





FCC Test Report

FCC ID : NKR-MB43

Equipment : Wireless module

Model No. : DHSC-MB43

Brand Name : WNC

Applicant : Wistron NeWeb Corporation

Address : 20 Park Avenue II, Hsinchu Science Park,

Hsinchu 308, Taiwan, R.O.C.

Standard : 47 CFR FCC Part 15.247

Received Date : Jul. 13, 2022

Tested Date : Jul. 26 ~ Aug. 01, 2022

We, International Certification Corporation, would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by: Approved by:

Along Chen/ Assistant Manager Gary Chang / Manager

Report No.: FR271305AC Page: 1 of 18



Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information	5
1.2	Local Support Equipment List	7
1.3	Test Setup Chart	7
1.4	The Equipment List	8
1.5	Test Standards	9
1.6	Reference Guidance	9
1.7	Deviation from Test Standard and Measurement Procedure	9
1.8	Measurement Uncertainty	9
2	TEST CONFIGURATION	10
2.1	Testing Facility	10
2.2	The Worst Test Modes and Channel Details	10
3	TRANSMITTER TEST RESULTS	11
3.1	6dB and Occupied Bandwidth	11
3.2	Conducted Output Power	12
3.3	Power Spectral Density	13
3.4	Unwanted Emissions into Restricted Frequency Bands	14
3.5	Emissions in Non-Restricted Frequency Bands	16
3.6	AC Power Line Conducted Emissions	17
4	TEST I ABORATORY INFORMATION	18

- Appendix A. 6dB and Occupied Bandwidth
- **Appendix B. Conducted Output Power**
- **Appendix C. Power Spectral Density**
- Appendix D. Unwanted Emissions into Restricted Frequency Bands
- Appendix E. Emissions in Non-Restricted Frequency Bands
- **Appendix F. AC Power Line Conducted Emissions**



Release Record

Report No.	Version	Description	Issued Date
FR271305AC	Rev. 01	Initial issue	Nov. 25, 2022

Report No.: FR271305AC Page: 3 of 18



Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	5.207 AC Power Line Conducted [dBuV]: 0.555MHz 34.68 (Margin -11.32dB) - AV		Pass
15.247(d)	Unwanted Emissions	[dBuV/m at 3m]: 2483.50MHz	Pass
15.209	Onwanted Emissions	53.00 (Margin -1.00dB) - AV	F 455
15.247(b)(3)	Conducted Output Power	Max Power [dBm]: 25.24	Pass
15.247(a)(2)	6dB Bandwidth	Meet the requirement of limit	Pass
15.247(e) Power Spectral Density		Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	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.

Report No.: FR271305AC Page: 4 of 18



1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information						
Frequency Range (MHz) IEEE Std. Ch. Freq. (MHz) Channel Transmit Chains (N _{TX}) Chains (N _{TX})						
2400-2483.5	b	2412-2462	1-11 [11]	1	1-11 Mbps	
2400-2483.5	g	2412-2462	1-11 [11]	1	6-54 Mbps	
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	1	MCS 0-7	

Note 1: RF output power specifies that Maximum Conducted (Average) Output Power.

Note 2: DSSS-DBPSK, DQPSK, CCK modulation

OFDM- BPSK, QPSK, 16QAM and 64QAM modulation.

1.1.2 Antenna Details

Ant. No.	Туре	Connector	Gain (dBi)
1	PIFA	No	2.6

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12.7Vdc from host

1.1.4 Accessories

N/A

Report No.: FR271305AC Page: 5 of 18



1.1.5 Channel List

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

1.1.6 Test Tool and Duty Cycle

Test Tool	Tera Term, V 4.66				
	Mode	Duty Cycle (%)	Duty Factor (dB)		
Duty Cycle and Duty	11b	99.59%	0.02		
Factor	11g	94.31%	0.25		
	HT20	93.94%	0.27		

1.1.7 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index
11b	2412	70
11b	2437	70
11b	2462	68
11g	2412	66
11g	2437	78
11g	2462	66
HT20	2412	62
HT20	2437	78
HT20	2462	62

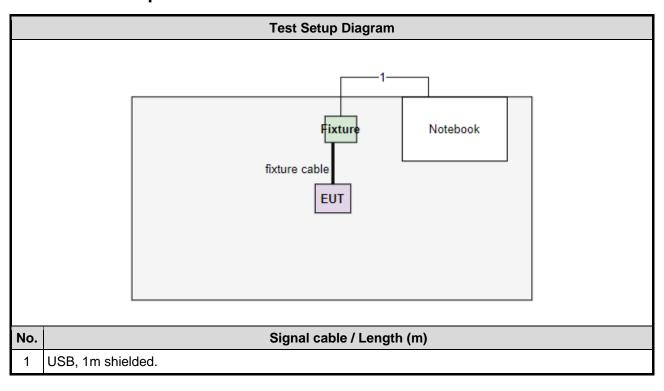
Report No.: FR271305AC Page: 6 of 18



1.2 Local Support Equipment List

	Support Equipment List						
No.	No. Equipment Brand Model FCC ID Remarks						
1	Notebook	DELL	Latitude E5400	DoC			
2	Fixture				Provided by applicant.		

1.3 Test Setup Chart



Report No.: FR271305AC Page: 7 of 18



1.4 The Equipment List

Test Item	Conducted Emission						
Test Site	Conduction room 1 / (Conduction room 1 / (CO01-WS)					
Tested Date	Jul. 29, 2022	Jul. 29, 2022					
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until		
Receiver	R&S	ESR3	101658	Feb. 16, 2022	Feb. 15, 2023		
LISN	R&S	ENV216	101579	Apr. 21, 2022	Apr. 20, 2023		
LISN (Support Unit)	SCHWARZBECK	NSLK 8127	8127667	Jan .07, 2022	Jan .06, 2023		
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 19, 2021	Oct. 18, 2022		
50 ohm terminal (Support Unit) NA 50 04 May 10, 2022 May 09, 2023							
Measurement Software AUDIX e3 6.120210k NA NA NA							

Test Item	Radiated Emission						
Test Site	966 chamber1 / (03Cl	966 chamber1 / (03CH01-WS) Jul. 26 ~ Jul. 27, 2022					
Tested Date	Jul. 26 ~ Jul. 27, 2022						
Instrument	Brand Model No. Serial No. Calibration Date Calibr						
Receiver	R&S	ESR3	101657	Mar. 15, 2022	Mar. 14, 2023		
Spectrum Analyzer	R&S	FSV40	101498	Nov. 29, 2021	Nov. 28, 2022		
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 08, 2021	Nov. 07, 2022		
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Jun. 28, 2022	Jun. 27, 2023		
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 03, 2021	Dec. 02, 2022		
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170508	Jan. 11, 2022	Jan. 10, 2023		
Preamplifier	EMC	EMC02325	980225	Jun. 28, 2022	Jun. 27, 2023		
Preamplifier	Agilent	83017A	MY39501308	Sep. 28, 2021	Sep. 27, 2022		
Preamplifier	EMC	EMC184045B	980192	Jul. 08, 2022	Jul. 07, 2023		
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 05, 2021	Oct. 04, 2022		
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 05, 2021	Oct. 04, 2022		
LF cable 11M	EMC	EMCCFD400-NW-N W-11000	200801	Oct. 05, 2021	Oct. 04, 2022		
LF cable 1M	EMC	EMCCFD400-NM-N M-1000	160502	Oct. 05, 2021	Oct. 04, 2022		
RF Cable	EMC	EMC104-35M-35M- 8000	210920	Oct. 05, 2021	Oct. 04, 2022		
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Oct. 05, 2021	Oct. 04, 2022		
Measurement Software	AUDIX	e3	6.120210g	NA	NA		

Report No.: FR271305AC Page: 8 of 18



Test Item	RF Conducted				
Test Site	(TH01-WS)				
Tested Date	Aug. 01, 2022				
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101910	Apr. 18, 2022	Apr. 17, 2023
Power Meter	Anritsu	ML2495A	1241002	Nov. 07, 2021	Nov. 06, 2022
Power Sensor	Anritsu	MA2411B	1207366	Nov. 07, 2021	Nov. 06, 2022
Measurement Software	Sporton	SENSE-15247_DTS	V5.10	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.5 Test Standards

47 CFR FCC Part 15.247 ANSI C63.10-2013

1.6 Reference Guidance

FCC KDB 558074 D01 15.247 Meas Guidance v05r02

1.7 Deviation from Test Standard and Measurement Procedure

None

1.8 Measurement Uncertainty

The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)).

Measurement Uncertainty				
Parameters	Uncertainty			
Bandwidth	±34.130 Hz			
Conducted power	±0.808 dB			
Power density	±0.583 dB			
Conducted emission	±2.715 dB			
AC conducted emission	±2.92 dB			
Unwanted Emission ≤ 1GHz	±3.41 dB			
Unwanted Emission > 1GHz	±4.59 dB			

Report No.: FR271305AC Page: 9 of 18



2 Test Configuration

2.1 Testing Facility

Test Laboratory	International Certification Corporation
Test Site	CO01-WS, 03CH01-WS, TH01-WS
Address of Test Site	No.3-1, Lane 6, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)

FCC Designation No.: TW2732FCC site registration No.: 181692

➤ ISED#: 10807A

➤ CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
AC Power Line Conducted Emission	11g	2437	6 Mbps	
Unwanted Emissions ≤ 1GHz	11g	2437	6 Mbps	
Unwanted Emissions >1GHz Conducted Output Power 6dB bandwidth Power spectral density	11b 11g HT20	2412 / 2437 / 2462 2412 / 2437 / 2462 2412 / 2437 / 2462	1 Mbps 6 Mbps MCS 0	

NOTE:

Report No.: FR271305AC Page: 10 of 18

^{1.} The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **X-plane** results were found as the worst case and were shown in this report.



3 Transmitter Test Results

3.1 6dB and Occupied Bandwidth

3.1.1 Limit of 6dB Bandwidth

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

3.1.2 Test Procedures

6dB Bandwidth

- 1. Set resolution bandwidth (RBW) = 100 kHz, Video bandwidth = 300 kHz.
- 2. Detector = Peak, Trace mode = max hold.
- 3. Sweep = auto couple, Allow the trace to stabilize.
- 4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6dB relative to the maximum level measured in the fundamental emission.

Occupied Bandwidth

- 1. Set resolution bandwidth (RBW) = 1% ~ 5 % of OBW, Video bandwidth = 3 x RBW
- 2. Detector = Sample, Trace mode = max hold.
- 3 Sweep = auto couple, Allow the trace to stabilize.
- 4. Use the OBW measurement function of spectrum analyzer to measure the occupied bandwidth.

3.1.3 Test Setup



3.1.4 Test Results

Ambient Condition	25°C / 61%	Tested By	Roger Lu

Refer to Appendix A.

Report No.: FR271305AC Page: 11 of 18



3.2 Conducted Output Power

3.2.1 Limit of Conducted Output Power

Conducted power shall not exceed 1Watt.

Antenna gain <= 6dBi, no any corresponding reduction is in output power limit.

Antenna gain > 6dBi

Non Fixed, point to point operations.

The conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dB

Fixed, point to point operations

Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point Operations, maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

3.2.2 Test Procedures

A broadband RF power meter is used for output power measurement. The video bandwidth of power meter is greater than DTS bandwidth of EUT. If duty cycle of test signal is not 100 %, trigger and gating function of power meter will be enabled to capture transmission burst for measuring output power.

3.2.3 Test Setup



3.2.4 Test Results

Ambient Condition	25°C / 61%	Tested By	Roger Lu

Refer to Appendix B.

Report No.: FR271305AC Page: 12 of 18



3.3 Power Spectral Density

3.3.1 Limit of Power Spectral Density

Power spectral density shall not be greater than 8 dBm in any 3 kHz band.

3.3.2 Test Procedures

Peak PSD

- 1. Set the RBW = 3 kHz, VBW = 10 kHz.
- 2. Detector = Peak, Sweep time = auto couple.
- 3. Trace mode = max hold, allow trace to fully stabilize.
- 4. Use the peak marker function to determine the maximum amplitude level.

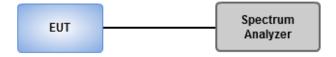
Average PSD, duty cycle ≥ 98%

- 1. Set the RBW = 30 kHz, VBW = 100 kHz.
- 2. Detector = RMS, Sweep time = auto couple.
- 3. Sweep time = auto couple.
- 4. Employ trace averaging (RMS) mode over a minimum of 100 traces.
- 5. Use the peak marker function to determine the maximum amplitude level.

Average PSD, duty cycle < 98%

- 1 Set the RBW = 30 kHz, VBW = 100 kHz. Detector = RMS.
- Set the sweep time to: \geq 10 (number of measurement points in sweep) x (total on/off period of the transmitted signal).
- 3 Perform the measurement over a single sweep.
- 4 Use the peak marker function to determine the maximum amplitude level.
- 5 Add 10 log (1/x), where x is the duty cycle.

3.3.3 Test Setup



3.3.4 Test Results

Ambient Condition	25°C / 61%	Tested By	Roger Lu
-------------------	------------	-----------	----------

Refer to Appendix C.

Report No.: FR271305AC Page: 13 of 18



3.4 Unwanted Emissions into Restricted Frequency Bands

3.4.1 Limit of Unwanted Emissions into Restricted Frequency Bands

Restricted Band Emissions Limit					
Frequency Range (MHz) Field Strength (uV/m) Field Strength (dE			Measure Distance (m)		
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300		
0.490~1.705	24000/F(kHz)	33.8 - 23	30		
1.705~30.0	30	29	30		
30~88	100	40	3		
88~216	150	43.5	3		
216~960	200	46	3		
Above 960	500	54	3		

Note 1:

Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit **Note 2**:

Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

3.4.2 Test Procedures

- 1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
- 2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
- 3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

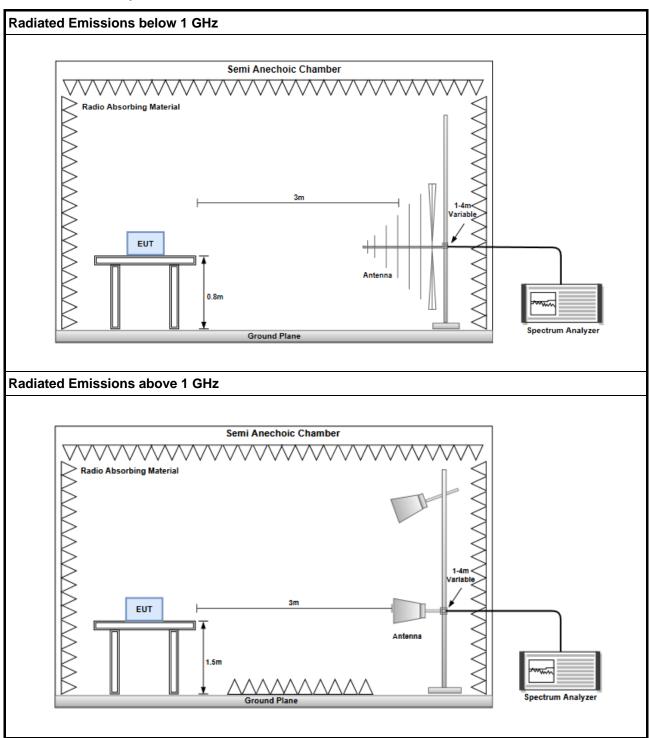
Note:

- 1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
- 2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
- RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

Report No.: FR271305AC Page: 14 of 18



3.4.3 Test Setup



3.4.4 Test Results

Refer to Appendix D.

Report No.: FR271305AC Page: 15 of 18



3.5 Emissions in Non-Restricted Frequency Bands

3.5.1 Emissions in Non-Restricted Frequency Bands Limit

Peak power 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.

3.5.2 Test Procedures

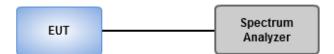
Reference level measurement

- 1. Set RBW=100kHz, VBW = 300kHz, Detector = Peak, Sweep time = Auto
- 2. Trace = max hold, Allow Trace to fully stabilize
- 3. Use the peak marker function to determine the maximum PSD level

Emission level measurement

- 1. Set RBW=100kHz, VBW = 300kHz, Detector = Peak, Sweep time = Auto
- Trace = max hold , Allow Trace to fully stabilize
- 3. Scan Frequency range is up to 25GHz
- 4. Use the peak marker function to determine the maximum amplitude level

3.5.3 Test Setup



3.5.4 Test Results

Ambient Condition	25°C / 61%	Tested By	Roger Lu
-------------------	------------	-----------	----------

Refer to Appendix E.

Report No.: FR271305AC Page: 16 of 18



3.6 AC Power Line Conducted Emissions

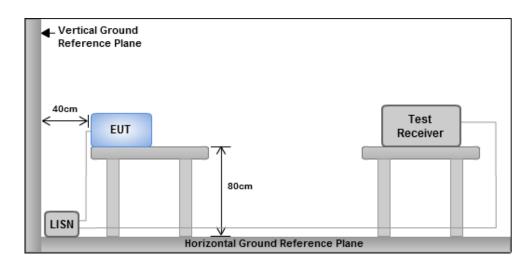
3.6.1 Limit of AC Power Line Conducted Emissions

Conducted Emissions Limit						
Frequency Emission (MHz) Quasi-Peak Average						
0.15-0.5 66 - 56 * 56 - 46 *						
0.5-5	56	46				
5-30 60 50						
Note 1: * Decreases with the logarithm of the frequency.						

3.6.2 Test Procedures

- 1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
- 2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50 Ω LISN port.
- 3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
- 4. This measurement was performed with AC 120V / 60Hz.

3.6.3 Test Setup



Note: 1. Support units were connected to second LISN.

Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.6.4 Test Results

Refer to Appendix F.

Report No.: FR271305AC Page: 17 of 18



4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corporation (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website http://www.icertifi.com.tw.

Linkou

Tel: 886-2-2601-1640 No.30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan (R.O.C.)

Kwei Shan

Tel: 886-3-271-8666
No.3-1, Lane 6, Wen San 3rd
St., Kwei Shan Dist., Tao Yuan
City 33381, Taiwan (R.O.C.)
No.2-1, Lane 6, Wen San 3rd
St., Kwei Shan Dist., Tao Yuan
City 33381, Taiwan (R.O.C.)

Kwei Shan Site II

Tel: 886-3-271-8640 No.14-1, Lane 19, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 333, Taiwan (R.O.C.)

If you have any suggestion, please feel free to contact us as below information.

Tel: 886-3-271-8666 Fax: 886-3-318-0345

Email: ICC Service@icertifi.com.tw

==END==

Report No.: FR271305AC Page: 18 of 18



6dB and Occupied Bandwidth

Appendix A

Summary

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11b_Nss1,(1Mbps)_1TX	9.025M	14.068M	14M1G1D	8.025M	14.018M
802.11g_Nss1,(6Mbps)_1TX	15.075M	17.341M	17M3D1D	15.025M	16.367M
802.11n HT20_Nss1,(MCS0)_1TX	15.125M	18.216M	18M2D1D	13.15M	17.466M

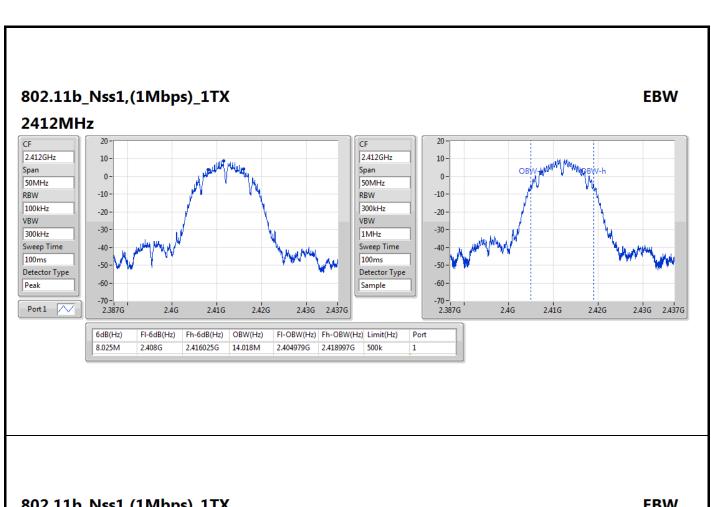
 $\label{eq:max-N} \ dB = Maximum \ 6dB \ down \ bandwidth; \ Max-OBW = Maximum \ 99\% \ occupied \ bandwidth; \\ Min-N \ dB = Minimum \ 6dB \ down \ bandwidth; \ Min-OBW = Minimum \ 99\% \ occupied \ bandwidth$

Result

Mode	Result	Limit	Port 1-N dB	Port 1-OBW
		(Hz)	(Hz)	(Hz)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-
2412MHz	Pass	500k	8.025M	14.018M
2437MHz	Pass	500k	9.025M	14.068M
2462MHz	Pass	500k	8.55M	14.068M
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-
2412MHz	Pass	500k	15.075M	16.367M
2437MHz	Pass	500k	15.05M	17.341M
2462MHz	Pass	500k	15.025M	16.392M
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-
2412MHz	Pass	500k	13.15M	17.516M
2437MHz	Pass	500k	15.05M	18.216M
2462MHz	Pass	500k	15.125M	17.466M

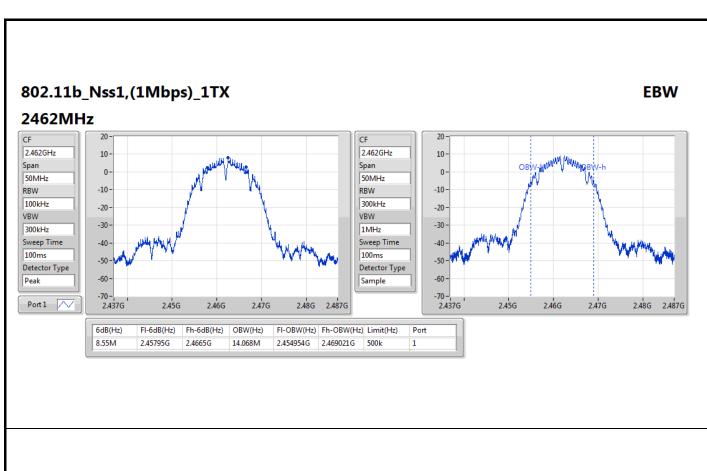
Port X-N dB = Port X 6dB down bandwidth; Port X-OBW = Port X 99% occupied bandwidth





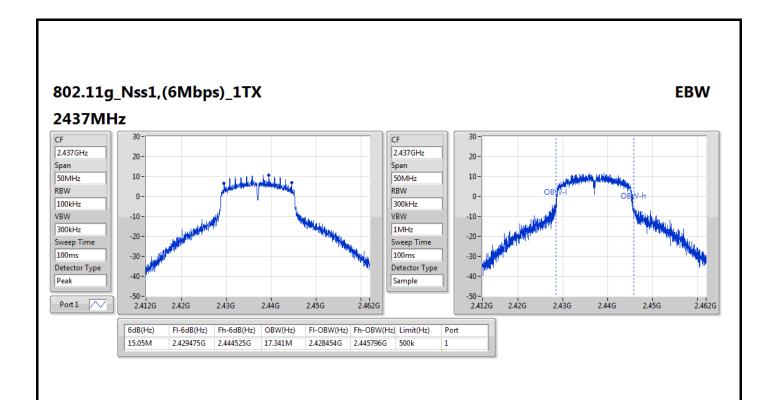
802.11b_Nss1,(1Mbps)_1TX **EBW** 2437MHz 2.437GHz 2.437GHz 10-10-Span 0-0-50MHz 50MHz -10 RBW RBW 100kHz 300kHz -20 -20 VBW VBW -30 --30 300kHz 1MHz Sweep Time -40 -40 Sweep Time 100ms 100ms Detector Type Detector Type -60 Sample Peak -70 -2.412G Port1 / 2.44G 2.462G 2.42G 2.44G 2.45G 2.462G 2.412G 2.42G 2.43G 2.45G 6dB(Hz) FI-6dB(Hz) Fh-6dB(Hz) OBW(Hz) FI-OBW(Hz) Fh-OBW(Hz) Limit(Hz) 2.4325G 2.441525G 14.068M 2.429954G 2.444021G 500k

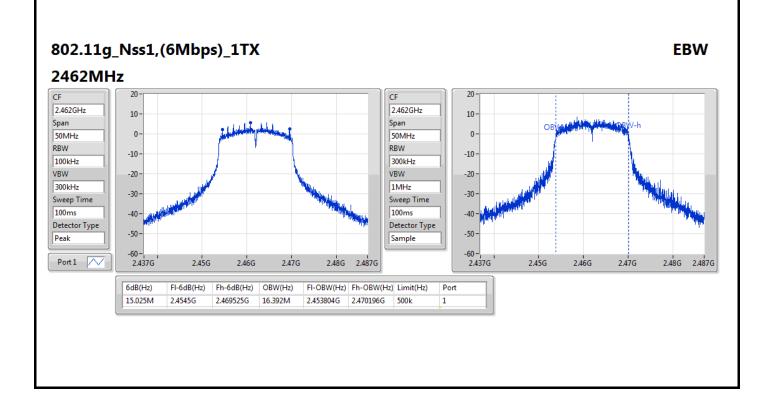




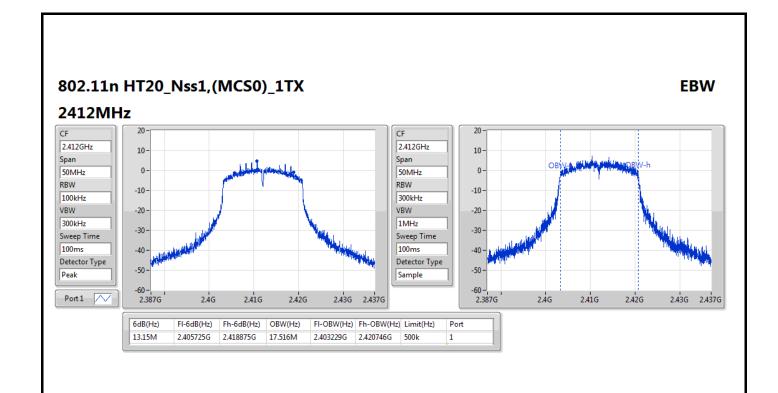
802.11g_Nss1,(6Mbps)_1TX **EBW** 2412MHz 2.412GHz 2.412GHz 10-10-Span Span 0-0-50MHz 50MHz RBW RBW -10 --10-100kHz 300kHz VBW -20 VBW -20 300kHz 1MHz -30 --30 Sweep Time Sweep Time 100ms 100ms -40 --40 -Detector Type Detector Type -50 -50 Peak Sample Port1 / 2.4G 2.41G 2.387G 2.4G 2.41G 2.42G 2.43G 2.437G 2.387G 2.42G 2.43G 2.437G 6dB(Hz) FI-6dB(Hz) Fh-6dB(Hz) OBW(Hz) FI-OBW(Hz) Fh-OBW(Hz) Limit(Hz) 15.075M 2.40445G 2.419525G 16.367M 2.403804G 2.420171G 500k

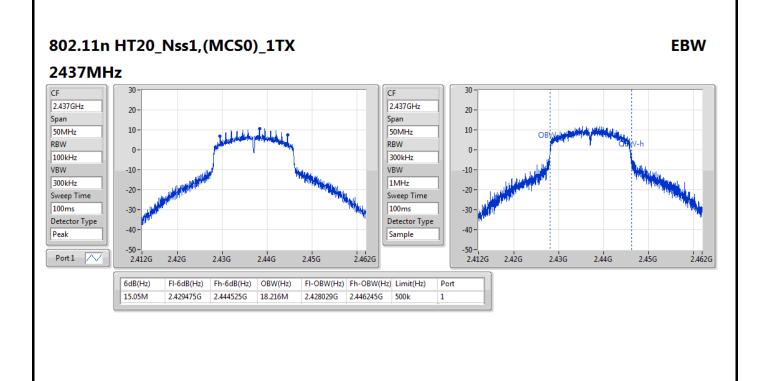




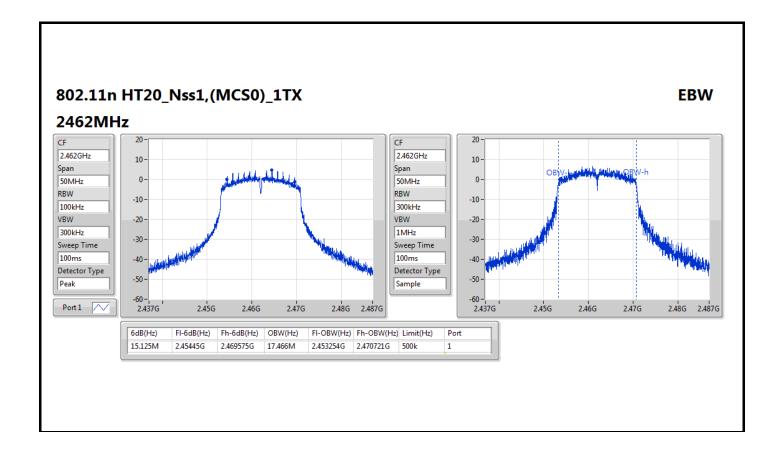














Appendix B.1



Summary

Mode	Total Power	Total Power		
	(dBm)	(W)		
2.4-2.4835GHz	-	-		
802.11b_Nss1,(1Mbps)_1TX	19.73	0.09397		
802.11g_Nss1,(6Mbps)_1TX	25.24	0.33420		
802.11n HT20_Nss1,(MCS0)_1TX	25.19	0.33037		

Result

Mode	Result	DG	Port 1	Total Power	Power Limit	EIRP	EIRP Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-	-	-
2412MHz	Pass	2.60	19.62	19.62	30.00	22.22	36.00
2437MHz	Pass	2.60	19.73	19.73	30.00	22.33	36.00
2462MHz	Pass	2.60	19.23	19.23	30.00	21.83	36.00
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-	-	-
2412MHz	Pass	2.60	23.37	23.37	30.00	25.97	36.00
2437MHz	Pass	2.60	25.24	25.24	30.00	27.84	36.00
2462MHz	Pass	2.60	23.84	23.84	30.00	26.44	36.00
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-	-	-	-
2412MHz	Pass	2.60	22.88	22.88	30.00	25.48	36.00
2437MHz	Pass	2.60	25.19	25.19	30.00	27.79	36.00
2462MHz	Pass	2.60	23.03	23.03	30.00	25.63	36.00

DG = Directional Gain; Port X = Port X output power



Conducted Output Power(Average)

Appendix B.2

Summary

Mode	Total Power	Total Power		
	(dBm)	(W)		
2.4-2.4835GHz	-	-		
802.11b_Nss1,(1Mbps)_1TX	17.53	0.05662		
802.11g_Nss1,(6Mbps)_1TX	20.60	0.11482		
802.11n HT20_Nss1,(MCS0)_1TX	20.56	0.11376		

Result

Mode	Result	DG	Port 1	Total Power	Power Limit	EIRP	EIRP Limit
		(dBi)	(dBm)	(dBm)	(dBm)	(dBm)	(dBm)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-	-	-
2412MHz	Pass	2.60	17.46	17.46	-	20.06	-
2437MHz	Pass	2.60	17.53	17.53	-	20.13	-
2462MHz	Pass	2.60	17.02	17.02	-	19.62	-
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-	-	-
2412MHz	Pass	2.60	16.12	16.12	-	18.72	-
2437MHz	Pass	2.60	20.6	20.60	-	23.20	-
2462MHz	Pass	2.60	16.53	16.53	-	19.13	-
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-	-	-	-
2412MHz	Pass	2.60	15.02	15.02	-	17.62	-
2437MHz	Pass	2.60	20.56	20.56	-	23.16	-
2462MHz	Pass	2.60	15.21	15.21	-	17.81	-

DG = Directional Gain; Port X = Port X output power

Note : Conducted average output power is for reference only



Appendix C



Summary

Mode	PD		
	(dBm/RBW)		
2.4-2.4835GHz	-		
802.11b_Nss1,(1Mbps)_1TX	-4.19		
802.11g_Nss1,(6Mbps)_1TX	-3.77		
802.11n HT20_Nss1,(MCS0)_1TX	-3.38		

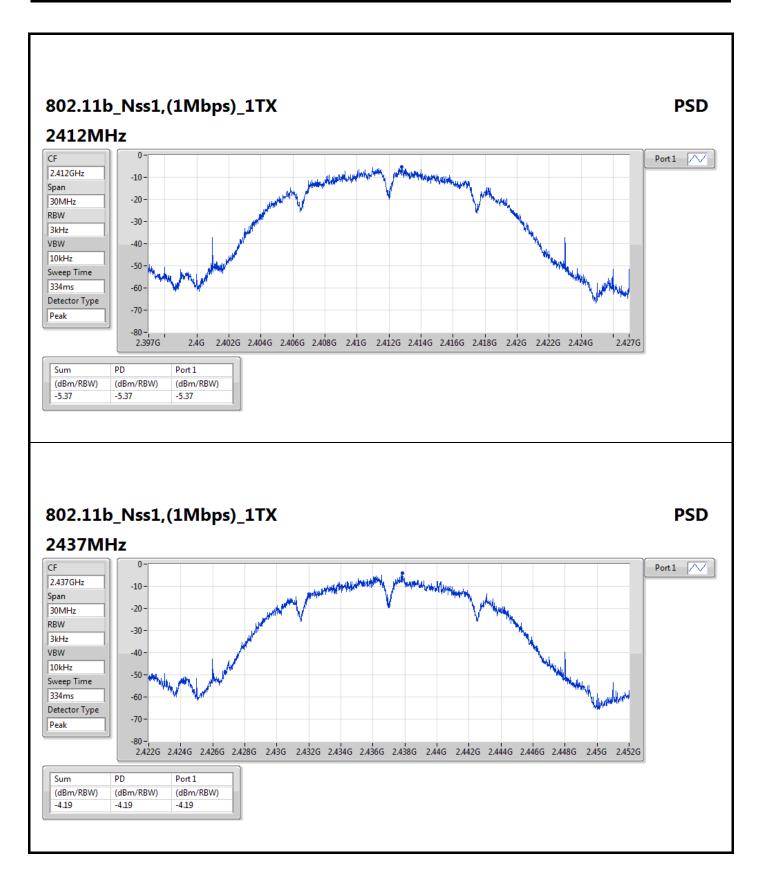
RBW = 3kHz;

Result

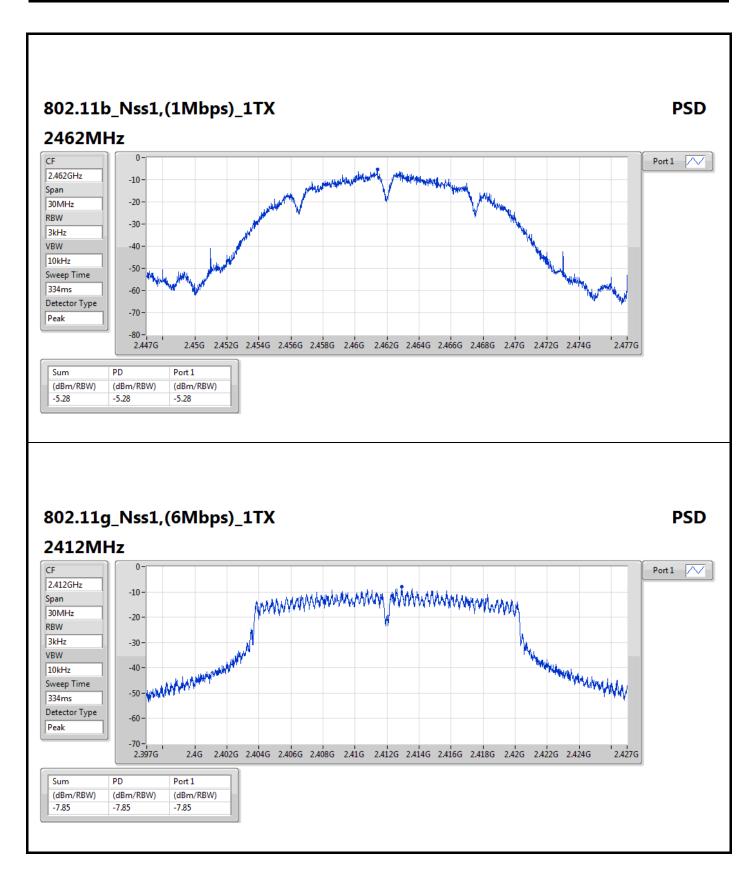
Mode	Result	DG	Port 1	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-
2412MHz	Pass	2.60	-5.37	-5.37	8.00
2437MHz	Pass	2.60	-4.19	-4.19	8.00
2462MHz	Pass	2.60	-5.28	-5.28	8.00
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-
2412MHz	Pass	2.60	-7.85	-7.85	8.00
2437MHz	Pass	2.60	-3.77	-3.77	8.00
2462MHz	Pass	2.60	-9.18	-9.18	8.00
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-	-
2412MHz	Pass	2.60	-9.95	-9.95	8.00
2437MHz	Pass	2.60	-3.38	-3.38	8.00
2462MHz	Pass	2.60	-9.87	-9.87	8.00

DG = Directional Gain; RBW = 3kHz; PD = Power density; Port X = Port X Power Density;

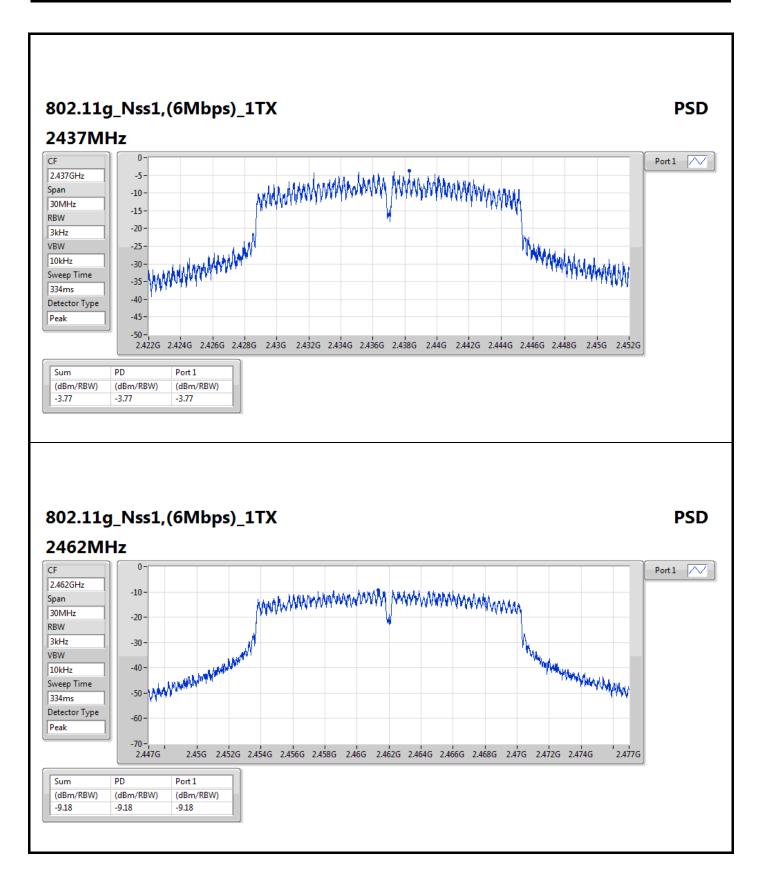




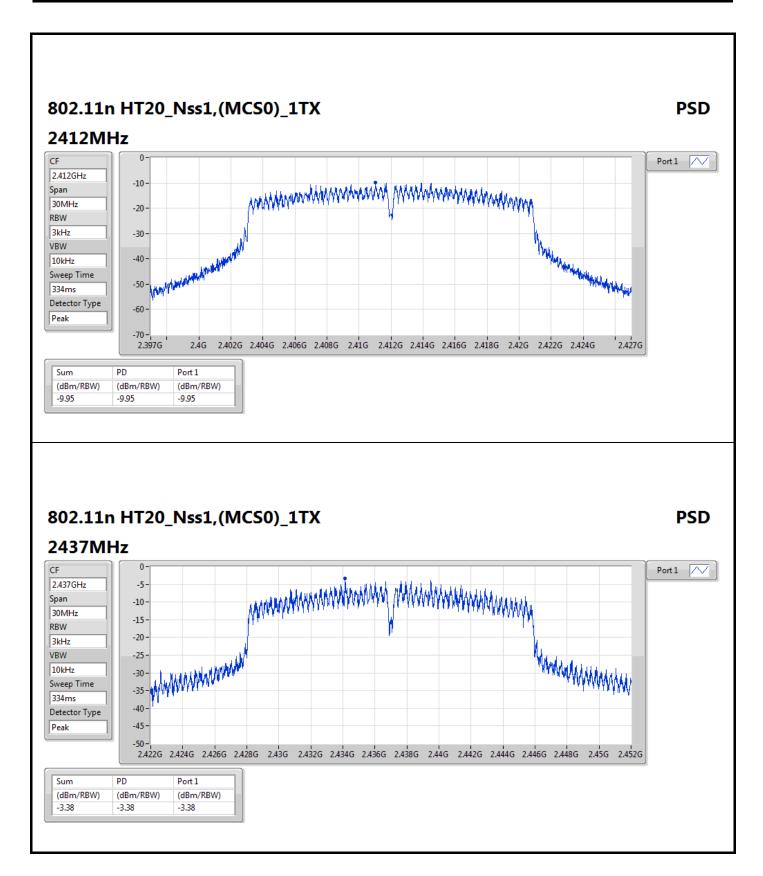




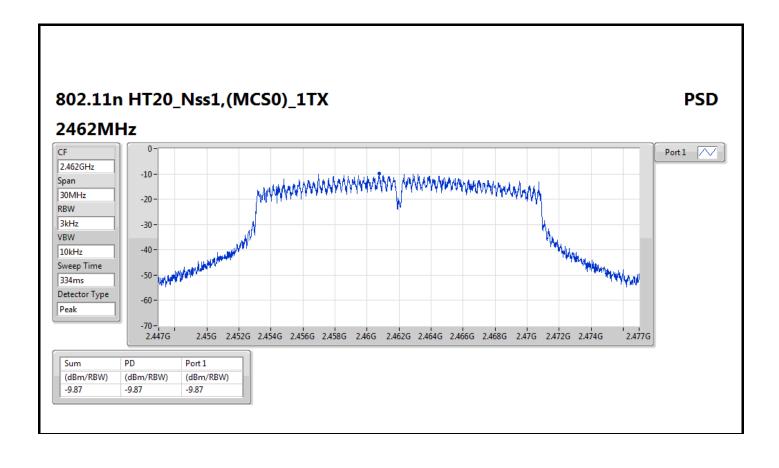






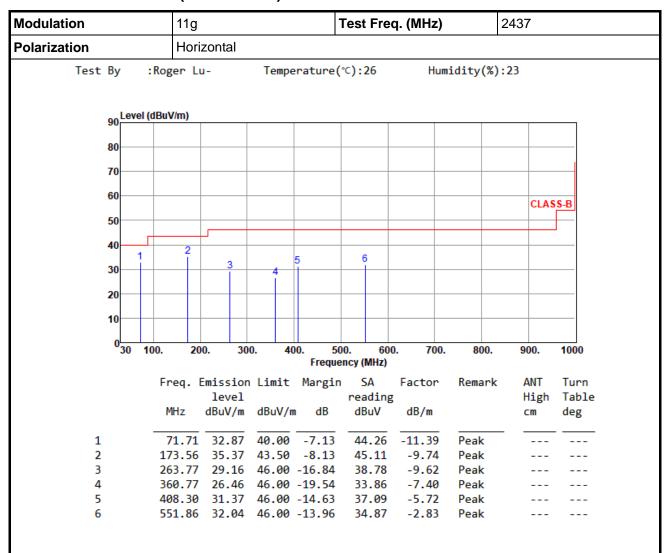








Unwanted Emissions (Below 1GHz)



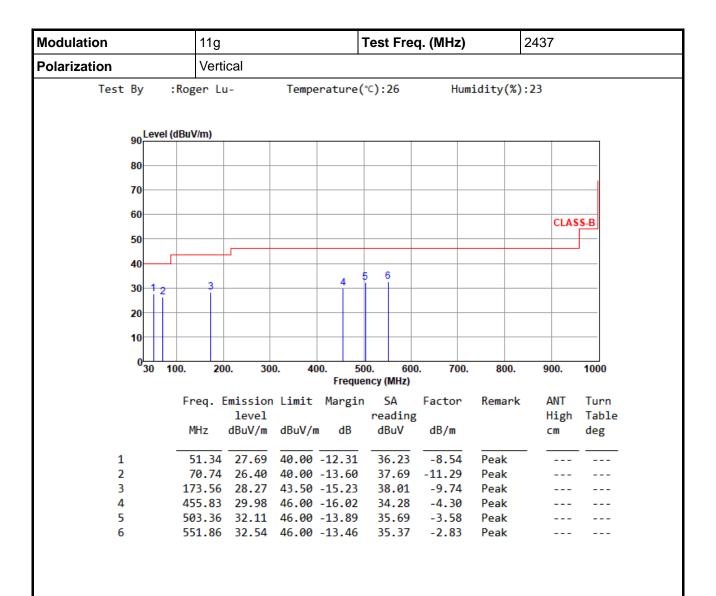
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.





Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.



4

5

6

4824.00

12060.00 43.47

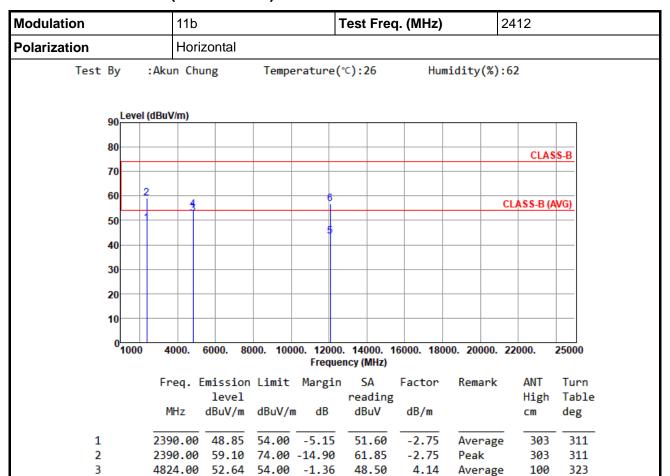
54.31

12060.00 56.65 74.00 -17.35

74.00 -19.69

54.00 -10.53

Unwanted Emission (Above 1GHz) for 11b



50.17

29.68

42.86

4.14

13.79

13.79

Peak

Peak

Average

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

323

311

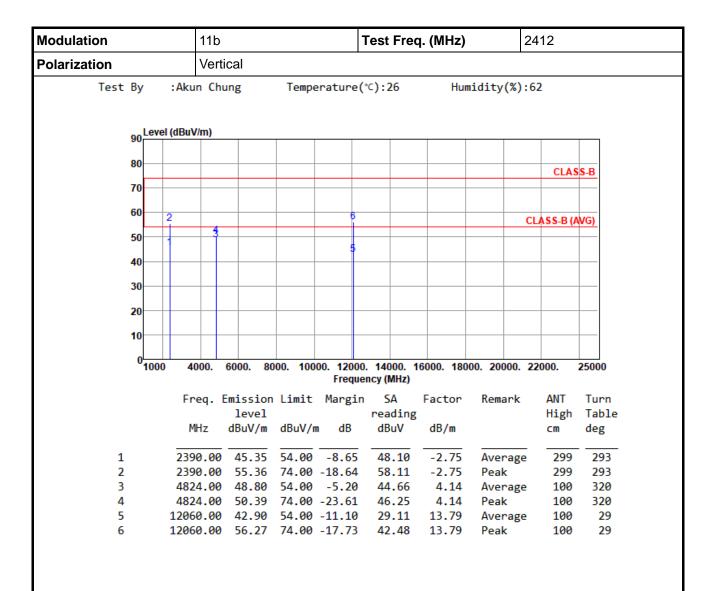
311

100

303

303



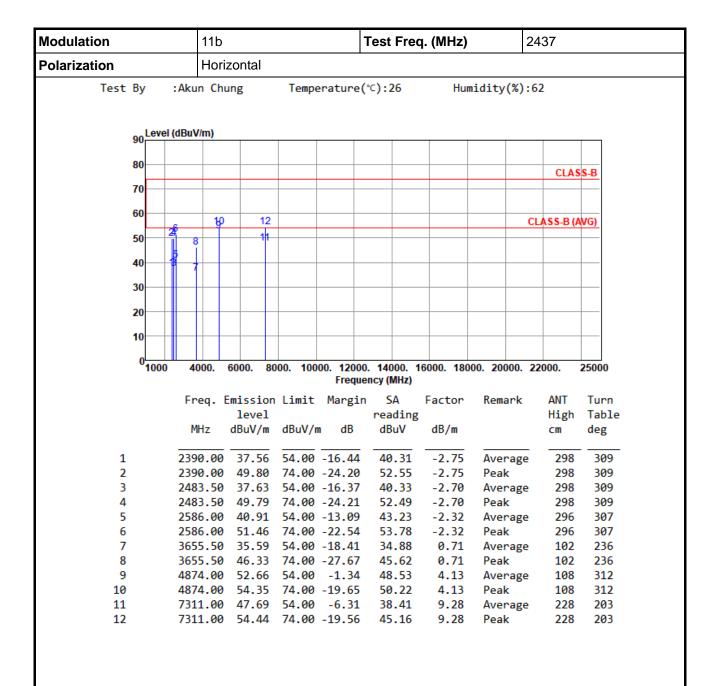


Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

*Factor includes antenna factor, cable loss and amplifier gain

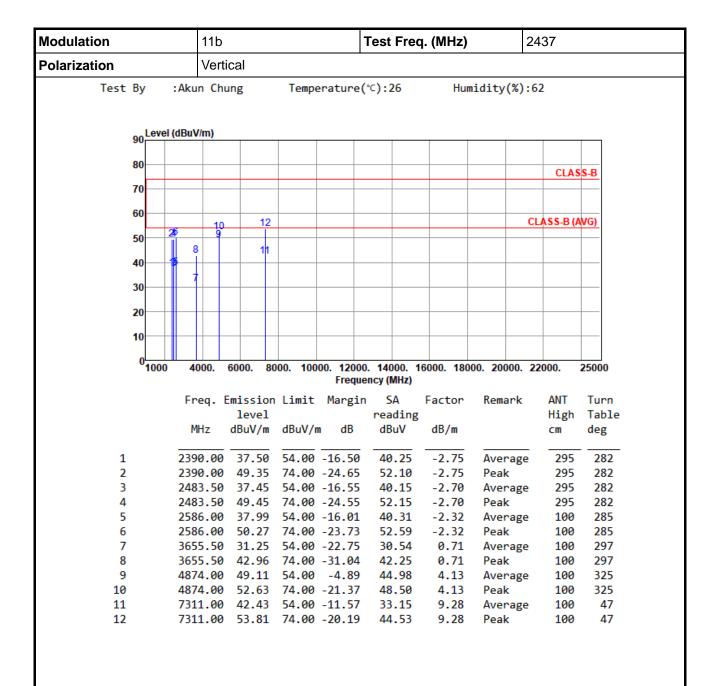
Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).





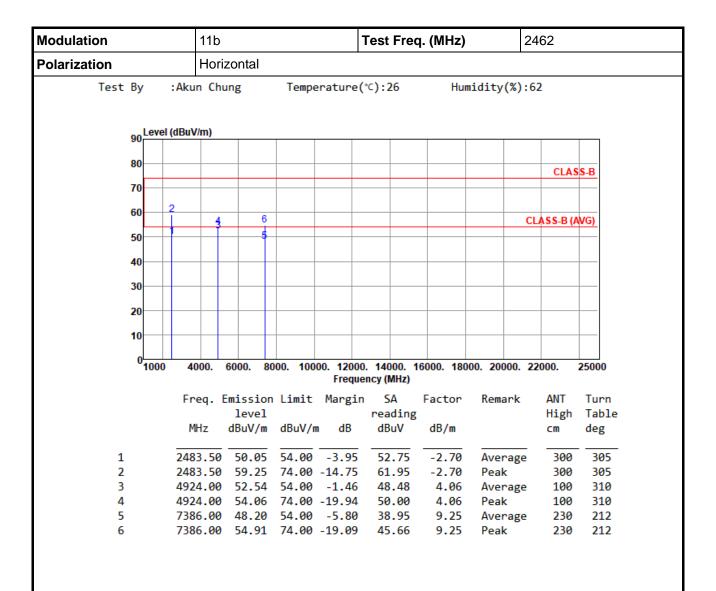
*Factor includes antenna factor, cable loss and amplifier gain





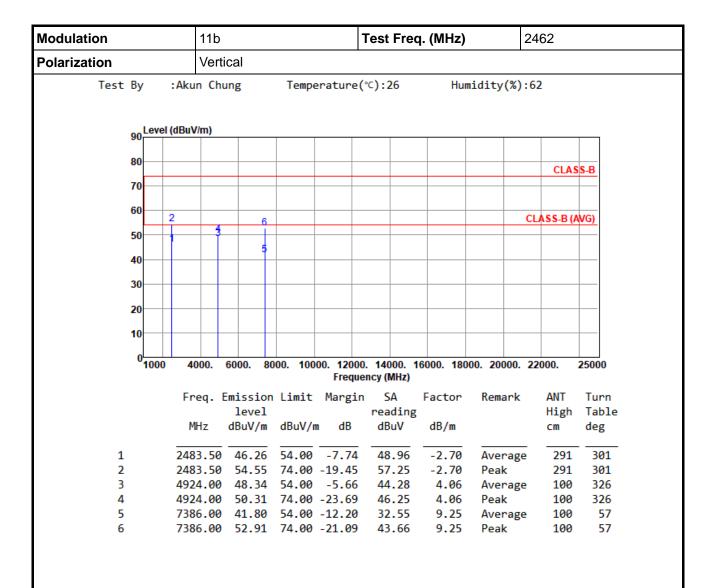
*Factor includes antenna factor, cable loss and amplifier gain





*Factor includes antenna factor, cable loss and amplifier gain

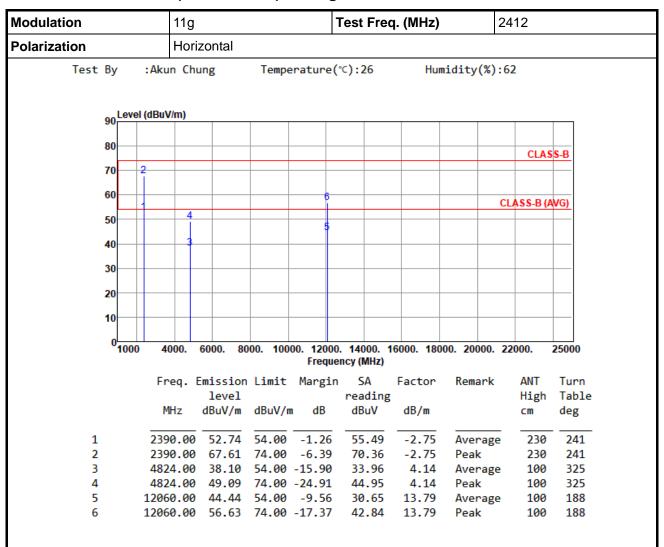




*Factor includes antenna factor, cable loss and amplifier gain



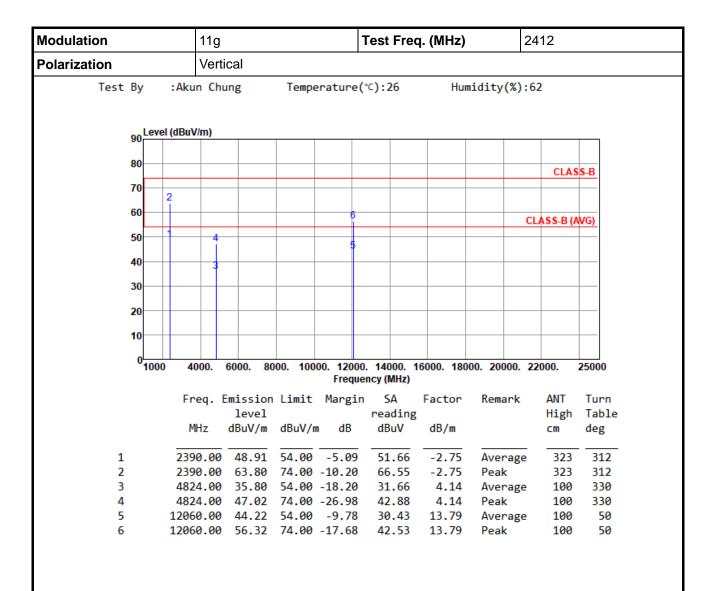
Unwanted Emissions (Above 1GHz) for 11g



Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

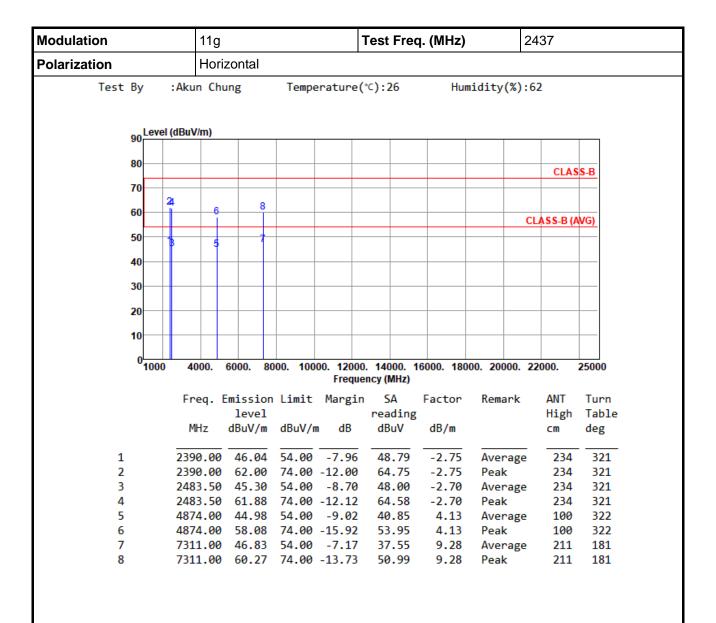
*Factor includes antenna factor, cable loss and amplifier gain





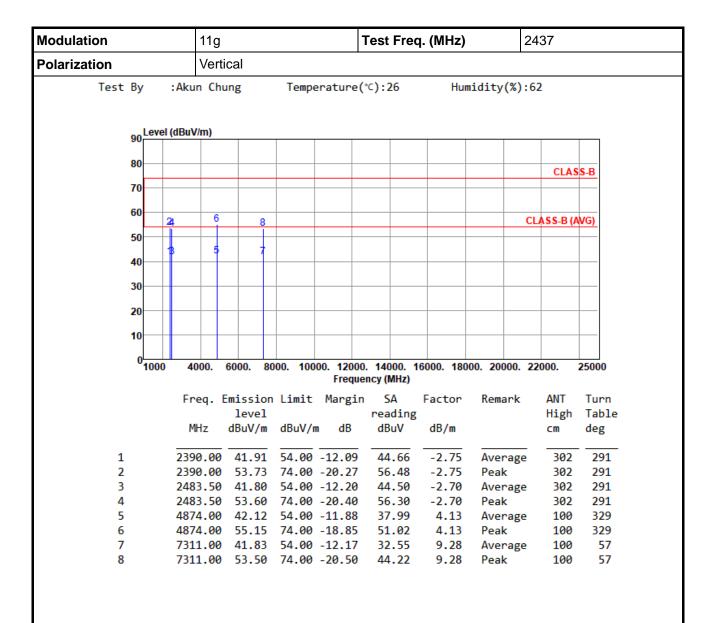
*Factor includes antenna factor, cable loss and amplifier gain





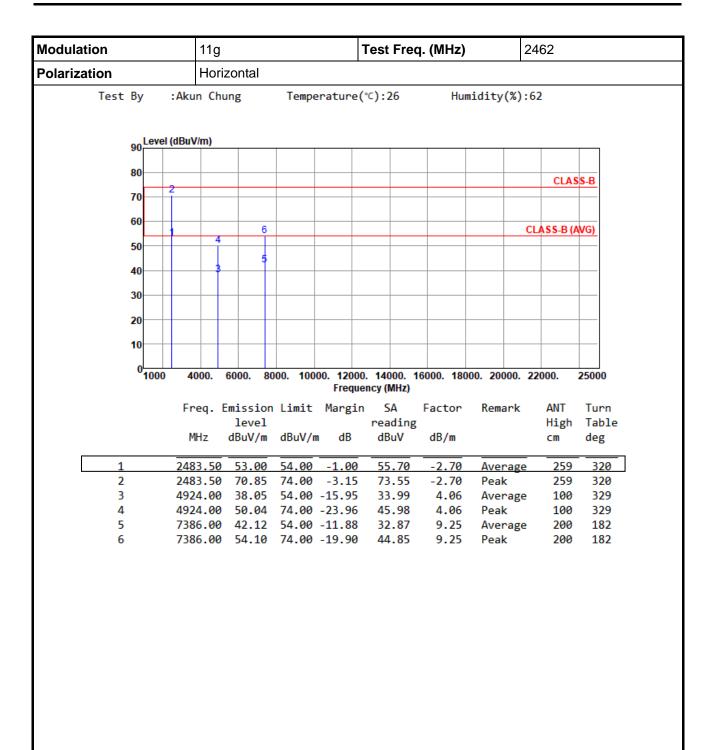
*Factor includes antenna factor, cable loss and amplifier gain





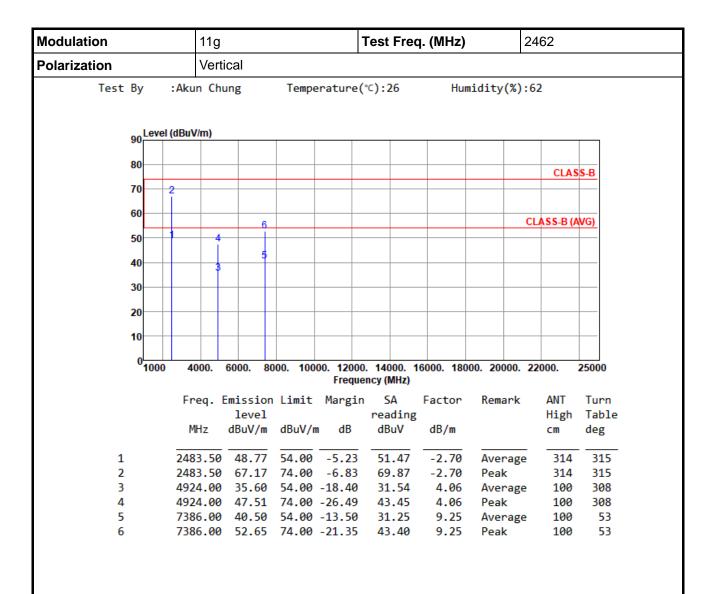
*Factor includes antenna factor, cable loss and amplifier gain





*Factor includes antenna factor, cable loss and amplifier gain

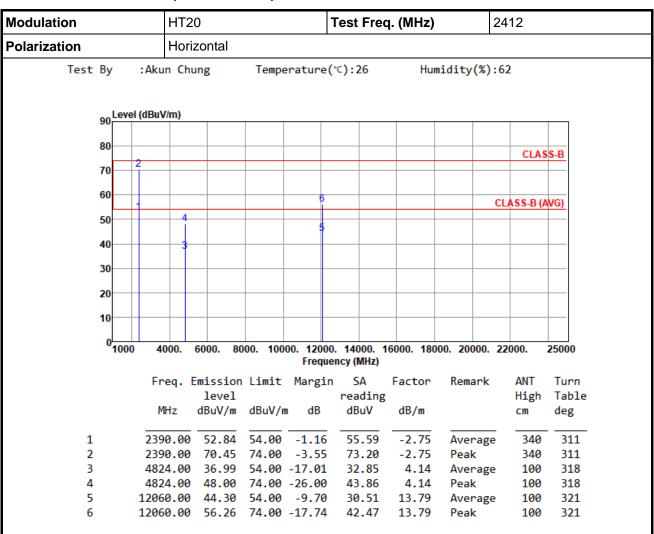




*Factor includes antenna factor, cable loss and amplifier gain



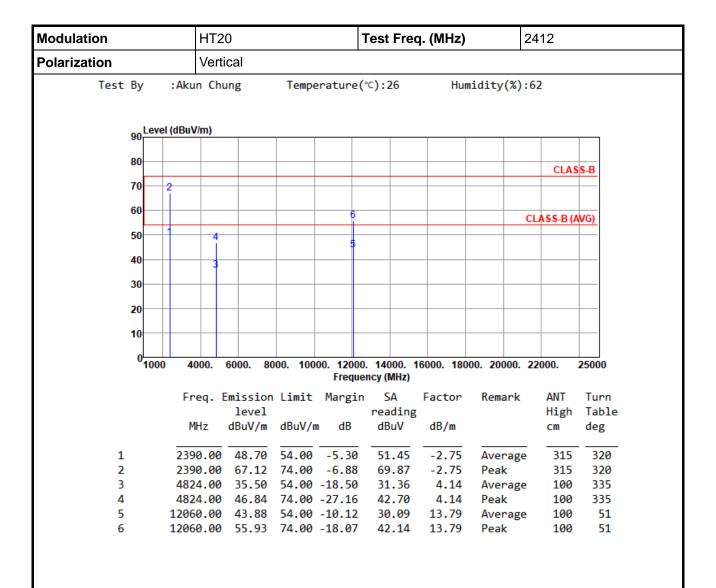
Unwanted Emissions (Above 1GHz) for HT20



Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor* (dB/m)

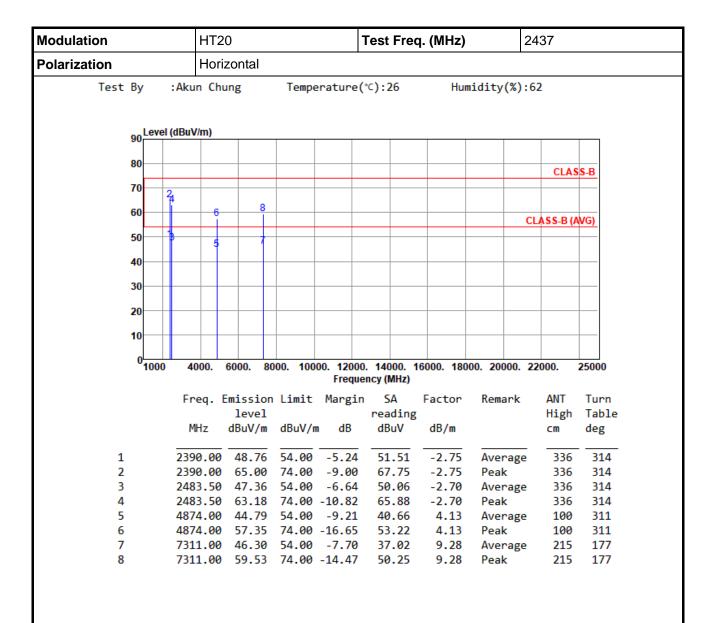
*Factor includes antenna factor, cable loss and amplifier gain





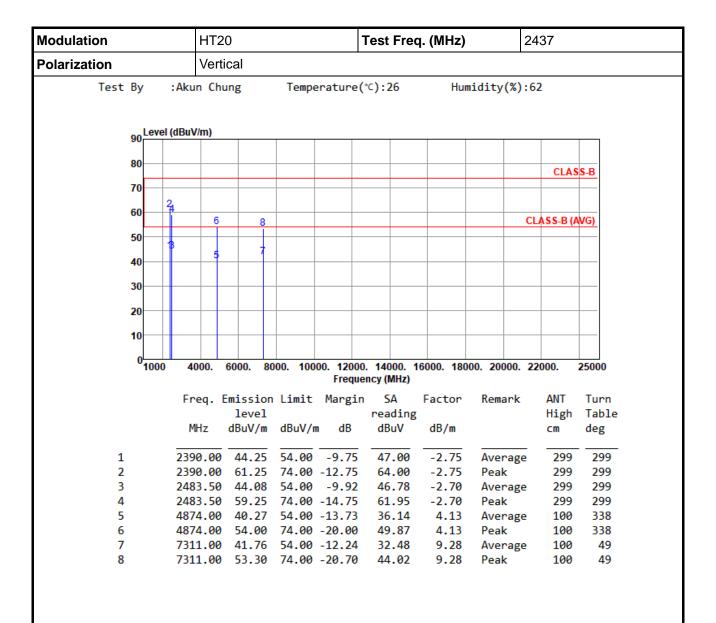
*Factor includes antenna factor, cable loss and amplifier gain





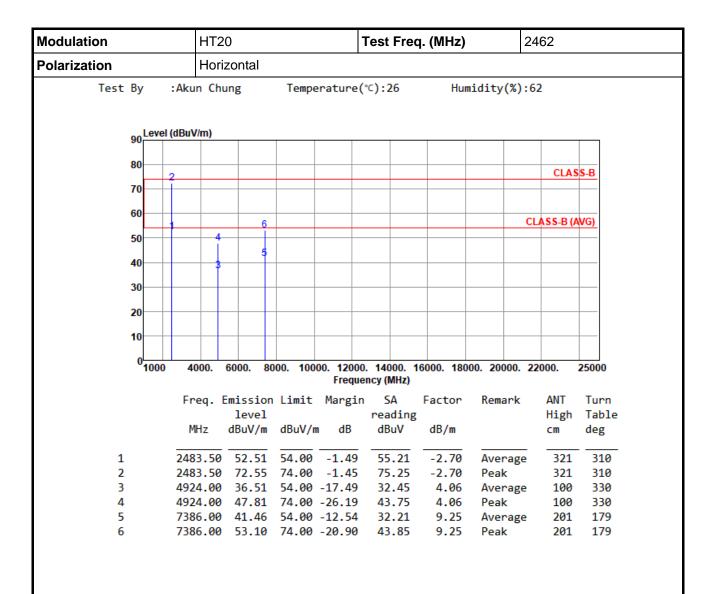
*Factor includes antenna factor, cable loss and amplifier gain





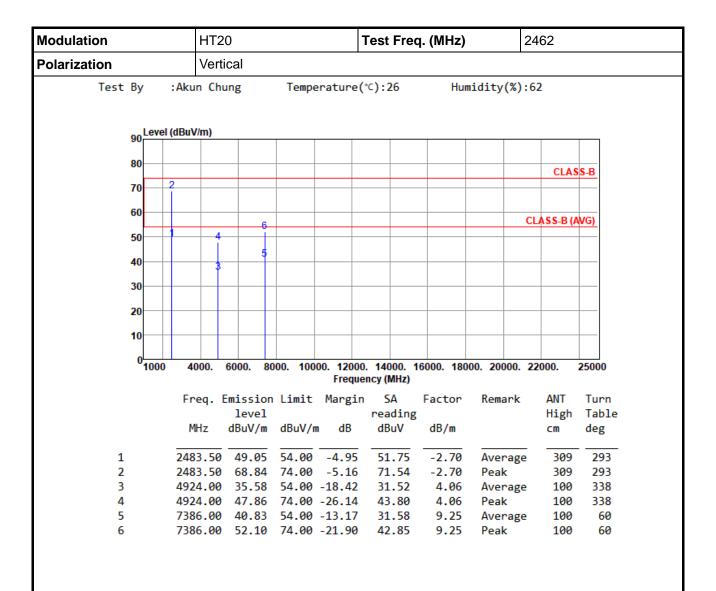
*Factor includes antenna factor, cable loss and amplifier gain





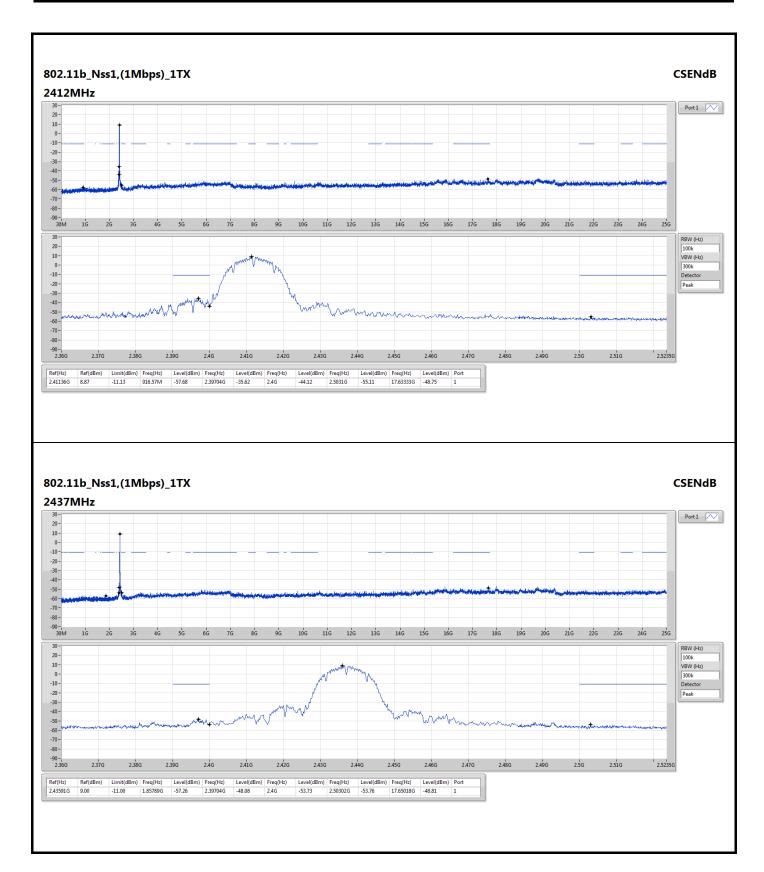
*Factor includes antenna factor, cable loss and amplifier gain



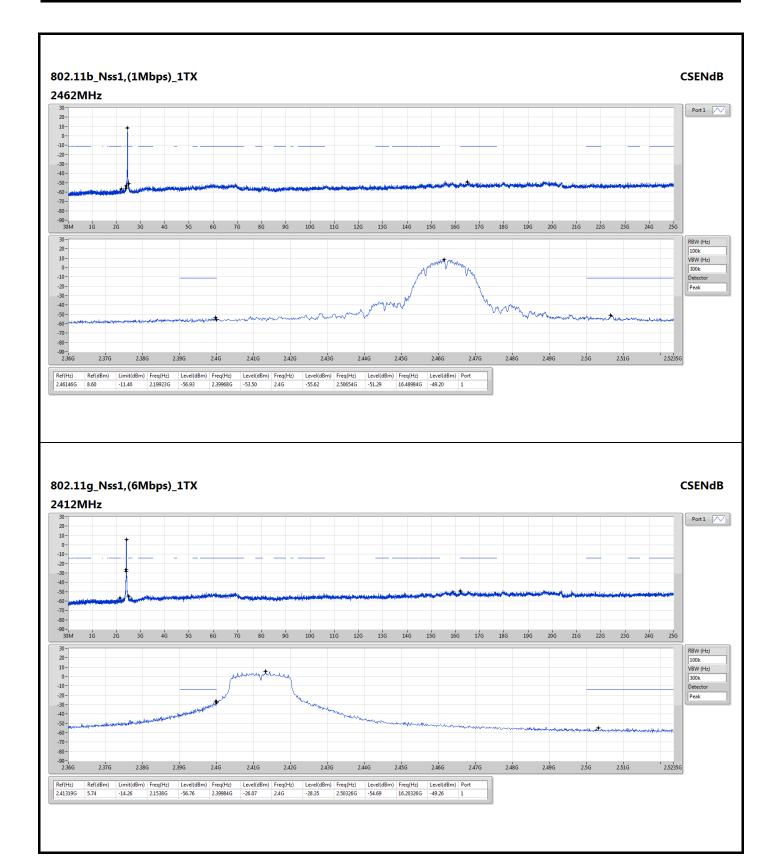


*Factor includes antenna factor, cable loss and amplifier gain

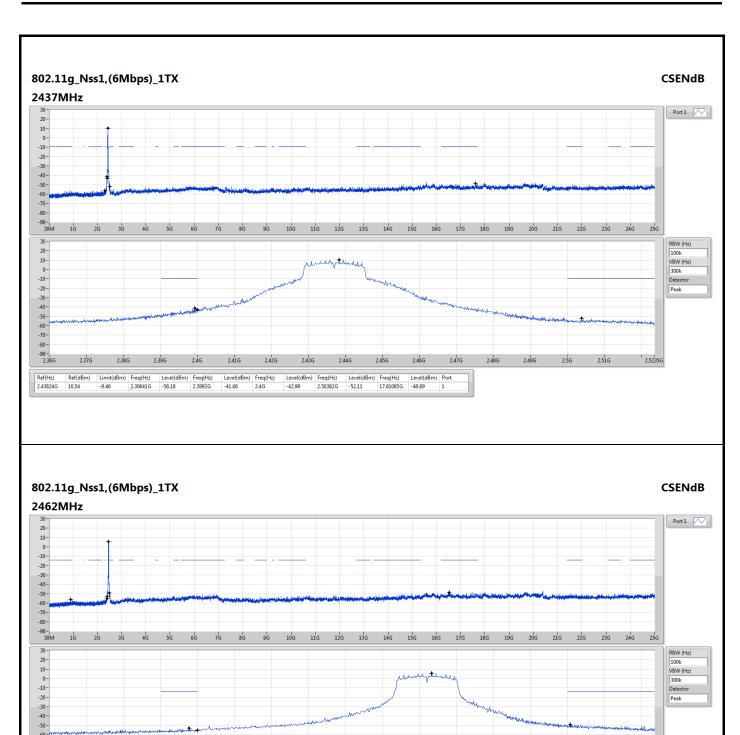












2.47G

2.4G

2.41G

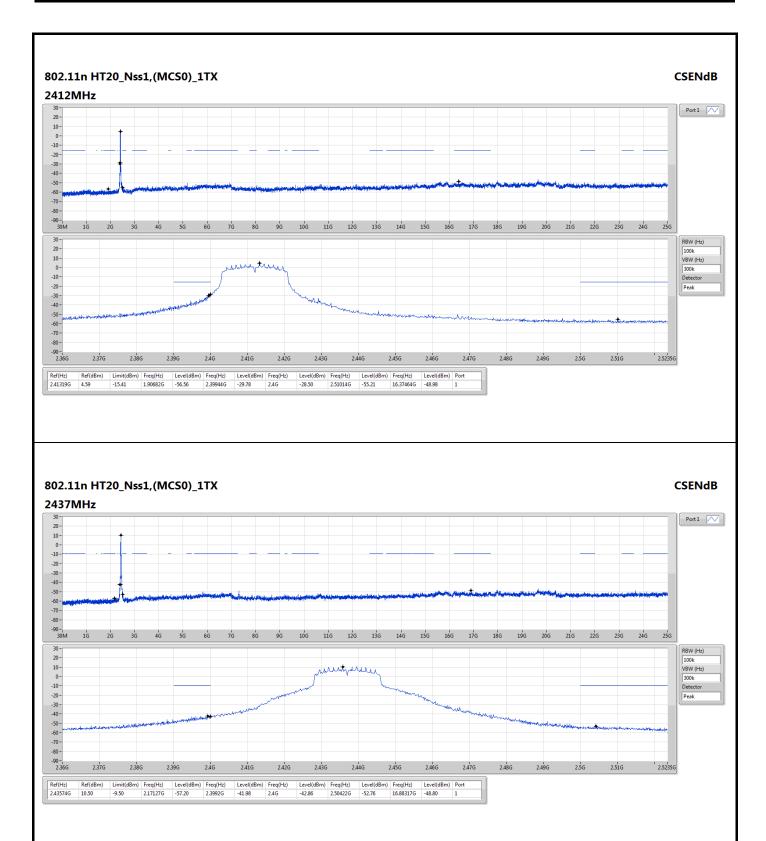
2.42G

2.43G

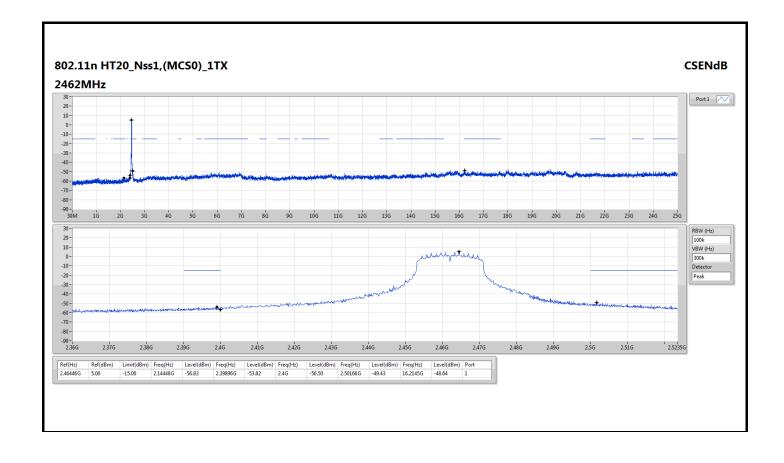
2.44G

2.45G

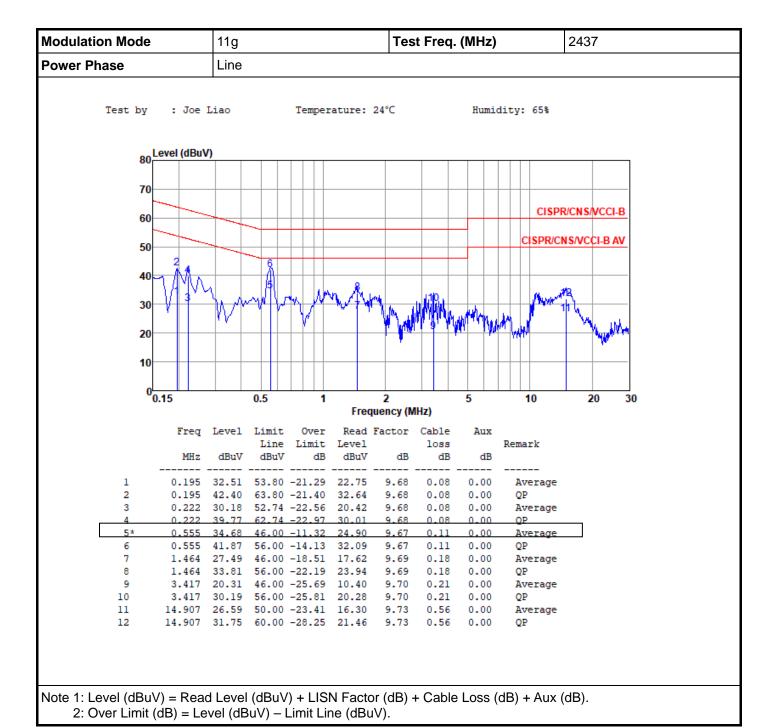






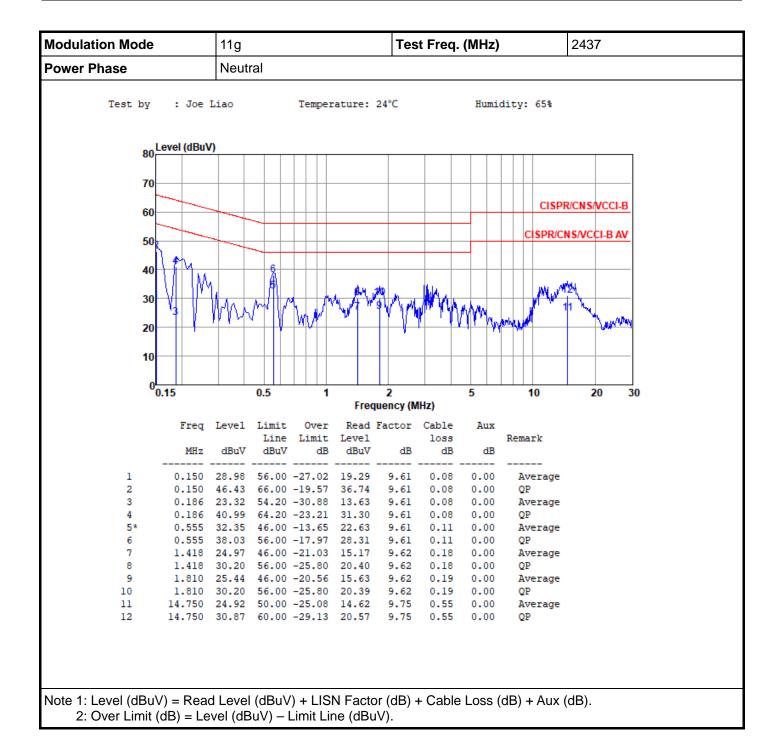






Page No. : 1 of 2





Page No. : 2 of 2