

■ TEST RESULTS_Ant.0

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result				
			Spectrum Value(dBm)	BWCF (dB)	PSD (dBm)	Limit (dBm)	Pass/ Fail
2412	1	802.11b	6.274	-15.2	-8.926	8	Pass
2437	6		6.233	-15.2	-8.967	8	Pass
2462	11		6.686	-15.2	-8.514	8	Pass
2412	1	802.11g	1.453	-15.2	-13.747	8	Pass
2437	6		7.252	-15.2	-7.948	8	Pass
2462	11		2.135	-15.2	-13.065	8	Pass
2412	1	802.11n (20 MHz BW)	0.613	-15.2	-14.587	8	Pass
2437	6		7.230	-15.2	-7.97	8	Pass
2462	11		1.613	-15.2	-13.587	8	Pass
2422	3	802.11n (40 MHz BW)	-3.336	-15.2	-18.536	8	Pass
2437	6		4.372	-15.2	-10.828	8	Pass
2452	9		-1.859	-15.2	-17.059	8	Pass
5745	149	802.11a	0.546	-15.2	-14.654	8	Pass
5785	157		-0.518	-15.2	-15.718	8	Pass
5825	165		0.663	-15.2	-14.537	8	Pass
5745	149	802.11n (20 MHz BW)	1.158	-15.2	-14.042	8	Pass
5785	157		1.556	-15.2	-13.644	8	Pass
5825	165		0.731	-15.2	-14.469	8	Pass
5755	151	802.11n (40 MHz BW)	-2.111	-15.2	-17.311	8	Pass
5795	159		-1.777	-15.2	-16.977	8	Pass

■ TEST RESULTS_Ant.1

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result				
			Spectrum Value(dBm)	BWCF (dB)	PSD (dBm)	Limit (dBm)	Pass/ Fail
2412	1	802.11b	6.020	-15.2	-9.180	8	Pass
2437	6		6.598	-15.2	-8.602	8	Pass
2462	11		6.373	-15.2	-8.827	8	Pass
2412	1	802.11g	1.642	-15.2	-13.558	8	Pass
2437	6		6.628	-15.2	-8.572	8	Pass
2462	11		2.060	-15.2	-13.14	8	Pass
2412	1	802.11n (20 MHz BW)	0.019	-15.2	-15.181	8	Pass
2437	6		7.019	-15.2	-8.181	8	Pass
2462	11		1.486	-15.2	-13.714	8	Pass
2422	3	802.11n (40 MHz BW)	-3.707	-15.2	-18.907	8	Pass
2437	6		3.852	-15.2	-11.348	8	Pass
2452	9		-2.065	-15.2	-17.265	8	Pass
5745	149	802.11a	0.920	-15.2	-14.28	8	Pass
5785	157		0.350	-15.2	-14.85	8	Pass
5825	165		1.295	-15.2	-13.905	8	Pass
5745	149	802.11n (20 MHz BW)	-0.377	-15.2	-15.577	8	Pass
5785	157		1.045	-15.2	-14.155	8	Pass
5825	165		0.176	-15.2	-15.024	8	Pass
5755	151	802.11n (40 MHz BW)	-2.971	-15.2	-18.171	8	Pass
5795	159		-2.478	-15.2	-17.678	8	Pass

■ TEST RESULTS_Sum Data of Ant.0 and Ant.1

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result				
			Spectrum Value(dBm)	BWCF (dB)	PSD (dBm)	Limit (dBm)	Pass/ Fail
2412	1	802.11b	9.16	-15.2	-6.04	8	Pass
2437	6		9.43	-15.2	-5.77	8	Pass
2462	11		9.54	-15.2	-5.66	8	Pass
2412	1	802.11g	4.56	-15.2	-10.64	8	Pass
2437	6		9.96	-15.2	-5.24	8	Pass
2462	11		5.11	-15.2	-10.09	8	Pass
2412	1	802.11n (20 MHz BW)	3.34	-15.2	-11.86	8	Pass
2437	6		10.14	-15.2	-5.06	8	Pass
2462	11		4.56	-15.2	-10.64	8	Pass
2422	3	802.11n (40 MHz BW)	-0.51	-15.2	-15.71	8	Pass
2437	6		7.13	-15.2	-8.07	8	Pass
2452	9		1.05	-15.2	-14.15	8	Pass
5745	149	802.11a	3.75	-15.2	-11.45	8	Pass
5785	157		2.95	-15.2	-12.25	8	Pass
5825	165		4.00	-15.2	-11.2	8	Pass
5745	149	802.11n (20 MHz BW)	3.47	-15.2	-11.73	8	Pass
5785	157		4.32	-15.2	-10.88	8	Pass
5825	165		3.47	-15.2	-11.73	8	Pass
5755	151	802.11n (40 MHz BW)	0.49	-15.2	-14.71	8	Pass
5795	159		0.90	-15.2	-14.30	8	Pass

Note : PSD = Spectrum Value + BWCF

RESULT PLOTS_Ant.0

Power Spectral Density (802.11b-CH 1)



Power Spectral Density (802.11b-CH 6)



Power Spectral Density (802.11b-CH 11)



Power Spectral Density (802.11g-CH 1)



Power Spectral Density (802.11g-CH 6)



Power Spectral Density (802.11g-CH11)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

Power Spectral Density (802.11n-CH 1) _ 20 MHz BW



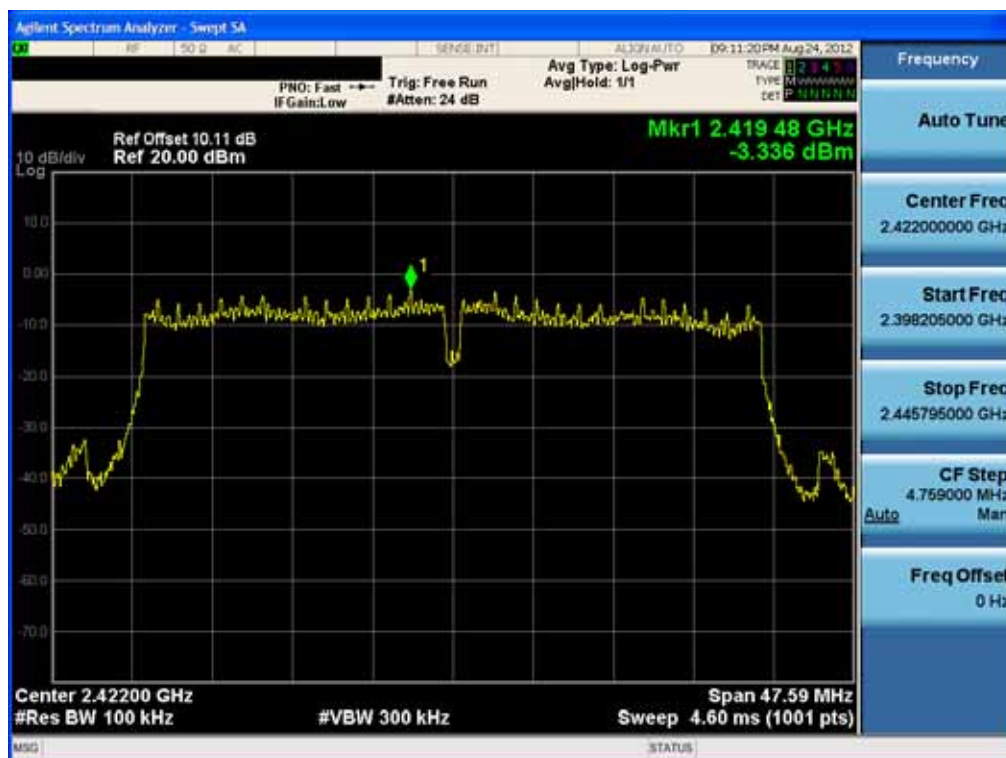
Power Spectral Density (802.11n-CH 6) _ 20 MHz BW



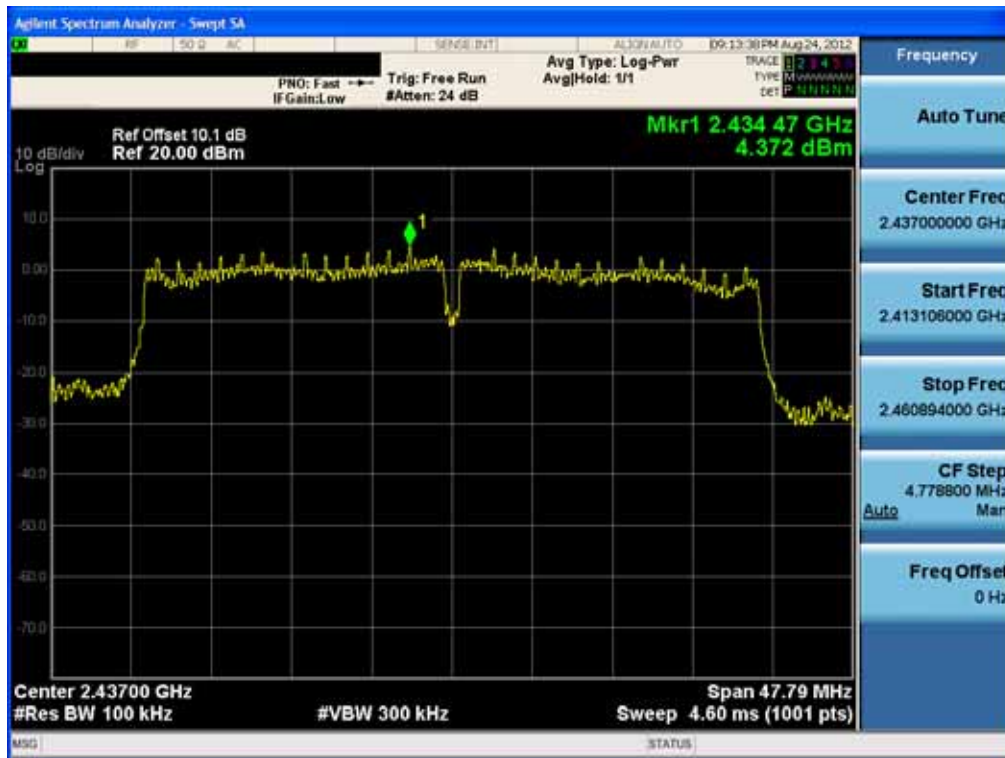
Power Spectral Density (802.11n-CH11) _ 20 MHz BW



Power Spectral Density (802.11n-CH 3)_ 40 MHz BW



Power Spectral Density (802.11n-CH 6) _ 40 MHz BW



Power Spectral Density (802.11n-CH9) _ 40 MHz BW



Power Spectral Density (802.11a-CH 149)



Power Spectral Density (802.11a-CH 157)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

Power Spectral Density (802.11a-CH1165)



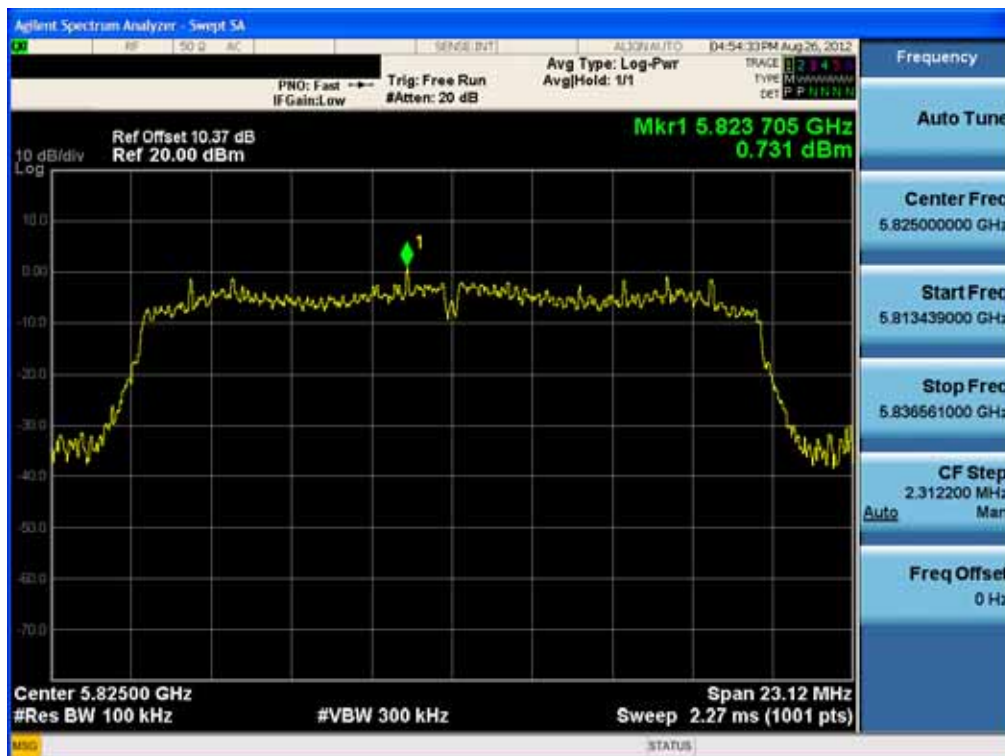
Power Spectral Density (802.11n-CH 149) _20 MHz BW



Power Spectral Density (802.11n-CH 157) _20 MHz BW



Power Spectral Density (802.11n-CH165) _20 MHz BW



Power Spectral Density (802.11n-CH 151)_40 MHz BW



Power Spectral Density (802.11n-CH 159)_40 MHz BW



RESULT PLOTS_Ant.1

Power Spectral Density (802.11b-CH 1)



Power Spectral Density (802.11b-CH 6)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFBM006D

Power Spectral Density (802.11b-CH 11)



Power Spectral Density (802.11g-CH 1)



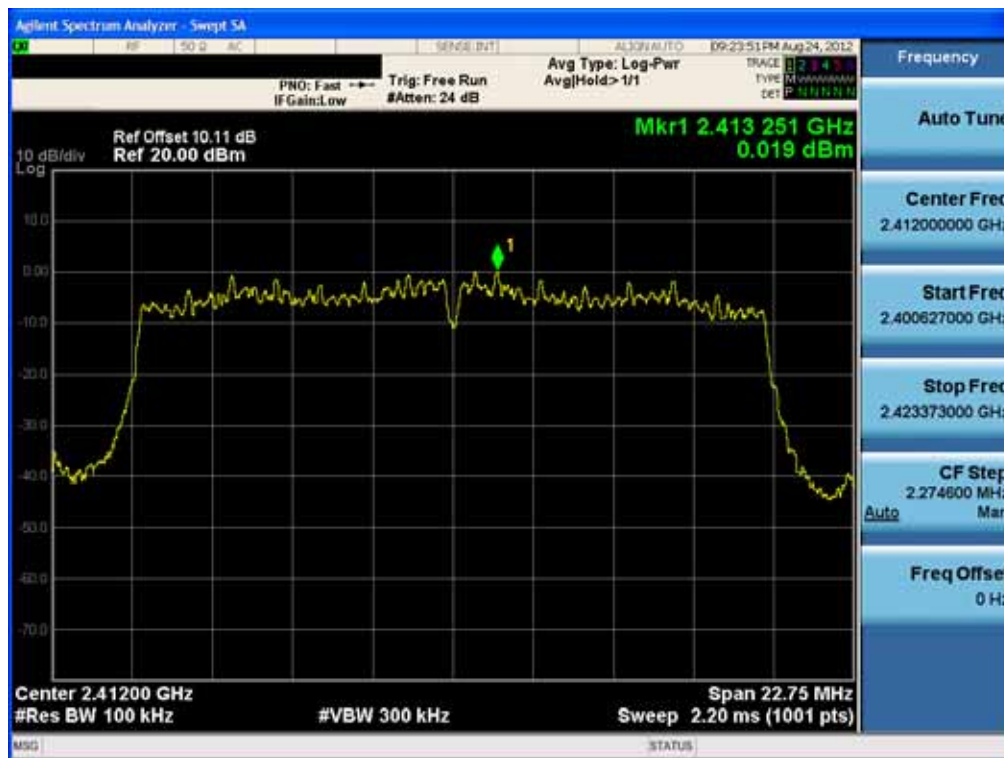
Power Spectral Density (802.11g-CH 6)



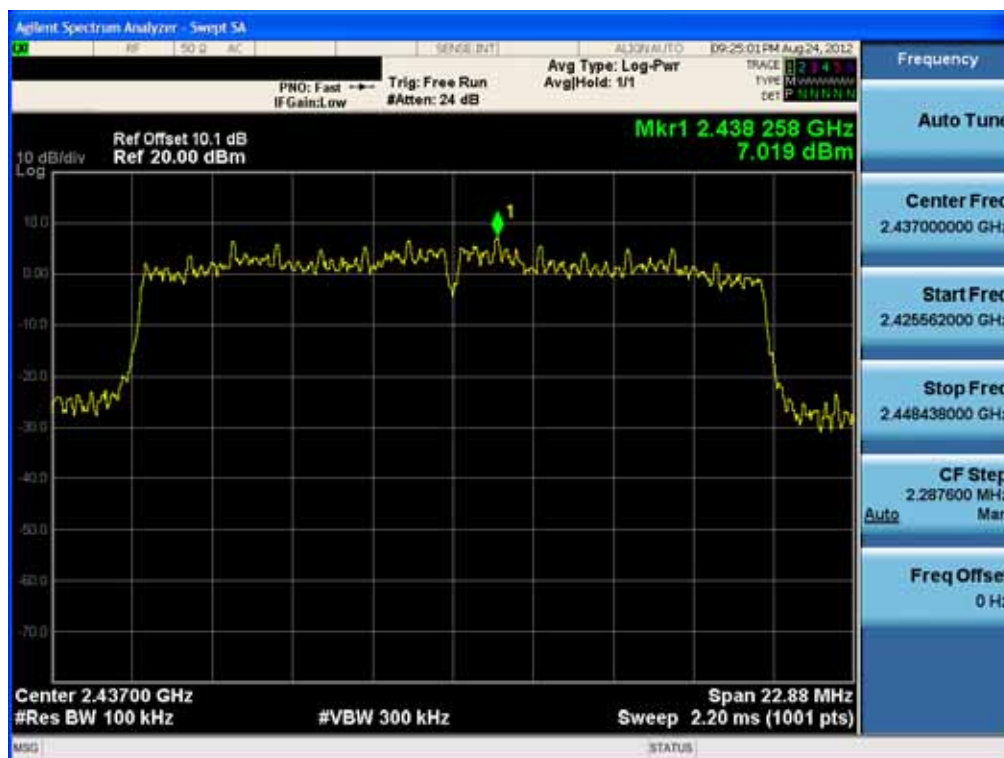
Power Spectral Density (802.11g-CH11)



Power Spectral Density (802.11n-CH 1) _ 20 MHz BW

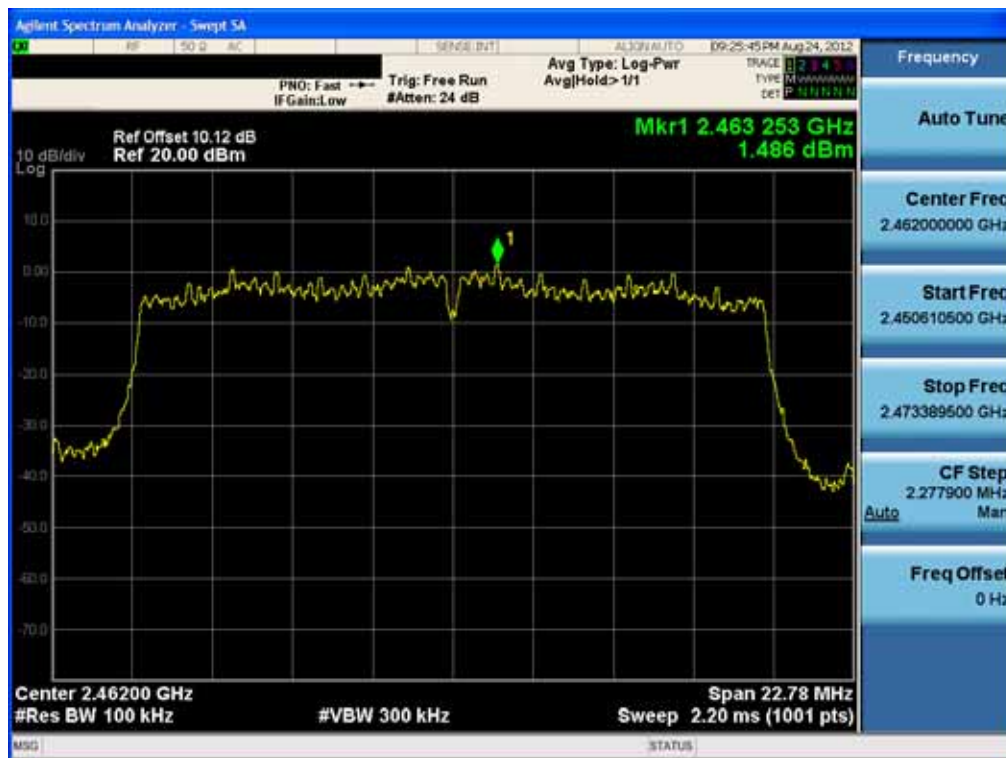


Power Spectral Density (802.11n-CH 6) _ 20 MHz BW



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

Power Spectral Density (802.11n-CH11) _ 20 MHz BW

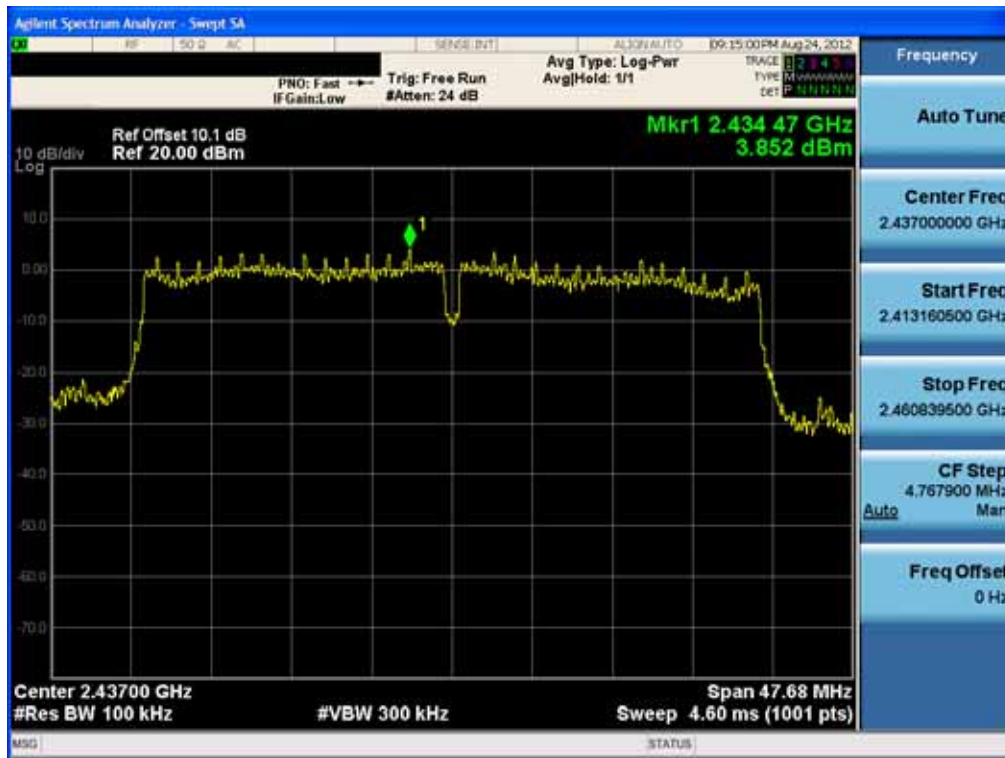


Power Spectral Density (802.11n-CH 3)_ 40 MHz BW

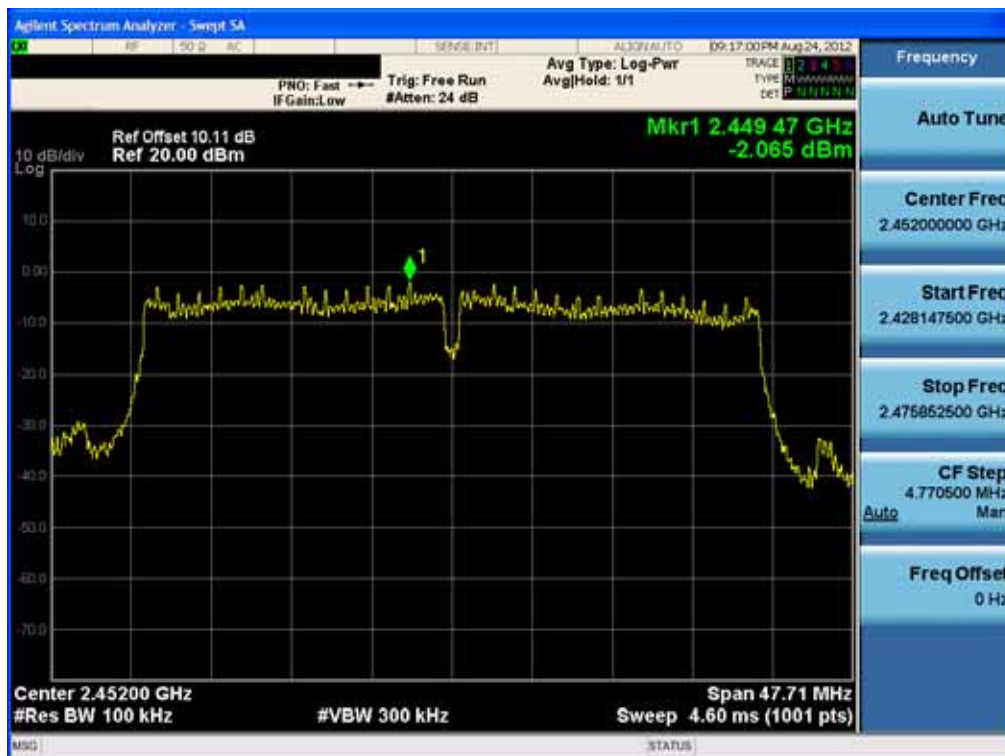


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

Power Spectral Density (802.11n-CH 6) _ 40 MHz BW



Power Spectral Density (802.11n-CH9) _ 40 MHz BW



Power Spectral Density (802.11a-CH 149)

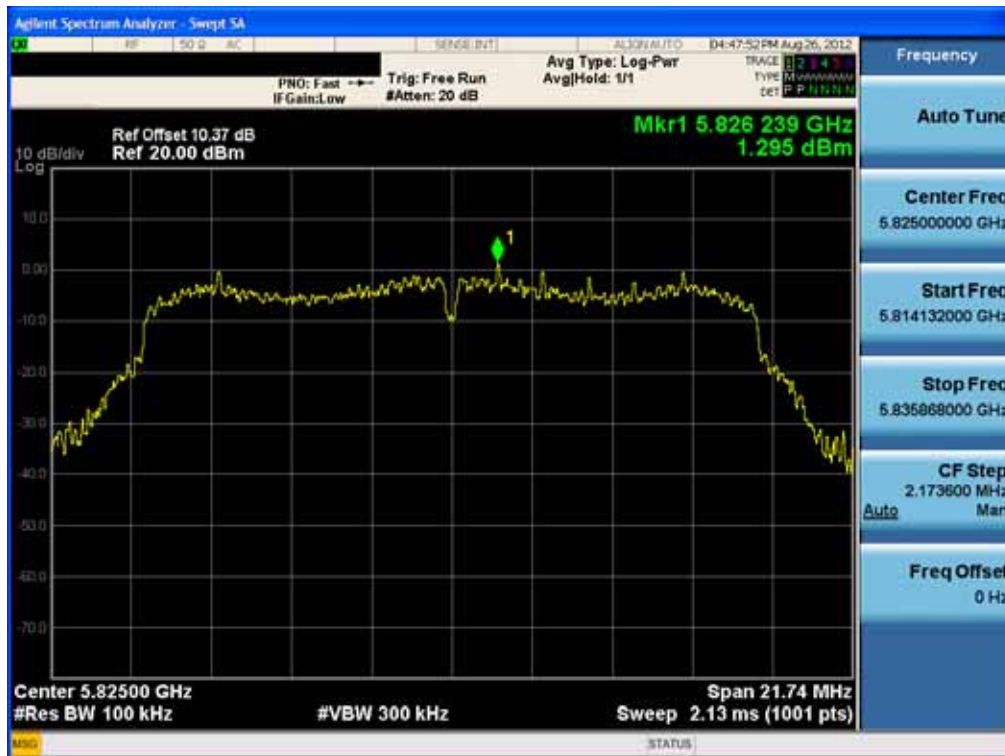


Power Spectral Density (802.11a-CH 157)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

Power Spectral Density (802.11a-CH1165)

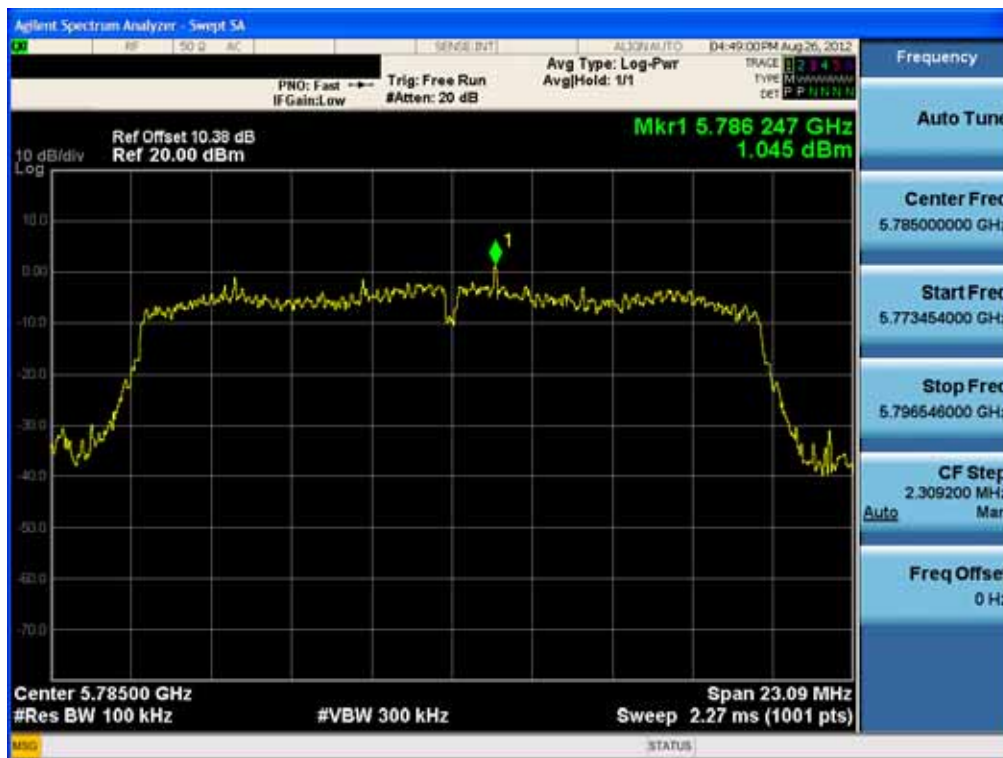


Power Spectral Density (802.11n-CH 149) _20 MHz BW



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

Power Spectral Density (802.11n-CH 157) _20 MHz BW



Power Spectral Density (802.11n-CH165) _20 MHz BW



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

Power Spectral Density (802.11n-CH 151)_40 MHz BW



Power Spectral Density (802.11n-CH 159)_40 MHz BW



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFB006D

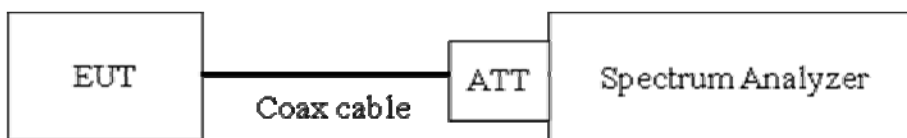
8.4 OUT OF BAND EMISSIONS AT THE BAND EDGE/ CONDUCTED SPURIOUS EMISSIONS

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.

RBW = 100 kHz(Upon 1 GHz = 1 MHz)

VBW = 300 kHz(Upon 1 GHz = 1 MHz)

Set span to encompass the spectrum to be examined

Detector = Peak

Trace Mode = max hold

Sweep = auto couple

Measurements are made over the 30 MHz to 40 GHz 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.
Actual value of loss for the attenuator and cable combination is below table.

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFB006D

Band	Frequency(MHz)	Loss(dB)
2.4 GHz	2412	10.11
	2437	10.10
	2462	10.12
5.8 GHz (20 MHz BW)	5745	10.37
	5785	10.38
	5825	10.37
5.8 GHz (40 MHz BW)	5755	10.37
	5795	10.38

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

4. In case of conducted spurious emissions test, please check factors blow table.

▣ FACTORS FOR FREQUENCY

Freq(MHz)	Factor(dB)
30	10.37
100	10.16
200	10.15
300	10.14
400	10.18
500	10.19
600	10.20
700	10.30
800	10.25
900	10.28
1000	10.29
2000	10.17
2400*	10.10
2500*	10.12
3000	10.26
4000	10.31
5000	9.85
5700*	10.40
5800*	10.38
6000	10.20
7000	10.60
8000	10.53
9000	10.23
10000	10.41

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFB006D

11000	10.65
12000	11.19
13000	10.97
14000	11.42
15000	12.01
16000	11.77
17000	10.78
18000	10.76
19000	11.15
20000	10.75
21000	10.82
22000	10.82
23000	11.26
24000	11.08
25000	11.18
26000	10.90
27000	11.32
28000	11.33
29000	11.77
30000	11.40
31000	11.82
32000	11.07
33000	13.05
34000	15.68
35000	14.08
36000	15.88
37000	17.32
38000	15.44
39000	14.48
40000	16.50

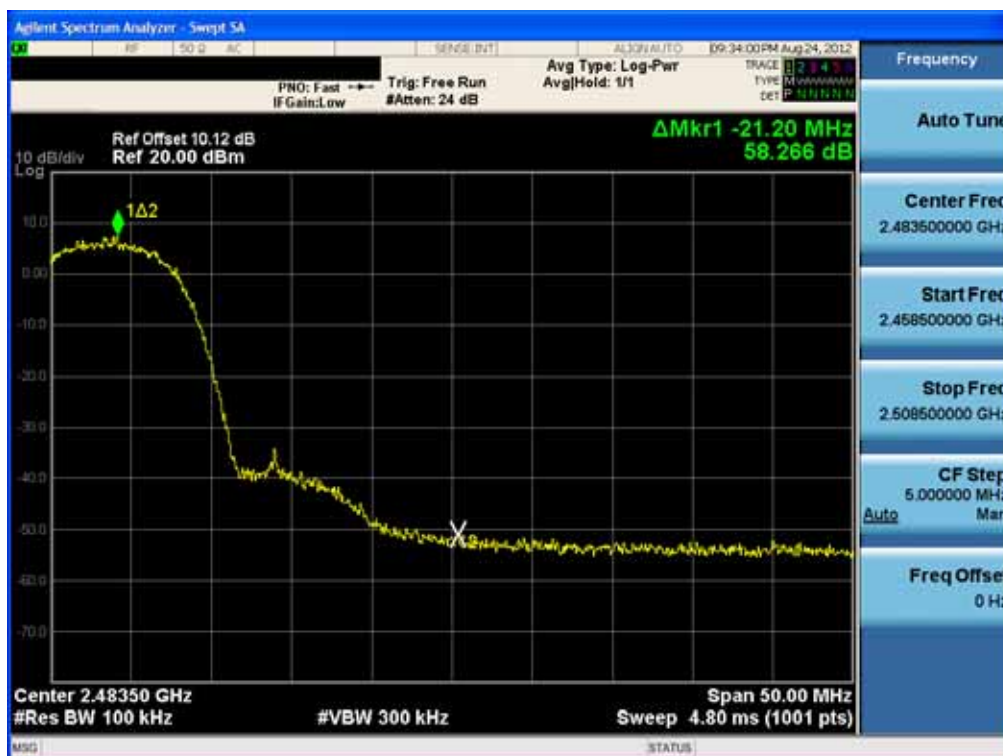
Note : 1. '*' is fundamental frequency range.
2. Factor = Cable loss + Attenuator loss

RESULT PLOTS_Ant.0

Band Edge (802.11b-CH1)



Band Edge (802.11b-CH11)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFBM006D

Band Edge (802.11g-CH1)

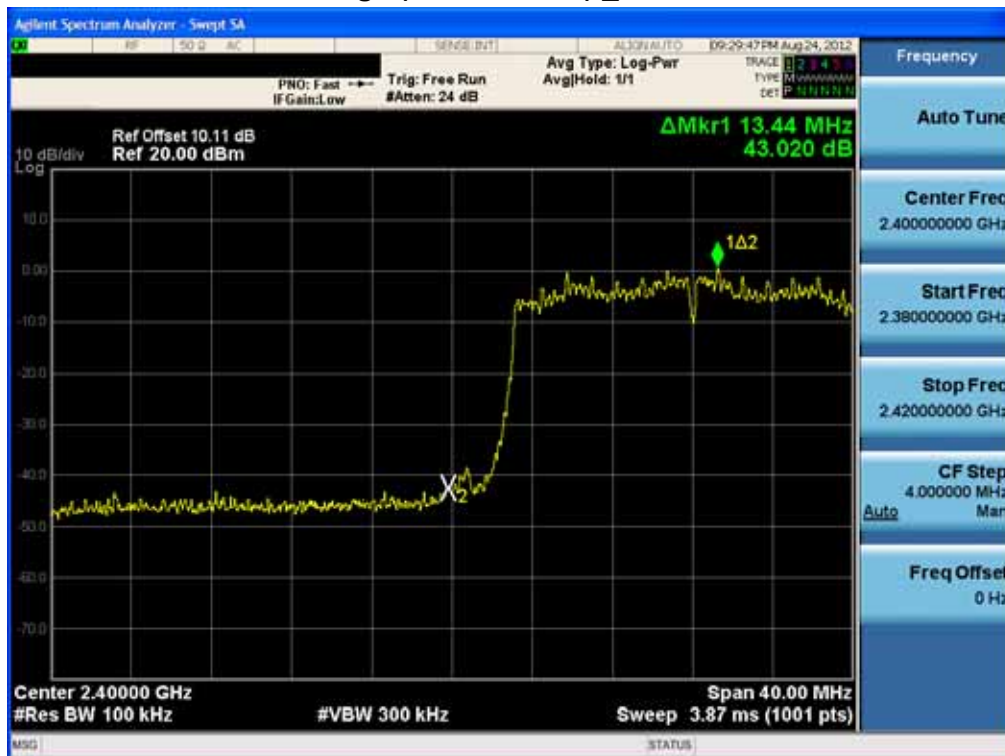


Band Edge (802.11g-CH11)

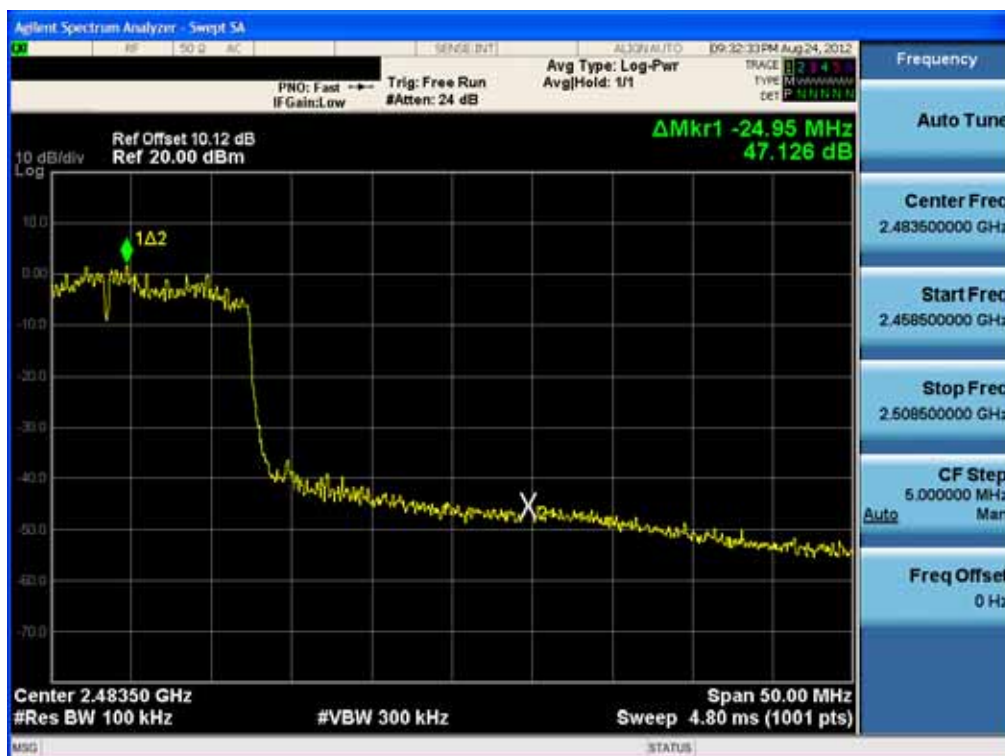


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

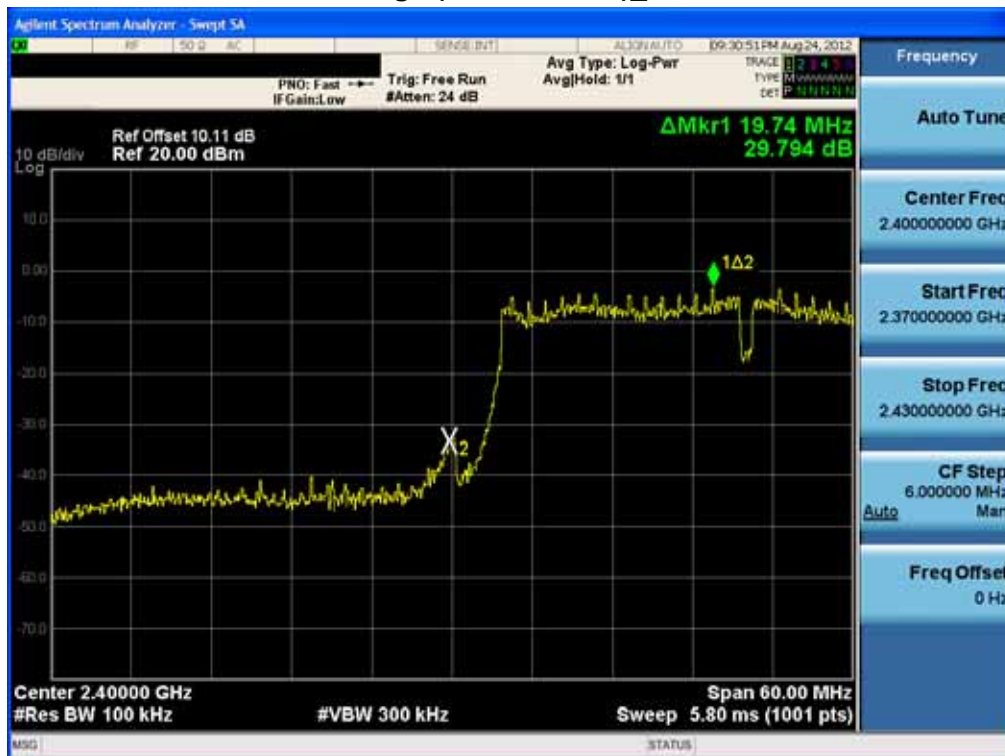
Band Edge (802.11n-CH1) _ 20 MHz BW



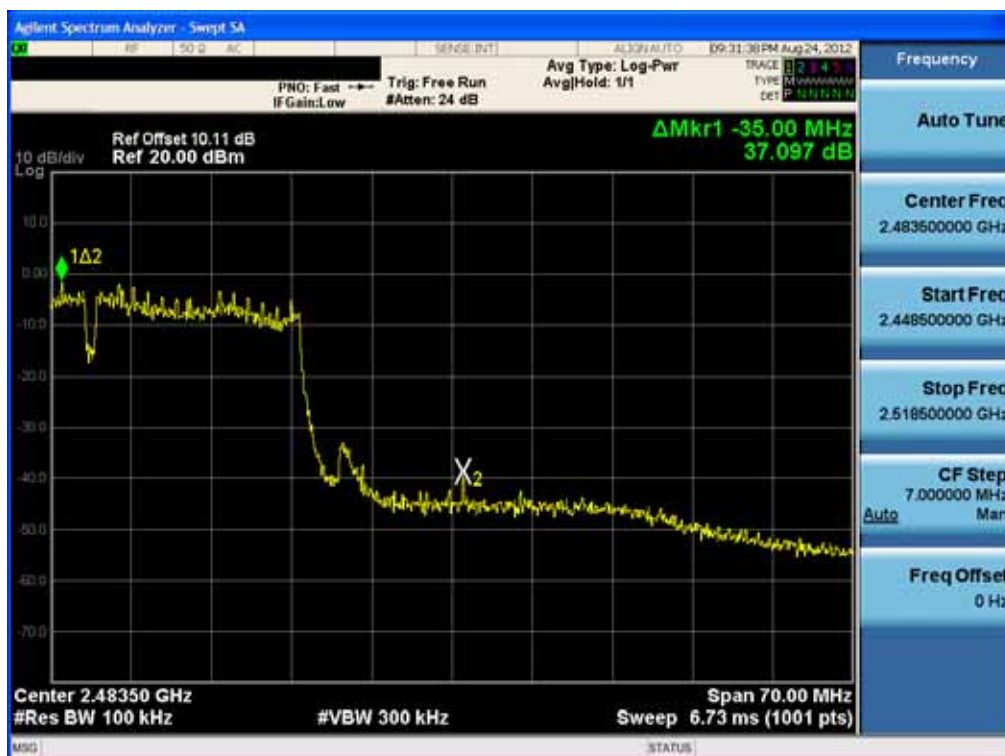
Band Edge (802.11n-CH11) _ 20 MHz BW



Band Edge (802.11n-CH3)_40 MHz

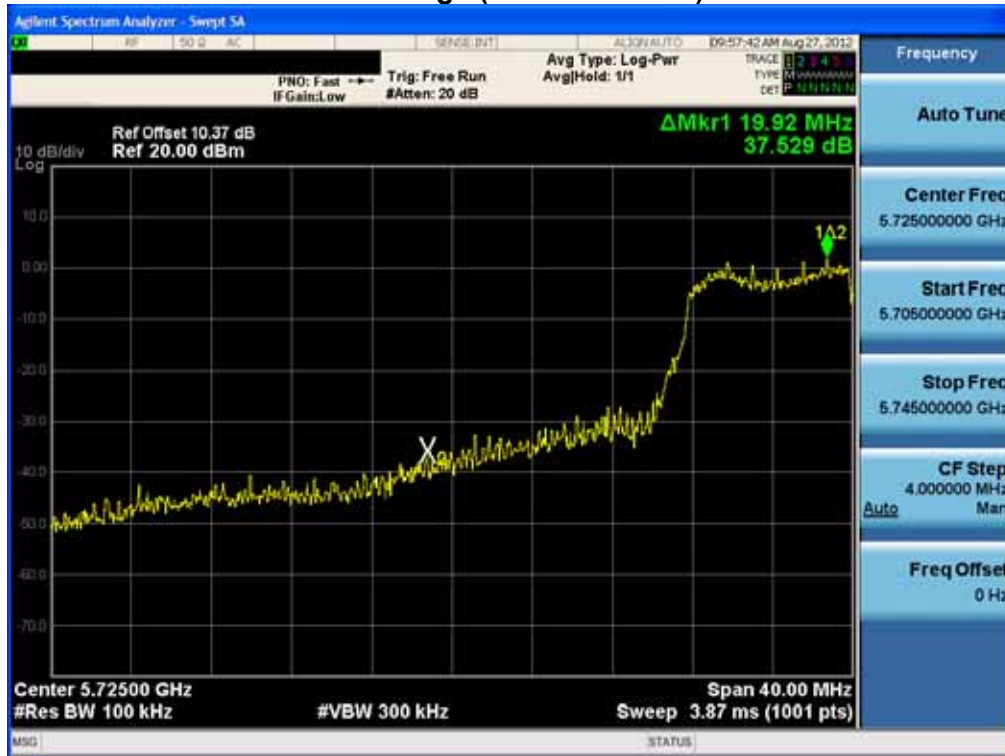


Band Edge (802.11n-CH9)_40 MHz



RESULT PLOTS_Ant.0

Band Edge (802.11a-CH149)



Band Edge (802.11a-CH165)

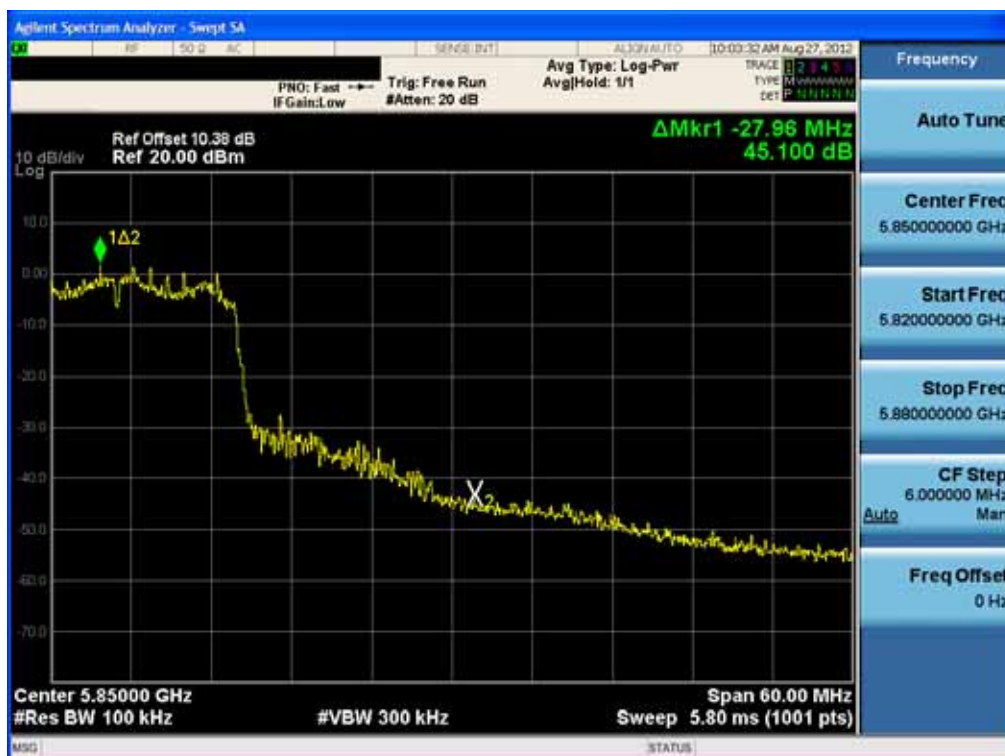


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFBM006D

Band Edge (802.11n-CH149) _ 20 MHz BW



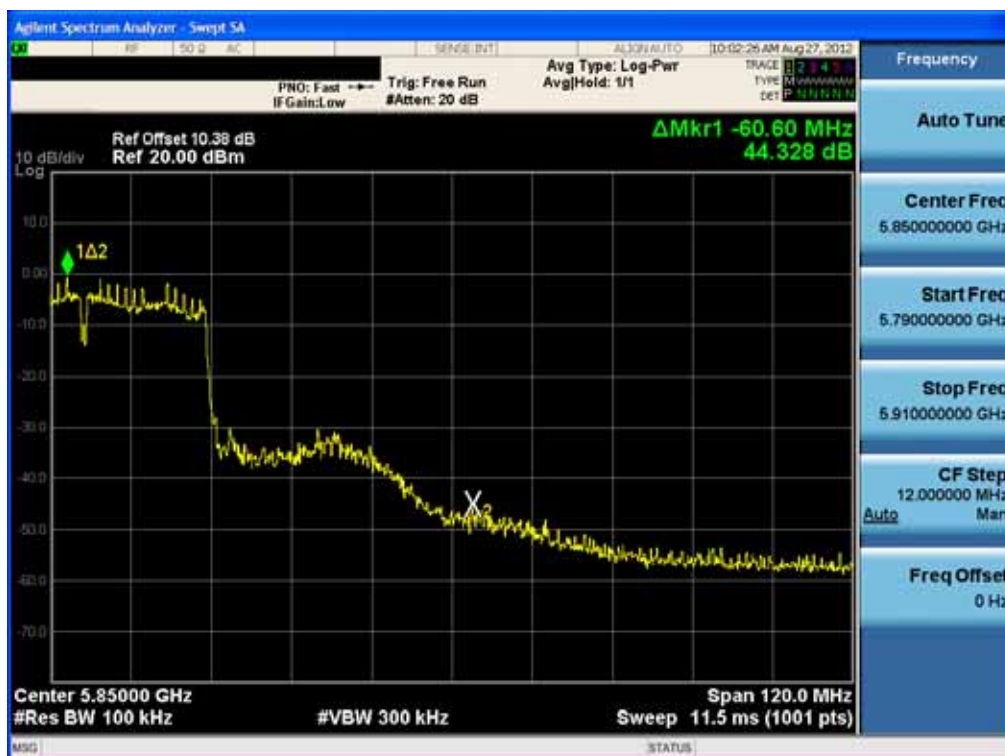
Band Edge (802.11n-CH165) _ 20 MHz BW



Band Edge (802.11n-CH151)_40 MHz BW



Band Edge (802.11n-CH159)_40 MHz BW



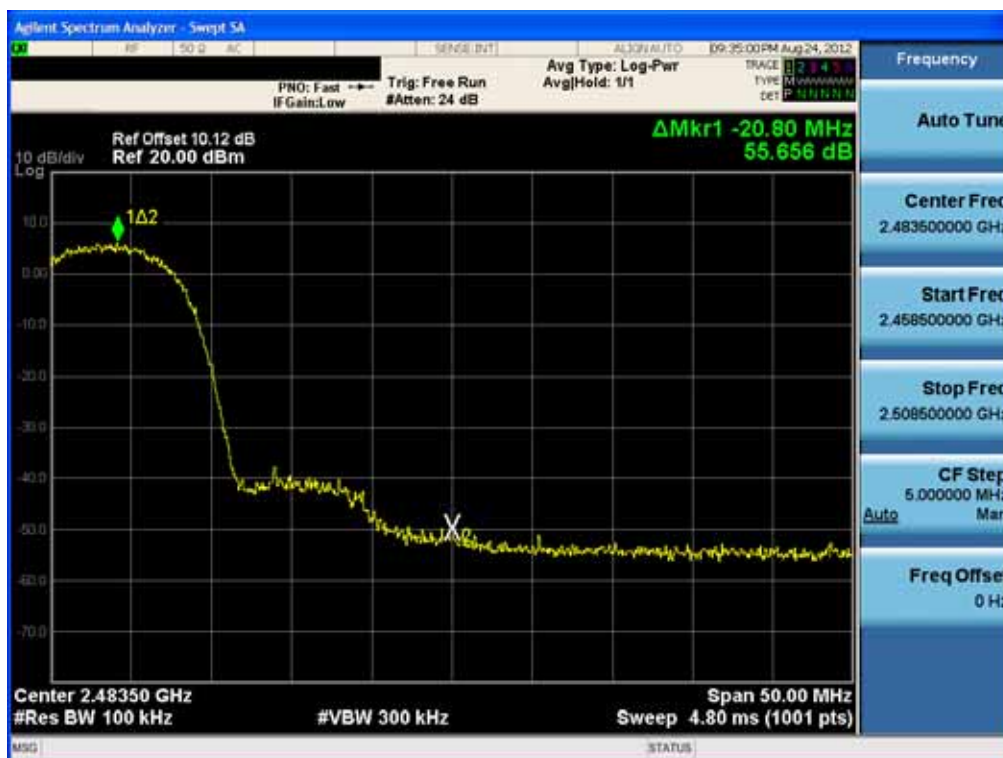
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFB006D

RESULT PLOTS_Ant.1

Band Edge (802.11b-CH1)



Band Edge (802.11b-CH11)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFB006D

Band Edge (802.11g-CH1)



Band Edge (802.11g-CH11)



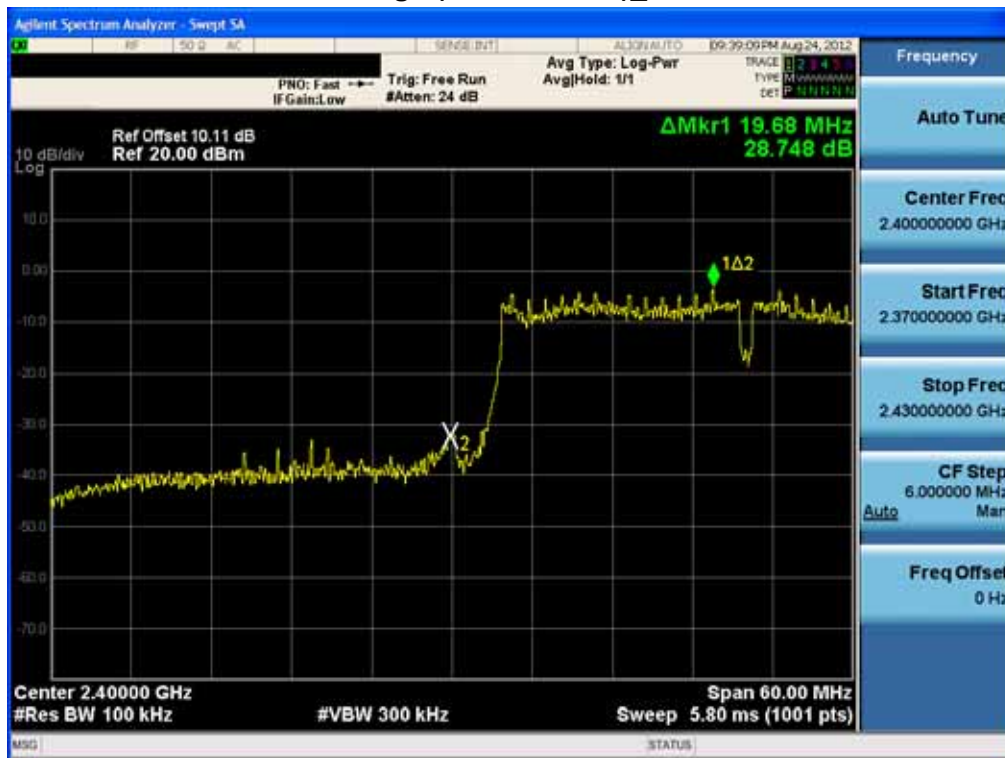
Band Edge (802.11n-CH1) _ 20 MHz BW



Band Edge (802.11n-CH11) _ 20 MHz BW



Band Edge (802.11n-CH3)_40 MHz



Band Edge (802.11n-CH9)_40 MHz

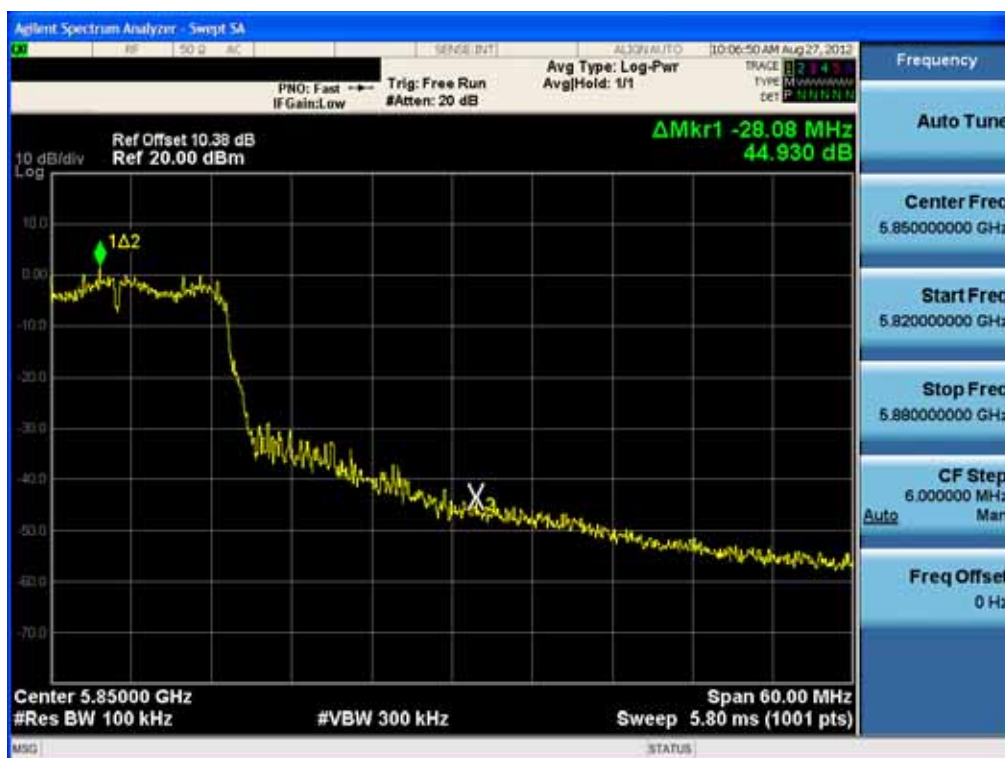


RESULT PLOTS_Ant.1

Band Edge (802.11a-CH149)



Band Edge (802.11a-CH165)

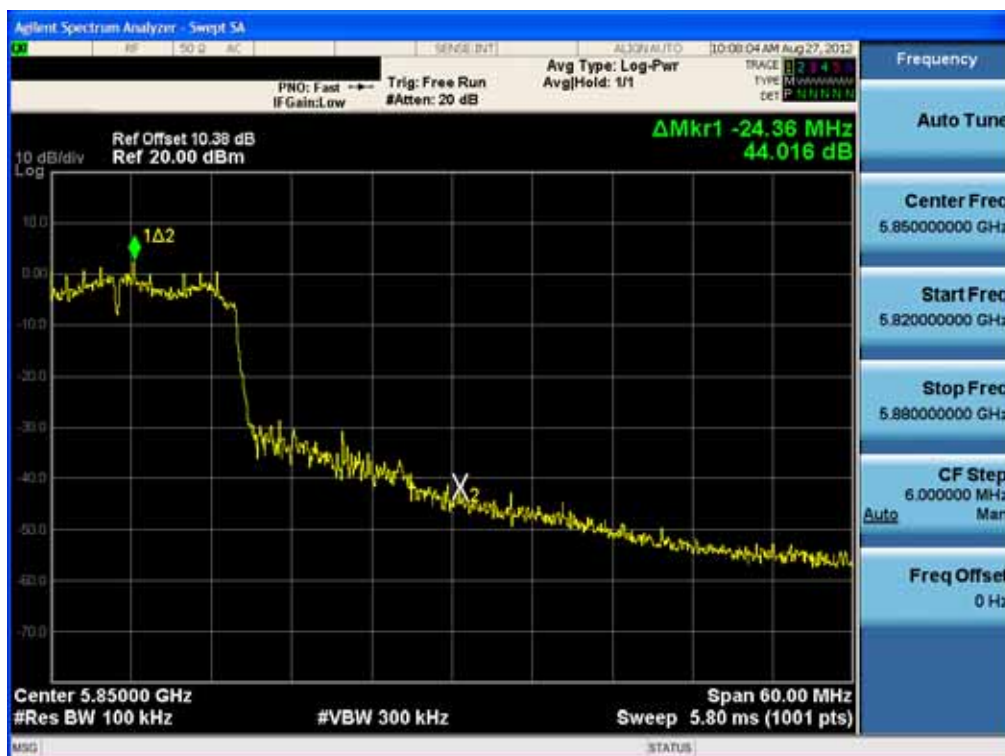


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

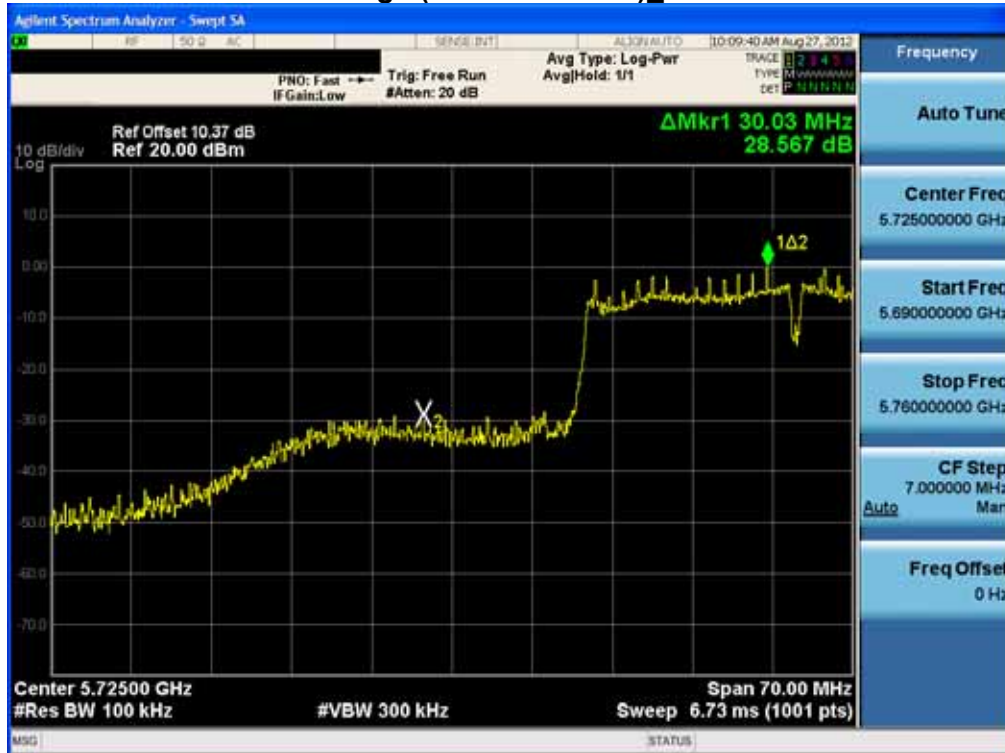
Band Edge (802.11n-CH149) _20 MHz



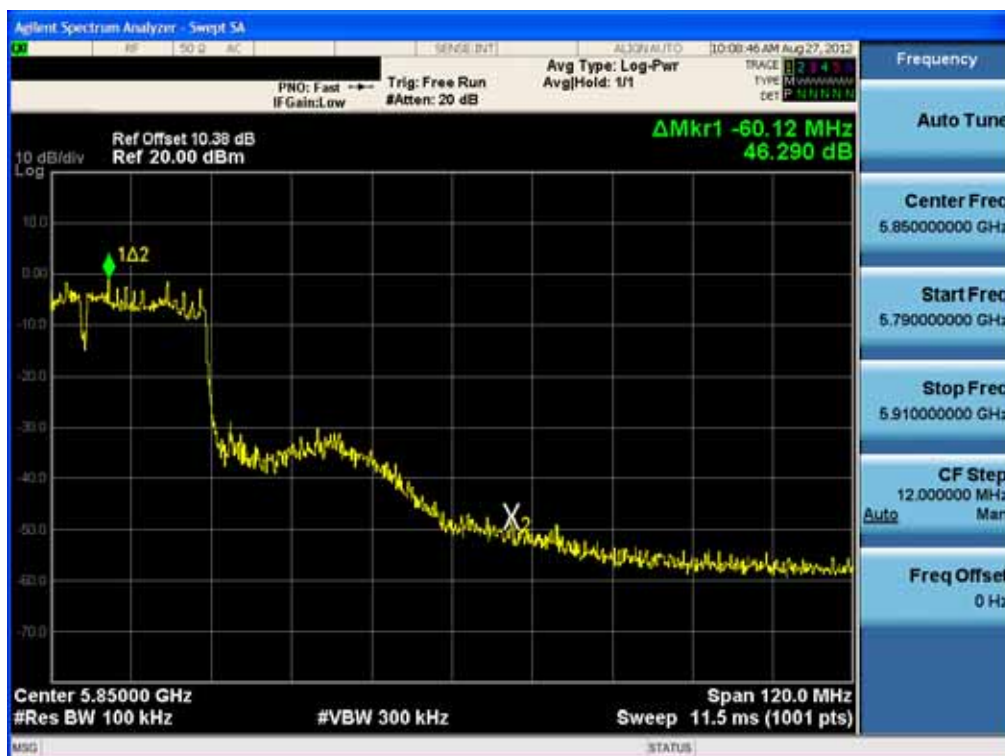
Band Edge (802.11n-CH165) _20 MHz



Band Edge (802.11n-CH151)_40 MHz



Band Edge (802.11n-CH159)_40 MHz

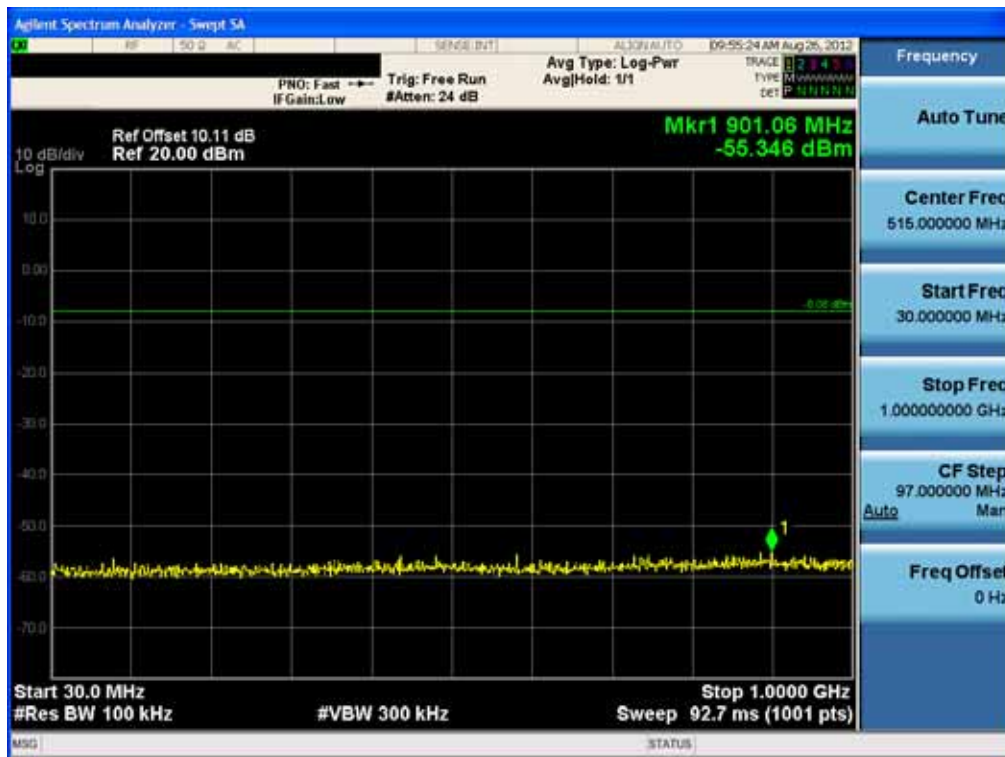


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFB006D

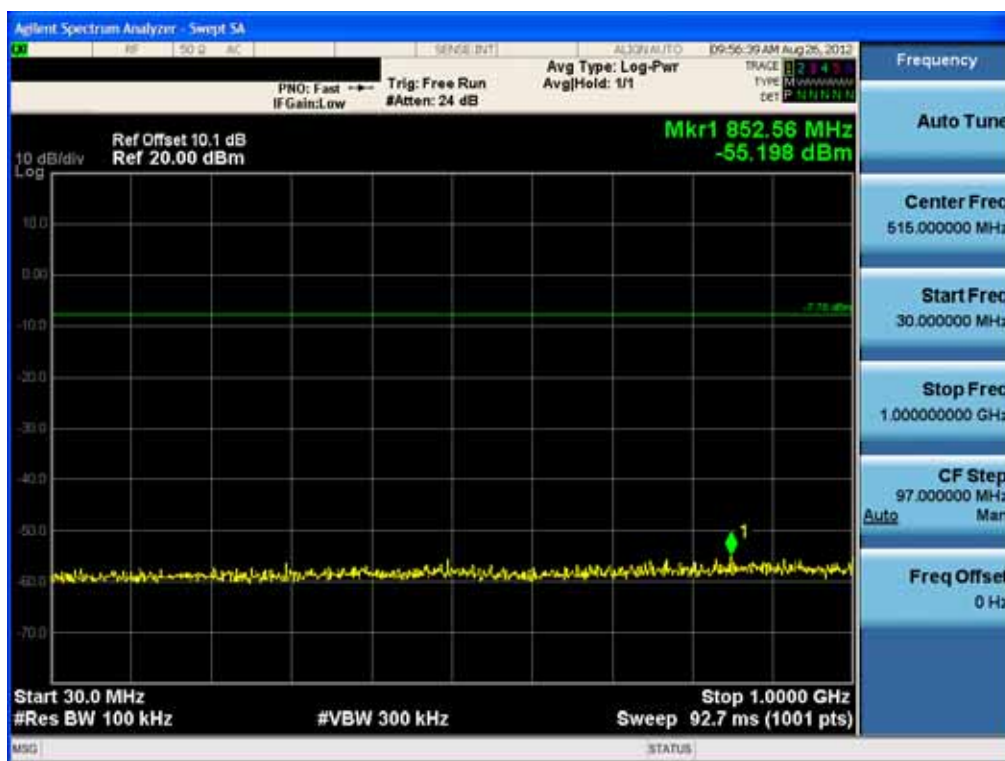
RESULT PLOTS_(2.4 GHz Band)

30 MHz ~ 1 GHz (Ant.0)

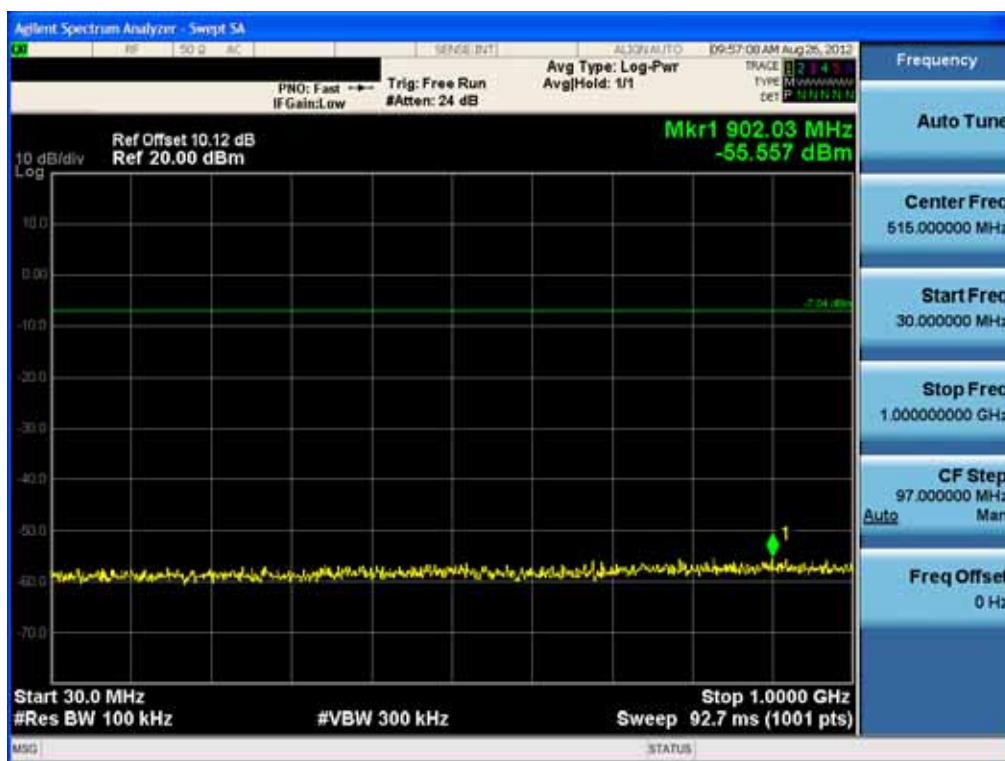
Conducted Spurious Emission (802.11b-CH1)



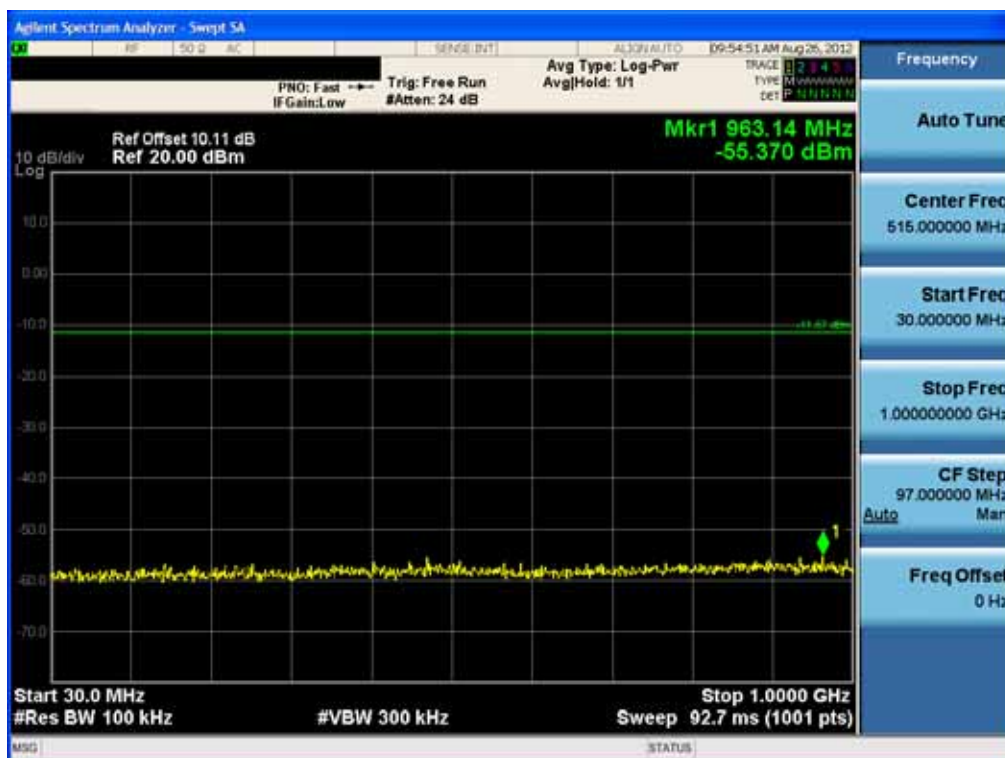
Conducted Spurious Emission (802.11b-CH6)



Conducted Spurious Emission (802.11b-CH11)

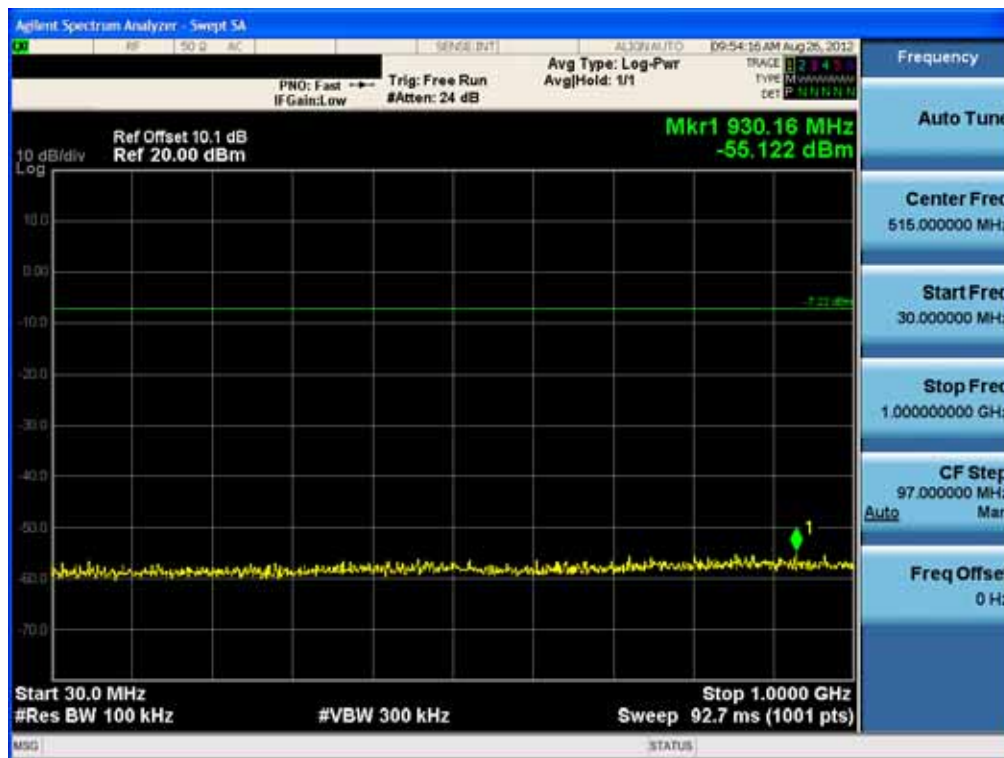


Conducted Spurious Emission (802.11g-CH1)

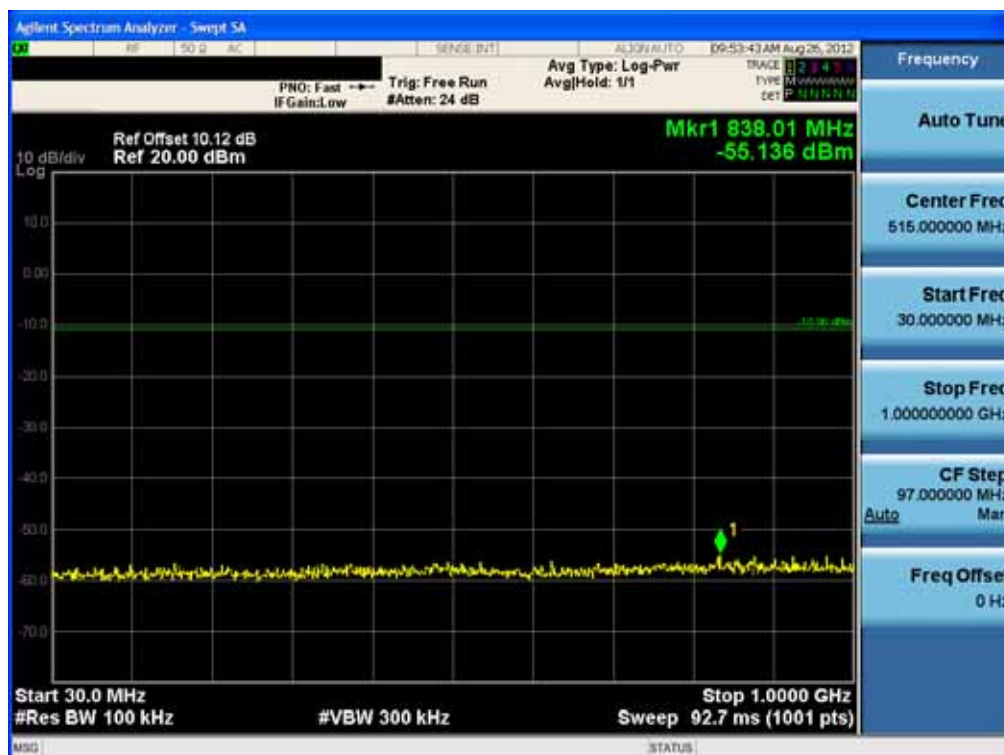


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFBM006D

Conducted Spurious Emission (802.11g-CH6)

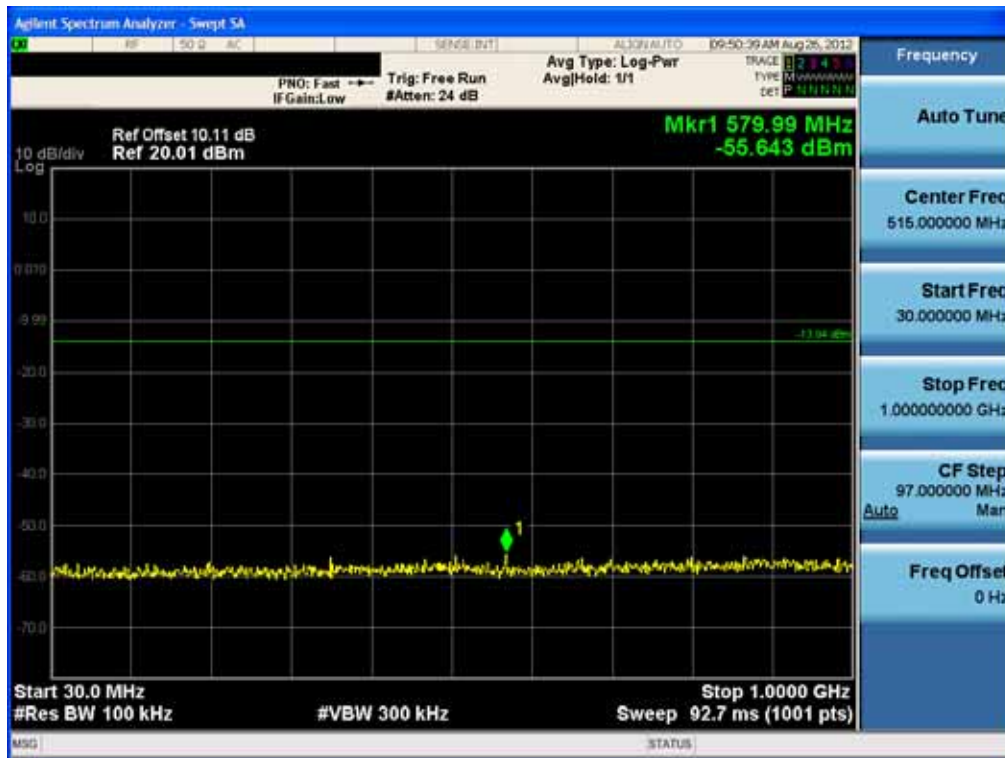


Conducted Spurious Emission (802.11g-CH11)

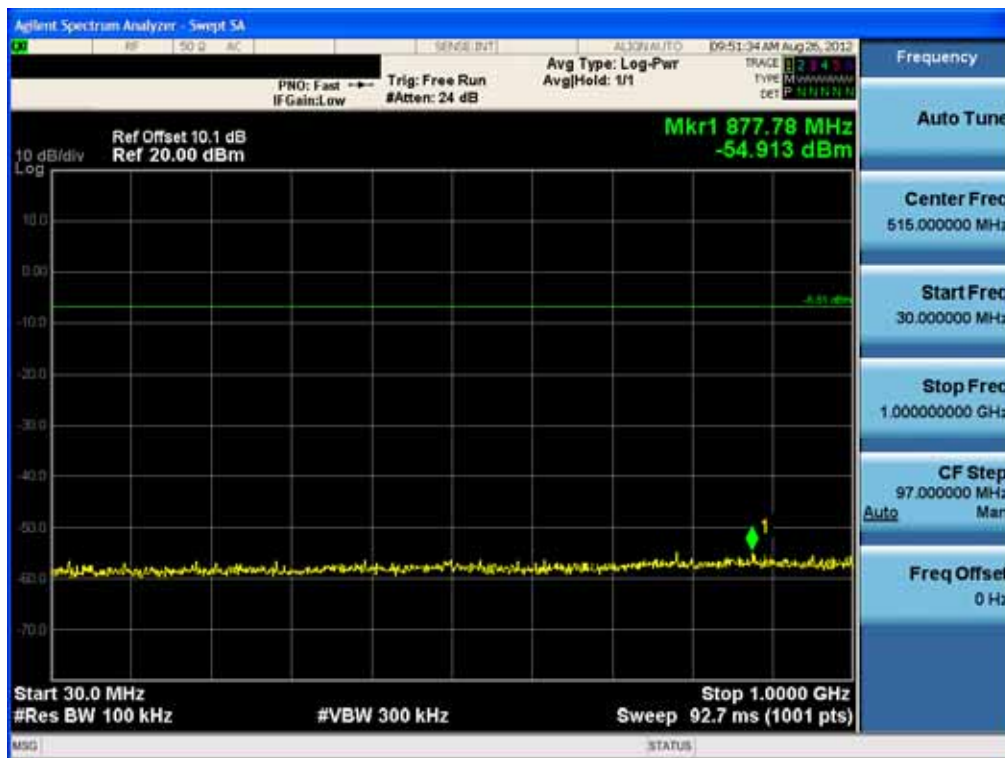


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

Conducted Spurious Emission (802.11n-CH1)_20 MHz BW

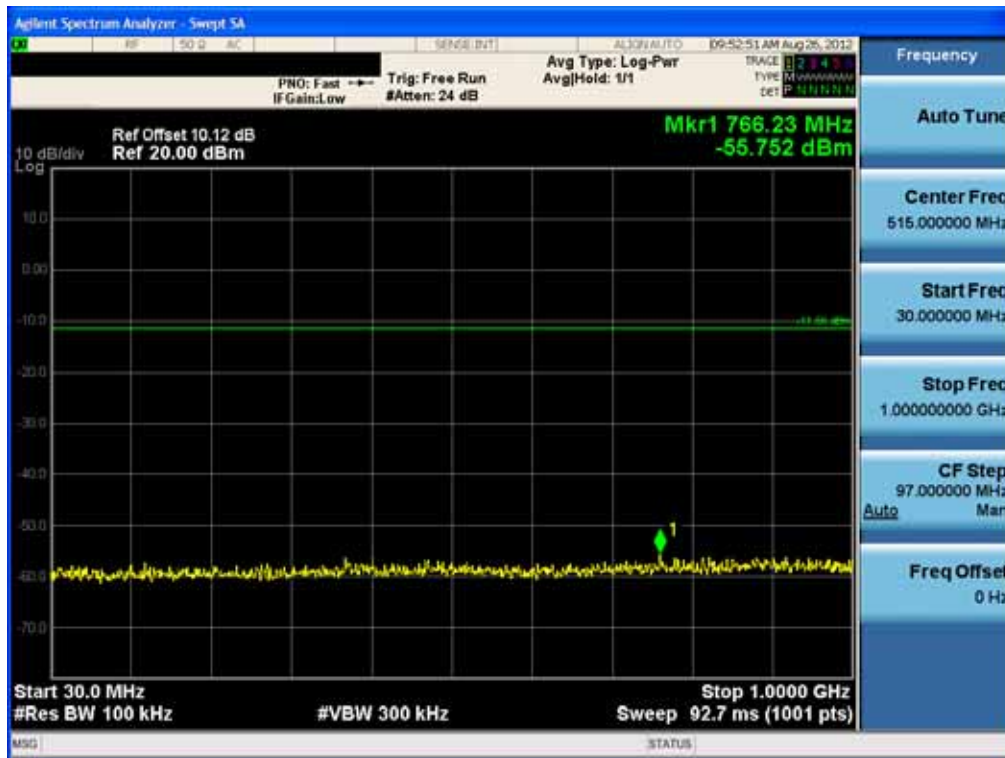


Conducted Spurious Emission (802.11n-CH6)_20 MHz BW

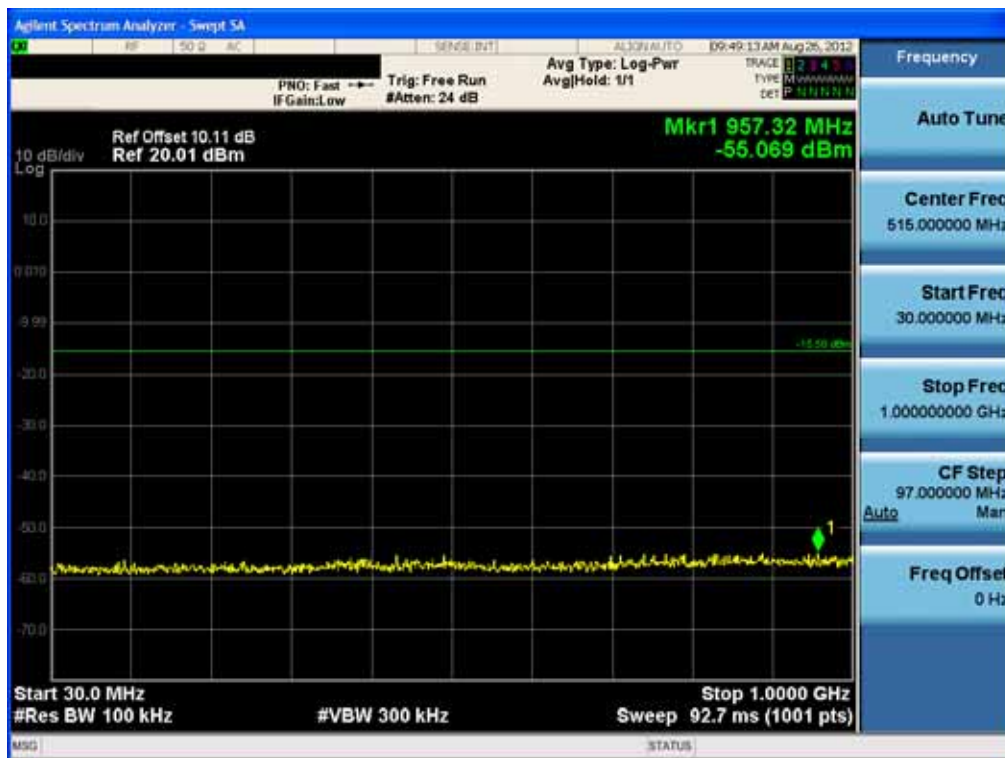


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

Conducted Spurious Emission (802.11n-CH11) _20 MHz BW

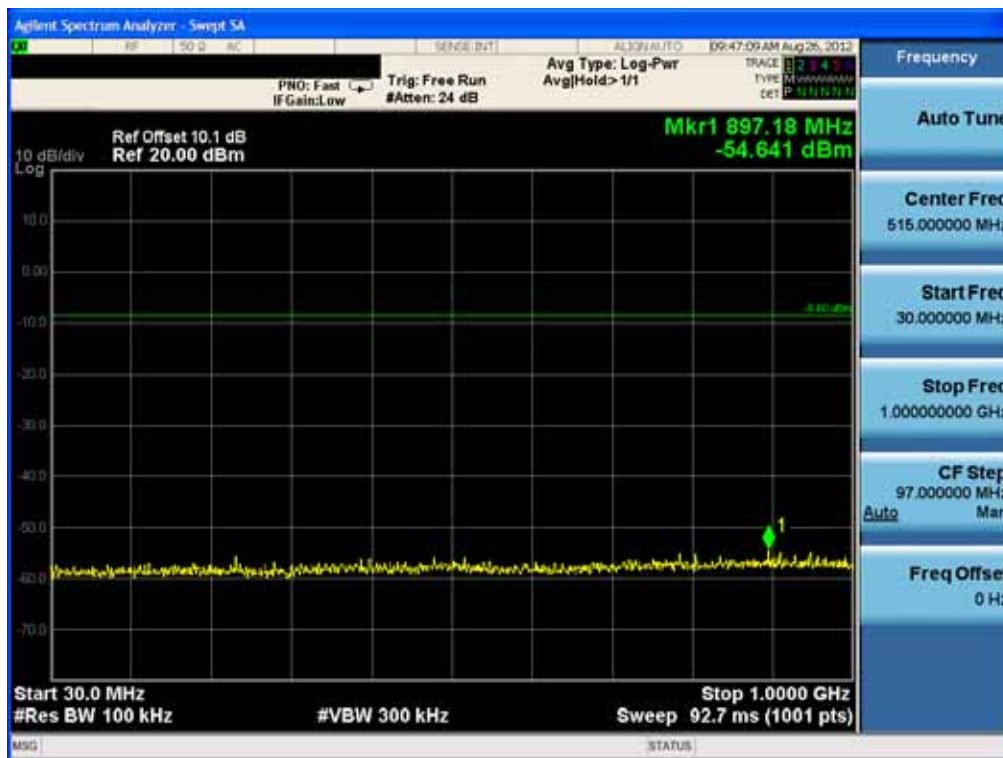


Conducted Spurious Emission (802.11n-CH3)_40 MHz BW

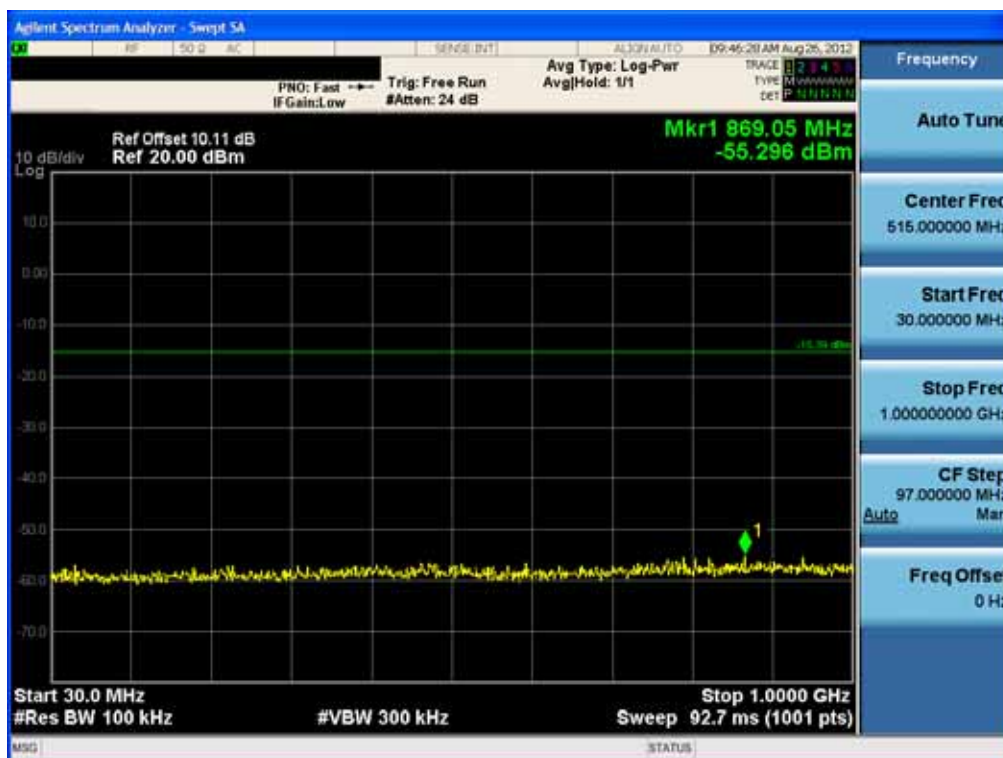


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFB006D

Conducted Spurious Emission (802.11n-CH6)_40 MHz BW



Conducted Spurious Emission (802.11n-CH9)_40 MHz BW



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

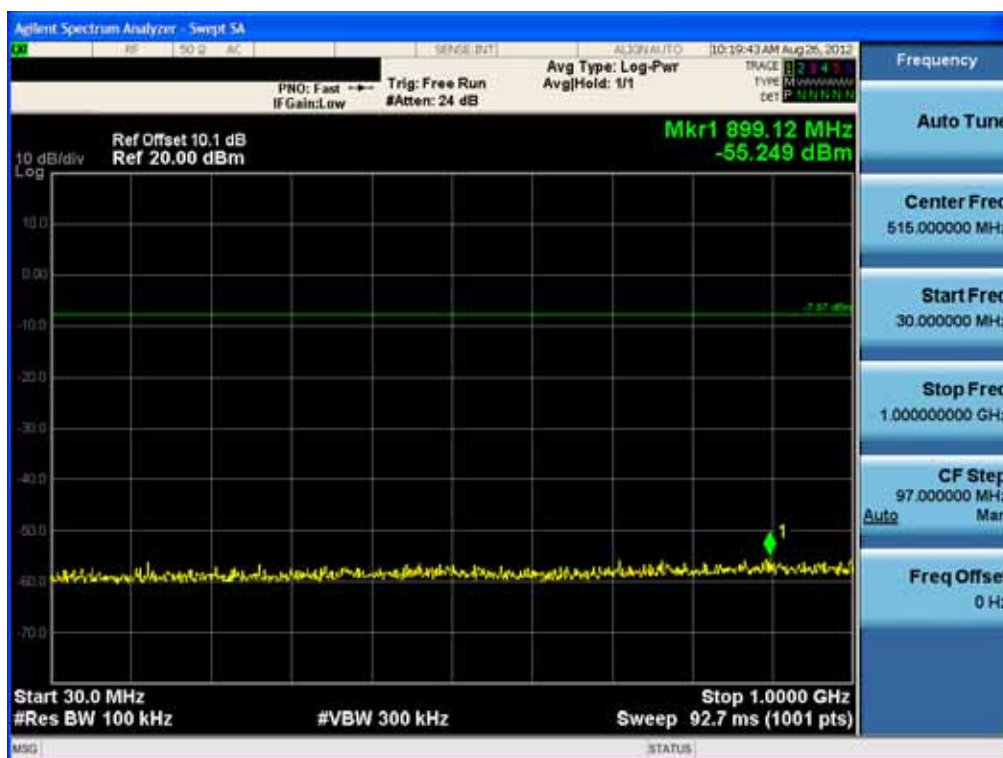
RESULT PLOTS_(2.4 GHz Band)

30 MHz ~ 1 GHz (Ant.1)

Conducted Spurious Emission (802.11b-CH1)

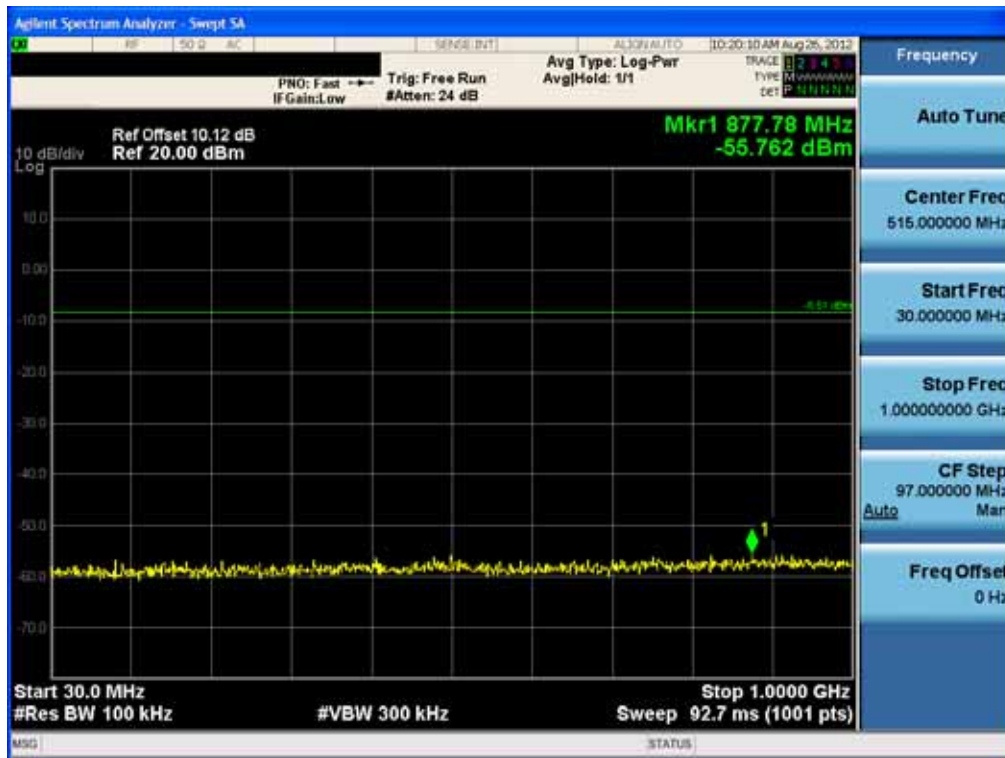


Conducted Spurious Emission (802.11b-CH6)

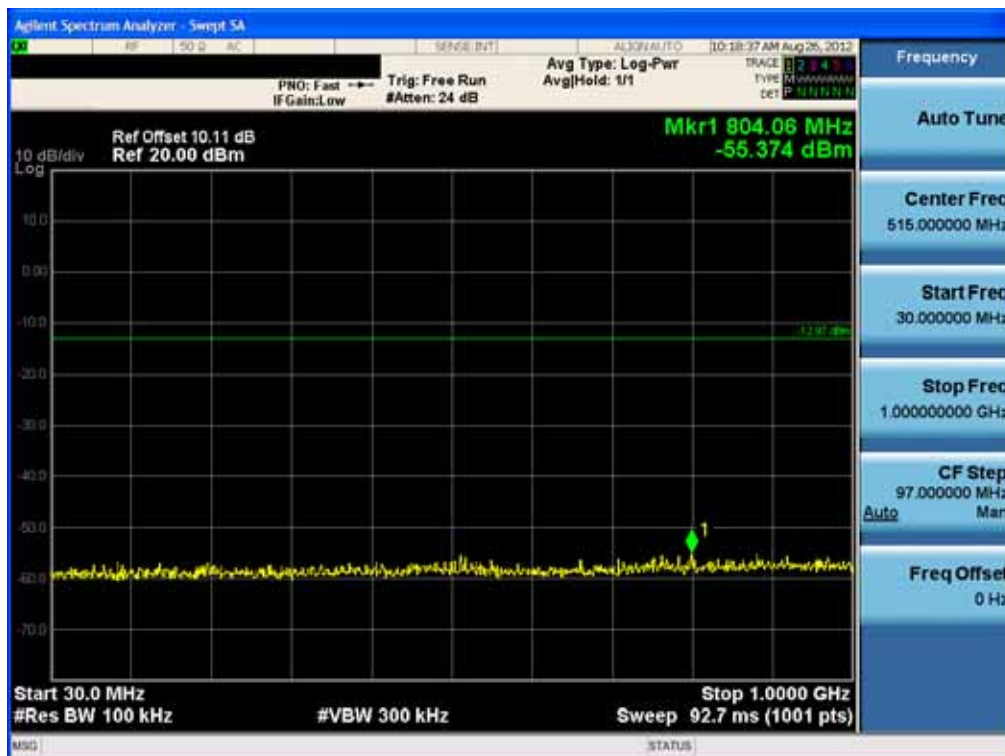


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFB006D

Conducted Spurious Emission (802.11b-CH11)

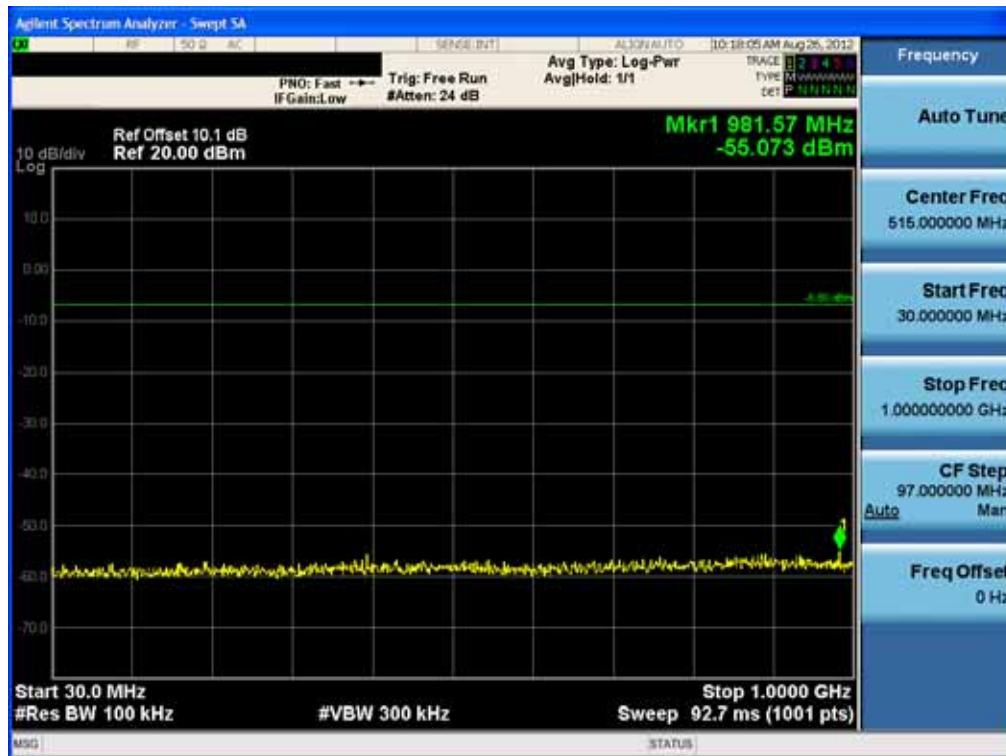


Conducted Spurious Emission (802.11g-CH1)

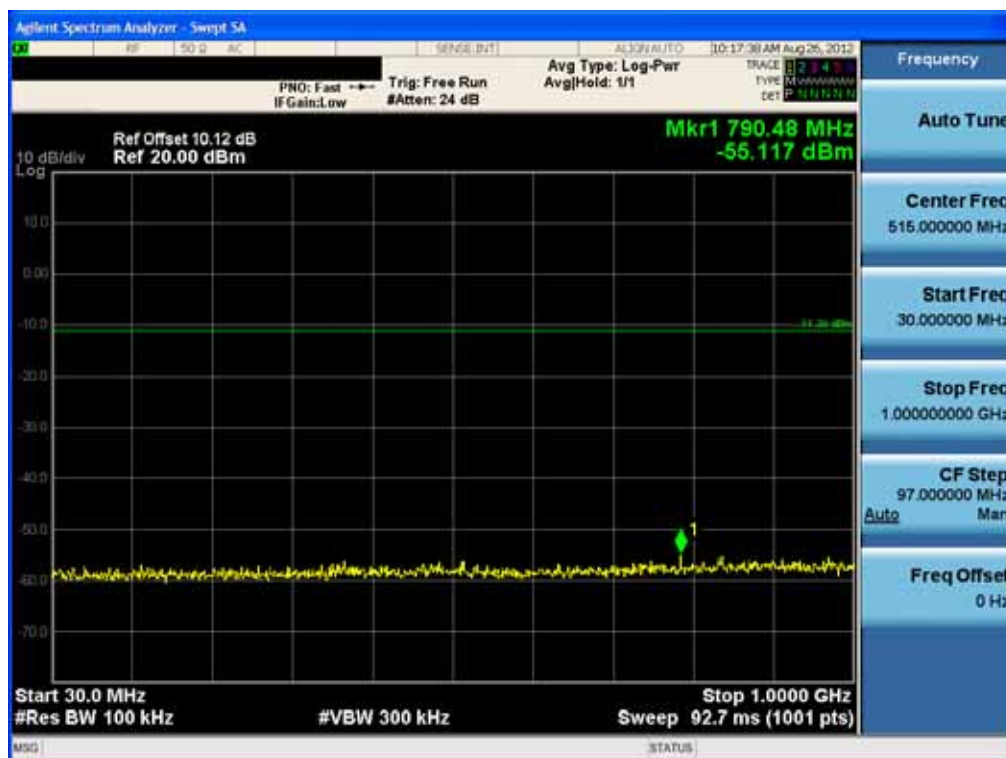


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

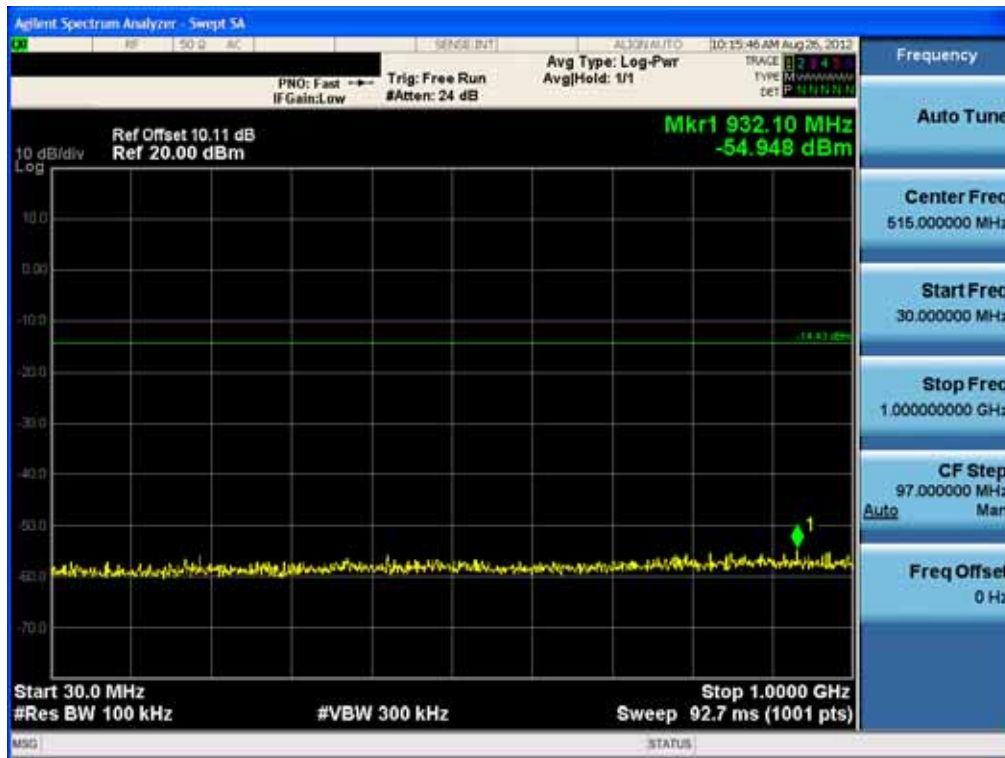
Conducted Spurious Emission (802.11g-CH6)



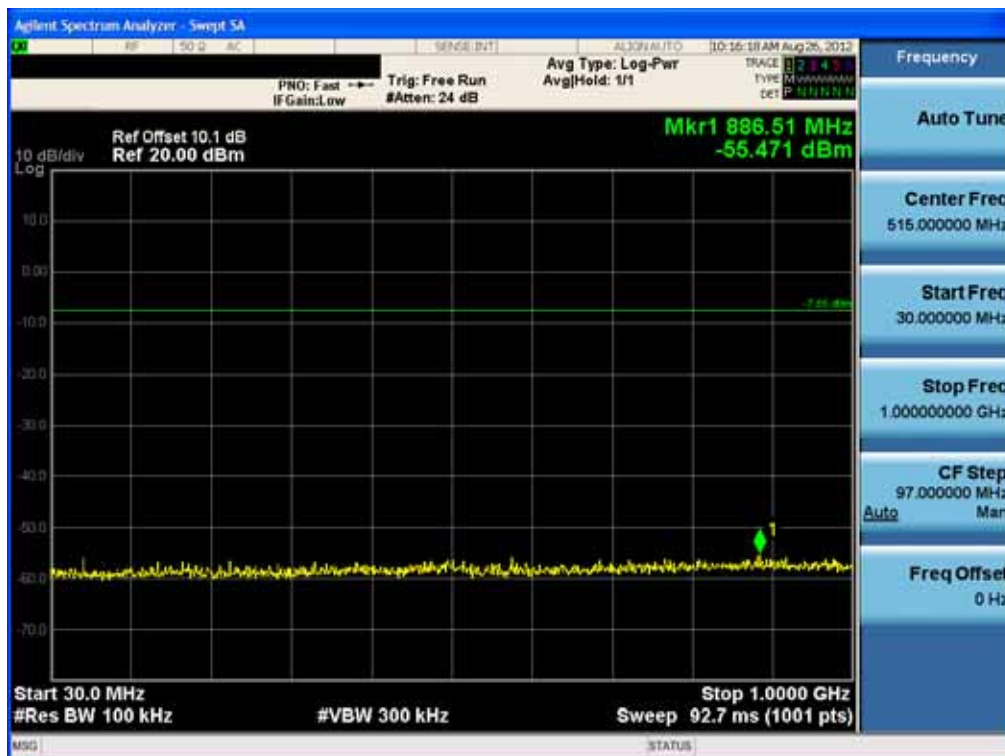
Conducted Spurious Emission (802.11g-CH11)



Conducted Spurious Emission (802.11n-CH1)_20 MHz BW

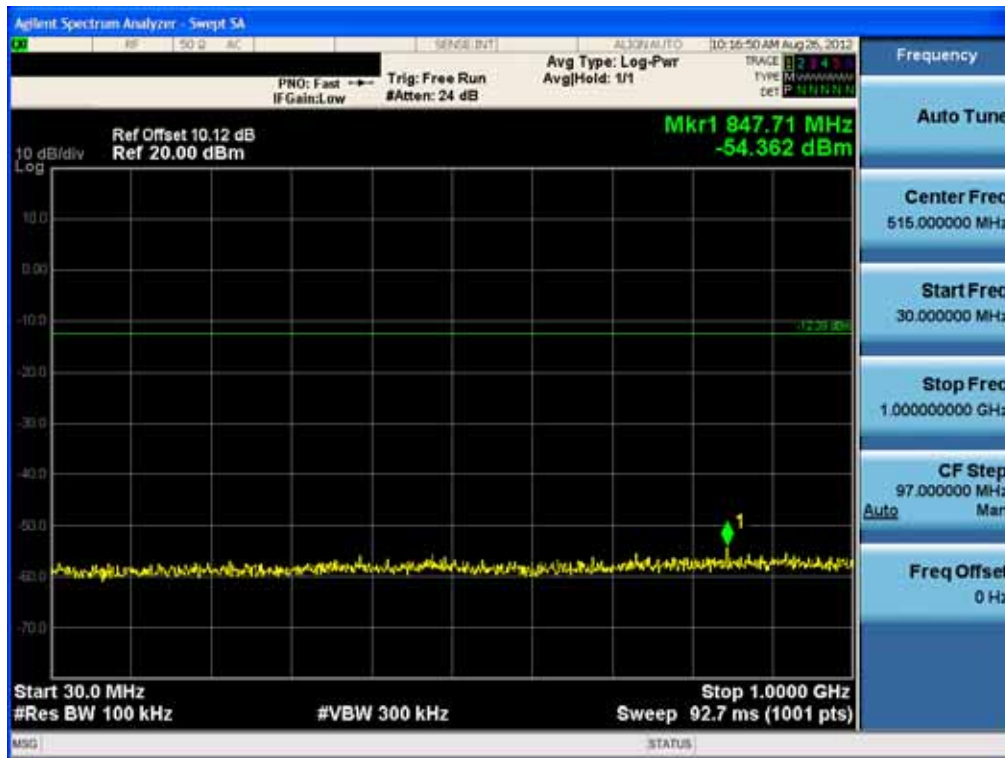


Conducted Spurious Emission (802.11n-CH6)_20 MHz BW

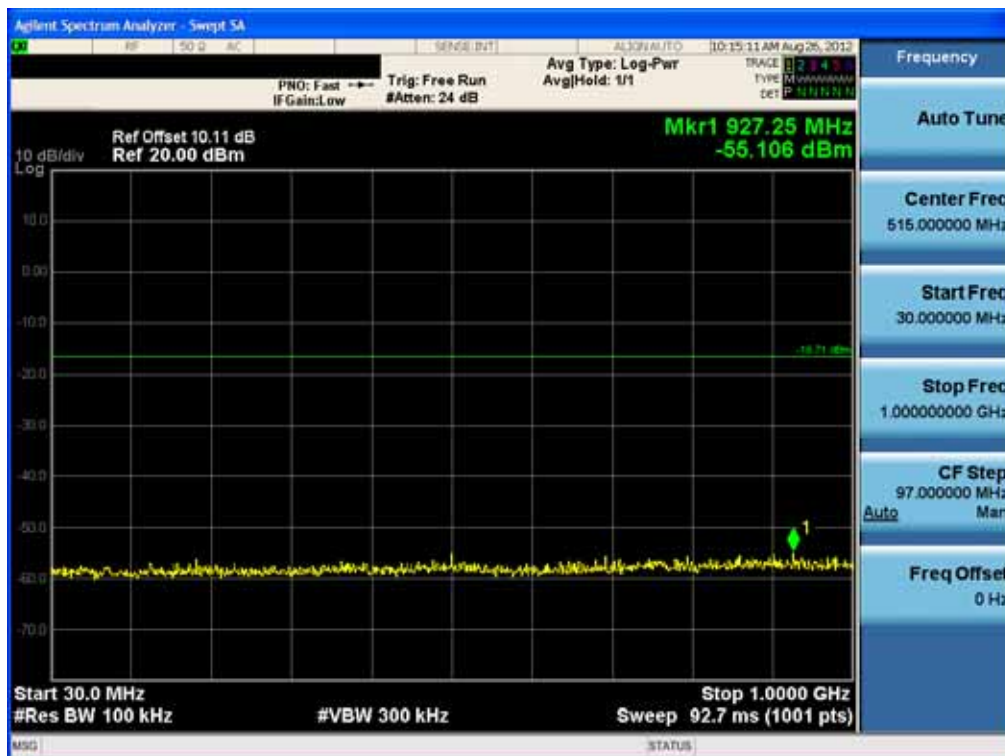


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFBM006D

Conducted Spurious Emission (802.11n-CH11) _20 MHz BW

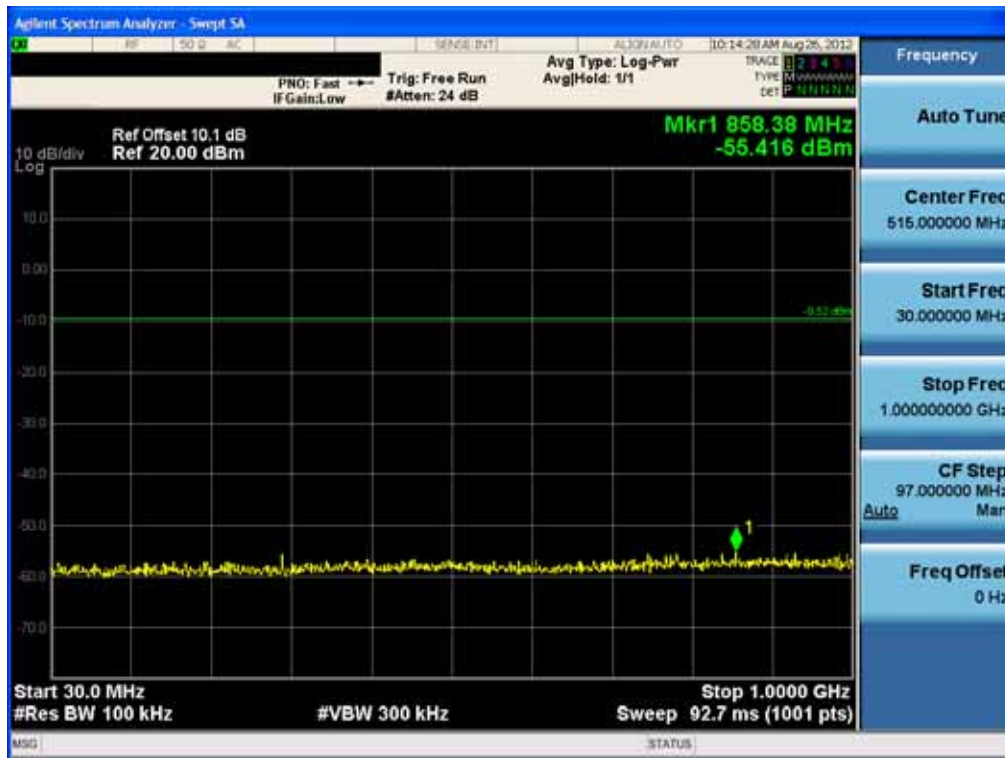


Conducted Spurious Emission (802.11n-CH3)_40 MHz BW

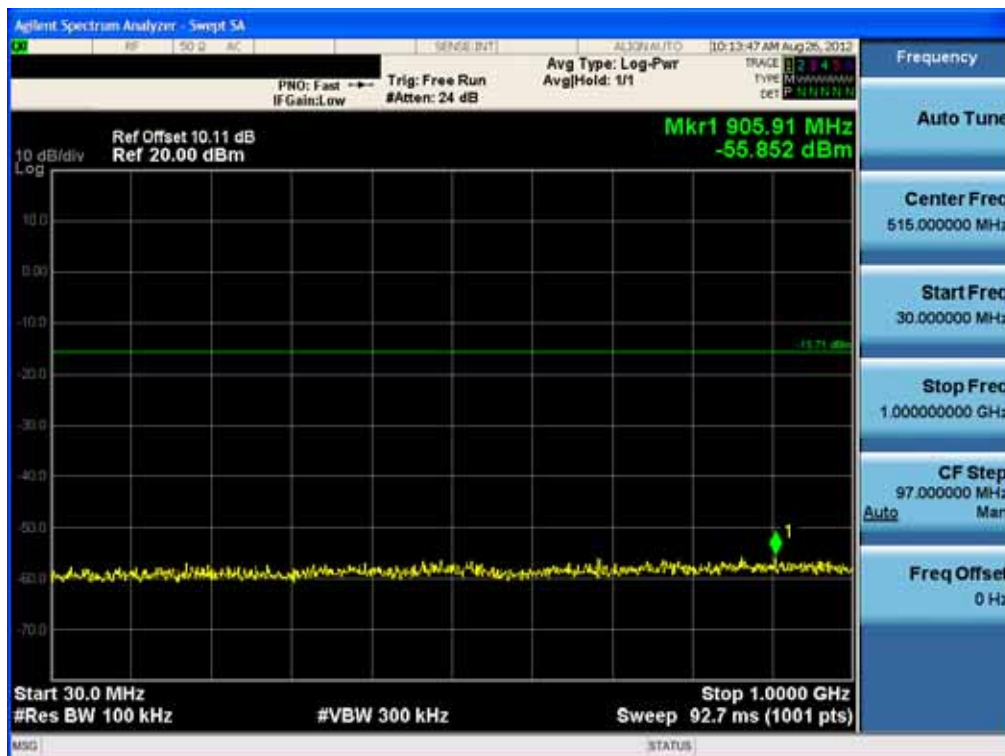


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFBM006D

Conducted Spurious Emission (802.11n-CH6)_40 MHz BW



Conducted Spurious Emission (802.11n-CH9)_40 MHz BW

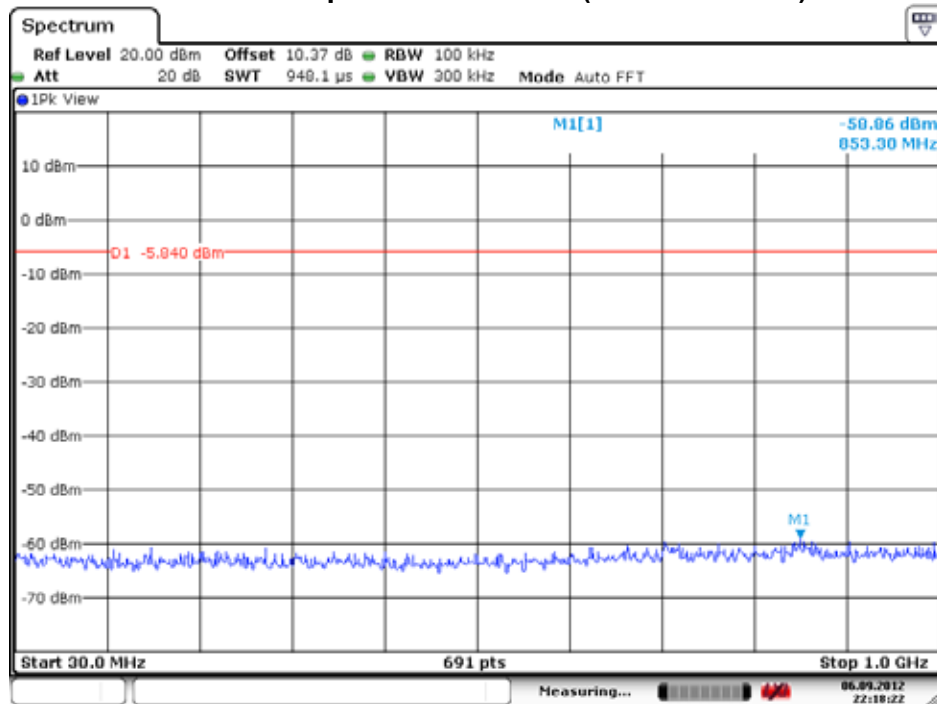


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

RESULT PLOTS_(5.8 GHz Band)

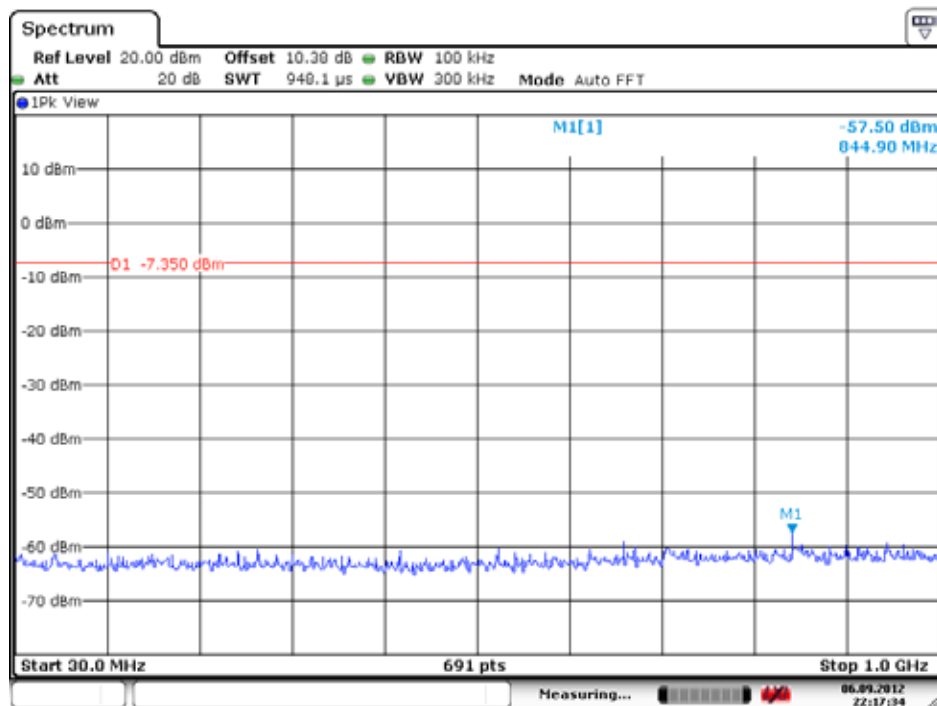
30 MHz ~ 1 GHz (Ant.0)

Conducted Spurious Emission (802.11a-CH149)



Date: 6.SEP.2012 22:18:22

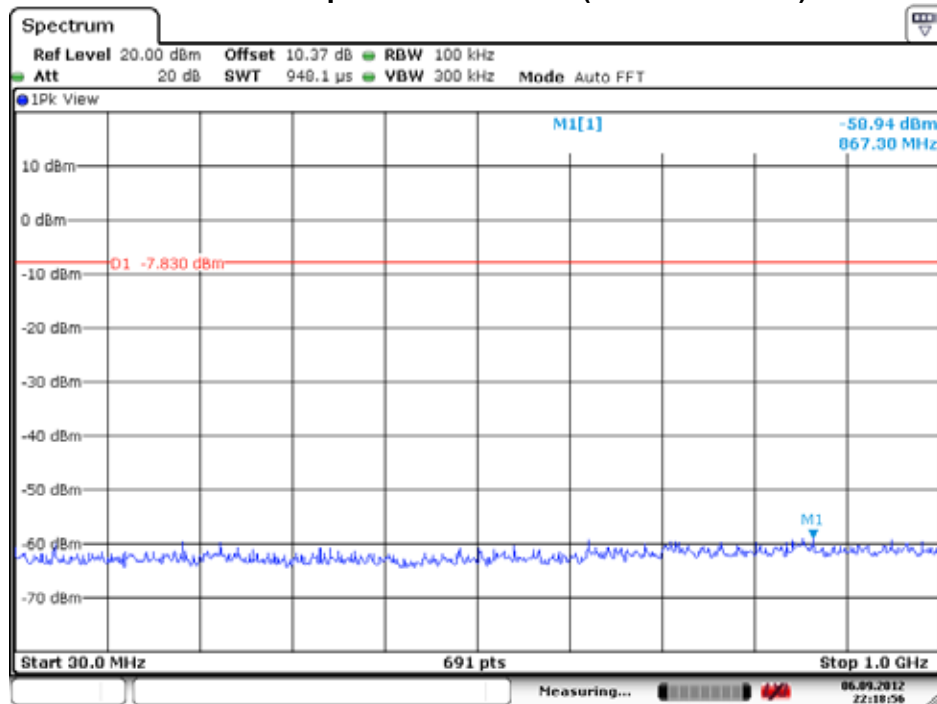
Conducted Spurious Emission (802.11a-CH157)



Date: 6.SEP.2012 22:17:34

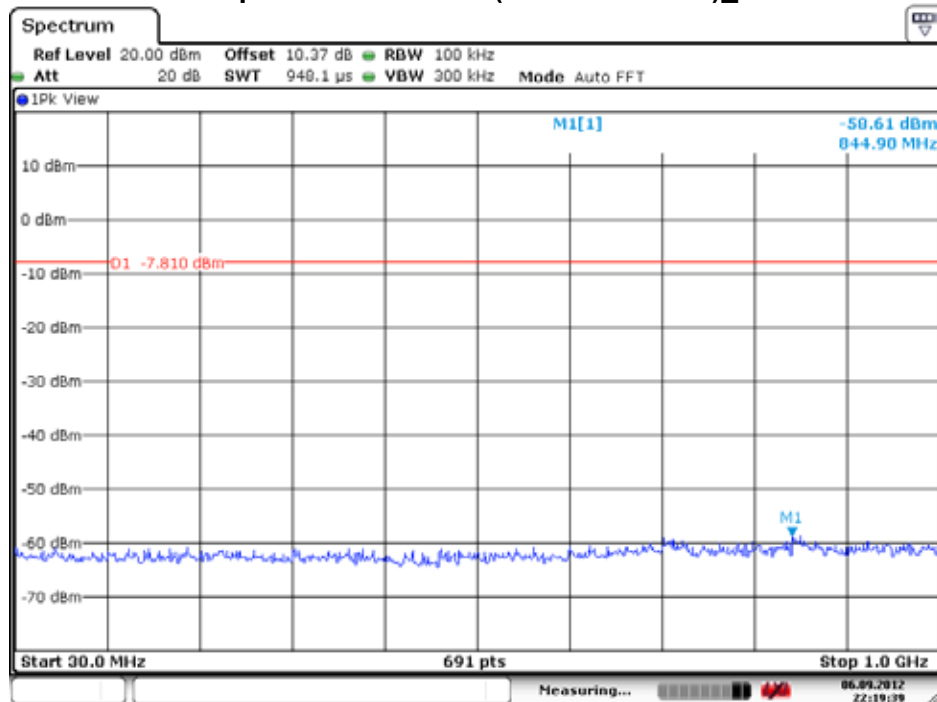
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFBM006D

Conducted Spurious Emission (802.11a-CH165)



Date: 6.SEP.2012 22:18:55

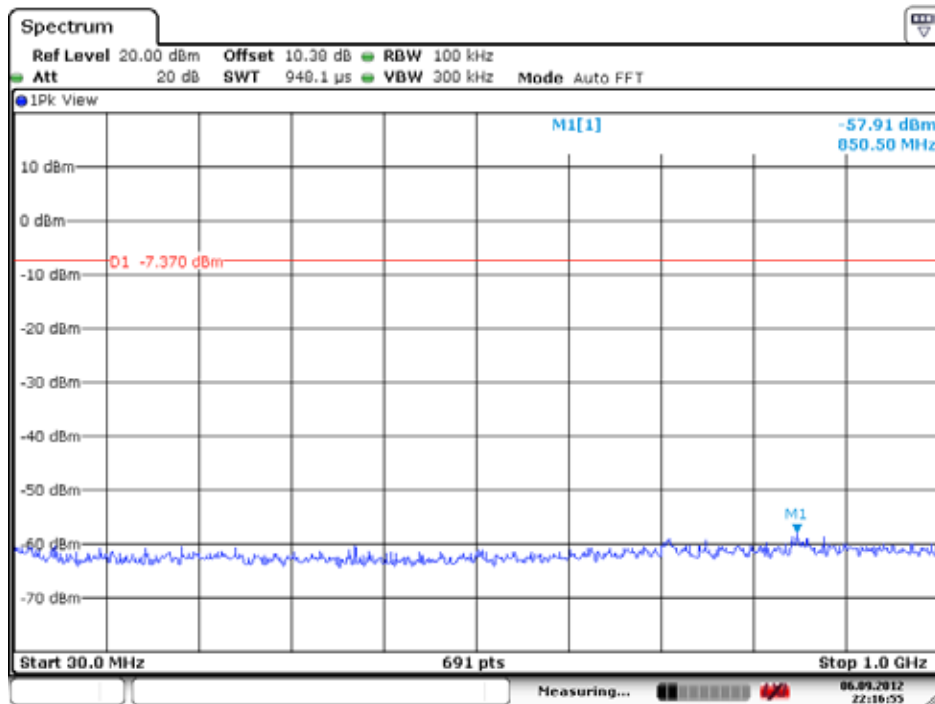
Conducted Spurious Emission (802.11n-CH149)_20 MHz BW



Date: 6.SEP.2012 22:19:39

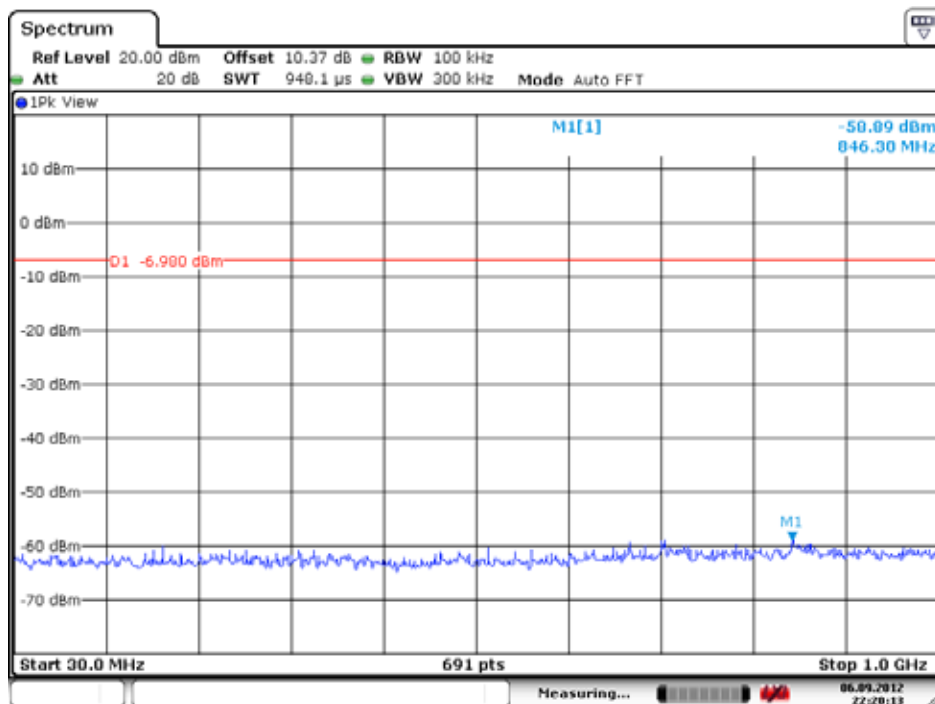
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFB006D

Conducted Spurious Emission (802.11n-CH157) _20 MHz BW



Date: 6.SEP.2012 22:16:55

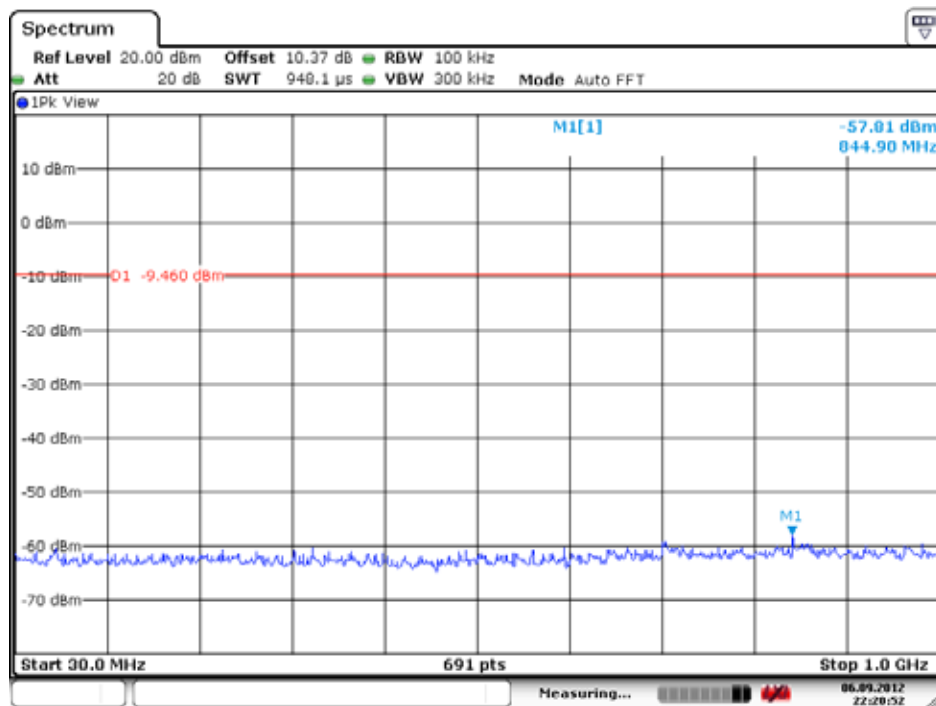
Conducted Spurious Emission (802.11n-CH165) _20 MHz BW



Date: 6.SEP.2012 22:20:13

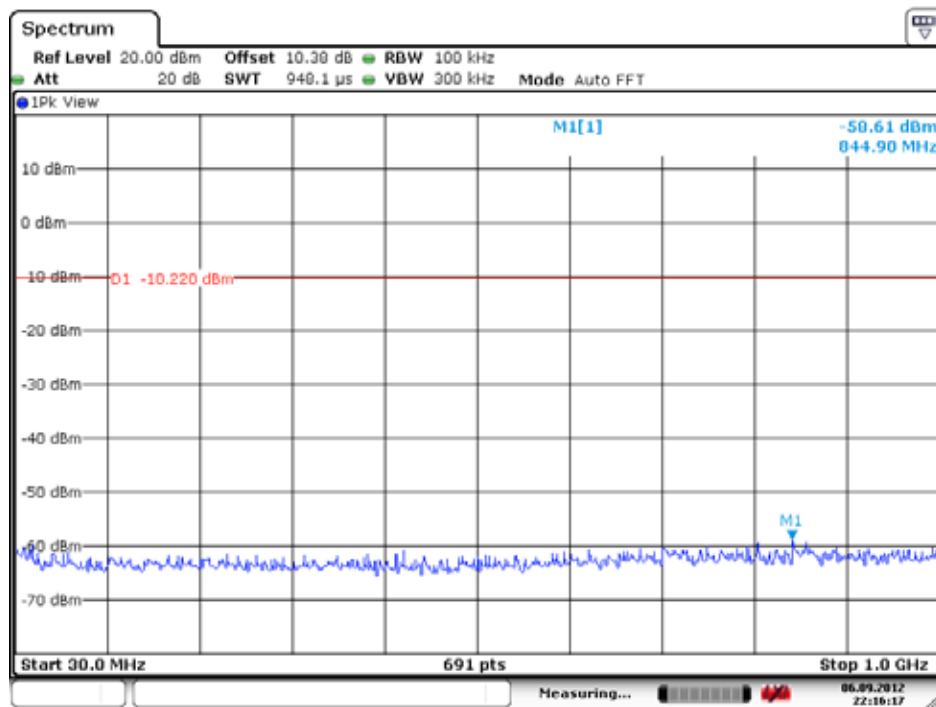
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFBM006D

Conducted Spurious Emission (802.11n-CH149) _40 MHz BW



Date: 6.SEP.2012 22:20:52

Conducted Spurious Emission (802.11n-CH159) _40 MHz BW



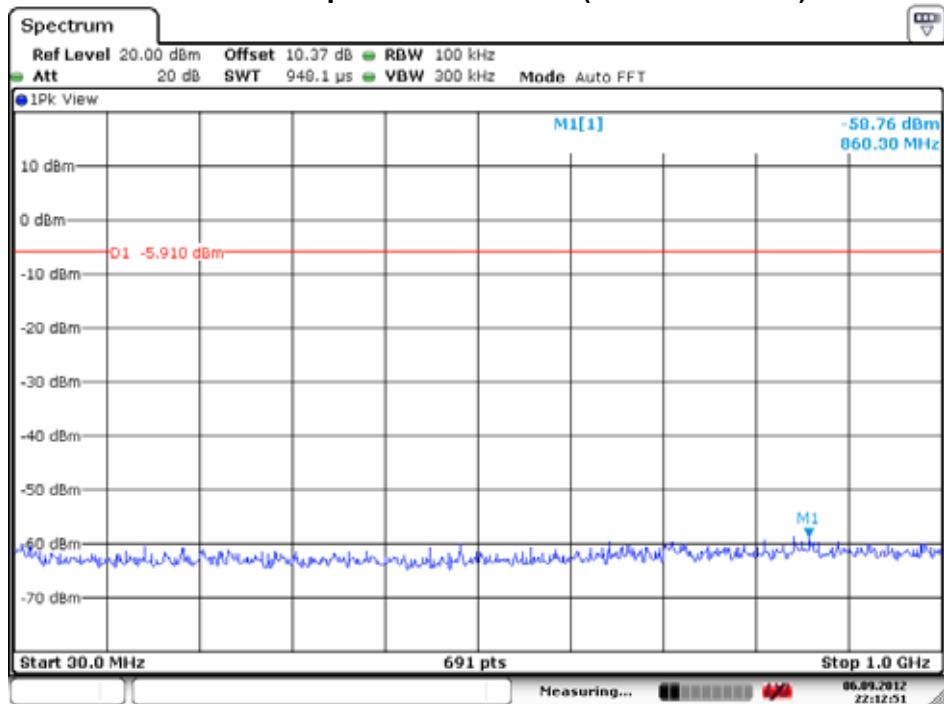
Date: 6.SEP.2012 22:16:16

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

RESULT PLOTS_(5.8 GHz Band)

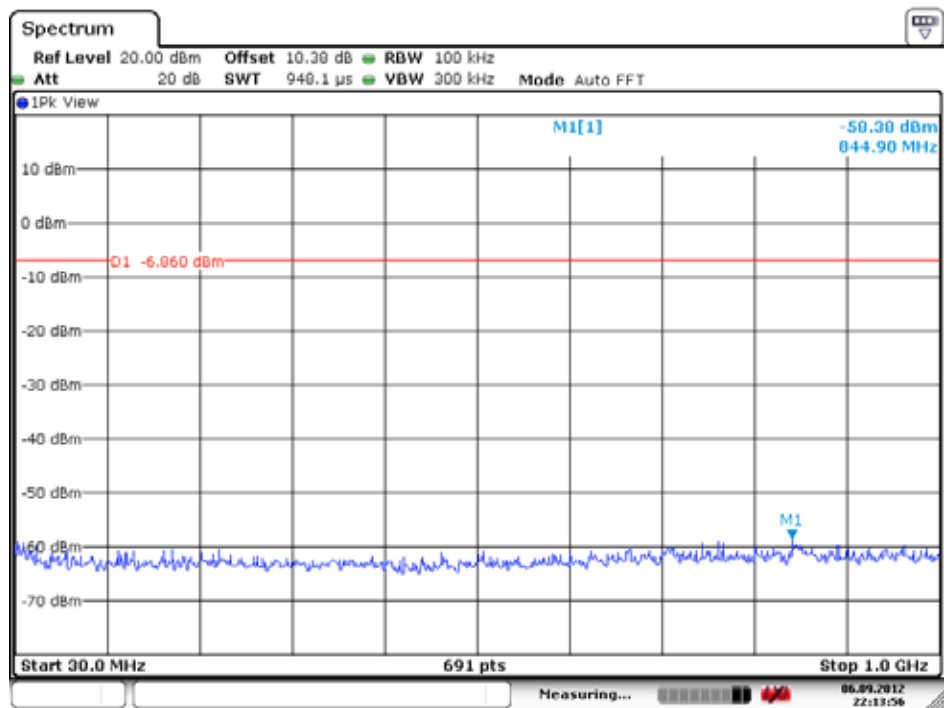
30 MHz ~ 1 GHz (Ant.1)

Conducted Spurious Emission (802.11a-CH149)



Date: 6.SEP.2012 22:12:51

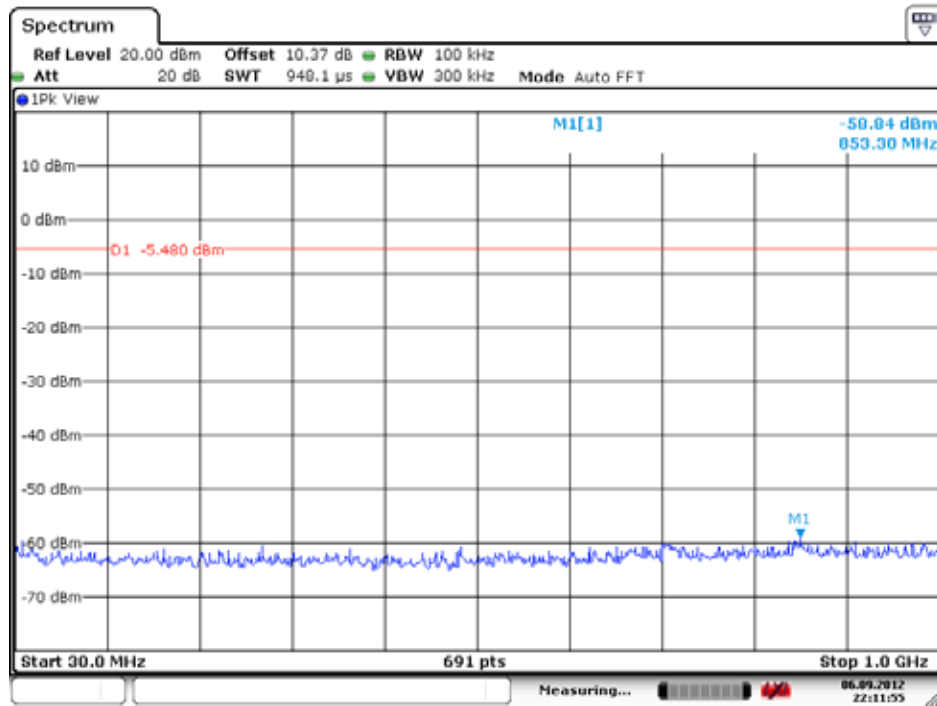
Conducted Spurious Emission (802.11a-CH157)



Date: 6.SEP.2012 22:13:55

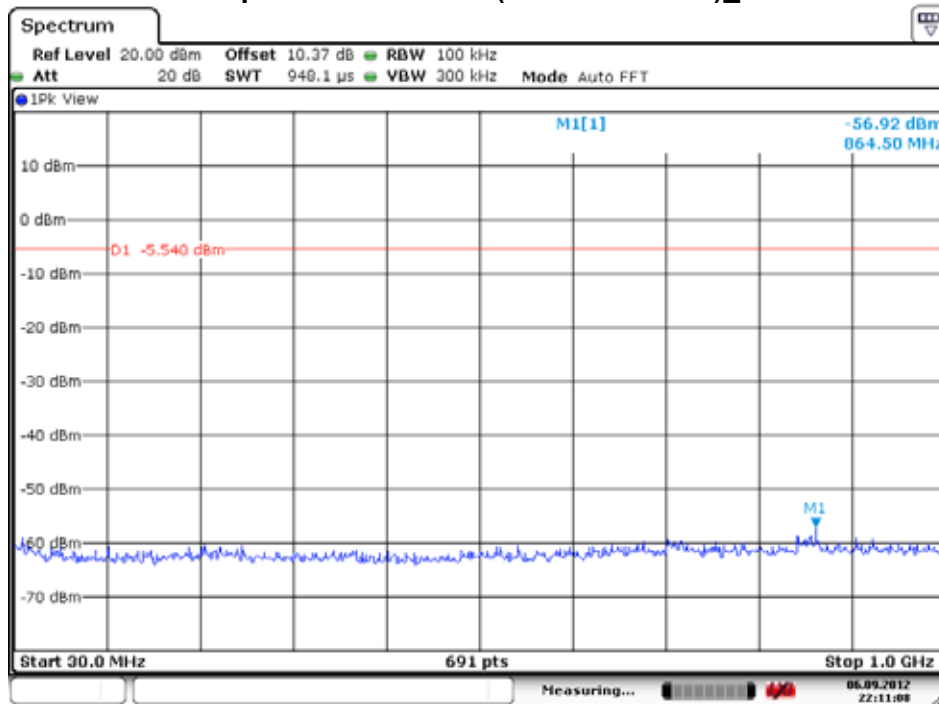
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

Conducted Spurious Emission (802.11a-CH165)



Date: 6.SEP.2012 22:11:54

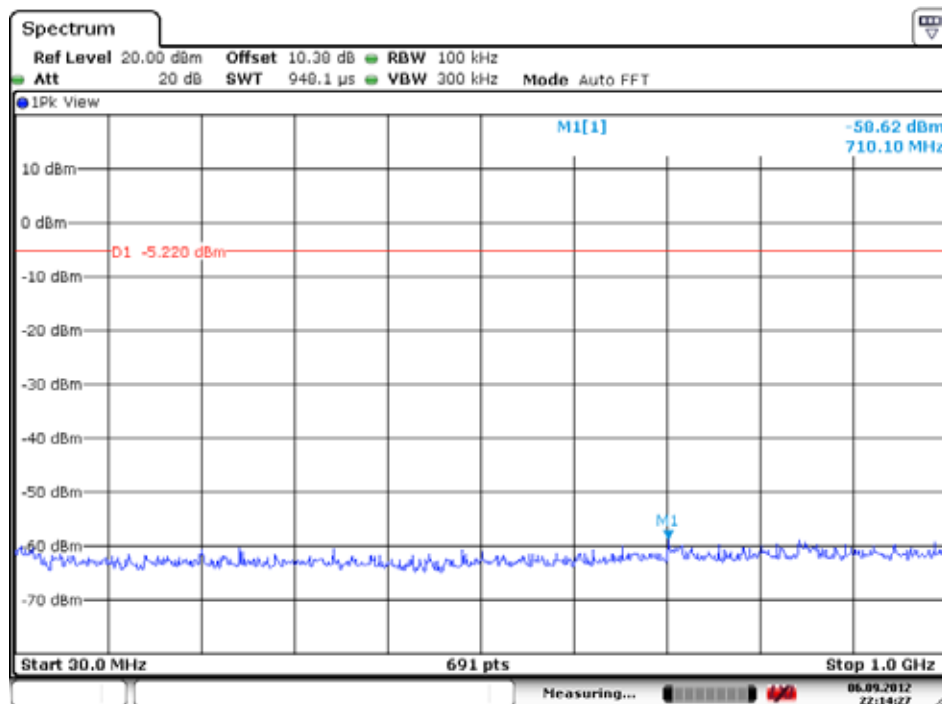
Conducted Spurious Emission (802.11n-CH149)_20 MHz BW



Date: 6.SEP.2012 22:11:08

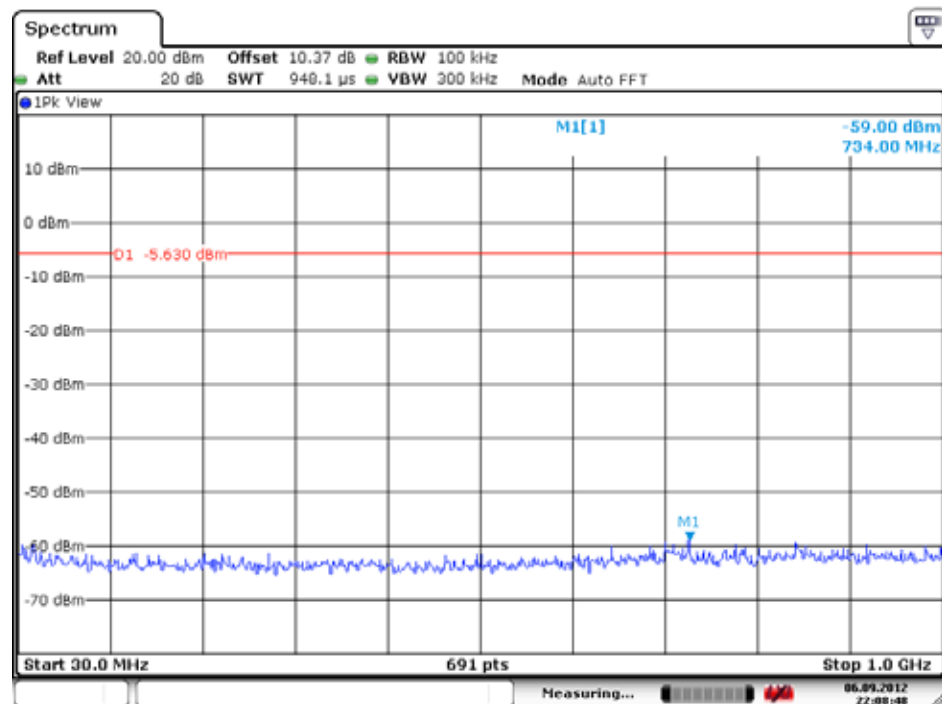
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFB006D

Conducted Spurious Emission (802.11n-CH157) _20 MHz BW



Date: 6.SEP.2012 22:14:26

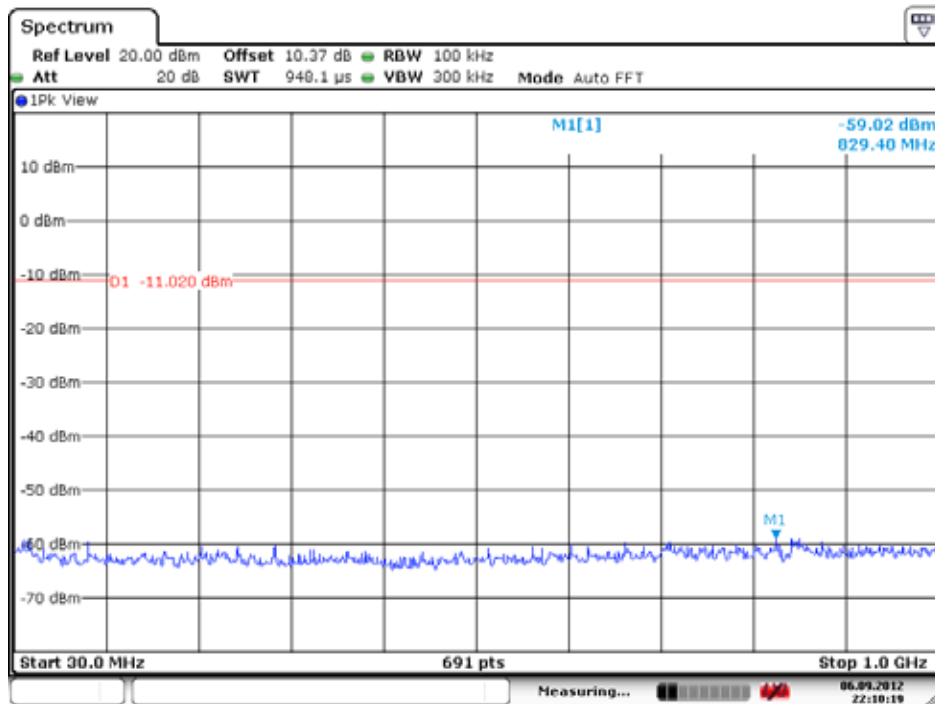
Conducted Spurious Emission (802.11n-CH165) _20 MHz BW



Date: 6.SEP.2012 22:08:48

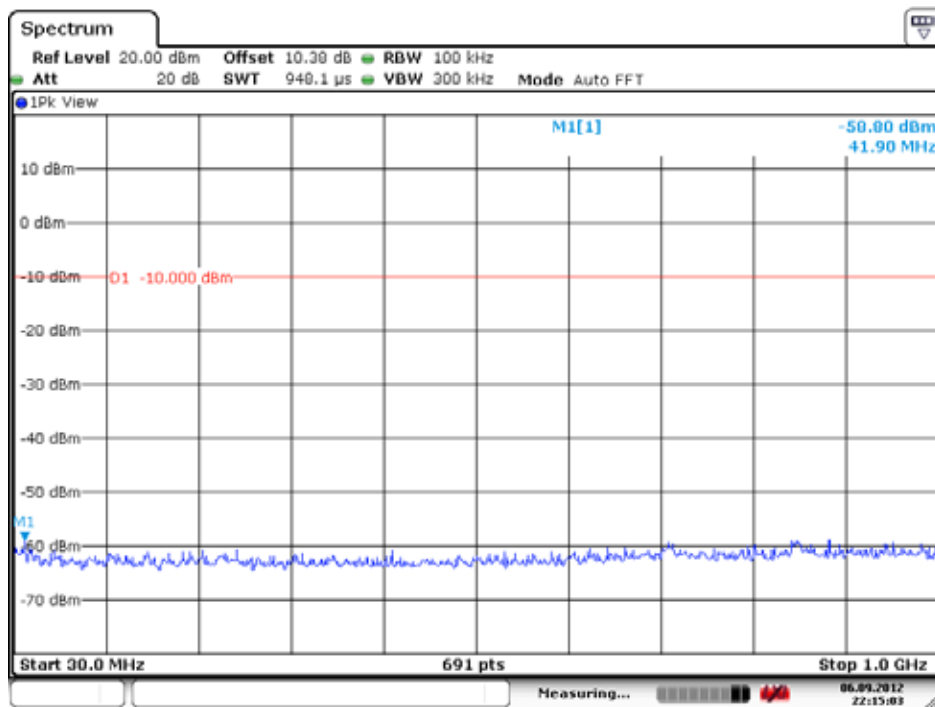
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

Conducted Spurious Emission (802.11n-CH149) _40 MHz BW



Date: 6.SEP.2012 22:10:19

Conducted Spurious Emission (802.11n-CH159) _40 MHz BW



Date: 6.SEP.2012 22:15:03

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFB006D

RESULT PLOTS_(2.4 GHz Band)

1 GHz ~ 26 GHz(Ant.0)

Conducted Spurious Emission (802.11b-CH1)



Conducted Spurious Emission (802.11b-CH6)



Conducted Spurious Emission (802.11b-CH11)



Conducted Spurious Emission (802.11g-CH1)



Conducted Spurious Emission (802.11g-CH6)



Conducted Spurious Emission (802.11g-CH11)



Conducted Spurious Emission (802.11n-CH1)_20 MHz BW



Conducted Spurious Emission (802.11n-CH6)_20 MHz BW



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

Conducted Spurious Emission (802.11n-CH11) _20 MHz BW



Conducted Spurious Emission (802.11n-CH3)_40 MHz BW



Conducted Spurious Emission (802.11n-CH6)_40 MHz BW



Conducted Spurious Emission (802.11n-CH9)_40 MHz BW



RESULT PLOTS_ (2.4 GHz Band)

1 GHz ~ 26 GHz (Ant.1)

Conducted Spurious Emission (802.11b-CH1)



Conducted Spurious Emission (802.11b-CH6)



Conducted Spurious Emission (802.11b-CH11)



Conducted Spurious Emission (802.11g-CH1)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

Conducted Spurious Emission (802.11g-CH6)



Conducted Spurious Emission (802.11g-CH11)



Conducted Spurious Emission (802.11n-CH1)_20 MHz



Conducted Spurious Emission (802.11n-CH6)_20 MHz



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

Conducted Spurious Emission (802.11n-CH11)_20 MHz



Conducted Spurious Emission (802.11n-CH3)_40 MHz BW



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

Conducted Spurious Emission (802.11n-CH6)_40 MHz BW



Conducted Spurious Emission (802.11n-CH9)_40 MHz BW

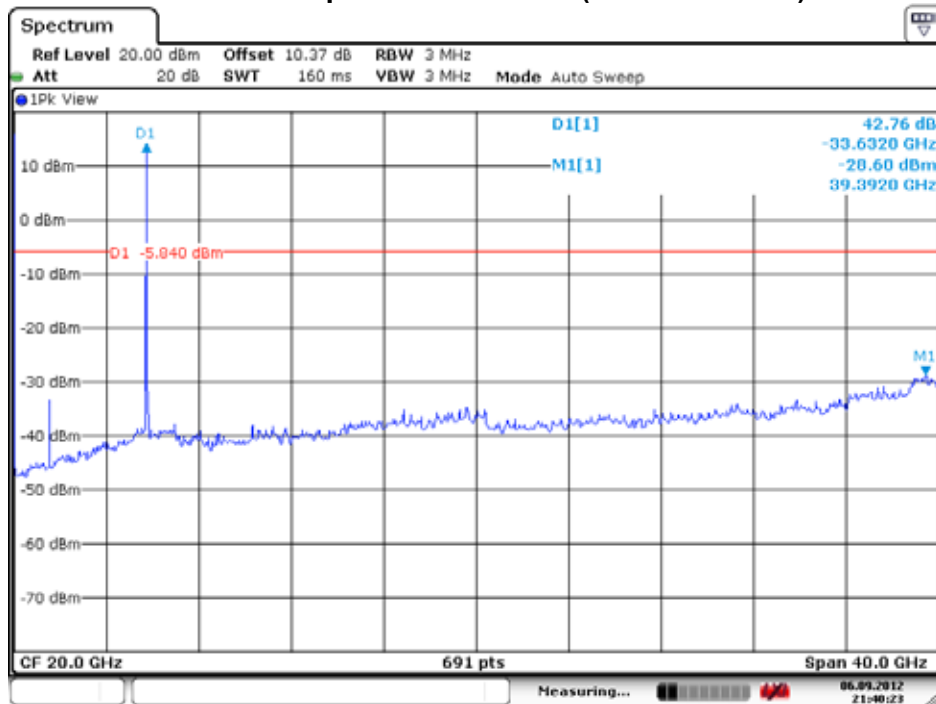


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFM006D

RESULT PLOTS_(5.8 GHz Band)

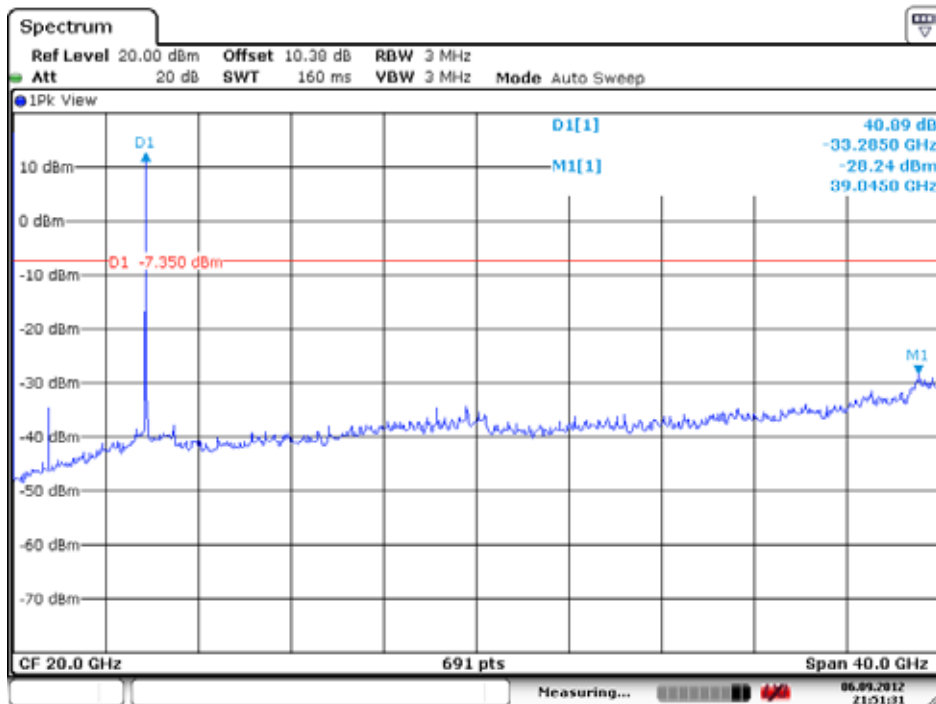
1 GHz ~ 40 GHz (Ant.0)

Conducted Spurious Emission (802.11a-CH149)



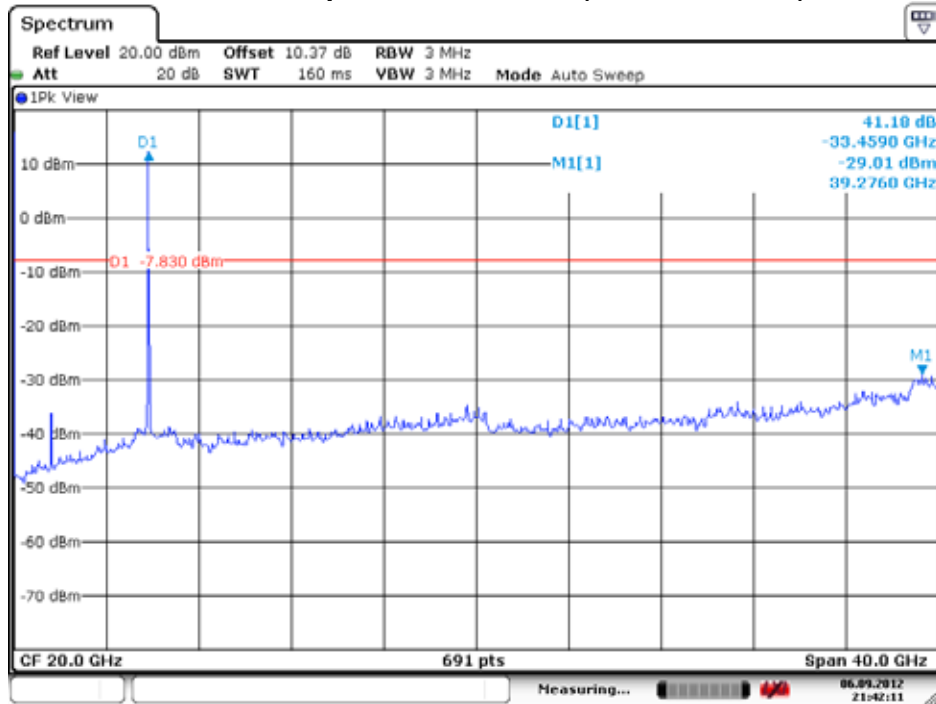
Date: 6.SEP.2012 21:40:23

Conducted Spurious Emission (802.11a-CH157)

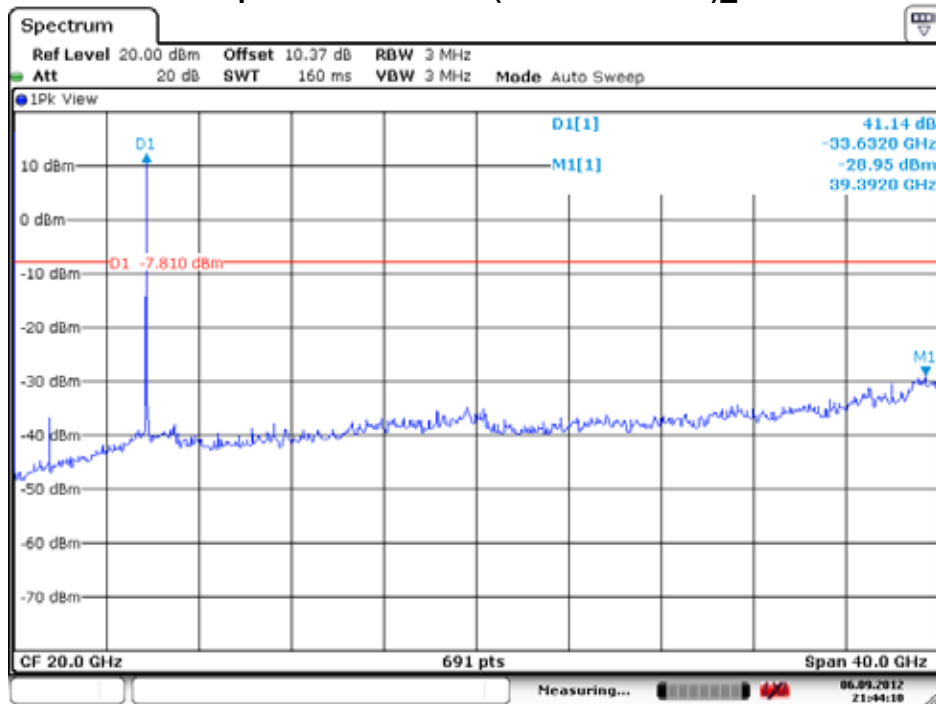


Date: 6.SEP.2012 21:51:31

Conducted Spurious Emission (802.11a-CH165)

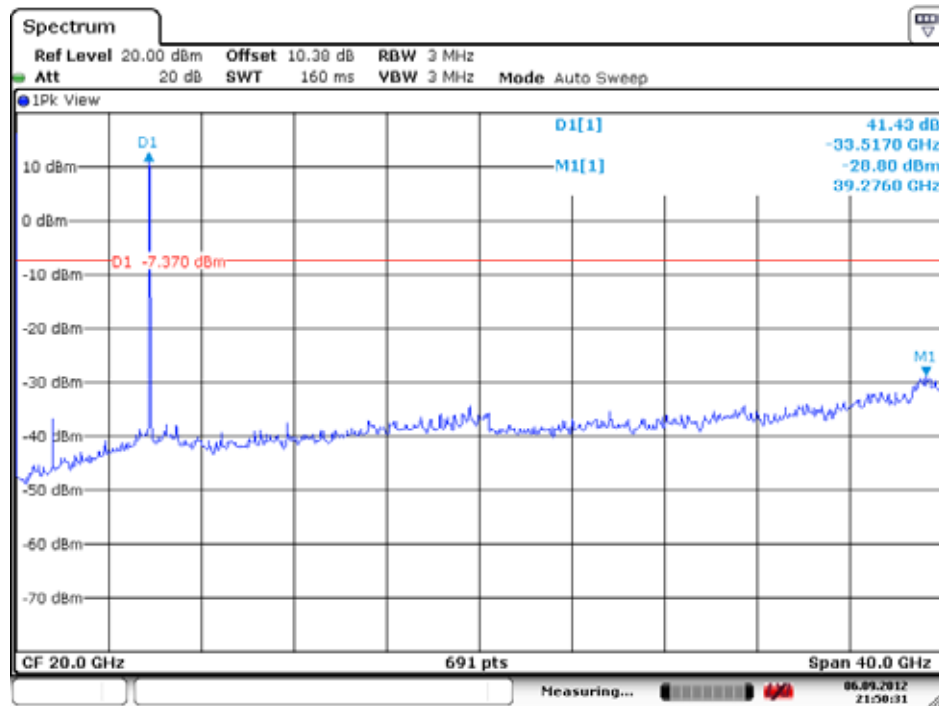


Conducted Spurious Emission (802.11n-CH149)_20 MHz BW



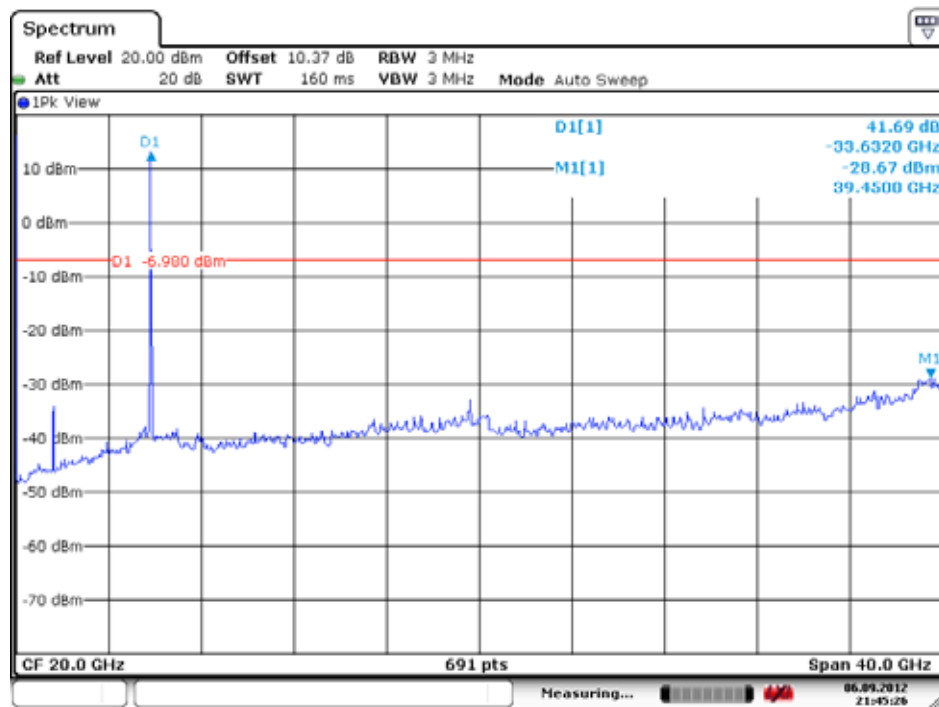
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFB006D

Conducted Spurious Emission (802.11n-CH157) _20 MHz BW



Date: 6.SEP.2012 21:50:31

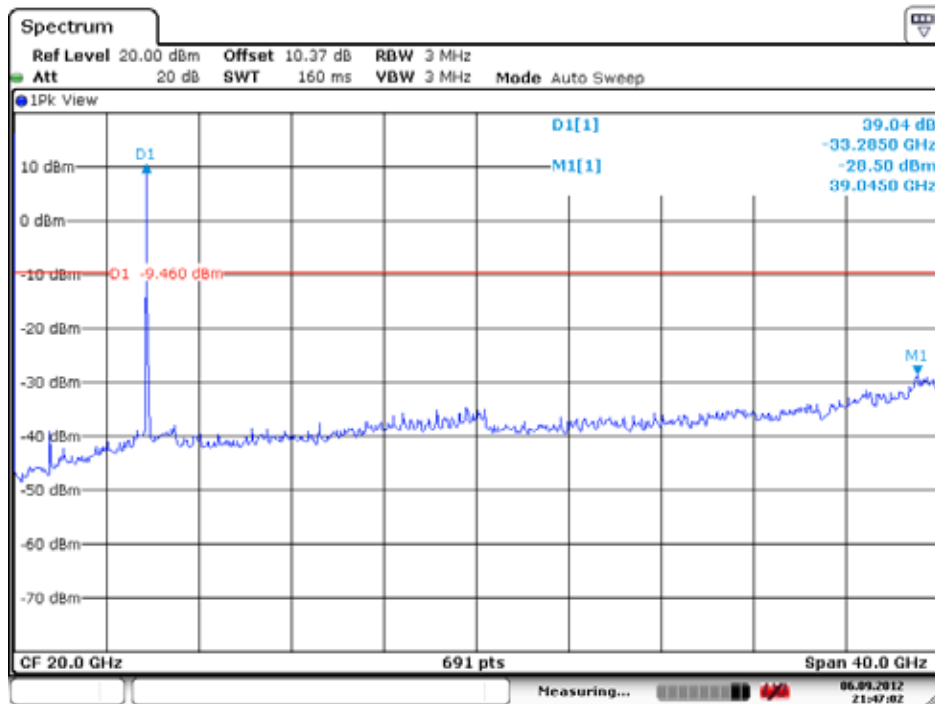
Conducted Spurious Emission (802.11n-CH165) _20 MHz BW



Date: 6.SEP.2012 21:45:26

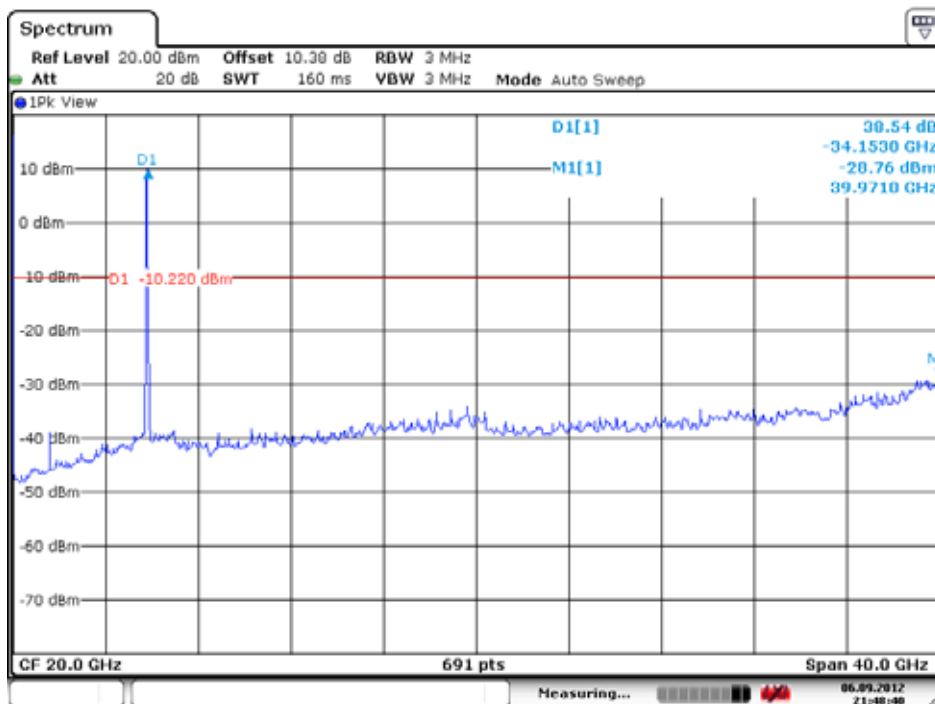
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFB006D

Conducted Spurious Emission (802.11n-CH151) _40 MHz BW



Date: 6.SEP.2012 21:47:01

Conducted Spurious Emission (802.11n-CH159) _40 MHz BW

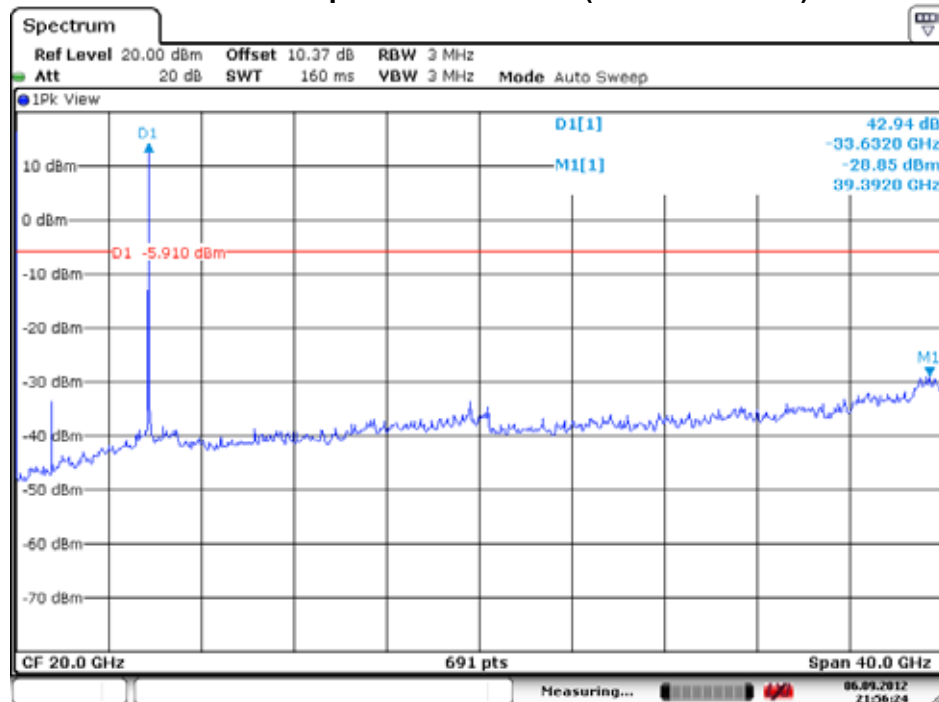


Date: 6.SEP.2012 21:48:40

■ RESULT PLOTS_ (5.8 GHz Band)

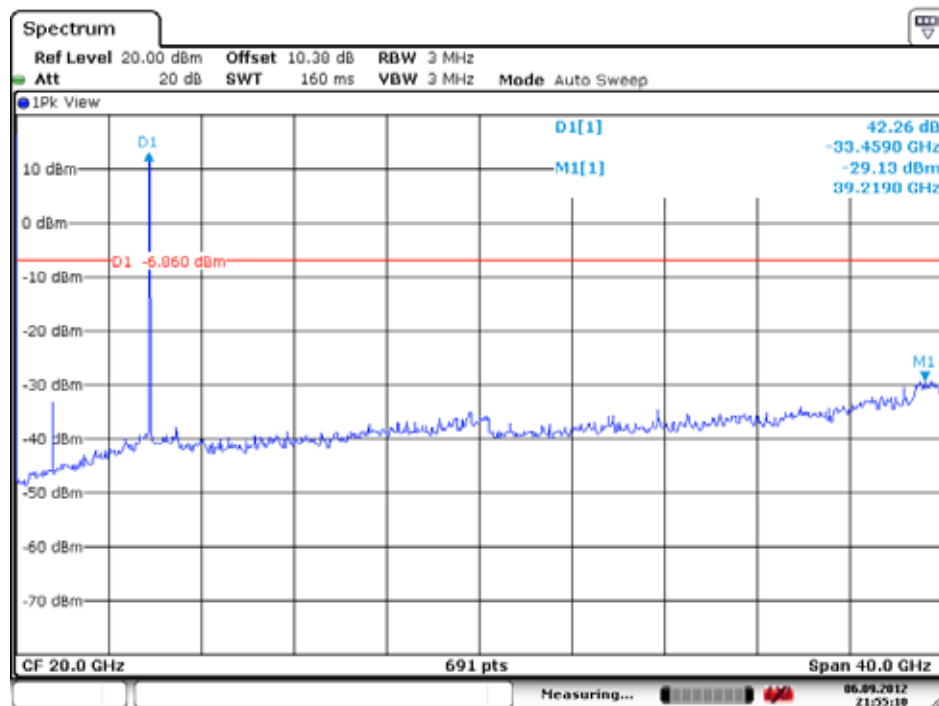
1 GHz ~ 40 GHz (Ant.1)

Conducted Spurious Emission (802.11a-CH149)



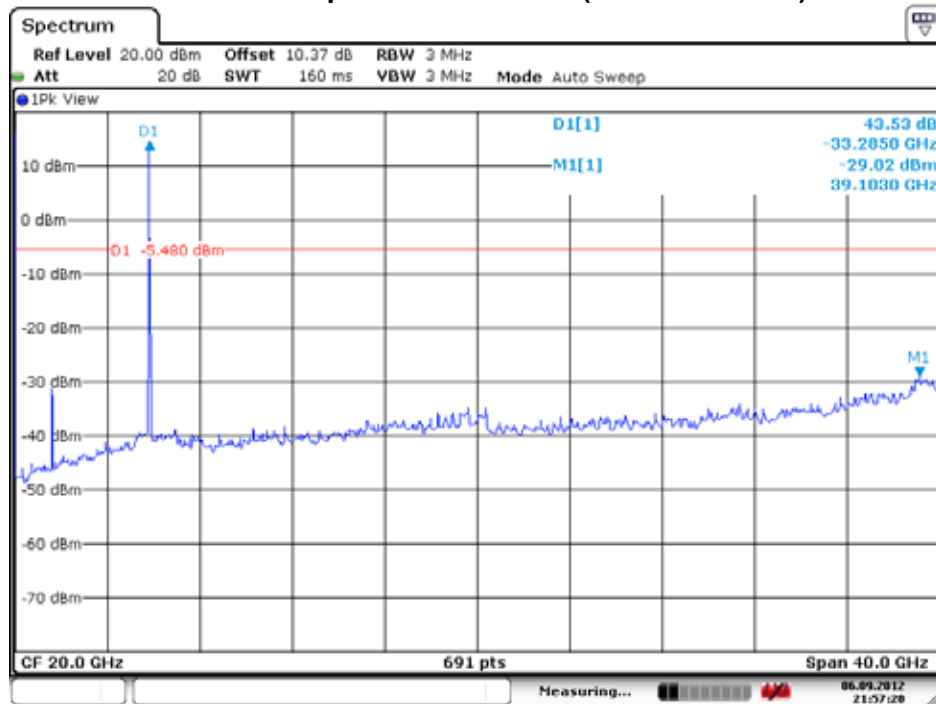
Date: 6.SEP.2012 21:56:24

Conducted Spurious Emission (802.11a-CH157)

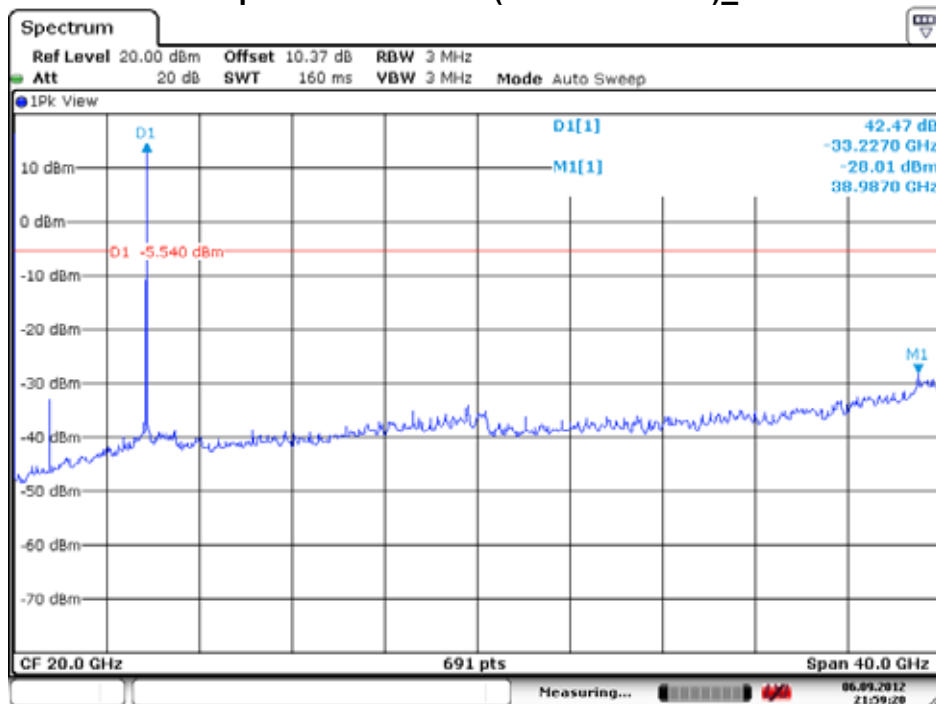


Date: 6.SEP.2012 21:55:10

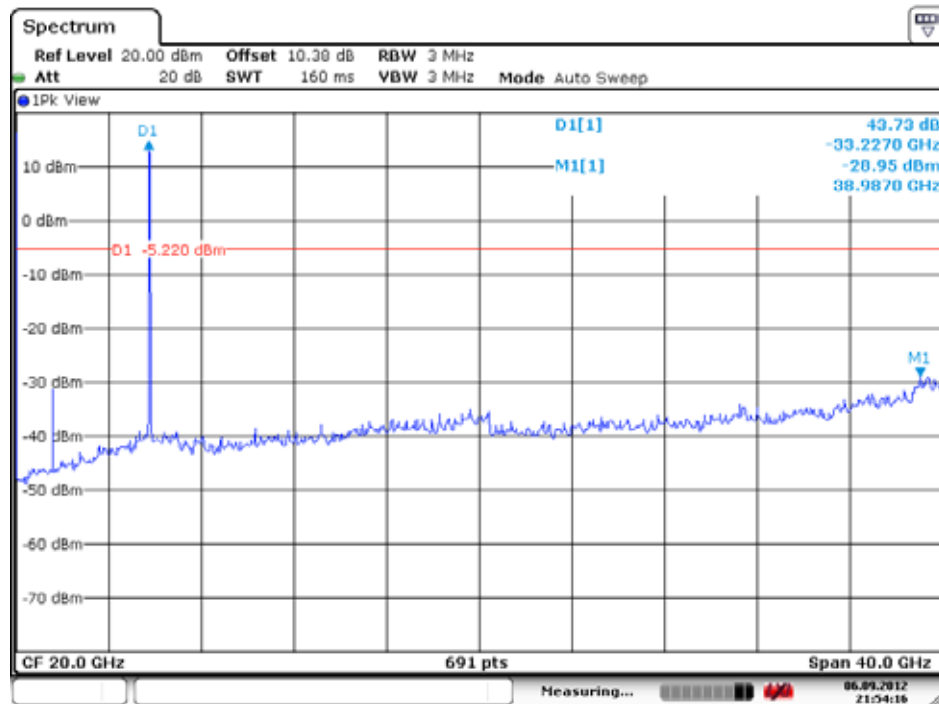
Conducted Spurious Emission (802.11a-CH165)



Conducted Spurious Emission (802.11n-CH149)_20 MHz BW

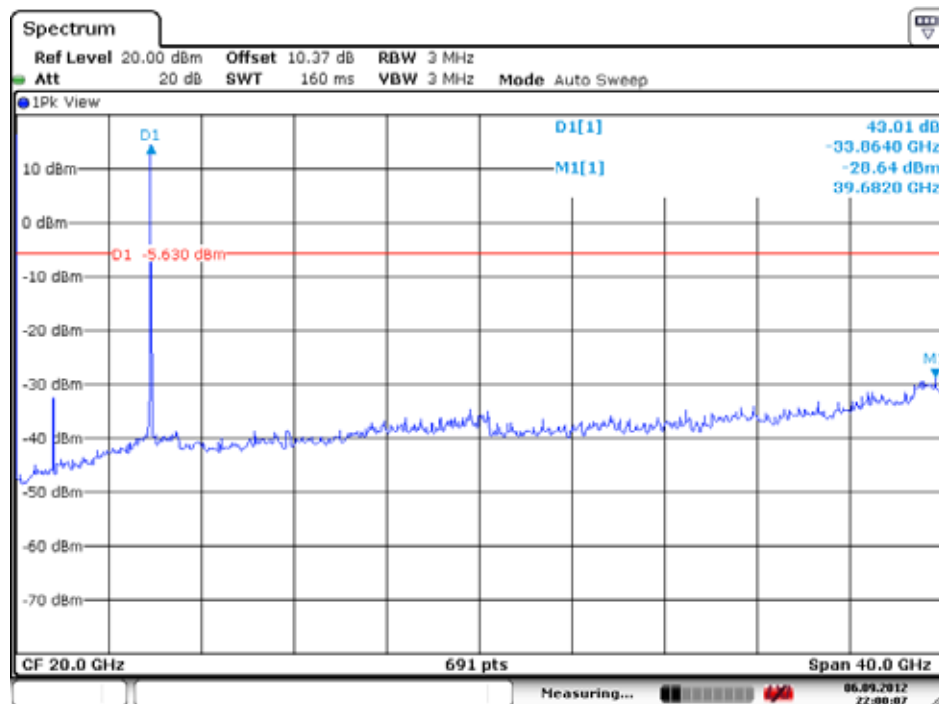


Conducted Spurious Emission (802.11n-CH157) _20 MHz BW



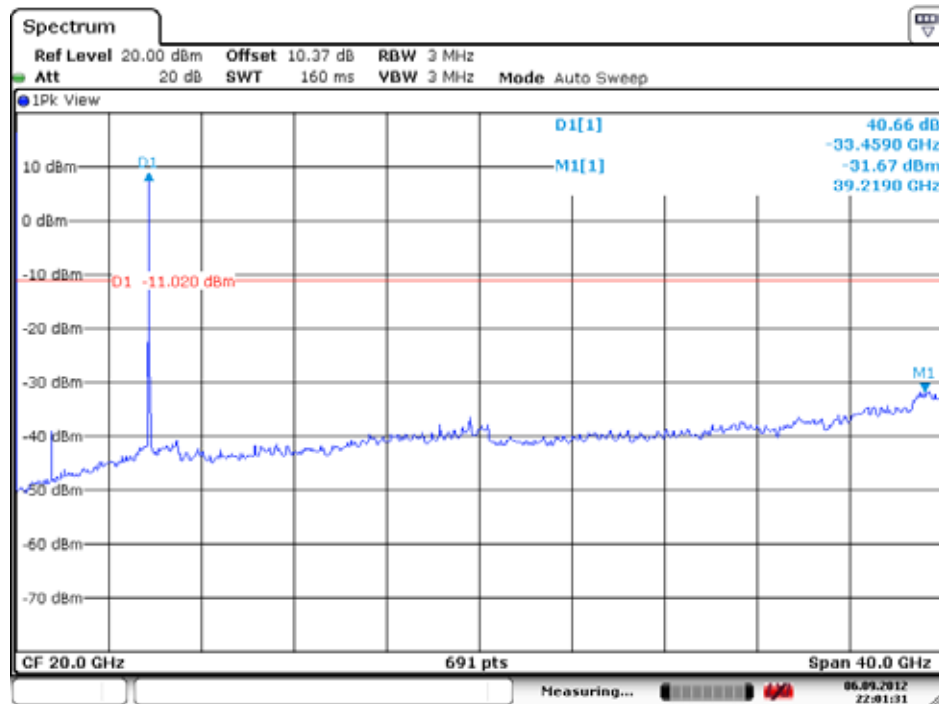
Date: 6.SEP.2012 21:54:16

Conducted Spurious Emission (802.11n-CH165) _20 MHz BW



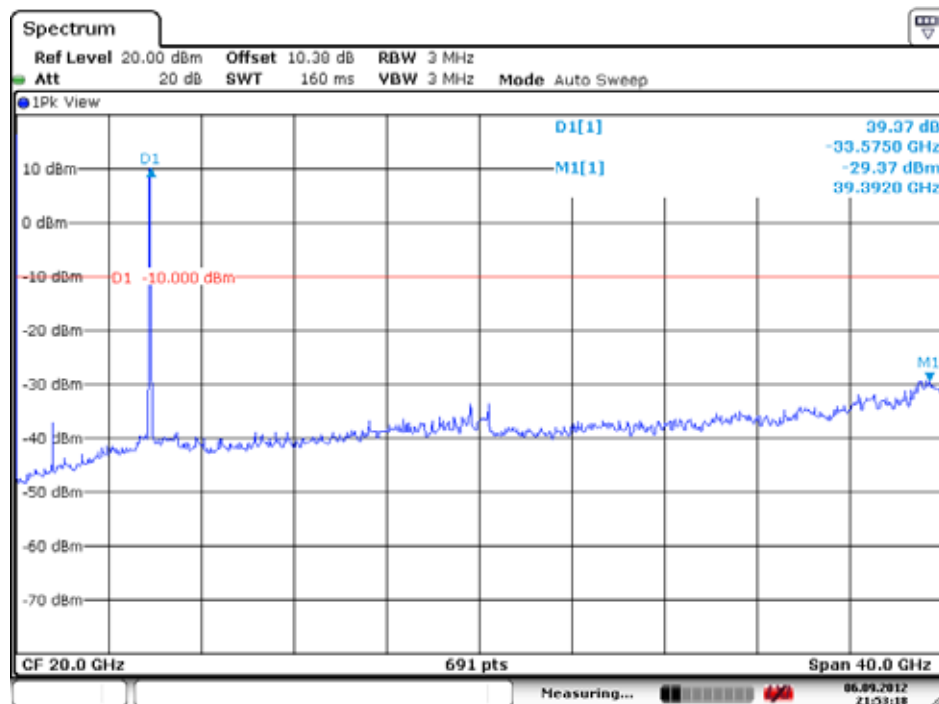
Date: 6.SEP.2012 22:00:07

Conducted Spurious Emission (802.11n-CH151) _40 MHz BW



Date: 6.SEP.2012 22:01:30

Conducted Spurious Emission (802.11n-CH159) _40 MHz BW



Date: 6.SEP.2012 21:53:18

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFB006D

8.5 RADIATED MEASUREMENT.

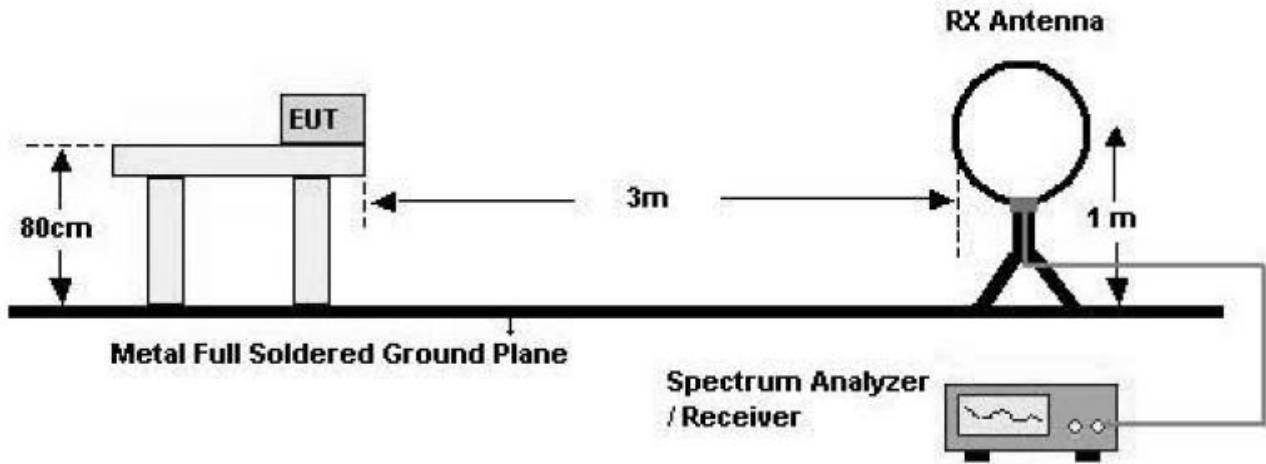
8.5.1 RADIATED SPURIOUS EMISSIONS.

Test Requirements and limit, §15.205, §15.209

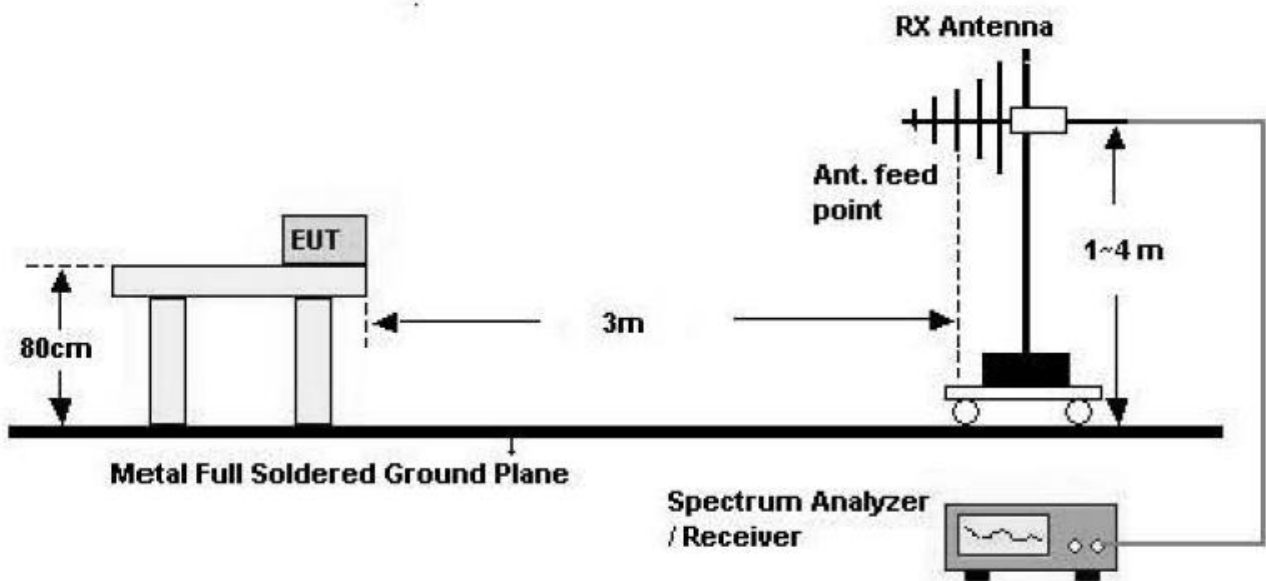
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

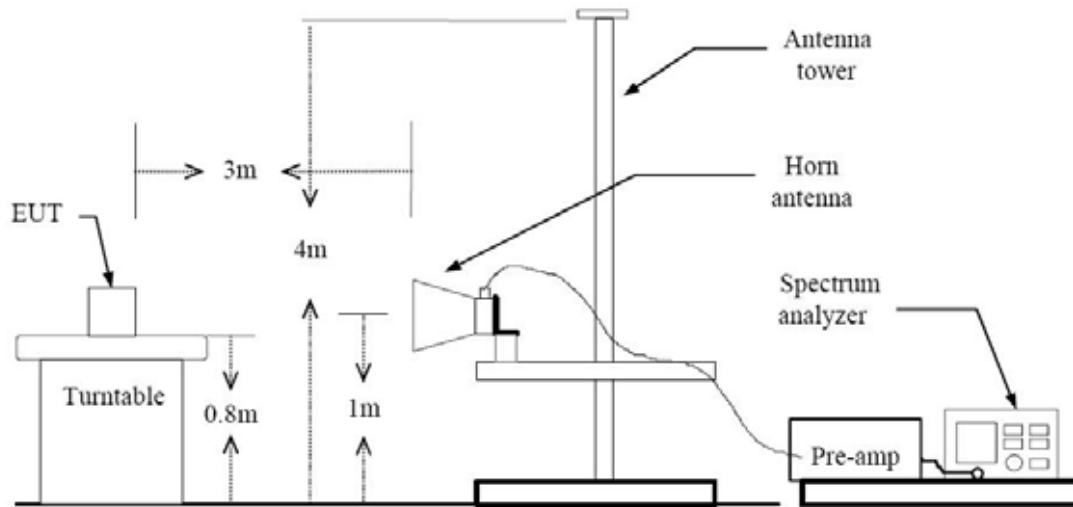
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8 m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

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TEST RESULTS

9 kHz – 30MHz

Operation Mode: Normal Mode

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							

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 (dB μ V) + Distance extrapolation factor
5. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

TEST RESULTS

Below 1 GHz

Operation Mode: Normal Mode

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							

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.

Above 1 GHz

Ant.0

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

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4824	52.22	-0.79	V	51.43	74	22.57	PK
4824	41.94	-0.79	V	41.15	54	12.85	AV
7236	49.27	9.08	V	58.35	74	15.65	PK
7236	35.66	9.08	V	44.74	54	9.26	AV
4824	52.25	-0.79	H	51.46	74	22.54	PK
4824	39.85	-0.79	H	39.06	54	14.94	AV
7236	49.59	9.08	H	58.67	74	15.33	PK
7236	35.67	9.08	H	44.75	54	9.25	AV

Ant.1

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

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4824	51.14	-0.79	V	50.35	74	23.65	PK
4824	38.65	-0.79	V	37.86	54	16.14	AV
7236	50.00	9.08	V	59.08	74	14.92	PK
7236	37.58	9.08	V	46.66	54	7.34	AV
4824	50.53	-0.79	H	49.74	74	24.26	PK
4824	37.59	-0.79	H	36.8	54	17.20	AV
7236	48.94	9.08	H	58.02	74	15.98	PK
7236	36.05	9.08	H	45.13	54	8.87	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done 802.11b all data rate. Worst case of EUT is 1 Mbps in 802.11b.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Ant.1

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Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFB006D

Operation Mode:	802.11 g
Transfer Rate:	6 Mbps
Operating Frequency	2412
Channel No.	01 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4824	57.20	-0.79	V	56.41	74	17.59	PK
4824	43.18	-0.79	V	42.39	54	11.61	AV
7236	51.52	9.08	V	60.6	74	13.40	PK
7236	36.80	9.08	V	45.88	54	8.12	AV
4824	60.70	-0.79	H	59.91	74	14.09	PK
4824	45.98	-0.79	H	45.19	54	8.81	AV
7236	51.35	9.08	H	60.43	74	13.57	PK
7236	36.54	9.08	H	45.62	54	8.38	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11g/802.11n_20 MHz BW at Ant.0 and Ant.1. Worst case of EUT is 6 Mbps in 802.11g at Ant.1.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

MIMO

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFB006D

Operation Mode:	802.11 g
Transfer Rate:	6 Mbps
Operating Frequency	2412
Channel No.	01 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4824	50.82	-0.79	V	50.03	74	23.97	PK
4824	37.72	-0.79	V	36.93	54	17.07	AV
7236	50.15	9.08	V	59.23	74	14.77	PK
7236	35.75	9.08	V	44.83	54	9.17	AV
4824	55.31	-0.79	H	54.52	74	19.48	PK
4824	40.90	-0.79	H	40.11	54	13.89	AV
7236	49.84	9.08	H	58.92	74	15.08	PK
7236	35.84	9.08	H	44.92	54	9.08	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11g/802.11n_20 MHz BW at MIMO. Worst case of EUT is 6 Mbps in 802.11g at MIMO.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Ant.0

Operation Mode:	802.11 n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	2422
Channel No.	03 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4844	52.16	-0.72	V	51.44	74	22.56	PK
4844	38.50	-0.72	V	37.78	54	16.22	AV
7266	48.27	9.95	V	58.22	74	15.78	PK
7266	34.97	9.95	V	44.92	54	9.08	AV
4844	51.87	-0.72	H	51.15	74	22.85	PK
4844	37.94	-0.72	H	37.22	54	16.78	AV
7266	48.24	9.95	H	58.19	74	15.81	PK
7266	34.99	9.95	H	44.94	54	9.06	AV

Ant.1

Operation Mode:	802.11 n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	2422
Channel No.	03 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4844	53.69	-0.72	V	52.97	74	21.03	PK
4844	39.70	-0.72	V	38.98	54	15.02	AV
7266	48.55	9.95	V	58.50	74	15.50	PK
7266	35.14	9.95	V	45.09	54	8.91	AV
4844	53.51	-0.72	H	52.79	74	21.21	PK
4844	39.53	-0.72	H	38.81	54	15.19	AV
7266	48.67	9.95	H	58.62	74	15.38	PK
7266	35.03	9.95	H	44.98	54	9.02	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11n_40 MHz BW at Ant.0 and Ant.1. Worst case of EUT is 13.5 Mbps in 802.11n_40 MHz BW at Ant.0 and Ant.1.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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MIMO

Operation Mode:	802.11 n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	2422
Channel No.	03 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4844	50.75	-0.72	V	50.03	74	23.97	PK
4844	37.58	-0.72	V	36.86	54	17.14	AV
7266	48.22	9.95	V	58.17	74	15.83	PK
7266	35.07	9.95	V	45.02	54	8.98	AV
4844	51.63	-0.72	H	50.91	74	23.09	PK
4844	37.48	-0.72	H	36.76	54	17.24	AV
7266	49.01	9.95	H	58.96	74	15.04	PK
7266	35.03	9.95	H	44.98	54	9.02	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11n_40 MHz BW at MIMO. Worst case of EUT is 13.5 Mbps in 802.11n_40 MHz BW at MIMO.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Ant.0

Operation Mode: 802.11 b

Transfer Rate: 1 Mbps

Operating Frequency: 2437

Channel No. 06 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4874	53.01	-0.37	V	52.64	74	21.36	PK
4874	42.30	-0.37	V	41.93	54	12.07	AV
7311	48.84	8.64	V	57.48	74	16.52	PK
7311	35.27	8.64	V	43.91	54	10.09	AV
4874	52.59	-0.37	H	52.22	74	21.78	PK
4874	39.90	-0.37	H	39.53	54	14.47	AV
7311	48.52	8.64	H	57.16	74	16.84	PK
7311	35.25	8.64	H	43.89	54	10.11	AV

Ant.1

Operation Mode: 802.11 b

Transfer Rate: 1 Mbps

Operating Frequency: 2437

Channel No. 06 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4874	50.37	-0.37	V	50.00	74	24.00	PK
4874	37.42	-0.37	V	37.05	54	16.95	AV
7311	49.74	8.64	V	58.38	74	15.62	PK
7311	37.36	8.64	V	46.00	54	8.00	AV
4874	50.39	-0.37	H	50.02	74	23.98	PK
4874	37.13	-0.37	H	36.76	54	17.24	AV
7311	49.82	8.64	H	58.46	74	15.54	PK
7311	36.36	8.64	H	45.00	54	9.00	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done 802.11b all data rate. Worst case of EUT is 1 Mbps in 802.11b.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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Ant.1

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

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4874	59.95	-0.37	V	59.58	74	14.42	PK
4874	45.74	-0.37	V	45.37	54	8.63	AV
7311	58.57	8.64	V	67.21	74	6.79	PK
7311	42.27	8.64	V	50.91	54	3.09	AV
4874	61.75	-0.37	H	61.38	74	12.62	PK
4874	47.50	-0.37	H	47.13	54	6.87	AV
7311	57.18	8.64	H	65.82	74	8.18	PK
7311	41.15	8.64	H	49.79	54	4.21	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11g/802.11n_20 MHz BW at Ant.0 and Ant.1. Worst case of EUT is 6 Mbps in 802.11g at Ant.1.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

MIMO

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

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4874	59.03	-0.37	V	58.66	74	15.34	PK
4874	43.59	-0.37	V	43.22	54	10.78	AV
7311	56.10	8.64	V	64.74	74	9.26	PK
7311	39.95	8.64	V	48.59	54	5.41	AV
4874	59.54	-0.37	H	59.17	74	14.83	PK
4874	44.27	-0.37	H	43.9	54	10.1	AV
7311	59.40	8.64	H	68.04	74	5.96	PK
7311	41.78	8.64	H	50.42	54	3.58	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11g/802.11n_20 MHz BW at MIMO. Worst case of EUT is 6 Mbps in 802.11g at MIMO.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Ant.0

Operation Mode:	802.11 n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	2437
Channel No.	06 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4874	55.17	-0.37	V	54.80	74	19.20	PK
4874	40.94	-0.37	V	40.57	54	13.43	AV
7311	49.05	8.64	V	57.69	74	16.31	PK
7311	35.74	8.64	V	44.38	54	9.62	AV
4874	54.47	-0.37	H	54.10	74	19.90	PK
4874	40.59	-0.37	H	40.22	54	13.78	AV
7311	49.61	8.64	H	58.25	74	15.75	PK
7311	36.03	8.64	H	44.67	54	9.33	AV

Ant.1

Operation Mode:	802.11 n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	2437
Channel No.	06 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4874	57.49	-0.37	V	57.12	74	16.88	PK
4874	42.93	-0.37	V	42.56	54	11.44	AV
7311	55.35	8.64	V	63.99	74	10.01	PK
7311	40.08	8.64	V	48.72	54	5.28	AV
4874	59.19	-0.37	H	58.82	74	15.18	PK
4874	44.20	-0.37	H	43.83	54	10.17	AV
7311	53.73	8.64	H	62.37	74	11.63	PK
7311	39.36	8.64	H	48.00	54	6.00	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11n_40 MHz BW at Ant.0 and Ant.1. Worst case of EUT is 13.5 Mbps in 802.11n_40 MHz BW at Ant.0 and Ant.1.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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MIMO

Operation Mode:	802.11 n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	2437
Channel No.	06 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4874	50.57	-0.37	V	50.20	74	23.80	PK
4874	40.33	-0.37	V	39.96	54	14.04	AV
7311	50.85	8.64	V	59.49	74	14.51	PK
7311	37.37	8.64	V	46.01	54	7.99	AV
4874	57.39	-0.37	H	57.02	74	16.98	PK
4874	41.84	-0.37	H	41.47	54	12.53	AV
7311	50.20	8.64	H	58.84	74	15.16	PK
7311	36.83	8.64	H	45.47	54	8.53	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11n_40 MHz BW at MIMO. Worst case of EUT is 13.5 Mbps in 802.11n_40 MHz BW at MIMO.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Ant.0

Operation Mode: 802.11 b

Transfer Rate: 1 Mbps

Operating Frequency: 2462

Channel No. 11 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4924	52.04	-0.15	V	51.89	74.00	22.11	PK
4924	41.10	-0.15	V	40.95	54.00	13.05	AV
7386	48.74	9.06	V	57.80	74	16.20	PK
7386	35.64	9.06	V	44.70	54	9.30	AV
4924	51.65	-0.15	H	51.50	74	22.50	PK
4924	39.14	-0.15	H	38.99	54	15.01	AV
7386	49.91	9.06	H	58.97	74	15.03	PK
7386	35.65	9.06	H	44.71	54	9.29	AV

Ant.1

Operation Mode: 802.11 b

Transfer Rate: 1 Mbps

Operating Frequency: 2462

Channel No. 11 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4924	50.53	-0.15	V	50.38	74.00	23.62	PK
4924	38.19	-0.15	V	38.04	54.00	15.96	AV
7386	50.68	9.06	V	59.74	74	14.26	PK
7386	38.00	9.06	V	47.06	54	6.94	AV
4924	50.75	-0.15	H	50.6	74	23.4	PK
4924	37.30	-0.15	H	37.15	54	16.85	AV
7386	50.64	9.06	H	59.7	74	14.3	PK
7386	38.13	9.06	H	47.19	54	6.81	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done 802.11b all data rate. Worst case of EUT is 1 Mbps in 802.11b.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFB006D

Ant.1

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

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4924	54.67	-0.15	V	54.52	74	19.48	PK
4924	40.10	-0.15	V	39.95	54	14.05	AV
7386	49.17	9.06	V	58.23	74	15.77	PK
7386	36.37	9.06	V	45.43	54	8.57	AV
4924	54.61	-0.15	H	54.46	74	19.54	PK
4924	40.74	-0.15	H	40.59	54	13.41	AV
7386	49.51	9.06	H	58.57	74	15.43	PK
7386	35.81	9.06	H	44.87	54	9.13	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11g/802.11n_20 MHz BW at Ant.0 and Ant.1. Worst case of EUT is 6 Mbps in 802.11g at Ant.1.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

MIMO

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

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4924	51.18	-0.15	V	51.03	74	22.97	PK
4924	37.90	-0.15	V	37.75	54	16.25	AV
7386	50.24	9.06	V	59.30	74	14.70	PK
7386	36.15	9.06	V	45.21	54	8.79	AV
4924	52.93	-0.15	H	52.78	74	21.22	PK
4924	38.61	-0.15	H	38.46	54	15.54	AV
7386	49.37	9.06	H	58.43	74	15.57	PK
7386	35.99	9.06	H	45.05	54	8.95	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11g/802.11n_20 MHz BW at MIMO. Worst case of EUT is 6 Mbps in 802.11g at MIMO.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Ant.0

Operation Mode:	802.11 n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	2452
Channel No.	09 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4904	52.87	-0.10	V	52.77	74	21.23	PK
4904	38.38	-0.10	V	38.28	54	15.72	AV
7356	48.10	9.00	V	57.10	74	16.90	PK
7356	35.04	9.00	V	44.04	54	9.96	AV
4904	51.39	-0.10	H	51.29	74	22.71	PK
4904	37.60	-0.10	H	37.50	54	16.50	AV
7356	48.20	9.00	H	57.20	74	16.80	PK
7356	35.01	9.00	H	44.01	54	9.99	AV

Ant.1

Operation Mode:	802.11 n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	2452
Channel No.	09 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4904	53.99	-0.10	V	53.89	74	20.11	PK
4904	39.48	-0.10	V	39.38	54	14.62	AV
7356	48.67	9.00	V	57.67	74	16.33	PK
7356	35.32	9.00	V	44.32	54	9.68	AV
4904	52.23	-0.10	H	52.13	74	21.87	PK
4904	38.82	-0.10	H	38.72	54	15.28	AV
7356	48.48	9.00	H	57.48	74	16.52	PK
7356	35.05	9.00	H	44.05	54	9.95	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11n_40 MHz BW at Ant.0 and Ant.1. Worst case of EUT is 13.5 Mbps in 802.11n_40 MHz BW at Ant.0 and Ant.1.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFB006D

MIMO

Operation Mode:	802.11 n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	2452
Channel No.	09 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4904	49.86	-0.10	V	49.76	74	24.24	PK
4904	37.77	-0.10	V	37.67	54	16.33	AV
7356	48.14	9.00	V	57.14	74	16.86	PK
7356	35.18	9.00	V	44.18	54	9.82	AV
4904	51.40	-0.10	H	51.30	74	22.70	PK
4904	37.67	-0.10	H	37.57	54	16.43	AV
7356	48.80	9.00	H	57.80	74	16.20	PK
7356	35.80	9.00	H	44.80	54	9.20	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11n_40 MHz BW at MIMO. Worst case of EUT is 13.5 Mbps in 802.11n_40 MHz BW at MIMO.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

MIMO

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	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11490	50.46	11.22	V	61.68	74	12.32	PK
11490	34.37	11.22	V	45.59	54	8.41	AV
17235	46.15	18.82	V	64.97	74	9.03	PK
17235	33.10	18.82	V	51.92	54	2.08	AV
11490	53.27	11.22	H	64.49	74	9.51	PK
11490	36.50	11.22	H	47.72	54	6.28	AV
17235	46.04	18.82	H	64.86	74	9.14	PK
17235	32.70	18.82	H	51.52	54	2.48	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 6 . We have done 802.11a/n_20 MHz BW(5.8 GHz) mode test at Ant.0, Ant.1 and MIMO. Worst case of EUT is 6 Mbps in 802.11a_5.8 GHz at MIMO.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

MIMO

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	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11570	50.72	11.71	V	62.43	74	11.57	PK
11570	34.21	11.71	V	45.92	54	8.08	AV
17355	45.16	18.94	V	64.10	74	9.91	PK
17355	31.60	18.94	V	50.54	54	3.47	AV
11570	53.01	11.71	H	64.72	74	9.28	PK
11570	36.62	11.71	H	48.33	54	5.67	AV
17355	45.80	18.94	H	64.74	74	9.27	PK
17355	31.89	18.94	H	50.83	54	3.18	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. . We have done 802.11a/n_20 MHz BW(5.8 GHz) mode test at Ant.0, Ant.1 and MIMO. Worst case of EUT is 6 Mbps in 802.11a_5.8 GHz at MIMO.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

MIMO

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	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11650	51.08	11.34	V	62.42	74	11.58	PK
11650	34.79	11.34	V	46.13	54	7.87	AV
17475	45.50	19.52	V	65.02	74	8.98	PK
17475	32.11	19.52	V	51.63	54	2.37	AV
11650	52.84	11.34	H	64.18	74	9.82	PK
11650	36.92	11.34	H	48.26	54	5.74	AV
17475	45.78	19.52	H	65.30	74	8.70	PK
17475	32.69	19.52	H	52.21	54	1.79	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done 802.11a/n_20 MHz BW(5.8 GHz) mode test at Ant.0, Ant.1 and MIMO. Worst case of EUT is 6 Mbps in 802.11a_5.8 GHz at MIMO.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Ant.1

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	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11510	38.50	11.53	V	50.03	74	23.97	PK
11510	26.17	11.53	V	37.70	54	16.30	AV
17265	44.46	18.46	V	62.92	74	11.08	PK
17265	31.22	18.46	V	49.68	54	4.32	AV
11510	40.14	11.53	H	51.67	74	22.33	PK
11510	26.71	11.53	H	38.24	54	15.76	AV
17265	44.92	18.46	H	63.38	74	10.62	PK
17265	31.30	18.46	H	49.76	54	4.24	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11n_40 MHz BW(5.8 GHz) mode at Ant.0 and Ant.1. Worst case of EUT is 13.5 Mbps in 802.11n_40 MHz BW(5.8 GHz) at Ant.1.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Ant.1

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1209FR09-1	Date of Issue: September 21, 2012	EUT Type: Wi-Fi module	FCC ID: BEJTWFBM006D

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	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11590	38.25	11.64	V	49.89	74	24.11	PK
11590	25.85	11.64	V	37.49	54	16.51	AV
17385	44.42	18.91	V	63.33	74	10.68	PK
17385	30.67	18.91	V	49.58	54	4.43	AV
11590	39.58	11.64	H	51.22	74	22.78	PK
11590	26.02	11.64	H	37.66	54	16.34	AV
17385	44.61	18.91	H	63.52	74	10.49	PK
17385	30.68	18.91	H	49.59	54	4.42	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11n_40 MHz BW(5.8 GHz) mode at Ant.0 and Ant.1. Worst case of EUT is 13.5 Mbps in 802.11n_40 MHz BW(5.8 GHz) at Ant.1.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

MIMO

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	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11510	41.14	11.53	V	52.67	74	21.33	PK
11510	27.32	11.53	V	38.85	54	15.15	AV
17265	44.27	18.46	V	62.73	74	11.27	PK
17265	31.08	18.46	V	49.54	54	4.46	AV
11510	46.31	11.53	H	57.84	74	16.16	PK
11510	30.49	11.53	H	42.02	54	11.98	AV
17265	45.26	18.46	H	63.72	74	10.28	PK
17265	31.64	18.46	H	50.10	54	3.90	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11n_40 MHz BW(5.8 GHz) mode at MIMO. Worst case of EUT is 13.5 Mbps in 802.11n_40 MHz BW(5.8 GHz) at MIMO.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

MIMO

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	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11590	43.72	11.64	V	55.36	74	18.64	PK
11590	30.68	11.64	V	42.32	54	11.68	AV
17385	43.79	18.91	V	62.70	74	11.31	PK
17385	30.58	18.91	V	49.49	54	4.52	AV
11590	45.37	11.64	H	57.01	74	16.99	PK
11590	30.21	11.64	H	41.85	54	12.15	AV
17385	45.26	18.91	H	64.17	74	9.84	PK
17385	31.64	18.91	H	50.55	54	3.46	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. Spectrum setting:
 - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done all data rate in 802.11n_40 MHz BW(5.8 GHz) mode at MIMO. Worst case of EUT is 13.5 Mbps in 802.11n_40 MHz BW(5.8 GHz) at MIMO.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

8.5.2 RADIATED RESTRICTED BAND EDGE MEASUREMENTS

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)).

MIMO

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

Frequency [MHz]	Reading dBuV	AN.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
2390.0	35.83	33.90	H	69.73	74	4.27	PK
2390.0	16.35	33.90	H	50.25	54	3.75	AV
2390.0	38.06	33.90	V	71.96	74	2.04	PK
2390.0	17.75	33.90	V	51.65	54	2.35	AV
2483.5	37.65	33.99	H	71.64	74	2.36	PK
2483.5	17.50	33.99	H	51.49	54	2.51	AV
2483.5	38.50	33.99	V	72.49	74	1.51	PK
2483.5	17.79	33.99	V	51.78	54	2.22	AV

Notes:

- Total = Reading Value + Antenna Factor + Cable Loss
- Spectrum setting:
 - Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
- We have done 802.11b, 802.11g and 802.11n_20 MHz BW test. Also we have done Ant.0, Ant.1 and MIMO. Worst case is 6 Mbps in 802.11g at MIMO.

MIMO

Operation Mode:	802.11 n_40 MHz
Transfer Rate:	27 Mbps
Operating Frequency	2422 MHz, 2452 MHz
Channel No.	03 Ch, 09 Ch

Frequency [MHz]	Reading dBuV	AN.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
2390.0	34.60	33.90	H	68.50	74	5.50	PK
2390.0	17.55	33.90	H	51.45	54	2.55	AV
2390.0	36.42	33.90	V	70.32	74	3.68	PK
2390.0	18.60	33.90	V	52.50	54	1.50	AV
2483.5	37.19	33.99	H	71.18	74	2.82	PK
2483.5	16.03	33.99	H	50.02	54	3.98	AV
2483.5	37.76	33.99	V	71.75	74	2.25	PK
2483.5	18.00	33.99	V	51.99	54	2.01	AV

Notes:

1. Total = Reading Value + Antenna Factor + Cable Loss
2. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
3. We have done all data rate in 802.11n_40 MHz BW test. Also we have done Ant.0, Ant.1 and MIMO. Worst case is 13.5 Mbps in 802.11n_40 MHz BW at MIMO.

8.6 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 (dBμV)	
	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.

Note : We don't perform powerline conducted emission test. Because this EUT is used with vehicle.

9. LIST OF TEST EQUIPMENT

Manufacturer	Model / Equipment	Calibration Interval	Calibration Due	Serial No.
Rohde & Schwarz	ENV216/ LISN	Annual	02/09/2013	100073
Schwarzbeck	VULB 9168/ TRILOG Antenna	Biennial	02/09/2013	200
Rohde & Schwarz	ESI 40 / EMI TEST RECEIVER	Annual	05/03/2013	831564103
Agilent	E4440A/ Spectrum Analyzer	Annual	05/02/2013	US45303008
Agilent	N9020A/ SIGNAL ANALYZER	Annual	07/31/2013	MY51110020
HD	MA240/ Antenna Position Tower	N/A	N/A	556
EMCO	1050/ Turn Table	N/A	N/A	114
HD GmbH	HD 100/ Controller	N/A	N/A	13
HD GmbH	KMS 560/ SlideBar	N/A	N/A	12
Rohde & Schwarz	SCU-18/ Signal Conditioning Unit	Annual	09/11/2013	10094
MITEQ	AMF-6B-180265-35-10P / POWER AMP	Annual	04/16/2013	667624
CERNEX	CBL26405040 / POWER AMP	Annual	04/16/2013	19660
Schwarzbeck	BBHA 9120D/ Horn Antenna	Biennial	10/17/2013	937
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	Biennial	10/26/2012	BBHA9170342
Rohde & Schwarz	FSP / Spectrum Analyzer	Annual	02/09/2013	839117/011
Agilent	E4416A /Power Meter	Annual	11/07/2012	GB41291412
Agilent	E9327A /POWER SENSOR	Annual	05/02/2013	MY4442009
Wainwright Instrument	WHF3.3/18G-10EF / High Pass Filter	Annual	05/02/2013	1
Wainwright Instrument	WHNX6.0/26.5G-6SS / High Pass Filter	Annual	05/02/2013	1
Wainwright Instrument	WHNX7.0/18G-8SS / High Pass Filter	Annual	05/02/2013	29
Wainwright Instrument	WRCJ2400/2483.5-2370/2520-60/14SS / Band Reject Filter	Annual	05/02/2013	1
Hewlett Packard	11636B/Power Divider	Annual	11/07/2012	11377
Hewlett Packard	11667B / Power Splitter	Annual	06/05/2013	05001
DIGITAL	EP-3010 /DC POWER SUPPLY	Annual	11/07/2012	3110117
ITECH	IT6720 / DC POWER SUPPLY	Annual	11/07/2012	010002156287001199
TESCOM	TC-3000C / BLUETOOTH TESTER	Annual	11/14/2012	3000C000276
Rohde & Schwarz	CBT / BLUETOOTH TESTER	Annual	05/02/2013	100422
EMCO	6502.LOOP ANTENNA	Biennial	01/11/2014	9009-2536
MITEQ	AMF-6D-001180-35-20P/ POWER AMP	Annual	07/30/2013	990893
Agilent	8493C / Attenuator(10 dB)	Annual	07/30/2013	76649
WEINSCHL	2-3 / Attenuator(3 dB)	Annual	11/07/2013	BR0617
CERNEX	CBLU1183540 / POWER AMP	Annual	07/27/2013	21691