

**FCC 15.247 DTS
2.4 GHz WLAN Report**

for

TP-LINK TECHNOLOGIES CO., LTD.

**Building 24 (floors 1,3,4,5) and 28 (floors 1-4),
Central Science and Technology Park,
Nanshan, Shenzhen, China 518057**

Brand : TP-LINK
**Product Name : AC750 WiFi Range
Extender**
Model Name : RE200
FCC ID : TE7RE200

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APPENDIX A TEST PLOTS
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TEST REPORT CERTIFICATION

Applicant : TP-LINK TECHNOLOGIES CO., LTD.
Manufacture : TP-LINK TECHNOLOGIES CO., LTD.
Product Name : AC750 WiFi Range Extender
Model No. : RE200
Serial No. : N/A
Brand : TP-LINK

Applicable Standards:

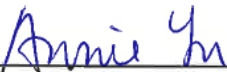
FCC Rules and Regulations Part 15 Subpart C, Oct. 2014
ANSI C63.4:2009
KDB 558074 D01 DTS Meas Guidance v03r02
KDB 662911 D01 Multiple Transmitter Output v02r01

AUDIX Technology Corp. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report. **AUDIX Technology Corp.** does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens and samples.

Date of Test: 2014. 11. 21 ~ 2015. 03. 27

Date of Report: 2014. 03. 31

Producer:


(Annie Yu/Administrator)

Signatory:


(Ben Cheng/Manager)

1. REPORT HISTORY

Revision	Date	Revision Summary	Report Number
0	2015. 03. 31	Original Report.	EM-F140740

2. SUMMARY OF TEST RESULTS

Rule	Description	Results
15.207	Conducted Emission	PASS
15.247(d)/15.209	Radiated Band Edge and Radiated Spurious Emission	PASS
15.247(b)	6dB Bandwidth	PASS
15.247(d)	Maximum Peak Output Power	PASS
15.247(d)/15.205	Conducted Band Edges and Conducted Spurious Emission	PASS
15.247 (e)	Peak Power Spectral Density	PASS
15.203	Antenna Requirement	PASS

3. GENERAL INFORMATION

3.1. Description of EUT

Product	AC750 WiFi Range Extender			
Model Number	RE200			
Serial Number	N/A			
Brand Name	TP-LINK			
Applicant	TP-LINK TECHNOLOGIES CO., LTD. Building 24 (floors 1,3,4,5) and 28 (floors1-4), Central Science and Technology Park, Nanshan, Shenzhen, China 518057			
Manufacture	TP-LINK TECHNOLOGIES CO., LTD. Building 24 (floors 1,3,4,5) and 28 (floors1-4), Central Science and Technology Park, Nanshan, Shenzhen, China 518057			
RF Features	802.11a/b/g/n/ac			
Transmit Type	2.4 GHz			
	802.11b	2T2R		
	802.11g	2T2R		
	802.11n-HT20	2T2R		
	802.11n-HT40	2T2R		
	UNII Bands			
802.11a	1T1R	802.11ac-VHT20	1T1R	
802.11n-HT20	1T1R	802.11ac-VHT40	1T1R	
802.11n-HT40	1T1R	802.11ac-VHT80	1T1R	
Device Category	Outdoor Access Point Fixed point-to-point Access Point Indoor Access Point Mobile and Portable client device			
Date of Receipt of Sample	2014. 11. 03			

3.2. EUT Specifications Assessed in Current Report

Mode	Fundamental Range (MHz)	Channel Number	Modulation	Data Rate (Mbps)
802.11b	2412-2462	11	DSSS (DBPSK/DQPSK/CCK)	1/2/5.5/11
802.11g		11	OFDM (BPSK/QPSK/16QAM/64QAM)	6/9/12/18/24/36/48/54
802.11n-HT20				Up to 300
802.11n-HT40	2422-2452	9		

Channel List			
802.11 b/g/n-HT20		802.11n-HT40	
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
1	2412	1	
2	2417	2	
3	2422	3	2422
4	2427	4	2427
5	2432	5	2432
6	2437	6	2437
7	2442	7	2442
8	2447	8	2447
9	2452	9	2452
10	2457	10	
11	2462	11	

3.3. Antenna Information

Manufacture	Antenna Type	Frequency	Max Gain (dBi)		Directional Gain (dBi)
			Chain 0	Chain 1	
TP-LINK	PCB	2.4GHz	4.45	3.41	6.96

Note: Directional gain = $10 \log[(10^{4.45/20} + 10^{3.41/20})^2 / 2] = 6.96 \text{ dBi}$

Manufacture	Antenna Type	Frequency	UNII Band	Max Gain (dBi)
TP-LINK	PCB	5GHz	I	3.50
			III	4.08

3.4. Data Rate Relative to Output Power

802.11b			
Channel	Modulation	Date Rate(Mbps)	Power(dBm)
1	DBPSK	1	26.11
1	DQPSK	2	26.01
1	CCK	5.5	25.83
1	CCK	11	25.88

802.11g			
Channel	Modulation	Date Rate(Mbps)	Power(dBm)
1	BPSK	6	26.19
1	BPSK	9	26.08
1	QPSK	12	25.72
1	QPSK	18	25.74
1	16-QAM	24	25.61
1	16-QAM	36	25.33
1	64-QAM	48	24.42
1	64-QAM	54	24.84

802.11n-HT20				802.11n-HT40			
Channel	Modulation	Date Rate (Mbps)	Power (dBm)	Channel	Modulation	Date Rate (Mbps)	Power (dBm)
1	BPSK	MCS0	26.20	3	BPSK	MCS0	24.91
1	QPSK	MCS1	26.09	3	QPSK	MCS1	24.85
1	QPSK	MCS2	25.63	3	QPSK	MCS2	24.34
1	16-QAM	MCS3	25.30	3	16-QAM	MCS3	24.78
1	16-QAM	MCS4	24.32	3	16-QAM	MCS4	23.38
1	64-QAM	MCS5	24.18	3	64-QAM	MCS5	23.58
1	64-QAM	MCS6	23.39	3	64-QAM	MCS6	22.16
1	64-QAM	MCS7	23.18	3	64-QAM	MCS7	21.25

Note: Above results are assessed in average power.

3.5. Test Configuration

Mode	Duty Cycle (x)	T (ms)	Duty Cycle Factor (dB)
802.11b	1.00	N/A	N/A
802.11g	1.00	N/A	N/A
802.11n-HT20	0.99	N/A	N/A
802.11n-HT40	0.99	N/A	N/A

Note: When duty cycle is less than 98% (0.98) that duty cycle factor $10\log(1/x)$ is needed to add in conducted test items measured in average detector.

AC Conduction	
Test Case	Normal operation

Item	Mode	Data Rate	Test Channel	
Radiated Test Case	Radiated Band Edge	802.11b	1 Mbps	1/11
		802.11g	6Mbps	1/11
		802.11n-HT20	MCS0	1/11
		802.11n-HT40	MCS0	3/9
	Radiated Spurious Emission ^{Note 1}	802.11b	1 Mbps	1/6/11
		802.11g	6Mbps	1/6/11
		802.11n-HT20	MCS0	1/6/11
		802.11n-HT40	MCS0	3/6/9
Conducted Test Case	6dB Bandwidth	802.11b	1 Mbps	1/6/11
		802.11g	6Mbps	1/6/11
		802.11n-HT20	MCS0	1/6/11
		802.11n-HT40	MCS0	3/6/9
	Peak Power Spectral Density	802.11b	1 Mbps	1/6/11
		802.11g	6Mbps	1/6/11
		802.11n-HT20	MCS0	1/6/11
		802.11n-HT40	MCS0	3/6/9
	Peak Output Power	802.11b	1 Mbps	1/6/11
		802.11g	6Mbps	1/6/11
		802.11n-HT20	MCS0	1/6/11
		802.11n-HT40	MCS0	3/6/9
	Band Edge	802.11b	1 Mbps	1/11
		802.11g	6Mbps	1/11
		802.11n-HT20	MCS0	1/11
		802.11n-HT40	MCS0	3/9
	Spurious Emission	802.11b	1 Mbps	1/6/11
		802.11g	6Mbps	1/6/11
		802.11n-HT20	MCS0	1/6/11
		802.11n-HT40	MCS0	3/6/9

Note 1: Low, mid, and high channels were measured, only the worst channel of each modulation was presented in this report.

3.6. Tested Supporting System List

3.6.1. Support Peripheral Unit

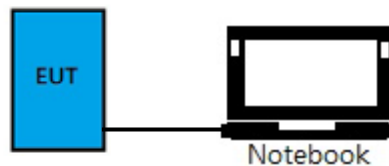
No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	Notebook PC	acer	Acer Aspire 4755G	N/A	HLZ-AR5B97
2.	Power Socket	N/A	N/A	N/A	N/A

3.6.2. Cable Lists

No.	Cable Description Of The Above Support Units
1.	LAN Cable: Non-Shielded, Detachable, 1.5m Adapter: DELTA, M/N ADP-90CDDDB, DC Power Cord: Non-Shielded, Detachable, 1.8m AC Power Cord: Non-Shielded, Undetachable, 1.8m Bonded a ferrite core
2.	Power Cord: Non-Shielded, Undetachable, 1.8m

3.7. Setup Configuration

3.7.1. EUT Configuration for Power Line Emission



3.7.2. EUT Configuration for Conducted Test Items



3.8. Operating Condition of EUT

Test program “MT7620QA” is used for enabling EUT WLAN function under continues transmitting and choosing data rate/ channel.

3.9. Description of Test Facility

Test Firm Name	:	AUDIX Technology Corporation EMC Department No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan
Test Location & Facility	:	No. 7 Shielded Room No. 67-4, Dingfu, Linkou Dist., New Taipei City 244, Taiwan Semi-Anechoic Chamber No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan May 11, 2012 File on Federal Communication Commission Registration Number: 90993
NVLAP Lab. Code	:	200077-0
TAF Accreditation No	:	1724

3.10. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty
Conduction Test	150kHz~30MHz	±3.5dB
Radiation Test (Distance: 3m)	30MHz~1000MHz	± 5.3dB
	Above 1GHz	± 4.8dB

Remark : Uncertainty = $ku_c(y)$

Test Item	Uncertainty
6dB Bandwidth	± 0.05kHz
Maximum peak output power	± 0.33dB
Power spectral density	± 0.13dB
Conducted Emission Limitations	± 0.13dB

4. MEASUREMENT EQUIPMENT LIST

4.1. Conducted Emission Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Test Receiver	R&S	ESCI	101276	2014. 06. 18	1 Year
2.	A.M.N.	R&S	ENV4200	100169	2014. 05. 30	1 Year
3.	L.I.S.N.	Kyoritsu	KNW-407	8-881-13	2014. 01. 15	1 Year
4.	Pulse Limiter	R&S	ESH3-Z2	101495	2014. 01. 18	1 Year

4.2. Radiated Emission Measurement

4.2.1. Frequency Range 30MHz~1000MHz

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A-526	MY53400071	2014. 09. 15	1 Year
2.	Test Receiver	R & S	ESCS30	100338	2014. 06. 24	1 Year
3.	Amplifier	HP	8447D	2944A06305	2015. 02. 12	1 Year
4.	Bilog Antenna	TESEQ	CBL6112D	33821	2014. 08. 02	1 Year

4.2.2. Frequency Range 30MHz~1000MHz

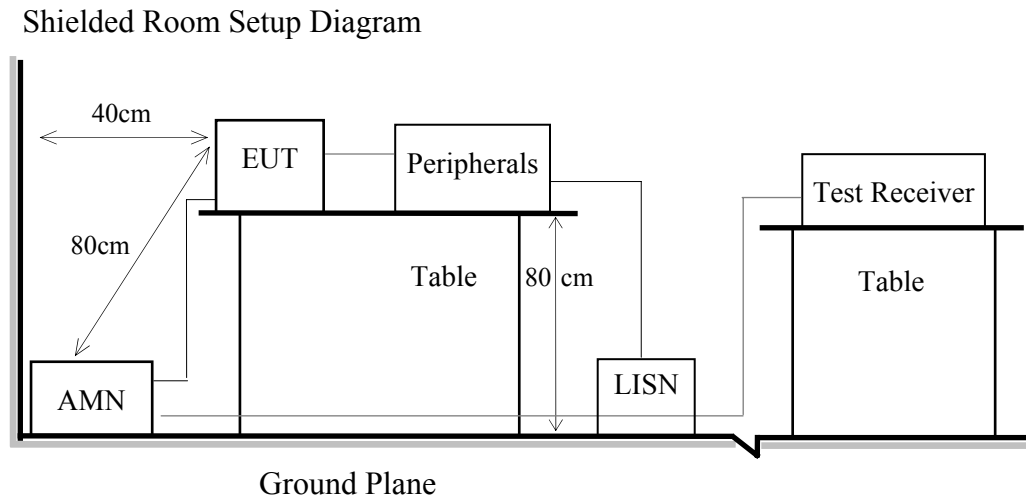
Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A-526	MY53400071	2014. 09. 15	1 Year
2.	Test Receiver	R & S	ESCS30	100338	2014. 06. 24	1 Year
3.	Amplifier	Agilent	8449B	3008A00529	2015. 01. 22	1 Year
4.	2.4GHz Notch Filter	K&L	7NSL10-244 1.5E130.5-0 0	1	2014. 06. 12	1 Year
5.	3G High Pass Filter	Microwave Circuits	H3G018G1	484796	2014. 06. 12	1 Year
6.	Horn Antenna	EMCO	3115	9609-4927	2014. 06. 17	1 Year
7.	Horn Antenna	EMCO	3116	2653	2014. 10. 14	1 Year

4.3. RF Conducted Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	2014. 07. 24	1 Year
2.	Power Meter	Anritsu	ML2495A	1145008	2014. 10. 17	1 Year
3.	Power Sensor	Anritsu	MA2411B	1126096	2014. 10. 17	1 Year

5. CONDUCTED EMISSION MEASUREMENT

5.1. Block Diagram of Test Setup



5.2. Power Line Conducted Emission Limit

Frequency	Conducted Limit	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dB μ V	56 ~ 46 dB μ V
500kHz ~ 5MHz	56 dB μ V	46 dB μ V
5MHz ~ 30MHz	60 dB μ V	50 dB μ V

Remark 1.: If the average limit is met when using a Quasi-Peak detector, the measurement using the average detector is not required.

2.: The lower limit applies to the band edges.

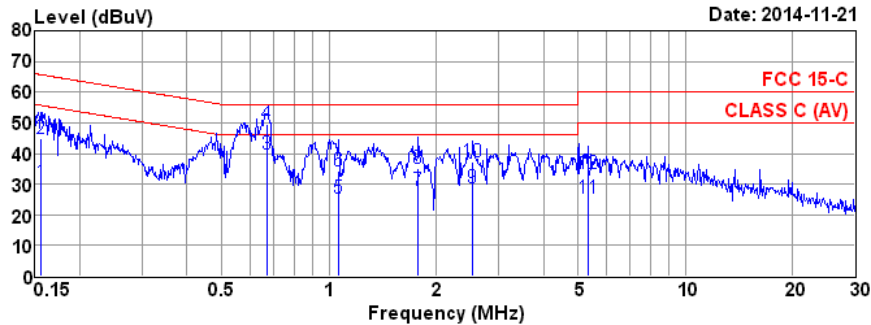
5.3. Test Procedure

- 5.3.1. To set up the EUT as indicated in ANSI C 63.4. The EUT was placed on the table which has 80 cm height to the ground and 40 cm distance to the conducting wall.
- 5.3.2. Power supplier of the EUT was connected to the AC mains through an Artificial Mains Network (A.M.N.).
- 5.3.3. The AC power supplies to all peripheral devices must be provided through line impedance stabilization network (L.I.S.N.)
- 5.3.4. Checking frequency range from 150 kHz to 30 MHz and record the emission which does not have 20 dB below limit.

5.4. Conducted Emission Measurement Results

PASSED.

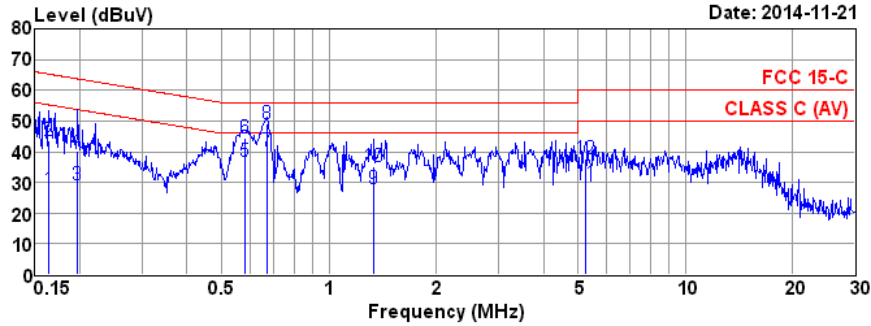
Test Date	2014/11/21	Temp./Hum.	25 /52%
Test Voltage	AC 120V, 60Hz		



Site no. : No.7 Shielded Room Data no. : 8
 Condition : ENV4200 100169 Phase : NEUTRAL
 Limit : FCC 15-C
 Env. / Ins. : 25*C / 52% ESCI (1276) Engineer : John
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : OPERATING

	AMN	Cable	Pulse	Emission		Limits	Margin	Remark	
	Freq.	Factor	Loss	Att.	Reading	Level			
	(MHz)	(dB)	(dB)	(dB)	(dBμV)	(dBμV)	(dBμV)	(dB)	
1	0.156	10.66	0.02	9.85	10.02	30.55	55.69	25.14	Average
2	0.156	10.66	0.02	9.85	24.30	44.83	65.69	20.86	QP
3	0.668	10.46	0.04	9.85	19.66	40.01	46.00	5.99	Average
4	0.668	10.46	0.04	9.85	29.01	49.36	56.00	6.64	QP
5	1.065	10.45	0.04	9.85	5.28	25.62	46.00	20.38	Average
6	1.065	10.45	0.04	9.85	14.08	34.42	56.00	21.58	QP
7	1.781	10.47	0.06	9.86	7.39	27.78	46.00	18.22	Average
8	1.781	10.47	0.06	9.86	14.80	35.19	56.00	20.81	QP
9	2.540	10.52	0.07	9.85	8.31	28.75	46.00	17.25	Average
10	2.540	10.52	0.07	9.85	16.83	37.27	56.00	18.73	QP
11	5.333	10.80	0.10	9.87	4.56	25.33	50.00	24.67	Average
12	5.333	10.80	0.10	9.87	12.76	33.53	60.00	26.47	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
 2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



Site no. : No.7 Shielded Room Data no. : 7
 Condition : ENV4200 100169 Phase : LINE
 Limit : FCC 15-C
 Env. / Ins. : 25°C / 52% ESCI (1276) Engineer : John
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : OPERATING

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.163	10.64	0.02	9.85	7.12	27.63	55.30	27.67	Average
2	0.163	10.64	0.02	9.85	22.98	43.49	65.30	21.81	QP
3	0.198	10.60	0.03	9.85	8.74	29.22	53.71	24.49	Average
4	0.198	10.60	0.03	9.85	19.69	40.17	63.71	23.54	QP
5	0.582	10.47	0.03	9.86	16.46	36.82	46.00	9.18	Average
6	0.582	10.47	0.03	9.86	24.17	44.53	56.00	11.47	QP
7	0.668	10.47	0.04	9.85	19.74	40.10	46.00	5.90	Average
8	0.668	10.47	0.04	9.85	28.91	49.27	56.00	6.73	QP
9	1.338	10.48	0.05	9.85	7.54	27.92	46.00	18.08	Average
10	1.338	10.48	0.05	9.85	14.81	35.19	56.00	20.81	QP
11	5.249	10.78	0.10	9.87	8.93	29.68	50.00	20.32	Average
12	5.249	10.78	0.10	9.87	17.04	37.79	60.00	22.21	QP

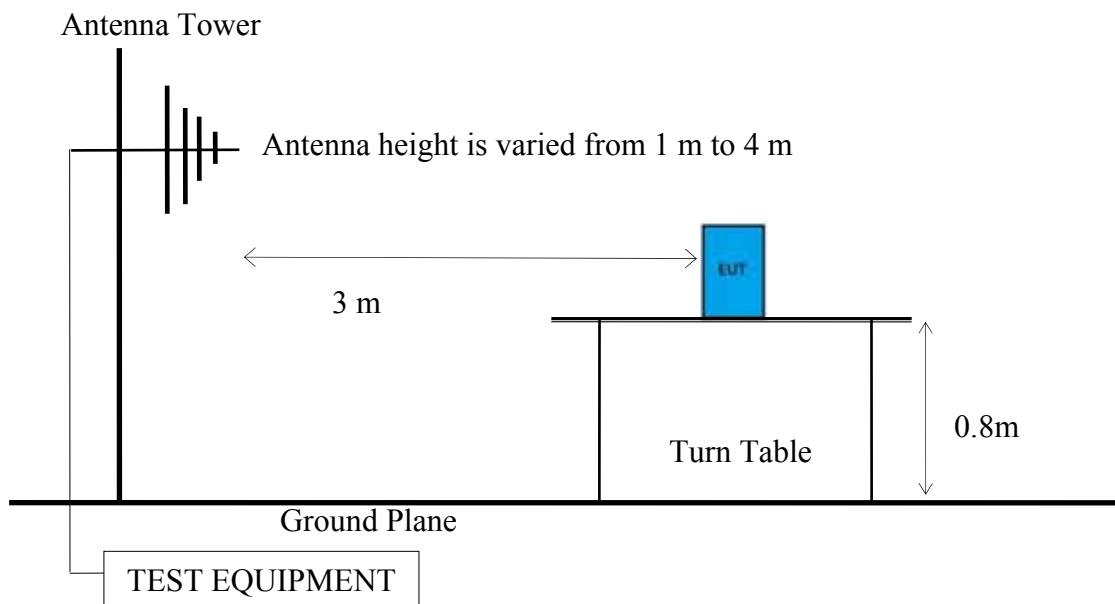
Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
 2. If the average limit is met when using a quasi-peak detector,
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.

6. RADIATED EMISSION MEASUREMENT

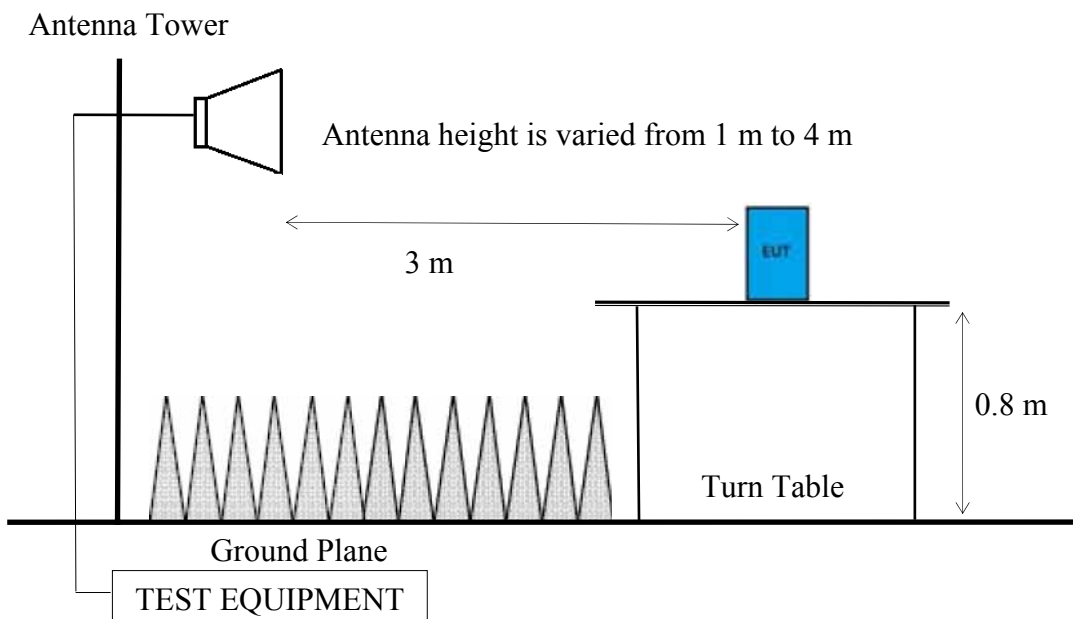
6.1. Block Diagram of Test Setup

6.1.1. Block Diagram of connection between EUT and simulators
Indicated as section 3.7

6.1.2. Setup Diagram for 30-1000 MHz



6.1.3. Semi-Anechoic Chamber (3m) Setup Diagram for above 1GHz



6.2. Radiated Emission Limits

In any 100kHz bandwidth outside the frequency band, the radio frequency power produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified as below.

Frequency (MHz)	Distance (m)	Field Strengths Limits	
		$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0
Above 1000	3	74.0 $\text{dB}\mu\text{V/m}$ (Peak) 54.0 $\text{dB}\mu\text{V/m}$ (Average)	

Remark : (1) $\text{dB}\mu\text{V/m} = 20 \log (\mu\text{V/m})$

- (2) The tighter limit applies to the edge between two frequency bands.
- (3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
- (4) Fundamental and emission fall within operation band are exempted from this section.
- (5) Pursuant to ANSI C63.4: 8.3.2.2, if the maximized peak measured value complies with the average limit, then it is unnecessary to perform an average measurement.

6.3. Test Procedure

The EUT setup on the turn find table which has 80 cm height to the ground. The turn table rotated 360 degrees and antenna varied from 1 m to 4 m to find the maximum emission level. Both horizontal and vertical polarization are required. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2009 regulation.

Frequency below 1 GHz:

Spectrum Analyzer is used for pre-testing with following setting:

- (1) RBW = 120KHz
- (2) VBW $\geq 3 \times$ RBW.
- (3) Detector = Peak.
- (4) Sweep time = auto.
- (5) Trace mode = max hold.
- (6) Allow sweeps to continue until the trace stabilizes.
- (7) When peak-detected value is lower than limit that the measurement using the Q.P. detector is not required. Otherwise using Q.P. for finally measurement.

Frequency above 1GHz to 10th harmonic:

Peak Detector:

- (1) RBW = 120KHz
- (2) VBW $\geq 3 \times$ RBW.
- (3) Detector = Peak.
- (4) Sweep time = auto.
- (5) Trace mode = max hold.
- (6) Allow sweeps to continue until the trace stabilizes.
- (7) When peak-detected value is lower than limit that the measurement using the average detector is not required. Otherwise using average detector for finally measurement.

Average Detector:

- (1) RBW = 120KHz
- (2) VBW $\geq 1/ T$.

Modulation Type	T (ms)	1/ T (Hz)	VBW Setting
802.11b	N/A	N/A	10 Hz
802.11g	N/A	N/A	10 Hz
802.11n-HT20	N/A	N/A	10 Hz
802.11n-HT40	N/A	N/A	10 Hz

N/A: 1/ T is not implemented when duty cycle presented in section 3.5.1 is $\geq 98 \%$.

- (1) Detector = Peak.
- (2) Sweep time = auto.
- (3) Trace mode = max hold.
- (4) Allow sweeps to continue until the trace stabilizes.

6.4. Measurement Result Explanation

Peak Emission Level=Antenna Factor + Cable Loss + Meter Reading
 Margin= Limit- Emission Level

6.5. Test Results

PASSED.

Test Date	2015/03/26	Temp./Hum.	22 /51%
Test Voltage	AC 120V/60Hz		

6.5.1. Emissions within Restricted Frequency Bands

6.5.1.1. Frequency Below 1 GHz

Mode	802.11b	Frequency	TX 2437MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
240.49	11.86	4.27	20.64	36.77	46.00	9.23	Peak
288.02	12.96	4.58	22.49	40.03	46.00	5.97	Peak
335.55	14.08	5.05	20.23	39.36	46.00	6.64	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
288.02	12.96	4.58	18.99	36.53	46.00	9.47	Peak
335.55	14.08	5.05	19.05	38.18	46.00	7.82	Peak
399.57	15.53	5.65	14.10	35.28	46.00	10.72	Peak

Mode	802.11g	Frequency	TX 2437MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
118.27	12.19	3.36	18.76	34.31	43.50	9.19	Peak
288.02	12.96	4.58	24.47	42.01	46.00	3.99	Peak
335.55	14.08	5.05	22.39	41.52	46.00	4.48	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
120.21	12.28	3.37	18.45	34.10	43.50	9.40	Peak
294.81	13.06	4.63	23.39	41.08	46.00	4.92	Peak
335.55	14.08	5.05	20.87	40.00	46.00	6.00	Peak

Mode	802.11ac-VHT20	Frequency	TX 2437MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
288.02	12.96	4.58	24.28	41.82	46.00	4.18	Peak
335.55	14.08	5.05	20.06	39.19	46.00	6.81	Peak
398.60	15.53	5.65	16.66	37.84	46.00	8.16	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
288.02	12.96	4.58	22.24	39.78	46.00	6.22	Peak
335.68	14.08	5.05	19.16	38.29	46.00	7.71	Peak
486.87	16.80	6.35	12.74	35.89	46.00	10.11	Peak

Mode	802.11n-HT40	Frequency	TX 2437MHz
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Antenna at Horizontal Polarization

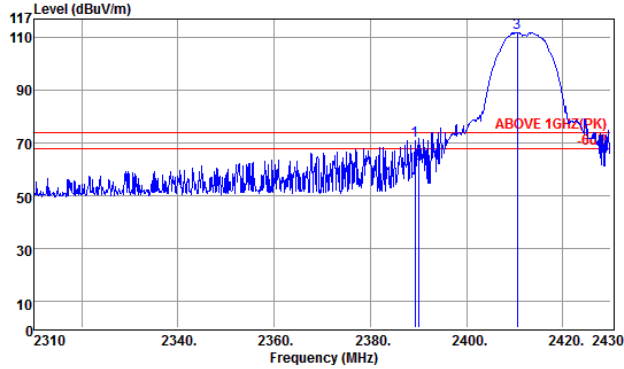
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
240.49	11.86	4.27	20.92	37.05	46.00	8.95	Peak
288.02	12.96	4.58	23.07	40.61	46.00	5.39	Peak
335.55	14.08	5.05	21.96	41.09	46.00	4.91	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
288.02	12.96	4.58	20.56	38.10	46.00	7.90	Peak
335.55	14.08	5.05	19.99	39.12	46.00	6.88	Peak
359.80	14.64	5.28	16.48	36.40	46.00	9.60	Peak

6.5.1.2. Frequency Above 1 GHz to 10th harmonics

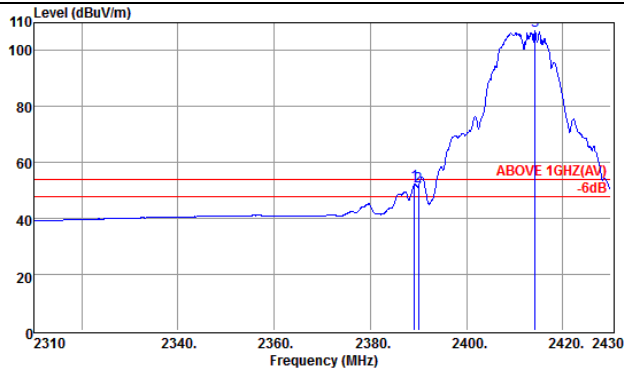
Band Edge:



Site no. : Audix NO.1 Chamber Data no. : 5
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2412MHz(802.11b)

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1 2389.32	28.20	5.24	37.52	70.96	74.00	3.04	Peak
2 2390.04	28.20	5.24	28.76	62.20	74.00	11.80	Peak
3 2410.56	28.22	5.27	78.34	111.83	74.00	-37.83	Peak

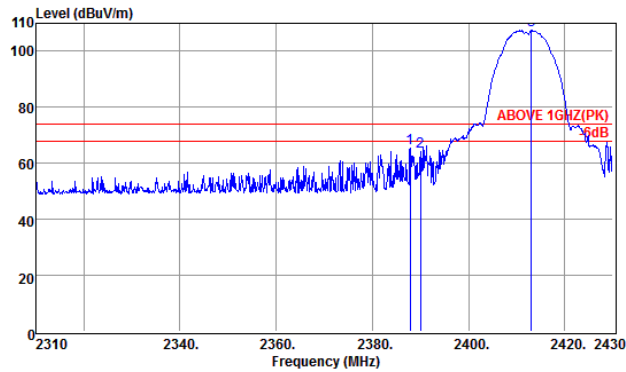
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 8
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2412MHz(802.11b)

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1 2389.20	28.20	5.24	18.98	52.42	54.00	1.58	Average
2 2390.04	28.20	5.24	18.08	51.52	54.00	2.48	Average
3 2414.28	28.22	5.27	73.74	107.23	54.00	-53.23	Average

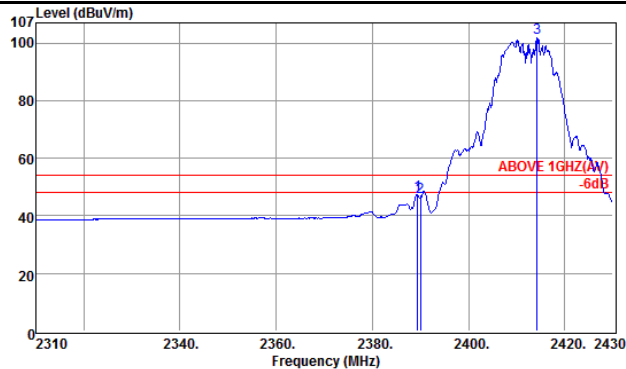
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 7
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2412MHz(802.11b)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2387.88	28.20	5.24	32.05	65.49	74.00	8.51	Peak
2	2390.04	28.20	5.24	30.69	64.13	74.00	9.87	Peak
3	2413.08	28.22	5.27	73.97	107.46	74.00	-33.46	Peak

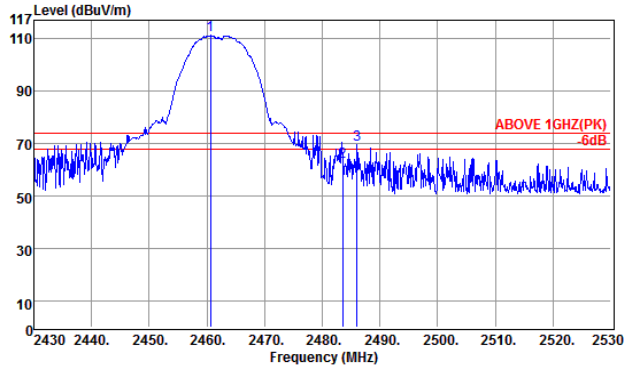
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 8
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2412MHz(802.11b)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2388.44	28.20	5.24	13.98	47.42	54.00	6.58	Average
2	2390.04	28.20	5.24	13.20	46.64	54.00	7.36	Average
3	2414.28	28.22	5.27	68.28	101.75	54.00	-47.75	Average

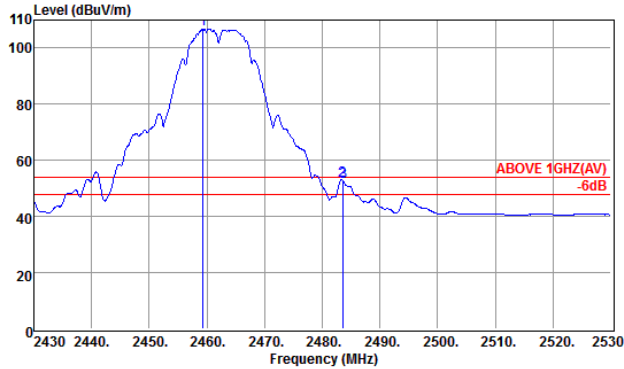
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 1
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2462MHz(802.11b)

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1 2460.60	28.27	5.34	77.53	111.14	74.00	-37.14	Peak
2 2483.50	28.29	5.37	29.30	62.96	74.00	11.04	Peak
3 2486.00	28.29	5.37	36.05	69.71	74.00	4.29	Peak

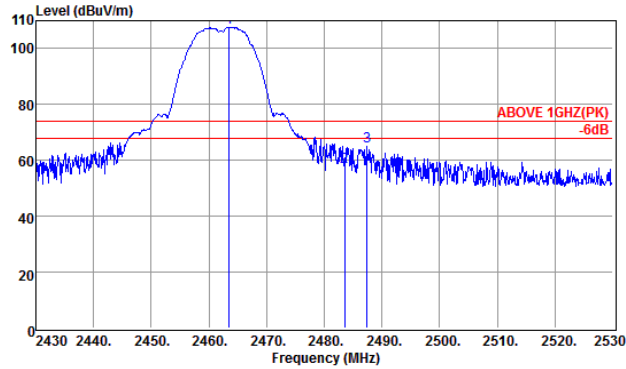
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 2
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2462MHz(802.11b)

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1 2459.30	28.26	5.33	73.24	108.83	54.00	-52.83	Average
2 2483.50	28.29	5.37	19.15	52.81	54.00	1.19	Average
3 2483.60	28.29	5.37	18.81	52.47	54.00	1.53	Average

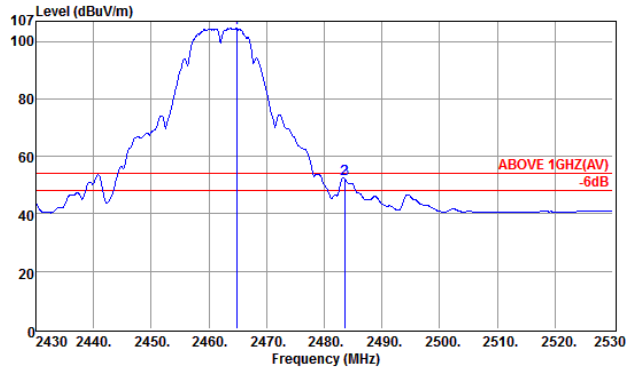
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 3
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2462MHz(802.11b)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2463.50	28.27	5.34	74.11	107.72	74.00	-33.72	Peak
2	2483.50	28.29	5.37	24.00	57.66	74.00	16.34	Peak
3	2487.40	28.29	5.37	31.18	64.84	74.00	9.16	Peak

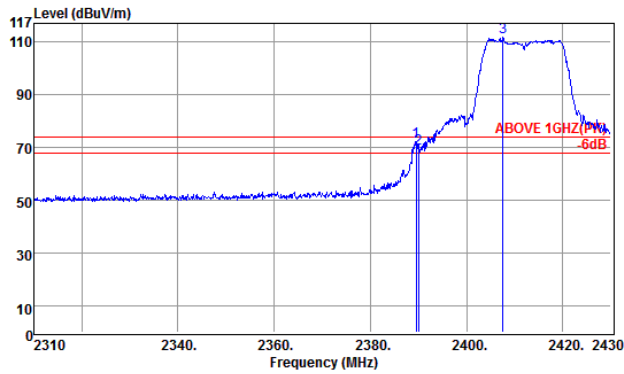
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 4
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2462MHz(802.11b)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2464.80	28.27	5.34	70.99	104.60	54.00	-50.60	Average
2	2483.50	28.29	5.37	18.60	52.26	54.00	1.74	Average
3	2483.80	28.29	5.37	18.33	51.99	54.00	2.01	Average

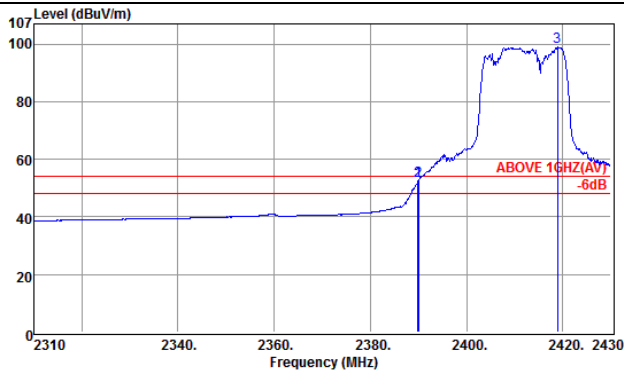
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 1
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2412MHz(802.11g)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2389.56	28.20	5.24	38.88	72.32	74.00	1.68	Peak
2	2390.04	28.20	5.24	36.15	69.59	74.00	4.41	Peak
3	2407.56	28.22	5.26	78.31	111.79	74.00	-37.79	Peak

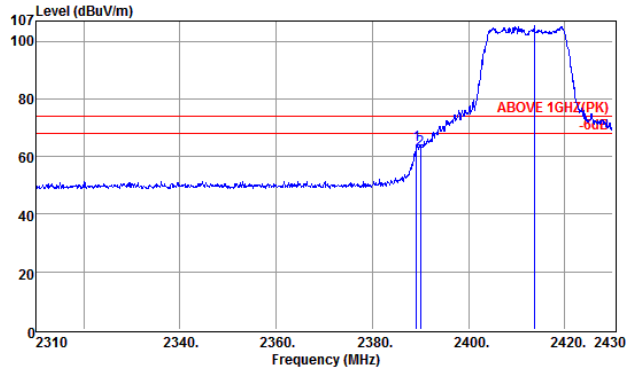
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 2
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2412MHz(802.11g)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2389.92	28.20	5.24	18.89	52.33	54.00	1.67	Average
2	2390.04	28.20	5.24	19.18	52.82	54.00	1.38	Average
3	2418.96	28.23	5.28	65.43	98.94	54.00	-44.94	Average

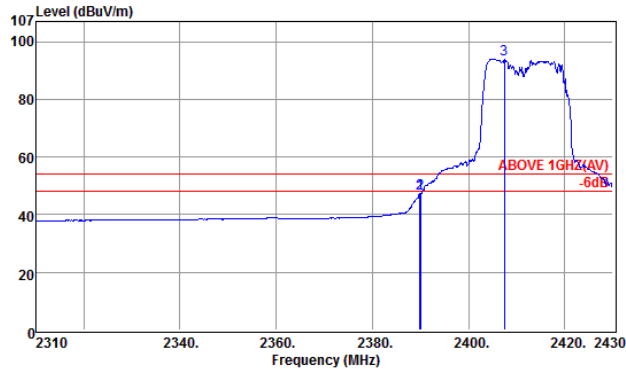
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 3
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2412MHz(802.11g)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2388.20	28.20	5.24	30.77	64.21	74.00	9.79	Peak
2	2390.04	28.20	5.24	28.91	62.35	74.00	11.65	Peak
3	2413.88	28.22	5.27	71.88	105.35	74.00	-31.35	Peak

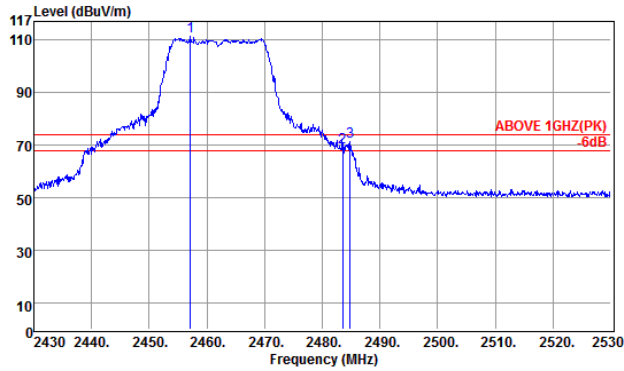
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 4
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2412MHz(802.11g)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2388.92	28.20	5.24	13.82	47.26	54.00	6.74	Average
2	2390.04	28.20	5.24	13.85	47.29	54.00	6.71	Average
3	2407.44	28.22	5.26	60.51	93.99	54.00	-39.99	Average

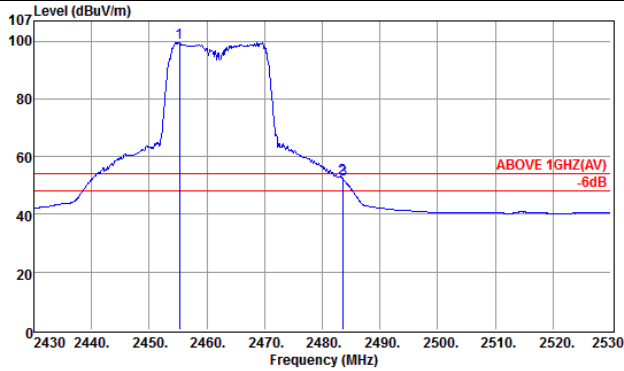
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 5
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2462MHz(802.11g)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2457.10	28.28	5.33	77.89	111.28	74.00	-37.23	Peak
2	2483.50	28.29	5.37	35.38	69.04	74.00	4.96	Peak
3	2484.80	28.29	5.37	37.46	71.12	74.00	2.88	Peak

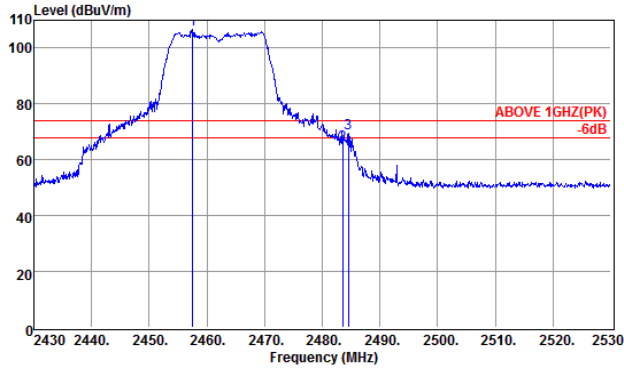
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 6
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2462MHz(802.11g)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2455.20	28.28	5.33	66.02	99.61	54.00	-45.61	Average
2	2483.50	28.29	5.37	18.72	52.38	54.00	1.62	Average
3	2483.80	28.29	5.37	18.46	52.12	54.00	1.88	Average

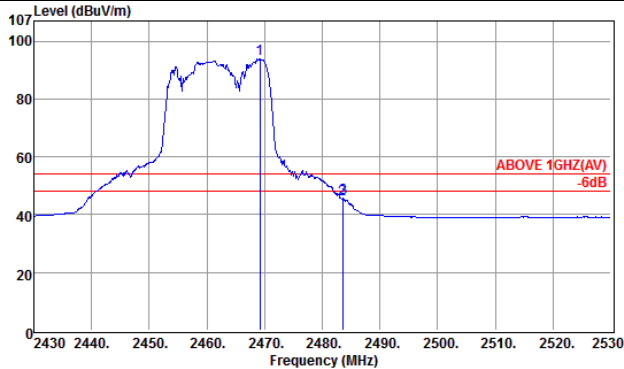
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 7
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2462MHz(802.11g)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2457.50	28.28	5.33	73.18	106.75	74.00	-32.75	Peak
2	2483.50	28.29	5.37	31.71	85.37	74.00	8.63	Peak
3	2484.50	28.29	5.37	35.78	89.44	74.00	4.56	Peak

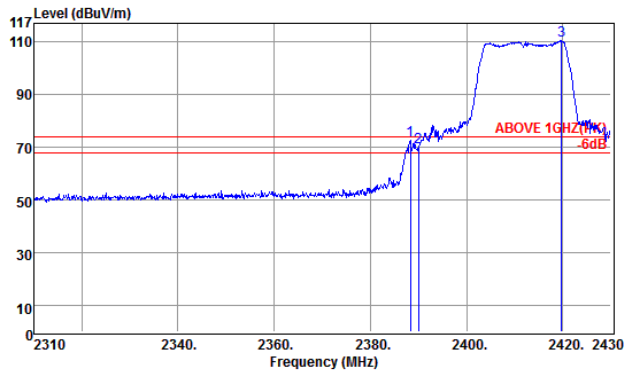
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 8
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2462MHz(802.11g)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2468.20	28.27	5.35	60.18	83.80	54.00	-39.80	Average
2	2483.50	28.29	5.37	11.78	49.42	54.00	8.58	Average
3	2483.80	28.29	5.37	12.19	49.85	54.00	8.15	Average

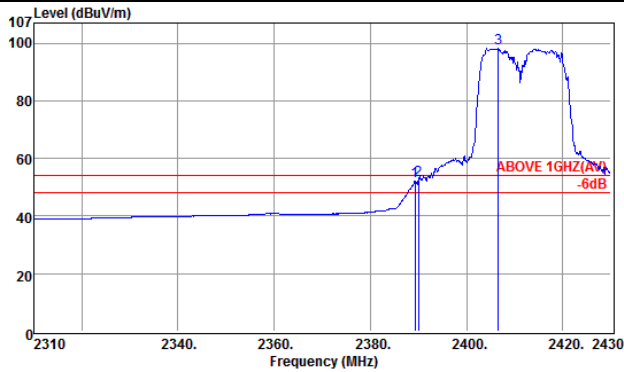
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 1
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2412MHz(802.11n20)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2388.36	28.20	5.24	39.21	72.65	74.00	1.35	Peak
2	2390.04	28.20	5.24	36.69	70.13	74.00	3.87	Peak
3	2418.80	28.23	5.28	76.91	110.42	74.00	-36.42	Peak

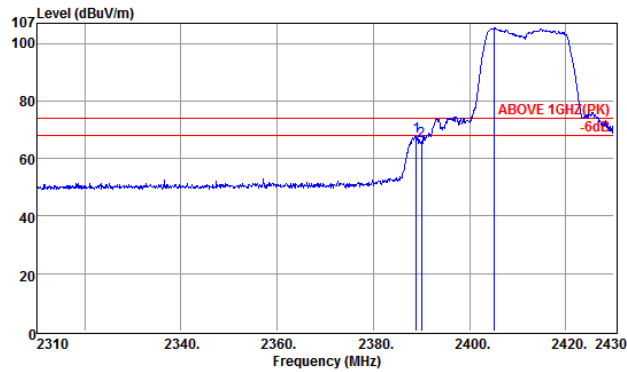
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 2
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2412MHz(802.11n20)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2389.32	28.20	5.24	18.74	52.18	54.00	1.82	Average
2	2390.04	28.20	5.24	19.21	52.65	54.00	1.35	Average
3	2408.80	28.22	5.26	64.68	98.18	54.00	-44.18	Average

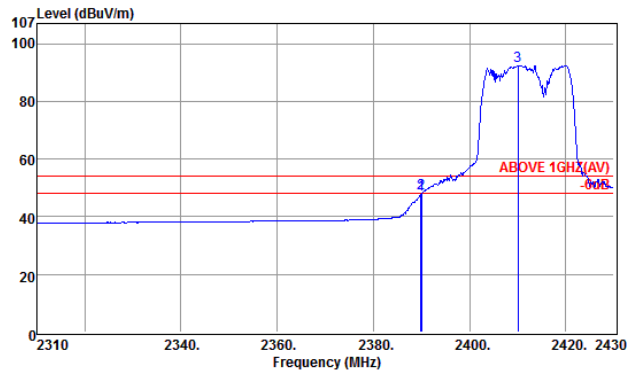
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 3
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2412MHz(802.11n20)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2388.96	28.20	5.24	34.33	67.77	74.00	6.23	Peak
2	2390.04	28.20	5.24	32.55	65.99	74.00	8.01	Peak
3	2405.16	28.22	5.26	71.81	105.29	74.00	-31.29	Peak

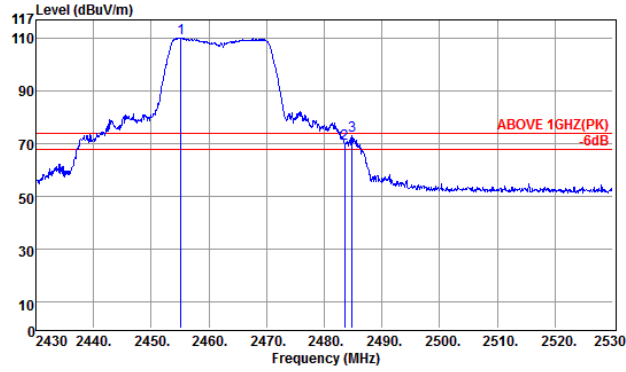
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 4
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2412MHz(802.11n20)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2388.92	28.20	5.24	14.28	47.72	54.00	6.28	Average
2	2390.04	28.20	5.24	14.64	48.08	54.00	5.92	Average
3	2410.08	28.22	5.27	58.84	92.33	54.00	-38.33	Average

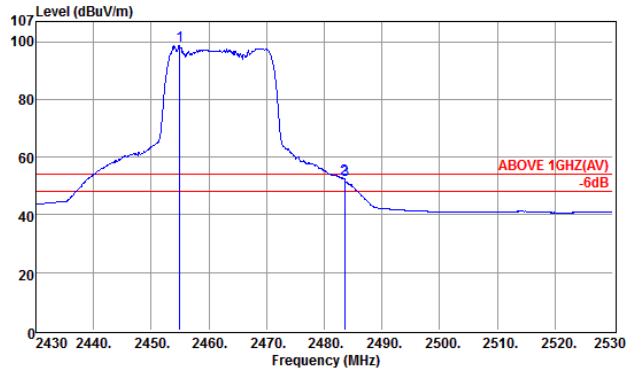
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 5
 Dis. / Ant. : 3m 3115(4827) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Ix 2462MHz(802.11n20)

Peak	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2455.10	28.28	5.33	76.66	110.25	74.00	-36.25	Peak
2	2483.50	28.29	5.37	36.47	70.13	74.00	3.87	Peak
3	2484.80	28.29	5.37	39.33	72.99	74.00	1.01	Peak

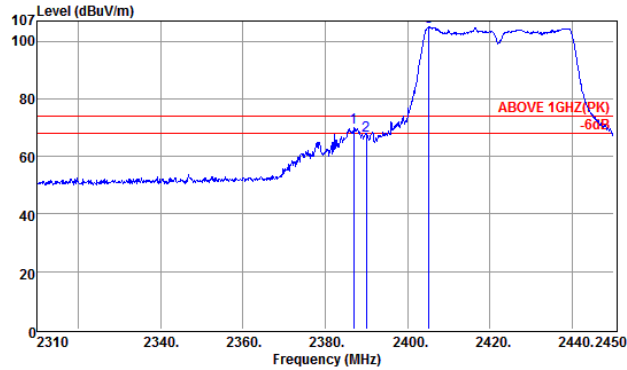
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 6
 Dis. / Ant. : 3m 3115(4827) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Ix 2462MHz(802.11n20)

Peak	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2455.00	28.28	5.33	64.99	98.58	54.00	-44.58	Average
2	2483.50	28.29	5.37	18.79	52.45	54.00	1.55	Average
3	2483.80	28.29	5.37	18.44	52.10	54.00	1.90	Average

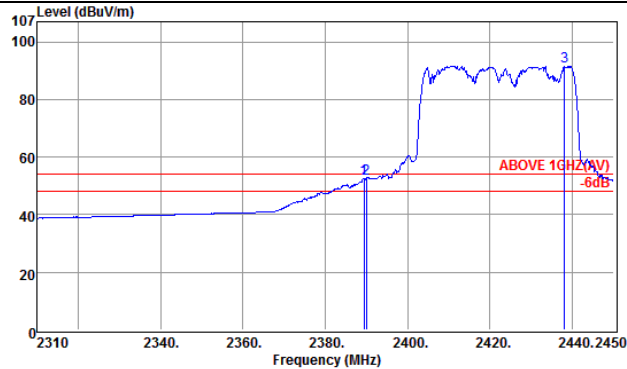
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 1
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2422MHz(802.11n40)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2388.86	28.20	5.23	36.50	69.93	74.00	4.07	Peak
2	2388.94	28.20	5.24	33.95	67.39	74.00	6.61	Peak
3	2405.20	28.22	5.26	71.55	105.03	74.00	-31.03	Peak

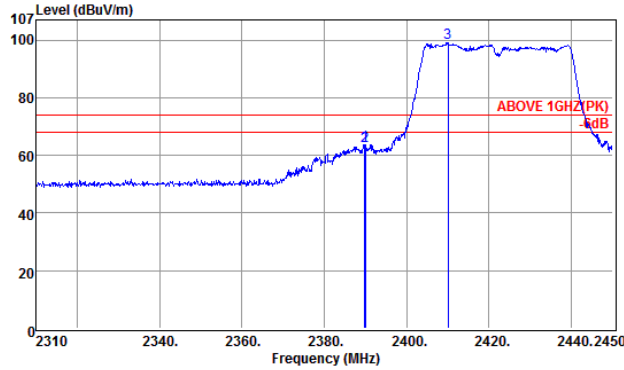
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 2
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2422MHz(802.11n40)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2388.88	28.20	5.24	19.24	52.68	54.00	1.32	Average
2	2388.94	28.20	5.24	19.14	52.58	54.00	1.42	Average
3	2438.10	28.24	5.30	58.04	91.58	54.00	-37.58	Average

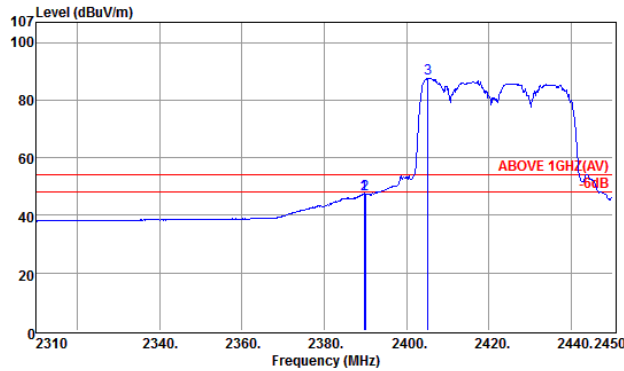
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 3
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2422MHz(802.11n40)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2388.80	28.20	5.24	30.39	63.83	74.00	10.17	Peak
2	2388.94	28.20	5.24	29.96	63.40	74.00	10.60	Peak
3	2410.10	28.22	5.27	85.71	99.20	74.00	-25.20	Peak

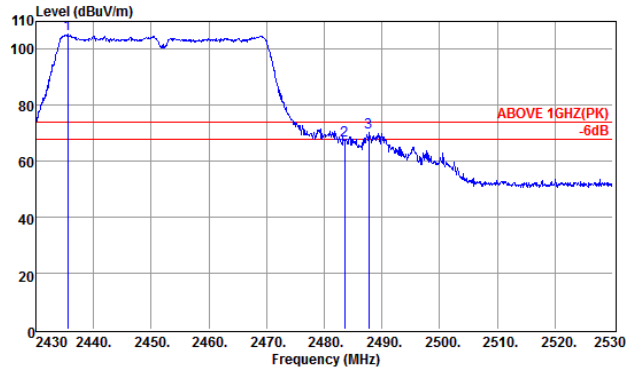
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 4
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2422MHz(802.11n40)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2388.86	28.20	5.24	13.84	47.28	54.00	6.72	Average
2	2388.94	28.20	5.24	13.93	47.42	54.00	6.58	Average
3	2405.20	28.22	5.26	54.02	87.50	54.00	-33.50	Average

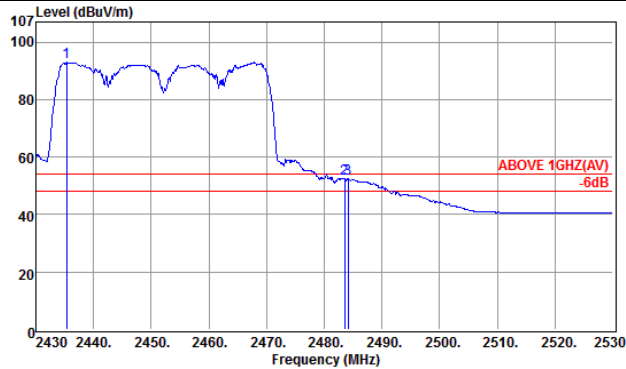
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 5
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2452MHz(802.11n40)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2435.50	28.24	5.30	71.86	105.40	74.00	-31.40	Peak
2	2483.50	28.29	5.37	33.88	87.52	74.00	6.48	Peak
3	2487.70	28.29	5.37	38.51	70.17	74.00	3.83	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

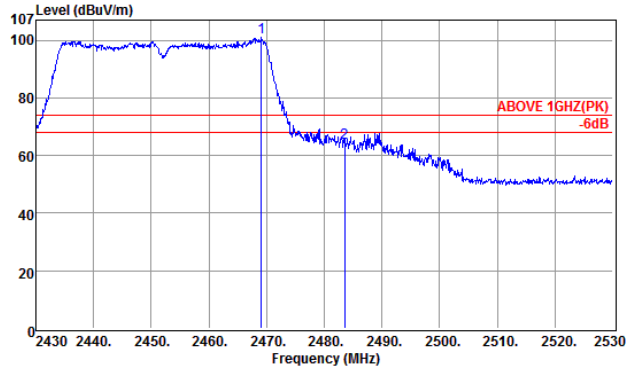


Site no. : Audix NO.1 Chamber Data no. : 8
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2452MHz(802.11n40)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBµV)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Remark
1	2435.30	28.24	5.30	58.38	92.92	54.00	-38.92	Average
2	2483.50	28.29	5.37	18.89	52.55	54.00	1.45	Average
3	2484.10	28.29	5.37	18.91	52.57	54.00	1.43	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

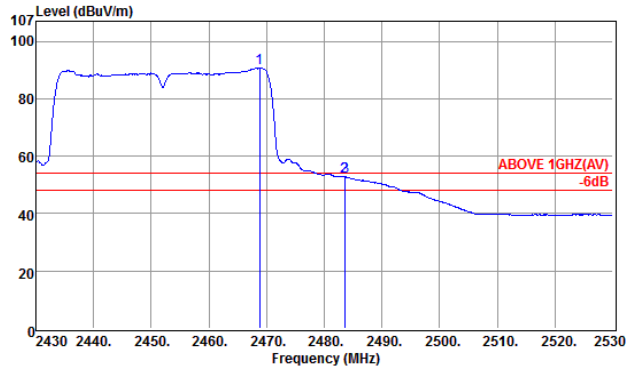
Data: 7 File: D:\Test DATA\report\2014\C1M1411001(音聯 RE200)FCC\2.4g\40\out of band.EMLE



Site no. : Audix NO.1 Chamber Data no. : 7
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(PK)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2452MHz(802.11n40)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2468.10	28.27	5.35	87.22	100.84	74.00	-26.84	Peak
2	2483.50	28.29	5.37	30.69	64.35	74.00	9.65	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 8
 Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
 Limit : ABOVE 1GHZ(AV)
 Env. / Ins. : 24°C / 54% N9010A Engineer : Chuntse_Wu
 EUT : RE200
 Power Rating : 120Vac/60Hz
 Test Mode : Tx 2452MHz(802.11n40)

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2468.80	28.27	5.35	57.15	80.77	54.00	-36.77	Average
2	2483.50	28.29	5.37	19.21	52.87	54.00	1.13	Average
3	2483.80	28.29	5.37	19.19	52.85	54.00	1.15	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

6.5.2. Emissions outside the frequency band:

The emissions (up to 25GHz) not reported for there is no emission be found.

Mode	802.11b	Frequency	TX 2437MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4874.50	33.13	8.17	8.71	50.01	54.00	3.99	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4874.50	32.88	8.17	12.03	53.08	54.00	0.92	Peak
7310.00	35.85	10.03	9.46	55.34	74.00	18.66	Peak
7310.00	35.85	10.03	0.80	46.68	54.00	7.32	Average

Mode	802.11g	Frequency	TX 2437MHz
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Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
7298.00	35.85	10.01	18.59	64.45	74.00	9.55	Peak
7298.00	35.85	10.01	2.64	48.50	54.00	5.50	Average

Mode	802.11ac-VHT20	Frequency	TX 2437MHz
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Antenna at Vertical Polarization

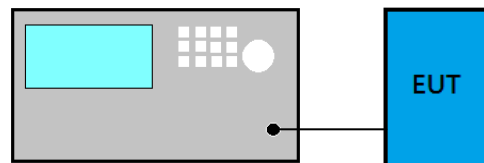
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector
4873.00	33.13	8.17	9.56	50.86	54.00	3.14	Peak
7296.00	35.85	10.01	17.22	63.08	74.00	10.92	Peak
7296.00	35.85	10.01	2.75	48.61	54.00	5.39	Average

6.5.3. Emissions in Non-restricted Frequency Bands

Pursuant to KDB 558074 D01 v03r02 that emission levels below the 15.209 general radiated emissions limits is not required.

7. 6dB BANDWIDTH MEASUREMENT

7.1. Block Diagram of Test Setup



7.2. Specification Limits

The minimum 6dB bandwidth shall be at least 500kHz.

7.3. Test Procedure

Following measurement procedure is reference to KDB 558074 D01 DTS Meas Guidance v03r02:

Option 2

- (1) Set RBW = 100 kHz.
- (2) Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- (3) Detector = Peak.
- (4) Trace mode = max hold.
- (5) Sweep = auto couple.
- (6) Allow the trace to stabilize.
- (7) Setting channel bandwidth function x dB to -6 dB to record the final bandwidth.

7.4. Test Results

Please refer to Appendix A

8. MAXIMUM PEAK OUTPUT POWER MEASUREMENT

8.1. Block Diagram of Test Setup



8.2. Specification Limits

The Limits of maximum Peak Output Power for digital modulation in 2400-2483.5MHz is : 1Watt. (30dBm)

Transmitting antennas of directional gain greater than 6 dBi, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Limit for 802.11b/g is 30 dBm-(6.96 dBi- 6 dBi)=29.04 dBm

8.3. Test Procedure

Following measurement procedure is reference to KDB 558074 D01 DTS Meas Guidance v03r02:

PKPM1 Peak power meter method:

EUT is connected to power sensor and record the maximum output power.

Method AVGPM (Measurement using an RF average power meter):

EUT is connected to power sensor and record the maximum average output power and duty cycle factor is added when duty cycle presented in section 3.5.1 is < 98%.

Method AVGSA-2 (Spectrum channel power)

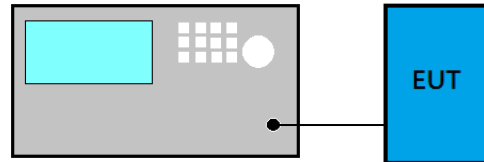
- (1) Set span to at least 1.5 times the OBW
- (2) Set RBW = 1 -5% of OBW
- (3) Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- (4) Detector = RMS.
- (5) Trace mode = trace average at least 100 traces
- (6) Sweep = auto couple.
- (7) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function with band limits set equal to the OBW band edges.
- (8) Duty cycle factor is added when duty cycle presented in section 3.5.1 is < 98%.

8.4. Test Results

Please refer to Appendix A

9. EMISSION LIMITATIONS MEASUREMENT

9.1. Block Diagram of Test Setup



9.2. Specification Limits

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (See Section 15.205(c)). (This test result attaching to §4.6.1.2 and §4.6.2.2)

9.3. Test Procedure

Following measurement procedure is reference to KDB 558074 D01 DTS Meas Guidance v03r02:

Reference Level

- (1) Set analyzer center frequency to DTS channel center frequency.
- (2) Set the span to 1.5 times the DTS bandwidth.
- (3) Set the RBW to: 100 kHz.
- (4) Set the VBW $\geq 3 \times$ RBW.
- (5) Detector = peak.
- (6) Sweep time = auto couple.
- (7) Trace mode = max hold.
- (8) Allow trace to fully stabilize to find the max PSD as reference level.

Emission Level Measurement

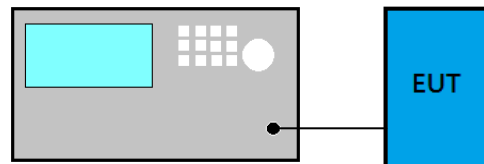
- (1) Set analyzer center frequency to DTS channel center frequency.
- (2) Set the span to 1.5 times the DTS bandwidth.
- (3) Set the RBW to: 100 kHz.
- (4) Set the VBW $\geq 3 \times$ RBW.
- (5) Detector = peak.
- (6) Sweep time = auto couple.
- (7) Trace mode = max hold.
- (8) Allow trace to fully stabilize to find the max level.

9.4. Test Results

Please refer to Appendix A

10. POWER SPECTRAL DENSITY

10.1. Block Diagram of Test Setup



10.2. Specification Limits

The peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band.

10.3. Test Procedure

Following measurement procedure is reference to KDB 558074 D01 DTS Meas Guidance v03r02:

Method PKPSD (peak PSD)

- (1) Set analyzer center frequency to DTS channel center frequency.
- (2) Set the span to 1.5 times the DTS bandwidth.
- (3) Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- (4) Set the VBW $\geq 3 \times \text{RBW}$.
- (5) Detector = peak.
- (6) Sweep time = auto couple.
- (7) Trace mode = max hold.
- (8) Allow trace to fully stabilize.
- (9) Use the peak marker function to determine the maximum amplitude level.
- (10) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Method AVGPSD-2

- (1) Using peak PSD procedure step 1 to step 4.
- (2) Detector= RMS detector
- (3) Sweep time = auto couple
- (4) Trace mode = trace averaging over a minimum of 100 traces
- (5) Use the peak marker function to determine the maximum amplitude level.
- (6) Duty cycle factor is added when duty cycle presented in section 3.5.1. < 98%.
- (7) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

10.4. Test Results

Please refer to Appendix A

11.DEVIATION TO TEST SPECIFICATIONS

【NONE】