

# **FCC C2PC Test Report**

FCC ID : NKR-DNUA134

Equipment : 802.11n a/b/g USB dongle

Model No. : DNUA-134

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 : Aug. 02, 2013

Tested Date : Dec. 08 ~ Dec. 10, 2013

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

Iac-MRA



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## **Release Record**

Report No.	Version	Description	Issued Date
FR380201-02AC	Rev. 01	Initial issue	Jan. 20, 2014

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## **Summary of Test Results**

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.156MHz 45.92 (Margin -9.77dB) - AV	Pass
15.247(d) 15.209	Radiated Emissions	[dBuV/m at 3m]: 2483.50MHz 72.72 (Margin -1.28dB) - PK	Pass

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## 1 General Description

### 1.1 Information

This report is prepared for FCC class II permissive change. No hardware and software is change for the device. The difference compared with original design is adding plastics housing to change type from modular to non-modular then also modifying product name for the type change. In this report, conducted emission and radiated emission tests had been re-tested and only its data was recorded in the following sections.

### 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 <sub>TX</sub> )	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	Printed	1.7	U.FL	
2	Printed	1.39	U.FL	

#### 1.1.3 EUT Operational Condition

Power Supply Type	5Vdc from Host
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#### 1.1.4 Accessories

N/A

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## 1.1.5 Channel List

Frequenc	y 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	ART2-GUI V2.3					
	Mode	Duty cycle (%)	Duty factor (dB)			
	11b	100.00%	0.00			
Duty Cycle and Duty Factor	11g	98.26%	0.08			
	HT20	98.14%	0.08			
	HT40	95.00%	0.22			

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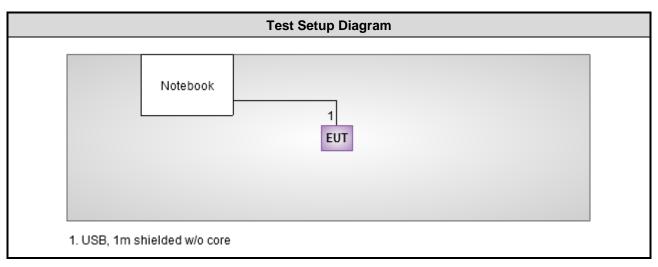
## 1.1.7 Power Setting

Modulation Mode	Test Frequency (MHz)	Power Set
11b	2412	13
11b	2437	17.5
11b	2462	14
11g	2412	7.5
11g	2437	14
11g	2462	7
HT20	2412	6.5
HT20	2437	14
HT20	2462	7
HT40	2422	6
HT40	2437	9
HT40	2452	7

## 1.2 Local Support Equipment List

	Support Equipment List								
No.	Equipment	Brand	Model	S/N	FCC ID	Signal cable / Length (m)			
1	Notebook	DELL	E6430		DoC	USB 1m shielded cable w/o core.			

## 1.3 Test Setup Chart



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## 1.4 The Equipment List

Test Item	Radiated Emission							
Test Site	966 chamber 2 / (03CH02-WS)							
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until			
Spectrum Analyzer	R&S	FSV40	101499	Jan. 28, 2013	Jan. 27, 2014			
Receiver	R&S	ESR3	101657	Jan. 30,2013	Jan. 29, 2014			
Bilog Antenna	ScHwarzbeck	VULB9168	VULB9168-524	Jan. 11, 2013	Jan. 10, 2014			
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120D	BBHA 9120 D 1095	Jan. 29, 2013	Jan. 28,2014			
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Jan. 14, 2013	Jan. 13, 2014			
Amplifier	Burgeon	BPA-530	100218	Dec. 09, 2013	Dec. 08, 2014			
Amplifier	Agilent	83017A	MY39501309	Dec. 09, 2013	Dec. 08, 2014			
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16140/4	Dec. 25, 2012	Dec. 24, 2013			
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16018/4	Dec. 25, 2012	Dec. 24, 2013			
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16015/4	Dec. 25, 2012	Dec. 24, 2013			
RF Cable-R03m	Woken	CFD400NL-LW	CFD400NL-003	Dec. 25, 2012	Dec. 24, 2013			
RF Cable-R10m	Woken	CFD400NL-LW	CFD400NL-004	Dec. 25, 2012	Dec. 24, 2013			
control	EM Electronics	EM1000	060608	N/A	N/A			

Loop Antenna	R&S	HFH2-Z2	100330	Nov. 15, 2012	Nov. 14, 2014	
Amplifier	EM	EM18G40G	060572	Jun. 20, 2013	Jun. 19, 2015	
Note: Calibration Interval of instruments listed above is two year.						

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nufacturer R&S WARZBECK ELEKTRONIK WARZBECK ELEKTRONIK TESEQ TESEQ	Model No. ESCS 30 Schwarzbeck 8127 Schwarzbeck 8127 ISN T800 ISN T200A	Serial No. 100169 8127-667 8127-666 34406	Calibration Date Oct. 15, 2013 Nov. 23, 2013 Dec. 04, 2013 Apr. 08, 2013	Calibration Until Oct. 14, 2014 Nov. 22, 2014 Dec. 03, 2014 Apr. 07, 2014
R&S WARZBECK ELEKTRONIK WARZBECK ELEKTRONIK TESEQ	ESCS 30 Schwarzbeck 8127 Schwarzbeck 8127 ISN T800	100169 8127-667 8127-666	Oct. 15, 2013  Nov. 23, 2013  Dec. 04, 2013	Oct. 14, 2014  Nov. 22, 2014  Dec. 03, 2014
WARZBECK ELEKTRONIK WARZBECK ELEKTRONIK TESEQ	Schwarzbeck 8127 Schwarzbeck 8127 ISN T800	8127-667 8127-666	Nov. 23, 2013  Dec. 04, 2013	Nov. 22, 2014  Dec. 03, 2014
ELEKTRONIK WARZBECK ELEKTRONIK TESEQ	Schwarzbeck 8127 ISN T800	8127-666	Dec. 04, 2013	Dec. 03, 2014
ELEKTRONIK TESEQ	ISN T800		,	,
		34406	Apr. 08, 2013	Apr. 07, 2014
TESEQ	ISNI T200A			
	1311 1200A	30494	Apr. 09, 2013	Apr. 08, 2014
TESEQ	ISN ST08	22589	Jan. 24, 2013	Jan. 23, 2014
FCC	F-33-4	121630	Nov. 29, 2013	Nov, 28, 2014
Woken	CFD200-NL	CFD200-NL-001	Apr. 24, 2013	Apr. 23, 2014
R&S	ESH3-Z6	100920	Nov. 29, 2013	Nov. 28, 2014
R&S	ESH3-Z6	100951	Jan. 30, 2013	Jan. 29, 2014
R&S	ENV216	101579	Jan. 07, 2013	Jan. 06, 2014
NA	50	01	Apr. 22, 2013	Apr. 21, 2014
NA	50	02	Apr. 22, 2013	Apr. 21, 2014
NA	50	03	Apr. 22, 2013	Apr. 21, 2014
NA	50	04	Apr. 22, 2013	Apr. 21, 2014
`	FCC Woken R&S R&S R&S NA NA NA	FCC F-33-4  Woken CFD200-NL  R&S ESH3-Z6  R&S ESH3-Z6  R&S ENV216  NA 50  NA 50  NA 50	FCC         F-33-4         121630           Woken         CFD200-NL         CFD200-NL-001           R&S         ESH3-Z6         100920           R&S         ESH3-Z6         100951           R&S         ENV216         101579           NA         50         01           NA         50         02           NA         50         03           NA         50         04	FCC         F-33-4         121630         Nov. 29, 2013           Woken         CFD200-NL         CFD200-NL-001         Apr. 24, 2013           R&S         ESH3-Z6         100920         Nov. 29, 2013           R&S         ESH3-Z6         100951         Jan. 30, 2013           R&S         ENV216         101579         Jan. 07, 2013           NA         50         01         Apr. 22, 2013           NA         50         02         Apr. 22, 2013           NA         50         03         Apr. 22, 2013           NA         50         04         Apr. 22, 2013

### 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 v03r01

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

Note: The EUT has been tested and complied with FCC part 15B requirement. FCC Part 15B test results are issued to another report.

## 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
AC conducted emission	±2.43 dB
Radiated emission	±2.49 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 / 61%	Skys Huang
Radiated Emissions	03CH02-WS	20°C / 64%	Anderson Hong

FCC site registration No.: 657002IC site registration No.: 10807A-2

### 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	
Radiated Emissions ≤1GHz	11g	2437	6 Mbps	
	11b 2412 / 2437 / 2462 1 Mbps			
Radiated Emissions >1GHz	11g	2412 / 2437 / 2462	6 Mbps	
Tradiated Emissions > TOTIZ	HT20	2412 / 2437 / 2462	MCS 0	
	HT40	2422 / 2437 / 2452	MCS 0	

#### NOTE:

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



## 3 Transmitter Test Results

#### 3.1 Conducted Emissions

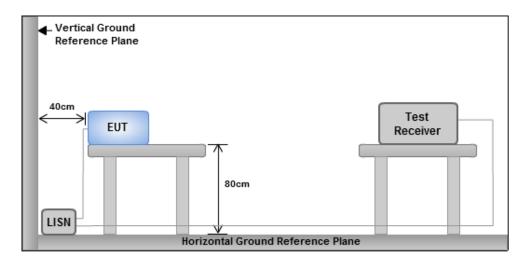
#### 3.1.1 Limit of Conducted Emissions

	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 logarith	m 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



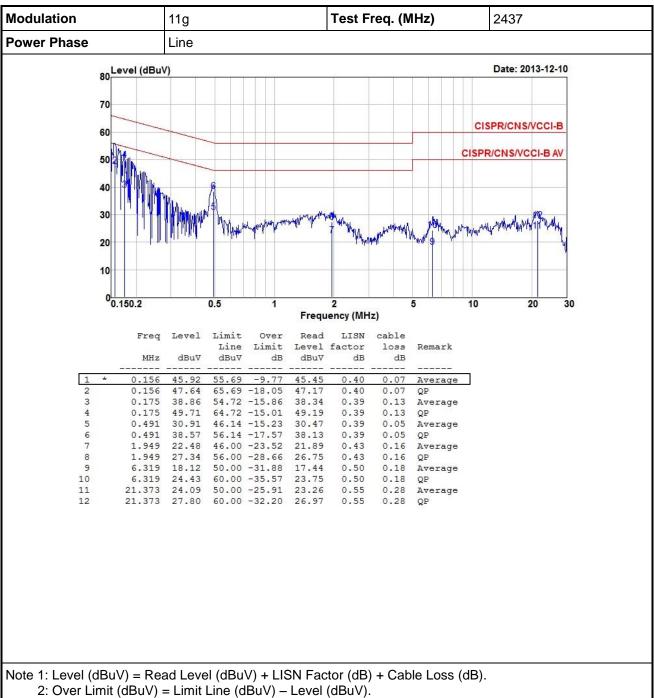
Note: 1. Support units were connected to second LISN.

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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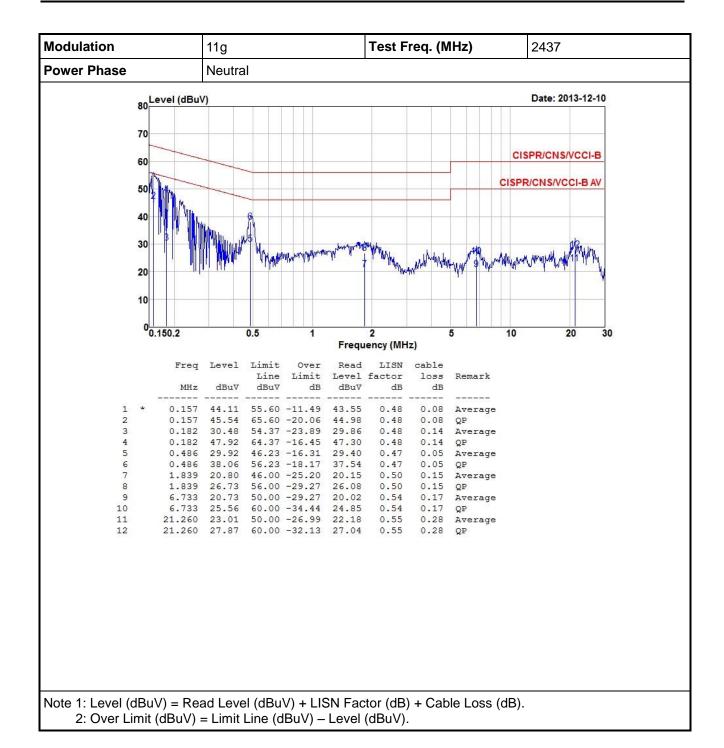


#### **Test Result of Conducted Emissions** 3.1.4



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### 3.2 Unwanted Emissions into Restricted Frequency Bands

#### 3.2.1 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.

#### 3.2.2 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.

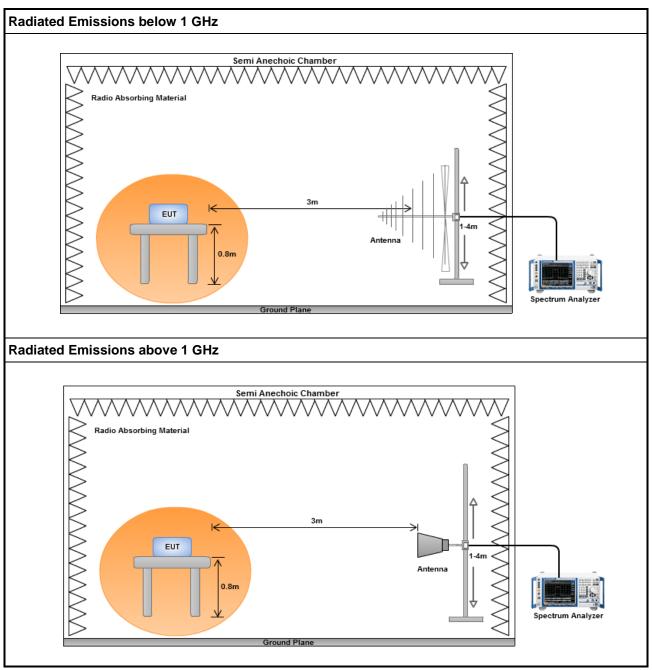
#### Note:

- 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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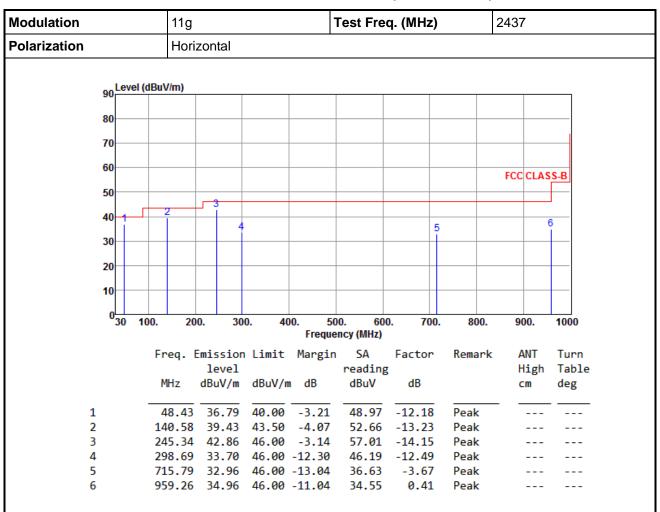
## 3.2.3 Test Setup



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



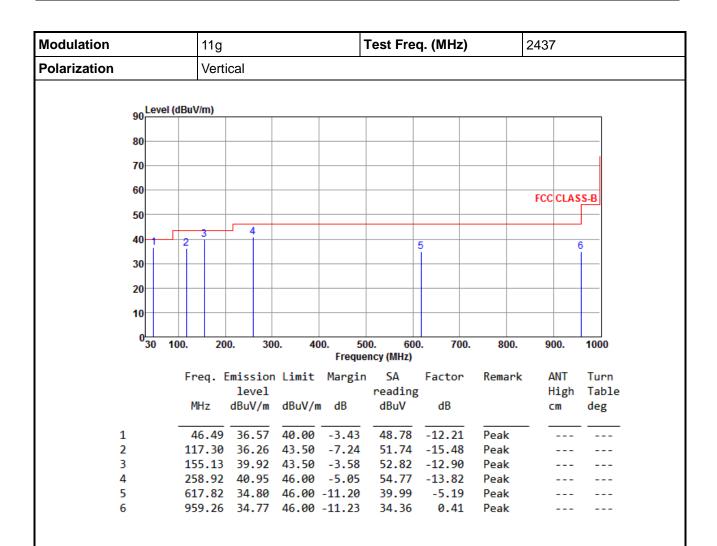
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor, cable loss and amplifier gain

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

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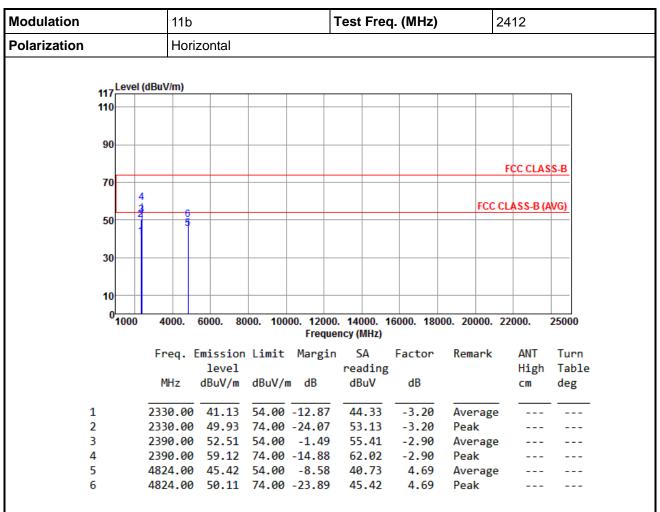
\*Factor includes antenna factor, cable loss and amplifier gain

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

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



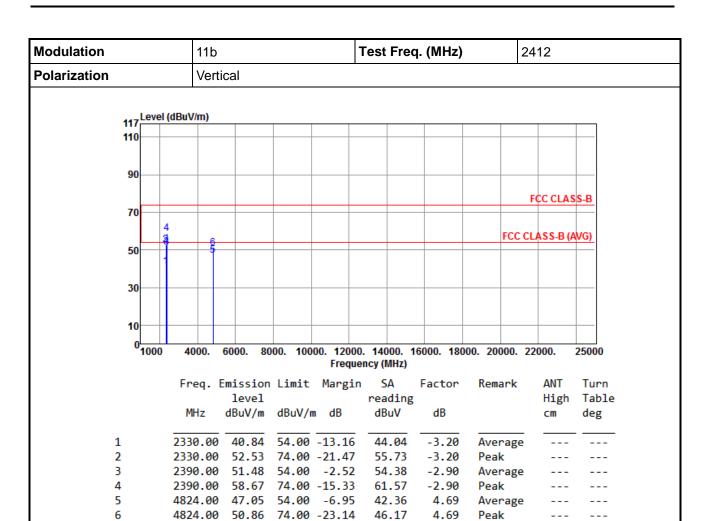
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor, cable loss and amplifier gain

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

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\*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	2437			
Polarization		Hoi	rizontal		<b>'</b>			1		
4	117 Level (dBuV/m)									
	10									
!	90									
	70								FCC CLAS	S-B
		2 4	6					FCC	CLASS-B (A	(VG)
!	50	1 3								
;	30									
	10									
	0 1000	0 4000.	6000. 80	000. 100		. 14000. 1 ncy (MHz)	16000. 180	00. 20000.	22000.	<b>25000</b>
		Freq.	Emission	Limit	_	SA	Factor	Remark	ANT	Turn
		MHz	level dBuV/m	dBuV/n	ı dB	reading dBuV	dB		High cm	Table deg
1			44.79			47.86	-3.07	Average		
2		2356.00 4874.00	51.86 46.75		-22.14 -7.25	54.93 41.98	-3.07 4.77	Peak Average		
4		4874.00	51.03	74.00	-22.97	46.26	4.77	Peak		

9.57

9.57

Average

Peak

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

7311.00 48.88 54.00 -5.12 39.31

7311.00 54.79 74.00 -19.21 45.22

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

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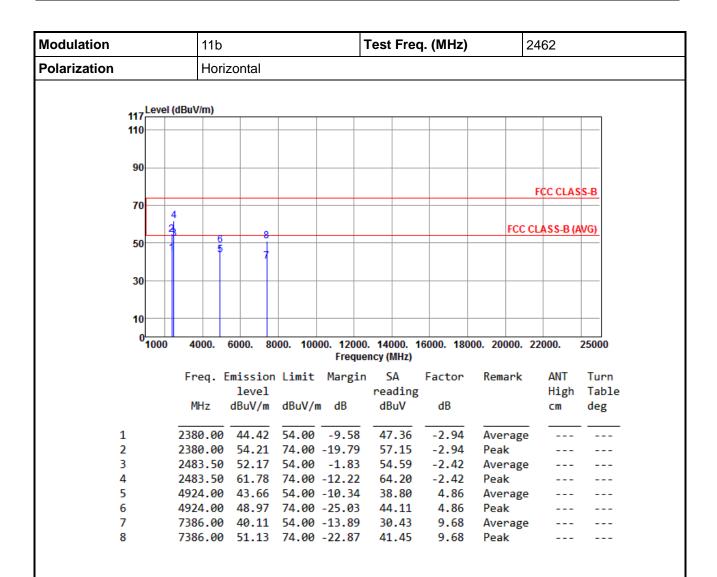
Modulation	11b <b>Test Freq. (MHz)</b> 2437							
Polarization	Vertical							
117 Level (c	dBuV/m)							
110								
90								
				Fee	CLASS-B			
70				rcc	CLA33-D			
	6			FCC CLAS	S B (AVG)			
50 1	4 - 5			FCC CLAS	3-B (AVO)			
- 1								
30								
10								
.0								
1000	4000. 6000.		. 14000. 16000. 180 ncy (MHz)	000. 20000. 2200	0. 25000			
	Frea. Emissic	on Limit Margin		Remark A	ANT Turn			
	level		reading		ligh Table			
	MHz dBuV/n	n dBuV/m dB	dBuV dB	C	m deg			
1	2356.00 42.86	54.00 -11.14	45.93 -3.07	Average				
2	2356.00 50.94		54.01 -3.07	Peak				
	4874.00 47.23		42.46 4.77	_				
		3 74.00 -22.67	46.56 4.77					
		54.00 -1.60 5 74.00 -16.25	42.83 9.57 48.18 9.57	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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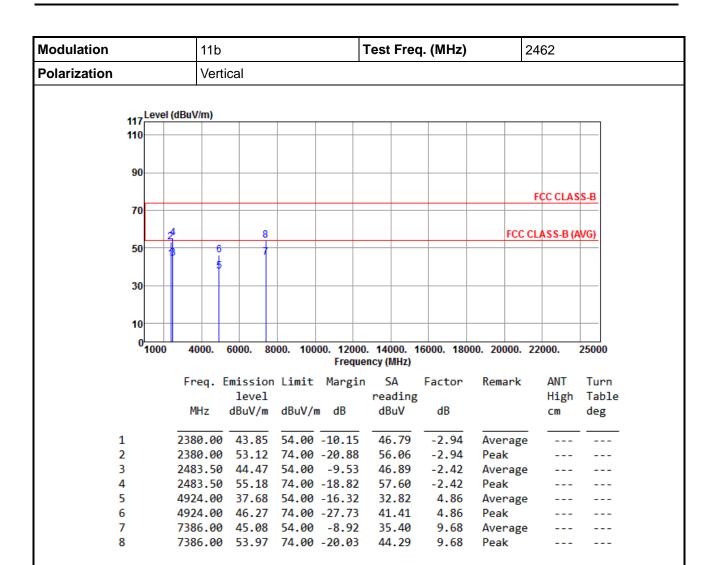


\*Factor includes antenna factor, cable loss and amplifier gain

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

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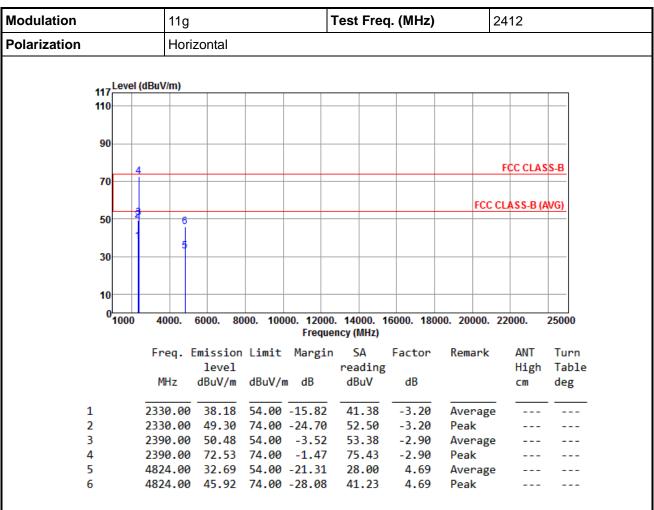
\*Factor includes antenna factor , cable loss and amplifier gain

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

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



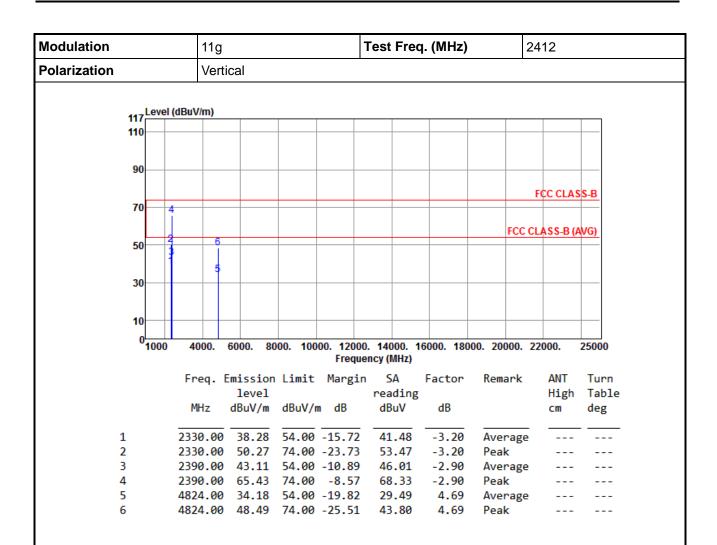
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor, cable loss and amplifier gain

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

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\*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			7	Test Fred	q. (MHz)	2	437	
Polarization		Hori	zontal		•			•		
1	17 Level	(dBuV/m)								
	10									-
9	90									
									FCC CLAS	e D
7	70	4							TCC CLAS	3-D
			8					FCC C		100
	50	6						FCCC	LASS-B (A	WG)
•		1   i	1 7							
	30	5								
•	30									
•	10									
	1000	4000.	6000. 80	00. 100			6000. 180	00. 20000. 2	22000.	25000
					Freque	ncy (MHz)				
		Freq. [		Limit	Margin		Factor	Remark	ANT	Turn
		MU-	level	4D. M/-		reading			High	Table
		MHz	dBuV/m	abuv/n	ı ab	dBuV	dB		cm	deg
1		2390.00	43.08	54.00	-10.92	45.98	-2.90	Average		
2		2390.00			-5.11	71.79	-2.90	Peak		
3		2483.50				52.95	-2.42	Average		
		0403 50	70 67	74 00	4	75 00		D 1		

75.09

29.36

42.11

-2.42

4.77

4.77

9.57

9.57

Peak

Peak

Peak

Average

Average

---

---

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

\*Factor includes antenna factor , cable loss and amplifier gain

2483.50 72.67 74.00 -1.33 4874.00 34.13 54.00 -19.87

4874.00 46.88 74.00 -27.12

7311.00 42.00 54.00 -12.00 32.43

7311.00 56.76 74.00 -17.24 47.19

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

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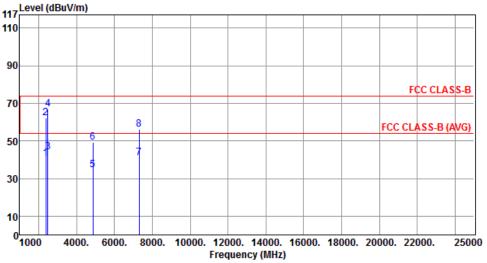
6

7

8



Modulation	11g	Те	st Freq.	(MHz)	24	37		
Polarization	Vertical							
117 Level (dBu\	//m)							
110							-	

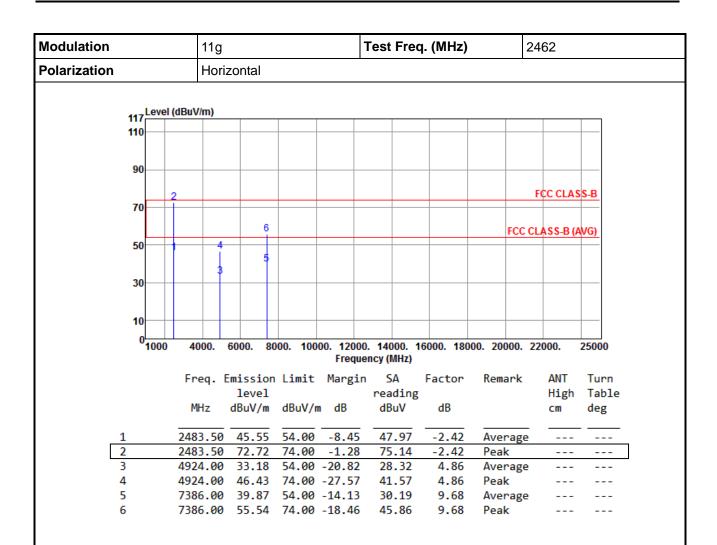


	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg
1	2390.00	40.43	54.00	-13.57	43.33	-2.90	Average		
2	2390.00	62.18	74.00	-11.82	65.08	-2.90	Peak		
3	2483.50	44.08	54.00	-9.92	46.50	-2.42	Average		
4	2483.50	67.10	74.00	-6.90	69.52	-2.42	Peak		
5	4874.00	34.75	54.00	-19.25	29.98	4.77	Average		
6	4874.00	49.16	74.00	-24.84	44.39	4.77	Peak		
7	7311.00	41.18	54.00	-12.82	31.61	9.57	Average		
8	7311.00	56.27	74.00	-17.73	46.70	9.57	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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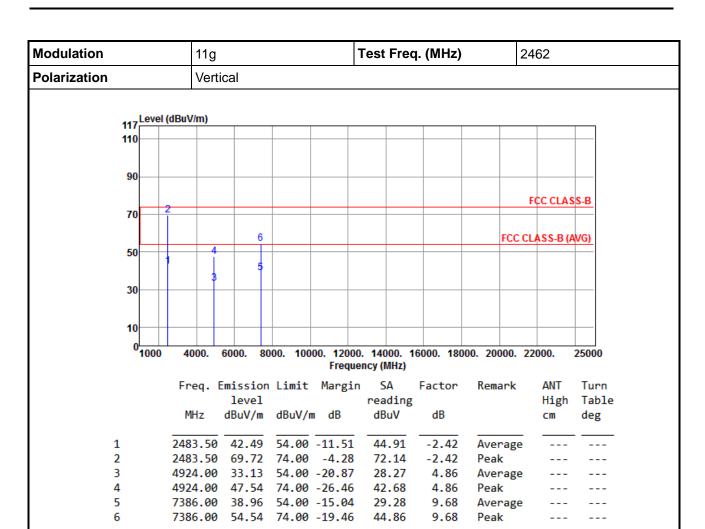


\*Factor includes antenna factor, cable loss and amplifier gain

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

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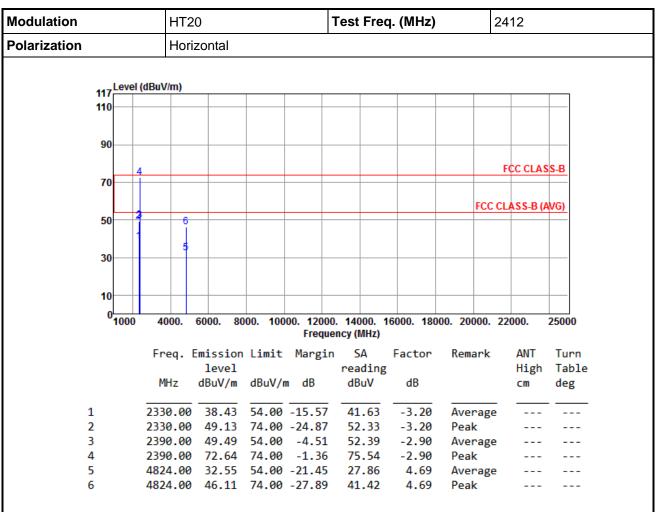
\*Factor includes antenna factor, cable loss and amplifier gain

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

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#### 3.2.7 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	HT2	.0		-	Test Fred	q. (MHz)		2412	
Polarization	Vert	ical					<u>.</u>		
117 Level (dBuV/m)									
117 110									
90									
								FCC CLAS	S-B
70	4						FCC	CLASS D /A	1(0)
50	3 6						FCC	CLASS-B (A	(VG)
30	5								
40									
10 0	0 4000.	6000. 80	00. 100	00 12000	14000 1	16000 1800	00. 20000.	22000	25000
100	4000.	0000. 00	. 100		ncy (MHz)	10000. 1000	20000.	22000.	23000
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/ı	m dB	dBuV	dB		CM	deg
1	2330.00			-16.45	40.75	-3.20	Average		
2 3		49.43 42.84			52.63 45.74	-3.20 -2.90	Peak Average		
4		65.03			67.93	-2.90	Peak		

4.69

4.69

Average

Peak

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

4824.00 33.74 54.00 -20.26 29.05

4824.00 47.64 74.00 -26.36 42.95

\*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 Fred	q. (MHz)	2437				
Polarization			Hoi	Horizontal							
	117 <sup>L</sup>	evel (	dBuV/m)								
	110	_									
	90										
	70	4								FCC CLAS	S-B
	"	- 11		8	,						
			R 6	- '	<u> </u>				FCC	CLASS-B (A	(VG)
	50	1	Î	7	,						
			5								
	30										
	10										
	01	000	4000.	6000.	8000. 10	000. 12000	). 14000. 1	16000. 180	00. 20000.	22000.	25000
							ency (MHz)				
			Freq.	Emissi	on Limit	Margin	SA	Factor	Remark	ANT	Turn
				leve!			reading			High	Table
			MHz	dBuV/r	n dBuV/	m dB	dBuV	dB		cm	deg
1			2390.00	1/1 5	5/ 00	-9.48	47.42	-2.90	Average		
2			2390.00				68.90	-2.90	Peak		
3			2483.56				50.25	-2.42	Average		
4			2483.50	72.58	74.00	-1.42	75.00	-2.42	Peak		
5	5		4874.00	33.9	54.00	-20.05	29.18	4.77	Average		

4.77

9.57

9.57

Average

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Peak

Peak

4874.00 33.95 54.00 -20.05 29.18 4874.00 46.54 74.00 -27.46 41.77 7311.00 41.97 54.00 -12.03 32.40

7311.00 56.72 74.00 -17.28 47.15

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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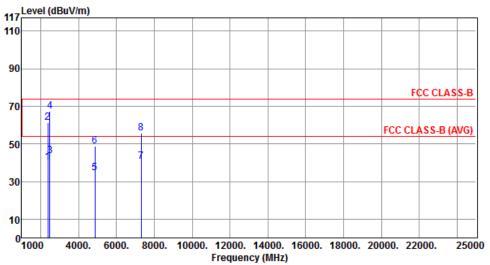
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Modulation	HT20	Test Freq. (MHz)	2437
Polarization	Vertical		
117 Level (	(dBuV/m)		

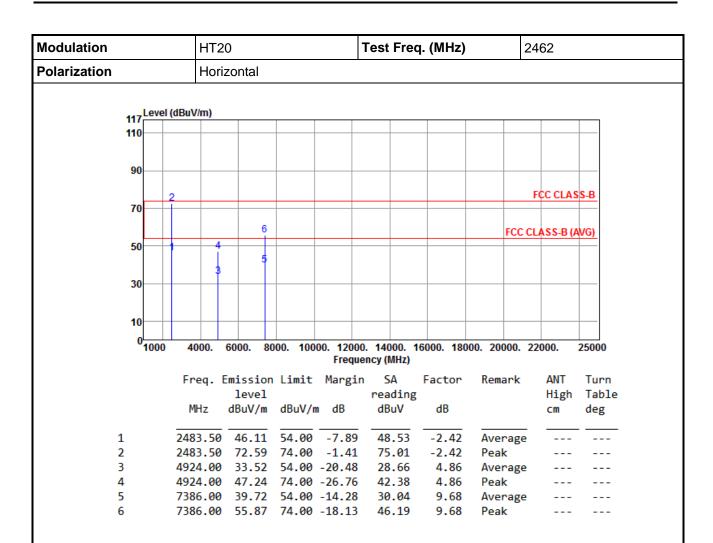


	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg
1	2390.00	39.94	54.00	-14.06	42.84	-2.90	Average		
2	2390.00	61.19	74.00	-12.81	64.09	-2.90	Peak		
3	2483.50	43.43	54.00	-10.57	45.85	-2.42	Average		
4	2483.50	67.28	74.00	-6.72	69.70	-2.42	Peak		
5	4874.00	34.61	54.00	-19.39	29.84	4.77	Average		
6	4874.00	48.82	74.00	-25.18	44.05	4.77	Peak		
7	7311.00	40.68	54.00	-13.32	31.11	9.57	Average		
8	7311.00	55.79	74.00	-18.21	46.22	9.57	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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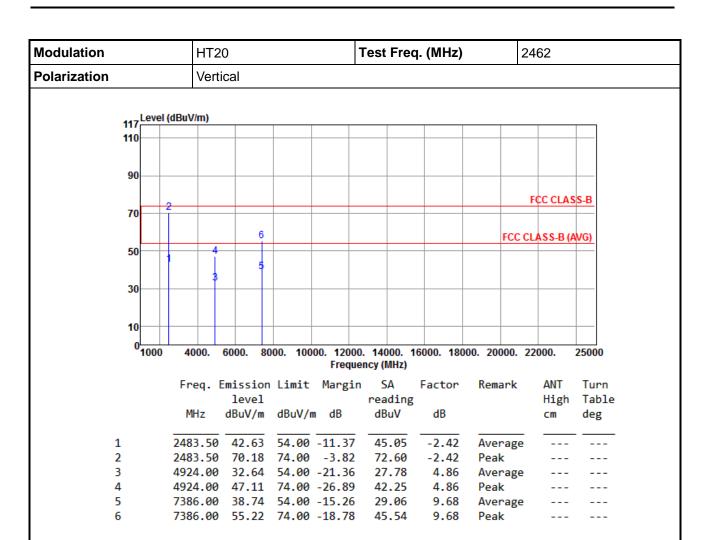


\*Factor includes antenna factor , cable loss and amplifier gain

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

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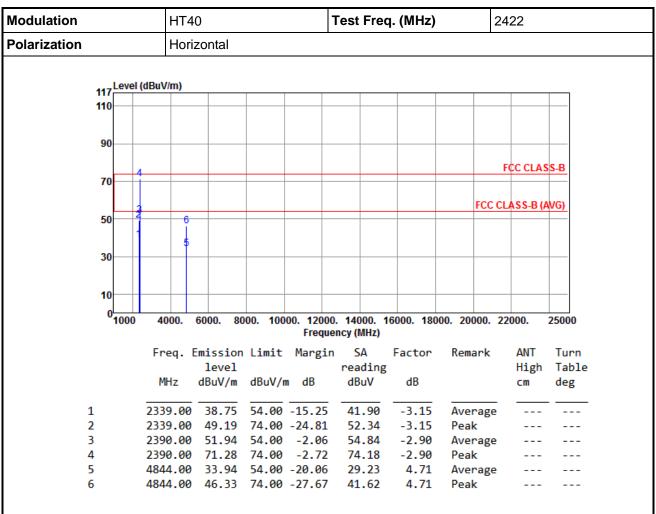
\*Factor includes antenna factor , cable loss and amplifier gain

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

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



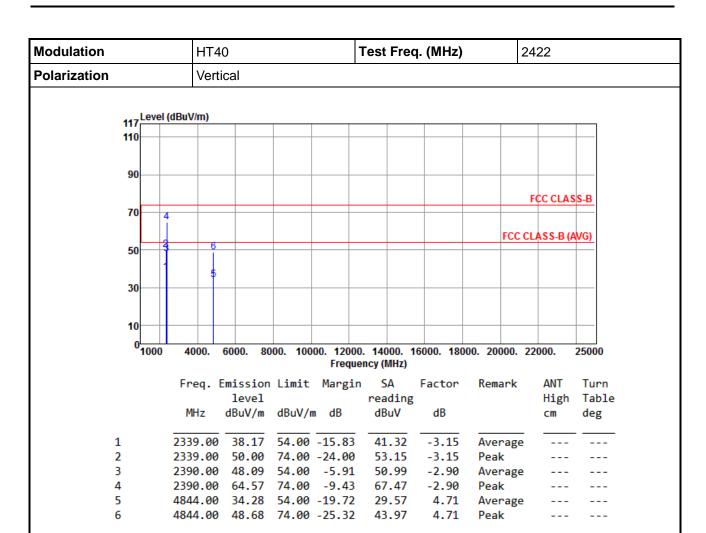
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

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

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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	Horizontal							
117 Level (dBi	uV/m)							
110								
90			FCC CLASS-B					
70	8	FC	C CLASS-B (AVG)					
50	5							
30								
10 0 1000	4000. 6000. 8000. 10000. 1200	0. 14000. 16000. 18000. 20000.	. 22000. 25000					
1000		ency (MHz)	. 22000. 23000					
F	Freq. Emission Limit Margi level	n SA Factor Remark reading	c ANT Turn High Table					
	MHz dBuV/m dBuV/m dB	dBuV dB	cm deg					
	390.00 51.28 54.00 -2.72 390.00 71.08 74.00 -2.92		ge					
	483.50 52.27 54.00 -1.73		ge					

74.15

29.83

42.25

-2.42

4.77

4.77

9.57

9.57

Peak

Peak

Peak

Average

Average

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

2483.50 71.73 74.00 -2.27

4874.00 34.60 54.00 -19.40

4874.00 47.02 74.00 -26.98

7311.00 42.17 54.00 -11.83 32.60

7311.00 57.22 74.00 -16.78 47.65

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

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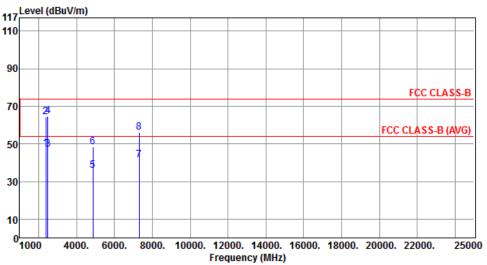
6

7

8



Modulation	HT40	Test Freq. (MHz)	2437
Polarization	Vertical		
117 Level (dBu	V/m)		

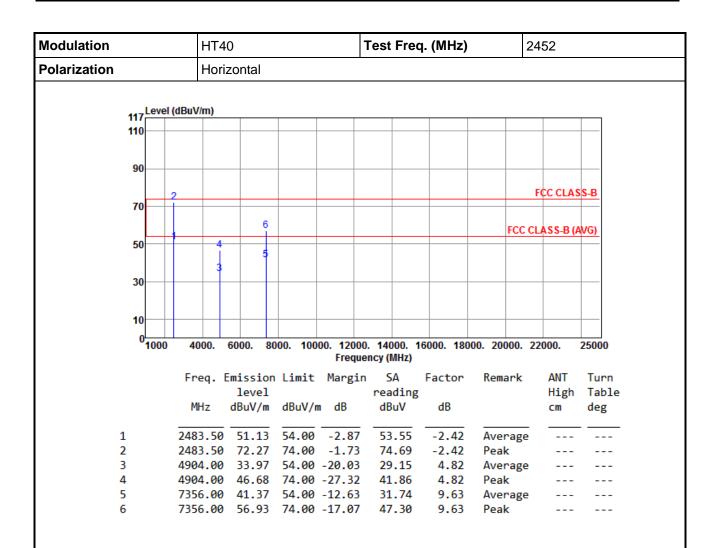


	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg
1	2390.00	47.43	54.00	-6.57	50.33	-2.90	Average		
2	2390.00	64.12	74.00	-9.88	67.02	-2.90	Peak		
3	2483.50	47.14	54.00	-6.86	49.56	-2.42	Average		
4	2483.50	64.72	74.00	-9.28	67.14	-2.42	Peak		
5	4874.00	35.66	54.00	-18.34	30.89	4.77	Average		
6	4874.00	48.29	74.00	-25.71	43.52	4.77	Peak		
7	7311.00	41.38	54.00	-12.62	31.81	9.57	Average		
8	7311.00	56.00	74.00	-18.00	46.43	9.57	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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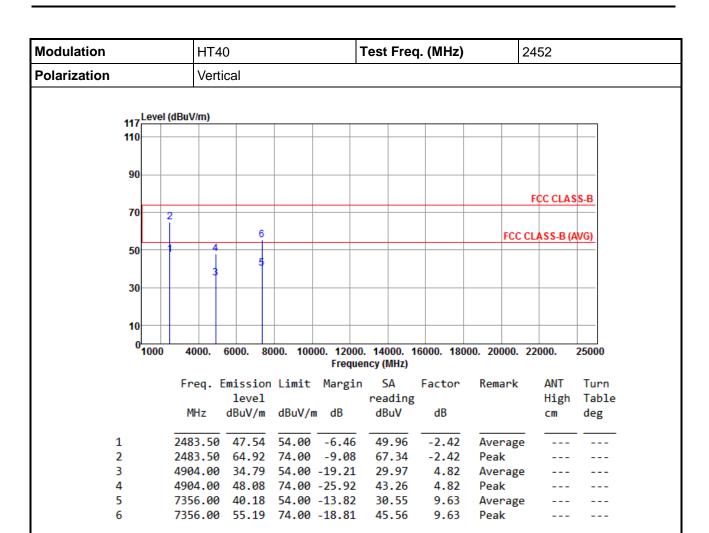


\*Factor includes antenna factor , cable loss and amplifier gain

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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## 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 <a href="http://www.icertifi.com.tw">http://www.icertifi.com.tw</a>.

Linkou Kwei Shan

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ipei No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsien 333, Taiwan, R.O.C.

Tel: 886-3-271-8666

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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