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MEASUREMENT REPORT

EN 300 328 V1.8.1 WLAN 802.11b/g/n

Applicant: Compex Systems Pte Ltd
Address: 135, Joo Seng Road, #08-01 Singapore 368363

Product: WIRELESS ACCESS POINT
Model No.: WPJ344HV, WPJ344LV, MMZ344LV, MMZ344HV,
MMJ344LV, MMJ344HV, MMS344LV, MMS344HV
Brand Name: COMPEX
Standards: ETSI EN 300 328 V1.8.1 (2012-06)
Result: Complies
Test Date: Jul. 30 ~ Aug. 20, 2014

Reviewed By : Robin Wu
(Robin Wu)
Approved By : Marlinchen
(Marlin Chen)



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

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Revision History

Report No.	Version	Description	Issue Date
1407RSU04103	Rev. 01	Initial report	08-22-2014
1407RSU04103	Rev. 02	Added some EUT information and test description	08-27-2014

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1. General Information

1.1. Applicant

Compex Systems Pte Ltd
135, Joo Seng Road, #08-01 Singapore 368363

1.2. Manufacturer

Compex Systems Pte Ltd
135, Joo Seng Road, #08-01 Singapore 368363

1.3. Testing Facility

Test Site

MRT Technology (Suzhou) Co., Ltd

Test Site Location

D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, EU and TELEC Rules.
- MRT facility is a FCC registered (MRT Reg. No. 809388) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (11384A-1).
- MRT facility is an IC registered (11384A-1) test laboratory with the site description on file at Industry Canada.



1.4. Feature of Product

Product Name	WIRELESS ACCESS POINT
Model No.	WPJ344HV, WPJ344LV, MMZ344LV, MMZ344HV, MMJ344LV, MMJ344HV, MMS344LV, MMS344HV
Brand Name	COMPEX
Frequency Range	802.11b/g/n-HT20: 2412 ~ 2472MHz 802.11n-HT40: 2422 ~ 2462MHz
Channel Number	802.11b/g/n-HT20: 13 802.11n-HT40: 9
Type of Modulation	802.11b: DSSS 802.11g/n: OFDM
Data Rate	802.11b: 1/2/5.5/11Mbps 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 300Mbps

Note: The difference of models is for different marketing requirement.

1.5. Frequency / Channel Operation

Channel List for 802.11b/g/n-HT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
01	2412 MHz	02	2417 MHz	03	2422 MHz
04	2427 MHz	05	2432 MHz	06	2437 MHz
07	2442 MHz	08	2447 MHz	09	2452 MHz
10	2457 MHz	11	2462 MHz	12	2467 MHz
13	2472 MHz	N/A	N/A	N/A	N/A

Channel List for 802.11n-HT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
03	2422 MHz	04	2427 MHz	05	2432 MHz
06	2437 MHz	07	2442 MHz	08	2447 MHz
09	2452 MHz	10	2457 MHz	11	2462 MHz

1.6. Description of Available Antennas

Antenna Type	Frequency Band (GHz)	Manufacturer	Tx Paths	Max Directional Gain (dBi)
Panel Antenna 1#	2.45	Compex Systems Pte Ltd	2	11
Panel Antenna 2#	2.45	Kenbotong Communication LTD	2	10
Panel Antenna 3#	2.45	Compex Systems Pte Ltd	2	7
Panel Antenna 4#	2.45	Smart Ant Inc	2	7
Panel Antenna 5#	2.45	Compex Systems Pte Ltd	2	5
Panel Antenna 6#	2.45	Compex Systems Pte Ltd	2	5
Dipole Antenna 1#	2.45	Kunshan Wavelink Electronic Co., Ltd.	2	2

Note 1: We selected the panel antenna 1# and dipole antenna 1# for all radiated emission testing.

1.7. Information as required by EN 300 328 V1.8.1, clause 5.3.1**a) The type of modulation used by the equipment:**

- ☐ FHSS
☒ other forms of modulation

b) In case of FHSS modulation:

- In case of non-Adaptive Frequency Hopping equipment: [N/A](#)
The number of Hopping Frequencies: [N/A](#)
- In case of Adaptive Frequency Hopping Equipment: [N/A](#)
The maximum number of Hopping Frequencies: [N/A](#)
The minimum number of Hopping Frequencies: [N/A](#)
- The Dwell Time: [N/A](#)
- The Minimum Channel Occupation Time: [N/A](#)

c) Adaptive / non-adaptive equipment:

- ☐ non-adaptive Equipment
☒ adaptive Equipment without the possibility to switch to a non-adaptive mode
☐ adaptive Equipment which can also operate in a non-adaptive mode

d) In case of adaptive equipment:

The Channel Occupancy Time implemented by the equipment:

- ☐ The equipment has implemented an LBT based DAA mechanism
- In case of equipment using modulation different from FHSS:
 - ☐ The equipment is Frame Based equipment
 - ☒ The equipment is Load Based equipment
 - ☐ The equipment can switch dynamically between Frame Based and Load Based equipment
- The CCA time implemented by the equipment: [25 us](#)
The value q as referred to in clause 4.3.2.5.2.2.2: [24](#)
- ☐ The equipment has implemented an non-LBT based DAA mechanism
☐ The equipment can operate in more than one adaptive mode

e) In case of non-adaptive Equipment:

The maximum RF Output Power (e.i.r.p.): [N/A](#)

The maximum (corresponding) Duty Cycle: [N/A](#)

Equipment with dynamic behaviour, that behaviour is described here.: [N/A](#)

f) The worst case operational mode for each of the following tests:

RF Output Power: [19.88dBm for 802.11n-HT40](#)

Power Spectral Density: 9.67dBm/MHz for 802.11b

Duty cycle, Tx-Sequence, Tx-gap: 100%

Dwell time, Minimum Frequency Occupation & Hopping Sequence (only for FHSS equipment): N/A

Hopping Frequency Separation (only for FHSS equipment): N/A

Medium Utilisation: N/A

Adaptivity & Receiver Blocking: N/A

Occupied Channel Bandwidth: 38.163MHz for 802.11n-HT40

Transmitter unwanted emissions in the OOB domain: -23.40dBm/MHz for 802.11n-HT20

Transmitter unwanted emissions in the spurious domain: -63.77dBm for 802.11n-HT40

Receiver spurious emissions: -60.68dBm for 802.11n-HT40

g) The different transmit operating modes (tick all that apply):

- ☐ Operating mode 1: Single Antenna Equipment
 - ☐ Equipment with only 1 antenna
 - ☐ Equipment with 2 diversity antennas but only 1 antenna active at any moment in time
 - ☐ Smart Antenna Systems with 2 or more antennas, but operating in a (legacy) mode where only 1 antenna is used. (e.g. IEEE 802.11™ [i.3] legacy mode in smart antenna systems)
- ☒ Operating mode 2: Smart Antenna Systems - Multiple Antennas without beam forming
 - ☒ Single spatial stream / Standard throughput / (e.g. IEEE 802.11™ [i.3] legacy mode)
 - ☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 1
 - ☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 2

NOTE: Add more lines if more channel bandwidths are supported.

- ☐ Operating mode 3: Smart Antenna Systems - Multiple Antennas with beam forming
 - ☐ Single spatial stream / Standard throughput / (e.g. IEEE 802.11™ [i.3] legacy mode)
 - ☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 1
 - ☐ High Throughput (> 1 spatial stream) using Occupied Channel Bandwidth 2

NOTE: Add more lines if more channel bandwidths are supported.

h) In case of Smart Antenna Systems:

- The number of Receive chains: 2
- The number of Transmit chains: 2

- ☒ symmetrical power distribution
☐ asymmetrical power distribution

In case of beam forming, the maximum beam forming gain: **N/A**

NOTE: Beam forming gain does not include the basic gain of a single antenna.

i) Operating Frequency Range(s) of the equipment:

- Operating Frequency Range 1: **2400 ~ 2483.5MHz**
- Operating Frequency Range 2: **N/A**

NOTE: Add more lines if more Frequency Ranges are supported.

j) Occupied Channel Bandwidth(s):

- Operating Frequency Range 1: **802.11b: 14.045MHz; 802.11g: 17.340MHz; 802.11n-HT20: 18.433MHz; 802.11n-HT40: 38.163MHz;**
- Operating Frequency Range 2: **N/A**

NOTE: Add more lines if more channel bandwidths are supported.

k) Type of Equipment (stand-alone, combined, plug-in radio device, etc.):

- ☐ Stand-alone
☐ Combined Equipment (Equipment where the radio part is fully integrated within another type of equipment)
☒ Plug-in radio device (Equipment intended for a variety of host systems)
☐ Other

l) The extreme operating conditions that apply to the equipment:

Operating temperature range: **-20 ~ 70°C**

Operating voltage range: **12 ~ 48V**

- Details provided are for the: ☐ Stand-alone
☒ combined (or host) equipment
☐ test jig

m) The intended combination(s) of the radio equipment power settings and one or more antenna assemblies and their corresponding e.i.r.p levels:

- Antenna Type:
 - ☒ Dedicated Antennas (equipment with antenna connector)
 - ☒ Single power level with corresponding antenna(s)
 - ☐ Multiple power settings and corresponding antenna(s)
number of different Power Levels: **1**
Power Level 1: **8.66dBm**

NOTE 1: Add more lines in case the equipment has more power levels.

NOTE 2: These power levels are conducted power levels (at antenna connector).

- For each of the Power Levels, provide the intended antenna assemblies, their corresponding gains (G) and the resulting e.i.r.p. levels also taking into account the beamforming gain (Y) if applicable.

Power Level 1: 8.88dBm

Number of antenna assemblies provided for this power level: .

Assembly # G	Gain (dBi)	e.i.r.p. (dBm)	Part number or model name
1	11	19.88	N/A
2	10	18.88	N/A
3	7	15.88	N/A
4	7	15.88	N/A
5	5	13.88	N/A
6	5	13.88	N/A
7	2	10.88	N/A

NOTE: Add more rows in case more antenna assemblies are supported for this power level.

n) The nominal voltages of the stand-alone radio equipment or the nominal voltages of the combined (host)equipment or test jig in case of plug-in devices:

Details provided are for the: ☐ stand-alone equipment

☒ combined (or host) equipment

☐ test jig

Supply Voltage ☐ AC mains State AC voltage

☒ DC State DC voltage

In case of DC, indicate the type of power source

☐ Internal Power Supply

☒ External Power Supply or AC/DC adapter

☐ Battery

☐ Other:

o) Describe the test modes available which can facilitate testing:

[Refer report section 2.1](#)

p) The equipment type (e.g. Bluetooth®, IEEE 802.11™ [i.3], proprietary, etc.):

[WIRELESS ACCESS POINT with Wi-Fi function.](#)

1.8. Standards Applicable for Testing

The EUT complies with the requirements of ETSI EN 300328 V1.8.1.

2. Test Configuration of Equipment under Test

2.1. Description of Test Mode

Pre-Test RF Output Power at various data rates.

Test Mode	Bandwidth (MHz)	Channel No.	Frequency (MHz)	Data Rate (Mbps)	RF Output Power (dBm)
11b	20	7	2442	1	17.75
				5.5	17.53
				11	17.12
11g	20	7	2442	6	17.86
				24	17.61
				54	17.23
11n	20	7	2442	13	17.46
				52	17.15
				130	16.73
11n	40	7	2442	27	17.86
				108	17.39
				270	16.86

Note: All modes of operation and data rates were investigated, so all RF test requirements shall be executed at low data rates.

2.2. Description of Test Software

The test utility software used during testing was “ART2-GUI Version: 2.3”.

Final Power Parameter Value of the test software.

Test Mode	Test Frequency	Power Parameter Value		
		Ant 0	Ant 1	Ant 0 + 1
802.11b	2412MHz	8.5	9.5	Not Support
	2442MHz	9.0	9.5	
	2472MHz	9.0	9.5	
802.11g	2412MHz	8.5	9.0	Not Support
	2442MHz	8.5	9.0	
	2472MHz	8.5	9.0	
802.11n-HT20	2412MHz	8.5	9.0	6.0
	2442MHz	8.5	9.0	6.0
	2472MHz	9.0	9.0	6.0
802.11n-HT40	2422MHz	8.5	9.0	6.0
	2442MHz	8.5	9.0	6.0
	2462MHz	8.5	9.0	6.0

3. Test Summary

Clause (EN 300328)	Test Parameter	Result (Pass/Fail)	Remark
Transmitter Parameter			
4.3.2.1	RF Output Power	Pass	--
4.3.2.2	Power Spectral Density	Pass	--
4.3.2.6	Occupied Channel Bandwidth	Pass	--
4.3.2.7	Transmitter unwanted emissions in the out-of-band domain	Pass	--
4.3.2.8	Transmitter spurious emissions	Pass	--
Receiver Parameters			
4.3.2.9	Receiver spurious emissions	Pass	--
Adaptive Test Item			
4.3.2.5	Adaptivity	Pass	Only applicable for adaptive equipment RF output power > 10dBm
4.3.2.10	Receiver Blocking	Pass	
Non-Adaptive Test Item			
4.3.2.3	Duty cycle, Tx-Sequence, Tx-gap	N/A	Only applicable for non-adaptive equipment RF output power > 10dBm
4.3.2.4	Medium Utilisation (MU) factor	N/A	

Note: The EUT can operate in an adaptive mode with EIRP greater than 10dBm, and can't operate in a non-adaptive mode which was declared by the supplier.

4. RF Output Power

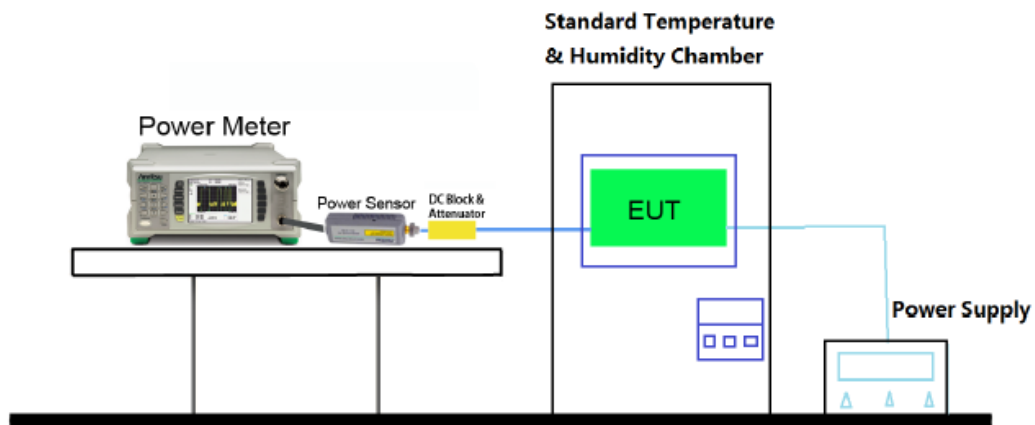
4.1. Limit

The maximum RF output power for adaptive equipment using wide band modulations other than FHSS shall be equal to or less than 20dBm.

Test Conditions	Limit
Normal and Extreme Temperature Conditions	20dBm (E.I.R.P)

4.2. Test Setup

For Conducted Measurement



4.3. Test Procedure

Refer to ETSI EN 300 328 V1.8.1 (2012-06) Clause 5.3.2.2.1.

4.4. Test result

Test Engineer	Roy Cheng	Temperature	-20 ~ 70°C
Test Date	08-15-2014	Relative Humidity	52%RH

Normal Condition Ant 0 / Ant 1 (Temperature 25°C)

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)	EIRP Power (dBm)	Limit (dBm)	Result
Ant 0						
11b	1	2412	6.81	17.81	20	Pass
11b	7	2442	6.75	17.75	20	Pass
11b	13	2472	6.98	17.98	20	Pass
11g	1	2412	6.96	17.96	20	Pass
11g	7	2442	6.86	17.86	20	Pass
11g	13	2472	6.79	17.79	20	Pass
n-HT20	1	2412	6.93	17.93	20	Pass
n-HT20	7	2442	6.46	17.46	20	Pass
n-HT20	13	2472	6.85	17.85	20	Pass
n-HT40	3	2422	6.81	17.81	20	Pass
n-HT40	7	2442	6.86	17.86	20	Pass
n-HT40	11	2462	6.93	17.93	20	Pass
Ant 1						
11b	1	2412	7.36	18.36	20	Pass
11b	7	2442	7.37	18.37	20	Pass
11b	13	2472	7.58	18.58	20	Pass
11g	1	2412	7.54	18.54	20	Pass
11g	7	2442	7.48	18.48	20	Pass
11g	13	2472	7.27	18.27	20	Pass
n-HT20	1	2412	7.47	18.47	20	Pass
n-HT20	7	2442	7.06	18.06	20	Pass
n-HT20	13	2472	7.38	18.38	20	Pass
n-HT40	3	2422	7.28	18.28	20	Pass
n-HT40	7	2442	7.65	18.65	20	Pass
n-HT40	11	2462	7.56	18.56	20	Pass

Note: EIRP Power (dBm) = RF Output Power (dBm) + Antenna Gain (dBi).

Normal Condition Ant 0 + 1 (Temperature 25°C)

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)		EIRP Power (dBm)	Limit (dBm)	Result
			Ant 0	Ant 1			
n-HT20	1	2412	4.32	3.99	18.17	20	Pass
n-HT20	7	2442	4.21	3.93	18.08	20	Pass
n-HT20	13	2472	4.03	3.76	17.91	20	Pass
n-HT40	3	2422	4.23	3.89	18.07	20	Pass
n-HT40	7	2442	4.13	3.86	18.01	20	Pass
n-HT40	11	2462	3.84	3.63	17.75	20	Pass

Note: EIRP Power (dBm) = $10 \cdot \log\{10^{(\text{Ant 0 RF Output Power} / 10)} + 10^{(\text{Ant 1 RF Output Power} / 10)}\}$ (dBm) + Antenna Gain (dBi).

Extreme Condition Ant 0 / Ant 1 (Temperature -20°C)

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)	EIRP Power (dBm)	Limit (dBm)	Result
Ant 0						
11b	1	2412	8.44	19.44	20	Pass
11b	7	2442	8.56	19.56	20	Pass
11b	13	2472	8.54	19.54	20	Pass
11g	1	2412	8.54	19.54	20	Pass
11g	7	2442	8.66	19.66	20	Pass
11g	13	2472	8.56	19.56	20	Pass
n-HT20	1	2412	8.62	19.62	20	Pass
n-HT20	7	2442	8.29	19.29	20	Pass
n-HT20	13	2472	8.56	19.56	20	Pass
n-HT40	3	2422	8.61	19.61	20	Pass
n-HT40	7	2442	8.37	19.37	20	Pass
n-HT40	11	2462	8.39	19.39	20	Pass
Ant 1						
11b	1	2412	8.65	19.65	20	Pass
11b	7	2442	8.63	19.63	20	Pass
11b	13	2472	8.58	19.58	20	Pass
11g	1	2412	8.58	19.58	20	Pass
11g	7	2442	8.64	19.64	20	Pass
11g	13	2472	8.53	19.53	20	Pass
n-HT20	1	2412	8.51	19.51	20	Pass
n-HT20	7	2442	8.54	19.54	20	Pass
n-HT20	13	2472	8.46	19.46	20	Pass
n-HT40	3	2422	8.69	19.69	20	Pass
n-HT40	7	2442	8.77	19.77	20	Pass
n-HT40	11	2462	8.63	19.63	20	Pass

Note: EIRP Power (dBm) = RF Output Power (dBm) + Antenna Gain (dBi).

Extreme Condition Ant 0 + 1 (Temperature -20°C)

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)		EIRP Power (dBm)	Limit (dBm)	Result
			Ant 0	Ant 1			
n-HT20	1	2412	5.26	5.57	19.58	20	Pass
n-HT20	7	2442	5.43	5.71	19.58	20	Pass
n-HT20	13	2472	5.42	5.58	19.51	20	Pass
n-HT40	3	2422	5.34	5.52	19.44	20	Pass
n-HT40	7	2442	5.76	5.97	19.88	20	Pass
n-HT40	11	2462	5.31	5.78	19.56	20	Pass

Note: EIRP Power (dBm) = $10 \cdot \log\{10^{(\text{Ant 0 RF Output Power}/10)} + 10^{(\text{Ant 1 RF Output Power}/10)}\}$ (dBm) + Antenna Gain (dBi).

Extreme Condition Ant 0 / Ant 1 (Temperature 70°C)

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)	EIRP Power (dBm)	Limit (dBm)	Result
Ant 0						
11b	1	2412	6.11	17.11	20	Pass
11b	7	2442	6.03	17.03	20	Pass
11b	13	2472	6.17	17.17	20	Pass
11g	1	2412	6.35	17.35	20	Pass
11g	7	2442	6.27	17.27	20	Pass
11g	13	2472	6.17	17.17	20	Pass
n-HT20	1	2412	6.11	17.11	20	Pass
n-HT20	7	2442	5.77	16.77	20	Pass
n-HT20	13	2472	6.12	17.12	20	Pass
n-HT40	3	2422	6.03	17.03	20	Pass
n-HT40	7	2442	6.21	17.21	20	Pass
n-HT40	11	2462	6.29	17.29	20	Pass
Ant 1						
11b	1	2412	6.59	17.59	20	Pass
11b	7	2442	6.64	17.64	20	Pass
11b	13	2472	6.71	17.71	20	Pass
11g	1	2412	6.70	17.70	20	Pass
11g	7	2442	6.56	17.56	20	Pass
11g	13	2472	6.32	17.32	20	Pass
n-HT20	1	2412	6.61	17.61	20	Pass
n-HT20	7	2442	6.33	17.33	20	Pass
n-HT20	13	2472	6.49	17.49	20	Pass
n-HT40	3	2422	6.56	17.56	20	Pass
n-HT40	7	2442	6.73	17.73	20	Pass
n-HT40	11	2462	6.64	17.64	20	Pass

Note: EIRP Power (dBm) = RF Output Power (dBm) + Antenna Gain (dBi).

Extreme Condition Ant 0 + 1 (Temperature 70°C)

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)		EIRP Power (dBm)	Limit (dBm)	Result
			Ant 0	Ant 1			
n-HT20	1	2412	3.74	3.62	17.69	20	Pass
n-HT20	7	2442	3.55	3.49	17.53	20	Pass
n-HT20	13	2472	3.52	3.43	17.49	20	Pass
n-HT40	3	2422	3.43	3.62	17.54	20	Pass
n-HT40	7	2442	3.49	3.43	17.47	20	Pass
n-HT40	11	2462	3.36	3.25	17.32	20	Pass

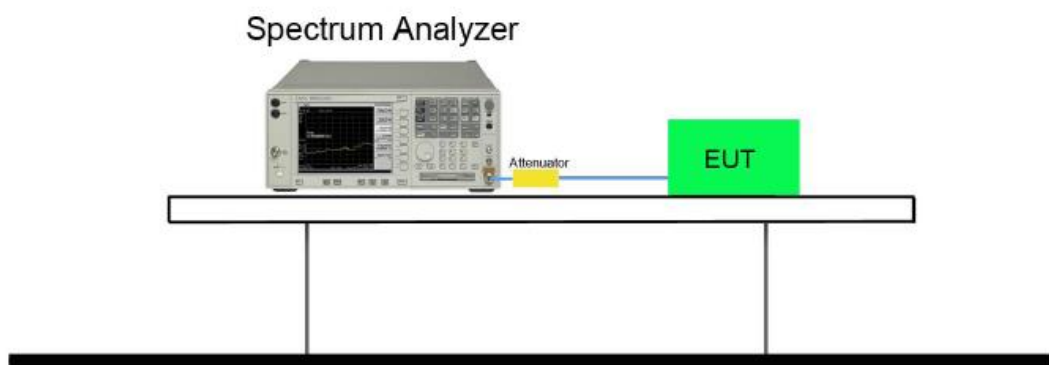
Note: EIRP Power (dBm) = $10 \cdot \log\{10^{(\text{Ant 0 RF Output Power} / 10)} + 10^{(\text{Ant 1 RF Output Power} / 10)}\}$ (dBm) + Antenna Gain (dBi).

5. Power Spectral Density

5.1. Limit

The maximum Power Spectral Density is limited to 10dBm per MHz for equipment using wide band modulations other than FHSS.

5.2. Test Setup



5.3. Test Procedure

Refer to ETSI EN 300 328 V1.8.1 (2012-06) Clause 5.3.3.2.1.

5.4. Test Result

Test Engineer	Roy Cheng	Temperature	26°C
Test Date	08-15-2014	Relative Humidity	54%

Mode	Channel	Freq. (MHz)	EIRP Power Density (dBm/MHz)	Limit (dBm/MHz)	Result
Ant 0					
11b	1	2412	8.76	10	Pass
11b	7	2442	8.73	10	Pass
11b	13	2472	8.92	10	Pass
11g	1	2412	6.30	10	Pass
11g	7	2442	6.14	10	Pass
11g	13	2472	6.25	10	Pass
n-HT20	1	2412	6.04	10	Pass
n-HT20	7	2442	5.48	10	Pass
n-HT20	13	2472	6.02	10	Pass
n-HT40	3	2422	3.02	10	Pass
n-HT40	7	2442	3.19	10	Pass
n-HT40	11	2462	3.25	10	Pass
Ant 1					
11b	1	2412	9.39	10	Pass
11b	7	2442	9.26	10	Pass
11b	13	2472	9.67	10	Pass
11g	1	2412	6.87	10	Pass
11g	7	2442	6.98	10	Pass
11g	13	2472	6.72	10	Pass
n-HT20	1	2412	6.45	10	Pass
n-HT20	7	2442	6.18	10	Pass
n-HT20	13	2472	6.44	10	Pass
n-HT40	3	2422	3.39	10	Pass
n-HT40	7	2442	3.76	10	Pass
n-HT40	11	2462	3.68	10	Pass

Ant 0 + 1					
n-HT20	1	2412	5.14	10	Pass
n-HT20	7	2442	5.00	10	Pass
n-HT20	13	2472	4.97	10	Pass
n-HT40	3	2422	4.82	10	Pass
n-HT40	7	2442	4.72	10	Pass
n-HT40	11	2462	4.51	10	Pass

6. Duty Cycle, Tx-sequence, Tx-gap

6.1. Limit

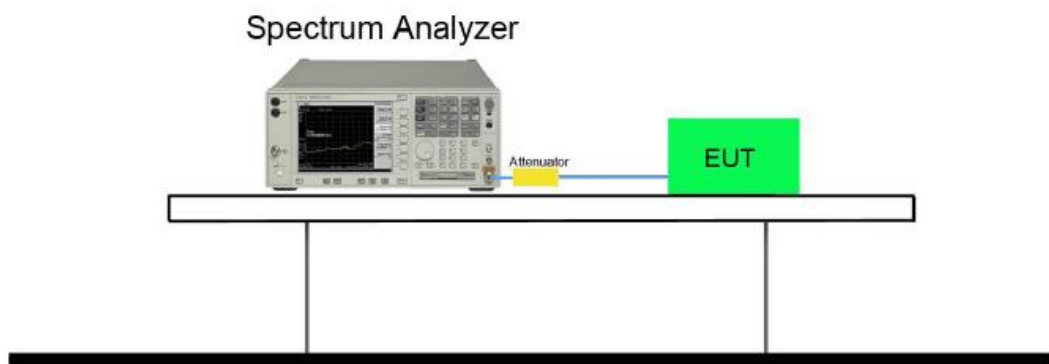
The Duty Cycle shall be equal to or less than the maximum value declared by the supplier.

The maximum Tx-sequence Time and the minimum Tx-gap Time shall be according to the formula below:

Maximum Tx-Sequence Time = Minimum Tx-gap Time = M

where M is in the range of 3,5 ms to 10 ms.

6.2. Test Setup



6.3. Test Procedure

Refer to ETSI EN 300 328 V1.8.1 (2012-06) Clause 5.3.2

6.4. Test Result

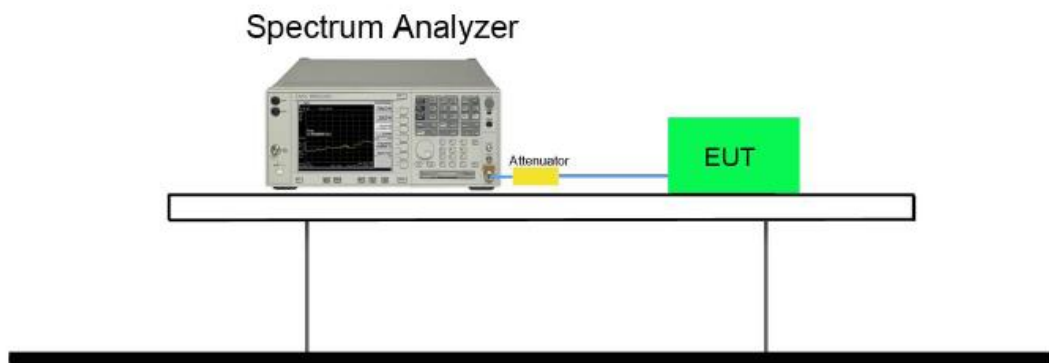
These requirements apply to non-adaptive equipment or to adaptive equipment when operating in a non-adaptive mode. So the item is not applicable.

7. Medium Utilisation (MU) factor

7.1. Limit

The maximum Medium Utilisation factor shall be 10 % for equipment using wide band modulations other than FHSS.

7.2. Test Setup



7.3. Test Procedure

Refer to ETSI EN 300 328 V1.8.1 (2012-06) Clause 5.3.2

7.4. Test Result

This requirement does not apply to adaptive equipment unless operating in a non-adaptive mode.
So the item is not applicable.

8. Adaptivity and Receiver Blocking

8.1. Limit

LBT based Detect and Avoid (Load Based Equipment may implement an LBT based spectrum sharing mechanism as described in IEEE Std. 802.11-2007 clauses 9, 15, 18 or 19, in IEEE Std. 802.11n-2009, clauses 9, 11 and 20 or in IEEE Std. 802.15.4-2011, clauses 4 and 5.)

Adaptivity Limit

The CCA observation time shall be not less than 20 us, and the CCA time used by the equipment shall be declared by the supplier.

The Channel Occupancy Time shall be less than $(13 / 32) * q$ ms, $q = [4 \sim 32]$.

The minimum idle period varied between CCA and $q * CCA$.

When adding the interference signal, the EUT shall stop transmissions on the current operating channel.

Short Control Signalling Transmissions Limit

Short Control Signalling Transmissions shall have a maximum duty cycle of 10% within an observation period of 50ms.

Receiver Blocking Limit

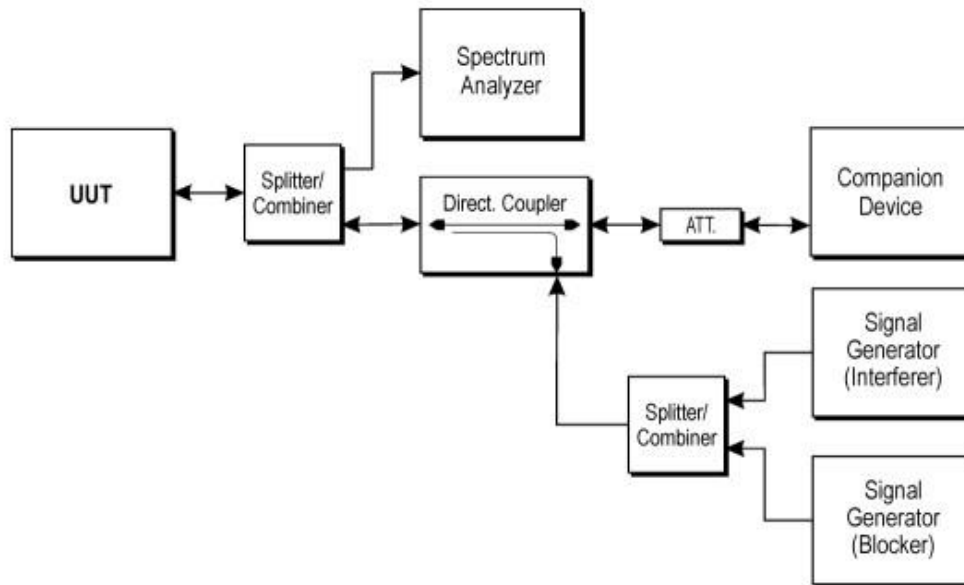
Adaptive Frequency Hopping equipment shall comply with the requirements in the presence of a blocking signal with characteristics as below.

Receiver Blocking parameters				
Equipment Type (LBT / non-LBT)	Wanted signal mean power from companion device	Blocking signal frequency [MHz]	Blocking signal power [dBm]	Type of interfering signal
LBT	Sufficient to maintain the link (see note 2)	2395 or 2488.5 (see note 1)	-30	CW
Non-LBT	-30dBm			
NOTE 1: The highest blocking frequency shall be used for testing the lowest operating channel, while the lowest blocking frequency shall be used for testing the highest operating channel.				
NOTE 2: A typical value which can be used in most cases is -50 dBm/MHz.				

With the interfering signal present, adding the blocking signal, the EUT didn't resume any normal transmissions. When removal the interference and blocking signal, the EUT was allowed to start transmissions again on this channel.

8.2. Test Setup

Conducted measurements



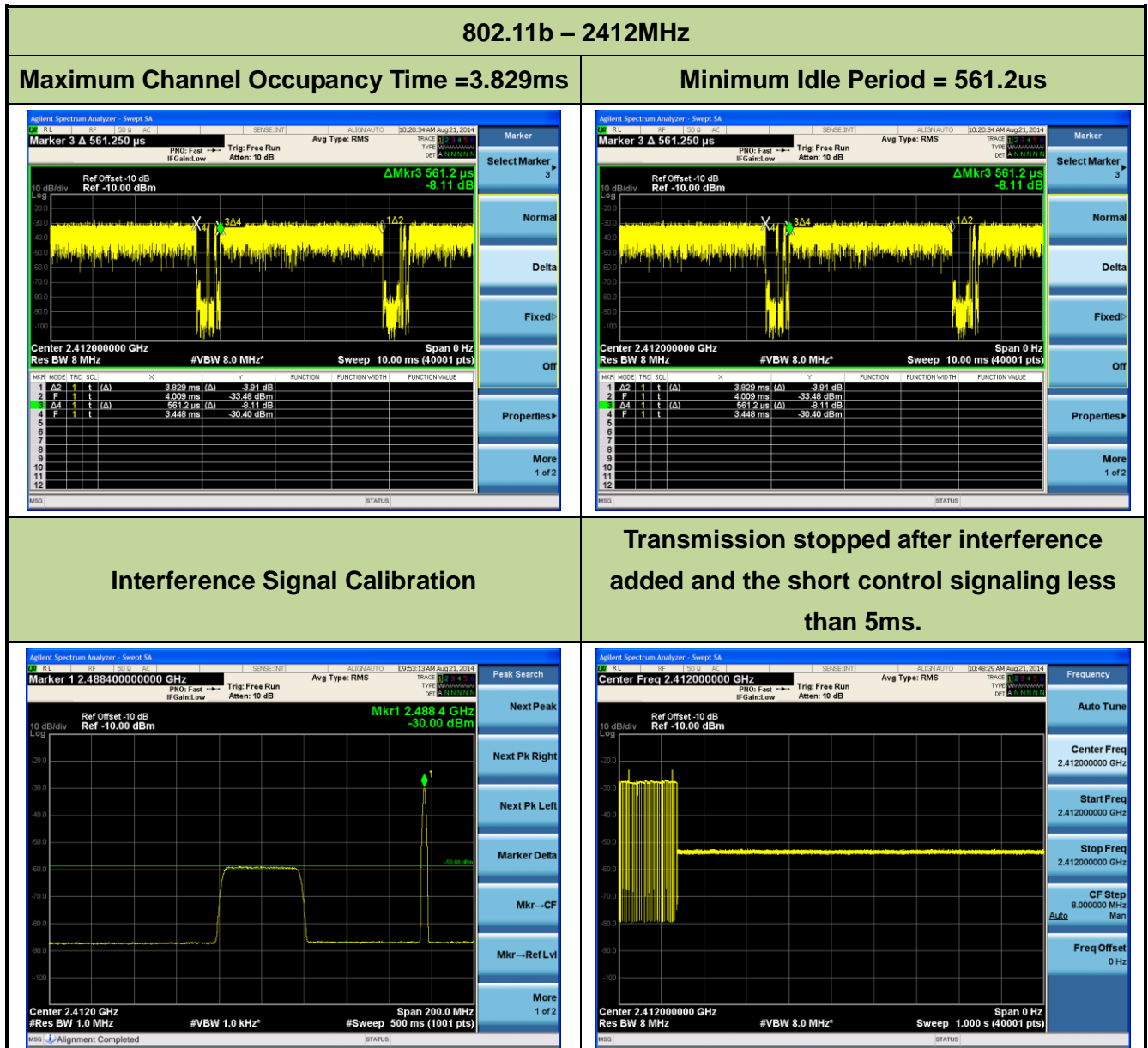
8.3. Test Procedure

Refer to ETSI EN 300 328 V1.8.1 (2012-06) Clause 5.3.7.2.1.

8.4. Test Result

Test Engineer	Andy Zhu	Temperature	26°C
Test Date	08-16-2014	Relative Humidity	54%

The CCA observation time was 25 us, and the maximum factor of $q = 24$ which were declared by the supplier. So the idle period varied between 25 us and 600 us and the channel occupancy time shall less than $(13 / 32) * 24 = 9.75$ ms.



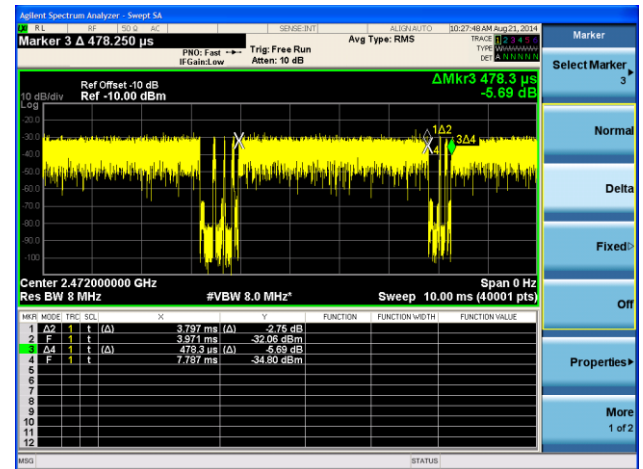
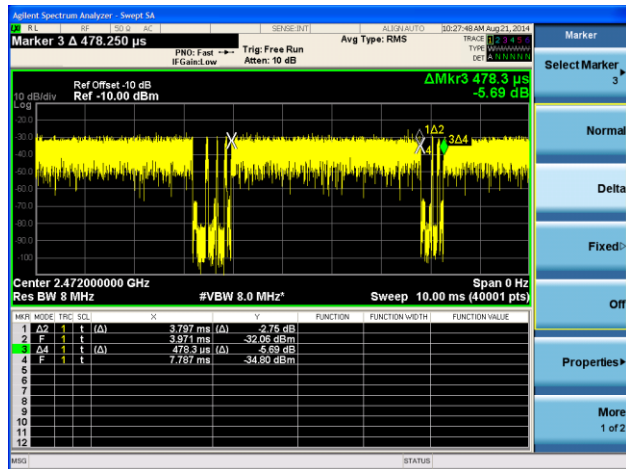
Note: The Worst Detection Level = -70 dBm/MHz + 20 – the max conducted power (dBm)
= -70 dBm/MHz + 20 – 8.88 dBm = -58.88 dBm/MHz.

Test Result:	Pass
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802.11b – 2472MHz

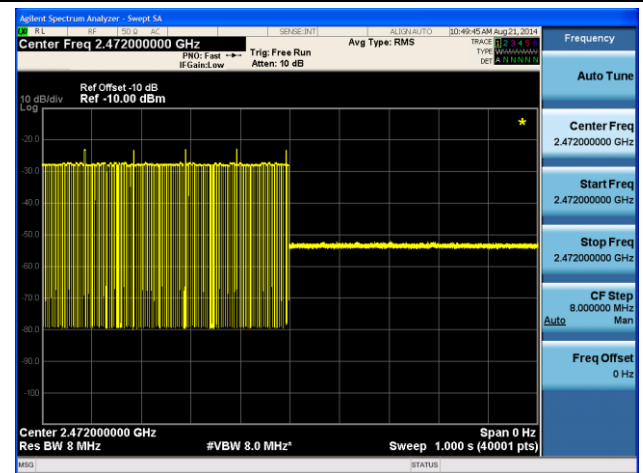
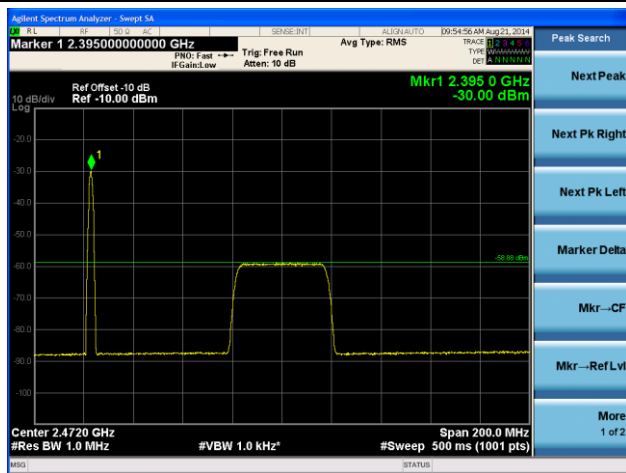
Maximum Channel Occupancy Time =3.797ms

Minimum Idle Period =478.3us



Interference Signal Calibration

Transmission stopped after interference added and the short control signaling less than 5ms.

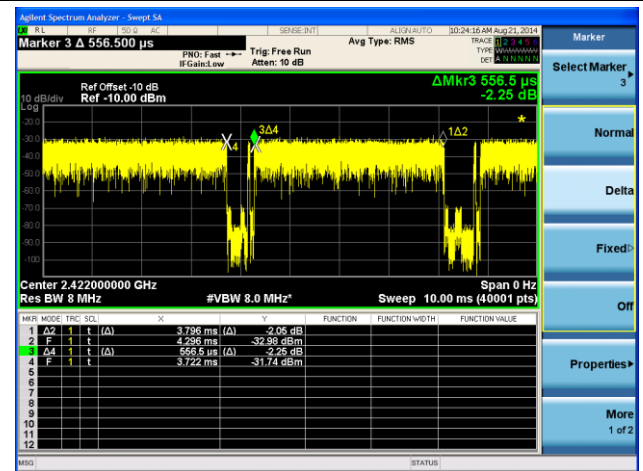


Note: The Worst Detection Level = -70 dBm/MHz + 20 – the max conducted power (dBm)
= -70 dBm/MHz + 20 – 8.88 dBm = -58.88 dBm/MHz.

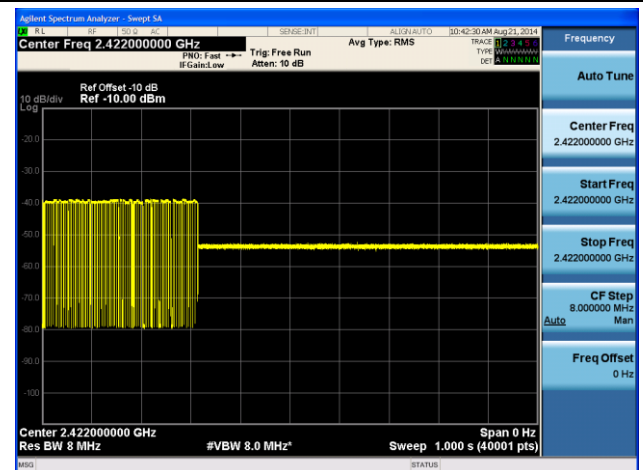
Test Result:

Pass

Minimum Idle Period = 556.5us



Transmission stopped after interference added and the short control signaling less than 5ms.



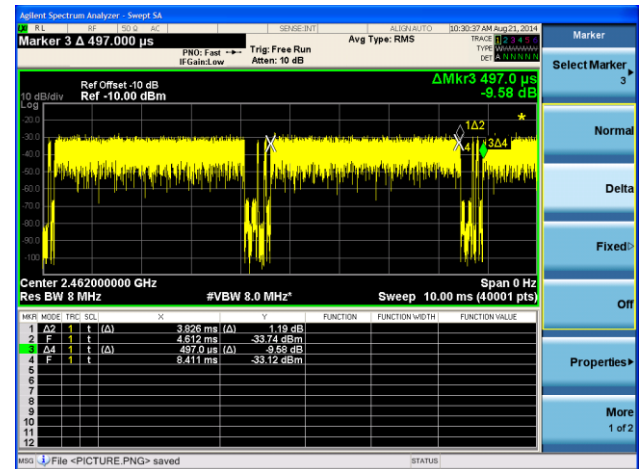
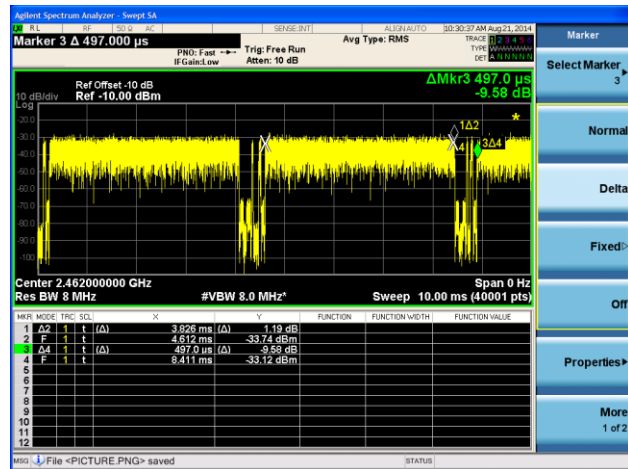
Note: The Worst Detection Level = $-70 \text{ dBm/MHz} + 20$ – the max conducted power (dBm)
 $= -70 \text{ dBm/MHz} + 20 - 8.88 \text{ dBm} = -58.88 \text{ dBm/MHz}$.

Test Result:	Pass
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802.11n-HT40 – 2462MHz

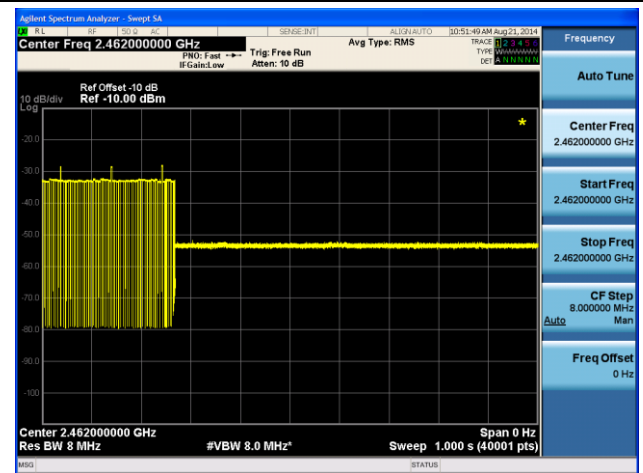
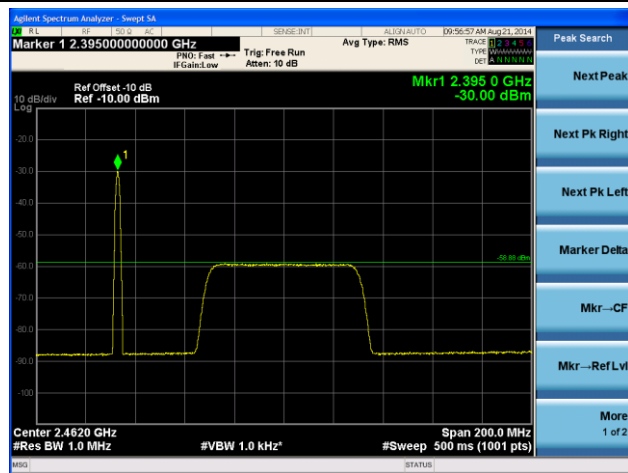
Maximum Channel Occupancy Time = 3.826ms

Minimum Idle Period = 497.0us



Interference Signal Calibration

Transmission stopped after interference added and the short control signaling less than 5ms.



Note: The Worst Detection Level = -70 dBm/MHz + 20 – the max conducted power (dBm)
= -70 dBm/MHz + 20 – 8.88 dBm = -58.88 dBm/MHz.

Test Result:

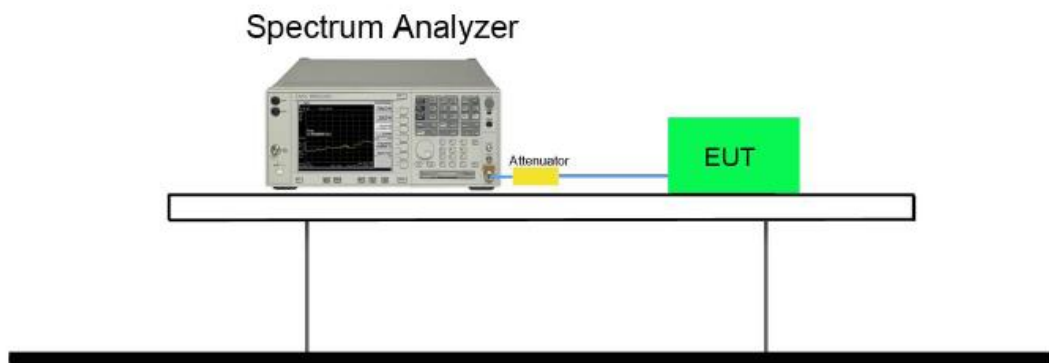
Pass

9. Occupied Channel Bandwidth

9.1. Limit

The Occupied Channel Bandwidth for each hopping frequency shall fall completely within the band given in 2.4GHz to 2.4835GHz.

9.2. Test Setup



9.3. Test Procedure

Refer to ETSI EN 300 328 V1.8.1 (2012-06) Clause 5.3.8.2.1.

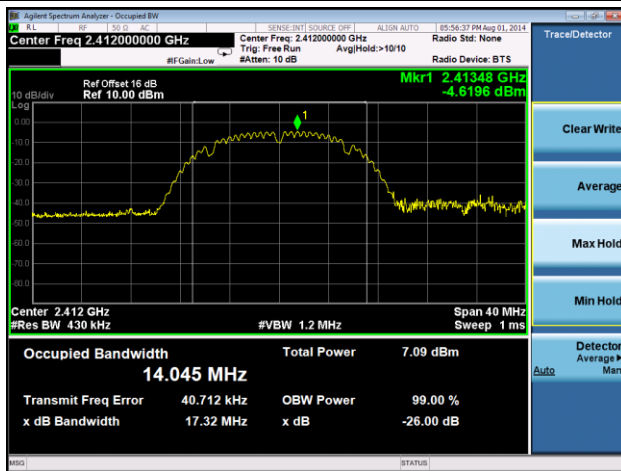
9.4. Test Result

Test Engineer	Roy Cheng	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%

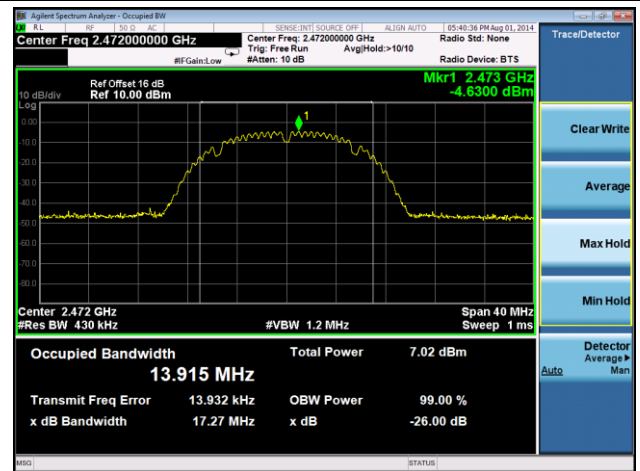
Test Mode	Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Frequency Range (MHz)	Result
Ant 0					
11b	01	2412	14.045	2405.052	Pass
11b	13	2472	13.915	2478.922	Pass
11g	01	2412	17.340	2403.312	Pass
11g	13	2472	17.314	2480.661	Pass
n-HT20	01	2412	18.342	2402.829	Pass
n-HT20	13	2472	18.328	2481.164	Pass
n-HT40	03	2422	38.091	2402.955	Pass
n-HT40	11	2462	38.031	2481.016	Pass
Ant 1					
11b	01	2412	13.886	2405.057	Pass
11b	13	2472	13.857	2478.929	Pass
11g	01	2412	17.291	2403.355	Pass
11g	13	2472	17.335	2480.668	Pass
n-HT20	01	2412	18.395	2402.803	Pass
n-HT20	13	2472	18.339	2481.170	Pass
n-HT40	03	2422	38.100	2402.950	Pass
n-HT40	11	2462	37.967	2480.984	Pass
Ant 0 / Ant 0 + 1					
n-HT20	01	2412	18.433	2402.784	Pass
n-HT20	13	2472	18.355	2481.178	Pass
n-HT40	03	2422	38.163	2402.919	Pass
n-HT40	11	2462	37.729	2480.865	Pass

802.11b Occupied Channel Bandwidth - Ant 0

Channel 01 (2412MHz)

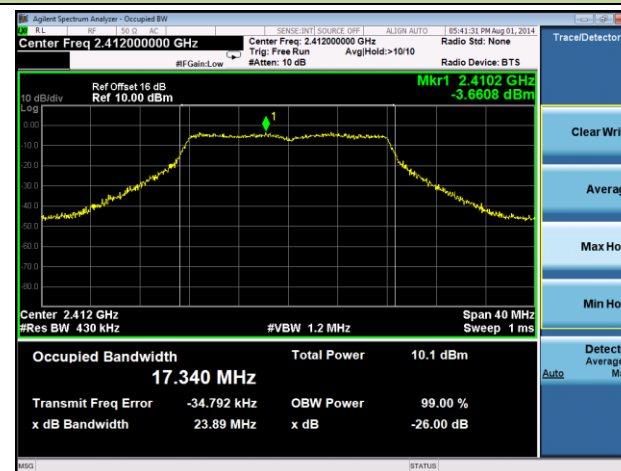


Channel 13 (2472MHz)

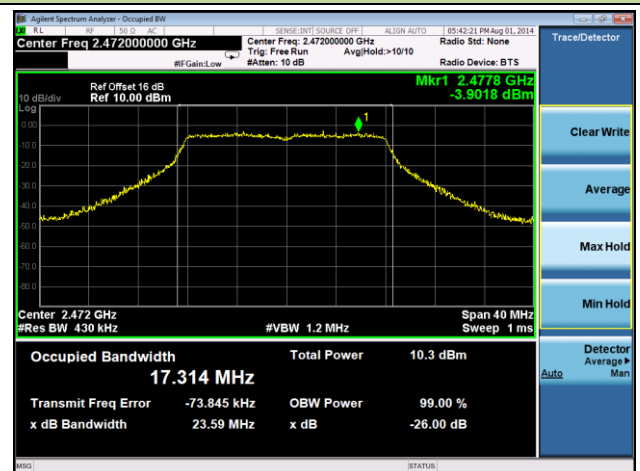


802.11g Occupied Channel Bandwidth - Ant 0

Channel 01 (2412MHz)

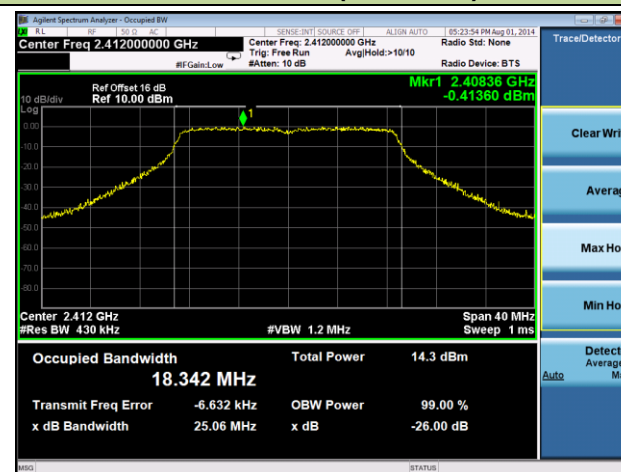


Channel 13 (2472MHz)

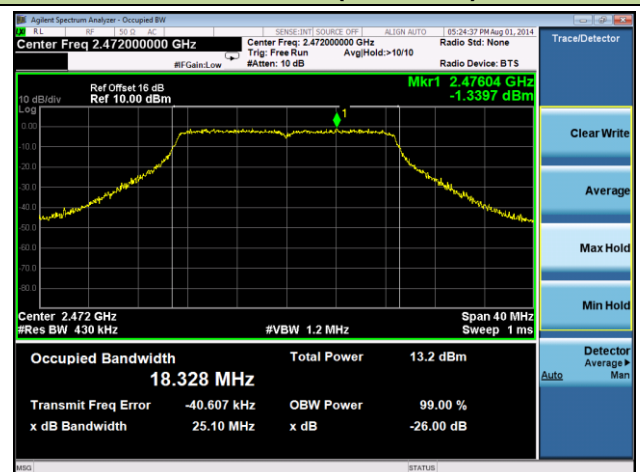


802.11n-HT20 Occupied Channel Bandwidth - Ant 0

Channel 01 (2412MHz)

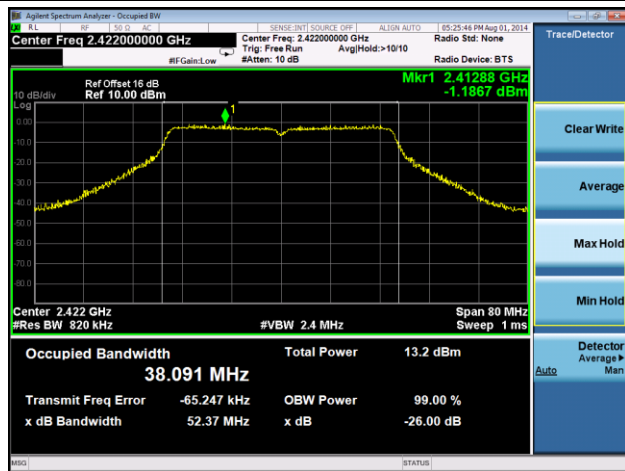


Channel 13 (2472MHz)

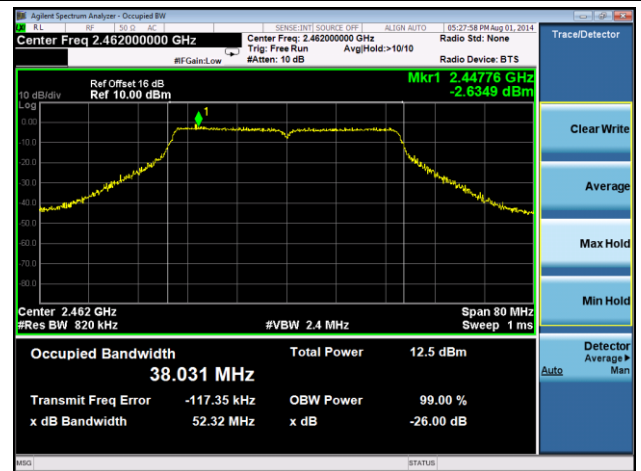


802.11n-HT40 Occupied Channel Bandwidth - Ant 0

Channel 03 (2422MHz)

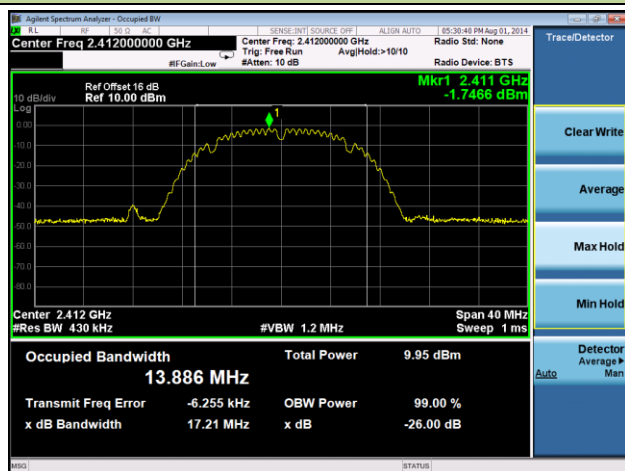


Channel 11 (2462MHz)

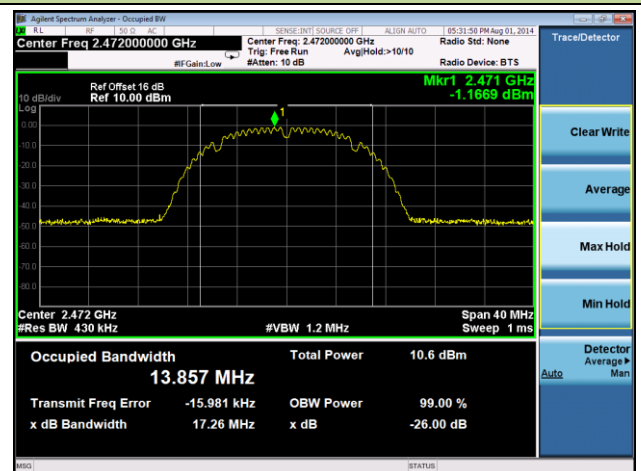


802.11b Occupied Channel Bandwidth - Ant 1

Channel 01 (2412MHz)

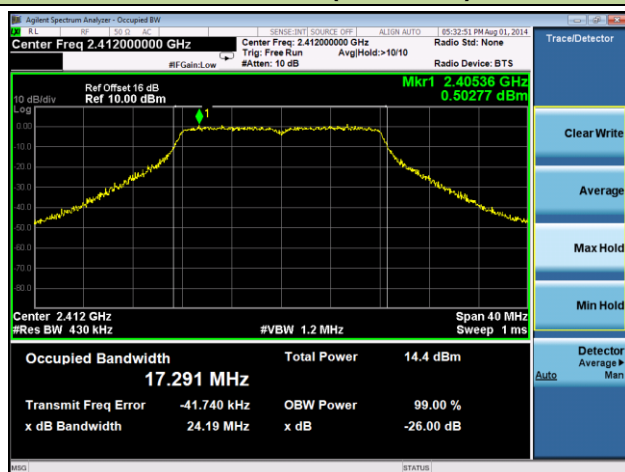


Channel 13 (2472MHz)

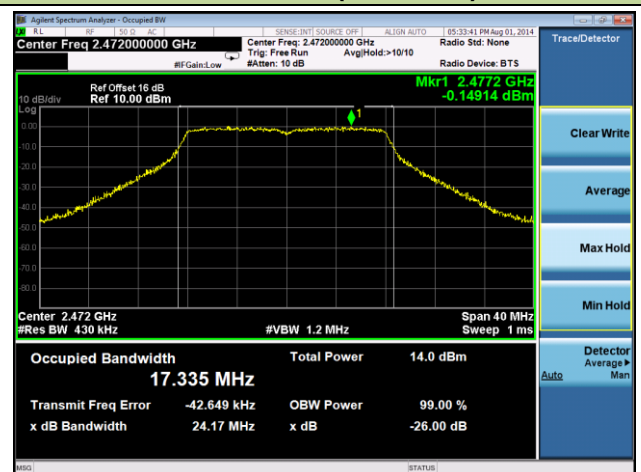


802.11g Occupied Channel Bandwidth - Ant 1

Channel 01 (2412MHz)

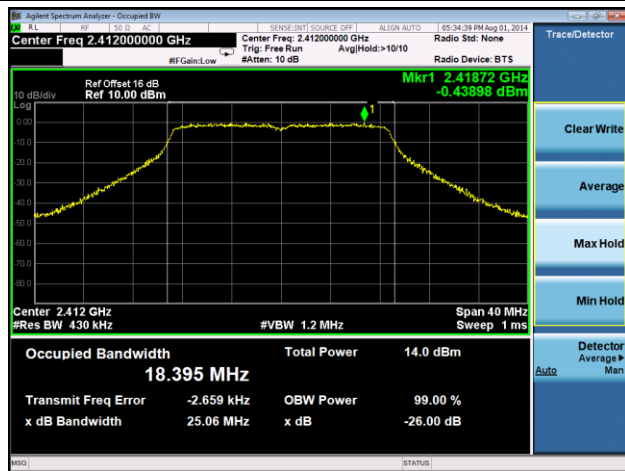


Channel 13 (2472MHz)

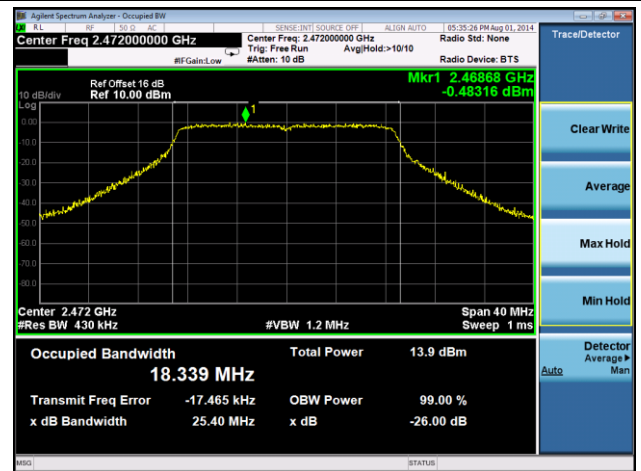


802.11n-HT20 Occupied Channel Bandwidth - Ant 1

Channel 01 (2412MHz)

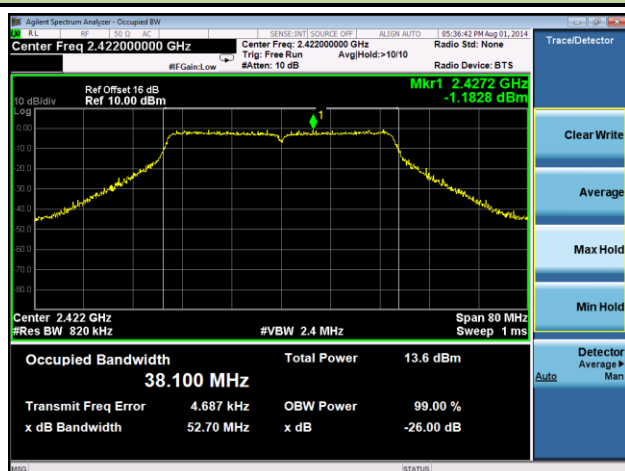


Channel 13 (2472MHz)

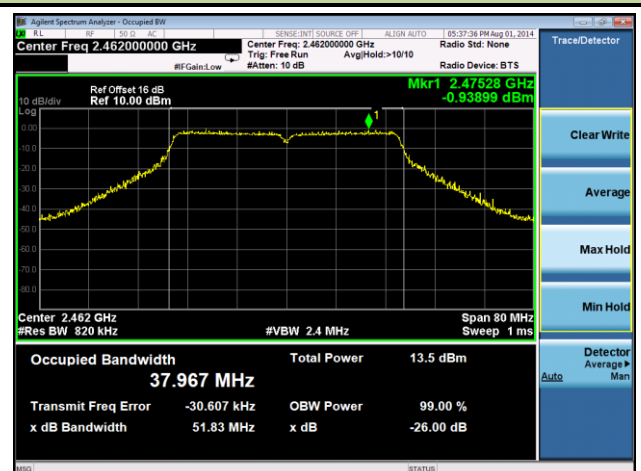


802.11n-HT40 Occupied Channel Bandwidth - Ant 1

Channel 03 (2422MHz)

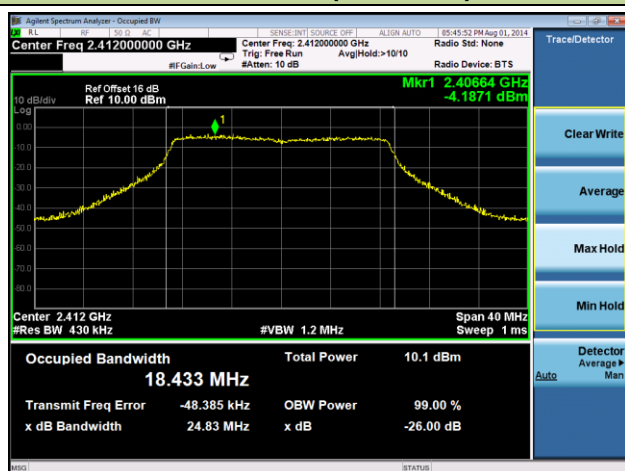


Channel 11 (2462MHz)

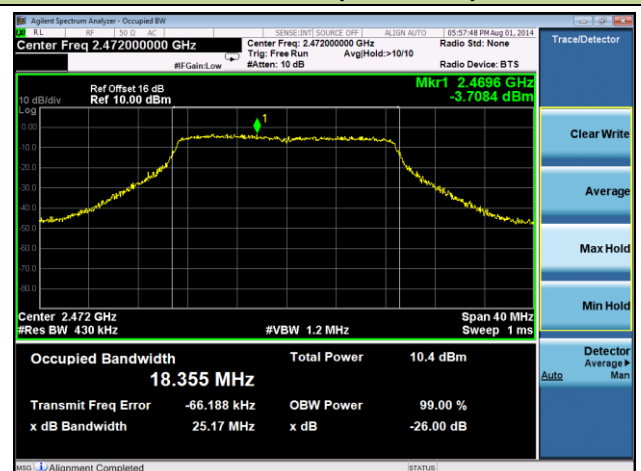


802.11n-HT20 Occupied Channel Bandwidth - Ant 0 + 1

Channel 01 (2412MHz)

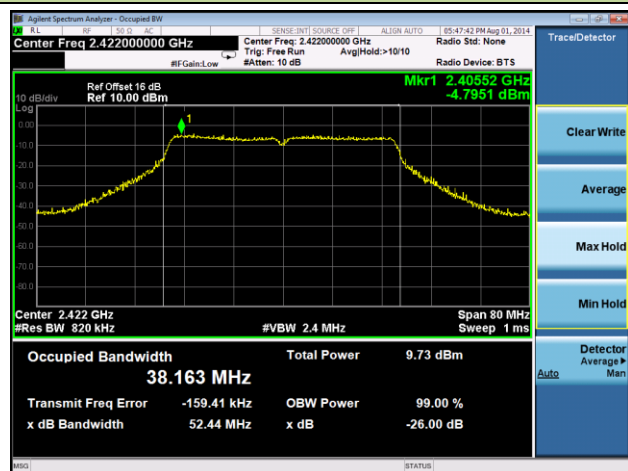


Channel 13 (2472MHz)

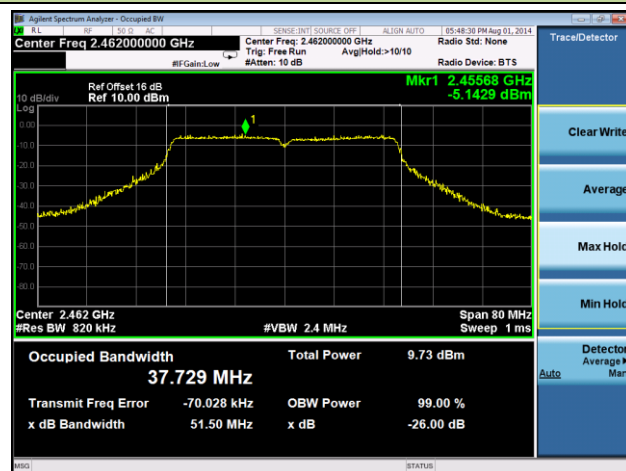


802.11n-HT40 Occupied Channel Bandwidth - Ant 0 + 1

Channel 03 (2422MHz)



Channel 11 (2462MHz)



10. Transmitter unwanted emissions in the out-of-band domain

10.1. Limit

The transmitter unwanted emissions in the out-of-band domain but outside the allocated band, shall not exceed the values provided by the mask in figure 3.

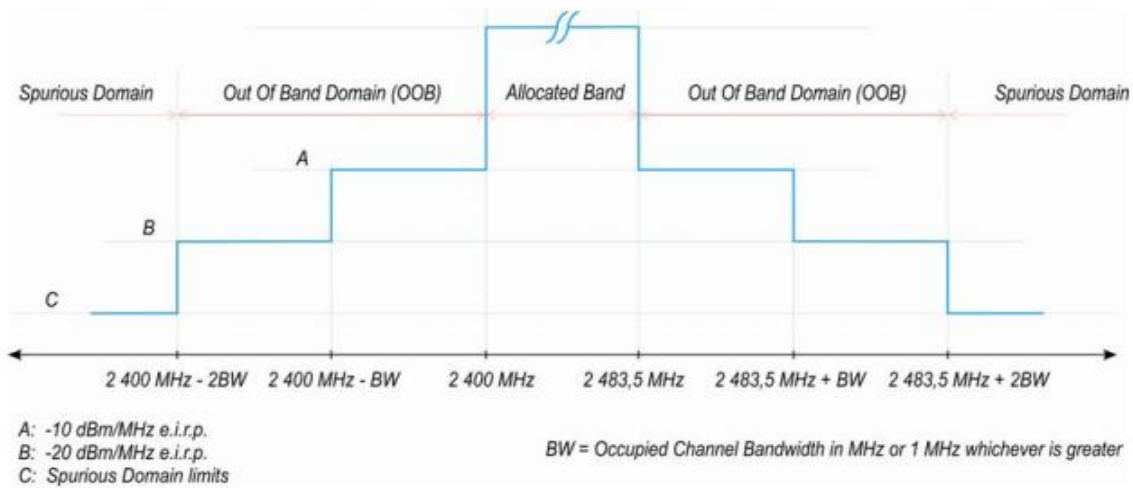
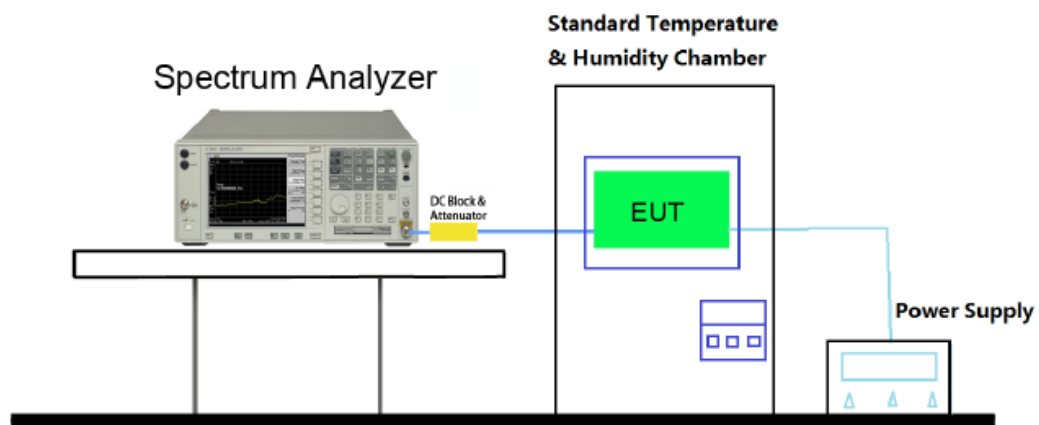


Figure 3: Transmit mask

10.2. Test Setup

For Conducted Measurement



10.3. Test Procedure

Refer to ETSI EN 300 328 V1.8.1 (2012-06) Clause 5.3.9.2.1.

10.4. Test Result

Product	Wireless LAN Access Point	Temperature	-20 ~ 70°C
Test Engineer	Milo Li	Relative Humidity	54%

Test Mode	Ch. No.	Temp. Condition	Freq. Range (MHz)	The Worst Level (dBm/MHz)	Total Worst Level (dBm/MHz)	Limit (dBm/MHz)	Result
Ant 0							
11b	01	T _{nom}	2400-BW~ 2400-2BW	-42.10	-31.10	-20	Pass
		T _{min}		-40.48	-29.48	-20	Pass
		T _{max}		-42.59	-31.59	-20	Pass
		T _{nom}	2400-BW ~ 2400	-33.04	-22.04	-10	Pass
		T _{min}		-29.78	-18.78	-10	Pass
		T _{max}		-33.45	-22.45	-10	Pass
	13	T _{nom}	2483.5+BW ~ 2483.5	-32.53	-21.53	-10	Pass
		T _{min}		-30.82	-19.82	-10	Pass
		T _{max}		-33.01	-22.01	-10	Pass
		T _{nom}	2483.5+2BW ~ 2483.5+BW	-43.20	-32.20	-20	Pass
		T _{min}		-41.48	-30.48	-20	Pass
		T _{max}		-43.49	-32.49	-20	Pass
11g	01	T _{nom}	2400-BW~ 2400-2BW	-39.57	-28.57	-20	Pass
		T _{min}		-38.83	-27.83	-20	Pass
		T _{max}		-39.97	-28.97	-20	Pass
		T _{nom}	2400-BW ~ 2400	-28.05	-17.05	-10	Pass
		T _{min}		-25.73	-14.73	-10	Pass
		T _{max}		-28.27	-17.27	-10	Pass
	13	T _{nom}	2483.5+BW ~ 2483.5	-26.88	-15.88	-10	Pass
		T _{min}		-25.17	-14.17	-10	Pass
		T _{max}		-27.14	-16.14	-10	Pass
		T _{nom}	2483.5+2BW ~ 2483.5+BW	-37.22	-26.22	-20	Pass
		T _{min}		-34.78	-23.78	-20	Pass
		T _{max}		-37.49	-26.49	-20	Pass

Note: Total Worst Level(dBm/MHz) = The Worst Level (dBm/MHz) + Antenna Gain (dBi).

Test Mode	Ch. No.	Temp. Condition	Freq. Range (MHz)	The Worst Level (dBm/MHz)	Total Worst Level (dBm/MHz)	Limit (dBm/MHz)	Result
Ant 0							
n-HT20	01	T _{nom}	2400-BW~ 2400-2BW	-39.80	-28.80	-20	Pass
		T _{min}		-38.51	-27.51	-20	Pass
		T _{max}		-40.22	-29.22	-20	Pass
		T _{nom}	2400-BW ~ 2400	-26.96	-15.96	-10	Pass
		T _{min}		-25.40	-14.40	-10	Pass
		T _{max}		-27.24	-16.24	-10	Pass
	13	T _{nom}	2483.5+BW ~ 2483.5	-25.13	-14.13	-10	Pass
		T _{min}		-23.42	-12.42	-10	Pass
		T _{max}		-25.55	-14.55	-10	Pass
		T _{nom}	2483.5+2BW ~ 2483.5+BW	-38.68	-27.68	-20	Pass
		T _{min}		-37.48	-26.48	-20	Pass
		T _{max}		-39.15	-28.15	-20	Pass
n-HT40	03	T _{nom}	2400-BW~ 2400-2BW	-39.32	-28.32	-20	Pass
		T _{min}		-36.88	-25.88	-20	Pass
		T _{max}		-39.55	-28.55	-20	Pass
		T _{nom}	2400-BW ~ 2400	-30.09	-19.09	-10	Pass
		T _{min}		-28.69	-17.69	-10	Pass
		T _{max}		-30.45	-19.45	-10	Pass
	11	T _{nom}	2483.5+BW ~ 2483.5	-31.98	-20.98	-10	Pass
		T _{min}		-30.28	-19.28	-10	Pass
		T _{max}		-31.24	-20.24	-10	Pass
		T _{nom}	2483.5+2BW ~ 2483.5+BW	-40.59	-29.59	-20	Pass
		T _{min}		-39.87	-28.87	-20	Pass
		T _{max}		-40.87	-29.87	-20	Pass

Note: Total Worst Level(dBm/MHz) = The Worst Level (dBm/MHz) + Antenna Gain (dBi).

Test Mode	Ch. No.	Temp. Condition	Freq. Range (MHz)	The Worst Level (dBm/MHz)	Total Worst Level (dBm/MHz)	Limit (dBm/MHz)	Result
Ant 1							
11b	01	T _{nom}	2400-BW ~ 2400-2BW	-41.90	-30.90	-20	Pass
		T _{min}		-41.43	-30.43	-20	Pass
		T _{max}		-43.28	-32.28	-20	Pass
		T _{nom}	2400-BW ~ 2400	-32.52	-21.52	-10	Pass
		T _{min}		-30.97	-19.97	-10	Pass
		T _{max}		-32.13	-21.13	-10	Pass
	13	T _{nom}	2483.5+BW ~ 2483.5	-32.18	-21.18	-10	Pass
		T _{min}		-31.10	-20.10	-10	Pass
		T _{max}		-32.00	-21.00	-10	Pass
		T _{nom}	2483.5+2BW ~ 2483.5+BW	-42.65	-31.65	-20	Pass
		T _{min}		-42.56	-31.56	-20	Pass
		T _{max}		-43.48	-32.48	-20	Pass
11g	01	T _{nom}	2400-BW ~ 2400-2BW	-40.65	-29.65	-20	Pass
		T _{min}		-39.08	-28.08	-20	Pass
		T _{max}		-39.05	-28.05	-20	Pass
		T _{nom}	2400-BW ~ 2400	-27.60	-16.60	-10	Pass
		T _{min}		-26.29	-15.29	-10	Pass
		T _{max}		-27.24	-16.24	-10	Pass
	13	T _{nom}	2483.5+BW ~ 2483.5	-26.48	-15.48	-10	Pass
		T _{min}		-24.10	-13.10	-10	Pass
		T _{max}		-27.70	-16.70	-10	Pass
		T _{nom}	2483.5+2BW ~ 2483.5+BW	-36.43	-25.43	-20	Pass
		T _{min}		-33.97	-22.97	-20	Pass
		T _{max}		-37.78	-26.78	-20	Pass

Note: Total Worst Level(dBm/MHz) = The Worst Level (dBm/MHz) + Antenna Gain (dBi).

Test Mode	Ch. No.	Temp. Condition	Freq. Range (MHz)	The Worst Level (dBm/MHz)	Total Worst Level (dBm/MHz)	Limit (dBm/MHz)	Result
Ant 1							
n-HT20	01	T _{nom}	2400-BW~ 2400-2BW	-38.82	-27.82	-20	Pass
		T _{min}		-39.19	-28.19	-20	Pass
		T _{max}		-40.92	-29.92	-20	Pass
		T _{nom}	2400-BW ~ 2400	-26.36	-15.36	-10	Pass
		T _{min}		-25.07	-14.07	-10	Pass
		T _{max}		-27.06	-16.06	-10	Pass
	13	T _{nom}	2483.5+BW ~ 2483.5	-24.95	-13.95	-10	Pass
		T _{min}		-23.40	-12.40	-10	Pass
		T _{max}		-25.45	-14.45	-10	Pass
		T _{nom}	2483.5+2BW ~ 2483.5+BW	-39.75	-28.75	-20	Pass
		T _{min}		-37.14	-26.14	-20	Pass
		T _{max}		-38.44	-27.44	-20	Pass
n-HT40	03	T _{nom}	2400-BW~ 2400-2BW	-39.68	-28.68	-20	Pass
		T _{min}		-36.00	-25.00	-20	Pass
		T _{max}		-40.51	-29.51	-20	Pass
		T _{nom}	2400-BW ~ 2400	-30.38	-19.38	-10	Pass
		T _{min}		-28.77	-17.77	-10	Pass
		T _{max}		-31.38	-20.38	-10	Pass
	11	T _{nom}	2483.5+BW ~ 2483.5	-32.29	-21.29	-10	Pass
		T _{min}		-31.34	-20.34	-10	Pass
		T _{max}		-31.87	-20.87	-10	Pass
		T _{nom}	2483.5+2BW ~ 2483.5+BW	-40.94	-29.94	-20	Pass
		T _{min}		-39.18	-28.18	-20	Pass
		T _{max}		-40.15	-29.15	-20	Pass

Note: Total Worst Level(dBm/MHz) = The Worst Level (dBm/MHz) + Antenna Gain (dBi).

Test Mode	Ch. No.	Temp. Condition	Freq. Range (MHz)	The Worst Level (dBm/MHz)	Total Worst Level (dBm/MHz)	Limit (dBm/MHz)	Result
Ant 0 + 1							
n-HT20	01	T _{nom}	2400-BW~ 2400-2BW	-46.21	-35.21	-20	Pass
		T _{min}		-44.42	-33.42	-20	Pass
		T _{max}		-45.64	-34.64	-20	Pass
		T _{nom}	2400-BW ~ 2400	-33.41	-22.41	-10	Pass
		T _{min}		-32.14	-21.14	-10	Pass
		T _{max}		-34.11	-23.11	-10	Pass
	13	T _{nom}	2483.5+BW ~ 2483.5	-31.07	-20.07	-10	Pass
		T _{min}		-29.44	-18.44	-10	Pass
		T _{max}		-31.99	-20.99	-10	Pass
		T _{nom}	2483.5+2BW ~ 2483.5+BW	-45.39	-34.39	-20	Pass
		T _{min}		-44.14	-33.14	-20	Pass
		T _{max}		-44.93	-33.93	-20	Pass
n-HT40	03	T _{nom}	2400-BW~ 2400-2BW	-45.60	-34.60	-20	Pass
		T _{min}		-42.51	-31.51	-20	Pass
		T _{max}		-45.90	-34.90	-20	Pass
		T _{nom}	2400-BW ~ 2400	-37.56	-26.56	-10	Pass
		T _{min}		-35.92	-24.92	-10	Pass
		T _{max}		-37.90	-26.90	-10	Pass
	11	T _{nom}	2483.5+BW ~ 2483.5	-37.54	-26.54	-10	Pass
		T _{min}		-35.97	-24.97	-10	Pass
		T _{max}		-39.16	-28.16	-10	Pass
		T _{nom}	2483.5+2BW ~ 2483.5+BW	-47.77	-36.77	-20	Pass
		T _{min}		-46.61	-35.61	-20	Pass
		T _{max}		-48.19	-37.19	-20	Pass

Note: Total Worst Level(dBm/MHz) = The Worst Level (dBm/MHz) + Antenna Gain (dBi).

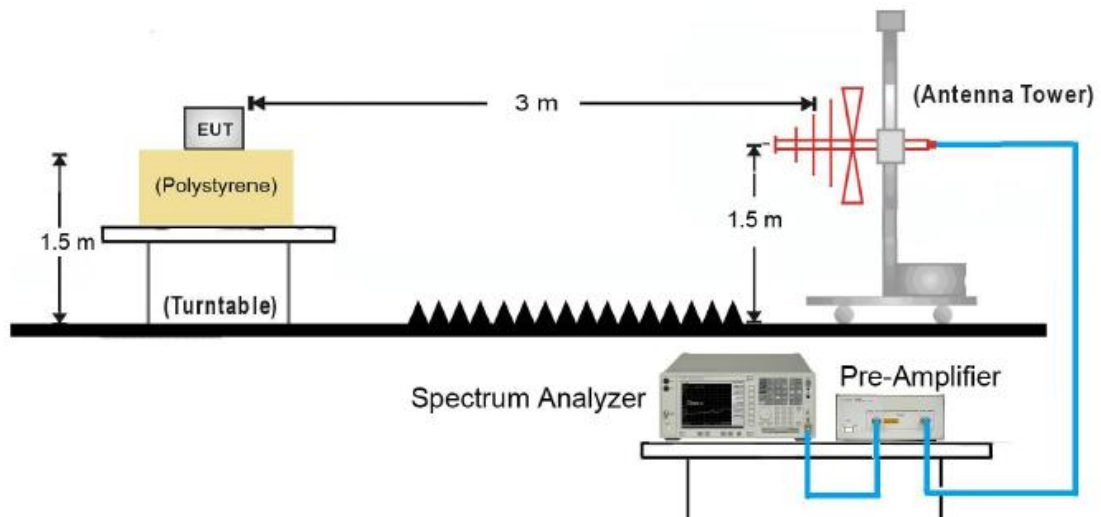
11. Transmitter unwanted emissions in the spurious domain

11.1. Limit

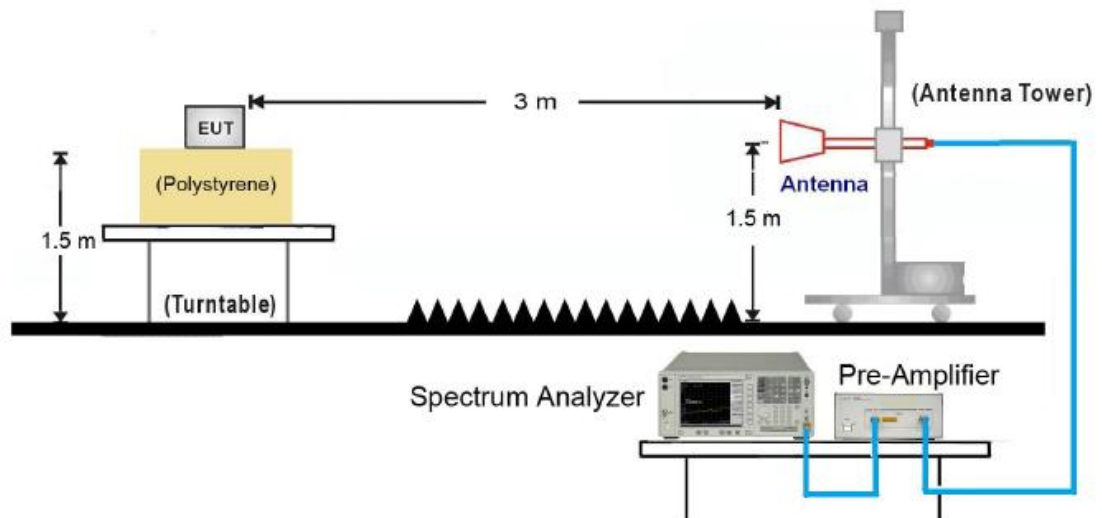
Transmitter Limits for Spurious Emissions		
Frequency Range	Maximum power E.R.P. ($\leq 1\text{GHz}$) E.I.R.P. ($> 1\text{GHz}$)	Bandwidth
30 MHz to 47 MHz	-36dBm	100 kHz
47 MHz to 74 MHz	-54dBm	100 kHz
74 MHz to 87,5 MHz	-36dBm	100 kHz
87,5 MHz to 118 MHz	-54dBm	100 kHz
118 MHz to 174 MHz	-36dBm	100 kHz
174 MHz to 230 MHz	-54dBm	100 kHz
230 MHz to 470 MHz	-36dBm	100 kHz
470 MHz to 862 MHz	-54dBm	100 kHz
862 MHz to 1 GHz	-36dBm	100 kHz
1 GHz to 12,75 GHz	-30dBm	1 MHz

11.2. Test Setup

30MHz ~ 1GHz Test Setup:



1GHz ~ 12.75GHz Test Setup:



11.3. Test Procedure

Refer to ETSI EN 300 328 V1.8.1 (2012-06) Clause 5.3.10.2.2.

11.4. Test Result

Test by Panel Antenna

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11b	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0						
01	725.3	-74.40	-54	-20.40	Peak	Horizontal
	102.4	-72.35	-54	-18.35	Peak	Vertical
	761.2	-74.05	-54	-20.05	Peak	Horizontal
	751.2	-71.95	-54	-17.95	Peak	Vertical
	4824.0	-51.65	-30	-21.65	Peak	Horizontal
	4824.0	-50.95	-30	-20.95	Peak	Vertical
	7236.0	-44.85	-30	-14.85	Peak	Horizontal
	7236.0	-44.35	-30	-14.35	Peak	Vertical
13	731.3	-74.05	-54	-20.05	Peak	Horizontal
	96.0	-72.05	-54	-18.05	Peak	Vertical
	787.6	-74.45	-54	-20.45	Peak	Horizontal
	750.2	-72.15	-54	-18.15	Peak	Vertical
	4944.0	-52.65	-30	-22.65	Peak	Horizontal
	4944.0	-52.25	-30	-22.25	Peak	Vertical
	7416.0	-46.55	-30	-16.55	Peak	Horizontal
	7416.0	-46.25	-30	-16.25	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11b	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 1						
01	624.5	-75.82	-54	-21.82	Peak	Horizontal
	109.1	-72.52	-54	-18.52	Peak	Vertical
	815.6	-75.22	-54	-21.22	Peak	Horizontal
	751.2	-73.82	-54	-19.82	Peak	Vertical
	4824.0	-53.32	-30	-23.32	Peak	Horizontal
	4824.0	-53.62	-30	-23.62	Peak	Vertical
	7236.0	-46.22	-30	-16.22	Peak	Horizontal
	7236.0	-45.92	-30	-15.92	Peak	Vertical
13	758.3	-75.72	-54	-21.72	Peak	Horizontal
	100.1	-71.22	-54	-17.22	Peak	Vertical
	846.1	-74.62	-54	-20.62	Peak	Horizontal
	749.2	-74.12	-54	-20.12	Peak	Vertical
	4944.0	-53.62	-30	-23.62	Peak	Horizontal
	4944.0	-53.92	-30	-23.92	Peak	Vertical
	7416.0	-47.62	-30	-17.62	Peak	Horizontal
	7416.0	-47.82	-30	-17.82	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11g	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0						
01	736.3	-77.12	-54	-23.12	Peak	Horizontal
	98.2	-74.21	-54	-20.21	Peak	Vertical
	843.1	-76.23	-54	-22.23	Peak	Horizontal
	748.9	-74.86	-54	-20.86	Peak	Vertical
	4824	-55.15	-30	-25.15	Peak	Horizontal
	4824	-53.97	-30	-23.97	Peak	Vertical
	7236	-47.65	-30	-17.65	Peak	Horizontal
	7236	-46.94	-30	-16.94	Peak	Vertical
13	735.6	-76.53	-54	-22.53	Peak	Horizontal
	97.3	-74.16	-54	-20.16	Peak	Vertical
	813.5	-76.37	-54	-22.37	Peak	Horizontal
	752.4	-74.96	-54	-20.96	Peak	Vertical
	4944.0	-54.59	-30	-24.59	Peak	Horizontal
	4944.0	-55.24	-30	-25.24	Peak	Vertical
	7416.0	-48.53	-30	-18.53	Peak	Horizontal
	7416.0	-48.82	-30	-18.82	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11g	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 1						
01	725.8	-76.83	-54	-22.83	Peak	Horizontal
	104.8	-74.84	-54	-20.84	Peak	Vertical
	757.1	-76.65	-54	-22.65	Peak	Horizontal
	748.2	-74.42	-54	-20.42	Peak	Vertical
	4824.0	-54.12	-30	-24.12	Peak	Horizontal
	4824.0	-53.43	-30	-23.43	Peak	Vertical
	7236.0	-47.35	-30	-17.35	Peak	Horizontal
	7236.0	-46.87	-30	-16.87	Peak	Vertical
13	732.5	-76.56	-54	-22.56	Peak	Horizontal
	97.8	-74.54	-54	-20.54	Peak	Vertical
	785.4	-76.93	-54	-22.93	Peak	Horizontal
	747.3	-74.69	-54	-20.69	Peak	Vertical
	4944.0	-55.13	-30	-25.13	Peak	Horizontal
	4944.0	-54.73	-30	-24.73	Peak	Vertical
	7416.0	-49.21	-30	-19.21	Peak	Horizontal
	7416.0	-48.73	-30	-18.73	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT20	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0						
01	80.2	-69.31	-36	-33.31	Peak	Horizontal
	72.3	-65.56	-54	-11.56	Peak	Vertical
	217.3	-75.06	-54	-21.06	Peak	Horizontal
	98.2	-65.79	-54	-11.79	Peak	Vertical
	4824.0	-54.97	-30	-24.97	Peak	Horizontal
	4824.0	-54.38	-30	-24.38	Peak	Vertical
	7236.0	-49.03	-30	-19.03	Peak	Horizontal
	7236.0	-48.89	-30	-18.89	Peak	Vertical
13	72.6	-68.50	-54	-14.50	Peak	Horizontal
	80.2	-66.58	-36	-30.58	Peak	Vertical
	217.3	-75.76	-54	-21.76	Peak	Horizontal
	97.1	-65.40	-54	-11.40	Peak	Vertical
	4944.0	-53.69	-30	-23.69	Peak	Horizontal
	4944.0	-54.15	-30	-24.15	Peak	Vertical
	7416.0	-48.45	-30	-18.45	Peak	Horizontal
	7416.0	-48.69	-30	-18.69	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT20	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 1						
01	73.5	-68.46	-54	-14.46	Peak	Horizontal
	76.8	-67.38	-36	-31.38	Peak	Vertical
	217.6	-75.19	-54	-21.19	Peak	Horizontal
	97.8	-64.94	-54	-10.94	Peak	Vertical
	4824.0	-54.55	-30	-24.55	Peak	Horizontal
	4824.0	-54.16	-30	-24.16	Peak	Vertical
	7236.0	-48.03	-30	-18.03	Peak	Horizontal
	7236.0	-48.45	-30	-18.45	Peak	Vertical
13	81.2	-68.06	-36	-32.06	Peak	Horizontal
	78.1	-66.07	-36	-30.07	Peak	Vertical
	193.2	-74.18	-54	-20.18	Peak	Horizontal
	100.0	-64.79	-54	-10.79	Peak	Vertical
	4944.0	-53.95	-30	-23.95	Peak	Horizontal
	4944.0	-53.83	-30	-23.83	Peak	Vertical
	7416.0	-48.70	-30	-18.70	Peak	Horizontal
	7416.0	-47.30	-30	-17.30	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT20	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0 + 1						
01	73.5	-68.42	-54	-14.42	Peak	Horizontal
	70.8	-67.47	-54	-13.47	Peak	Vertical
	216.4	-73.89	-54	-19.89	Peak	Horizontal
	97.1	-64.85	-54	-10.85	Peak	Vertical
	4824.0	-53.92	-30	-23.92	Peak	Horizontal
	4824.0	-53.30	-30	-23.30	Peak	Vertical
	7236.0	-48.51	-30	-18.51	Peak	Horizontal
	7236.0	-47.86	-30	-17.86	Peak	Vertical
13	72.5	-67.72	-54	-13.72	Peak	Horizontal
	70.3	-64.76	-54	-10.76	Peak	Vertical
	192.4	-74.56	-54	-20.56	Peak	Horizontal
	95.8	-64.18	-54	-10.18	Peak	Vertical
	4944.0	-53.83	-30	-23.83	Peak	Horizontal
	4944.0	-53.46	-30	-23.46	Peak	Vertical
	7416.0	-47.52	-30	-17.52	Peak	Horizontal
	7416.0	-47.80	-30	-17.80	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT40	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0						
03	71.5	-67.63	-54	-13.63	Peak	Horizontal
	95.8	-63.77	-54	-9.77	Peak	Vertical
	217.3	-74.60	-54	-20.60	Peak	Horizontal
	168.2	-71.06	-54	-17.06	Peak	Vertical
	4844.0	-52.39	-30	-22.39	Peak	Horizontal
	4844.0	-51.40	-30	-21.40	Peak	Vertical
	7266.0	-47.83	-30	-17.83	Peak	Horizontal
	7266.0	-47.46	-30	-17.46	Peak	Vertical
09	72.5	-66.73	-54	-12.73	Peak	Horizontal
	73.1	-66.97	-54	-12.97	Peak	Vertical
	192.1	-73.55	-54	-19.55	Peak	Horizontal
	100.2	-64.02	-54	-10.02	Peak	Vertical
	4924.0	-52.73	-30	-22.73	Peak	Horizontal
	4924.0	-52.58	-30	-22.58	Peak	Vertical
	7386.0	-46.54	-30	-16.54	Peak	Horizontal
	7386.0	-47.47	-30	-17.47	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT40	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 1						
03	73.2	-66.20	-54	-12.20	Peak	Horizontal
	71.4	-64.53	-54	-10.53	Peak	Vertical
	215.4	-69.82	-54	-15.82	Peak	Horizontal
	97.5	-65.03	-54	-11.03	Peak	Vertical
	4844.0	-52.79	-30	-22.79	Peak	Horizontal
	4844.0	-53.32	-30	-23.32	Peak	Vertical
	7266.0	-48.20	-30	-18.20	Peak	Horizontal
	7266.0	-47.32	-30	-17.32	Peak	Vertical
09	72.0	-67.80	-54	-13.80	Peak	Horizontal
	73.3	-64.59	-54	-10.59	Peak	Vertical
	221.0	-70.25	-54	-16.25	Peak	Horizontal
	97.3.	-64.65	-54	-10.65	Peak	Vertical
	4924.0	-53.09	-30	-23.09	Peak	Horizontal
	4924.0	-53.58	-30	-23.58	Peak	Vertical
	7386.0	-47.31	-30	-17.31	Peak	Horizontal
	7386.0	-47.68	-30	-17.68	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT40	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0 + 1						
03	73.5	-65.70	-54	-11.70	Peak	Horizontal
	72.4	-64.03	-54	-10.03	Peak	Vertical
	214.2	-69.32	-54	-15.32	Peak	Horizontal
	96.5	-64.53	-54	-10.53	Peak	Vertical
	4844.0	-52.29	-30	-22.29	Peak	Horizontal
	4844.0	-52.82	-30	-22.82	Peak	Vertical
	7266.0	-47.70	-30	-17.70	Peak	Horizontal
	7266.0	-46.82	-30	-16.82	Peak	Vertical
09	71.5	-67.30	-54	-13.30	Peak	Horizontal
	73.2	-64.09	-54	-10.09	Peak	Vertical
	223.0	-69.75	-54	-15.75	Peak	Horizontal
	96.3	-64.15	-54	-10.15	Peak	Vertical
	4924.0	-52.59	-30	-22.59	Peak	Horizontal
	4924.0	-53.08	-30	-23.08	Peak	Vertical
	7386.0	-46.81	-30	-16.81	Peak	Horizontal
	7386.0	-47.18	-30	-17.18	Peak	Vertical

Test by Dipole Antenna

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11b	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0						
01	729.0	-74.87	-54	-20.87	Peak	Horizontal
	100.1	-72.89	-54	-18.89	Peak	Vertical
	765.7	-75.34	-54	-21.34	Peak	Horizontal
	748.4	-73.18	-54	-19.18	Peak	Vertical
	4824.0	-54.60	-30	-24.60	Peak	Horizontal
	4824.0	-52.47	-30	-22.47	Peak	Vertical
	7236.0	-47.79	-30	-17.79	Peak	Horizontal
	7236.0	-47.31	-30	-17.31	Peak	Vertical
13	734.7	-75.17	-54	-21.17	Peak	Horizontal
	97.6	-72.97	-54	-18.97	Peak	Vertical
	785.1	-75.67	-54	-21.67	Peak	Horizontal
	753.6	-74.44	-54	-20.44	Peak	Vertical
	4944.0	-53.69	-30	-23.69	Peak	Horizontal
	4944.0	-52.68	-30	-22.68	Peak	Vertical
	7416.0	-49.51	-30	-19.51	Peak	Horizontal
	7416.0	-49.18	-30	-19.18	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11b	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 1						
01	626.4	-78.95	-54	-24.95	Peak	Horizontal
	107.7	-73.14	-54	-19.14	Peak	Vertical
	817.1	-76.33	-54	-22.33	Peak	Horizontal
	749.4	-77.74	-54	-23.74	Peak	Vertical
	4824.0	-54.28	-30	-24.28	Peak	Horizontal
	4824.0	-57.46	-30	-27.46	Peak	Vertical
	7236.0	-49.26	-30	-19.26	Peak	Horizontal
	7236.0	-46.57	-30	-16.57	Peak	Vertical
13	753.4	-76.71	-54	-22.71	Peak	Horizontal
	102.2	-75.12	-54	-21.12	Peak	Vertical
	843.5	-75.38	-54	-21.38	Peak	Horizontal
	749.3	-74.93	-54	-20.93	Peak	Vertical
	4944.0	-56.08	-30	-26.08	Peak	Horizontal
	4944.0	-55.74	-30	-25.74	Peak	Vertical
	7416.0	-51.49	-30	-21.49	Peak	Horizontal
	7416.0	-50.07	-30	-20.07	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11g	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0						
01	738.7	-78.14	-54	-24.14	Peak	Horizontal
	105.7	-75.93	-54	-21.93	Peak	Vertical
	845.4	-79.65	-54	-25.65	Peak	Horizontal
	744.2	-77.38	-54	-23.38	Peak	Vertical
	4824.0	-58.81	-30	-28.81	Peak	Horizontal
	4824.0	-54.36	-30	-24.36	Peak	Vertical
	7236.0	-49.59	-30	-19.59	Peak	Horizontal
	7236.0	-48.96	-30	-18.96	Peak	Vertical
13	735.1	-76.96	-54	-22.96	Peak	Horizontal
	104.2	-78.08	-54	-24.08	Peak	Vertical
	813.3	-79.25	-54	-25.25	Peak	Horizontal
	753.5	-75.54	-54	-21.54	Peak	Vertical
	4944.0	-55.59	-30	-25.59	Peak	Horizontal
	4944.0	-58.69	-30	-28.69	Peak	Vertical
	7416.0	-49.68	-30	-19.68	Peak	Horizontal
	7416.0	-51.77	-30	-21.77	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11g	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 1						
01	723.9	-77.31	-54	-23.31	Peak	Horizontal
	107.6	-74.92	-54	-20.92	Peak	Vertical
	759.7	-77.94	-54	-23.94	Peak	Horizontal
	745.2	-76.84	-54	-22.84	Peak	Vertical
	4824.0	-55.94	-30	-25.94	Peak	Horizontal
	4824.0	-55.38	-30	-25.38	Peak	Vertical
	7236.0	-49.04	-30	-19.04	Peak	Horizontal
	7236.0	-47.65	-30	-17.65	Peak	Vertical
13	73.6	-79.54	-54	-25.54	Peak	Horizontal
	98.2	-78.21	-54	-24.21	Peak	Vertical
	785.0	-80.71	-54	-26.71	Peak	Horizontal
	749.8	-74.90	-54	-20.90	Peak	Vertical
	4944.0	-57.45	-30	-27.45	Peak	Horizontal
	4944.0	-56.41	-30	-26.41	Peak	Vertical
	7416.0	-52.11	-30	-22.11	Peak	Horizontal
	7416.0	-51.38	-30	-21.38	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT20	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0						
01	80.9	-72.06	-36	-36.06	Peak	Horizontal
	75.3	-65.68	-36	-29.68	Peak	Vertical
	218.7	-75.46	-54	-21.46	Peak	Horizontal
	93.2	-67.15	-54	-13.15	Peak	Vertical
	4824.0	-56.03	-30	-26.03	Peak	Horizontal
	4824.0	-55.41	-30	-25.41	Peak	Vertical
	7236.0	-51.19	-30	-21.19	Peak	Horizontal
	7236.0	-49.81	-30	-19.81	Peak	Vertical
13	72.6	-71.68	-54	-17.68	Peak	Horizontal
	85.0	-70.20	-36	-34.2	Peak	Vertical
	214.5	-77.92	-54	-23.92	Peak	Horizontal
	97.7	-67.71	-54	-13.71	Peak	Vertical
	4944.0	-54.55	-30	-24.55	Peak	Horizontal
	4944.0	-56.46	-30	-26.46	Peak	Vertical
	7416.0	-52.07	-30	-22.07	Peak	Horizontal
	7416.0	-50.34	-30	-20.34	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT20	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 1						
01	75.6	-69.57	-36	-33.57	Peak	Horizontal
	78.9	-68.03	-36	-32.03	Peak	Vertical
	218.4	-76.18	-54	-22.18	Peak	Horizontal
	97.8	-65.80	-54	-11.80	Peak	Vertical
	4824.0	-54.68	-30	-24.68	Peak	Horizontal
	4824.0	-55.91	-30	-25.91	Peak	Vertical
	7236.0	-49.88	-30	-19.88	Peak	Horizontal
	7236.0	-49.61	-30	-19.61	Peak	Vertical
13	78.8	-70.75	-36	-34.75	Peak	Horizontal
	83.3	-67.84	-36	-31.84	Peak	Vertical
	188.5	-74.26	-54	-20.26	Peak	Horizontal
	103.3	-65.26	-54	-11.26	Peak	Vertical
	4944.0	-55.38	-30	-25.38	Peak	Horizontal
	4944.0	-56.33	-30	-26.33	Peak	Vertical
	7416.0	-52.10	-30	-22.10	Peak	Horizontal
	7416.0	-50.56	-30	-20.56	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT20	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0 + 1						
01	79.2	-71.43	-36	-35.43	Peak	Horizontal
	72.7	-67.65	-54	-13.65	Peak	Vertical
	218.9	-76.09	-54	-22.09	Peak	Horizontal
	93.6	-66.80	-54	-12.80	Peak	Vertical
	4824.0	-57.70	-30	-27.70	Peak	Horizontal
	4824.0	-53.31	-30	-23.31	Peak	Vertical
	7236.0	-51.93	-30	-21.93	Peak	Horizontal
	7236.0	-48.35	-30	-18.35	Peak	Vertical
13	70.7	-68.28	-54	-14.28	Peak	Horizontal
	79.4	-66.75	-36	-30.75	Peak	Vertical
	187.8	-75.10	-54	-21.10	Peak	Horizontal
	99.3	-66.30	-54	-12.30	Peak	Vertical
	4944.0	-56.59	-30	-26.59	Peak	Horizontal
	4944.0	-56.78	-30	-26.78	Peak	Vertical
	7416.0	-47.71	-30	-17.71	Peak	Horizontal
	7416.0	-50.36	-30	-20.36	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT40	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0						
03	89.1	-70.77	-54	-16.77	Peak	Horizontal
	96.9	-67.47	-54	-13.47	Peak	Vertical
	217.9	-77.11	-54	-23.11	Peak	Horizontal
	163.9	-71.21	-36	-35.21	Peak	Vertical
	4844.0	-52.45	-30	-22.45	Peak	Horizontal
	4844.0	-53.29	-30	-23.29	Peak	Vertical
	7266.0	-50.16	-30	-20.16	Peak	Horizontal
	7266.0	-51.21	-30	-21.21	Peak	Vertical
09	71.8	-68.30	-54	-14.30	Peak	Horizontal
	75.9	-69.89	-36	-33.89	Peak	Vertical
	190.5	-76.98	-54	-22.98	Peak	Horizontal
	101.0	-65.72	-54	-11.72	Peak	Vertical
	4924.0	-54.70	-30	-24.70	Peak	Horizontal
	4924.0	-54.46	-30	-24.46	Peak	Vertical
	7386.0	-47.90	-30	-17.90	Peak	Horizontal
	7386.0	-50.34	-30	-20.34	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT40	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 1						
03	90.2	-68.14	-54	-14.14	Peak	Horizontal
	75.1	-65.82	-36	-29.82	Peak	Vertical
	216.4	-73.52	-54	-19.52	Peak	Horizontal
	96.4	-68.77	-54	-14.77	Peak	Vertical
	4844.0	-52.94	-30	-22.94	Peak	Horizontal
	4844.0	-53.74	-30	-23.74	Peak	Vertical
	7266.0	-52.01	-30	-22.01	Peak	Horizontal
	7266.0	-47.67	-30	-17.67	Peak	Vertical
09	70.9	-71.34	-54	-17.34	Peak	Horizontal
	74.4	-66.53	-36	-30.53	Peak	Vertical
	219.8	-70.88	-54	-16.88	Peak	Horizontal
	100.5	-65.98	-54	-11.98	Peak	Vertical
	4924.0	-54.99	-30	-24.99	Peak	Horizontal
	4924.0	-56.25	-30	-26.25	Peak	Vertical
	7386.0	-49.58	-30	-19.58	Peak	Horizontal
	7386.0	-48.40	-30	-18.40	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT40	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0 + 1						
03	75.3	-68.29	-36	-32.29	Peak	Horizontal
	76.0	-65.66	-36	-29.66	Peak	Vertical
	216.0	-69.67	-54	-15.67	Peak	Horizontal
	93.8	-67.81	-54	-13.81	Peak	Vertical
	4844.0	-55.48	-30	-25.48	Peak	Horizontal
	4844.0	-54.50	-30	-24.50	Peak	Vertical
	7266.0	-50.46	-30	-20.46	Peak	Horizontal
	7266.0	-47.89	-30	-17.89	Peak	Vertical
09	70.7	-71.07	-54	-17.07	Peak	Horizontal
	83.1	-64.26	-36	-28.26	Peak	Vertical
	218.5	-73.00	-54	-19.00	Peak	Horizontal
	99.2	-67.79	-54	-13.79	Peak	Vertical
	4924.0	-53.12	-30	-23.12	Peak	Horizontal
	4924.0	-53.18	-30	-23.18	Peak	Vertical
	7386.0	-47.42	-30	-17.42	Peak	Horizontal
	7386.0	-50.75	-30	-20.75	Peak	Vertical

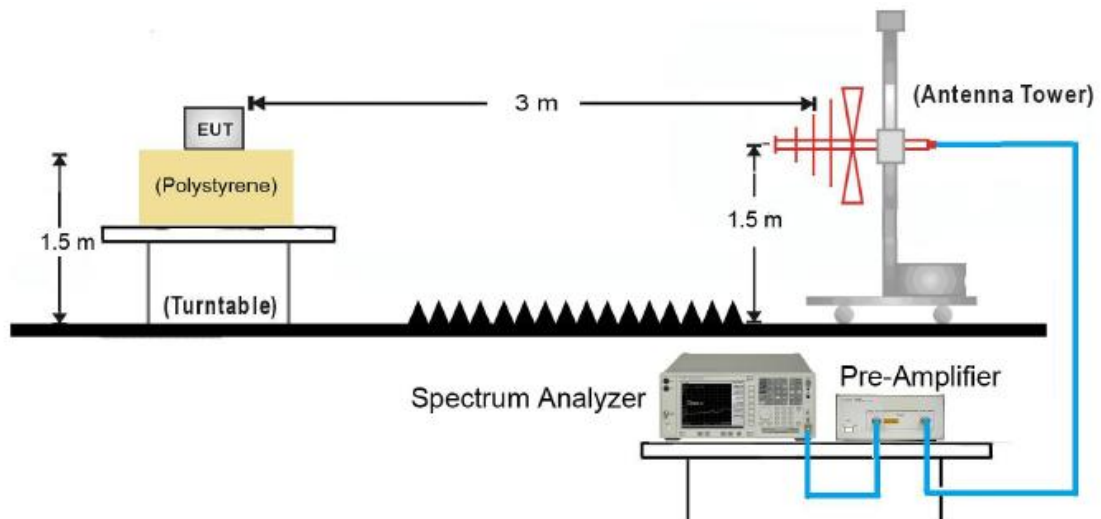
12. Receiver Spurious Emissions

12.1. Limit

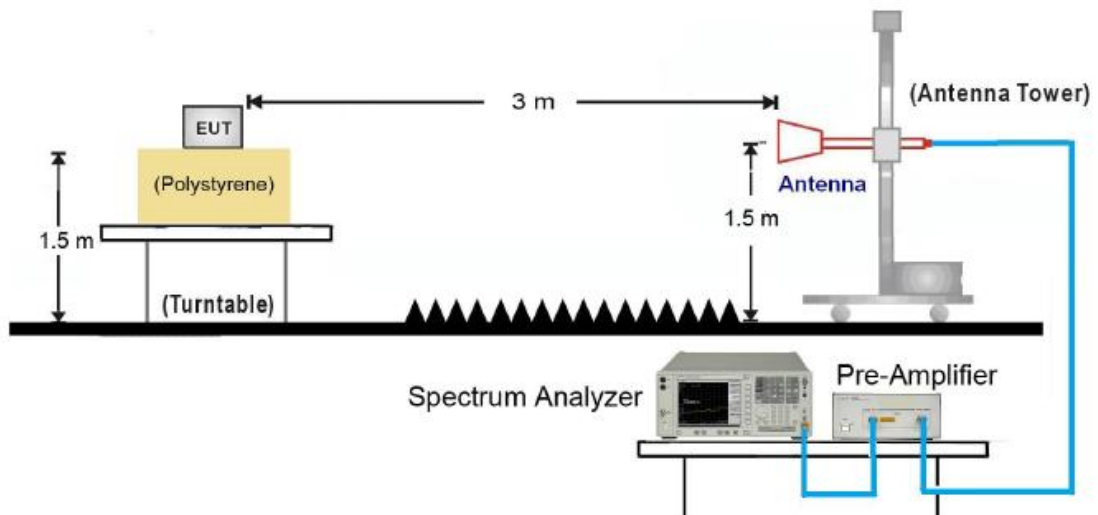
Spurious emissions limits for receivers		
Frequency Range	Maximum power E.R.P	Measurement bandwidth
30 MHz to 1 GHz	-57dBm	100 kHz
1 GHz to 12.75 GHz	-47dBm	1 MHz

12.2. Test Setup

30MHz ~ 1GHz Test Setup:



1GHz ~ 12.5GHz Test Setup:



12.3. Test Procedure

Refer to ETSI EN 300 328 V1.8.1 (2012-06) Clause 5.3.11.2.2.

12.4. Test Result

Test by Panel Antenna

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11b	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0						
01	76.4	-74.08	-57	-17.08	Peak	Horizontal
	35.3	-62.66	-57	-5.66	Peak	Vertical
	175.4	-79.02	-57	-22.02	Peak	Horizontal
	83.7	-63.11	-57	-6.11	Peak	Vertical
	2196.4	-53.85	-47	-6.85	Peak	Horizontal
	2715.2	-54.47	-47	-7.47	Peak	Vertical
	2863.5	-55.06	-47	-8.06	Peak	Horizontal
	3725.6	-56.13	-47	-9.13	Peak	Vertical
13	78.4	-74.45	-57	-17.45	Peak	Horizontal
	36.3	-63.93	-57	-6.93	Peak	Vertical
	176.8	-77.46	-57	-20.46	Peak	Horizontal
	83.2	-65.94	-57	-8.94	Peak	Vertical
	2183.6	-55.37	-47	-8.37	Peak	Horizontal
	2131.5	-54.43	-47	-7.43	Peak	Vertical
	3724.7	-53.34	-47	-6.34	Peak	Horizontal
	2792.5	-53.66	-47	-6.66	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11b	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 1						
01	79.6	-72.60	-57	-15.60	Peak	Horizontal
	38.5	-61.18	-57	-4.18	Peak	Vertical
	178.6	-77.54	-57	-20.54	Peak	Horizontal
	86.9	-61.63	-57	-4.63	Peak	Vertical
	2199.6	-52.37	-47	-5.37	Peak	Horizontal
	2718.4	-52.99	-47	-5.99	Peak	Vertical
	2866.7	-53.58	-47	-6.58	Peak	Horizontal
	3728.8	-54.65	-47	-7.65	Peak	Vertical
13	81.5	-72.97	-57	-15.97	Peak	Horizontal
	39.4	-62.45	-57	-5.45	Peak	Vertical
	180.0	-75.98	-57	-18.98	Peak	Horizontal
	86.4	-64.46	-57	-7.46	Peak	Vertical
	2186.8	-53.89	-47	-6.89	Peak	Horizontal
	2134.7	-52.95	-47	-5.95	Peak	Vertical
	3727.9	-51.86	-47	-4.86	Peak	Horizontal
	2795.7	-52.18	-47	-5.18	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11g	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0						
01	86.0	-71.87	-57	-14.87	Peak	Horizontal
	46.4	-61.75	-57	-4.75	Peak	Vertical
	187.0	-76.12	-57	-19.12	Peak	Horizontal
	94.1	-62.80	-57	-5.80	Peak	Vertical
	2267.7	-53.11	-47	-6.11	Peak	Horizontal
	2248.9	-54.15	-47	-7.15	Peak	Vertical
	3580.6	-53.79	-47	-6.79	Peak	Horizontal
	4192.3	-52.63	-47	-5.63	Peak	Vertical
13	86.0	-74.26	-57	-17.26	Peak	Horizontal
	44.4	-62.41	-57	-5.41	Peak	Vertical
	185.0	-76.56	-57	-19.56	Peak	Horizontal
	92.2	-62.51	-57	-5.51	Peak	Vertical
	2197.1	-53.67	-47	-6.67	Peak	Horizontal
	2286.5	-53.19	-47	-6.19	Peak	Vertical
	3133.6	-53.33	-47	-6.33	Peak	Horizontal
	3594.7	-53.23	-47	-6.23	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11g	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 1						
01	86.8	-72.33	-57	-15.33	Peak	Horizontal
	46.4	-61.33	-57	-4.33	Peak	Vertical
	185.8	-75.8	-57	-18.80	Peak	Horizontal
	92.6	-61.95	-57	-4.95	Peak	Vertical
	2187.7	-53.06	-47	-6.06	Peak	Horizontal
	2197.1	-53.98	-47	-6.98	Peak	Vertical
	3114.7	-52.74	-47	-5.74	Peak	Horizontal
	3594.7	-52.98	-47	-5.98	Peak	Vertical
13	87.1	-73.49	-57	-16.49	Peak	Horizontal
	46.0	-61.99	-57	-4.99	Peak	Vertical
	185.8	-75.29	-57	-18.29	Peak	Horizontal
	93.0	-62.73	-57	-5.73	Peak	Vertical
	2206.5	-53.28	-47	-6.28	Peak	Horizontal
	2263.0	-53.95	-47	-6.95	Peak	Vertical
	3143.0	-53.22	-47	-6.22	Peak	Horizontal
	3095.9	-54.04	-47	-7.04	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT20	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0						
01	77.5	-72.92	-57	-15.92	Peak	Horizontal
	92.7	-62.62	-57	-5.62	Peak	Vertical
	184.3	-76.06	-57	-19.06	Peak	Horizontal
	198.7	-70.40	-57	-13.40	Peak	Vertical
	2209.8	-51.81	-47	-4.81	Peak	Horizontal
	2275.6	-52.45	-47	-5.45	Peak	Vertical
	3565.0	-52.24	-47	-5.24	Peak	Horizontal
	3583.8	-51.53	-47	-4.53	Peak	Vertical
13	86.8	-70.87	-57	-13.87	Peak	Horizontal
	91.9	-61.55	-57	-4.55	Peak	Vertical
	183.2	-75.74	-57	-18.74	Peak	Horizontal
	185.9	-73.34	-57	-16.34	Peak	Vertical
	2209.8	-52.05	-47	-5.05	Peak	Horizontal
	2270.9	-52.10	-47	-5.10	Peak	Vertical
	3833.2	-52.49	-47	-5.49	Peak	Horizontal
	3776.7	-51.30	-47	-4.30	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT20	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 1						
01	81.4	-73.68	-57	-16.68	Peak	Horizontal
	46.0	-62.34	-57	-5.34	Peak	Vertical
	185.9	-77.24	-57	-20.24	Peak	Horizontal
	95.7	-62.25	-57	-5.25	Peak	Vertical
	2454.8	-52.50	-47	-5.50	Peak	Horizontal
	2205.4	-52.72	-47	-5.72	Peak	Vertical
	3527.7	-51.22	-47	-4.22	Peak	Horizontal
	4313.9	-51.77	-47	-4.77	Peak	Vertical
13	85.3	-71.87	-57	-14.87	Peak	Horizontal
	44.5	-61.84	-57	-4.84	Peak	Vertical
	187.0	-76.09	-57	-19.09	Peak	Horizontal
	91.5	-61.65	-57	-4.65	Peak	Vertical
	2200.7	-52.37	-47	-5.37	Peak	Horizontal
	2205.4	-52.94	-47	-5.94	Peak	Vertical
	3584.2	-52.03	-47	-5.03	Peak	Horizontal
	3584.2	-51.81	-47	-4.81	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT20	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0 + 1						
01	79.3	-69.32	-57	-12.32	Peak	Horizontal
	34.6	-61.24	-57	-4.24	Peak	Vertical
	177.2	-75.88	-57	-18.88	Peak	Horizontal
	86.3	-62.32	-57	-5.32	Peak	Vertical
	2217.9	-52.22	-47	-5.22	Peak	Horizontal
	2250.8	-52.50	-47	-5.50	Peak	Vertical
	3135.5	-52.18	-47	-5.18	Peak	Horizontal
	3587.2	-52.82	-47	-5.82	Peak	Vertical
13	78.1	-71.93	-57	-14.93	Peak	Horizontal
	38.1	-60.68	-57	-3.68	Peak	Vertical
	179.5	-75.30	-57	-18.30	Peak	Horizontal
	86.7	-61.85	-57	-4.85	Peak	Vertical
	2199.1	-52.78	-47	-5.78	Peak	Horizontal
	2260.3	-52.01	-47	-5.01	Peak	Vertical
	3573.1	-51.59	-47	-4.59	Peak	Horizontal
	3615.5	-51.41	-47	-4.41	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT40	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0						
03	84.9	-73.18	-57	-16.18	Peak	Horizontal
	43.0	-63.70	-57	-6.70	Peak	Vertical
	184.4	-76.26	-57	-19.26	Peak	Horizontal
	90.0	-63.05	-57	-6.05	Peak	Vertical
	2208.8	-53.62	-47	-6.62	Peak	Horizontal
	2265.1	-54.14	-47	-7.14	Peak	Vertical
	4392.1	-52.97	-47	-5.97	Peak	Horizontal
	4495.6	-52.55	-47	-5.55	Peak	Vertical
09	83.4	-74.09	-57	-17.09	Peak	Horizontal
	44.2	-63.94	-57	-6.94	Peak	Vertical
	184.4	-77.11	-57	-20.11	Peak	Horizontal
	91.5	-61.94	-57	-4.94	Peak	Vertical
	2208.7	-53.77	-47	-6.77	Peak	Horizontal
	2773.3	-53.25	-47	-6.25	Peak	Vertical
	3714.5	-52.76	-47	-5.76	Peak	Horizontal
	3587.4	-53.25	-47	-6.25	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT40	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 1						
03	88.3	-70.07	-57	-13.07	Peak	Horizontal
	46.4	-61.59	-57	-4.59	Peak	Vertical
	187.8	-73.15	-57	-16.15	Peak	Horizontal
	93.4	-61.94	-57	-4.94	Peak	Vertical
	2212.0	-51.51	-47	-4.51	Peak	Horizontal
	2268.5	-51.03	-47	-4.03	Peak	Vertical
	4395.	-51.86	-47	-42.86	Peak	Horizontal
	4499.0	-52.44	-47	-5.44	Peak	Vertical
09	86.8	-70.98	-57	-13.98	Peak	Horizontal
	47.5	-60.83	-57	-3.83	Peak	Vertical
	187.8	-74.00	-57	-17.00	Peak	Horizontal
	94.9	-62.08	-57	-5.08	Peak	Vertical
	2212.0	-52.66	-47	-5.66	Peak	Horizontal
	2776.7	-52.14	-47	-5.14	Peak	Vertical
	3717.9	-52.65	-47	-5.65	Peak	Horizontal
	3590.8	-52.14	-47	-5.14	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT40	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0 + 1						
03	74.9	-76.02	-57	-19.02	Peak	Horizontal
	39.7	-64.68	-57	-7.68	Peak	Vertical
	179.4	-79.58	-57	-22.58	Peak	Horizontal
	89.3	-64.59	-57	-7.59	Peak	Vertical
	2448.6	-54.84	-47	-7.84	Peak	Horizontal
	2199.0	-55.06	-47	-8.06	Peak	Vertical
	3521.2	-53.56	-47	-6.56	Peak	Horizontal
	4307.1	-52.11	-47	-5.11	Peak	Vertical
09	78.8	-74.21	-57	-17.21	Peak	Horizontal
	38.0	-64.18	-57	-7.18	Peak	Vertical
	180.6	-78.43	-57	-21.43	Peak	Horizontal
	85.0	-61.99	-57	-4.99	Peak	Vertical
	2194.3	-54.71	-47	-7.71	Peak	Horizontal
	2199.7	-55.28	-47	-8.28	Peak	Vertical
	3577.7	-54.37	-47	-7.37	Peak	Horizontal
	3577.7	-54.15	-47	-7.15	Peak	Vertical

Test by Dipole Antenna

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11b	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0						
01	87.6	-75.89	-57	-18.89	Peak	Horizontal
	39.1	-63.32	-57	-6.32	Peak	Vertical
	177.0	-80.35	-57	-23.35	Peak	Horizontal
	82.4	-64.36	-57	-7.36	Peak	Vertical
	2196.4	-54.68	-47	-7.68	Peak	Horizontal
	2715.2	-55.38	-47	-8.38	Peak	Vertical
	2863.5	-55.86	-47	-8.86	Peak	Horizontal
	3725.6	-57.51	-47	-10.51	Peak	Vertical
13	75.8	-74.79	-57	-17.79	Peak	Horizontal
	43.0	-64.73	-57	-7.73	Peak	Vertical
	175.5	-78.46	-57	-21.46	Peak	Horizontal
	87.9	-66.95	-57	-9.95	Peak	Vertical
	2183.6	-56.93	-47	-9.93	Peak	Horizontal
	2131.5	-55.39	-47	-8.39	Peak	Vertical
	3724.7	-55.07	-47	-8.07	Peak	Horizontal
	2792.5	-54.63	-47	-7.63	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11b	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 1						
01	92.6	-73.94	-57	-16.94	Peak	Horizontal
	40.3	-62.59	-57	-5.59	Peak	Vertical
	180.4	-79.10	-57	-22.10	Peak	Horizontal
	84.6	-63.35	-57	-6.35	Peak	Vertical
	2199.6	-54.28	-47	-7.28	Peak	Horizontal
	2718.4	-53.27	-47	-6.27	Peak	Vertical
	2866.7	-53.84	-47	-6.84	Peak	Horizontal
	3728.9	-56.40	-47	-9.40	Peak	Vertical
13	79.0	-73.50	-57	-16.50	Peak	Horizontal
	47.5	-63.84	-57	-6.84	Peak	Vertical
	178.3	-77.58	-57	-20.58	Peak	Horizontal
	90.1	-65.00	-57	-8.00	Peak	Vertical
	2186.9	-54.53	-47	-7.53	Peak	Horizontal
	2134.8	-54.00	-47	-7.00	Peak	Vertical
	3727.9	-53.39	-47	-6.39	Peak	Horizontal
	2795.8	-53.65	-47	-6.65	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11g	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0						
01	102.8	-73.56	-57	-16.56	Peak	Horizontal
	49.1	-62.69	-57	-5.69	Peak	Vertical
	187.7	-76.95	-57	-19.95	Peak	Horizontal
	91.8	-63.25	-57	-6.25	Peak	Vertical
	2267.8	-54.15	-47	-7.15	Peak	Horizontal
	2248.9	-54.98	-47	-7.98	Peak	Vertical
	3580.6	-55.58	-47	-8.58	Peak	Horizontal
	4192.4	-53.69	-47	-6.69	Peak	Vertical
13	83.2	-75.01	-57	-18.01	Peak	Horizontal
	53.0	-64.16	-57	-7.16	Peak	Vertical
	183.7	-76.71	-57	-19.71	Peak	Horizontal
	95.4	-64.24	-57	-7.24	Peak	Vertical
	2197.2	-55.02	-47	-8.02	Peak	Horizontal
	2286.6	-55.12	-47	-8.12	Peak	Vertical
	3133.6	-54.73	-47	-7.73	Peak	Horizontal
	3594.8	-54.42	-47	-7.42	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11g	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 1						
01	88.6	-73.09	-57	-16.09	Peak	Horizontal
	47.5	-62.78	-57	-5.78	Peak	Vertical
	186.0	-76.30	-57	-19.30	Peak	Horizontal
	87.8	-62.63	-57	-5.63	Peak	Vertical
	2187.8	-54.54	-47	-7.54	Peak	Horizontal
	2197.2	-55.74	-47	-8.74	Peak	Vertical
	3114.8	-53.87	-47	-6.87	Peak	Horizontal
	3594.8	-53.74	-47	-6.74	Peak	Vertical
13	86.6	-74.22	-57	-17.22	Peak	Horizontal
	48.7	-63.84	-57	-6.84	Peak	Vertical
	181.2	-76.46	-57	-19.46	Peak	Horizontal
	96.7	-63.89	-57	-6.89	Peak	Vertical
	2206.6	-54.05	-47	-7.05	Peak	Horizontal
	2263.1	-54.47	-47	-7.47	Peak	Vertical
	3143.0	-54.97	-47	-7.97	Peak	Horizontal
	3096.0	-54.70	-47	-7.70	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT20	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0						
01	88.2	-74.33	-57	-17.33	Peak	Horizontal
	93.6	-62.76	-57	-5.76	Peak	Vertical
	184.9	-76.74	-57	-19.74	Peak	Horizontal
	195.8	-70.66	-57	-13.66	Peak	Vertical
	2209.8	-53.64	-47	-6.64	Peak	Horizontal
	2275.7	-54.31	-47	-7.31	Peak	Vertical
	3565.0	-52.96	-47	-5.96	Peak	Horizontal
	3583.9	-52.55	-47	-5.55	Peak	Vertical
13	86.0	-71.21	-57	-14.21	Peak	Horizontal
	100.3	-61.07	-57	-4.07	Peak	Vertical
	183.1	-75.83	-57	-18.83	Peak	Horizontal
	189.8	-74.35	-57	-17.35	Peak	Vertical
	2209.8	-53.83	-47	-6.83	Peak	Horizontal
	2271.0	-53.13	-47	-6.13	Peak	Vertical
	3833.3	-52.91	-47	-5.91	Peak	Horizontal
	3776.8	-52.21	-47	-5.21	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT20	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 1						
01	98.3	-74.69	-57	-17.69	Peak	Horizontal
	48.9	-63.37	-57	-6.37	Peak	Vertical
	188.8	-77.50	-57	-20.50	Peak	Horizontal
	91.6	-63.80	-57	-6.80	Peak	Vertical
	2454.9	-53.04	-47	-6.04	Peak	Horizontal
	2205.5	-53.08	-47	-6.08	Peak	Vertical
	3527.8	-51.42	-47	-4.42	Peak	Horizontal
	4313.6	-51.14	-47	-4.14	Peak	Vertical
13	83.3	-72.10	-57	-15.10	Peak	Horizontal
	46.6	-61.89	-57	-4.89	Peak	Vertical
	183.2	-76.65	-57	-19.65	Peak	Horizontal
	94.5	-62.65	-57	-5.65	Peak	Vertical
	2200.8	-53.46	-47	-6.46	Peak	Horizontal
	2205.5	-53.02	-47	-6.02	Peak	Vertical
	3584.2	-53.39	-47	-6.39	Peak	Horizontal
	3584.2	-53.39	-47	-6.39	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT20	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0 + 1						
01	79.6	-70.91	-57	-13.91	Peak	Horizontal
	36.7	-62.96	-57	-5.96	Peak	Vertical
	179.2	-77.44	-57	-20.44	Peak	Horizontal
	82.3	-63.35	-57	-6.35	Peak	Vertical
	2218.0	-52.63	-47	-5.63	Peak	Horizontal
	2250.9	-54.08	-47	-7.08	Peak	Vertical
	3135.6	-52.70	-47	-5.70	Peak	Horizontal
	3587.3	-51.25	-47	-4.25	Peak	Vertical
13	77.2	-72.37	-57	-15.37	Peak	Horizontal
	42.1	-61.38	-57	-4.38	Peak	Vertical
	176.5	-76.74	-57	-19.74	Peak	Horizontal
	87.6	-61.82	-57	-4.82	Peak	Vertical
	2199.1	-51.49	-47	-4.49	Peak	Horizontal
	2260.3	-52.01	-47	-5.01	Peak	Vertical
	3573.2	-51.91	-47	-4.91	Peak	Horizontal
	3615.5	-51.89	-47	-4.89	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT40	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0						
03	99.9	-75.08	-57	-18.08	Peak	Horizontal
	46.4	-65.14	-57	-8.14	Peak	Vertical
	185.3	-77.54	-57	-20.54	Peak	Horizontal
	86.1	-64.03	-57	-7.03	Peak	Vertical
	2208.7	-54.52	-47	-7.52	Peak	Horizontal
	2265.2	-54.47	-47	-7.47	Peak	Vertical
	4392.1	-54.85	-47	-7.85	Peak	Horizontal
	4495.6	-52.95	-47	-5.95	Peak	Vertical
09	82.8	-74.20	-57	-17.20	Peak	Horizontal
	46.3	-65.82	-57	-8.82	Peak	Vertical
	181.4	-78.28	-57	-21.28	Peak	Horizontal
	94.4	-62.17	-57	-5.17	Peak	Vertical
	2208.7	-55.53	-47	-8.53	Peak	Horizontal
	2773.4	-54.45	-47	-7.45	Peak	Vertical
	3714.5	-53.17	-47	-6.17	Peak	Horizontal
	3587.5	-54.80	-47	-7.80	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT40	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 1						
03	91.0	-70.21	-57	-13.21	Peak	Horizontal
	46.6	-62.14	-57	-5.14	Peak	Vertical
	190.3	-74.77	-57	-17.77	Peak	Horizontal
	93.2	-62.62	-57	-5.62	Peak	Vertical
	2212.1	-52.02	-47	-5.02	Peak	Horizontal
	2268.6	-52.39	-47	-5.39	Peak	Vertical
	4395.5	-52.40	-47	-5.40	Peak	Horizontal
	4499.0	-52.73	-47	-5.73	Peak	Vertical
09	83.9	-72.65	-57	-15.65	Peak	Horizontal
	52.3	-62.68	-57	-5.68	Peak	Vertical
	186.5	-75.95	-57	-18.95	Peak	Horizontal
	95.3	-62.82	-57	-5.82	Peak	Vertical
	2212.1	-52.83	-47	-5.83	Peak	Horizontal
	2776.8	-52.90	-47	-5.90	Peak	Vertical
	3717.9	-52.44	-47	-5.44	Peak	Horizontal
	3590.8	-52.36	-47	-5.36	Peak	Vertical

Test Engineer	Milo Li	Temperature	26°C
Test Date	08-08-2014	Relative Humidity	54%
Test Mode	802.11n-HT40	Test Site	AC1

Channel	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
Ant 0 + 1						
03	91.5	-77.33	-57	-20.33	Peak	Horizontal
	42.1	-65.64	-57	-8.64	Peak	Vertical
	181.2	-80.69	-57	-23.69	Peak	Horizontal
	86.5	-64.81	-57	-7.81	Peak	Vertical
	2448.4	-54.86	-47	-7.86	Peak	Horizontal
	2199.0	-56.73	-47	-9.73	Peak	Vertical
	3521.3	-54.92	-47	-7.92	Peak	Horizontal
	4307.1	-53.89	-47	-6.89	Peak	Vertical
09	77.0	-75.64	-57	-18.64	Peak	Horizontal
	48.6	-64.84	-57	-7.84	Peak	Vertical
	179.2	-80.27	-57	-23.27	Peak	Horizontal
	89.9	-63.96	-57	-6.96	Peak	Vertical
	2194.3	-55.63	-47	-8.63	Peak	Horizontal
	2199.0	-57.13	-47	-10.13	Peak	Vertical
	3577.8	-54.93	-47	-7.93	Peak	Horizontal
	3577.8	-55.83	-47	-8.83	Peak	Vertical

13. Measurement Uncertainty

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

Parameter	Uncertainty
Occupied Channel Bandwidth	$\pm 5 \%$
RF output power, conducted	$\pm 1,5 \text{ dB}$
Power Spectral Density, conducted	$\pm 3 \text{ dB}$
Unwanted Emissions, conducted	$\pm 3 \text{ dB}$
All emissions, radiated	$\pm 6 \text{ dB}$
Temperature	$\pm 1 \text{ }^{\circ}\text{C}$
Humidity	$\pm 5 \%$
DC and low frequency voltages	$\pm 3 \%$
Time	$\pm 5 \%$
Duty Cycle	$\pm 5 \%$

14. Test Photograph

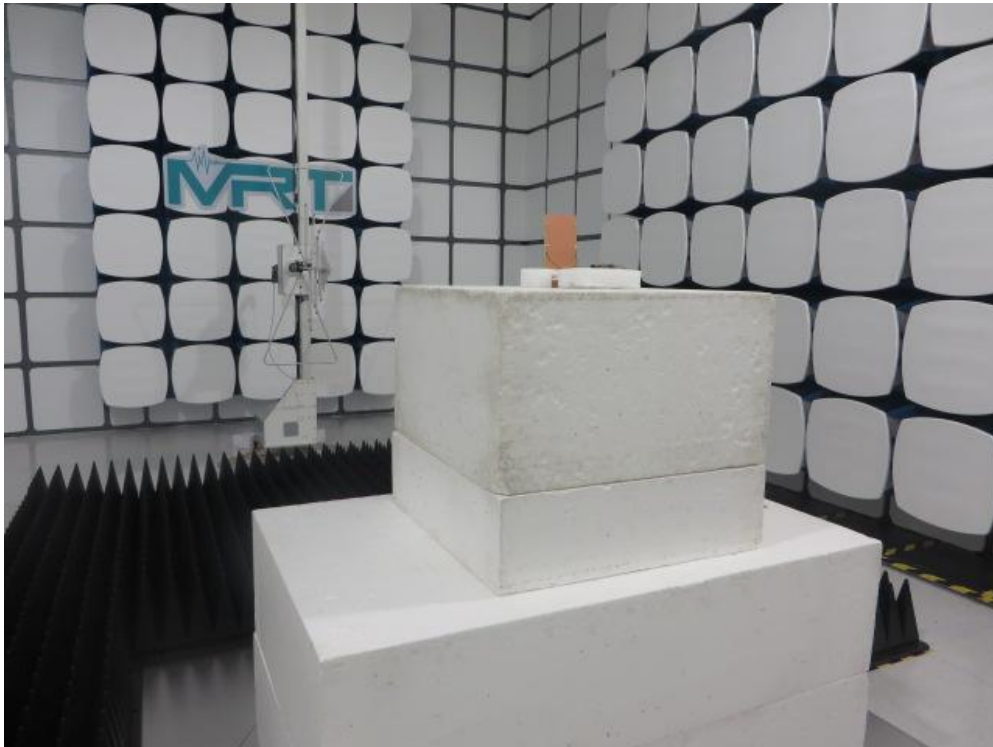
Description: Radiated Spurious Emissions Test Setup for Below 1GHz
(Dipole Antenna 1#)



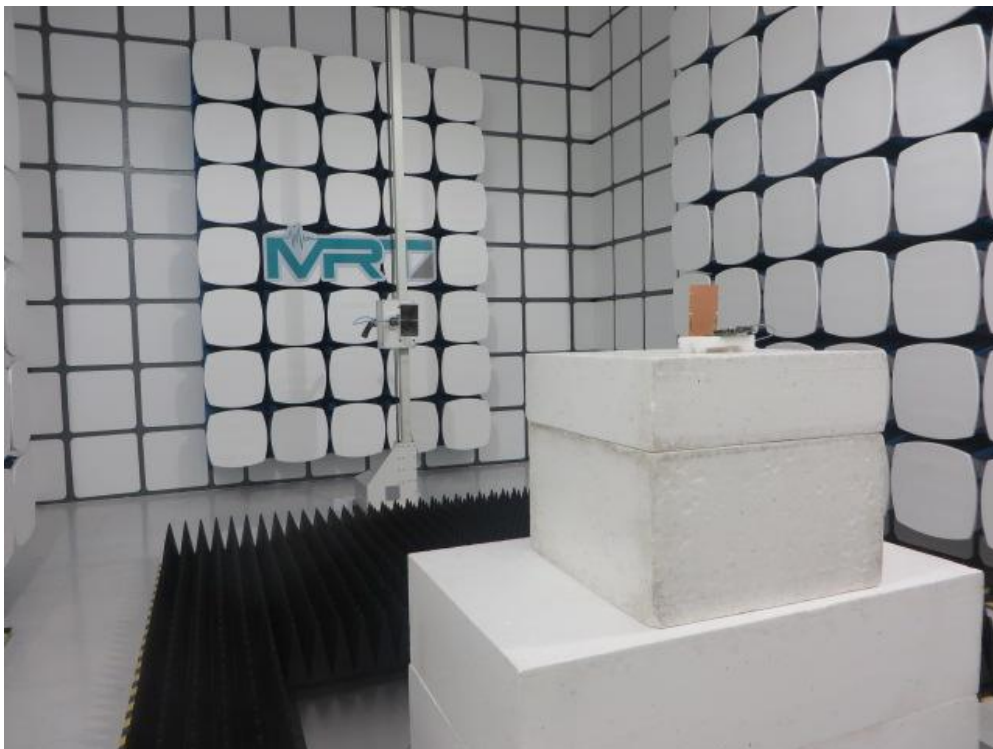
Description: Radiated Spurious Emissions Test Setup for Above 1GHz
(Dipole Antenna 1#)



Description: Radiated Spurious Emissions Test Setup for Below 1GHz
(Panel Antenna 1#)



Description: Radiated Spurious Emissions Test Setup for Above 1GHz
(Panel Antenna 1#)



15. List of Measuring Instrument

Equivalent Isotropic Radiated Power

Instrument	Manufacturer	Type No.	Cali. Interval	Cali. Due Date
Power Meter	Agilent	U2021XA	1 year	2014/12/14
DC Power Supply	GWINSTEK	GPS-3030D	1 year	2014/11/14
Programmable Temperature & Humidity Chamber	BAOYT	BYH-1500L	1 year	2014/11/20
Temperature/Humidity Meter	Anymetre	TH101B	1 year	2014/11/15

Power Spectral Density

Instrument	Manufacturer	Type No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9010A	1 year	2015/01/04
Temperature/Humidity Meter	Anymetre	TH101B	1 year	2014/11/15

Duty Cycle, Tx-sequence, Tx-gap

Instrument	Manufacturer	Type No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	E4447A	1 year	2014/11/08
Temperature/Humidity Meter	Anymetre	TH101B	1 year	2014/11/15

Medium Utilisation (MU) factor

Instrument	Manufacturer	Type No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	E4447A	1 year	2014/11/08
Power Meter	Agilent	U2021XA	1 year	2014/12/14
Temperature/Humidity Meter	Anymetre	TH101B	1 year	2014/11/15

Adaptivity and Blocking

Instrument	Manufacturer	Type No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9010A	1 year	2015/01/04
Vector Signal Generator	Agilent	E4438C	1 year	2014/12/14
Vector Signal Generator	Agilent	E4438C	1 year	2014/11/08
Directional Coupler	Narda	4216-20	1 year	2015/02/15
Combiner	Mini-Circuits	ZFRSC-123-S+ DC-12000MHz	1 year	2014/11/20
Temperature/Humidity Meter	Anymetre	TH101B	1 year	2014/11/15

Occupied Channel Bandwidth

Instrument	Manufacturer	Type No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9010A	1 year	2015/01/04
Temperature/Humidity Meter	Anymetre	TH101B	1 year	2014/11/15

Transmitter unwanted emissions in the out-of-band domain

Instrument	Manufacturer	Type No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9010A	1 year	2015/01/04
DC Power Supply	GWINSTEK	GPS-3030D	1 year	2015/08/15
Programmable Temperature & Humidity Chamber	BAOYT	BYH-1500L	1 year	2014/11/20
Temperature/Humidity Meter	Anymetre	TH101B	1 year	2014/11/15

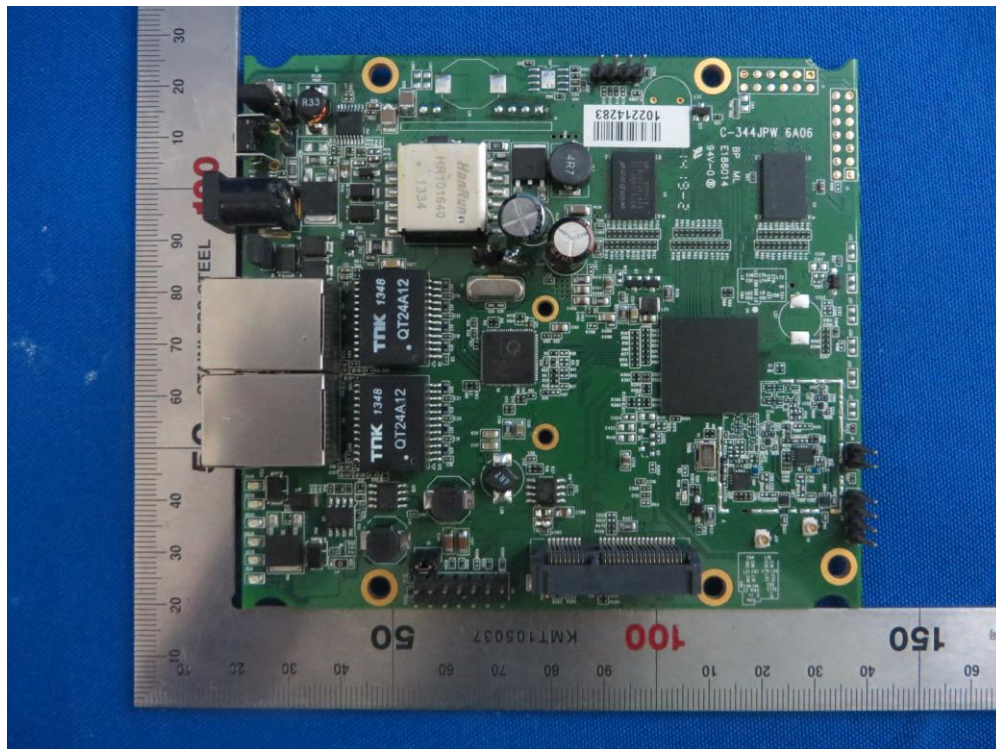
Transmitter Spurious Emissions and Receiver Spurious Emissions

Instrument	Manufacturer	Type No.	Cali. Interval	Cal. Due Date
Spectrum Analyzer	Agilent	E4447A	1 year	2014/11/08
Vector Signal Generator	Agilent	E4438C	1 year	2014/12/14
Preamplifier	MRT	AP25M01	1 year	2014/10/07
Preamplifier	MRT	AP01G18	1 year	2014/12/14
Bilog Period Antenna	Schwarzbeck	VULB 9162	1 year	2014/11/24
Horn Antenna	Schwarzbeck	BBHA9120D	1 year	2014/11/24
Temperature/Humidity Meter	Anymetre	TH101B	1 year	2014/11/15

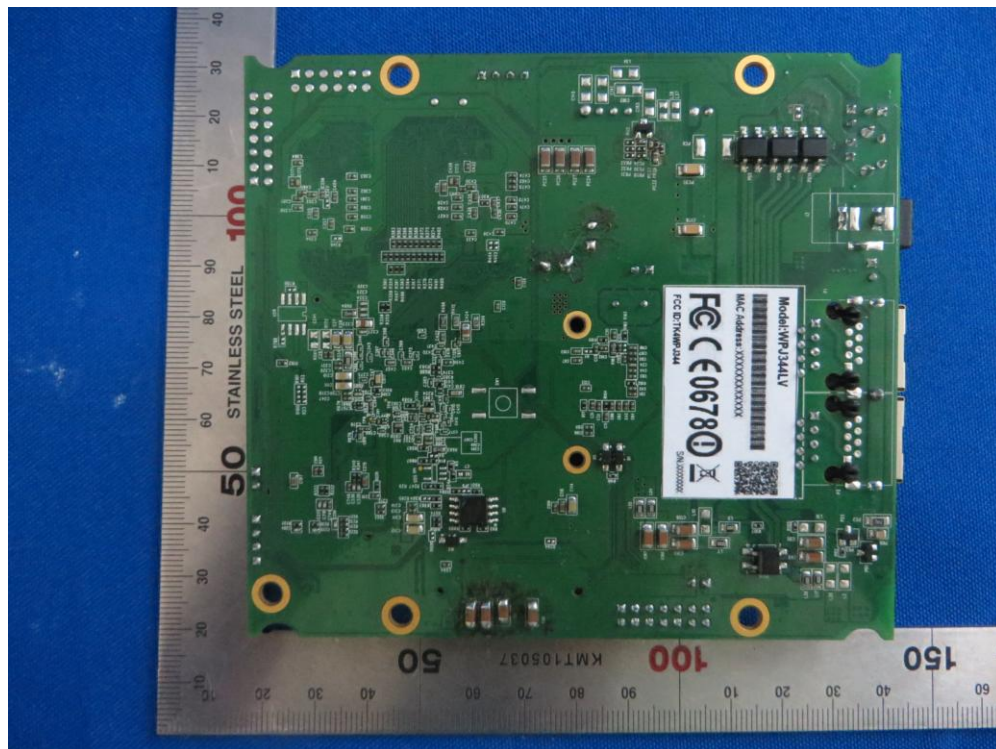
Appendix

EUT Photograph

(1) EUT Photo



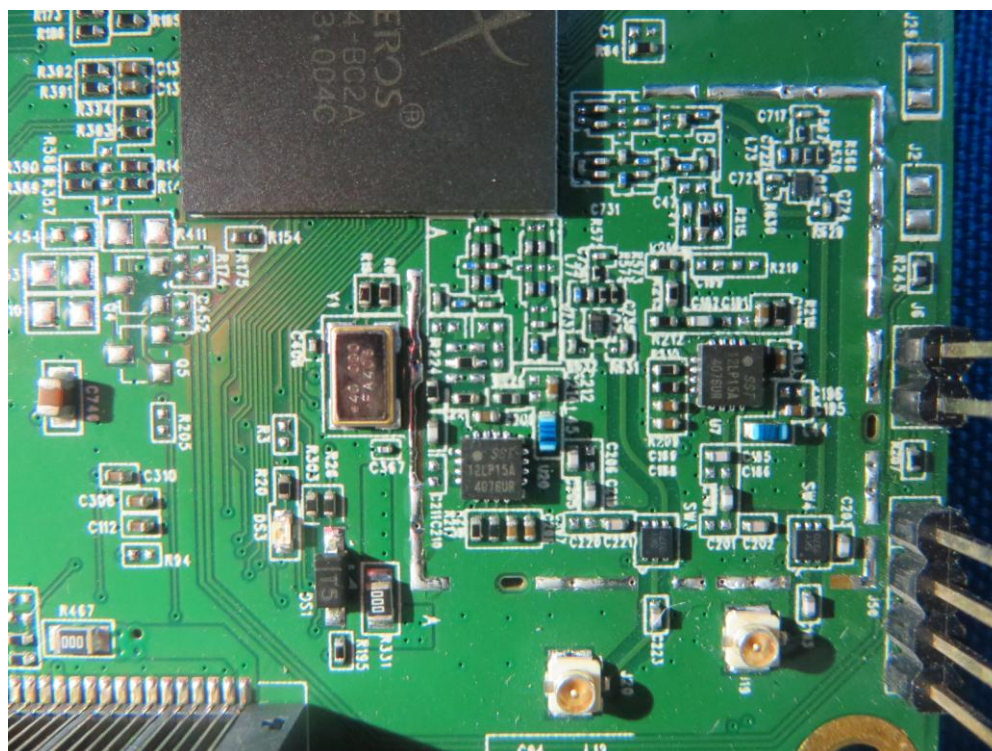
(2) EUT Photo



(3) EUT Photo



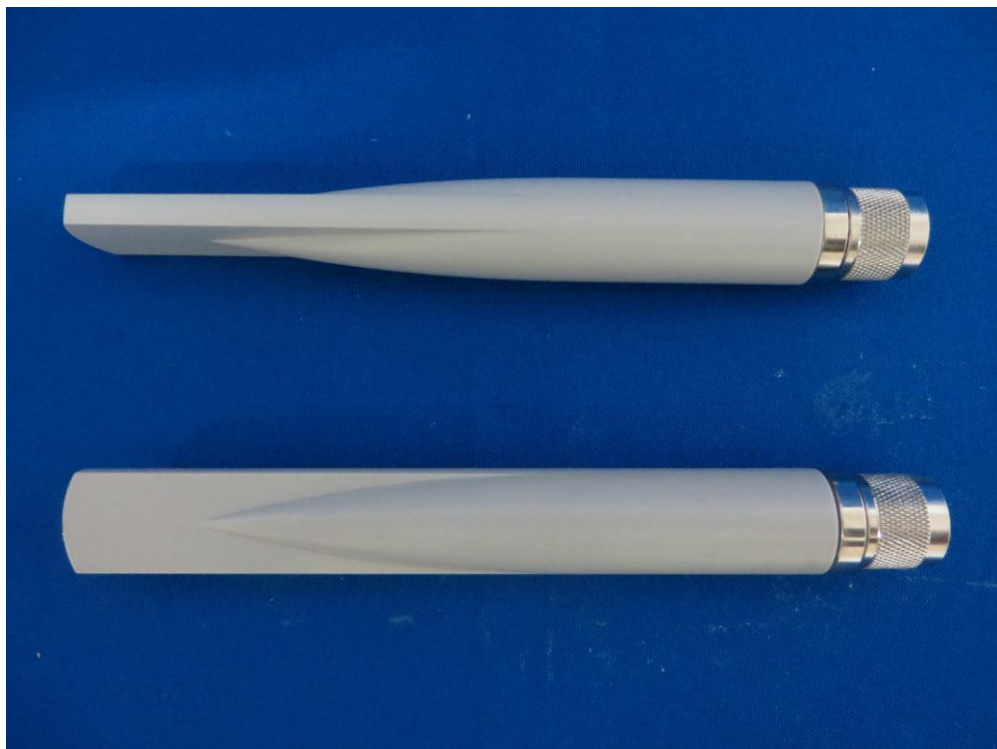
(4) EUT Photo



(5) EUT Photo (Dipole Antenna 1#)



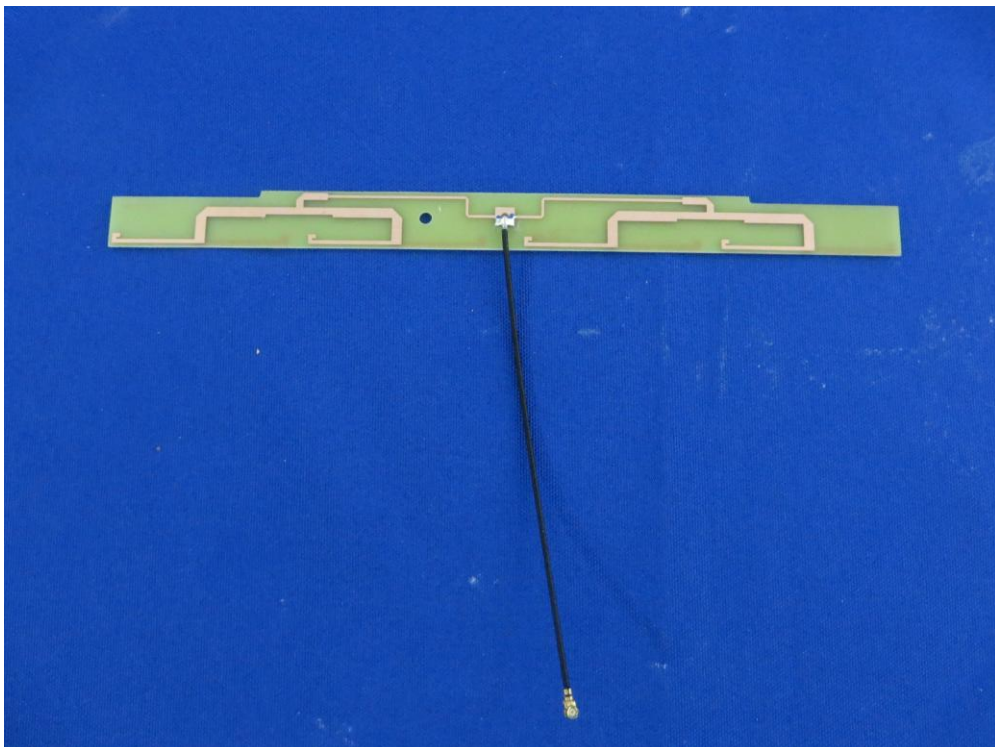
(6) EUT Photo (Panel Antenna 4#)



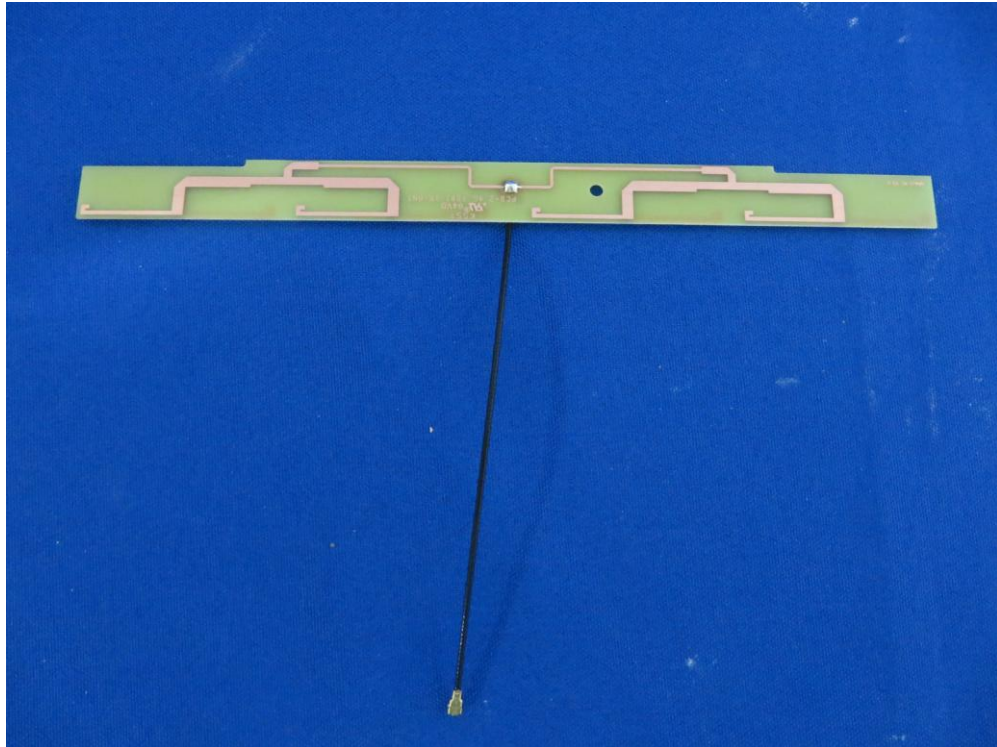
(7) EUT Photo (Panel Antenna 2#)



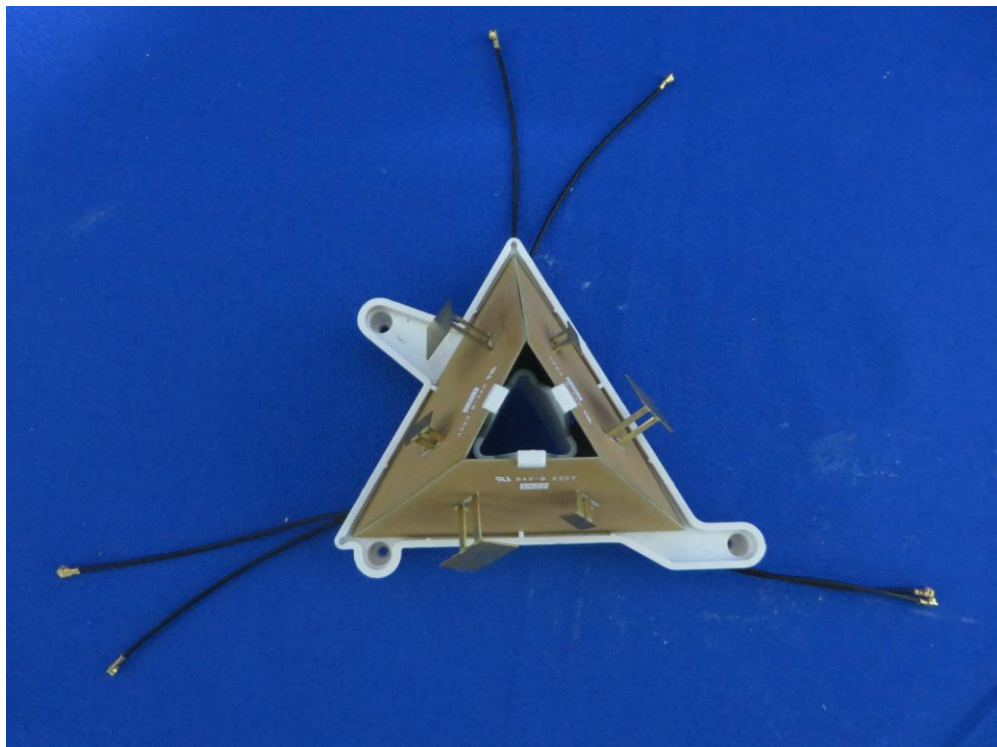
(8) EUT Photo (Panel Antenna 3#)



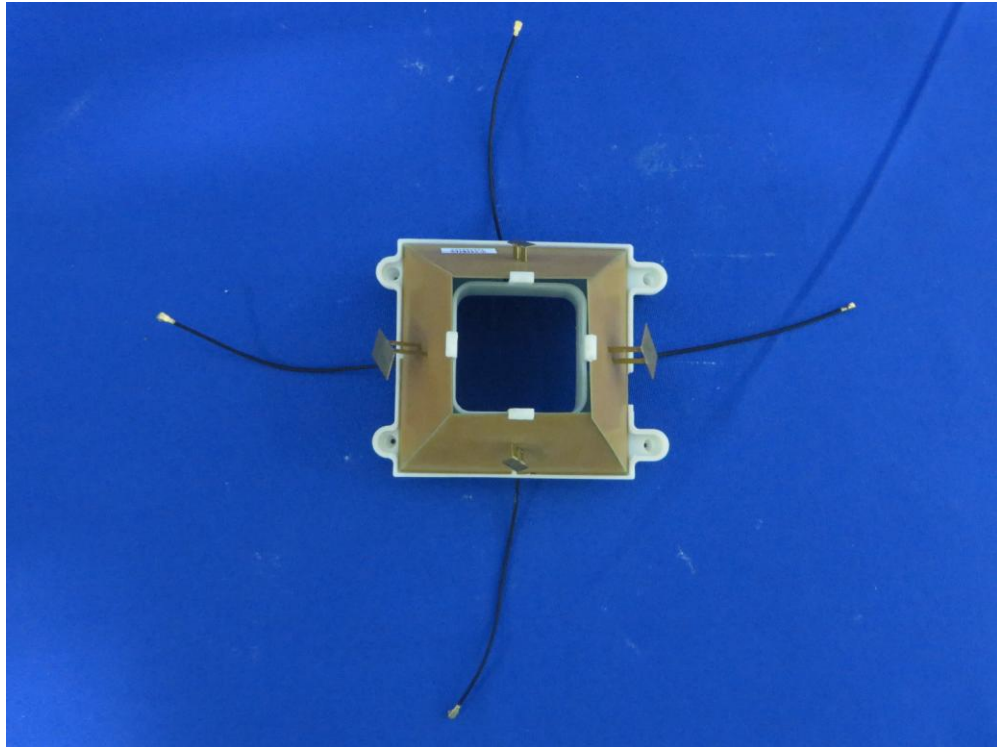
(9) EUT Photo (Panel Antenna 3#)



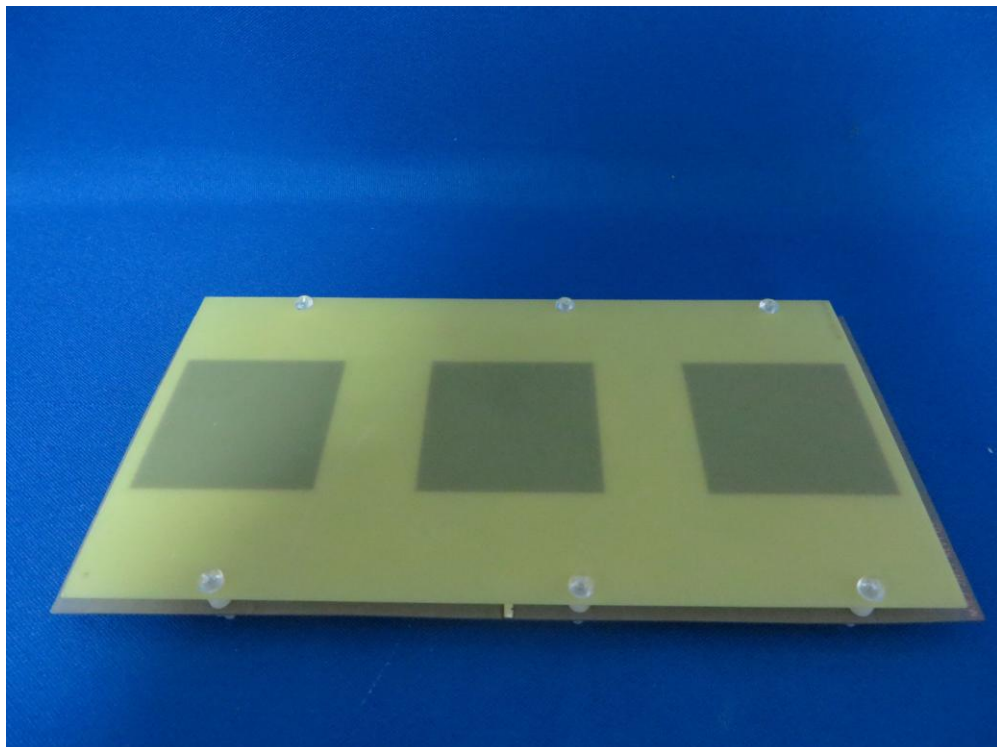
(10) EUT Photo (Panel Antenna 5#)



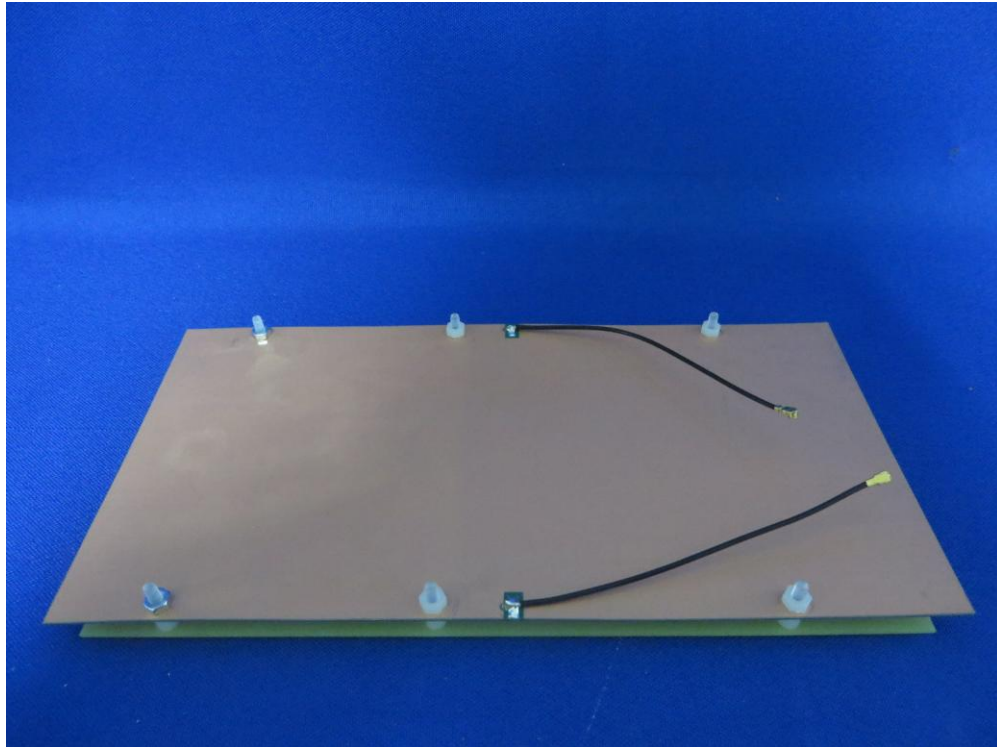
(11) EUT Photo (Panel Antenna 6#)



(12) EUT Photo (Panel Antenna 1#)



(13) EUT Photo (Panel Antenna 1#)



(14) EUT Photo (Adapter 1#)



(15) EUT Photo (Adapter 1#)



(16) EUT Photo (Adapter 1#)



(17) EUT Photo (Adapter 2#)



(18) EUT Photo (Adapter 2#)



(19) EUT Photo (Adapter 2#)



(20) EUT Photo (Adapter 2#)



The End
