

FCC Test Report

Equipment : Wireless Device Server
Brand Name : korenix
Model No. : JetPort 5804, JetPort 5804i
FCC ID : SSA-JP5804
Standard : 47 CFR FCC Part 15.247
Operating Band : 2400 MHz – 2483.5 MHz
Equipment Class : DTS
Applicant : Korenix Technology Co., Ltd.
Manufacturer : F2, No. 188, Pao-Chiao Rd. Shing-Tien City,
Taipei 23145, Taiwan

The product sample received on Mar. 05, 2013 and completely tested on Apr. 12, 2013. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2009 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

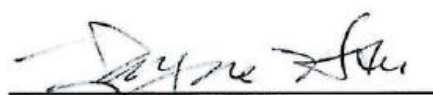

Wayne Hsu



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APPENDIX A. TEST PHOTOS

APPENDIX B. PHOTOGRAPHS OF EUT

Summary of Test Result

Conformance Test Specifications					
Report Clause	Ref. Std. Clause	Description	Measured	Limit	Result
1.1.2	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	[dBuV]: 0.152 MHz 50.80 (Margin 15.07dB) - QP 43.17 (Margin 12.70dB) - AV	FCC 15.207	Complied
3.2	15.247(a)	6dB Bandwidth	6dB Bandwidth Unit [MHz] 20M: 11.29	≥500kHz	Complied
3.3	15.247(b)	RF Output Power (Maximum Peak Conducted Output Power)	Power [dBm]: 24.83	Power [dBm]:30	Complied
3.4	15.247(d)	Power Spectral Density	PSD [dBm/3kHz]: -7.96	PSD [dBm/3kHz]:8	Complied
3.5	15.247(c)	Transmitter Radiated Bandedge Emissions	Non-Restricted Bands: 2399.94 MHz: 27.83dB Restricted Bands [dBuV/m at 3m]: 2333.97MHz 64.12 (Margin 9.88 dB) - PK 52.81 (Margin 1.19 dB) - AV	Non-Restricted Bands: > 20 dBc Restricted Bands: FCC 15.209	Complied
3.6	15.247(c)	Transmitter Radiated Unwanted Emissions	Restricted Bands [dBuV/m at 3m]: 7386.000 MHz 50.72 (Margin 3.28 dB) - PK	Non-Restricted Bands: > 20 dBc Restricted Bands: FCC 15.209	Complied

1 General Description

1.1 Information

1.1.1 RF General Information

RF General Information					
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N _{TX})	RF Output Power (dBm)
2400-2483.5	b	2412-2462	1-11 [11]	1	24.83
2400-2483.5	g	2412-2462	1-11 [11]	1	22.82

Note 1: RF output power specifies that Maximum Peak Conducted Output Power.
 Note 2: 802.11b uses a combination of DSSS-DBPSK, DQPSK, CCK modulation.
 Note 3: 802.11g uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.

1.1.2 Antenna Information

Antenna Category	
<input checked="" type="checkbox"/>	External antenna (dedicated antennas)
<input checked="" type="checkbox"/>	RF connector provided
<input checked="" type="checkbox"/>	Unique antenna connector. (e.g., MMCX, U.FL, IPX, and RP-SMA, RP-N type...)
<input type="checkbox"/>	Standard antenna connector. (e.g., SMA, N, BNC, and TNC type...)

Antenna General Information				
No.	Ant. Cat.	Ant. Type	Antenna Connector	Maximum Gain (dBi)
1	External	Dipole	RP-SMA	3.00

1.1.3 Type of EUT

Identify EUT	
EUT Serial Number	N/A
Presentation of Equipment	<input checked="" type="checkbox"/> Production ; <input type="checkbox"/> Pre-Production ; <input type="checkbox"/> Prototype
Type of EUT	
<input checked="" type="checkbox"/>	Stand-alone
<input type="checkbox"/>	Combined (EUT where the radio part is fully integrated within another device) Combined Equipment - Brand Name / Model No.: ...
<input type="checkbox"/>	Plug-in radio (EUT intended for a variety of host systems) Host System - Brand Name / Model No.: ...
<input type="checkbox"/>	Other:


1.1.4 Test Signal Duty Cycle

Operated Mode for Worst Duty Cycle	
<input type="checkbox"/>	Operated normally mode for worst duty cycle
<input checked="" type="checkbox"/>	Operated test mode for worst duty cycle
Test Signal Duty Cycle (x)	Power Duty Factor [dB] – (10 log 1/x)
<input checked="" type="checkbox"/> 100.00% - IEEE 802.11b	0
<input checked="" type="checkbox"/> 100.00% - IEEE 802.11g	0

1.1.5 EUT Operational Condition

Supply Voltage	<input checked="" type="checkbox"/> AC mains	<input type="checkbox"/> DC	
Type of DC Source	<input type="checkbox"/> Internal DC supply	<input checked="" type="checkbox"/> External DC adapter	<input type="checkbox"/> Battery

1.2 Accessories and Support Equipment

Accessories Information				
AC Adaptor	Brand Name	OEM	Model Name	ADS10-W 120080
	Power Rating	I/P: 100-240V ~ 50-60Hz 0.5A ; O/P: 12V  800mA		

Note: Regarding to more detail and other information, please refer to user manual.

Support Equipment - AC Conduction				
No.	Equipment	Brand Name	Model Name	Serial No.
1	Notebook (Remote)	DELL	E5520	DoC
2	Terminal *4 (Remote)	--	--	--

Support Equipment - Radiated Emission				
No.	Equipment	Brand Name	Model Name	Serial No.
1	Notebook (Remote)	DELL	E5520	DoC

1.3 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ◆ 47 CFR FCC Part 15
- ◆ ANSI C63.10-2009
- ◆ FCC KDB 558074
- ◆ FCC KDB 662911
- ◆ FCC KDB 412172

1.4 Testing Location Information

Testing Location				
<input checked="" type="checkbox"/>	HWA YA	ADD : No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.		
		TEL : 886-3-327-3456	FAX : 886-3-327-0973	
<input checked="" type="checkbox"/>	DUNGHU	ADD : No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei 114, Taiwan, R.O.C.		
		TEL : 886-2-2631-4739	FAX : 886-2-2631-9740	
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO01-DH	Willy	23°C / 57%	Apr. 12, 2013
RF Conducted	TH01-HY	Ian	24.6°C / 64%	Mar. 23, 2013
Radiated Emission	03CH02-HY	Eddie	23.3°C / 59%	Mar. 12, 2013 ~ Mar. 13, 2013

1.5 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Measurement Uncertainty			
Test Item		Uncertainty	Limit
AC power-line conducted emissions		±2.26 dB	N/A
Emission bandwidth, 6dB bandwidth		±1.42 %	N/A
RF output power, conducted		±0.63 dB	N/A
Power density, conducted		±0.81 dB	N/A
Unwanted emissions, conducted	30 – 1000 MHz	±0.51 dB	N/A
	1 – 18 GHz	±0.67 dB	N/A
	18 – 40 GHz	±0.83 dB	N/A
	40 – 200 GHz	N/A	N/A
All emissions, radiated	30 – 1000 MHz	±2.56 dB	N/A
	1 – 18 GHz	±3.59 dB	N/A
	18 – 40 GHz	±3.82 dB	N/A
	40 – 200 GHz	N/A	N/A
Temperature		±0.8 °C	N/A
Humidity		±3 %	N/A
DC and low frequency voltages		±3 %	N/A
Time		±1.42 %	N/A
Duty Cycle		±1.42 %	N/A

2 Test Configuration of EUT

2.1 The Worst Case Modulation Configuration

Worst Modulation Used for Conformance Testing				
Modulation Mode	Transmit Chains (N _{TX})	Data Rate / MCS	Worst Data Rate / MCS	RF Output Power (dBm)
11b,1-11Mbps	1	1-11 Mbps	11 Mbps	24.83
11g,6-54Mbps	1	6-54 Mbps	6 Mbps	22.82

Note 1: Modulation modes consist configuration: 11b: IEEE 802.11b, 11g: IEEE 802.11g.
 Note 2: RF output power specifies that Maximum Peak Conducted Output Power.

2.2 Test Channel Frequencies Configuration

Test Channel Frequencies Configuration	
IEEE Std. 802.11	Test Channel Frequencies (MHz)
b, g	2412-(F1), 2437-(F2), 2462-(F3)

2.3 The Worst Case Power Setting Parameter

The Worst Case Power Setting Parameter (2400-2483.5MHz band)				
Test Software Version	Telnet_1.0			
Modulation Mode	N _{TX}	Test Frequency (MHz)		
		NCB: 20MHz		
		2412	2437	2462
11b	1	24	31	31
11g	1	31	31	24

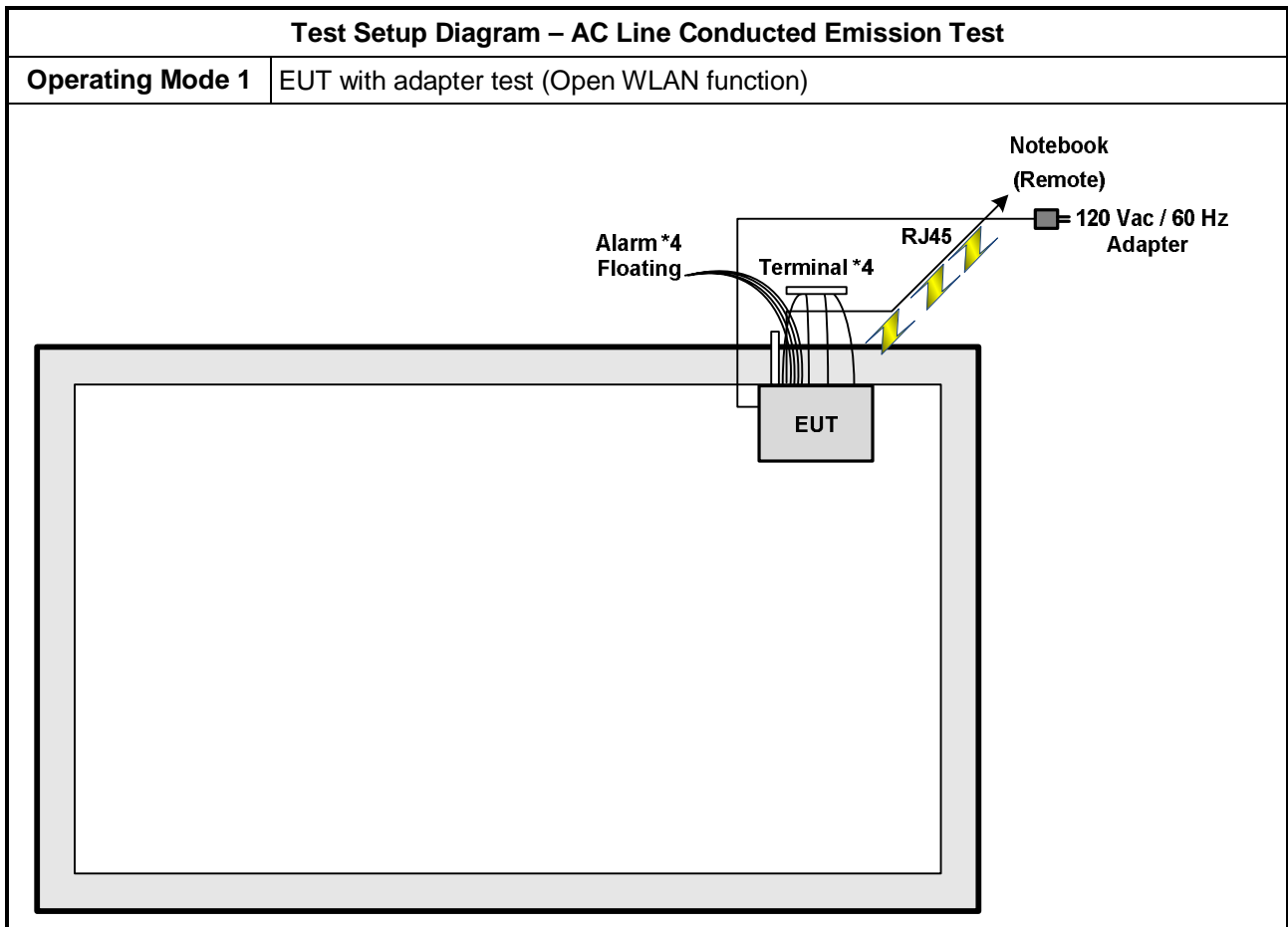
2.4 The Worst Case Measurement Configuration

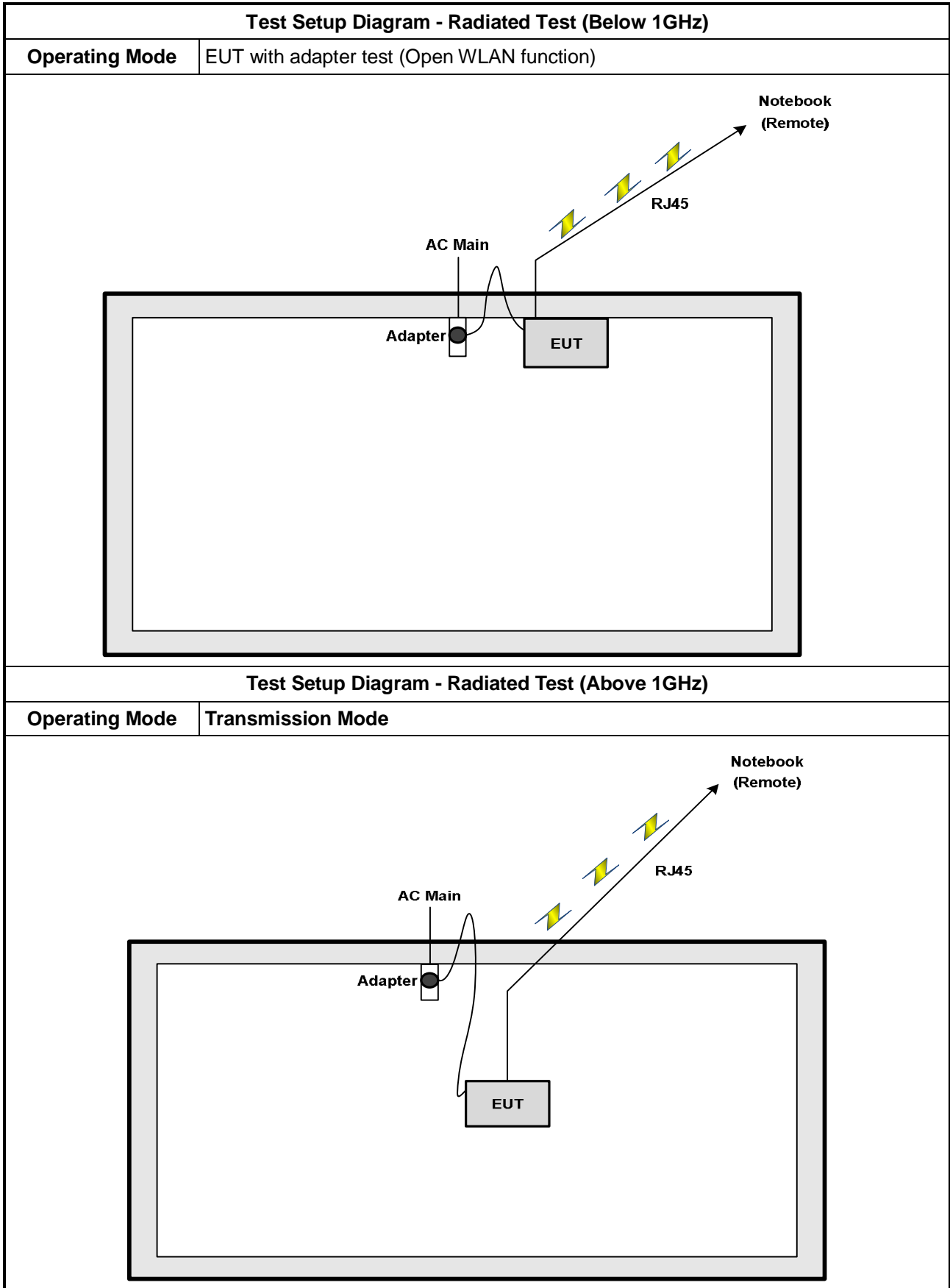
The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	Operating Mode Description
1	EUT with adapter test (Open WLAN function)

The Worst Case Mode for Following Conformance Tests	
Tests Item	RF Output Power, Power Spectral Density, 6 dB Bandwidth
Test Condition	Conducted measurement at transmit chains
Modulation Mode	11b, 11g

The Worst Case Mode for Following Conformance Tests	
Tests Item	Transmitter Radiated Unwanted Emissions Transmitter Radiated Bandedge Emissions
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
User Position	<input checked="" type="checkbox"/> EUT will be placed in fixed position. <input type="checkbox"/> EUT will be placed in mobile position and operating multiple positions. EUT shall be performed two orthogonal planes. <input type="checkbox"/> EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions. EUT shall be performed two or three orthogonal planes.
Operating Mode	<input checked="" type="checkbox"/> 1. EUT with adapter test (Open WLAN function)
Modulation Mode	11b, 11g

2.5 Test Setup Diagram





3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

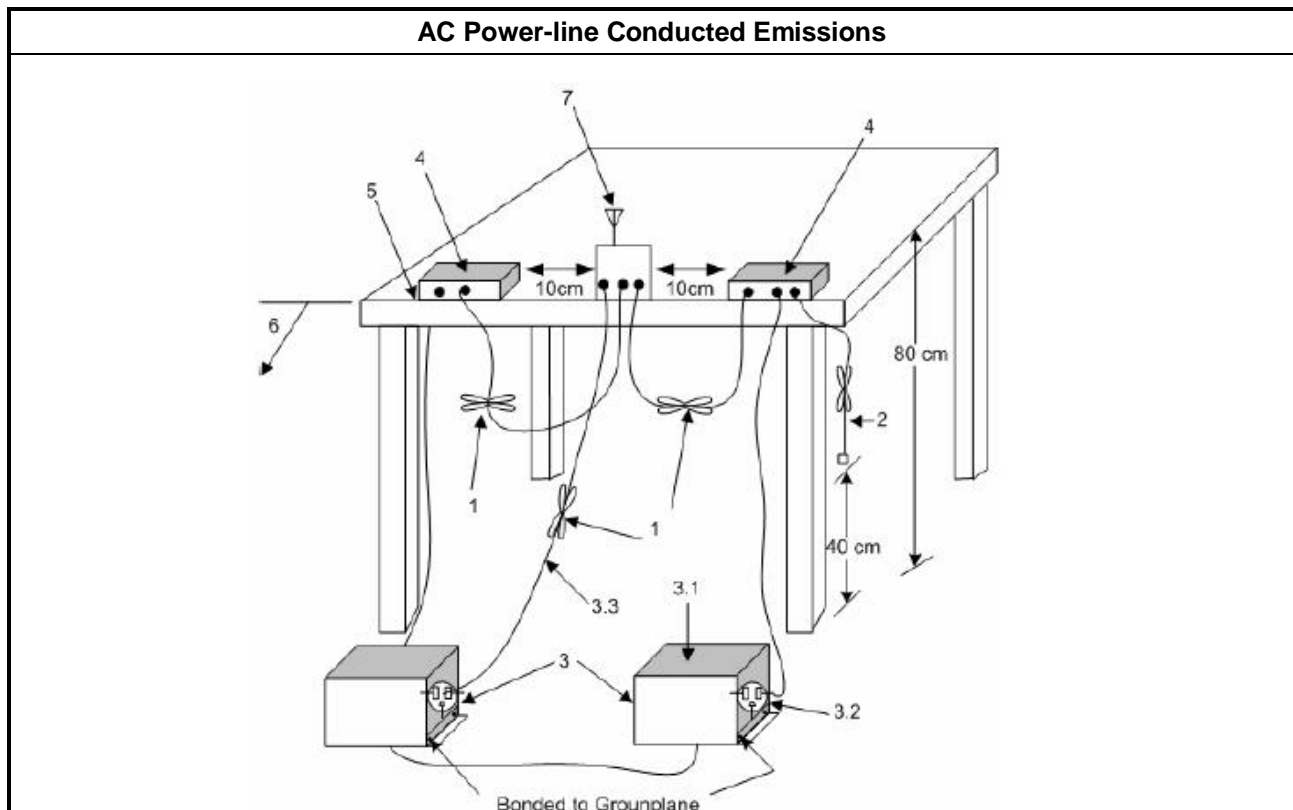
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

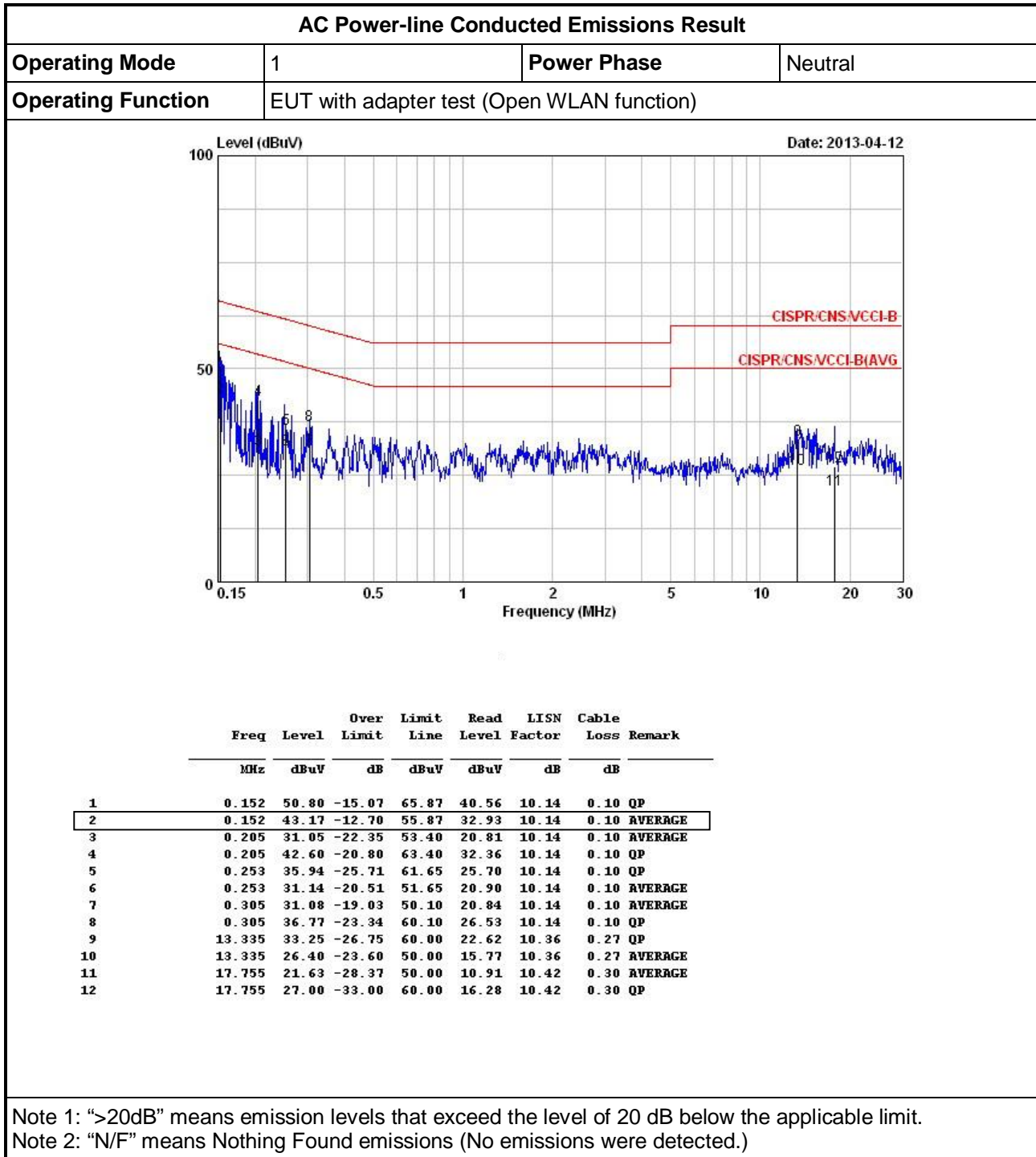
3.1.3 Test Procedures

Test Method
<input checked="" type="checkbox"/> Refer as ANSI C63.10-2009, clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup

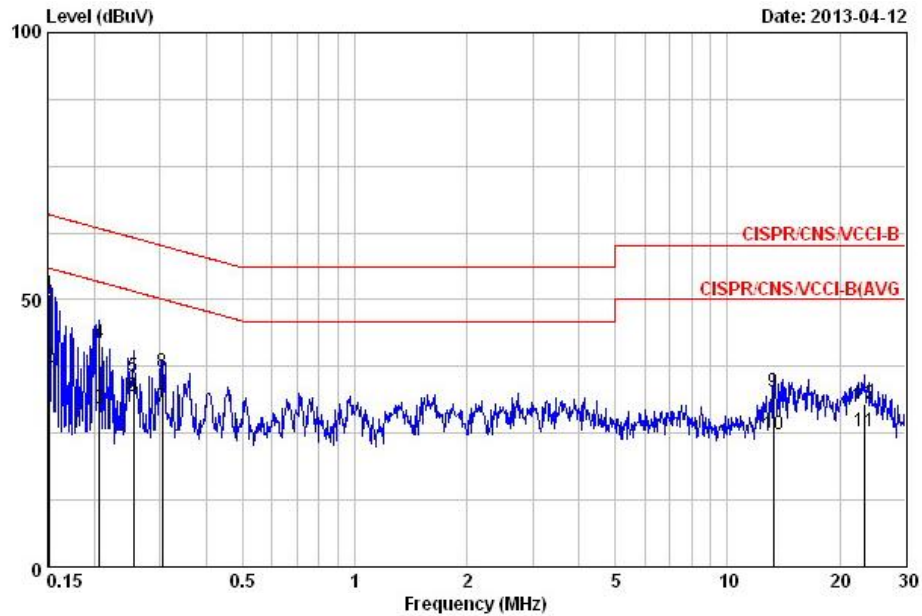


3.1.5 Test Result of AC Power-line Conducted Emissions



AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	EUT with adapter test (Open WLAN function)		



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.152	50.90	-15.01	65.91	40.63	10.17	0.10	QP
2	0.152	37.24	-18.67	55.91	26.97	10.17	0.10	AVERAGE
3	0.206	29.69	-23.67	53.36	19.42	10.17	0.10	AVERAGE
4	0.206	41.92	-21.44	63.36	31.65	10.17	0.10	QP
5	0.255	35.74	-25.86	61.60	25.47	10.17	0.10	QP
6	0.255	31.78	-19.82	51.60	21.51	10.17	0.10	AVERAGE
7	0.305	29.87	-20.24	50.10	19.60	10.17	0.10	AVERAGE
8	0.305	36.50	-23.61	60.10	26.23	10.17	0.10	QP
9	13.267	32.76	-27.24	60.00	22.11	10.38	0.27	QP
10	13.267	24.79	-25.21	50.00	14.14	10.38	0.27	AVERAGE
11	23.387	25.33	-24.67	50.00	14.52	10.51	0.30	AVERAGE
12	23.387	30.53	-29.47	60.00	19.72	10.51	0.30	QP

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

3.2 6dB Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit	
Systems using digital modulation techniques:	
<input checked="" type="checkbox"/>	6 dB bandwidth \geq 500 kHz.

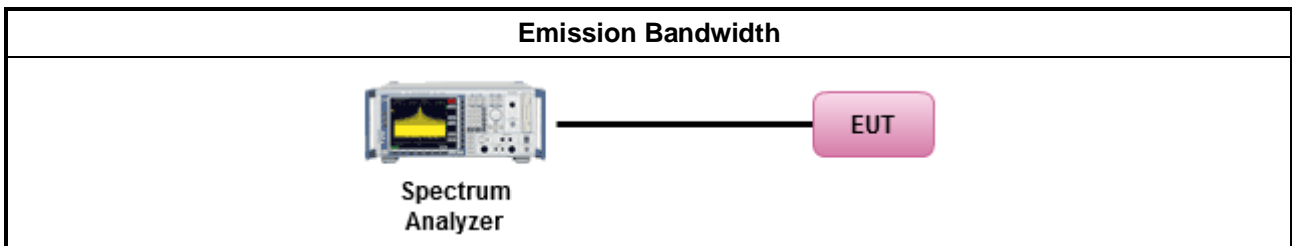
3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	For the emission bandwidth shall be measured using one of the options below:
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 8.1 Option 1 for 6 dB bandwidth measurement.
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 8.2 Option 2 for 6 dB bandwidth measurement.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.
<input checked="" type="checkbox"/>	For conducted measurement.
<input checked="" type="checkbox"/>	The EUT supports single transmit chain and measurements performed on this transmit chain.
<input type="checkbox"/>	The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.
<input type="checkbox"/>	The EUT supports multiple transmit chains using options given below:
<input type="checkbox"/>	Option 1: Multiple transmit chains measurements need to be performed on one of the active transmit chains (antenna outputs). All measurement had be performed on transmit chains 1.
<input type="checkbox"/>	Option 2: Multiple transmit chains measurements need to be performed on each transmit chains individually (antenna outputs). All measurement had be performed on all transmit chains.

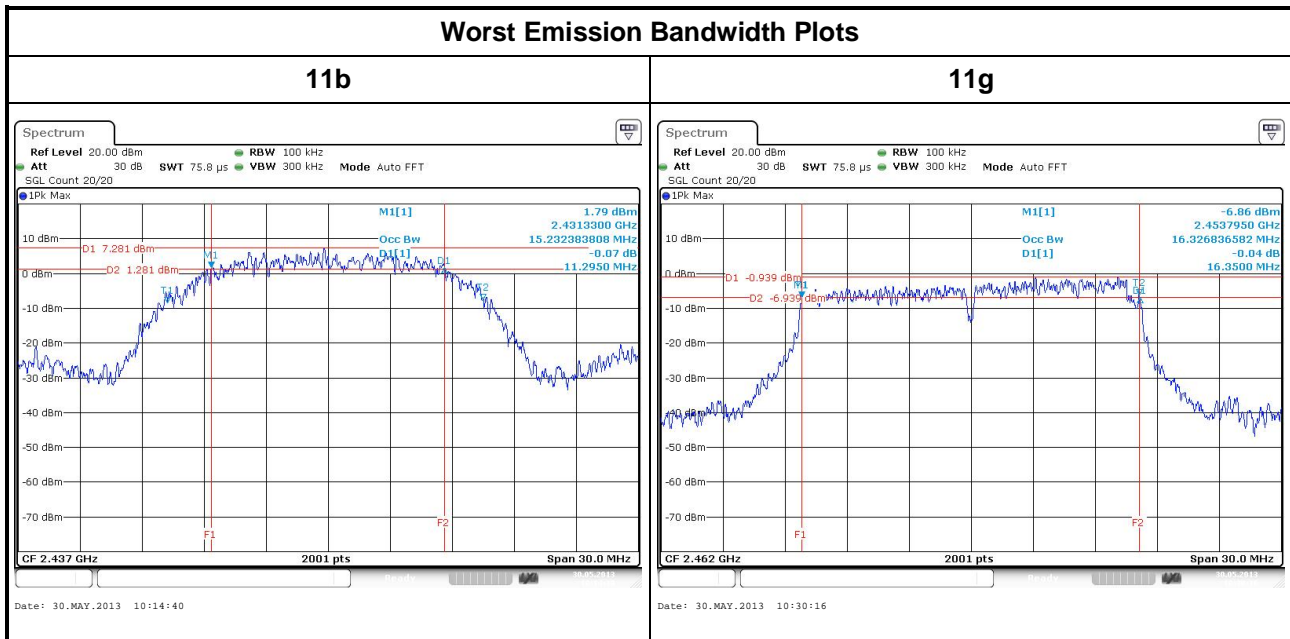
3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Emission Bandwidth Result				
Condition			Emission Bandwidth (MHz)	
Modulation Mode	N _{TX}	Freq. (MHz)	99% Bandwidth	6dB Bandwidth
11b	1	2412	15.00	11.44
11b	1	2437	15.23	11.29
11b	1	2462	14.73	11.68
11g	1	2412	16.46	16.45
11g	1	2437	16.46	16.45
11g	1	2462	16.32	16.35
Limit			N/A	≥500 kHz
Result			Complied	

Note 1: N_{TX} = Number of Transmit Chains



3.3 RF Output Power

3.3.1 RF Output Power Limit

RF Output Power Limit	
Maximum Peak Conducted Output Power or Maximum Conducted Output Power Limit	
<input checked="" type="checkbox"/> 2400-2483.5 MHz Band:	
<input checked="" type="checkbox"/>	If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)
<input checked="" type="checkbox"/>	Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
<input type="checkbox"/>	Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
<input type="checkbox"/>	Smart antenna system (SAS):
<input type="checkbox"/>	Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
<input type="checkbox"/>	Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
<input type="checkbox"/>	Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3 + 8$ dBm
e.i.r.p. Power Limit:	
<input checked="" type="checkbox"/> 2400-2483.5 MHz Band	
<input checked="" type="checkbox"/>	Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)
<input type="checkbox"/>	Point-to-point systems (P2P): $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX}])$ dBm
<input type="checkbox"/>	Smart antenna system (SAS)
<input type="checkbox"/>	Single beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
<input type="checkbox"/>	Overlap beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
<input type="checkbox"/>	Aggregate power on all beams: $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX} + 8])$ dBm
P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi. P_{eirp} = e.i.r.p. Power in dBm.	

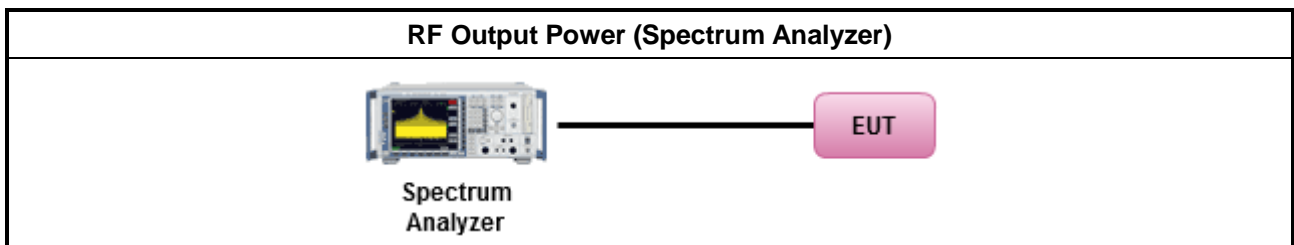
3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	Maximum Peak Conducted Output Power
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 9.1.1 Option 1 (RBW ≥ EBW method).
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 9.1.2 Option 2 (integrated band power method).
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 9.1.3 Option 2 (peak power meter for VBW ≥ DTS BW)
<input checked="" type="checkbox"/>	Maximum Conducted Output Power
	[duty cycle ≥ 98% or external video / power trigger]
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 9.2.2.2 Method AVGSA-1 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 9.2.2.3 Method AVGSA-1 Alt. (slow sweep speed)
	duty cycle < 98% and average over on/off periods with duty factor
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 9.2.2.4 Method AVGSA-2 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 9.2.2.5 Method AVGSA-2 Alt. (slow sweep speed)
	RF power meter and average over on/off periods with duty factor or gated trigger
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 9.2.3 Method AVGPM (using an RF average power meter).
<input checked="" type="checkbox"/>	For conducted measurement.
<input checked="" type="checkbox"/>	The EUT supports single transmit chain and measurements performed on this transmit chain.
<input type="checkbox"/>	The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.
<input type="checkbox"/>	The EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.
<input type="checkbox"/>	If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

3.3.4 Test Setup



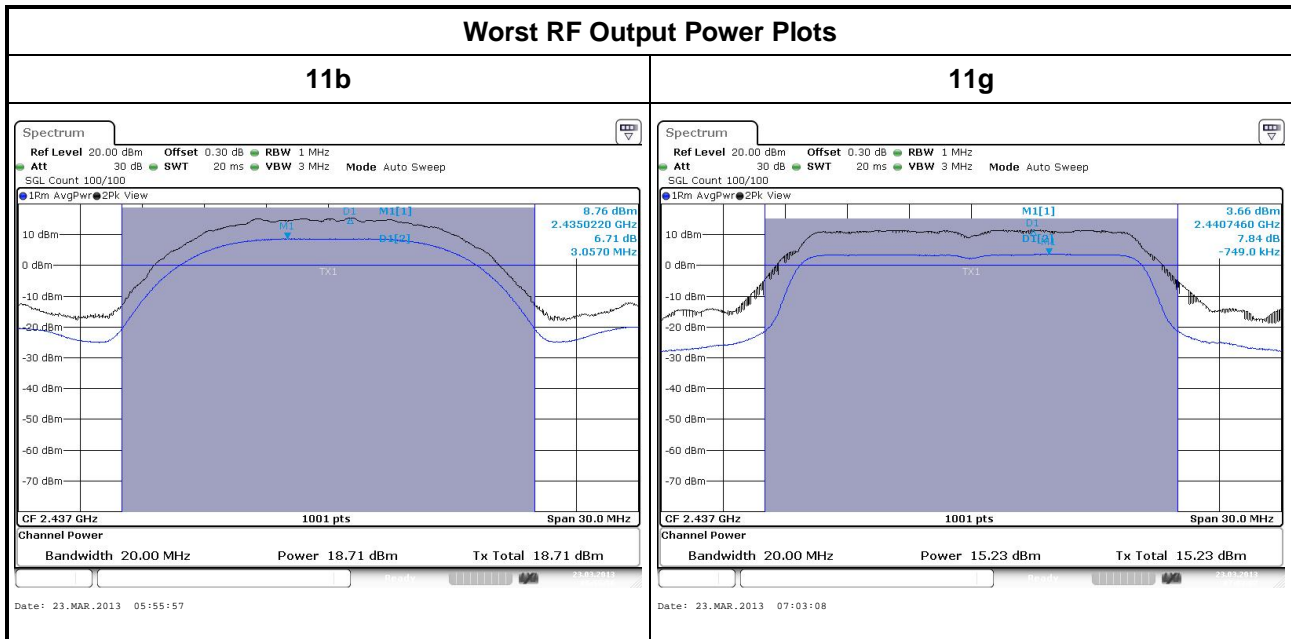
3.3.5 Test Result of Maximum Peak Conducted Output Power

Maximum Peak Conducted Output Power Result							
Condition			RF Output Power (dBm)				
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 1	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
11b	1	2412	22.23	30.00	3.0	25.23	36.00
11b	1	2437	24.83	30.00	3.0	27.83	36.00
11b	1	2462	24.72	30.00	3.0	27.72	36.00
11g	1	2412	22.57	30.00	3.0	25.57	36.00
11g	1	2437	22.82	30.00	3.0	25.82	36.00
11g	1	2462	19.63	30.00	3.0	22.63	36.00
Result			Complied				

3.3.6 Test Result of Maximum Conducted Output Power

Maximum Conducted Output Power							
Condition			RF Output Power (dBm)				
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 1	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
11b	1	2412	16.14	30.00	3.0	19.14	36.00
11b	1	2437	18.71	30.00	3.0	21.71	36.00
11b	1	2462	18.61	30.00	3.0	21.61	36.00
11g	1	2412	15.14	30.00	3.0	18.14	36.00
11g	1	2437	15.23	30.00	3.0	18.23	36.00
11g	1	2462	12.02	30.00	3.0	15.02	36.00
Result			Complied				

Worst RF Output Power Plots



3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit
<input checked="" type="checkbox"/> Power Spectral Density (PSD) \leq 8 dBm/3kHz

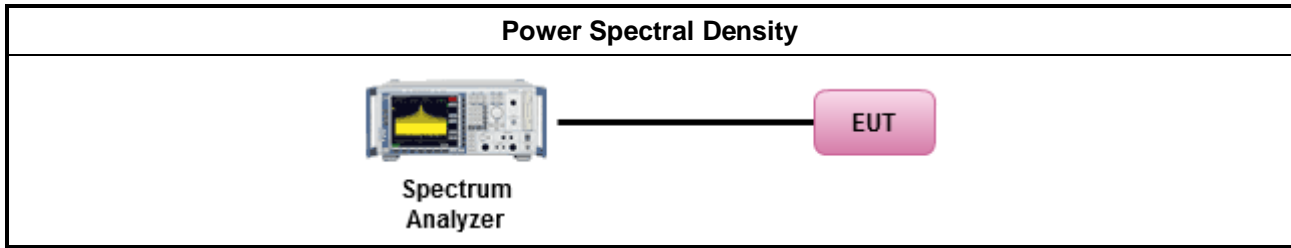
3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

Test Method
<input checked="" type="checkbox"/> Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).
<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 10.2 Method PKPSD (RBW=3-100kHz;detector=peak).. [duty cycle \geq 98% or external video / power trigger]
<input checked="" type="checkbox"/> Refer as FCC KDB 558074, clause 10.3 Method AVGPSD-1 (spectral trace averaging).
<input type="checkbox"/> Refer as FCC KDB 558074, clause 10.4 Method AVGPSD-1 Alt. (slow sweep speed) duty cycle < 98% and average over on/off periods with duty factor
<input type="checkbox"/> Refer as FCC KDB 558074, clause 10.5 Method AVGPSD-2 (spectral trace averaging).
<input type="checkbox"/> Refer as FCC KDB 558074, clause 10.6 Method AVGPSD-2 Alt. (slow sweep speed)
<input checked="" type="checkbox"/> For conducted measurement.
<input checked="" type="checkbox"/> The EUT supports single transmit chain and measurements performed on this transmit chain.
<input type="checkbox"/> The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.
<input type="checkbox"/> The EUT supports multiple transmit chains using options given below:
<input type="checkbox"/> Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the N _{TX} output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.
<input type="checkbox"/> Option 2: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.

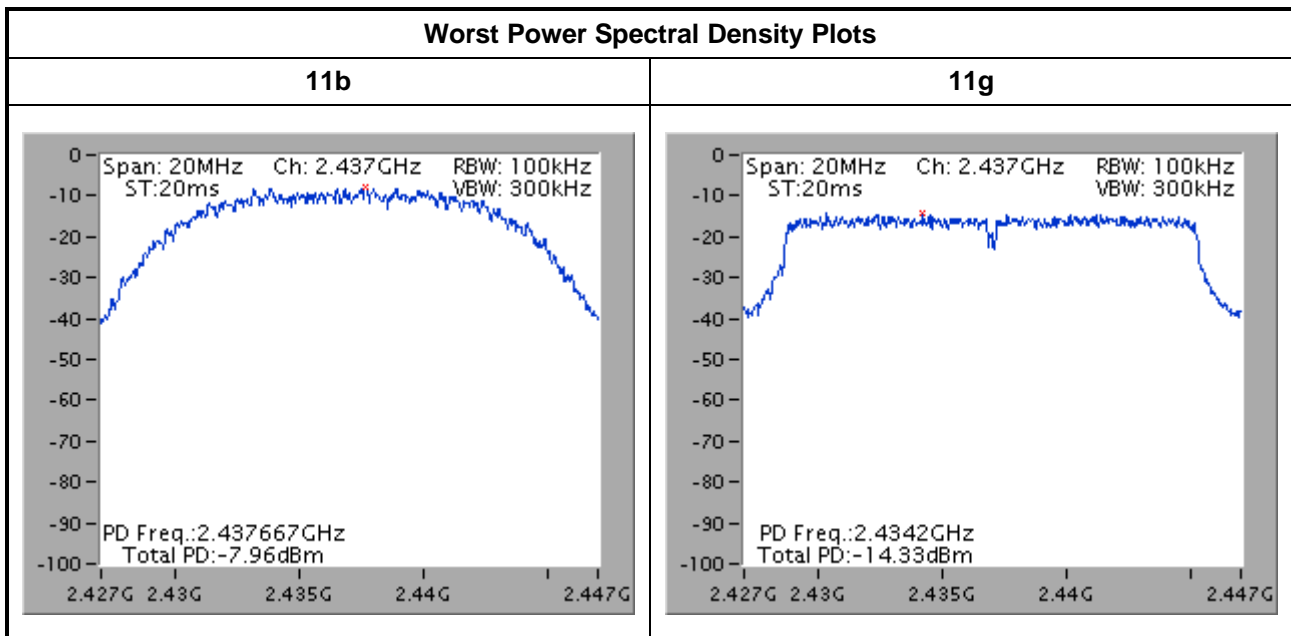
3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

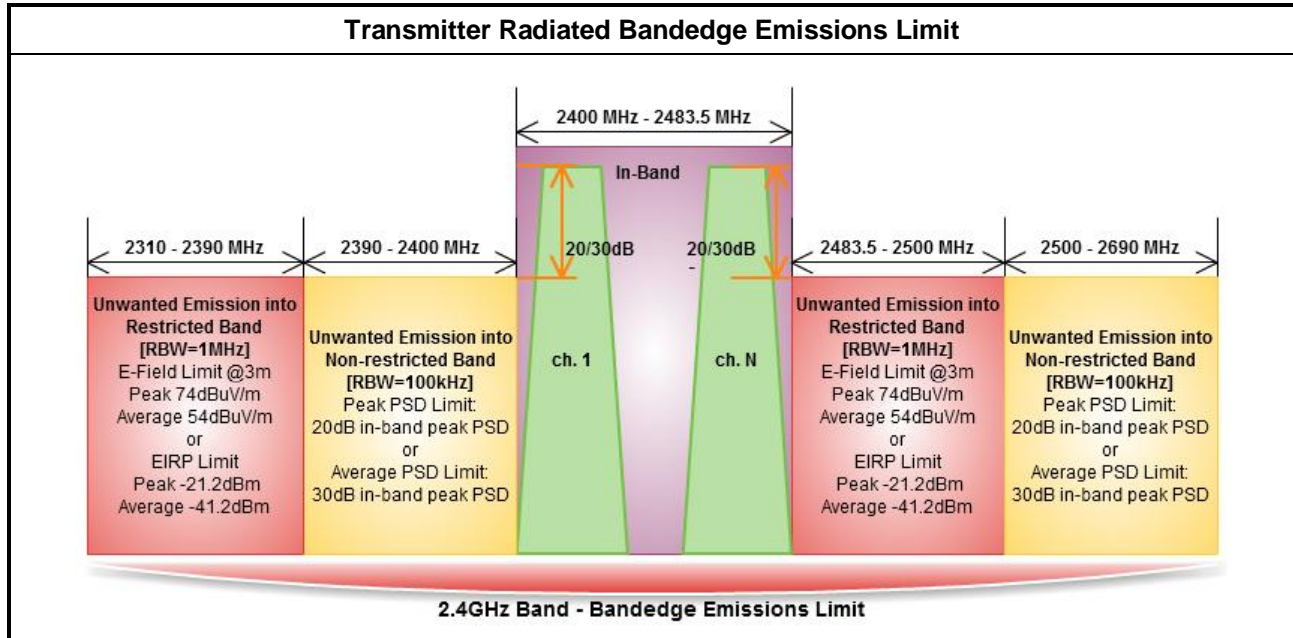
Power Spectral Density Result				
Condition			Power Spectral Density (dBm/100kHz)	
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 1	Power Limit
11b	1	2412	-10.67	8
11b	1	2437	-7.96	8
11b	1	2462	-7.97	8
11g	1	2412	-14.40	8
11g	1	2437	-14.33	8
11g	1	2462	-17.27	8
Result			Complied	

Note 1: PSD = sum each transmit chains by bin-to-bin PSD



3.5 Transmitter Radiated Bandedge Emissions

3.5.1 Transmitter Radiated Bandedge Emissions Limit



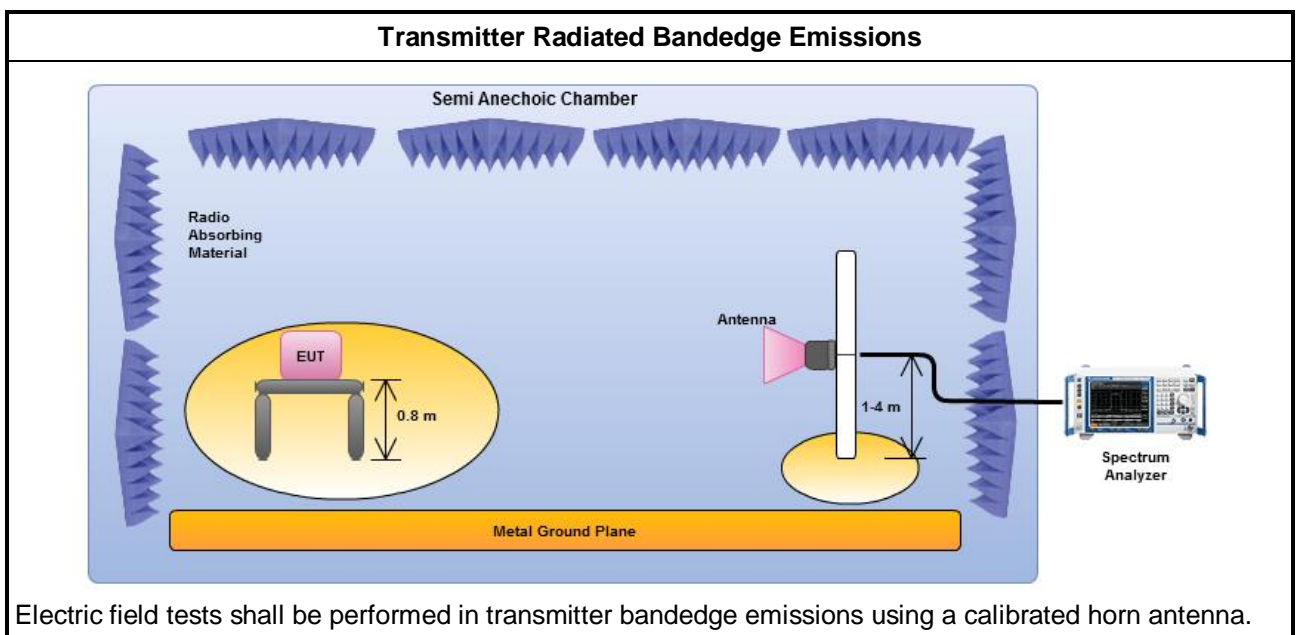
3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

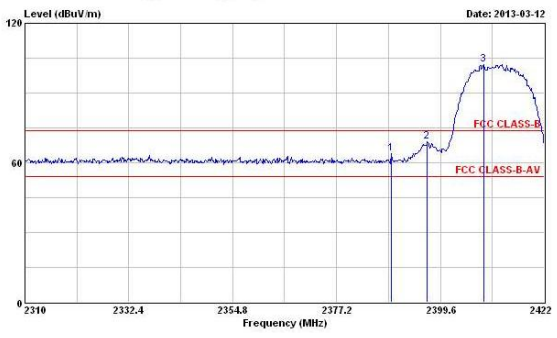
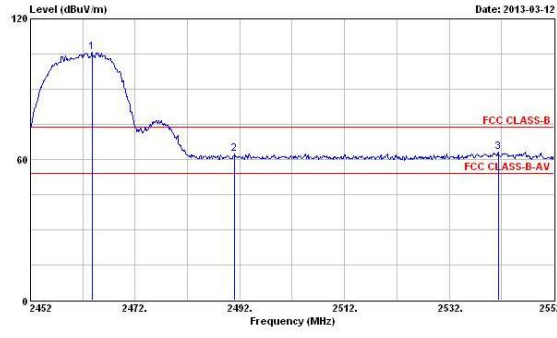
3.5.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.2.2 bandedge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.
<input checked="" type="checkbox"/>	For the transmitter unwanted emissions shall be measured using following options below:
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 11 for unwanted emissions into non-restricted bands.
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 12 for unwanted emissions into restricted bands.
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 12.2.5.1 Option 1 (trace averaging for duty cycle $\geq 98\%$)
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 12.2.5.2 Option 2 (trace averaging + duty factor).
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 12.2.5.3 Option 3 (Reduced VBW $\geq 1/T$).
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW $\geq 1/T$, where T is pulse time.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 11.3 and 12.2.4 measurement procedure peak limit.
<input checked="" type="checkbox"/>	For the transmitter bandedge emissions shall be measured using following options below:
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 13.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.2 for band-edge testing.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.3 for marker-delta method for band-edge measurements.
<input checked="" type="checkbox"/>	For radiated measurement, refer as FCC KDB 558074, clause 12.2.7.

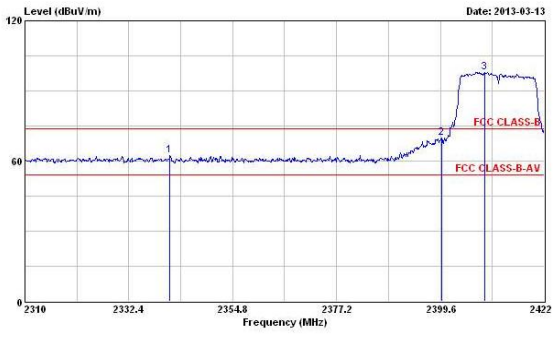
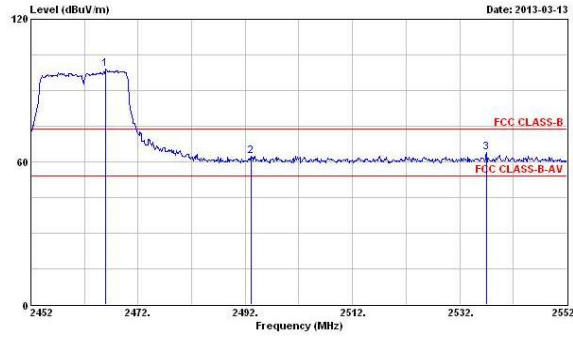
3.5.4 Test Setup



3.5.5 Test Result of Transmitter Radiated Bandedge Emissions

Transmitter Radiated Bandedge Emissions Result								
Modulation	11b			N _{TX}	1			
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] - [o] (dB)	Limit (dB)	Level Type	Pol. note 1
2390-2400	2412	102.23	2396.80	68.89	33.34	20	PK	V
2500-2690	2462	105.63	2541.40	63.08	42.55	20	PK	V
Low Bandedge				Up Bandedge				
								
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)								

Transmitter Radiated Bandedge Emissions Result								
Modulation	11b			N _{TX}	1			
Restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE Freq. (MHz)	Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol. note 1
2310-2390	2412	110.44	2327.70	3	64.12	74	PK	V
2310-2390	2412	102.67	2333.97	3	52.81	54	AV	V
2483.5-2500	2462	113.90	2486.60	3	64.26	74	PK	V
2483.5-2500	2462	106.08	2483.50	3	51.90	54	AV	V
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).								

Transmitter Radiated Bandedge Emissions Result								
Modulation	11g			N _{TX}	1			
Non-restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/100kHz)	NBE Freq. (MHz)	Out-band PSD [o] (dBuV/100kHz)	[i] – [o] (dB)	Limit (dB)	Level Type	Pol. note 1
2390-2400	2412	97.88	2399.94	70.05	27.83	20	PK	V
2500-2690	2462	99.04	2537.00	63.76	35.28	20	PK	V
Low Bandedge				Up Bandedge				
								
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical)								

Transmitter Radiated Bandedge Emissions Result								
Modulation	11g			N _{TX}	1			
Restricted Band (MHz)	Test Ch. Freq. (MHz)	In-band PSD [i] (dBuV/1MHz)	RBE Freq. (MHz)	Measure Distance (m)	Out-Band Level (dBuV/m)	Limit (dBuV/m)	Level Type	Pol. note 1
2310-2390	2412	109.46	2390.00	3	71.29	74	PK	V
2310-2390	2412	98.88	2390.00	3	52.71	54	AV	V
2483.5-2500	2462	109.76	2483.80	3	69.22	74	PK	V
2483.5-2500	2462	99.70	2483.50	3	52.62	54	AV	V
Note 1: Measurement worst emissions of receive antenna polarization: H (Horizontal) or V (Vertical).								

3.6 Transmitter Radiated Unwanted Emissions

3.6.1 Transmitter Radiated Unwanted Emissions Limit

Restricted Band Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Un-restricted Band Emissions Limit	
RF output power procedure	Limit (dB)
Peak output power procedure	20
Average output power procedure	30

Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.

Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.

3.6.2 Measuring Instruments

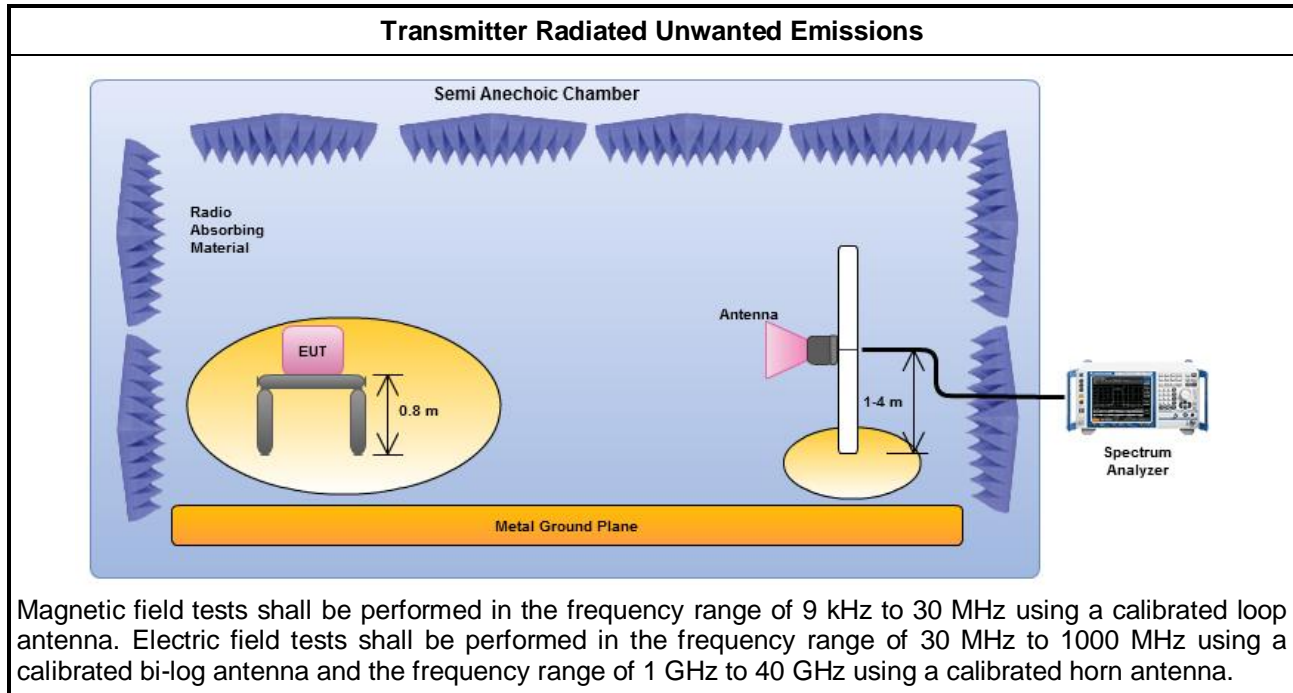
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).
<input checked="" type="checkbox"/>	Measurements in the frequency range 10 GHz - 18GHz are typically made at a closer distance 1m, because the instrumentation noise floor is typically close to the radiated emission limit.
<input checked="" type="checkbox"/>	Measurements in the frequency range above 18 GHz - 25GHz are typically made at a closer distance 0.5m, because the instrumentation noise floor is typically close to the radiated emission limit.
<input checked="" type="checkbox"/>	The average emission levels shall be measured in [duty cycle \geq 98 or duty factor].
<input checked="" type="checkbox"/>	For the transmitter unwanted emissions shall be measured using following options below:
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 11 for unwanted emissions into non-restricted bands.
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 12 for unwanted emissions into restricted bands.
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 12.2.5.1 Option 1 (trace averaging for duty cycle \geq 98%)
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 12.2.5.2 Option 2 (trace averaging + duty factor).
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 12.2.5.3 Option 3 (Reduced VBW \geq 1/T).
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW \geq 1/T, where T is pulse time.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.
<input checked="" type="checkbox"/>	Refer as FCC KDB 558074, clause 11.3 and 12.2.4 measurement procedure peak limit.
<input type="checkbox"/>	Refer as FCC KDB 558074, clause 12.2.3 measurement procedure Quasi-Peak limit.
<input checked="" type="checkbox"/>	For radiated measurement, refer as FCC KDB 558074, clause 12.2.7.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1000 MHz.
<input checked="" type="checkbox"/>	Refer as ANSI C63.10, clause 6.6 for radiated emissions from above 1 GHz.

Test Method	
<input type="checkbox"/>	For conducted and cabinet radiation measurement, refer as FCC KDB 558074, clause 12.2.2.
<input type="checkbox"/>	For conducted unwanted emissions into non-restricted bands (relative emission limits). Devices with multiple transmit chains: Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs.
<input type="checkbox"/>	For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB

3.6.4 Test Setup

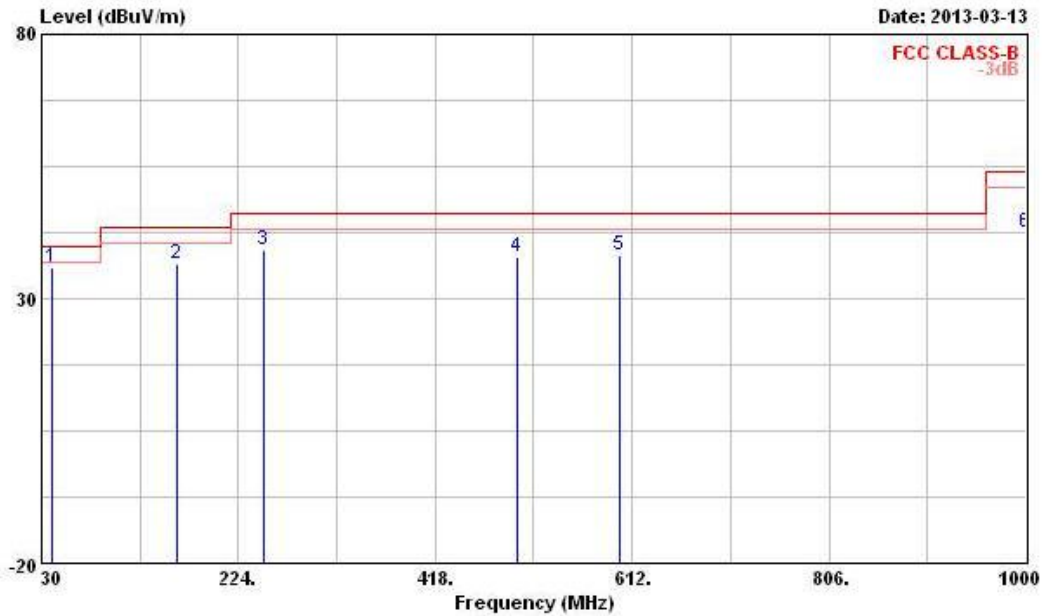


3.6.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

3.6.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Transmitter Radiated Unwanted Emissions (Below 1GHz)			
Operating Mode	1	Polarization	V
Operating Function	EUT with adapter test (Open WLAN function)		

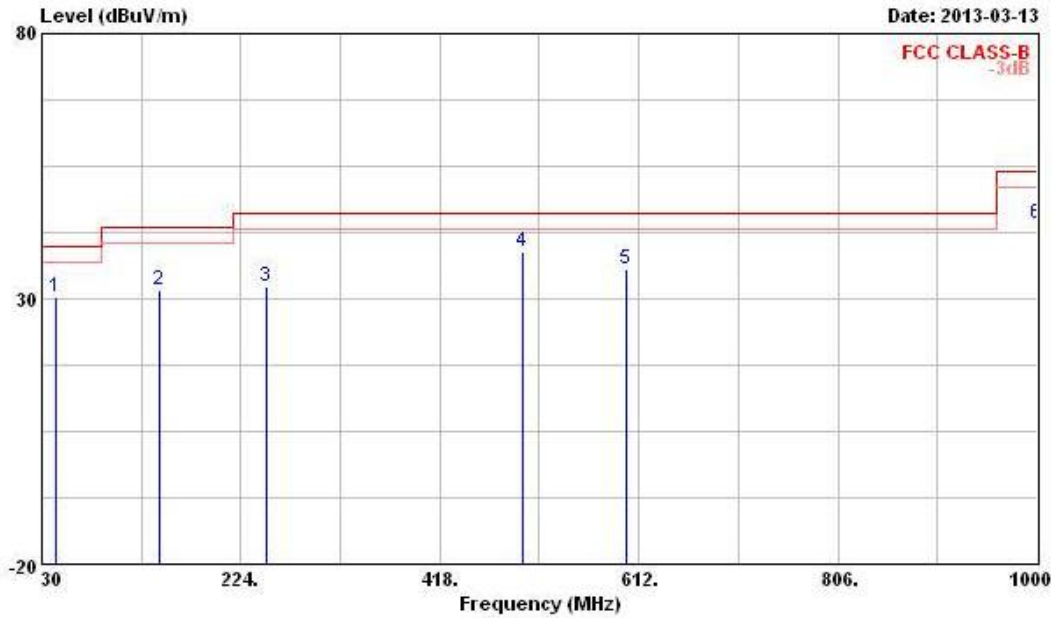


	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	Pos	Pos
1	40.670	35.84	-4.16	40.00	49.87	13.01	0.87	27.91	QP	100 63
2	163.860	36.45	-7.05	43.50	51.91	10.38	1.81	27.65	Peak	---
3	249.220	39.16	-6.84	46.00	51.17	12.97	2.38	27.36	Peak	---
4	498.510	38.03	-7.97	46.00	45.83	17.26	3.41	28.47	Peak	---
5	599.390	38.13	-7.87	46.00	42.86	20.15	3.68	28.56	Peak	---
6	999.990	42.63	-11.37	54.00	42.50	22.50	4.96	27.33	Peak	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Transmitter Radiated Unwanted Emissions (Below 1GHz)

Operating Mode	1	Polarization	H
Operating Function	EUT with adapter test (Open WLAN function)		

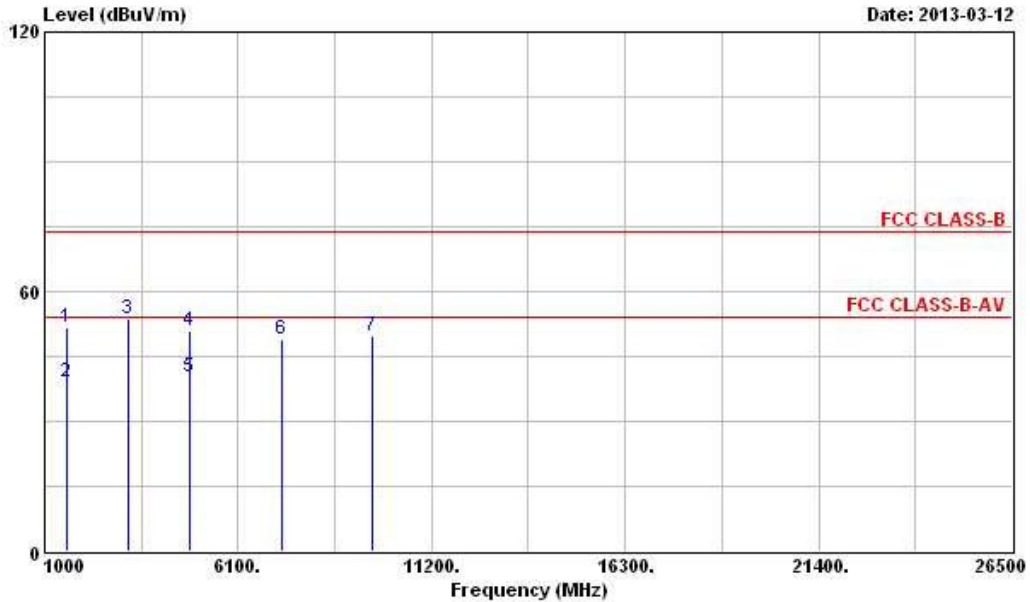


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	43.580	30.21	-9.79	40.00	44.92	12.27	0.91	27.89	Peak	---	---
2 @	145.430	31.72	-11.78	43.50	46.45	11.27	1.72	27.72	Peak	---	---
3 @	249.220	32.40	-13.60	46.00	44.41	12.97	2.38	27.36	Peak	---	---
4 @	498.510	38.91	-7.09	46.00	46.71	17.26	3.41	28.47	Peak	---	---
5 @	599.390	35.57	-10.43	46.00	40.30	20.15	3.68	28.56	Peak	---	---
6 @	999.990	44.14	-9.86	54.00	44.01	22.50	4.96	27.33	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

3.6.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11b

Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	Test Freq. (FX)	F1
N _{TX}	1	Polarization	V

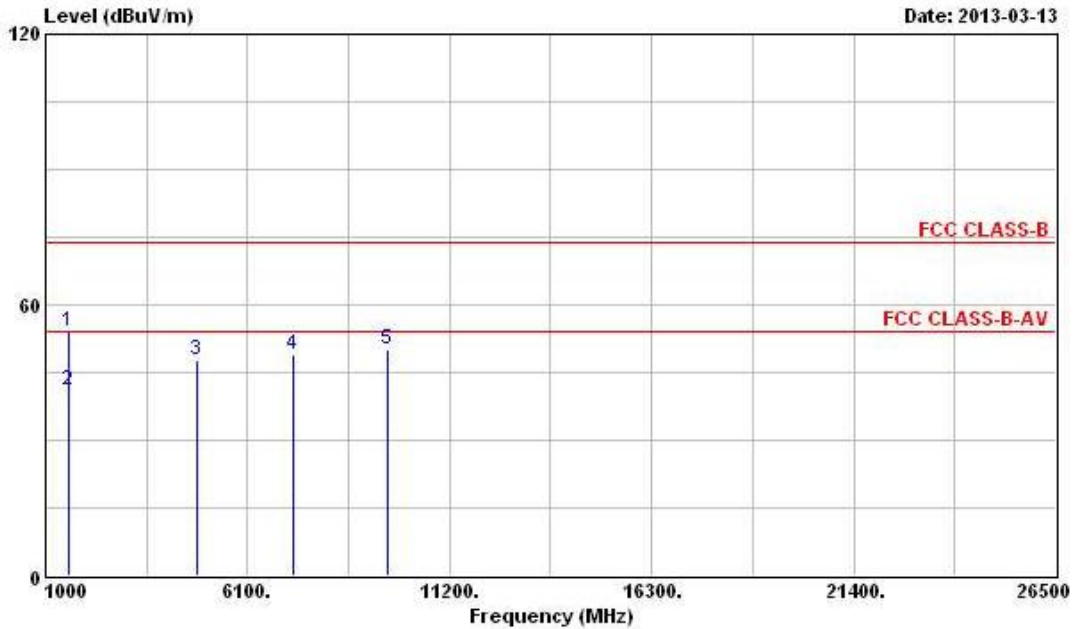


Line	Freq	Level	Over Limit	Limit	ReadAntenna	Cable	Preamp	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	1606.000	51.81	-22.19	74.00	54.94	29.08	2.60	34.81 Peak	---	---
2	1606.000	39.02	-14.98	54.00	42.15	29.08	2.60	34.81 Average	---	---
3	3210.000	53.84			52.31	32.92	3.60	34.99 Peak	---	---
4	4824.000	51.02	-22.98	74.00	46.77	34.80	4.32	34.87 Peak	---	---
5	4824.000	40.12	-13.88	54.00	35.87	34.80	4.32	34.87 Average	---	---
6	7236.000	48.81			42.35	35.90	5.71	35.15 Peak	---	---
7	9648.000	49.88			42.09	36.95	6.41	35.57 Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 5: For un-restricted bands, unwanted emissions (item 3 and 6, 7) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11b	Test Freq. (FX)	F1
N _{TX}	1	Polarization	H

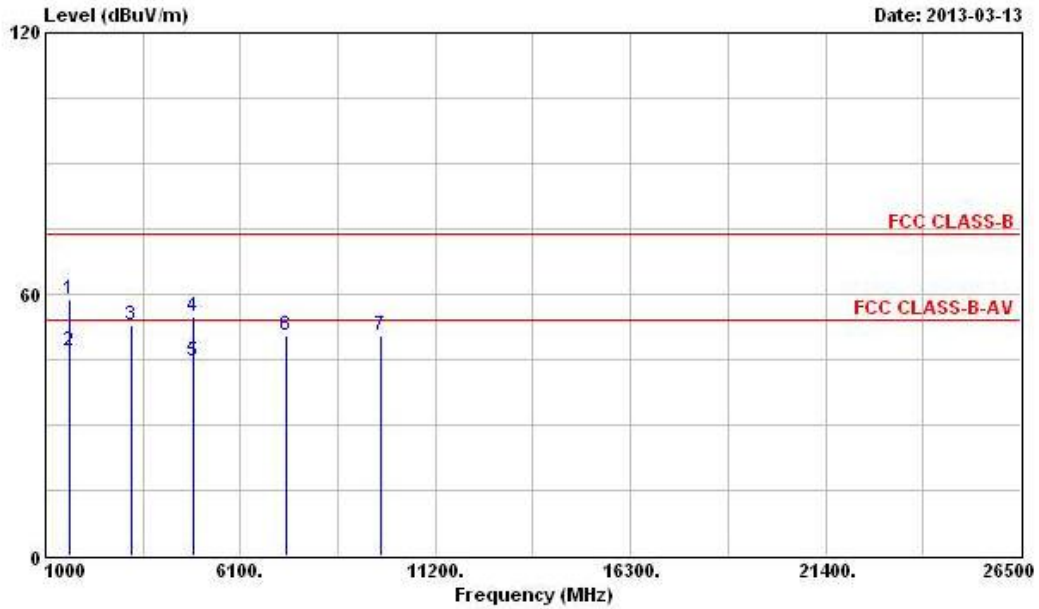


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1606.000	54.03	-19.97	74.00	57.16	29.08	2.60	34.81	Peak	---	---
2	1606.000	41.01	-12.99	54.00	44.14	29.08	2.60	34.81	Average	---	---
3	4824.000	47.79	-6.21	54.00	43.54	34.80	4.32	34.87	PK	---	---
4	7236.000	49.11			42.65	35.90	5.71	35.15	Peak	---	---
5	9648.000	50.14			42.35	36.95	6.41	35.57	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 5: For un-restricted bands, unwanted emissions (item 4 and 5) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11b	Test Freq. (FX)	F2
N _{TX}	1	Polarization	V

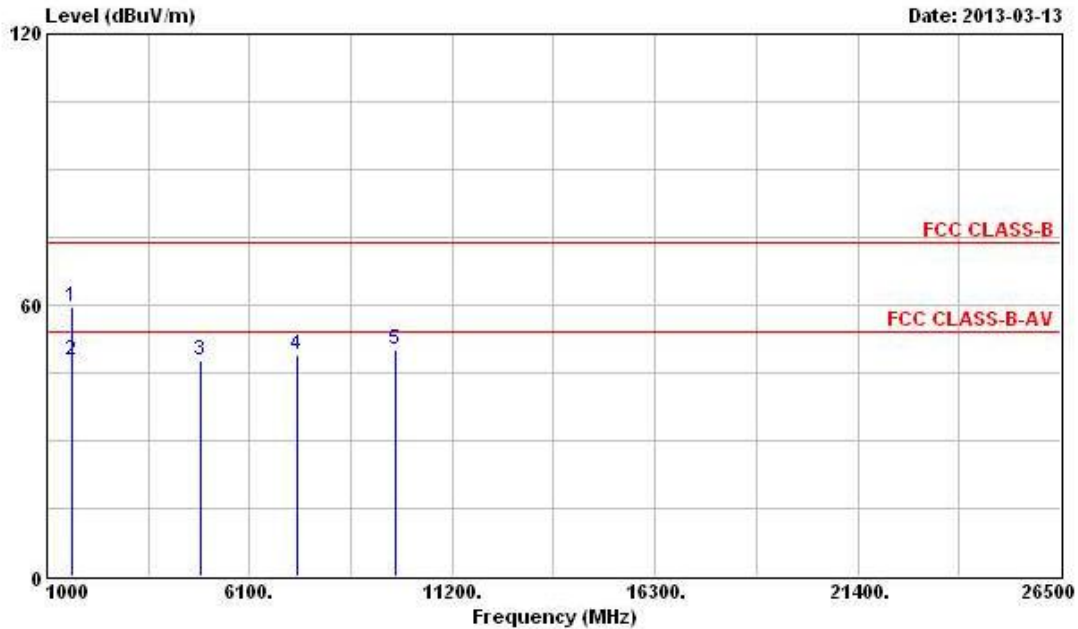


Item	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	@ 1622.000	58.96	-15.04	74.00	61.95	29.22	2.60	34.81	Peak	---	---
2	@ 1622.000	46.95	-7.05	54.00	49.94	29.22	2.60	34.81	Average	---	---
3	@ 3238.000	52.87			51.36	32.90	3.60	34.99	Peak	---	---
4	@ 4874.000	54.70	-19.30	74.00	50.48	34.77	4.31	34.86	Peak	---	---
5	@ 4874.000	44.67	-9.33	54.00	40.45	34.77	4.31	34.86	Average	---	---
6	@ 7311.000	50.35	-3.65	54.00	43.91	35.90	5.71	35.17	PK	---	---
7	@ 9748.000	50.56			42.69	37.11	6.34	35.58	Peak	---	---

- Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 5: For un-restricted bands, unwanted emissions (item 3 and 7) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11b	Test Freq. (FX)	F2
N _{TX}	1	Polarization	H

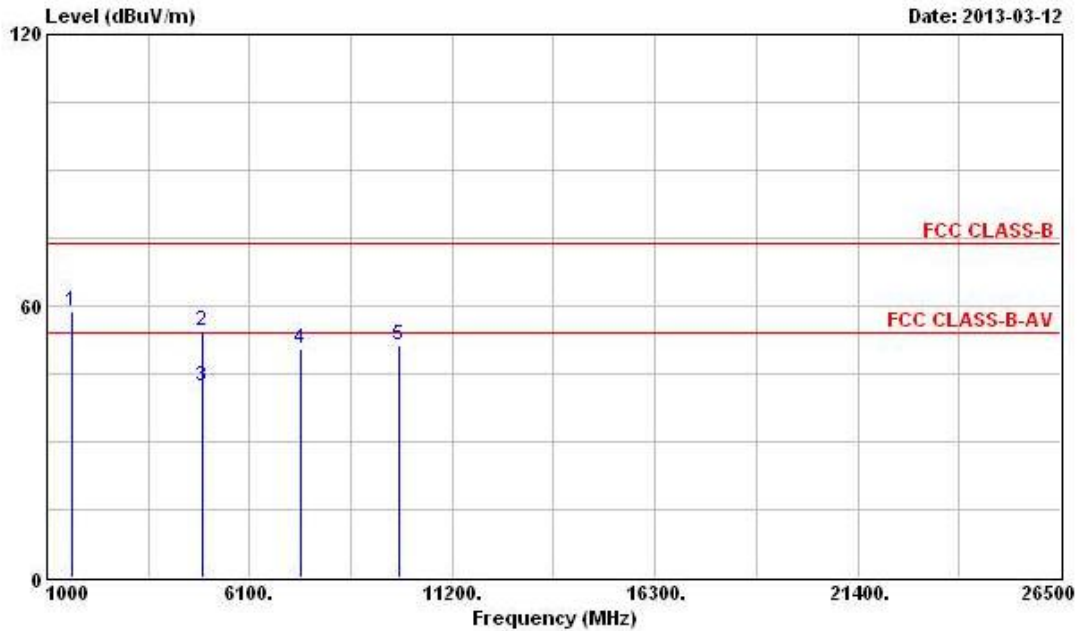


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1622.000	59.54	-14.46	74.00	62.53	29.22	2.60	34.81	Peak	---	---
2	1622.000	47.91	-6.09	54.00	50.90	29.22	2.60	34.81	Average	---	---
3	4874.000	47.66	-6.34	54.00	43.44	34.77	4.31	34.86	PK	---	---
4	7311.000	49.11	-4.89	54.00	42.67	35.90	5.71	35.17	PK	---	---
5	9748.000	50.23			42.36	37.11	6.34	35.58	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 5: For un-restricted bands, unwanted emissions (item 5) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11b	Test Freq. (FX)	F3
N _{TX}	1	Polarization	V

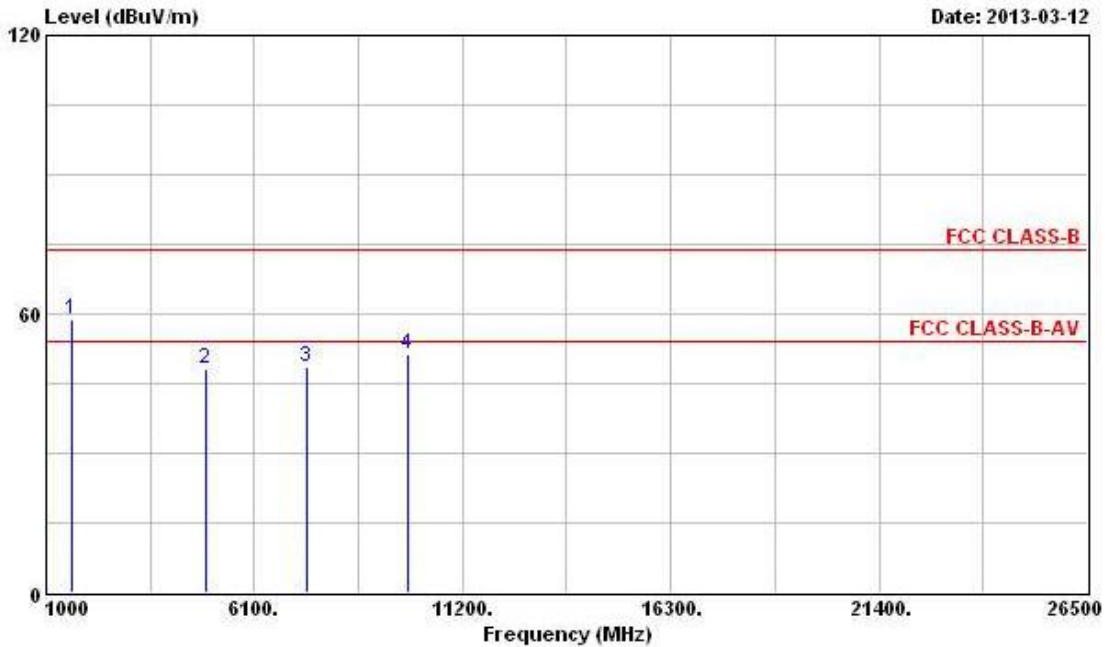


Item	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1638.000	58.64			61.48	29.36	2.60	34.80	Peak	---	---
2	4918.000	54.66	-19.34	74.00	50.47	34.75	4.29	34.85	Peak	---	---
3	4918.000	42.29	-11.71	54.00	38.10	34.75	4.29	34.85	Average	---	---
4	7386.000	50.72	-3.28	54.00	44.30	35.90	5.71	35.19	PK	---	---
5	9848.000	51.49			43.60	37.25	6.22	35.58	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 5: For un-restricted bands, unwanted emissions (item 1 and 5) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11b	Test Freq. (FX)	F3
N _{TX}	1	Polarization	H

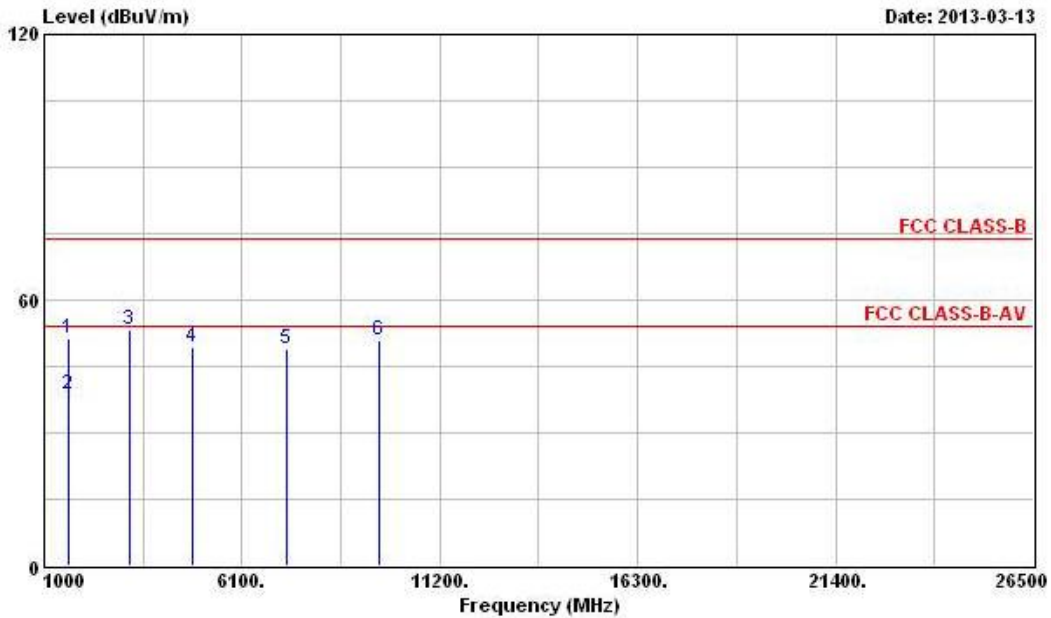


Peak	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1638.000	58.76			61.60	29.36	2.60	34.80	Peak	---	---
2	4924.000	48.01	-5.99	54.00	43.84	34.74	4.28	34.85	PK	---	---
3	7386.000	48.72	-5.28	54.00	42.30	35.90	5.71	35.19	PK	---	---
4	9848.000	51.23			43.34	37.25	6.22	35.58	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 5: For un-restricted bands, unwanted emissions (item 1 and 4) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

3.6.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11g

Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	Test Freq. (FX)	F1
N _{TX}	1	Polarization	V

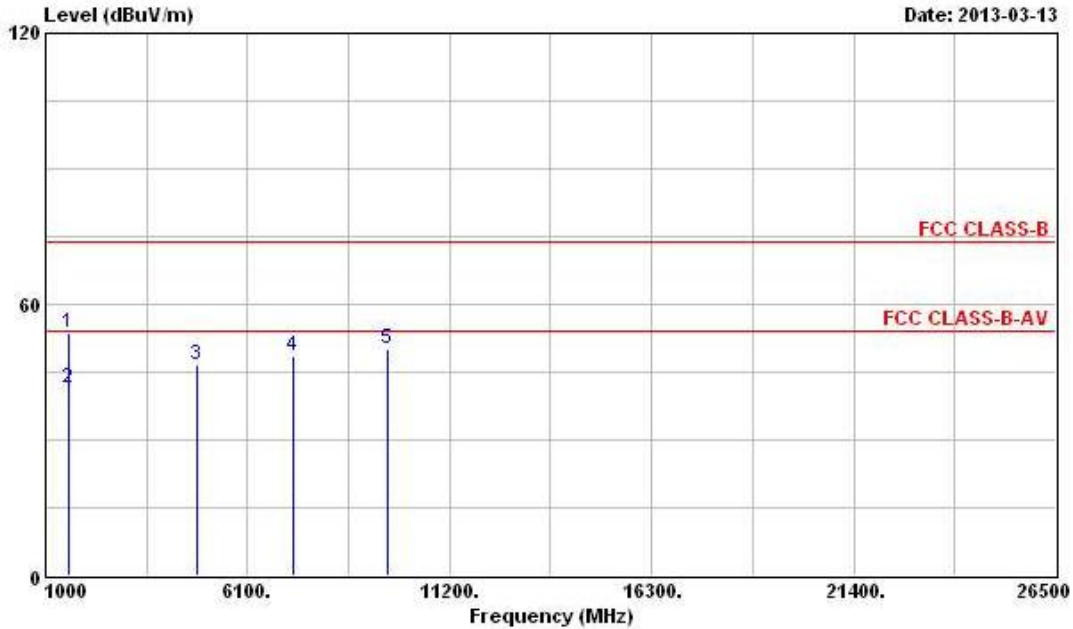


Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 1614.000	51.44	-22.56	74.00	54.57	29.08	2.60	34.81	Peak	---	---
2 @ 1614.000	38.73	-15.27	54.00	41.86	29.08	2.60	34.81	Average	---	---
3 @ 3210.000	53.21			51.68	32.92	3.60	34.99	Peak	---	---
4 @ 4824.000	49.20	-4.80	54.00	44.95	34.80	4.32	34.87	PK	---	---
5 @ 7236.000	48.78			42.32	35.90	5.71	35.15	Peak	---	---
6 @ 9648.000	51.02			43.23	36.95	6.41	35.57	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 5: For un-restricted bands, unwanted emissions (item 3 and 5, 6) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11g	Test Freq. (FX)	F1
N _{TX}	1	Polarization	H

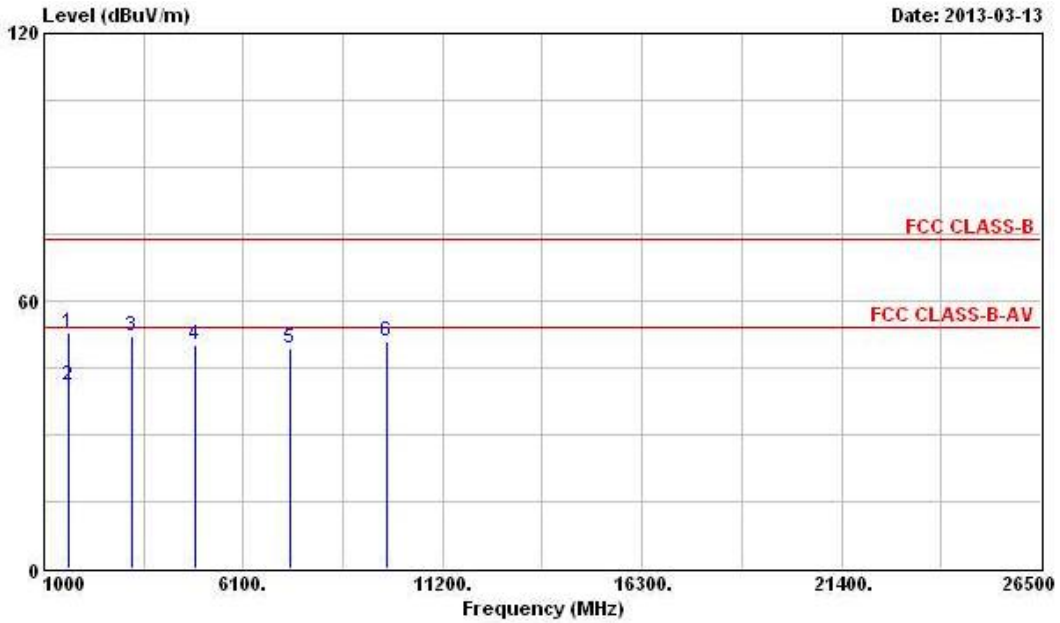


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1606.000	53.82	-20.18	74.00	56.95	29.08	2.60	34.81	Peak	---	---
2	1606.000	41.49	-12.51	54.00	44.62	29.08	2.60	34.81	Average	---	---
3	4824.000	46.62	-7.38	54.00	42.37	34.80	4.32	34.87	PK	---	---
4	7236.000	48.69			42.23	35.90	5.71	35.15	Peak	---	---
5	9648.000	50.26			42.47	36.95	6.41	35.57	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 5: For un-restricted bands, unwanted emissions (item 4 and 5) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	Test Freq. (FX)	F2
N _{TX}	1	Polarization	V

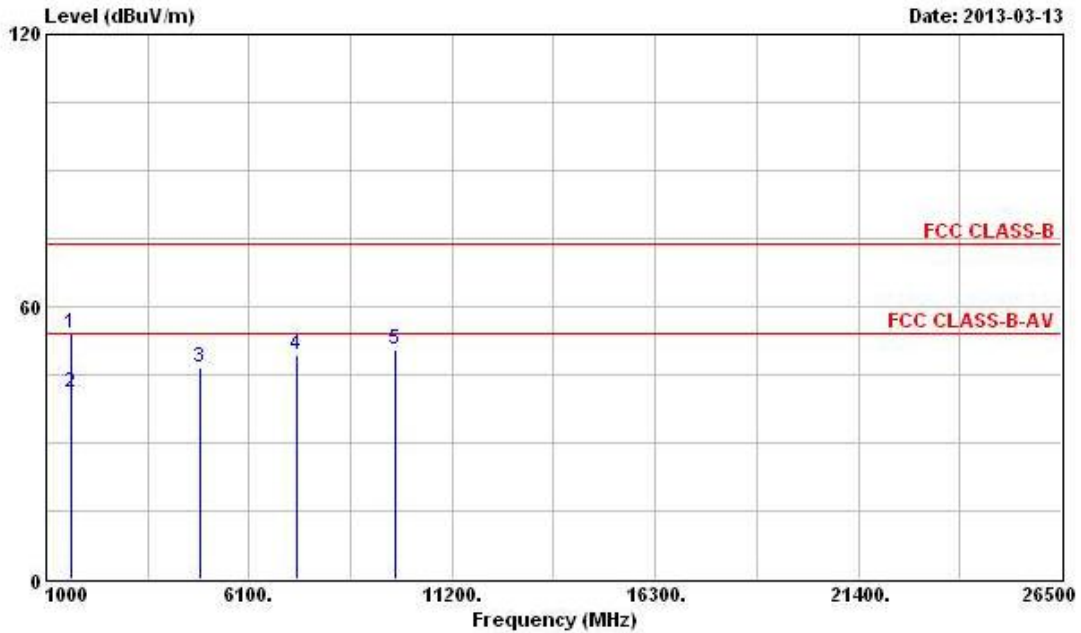


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	1620.000	53.05	-20.95	74.00	56.18	29.08	2.60	34.81	Peak	---
2	1620.000	41.22	-12.78	54.00	44.35	29.08	2.60	34.81	Average	---
3	3238.000	52.00			50.49	32.90	3.60	34.99	Peak	---
4	4874.000	49.95	-4.05	54.00	45.73	34.77	4.31	34.86	PK	---
5	7311.000	49.53	-4.47	54.00	43.09	35.90	5.71	35.17	PK	---
6	9748.000	50.91			43.04	37.11	6.34	35.58	Peak	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 5: For un-restricted bands, unwanted emissions (item 3 and 6) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11g	Test Freq. (FX)	F2
N _{TX}	1	Polarization	H

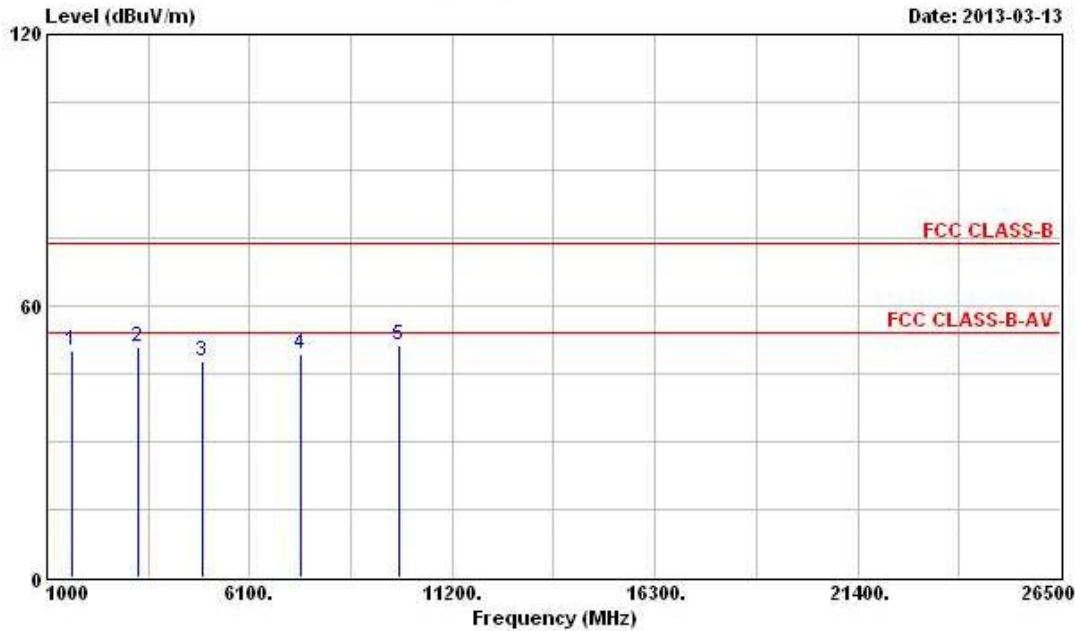


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	1620.000	53.99	-20.01	74.00	57.12	29.08	2.60	34.81	Peak	---	---
2 @	1620.000	41.03	-12.97	54.00	44.16	29.08	2.60	34.81	Average	---	---
3 @	4874.000	46.72	-7.28	54.00	42.50	34.77	4.31	34.86	PK	---	---
4 @	7311.000	49.39	-4.61	54.00	42.95	35.90	5.71	35.17	PK	---	---
5 @	9748.000	50.57			42.70	37.11	6.34	35.58	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 5: For un-restricted bands, unwanted emissions (item 5) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11g	Test Freq. (FX)	F3
N _{TX}	1	Polarization	V

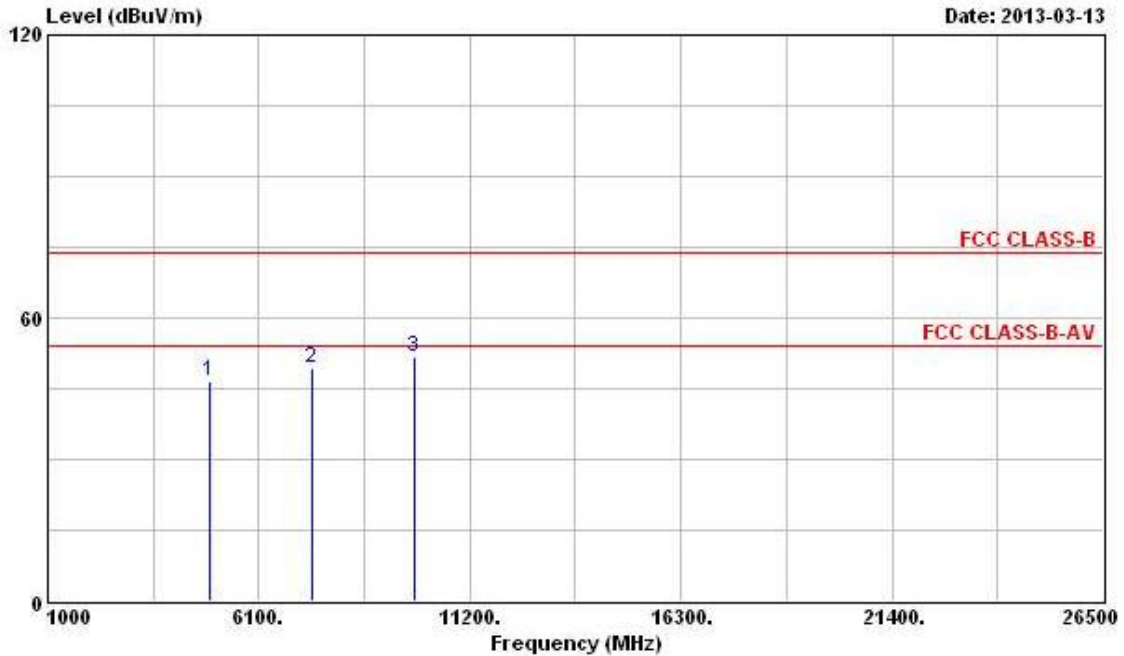


Line	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1638.000	50.23			53.07	29.36	2.60	34.80	Peak	---	---
2	3273.000	50.97			49.43	32.89	3.63	34.98	Peak	---	---
3	4924.000	47.68	-6.32	54.00	43.51	34.74	4.28	34.85	PK	---	---
4	7386.000	49.24	-4.76	54.00	42.82	35.90	5.71	35.19	PK	---	---
5	9848.000	51.16			43.27	37.25	6.22	35.58	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 5: For un-restricted bands, unwanted emissions (item 1, 2 and 5) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11g	Test Freq. (FX)	F3
N _{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	4924.000	46.50	-7.50	54.00	42.33	34.74	4.28	34.85	PK	---	---
2 @	7386.000	49.26	-4.74	54.00	42.84	35.90	5.71	35.19	PK	---	---
3 @	9848.000	51.88			43.99	37.25	6.22	35.58	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 5: For un-restricted bands, unwanted emissions (item 3) shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Receiver	R&S	ESCS 30	100357	9 kHz ~ 2.75 GHz	Nov. 22, 2012	Conduction (CO01-NH)
LISN	SCHAFFNER	NNB41	04/10053	9 kHz ~ 30 MHz	Nov. 20, 2012	Conduction (CO01-NH)
Power Filter	CORCOM	MR12030	N/A	30A*2	NCR	Conduction (CO01-NH)
RF Cable-CON	Suhner Switzerland	RG223/U	CB004	9 kHz ~ 30 MHz	Dec. 12, 2012	Conduction (CO01-NH)

Note: Calibration Interval of instruments listed above is one year. NCR: No calibration request.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP 40	100305	9kHz~40GHz	Mar. 20, 2013	Conducted (TH01-HY)
Signal Generator	R&S	SMR 40	100116	10MHz ~ 40GHz	Jun. 26, 2012	Conducted (TH01-HY)
Pulse Power Sensor	NRITSU	MA2411B	0917017	300MHz ~ 40GHz	Feb. 02, 2013	Conducted (TH01-HY)
Power Meter	ANRITSU	ML2495A	0949003	300MHz ~ 40GHz	Feb. 02, 2013	Conducted (TH01-HY)
AC Power Source	GW Instek	APS-9102	EL920581	AC 0V ~ 300V	Jul. 02, 2012	Conducted (TH01-HY)
Laboratory DC Power Supply	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Jul. 19, 2012	Conducted (TH01-HY)
TEMP & Humidity Chamber	GIANT FORCE	GTH-225-20-SP-SD	MAA1112-007	-20 ~ 100°C	Nov. 21, 2012	Conducted (TH01-HY)
RF Cable-2m	HUBER+SUHNER	SUCOFLEX_104	SN 345675/4	1GHz ~ 26.5GHz	NA	Conducted (TH01-HY)
RF Cable-3m	HUBER+SUHNER	SUCOFLEX_104	SN 345669/4	1GHz ~ 26.5GHz	NA	Conducted (TH01-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP40	100593	9kHz ~ 40GHz	Sep. 14, 2012	Radiation (03CH02-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	Nov. 10, 2012	Radiation (03CH02-HY)
Amplifier	AGILENT	8447D	2944A11146	100kHz ~ 1.3GHz	Jul. 23, 2012	Radiation (03CH02-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz ~ 1GHz 3m	May 10, 2012	Radiation (03CH02-HY)
Bilog Antenna	SCHAFFNER	CBL61128	2723	30MHz ~ 2GHz	Oct. 22, 2012	Radiation (03CH02-HY)
Double Ridged Guide Horn Antenna	ETS · LINDGREN	3117	00091920	1GHz ~ 18GHz	Nov. 19, 2012	Radiation (03CH02-HY)
Microwave Preamplifier	AGILENT	8449B	3008A02373	1GHz ~ 26.5GHz	Aug. 10, 2012	Radiation (03CH02-HY)
RF Cable-high	SUHNER	SUCOFLEX106	03CH02-HY	1GHz ~ 40GHz	Mar. 05, 2013	Radiation (03CH02-HY)
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170154	15GHz ~ 40GHz	Jan. 08, 2013	Radiation (03CH02-HY)
Turn Table	HD	DS 420	420/649/00	0~ 360 degree	N/A	Radiation (03CH02-HY)
Antenna Mast	HD	MA 240	240/559/00	1 ~ 4 m	N/A	Radiation (03CH02-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Magnetic Loop Antenna	Teseq GmbH	HLA 6120	31244	0.01MHz ~ 30MHz	Dec. 02, 2012	Radiation (03CH02-HY)

Note: Calibration Interval of instruments listed above is two year.