

# FCC Part 15C Measurement and Test Report

## For

## **DDC TRADING INC**

400 Sunny Isles Blvd # 1506 Sunny Isles Beach, FL 33160, Miami, USA.

FCC ID: 2AGF3E6

FCC Rule(s): FCC Part 15C

Product Description: Mobile phone

Tested Model: <u>E6</u>

**Report No.:** <u>STR17108152I-2</u>

Sample Receipt Date: 2017-10-17

**Tested Date:** <u>2017-10-18 to 2017-11-08</u>

**Issued Date**: <u>2017-11-09</u>

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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.



## TABLE OF CONTENTS

1. GENERAL INFORMATION	3
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	3
1.2 TEST STANDARDS.	4
1.3 TEST METHODOLOGY	
1.4 TEST FACILITY	
1.5 EUT SETUP AND TEST MODE	5
1.6 MEASUREMENT UNCERTAINTY	
1.7 TEST EQUIPMENT LIST AND DETAILS	
2. SUMMARY OF TEST RESULTS	
3. RF EXPOSURE	
3.1 STANDARD APPLICABLE	
3.2 TEST RESULT	3
4. ANTENNA REQUIREMENT	9
4.1 STANDARD APPLICABLE.	
4.2 EVALUATION INFORMATION	9
5. POWER SPECTRAL DENSITY	10
5.1 STANDARD APPLICABLE	10
5.2 TEST PROCEDURE	
5.3 Environmental Conditions	
5.4 SUMMARY OF TEST RESULTS/PLOTS	
6. 6DB BANDWIDTH	18
6.1 STANDARD APPLICABLE.	18
6.2 Test Procedure	
6.3 ENVIRONMENTAL CONDITIONS	
6.4 SUMMARY OF TEST RESULTS/PLOTS	
7. RF OUTPUT POWER	25
7.1 STANDARD APPLICABLE	25
7.2 Test Procedure	
7.3 ENVIRONMENTAL CONDITIONS	
7.4 SUMMARY OF TEST RESULTS/PLOTS	26
8. FIELD STRENGTH OF SPURIOUS EMISSIONS	
8.1 STANDARD APPLICABLE	
8.2 TEST PROCEDURE	
8.3 CORRECTED AMPLITUDE & MARGIN CALCULATION	
8.4 ENVIRONMENTAL CONDITIONS	
9. OUT OF BAND EMISSIONS	
9.1 Standard Applicable	
9.3 ENVIRONMENTAL CONDITIONS	
9.4 SUMMARY OF TEST RESULTS/PLOTS	
10. CONDUCTED EMISSIONS	
10.1 Test Procedure	
10.2 BASIC TEST SETUP BLOCK DIAGRAM	
10.3 Environmental Conditions	
10.4 Test Receiver Setup	
10.5 SUMMARY OF TEST RESULTS/PLOTS	
10.6 CONDUCTED EMISSIONS TEST DATA	65



## 1. GENERAL INFORMATION

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

**Client Information** 

Applicant: DDC TRADING INC

Address of applicant: 400 Sunny Isles Blvd # 1506 Sunny Isles Beach,

FL 33160, Miami, USA.

Manufacturer: DDC TRADING INC

Address of manufacturer: 400 Sunny Isles Blvd # 1506 Sunny Isles Beach,

FL 33160, Miami, USA.

General Description of EUT	
Product Name:	Mobile phone
Trade Name:	DDC
Model No.:	E6
Adding Model(s):	/
Rated Voltage:	Battery: DC3.8V; USB:DC5V
Battery Capacity:	2800 mAh
	Model:HJ-0501000B3-AR
Power Adapter Model:	INPUT:100-240~50/60Hz 0.15A
	OUTPUT:5V1000mA
Software Version:	DDC_E6
Hardware Version:	V138_MB
Note: The test data is gathered from a produc	ction sample provided by the manufacturer.

Technical Characteristics of EUT			
Support Standards:	802.11b, 802.11g, 802.11n		
Francisco Donnes	2412-2462MHz for 802.11b/g/n(HT20)		
Frequency Range:	2422-2452MHz for 802.11n(HT40)		
RF Output Power:	17.02 dBm (Conducted)		
Type of Modulation:	CCK, OFDM, QPSK, BPSK, 16QAM, 64QAM		
Data Rate:	1-11Mbps, 6-54Mbps, up to 150Mbps		
Quantity of Channels:	11 for 802.11b/g/n(HT20) ,7 for 802.11n(HT40)		
Channel Separation:	5MHz		
Type of Antenna:	Integral		
Antenna Gain:	-1.5dBi		
Lowest Internal Frequency	26MHz		
Highest Internal Frequency:	1.2GHz		



Model: E6

#### 1.2 Test Standards

The following report is prepared on behalf of the DDC TRADING INC 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 Commissions 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 Commissions 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, and ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz. The measurement guide KDB 558074 D01 v04 for digital transmission systems shall be performed also.

#### 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.



## 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:

<b>Test Mode List</b>		
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.

Accessories Equipment List and Details						
Description	Manufacturer	Model No. Serial Numbe				
/	/	/	/			
Accessories Cable List	and Details					
Cable Description	Length (m)	Shielded/Unshielded With Core/Without				
/	/	/	/			
<b>EUT Cable List and D</b>	EUT Cable List and Details					
Cable Description	Length (m)	Shielded/Unshielded	With Core/Without Core			
USB Cable	0.83	Unshielded	Without			
Earphone Cable	1.00	Unshielded	Without			

## 1.6 Measurement Uncertainty

Measurement uncertainty				
Parameter	Conditions	Uncertainty		
RF Output Power	Conducted	±0.42dB		
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		

Report No.: STR17108152I-2 Page 5 of 67 FCC Part 15.247



## 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
SEMT-1168	Pre-amplifier	Direction Systems Inc.	PAP-0126	14141-12838	2017-08-15	2018-08-14
SEMT-1169	Pre-amplifier	Direction Systems Inc.	PAP-2640	14145-14153	2017-08-15	2018-08-14
SEMT-1163	Spectrum Analyzer	Rohde & Schwarz	FSP40	100612	2017-06-12	2018-06-11
SEMT-1170	DRG Horn Antenna	A.H. SYSTEMS	SAS-574	571	2017-03-09	2018-03-08



## 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

Report No.: STR17108152I-2 Page 7 of 67 FCC Part 15.247



## 3. RF Exposure

## 3.1 Standard Applicable

According to § 1.1307 and § 2.1093, the portable transmitter must comply the RF exposure requirements.

## 3.2 Test Result

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

Report No.: STR17108152I-2 Page 8 of 67 FCC Part 15.247





## 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 an integral antenna, fulfill the requirement of this section.

Report No.: STR17108152I-2 Page 9 of 67 FCC Part 15.247



Model: E6

## 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

Report No.: STR17108152I-2 Page 10 of 67 FCC Part 15.247



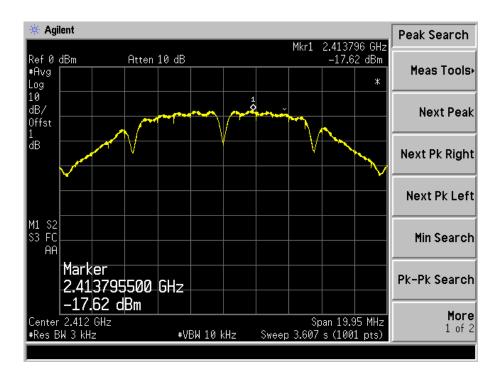
## **5.4 Summary of Test Results/Plots**

Test Mode	Test Channel MHz	Power Spectral Density dBm/3kHz	Limit dBm/3kHz
	2412	-17.62	8
802.11b	2437	-17.57	8
	2462	-18.11	8
	2412	-19.39	8
802.11g	2437	-19.09	8
	2462	-19.54	8
	2412	-19.60	8
802.11n HT20	2437	-19.85	8
	2462	-20.45	8
	2422	-22.66	8
802.11n HT40	2437	-23.25	8
	2452	-22.61	8

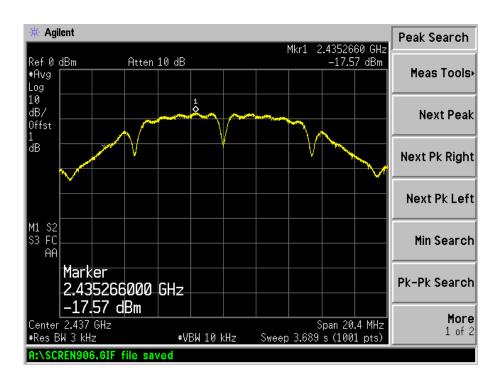
Please refer to the following test plots:



#### 802.11b-Low Channel

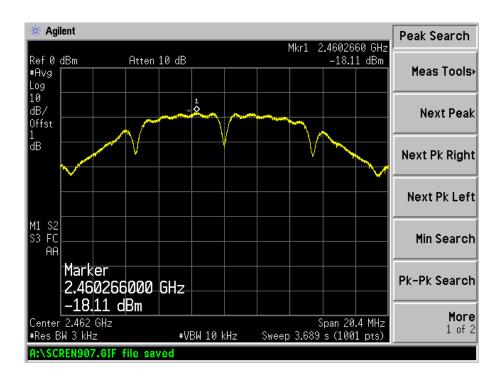


#### 802.11b-Middle Channel

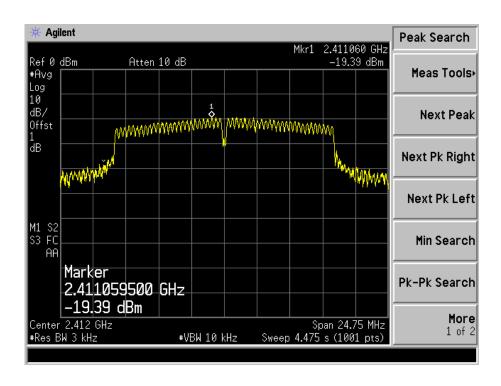




### 802.11b-High Channel

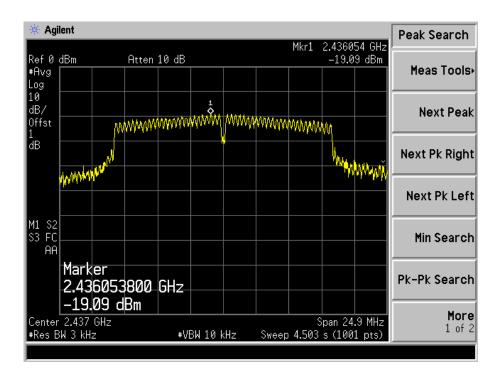


## 802.11g-Low Channel

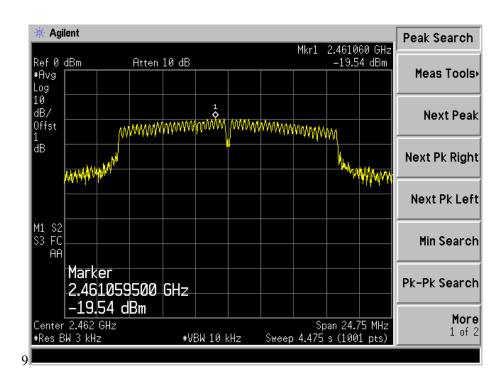




## 802.11g-Middle Channel

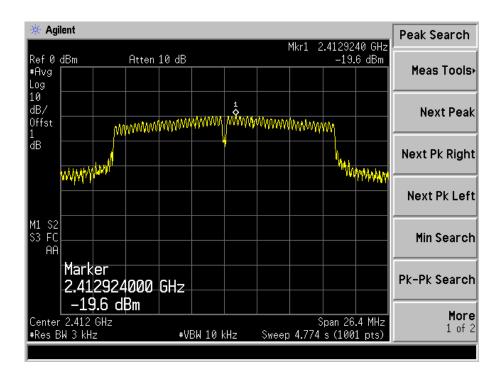


## 802.11g-High Channel

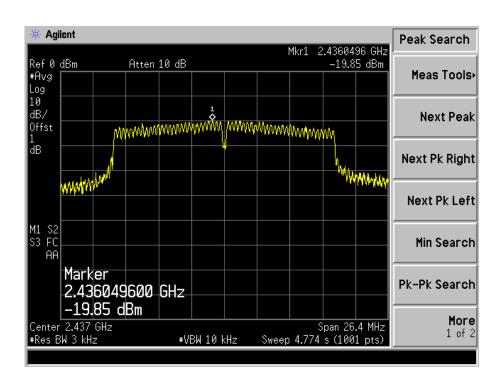




#### 802.11n-HT20-Low Channel

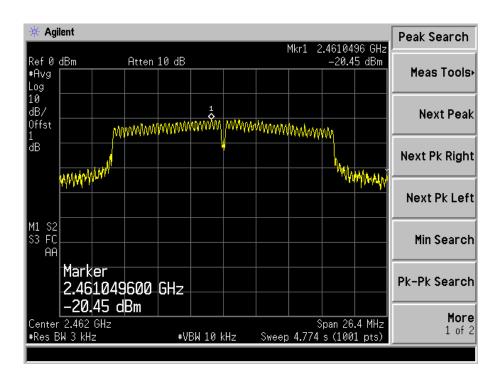


#### 802.11n-HT20-Middle Channel

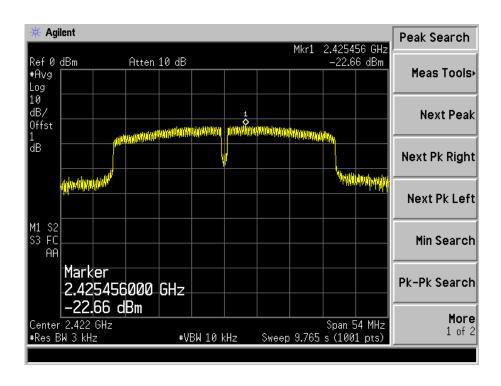




## 802.11n-HT20-High Channel

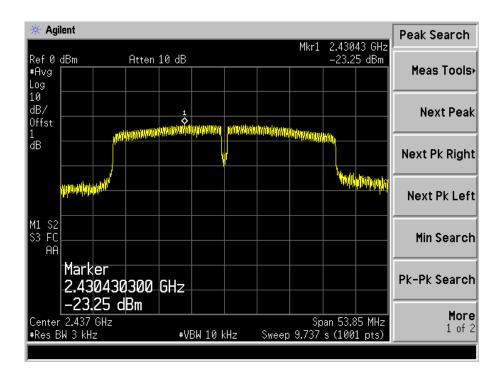


#### 802.11n-HT40-Low Channel

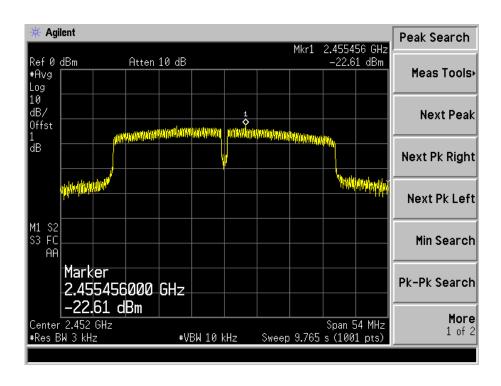




#### 802.11n-HT40-Middle Channel



### 802.11n-HT40-High Channel



Model: E6

## 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, and 5725–5850 MHz bands. 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

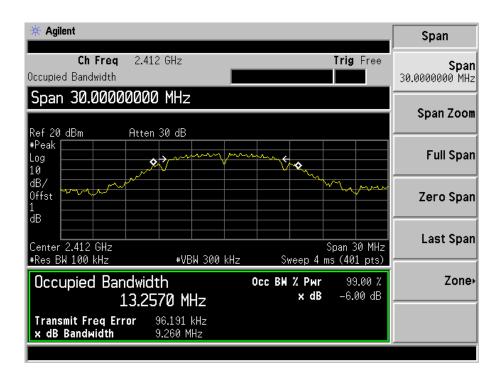
Test Mode	Test Channel	6 dB Bandwidth	99% Bandwidth	Limit
Test Wiode	MHz	MHz	MHz	kHz
	2412	9.260	13.2570	≥500
802.11b	2437	9.205	13.5130	≥500
	2462	9.260	13.5607	≥500
	2412	16.386	16.4264	≥500
802.11g	2437	16.411	16.5059	≥500
	2462	16.348	16.4369	≥500
	2412	17.655	17.5976	≥500
802.11n-HT20	2437	17.645	17.5972	≥500
	2462	17.634	17.5880	≥500
	2422	35.928	35.9180	≥500
802.11n-HT40	2437	36.306	35.8982	≥500
	2452	35.379	35.9789	≥500

Please refer to the following test plots:

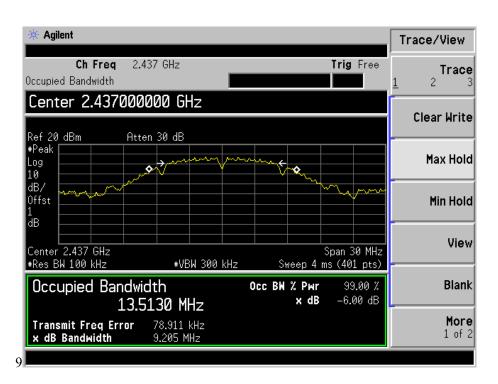
Report No.: STR17108152I-2 Page 18 of 67 FCC Part 15.247



#### 802.11b-Low Channel

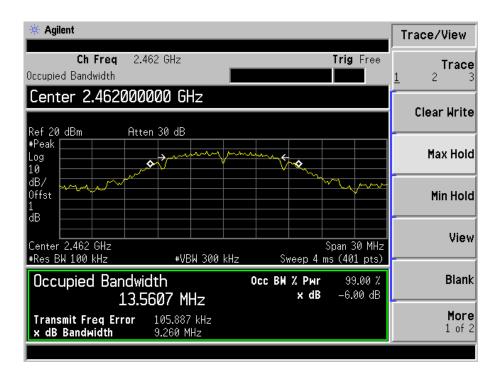


#### 802.11b-Middle Channel

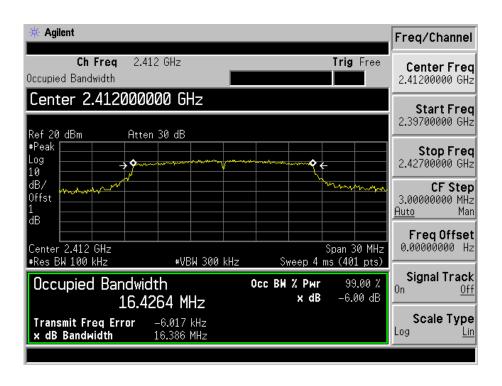




#### 802.11b-High Channel

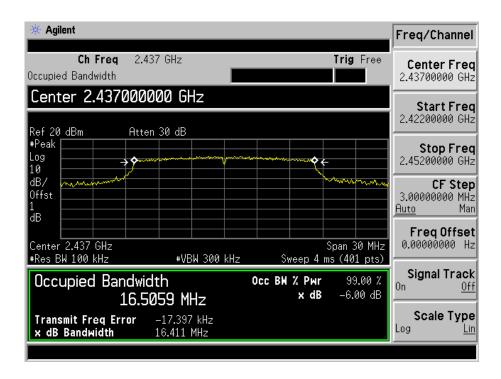


### 802.11g-Low Channel

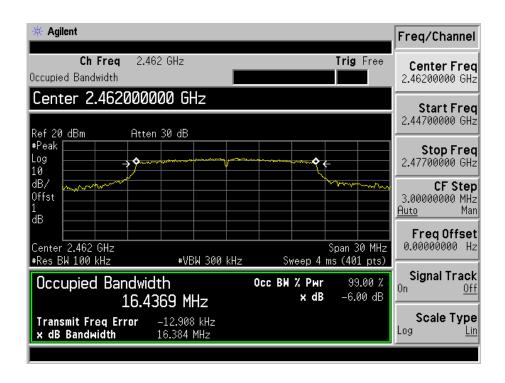




#### 802.11g-Middle Channel

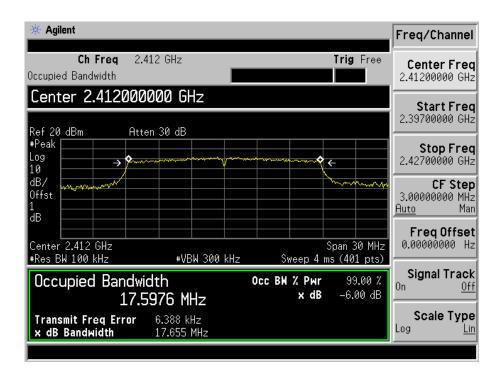


#### 802.11g-High Channel

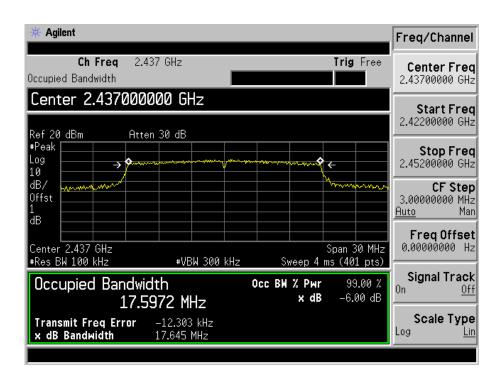




#### 802.11n-HT20-Low Channel

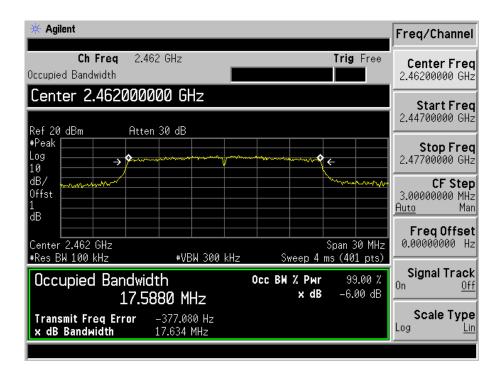


#### 802.11n-HT20-Middle Channel

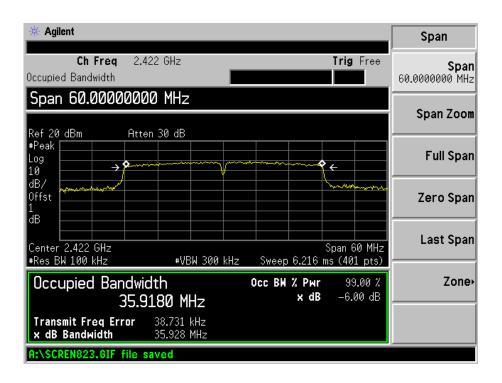




## 802.11n-HT20-High Channel

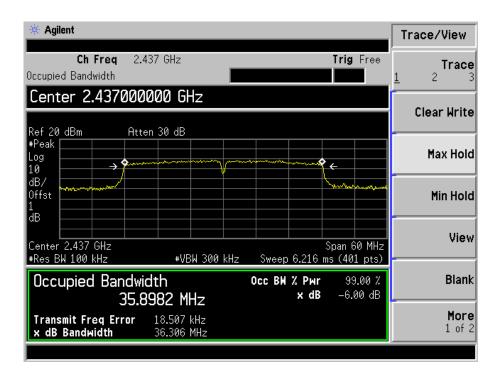


#### 802.11n-HT40-Low Channel

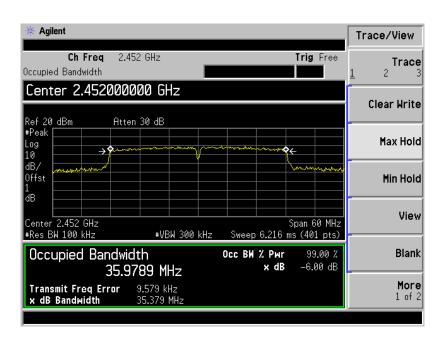




#### 802.11n-HT40-Middle Channel



### 802.11n-HT40-High Channel



Model: E6

## 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, and 5725–5850 MHz bands: 1 Watt.

#### 7.2 Test Procedure

According to the KDB-558074 D01 v04, 9.2.2.2, 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 x 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

Report No.: STR17108152I-2 Page 25 of 67 FCC Part 15.247



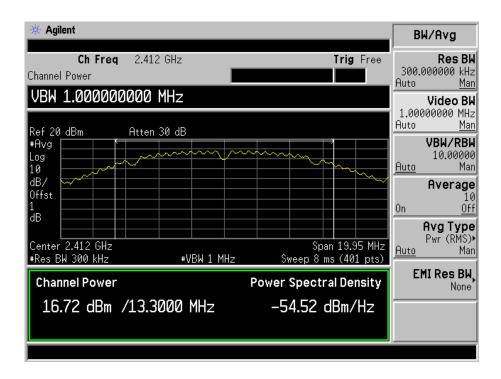
## 7.4 Summary of Test Results/Plots

Test Mede	Frequency	Reading	Output Power	Limit	
Test Mode	MHz	dBm	mW	mW	
	2412	16.72	46.99	1000	
802.11b _ 11Mbps	2437	16.97	49.77	1000	
	2462	17.02	50.35	1000	
	2412	14.85	30.55	1000	
802.11g_54Mbps	2437	14.90	30.90	1000	
	2462	14.71	29.58	1000	
	2412	14.50	28.18	1000	
802.11n HT20_MCS7	2437	15.80	38.02	1000	
	2462	15.03	31.84	1000	
	2422	14.39	27.48	1000	
802.11n HT40_MCS7	2437	14.10	25.70	1000	
	2452	14.57	28.64	1000	

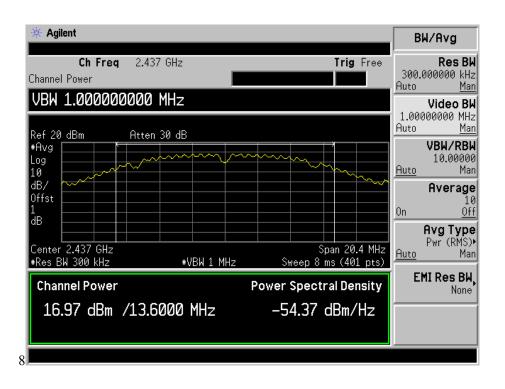
Please refer to the following test plots:



#### 802.11b-11Mbps-Low Channel

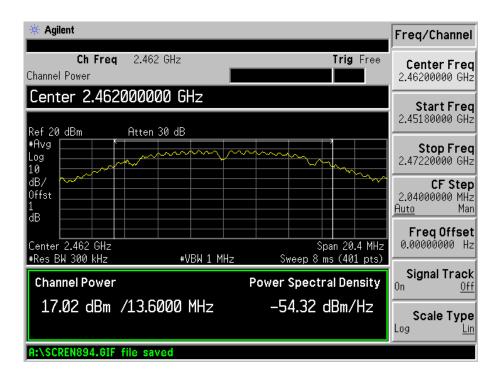


### 802.11b -11Mbps-Middle Channel

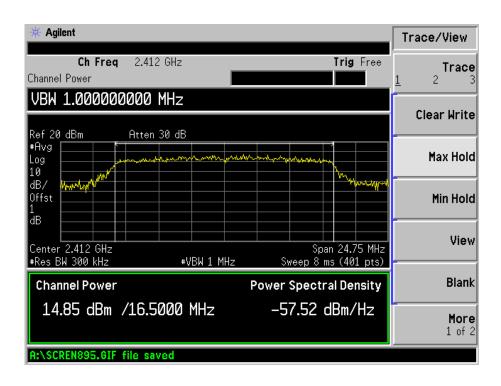




## 802.11b -11Mpbs-High Channel

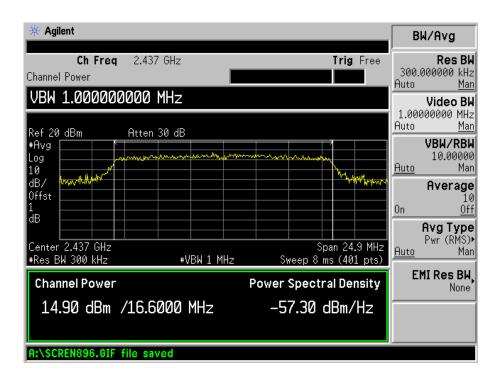


### 802.11g-54Mbps-Low Channel

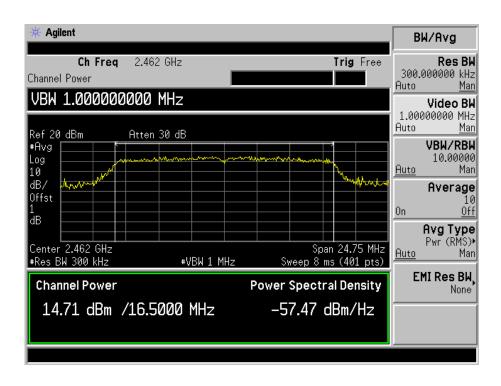




#### 802.11g-54Mbps-Middle Channel

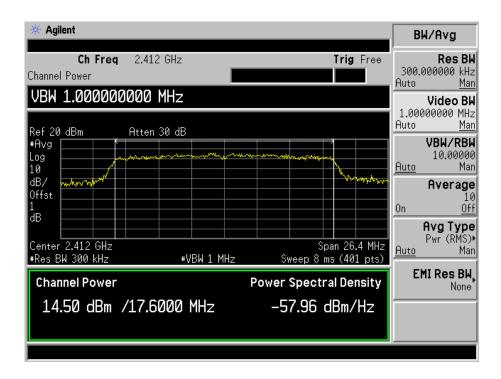


### 802.11g-54Mpbs-High Channel

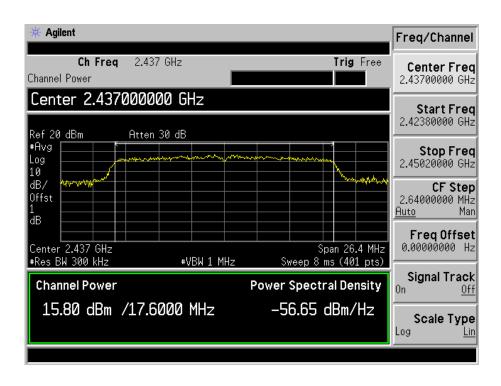




#### 802.11n-HT20-MCS7-Low Channel

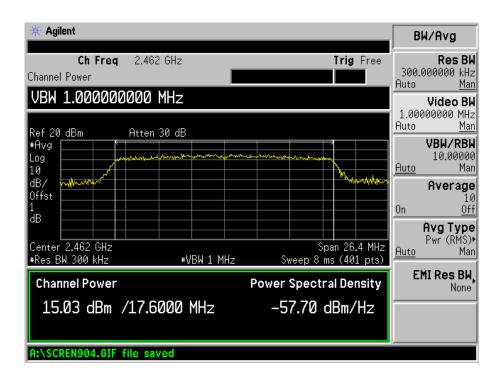


#### 802.11n-HT20-MCS7-Middle Channel

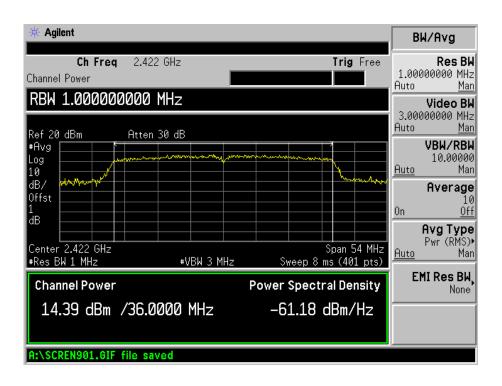




## 802.11n-HT20-MCS7-High Channel

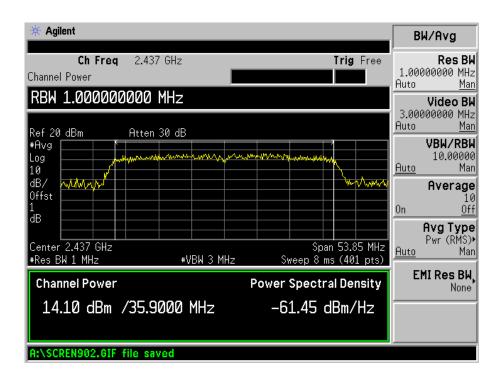


#### 802.11n-HT40-MCS7-Low Channel

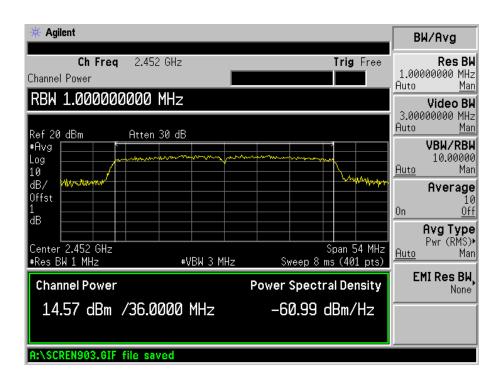




#### 802.11n-HT40-MCS7-Middle Channel



#### 802.11n-HT40-MCS7-High Channel





## 8. Field Strength of Spurious Emissions

## 8.1 Standard Applicable

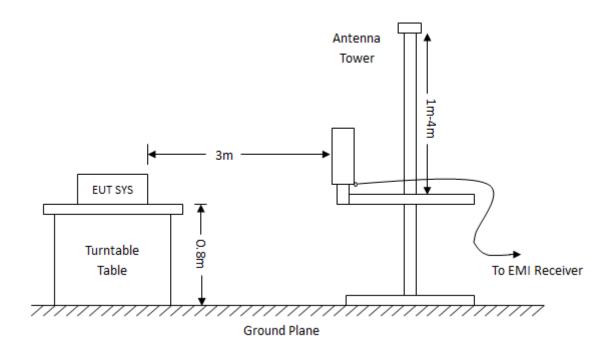
According to §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within 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).

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 below or at the lowest crystal frequency.

#### **8.2 Test Procedure**

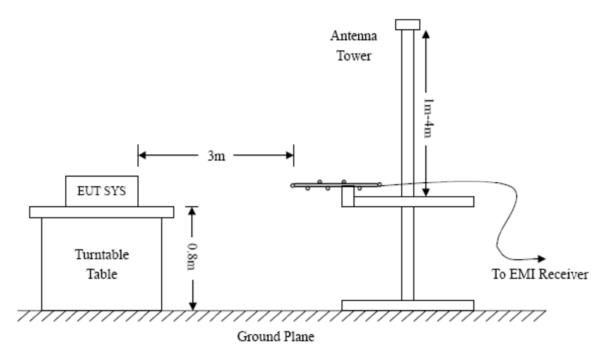
The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.205 15.247(a) and FCC Part 15.209 Limit.

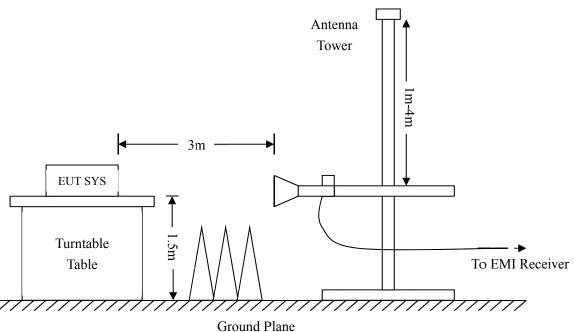
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle. The spacing between the peripherals was 10 cm.



Report No.: STR17108152I-2 Page 33 of 67 FCC Part 15.247







Frequency:9kHz-30MHz RBW=10KHz, VBW = 30KHzSweep time= Auto

Trace = max hold Detector function = peak Frequency:30MHz-1GHz RBW=120KHz, VBW=360KHz Sweep time= Auto Trace =  $\max$  hold

VBW=3MHz(Peak), 10Hz(AV) Sweep time= Auto Trace = max holdDetector function = peak, QP Detector function = peak, AV

Frequency: Above 1GHz

RBW=1MHz,

Model: E6

## 8.3 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:

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:

#### **8.4 Environmental Conditions**

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

Report No.: STR17108152I-2 Page 35 of 67 FCC Part 15.247



## **8.5 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 data was reported.

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

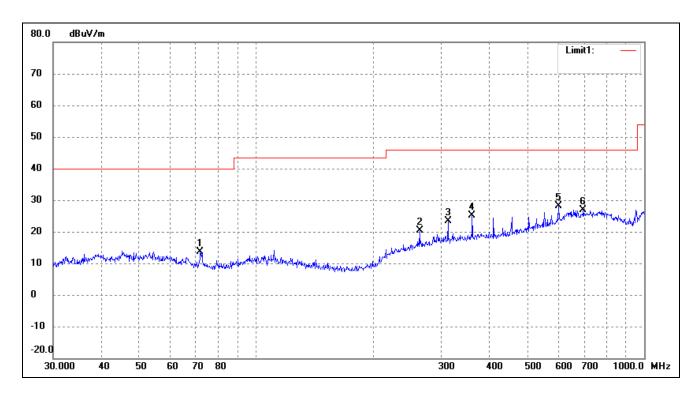
EUT: Mobile phone

Tested Model: E6

Operating Condition: 802.11b Transmitting Low Channel-2412MHz(worst case)

Comment: DC 3.8V by Battery

Test Specification: Horizontal

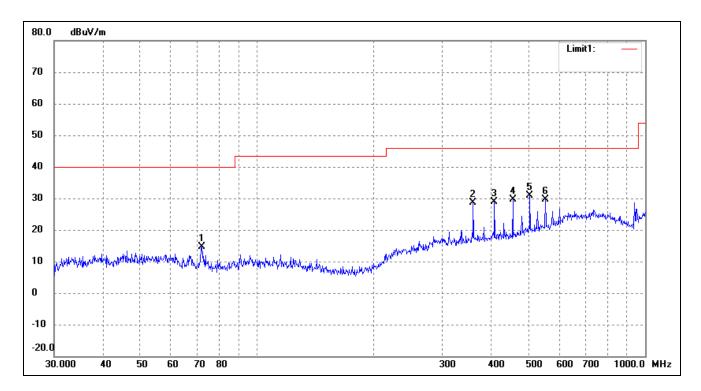


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	71.8320	32.57	-18.94	13.63	40.00	-26.37	327	100	peak
2	263.8190	31.91	-11.51	20.40	46.00	-25.60	95	100	peak
3	312.1794	32.86	-9.44	23.42	46.00	-22.58	291	100	peak
4	360.4477	34.17	-8.92	25.25	46.00	-20.75	120	100	peak
5	601.4265	28.44	-0.36	28.08	46.00	-17.92	149	100	peak
6	696.8567	28.39	-1.59	26.80	46.00	-19.20	344	100	peak

Report No.: STR17108152I-2 Page 36 of 67 FCC Part 15.247



Test Specification: Vertical



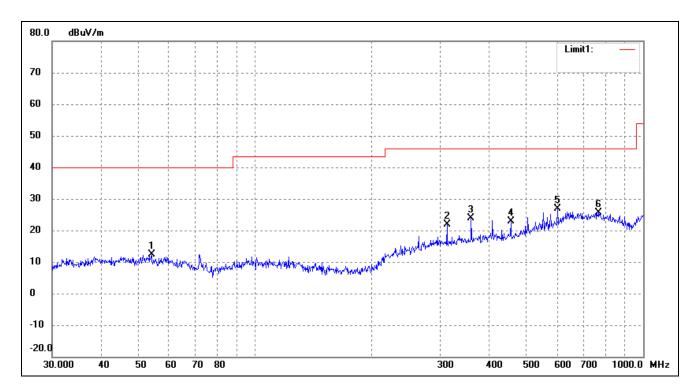
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	72.0843	33.70	-18.97	14.73	40.00	-25.27	55	100	peak
2	360.4477	37.46	-8.92	28.54	46.00	-17.46	132	100	peak
3	408.9460	36.93	-8.04	28.89	46.00	-17.11	67	100	peak
4	455.9058	36.55	-6.85	29.70	46.00	-16.30	167	100	peak
5	504.7062	36.55	-5.67	30.88	46.00	-15.12	94	100	peak
6	552.8833	34.60	-5.04	29.56	46.00	-16.44	295	100	peak



Operating Condition: 802.11b Transmitting Middle Channel-2437MHz(worst case)

Comment: DC 3.8V by Battery

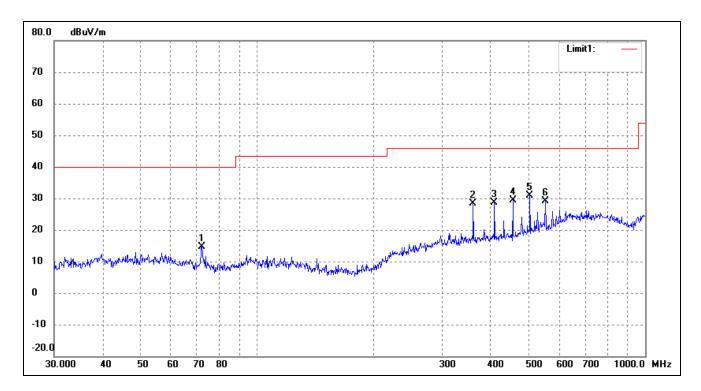
Test Specification: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	54.0711	28.76	-16.50	12.26	40.00	-27.74	188	100	peak
2	312.1794	31.40	-9.44	21.96	46.00	-24.04	175	100	peak
3	360.4477	32.90	-8.92	23.98	46.00	-22.02	140	100	peak
4	455.9058	29.70	-6.85	22.85	46.00	-23.15	150	100	peak
5	601.4265	27.35	-0.36	26.99	46.00	-19.01	355	100	peak
6	768.7482	26.83	-1.10	25.73	46.00	-20.27	94	100	peak



Test Specification: Vertical



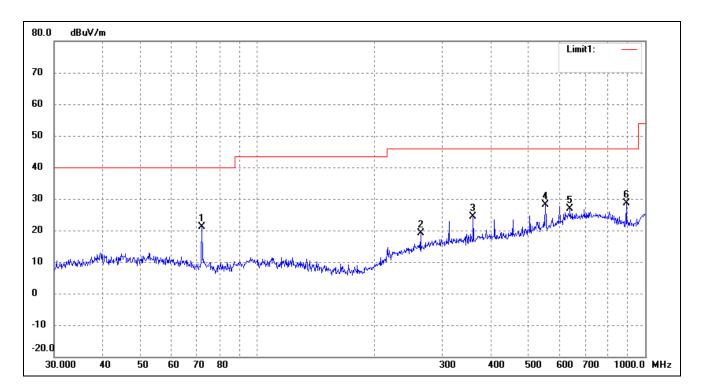
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	72.0843	33.56	-18.97	14.59	40.00	-25.41	283	100	peak
2	360.4477	37.26	-8.92	28.34	46.00	-17.66	93	100	peak
3	408.9460	36.71	-8.04	28.67	46.00	-17.33	267	100	peak
4	455.9058	36.24	-6.85	29.39	46.00	-16.61	102	100	peak
5	504.7062	36.44	-5.67	30.77	46.00	-15.23	126	100	peak
6	552.8833	34.28	-5.04	29.24	46.00	-16.76	108	100	peak



Operating Condition: 802.11b Transmitting High Channel-2462MHz(worst case)

Comment: DC 3.8V by Battery

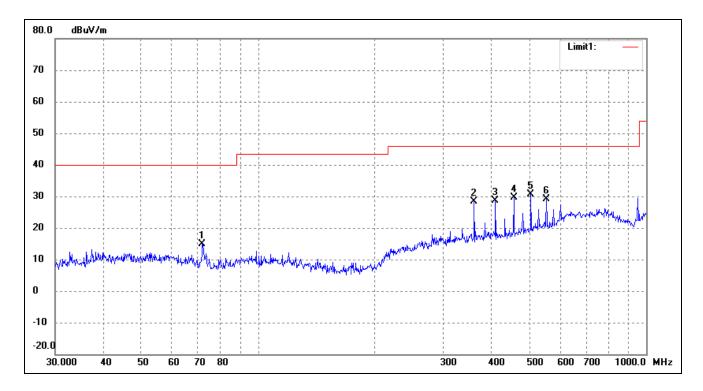
Test Specification: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	72.0843	40.13	-18.97	21.16	40.00	-18.84	285	100	peak
2	263.8190	30.61	-11.51	19.10	46.00	-26.90	242	100	peak
3	360.4477	33.22	-8.92	24.30	46.00	-21.70	67	100	peak
4	552.8833	33.11	-5.04	28.07	46.00	-17.93	281	100	peak
5	640.6110	27.95	-1.03	26.92	46.00	-19.08	145	100	peak
6	893.8567	31.30	-2.71	28.59	46.00	-17.41	212	100	peak



Test Specification: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	71.8320	33.93	-18.94	14.99	40.00	-25.01	99	100	peak
2	360.4477	37.32	-8.92	28.40	46.00	-17.60	188	100	peak
3	408.9460	36.73	-8.04	28.69	46.00	-17.31	68	100	peak
4	455.9058	36.38	-6.85	29.53	46.00	-16.47	138	100	peak
5	504.7062	36.42	-5.67	30.75	46.00	-15.25	128	100	peak
6	552.8833	34.22	-5.04	29.18	46.00	-16.82	346	100	peak



### Spurious Emissions Above 1GHz

Test Mode: 802.11b(worst case)

Frequency	Reading	Correct	Result	Limit	Margin	Polar	Detector
(MHz)	(dBuV/m)	dB	(dBuV/m)	(dBuV/m)	(dB)	H/V	
			Low Channe	el-2412MHz		•	
4824.000	57.06	-3.87	53.19	74	-20.81	Н	PK
4824.000	41.94	-3.87	38.07	54	-15.93	Н	AV
7236.000	59.50	1.14	60.64	74	-13.36	Н	PK
7236.000	42.73	1.19	43.92	54	-10.08	Н	AV
4824.000	61.52	-3.86	57.66	74	-16.34	V	PK
4824.000	47.62	-3.86	43.76	54	-10.24	V	AV
7236.000	62.29	1.10	63.39	74	-10.61	V	PK
7236.000	44.19	1.10	45.29	54	-8.71	V	AV
		Mi	ddle Channel-2	437MHz(802.1	1b)		
4874.000	58.07	-3.74	54.33	74	-19.67	Н	PK
4874.000	41.95	-3.74	38.21	54	-15.79	Н	AV
7311.000	58.88	1.47	60.35	74	-13.65	Н	PK
7311.000	43.59	1.47	45.06	54	-8.94	Н	AV
4874.000	62.20	-3.74	58.46	74	-15.54	V	PK
4874.000	50.05	-3.74	46.31	54	-7.69	V	AV
7311.000	61.71	1.47	63.18	74	-10.82	V	PK
7311.000	43.32	1.47	44.79	54	-9.21	V	AV
		Н	igh Channel-24	62MHz(802.11	b)		
4924.000	55.55	-3.59	51.96	74	-22.04	Н	PK
4924.000	40.90	-3.59	37.31	54	-16.69	Н	AV
7386.000	56.86	1.79	58.65	74	-15.35	Н	PK
7386.000	42.57	1.79	44.36	54	-9.64	Н	AV
4924.000	63.68	-3.59	60.09	74	-13.91	V	PK
4924.000	50.11	-3.59	46.52	54	-7.48	V	AV
7386.000	63.04	1.79	64.83	74	-9.17	V	PK
7386.000	44.59	1.79	46.38	54	-7.62	V	AV

Note: Testing is carried out with frequency rang 9kHz to the tenth harmonics, other than listed in the table above are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.



Model: E6

### 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.



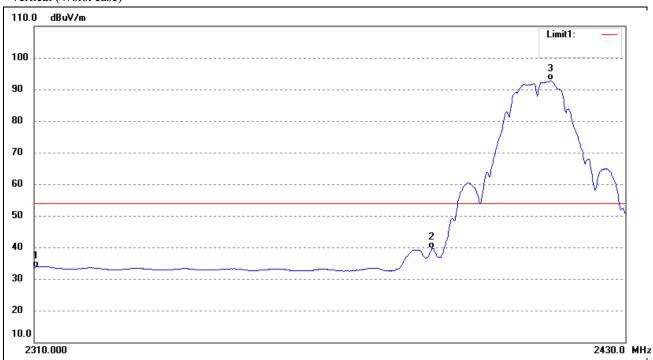
## 9.3 Environmental Conditions

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

## 9.4 Summary of Test Results/Plots

## 802.11b-Lowest Bandedge

Vertical (Worst case)

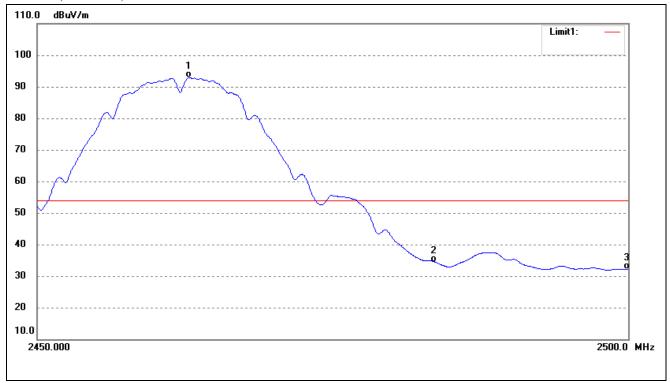


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	40.07	-6.38	33.69	54.00	-20.31	Average Detector
	2310.000	53.54	-6.38	47.16	74.00	-26.84	Peak Detector
2	2390.000	46.78	-7.26	39.52	54.00	-14.48	Average Detector
	2390.000	56.25	-7.26	48.99	74.00	-25.01	Peak Detector
3	2414.543	100.16	-7.40	92.76	/	/	Average Detector
	2413.321	105.10	-7.40	97.70	/	/	Peak Detector

Report No.: STR17108152I-2 Page 44 of 67 FCC Part 15.247



## 802.11b-Highest Bandedge

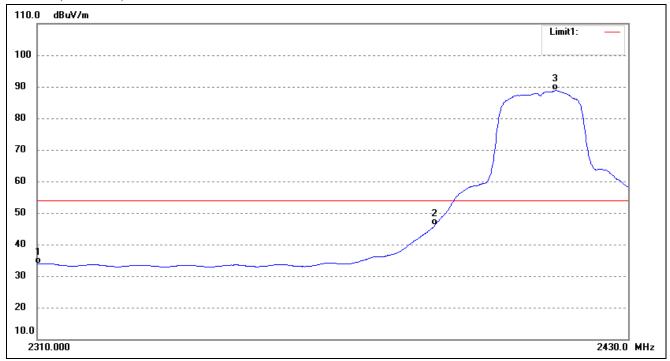


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	2462.754	100.31	-7.31	93.00	/	/	Average Detector
	2463.450	105.16	-7.31	97.85	/	/	Peak Detector
2	2483.500	41.74	-7.28	34.46	54.00	-19.54	Average Detector
	2483.500	53.14	-7.28	45.86	74.00	-28.14	Peak Detector
3	2500.000	39.33	-7.25	32.08	54.00	-21.92	Average Detector
	2500.000	52.59	-7.25	45.34	74.00	-28.66	Peak Detector



## 802.11g-Lowest Bandedge

## Vertical (Worst case)

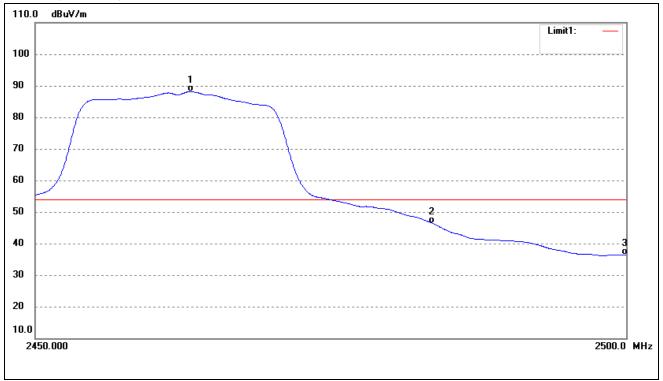


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	40.16	-6.38	33.78	54.00	-20.22	Average Detector
	2310.000	52.25	-6.38	45.87	74.00	-28.13	Peak Detector
2	2390.000	53.41	-7.26	46.15	54.00	-7.85	Average Detector
	2390.000	69.82	-7.26	62.56	74.00	-11.44	Peak Detector
3	2414.910	96.20	-7.40	88.80	/	/	Average Detector
	2414.788	106.40	-7.40	99.00	/	/	Peak Detector

Report No.: STR17108152I-2 Page 46 of 67 FCC Part 15.247



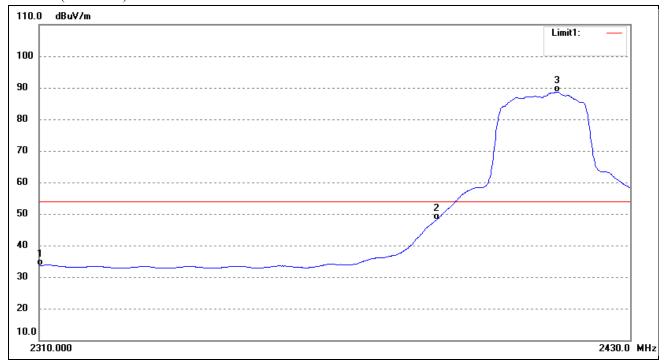
# 802.11g-Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2463.052	95.45	-7.31	88.14	/	/	Average Detector
	2463.351	105.85	-7.31	98.54	/	/	Peak Detector
2	2483.500	53.65	-7.28	46.37	54.00	-7.63	Average Detector
	2483.500	72.08	-7.28	64.80	74.00	-9.20	Peak Detector
3	2500.000	43.55	-7.25	36.30	54.00	-17.70	Average Detector
	2500.000	57.70	-7.25	50.45	74.00	-23.55	Peak Detector



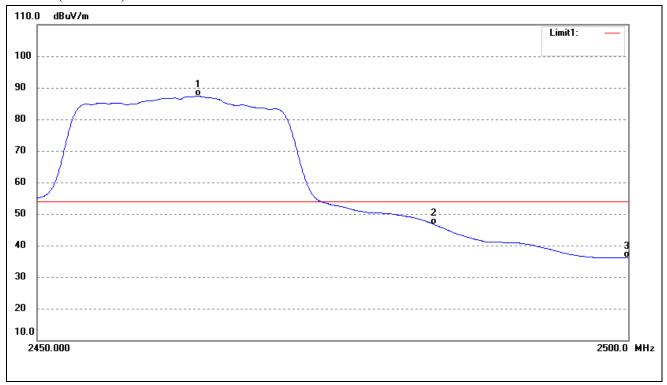
## 802.11n-HT20-Lowest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	40.02	-6.38	33.64	54.00	-20.36	Average Detector
	2310.000	52.94	-6.38	46.56	74.00	-27.44	Peak Detector
2	2390.000	55.50	-7.26	48.24	54.00	-5.76	Average Detector
	2390.000	77.06	-7.26	69.80	74.00	-4.20	Peak Detector
3	2414.910	96.02	-7.40	88.62	/	/	Average Detector
	2414.788	106.22	-7.40	98.82	/	/	Peak Detector



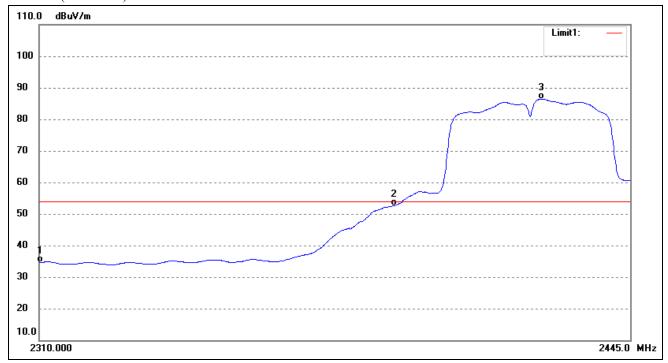
## 802.11n-HT20-Highest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2463.500	94.71	-7.31	87.40	/	/	Average Detector
	2462.853	105.15	-7.31	97.84	/	/	Peak Detector
2	2483.500	53.84	-7.28	46.56	54.00	-7.44	Average Detector
	2483.500	73.97	-7.28	66.69	74.00	-7.31	Peak Detector
3	2500.000	43.41	-7.25	36.16	54.00	-17.84	Average Detector
	2500.000	60.34	-7.25	53.09	74.00	-20.91	Peak Detector



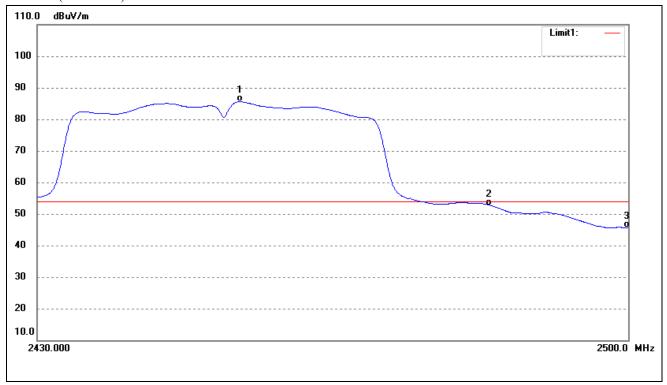
## 802.11n-HT40-Lowest Bandedge



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	40.91	-6.38	34.53	54.00	-19.47	Average Detector
	2310.000	52.80	-6.38	46.42	74.00	-27.58	Peak Detector
2	2390.000	59.95	-7.26	52.69	54.00	-1.31	Average Detector
	2390.000	74.80	-7.26	67.54	74.00	-6.46	Peak Detector
3	2424.258	93.79	-7.38	86.41	/	/	Average Detector
	2424.809	104.46	-7.38	97.08	/	/	Peak Detector



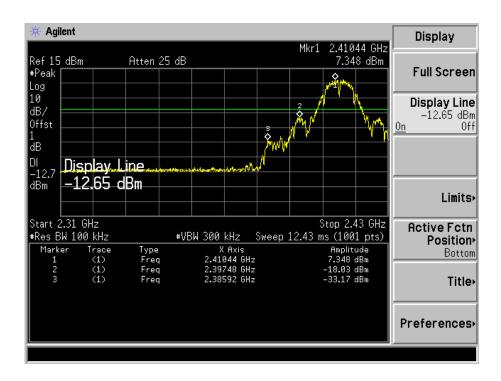
## 802.11n-HT40-Highest Bandedge

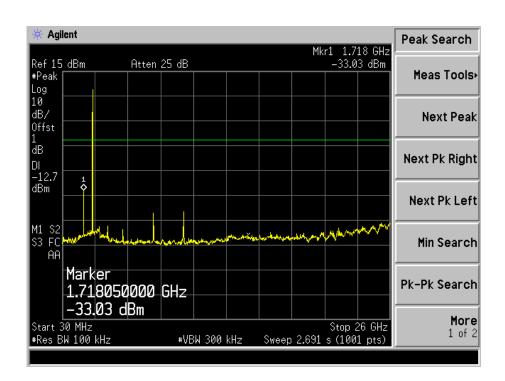


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2453.786	92.92	-7.33	85.59	/	/	Average Detector
	2454.692	103.13	-7.33	95.80	/	/	Peak Detector
2	2483.500	60.02	-7.28	52.74	54.00	-1.26	Average Detector
	2483.500	75.82	-7.28	68.54	74.00	-5.46	Peak Detector
3	2500.000	52.78	-7.25	45.53	54.00	-8.47	Average Detector
	2500.000	67.83	-7.25	60.58	74.00	-13.42	Peak Detector



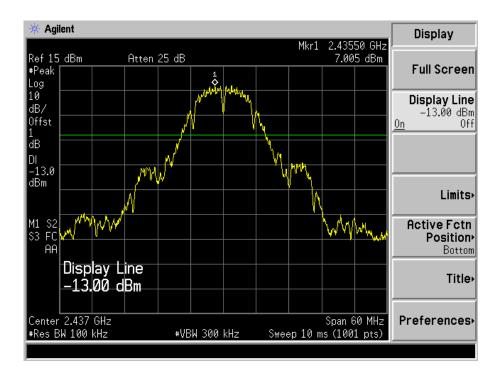
Spurious (Conducted) 802.11b-Lowest Lowest

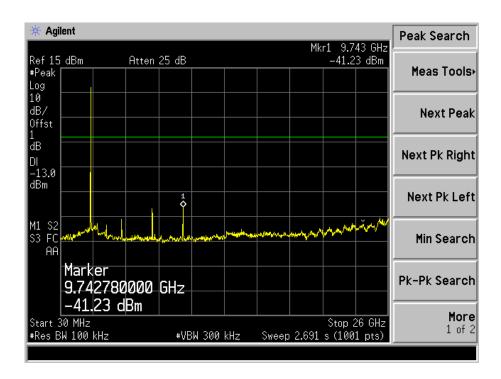






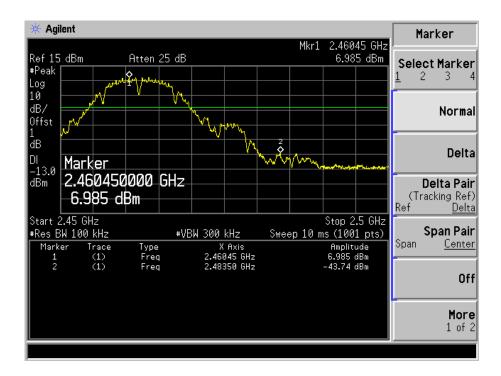
#### Middle

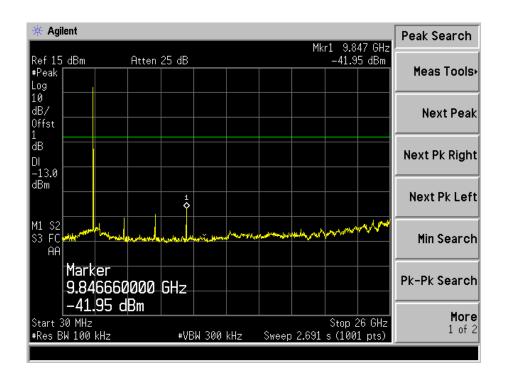






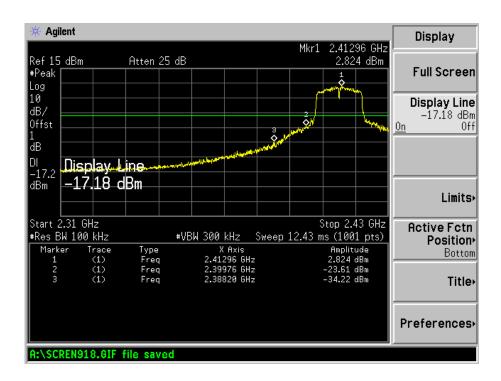
#### Highest

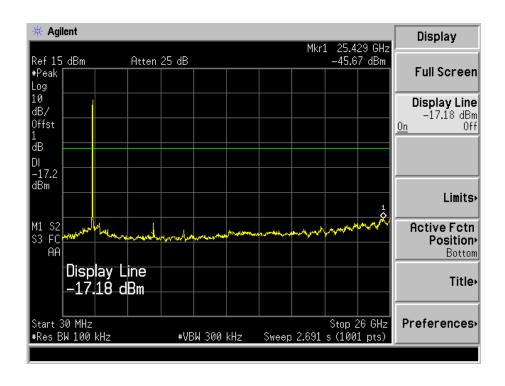






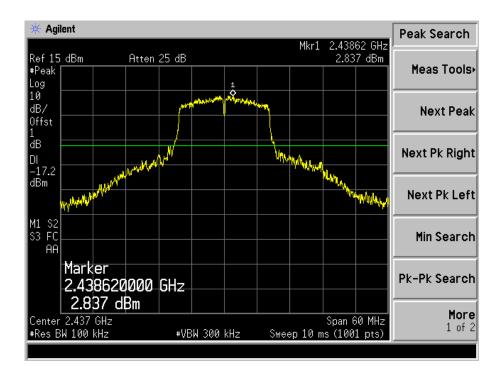
Spurious (Conducted) 802.11g-Lowest Lowest

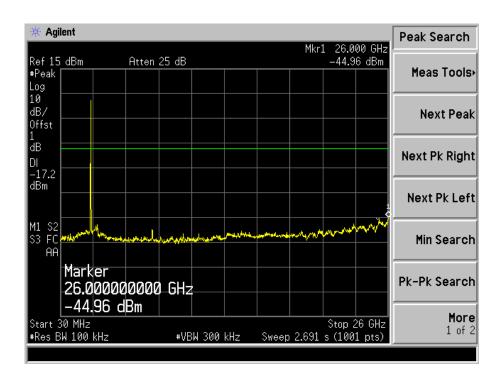






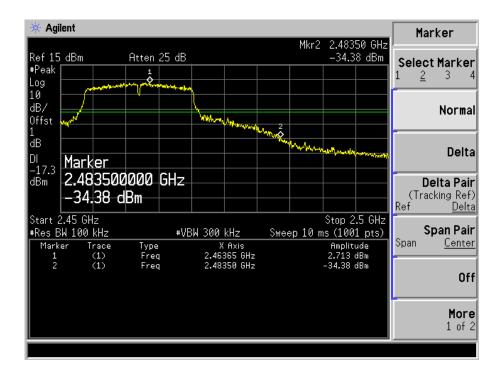
#### Middle

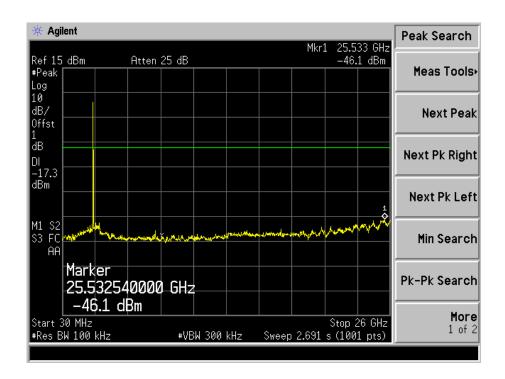






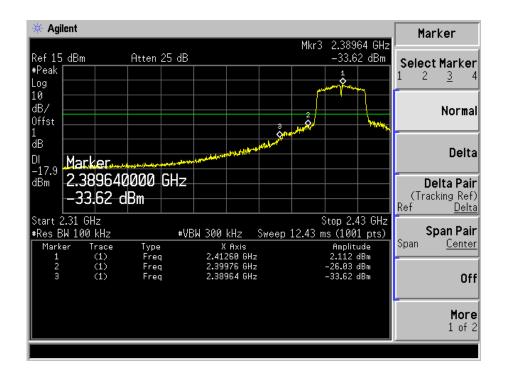
#### Highest

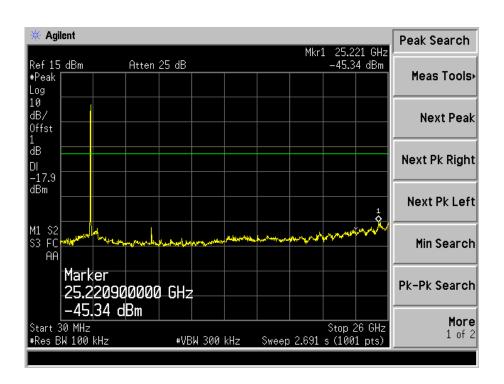






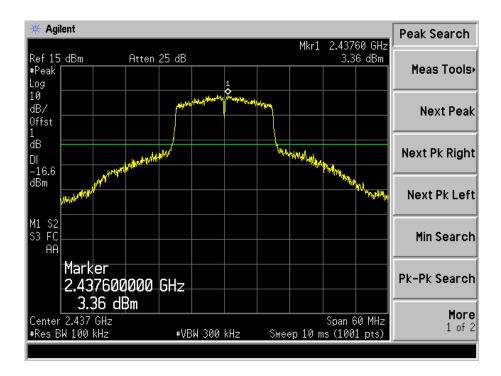
Spurious (Conducted) 802.11n-HT20-Lowest Lowest

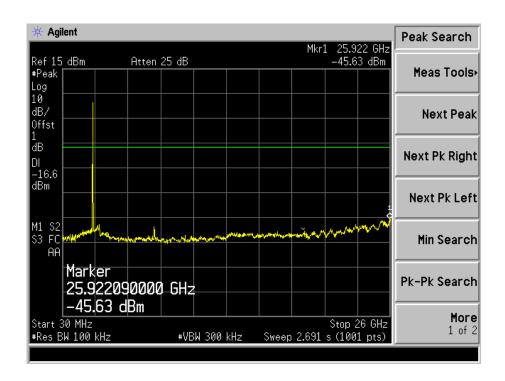






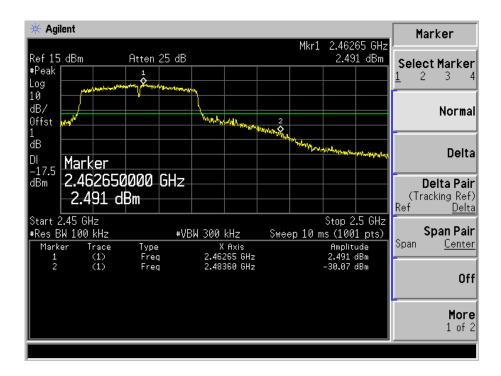
#### Middle

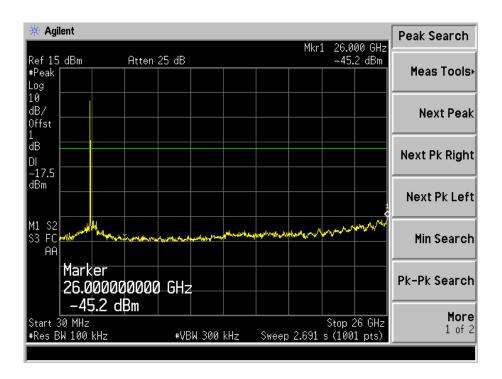






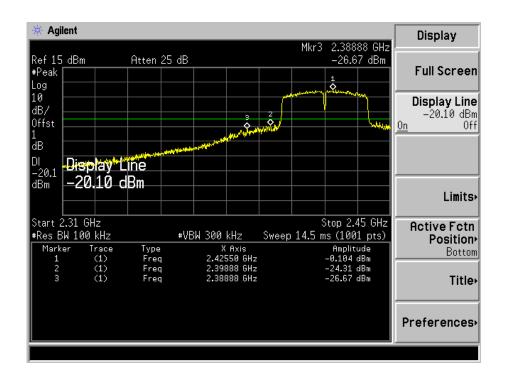
#### Highest

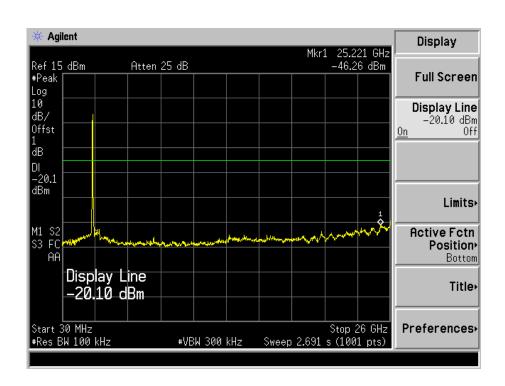






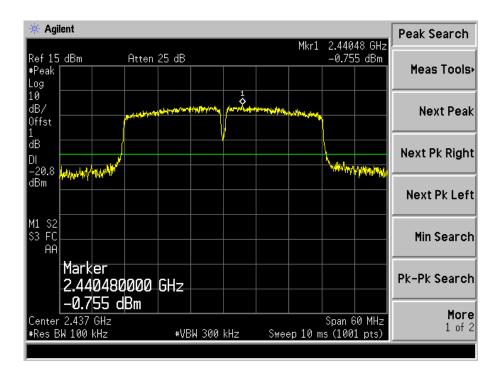
Spurious (Conducted) 802.11n-HT40-Lowest Lowest

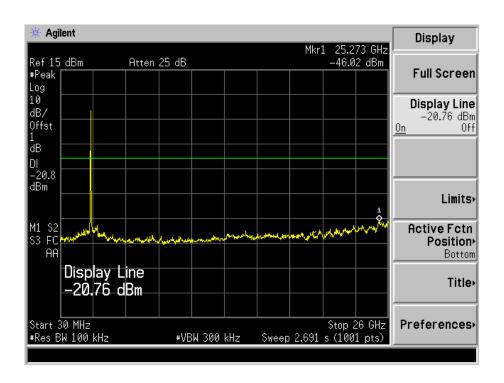






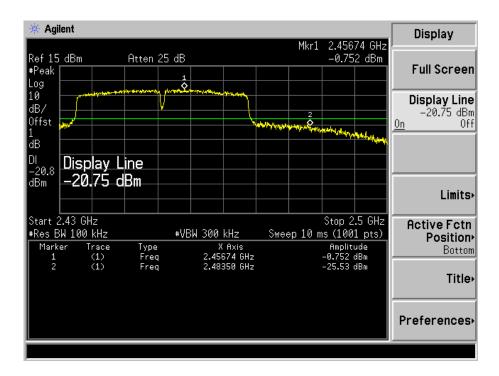
#### Middle

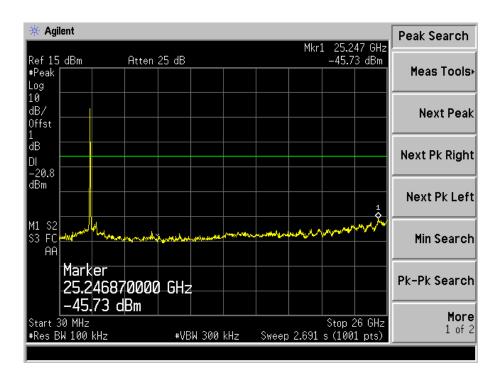






#### Highest







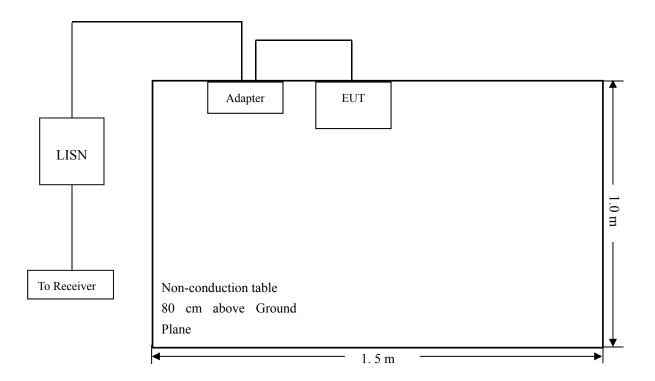
## 10. Conducted Emissions

### **10.1 Test Procedure**

The setup of EUT is according with per ANSI C63.4-2014 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.

## 10.2 Basic Test Setup Block Diagram



#### **10.3 Environmental Conditions**

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

Report No.: STR17108152I-2 Page 64 of 67 FCC Part 15.247



Model: E6

## 10.4 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

## 10.5 Summary of Test Results/Plots

According to the data in section 10.6, the EUT <u>complied with the FCC Part 15.207</u> Conducted margin for this device, with the *worst* margin reading of:

-12.92 dB at 0.5060 MHz in the Line mode, AVG detector, 0.15-30MHz

### 10.6 Conducted Emissions Test Data

Report No.: STR17108152I-2 Page 65 of 67 FCC Part 15.247



### **Plot of Conducted Emissions Test Data**

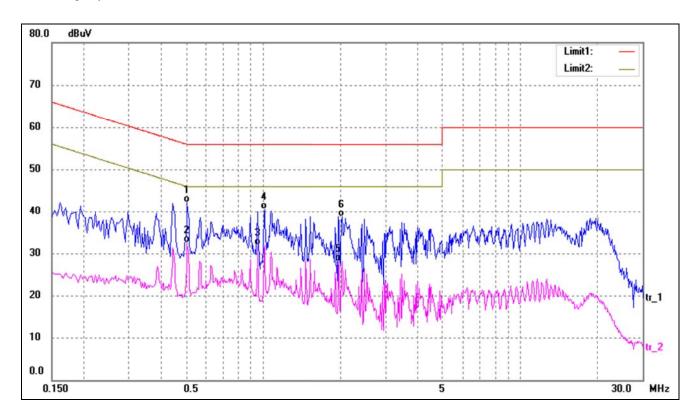
EUT: Mobile phone

Tested Model: E6

Operating Condition: Transmitting(Wi-Fi)

Comment: AC 120V/60Hz; Adapter DC 5V

Test Specification: Neutral

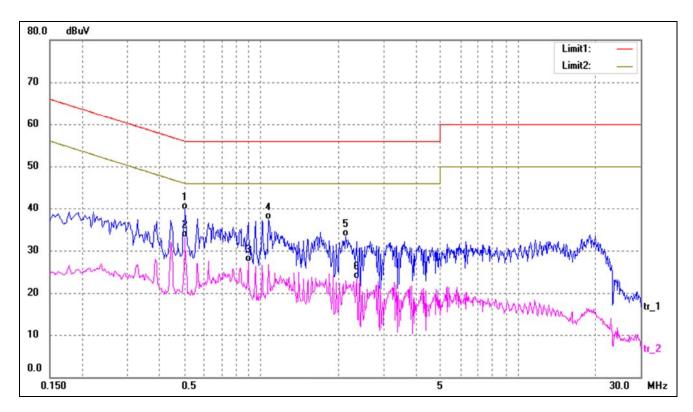


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.5060	32.22	9.80	42.02	56.00	-13.98	QP
2*	0.5060	22.63	9.80	32.43	46.00	-13.57	AVG
3	0.9540	22.24	9.76	32.00	46.00	-14.00	AVG
4	1.0140	30.69	9.76	40.45	56.00	-15.55	QP
5	1.9660	18.39	9.74	28.13	46.00	-17.87	AVG
6	2.0260	29.02	9.73	38.75	56.00	-17.25	QP

Report No.: STR17108152I-2 Page 66 of 67 FCC Part 15.247



Test Specification: Live



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.5060	29.97	9.80	39.77	56.00	-16.23	QP
2*	0.5060	23.28	9.80	33.08	46.00	-12.92	AVG
3	0.8900	17.49	9.77	27.26	46.00	-18.74	AVG
4	1.0700	27.48	9.76	37.24	56.00	-18.76	QP
5	2.1300	23.48	9.73	33.21	56.00	-22.79	QP
6	2.3500	13.61	9.73	23.34	46.00	-22.66	AVG

Note: Test for 120V/240V, the worst case is 120V, and the 240V data is not show.

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