

# FCC Part 15C Measurement and Test Report

# For

# Shenzhen Qiyue Optronics Company Limited

Flat3, Tower 3, Excellence Meilin Center Plaza, Zhongkang Road 128, Shangmeilin, Futian District, Shenzhen, China

FCC ID: XOMRWBXXX50XXX

FCC Rule(s): FCC Part 15C

Product Description: 50" UHD LED TV

**D50RWB714-U-A-I RNSMU5036** 

(Where "X"can be any alphanumeric of a-z, A-Z or 0-9 or

Jasa Su Silin chen Jumby 80

blank &"-".)

**Report No.:** <u>STR18057001E-1</u>

Sample Receipt Date: May 14, 2018

**Tested Date:** May 14~ 23, 2018

**Issued Date:** May 23, 2018

Tested By: <u>Jason Su/ Engineer</u>

**Reviewed By:** Silin Chen / EMC Manager

**Approved & Authorized By:** Jandy So / PSQ Manager

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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen SEM Test Technology Co., Ltd.

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# 1. GENERAL INFORMATION

# **1.1 Product Description for Equipment Under Test (EUT)**

<b>Client Information</b>	
Applicant:	Shenzhen Qiyue Optronics Company Limited
Address of applicant:	Flat3, Tower 3, Excellence Meilin Center Plaza, Zhongkang
	Road 128, Shangmeilin, Futian District, Shenzhen, China
Manufacturer:	SHENZHEN QIYUE OPTRONICS COMPANY
	LIMITED BRANCH
Address of manufacturer:	SEIYU INDUSTRIAL PARK, DA SAN VILLAGE, DA
	SHUI KENG, GUANLAN TOWN, LONGHUA NEW
	DISTRICT, SHENZHEN, P.R.C

General Description of EUT		
Product Name:	50" UHD LED TV	
Trade Name:	RCA/SYLVANIA/PROSCAN/TECHNICOLOR	
Model No.:	D50RWB714-U-A-I RNSMU5036 XXXXXXXXXXXXX50XXXXXXXXXX (Where "X"can be any alphanumeric of a-z, A-Z or 0-9 or blank &"-".)	
Rated Voltage:	Input: AC 100-240V	
Power Adapter Model:	/	
Note: The test data is gathered from a production sample provided by the manufacturer.		

Technical Characteristics of EUT	
Eraguanay Panga:	IEEE 802.11b/ g / n HT20: 2412MHz~2462MHz
Frequency Range:	IEEE802.11n HT40: 2422MHz~2452MHz
RF Output Power:	15.50dBm (Conducted)
	IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK)
	IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK)
M. J.J.G.	IEEE 802.11n HT20: OFDM (64QAM, 16QAM,
Modulation:	QPSK,BPSK)
	IEEE 802.11n HT40: OFDM (64QAM, 16QAM,
	QPSK,BPSK)
Quantity of Channels:	11 for 802.11b/g/n(HT20); 7 for 802.11n(HT40)
Type of Antenna:	Wi-Fi Antenna
Antenna Gain:	Antenna 1: 3 dBi
	Antenna 2: 3 dBi

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TEST Model: RNSMU5036

#### 1.2 Test Standards

The following report is prepared on behalf of the **Shenzhen Qiyue Optronics Company Limited** in accordance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 of the Federal Communication Commission rules.

The objective is to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 of the Federal Communication Commission rules.

**Maintenance of compliance** is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

#### 1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard for Testing Unlicensed Wireless Devices.

#### 1.4 Test Facility

#### FCC - Registration No.: 125990

Shenzhen SEM Test Technology Co., Ltd. Laboratory has been recognized to perform compliance testing on equipment subject to the Commissions Declaration of Conformity (DOC). The Designation Number is CN5010, and Test Firm Registration Number is 125990.

#### Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Shenzhen SEM. Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

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# 1.5 EUT Setup and Test Mode

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. All testing shall be performed under maximum output power condition, and to measure its highest possible emissions level, more detailed description as follows:

Test Mode List				
Test Mode	Description	Remark		
TM1	802.11b	2412MHz, 2437MHz, 2462MHz		
TM2	802.11g	2412MHz, 2437MHz, 2462MHz		
TM3	802.11n-HT20	2412MHz, 2437MHz, 2462MHz		
TM4	802.11n-HT40	2422MHz, 2437MHz, 2452MHz		

Note: All test modes (different data rate and different modulation) are performed, but only the worst case is recorded in this report.

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Core
AC Net Cord	1.5	Unshielded	With Core

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
Signal Cable	0.16	Unshielded	Without Ferrite
/	/	/	/

Auxiliary Equipment List and Details				
Description	Description Manufacturer Model Serial Number			
Laptop	Lenovo	G50-45	PF04Q53E	
/	/	/	/	

# 1.6 Measurement Uncertainty

Measurement uncertainty				
Parameter	Conditions	Uncertainty		
RF Output Power	Conducted	$\pm 0.42$ dB		
Occupied Bandwidth	Conducted	±1.5%		
Power Spectral Density	Conducted	±1.8dB		
Conducted Spurious Emission	Conducted	±2.17dB		
Conducted Emissions	Conducted	±2.88dB		
Transmitter Spurious Emissions	Radiated	±5.1dB		

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# 1.7 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	<b>Due Date</b>
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2017-06-12	2018-06-11
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2017-06-12	2018-06-11
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2017-06-12	2018-06-11
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2017-06-12	2018-06-11
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2017-06-12	2018-06-11
SEMT-1011	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2017-06-08	2018-06-07
SEMT-1042	Horn Antenna	ETS	3117	00086197	2017-06-08	2018-06-07
SEMT-1121	Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170582	2017-06-08	2018-06-07
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2017-06-08	2018-06-07
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2017-06-12	2018-06-11
SEMT-1003	L.I.S.N	Schwarz beck	NSLK8126	8126-224	2017-06-12	2018-06-11
SEMT-1002	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2017-06-12	2018-06-11





# 2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item Result	
§ 2.1093	RF Exposure	Compliant
§ 15.203; § 15.247(b)(4)(i)	Antenna Requirement	Compliant
§15.205	Restricted Band of Operation	Compliant
§ 15.207(a)	Conducted Emission	Compliant
§ 15.247(e)	Power Spectral Density	Compliant
§ 15.247(a)(2)	6 dB Bandwidth	Compliant
§ 15.247(b)(3)	RF Output Power	Compliant
§ 15.209(a)	Radiated Emission	Compliant
§ 15.247(d)	Band Edge (Out of Band Emissions)	Compliant

N/A: not applicable

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# 3. RF Exposure

# 3.1 Standard Applicable

According to § 1.1307 and § 2.1091, the mobile transmitter must comply the RF exposure requirements.

## 3.2 Test Result

This product complied with the requirement of the RF Exposure, please see the MPE Report.

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# 4. Antenna Requirement

# **4.1 Standard Applicable**

According to FCC Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

#### **4.2 Evaluation Information**

This product has two internal Antenna, fulfill the requirement of this section.

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TEST Model: RNSMU5036

# 5. Power Spectral Density

# **5.1 Standard Applicable**

According to 15.247(a)(1)(iii), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

#### **5.2 Test Procedure**

According to the KDB 558074 D01 V04, such specifications require that the same method as used to determine the conducted output power shall also be used to determine the power spectral density. The test method of power spectral density as below:

- a) Set instrument center frequency to DTS channel center frequency.
- b) Set span to at least 1.5 times the OBW.
- c) Set RBW to:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
- d) Set VBW  $\geq 3$  x RBW.
- e) Detector = power averaging (RMS) or sample detector (when RMS not available).
- f) Ensure that the number of measurement points in the sweep  $\geq 2 x \text{ span/RBW}$ .
- g) Sweep time = auto couple.
- h) Employ trace averaging (RMS) mode over a minimum of 100 traces.
- i) Use the peak marker function to determine the maximum amplitude level.
- j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat (note that this may require zooming in on the emission of interest and reducing the span in order to meet the minimum measurement point requirement as the RBW is reduced).

#### **5.3** Environmental Conditions

Temperature:	26° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

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# **5.4 Summary of Test Results/Plots**

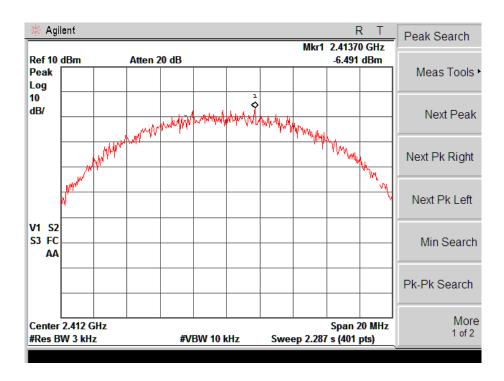
Test Mode	Test Channel MHz	Powe	Limit		
		Antenna 1	Antenna 2	total	dBm/3kHz
802.11b	2412	-6.491	-6.610	-3.54	8
	2437	-7.929	-7.808	-4.86	8
	2462	-8.693	-8.622	-5.65	8
802.11g	2412	-11.90	-11.89	-8.88	8
	2437	-11.42	-11.51	-8.45	8
	2462	-13.75	-13.18	-10.45	8
802.11n HT20	2412	-11.74	-11.17	-8.44	8
	2437	-11.63	-11.38	-8.49	8
	2462	-13.08	-13.42	-10.24	8
802.11n HT40	2422	-14.09	-14.12	-11.09	8
	2437	-15.89	-15.73	-12.80	8
	2452	-16.90	-17.61	-14.23	8

Please refer to the following test plots:

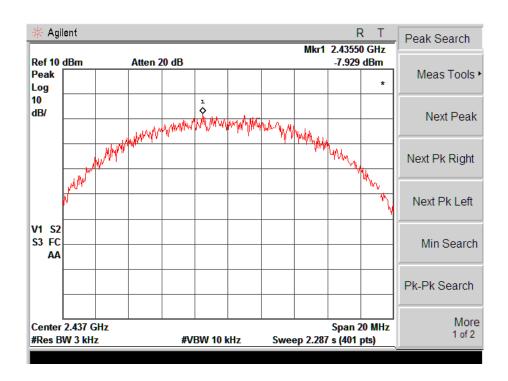
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# Antenna 1 802.11b-Low Channel

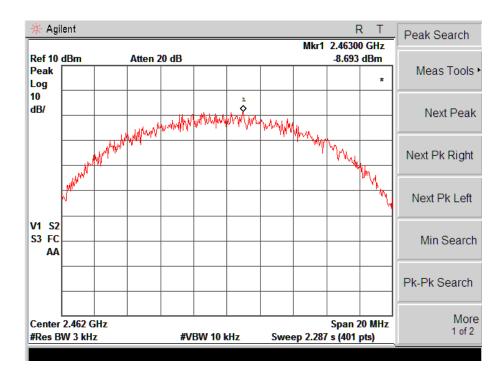


#### 802.11b-Middle Channel

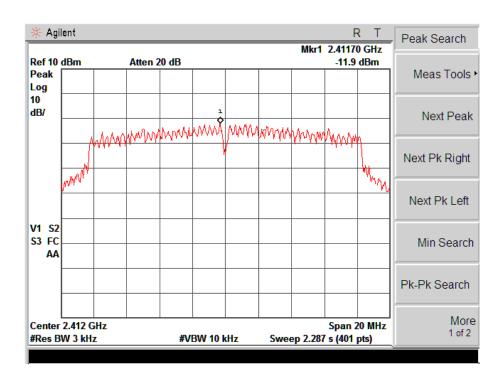




#### 802.11b-High Channel

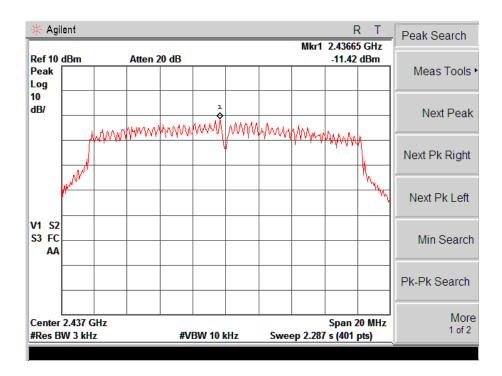


## 802.11g-Low Channel

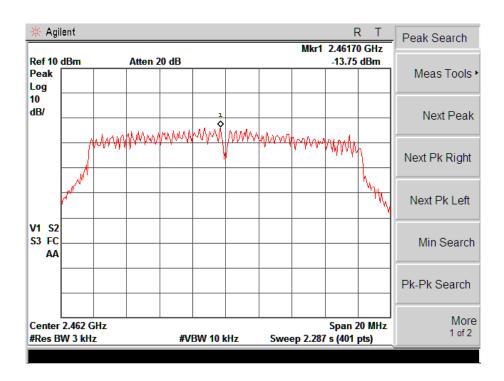




## 802.11g-Middle Channel

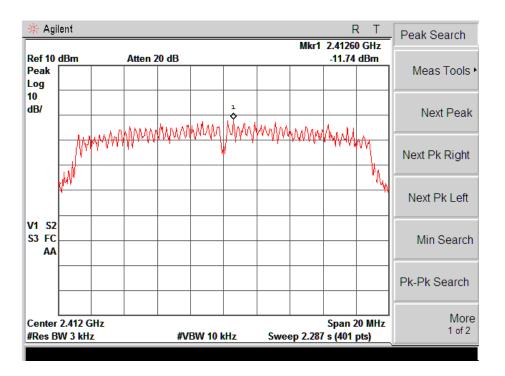


## 802.11g-High Channel

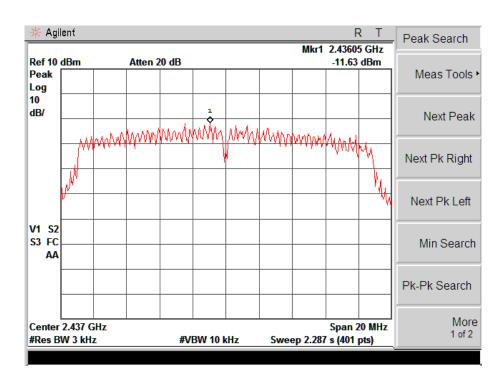




#### 802.11n-HT20-Low Channel

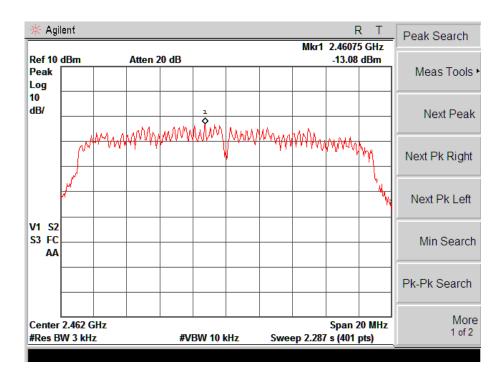


#### 802.11n-HT20-Middle Channel

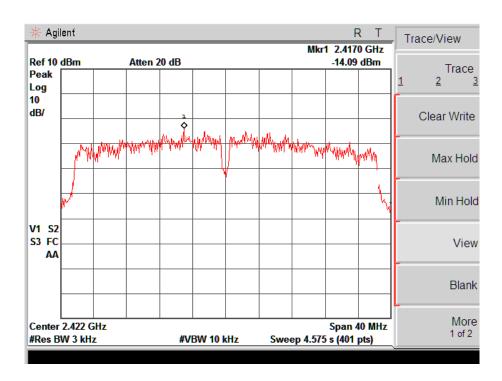




# 802.11n-HT20-High Channel

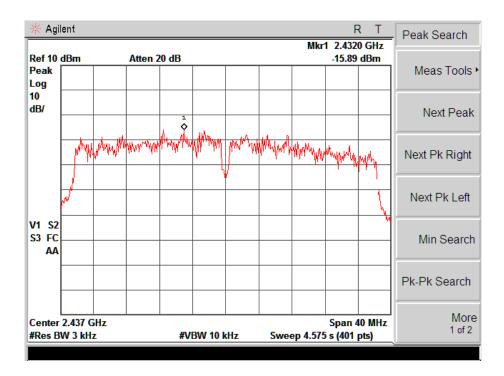


#### 802.11n-HT40-Low Channel

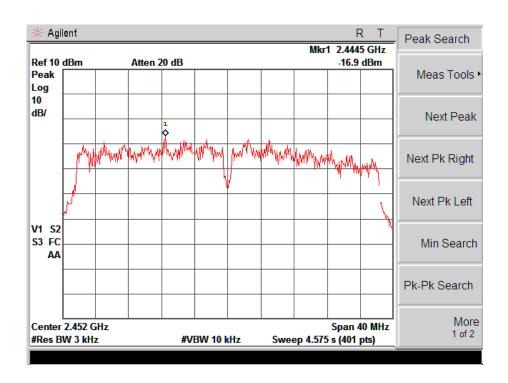




#### 802.11n-HT40-Middle Channel

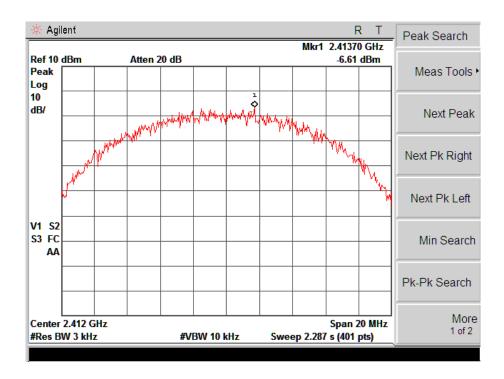


## 802.11n-HT40-High Channel

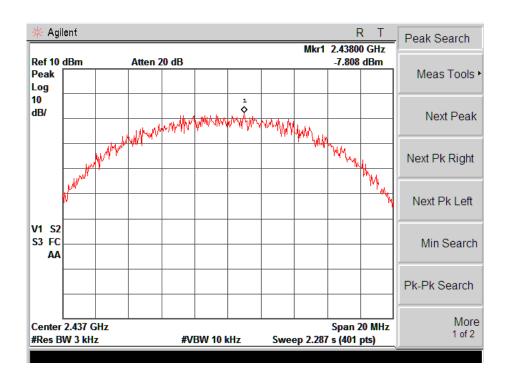




Antenna 2 802.11b-Low Channel

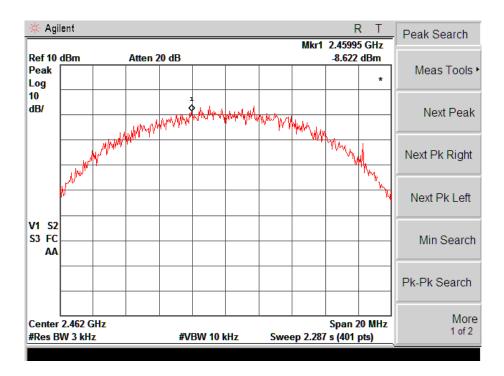


#### 802.11b-Middle Channel

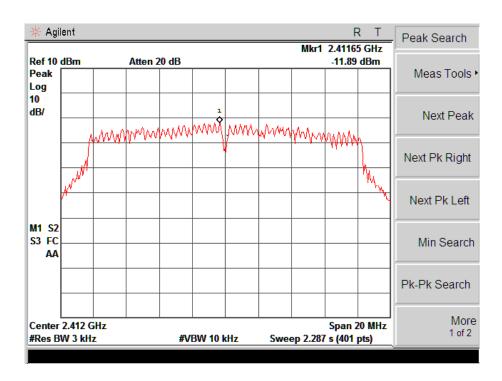




#### 802.11b-High Channel

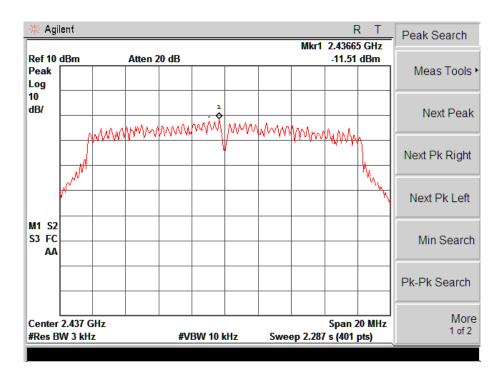


## 802.11g-Low Channel

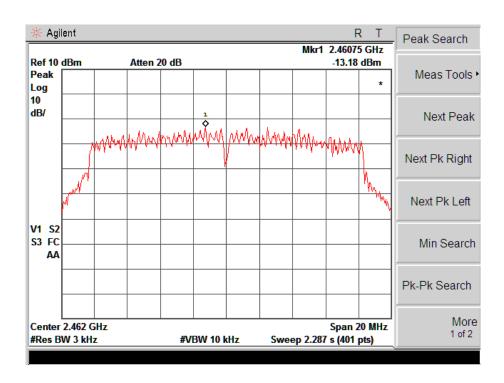




## 802.11g-Middle Channel

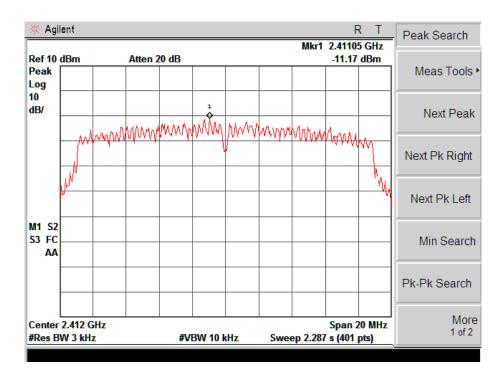


## 802.11g-High Channel

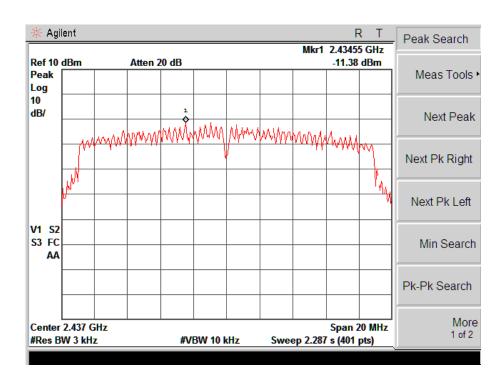




#### 802.11n-HT20-Low Channel

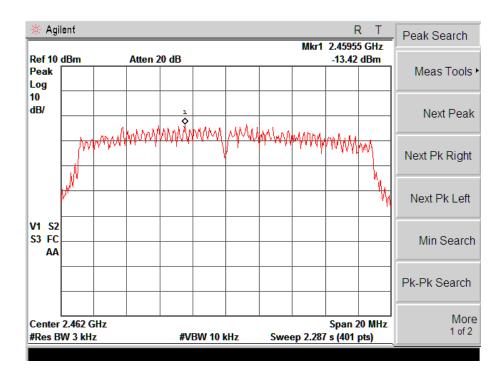


#### 802.11n-HT20-Middle Channel

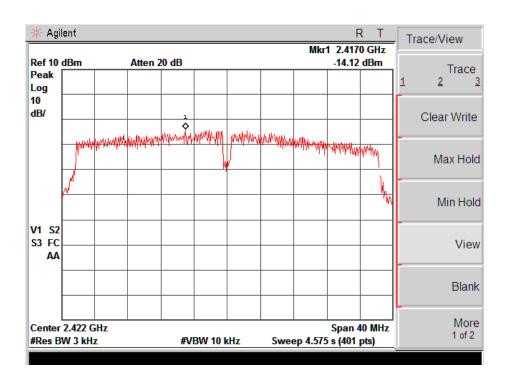




## 802.11n-HT20-High Channel

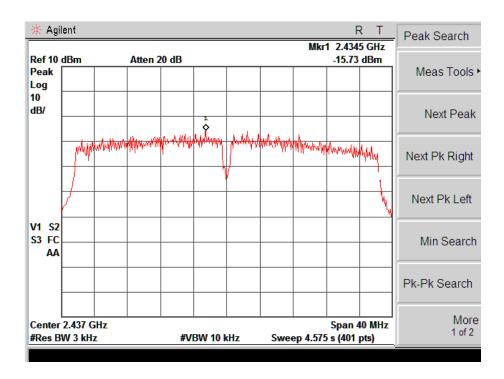


#### 802.11n-HT40-Low Channel

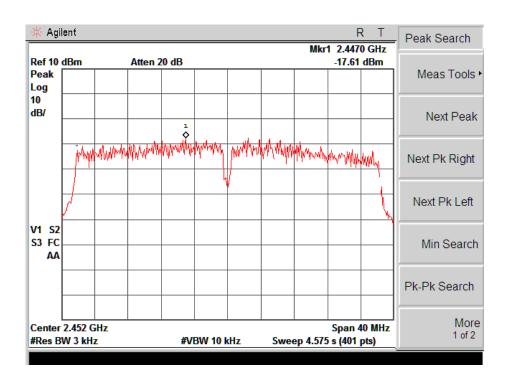




#### 802.11n-HT40-Middle Channel



## 802.11n-HT40-High Channel



TEST Model: RNSMU5036

#### 6. 6dB Bandwidth

# **6.1 Standard Applicable**

According to 15.247(a) (2). Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz. The minimum 6 dB bandwidth shall be at least 500 kHz.

#### **6.2 Test Procedure**

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW)  $\geq$  3  $\times$  RBW.
- c) Detector = Peak.
- d) Trace mode =  $\max$  hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

#### **6.3 Environmental Conditions**

Temperature:	25° C
Relative Humidity:	53%
ATM Pressure:	1018 mbar

# 6.4 Summary of Test Results/Plots

		6 dB Bandwidth		99% Bandwidth		
Test Mode	Test Channel	MHz		MHz		Limit
	MHz	Antenna1	Antenna 2	Antenna1	Antenna 2	kHz
802.11b	2412	8.371	9.415	14.2832	14.2675	≥500
	2437	9.669	9.462	14.3634	14.2616	≥500
	2462	8.258	7.732	14.2272	14.2112	≥500
802.11g	2412	13.823	15.155	16.2365	16.2939	≥500
	2437	15.072	15.138	16.1716	16.2886	≥500
	2462	13.859	15.154	16.1738	16.2509	≥500
802.11n-HT20	2412	13.800	15.165	17.3812	17.4449	≥500
	2437	15.565	15.732	17.2787	17.3902	≥500
	2462	14.179	15.101	17.3125	17.4528	≥500
802.11n-HT40	2422	32.574	35.089	35.4841	35.6642	≥500
	2437	30.107	33.864	35.4735	35.6928	≥500
	2452	30.379	35.108	35.5452	35.6204	≥500

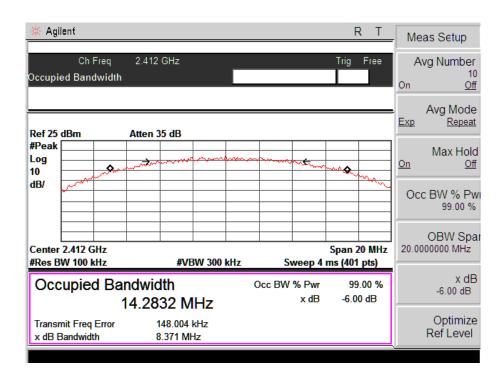
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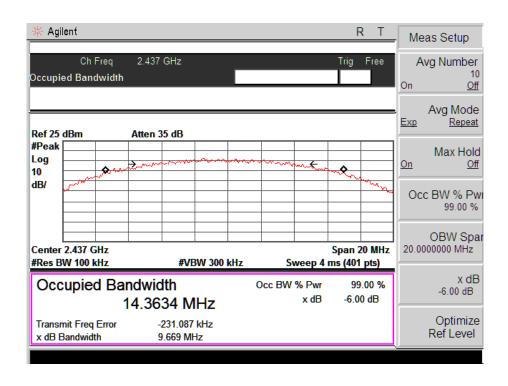
Please refer to the following test plots:

#### Antenna 1

802.11b-Low Channel



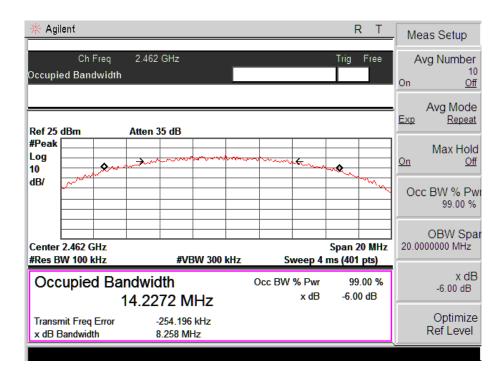
#### 802.11b-Middle Channel



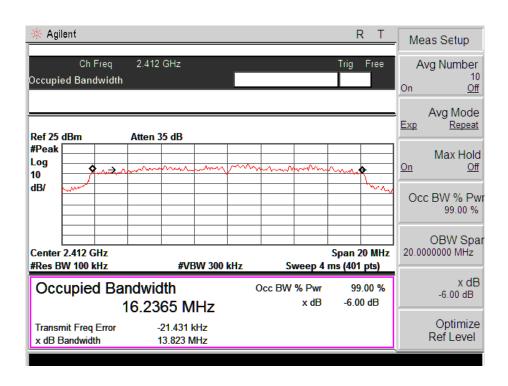
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#### 802.11b-High Channel



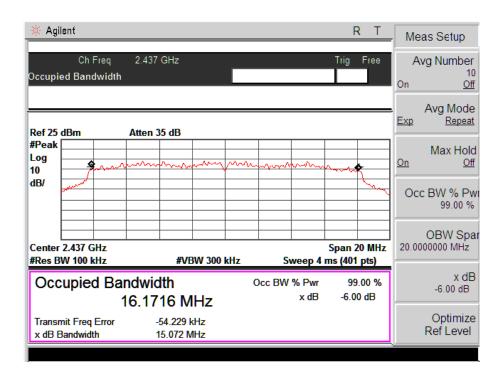
#### 802.11 g-Low Channel



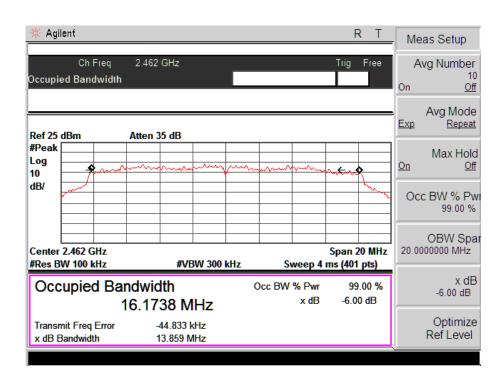
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#### 802.11g-Middle Channel

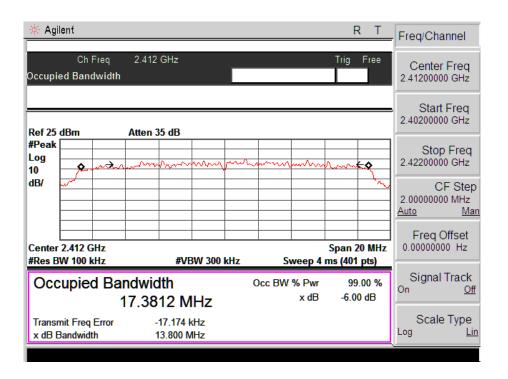


#### 802.11g-High Channel

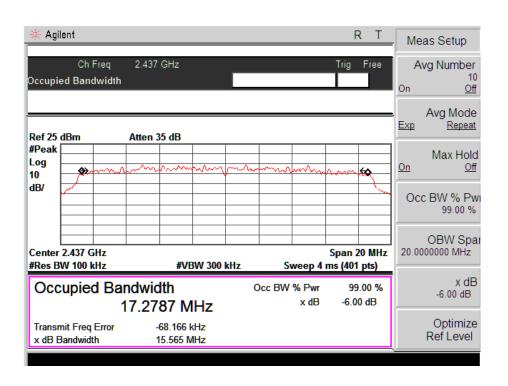




#### 802.11n-HT20-Low Channel



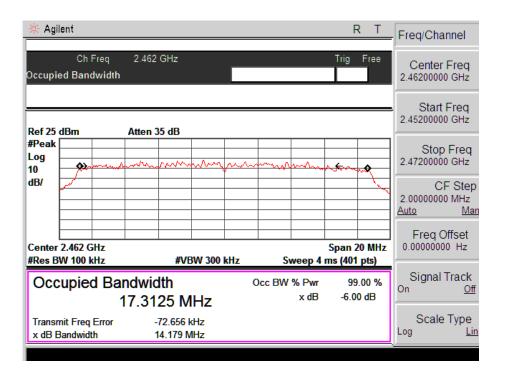
#### 802.11n-HT20-Middle Channel



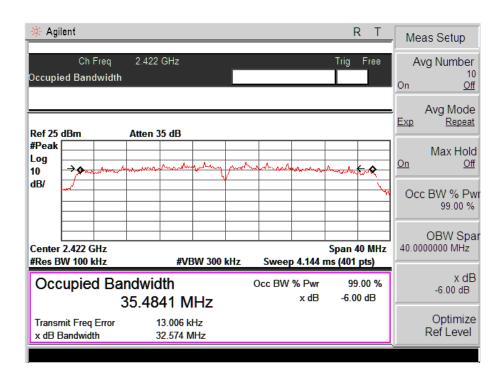
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#### 802.11n-HT20-High Channel



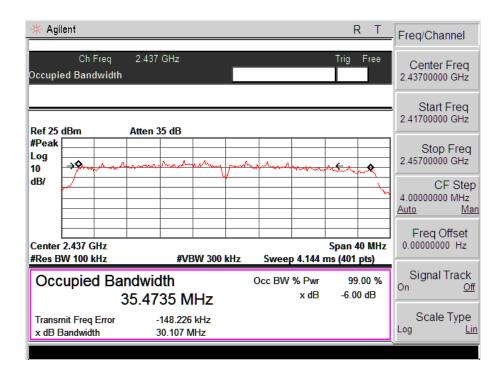
#### 802.11n-HT40-Low Channel



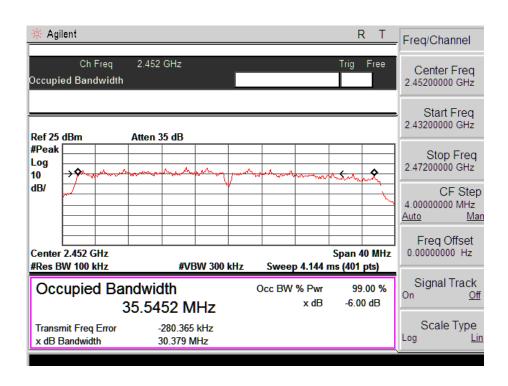
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#### 802.11n-HT40-Middle Channel



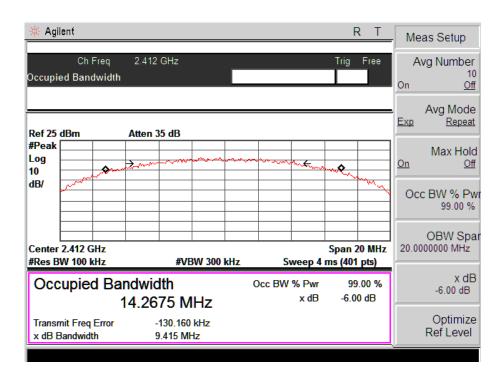
#### 802.11n-HT40-High Channel



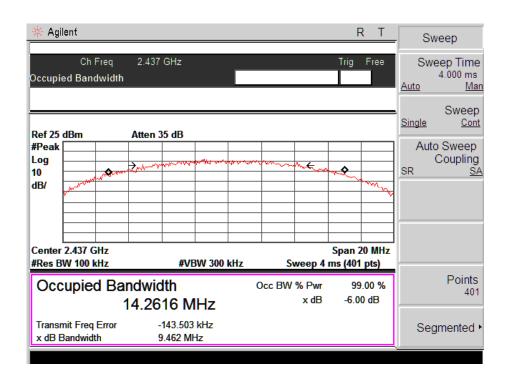
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# Antenna 2 802.11b-Low Channel

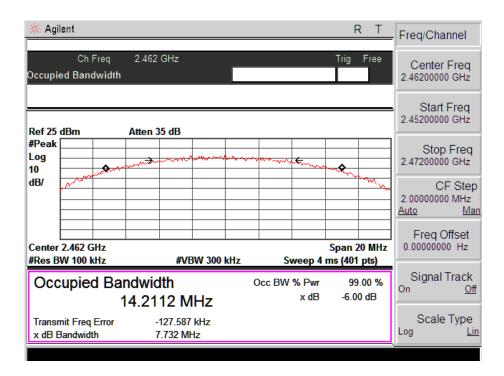


#### 802.11b-Middle Channel

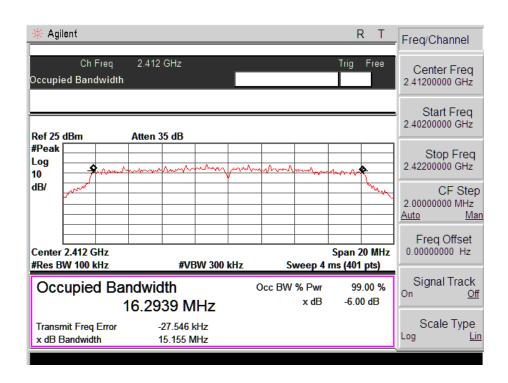




#### 802.11b-High Channel

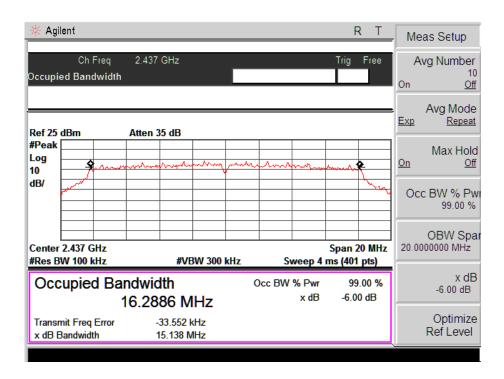


#### 802.11 g-Low Channel

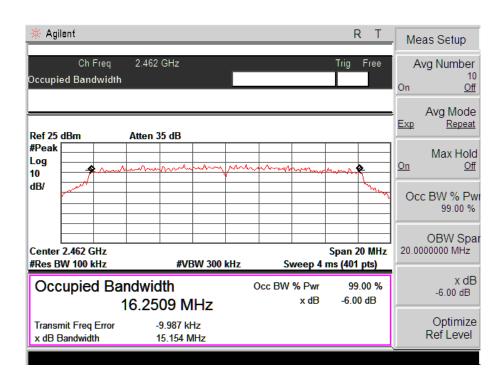




#### 802.11g-Middle Channel

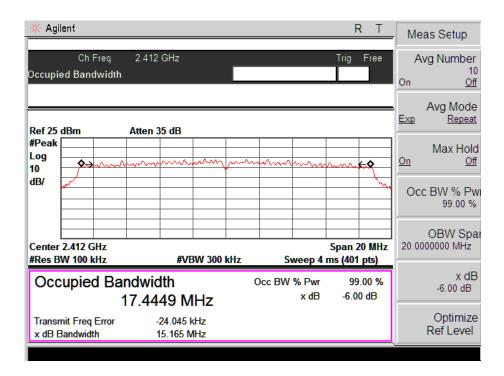


#### 802.11g-High Channel





#### 802.11n-HT20-Low Channel



#### 802.11n-HT20-Middle Channel



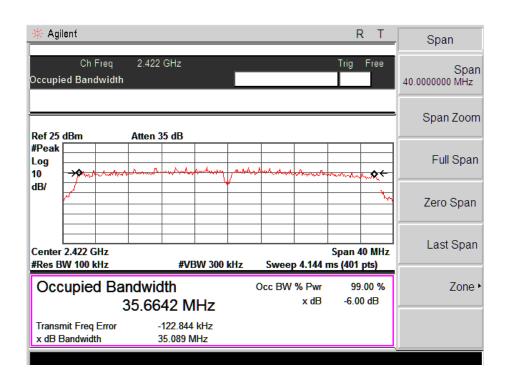
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## 802.11n-HT20-High Channel



#### 802.11n-HT40-Low Channel

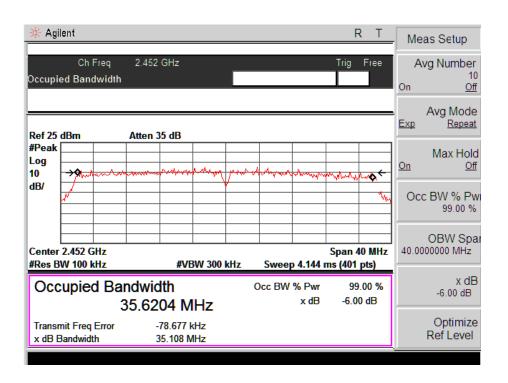




#### 802.11n-HT40-Middle Channel



## 802.11n-HT40-High Channel



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TEST Model: RNSMU5036

## 7. RF Output Power

## 7.1 Standard Applicable

According to 15.247(b)(3). For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz bands: 1 Watt.

#### 7.2 Test Procedure

According to KDB-558074 D01 V04, (channel integration method) When this option is exercised, the measured power is to be referenced to the OBW rather than the DTS bandwidth

- a) Set span to at least 1.5 times the OBW.
- b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz.
- c) Set VBW  $\geq 3 \times RBW$ .
- d) Number of points in sweep  $\geq 2 \times \text{span} / \text{RBW}$ . (This gives bin-to-bin spacing  $\leq \text{RBW}/2$ , so that narrowband signals are not lost between frequency bins.)
- e) Sweep time = auto.
- f) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
- g) If transmit duty cycle < 98 %, use a sweep trigger with the level set to enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle  $\ge$  98 %, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run".
- h) Trace average at least 100 traces in power averaging (i.e., RMS) mode.
- i) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function, with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

#### 7.3 Environmental Conditions

Temperature:	26° C
Relative Humidity:	57%
ATM Pressure:	1011 mbar

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# 7.4 Summary of Test Results/Plots

Test Mode	Frequency		wer Bm	Outpu	Limit	
	MHz	Antenna 1	Antenna 2	Antenna 1	Antenna 2	mW
	2412	14.89	14.89	30.8	30.8	1000
802.11b	2437	14.31	14.91	27.0	31.0	1000
	2462	13.69	13.60	23.4	22.9	1000
	2412	13.72	13.54	23.6	22.6	1000
802.11g	2437	12.85	12.63	19.3	18.3	1000
	2462	12.59	12.55	18.2	18.0	1000

Test Mode	Frequency		Power dBm	Output Power mW	Limit	
	MHz	Antenna 1	Antenna 2	total	total	mW
902 11	2412	12.64	12.33	15.50	35.5	1000
802.11n HT20	2437	12.37	12.25	15.32	34.0	1000
П120	2462	11.75	12.31	15.05	32.0	1000
902 11	2422	11.14	9.628	13.46	22.2	1000
802.11n HT40	2437	10.29	9.682	13.01	20.0	1000
11140	2452	8.741	8.71	11.74	14.9	1000

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## 8. Field Strength of Spurious Emissions

### 8.1 Measurement Uncertainty

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is +5.10 dB.

### 8.2 Standard Applicable

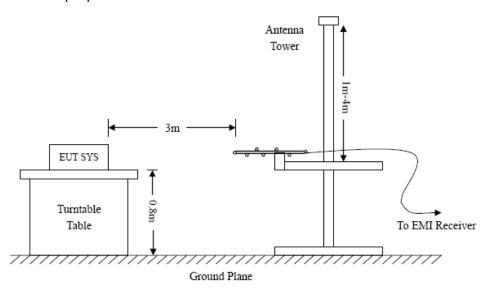
According to §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a). The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply. Spurious Radiated Emissions measurements starting

## **8.3 Test Procedure**

below or at the lowest crystal frequency.

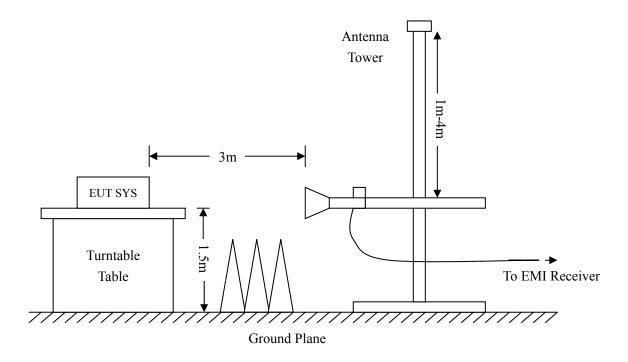
The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.205 15.247(a) and FCC Part 15.209 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle. The spacing between the peripherals was 10 cm.



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Frequency: 9kHz-30MHz

RBW=10 KHz,

VBW = 30 KHz

Sweep time= Auto

Trace =  $\max$  hold

Detector function = peak

Frequency: 30MHz-1GHz

RBW=120 KHz,

VBW=300 KHz

Sweep time= Auto

Trace =  $\max$  hold

Detector function = peak, QP

Frequency: Above 1GHz

RBW=1MHz,

VBW=3MHz (Peak), 10Hz (AV)

Sweep time= Auto

Trace =  $\max$  hold

Detector function = peak, AV



TEST Model: RNSMU5036

## 8.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Ant. Factor + Cable Loss - Ampl. Gain

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of  $-6dB\mu V$  means the emission is  $6dB\mu V$  below the maximum limit. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15 Limit

#### **8.5 Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

### 8.6 Summary of Test Results/Plots

According to the data below, the FCC Part 15.205, 15.209 and 15.247 standards, and had the worst cases:

Note: this EUT was tested in 3 orthogonal positions and the worst case position and the worst mode IEEE 802.11b (channel low, middle, high)) data was reported.

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### Plot of Radiated Emissions Test Data (30MHz to 1GHz)

EUT: 50" UHD LED TV

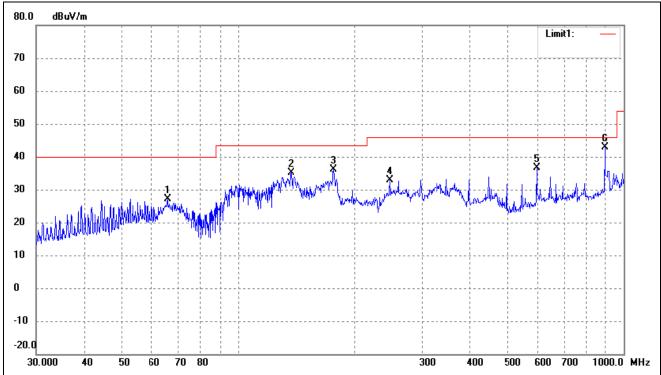
D50RWB714-U-A-I RNSMU5036

(Where "X" can be any alphanumeric of a-z, A-Z or 0-9 or blank &"-".)

Operating Condition: 802.11b Transmitting Low Channel-2412MHz

Comment: 120V/60Hz

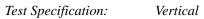
Test Specification: Horizontal

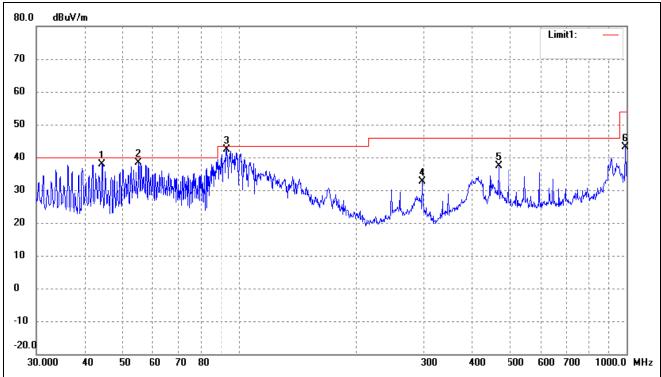


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	65.8031	40.60	-13.51	27.09	40.00	-12.91	35	100	peak
2	137.4202	49.85	-14.66	35.19	43.50	-8.31	36	100	peak
3	176.8878	50.42	-14.35	36.07	43.50	-7.43	58	100	peak
4	247.6819	43.56	-10.60	32.96	46.00	-13.04	147	100	peak
5	595.1329	41.15	-4.52	36.63	46.00	-9.37	16	100	peak
6	893.8567	41.54	1.43	42.97	46.00	-3.03	69	100	peak

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No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	44.2752	48.31	-10.45	37.86	40.00	-2.14	53	100	peak
2	55.0274	50.41	-12.05	38.36	40.00	-1.64	236	100	peak
3	93.1132	55.23	-12.93	42.30	43.50	-1.20	102	100	peak
4	297.2241	42.46	-9.72	32.74	46.00	-13.26	230	100	peak
5	467.2349	43.70	-6.27	37.43	46.00	-8.57	189	100	peak
6	993.0114	40.59	2.43	43.02	54.00	-10.98	360	100	peak

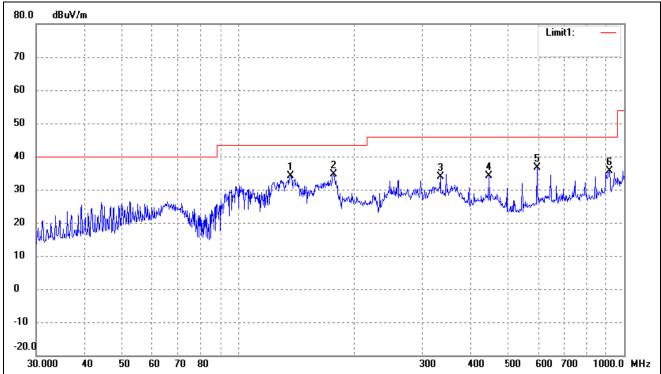




Operating Condition: 802.11b Transmitting Middle Channel-2437MHz

*Comment:* 120V/60Hz

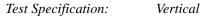
Test Specification: Horizontal

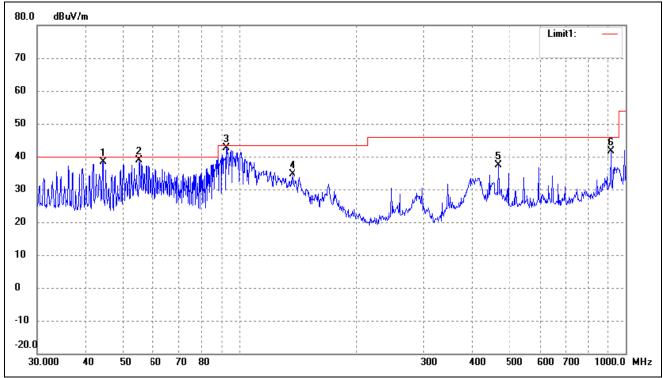


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	136.4598	48.67	-14.61	34.06	43.50	-9.44	356	100	peak
2	176.8878	48.87	-14.35	34.52	43.50	-8.98	26	100	peak
3	334.8589	43.63	-9.76	33.87	46.00	-12.13	102	100	peak
4	446.4141	41.30	-7.22	34.08	46.00	-11.92	67	100	peak
5	595.1329	41.06	-4.52	36.54	46.00	-9.46	236	100	peak
6	916.0687	33.83	1.68	35.51	46.00	-10.49	102	100	peak

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No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	44.4308	48.75	-10.45	38.30	40.00	-1.70	302	100	peak
2	55.0274	51.04	-12.05	38.99	40.00	-1.01	333	100	peak
3	92.7871	55.51	-13.00	42.51	43.50	-0.99	125	100	peak
4	137.4202	49.40	-14.66	34.74	43.50	-8.76	104	100	peak
5	467.2349	43.66	-6.27	37.39	46.00	-8.61	25	100	peak
6	916.0687	40.04	1.68	41.72	46.00	-4.28	36	100	peak

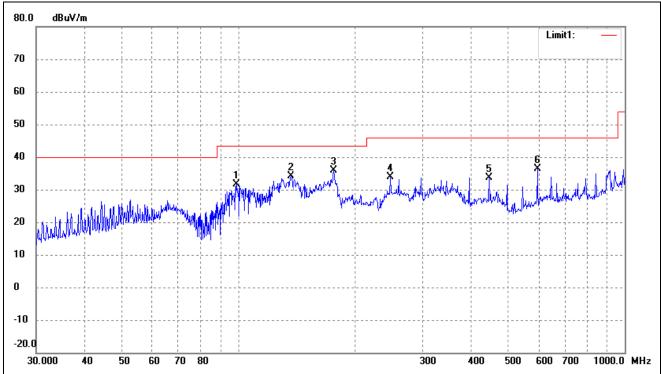




Operating Condition: 802.11b Transmitting High Channel-2462MHz

*Comment:* 120V/60Hz

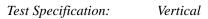
Test Specification: Horizontal

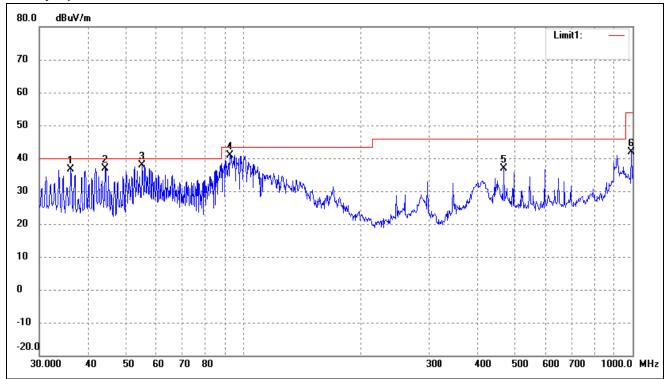


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	98.8326	43.17	-11.66	31.51	43.50	-11.99	14	100	peak
2	136.9391	48.84	-14.63	34.21	43.50	-9.29	166	100	peak
3	176.8878	50.21	-14.35	35.86	43.50	-7.64	228	100	peak
4	247.6819	44.49	-10.60	33.89	46.00	-12.11	360	100	peak
5	446.4141	40.90	-7.22	33.68	46.00	-12.32	26	100	peak
6	595.1329	41.00	-4.52	36.48	46.00	-9.52	360	100	peak

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No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	36.0007	47.92	-11.32	36.60	40.00	-3.40	360	100	peak
2	44.2752	47.27	-10.45	36.82	40.00	-3.18	263	100	peak
3	55.0274	49.96	-12.05	37.91	40.00	-2.09	105	100	peak
4	92.7871	54.00	-13.00	41.00	43.50	-2.50	26	100	peak
5	467.2349	43.19	-6.27	36.92	46.00	-9.08	86	100	peak
6	993.0114	39.55	2.43	41.98	54.00	-12.02	36	100	peak

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Test Mode: 802.11b

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
			Low Channe	el-2412MHz			•
4824.000	52.06	-3.42	48.64	74	-25.36	Н	PK
4824.000	37.01	-3.22	33.79	54	-20.21	Н	AV
7236.000	44.67	1.99	46.66	74	-27.34	Н	PK
7236.000	33.45	2.14	35.59	54	-18.41	Н	AV
4824.000	55.18	-3.51	51.67	74	-22.33	V	PK
4824.000	38.77	-3.11	35.66	54	-18.34	V	AV
7236.000	47.18	1.65	48.83	74	-25.17	V	PK
7236.000	35.51	1.65	37.16	54	-16.84	V	AV
			Middle Chan	nel-2437MHz			
4874.000	55.06	-3.29	51.77	74	-22.23	Н	PK
4874.000	40.51	-3.09	37.42	54	-16.58	Н	AV
7311.000	48.49	2.32	50.81	74	-23.19	Н	PK
7311.000	33.92	2.42	36.34	54	-17.66	Н	AV
4874.000	54.19	-3.39	50.8	74	-23.2	V	PK
4874.000	41.51	-2.99	38.52	54	-15.48	V	AV
7311.000	48.40	2.02	50.42	74	-23.58	V	PK
7311.000	34.50	2.02	36.52	54	-17.48	V	AV
			High Chann	el-2462MHz			
4924.000	55.89	-2.89	53.00	74	-21.00	Н	PK
4924.000	42.03	-2.69	39.34	54	-14.66	Н	AV
7386.000	46.85	2.89	49.74	74	-24.26	Н	PK
7386.000	35.40	2.99	38.39	54	-15.61	Н	AV
4924.000	54.91	-2.99	51.92	74	-22.08	V	PK
4924.000	42.41	-2.59	39.82	54	-14.18	V	AV
7386.000	48.16	2.59	50.75	74	-23.25	V	PK
7386.000	35.35	2.59	37.94	54	-16.06	V	AV





Test Mode: 802.11g

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
			Low Channe	el-2412MHz			
4824.000	53.22	-3.16	50.06	74	-23.94	Н	PK
4824.000	40.15	-2.96	37.19	54	-16.81	Н	AV
7236.000	46.54	2.2	48.74	74	-25.26	Н	PK
7236.000	32.62	2.3	34.92	54	-19.08	Н	AV
4824.000	53.61	-3.26	50.35	74	-23.65	V	PK
4824.000	40.67	-2.86	37.81	54	-16.19	V	AV
7236.000	47.04	1.9	48.94	74	-25.06	V	PK
7236.000	33.36	1.9	35.26	54	-18.74	V	AV
			Middle Chan	nel-2437MHz			
4874.000	52.82	-3.04	49.78	74	-24.22	Н	PK
4874.000	41.20	-2.84	38.36	54	-15.64	Н	AV
7311.000	45.50	2.57	48.07	74	-25.93	Н	PK
7311.000	33.49	2.67	36.16	54	-17.84	Н	AV
4874.000	54.69	-3.14	51.55	74	-22.45	V	PK
4874.000	41.88	-2.74	39.14	54	-14.86	V	AV
7311.000	46.22	2.27	48.49	74	-25.51	V	PK
7311.000	33.15	2.27	35.42	54	-18.58	V	AV
			High Chann	el-2462MHz			
4924.000	51.72	-2.89	48.83	74	-25.17	Н	PK
4924.000	38.67	-2.69	35.98	54	-18.02	Н	AV
7386.000	45.30	2.89	48.19	74	-25.81	Н	PK
7386.000	32.95	2.99	35.94	54	-18.06	Н	AV
4924.000	53.73	-2.99	50.74	74	-23.26	V	PK
4924.000	40.71	-2.59	38.12	54	-15.88	V	AV
7386.000	46.40	2.59	48.99	74	-25.01	V	PK
7386.000	33.77	2.59	36.36	54	-17.64	V	AV





Test Mode: 802.11n-HT20

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
	•		Low Channe	el-2412MHz			
4824.000	53.32	-3.16	50.16	74	-23.84	Н	PK
4824.000	38.46	-2.96	35.5	54	-18.5	Н	AV
7236.000	45.38	2.2	47.58	74	-26.42	Н	PK
7236.000	32.66	2.3	34.96	54	-19.04	Н	AV
4824.000	54.33	-3.26	51.07	74	-22.93	V	PK
4824.000	41.20	-2.86	38.34	54	-15.66	V	AV
7236.000	47.03	1.9	48.93	74	-25.07	V	PK
7236.000	33.59	1.9	35.49	54	-18.51	V	AV
			Middle Chan	nel-2437MHz			
4874.000	51.88	-3.04	48.84	74	-25.16	Н	PK
4874.000	40.40	-2.84	37.56	54	-16.44	Н	AV
7311.000	46.86	2.57	49.43	74	-24.57	Н	PK
7311.000	31.32	2.67	33.99	54	-20.01	Н	AV
4874.000	52.54	-3.14	49.4	74	-24.60	V	PK
4874.000	40.64	-2.74	37.9	54	-16.10	V	AV
7311.000	46.31	2.27	48.58	74	-25.42	V	PK
7311.000	33.02	2.27	35.29	54	-18.71	V	AV
			High Chann	el-2462MHz			
4924.000	51.62	-2.89	48.73	74	-25.27	Н	PK
4924.000	41.15	-2.69	38.46	54	-15.54	Н	AV
7386.000	46.43	2.89	49.32	74	-24.68	Н	PK
7386.000	34.32	2.99	37.31	54	-16.69	Н	AV
4924.000	53.32	-2.99	50.33	74	-23.67	V	PK
4924.000	39.50	-2.59	36.91	54	-17.09	V	AV
7386.000	46.37	2.59	48.96	74	-25.04	V	PK
7386.000	33.18	2.59	35.77	54	-18.23	V	AV



Test Mode: 802.11n-HT40

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	H/V	
			Low Channe	el-2422MHz			•
4844.000	51.73	-3.2	48.53	74	-25.47	Н	PK
4824.000	36.93	-3	33.93	54	-20.07	Н	AV
7266.000	45.36	2.16	47.52	74	-26.48	Н	PK
7266.000	31.54	2.26	33.8	54	-20.20	Н	AV
4844.000	52.60	-3.3	49.3	74	-24.70	V	PK
4824.000	38.20	-2.9	35.3	54	-18.70	V	AV
7266.000	47.39	1.86	49.25	74	-24.75	V	PK
7266.000	33.36	1.86	35.22	54	-18.78	V	AV
			Middle Chan	nel-2437MHz			•
4874.000	51.01	-3.04	47.97	74	-26.03	Н	PK
4874.000	36.56	-2.84	33.72	54	-20.28	Н	AV
7311.000	43.76	2.57	46.33	74	-27.67	Н	PK
7311.000	31.01	2.67	33.68	54	-20.32	Н	AV
4874.000	52.12	-3.14	48.98	74	-25.02	V	PK
4874.000	38.73	-2.74	35.99	54	-18.01	V	AV
7311.000	44.36	2.27	46.63	74	-27.37	V	PK
7311.000	32.58	2.27	34.85	54	-19.15	V	AV
			High Chann	el-2452MHz			
4904.000	51.13	-2.93	48.2	74	-25.80	Н	PK
4904.000	38.05	-2.73	35.32	54	-18.68	Н	AV
7356.000	44.51	2.72	47.23	74	-26.77	Н	PK
7356.000	29.71	2.82	32.53	54	-21.47	Н	AV
4904.000	53.22	-3.03	50.19	74	-23.81	V	PK
4904.000	39.61	-2.63	36.98	54	-17.02	V	AV
7356.000	46.76	2.42	49.18	74	-24.82	V	PK
7356.000	33.70	2.42	36.12	54	-17.88	V	AV

Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, which above 3<sup>th</sup> Harmonics are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured. The measurements greater than 20dB below the limit from 9kHz to 30MHz.

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TEST Model: RNSMU5036

### 9. Out of Band Emissions

## 9.1 Standard Applicable

According to §15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

### 9.2 Test Procedure

According to the KDB 558074D01 v04, the band-edge radiated test method as follows:

Set span = wide enough to capture the peak level of the emission operating on the channel closest to the bandedge, as well as any modulation products which fall outside of the authorized band of operation (2310MHz to 2420MHz for low bandedge, 2460MHz to 2500MHz for the high bandedge)

RBW = 1MHz, VBW = 1MHz for peak value measured

RBW = 1MHz, VBW = 10Hz for average value measured

Sweep = auto; Detector function = peak/average; Trace = max hold

All the trace to stabilize, set the marker on the emission at the bandedge, or on the highest modulation product outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. Those emission must comply with the 15.209 limit for fall in the restricted bands listed in section 15.205. Note that the method of measurement KDB publication number: 913591 may be used for the radiated bandedge measurements.

According to the KDB 558074 D01 V04, the conducted spurious emissions test method as follows:

- 1. Set start frequency to DTS channel edge frequency.
- 2. Set stop frequency so as to encompass the spectrum to be examined.
- 3. Set RBW = 100 kHz.
- 4. Set VBW  $\geq$  300 kHz.
- 5. Detector = peak.
- 6. Trace Mode =  $\max$  hold.
- 7. Sweep = auto couple.
- 8. Allow the trace to stabilize (this may take some time, depending on the extent of the span).
- 9. Use peak marker function to determine maximum amplitude of all unwanted emissions within any 100 kHz bandwidth.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements specified in section 8.1. Report the three highest emissions relative to the limit.

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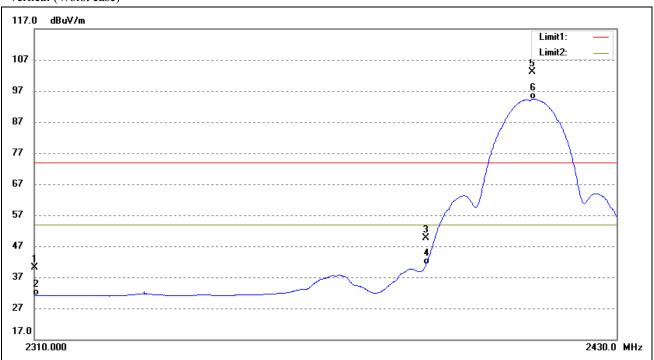
## 9.3 Environmental Conditions

Temperature:	23°C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

# 9.4 Summary of Test Results/Plots

# 802.11b-Lowest Band edge

Vertical (Worst case)



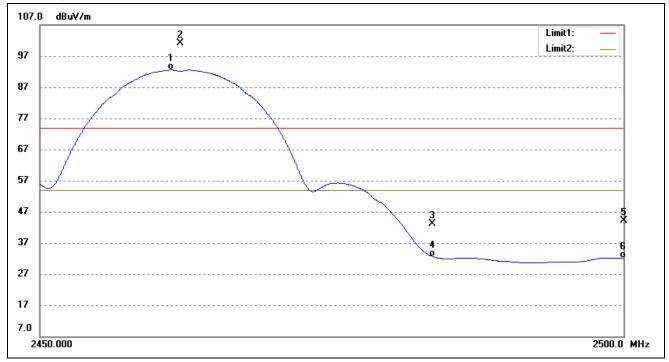
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	2310.000	46.52	-6.38	40.14	74.00	-33.86	204	100	peak
2	2310.000	37.45	-6.38	31.07	54.00	-22.93	204	100	AVG
3	2390.000	56.90	-7.26	49.64	74.00	-24.36	204	100	peak
4	2390.000	48.36	-7.26	41.10	54.00	-12.90	204	100	AVG
5	2412.120	110.43	-7.41	103.02	/	/	204	100	peak
6	2412.465	101.85	-7.40	94.45	/	/	204	100	AVG

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# 802.11b-Highest Band edge

# Vertical (Worst case)



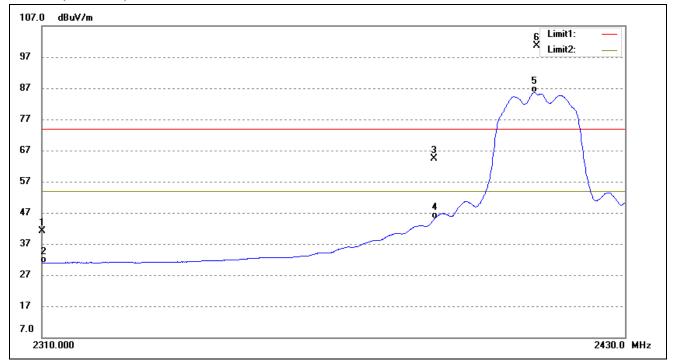
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	2461.162	99.87	-7.32	92.55	/	/	152	100	AVG
2	2461.950	108.43	-7.32	101.11	/	/	152	100	peak
3	2483.500	50.31	-7.28	43.03	74.00	-30.97	152	100	peak
4	2483.500	39.94	-7.28	32.66	54.00	-21.34	152	100	AVG
5	2500.000	51.44	-7.25	44.19	74.00	-29.81	152	100	peak
6	2500.000	39.46	-7.25	32.21	54.00	-21.79	152	100	AVG

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# 802.11g-Lowest Band edge

# Vertical (Worst case)



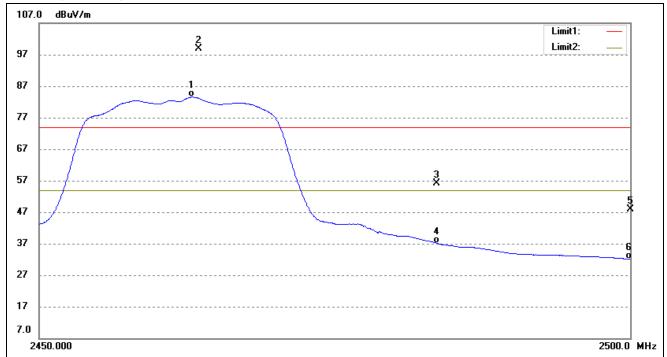
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	2310.000	47.63	-6.38	41.25	74.00	-32.75	136	100	peak
2	2310.000	37.36	-6.38	30.98	54.00	-23.02	136	100	AVG
3	2390.000	71.64	-7.26	64.38	74.00	-9.62	136	100	peak
4	2390.000	52.28	-7.26	45.02	54.00	-8.98	136	100	AVG
5	2410.878	93.01	-7.41	85.60	/	/	136	100	AVG
6	2411.400	108.05	-7.41	100.64	/	/	136	100	peak

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# 802.11g-Highest Band edge

# Vertical (Worst case)



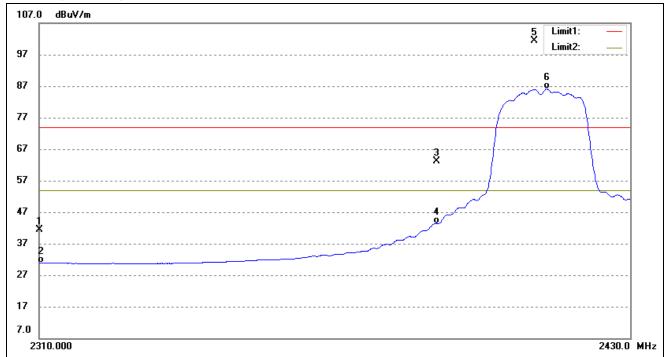
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	2462.803	90.86	-7.31	83.55	/	/	159	100	AVG
2	2463.450	106.17	-7.31	98.86	/	/	159	100	peak
3	2483.500	63.33	-7.28	56.05	74.00	-17.95	159	100	peak
4	2483.500	44.44	-7.28	37.16	54.00	-16.84	159	100	AVG
5	2500.000	55.02	-7.25	47.77	74.00	-26.23	159	100	peak
6	2500.000	39.37	-7.25	32.12	54.00	-21.88	159	100	AVG

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# 802.11n-HT20-Lowest Band edge

# Vertical (Worst case)



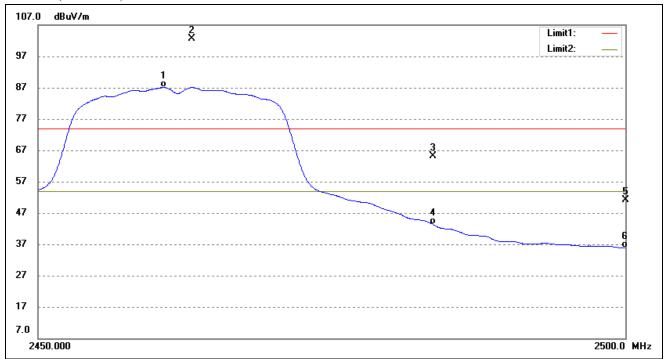
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	2310.000	47.64	-6.38	41.26	74.00	-32.74	123	100	peak
2	2310.000	37.29	-6.38	30.91	54.00	-23.09	123	100	AVG
3	2390.000	70.48	-7.26	63.22	74.00	-10.78	123	100	peak
4	2390.000	50.73	-7.26	43.47	54.00	-10.53	123	100	AVG
5	2410.080	108.76	-7.41	101.35	/	/	123	100	peak
6	2412.710	93.53	-7.40	86.13	/	/	123	100	AVG

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# 802.11n-HT20-Highest Band edge

# Vertical (Worst case)



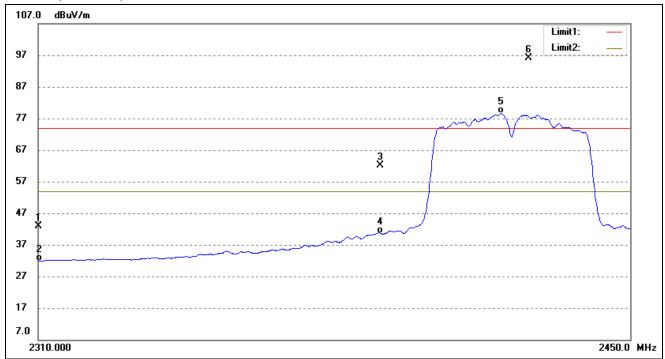
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	2460.615	94.49	-7.32	87.17	/	/	146	100	AVG
2	2463.000	109.98	-7.31	102.67	/	/	146	100	peak
3	2483.500	72.40	-7.28	65.12	74.00	-8.88	146	100	peak
4	2483.500	50.59	-7.28	43.31	54.00	-10.69	146	100	AVG
5	2500.000	58.37	-7.25	51.12	74.00	-22.88	146	100	peak
6	2500.000	43.17	-7.25	35.92	54.00	-18.08	146	100	AVG

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# 802.11n-HT40-Lowest Band edge

# Vertical (Worst case)



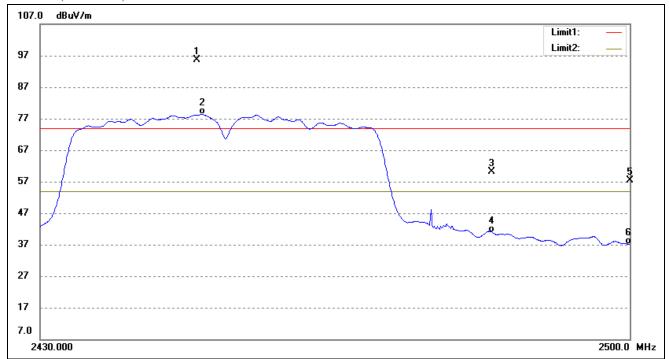
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	2310.000	49.24	-6.38	42.86	74.00	-31.14	154	100	peak
2	2310.000	38.22	-6.38	31.84	54.00	-22.16	154	100	AVG
3	2390.000	69.46	-7.26	62.20	74.00	-11.80	154	100	peak
4	2390.000	47.85	-7.26	40.59	54.00	-13.41	154	100	AVG
5	2418.774	85.91	-7.39	78.52	/	/	154	100	AVG
6	2425.360	103.49	-7.38	96.11	/	/	154	100	peak

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# 802.11n-HT40-Highest Band edge

# Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( ° )	(cm)	
1	2448.410	103.09	-7.34	95.75	/	/	135	100	peak
2	2449.052	85.69	-7.34	78.35	/	/	135	100	AVG
3	2483.500	67.53	-7.28	60.25	74.00	-13.75	135	100	peak
4	2483.500	48.18	-7.28	40.90	54.00	-13.10	135	100	AVG
5	2500.000	64.53	-7.25	57.28	74.00	-16.72	135	100	peak
6	2500.000	44.35	-7.25	37.10	54.00	-16.90	135	100	AVG

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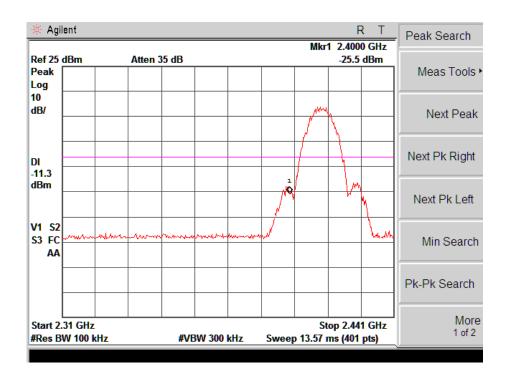


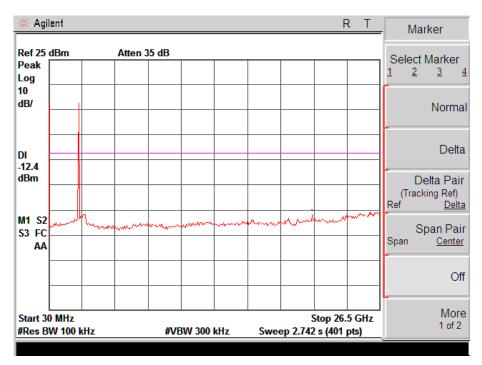
Out-of-Band and Spurious Emission (Conducted)

## Antenna 1

802.11b

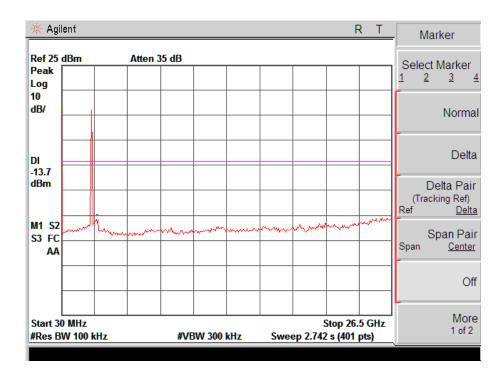
Low Channel



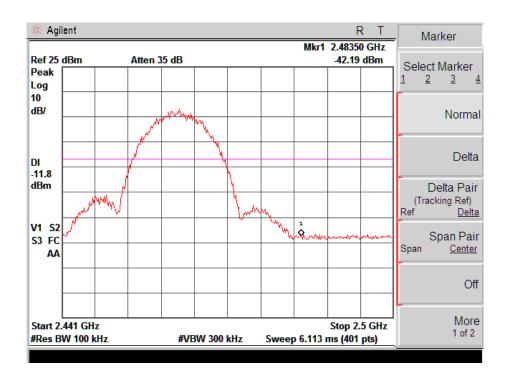




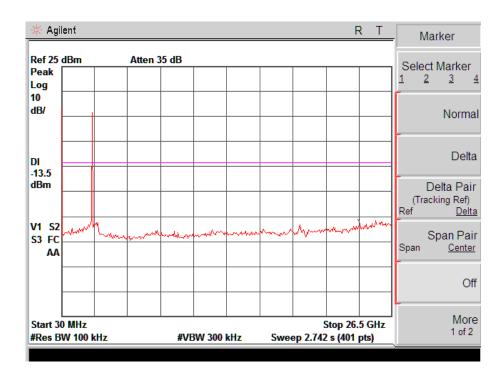
#### Middle Channel



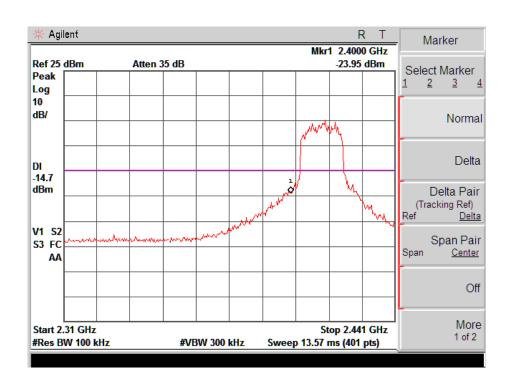
## High Channel



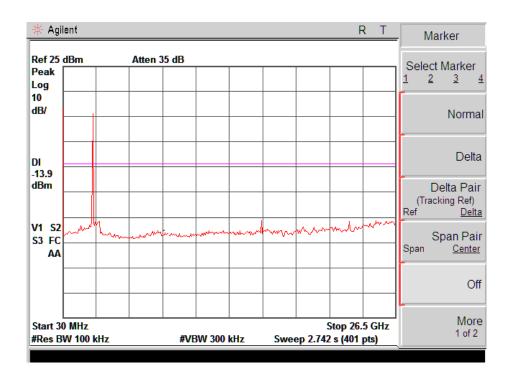




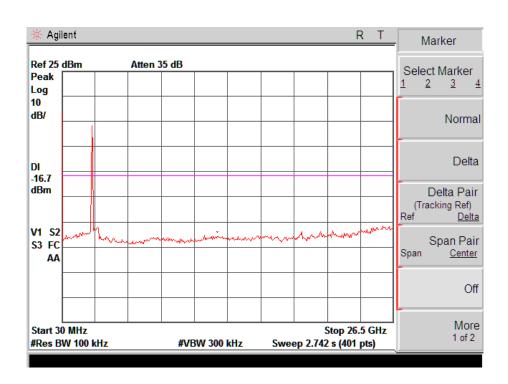
802.11g Low Channel





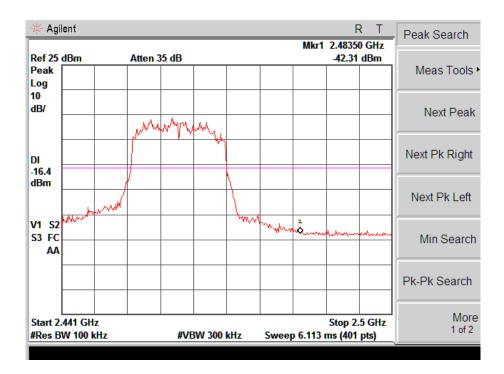


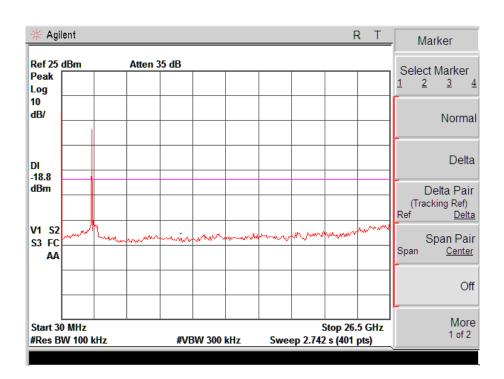
#### Middle Channel





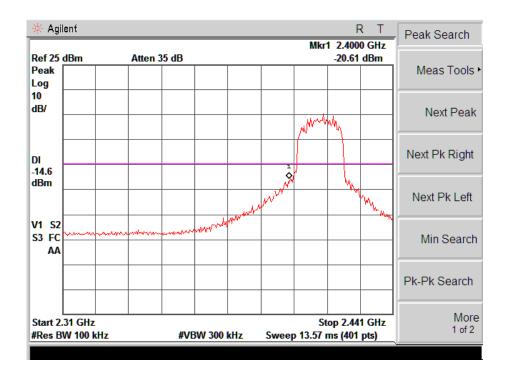
## High Channel

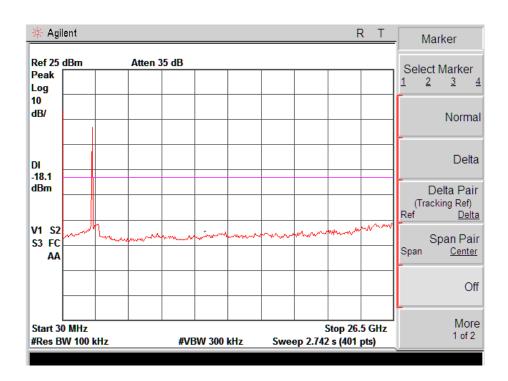






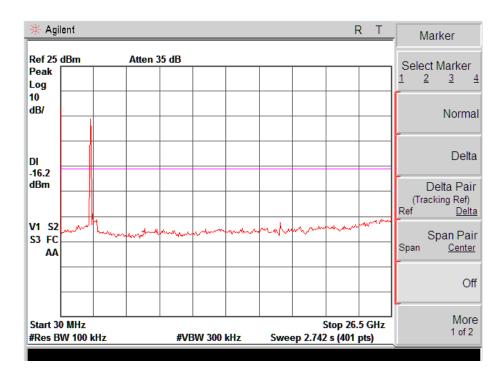
## 11n-HT20 Low Channel



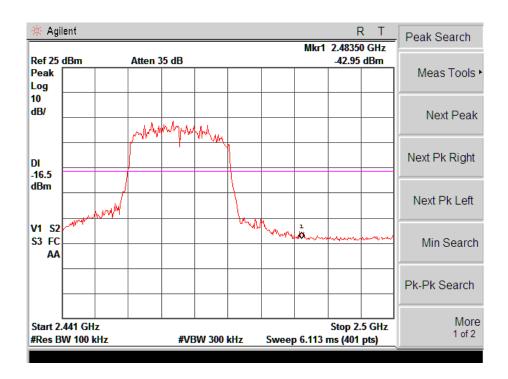




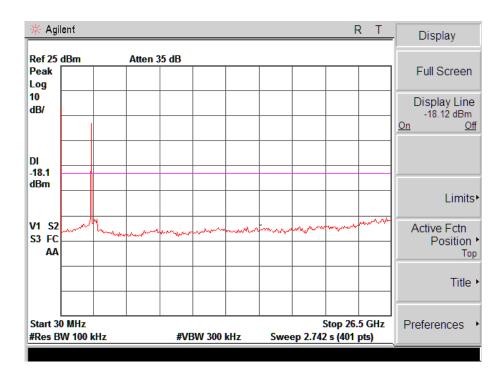
#### Middle Channel



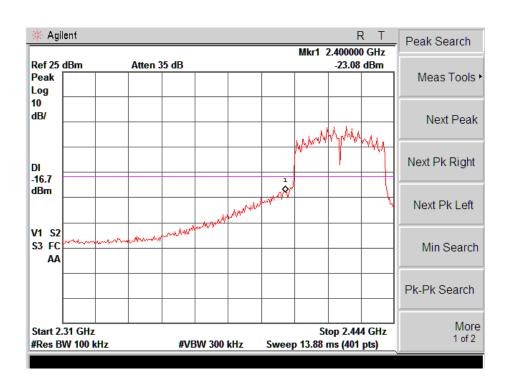
## High Channel



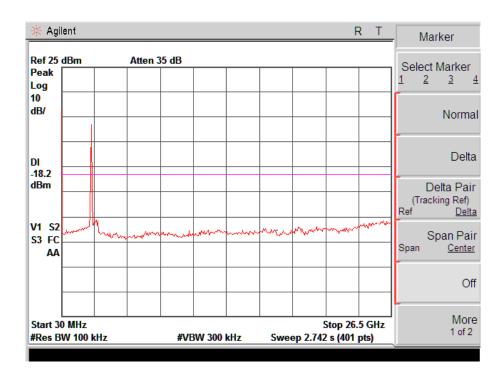




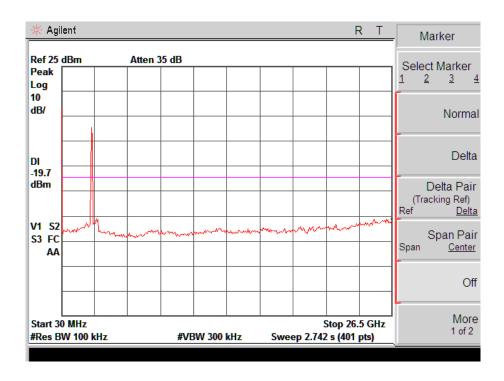
## 11n-HT40 Low Channel





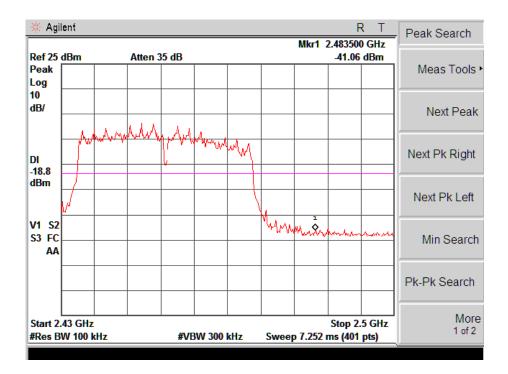


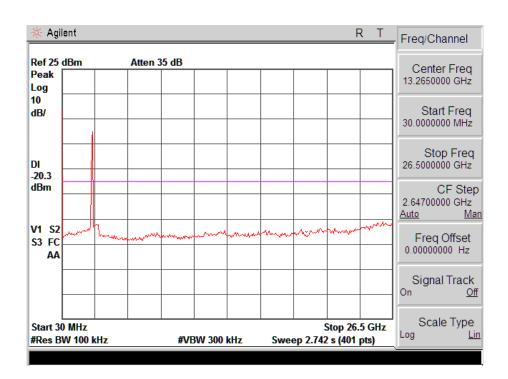
#### Middle Channel





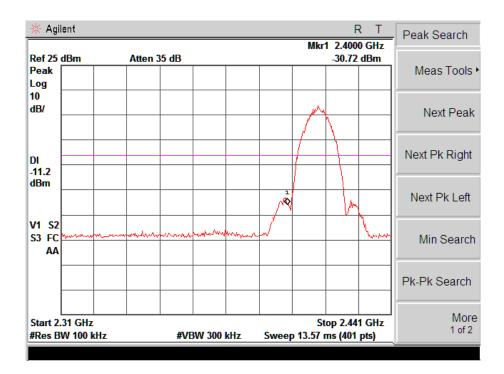
## High Channel

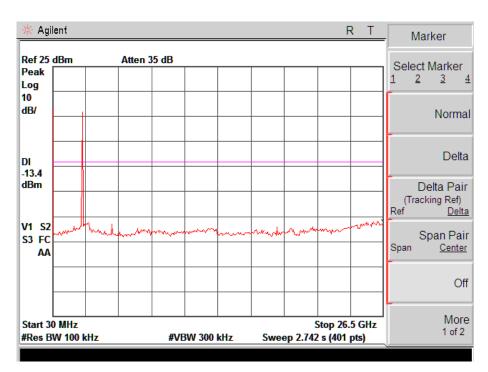






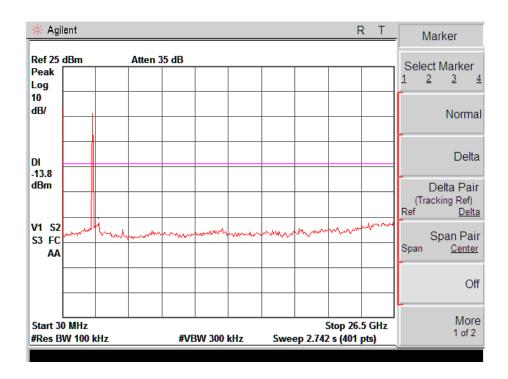
Antenna 2 802.11b Low Channel



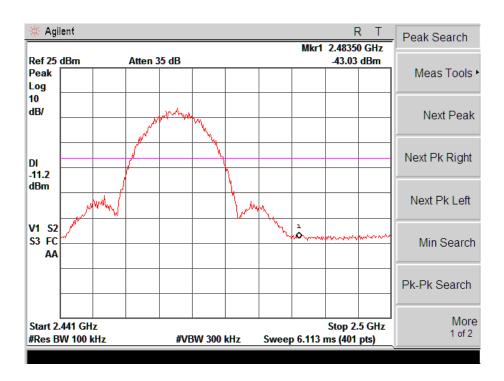




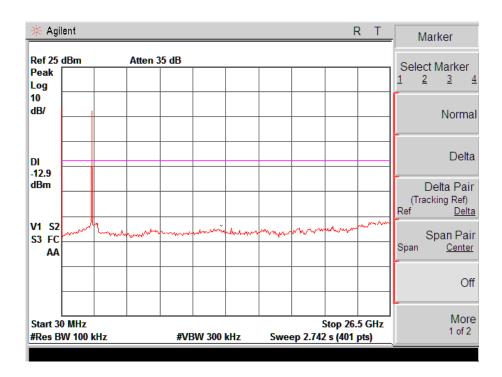
#### Middle Channel



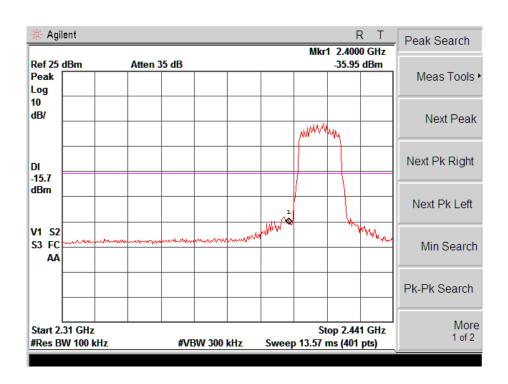
## High Channel



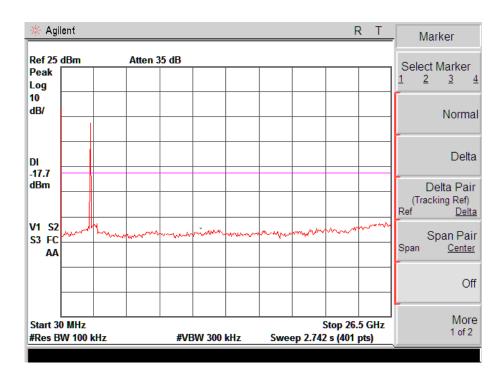




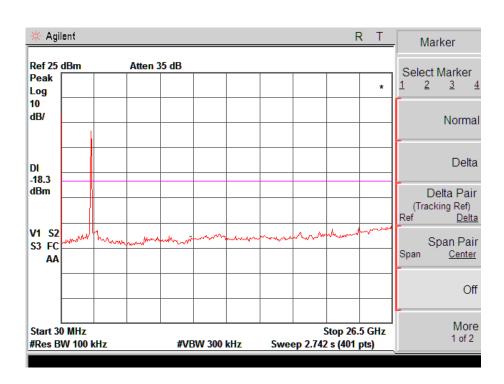
802.11g Low Channel





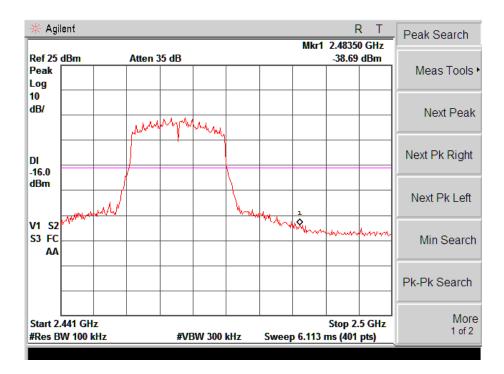


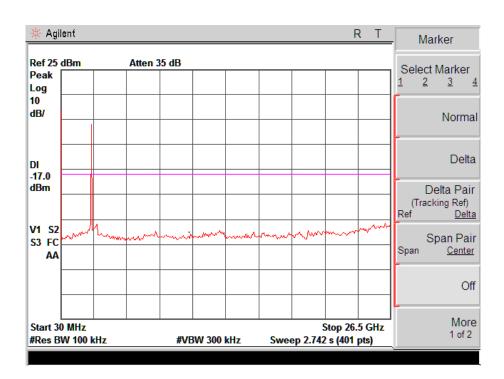
### Middle Channel





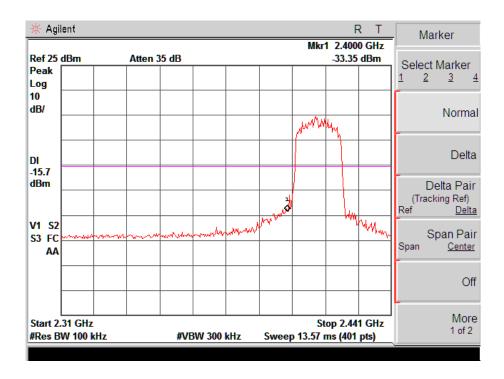
## High Channel

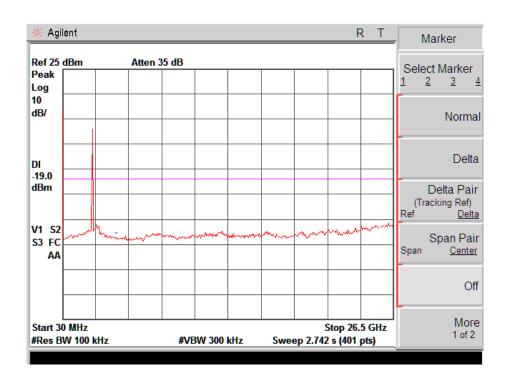






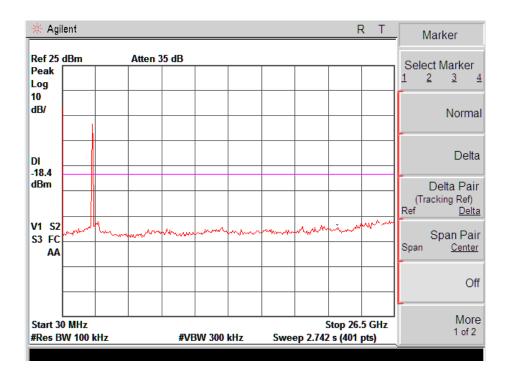
# 11n-HT20 Low Channel



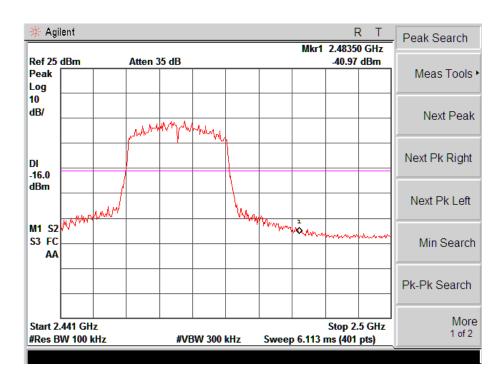




### Middle Channel

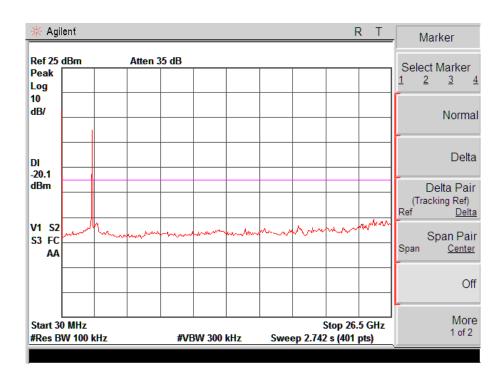


## High Channel

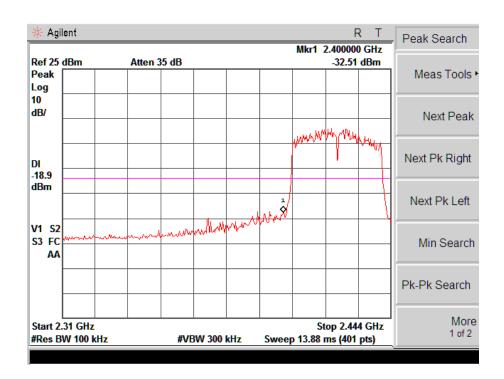


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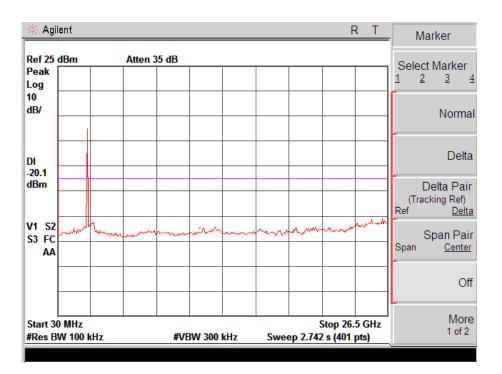




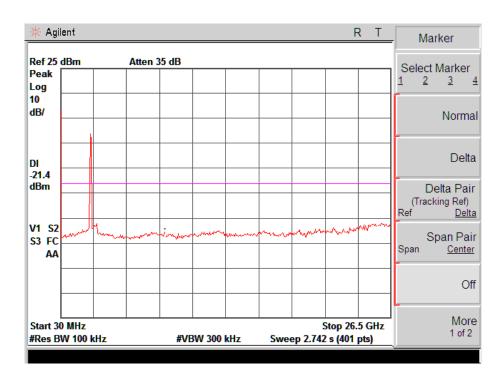
# 11n-HT40 Low Channel





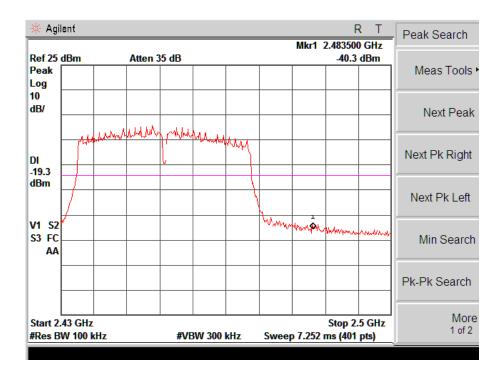


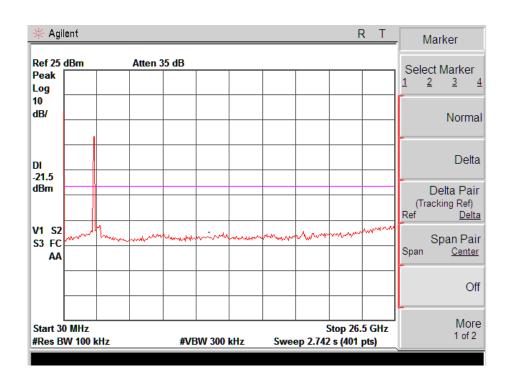
### Middle Channel





## High Channel







# 10. Conducted Emissions

## **10.1 Measurement Uncertainty**

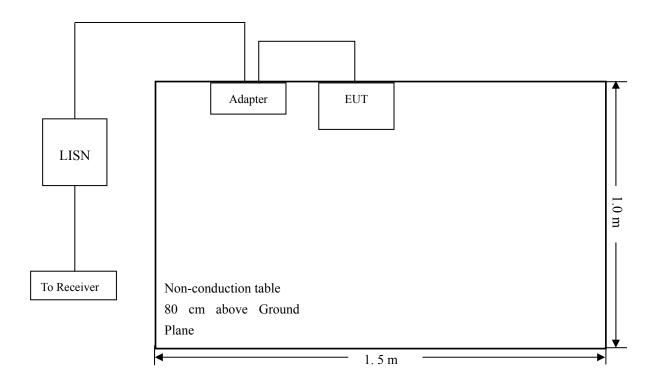
Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is  $\pm 2.88$  dB.

## **10.2 Test Procedure**

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle. The spacing between the peripherals was 10 cm.

## 10.3 Basic Test Setup Block Diagram



### **10.4 Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	52%
ATM Pressure:	1012 mbar

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TEST Model: RNSMU5036

# 10.5 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

Start Frequency	. 150 kHz
Stop Frequency	. 30 MHz
Sweep Speed	. Auto
IF Bandwidth	. 10 kHz
Quasi-Peak Adapter Bandwidth	. 9 kHz
Quasi-Peak Adapter Mode	. Normal

# 10.6 Summary of Test Results/Plots

According to the data in section 10.7, the EUT <u>complied with the FCC Part 15.207</u> Conducted margin for this device, with the *worst* margin:

## 10.7 Conducted Emissions Test Data

**Plot of Conducted Emissions Test Data** 

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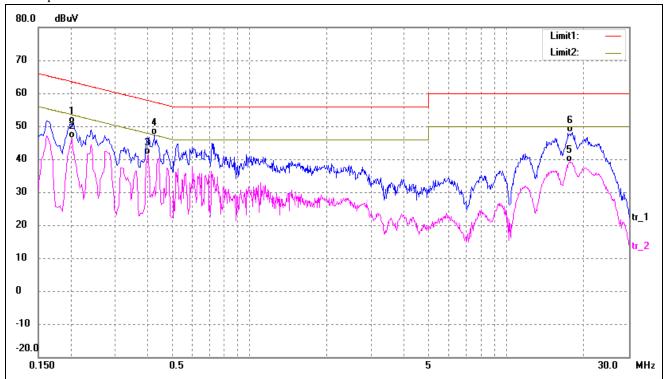
EUT: 50" UHD LED TV

D50RWB714-U-A-I RNSMU5036

(Where "X" can be any alphanumeric of a-z, A-Z or 0-9 or blank &"-".)

Operating Condition: Transmitting
Comment: AC 120V/60Hz

Test Specification: Neutral



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.2020	40.97	9.80	50.77	63.52	-12.75	QP
2	0.2020	36.56	9.80	46.36	53.52	-7.16	AVG
3*	0.4020	31.65	9.80	41.45	47.81	-6.36	AVG
4	0.4260	37.59	9.80	47.39	57.33	-9.94	QP
5	17.6180	29.55	9.65	39.20	50.00	-10.80	AVG
6	18.1140	38.39	9.65	48.04	60.00	-11.96	QP

### Note:

- 1. Result Level = Read Level +LISN Factor + Pulse Limiter Factor + Cable loss.
- 2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz), Step size: 4 kHz, Scan time: auto.

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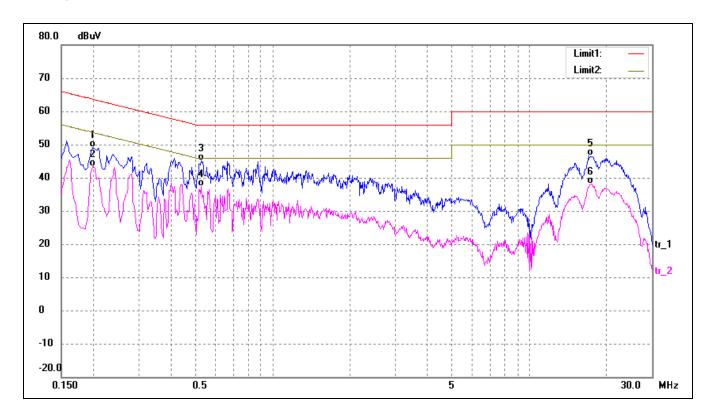
EUT: 50" UHD LED TV

D50RWB714-U-A-I RNSMU5036

(Where "X" can be any alphanumeric of a-z, A-Z or 0-9 or blank &"-".)

Operating Condition: Transmitting
Comment: AC 120V/60Hz

Test Specification: Line



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1980	39.30	9.80	49.10	63.69	-14.59	QP
2	0.1980	33.64	9.80	43.44	53.69	-10.25	AVG
3	0.5260	35.35	9.80	45.15	56.00	-10.85	QP
4*	0.5260	27.70	9.80	37.50	46.00	-8.50	AVG
5	17.0459	36.96	9.64	46.60	60.00	-13.40	QP
6	17.2660	28.51	9.64	38.15	50.00	-11.85	AVG

#### Note:

- 1. Result Level = Read Level +LISN Factor + Pulse Limiter Factor + Cable loss.
- 2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz), Step size: 4 kHz, Scan time: auto.

### \*\*\*\*\* END OF REPORT \*\*\*\*\*

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