

FCC Test Report

FCC ID : 2ACF3NETTIEASY

Equipment : NETTI-EASY

Model No. : NETTI-EASY

Brand Name : Blackloud Inc.

Applicant : Blackloud Inc.

Address : 42 Corporate Park #250 Irvine, CA 92606 USA

Standard : 47 CFR FCC Part 15.247

Received Date : Jul. 22, 2014

Tested Date : Aug. 13 ~ Aug. 26, 2014

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.

Approved & Reviewed by:

Gary Chang / Manager >

lac MRA



Report No.: FR472202-01 Report Version: Rev. 01



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Release Record

Report No.	Version	Description	Issued Date
FR472202-01	Rev. 01	Initial issue	Nov. 26, 2014

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Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.157MHz 52.24 (Margin -13.36dB) - QP	Pass
15.247(d)	Radiated Emissions	[dBuV/m at 3m]: 2483.50MHz	Pass
15.209	INdulated Lillissions	53.00 (Margin -1.00dB) - AV	r ass
15.247(b)(3)	Fundamental Emission Output Power	Max Power [dBm]: 28.33	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

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1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information						
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N _{TX})	Data Rate / MCS	
2400-2483.5	b	2412-2462	1-11 [11]	2	1-11 Mbps	
2400-2483.5	g	2412-2462	1-11 [11]	2	6-54 Mbps	
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	2	MCS 0-15	
2400-2483.5	n (HT40)	2422-2452	3-9 [7]	2	MCS 0-15	

Note 1: RF output power specifies that Maximum Peak Conducted 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	Gain (dBi)	Connector	Remark
1	PIFA	2.5	N/A	

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	5Vdc from AC adapter
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1.1.4 Accessories

		Accessories
No.	Equipment	Description
1	AC adapter 1	Brand Name: Phihong Model Name: PSAA10A-050Q I/P: 100-240Vac, 50-60Hz, 0.5A O/P: 5Vdc, 2A
2	AC adapter 2	Brand Name: Leader Model Name: MU10-Q050200-A1 I/P: 100-240Vac, 50-60Hz, 0.3A O/P: 5Vdc, 2A
3	RJ45 Cable 1	Brand: YongHao Model: 210-200-0909R 1.4m non-shielded cable w/o core
4	RJ45 Cable 2	Brand: EEKSONG Model: 21K-200-0909R 1.4m non-shielded cable w/o core
5	USB Cable	Model: 210-200-0914R 1.4m non-shielded cable w/o 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			

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1.1.6 Test Tool and Duty Cycle

Test Tool	ART2-GUI, version 4_9_514_FC				
	Mode	Duty cycle (%)	Duty factor (dB)		
	11b	100.00%	0.00		
Duty Cycle and Duty Factor	11g	98.55%	0.06		
	HT20	98.19%	0.08		
	HT40	96.89%	0.14		

1.1.7 Power Setting

Modulation Mode	Test Frequency (MHz)	Power Set
11b	2412	16.5
11b	2437	16.0
11b	2462	15.0
11g	2412	15.5
11g	2437	21.0
11g	2462	17.5
HT20	2412	15.0
HT20	2437	21.0
HT20	2462	17.0
HT40	2422	11.5
HT40	2437	15.5
HT40	2452	14.5

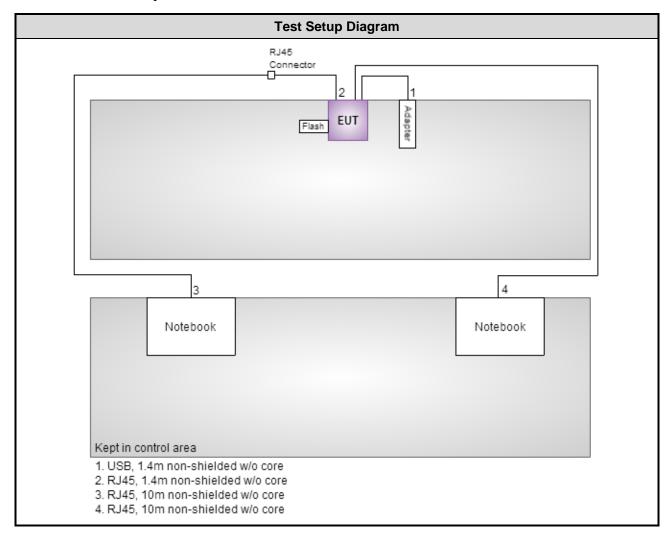
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1.2 Local Support Equipment List

	Support Equipment List						
No.	Equipment	Brand	Model	S/N	FCC ID	Signal cable / Length (m)	
1	Notebook	DELL	Latitude E6440	8VXMD12	DoC	RJ45, 10m non-shielded w/o core.	
2	Notebook	DELL	Latitude E6440	2PXMD12	DoC	RJ45, 10m non-shielded w/o core.	
3	USB 2.0 flash	Transcend	JetFlash V85	B02855 2096			

1.3 Test Setup Chart



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1.4 The Equipment List

duction room 1 / (0 Manufacturer R&S	Model No. ESCS 30	Serial No. 100169	Calibration Date Oct. 15, 2013	Calibration Until
R&S				
	ESCS 30	100169	Oct 15 2013	0-1-44-0044
			301. 10, 2013	Oct. 14, 2014
CHWARZBECK	Schwarzbeck 8127	8127-667	Nov. 23, 2013	Nov. 22, 2014
CHWARZBECK	Schwarzbeck 8127	8127-666	Dec. 04, 2013	Dec. 03, 2014
Woken	CFD200-NL	CFD200-NL-001	Apr. 23, 2014	Apr. 22, 2015
NA	50	04	Apr. 18, 2014	Apr. 17, 2015
	Woken NA	Woken CFD200-NL	Woken CFD200-NL CFD200-NL-001 NA 50 04	HWARZBECK Schwarzbeck 8127 8127-666 Dec. 04, 2013 Woken CFD200-NL CFD200-NL-001 Apr. 23, 2014 NA 50 04 Apr. 18, 2014

Test Item	Radiated Emission									
Test Site	966 chamber 3 / (03C	966 chamber 3 / (03CH03-WS)								
Instrument	Manufacturer Model No. Serial No. Calibration Date Calibratio									
Spectrum Analyzer	Agilent	N9010A	MY53400091	Oct. 07, 2013	Oct. 06, 2014					
Receiver	Agilent	N9038A	MY53290044	Jan. 08, 2014	Jan. 07, 2015					
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-562	Feb. 07, 2014	Feb. 06, 2015					
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Feb. 20, 2014	Feb. 19, 2015					
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Dec. 27, 2013	Dec. 26, 2014					
Preamplifier	EMC	EMC02325	980187	Nov. 22, 2013	Nov. 21, 2014					
Preamplifier	Agilent	83017A	MY53270014	Nov. 22, 2013	Nov. 21, 2014					
Preamplifier	WM	TF-130N-R1	923365	Oct. 23, 2013	Oct. 22, 2014					
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Feb. 19, 2014	Feb. 18, 2015					
RF cable-8M	HUBER+SUHNER	SUCOFLEX104	MY22601/4	Feb. 19, 2014	Feb. 18, 2015					
RF cable-1M	HUBER+SUHNER	SUCOFLEX104	MY22624/4	Feb. 19, 2014	Feb. 18, 2015					
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800 -001	Feb. 17, 2014	Feb. 16, 2015					
LF cable-3M	EMC	EMC8D-NM-NM-300 0	131103	Feb. 17, 2014	Feb. 16, 2015					
LF cable-13M	EMC	EMC8D-NM-NM-130 00	131104	Feb. 17, 2014	Feb. 16, 2015					
Note: Calibration Inter	rval of instruments liste	d above is one year.								

Loop Antenna	R&S	HFH2-Z2	100330	Nov. 15, 2012	Nov. 14, 2014			
Note: Calibration Interval of instruments listed above is two year.								

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Test Item	RF Conducted								
Test Site	(TH01-WS)								
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until				
Spectrum Analyzer	R&S	FSV40	101063	Feb. 17, 2014	Feb. 16, 2015				
Power Meter	Anritsu	ML2495A	1241002	Oct. 24, 2013	Oct. 23, 2014				
Power Sensor	Anritsu	MA2411B	1207366	Oct. 24, 2013	Oct. 23, 2014				
Note: Calibration Interval of instruments listed above is one year.									

1.5 Test Standards

According to the specification of EUT, the EUT must comply with following standards and KDB documents.

47 CFR FCC Part 15.247

ANSI C63.10-2009

FCC KDB 558074 D01 DTS Meas Guidance v03r02

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

1.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Measurement Uncertainty							
Parameters	Uncertainty						
Bandwidth	±34.134 Hz						
Conducted power	±0.808 dB						
Frequency error	±34.134 Hz						
Temperature	±0.6 °C						
Conducted emission	±2.670 dB						
AC conducted emission	±2.92 dB						
Radiated emission ≤ 1GHz	±3.26 dB						
Radiated emission > 1GHz	±4.94 dB						

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2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	20°C / 64%	Peter Lin
Radiated Emissions	03CH03-WS	20°C / 60%	Aska Huang
RF Conducted	TH01-WS	25°C / 60%	Felix Sung

➤ FCC site registration No.: 390588➤ IC site registration No.: 10807C-1

2.2 The Worst Test Modes and Channel Details

Test item	Modulation Mode	Test Frequency (MHz)	Data Rate (Mbps) / MCS	Test Configuration
Conducted Emissions	11g	2437	6 Mbps	2
Radiated Emissions ≤1GHz	11g	2437	6 Mbps	1
Radiated Emissions >1GHz	11b	2412 / 2437 / 2462	1 Mbps	
Fundamental Emission Output Power	11g	2412 / 2437 / 2462	6 Mbps	4
6dB bandwidth	HT20	2412 / 2437 / 2462	MCS 0	1
Power spectral density	HT40	2422 / 2437 / 2452	MCS 0	

NOTE:

- 1. RJ45 Cable YongHao (model: 210-200-0909R) and EEKSONG (model: 21K-200-0909R) had been covered during the pretest. The worst RJ45 cable is **YongHao (model: 210-200-0909R)**.
- 2. 2 adapters are used for this device, adapter is selected to perform radiated & conducted emission test as below test configuration.
 - 1) Configuration 1 : AC adapter 1 (brand: Phihong, model: PSAA10A-050Q)
 - 2) Configuration 2: AC adapter 1 (brand: Leader, model: MU10-Q050200-A1)

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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	56	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 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.

3.1.3 Test Setup



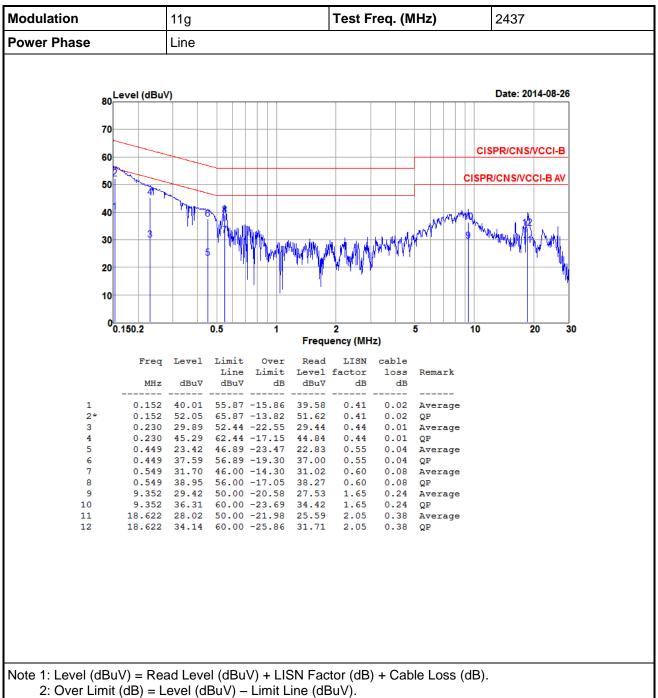
Note: 1. Support units were connected to second LISN.

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

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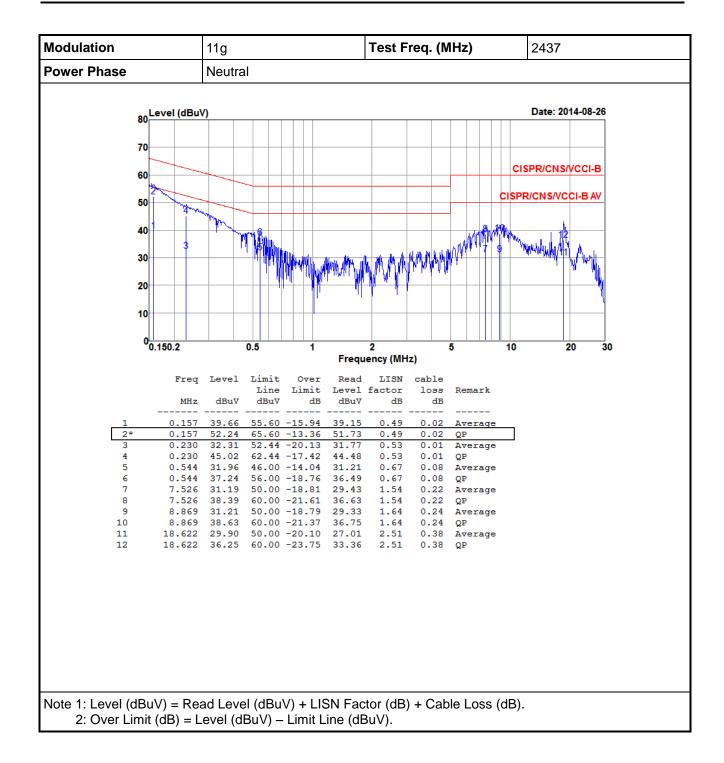


Test Result of Conducted Emissions 3.1.4



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3.2 6dB and Occupied Bandwidth

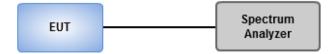
3.2.1 Limit of 6dB Bandwidth

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

3.2.2 Test Procedures

- 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.

3.2.3 Test Setup

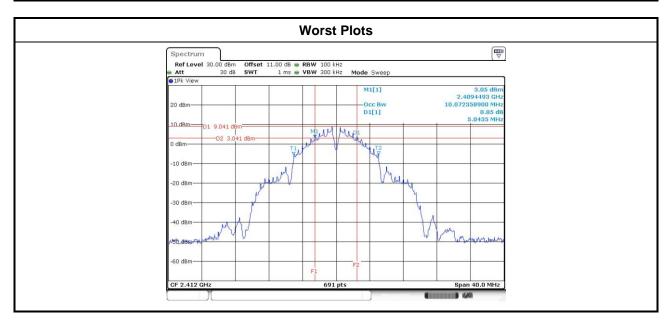


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3.2.4 Test Result of 6dB and Occupied Bandwidth

Modulation	NI.	Eron (MU=)		Limit (Idua)			
Mode	N _{TX}	Freq. (MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Limit (kHz)
11b	2	2412	5.57	5.04			500
11b	2	2437	6.03	6.03			500
11b	2	2462	5.57	5.57			500
11g	2	2412	13.91	15.07			500
11g	2	2437	15.13	15.13			500
11g	2	2462	14.03	15.07			500
HT20	2	2412	15.13	13.86			500
HT20	2	2437	15.13	15.13			500
HT20	2	2462	15.01	14.03			500
HT40	2	2422	33.74	33.74			500
HT40	2	2437	33.97	33.97			500
HT40	2	2452	32.70	33.86			500



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Modulation	N	Freq.	99% Occupied Bandwidth (MHz)				
Mode	N _{TX}	(MHz)	Chain 0	Chain 1	Chain 2	Chain 3	
11b	2	2412	10.09	10.13			
11b	2	2437	10.09	10.20			
11b	2	2462	10.06	10.09			
11g	2	2412	16.14	16.17			
11g	2	2437	16.57	17.51			
11g	2	2462	16.17	16.24			
HT20	2	2412	17.19	17.29			
HT20	2	2437	17.47	17.87			
HT20	2	2462	17.19	17.26			
HT40	2	2422	35.88	35.95			
HT40	2	2437	35.95	35.95 35.95			
HT40	2	2452	36.01	36.01			



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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.

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.

Systems operating in the 5725–5850 MHz band that are used exclusively for fixed, point-to-point operations, no any corresponding reduction is in transmitter peak output power

3.3.2 Test Procedures

Maximum Peak Conducted Output Power

- 1. Set RBW = 1MHz, VBW = 3MHz, Detector = Peak.
- 2. Sweep time = auto, Trace mode = max hold, Allow trace to fully stabilize.
- 3. Use the spectrum analyzer channel power measurement function with the band limits set equal to the DTS bandwidth edges.

Nower meter

- A broadband Peak 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.
- Maximum Conducted Output Power (For reference only)

Nower meter

 A broadband Average 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



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3.3.4 Test Result of Maximum Output Power

Modulation Mode	N _{TX}	Freq.	Peak	Peak conducted output power (dBm)		ower	Total Power	Total Power	Limit
Wode		(IVITIZ)	Chain 0	Chain 1	Chain 2	Chain 3	(mW)	(dBm)	(dBm)
11b	2	2412	20.16	19.67			196.436	22.93	30.00
11b	2	2437	18.61	18.81			148.643	21.72	30.00
11b	2	2462	17.78	18.62			132.757	21.23	30.00
11g	2	2412	22.06	21.54			303.255	24.82	30.00
11g	2	2437	25.52	25.10			680.045	28.33	30.00
11g	2	2462	23.02	23.18			408.417	26.11	30.00
HT20	2	2412	21.39	20.56			251.484	24.01	30.00
HT20	2	2437	25.36	24.98			658.333	28.18	30.00
HT20	2	2462	22.67	22.89			379.463	25.79	30.00
HT40	2	2422	16.13	15.68			78.003	18.92	30.00
HT40	2	2437	19.85	19.30			181.719	22.59	30.00
HT40	2	2452	18.71	19.01			153.918	21.87	30.00

Modulation Mode	N _{TX}	N _{TX} Freq. Conducted (average) output power (dBm)		Total Power	Total Power	Limit			
Wode		(MHz)	Chain 0	Chain 1	Chain 2	Chain 3	(mW)	(dBm)	(dBm)
11b	2	2412	16.25	15.82			80.364	19.05	30.00
11b	2	2437	14.70	14.93			60.629	17.83	30.00
11b	2	2462	13.90	14.75			54.401	17.36	30.00
11g	2	2412	15.84	15.75			75.954	18.81	30.00
11g	2	2437	20.96	21.59			268.950	24.30	30.00
11g	2	2462	17.29	18.12			118.443	20.74	30.00
HT20	2	2412	14.81	14.29			57.123	17.57	30.00
HT20	2	2437	20.73	21.10			247.129	23.93	30.00
HT20	2	2462	16.45	17.41			99.238	19.97	30.00
HT40	2	2422	11.40	10.82			25.882	14.13	30.00
HT40	2	2437	15.09	14.61			61.192	17.87	30.00
HT40	2	2452	13.89	14.12			50.313	17.02	30.00

Note: Conducted average output power is for reference only.

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3.4 Power Spectral Density

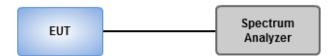
3.4.1 Limit of Power Spectral Density

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

3.4.2 Test Procedures

- Maximum peak conducted output power was used to demonstrate compliance to the fundamental output power limit.
 - Set the RBW = 3kHz, VBW = 10kHz.
 - 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.
- Maximum (average) conducted output power was used to demonstrate compliance to the fundamental output power limit.
 - Set the RBW = 100kHz, VBW = 300 kHz.
 - 2. Detector = RMS, Sweep time = auto couple.
 - 3. Set the sweep time to: ≥ 10 x (number of measurement points in sweep) x (maximum data rate per stream).
 - 4. Perform the measurement over a single sweep.
 - 5. Use the peak marker function to determine the maximum amplitude level.

3.4.3 Test Setup



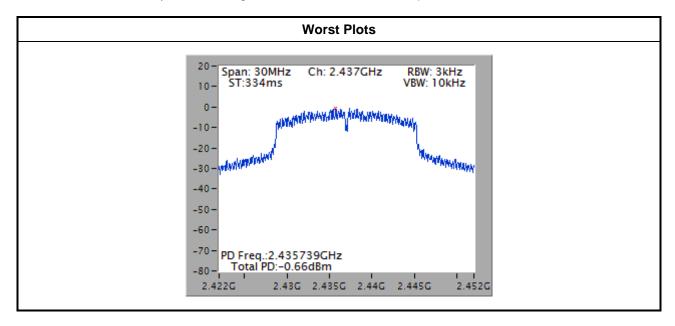
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3.4.4 Test Result of Power Spectral Density

Modulation Mode	N _{TX}	Freq. (MHz)	Total Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)
11b	2	2412	-2.25	8.00
11b	2	2437	-3.02	8.00
11b	2	2462	-5.04	8.00
11g	2	2412	-5.98	8.00
11g	2	2437	-0.66	8.00
11g	2	2462	-4.83	8.00
HT20	2	2412	-8.06	8.00
HT20	2	2437	-1.85	8.00
HT20	2	2462	-5.76	8.00
HT40	2	2422	-15.07	8.00
HT40	2	2437	-10.76	8.00
HT40	2	2452	-10.94	8.00

Note: Test result is bin-by-bin summing measured value of each TX port.



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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

- 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 a height of 0.8 m test table above the ground plane.
- 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.

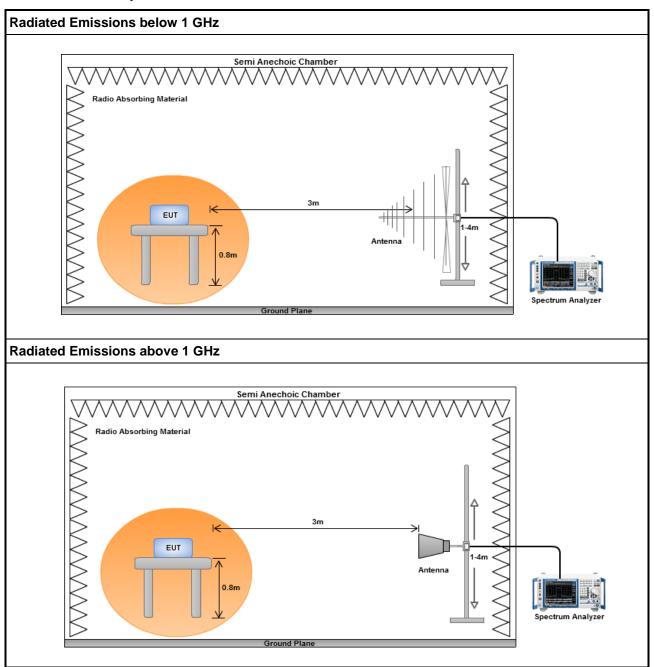
Note:

- 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.
- 3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

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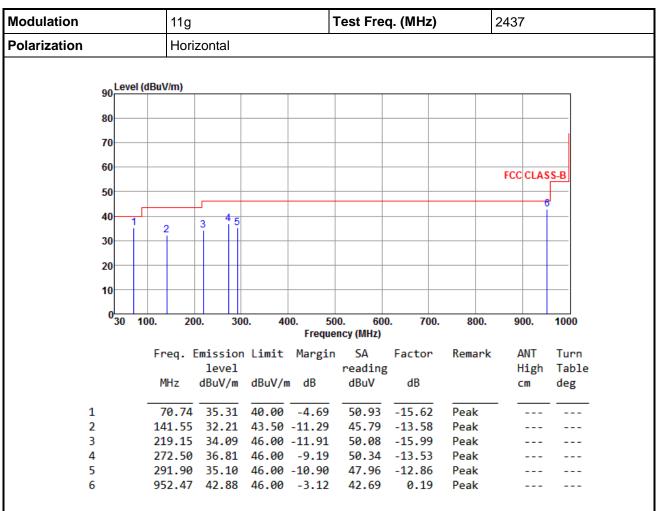
3.5.3 Test Setup



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3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)



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

*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.

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Modulation			11g			-	Γest Fre	q. (MHz)		2437	
Polarization			Vertic	cal							
9 8 7 6 5	0	el (dBu	V/m)							FCC CL	
4 3 2 1	0	100.	200	4 5	00. 4	00. 50	0. 60	0. 700.	800.	900.	1000
			200				ncy (MHz)		0001	0001	1000
				level		Margin n dB	SA reading dBuV	Factor dB	Remark	ANT Hig cm	
1 2			30.63 81.41	37.26 36.49	40.00		51.25 54.47	-17.98	QP Peak		
3 4 5		2:	39.61 19.15 68.62		43.50 46.00 46.00	-10.03	48.39 51.96 48.06		Peak Peak Peak		
6					46.00		40.56	0.23	Peak		

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

*Factor includes antenna factor, cable loss and amplifier gain

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

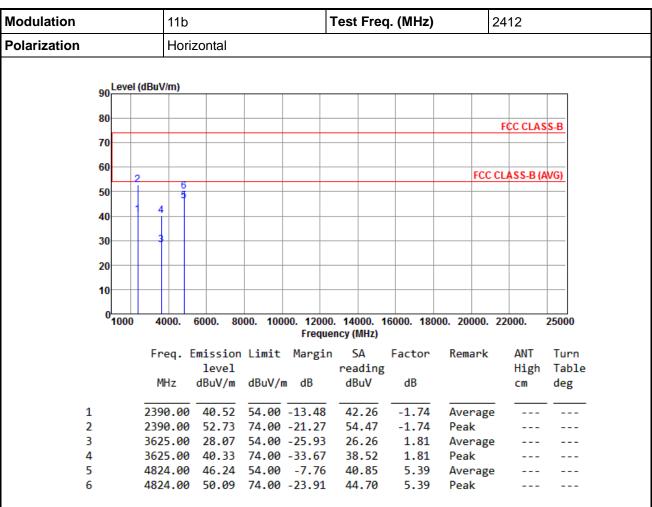
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

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



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

*Factor includes antenna factor, cable loss and amplifier gain

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

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Modulation		11b			7	Test Fred	q. (MHz)		2412	
Polarization		Vert	ical		·					
90 ^L	evel (d	BuV/m)								
00										
80									FCC CLAS	S-B
70										-
60										
L	2	<u>6</u>						FCC	CLASS-B (A	WG)
50	1									
40		4								
30		3								
30										
20										
10										-
0										
10	000	4000.	6000. 8	000. 100		. 14000. 1 ncy (MHz)	6000. 180	00. 20000.	22000.	25000
		Freq. I	Emissio	n Limit	Margin	SA	Factor	Remark	ANT	Turn
		·	level			reading			High	Table
		MHz	dBuV/m	dBuV/	m dB	dBuV	dB		cm	deg
1	2	2390.00	43.95	54.00	-10.05	45.69	-1.74	Average		
2		2390.00			-20.25	55.49	-1.74	Peak		
3		3625.00			-25.85	26.34	1.81	Average		
4					-33.79	38.40	1.81	Peak		
5 6			52.92		-1.08	47.53 50.06	5.39 5.39	Average Peak		

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

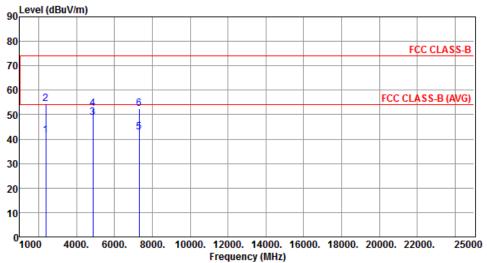
*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation	11b	Test Freq. (MHz)	2437
Polarization	Horizontal		
90 Level (dBu\	//m)		



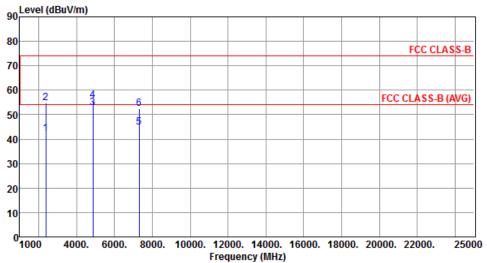
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m		SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2388.00	41.56	54.00	-12.44	43.30	-1.74	Average		
2	2388.00	54.37			56.11	-1.74	Peak		
3	4874.00	48.66	54.00	-5.34	43.14	5.52	Average		
4	4874.00	52.56	74.00	-21.44	47.04	5.52	Peak		
5	7311.00	42.89	54.00	-11.11	31.58	11.31	Average		
6	7311.00	52.56	74.00	-21.44	41.25	11.31	Peak		

*Factor includes antenna factor, cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation	11b	Test Freq	. (MHz)	2437	
Polarization	Vertical				
90 Level (dE	uV/m)				

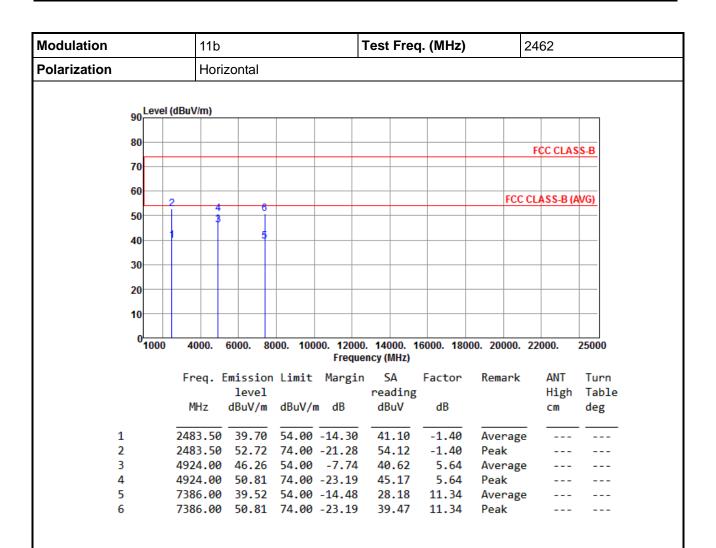


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m		SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2388.00	42.19	54.00	-11.81	43.93	-1.74	Average		
2	2388.00	54.88	74.00	-19.12	56.62	-1.74	Peak		
3	4874.00	52.93	54.00	-1.07	47.41	5.52	Average		
4	4874.00	55.67	74.00	-18.33	50.15	5.52	Peak		
5	7311.00	44.69	54.00	-9.31	33.38	11.31	Average		
6	7311.00	52.39	74.00	-21.61	41.08	11.31	Peak		

*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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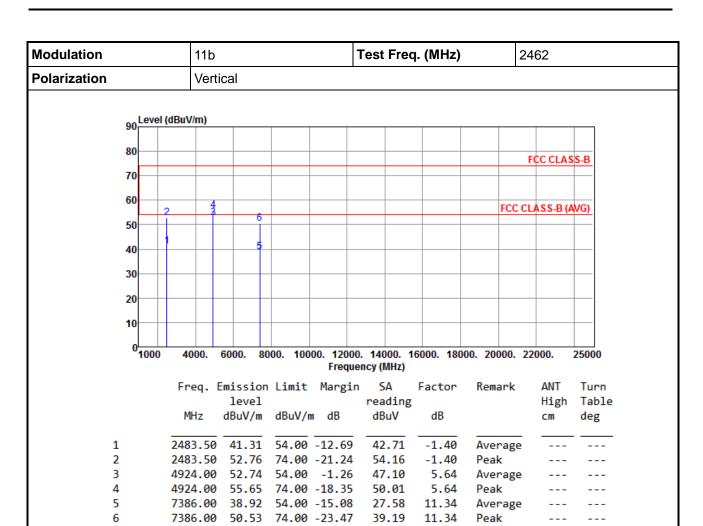


*Factor includes antenna factor, cable loss and amplifier gain

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

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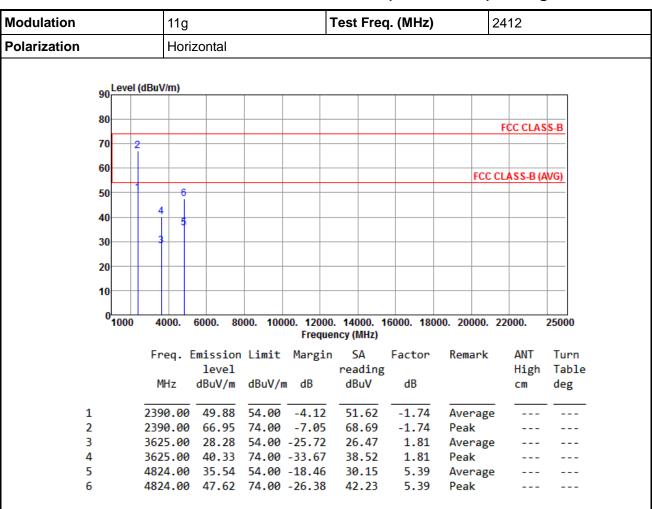
*Factor includes antenna factor, cable loss and amplifier gain

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

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



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

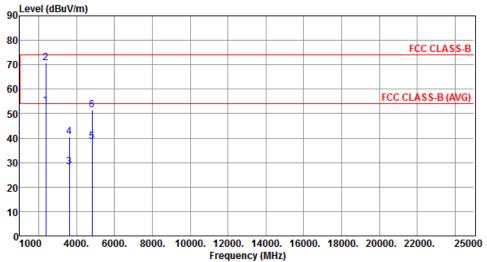
*Factor includes antenna factor, cable loss and amplifier gain

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

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Modulation	11g			Test	Freq.	24	2412					
Polarization		Vertical										
	Level (dBu\	//m)										
90												



	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg
1	2390.00	52.99	54.00	-1.01	54.73	-1.74	Average		
2	2390.00	70.64	74.00	-3.36	72.38	-1.74	Peak		
3	3625.00	28.13	54.00	-25.87	26.32	1.81	Average		
4	3625.00	40.39	74.00	-33.61	38.58	1.81	Peak		
5	4824.00	38.60	54.00	-15.40	33.21	5.39	Average		
6	4824.00	51.60	74.00	-22.40	46.21	5.39	Peak		

*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation		11g					Tes	t Fre	q. (N	1Hz)			243	57	
Polarization		Hori	zontal									L.			
90	Level	(dBuV/m)													
80															
													FC	C CLAS	SS-B
70	2	2													
60		4 6		8								FCC	CLA	SS-B (A	WG)
50				+										, 2 00	
4,		1 1													
40	,														
30)——														
20				\vdash									_		-
10															
(1000	4000.	6000.	8000	0. 100	00. 120 Frea		1000. (MHz)	16000	. 180	000.	20000.	220	00.	25000
		Freq. I	Emissi	on I	Limit				Fac	tor	Re	emark		ANT	Turr
			leve					ading	3					High	Tab]
		MHz	dBuV/	m c	dBuV/r	n dB	d	BuV	d	IB				CM	deg
1		2390.00	47.8	7 5	54.00	-6.1	3 4	9.61	-1	.74	A	verag	_		
2		2390.00				-10.5		5.18		.74		eak			
3		2483.50						4.75		.40		verag	e		
4		2483.50		_		-16.94		8.46		.40		eak	_		
5 6		4874.00 4874.00						8.73 0.12		.52		verag eak	e		
7		7311.00						5.56		.31		verag	e		
8		7311.00	59.3	5 7	74.00	-14.65	5 4	8.04	11	.31		eak			

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

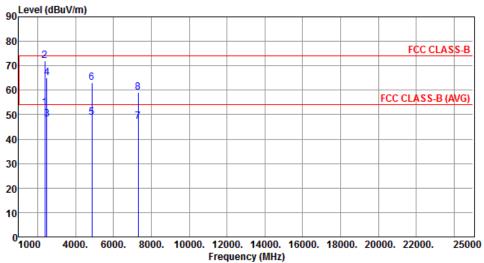
*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation	11g	Test Freq. (MHz)	2437	
Polarization	Vertical			
90 Level (dBu	V/m)			

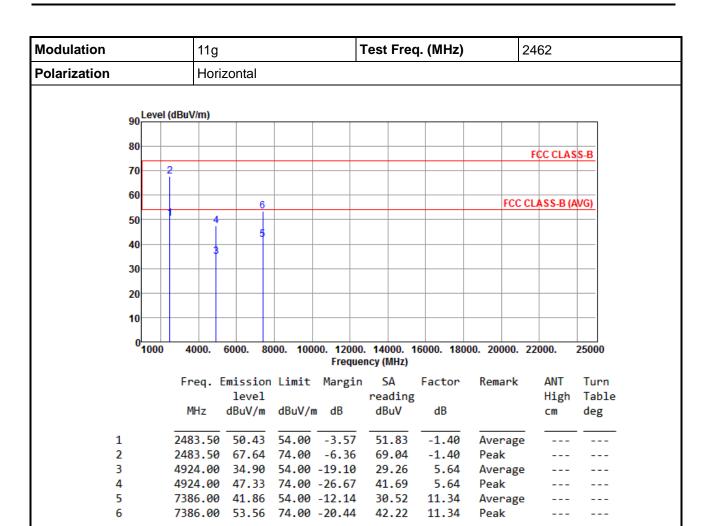


	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg
1	2390.00	52.81	54.00	-1.19	54.55	-1.74	Average		
2	2390.00	72.01	74.00	-1.99	73.75	-1.74	Peak		
3	2483.50	48.24	54.00	-5.76	49.64	-1.40	Average		
4	2483.50	65.14	74.00	-8.86	66.54	-1.40	Peak		
5	4874.00	48.66	54.00	-5.34	43.14	5.52	Average		
6	4874.00	63.15	74.00	-10.85	57.63	5.52	Peak		
7	7311.00	47.23	54.00	-6.77	35.92	11.31	Average		
8	7311.00	59.12	74.00	-14.88	47.81	11.31	Peak		

*Factor includes antenna factor, cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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*Factor includes antenna factor, cable loss and amplifier gain

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

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Modulation			11g			-	Test Fred	Test Freq. (MHz) 24				
Polarization			Verti	ical		.			•			
l	90	Level	(dBuV/m)									
	80									FCC CLAS		
	70	-	2							FCC CLAS	92-B	
	70											
	60		4	6					FCC	CLASS-B (A	WG)	
	50			Ť					100	CERGG-D (F		
			3	5								
	40											
	30											
	20											
	10											
	_											
	0	1000	4000.	6000. 80	00. 100		. 14000. 1 ncy (MHz)	6000. 180	00. 20000.	22000.	25000	
			Enog F	mission	limi+	_	SA	Factor	Remark	ANT	Turn	
			rreq. I	level	CIMIL	uai gil	reading		Nemar K	High	Table	
			MHz	dBuV/m	dBuV/r	n dB	dBuV	dB		cm	deg	
	1		2483.50	52.67	54.00	-1.33	54.07	-1.40	Average			
	2		2483.50	70.25	74.00	-3.75	71.65	-1.40	Peak			
	3		4924.00	42.89	54.00	-11.11	37.25	5.64	Average			

5.64

11.34

11.34

Peak

Peak

Average

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor, cable loss and amplifier gain

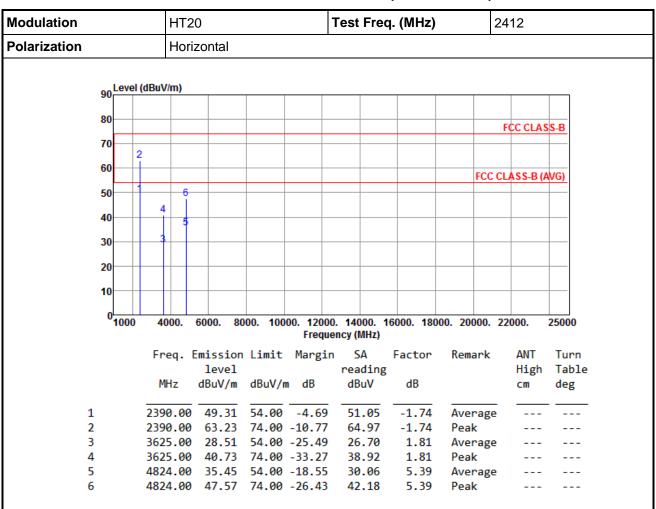
4924.00 55.99 74.00 -18.01 50.35 7386.00 42.55 54.00 -11.45 31.21 7386.00 53.99 74.00 -20.01 42.65

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

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



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

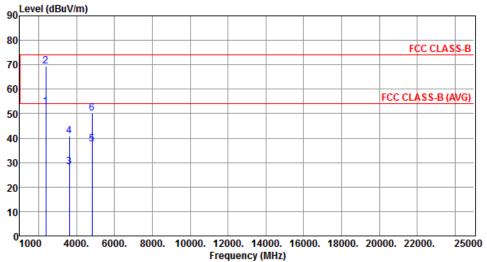
*Factor includes antenna factor, cable loss and amplifier gain

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

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Modulation		HT20		Test	Freq.	(MHz)	24	12		
Polarization		Vertical								
oo L	evel (dBu\	//m)								
90										



	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg
1	2390.00	52.79	54.00	-1.21	54.53	-1.74	Average		
2	2390.00	69.38	74.00	-4.62	71.12	-1.74	Peak		
3	3625.00	28.27	54.00	-25.73	26.46	1.81	Average		
4	3625.00	40.77	74.00	-33.23	38.96	1.81	Peak		
5	4824.00	37.51	54.00	-16.49	32.12	5.39	Average		
6	4824.00	50.06	74.00	-23.94	44.67	5.39	Peak		

*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation	HT20		Test Freq. (MHz)	2437	
Polarization	Horizontal				
90 Level ((dBuV/m)				
80				500	21.4.00.0
70				FCC (CLASS-B
60		3			
50	3			FCC CLASS	-B (AVG)
	5 5				
40					
30					
20					
10					
0 1000	4000. 6000.	8000. 10000. 1200	0. 14000. 16000. 180	00. 20000. 22000	. 25000
			ency (MHz)		
	Freq. Emissi	on Limit Margi l	n SA Factor reading	Remark AM	NT Turn igh Table
	MHz dBuV/	m dBuV/m dB	dBuV dB	Cr	_
1	2390.00 50.1	9 54.00 -3.81	51.93 -1.74	Average -	
2	2390.00 64.9			Peak -	
3 4	2483.50 49.1			Average - Peak -	
4 5	2483.50 64.8 4874.00 45.1			Average -	

52.27

5.52

Peak

Peak

Average

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

*Factor includes antenna factor, cable loss and amplifier gain

4874.00 57.79 74.00 -16.21

7311.00 45.57 54.00 -8.43 34.26 11.31

7311.00 57.65 74.00 -16.35 46.34 11.31

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

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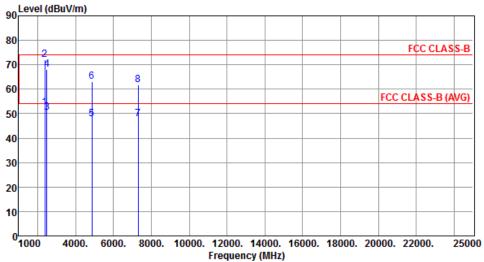
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Modulation	HT20	Те	st Freq.	(MHz)	24	37		
Polarization	Vertical							
90 Level (dBuV	//m)							



	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg
1	2390.00	52.51	54.00	-1.49	54.25	-1.74	Average		
2	2390.00	72.04	74.00	-1.96	73.78	-1.74	Peak		
3	2483.50	50.54	54.00	-3.46	51.94	-1.40	Average		
4	2483.50	67.92	74.00	-6.08	69.32	-1.40	Peak		
5	4874.00	47.88	54.00	-6.12	42.36	5.52	Average		
6	4874.00	63.19	74.00	-10.81	57.67	5.52	Peak		
7	7311.00	47.79	54.00	-6.21	36.48	11.31	Average		
8	7311.00	61.88	74.00	-12.12	50.57	11.31	Peak		

*Factor includes antenna factor, cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation			H	T20					Tes	t Fred	q. (MH	z)		24	62	
Polarization			Н	oriz	ontal									,		
			-													
	00	Level	(dBuV/m))												
	30															
	80				-	_						-		E	CC CLAS	C D
	70														CC CLA	33-0
		'	2													
	60					\perp								FCC CL	ASS-B (A	WG)
	50			4		6										
						4										
	40			3		Ť										
	30			+		-										
	20															
	10															-
	0															
	U	1000	4000	. 6	000.	8000). 100		00. 1- uency		16000. 1	18000	. 200	00. 22	000.	25000
			Frea	. En	nissi	on I	imit	Marg	in	SA	Facto	r	Rema	ırk	ANT	Turi
			4		leve					ading					High	Tab
			MHz	C	lBuV/ı	m c	BuV/	m dB	d	BuV	dB				cm	deg
1	L		2483.	 50	51.4	6 5	4.00	-2.5	4 5	2.86	-1.4	0	Aver	age		
2			2483.		66.2		74.00			7.61	-1.4		Peak	_		
3	3		4924.	90	37.0	0 5	4.00	-17.0	9 3	1.36	5.6		Aver	age		
4								-25.0		3.32	5.6		Peak			
9								-14.4		8.25	11.3		Aver	_		
6	•		/386.	90	51.9	4 /	4.00	-22.0	b 4	0.60	11.3	4	Peak			

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

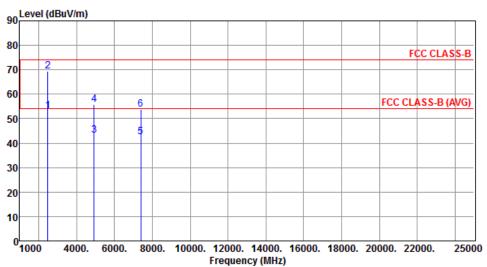
*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation	HT20	Test Freq. (MHz)	2462
Polarization	Vertical		



Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
	level			reading			High	Table
MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg

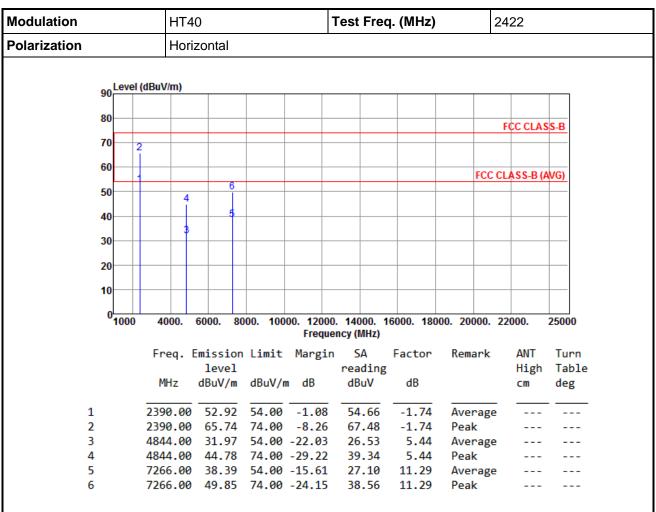
1	2483.50	53.00	54.00	-1.00	54.40	-1.40	Average	
2	2483.50	69.27	74.00	-4.73	70.67	-1.40	Peak	
3	4924.00	43.28	54.00	-10.72	37.64	5.64	Average	
4	4924.00	55.77	74.00	-18.23	50.13	5.64	Peak	
5	7386.00	42.54	54.00	-11.46	31.20	11.34	Average	
6	7386.00	53.90	74.00	-20.10	42.56	11.34	Peak	

*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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



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

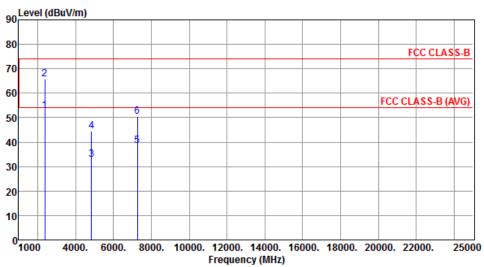
*Factor includes antenna factor, cable loss and amplifier gain

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

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Modulation	HT40	Test Freq. (MHz)	2422
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Ū	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	52.94	54 00	-1.06	54.68	-1.74	Average		
_									
2	2390.00	65.88	74.00	-8.12	67.62	-1.74	Peak		
3	4844.00	32.97	54.00	-21.03	27.53	5.44	Average		
4	4844.00	44.56	74.00	-29.44	39.12	5.44	Peak		
5	7266.00	38.41	54.00	-15.59	27.12	11.29	Average		
6	7266.00	50.57	74.00	-23.43	39.28	11.29	Peak		

*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation	HT40		Test Freq. (MHz)	2437					
Polarization	Horizontal								
	•								
90 Level (dBu	V/m)								
80									
				FCC CLASS-B					
70 2									
60 4				FCC CLASS-B (AVG)					
50	8			TCC CLASS-D (AVO)					
	6								
40	5								
30									
20									
10									
0 <mark>1000 4</mark>	000. 6000. 80		. 14000. 16000. 18000. 2	20000. 22000. 25000					
_			ncy (MHz)						
Fi	req. Emission level	Limit Margin	SA Factor Re	emark ANT Turn High Tabl					
1		dBuV/m dB	dBuV dB	cm deg					
		54.00 -4.37		/erage					
		74.00 -10.94 54.00 -7.16		eak /erage					
		74.00 -15.09		eak					
		54.00 -19.99		/erage					
		74.00 -29.39		eak					
	пии 3/5/	54.00 -16.43	26.26 11.31 Av	/erage					

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

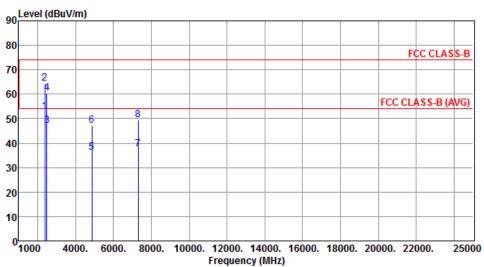
*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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Modulation	HT40	Test Freq. (MHz)	2437
Polarization	Vertical		



	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg
1	2390.00	52.93	54.00	-1.07	54.67	-1.74	Average		
2	2390.00	64.47	74.00	-9.53	66.21	-1.74	Peak		
3	2483.50	47.08	54.00	-6.92	48.48	-1.40	Average		
4	2483.50	60.36	74.00	-13.64	61.76	-1.40	Peak		
5	4874.00	36.18	54.00	-17.82	30.66	5.52	Average		
6	4874.00	47.17	74.00	-26.83	41.65	5.52	Peak		
7	7311.00	37.37	54.00	-16.63	26.06	11.31	Average		
8	7311.00	49.43	74.00	-24.57	38.12	11.31	Peak		

*Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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3

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Modulation			HT4	0		•	Test	Freq.	(MHz)		24	52	
Polarization	Polarization Horizonta			zontal						<u> </u>			
	90 Le	vel (dBu	V/m)									I	
	80												
	- 00										F	CC CLAS	S-B
	70	2											
	60												
	<u> </u>	+		- 6	-					F	FCC CL	ASS-B (A	(VG)
	50		4										
	40-		\perp	5	i								
	20		3										
	30-												
	20		+										
	10												
	0 <mark>1</mark> 0	00 4	1000.	6000.	8000. 1	0000. 120 Fred	00. 1400 juency (M		000. 180	000. 2000	00. 22	000.	25000
		F	rea. I	Emissio	n Limi	t Marg	in SA	. F	actor	Rema	rk	ANT	Turn
			· cq· ·	level			read		uc 201	ciiid		High	Table
			MHz			//m dB	dBu	_	dB			cm	deg
	4	24	02.50						4 40				
	1 2					0 -1.4 0 -8.3			-1.40 -1.40	Aver Peak	_		
	_	24	שכ.כט	05.05	74.6	-0.5	٠/ ١٥	05	-1.40	reak			

Average

Average

Peak

Peak

5.59

5.59

11.34

11.34

27.43

4904.00 33.22 54.00 -20.78 27.63

4904.00 45.46 74.00 -28.54 39.87 7356.00 38.77 54.00 -15.23 27.43 7356.00 51.11 74.00 -22.89 39.77

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

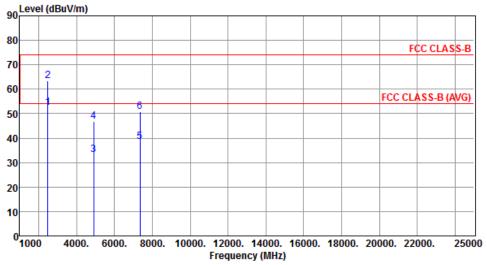
*Factor includes antenna factor, cable loss and amplifier gain

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

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Modulation HT40		HT40 Test Freq. (MHz)		Hz)	24	52			
Polarization		Vertical							
ام	Level (dBuV	//m)							



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m		SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	52.55	54.00	-1.45	53.95	-1.40	Average		
2		63.27			64.67	-1.40	Peak		
3	4904.00	33.28	54.00	-20.72	27.69	5.59	Average		
4	4904.00	46.91	74.00	-27.09	41.32	5.59	Peak		
5	7356.00	38.49	54.00	-15.51	27.15	11.34	Average		
6	7356.00	50.70	74.00	-23.30	39.36	11.34	Peak		

*Factor includes antenna factor, cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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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 20 dB relative to the maximum in-band peak PSD level in 100 kHz

3.6.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

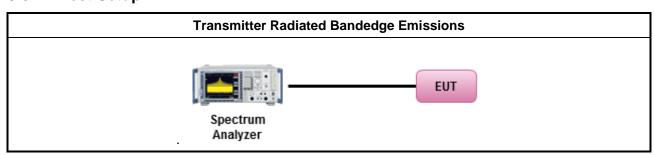
Reference level measurement

- 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

- 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

3.6.4 Test Setup



3.6.5 Test Result of Emissions in non-restricted frequency bands

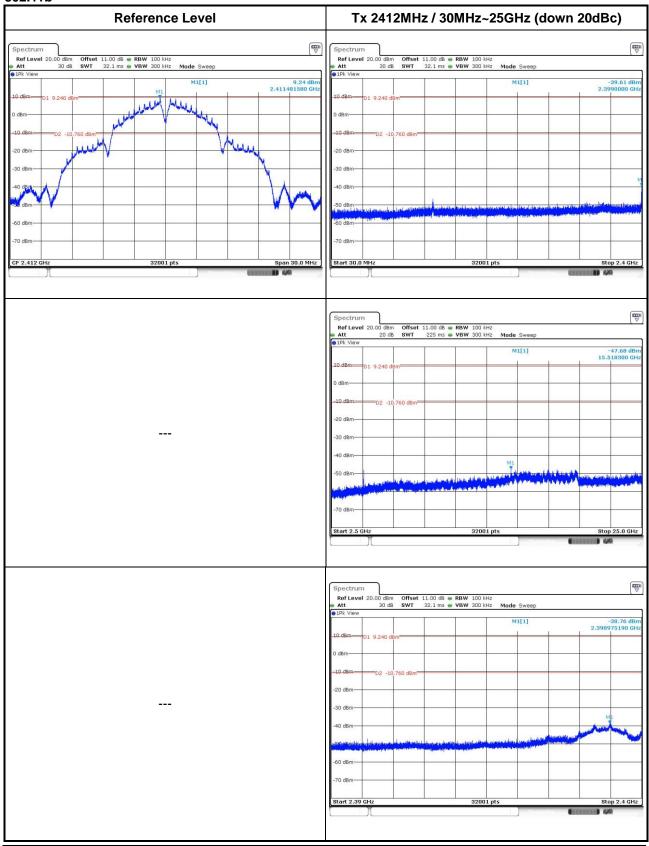
This test item is performed on each TX output individually without summing or adding 10 $log(N_{ANT})$ since measurements are made relative to the in-band emissions on the individual outputs. Only worst test result of each operating mode is presented.

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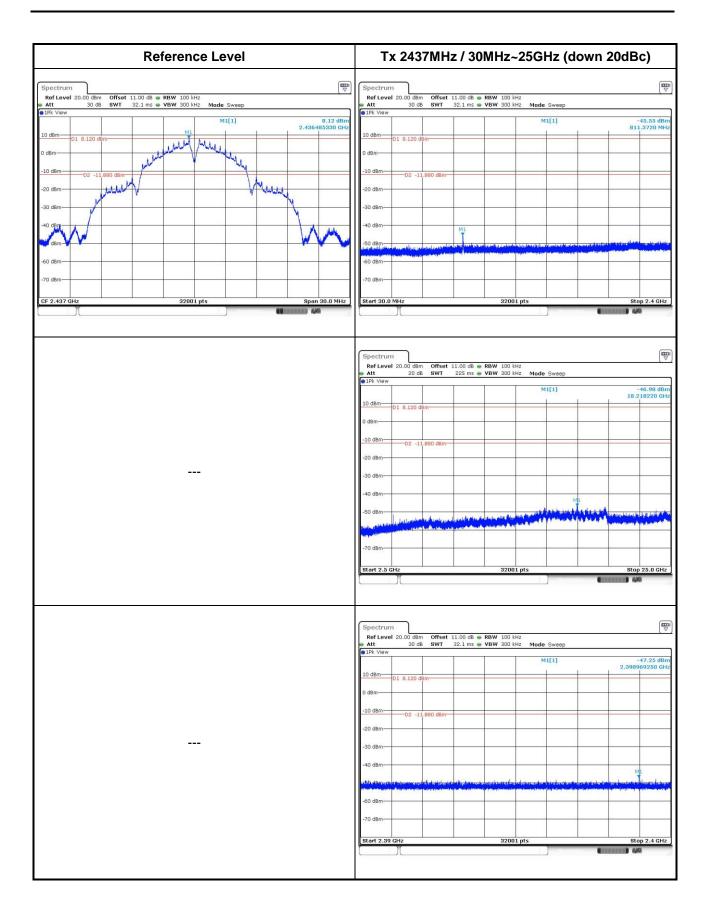
3.6.6 Unwanted Emissions into Non-Restricted Frequency Bands

802.11b



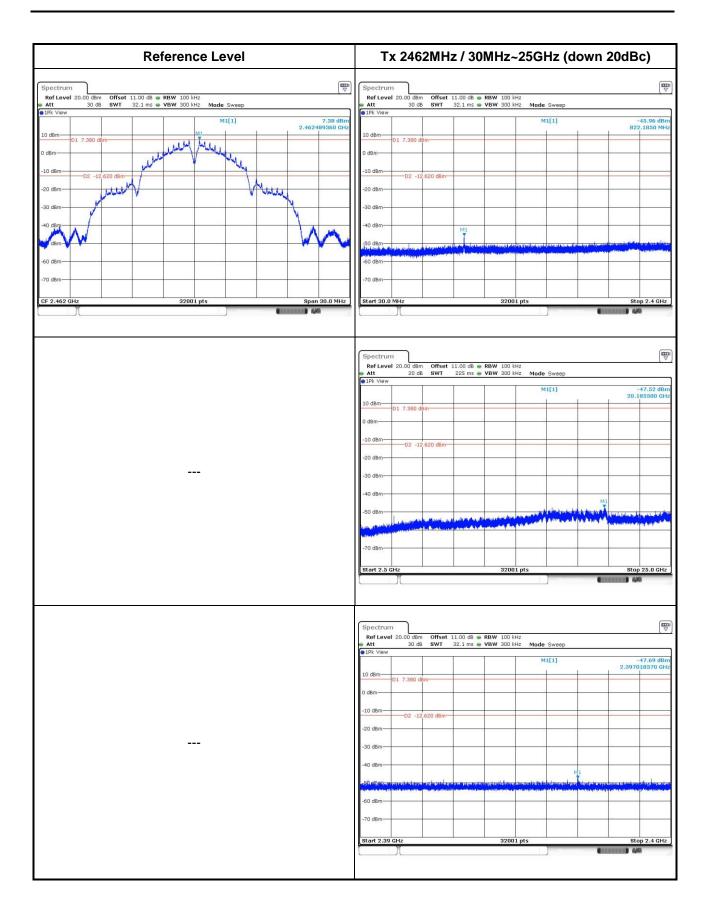
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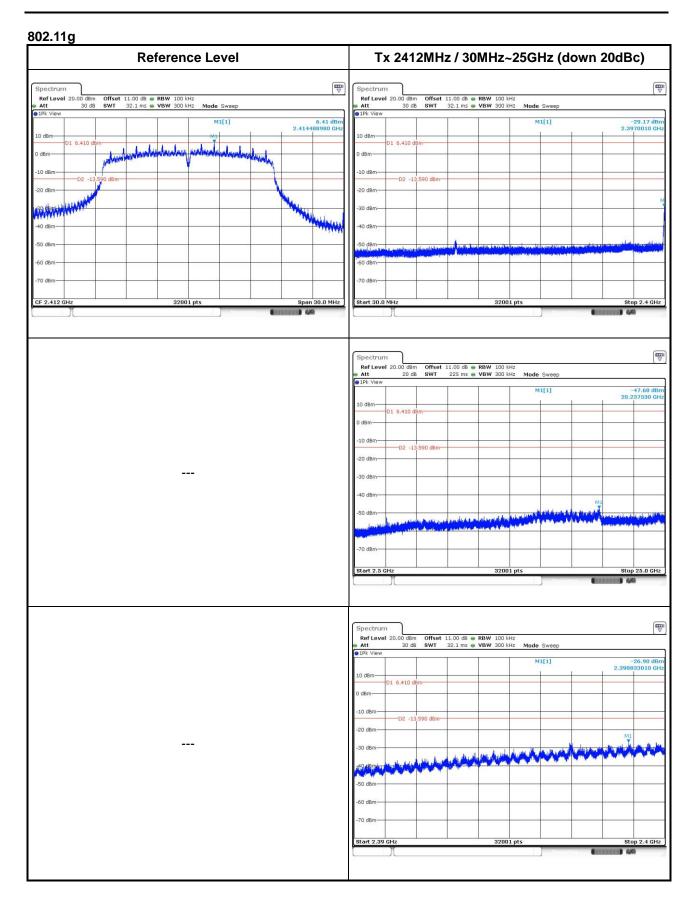
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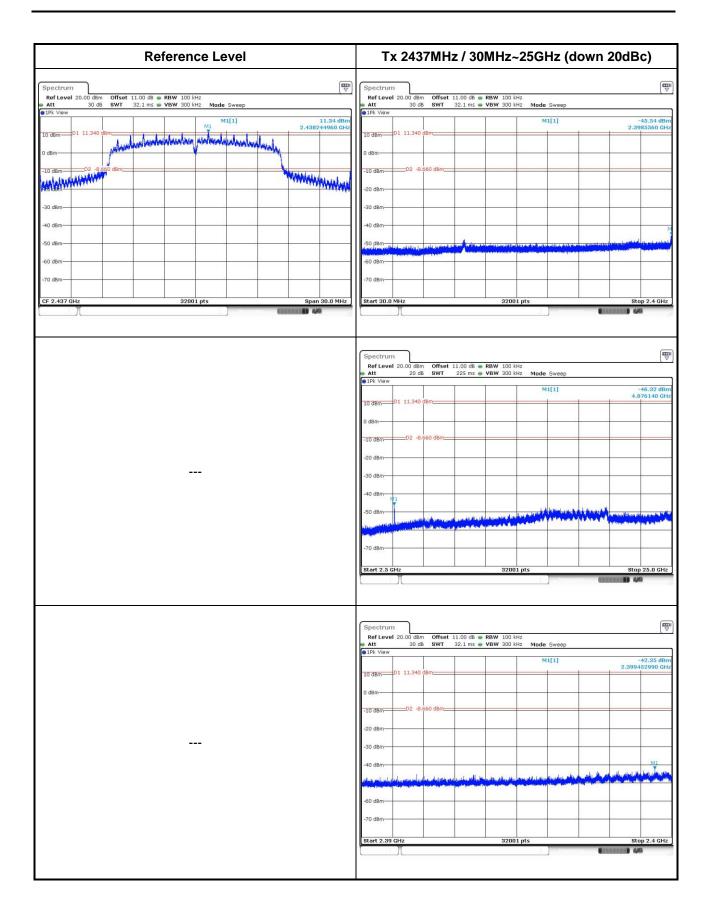
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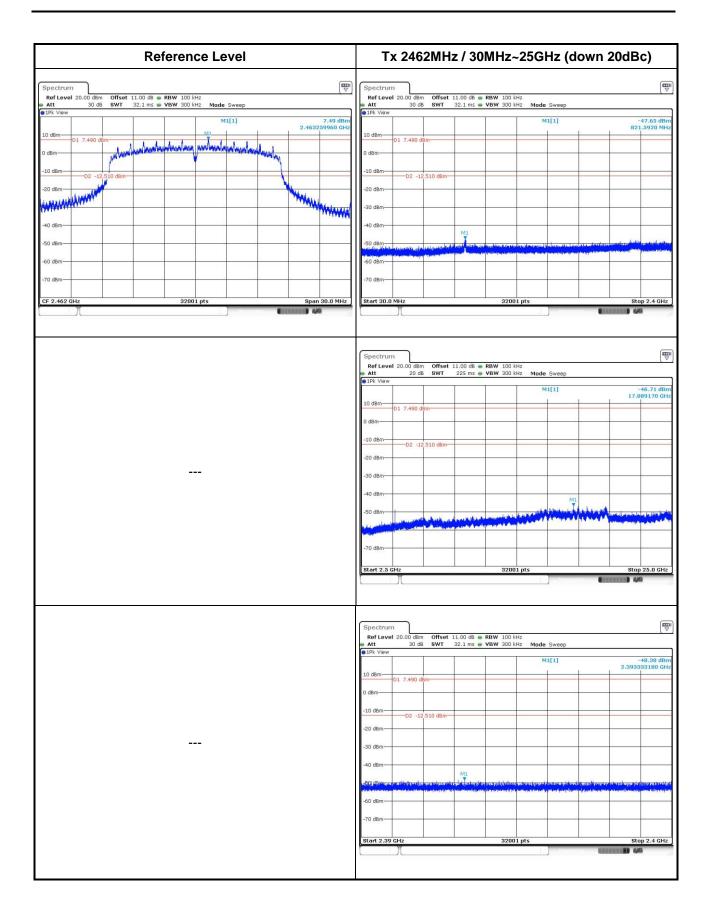
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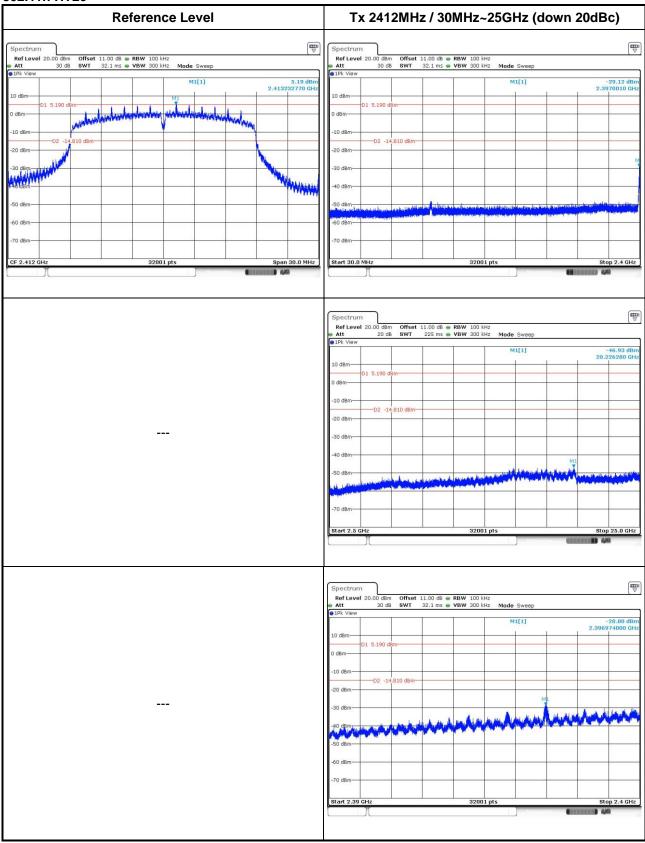




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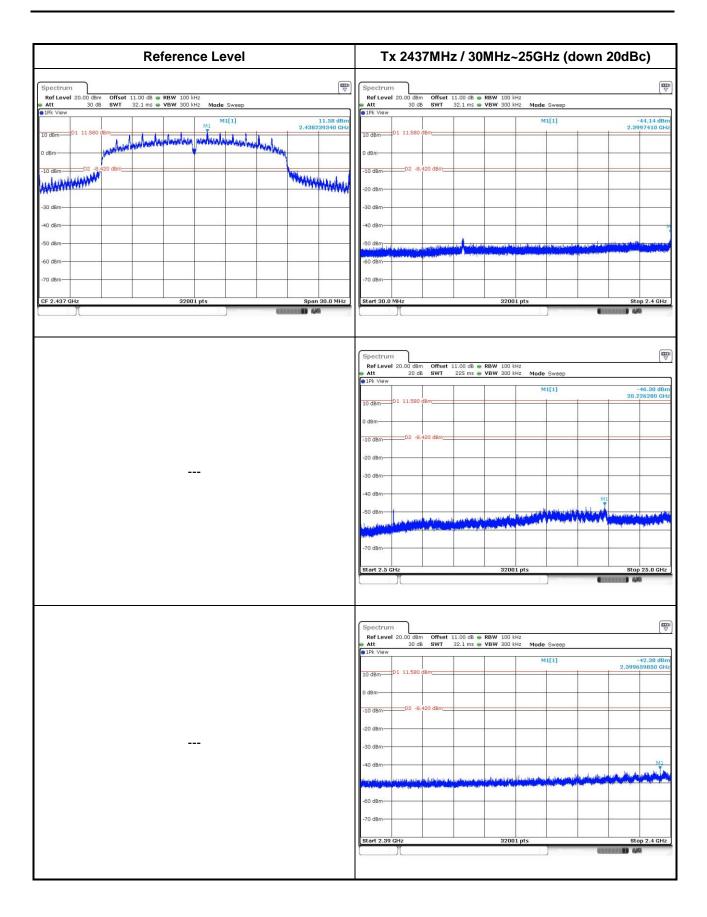


802.11n HT20



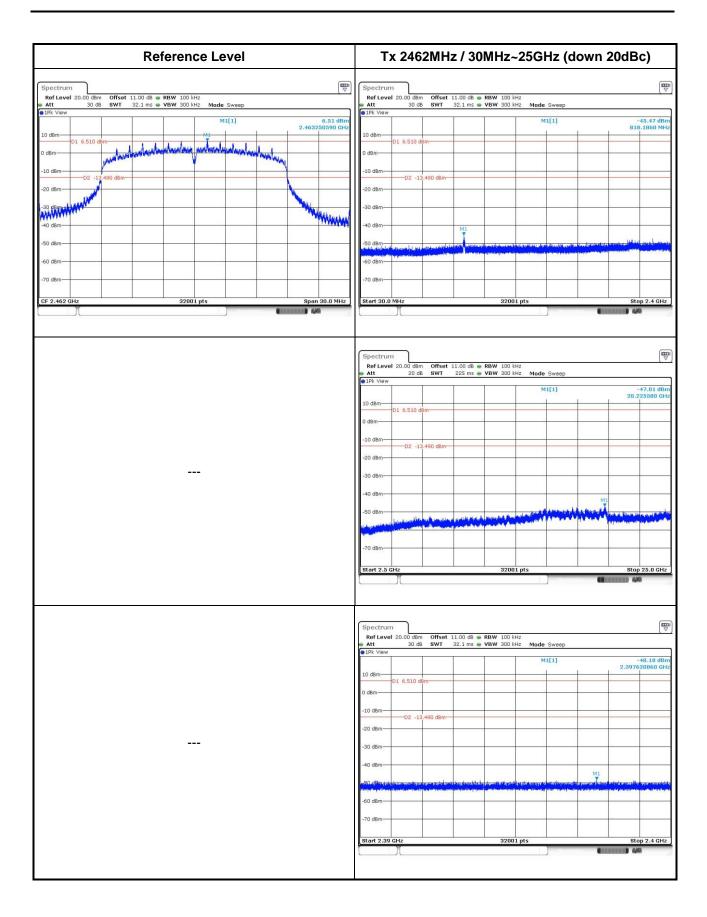
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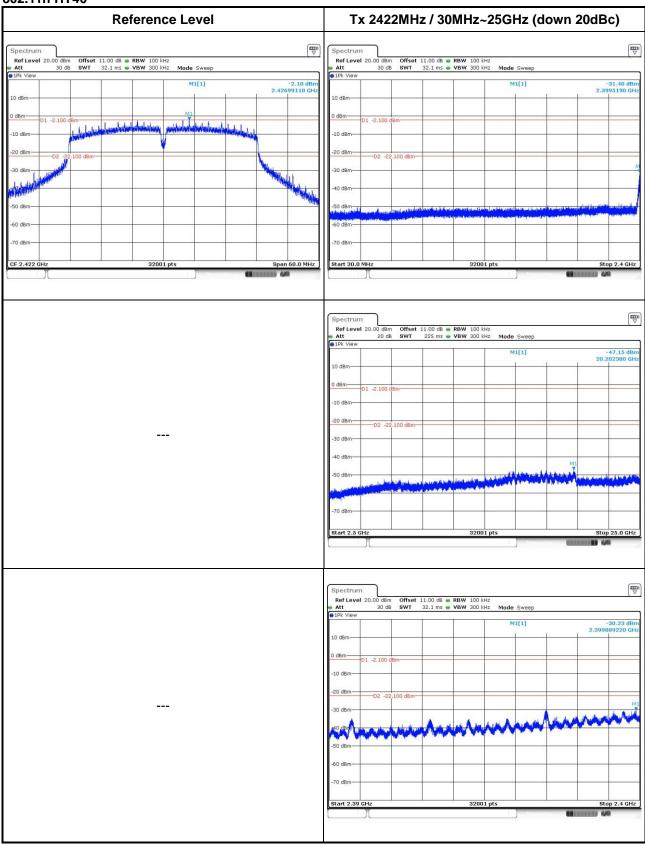




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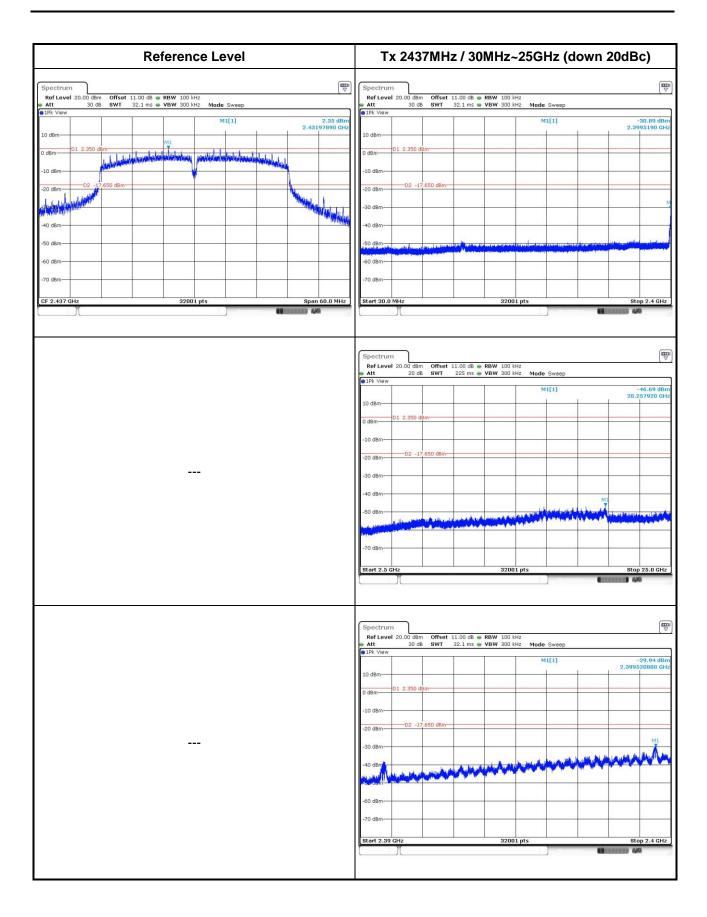


802.11n HT40



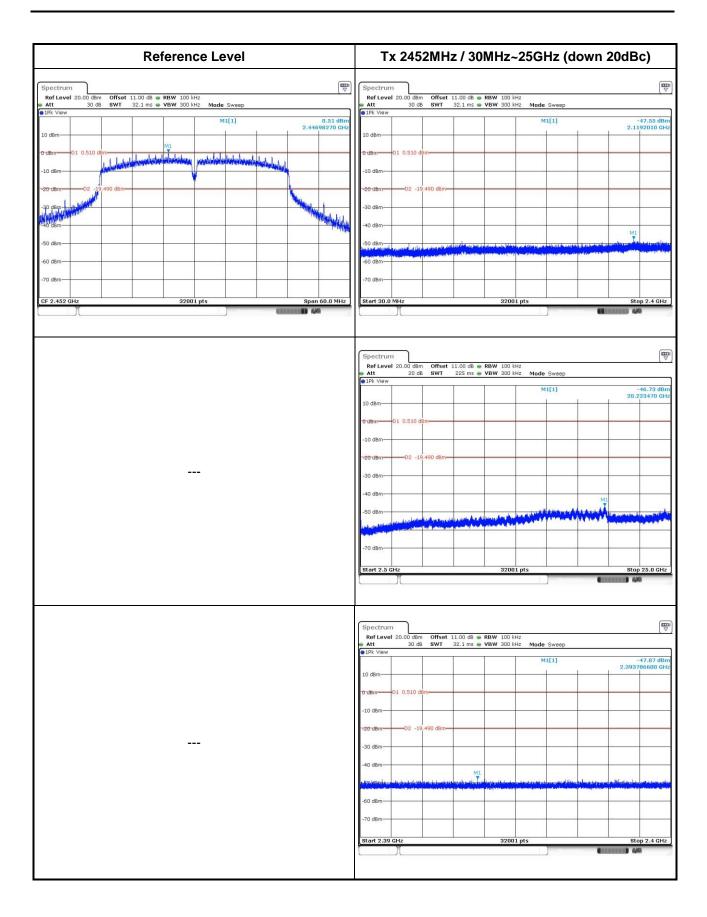
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4 Test laboratory information

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, 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 Hsiang. 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 Hsiang, Tao Yuan Hsien 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 Hsiang, Tao Yuan Hsien 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

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