

Date: 2011-08-20 Page 1 of 64 No.: MH185439

Applicant (C00676): Shenzhen Shenchuang Electronics Co., Ltd.

7th Floor, West Tower, Hengfang Laobing Industrial Park, Xingye Road, Xixiang Town, Baoan District, Shenzhen,

China

Manufacturer: Shenzhen Shenchuang Electronics Co., Ltd.

7th Floor, West Tower, Hengfang Laobing Industrial Park, Xingye Road, Xixiang Town, Baoan District, Shenzhen,

China

Description of Sample(s): Submitted sample(s) said to be

Product: TV BOX
Brand Name: N/A
Model Number: T10
FCC ID: ZIET10

Date Sample(s) Received: 2011-07-05

Date Tested: 2011-07-06 to 2011-08-07

Investigation Requested: Perform ElectroMagnetic Interference measurement in

accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2010 and ANSI C63.4:2009 for FCC Certification.

Conclusion(s): The submitted product COMPLIED with the requirements of

Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this

Test Report.

Remark(s): ---

Dr. LEE Kam Chuen

Authorized Signatory

ElectroMagnetic Compatibility Department

For and on behalf of

The Hong Kong Standards and Testing Centre Ltd.



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1.0 General Details

1.1 Test Laboratory

The Hong Kong Standards and Testing Centre Ltd. EMC Laboratory 10 Dai Wang Street, Taipo Industrial Estate New Territories, Hong Kong

1.2 Equipment Under Test [EUT] Description of Sample(s)

Product: TV BOX

Manufacturer: Shenzhen Shenchuang Electronics Co., Ltd.

Brand Name: N/A Model Number: T10

Rating: 9.0Vd.c. with Jack

The AC/DC adapter was provided by the applicant with following details:

Brand name: N/A; Model no.GP303E-090-200; Input: 100-240Va.c. 50/60Hz 0.8A;

Output: 9.0Vd.c. 2A.

1.3 Description of EUT Operation

The Equipment Under Test (EUT) is a Shenzhen Shenchuang Electronics Co., Ltd. TV BOX. the transmission signal is digital modulated with channel frequency range 2412-2462MHz. The measurement were conducted at different modulation and data rate, the test results shown in this test report is based on the worst case of the initial investigation. During the test, the EUT connected USB flash drive & USB keyboard & USB mouse / TV, and communication with 2.4GHz Controller.

1.4 Date of Order

2011-07-05

1.5 Submitted Sample(s):

1 Sample

1.6 Test Duration

2011-07-06 to 2011-08-05

1.7 Country of Origin

China



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2.0 Technical Details

2.1 Investigations Requested

Perform Electromagnetic Interference measurements in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2010 Regulations and ANSI C63.4:2009 for FCC Certification.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary									
Test Condition	Test Requirement	Test Method	Class /	Test Result					
			Severity	Pass	Fail	N/A			
Output Power of Fundamental Emissions	FCC 47CFR 15.247(b)(3)	ANSI C63.4:2009	N/A						
Radiated Emissions	FCC 47CFR 15.209	ANSI C63.4:2009	N/A						
Conducted Emissions	FCC 47CFR 15.207	ANSIC63.4:2009	N/A	\boxtimes					
Power Spectral Density	FCC 47CFR 15.247(e)	N/A	N/A	\boxtimes					
Bandwidth	FCC 47CFR 15.247(a)(2)	N/A	N/A	\boxtimes					
Band Edge Emissions	FCC 47CFR 15.247(d)	N/A	N/A	\boxtimes					
RF Exposure	FCC 47CFR 15.247(b)(5)	N/A	N/A	\boxtimes					
Antenna requirement	FCC 47CFR 15.203	N/A	N/A	\boxtimes					

Note: N/A - Not Applicable



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3.0 Test Results

3.1 Emission

3.1.1 Maximum Peak Output Power

Test Requirement: FCC 47CFR 15.247(b)(3)

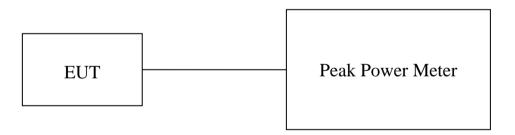
Test Method: N/A

Test Date: 2011-08-07 Mode of Operation: WiFi mode

Test Method:

The RF output of the EUT was connected to the peak power meter. All the attenuation or cable loss will be added to the measured maximum output power. The results are recorded in mW.

Test Setup:





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Limits for Peak Output Power of Fundamental & Harmonics Emissions [FCC 47CFR 15.247]:

For Digital Transmission systems in 2400-2483.5 MHz Band: 1 Watt (1000mW)

Results of WiFi Mode 802.11 b, (Tx:2412MHz to 2462MHz) : Pass (TX Unit) Maximum conducted output power								
Channel Frequency(MHz) Output Power								
Low 2412 8.38 mW								
Middle 2437 7.74 mW								
High 2462 8.13 mW								

Results of WiFi Mode 802.11 g, (Tx:2412MHz to 2462MHz) : Pass (TX Unit) Maximum conducted output power							
Channel Frequency(MHz) Output Power							
Low 2412 4.88 mW							
Middle 2437 4.95 mW							
High	2462	4.65 mW					

Calculated measurement uncertainty : 30MHz to 1GHz 5.1dB 1GHz to 25GHz 5.1dB



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Limits for Peak Output Power of Fundamental & Harmonics Emissions [FCC 47CFR 15.247]:

For Digital Transmission systems in 2400-2483.5 MHz Band: 1 Watt (1000mW)

Results of WiFi Mode 802.11 n20, (Tx:2412MHz to 2462MHz) : Pass (TX Unit) Maximum conducted output power								
Channel	Channel Frequency(MHz) Output Power							
Low	Low 2412 4.26 mW							
Middle 2437 3.37 mW								
High	2462	2.96 mW						

Results of WiFi Mode 802.11 n40, (Tx:2422MHz to 2452MHz) : Pass (TX Unit) Maximum conducted output power								
Channel Frequency(MHz) Output Power								
Low 2422 2.31 mW								
Middle 2437 2.14 mW								
High 2452 2.07 mW								

Calculated measurement uncertainty : 30MHz to 1GHz 5.1dB 1GHz to 25GHz 5.1dB



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3.1.2 Radiated Emissions

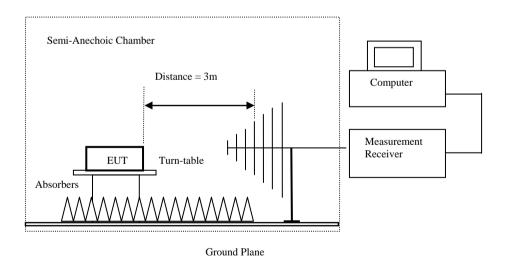
Test Requirement: FCC 47CFR 15.209
Test Method: ANSI C63.4:2009
Test Date: 2011-08-05
Mode of Operation: WiFi Mode

Test Method:

The sample was placed 0.8m above the ground plane of semi-anechoic Chamber*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

* Semi-anechoic chamber located on the G/F of "The Hong Kong Standards and Testing Centre Ltd." with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 607756.

Test Setup:



Absorbers placed on top of the ground plane are for measurements above 1000MHz only.



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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of WiFi Mode 802.11 b (9kHz - 30MHz): PASS

Emissions detected are more than 20 dB below the limit line(s)

Result of WiFi Mode 802.11 b(Above 1GHz): PASS

Field Strength of Harmonic Emissions								
	PeakValue							
Frequency	Measured	Correction	Field	Limit	Margin	E-Field		
	Level @3m	Factor	Strength	@3m		Polarity		
MHz	$dB\mu V$	dB/m	dBμV/m	dBμV/m	dBμV/m			
4824.0	23.2	41.9	65.1	74.0	-8.9	Vertical		
7236.0	13.7	48	61.7	74.0	-12.3	Vertical		

Field Strength of Harmonic Emissions							
		I	AverageValu	<u>.</u>			
Frequency	Measured	Correction	Field	Limit	Margin	E-Field	
	Level @3m	Factor	Strength	@3 m		Polarity	
MHz	dΒμV	dB/m	_dBµV/m_	dBμV/m_	_dBμV/m_		
4824.0	6.6	41.9	48.5	54.0	-5.5	Vertical	
7236.0	-4.4	48.0	43.6	54.0	-10.4	Vertical	

Remarks:

* Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.1dB 1GHz to 25GHz 5.1dB



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No.: MH185439

Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of WiFi Mode 802.11 b (9kHz - 30MHz): PASS

Emissions detected are more than 20 dB below the limit line(s)

Result of WiFi Mode 802.11 b(Above 1GHz): PASS

Field Strength of Harmonic Emissions								
			PeakValue					
Frequency	Measured	Correction	Field	Limit	Margin	E-Field		
	Level @3m	Factor	Strength	@3m		Polarity		
MHz	MHz $dB\mu V$ dB/m $dB\mu V/m$ $dB\mu V/m$ $dB\mu V/m$							
4874.0	16.7	41.4	58.1	74.0	-15.9	Vertical		
7311.0	9.0	48.7	57.7	74.0	-16.3	Vertical		

Field Strength of Harmonic Emissions							
		I	AverageValu	e			
Frequency	Measured	Correction	Field	Limit	Margin	E-Field	
	Level @3m	Factor	Strength	@3m		Polarity	
MHz	dΒμV	dB/m	_dBµV/m_	_dBμV/m_	dBμV/m		
4874.0	4.0	41.4	45.4	54.0	-8.6	Vertical	
7311.0	-2.4	48.7	46.3	54.0	-7.7	Vertical	

Remarks:

Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.1dB 1GHz to 25GHz 5.1dB



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No.: MH185439

Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]		
0.009-0.490	2400/F (kHz)		
0.490-1.705	24000/F (kHz)		
1.705-30	30		
30-88	100		
88-216	150		
216-960	200		
Above960	500		

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of WiFi Mode 802.11 b (9kHz - 30MHz): PASS

Emissions detected are more than 20 dB below the limit line(s)

Result of WiFi Mode 802.11 b(Above 1GHz): PASS

	Field Strength of Harmonic Emissions						
	PeakValue						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field	
	Level @3m	Factor	Strength	@3m		Polarity	
MHz	dΒμV	dB/m	_dBµV/m_	dBμV/m_	dBμV/m_		
4924.0	15.7	41.8	57.5	74.0	-16.5	Vertical	
7386.0	12.1	49.2	61.3	74.0	-12.7	Vertical	

Field Strength of Harmonic Emissions						
	AverageValue					
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dΒμV	dB/m	_dBµV/m_	dBμV/m_	dBμV/m	
4924.0	4.4	41.8	46.2	54.0	-7.8	Vertical
7386.0	-1.6	49.2	47.6	54.0	-6.4	Vertical

Remarks:

* Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.1dB 1GHz to 25GHz 5.1dB



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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]		
0.009-0.490	2400/F (kHz)		
0.490-1.705	24000/F (kHz)		
1.705-30	30		
30-88	100		
88-216	150		
216-960	200		
Above960	500		

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of WiFi Mode 802.11 g (9kHz - 30MHz): PASS

Emissions detected are more than 20 dB below the limit line(s)

Result of WiFi Mode 802.11 g(Above 1GHz): PASS

Result of Wifi	tesuit of WiF1 Mode 802.11 g(Above 1GHz): PASS						
Field Strength of Harmonic Emissions							
	PeakValue						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field	
	Level @3m	Factor	Strength	@3m		Polarity	
MHz	dΒμV	dB/m	_dBµV/m_	dBμV/m_	dBμV/m		
4824.0	16.7	41.9	58.6	74.0	-15.4	Vertical	
7236.0	12.2	48.0	60.2	74.0	-13.8	Vertical	

Field Strength of Harmonic Emissions						
	AverageValue					
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dΒμV	dB/m	_dBµV/m_	dBμV/m	dBμV/m	
4824.0	2.9	41.9	44.8	54.0	-9.2	Vertical
7236.0	-2.7	48.0	45.3	54.0	-8.7	Vertical

Remarks:

Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.1dB 1GHz to 25GHz 5.1dB



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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]		
0.009-0.490	2400/F (kHz)		
0.490-1.705	24000/F (kHz)		
1.705-30	30		
30-88	100		
88-216	150		
216-960	200		
Above960	500		

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of WiFi Mode 802.11 g (9kHz - 30MHz): PASS

Emissions detected are more than 20 dB below the limit line(s)

Result of WiFi Mode 802.11 g(Above 1GHz): PASS

Result of WIFT	tesuit of wirt mode 802.11 g(Above 1GHz): PASS						
Field Strength of Harmonic Emissions							
	PeakValue						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field	
	Level @3m	Factor	Strength	@3m		Polarity	
MHz	dΒμV	dB/m	_dBµV/m_	dBμV/m_	dBμV/m		
4874.0	17.1	41.4	58.5	74.0	-15.5	Vertical	
7311. 0	9.5	48.7	58.2	74.0	-15.8	Vertical	

Field Strength of Harmonic Emissions						
	AverageValue					
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dΒμV	dB/m	_dBµV/m_	dBμV/m	dBμV/m	
4874.0	4.5	41.4	45.9	54.0	-8.1	Vertical
7311.0	-2.2	48.7	46.5	54.0	-7.5	Vertical

Remarks:

* Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.1dB 1GHz to 25GHz 5.1dB



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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Eminis for Radiated Emissions [1 CC 47 CI R 13:207 Class B].						
Frequency Range	Quasi-Peak Limits					
[MHz]	$[\mu V/m]$					
0.009-0.490	2400/F (kHz)					
0.490-1.705	24000/F (kHz)					
1.705-30	30					
30-88	100					
88-216	150					
216-960	200					
Above960	500					

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of WiFi Mode 802.11 g (9kHz - 30MHz): PASS

Emissions detected are more than 20 dB below the limit line(s)

Result of WiFi Mode 802.11 g (Above 1GHz): PASS

result of villa	result of Will Mode 002.11 g (Moove 19112): 17155					
Field Strength of Harmonic Emissions						
	PeakValue					
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dΒμV	dB/m	_dBµV/m_	dBμV/m_	dBμV/m_	
4924.0	18.3	41.8	60.1	74.0	-13.9	Vertical
7386.0	7.2	49.2	56.4	74.0	-17.6	Vertical

Field Strength of Harmonic Emissions						
	AverageValue					
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	$dB\mu V$	dB/m	_dBμV/m_	dBμV/m	dBμV/m	
4924.0	5.7	41.8	47.5	54.0	-6.5	Vertical
7386.0	-3.4	49.2	45.8	54.0	-8.2	Vertical

Remarks:

* Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.1dB 1GHz to 25GHz 5.1dB



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No.: MH185439

Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Elimits for Radiated Elimssions [1 CC 47 CI R 13:207 Class b].						
Frequency Range	Quasi-Peak Limits					
[MHz]	$[\mu V/m]$					
0.009-0.490	2400/F (kHz)					
0.490-1.705	24000/F (kHz)					
1.705-30	30					
30-88	100					
88-216	150					
216-960	200					
Above960	500					

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of WiFi Mode 802.11 n20 (9kHz - 30MHz): PASS

Emissions detected are more than 20 dB below the limit line(s)

Result of WiFi Mode 802.11 n20 (Above 1GHz): PASS

Field Strength of Harmonic Emissions						
			PeakValue			
Frequency	Frequency Measured Correction Field Limit Margin E-Field					E-Field
	Level @3m	Factor	Strength	@3m		Pola ri ty
MHz	dΒμV	dB/m	_dBµV/m_	dBμV/m_	dBμV/m_	
4824.0	17.3	41.9	59.2	74.0	-14.8	Vertical
7236.0	14.4	48.0	62.4	74.0	-11.6	Vertical

Field Strength of Harmonic Emissions						
		I	AverageValu	e		
Frequency	Frequency Measured Correction Field Limit Margin E-Field					
	Level @3m	Factor	Strength	@3m		Polarity
MHz	$dB\mu V$	dB/m	_dBμV/m_	dBμV/m	dBμV/m	
4824.0	1.4	41.9	43.3	54.0	-10.7	Vertical
7236.0	-3.3	48.0	44.7	54.0	-9.3	Vertical

Remarks:

Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.1dB 1GHz to 25GHz 5.1dB



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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of WiFi Mode 802.11 n20 (9kHz - 30MHz): PASS

Emissions detected are more than 20 dB below the limit line(s)

Result of WiFi Mode 802.11 n20 (Above 1GHz): PASS

	estate of the first open and the						
	Field Strength of Harmonic Emissions						
	PeakValue						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field	
	Level @3m	Factor	Strength	@3m		Polarity	
MHz	MHz $dB\mu V$ dB/m $dB\mu V/m$ $dB\mu V/m$ $dB\mu V/m$						
4874.0	15.4	41.4	56.8	74.0	-17.2	Vertical	
7311.0	10.0	48.7	58.7	74.0	-15.3	Vertical	

Field Strength of Harmonic Emissions							
		I	AverageValue	e			
Frequency	Frequency Measured Correction Field Limit Margin E-Field						
	Level @3m	Factor	Strength	@3m		Polarity	
MHz	MHz dBμV dB/m dBμV/m dBμV/m dBμV/m						
4874.0	2.0	41.4	43.4	54.0	-10.6	Vertical	
7311.0	-4.6	48.7	44.1	54.0	-9.9	Vertical	

Remarks:

* Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.1dB 1GHz to 25GHz 5.1dB



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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Elimits for Radiated Elimssions [1 CC 47 Cl R 13.207 Class B].						
Frequency Range	Quasi-Peak Limits					
[MHz]	$[\mu V/m]$					
0.009-0.490	2400/F (kHz)					
0.490-1.705	24000/F (kHz)					
1.705-30	30					
30-88	100					
88-216	150					
216-960	200					
Above960	500					

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of WiFi Mode 802.11 n20 (9kHz - 30MHz): PASS

Emissions detected are more than 20 dB below the limit line(s)

Result of WiFi Mode 802.11 n20 (Above 1GHz)): Pass

Result of Will'i	result of Wiff Wide 602.11 H20 (Above 10112)). I ass						
Field Strength of Harmonic Emissions							
	PeakValue PeakValue						
Frequency	Frequency Measured Correction Field Limit Margin E-Fiel						
	Level @3m	Factor	Strength	@3m		Polarity	
MHz	MHz dBμV dB/m dBμV/m dBμV/m dBμV/m						
4924.0	16.1	41.8	57.9	74.0	-16.1	Vertical	
7386.0	9.0	49.2	58.2	74.0	-15.8	Vertical	

Field Strength of Harmonic Emissions						
		I	AverageValu	e		
Frequency	Frequency Measured Correction Field Limit Margin E-Field					E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dΒμV	dB/m	_dBµV/m_	dBμV/m_	dBμV/m	
4924.0	4.0	41.8	45.8	54.0	-8.2	Vertical
7386.0	-2.8	49.2	46.4	54.0	-7.6	Vertical

Remarks:

Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.1dB 1GHz to 25GHz 5.1dB



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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Elimits for Radiated Elimssions [1 CC 47 CI R 13:207 Class b].						
Frequency Range	Quasi-Peak Limits					
[MHz]	$[\mu V/m]$					
0.009-0.490	2400/F (kHz)					
0.490-1.705	24000/F (kHz)					
1.705-30	30					
30-88	100					
88-216	150					
216-960	200					
Above960	500					

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of WiFi Mode 802.11 n40 (9kHz - 30MHz): PASS

Emissions detected are more than 20 dB below the limit line(s)

Result of WiFi Mode 802.11 n40 (Above 1GHz): Pass

	Field Strength of Harmonic Emissions						
			PeakValue				
Frequency	Measured	Correction	Field	Limit	Margin	E-Field	
	Level @3m	Factor	Strength	@3m		Pola ri ty	
MHz	dΒμV	dB/m	_dBµV/m_	dBμV/m	dBμV/m_		
4844.0	16.7	41.9	58.6	74.0	-15.4	Vertical	
7266.0	11.1	48.0	59.1	74.0	-14.9	Vertical	

Field Strength of Harmonic Emissions						
		I	AverageValu	e		
Frequency	Frequency Measured Correction Field Limit Margin E-Field					
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dΒμV	dB/m	_dBµV/m_	dBμV/m_	dBμV/m	
4844.0	0.6	41.9	42.5	54.0	-11.5	Vertical
7266.0	-2.3	48.0	45.7	54.0	-8.3	Vertical

Remarks:

Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.1dB 1GHz to 25GHz 5.1dB



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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of WiFi Mode 802.11 n40 (9kHz - 30MHz): PASS

Emissions detected are more than 20 dB below the limit line(s)

Result of WiFi Mode 802.11 n40 (Above 1GHz): Pass

	Field Strength of Harmonic Emissions					
	PeakValue					
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Pola ri ty
MHz	dΒμV	dB/m	_dBµV/m_	dBμV/m_	dBμV/m_	
4874.0	15.8	41.4	57.2	74.0	-16.8	Vertical
7311.0	11.0	48.7	59.7	74.0	-14.3	Vertical

	Field Strength of Harmonic Emissions					
		I	AverageValu	e		
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dΒμV	dB/m	_dBµV/m_	dBμV/m_	dBμV/m	
4874.0	1.4	41.4	42.8	54.0	-11.2	Vertical
7311.0	-4.9	48.7	43.8	54.0	-10.2	Vertical

Remarks:

Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.1dB 1GHz to 25GHz 5.1dB



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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Emilia for Reducted Emissions [1 66 47 61 R 15:207 Class B].					
Frequency Range	Quasi-Peak Limits				
[MHz]	$[\mu V/m]$				
0.009-0.490	2400/F (kHz)				
0.490-1.705	24000/F (kHz)				
1.705-30	30				
30-88	100				
88-216	150				
216-960	200				
Above960	500				

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of WiFi Mode 802.11 n40: PASS

Emissions detected are more than 20 dB below the limit line(s)

Result of WiFi Mode 802.11 n40 (Above 1GHz): PASS

Result of Will'i	esuit of Will Would over 11 in to (Above 10112). I Abb						
	Field Strength of Harmonic Emissions						
	PeakValue						
Frequency	Measured	Correction	Field	Limit	Margin	E-Field	
	Level @3m	Factor	Strength	@3m		Polarity	
MHz	dΒμV	dB/m	_dBµV/m_	dBμV/m_	_dBμV/m_		
4904.0	15.5	41.8	57.3	74.0	-16.7	Vertical	
7356.0	5.9	49.2	55.1	74.0	-18.9	Vertical	

	Field Strength of Harmonic Emissions					
		I	AverageValu	e		
Frequency	Measured	Correction	Field	Limit	Margin	E-Field
	Level @3m	Factor	Strength	@3m		Polarity
MHz	dΒμV	dB/m	_dBµV/m_	dBμV/m_	dBμV/m	
4904.0	4.4	41.8	46.2	54.0	-7.8	Vertical
7356.0	-2.9	49.2	46.3	54.0	-7.7	Vertical

Remarks:

Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.1dB 1GHz to 25GHz 5.1dB



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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Elimis for Radiated Elimssions [Fee 47 CFR 13:207 Class D].					
Frequency Range	Quasi-Peak Limits				
[MHz]	$[\mu V/m]$				
0.009-0.490	2400/F (kHz)				
0.490-1.705	24000/F (kHz)				
1.705-30	30				
30-88	100				
88-216	150				
216-960	200				
Above960	500				

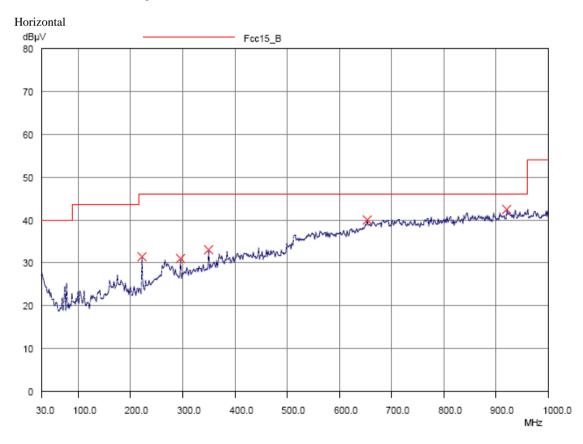
The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of WiFi mode (9kHz-30MHz): PASS

Emissions detected are more than 20 dB below the FCC Limits

Results of WiFi mode (30MHz-1000MHz): PASS

Please refer to the following table for result details



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Results of WiFi mode (30MHz-1000MHz): PASS

	Radiated Emissions Quasi-Peak						
Emission	E-Field	Level	Limit	Level	Limit		
Frequency	Pola rity	@3 m	@3m	@3 m	@3 m		
MHz		dBµV/m	dBµV/m	μV/m_	μV/m_		
222.8	Horizontal	31.5	46.0	37.6	200		
297.0	Horizontal	31.1	46.0	35.9	200		
350.0	Horizontal	33.2	46.0	45.7	200		
652.7	Horizontal	40.1	46.0	101.2	200		
919.6	Horizontal	40.6	46.0	107.2	200		

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB

1GHz to 18GHz 5.1dB



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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Elimis for Radiated Elimssions [Fee 47 CFR 13:207 Class D].					
Frequency Range	Quasi-Peak Limits				
[MHz]	$[\mu V/m]$				
0.009-0.490	2400/F (kHz)				
0.490-1.705	24000/F (kHz)				
1.705-30	30				
30-88	100				
88-216	150				
216-960	200				
Above960	500				

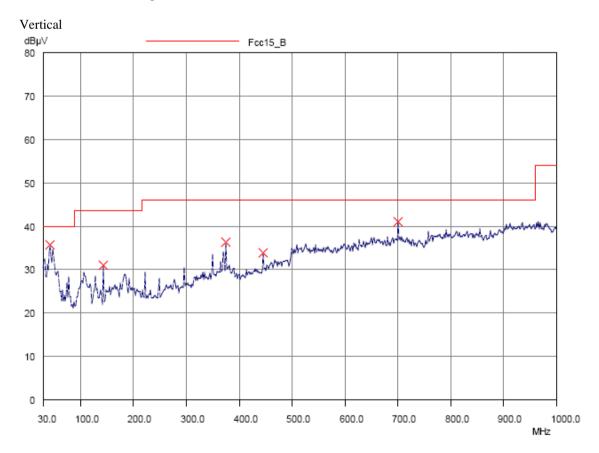
The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of WiFi mode (9kHz-30MHz): PASS

Emissions detected are more than 20 dB below the FCC Limits

Results of WiFi mode (30MHz-1000MHz): PASS

Please refer to the following table for result details



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Results of WiFi mode (30MHz-1000MHz): PASS

	Radiated Emissions Quasi-Peak							
Emission	E-Field	Level	Limit	Level	Limit			
Frequency	Polarity	@3m	@3m	@3 m	@ 3m			
MHz		dBµV/m	dBµV/m	μV/m_	μV/m_			
41.9	Vertical	34.8	40.0	55.0	100			
144.0	Vertical	31.1	43.5	35.9	150			
375.0	Vertical	36.4	46.0	66.1	200			
445.5	Vertical	34.1	46.0	50.7	200			
700.0	Vertical	41.0	46.0	112.2	200			

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB

1GHz to 18GHz 5.1dB



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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Emits for Rudiated Emissions [1 66 47 CTR 15:207 Class D].					
Frequency Range	Quasi-Peak Limits				
[MHz]	$[\mu V/m]$				
0.009-0.490	2400/F (kHz)				
0.490-1.705	24000/F (kHz)				
1.705-30	30				
30-88	100				
88-216	150				
216-960	200				
Above960	500				

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of WiFi mode (Rx: 802.11b, 802.11g, 802.11 n20, 802.11 n40): PASS

Emissions detected are more than 20 dB below the limit line(s)

Remarks:

* Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.1dB 1GHz to 25GHz 5.1dB



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3.1.3 Power Spectral Density

Test Requirement: FCC 47CFR 15.247(e)
Test Method: ANSI C63.4:2009
Test Date: 2010-04-12

Mode of Operation: WiFi Mode (and communication with 2.4GHz controller)

Test Method:

The RF output of the EUT was connected to the spectrum analyzer. Set the fundamental frequency as the center frequency of the spectral analyzer. Use RBW=3kHz and sweep time = span/3kHz. Measure the Power Spectral Density (PSD) and record the results in dBm.

For multiple antenna measurement, all the available transmitter output will be connected to the spectrum analyzer through a power combiner.

Test Setup:

As Test Setup of clause 3.1.1 in this test report.

Test Limit:

The maximum power spectral density (PSD) shall not exceeded 8dBm in any 3kHz band.

Results of WiFi Mode 802.11 b (Tx:2412MHz to 2462MHz): Pass (TX Unit) Maximum power spectral density

Transmitter Frequency (MHz)	Maximum power spectral density (dBm)
2412.0	-11.09

Transmitter Frequency (MHz)	Maximum power spectral density (dBm)
2437.0	-10.13

Transmitter Frequency (MHz)	Maximum power spectral density (dBm)
2462.0	-10.28

Results of WiFi Mode 802.11 g (Tx:2412MHz to 2462MHz) : Pass (TX Unit) Maximum power spectral density

Transmitter Frequency (MHz)	Maximum power spectral density (dBm)
2412.0	-18.73

Transmitter Frequency (MHz)	Maximum power spectral density (dBm)
2437.0	-17.90

Transmitter Frequency (MHz)	Maximum power spectral density (dBm)
2462.0	-18.63



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2462.0

Results of WiFi Mode 802.11 n20 (Tx:2412MHz to 2462MHz) : Pass (TX Unit) Maximum power spectral density

Transmitter Frequency (MHz)	Maximum power spectral density (dBm)
2412.0	-18.21
Transmitter Frequency (MHz)	Maximum power spectral density (dBm)
2427.0	17 67

2437.0	-17.67
Transmitter Frequency (MHz)	Maximum power spectral density (dBm)

-17.50

Results of WiFi Mode 802.11 n40 (Tx:2412MHz to 2462MHz) : Pass (TX Unit) Maximum power spectral density

Transmitter Frequency (MHz)	Maximum power spectral density (dBm)
2422.0	-22.61

Transmitter Frequency (MHz)	Maximum power spectral density (dBm)
2437.0	-22.24

Transmitter Frequency (MHz)	Maximum power spectral density (dBm)
2452.0	-21.69

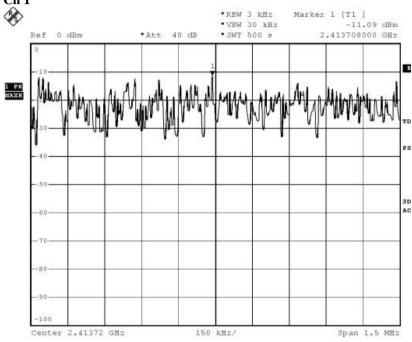


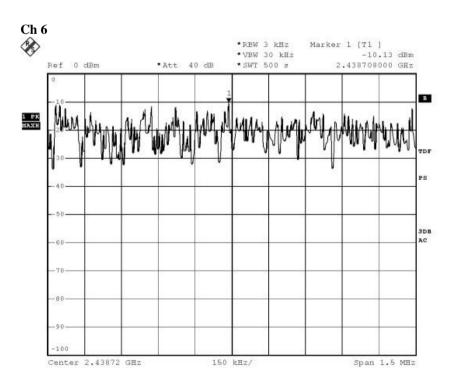
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WiFi mode 802.11 b 11Mbit, (2412MHz to 2462MHz)







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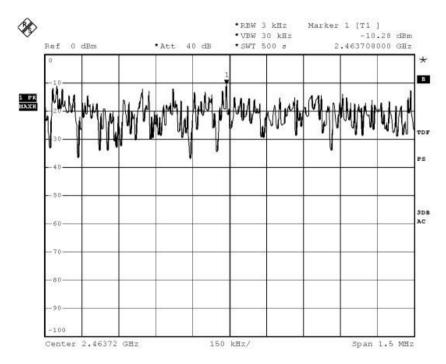
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Ch 11

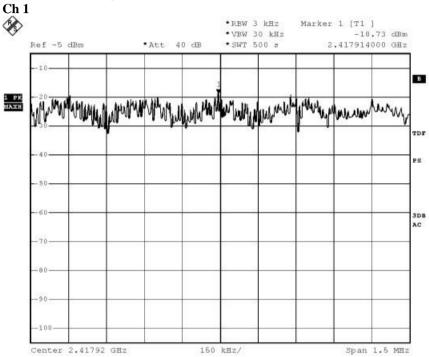


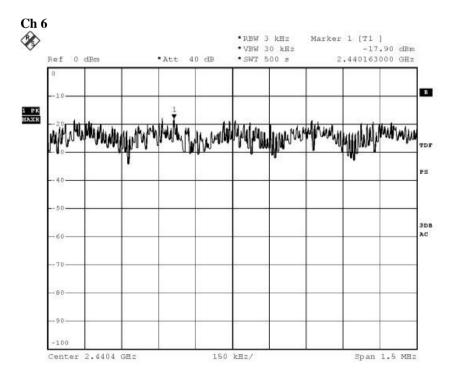


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WiFi mode 802.11 g 54Mbit, (2412MHz to 2462MHz) $\,$





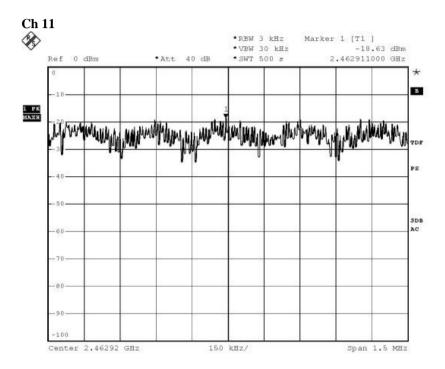
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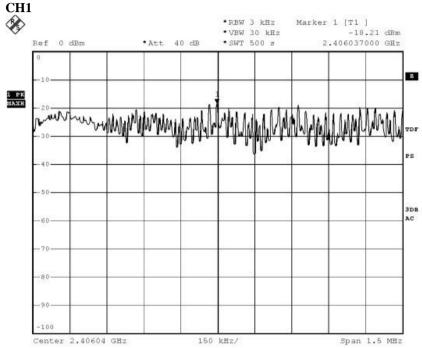


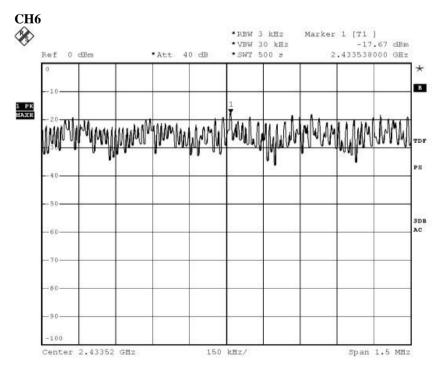


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WiFi mode 802.11 n20 130Mbit (2412MHz to 2462MHz)



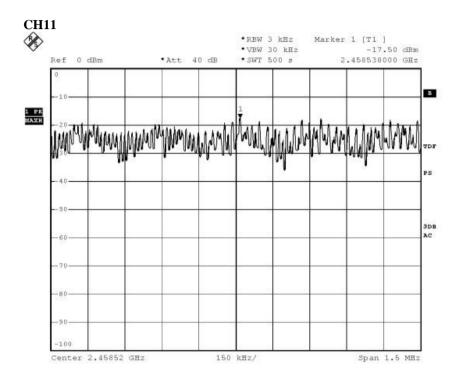


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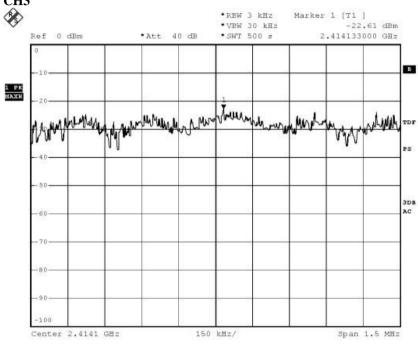


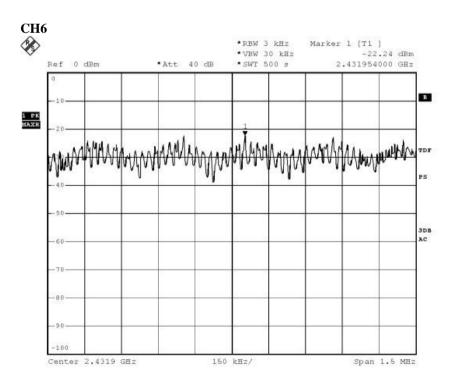


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WiFi mode 802.11 n40 130Mbit (2422MHz to 2452MHz) CH3





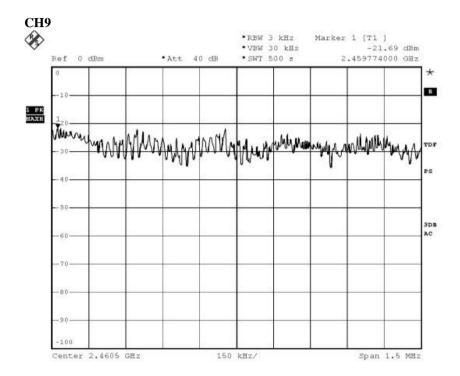
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3.1.4 6dB Spectrum Bandwidth Measurement

Test Requirement: FCC 47CFR 15.247(a)(2)

Test Method: ANSI C63.4:2009

Test Date: 2011-08-07 Mode of Operation: WiFi Mode

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

For multiple antenna measurement, all the available transmitter output will be connected to the spectrum analyzer through a power combiner.

Test Setup:

As Test Setup of clause 3.1.1 in this test report.



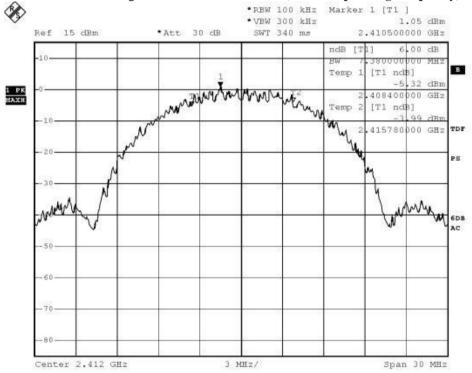
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Limits for 6dB Spectrum Bandwidth Measurement:

Center Frequency	6dB Bandwidth	FCC Limits
[MHz]	[MHz]	[kHz]
2412.0	7.38	> 500

6 dB Bandwidth Plot on Configuration IEEE 802.11b CH1 (Lowest Operating Frequency)





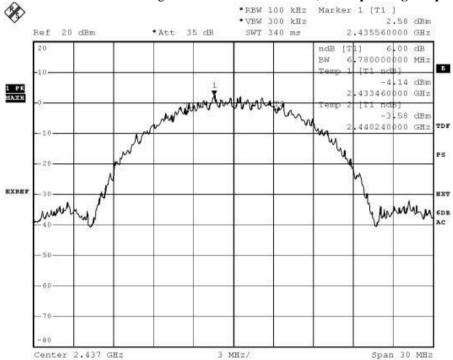
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Limits for 6dB Spectrum Bandwidth Measurement:

Frequency Range	6dB Bandwidth	FCC Limits
[MHz]	[MHz]	[kHz]
2437.0	6.78	> 500

6 dB Bandwidth Plot on Configuration IEEE 802.11b CH6 (Mid. Operating Frequency)



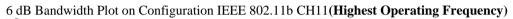


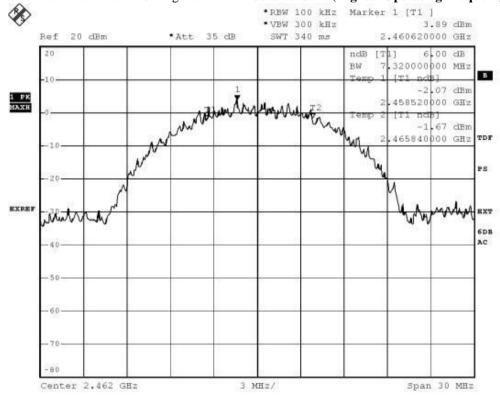
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Limits for 6dB Spectrum Bandwidth Measurement:

Frequency Range	6dB Bandwidth	FCC Limits
[MHz]	[MHz]	[kHz]
2462.0	7.32	> 500







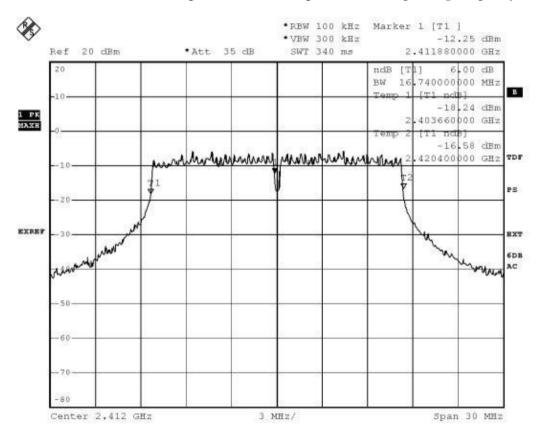
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Limits for 6dB Spectrum Bandwidth Measurement:

Center Frequency	6dB Bandwidth	FCC Limits
[MHz]	[MHz]	[kHz]
2412.0	16.74	> 500

6 dB Bandwidth Plot on Configuration IEEE 802.11g CH1 (Lowest Operating Frequency)





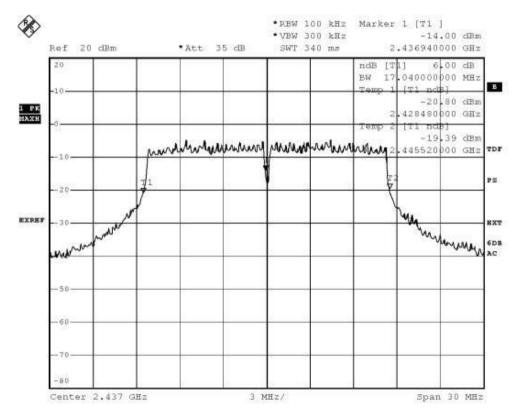
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Limits for 6dB Spectrum Bandwidth Measurement:

Frequency Range	6dB Bandwidth	FCC Limits
[MHz]	[MHz]	[kHz]
2437.0	17.04	> 500

6 dB Bandwidth Plot on Configuration IEEE 802.11g CH6 (Mid. Operating Frequency)





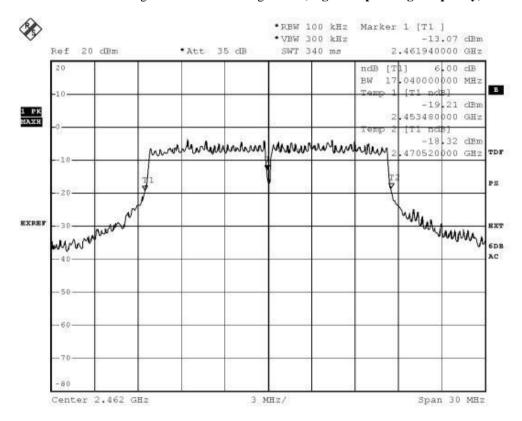
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Limits for 6dB Spectrum Bandwidth Measurement:

Frequency Range	6dB Bandwidth	FCC Limits
[MHz]	[MHz]	[kHz]
2462.0	17.04	> 500

dB Bandwidth Plot on Configuration IEEE 802.11g CH11 (Highest Operating Frequency)





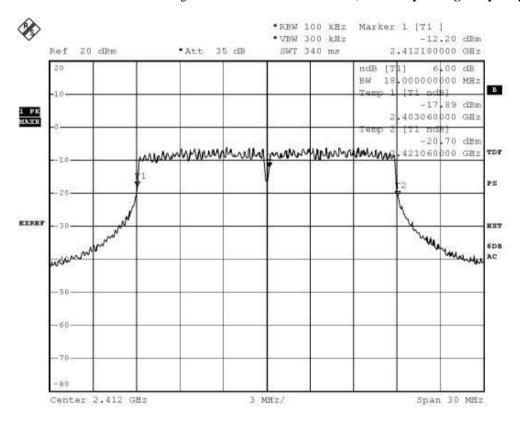
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Limits for 6dB Spectrum Bandwidth Measurement:

Frequency Range	6dB Bandwidth	FCC Limits
[MHz]	[MHz]	[kHz]
2412.0	18.00	> 500

6 dB Bandwidth Plot on Configuration IEEE 802.11 n20 CH1 (Lowest Operating Frequency)





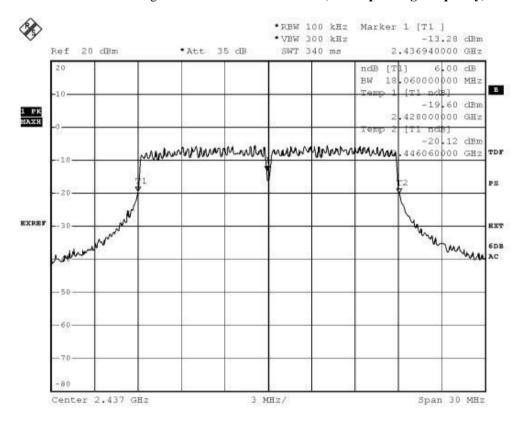
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Limits for 6dB Spectrum Bandwidth Measurement:

Frequency Range	6dB Bandwidth	FCC Limits
[MHz]	[MHz]	[kHz]
2437.0	18.06	> 500

6 dB Bandwidth Plot on Configuration IEEE 802.11 n20 CH6 (Mid. Operating Frequency)





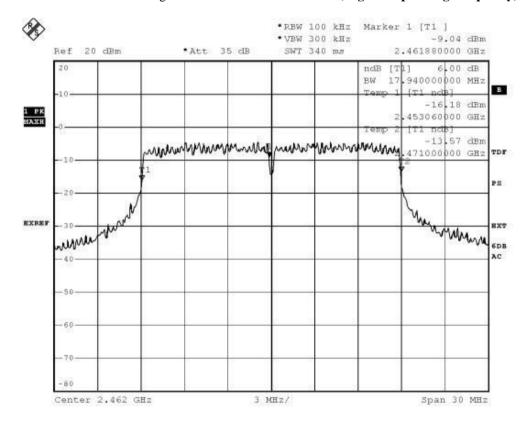
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Limits for 6dB Spectrum Bandwidth Measurement:

Frequency Range	6dB Bandwidth	FCC Limits
[MHz]	[MHz]	[kHz]
2462.0	17.94	> 500

6 dB Bandwidth Plot on Configuration IEEE 802.11 n20 CH11 (**Highest Operating Frequency**)





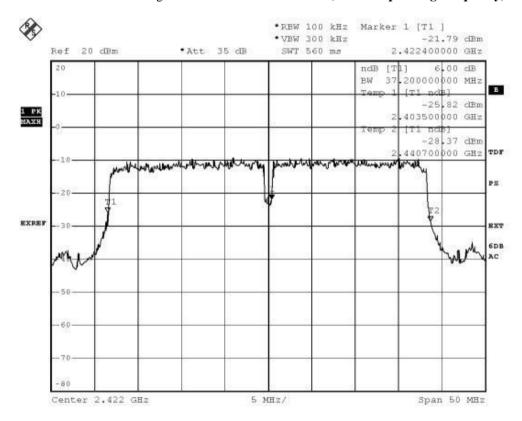
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Limits for 6dB Spectrum Bandwidth Measurement:

Frequency Range	6dB Bandwidth	FCC Limits
[MHz]	[MHz]	[kHz]
2422.0	37.20	> 500

6 dB Bandwidth Plot on Configuration IEEE 802.11 n40 CH3 (Lowest Operating Frequency)





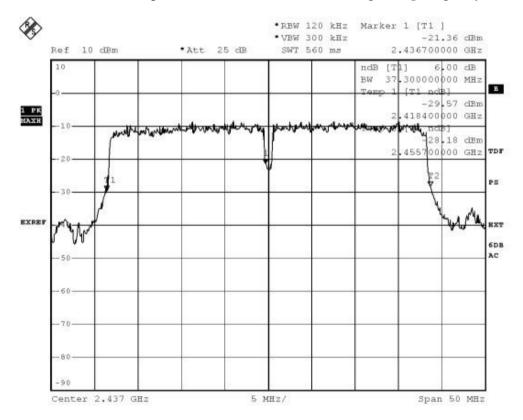
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Limits for 6dB Spectrum Bandwidth Measurement:

Frequency Range	6dB Bandwidth	FCC Limits
[MHz]	[MHz]	[kHz]
2437.0	37.3	> 500

6 dB Bandwidth Plot on Configuration IEEE 802.11 n40 CH6 (Mid. Operating Frequency)





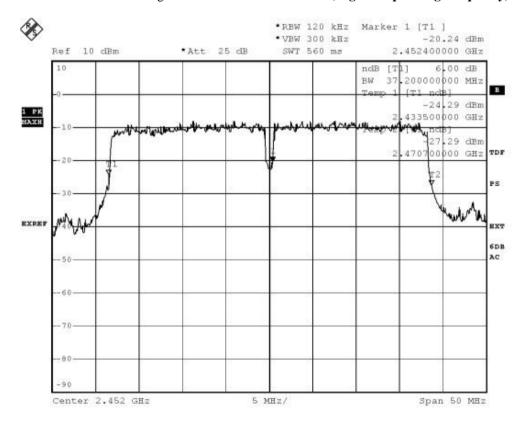
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Limits for 6dB Spectrum Bandwidth Measurement:

Frequency Range	6dB Bandwidth	FCC Limits
[MHz]	[MHz]	[kHz]
2452.0	37.2	> 500

6 dB Bandwidth Plot on Configuration IEEE 802.11 n40 CH9 (Highest Operating Frequency)





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3.1.5 Band Edges Measurement

Test Requirement: FCC 47CFR 15.247
Test Method: ANSI C63.4:2009
Test Date: 2011-08-17
Mode of Operation: WiFi Mode

Test Method:

The band edge is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. The RBW and VBW are set to 100kHz for this measurement.

Test Setup:

As Test Setup of clause 3.1.2 in this test report.

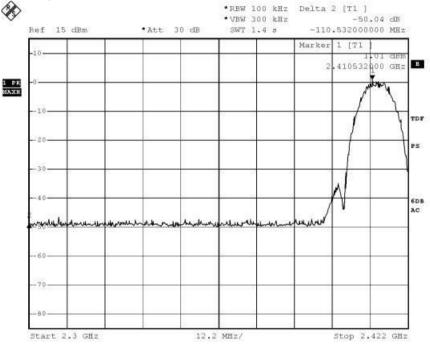
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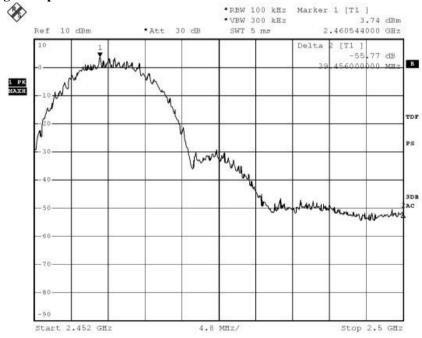
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Band-edge Compliance of RF Emissions (WiFi Mode 802.11 b 11Mbit Channel 1 - Lowest)



Band-edge Compliance of RF Emissions (WiFi Mode 802.11 b 11Mbit Channel 11 - Highest)

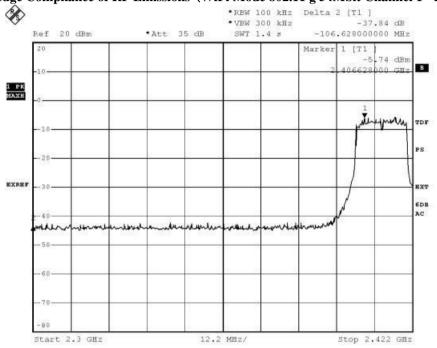


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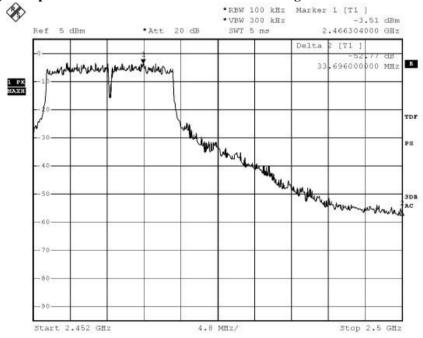


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Band-edge Compliance of RF Emissions (WiFi Mode 802.11 g 54Mbit Channel 1 - Lowest)



Band-edge Compliance of RF Emissions (WiFi Mode 802.11 g 54Mbit Channel 11 - Highest)



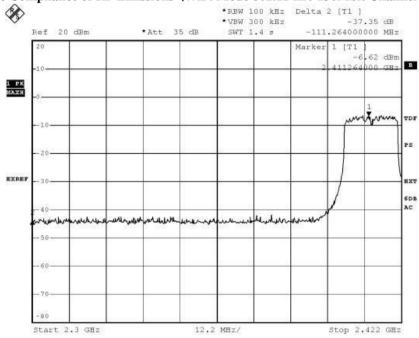
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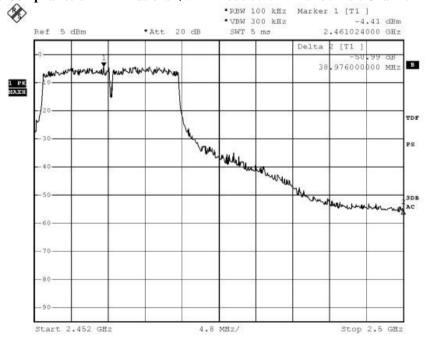
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Band-edge Compliance of RF Emissions (WiFi Mode 802.11 n20 130Mbit Channel 1 - Lowest)



Band-edge Compliance of RF Emissions (WiFi Mode 802.11 n20 130Mbit Channel 11 - Highest)



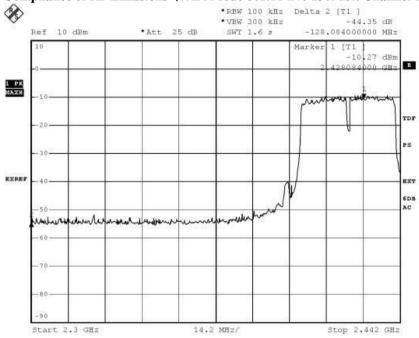
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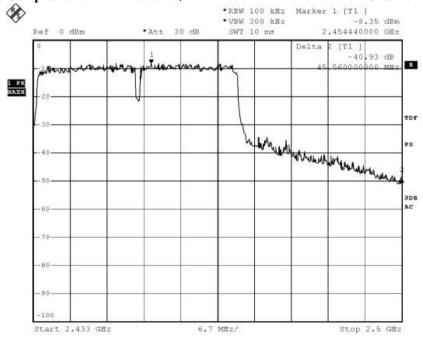
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Band-edge Compliance of RF Emissions (WiFi Mode 802.11 n40 130Mbit Channel 1 - Lowest)



Band-edge Compliance of RF Emissions (WiFi Mode 802.11 n40 130Mbit Channel 9 - Highest)



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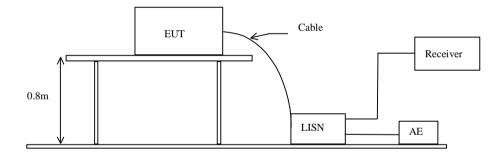
3.1.7 Conducted Emissions (0.15MHz to 30MHz)

Test Requirement: FCC 47CFR 15.207
Test Method: ANSI C63.4:2009
Test Date: 2011-07-11
Mode of Operation: WiFi Mode

Test Method:

The test was performed in accordance with ANSI C63.4:2009, with the following: an initial measurement was performed in peak and average detection mode on the live line, any emissions recorded within 30dB of the relevant limit line were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

Test Setup:





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Limit for Conducted Emissions (FCC 47 CFR 15.207):

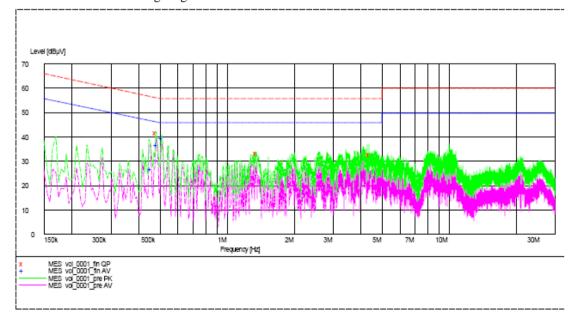
Frequency Range	Quasi-Peak Limits	Average
[MHz]	[dBµV]	[dBµV]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

^{*} Decreases with the logarithm of the frequency.

Limits for Conducted Emissions Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.

Results of WiFi mode (L): PASS

Please refer to the following diagram for individual results.



Remark:

Calculated measurement uncertainty: 3.97dB

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Limit for Conducted Emissions (FCC 47 CFR 15.207):

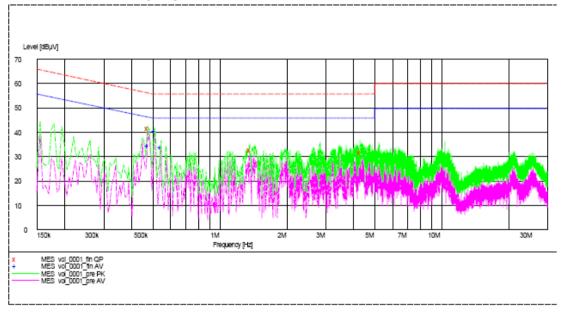
Frequency Range	Quasi-Peak Limits	Average
[MHz]	[dBµV]	[dBµV]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

^{*} Decreases with the logarithm of the frequency.

Limits for Conducted Emissions Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.

Results of WiFi mode (N): PASS

Please refer to the following diagram for individual results.



Remarks

Calculated measurement uncertainty: 3.97dB

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RF Exposure

Test Requirement: FCC 47CFR 15.247(b)(5)

Test Date: 2011-08-07 Mode of Operation: WiFi mode

Test Method:

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines.

Test Results:

The EUT complied with the requirement(s) of this section. EUT meets the requirements of these sections as proven through MPE calculation The MPE calculation for EUT @ 20cm Based on the highest $P=8.38\ mW$

```
Pd = PG/4pi*R<sup>2</sup> = (8.38 \times 1.122)/12.566*(20)^2
= (9.402)/12.566 \times 400 = 9.402/5026.4
= 0.00187 \text{mW/cm}^2
```

where:

- *Pd = power density in mW/cm2
- * G = Antenna numeric gain (1.122); Log G = g/10 (g = 0.5dBi).
- * P = Conducted RF power to antenna (8.38 mW).
- * R = Minimum allowable distance.(20 cm)
- *The power density $Pd = 0.014 \text{ mW/cm}^2$ is less than 1 mW/cm² (listed MPE limit)
- *The SAR evaluation is not needed (this is a desk top device, R> 20 cm)
- * The EUT(antenna) must be 0.2 meters away from the General Population.



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Antenna Requirement

Test Requirements: § 15.203

Test Specification:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Test Results:

The EUT has 2 Dipole Antenna which is connected to the reverse-polarity SMA connector on the PCB of the main unit, the antenna gain = 0.5dBi. All component install on inside of EUT. User unable to remove or changed the Antenna.

Frequency List for 802.11 b/g, n20/40 There are two bandwidth systems for IEEE 802.11n For both 20MHz bandwidth systems, use Channel 1-Channel 11. For both 40MHz bandwidth systems, use Channel 3-Channel 9.

Item	Frequency (MHz)	Item	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437	_	_



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Appendix A

List of Measurement Equipment

Conducted RF Power

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM229	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB40	100248	2010/09/08	2011/09/08
N/A	2 WAY RESISTIVE POWER COMBINER	JFW	50PD-379	0941	2011/07/15	2012/07/15

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM020	HORN ANTENNA	EMCO	3115	4032	2009/09/02	2011/09/02
EM215	MULTIDEVICE CONTROLLER	EMCO	2090	00024676	N/A	N/A
EM216	MINI MAST SYSTEM	EMCO	2075	00026842	N/A	N/A
EM217	ELECTRIC POWERED TURNTABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-Linggren	FACT-3		2010/10/25	2011/10/25
EM174	BICONILOG ANTENNA	EMCO	3142B	1671	2010/02/09	2012/02/09
EM229	EMI Test Receiver	R&S	ESIB40	100248	2011/04/26	2012/04/26
EM022	LOOP ANTENNA	EMCO	6502	1189-2424	2009/09/07	2011/09/07

Line Conducted

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM197	LISN	EMCO	4825/2	1193	2010/10/13	2011/10/13
EM181	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB7	100072	2011/04/26	2012/04/26
EM154	SHIELDING ROOM	SIEMENS MATSUSHITA COMPONENTS	N/A	803-740-057- 99A	2011/01/23	2012/01/23

Remarks:-

CM Corrective Maintenance

N/A Not Applicable TBD To Be Determined



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Appendix B

Ancillary Equipment

ITEM NO.	DESCRIPTION	MODEL NO.	FCC ID	REMARK
1	LCD TV	LCD-1501	N/A	15" LCD TV
2	DELL KEYBOARD	SK-8110	N/A	1.8M SHIELDED COILED CABLE CONNECTED TO THE COMPUTER
3	DELL MOUSE	N/A	N/A	2.4M UNSHIELDED CABLE CONNECTED TO THE COMPUTER
4	SD CARD	N/A	N/A	2.0 GB SD MEMORY CARD
5	USB FLASH DRIVE	N/A	N/A	HIGH-SPEED USB 2.0 8GB FLASH DRIVE



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Appendix C

Photographs of EUT

Front View of the product



Rear View of the product



Inner Circuit Top View



Inner Circuit Bottom View



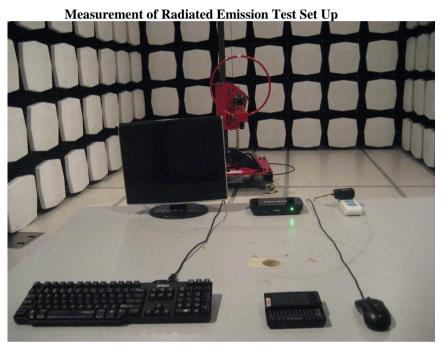
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Photographs of EUT





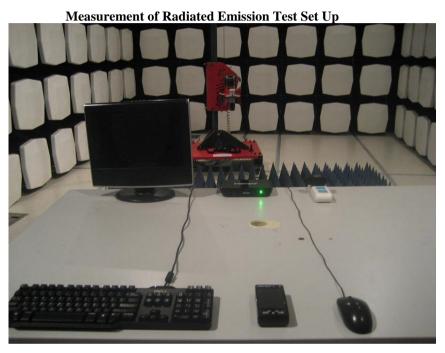
The Hong Kong Standards and Testing Centre Ltd.

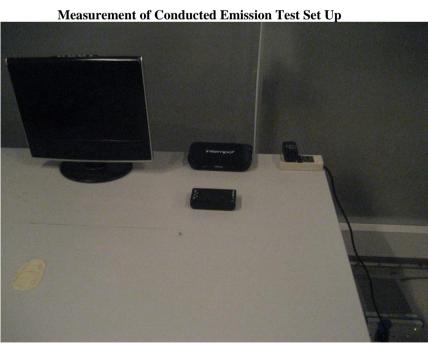


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Photographs of EUT





***** End of Test Report *****
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