



HCT CO., LTD.

CERTIFICATE OF COMPLIANCE FCC Certification

Applicant Name:

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

Date of Issue:

July 01, 2014

Test Site/Location:HCT CO., LTD., 74, Seoicheon-ro 578beon-gil,
Majang-myeon, Icheon-si, Gyeonggi-do, Korea**Address:**

1000 Sylvan Avenue, Englewood Cliffs NJ 07632

Report No.: HCT-R-1407-F004-1**HCT FRN:** 0005866421**IC Recognition No.:** 5944A-3

FCC ID	: ZNFV480
IC	: 2703C-V480
APPLICANT	: LG Electronics MobileComm U.S.A., Inc.

FCC/ IC Model(s):

LG-V480

Additional

LGV480, V480

FCC/ IC Model(s):**EUT Type:**

2.4/5GHz BT/WiFi Tablet

Max. RF Output Power:Wi-Fi 802.11b (18.47 dBm) / Wi-Fi 802.11g (18.09 dBm)/ Wi-Fi 802.11n (2.4 GHz) (15.87 dBm)
/ Wi-Fi 802.11a (5.8 GHz) (16.98 dBm)/ Wi-Fi 802.11n_20 MHz BW (5.8 GHz) (16.35 dBm)
/ Wi-Fi 802.11n_40 MHz BW (5.8 GHz) (15.77 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

IC Rule :

RSS-210 Issue 8 , RSS-GEN Issue 3

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**

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FCC PT.15.247 TEST REPORT	FCC & IC CERTIFICATION REPORT			www.hct.co.kr
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Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-R-1407-F004	July 01, 2014	- First Approval Report
HCT-R-1407-F004-1	July 01, 2014	-Revised the IC Rule on page 1

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1. GENERAL INFORMATION

Applicant: LG Electronics MobileComm U.S.A., Inc.
Address: 1000 Sylvan Avenue, Englewood Cliffs NJ 07632
FCC ID: ZNFV480
IC: 2703C-V480
EUT Type: 2.4/5GHz BT/WiFi Tablet
FCC/IC Model name(s): LG-V480
Additional FCC/IC Model name(s): LGV480, V480
Date(s) of Tests: June 17, 2014 ~ June 27, 2014
Place of Tests: HCT Co., Ltd.
 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea
 (IC Recognition No. : 5944A-3)

2. EUT DESCRIPTION

EUT Type	2.4/5GHz BT/WiFi Tablet	
FCC/ IC Model Name	LG-V480	
Additional FCC/ IC Model Name	LGV480, V480	
Power Supply	DC 3.7 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 (18.47 dBm) / Wi-Fi 802.11g (18.09 dBm)/ Wi-Fi 802.11n (2.4 GHz) (15.87 dBm) / Wi-Fi 802.11a (5.8 GHz) (16.98 dBm)/ Wi-Fi 802.11n_20 MHz BW (5.8 GHz) (16.35 dBm) / Wi-Fi 802.11n_40 MHz BW (5.8 GHz) (15.77 dBm)
	Average	Wi-Fi 802.11b (12.50 dBm) / Wi-Fi 802.11g (9.88 dBm)/ Wi-Fi 802.11n (2.4 GHz) (7.64 dBm) / Wi-Fi 802.11a (5.8 GHz) (8.75 dBm)/ Wi-Fi 802.11n_20 MHz BW (5.8 GHz) (7.76 dBm) / Wi-Fi 802.11n_40 MHz BW (5.8 GHz) (7.26 dBm)
Modulation Type	DSSS/CCK(802.11b), OFDM(802.11a, 802.11g, 802.11n)	
Antenna Specification	Manufacturer: ace technologyA Antenna type: Planar Inverted F Antenna Peak Gain :1.01 dBi (2.4 GHz Band), -3.26 dBi (5.8 GHz Band)	

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3. TEST METHODOLOGY

FCC KDB 558074 D01 DTS Meas Guidance v03r02 dated June 05, 2014 entitled “Guidance for Performing Compliance Measurements on Digital Transmission Systems(DTS) Operating Under §15.247” and the measurement procedure described in the American National Standard for Testing Unlicensed Wireless Devices(ANSI C63.4-2003) 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 9.1 to 9.2.(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.

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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 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 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 February 28, 2014 (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."

6. ANTENNA REQUIREMENTS

According to FCC 47 CFR §15.203, §15.407, RSS-GEN 7.1.2

"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 directional gain of this E.U.T antenna exceeds 6 dBi
- *The E.U.T Complies with the requirement of §15.203, §15.407, RSS-GEN 7.1.2

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7. SUMMARY TEST OF RESULTS

7.1 FCC Part

Test Description	IC Part Section(s)	FCC Part Section(s)	Test Limit	Test Condition	Test Result
6 dB Bandwidth	RSS-210 [A8.2]	§15.247(a)(2)	> 500 kHz	CONDUCTED	PASS
Conducted Maximum Peak Output Power	RSS-210 [A8.4]	§15.247(b)(3)	< 1 Watt		PASS
Power Spectral Density	RSS-210 [A8.2]	§15.247(e)	< 8 dBm / 3 kHz Band		PASS
Band Edge(Out of Band Emissions)	RSS-210 [A8.5]	§15.247(d)	Conducted > 20 dBc		PASS
AC Power line Conducted Emissions	RSS-GEN [7.2.2]	§15.207	cf. Section 8.8		PASS
Radiated Spurious Emissions	RSS-210 [A8.5]	§15.205, 15.209	cf. Section 8.7.1	RADIATED	PASS
Radiated Restricted Band Edge	RSS-210 [A8.5]	§15.247(d), 15.205, 15.209	cf. Section 8.7.3		PASS

7.2 IC Part

Test Description	IC Part Section(s)	FCC Part Section(s)	Test Limit	Test Condition	Test Result
6 dB Bandwidth	RSS-210 [A8.2]	§15.247(a)(2)	> 500 kHz	CONDUCTED	PASS
99% Bandwidth (only for IC)	RSS-GEN [4.6.1]	NA	NA		NA
Conducted Maximum Peak Output Power	RSS-210 [A8.4]	§15.247(b)(3)	< 1 Watt		PASS
Power Spectral Density	RSS-210 [A8.2]	§15.247(e)	< 8 dBm / 3 kHz Band		PASS
Band Edge(Out of Band Emissions)	RSS-210 [A8.5]	§15.247(d)	Conducted > 20 dBc		PASS
AC Power line Conducted Emissions	RSS-GEN [7.2.2]	§15.207	cf. Section 8.8		PASS
Radiated Spurious Emissions	RSS-210 [A8.5]	§15.205, 15.209	cf. Section 8.7.1		RADIATED
Receiver Spurious Emissions	RSS-GEN, Section 7.2.3	§15.109	cf. Section 8.7.2	PASS	
Radiated Restricted Band Edge	RSS-210 [A8.5]	§15.247(d), 15.205, 15.209	cf. Section 8.7.3	PASS	

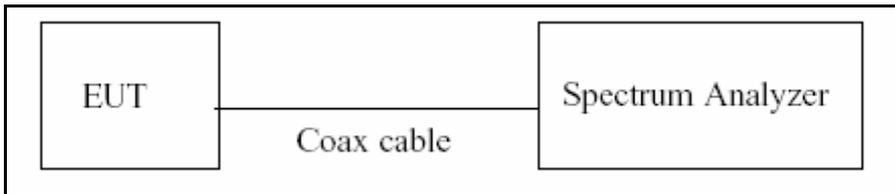
8. TEST RESULT

8.1 DUTY CYCLE(802.11a/b/g/n)

TEST PROCEDURE

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set RBW \geq OBW if possible; otherwise, set RBW to the largest available value. Set VBW \geq RBW. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$ and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if $T \leq 16.7$ microseconds.)

TEST CONFIGURATION



TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer. We tested according to the zero-span measurement method, 6.0)b) in KDB 558074(issued 06/05/2014).

The largest available value of RBW is 8 MHz and VBW is 50 MHz. The zero-span method of measuring duty cycle shall not be used if $T \leq 6.25$ microseconds. ($50/6.25 = 8$)

The zero-span method was used because all measured T data are > 6.25 microseconds and both RBW and VBW are $> 50/T$.

1. RBW = 8 MHz (the largest available value)
2. VBW = 8 MHz (\geq RBW)
3. SPAN = 0 Hz
4. Detector = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = T_{on}/T_{total} and Duty Cycle Factor = $10 \cdot \log(1/\text{Duty Cycle})$

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Duty Cycle Factor

Mode	Data Rate	T _{on} (ms)	T _{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
2.4 GHz Band 802.11b	1	12.240	12.340	0.99189627	0.035
	2	6.220	6.320	0.98417722	0.069
	5.5	2.373	2.471	0.96033994	0.176
	11	1.286	1.384	0.92919075	0.319
2.4 GHz Band 802.11g and 5.8 GHz Band 802.11a	6	2.030	2.130	0.95305164	0.209
	9	1.359	1.458	0.93209877	0.305
	12	1.028	1.126	0.91296625	0.395
	18	0.692	0.790	0.87594937	0.575
	24	0.522	0.622	0.83922830	0.761
	36	0.355	0.454	0.78193833	1.068
	48	0.272	0.370	0.73513514	1.336
	54	0.243	0.342	0.71052632	1.484
2.4 GHz Band 802.11n_20 MHz BW and 5.8 GHz Band 802.11n_20 MHz BW	6.5	1.875	1.974	0.94984802	0.223
	13	0.951	1.050	0.90571429	0.430
	19.5	0.644	0.742	0.86792453	0.615
	26	0.488	0.586	0.83276451	0.795
	39	0.335	0.434	0.77188940	1.124
	52	0.256	0.353	0.72521246	1.395
	58.5	0.231	0.330	0.70000000	1.549
	65	0.211	0.310	0.68064516	1.671
5.8 GHz Band 802.11n_40 MHz BW	13.5	0.916	1.020	0.89803922	0.467
	27	0.471	0.572	0.82342657	0.844
	40.5	0.322	0.423	0.76122931	1.185
	54	0.247	0.347	0.71181556	1.476
	81	0.175	0.275	0.63636364	1.963
	108	0.136	0.236	0.57627119	2.394
	121.5	0.122	0.223	0.54708520	2.619
	135	0.116	0.216	0.53703704	2.700

Note : Duty Cycle Factor = $10 \cdot \log(1/\text{Duty Cycle})$. where, Duty Cycle = T_{on} / T_{total}

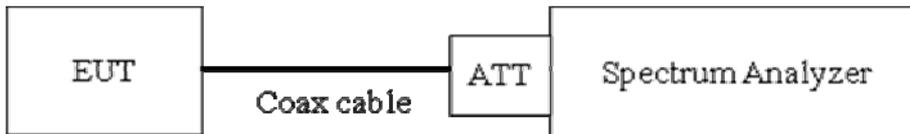
8.2 6dB BANDWIDTH (802.11a/b/g/n)

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 5 in KDB 558074, issued 06/05/2014)

RBW = 100 kHz

VBW \geq 3 x RBW

Detector = Peak

Trace mode = max hold

Sweep = auto couple

Allow the trace to stabilize

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

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TEST RESULTS

2.4 GHz Band

Conducted 6dB Bandwidth Measurements for 802.11b

802.11b Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
2412	1	8.595	0.500	Pass
2437	6	8.111	0.500	Pass
2462	11	8.123	0.500	Pass

Conducted 6dB Bandwidth Measurements for 802.11g

802.11g Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
2412	1	16.43	0.500	Pass
2437	6	16.41	0.500	Pass
2462	11	16.41	0.500	Pass

Conducted 6dB Bandwidth Measurements for 802.11n_20 MHz BW

802.11n Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
2412	1	17.63	0.500	Pass
2437	6	17.63	0.500	Pass
2462	11	17.63	0.500	Pass

5.8 GHz Band

Conducted 6 dB Bandwidth Measurements for 802.11a

802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	16.43	0.500	Pass
5785	157	16.43	0.500	Pass
5825	165	16.42	0.500	Pass

Conducted 6 dB Bandwidth Measurements for 802.11n_20 MHz BW

802.11n Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	17.65	0.500	Pass
5785	157	17.62	0.500	Pass
5825	165	17.68	0.500	Pass

Conducted 6 dB Bandwidth Measurements for 802.11n_40 MHz BW

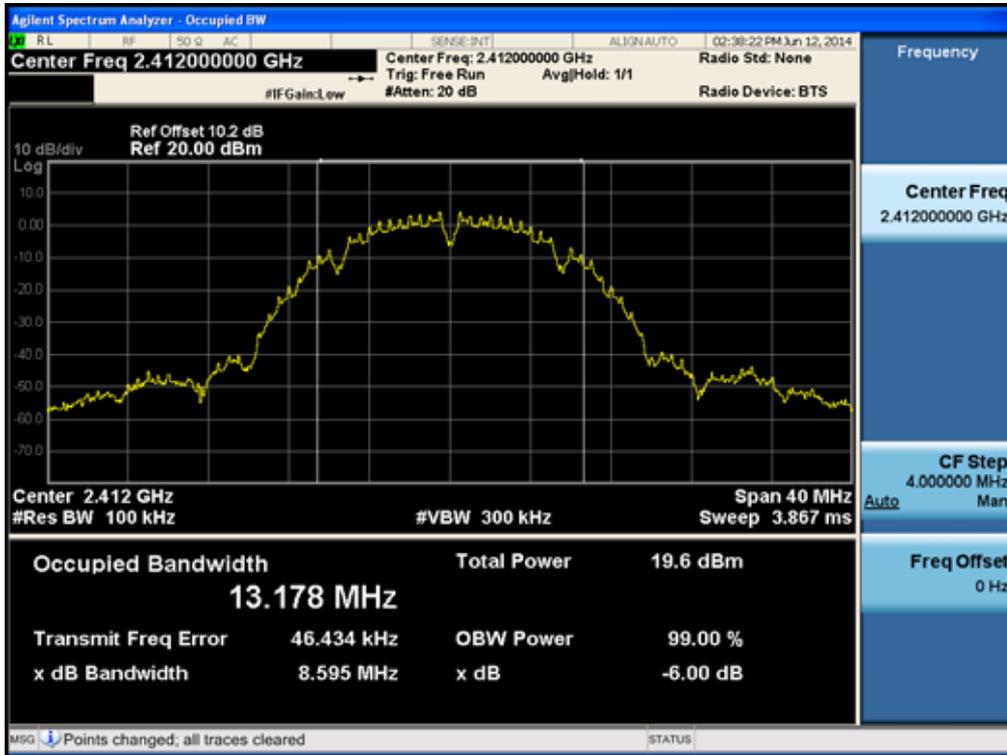
802.11n Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	34.83	0.500	Pass
5795	159	35.23	0.500	Pass

Note : In order to simplify the report, attached plots were only the most wide 6 dB BW channel.

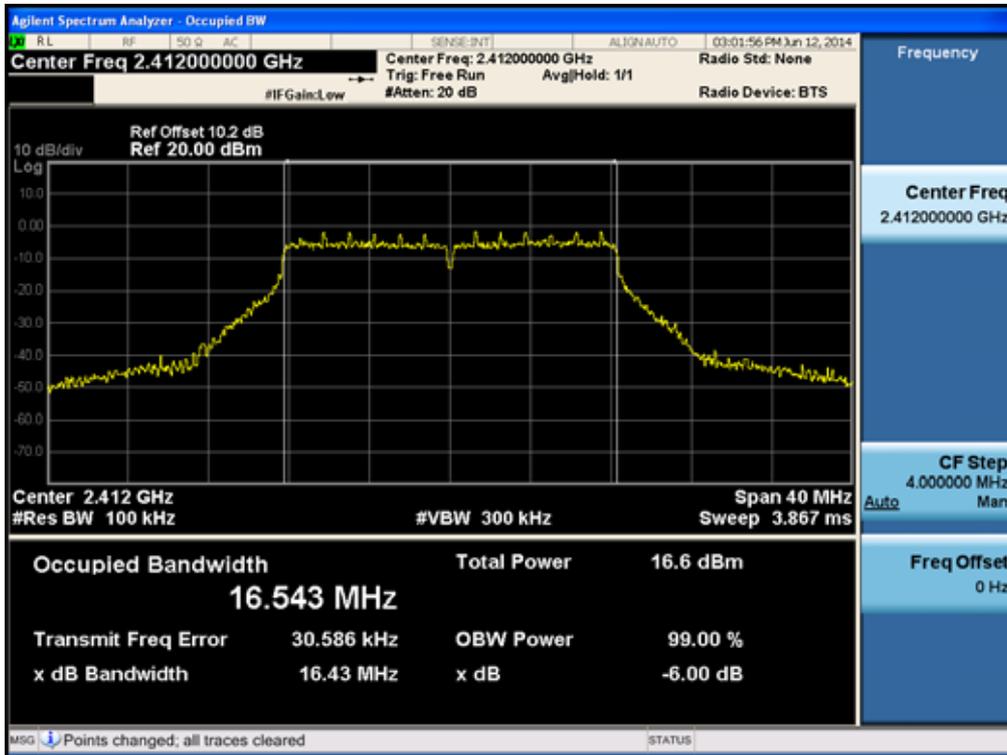
RESULT PLOTS

2.4 GHz Band

6dB Bandwidth plot (802.11b-CH 1)

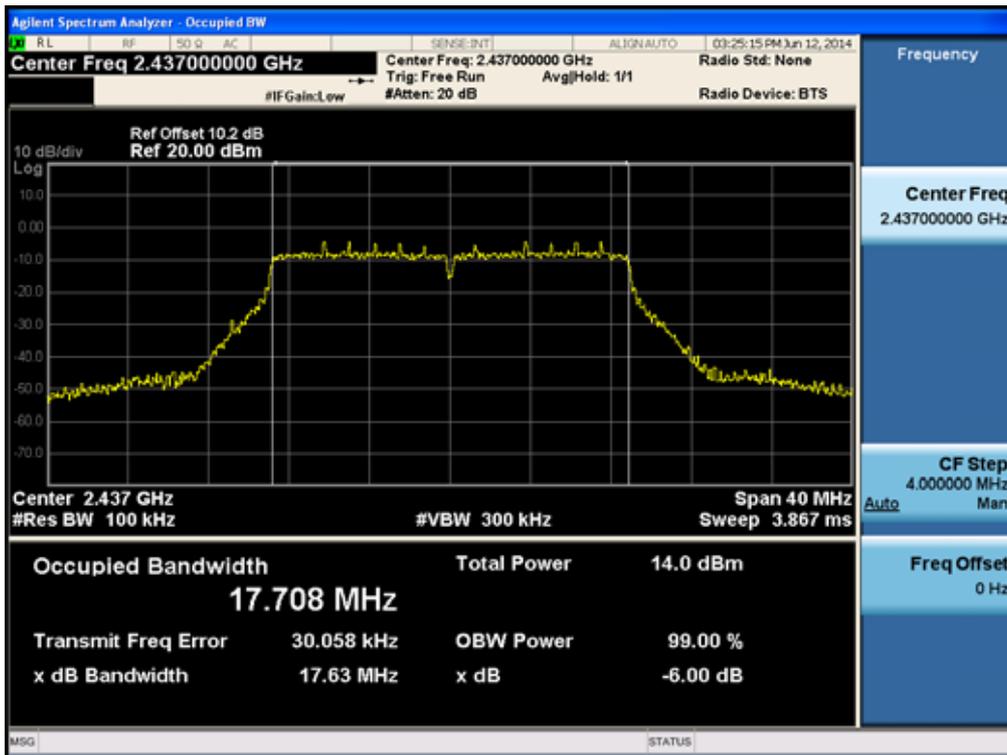


6dB Bandwidth plot (802.11g-CH 1)



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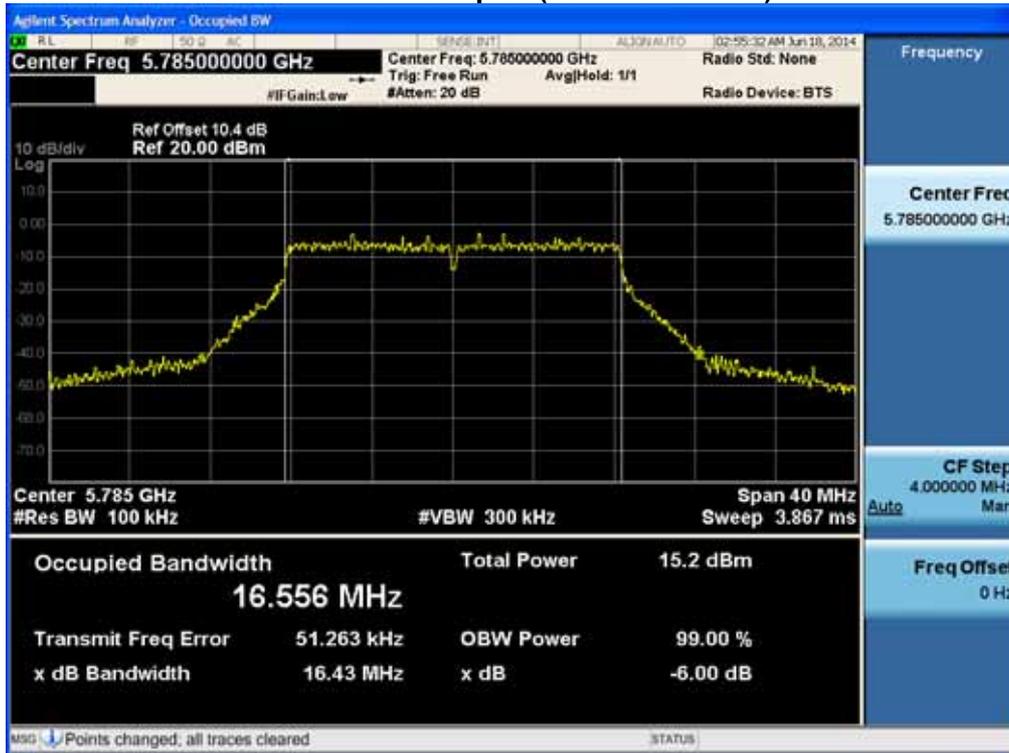
6dB Bandwidth plot (802.11n-CH 6)



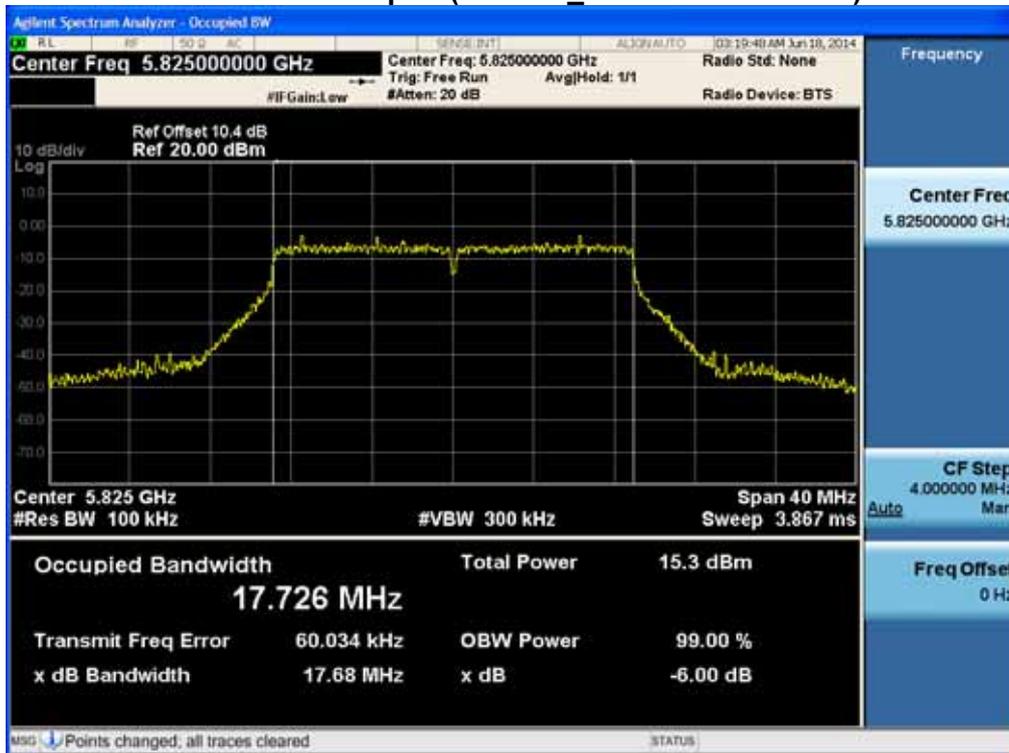
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5.8 GHz Band

6dB Bandwidth plot (802.11a-CH 157)

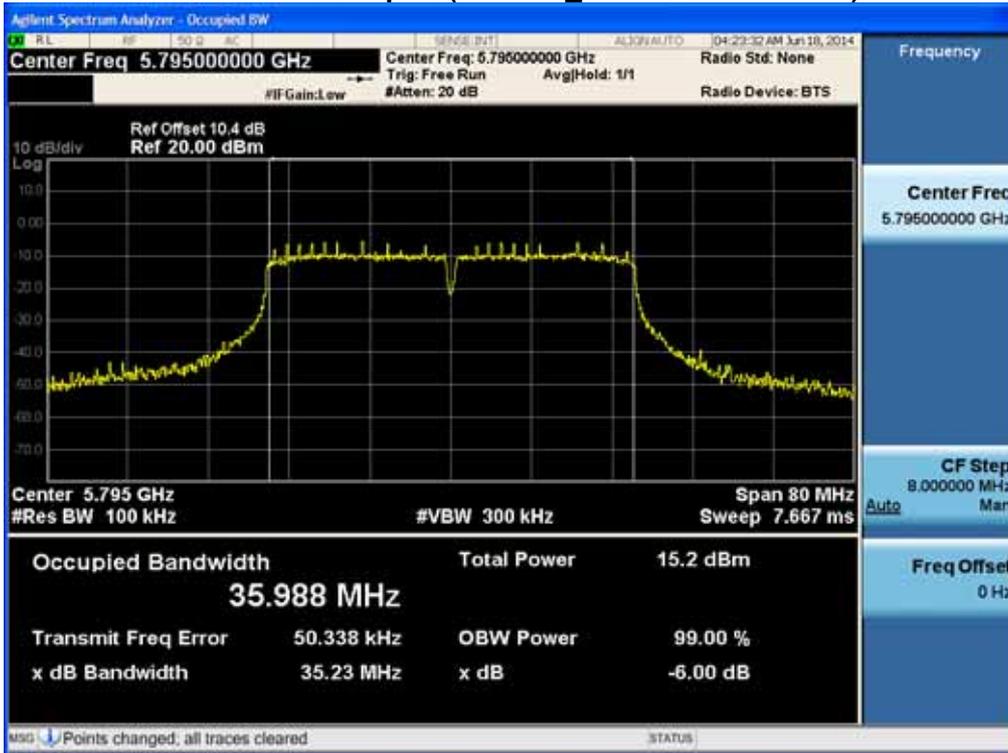


6dB Bandwidth plot (802.11n_20 MHz BW-CH 165)



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6dB Bandwidth plot (802.11n_40 MHz BW-CH 159)



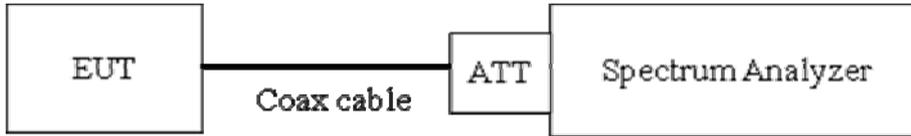
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8.3 99% BANDWIDTH (802.11a/b/g/n)

limit

None; for IC reporting purposes only

TEST CONFIGURATION



TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to as close to 1% of the selected span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RBW = 1% of the total span

VBW \geq 3 x RBW

Detector = Peak

Trace mode = max hold

Sweep = auto couple

Allow the trace to stabilize

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TEST RESULTS

2.4 GHz Band

Conducted 99% Bandwidth Measurements for 802.11b

802.11b Mode		Measured Bandwidth [MHz]
Frequency [MHz]	Channel No.	
2412	1	13.226
2437	6	13.235
2462	11	13.238

Conducted 99% Bandwidth Measurements for 802.11g

802.11g Mode		Measured Bandwidth [MHz]
Frequency [MHz]	Channel No.	
2412	1	17.140
2437	6	17.100
2462	11	17.135

Conducted 99% Bandwidth Measurements for 802.11n

802.11n Mode		Measured Bandwidth [MHz]
Frequency [MHz]	Channel No.	
2412	1	18.159
2437	6	18.118
2462	11	18.133

5.8 GHz Band

Conducted 99% Bandwidth Measurements for 802.11a

802.11a Mode		Measured Bandwidth [MHz]
Frequency [MHz]	Channel No.	
5745	149	16.966
5785	157	16.952
5825	165	16.939

Conducted 99% Bandwidth Measurements for 802.11n_20 MHz BW

802.11a Mode		Measured Bandwidth [MHz]
Frequency [MHz]	Channel No.	
5745	149	18.041
5785	157	18.017
5825	165	18.053

Conducted 99% Bandwidth Measurements for 802.11n_40 MHz BW

802.11n Mode		Measured Bandwidth [MHz]
Frequency [MHz]	Channel No.	
5755	151	36.443
5795	159	36.591

Note : In order to simplify the report, attached plots were only the most wide 99 % BW channel.

RESULT PLOTS

2.4 GHz Band

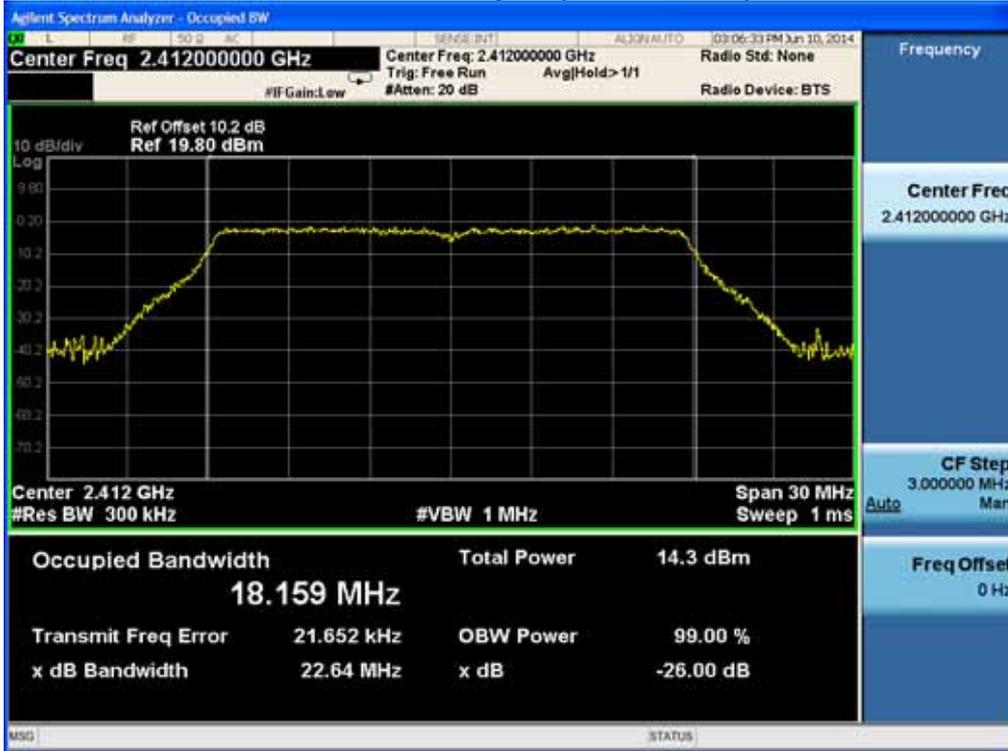
99% Bandwidth plot (802.11b-CH11)



99% Bandwidth plot (802.11g-CH1)



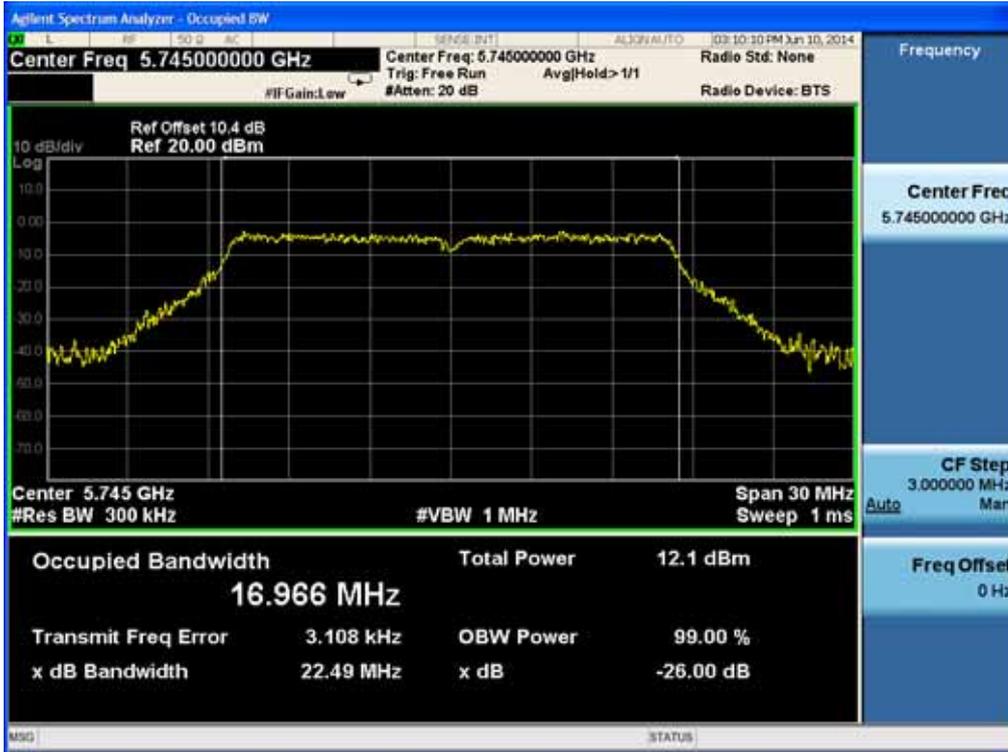
99% Bandwidth plot (802.11n-CH1)



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5.8 GHz Band

99% Bandwidth plot (802.11a-CH149)

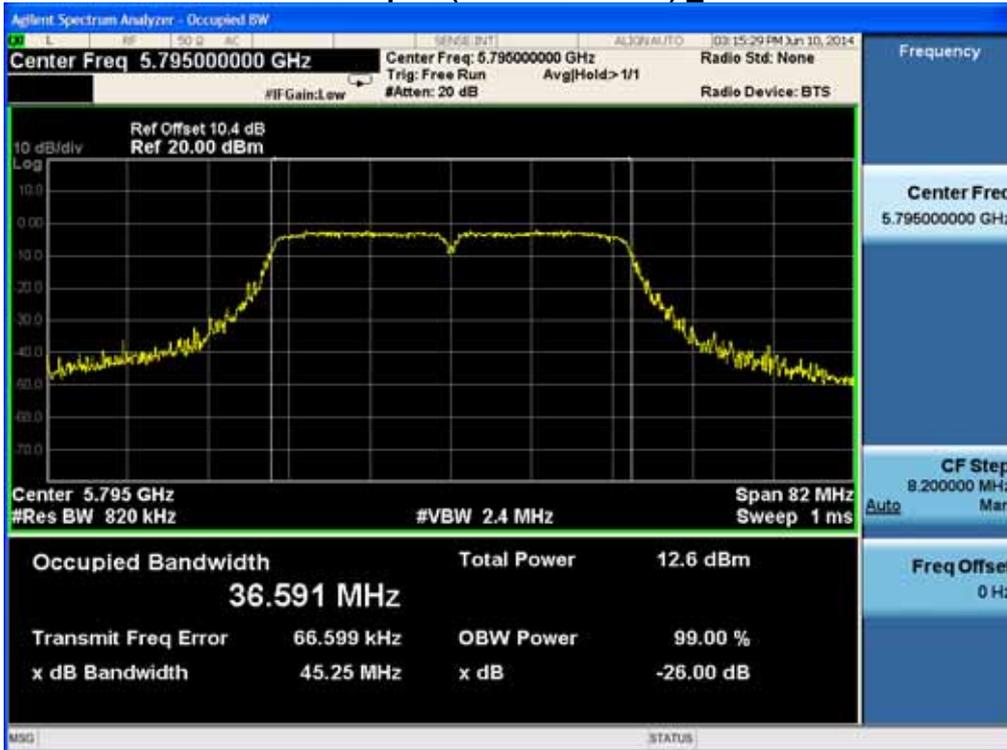


99% Bandwidth plot (802.11n-CH165) _20 MHz BW



FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet		FCC ID: ZNFV480	IC: 2703C-V480

99% Bandwidth plot (802.11n-CH159) _40 MHz BW



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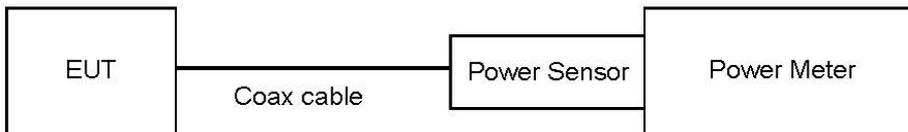
8.4 OUTPUT POWER (802.11a/b/g/n)

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

The transmitter output is connected to the input of an RF power sensor. Measurement is made using a broadband power meter capable of making peak and average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

The maximum permissible conducted output power is 1 Watt.

TEST CONFIGURATION(20 MHz BW)



TEST PROCEDURE(20 MHz BW)

- Peak Power (Procedure 9.1.2 in KDB 558074, issued 06/05/2014)
 1. Measure the peak power of the transmitter.
- Average Power (Procedure 9.2.3.1 in KDB 558074, issued 06/05/2014)
 1. Measure the duty cycle.
 2. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
 3. Add $10 \log (1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

Note :

1. 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, 20.2 dB is offset for 2.4 GHz Band and 20.3 dB is offset for 5.8 GHz Band.

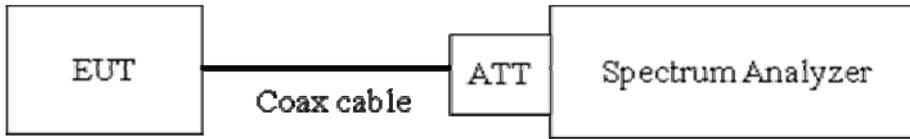
Actual value of loss for the attenuator and cable combination is below table.

Band	Frequency(MHz)	Loss(dB)
2.4 GHz	2412	20.21
	2437	20.24
	2462	20.24
5.8 GHz	5745	20.31
	5755	20.30
	5785	20.29
	5795	20.26
	5825	20.28

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

FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet	FCC ID: ZNFV480	IC: 2703C-V480

TEST CONFIGURATION(40 MHz BW)



TEST PROCEDURE(40 MHz BW)

Power sensor(N9121A) is supported only implemented a VBW of 30 MHz. So in case of 40 MHz power measurement, we used the integrated band power method.

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 (Integrated Band Power Method)

RBW = 1 MHz

VBW $\geq 3 \times$ RBW

SPAN $\geq 1.5 \times$ DTS bandwidth

Detector Mode = Peak

Sweep = auto couple

Trace Mode = max hold

Allow trace to fully stabilize.

Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges (for some instruments, this may require a manual override to select peak detector).

- Average Power (Procedure 9.2.2.4 in KDB 558074, issued 06/05/2014)

Measure the duty cycle

Set span to at least 1.5 times the OBW

RBW = 1-5 % of the OBW, not to exceed 1 MHz.

VBW $\geq 3 \times$ RBW.

Number of points in sweep $\geq 2 \times$ span / RBW. (This gives bin-to-bin spacing \leq RBW/2, so that narrowband signals are not lost between frequency bins.)

Sweep time = auto.

Detector = RMS(i.e., power averaging)

Do not use sweep triggering. Allow the sweep to "free run".

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

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.

Add $10 \log (1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

FCC PT.15.247 TEST REPORT	FCC & IC CERTIFICATION REPORT			www.hct.co.kr
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Sample Calculation

Output Power = Reading Value + ATT loss + Cable loss(1 ea) + Duty Cycle Factor

Output Power = 10 dBm + 20 dB + 0.8 dB + 0.2 dB = 31.0 dBm

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, 10.2 dB is offset for 2.4 GHz Band and 10.3 dB is offset for 5.8 GHz Band.
Actual value of loss for the attenuator and cable combination is below table.

Band	Frequency(MHz)	Loss(dB)
2.4 GHz	2412	20.21
	2437	20.24
	2462	20.24
5.8 GHz	5745	20.31
	5755	20.30
	5785	20.29
	5795	20.26
	5825	20.28

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



TEST RESULTS-Peak

2.4 GHz Band

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	14.77	30
		2 Mbps	15.26	30
		5.5 Mbps	16.79	30
		11 Mbps	18.47	30
2437	6	1 Mbps	14.11	30
		2 Mbps	14.60	30
		5.5 Mbps	16.18	30
		11 Mbps	17.87	30
2462	11	1 Mbps	14.64	30
		2 Mbps	14.87	30
		5.5 Mbps	16.44	30
		11 Mbps	18.12	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	17.28	30
		9 Mbps	17.26	30
		12 Mbps	17.08	30
		18 Mbps	17.16	30
		24 Mbps	17.65	30
		36 Mbps	17.64	30
		48 Mbps	17.69	30
		54 Mbps	17.51	30
2437	6	6 Mbps	17.64	30
		9 Mbps	17.62	30
		12 Mbps	17.50	30
		18 Mbps	17.50	30
		24 Mbps	18.00	30
		36 Mbps	17.74	30
		48 Mbps	17.86	30
		54 Mbps	18.09	30
2462	11	6 Mbps	16.68	30
		9 Mbps	16.93	30
		12 Mbps	16.54	30
		18 Mbps	16.79	30
		24 Mbps	17.07	30
		36 Mbps	17.20	30
		48 Mbps	17.03	30
		54 Mbps	17.09	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	15.12	30
		13 Mbps	15.20	30
		19.5 Mbps	15.24	30
		26 Mbps	15.70	30
		39 Mbps	15.71	30
		52 Mbps	15.87	30
		58.5 Mbps	15.50	30
		65 Mbps	15.48	30
2437	6	6.5 Mbps	14.77	30
		13 Mbps	14.67	30
		19.5 Mbps	14.69	30
		26 Mbps	15.19	30
		39 Mbps	15.15	30
		52 Mbps	15.20	30
		58.5 Mbps	15.18	30
		65 Mbps	14.89	30
2462	11	6.5 Mbps	14.37	30
		13 Mbps	14.26	30
		19.5 Mbps	14.28	30
		26 Mbps	14.75	30
		39 Mbps	14.71	30
		52 Mbps	14.81	30
		58.5 Mbps	14.80	30
		65 Mbps	14.84	30

5.8 GHz Band

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	15.58	30
		9 Mbps	15.65	30
		12 Mbps	15.33	30
		18 Mbps	15.43	30
		24 Mbps	15.76	30
		36 Mbps	15.62	30
		48 Mbps	15.68	30
		54 Mbps	15.69	30
5785	157	6 Mbps	16.11	30
		9 Mbps	16.08	30
		12 Mbps	15.84	30
		18 Mbps	15.84	30
		24 Mbps	16.28	30
		36 Mbps	16.03	30
		48 Mbps	15.91	30
		54 Mbps	16.04	30
5825	165	6 Mbps	16.93	30
		9 Mbps	16.98	30
		12 Mbps	16.71	30
		18 Mbps	16.49	30
		24 Mbps	16.96	30
		36 Mbps	16.89	30
		48 Mbps	16.80	30
		54 Mbps	16.74	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	14.51	30
		13 Mbps	14.16	30
		19.5 Mbps	14.13	30
		26 Mbps	14.47	30
		39 Mbps	14.44	30
		52 Mbps	14.40	30
		58.5 Mbps	14.42	30
		65 Mbps	14.47	30
5785	157	6.5 Mbps	15.22	30
		13 Mbps	14.90	30
		19.5 Mbps	14.87	30
		26 Mbps	15.11	30
		39 Mbps	15.16	30
		52 Mbps	15.22	30
		58.5 Mbps	15.08	30
		65 Mbps	14.96	30
5825	165	6.5 Mbps	16.35	30
		13 Mbps	15.96	30
		19.5 Mbps	15.75	30
		26 Mbps	16.23	30
		39 Mbps	16.19	30
		52 Mbps	16.14	30
		58.5 Mbps	16.10	30
		65 Mbps	16.11	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	14.72	30
		27 Mbps	14.19	30
		40.5 Mbps	14.15	30
		54 Mbps	14.38	30
		81 Mbps	14.31	30
		108 Mbps	14.17	30
		121.5 Mbps	14.25	30
		135 Mbps	14.25	30
5795	159	13.5 Mbps	15.77	30
		27 Mbps	15.32	30
		40.5 Mbps	15.25	30
		54 Mbps	15.60	30
		81 Mbps	15.39	30
		108 Mbps	15.35	30
		121.5 Mbps	15.43	30
		135 Mbps	15.29	30



TEST RESULTS-Average

2.4 GHz Band

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	12.23	0.035	12.26	30
		2 Mbps	12.41	0.069	12.48	30
		5.5 Mbps	12.32	0.176	12.50	30
		11 Mbps	12.17	0.319	12.49	30
2437	6	1 Mbps	11.82	0.035	11.86	30
		2 Mbps	11.93	0.069	12.00	30
		5.5 Mbps	11.92	0.176	12.09	30
		11 Mbps	11.79	0.319	12.10	30
2462	11	1 Mbps	12.25	0.035	12.29	30
		2 Mbps	12.21	0.069	12.28	30
		5.5 Mbps	12.20	0.176	12.38	30
		11 Mbps	12.06	0.319	12.38	30

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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	9.27	0.209	9.48	30
		9 Mbps	9.18	0.305	9.49	30
		12 Mbps	9.08	0.395	9.48	30
		18 Mbps	8.86	0.575	9.44	30
		24 Mbps	8.74	0.761	9.50	30
		36 Mbps	8.45	1.068	9.52	30
		48 Mbps	8.14	1.336	9.48	30
		54 Mbps	7.87	1.484	9.36	30
2437	6	6 Mbps	9.61	0.209	9.82	30
		9 Mbps	9.53	0.305	9.84	30
		12 Mbps	9.49	0.395	9.88	30
		18 Mbps	9.30	0.575	9.88	30
		24 Mbps	9.08	0.761	9.84	30
		36 Mbps	8.60	1.068	9.67	30
		48 Mbps	8.29	1.336	9.63	30
		54 Mbps	8.39	1.484	9.88	30
2462	11	6 Mbps	8.69	0.209	8.90	30
		9 Mbps	8.82	0.305	9.12	30
		12 Mbps	8.49	0.395	8.89	30
		18 Mbps	8.57	0.575	9.15	30
		24 Mbps	8.25	0.761	9.01	30
		36 Mbps	8.10	1.068	9.16	30
		48 Mbps	7.57	1.336	8.90	30
		54 Mbps	7.51	1.484	8.99	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	7.20	0.223	7.42	30
		13 Mbps	7.18	0.430	7.61	30
		19.5 Mbps	7.01	0.615	7.62	30
		26 Mbps	6.80	0.795	7.59	30
		39 Mbps	6.51	1.124	7.64	30
		52 Mbps	6.21	1.395	7.61	30
		58.5 Mbps	5.87	1.549	7.42	30
		65 Mbps	5.81	1.671	7.48	30
2437	6	6.5 Mbps	6.74	0.223	6.96	30
		13 Mbps	6.57	0.430	7.00	30
		19.5 Mbps	6.40	0.615	7.02	30
		26 Mbps	6.18	0.795	6.97	30
		39 Mbps	5.91	1.124	7.03	30
		52 Mbps	5.63	1.395	7.03	30
		58.5 Mbps	5.56	1.549	7.11	30
		65 Mbps	5.11	1.671	6.78	30
2462	11	6.5 Mbps	6.33	0.223	6.55	30
		13 Mbps	6.15	0.430	6.58	30
		19.5 Mbps	5.95	0.615	6.56	30
		26 Mbps	5.74	0.795	6.54	30
		39 Mbps	5.46	1.124	6.59	30
		52 Mbps	5.21	1.395	6.60	30
		58.5 Mbps	5.18	1.549	6.73	30
		65 Mbps	4.89	1.671	6.56	30

5.8 GHz Band

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	7.89	0.209	8.10	30
		9 Mbps	7.86	0.305	8.16	30
		12 Mbps	7.71	0.395	8.11	30
		18 Mbps	7.56	0.575	8.14	30
		24 Mbps	7.37	0.761	8.13	30
		36 Mbps	6.91	1.068	7.98	30
		48 Mbps	6.67	1.336	8.01	30
		54 Mbps	6.54	1.484	8.02	30
5785	157	6 Mbps	8.42	0.209	8.63	30
		9 Mbps	8.35	0.305	8.65	30
		12 Mbps	8.17	0.395	8.57	30
		18 Mbps	8.00	0.575	8.57	30
		24 Mbps	7.77	0.761	8.53	30
		36 Mbps	7.39	1.068	8.46	30
		48 Mbps	7.06	1.336	8.40	30
		54 Mbps	6.91	1.484	8.40	30
5825	165	6 Mbps	8.54	0.209	8.75	30
		9 Mbps	8.28	0.305	8.59	30
		12 Mbps	8.28	0.395	8.68	30
		18 Mbps	8.06	0.575	8.64	30
		24 Mbps	7.79	0.761	8.55	30
		36 Mbps	7.43	1.068	8.50	30
		48 Mbps	7.16	1.336	8.50	30
		54 Mbps	7.00	1.484	8.48	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	6.81	0.223	7.04	30
		13 Mbps	6.55	0.430	6.98	30
		19.5 Mbps	6.33	0.615	6.95	30
		26 Mbps	6.00	0.795	6.79	30
		39 Mbps	5.66	1.124	6.78	30
		52 Mbps	5.38	1.395	6.78	30
		58.5 Mbps	5.20	1.549	6.75	30
		65 Mbps	5.19	1.671	6.86	30
5785	157	6.5 Mbps	7.44	0.223	7.66	30
		13 Mbps	7.24	0.430	7.67	30
		19.5 Mbps	7.08	0.615	7.69	30
		26 Mbps	6.71	0.795	7.51	30
		39 Mbps	6.37	1.124	7.49	30
		52 Mbps	6.05	1.395	7.44	30
		58.5 Mbps	5.87	1.549	7.42	30
		65 Mbps	5.64	1.671	7.31	30
5825	165	6.5 Mbps	7.54	0.223	7.76	30
		13 Mbps	7.22	0.430	7.65	30
		19.5 Mbps	7.14	0.615	7.76	30
		26 Mbps	6.88	0.795	7.67	30
		39 Mbps	6.43	1.124	7.55	30
		52 Mbps	6.04	1.395	7.44	30
		58.5 Mbps	5.98	1.549	7.53	30
		65 Mbps	5.91	1.671	7.58	30

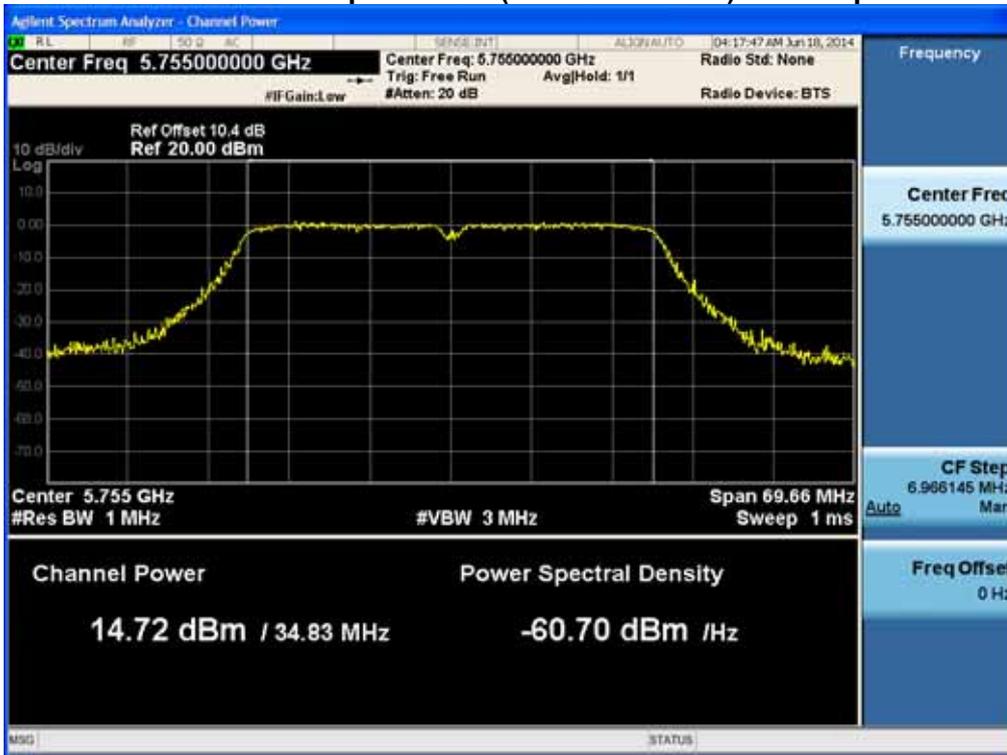
Conducted Output Power Measurements (802.11n_40 MHz BW Mode: 5755~5795)

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	6.72	0.467	7.19	30
		27 Mbps	6.28	0.844	7.12	30
		40.5 Mbps	5.92	1.185	7.11	30
		54 Mbps	5.36	1.476	6.84	30
		81 Mbps	4.91	1.963	6.88	30
		108 Mbps	4.27	2.394	6.67	30
		121.5 Mbps	4.06	2.619	6.68	30
		135 Mbps	4.19	2.700	6.89	30
5795	159	13.5 Mbps	6.79	0.467	7.26	30
		27 Mbps	6.29	0.844	7.13	30
		40.5 Mbps	5.72	1.185	6.90	30
		54 Mbps	5.60	1.476	7.08	30
		81 Mbps	4.86	1.963	6.82	30
		108 Mbps	4.35	2.394	6.74	30
		121.5 Mbps	4.24	2.619	6.86	30
		135 Mbps	4.07	2.700	6.77	30

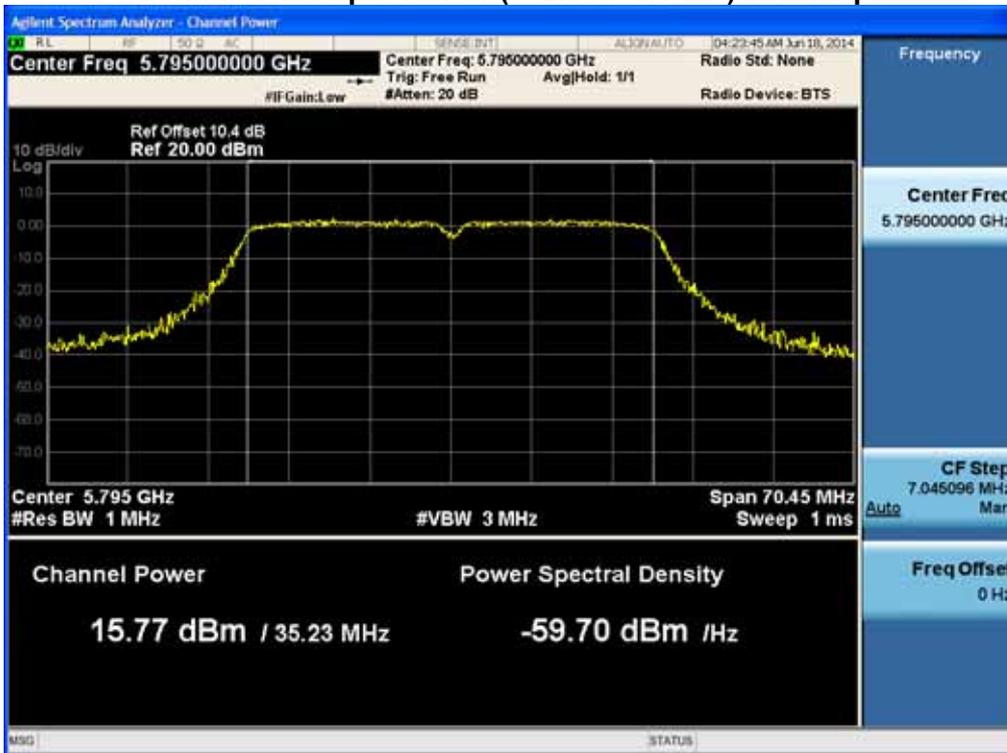
Note : In order to simplify the report, attached plots were only the highest conducted power channel and data rate.

RESULT PLOTS-Peak
40 MHz BW
(5755 MHz ~5795 MHz)

Conducted Output Power (802.11n-CH 151) 13.5 Mbps



Conducted Output Power (802.11n-CH 159) 13.5 Mbps



FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet		FCC ID: ZNFV480	IC: 2703C-V480



RESULT PLOTS-Average
40 MHz BW
(5755 MHz ~5795 MHz)

Conducted Output Power (802.11n-CH 151) 13.5 Mbps



Conducted Output Power (802.11n-CH 159) 13.5 Mbps



FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet		FCC ID: ZNFV480	IC: 2703C-V480

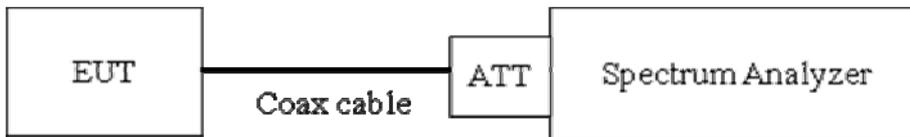
8.5 POWER SPECTRAL DENSITY (802.11a/b/g/n)

Test Requirements and limit, §15.247(e)

The peak power spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies.

Minimum Standard – 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.

TEST CONFIGURATION



TEST PROCEDURE

We tested according to Procedure 10.2 in KDB 558074, issued 06/05/2014

The spectrum analyzer is set to :

Set analyzer center frequency to DTS channel center frequency.

Span = 1.5 times the DTS channel bandwidth.

RBW = 3 kHz ≤ RBW ≤ 100 kHz.

VBW ≥ 3 x RBW.

Sweep = auto couple

Detector = peak

Trace Mode = max hold

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level within the RBW.

If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Sample Calculation

PSD = Reading Value + ATT loss + Cable loss(1 ea)

Output Power = -5 dBm + 10 dB + 0.8 dB = 5.8 dBm

Note :

1. Spectrum reading values are not plot data. The PSD 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, 20.2 dB is offset for 2.4 GHz Band and 20.3 dB is offset for 5.8 GHz Band.
Actual value of loss for the attenuator and cable combination is below table.

FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet	FCC ID: ZNFV480	IC: 2703C-V480

Band	Frequency(MHz)	Loss(dB)
2.4 GHz	2412	20.21
	2437	20.24
	2462	20.24
5.8 GHz	5745	20.31
	5755	20.30
	5785	20.29
	5795	20.26
	5825	20.28

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

TEST RESULTS

Conducted Power Density Measurements

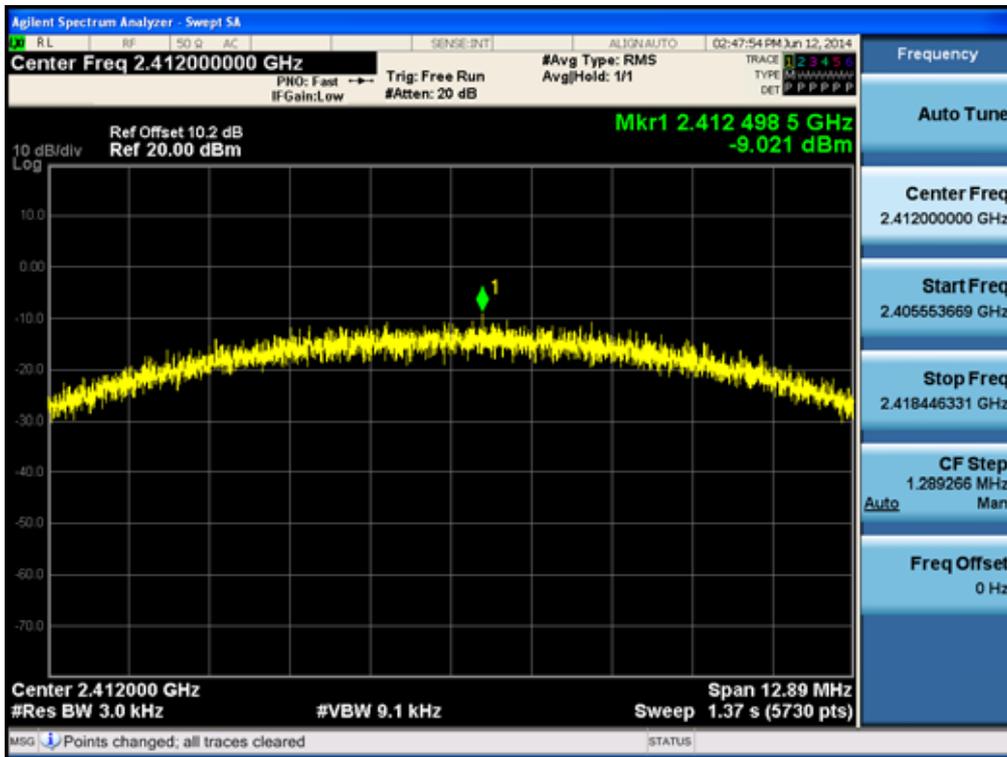
Frequency (MHz)	Channel No.	Mode	Test Result		
			PSD (dBm)	Limit (dBm)	Pass/Fail
2412	1	802.11b	-9.021	8	Pass
2437	6		-10.998		Pass
2462	11		-9.737		Pass
2412	1	802.11g	-16.174		Pass
2437	6		-15.157		Pass
2462	11		-15.640		Pass
2412	1	802.11n 2.4 GHz Band	-18.308		Pass
2437	6		-18.118		Pass
2462	11		-20.064		Pass
5745	149	802.11a	-16.189		Pass
5785	157		-16.547		Pass
5825	165		-15.712		Pass
5745	149	802.11n_20 MHz BW 5.8 GHz Band	-17.951		Pass
5785	157		-17.784		Pass
5825	165		-17.345		Pass
5755	151	802.11n_40 MHz BW 5.8 GHz Band	-20.547	Pass	
5795	159		-20.363	Pass	

Note : In order to simplify the report, attached plots were only the highest PSD channels.

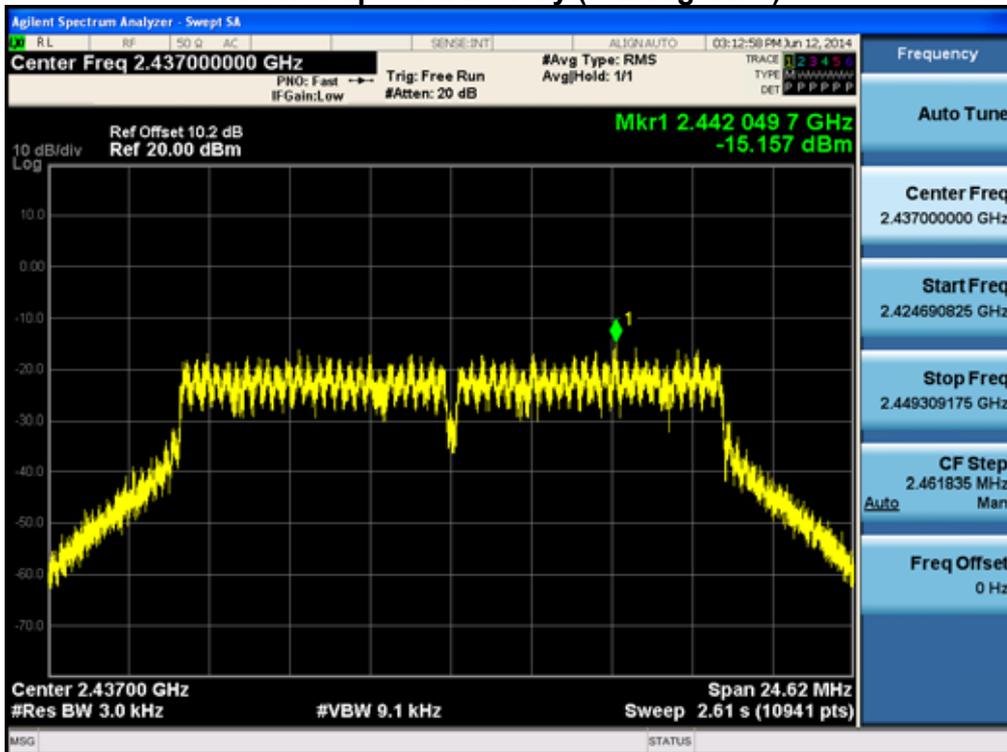
RESULT PLOTS

2.4 GHz Band

Power Spectral Density (802.11b-CH 1)

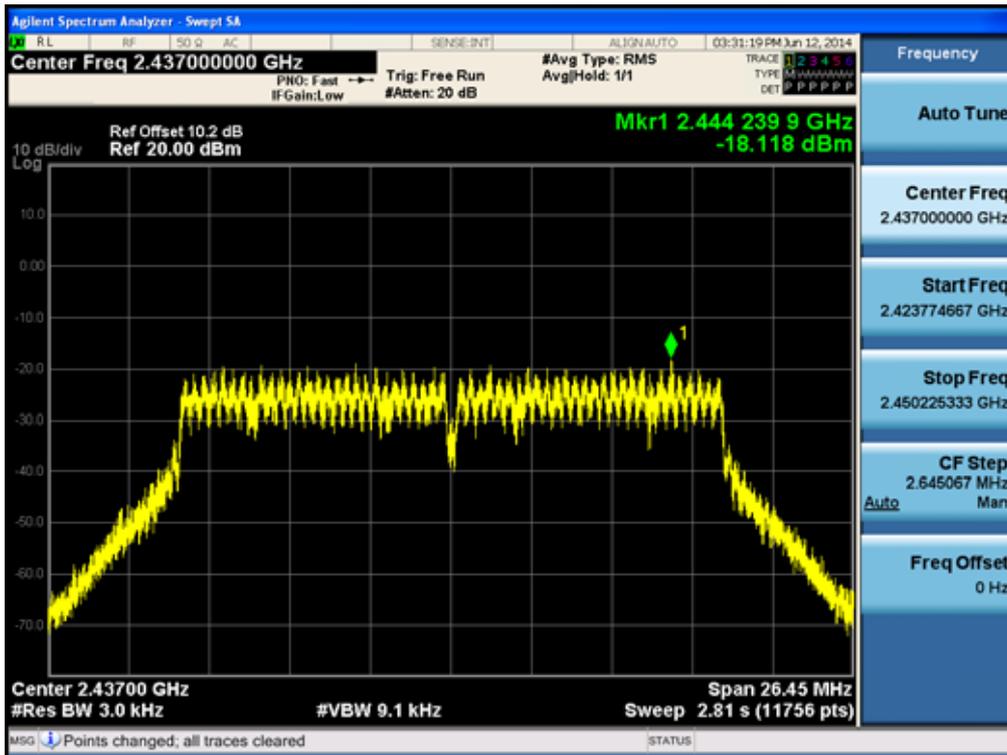


Power Spectral Density (802.11g-CH 6)



FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet		FCC ID: ZNFV480	IC: 2703C-V480

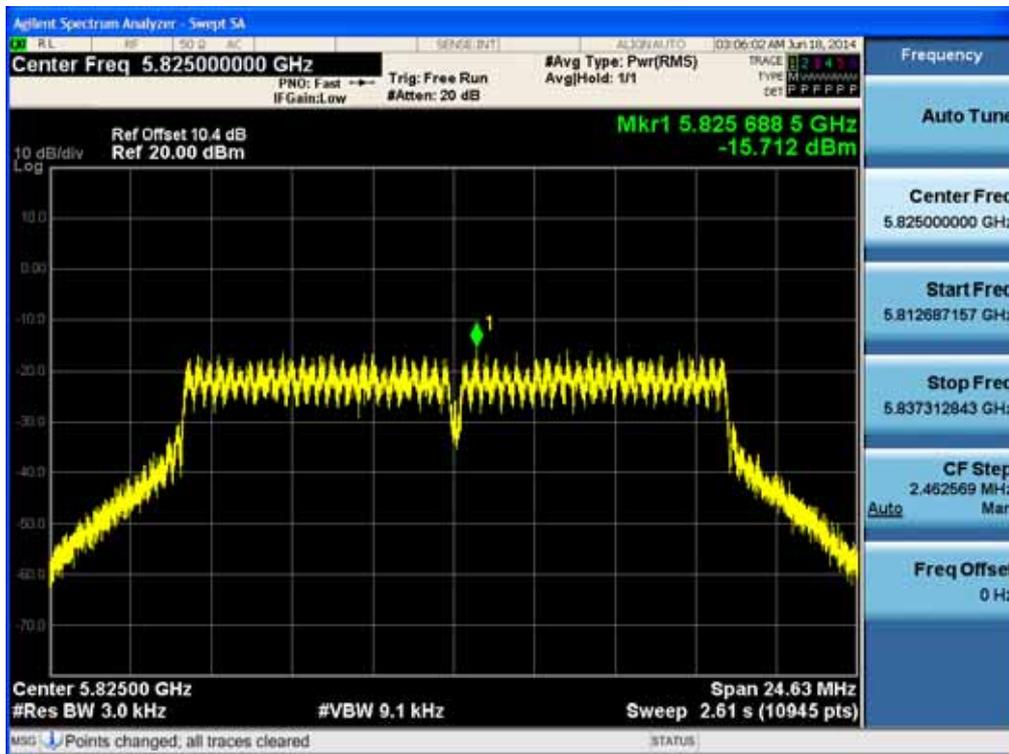
Power Spectral Density (802.11n-CH 6)



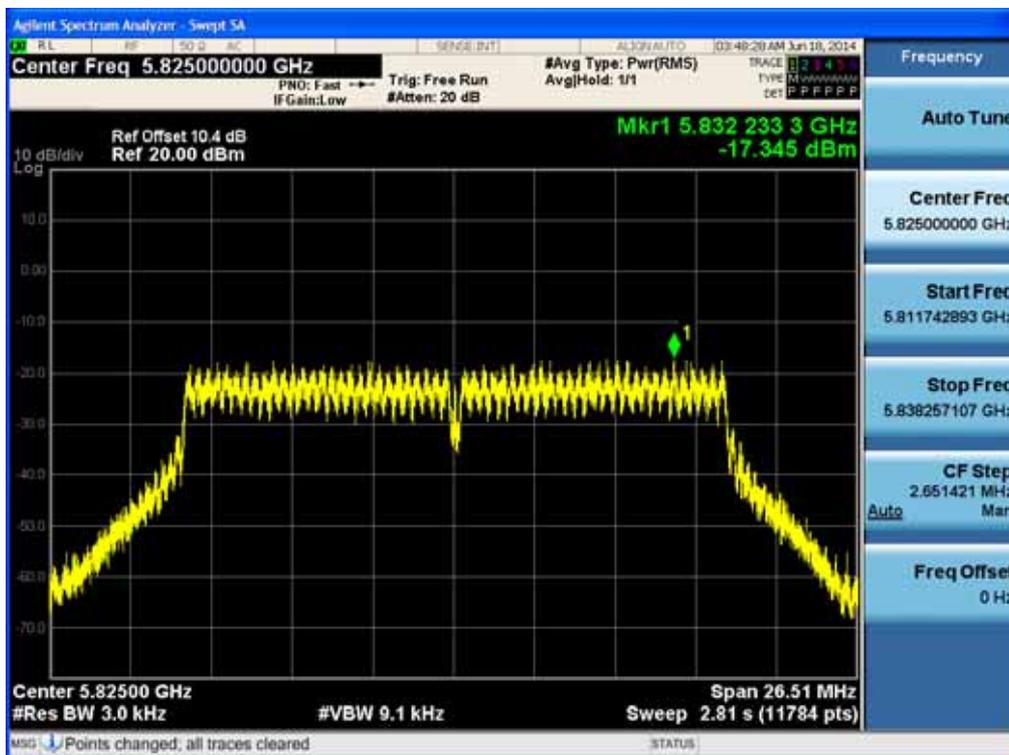
FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet		FCC ID: ZNFV480	IC: 2703C-V480

5.8 GHz Band
20 MHz BW

Power Spectral Density (802.11a-CH 165)

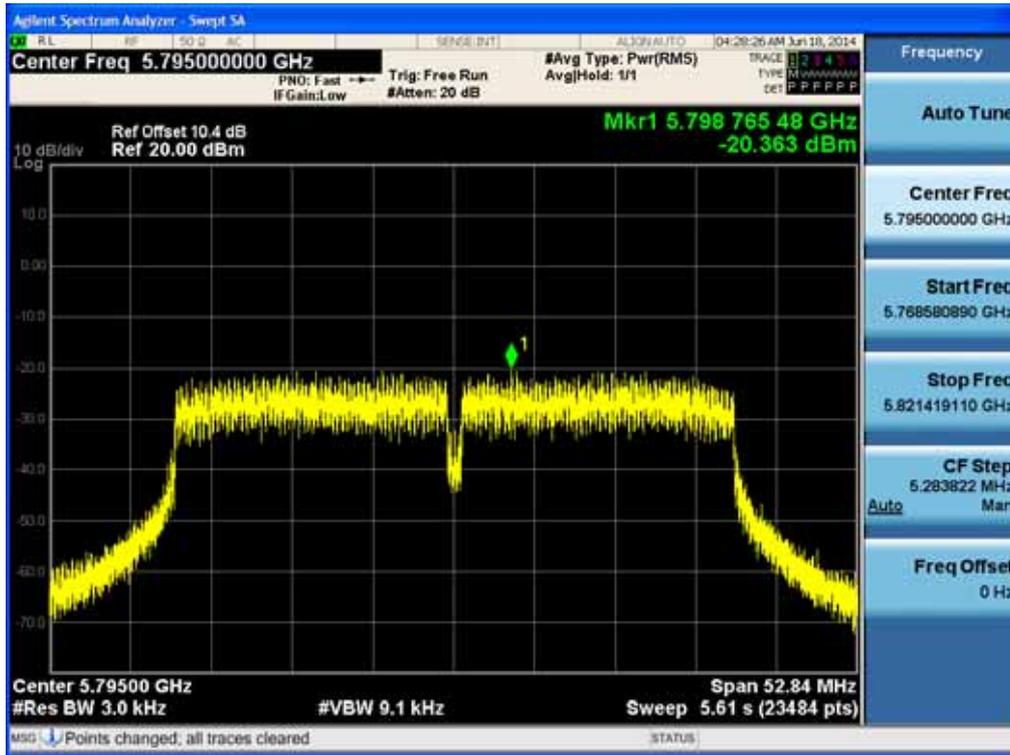


Power Spectral Density (802.11n-CH 165)



FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet		FCC ID: ZNFV480	IC: 2703C-V480

Power Spectral Density (802.11n-CH 159)



FCC PT.15.247 TEST REPORT	FCC & IC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet	FCC ID: ZNFV480	IC: 2703C-V480

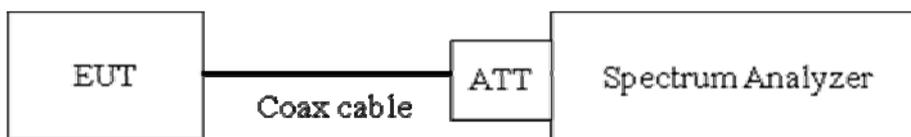
8.6 OUT OF BAND EMISSIONS AT THE BAND EDGE/ CONDUCTED SPURIOUS EMISSIONS

Test Requirements and limit, §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) (see § 15.205(c)).

Limit : 20 dBc

TEST CONFIGURATION



TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. (Procedure 11.0 in KDB 558074, issued 06/05/2014)

RBW = 100 kHz

VBW $\geq 3 \times$ RBW

Set span to encompass the spectrum to be examined

Detector = Peak

Trace Mode = max hold

Sweep time = auto couple

Ensure that the number of measurement points \geq Span/RBW

Allow trace to fully stabilize.

Use peak marker function to determine the maximum amplitude level.

Measurements are made over the 30 MHz to 10th harmonic range with the transmitter set to the lowest, middle, and highest channels.

Note :

1. The band edge 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,

FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr
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20.2 dB is offset for 2.4 GHz Band and 20.3 dB is offset for 5.8 GHz Band.

Actual value of loss for the attenuator and cable combination is below table.

Band	Frequency(MHz)	Loss(dB)
2.4 GHz	2412	20.21
	2437	20.24
	2462	20.24
5.8 GHz	5745	20.31
	5755	20.30
	5785	20.29
	5795	20.26
	5825	20.28

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

4. In case of conducted spurious emissions test, please check factors below table.
5. In order to simplify the report, attached plots were only the worst case channel and data rate.

FACTORS FOR FREQUENCY

Freq(MHz)	Factor(dB)
30	19.95
100	20.01
200	20.03
300	20.04
400	20.05
500	20.04
600	20.03
700	20.09
800	20.10
900	20.08
1000	20.11
2000	20.25
2400*	20.19
2500*	20.26
3000	20.27
4000	20.22
5000	20.48
5700*	20.42
5800*	20.48
6000	20.48

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7000	20.57
8000	20.45
9000	20.50
10000	20.64
11000	20.69
12000	20.75
13000	20.92
14000	21.90
15000	21.00
16000	21.03
17000	20.93
18000	20.96
19000	20.85
20000	22.11
21000	21.17
22000	20.99
23000	21.12
24000	21.10
25000	21.42
26000	21.28
27000	20.83
28000	21.03
29000	20.99
30000	22.08
31000	20.99
32000	21.32
33000	21.33
34000	22.62
35000	24.85
36000	24.78
37000	25.73
38000	25.81
39000	23.47
40000	24.89

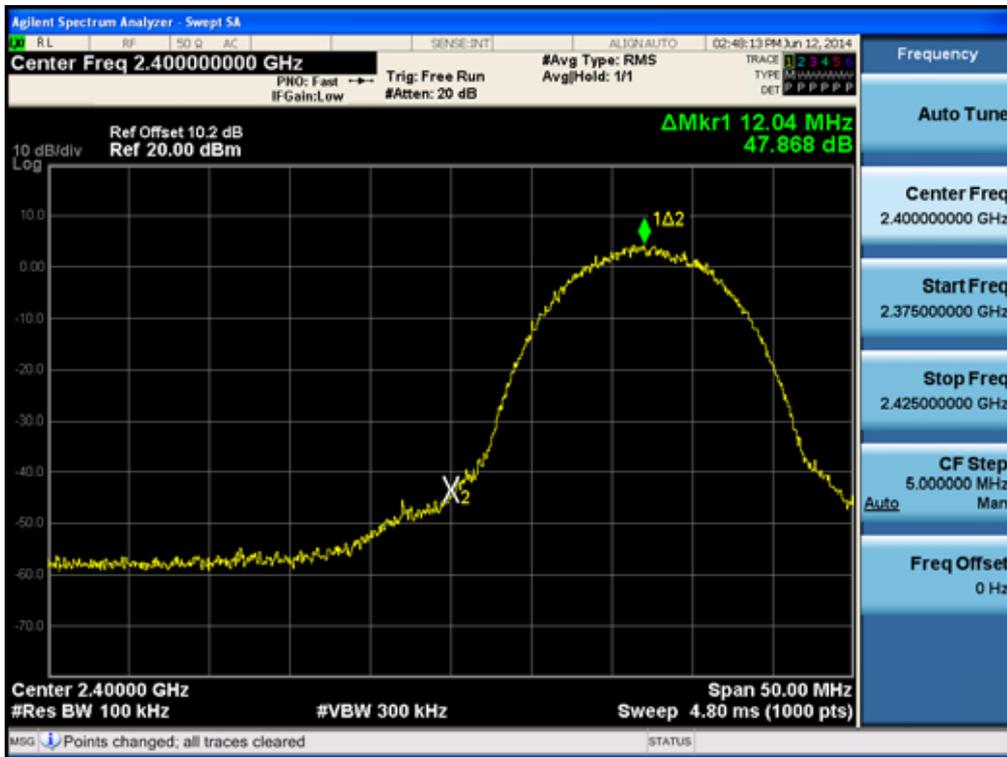
Note : 1. '*' is fundamental frequency range.
 2. Factor = Cable loss + Attenuator loss

FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet	FCC ID: ZNFV480	IC: 2703C-V480

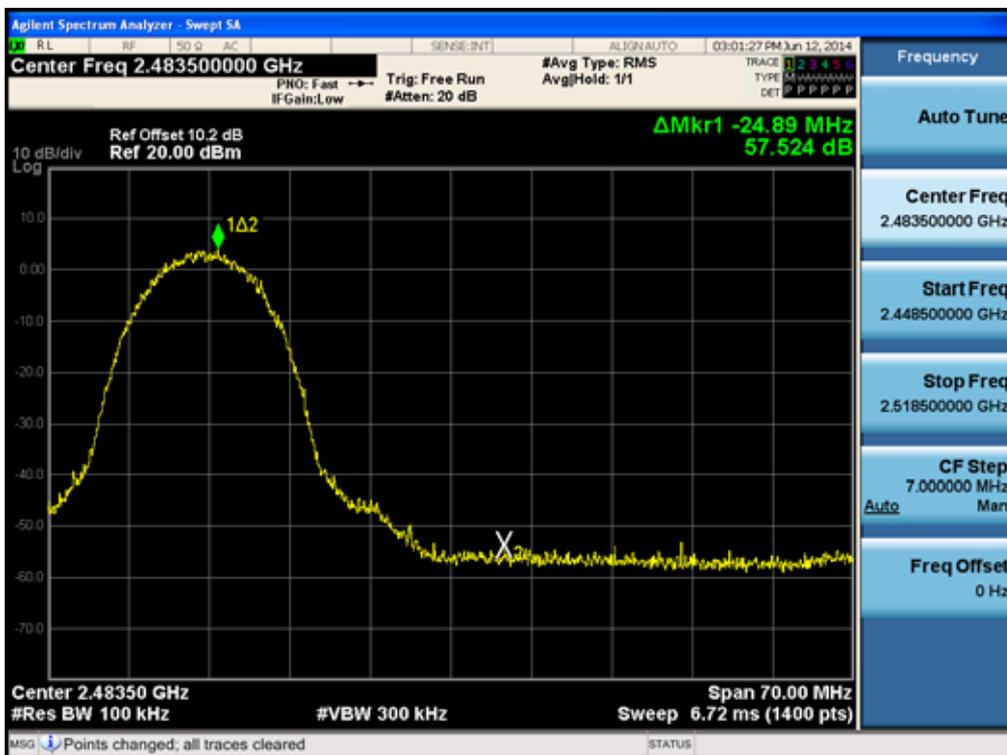
RESULT PLOTS

2.4 GHz Band

BandEdge (802.11b-CH1)

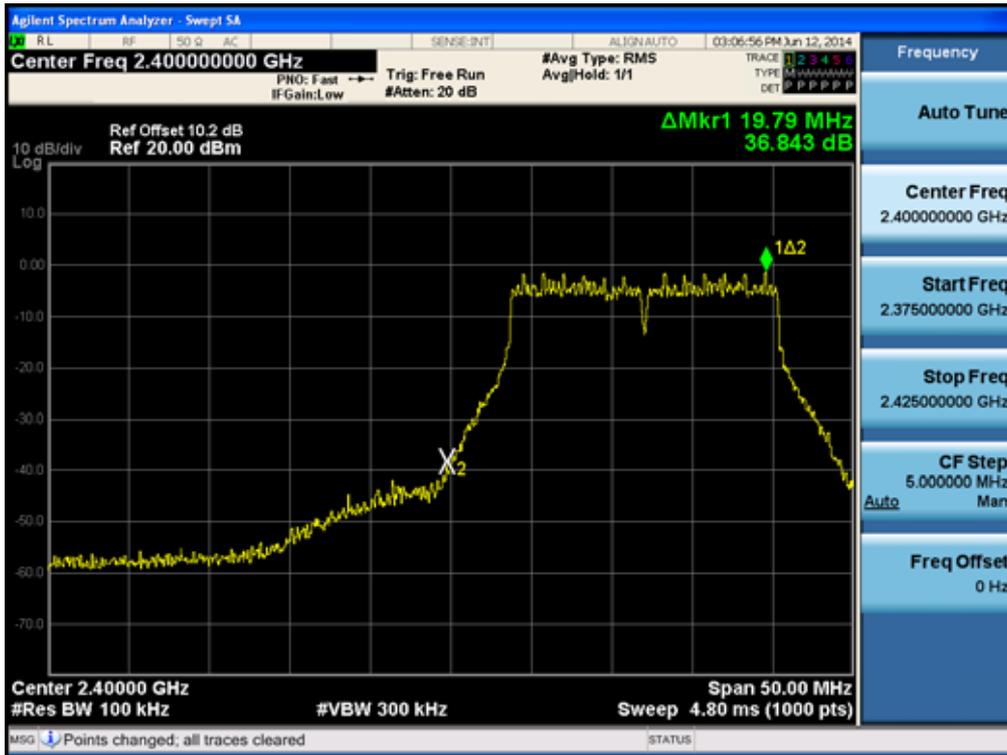


BandEdge (802.11b-CH11)



FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet		FCC ID: ZNFV480	IC: 2703C-V480

BandEdge (802.11g-CH1)

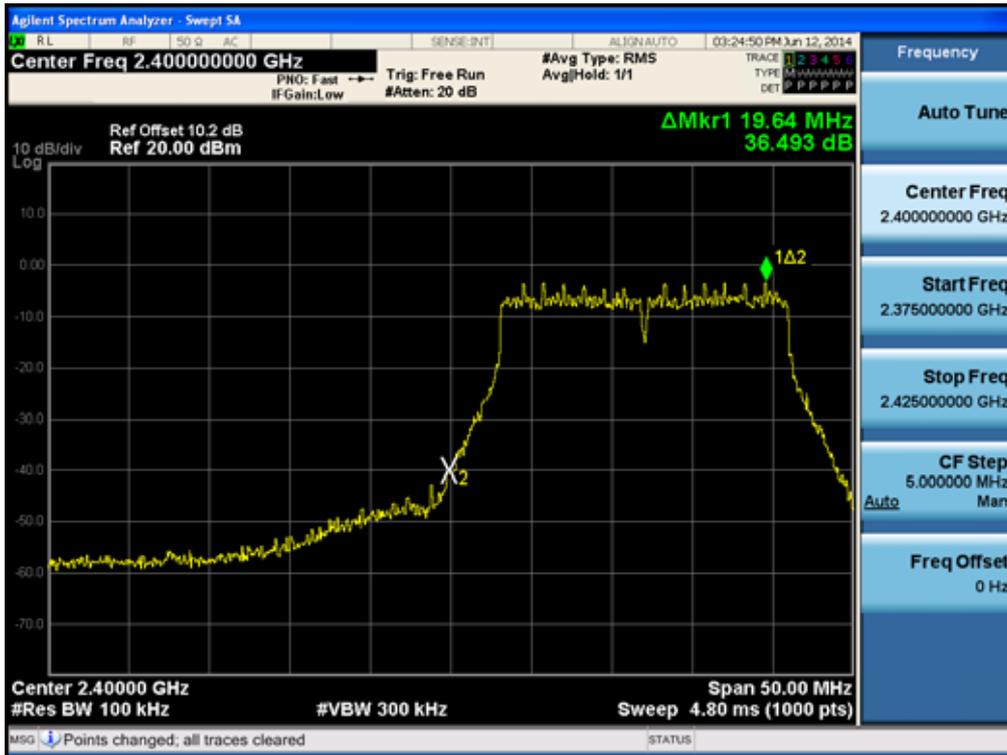


BandEdge (802.11g-CH11)

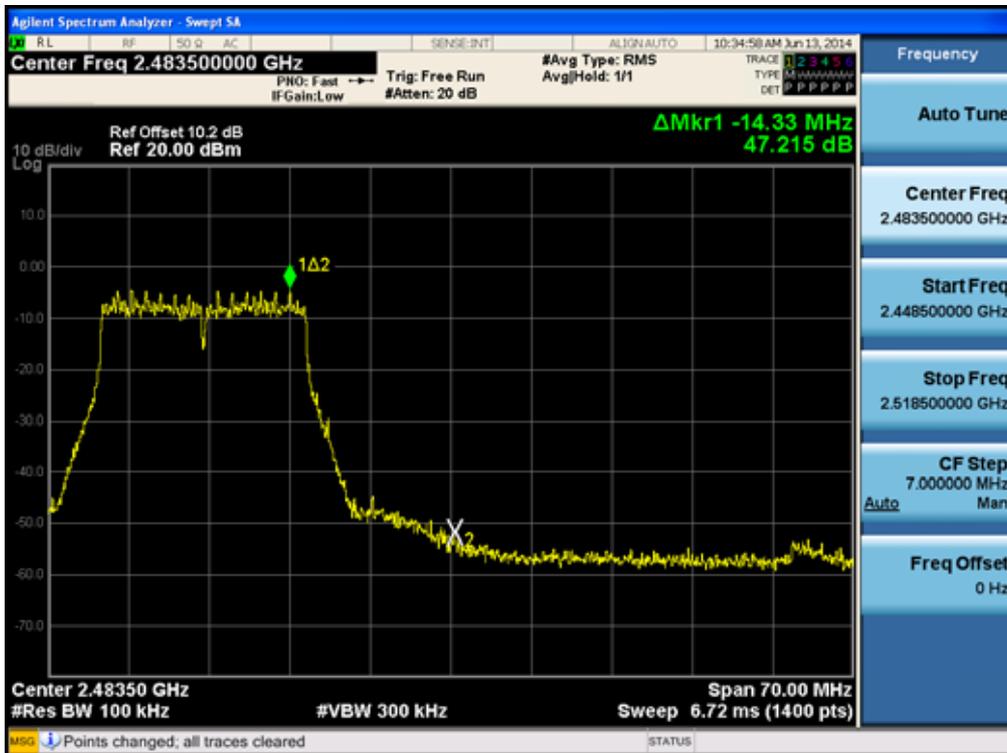


FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet		FCC ID: ZNFV480	IC: 2703C-V480

BandEdge (802.11n-CH1)



BandEdge (802.11n-CH11)



FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet		FCC ID: ZNFV480	IC: 2703C-V480

5.8 GHz Band

20 MHz BW

BandEdge (802.11a-CH 149)



BandEdge (802.11a-CH 165)

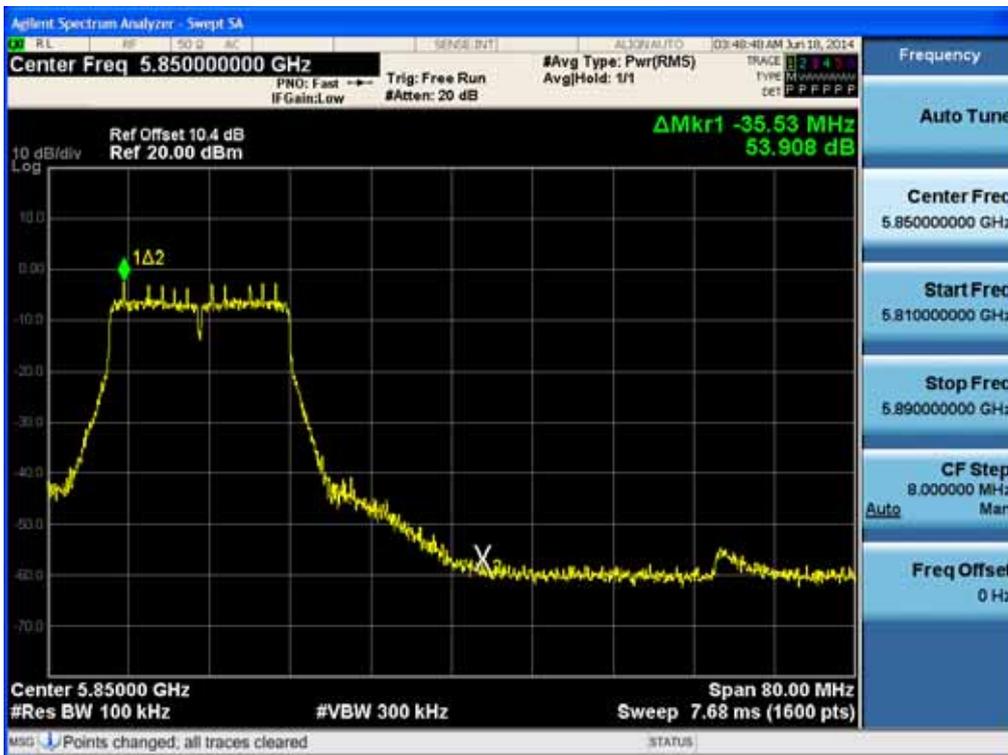


FCC PT.15.247 TEST REPORT	FCC & IC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet	FCC ID: ZNFV480	IC: 2703C-V480

BandEdge (802.11n-CH 149)

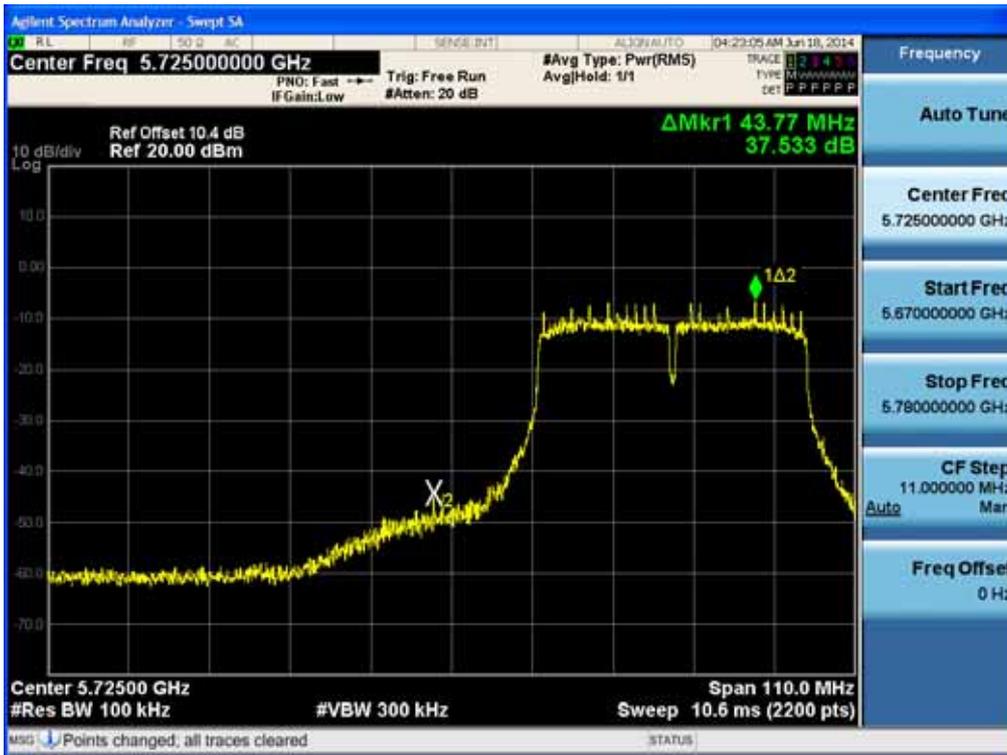


BandEdge (802.11n-CH 165)

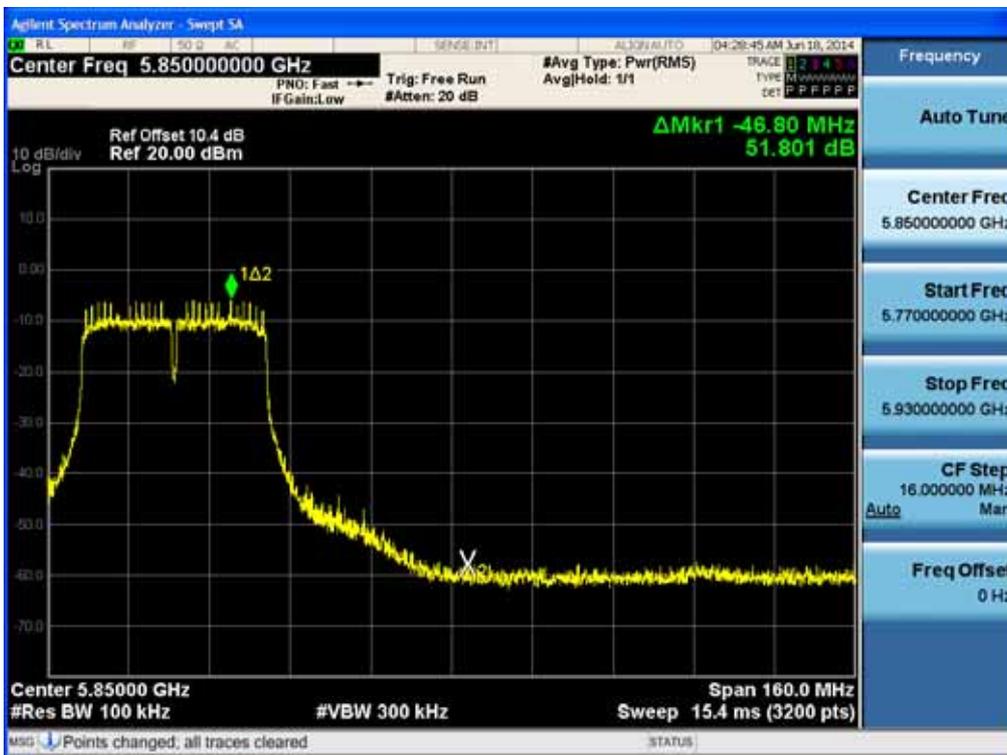


FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet		FCC ID: ZNFV480	IC: 2703C-V480

BandEdge (802.11n-CH 151)



BandEdge (802.11n-CH 159)

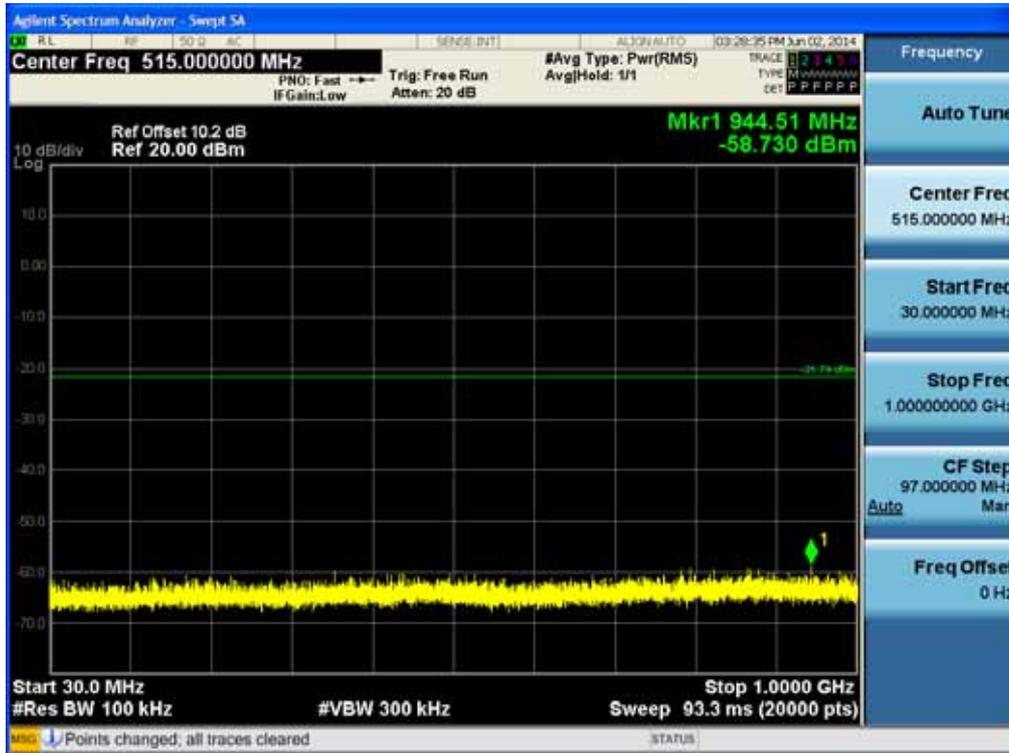


FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet		FCC ID: ZNFV480	IC: 2703C-V480

2.4 GHz Band

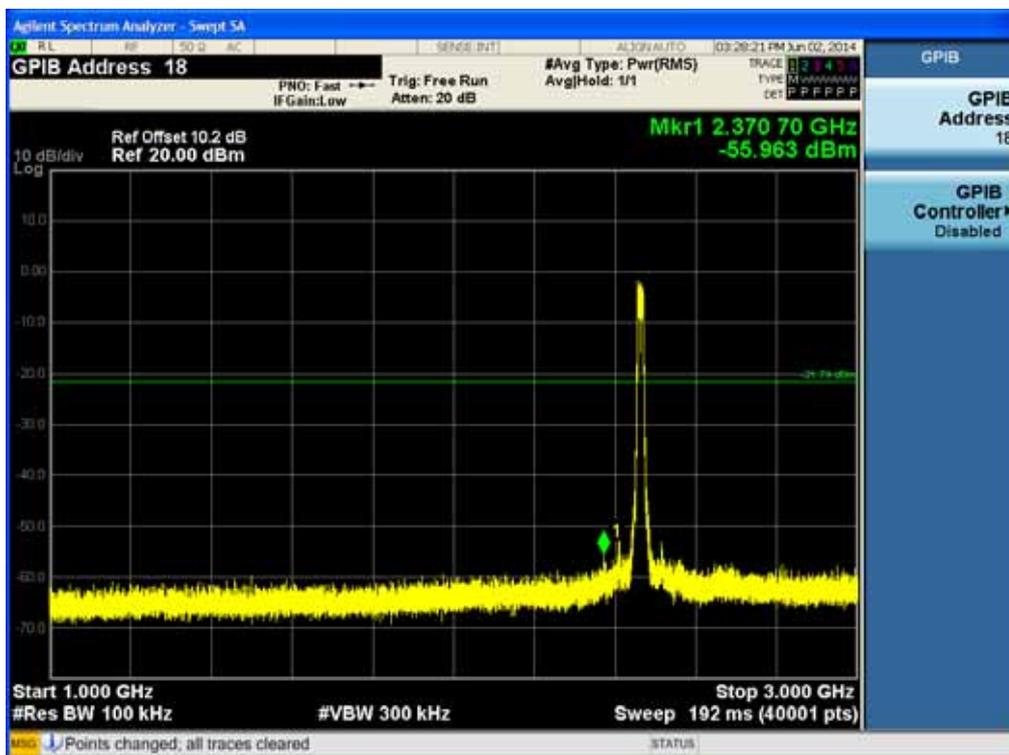
30 MHz ~ 1 GHz

Conducted Spurious Emission (802.11b-CH1)



1 GHz ~ 3 GHz

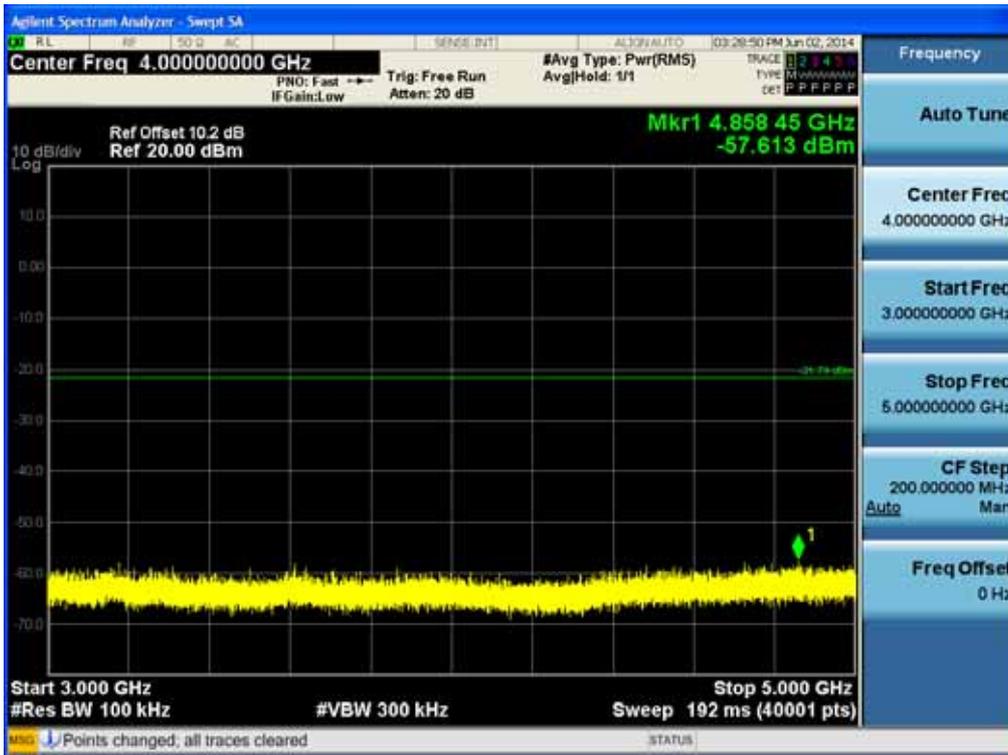
Conducted Spurious Emission (802.11b-CH1)



FCC PT.15.247 TEST REPORT	FCC & IC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet	FCC ID: ZNFV480	IC: 2703C-V480

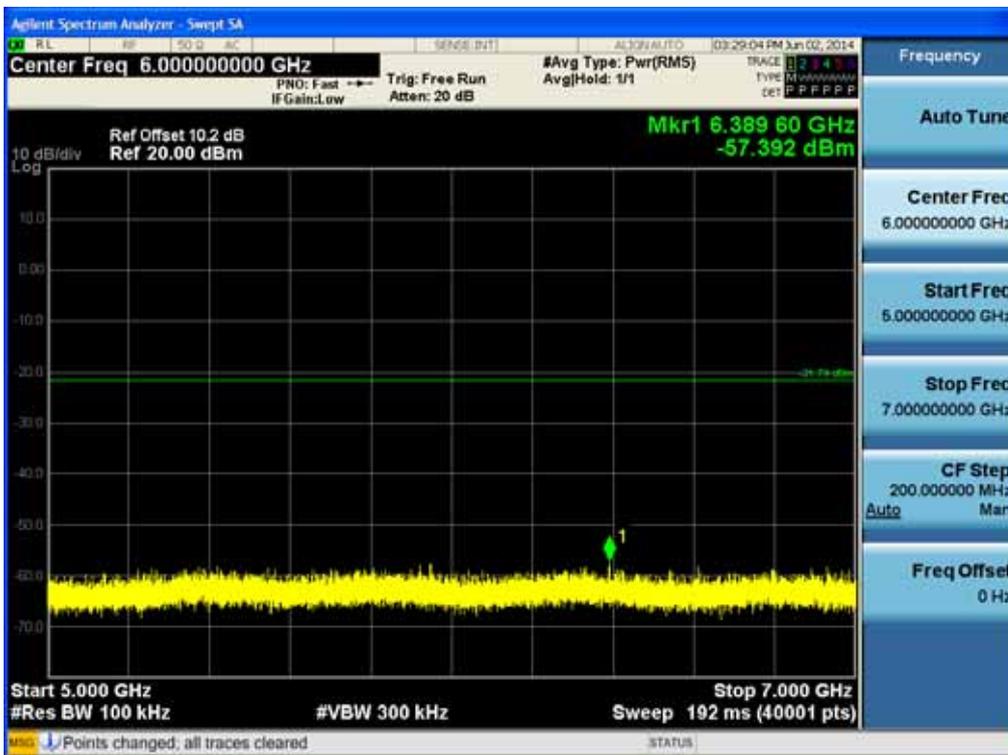
3 GHz ~ 5 GHz

Conducted Spurious Emission (802.11b-CH1)



5 GHz ~ 7 GHz

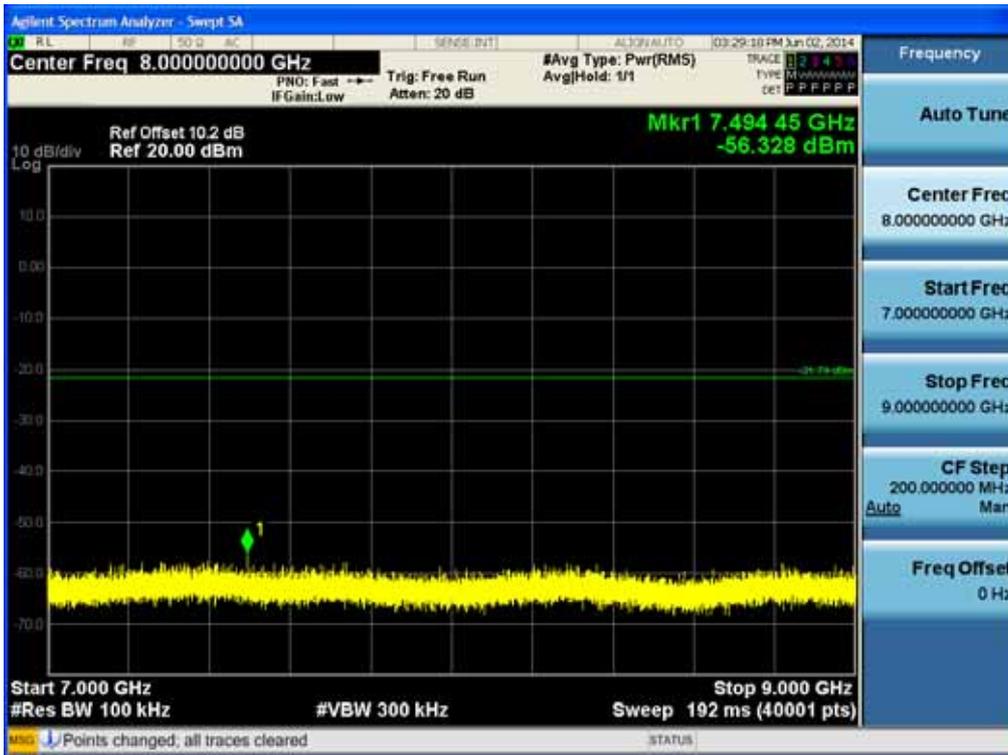
Conducted Spurious Emission (802.11b-CH1)



FCC PT.15.247 TEST REPORT	FCC & IC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet	FCC ID: ZNFV480	IC: 2703C-V480

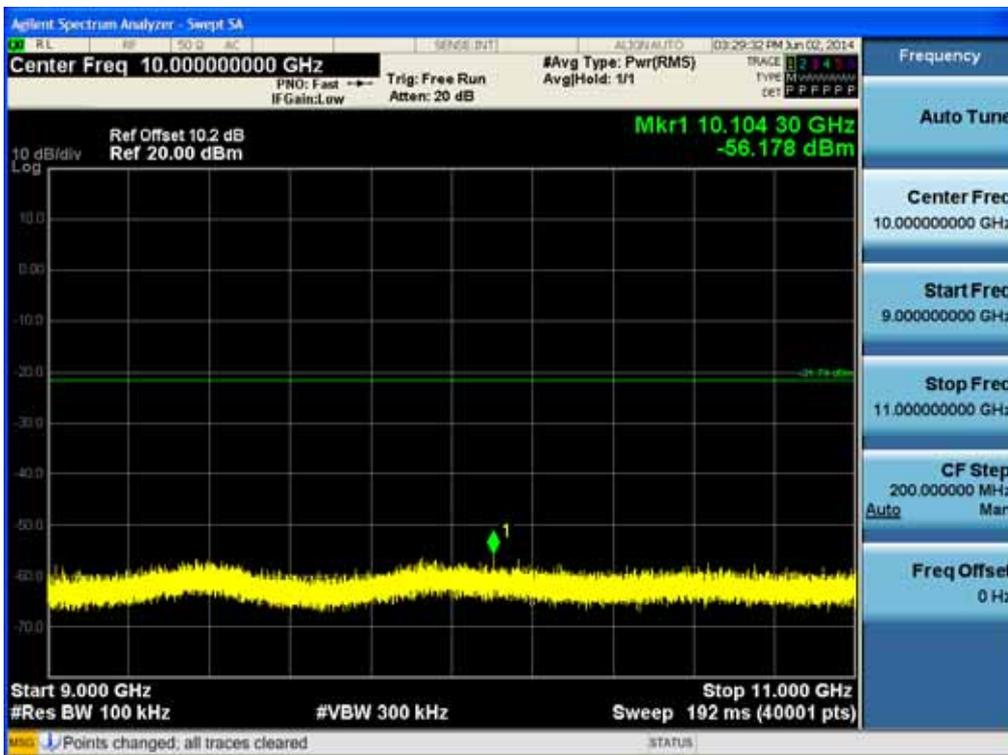
7 GHz ~ 9 GHz

Conducted Spurious Emission (802.11b-CH1)



9 GHz ~ 11 GHz

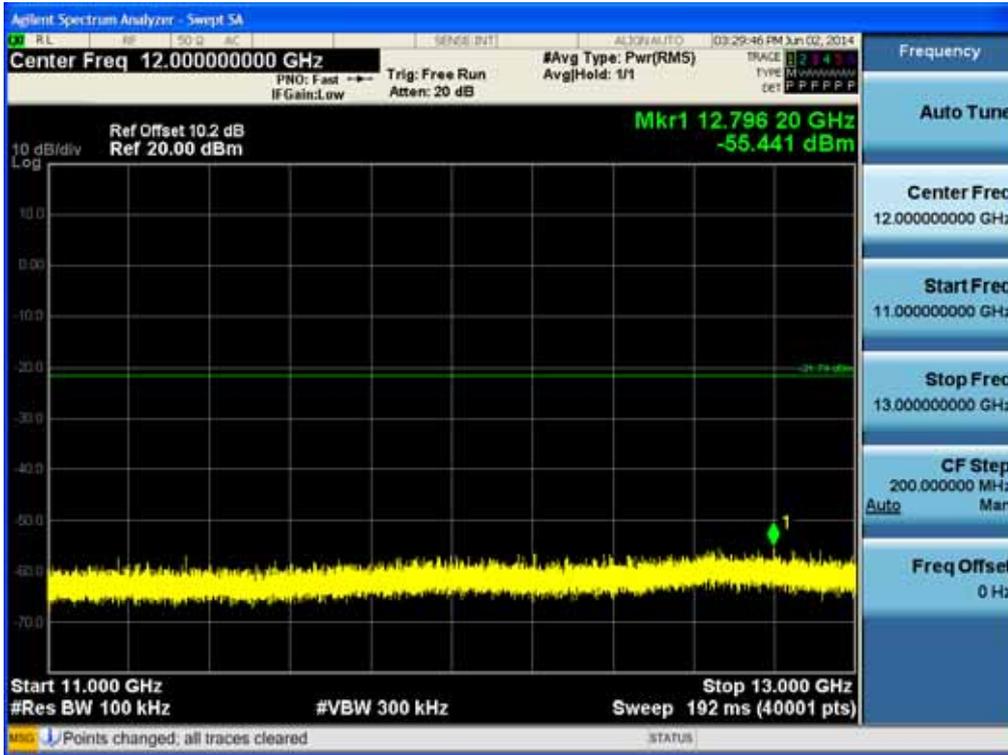
Conducted Spurious Emission (802.11b-CH1)



FCC PT.15.247 TEST REPORT	FCC & IC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet	FCC ID: ZNFV480	IC: 2703C-V480

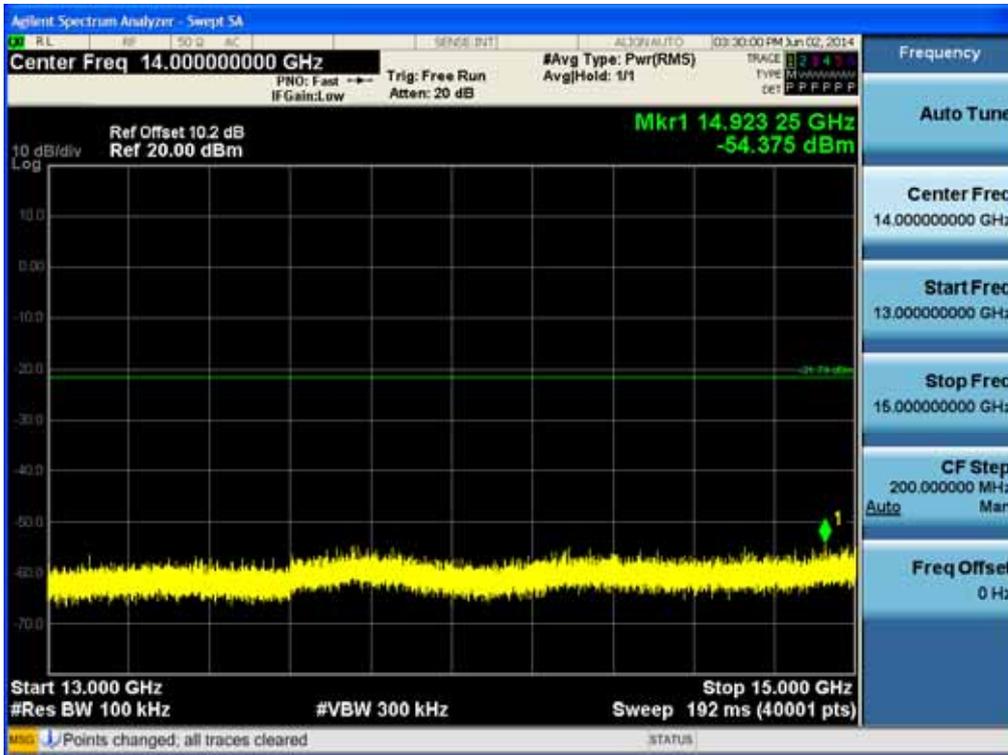
11 GHz ~ 13 GHz

Conducted Spurious Emission (802.11b-CH1)



13 GHz ~ 15 GHz

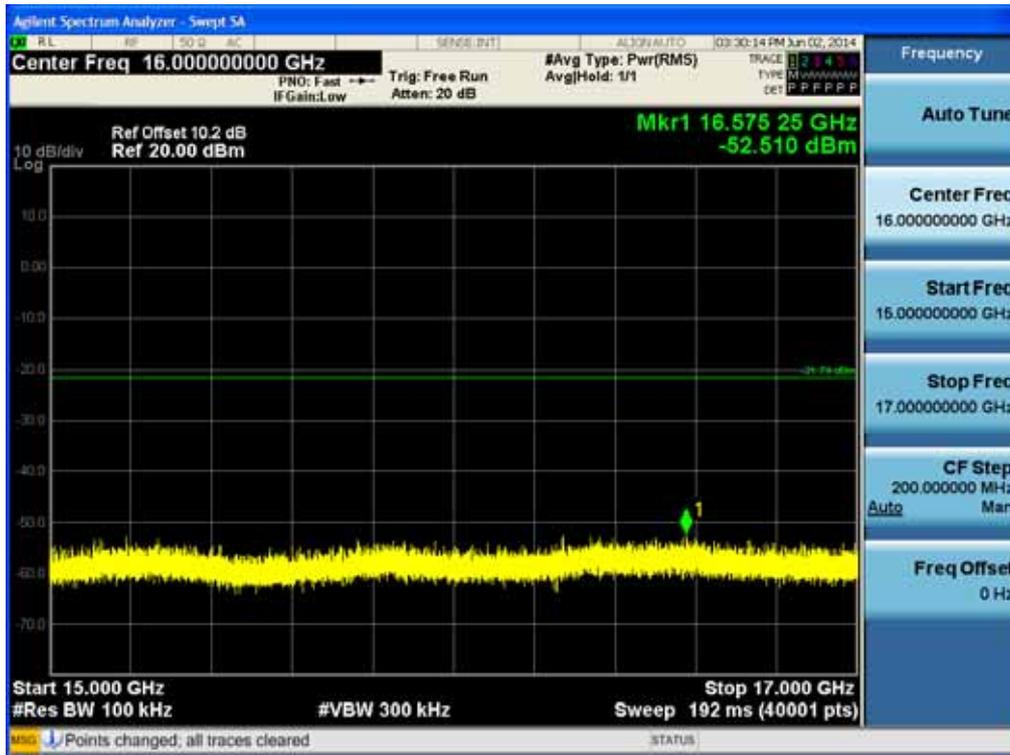
Conducted Spurious Emission (802.11b-CH1)



FCC PT.15.247 TEST REPORT	FCC & IC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet	FCC ID: ZNFV480	IC: 2703C-V480

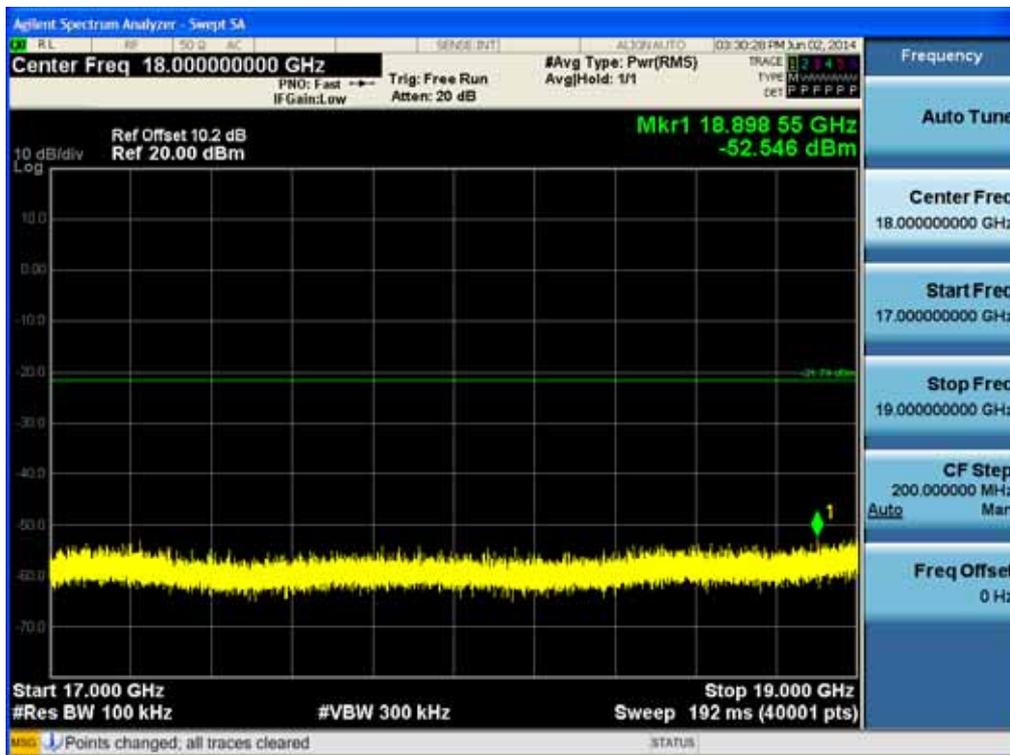
15 GHz ~ 17 GHz

Conducted Spurious Emission (802.11b-CH1)



17 GHz ~ 19 GHz

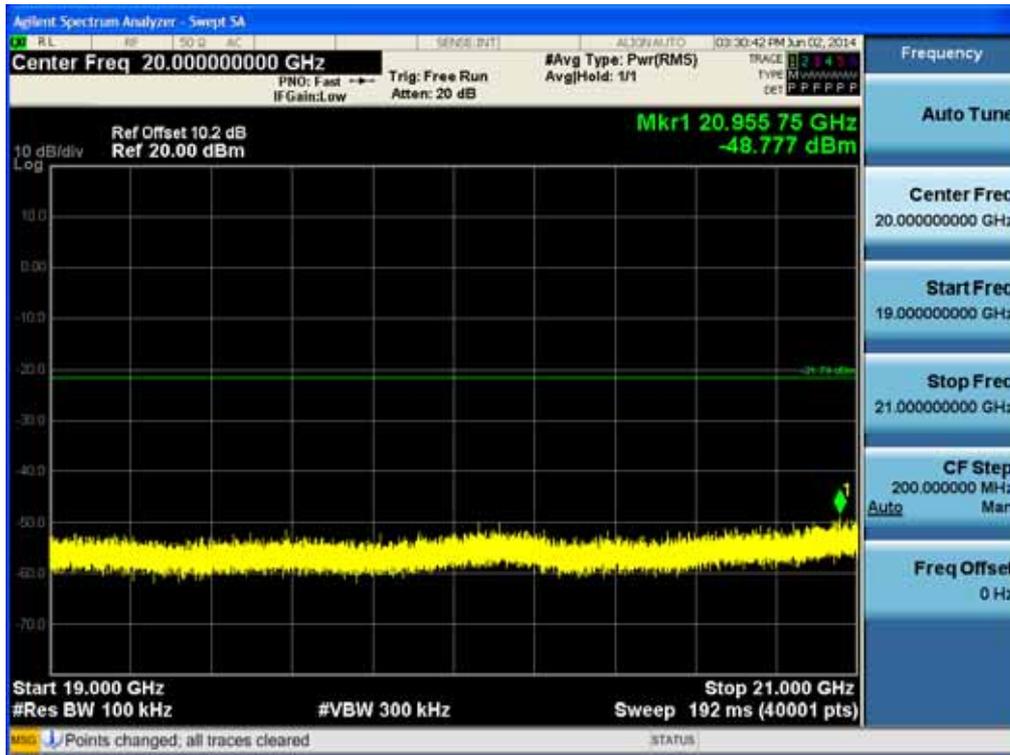
Conducted Spurious Emission (802.11b-CH1)



FCC PT.15.247 TEST REPORT	FCC & IC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet	FCC ID: ZNFV480	IC: 2703C-V480

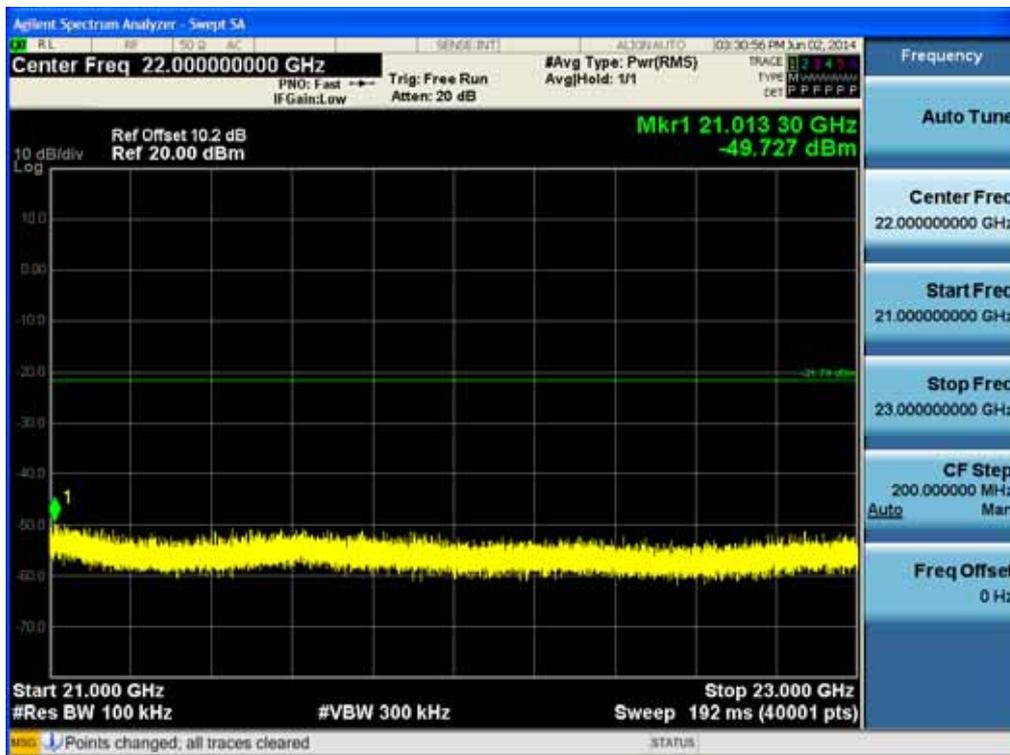
19 GHz ~ 21 GHz

Conducted Spurious Emission (802.11b-CH1)



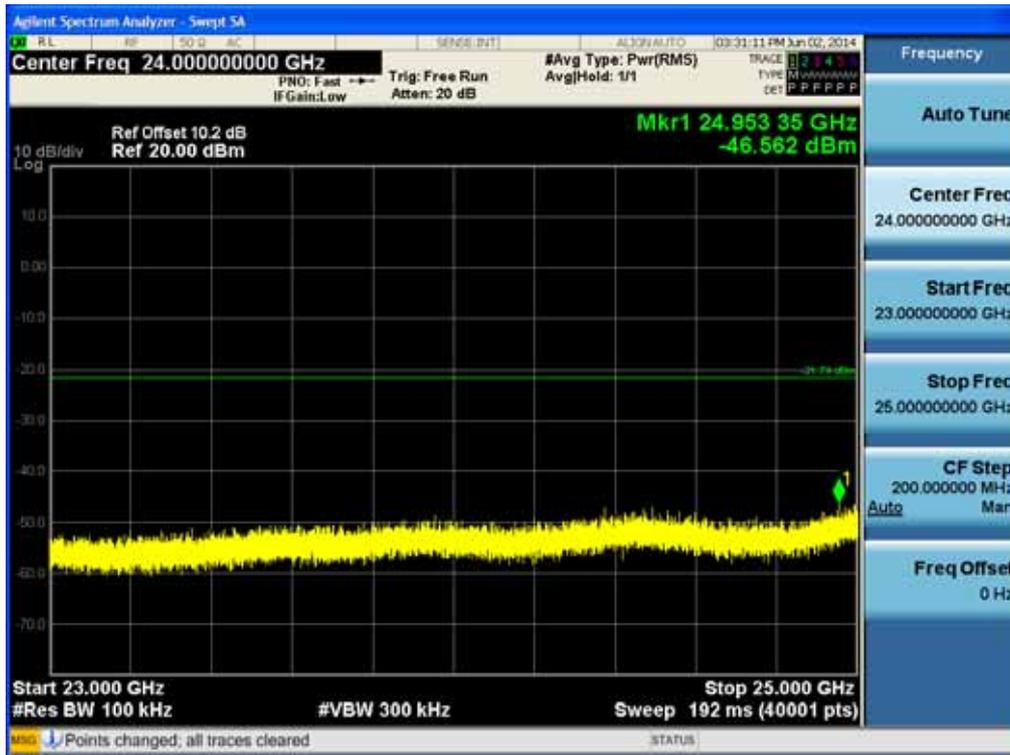
21 GHz ~ 23 GHz

Conducted Spurious Emission (802.11b-CH1)



FCC PT.15.247 TEST REPORT	FCC & IC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet	FCC ID: ZNFV480	IC: 2703C-V480

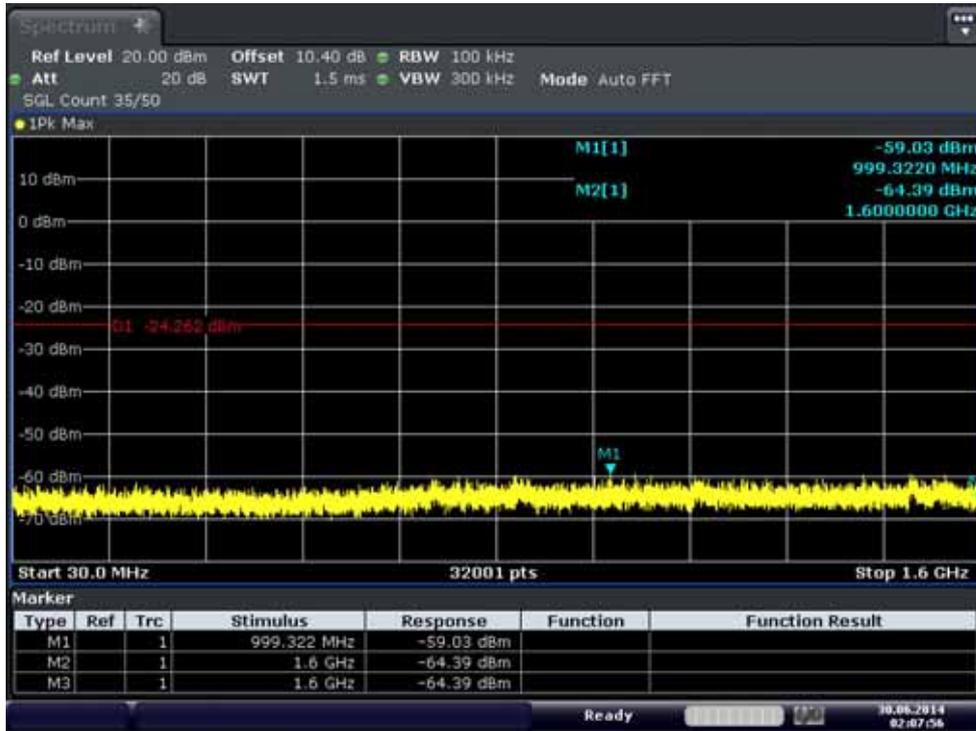
Conducted Spurious Emission (802.11b-CH1)



FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet		FCC ID: ZNFV480	IC: 2703C-V480

5 GHz Band
30 MHz ~ 1.6 GHz

Conducted Spurious Emission (802.11a-CH165)



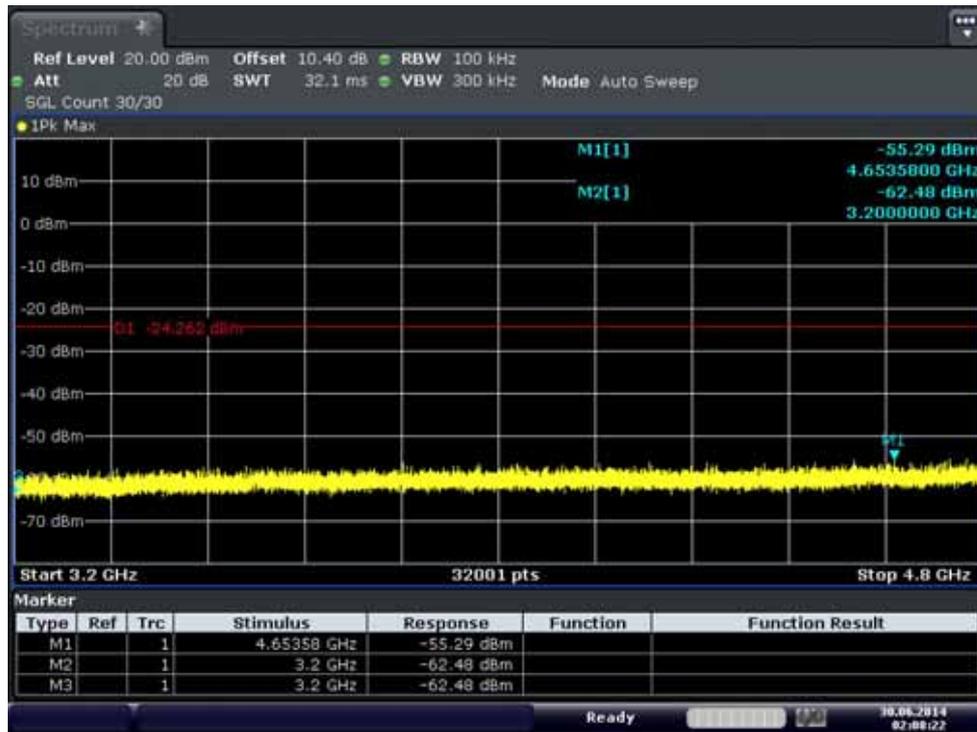
1.6 GHz ~ 3.2 GHz

Conducted Spurious Emission (802.11a-CH165)



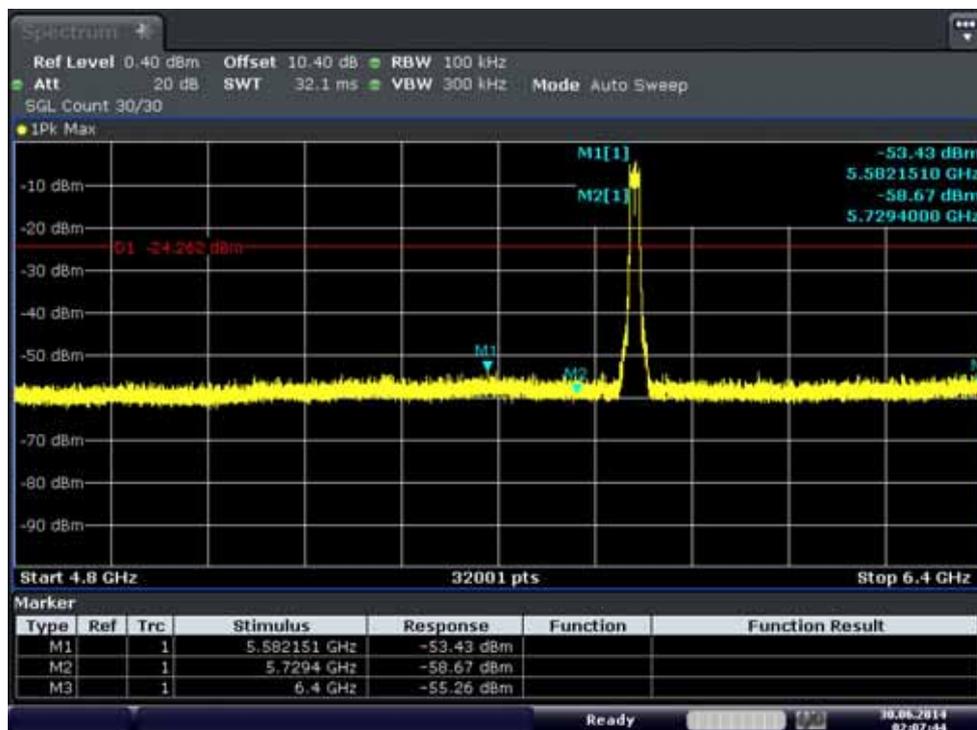
3.2 GHz ~ 4.8 GHz

Conducted Spurious Emission (802.11a-CH165)



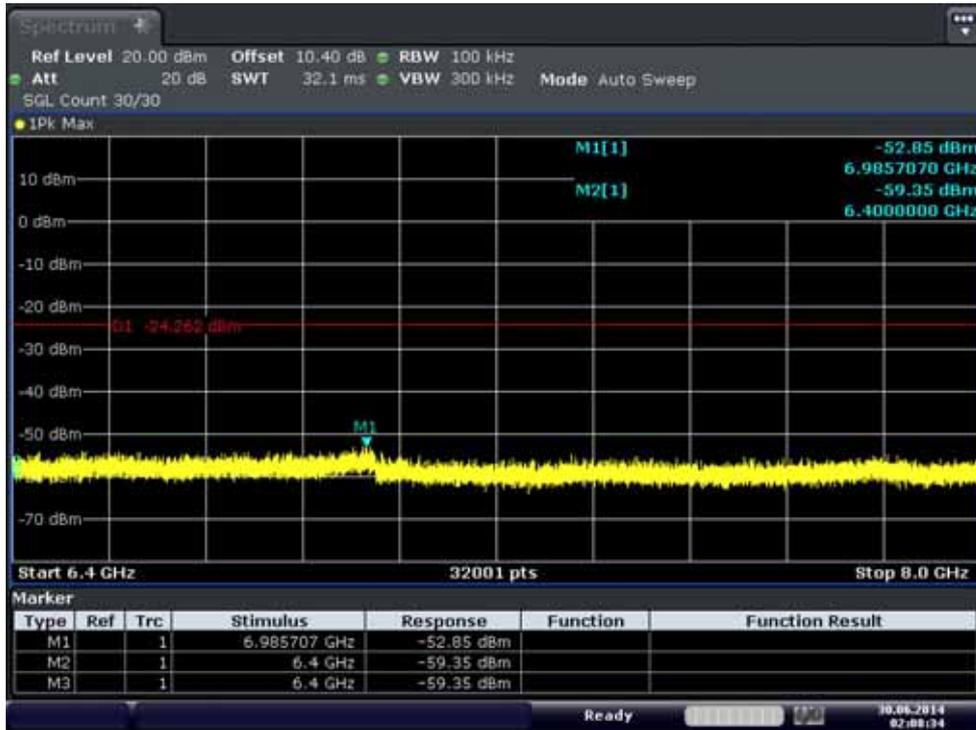
4.8 GHz ~ 6.4 GHz

Conducted Spurious Emission (802.11a-CH165)



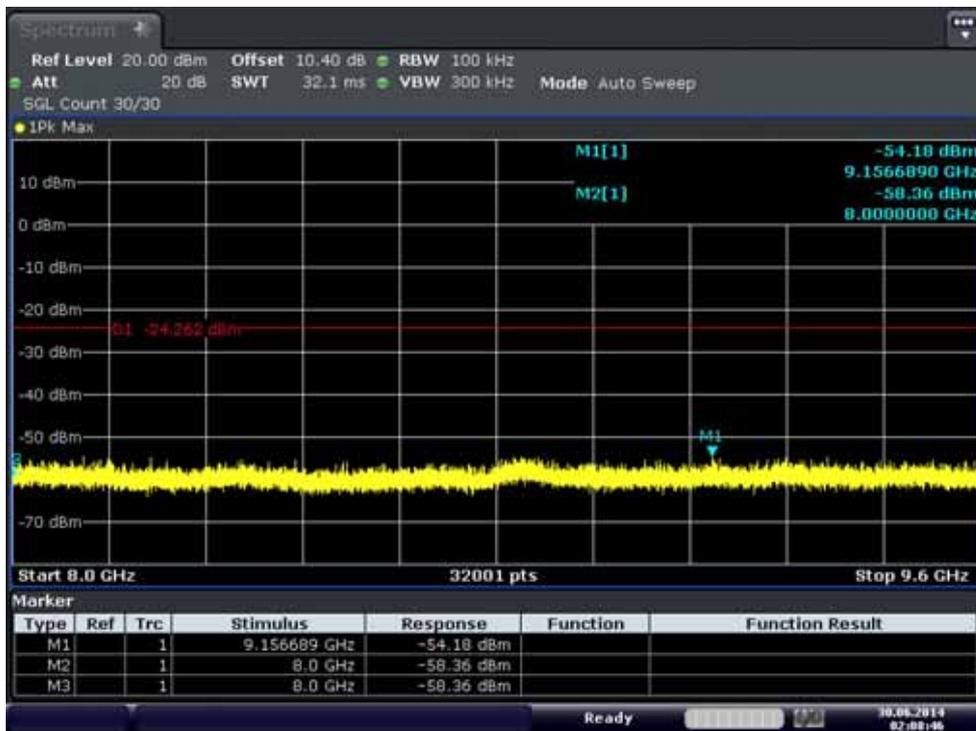
6.4 GHz ~ 8 GHz

Conducted Spurious Emission (802.11a-CH165)



8 GHz ~ 9.6 GHz

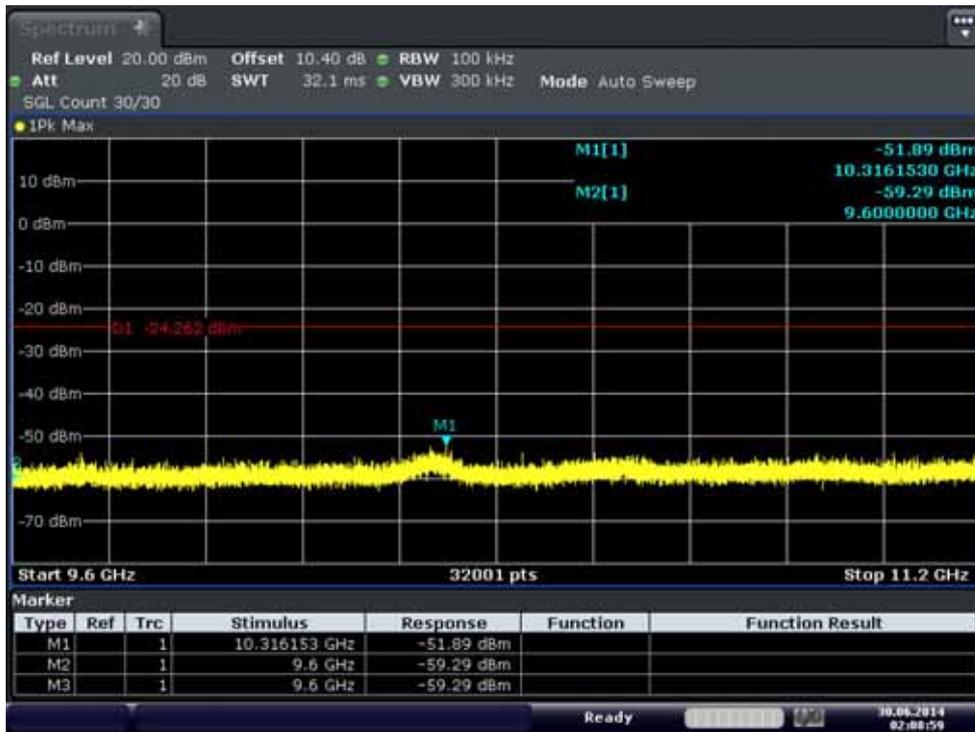
Conducted Spurious Emission(802.11a-CH165)



FCC PT.15.247 TEST REPORT	FCC & IC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet	FCC ID: ZNFV480	IC: 2703C-V480

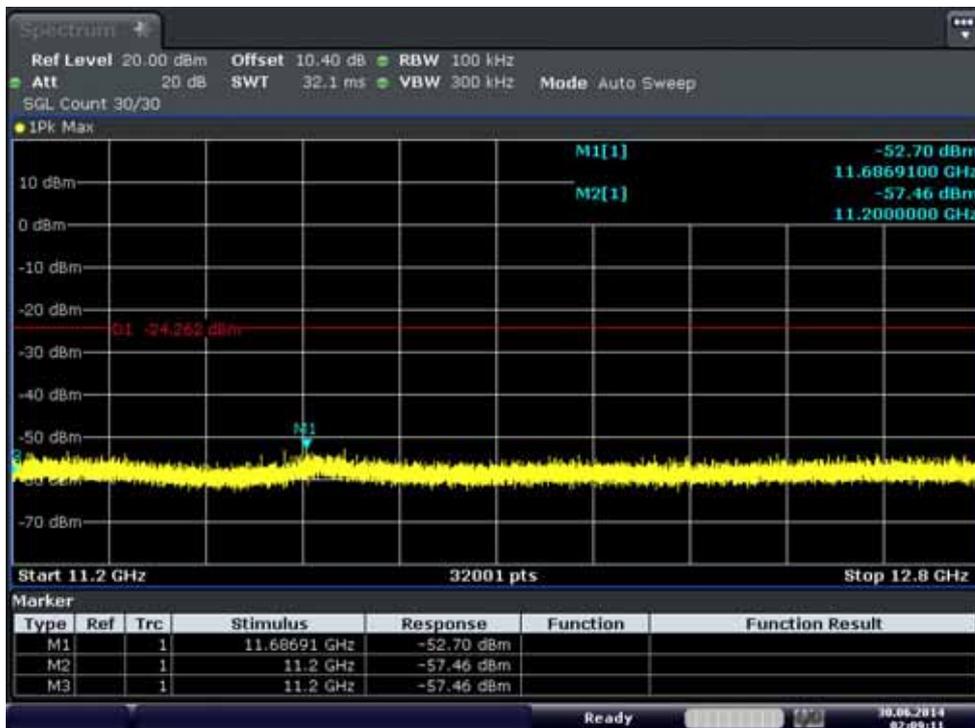
9.6 GHz ~ 11.2 GHz

Conducted Spurious Emission(802.11a-CH165)



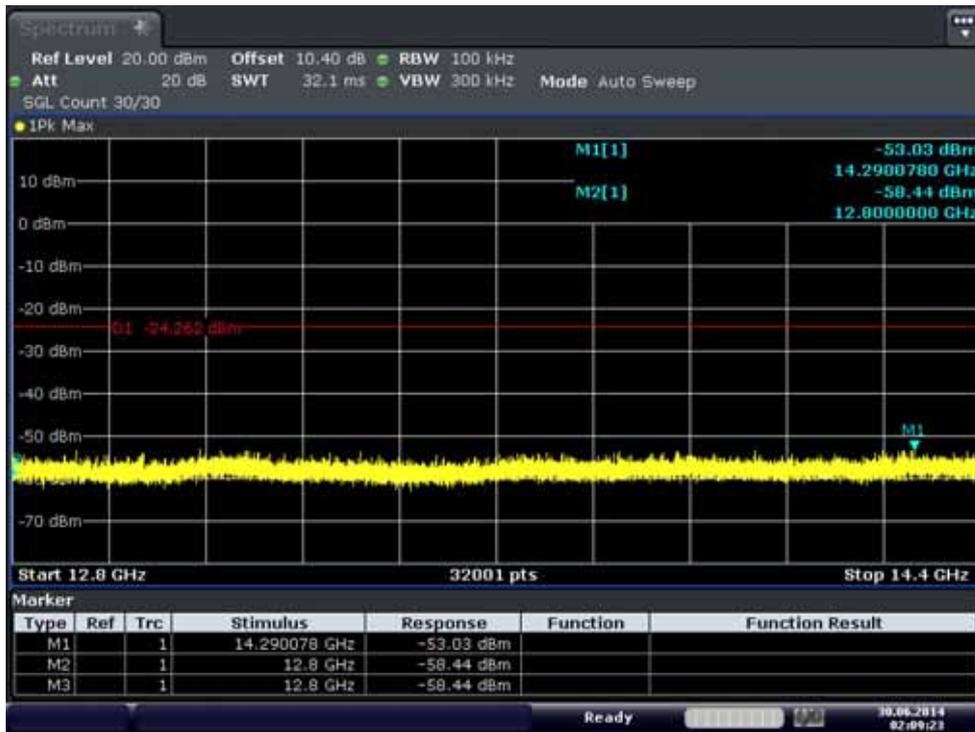
11.2 GHz ~ 12.8 GHz

Conducted Spurious Emission (802.11a-CH165)



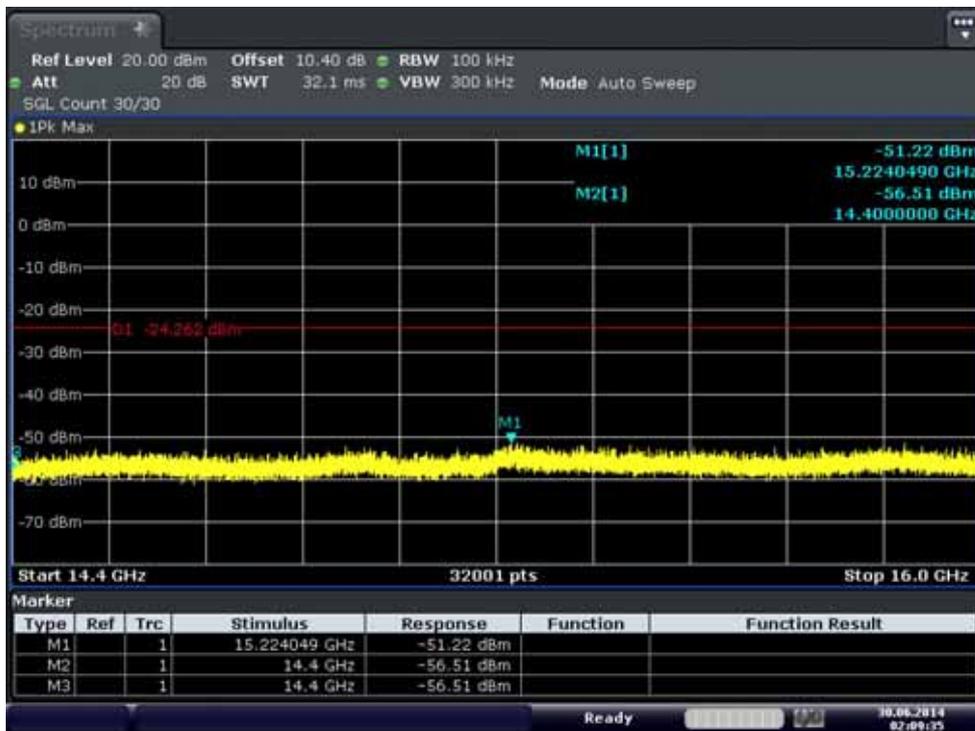
12.8 GHz ~ 14.4 GHz

Conducted Spurious Emission (802.11a-CH165)



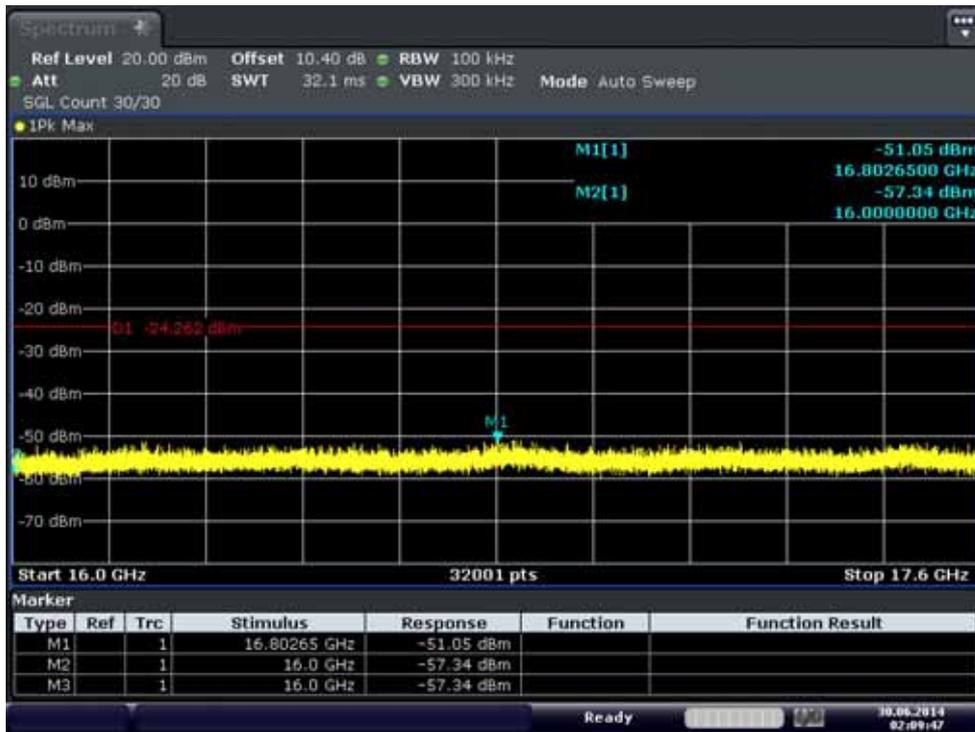
14.4 GHz ~ 16 GHz

Conducted Spurious Emission (802.11a-CH165)



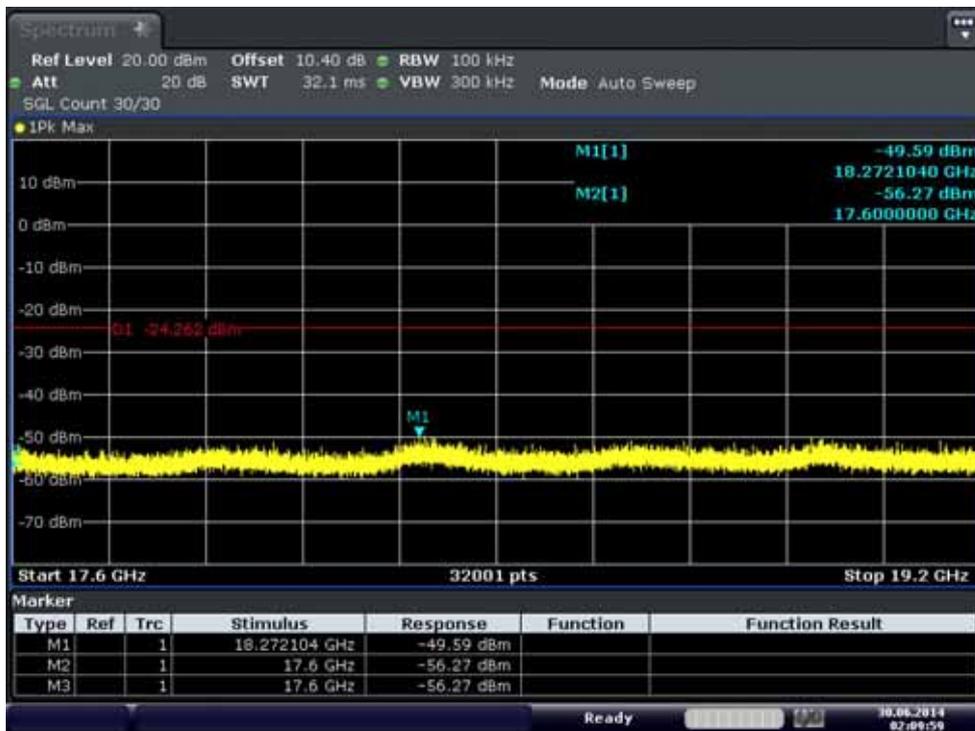
16 GHz ~ 17.6 GHz

Conducted Spurious Emission (802.11a-CH165)



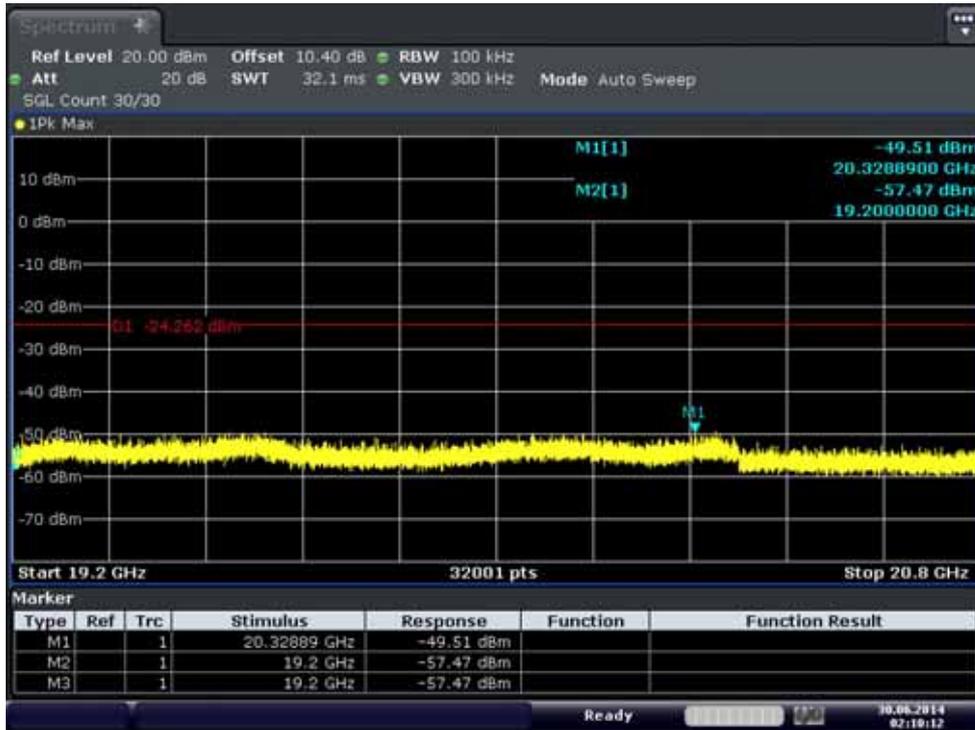
17.6 GHz ~ 19.2 GHz

Conducted Spurious Emission (802.11a-CH165)



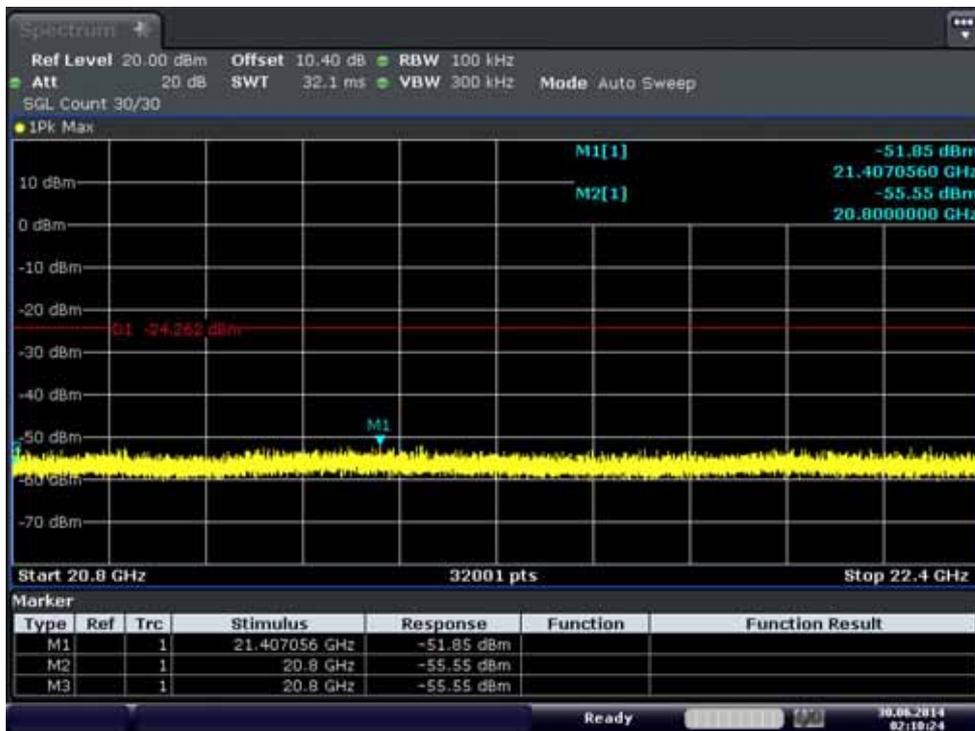
19.2 GHz ~ 20.8 GHz

Conducted Spurious Emission (802.11a-CH165)



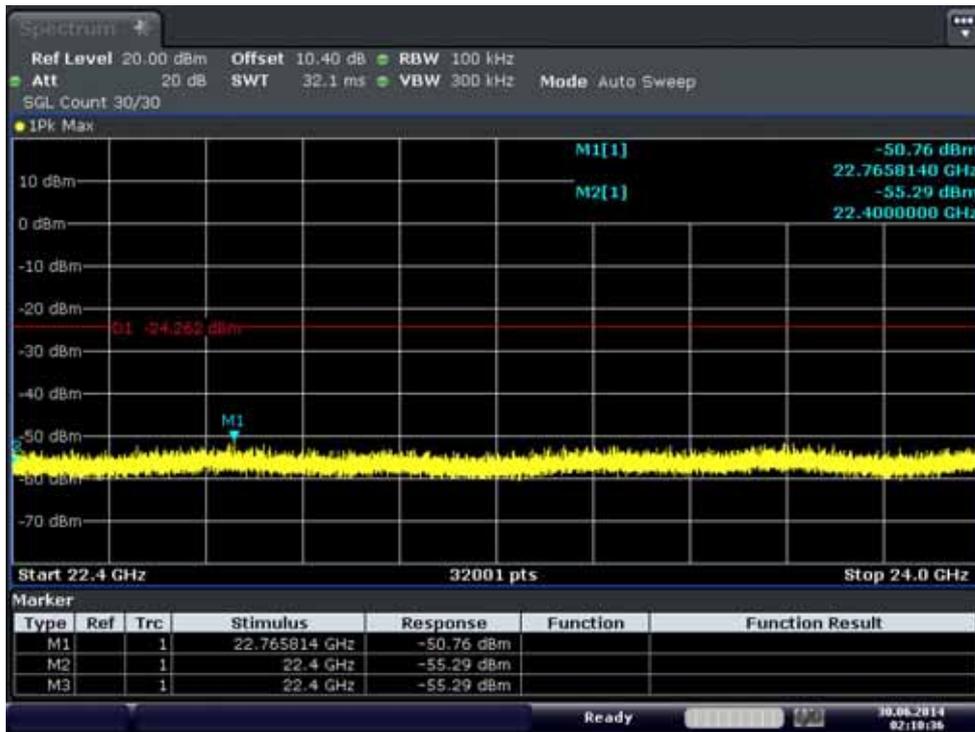
20.8 GHz ~ 22.4 GHz

Conducted Spurious Emission (802.11a-CH165)



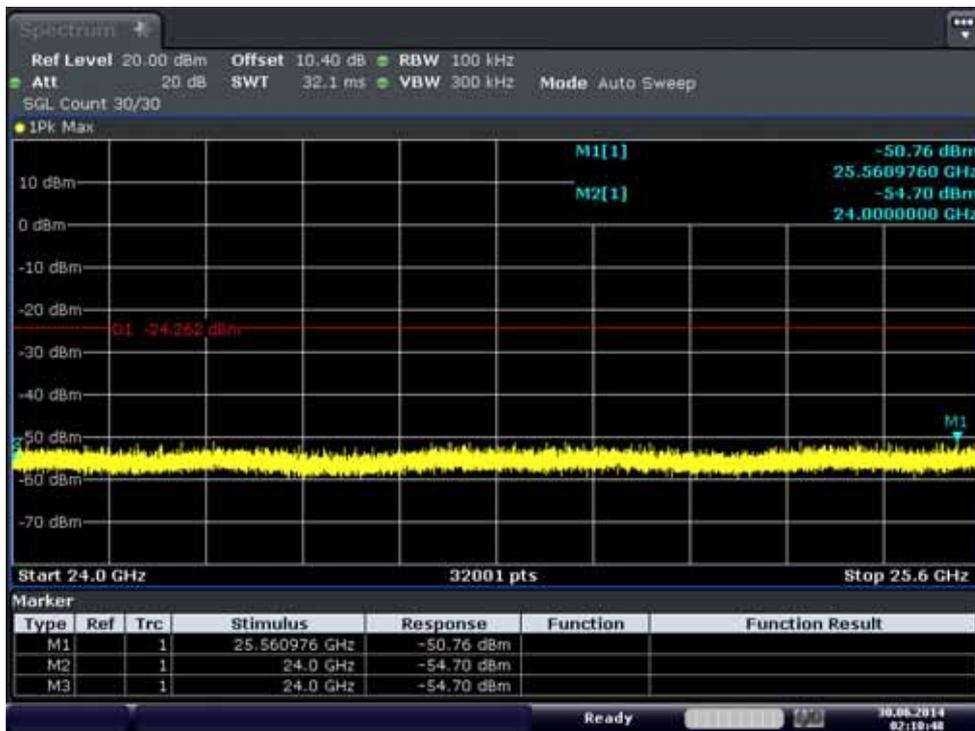
22.4 GHz ~ 24 GHz

Conducted Spurious Emission (802.11a-CH165)



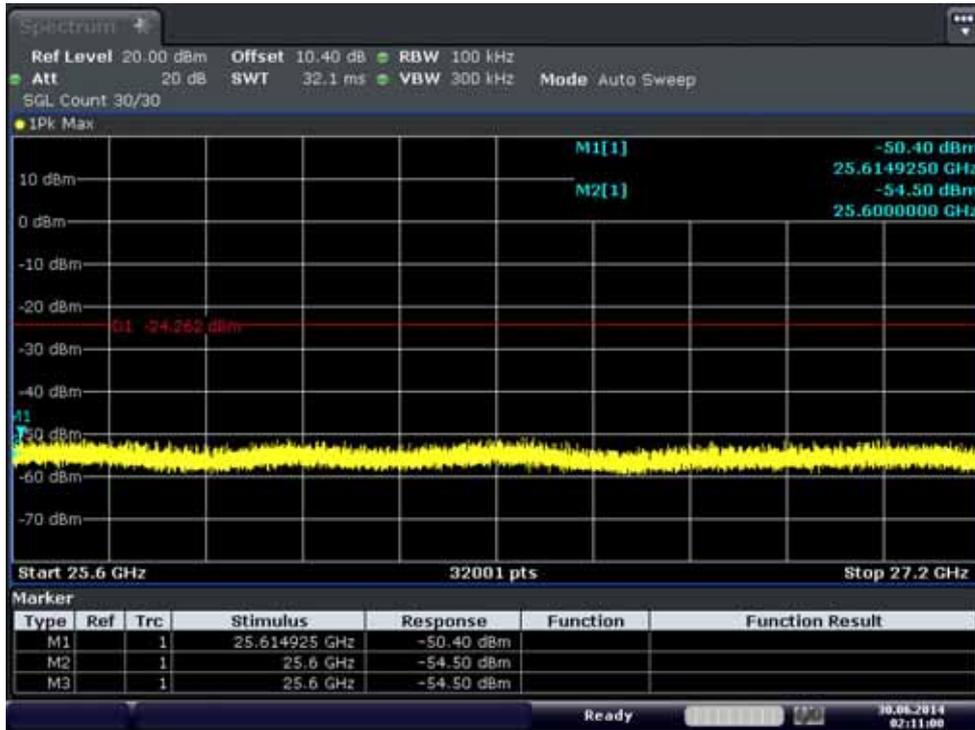
24 GHz ~ 25.6 GHz

Conducted Spurious Emission (802.11a-CH165)



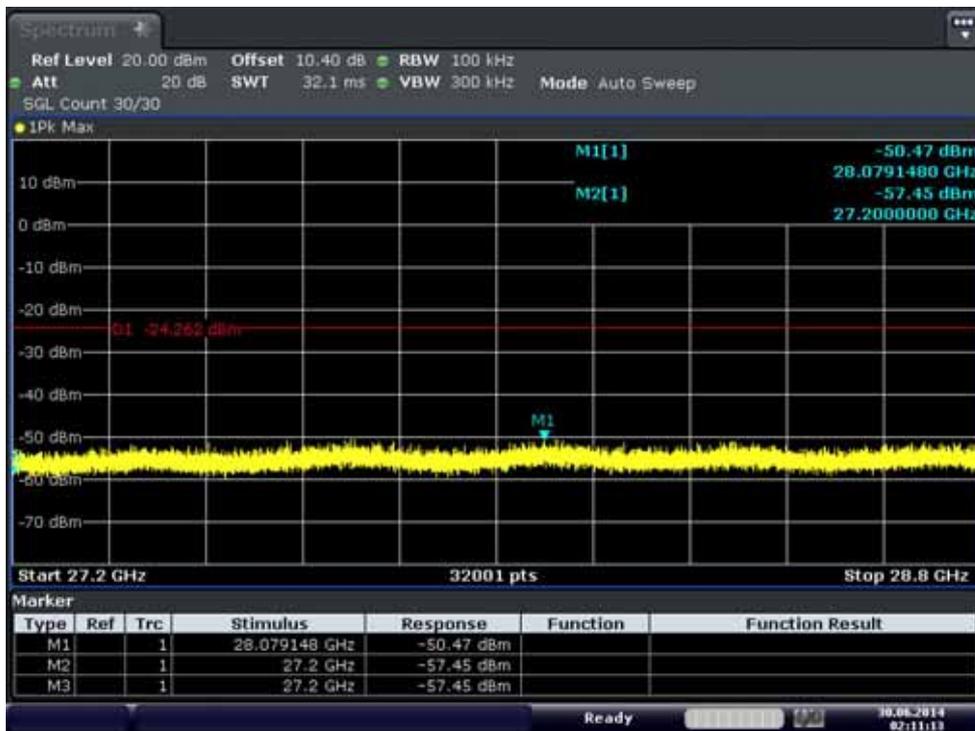
25.6 GHz ~ 27.2 GHz

Conducted Spurious Emission (802.11a-CH165)



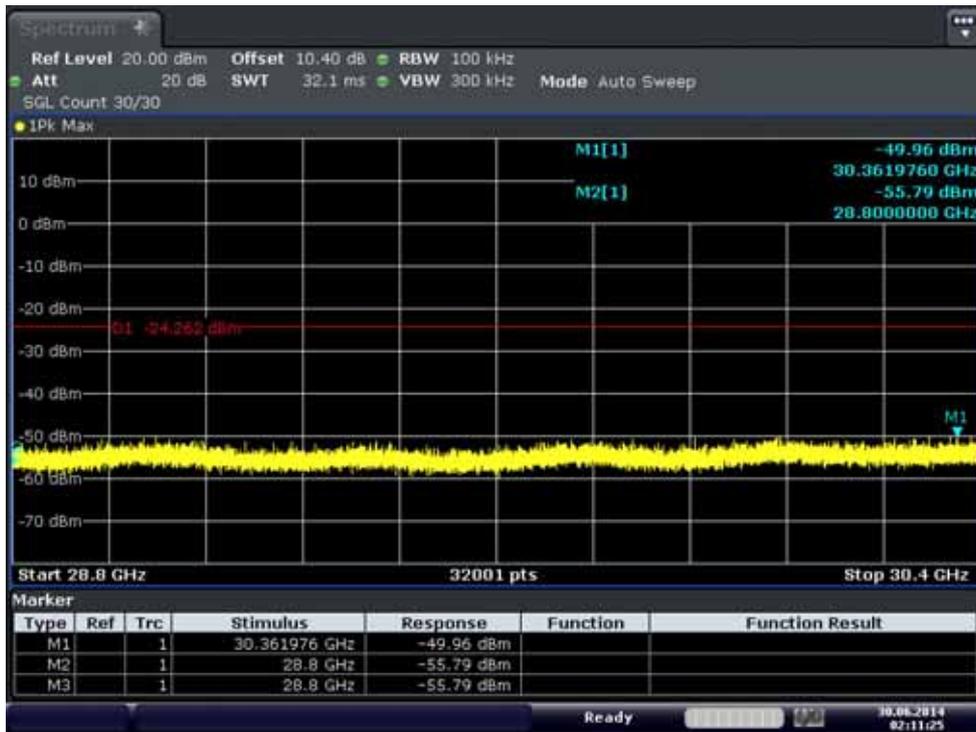
27.2 GHz ~ 28.8 GHz

Conducted Spurious Emission (802.11a-CH165)



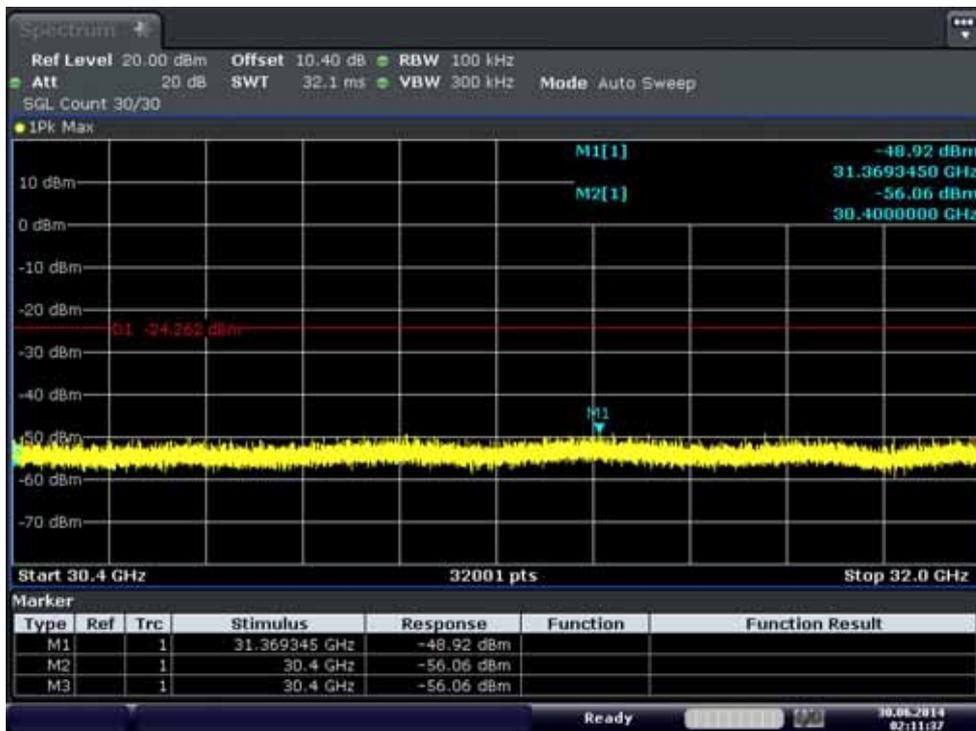
28.8 GHz ~ 30.4 GHz

Conducted Spurious Emission (802.11a-CH165)



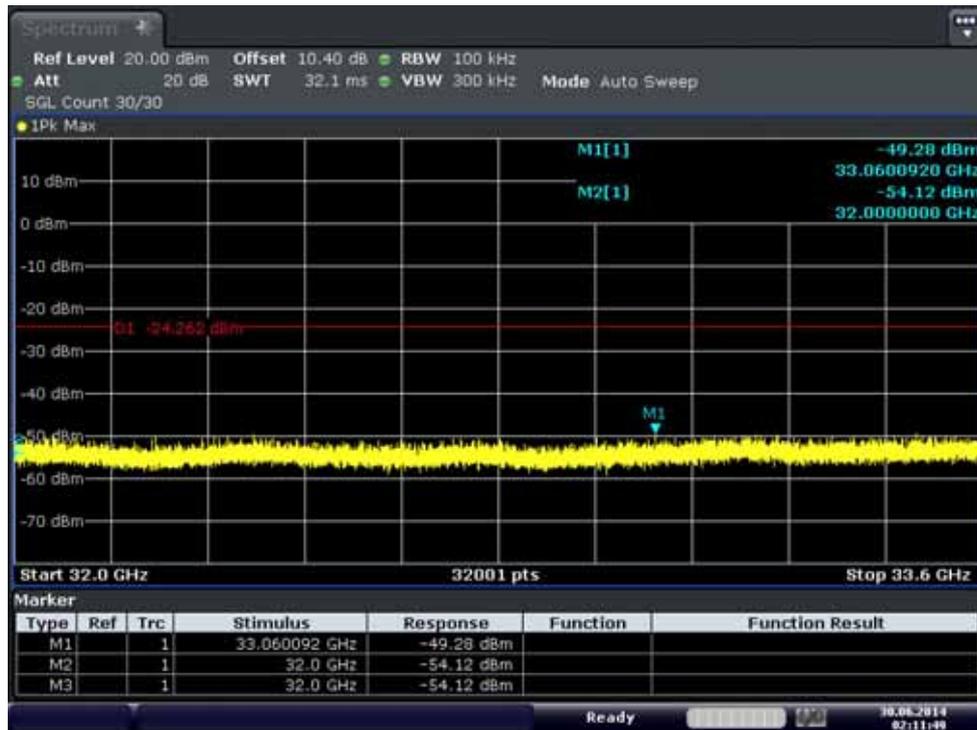
30.4 GHz ~ 32 GHz

Conducted Spurious Emission (802.11a-CH165)



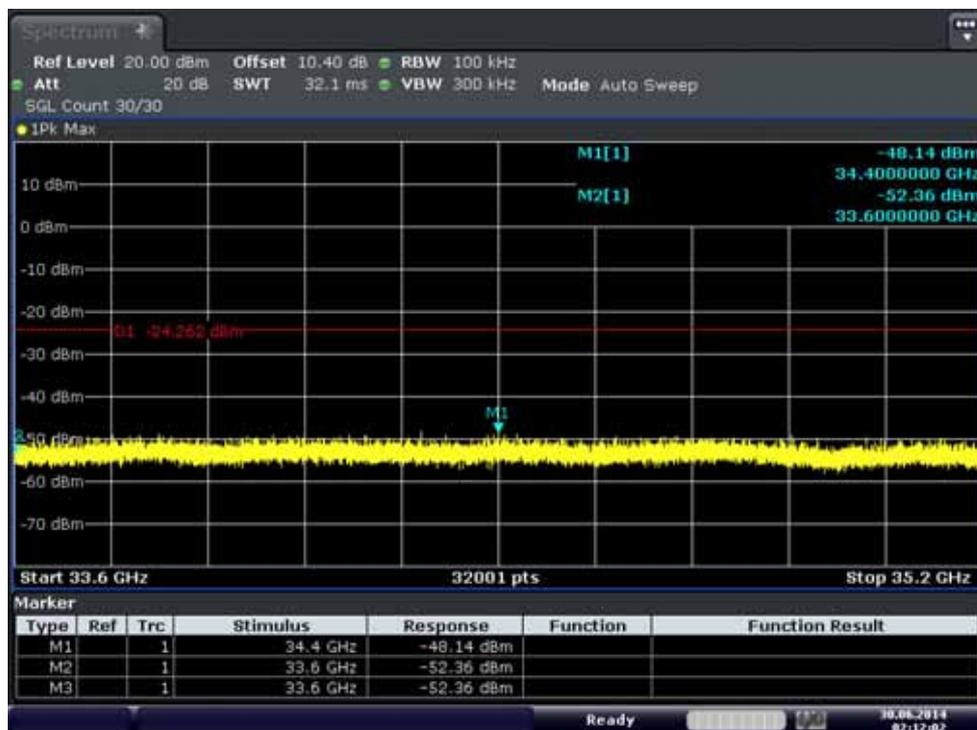
32 GHz ~ 33.6 GHz

Conducted Spurious Emission (802.11a-CH165)



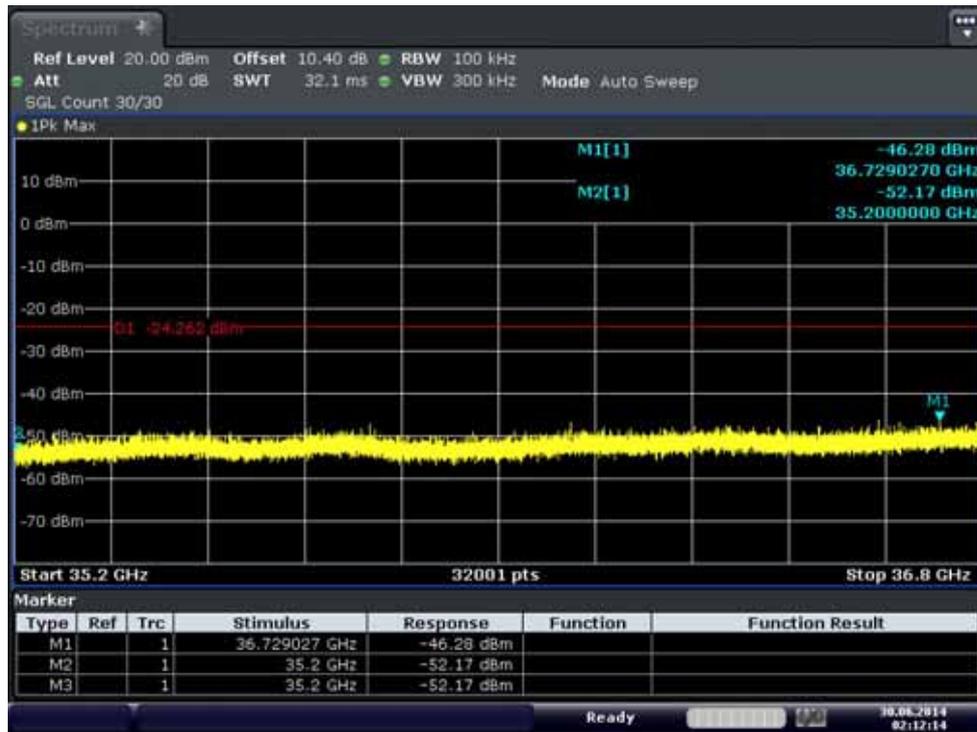
33.6 GHz ~ 35.2 GHz

Conducted Spurious Emission (802.11a-CH165)



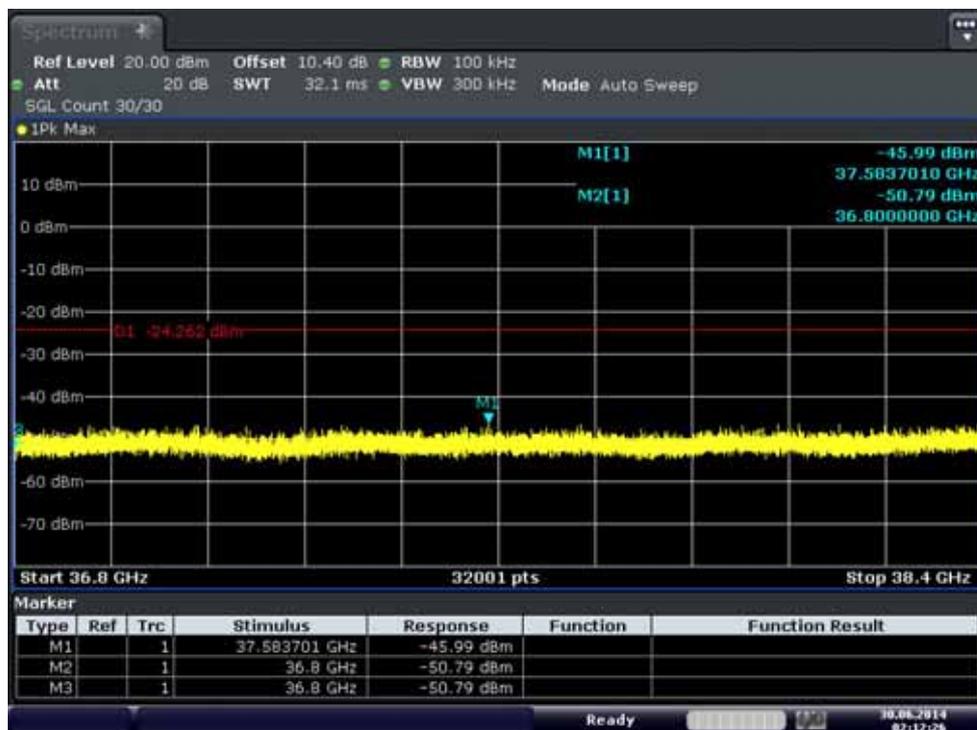
35.2 GHz ~ 36.8 GHz

Conducted Spurious Emission (802.11a-CH165)

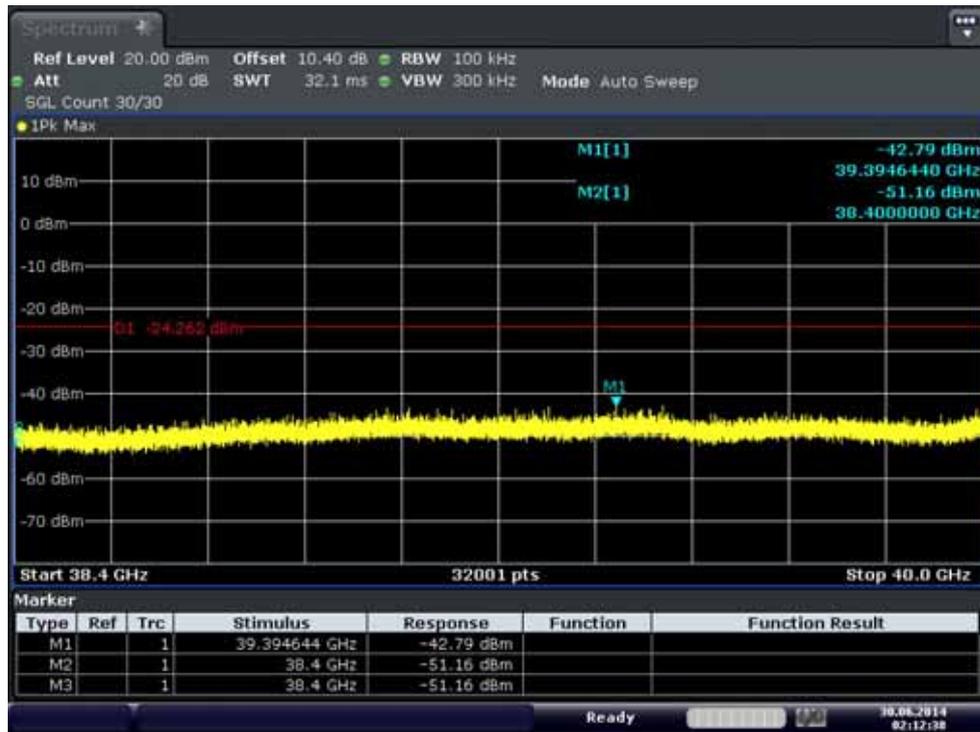


36.8 GHz ~ 38.4 GHz

Conducted Spurious Emission (802.11a-CH165)



Conducted Spurious Emission (802.11a-CH165)



FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet		FCC ID: ZNFV480	IC: 2703C-V480



8.7 RADIATED MEASUREMENT.

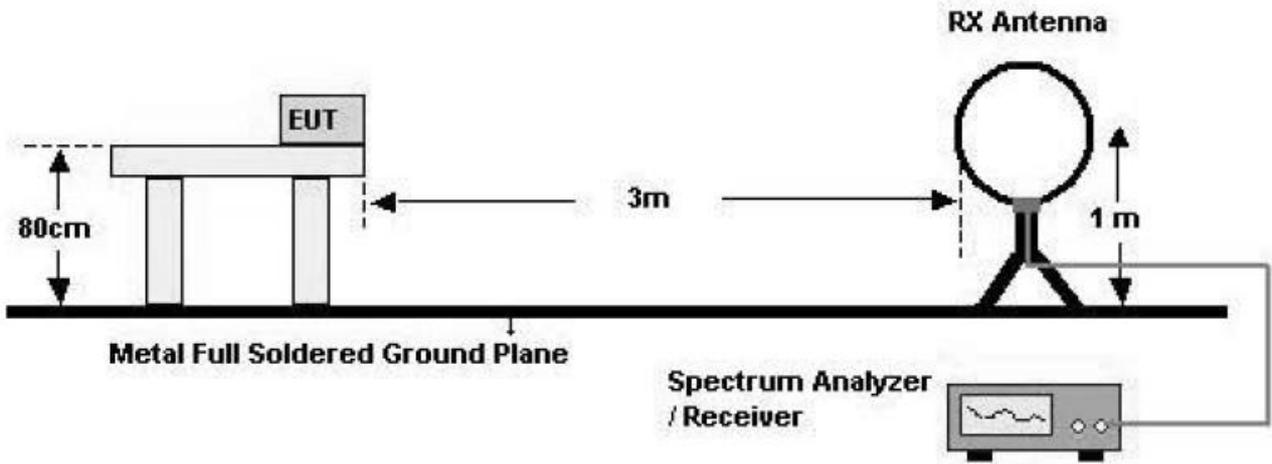
8.7.1 RADIATED SPURIOUS EMISSIONS.

Test Requirements and limit, §15.205, §15.209

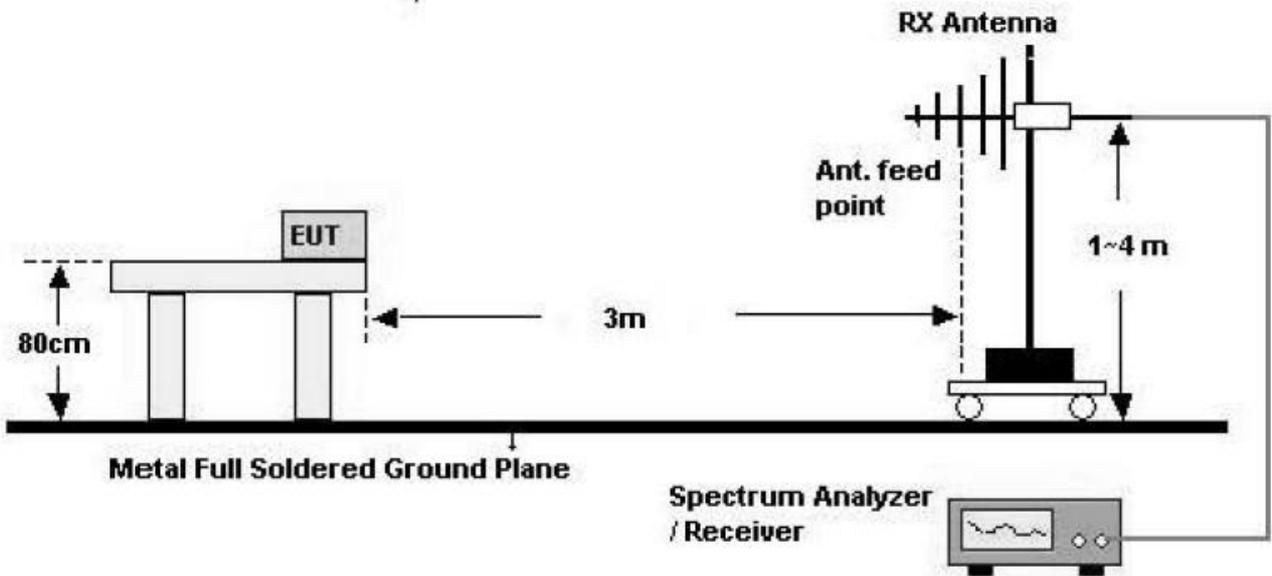
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

Below 30 MHz

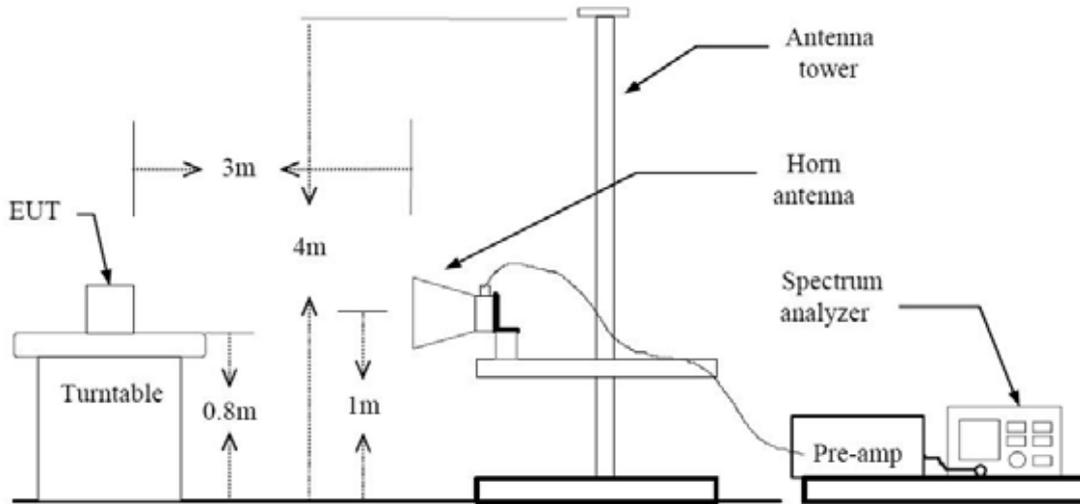


30 MHz - 1 GHz



FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet	FCC ID: ZNFV480	IC: 2703C-V480

Above 1 GHz



TEST PROCEDURE USED

Method 12.1 in KDB 558074, issued 06/05/2014

Spectrum Setting

- Peak

Peak emission levels are measured by setting the instrument as follows:

RBW = cf. Table 1.

VBW \geq 3 x RBW.

Detector = Peak.

Sweep time = auto.

Trace mode = max hold.

Allow sweeps to continue until the trace stabilizes.

(Note that the required measurement time may be longer for low duty cycle applications).

Table 1 —RBW as a function of frequency

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz



- Average

Set RBW = 1 MHz

Set VBW $\geq 1/T$. (at least 100 times less than the resolution bandwidth, but no less than 10 Hz.)

Select spectrum analyzer linear display mode.

Detector = Peak.

Sweep time = auto.

Trace mode = max hold.

Note :

1. We used the case 1 for 802.11b mode and the case 2 for 802.11a/g/n_20/n_40 to perform the average filed strength measurements for RSE and radiated band edge test.
2. The actual setting value of VBW for 802.11a/g/n_20/n_40.

Mode	Worst Data rate (Mbps)	T _{on} (ms)	T _{total} (ms)	Duty Cycle (%)	VBW(1/T) (Hz)	The actual setting value of VBW (Hz)
b	1	12.240	12.340	99.19	82	1000
g	6	2.030	2.130	95.31	493	1000
a	6	2.030	2.130	95.31	493	1000
n_20	6.5	1.875	1.974	94.98	533	1000
n_40	13.5	0.916	1.020	89.80	1092	3000



TEST RESULTS

9 kHz – 30MHz

Operation Mode: Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dB μ V/m	dBm /m	dBm	(H/V)	dB μ V/m	dB μ V/m	dB
No Critical peaks found							

Notes:

1. Measuring frequencies from 9 kHz to the 30MHz.
2. The reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
3. Distance extrapolation factor = 40 log (specific distance / test distance) (dB)
4. Limit line = specific Limits (dBuV) + Distance extrapolation factor
5. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet		FCC ID: ZNFV480	IC: 2703C-V480



TEST RESULTS

Below 1 GHz

Operation Mode: Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dB μ V/m	dBm /m	dBm	(H/V)	dB μ V/m	dB μ V/m	dB
No Critical peaks found							

Notes:

1. Measuring frequencies from 30 MHz to the 1 GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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Above 1 GHz

Band : 2.4 GHz
 Operation Mode: 802.11 b
 Transfer Rate: 1 Mbps
 Operating Frequency 2412
 Channel No. 01 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4824	53.35	-1.98	V	51.37	73.98	22.61	PK
4824	48.36	-1.98	V	46.38	53.98	7.60	AV
7236	45.40	7.60	V	53.00	73.98	20.98	PK
7236	31.67	7.60	V	39.27	53.98	14.71	AV
4824	53.85	-1.98	H	51.87	73.98	22.11	PK
4824	49.01	-1.98	H	47.03	53.98	6.95	AV
7236	45.91	7.60	H	53.51	73.98	20.47	PK
7236	31.70	7.60	H	39.30	53.98	14.68	AV

Band : 2.4 GHz
 Operation Mode: 802.11 b
 Transfer Rate: 1 Mbps
 Operating Frequency 2437
 Channel No. 06 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4874	54.15	-1.92	V	52.23	73.98	21.75	PK
4874	48.39	-1.92	V	46.47	53.98	7.51	AV
7311	45.38	7.38	V	52.76	73.98	21.22	PK
7311	31.93	7.38	V	39.31	53.98	14.67	AV
4874	54.48	-1.92	H	52.56	73.98	21.42	PK
4874	49.04	-1.92	H	47.12	53.98	6.86	AV
7311	45.51	7.38	H	52.89	73.98	21.09	PK
7311	31.95	7.38	H	39.33	53.98	14.65	AV



Band :	2.4 GHz
Operation Mode:	802.11 b
Transfer Rate:	1 Mbps
Operating Frequency	2462
Channel No.	11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4924	52.75	-1.93	V	50.82	73.98	23.16	PK
4924	46.28	-1.93	V	44.35	53.98	9.63	AV
7386	45.31	7.28	V	52.59	73.98	21.39	PK
7386	31.68	7.28	V	38.96	53.98	15.02	AV
4924	52.83	-1.93	H	50.90	73.98	23.08	PK
4924	46.89	-1.93	H	44.96	53.98	9.02	AV
7386	46.01	7.28	H	53.29	73.98	20.69	PK
7386	31.73	7.28	H	39.01	53.98	14.97	AV

Notes:

11. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done 802.11b mode and all data rate. Worst data rate is the lowest data of each mode.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT			www.hct.co.kr
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Band : 2.4 GHz
 Operation Mode: 802.11 g
 Transfer Rate: 6 Mbps
 Operating Frequency 2412
 Channel No. 01 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4824	51.53	-1.98	V	49.55	73.98	24.43	PK
4824	37.01	-1.98	V	35.03	53.98	18.95	AV
7236	45.73	7.60	V	53.33	73.98	20.65	PK
7236	31.66	7.60	V	39.26	53.98	14.72	AV
4824	52.12	-1.98	H	50.14	73.98	23.84	PK
4824	37.17	-1.98	H	35.19	53.98	18.79	AV
7236	45.35	7.60	H	52.95	73.98	21.03	PK
7236	31.73	7.60	H	39.33	53.98	14.65	AV

Band : 2.4 GHz
 Operation Mode: 802.11 g
 Transfer Rate: 6 Mbps
 Operating Frequency 2437
 Channel No. 06 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4874	51.70	-1.92	V	49.78	73.98	24.20	PK
4874	37.52	-1.92	V	35.60	53.98	18.38	AV
7311	45.28	7.38	V	52.66	73.98	21.32	PK
7311	31.95	7.38	V	39.33	53.98	14.65	AV
4874	52.10	-1.92	H	50.18	73.98	23.80	PK
4874	37.63	-1.92	H	35.71	53.98	18.27	AV
7311	45.70	7.38	H	53.08	73.98	20.90	PK
7311	31.97	7.38	H	39.35	53.98	14.63	AV



Band :	2.4 GHz
Operation Mode:	802.11 g
Transfer Rate:	6 Mbps
Operating Frequency	2462
Channel No.	11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4924	50.42	-1.93	V	48.49	73.98	25.49	PK
4924	35.91	-1.93	V	33.98	53.98	20.00	AV
7386	45.98	7.28	V	53.26	73.98	20.72	PK
7386	31.73	7.28	V	39.01	53.98	14.97	AV
4924	50.77	-1.93	H	48.84	73.98	25.14	PK
4924	36.14	-1.93	H	34.21	53.98	19.77	AV
7386	46.01	7.28	H	53.29	73.98	20.69	PK
7386	31.79	7.28	H	39.07	53.98	14.91	AV

Notes:

11. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done 802.11g mode and all data rate. Worst data rate is the lowest data of each mode.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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Band : 2.4 GHz
 Operation Mode: 802.11 n
 Transfer Rate: 6.5 Mbps
 Operating Frequency 2412
 Channel No. 01 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4824	49.90	-1.98	V	47.92	73.98	26.06	PK
4824	35.75	-1.98	V	33.77	53.98	20.21	AV
7236	46.06	7.60	V	53.66	73.98	20.32	PK
7236	31.66	7.60	V	39.26	53.98	14.72	AV
4824	50.03	-1.98	H	48.05	73.98	25.93	PK
4824	35.78	-1.98	H	33.80	53.98	20.18	AV
7236	46.15	7.60	H	53.75	73.98	20.23	PK
7236	31.76	7.60	H	39.36	53.98	14.62	AV

Band : 2.4 GHz
 Operation Mode: 802.11 n
 Transfer Rate: 6.5 Mbps
 Operating Frequency 2437
 Channel No. 06 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4874	50.15	-1.92	V	48.23	73.98	25.75	PK
4874	36.32	-1.92	V	34.40	53.98	19.58	AV
7311	45.48	7.38	V	52.86	73.98	21.12	PK
7311	31.94	7.38	V	39.32	53.98	14.66	AV
4874	50.76	-1.92	H	48.84	73.98	25.14	PK
4874	36.41	-1.92	H	34.49	53.98	19.49	AV
7311	45.80	7.38	H	53.18	73.98	20.80	PK
7311	31.96	7.38	H	39.34	53.98	14.64	AV



Band :	2.4 GHz
Operation Mode:	802.11 n
Transfer Rate:	6.5 Mbps
Operating Frequency	2462
Channel No.	11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4924	48.71	-1.93	V	46.78	73.98	27.20	PK
4924	34.95	-1.93	V	33.02	53.98	20.96	AV
7386	45.50	7.28	V	52.78	73.98	21.20	PK
7386	31.77	7.28	V	39.05	53.98	14.93	AV
4924	48.94	-1.93	H	47.01	73.98	26.97	PK
4924	35.06	-1.93	H	33.13	53.98	20.85	AV
7386	46.07	7.28	H	53.35	73.98	20.63	PK
7386	31.81	7.28	H	39.09	53.98	14.89	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done 802.11n mode and all data rate. Worst data rate is the lowest data of each mode.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet		FCC ID: ZNFV480	IC: 2703C-V480



Band : 5.8 GHz
 Operation Mode: 802.11 a
 Transfer Rate: 6 Mbps
 Operating Frequency 5745 MHz
 Channel No. 149 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11490	62.63	-6.10	V	56.53	73.98	17.45	PK
11490	48.89	-6.10	V	42.79	53.98	11.19	AV
11490	62.91	-6.10	H	56.81	73.98	17.17	PK
11490	48.97	-6.10	H	42.87	53.98	11.11	AV

Band : 5.8 GHz
 Operation Mode: 802.11 a
 Transfer Rate: 6 Mbps
 Operating Frequency 5785 MHz
 Channel No. 157 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11570	62.15	-5.57	V	56.58	73.98	17.40	PK
11570	48.33	-5.57	V	42.76	53.98	11.22	AV
11570	62.88	-5.57	H	57.31	73.98	16.67	PK
11570	48.37	-5.57	H	42.80	53.98	11.18	AV



Band :	5.8 GHz
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	62.79	-6.63	V	56.16	73.98	17.82	PK
11650	48.87	-6.63	V	42.24	53.98	11.74	AV
11650	62.89	-6.63	H	56.26	73.98	17.72	PK
11650	48.96	-6.63	H	42.33	53.98	11.65	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done 802.11a mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet	FCC ID: ZNFV480	IC: 2703C-V480	



Band : 5.8 GHz
 Operation Mode: 802.11 n_20 MHz BW
 Transfer Rate: 6.5 Mbps
 Operating Frequency 5745 MHz
 Channel No. 149 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11490	62.81	-6.10	V	56.71	73.98	17.27	PK
11490	48.91	-6.10	V	42.81	53.98	11.17	AV
11490	62.88	-6.10	H	56.78	73.98	17.20	PK
11490	48.99	-6.10	H	42.89	53.98	11.09	AV

Band : 5.8 GHz
 Operation Mode: 802.11 n_20 MHz BW
 Transfer Rate: 6.5 Mbps
 Operating Frequency 5785 MHz
 Channel No. 157 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11570	62.60	-5.57	V	57.03	73.98	16.95	PK
11570	48.34	-5.57	V	42.77	53.98	11.21	AV
11570	62.94	-5.57	H	57.37	73.98	16.61	PK
11570	48.35	-5.57	H	42.78	53.98	11.20	AV

Band :	5.8 GHz
Operation Mode:	802.11 n_20 MHz BW
Transfer Rate:	6.5 Mbps
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11650	62.88	-6.63	V	56.25	73.98	17.73	PK
11650	48.90	-6.63	V	42.27	53.98	11.71	AV
11650	62.90	-6.63	H	56.27	73.98	17.71	PK
11650	48.95	-6.63	H	42.32	53.98	11.66	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done 802.11n_20 MHz BW mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna



Band : 5.8 GHz
 Operation Mode: 802.11 n_40 MHz BW
 Transfer Rate: 13.5 Mbps
 Operating Frequency 5755 MHz
 Channel No. 151 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11510	63.15	-6.26	V	56.89	73.98	17.09	PK
11510	49.04	-6.26	V	42.78	53.98	11.20	AV
11510	63.49	-6.26	H	57.23	73.98	16.75	PK
11510	49.06	-6.26	H	42.80	53.98	11.18	AV

Band : 5.8 GHz
 Operation Mode: 802.11 n_40 MHz BW
 Transfer Rate: 13.5 Mbps
 Operating Frequency 5795 MHz
 Channel No. 159 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
11590	62.79	-5.92	V	56.87	73.98	17.11	PK
11590	48.54	-5.92	V	42.62	53.98	11.36	AV
11590	63.12	-5.92	H	57.20	73.98	16.78	PK
11590	48.60	-5.92	H	42.68	53.98	11.30	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. We have done 802.11n_40 MHz BW mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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8.7.2 RECEIVER SPURIOUS EMISSIONS

IC Rule(s) RSS-GEN
Test Requirements: Blow the table
Operating conditions: Under normal test conditions
Method of testing: Radiated

S/A. Settings: F < 1 GHz: RBW: 120 kHz, VBW: 300 kHz (Quasi Peak)
 F > 1 GHz: RBW: 1 MHz, VBW: 1 MHz (Peak)
Mode of operation: Receive

Frequency (MHz)	Field Strength (microvolts/m at 3 meters)
30 – 88	100
88 - 216	150
216 – 960	200
Above 960	500

Operation Mode: Receive:

30 MHz ~ 1 GHz

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dB μ V	dB /m	dB	(H/V)	dB μ V/m	dB μ V/m	dB
No Critical peaks found							

Above 1 GHz

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dB μ V	dB /m	dB	(H/V)	dB μ V/m	dB μ V/m	dB
No Critical peaks found							

8.7.3 RADIATED RESTRICTED BAND EDGES

Test Requirements and limit, §15.247(d) §15.205, §15.209

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in section 15.209(a) (See section 15.205(c)).

Band :	2.4 GHz
Operation Mode:	802.11g
Transfer Rate:	6 Mbps
Operating Frequency	2412 MHz, 2462 MHz
Channel No.	01 Ch, 11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	26.14	31.47	H	57.61	73.98	16.37	PK
2390.0	13.07	31.47	H	44.54	53.98	9.44	AV
2390.0	26.45	31.47	V	57.92	73.98	16.06	PK
2390.0	13.69	31.47	V	45.16	53.98	8.82	AV
2483.5	32.07	31.46	H	63.53	73.98	10.45	PK
2483.5	14.88	31.46	H	46.34	53.98	7.64	AV
2483.5	32.88	31.46	V	64.34	73.98	9.64	PK
2483.5	15.89	31.46	V	47.35	53.98	6.63	AV



Band : 2.4 GHz
 Operation Mode: 802.11b
 Transfer Rate: 1 Mbps
 Operating Frequency 2412 MHz, 2462 MHz
 Channel No. 01 Ch, 11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	27.94	31.47	H	59.41	73.98	14.57	PK
2390.0	14.05	31.47	H	45.52	53.98	8.46	AV
2390.0	28.29	31.47	V	59.76	73.98	14.22	PK
2390.0	14.88	31.47	V	46.35	53.98	7.63	AV
2483.5	26.53	31.46	H	57.99	73.98	15.99	PK
2483.5	13.51	31.46	H	44.97	53.98	9.01	AV
2483.5	27.29	31.46	V	58.75	73.98	15.23	PK
2483.5	13.55	31.46	V	45.01	53.98	8.97	AV

Band : 2.4 GHz
 Operation Mode: 802.11n
 Transfer Rate: 6.5 Mbps
 Operating Frequency 2412 MHz, 2462 MHz
 Channel No. 01 Ch, 11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	27.13	31.47	H	58.60	73.98	15.38	PK
2390.0	13.50	31.47	H	44.97	53.98	9.01	AV
2390.0	27.69	31.47	V	59.16	73.98	14.82	PK
2390.0	14.47	31.47	V	45.94	53.98	8.04	AV
2483.5	31.21	31.46	H	62.67	73.98	11.31	PK
2483.5	14.27	31.46	H	45.73	53.98	8.25	AV
2483.5	32.90	31.46	V	64.36	73.98	9.62	PK
2483.5	15.24	31.46	V	46.70	53.98	7.28	AV

Notes:

1. Total = Reading Value + Antenna Factor + Cable Loss
2. We have done 802.11b/g/n mode and all data rate. Worst data rate is the lowest data of each mode.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet		FCC ID: ZNFV480	IC: 2703C-V480

8.8 POWERLINE CONDUCTED EMISSIONS

Test Requirements and limit, §15.207

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

Test Configuration

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT is placed on a wooden table 80 cm above the reference ground plane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained as described below:
4. Detectors – Quasi Peak and Average Detector.
5. We are performed the AC Power Line Conducted Emission test for 11 Mbps, Ch.1 and 802.11b. Because 802.11b mode is worst case.

RESULT PLOTS

Conducted Emissions (Line 1)

EMI Auto Test(2)

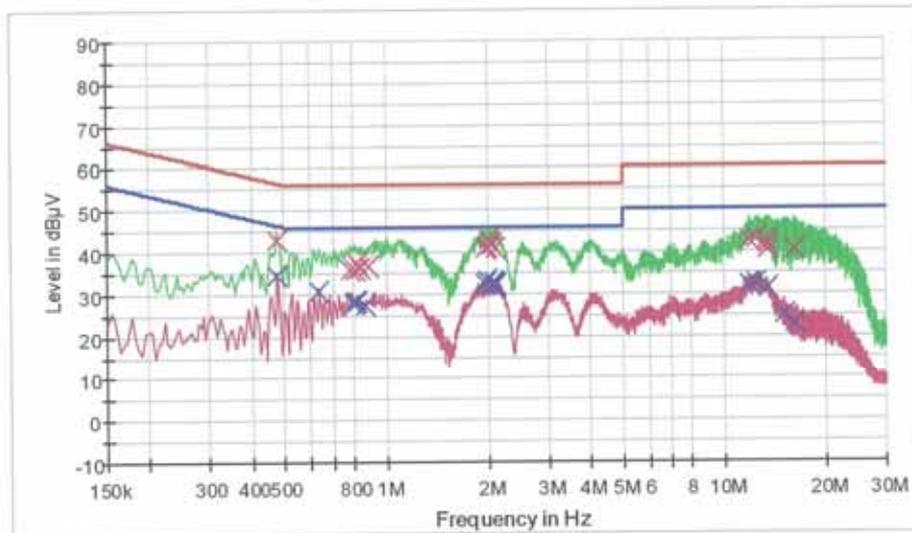
1 / 2

HCT TEST Report

Common Information

EUT: LG-V480
 Manufacturer: LG
 Test Site: SHIELD ROOM
 Operating Conditions: WLAN MODE
 Operator Name: K.S. KANG

FCC CLASS B



— FCCCLASS B_OP — FCCCLASS B_AV — Preview Result 1-PPK
— Preview Result 2-AVG x Final Result 1-QPK x Final Result 2-CAV

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.478500	43.1	9.000	Off	L1	9.7	13.3	56.4
0.783500	35.7	9.000	Off	L1	9.7	20.3	56.0
0.806000	36.0	9.000	Off	L1	9.7	20.0	56.0
0.824000	37.7	9.000	Off	L1	9.7	18.3	56.0
0.837500	36.1	9.000	Off	L1	9.7	19.9	56.0
0.891500	36.8	9.000	Off	L1	9.7	19.2	56.0
1.958000	41.0	9.000	Off	L1	9.8	15.0	56.0
1.980500	41.3	9.000	Off	L1	9.8	14.7	56.0
1.998500	43.0	9.000	Off	L1	9.8	13.0	56.0
2.021000	42.3	9.000	Off	L1	9.9	13.7	56.0
2.043500	41.8	9.000	Off	L1	9.9	14.2	56.0
2.088500	41.0	9.000	Off	L1	9.9	15.0	56.0
11.835500	42.4	9.000	Off	L1	10.5	17.6	60.0
12.438500	43.1	9.000	Off	L1	10.5	16.9	60.0
13.230500	42.4	9.000	Off	L1	10.6	17.6	60.0
13.397000	40.6	9.000	Off	L1	10.6	19.4	60.0

6/17/2014

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Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
13.415000	41.6	9.000	Off	L1	10.6	18.4	60.0
16.169000	40.3	9.000	Off	L1	10.7	19.7	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.478500	34.6	9.000	Off	L1	9.7	11.8	46.4
0.635000	30.6	9.000	Off	L1	9.7	15.4	46.0
0.797000	27.9	9.000	Off	L1	9.7	18.1	46.0
0.806000	28.3	9.000	Off	L1	9.7	17.7	46.0
0.824000	28.2	9.000	Off	L1	9.7	17.8	46.0
0.869000	27.3	9.000	Off	L1	9.7	18.7	46.0
1.958000	32.3	9.000	Off	L1	9.8	13.7	46.0
1.976000	33.4	9.000	Off	L1	9.8	12.6	46.0
2.048000	32.1	9.000	Off	L1	9.9	13.9	46.0
2.066000	32.9	9.000	Off	L1	9.9	13.1	46.0
2.088500	32.5	9.000	Off	L1	9.9	13.5	46.0
2.106500	32.2	9.000	Off	L1	9.9	13.8	46.0
11.835500	32.0	9.000	Off	L1	10.5	18.0	50.0
11.844500	32.1	9.000	Off	L1	10.5	17.9	50.0
12.420500	32.6	9.000	Off	L1	10.5	17.4	50.0
13.397000	31.1	9.000	Off	L1	10.6	18.9	50.0
14.981000	24.8	9.000	Off	L1	10.6	25.2	50.0
16.169000	22.9	9.000	Off	L1	10.7	27.1	50.0

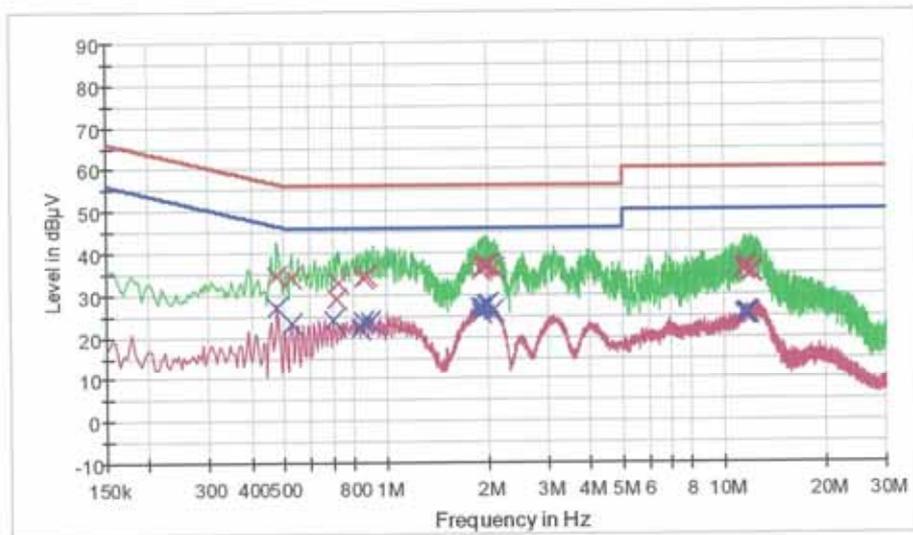
FCC PT.15.247 TEST REPORT		FCC & IC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCT-R-1407-F004-1	Date of Issue: July 01, 2014	EUT Type: 2.4/5GHz BT/WiFi Tablet	FCC ID: ZNFV480	IC: 2703C-V480

HCT TEST Report

Common Information

EUT: LG-V480
 Manufacturer: LG
 Test Site: SHIELD ROOM
 Operating Conditions: WLAN MODE
 Operator Name: K.S. KANG

FCC CLASS B



— FCCCLASS B_OP
 — FCCCLASS B_AV
 — Preview Result 1-PK
— Preview Result 2-AVG
 x Final Result 1-QPK
 x Final Result 2-CAV

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.478500	34.5	9.000	Off	N	9.7	21.9	56.4
0.527000	34.2	9.000	Off	N	9.7	21.8	56.0
0.716000	29.2	9.000	Off	N	9.7	26.8	56.0
0.725000	33.0	9.000	Off	N	9.7	23.0	56.0
0.855500	34.1	9.000	Off	N	9.8	21.9	56.0
0.878000	34.6	9.000	Off	N	9.8	21.4	56.0
1.913000	35.7	9.000	Off	N	9.9	20.3	56.0
1.931000	36.6	9.000	Off	N	9.9	19.4	56.0
1.953500	36.9	9.000	Off	N	9.9	19.1	56.0
1.976000	37.2	9.000	Off	N	9.9	18.8	56.0
1.998500	37.0	9.000	Off	N	9.9	19.0	56.0
2.088500	36.1	9.000	Off	N	9.9	19.9	56.0
11.448500	35.9	9.000	Off	N	10.4	24.1	60.0
11.471000	36.2	9.000	Off	N	10.4	23.8	60.0
11.633000	36.2	9.000	Off	N	10.5	23.8	60.0
11.655500	36.9	9.000	Off	N	10.5	23.1	60.0

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
11.988500	35.5	9.000	Off	N	10.5	24.5	60.0
12.168500	35.4	9.000	Off	N	10.5	24.6	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.478500	27.1	9.000	Off	N	9.7	19.3	46.4
0.527000	23.1	9.000	Off	N	9.7	22.9	46.0
0.702500	24.0	9.000	Off	N	9.7	22.0	46.0
0.837500	21.9	9.000	Off	N	9.8	24.1	46.0
0.855500	23.7	9.000	Off	N	9.8	22.3	46.0
0.900500	23.4	9.000	Off	N	9.8	22.6	46.0
1.886000	26.9	9.000	Off	N	9.8	19.1	46.0
1.913000	25.7	9.000	Off	N	9.9	20.3	46.0
1.931000	26.9	9.000	Off	N	9.9	19.1	46.0
1.976000	27.5	9.000	Off	N	9.9	18.5	46.0
1.994000	27.7	9.000	Off	N	9.9	18.3	46.0
2.066000	26.3	9.000	Off	N	9.9	19.7	46.0
11.448500	25.1	9.000	Off	N	10.4	24.9	50.0
11.475500	25.4	9.000	Off	N	10.4	24.6	50.0
11.633000	25.5	9.000	Off	N	10.5	24.5	50.0
11.678000	25.8	9.000	Off	N	10.5	24.2	50.0
11.687000	25.8	9.000	Off	N	10.5	24.2	50.0
11.786000	25.2	9.000	Off	N	10.5	24.8	50.0

9. LIST OF TEST EQUIPMENT

9.1 LIST OF TEST EQUIPMENT(Conducted Test)

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Calibration Due	Serial No.
Rohde & Schwarz	ENV216/ LISN	01/29/2014	Annual	01/29/2015	100073
Agilent	E4440A/ Spectrum Analyzer	04/09/2014	Annual	04/09/2015	US45303008
Agilent	N9020A/ SIGNAL ANALYZER	05/23/2014	Annual	05/23/2015	MY51110063
Agilent	N1911A/Power Meter	01/24/2014	Annual	01/24/2015	MY45100523
Agilent	N1921A /POWER SENSOR	07/11/2013	Annual	07/11/2014	MY45241059
Hewlett Packard	11636B/Power Divider	10/22/2013	Annual	10/22/2014	11377
Agilent	87300B/Directional Coupler	12/18/2013	Annual	12/18/2014	3116A03621
Hewlett Packard	11667B / Power Splitter	01/27/2014	Annual	01/27/2015	10545
DIGITAL	EP-3010 /DC POWER SUPPLY	10/29/2013	Annual	10/29/2014	3110117
ITECH	IT6720 / DC POWER SUPPLY	11/05/2013	Annual	11/05/2014	0100021562870011 99
TESCOM	TC-3000C / BLUETOOTH TESTER	04/11/2014	Annual	04/11/2015	3000C000276
Rohde & Schwarz	CBT / BLUETOOTH TESTER	05/07/2014	Annual	05/07/2015	100422
Agilent	8493C / Attenuator(10 dB)	07/24/2013	Annual	07/24/2014	76649
WEINSCHL	2-3 / Attenuator(3 dB)	10/28/2013	Annual	10/28/2014	BR0617

9.2 LIST OF TEST EQUIPMENT(Radiated Test)

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Calibration Due	Serial No.
Schwarzbeck	VULB 9160/ TRILOG Antenna	12/17/2012	Biennial	12/17/2014	3150
Rohde & Schwarz	ESCI / EMI TEST RECEIVER	01/24/2014	Annual	01/24/2015	100584
HD	MA240/ Antenna Position Tower	N/A	N/A	N/A	556
EMCO	1050/ Turn Table	N/A	N/A	N/A	114
HD GmbH	HD 100/ Controller	N/A	N/A	N/A	13
HD GmbH	KMS 560/ SlideBar	N/A	N/A	N/A	12
Rohde & Schwarz	SCU-18/ Signal Conditioning Unit	09/10/2013	Annual	09/10/2014	10094
CERNEX	CBL18265035 / POWER AMP	07/24/2013	Annual	07/24/2014	22966
CERNEX	CBL26405040 / POWER AMP	04/04/2014	Annual	04/04/2015	19660
Schwarzbeck	BBHA 9120D/ Horn Antenna	07/05/2013	Biennial	07/05/2015	1151
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	10/30/2012	Biennial	10/30/2014	BBHA9170124
Rohde & Schwarz	FSP / Spectrum Analyzer	01/24/2014	Annual	01/24/2015	839117/011
Wainwright Instrument	WHF3.0/18G-10EF / High Pass Filter	02/03/2014	Annual	02/03/2015	F6
Wainwright Instrument	WHNX6.0/26.5G-6SS / High Pass Filter	04/09/2014	Annual	04/09/2015	1
Wainwright Instrument	WHNX7.0/18G-8SS / High Pass Filter	04/04/2014	Annual	04/04/2015	29
Wainwright Instrument	WRCJ2400/2483.5-2370/2520-60/14SS / Band Reject Filter	06/17/2014	Annual	06/17/2015	1
TESCOM	TC-3000C / BLUETOOTH TESTER	04/11/2014	Annual	04/11/2015	3000C000276
Rohde & Schwarz	CBT / BLUETOOTH TESTER	05/07/2014	Annual	05/07/2015	100422
Rohde & Schwarz	LOOP ANTENNA	08/14/2012	Biennial	08/14/2014	100179
CERNEX	CBL06185030 / POWER AMP	07/24/2013	Annual	07/24/2014	22965
CERNEX	CBLU1183540 / POWER AMP	07/24/2013	Annual	07/24/2014	22964
<p>Note :This equipment (WRCJ2400/2483.5-2370/2520-60/14SS / Band Reject Filter) is used after 06/17/2014 and actual calibration date is 06/17/2014</p>					