

# FCC Test Report

FCC ID	:	SWX-GBEPLUS
Equipment	:	GigaBeam Plus
Model No.	:	GBE-PLUS
Brand Name	:	UBIQUITI
Applicant	:	Ubiquiti Inc.
Address	:	685 Third Avenue, New York, New York 10017 USA
Standard	:	47 CFR FCC Part 15.247
<b>Received Date</b>	:	Jul. 31, 2020
Tested Date	:	Aug. 04 ~ Aug. 13, 2020

We, International Certification Corp., 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 may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

**Reviewed by:** 

Approved by:

na Cher





Along Chen// Assistant Manager Gary Chang / Manager



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# **Release Record**

Report No.	Version	Description	Issued Date
FR073101AC	Rev. 01	Initial issue	Aug. 25, 2020
FR073101AC	Rev. 02	Updated Power Spectral Density of section 3.4 (page 23.)	Oct. 06, 2020



# **Summary of Test Results**

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.186MHz 52.54 (Margin -11.66dB) - QP	Pass
15.247(d)	Radiated Emissions	[dBuV/m at 3m]: 2483.50MHz	Pass
15.209		52.97 (Margin -1.03dB) - AV	r a55
15.247(b)(3)	Maximum Output Power	Max Power [dBm]: 20.21	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.



# **1** General Description

# 1.1 Information

### **1.1.1 Specification of the Equipment under Test (EUT)**

RF General Information						
				Transmit Chains (N <sub>TX</sub> )	Data Rate / MCS	
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	
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	1	MCS 0-7	

Note 1: RF output power specifies that Maximum Conducted (Average) Output Power. Note 2: 802.11b uses a combination of DSSS-DBPSK, DQPSK, CCK modulation. Note 3: 802.11g/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.

#### 1.1.2 Antenna Details

Ant. No.	Туре	Connector	Gain (dBi)	Remarks
1	Internal antenna	Switch connector	2	

#### **1.1.3** Power Supply Type of Equipment under Test (EUT)

Power Supply Type	24Vdc from PoE
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#### 1.1.4 Accessories

	Accessories				
No.	Equipment	Description			
1	PoE	Brand: UBIQUITI Model: GP-A240-050G Power Rating: I/P: 100-240Vac, 50/60Hz, 0.3A O/P: 24Vdc, 0.5A Power Line: 0.6m non-shielded without core			



# 1.1.5 Channel List

Frequency	band (MHz)	2400~	2483.5	
802.11 b /	g / n HT20	802.11n HT40		
Channel	Frequency(MHz)	Channel	Frequency(MHz)	
1	2412	3	2422	
2	2417	4	2427	
3	2422	5	2432	
4	2427	6	2437	
5	2432	7	2442	
6	2437	8	2447	
7	2442	9	2452	
8	2447			
9	2452			
10	2457			
11	2462			

# 1.1.6 Test Tool and Duty Cycle

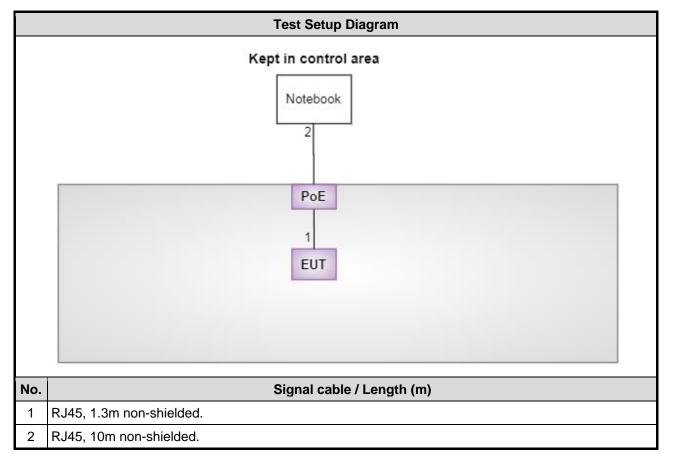
Test Tool	Putty, Version: 0.60.0.0				
	Mode	Duty Cycle (%)	Duty Factor (dB)		
	11b	99.72	0.01		
Duty Cycle and Duty Factor	11g	96.63	0.15		
	HT20	99.15	0.04		
	HT40	97.15	0.13		



# **1.2 Local Support Equipment List**

	Support Equipment List						
No.	No. Equipment Brand Model FCC ID Remarks						
1	Notebook	DELL	Latitude E6430	74GB4X1			

# 1.3 Test Setup Chart





#### 1.4 The Equipment List

Test Item	Conducted Emission	Conducted Emission							
Test Site	Conduction room 1 /	Conduction room 1 / (CO01-WS)							
Tested Date	Aug. 06, 2020	Aug. 06, 2020							
Instrument	Manufacturer	Manufacturer Model No. Serial No. Calibration Date Calibration Until							
Receiver	R&S	ESR3	101658	Dec. 12, 2019	Dec. 11, 2020				
LISN	R&S	ENV216	101579	Mar. 12, 2020	Mar. 11, 2021				
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 22, 2019	Oct. 21, 2020				
Measurement Software	AUDIX	AUDIX e3 6.120210k NA NA							
Note: Calibration In	Note: Calibration Interval of instruments listed above is one year.								

Test Item	Radiated Emission							
Test Site	966 chamber1 / (03Cl	6 chamber1 / (03CH01-WS)						
Tested Date	Aug. 04 ~ Aug. 05, 20	Nug. 04 ~ Aug. 05, 2020						
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until			
Spectrum Analyzer	R&S	FSV40	101498	Dec. 17, 2019	Dec. 16, 2020			
Receiver	R&S	ESR3	101657	Feb. 14, 2020	Feb. 13, 2021			
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jul. 10, 2020	Jul. 09, 2021			
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 12, 2019	Dec. 11, 2020			
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 15, 2019	Nov. 14, 2020			
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 13, 2019	Nov. 12, 2020			
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 07, 2019	Oct. 06, 2020			
Preamplifier	EMC	EMC02325	980225	Jul. 03, 2020	Jul. 02, 2021			
Preamplifier	Agilent	83017A	MY39501308	Oct. 08, 2019	Oct. 07, 2020			
Preamplifier	EMC	EMC184045B	980192	Jul. 21, 2020	Jul. 20, 2021			
RF Cable	EMC	EMC104-SM-SM-80 00	181106	Oct. 07, 2019	Oct. 06, 2020			
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Oct. 07, 2019	Oct. 06, 2020			
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Oct. 07, 2019	Oct. 06, 2020			
LF cable 1M	EMC	EMCCFD400-NM-N M-1000	160502	Oct. 07, 2019	Oct. 06, 2020			
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 07, 2019	Oct. 06, 2020			
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-002	Oct. 07, 2019	Oct. 06, 2020			
Measurement Software	AUDIX	e3	6.120210g	NA	NA			
Note: Calibration Inter	val of instruments liste	d above is one year.						



Test Item	RF Conducted				
Test Site	(TH01-WS)				
Tested Date	Aug. 13, 2020				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101063	Apr. 30, 2020	Apr. 29, 2021
Power Meter	Anritsu	ML2495A	1241002	Oct. 23, 2019	Oct. 22, 2020
Power Sensor	Anritsu	MA2411B	1207366	Oct. 23, 2019	Oct. 22, 2020
DC POWER SOURCE	GW INSTEK	GPC-6030D	GES855395	Oct. 29, 2019	Oct. 28, 2020
Measurement Software	Sporton	Sporton_1	1.3.30	NA	NA
Note: Calibration Inte	rval of instruments liste	d 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			
Radiated emission ≤ 1GHz	±3.41 dB			
Radiated emission > 1GHz	±4.59 dB			



# 2 Test Configuration

# 2.1 Testing Facility

Test Laboratory	International Certification Corp.
Test Site	CO01-WS, 03CH01-WS, TH01-WS
Address of Test Site	No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.

FCC Designation No.: TW2732

➢ FCC 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
Conducted Emissions	11b	2437	1 Mbps	
Radiated Emissions ≤1GHz	11b	2437	1 Mbps	
Radiated Emissions >1GHz Maximum Output Power 6dB bandwidth Power spectral density	11b 11g HT20 HT40	2412 / 2437 / 2462 2412 / 2437 / 2462 2412 / 2437 / 2462 2422 / 2437 / 2452	1 Mbps 6 Mbps MCS 0 MCS 0	



# **3** Transmitter Test Results

# 3.1 Conducted Emissions

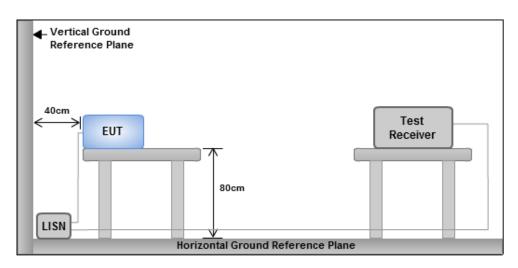
#### 3.1.1 Limit of Conducted Emissions

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

#### 3.1.2 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  $\Omega$  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.

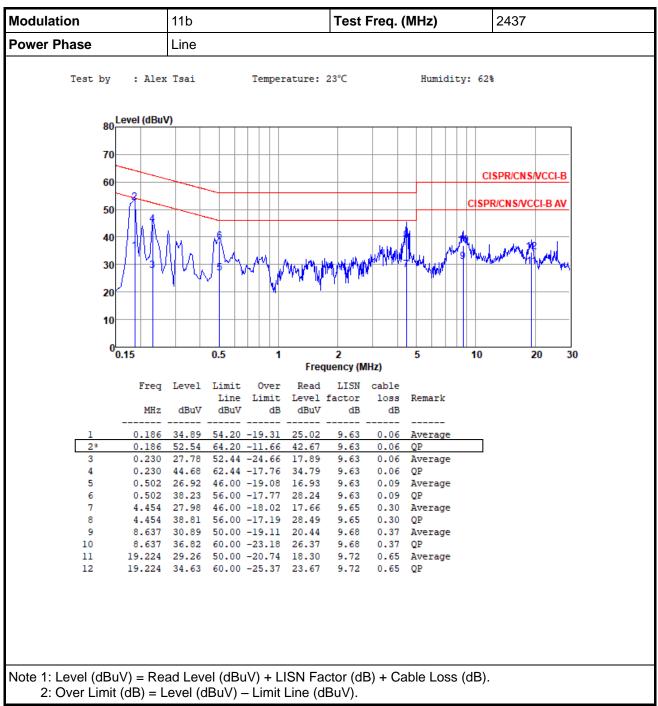
#### 3.1.3 Test Setup



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

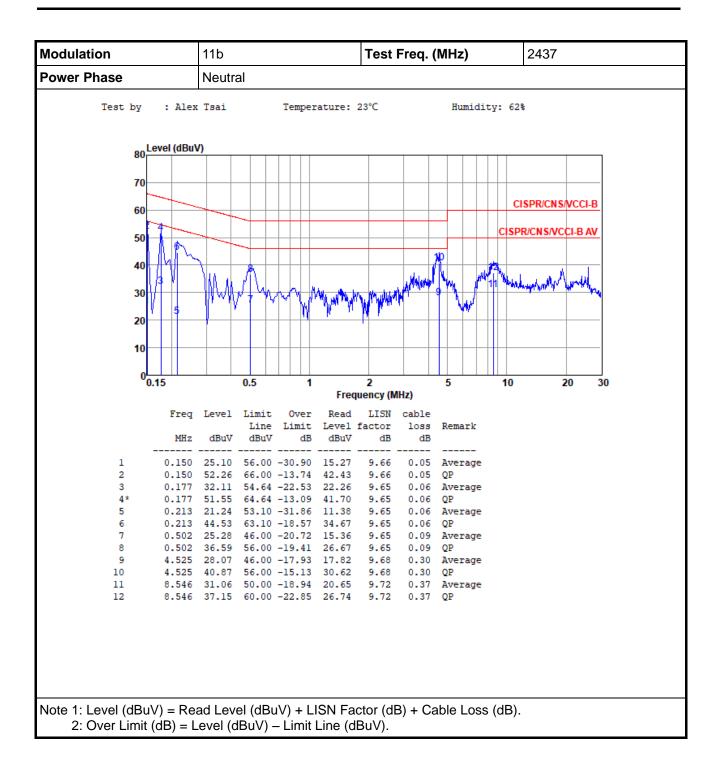
2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes





# **3.1.4** Test Result of Conducted Emissions







# 3.2 6dB and Occupied Bandwidth

#### 3.2.1 Limit of 6dB Bandwidth

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

#### 3.2.2 Test Procedures

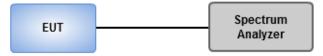
#### 6dB Bandwidth

- 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.

#### 3.2.3 Test Setup





### 3.2.4 Test Result of 6dB and Occupied Bandwidth

Ambient Condition24°C / 66%Tested ByAska Huang	Ambient Condition	24°C / 66%	Tested By	Aska Huang
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Summary

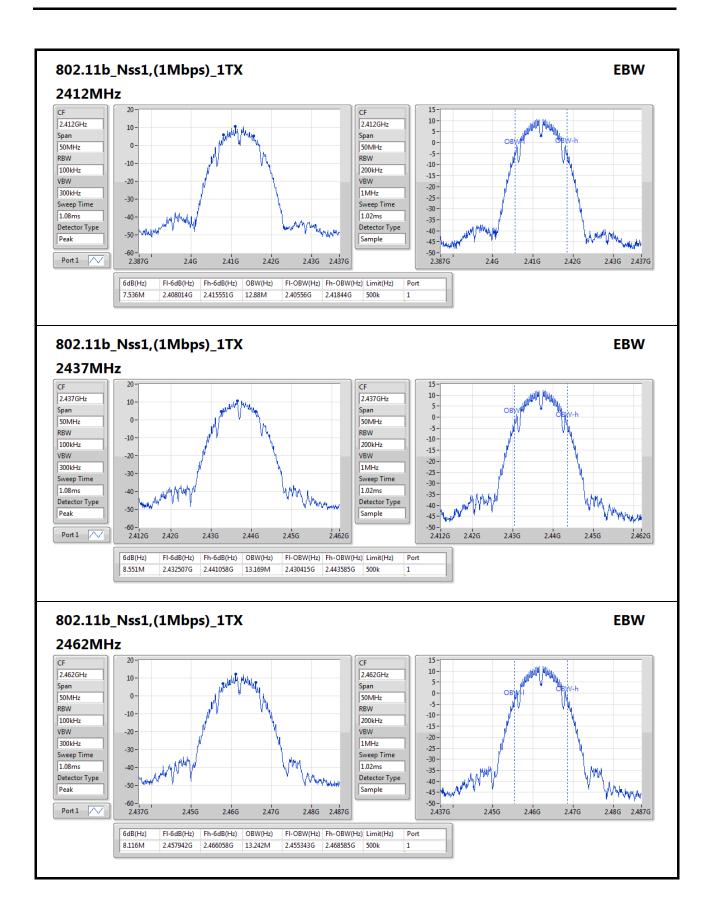
Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11b_Nss1,(1Mbps)_1TX	8.551M	13.242M	13M2G1D	7.536M	12.88M
802.11g_Nss1,(6Mbps)_1TX	16.304M	16.787M	16M8D1D	16.304M	16.353M
802.11n HT20_Nss1,(MCS0)_1TX	17.536M	17.873M	17M9D1D	17.536M	17.583M
802.11n HT40_Nss1,(MCS0)_1TX	35.362M	35.89M	35M9D1D	33.768M	35.89M

**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;

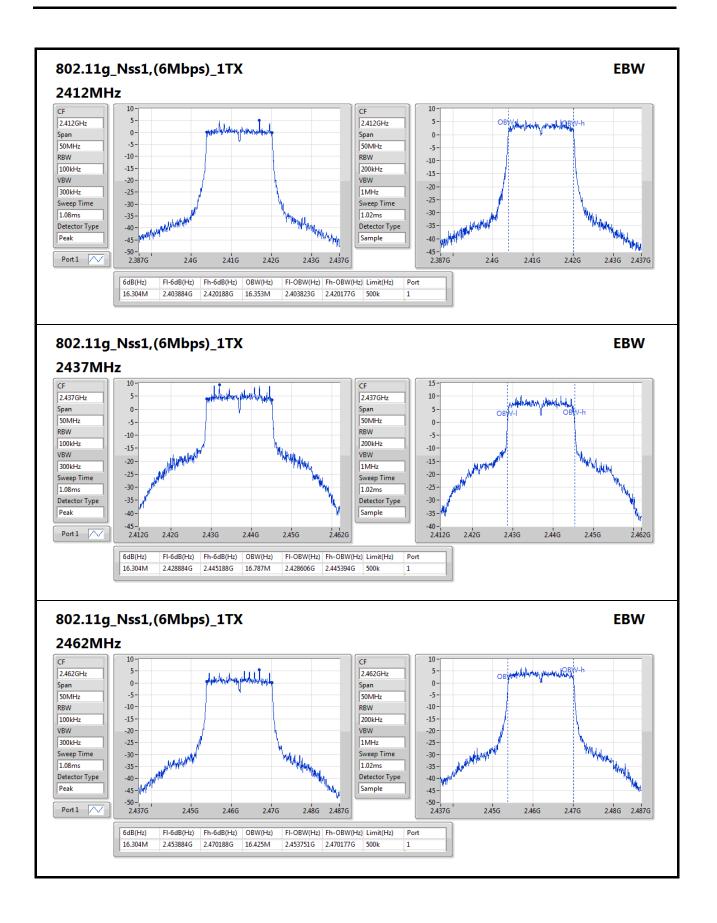
Result				
Mode	Result	Limit	Port 1-N dB	Port 1-OBW
		(Hz)	(Hz)	(Hz)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-
2412MHz	Pass	500k	7.536M	12.88M
2437MHz	Pass	500k	8.551M	13.169M
2462MHz	Pass	500k	8.116M	13.242M
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-
2412MHz	Pass	500k	16.304M	16.353M
2437MHz	Pass	500k	16.304M	16.787M
2462MHz	Pass	500k	16.304M	16.425M
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-
2412MHz	Pass	500k	17.536M	17.583M
2437MHz	Pass	500k	17.536M	17.873M
2462MHz	Pass	500k	17.536M	17.583M
802.11n HT40_Nss1,(MCS0)_1TX	-	-	-	-
2422MHz	Pass	500k	33.768M	35.89M
2437MHz	Pass	500k	35.362M	35.89M
2452MHz	Pass	500k	35.362M	35.89M

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

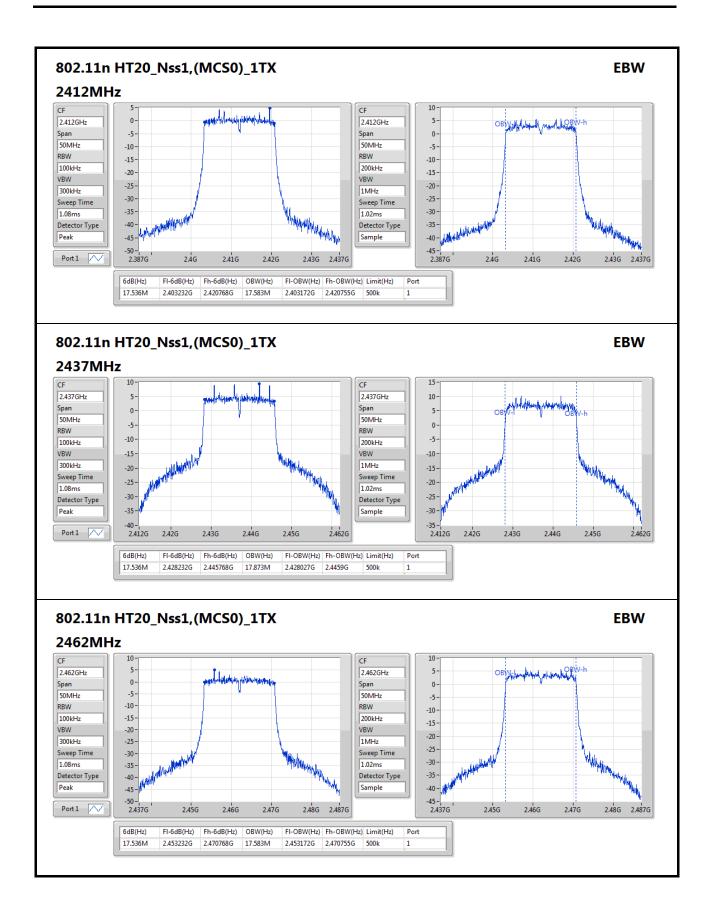




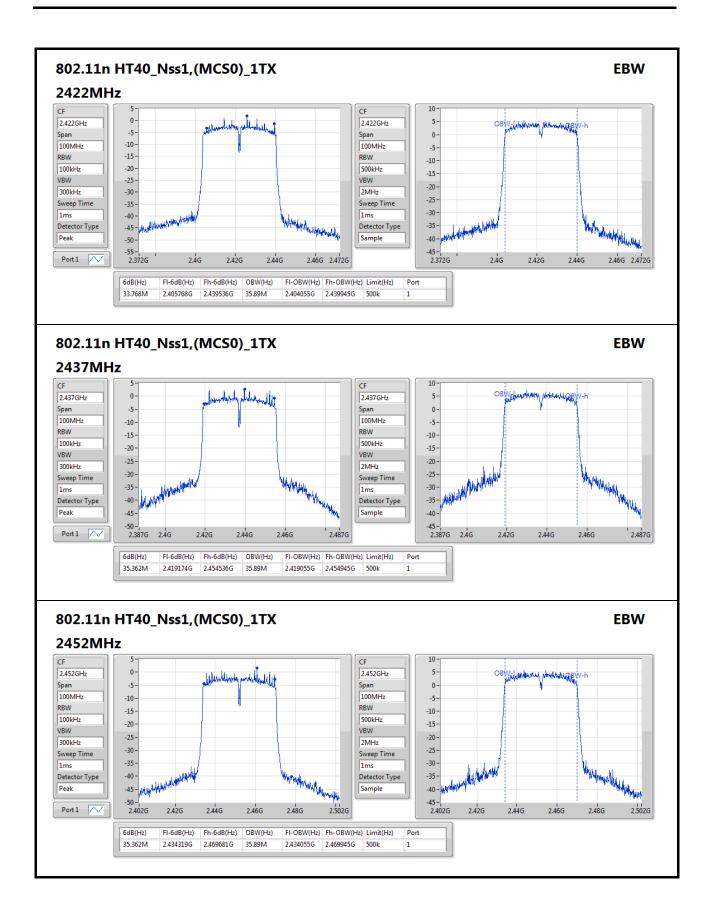














# 3.3 **RF Output Power**

#### 3.3.1 Limit of RF Output Power

Conducted power shall not exceed 1Watt.

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

#### 3.3.2 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.

#### 3.3.3 Test Setup





# 3.3.4 Test Result of Maximum Output Power

	Ambient Condition	24°C / 66%	Tested By	Aska Huang
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#### Summary

Mode	Total Power	Total Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_1TX	20.21	0.10495
802.11g_Nss1,(6Mbps)_1TX	20.16	0.10375
802.11n HT20_Nss1,(MCS0)_1TX	20.11	0.10257
802.11n HT40_Nss1,(MCS0)_1TX	17.06	0.05082

#### 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	2.00	18.81	18.81	30.00	20.81	36.00
2437MHz	Pass	2.00	20.21	20.21	30.00	22.21	36.00
2462MHz	Pass	2.00	20.15	20.15	30.00	22.15	36.00
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-	-	-
2412MHz	Pass	2.00	16.36	16.36	30.00	18.36	36.00
2437MHz	Pass	2.00	20.16	20.16	30.00	22.16	36.00
2462MHz	Pass	2.00	16.78	16.78	30.00	18.78	36.00
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-	-	-	-
2412MHz	Pass	2.00	16.25	16.25	30.00	18.25	36.00
2437MHz	Pass	2.00	20.11	20.11	30.00	22.11	36.00
2462MHz	Pass	2.00	16.71	16.71	30.00	18.71	36.00
802.11n HT40_Nss1,(MCS0)_1TX	-	-	-	-	-	-	-
2422MHz	Pass	2.00	15.40	15.40	30.00	17.40	36.00
2437MHz	Pass	2.00	17.06	17.06	30.00	19.06	36.00
2452MHz	Pass	2.00	15.48	15.48	30.00	17.48	36.00

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



# 3.4 Power Spectral Density

#### 3.4.1 Limit of Power Spectral Density

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

#### 3.4.2 Test Procedures

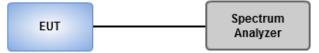
#### Average PSD, duty cycle ≥ 98%

- 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.
- 2 Set the sweep time to: ≥ 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.

#### 3.4.3 Test Setup





### 3.4.4 Test Result of Power Spectral Density

	Ambient Condition	24°C / 66%	Tested By	Aska Huang
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#### Summary

Mode	PD		
	(dBm/RBW)		
2.4-2.4835GHz	-		
802.11b_Nss1,(1Mbps)_1TX	-1.05		
802.11g_Nss1,(6Mbps)_1TX	-5.08		
802.11n HT20_Nss1,(MCS0)_1TX	-4.38		
802.11n HT40_Nss1,(MCS0)_1TX	-9.45		

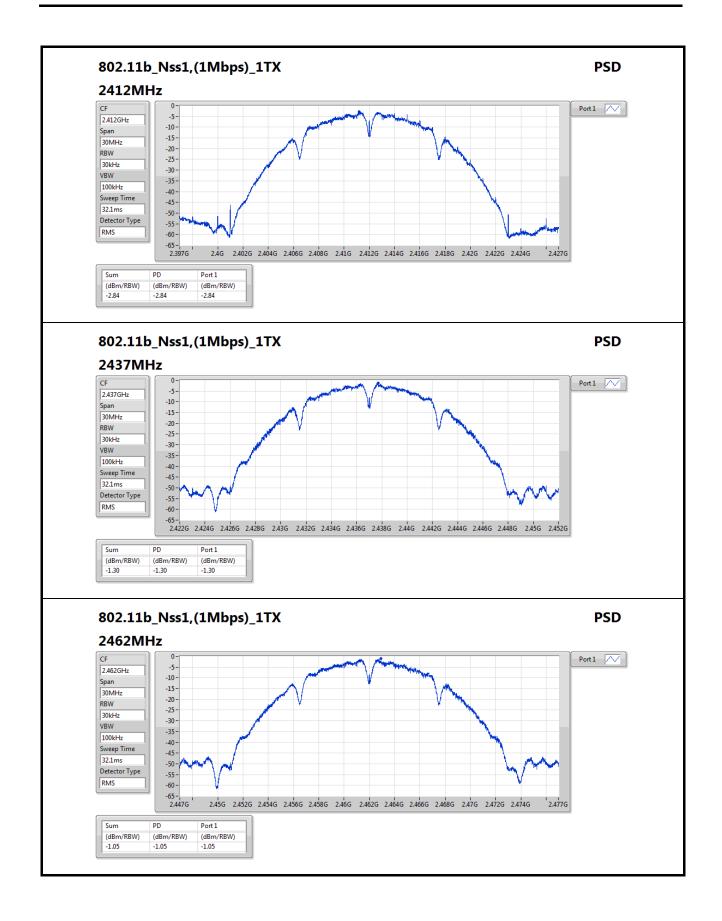
Result					
Mode	Result	DG	Port 1	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-
2412MHz	Pass	2.00	-2.84	-2.84	8.00
2437MHz	Pass	2.00	-1.30	-1.30	8.00
2462MHz	Pass	2.00	-1.05	-1.05	8.00
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-
2412MHz	Pass	2.00	-8.97	-8.97	8.00
2437MHz	Pass	2.00	-5.08	-5.08	8.00
2462MHz	Pass	2.00	-8.53	-8.53	8.00
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-	-
2412MHz	Pass	2.00	-8.29	-8.29	8.00
2437MHz	Pass	2.00	-4.38	-4.38	8.00
2462MHz	Pass	2.00	-7.98	-7.98	8.00
802.11n HT40_Nss1,(MCS0)_1TX	-	-	-	-	-
2422MHz	Pass	2.00	-9.45	-9.45	8.00
2437MHz	Pass	2.00	-10.14	-10.14	8.00
2452MHz	Pass	2.00	-10.20	-10.20	8.00

**DG** = Directional Gain;

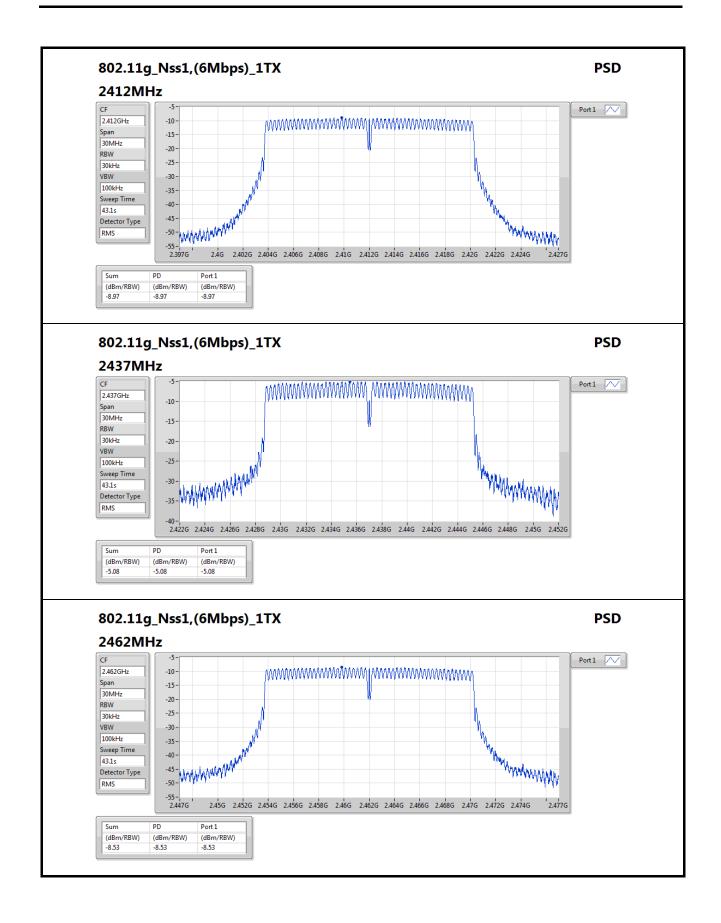
**PD** = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

Note: Final reported PSD values of 802.11g / 11n HT40 already include the duty cycle correction factor.

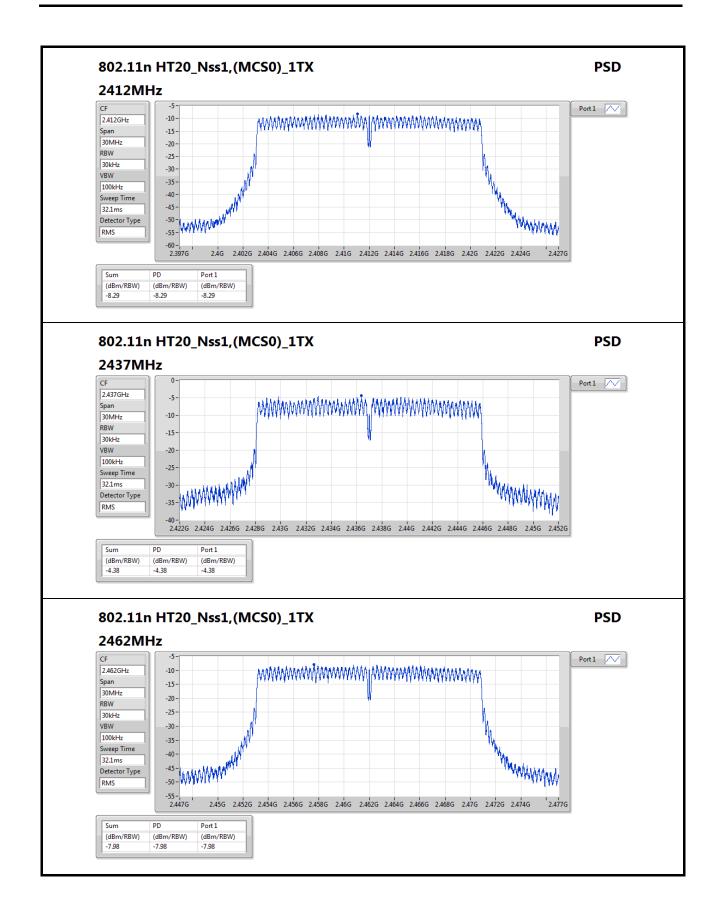




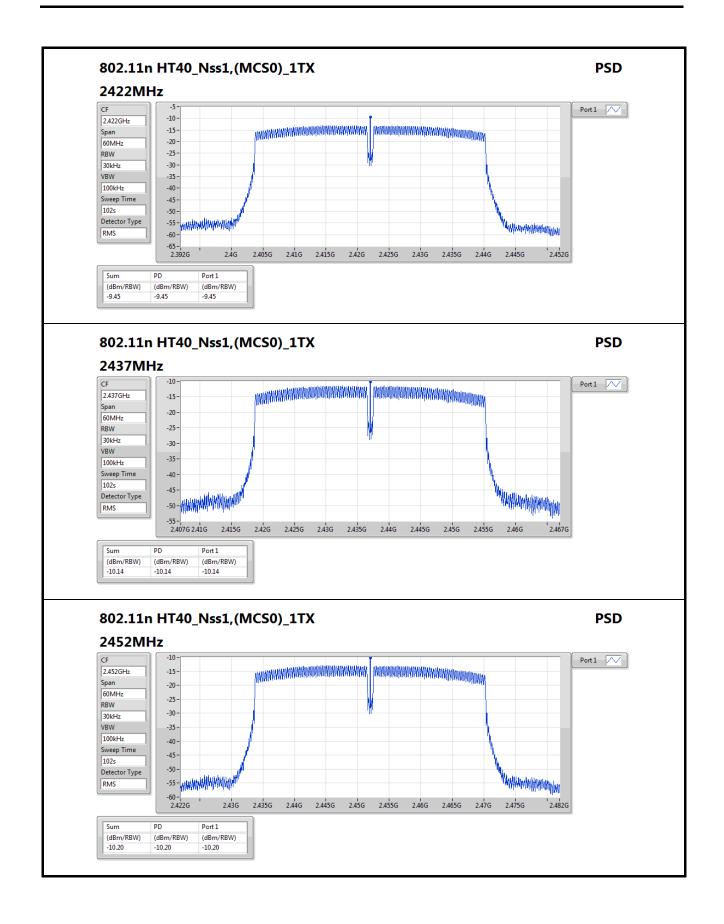














# 3.5 Unwanted Emissions into Restricted Frequency Bands

#### 3.5.1 Limit of Unwanted Emissions into Restricted Frequency Bands

Restricted Band Emissions Limit							
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	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.

#### 3.5.2 Test Procedures

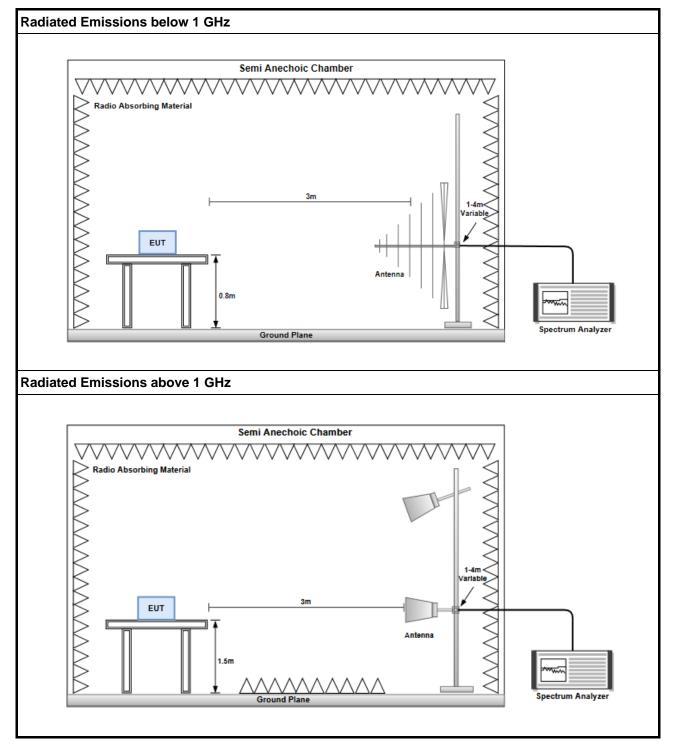
- Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission 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
- 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:

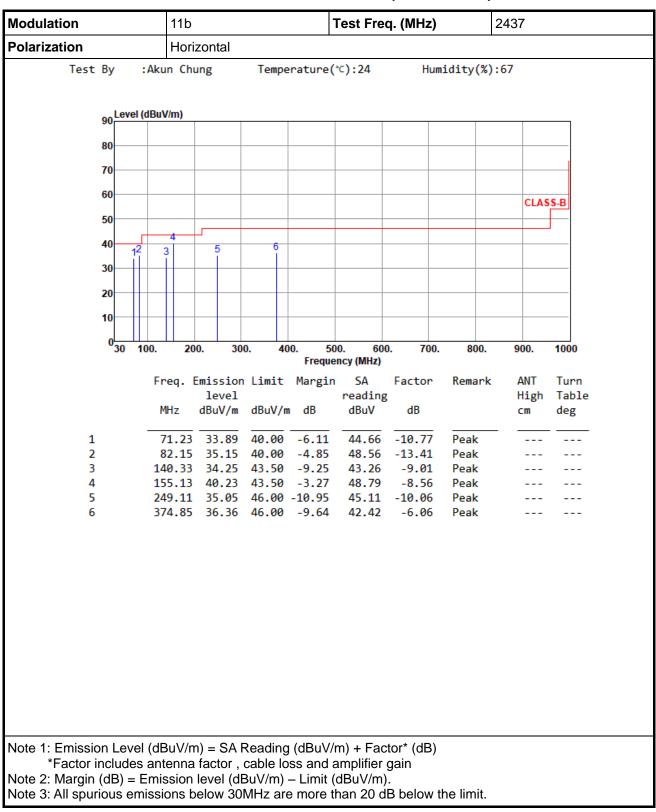
- 1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
- 2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
- 3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission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



### 3.5.3 Test Setup

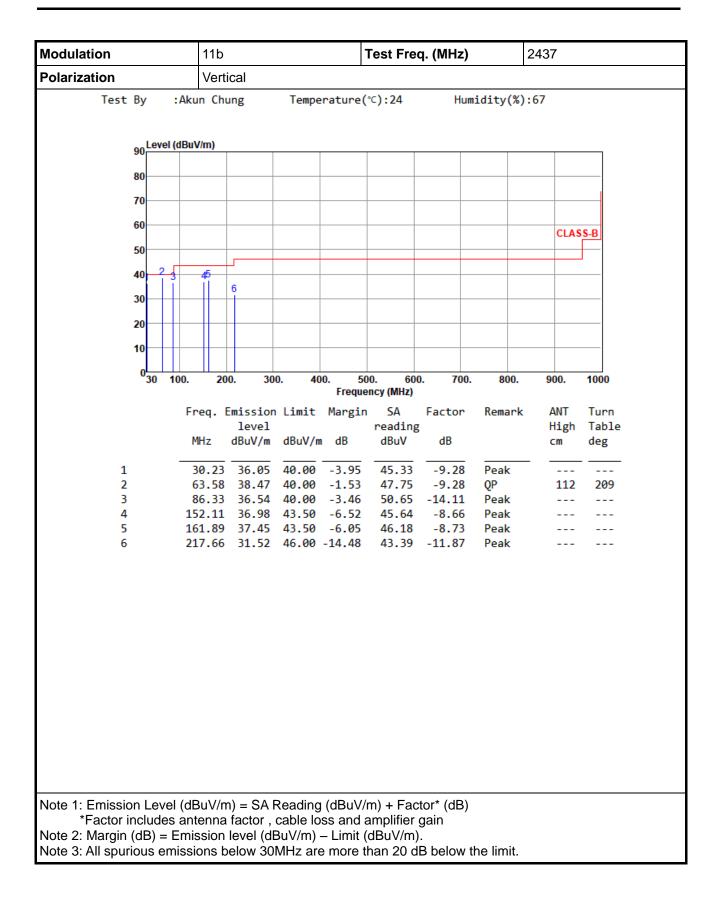




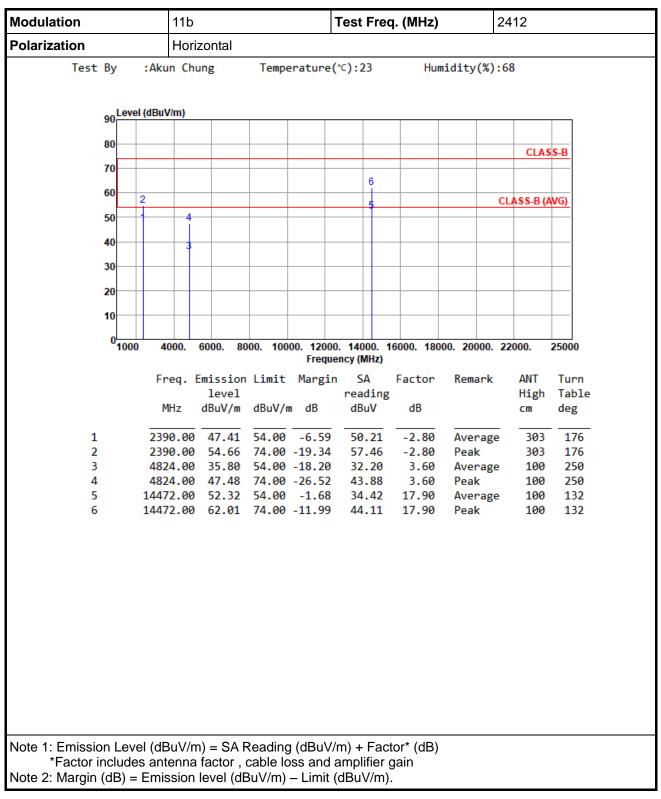


### 3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)



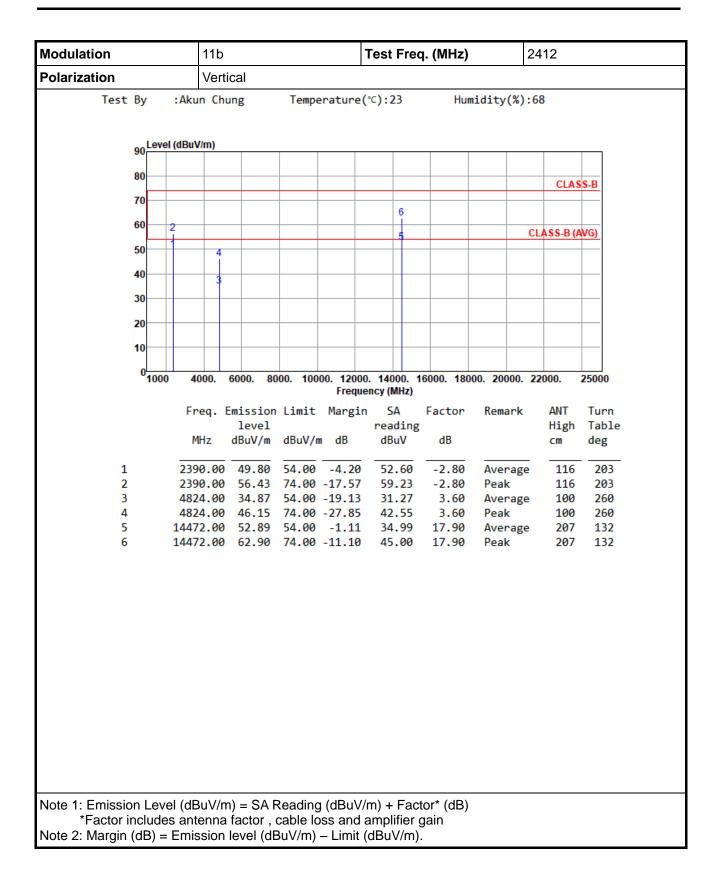




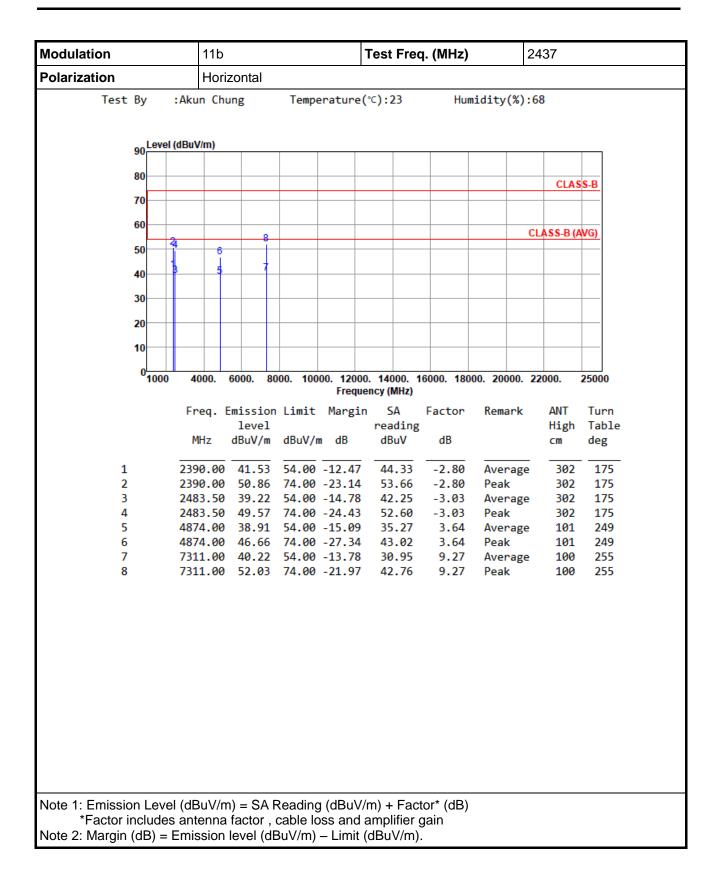


## 3.5.5 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11b

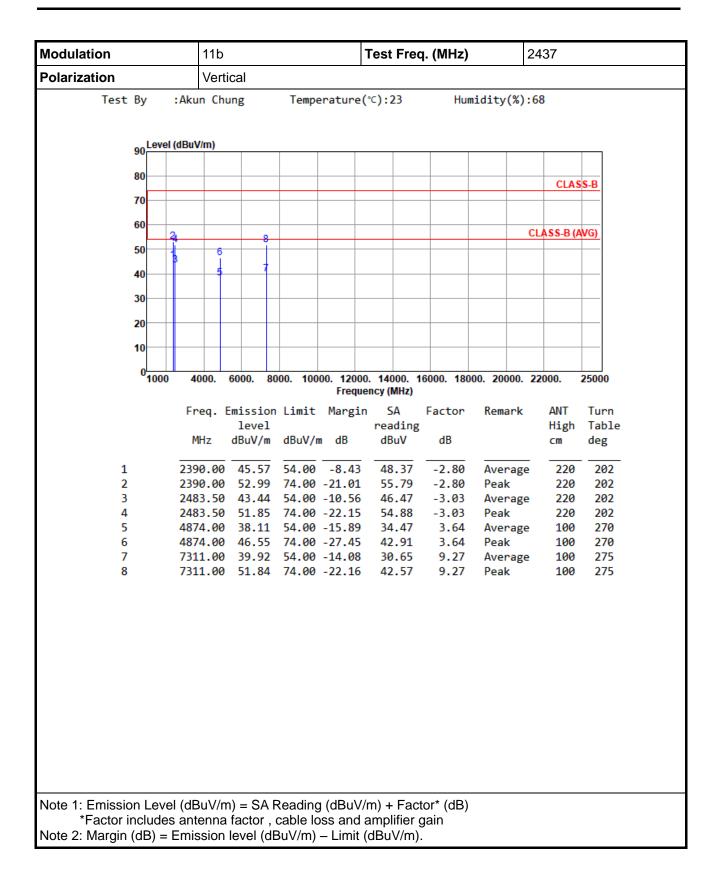




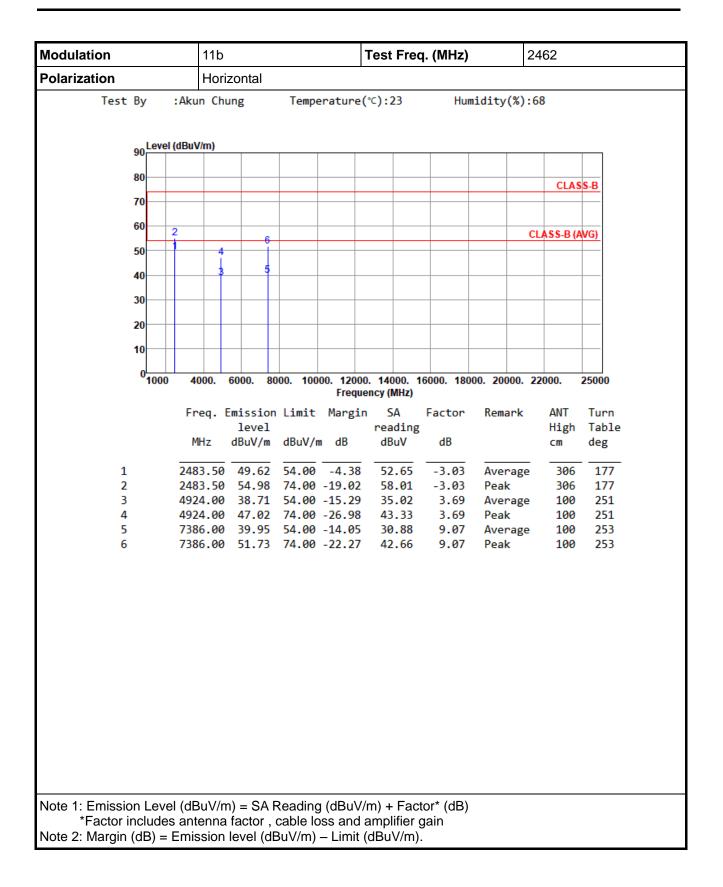




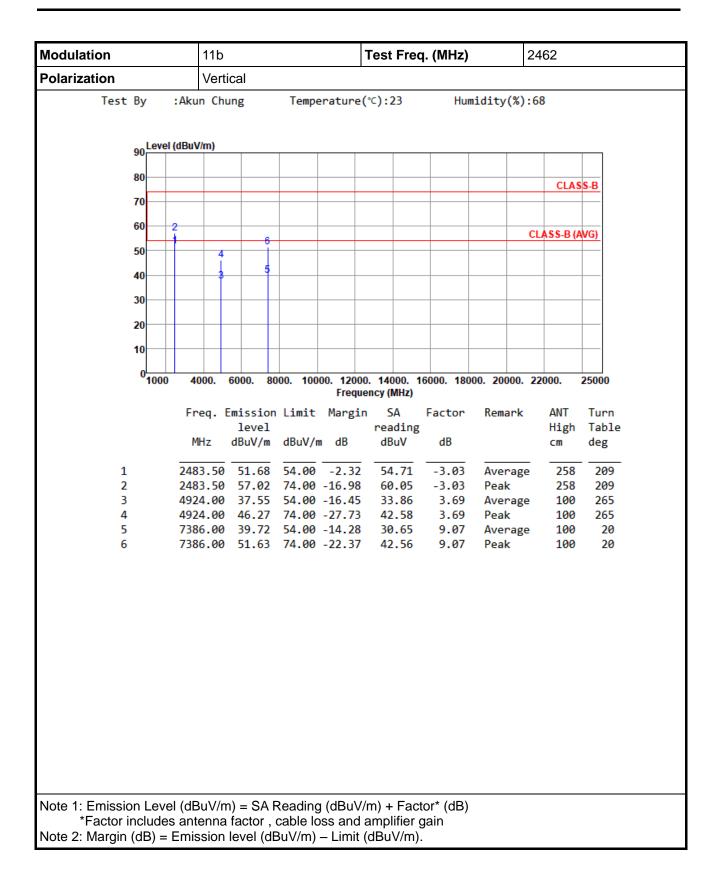




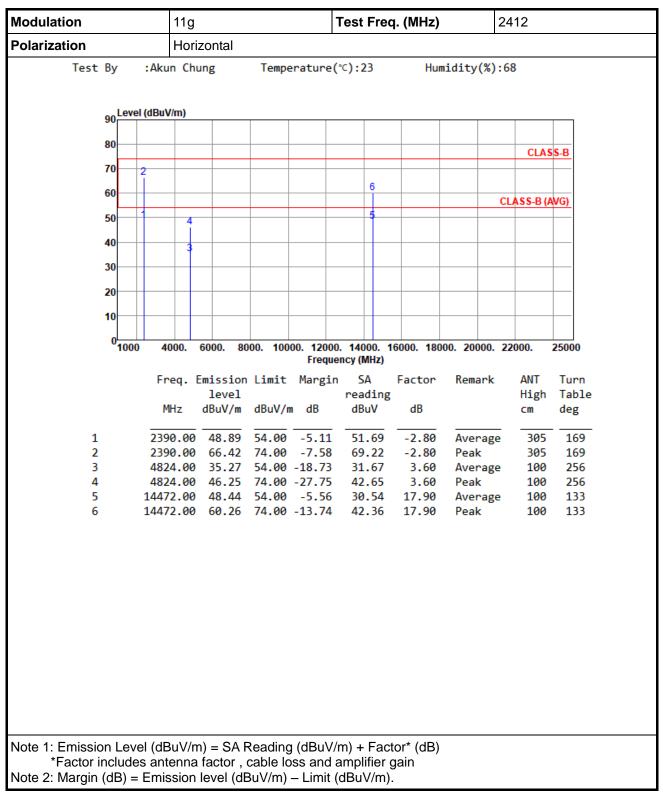






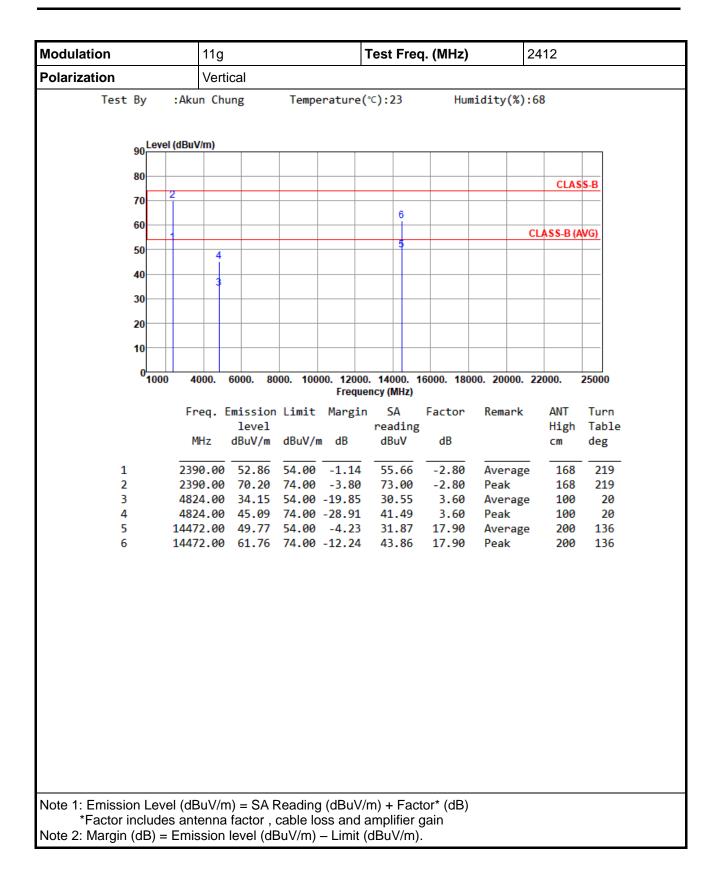




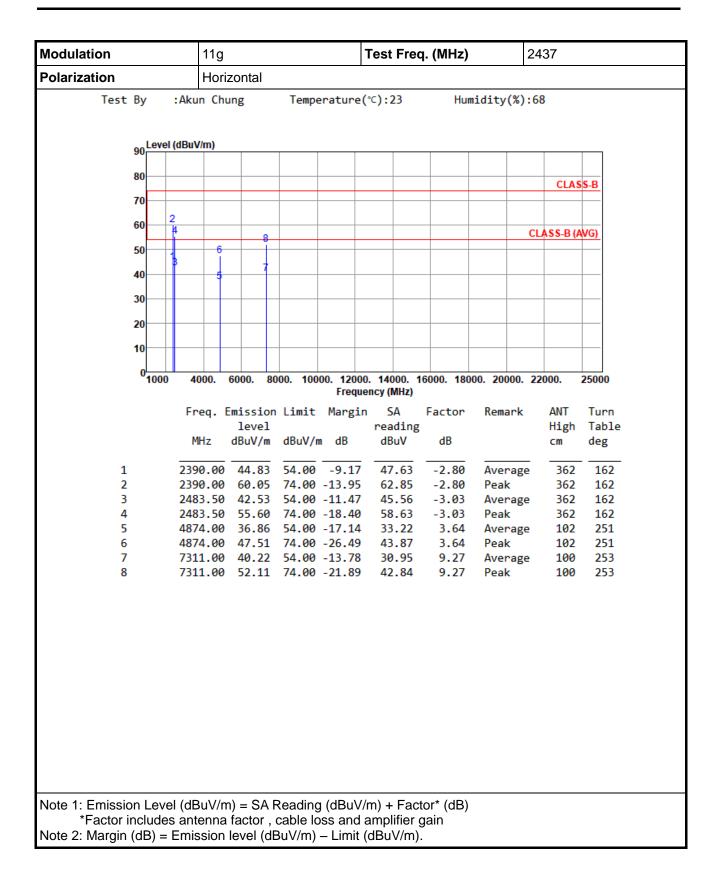


## 3.5.6 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11g

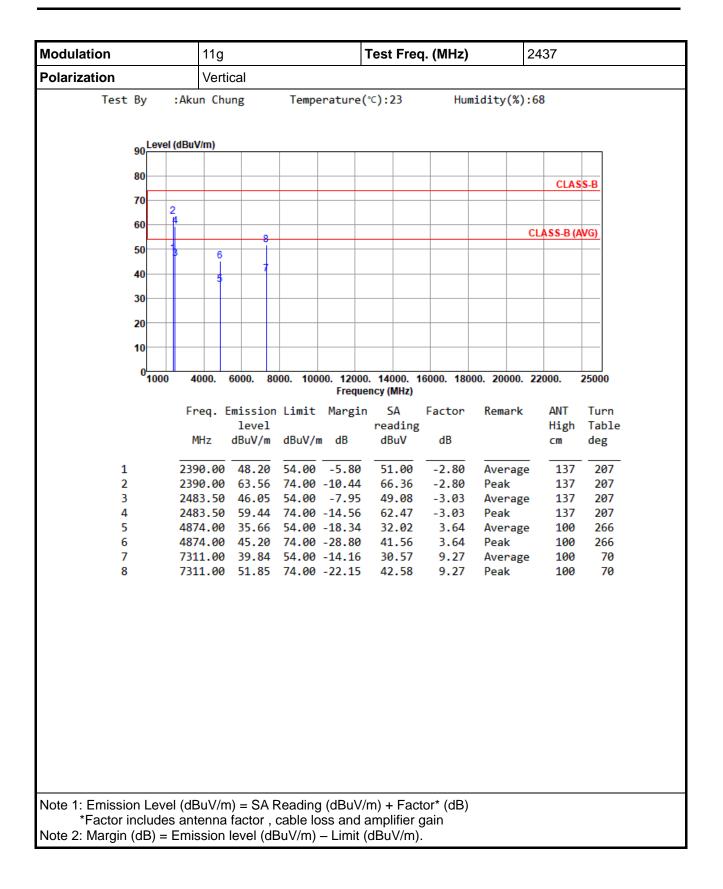




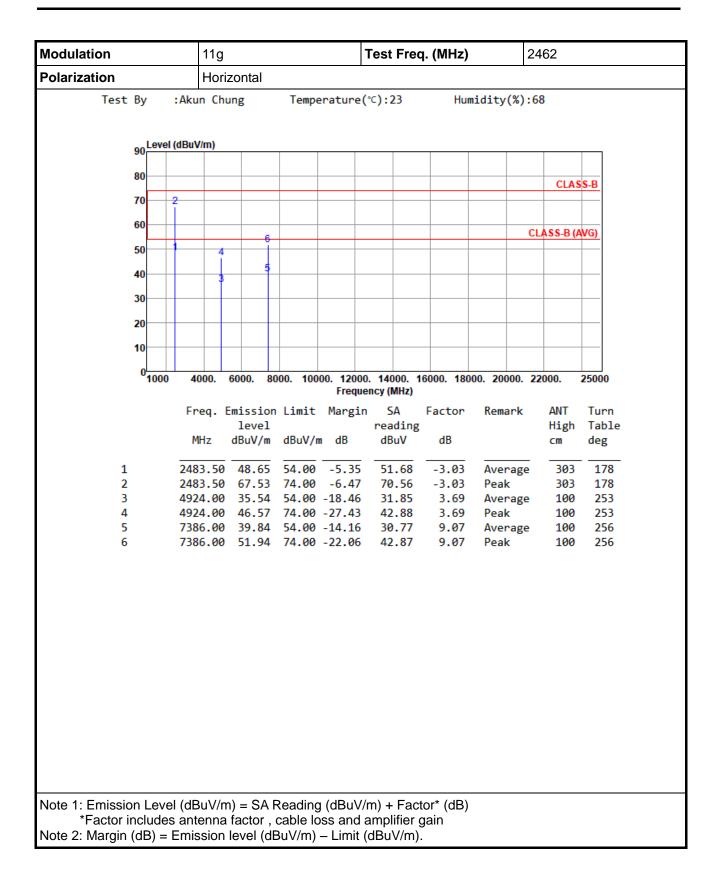




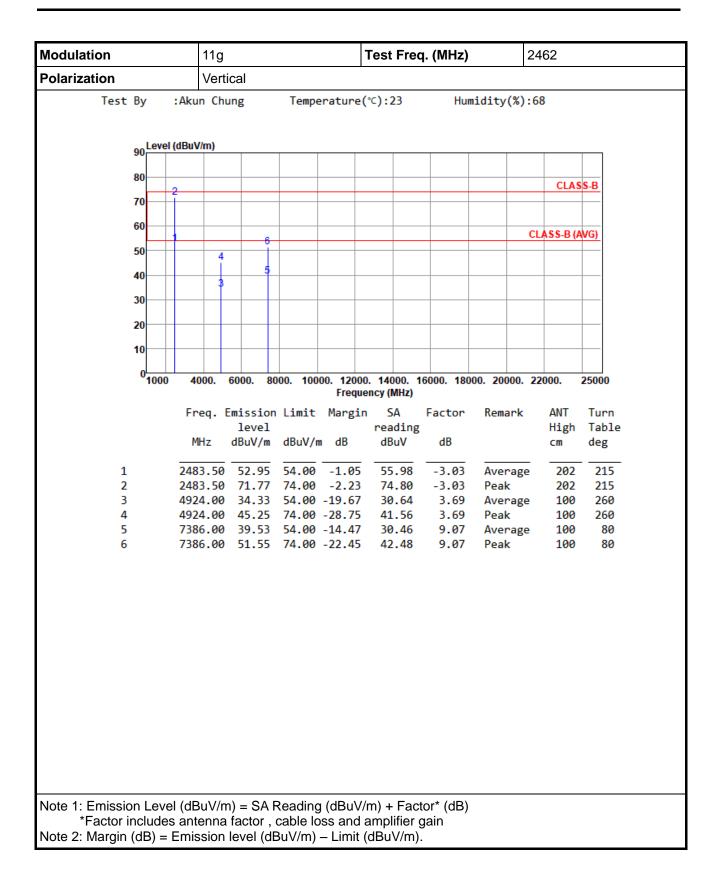




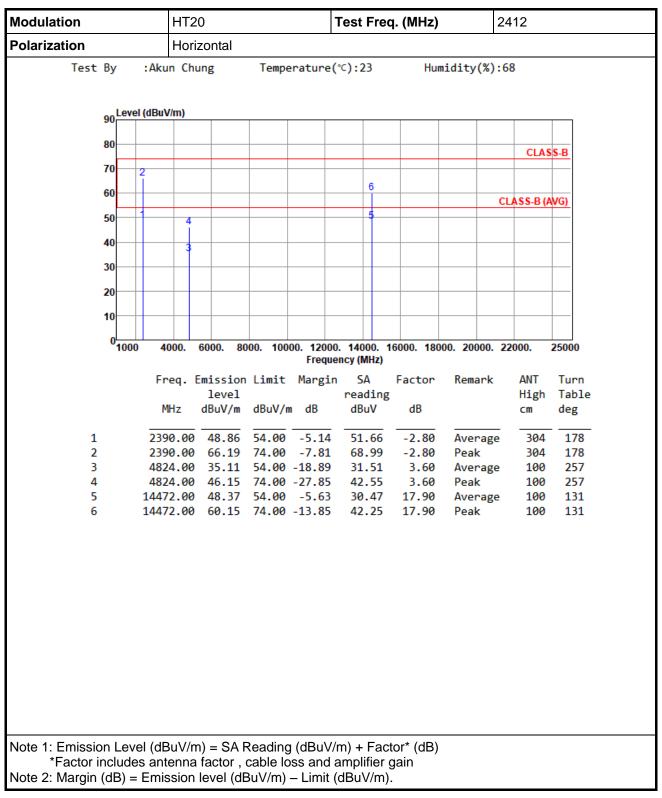






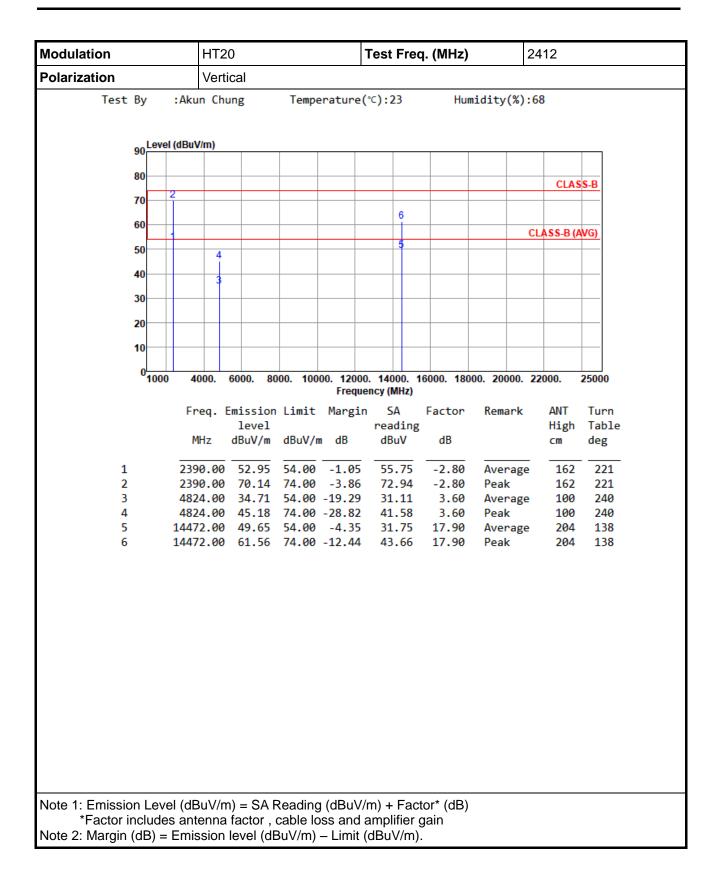




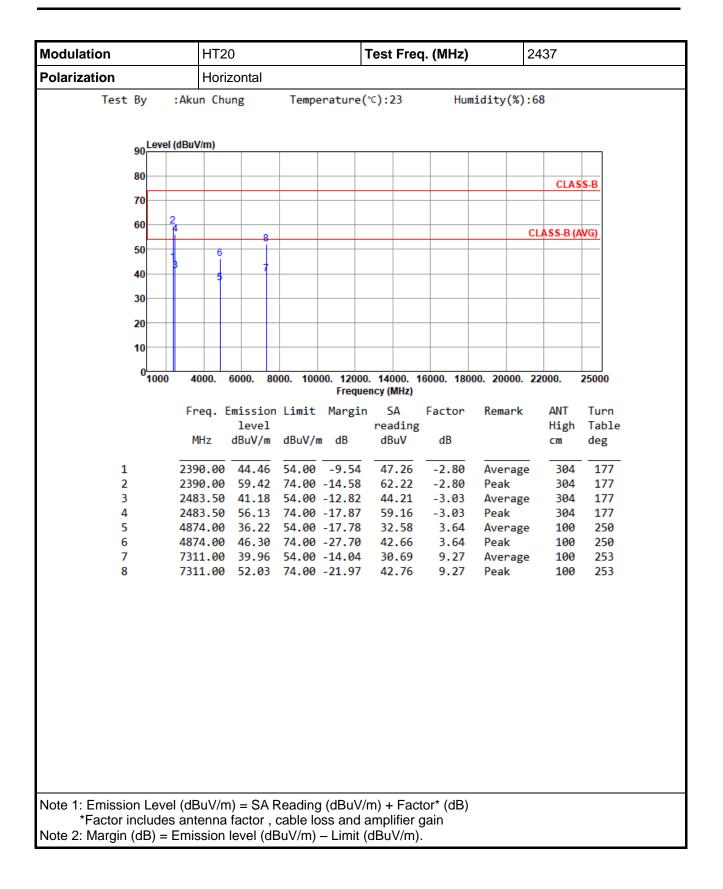


## 3.5.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT20

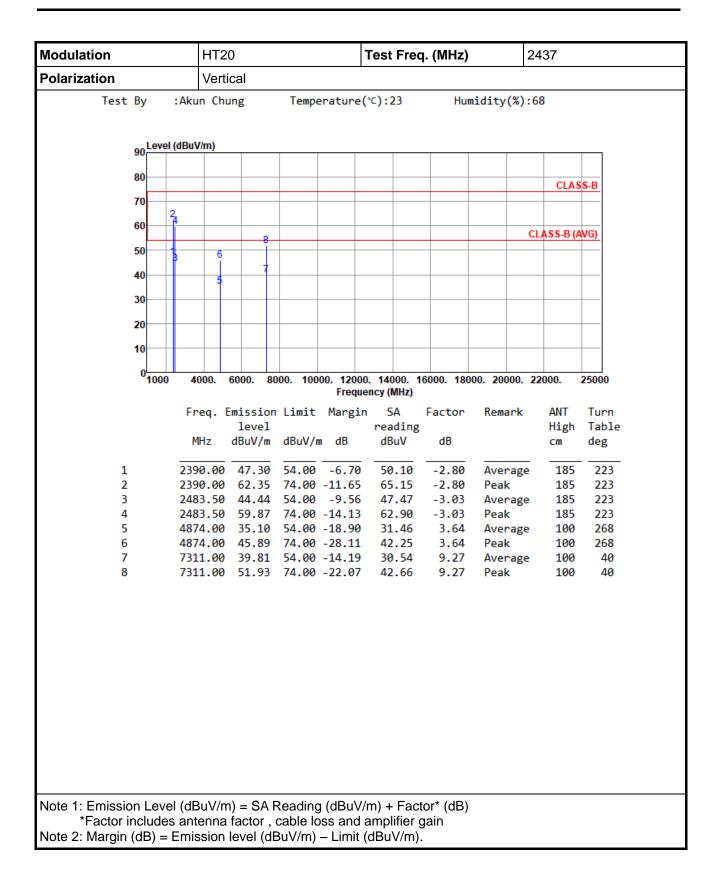




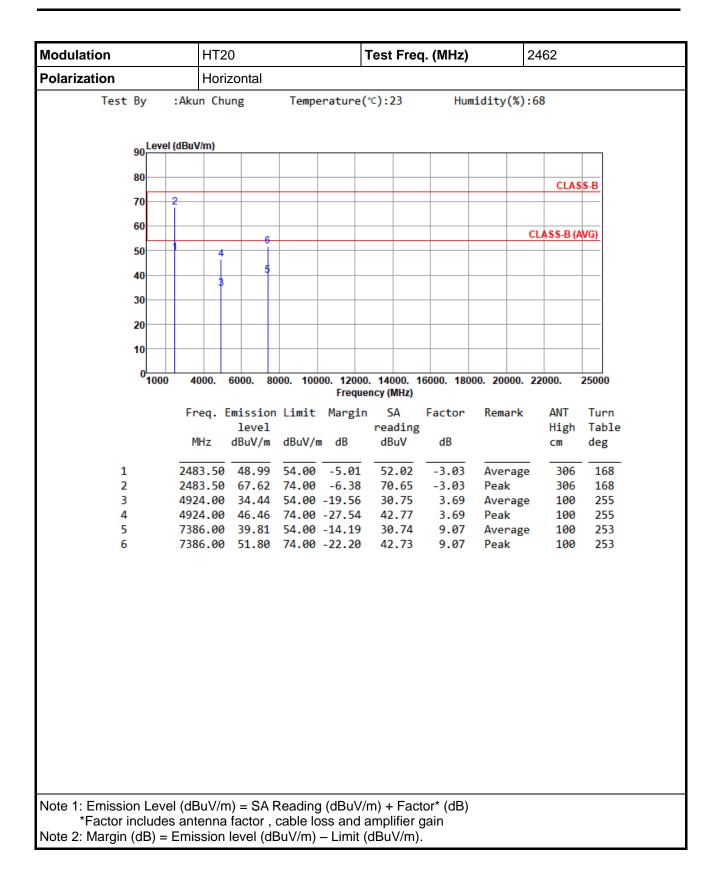




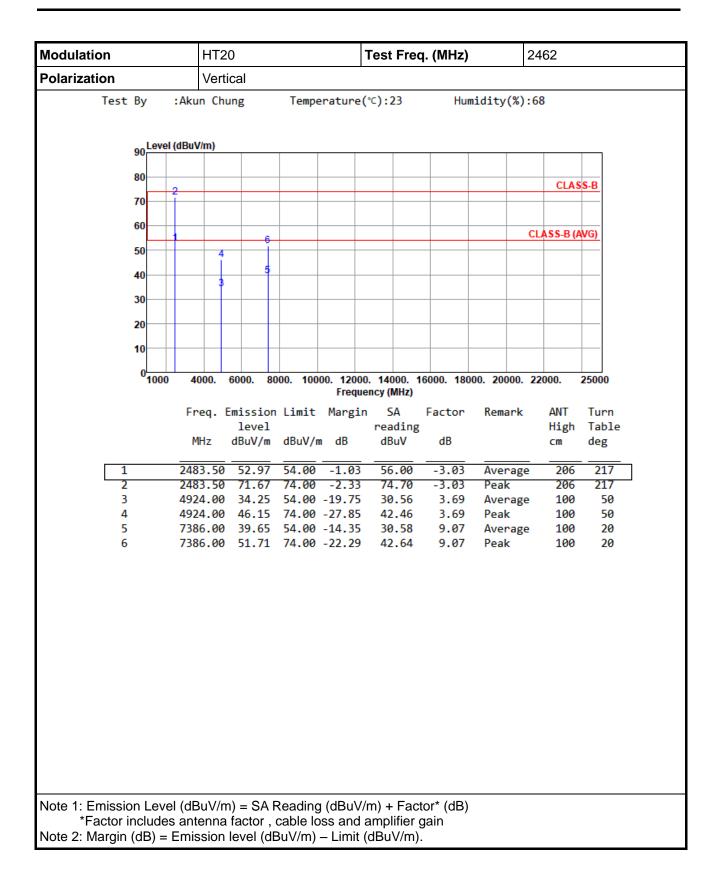




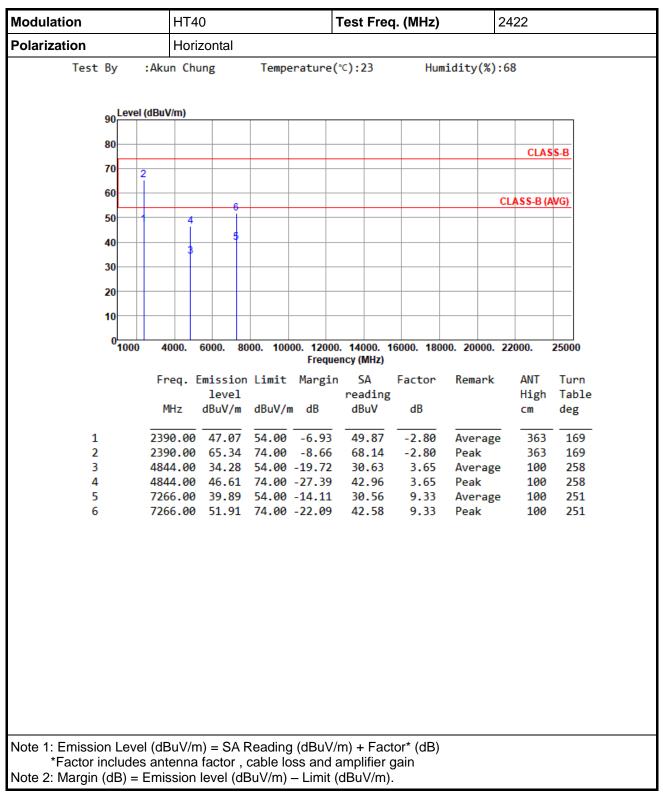






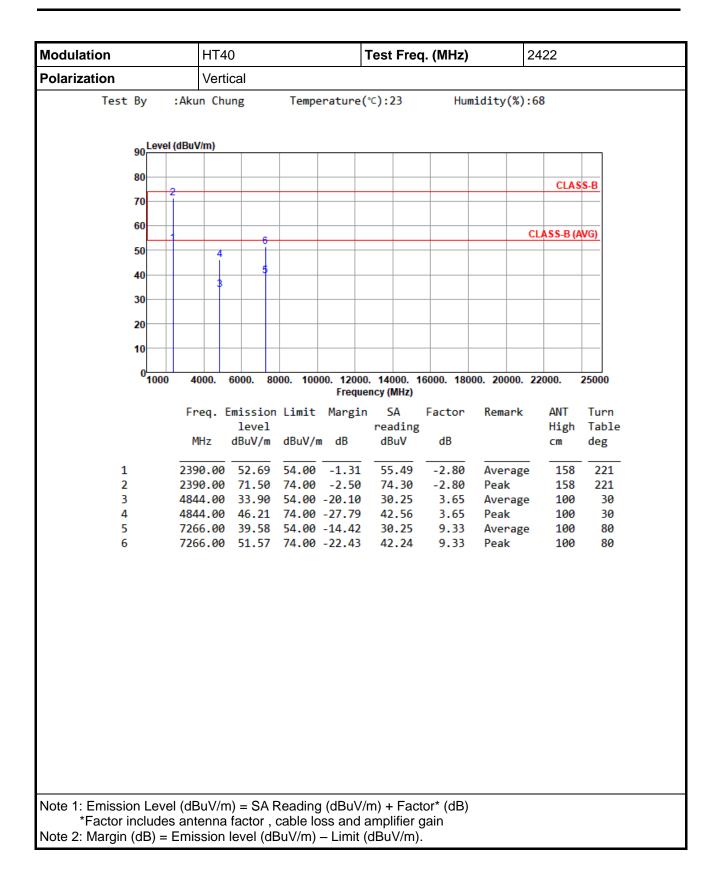




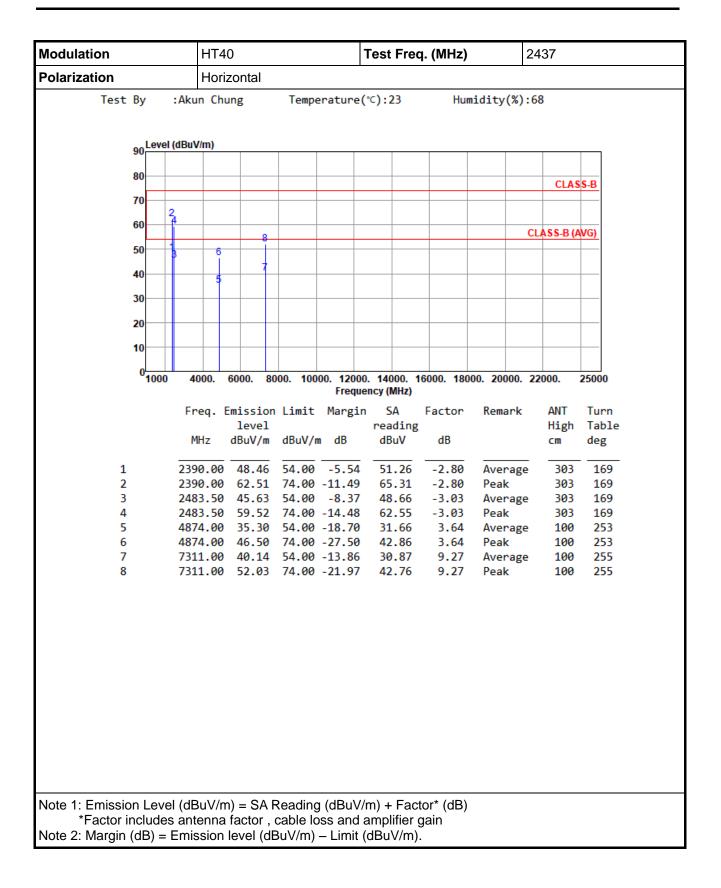


## 3.5.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for HT40

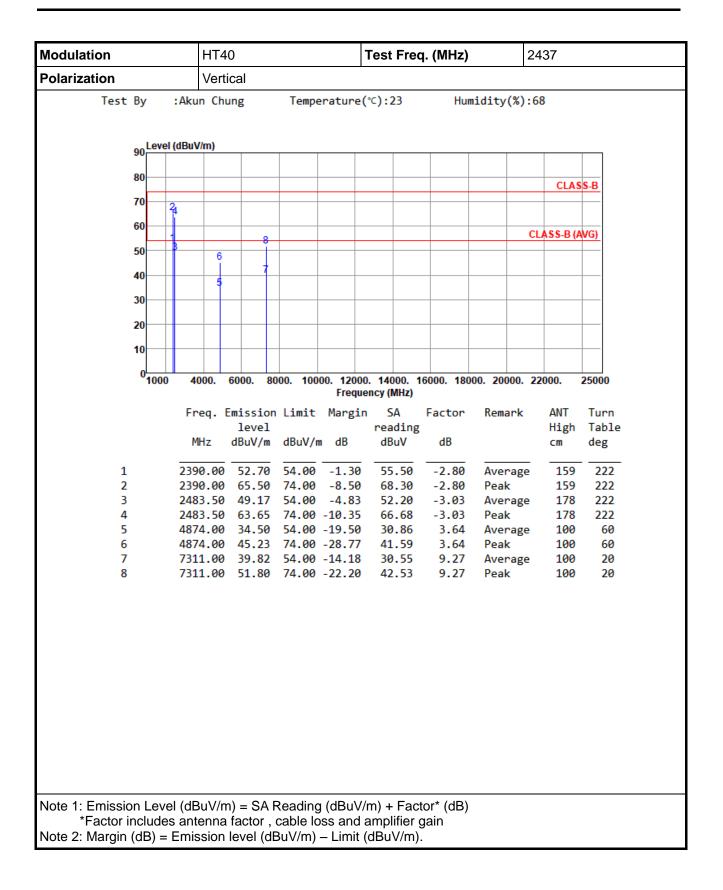




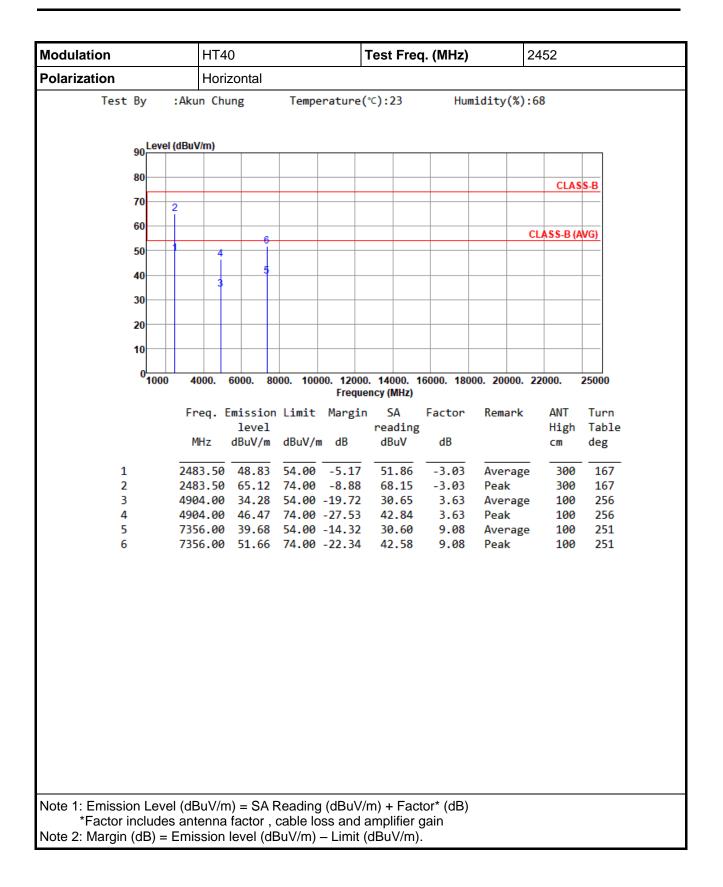




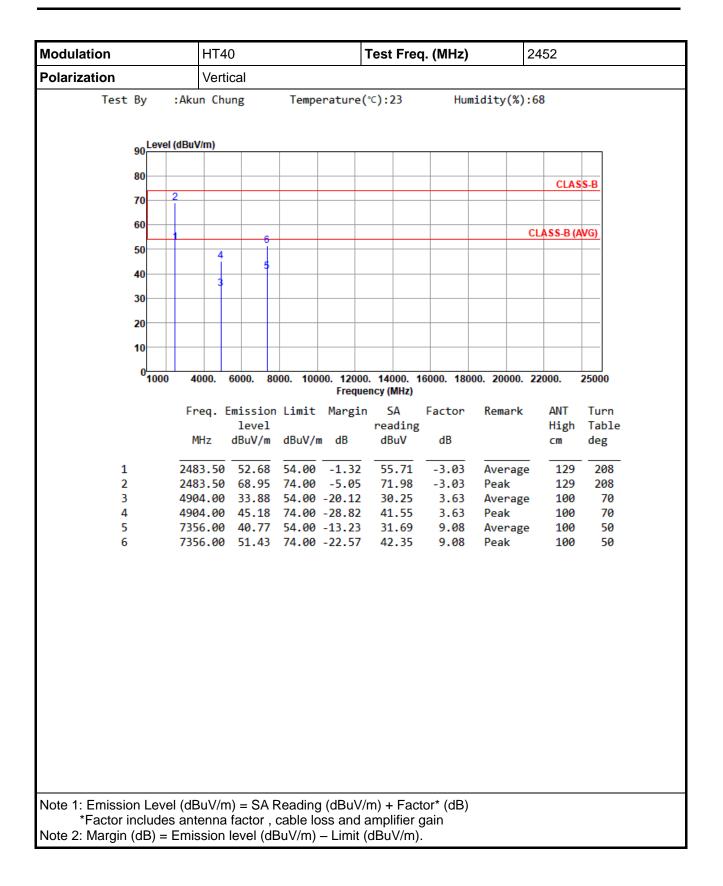














# 3.6 Emissions in Non-Restricted Frequency Bands

### 3.6.1 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 30 dB relative to the maximum in-band peak PSD level in 100 kHz.

#### 3.6.2 Test Procedures

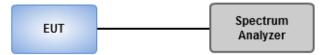
#### **Reference level measurement**

- 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**

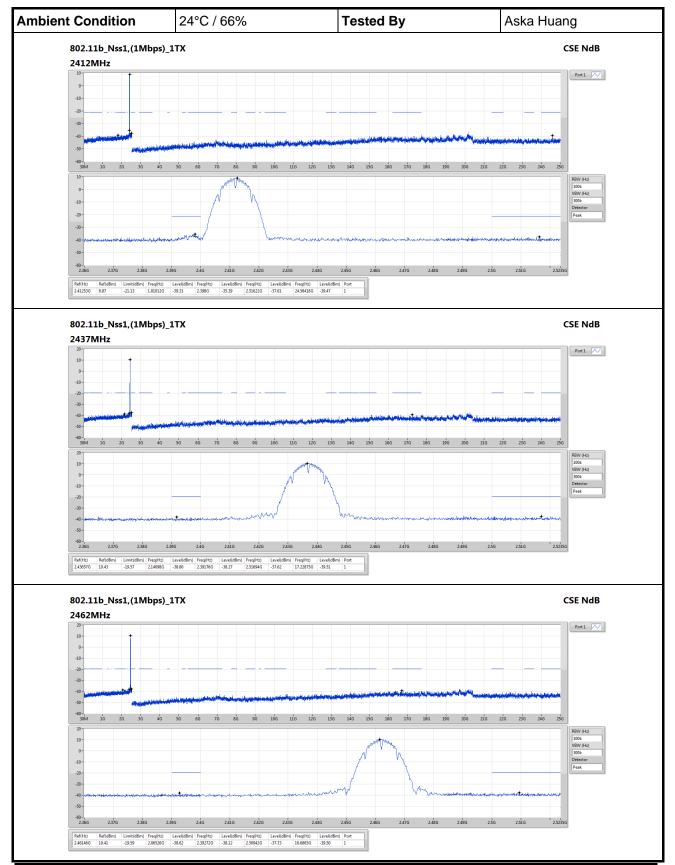
- 1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
- 2. Trace = max hold , Allow Trace to fully stabilize
- 3. Scan Frequency range is up to 25GHz
- 4. Use the peak marker function to determine the maximum amplitude level

## 3.6.3 Test Setup





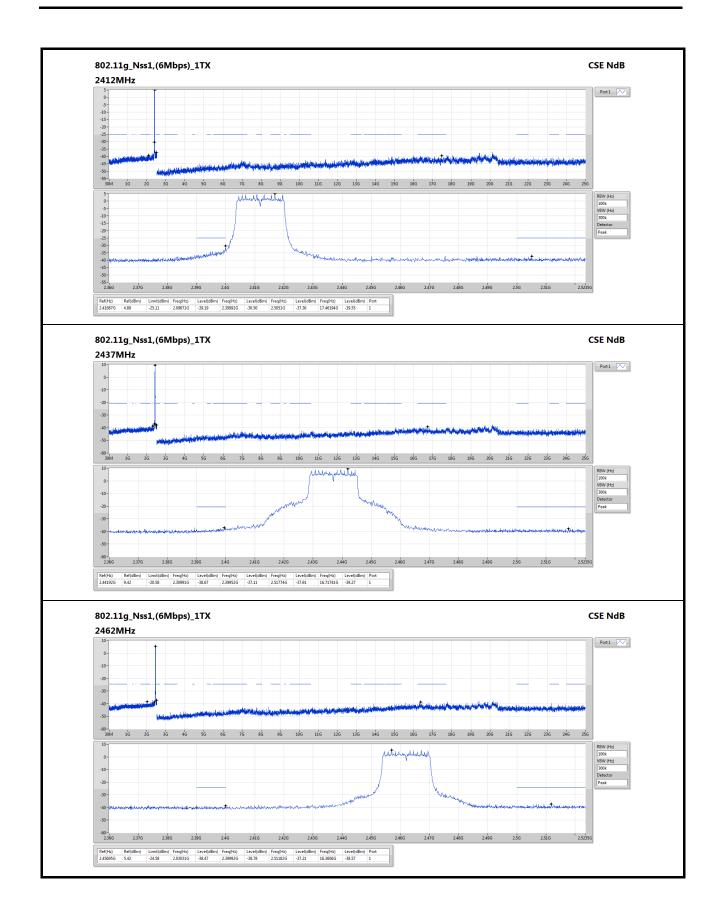




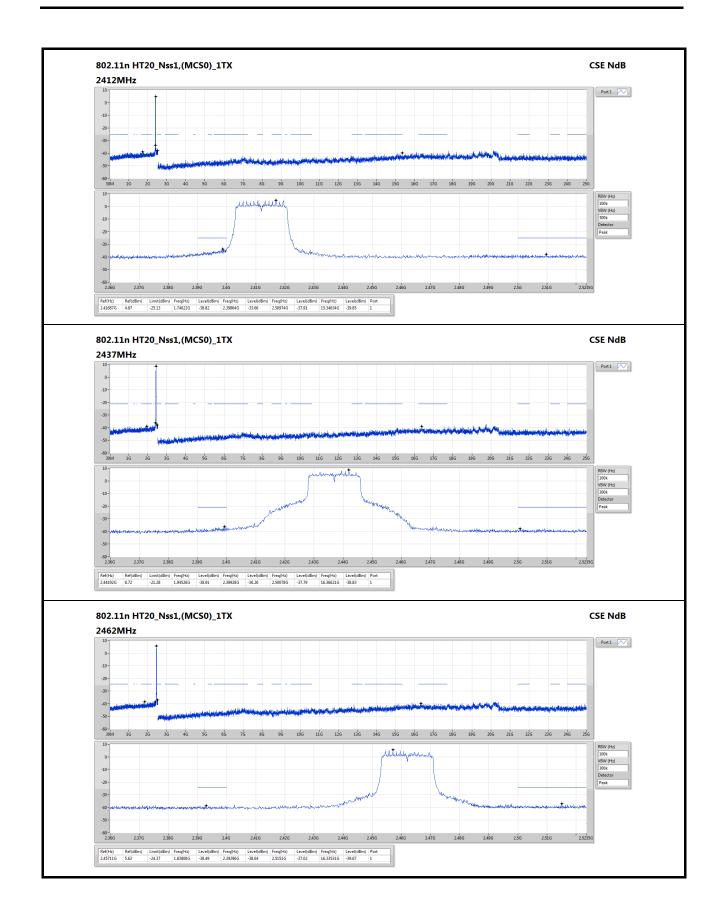
Report No.: FR073101AC

Report Version: Rev. 02 The previous version of the test report has been cancelled and replaced by new version.

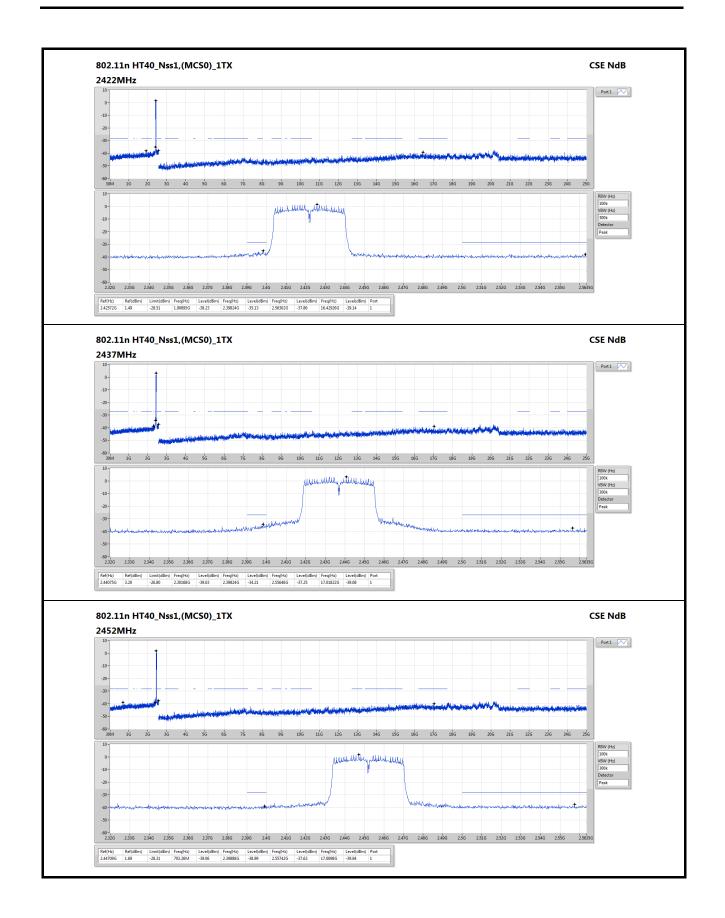














# 4 Test laboratory information

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 Corp (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 <u>http://www.icertifi.com.tw</u>.

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 District, Tao Yuan City 333, Taiwan, R.O.C. Kwei Shan Site II Tel: 886-3-271-8640 No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan District, 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: 886-3-318-0155 Email: ICC\_Service@icertifi.com.tw

—END—