MRT Technology (Suzhou) Co., Ltd
Phone: +86-512-66308358
Fax: +86-512-66308368
Web: www.mrt-cert.com

Report No.: 1611RSU00201
Report Version: V01
Issue Date: 11-27-2016

MEASUREMENT REPORT

EN 300 328 V1.9.1 WLAN 802.11b/g/n

Applicant:	Compex Systems Pte Ltd
Address:	No:9 Harrison Road, Harrison Industrial Building, #05-01, Singapore 369651
Product:	WIRELESS ACCESS POINT
Model No.:	WPJ558HV, WPJ558LV, WPJ558LV-A, WPJ557LV-A, WPJ557HV-A, MMJ558LV, MMJ558LV-A MMJ558HV, MMJ558HV-A, MMN558LV, MMN558LV-A, MMN558HV, MMN558HV-A, MMS558LV, MMS558LV-A, MMS558HV, MMS558HV-A, MMZ558LV, MMZ558LV-A, MMZ558HV, MMZ558HV-A
Brand Name:	COMPEX
Standards:	ETSI EN 300 328 V1.9.1 (2015-02)
Result:	Complies
Test Date:	November 01 ~ 24, 2016

Reviewed By Manager : Robin Wu
(Robin Wu)

Approved By CEO : Marlin Chen
(Marlin Chen)

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

Revision History

Report No.	Version	Description	Issue Date	Note
1611RSU00201	Rev. 01	Initial report	11-27-2016	Valid

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Description Page

1. General Information

1.1. Applicant

Compex Systems Pte Ltd.

No:9 Harrison Road, Harrison Industrial Building, #05-01, Singapore 369651

1.2. Manufacturer

Compex Systems Pte Ltd.

No:9 Harrison Road, Harrison Industrial Building, #05-01, Singapore 369651

1.3. Testing Facility

Test Site

MRT Technology (Suzhou) Co., Ltd

Test Site Location

D8 Building, 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 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.**
- **MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.**
- **MRT facility is a VCCI registered (R-4179, G-814, C-4664, T-2206) test laboratory with the site description on file at VCCI Council.**
- **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.**

1.4. Feature of Equipment under Test

Product Name:	WIRELESS ACCESS POINT
Model No.:	WPJ558HV, WPJ558LV, WPJ558LV-A, WPJ557LV-A, WPJ557HV-A, MMJ558LV, MMJ558LV-A MMJ558HV, MMJ558HV-A, MMN558LV, MMN558LV-A, MMN558HV, MMN558HV-A, MMS558LV, MMS558LV-A, MMS558HV, MMS558HV-A, MMZ558LV, MMZ558LV-A, MMZ558HV, MMZ558HV-A
Brand Name:	COMPEX
Wi-Fi Specification:	802.11b/g/n

Note: Difference between all models is for different marketing requirement.

1.5. Product Specification Subjective to this Report

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 450Mbps

1.6. Operation Frequency / Channel List

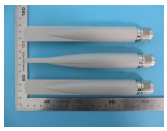
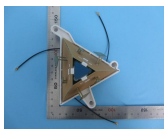
802.11b/g/n-HT20

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	--	--	--	--

802.11n-HT40

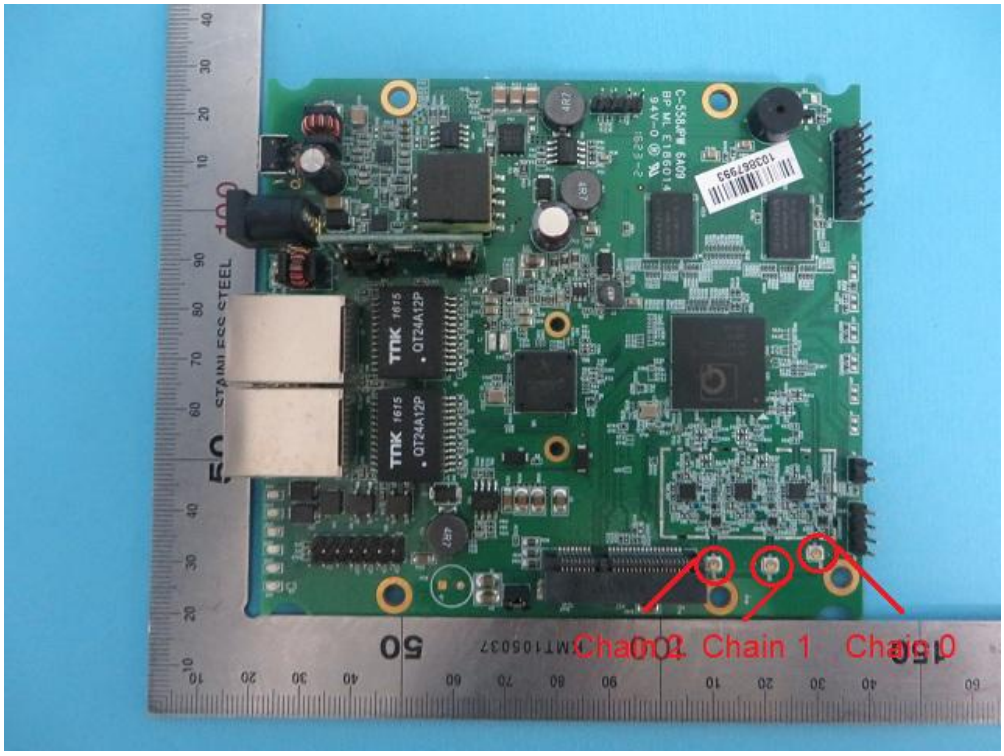
Channel	Frequency	Channel	Frequency	Channel	Frequency
03	2422 MHz	04	2427 MHz	05	2432 MHz
06	2437 MHz	07	2442 MHz	08	2447 MHz
09	2452 MHz	10	2457 MHz	11	2462 MHz

1.7. Description of Available Antennas

Antenna	Antenna Type	Frequency Band (MHz)	T_X Paths	Max Peak Antenna Gain (dBi)
	Panel Antenna	2412 ~ 2472	3	4.5
	Panel Antenna	2412 ~ 2472	3	4.0
	Dipole Antenna	2412 ~ 2472	3	2.0

Note: For 802.11b/g mode only support 1TX and 1RX, 802.11n mode only support 2TX and 2RX, 3TX and 3RX.

1.8. Description of Antenna RF Port

Antenna RF Port			
Software Control Port	Chain 0	Chain 1	Chain 2
			

1.9. Application Form for Testing

Modulation Type			
☐	FHSS	☒	other forms of modulation
Adaptivity Equipment			
☐	Non-Adaptive Equipment:		
	The maximum RF Output Power (e.i.r.p.): … dBm		
	The maximum (corresponding) Duty Cycle: … %		
☒	Adaptive Equipment without the possibility to switch to a non-adaptive mode:		
	☒	The equipment has implemented an LBT based DAA mechanism:	
		☐ 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 equipment has implemented an non-LBT based DAA mechanism	
	☐	The equipment can operate in more than one adaptive mode	
☐	Adaptive Equipment which can also operate in a non-adaptive mode		
The Worst Case Operational Mode for Each of The Following Tests			
☒	RF Output Power: 19.37dBm		
☒	Power Spectral Density: 9.90dBm/MHz		
☐	Duty cycle, Tx-Sequence, Tx-gap		
☐	Accumulated Transmit time, Frequency Occupation & Hopping Sequence		
☐	Medium Utilisation:		
☐	Hopping Frequency Separation:		
☒	Adaptivity & Receiver Blocking: 1.776ms, 92.969us		
☒	Occupied Nominal Channel Bandwidth: 36.40MHz		
☒	Transmitter unwanted emissions in the OOB domain: -21.91dBm/MHz		
☒	Transmitter unwanted emissions in the spurious domain: -36.8dBm		
☒	Receiver spurious emissions: -55.8dBm		
Antenna Category			
☒	Integral antenna (antenna permanently attached)		
	☒ Temporary RF connector provided		
	☐ No temporary RF connector provided		

Device Type			
☐	Stand-alone equipment		
☒	Combined (or host) equipment		
☐	Test Jig		
Operating Conditions			
☒	AC Mains State AC Voltage:100 - 240V	☐	DC State DC Voltage:
Type of DC Source	☐ Internal power supply		
	☒ External power supply or AC/DC adapter		
	☐ Battery		
☒	Temperature Range: -10 ~ 55°C		
Geo-location capability supported by the equipment			
☐	Yes ☐The geographical location determined by the equipment is not accessible to the user.		
☒	No		

1.10. Standards Applicable for Testing

The EUT complies with the requirements of ETSI EN 300 328 V1.9.1.

2. Test Configuration of Equipment under Test

2.1. Description of Test Mode

Test Mode
Mode 1: Transmit by 802.11b
Mode 2: Transmit by 802.11g
Mode 3: Transmit by 802.11n-HT20
Mode 4: Transmit by 802.11n-HT40
Mode 5: Receive by 802.11b
Mode 6: Receive by 802.11g
Mode 7: Receive by 802.11n-HT20
Mode 8: Receive by 802.11n-HT40

2.2. Description of Test Data Rate

Pre-Test RF Output Power at various data rates for Chain 0

Test Mode	Bandwidth (MHz)	Channel No.	Frequency (MHz)	Data Rate (Mbps)	RF Output Power (dBm)
11b	20	7	2442	1	11.97
				5.5	11.78
				11	11.56
11g	20	7	2442	6	14.48
				24	11.08
				54	10.86
11n	20	7	2442	19.5	9.29
				21.7	9.21
				78.0	8.86
				86.7	8.78
				195.0	8.54
				216.7	8.49
11n	40	7	2442	40.5	9.40
				45.0	9.33
				162.0	9.05
				180.0	8.99
				405.0	8.68
				450.0	8.62

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

2.3. 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 (MHz)	Power Parameter Value		
		Chain 0	Chain 1	Chain 2
802.11b	2412	12.5	12.0	13.0
	2442	13.0	12.5	13.0
	2472	13.0	12.5	12.5
802.11g	2412	14.5	14.0	14.5
	2442	15.0	14.5	15.0
	2472	14.5	14.5	14.5

Test Mode	Test Frequency (MHz)	Power Parameter Value	
		Chain 0 + 1	Chain 0 + 1 + 2
802.11n-HT20	2412	11.0	9.0
	2442	11.5	9.5
	2472	11.0	9.0
802.11 n-HT40	2412	11.0	9.0
	2442	11.5	9.5
	2472	11.0	9.0

3. Test Summary

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

Note 1: The EUT can operate in a adaptive mode with EIRP greater than 10dBm, and can't operate in a non-adaptive mode which was declared by the supplier.

Note 2: For radiated spurious emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst case emissions (Y axis), and the test setup showed in test setup photo.

Note 3: For the "Occupied Channel Bandwidth" items, we just show the worst case mode.

4. RF Output Power

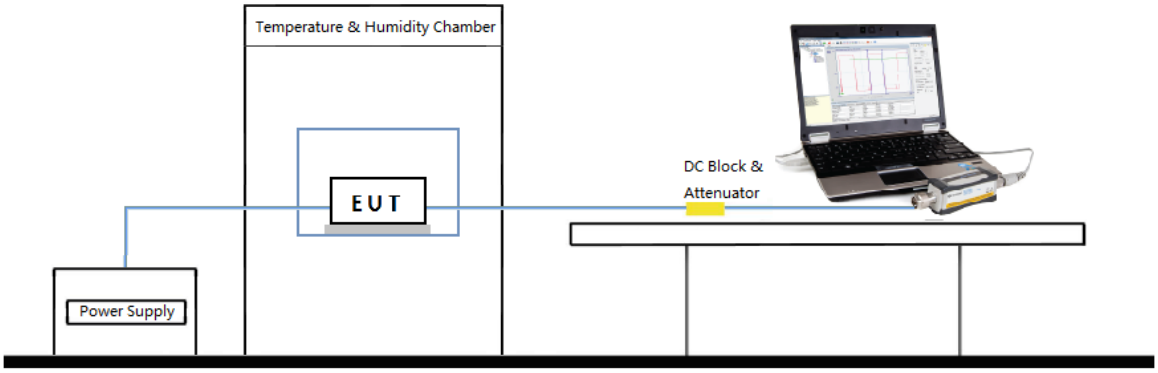
4.1. Limit

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 V1.9.1 (2015-02) Clause 5.3.2.2.1.

4.4. Test Result

Product	WIRELESS ACCESS POINT	Temperature	-10 ~ 55°C
Test Engineer	Roy Cheng	Relative Humidity	50 ~ 58%
Test Site	TR3	Test Date	2016/11/08

Normal Conditions (Temperature 25°C)

$1T_x$

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)			Max EIRP Power (dBm)	Limit (dBm)	Result
			Chain 0	Chain 1	Chain 2			
11b	1	2412	11.73	11.14	12.28	16.78	20	Pass
11b	7	2442	11.97	11.48	11.37	16.47	20	Pass
11b	13	2472	12.12	11.95	11.81	16.62	20	Pass
11g	1	2412	14.31	14.38	14.41	18.91	20	Pass
11g	7	2442	14.48	14.25	14.49	18.99	20	Pass
11g	13	2472	14.24	14.27	14.42	18.92	20	Pass

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

Normal Conditions (Temperature 25°C)

$2T_x$

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)		EIRP Power (dBm)	Limit (dBm)	Result
			Chain 0	Chain 1			
11n-HT20	1	2412	10.89	11.26	18.59	20	Pass
11n-HT20	7	2442	11.29	11.67	18.99	20	Pass
11n-HT20	13	2472	10.76	11.27	18.53	20	Pass
11n-HT40	3	2422	10.96	11.63	18.82	20	Pass
11n-HT40	7	2442	11.39	11.88	19.15	20	Pass
11n-HT40	11	2462	11.07	11.71	18.91	20	Pass

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

Normal Conditions (Temperature 25°C)

$3T_x$

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)			Max EIRP Power (dBm)	Limit (dBm)	Result
			Chain 0	Chain 1	Chain 2			
11b	1	2412	9.05	9.83	9.65	18.79	20	Pass
11b	7	2442	9.29	9.97	9.72	18.94	20	Pass
11b	13	2472	9.27	9.42	9.56	18.69	20	Pass
11g	1	2412	9.19	9.76	9.72	18.84	20	Pass
11g	7	2442	9.40	9.91	9.92	19.02	20	Pass
11g	13	2472	9.09	9.82	9.95	18.91	20	Pass

Note: EIRP Power (dBm) = $10*\log\{10^{(\text{Chain 0 RF Output Power }/10)}+10^{(\text{Chain 1 RF Output Power }/10)}+10^{(\text{Chain 2 RF Output Power }/10)}\}$ (dBm) + Antenna Gain (dBi).

Normal Conditions (Temperature -10°C)

$1T_x$

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)			Max EIRP Power (dBm)	Limit (dBm)	Result
			Chain 0	Chain 1	Chain 2			
11b	1	2412	11.98	11.42	12.57	17.07	20	Pass
11b	7	2442	12.24	11.57	11.51	16.74	20	Pass
11b	13	2472	12.42	12.41	12.14	16.92	20	Pass
11g	1	2412	14.55	14.57	14.75	19.25	20	Pass
11g	7	2442	14.62	14.52	14.68	19.18	20	Pass
11g	13	2472	14.47	14.54	14.69	19.19	20	Pass

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

Normal Conditions (Temperature -10°C)

$2T_x$

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)		EIRP Power (dBm)	Limit (dBm)	Result
			Chain 0	Chain 1			
11n-HT20	1	2412	11.14	11.44	18.80	20	Pass
11n-HT20	7	2442	11.54	11.87	19.22	20	Pass
11n-HT20	13	2472	10.76	11.47	18.64	20	Pass
11n-HT40	3	2422	11.24	11.87	19.08	20	Pass
11n-HT40	7	2442	11.57	12.14	19.37	20	Pass
11n-HT40	11	2462	11.42	11.98	19.22	20	Pass

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

Normal Conditions (Temperature -10°C)

$3T_x$

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)			Max EIRP Power (dBm)	Limit (dBm)	Result
			Chain 0	Chain 1	Chain 2			
11b	1	2412	9.24	10.14	9.88	19.04	20	Pass
11b	7	2442	9.42	10.24	10.21	19.24	20	Pass
11b	13	2472	9.44	9.57	9.75	18.86	20	Pass
11g	1	2412	9.36	9.96	9.72	18.96	20	Pass
11g	7	2442	9.64	10.24	9.92	19.21	20	Pass
11g	13	2472	9.34	10.24	9.95	19.13	20	Pass

Note: EIRP Power (dBm) = $10*\log\{10^{(\text{Chain 0 RF Output Power }/10)}+10^{(\text{Chain 1 RF Output Power }/10)}+10^{(\text{Chain 2 RF Output Power }/10)}\}$ (dBm) + Antenna Gain (dBi).

Normal Conditions (Temperature 55°C)

$1T_x$

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)			Max EIRP Power (dBm)	Limit (dBm)	Result
			Chain 0	Chain 1	Chain 2			
11b	1	2412	11.55	10.65	12.02	16.52	20	Pass
11b	7	2442	11.64	11.25	11.04	16.14	20	Pass
11b	13	2472	11.85	11.57	11.57	16.35	20	Pass
11g	1	2412	14.10	14.01	14.24	18.74	20	Pass
11g	7	2442	14.21	14.03	14.16	18.71	20	Pass
11g	13	2472	14.01	14.04	14.24	18.74	20	Pass

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

Normal Conditions (Temperature 55°C)

$2T_x$

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)		EIRP Power (dBm)	Limit (dBm)	Result
			Chain 0	Chain 1			
11n-HT20	1	2412	10.45	11.03	18.26	20	Pass
11n-HT20	7	2442	11.01	11.24	18.64	20	Pass
11n-HT20	13	2472	10.48	11.11	18.32	20	Pass
11n-HT40	3	2422	10.75	11.35	18.57	20	Pass
11n-HT40	7	2442	11.12	11.57	18.86	20	Pass
11n-HT40	11	2462	10.78	11.57	18.70	20	Pass

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

Normal Conditions (Temperature 55°C)

$3T_x$

Mode	Ch. No.	Freq. (MHz)	RF Output Power (dBm)			Max EIRP Power (dBm)	Limit (dBm)	Result
			Chain 0	Chain 1	Chain 2			
11b	1	2412	8.78	9.56	9.65	18.62	20	Pass
11b	7	2442	9.01	9.77	9.72	18.78	20	Pass
11b	13	2472	9.27	9.22	9.56	18.62	20	Pass
11g	1	2412	9.01	9.45	9.72	18.67	20	Pass
11g	7	2442	9.15	9.67	9.92	18.86	20	Pass
11g	13	2472	8.67	9.57	9.95	18.70	20	Pass

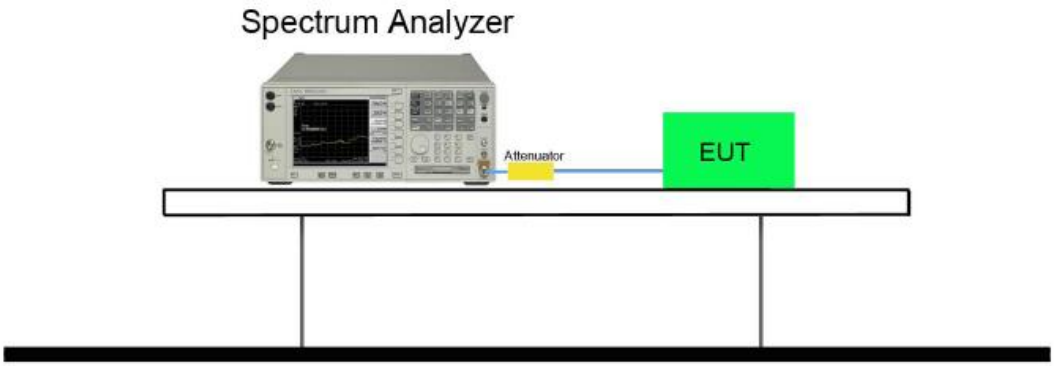
Note: EIRP Power (dBm) = $10*\log\{10^{(\text{Chain 0 RF Output Power }/10)}+10^{(\text{Chain 1 RF Output Power }/10)}+10^{(\text{Chain 2 RF Output Power }/10)}\}$ (dBm) + Antenna Gain (dBi).

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 V1.9.1 (2015-02) Clause 5.3.3.2.1.

5.4. Test Result

Product	WIRELESS ACCESS POINT	Temperature	25°C
Test Engineer	Roy Cheng	Relative Humidity	54%
Test Site	TR3	Test Date	2016/11/09

Mode	Channel	Freq. (MHz)	EIRP Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
Chain 0					
11b	01	2412	9.40	10	Pass
11b	07	2442	9.65	10	Pass
11b	13	2472	9.78	10	Pass
11g	01	2412	7.08	10	Pass
11g	07	2442	7.34	10	Pass
11g	13	2472	7.12	10	Pass
Chain 1					
11b	01	2412	8.82	10	Pass
11b	07	2442	9.14	10	Pass
11b	13	2472	9.70	10	Pass
11g	01	2412	7.14	10	Pass
11g	07	2442	7.10	10	Pass
11g	13	2472	7.08	10	Pass
Chain 2					
11b	01	2412	9.90	10	Pass
11b	07	2442	8.99	10	Pass
11b	13	2472	9.45	10	Pass
11g	01	2412	7.18	10	Pass
11g	07	2442	7.17	10	Pass
11g	13	2472	7.20	10	Pass

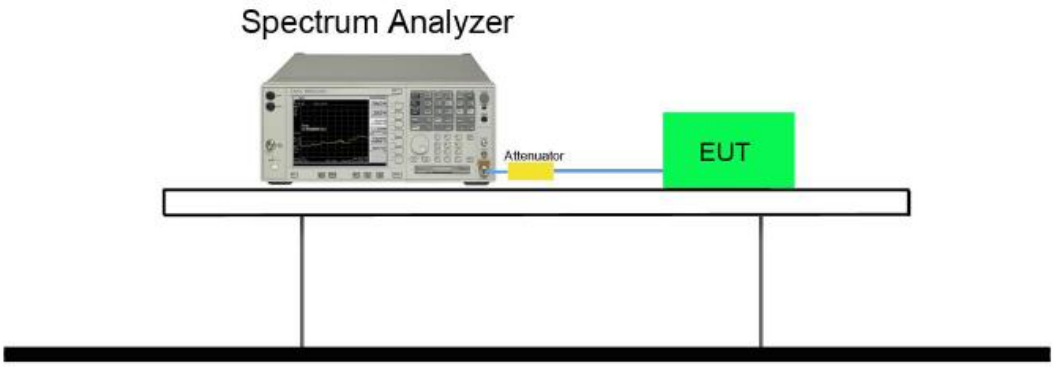
Mode	Channel	Freq. (MHz)	EIRP Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
Chain 1 + 2					
11n-HT20	01	2412	6.59	10	Pass
11n-HT20	07	2442	7.03	10	Pass
11n-HT20	13	2472	6.50	10	Pass
11n-HT40	03	2422	3.82	10	Pass
11n-HT40	07	2442	4.23	10	Pass
11n-HT40	11	2462	4.09	10	Pass
Chain 1 + 2 + 3					
11n-HT20	01	2412	6.83	10	Pass
11n-HT20	07	2442	6.97	10	Pass
11n-HT20	13	2472	6.80	10	Pass
11n-HT40	03	2422	3.74	10	Pass
11n-HT40	07	2442	4.19	10	Pass
11n-HT40	11	2462	4.13	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 Tx-sequence time shall be equal to or less than 10 ms. The minimum Tx-gap time following a Tx-sequence shall be equal to the duration of that proceeding Tx-sequence with a minimum of 3.5 ms.

6.2. Test Setup



6.3. Test Procedure

Refer to ETSI EN 300 328 V1.9.1 (2015-02) Clause 5.3.2.2.1.3.

6.4. Test Result

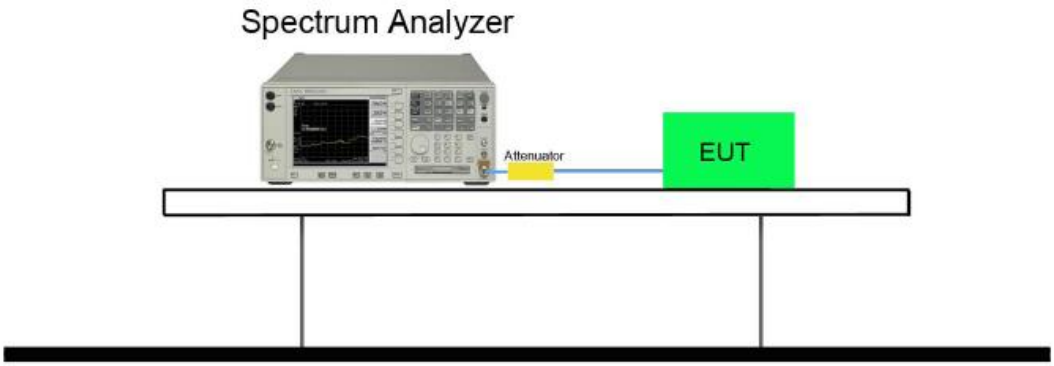
These requirements apply to non-adaptive equipment or to adaptive equipment when operating in a non-adaptive mode. So the item is not applicable.

7. Medium Utilisation (MU) Factor

7.1. Limit

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

7.2. Test Setup



7.3. Test Procedure

Refer to ETSI EN 300 328 V1.9.1 (2015-02) Clause 5.3.2.2.1.4.

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 802.11-2012 clauses 9, 10, 16, 17, 19 and 20 or in IEEE 802.15.4-2011, clauses 4, 5 and 8.)

Adaptivity Limit

The CCA observation time shall be not less than 18 us.

The Channel Occupancy Time shall be less than 13 ms.

The minimum idle period shall be not less than 18 us.

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 ratio of 10% within an observation period of 50ms.

Receiver Blocking Limit

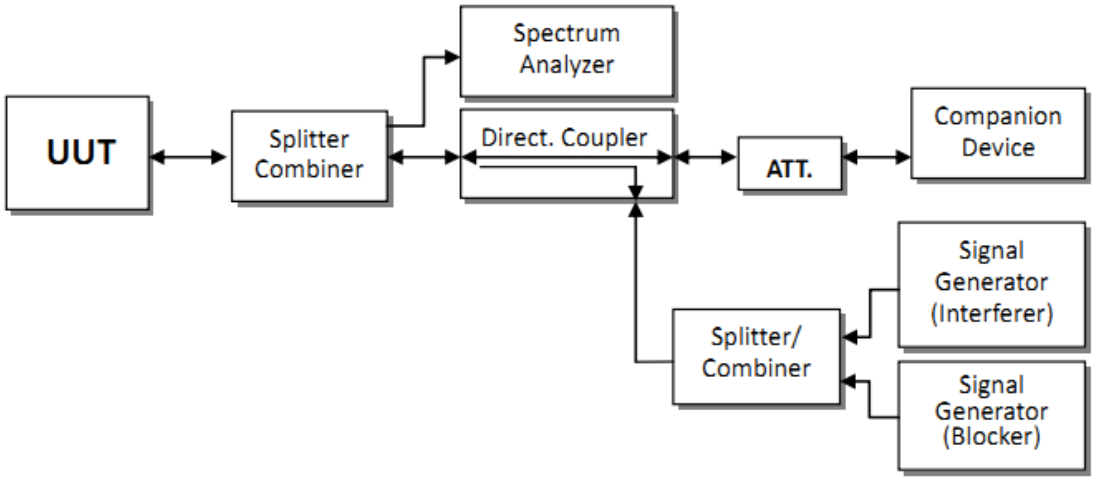
Adaptive equipment shall comply with the requirements in the presence of a blocking signal with characteristics as below.

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)	-35	CW
Non-LBT	-30dBm			
NOTE 1: The highest blocking frequency shall be used for testing operating channels within the range 2 400 MHz to 2 442 MHz, while the lowest blocking frequency shall be used for testing operating channels within the range 2 442 MHz to 2 483,5 MHz. 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

For conducted measurements

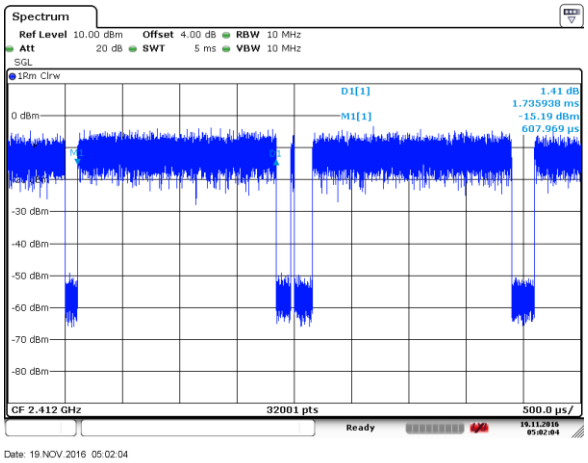
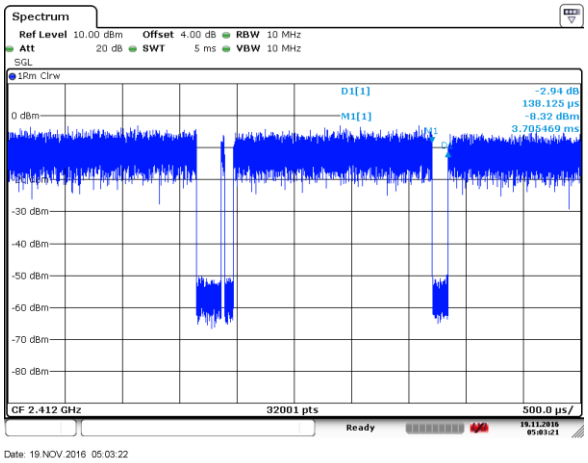
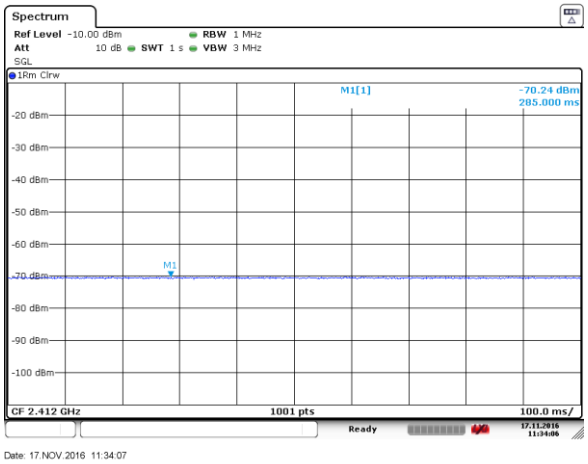
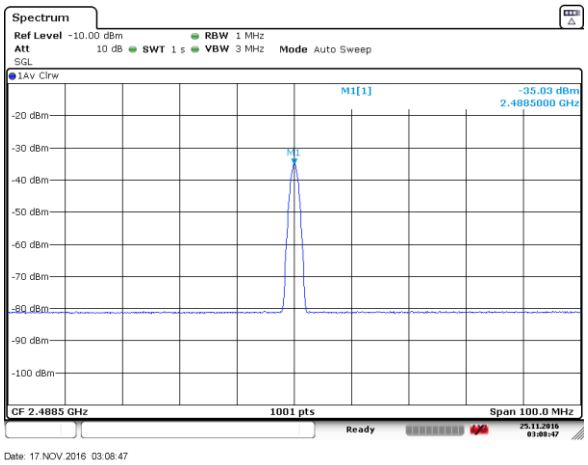


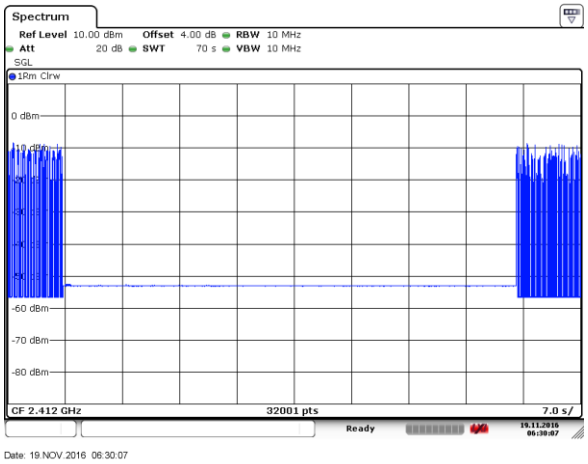
8.3. Test Procedure

Refer to ETSI EN 300 328 V1.9.1 (2015-02) Clause 5.3.7.2.1.

8.4. Test Result

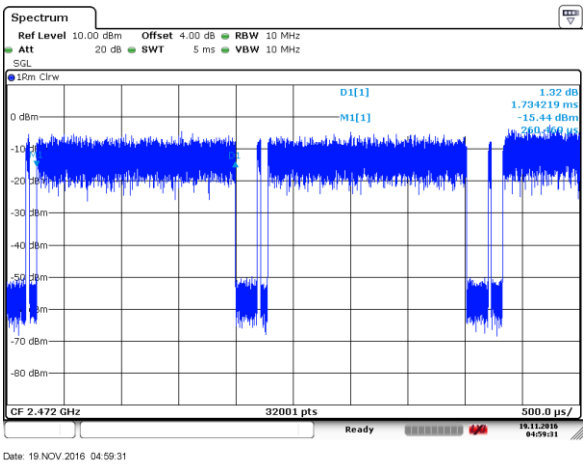
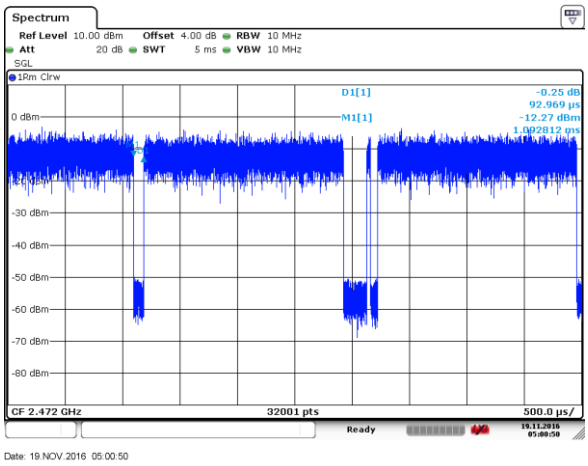
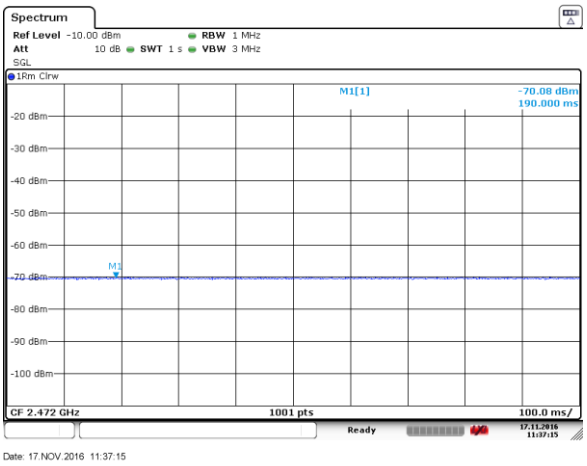
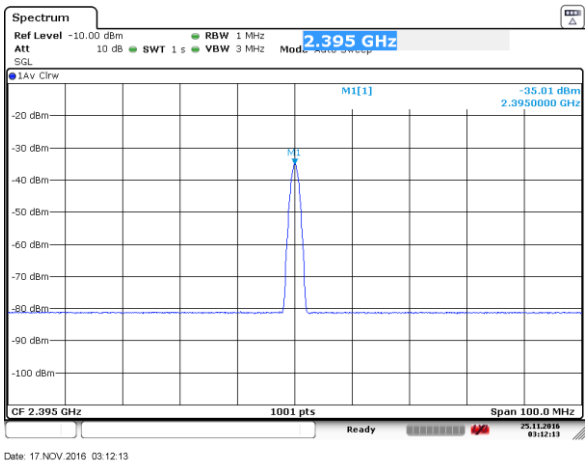
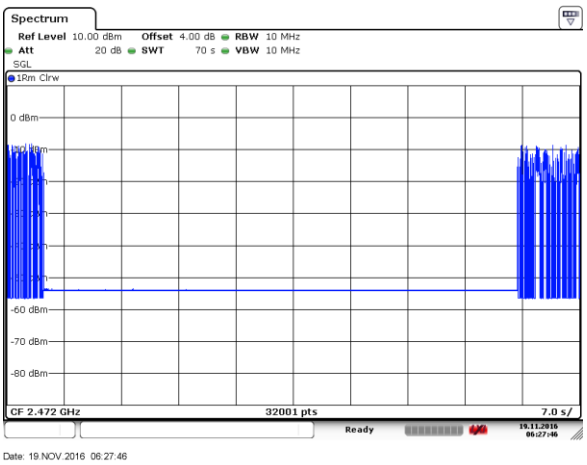
Product	WIRELESS ACCESS POINT	Temperature	23°C
Test Engineer	Andy Zhu	Relative Humidity	54%
Test Time	2016/11/19	Test Site	TR3

802.11b - 2412MHz	
Maximum Channel Occupancy Time = 1.736ms	**Minimum Idle Period = 138.125us**
	
Interference Signal Calibration	**Blocking Signal Calibration**
	

Transmission stopped after interference added and the short control signaling less than 5ms. The UUT did not resume any normal transmissions when adding the blocking signal.	
	

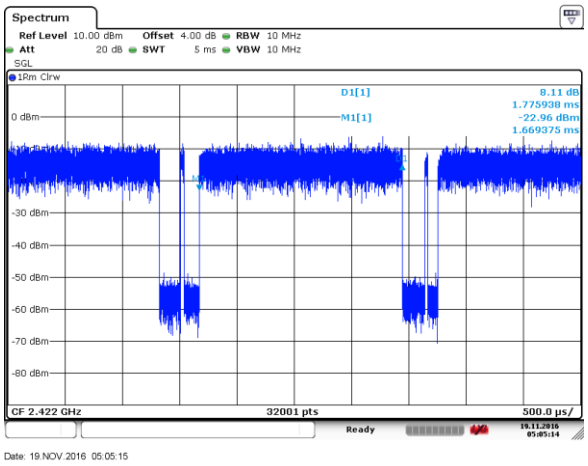
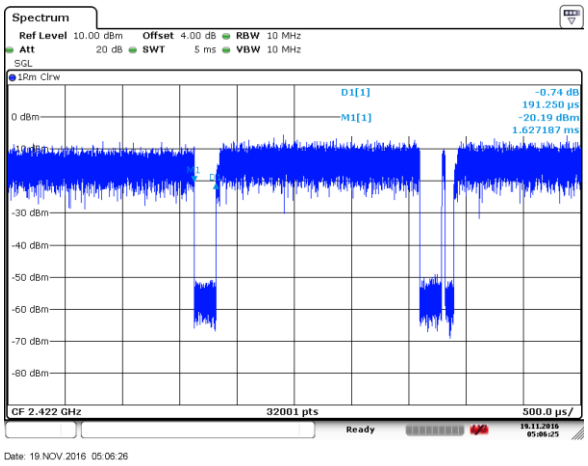
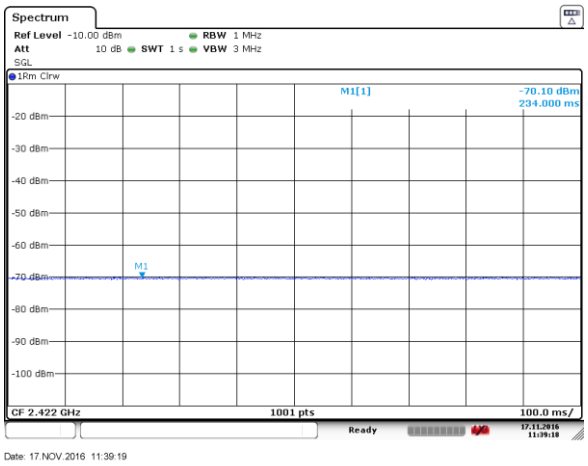
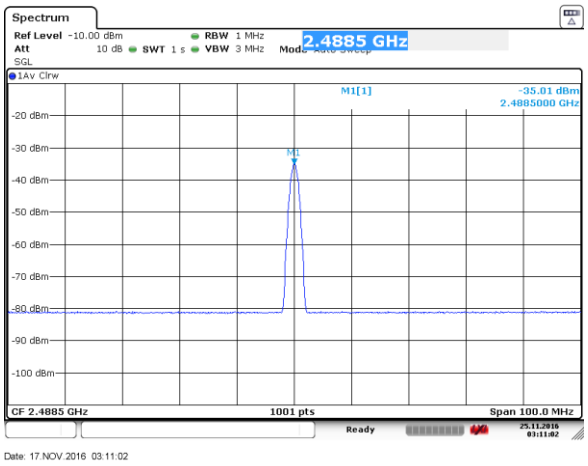
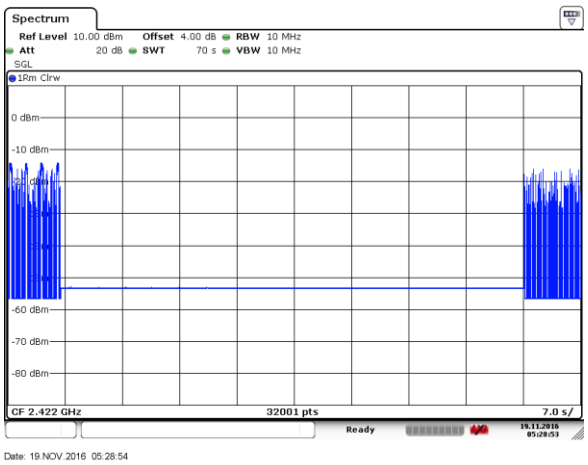
Note: Detection Level = -70 dBm/MHz + (20 dBm - the max conducted power (dBm))/MHz ≥ -70 dBm/MHz We used the worst-case detection level (-70dBm/MHz) to perform adaptivity testing.

Test Result:	Pass

802.11b - 2472MHz	
Maximum Channel Occupancy Time = 1.734ms	**Minimum Idle Period = 92.969us**
	
Interference Signal Calibration	**Blocking Signal Calibration**
	
Transmission stopped after interference added and the short control signaling less than 5ms. The UUT did not resume any normal transmissions when adding the blocking signal	
	

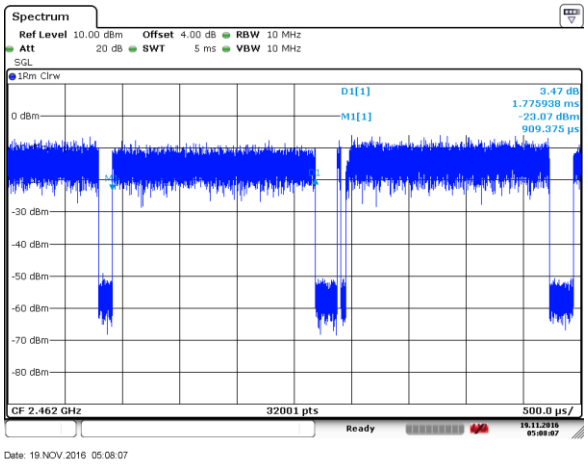
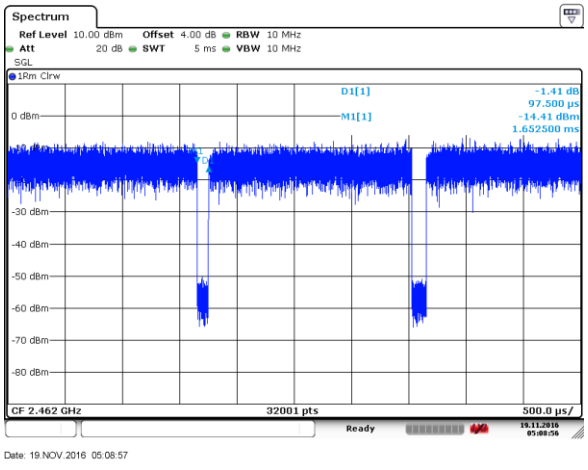
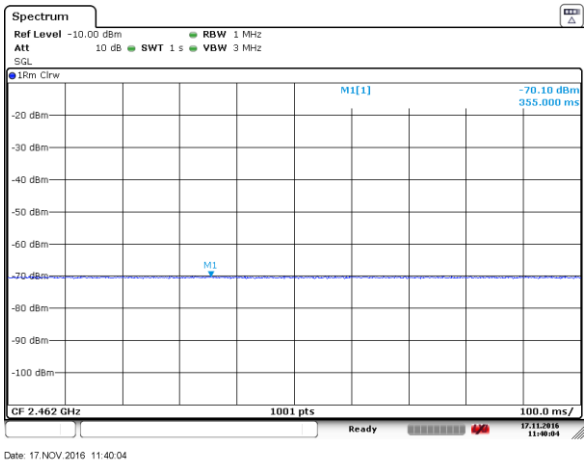
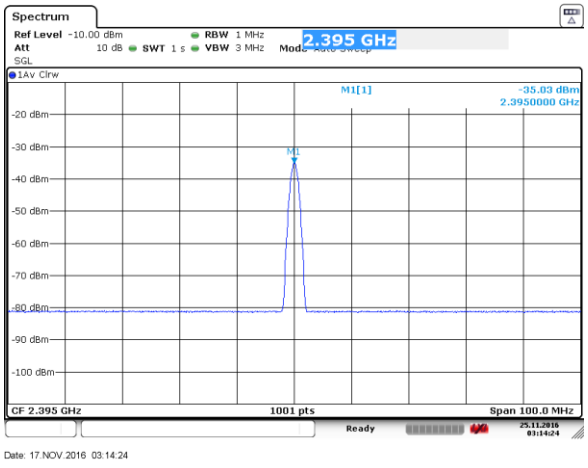
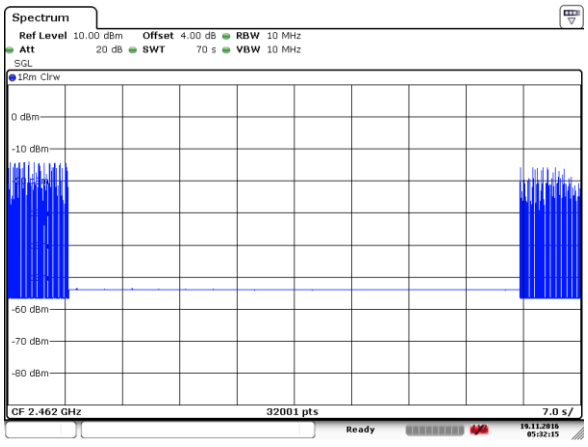
Note: Detection Level = -70 dBm/MHz + (20 dBm - the max conducted power (dBm))/MHz ≥ -70 dBm/MHz We used the worst-case detection level (-70dBm/MHz) to perform adaptivity testing.

Test Result:	Pass

802.11n-HT40 - 2422MHz	
Maximum Channel Occupancy Time = 1.776ms	**Minimum Idle Period = 191.250us**
	
Interference Signal Calibration	**Blocking Signal Calibration**
	
Transmission stopped after interference added and the short control signaling less than 5ms. The UUT did not resume any normal transmissions when adding the blocking signal	
	

Note: Detection Level = -70 dBm/MHz + (20 dBm - the max conducted power (dBm))/MHz ≥ -70 dBm/MHz We used the worst-case detection level (-70dBm/MHz) to perform adaptivity testing.

Test Result:	Pass

802.11n-HT40 - 2462MHz	
Maximum Channel Occupancy Time = 1.776ms	**Minimum Idle Period = 97.500us**
	
Interference Signal Calibration	**Blocking Signal Calibration**
	
Transmission stopped after interference added and the short control signaling less than 5ms. The UUT did not resume any normal transmissions when adding the blocking signal	
	

Note: Detection Level = -70 dBm/MHz + (20 dBm - the max conducted power (dBm))/MHz ≥ -70 dBm/MHz We used the worst-case detection level (-70dBm/MHz) to perform adaptivity testing.

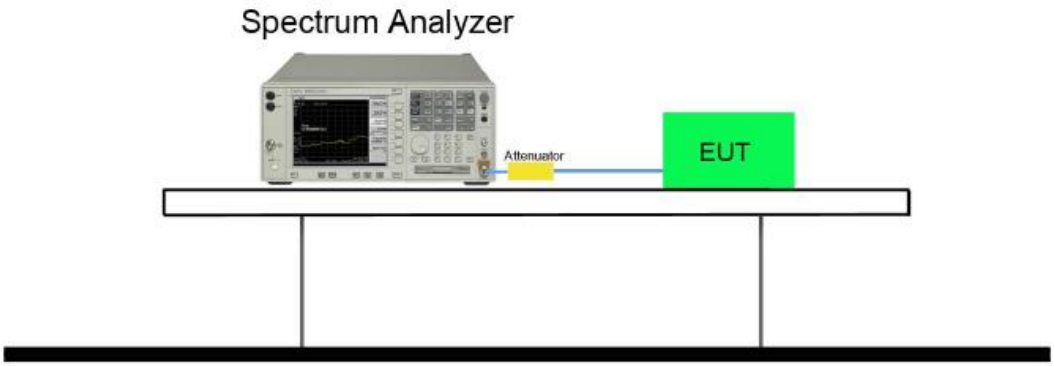
Test Result:	Pass

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 V1.9.1 (2015-02) Clause 5.3.8.2.1.

9.4. Test Result

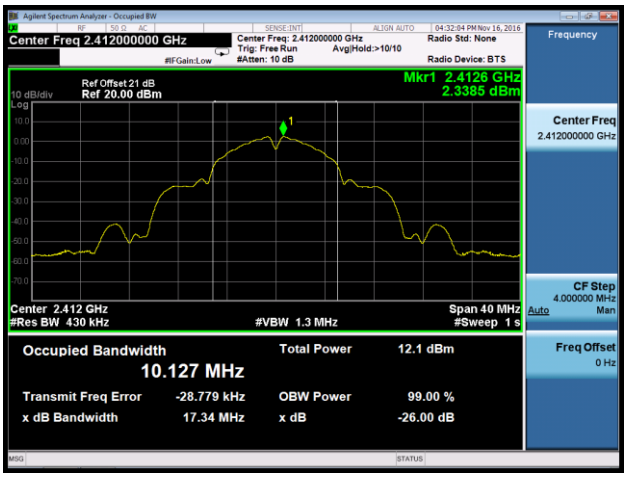
Product	WIRELESS ACCESS POINT	Temperature	22°C
Test Engineer	Roy Cheng	Relative Humidity	52%
Test Site	TR3	Test Date	2016/11/16

The spectrum analyzer setting: RBW ≈ 1 % of the span without going below 1 %, VBW ≥ 3RBW, Detector Mode = RMS.

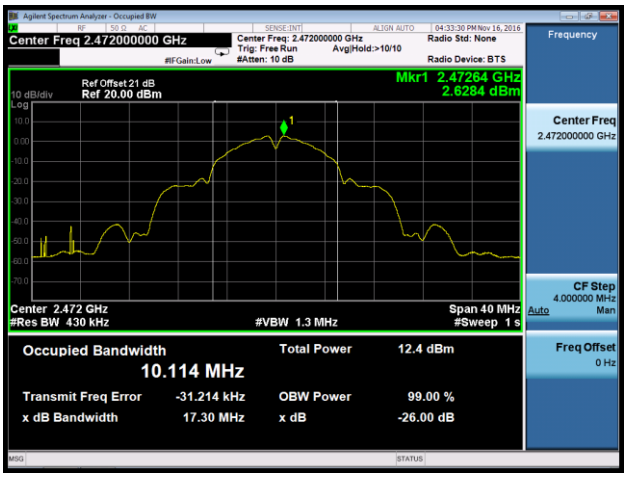
Test Mode	Channel No.	Frequency (MHz)	99% Bandwidth (MHz)	Frequency Range (MHz)	Result
Chain 0					
11b	01	2412	10.13	2406.94	Pass
11b	13	2472	10.11	2477.06	Pass
11g	01	2412	16.64	2403.68	Pass
11g	13	2472	16.64	2480.32	Pass
Chain 1					
11b	01	2412	10.30	2406.85	Pass
11b	13	2472	10.23	2477.12	Pass
11g	01	2412	16.62	2403.69	Pass
11g	13	2472	16.64	2480.32	Pass
Chain 2					
11b	01	2412	10.25	2406.88	Pass
11b	13	2472	10.20	2477.10	Pass
11g	01	2412	16.62	2403.69	Pass
11g	13	2472	16.63	2480.32	Pass
Chain 0 / Chain 0 + 1					
11n-HT20	01	2412	17.81	2403.10	Pass
11n-HT20	13	2472	17.82	2480.91	Pass
11n-HT40	03	2422	36.36	2403.82	Pass
11n-HT40	11	2462	36.40	2480.20	Pass
Chain 0 / Chain 0 + 1 + 2					
11n-HT20	01	2412	17.80	2403.10	Pass
11n-HT20	13	2472	17.79	2480.90	Pass
11n-HT40	03	2422	36.40	2403.80	Pass
11n-HT40	11	2462	36.37	2480.19	Pass

802.11b Occupied Channel Bandwidth - Chain 0

Channel 01 (2412MHz)

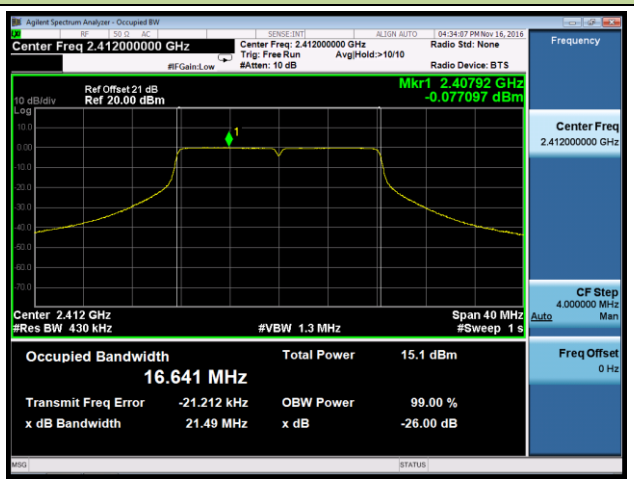


Channel 13 (2472MHz)

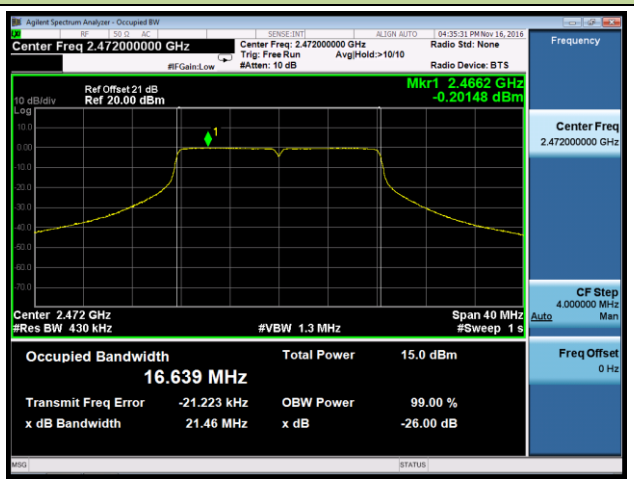


802.11g Occupied Channel Bandwidth - Chain 0

Channel 01 (2412MHz)

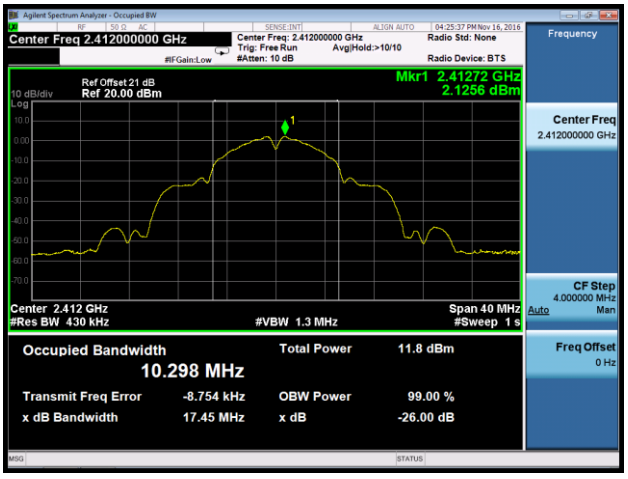


Channel 13 (2472MHz)

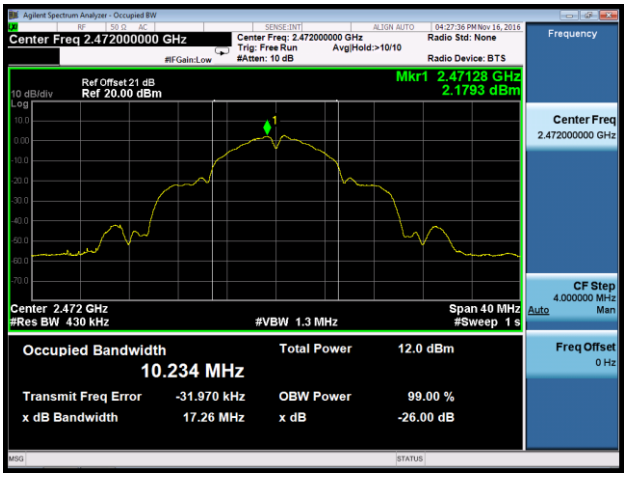


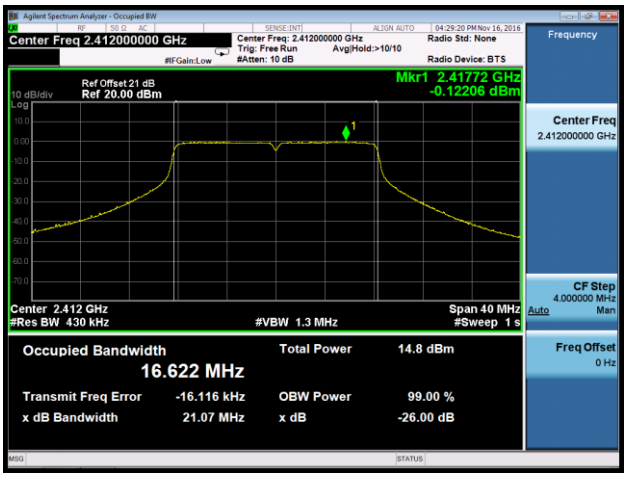
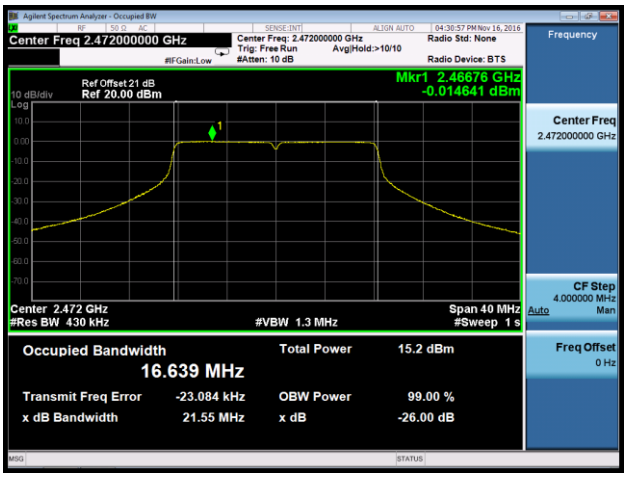
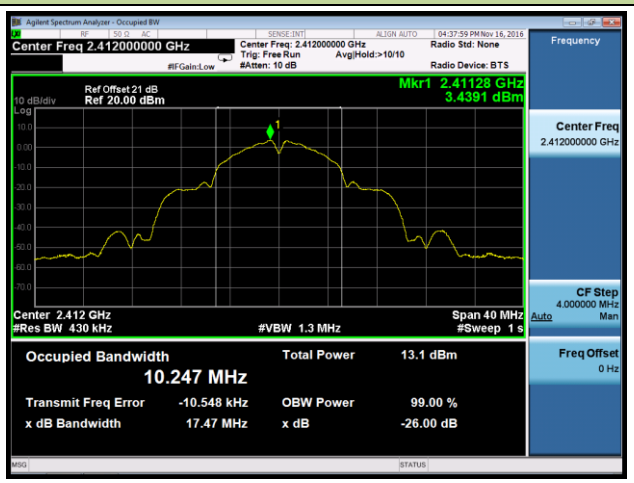
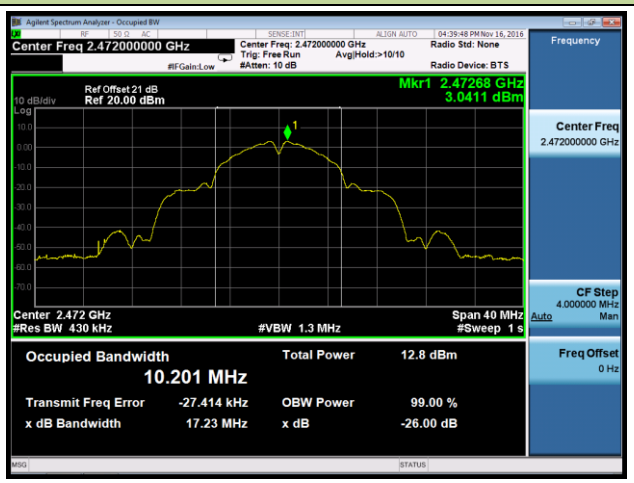
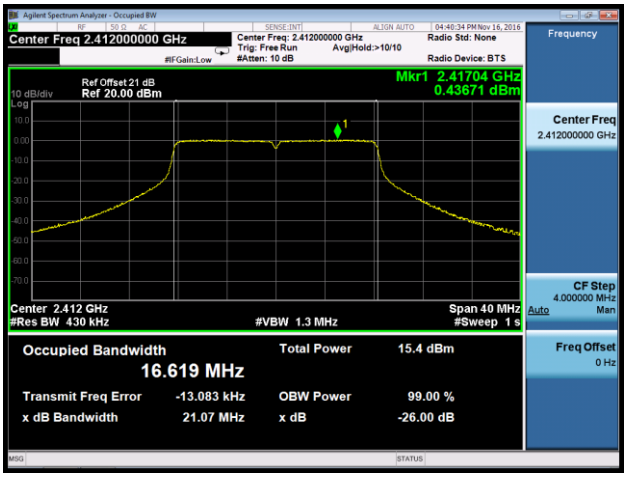
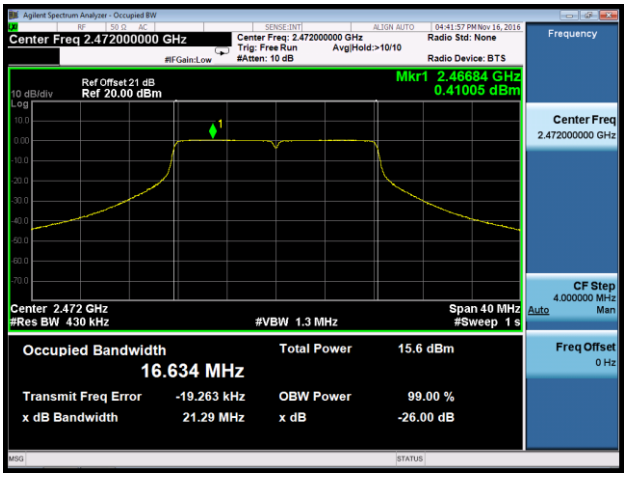
802.11b Occupied Channel Bandwidth - Chain 1

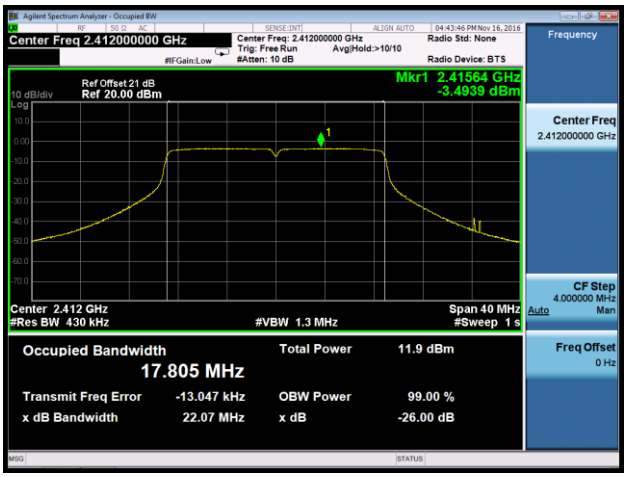
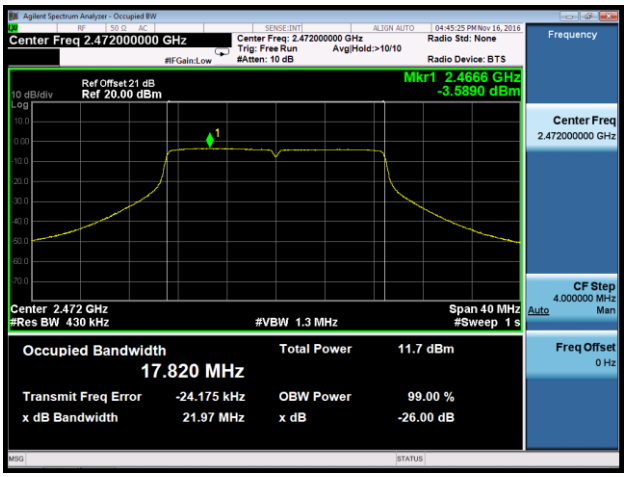
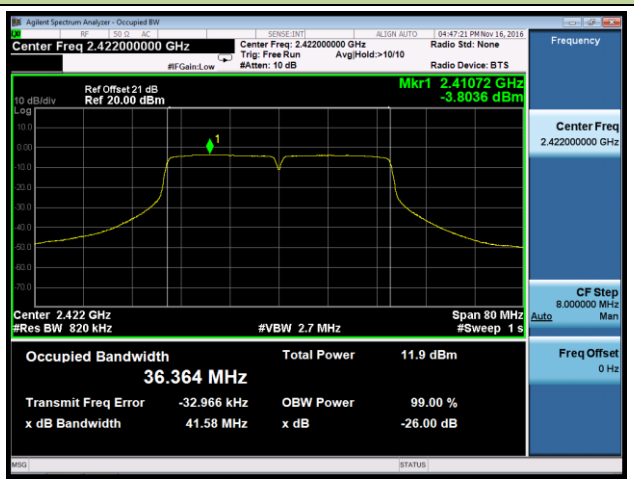
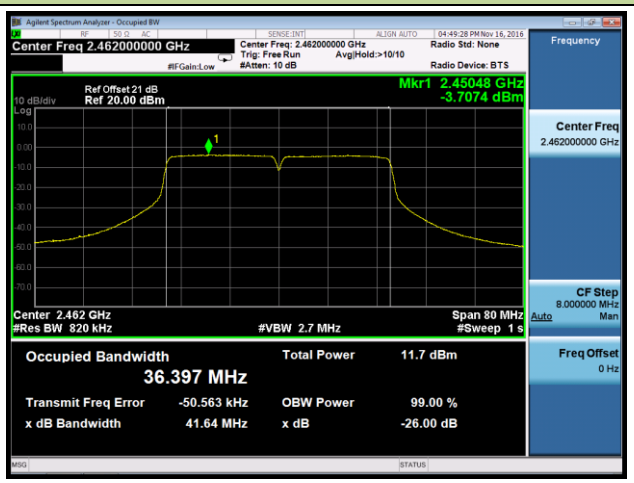
Channel 01 (2412MHz)

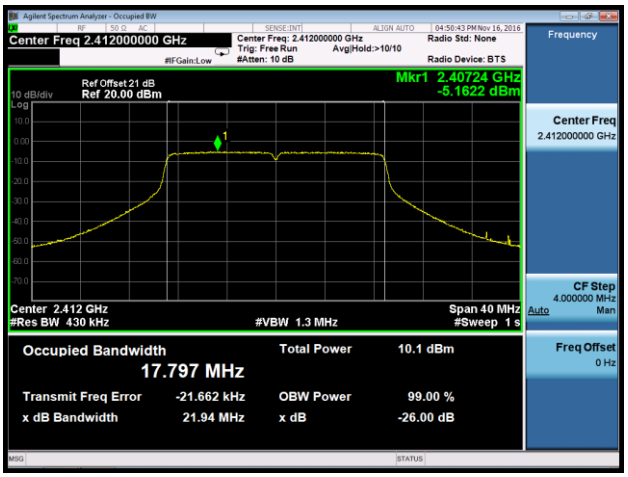
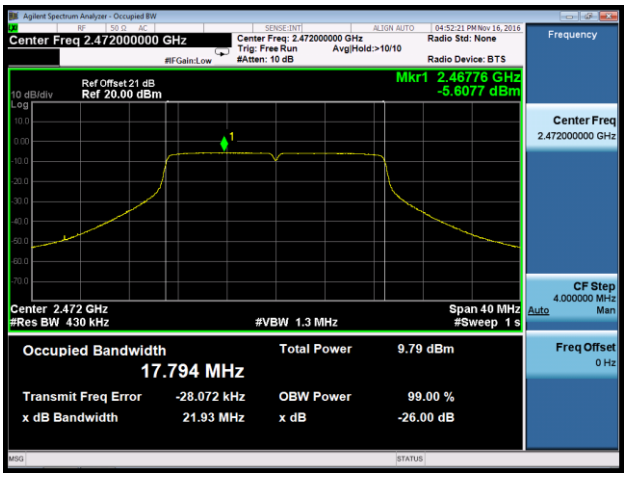
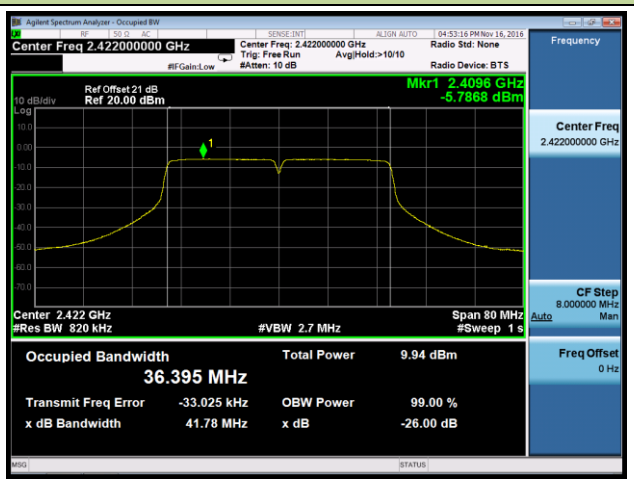
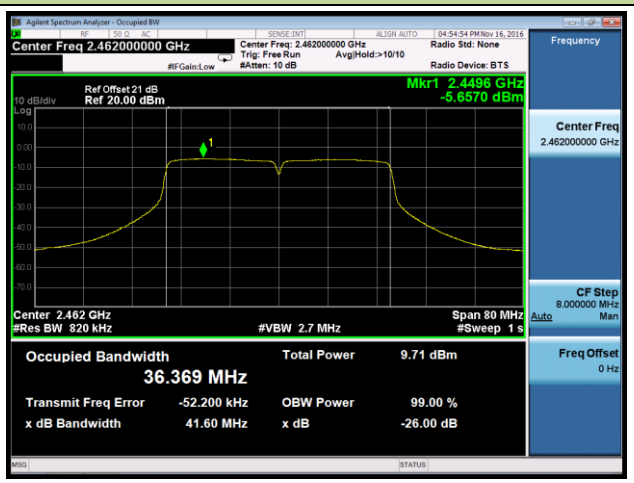


Channel 13 (2472MHz)



802.11g Occupied Channel Bandwidth - Chain 1	
Channel 01 (2412MHz)	**Channel 13 (2472MHz)**
	
802.11b Occupied Channel Bandwidth - Chain 2	
Channel 01 (2412MHz)	**Channel 13 (2472MHz)**
	
802.11g Occupied Channel Bandwidth - Chain 1	
Channel 01 (2412MHz)	**Channel 13 (2472MHz)**
	

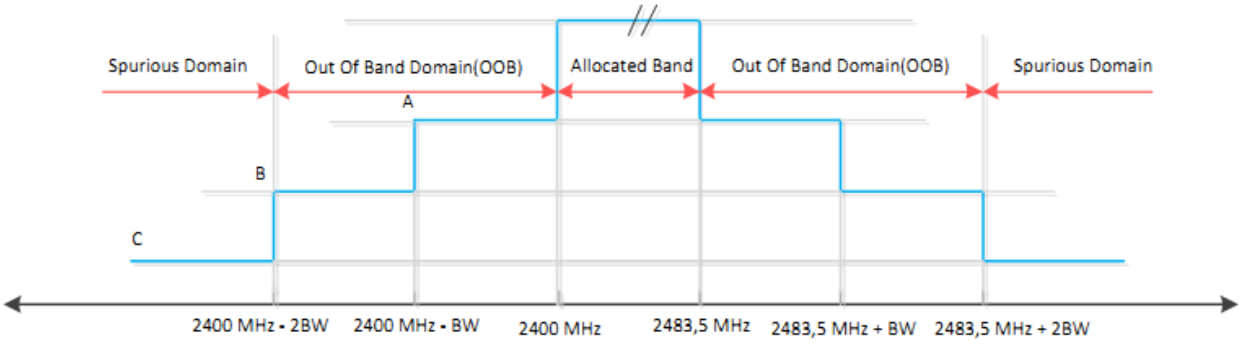
802.11n-HT20 Occupied Channel Bandwidth - Chain 0 / Chain 0 + 1	
Channel 01 (2412MHz)	**Channel 13 (2472MHz)**
	
802.11n-HT40 Occupied Channel Bandwidth - Chain 0 / Chain 0 + 1	
Channel 03 (2422MHz)	**Channel 11 (2462MHz)**
	

802.11n-HT20 Occupied Channel Bandwidth - Chain 0 / Chain 0 + 1 + 2	
Channel 01 (2412MHz)	**Channel 13 (2472MHz)**
	
802.11n-HT40 Occupied Channel Bandwidth - Chain 0 / Chain 0 + 1 + 2	
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.



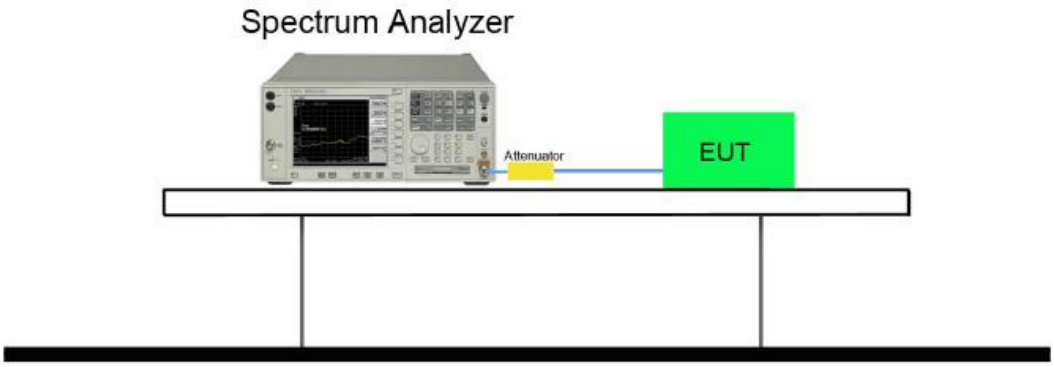
A: *-10 dBm/MHz e.i.r.p.*
B: *-20 dBm/MHz e.i.r.p.*
C: *Spurious Domain limits*

BW=occupied Channel Bandwidth in MHZ or 1MHz whichever is greater

Figure :Transmit Mask

10.2. Test Setup

For Conducted Measurement



10.3. Test Procedure

Refer to ETSI EN 300 328 V1.9.1 (2015-02) Clause 5.3.9.2.1.

10.4. Test Result

Product	WIRELESS ACCESS POINT	Temperature	22°C
Test Engineer	Amy Zhang	Relative Humidity	52%
Test Site	TR3	Test Date	2016/11/18

Test Mode	Ch. No.	Freq. Range (MHz)	Worst Level (dBm/MHz)	Total Worst Level (dBm/MHz)	Limit (dBm/MHz)	Result
Chain 0						
11b	01	2400-2BW ~ 2400-BW	-54.15	-49.65	-20	Pass
		2483.5+BW ~ 2483.5+2BW	-41.21	-36.71	-10	Pass
	13	2400-2BW ~ 2400-BW	-43.19	-38.69	-10	Pass
		2483.5+BW ~ 2483.5+2BW	-55.09	-50.59	-20	Pass
11g	01	2400-2BW ~ 2400-BW	-49.37	-44.87	-20	Pass
		2483.5+BW ~ 2483.5+2BW	-27.65	-23.15	-10	Pass
	13	2400-2BW ~ 2400-BW	-27.21	-22.71	-10	Pass
		2483.5+BW ~ 2483.5+2BW	-49.90	-45.40	-20	Pass
Chain 1						
11b	01	2400-2BW ~ 2400-BW	-53.47	-48.97	-20	Pass
		2483.5+BW ~ 2483.5+2BW	-42.66	-38.16	-10	Pass
	13	2400-2BW ~ 2400-BW	-44.74	-40.24	-10	Pass
		2483.5+BW ~ 2483.5+2BW	-52.56	-48.06	-20	Pass
11g	01	2400-2BW ~ 2400-BW	-51.66	-47.16	-20	Pass
		2483.5+BW ~ 2483.5+2BW	-28.57	-24.07	-10	Pass
	13	2400-2BW ~ 2400-BW	-27.08	-22.58	-10	Pass
		2483.5+BW ~ 2483.5+2BW	-51.69	-47.19	-20	Pass
Chain 2						
11b	01	2400-2BW ~ 2400-BW	-52.39	-47.89	-20	Pass
		2483.5+BW ~ 2483.5+2BW	-42.20	-37.70	-10	Pass
	13	2400-2BW ~ 2400-BW	-44.88	-40.38	-10	Pass
		2483.5+BW ~ 2483.5+2BW	-53.40	-48.90	-20	Pass
11g	01	2400-2BW ~ 2400-BW	-51.43	-46.93	-20	Pass
		2483.5+BW ~ 2483.5+2BW	-27.87	-23.37	-10	Pass
	13	2400-2BW ~ 2400-BW	-26.64	-22.14	-10	Pass
		2483.5+BW ~ 2483.5+2BW	-46.76	-42.26	-20	Pass

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

Test Mode	Ch. No.	Freq. Range (MHz)	Chain 1 Worst Level (dBm/ MHz)	Chain 2 Worst Level (dBm/ MHz)	Total Worst Level (dBm/ MHz)	Limit (dBm/ MHz)	Result
Chain 0 + 1							
11n-HT20	01	2400-2BW ~ 2400-BW	-53.93	-53.45	-46.17	-20	Pass
		2483.5+BW ~ 2483.5+2BW	-31.03	-30.26	-23.12	-10	Pass
	13	2400-2BW ~ 2400-BW	-29.71	-29.14	-21.91	-10	Pass
		2483.5+BW ~ 2483.5+2BW	-54.11	-53.61	-46.34	-20	Pass
11n-HT40	03	2400-2BW ~ 2400-BW	-54.02	-53.25	-46.11	-20	Pass
		2483.5+BW ~ 2483.5+2BW	-32.84	-31.06	-24.35	-10	Pass
	11	2400-2BW ~ 2400-BW	-32.96	-31.84	-24.85	-10	Pass
		2483.5+BW ~ 2483.5+2BW	-46.84	-45.28	-38.48	-20	Pass

Note: Total Worst Level (dBm/MHz) = $10*\log\{10^{(\text{Chain 0 Worst Level + Chain 0 Gain})/10} + 10^{(\text{Chain 1 Worst Level + Chain 1 Gain})/10}\}$ (dBm/MHz).

Test Mode	Ch. No.	Freq. Range (MHz)	Chain 0 Worst Level (dBm/ MHz)	Chain 1 Worst Level (dBm/ MHz)	Chain 2 Worst Level (dBm/ MHz)	Total Worst Level (dBm/ MHz)	Limit (dBm/ MHz)	Result
Chain 0 + 1 + 2								
11n-HT20	01	2400-2BW ~ 2400-BW	-54.38	-53.26	-55.36	-44.98	-20	Pass
		2483.5+BW ~ 2483.5+2BW	-32.87	-31.42	-32.62	-22.98	-10	Pass
	13	2400-2BW ~ 2400-BW	-32.22	-30.62	-31.52	-22.13	-10	Pass
		2483.5+BW ~ 2483.5+2BW	-54.30	-53.47	-55.74	-45.13	-20	Pass
11n-HT40	03	2400-2BW ~ 2400-BW	-55.57	-53.68	-54.68	-45.30	-20	Pass
		2483.5+BW ~ 2483.5+2BW	-33.97	-32.04	-33.55	-23.83	-10	Pass
	11	2400-2BW ~ 2400-BW	-34.56	-33.24	-35.62	-25.09	-10	Pass
		2483.5+BW ~ 2483.5+2BW	-48.69	-47.69	-49.68	-39.34	-20	Pass

Note: Total Worst Level (dBm/MHz) = $10*\log\{10^{(\text{Chain 0 Worst Level + Chain 0 Gain})/10} + 10^{(\text{Chain 1 Worst Level + Chain 1 Gain})/10} + 10^{(\text{Chain 2 Worst Level + Chain 2 Gain})/10}\}$(dBm/MHz).

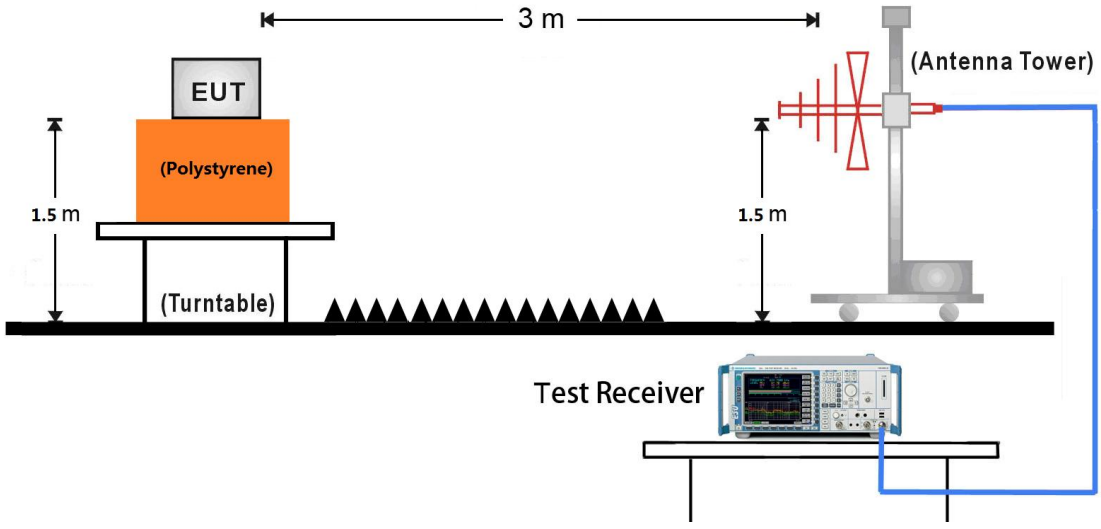
11. Transmitter Unwanted Emissions in the Spurious Domain

11.1. Limit

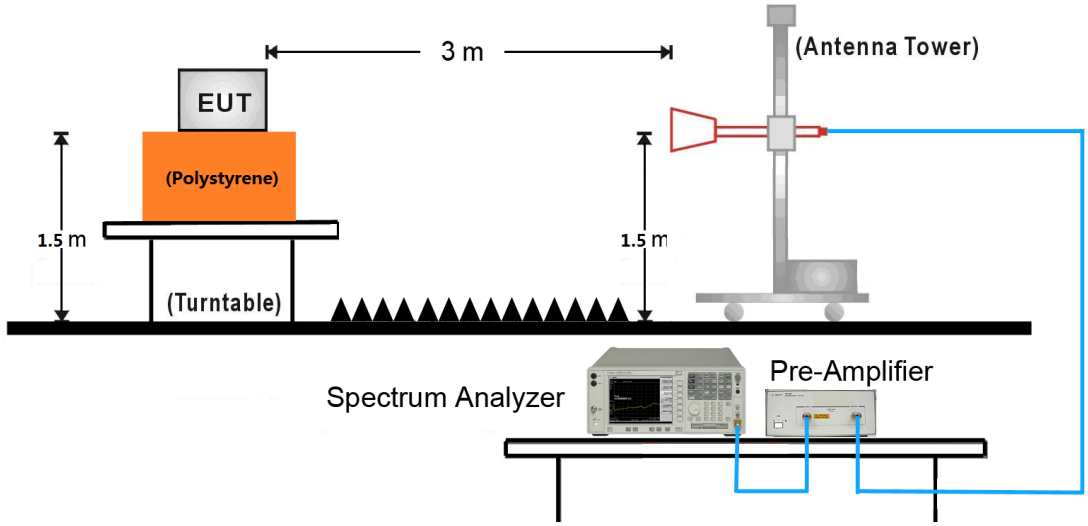
Transmitter Limits for Spurious Emissions		
Frequency Range	Maximum power	Bandwidth
30 MHz to 47 MHz	-36dBm	100 kHz
47 MHz to 74 MHz	-54dBm	100 kHz
74 MHz to 87,5 MHz	-36dBm	100 kHz
87,5 MHz to 118 MHz	-54dBm	100 kHz
118 MHz to 174 MHz	-36dBm	100 kHz
174 MHz to 230 MHz	-54dBm	100 kHz
230 MHz to 470 MHz	-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 V1.9.1 (2015-02) Clause 5.3.10.2.2.

11.4. Test Result

Panel Antenna (Gain = 4.5dBi)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11b - Chain 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	47.9	-86.3	25.9	-60.4	-54.0	-6.4	Peak	Horizontal
	199.8	-88.8	23.1	-65.7	-54.0	-11.7	Peak	Horizontal
	112.5	-91.3	29.2	-62.1	-54.0	-8.1	Peak	Vertical
	199.8	-89.4	22.5	-66.9	-54.0	-12.9	Peak	Vertical
	3214.9	-68.5	11.7	-56.8	-30.0	-26.8	Peak	Horizontal
	5036.1	-71.3	16.6	-54.7	-30.0	-24.7	Peak	Horizontal
	3214.9	-64.8	12.0	-52.8	-30.0	-22.8	Peak	Vertical
	4824.6	-70.0	15.8	-54.2	-30.0	-24.2	Peak	Vertical
13	201.2	-88.2	23.1	-65.1	-54.0	-11.1	Peak	Horizontal
	755.6	-100.2	36.0	-64.2	-54.0	-10.2	Peak	Horizontal
	112.5	-90.9	29.2	-61.7	-54.0	-7.7	Peak	Vertical
	199.8	-90.1	22.5	-67.6	-54.0	-13.6	Peak	Vertical
	4848.1	-70.9	15.9	-55.0	-30.0	-25.0	Peak	Horizontal
	7415.5	-70.1	22.3	-47.8	-30.0	-17.8	Peak	Horizontal
	4942.1	-69.6	16.4	-53.2	-30.0	-23.2	Peak	Vertical
	7415.5	-69.6	22.5	-47.1	-30.0	-17.1	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11g - Chain 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	99.8	-80.1	14.7	-65.4	-54.0	-11.4	Peak	Horizontal
	199.3	-87.6	23.1	-64.5	-54.0	-10.5	Peak	Horizontal
	112.5	-90.8	29.2	-61.6	-54.0	-7.6	Peak	Vertical
	207.0	-88.6	21.3	-67.3	-54.0	-13.3	Peak	Vertical
	3214.9	-67.7	11.7	-56.0	-30.0	-26.0	Peak	Horizontal
	7233.4	-69.7	21.8	-47.9	-30.0	-17.9	Peak	Horizontal
	3214.9	-63.4	12.0	-51.4	-30.0	-21.4	Peak	Vertical
	7227.5	-66.2	22.0	-44.2	-30.0	-14.2	Peak	Vertical
13	98.4	-79.7	14.7	-65.0	-54.0	-11.0	Peak	Horizontal
	625.1	-97.1	32.6	-64.5	-54.0	-10.5	Peak	Horizontal
	112.5	-90.9	29.2	-61.7	-54.0	-7.7	Peak	Vertical
	199.3	-90.3	22.5	-67.8	-54.0	-13.8	Peak	Vertical
	4401.6	-71.2	14.7	-56.5	-30.0	-26.5	Peak	Horizontal
	7421.4	-66.2	22.4	-43.8	-30.0	-13.8	Peak	Horizontal
	4942.1	-70.2	16.4	-53.8	-30.0	-23.8	Peak	Vertical
	7421.4	-62.9	22.7	-40.2	-30.0	-10.2	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11b - Chain 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	98.4	-80.4	14.7	-65.7	-54.0	-11.7	Peak	Horizontal
	204.6	-87.6	23.0	-64.6	-54.0	-10.6	Peak	Horizontal
	112.5	-91.1	29.2	-61.9	-54.0	-7.9	Peak	Vertical
	209.9	-88.5	20.7	-67.8	-54.0	-13.8	Peak	Vertical
	5136.0	-72.2	16.6	-55.6	-30.0	-25.6	Peak	Horizontal
	7632.9	-71.4	22.2	-49.2	-30.0	-19.2	Peak	Horizontal
	3214.9	-62.4	12.0	-50.4	-30.0	-20.4	Peak	Vertical
	4824.6	-68.0	15.8	-52.2	-30.0	-22.2	Peak	Vertical
13	100.3	-79.8	14.7	-65.1	-54.0	-11.1	Peak	Horizontal
	204.1	-88.1	23.1	-65.0	-54.0	-11.0	Peak	Horizontal
	112.5	-90.4	29.2	-61.2	-54.0	-7.2	Peak	Vertical
	199.3	-88.2	22.5	-65.7	-54.0	-11.7	Peak	Vertical
	4965.6	-71.8	15.7	-56.1	-30.0	-26.1	Peak	Horizontal
	7415.5	-69.6	22.3	-47.3	-30.0	-17.3	Peak	Horizontal
	4942.1	-66.0	16.4	-49.6	-30.0	-19.6	Peak	Vertical
	7415.5	-67.3	22.5	-44.8	-30.0	-14.8	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11g - Chain 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	99.8	-79.7	14.7	-65.0	-54.0	-11.0	Peak	Horizontal
	204.6	-88.7	23.0	-65.7	-54.0	-11.7	Peak	Horizontal
	112.5	-90.7	29.2	-61.5	-54.0	-7.5	Peak	Vertical
	205.6	-89.4	21.6	-67.8	-54.0	-13.8	Peak	Vertical
	5077.3	-72.3	16.5	-55.8	-30.0	-25.8	Peak	Horizontal
	7239.3	-70.3	21.7	-48.6	-30.0	-18.6	Peak	Horizontal
	4836.4	-65.7	15.9	-49.8	-30.0	-19.8	Peak	Vertical
	7239.3	-65.0	22.0	-43.0	-30.0	-13.0	Peak	Vertical
13	99.8	-80.5	14.7	-65.8	-54.0	-11.8	Peak	Horizontal
	206.1	-88.1	23.0	-65.1	-54.0	-11.1	Peak	Horizontal
	112.5	-91.2	29.2	-62.0	-54.0	-8.0	Peak	Vertical
	199.8	-90.7	22.5	-68.2	-54.0	-14.2	Peak	Vertical
	4942.1	-72.1	16.2	-55.9	-30.0	-25.9	Peak	Horizontal
	7421.4	-65.9	22.4	-43.5	-30.0	-13.5	Peak	Horizontal
	4953.9	-63.9	16.1	-47.8	-30.0	-17.8	Peak	Vertical
	7415.5	-63.2	22.5	-40.7	-30.0	-10.7	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11b - Chain 2	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	99.8	-79.0	14.7	-64.3	-54.0	-10.3	Peak	Horizontal
	625.1	-96.9	32.6	-64.3	-54.0	-10.3	Peak	Horizontal
	112.5	-91.0	29.2	-61.8	-54.0	-7.8	Peak	Vertical
	200.7	-89.8	22.4	-67.4	-54.0	-13.4	Peak	Vertical
	4824.6	-72.1	15.6	-56.5	-30.0	-26.5	Peak	Horizontal
	7151.1	-71.7	22.2	-49.5	-30.0	-19.5	Peak	Horizontal
	4824.6	-68.8	15.8	-53.0	-30.0	-23.0	Peak	Vertical
	7233.4	-68.9	22.0	-46.9	-30.0	-16.9	Peak	Vertical
13	99.8	-79.6	14.7	-64.9	-54.0	-10.9	Peak	Horizontal
	199.8	-88.9	23.1	-65.8	-54.0	-11.8	Peak	Horizontal
	112.5	-91.3	29.2	-62.1	-54.0	-8.1	Peak	Vertical
	199.8	-90.1	22.5	-67.6	-54.0	-13.6	Peak	Vertical
	5083.1	-72.0	16.6	-55.4	-30.0	-25.4	Peak	Horizontal
	7415.5	-71.0	22.3	-48.7	-30.0	-18.7	Peak	Horizontal
	4942.1	-68.4	16.4	-52.0	-30.0	-22.0	Peak	Vertical
	7415.5	-65.7	22.5	-43.2	-30.0	-13.2	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11g - Chain 2	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	112.5	-81.9	16.9	-65.0	-54.0	-11.0	Peak	Horizontal
	206.1	-87.5	23.0	-64.5	-54.0	-10.5	Peak	Horizontal
	112.5	-89.7	29.2	-60.5	-54.0	-6.5	Peak	Vertical
	199.8	-89.7	22.5	-67.2	-54.0	-13.2	Peak	Vertical
	4812.9	-71.3	15.9	-55.4	-30.0	-25.4	Peak	Horizontal
	7233.4	-67.7	21.8	-45.9	-30.0	-15.9	Peak	Horizontal
	3214.9	-61.7	12.0	-49.7	-30.0	-19.7	Peak	Vertical
	4824.6	-66.7	15.8	-50.9	-30.0	-20.9	Peak	Vertical
13	99.4	-80.3	14.7	-65.6	-54.0	-11.6	Peak	Horizontal
	204.6	-87.9	23.0	-64.9	-54.0	-10.9	Peak	Horizontal
	112.5	-90.0	29.2	-60.8	-54.0	-6.8	Peak	Vertical
	199.8	-89.6	22.5	-67.1	-54.0	-13.1	Peak	Vertical
	4942.1	-71.8	16.2	-55.6	-30.0	-25.6	Peak	Horizontal
	7427.3	-67.0	22.4	-44.6	-30.0	-14.6	Peak	Horizontal
	4936.3	-66.5	16.2	-50.3	-30.0	-20.3	Peak	Vertical
	7409.6	-60.7	22.4	-38.3	-30.0	-8.3	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11n-HT20 - Chain 0 + 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	112.5	-82.4	16.9	-65.5	-54.0	-11.5	Peak	Horizontal
	199.8	-88.3	23.1	-65.2	-54.0	-11.2	Peak	Horizontal
	112.5	-89.0	29.2	-59.8	-54.0	-5.8	Peak	Vertical
	199.8	-89.6	22.5	-67.1	-54.0	-13.1	Peak	Vertical
	5065.5	-72.5	16.7	-55.8	-30.0	-25.8	Peak	Horizontal
	8038.3	-71.2	23.8	-47.4	-30.0	-17.4	Peak	Horizontal
	4830.5	-70.1	15.8	-54.3	-30.0	-24.3	Peak	Vertical
	7233.4	-70.0	22.0	-48.0	-30.0	-18.0	Peak	Vertical
13	98.9	-79.7	14.7	-65.0	-54.0	-11.0	Peak	Horizontal
	206.1	-87.5	23.0	-64.5	-54.0	-10.5	Peak	Horizontal
	112.5	-90.5	29.2	-61.3	-54.0	-7.3	Peak	Vertical
	198.8	-89.5	22.5	-67.0	-54.0	-13.0	Peak	Vertical
	4936.3	-72.4	16.1	-56.3	-30.0	-26.3	Peak	Horizontal
	7427.3	-70.9	22.4	-48.5	-30.0	-18.5	Peak	Horizontal
	4936.3	-67.4	16.2	-51.2	-30.0	-21.2	Peak	Vertical
	7427.3	-66.9	22.8	-44.1	-30.0	-14.1	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11n-HT40 - Chain 0 + 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
03	100.3	-79.8	14.7	-65.1	-54.0	-11.1	Peak	Horizontal
	203.1	-87.7	23.1	-64.6	-54.0	-10.6	Peak	Horizontal
	112.5	-90.8	29.2	-61.6	-54.0	-7.6	Peak	Vertical
	199.3	-88.6	22.5	-66.1	-54.0	-12.1	Peak	Vertical
	4748.3	-71.8	15.8	-56.0	-30.0	-26.0	Peak	Horizontal
	7632.9	-69.8	22.2	-47.6	-30.0	-17.6	Peak	Horizontal
	4924.5	-70.6	16.0	-54.6	-30.0	-24.6	Peak	Vertical
	7427.3	-71.2	22.8	-48.4	-30.0	-18.4	Peak	Vertical
11	99.4	-79.6	14.7	-64.9	-54.0	-10.9	Peak	Horizontal
	199.8	-88.2	23.1	-65.1	-54.0	-11.1	Peak	Horizontal
	111.0	-89.9	29.3	-60.6	-54.0	-6.6	Peak	Vertical
	205.1	-89.1	21.7	-67.4	-54.0	-13.4	Peak	Vertical
	4942.1	-71.6	16.2	-55.4	-30.0	-25.4	Peak	Horizontal
	7397.9	-71.3	22.3	-49.0	-30.0	-19.0	Peak	Horizontal
	4948.0	-69.9	16.3	-53.6	-30.0	-23.6	Peak	Vertical
	7427.3	-68.2	22.8	-45.4	-30.0	-15.4	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11n-HT20 - Chain 0 + 1 + 2	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	100.3	-79.4	14.7	-64.7	-54.0	-10.7	Peak	Horizontal
	201.2	-87.0	23.1	-63.9	-54.0	-9.9	Peak	Horizontal
	112.0	-89.6	29.2	-60.4	-54.0	-6.4	Peak	Vertical
	204.6	-88.7	21.8	-66.9	-54.0	-12.9	Peak	Vertical
	5036.1	-72.3	16.6	-55.7	-30.0	-25.7	Peak	Horizontal
	8061.8	-71.6	23.7	-47.9	-30.0	-17.9	Peak	Horizontal
	4824.6	-70.1	15.8	-54.3	-30.0	-24.3	Peak	Vertical
	7233.4	-69.4	22.0	-47.4	-30.0	-17.4	Peak	Vertical
13	99.8	-77.8	14.7	-63.1	-54.0	-9.1	Peak	Horizontal
	207.0	-87.1	23.1	-64.0	-54.0	-10.0	Peak	Horizontal
	112.5	-90.5	29.2	-61.3	-54.0	-7.3	Peak	Vertical
	199.8	-88.7	22.5	-66.2	-54.0	-12.2	Peak	Vertical
	4865.8	-71.9	15.8	-56.1	-30.0	-26.1	Peak	Horizontal
	7415.5	-71.2	22.3	-48.9	-30.0	-18.9	Peak	Horizontal
	4948.0	-69.1	16.3	-52.8	-30.0	-22.8	Peak	Vertical
	7415.5	-66.7	22.5	-44.2	-30.0	-14.2	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11n-HT40 - Chain 0 + 1 + 2	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
03	99.8	-78.4	14.7	-63.7	-54.0	-9.7	Peak	Horizontal
	206.1	-87.2	23.0	-64.2	-54.0	-10.2	Peak	Horizontal
	112.9	-90.8	29.1	-61.7	-54.0	-7.7	Peak	Vertical
	198.8	-89.7	22.5	-67.2	-54.0	-13.2	Peak	Vertical
	5112.5	-72.8	17.1	-55.7	-30.0	-25.7	Peak	Horizontal
	7815.0	-70.2	22.1	-48.1	-30.0	-18.1	Peak	Horizontal
	4842.3	-70.2	15.9	-54.3	-30.0	-24.3	Peak	Vertical
	7638.8	-70.4	22.1	-48.3	-30.0	-18.3	Peak	Vertical
11	99.8	-79.6	14.7	-64.9	-54.0	-10.9	Peak	Horizontal
	200.7	-87.5	23.1	-64.4	-54.0	-10.4	Peak	Horizontal
	111.0	-90.6	29.3	-61.3	-54.0	-7.3	Peak	Vertical
	202.2	-88.4	22.3	-66.1	-54.0	-12.1	Peak	Vertical
	4777.6	-72.0	15.6	-56.4	-30.0	-26.4	Peak	Horizontal
	7703.4	-69.9	22.2	-47.7	-30.0	-17.7	Peak	Horizontal
	4924.5	-71.6	16.0	-55.6	-30.0	-25.6	Peak	Vertical
	7380.3	-70.8	22.4	-48.4	-30.0	-18.4	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Dipole Antenna (Gain = 2.0dBi)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11b - Chain 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	107.1	-79.2	15.6	-63.6	-54.0	-9.6	Peak	Horizontal
	500.0	-96.1	29.4	-66.7	-54.0	-12.7	Peak	Horizontal
	500.0	-95.7	29.8	-65.9	-54.0	-11.9	Peak	Vertical
	750.2	-98.7	35.3	-63.4	-54.0	-9.4	Peak	Vertical
	7151.1	-70.5	22.2	-48.3	-30.0	-18.3	Peak	Horizontal
	9454.1	-70.8	27.2	-43.6	-30.0	-13.6	Peak	Horizontal
	4824.6	-66.8	15.8	-51.0	-30.0	-21.0	Peak	Vertical
	7233.4	-68.0	22.0	-46.0	-30.0	-16.0	Peak	Vertical
13	108.1	-79.2	15.9	-63.3	-54.0	-9.3	Peak	Horizontal
	507.2	-91.6	29.7	-61.9	-54.0	-7.9	Peak	Horizontal
	108.1	-88.0	27.6	-60.4	-54.0	-6.4	Peak	Vertical
	625.1	-92.5	32.6	-59.9	-54.0	-5.9	Peak	Vertical
	7110.0	-71.1	21.6	-49.5	-30.0	-19.5	Peak	Horizontal
	9430.6	-71.1	27.4	-43.7	-30.0	-13.7	Peak	Horizontal
	7415.5	-67.6	22.5	-45.1	-30.0	-15.1	Peak	Vertical
	9319.0	-71.0	27.1	-43.9	-30.0	-13.9	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11g - Chain 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	107.1	-78.9	15.6	-63.3	-54.0	-9.3	Peak	Horizontal
	750.2	-101.0	35.6	-65.4	-54.0	-11.4	Peak	Horizontal
	104.2	-89.5	26.2	-63.3	-54.0	-9.3	Peak	Vertical
	625.1	-96.1	32.6	-63.5	-54.0	-9.5	Peak	Vertical
	7233.4	-70.7	21.8	-48.9	-30.0	-18.9	Peak	Horizontal
	9806.6	-71.7	28.1	-43.6	-30.0	-13.6	Peak	Horizontal
	4818.8	-65.3	15.9	-49.4	-30.0	-19.4	Peak	Vertical
	7227.5	-65.9	22.0	-43.9	-30.0	-13.9	Peak	Vertical
13	108.6	-80.5	16.1	-64.4	-54.0	-10.4	Peak	Horizontal
	750.2	-101.5	35.6	-65.9	-54.0	-11.9	Peak	Horizontal
	500.0	-96.3	29.8	-66.5	-54.0	-12.5	Peak	Vertical
	750.2	-99.1	35.3	-63.8	-54.0	-9.8	Peak	Vertical
	2280.8	-65.0	9.2	-55.8	-30.0	-25.8	Peak	Horizontal
	3538.0	-68.1	12.9	-55.2	-30.0	-25.2	Peak	Horizontal
	7409.6	-65.7	22.4	-43.3	-30.0	-13.3	Peak	Vertical
	9518.8	-70.5	27.5	-43.0	-30.0	-13.0	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11b - Chain 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	108.1	-79.6	15.9	-63.7	-54.0	-9.7	Peak	Horizontal
	500.0	-95.9	29.4	-66.5	-54.0	-12.5	Peak	Horizontal
	50.4	-82.8	21.7	-61.1	-54.0	-7.1	Peak	Vertical
	500.0	-96.2	29.8	-66.4	-54.0	-12.4	Peak	Vertical
	7221.6	-71.5	21.9	-49.6	-30.0	-19.6	Peak	Horizontal
	9418.9	-71.8	27.6	-44.2	-30.0	-14.2	Peak	Horizontal
	7233.4	-68.9	22.0	-46.9	-30.0	-16.9	Peak	Vertical
	9260.3	-71.0	27.0	-44.0	-30.0	-14.0	Peak	Vertical
13	105.2	-77.7	15.3	-62.4	-54.0	-8.4	Peak	Horizontal
	750.2	-100.8	35.6	-65.2	-54.0	-11.2	Peak	Horizontal
	57.2	-82.4	22.0	-60.4	-54.0	-6.4	Peak	Vertical
	106.1	-90.8	27.0	-63.8	-54.0	-9.8	Peak	Vertical
	8149.9	-70.7	24.0	-46.7	-30.0	-16.7	Peak	Horizontal
	9548.1	-71.3	27.2	-44.1	-30.0	-14.1	Peak	Horizontal
	7415.5	-67.1	22.5	-44.6	-30.0	-14.6	Peak	Vertical
	9800.8	-71.1	27.8	-43.3	-30.0	-13.3	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11g - Chain 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	105.7	-78.8	15.4	-63.4	-54.0	-9.4	Peak	Horizontal
	750.2	-101.3	35.6	-65.7	-54.0	-11.7	Peak	Horizontal
	55.7	-82.4	21.7	-60.7	-54.0	-6.7	Peak	Vertical
	500.0	-95.8	29.8	-66.0	-54.0	-12.0	Peak	Vertical
	8144.0	-71.4	24.1	-47.3	-30.0	-17.3	Peak	Horizontal
	10423.5	-72.1	28.5	-43.6	-30.0	-13.6	Peak	Horizontal
	7239.3	-64.9	22.0	-42.9	-30.0	-12.9	Peak	Vertical
	10905.3	-71.2	29.6	-41.6	-30.0	-11.6	Peak	Vertical
13	105.2	-79.1	15.3	-63.8	-54.0	-9.8	Peak	Horizontal
	750.2	-102.2	35.6	-66.6	-54.0	-12.6	Peak	Horizontal
	55.2	-83.9	21.8	-62.1	-54.0	-8.1	Peak	Vertical
	750.2	-102.6	35.3	-67.3	-54.0	-13.3	Peak	Vertical
	7421.4	-70.3	22.4	-47.9	-30.0	-17.9	Peak	Horizontal
	11011.0	-72.3	29.4	-42.9	-30.0	-12.9	Peak	Horizontal
	7415.5	-60.5	22.5	-38.0	-30.0	-8.0	Peak	Vertical
	10905.3	-72.4	29.6	-42.8	-30.0	-12.8	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11b - Chain 2	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	106.1	-79.2	15.5	-63.7	-54.0	-9.7	Peak	Horizontal
	500.0	-95.7	29.4	-66.3	-54.0	-12.3	Peak	Horizontal
	56.2	-83.0	21.6	-61.4	-54.0	-7.4	Peak	Vertical
	750.2	-100.7	35.3	-65.4	-54.0	-11.4	Peak	Vertical
	8032.4	-71.5	23.4	-48.1	-30.0	-18.1	Peak	Horizontal
	10905.3	-72.1	29.9	-42.2	-30.0	-12.2	Peak	Horizontal
	7233.4	-67.0	22.0	-45.0	-30.0	-15.0	Peak	Vertical
	11005.1	-71.8	29.3	-42.5	-30.0	-12.5	Peak	Vertical
13	105.7	-79.1	15.4	-63.7	-54.0	-9.7	Peak	Horizontal
	750.2	-102.7	35.6	-67.1	-54.0	-13.1	Peak	Horizontal
	55.2	-82.8	21.8	-61.0	-54.0	-7.0	Peak	Vertical
	750.2	-99.7	35.3	-64.4	-54.0	-10.4	Peak	Vertical
	2157.4	-65.4	8.4	-57.0	-30.0	-27.0	Peak	Horizontal
	3297.1	-67.4	11.9	-55.5	-30.0	-25.5	Peak	Horizontal
	7415.5	-66.3	22.5	-43.8	-30.0	-13.8	Peak	Vertical
	10887.6	-72.4	29.7	-42.7	-30.0	-12.7	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11g - Chain 2	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	106.6	-78.9	15.6	-63.3	-54.0	-9.3	Peak	Horizontal
	750.2	-100.9	35.6	-65.3	-54.0	-11.3	Peak	Horizontal
	55.7	-82.6	21.7	-60.9	-54.0	-6.9	Peak	Vertical
	750.2	-101.5	35.3	-66.2	-54.0	-12.2	Peak	Vertical
	4748.3	-69.7	15.8	-53.9	-30.0	-23.9	Peak	Horizontal
	7251.0	-67.5	21.7	-45.8	-30.0	-15.8	Peak	Horizontal
	4818.8	-68.1	15.9	-52.2	-30.0	-22.2	Peak	Vertical
	7245.1	-60.4	21.9	-38.5	-30.0	-8.5	Peak	Vertical
13	205.1	-86.5	23.0	-63.5	-54.0	-9.5	Peak	Horizontal
	750.2	-102.7	35.6	-67.1	-54.0	-13.1	Peak	Horizontal
	55.7	-82.4	21.7	-60.7	-54.0	-6.7	Peak	Vertical
	723.1	-100.1	34.2	-65.9	-54.0	-11.9	Peak	Vertical
	4807.0	-70.5	16.0	-54.5	-30.0	-24.5	Peak	Horizontal
	7427.3	-68.2	22.4	-45.8	-30.0	-15.8	Peak	Horizontal
	4942.1	-69.1	16.4	-52.7	-30.0	-22.7	Peak	Vertical
	7415.5	-59.3	22.5	-36.8	-30.0	-6.8	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11n-HT20 - Chain 0 + 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	205.1	-83.6	23.0	-60.6	-54.0	-6.6	Peak	Horizontal
	745.4	-101.0	35.5	-65.5	-54.0	-11.5	Peak	Horizontal
	95.0	-84.1	23.6	-60.5	-54.0	-6.5	Peak	Vertical
	802.6	-98.9	36.1	-62.8	-54.0	-8.8	Peak	Vertical
	4748.3	-70.5	15.8	-54.7	-30.0	-24.7	Peak	Horizontal
	7286.3	-71.1	22.0	-49.1	-30.0	-19.1	Peak	Horizontal
	4824.6	-70.1	15.8	-54.3	-30.0	-24.3	Peak	Vertical
	7233.4	-69.0	22.0	-47.0	-30.0	-17.0	Peak	Vertical
13	50.9	-88.1	24.4	-63.7	-54.0	-9.7	Peak	Horizontal
	109.1	-80.4	16.2	-64.2	-54.0	-10.2	Peak	Horizontal
	95.5	-84.1	23.6	-60.5	-54.0	-6.5	Peak	Vertical
	750.2	-99.6	35.3	-64.3	-54.0	-10.3	Peak	Vertical
	4948.0	-71.6	16.2	-55.4	-30.0	-25.4	Peak	Horizontal
	7409.6	-70.7	22.2	-48.5	-30.0	-18.5	Peak	Horizontal
	4942.1	-69.7	16.4	-53.3	-30.0	-23.3	Peak	Vertical
	7415.5	-66.3	22.5	-43.8	-30.0	-13.8	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11n-HT40 - Chain 0 + 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
03	107.6	-80.1	15.8	-64.3	-54.0	-10.3	Peak	Horizontal
	750.2	-102.4	35.6	-66.8	-54.0	-12.8	Peak	Horizontal
	500.0	-95.9	29.8	-66.1	-54.0	-12.1	Peak	Vertical
	750.2	-99.3	35.3	-64.0	-54.0	-10.0	Peak	Vertical
	4748.3	-70.6	15.8	-54.8	-30.0	-24.8	Peak	Horizontal
	7162.9	-71.7	22.3	-49.4	-30.0	-19.4	Peak	Horizontal
	4777.6	-70.6	16.0	-54.6	-30.0	-24.6	Peak	Vertical
	7274.5	-67.3	22.5	-44.8	-30.0	-14.8	Peak	Vertical
11	199.8	-84.4	23.1	-61.3	-54.0	-7.3	Peak	Horizontal
	750.2	-99.3	35.6	-63.7	-54.0	-9.7	Peak	Horizontal
	48.9	-81.9	21.3	-60.6	-54.0	-6.6	Peak	Vertical
	750.2	-99.2	35.3	-63.9	-54.0	-9.9	Peak	Vertical
	4807.0	-70.5	16.0	-54.5	-30.0	-24.5	Peak	Horizontal
	7327.4	-71.8	22.3	-49.5	-30.0	-19.5	Peak	Horizontal
	4936.3	-70.7	16.2	-54.5	-30.0	-24.5	Peak	Vertical
	7374.4	-63.4	22.5	-40.9	-30.0	-10.9	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11n-HT20 - Chain 0 + 1 + 2	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	199.8	-86.1	23.1	-63.0	-54.0	-9.0	Peak	Horizontal
	750.2	-99.2	35.6	-63.6	-54.0	-9.6	Peak	Horizontal
	111.0	-91.2	29.3	-61.9	-54.0	-7.9	Peak	Vertical
	797.8	-97.9	35.8	-62.1	-54.0	-8.1	Peak	Vertical
	4789.4	-71.3	15.9	-55.4	-30.0	-25.4	Peak	Horizontal
	7427.3	-71.0	22.4	-48.6	-30.0	-18.6	Peak	Horizontal
	4824.6	-70.2	15.8	-54.4	-30.0	-24.4	Peak	Vertical
	7227.5	-66.4	22.0	-44.4	-30.0	-14.4	Peak	Vertical
13	107.6	-77.7	15.8	-61.9	-54.0	-7.9	Peak	Horizontal
	750.2	-99.8	35.6	-64.2	-54.0	-10.2	Peak	Horizontal
	49.9	-82.2	21.6	-60.6	-54.0	-6.6	Peak	Vertical
	111.0	-91.6	29.3	-62.3	-54.0	-8.3	Peak	Vertical
	4942.1	-71.3	16.2	-55.1	-30.0	-25.1	Peak	Horizontal
	7421.4	-70.7	22.4	-48.3	-30.0	-18.3	Peak	Horizontal
	4942.1	-68.1	16.4	-51.7	-30.0	-21.7	Peak	Vertical
	7409.6	-65.8	22.4	-43.4	-30.0	-13.4	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11n-HT40 - Chain 0 + 1 + 2	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
03	111.0	-79.1	16.6	-62.5	-54.0	-8.5	Peak	Horizontal
	750.2	-100.8	35.6	-65.2	-54.0	-11.2	Peak	Horizontal
	54.7	-83.5	21.9	-61.6	-54.0	-7.6	Peak	Vertical
	625.1	-95.1	32.6	-62.5	-54.0	-8.5	Peak	Vertical
	4777.6	-70.7	15.6	-55.1	-30.0	-25.1	Peak	Horizontal
	7262.8	-70.6	21.7	-48.9	-30.0	-18.9	Peak	Horizontal
	4848.1	-68.8	15.9	-52.9	-30.0	-22.9	Peak	Vertical
	7268.6	-65.4	22.4	-43.0	-30.0	-13.0	Peak	Vertical
11	106.6	-78.0	15.6	-62.4	-54.0	-8.4	Peak	Horizontal
	750.2	-100.5	35.6	-64.9	-54.0	-10.9	Peak	Horizontal
	54.3	-82.8	22.0	-60.8	-54.0	-6.8	Peak	Vertical
	750.2	-101.6	35.3	-66.3	-54.0	-12.3	Peak	Vertical
	4736.5	-71.1	15.8	-55.3	-30.0	-25.3	Peak	Horizontal
	7392.0	-69.8	22.4	-47.4	-30.0	-17.4	Peak	Horizontal
	4924.5	-69.1	16.0	-53.1	-30.0	-23.1	Peak	Vertical
	7403.8	-63.2	22.3	-40.9	-30.0	-10.9	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

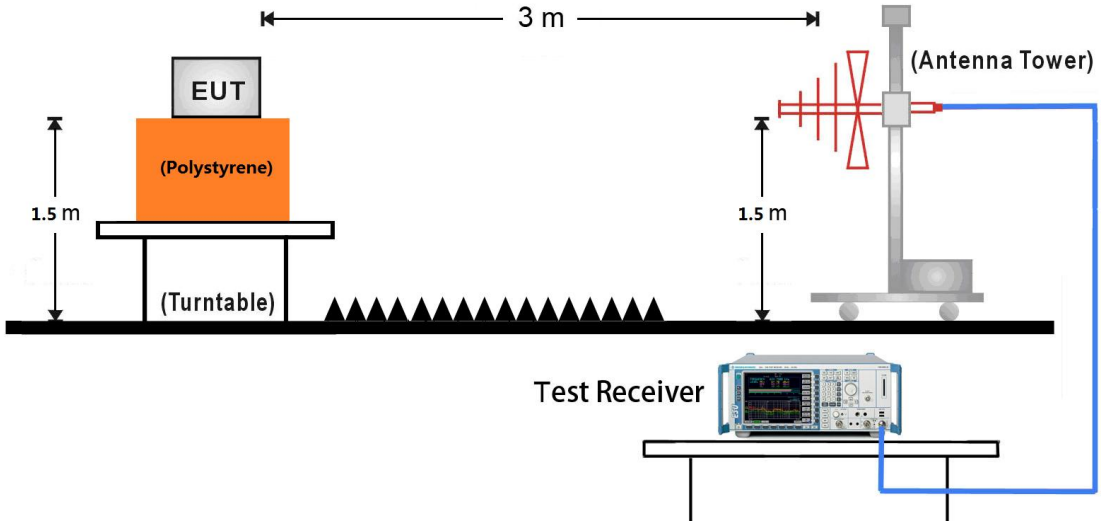
12. Receiver Spurious Emissions

12.1. Limit

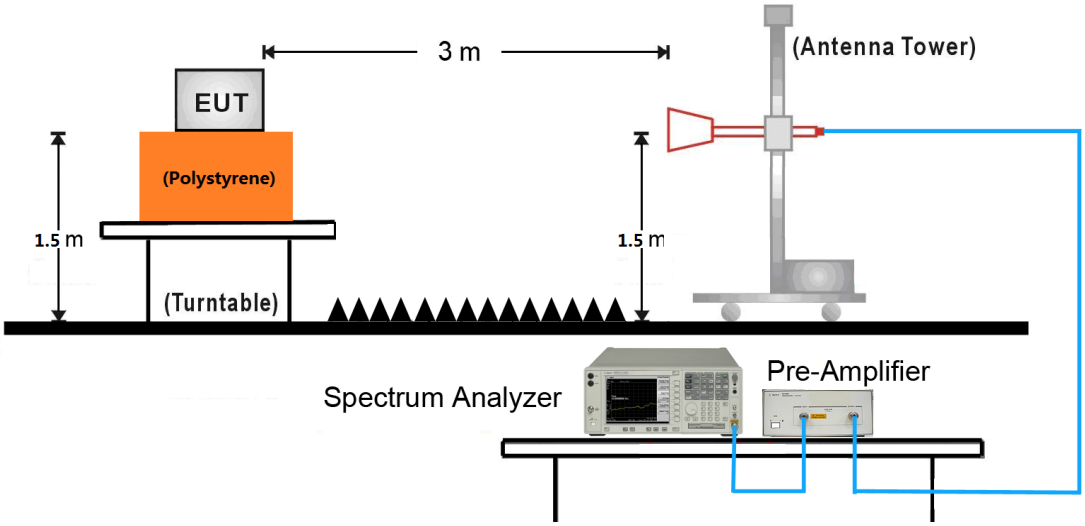
Spurious emissions limits for receivers		
Frequency Range	Maximum power	Measurement bandwidth
30 MHz to 1 GHz	-57dBm	100 kHz
1 GHz to 12.75 GHz	-47dBm	1 MHz

12.2. Test Setup

30MHz ~ 1GHz Test Setup:



1GHz ~ 12.5GHz Test Setup:



12.3. Test Procedure

Refer to ETSI EN 300 328 V1.9.1 (2015-02) Clause 5.3.11.2.2.

12.4. Test Result

Panel Antenna (Gain = 4.5dBi)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11b - Chain 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	59.6	-88.0	21.6	-66.4	-57.0	-9.4	Peak	Horizontal
	500.0	-93.5	28.9	-64.6	-57.0	-7.6	Peak	Horizontal
	250.2	-89.8	23.0	-66.8	-57.0	-9.8	Peak	Vertical
	500.0	-95.0	29.3	-65.7	-57.0	-8.7	Peak	Vertical
	1364.3	-63.4	5.6	-57.8	-47.0	-10.8	Peak	Horizontal
	2815.4	-69.0	10.2	-58.8	-47.0	-11.8	Peak	Horizontal
	1464.1	-63.8	5.2	-58.6	-47.0	-11.6	Peak	Vertical
	2850.6	-67.9	11.1	-56.8	-47.0	-9.8	Peak	Vertical
13	156.1	-85.9	18.3	-67.6	-57.0	-10.6	Peak	Horizontal
	500.0	-94.6	28.9	-65.7	-57.0	-8.7	Peak	Horizontal
	148.8	-89.5	19.7	-69.8	-57.0	-12.8	Peak	Vertical
	500.0	-94.5	29.3	-65.2	-57.0	-8.2	Peak	Vertical
	1364.3	-64.8	5.6	-59.2	-47.0	-12.2	Peak	Horizontal
	2415.9	-68.1	8.7	-59.4	-47.0	-12.4	Peak	Horizontal
	1252.6	-63.8	4.9	-58.9	-47.0	-11.9	Peak	Vertical
	2380.6	-67.3	9.0	-58.3	-47.0	-11.3	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11g - Chain 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	155.6	-86.4	18.2	-68.2	-57.0	-11.2	Peak	Horizontal
	500.0	-96.2	28.9	-67.3	-57.0	-10.3	Peak	Horizontal
	147.4	-87.7	19.6	-68.1	-57.0	-11.1	Peak	Vertical
	500.0	-94.9	29.3	-65.6	-57.0	-8.6	Peak	Vertical
	1381.9	-64.6	5.3	-59.3	-47.0	-12.3	Peak	Horizontal
	2180.9	-67.8	8.6	-59.2	-47.0	-12.2	Peak	Horizontal
	1569.9	-63.5	4.9	-58.6	-47.0	-11.6	Peak	Vertical
	2880.0	-67.7	10.8	-56.9	-47.0	-9.9	Peak	Vertical
13	156.1	-86.7	18.3	-68.4	-57.0	-11.4	Peak	Horizontal
	500.0	-96.1	28.9	-67.2	-57.0	-10.2	Peak	Horizontal
	105.2	-99.2	32.3	-66.9	-57.0	-9.9	Peak	Vertical
	500.0	-95.6	29.3	-66.3	-57.0	-9.3	Peak	Vertical
	1364.3	-63.8	5.6	-58.2	-47.0	-11.2	Peak	Horizontal
	3526.3	-70.1	12.8	-57.3	-47.0	-10.3	Peak	Horizontal
	1364.3	-63.7	5.3	-58.4	-47.0	-11.4	Peak	Vertical
	2204.4	-66.6	9.3	-57.3	-47.0	-10.3	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11b - Chain 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	156.1	-86.8	18.3	-68.5	-57.0	-11.5	Peak	Horizontal
	500.0	-95.9	28.9	-67.0	-57.0	-10.0	Peak	Horizontal
	147.4	-88.3	19.6	-68.7	-57.0	-11.7	Peak	Vertical
	500.0	-94.9	29.3	-65.6	-57.0	-8.6	Peak	Vertical
	1358.4	-64.7	5.6	-59.1	-47.0	-12.1	Peak	Horizontal
	2744.9	-67.6	9.9	-57.7	-47.0	-10.7	Peak	Horizontal
	1376.0	-64.0	5.7	-58.3	-47.0	-11.3	Peak	Vertical
	3250.1	-68.8	12.4	-56.4	-47.0	-9.4	Peak	Vertical
13	156.6	-86.2	18.4	-67.8	-57.0	-10.8	Peak	Horizontal
	500.0	-95.7	28.9	-66.8	-57.0	-9.8	Peak	Horizontal
	106.6	-96.1	31.1	-65.0	-57.0	-8.0	Peak	Vertical
	500.0	-95.0	29.3	-65.7	-57.0	-8.7	Peak	Vertical
	1376.0	-64.3	5.5	-58.8	-47.0	-11.8	Peak	Horizontal
	3173.8	-69.1	11.8	-57.3	-47.0	-10.3	Peak	Horizontal
	1376.0	-64.6	5.7	-58.9	-47.0	-11.9	Peak	Vertical
	2210.3	-67.3	9.4	-57.9	-47.0	-10.9	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11g - Chain 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	156.6	-83.5	18.4	-65.1	-57.0	-8.1	Peak	Horizontal
	500.0	-95.0	28.9	-66.1	-57.0	-9.1	Peak	Horizontal
	106.6	-97.6	31.1	-66.5	-57.0	-9.5	Peak	Vertical
	500.0	-94.9	29.3	-65.6	-57.0	-8.6	Peak	Vertical
	1376.0	-64.4	5.5	-58.9	-47.0	-11.9	Peak	Horizontal
	2227.9	-67.9	9.4	-58.5	-47.0	-11.5	Peak	Horizontal
	1252.6	-64.0	4.9	-59.1	-47.0	-12.1	Peak	Vertical
	2292.5	-68.8	9.6	-59.2	-47.0	-12.2	Peak	Vertical
13	156.6	-85.6	18.4	-67.2	-57.0	-10.2	Peak	Horizontal
	500.0	-94.8	28.9	-65.9	-57.0	-8.9	Peak	Horizontal
	104.2	-99.8	33.1	-66.7	-57.0	-9.7	Peak	Vertical
	500.0	-94.0	29.3	-64.7	-57.0	-7.7	Peak	Vertical
	1358.4	-64.7	5.6	-59.1	-47.0	-12.1	Peak	Horizontal
	2274.9	-68.5	9.3	-59.2	-47.0	-12.2	Peak	Horizontal
	1252.6	-63.2	4.9	-58.3	-47.0	-11.3	Peak	Vertical
	2280.8	-68.0	9.4	-58.6	-47.0	-11.6	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11b - Chain 2	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	156.6	-86.5	18.4	-68.1	-57.0	-11.1	Peak	Horizontal
	500.0	-95.5	28.9	-66.6	-57.0	-9.6	Peak	Horizontal
	106.1	-99.4	31.5	-67.9	-57.0	-10.9	Peak	Vertical
	500.0	-95.1	29.3	-65.8	-57.0	-8.8	Peak	Vertical
	1352.5	-63.5	5.3	-58.2	-47.0	-11.2	Peak	Horizontal
	2245.5	-68.3	9.5	-58.8	-47.0	-11.8	Peak	Horizontal
	1370.1	-63.8	5.5	-58.3	-47.0	-11.3	Peak	Vertical
	2269.0	-67.8	9.2	-58.6	-47.0	-11.6	Peak	Vertical
13	157.1	-85.9	18.5	-67.4	-57.0	-10.4	Peak	Horizontal
	500.0	-95.4	28.9	-66.5	-57.0	-9.5	Peak	Horizontal
	105.7	-98.3	31.9	-66.4	-57.0	-9.4	Peak	Vertical
	500.0	-93.9	29.3	-64.6	-57.0	-7.6	Peak	Vertical
	1358.4	-64.9	5.6	-59.3	-47.0	-12.3	Peak	Horizontal
	2075.1	-66.9	7.3	-59.6	-47.0	-12.6	Peak	Horizontal
	1381.9	-64.3	5.7	-58.6	-47.0	-11.6	Peak	Vertical
	3085.6	-69.2	11.6	-57.6	-47.0	-10.6	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11g - Chain 2	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	157.1	-85.9	18.5	-67.4	-57.0	-10.4	Peak	Horizontal
	500.0	-95.6	28.9	-66.7	-57.0	-9.7	Peak	Horizontal
	101.3	-99.6	33.1	-66.5	-57.0	-9.5	Peak	Vertical
	500.0	-93.9	29.3	-64.6	-57.0	-7.6	Peak	Vertical
	1364.3	-63.8	5.6	-58.2	-47.0	-11.2	Peak	Horizontal
	2645.0	-68.0	9.2	-58.8	-47.0	-11.8	Peak	Horizontal
	1376.0	-64.8	5.7	-59.1	-47.0	-12.1	Peak	Vertical
	2803.6	-68.3	10.6	-57.7	-47.0	-10.7	Peak	Vertical
13	149.8	-84.7	16.8	-67.9	-57.0	-10.9	Peak	Horizontal
	500.0	-95.0	28.9	-66.1	-57.0	-9.1	Peak	Horizontal
	147.4	-87.5	19.6	-67.9	-57.0	-10.9	Peak	Vertical
	500.0	-96.1	29.3	-66.8	-57.0	-9.8	Peak	Vertical
	1370.1	-64.2	5.6	-58.6	-47.0	-11.6	Peak	Horizontal
	3238.4	-68.8	12.1	-56.7	-47.0	-9.7	Peak	Horizontal
	1376.0	-64.0	5.7	-58.3	-47.0	-11.3	Peak	Vertical
	3226.6	-69.1	12.6	-56.5	-47.0	-9.5	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11n-HT20 - Chain 0 + 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	151.3	-84.7	17.1	-67.6	-57.0	-10.6	Peak	Horizontal
	500.0	-95.2	28.9	-66.3	-57.0	-9.3	Peak	Horizontal
	149.8	-88.8	19.7	-69.1	-57.0	-12.1	Peak	Vertical
	500.0	-95.8	29.3	-66.5	-57.0	-9.5	Peak	Vertical
	1358.4	-63.5	5.6	-57.9	-47.0	-10.9	Peak	Horizontal
	3138.5	-70.0	11.6	-58.4	-47.0	-11.4	Peak	Horizontal
	1252.6	-63.5	4.9	-58.6	-47.0	-11.6	Peak	Vertical
	3073.9	-69.6	11.7	-57.9	-47.0	-10.9	Peak	Vertical
13	156.1	-85.9	18.3	-67.6	-57.0	-10.6	Peak	Horizontal
	500.0	-95.6	28.9	-66.7	-57.0	-9.7	Peak	Horizontal
	125.1	-90.6	21.9	-68.7	-57.0	-11.7	Peak	Vertical
	500.0	-94.7	29.3	-65.4	-57.0	-8.4	Peak	Vertical
	1352.5	-65.1	5.3	-59.8	-47.0	-12.8	Peak	Horizontal
	3250.1	-69.3	11.9	-57.4	-47.0	-10.4	Peak	Horizontal
	1358.4	-64.5	5.0	-59.5	-47.0	-12.5	Peak	Vertical
	2163.3	-67.5	9.2	-58.3	-47.0	-11.3	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11n-HT40 - Chain 0 + 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
03	156.1	-86.0	18.3	-67.7	-57.0	-10.7	Peak	Horizontal
	500.0	-95.7	28.9	-66.8	-57.0	-9.8	Peak	Horizontal
	102.8	-99.5	33.2	-66.3	-57.0	-9.3	Peak	Vertical
	500.0	-94.9	29.3	-65.6	-57.0	-8.6	Peak	Vertical
	1370.1	-64.7	5.6	-59.1	-47.0	-12.1	Peak	Horizontal
	3150.3	-69.1	11.6	-57.5	-47.0	-10.5	Peak	Horizontal
	1376.0	-65.5	5.7	-59.8	-47.0	-12.8	Peak	Vertical
	3596.8	-70.9	13.4	-57.5	-47.0	-10.5	Peak	Vertical
11	156.1	-86.2	18.3	-67.9	-57.0	-10.9	Peak	Horizontal
	500.0	-95.7	28.9	-66.8	-57.0	-9.8	Peak	Horizontal
	107.6	-96.8	30.3	-66.5	-57.0	-9.5	Peak	Vertical
	500.0	-95.2	29.3	-65.9	-57.0	-8.9	Peak	Vertical
	1376.0	-63.4	5.5	-57.9	-47.0	-10.9	Peak	Horizontal
	2821.3	-69.0	10.3	-58.7	-47.0	-11.7	Peak	Horizontal
	1381.9	-65.5	5.7	-59.8	-47.0	-12.8	Peak	Vertical
	3156.1	-69.1	11.7	-57.4	-47.0	-10.4	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11n-HT20 - Chain 0 + 1 + 2	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	157.6	-86.1	18.6	-67.5	-57.0	-10.5	Peak	Horizontal
	500.0	-95.2	28.9	-66.3	-57.0	-9.3	Peak	Horizontal
	125.1	-90.0	21.9	-68.1	-57.0	-11.1	Peak	Vertical
	500.0	-95.1	29.3	-65.8	-57.0	-8.8	Peak	Vertical
	1370.1	-63.7	5.6	-58.1	-47.0	-11.1	Peak	Horizontal
	3185.5	-69.7	11.6	-58.1	-47.0	-11.1	Peak	Horizontal
	1158.6	-63.7	4.2	-59.5	-47.0	-12.5	Peak	Vertical
	2286.6	-68.9	9.5	-59.4	-47.0	-12.4	Peak	Vertical
13	155.6	-86.7	18.2	-68.5	-57.0	-11.5	Peak	Horizontal
	500.0	-95.8	28.9	-66.9	-57.0	-9.9	Peak	Horizontal
	100.8	-100.1	32.5	-67.6	-57.0	-10.6	Peak	Vertical
	500.0	-96.4	29.3	-67.1	-57.0	-10.1	Peak	Vertical
	1252.6	-63.6	4.3	-59.3	-47.0	-12.3	Peak	Horizontal
	3132.6	-68.6	11.6	-57.0	-47.0	-10.0	Peak	Horizontal
	1252.6	-62.9	4.9	-58.0	-47.0	-11.0	Peak	Vertical
	2280.8	-67.7	9.4	-58.3	-47.0	-11.3	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11n-HT40 - Chain 0 + 1 + 2	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
03	156.1	-86.8	18.3	-68.5	-57.0	-11.5	Peak	Horizontal
	500.0	-95.4	28.9	-66.5	-57.0	-9.5	Peak	Horizontal
	105.2	-99.0	32.3	-66.7	-57.0	-9.7	Peak	Vertical
	500.0	-95.1	29.3	-65.8	-57.0	-8.8	Peak	Vertical
	1376.0	-64.6	5.5	-59.1	-47.0	-12.1	Peak	Horizontal
	2233.8	-68.0	9.5	-58.5	-47.0	-11.5	Peak	Horizontal
	1458.3	-64.8	5.3	-59.5	-47.0	-12.5	Peak	Vertical
	3790.6	-70.4	13.7	-56.7	-47.0	-9.7	Peak	Vertical
11	157.1	-86.4	18.5	-67.9	-57.0	-10.9	Peak	Horizontal
	500.0	-94.3	28.9	-65.4	-57.0	-8.4	Peak	Horizontal
	104.2	-99.4	33.1	-66.3	-57.0	-9.3	Peak	Vertical
	500.0	-95.5	29.3	-66.2	-57.0	-9.2	Peak	Vertical
	1364.3	-64.1	5.6	-58.5	-47.0	-11.5	Peak	Horizontal
	3590.9	-70.9	13.3	-57.6	-47.0	-10.6	Peak	Horizontal
	1452.4	-65.2	5.4	-59.8	-47.0	-12.8	Peak	Vertical
	2298.4	-68.2	9.5	-58.7	-47.0	-11.7	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Dipole Antenna (Gain = 2.0dBi)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11b - Chain 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	48.9	-90.3	25.6	-64.7	-57.0	-7.7	Peak	Horizontal
	206.1	-88.7	23.0	-65.7	-57.0	-8.7	Peak	Horizontal
	70.7	-89.5	25.4	-64.1	-57.0	-7.1	Peak	Vertical
	374.8	-93.1	26.7	-66.4	-57.0	-9.4	Peak	Vertical
	1370.1	-63.4	5.6	-57.8	-47.0	-10.8	Peak	Horizontal
	2175.0	-65.4	8.6	-56.8	-47.0	-9.8	Peak	Horizontal
	1252.6	-63.8	4.9	-58.9	-47.0	-11.9	Peak	Vertical
	2504.0	-67.6	8.8	-58.8	-47.0	-11.8	Peak	Vertical
13	37.8	-96.8	30.2	-66.6	-57.0	-9.6	Peak	Horizontal
	374.8	-92.1	26.5	-65.6	-57.0	-8.6	Peak	Horizontal
	70.3	-89.5	25.3	-64.2	-57.0	-7.2	Peak	Vertical
	500.0	-98.4	29.8	-68.6	-57.0	-11.6	Peak	Vertical
	1364.3	-65.0	5.6	-59.4	-47.0	-12.4	Peak	Horizontal
	2932.9	-68.7	10.6	-58.1	-47.0	-11.1	Peak	Horizontal
	1364.3	-64.8	5.3	-59.5	-47.0	-12.5	Peak	Vertical
	2509.9	-68.3	8.9	-59.4	-47.0	-12.4	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11g - Chain 0	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	37.3	-97.3	30.1	-67.2	-57.0	-10.2	Peak	Horizontal
	204.6	-91.9	23.0	-68.9	-57.0	-11.9	Peak	Horizontal
	69.8	-89.0	25.1	-63.9	-57.0	-6.9	Peak	Vertical
	500.0	-99.0	29.8	-69.2	-57.0	-12.2	Peak	Vertical
	1364.3	-64.1	5.6	-58.5	-47.0	-11.5	Peak	Horizontal
	2410.0	-67.9	8.7	-59.2	-47.0	-12.2	Peak	Horizontal
	1252.6	-64.4	4.9	-59.5	-47.0	-12.5	Peak	Vertical
	3244.3	-70.1	12.5	-57.6	-47.0	-10.6	Peak	Vertical
13	77.5	-84.5	19.2	-65.3	-57.0	-8.3	Peak	Horizontal
	204.6	-91.9	23.0	-68.9	-57.0	-11.9	Peak	Horizontal
	72.2	-89.5	25.7	-63.8	-57.0	-6.8	Peak	Vertical
	374.8	-93.6	26.7	-66.9	-57.0	-9.9	Peak	Vertical
	1352.5	-64.5	5.3	-59.2	-47.0	-12.2	Peak	Horizontal
	3232.5	-70.1	12.1	-58.0	-47.0	-11.0	Peak	Horizontal
	1364.3	-64.2	5.3	-58.9	-47.0	-11.9	Peak	Vertical
	2509.9	-68.2	8.9	-59.3	-47.0	-12.3	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11b - Chain 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	31.0	-95.3	29.8	-65.5	-57.0	-8.5	Peak	Horizontal
	374.8	-93.6	26.5	-67.1	-57.0	-10.1	Peak	Horizontal
	37.8	-88.4	19.2	-69.2	-57.0	-12.2	Peak	Vertical
	374.8	-94.3	26.7	-67.6	-57.0	-10.6	Peak	Vertical
	1358.4	-64.2	5.6	-58.6	-47.0	-11.6	Peak	Horizontal
	3197.3	-68.4	11.4	-57.0	-47.0	-10.0	Peak	Horizontal
	1352.5	-64.4	4.8	-59.6	-47.0	-12.6	Peak	Vertical
	3749.5	-71.0	13.8	-57.2	-47.0	-10.2	Peak	Vertical
13	37.8	-96.7	30.2	-66.5	-57.0	-9.5	Peak	Horizontal
	94.5	-81.1	15.0	-66.1	-57.0	-9.1	Peak	Horizontal
	70.7	-90.0	25.4	-64.6	-57.0	-7.6	Peak	Vertical
	374.8	-93.6	26.7	-66.9	-57.0	-9.9	Peak	Vertical
	1364.3	-64.7	5.6	-59.1	-47.0	-12.1	Peak	Horizontal
	3150.3	-69.0	11.6	-57.4	-47.0	-10.4	Peak	Horizontal
	1898.9	-66.5	5.9	-60.6	-47.0	-13.6	Peak	Vertical
	3679.0	-72.4	13.4	-59.0	-47.0	-12.0	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11g - Chain 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	75.6	-85.7	19.6	-66.1	-57.0	-9.1	Peak	Horizontal
	207.0	-91.0	23.1	-67.9	-57.0	-10.9	Peak	Horizontal
	37.8	-88.4	19.2	-69.2	-57.0	-12.2	Peak	Vertical
	374.8	-93.3	26.7	-66.6	-57.0	-9.6	Peak	Vertical
	1799.0	-65.0	5.3	-59.7	-47.0	-12.7	Peak	Horizontal
	4730.6	-70.9	15.7	-55.2	-47.0	-8.2	Peak	Horizontal
	1470.0	-64.8	5.1	-59.7	-47.0	-12.7	Peak	Vertical
	3144.4	-69.1	11.6	-57.5	-47.0	-10.5	Peak	Vertical
13	76.6	-84.2	19.3	-64.9	-57.0	-7.9	Peak	Horizontal
	374.8	-92.6	26.5	-66.1	-57.0	-9.1	Peak	Horizontal
	73.7	-91.0	26.5	-64.5	-57.0	-7.5	Peak	Vertical
	374.8	-93.1	26.7	-66.4	-57.0	-9.4	Peak	Vertical
	1364.3	-64.7	5.6	-59.1	-47.0	-12.1	Peak	Horizontal
	3226.6	-70.2	12.2	-58.0	-47.0	-11.0	Peak	Horizontal
	1252.6	-64.4	4.9	-59.5	-47.0	-12.5	Peak	Vertical
	3749.5	-71.0	13.8	-57.2	-47.0	-10.2	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11b - Chain 2	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	31.5	-96.2	29.5	-66.7	-57.0	-9.7	Peak	Horizontal
	206.5	-91.0	23.1	-67.9	-57.0	-10.9	Peak	Horizontal
	70.7	-90.1	25.4	-64.7	-57.0	-7.7	Peak	Vertical
	374.8	-93.1	26.7	-66.4	-57.0	-9.4	Peak	Vertical
	1358.4	-65.0	5.6	-59.4	-47.0	-12.4	Peak	Horizontal
	3156.1	-69.7	11.7	-58.0	-47.0	-11.0	Peak	Horizontal
	1252.6	-63.7	4.9	-58.8	-47.0	-11.8	Peak	Vertical
	2298.4	-68.7	9.5	-59.2	-47.0	-12.2	Peak	Vertical
13	82.4	-81.9	18.6	-63.3	-57.0	-6.3	Peak	Horizontal
	199.8	-92.0	23.1	-68.9	-57.0	-11.9	Peak	Horizontal
	37.8	-87.8	19.2	-68.6	-57.0	-11.6	Peak	Vertical
	374.8	-92.8	26.7	-66.1	-57.0	-9.1	Peak	Vertical
	1252.6	-63.7	4.9	-58.8	-47.0	-11.8	Peak	Horizontal
	2298.4	-68.7	9.5	-59.2	-47.0	-12.2	Peak	Horizontal
	2504.0	-67.6	8.8	-58.8	-47.0	-11.8	Peak	Vertical
	4777.6	-72.0	16.0	-56.0	-47.0	-9.0	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11g - Chain 2	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	37.3	-96.2	30.1	-66.1	-57.0	-9.1	Peak	Horizontal
	203.6	-92.2	23.1	-69.1	-57.0	-12.1	Peak	Horizontal
	105.2	-91.0	26.8	-64.2	-57.0	-7.2	Peak	Vertical
	374.8	-92.4	26.7	-65.7	-57.0	-8.7	Peak	Vertical
	1352.5	-65.0	5.3	-59.7	-47.0	-12.7	Peak	Horizontal
	3162.0	-70.6	11.7	-58.9	-47.0	-11.9	Peak	Horizontal
	1370.1	-65.0	5.5	-59.5	-47.0	-12.5	Peak	Vertical
	2815.4	-70.2	10.7	-59.5	-47.0	-12.5	Peak	Vertical
13	37.8	-96.4	30.2	-66.2	-57.0	-9.2	Peak	Horizontal
	249.7	-93.4	25.2	-68.2	-57.0	-11.2	Peak	Horizontal
	37.8	-88.3	19.2	-69.1	-57.0	-12.1	Peak	Vertical
	374.8	-93.0	26.7	-66.3	-57.0	-9.3	Peak	Vertical
	1246.8	-64.9	4.2	-60.7	-47.0	-13.7	Peak	Horizontal
	3532.1	-70.5	12.8	-57.7	-47.0	-10.7	Peak	Horizontal
	1376.0	-64.8	5.7	-59.1	-47.0	-12.1	Peak	Vertical
	3062.1	-70.3	11.6	-58.7	-47.0	-11.7	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11n-HT20 - Chain 0 + 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	82.4	-82.2	18.6	-63.6	-57.0	-6.6	Peak	Horizontal
	205.1	-91.8	23.0	-68.8	-57.0	-11.8	Peak	Horizontal
	76.1	-89.8	27.2	-62.6	-57.0	-5.6	Peak	Vertical
	374.8	-92.4	26.7	-65.7	-57.0	-8.7	Peak	Vertical
	1370.1	-64.5	5.6	-58.9	-47.0	-11.9	Peak	Horizontal
	3508.6	-70.5	12.6	-57.9	-47.0	-10.9	Peak	Horizontal
	1799.0	-65.7	5.5	-60.2	-47.0	-13.2	Peak	Vertical
	2874.1	-69.1	10.8	-58.3	-47.0	-11.3	Peak	Vertical
13	86.3	-80.2	16.4	-63.8	-57.0	-6.8	Peak	Horizontal
	205.1	-92.0	23.0	-69.0	-57.0	-12.0	Peak	Horizontal
	70.7	-90.1	25.4	-64.7	-57.0	-7.7	Peak	Vertical
	374.8	-92.2	26.7	-65.5	-57.0	-8.5	Peak	Vertical
	1370.1	-64.7	5.6	-59.1	-47.0	-12.1	Peak	Horizontal
	2645.0	-68.8	9.2	-59.6	-47.0	-12.6	Peak	Horizontal
	1252.6	-64.7	4.9	-59.8	-47.0	-12.8	Peak	Vertical
	3432.3	-70.3	12.4	-57.9	-47.0	-10.9	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11n-HT40 - Chain 0 + 1	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
03	82.9	-82.6	18.8	-63.8	-57.0	-6.8	Peak	Horizontal
	205.1	-92.2	23.0	-69.2	-57.0	-12.2	Peak	Horizontal
	77.0	-92.3	27.6	-64.7	-57.0	-7.7	Peak	Vertical
	249.7	-93.0	22.0	-71.0	-57.0	-14.0	Peak	Vertical
	1893.0	-66.3	5.6	-60.7	-47.0	-13.7	Peak	Horizontal
	4754.1	-71.5	15.8	-55.7	-47.0	-8.7	Peak	Horizontal
	1370.1	-64.8	5.5	-59.3	-47.0	-12.3	Peak	Vertical
	3579.1	-71.5	13.2	-58.3	-47.0	-11.3	Peak	Vertical
11	37.3	-95.6	30.1	-65.5	-57.0	-8.5	Peak	Horizontal
	82.9	-82.1	18.8	-63.3	-57.0	-6.3	Peak	Horizontal
	72.2	-88.8	25.7	-63.1	-57.0	-6.1	Peak	Vertical
	374.8	-93.0	26.7	-66.3	-57.0	-9.3	Peak	Vertical
	1123.4	-61.1	2.2	-58.9	-47.0	-11.9	Peak	Horizontal
	3773.0	-71.6	13.6	-58.0	-47.0	-11.0	Peak	Horizontal
	1246.8	-64.5	4.9	-59.6	-47.0	-12.6	Peak	Vertical
	3596.8	-71.3	13.4	-57.9	-47.0	-10.9	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11n-HT20 - Chain 0 + 1 + 2	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
01	37.3	-95.5	30.1	-65.4	-57.0	-8.4	Peak	Horizontal
	374.8	-92.2	26.5	-65.7	-57.0	-8.7	Peak	Horizontal
	71.2	-88.5	25.5	-63.0	-57.0	-6.0	Peak	Vertical
	105.2	-90.3	26.8	-63.5	-57.0	-6.5	Peak	Vertical
	1346.6	-64.4	4.9	-59.5	-47.0	-12.5	Peak	Horizontal
	4742.4	-72.0	15.8	-56.2	-47.0	-9.2	Peak	Horizontal
	1152.8	-62.7	4.3	-58.4	-47.0	-11.4	Peak	Vertical
	4742.4	-72.2	16.2	-56.0	-47.0	-9.0	Peak	Vertical
13	36.8	-95.6	29.8	-65.8	-57.0	-8.8	Peak	Horizontal
	92.6	-80.3	15.3	-65.0	-57.0	-8.0	Peak	Horizontal
	70.7	-88.2	25.4	-62.8	-57.0	-5.8	Peak	Vertical
	500.0	-97.9	29.8	-68.1	-57.0	-11.1	Peak	Vertical
	1370.1	-65.6	5.6	-60.0	-47.0	-13.0	Peak	Horizontal
	3173.8	-69.4	11.8	-57.6	-47.0	-10.6	Peak	Horizontal
	1364.3	-64.2	5.3	-58.9	-47.0	-11.9	Peak	Vertical
	3267.8	-70.5	12.3	-58.2	-47.0	-11.2	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

Test Engineer	Vince Yu	Temperature	23°C
Test Date	2016/11/21	Relative Humidity	54%
Test Mode	802.11n-HT40 - Chain 0 + 1 + 2	Test Site	AC1

Channel	Frequency (MHz)	Reading Level (dBm)	Substitution Factor (dB)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector	Polarization
03	86.3	-80.7	17.0	-63.7	-57.0	-6.7	Peak	Horizontal
	374.8	-91.3	26.6	-64.7	-57.0	-7.7	Peak	Horizontal
	152.7	-90.0	19.5	-70.5	-57.0	-13.5	Peak	Vertical
	625.1	-99.4	31.3	-68.1	-57.0	-11.1	Peak	Vertical
	1164.5	-62.9	3.2	-59.7	-47.0	-12.7	Peak	Horizontal
	3596.8	-70.9	13.3	-57.6	-47.0	-10.6	Peak	Horizontal
	2169.1	-68.6	9.2	-59.4	-47.0	-12.4	Peak	Vertical
	3532.1	-70.9	13.0	-57.9	-47.0	-10.9	Peak	Vertical
11	155.1	-86.2	18.1	-68.1	-57.0	-11.1	Peak	Horizontal
	500.0	-95.6	28.9	-66.7	-57.0	-9.7	Peak	Horizontal
	150.3	-90.8	19.7	-71.1	-57.0	-14.1	Peak	Vertical
	625.1	-99.6	31.3	-68.3	-57.0	-11.3	Peak	Vertical
	1358.4	-65.3	5.6	-59.7	-47.0	-12.7	Peak	Horizontal
	4742.4	-71.8	15.8	-56.0	-47.0	-9.0	Peak	Horizontal
	2151.5	-68.5	9.0	-59.5	-47.0	-12.5	Peak	Vertical
	4765.9	-71.7	15.9	-55.8	-47.0	-8.8	Peak	Vertical

Note 1: Measure Level (dBm) = Reading Level (dBm) + Substitution Factor (dB)

Note 2: Substitution Factor (dB) = Cable Loss (dB) + Space Attenuation (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB)

13. Test Photograph

Description: Radiated Spurious Emissions Test Setup for Below 1GHz
(Panel Antenna, Gain = 4.5dBi)

Description: Radiated Spurious Emissions Test Setup for Above 1GHz
(Panel Antenna, Gain = 4.5dBi)

Description: Radiated Spurious Emissions Test Setup for Below 1GHz (Dipole Antenna, Gain = 2.0dBi)

Description: Radiated Spurious Emissions Test Setup for Above 1GHz (Dipole Antenna, Gain = 2.0dBi)

14. Measurement Uncertainty

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

Parameter	Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±1,5 dB
Power Spectral Density, conducted	±3 dB
Unwanted Emissions, conducted	±3 dB
All emissions, radiated	±6 dB
Temperature	±3 °C
Supply voltages	±3 %
Time	±5 %

15. List of Measuring Instrument

Equivalent Isotropic Radiated Power - TR3

Instrument	Manufacturer	Type No.	Serial No.	Cali. Interval	Cali. Due Date
USB wideband power sensor	Boonton	55006	8911	1 year	2017/05/08
Programmable Temperature & Humidity Chamber	BAOYT	BYH-1500L	1309W043	1 year	2016/12/08
Temperature/Humidity Meter	Yuhuaze	HTC-2	N/A	1 year	2016/12/20

Power Spectral Density - TR3

Instrument	Manufacturer	Type No.	Serial No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MY52090106	1 year	2017/05/07
Temperature/Humidity Meter	Yuhuaze	HTC-2	N/A	1 year	2016/12/20

Duty Cycle, Tx-sequence, Tx-gap - TR3

Instrument	Manufacturer	Type No.	Serial No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MY52090106	1 year	2017/05/07
Temperature/Humidity Meter	Yuhuaze	HTC-2	N/A	1 year	2016/12/20

Medium Utilisation (MU) Factor - TR3

Instrument	Manufacturer	Type No.	Serial No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MY52090106	1 year	2017/05/07
USB wideband power sensor	Boonton	55006	8911	1 year	2017/05/08
Temperature/Humidity Meter	Yuhuaze	HTC-2	N/A	1 year	2016/12/20

Adaptivity and Blocking - TR3

Instrument	Manufacturer	Type No.	Serial No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	R&S	FSV40	1321.3008K40-101550-sh	1 year	2017/03/02
Vector Signal Generator	Agilent	E4438C	MY49872484	1 year	2016/12/08
Vector Signal Generator	Agilent	E4438C	MY49071305	1 year	2016/12/08
Directional Coupler	Narda	4216-20	MRTSUE06065	1 year	2017/03/28
Power Splitter	Mini-Circuits	ZFRSC-123-S+	N/A	N/A	N/A
Temperature/Humidity Meter	Yuhuaze	HTC-2	N/A	1 year	2016/12/20

Occupied Channel Bandwidth - TR3

Instrument	Manufacturer	Type No.	Serial No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MY52090106	1 year	2017/05/07
Temperature/Humidity Meter	Yuhuaze	HTC-2	N/A	1 year	2016/12/20

Transmitter Unwanted Emissions in the out-of-band Domain - TR3

Instrument	Manufacturer	Type No.	Serial No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MY52090106	1 year	2017/05/07
Programmable Temperature & Humidity Chamber	BAOYT	BYH-1500L	1309W043	1 year	2016/12/08
Temperature/Humidity Meter	Yuhuaze	HTC-2	N/A	1 year	2016/12/20

Transmitter Spurious Emissions and Receiver Spurious Emissions - AC1

Instrument	Manufacturer	Type No.	Serial No.	Cali. Interval	Cal. Due Date
MXE EMI Receiver	Agilent	N9038A	MY51210182	1 year	2017/08/03
Preamplifier	Agilent	83017A	MY52090106	1 year	2017/03/28
TRILOG Antenna	Schwarzbeck	VULB9162	9162-047	1 year	2017/11/19
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1167	1 year	2017/10/22
Digital Thermometer & Hygrometer	Yuhuaze	HTC-2	N/A	1 year	2016/12/20
Anechoic Chamber	TDK	Chamber-AC1	N/A	1 year	2017/05/10

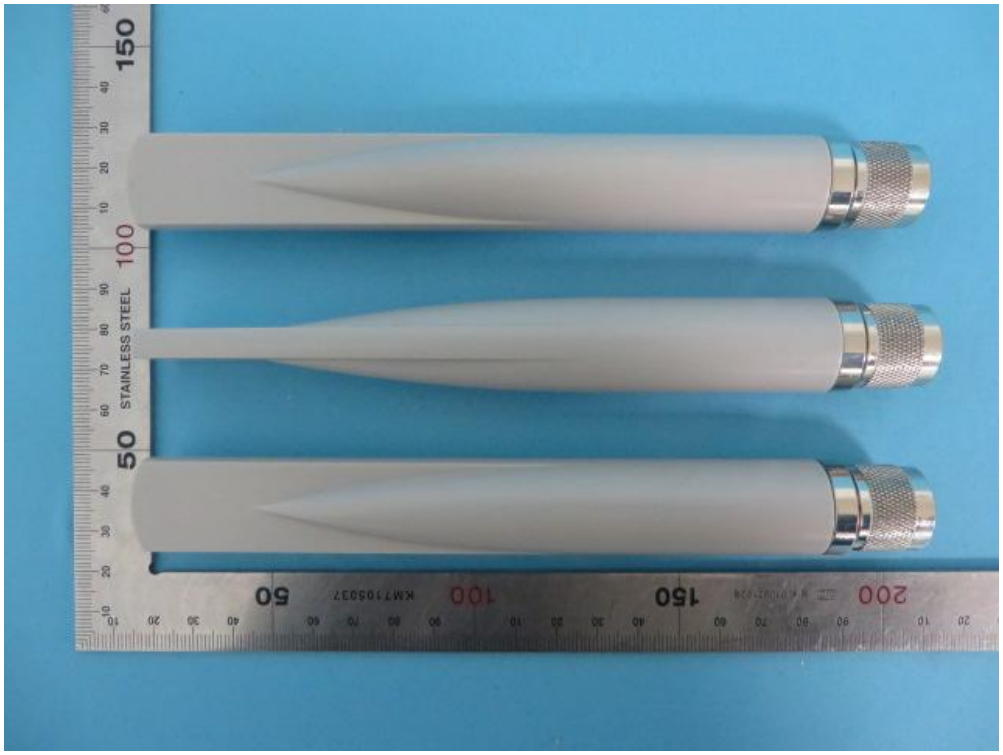
Software	Version	Function
e3	V8.3.5	EMI Test Software

16. Appendix - EUT Photograph

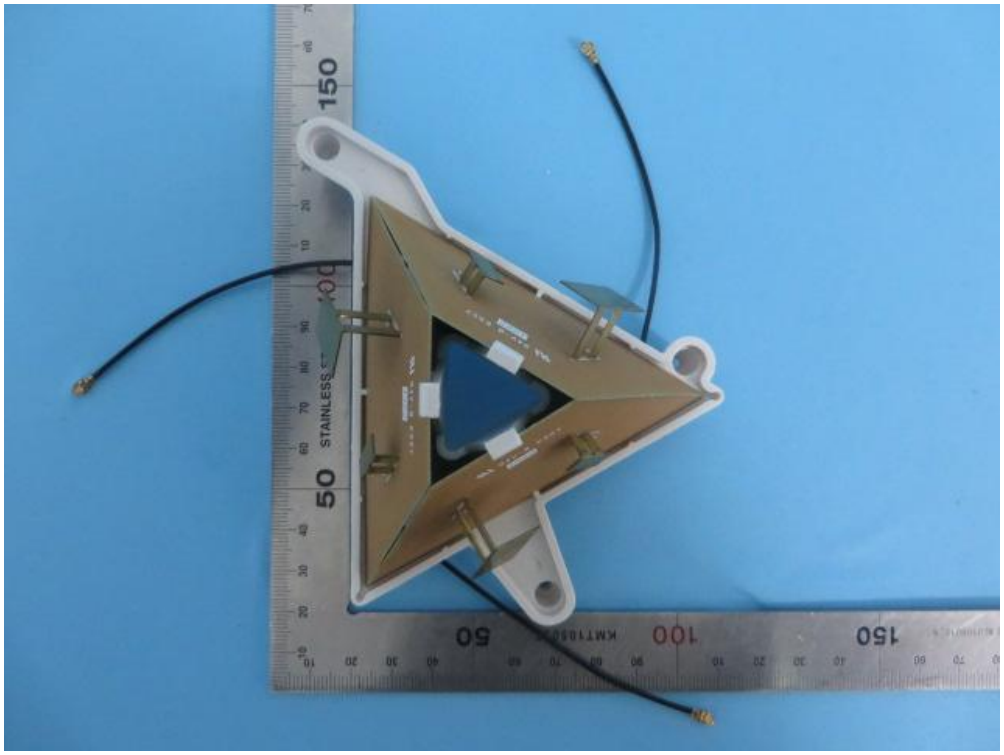
(1) EUT Photo

(2) EUT Photo

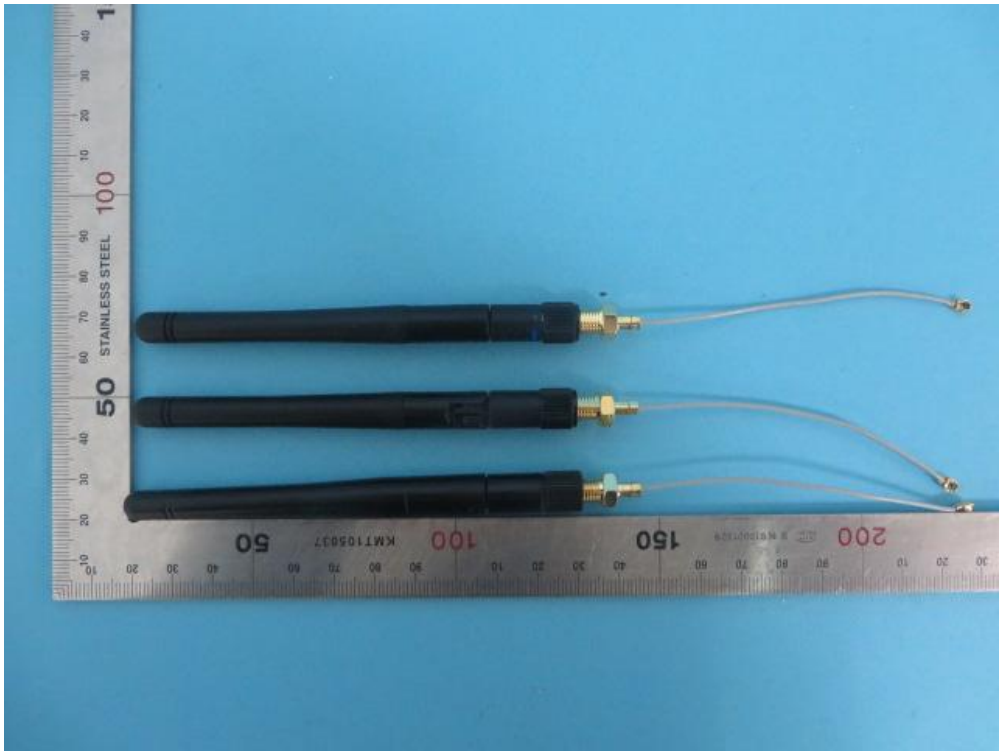
(3) EUT Photo (Panel Antenna, Gain = 4.5dBi)



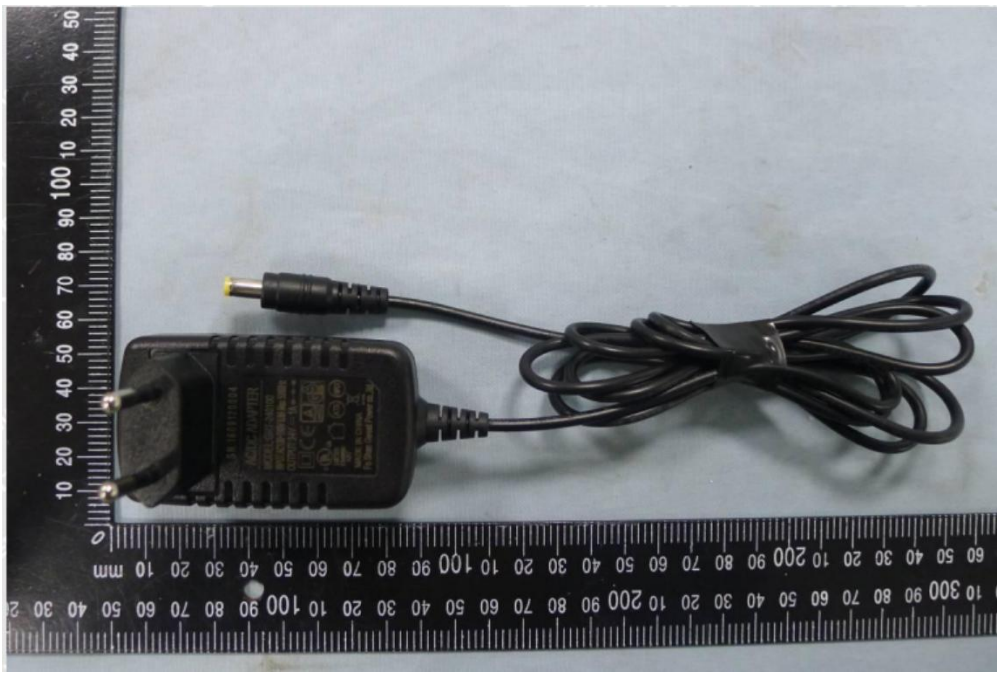
(4) EUT Photo (Panel Antenna, Gain = 4.0dBi)



(5) EUT Photo (Dipole Antenna, Gain = 2.0dBi)



(6) EUT Photo



The End