

HCT CO., LTD.

CERTIFICATE OF COMPLIANCE FCC Certification

Applicant Name:
LG Electronics MobileComm U.S.A., Inc.

Address:
1000 Sylvan Avenue, Englewood Cliffs NJ 07632

Date of Issue:
May 06, 2013

Test Site/Location:
HCT CO., LTD., 105-1, Jangam-ri, Majang-Myeon,
Icheon-si, Kyunggi-Do, Korea

Report No.: HCTR1304FR25-2

HCT FRN: 0005866421

FCC ID : ZNFL05E

APPLICANT : LG Electronics MobileComm U.S.A., Inc.

FCC Model(s): L-05E

EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN, NFC(Felica), A-GPS, Wireless Charger, Wi-Fi Direct

Max. RF Output Power: Wi-Fi 802.11b (19.67 dBm) / Wi-Fi 802.11g (21.47 dBm)/ Wi-Fi 802.11n (2.4 GHz) (22.04 dBm)
/ Wi-Fi 802.11a (5.8 GHz) (15.79 dBm)/ Wi-Fi 802.11n_20 MHz BW (5.8 GHz) (16.32 dBm)
/ Wi-Fi 802.11n_40 MHz BW (5.8 GHz) (15.38 dBm)

Frequency Range: 2412 MHz - 2462 MHz (2.4 GHz Band)
5745 MHz - 5825 MHz (5.8 GHz Band)_20 MHz BW,
5755 MHz - 5795 MHz (5.8 GHz Band)_40 MHz BW

Modulation type CCK/DSSS/OFDM

FCC Classification: Digital Transmission System(DTS)

FCC Rule Part(s): Part 15.247

Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)



Report prepared by
: Jong Seok Lee
Test engineer of RF Team



Approved by
: Chang Seok Choi
Manager of RF Team

This report only responds to the tested sample and may not be reproduced, except in full, without written approval of the HCT Co., Ltd.

FCC CERTIFICATION REPORT				www.hct.co.kr
FCC PT.15.247 TEST REPORT				
Test Report No. HCTR1304FR25-2	Date of Issue: May 06, 2013	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN, NFC(Felica), A-GPS, Wireless Charger, Wi-Fi Direct		FCC ID: ZNFL05E

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCTR1304FR25	April 19, 2013	- First Approval Report
HCTR1304FR25-1	May 03, 2013	- Retest 6 dB Bandwidth and Conducted Spurious Emissions
HCTR1304FR25-2	May 06, 2013	- Change the font

Table of Contents

1. GENERAL INFORMATION	4
2. EUT DESCRIPTION	4
3. TEST METHODOLOGY	5
3.1 EUT CONFIGURATION	5
3.2 EUT EXERCISE	5
3.3 GENERAL TEST PROCEDURES	5
3.4 DESCRIPTION OF TEST MODES.....	5
4. INSTRUMENT CALIBRATION.....	6
5. FACILITIES AND ACCREDITATIONS	6
5.1 FACILITIES	6
5.2 EQUIPMENT	6
6. ANTENNA REQUIREMENTS.....	7
7. SUMMARY TEST OF RESULTS.....	8
8. TEST RESULT	9
8.1 6dB BANDWIDTH (802.11a/b/g/n).....	9
8.2 OUTPUT POWER (802.11a/b/g/n)	2 1
8.3 POWER SPECTRAL DENSITY (802.11a/b/g/n).....	1 6 0
8.4 OUT OF BAND EMISSIONS AT THE BAND EDGE/ CONDUCTED SPURIOUS EMISSIONS.	1 7 1
8.5 RADIATED MEASUREMENT.....	2 1 5
8.5.1 RADIATED SPURIOUS EMISSIONS.....	2 1 5
8.5.2 RADIATED RESTRICTED BAND EDGES.....	2 3 4
8.6 POWERLINE CONDUCTED EMISSIONS.....	2 3 6
9. LIST OF TEST EQUIPMENT	2 4 1

1. GENERAL INFORMATION

Applicant: LG Electronics MobileComm U.S.A., Inc.
Address: 1000 Sylvan Avenue, Englewood Cliffs NJ 07632
FCC ID: ZNFL05E
EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN, NFC(Felica), A-GPS, Wireless Charger, Wi-Fi Direct
Model name(s): L-05E
Date(s) of Tests: March 29, 2013 ~ May 02, 2013
Place of Tests: HCT Co., Ltd.
105-1, Jangam-ri, Majang-Myeon, Icheon-si, Kyunggi-Do, 467-811, KOREA.
(IC Recognition No. : 5944A-3)

2. EUT DESCRIPTION

EUT Type	Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN, NFC(Felica), A-GPS, Wireless Charger, Wi-Fi Direct	
FCC Model Name	L-05E	
Power Supply	DC 3.8 V	
Battery type	Li-ion Battery(Standard)	
Frequency Range	TX: 2412 MHz~2462 MHz, 5745 MHz~5825 MHz_20 MHz, 5755 MHz~5795 MHz_40 MHz RX: 2412 MHz~2462 MHz, 5745 MHz~5825 MHz_20 MHz, 5755 MHz~5795 MHz_40 MHz	
Max. RF Output Power:	Peak	Wi-Fi 802.11b (19.67 dBm) / Wi-Fi 802.11g (21.47 dBm) / Wi-Fi 802.11n (2.4 GHz) (22.04 dBm) / Wi-Fi 802.11a (5.8 GHz) (15.79 dBm) / Wi-Fi 802.11n_20 MHz BW (5.8 GHz) (16.32 dBm) / Wi-Fi 802.11n_40 MHz BW (5.8 GHz) (15.38 dBm)
	Average	Wi-Fi 802.11b (14.93 dBm) / Wi-Fi 802.11g (11.97 dBm) / Wi-Fi 802.11n (2.4 GHz) (12.06 dBm) / Wi-Fi 802.11a (5.8 GHz) (9.05 dBm) / Wi-Fi 802.11n_20 MHz BW (5.8 GHz) (9.27 dBm) / Wi-Fi 802.11n_40 MHz BW (5.8 GHz) (8.22 dBm)
Modulation Type	DSSS/CCK(802.11b), OFDM(802.11a, 802.11g, 802.11n_20 MHz BW, 802.11n_40 MHz BW)	
Antenna Specification	Manufacturer: acetechtechnologyA Antenna type: Internal Antenna Peak Gain : -1.95 dBi (2.4 GHz Band), -5.79 dBi (5.8 GHz Band)	

3. TEST METHODOLOGY

FCC KDB 558074 D01 DTS Meas Guidance v02 dated October 04, 2012 entitled "Guidance for Performing Compliance Measurements on Digital Transmission Systems(DTS) and the measurement procedure described in the American National Standard for Testing Unlicensed Wireless Devices(ANSI C63.4-2003) Operating Under §15.247" were used in the measurement.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4. (Version :2003) Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.4. (Version: 2003)

Conducted Antenna Terminal

See Section from 8.1 to 8.4.(KDB 558074)

3.4 DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Channel low, mid and high with highest data rate (worst case) is chosen for full testing.

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1304FR25-2	Date of Issue: May 06, 2013	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN, NFC(Felica), A-GPS, Wireless Charger, Wi-Fi Direct	FCC ID: ZNFL05E

4. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipments, which is traceable to recognized national standards.

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 105-1, Jangam-ri, Majang-Myeon, Icheon-si, Kyunggi-Do, 467-811, Korea. The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2003) and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated March 02, 2011 (Registration Number: 90661)

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements. Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

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

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1304FR25-2	Date of Issue: May 06, 2013	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN, NFC(Felica), A-GPS, Wireless Charger, Wi-Fi Direct	FCC ID: ZNFL05E

6. ANTENNA REQUIREMENTS

According to FCC 47 CFR §15.203:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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.”

* The antennas of this E.U.T are permanently attached.

*The E.U.T Complies with the requirement of §15.203

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1304FR25-2	Date of Issue: May 06, 2013	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN, NFC(Felica), A-GPS, Wireless Charger, Wi-Fi Direct		FCC ID: ZNFL05E

7. SUMMARY TEST OF RESULTS

Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
6 dB Bandwidth	§15.247(a)(2)	> 500 kHz	CONDUCTED	PASS
Conducted Maximum Peak Output Power	§15.247(b)(3)	< 1 Watt		PASS
Power Spectral Density	§15.247(e)	< 8 dBm / 3 kHz Band		PASS
Band Edge(Out of Band Emissions)	§15.247(d)	Conducted < 20 dBc		PASS
AC Power line Conducted Emissions	§15.207	cf. Section 8.6		PASS
Radiated Spurious Emissions	§15.205, 15.209	cf. Section 8.5.1	RADIATED	PASS
Radiated Restricted Band Edge	§15.247(d), 15.205, 15.209	cf. Section 8.5.2		PASS

8. TEST RESULT

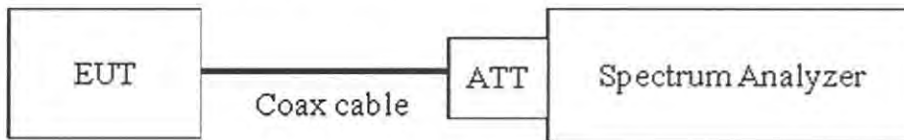
8.1 6dB BANDWIDTH (802.11a/b/g/n)

Test Requirements and limit, §15.247(a)(2)

The bandwidth at 6dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the receive antenna while the EUT is operating in transmission mode at the appropriate frequencies.

The minimum permissible 6dB bandwidth is 500 kHz.

■ TEST CONFIGURATION



■ TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to (Page 4 in KDB 558074, issued 10/04/2012)

RBW = 1 – 5 % of DTS BW, not to exceed 100 kHz

VBW = 3 * RBW

SPAN = 40 MHz

Detector = Peak

Trace mode = max hold

Sweep = auto couple

Note : We tested 6 dB bandwidth using the automatic bandwidth measurement capability of a spectrum analyzer. X dB is set 6 dB.

■ TEST RESULTS

Conducted 6 dB Bandwidth Measurements for 802.11b

802.11b Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
2412	1	8.308	0.500	Pass
2437	6	9.212	0.500	Pass
2462	11	9.145	0.500	Pass

Conducted 6 dB Bandwidth Measurements for 802.11g

802.11g Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
2412	1	15.950	0.500	Pass
2437	6	16.300	0.500	Pass
2462	11	16.330	0.500	Pass

Conducted 6 dB Bandwidth Measurements for 802.11n(2.4 GHz Band)

802.11n Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
2412	1	17.720	0.500	Pass
2437	6	17.740	0.500	Pass
2462	11	17.750	0.500	Pass

Conducted 6 dB Bandwidth Measurements for 802.11a

802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Frequency [MHz]			
5745	149	15.160	0.500	Pass
5785	157	15.150	0.500	Pass
5825	165	15.160	0.500	Pass

Conducted 6 dB Bandwidth Measurements for 802.11n(5.8 GHz Band)

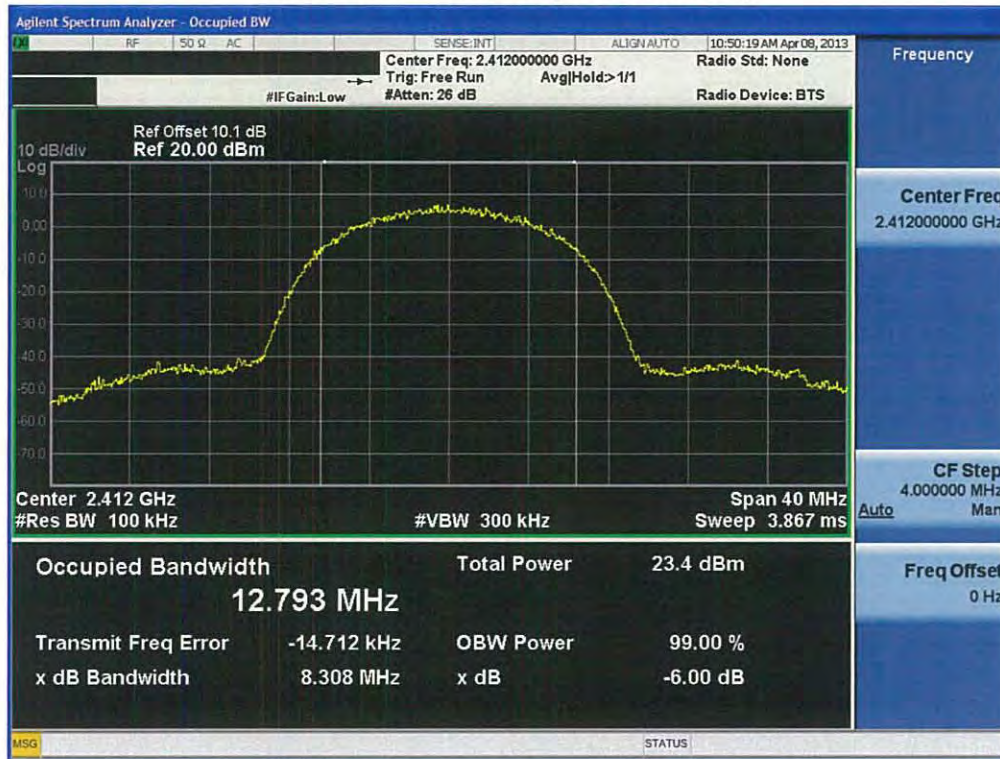
802.11n Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	15.150	0.500	Pass
5785	157	15.150	0.500	Pass
5825	165	15.160	0.500	Pass

Conducted 6 dB Bandwidth Measurements for 802.11n_40 MHz BW(5.8 GHz Band)

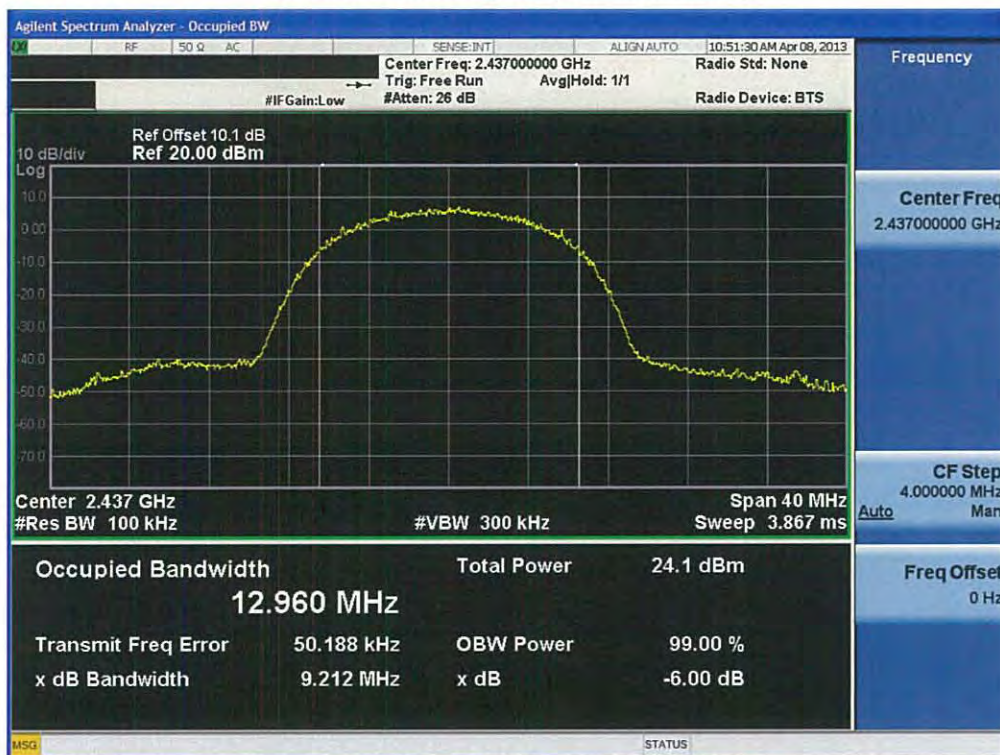
802.11n Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.170	0.500	Pass
5795	159	35.170	0.500	Pass

■ RESULT PLOTS

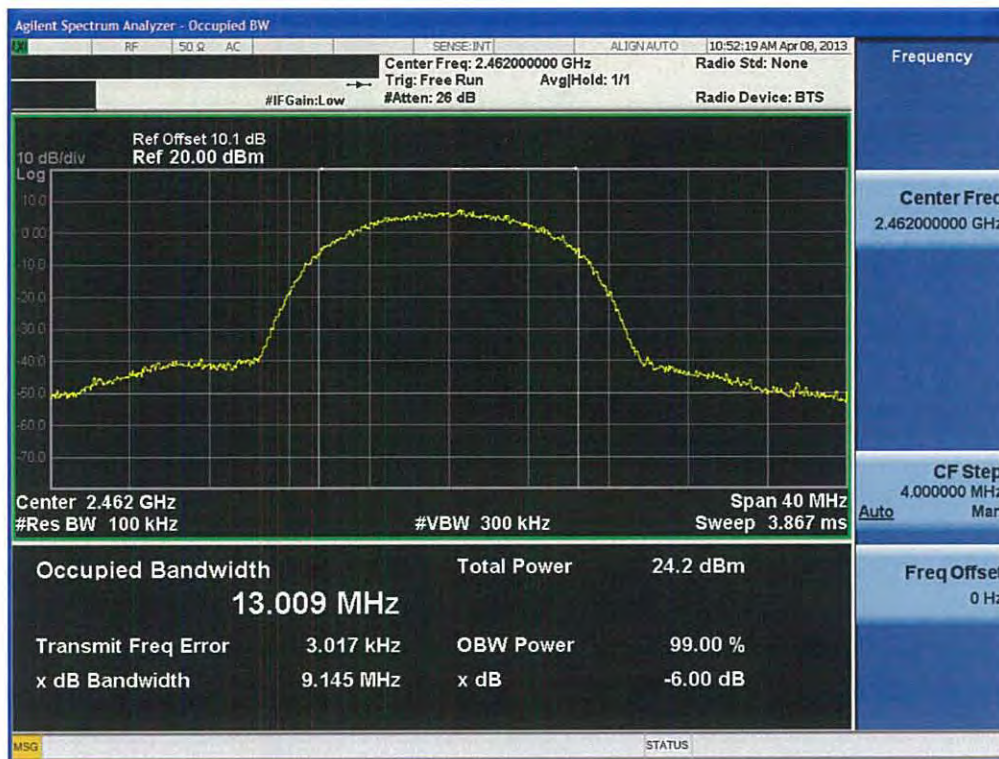
6dB Bandwidth plot (802.11b-CH 1)



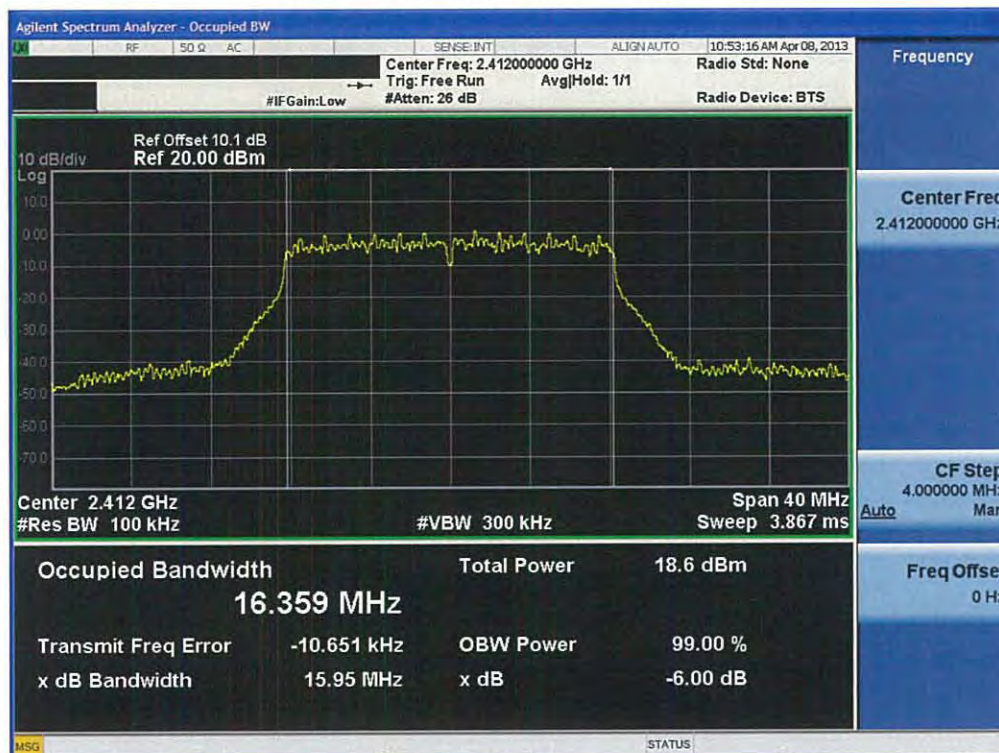
6dB Bandwidth plot (802.11b-CH 6)



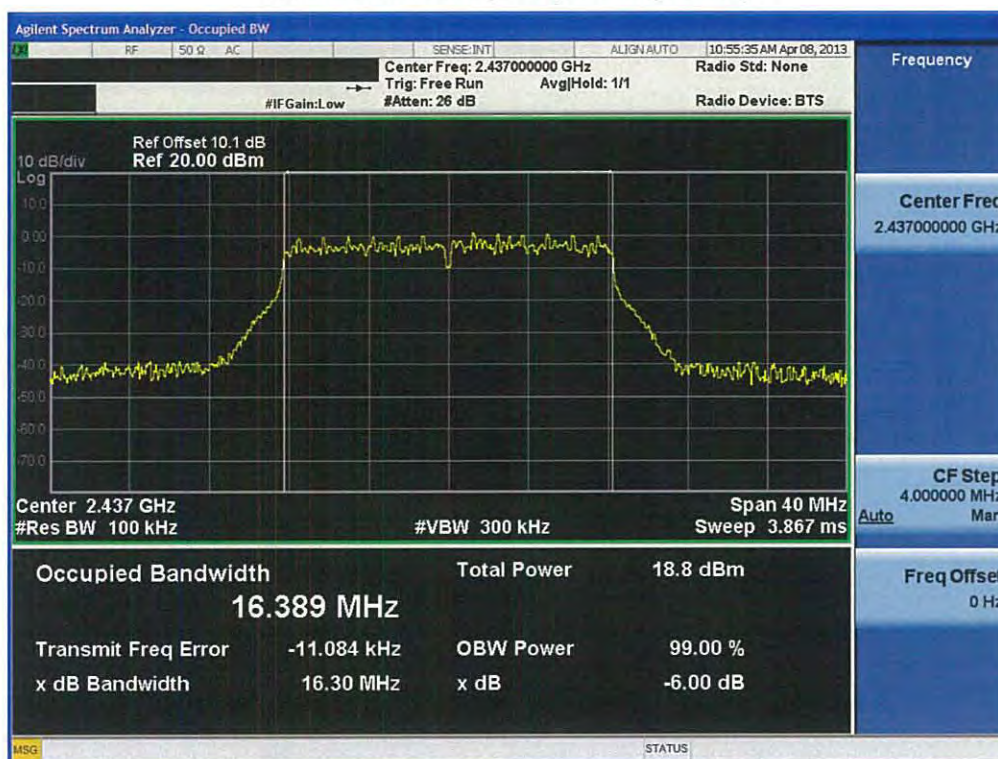
6dB Bandwidth plot (802.11b-CH 11)



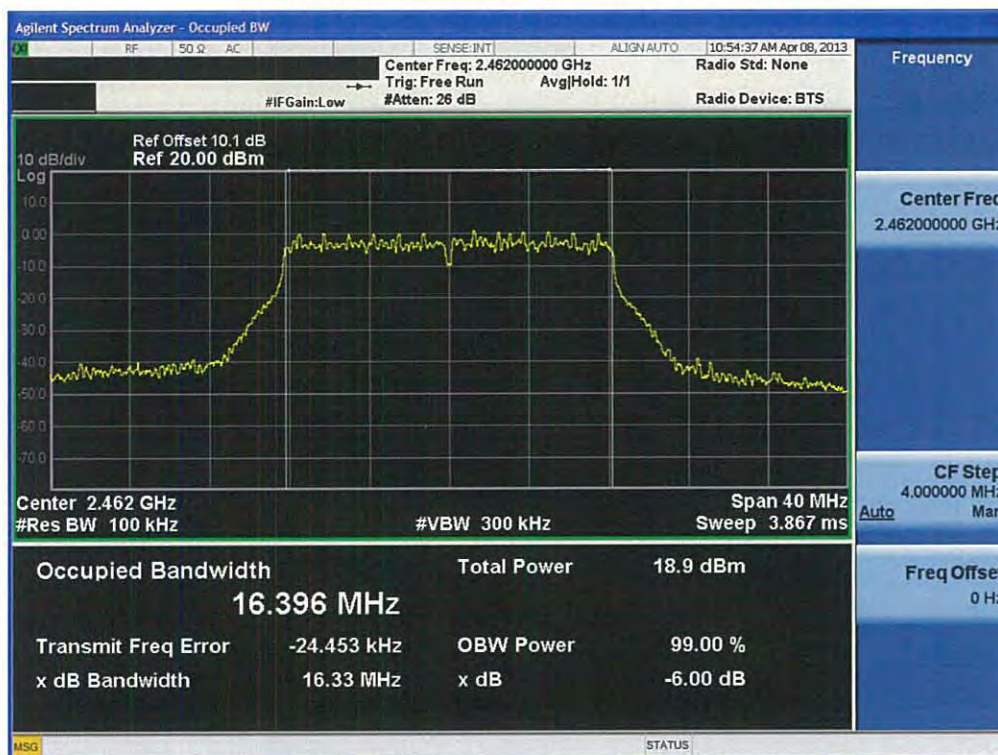
6dB Bandwidth plot (802.11g-CH 1)



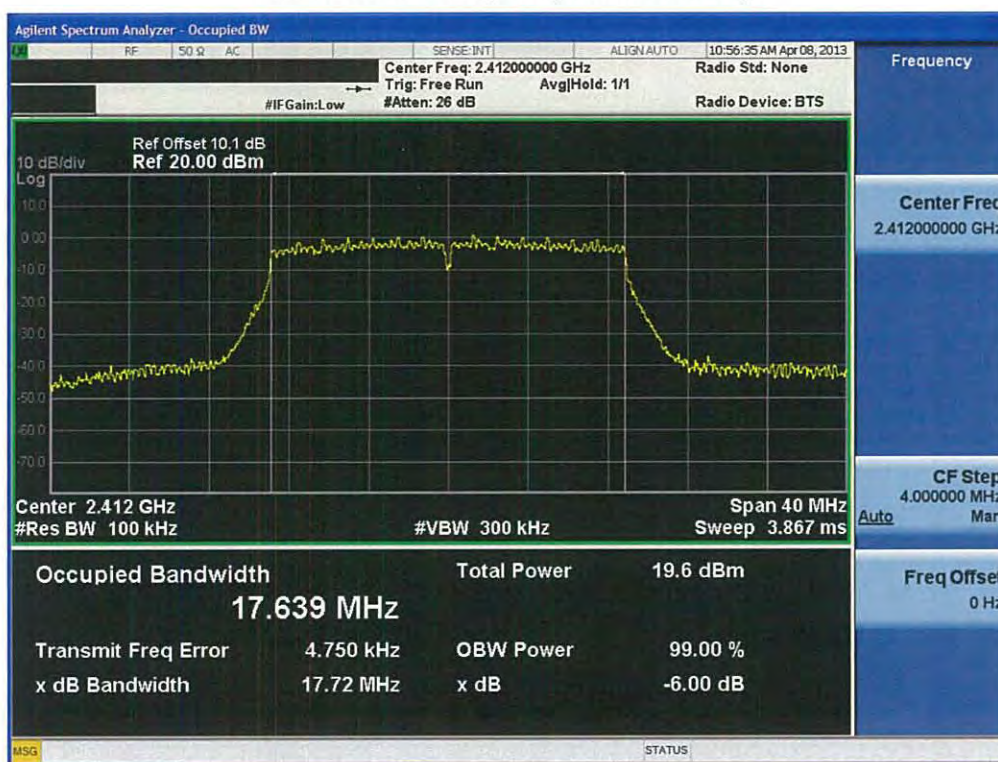
6dB Bandwidth plot (802.11g-CH 6)



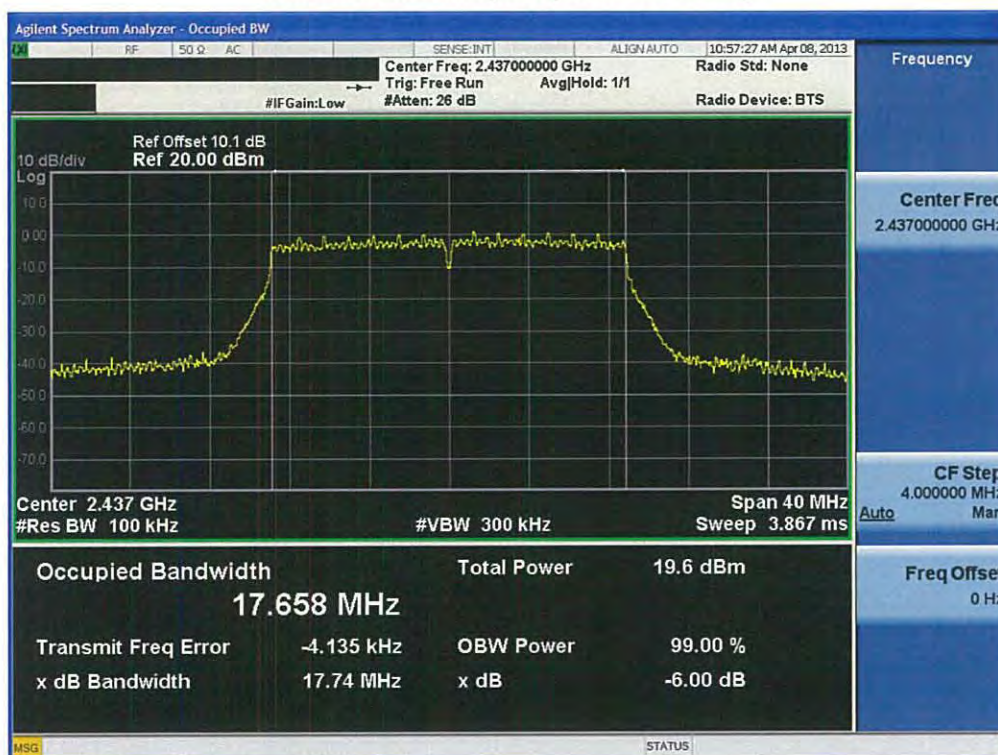
6dB Bandwidth plot (802.11g-CH 11)



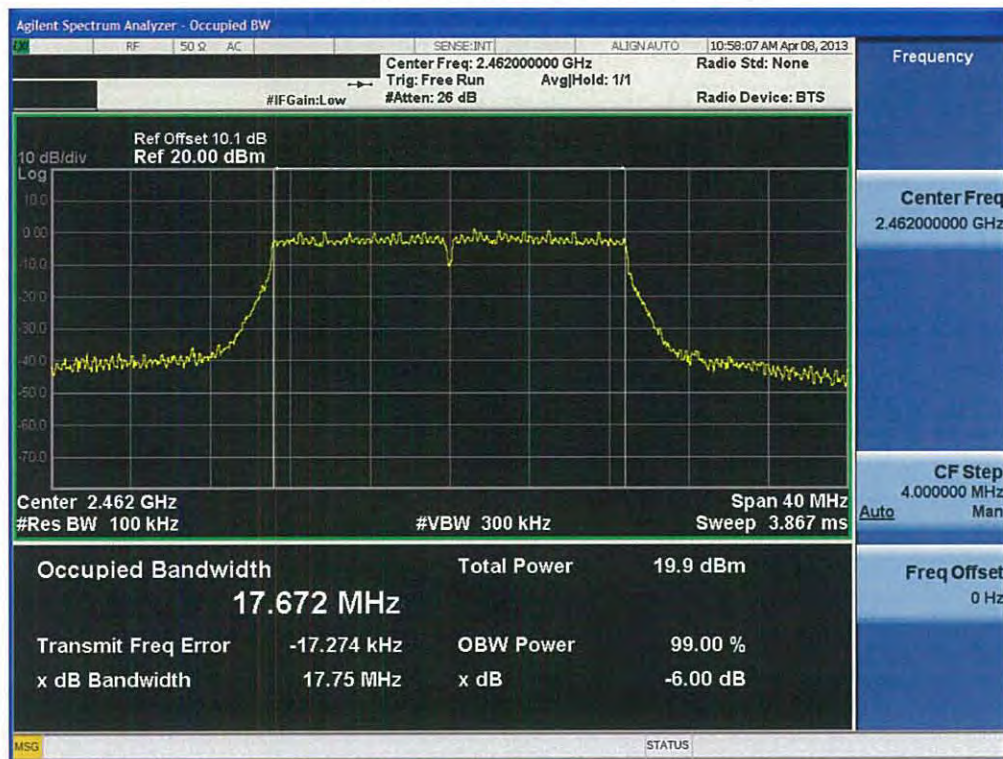
6dB Bandwidth plot (802.11n-CH 1)



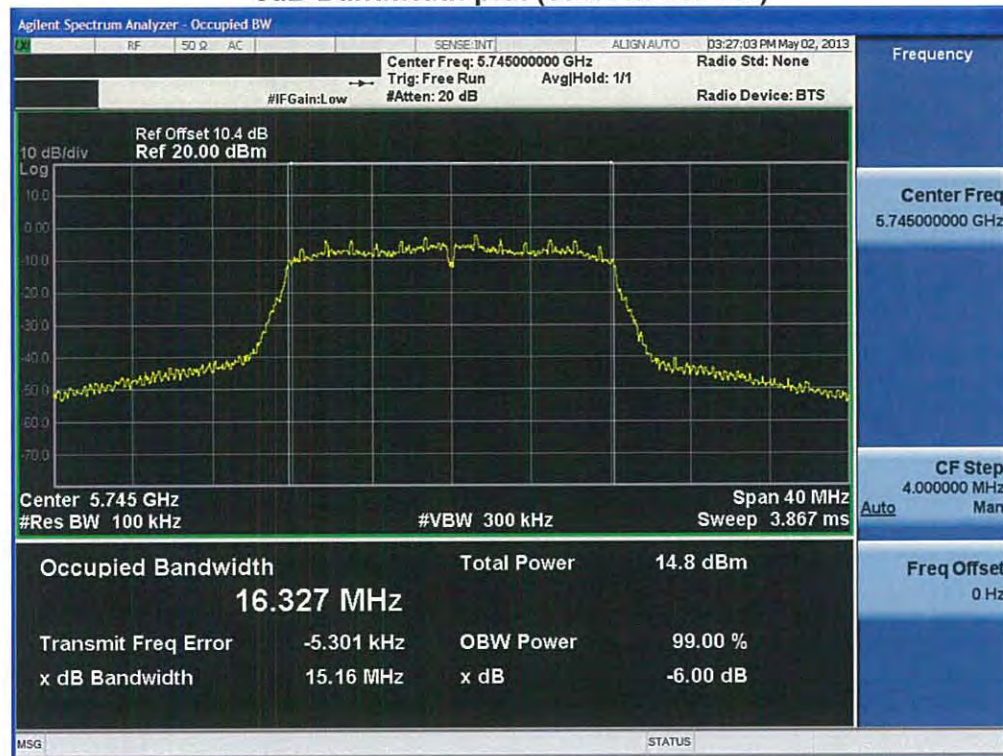
6dB Bandwidth plot (802.11n-CH 6)



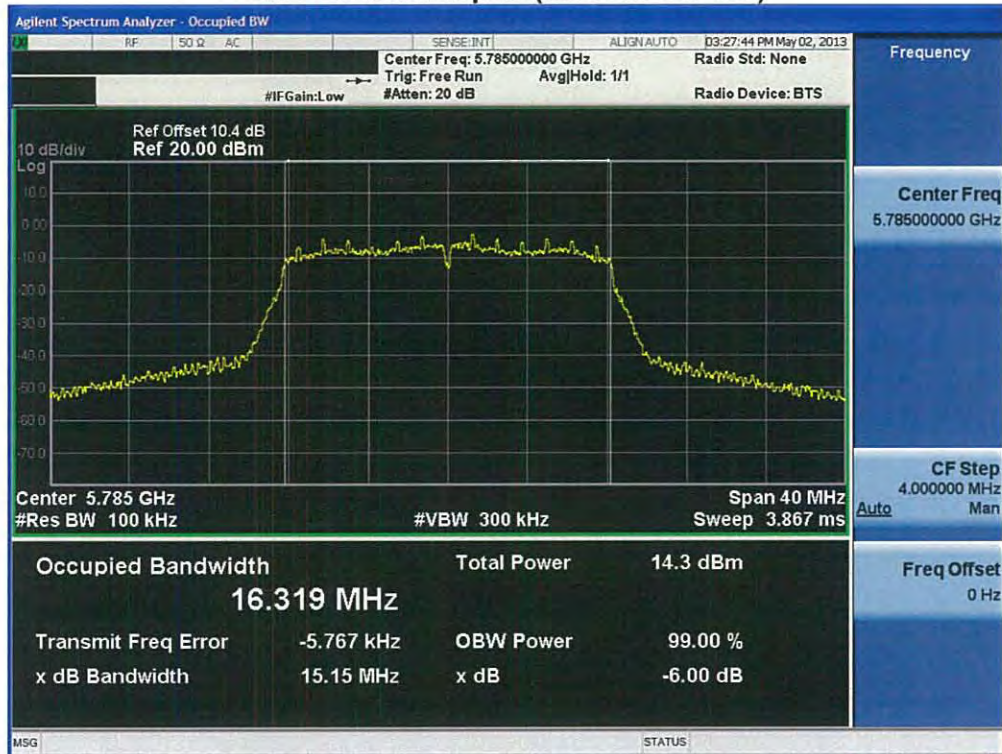
6dB Bandwidth plot (802.11n-CH 11)



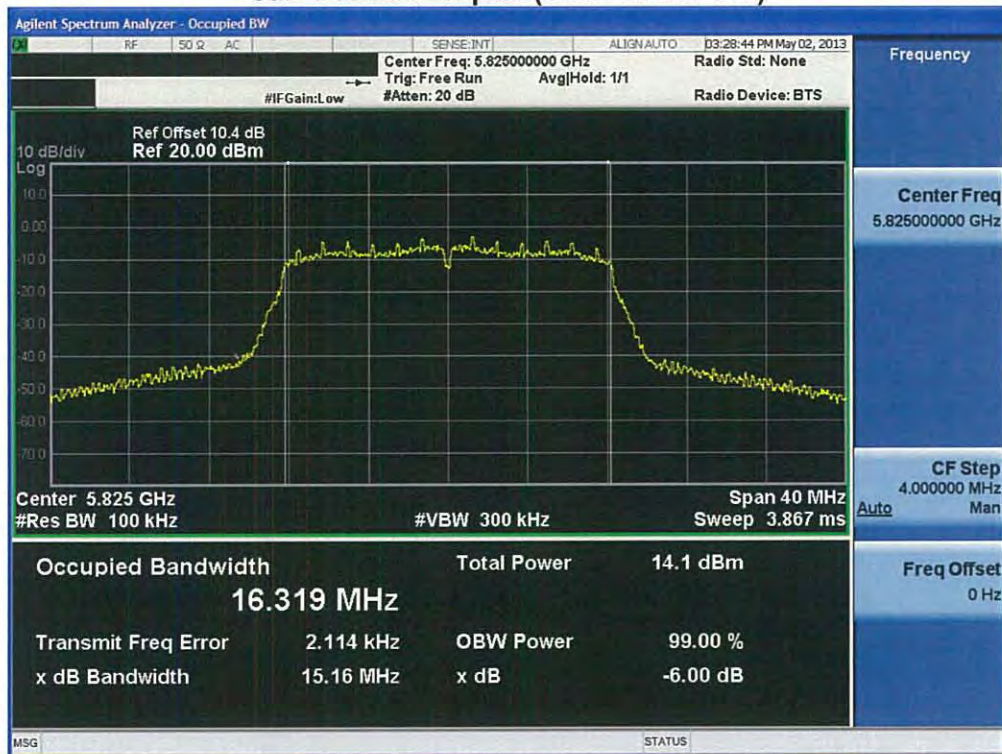
6dB Bandwidth plot (802.11a-CH 149)



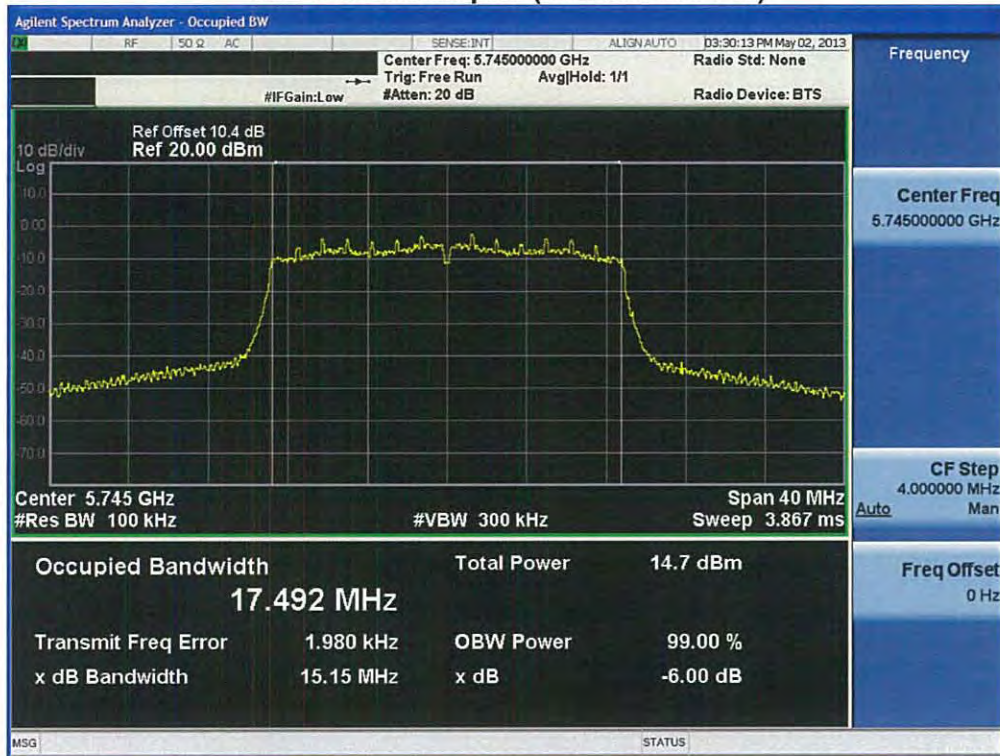
6dB Bandwidth plot (802.11a-CH 157)



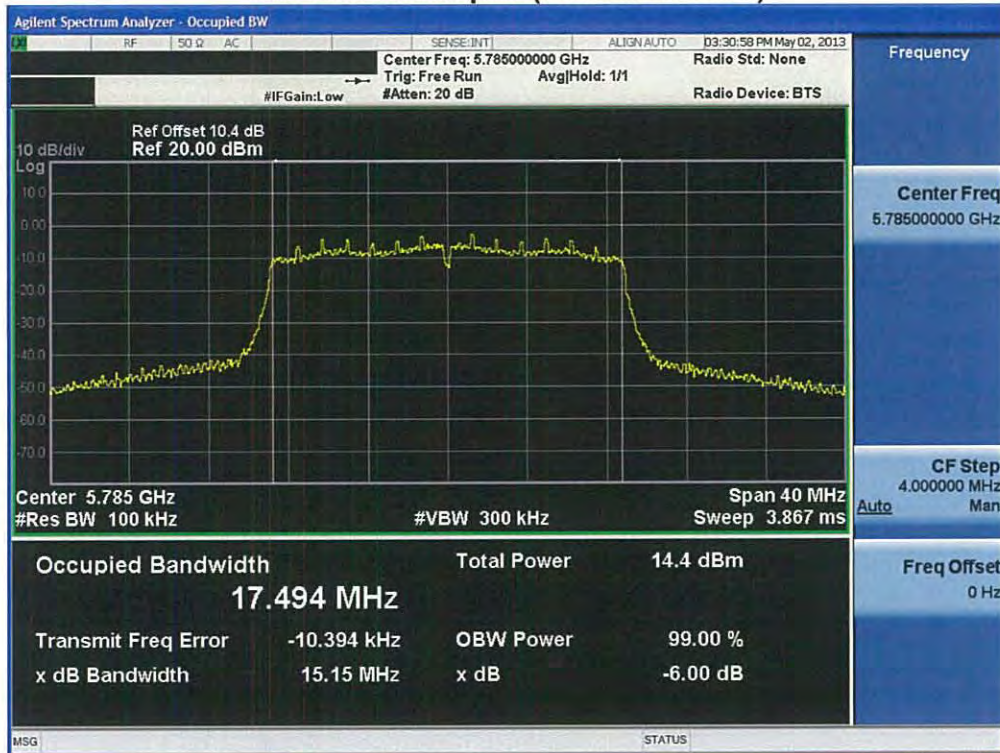
6dB Bandwidth plot (802.11a-CH 165)



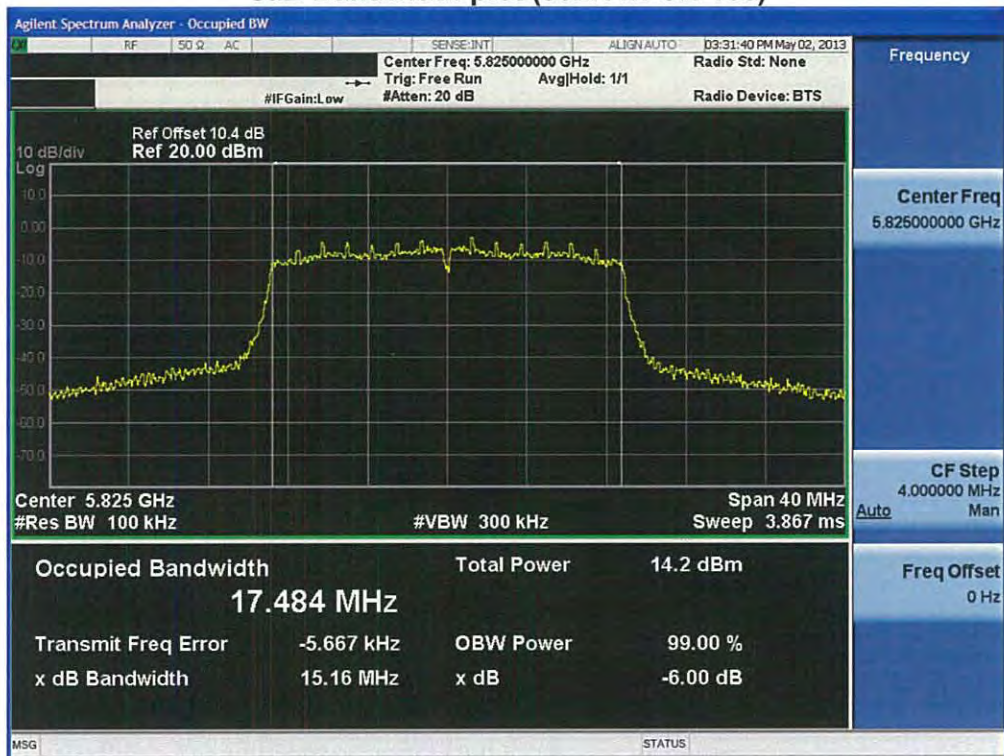
6dB Bandwidth plot (802.11n-CH 149)



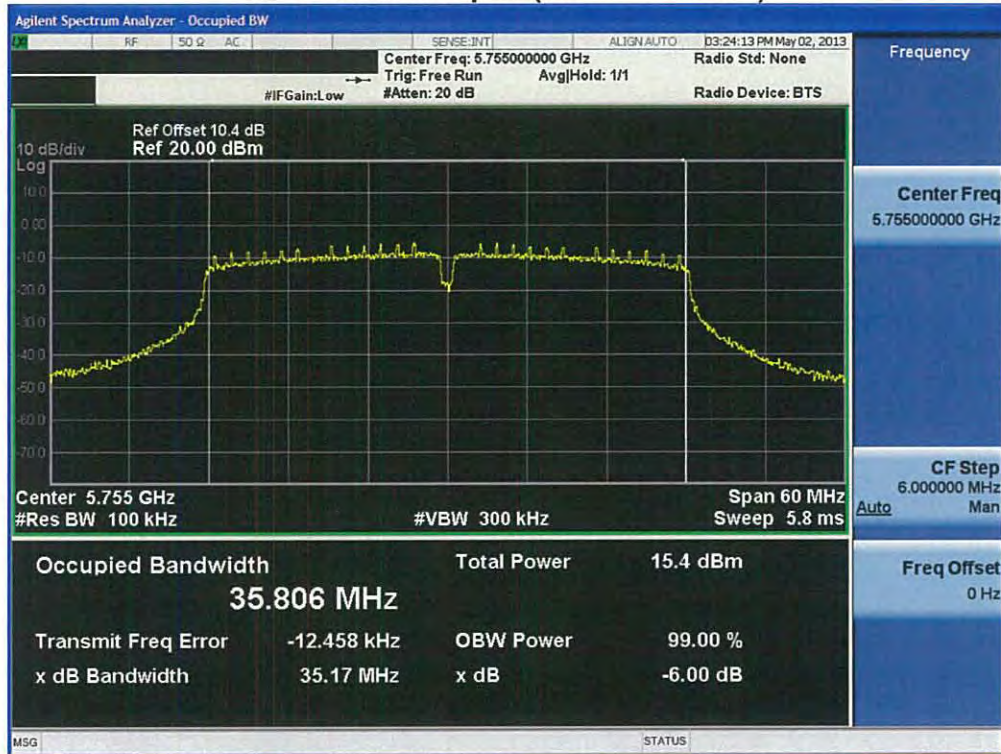
6dB Bandwidth plot (802.11n-CH 157)



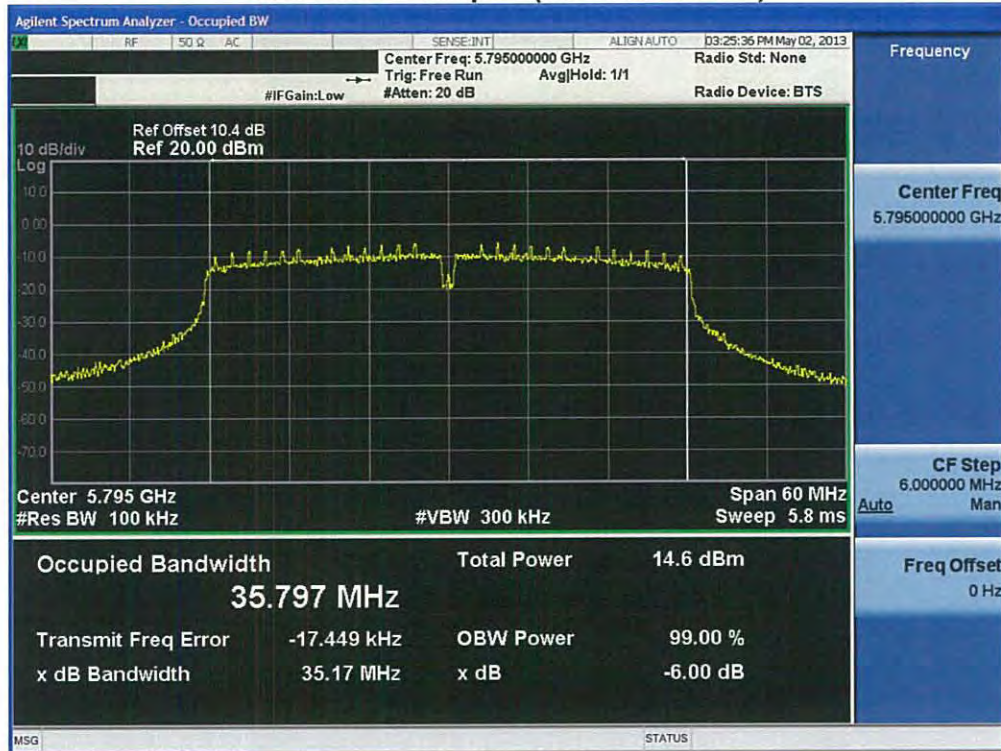
6dB Bandwidth plot (802.11n-CH 165)



6dB Bandwidth plot (802.11n-CH 151)



6dB Bandwidth plot (802.11n-CH 159)



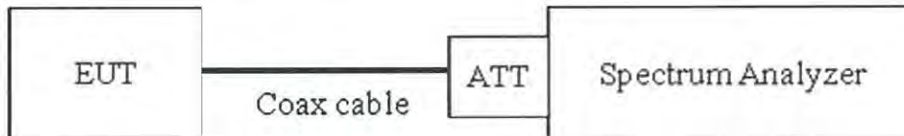
8.2 OUTPUT POWER (802.11a/b/g/n)

Test Requirements and limit, §15.247(b)(3)

A transmitter antenna terminal of EUT is connected to the input of a Spectrum Analyzer. Measurement is made while the EUT is operating in transmission mode at the appropriate frequencies.

The maximum permissible conducted output power is 1 Watt.

■ TEST CONFIGURATION



■ TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer. We use the spectrum analyzer's integrated band power measurement function.

The Spectrum Analyzer is set to

- Peak Power (Procedure 8.1.2 Option2 in KDB 558074, issued 10/04/2012)

RBW = Maximum available (at least 1 MHz)

VBW = 3 x RBW or maximum available setting (must be $\geq$ RBW)

SPAN = Set the span to fully encompass the DTS bandwidth

Detector Mode = Peak

Sweep = auto couple

Trace Mode = max hold

Allow trace to fully stabilize.

Use the spectrum analyzer's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges (for some analyzers, this may require a manual override to ensure use of peak detector). If the spectrum analyzer does not have a band power function, sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the DTS channel bandwidth.

- Average Power (Procedure 8.2.1 Option1 in KDB 558074, issued 10/04/2012)

RBW = 1 MHz

VBW $\geq$ 3 MHz

SPAN = Set the analyzer span to a minimum of 1.5 times the EBW

Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span/RBW}$

Detector Mode = Power average (RMS).

Sweep = auto couple

Trace average at least 100 traces in power averaging(RMS) mode

Use the spectrum analyzer's band power measurement function with band limits set equal to the EBW band edges.

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1304FR25-2	Date of Issue: May 06, 2013	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN, NFC(Felica), A-GPS, Wireless Charger, Wi-Fi Direct	FCC ID: ZNFL05E

■ Sample Calculation

$$\begin{aligned}\text{Output Power} &= \text{Reading Value} + \text{ATT loss} + \text{Cable loss}(1 \text{ ea}) \\ &= 10 \text{ dBm} + 10 \text{ dB} + 0.8 \text{ dB} = 20.8 \text{ dBm}\end{aligned}$$

Note :

1. Spectrum reading values are not plot data. The power results in plot is already including the actual values of loss for the attenuator and cable combination.
2. Spectrum offset = Attenuator loss + Cable loss
3. We apply to the offset in the 2.4 GHz and 5.8 GHz range that was rounded off to the closest tenth dB. So, the offset is 10.1 dB in 2.4 GHz. And the offset gap in the 2.4 GHz range do not affect the conducted output power final result. Actual value of loss for the attenuator and cable combination is below table.

Band	Frequency(MHz)	Loss(dB)
2.4 GHz	2412	10.11
	2437	10.10
	2462	10.12
5.8 GHz	5745	10.37
	5755	10.37
	5785	10.38
	5795	10.38
	5825	10.37

(Actual value of loss for the attenuator and cable combination)

■ Duty Cycle Factor

Mode	Data Rate	T _{on} (ms)	T _{total} (ms)	Duty Cycle	Duty Cycle Factor
b	1 Mbps	12.410	12.510	0.99200639	0.035
	2 Mbps	6.195	6.300	0.98333333	0.073
	5.5 Mbps	2.325	2.415	0.96273292	0.165
	11 Mbps	1.200	1.305	0.91954023	0.364
g	6 Mbs	2.040	2.175	0.93793103	0.278
	9 Mbs	1.380	1.485	0.92929293	0.318
	12 Mbs	1.020	1.140	0.89473684	0.483
	18 Mbs	0.690	0.795	0.86792453	0.615
	24 Mbs	0.525	0.645	0.81395349	0.894
	36 Mbs	0.360	0.465	0.77419355	1.112
	48 Mbs	0.255	0.375	0.68000000	1.675
	54 Mbs	0.225	0.345	0.65217391	1.856
802.11n 2.4 GHz Band	6.5 Mbs	1.875	2.010	0.93283582	0.302
	13 Mbs	0.975	1.080	0.90277778	0.444
	19.5 Mbs	0.645	0.765	0.84313725	0.741
	26 Mbs	0.495	0.615	0.80487805	0.943
	39 Mbs	0.330	0.450	0.73333333	1.347
	52 Mbs	0.255	0.360	0.70833333	1.498
	58.5 Mbs	0.225	0.345	0.65217391	1.856
	65 Mbs	0.225	0.330	0.68181818	1.663
802.11n_40 MHz BW 5.8 GHz Band	13.5 Mbps	0.945	1.044	0.90469349	0.435
	27 Mbps	0.491	0.591	0.83079526	0.805
	40.5 Mbps	0.341	0.440	0.77500000	1.107
	54 Mbps	0.265	0.364	0.72802198	1.379
	81 Mbps	0.189	0.288	0.65451389	1.841
	108 Mbps	0.152	0.252	0.60357143	2.193
	121.5 Mbps	0.140	0.240	0.58375000	2.338
	135 Mbps	0.128	0.228	0.56126482	2.508

Note : Duty Cycle Factor = $10 \cdot \log(1/\text{Duty Cycle})$

where, Duty Cycle = T_{on} / T_{total}

TEST RESULTS-Peak

Conducted Output Power Measurements (802.11b Mode)

802.11b Mode		Rate (Mbps)	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
2412	1	1 Mbps	18.41	30
		2 Mbps	18.82	30
		5.5 Mbps	19.27	30
		11 Mbps	19.32	30
2437	6	1 Mbps	18.66	30
		2 Mbps	19.14	30
		5.5 Mbps	19.53	30
		11 Mbps	19.61	30
2462	11	1 Mbps	18.98	30
		2 Mbps	19.07	30
		5.5 Mbps	19.58	30
		11 Mbps	19.67	30

Conducted Output Power Measurements (802.11g Mode)

802.11g Mode		Rate (Mbps)	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
2412	1	6 Mbps	21.02	30
		9 Mbps	21.39	30
		12 Mbps	21.22	30
		18 Mbps	20.77	30
		24 Mbps	20.62	30
		36 Mbps	21.09	30
		48 Mbps	20.65	30
		54 Mbps	20.85	30
2437	6	6 Mbps	21.16	30
		9 Mbps	21.47	30
		12 Mbps	21.27	30
		18 Mbps	20.98	30
		24 Mbps	20.82	30
		36 Mbps	21.43	30
		48 Mbps	20.84	30
		54 Mbps	21.24	30
2462	11	6 Mbps	21.14	30
		9 Mbps	21.38	30
		12 Mbps	21.17	30
		18 Mbps	20.98	30
		24 Mbps	20.86	30
		36 Mbps	21.33	30
		48 Mbps	21.02	30
		54 Mbps	21.14	30

Conducted Output Power Measurements (802.11n Mode)

802.11n Mode		Rate (Mbps)	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
2412	1	6.5 Mbps	21.73	30
		13 Mbps	21.34	30
		19.5 Mbps	21.45	30
		26 Mbps	21.46	30
		39 Mbps	21.54	30
		52 Mbps	21.38	30
		58.5 Mbps	21.36	30
		65 Mbps	21.42	30
2437	6	6.5 Mbps	22.04	30
		13 Mbps	21.56	30
		19.5 Mbps	21.63	30
		26 Mbps	21.75	30
		39 Mbps	21.58	30
		52 Mbps	21.60	30
		58.5 Mbps	21.72	30
		65 Mbps	21.67	30
2462	11	6.5 Mbps	21.95	30
		13 Mbps	21.44	30
		19.5 Mbps	21.64	30
		26 Mbps	21.63	30
		39 Mbps	21.66	30
		52 Mbps	21.49	30
		58.5 Mbps	21.55	30
		65 Mbps	21.63	30

Conducted Output Power Measurements (802.11a Mode: 5745~5825)

802.11a Mode		Rate (Mbps)	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
5745	149	6 Mbps	15.79	30
		9 Mbps	15.69	30
		12 Mbps	15.50	30
		18 Mbps	15.69	30
		24 Mbps	15.73	30
		36 Mbps	15.76	30
		48 Mbps	15.75	30
		54 Mbps	15.67	30
5785	157	6 Mbps	15.46	30
		9 Mbps	15.42	30
		12 Mbps	15.16	30
		18 Mbps	15.30	30
		24 Mbps	15.57	30
		36 Mbps	15.62	30
		48 Mbps	15.57	30
		54 Mbps	15.55	30
5825	165	6 Mbps	15.39	30
		9 Mbps	15.36	30
		12 Mbps	15.13	30
		18 Mbps	15.44	30
		24 Mbps	15.32	30
		36 Mbps	15.33	30
		48 Mbps	15.51	30
		54 Mbps	15.47	30

Conducted Output Power Measurements (802.11n_20 MHz BW Mode: 5745~5825)

802.11n Mode		Rate (Mbps)	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
5745	149	6.5 Mbps	15.63	30
		13 Mbps	15.57	30
		19.5 Mbps	15.67	30
		26 Mbps	16.16	30
		39 Mbps	16.12	30
		52 Mbps	16.2	30
		58.5 Mbps	16.32	30
		65 Mbps	16.02	30
5785	157	6.5 Mbps	15.38	30
		13 Mbps	15.32	30
		19.5 Mbps	15.36	30
		26 Mbps	15.93	30
		39 Mbps	15.87	30
		52 Mbps	15.79	30
		58.5 Mbps	15.83	30
		65 Mbps	15.93	30
5825	165	6.5 Mbps	15.25	30
		13 Mbps	15.45	30
		19.5 Mbps	15.23	30
		26 Mbps	15.48	30
		39 Mbps	15.88	30
		52 Mbps	15.74	30
		58.5 Mbps	15.88	30
		65 Mbps	15.78	30

Conducted Output Power Measurements (802.11n_40 MHz BW Mode: 5755~5795)

802.11n Mode		Rate (Mbps)	Measured Power(dBm)	Limit (dBm)
Frequency[MHz]	Channel No.			
5755	151	13.5 Mbps	14.93	30
		27 Mbps	15.13	30
		40.5 Mbps	15.05	30
		54 Mbps	15.29	30
		81 Mbps	15.38	30
		108 Mbps	15.34	30
		121.5 Mbps	15.27	30
		135 Mbps	15.22	30
5795	159	13.5 Mbps	15.03	30
		27 Mbps	14.68	30
		40.5 Mbps	14.76	30
		54 Mbps	15.23	30
		81 Mbps	14.98	30
		108 Mbps	15.18	30
		121.5 Mbps	14.97	30
		135 Mbps	15.04	30

■ TEST RESULTS-Average
Conducted Output Power Measurements (802.11b Mode)

802.11b Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
2412	1	1 Mbps	14.46	0.03	14.49	30
		2 Mbps	14.39	0.03	14.42	30
		5.5 Mbps	14.41	0.03	14.44	30
		11 Mbps	14.22	0.36	14.58	30
2437	6	1 Mbps	14.71	0.03	14.74	30
		2 Mbps	14.61	0.03	14.64	30
		5.5 Mbps	14.63	0.03	14.66	30
		11 Mbps	14.53	0.36	14.89	30
2462	11	1 Mbps	14.59	0.03	14.62	30
		2 Mbps	14.65	0.03	14.68	30
		5.5 Mbps	14.67	0.03	14.70	30
		11 Mbps	14.57	0.36	14.93	30

Conducted Output Power Measurements (802.11g Mode)

802.11g Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
2412	1	6 Mbps	10.57	0.28	10.85	30
		9 Mbps	10.62	0.32	10.94	30
		12 Mbps	10.41	0.48	10.89	30
		18 Mbps	10.43	0.62	11.05	30
		24 Mbps	10.13	0.89	11.02	30
		36 Mbps	9.96	1.11	11.07	30
		48 Mbps	9.85	1.67	11.52	30
		54 Mbps	9.52	1.86	11.38	30
2437	6	6 Mbps	11.26	0.28	11.54	30
		9 Mbps	11.22	0.32	11.54	30
		12 Mbps	11.02	0.48	11.50	30
		18 Mbps	10.77	0.62	11.39	30
		24 Mbps	10.73	0.89	11.62	30
		36 Mbps	10.37	1.11	11.48	30
		48 Mbps	10.29	1.67	11.96	30
		54 Mbps	10.11	1.86	11.97	30
2462	11	6 Mbps	11.25	0.28	11.53	30
		9 Mbps	11.11	0.32	11.43	30
		12 Mbps	11.07	0.48	11.55	30
		18 Mbps	10.87	0.62	11.49	30
		24 Mbps	10.57	0.89	11.46	30
		36 Mbps	10.41	1.11	11.52	30
		48 Mbps	10.25	1.67	11.92	30
		54 Mbps	10.11	1.86	11.97	30

Conducted Output Power Measurements (802.11n Mode)

802.11n Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
2412	1	6.5 Mbps	10.80	0.30	11.10	30
		13 Mbps	10.81	0.44	11.25	30
		19.5 Mbps	10.65	0.74	11.39	30
		26 Mbps	10.48	0.94	11.42	30
		39 Mbps	10.14	1.35	11.49	30
		52 Mbps	10.02	1.50	11.52	30
		58.5 Mbps	9.90	1.86	11.76	30
		65 Mbps	9.81	1.66	11.47	30
2437	6	6.5 Mbps	11.07	0.30	11.37	30
		13 Mbps	11.11	0.44	11.55	30
		19.5 Mbps	10.82	0.74	11.56	30
		26 Mbps	10.70	0.94	11.64	30
		39 Mbps	10.38	1.35	11.73	30
		52 Mbps	10.29	1.50	11.79	30
		58.5 Mbps	10.18	1.86	12.04	30
		65 Mbps	10.04	1.66	11.70	30
2462	11	6.5 Mbps	11.22	0.30	11.52	30
		13 Mbps	11.10	0.44	11.54	30
		19.5 Mbps	10.91	0.74	11.65	30
		26 Mbps	10.71	0.94	11.65	30
		39 Mbps	10.34	1.35	11.69	30
		52 Mbps	10.30	1.50	11.80	30
		58.5 Mbps	10.20	1.86	12.06	30
		65 Mbps	10.10	1.66	11.76	30

Conducted Output Power Measurements (802.11a Mode: 5745~5825)

802.11a Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5745	149	6 Mbps	8.28	0.28	8.56	30
		9 Mbps	8.20	0.32	8.52	30
		12 Mbps	8.19	0.48	8.68	30
		18 Mbps	8.05	0.62	8.66	30
		24 Mbps	7.91	0.89	8.80	30
		36 Mbps	7.59	1.11	8.70	30
		48 Mbps	7.38	1.67	9.05	30
		54 Mbps	7.08	1.86	8.94	30
5785	157	6 Mbps	8.33	0.28	8.61	30
		9 Mbps	8.21	0.32	8.53	30
		12 Mbps	8.19	0.48	8.67	30
		18 Mbps	8.12	0.62	8.73	30
		24 Mbps	7.90	0.89	8.79	30
		36 Mbps	7.50	1.11	8.61	30
		48 Mbps	7.36	1.67	9.03	30
		54 Mbps	7.05	1.86	8.91	30
5825	165	6 Mbps	8.24	0.28	8.52	30
		9 Mbps	8.24	0.32	8.56	30
		12 Mbps	8.21	0.48	8.69	30
		18 Mbps	8.04	0.62	8.66	30
		24 Mbps	7.83	0.89	8.72	30
		36 Mbps	7.56	1.11	8.67	30
		48 Mbps	7.18	1.67	8.86	30
		54 Mbps	7.05	1.86	8.91	30

Conducted Output Power Measurements (802.11n_20 MHz BW Mode: 5745~5825)

802.11n Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5745	149	6.5 Mbps	8.50	0.30	8.80	30
		13 Mbps	8.46	0.44	8.90	30
		19.5 Mbps	8.20	0.74	8.94	30
		26 Mbps	7.87	0.94	8.81	30
		39 Mbps	7.75	1.35	9.09	30
		52 Mbps	7.50	1.50	9.00	30
		58.5 Mbps	7.41	1.86	9.27	30
		65 Mbps	7.20	1.66	8.86	30
5785	157	6.5 Mbps	8.40	0.30	8.70	30
		13 Mbps	8.38	0.44	8.82	30
		19.5 Mbps	8.23	0.74	8.97	30
		26 Mbps	8.04	0.94	8.99	30
		39 Mbps	7.77	1.35	9.11	30
		52 Mbps	7.60	1.50	9.09	30
		58.5 Mbps	7.34	1.86	9.20	30
		65 Mbps	7.14	1.66	8.80	30
5825	165	6.5 Mbps	8.41	0.30	8.71	30
		13 Mbps	8.33	0.44	8.77	30
		19.5 Mbps	8.10	0.74	8.84	30
		26 Mbps	8.02	0.94	8.96	30
		39 Mbps	7.71	1.35	9.05	30
		52 Mbps	7.43	1.50	8.92	30
		58.5 Mbps	7.31	1.86	9.16	30
		65 Mbps	7.25	1.66	8.91	30

Conducted Output Power Measurements (802.11n_40 MHz BW Mode: 5755~5795)

802.11n Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5755	151	13.5 Mbps	7.67	0.43	8.11	30
		27 Mbps	7.30	0.81	8.10	30
		40.5 Mbps	7.11	1.11	8.22	30
		54 Mbps	6.66	1.38	8.04	30
		81 Mbps	6.27	1.84	8.11	30
		108 Mbps	5.89	2.19	8.08	30
		121.5 Mbps	5.67	2.34	8.00	30
		135 Mbps	5.37	2.51	7.88	30
5795	159	13.5 Mbps	7.58	0.43	8.01	30
		27 Mbps	6.94	0.81	7.75	30
		40.5 Mbps	5.99	1.11	7.09	30
		54 Mbps	5.86	1.38	7.23	30
		81 Mbps	5.60	1.84	7.44	30
		108 Mbps	5.11	2.19	7.30	30
		121.5 Mbps	4.66	2.34	7.00	30
		135 Mbps	4.73	2.51	7.24	30