

FCC C2PC Test Report

Equipment : 802.11 3T3R a/n/ac module
Brand Name : Senao
Model No. : PCE4553AH
FCC ID : U2M-PCE4553AH
Standard : 47 CFR FCC Part 15.407
Operating Band : 5150 MHz – 5250 MHz
FCC Classification : NII
Applicant : Senao Networks, Inc.
3F, No. 529, Chung Cheng Rd., Hsintien, Taipei, Taiwan

The product sample received on Apr. 21, 2014 and completely tested on Apr. 21, 2014. 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:

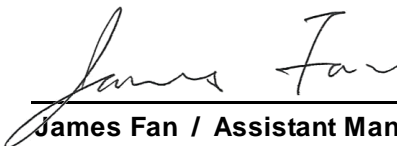

James Fan / Assistant Manager





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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	15.407(a)	RF Output Power (Maximum Conducted Output Power)	Power [dBm] 5150-5250MHz:16.39	Power [dBm] 5150-5250MHz:17	Complied
3.2	15.407(b)	Transmitter Unwanted Emissions and Band Edge	Restricted Bands [dBuV/m at 3m]:897.18MHz 42.44 (Margin 3.56dB) - PK	Non-Restricted Bands: ≤ -27dBm (68.3dBuV/m@3m) Restricted Bands: FCC 15.209	Complied



Revision History

Report No.	Version	Description	Issued Date
FR3N0541-01AN	Rev. 01	Initial issue of report	May 05, 2014
FR3N0541-01AN	Rev. 02	Modify reason of C2PC	May 06, 2014



1 General Description

1.1 Information

This report is issued as a FCC Class II Permissive Change. No hardware and software change for this device. The modification is only adding **absorber**, therefore only conducted output power and radiated emission has been evaluated for this C2PC.

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)	Co-location
5150-5250	a	5180-5240	36-48 [4]	3	13.60	N/A
5150-5250	n(HT20)	5180-5240	36-48 [4]	3	13.26	N/A
5150-5250	n(HT40)	5190-5230	38-46 [2]	3	16.24	N/A
5150-5250	ac(VHT20)	5180-5240	36-48 [4]	3	13.34	N/A
5150-5250	ac(VHT40)	5190-5230	38-46 [2]	3	16.39	N/A
5150-5250	ac(VHT80)	5210	42 [1]	3	16.01	N/A

Note 1: RF output power specifies that Maximum Conducted Output Power.
 Note 2: 802.11 a/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
 Note 3: 802.11 ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.
 Note 4: Co-location, Co-location is generally defined as simultaneously transmitting (co-transmitting) antennas within 20 cm of each other. (i.e., EUT has simultaneously co-transmitting that operating 2.4GHz and 5GHz.)

1.1.2 Antenna Information

Antenna Category	
<input type="checkbox"/>	Equipment placed on the market without antennas
<input type="checkbox"/>	Integral antenna (antenna permanently attached)
<input type="checkbox"/>	Temporary RF connector provided
<input type="checkbox"/>	No temporary RF connector provided Transmit chains bypass antenna and soldered temporary RF connector provided for connected measurement. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator and correct for all losses in the RF path.
<input checked="" type="checkbox"/>	External antenna (dedicated antennas)
<input type="checkbox"/>	Single power level with corresponding antenna(s).
<input type="checkbox"/>	Multiple power level and corresponding antenna(s).
<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. Model	Ant. Type	Connector	Gain (dBi)
1	External	Ant 2 (1002299)	PCB Dipole	UFL	3.875
2	External	Ant 4 (1002300)	PCB Dipole	UFL	2.6248
3	External	Ant 6 (1002301)	PCB Dipole	UFL	4.1618

1.1.3 Type of EUT

Identify EUT	
EUT Serial Number	N/A
Presentation of Equipment	<input type="checkbox"/> Production ; <input checked="" type="checkbox"/> Pre-Production ; <input type="checkbox"/> Prototype
Type of EUT	
<input type="checkbox"/> Stand-alone	
<input type="checkbox"/> Combined (EUT where the radiopart is fully integrated within another device) Combined Equipment - Brand Name / Model No.: ...	
<input checked="" type="checkbox"/> Plug-in radio	
<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 802.11a	0
<input checked="" type="checkbox"/> 100.00% - IEEE 802.11ac (VHT20)	0
<input checked="" type="checkbox"/> 100.00% - IEEE 802.11ac (VHT40)	0
<input checked="" type="checkbox"/> 100.00% - IEEE 802.11ac (VHT80)	0

1.1.5 EUT Operational Condition

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



1.2 Support Equipment

Support Equipment				
No.	Equipment	Brand Name	Model Name	Serial No.
1	Notebook	DELL	E6430	DoC
2	Power Supply	GW INSTEK	GPC-6030D	---
3	Extender card	NA	adapter	NA

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 789033 v01r03
- ◆ FCC KDB 662911 v02r01
- ◆ FCC KDB 412172 v01

1.4 Testing Location Information

Testing Location				
<input checked="" type="checkbox"/>	Sporton Lab	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-318-0055		
<input checked="" type="checkbox"/>	ICC Lab	ADD : No.3-1, Lane 6, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsein 333, Taiwan (R.O.C.) TEL : 886-3-271-8666 FAX : 886-3-318-0155		
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-HY	Mark Liao	22°C / 62%	Apr. 21, 2014
*Radiated Emission	03CH01-WS	Brad Wu	16°C / 63%	Apr. 21, 2014
Test site registered number [657002] with FCC. Test site registered number [10807A-1] with IC.				

Note: * Sporton Lab subcontracts this test item to ICC lab (TAF: 2732).
ICC lab is a TAF accreditation test firm and also is an approved provider of Sporton lab.



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
RF output power, conducted		±0.63 dB	N/A
All emissions, radiated	30 – 1000 MHz	±3.9 dB	N/A
	Above 1GHz	±4.2 dB	N/A

2 Test Configuration of EUT

2.1 The Worst Case Modulation Configuration




Worst Modulation Used for Conformance Testing (5150-5250MHz)			
Modulation Mode	Transmit Chains (N _{TX})	Data Rate / MCS	Worst Data Rate / MCS
11a	3	6-54Mbps	6 Mbps
HT20	3	M0-23	M0
HT40	3	M0-23	M0
VHT20	3	M0-8	M0
VHT40	3	M0-9	M0
VHT80	3	M0-9	M0

2.2 The Worst Case Power Setting Parameter

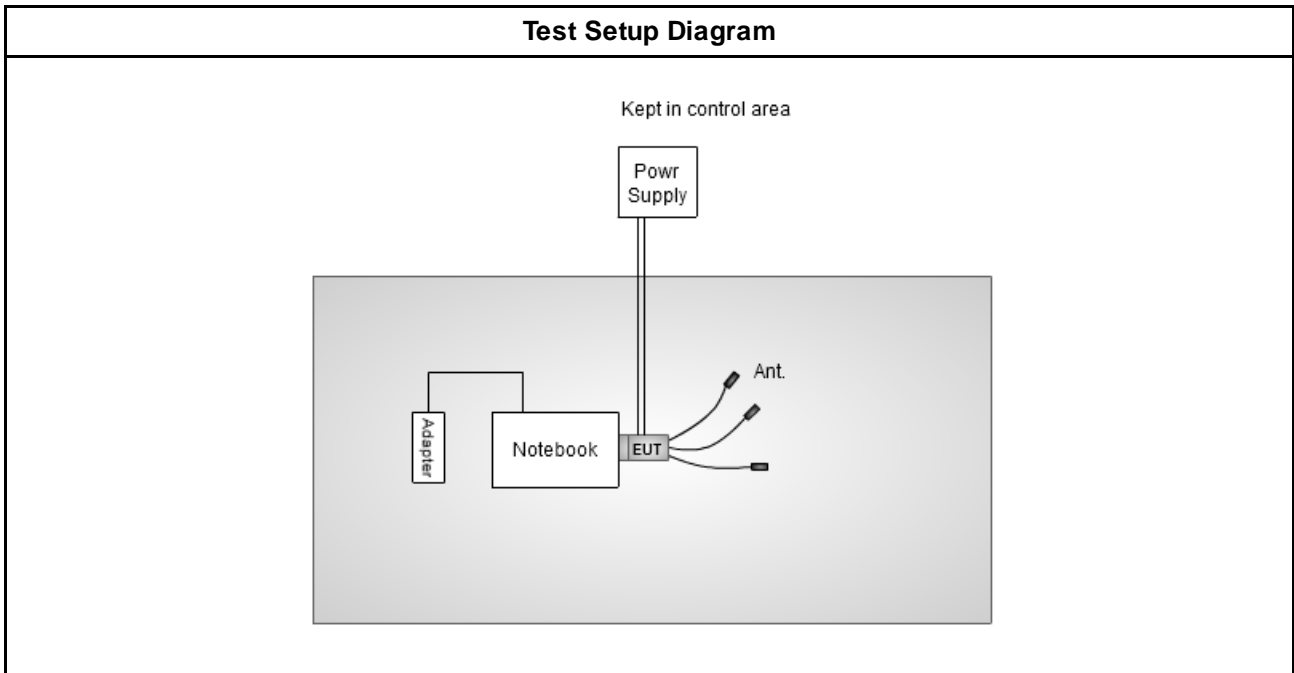
The Worst Case Power Setting Parameter (5150-5250 MHz band)							
Test Software Version	art2, Version: 4_9_575_5_CS_U3						
Modulation Mode	N _{TX}	Test Frequency (MHz)					
		NCB: 20MHz			NCB: 40MHz		NCB: 80MHz
		5180	5200	5240	5190	5230	5210
11a,6-54Mbps	3	9	9	10	---	---	---
HT20,M0-23	3	9	9	10	---	---	---
HT40,M0-23	3	---	---	---	12	12	---
VHT20,M0-8	3	9	9	10	---	---	---
VHT40,M0-9	3	---	---	---	12	12	---
VHT80,M0-9	3	---	---	---	---	---	11.5

2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	RF Output Power
Test Condition	Conducted measurement at transmit chains
Modulation Mode	11a, HT20, HT40, VHT20, VHT40, VHT80
Operating Mode	Operating Mode Description
1	DC Power & Radio link(WLAN)

The Worst Case Mode for Following Conformance Tests			
Tests Item	Transmitter Radiated Unwanted 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 type="checkbox"/> EUT will be placed in fixed position.		
	<input checked="" type="checkbox"/> EUT will be placed in mobile position and operating multiple positions. EUT shall be performed two orthogonal planes. The worst planes is X.		
	<input type="checkbox"/> EUT will be operating multiple positions. The antenna of EUT was pre-tested on the positioned of each 3 axis. The worst plane is X.		
Operating Mode	<input checked="" type="checkbox"/> 1. DC Power & Radio link(WLAN)		
Modulation Mode	VHT80		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			

2.4 Test Setup Diagram



3 Transmitter Test Result

3.1 RF Output Power

3.1.1 RF Output Power Limit

Maximum Conducted Output Power Limit	
UNII Devices	
<input checked="" type="checkbox"/>	For the 5.15-5.25 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 17 - (G_{TX} - 6)$.
<input type="checkbox"/>	For the 5.25-5.35 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.
<input type="checkbox"/>	For the 5.47-5.725 GHz band, the maximum conducted output power (P_{Out}) shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$.
<input type="checkbox"/>	For the 5.725-5.825 GHz band:
<input type="checkbox"/>	Point-to-multipoint systems (P2M): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W or 17 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$.
<input type="checkbox"/>	Point-to-point systems (P2P): the maximum conducted output power (P_{Out}) shall not exceed the lesser of 1 W or 17 dBm + 10 log B, where B is the 26 dB emission bandwidth in MHz. If $G_{TX} > 23$ dBi, then $P_{Out} = 30 - (G_{TX} - 23)$.
LE-LAN Devices	
<input checked="" type="checkbox"/>	For the 5.15-5.25 GHz band, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
<input type="checkbox"/>	For the 5.25-5.35 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
<input type="checkbox"/>	For the 5.47-5.6 GHz band and 5.65-5.725 GHz band, the maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
<input type="checkbox"/>	For the 5.725-5.825 GHz band, the maximum e.i.r.p. shall not exceed 4.0 W or 23 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
<input type="checkbox"/>	Point-to-multipoint systems (P2M): the maximum e.i.r.p. shall not exceed 4.0 W or 23 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.
<input type="checkbox"/>	Point-to-point systems (P2P): the maximum e.i.r.p. shall not exceed 4.0 W or 23 + 10 log B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. If e.i.r.p. > 36 dBm, $G_{TX} \leq P_{Out}$
P_{Out} = maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.	

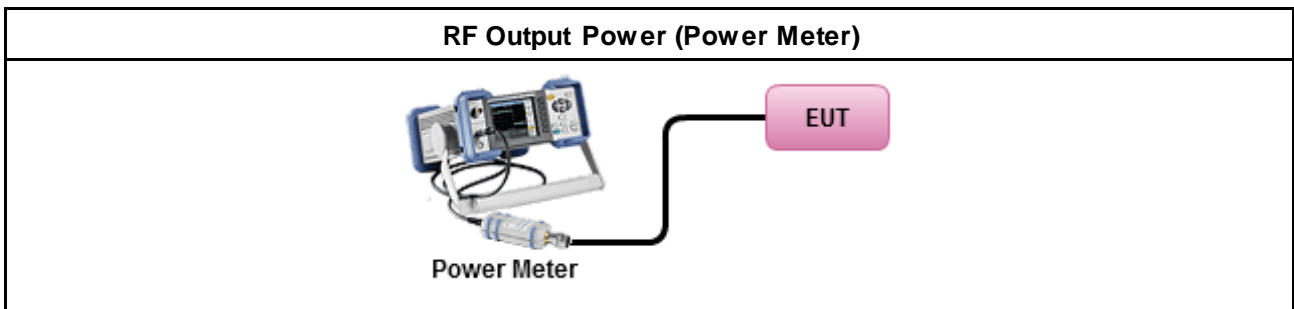
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	Maximum Conducted Output Power
<input type="checkbox"/>	Refer as FCC KDB 789033 v01r03, clause E Method SA-1 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 789033 v01r03, clause E Method SA-1 Alt. (RMS detection with slow sweep speed)
<input type="checkbox"/>	Refer as FCC KDB 789033 v01r03, clause E Method SA-2 (spectral trace averaging).
<input type="checkbox"/>	Refer as FCC KDB 789033 v01r03, clause E Method SA-2 Alt. (RMS detection with slow sweep speed)
	Wideband RF power meter and average over on/off periods with duty factor
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033 v01r03, clause E Method PM-G (using a gated RF average power meter).
<input checked="" type="checkbox"/>	For conducted measurement.
<input 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 checked="" 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 checked="" 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]) $EIRP_{total} = P_{total} + DG$

3.1.4 Test Setup





3.1.5 Directional Gain for Power Measurement

Directional Gain (DG) Result					
Transmit Chains No.		1	2	3	-
Maximum G _{ANT} (dBi)		3.875	2.6248	4.1618	-
Modulation Mode	DG (dBi)	N _{TX}	N _{SS}	STBC	Array Gain (dB)
11a,6-54Mbps	4.1618	3	1	-	-
HT20,M0-23	4.1618	3	1	-	-
HT40,M0-23	4.1618	3	1	-	-
VHT20,M0-9	4.1618	3	1	-	-
VHT40,M0-9	4.1618	3	1	-	-
VHT80,M0-9	4.1618	3	1	-	-

Note 1: For CDD transmissions, directional gain is calculated as power measurements:
Directional Gain (DG) = G_{ANT} + Array Gain, where Array Gain is as follows:
Array Gain = 0 dB (i.e., no array gain) for N_{TX} ≤ 4;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{TX};
Note 2: Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain



3.1.6 Test Result of Maximum Conducted Output Power

Maximum Conducted Output Power (5150-5250MHz band)										
Condition			RF Output Power (dBm)							
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
11a	3	5180	8.42	8.91	9.12	13.60	17.00	4.1618	17.7618	23.00
11a	3	5200	8.37	8.76	9.16	13.55	17.00	4.1618	17.7118	23.00
11a	3	5240	8.29	8.84	9.13	13.54	17.00	4.1618	17.7018	23.00
HT20	3	5180	8.03	8.58	8.81	13.26	17.00	4.1618	17.4218	23.00
HT20	3	5200	8.11	8.24	8.56	13.08	17.00	4.1618	17.2418	23.00
HT20	3	5240	7.94	8.52	8.79	13.20	17.00	4.1618	17.3618	23.00
HT40	3	5190	10.92	11.45	11.98	16.24	17.00	4.1618	20.4018	23.00
HT40	3	5230	11.02	11.42	11.72	16.17	17.00	4.1618	20.3318	23.00
VHT20	3	5180	8.02	8.62	9.01	13.34	17.00	4.1618	17.5018	23.00
VHT20	3	5200	7.99	8.47	8.71	13.17	17.00	4.1618	17.3318	23.00
VHT20	3	5240	7.92	8.54	8.91	13.25	17.00	4.1618	17.4118	23.00
VHT40	3	5190	11.13	11.82	11.86	16.39	17.00	4.1618	20.5518	23.00
VHT40	3	5230	11.01	11.47	11.86	16.23	17.00	4.1618	20.3918	23.00
VHT80	3	5210	10.85	11.22	11.60	16.01	17.00	4.1618	20.1718	23.00
Result			Complied							

3.2 Transmitter Radiated Unwanted Emissions and Band Edge

3.2.1 Transmitter Radiated Unwanted Emissions and Band Edge Limit

Unwanted emissions below 1 GHz and restricted band emissions above 1GHz 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 above 1GHz Limit	
Operating Band	Limit
5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.25 - 5.35 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.47 - 5.725 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.725 - 5.825 GHz	5.715 5.725 GHz: e.i.r.p. -17 dBm [78.2 dBuV/m@3m] 5.825 5.835 GHz: e.i.r.p. -17 dBm [78.2 dBuV/m@3m] Other un-restricted band: e.i.r.p. -27 dBm [68.2 dBuV/m@3m]

Note 1: 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).

3.2.2 Measuring Instruments

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

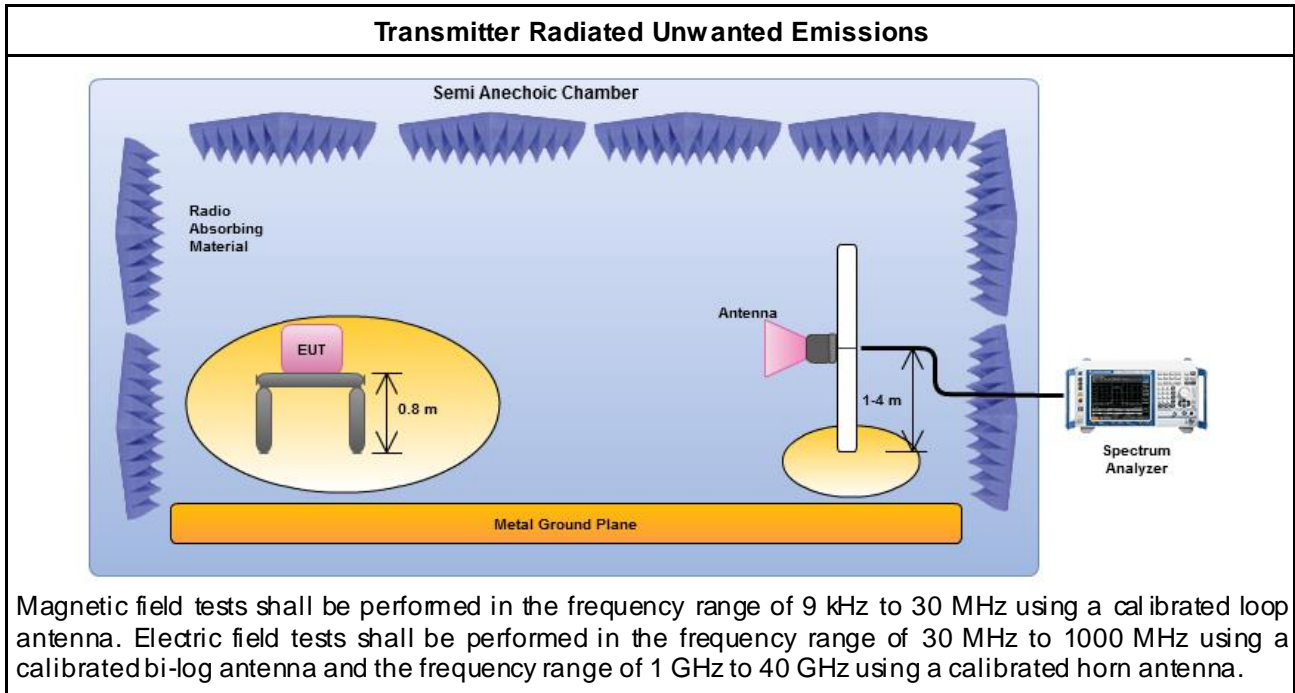


3.2.3 Test Procedures

Test Method	
<input checked="" type="checkbox"/>	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. Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. 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"/>	The average emission levels shall be measured in [duty cycle ≥ 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 789033 v01r03, clause H)2) for unwanted emissions into non-restricted bands.
<input checked="" type="checkbox"/>	Refer as FCC KDB 789033 v01r03, clause H)1) for unwanted emissions into restricted bands.
<input type="checkbox"/>	Refer as FCC KDB 789033 v01r03, H)6) Method AD (Trace Averaging).
<input type="checkbox"/>	Refer as FCC KDB 789033 v01r03, H)6) Method VB (Reduced VBW).
<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 789033 v01r03, clause H)5) measurement procedure peak limit.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.
<input checked="" type="checkbox"/>	For radiated measurement.
<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 789033 v01r03, clause H)3).
<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

3.2.4 Test Setup



Note: The test distance is 3m.

3.2.5 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.

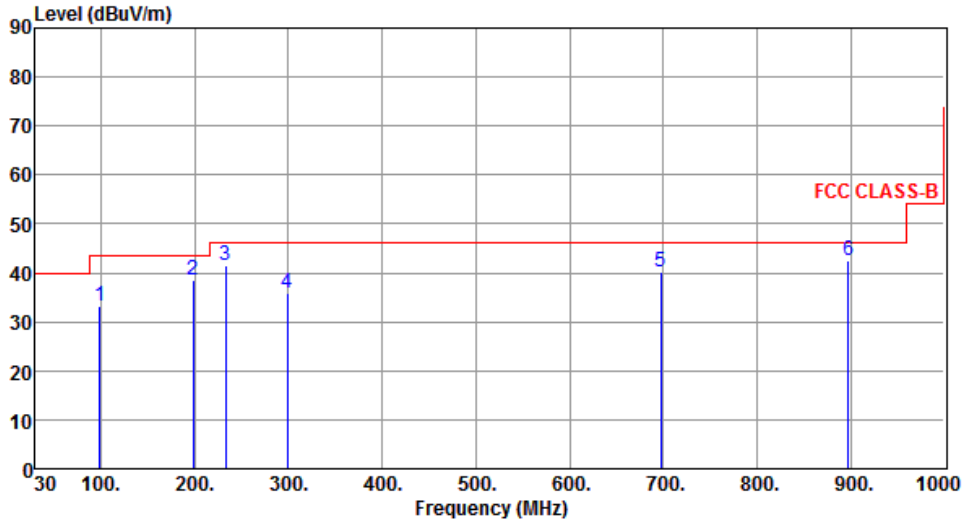


3.2.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Transmitter Radiated Unwanted Emissions (Below 1GHz)									
Modulation Mode	VHT80			Test Freq. (MHz)	5210				
N _{TX}	3			Polarization	V				
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg
1	98.87	33.59	43.50	-9.91	55.55	-21.96	Peak	---	---
2	198.78	31.11	43.50	-12.39	50.76	-19.65	Peak	---	---
3	298.69	35.20	46.00	-10.80	51.39	-16.19	Peak	---	---
4	498.51	38.40	46.00	-7.60	49.98	-11.58	Peak	---	---
5	699.30	34.61	46.00	-11.39	42.86	-8.25	Peak	---	---
6	899.12	40.38	46.00	-5.62	45.88	-5.50	Peak	---	---
<p>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)</p>									



Transmitter Radiated Unwanted Emissions (Below 1GHz)			
Modulation Mode	VHT80	Test Freq. (MHz)	5210
N _{TX}	3	Polarization	H



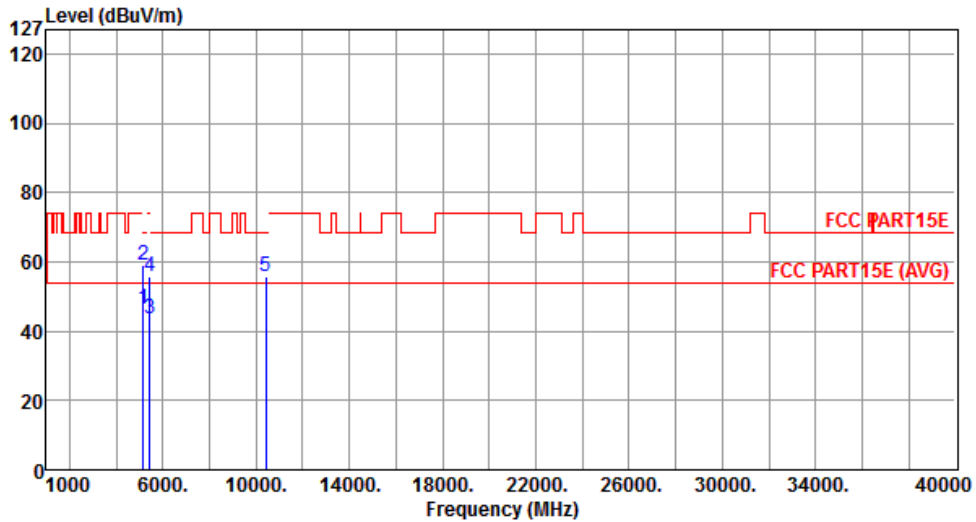
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	98.87	33.14	43.50	-10.36	55.10	-21.96	Peak	---	---
2	198.78	38.47	43.50	-5.03	58.12	-19.65	Peak	---	---
3	232.73	41.39	46.00	-4.61	59.85	-18.46	Peak	---	---
4	298.69	36.02	46.00	-9.98	52.21	-16.19	Peak	---	---
5	697.36	40.22	46.00	-5.78	48.49	-8.27	Peak	---	---
6	897.18	42.44	46.00	-3.56	47.96	-5.52	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)



3.2.7 Transmitter Radiated Unwanted Emissions (Above 1GHz)

Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	VHT80	Test Freq. (MHz)	5210
N _{TX}	3	Polarization	V



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	46.44	54.00	-7.56	40.88	5.56	Average	---	---
2	5150.00	58.91	74.00	-15.09	53.35	5.56	Peak	---	---
3	5427.00	43.68	54.00	-10.32	37.97	5.71	Average	---	---
4	5427.00	55.92	74.00	-18.08	50.21	5.71	Peak	---	---
5	10420.00	55.76	68.20	-12.44	40.61	15.15	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.



Transmitter Radiated Unwanted Emissions (Above 1GHz)									
Modulation Mode	VHT80			Test Freq. (MHz)	5210				
N _{TX}	3			Polarization	H				
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg
1	5150.00	49.24	54.00	-4.76	43.68	5.56	Average	---	---
2	5150.00	63.19	74.00	-10.81	57.63	5.56	Peak	---	---
3	5427.00	43.84	54.00	-10.16	38.13	5.71	Average	---	---
4	5427.00	56.62	74.00	-17.38	50.91	5.71	Peak	---	---
5	10420.00	55.64	68.20	-12.56	40.49	15.15	Peak	---	---
<p>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.</p>									



4 Test Equipment and Calibration Data

Test Item	Radiated Emission				
Test Site	966 chamber1 / (03CH01-WS)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101498	Jan. 25, 2014	Jan. 24, 2015
Receiver	R&S	ESR3	101658	Jan. 10, 2014	Jan. 09, 2015
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jan. 02, 2014	Jan. 01, 2015
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Feb. 13, 2014	Feb. 12, 2015
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Dec. 27, 2013	Dec. 26, 2014
Preamplifier	Burgeon	BPA-530	SN:100219	Nov. 28, 2013	Nov. 27, 2014
Preamplifier	Agilent	83017A	MY39501308	Dec. 16, 2013	Dec. 15, 2014
Preamplifier	EM	EM18G40G	060572	Jun. 20, 2013	Jun. 19, 2014
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Dec. 16, 2013	Dec. 15, 2014
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Dec. 16, 2013	Dec. 15, 2014
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16139/4	Dec. 16, 2013	Dec. 15, 2014
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Dec. 16, 2013	Dec. 15, 2014
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-002	Dec. 16, 2013	Dec. 15, 2014

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

Loop Antenna	R&S	HFH2-Z2	100330	Nov. 15, 2012	Nov. 14, 2014
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Note: Calibration Interval of instruments listed above is two year.

Test Item	RF Conducted				
Test Site	TH01-HY				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV 40	101063	Feb. 17, 2014	Feb. 16, 2015
Signal Generator	R&S	SMB100A	175727	Jan. 07, 2014	Jan. 06, 2015
Power Sensor	Anritsu	MA2411B	1207366	Oct. 24, 2013	Oct. 23, 2014
Power Meter	Anritsu	ML2495A	1241002	Oct. 24, 2013	Oct. 23, 2014
DC Power Source	G.W.	GPC-6030D	C671845	Jun. 21, 2013	Jun. 20, 2014

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