Test Report

FCC Part15 Subpart C

Product Name	:	Ring Bridge
Model No.	:	5B01S8
HVIN	:	5B01S8
FVIN	:	0.7.5-33
FCC ID	:	2AEUPBHARB001

Applicant	:	Ring, LLC.
Address	:	1523 26th St, Santa Monica, CA 90404

Date of Receipt	:	Dec. 21, 2018
Test Date	:	Dec. 21, 2018 ~ Sep. 21, 2020
Issued Date	:	Sep. 21, 2020
Report No.	:	1922002R-RF-US-P06V01
Report Version	:	V1.1

This Report is based on DEKRA report No.: 18C2098R-RF-US-P06V02, the EUT add LoRa and FSK mode.

Test Report Certification

Issued Date : Sep. 21, 2020
Report No. : 1922002R-RF-US-P06V01

Product Name	:	Ring Bridge
Applicant	:	Ring, LLC.
Address	:	1523 26th St, Santa Monica, CA 90404
Manufacturer	:	Ring, LLC.
Address	:	1523 26th St, Santa Monica, CA 90404
Model No.	:	5B01S8
HVIN	:	5B01S8
FVIN	:	0.7.5-33
FCC ID	:	2AEUPBHARB001
EUT Voltage	:	DC 5V
Test Voltage	:	AC120V/60Hz
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C ANSI C63.10: 2013 ISED RSS-Gen Issue 5 / RSS-247 Issue 2
Test Result	:	Complied
Performed Location	:	DEKRA Testing & Certification (Suzhou) Co., Ltd. No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006, Jiangsu, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Designation Number: CN1199

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1922002R-RF-US-P06V01	V1.0	Initial Issued Report	Mar. 27, 2019
1922002R-RF-US-P06V01	V1.1	(1) Page 74-83, updated the data of bandwidth. (2) Page 108-113, updated the data of Dwell Time. (3) Page 116-118, updated the data of output power. (4) Page 121-126, updated the data of Emissions in non-restricted frequency bands	Sep. 21, 2020

1. General Information

1.1. EUT Description

Product Name	Ring Bridge
Model No.	5B01S8
HVIN	5B01S8
FVIN	0.7.5-33
Working Voltage	DC 5V
Test Voltage	120V/60Hz
Modulation & Bandwidth/data rate & Frequency Range & Channel Separation	902- 928 MHz LoRa FHSS 250KHz: 902.3~926.7MHz, 400KHz LoRa FHSS 125KHz: 902.2~927.8MHz, 200KHz LoRa FHSS 125KHz: 902.3~914.9MHz, 200KHz FSK FHSS 5Kbps: 902.2~927.8MHz, 200KHz FSK FHSS 50Kbps: 902.2~927.8MHz, 200KHz FSK FHSS 150Kbps: 902.4~927.6MHz, 400KHz
Type of Modulation	LoRa/FSK
Data Rate	LoRa: DR0/1/2/3/4/5/6/7 FSK: 150Kbps/50Kbps/5Kbps
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna List

LoRa FHSS 250KHz (902.3MHz~926.7MHz)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
01	902.3 MHz	02	902.7 MHz	03	903.1 MHz	04	903.5 MHz
05	903.9 MHz	06	904.3 MHz	07	904.7 MHz	08	905.1 MHz
09	905.5 MHz	10	905.9 MHz	11	906.3 MHz	12	906.7 MHz
13	907.1 MHz	14	907.5 MHz	15	907.9 MHz	16	908.3 MHz
17	908.7 MHz	18	909.1 MHz	19	909.5 MHz	20	909.9 MHz
21	910.3 MHz	22	910.7 MHz	23	911.1 MHz	24	911.5 MHz
25	911.9 MHz	26	912.3 MHz	27	912.7 MHz	28	913.1 MHz
29	913.5 MHz	30	913.9 MHz	31	914.3 MHz	32	914.7 MHz
33	915.1 MHz	34	915.5 MHz	35	915.9 MHz	36	916.3 MHz
37	916.7 MHz	38	917.1 MHz	39	917.5 MHz	40	917.9 MHz
41	918.3 MHz	42	918.7 MHz	43	919.1 MHz	44	919.5 MHz
45	919.9 MHz	46	920.3 MHz	47	920.7 MHz	48	921.1 MHz
49	921.5 MHz	50	921.9 MHz	51	922.3 MHz	52	922.7 MHz
53	923.1 MHz	54	923.5 MHz	55	923.9 MHz	56	924.3 MHz
57	924.7 MHz	58	925.1 MHz	59	925.5 MHz	60	925.9 MHz
61	926.3 MHz	62	926.7 MHz	N/A	N/A	N/A	N/A

LoRa FHSS 125KHz (902.2MHz~927.8MHz)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
01	902.2 MHz	02	902.4 MHz	03	902.6 MHz	04	902.8 MHz
05	903 MHz	06	903.2 MHz	07	903.4 MHz	08	903.6 MHz
09	903.8 MHz	10	904 MHz	11	904.2 MHz	12	904.4 MHz
13	904.6 MHz	14	904.8 MHz	15	905 MHz	16	905.2 MHz
17	905.4 MHz	18	905.6 MHz	19	905.8 MHz	20	906 MHz
21	906.2 MHz	22	906.4 MHz	23	906.6 MHz	24	906.8 MHz
25	907 MHz	26	907.2 MHz	27	907.4 MHz	28	907.6 MHz
29	907.8 MHz	30	908 MHz	31	908.2 MHz	32	908.4 MHz
33	908.6 MHz	34	908.8 MHz	35	909 MHz	36	909.2 MHz
37	909.4 MHz	38	909.6 MHz	39	909.8 MHz	40	910 MHz
41	910.2 MHz	42	910.4 MHz	43	910.6 MHz	44	910.8 MHz
45	911 MHz	46	911.2 MHz	47	911.4 MHz	48	911.6 MHz
49	911.8 MHz	50	912 MHz	51	912.2 MHz	52	912.4 MHz
53	912.6 MHz	54	912.8 MHz	55	913 MHz	56	913.2 MHz
57	913.4 MHz	58	913.6 MHz	59	913.8 MHz	60	914 MHz
61	914.2 MHz	62	914.4 MHz	63	914.6 MHz	64	914.8 MHz
65	915 MHz	66	915.2 MHz	67	915.4 MHz	68	915.6 MHz
69	915.8 MHz	70	916 MHz	71	916.2 MHz	72	916.4 MHz
73	916.6 MHz	74	916.8 MHz	75	917 MHz	76	917.2 MHz
77	917.4 MHz	78	917.6 MHz	79	917.8 MHz	80	918 MHz
81	918.2 MHz	82	918.4 MHz	83	918.6 MHz	84	918.8 MHz
85	919 MHz	86	919.2 MHz	87	919.4 MHz	88	919.6 MHz
89	919.8 MHz	90	920 MHz	91	920.2 MHz	92	920.4 MHz
93	920.6 MHz	94	920.8 MHz	95	921 MHz	96	921.2 MHz
97	921.4 MHz	98	921.6 MHz	99	921.8 MHz	100	922 MHz
101	922.2 MHz	102	922.4 MHz	103	922.6 MHz	104	922.8 MHz
105	923 MHz	106	923.2 MHz	107	923.4 MHz	108	923.6 MHz
109	923.8 MHz	110	924 MHz	111	924.2 MHz	112	924.4 MHz
113	924.6 MHz	114	924.8 MHz	115	925 MHz	116	925.2 MHz
117	925.4 MHz	118	925.6 MHz	119	925.8 MHz	120	926 MHz
121	926.2 MHz	122	926.4 MHz	123	926.6 MHz	124	926.8 MHz
125	927 MHz	126	927.2 MHz	127	927.4 MHz	128	927.6 MHz
129	927.8 MHz	N/A	N/A	N/A	N/A	N/A	N/A

LoRa FHSS 125KHz (902.3MHz~914.9MHz)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
01	902.3 MHz	02	902.5 MHz	03	902.7 MHz	04	902.9 MHz
05	903.1 MHz	06	903.3 MHz	07	903.5 MHz	08	903.7 MHz
09	903.9 MHz	10	904.1 MHz	11	904.3 MHz	12	904.5 MHz
13	904.7 MHz	14	904.9 MHz	15	905.1 MHz	16	905.3 MHz
17	905.5 MHz	18	905.7 MHz	19	905.9 MHz	20	906.1 MHz
21	906.3 MHz	22	906.5 MHz	23	906.7 MHz	24	906.9 MHz
25	907.1 MHz	26	907.3 MHz	27	907.5 MHz	28	907.7 MHz
29	907.9 MHz	30	908.1 MHz	31	908.3 MHz	32	908.5 MHz
33	908.7 MHz	34	908.9 MHz	35	909.1 MHz	36	909.3 MHz
37	909.5 MHz	38	909.7 MHz	39	909.9 MHz	40	910.1 MHz
41	910.3 MHz	42	910.5 MHz	43	910.7 MHz	44	910.9 MHz
45	911.1 MHz	46	911.3 MHz	47	911.5 MHz	48	911.7 MHz
49	911.9 MHz	50	912.1 MHz	51	912.3 MHz	52	912.5 MHz
53	912.7 MHz	54	912.9 MHz	55	913.1 MHz	56	913.3 MHz
57	913.5 MHz	58	913.7 MHz	59	913.9 MHz	60	914.1 MHz
61	914.3 MHz	62	914.5 MHz	63	914.7 MHz	64	914.9 MHz

FSK FHSS 5Kbps (902.2MHz~927.8MHz)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
01	902.2 MHz	02	902.4 MHz	03	902.6 MHz	04	902.8 MHz
05	903 MHz	06	903.2 MHz	07	903.4 MHz	08	903.6 MHz
09	903.8 MHz	10	904 MHz	11	904.2 MHz	12	904.4 MHz
13	904.6 MHz	14	904.8 MHz	15	905 MHz	16	905.2 MHz
17	905.4 MHz	18	905.6 MHz	19	905.8 MHz	20	906 MHz
21	906.2 MHz	22	906.4 MHz	23	906.6 MHz	24	906.8 MHz
25	907 MHz	26	907.2 MHz	27	907.4 MHz	28	907.6 MHz
29	907.8 MHz	30	908 MHz	31	908.2 MHz	32	908.4 MHz
33	908.6 MHz	34	908.8 MHz	35	909 MHz	36	909.2 MHz
37	909.4 MHz	38	909.6 MHz	39	909.8 MHz	40	910 MHz
41	910.2 MHz	42	910.4 MHz	43	910.6 MHz	44	910.8 MHz
45	911 MHz	46	911.2 MHz	47	911.4 MHz	48	911.6 MHz
49	911.8 MHz	50	912 MHz	51	912.2 MHz	52	912.4 MHz
53	912.6 MHz	54	912.8 MHz	55	913 MHz	56	913.2 MHz
57	913.4 MHz	58	913.6 MHz	59	913.8 MHz	60	914 MHz
61	914.2 MHz	62	914.4 MHz	63	914.6 MHz	64	914.8 MHz
65	915 MHz	66	915.2 MHz	67	915.4 MHz	68	915.6 MHz
69	915.8 MHz	70	916 MHz	71	916.2 MHz	72	916.4 MHz
73	916.6 MHz	74	916.8 MHz	75	917 MHz	76	917.2 MHz
77	917.4 MHz	78	917.6 MHz	79	917.8 MHz	80	918 MHz
81	918.2 MHz	82	918.4 MHz	83	918.6 MHz	84	918.8 MHz
85	919 MHz	86	919.2 MHz	87	919.4 MHz	88	919.6 MHz
89	919.8 MHz	90	920 MHz	91	920.2 MHz	92	920.4 MHz
93	920.6 MHz	94	920.8 MHz	95	921 MHz	96	921.2 MHz
97	921.4 MHz	98	921.6 MHz	99	921.8 MHz	100	922 MHz
101	922.2 MHz	102	922.4 MHz	103	922.6 MHz	104	922.8 MHz
105	923 MHz	106	923.2 MHz	107	923.4 MHz	108	923.6 MHz
109	923.8 MHz	110	924 MHz	111	924.2 MHz	112	924.4 MHz
113	924.6 MHz	114	924.8 MHz	115	925 MHz	116	925.2 MHz
117	925.4 MHz	118	925.6 MHz	119	925.8 MHz	120	926 MHz
121	926.2 MHz	122	926.4 MHz	123	926.6 MHz	124	926.8 MHz
125	927 MHz	126	927.2 MHz	127	927.4 MHz	128	927.6 MHz
129	927.8 MHz	N/A	N/A	N/A	N/A	N/A	N/A

FSK FHSS 50Kbps (902.2MHz~927.8MHz)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
01	902.2 MHz	02	902.4 MHz	03	902.6 MHz	04	902.8 MHz
05	903 MHz	06	903.2 MHz	07	903.4 MHz	08	903.6 MHz
09	903.8 MHz	10	904 MHz	11	904.2 MHz	12	904.4 MHz
13	904.6 MHz	14	904.8 MHz	15	905 MHz	16	905.2 MHz
17	905.4 MHz	18	905.6 MHz	19	905.8 MHz	20	906 MHz
21	906.2 MHz	22	906.4 MHz	23	906.6 MHz	24	906.8 MHz
25	907 MHz	26	907.2 MHz	27	907.4 MHz	28	907.6 MHz
29	907.8 MHz	30	908 MHz	31	908.2 MHz	32	908.4 MHz
33	908.6 MHz	34	908.8 MHz	35	909 MHz	36	909.2 MHz
37	909.4 MHz	38	909.6 MHz	39	909.8 MHz	40	910 MHz
41	910.2 MHz	42	910.4 MHz	43	910.6 MHz	44	910.8 MHz
45	911 MHz	46	911.2 MHz	47	911.4 MHz	48	911.6 MHz
49	911.8 MHz	50	912 MHz	51	912.2 MHz	52	912.4 MHz
53	912.6 MHz	54	912.8 MHz	55	913 MHz	56	913.2 MHz
57	913.4 MHz	58	913.6 MHz	59	913.8 MHz	60	914 MHz
61	914.2 MHz	62	914.4 MHz	63	914.6 MHz	64	914.8 MHz
65	915 MHz	66	915.2 MHz	67	915.4 MHz	68	915.6 MHz
69	915.8 MHz	70	916 MHz	71	916.2 MHz	72	916.4 MHz
73	916.6 MHz	74	916.8 MHz	75	917 MHz	76	917.2 MHz
77	917.4 MHz	78	917.6 MHz	79	917.8 MHz	80	918 MHz
81	918.2 MHz	82	918.4 MHz	83	918.6 MHz	84	918.8 MHz
85	919 MHz	86	919.2 MHz	87	919.4 MHz	88	919.6 MHz
89	919.8 MHz	90	920 MHz	91	920.2 MHz	92	920.4 MHz
93	920.6 MHz	94	920.8 MHz	95	921 MHz	96	921.2 MHz
97	921.4 MHz	98	921.6 MHz	99	921.8 MHz	100	922 MHz
101	922.2 MHz	102	922.4 MHz	103	922.6 MHz	104	922.8 MHz
105	923 MHz	106	923.2 MHz	107	923.4 MHz	108	923.6 MHz
109	923.8 MHz	110	924 MHz	111	924.2 MHz	112	924.4 MHz
113	924.6 MHz	114	924.8 MHz	115	925 MHz	116	925.2 MHz
117	925.4 MHz	118	925.6 MHz	119	925.8 MHz	120	926 MHz
121	926.2 MHz	122	926.4 MHz	123	926.6 MHz	124	926.8 MHz
125	927 MHz	126	927.2 MHz	127	927.4 MHz	128	927.6 MHz
129	927.8 MHz	N/A	N/A	N/A	N/A	N/A	N/A

FSK FHSS 150Kbps (902.4MHz~927.6MHz)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
01	902.4 MHz	02	902.8 MHz	03	903.2 MHz	04	903.6 MHz
05	904 MHz	06	904.4 MHz	07	904.8 MHz	08	905.2 MHz
09	905.6 MHz	10	906 MHz	11	906.4 MHz	12	906.8 MHz
13	907.2 MHz	14	907.6 MHz	15	908 MHz	16	908.4 MHz
17	908.8 MHz	18	909.2 MHz	19	909.6 MHz	20	910 MHz
21	910.4 MHz	22	910.8 MHz	23	911.2 MHz	24	911.6 MHz
25	912 MHz	26	912.4 MHz	27	912.8 MHz	28	913.2 MHz
29	913.6 MHz	30	914 MHz	31	914.4 MHz	32	914.8 MHz
33	915.2 MHz	34	915.6 MHz	35	916 MHz	36	916.4 MHz
37	916.8 MHz	38	917.2 MHz	39	917.6 MHz	40	918 MHz
41	918.4 MHz	42	918.8 MHz	43	919.2 MHz	44	919.6 MHz
45	920 MHz	46	920.4 MHz	47	920.8 MHz	48	921.2 MHz
49	921.6 MHz	50	922 MHz	51	922.4 MHz	52	922.8 MHz
53	923.2 MHz	54	923.6 MHz	55	924 MHz	56	924.4 MHz
57	924.8 MHz	58	925.2 MHz	59	925.6 MHz	60	926 MHz
61	926.4 MHz	62	926.8 MHz	63	927.2 MHz	64	927.6 MHz

1.2. Antenna information

Model No.	N/A					
Antenna manufacturer	N/A					
Antenna Delivery	☒	1*TX+1*RX	☐	2*TX+2*RX	☐	3*TX+3*RX
Antenna technology	☒	SISO				
	☐	MIMO	☐	Basic		
			☐	CDD		
			☐	Beam-forming		
Antenna Type	☐	External	☐	Dipole		
	☒	Internal	☐	PIFA		
			☒	PCB		
			☐	Ceramic Chip Antenna		
			☐	Metal plate type F antenna		
			☐	Printed Antenna		
Antenna Gain	-1dBi					

1.3. Mode of Operation

DEKRA 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 LoRa FHSS with 250KHz bandwidth(902.3-926.7MHz)
Mode 2: Transmit by LoRa FHSS with 125KHz bandwidth(902.2-927.8MHz)
Mode 3: Transmit by LoRa FHSS with 125KHz bandwidth(902.3-914.9MHz)
Mode 4: Transmit by FSK FHSS with 5Kbps data rate(902.2-927.8MHz)
Mode 5: Transmit by FSK FHSS with 50Kbps data rate(902.2-927.8MHz)
Mode 6: Transmit by FSK FHSS with 150Kbps data rate(902.4-927.6MHz)

Note:

1. For portable device, radiated spurious emission was verified over X, Y, Z Axis, and shown the worst case on this report.
2. Regards to the frequency band operation for systems using FHSS modulation: normal operation (hopping) was selected to test for conducted spurious test.
3. The extreme test condition for voltage and temperature were declared by the manufacturer.
4. The reading values of all the test items contain cable loss.

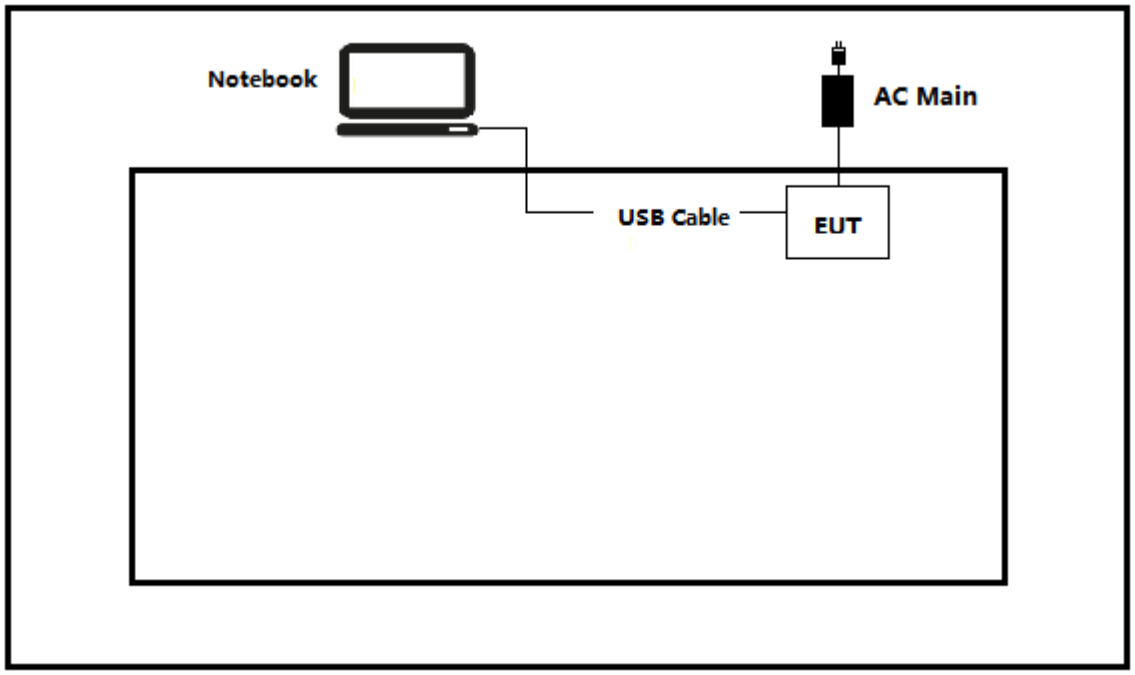
1.4. Tested System Details

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

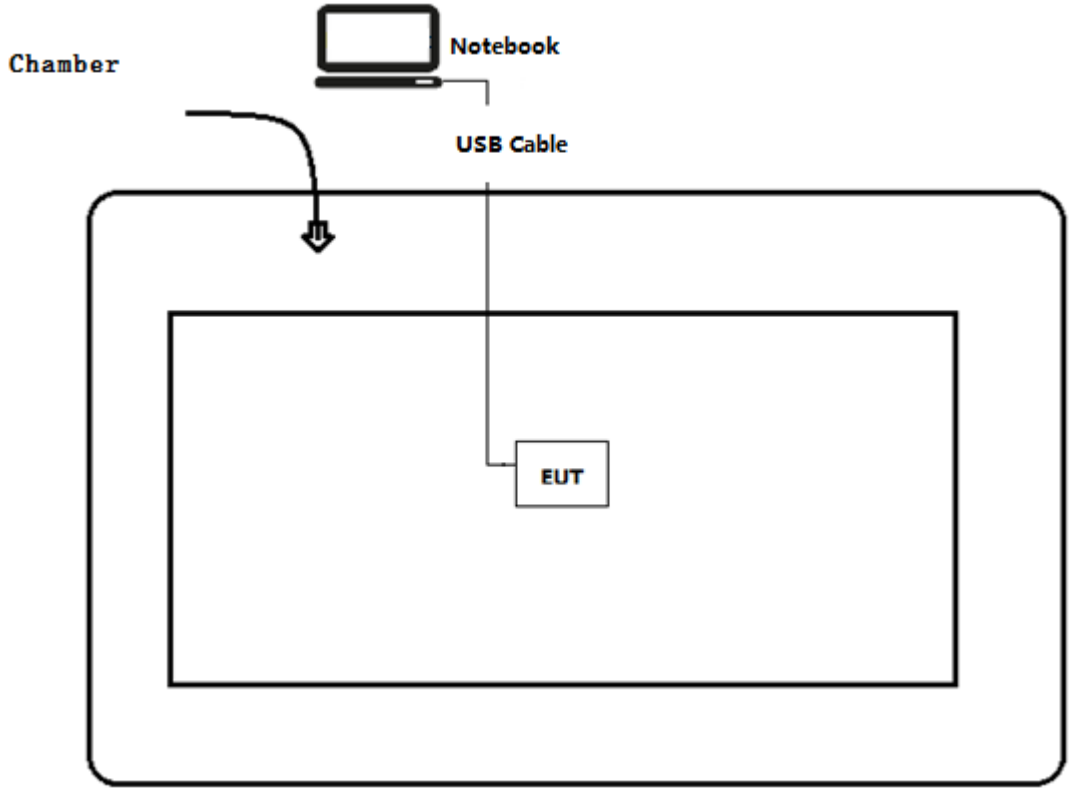
No.	Product	Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	Lenovo	Think pad x220	SUA0600195	Power by adapter
A	USB Cable	N/A	N/A	N/A	Shield, 0.75m
B	Serial Cable	N/A	N/A	N/A	Shield, 0.75m
C	USB Cable	N/A	N/A	N/A	Shield, 10m
D	Serial Cable	N/A	N/A	N/A	Shield, 10m

1.5. Configuration of Tested System

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission



1.6. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	Run “cmd”, and set the test mode and channel, then start continue Transmit.

2. Technical Test

2.1. Summary of Test Result

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C Section 15.207	Yes	No
Emissions in restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C Section 15.209	Yes	No
20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C Section 15.247(a)(1)	Yes	No
Carrier Frequency Separation	FCC CFR Title 47 Part 15 Subpart C Section 15.247(a)(1)	Yes	No
Number of Hopping Frequencies	FCC CFR Title 47 Part 15 Subpart C Section 15.247(a)(1)(iii)	Yes	No
Time of Occupancy (Dwell Time)	FCC CFR Title 47 Part 15 Subpart C Section 15.247(a)(1)(iii)	Yes	No
Peak Output Power	FCC CFR Title 47 Part 15 Subpart C Section 15.247(b)(1)	Yes	No
Emissions in non-restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C Section 15.215(c), 15.247(d)	Yes	No
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C Section 15.247(d)	Yes	No
Antenna Requirement	FCC CFR Title 47 Part 15 Subpart C Section 15.203	Yes	No

2.2. 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

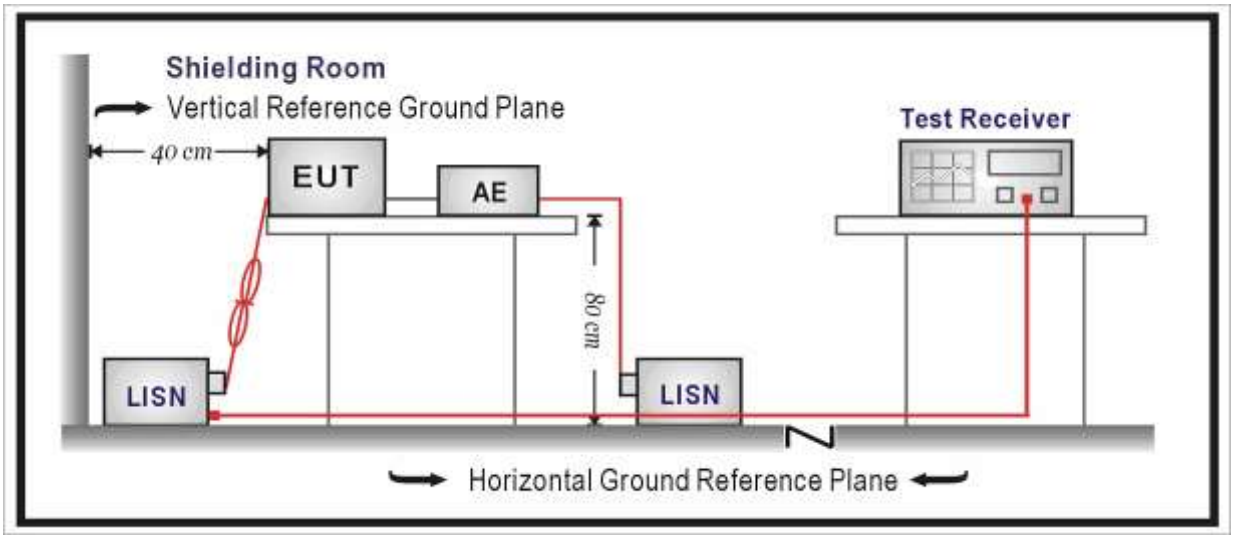
3. Conducted Emission

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	100906	2019.03.05	2020.03.04
Two-Line V-Network	R&S	ENV 216	101189	2018.07.16	2019.07.15
Two-Line V-Network	R&S	ENV 216	101044	2018.09.15	2019.09.15
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
50ohm Termination	SHX	TF2	07081402	2018.09.15	2019.09.15
Temperature/Humidity Meter	Zhichen	ZC1-2	TR1-TH	2019.01.05	2020.01.04
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 of Emission (MHz)	Conducted Limit	
	Quasi-peak (dBμV)	Average(dBμV)
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50
Note 1: The lower limit shall apply at the transition frequencies. Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.		

3.4. Test Procedure

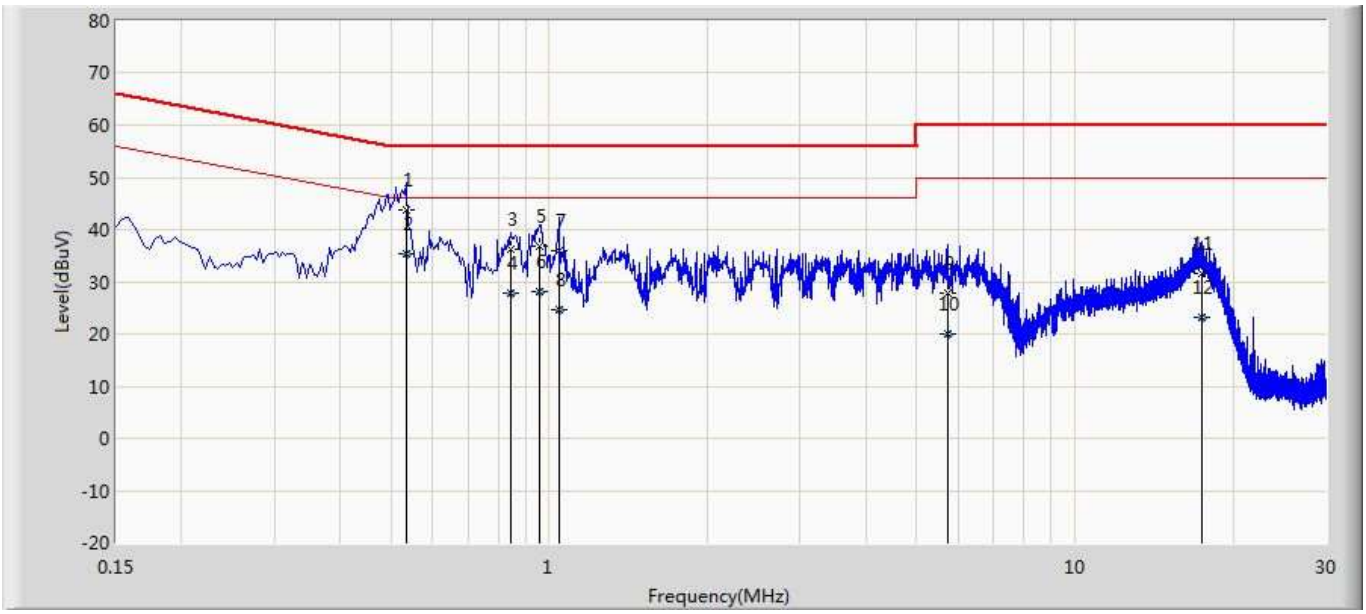
Test Method			
	References Rule	Chapter	Item
☒	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

3.6. Test Result

Engineer: Nero	
Site: TR1	Time: 2019/02/02
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Line
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 1	



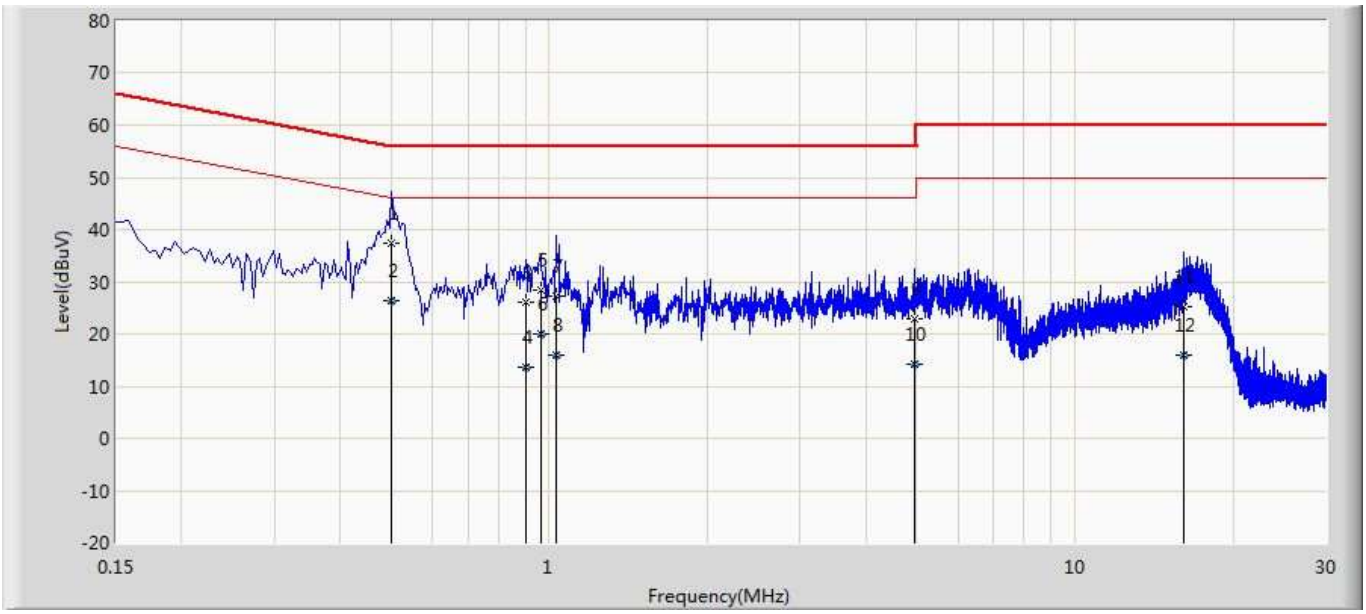
No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.534	43.710	34.066	-12.290	56.000	9.600	0.044	0.000	QP
2	*	0.534	35.370	25.726	-10.630	46.000	9.600	0.044	0.000	AV
3		0.846	36.098	26.439	-19.902	56.000	9.605	0.054	0.000	QP
4		0.846	27.784	18.125	-18.216	46.000	9.605	0.054	0.000	AV
5		0.958	36.906	27.238	-19.094	56.000	9.609	0.059	0.000	QP
6		0.958	28.130	18.462	-17.870	46.000	9.609	0.059	0.000	AV
7		1.042	35.870	26.198	-20.130	56.000	9.610	0.061	0.000	QP
8		1.042	24.560	14.889	-21.440	46.000	9.610	0.061	0.000	AV
9		5.726	27.897	18.070	-32.103	60.000	9.675	0.152	0.000	QP
10		5.726	19.927	10.100	-30.073	50.000	9.675	0.152	0.000	AV
11		17.470	31.707	21.420	-28.293	60.000	10.018	0.269	0.000	QP
12		17.470	23.076	12.788	-26.924	50.000	10.018	0.269	0.000	AV

Note:

1. " * ", means this data is the worst emission level.

2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Engineer: Nero	
Site: TR1	Time: 2019/02/02
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216_101190(0.009-30MHz)	Polarity: Neutral
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1	*	0.502	37.400	27.765	-18.600	56.000	9.590	0.044	0.000	QP
2		0.502	26.459	16.824	-19.541	46.000	9.590	0.044	0.000	AV
3		0.902	26.182	16.536	-29.818	56.000	9.590	0.056	0.000	QP
4		0.902	13.603	3.957	-32.397	46.000	9.590	0.056	0.000	AV
5		0.962	28.520	18.871	-27.480	56.000	9.590	0.059	0.000	QP
6		0.962	19.991	10.342	-26.009	46.000	9.590	0.059	0.000	AV
7		1.030	27.288	17.636	-28.712	56.000	9.591	0.062	0.000	QP
8		1.030	15.869	6.217	-30.131	46.000	9.591	0.062	0.000	AV
9		4.954	22.835	13.044	-33.165	56.000	9.649	0.142	0.000	QP
10		4.954	14.130	4.339	-31.870	46.000	9.649	0.142	0.000	AV
11		16.134	25.284	15.016	-34.716	60.000	10.010	0.258	0.000	QP
12		16.134	15.848	5.580	-34.152	50.000	10.010	0.258	0.000	AV

Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

4. Emissions in restricted frequency bands

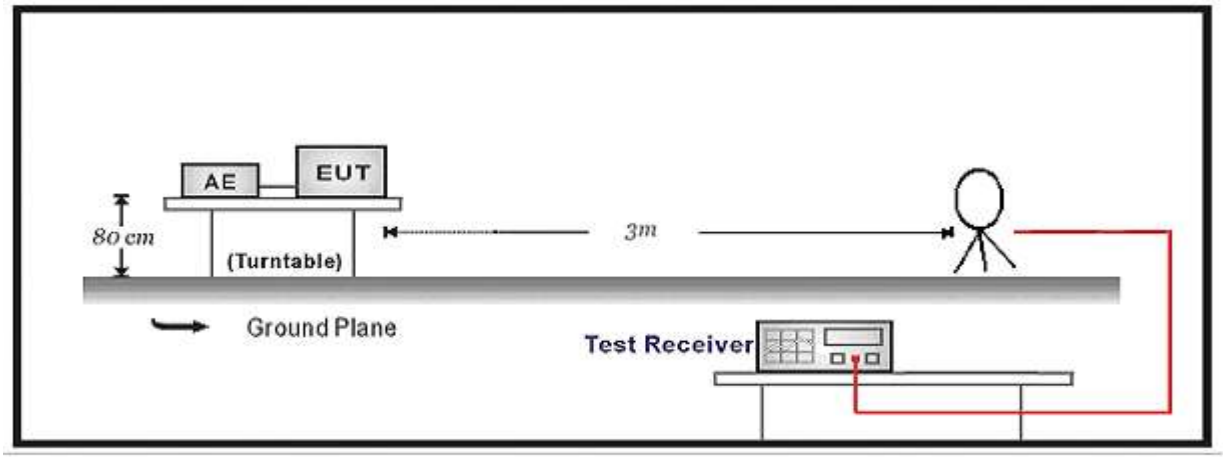
4.1. Test Equipment

Radiated Emission(Below 1GHz) / AC-2					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2019.03.29	2020.03.28
Loop Antenna	R&S	HFH2-Z2	833799/003	2018.11.16	2019.11.15
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2018.10.16	2019.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2019.03.02	2020.03.01
Temperature/Humidity Meter	Zhichen	ZC1-2	AC2-TH	2019.01.04	2020.01.03
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

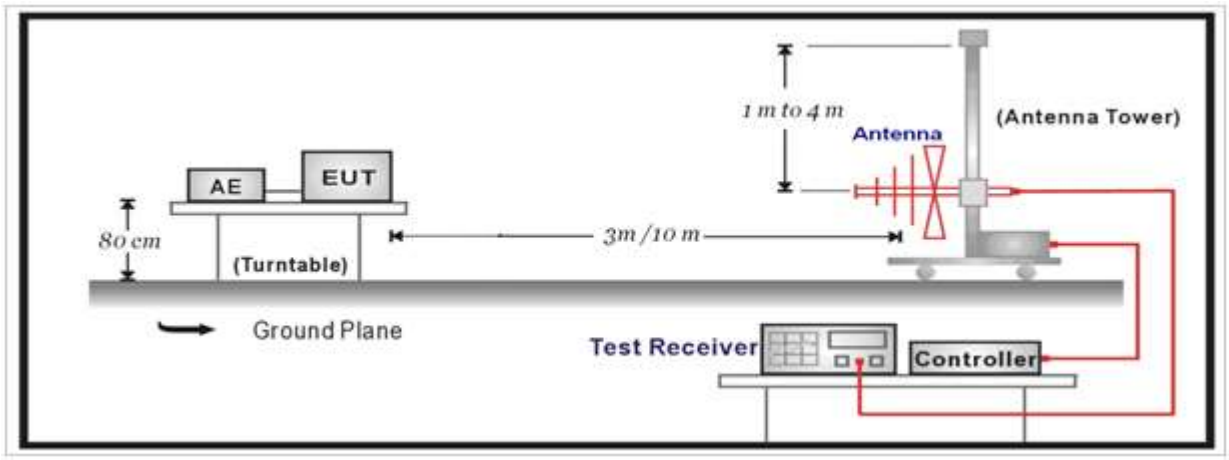
Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2019.01.04	2020.01.03
Preamplifier	Miteq	NSP1800-25	1364185	2018.05.06	2019.05.05
Preamplifier	QuieTek	AP-040G	CHM-0906001	2018.05.06	2019.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2019.01.22	2020.01.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2018.11.25	2019.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2019.03.02	2020.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2019.03.02	2020.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2019.03.02	2020.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2018.06.10	2019.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2019.01.04	2020.01.03
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

4.2. Test Setup

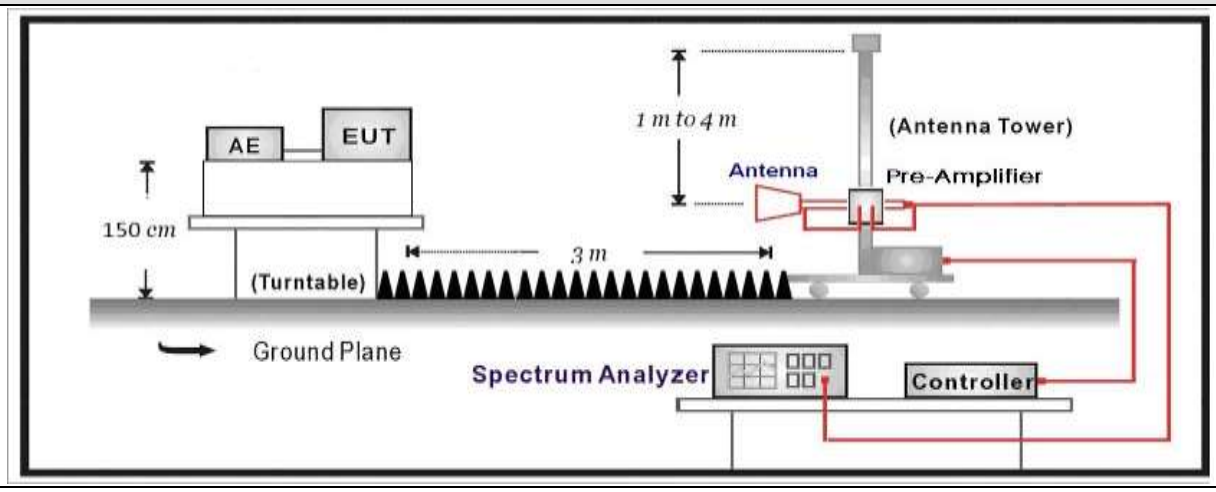
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

Restricted Bands of operation			
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			

Restricted Band Emissions Limit			
Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30(Note 1)
1.705 - 30	30	29.5	30(Note 1)
30 - 88	100	40	3(Note 2)
88 - 216	150	43.5	3(Note 2)
216 - 960	200	46	3(Note 2)
Above 960	500	54	3(Note 2)

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).

4.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	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

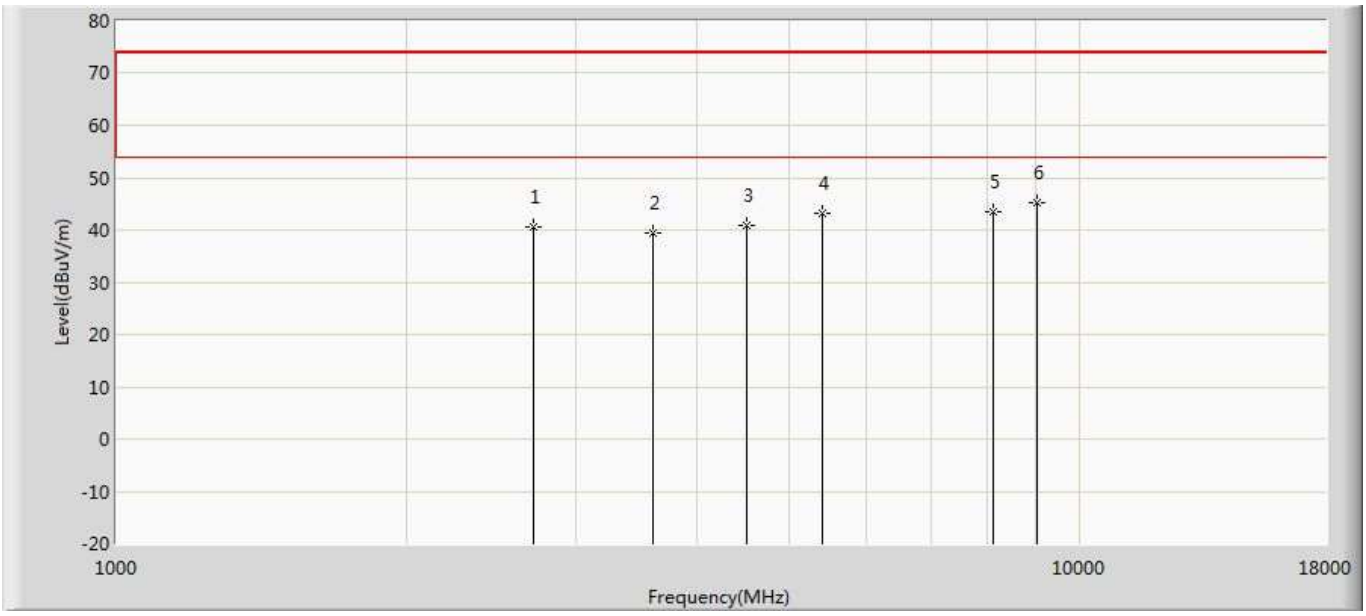
4.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB

below 1G is defined as ± 3.8 dB

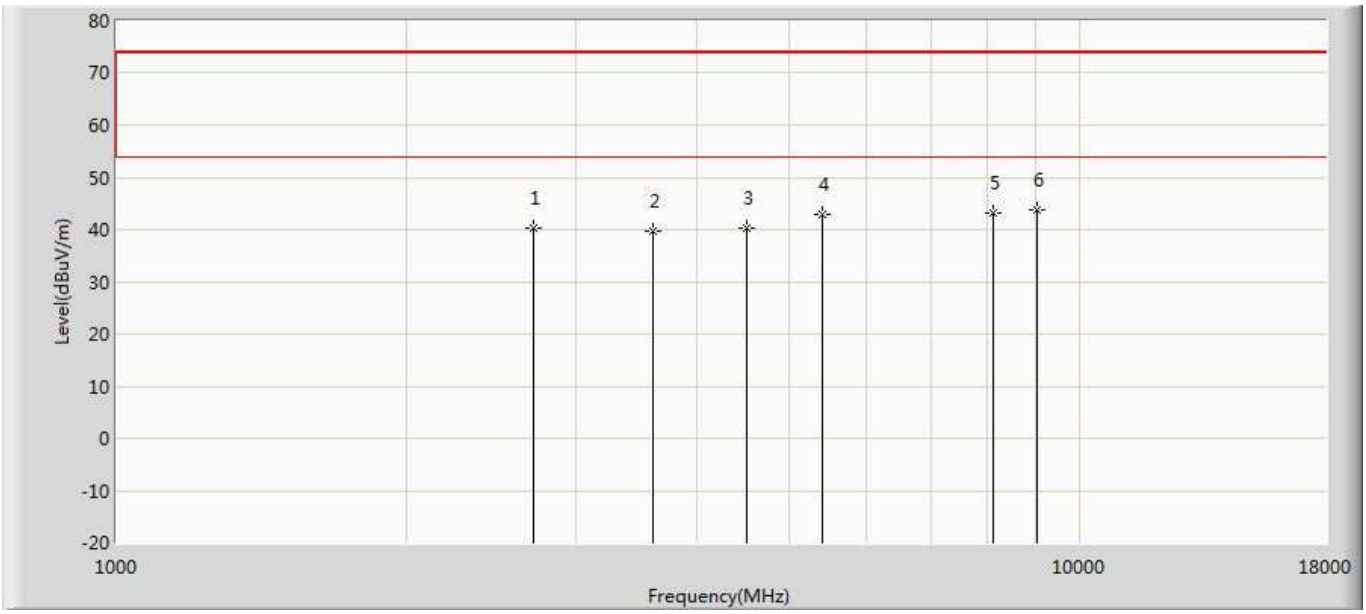
4.6. Test Result

Engineer: Simon	
Site: AC5	Time: 2019/02/23 - 15:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 902.3MHz	



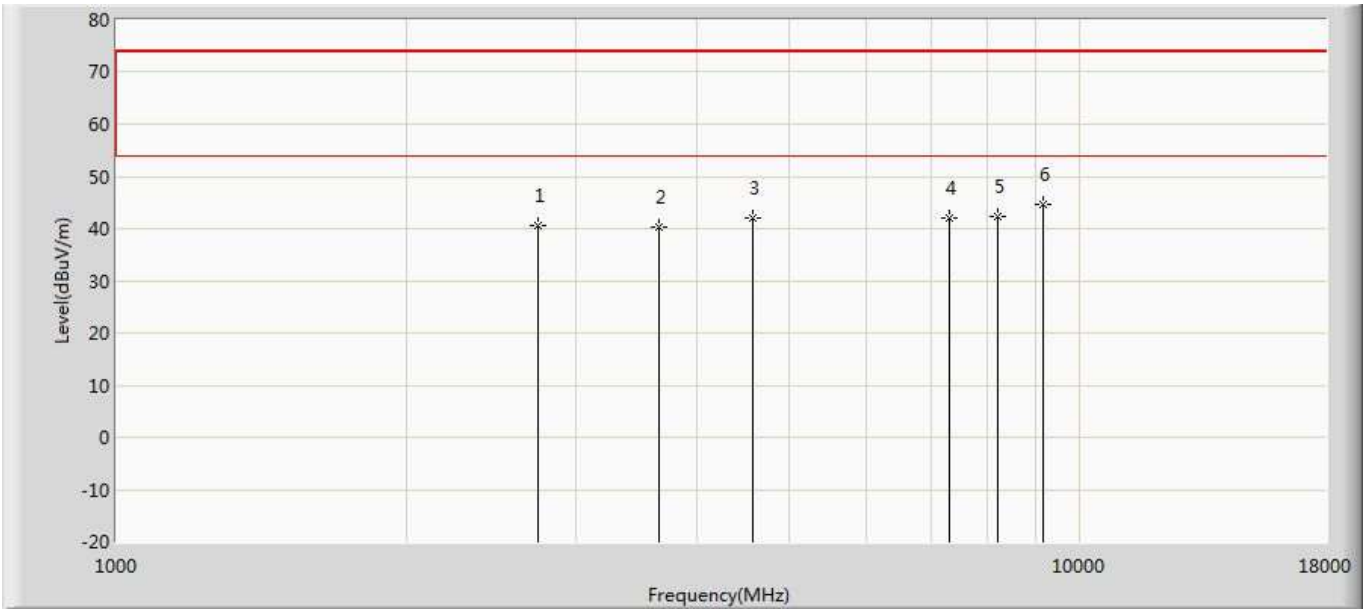
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2706.900	40.665	46.491	-33.335	74.000	-5.826	PK
2		3609.200	39.417	43.533	-34.583	74.000	-4.116	PK
3		4511.500	40.801	42.658	-33.199	74.000	-1.857	PK
4		5413.800	43.312	43.641	-30.688	74.000	-0.329	PK
5		8120.700	43.442	40.717	-30.558	74.000	2.724	PK
6	*	9023.000	45.300	41.302	-28.700	74.000	3.997	PK

Engineer: Simon	
Site: AC5	Time: 2019/02/23 - 15:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 902.3MHz	



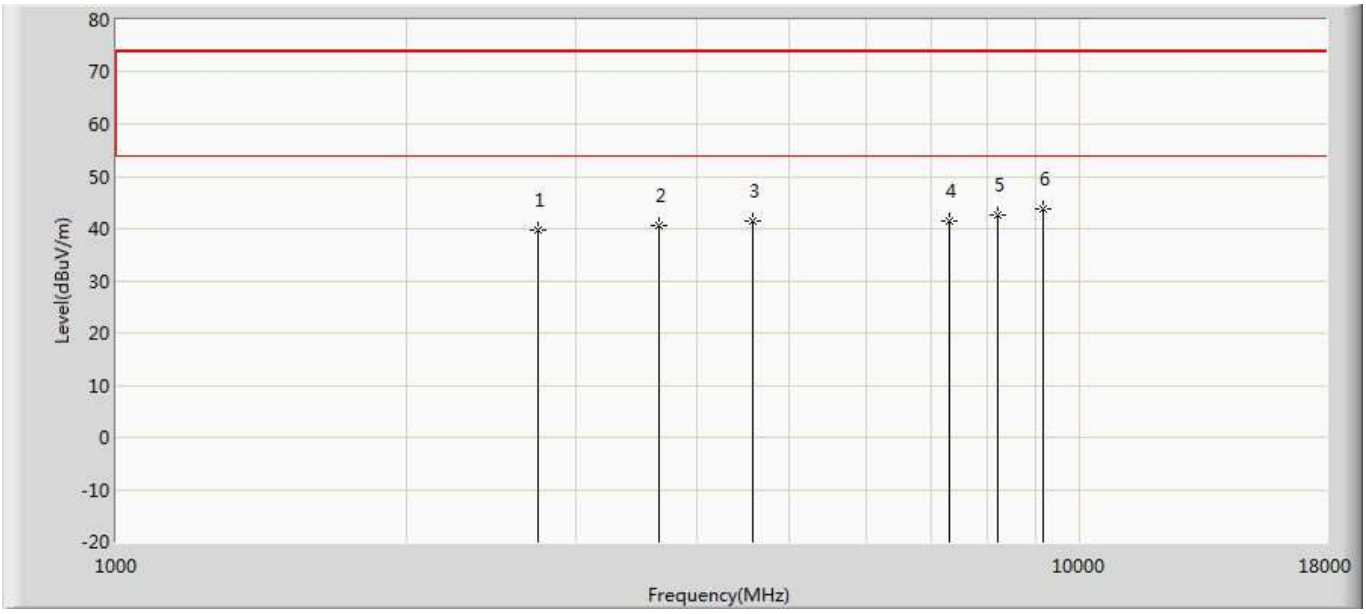
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2706.900	40.317	46.143	-33.683	74.000	-5.826	PK
2		3609.200	39.846	43.962	-34.154	74.000	-4.116	PK
3		4511.500	40.412	42.269	-33.588	74.000	-1.857	PK
4		5413.800	42.925	43.254	-31.075	74.000	-0.329	PK
5		8120.700	43.199	40.474	-30.801	74.000	2.724	PK
6	*	9023.000	43.840	39.842	-30.160	74.000	3.997	PK

Engineer: Simon	
Site: AC5	Time: 2019/02/23 - 15:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 914.3MHz	



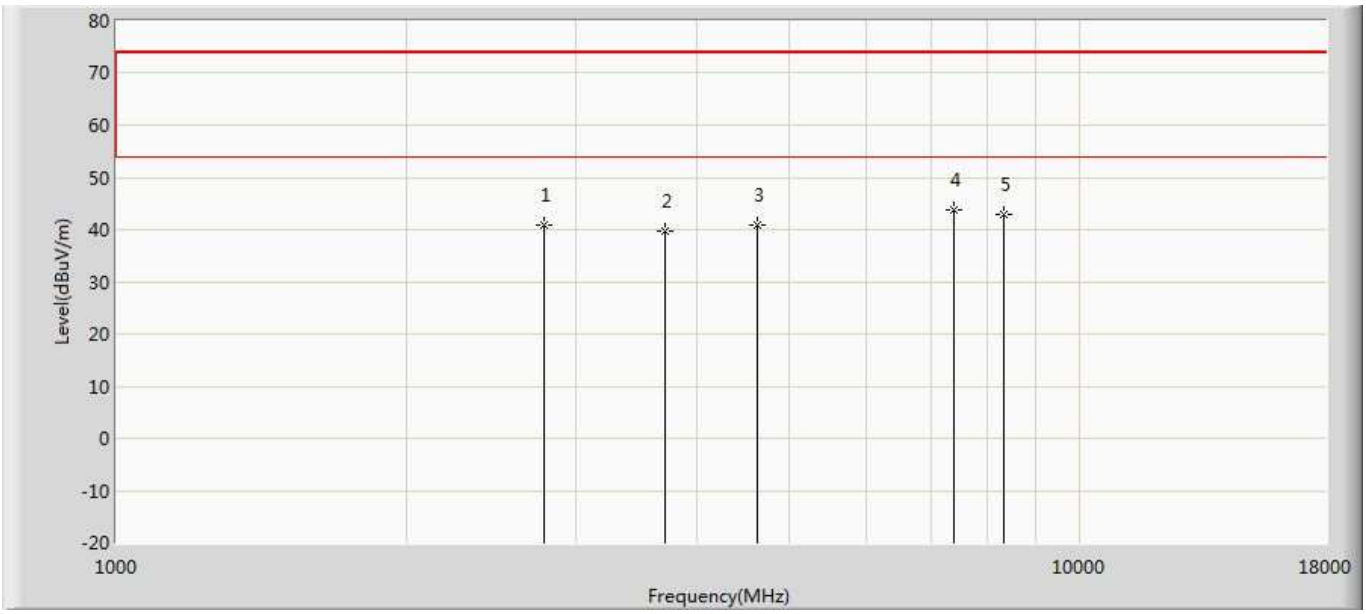
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2742.900	40.437	46.133	-33.563	74.000	-5.695	PK
2		3657.200	40.376	44.048	-33.624	74.000	-3.672	PK
3		4571.500	42.035	43.446	-31.965	74.000	-1.412	PK
4		7314.400	41.895	40.059	-32.105	74.000	1.836	PK
5		8228.700	42.442	39.955	-31.558	74.000	2.487	PK
6	*	9143.000	44.652	41.242	-29.348	74.000	3.410	PK

Engineer: Simon	
Site: AC5	Time: 2019/02/23 - 15:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 914.3MHz	



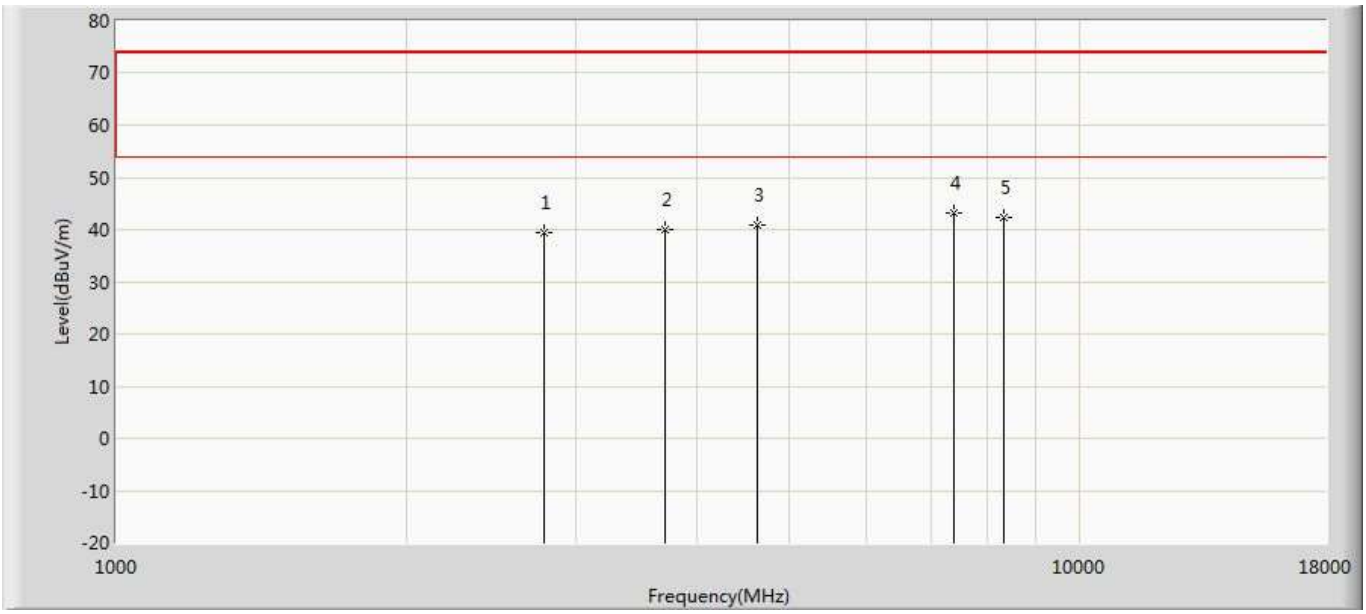
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2742.900	39.603	45.299	-34.397	74.000	-5.695	PK
2		3657.200	40.481	44.153	-33.519	74.000	-3.672	PK
3		4571.500	41.571	42.982	-32.429	74.000	-1.412	PK
4		7314.400	41.562	39.726	-32.438	74.000	1.836	PK
5		8228.700	42.514	40.027	-31.486	74.000	2.487	PK
6	*	9143.000	43.878	40.468	-30.122	74.000	3.410	PK

Engineer: Simon	
Site: AC5	Time: 2019/02/23 - 15:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 926.7MHz	



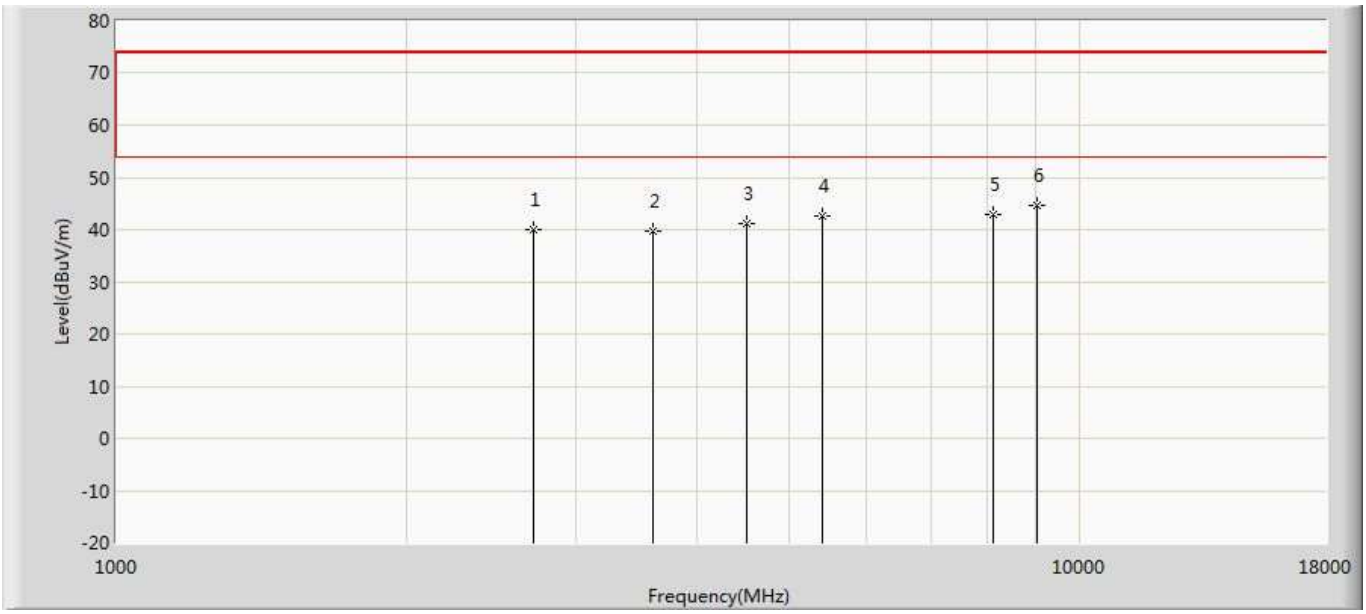
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2780.100	40.913	46.651	-33.087	74.000	-5.738	PK
2		3706.800	39.670	43.436	-34.330	74.000	-3.767	PK
3		4633.500	40.811	42.553	-33.189	74.000	-1.742	PK
4	*	7413.600	43.627	41.560	-30.373	74.000	2.067	PK
5		8340.300	42.782	40.142	-31.218	74.000	2.640	PK

Engineer: Simon	
Site: AC5	Time: 2019/02/23 - 15:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 926.7MHz	



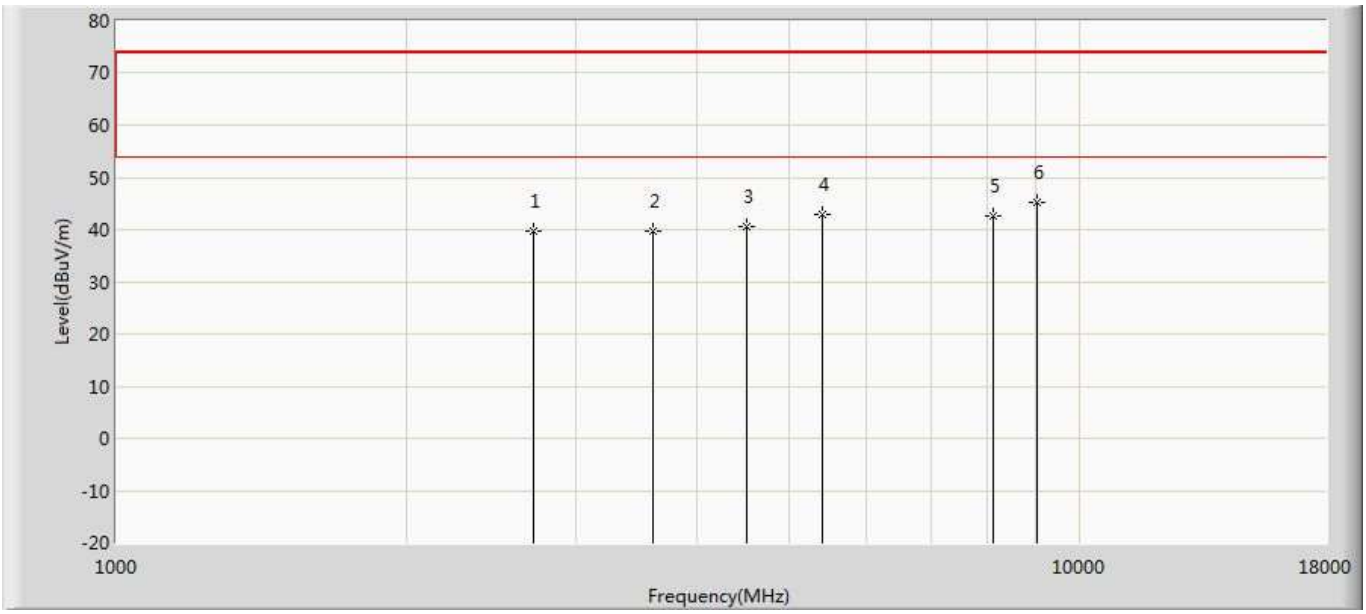
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2780.100	39.435	45.173	-34.565	74.000	-5.738	PK
2		3706.800	39.892	43.658	-34.108	74.000	-3.767	PK
3		4633.500	40.957	42.699	-33.043	74.000	-1.742	PK
4	*	7413.600	43.065	40.998	-30.935	74.000	2.067	PK
5		8340.300	42.448	39.808	-31.552	74.000	2.640	PK

Engineer: Simon	
Site: AC5	Time: 2019/02/23 - 15:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 902.2MHz	



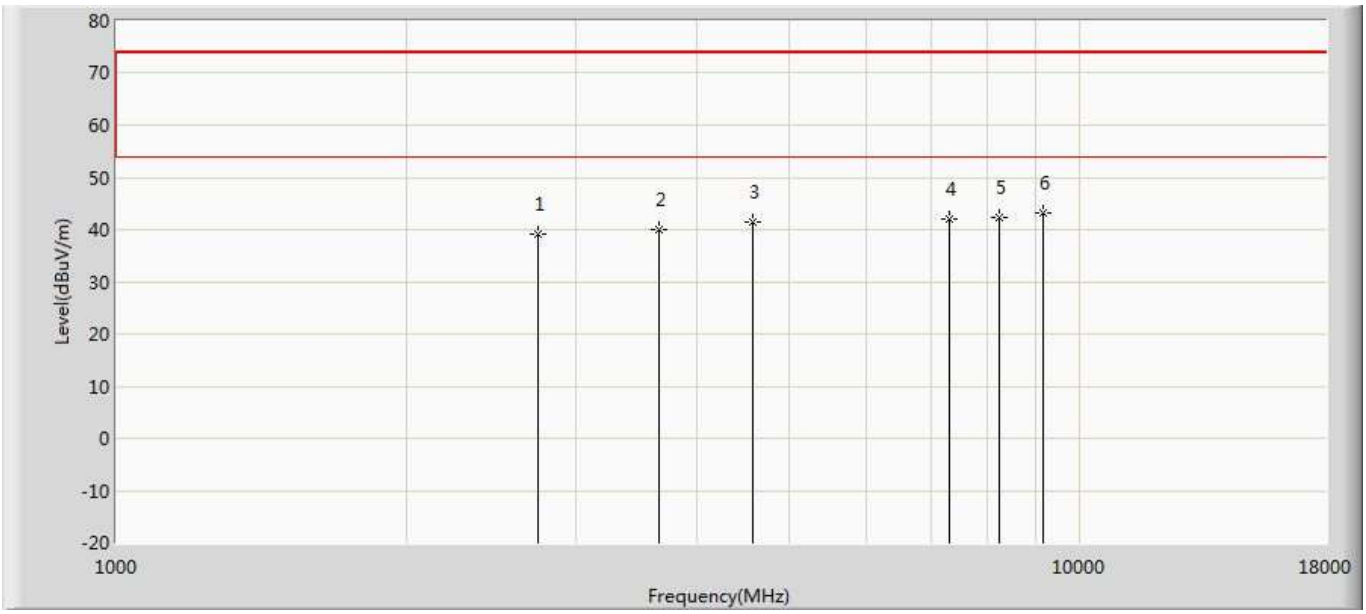
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2706.600	39.955	45.791	-34.045	74.000	-5.836	PK
2		3608.800	39.661	43.788	-34.339	74.000	-4.127	PK
3		4511.000	41.210	43.056	-32.790	74.000	-1.846	PK
4		5413.200	42.674	43.009	-31.326	74.000	-0.335	PK
5		8119.800	42.838	40.112	-31.162	74.000	2.726	PK
6	*	9022.000	44.598	40.629	-29.402	74.000	3.969	PK

Engineer: Simon	
Site: AC5	Time: 2019/02/23 - 15:46
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 902.2MHz	



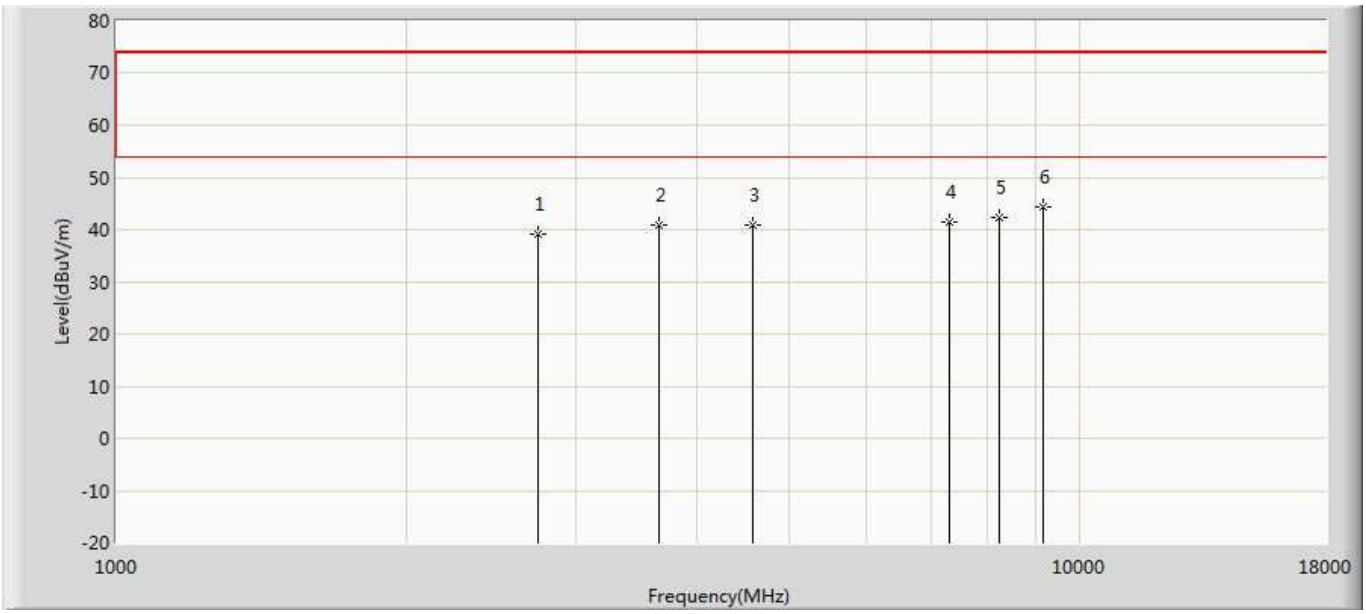
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2706.600	39.753	45.589	-34.247	74.000	-5.836	PK
2		3608.800	39.687	43.814	-34.313	74.000	-4.127	PK
3		4511.000	40.522	42.368	-33.478	74.000	-1.846	PK
4		5413.200	43.007	43.342	-30.993	74.000	-0.335	PK
5		8119.800	42.594	39.868	-31.406	74.000	2.726	PK
6	*	9022.000	45.224	41.255	-28.776	74.000	3.969	PK

Engineer: Simon	
Site: AC5	Time: 2019/02/23 - 15:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 915MHz	



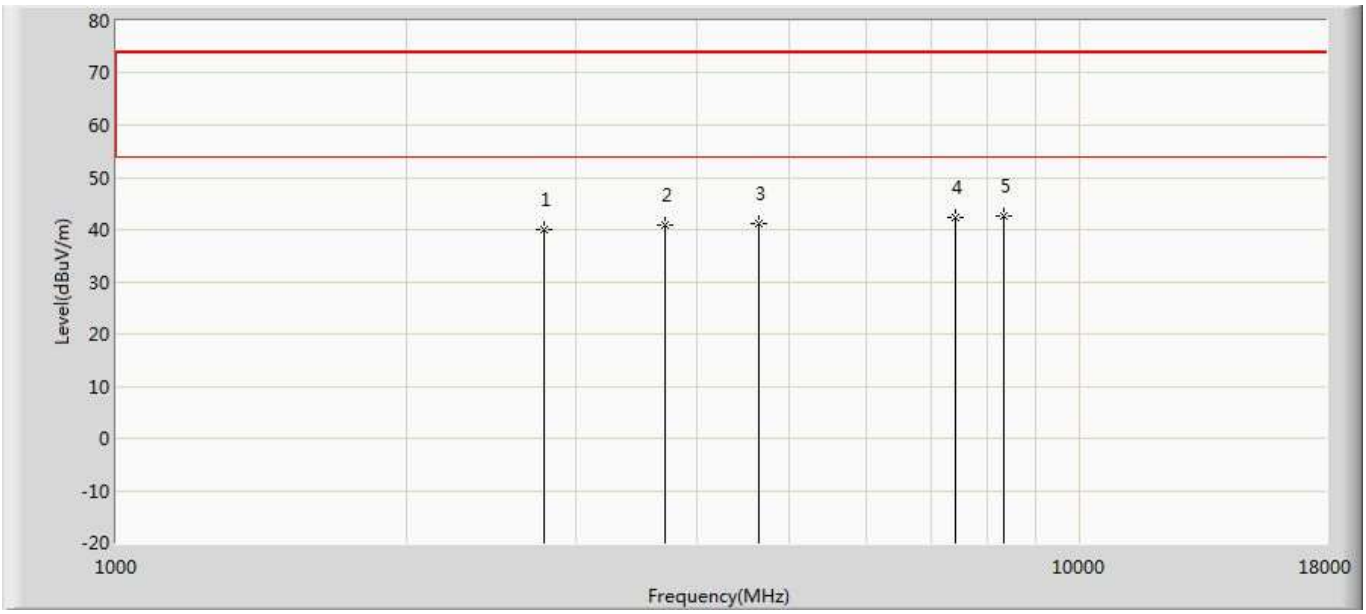
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2745.000	39.209	44.925	-34.791	74.000	-5.716	PK
2		3660.000	40.053	43.722	-33.947	74.000	-3.669	PK
3		4575.000	41.482	42.916	-32.518	74.000	-1.435	PK
4		7320.000	41.991	40.108	-32.009	74.000	1.884	PK
5		8235.000	42.425	39.904	-31.575	74.000	2.521	PK
6	*	9150.000	43.287	39.956	-30.713	74.000	3.331	PK

Engineer: Simon	
Site: AC5	Time: 2019/02/23 - 15:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 915MHz	



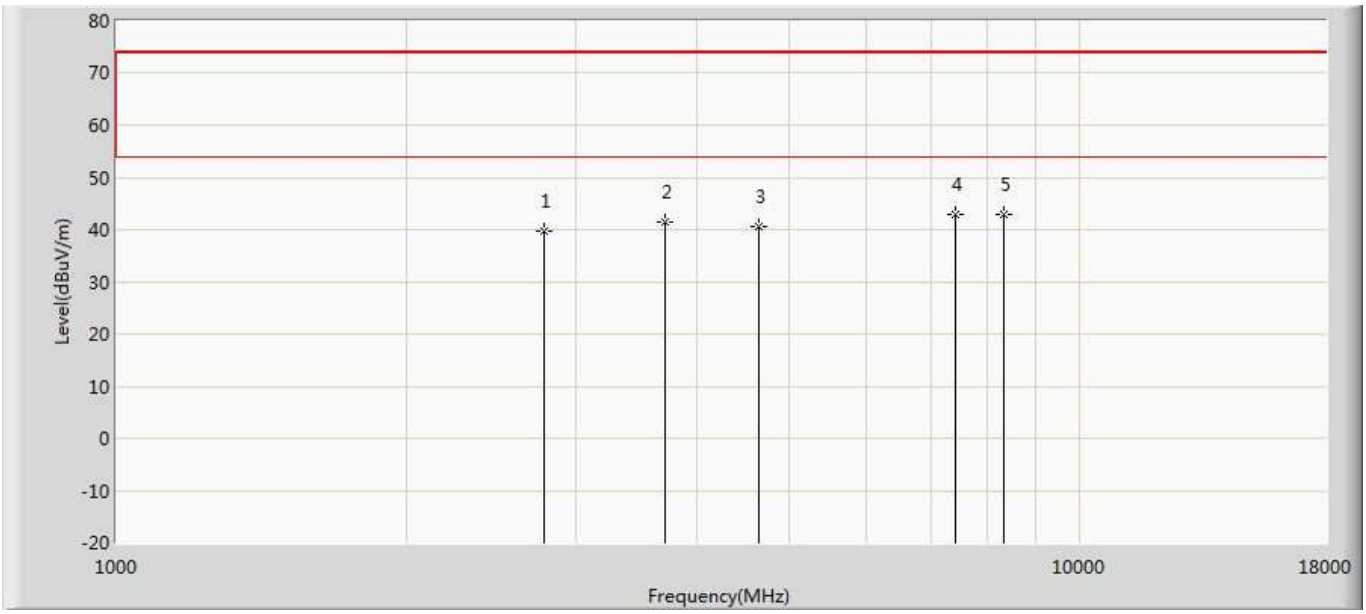
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2745.000	39.098	44.814	-34.902	74.000	-5.716	PK
2		3660.000	40.811	44.480	-33.189	74.000	-3.669	PK
3		4575.000	40.785	42.219	-33.215	74.000	-1.435	PK
4		7320.000	41.488	39.605	-32.512	74.000	1.884	PK
5		8235.000	42.259	39.738	-31.741	74.000	2.521	PK
6	*	9150.000	44.357	41.026	-29.643	74.000	3.331	PK

Engineer: Simon	
Site: AC5	Time: 2019/02/23 - 15:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 927.8MHz	



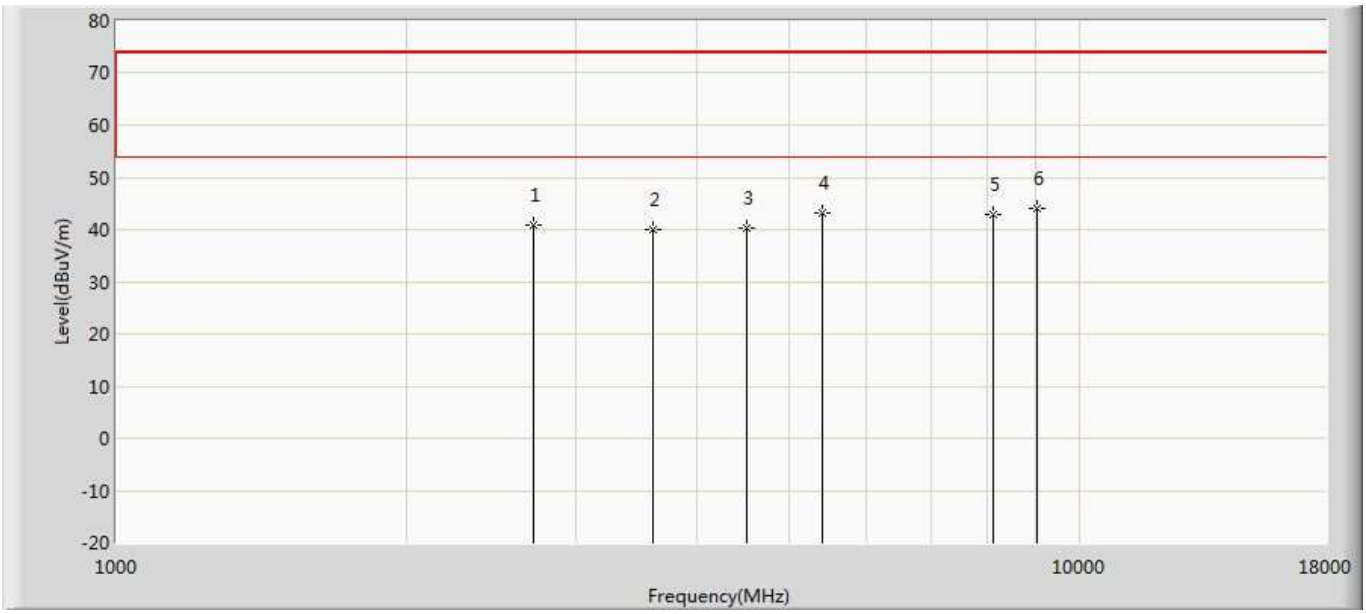
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2783.400	39.919	45.605	-34.081	74.000	-5.686	PK
2		3711.200	40.776	44.404	-33.224	74.000	-3.628	PK
3		4639.000	41.199	42.906	-32.801	74.000	-1.708	PK
4		7422.400	42.431	40.322	-31.569	74.000	2.109	PK
5	*	8350.200	42.514	39.515	-31.486	74.000	2.999	PK

Engineer: Simon	
Site: AC5	Time: 2019/02/23 - 15:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 927.8MHz	



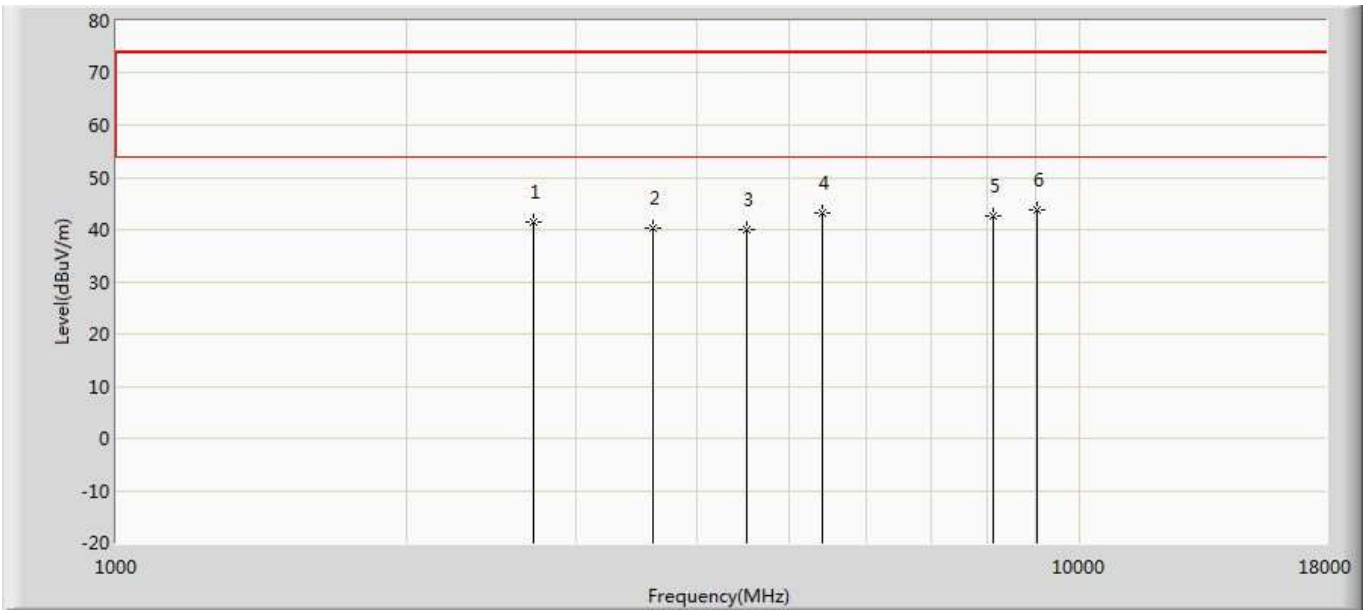
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2783.400	39.666	45.352	-34.334	74.000	-5.686	PK
2		3711.200	41.486	45.114	-32.514	74.000	-3.628	PK
3		4639.000	40.703	42.410	-33.297	74.000	-1.708	PK
4		7422.400	42.763	40.654	-31.237	74.000	2.109	PK
5	*	8350.200	42.956	39.957	-31.044	74.000	2.999	PK

Engineer: Simon	
Site: AC5	Time: 2019/02/23 - 15:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 902.3MHz	



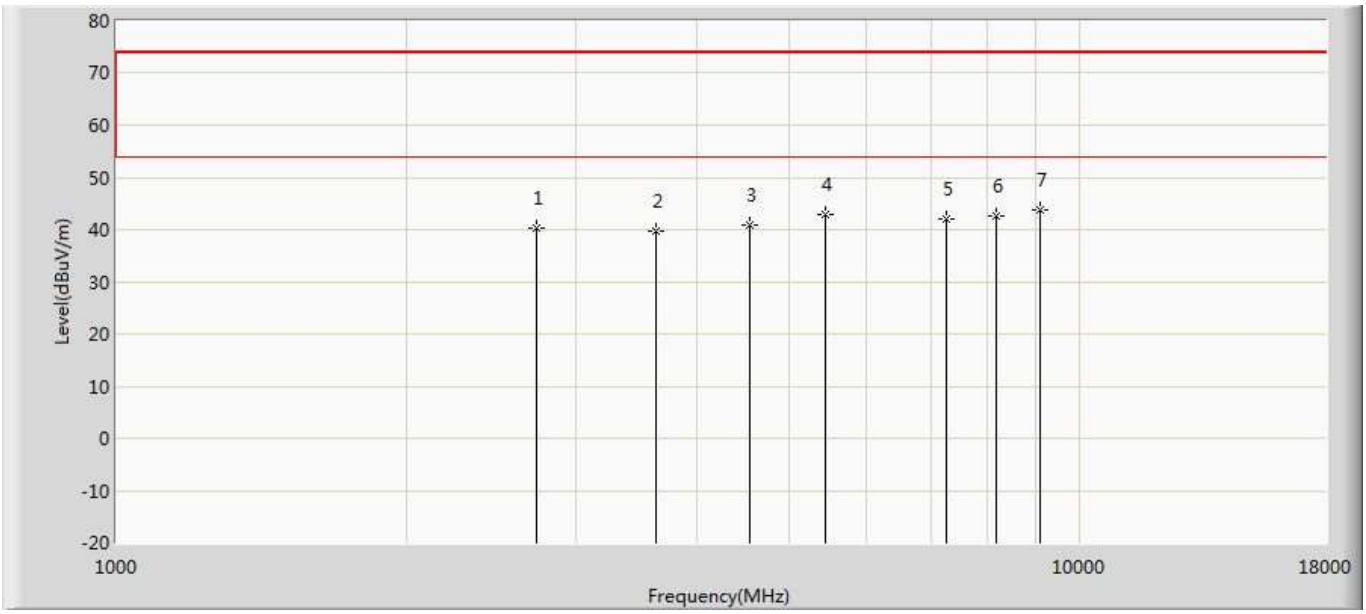
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2706.900	40.936	46.762	-33.064	74.000	-5.826	PK
2		3609.200	39.857	43.973	-34.143	74.000	-4.116	PK
3		4511.500	40.385	42.242	-33.615	74.000	-1.857	PK
4		5413.800	43.123	43.452	-30.877	74.000	-0.329	PK
5		8120.700	42.955	40.230	-31.045	74.000	2.724	PK
6	*	9023.000	44.103	40.105	-29.897	74.000	3.997	PK

Engineer: Simon	
Site: AC5	Time: 2019/02/23 - 15:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 902.3MHz	



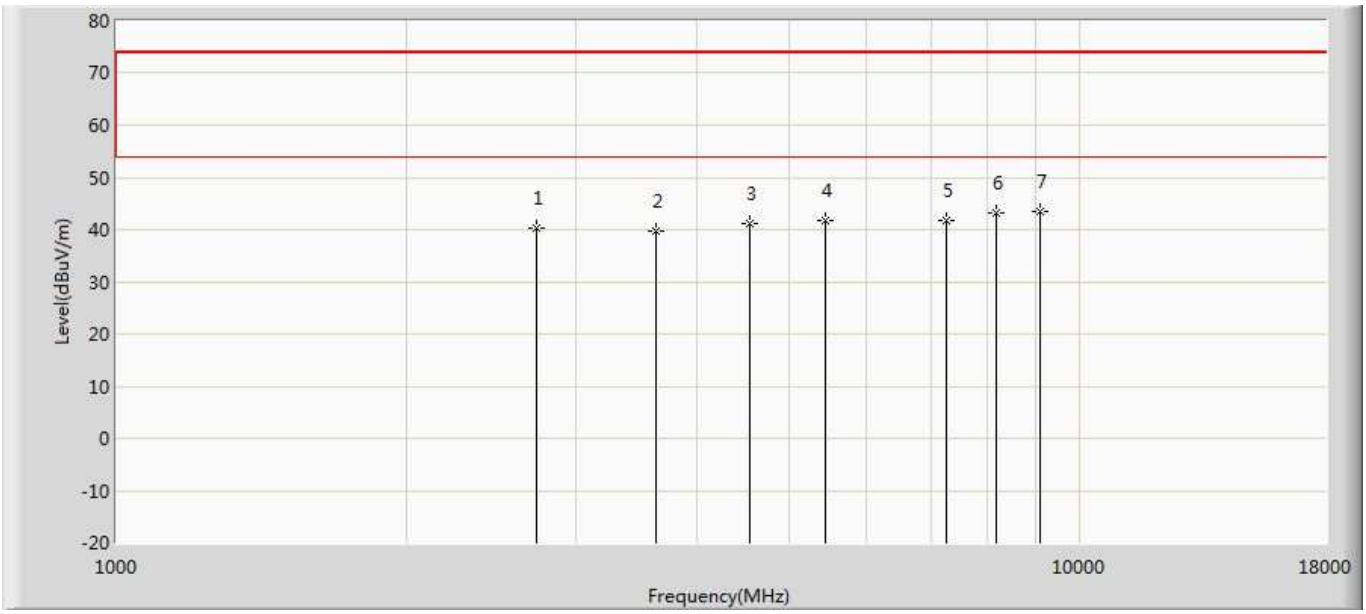
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2706.900	41.318	47.144	-32.682	74.000	-5.826	PK
2		3609.200	40.214	44.330	-33.786	74.000	-4.116	PK
3		4511.500	40.071	41.928	-33.929	74.000	-1.857	PK
4		5413.800	43.100	43.429	-30.900	74.000	-0.329	PK
5		8120.700	42.648	39.923	-31.352	74.000	2.724	PK
6	*	9023.000	43.875	39.877	-30.125	74.000	3.997	PK

Engineer: Simon	
Site: AC5	Time: 2019/02/23 - 15:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 908.5MHz	



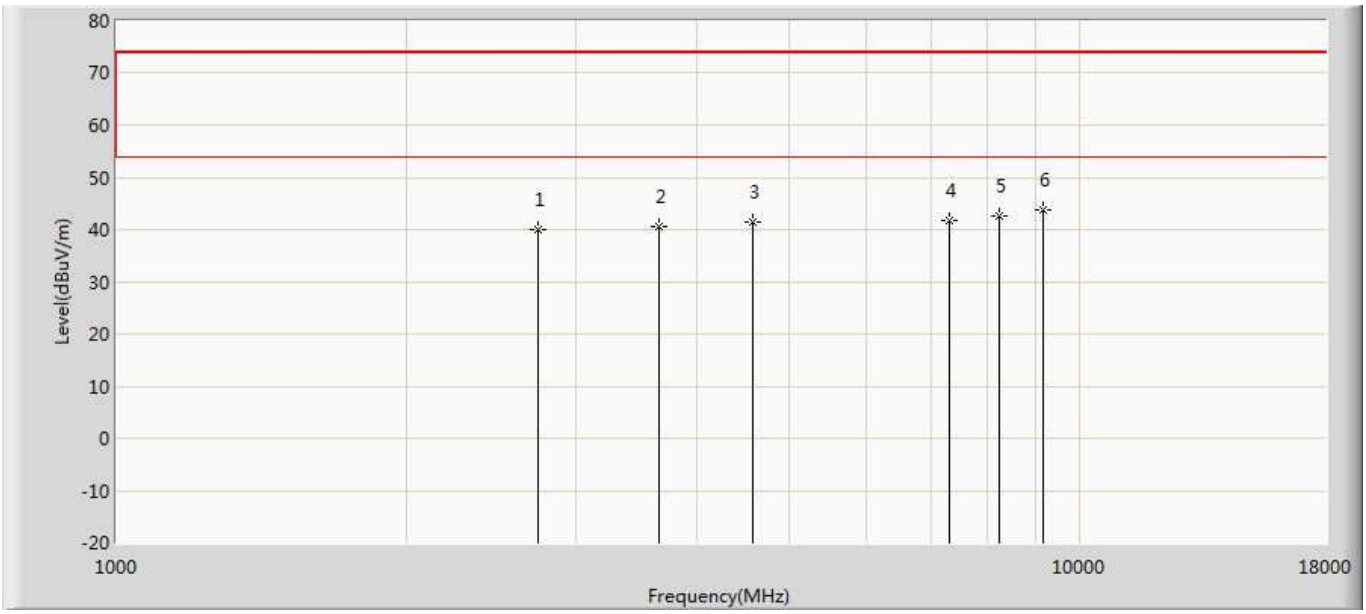
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2725.500	40.213	45.770	-33.787	74.000	-5.556	PK
2		3634.000	39.686	43.194	-34.314	74.000	-3.509	PK
3		4542.500	40.951	42.791	-33.049	74.000	-1.839	PK
4		5451.000	43.021	43.694	-30.979	74.000	-0.673	PK
5		7268.000	42.117	40.310	-31.883	74.000	1.808	PK
6		8176.500	42.508	39.664	-31.492	74.000	2.843	PK
7	*	9085.000	43.774	40.202	-30.226	74.000	3.572	PK

Engineer: Simon	
Site: AC5	Time: 2019/02/23 - 15:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 908.5MHz	



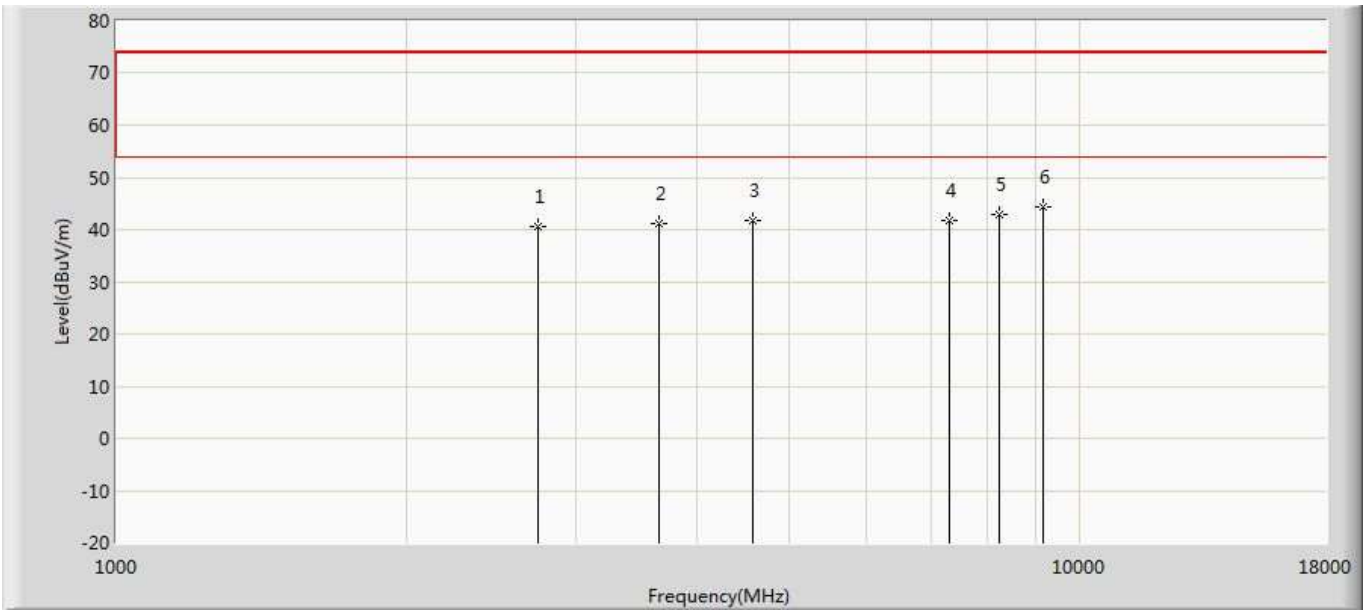
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2725.500	40.293	45.850	-33.707	74.000	-5.556	PK
2		3634.000	39.580	43.088	-34.420	74.000	-3.509	PK
3		4542.500	41.135	42.975	-32.865	74.000	-1.839	PK
4		5451.000	41.867	42.540	-32.133	74.000	-0.673	PK
5		7268.000	41.699	39.892	-32.301	74.000	1.808	PK
6		8176.500	43.052	40.208	-30.948	74.000	2.843	PK
7	*	9085.000	43.491	39.919	-30.509	74.000	3.572	PK

Engineer: Simon	
Site: AC5	Time: 2019/02/23 - 15:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 914.9MHz	



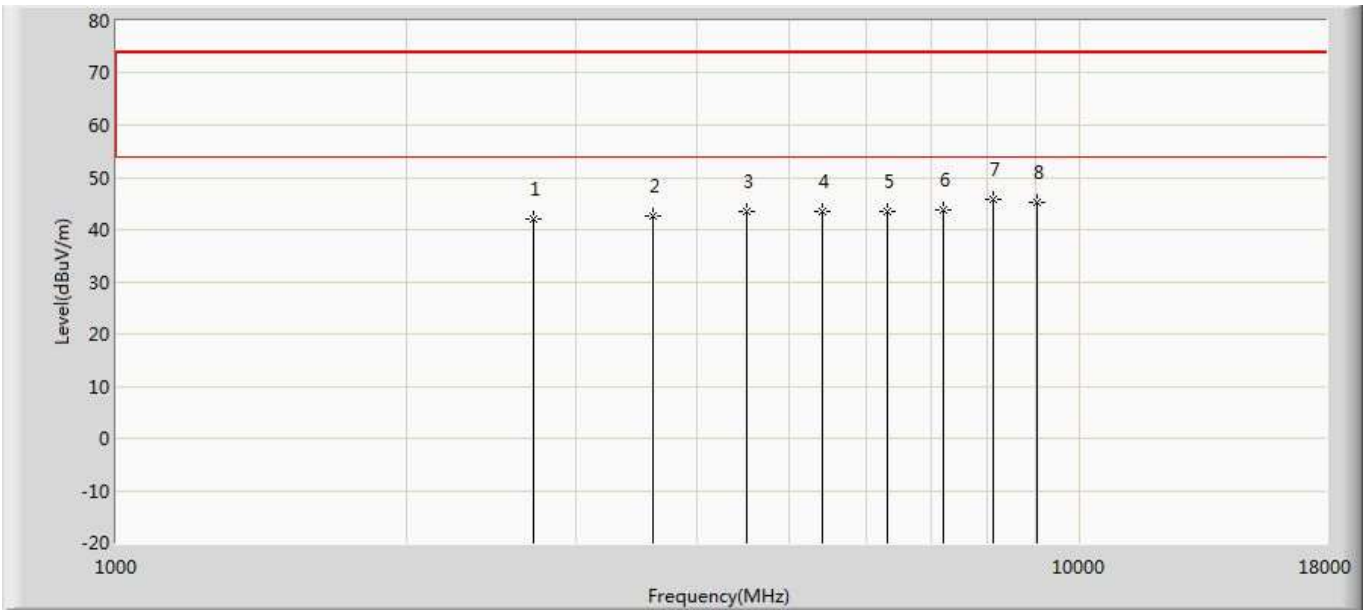
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2744.700	40.078	45.791	-33.922	74.000	-5.713	PK
2		3659.600	40.454	44.123	-33.546	74.000	-3.669	PK
3		4574.500	41.471	42.902	-32.529	74.000	-1.431	PK
4		7319.200	41.752	39.876	-32.248	74.000	1.877	PK
5		8234.100	42.479	39.963	-31.521	74.000	2.516	PK
6	*	9149.000	43.862	40.519	-30.138	74.000	3.343	PK

Engineer: Simon	
Site: AC5	Time: 2019/02/23 - 15:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 914.9MHz	



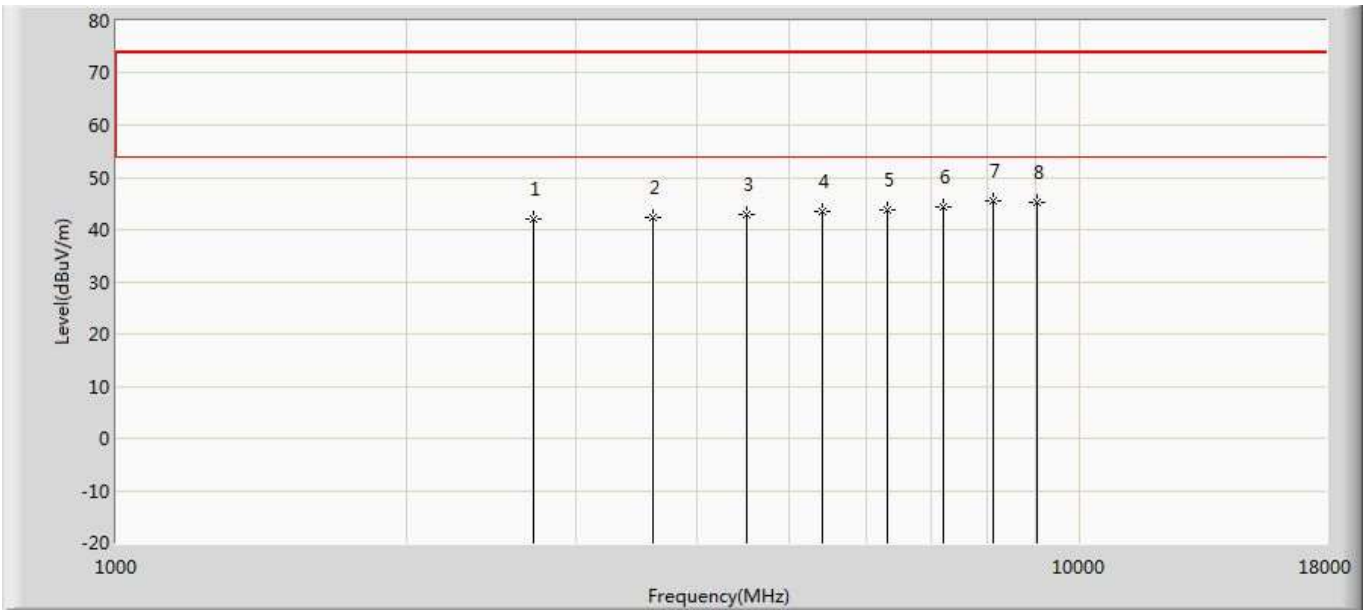
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2744.700	40.463	46.176	-33.537	74.000	-5.713	PK
2		3659.600	41.210	44.879	-32.790	74.000	-3.669	PK
3		4574.500	41.696	43.127	-32.304	74.000	-1.431	PK
4		7319.200	41.743	39.867	-32.257	74.000	1.877	PK
5		8234.100	42.886	40.370	-31.114	74.000	2.516	PK
6	*	9149.000	44.217	40.874	-29.783	74.000	3.343	PK

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 16:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 902.2MHz	



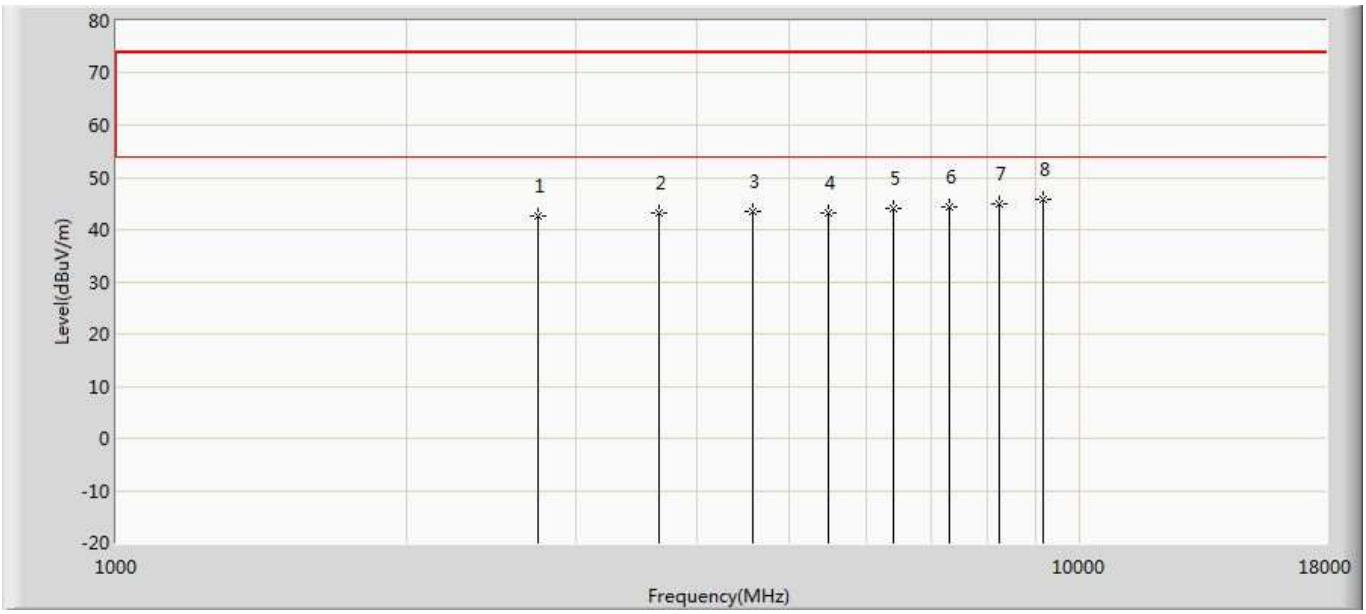
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2706.600	42.139	41.195	-31.861	74.000	0.944	PK
2		3608.800	42.584	39.905	-31.416	74.000	2.679	PK
3		4511.000	43.397	39.184	-30.603	74.000	4.213	PK
4		5413.200	43.598	38.197	-30.402	74.000	5.401	PK
5		6315.400	43.452	36.620	-30.548	74.000	6.831	PK
6		7217.600	43.651	35.968	-30.349	74.000	7.683	PK
7	*	8119.800	45.673	37.447	-28.327	74.000	8.225	PK
8		9022.000	45.348	36.132	-28.652	74.000	9.215	PK

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 16:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 902.2MHz	



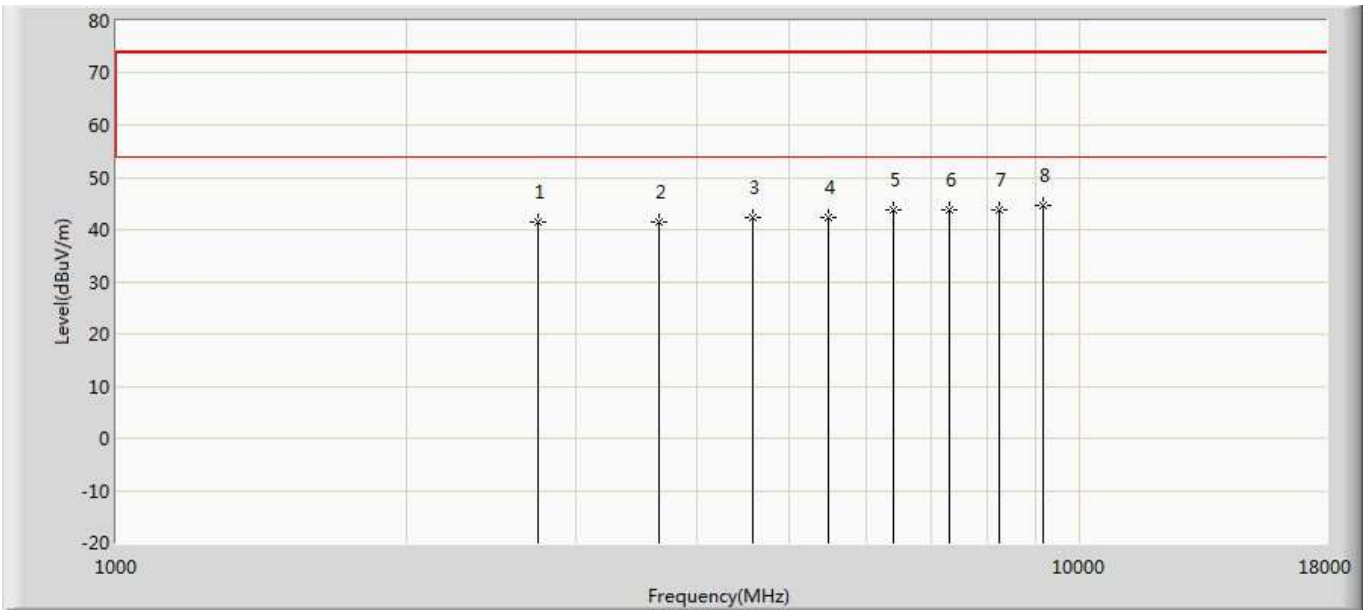
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2706.600	42.129	41.185	-31.871	74.000	0.944	PK
2		3608.800	42.231	39.552	-31.769	74.000	2.679	PK
3		4511.000	42.988	38.775	-31.012	74.000	4.213	PK
4		5413.200	43.545	38.144	-30.455	74.000	5.401	PK
5		6315.400	43.673	36.841	-30.327	74.000	6.831	PK
6		7217.600	44.488	36.805	-29.512	74.000	7.683	PK
7	*	8119.800	45.547	37.321	-28.453	74.000	8.225	PK
8		9022.000	45.349	36.133	-28.651	74.000	9.215	PK

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 16:47
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 915MHz	



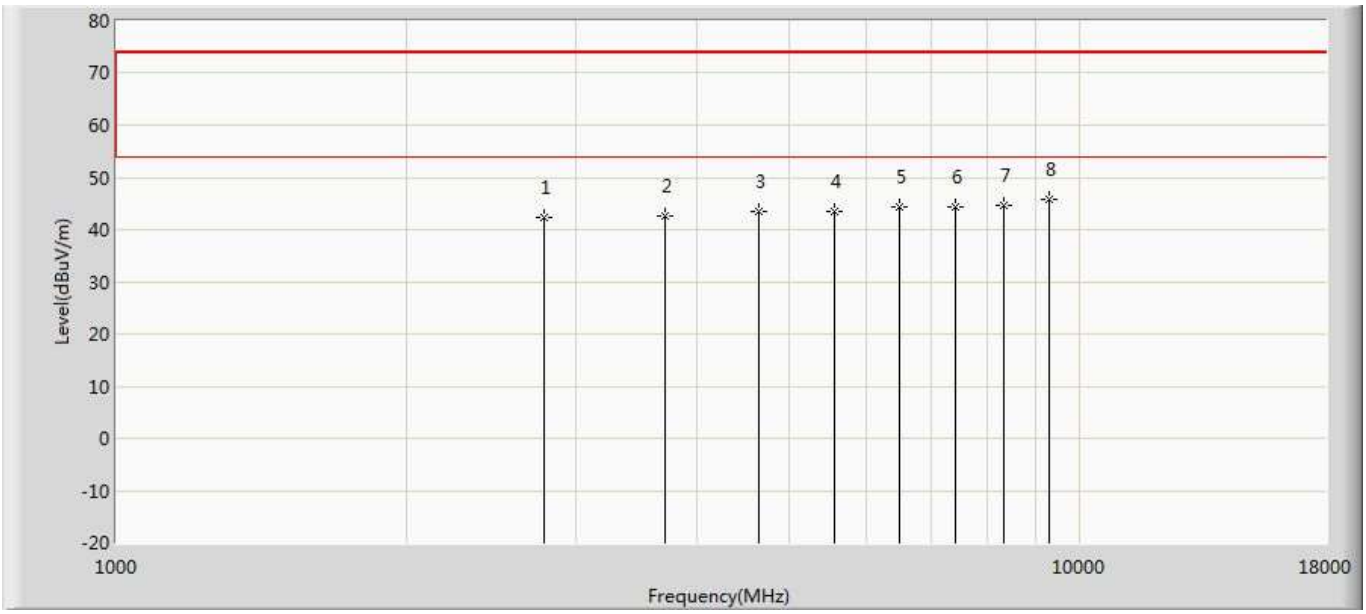
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2745.000	42.693	41.677	-31.307	74.000	1.016	PK
2		3660.000	43.237	40.572	-30.763	74.000	2.665	PK
3		4575.000	43.347	39.157	-30.653	74.000	4.190	PK
4		5490.000	43.286	37.704	-30.714	74.000	5.582	PK
5		6405.000	43.937	37.074	-30.063	74.000	6.863	PK
6		7320.000	44.372	36.619	-29.628	74.000	7.753	PK
7		8235.000	44.843	36.462	-29.157	74.000	8.381	PK
8	*	9150.000	45.834	36.725	-28.166	74.000	9.108	PK

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 16:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 915MHz	



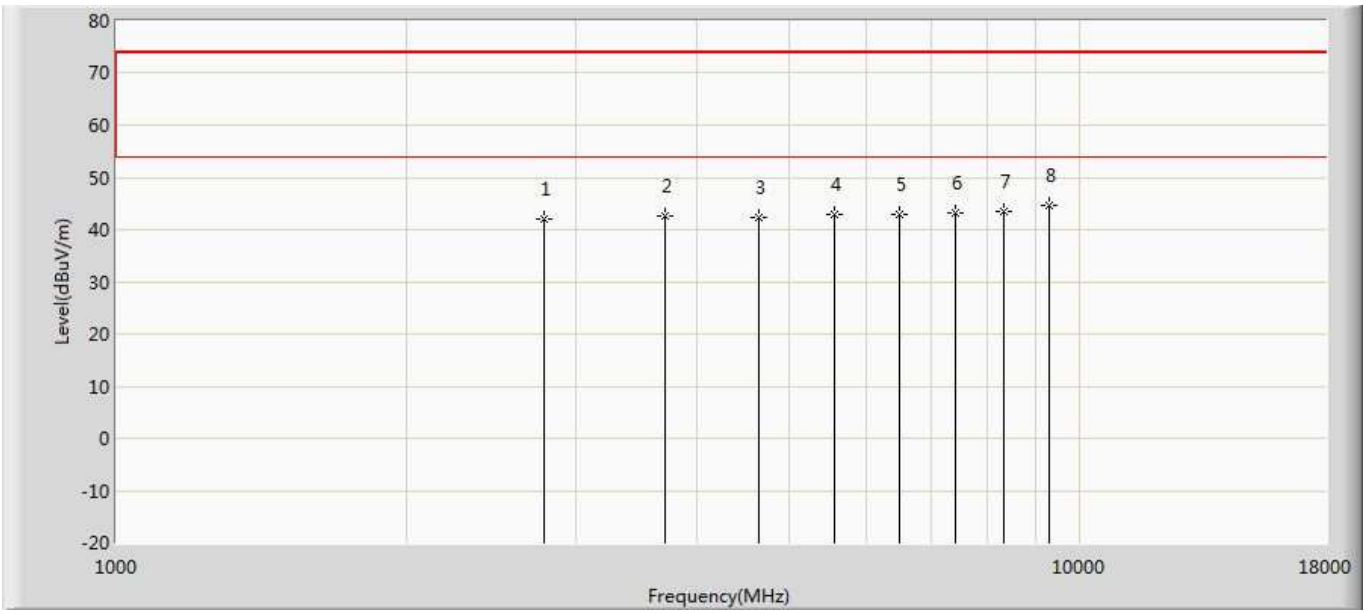
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2745.000	41.437	40.421	-32.563	74.000	1.016	PK
2		3660.000	41.542	38.877	-32.458	74.000	2.665	PK
3		4575.000	42.186	37.996	-31.814	74.000	4.190	PK
4		5490.000	42.178	36.596	-31.822	74.000	5.582	PK
5		6405.000	43.865	37.002	-30.135	74.000	6.863	PK
6		7320.000	43.711	35.958	-30.289	74.000	7.753	PK
7		8235.000	43.865	35.484	-30.135	74.000	8.381	PK
8	*	9150.000	44.562	35.453	-29.438	74.000	9.108	PK

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 16:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 927.8MHz	



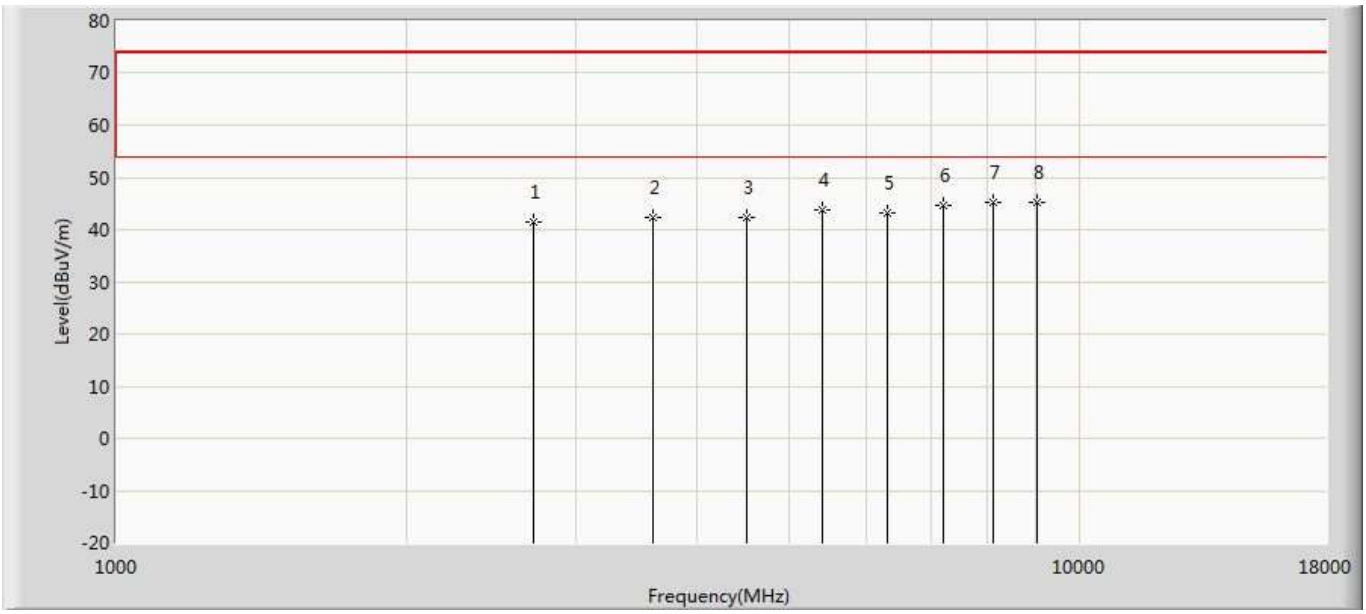
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2783.400	42.293	41.147	-31.707	74.000	1.146	PK
2		3711.200	42.532	39.634	-31.468	74.000	2.899	PK
3		4639.000	43.569	39.370	-30.431	74.000	4.199	PK
4		5566.800	43.486	37.834	-30.514	74.000	5.651	PK
5		6494.600	44.234	37.208	-29.766	74.000	7.027	PK
6		7422.400	44.239	36.390	-29.761	74.000	7.849	PK
7		8350.200	44.548	36.235	-29.452	74.000	8.313	PK
8	*	9278.000	45.653	36.457	-28.347	74.000	9.196	PK

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 16:55
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 4:Transmit at 927.8MHz	



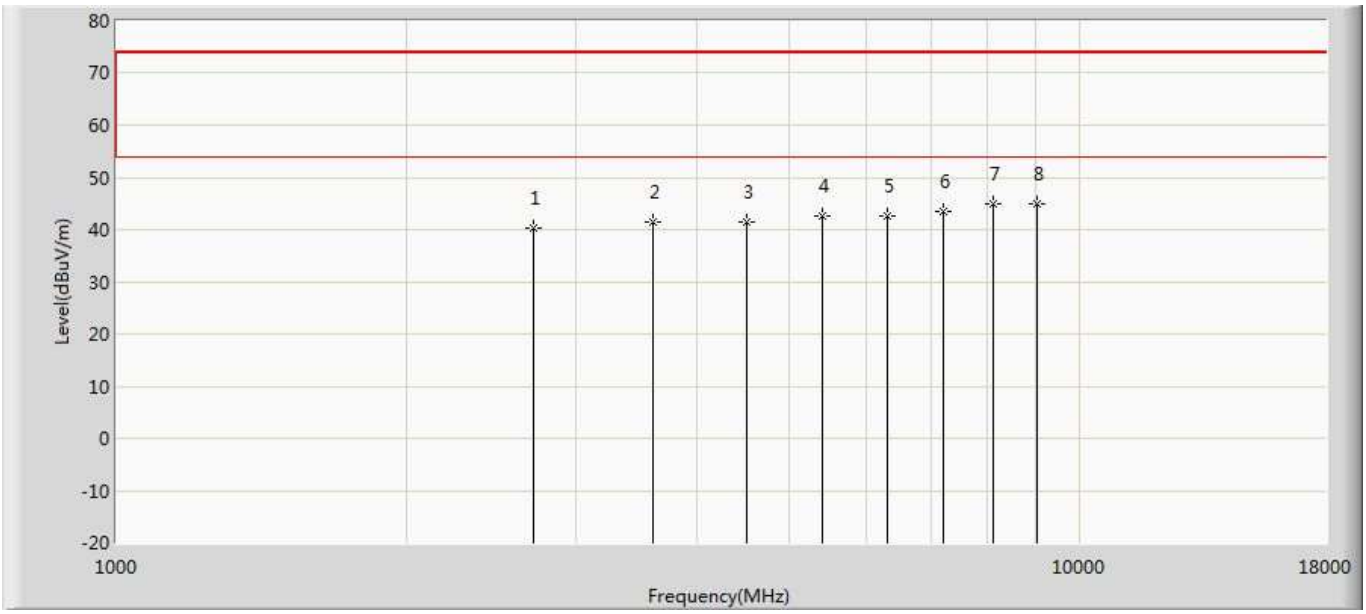
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2783.400	42.122	40.976	-31.878	74.000	1.146	PK
2		3711.200	42.489	39.591	-31.511	74.000	2.899	PK
3		4639.000	42.355	38.156	-31.645	74.000	4.199	PK
4		5566.800	42.787	37.135	-31.213	74.000	5.651	PK
5		6494.600	42.768	35.742	-31.232	74.000	7.027	PK
6		7422.400	43.284	35.435	-30.716	74.000	7.849	PK
7		8350.200	43.395	35.082	-30.605	74.000	8.313	PK
8	*	9278.000	44.734	35.538	-29.266	74.000	9.196	PK

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 16:09
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode5:Transmit at 902.2MHz	



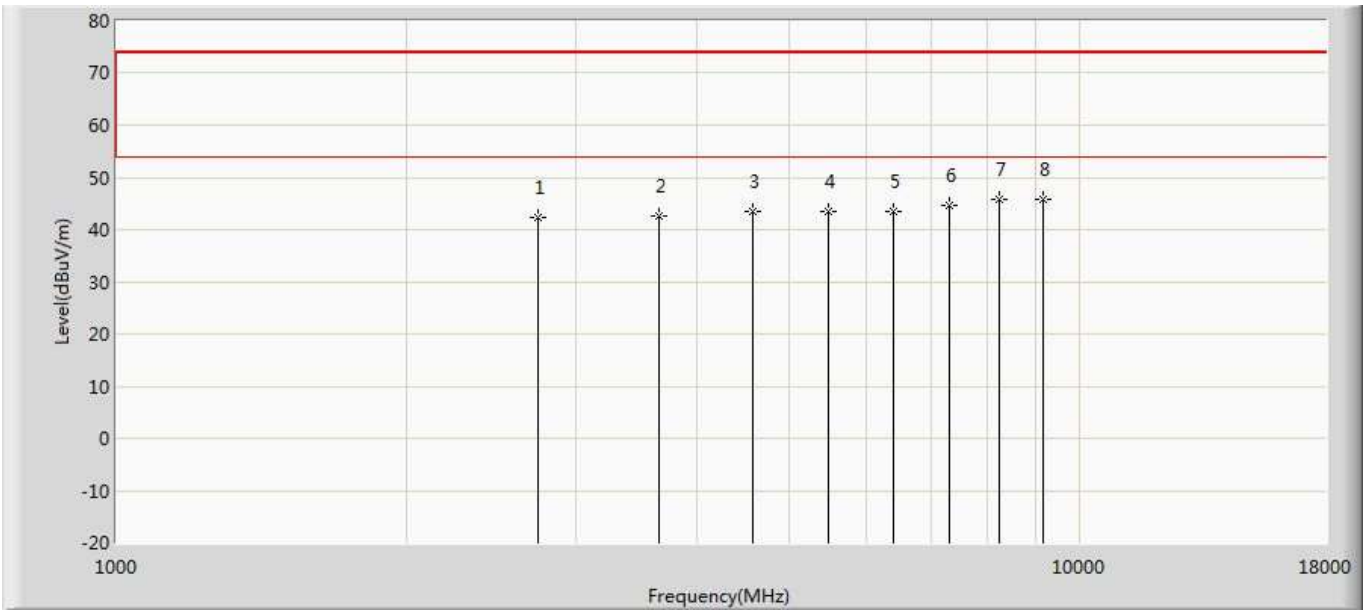
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2706.600	41.436	40.492	-32.564	74.000	0.944	PK
2		3608.800	42.190	39.511	-31.810	74.000	2.679	PK
3		4511.000	42.285	38.072	-31.715	74.000	4.213	PK
4		5413.200	43.892	38.491	-30.108	74.000	5.401	PK
5		6315.400	43.299	36.467	-30.701	74.000	6.831	PK
6		7217.600	44.769	37.086	-29.231	74.000	7.683	PK
7	*	8119.800	45.329	37.103	-28.671	74.000	8.225	PK
8		9022.000	45.229	36.013	-28.771	74.000	9.215	PK

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 16:14
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode5:Transmit at 902.2MHz	



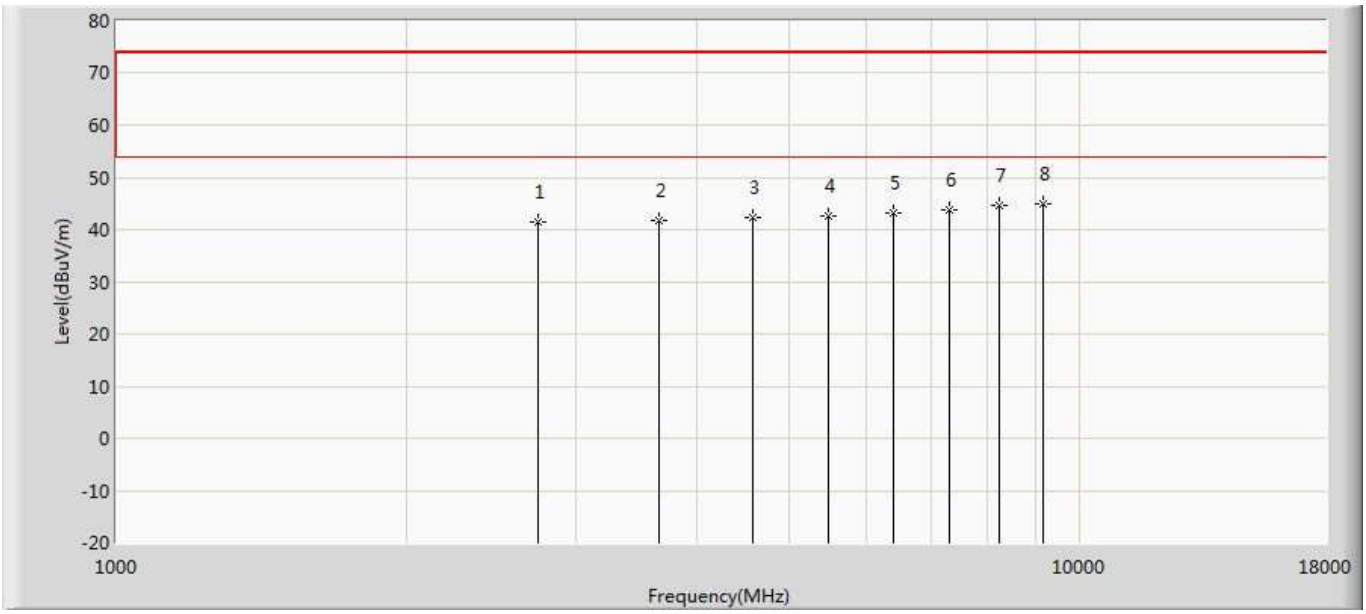
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2706.600	40.149	39.205	-33.851	74.000	0.944	PK
2		3608.800	41.439	38.760	-32.561	74.000	2.679	PK
3		4511.000	41.578	37.365	-32.422	74.000	4.213	PK
4		5413.200	42.561	37.160	-31.439	74.000	5.401	PK
5		6315.400	42.589	35.757	-31.411	74.000	6.831	PK
6		7217.600	43.452	35.769	-30.548	74.000	7.683	PK
7	*	8119.800	44.953	36.727	-29.047	74.000	8.225	PK
8		9022.000	44.824	35.608	-29.176	74.000	9.215	PK

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 16:20
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode5:Transmit at 915MHz	



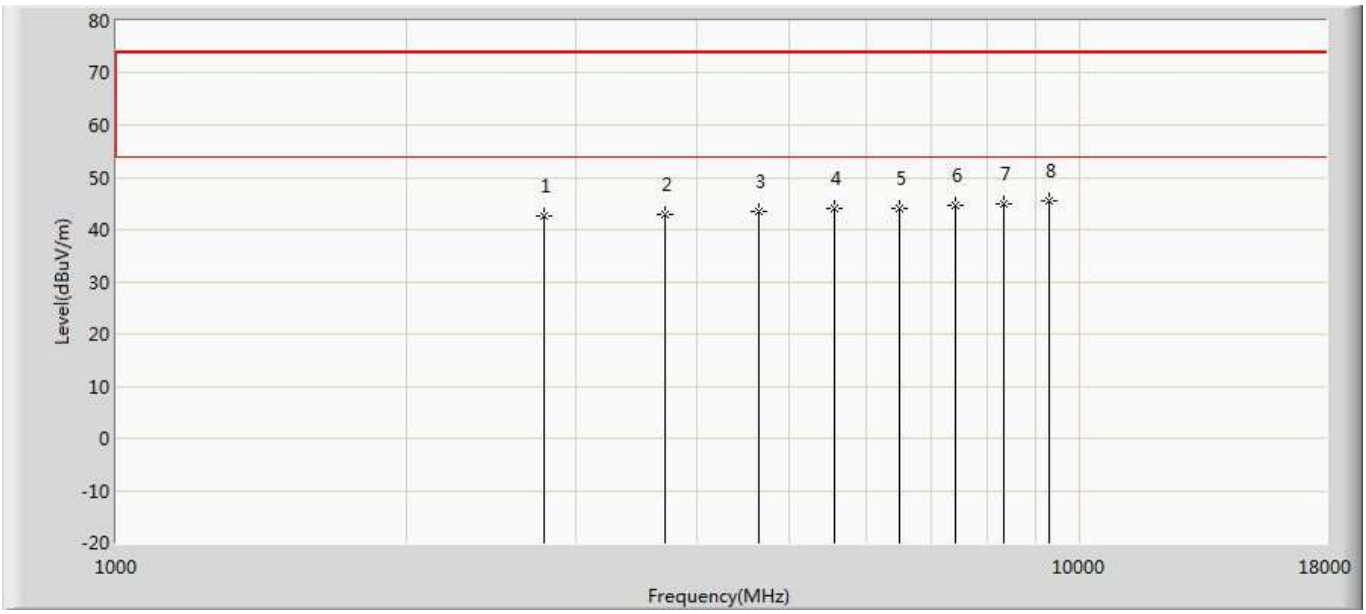
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2745.000	42.440	41.424	-31.560	74.000	1.016	PK
2		3660.000	42.594	39.929	-31.406	74.000	2.665	PK
3		4575.000	43.509	39.319	-30.491	74.000	4.190	PK
4		5490.000	43.597	38.015	-30.403	74.000	5.582	PK
5		6405.000	43.582	36.719	-30.418	74.000	6.863	PK
6		7320.000	44.587	36.834	-29.413	74.000	7.753	PK
7	*	8235.000	45.856	37.475	-28.144	74.000	8.381	PK
8		9150.000	45.678	36.569	-28.322	74.000	9.108	PK

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 16:23
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode5:Transmit at 915MHz	



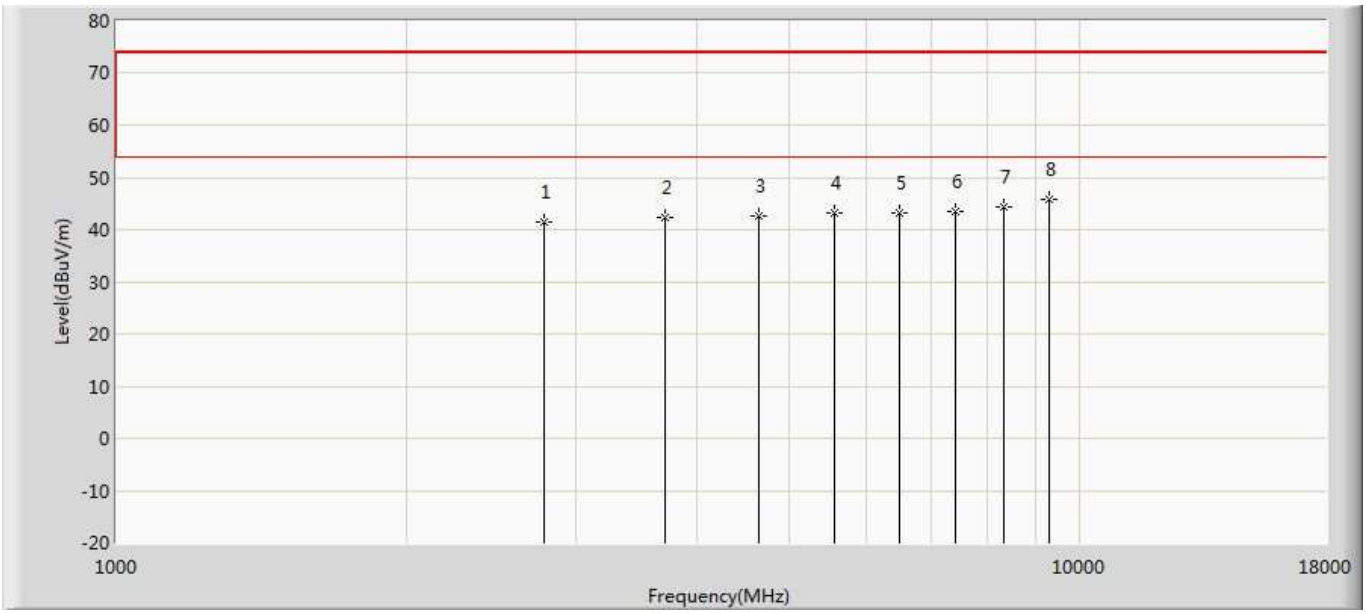
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2745.000	41.483	40.467	-32.517	74.000	1.016	PK
2		3660.000	41.599	38.934	-32.401	74.000	2.665	PK
3		4575.000	42.459	38.269	-31.541	74.000	4.190	PK
4		5490.000	42.597	37.015	-31.403	74.000	5.582	PK
5		6405.000	43.132	36.269	-30.868	74.000	6.863	PK
6		7320.000	43.674	35.921	-30.326	74.000	7.753	PK
7		8235.000	44.572	36.191	-29.428	74.000	8.381	PK
8	*	9150.000	44.875	35.766	-29.125	74.000	9.108	PK

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 16:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode5:Transmit at 927.8MHz	



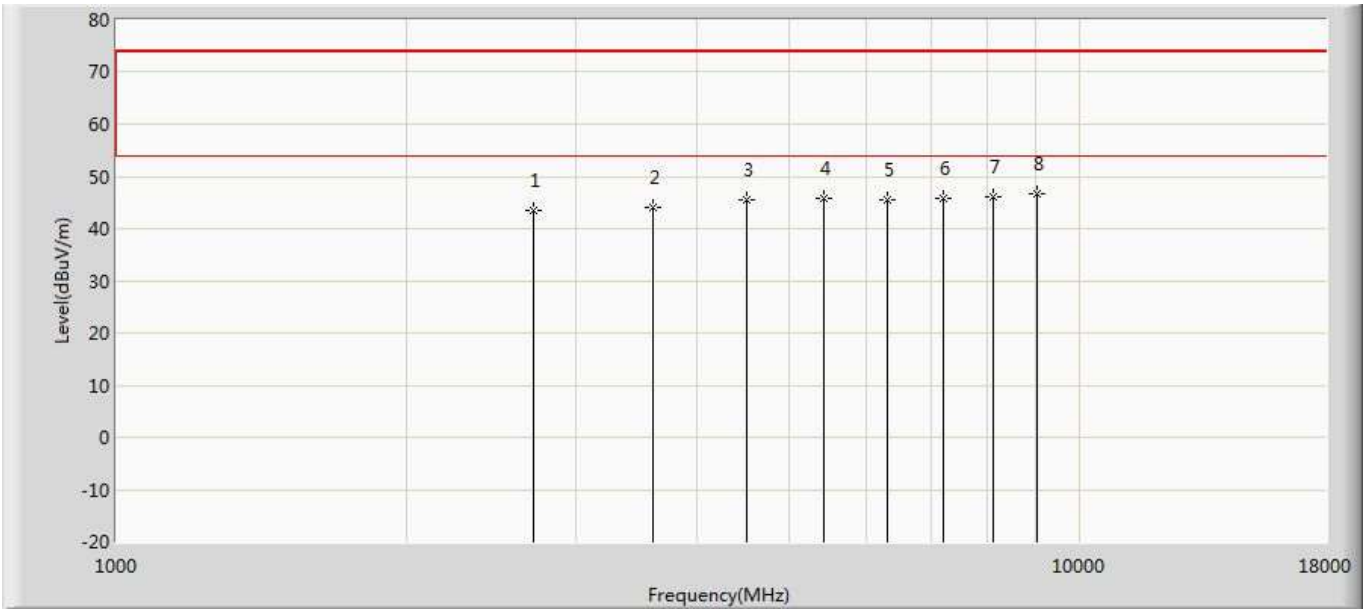
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2783.400	42.587	41.441	-31.413	74.000	1.146	PK
2		3711.200	42.972	40.074	-31.028	74.000	2.899	PK
3		4639.000	43.582	39.383	-30.418	74.000	4.199	PK
4		5566.800	43.921	38.269	-30.079	74.000	5.651	PK
5		6494.600	43.928	36.902	-30.072	74.000	7.027	PK
6		7422.400	44.693	36.844	-29.307	74.000	7.849	PK
7		8350.200	44.933	36.620	-29.067	74.000	8.313	PK
8	*	9278.000	45.497	36.301	-28.503	74.000	9.196	PK

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 16:30
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode5:Transmit at 927.8MHz	



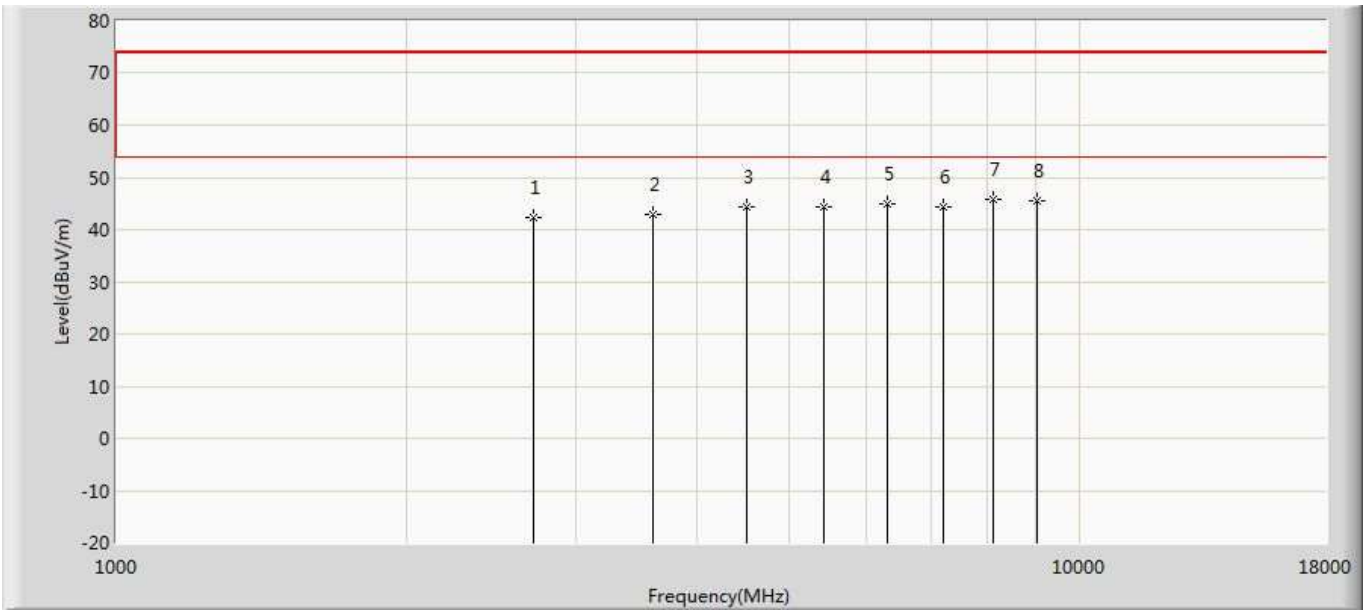
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2783.400	41.479	40.333	-32.521	74.000	1.146	PK
2		3711.200	42.218	39.320	-31.782	74.000	2.899	PK
3		4639.000	42.573	38.374	-31.427	74.000	4.199	PK
4		5566.800	43.235	37.583	-30.765	74.000	5.651	PK
5		6494.600	43.216	36.190	-30.784	74.000	7.027	PK
6		7422.400	43.439	35.590	-30.561	74.000	7.849	PK
7		8350.200	44.437	36.124	-29.563	74.000	8.313	PK
8	*	9278.000	45.927	36.731	-28.073	74.000	9.196	PK

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 15:25
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode6:Transmit at 902.4MHz	



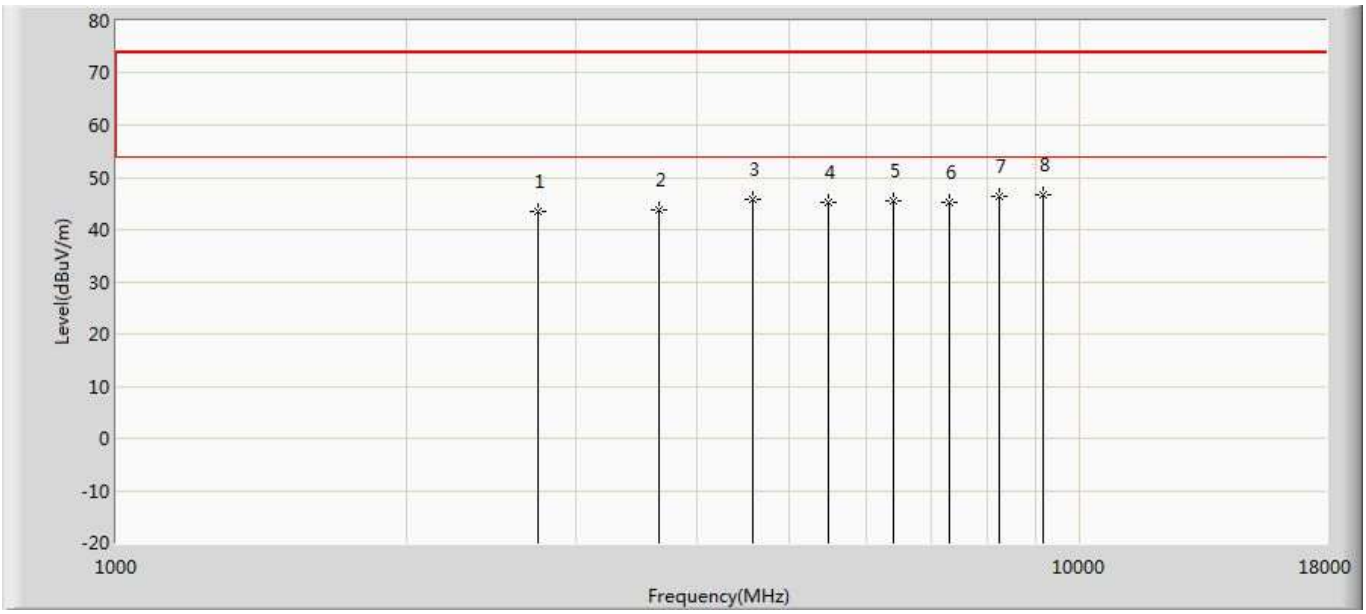
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2707.200	43.456	42.508	-30.544	74.000	0.947	PK
2		3609.600	43.983	41.299	-30.017	74.000	2.685	PK
3		4512.000	45.463	41.257	-28.537	74.000	4.206	PK
4		5414.400	45.865	40.469	-28.135	74.000	5.396	PK
5		6316.800	45.436	38.587	-28.564	74.000	6.848	PK
6		7219.200	45.879	38.198	-28.121	74.000	7.681	PK
7		8121.600	46.221	37.995	-27.779	74.000	8.225	PK
8	*	9024.000	46.799	37.546	-27.201	74.000	9.253	PK

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 15:49
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode6:Transmit at 902.4MHz	



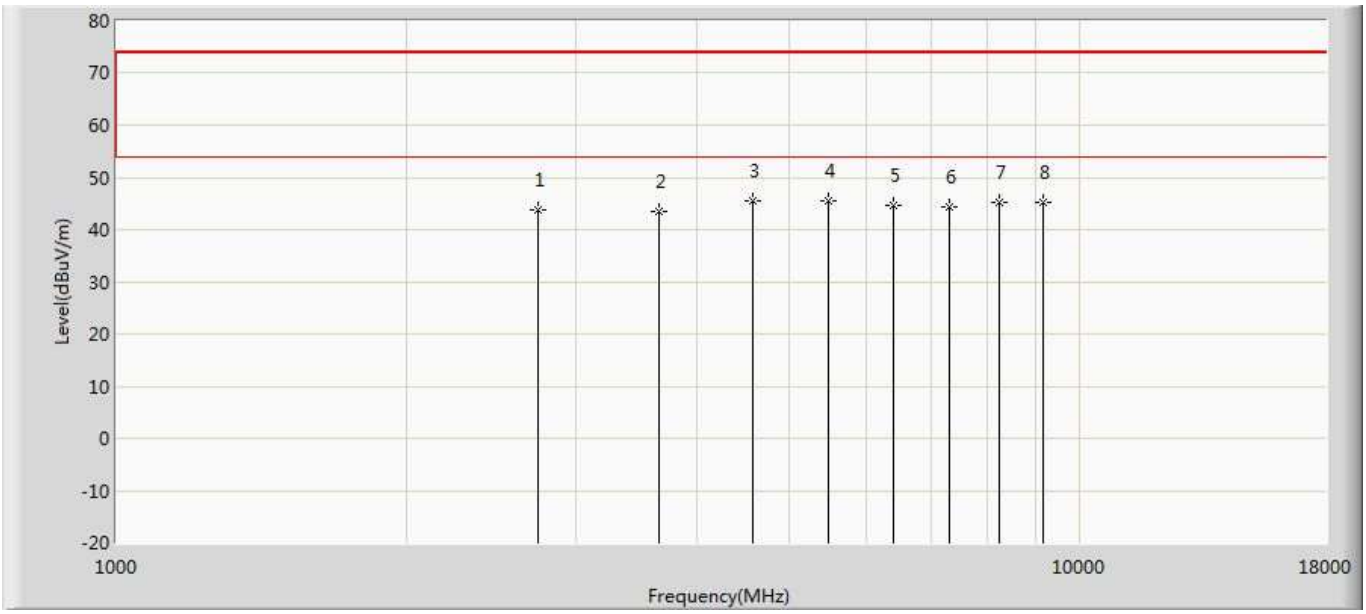
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2707.200	42.348	41.400	-31.652	74.000	0.947	PK
2		3609.600	42.904	40.220	-31.096	74.000	2.685	PK
3		4512.000	44.289	40.083	-29.711	74.000	4.206	PK
4		5414.400	44.234	38.838	-29.766	74.000	5.396	PK
5		6316.800	44.905	38.056	-29.095	74.000	6.848	PK
6		7219.200	44.274	36.593	-29.726	74.000	7.681	PK
7	*	8121.600	45.733	37.507	-28.267	74.000	8.225	PK
8		9024.000	45.485	36.232	-28.515	74.000	9.253	PK

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 15:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode6:Transmit at 914.8MHz	



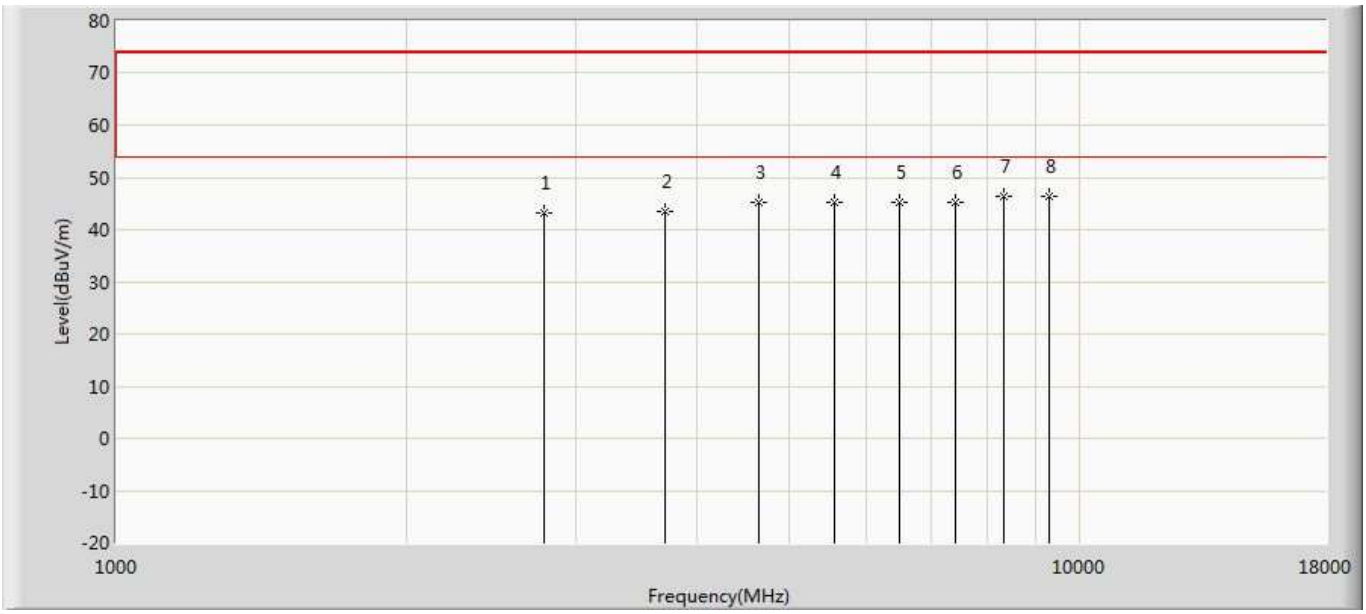
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2744.400	43.539	42.525	-30.461	74.000	1.013	PK
2		3659.200	43.654	41.001	-30.346	74.000	2.653	PK
3		4574.000	45.765	41.579	-28.235	74.000	4.186	PK
4		5488.800	45.094	39.509	-28.906	74.000	5.585	PK
5		6403.600	45.423	38.561	-28.577	74.000	6.862	PK
6		7318.400	45.285	37.534	-28.715	74.000	7.752	PK
7		8233.200	46.324	37.949	-27.676	74.000	8.375	PK
8	*	9148.000	46.549	37.428	-27.451	74.000	9.121	PK

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 15:59
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode6:Transmit at 914.8MHz	



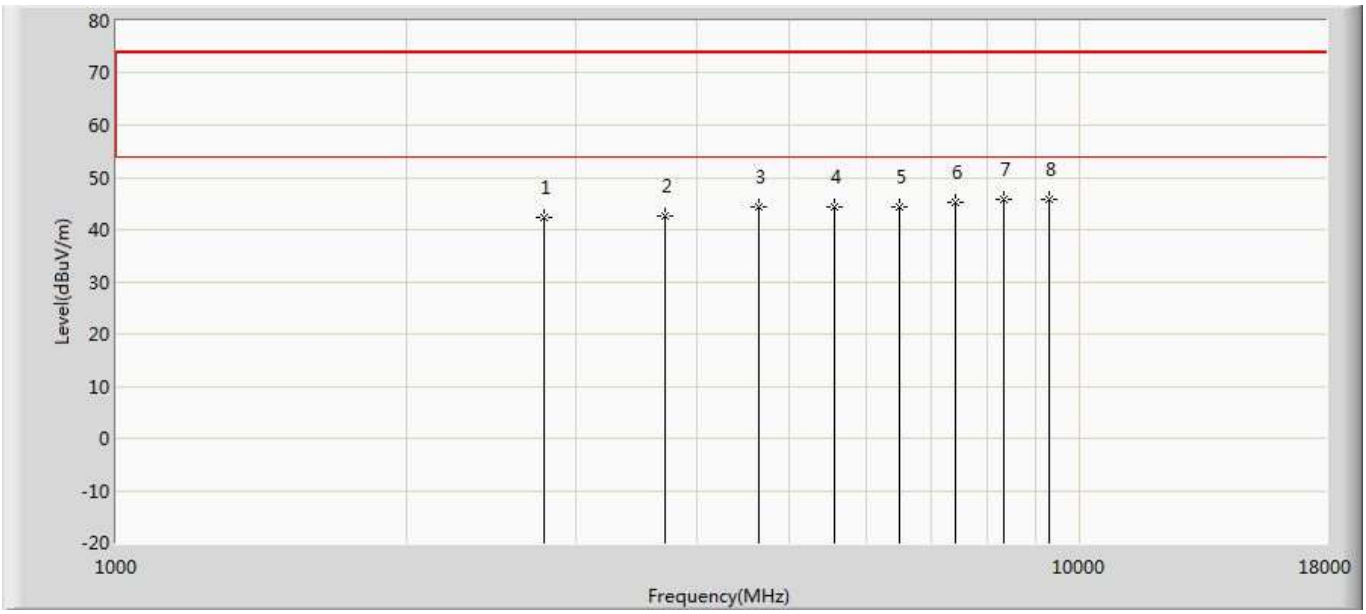
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2744.400	43.634	42.620	-30.366	74.000	1.013	PK
2		3659.200	43.381	40.728	-30.619	74.000	2.653	PK
3	*	4574.000	45.589	41.403	-28.411	74.000	4.186	PK
4		5488.800	45.421	39.836	-28.579	74.000	5.585	PK
5		6403.600	44.534	37.672	-29.466	74.000	6.862	PK
6		7318.400	44.236	36.485	-29.764	74.000	7.752	PK
7		8233.200	45.236	36.861	-28.764	74.000	8.375	PK
8		9148.000	45.289	36.168	-28.711	74.000	9.121	PK

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 16:02
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode6:Transmit at 927.6MHz	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2782.800	43.230	42.087	-30.770	74.000	1.144	PK
2		3710.400	43.430	40.534	-30.570	74.000	2.897	PK
3		4638.000	45.208	41.020	-28.792	74.000	4.188	PK
4		5565.600	45.248	39.605	-28.752	74.000	5.643	PK
5		6493.200	45.108	38.084	-28.892	74.000	7.024	PK
6		7420.800	45.273	37.402	-28.727	74.000	7.871	PK
7	*	8348.400	46.282	38.005	-27.718	74.000	8.278	PK
8		9276.000	46.232	37.059	-27.768	74.000	9.173	PK

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 16:05
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode6:Transmit at 927.6MHz	



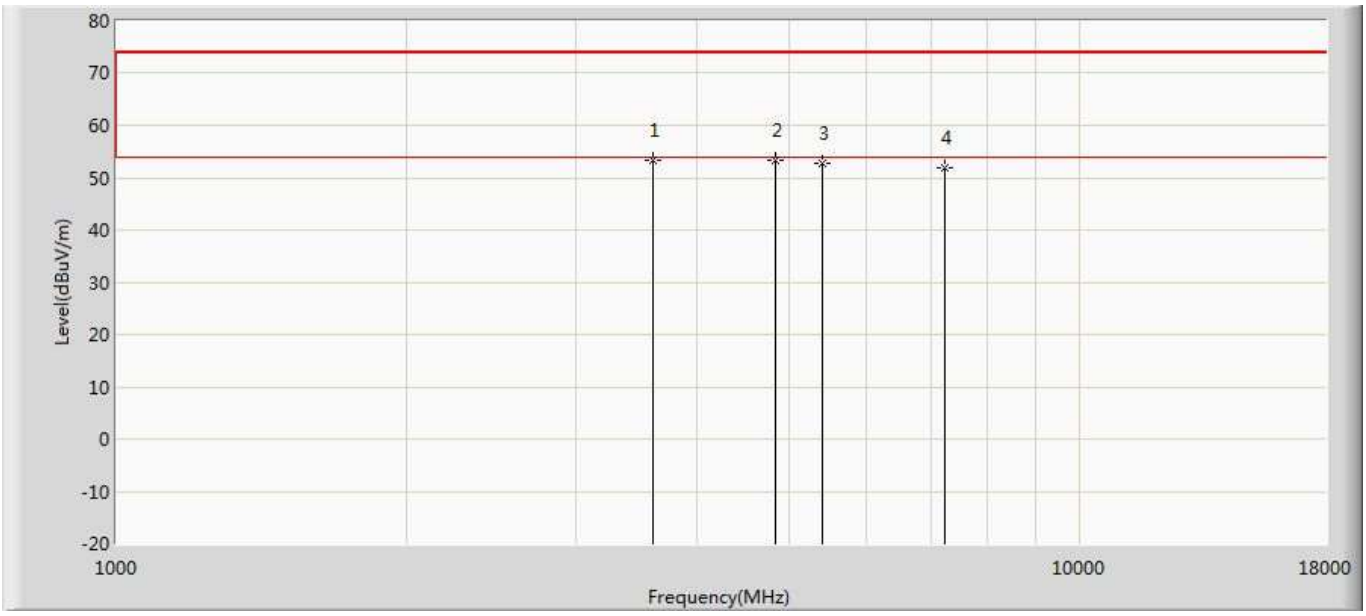
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2782.800	42.235	41.092	-31.765	74.000	1.144	PK
2		3710.400	42.632	39.736	-31.368	74.000	2.897	PK
3		4638.000	44.299	40.111	-29.701	74.000	4.188	PK
4		5565.600	44.355	38.712	-29.645	74.000	5.643	PK
5		6493.200	44.290	37.266	-29.710	74.000	7.024	PK
6		7420.800	45.129	37.258	-28.871	74.000	7.871	PK
7		8348.800	45.825	37.540	-28.175	74.000	8.285	PK
8	*	9276.000	45.837	36.664	-28.163	74.000	9.173	PK

Note:

1. Measured Level = Reading Level + Factor.
2. The test frequency range, 9kHz~30MHz, the worst case are at least 20dB 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.
4. As the radiated emission was performed, so conducted emission was not tested.

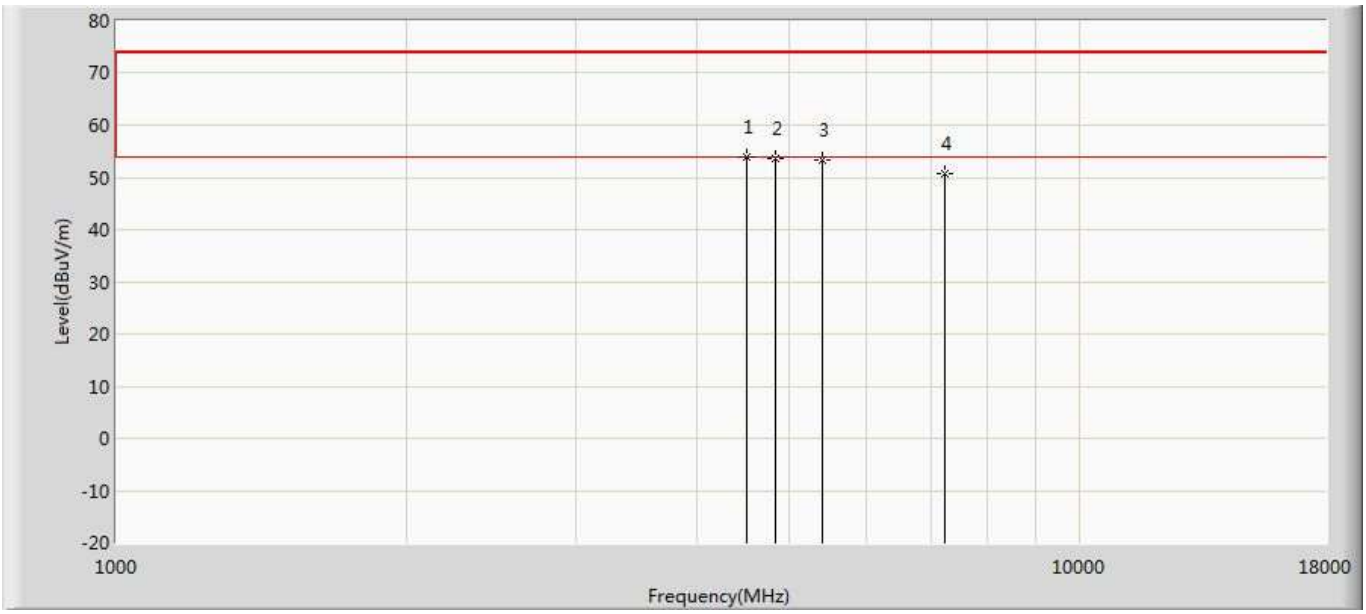
The worst case of simultaneously transmit

Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 22:52
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode: simultaneously transmit(WIFI+LoRa)	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	3609.500	53.256	57.364	-20.744	74.000	-4.107	PK
2		4824.000	53.198	54.730	-20.802	74.000	-1.532	PK
3		5411.500	52.688	53.041	-21.312	74.000	-0.353	PK
4		7236.000	52.006	50.182	-21.994	74.000	1.824	PK

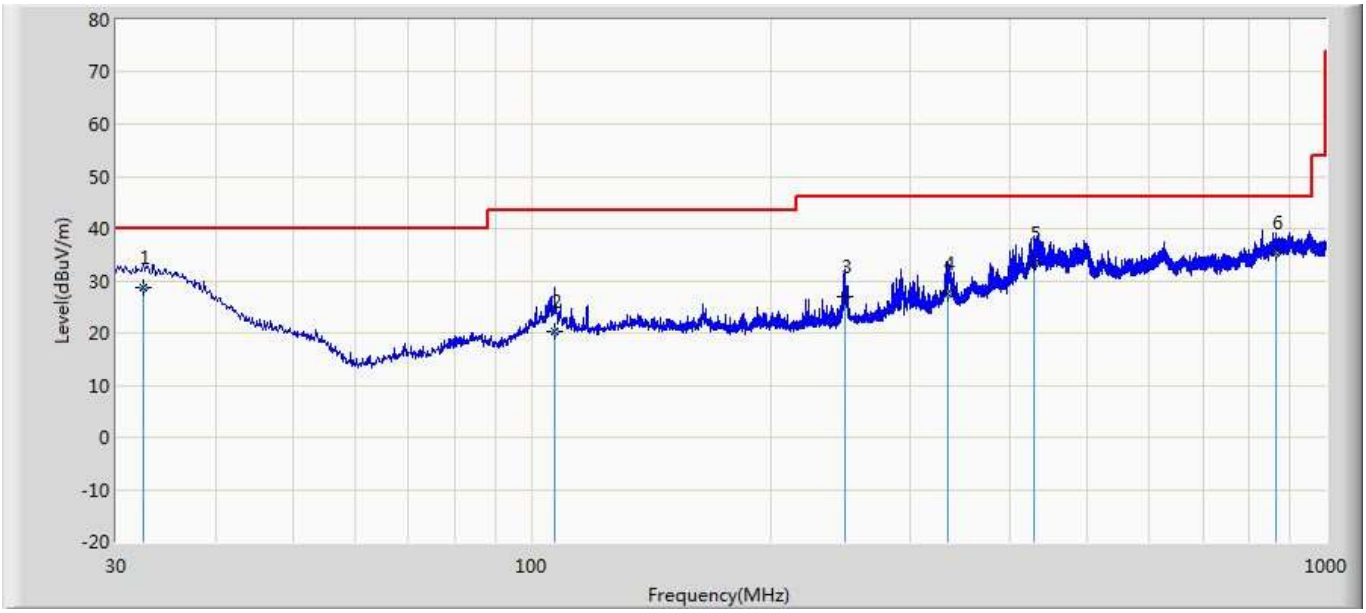
Engineer: Pawn	
Site: AC5	Time: 2019/03/08 - 22:56
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode: simultaneously transmit(WIFI+LoRa)	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	4510.130	53.886	55.714	-20.114	74.000	-1.828	PK
2		4824.000	53.698	55.230	-20.302	74.000	-1.532	PK
3		5411.500	53.326	53.679	-20.674	74.000	-0.353	PK
4		7236.000	50.656	48.832	-23.344	74.000	1.824	PK

The worst case of Radiated Emission below 1GHz:

Engineer: Leon	
Site: AC2	Time: 2019/03/08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Horizontal
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 1	

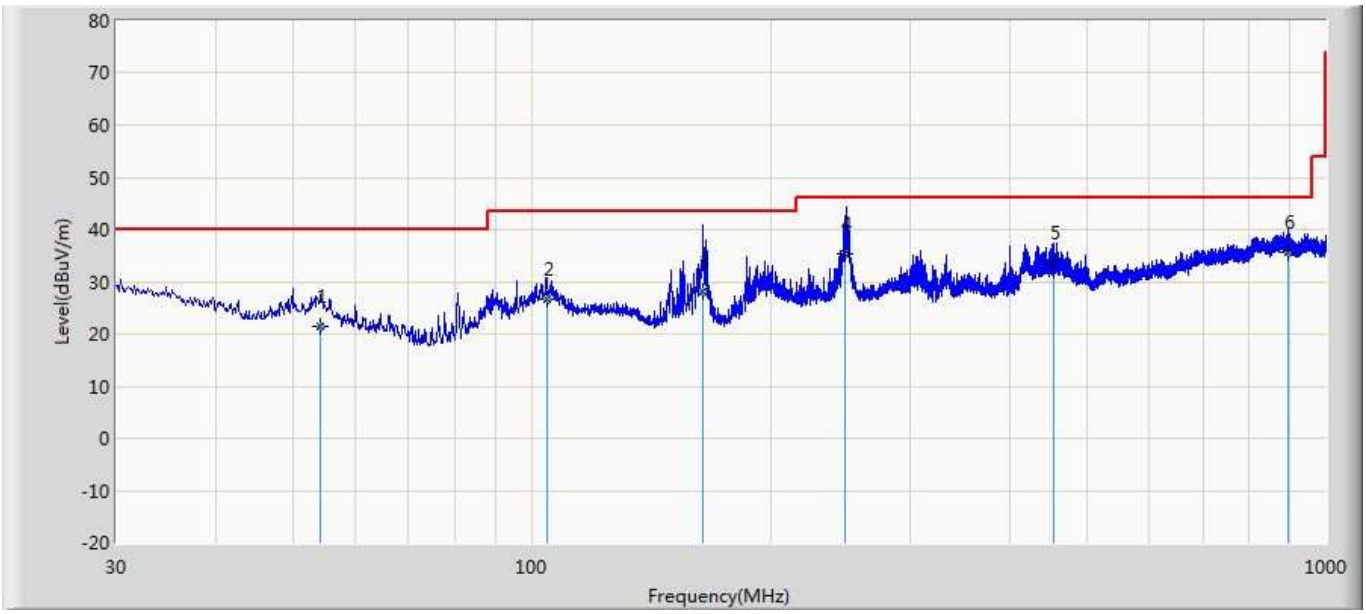


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		32.425	28.578	1.200	-11.422	40.000	20.733	6.645	0.000	300	208	QP
2		106.874	20.345	3.600	-23.155	43.500	9.824	6.921	0.000	400	138	QP
3		248.250	26.911	8.900	-19.089	46.000	10.450	7.561	0.000	200	0	QP
4		334.823	27.520	4.600	-18.480	46.000	15.185	7.735	0.000	100	324	QP
5		429.034	33.398	6.800	-12.602	46.000	18.622	7.975	0.000	300	316	QP
6	*	865.898	35.290	2.300	-10.710	46.000	23.822	9.168	0.000	300	151	QP

Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Engineer: Leon	
Site: AC2	Time: 2019/03/08
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_3M(30-1000M)	Polarity: Vertical
EUT: Ring Bridge	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		54.250	21.468	3.600	-18.532	40.000	11.250	6.618	0.000	100	32	QP
2		104.569	26.692	4.300	-16.808	43.500	15.487	6.905	0.000	100	340	QP
3		164.466	28.216	8.600	-15.284	43.500	12.355	7.261	0.000	100	32	QP
4		248.405	35.333	10.900	-10.667	46.000	16.871	7.562	0.000	100	74	QP
5		455.224	33.569	7.500	-12.431	46.000	18.070	7.999	0.000	300	180	QP
6	*	895.846	35.538	1.900	-10.462	46.000	24.399	9.240	0.000	200	309	QP

Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

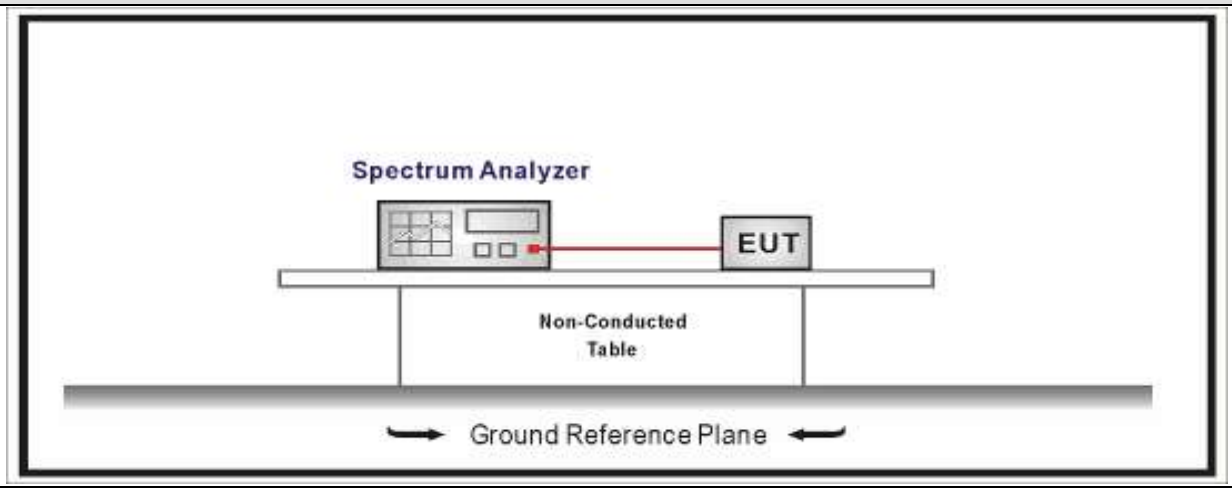
5. 20dB Bandwidth

5.1 Test Equipment

20dB Occupied Bandwidth / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2020.08.15	2021.08.14
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2020.09.02	2021.09.01
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

5.2 Test Setup

20dB/6dB Bandwidth test setup:



5.3 Limit

20dB/6dB Bandwidth	
☐	For frequency hopping systems operating in 2400-2483.5 MHz band, within frequency range.
☒	For frequency hopping systems operating in 902-928 MHz band, the maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.
☐	Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.
☐	For frequency hopping systems operating in 5725-5850 MHz band, the maximum 20 dB bandwidth of the hopping channel is 1 MHz.

5.4 Test Procedure

Test Method			
	References Rule	Chapter	Item
☒	ANSI C63.10-2013	6.9	Occupied bandwidth tests
☒	ANSI C63.10-2013	11.8	DTS bandwidth

5.5 Uncertainty

The measurement uncertainty is defined as ± 1 kHz

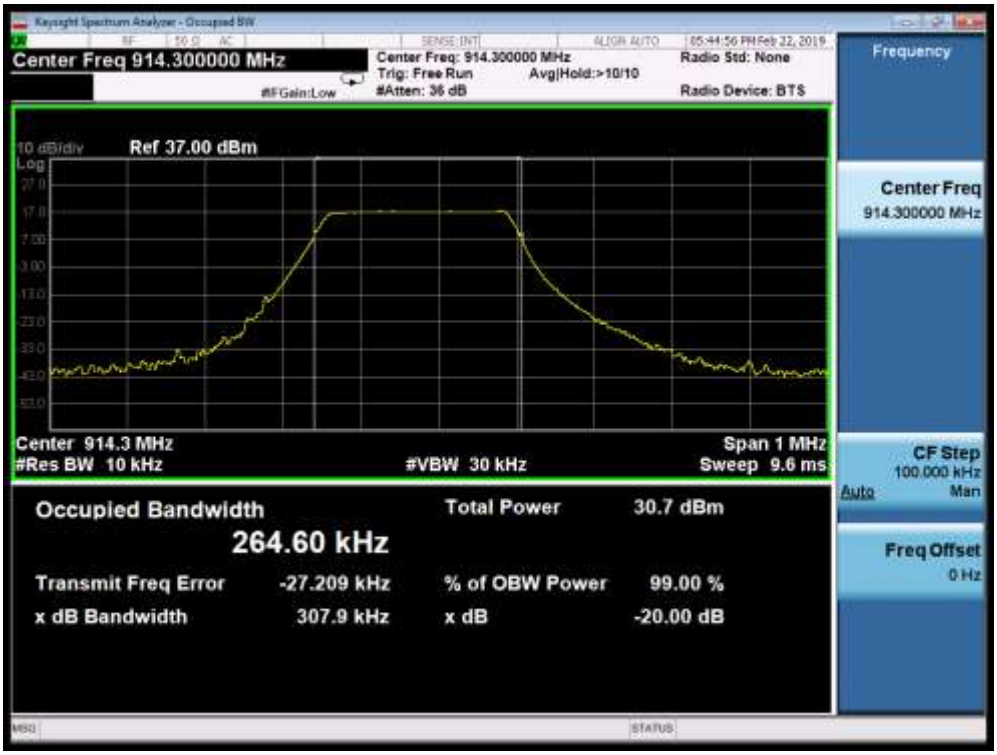
5.6 Test Result

Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2019.02.22			

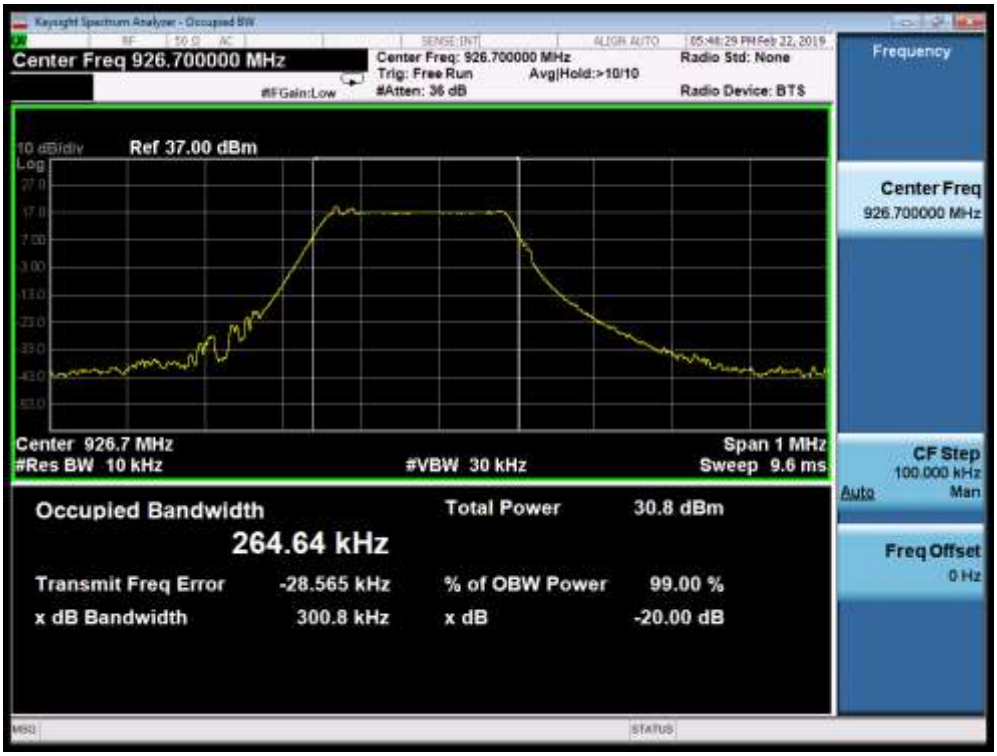
Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
01	902.3	303.3	269.45
31	914.3	307.9	264.60
62	926.7	300.8	264.64

Channel 01 (902.3MHz)

Channel 31 (914.3MHz)



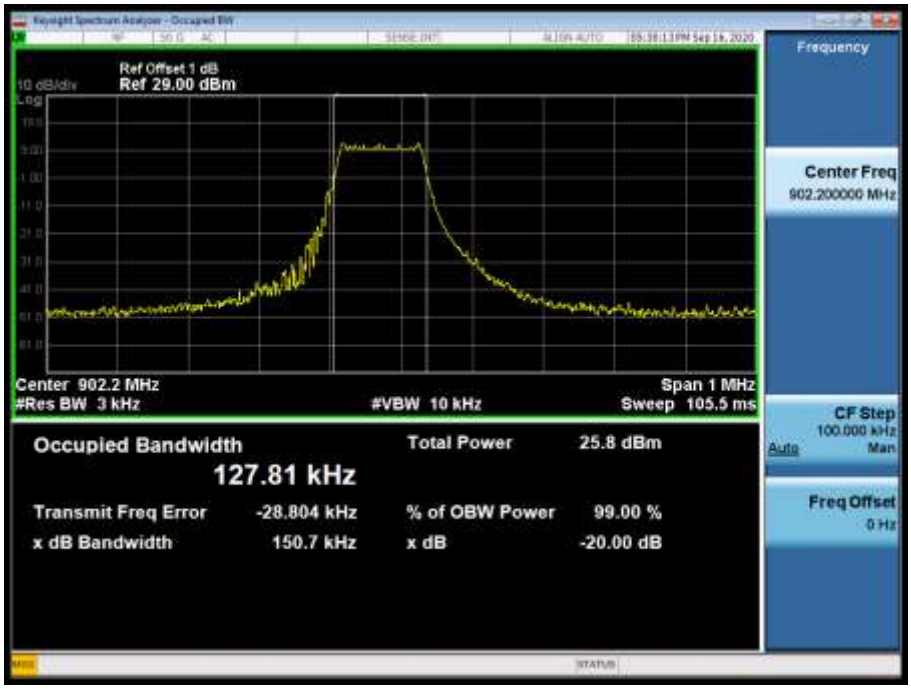
Channel 62 (926.7MHz)



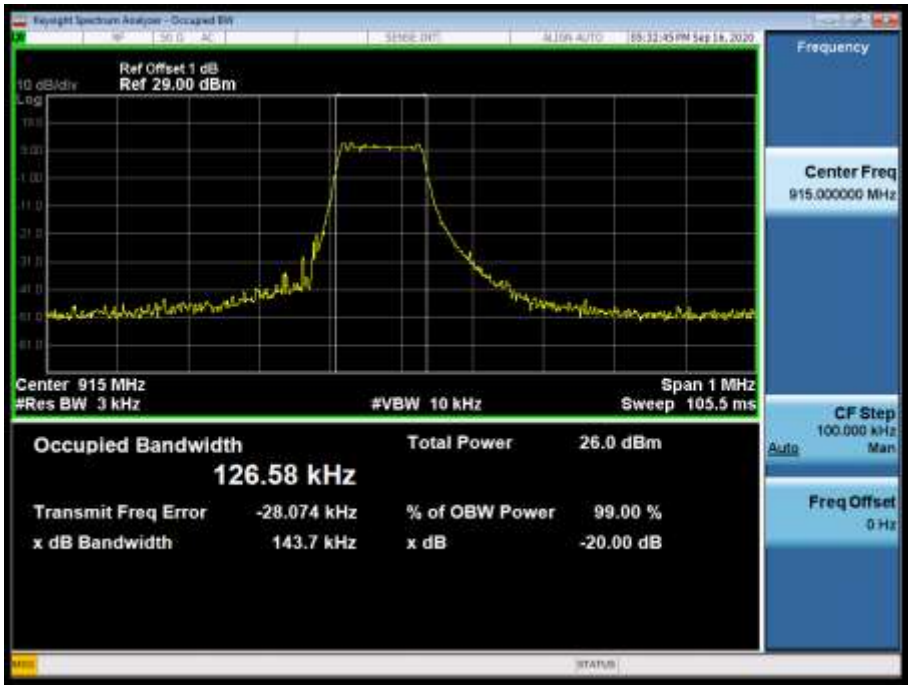
Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2020.09.16			

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
01	902.2	150.7	127.81
65	915	143.7	126.58
129	927.8	143.2	128.53

Channel 01 (902.2MHz)



Channel 65 (915MHz)

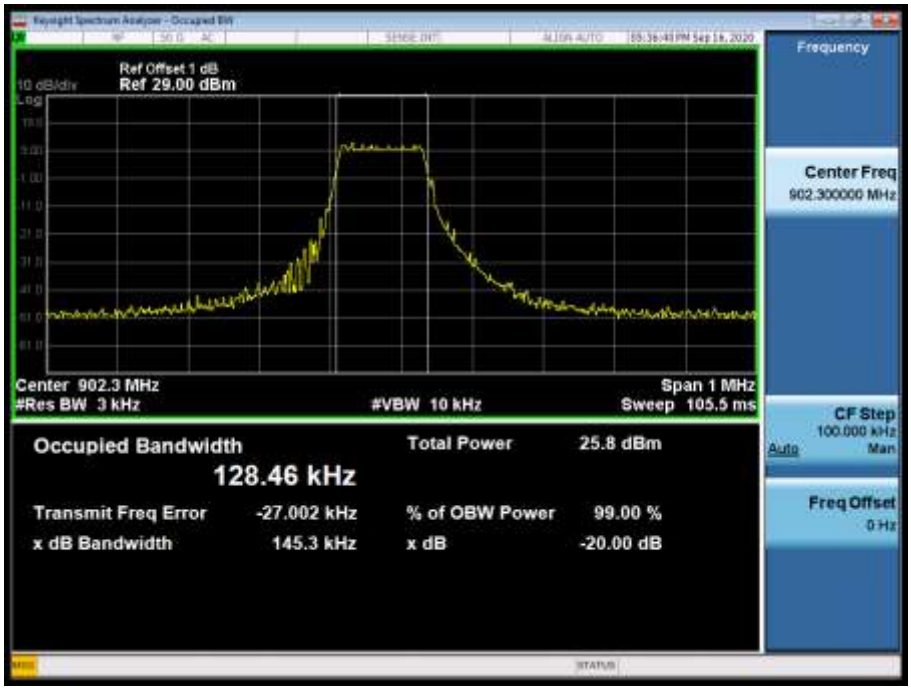


Channel 129 (927.8MHz)

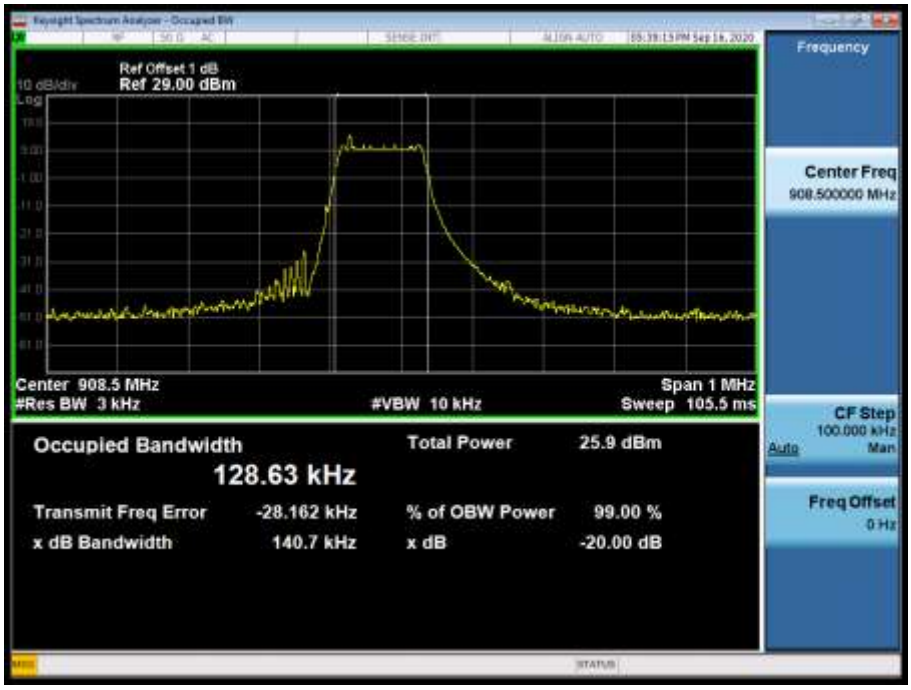
Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2020.09.16			

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
01	902.3	145.3	128.46
32	908.5	140.7	128.63
64	914.9	145.0	126.76

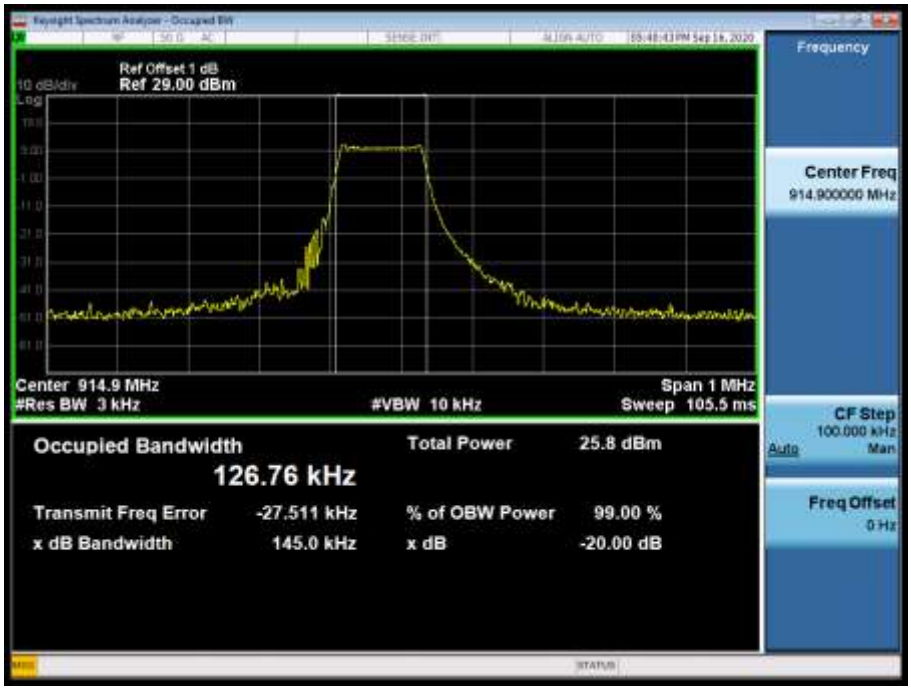
Channel 01 (902.3MHz)



Channel 32 (908.5MHz)



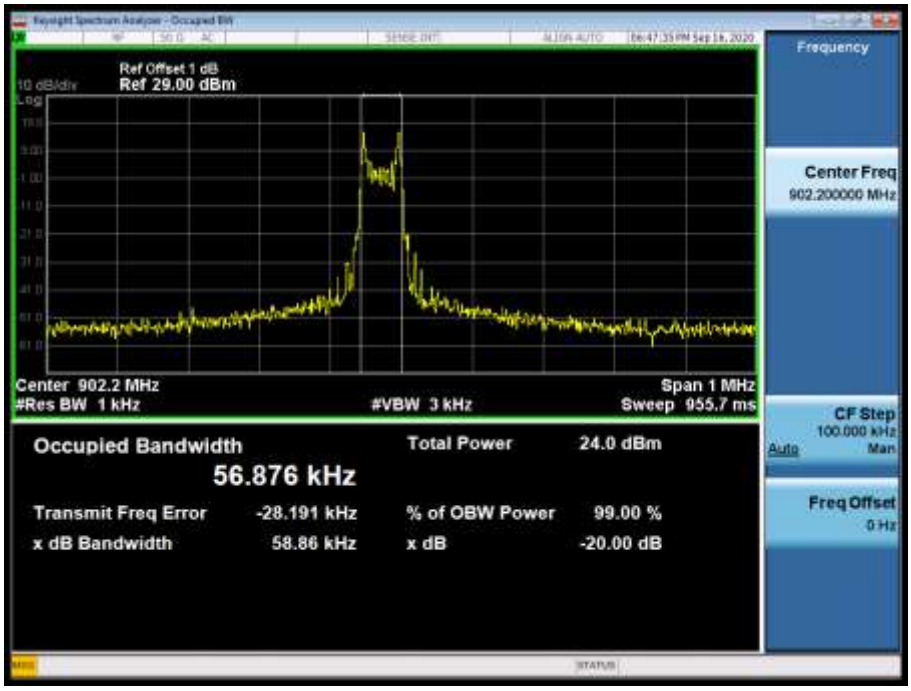
Channel 64 (914.9MHz)



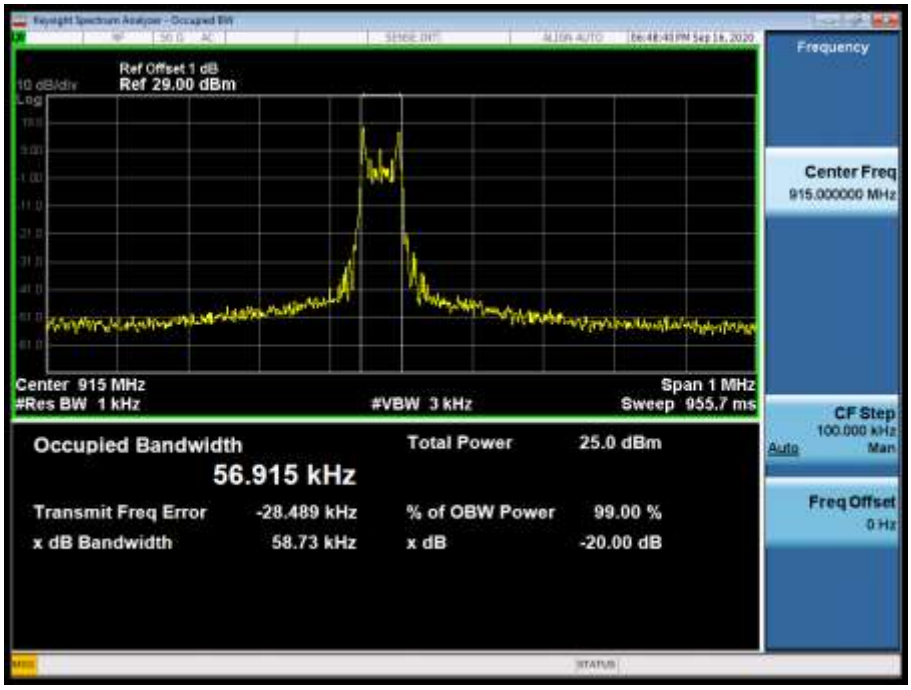
Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 4	Test Site	:	TR-8
Test Date	:	2020.09.16			

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
01	902.2	58.86	56.876
65	915	58.73	56.915
129	927.8	58.50	56.749

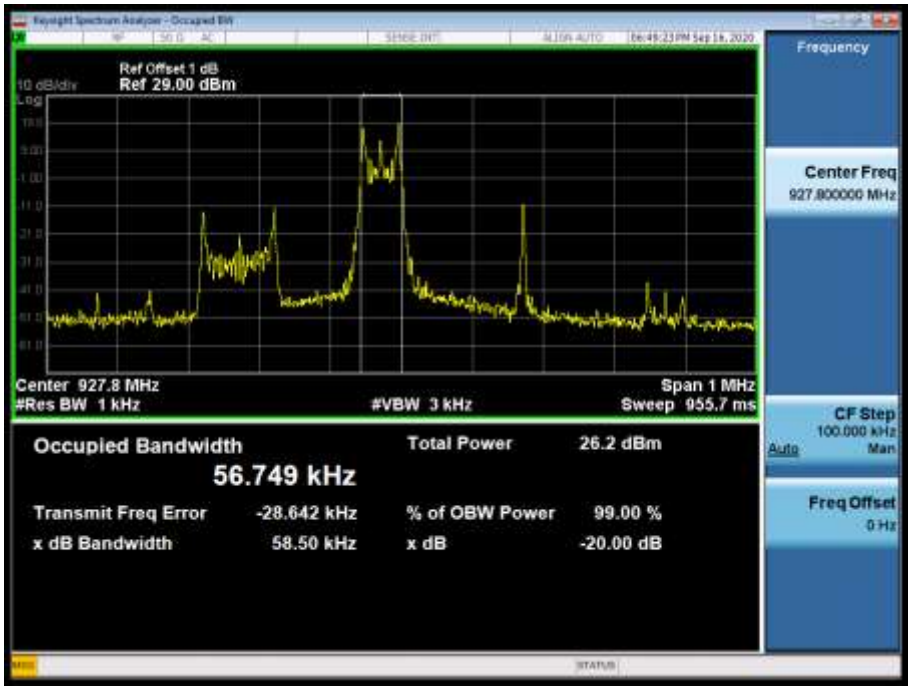
Channel 01 (902.2MHz)



Channel 65 (915MHz)



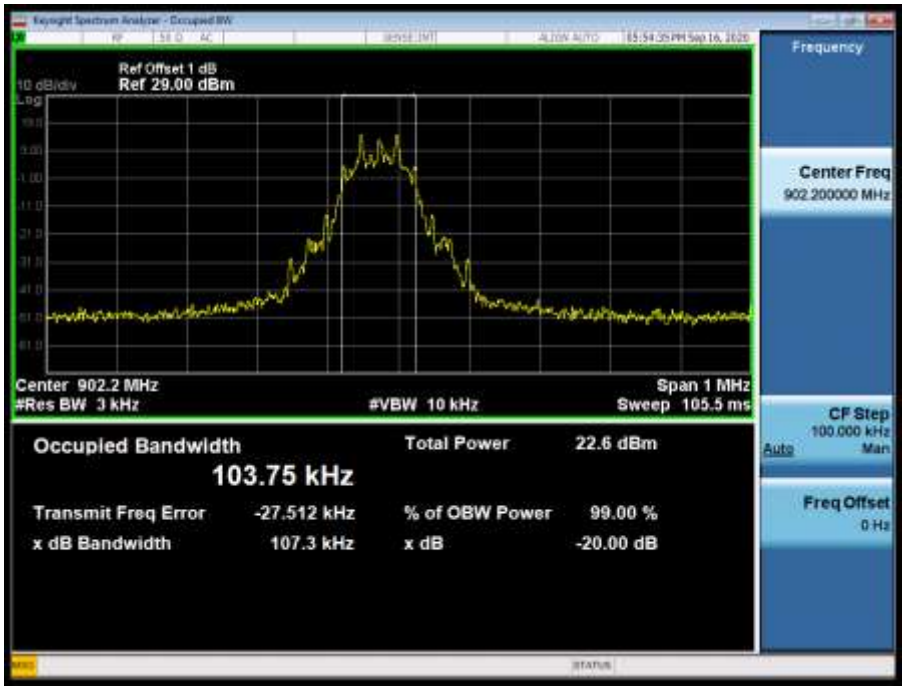
Channel 129 (927.8MHz)



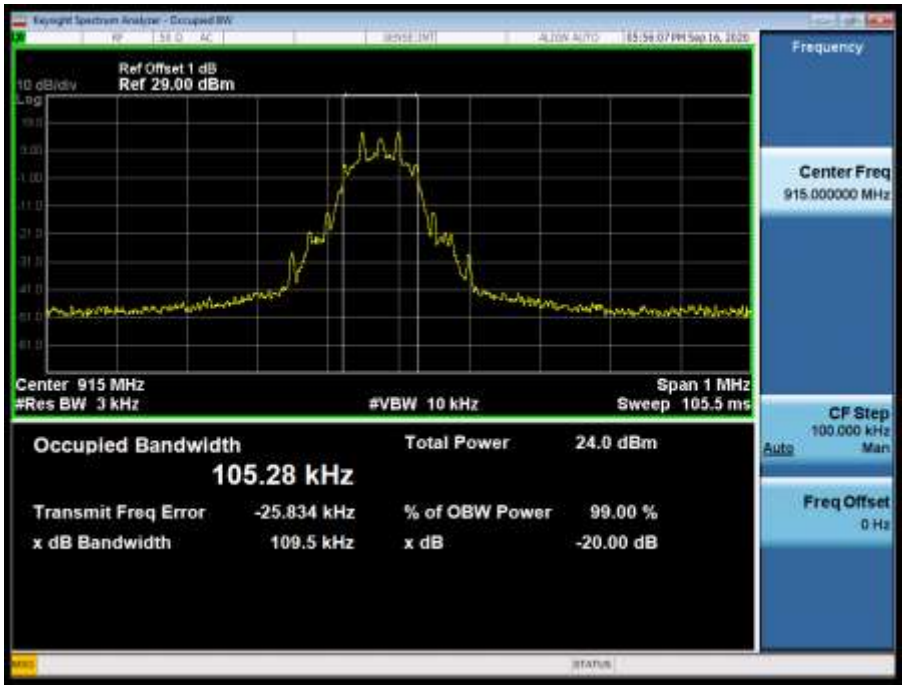
Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 5	Test Site	:	TR-8
Test Date	:	2020.09.16			

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
01	902.2	107.3	103.75
65	915	109.5	105.28
129	927.8	110.2	105.72

Channel 01 (902.2MHz)



Channel 65 (915MHz)



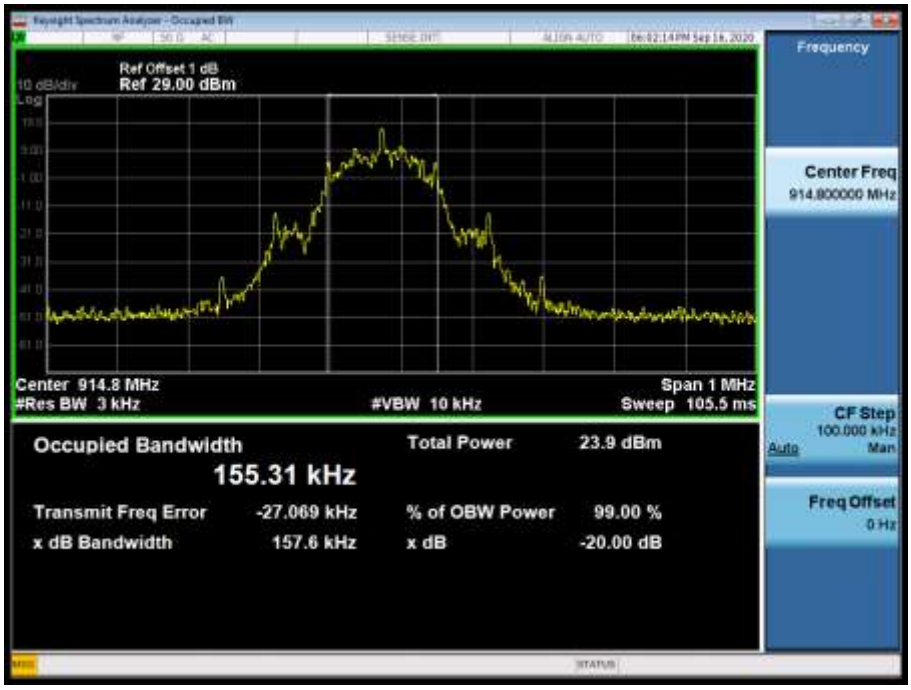
Channel 129 (927.8MHz)

Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 6	Test Site	:	TR-8
Test Date	:	2020.09.16			

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
01	902.4	161.6	157.10
32	914.8	157.6	155.31
64	927.6	159.7	156.23

Channel 01 (902.4MHz)

Channel 32 (914.8MHz)



Channel 64 (927.6MHz)

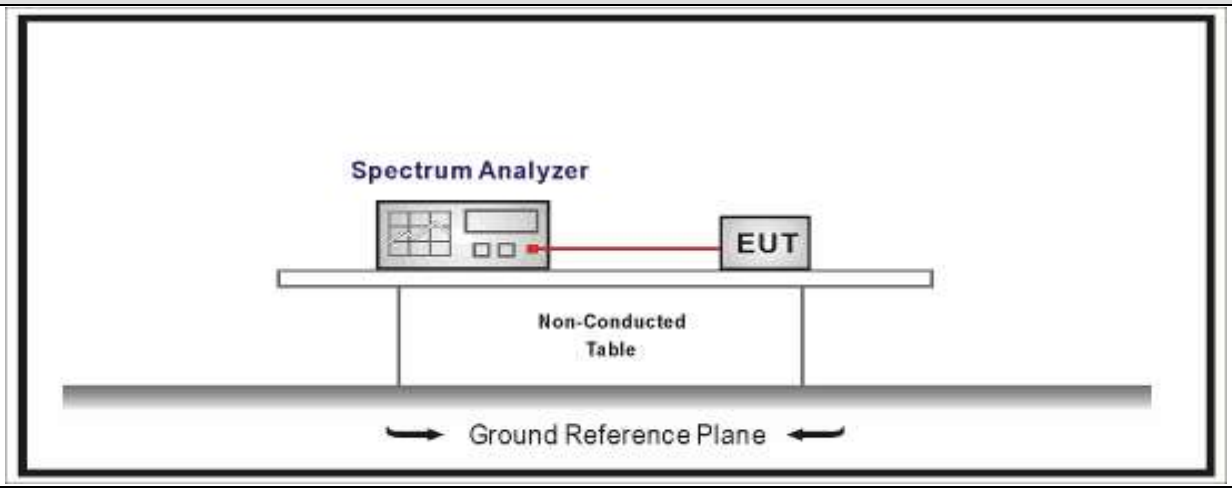
6. Carrier Frequency Separation

6.1. Test Equipment

Carrier Frequency Separation / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.02.04	2020.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2018.04.09	2019.04.08
MXA Signal Anlyzer	Keysight	N9020A	MY56060147	2018.04.09	2019.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2018.04.10	2019.04.09
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

6.2. Test Setup

Carrier Frequency Separation test setup:



6.3. Limit

Carrier Frequency Separation	
☒	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.
☐	Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel.
☐	The 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period;
☐	The 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.
☐	Frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz.

6.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.2	Carrier frequency separation

6.5. Uncertainty

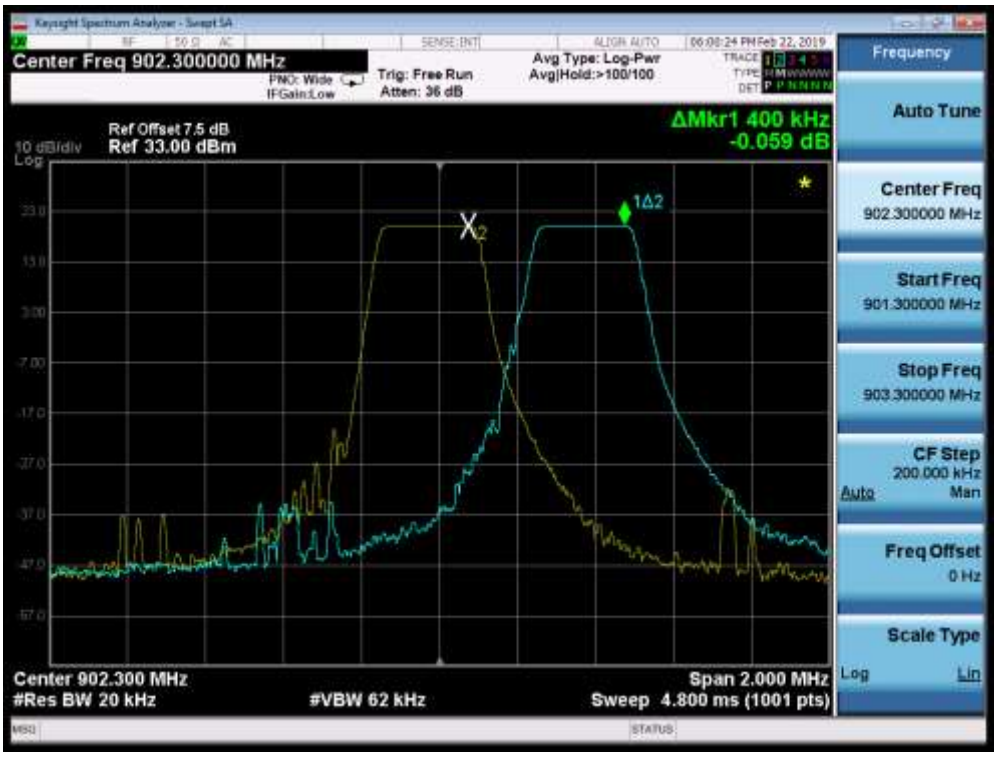
The measurement uncertainty is defined as ± 1 kHz

6.6. Test Result

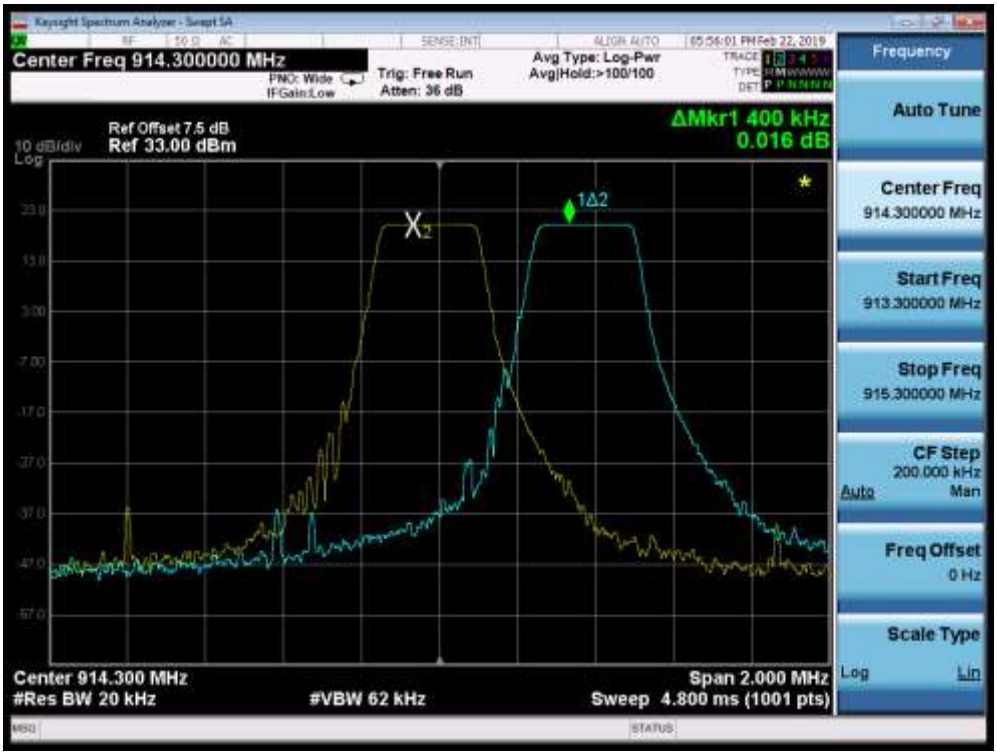
Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2019.02.22			

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
01	902.3	400	303.3	Pass
31	914.3	400	307.9	Pass
62	926.7	400	300.8	Pass

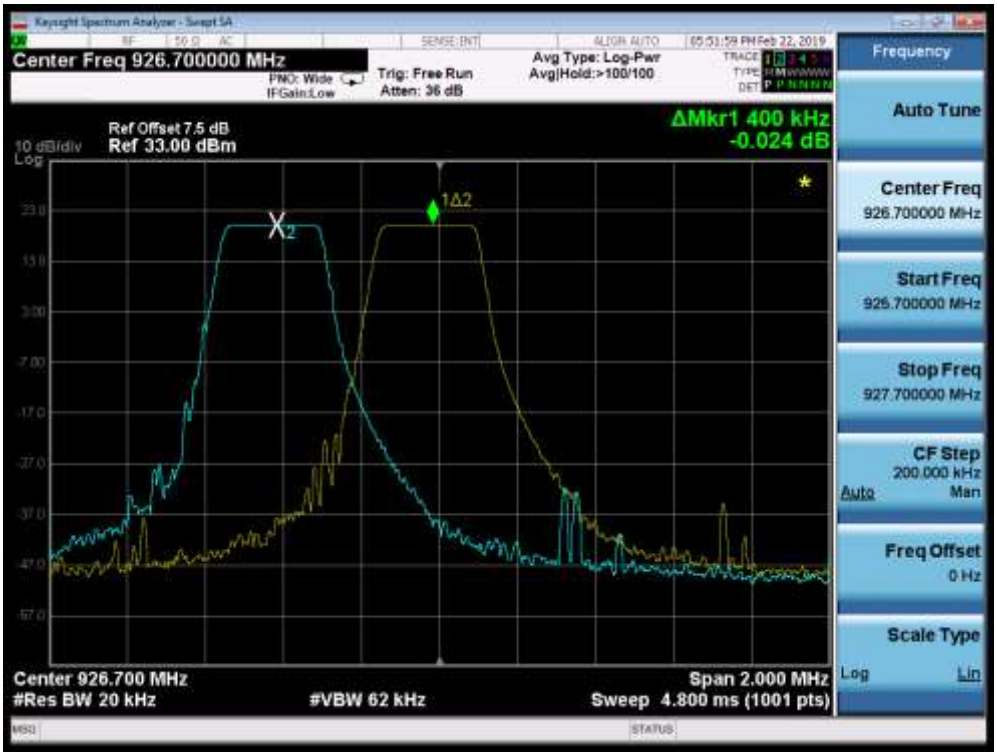
Channel 01 (902.3MHz)



Channel 31 (914.3MHz)



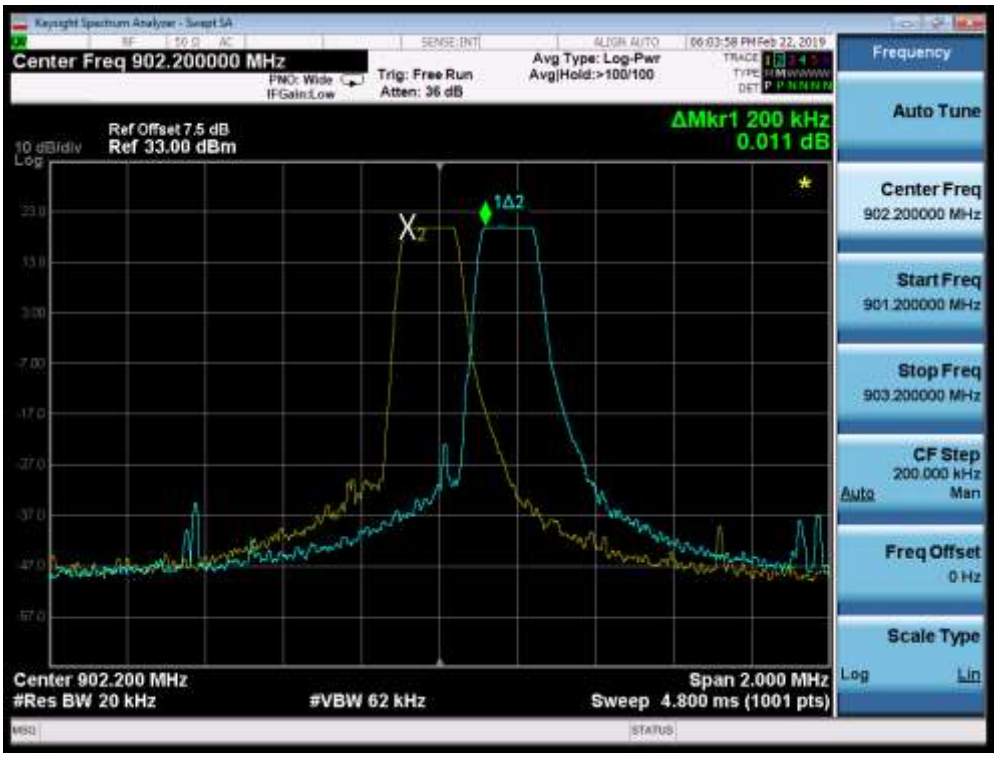
Channel 62 (926.7MHz)



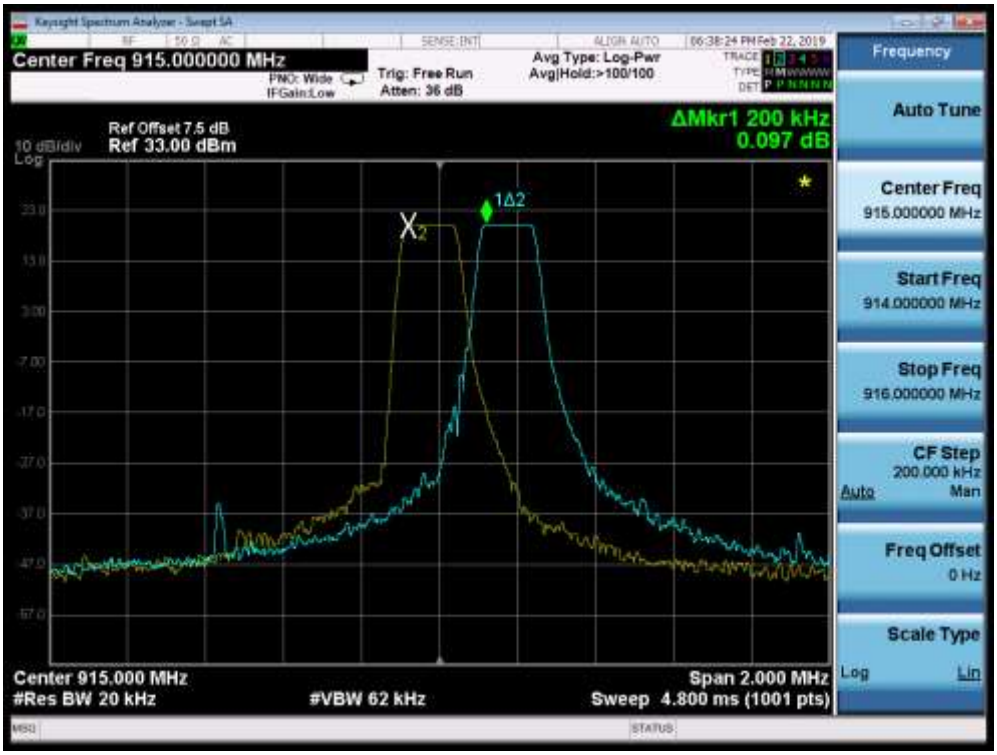
Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2019.02.22			

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
01	902.2	200	160	Pass
65	915	200	160.6	Pass
129	927.8	200	159.4	Pass

Channel 01 (902.2MHz)



Channel 65 (915MHz)

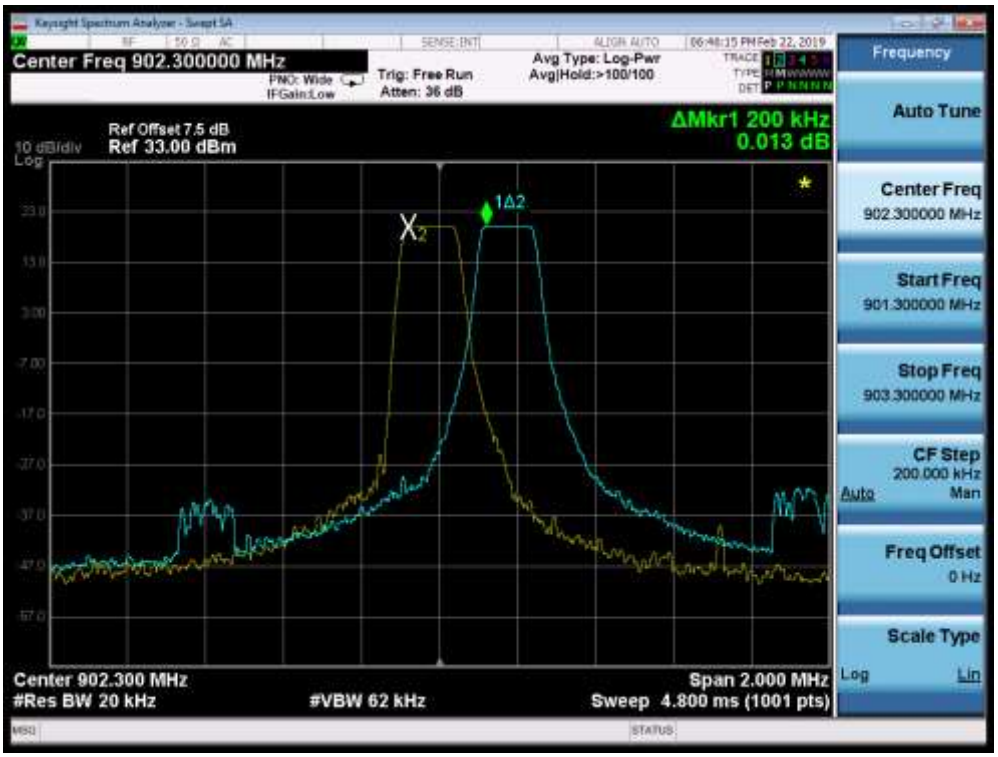


Channel 129 (927.8MHz)

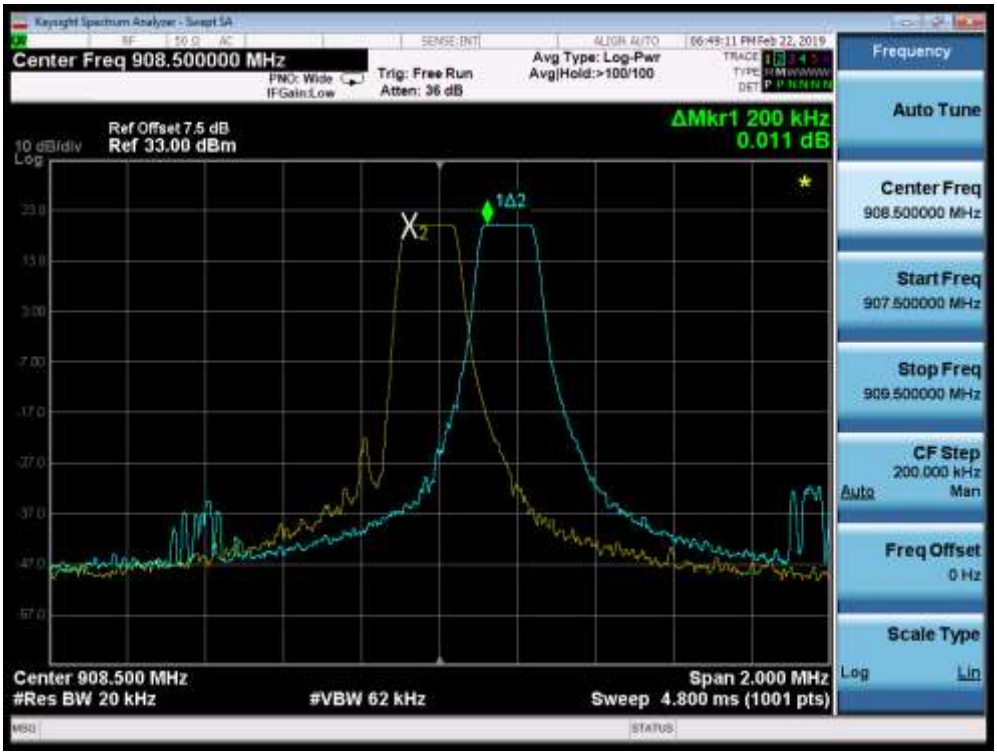
Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2019.02.22			

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
01	902.3	200	160.2	Pass
32	908.5	200	160.0	Pass
64	914.9	200	160.0	Pass

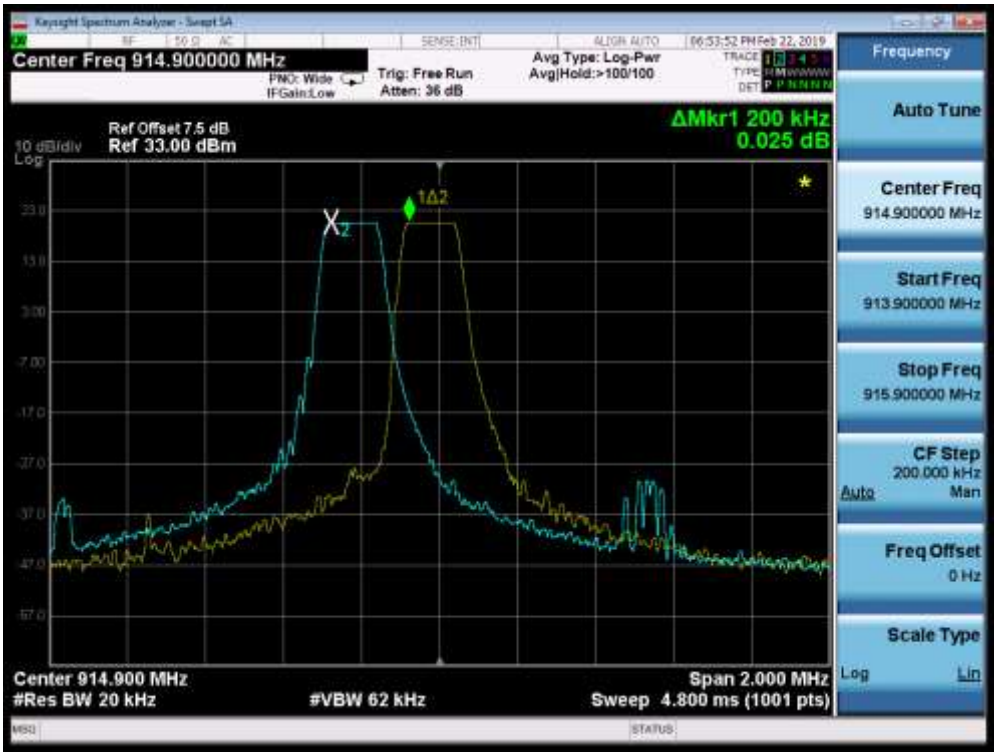
Channel 01 (902.3MHz)



Channel 32 (908.5MHz)



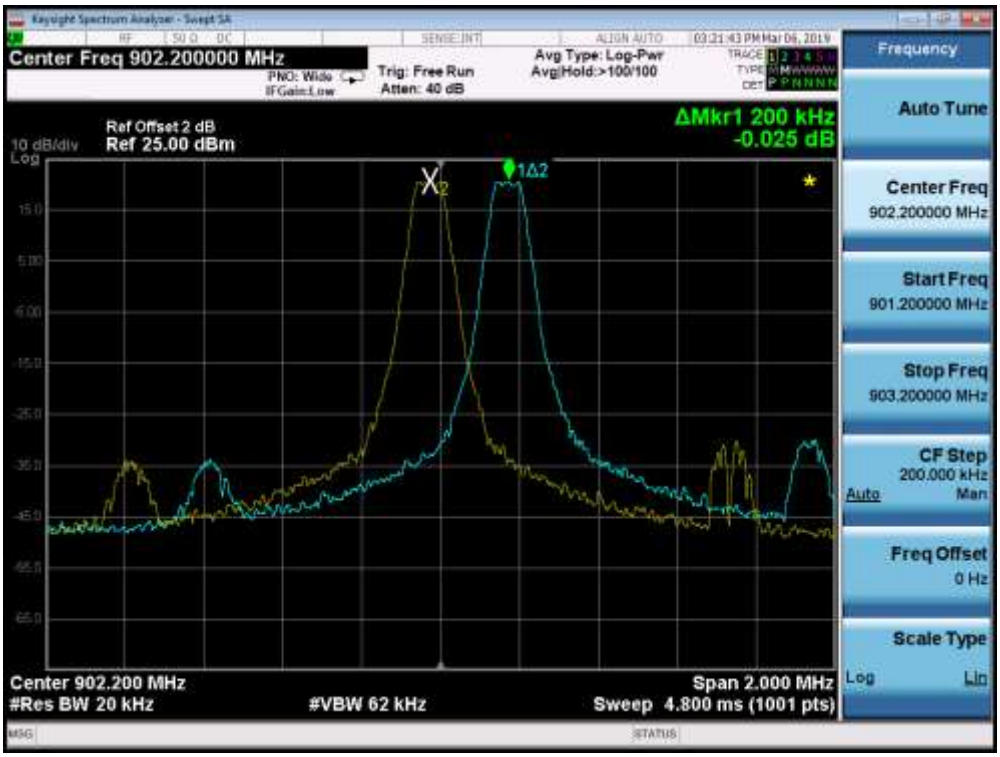
Channel 64 (914.9MHz)



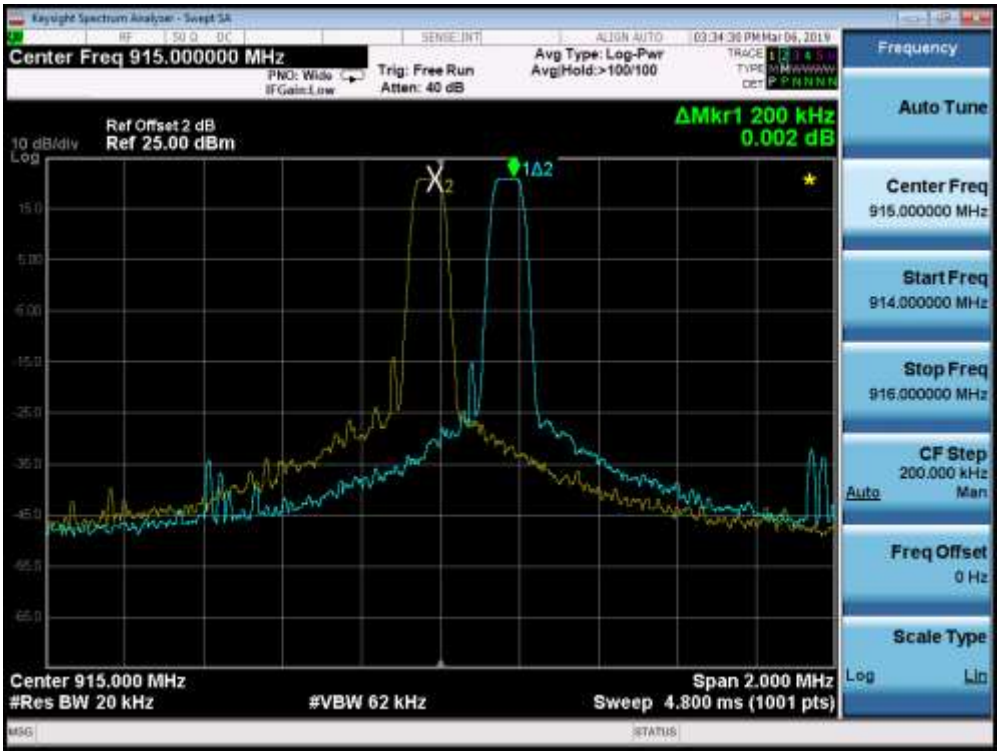
Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 4	Test Site	:	TR-8
Test Date	:	2019.03.06			

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
01	902.2	200	114.7	Pass
65	915	200	115.9	Pass
129	927.8	200	116.5	Pass

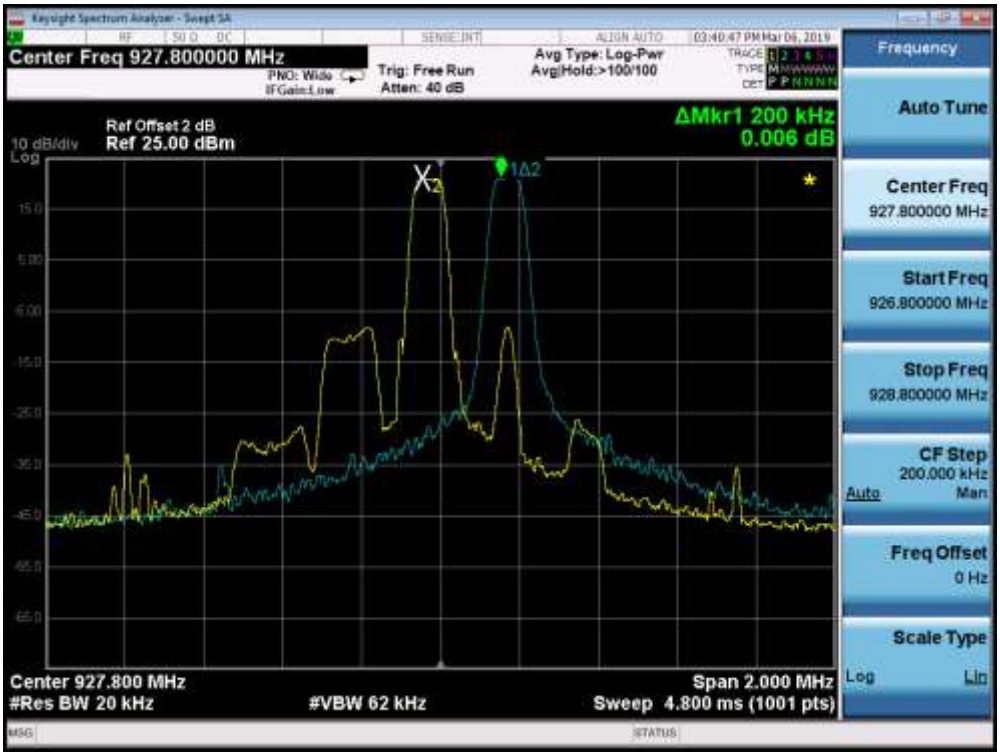
Channel 01 (902.2MHz)



Channel 65 (915MHz)



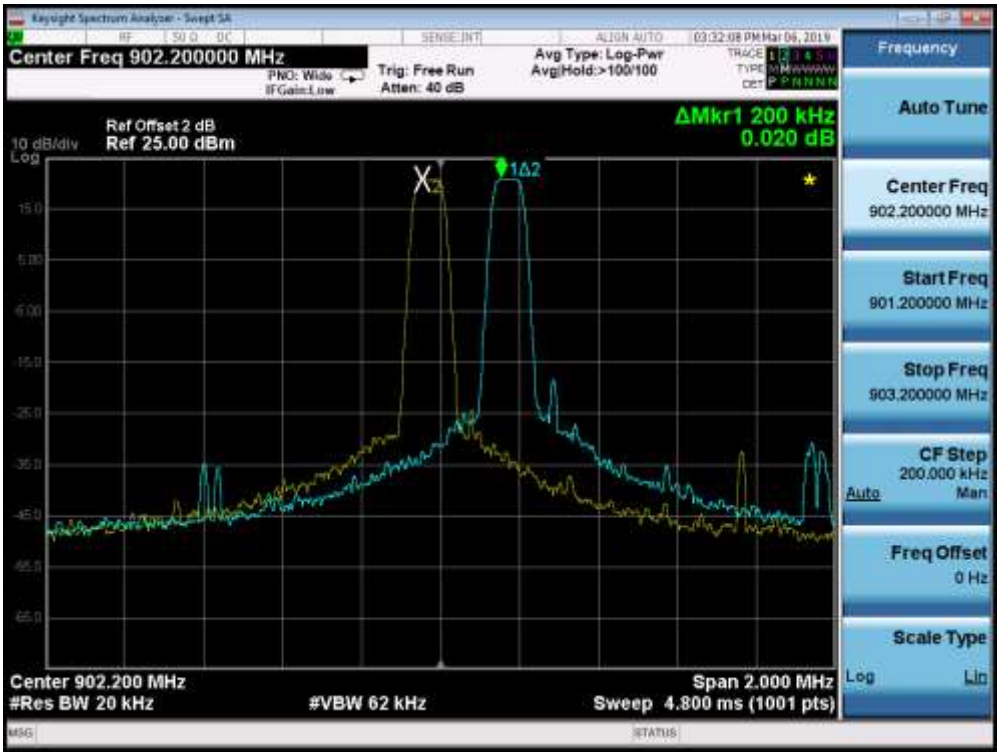
Channel 129 (927.8MHz)



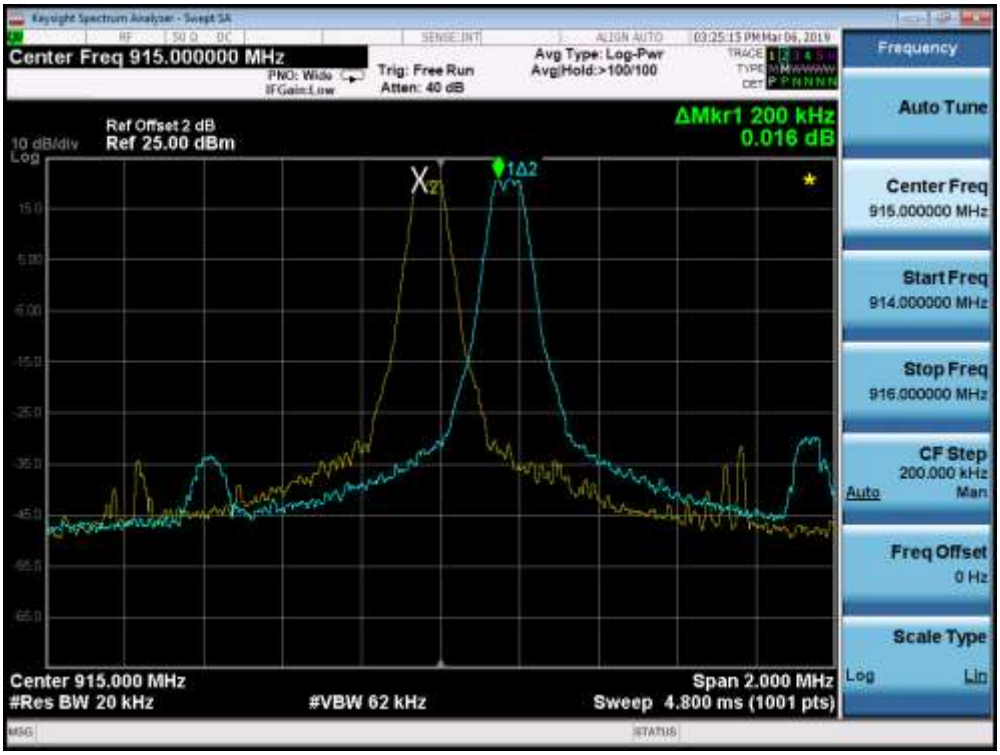
Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 5	Test Site	:	TR-8
Test Date	:	2019.03.06			

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
01	902.2	200	78.7	Pass
65	915	200	78.5	Pass
129	927.8	200	78.6	Pass

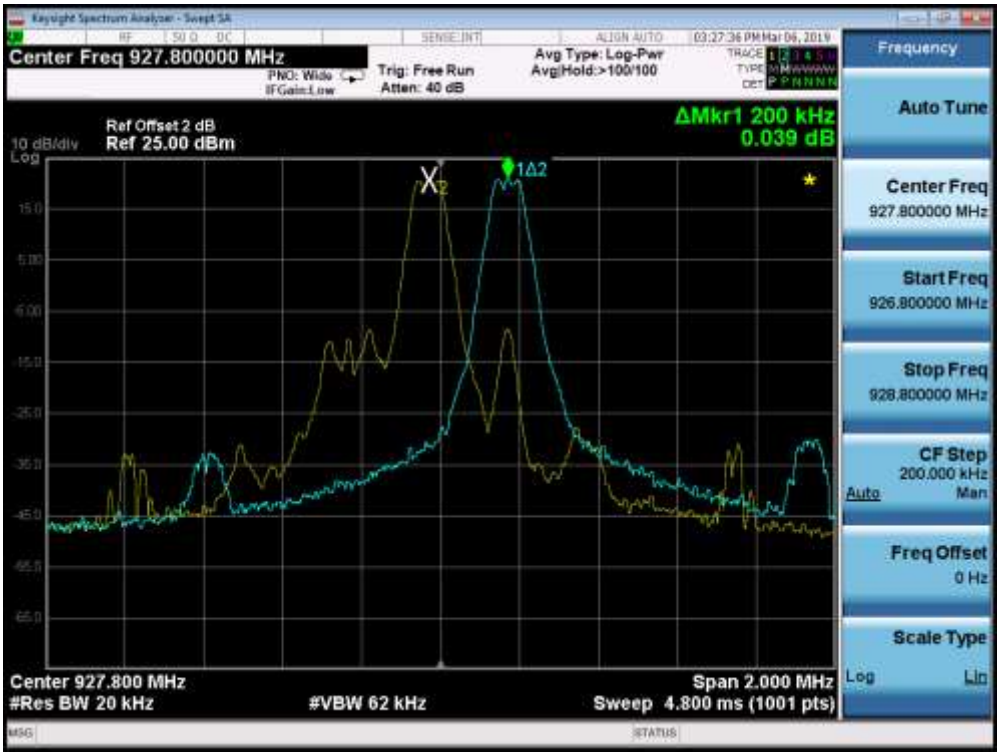
Channel 01 (902.2MHz)



Channel 65 (915MHz)



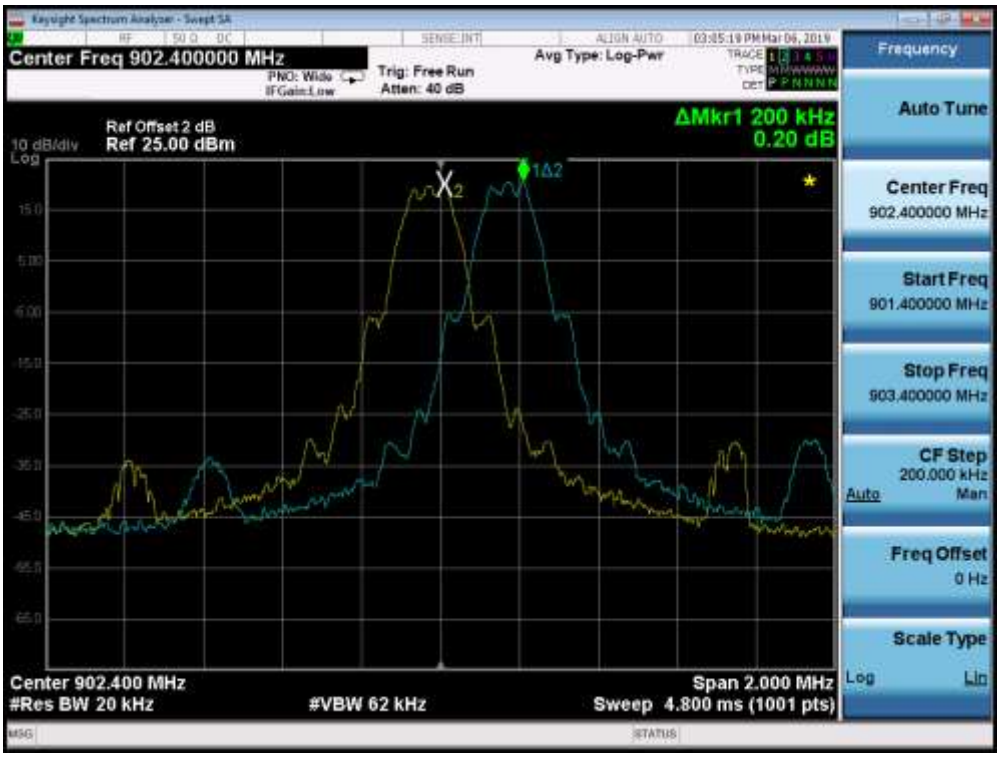
Channel 129 (927.8MHz)



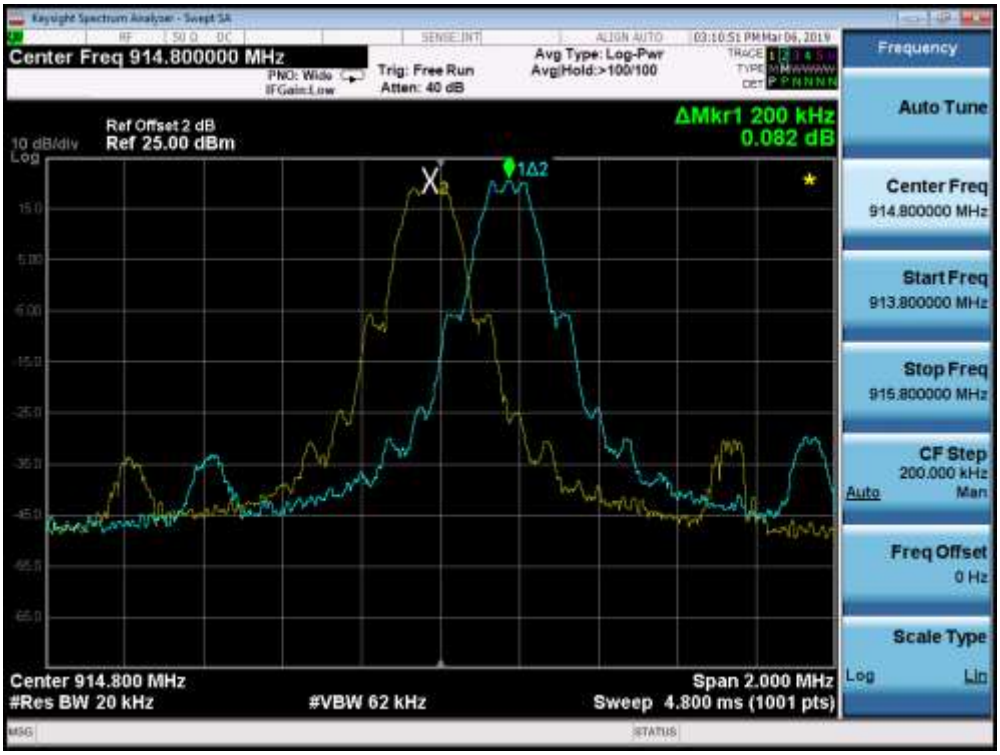
Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 6	Test Site	:	TR-8
Test Date	:	2019.03.06			

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
01	902.4	200	185.0	Pass
32	914.8	200	180.7	Pass
64	927.6	200	187.2	Pass

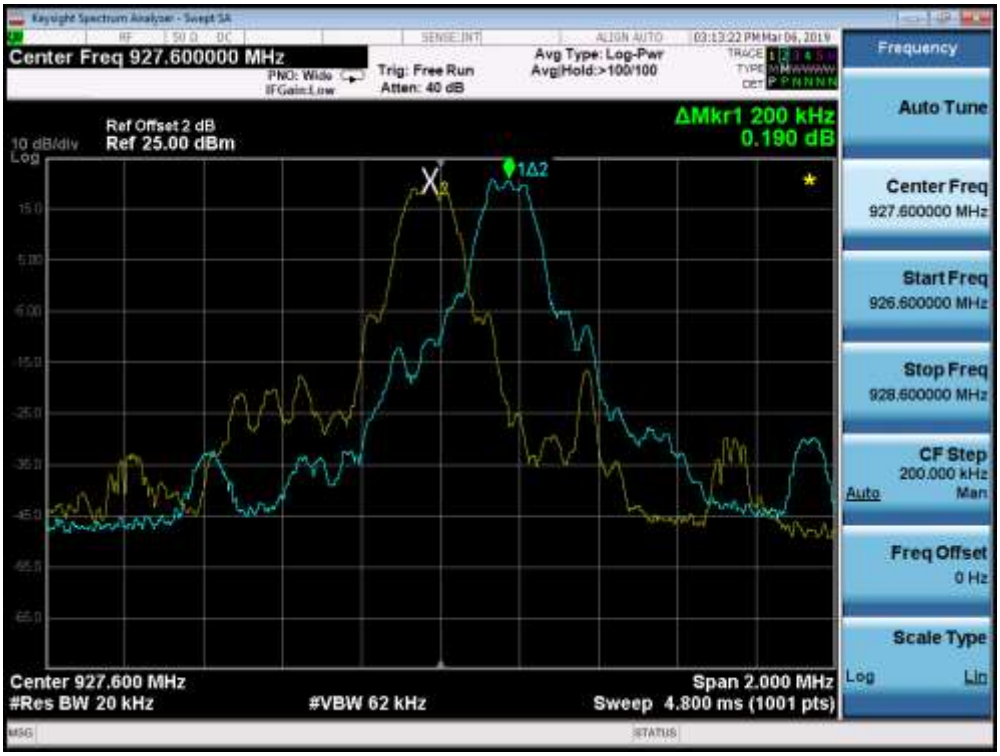
Channel 01 (902.4MHz)



Channel 32 (914.8MHz)



Channel 64 (927.6MHz)



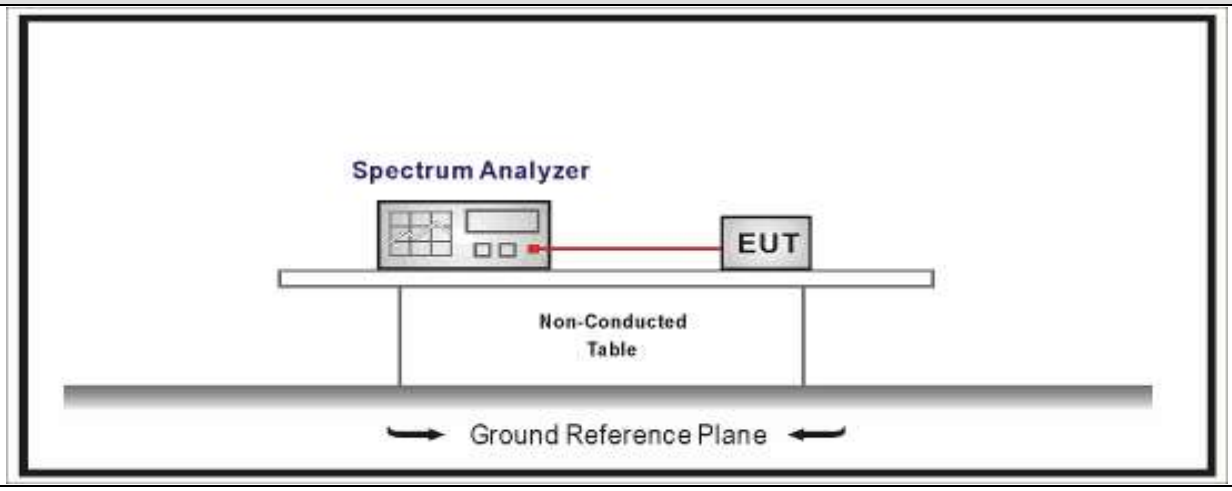
7. Number of Hopping Frequencies

7.1. Test Equipment

Number of Hopping Frequencies / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2019.02.04	2020.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2018.04.09	2019.04.08
MXA Signal Anlyzer	Keysight	N9020A	MY56060147	2018.04.09	2019.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2018.04.10	2019.04.09
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

7.2. Test Setup

Number of Hopping Frequencies test setup:



7.3. Limit

Carrier Frequency Separation	
☐	For frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping frequencies.
☒	For frequency hopping systems operating in 902-928 MHz band, if the 20 dB bandwidth of the hopping channel is less than 250 kHz, shall use at least 50 hopping frequencies.
☒	For frequency hopping systems operating in 902-928 MHz band, if the 20 dB bandwidth of the hopping channel is higher than 250 kHz, shall use at least 25 hopping frequencies.
☐	For frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies.

7.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.3	Number of Hopping Frequencies

7.5. Uncertainty

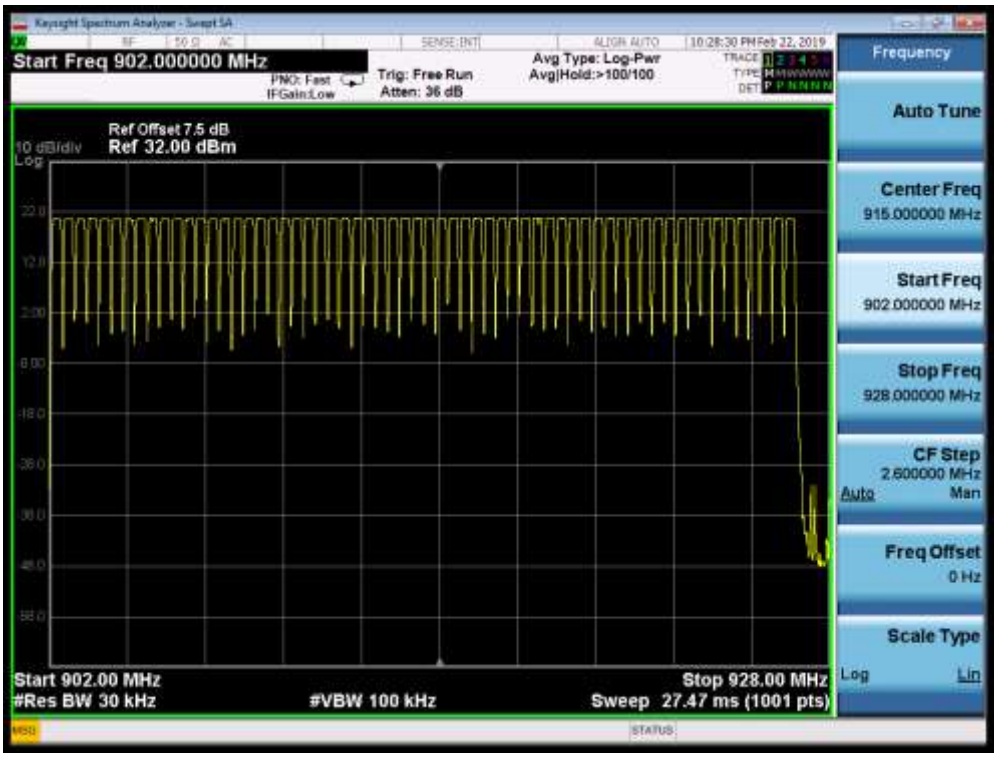
The measurement uncertainty is defined as ± 1 kHz

7.6. Test Result

Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2019.02.22			

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
902.3-926.7	62	>25	Pass

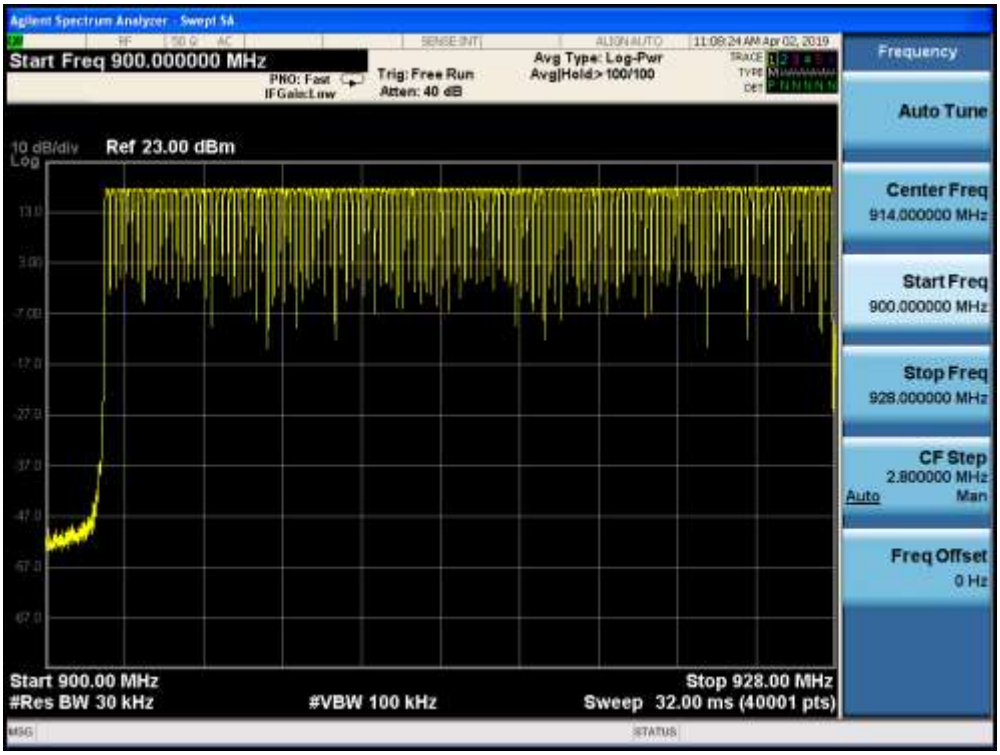
902.3 - 926.7MHz



Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2019.02.22			

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
902.2-927.8	129	>50	Pass

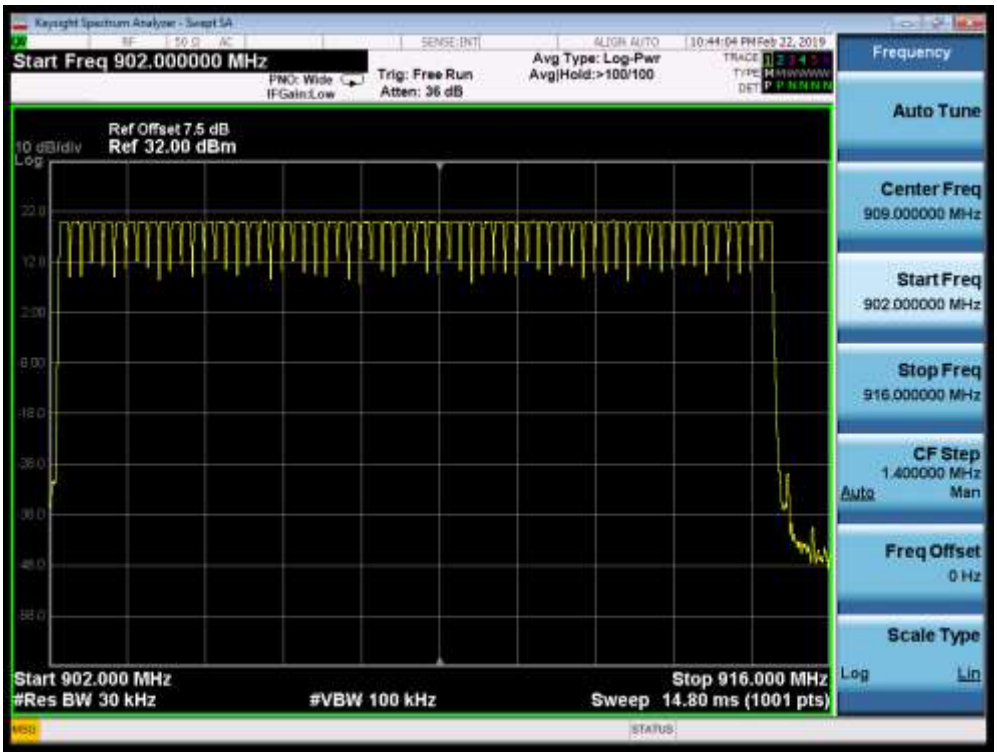
902.2 - 927.8MHz



Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2019.02.22			

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
902.3-914.9	64	>50	Pass

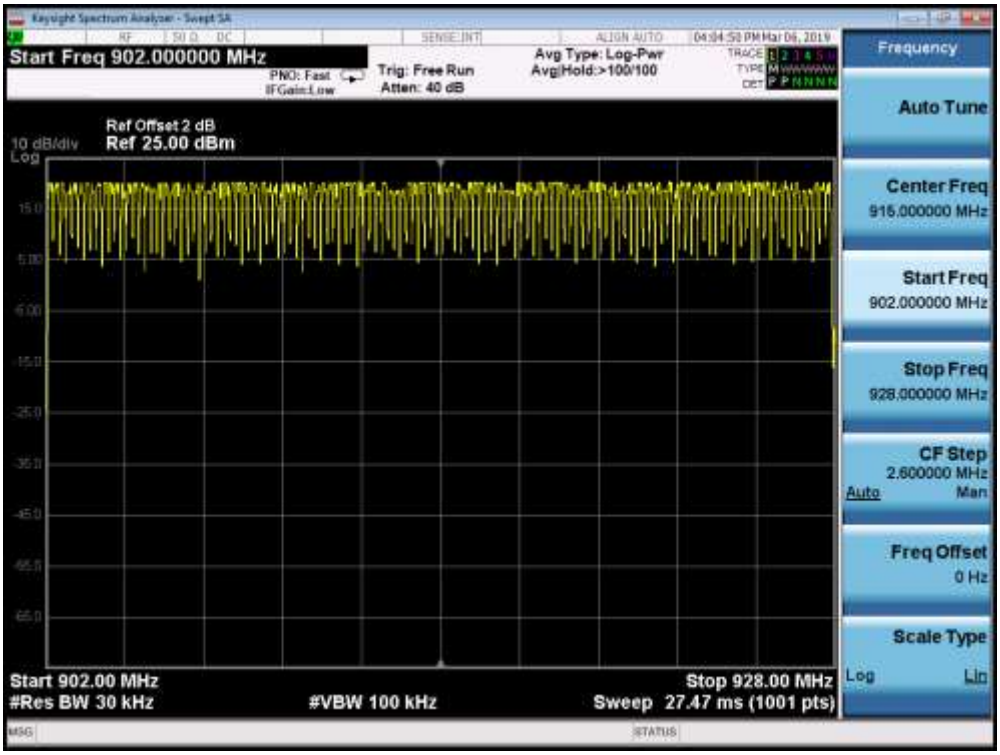
902.3 - 914.9MHz



Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 4	Test Site	:	TR-8
Test Date	:	2019.03.06			

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
902.2-927.8	129	>50	Pass

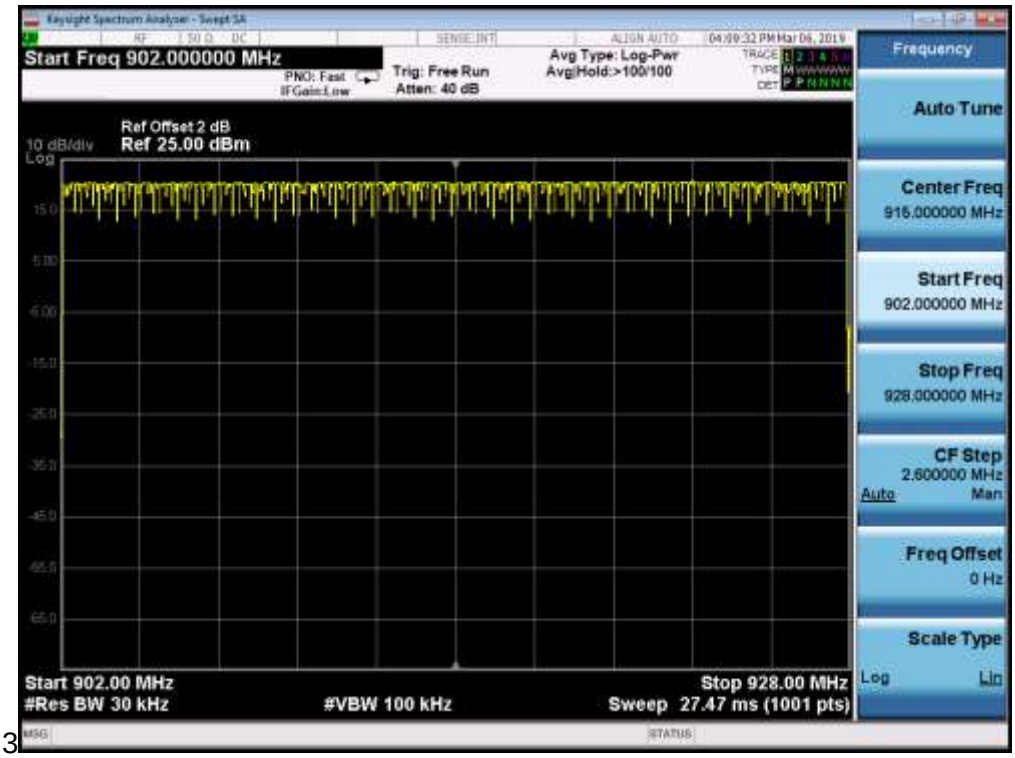
902.2 - 927.8MHz



Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 5	Test Site	:	TR-8
Test Date	:	2019.03.06			

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
902.2-927.8	129	>50	Pass

902.2 - 927.8MHz

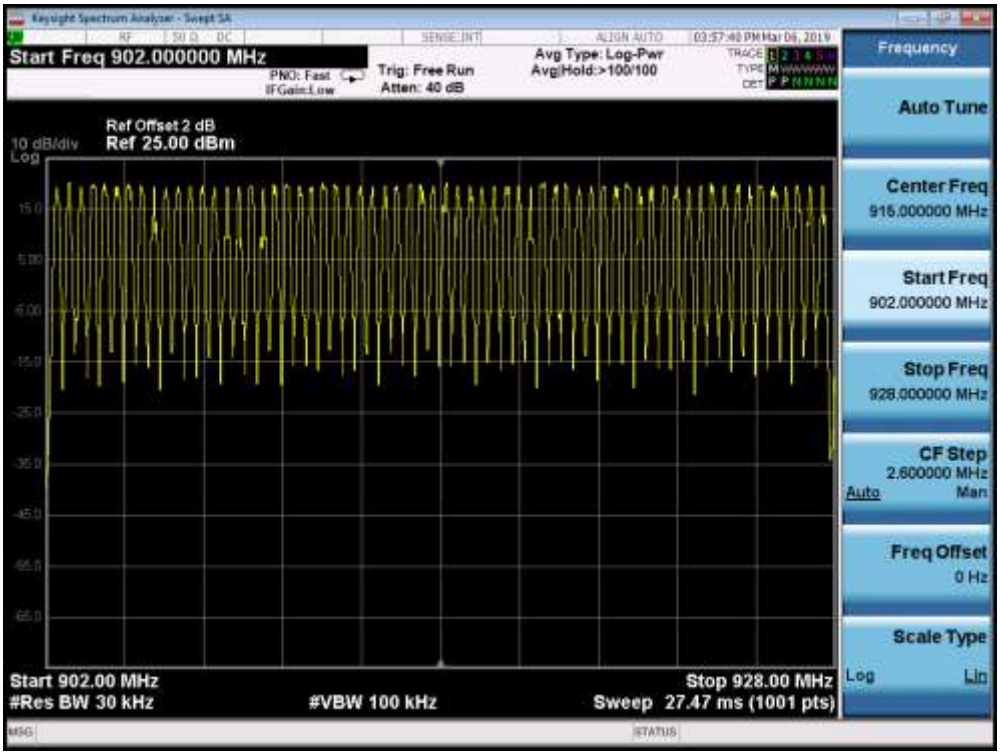


3

Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 6	Test Site	:	TR-8
Test Date	:	2019.03.06			

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
902.4-927.6	64	>50	Pass

902.4 - 927.6MHz



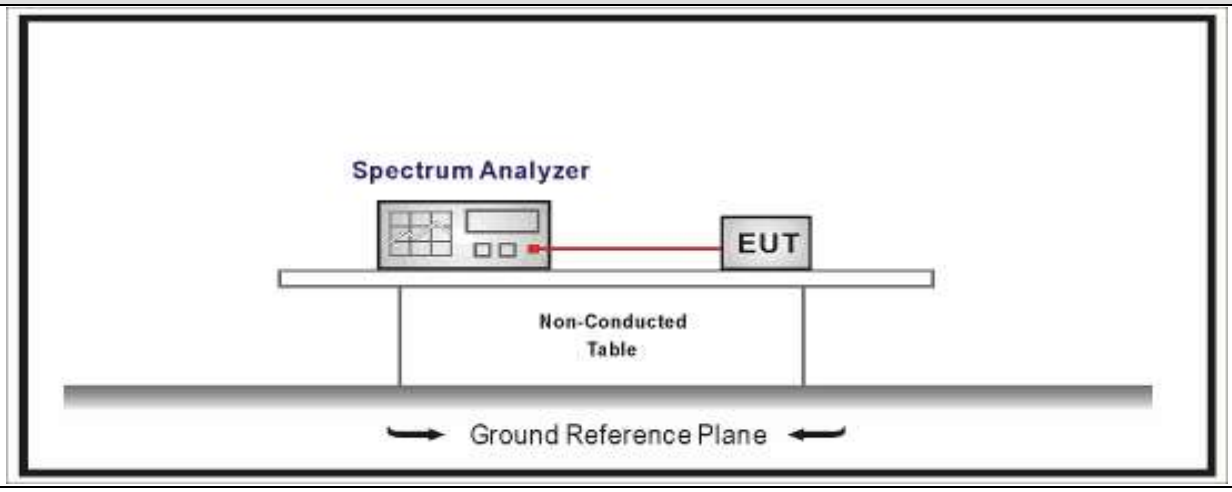
8. Time of Occupancy (Dwell Time)

8.1. Test Equipment

Time of Occupancy (Dwell Time) / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2020.08.15	2021.08.14
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2020.09.02	2021.09.01
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

8.2. Test Setup

Time of Occupancy (Dwell Time) test setup:



8.3. Limit

Time of Occupancy (Dwell Time)	
☐	Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.
☒	For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period
☒	For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.

☐	Frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz. The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

8.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.4	Time of Occupancy (Dwell Time)

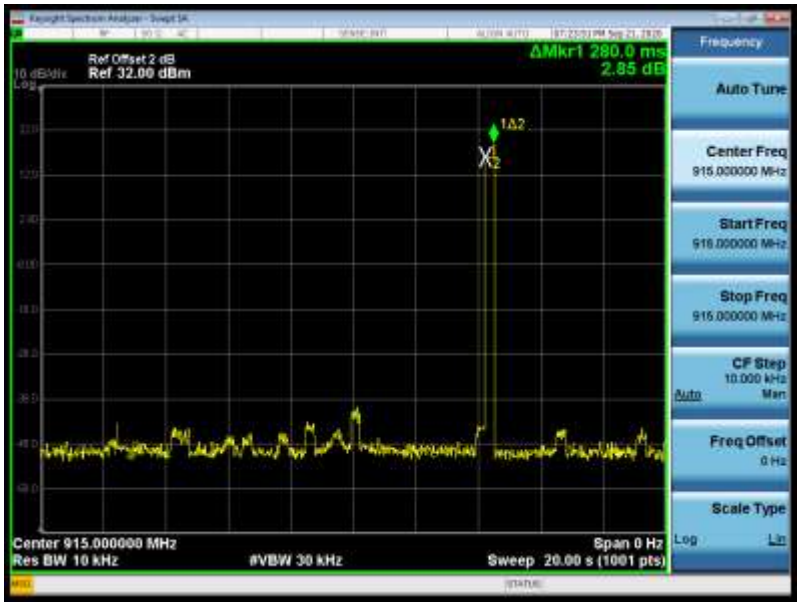
8.5. Uncertainty

The measurement uncertainty is defined as ± 0.1 us

8.6. Test Result

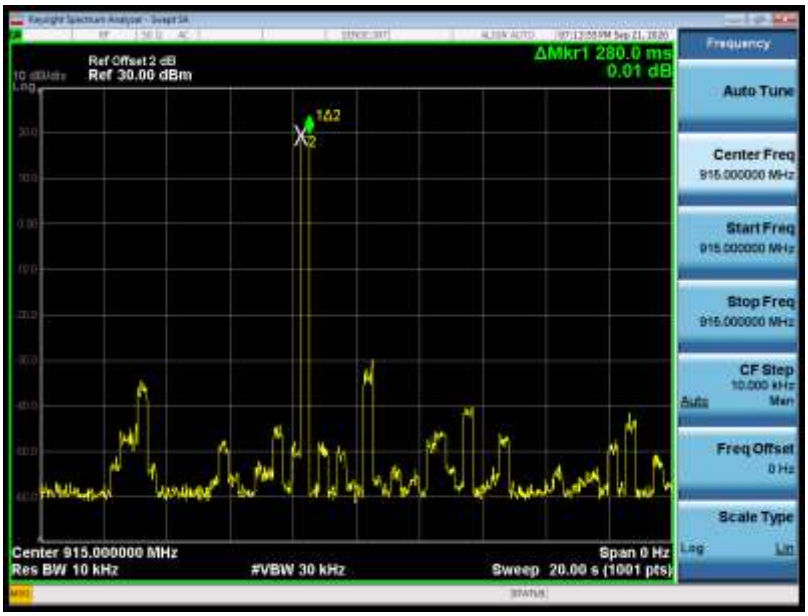
Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2020.09.21			

Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
01	915	280	< 400	Pass



Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2020.09.21			

Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
01	915	280	< 400	Pass

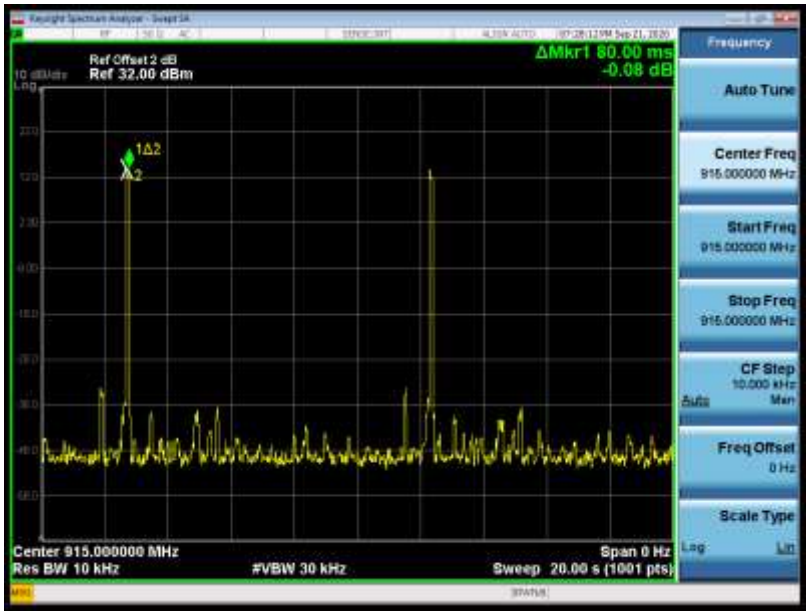


Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2020.09.21			

Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
01	908.5	280.0	< 400	Pass

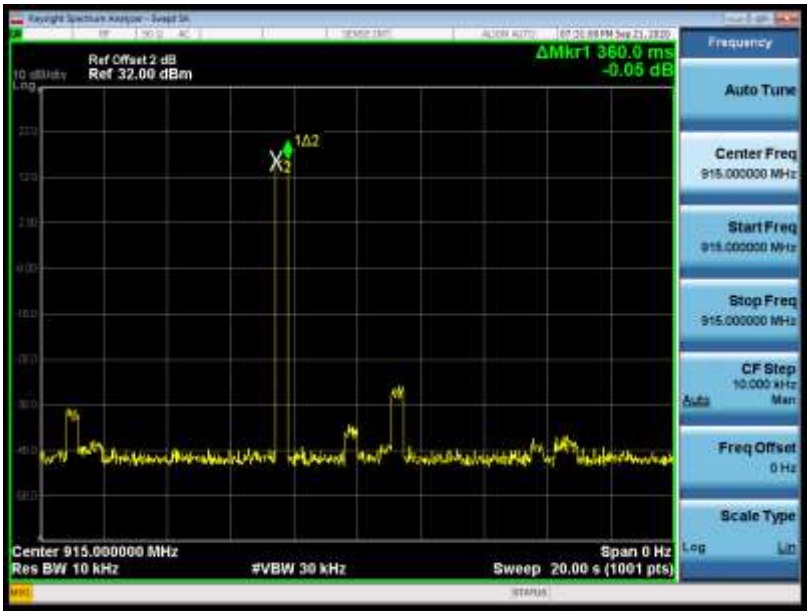
Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 4	Test Site	:	TR-8
Test Date	:	2020.09.21			

Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
01	915	160	< 400	Pass



Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 5	Test Site	:	TR-8
Test Date	:	2020.09.21			

Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
01	915	360.0	< 400	Pass



Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 6	Test Site	:	TR-8
Test Date	:	2020.09.21			

Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
01	914.8	360	< 400	Pass

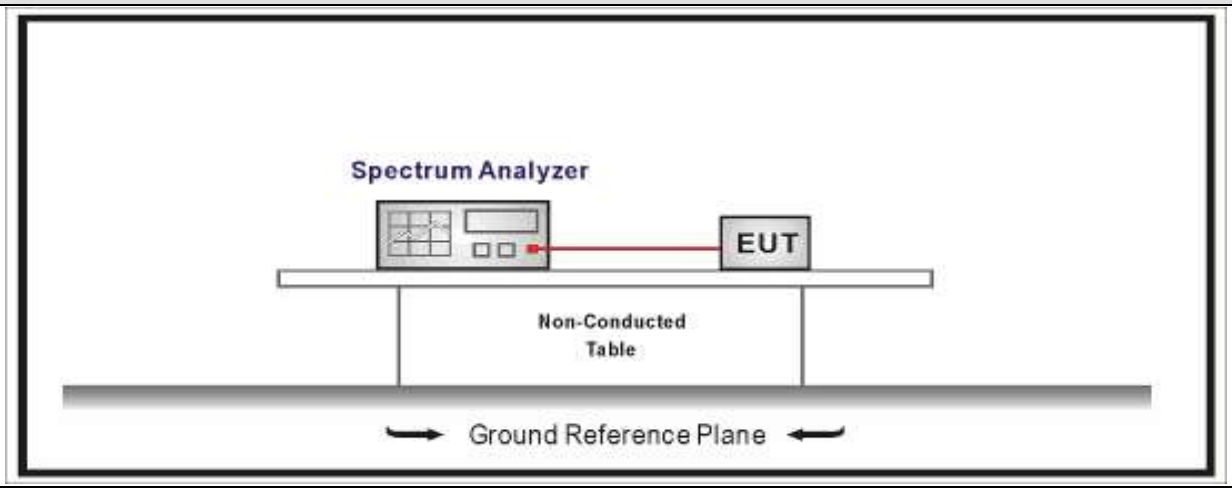
9. Peak Output Power

9.1. Test Equipment

Peak Output Power / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2020.08.15	2021.08.14
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2020.09.02	2021.09.01
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

9.2. Test Setup

Peak Output Power test setup:



9.3. Limit

Peak Output Power	
☐	Frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.
☐	Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.
☒	For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels
☐	For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.

9.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.5	Output power test procedure for frequency-hopping spread-spectrum (FHSS) devices
☒	ANSI C63.10	11.9	Fundamental emission output power

9.5. Uncertainty

The measurement uncertainty is defined as ± 1.0 dB

9.6. Test Result

Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2020.09.17			

Channel No.	Frequency (MHz)	Measurement Power Output AV (dBm)	Limit (dBm)	Result
01	902.3	17.96	30.00	Pass
31	914.3	17.89	30.00	Pass
62	926.7	17.87	30.00	Pass

Channel No.	Frequency (MHz)	E.I.R.P (dBm)	E.I.R.P Limit (dBm)	Result
01	902.3	16.96	36.00	Pass
31	914.3	16.89	36.00	Pass
62	926.7	16.87	36.00	Pass

Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2020.09.17			

Channel No.	Frequency (MHz)	Measurement Power Output AV (dBm)	Limit (dBm)	Result
01	902.2	17.86	30.00	Pass
65	915	17.82	30.00	Pass
129	927.8	17.71	30.00	Pass

Channel No.	Frequency (MHz)	E.I.R.P (dBm)	E.I.R.P Limit (dBm)	Result
01	902.2	16.86	36.00	Pass
65	915	16.82	36.00	Pass
129	927.8	16.71	36.00	Pass

Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2020.09.17			

Channel No.	Frequency (MHz)	Measurement Power Output AV (dBm)	Limit (dBm)	Result
01	902.3	17.89	30.00	Pass
32	908.5	17.85	30.00	Pass
64	914.9	17.83	30.00	Pass

Channel No.	Frequency (MHz)	E.I.R.P (dBm)	E.I.R.P Limit (dBm)	Result
01	902.3	16.89	36.00	Pass
32	908.5	16.85	36.00	Pass
64	914.9	16.83	36.00	Pass

Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 4	Test Site	:	TR-8
Test Date	:	2020.09.17			

Channel No.	Frequency (MHz)	Measurement Power Output AV (dBm)	Limit (dBm)	Result
01	902.2	18.21	30.00	Pass
65	915	17.89	30.00	Pass
129	927.8	17.85	30.00	Pass

Channel No.	Frequency (MHz)	E.I.R.P (dBm)	E.I.R.P Limit (dBm)	Result
01	902.2	17.21	36.00	Pass
65	915	16.89	36.00	Pass
129	927.8	17.85	36.00	Pass

Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 5	Test Site	:	TR-8
Test Date	:	2020.09.17			

Channel No.	Frequency (MHz)	Measurement Power Output AV (dBm)	Limit (dBm)	Result
01	902.2	17.83	30.00	Pass
65	915	17.89	30.00	Pass
129	927.8	17.87	30.00	Pass

Channel No.	Frequency (MHz)	E.I.R.P (dBm)	E.I.R.P Limit (dBm)	Result
01	902.2	16.83	36.00	Pass
65	915	16.89	36.00	Pass
129	927.8	16.87	36.00	Pass

Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 6	Test Site	:	TR-8
Test Date	:	2020.09.17			

Channel No.	Frequency (MHz)	Measurement Power Output AV (dBm)	Limit (dBm)	Result
01	902.4	17.78	30.00	Pass
32	914.8	17.87	30.00	Pass
64	927.6	18.05	30.00	Pass

Channel No.	Frequency (MHz)	E.I.R.P (dBm)	E.I.R.P Limit (dBm)	Result
01	902.4	16.78	36.00	Pass
32	914.8	16.87	36.00	Pass
64	927.6	17.05	36.00	Pass

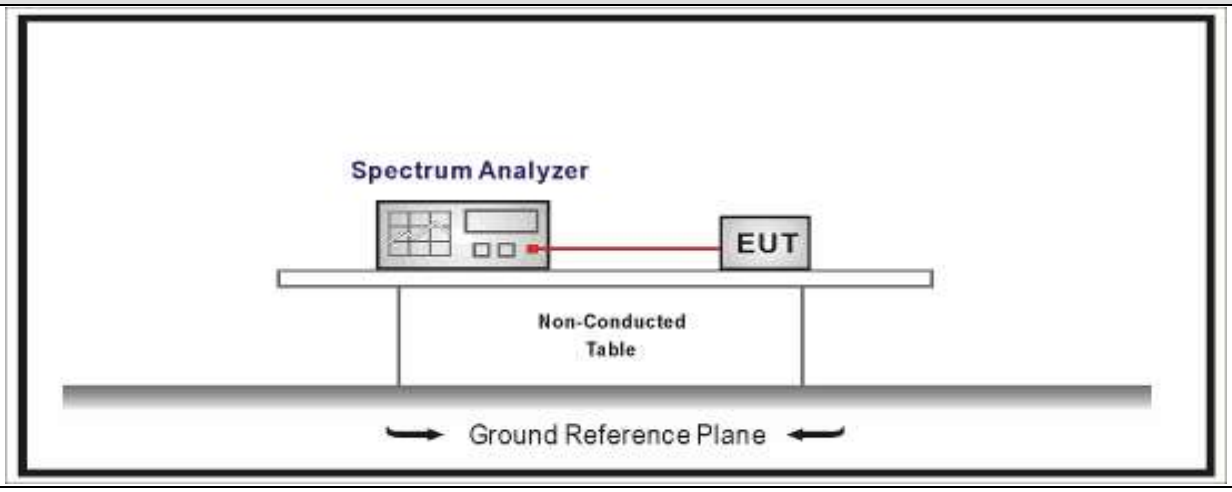
10. Emissions in non-restricted frequency bands

10.1. Test Equipment

Emissions in non-restricted frequency bands / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2020.08.15	2021.08.14
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2020.09.02	2021.09.01
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

10.2. Test Setup

Emissions in non-restricted frequency bands test setup:



10.3. Limit

Un-Restricted Band Emissions Limit	
RF Output power (Detection methods)	Limit(dB)
RF Output power(Average detector)	30c(Note1)
RF Output power(PK detector)	20c(Note2)

Note 1: If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).

Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).

10.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.6	Band-edge Compliance of RF Conducted Emissions
☒	ANSI C63.10	11.11	Emissions in nonrestricted frequency bands

10.5. Uncertainty

The measurement uncertainty is defined as ± 1.0 dB

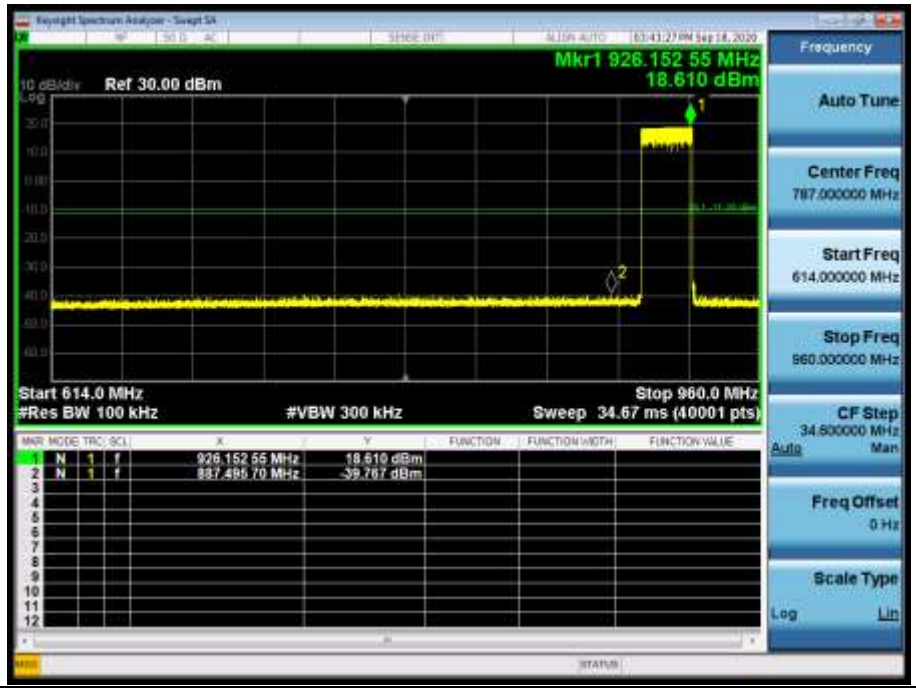
10.6. Test Result

Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2020.09.18			

Mode	Channel	Test Frequency (MHz)	In-Band PSD[a] (dBm/100kHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
1	01	902.3	17.685	-50.416	68.101	>30	Pass
1	62	926.7	17.979	-48.918	66.897	>30	Pass
1	01~62	902.3-926.7	18.610	-39.767	58.377	>30	Pass

Note1: The worst case of Emissions in non-restricted frequency bands as below:

Mode 1 CH01-CH62



Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2020.09.18			

Mode	Channel	Test Frequency (MHz)	In-Band PSD[a] (dBm/100kHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
2	01	902.2	17.760	-49.897	67.657	>30	Pass
2	129	927.8	17.736	-47.236	64.972	>30	Pass
2	01~129	902.2-927.8	18.551	-39.832	58.383	>30	Pass

Note1: The worst case of Emissions in non-restricted frequency bands as below:

Mode 2 CH01-CH129

Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2020.09.18			

Mode	Channel	Test Frequency (MHz)	In-Band PSD[a] (dBm/100kHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
3	01	902.3	17.822	-50.126	67.948	>30	Pass
3	64	914.9	17.828	-48.715	66.543	>30	Pass
3	01~64	902.3-914.9	18.434	-38.943	57.377	>30	Pass

Note1: The worst case of Emissions in non-restricted frequency bands as below:

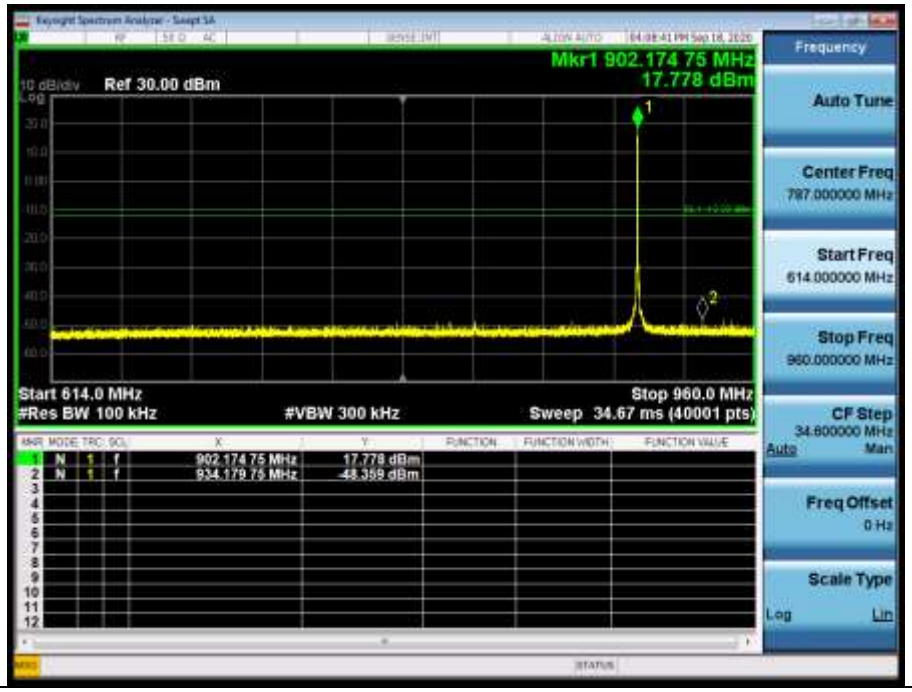
Mode 3 CH01-CH64

Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 4	Test Site	:	TR-8
Test Date	:	2020.09.18			

Mode	Channel	Test Frequency (MHz)	In-Band PSD[a] (dBm/100kHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
4	01	902.2	17.778	-48.359	66.137	>30	Pass
4	129	927.8	18.101	-49.128	67.229	>30	Pass
4	01~129	902.2-927.8	18.595	-49.707	68.302	>30	Pass

Note1: The worst case of Emissions in non-restricted frequency bands as below:

Mode 4 CH01

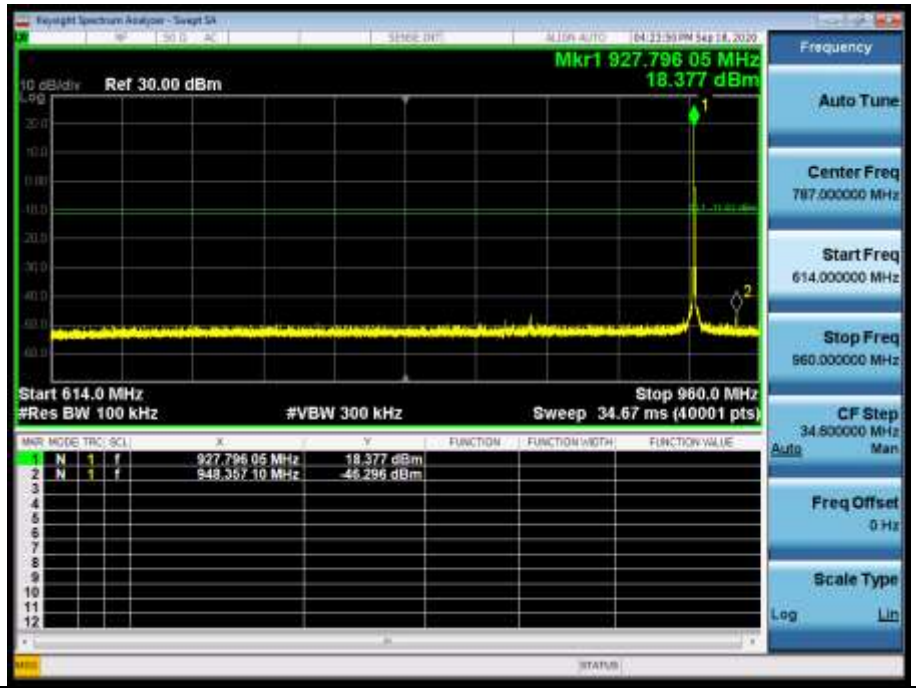


Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 5	Test Site	:	TR-8
Test Date	:	2020.09.18			

Mode	Channel	Test Frequency (MHz)	In-Band PSD[a] (dBm/100kHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
5	01	902.2	18.131	-48.009	66.14	>30	Pass
5	129	927.8	18.377	-46.296	64.673	>30	Pass
5	01~129	902.2-927.8	18.880	-49.209	68.089	>30	Pass

Note1: The worst case of Emissions in non-restricted frequency bands as below:

Mode 5 CH129

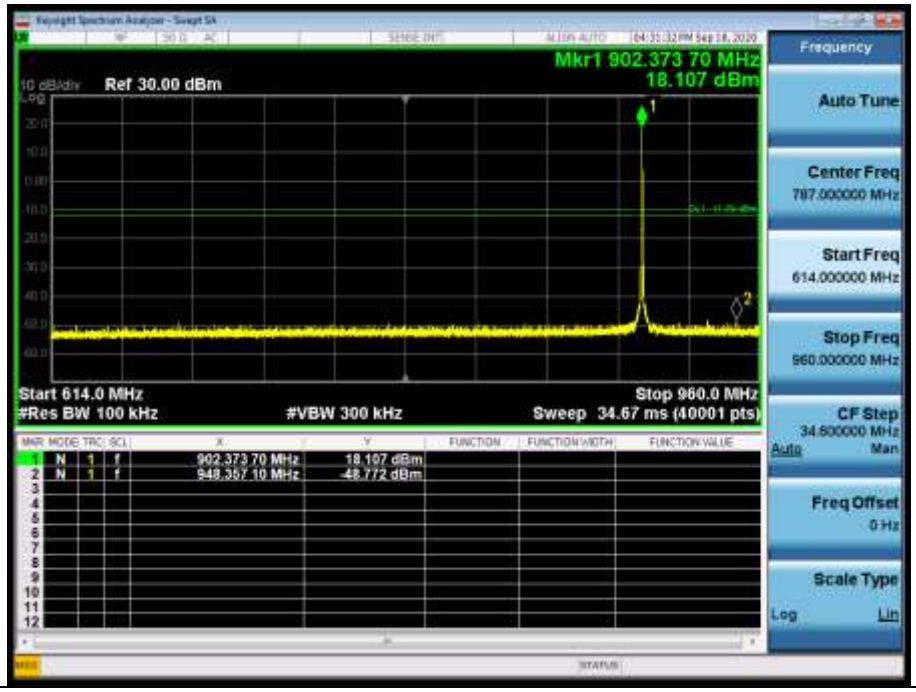


Product Name	:	Ring Bridge	Power	:	AC 120V/60Hz
Test Mode	:	Mode 6	Test Site	:	TR-8
Test Date	:	2020.09.18			

Mode	Channel	Test Frequency (MHz)	In-Band PSD[a] (dBm/100kHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
6	01	902.4	18.107	-48.772	66.879	>30	Pass
6	64	927.6	18.308	-49.223	67.531	>30	Pass
6	01~64	01~64	18.865	-48.439	67.304	>30	Pass

Note1: The worst case of Emissions in non-restricted frequency bands as below:

Mode 6 CH01



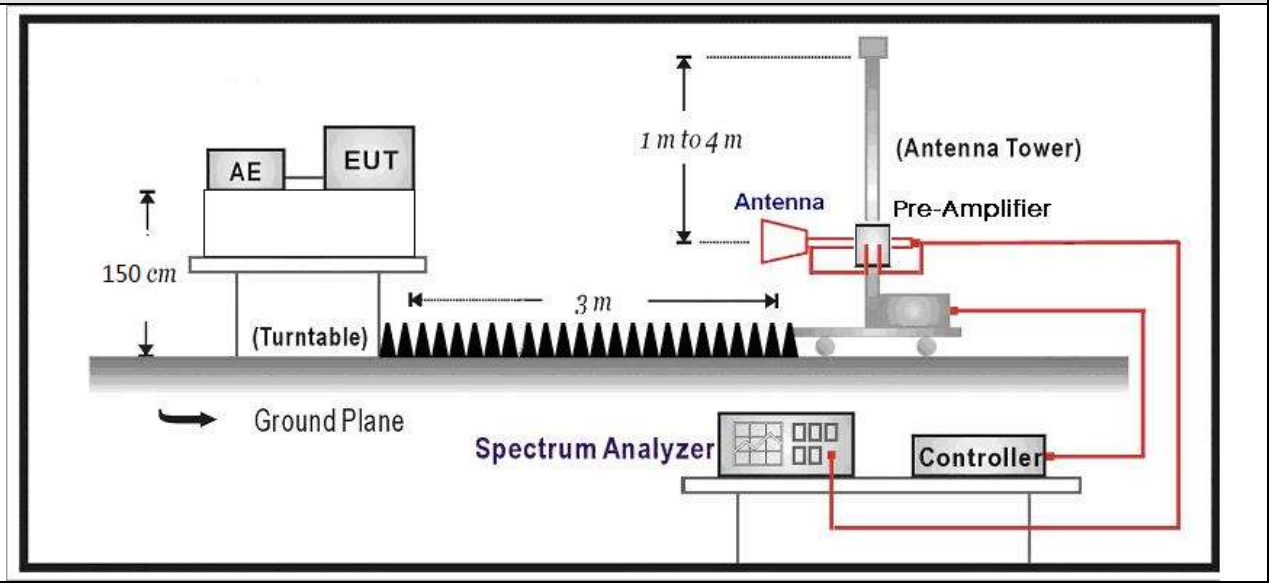
11. Radiated Emission Band Edge

11.1. Test Equipment

Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Receiver	Agilent	N9038A	MY51210196	2018.07.16	2019.07.15
Pre-Amplifier	Miteq	NSP1800-25	1364185	2018.05.03	2019.05.02
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2018.07.12	2019.07.11
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2018.09.18	2019.09.17
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2019.02.28	2020.02.27
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2019.02.28	2020.02.27
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2019.01.05	2020.01.04

11.2. Test Setup

Above 1GHz Test Setup:



11.3. Limit

Band edge Limit				
Frequency bands (MHz)	Detector	Limit (dBμV/m)	RBW (KHz)	Distance (m)
608-614	PK	74	100	3
960-1240	AV	54	300	3
Note: The field strength of emissions appearing within these frequency bands shall not exceed the limits.				

11.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	6.10	Band-edge testing
	☒ ANSI C63.10	6.10.5	Restricted-band band-edge measurements
	☐ ANSI C63.10	6.10.6	Marker-delta method
☐	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
☒	ANSI C63.10	7.8.6	Band-edge measurements for RF conducted emissions

11.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB

below 1G is defined as ± 3.8 dB

11.6. Test Result

No restricted band in the range ± 2 channel bandwidths of the Band-edges of the specified emission band! (608 MHz – 614 MHz and 960 MHz – 1240 MHz).

12. Antenna Requirement

13.1. Limit

Antenna Requirement Limit
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

13.2. Antenna Connector Construction

Antenna Connector Construction	
☒	The use of a permanently attached antenna
☐	The antenna use of a unique coupling to the intentional radiator
☐	The use of a nonstandard antenna jack or electrical connector
Please refer to the attached document “Internal Photograph” to show the antenna connector.	

The End