



FCC RF Test Report

APPLICANT : Ring LLC
EQUIPMENT : Indoor Cam
BRAND NAME : Ring
MODEL NAME : 5F93F2, 5F72E9
FCC ID : 2AEUPBHAIC011
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System
TEST DATE(S) : Jan. 09, 2024 ~ Jan. 10, 2024

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia



Sporton International Inc. (Kunshan)

**No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China**



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR202409-01B	Rev. 01	Initial issue of report	Jan. 24, 2024
FR202409-01B	Rev. 02	Update Setup Photo of Radiated Spurious Emission	Feb. 18, 2024



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.78 dB at 2385.660 MHz
3.2	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 18.48 dB at 0.442518 MHz

Note: This is a variant report. The change note could be referred to the 5F93F2, 5F72E9_Operational Description of Product Equality Declaration which is exhibit separately. According to the change, only the worst case of RSE and Conduction from original test report (Sporton Report Number FR202409B) were verified for the differences.

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty"

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.



1 General Description

1.1 Applicant

Ring LLC

12515 Cerise Ave, Hawthorne, CA 90250, USA

1.2 Manufacturer

Ring LLC

12515 Cerise Ave, Hawthorne, CA 90250, USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Indoor Cam
Brand Name	Ring
Model Name	5F93F2, 5F72E9
FCC ID	2AEUPBHAIC011
SN	Conduction: PNB3GH033482006K Radiation: PNB3GH033482016N
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Channel Frequency Range	2412 MHz ~ 2462 MHz
Antenna Type / Gain	PCB Antenna type with gain 2.4 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.5 Modification of EUT

No modifications are made to the EUT during all test items.



1.6 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	CO01-KS 03CH05-KS	CN1257	314309

1.7 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH05-KS	AUDIX	E3	210616
2.	CO01-KS	AUDIX	E3	6.2009-8-24

1.8 Applicable Standards

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

- ♦ 47 CFR Part 15 Subpart C §15.247
- ♦ FCC KDB 558074 D01 15.247 Meas Guidance v05r02
- ♦ ANSI C63.10-2013

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437	-	-

2.2 Test Mode

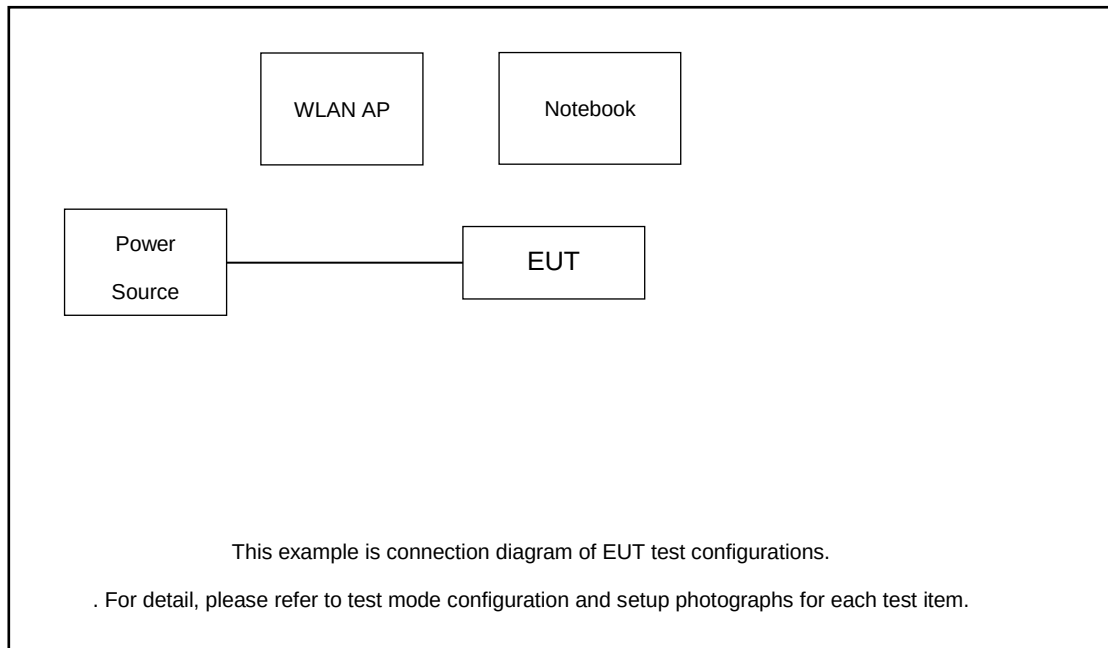
Final test modes are considering the modulation and worse data rates as below table.

Modulation	Data Rate
802.11b	1 Mbps

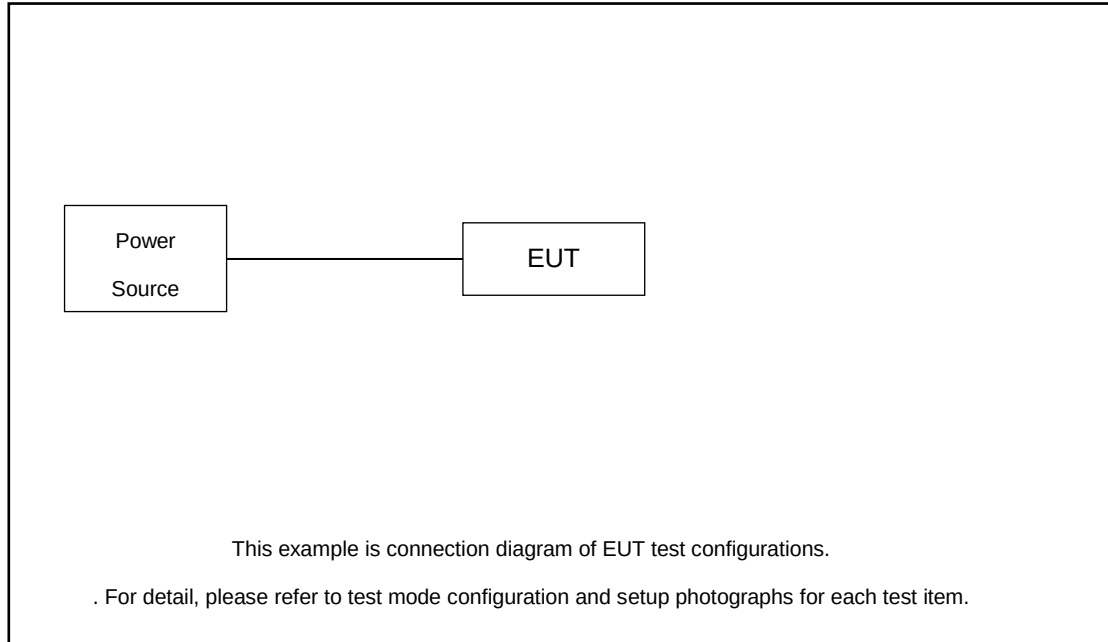
Test Cases	
AC Conducted Emission	Mode 1 :WLAN Link(2.4G) + USB Cable(Charging from Adapter)
Remark: For Radiated Test Cases, The tests were performance with Adapter, USB Cable.	

2.3 Connection Diagram of Test System

AC Conducted Emission:



Radiated Emission:





2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
2.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m

2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuous transmit.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.

3 Test Result

3.1 Radiated Band Edges and Spurious Emission Measurement

3.1.1 Limit of Radiated band edge and Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.1.2 Measuring Instruments

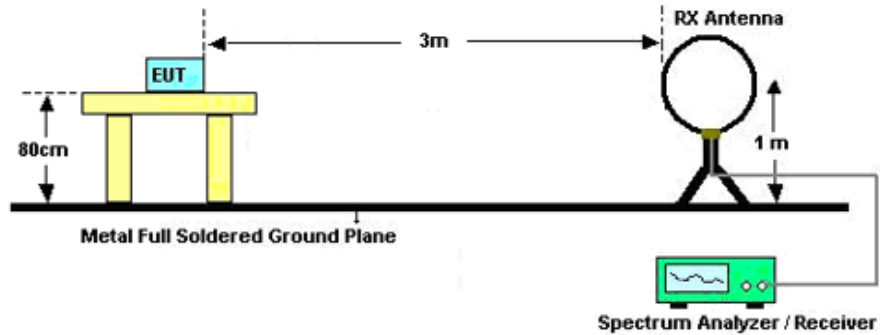
The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

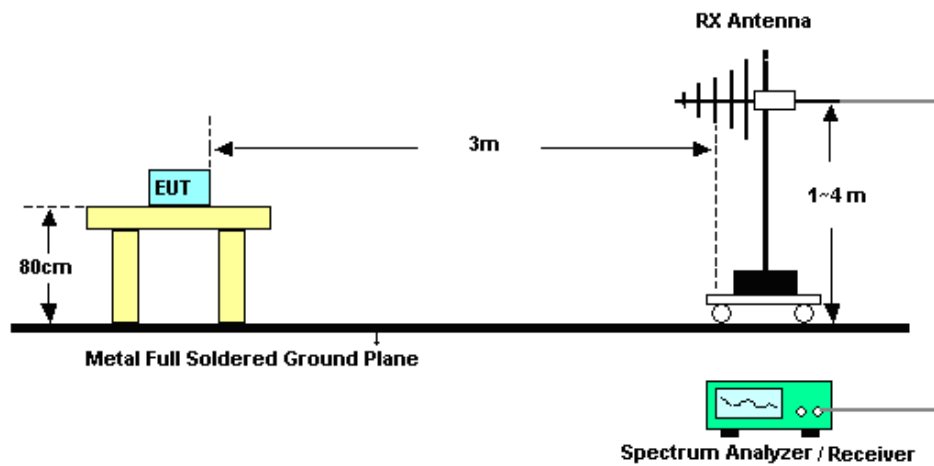
1. The testing follows ANSI C63.10-2013 clause 11.11 & 11.12
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than peak limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
8. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW=100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement.
For average measurement:
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is 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.

3.1.4 Test Setup

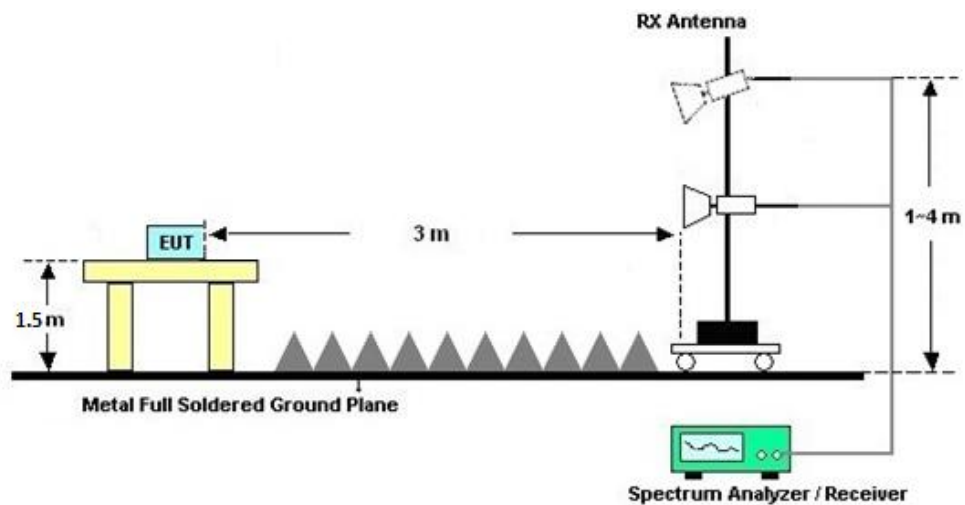
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz





3.1.5 Test Results of Radiated Spurious Emissions (9kHz ~ 30MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

3.1.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B.

3.1.7 Duty Cycle

Please refer to Appendix C.

3.1.8 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic or 40GHz, whichever is lower)

Please refer to Appendix B.



3.2 AC Conducted Emission Measurement

3.2.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

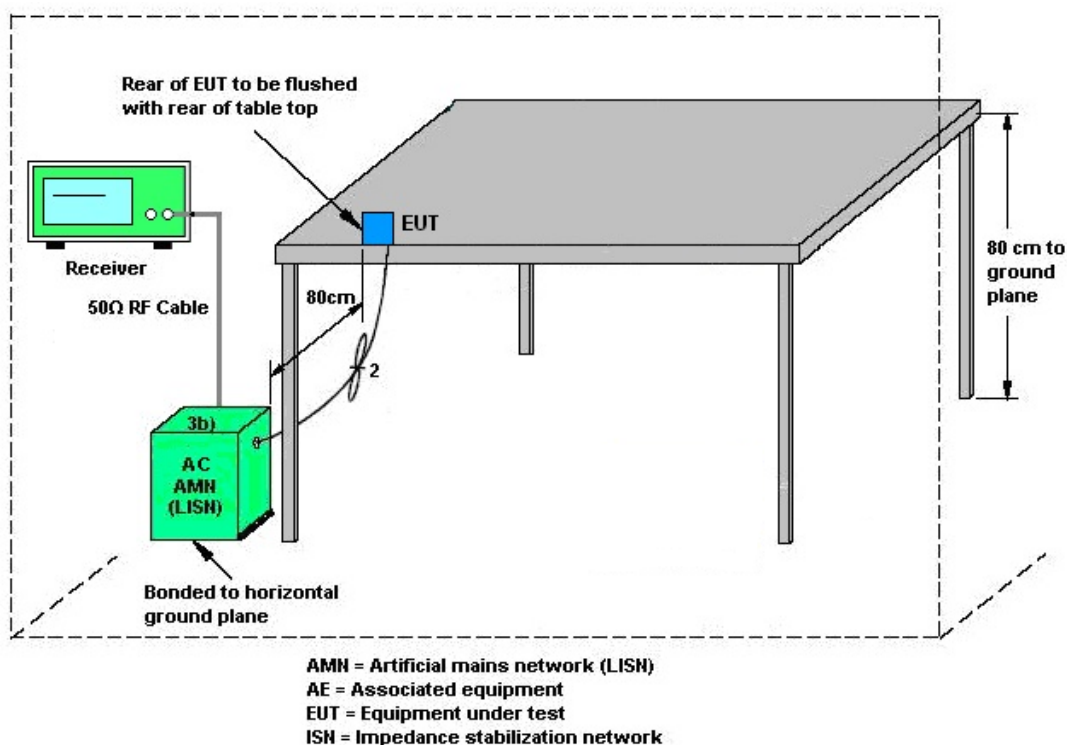
3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF bandwidth = 9kHz) with Maximum Hold Mode.

3.2.4 Test Setup



3.2.5 Test Result of AC Conducted Emission

Please refer to Appendix A.



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	Keysight	N9038A	MY564000 04	3Hz~8.5GHz;Max 30dBm	Oct. 10, 2023	Jan. 09, 2024	Oct. 09, 2024	Radiation (03CH05-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY551502 44	10Hz~44GHz	May 15, 2023	Jan. 09, 2024	May 14, 2024	Radiation (03CH05-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 10, 2023	Jan. 09, 2024	Oct. 09, 2024	Radiation (03CH05-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz~1GHz	Apr. 09, 2023	Jan. 09, 2024	Apr. 08, 2024	Radiation (03CH05-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00218642	1GHz~18GHz	Apr. 06, 2023	Jan. 09, 2024	Apr. 05, 2024	Radiation (03CH05-KS)
SHF-EHF Horn	Com-power	AH-840	101093	18GHz~40GHz	Jan. 05, 2024	Jan. 09, 2024	Jan. 04, 2025	Radiation (03CH05-KS)
Amplifier	EM	EM18G40GA	060852	18~40GHz	Jan. 05, 2024	Jan. 09, 2024	Jan. 04, 2025	Radiation (03CH05-KS)
Amplifier	SONOMA	310N	380826	9KHz~1GHz	Jul. 06, 2023	Jan. 09, 2024	Jul. 05, 2024	Radiation (03CH05-KS)
Amplifier	EM	EM01G18GA	060833	1Ghz~18Ghz	Jan. 05, 2024	Jan. 09, 2024	Jan. 04, 2025	Radiation (03CH05-KS)
AC Power Source	Chroma	61601	F1040900 04	N/A	NCR	Jan. 09, 2024	NCR	Radiation (03CH05-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jan. 09, 2024	NCR	Radiation (03CH05-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jan. 09, 2024	NCR	Radiation (03CH05-KS)
EMI Receiver	R&S	ESC17	100768	9kHz~7GHz;	May 16, 2023	Jan. 10, 2024	May 15, 2024	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 11, 2023	Jan. 10, 2024	Oct. 10, 2024	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	May 16, 2023	Jan. 10, 2024	May 15, 2024	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP00000 0811	AC 0V~300V, 45Hz~1000Hz	Oct. 11, 2023	Jan. 10, 2024	Oct. 10, 2024	Conduction (CO01-KS)

NCR: No Calibration Required

5 Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.10-2013. All the measurement uncertainty value were shown with a coverage $K=2$ to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of AC Conducted Emission Measurement (0.15 MHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.94dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	6.28dB
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.88dB
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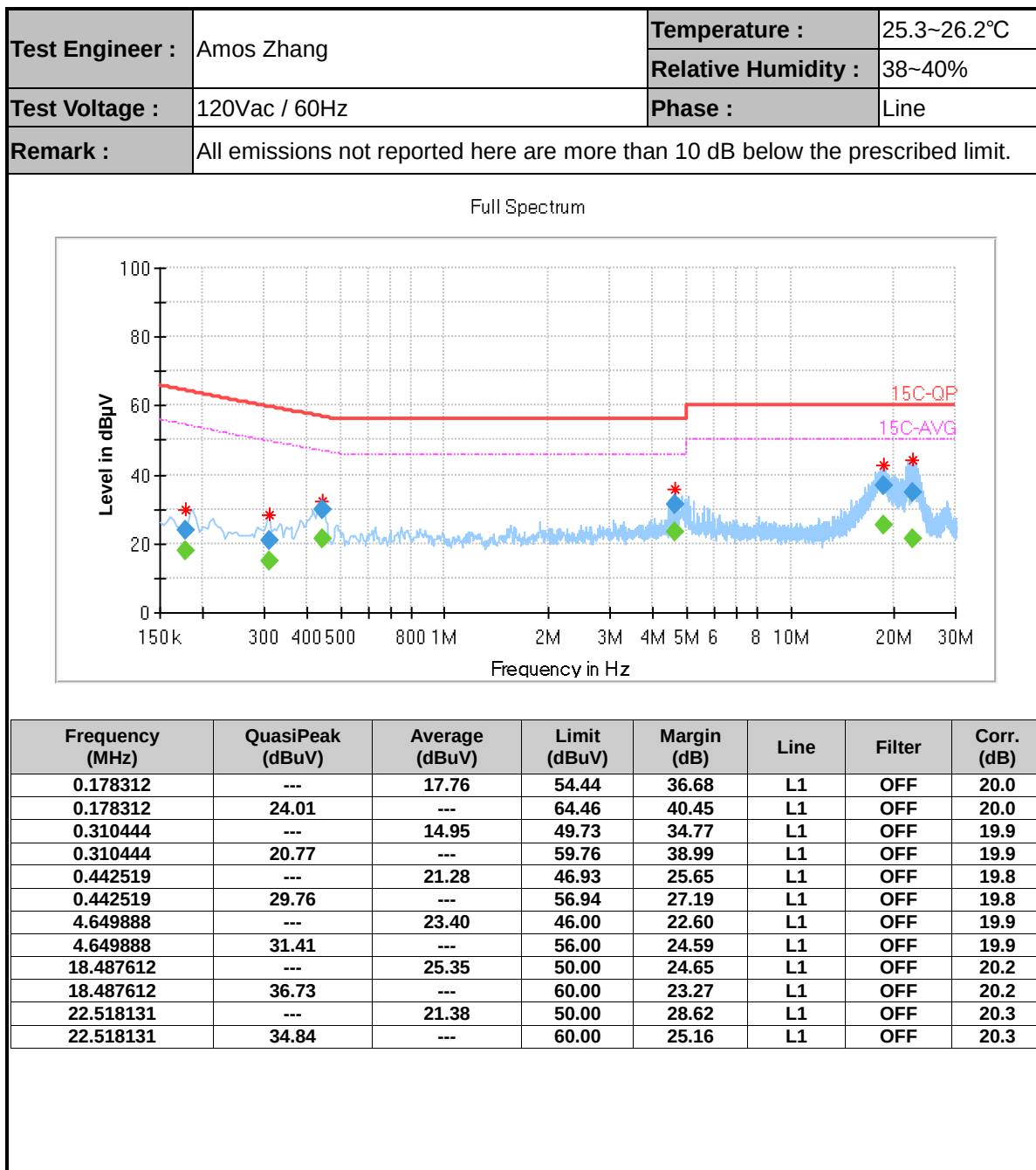
Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.26dB
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----- THE END -----



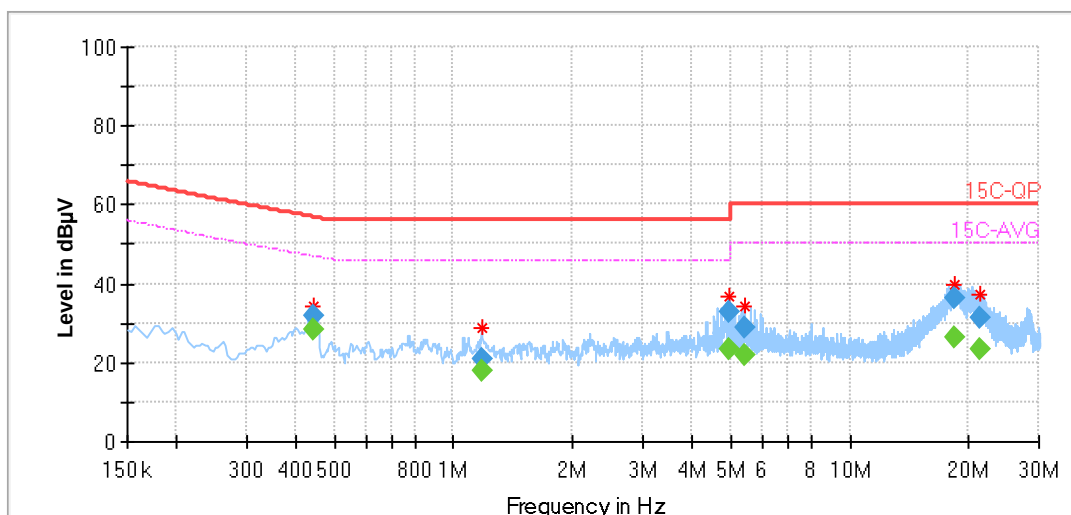
Appendix A. AC Conducted Emission Test Results





Test Engineer :	Amos Zhang	Temperature :	25.3~26.2°C
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

Full Spectrum



Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.442518	---	28.45	46.93	18.48	N	OFF	19.9
0.442518	32.03	---	56.94	24.91	N	OFF	19.9
1.185176	---	18.01	46.00	27.99	N	OFF	19.8
1.185176	21.10	---	56.00	34.90	N	OFF	19.8
4.944683	---	23.33	46.00	22.67	N	OFF	19.9
4.944683	32.93	---	56.00	23.07	N	OFF	19.9
5.439245	---	22.09	50.00	27.91	N	OFF	19.9
5.439245	28.61	---	60.00	31.39	N	OFF	19.9
18.336570	---	26.30	50.00	23.70	N	OFF	20.3
18.336570	36.10	---	60.00	23.90	N	OFF	20.3
21.353448	---	23.24	50.00	26.76	N	OFF	20.4
21.353448	31.32	---	60.00	28.68	N	OFF	20.4

Note: Margin (dB) = Limit (dBμV) – QuasiPeak / Average Level(dBμV)



Appendix B. Radiated Spurious Emission

Test Engineer :	Ryan Xu	Relative Humidity :	41~42%
		Temperature :	22~23℃

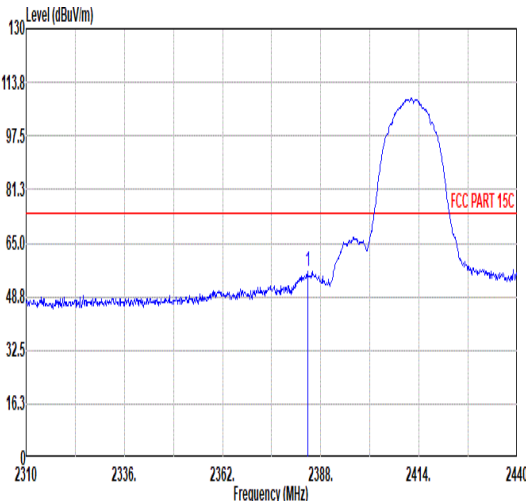
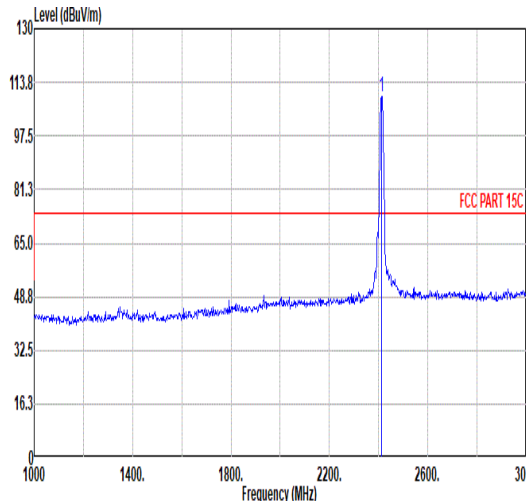
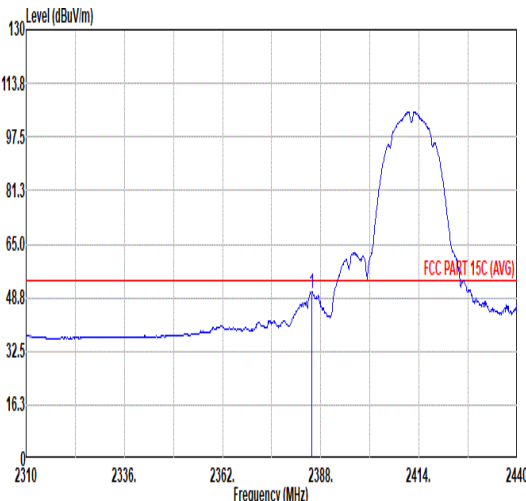
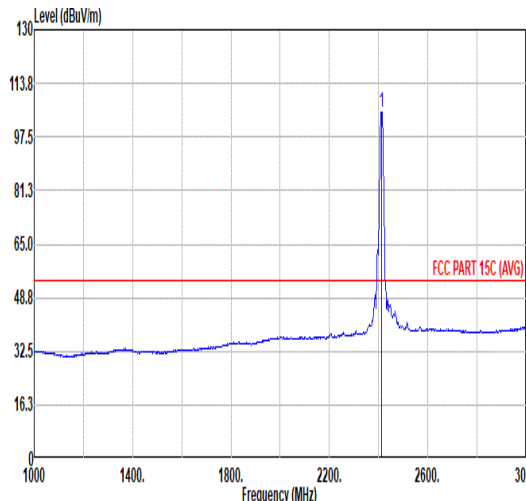
Radiated Spurious Emission Test Modes

Mode	Band (MHz)	Antenna	Modulation	Channel	Frequency	Data Rate	Remark
Mode 1	2400-2483.5	SISO	802.11b	01	2412	1Mbps	-

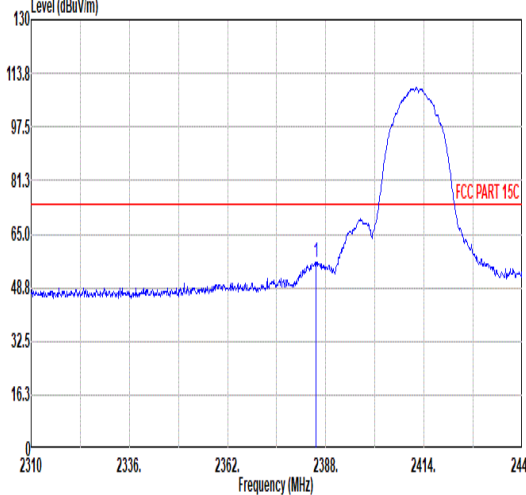
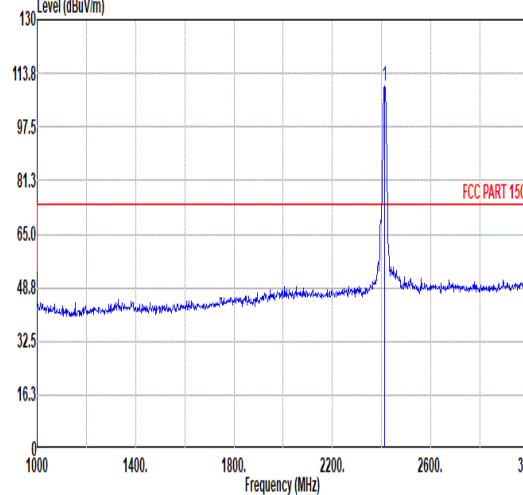
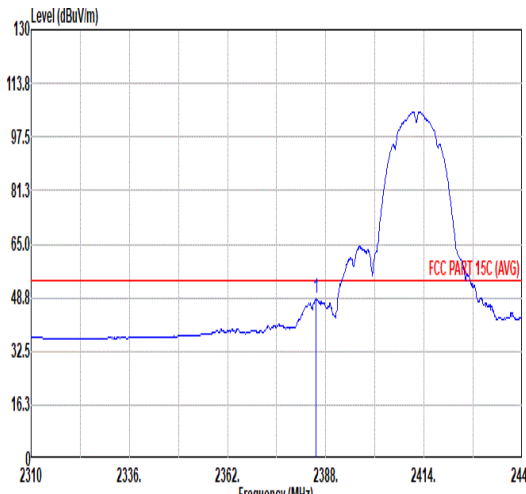
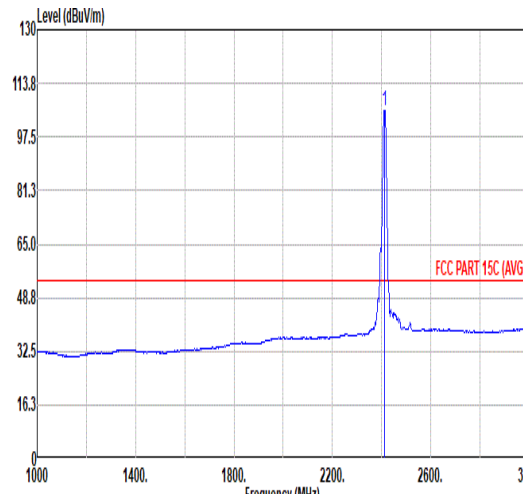
Summary of each worse mode

Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	Remark
1	802.11b	01	2385.66	50.22	54.00	-3.78	H	AVERAGE	Pass	Band Edge
	802.11b	01	4824.00	40.62	74.00	-33.38	H	PEAK	Pass	Harmonic

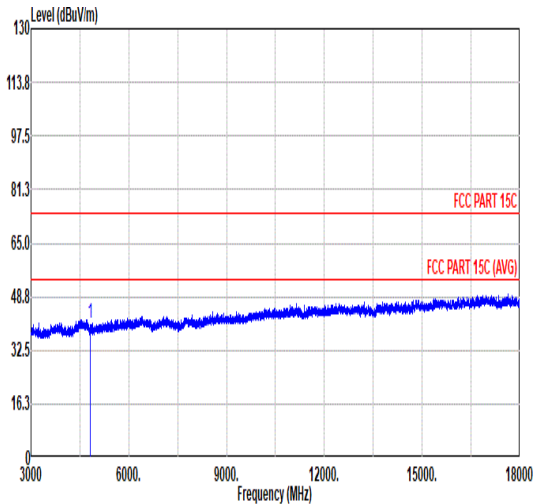
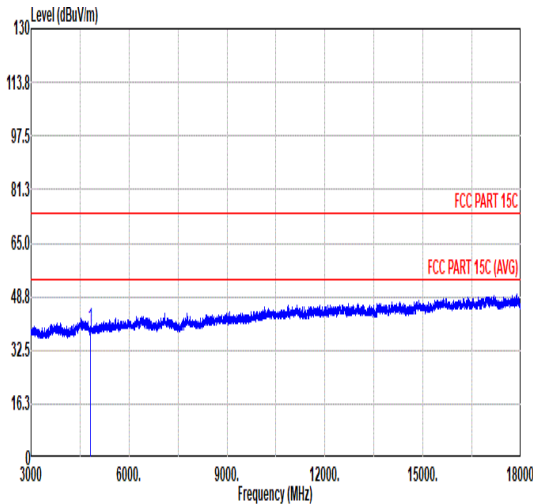


Mode	1																																																																																									
	Band Edge																																																																																									
	2400-2483.5_802.11b_CH01_2412MHz																																																																																									
ANT	SISO																																																																																									
Pol.	Horizontal	Fundamental																																																																																								
Peak	 <table><tr><th></th><th>Limit</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th></th></tr><tr><th>Freq</th><th>Level</th><th>Line Margin</th><th>Level Factor</th><th>Loss Factor</th><th>Factor</th><th>Factor</th><th></th><th></th><th>Remark</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>2384.49</td><td>56.58</td><td>74.00</td><td>-17.42</td><td>48.26</td><td>32.05</td><td>7.10</td><td>36.83</td><td>6.00</td><td>100</td><td>337</td><td>PEAK</td></tr></table>		Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos		Freq	Level	Line Margin	Level Factor	Loss Factor	Factor	Factor			Remark		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	1	2384.49	56.58	74.00	-17.42	48.26	32.05	7.10	36.83	6.00	100	337	PEAK	 <table><tr><th></th><th>Limit</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th></th></tr><tr><th>Freq</th><th>Level</th><th>Line Margin</th><th>Level Factor</th><th>Loss Factor</th><th>Factor</th><th>Factor</th><th></th><th></th><th>Remark</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>2412.00</td><td>109.60</td><td>-----</td><td>-----</td><td>101.15</td><td>32.16</td><td>7.14</td><td>36.85</td><td>6.00</td><td>100</td><td>337</td><td>PEAK</td></tr></table>		Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos		Freq	Level	Line Margin	Level Factor	Loss Factor	Factor	Factor			Remark		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	1	2412.00	109.60	-----	-----	101.15	32.16	7.14	36.85	6.00	100	337	PEAK
		Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos																																																																																	
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	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg																																																																																
1	2384.49	56.58	74.00	-17.42	48.26	32.05	7.10	36.83	6.00	100	337	PEAK																																																																														
	Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos																																																																																		
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1	2412.00	109.60	-----	-----	101.15	32.16	7.14	36.85	6.00	100	337	PEAK																																																																														
Avg	 <table><tr><th></th><th>Limit</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th></th></tr><tr><th>Freq</th><th>Level</th><th>Line Margin</th><th>Level Factor</th><th>Loss Factor</th><th>Factor</th><th>Factor</th><th></th><th></th><th>Remark</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>2385.66</td><td>50.22</td><td>54.00</td><td>-3.78</td><td>41.89</td><td>32.06</td><td>7.10</td><td>36.83</td><td>6.00</td><td>100</td><td>337</td><td>AVERAGE</td></tr></table>		Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos		Freq	Level	Line Margin	Level Factor	Loss Factor	Factor	Factor			Remark		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	1	2385.66	50.22	54.00	-3.78	41.89	32.06	7.10	36.83	6.00	100	337	AVERAGE	 <table><tr><th></th><th>Limit</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th></th></tr><tr><th>Freq</th><th>Level</th><th>Line Margin</th><th>Level Factor</th><th>Loss Factor</th><th>Factor</th><th>Factor</th><th></th><th></th><th>Remark</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>2412.00</td><td>105.10</td><td>-----</td><td>-----</td><td>96.65</td><td>32.16</td><td>7.14</td><td>36.85</td><td>6.00</td><td>100</td><td>337</td><td>AVERAGE</td></tr></table>		Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos		Freq	Level	Line Margin	Level Factor	Loss Factor	Factor	Factor			Remark		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	1	2412.00	105.10	-----	-----	96.65	32.16	7.14	36.85	6.00	100	337	AVERAGE
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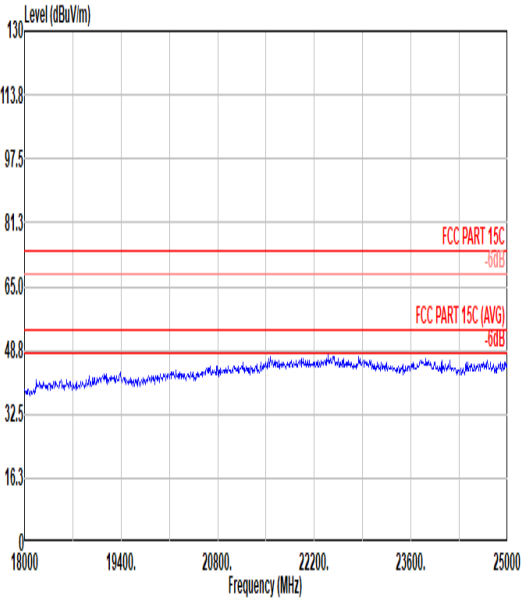
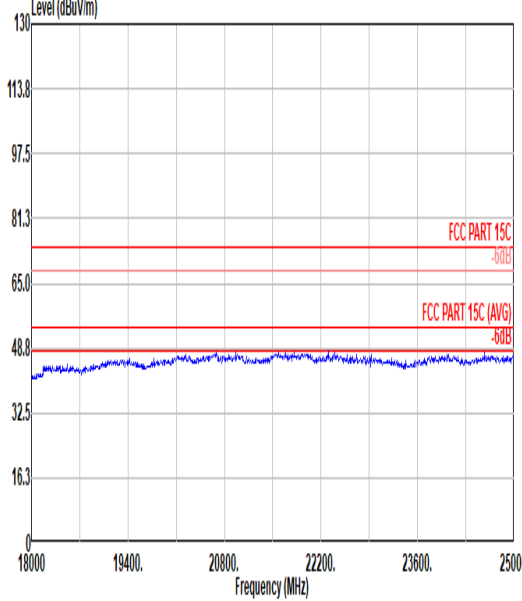


Mode	1																																																																																									
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	2400-2483.5_802.11b_CH01_2412MHz																																																																																									
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Pol.	Vertical	Fundamental																																																																																								
Peak	<table><tr><th></th><th>Limit</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th>Remark</th></tr><tr><th>Freq</th><th>Level</th><th>Line Margin</th><th>Level Factor</th><th>Loss Factor</th><th>Factor</th><th>Factor</th><th></th><th></th><th></th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>2385.40</td><td>56.63</td><td>74.00</td><td>-17.37</td><td>48.30</td><td>32.06</td><td>7.10</td><td>36.83</td><td>6.00</td><td>336</td><td>254</td><td>PEAK</td></tr></table>		Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark	Freq	Level	Line Margin	Level Factor	Loss Factor	Factor	Factor					MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	1	2385.40	56.63	74.00	-17.37	48.30	32.06	7.10	36.83	6.00	336	254	PEAK	<table><tr><th></th><th>Limit</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th>Remark</th></tr><tr><th>Freq</th><th>Level</th><th>Line Margin</th><th>Level Factor</th><th>Loss Factor</th><th>Factor</th><th>Factor</th><th></th><th></th><th></th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>2412.00</td><td>109.93</td><td>-----</td><td>-----</td><td>101.48</td><td>32.16</td><td>7.14</td><td>36.85</td><td>6.00</td><td>336</td><td>254</td><td>PEAK</td></tr></table>		Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark	Freq	Level	Line Margin	Level Factor	Loss Factor	Factor	Factor					MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	1	2412.00	109.93	-----	-----	101.48	32.16	7.14	36.85	6.00	336	254	PEAK
		Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark																																																																																
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Avg	<table><tr><th></th><th>Limit</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th>Remark</th></tr><tr><th>Freq</th><th>Level</th><th>Line Margin</th><th>Level Factor</th><th>Loss Factor</th><th>Factor</th><th>Factor</th><th></th><th></th><th></th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>2385.40</td><td>48.43</td><td>54.00</td><td>-5.57</td><td>40.10</td><td>32.06</td><td>7.10</td><td>36.83</td><td>6.00</td><td>336</td><td>254</td><td>AVERAGE</td></tr></table>		Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark	Freq	Level	Line Margin	Level Factor	Loss Factor	Factor	Factor					MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	1	2385.40	48.43	54.00	-5.57	40.10	32.06	7.10	36.83	6.00	336	254	AVERAGE	<table><tr><th></th><th>Limit</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th>Remark</th></tr><tr><th>Freq</th><th>Level</th><th>Line Margin</th><th>Level Factor</th><th>Loss Factor</th><th>Factor</th><th>Factor</th><th></th><th></th><th></th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>2412.00</td><td>105.46</td><td>-----</td><td>-----</td><td>97.01</td><td>32.16</td><td>7.14</td><td>36.85</td><td>6.00</td><td>336</td><td>254</td><td>AVERAGE</td></tr></table>		Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark	Freq	Level	Line Margin	Level Factor	Loss Factor	Factor	Factor					MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	cm	deg	1	2412.00	105.46	-----	-----	97.01	32.16	7.14	36.85	6.00	336	254	AVERAGE
		Limit	Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark																																																																																
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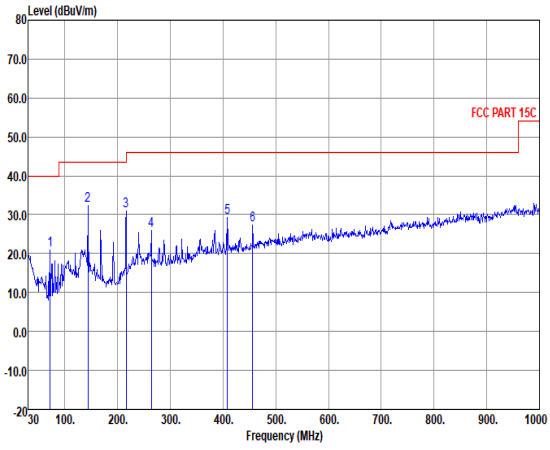
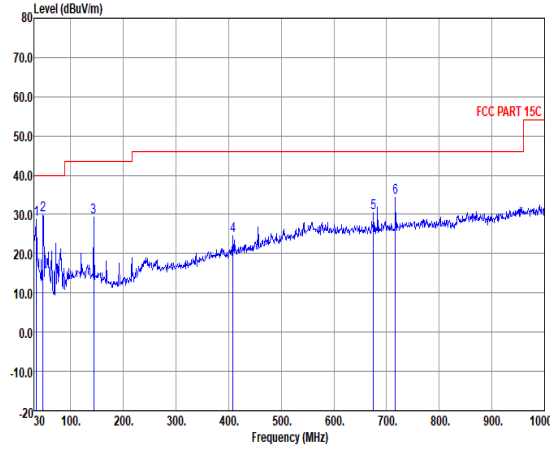


Mode	1																																																																																																											
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	2400-2483.5_802.11b_CH01_2412MHz																																																																																																											
ANT	SISO																																																																																																											
Pol.	Horizontal						Vertical																																																																																																					
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	<table><tr><th colspan="2"></th><th colspan="2">Limit</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th rowspan="2">Remark</th></tr><tr><th>Freq</th><th>Level</th><th>Line</th><th>Margin</th><th>Level</th><th>Factor</th><th>Loss</th><th>Factor</th><th>Factor</th><th></th><th></th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>4824.00</td><td>40.62</td><td>74.00</td><td>-33.38</td><td>61.74</td><td>33.90</td><td>10.23</td><td>65.25</td><td>0.00</td><td>--</td><td>--</td><td>PEAK</td></tr></table>								Limit		Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark	Freq	Level	Line	Margin	Level	Factor	Loss	Factor	Factor				MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	1	4824.00	40.62	74.00	-33.38	61.74	33.90	10.23	65.25	0.00	--	--	PEAK	<table><tr><th colspan="2"></th><th colspan="2">Limit</th><th>Read</th><th>Ant</th><th>Cable</th><th>Preamp</th><th>Aux</th><th>APos</th><th>TPos</th><th rowspan="2">Remark</th></tr><tr><th>Freq</th><th>Level</th><th>Line</th><th>Margin</th><th>Level</th><th>Factor</th><th>Loss</th><th>Factor</th><th>Factor</th><th></th><th></th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>4824.00</td><td>39.30</td><td>74.00</td><td>-34.70</td><td>60.42</td><td>33.90</td><td>10.23</td><td>65.25</td><td>0.00</td><td>--</td><td>--</td><td>PEAK</td></tr></table>								Limit		Read	Ant	Cable	Preamp	Aux	APos	TPos	Remark	Freq	Level	Line	Margin	Level	Factor	Loss	Factor	Factor				MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	1	4824.00	39.30	74.00	-34.70	60.42	33.90	10.23	65.25	0.00	--	--	PEAK
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1	4824.00	39.30	74.00	-34.70	60.42	33.90	10.23	65.25	0.00	--	--	PEAK																																																																																																



Mode	1	
	18G-25G	
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ANT	SISO	
Pol.	Horizontal	Vertical
Peak Avg		



Mode	1																																																																																																											
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	<table><tr><th></th><th>Freq</th><th>Level</th><th>Over Limit</th><th>Limit</th><th>ReadAntenna</th><th>Cable</th><th>Preamp</th><th>A/Pos</th><th>T/Pos</th><th>Remark</th><th>Pol/Phas</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dB</th><th>dBuV/m</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th><th></th></tr><tr><td>1</td><td>71.71</td><td>20.89</td><td>-19.11</td><td>40.00</td><td>40.00</td><td>12.44</td><td>1.25</td><td>32.80</td><td>---</td><td>---</td><td>Peak HORIZONTAL</td></tr><tr><td>2</td><td>143.49</td><td>32.51</td><td>-10.99</td><td>43.50</td><td>47.03</td><td>16.51</td><td>1.80</td><td>32.83</td><td>---</td><td>---</td><td>Peak HORIZONTAL</td></tr><tr><td>3</td><td>216.24</td><td>30.89</td><td>-15.11</td><td>46.00</td><td>45.08</td><td>16.39</td><td>2.24</td><td>32.82</td><td>---</td><td>---</td><td>Peak HORIZONTAL</td></tr><tr><td>4</td><td>263.77</td><td>25.85</td><td>-20.15</td><td>46.00</td><td>37.48</td><td>18.67</td><td>2.48</td><td>32.78</td><td>---</td><td>---</td><td>Peak HORIZONTAL</td></tr><tr><td>5</td><td>488.30</td><td>29.41</td><td>-16.59</td><td>46.00</td><td>37.38</td><td>21.82</td><td>3.08</td><td>32.87</td><td>---</td><td>---</td><td>Peak HORIZONTAL</td></tr><tr><td>6</td><td>455.83</td><td>27.48</td><td>-18.52</td><td>46.00</td><td>34.61</td><td>22.65</td><td>3.26</td><td>33.04</td><td>---</td><td>---</td><td>Peak HORIZONTAL</td></tr></table>													Freq	Level	Over Limit	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	Pol/Phas		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg		1	71.71	20.89	-19.11	40.00	40.00	12.44	1.25	32.80	---	---	Peak HORIZONTAL	2	143.49	32.51	-10.99	43.50	47.03	16.51	1.80	32.83	---	---	Peak HORIZONTAL	3	216.24	30.89	-15.11	46.00	45.08	16.39	2.24	32.82	---	---	Peak HORIZONTAL	4	263.77	25.85	-20.15	46.00	37.48	18.67	2.48	32.78	---	---	Peak HORIZONTAL	5	488.30	29.41	-16.59	46.00	37.38	21.82	3.08	32.87	---	---	Peak HORIZONTAL	6	455.83	27.48	-18.52	46.00	34.61	22.65	3.26	33.04	---	---	Peak HORIZONTAL
		Freq	Level	Over Limit	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	Pol/Phas																																																																																																
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg																																																																																																		
1	71.71	20.89	-19.11	40.00	40.00	12.44	1.25	32.80	---	---	Peak HORIZONTAL																																																																																																	
2	143.49	32.51	-10.99	43.50	47.03	16.51	1.80	32.83	---	---	Peak HORIZONTAL																																																																																																	
3	216.24	30.89	-15.11	46.00	45.08	16.39	2.24	32.82	---	---	Peak HORIZONTAL																																																																																																	
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5	488.30	29.41	-16.59	46.00	37.38	21.82	3.08	32.87	---	---	Peak HORIZONTAL																																																																																																	
6	455.83	27.48	-18.52	46.00	34.61	22.65	3.26	33.04	---	---	Peak HORIZONTAL																																																																																																	
<table><tr><th></th><th>Freq</th><th>Level</th><th>Over Limit</th><th>Limit</th><th>ReadAntenna</th><th>Cable</th><th>Preamp</th><th>A/Pos</th><th>T/Pos</th><th>Remark</th><th>Pol/Phas</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dB</th><th>dBuV/m</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th><th></th></tr><tr><td>1</td><td>34.85</td><td>28.64</td><td>-11.36</td><td>40.00</td><td>38.68</td><td>22.06</td><td>0.79</td><td>32.89</td><td>---</td><td>---</td><td>Peak VERTICAL</td></tr><tr><td>2</td><td>47.46</td><td>29.73</td><td>-10.27</td><td>40.00</td><td>46.26</td><td>15.48</td><td>1.01</td><td>32.94</td><td>---</td><td>---</td><td>Peak VERTICAL</td></tr><tr><td>3</td><td>143.49</td><td>29.41</td><td>-14.09</td><td>43.50</td><td>43.93</td><td>16.51</td><td>1.80</td><td>32.83</td><td>---</td><td>---</td><td>Peak VERTICAL</td></tr><tr><td>4</td><td>488.30</td><td>24.54</td><td>-21.46</td><td>46.00</td><td>32.51</td><td>21.82</td><td>3.08</td><td>32.87</td><td>---</td><td>---</td><td>Peak VERTICAL</td></tr><tr><td>5</td><td>675.05</td><td>30.31</td><td>-15.69</td><td>46.00</td><td>34.13</td><td>25.22</td><td>3.97</td><td>33.01</td><td>---</td><td>---</td><td>Peak VERTICAL</td></tr><tr><td>6</td><td>716.76</td><td>34.23</td><td>-11.77</td><td>46.00</td><td>37.68</td><td>25.43</td><td>4.10</td><td>32.98</td><td>---</td><td>---</td><td>Peak VERTICAL</td></tr></table>													Freq	Level	Over Limit	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	Pol/Phas		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg		1	34.85	28.64	-11.36	40.00	38.68	22.06	0.79	32.89	---	---	Peak VERTICAL	2	47.46	29.73	-10.27	40.00	46.26	15.48	1.01	32.94	---	---	Peak VERTICAL	3	143.49	29.41	-14.09	43.50	43.93	16.51	1.80	32.83	---	---	Peak VERTICAL	4	488.30	24.54	-21.46	46.00	32.51	21.82	3.08	32.87	---	---	Peak VERTICAL	5	675.05	30.31	-15.69	46.00	34.13	25.22	3.97	33.01	---	---	Peak VERTICAL	6	716.76	34.23	-11.77	46.00	37.68	25.43	4.10	32.98	---	---	Peak VERTICAL	
	Freq	Level	Over Limit	Limit	ReadAntenna	Cable	Preamp	A/Pos	T/Pos	Remark	Pol/Phas																																																																																																	
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4	488.30	24.54	-21.46	46.00	32.51	21.82	3.08	32.87	---	---	Peak VERTICAL																																																																																																	
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Appendix C. Duty Cycle Plots

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11b	99.04	-	-	10Hz

802.11b

