

FCC 47 CFR PART 15 SUBPART C: 2009 AND ANSI C63.4: 2003

TEST REPORT

For

11n USB Dongle

Model Number: WL307n

Brand: ETOP

Issued for

E-TOP NETWORK TECHNOLOGY INC.

No. 82, Gongye 2nd Rd., Tainan City 70955, Taiwan, R.O.C.

Issued by

Compliance Certification Services Inc. Tainan Lab. No. 8, Jiu Cheng Ling, Jiaokeng Village,Sinhua Township, Tainan Hsien 712, Taiwan R.O.C. TEL: 886-6-580-2201 FAX: 886-6-580-2202



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1. TEST REPORT CERTIFICATION

Applicant	: E-TOP NETWORK TECHNOLOGY INC.
Address	No. 82 ,Gongye 2nd Rd., Tainan City 70955, Taiwan, R.O.C.
Manufacture	: Amigo Technology Inc.
Address	: 5F., No. 63, Ln. 77, Xing' ai Rd., Neihu Dist., Taipei City 114, Taiwan.
Equipment Under Test	: 11n USB Dongle
Model Number	: WL307n
Brand Name	: ETOP
Date of Test	: December 01 ~ December 11, 2010

APPLICABLE STANDARD			
STANDARD	TEST RESULT		
FCC Part 15 Subpart C : 2009 AND ANSI C63.4 : 2003	No non-compliance noted		

Approved by:

Reviewed by:

er 54

Jeter Wu Assistant Manager

Eric Huang Assistant Section Manager



2. EUT DESCRIPTION

2.1 DESCRIPTION OF EUT & POWER

Product Name	11n USB Dongle
Model Number	WL307n
Brand	ETOP
Frequency Range	IEEE 802.11b/g, 802.11n HT20 (DTS Band):2412MHz~2462MHz IEEE 802.11n HT40 (DTS Band):2422MHz~2452MHz
Transmit Power	IEEE 802.11b Mode : 13.46dBm (DTS Band) (22.1820 mW) IEEE 802.11g Mode : 20.70dBm (DTS Band) (117.4898 mW) IEEE 802.11n HT20 Mode : 20.35dBm (DTS Band) (108.3927 mW) IEEE 802.11n HT40 Mode : 18.36dBm (DTS Band) (68.5488 mW)
Channel Spacing	IEEE 802.11b/g, 802.11n HT20/HT40: 5MHz
Channel Number	IEEE 802.11b/g, 802.11n HT20:11 Channels IEEE 802.11n HT40 :7 Channels
Transmit Data Rate	IEEE 802.11b :11, 5.5, 2, 1Mbps IEEE 802.11g : 54, 48, 36, 24, 18, 12, 9, 6Mbps IEEE 802.11n HT20 : 130, 117, 104, 78, 65, 58.5, 52, 39, 26, 19.5, 3, 6.5Mbps IEEE 802.11n HT40 : 300, 270, 243, 216, 162, 135, 121.5, 108, 81, 54, 40.5, 27, 13.5Mbps
	IEEE 802.11b : DSSS (CCK, DQPSK, DBPSK)
Type of Modulation	IEEE 802.11g : OFDM (64QAM, 16QAM, QPSK, BPSK)
	IEEE 802.11n HT20/40 : OFDM (64QAM, 16QAM, QPSK, BPSK)
Frequency Selection	By software / firmware
Antenna Type	Two antennas (1TX2RX) Antenna 1: Printed PIFA Antenna (1RX) Antenna Model: AU-4622 Antenna Gain: 0dBi Connector: PIFA Manufacture: E-Top Network Technology Inc. Antenna 2: Dipole Antenna(1TX1RX) Antenna Model: S01-XY31708 Antenna Gain: 7dBi Connector: SMA Reverse Manufacture: XinXie Technology(SHENZHEN) co,Ltd.
Power Source	5Vdc (Powered from host device)



Temperature Range	$0 \sim +40^{\circ}C$
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REMARK: 1. The sample selected for test was engineering sample that approximated to product and was provided by manufacturer.

- 2. This submittal(s) (test report) is intended for FCC ID: SJ9-WL307N filing to comply with Section 15.207,15.209 and 15.247 of the FCC Part 15, Subpart C Rules.
- 3. For more details, please refer to the user manual.
- 4. To add a series model is for business necessary. The different of the each model is shown as

Company & Address	Brand	Model	Product Name
E-Top Network Technology Inc. No. 82 ,Gongye 2nd Rd.,Tainan City 70955,Taiwan,R.O.C.	ЕТОР	WL306n,WL307n	11n USB Dongle
Amigo Technology Inc. 1F, No. 333, Sec. 1, Ti-Ding BLVD., NeiHu, Taipei 114, Taiwan	Amigo	WL306n,WL307n	11n USB Dongle
CNet Technology Inc. 1F,No.30,Industry E.RD.IX,Science-Based Industrial Park,Hsin-Chu,Taiwan,R.O.C.	CNet	CWL-9xx Series, CWL-907	Long RangeWireless-N USB Adapter
Sapido Technology Inc. No. 383., Sec. 2, Minsheng Rd., West Central District, Tainan 700, Taiwan, R.O.C.	SAPIDO	AU-4612,AU- 4622, AU- 4632	N ⁺ Long Range USB Adapter



3. DESCRIPTION OF TEST MODES

The EUT is a 11n USB Dongle.

The RF chipset is manufactured by Ralink Technology, Corp.

The antenna peak gain 7.0dBi (highest gain) were chosen for full testing.

IEEE 802.11 b ,802.11g ,802.11n HT20 mode (DTS Band)

The EUT had been tested under operating condition.

There are three channels have been tested as following:

Channel	Frequency (MHz)
Low	2412
Middle	2437
High	2462

IEEE 802.11b mode: 11Mbps data rates (worst case) were chosen for full testing.

IEEE 802.11g mode: 6Mbps data rates (worst case) were chosen for full testing.

IEEE 802.11n HT20 mode: 6.5Mbps data rates (worst case) were chosen for full testing.

IEEE 802.11n HT40 mode (DTS Band)

The EUT had been tested under operating condition.

There are three channels have been tested as following:

Channel	Frequency (MHz)
Low	2422
Middle	2437
High	2452

IEEE 802.11n HT40 mode: 13.5Mbps data rates (worst case) were chosen for full testing.

The worst-case data rates are determined according to the description above, based on the investigations by measuring the PSD, peak power and average power across all the data rates, bandwidths, modulations and spatial stream modes.



4. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4 and FCC CFR 47 15.207, 15.209 and 15.247.

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

No. 8, Jiu Cheng Ling, Jiaokeng Village, Sinhua Township, Tainan Hsien 712, Taiwan R.O.C.

The sites are constructed in conformance with the requirements of ANSI C63.7:1992, ANSI C63.4: 2003 and CISPR Publication 22.

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

5.3 LABORATORY ACCREDITATIONS LISTINGS

The test facilities used to perform radiated and conducted emissions tests are accredited by Taiwan Accreditation Foundation for the specific scope of accreditation under Lab Code: 1109 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by TAF or any agency of the Government. In addition, the test facilities are listed with Federal Communications Commission (registration no: TW-1037 and 455173).



5.4 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	FFC 455173 TW-1037
Taiwan	TAF	CISPR 11, FCC METHOD-47 CFR Part 18, EN 55011, EN 60601-1-2, CISPR 22, CNS 13438, EN 55022, EN 55024, AS/NZS CISPR 22 CISPR 14, EN 55014-1, EN 55014-2, CNS 13783-1, CISPR 22, CNS 13439, EN 55013, FCC Method-47 CFR Part 15 Subpart B, IC ICES-003, VCCI V-3 & V-4 FCC Method-47 CFR Part 15 Subpart C and ANSI C63.4, LP 0002 EN / IEC 61000-4-2 / -3 / -4 / -5 / -6 / -8 / -11 EN 61000-3-2, EN 61000-3-3 EN 61000-6-3, EN 61000-6-1, AS/NZS 4251.1, EN 61000-6-4, EN 61000-6-2, AS/NZS 4251.2, EN 61204-3, EN 50130-4, EN 62040-2, EN 50371, EN 50385, AS/NZS 4268, ETSI EN 300 386 ETSI EN 300 328, ETSI EN 301 489-1/-3/-9/-17 ETSI EN 300 440-2/-1 ETSI EN 301 357-2/-1 RSS-310, RSS-210 Issue 7, RSS-Gen Issue 2	Testing Laboratory 1109
Taiwan	BSMI	CNS 13438, CNS 13783-1, CNS13439	SL2-IN-E-0039 SL2-R1/R2-0039 SL2-A1-E-0039
Canada	Industry Canada	RSS210, Issue 7	Canada IC 2324H-1

* No part of this report may be used to claim or imply product endorsement by TAF or any agency of the US Government.



6. CALIBRATION AND UNCERTAINTY

6.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

6.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz Test Site : OATS-6	±3.38dB
Radiated Emission, 200 to 1000 MHz Test Site : OATS-6	±3.04dB
Radiated Emission, 1 to 26.5 GHz	± 2.38 dB
Power Line Conducted Emission	±2.01dB
Band Edge MU	0.302dBuV
Band Width	136.49kHz
Channel Separation MU	361.69Hz
Duty Cycle MU	0.064ms
Peak Output Power MU	1.904dB
Frequency Stability MU	0.223kHz

This measurement uncertainty is confidence of approximately 95%, k=2



7. SETUP OF EQUIPMENT UNDER TEST

7.1 SETUP CONFIGURATION OF EUT

Above 1GHz Test Setup:



Below 1GHz Test Setup:





7.2 SUPPORT EQUIPMENT

No.	Product	Manufacturer	Model No.	FCC ID	Signal Cable
1	Notebook	IBM	R51	DoC	Power cable, unshd, 1.6m
2	Notebook	IBM	T43	DoC	Power cable, unshd, 1.6m

No.	Signal cable description	
А	N/A	N/A

REMARK:

- 1. All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.
- 2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.



7.3 EUT OPERATING CONDITION

RF Setup

- 1. Set up all notebooks like the setup diagram.
- 2. The "RTL8191SU" software was used for testing
- 3. Set $b/g/n \mod \circ \operatorname{con} TX/RX \circ \operatorname{channel} \circ \operatorname{bandwith} \circ \operatorname{data} \operatorname{rate} \circ \operatorname{transmit}$ power

4.Start to test

(1) TX Mode:

⇒ **Tx Mode:CCK** 、 **OFDM** 、 **HT MixMode** (Bandwidth: 20 、 40)

⇒ **Tx Data Rate: 11Mbps long** (IEEE 802.11b mode)

6Mbps (IEEE 802.11g mode)

6.5Mbps (IEEE 802.11n HT20 mode)

13.5Mbps (IEEE 802.11n HT40 mode)

Power control mode

Target Power: II	EEE	802.11b Channel Low (2412MHz) = 23
Ι	EEE	802.11b Channel Middle (2437MHz) = 27
Ι	EEE	802.11b Channel High (2462MHz) = 31
Target Power: II	EEE	802.11g Channel Low (2412MHz) = 23
Ι	EEE	802.11g Channel Middle (2437MHz) = 27
Ι	EEE	802.11g Channel High (2462MHz) = 31
Target Power: II	EEE	802.11n HT20 Channel Low (2412 MHz) = 23
Ī	EEE	802.11 n HT20 Channel Middle (2437MHz) = 27
Ι	EEE	802.11 n HT20 Channel High (2462MHz) = 31
Target Power: II	EEE	802.11n HT40 Channel Low (2422 MHz) = 24
Ι	EEE	802.11 n HT40 Channel Middle (2437MHz) = 27
Ι	EEE	802.11 n HT40 Channel High (2452MHz) = 29

(2) **RX Mode** :

Start RX

- 3. All of the functions are under run.
- 4. Start test.

Normal Link Setup

- 1. Set up all computers like the setup diagram.
- 2. All of the function are under run.
- 3. Notebook PC (2) ping 192.168.0.10 -t to Notebook PC (1).
- 4. Notebook PC (1) ping 192.168.0.20 -t to Notebook PC (2).
- 5. Notebook PC (1) ping 192.168.0.50 -t to Wireless Access Point (3).

Start test.



8. APPLICABLE LIMITS AND TEST RESULTS

8.1 6DB BANDWIDTH

LIMIT

§ 15.207(a) (2) For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

TEST EQUIPMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	R&S	FSEK 30	835253/002	JUL. 14, 2011

TEST SETUP

FUT	SPECTRUM
	ANALYZER

TEST PROCEDURE

The transmitter output was connected to a spectrum analyzer. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 KHz RBW and 100 KHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.



TEST RESULTS

No non-compliance noted.

IEEE 802.11b mode

Channel	Channel Frequency (MHz)	6dB Bandwidth (kHz)	Minimum Limit (kHz)	Pass / Fail
Low	2412	10321	500	PASS
Middle	2437	10321	500	PASS
High	2462	10321	500	PASS

NOTE : 1. At finial test to get the worst-case emission at11Mbps.
 2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.

IEEE 802.11g mode

Channel	Channel Frequency (MHz)	6dB Bandwidth (kHz)	Minimum Limit (kHz)	Pass / Fail
Low	2412	16733	500	PASS
Middle	2437	16733	500	PASS
High	2462	16733	500	PASS

NOTE : 1. At finial test to get the worst-case emission at 6Mbps.
 2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.



IEEE 802.11n HT20 mode

Channel	Channel Frequency (MHz)	6dB Bandwidth (kHz)	Minimum Limit (kHz)	Pass / Fail
Low	2412	17936	500	PASS
Middle	2437	17936	500	PASS
High	2462	17936	500	PASS

At finial test to get the worst-case emission at 6.5Mbps.
 The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of

IEEE 802.11n HT40 mode

power.

NOTE :

Channel	Channel Frequency (MHz)	6dB Bandwidth (kHz)	Minimum Limit (kHz)	Pass / Fail
Low	2422	36673	500	PASS
Middle	2437	36673	500	PASS
High	2452	36673	500	PASS

NOTE : 1. At finial test to get the worst-case emission at 13.5Mbps.
2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was entered as an offset in the spectrum analyzer to allow for direct reading of power.



6dB BANDWIDTH (802.11b MODE)









6dB BANDWIDTH (802.11g MODE)



















CH Low (802.11n HT40 MODE) RBW 100 kHz Delta 1 [T1] RF Att 20 dB Ref Lvl -0.78 dB VBW 100 kHz 128.7 dBµV 36.67334669 MHz SWT 25 ms Unit dBµV 128 11.7 dB Offset 120 110 100 -D1 97.12 dBµV 1MAX Annon, unter . 1MA –D2 91.12 dβµV 90 80 70 ∜ 60 mhh ٨u 50 4r 28. Center 2.422 GHz 10 MHz/ Span 100 MHz 10.DEC.2010 20:44:16 Date: CH Mid (802.11n HT40 MODE) RBW 100 kHz RF Att 20 dB Delta 1 [T1] Ref Lvl -0.90 dB VBW 100 kHz 128.7 dBµV 36.67334669 MHz SWT 25 ms Unit dBµV 128 11.7 dB Offset 120 110 100 —D1 97.57 dBμV 1MAX mar hoh مامر ~~ 1MA 91.57 dBµV –D2 90 80 70 60 annument and a 1111 50 40 28.7 Center 2.437 GHz 10 MHz/ Span 100 MHz 10.DEC.2010 20:42:57 ate:

6dB BANDWIDTH (802.11n HT40 MODE)







8.2 MAXIMUM PEAK OUTPUT POWER

LIMIT

§ 15.247(b) The maximum peak output power of the intentional radiator shall not exceed the following :

§ 15.247(b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands : 1 watt.

§ 15.247(b) (4) Except as shown in paragraphs (c) of this section , if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2), and (b)(3) of this section , as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST EQUIPMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Power Meter	Anritsu	ML2487A	6K00003888	MAY 11, 2011

TEST SETUP



TEST PROCEDURE

Connect the EUT to power meter, set the center frequency of the power meter to the channel center frequency. Set the RBW to 1MHz and VBW to 3MHz.

TEST RESULTS

No non-compliance noted



Total peak power calculation formula: $10 \log (10^{\circ} (Chain 0 Power / 10)).$

The maximum antenna gain is 7.0Bi for other than fixed, point-to-point operations, therefore the imit is 30 dBm. In the legacy mode, the effective antenna gain is

 $10 \times \text{Log} (10^{\circ} (\text{Chain } 0 / 10)) = 7.0 \text{dBi}.$

Peak Power Limit=30(dBm)-(7-6)(dBi)=29(dBm)

IEEE 802.11b mode

Channel	Channel Frequency (MHz)	Peak Power (dBm)	Peak Power Limit (dBm)	Pass / Fail
Low	2412	12.86	29	PASS
Middle	2437	13.33	29	PASS
High	2462	13.46	29	PASS

NOTE : 1. At finial test to get the worst-case emission at 11Mbps.

2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the power meter to allow for direct reading of power.

IEEE 802.11g mode

Channel	Channel Frequency (MHz)	Peak Power (dBm)	Peak Power Limit (dBm)	Pass / Fail
Low	2412	19.91	29	PASS
Middle	2437	19.66	29	PASS
High	2462	20.70	29	PASS

NOTE: 1.At finial test to get the worst-case emission at 6Mbps.

2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the power meter to allow for direct reading of power.



IEEE 802.11n HT20 mode

Channel	Channel Frequency (MHz)	Peak Power (dBm)	Peak Power Limit (dBm)	Pass / Fail
Low	2412	19.22	29	PASS
Middle	2437	19.94	29	PASS
High	2462	20.35	29	PASS

NOTE : 1.At finial test to get the worst-case emission at 6.5Mbps.

2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the power meter to allow for direct reading of power.

IEEE 802.11n HT40 mode

Channel	Channel Frequency (MHz)	Peak Power (dBm)	Peak Power Limit (dBm)	Pass / Fail
Low	2422	17.58	29	PASS
Middle	2437	17.84	29	PASS
High	2452	18.36	29	PASS

NOTE: 1. At finial test to get the worst-case emission at 13.5Mbps.

2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the power meter to allow for direct reading of power.

IEEE 802.11b mode

Average Power Data

Channel	Channel Frequency (MHz)	Average Power (dBm)
Low	2412	10.68
Middle	2437	11.07
High	2462	11.28

IEEE 802.11g mode Average Power Data

Channel	Channel Frequency (MHz)	Average Power (dBm)
Low	2412	10.19
Middle	2437	10.26
High	2462	10.83

IEEE 802.11n HT20 mode

Average Power Data

Channel	Channel Frequency (MHz)	Average Power (dBm)
Low	2412	9.88
Middle	2437	10.00
High	2462	10.42

IEEE 802.11n HT40 mode **Average Power Data**

Channel	Channel Frequency (MHz)	Average Power (dBm)
Low	2422	8.86
Middle	2437	9.36
High	2452	8.86





MAXIMUM PEAK OUTPUT POWER (802.11b MODE)









MAXIMUM PEAK OUTPUT POWER (802.11g MODE)









MAXIMUM PEAK OUTPUT POWER (802.11n HT20 MODE)









MAXIMUM PEAK OUTPUT POWER (802.11n HT40 MODE)






8.3 MAXIMUM PERMISSIBLE EXPOSURE

According to FCC 1.1310 : The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic FieldPower DensityStrength (A/m)(mW/cm²)		Average Time
	(A) Limits for Oc	ccupational / Contro	l Exposures	
300-1,500			F/300	
1,500-100,000			5	6
	(B) Limits for Genera	al Population / Unco	ontrol Exposures	
300-1,500		F/1500		6
1,500-100,000			1	30

CALCULATIONS

Given

$$E = \frac{\sqrt{30 \times P \times G}}{d} \quad \& \quad S = \frac{E^2}{3770}$$

Where E = Field strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = *Power density in milliwatts / square centimeter*

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770d^2}$$

Changing to units of mW and cm, using:

$$P(mW) = P(W) / 1000$$
 and
 $d(cm) = d(m) / 100$

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$

Where d = Distance in cm P = Power in mW G = Numeric antenna gain S = Power density in mW / cm²



LIMIT

Power Density Limit, S=1.0mW/cm²

TEST RESULTS

No non-compliance noted. $S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$

G=7.0dBi=5.01187233627272 dB

IEEE 802.11b =0.0796*22.1896*5.01187234/400=0.022123

IEEE 802.11g =0.0796*117.4897*5.01187234/400=0.117180

IEEE 802.11n HT20 =0.0796*108.3926*5.01187234/400=0.108107

IEEE 802.11n HT40 =0.0796*68.5488*5.01187234/400=0.068368

Mode	Minimum separation distance (cm)	Output Power (dBm)	Output Power (mw)	Antenna Gain (dBi)	Power Density Limit (mW/cm ²)	Power Density at 20cm (mW/cm ²)
IEEE 802.11b	20	13.46	22.18	7.00	1.00	0.022123
IEEE 802.11g	20	20.70	117.49	7.00	1.00	0.117180
IEEE 802.11n HT20	20	20.35	108.39	7.00	1.00	0.108107
IEEE 802.11n HT40	20	18.36	68.55	7.00	1.00	0.068368

REMARK: For mobile or fixed location transmitters, the maximum power density is 1.0 mW/cm² even if the calculation indicates that the power density would be larger.



8.4 POWER SPECTRAL DENSITY

LIMIT

§ 15.247(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST EQUIPMENTS

Name of Equipment	Manufacturer	Model Serial Number		Calibration Due
Spectrum Analyzer	R&S	FSEK 30	835253/002	JUL. 14, 2011

TEST SETUP



TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using RBW=3KHz and VBW \ge RBW, set sweep time=span / 3KHz.

The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span / 3KHz for a full response of the mixer in the spectrum analyzer.

TEST RESULTS

No non-compliance noted.



Total power spectral density calculation formula: 10 log (10^ (Chain 0 PPSD / 10) + 10^ (Chain1 PPSD / 10)) IEEE 802.11b mode

Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)	Maximum Limit (dBm)	Pass / Fail
Low	2412	-21.24	7.00	Pass
Middle	2437	-20.73	7.00	Pass
High	2462	-20.45	7.00	Pass

NOTE : 1. At finial test to get the worst-case emission at 11Mbps.

2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

IEEE 802.11g mode

Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)	Maximum Limit (dBm)	Pass / Fail
Low	2412	-21.44	7.00	Pass
Middle	2437	-21.39	7.00	Pass
High	2462	-20.48	7.00	Pass

NOTE : 1. At finial test to get the worst-case emission at 6Mbps.

2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

IEEE 802.11n HT20 mode

Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)	Maximum Limit (dBm)	Pass / Fail
Low	2412	-20.59	7.00	Pass
Middle	2437	-20.59	7.00	Pass
High	2462	-19.94	7.00	Pass

NOTE : 1. At finial test to get the worst-case emission at 6.5Mbps.

2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

IEEE 802.11n HT40 mode

Channel	Channel Frequency (MHz)	Final RF Power Level in 3KHz BW (dBm)	Maximum Limit (dBm)	Pass / Fail
Low	2422	-25.05	7.00	Pass
Middle	2437	-23.67	7.00	Pass
High	2452	-23.13	7.00	Pass

NOTE : 1. At finial test to get the worst-case emission at 13.5Mbps.

2. The cable assembly insertion loss of 11.7dB (including 10 dB pad and 1.7 dB cable) was Entered as an offset in the spectrum analyzer to allow for direct reading of power.

POWER SPECTRAL DENSITY (IEEE 802.11b MODE)





<u>k</u>			C Marker	H Hig	h (802	2.11b] _{RBW}	MODE 3 k	E) Hz Rf	- Att	20 dB	
*Y	Ref Lvl 10 dBm		2	-20. 461310	45 dBm 62 GHz	VBW SWT	10 k 100	Hz s Ur	nīt	dBm	ı
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-20	~~~~~	~~~~~	~~~^	~~~~ r	~~~~		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	maam	<u>~~~~</u>	MAR MA	
-30	1MAX		•			• •	•••		- 0		1MA
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POWER SPECTRAL DENSITY (IEEE 802.11g MODE)









POWER SPECTRAL DENSITY (802.11n HT20 MODE)









POWER SPECTRAL DENSITY (802.11n HT40 MODE)









8.5 CONDUCTED SPURIOUS EMISSION

LIMITS

§ 15.247(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the and that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 100 kHz.

The spectrum from 30 MHz to 26.5 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

TEST SETUP



TEST RESULTS

No non-compliance noted.



TEST DATA

IEEE 802.11b mode

Low

Frequency	Offset	Reading	Level	Limit	Margin	
(MHz)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)	Pass/Fail
2412	11.7	92.92	104.62	N/A	N/A	
6554.66934	11.7	44.84	56.54	84.62	-28.08	Pass
8676.51303	11.7	43.57	55.27	84.62	-29.35	Pass

Mid

Frequency	Offset	Reading	Level	Limit	Margin	
(MHz)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)	Pass/Fail
2437	11.7	93.49	105.19	N/A	N/A	
6660.76152	11.7	44.62	56.32	85.19	-28.87	Pass
7933.86774	11.7	43.50	55.2	85.19	-29.99	Pass

Frequency	Offset	Reading	Level	Limit	Margin	
(MHz)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)	Pass/Fail
2462	11.7	93.66	105.36	N/A	N/A	
6660.76152	11.7	44.73	56.43	85.36	-28.93	Pass
12601.92385	11.7	43.66	55.36	85.36	-30.00	Pass



IEEE 802.11g mode

Low

Frequency	Offset	Reading	Level	Limit	Margin	
(MHz)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)	Pass/Fail
2412	11.7	89.33	101.03	N/A	N/A	
6979.03808	11.7	47.64	59.34	81.03	-21.69	Pass
13821.98397	11.7	44.77	56.47	81.03	-24.56	Pass

Mid

Frequency	Offset	Reading	Level	Limit	Margin	
(MHz)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)	Pass/Fail
2437	11.7	89.92	101.62	N/A	N/A	
6607.71543	11.7	44.96	56.66	81.62	-24.96	Pass
10427.03407	11.7	42.00	53.7	81.62	-27.92	Pass

Frequency	Offset	Reading	Level	Limit	Margin	
(MHz)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)	Pass/Fail
2462	11.7	90.80	102.5	N/A	N/A	
6660.76152	11.7	45.01	56.71	82.50	-25.79	Pass
11753.18637	11.7	43.91	55.61	82.50	-26.89	Pass



IEEE 802.1120 mode

Low

Frequency	Offset	Reading	Level	Limit	Margin	
(MHz)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)	Pass/Fail
2412	11.7	88.23	99.93	N/A	N/A	
6925.99198	11.7	44.85	56.55	79.93	-23.38	Pass
13768.93788	11.7	44.60	56.3	79.93	-23.63	Pass

Mid

Frequency	Offset	Reading	Level	Limit	Margin	
(MHz)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)	Pass/Fail
2437	11.7	88.74	100.44	N/A	N/A	
6925.99198	11.7	44.49	56.19	80.44	-24.25	Pass
10427.03407	11.7	42.73	54.43	80.44	-26.01	Pass

Frequency	Offset	Reading	Level	Limit	Margin	
(MHz)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)	Pass/Fail
2462	11.7	90.19	101.89	N/A	N/A	
6925.99198	11.7	44.93	56.63	81.89	-25.26	Pass
10798.35671	11.7	42.20	53.9	81.89	-27.99	Pass



IEEE 802.1140 mode

Low

Frequency	Offset	Reading	Level	Limit	Margin	
(MHz)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)	Pass/Fail
2422	11.7	85.86	97.56	N/A	N/A	
6979.03808	11.7	43.91	55.61	77.56	-21.95	Pass
12654.96994	11.7	43.46	55.16	77.56	-22.40	Pass

Mid

Frequency	Offset	Reading	Level	Limit	Margin	
(MHz)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)	Pass/Fail
2437	11.7	85.59	97.29	N/A	N/A	
6979.03808	11.7	45.28	56.98	77.29	-20.31	Pass
12442.78557	11.7	44.60	56.3	77.29	-20.99	Pass

Frequency	Offset	Reading	Level	Limit	Margin	
(MHz)	(dB)	(dBµV)	(dBµV)	(dBµV)	(dB)	Pass/Fail
2452	11.7	85.21	96.91	N/A	N/A	
6925.99198	11.7	44.19	55.89	76.91	-21.02	Pass
11965.37074	11.7	42.33	54.03	76.91	-22.88	Pass



		СЦІ	OW (2			(Π_{2})	(202 1	1h N/			
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Æ>	Ref Lvl			104.6	2 dBµV	VBW	100 k	Hz			
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128	11.7	dB Offse	e t				v ₁	[T1]	104.	62 dBµV	
120									2.41200	000 GHz	
120							⊽2	[T1]	56.	54 dBµV	
110							₩a	1 1 1	6.55466	934 GHz	
110	1						• • •	[]]	8.67651	27 06µv 383 GHz	
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Date	1	1.DEL.2	UIU 15	U2:48							
		CH N	Mid (3	0MHz	~26.50	GHz) (802.11	lb M	ODE)		
<u>k</u>		CH N	Mid (3 Marker	0MHz [,] 1 [T1]	~26.50	GHz) (_{rbw}	802.11 100 k	l <mark>b M</mark>	ODE) RF Att	20 dB	
Ś	Ref Lvl	CH N	Mid (3 Marker	0MHz [,] 1 [T1] 105.1	~26.50 9 dBµV	GHz) (rbw vbw	802.11 100 k 100 k	l <mark>b M</mark> ^{Hz} ^{Hz}	ODE) RF Att	20 dB	
128	Ref Lvl 128.7 (CH N dBµv	Mid (3 Marker 2	0MHz/ 1 [T1] 105.1 2.437000	~ 26.5(9 dBµV 00 GHz	GHz) (rbw vbw swt	802.11 100 k 100 k 6.8	Hz Hz s	ODE) RF Att Unit	20 dB dB#V	,
E 128	Ref Lvl 128.7	CH N dBµV dB Offse	Mid (3) Marker 2	0MHz [,] 1 [T1] 105.1 2.437000	~26.5(9 dBµV 00 GHz	GHz) (rbw vbw swt	802.11 100 k 100 k 6.8 ¥1	lbM Hz Hz s	ODE) RF Att Unit 105.	20 dB dBμV 19 dBμV	,]
128 120	Ref Lvl 128.7	CH N dBµV dB Offse	Mid (3) Marker 2 et	0MHz ⁴ 1 [T1] 105.1 2.437000	~26.50 9 dBµV 00 GHz	GHz) (rbw vbw swt	802.11 100 k 100 k 6.8	Hz Hz s	ODE) RF Att Unit 2.43700	20 dB dBμV 19 dBμV 000 GHz	
128 120	Ref Lvl 128.7	CH N dBµV dB Offse	Mid (3) Marker 2	0MHz [,] 1 [T1] 105.1 2.437000	~26.5(9 dBµV 00 GHz	GHz) (^{RBW} vBW swt	802.11 100 k 100 k 6.8 •1 •2	b M _{Hz} s [T1]	ODE) RF Att Unit 2.43700 56.	20 dB dBµV 19 dBµV 000 GHz 32 dBµV	
128 120	Ref Lvl 128.7	CH N dBµV dB Offse	Mid (3) Marker 2	0MHz ⁴ 1 [T1] 105.1 2.437000	~26.50 9 dBµV 00 GHz	GHz) (rbw vbw swt	802.11 100 k 100 k 6.8 v 1 v ₂	IbM Hz Hz s [T1] [T1]	ODE) RF Att Unit 2.43700 56. 6.66076	20 dB dBµV 19 dBµV 000 GHz 32 dBµV 152 GHz 20 dB V	
128 120 110	Ref Lvl 128.7	CHN dBµV dB Offse	Mid (3) Marker 2 2 2	0MHz 1 [T1] 105.1 2.437000	~26.5(9 dB,µV 00 GHz	GHz) (rbw vbw swt	802.11 100 k 100 k 6.8 ▼1 ▽2 ▽2	Lb M Hz Hz s [T1] [T1] [T1]	ODE) RF Att Unit 2.43700 56. 6.66076 55. 7 93386	20 dB dBµV 19 dBµV 000 GHz 32 dBµV 152 GHz 28 dBµV 774 GHz	
128 120 110	Ref Lvl 128.7	CH N dBµV dB Offse	Mid (3) Marker 2 2	0MHz/ 1 [T1] 105.1 2.437000	~26.5(9 dB,µV 00 GHz	GHz) (RBW vBW SWT	802.11 100 k 100 k €.8 ▼1 ⊽2 ▽3	Lb M Hz S [T1] [T1] [T1]	ODE) RF Att Unit 2.43700 56. 6.66076 55. 7.93386	20 dB dBμV 000 GHz 32 dBμV 152 GHz 28 dBμV 774 GHz	
128 120 110 100	Ref Lvl 128.7	CH N dBµV dB Offse	Mid (3) Marker 2 2	0MHz/ 1 [T1] 105.1 2.437000	~26.5(9 ав,µv 00 GHz	GHz) (rbw vbw swt	802.11 100 k 100 k €.8 ▼1 ⊽2 ▽2	Lb M Hz s [T1] [T1] [T1]	ODE) RF Att 105. 2.43700 56. 6.66076 55. 7.93386	20 dB dBμV 000 GHz 32 dBμV 152 GHz 28 dBμV 774 GHz	
128 120 110 100	Ref Lvl 128.7	CH N dBµV dB Offse	Mid (3) Marker 2 2 2 1	0MHz/ 1 [T1] 105.1 2.437000	~26.5(9 ав _и v 00 GHz	GHz) (RBW VBW SWT	802.11 100 k 100 k €.8 ▼1 ⊽2 ⊽3	lb М _{Hz} s [T1] [T1] [T1]	ODE) RF Att Unit 2.43700 56. 6.66076 55. 7.93386	20 dB dBμV 19 dBμV 000 GHz 32 dBμV 152 GHz 28 dBμV 774 GHz	1MA
128 120 110 100 90	Ref Lvl 128.7 11.7 11.7	CH N dBµV dB Offse	Mid (3) Marker 2 9 t	0MHz/ 1 [T1] 105.1 2.437000	~26.5(9 dB,µV 00 GHz	GHz) (rbw vbw swt	802.11 100 k 100 k €.8 ▼1 ⊽2 ▼3	Hz Hz s [Т1] [Т1] [Т1]	ODE) RF Att Unit 2.43700 56. 6.66076 55. 7.93386	20 dB dBµV 19 dBµV 000 GHz 32 dBµV 152 GHz 28 dBµV 774 GHz	1MA
128 120 110 100 90	Ref Lvl 128.7 11.7 1 1MAX -D1 85.	CH N dBµV dB Offse 19 dBµV	Mid (3) Marker 2 2 1	0MHz 1 [T1] 105.1 2.437000	~26.5(9 dBµV 00 GHz	GHz) (RBW VBW SWT	802.11 100 k 100 k 6.8 ▼1 ▽2 ▽3	Lb M Hz Hz s [T1] [T1] [T1]	ODE) RF Att 105. 2.43700 56. 6.66076 55. 7.93386	20 dB dBµV 000 GHz 32 dBµV 152 GHz 28 dBµV 774 GHz	1MA
128 120 110 100 90 80	Ref Lvl 128.7 11.7 11.7 1 1MAX -D1 85.	CH N dBµV dB Offse 19 dBµV	Mid (3) Marker 2 2 2 1	0MHz 1 [T1] 105.1 2.437000	~26.5(9 dB,µV 00 GHz	GHz) (RBы VBы SыT	802.11 100 k 100 k 6.8 ▼1 ▽2 ▽3	Lb M Hz Hz [T1] [T1] [T1]	ODE) RF Att Unit 2.43700 56. 6.66076 55. 7.93386	20 dB dBµV 000 GHz 32 dBµV 152 GHz 28 dBµV 774 GHz	1MA
128 120 110 100 90 80	Ref Lvl 128.7 11.7 11.7 1 1MAX -D1 85.	CH N dB µV dB Offse 19 dBµV	Mid (3) Marker 2 2 2 1	0MHz 1 [T1] 105.1 2.437000	~26.5(9 dB,µV 00 GHz	GHz) (кви уви sut	802.11 100 k 100 k €.8 ▼1 ▽2 ▽3	Lb M Hz Hz s [T1] [T1] (T1]	ODE) RF Att Unit 2.43700 56. 6.66076 55. 7.93386	20 dB dBµV 000 GHz 32 dBµV 152 GHz 28 dBµV 774 GHz	1MA
128 120 110 100 90 80 70	Ref Lvl 128.7 11.7 11.7 1 1MAX -D1 85.	CH N dB µV dB Offse 19 dBµV	Mid (3) Marker 2 2 2 1	0MHz 1 [T1] 105.1 2.437000	~26.5(9 dB,µV 00 GHz	GHz) (квы увы swt	802.11 100 k 100 k 6.8 ▼1 ▽2 ▽3	Lb M Hz TT1] TT1] TT1]	ODE) RF Att Unit 2.43700 56. 6.66076 55. 7.93386 	20 dB dBµV 000 GHz 32 dBµV 152 GHz 28 dBµV 774 GHz	1MA
128 120 110 100 90 80 70	Ref Lvl 128.7 11.7 11.7 1MAX -D1 85.	CH N dBµV dB Offse 19 dBµV	Mid (3) Marker 2 2 1	0MHz 1 [T1] 105.1 2.437000	~26.5(9 dB,µV 00 GHz	GHz) (квы увы swt	802.11 100 k 100 k €.8 ▼1 ∇2 ∇3	Lb M Hz Hz s [T1] [T1] [T1]	ODE) RF Att Unit 2.43700 56. 6.66076 55. 7.93386	20 dB dBµV 19 dBµV 000 GHz 32 dBµV 152 GHz 28 dBµV 774 GHz	1MA
128 120 110 100 90 80 70 60	Ref Lvl 128.7 11.7 11.7 1MAX -D1 85.	CH N dBµV dB Offse 19 dBµV	Mid (3) Marker 2 t	0MHz 1 [T1] 105.1 2.437000	~26.5(9 dB,µV 00 GHz	GHz) (RBW VBW SWT	802.11 100 k 100 k €.8 ▼1 ∇2 ∇3	Lb M Hz TT1] TT1] TT1]	ODE) RF Att Unit 105. 2.43700 56. 6.66076 55. 7.93386 	20 dB dBµV 000 GHz 32 dBµV 152 GHz 28 dBµV 774 GHz	1MA
128 120 110 100 90 80 70 60	Ref Lvl 128.7 11.7 11.7 1MAX -D1 85.	CH N dB µV dB Offse 19 dBµV	Mid (3) Marker 2 t	0MHz/ 1 [T1] 105.1 2.437000	~26.50	GHz) (квы увы сыт	802.11 100 k 100 k €.8 ▼1 ▽2 ▽3	Lb M Hz TT1] TT1] TT1]	ODE) RF Att Unit 105. 2.43700 56. 6.66076 55. 7.93386 	20 dB dB µV 19 dB µV 000 GHz 32 dB µV 152 GHz 28 dB µV 774 GHz 	1MA
128 120 110 100 90 80 70 60	Ref Lvl 128.7 11.7 11.7 1MAX -D1 85.	CH N dBµV dB Offse 19 dBµV	Mid (3) Marker 2 t	0MHz 1 [T1] 105.1 2.437000	~26.5(9 dB,µV 00 GHz	GHz) (квы увы быт	802.11 100 k 100 k €.8 ▼1 ∇2 ∇3	Lb M Hz s [T1] [T1] [T1]	ODE) RF Att Unit 105. 2.43700 56. 6.66076 7.93386 7.93386	20 dB dBμV 19 dBμV 000 GHz 32 dBμV 152 GHz 28 dBμV 774 GHz	1116
128 120 110 100 90 80 70 60 50	Ref Lvl 128.7 11.7 11.7 1 1MAX -D1 85.	CH N dBµV dB Offse 19 dBµV	Mid (3) Marker 2 2 2 1	0MHz 1 [T1] 105.1 2.437000	~26.50	GHz) (квы увы Sыт 	802.11 100 k 100 k €.8 ▼1 ⊽2 ▼3	Lb M Hz s [T1] [T1] [T1]	ODE) RF Att Unit 105. 2.43700 56. 6.66076 7.93386 7.93386 	20 dB dBμV 19 dBμV 000 GHz 32 dBμV 152 GHz 28 dBμV 774 GHz 	1MA
128 120 110 100 90 80 70 60 50	Ref Lv1 128.7 11.7 11.7 1 1MAX -D1 85.	CH N dB Offse 19 dBµV	Mid (3) Marker 2 2 2 1	0MHz 1 [T1] 105.1 2.437000	~26.50	GHz) (квы увы быт мина	802.11 100 k 100 k €.8 ▼1 ⊽2 ▽3	Lb M Hz T1] T1] T1]	ODE) RF Att Unit 105. 2.43700 56. 6.66076 57.93386 7.93386 	20 dB dBμV 19 dBμV 100 GHz 32 dBμV 152 GHz 28 dBμV 774 GHz	1MA
128 120 110 100 90 80 70 60 50 40	Ref Lvl 128.7	CH N dB Offse 19 dBµV	Aid (3) Marker 2 2 2 1 2 3 4	0MHz 1 [T1] 105.1 2.437000	~26.50	GHz) (квы увы быт мин.	802.11 100 k 100 k €.8 ▼1 ∇2 ∇3	Lb M Hz T1] T1] T1]	ODE) RF Att Unit 105. 2.43700 56. 6.66076 55. 7.93386 	20 dB dB _µ V 19 dB _µ V 19 dB _µ V 152 GHz 28 dB _µ V 774 GHz 	1MA
128 120 110 100 90 80 70 60 50 40	Ref Lvl 128.7	CH N dB Offse 19 dBµV	Aid (3) Marker 2 2 2 1	0MHz 1 [T1] 105.1 2.437000	~26.50	GHz) (квы увы быт	802.11 100 k 100 k €.8 ▼1 ∇2 ∇3	Lb M Hz T1] T1] T1]	ODE) RF Att Unit 105. 2.43700 56. 6.66076 7.93386 	20 dB dB µV 19 dB µV 000 GHz 32 dB µV 152 GHz 774 GHz 	1MA
128 120 110 100 90 80 70 60 50 50 40 28.7	Ref Lvl 128.7	CH N dB µV dB Offse 19 dBµV	Aid (3) Marker 2 2 2 1	0MHz/ 1 [T1] 105.1 2.437000	~26.50	GHz) (квы увы увы с	802.11 100 k 5.8 ▼1 ∇2 ∇3 ↓ ↓	Lb M Hz TT1] TT1] TT1]	ODE) RF Att Unit 105. 2.43700 56. 6.66076 55. 7.93386 	20 dB dBµV 19 dBµV 000 GHz 32 dBµV 152 GHz 774 GHz 	1MA
128 120 110 100 90 80 70 60 50 40 28.7	Ref Lvl 128.7	CH N dB Offse 19 dB µV 19 dB µV 0 MHz	Aid (3) Marker 2 2 2 1	0MHz/ 1 [T1] 105.1 2.437000	~26.5(GHz) (квы увы бHz/	802.11 100 k 5.8 ▼1 ▽2 ▽3	Lb M Hz Hz s [T1] [T1] (T1] (T1]	ODE) RF Att Unit 105. 2.43700 56. 6.66076 55. 7.93386 	20 dB dBµV 19 dBµV 000 GHz 32 dBµV 774 GHz 	1MA

(IEEE 802.11b MODE)







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		CH L	.ow (3	0MHz	~26.50	GHz) (802.1	1g MC	DDE)		
Rest of the second seco			Marker	1 [T1]		RBW	100 k	Hz R	FAtt	20 dB	
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120									2.41200	000 GHz	
120							⊽2	[T1]	58.	34 dBµV	
									6.97903	808 GHz	
110								[T1]	56.	47 dBµ∀	
	1								13.82198	397 GHz	
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Date	: 1	1.DEC.2	010 15	:07:49							
Date	: 1	1.DEC.2	010 15	:07:49 0MHz	~26.50	GHz) (802.1	lg MC	DDE)		
Date	: 1	1.DEC.2 CH N	010 15 Mid (30 Marker	:07:49 0MHz ⁴ 1 [T1]	~26.50	GHz) (^{RBW}	802.1	lg MC	DDE)	20 dB	
Date	: 1 Ref Lvl	1.DEC.2	010 15 Mid (30 Marker	:07:49 OMHz 1 [T1] 101.6	~26.5(2 dBµV	GHz) (^{RBW} VBW	802.1	lg MC _{Hz R} _{Hz}	DDE)	20 dB	
Date	: 1 Ref Lvl 128.7 c	<u>1.dec.2</u> СН N ЗВ <i>µ</i> V	010 15 Mid (30 Marker 2	:07:49 OMHz ⁴ 1 [T1] 101.6 2.437000	~26.5(2 dBµV 00 GHz	GHz) (rbw vbw swt	802.1	lgMC ^{Hz R} ^{Hz} U	DDE) FAtt	20 dB dB <i>µ</i> V	
Date (****) 128	: 1 Ref Lvl 128.7 c	1.DEC.2 CHN Ββμγ	010 15 Mid (30 Marker 2 9t	07:49 0MHz/ 1 [T1] 101.6	~ 26.5(2 dBµV 00 GHz	GHz) (rbw vbw swt	802.11 100 k 100 k 6.8	lgMC Hz R Hz s U [T1]	DDE) FAtt nit 101.	20 dB dBμV 62 dBμV	
Date	: 1 Ref Lvl 128.7 c	1.DEC.2 CHN ΒΒμν ΒΒ Offse	010 15 Mid (30 Marker 2	07:49 0MHz 1 [T1] 101.6 2.437000	~26.5(2 dBµV 00 GHz	GHz) (rbw vbw swt	802.1	Hz R Hz R S U	DDE) F Att 101. 2.43700	20 dB dBμV 62 dBμV 000 GHz	
Date 128	: 1 Ref Lvl 128.7 c	1.DEC.2 CH Ν Βμν Β Offse	010 15 Mid (30 Marker 2 et	07:49 0MHz ⁴ 1 [T1] 101.6 2.437000	~26.5(2 dBµV 00 GHz	GHz) (квш увш swt	802.11 100 k 100 k 6.8 V1 V2	Hz R Hz S IT1]	DDE) F Att 101. 2.43700 56.	20 dB dBμV 62 dBμV 000 GHz 66 dBμV	
Date 128 120 110	: 1 Ref Lv1 128.7 c	1.DEC.2 CH Ν Ββμγ	010 15 Mid (30 Marker 2	:07:49 0MHz [,] 1 [T1] 101.6 :.437000	~26.5(2 dBµV 00 GHz	GHz) (квш vbw swt	802.11 100 k 100 k 6.8 •1 •2 •2	Ig MC Hz R Hz 5 U [T1] [T1]	DDE) F Att 101. 2.43700 56. 6.60771	20 dB dBμV 62 dBμV 000 GHz 66 dBμV 543 GHz 28 dBμV	
Date 128 120 110	: 1 Ref Lv1 128.7 c	1.DEC.2 CH Ν JBμν JB Offse	010 15 Mid (30 Marker 2 2	:07:49 0MHz/ 1 [T1] 101.6 2.437000	~26.5(2 dBµV 00 GHz	GHz) (^{RBµ} vbµ swt	802.11 100 k 100 k 6.8 1 72 73	Ig MC Hz R Hz s U [T1] [T1]	DE) F Att 101. 2.43700 56. 6.60771 53. 0.42703	20 dB dBµV 62 dBµV 000 GHz 66 dBµV 543 GHz 78 dBµV 407 GHz	
Date 128 120 110	: 1 Ref Lv1 128.7 c	<u>1.DEC.2</u> CH N звµv зв offsd	010 15 Mid (30 Marker 2 2	:07:49 OMHZ 1 [T1] 101.6 2.437000	~26.50 2 dB,µV 00 GHz	GHz) (квы vвы swt	802.11 100 k 100 k 5.8 100 k 5.8 100 k 5.8	Ig MC Hz R Hz s U [T1] [T1]	DDE) F Att 101. 2.43700 56. 6.60771 53. 0.42703	20 dB dBµV 62 dBµV 000 GHz 66 dBµV 543 GHz 78 dBµV 407 GHz	
Date 128 120 110	: 1 Ref Lv1 128.7 c	1.DEC.2 CH Ν HBμV dB Offse	010 15 Mid (30 Marker 2 2 1	:07:49 OMHZ 1 [T1] 101.6 2.437000	~26.50 2 dB,µV 00 GHz	GHz) (квы vвы swt	802.11 100 k 100 k 6.8 V 1 V2 V3	Ig MC Hz R Hz s U [T1] [T1]	DDE) F Att 101. 2.43700 56. 6.60771 53. 0.42703	20 dB dBµV 62 dBµV 000 GHz 66 dBµV 543 GHz 78 dBµV 407 GHz	1114
Date 128 120 110	: 1 Ref Lv1 128.7 c 11.7 c	1.DEC.2 CH Ν HBμV dB Offse	010 15 Mid (30 Marker 2 9 t	:07:49 OMHZ 1 [T1] 101.6 2.437000	~26.50 2 dB,µV 00 GHz	GHz) (квы vвы swt	802.11 100 k 100 k 5.8 100 k 5.8 100 k 5.8	Ig MC Hz R Hz s U [T1] [T1]	DDE) F Att 101. 2.43700 56. 6.60771 53. 0.42703	20 dB dBµV 62 dBµV 000 GHz 66 dBµV 543 GHz 78 dBµV 407 GHz	1MA
Date 128 120 110 90	: 1 Ref Lv1 128.7 c 11.7 c 11.7 c	1.DEC.2 CH Ν #Βμν dB Offsd	010 15 Mid (30 Marker 2 9 t	:07:49 OMHZ ⁷ 1 [T1] 101.6 2.437000	~26.50 2 dB,µV 00 GHz	GHz) (квы vвы swt	802.11 100 k 100 k 5.8 V 1 V 2 V 3	Ig MC Hz R Hz s U [T1] [T1]	DDE) F Att 101. 2.43700 56. 6.60771 53. 0.42703	20 dB dBµV 62 dBµV 000 GHz 66 dBµV 543 GHz 78 dBµV 407 GHz	1MA
Date 128 120 110 90	: 1 Ref Lv1 128.7 c 11.7 c 11.7 c 1MAX	1.DEC.2 CH Ν JBμV JB Offsd	010 15 Mid (30 Marker 2 2	:07:49 DMHZ ⁷ 1 [T1] 101.6 2.437000	~26.50 2 dB,µV 00 GHz	GHz) (квы vви swt	802.11 100 k 5.8 V1 V2 V3	Ig MC Hz R Hz s U [T1] [T1]	DDE) F Att 101. 2.43700 56. 6.60771 53. 0.42703	20 dB dBµV 62 dBµV 000 GHz 66 dBµV 543 GHz 78 dBµV 407 GHz	1MA
Date 128 120 110 100 90 80	: 1 Ref Lv1 128.7 c 11.7 c 11.7 c 1MAX	1.DEC.2 CHN JBµV JB Offsd 62 dBµV	010 15 Mid (30 Marker 2 2 2	:07:49 DMHZ ⁷ 1 [T1] 101.6 2.437000	~26.50	GHz) (квы уви swt	802.11 100 k 5.8 100 k 5.8 100 k 5.8	Ig MC _{Hz} R _{Hz} s U [T1] [T1]	DDE) F Att 101. 2.43700 56. 6.60771 53. 0.42703	20 dB dBµV 62 dBµV 000 GHz 66 dBµV 543 GHz 78 dBµV 407 GHz	1MA
Date 128 120 110 100 90 80	: 1 Ref Lv1 128.7 c 11.7 c 11.7 c 11.7 c	1.DEC.2 CHN JBµV JB Offsd 62 dBµV	010 15 Mid (30 Marker 2 2 2	:07:49 DMHZ ⁷ 1 [T1] 101.6 2.437000	~26.50	GHz) (квы уви swt	802.11 100 k 5.8 V1 V2 V3	Ig MC Hz R Hz s U [T1] [T1]	DDE) F Att 101. 2.43700 56. 6.60771 53. 0.42703	20 dB dBµV 62 dBµV 000 GHz 66 dBµV 543 GHz 78 dBµV 407 GHz	1MA
Date 128 120 110 100 90 80 70	: 1 Ref Lv1 128.7 c 11.7 c 11.7 c 11MAX	1.DEC.2 CH N JBµV JB Offsd 62 dBµV	010 15 Mid (30 Marker 2 2 2	:07:49 DMHZ ⁷ 1 [T1] 101.6 2.437000	~26.50	GHz) (квы уви swt	802.11 100 k 5.8 V1 V2 V3	Ig MC Hz R Hz s U [T1] [T1]	DDE) F Att 101. 2.43700 56. 6.60771 53. 0.42703	20 dB dBµV 62 dBµV 000 GHz 66 dBµV 543 GHz 407 GHz	1MA
Date 128 120 110 100 90 80 70	: 1 Ref Lv1 128.7 c 11.7 c 11.7 c 11MAX	1.DEC.2 CHN BBWV BB Offsd 62 dBWV	010 15 Mid (30 Marker 2 2 2 1	:07:49 DMHZ ⁷ 1 [T1] 101.6 2.437000	~26.50	GHz) (квы уви swt	802.11 100 k 5.8 V1 V2 V3	Ig MC Hz R Hz s U [T1] [T1]	DDE) F Att 101. 2.43700 56. 6.60771 53. 0.42703	20 dB dBµV 62 dBµV 000 GHz 66 dBµV 543 GHz 407 GHz	1MA
Date 128 120 110 100 90 80 70 60	: 1 Ref Lv1 128.7 c 11.7 c 11.7 c 11.7 c	1.DEC.2 CHN BBWV BB Offsd 62 dBWV	010 15 Mid (30 Marker 2 2 2 1	:07:49 OMHZ [/] 1 [T1] 101.6 :437000	~26.50	GHz) (квы увы зыт	802.11 100 k 5.8 V1 V2 V3	Ig MC Hz R Hz s U [T1] [T1]	DDE) F Att 101. 2.43700 56. 6.60771 53. 0.42703	20 dB dBµV 62 dBµV 000 GHz 66 dBµV 543 GHz 407 GHz	1MA
Date 128 120 110 100 90 80 70 60	: 1 Ref Lv1 128.7 c 11.7 c 11.7 c 1MAX	1. DEC. 2 CH N JBμV JB Offsd 62 dBμV	010 15 Mid (30 Marker 2 2 2 1 1	:07:49 DMHZ ⁷ 1 [T1] 101.6 :437000 	~26.50	GHz) (квы увы sыт	802.11 100 k 6.8 ▼1 ▼2 ▼3	Ig MC Hz R Hz s U [T1] [T1]	DDE) F Att 101. 2.43700 56. 6.60771 53. 0.42703	20 dB dB _µ V 62 dB _µ V 000 GHz 66 dB _µ V 543 GHz 407 GHz 407 GHz	1MA
Date 128 120 110 100 90 80 70 60 50	: 1 Ref Lv1 128.7 c 11.7 c 11.7 c 1MAX _D1 81.	1. DEC. 2 CH N JB Offse 52 dB µV	010 15 Mid (30 Marker 2 2 2 1	:07:49 DMHZ ⁷ 1 [T1] 101.6 2.437000 	~26.50	GHz) (квы увы Sыт	802.11 100 k 5.8 V1 V2 V3 V3	Ig MC Hz R Hz s U [T1] [T1] [T1]	DDE) F Att 101. 2.43700 56. 6.60771 53. 0.42703	20 dB dB _µ V 62 dB _µ V 000 GHz 66 dB _µ V 543 GHz 407 GHz 407 GHz	1MA
Date 128 120 110 100 90 80 70 60 50	: 1 Ref Lv1 128.7 c 11.7 c 11.7 c 11.7 c	1. DEC. 2 CH N JB µV JB Offsd 62 dBµV 62 dBµV	010 15 Mid (30 Marker 2 2 2 1	:07:49 DMHZ ⁷ 1 [T1] 101.6 :437000 	~26.50	GHz) (802.11 100 k 6.8 V1 V2 V3 V3	Ig MC Hz R Hz s U [T1] [T1] [T1]	DDE) F Att 101. 2.43700 56. 6.60771 53. 0.42703	20 dB dB _µ V 62 dB _µ V 000 GHz 66 dB _µ V 543 GHz 407 GHz 407 GHz	1MA
Date 128 120 110 100 90 80 70 60 50 40	: 1 Ref Lv1 128.7 c 11.7 c 11.7 c 11.7 c 1MAX -D1 81.	1. DEC. 2 CH N JB Offse 52 dB µV	010 15 Mid (30 Marker 2 2 1	:07:49 DMHZ ⁷ 1 [T1] 101.6 2.437000 	~26.50	GHz) (RBW VBW SWT	802.11 100 k 6.8 V1 V2 V3 	Ig MC Hz R Hz s U [T1] [T1] [T1]	DDE) F Att 101. 2.43700 56. 6.60771 53. 0.42703	20 dB dB _µ V 62 dB _µ V 66 dB _µ V 543 GHz 78 dB _µ V 407 GHz 407 GHz	1MA
Date 128 120 110 100 90 80 70 60 50 40	: 1 Ref Lv1 128.7 c 11.7 c 11.7 c 11.7 c 1MAX -D1 81.	1. DEC. 2 CH N B Offse 52 dB μ V 52 dB μ V	010 15 Mid (30 Marker 2 2 2 1	:07:49 DMHZ ⁷ 1 [T1] 101.6 2.437000 	~26.50	GHz) (RBW VBW SWT	802.11 100 k 6.8 V1 V2 V3 	Ig MC Hz R Hz s U [T1] [T1] [T1]	DDE) F Att 101. 2.43700 56. 6.60771 53. 0.42703	20 dB dB _µ V 62 dB _µ V 66 dB _µ V 543 GHz 78 dB _µ V 407 GHz 407 GHz	1MA
Date 128 120 110 100 90 80 70 60 50 40 28.7	: 1 Ref Lv1 128.7 c 11.7 c 11.7 c 11.7 c 1MAX -D1 81.	1. DEC. 2 CH N B Offse 52 dB μ V 52 dB μ V	010 15 Marker 2 21	:07:49 DMHZ ⁷ 1 [T1] 101.6 2.437000 	~26.50	GHz) (RBM VBM SMT	802.11 100 k 6.8 V1 V2 V3 	Ig MC Hz R Hz s U [T1] [T1] [T1]	DDE) F Att 101. 2.43700 56. 6.60771 53. 0.42703	20 dB dB _µ V 62 dB _µ V 66 dB _µ V 543 GHz 78 dB _µ V 407 GHz 407 GHz	1MA
Date 128 120 110 100 90 80 70 60 50 40 28.7	: 1 Ref Lv1 128.7 c 11.7 c	1. DEC. 2 CH N B Offsd 62 dBµV 62 dBµV	010 15 Mid (30 Marker 2 2 2 1	:07:49 DMHZ ⁷ 1 [T1] 101.6 2.437000 	~26.50	GHz) (RBW VBW SWT	802.11 100 k 5.8 V1 V2 V3 V3	I g MC Hz R Hz s U [T1] [T1] (T1] (T1] (T1] (T1] (T1] (T1) (DDE) F Att 101. 2.43700 56. 6.60771 53. 0.42703	20 dB dB _µ V 62 dB _µ V 66 dB _µ V 543 GHz 407 GHz 407 GHz 6.5 GHz	1MA

(802.11g MODE)







	C.	H Low	r (30M	Hz~26	6.5GH	z) (802	2.11n l	HT2) MODI	E)	
× S	Ref Lvl 128.7	dBµV	Marker 2	1 [T1] 99.9 2.412000	3 dBµV 00 GHz	RBW VBW SWT	100 k 100 k 6.8	Hz Hz s	RF Att Unit	20 dB dB#\	/
128	11.7	dB Offse	e t				•1	[T1]	99.	93 dBµV	
120							⊽2	[T1]	2.41200	000 GHz 55 dBµV	
110								[T1]	6.92599 56.	198 GHz 30 dB<i>u</i>V	
	1								13.76893	788 GHz	
100	1MAX										1MA
90											
80	D1 79.	93 dBµV									
70											
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40											-
28.7											
	Start 3	0 MHz			2.647	GHz∕			Stop 2	26.5 GHz	
Jale		LI.UEU.Z	:uiu ia	UO 47							
<u>^</u>	C	H Mid	(30M	Hz~26	5.5GHz	z) (802	2.11n I	HT2() MODI	E)	
Ś	C Ref Lv1	H Mid	(30M Marker	Hz~26	5.5GHz 4 dBµV	z) (802 ^{RBW} VBW	2.11n I 100 k 100 k	HT2(^{Hz} ^{Hz}) MODI	E) 20 dB	
128	C Ref Lvl 128.7	H Mid dBµV	(30M Marker 2	Hz~26 1 [T1] 100.4 2.437000	5.5GH2 4 dBµV 00 GHz	z) (80 2 квм vвw swt	2.11n I 100 k 100 k 6.8	HT2(Hz Hz s	D MODI RF Att Unit	E) 20 dB dBμV	/
128 120	C Ref Lvl 128.7 11.7	H Mid dBµV dB Offs€	(30M Marker 2 2	Hz~26 1 [T1] 100.4 2.437000	5.5GH2 4 dBµV 00 GHz	z) (80 2 квш увш Swt	2.11n I 100 k 100 k 6.8 V1	HT2(Hz Hz s [T1]) MODI RF Att Unit 2.43700	E) 20 dB dBμV 44 dBμV 000 GHz	
128 120	C Ref Lv1 128.7 11.7	H Mid dBμV dB Offse	(30M Marker 2	Hz~26 1 [T1] 100.4 2.437000	5.5GH2 4 dBµV 00 GHz	z) (80 2 квы увы Sыт	2.11n I 100 k 100 k 6.8 ▼1 ∇2	HT2(Hz Hz s [T1] [T1]	D MODI RF Att Unit 2.43700 56. 6.92595	 20 dB dBμV 44 dBμV 000 GHz 19 dBμV 19 dBμV 19 GHz 	
128 120 110	C Ref LvI 128.7 11.7	H Mid dBµV dB Offse	(30M Marker 2 2	Hz~26	5.5GH; 4 dBµV 00 GHz	z) (802 _{RBM} уBM SMT	2.11n I 100 k 6.8 ▼1 ▽2 ▽3	HT2(Hz Hz s [T1] [T1] [T1]	D MODI RF Att Unit 2.43700 56. 6.92599 54. 10.42703	20 dB dBµV 44 dBµV 000 GHz 19 dBµV 198 GHz 43 dBµV 407 GHz	
128 120 110 100	C Ref Lv1 128.7 11.7	H Mid dBµV dB Offse	(30M Marker 2 at	Hz~26	5.5GH2 4 dBµV 00 GHz	z) (802 _{RBM} увы SWT	2.11n I 100 k 100 k 6.8 ▼1 ▼2 ∇ 2 ∇ 3	HT2(Hz s [T1] [T1] [T1]	D MODI RF Att Unit 2.43700 56. 6.92599 54. 10.42703	20 dB dBµV 44 dBµV 000 GHz 19 dBµV 198 GHz 43 dBµV 407 GHz	114
128 120 110 100 90	C Ref Lv1 128.7 11.7 11.7	H Mid dBµV dB Offse	(30M Marker 2 et	Hz~26	5.5GH2 4 dBµV 00 GHz	z) (802 _{RBM} УВM SWT	2.11n I 100 k 100 k 6.8 ▼1 ▼2 ∇ 2 ∇ 3	HT2(Hz s [T1] [T1] (T1]	D MODI RF Att Unit 2.43700 56. 6.92599 54. 10.42703	E) 20 dB dBµV 44 dBµV 000 GHz 19 dBµV 198 GHz 43 dBµV 407 GHz	1 MA
128 120 110 100 90 80	C Ref Lv1 128.7 11.7 1 1MAX	H Mid dBµV dB Offse 44 dBµV	(30M Marker 2 2 1	Hz~26	5.5GH2 4 dBµV 00 GHz	z) (802 _{RBW} УВW SWT	2.11n I 100 k 100 k 6.8 ▼1 ▼2 ∇ 2 ∇ 3	HT2(Hz s [T1] [T1] (T1]	D MODE RF Att Unit 2.43700 56. 54. 10.42703	20 dB dBµV 44 dBµV 000 GHz 19 dBµV 198 GHz 43 dBµV 407 GHz	1 1 1 1 1 1 1 1 1 1 1 1
128 120 110 100 90 80	C Ref Lv1 128.7 11.7 1 1MAX	H Mid dBµV dB Offse 44 dBµV	(30M Marker 2 2 1	Hz~26	5.5GH2 4 dB,µV 00 GHz	z) (802 _{КВИ} УВИ SWT	2.11n I 100 k 100 k 6.8 ▼1 ▼2 ▼3	HT2(Hz Hz s [T1] [T1] (T1]	D MODH RF Att Unit 2.43700 56. 92599 10.42703	20 dB dBµV 44 dBµV 000 GHz 19 dBµV 198 GHz 43 dBµV 407 GHz	/
128 120 110 100 90 80 70	C Ref Lv1 128.7 11.7 11.7	H Mid dBµV dB Offse 44 dBµV	(30M Marker 2 2 t	Hz~26	5.5GH2 4 dB,µV 00 GHz	z) (802 кви уви swt	2.11n I 100 k 6.8 ▼1 ▽2 ▽3	HT2(Hz Hz s [T1] [T1] (T1]	D MODH RF Att Unit 2.43700 56. 6.92599 54. 10.42703 0.42703	20 dB dBµV 44 dBµV 000 GHz 19 dBµV 19 dBµV 43 dBµV 40 7 GHz	/
128 120 110 100 90 80 70 60	C Ref Lv1 128.7 11.7 11.7 1MAX	H Mid dBµV dB Offse 44 dBµV	(30M Marker 2 2 t	Hz~26	5.5GH2 4 dB _# V 00 GHz	z) (802 кви уви якт	2.11n I 100 k 100 k €.8 ▼1 ▽2 ▽3	HT2(Hz Hz s [T1] [T1] [T1]	D MODH RF Att Unit 100. 2.43700 56. 6.92599 10.42703 10.42703 0.42703	20 dB dBμV 44 dBμV 000 GHz 19 dBμV 19 dBμV 40 7 GHz	1MA
128 120 110 100 90 80 70 60 50	C Ref Lv1 128.7 11.7 1 1MAX D1 AD	H Mid dBµV dB Offse 44 dBµV	(30M Marker 2 t	Hz~26 1 [T1] 100.4 2.437000	5.5GH2 4 dB _# V 00 GHz	z) (802 _{RBM} VBM SMT	2.11n I 100 k 100 k €.8 ▼1 ▽2 ▽3	HT2(Hz s [T1] [T1] [T1]	D MODH RF Att Unit 100. 2.43700 56. 6.92595 10.42703 10.42703 10.42703 10.42703	20 dB dB µV 44 dB µV 000 GHz 19 dB µV 19 dB µV 40 7 GHz 43 dB µV 40 7 GHz	111A
128 120 110 100 90 80 70 60 50 40	C Ref Lv1 128.7 11.7 1MAX	H Mid dBµV dB Offse 44 dBµV	(30M Marker 2 t	Hz~26 1 [T1] 100.4 2.437000	5.5GH2	z) (802 кВы УВЫ БЫТ	2.11n I 100 k 100 k 6.8 ▼1 ∇2 ∇3	HT2(Hz s [T1] [T1] [T1]	D MODE RF Att Unit 100. 2.43700 56. 6.92595 10.42703 10.42703 42703 10.4270	20 dB dBµV 44 dBµV 000 GHz 19 dBµV 198 GHz 43 dBµV 407 GHz	11MA
128 120 110 100 90 60 70 60 50 40	C Ref Lv1 128.7 11.7 1MAX	H Mid	(30M Marker 2 t 2 t	Hz~26		z) (802 RBW VBW SWT	2.11n I 100 k 6.8 ▼1 ∇2 ∇3	HT2(Hz s [T1] [T1] [T1]	D MODI RF Att Unit 100. 2.43700 56. 6.92595 10.42703 10.42703 0.42703 0.42703 0.42703 0.42703 0.42703 0.42703 0.42703 0.42703 0.42703 0.42703 0.42703 0.42704 0.42703 0.42	20 dB dB, w 44 dB, w 000 GHz 19 dB, w 198 GHz 43 dB, w 407 GHz	1 MA
128 120 110 100 90 80 70 60 50 40 28.7	C Ref Lv1 128.7 11.7 1MAX 	H Mid	(30M Marker 2 t	Hz~26	2.547	z) (802 RBW VBW SWT	2.11n I 100 k 6.8 ▼1 ▼2 ▼3	HT2(Hz s [T1] [T1] [T1]	D MODE RF Att Unit 100. 2.43700 56. 6.92595 10.42703 10.42703 0.42704 0.42704 0.42	20 dB dB µV 44 dB µV 000 GHz 19 dB µV 198 GHz 407 GHz 407 GHz 407 GHz	1 MA

(802.11n HT20 MODE)





СЦІА	w(20)	1Uz. 26.5G	(90)	2.11n			E)	
	W (JUIV Marker	$112 \sim 20.50$	RBW	100 k	LII4' Hz	RE Att	20 dB	
≻ Ref Lvl		97.56 dBµ	ιν vbw	100 k	Hz			
128.7 dBµV		, 2.42200000 GH	iz SWT	6.8	s	Unit	dBµ∖	/
18	<u> </u>			1				1
11.7 dB Uff	set			▼1	[T1]	97.	.56 dBµV	
20	_					2.42200	1000 GHz	
				♥2	[T1]	55.	.61 dBμV	
						6,97903	3808 GHz	
.0				⊽3	[T1]	- 55.	. <mark>16 dBµ</mark> ∀	
						12.65498	994 GHz	
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0	_							
—D1 77.56 dBμ	vV							
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σταιτ συ ΠΠΖ			147 UHZ/			JLUP 2		
	2010 16		14 r 01127			Jtop 2	0.0 002	
: 11.DEC CH Mi	2010 15	::14:40 [Hz~26.5G	Hz) (80	2.11n l	HT4	0 MOD	E)	
e: 11.DEC CH Mi	2010 15 d (30M Marker	IHz~26.5G	Hz) (80 RBW V VBW	2.11n 1 100 k 100 k	HT4(0 MOD	E) 20 dB	
e: 11.DEC CH Mi Ref Lv1 128.7 dBμV	2010 15 d (30M Marker	IHz~26.5G	Hz) (80 RBW W VBW Iz SWT	2.11n 100 k 100 k 6.8	HT4(Hz Hz s	0 MOD RF Att	E) 20 dB dBµ\	/
e: 11.DEC CH Mi Ref Lvl 128.7 dBμV ⁸ 11.7 φB Off	.2010 15 id (30M Marker : set	IHz~26.5G	Hz) (80 квы и увы iz Sut	2.11n] 100 k 100 k 6.8	HT4(Hz Hz s [T1]	0 MOD RF Att Unit 97.	E) 20 dB dBµ\ 29 dBµV	/
e: 11.DEC CH Mi Ref Lv1 128.7 dBµV ⁸ 11.7 dB Off	2010 15 d (30M Marker set	IHz~26.5G	Hz) (80 квы и увы iz SWT	2.11n] 100 k 100 k 6.8	H T4(^{Hz} s [T1]	0 MOD RF Att Unit 2.43700	E) 20 dB dBµ\ 29 dBµV	
e: 11.DEC CH Mi Ref Lv1 128.7 dBμV B 11.7 dB Off	.2010 15 id (30M Marker : set	IHz~26.5G	Hz) (80 квы и v vвы iz sыт	2.11n 100 k 100 k 6.8 V1 V2	HT4(Hz s [T1]	0 MOD RF Att Unit 2.43700 56.	E) 20 dB dBμ\ 29 dBμV 000 GHz 98 dBμV	
e: 11.DEC CH Mi Ref Lv1 128.7 dBμV B 11.7 dB Off	.2010 15 id (30M Marker : set	IHz~26.5G	Hz) (80 квы и V Vвы iz Sыт	2.11n] 100 k 100 k 6.8 ▼1 ▼2	HT4(Hz Hz s [T1] [T1]	0 MOD RF Att Unit 2.43700 56, 6.97903	E) 20 dB dBμV 29 dBμV 29 dBμV 29 dBμV 38 dBμV 380 B GHz	
e: 11.DEC CH Mi Ref Lv1 128.7 dBμV 11.7 dB Off	.2010 15 id (30M Marker set	IHz~26.5G	Hz) (80 квы и V Vвы iz Sыт	2.11n] 100 k 100 k 6.8 v 1 v2 v2	HT4(Hz s [T1] [T1] [T1]	0 MOD RF Att Unit 2.43700 56. 6.97903	E) 20 dB dBµV 29 dBµV 000 GHz 98 dBµV 808 GHz 38 dBµV	
e: 11.DEC CH Mi Ref Lv1 128.7 dBμV 11.7 dB Off	.2010 15 id (30M Marker set	IHz~26.5G	Hz) (80 квы и v vвы iz sыт	2.11n l 100 k 100 k 6.8 •1 •2 •2 •3	HT4(Hz s [T1] [T1] [T1]	0 MOD RF Att Unit 2.43700 56. 5.97903 55. 12.44276	E) 20 dB 29 dB _µ V 29 dB _µ V 29 dB _µ V 98 dB _µ V 88 dB _µ V 38 dB _µ V	
e: 11.DEC CH Mi Ref Lv1 128.7 dBμV 11.7 dB Off	2010 15 d (30M Marker set	IHz~26.5G	Hz) (80 квы и увы Iz Sыт	2.11n l 100 k 100 k 6.8 •1 •2 •7	HT4(Hz Hz [T1] [T1] [T1]	0 MOD RF Att Unit 2.43700 56. 6.97903 56. 12.44276	E) 20 dB 29 dB _µ V 29 dB _µ V 29 dB _µ V 98 dB _µ V 808 GHz 38 dB_µV 55 7 GHz	
e: 11.DEC CH Mi Ref Lv1 128.7 dBμV 11.7 dB Off	2010 15 d (30M Marker set	IHz~26.5G	Hz) (80 квы ку увы iz Sыт	2.11n 100 k 100 k 6.8 •1 •2 •2 •3	HT4(Hz Hz [T1] [T1] [T1]	0 MOD RF Att Unit 2.43700 56. 6.97903 12.44276	E) 20 dB dBµV 29 dBµV 29 dBµV 98 dBµV 808 GHz 38 dBµV 557 GHz	
CH Mi	.2010 15 id (30M Marker : set	IHZ~26.5G	Hz) (80 квы и v vвы iz SWT	2.11n 100 k 100 k 6.8 ▼1 ▼2 ∇2 ∇3	HT4(Hz Hz s [T1] [T1] (T1]	0 MOD RF Att Unit 2.43700 56. 6.97903 12.44276	E) 20 dB dBµV 29 dBµV 000 GHz 98 dBµV 3808 GHz 38 dBµV 357 GHz	1
CH Mi	2010 15	IHz~26.5G	Hz) (80 RBW V VBW Iz SWT	2.11n l 100 k 100 k 6.8 V1 V2 V3	HT4(Hz s [T1] [T1] [T1]	0 MOD RF Att Unit 2.43700 56. 6.97903 6.97903 12.44276	E) 20 dB dBµV 29 dBµV 000 GHz 98 dBµV 808 GHz 38 dBµV 557 GHz	11
E: 11.DEC CH Mi CH Mi CH Mi 128.7 dBµV 11.7 dB Off 11.7 dB Off 11.7 dB Off 11.7 dB Off	2010 15	IHz~26.5G	Hz) (80 RBW V VBW Iz SWT	2.11n l 100 k 100 k 5.8 ▼1 ▼2 ▼3	HT4(Hz s [T1] [T1]	0 MOD RF Att Unit 2.43700 56. 6.97903 56. 12.44276	E) 20 dB 29 dB _µ V 29 dB _µ V 29 dB _µ V 298 dB _µ V 2808 GHz 38 dB _µ V 2808 GHz	1
CH Mi	2010 15	IHz~26.5G	Hz) (80 RBW V VBW Iz SWT	2.11n 1 100 k 100 k 5.8 ▼1 ▼2 ▼3	HT4(Hz s [T1] [T1]	0 MOD RF Att Unit 2.43700 56. 6.97903 56. 12.44278	E) 20 dB 29 dB _µ V 29 dB _µ V 29 dB _µ V 298 dB _µ V 3808 GHz 38 dB _µ V 3657 GHz	11
CH Mi	2010 15	IHz~26.5G	Hz) (80 квы и уви Iz SWT	2.11n 1 100 k 100 k 5.8 ▼1 ▼2 ▼3	HT4(Hz s [T1] [T1]	0 MOD RF Att Unit 2.43700 56. 6.97903 56. 12.44278	E) 20 dB dBµV 29 dBµV 000 GHz 98 dBµV 808 GHz 38 dBµV 557 GHz	11
CH Mi	2010 15	IHz~26.5G	Hz) (80 квы и VВЫ Iz SWT	2.11n] 100 k 100 k 5.8 ▼1 ▼2 ▼3	HT4(Hz s [T1] [T1] [T1]	0 MOD RF Att Unit 2.43700 56. 6.97903 56. 12.44278	E) 20 dB dBµV 29 dBµV 000 GHz 98 dBµV 808 GHz 38 dBµV 557 GHz	11
E: 11.DEC CH Mi Ref Lv1 128.7 dBµV 128.7 dBµV 11.7 dB Off 0 1 1 1 1 1 1 1 1 1 1 1 1 1	2010 15	IHz~26.5G	Hz) (80 квы и V Vвы iz SWT	2.11n] 100 k 100 k 6.8 ▼1 ▼2 ▼3	HT4(Hz s [T1] [T1] [T1]	0 MOD RF Att Unit 2.43700 56. 56.97903 12.44276	E) 20 dB dBµV 29 dBµV 000 GHz 98 dBµV 808 GHz 38 dBµV 557 GHz	11
E: 11.DEC CH Mi Ref Lv1 128.7 dBµV 11.7 dB Off 11.7 dB Off 0 1 1 1 1 1 1 1 1 1 1 1 1 1	2010 15	IHz~26.5G	Hz) (80 RBM V VBM Iz SWT	2.11n l 100 k 100 k 6.8 ▼1 ⊽2 ∇ 3	HT4(Hz s [T1] [T1] [T1]	0 MOD RF Att Unit 2.43700 56. 56.97903 12.44276	E) 20 dB 29 dB _µ V 29 dB _µ V 29 dB _µ V 29 dB _µ V 298 dB _µ V 2808 GHz 38 dB _µ V	11
E: 11.DEC CH Mi Ref Lv1 128.7 dBµV 11.7 dB Off 0 11.7 dB Off 0 1 1 1 0 −D1 77.29 dBµ	2010 15	IHz~26.5G	Hz) (80 RBM V VBM IZ SWT	2.11n] 100 k 100 k 6.8 ▼1 ▼2 ▼3	HT4(Hz s [T1] [T1] (T1]	0 MOD RF Att Unit 2.43700 56, 6.97903 56, 12.44278	E) 20 dB 29 dB µV 29 dB µV 000 GHz 98 dB µV 808 GHz 38 dB µV 557 GHz	11
CH Mi Ref Lv1 128.7 dBμV 11.7 dB Off 11.7 dB Off 0 0 11MAX 0 -D1 77.29 dBμ 0	2010 15	IHZ~26.5G	Hz) (80 RBM V VBM IZ SMT	2.11n] 100 k 100 k 6.8 ▼1 ▼2 ▼3	HT40 Hz s [T1] [T1] [T1]	0 MOD RF Att Unit 2.43700 55, 6.97903 56, 12.44278	E) 20 dB dBµV 29 dBµV 000 GHz 98 dBµV 98 dBµV 380 GHz 38 dBµV 1557 GHz	11
CH Mi Ref Lv1 128.7 dBμV 11.7 dB Off 11.7 dB Off 0 0 1MAX 0 -D1 77.29 dBμ 0	2010 15	IHz~26.5G	Hz) (80 RBW V VBW IZ SWT	2.11n] 100 k 100 k 6.8 V1 V2 V3	HT40 Hz s [T1] [T1] (T1]	0 MOD RF Att Unit 97. 2.43700 56. 6.97903 6.97903 12.44276 12.44276	E) 20 dB 29 dB _µ V 29 dB _µ V 29 dB _µ V 98 dB _µ V 808 GHz 38 dB _µ V 557 GHz	11
E: 11.DEC CH Mi Ref Lv1 128.7 dBµV 11.7 dB Off 11.7 dB Off 0 11.7 dB Off 0 0 0 11.7 dB Off 0 0 0 0 0 0 0 0 0 0 0 0 0	2010 15	IHZ~26.5G	Hz) (80 RBW V VBW Iz SWT	2.11n] 100 k 100 k 6.8 ▼1 ▼2 ▼3	HT40 Hz s [T1] [T1] [T1]	0 MOD RF Att Unit 2.43700 56. 5.97903 56. 12.44276	E) 20 dB 29 dB _µ V 29 dB _µ V 20 dB 29 dB _µ V 20 dB 29 dB _µ V 20 dB 20 dB _µ V 20 dB _µ	11
E: 11.DEC CH Mi Ref Lvl 128.7 dBµV 128.7 dBµV 11.7 dB Off 0 0 11.7 dB Off 0 0 11.7 dB Off 0 0 0 0 0 0 0 0 0 0 0 0 0	2010 15	IHZ~26.5G	Hz) (80 RBW V VBW Iz SWT	2.11n] 100 k 100 k 5.8 ▼1 ▼2 ▼3 ▼3	HT4(Hz s [T1] [T1] [T1]	0 MOD RF Att Unit 2.43700 56. 6.97903 12.44276	E) 20 dB 29 dB _µ V 29 dB _µ V 29 dB _µ V 29 dB _µ V 298 dB _µ V 298 dB _µ V 298 dB _µ V 298 dB _µ V	1
E: 11.DEC CH Mi CH Mi 128.7 dBµV 128.7 dBµV 11.7 dB Off 0 0 0 0 0 0 0 0 0 0 0 0 0	2010 15	IHZ~26.5G	Hz) (80 RBW V VBW IZ SWT	2.11n] 100 k 100 k 5.8 ▼1 ▼2 ▼3 ▼3	HT4(Hz s [T1] [T1] (T1]	0 MOD RF Att Unit 2.43700 56. 6.97903 56. 12.44276	E) 20 dB 29 dB _µ V 29 dB _µ V 29 dB _µ V 298 dB _µ V 3808 GHz 38 dB _µ V 3657 GHz	1
CH Mi	2010 15	IHZ~26.5G	Hz) (80 RBW V VBW IZ SWT	2.11n] 100 k 100 k 5.8 ▼1 ▼2 ▼3 ▼3	HT4(Hz s [T1] [T1] [T1]	0 MOD RF Att Unit 97. 2.43700 56. 6.97903 12.44278 12.44278	E) 20 dB 29 dB _µ V 29 dB _µ V 29 dB _µ V 98 dB _µ V 808 GHz 38 dB _µ V 808 GHz 3657 GHz 4	1
CH Mi Ref Lv1 128.7 dBµV 128.7 dBµV 128.7 dBµV 11.7 dB Off 11.7 dB Off 0 1 1 1 1 1 1 1 1 1 1 1 1 1	2010 15	IHz~26.5G	Hz) (80 RBM V VBM IZ SWT	2.11n] 100 k 100 k 5.8 ▼1 ▼2 ▼3 ▼3	HT4(Hz s [T1] [T1] [T1]	0 MOD RF Att Unit 97. 2.43700 56. 6.97903 56. 12.44278 44278 44278	E) 20 dB 29 dB _µ V 29 dB _µ V 20 dB _µ V	1
E: 11.DEC CH Mi Ref Lv1 128.7 dBµV 128.7 dBµV 11.7 dB Off 0 1 1 1 1 1 1 1 1 1 1 1 1 1	2010 15	IHz~26.5G	Hz) (80 RBW V VBW IZ SWT	2.11n] 100 k 100 k 5.8 ▼1 ▼2 ▼3 ▼3	HT4(Hz s [T1] [T1] [T1]	0 MOD RF Att Unit 97. 2.43700 56. 6.97903 56. 12.44278 0 0 0 0 0 0 0 0 0 0 0 0 0	E) 20 dB 29 dB _µ V 29 dB _µ V 20 dB _µ V 29 dB _µ V 20 dB _µ V	
CH Mi Ref Lv1 128.7 dBµV 128.7 dBµV 11.7 dB Off 11.7 dB Off 11.7 dB Off 0 1 1 1 1 1 1 1 1 1 1 1 1 1	2010 15	IHz~26.5G	Hz) (80 RBW V VBW IZ SWT	2.11n] 100 k 100 k 5.8 ▼1 ▼2 ▼3 ▼3	HT4(Hz s [T1] [T1] [T1]	0 MOD RF Att Unit 97. 2.43700 56. 5.97903 56. 12.44276 4	E) 20 dB 29 dB _µ V 29 dB _µ V 20 dB _µ V 29 dB _µ V 20 dB _µ V 29 dB _µ V 20 dB _µ V	

(802.11n HT40 MODE)





8.6 RADIATED EMISSIONS

8.6.1 TRANSMITTER RADIATED SUPURIOUS EMSSIONS

LIMITS

§ 15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 -1710	10.6 -12.7
6.26775 - 6.26825	108 -121.94	1718.8 - 1722.2	13.25 -13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 – 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 -16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3338	36.43 - 36.5
12.57675 - 12.57725	322 -335.4	3600 - 4400	(²)
13.36 - 13.41			

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

§ 15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown is Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.



§ 15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table :

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz, However, operation within these frequency bands is permitted under other sections of this Part, e-g, Sections 15.231 and 15.241.

§ 15.209 (b) In the emission table above, the tighter limit applies at the band edges.

TEST EQUIPMENTS

The following test equipments are utilized in making the measurements contained in this report.

Open Area Test Site # 6										
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due						
TYPE N COAXIAL CABLE	SUHNER	CHA9513	6	NOV. 17, 2011						
BI-LOG Antenna	Sunol	JB1	A070506-2	OCT. 4, 2011						
LOOP ANTENNA	EMCO	6502	8905-2356	JUN. 10, 2011						
Pre-Amplifier	HP	8447F	2944A03817	NOV. 23, 2011						
EMI Receiver	R&S	ESVS10	833206/012	MAY 10, 2011						
RF Cable	SUHNER	SUCOFLEX104PEA	20520/4PEA	NOV. 10, 2011						
Horn Antenna	Com-Power	AH-118	071032	DEC. 27, 2011						
Spectrum Analyzer	R&S	FSEK 30	835253/002	JUL. 14, 2011						
Pre-Amplifier	MITEQ	AFS44-00108650-42-10P-44	1205908	NOV. 23, 2011						
Turn Table	Yo Chen	001		N.C.R.						
Antenna Tower	AR	TP1000A	309874	N.C.R.						
Controller	СТ	SC101		N.C.R.						
RF Swicth	E-INSTRUMENT TELH LTD	ERS-180A	EC1204141	NOV. 17, 2011						
Test S/W		e-3 (5.04303	se)							



TEST SETUP

The diagram below shows the test setup that is utilized to make the measurements for emission from 30 to 1GHz.



Antenna Elevation Variable

The diagram below shows the test setup that is utilized to make the measurements for emission above 1GHz.







TEST PROCEDURE

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. White measuring the radiated emission below 1GHz, the EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. White measuring the radiated emission above 1GHz, the EUT was set 3 meters away from the interference-receiving antenna
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarization of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 KHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
- 2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection and frequency above 1GHz.
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.
- 4. No emission is found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz)

TEST RESULTS

No non-compliance noted.

8.6.2 WORST-CASE RADIATED EMISSION BELOW 1 GHz

Product Name	11n USB Dongle	Test Date	2010/12/2
Model	WL307n	Test By	John Chen
Test Mode	Normal operating / worst case	TEMP& Humidity	22.8°C,53%

Horizontal



No.	Freq- Meter Reading Antenna Cable Emission Uency at 3 m Level Factor Loss at 3 m Level		Emission at 3 m Level	Limits	Margin	Detector Mode		
	(MHz)	(dBµV)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	PK/QP
1	85.14	24.21	8.21	1.48	33.90	40.00	-6.10	QP
2	110.62	14.63	8.07	1.69	24.39	43.50	-19.11	QP
3	216.00	15.33	13.01	2.62	30.96	43.50	-12.54	QP
4	396.53	10.47	16.27	3.88	30.63	46.00	-15.37	QP
5	500.03	13.96	18.14	4.82	36.92	46.00	-9.08	QP
6	719.25	14.85	20.97	5.85	41.67	46.00	-4.33	QP
					-			

REMARK: Emission level $(dB\mu V/m)$ =Antenna Factor (dB/m) + Cable loss (dB) + Meter Reading $(dB\mu V)$.



Product Name	11n USB Dongle	Test Date	2010/12/2
Model	WL307n	Test By	John Chen
Test Mode	Normal operating / worst case	TEMP& Humidity	22.8°C,53%

Vertical



REMARK: Emission level $(dB\mu V/m)$ =Antenna Factor (dB/m) + Cable loss (dB) + Meter Reading $(dB\mu V)$.



8.6.3 TRANSMITTER RADIATED EMISSION ABOVE 1 GHz

Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11b TX (CH Low)	TEMP& Humidity	23.2°C,47%

Horizontal

TX / IEEE 802.11b mode / CH Low						Measurement Distance at 3m Horizontal polarity				
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1596.03	52.78	27.33	2.22	41.58	0.84	41.58	74.00	-32.42	Р
*	1596.03	42.65	27.33	2.22	41.58	0.84	31.45	54.00	-22.55	А
*	4824.06	53.05	33.17	3.73	42.38	0.69	48.26	74.00	-25.74	Р
*	4824.06	46.15	33.17	3.73	42.38	0.69	41.36	54.00	-12.64	А

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11b TX (CH Low)	TEMP& Humidity	23.2°C,47%

Vertical

	TX / IEEE 802.11b mode / CH Low				Measurement Distance at 3m Horizontal polarity					ity
	Freq.	Reading	Reading AF		Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1595.75	56.57	27.33	2.22	41.58	0.84	45.37	74.00	-28.63	Р
*	1595.75	45.94	27.33	2.22	41.58	0.84	34.74	54.00	-19.26	А
*	4824.18	60.08	33.17	3.73	42.38	0.69	55.29	74.00	-18.71	Р
*	4824.18	57.38	33.17	3.73	42.38	0.69	52.59	54.00	-1.41	A

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11b TX (CH Middle)	TEMP& Humidity	23.2°C,47%

Horizontal

	TX / IEEE	CH Middle		Measurement Distance at 3m Horizontal polarity						
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1595.71	51.87	27.33	2.22	41.58	0.84	40.67	74.00	-33.33	Р
*	1595.71	42.32	27.33	2.22	41.58	0.84	31.12	54.00	-22.88	А
*	4873.99	52.99	33.32	3.74	42.43	0.71	48.33	74.00	-25.67	Р
*	4873.99	45.86	33.32	3.74	42.43	0.71	41.20	54.00	-12.80	А

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8	
Model	WL307n	Test By	John Chen	
Test Mode	IEEE 802.11b TX (CH Middle)	TEMP& Humidity	23.2°C,47%	

Vertical

	TX / IEEE 802.11b mode / CH Middle				Measurement Distance at 3m Vertical polarity					
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1595.74	56.69	27.33	2.22	41.58	0.84	45.49	74.00	-28.51	Р
*	1595.74	46.01	27.33	2.22	41.58	0.84	34.81	54.00	-19.19	А
*	4874.01	59.54	33.32	3.74	42.43	0.71	54.88	74.00	-19.12	Р
*	4874.01	56.98	33.32	3.74	42.43	0.71	52.32	54.00	-1.68	А

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8	
Model	WL307n	Test By	John Chen	
Test Mode	IEEE 802.11b TX (CH High)	TEMP& Humidity	23.2°C,47%	

Horizontal

	TX / IEEE 802.11b mode / CH High				Measurement Distance at 3m Horizontal polarity					
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1595.69	53.12	27.33	2.22	41.58	0.84	41.92	74.00	-32.08	Р
*	1595.69	43.28	27.33	2.22	41.58	0.84	32.08	54.00	-21.92	А
*	4924.06	53.16	33.47	3.76	42.48	0.73	48.64	74.00	-25.36	Р
*	4924.06	46.37	33.47	3.76	42.48	0.73	41.85	54.00	-12.15	А

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit


Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11b TX (CH High)	TEMP& Humidity	23.2°C,47%

	TX / IEI	EE 802.11	b mode	/ CH High		Measurement Distance at 3m Vertical polarity						
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark		
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)		
*	1595.73	56.24	27.33	2.22	41.58	0.84	45.04	74.00	-28.96	Р		
*	1595.73	45.89	27.33	2.22	41.58	0.84	34.69	54.00	-19.31	А		
*	4924.09	60.06	33.47	3.76	42.48	0.73	55.54	74.00	-18.46	Р		
*	4924.09	57.32	33.47	3.76	42.48	0.73	52.80	54.00	-1.20	А		

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11g TX (CH Low)	TEMP& Humidity	23.2°C,47%

	TX / IEE	CH Low	Measurement Distance at 3m Horizontal polarity							
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1595.93	52.46	27.33	2.22	41.58	0.84	41.26	74.00	-32.74	Р
*	1595.93	41.99	27.33	2.22	41.58	0.84	30.79	54.00	-23.21	А
*	4824.06	52.14	33.17	3.73	42.38	0.69	47.35	74.00	-26.65	Р
*	4824.06	40.63	33.17	3.73	42.38	0.69	35.84	54.00	-18.16	А

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

- 3. The result basic equation calculation is as follow:
- Level = Reading + AF + Cable Preamp + Filter Dist, Margin = Level-Limit
- 4. The other emission levels were 20dB below the limit
- 5. The test limit distance is 3M limit.



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11g TX (CH Low)	TEMP& Humidity	23.2°C,47%

	TX / IEE	CH Low	Measurement Distance at 3m Vertical polarity							
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1595.86	56.84	27.33	2.22	41.58	0.84	45.64	74.00	-28.36	Р
*	1595.86	46.85	27.33	2.22	41.58	0.84	35.65	54.00	-18.35	А
*	4824.03	59.76	33.17	3.73	42.38	0.69	54.97	74.00	-19.03	Р
*	4824.03	47.41	33.17	3.73	42.38	0.69	42.62	54.00	-11.38	A

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11g TX (CH Middle)	TEMP& Humidity	23.2°C,47%

	TX / IEEE 802.11g mode / CH Middle				Measurement Distance at 3m Horizontal polarity						
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark	
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)	
*	1595.79	53.16	27.33	2.22	41.58	0.84	41.96	74.00	-32.04	Р	
*	1595.79	41.52	27.33	2.22	41.58	0.84	30.32	54.00	-23.68	А	
*	4874.03	52.94	33.32	3.74	42.43	0.71	48.28	74.00	-25.72	Р	
*	4874.03	42.03	33.32	3.74	42.43	0.71	37.37	54.00	-16.63	A	

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11g TX (CH Middle)	TEMP& Humidity	23.2°C,47%

	TX / IEEE	CH Middle	Measurement Distance at 3m Vertical polarity							
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1595.83	56.48	27.33	2.22	41.58	0.84	45.28	74.00	-28.72	Р
*	1595.83	46.15	27.33	2.22	41.58	0.84	34.95	54.00	-19.05	А
*	4874.02	60.52	33.32	3.74	42.43	0.71	55.86	74.00	-18.14	Р
*	4874.02	48.19	33.32	3.74	42.43	0.71	43.53	54.00	-10.47	А

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11g TX (CH High)	TEMP& Humidity	23.2°C,47%

	TX / IEE	CH High		Measurement Distance at 3m Horizontal polarity						
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1595.91	52.69	27.33	2.22	41.58	0.84	41.49	74.00	-32.51	Р
*	1595.91	42.61	27.33	2.22	41.58	0.84	31.41	54.00	-22.59	А
*	4924.08	53.19	33.47	3.76	42.48	0.73	48.67	74.00	-25.33	Р
*	4924.08	41.95	33.47	3.76	42.48	0.73	37.43	54.00	-16.57	А

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

- 4. The other emission levels were 20dB below the limit
- 5. The test limit distance is 3M limit.



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11g TX (CH High)	TEMP& Humidity	23.2°C,47%

	TX / IEE	CH High		Measurement Distance at 3m Vertical polarity						
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1595.77	56.95	27.33	2.22	41.58	0.84	45.75	74.00	-28.25	Р
*	1595.77	46.77	27.33	2.22	41.58	0.84	35.57	54.00	-18.43	А
*	4924.08	60.75	33.47	3.76	42.48	0.73	56.23	74.00	-17.77	Р
*	4924.08	47.69	33.47	3.76	42.48	0.73	43.17	54.00	-10.83	А

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11n HT20 TX (CH Low)	TEMP& Humidity	23.2°C,47%

	TX / IEEE 8	802.11n H	T20 mod	e / CH Low		Measurement Distance at 3m Horizontal polarity						
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark		
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)		
*	1595.79	53.52	27.33	2.22	41.58	0.84	42.32	74.00	-31.68	Р		
*	1595.79	42.46	27.33	2.22	41.58	0.84	31.26	54.00	-22.74	А		
*	4824.03	52.14	33.17	3.73	42.38	0.69	47.35	74.00	-26.65	Р		
*	4824.03	40.63	33.17	3.73	42.38	0.69	35.84	54.00	-18.16	А		

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11n HT20 TX (CH Low)	TEMP& Humidity	23.2°C,47%

	TX / IEEE 8	802.11n H	T20 mod	e / CH Low		Measurement Distance at 3m Vertical polarity						
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark		
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)		
*	1595.84	56.00	27.33	2.22	41.58	0.84	44.80	74.00	-29.20	Р		
*	1595.84	46.01	27.33	2.22	41.58	0.84	34.81	54.00	-19.19	А		
*	4824.09	61.29	33.17	3.73	42.38	0.69	56.50	74.00	-17.50	Р		
*	4824.09	47.84	33.17	3.73	42.38	0.69	43.05	54.00	-10.95	А		

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11n HT20 TX (CH Middle)	TEMP& Humidity	23.2°C,47%

	TX / IEEE 8	/ CH Middle	1	Measurement Distance at 3m Horizontal polarity						
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1595.86	52.46	27.33	2.22	41.58	0.84	41.26	74.00	-32.74	Р
*	1595.86	42.73	27.33	2.22	41.58	0.84	31.53	54.00	-22.47	А
*	4874.06	52.96	33.32	3.74	42.43	0.71	48.30	74.00	-25.70	Р
*	4874.06	41.02	33.32	3.74	42.43	0.71	36.36	54.00	-17.64	А

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11n HT20 TX (CH Middle)	TEMP& Humidity	23.2°C,47%

	TX / IEEE 8	02.11n HT	20 mode	/ CH Middle		Measurement Distance at 3m Vertical polarity					
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark	
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)	
*	1595.73	57.16	27.33	2.22	41.58	0.84	45.96	74.00	-28.04	Р	
*	1595.73	46.52	27.33	2.22	41.58	0.84	35.32	54.00	-18.68	А	
*	4874.07	60.95	33.32	3.74	42.43	0.71	56.30	74.00	-17.70	Р	
*	4874.07	47.85	33.32	3.74	42.43	0.71	43.20	54.00	-10.80	А	

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11n HT20 TX (CH High)	TEMP& Humidity	23.2°C,47%

	TX / IEEE	802.11 n H	T20 mod	e / CH High	I	Measurement Distance at 3m Horizontal polarity						
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark		
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)		
*	1595.85	52.41	27.33	2.22	41.58	0.84	41.21	74.00	-32.79	Р		
*	1595.85	42.63	27.33	2.22	41.58	0.84	31.43	54.00	-22.57	А		
*	4924.09	52.69	33.47	3.76	42.48	0.73	48.17	74.00	-25.83	Р		
*	4924.09	41.51	33.47	3.76	42.48	0.73	36.99	54.00	-17.01	A		

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11n HT20 TX (CH High)	TEMP& Humidity	23.2°C,47%

	TX / IEEE	e / CH High		Measurement Distance at 3m Vertical polarity						
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1595.93	55.84	27.33	2.22	41.58	0.84	44.64	74.00	-29.36	Р
*	1595.93	44.29	27.33	2.22	41.58	0.84	33.09	54.00	-20.91	А
*	4924.08	60.71	33.47	3.76	42.48	0.73	56.19	74.00	-17.81	Р
*	4924.08	47.09	33.47	3.76	42.48	0.73	42.57	54.00	-11.43	A

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11n HT40 TX (CH Low)	TEMP& Humidity	23.2°C,47%

	TX / IEEE	e / CH Low	I	Measurement Distance at 3m Horizontal polarity						
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1595.86	52.78	27.33	2.22	41.58	0.84	41.58	74.00	-32.42	Р
*	1595.86	42.65	27.33	2.22	41.58	0.84	31.45	54.00	-22.55	А
*	4844.04	52.49	33.23	3.74	42.40	0.70	47.76	74.00	-26.24	Р
*	4844.04	40.12	33.23	3.74	42.40	0.70	35.39	54.00	-18.61	A

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11n HT40 TX (CH Low)	TEMP& Humidity	23.2°C,47%

	TX / IEEE	e / CH Low		Measurement Distance at 3m Vertical polarity						
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1595.89	56.31	27.33	2.22	41.58	0.84	45.11	74.00	-28.89	Р
*	1595.89	45.85	27.33	2.22	41.58	0.84	34.65	54.00	-19.35	А
*	4844.07	56.67	33.23	3.74	42.40	0.70	51.94	74.00	-22.06	Р
*	4844.07	46.39	33.23	3.74	42.40	0.70	41.66	54.00	-12.34	A

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11n HT40 TX (CH Middle)	TEMP& Humidity	23.2°C,47%

	TX / IEEE 8	802.11 n HT	'40 mode	/ CH Middle	Γ	Measurement Distance at 3m Horizontal polarity					
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark	
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)	
*	1596.02	53.15	27.33	2.22	41.58	0.84	41.95	74.00	-32.05	Р	
*	1596.02	42.90	27.33	2.22	41.58	0.84	31.70	54.00	-22.30	А	
*	4874.13	52.74	33.32	3.74	42.43	0.71	48.09	74.00	-25.91	Р	
*	4874.13	41.27	33.32	3.74	42.43	0.71	36.62	54.00	-17.38	A	

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11n HT40 TX (CH Middle)	TEMP& Humidity	23.2°C,47%

	TX / IEEE 8	/ CH Middle		Measurement Distance at 3m Vertical polarity						
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1595.92	55.78	27.33	2.22	41.58	0.84	44.58	74.00	-29.42	Р
*	1595.92	44.83	27.33	2.22	41.58	0.84	33.63	54.00	-20.37	А
*	4874.07	56.84	33.32	3.74	42.43	0.71	52.19	74.00	-21.81	Р
*	4874.07	47.39	33.32	3.74	42.43	0.71	42.74	54.00	-11.26	A

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11n HT40 TX (CH High)	TEMP& Humidity	23.2°C,47%

	TX / IEEE	e / CH High	1	Measurement Distance at 3m Horizontal polarity						
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)
*	1595.75	53.15	27.33	2.22	41.58	0.84	41.95	74.00	-32.05	Р
*	1595.75	42.44	27.33	2.22	41.58	0.84	31.24	54.00	-22.76	А
*	4904.06	52.96	33.41	3.75	42.46	0.72	48.38	74.00	-25.62	Р
*	4904.06	41.06	33.41	3.75	42.46	0.72	36.48	54.00	-17.52	A

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



Product Name	11n USB Dongle	Test Date	2010/12/8
Model	WL307n	Test By	John Chen
Test Mode	IEEE 802.11n HT40 TX (CH High)	TEMP& Humidity	23.2°C,47%

	TX / IEEE	802.11n H	T40 mod	e / CH High		Measurement Distance at 3m Vertical po						
	Freq.	Reading	AF	Cable Loss	Pre-amp	Filter	Level	Limit	Margin	Mark		
	(MHz)	(dBµV)	(dB/m)	(dB)	(dB)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	(P/Q/A)		
*	1595.83	56.19	27.33	2.22	41.58	0.84	44.99	74.00	-29.01	Р		
*	1595.83	46.31	27.33	2.22	41.58	0.84	35.11	54.00	-18.89	А		
*	4904.03	57.65	33.41	3.75	42.46	0.72	53.07	74.00	-20.93	Р		
*	4904.03	47.84	33.41	3.75	42.46	0.72	43.26	54.00	-10.74	A		

REMARK:

1. AF: Antenna Factor, Cable: Cable Loss, Pre-Amp: Preamplifier gain, Filter: High Pass Filter Insertion Loss (3.5GHz)

2. Spectrum analyzer setting P(Peak): RBW=1MHz, VBW=1MHz, A(Average): RBW=1MHz, VBW=10Hz

3. The result basic equation calculation is as follow:

Level = Reading + AF + Cable – Preamp + Filter – Dist, Margin = Level-Limit

4. The other emission levels were 20dB below the limit



8.6.4 RESTRICTED BAND EDGES

IEEE 802.11b mode

Channel	Polarity	Freq.(MHz)	Level(dBuV)	Limit(dBuV)	Margin(dB)	Detector
	Н	2390.00	57.57	74	-16.43	Peak
	Н	2390.00	45.4	54	-8.60	Average
	V	2390.00	59.35	74	-14.65	Peak
LOW	V	2390.00	45.23	54	-8.77	Average
	Н	2483.50	57.38	74	-16.62	Peak
	Н	2483.50	45.09	54	-8.91	Average
	V	2483.50	57.91	74	-16.09	Peak
HIGH	V	2483.50	45.49	54	-8.51	Average

IEEE 802.11g mode

Channel	Polarity	Freq.(MHz)	Level(dBuV)	Limit(dBuV)	Margin(dB)	Detector
	Н	2390.00	56.86	74	-17.14	Peak
	Н	2390.00	45.47	54	-8.53	Average
	V	2390.00	62.02	74	-11.98	Peak
LOW	V	2390.00	47.77	54	-6.23	Average
	Н	2483.50	57.85	74	-16.15	Peak
	Н	2483.50	45.13	54	-8.87	Average
	V	2483.50	60.91	74	-13.09	Peak
HIGH	V	2483.50	46.87	54	-7.13	Average



IEEE 802.11n HT20 mode

Channel	Polarity	Freq.(MHz)	Level(dBuV)	Limit(dBuV)	Margin(dB)	Detector
	Н	2390.00	58.74	74	-15.26	Peak
	Н	2390.00	45.5	54	-8.50	Average
	V	2390.00	65.68	74	-8.32	Peak
LOW	V	2390.00	48.27	54	-5.73	Average
	Н	2483.50	57.42	74	-16.58	Peak
	Н	2483.50	45.09	54	-8.91	Average
	V	2483.50	62.07	74	-11.93	Peak
HIGH	V	2483.50	47.18	54	-6.82	Average

IEEE 802.11n HT40 mode

Channel	Polarity	Freq.(MHz)	Level(dBuV)	Limit(dBuV)	Margin(dB)	Detector
	Н	2390.00	57.67	74	-16.33	Peak
	Н	2390.00	45.53	54	-8.47	Average
	V	2390.00	62.24	74	-11.76	Peak
LOW	V	2390.00	49.41	54	-4.59	Average
	Н	2483.50	57.43	74	-16.57	Peak
	Н	2483.50	45.10	54	-8.90	Average
	V	2483.50	60.81	74	-13.19	Peak
HIGH	V	2483.50	47.82	54	-6.18	Average

Detector mode : Peak Polarity : Horizontal CH Low (802.11b MODE) Marker 1 [T1] RBW 1 MHz RF Att 20 dB Ref Lvl 1 MHz 91.68 dBµV ٧ВЫ 124.6 dBµV 2.41096192 GHz SWT 100 ms Unit dBµV 124 7.6 dB Offse ▼1 [1] 91.68 dBµV 120 2.41096192 GHz ∇2 [11] 60.15 dBµV 110 40000<mark>000 GHz</mark> ∇3 [T1] 57.54 dBµV .39000000 GHz 100 1MAX x 1MA 90 80 --D1 74 dBμV-70 2 60 whether and a second the marked and a second a s umanna 50 40 30 24.E Start 2.31 GHz 11 MHz/ Stop 2.42 GHz 08.DEC.2010 14:50:22 Date

Detector mode : Average

~			Mankon	1 [T1]		PBU	1 M	H7		DE	 ∧++	20 dB	
	D-6 11		nai kei	1 [11]	4	VDU	10	112		IXI	ни	20 00	
v	Ket LVI			87.4	ι ασμν	VDW	10	ΗZ					
	124.6	dBµV	2	410961	92 GHz	SWT	28	S		Uni	it	dBµV	
124	754	Offee											*
120	1.U U	D UTTae					•1		1]		87.	41 dBµV	
										2	2.41096	192 GHz	
							⊽2	[Τ	1]		49.	73 dBµV	
110								_		-2	.40000	000 GHz	
							۲⊽	r 1	11		45	40 dBuV	
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Dete	ctor n	node :	Peak						Pol	larity	: Verti	ical
			С	H Lov	v ( 802	.11b N	10DE	)				
/k/			Marker	1 [T1]		RBW	1 M	Ηz	RI	= Att	20 dB	
X.	Ref Lvl			106.0	I9 dBµV	VBW	1 M	Ηz				
	124.6	dBµV	2	2.411182	36 GHz	SWT	100 m	S	U	nit	dBµ∖	/
124	7.6 d	B Offse	t				▼1	[]	1]	106.	09 dBµV	
120										2.41118	236 GHz	
							⊽2	[Τ	1]	70.	22 dBµV	
110										2.40000	OQO GHz	
							∆3	[ ]	1]	59,	35∿dBµV	
100										2.3900/0	000 QHz	
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24.0	Start 2	.31 GHz			11 1	1Hz/				Stop 2	.42 GHz	_
Date			010 00	• 20 • NE						•		
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## **Polarity : Vertical**

	CH Low ( 802.11b MODE)   Marker 1 [T1] RBW 1 MHz RF Att 20 dB   Ref Lvl 101.85 dBµV VBW 10 Hz 10 Hz   124.6 dBµV 2.41118236 GHz SWT 28 s Unit dBµV   124 7.6 dB Offse V1 [T1] 101.85 dBµV 2.41118236 GHz **   120 7.6 dB Offse V1 [T1] 101.85 dBµV 2.41118236 GHz **   110 7.6 dB Offse V1 [T1] 64.04 dBµV 2.40000000 GHz **   110 73 [T1] 46.23 dBµV 2.3900000 GHz 45.23 dBµV 2.3900000 GHz **   90 IMAX IMA IMA IMA IMA IMA											
/k/k			Marker	1 [T1]		RBW	1 M	Ηz	R	FAtt	20 dB	
X.	Ref Lvl			101.8	5 dBµV	VBW	10	Ηz				
	124.6 dBµ	иV	2	.411182	36 GHz	SWT	28	s	U	nit	dBµV	
124	7.6 dB (	Offset					<b>v</b> ₁	[Т	1]	101.	85 dB <i>u</i> V	*
I∠u										2.41118	236 GHz	
							⊽2	[Τ	1]	64.	04 dBµV	
110										2.40000	000 GHz	
							∨3	[ T	1]	46.	2≩ dBµV	
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	Start 2.3	1 GHz			11 1	1Hz⁄				Stop 2	2.42 GHz	
Date	08.	DEC.20	010 09	:39:09								



**Detector mode : Peak Polarity : Horizontal** CH High (802.11b MODE) Marker 1 [T1] 1 MHz RΒW RF Att 20 dB Ref Lvl 93.35 dBµV ٧BW 1 MHz 124.6 dBµV 2.46092184 GHz SWT 100 ms Unit dBµV 12-7.6 dB Offse **1** [T1] 93.35 dBµV 120 2.46092184 GHz **†**2 [T1] 57.38 dBµV 110 48350000 GHz 100 1MAX 1MA 90 80 -D1 4 dBµV 70 60 mm whitehart ستنصلصا 50 40 ЗГ 24.6 Start 2.45 GHz 5 MHz/ Stop 2.5 GHz ate: 08.DEC.2010 14:44:47

**Detector mode : Average** 







#### **Polarity : Vertical**





Detector mode	: Peak			F	<b>ola</b>	rity : I	Iorizo	ntal
	CH Low (802	2.11g N	<b>AODE</b>	)				
1 m	Marker 1 [T1]	RBW	1 M	Ηz	R	FAtt	20 dB	
Ref Lvl	94.97 dBµV	VBW	1 M	Hz				
124.6 dBµV	2.40655311 GHz	SWT	100 m	S	U	nit	dBµV	/
124 7.6 dB Offse	et l		<b>v</b> ₁	[]	1]	94.	97 dBμV	1
120						2.40655	311 GHz	
			⊽2	[ ]	1]	71.	72 dBµV	
110						2.40000	000 GHz	
			∆3	[]	1]	56.	86 dBµV	
100						2.39000	000 GHz	
oo 1MAX							$\sum_{i=1}^{n}$	1 MA
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80						+/-		
—D1 74 dBμV—						2/		
70						1		
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50		1						
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24.6								
Start 2.31 GH:	z 11	MHz/				Stop 2	2.42 GHz	
Date: 08.DEC.	2010 14:34:44							

			$\mathbf{C}$	H Low	v ( 802	.11g N	10DE	)					
/k			Marker	1 [T1]		RBW	1 M	Ηz	RI	= At	t	20 dB	
X.	Ref Lvl			85.3	8 dBµV	VBW	10	Ηz					
	124.6 dl	∃µV	2	.406553	11 GHz	SWT	28	s	U	пit		dBµV	
124	7.6 dB	Offse					<b>v</b> ₁	[]	1]		85.	38 dBµV	*
120										2.4	0655	311 GHz	
							⊽2	[7	1]		49.	21 dBµV	
110										2.4	0000	000 GHz	
							∆3	[]	1]		45.	47 dBµV	
100										2.3	9000	UUU GHz	
90	1MAX										1		1MA
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24.0	Start 2.	31 GHz			11 M	1Hz/				St	op 2	.42 GHz	•
Date	: 08	DEC.2	010 14	:35:21									



Detector mode	: Peak				Po	larity	: Vert	ical
	CH Lov	v (802.11s	g MOD	E)				
k)	Marker 1 [T1]	RE	3W 1	MHz	RI	- Att	20 dB	
Ref Lvl	107.5	59 dBµV VE	3W 1	MHz				
124.6 dBµV	2.408318	363 GHz SI	NT 100	ms	Ur	nit	dBµV	r
7.6 dB Offse	et			. [T	1]	107.	59 dBµV	
120						2.40831	663 GHz	
			⊽2	2 [1	1]	83.	46 dBµV	
110					4.1	2.40000	000 GHz	
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Start 2.31 GHz	Z	11 MHz/				Stop 2	.42 GHz	
ate: 08.DEC.	2010 10:13:33							

Polarity : Vertical

CH Low (802.11g MODE)													
<u>k</u>			Marker	1 [T1]		RBW	1 M	Ηz	R	F At	t	20 dB	
XV	Ref Lvl			98.1	6 dBµV	VBW	10	Ηz					
104	124.6 c	BμV	2	.408316	63 GHz	SWT	28	S	U	nit		dBµV	
124	7.6 d	3 Offse					v ₁	[]	1]		98.	16 dBµV	*
120										2.4	0831	663 GHz	
							⊽2	[7	1]		59.	09 dBµV	
110							20			2.4	0000	000 GHz	
							3×	[]	1]	h .	47. םחחם	77 dB#V	
100										2.5	<u>لامبر</u>		
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24.6									-				
	Start 2.	.31 GHz			11 M	1Hz⁄				St	op 2	.42 GHz	
Date:	0	8.DEC.2	010 10	:14:25									











Polarity : Vertical



Detector mo	ode : Peal	k				P	olar	rity : I	Iorizo	ntal
	CH	Low (8	302.11	n HT2	0 MC	D	E)			
12 m	Marke	r 1 [T1]		RBW	1 1	1Hz	R	- Att	20 dB	
🖉 Ref Lvl		95.8	5 dBµV	VBW	1 1	1Hz				
124.6 dB,	μV	2.408977	96 GHz	SWT	100 r	ns	Ur	Unit dBµ		, ,
124 7.6 dB (Offset				▼1	[]	1]	95.	85 dBµV	
120								2.40897	796 GHz	
					⊽2	[]	1]	73.	49 dBµV	
110								2.40000	000 GHz	
					∆3	[T	1]	58.	74 dBµV	
100								2.39000	000 GHz	
									the man	
90 1MAX										1MA
0.0								/		
80								2		
—D1 74 dB	μν					+		7		
70						+		/		
							×	1		
60	handle lander and	- Mardan	home	medner	hanna		w/			
50										
10										
40										
30						F	1			
24.6										
Start 2.3	1 GHz		11 M	1Hz⁄				Stop 2	.42 GHz	
Date: 08.	DEC.2010	14:30:04								

CH Low (802.11n HT20 MODE)												
<u>k</u>		Marker	1 [T1]		RBW	1 M	Ηz		RF	Att	20 dB	
X.	Ref Lvl		85.1	1 dBµV	VBW	10	Ηz					
	124.6 dBµV		2.408977	96 GHz	SWT	28	s		Un i	t	dBµV	
124	7.6 dB Of	fset				▼1	гт	11		85	11 dB#V	*
120						1		1,	2	.40897	796 GHz	
						⊽2	E T	1]		49.	11 dBµV	
110									-2	.40000	000 GHz	
						∆3	[]	1]		45.	50 dBµV	
100									2	.39000	000 GHz	
90	1MAX											1MA
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	D1 54 dBμ\	/										
50							-		-5	/		
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24 5								1				
24.0	Start 2.31	GHz		11 1	 1Hz7		-			Stop 2	.42 GHz	•
Date	ום אח	FC 2010 1.	4.31.02									

Detector mode : Peak Polarity : Vertic												ical
			CH I	Low (8	802.11	n HT2	20 MC)D	E)			
			Marker	1 [T1]		RBW	1	MHz	RI	Att	20 dB	
Ŵ	Ref Lvl			108.4	7 dBµV	VBW	1	MHz				
101	124.6 c	lBμV	2	2.408977	96 GHz	SWT	100	ms	Ur	nit	dBµ∨	r
124	7.6 d	3 Offse	t				▼1	[1]	108.	47 dBμV	
120										2.40897	796 GHz	
110							⊽2	! [-	1]	84.	81 dBµV	
110							V	, г-	11	2.40000	000 GHZ	
							• 2		11	2.3ADDC	08 08 <i>µ</i> ™ 000 GHz	
100												
	1 MAY											1 M A
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	—D1 74 q	∃BµV—										
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24.6								Ċ	Ĺ			
	Start 2.	.31 GHz			11 1	1Hz/				Stop 2	.42 GHz	
Date	: 0	8.DEC.2	2010 10	:19:06								

Polarity : Vertical

CH Low (802.11n HT20 MODE)											
<u>k</u>		Marker 1 [T1]		RBW	1 M	Hz	R	F Att	20 dB		
¥۷)	Ref Lvl	97.	93 dBµV	VBW	10	Ηz					
	124.6 dBµV	2.40897	796 GHz	SWT	28	5	U	nit	dBµV		
124	7.6 dB Offse	et			▼1	гт	11	97	93 dBuV		
120					1		1.1	2.40897	796 GHz		
					⊽2	[Т	1]	58.	92 dBµV		
110								2.40000	000 GHz		
					∆3	[]	1]	48.	27 dBµV		
100								2.39000	000 GHz		
								~~			
	1 MAX									1 M A	
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uu											
	-D1 54 dBµV					_					
50											
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Start 2.31 GHz 11 MHz/ Stop 2.42 GHz											
Dates		2010 10.20.00									
vale.	U0.VEL.	2010 10,20,00									

Polarity : Vertical

Detector mode	: Peak		Po	larity :	Horizonta
	CH Low (802.1	1n HT4	0 MODE)	
A A A A A A A A A A A A A A A A A A A	Marker 1 [T1]	RBW	1 MHz	RF Att	20 dB
🐨 Ref Lvl	90.72 dBµ∖	/ VBW	1 MHz		
124.6 dBµV	2.40717435 GHz	z SWT	100 ms	Unit	dBµV
124 7.6 dB Offse	et		▼1 [T1]	90	.72 dBµV
120				2.4071	7435 GHz
			72 [⊺1]	61	.8O dBµV
110				2.4000	0000 GHz
			♥3 [T1]	57	.67 dBµV
100		-	+ +	2.3900	UUUU GHZ
90 1MAX			للأمر المراجع	-	1MA
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—D1 74 dBµV—			+ <i>\</i> /		
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24.6					
Start 2.31 GH:	z 13	MHz/		Stop	2.44 GHz
Date: 08.DEC.	2010 11:06:21				

			CH I	Low (8	302.11	n HT4	40	MO	DE)			
/k			Marker	1 [T1]		RBW		1 M	Hz	RF	Att	20 dB	
X.	Ref Lvl			80.8	5 dBµV	VBW		10	Hz				
	124.6	dBµV	2	.407174	35 GHz	SWT		33	S	Un	i t	dBµV	
124	7.6 d	8 Offse					Π	▼1	[T1]		80.	85 dB <i>u</i> V	_
120										2	2.40717	435 GHz	
								⊽2	[T1]		50.	64 dBµV	
110							Ħ			2	2.40000	000 GHz	
								∆3	[T1]		45.	53 dBµV	
100							Н			-12	2.39000	000 GHz	
90	1MAX												1MA
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	Start 2	.31 GHz			13 N	1Hz⁄					Stop 2	.44 GHz	
Date	: 0	18.DEC.2	010 11	:08:22									

etector mode :	: Peak		P	Polarity	: Vert	ica
	CH Low (802	.11n HT4	0 MODE)		
2	Marker 1 [T1]	RBW	1 MHz	RF Att	20 dB	
Ref Lvl	104.11 dB	βμν νΒω	1 MHz			
124.6 dBµV	2.41238477 G	Hz SWT	100 ms	Un i t	dBµV	
7.6 dB Offse			▼1 [T1]	104	11 dB#V	
.20				2,41238	3477 GHz	
			∇2 [T1]	73	56 dBµV	
10				2.40000	000 GHz	
			73 [⊤1]	1 6 2	.24 dBµV	
00				2.39000	16880, GHz	
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.6						
Start 2.31 GHz	-	13 MHz/		Stop 2	2.44 GHz	
	2010 11.12.10					

Detector mode : Average

Polarity : Vertical

	CH Low (802.11n HT40 MODE)												
<u>k</u>			Marker	1 [T1]		RBW	1 M	1Hz	RF	Att	20 dB		
V	Ref Lvl			94.1	4 dBμV	VBW	10	Hz					
	124.6	dBµV	2	.412384	77 GHz	SWT	33	S	Ur	nit	dBµV		
124	7.6 d	8 Offse	t				▼1	[T1]		94.	14 dBµV		
120										2.41238	477 GHz		
							⊽2	[T1]		61.	69 dBµV		
110										2.40000	000 GHz		
							_∆3	[T1]		49.	41 dBµV		
100										2.39000	000 GHz		
									1				
qn	1MAX							\square		\sim		1MA	
50										v			
80								1					
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40													
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24.6	Start 2	31 GH7			13 M	шт 1Н 7 7	-			Stop 2	44 GH7	I	
	5.01.1.2	.51 012			10 1					JUP Z			
Date:	: C	18.DEC.2	010 11	:13:13									

Detector mode :	Peak			Pol	larity : 1	Horizo	ntal
	CH High (802.11	n HT4	40 MO	DE)		
6 Da	Marker 1 [T1]	RBW	1 M	Ηz	RF Att	20 dB	
Ref Lvl	91.55 dBµV	VBW	1 M	Ηz			
124.6 dBµV	2.44220441 GHz	SWT	100 m	5	Unit	dBµV	r
124 7.6 dB Offse			▼1	[T1]	91	.55 dBµV	
120					2.44220	0441 GHz	
			⊽2	[T1]	57	.43 dBµV	
110					2.48350	000 GHz	
100							
1							
90 IMAX	~~~~						1MA
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80							
—D/1 74 dBμV——		\rightarrow					
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24.6							
Start 2.43 GHz	7 M	Hz/			Stop	2.5 GHz	
Date: 08.DEC.2	2010 11:18:10						

CH High (802.11n HT40 MODE)												
<u>k</u>			Marker	1 [T1]		RBW	1 1	IHz	RF	- Att	20 dB	
X	Ref Lvl			81.5	7 dBµV	VBW	10	Hz				
	124.6 0	∃BµV	2	.442204	41 GHz	SWT	17.5	s	Ur	пit	dBµV	r
124	7.6 d	B Offse					•1	[T1]		81.	57 dBµV	1
12U										2.44220	441 GHz	
							⊽2	[[1]		45.	10 dBµV	
110										2.48350	000 GHz	
100												
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	biani 2	.43 GHZ			7 11	ΠΖ/				Stop	2.3 GHZ	
Date:	. 0	8.DEC.2	010 11	:18:39								




Detector mode : Average Polarity : Vertical CH High (802.11n HT40 MODE) RF Att Marker 1 [T1] RBW 1 MHz 20 dB Ref Lvl 93.92 dBµV 10 Hz ٧BW 124.6 dBµV 2.44220441 GHz SWT 17.5 s Unit dBµV 124 7.6 dB Offse ▼1 [T1] 93.92 dBµV 120 2.44220441 GHz 72 [⊺1] 47.82 dBµ\ 110 2.48350000 GHz 100 1 1MA 1MAX 90 Br 70 60 $\langle \Gamma \rangle$ -D1 54 dBμV 50 40 30 24.E Start 2.43 GHz 7 MHz/ Stop 2.5 GHz ate: 08.DEC.2010 10:41:24



8.7 POWERLINE CONDUCTED EMISSIONS

LIMITS

§ 15.207 (a) Except as shown in paragraph (b) and (c) this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

The lower limit applies at the boundary between the frequency ranges.

Frequency of Emission (MHz)	Conducted limit (dBµv)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56	56 to 46
0.5 - 5	56	46
5 - 30	60	50

TEST EQUIPMENTS

The following test equipments are used during the conducted power line tests:

Conducted Emission room #1						
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due		
L.I.S.N.	SCHWARZBECK	NNLK 8121	8121-308	MAR. 09, 2011		
TEST RECEIVER	Rohde & Schwarz	ESCS 30	100348	JUL. 13, 2011		
BNC COAXIAL CABLE	CCS	BNC50	11	OCT. 04, 2011		
Test S/W	e-3 (5.04211c) R&S (2.27)					



TEST SETUP



TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80cm above the horizontal ground plane. The EUT IS CONFIGURED IN ACCORDANCE WITH ANSI C63.4.

The resolution bandwidth is set to 9 kHz for both quasi-peak detection and average detection measurements.

Line conducted data is recorded for both NEUTRAL and LINE.

TEST RESULTS

No non-compliance noted.



CONDUCTED RF VOLTAGE MEASUREMENT

Product Name	11n USB Dongle	Test Date	2010/12/01
Model	WL307n	Test By	Hong Tsai
Test Mode	Normal operating / worst case	TEMP& Humidity	24.4°C, 59%



REMARK:

1. Correction Factor = Insertion loss + cable loss

2. Margin value = Emission level – Limit value



Product Name	11n USB Dongle	Test Date	2010/12/01
Model	WL307n	Test By	Hong Tsai
Test Mode	Normal operating / worst case	TEMP& Humidity	24.4°C, 59%





REMARK:

1. Correction Factor = Insertion loss + cable loss

2. Margin value = Emission level – Limit value



9. ANTENNA REQUIREMENT

9.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 7dBi.

9.2 ANTENNA CONNECTED CONSTRUCTION

Two antennas (1TX 2RX) **Antenna 1: Printed PIFA Antenna (1RX)** Antenna Model: AU-4622 Antenna Gain: 0dBi Connector: PIFA Manufacture: E-Top Network Technology Inc. Antenna 2: Dipole Antenna(1TX1RX) Antenna Model: CY2400-13294M-01A Antenna Gain: 7dBi Connector: SMA Male female pin Manufacture: CHIAN YAO CO., LTD..