Test Report

FCC Part15 Subpart E

Product Name	:	Notebook PC
Model No.	:	T100T,H100T,R104T, T100TAM,H100TAM,R104TAM
FCC ID	:	MSQT100T

Applicant	:	ASUSTeK COMPUTER INC.
Address	:	4F, No. 150, LI-TE Rd., PEITOU, TAIPEI 112, TAIWAN

Date of Receipt	:	May. 12, 2016
Test Date	:	May. 12, 2016~May. 17, 2016
Issued Date	:	May. 20, 2016
Report No.	:	1652033R-RF-US-P09V01
Report Version	:	V1.0

The test results relate only to the samples tested.
The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.
This report must not be used to claim product endorsement by CNAS,TAF any agency of the government.
The test report shall not be reproduced without the written approval of QuieTek Corporation.

Test Report Certification

Issued Date: May. 20, 2016
Report No.: 1652033R-RF-US-P09V01

QuieTek a DEKRA company

Product Name	: Notebook PC
Applicant	: ASUSTeK COMPUTER INC.
Address	: 4F, No. 150, LI-TE Rd., PEITOU, TAIPEI 112, TAIWAN
Manufacturer	: 1. PEGATRON CORP TAOYUAN MFG 2. PROTEK (SHANGHAI) LTD 3.TECH-FRONT(CHONGQING)COMPUTER COLTD 4. TECH-COM(SHANGHAI) COMPUTER CO. LTD 5. DIGITEK (CHONGQING) LIMITED 6. COTEK ELECTRONICS(Suzhou)Co.,Ltd 7.Wistron InfoComm(Chongqing) Co.,Ltd
Address	: 1. 5, SHING YEH ST., KWEI SHAN HSIANG, TAOYUAN 333, TAIWAN 2.3768 XIU YAN RD KANG QIAO TOWN PU DONG NEW District, Shanghai, China 3.18,ZONGBAO ROAD,SHAPINGBA DISTRICT,CHONGQING CHINA 4.68 SANZHUANG RD, SONGJIANG EXPORT PROCESSING ZONE,SHANGHAI 201613, CHINA 5. B01，SECTION C，AIRPORT FUNCTION ZONE，LIANGLU CUNTAN FREE TRADE PORT AREA，YUBEI DISTRICT CHONGQING CITY，CHINA 6.288 MAYUN RD NEW DISTRICT SUZHOU JIANGSU 215011 CHINA 7. No. 18-9, Baohong Avenue, Wangjia Sub-district, Yubei District, Chongqing, China
Model No.	: T100T,H100T,R104T, T100TAM,H100TAM,R104TAM
FCC ID	: MSQT100T
EUT Voltage	: AC 100-240V, 50/60Hz
Brand Name	: ASUS
Applicable Standard	: FCC CFR Title 47 Part 15 Subpart E: 2015 ANSI C63.4:2014; ANSI C63.10:2013; 789033 D02 General UNII Test Procedures New Rules v01r02
Test Result	: Complied
Performed Location	: Quietek Corporation - Suzhou EMC Laboratory No.99 Hongye Rd., Suzhou Industrial Park, Suzhou,215006, Jiangsu, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Registration Number: 800392;

Documented By : Alice Ni

(Senior Adm. Specialist: Alice Ni)

Reviewed By : Jack Zhang

(Senior Engineer: Jack Zhang)

Approved By : Harry Zhao

(Engineering Manager : Harry Zhao)

Laboratory Information

We, **QuieTek Corporation,** are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
USA	**:**	**FCC**
Japan	**:**	**VCCI**
China	**:**	**CNAS**

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site :http://www.quietek.com/tw/ctg/cts/accreditations.htm
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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TEL:+886-3-592-8858 / FAX:+886-3-592-8859 E-Mail : service@quietek.com

LinKou Testing Laboratory :
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TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789 E-Mail : service@quietek.com

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE

1. General Information

1.1. EUT Description

Product Name	Notebook PC					
Brand Name	ASUS					
Model No.	T100T,H100T,R104T, T100TAM,H100TAM,R104TAM					
EUT Voltage	AC 100-240V, 50/60Hz					
Type of Modulation	802.11a/n:OFDM, BPSK, QPSK, 16QAM, 64QAM					
Data Rate	802.11a: 6/9/12/18/24/36/48/54Mbps					
	802.11n: up to 150Mbps					
Channel Control	Auto					
Transmit modes	☒	802.11a	☒	802.11n(20MHz)	☒	802.11n(40MHz)
	☐	802.11ac(20MHz)	☐	802.11ac(40MHz)	☐	802.11ac(80MHz)
Support Bands	☐	5150MHz~5250MHz	☐	Outdoor AP		
			☐	Indoor AP		
			☐	Fixed point-to-point AP		
			☐	Mobile and Portable Client		
	☐	5250MHz~5350MHz				
	☐	5470MHz~5725MHz	☐	With TDWR Channels		
			☐	Without TDWR Channels		
	☒	5725MHz~5850MHz				

1.2. Antenna information

Antenna No.	Antenna 0					
Antenna Part No.	WA-P-LB-02-083					
Antenna Manufacturer	INPAQ					
Antenna Delivery	☒	1*TX+1*RX	☐	2*TX+2*RX	☐	3*TX+3*RX
Antenna Technology	☒	SISO				
Antenna Type	PIFA					
Antenna Gain	-1.01 dBi for 5.15~5.25GHz 1.05 dBi for 5.25~5.35GHz 1.43 dBi for 5.47~5.725GHz					

Antenna No.	Antenna 1

Antenna Part No.	WA-F-LB-02-027					
Antenna Manufacturer	INPAQ					
Antenna Delivery	☒	1*TX+1*RX	☐	2*TX+2*RX	☐	3*TX+3*RX
Antenna Technology	☒	SISO				
Antenna Type	PIFA					
Antenna Gain	-0.17 dBi for 5.15~5.25GHz -0.71 dBi for 5.25~5.35GHz 1.66 dBi for 5.47~5.725GHz					

Antenna No.	Antenna 2					
Antenna Part No.	T-543-901-1045-1					
Antenna Manufacturer	TongDa					
Antenna Delivery	☒	1*TX+1*RX	☐	2*TX+2*RX	☐	3*TX+3*RX
Antenna Technology	☒	SISO				
Antenna Type	PIFA					
Antenna Gain	-0.24 dBi for 5.15~5.25GHz -0.79 dBi for 5.25~5.35GHz 1.45 dBi for 5.47~5.725GHz					

1.3. Working Frequency of Each Channel:

802.11a/n(20MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
157	5785 MHz	161	5805 MHz	157	5785 MHz	165	5825MHz
802.11n(40MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz	N/A	N/A	N/A	N/A

1.4. Mode of Operation

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmit by 802.11a
Mode 2: Transmit by 802.11n(20MHz)
Mode 3: Transmit by 802.11n(40MHz)
Note 1: Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

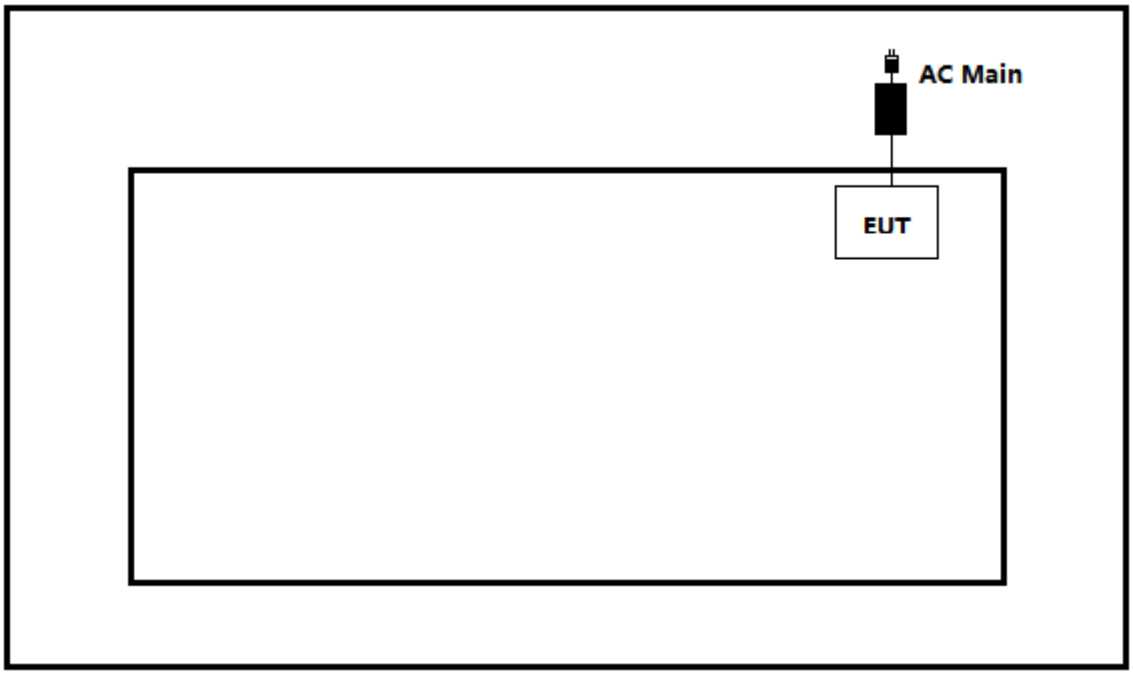
1.5. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

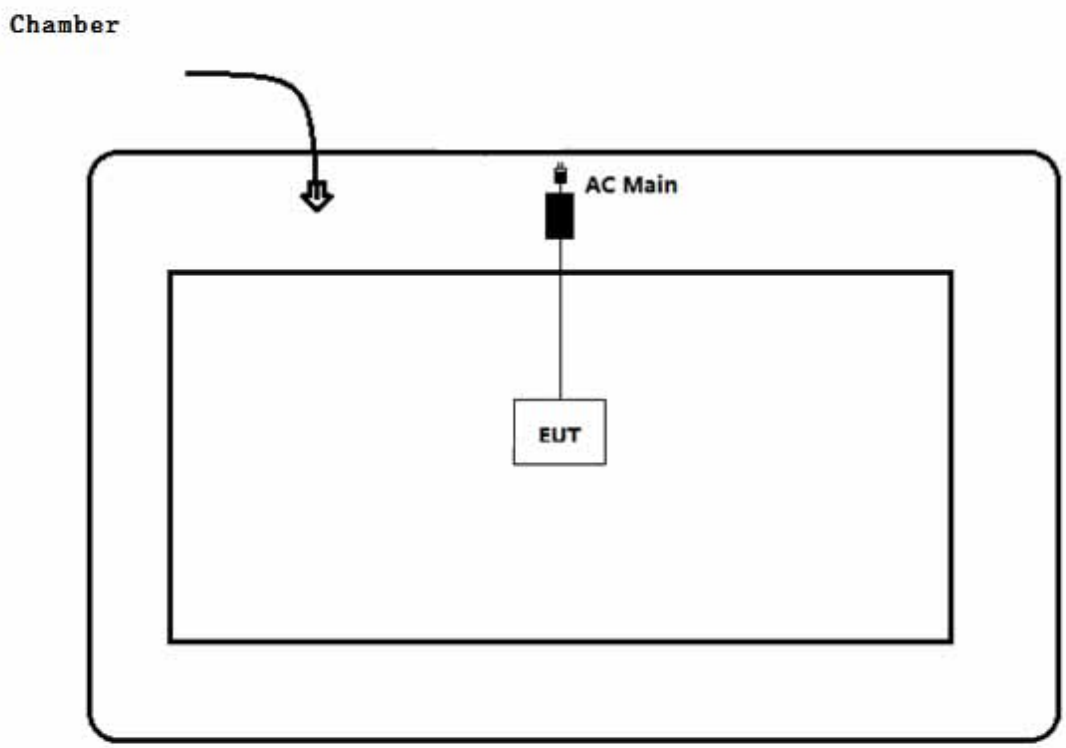
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	N/A	N/A	N/A	N/A	N/A

1.6. Configuration of Tested System

Connection Diagram



Connection Diagram		



Signal Cable Type		Signal cable Description
N/A	N/A	N/A

1.7. EUT Exercise Software

With CDD:

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of equipment.
3	Run“ChipControl_104”, and set the test mode and channel, then press OK to start to continue transmit or receive.

2. Technical Test

2.1. Summary of Test Result

Performed Test Item	Normative References	Limit	Result
Conducted Emission	FCC CFR Title 47 Part 15 Subpart E: 2015 Section 15.207	FCC 15.207	PASS
Radiated Emission	FCC CFR Title 47 Part 15 Subpart E: 2015 Section 15.209	FCC 15.209	PASS
6dB Emission Bandwidth	FCC CFR Title 47 Part 15 Subpart E: 2015 Section 15.407(a)	FCC 15.407(e)	PASS
Power Output	FCC CFR Title 47 Part 15 Subpart E: 2015 Section 15.407(a)	FCC 15.407(a)	PASS
Peak Power Spectral Density	FCC CFR Title 47 Part 15 Subpart E: 2015 Section 15.407(a)	FCC 15.407(a)	PASS
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart E: 2015 Section 15.205, 15.407(b)	FCC 15.407(b)	PASS
Frequency Stability	FCC CFR Title 47 Part 15 Subpart E: 2015 Section 15.407(g)	Within the band	PASS

2.2. Test Frequency configuration:

Modulation Mode	Channel	Frequency	Channel	Frequency	Channel	Frequency
802.11a/n(20MHz)	149	5745MHz	157	5785MHz	165	5825MHz
802.11n(40MHz)	151	5755MHz	159	5795MHz	N/A	N/A

2.3. Power Parameter Value of the test software

Test Mode	Test Channel	Power Setting
802.11a	5745	12.5
	5785	12.5
	5825	12.5
802.11n(20MHz)	5745	12.5
	5785	12.5
	5825	13
802.11n(40MHz)	5755	12.5
	5795	12.5

2.4. Power vs Data Rate

MCS Index for 802.11n	Spatial Streams	Data Rate (Mbps)						
		802.11b	802.11g	802.11a	20MHz Bandwidth		40MHz Bandwidth	
					800ns GI	400ns GI	800ns GI	400ns GI
0	1	1	6	6	6.5	7.2	13.5	15.0
1	1	2	9	9	13.0	14.4	27.0	30.0
2	1	5.5	12	12	19.5	21.7	40.5	45.0
3	1	11	18	18	26.0	28.9	54.0	60.0
4	1	---	24	24	39.0	43.3	81.0	90.0
5	1	---	36	36	52.0	57.8	108.0	120.0
6	1	---	48	48	58.5	65.0	121.5	135.0
7	1	---	54	54	65.0	72.2	135.0	150.0
Note 1 : The blue form is the maximum power data rate								

2.5. Duty Cycle

For 5.0GHz Band with CDD

Test Mode	Tx On (ms)	T (ms)	VBW	Tx On + Tx Off (ms)	Duty Cycle
802.11a	2.04	2.04	510Hz	2.18	93.58%
802.11 n(20MHz)	1.92	1.92	520Hz	2.02	95.05%
802.11n(40MHz)	0.95	0.95	1.2kHz	1.04	91.35%

Note 1: T means the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Note 2: According to KDB 789033

2.6. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

2.7. Measurement Uncertainty

Test Items	Uncertainty
AC Power Line Conducted Emission	

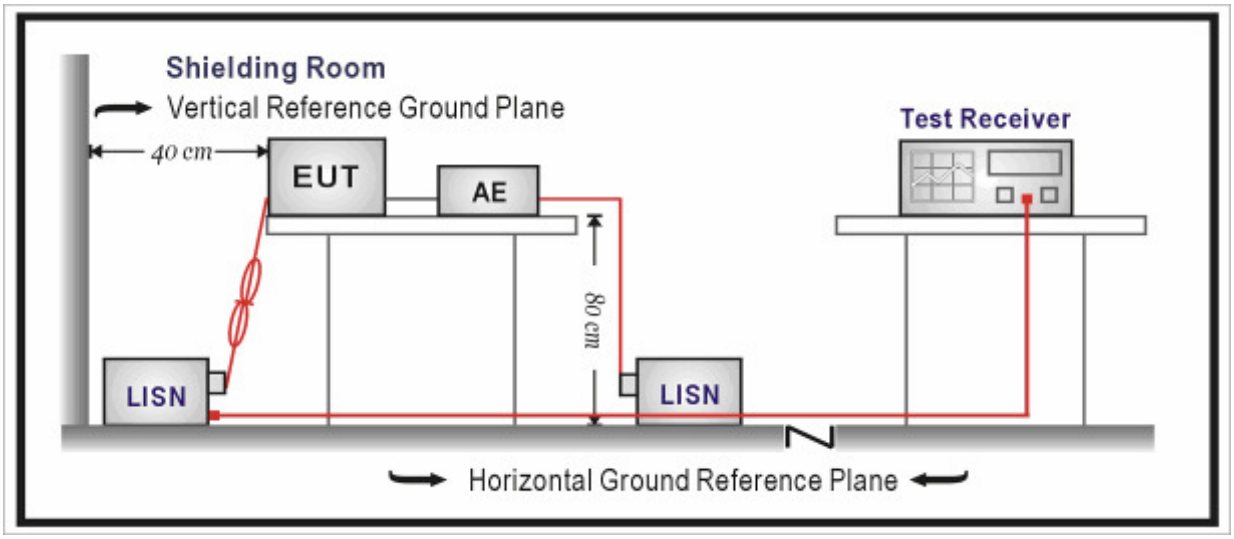
3. AC Power Line Conducted Emission

3.1. Test Equipment

AC Power line Conducted Emission / TR-1					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100726	2016.03.29	2017.03.28
Two-Line V-Network	R&S	ENV216	100043	2016.03.29	2017.03.28
Two-Line V-Network	R&S	ENV216	100044	2015.09.17	2016.09.16
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2016.03.02	2017.03.01
50ohm Termination	SHX	TF2	07081401	2015.09.17	2016.09.16
Temperature/Humidity Meter	zhichen	ZC1-2	TR1-TH	2016.01.09	2017.01.08
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

3.2. Test Setup

AC Power Line Conducted Emission Test Setup:

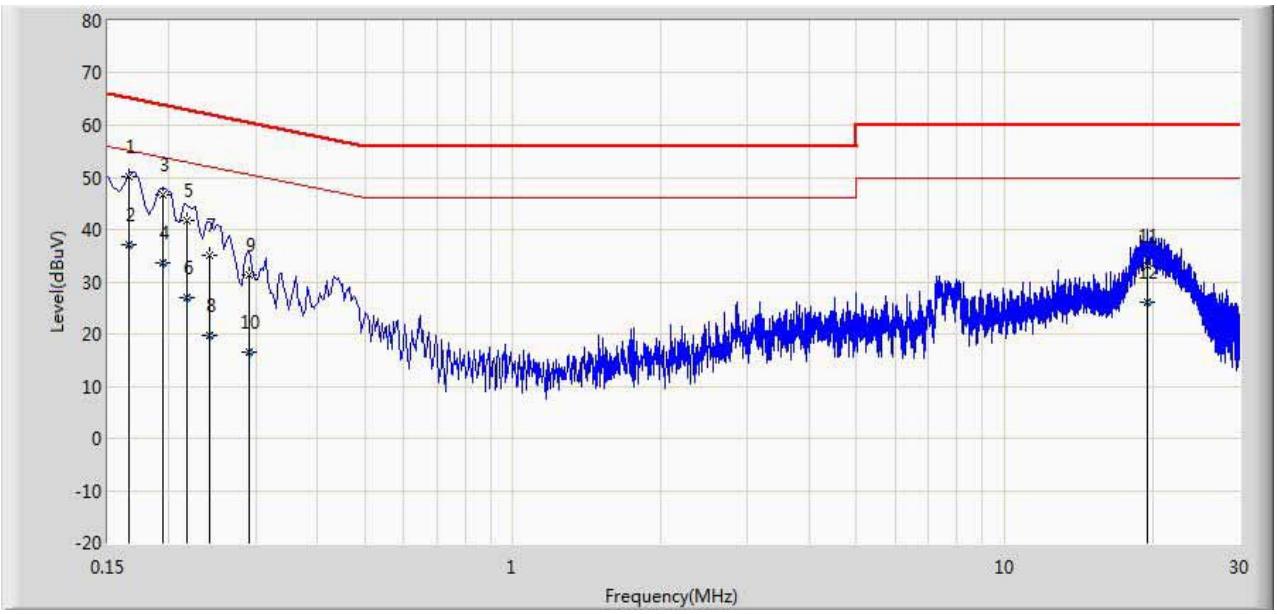


3.3. Limit

Frequency (MHz)	QP (dB

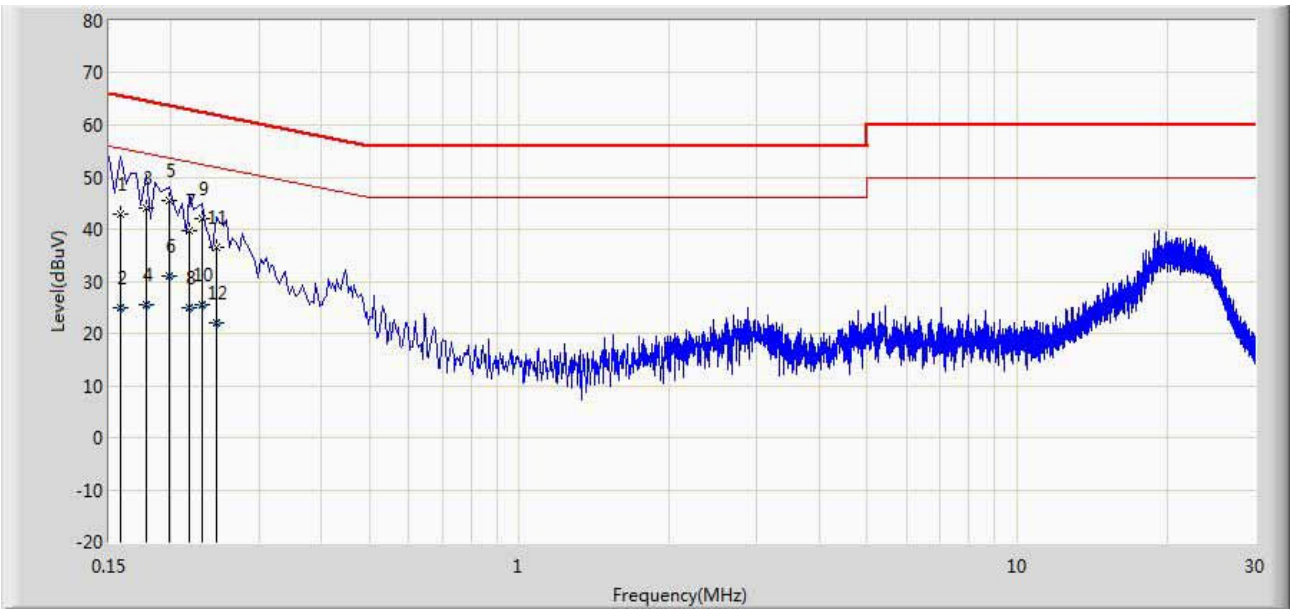
3.5. Test Result

Engineer: Jack	
Site: TR1	Time: 2016/05/03 - 09:05
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Line
EUT: Notebook PC	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1	*	0.166	50.178	40.558	-14.980	65.158	9.620	QP
2		0.166	37.155	27.536	-18.003	55.158	9.620	AV
3		0.194	46.750	37.130	-17.113	63.864	9.621	QP
4		0.194	33.661	24.041	-20.202	53.864	9.621	AV
5		0.218	41.747	32.125	-21.148	62.895	9.622	QP
6		0.218	27.085	17.463	-25.810	52.895	9.622	AV
7		0.242	35.039	25.419	-26.989	62.027	9.619	QP
8		0.242	19.627	10.008	-32.400	52.027	9.619	AV
9		0.290	31.219	21.597	-29.306	60.524	9.622	QP
10		0.290	16.469	6.847	-34.056	50.524	9.622	AV
11		19.522	33.002	23.076	-26.998	60.000	9.926	QP
12		19.522	26.093	16.167	-23.907	50.000	9.926	AV

Engineer:	
Site: TR1	Time: 2016/05/03 - 09:11
Limit: FCC_Part15.107_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101044(0.009-30MHz)	Polarity: Neutral
EUT: Notebook PC	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.158	43.022	33.422	-22.547	65.568	9.600	QP
2		0.158	24.934	15.334	-30.634	55.568	9.600	AV
3		0.178	44.005	34.407	-20.573	64.578	9.599	QP
4		0.178	25.550	15.951	-29.028	54.578	9.599	AV
5	*	0.198	45.560	35.959	-18.134	63.694	9.602	QP
6		0.198	31.124	21.522	-22.570	53.694	9.602	AV
7		0.218	39.664	30.061	-23.230	62.895	9.603	QP
8		0.218	24.938	15.335	-27.957	52.895	9.603	AV
9		0.230	42.078	32.477	-20.371	62.450	9.601	QP
10		0.230	25.423	15.821	-27.027	52.450	9.601	AV
11		0.246	36.479	26.877	-25.412	61.891	9.602	QP
12		0.246	21.976	12.374	-29.916	51.891	9.602	AV

4. Radiated Emission

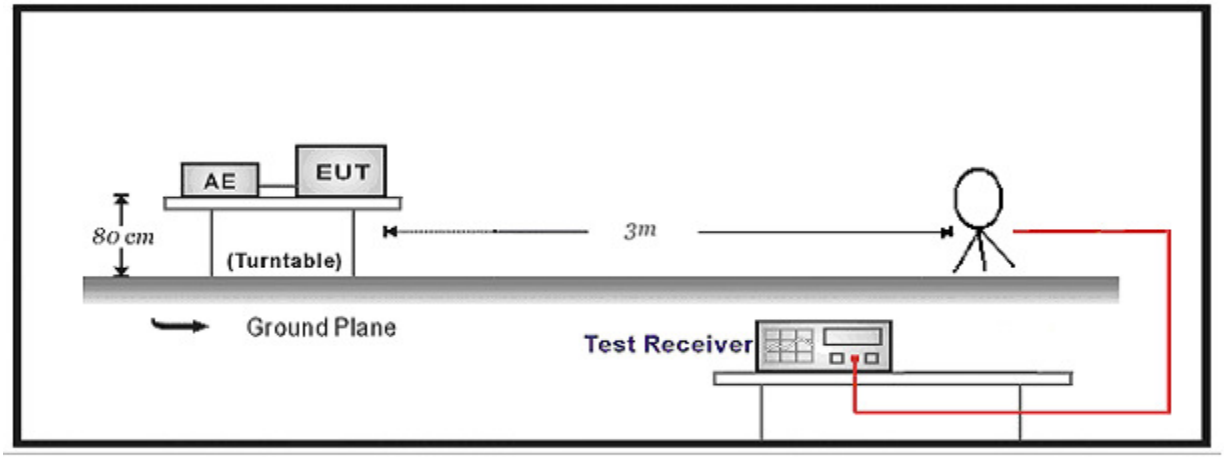
4.1. Test Equipment

Radiated Emission / AC-2					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2016.03.29	2017.03.28
Loop Antenna	R&S	HFH2-Z2	833799/003	2015.11.18	2016.11.17
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2015.10.16	2016.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2016.03.02	2017.03.01
Temperature/Humidity Meter	Zhichen	ZC1-2	AC2-TH	2016.01.09	2017.01.08

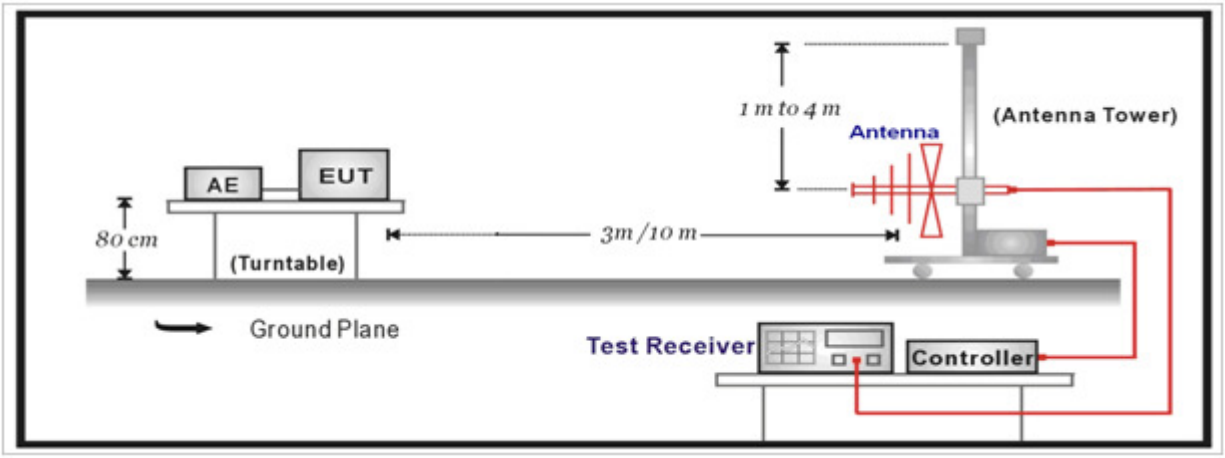
Radiated Emission / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.08	2017.01.07
Preamplifier	Miteq	NSP1800-25	1364185	2016.05.06	2017.05.05
Preamplifier	QuieTek	AP-040G	CHM-0906001	2016.05.06	2017.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2016.01.22	2017.01.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2015.11.25	2016.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2016.03.02	2017.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2016.03.02	2017.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2016.03.02	2017.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2015.06.10	2016.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2016.01.09	2017.01.08
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

4.2. Test Setup

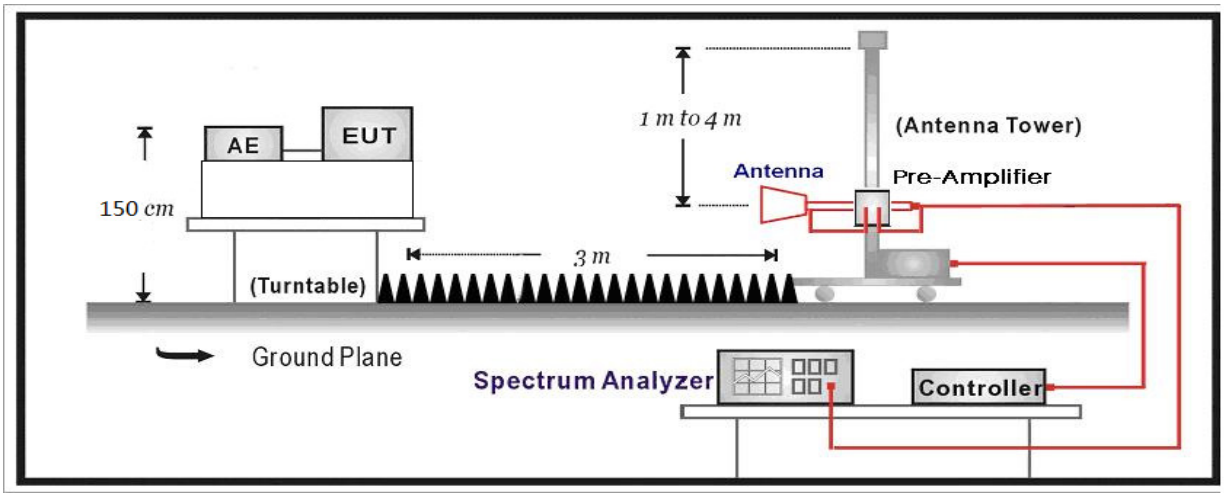
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

FCC Part 15 Subpart C Paragraph 15.209 (Restricted Band Emissions Limit)		
Frequency (MHz)	Distance (m)	Level (dB

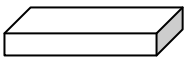
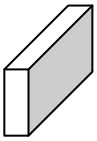
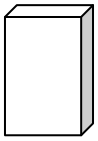
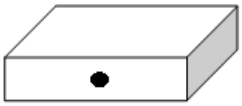
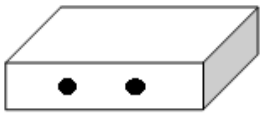
FCC Part 15 Subpart C Paragraph 15.205 (Restricted Band)			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 –16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.81425 – 8.81475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975–12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675–12.57725	322 – 335.4	3600 – 4400	
13.36 – 13.41			

FCC Part 15 Subpart C Paragraph 15.407(5)(b) (Unrestricted Band Emissions Limit)		
Operating Frequency Band (MHz)	EIRP Limit (dBm/MHz)	Equivalent Field Strength at 3m (dB

4.4. Test Procedure

Test Method					
	References Rule			Chapter	Description
☐	ANSI C63.10			12.7.3	Emissions in non-restricted frequency bands
☒	ANSI C63.10			12.7.2	Emissions in restricted frequency bands
	☒	ANSI C63.10		12.7.5	Radiated emission measurements
	☒	ANSI C63.10		12.7.6	Procedure for peak unwanted emissions measurements above 1000 MHz
	☒	ANSI C63.10		12.7.7	Procedures for average unwanted emissions measurements above 1000 MHz
		☐	ANSI C63.10	12.7.7.2	Method AD (average detection)—primary method
		☒	ANSI C63.10	12.7.7.3	Method VB-A (Alternative)
	☒	ANSI C63.10		6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
	☒	ANSI C63.10		6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
	☒	ANSI C63.10		6.6	Radiated emissions from unlicensed wireless devices above 1 GHz
☐	FCC KDB 789033 D02v01r02			G.2	Unwanted Emissions that fall Outside of the Restricted Bands
☐	FCC KDB 789033 D02v01r02			G.1	Unwanted Emissions in the Restricted Bands
	☐	FCC KDB 789033 D02v01r02		G.4	Procedure for Unwanted Emissions Measurements below 1000 MHz
	☐	FCC KDB 789033 D02v01r02		G.5	Procedure for Unwanted Maximum Emissions Measurements above 1000 MHz
	☐	FCC KDB 789033 D02v01r02		G.6	Procedures for Average Unwanted Emissions Measurements above 1000 MHz
		☐	FCC KDB 789033 D02v01r02	G.6.c	Method AD (Average detection)—primary method
		☐	FCC KDB 789033 D02v01r02	G.6.d	Method VB (Averaging using reduced video bandwidth): Alternative method.

4.5. EUT test Axis definition

Item	Radiated Emission			
Device Category	☐	Indoor use		
	☐	Outdoor use		
	☐	Fix position use		
	☒	Mobile position use		
Test mode	Mode 1-3			
Test method	☒	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☒	Worst Axis ☐
	☐	Conducted		
	☐	Chain 0		
				
	☐	Chain 0	Chain 1	
				
	☐	Chain 0	Chain 1	Chain 2

4.6. Test Result

Product Name	:	Notebook PC	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1	Test Site	:	AC-5

Chain	CH	Antenna Polarity	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measured Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
Ant 0	149	H	11490.0	30.0	21.4	51.4	54(note3)	2.6	PK
		H	17235.0	25.8	25.7	51.5	54(note3)	2.5	PK
		H	11490.0	30.1	21.3	51.4	54(note3)	2.6	PK
		V	17235.0	27.1	25.7	52.8	54(note3)	1.2	PK
	157	H	11570.0	29.7	22.1	51.8	54(note3)	2.2	PK
		H	17355.0	26.6	25.3	51.9	54(note3)	2.1	PK
		V	11570.0	29.8	22.1	51.9	54(note3)	2.1	PK
		V	17355.0	28.0	25.3	53.3	54(note3)	0.7	PK
	165	H	11650.0	29.3	22.9	52.2	54(note3)	1.8	PK
		H	17475.0	26.0	25.3	51.3	54(note3)	2.7	PK
		V	11650.0	29.5	22.9	52.4	54(note3)	1.6	PK
		V	17355.0	27.4	25.3	52.7	54(note3)	1.3	PK

1. Measured Level = Reading Level + Factor.
2. The test frequency range, 9kHz~30MHz, 18GHz~40GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Product Name	:	Notebook PC	Power	:	AC 120V/60Hz
Test Mode	:	Mode 2	Test Site	:	AC-5

Chain	CH	Antenna Polarity	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measured Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
Ant 0	149	H	11490.0	28.9	21.3	50.2	54(note3)	3.8	PK
		H	17235.0	24.9	25.7	50.6	54(note3)	3.4	PK
		H	11490.0	30.5	21.3	51.8	54(note3)	2.2	PK
		V	17235.0	26.1	25.7	51.8	54(note3)	2.2	PK
	157	H	11570.0	29.6	22.1	51.7	54(note3)	2.3	PK
		H	17355.0	25.0	25.4	50.4	54(note3)	3.6	PK
		V	11570.0	29.6	22.1	51.7	54(note3)	2.3	PK
		V	17355.0	26.4	25.3	51.7	54(note3)	2.3	PK
	165	H	11650.0	29.7	23.0	52.7	54(note3)	1.3	PK
		H	17475.0	25.8	25.3	51.1	54(note3)	2.9	PK
		V	11650.0	29.2	22.9	52.1	54(note3)	1.9	PK
		V	17355.0	27.3	25.3	52.6	54(note3)	1.4	PK

1. Measured Level = Reading Level + Factor.
2. The test frequency range, 9kHz~30MHz, 18GHz~40GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

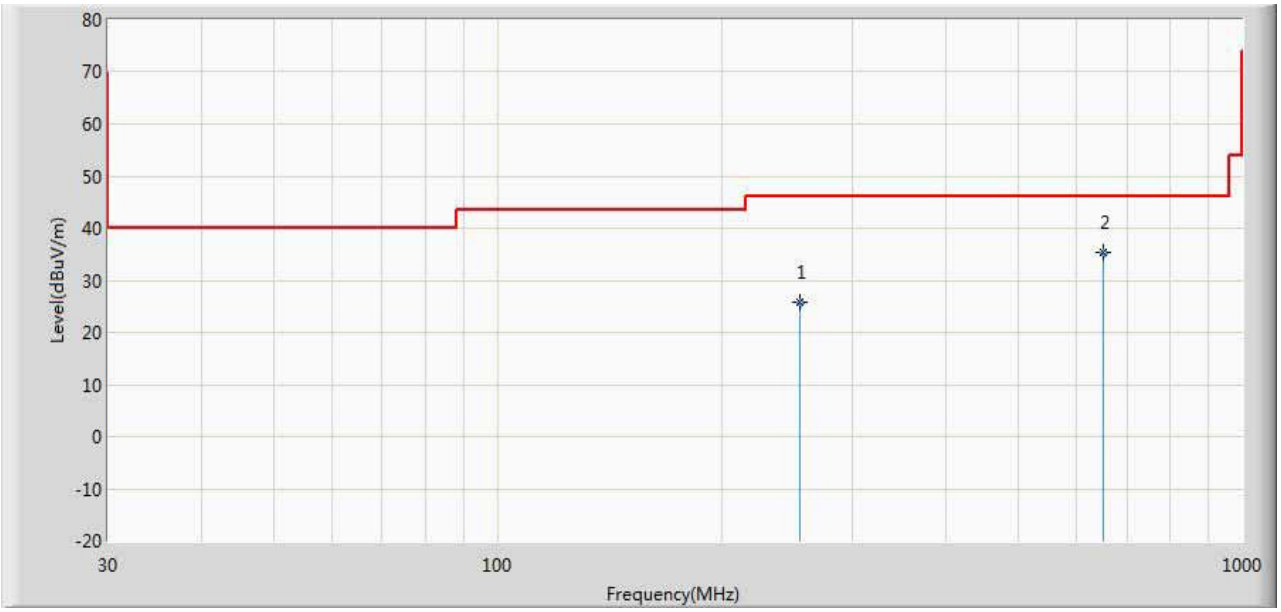
Product Name	:	Notebook PC	Power	:	AC 120V/60Hz
Test Mode	:	Mode 3	Test Site	:	AC-5

Chain	CH	Antenna Polarity	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measured Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
Ant 0	151	H	11510.0	29.2	21.5	50.7	54(note3)	3.3	PK
		V	17265.0	26.3	25.1	51.4	54(note3)	2.6	PK
		H	11510.0	30.1	21.6	51.7	54(note3)	2.3	PK
		V	17265.0	27.0	25.1	52.1	54(note3)	1.9	PK
	159	H	11590.0	30.3	21.1	51.4	54(note3)	2.6	PK
		H	17385.0	24.8	27.0	51.8	54(note3)	2.2	PK
		V	11590.0	29.6	21.1	50.7	54(note3)	3.3	PK
		V	17385.0	25.4	27.0	52.4	54(note3)	1.6	PK

1. Measured Level = Reading Level + Factor.
2. The test frequency range, 9kHz~30MHz, 18GHz~40GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

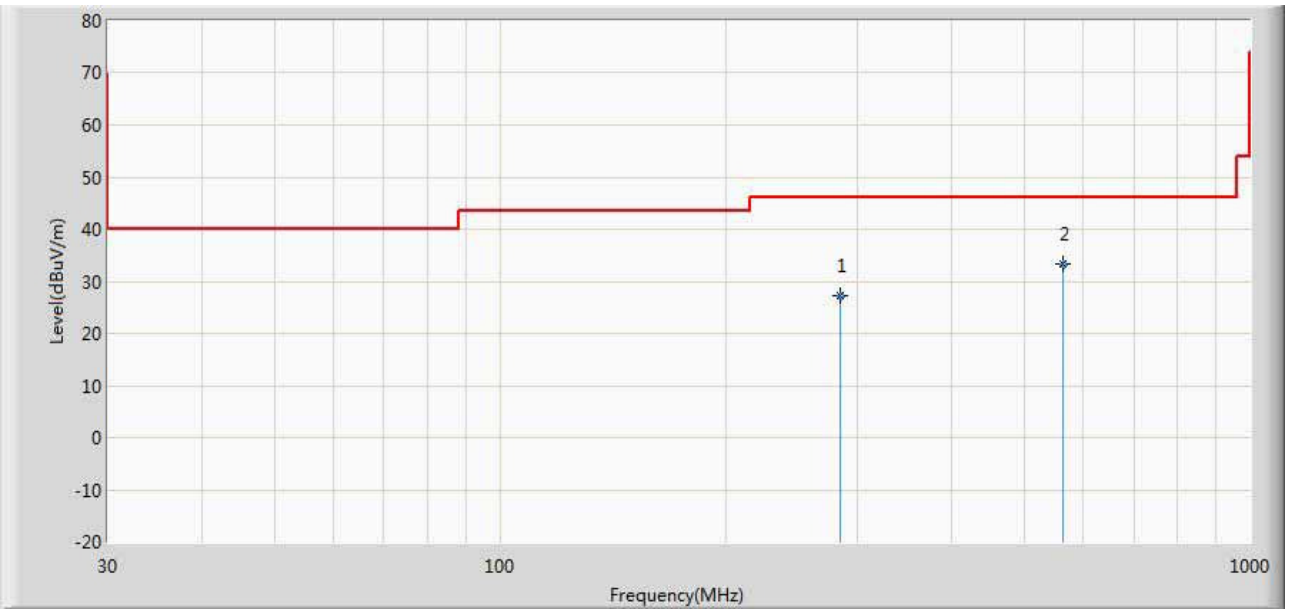
The worst case of Radiated Emission below 1GHz:

Engineer: Jack	
Site: AC2	Time: 2016/05/11 - 09:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: CBL6112D_27611(30-1000MHz)	Polarity: Horizontal
EUT: Notebook PC	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		254.919	25.875	5.919	-20.125	46.000	19.956	QP
2	*	650.921	35.332	7.617	-10.668	46.000	27.714	QP

Engineer: Jack	
Site: AC2	Time: 2016/05/11 - 09:21
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: CBL6112D_27611(30-1000MHz)	Polarity: Vertical
EUT: Notebook PC	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		284.625	27.391	7.071	-18.609	46.000	20.320	QP
2	*	562.530	33.395	6.551	-12.605	46.000	26.844	QP

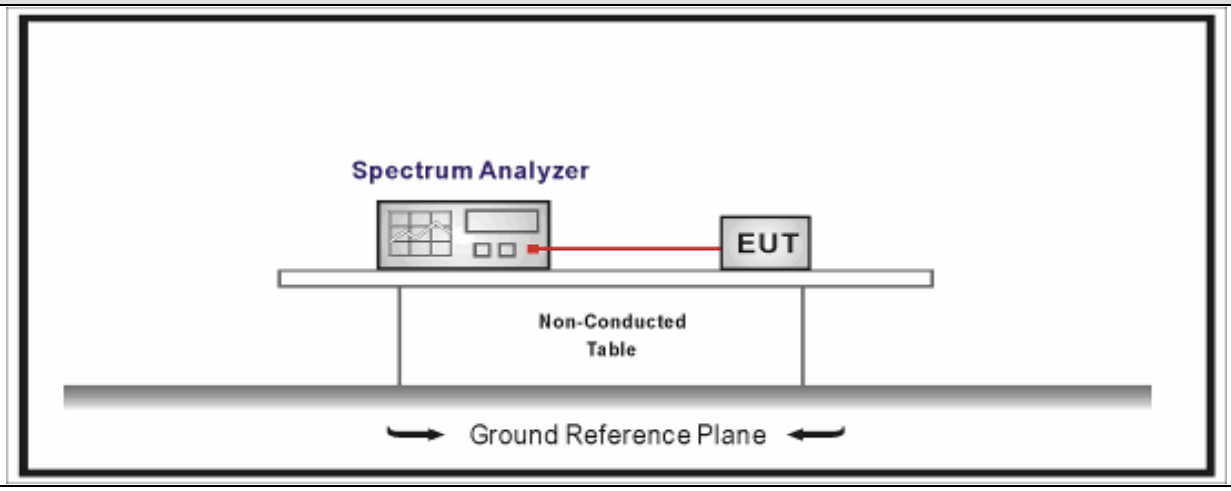
5. Emission bandwidth and occupied bandwidth

5.1. Test Equipment

Emission bandwidth and occupied bandwidth / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2016.03.11	2017.03.10
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2016.04.10	2017.04.09
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

5.2. Test Setup

Occupied Bandwidth test setup:



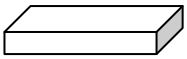
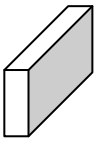
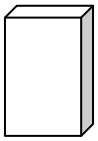
5.3. Limit

Emission bandwidth and Occupied Bandwidth
For equipment operating in the band 5725-5850 MHz, the minimum 6 dB bandwidth shall be at least 500 kHz.

5.4. Test Procedure

Test Method				
	References Rule		Chapter	Description
☒	ANSI C63.10		12.4	Emission bandwidth and occupied bandwidth
	☐	ANSI C63.10	12.4.1	Emission bandwidth (26dB)
	☒	ANSI C63.10	12.4.2	Occupied bandwidth (99%)
☒	FCC KDB 789033 D02v01r02		C	Bandwidth Measurement
	☐	FCC KDB 789033 D02v01r02	C.1	Emission Bandwidth (26dB)
	☒	FCC KDB 789033 D02v01r02	C.2	Minimum Emission Bandwidth for the band 5.725-5.85 GHz (6dB)
☐	FCC KDB 789033 D02v01r02		D	99 Percent Occupied Bandwidth

5.5. EUT test Axis definition

Item	Emission bandwidth and occupied bandwidth			
Device Category	☐	Indoor use		
	☐	Outdoor use		
	☐	Fix position use		
	☒	Mobile position use		
Test mode	Mode 1-3			
Test method	☐	Radiated		
		X Axis	Y Axis	Z Axis
				
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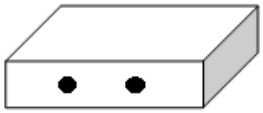
	☒	Conducted		
	☒	Chain 0		
	☐	Chain 0	Chain 1	
				
	☐	Chain 0	Chain 1	Chain 2

5.6. Test Result

Product	:	Notebook PC
Test Item	:	Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit

Mode	CH No.	Frequency (MHz)	6dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit

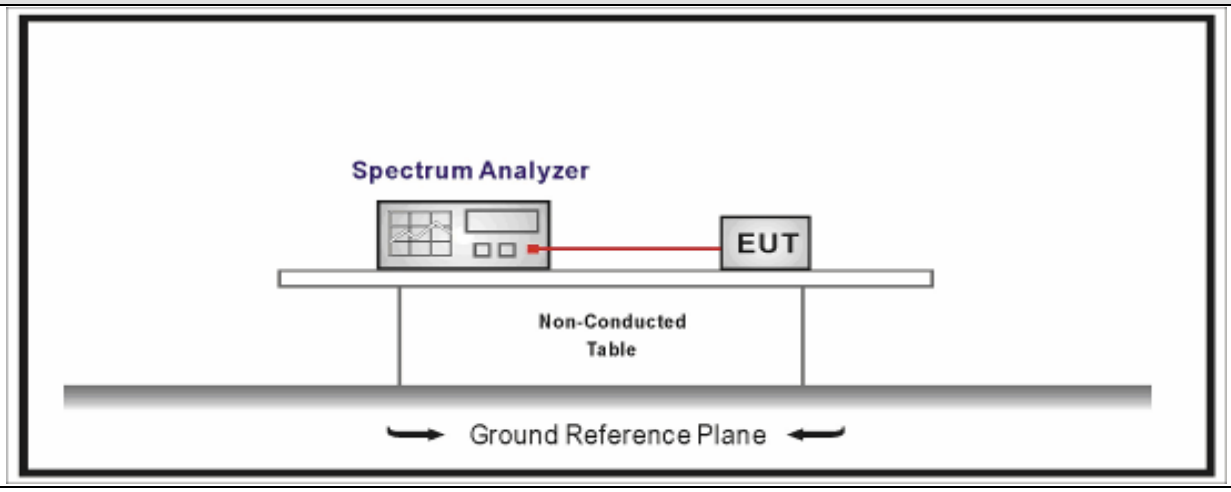
6. Power Output

6.1. Test Equipment

Power Output / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2016.03.11	2017.03.10
Power Sensor	Anritsu	MA2411B	0846014	2015.11.11	2016.11.10
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2016.04.10	2017.04.09
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

6.2. Test Setup

Power Output test setup:



6.3. Limit

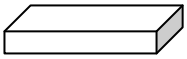
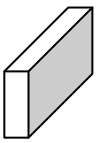
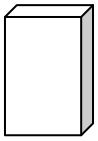
Fundamental emission output power Limit	
☐	For the band 5.15-5.25 GHz
☐	Outdoor access point: the maximum conducted output power shall not exceed 1 W. If G_{TX}

6.4. Test Procedure

Fundamental emission output power Test Method					
	References Rule			Chapter	Description
☒	ANSI C63.10			12.3	Maximum conducted output power
	☐	ANSI C63.10		12.3.2	Maximum conducted output power measurement using a spectrum analyzer (SA) or EMI receiver
		☐	ANSI C63.10	12.3.2.2	Method SA-1
		☐	ANSI C63.10	12.3.2.3	Method SA-1A (alternative)
		☐	ANSI C63.10	12.3.2.4	Method SA-2
		☐	ANSI C63.10	12.3.2.5	Method SA-2A (alternative)
		☐	ANSI C63.10	12.3.2.6	Method SA-3
		☐	ANSI C63.10	12.3.2.7	Method SA-3A (alternative)
	☒	ANSI C63.10		12.3.3	Maximum conducted output power using a power meter
		☐	ANSI C63.10	12.3.3.1	Method PM
		☒	ANSI C63.10	12.3.3.2	Method PM-G
☐	FCC KDB 789033 D02v01r02			E	Maximum conducted output power
	☐	FCC KDB 789033 D02v01r02		E.2	Measurement using a Spectrum Analyzer or EMI Receiver (SA)
		☐	FCC KDB 789033 D02v01r02	E.2.b	Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep)
		☐	FCC KDB 789033 D02v01r02	E.2.c	Method SA-1 Alternative (RMS detection with slow sweep and EUT transmitting continuously at full power)
		☐	FCC KDB 789033 D02v01r02	E.2.d	Method SA-2 (trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction)
		☐	FCC KDB 789033 D02v01r02	E.2.e	Method SA-2 Alternative (RMS detection with slow sweep with each spectrum bin averaging across on and off times of the EUT transmissions, followed by duty cycle correction)

		☐	FCC KDB 789033 D02v01r02	E.2.f	Method SA-3 (RMS detection with max hold)
		☐	FCC KDB 789033 D02v01r02	E.2.g	Method SA-3 Alternative (Reduced VBW with max hold)
	☐	FCC KDB 789033 D02v01r02		E.3	Measurement using a Power Meter (PM)
		☐	FCC KDB 789033 D02v01r02	E.3.a	Method PM (Measurement using an RF average power meter)
		☒	FCC KDB 789033 D02v01r02	E.3.b	Method PM-G (Measurement using a gated RF average power meter)

6.5. EUT test Axis definition

Item	Power Output			
Device Category	☐	Indoor use		
	☐	Outdoor use		
	☐	Fix position use		
	☒	Mobile position use		
Test mode	Mode 1-3			
Test method	☐	Radiated		
		X Axis	Y Axis	Z Axis
				
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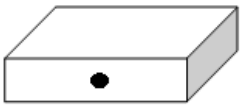
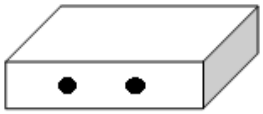
	☒	Conducted		
	☒	Chain 0		
				
	☐	Chain 0	Chain 1	
				
	☐	Chain 0	Chain 1	Chain 2

6.6. Test Result

Product	:	Notebook PC
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode: Transmit

Mode	Channel	Test Frequency (MHz)	Measurement Power Output (dBm)	Total Power (dBm)	Limit (dBm)	Result
1	149	5745	11.43	11.43	30	Pass
1	157	5785	11.48	11.48	30	Pass
1	165	5825	11.39	11.39	30	Pass
2	149	5745	11.42	11.42	30	Pass
2	157	5785	11.34	11.34	30	Pass
2	165	5825	11.28	11.28	30	Pass
3	151	5755	11.13	11.13	30	Pass
3	159	5795	11.19	11.19	30	Pass

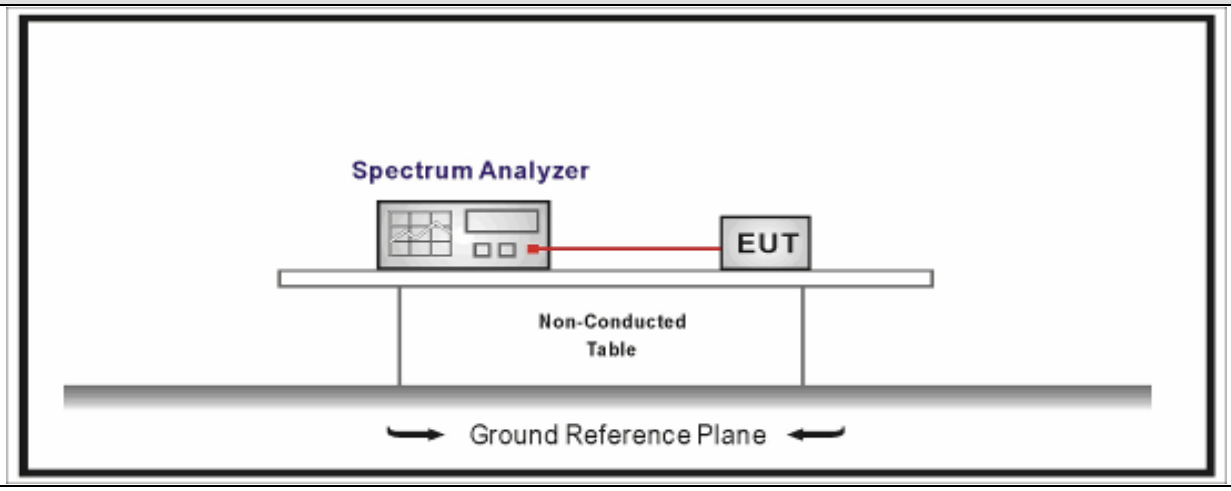
7. Peak Power Spectral Density

7.1. Test Equipment

Peak Power Spectral Density / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2016.03.11	2017.03.10
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2016.04.10	2017.04.09
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

7.2. Test Setup

Peak Power Spectral Density Test Setup:



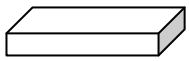
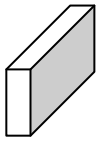
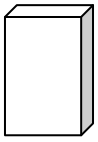
7.3. Limit

Fundamental emission output power Limit	
☐	For the band 5.15-5.25 GHz
	☐ Outdoor access point: the maximum power spectral density shall not exceed 17 dBm/MHz. If G_{TX}

7.4. Test Procedure

Fundamental emission output power Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	12.5	Peak power spectral density
☒	FCC KDB 789033 D02v01r02	F	Maximum Power Spectral Density (PSD)

7.5. EUT test Axis definition

Item	Peak power spectral density			
Device Category	☐	Indoor use		
	☐	Outdoor use		
	☐	Fix position use		
	☒	Mobile position use		
Test mode	Mode 1-3			
Test method	☐	Radiated		
		X Axis	Y Axis	Z Axis
				
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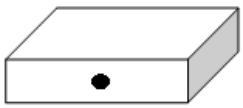
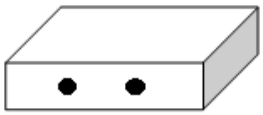
	☒	Conducted		
	☒	Chain 0		
				
	☐	Chain 0	Chain 1	
				
	☐	Chain 0	Chain 1	Chain 2

7.6. Test Result

Product	:	Notebook PC
Test Item	:	Peak Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode : Transmit by CDD

Mode	Channel	Test Frequency (MHz)	Measurement Power Spectral Density (dBm/500KHz)	Total PPSD (dBm/500KHz)	Limit (dBm/500 KHz)	Result
1	149	5745	-2.173	-2.173	30	Pass
1	157	5785	-2.136	-2.136	30	Pass
1	165	5825	-1.969	-1.969	30	Pass
2	149	5745	-2.416	-2.416	30	Pass
2	157	5785	-2.572	-2.572	30	Pass
2	165	5825	-2.416	-2.416	30	Pass
3	151	5755	-5.852	-5.852	30	Pass
3	159	5795	-5.338	-5.338	30	Pass

Note :The worst case as below:

802.11a CH 165(5825MHz)

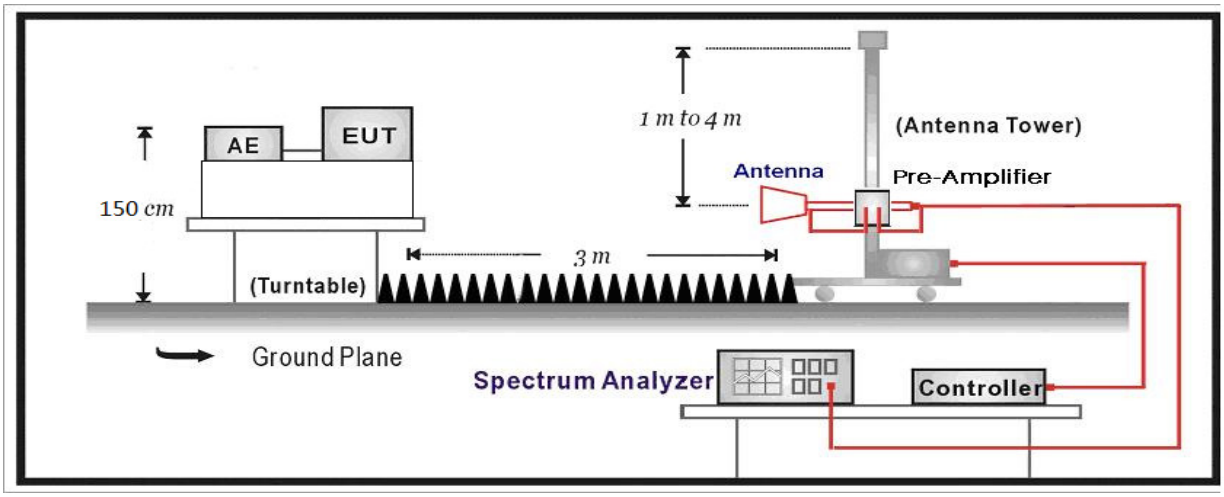
8. Radiated Emission Band Edge

8.1. Test Equipment

Radiated Emission Band Edge / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2016.03.11	2017.03.10
Preamplifier	Miteq	NSP1800-25	1364185	2016.05.04	2017.05.03
Preamplifier	QuieTek	AP-040G	CHM-0906001	2016.05.04	2017.05.03
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2015.10.16	2016.10.15
DRG Horn	ETS-Lindgren	3117	00123988	2016.01.08	2017.01.07
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2016.03.02	2017.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2016.03.02	2017.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2016.03.02	2017.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2015.06.10	2016.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2016.01.09	2017.01.08
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

8.2. Test Setup

Above 1GHz Test Setup:



8.3. Limit

FCC Part 15 Subpart C Paragraph 15.209 (Restricted Band Emissions Limit)		
Frequency (MHz)	Distance (m)	Level (dBμV/m)
0.009-0.490	300	2400/F(kHz)
0.490-1.705	30	24000/F(kHz)
1.705-30.0	30	30
30-88	3	100**
88-216	3	150**
216-960	3	200**
Above 960	3	500

Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two 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).

Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters 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 linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

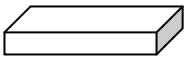
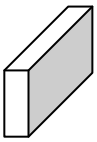
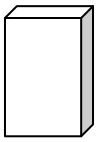
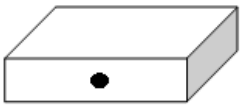
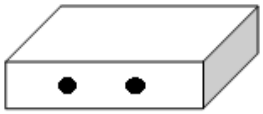
FCC Part 15 Subpart C Paragraph 15.205 (Restricted Band)			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 –16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.81425 – 8.81475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975–12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675–12.57725	322 – 335.4	3600 – 4400	
13.36 – 13.41			

FCC Part 15 Subpart C Paragraph 15.407(5)(b) (Unrestricted Band Emissions Limit)		
Operating Frequency Band (MHz)	EIRP Limit (dBm/MHz)	Equivalent Field Strength at 3m (dB

8.4. Test Procedure

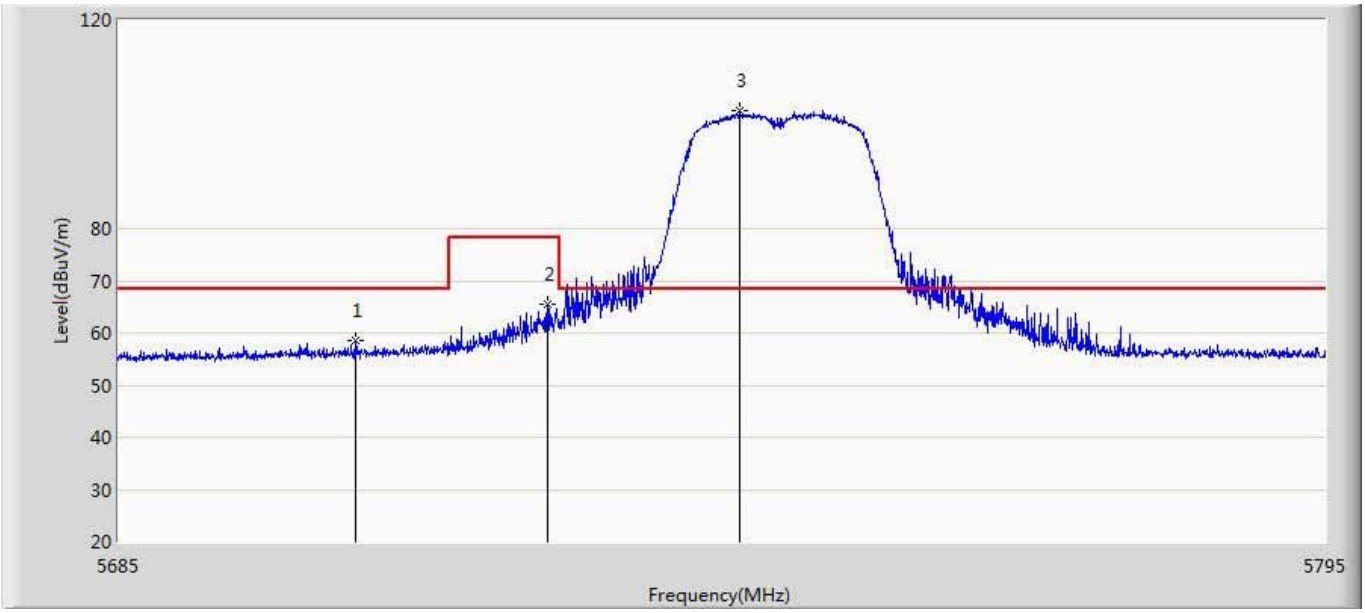
Test Method					
	References Rule			Chapter	Description
☐	ANSI C63.10			12.7.3	Emissions in non-restricted frequency bands
☒	ANSI C63.10			12.7.2	Emissions in restricted frequency bands
	☒	ANSI C63.10		12.7.5	Radiated emission measurements
	☒	ANSI C63.10		12.7.6	Procedure for peak unwanted emissions measurements above 1000 MHz
	☒	ANSI C63.10		12.7.7	Procedures for average unwanted emissions measurements above 1000 MHz
		☐	ANSI C63.10	12.7.7.2	Method AD (average detection)—primary method
		☒	ANSI C63.10	12.7.7.3	Method VB-A (Alternative)
	☒	ANSI C63.10		6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
	☒	ANSI C63.10		6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
	☒	ANSI C63.10		6.6	Radiated emissions from unlicensed wireless devices above 1 GHz
☐	FCC KDB 789033 D02v01r02			G.2	Unwanted Emissions that fall Outside of the Restricted Bands
☐	FCC KDB 789033 D02v01r02			G.1	Unwanted Emissions in the Restricted Bands
	☐	FCC KDB 789033 D02v01r02		G.4	Procedure for Unwanted Emissions Measurements below 1000 MHz
	☐	FCC KDB 789033 D02v01r02		G.5	Procedure for Unwanted Maximum Emissions Measurements above 1000 MHz
	☐	FCC KDB 789033 D02v01r02		G.6	Procedures for Average Unwanted Emissions Measurements above 1000 MHz
		☐	FCC KDB 789033 D02v01r02	G.6.c	Method AD (Average detection)—primary method
		☐	FCC KDB 789033 D02v01r02	G.6.d	Method VB (Averaging using reduced video bandwidth): Alternative method.

8.5. EUT test Axis definition

Item	Radiated Emission Band Edge			
Device Category	☐	Indoor use		
	☐	Outdoor use		
	☐	Fix position use		
	☒	Mobile position use		
Test mode	Mode 1-3			
Test method	☒	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☒	Worst Axis ☐
	☐	Conducted		
	☐	Chain 0		
				
	☐	Chain 0	Chain 1	
				
	☐	Chain 0	Chain 1	Chain 2

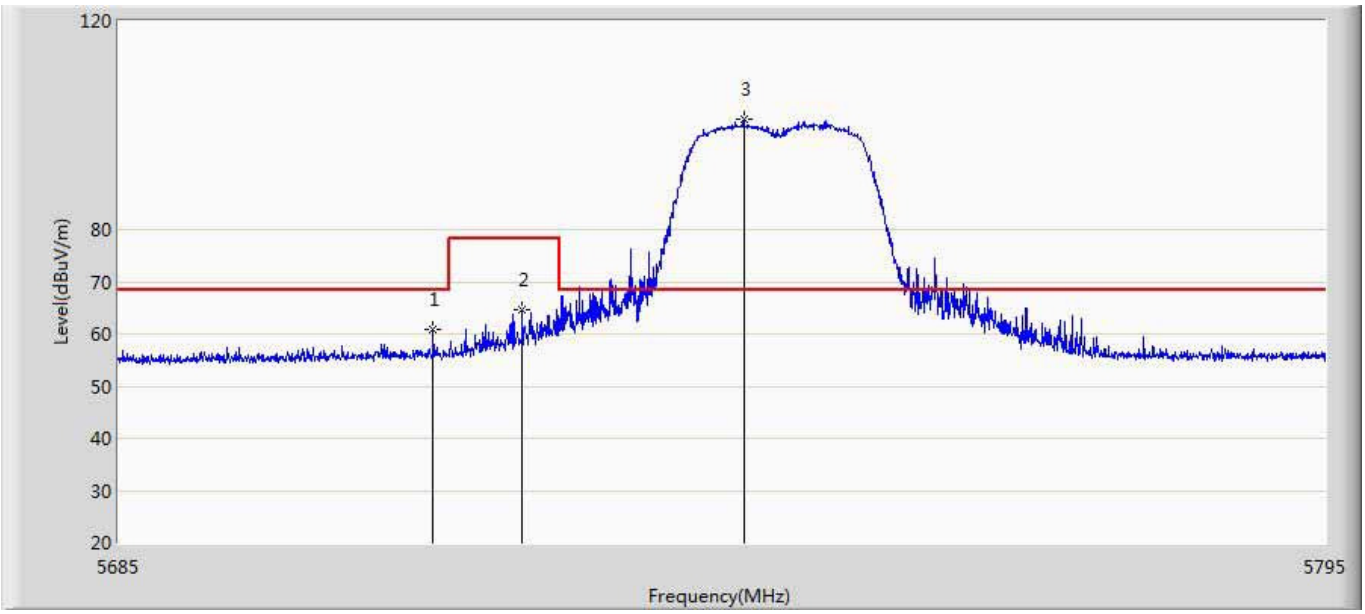
8.6. Test Result

Engineer: Scott	
Site: AC5	Time: 2016/05/10 - 15:45
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Notebook PC	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 5745Mhz by 802.11a	



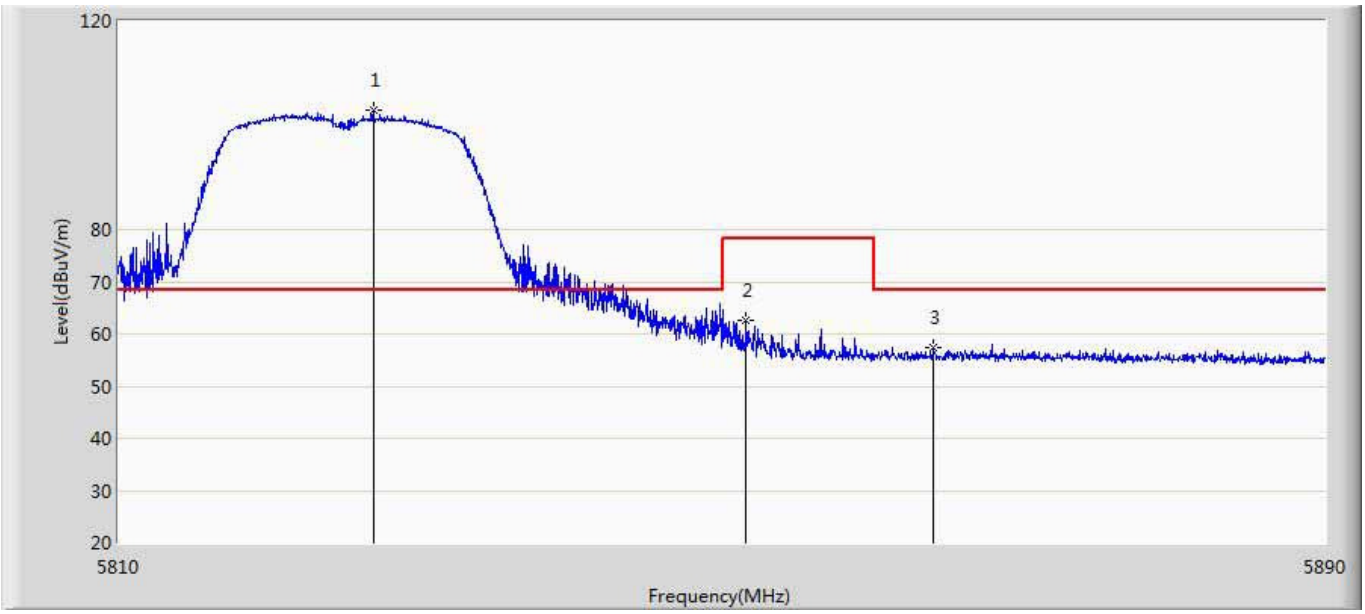
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5706.450	58.443	15.131	-9.857	68.300	43.312	PK
2		5723.885	65.473	22.203	-12.827	78.300	43.270	PK
3	*	5741.375	102.705	59.406	N/A	N/A	43.299	PK

Engineer: Scott	
Site: AC5	Time: 2016/05/10 - 15:48
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Notebook PC	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 5745Mhz by 802.11a	



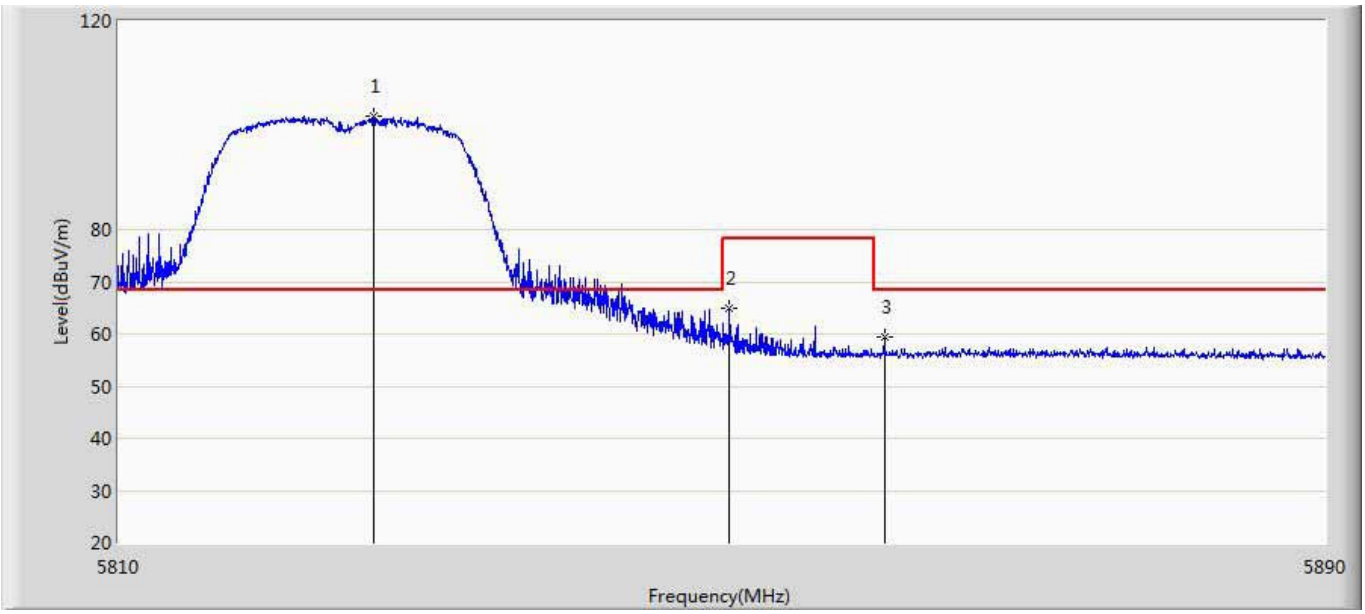
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5713.490	60.869	17.564	-7.431	68.300	43.305	PK
2		5721.630	64.498	21.221	-13.802	78.300	43.277	PK
3	*	5741.760	101.263	57.963	N/A	N/A	43.300	PK

Engineer: Scott	
Site: AC5	Time: 2016/05/10 - 15:51
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Notebook PC	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 5825Mhz by 802.11a	



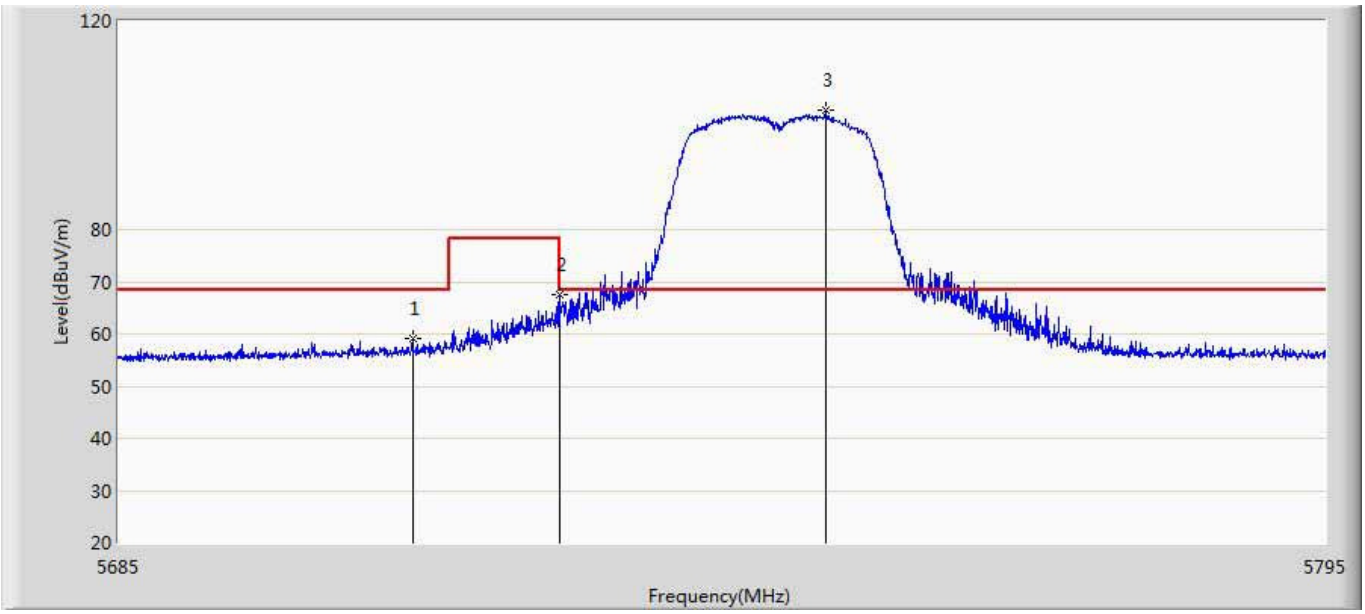
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5826.840	102.859	59.452	N/A	N/A	43.407	PK
2		5851.480	62.471	18.990	-15.829	78.300	43.480	PK
3		5863.960	57.481	13.914	-10.819	68.300	43.568	PK

Engineer: Scott	
Site: AC5	Time: 2016/05/10 - 15:53
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Notebook PC	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 5825Mhz by 802.11a	



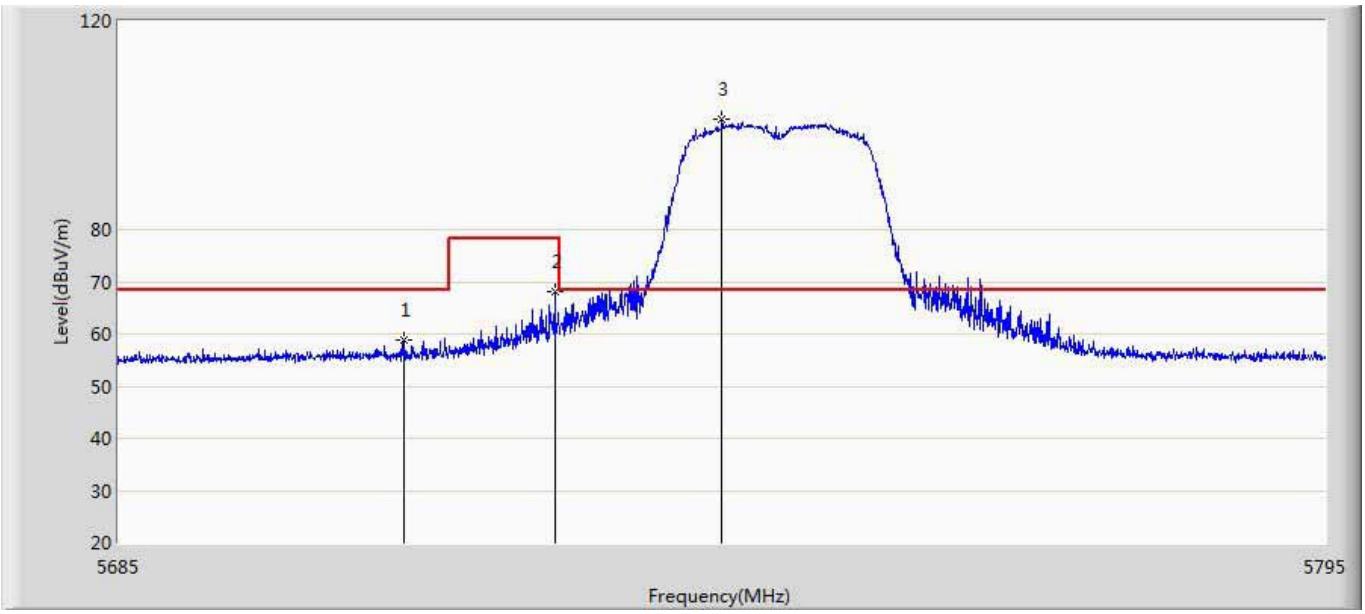
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5826.880	101.845	58.438	N/A	N/A	43.407	PK
2		5850.400	64.891	21.419	-13.409	78.300	43.473	PK
3		5860.680	59.394	15.843	-8.906	68.300	43.551	PK

Engineer: Scott	
Site: AC5	Time: 2016/05/10 - 16:36
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Notebook PC	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 5745Mhz by 802.11n20	



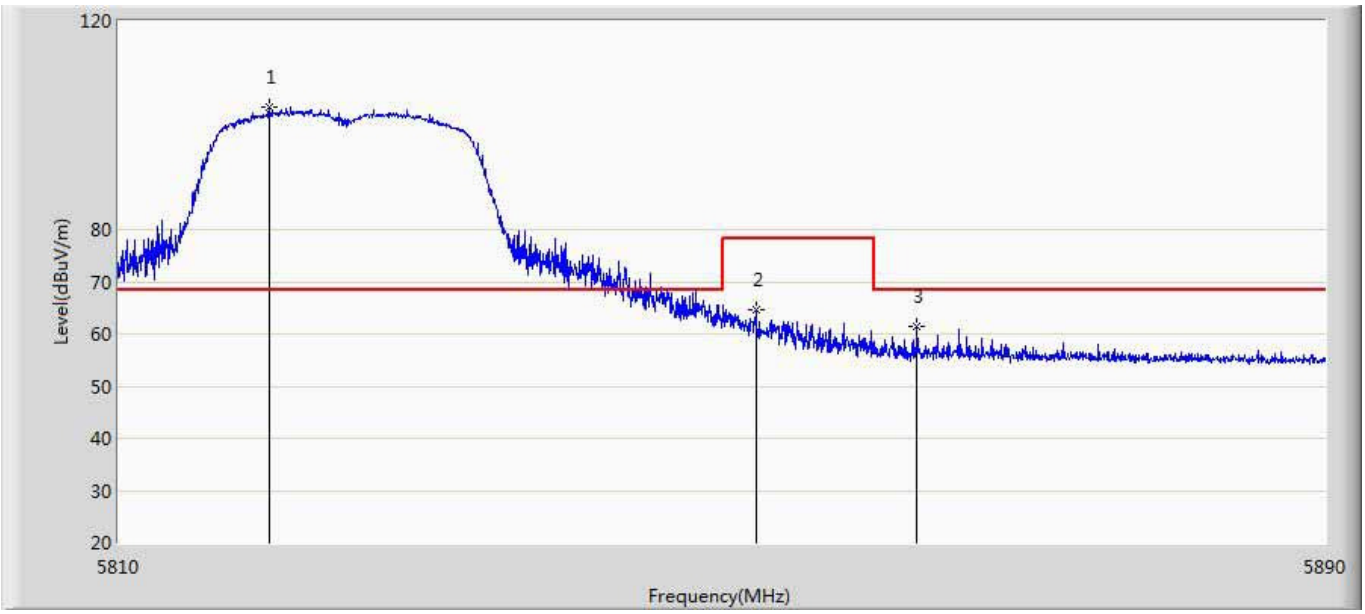
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5711.620	59.139	15.828	-9.161	68.300	43.312	PK
2		5724.985	67.545	24.279	-10.755	78.300	43.266	PK
3	*	5749.240	102.805	59.524	N/A	N/A	43.281	PK

Engineer: Scott	
Site: AC5	Time: 2016/05/10 - 16:40
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Notebook PC	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 5745Mhz by 802.11n20	



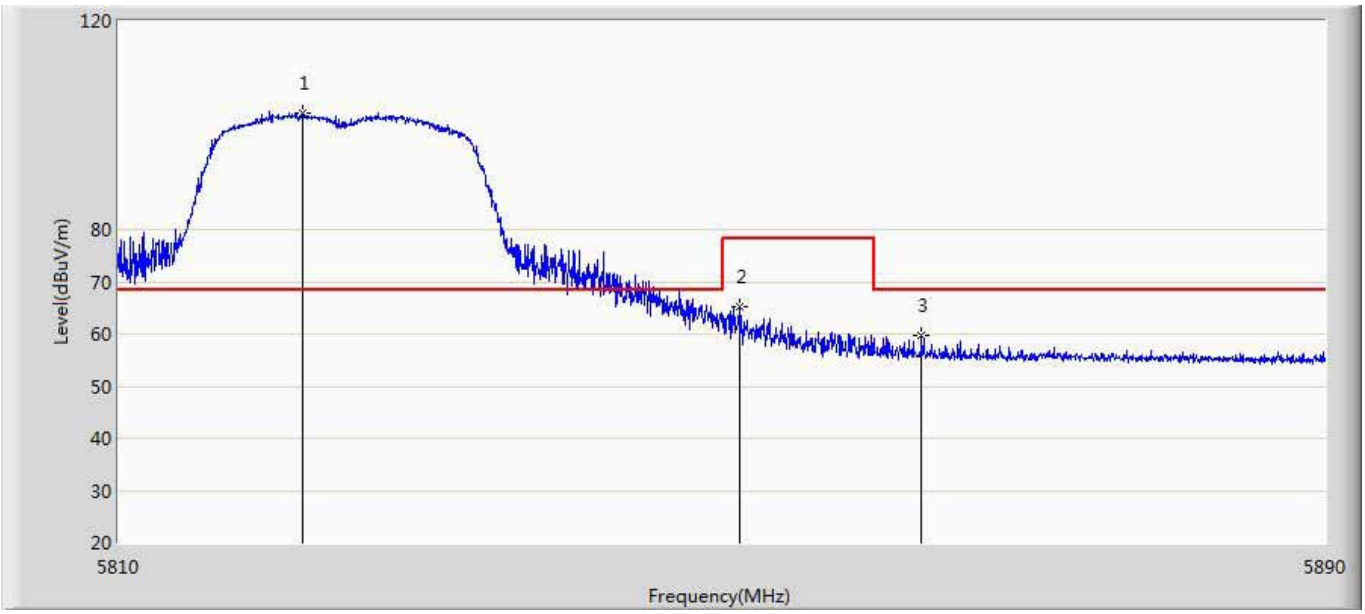
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5710.905	58.738	15.424	-9.562	68.300	43.314	PK
2		5724.600	68.238	24.971	-10.062	78.300	43.267	PK
3	*	5739.780	101.107	57.812	N/A	N/A	43.295	PK

Engineer: Scott	
Site: AC5	Time: 2016/05/10 - 16:42
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Notebook PC	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 5825Mhz by 802.11n20	



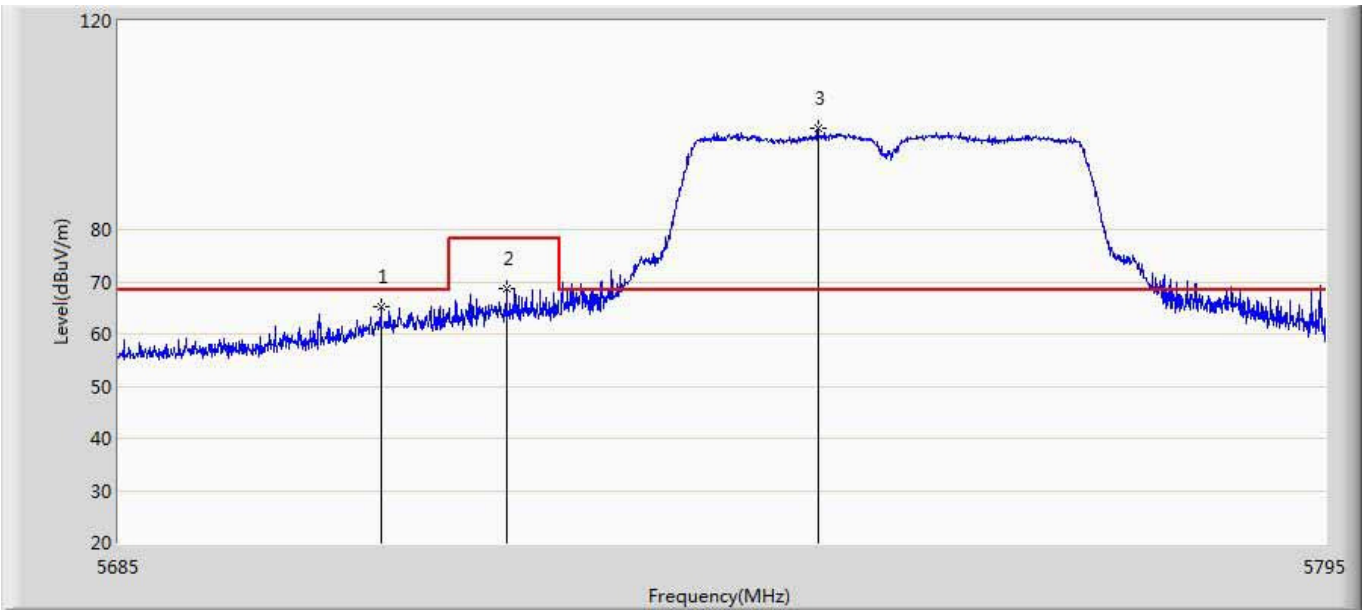
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5819.920	103.548	60.157	N/A	N/A	43.391	PK
2		5852.120	64.582	21.097	-13.718	78.300	43.485	PK
3		5862.800	61.313	17.749	-6.987	68.300	43.564	PK

Engineer: Scott	
Site: AC5	Time: 2016/05/10 - 16:44
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Notebook PC	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 5825Mhz by 802.11n20	



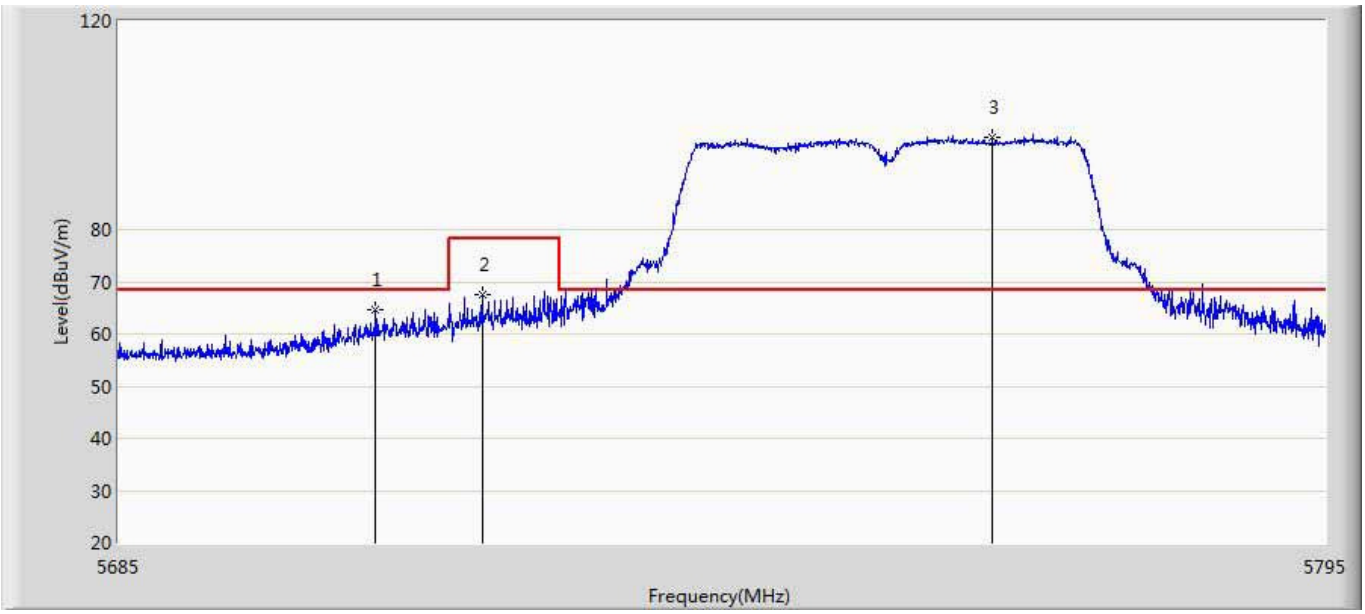
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	5822.120	102.310	58.914	N/A	N/A	43.396	PK
2		5851.040	65.266	21.789	-13.034	78.300	43.478	PK
3		5863.160	59.579	16.014	-8.721	68.300	43.565	PK

Engineer: Scott	
Site: AC5	Time: 2016/05/10 - 17:22
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Notebook PC	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 5755Mhz by 802.11n40	



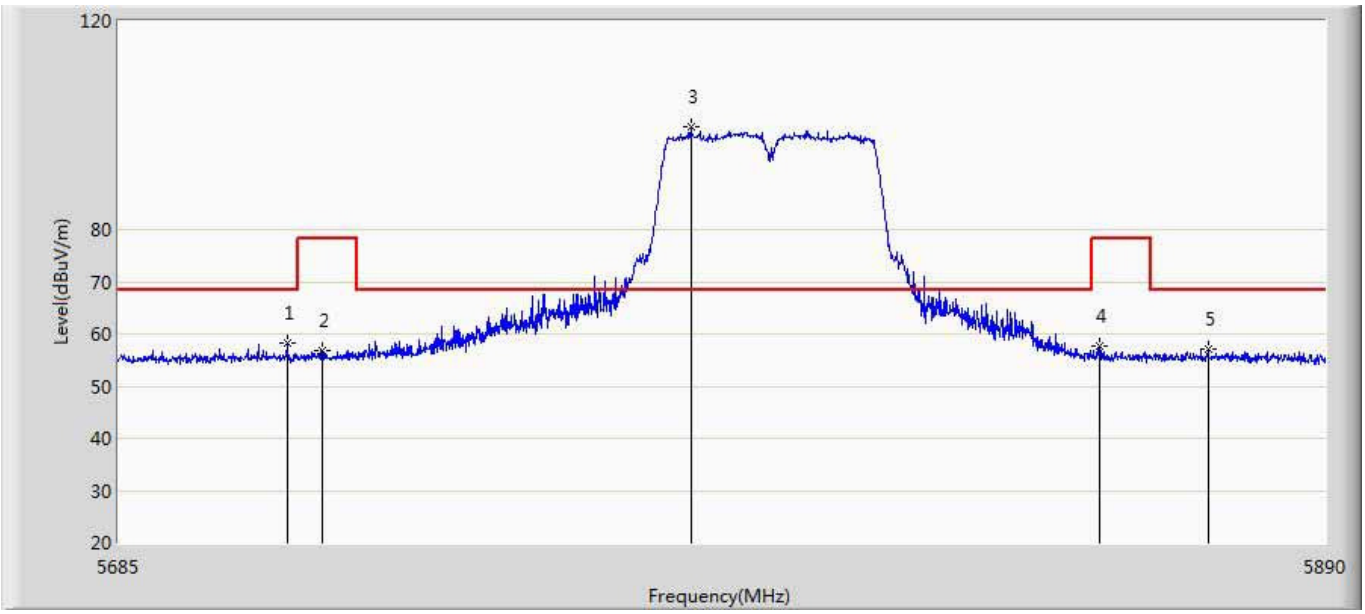
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5708.760	65.183	21.863	-3.117	68.300	43.320	PK
2		5720.200	68.657	25.375	-9.643	78.300	43.282	PK
3	*	5748.525	99.483	56.200	N/A	N/A	43.283	PK

Engineer: Scott	
Site: AC5	Time: 2016/05/10 - 17:24
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Notebook PC	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 5755Mhz by 802.11n40	



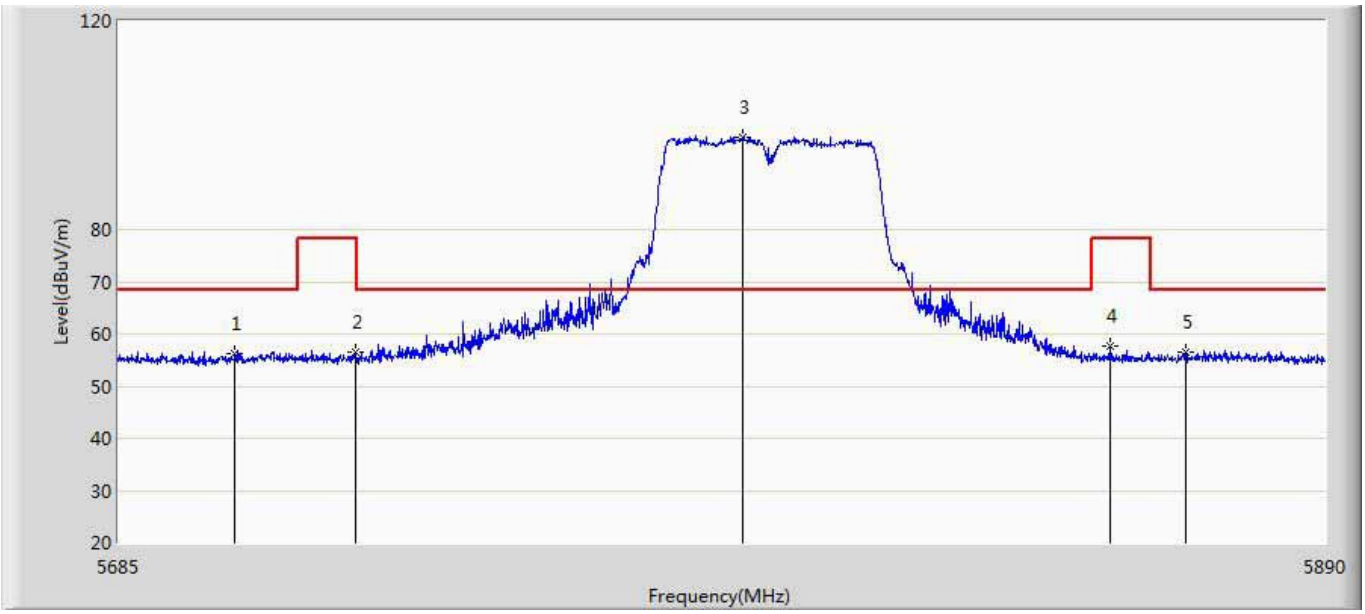
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5708.320	64.695	21.377	-3.605	68.300	43.318	PK
2		5717.945	67.648	24.358	-10.652	78.300	43.290	PK
3	*	5764.475	97.650	54.382	N/A	N/A	43.268	PK

Engineer: Scott	
Site: AC5	Time: 2016/05/10 - 17:26
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Notebook PC	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 5795Mhz by 802.11n40	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5713.290	58.143	14.837	-10.157	68.300	43.306	PK
2		5719.132	56.892	13.606	-21.408	78.300	43.286	PK
3	*	5781.350	99.737	56.410	N/A	N/A	43.327	PK
4		5851.255	57.612	14.133	-20.688	78.300	43.479	PK
5		5869.808	57.233	13.647	-11.067	68.300	43.585	PK

Engineer: Scott	
Site: AC5	Time: 2016/05/10 - 17:29
Limit: FCC-15.407 new	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Notebook PC	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 5795Mhz by 802.11n40	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		5704.475	56.231	12.925	-12.069	68.300	43.307	PK
2		5724.667	56.589	13.322	-21.711	78.300	43.267	PK
3	*	5790.165	97.811	54.512	N/A	N/A	43.299	PK
4		5852.895	57.574	14.083	-20.726	78.300	43.491	PK
5		5865.913	56.510	12.937	-11.790	68.300	43.574	PK

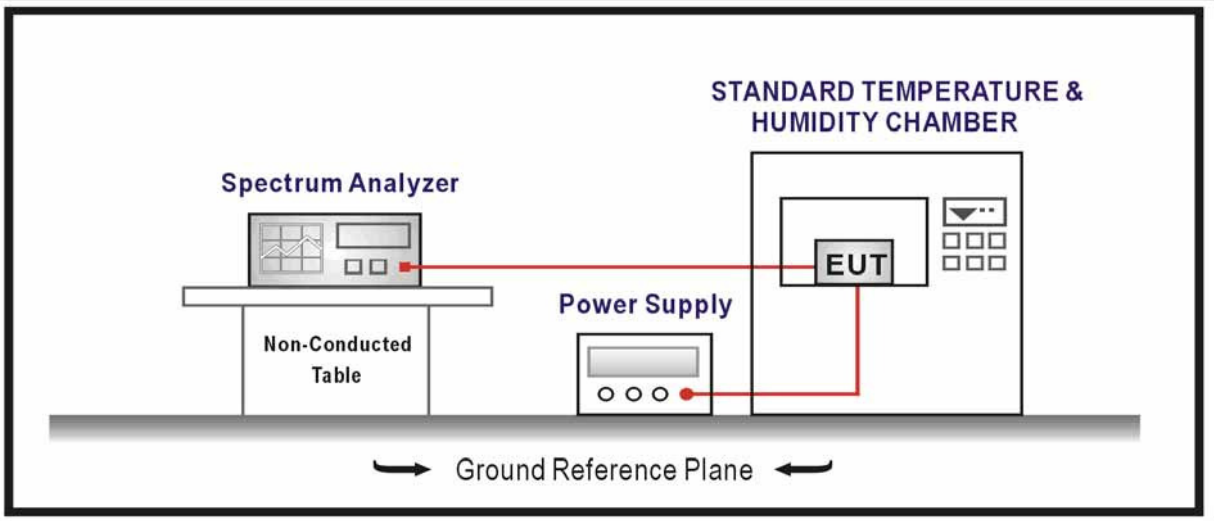
9. Frequency Stability

9.1. Test Equipment

Frequency Stability / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2016.01.08	2017.01.07
AC Power Supply	IDRC	CF-500TP	979422	2015.09.17	2016.09.16
DC Power Supply	IDRC	CD-035-020PR	977272	2015.09.17	2016.09.16
Programmable Temperature & Humidity Chamber	Gaoyu	TH-1P-B	WIT-05121302	2016.01.08	2017.01.07
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2016.04.10	2017.04.09
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

9.2. Test Setup

Frequency Stability Test Setup:



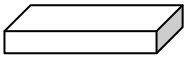
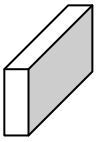
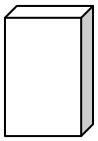
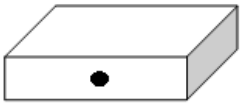
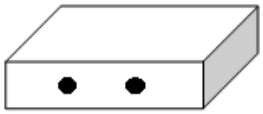
9.3. Limit

Frequency Stability Limit	
UNII Devices	
☒	In-band emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.
IEEE Std. 802.11n-2009	
☒	The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band and ± 25ppm maximum for the 2.4 GHz band.

9.4. Test Procedure

Frequency Stability Test Method				
	References Rule		Chapter	Description
☒	ANSI C63.10		6.8	Frequency stability tests
	☒	ANSI C63.10	6.8.1	Frequency stability with respect to ambient temperature
	☒	ANSI C63.10	6.8.2	Frequency stability when varying supply voltage

9.5. EUT test Axis definition

Item	Frequency Stability			
Device Category	☐	Indoor use		
	☐	Outdoor use		
	☐	Fix position use		
	☒	Mobile position use		
Test mode	Mode 1-3			
Test method	☐	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis ☐	Worst Axis ☐	Worst Axis ☐
	☒	Conducted		
	☒	Chain 0		
				
	☐	Chain 0	Chain 1	
				
	☐	Chain 0	Chain 1	Chain 2

9.6. Test Result

Product	:	Notebook PC
Test Item	:	Frequency Stability
Test Site	:	TR-8
Test Mode	:	Carrier Transmit

Frequency Stability under Temperature

Temperature Interval (