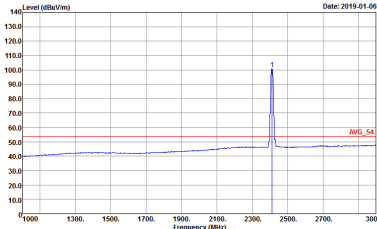


2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

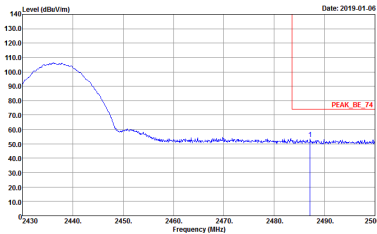
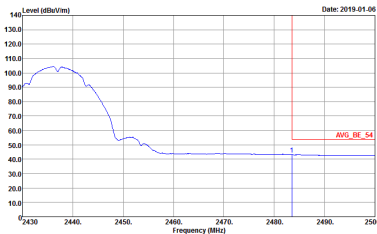
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 12	 Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 12
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 91200_15_1620 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 12	 Site : 03CH15-HY Condition : AVG_54 3m 91200_15_1620 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 12

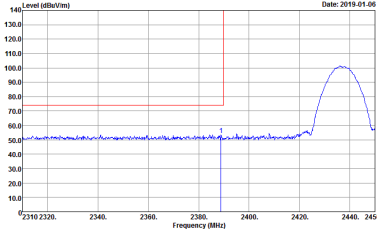
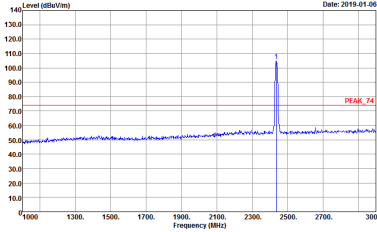
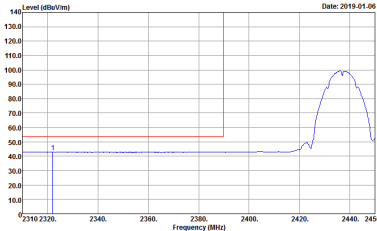
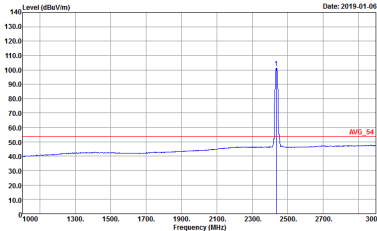


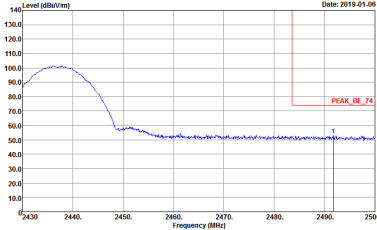
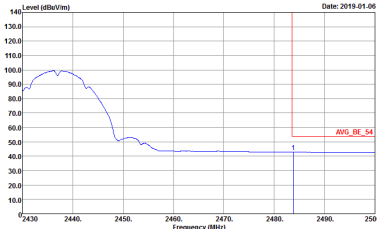
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH01 2412MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 12	 Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 12
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 91200_15_1620 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 12	 Site : 03CH15-HY Condition : AVG_54 3m 91200_15_1620 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 12



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak	Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 13	Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 13
Avg.	Site : 03CH15-HY Condition : AVG_BE_54 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 13	Site : 03CH15-HY Condition : AVG_54 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 13

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 13	Left blank
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 13	Left blank

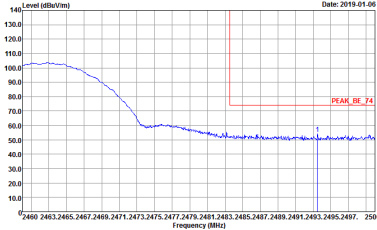
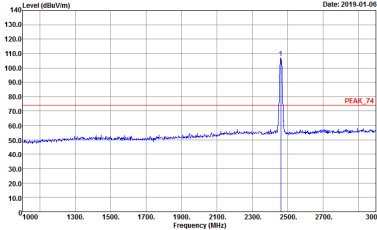
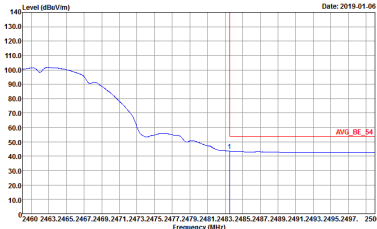
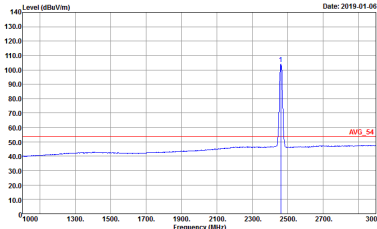
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - L	
1	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 13	 Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 13
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 13	 Site : 03CH15-HY Condition : AVG_54 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 13

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH06 2437MHz - R	
1	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 13	Left blank
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 13	Left blank



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Fundamental
Peak	Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 14	Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 14
Avg.	Site : 03CH15-HY Condition : AVG_BE_54 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 14	Site : 03CH15-HY Condition : AVG_54 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 14



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11b CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 14	 Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 14
	 Site : 03CH15-HY Condition : AVG_BE_54 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 14	 Site : 03CH15-HY Condition : AVG_54 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 14

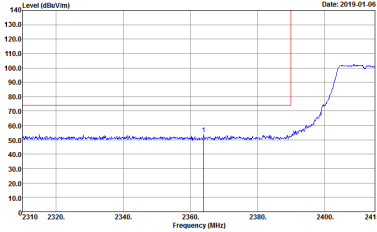
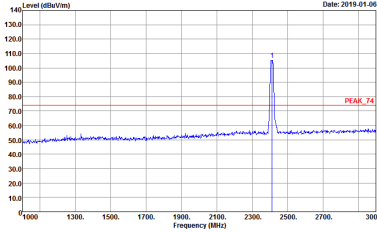
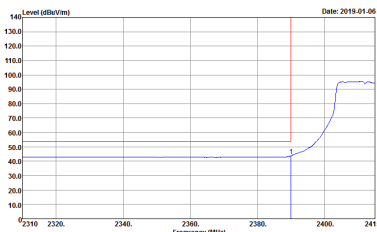
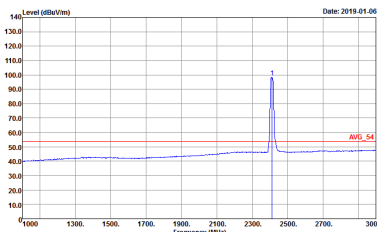


2.4GHz 2400~2483.5MHz

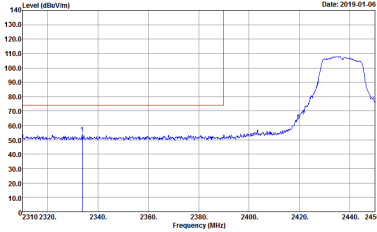
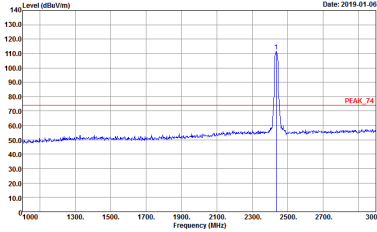
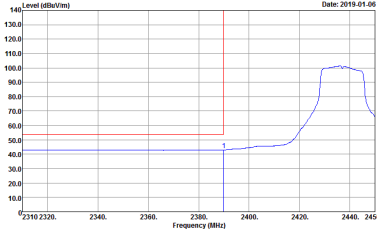
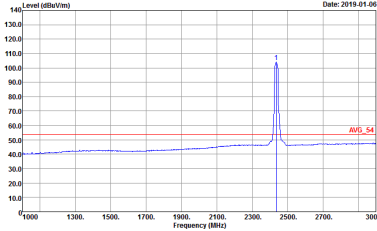
WIFI 802.11g (Band Edge @ 3m)

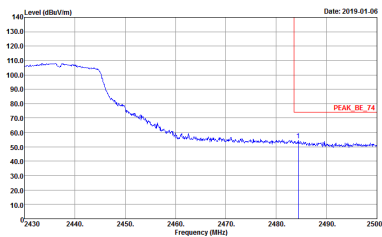
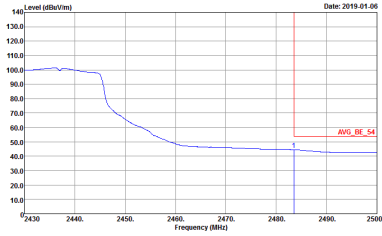
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Fundamental
Peak	Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 15	Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 15
Avg.	Site : 03CH15-HY Condition : AVG_BE_54 3m 91200_15_1620 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 15	Site : 03CH15-HY Condition : AVG_54 3m 91200_15_1620 HORIZONTAL RBW:1000.000KHz VBW:0.010KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 15

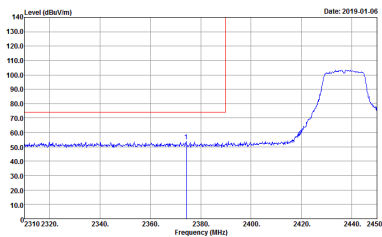
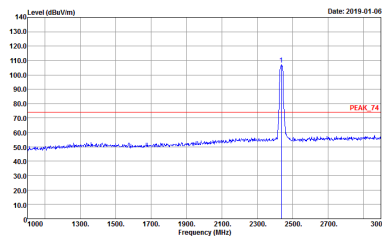
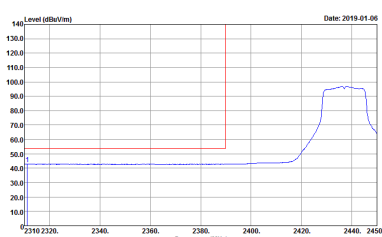
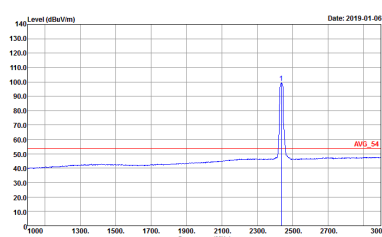


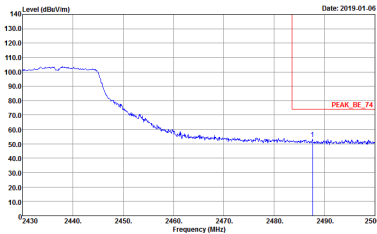
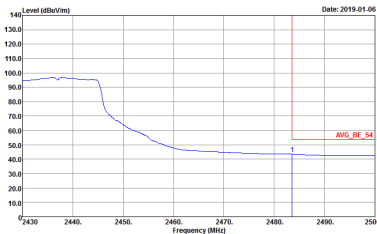
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH01 2412MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 15	 Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 15
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 91200_15_1620 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 15	 Site : 03CH15-HY Condition : AVG_54 3m 91200_15_1620 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 15



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
1	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 16	 Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 16
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 91200_15_1620 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 16	 Site : 03CH15-HY Condition : AVG_54 3m 91200_15_1620 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 16

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
1	Horizontal	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 16	Left blank
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 16	Left blank

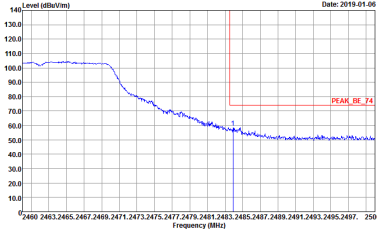
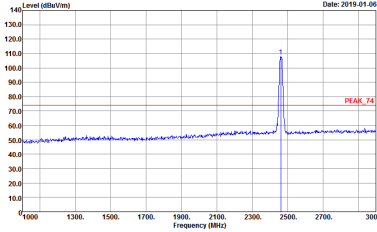
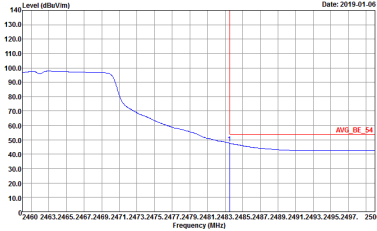
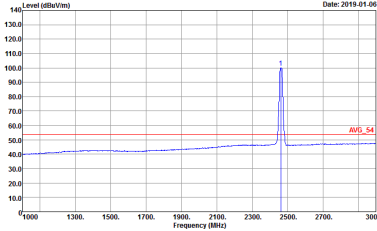
WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - L	
1	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 16	 Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 16
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 16	 Site : 03CH15-HY Condition : AVG_54 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 16

WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH06 2437MHz - R	
1	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 16	Left blank
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 16	Left blank

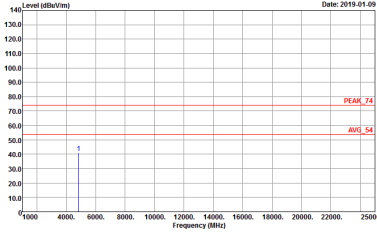
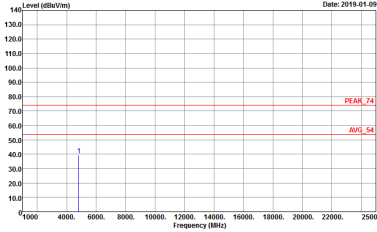


WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Fundamental
Peak	Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 17	Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 17
Avg.	Site : 03CH15-HY Condition : AVG_BE_54 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 17	Site : 03CH15-HY Condition : AVG_54 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 17



WIFI	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	802.11g CH11 2462MHz	
1	Vertical	Fundamental
Peak	 Site : 03CH15-HY Condition : PEAK_BE_74 3m 91200_15_1620 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 17	 Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 17
Avg.	 Site : 03CH15-HY Condition : AVG_BE_54 3m 91200_15_1620 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 17	 Site : 03CH15-HY Condition : AVG_54 3m 91200_15_1620 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto Detector : Peak Project : 8D2018 Mode : 17

**2.4GHz 2400~2483.5MHz****WIFI 802.11b (Harmonic @ 3m)**

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 12	 Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 12



WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2019-01-09 PEAK_74 AVG_54 Site : 03CH15-11Y Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 13	Level (dBuV/m) Date: 2019-01-09 PEAK_74 AVG_54 Site : 03CH15-11Y Condition : PEAK_74 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 13

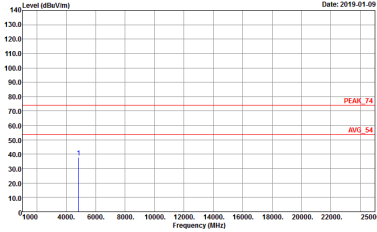
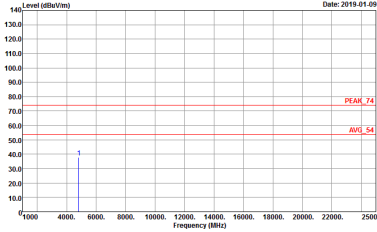


WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11b CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.	Site : 03CH15-11Y Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 14	Site : 03CH15-11Y Condition : PEAK_74 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 14



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH01 2412MHz	
1	Horizontal	Vertical
Peak Avg.	 Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 15	 Site : 03CH15-HY Condition : PEAK_74 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 15

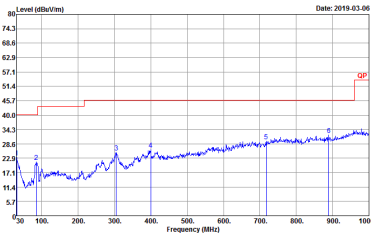
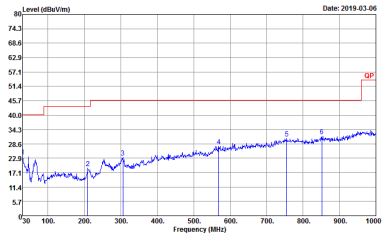


WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH06 2437MHz	
1	Horizontal	Vertical
Peak Avg.	Site : 03CH15-11Y Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 16	Site : 03CH15-11Y Condition : PEAK_74 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 16



WIFI	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	802.11g CH11 2462MHz	
1	Horizontal	Vertical
Peak Avg.	Site : 03CH15-11Y Condition : PEAK_74 3m 91200_15_1620 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 17	Site : 03CH15-11Y Condition : PEAK_74 3m 91200_15_1620 VERTICAL Detector : Peak Project : 8D2018 Mode : 17

Emission below 1GHz
2.4GHz WIFI 802.11g (LF)

WIFI	2.4GHz 2400~2483.5MHz	
ANT	802.11g LF	
1	Horizontal	Vertical
QP / Peak	 Site : 03CH15-HY Condition : QP 3m B1LOG_15_41912 HORIZONTAL Detector : Peak Project : 8D2018 Mode : 18	 Site : 03CH15-HY Condition : QP 3m B1LOG_15_41912 VERTICAL Detector : Peak Project : 8D2018 Mode : 18