Test Report

Report No.:	MTi210628011-04E4
Date of issue:	Jan. 18, 2022
Applicant:	Xiamen Hanin Electronic Technology Co., Ltd.
Product:	Barcode Printer
Model(s):	iT4R, HT4R, iV3800R, ST34R, P54R, 324R, J-5400R, Y12R, PZ420R, T432R, ST14R, P43R, T430R
FCC ID:	2AUTE-IT4R

Shenzhen Microtest Co., Ltd.

http://www.mtitest.com

Address: 101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Tel: (86-755)88850135 Fax: (86-755) 88850136 Web: www.mtitest.com E-mail: mti@51mti.com

Instructions

1. This test report shall not be partially reproduced without the written consent of the laboratory.

2. The test results in this test report are only responsible for the samples submitted

3. This test report is invalid without the seal and signature of the laboratory.

4. This test report is invalid if transferred, altered, or tampered with in any form without authorization.

5. Any objection to this test report shall be submitted to the laboratory within 15 days from the date of receipt of the report.

Contents

Test Result Certification	
Applicant:	**Xiamen Hanin Electronic Technology Co., Ltd.**
Address:	Room 305A, Angye Building, Pioneering Park, Torch High-tech, Zone, Xiamen
Manufacturer:	**Xiamen Hanin Electronic Technology Co., Ltd.**
Address:	Room 305A, Angye Building, Pioneering Park, Torch High-tech, Zone, Xiamen
Factory:	**Xiamen Hanin Electronic Technology Co., Ltd.**
Address:	No.96, Rongyuan Road, Tong'an District, Xiamen
Product description	
Product name:	Barcode Printer
Trademark:	HPRT, iDPRT
Model name:	iT4R
Serial Model:	HT4R, iV3800R, ST34R, P54R, 324R, J-5400R, Y12R, PZ420R, T432R, ST14R, P43R, T430R
Standards:	FCC 47 CFR Part 15 Subpart C
Test method:	ANSI C63.10-2013
Date of Test	
Date of test:	2021-12-14 ~ 2022-01-18
Test result:	Pass

Test Engineer : Cindy Qin

(Cindy Qin)

Reviewed By: : Leon Chen

(Leon Chen)

Approved By: : Tom Xue

(Tom Xue)

1 General Description

1.1 Description of the EUT

Product name:	Barcode Printer
Model name:	iT4R
Series Model:	HT4R, iV3800R, ST34R, P54R, 324R, J-5400R, Y12R, PZ420R, T432R, ST14R, P43R, T430R
Model difference:	All the models are the same circuit and RF module, except the model name.
Electrical rating:	DC 24V from adapter AC 120V/60Hz
Hardware version:	iT4RMB
Software version:	V iT4R S
Accessories:	Adapter 1: MODEL: GM60-240250-F INPUT: 100-240V~50/60Hz 2.0A OUTPUT: 24.0V⎓2.5A; 60.0W Adapter 2: MODEL: AP115G-240250 INPUT: 100-240V~50/60Hz 2.0A Max. OUTPUT: 24.0V⎓2.5A 60.0W
EUT serial number:	MTi210628011-04-S0001
RF specification:	
Operation frequency:	NA2 mode: 917.4 MHz ~ 927.2 MHz (channel separation: 200 kHz, number of channels: 50) NA3 mode: 917.5 MHz ~ 922.5 MHz (channel separation: 100 kHz, number of channels: 51)
Modulation type:	PR-ASK
Antenna designation:	FPC antenna, antenna Gain: 1 dBi
Max. peak conducted output power:	NA2 mode: 17.078dBm NA3 mode: 16.224SdBm

1.2 Description of test modes

1.2.1 Test channels

For NA2 mode	
Chanel	Frequency
Lowest	917.4 MHz
Middle	922.4 MHz
Highest	927.2 MHz

For NA3 mode	
Chanel	Frequency
Lowest	917.5 MHz
Middle	920 MHz
Highest	922.5 MHz

Note: The test software has been used to control EUT for working in engineering mode, that enables selectable channel, and capable of continuous transmitting mode.

1.2.2 Description of support units

Support equipment list			
Description	Model	Serial No.	Manufacturer
/	/	/	/

1.3 Measurement uncertainty

Parameter	Measurement uncertainty
AC power line conducted emission (9 kHz~30 MHz)	±2.5 dB
Occupied Bandwidth	±3 %
Conducted RF output power	±0.16 dB
Conducted spurious emissions	±0.21 dB
Radiated emission (9 kHz ~ 30 MHz)	±4.0 dB
Radiated emission (30 MHz~1 GHz)	±4.2 dB
Radiated emission (above 1 GHz)	±4.3 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

2 Summary of Test Result

No.	FCC reference	Description of test	Result
1	§ 15.203	Antenna requirement	Pass
2	§ 15.207	AC power line conducted emissions	Pass
3	15.247(a)(1)	20dB occupied bandwidth	Pass
4	15.247(b)(2)	Conducted peak output power	Pass
5	15.247(a)(1)	Carrier Frequencies Separation	Pass
6	15.247(a)(1)	Average time of occupancy (Dwell time)	Pass
7	15.247(a)(1)	Number of hopping channels	Pass
8	15.247(d)	Conducted emission at the band edge	Pass
9	15.247(d)	Conducted spurious emissions	Pass
10	15.247(d)	Radiated spurious emissions	Pass

Note: N/A means not applicable.

3 Test Facilities and Accreditations

3.1 Test laboratory

Test laboratory:	Shenzhen Microtest Co., Ltd.
Test site location:	101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Telephone:	(86-755)88850135
Fax:	(86-755)88850136
CNAS Registration No.:	CNAS L5868
FCC Registration No.:	448573

4 Equipment List

No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due
MTi-E002	EMI Test Receiver	R&S	ESCI3	101368	2021/06/02	2022/06/01
MTi-E023	Artificial power network	Schwarzbeck	NSLK8127	NSLK8127# 841	2021/06/02	2022/06/01
MTi-E025	Artificial power network	Schwarzbeck	NSLK8127	8127183	2021/06/02	2022/06/01
MTI-E043	EMI test receiver	R&S	ESCI7	101166	2021/06/02	2022/06/01
MTI-E046	Active Loop Antenna	Schwarzbeck	FMZB 1519 B	00044	2021/05/30	2023/05/29
MTI-E044	Broadband antenna	Schwarzbeck	VULB9163	9163-1338	2021/05/30	2023/05/29
MTI-E045	Horn antenna	Schwarzbeck	BBHA9120D	9120D-2278	2021/05/30	2023/05/29
MTI-E047	Pre-amplifier	Hewlett-Packard	8447F	3113A06184	2021/06/02	2022/06/01
MTI-E048	Pre-amplifier	Agilent	8449B	3008A01120	2021/06/02	2022/06/01
MTi-E120	Broadband antenna	Schwarzbeck	VULB9163	9163-1419	2021/05/30	2023/05/29
MTi-E121	Pre-amplifier	Hewlett-Packard	8447D	2944A09365	2021/04/16	2022/04/15
MTi-E123	Pre-amplifier	Agilent	8449B	3008A04723	2021/05/06	2022/05/05
MTi-E062	PXA Signal Analyzer	Agilent	N9030A	MY51350296	2021/06/23	2022/06/22
MTi-E067	RF Control Unit	Tonscend	JS0806-1	19D8060152	2021/06/02	2022/06/01
MTi-E068	RF Control Unit	Tonscend	JS0806-2	19D8060153	2021/06/02	2022/06/01
MTi-E069	Band Reject Filter Group	Tonscend	JS0806-F	19D8060160	2021/06/02	2022/06/01
MTI-E010S	EMI Measurement Software	Farad	EZ-EMC Ver. EMEC-3A1	/	/	/
MTI-E014S	RF Test System	Tonscend	TS®JS1120 V2.6.88.0330	/	/	/

5 Test Result

5.1 Antenna requirement

15.203 requirement

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, 15.221, or §15.236. 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.

Description of the antenna of EUT

The antenna of EUT is FPC antenna (Antenna Gain: 1 dBi). which is no consideration of replacement.

5.2 AC power line conducted emissions

5.2.1 Limits

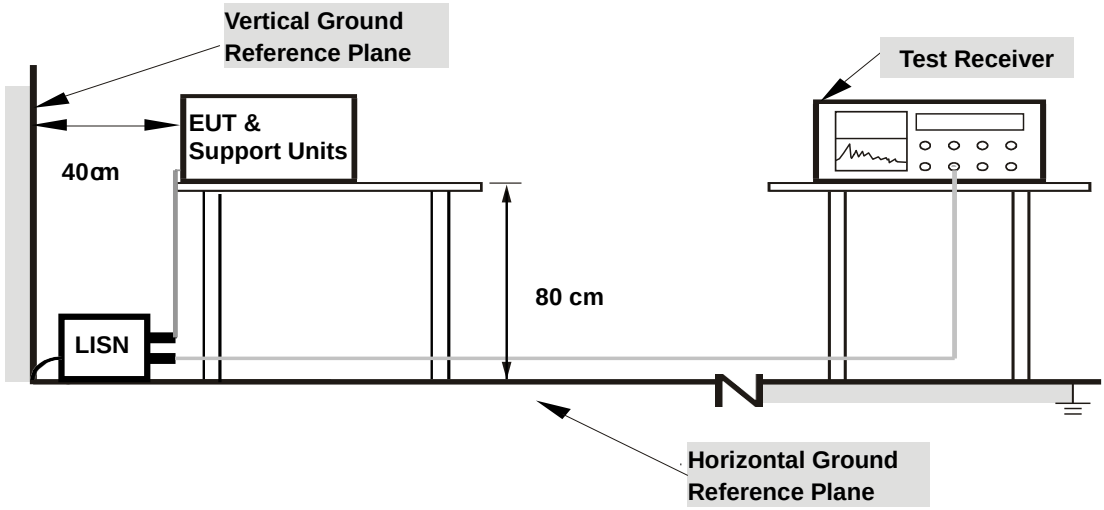
Frequency (MHz)	Detector type / Bandwidth	Limit-Quasi-peak dBµV	Limit-Average dBµV
0.15 -0.5	Average / 9 kHz	66 to 56	56 to 46
0.5 -5		56	46
5 -30		60	50

Note 1: the limit decreases with the logarithm of the frequency in the range of 0.15 MHz to 0.5 MHz.

5.2.2 Test Procedures

a) The test setup is refer to the standard ANSI C63.10-2013.
b) The EUT is connected to the main power through a line impedance stabilization network (LISN). All support equipment is powered from additional LISN(s).
c) Emissions were measured on each current carrying line of the EUT using an EMI test receiver connected to the LISN powering the EUT.
d) The test receiver scanned from 150 kHz to 30 MHz for emissions in each of the test modes described in Item 1.2.
e) The test data of the worst-case condition(s) was recorded.

5.2.3 Test setup



For the actual test configuration, please refer to the related item – Photographs of the test setup.

5.2.4 Test Result

Notes:

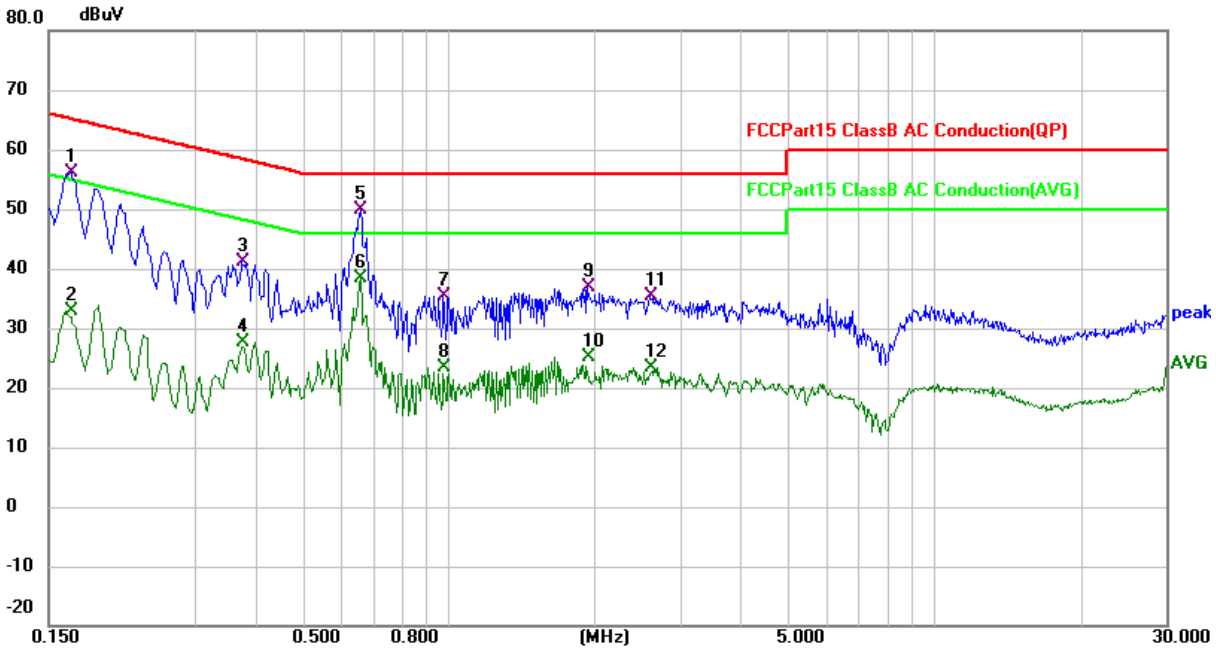
All modes of operation of the EUT were investigated, and only the worst-case results are reported, the worst mode is NA2 Highest channel.

Calculation formula:

Measurement (dBµV) = Reading Level (dBµV) + Correct Factor (dB)
Over (dB) = Measurement (dBµV) – Limit (dBµV)

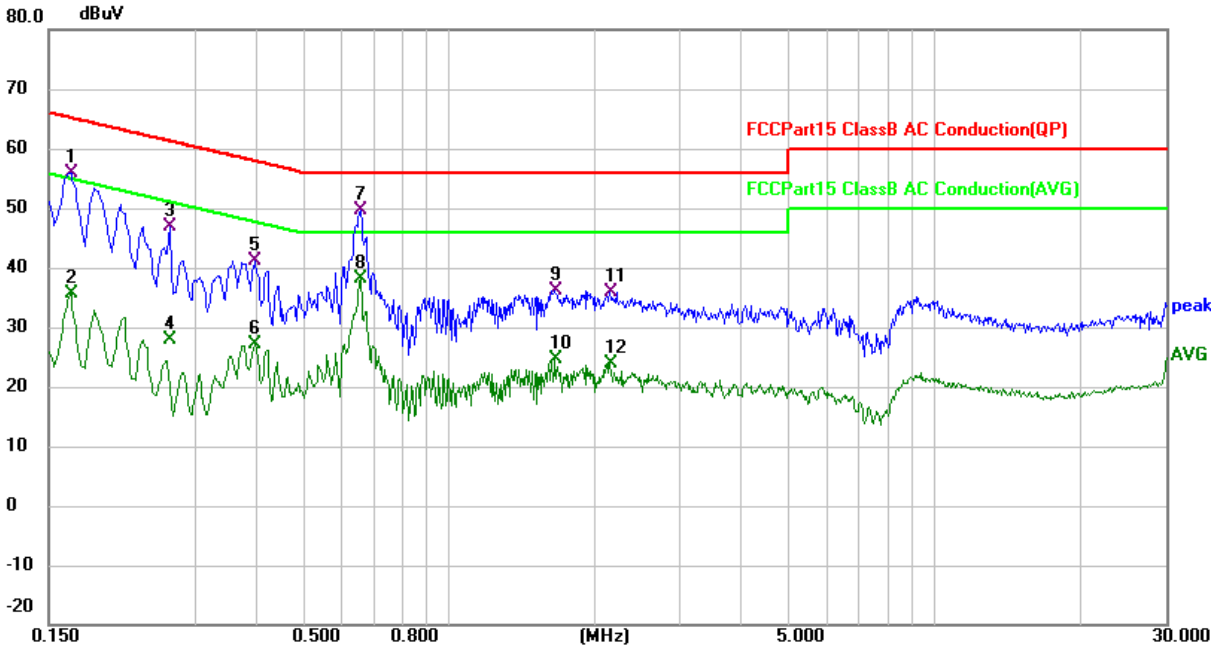
The model for GM60-240250-F AC/DC adapter test data:

Test mode:	Charging +TX (NA2 for highest channel)	Phase:	L
Power supply:	Power by AC/DC adapter (AC 120V/60Hz)	Test site:	CE chamber 1



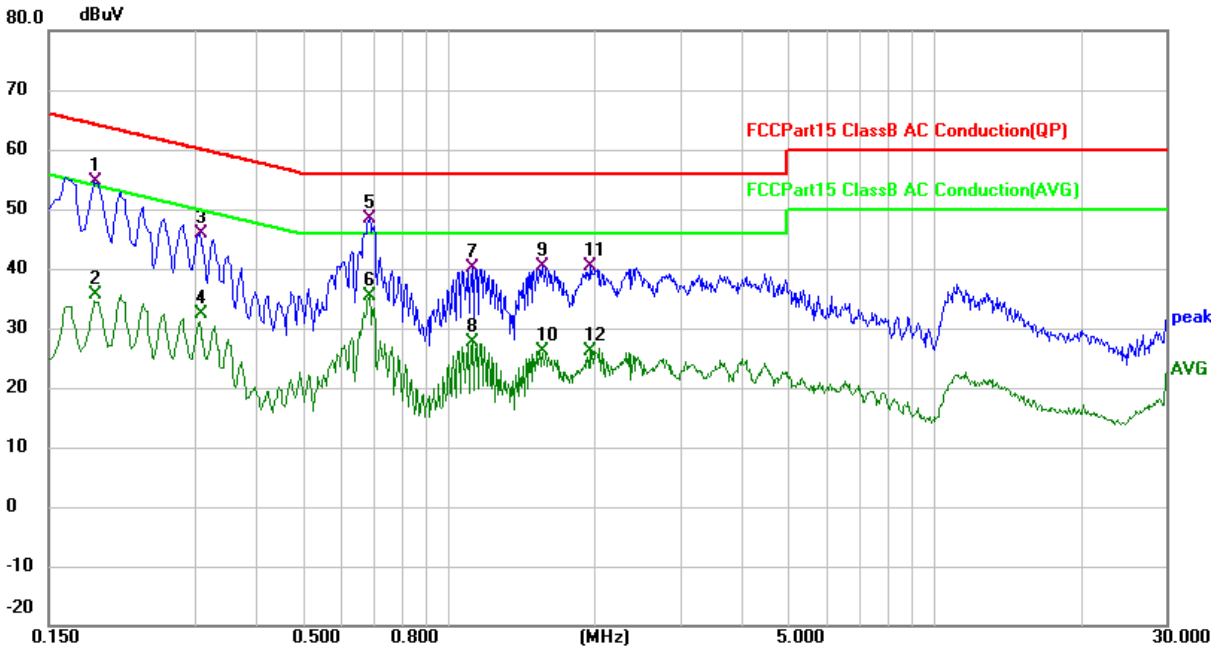
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1660	45.14	10.99	56.13	65.16	-9.03	QP
2		0.1660	21.87	10.99	32.86	55.16	-22.30	AVG
3		0.3740	30.22	10.97	41.19	58.41	-17.22	QP
4		0.3740	16.64	10.97	27.61	48.41	-20.80	AVG
5	*	0.6580	38.82	11.08	49.90	56.00	-6.10	QP
6		0.6580	27.31	11.08	38.39	46.00	-7.61	AVG
7		0.9780	22.09	13.23	35.32	56.00	-20.68	QP
8		0.9780	10.07	13.23	23.30	46.00	-22.70	AVG
9		1.9380	21.48	15.29	36.77	56.00	-19.23	QP
10		1.9380	9.82	15.29	25.11	46.00	-20.89	AVG
11		2.6020	23.99	11.40	35.39	56.00	-20.61	QP
12		2.6020	11.91	11.40	23.31	46.00	-22.69	AVG

Test mode:	Charging +TX (NA2 for highest channel)	Phase:	N
Power supply:	Power by AC/DC adapter (AC 120V/60Hz)	Test site:	CE chamber 1



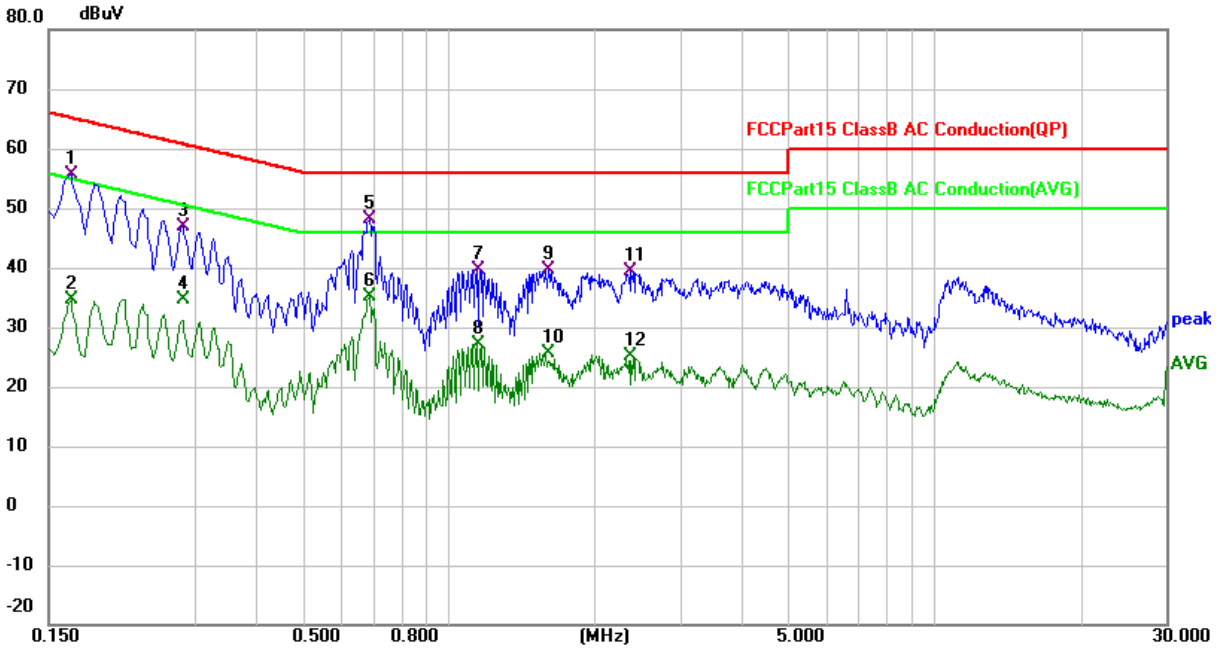
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1660	44.99	10.97	55.96	65.16	-9.20	QP
2		0.1660	24.61	10.97	35.58	55.16	-19.58	AVG
3		0.2660	36.01	10.89	46.90	61.24	-14.34	QP
4		0.2660	16.94	10.89	27.83	51.24	-23.41	AVG
5		0.3980	30.27	10.90	41.17	57.90	-16.73	QP
6		0.3980	16.19	10.90	27.09	47.90	-20.81	AVG
7	*	0.6580	38.54	11.04	49.58	56.00	-6.42	QP
8		0.6580	27.02	11.04	38.06	46.00	-7.94	AVG
9		1.6540	21.61	14.63	36.24	56.00	-19.76	QP
10		1.6540	10.00	14.63	24.63	46.00	-21.37	AVG
11		2.1460	20.22	15.70	35.92	56.00	-20.08	QP
12		2.1460	8.20	15.70	23.90	46.00	-22.10	AVG

Test mode:	Charging +TX (NA2 for highest channel)	Phase:	L
Power supply:	Power by AC/DC adapter (AC 240V/60Hz)	Test site:	CE chamber 1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1860	43.62	10.98	54.60	64.21	-9.61	QP
2		0.1860	24.63	10.98	35.61	54.21	-18.60	AVG
3		0.3060	34.80	10.98	45.78	60.08	-14.30	QP
4		0.3060	21.29	10.98	32.27	50.08	-17.81	AVG
5	*	0.6860	37.33	11.08	48.41	56.00	-7.59	QP
6		0.6860	24.39	11.08	35.47	46.00	-10.53	AVG
7		1.1180	26.54	13.54	40.08	56.00	-15.92	QP
8		1.1180	14.21	13.54	27.75	46.00	-18.25	AVG
9		1.5620	25.80	14.47	40.27	56.00	-15.73	QP
10		1.5620	11.58	14.47	26.05	46.00	-19.95	AVG
11		1.9540	24.99	15.31	40.30	56.00	-15.70	QP
12		1.9540	10.84	15.31	26.15	46.00	-19.85	AVG

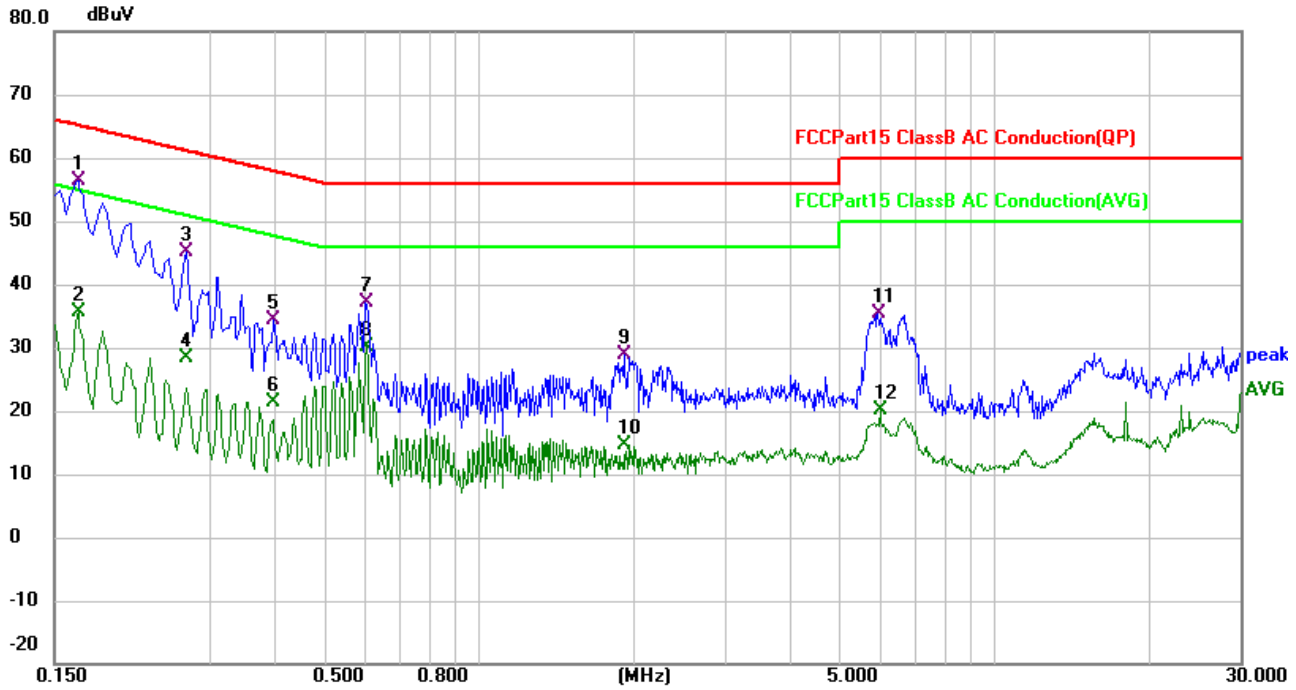
Test mode:	Charging +TX (NA2 for highest channel)	Phase:	N
Power supply:	Power by AC/DC adapter (AC 240V/60Hz)	Test site:	CE chamber 1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1660	44.63	10.97	55.60	65.16	-9.56	QP
2		0.1660	23.57	10.97	34.54	55.16	-20.62	AVG
3		0.2819	36.03	10.89	46.92	60.76	-13.84	QP
4		0.2819	23.73	10.89	34.62	50.76	-16.14	AVG
5	*	0.6860	36.96	11.07	48.03	56.00	-7.97	QP
6		0.6860	24.10	11.07	35.17	46.00	-10.83	AVG
7		1.1420	26.22	13.51	39.73	56.00	-16.27	QP
8		1.1420	13.59	13.51	27.10	46.00	-18.90	AVG
9		1.6100	24.99	14.54	39.53	56.00	-16.47	QP
10		1.6100	11.03	14.54	25.57	46.00	-20.43	AVG
11		2.3780	23.23	16.14	39.37	56.00	-16.63	QP
12		2.3780	8.91	16.14	25.05	46.00	-20.95	AVG

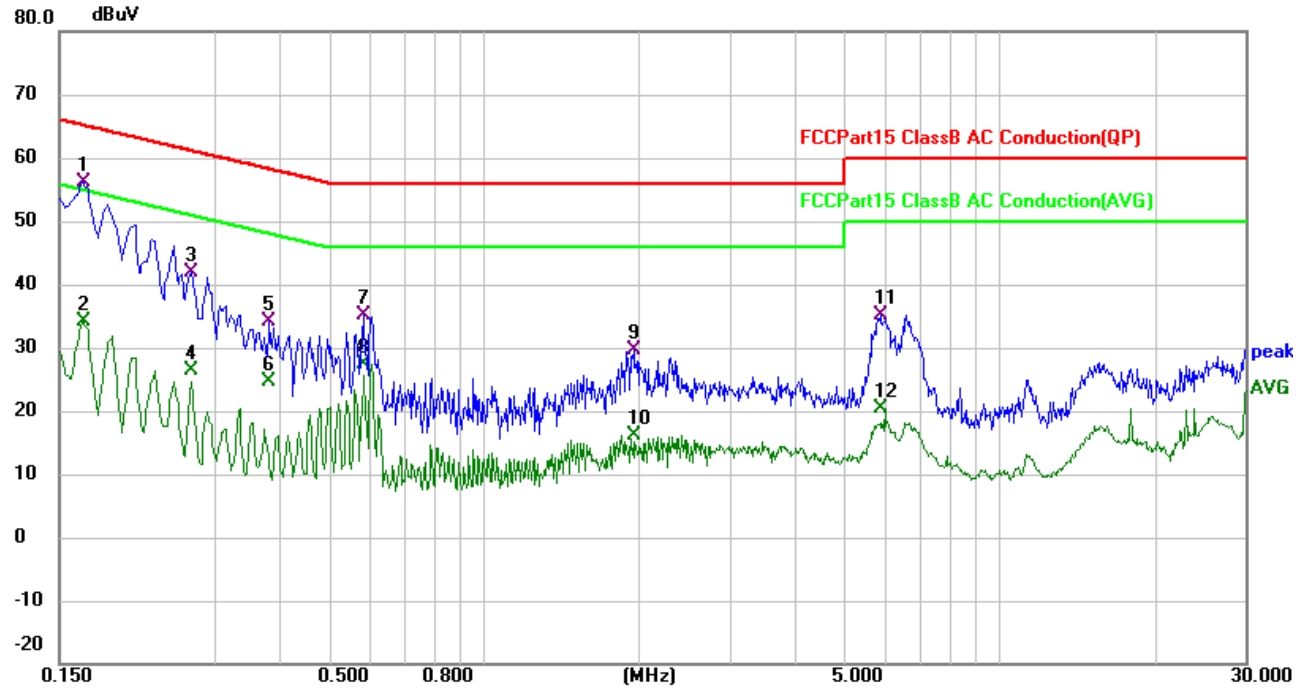
The model for AP115G-24250 AC/DC adapter test data:

Test mode:	Charging +TX (NA2 for highest channel)	Phase:	L
Power supply:	Power by AC/DC adapter (AC 120V/60Hz)	Test site:	CE chamber 1



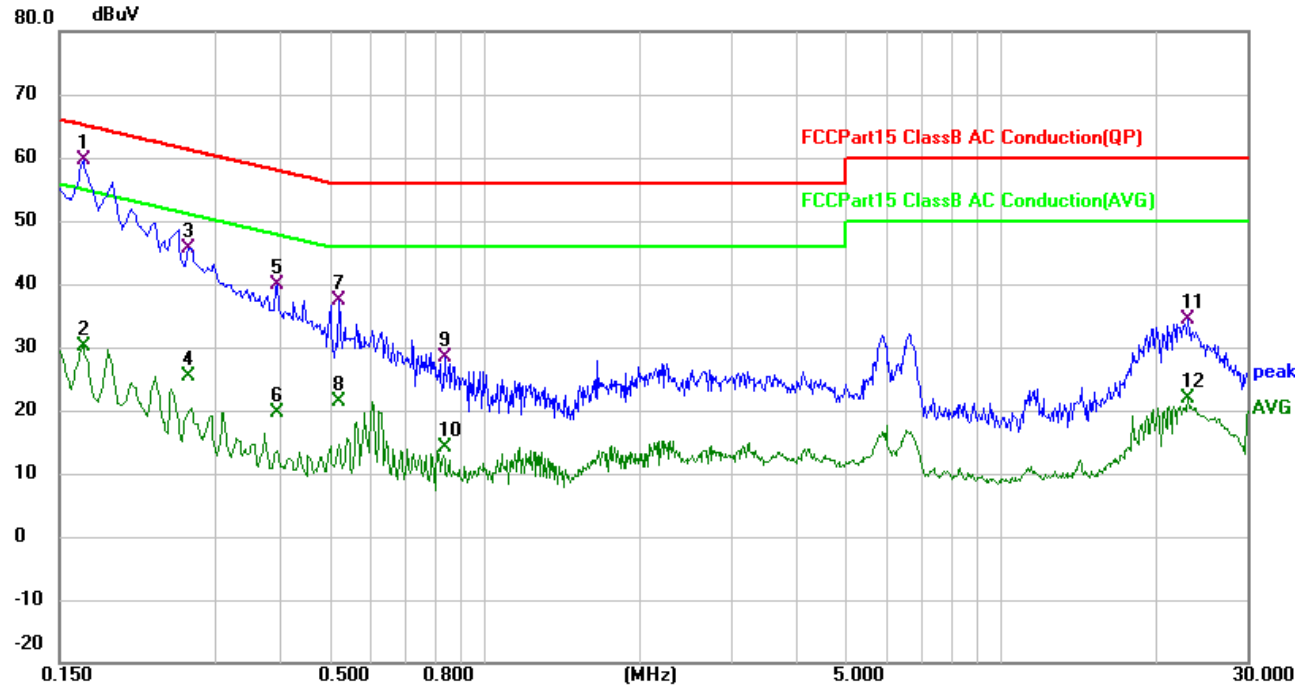
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1660	45.40	10.99	56.39	65.16	-8.77	QP
2		0.1660	24.53	10.99	35.52	55.16	-19.64	AVG
3		0.2700	34.22	10.99	45.21	61.12	-15.91	QP
4		0.2700	17.32	10.99	28.31	51.12	-22.81	AVG
5		0.3980	23.34	10.96	34.30	57.90	-23.60	QP
6		0.3980	10.52	10.96	21.48	47.90	-26.42	AVG
7		0.6020	25.97	11.07	37.04	56.00	-18.96	QP
8		0.6020	19.06	11.07	30.13	46.00	-15.87	AVG
9		1.9140	13.57	15.23	28.80	56.00	-27.20	QP
10		1.9140	-0.67	15.23	14.56	46.00	-31.44	AVG
11		5.9379	23.86	11.54	35.40	60.00	-24.60	QP
12		5.9979	8.53	11.54	20.07	50.00	-29.93	AVG

Test mode:	Charging +TX (NA2 for highest channel)	Phase:	N
Power supply:	Power by AC/DC adapter (AC 120V/60Hz)	Test site:	CE chamber 1



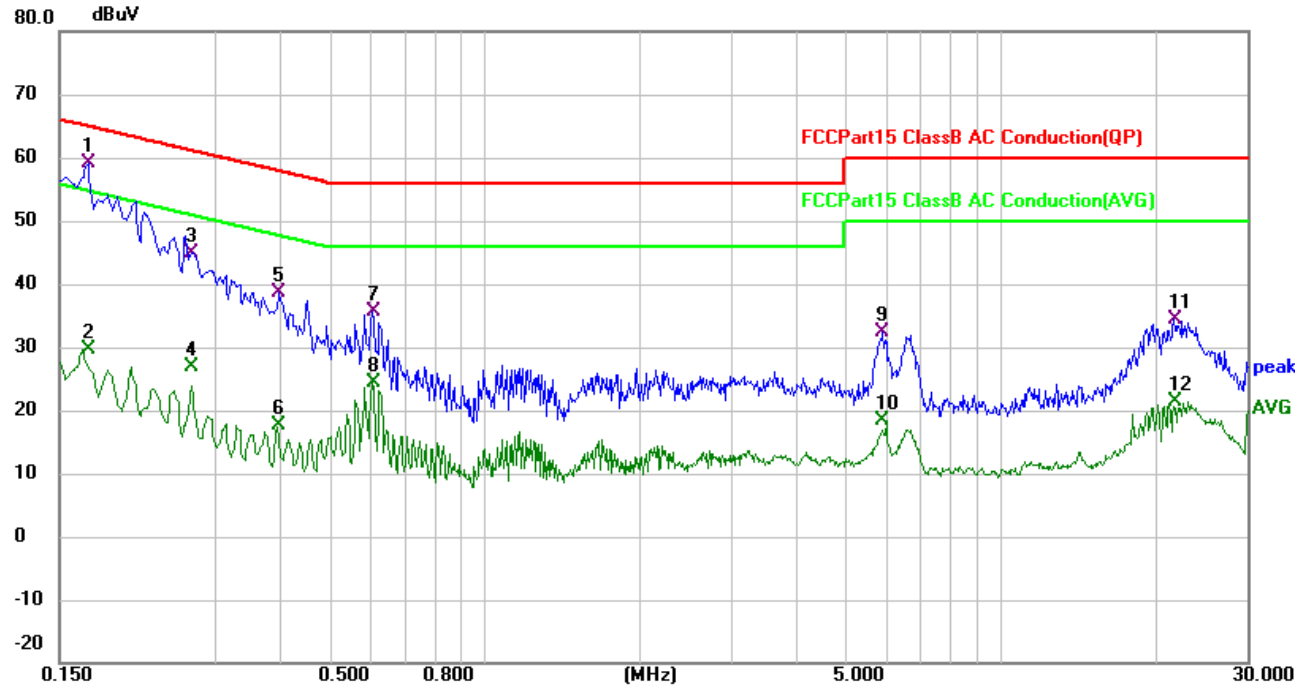
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1660	45.21	10.97	56.18	65.16	-8.98	QP
2		0.1660	23.18	10.97	34.15	55.16	-21.01	AVG
3		0.2700	30.94	10.90	41.84	61.12	-19.28	QP
4		0.2700	15.51	10.90	26.41	51.12	-24.71	AVG
5		0.3820	23.12	10.90	34.02	58.24	-24.22	QP
6		0.3820	13.80	10.90	24.70	48.24	-23.54	AVG
7		0.5820	24.05	10.97	35.02	56.00	-20.98	QP
8		0.5820	16.40	10.97	27.37	46.00	-18.63	AVG
9		1.9580	14.22	15.31	29.53	56.00	-26.47	QP
10		1.9580	0.71	15.31	16.02	46.00	-29.98	AVG
11		5.8819	23.76	11.39	35.15	60.00	-24.85	QP
12		5.8819	8.87	11.39	20.26	50.00	-29.74	AVG

Test mode:	Charging +TX (NA2 for highest channel)	Phase:	L
Power supply:	Power by AC/DC adapter (AC 240V/60Hz)	Test site:	CE chamber 1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1660	48.59	10.99	59.58	65.16	-5.58	QP
2		0.1660	19.19	10.99	30.18	55.16	-24.98	AVG
3		0.2660	34.66	10.98	45.64	61.24	-15.60	QP
4		0.2660	14.33	10.98	25.31	51.24	-25.93	AVG
5		0.3940	28.86	10.97	39.83	57.98	-18.15	QP
6		0.3940	8.75	10.97	19.72	47.98	-28.26	AVG
7		0.5220	26.30	11.07	37.37	56.00	-18.63	QP
8		0.5220	10.40	11.07	21.47	46.00	-24.53	AVG
9		0.8380	17.16	11.18	28.34	56.00	-27.66	QP
10		0.8380	2.87	11.18	14.05	46.00	-31.95	AVG
11		23.1299	22.61	11.81	34.42	60.00	-25.58	QP
12		23.1299	9.97	11.81	21.78	50.00	-28.22	AVG

Test mode:	Charging +TX (NA2 for highest channel)	Phase:	N
Power supply:	Power by AC/DC adapter (AC 240V/60Hz)	Test site:	CE chamber 1



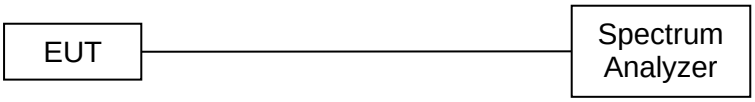
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1700	48.11	10.96	59.07	64.96	-5.89	QP
2		0.1700	18.64	10.96	29.60	54.96	-25.36	AVG
3		0.2700	33.90	10.90	44.80	61.12	-16.32	QP
4		0.2700	16.05	10.90	26.95	51.12	-24.17	AVG
5		0.3980	27.62	10.90	38.52	57.90	-19.38	QP
6		0.3980	6.67	10.90	17.57	47.90	-30.33	AVG
7		0.6060	24.57	10.99	35.56	56.00	-20.44	QP
8		0.6060	13.49	10.99	24.48	46.00	-21.52	AVG
9		5.9100	21.08	11.39	32.47	60.00	-27.53	QP
10		5.9100	6.96	11.39	18.35	50.00	-31.65	AVG
11		21.6620	22.46	11.81	34.27	60.00	-25.73	QP
12		21.6620	9.58	11.81	21.39	50.00	-28.61	AVG

5.3 20dB occupied bandwidth

5.3.1 Limits

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; 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. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

5.3.2 Test setup



5.3.3 Test procedures

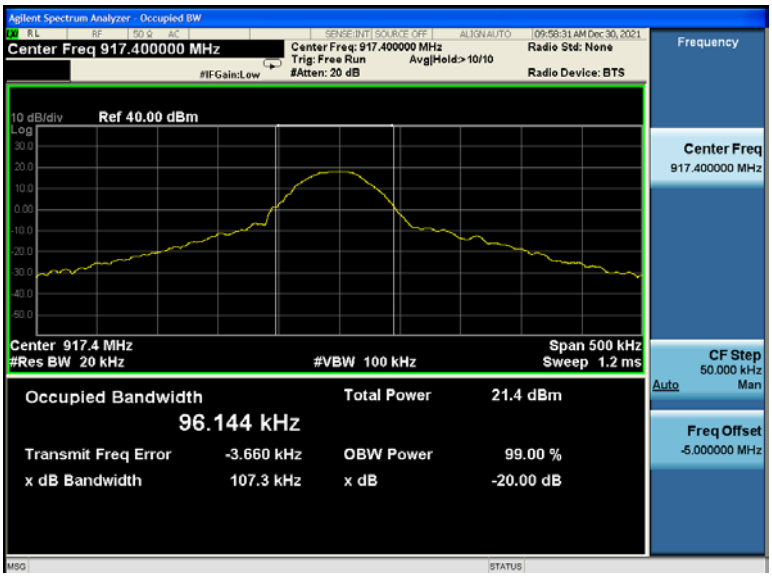
a) Test method: ANSI C63.10-2013 Section 6.9.2.
b) The transmitter output of EUT is connected to the spectrum analyzer.
c) Spectrum analyzer setting:
RBW = 1% ~ 5% of the OWB,
VBW = approximately three times RBW

5.3.4 Test results

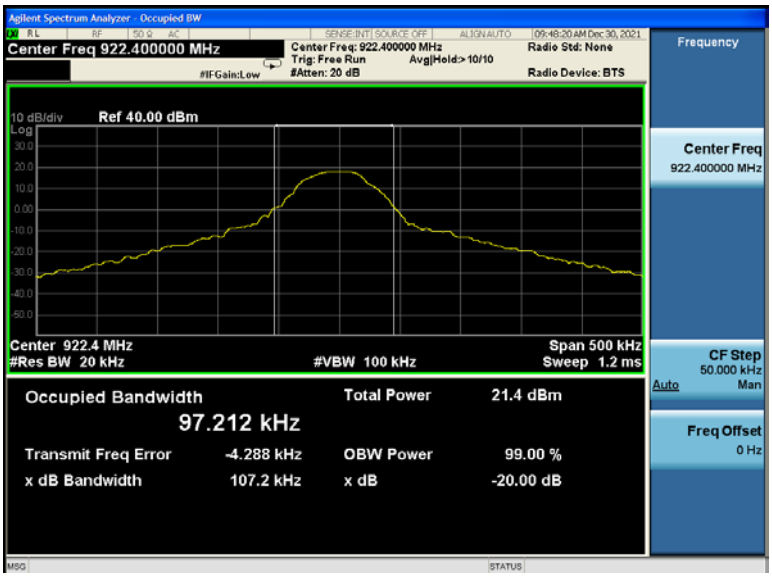
Mode	Test channel (MHz)	20dB Bandwidth (kHz)	Limit (kHz)
NA2 mode	917.4	107.3	≤ 500
	922.4	107.2	
	927.2	105.2	
NA3 mode	917.5	110.1	
	920.0	109.6	
	922.5	108.9	

NA2 mode - 20dB occupied bandwidth

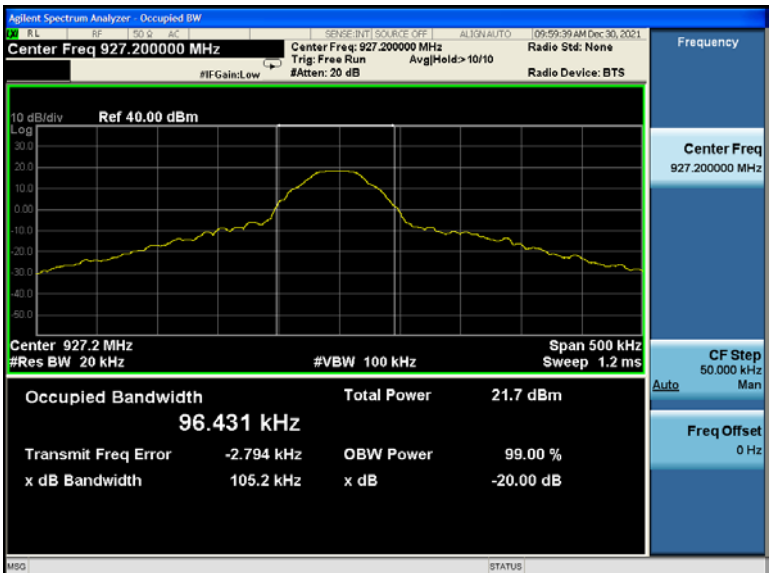
917.4 MHz



922.4 MHz

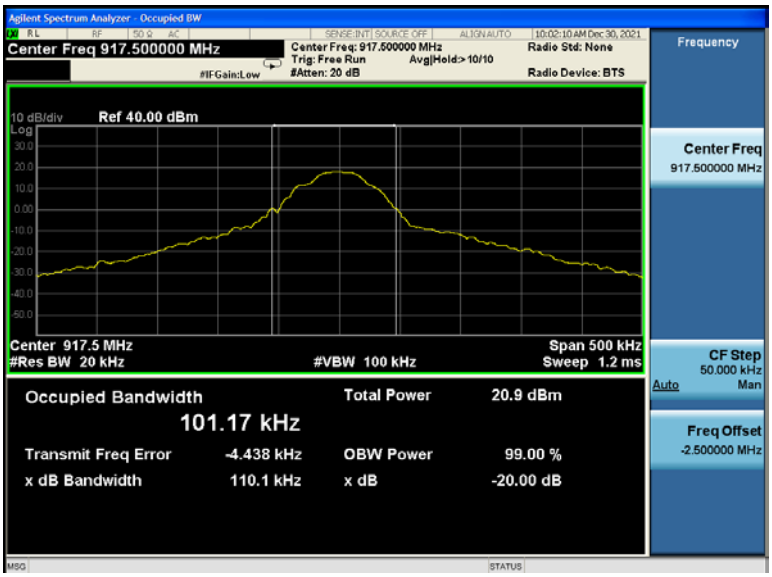


927.2 MHz

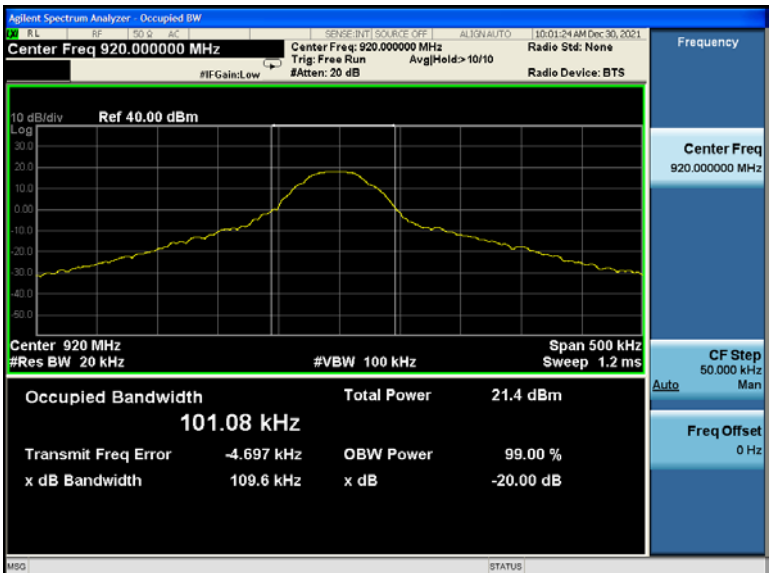


NA3 mode - 20dB occupied bandwidth

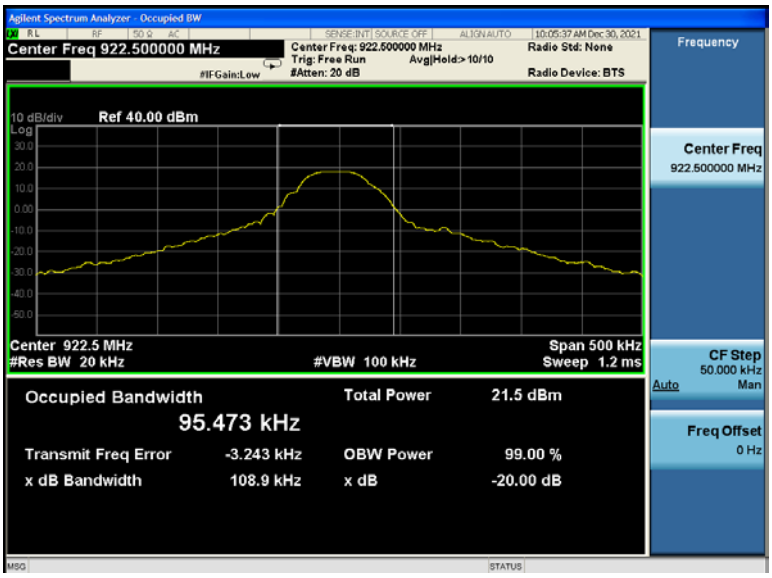
917.5 MHz



920.0 MHz



922.5 MHz

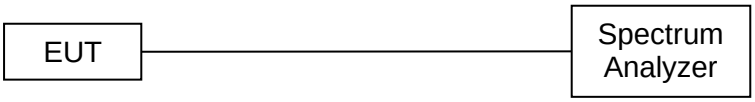


5.4 Conducted peak output power

5.4.1 Limits

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.

5.4.2 Test setup



5.4.3 Test procedure

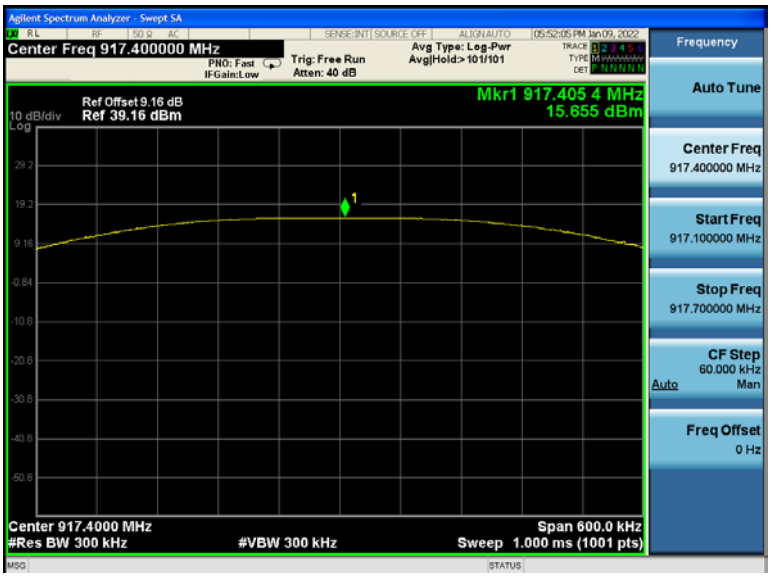
a) Test method: ANSI C63.10-2013 Section 7.8.5.
b) The EUT was set to continuously transmitting in the max power during the test.
c) The transmitter output of EUT is connected to the spectrum analyzer.
d) Spectrum analyzer setting: RBW > 20dB occupied bandwidth, VBW ≥ RBW, detector= Peak

5.4.4 Test results

Mode	Test channel (MHz)	Conducted peak output power (dBm)	Limit (dBm)
NA2 mode	917.4	15.655	≤ 30
	922.4	16.287	
	927.2	17.078	
NA3 mode	917.5	16.021	
	920	15.947	
	922.5	16.224	

NA2 mode - peak conducted output power

917.4 MHz



922.4 MHz

927.2 MHz

NA3 mode - peak conducted output power

917.5 MHz

920.0 MHz

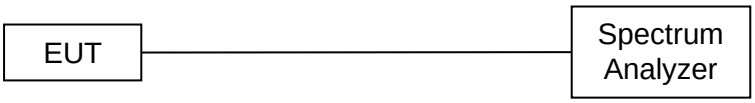
922.5 MHz

5.5 Carrier frequency separation

5.5.1 Limits

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.

5.5.2 Test setup



5.5.3 Test procedure

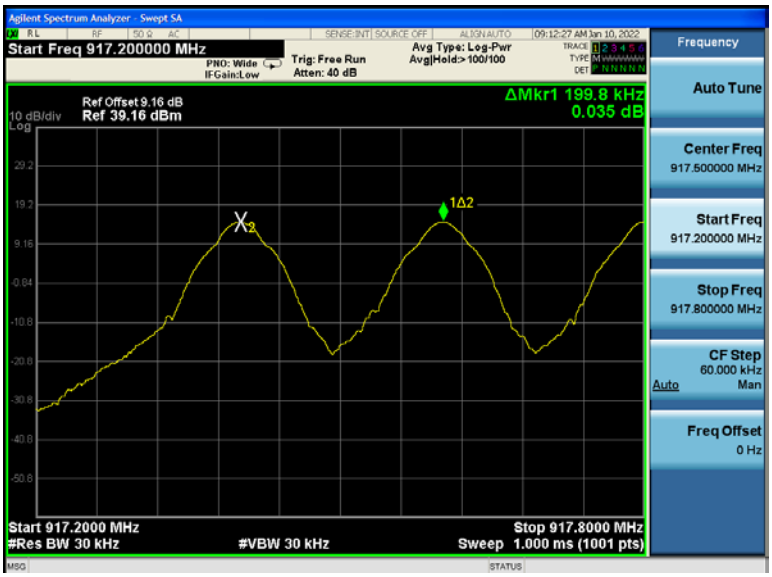
a) Test method: ANSI C63.10-2013 Section 7.8.2.
b) The EUT was set to hopping mode during the test.
c) The transmitter output of EUT is connected to the spectrum analyzer.
d) Spectrum Setting: RBW = 30 kHz, VBW = 30 kHz, detector= Peak.

5.5.4 Test results

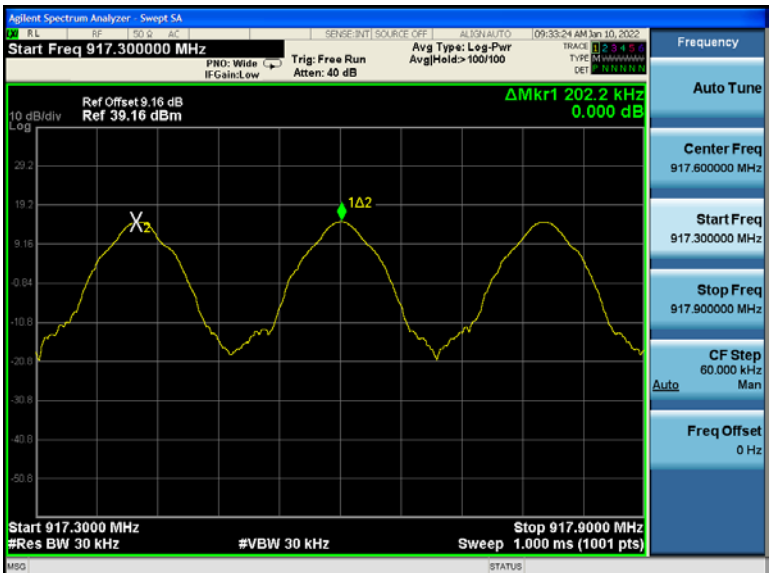
Mode	Test channel	Carrier frequency separation (kHz)	Limit (kHz)
NA2 mode	Hop-mode	199.8	>= 20 dB bandwidth
NA3 mode	Hop-mode	202.2	>= 20 dB bandwidth

Carrier frequency separation

NA2 mode



NA3 mode

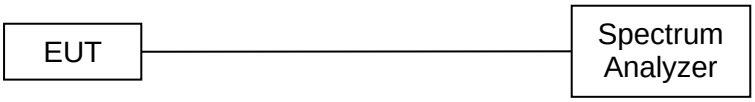


5.6 Average time of occupancy

5.6.1 Limits

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; 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. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

5.6.2 Test setup



5.6.3 Test procedure

a) Test method: ANSI C63.10-2013 Section 7.8.4

b) The EUT was set to hopping mode during the test.

c) The transmitter output of EUT is connected to the spectrum analyzer.

d) Spectrum analyzer setting: RBW = 120kHz, VBW = 300kHz, Span = 0Hz, Detector = Peak, weep time: As necessary to capture the entire dwell time per hopping channel.

e) Repeat the measurement using a longer sweep time to determine the number of hops over the period specified in the requirements. The sweep time shall be equal to, or less than, the period specified in the requirements. Determine the number of hops over the sweep time and calculate the total number of hops in the period specified in the requirements, using the following equation:

f) The average time of occupancy is calculated from the transmit time per hop multiplied by the number of hops in the period specified in the requirements.

5.6.4 Test results

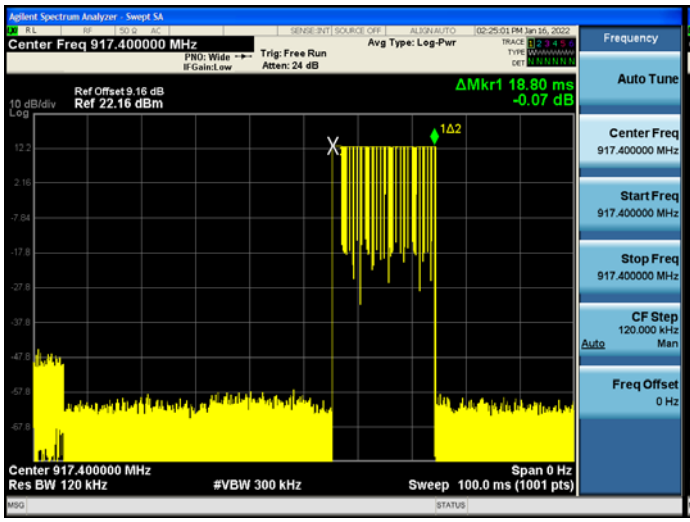
Mode	Test Channel (MHz)	Pulse width (ms)	Number of pulses in 20 s	Average time of occupancy (s)	Limit (s)	Result
NA2 mode	917.4	18.80	17	0.320	<=0.4	Pass
	922.4	18.80	18	0.338	<=0.4	Pass
	927.2	18.80	18	0.338	<=0.4	Pass
NA3 mode	917.5	19.00	17	0.323	<=0.4	Pass
	920.0	18.80	17	0.320	<=0.4	Pass
	922.5	18.80	17	0.320	<=0.4	Pass

Notes:

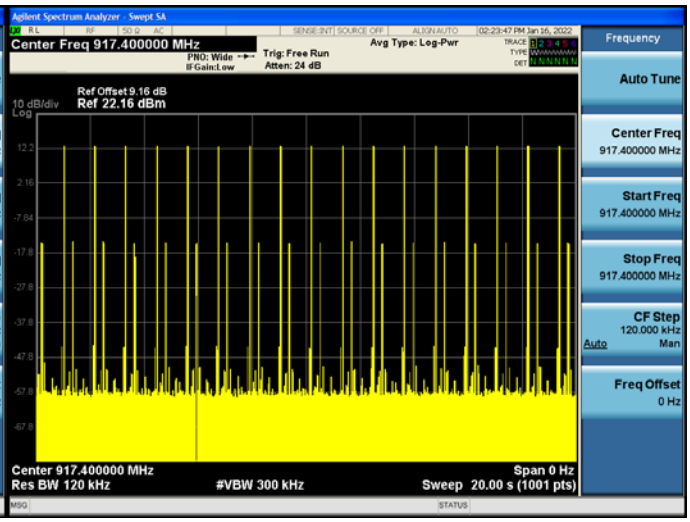
1. Average time of occupancy = Pulse width * Number of pulses in 20s

NA2 mode - Average time of occupancy

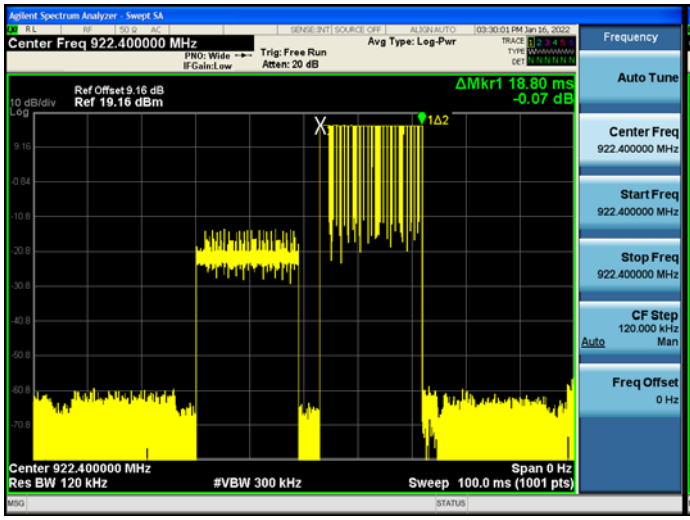
917.4 MHz - Pulse width



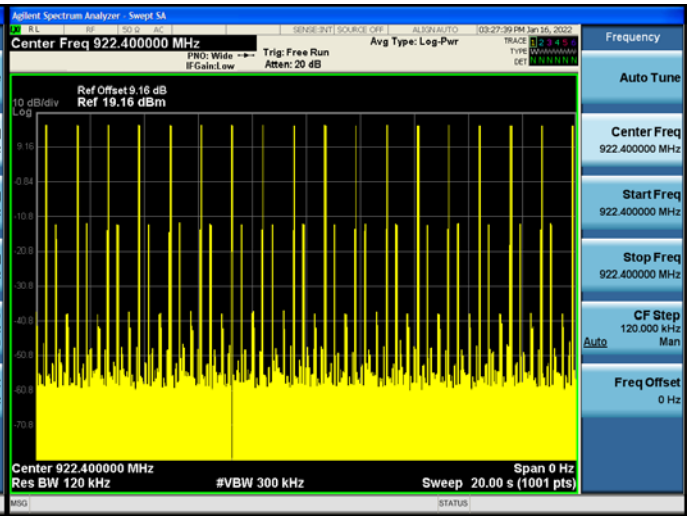
917.4 MHz - Number of pulses in 20 s



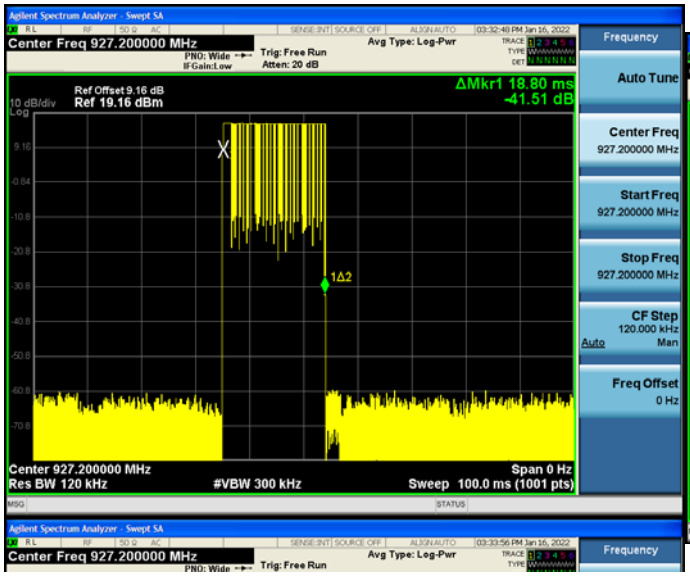
922.4 MHz - Pulse width



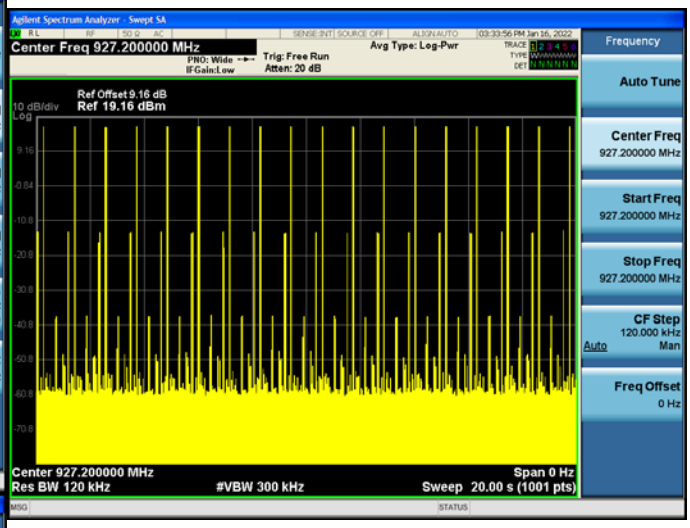
922.4 MHz - Number of pulses in 20 s



927.2 MHz - Pulse width

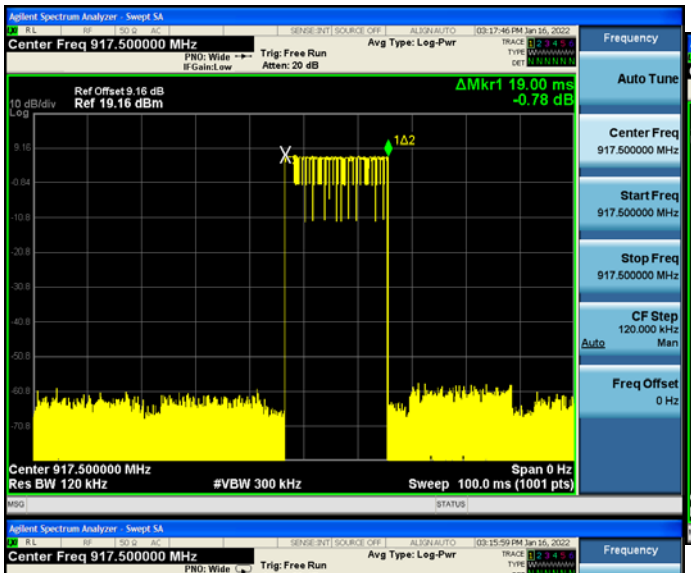


927.2 MHz - Number of pulses in 20 s

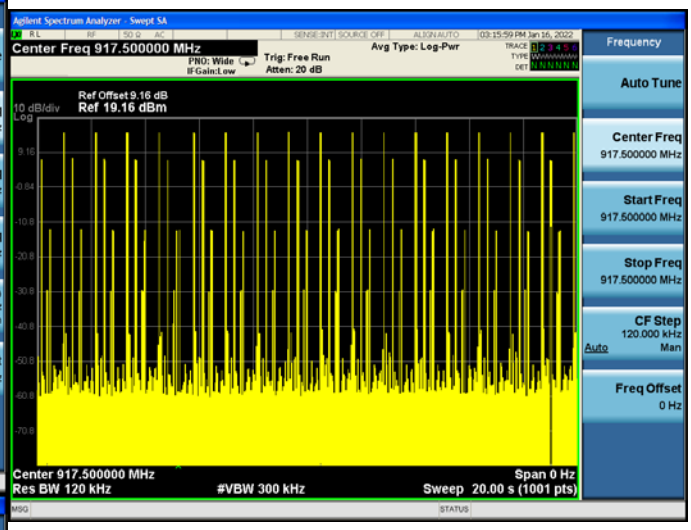


NA3 mode - Average time of occupancy

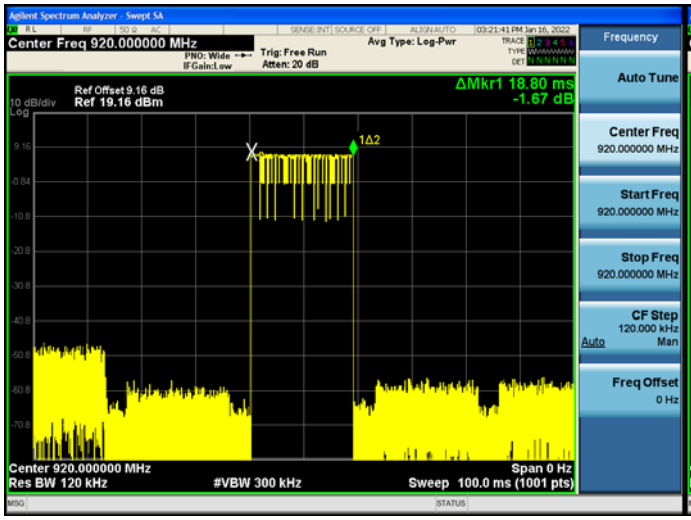
917.5 MHz - Pulse width



917.5 MHz - Number of pulses in 20 s



920.0 MHz – Pulse width



920.0 MHz - Number of pulses in 20 s

922.5 MHz - Pulse width

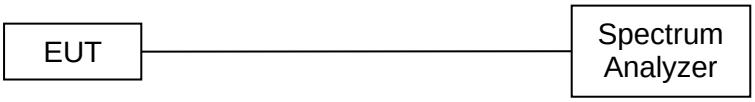
922.5 MHz - Number of pulses in 20 s

5.7 Number of hopping channels

5.7.1 Limit

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; 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. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

5.7.2 Test setup



5.7.3 Test procedure

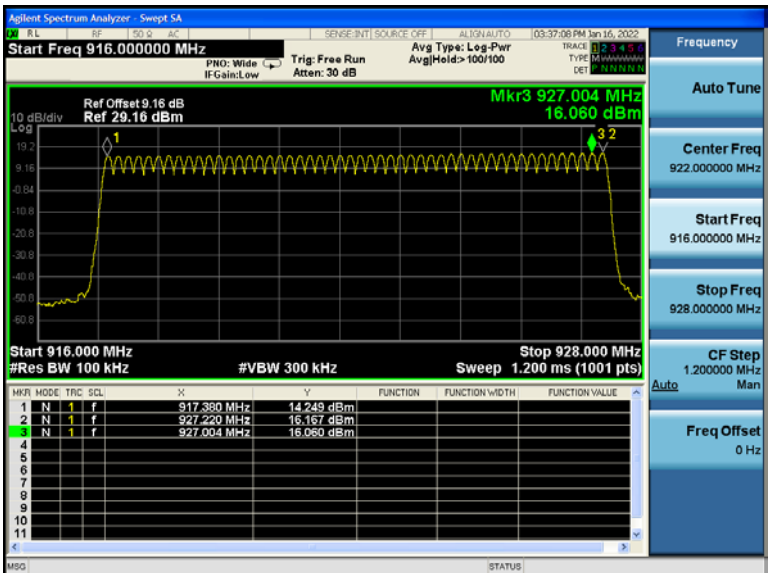
a) Test method: ANSI C63.10-2013 Section 7.8.3
b) The EUT was set to hopping mode during the test.
c) The transmitter output of EUT is connected to the spectrum analyzer.
d) Spectrum analyzer setting: RBW = 100 kHz, VBW = 300 kHz, Detector = Peak.

5.7.4 Test results

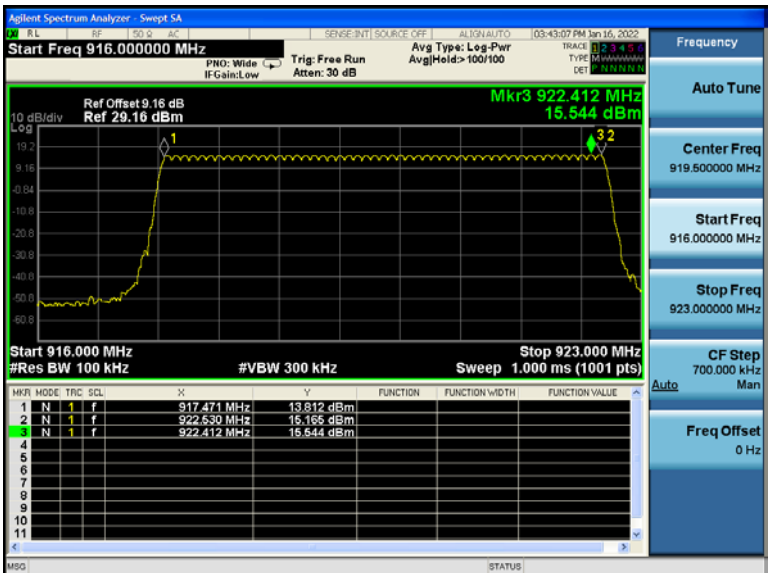
Mode	Quantity of Hopping Channel	Limit	Results
NA2 mode	50	≥ 50	Pass
NA3 mode	51		Pass

Number of hopping channels

NA2 mode



NA3 mode

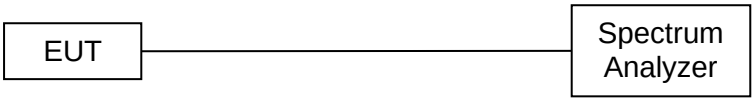


5.8 Conducted emissions at the band edge

5.8.1 Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

5.8.2 Test setup



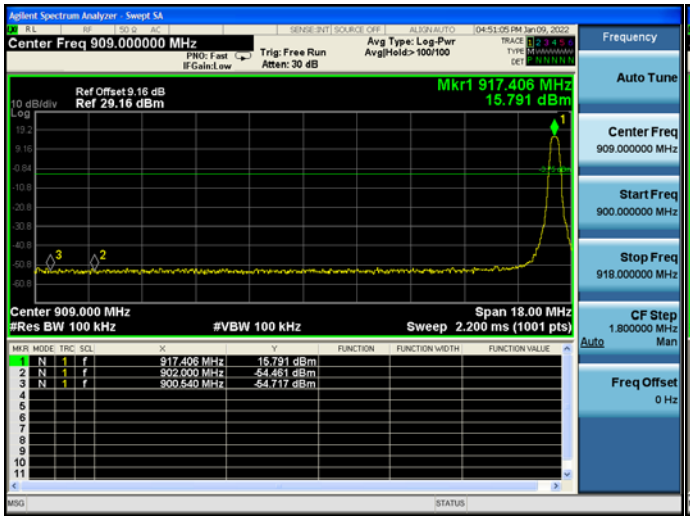
5.8.3 Test procedure

a) Test method: ANSI C63.10-2013 Section 6.10.4
b) The EUT was set to non-hopping mode & hopping mode during the test.
c) The transmitter output of EUT is connected to the spectrum analyzer.
d) Spectrum analyzer setting: RBW = 100 kHz, VBW = 300 kHz, Detector = Peak.

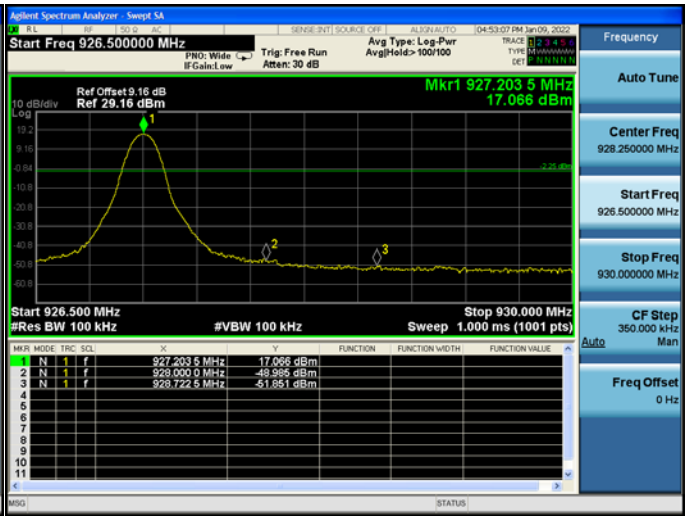
5.8.4 Test results

NA2 mode - conducted emissions at the band edge

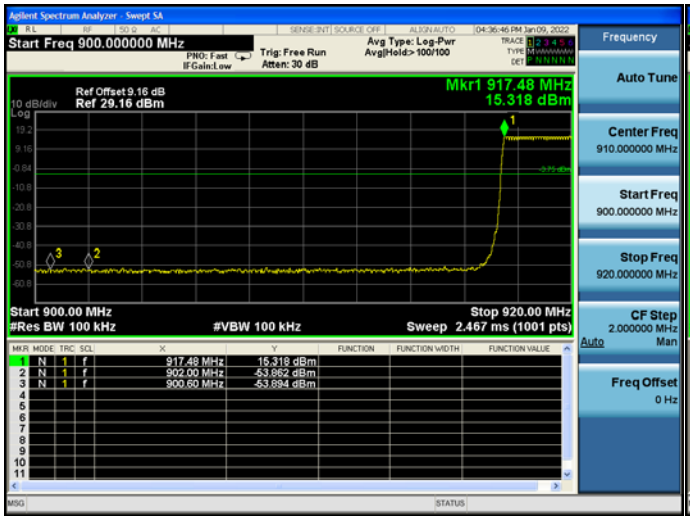
Low band-edge (no-hopping mode mode)



High band-edge (non-hopping mode)



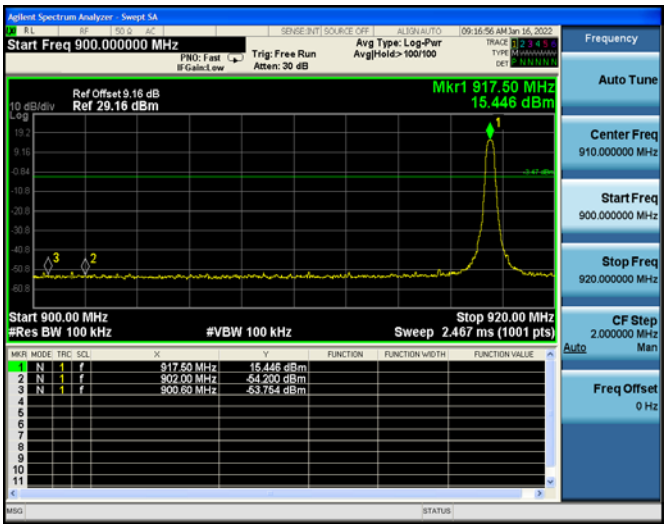
Low band-edge (hopping mode)



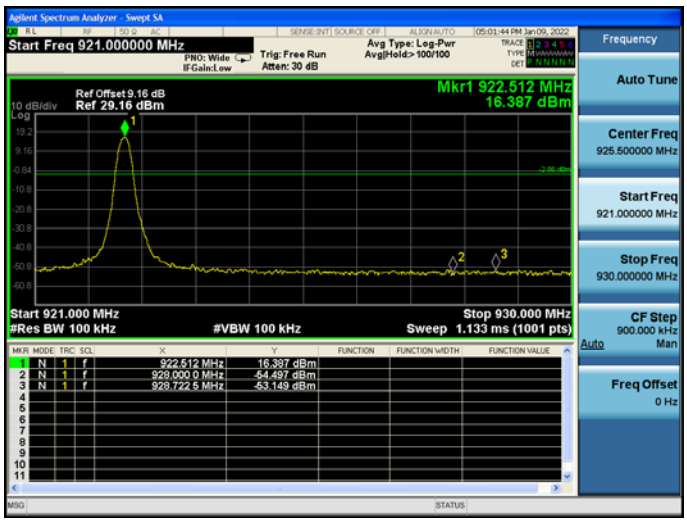
High band-edge (hopping mode)

NA3 mode - conducted emissions at the band edge

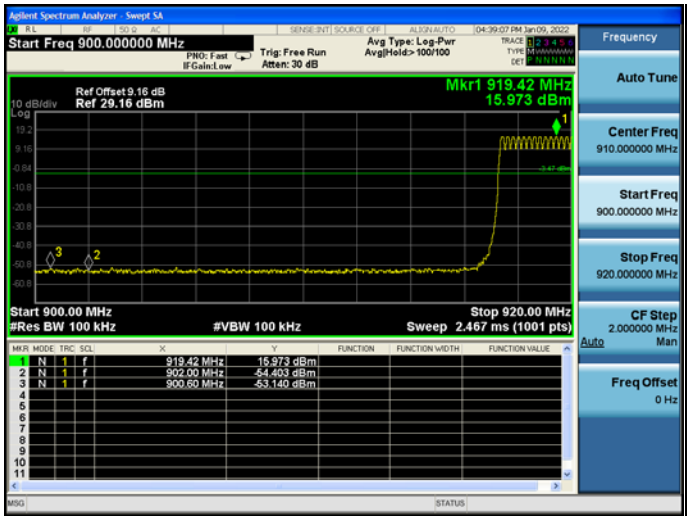
Low band-edge (non-hopping mode)



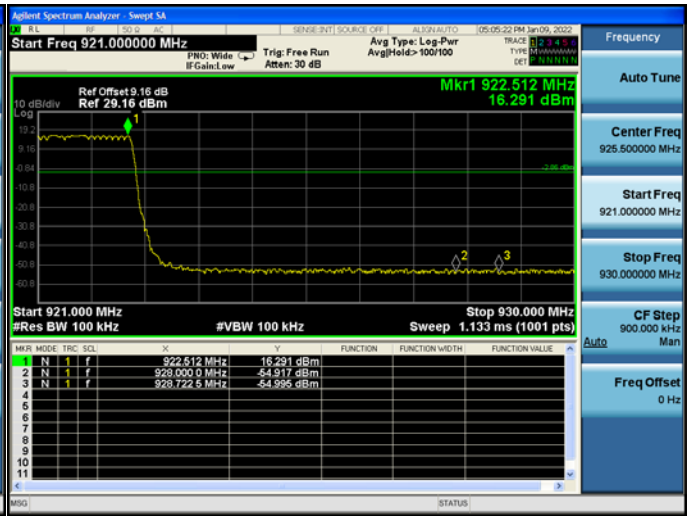
High band-edge (non-hopping mode)



Low band-edge (hopping mode)



High band-edge (hopping mode)

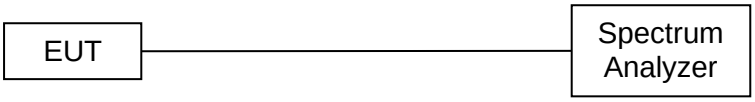


5.9 Conducted spurious emissions

5.9.1 Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

5.9.2 Test setup



5.9.3 Test procedure

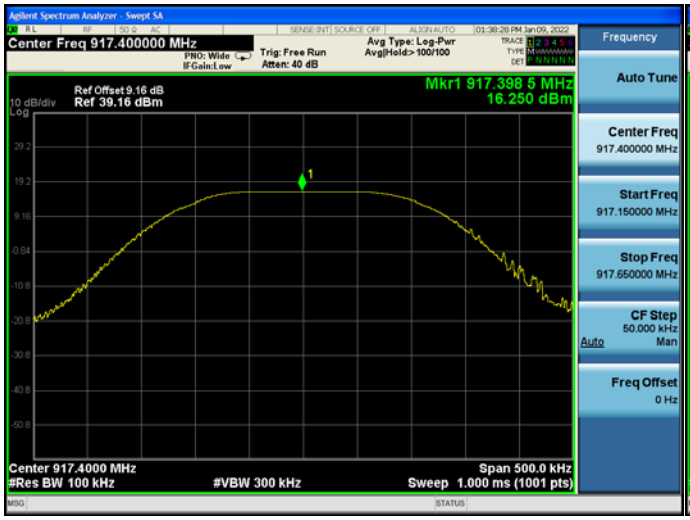
a) Test method: ANSI C63.10-2013 Section 6.10.4
b) The EUT was set to non-hopping mode & hopping mode during the test.
c) The transmitter output of EUT is connected to the spectrum analyzer.
d) Spectrum analyzer setting: RBW = 100 kHz, VBW = 300 kHz, Detector = Peak.

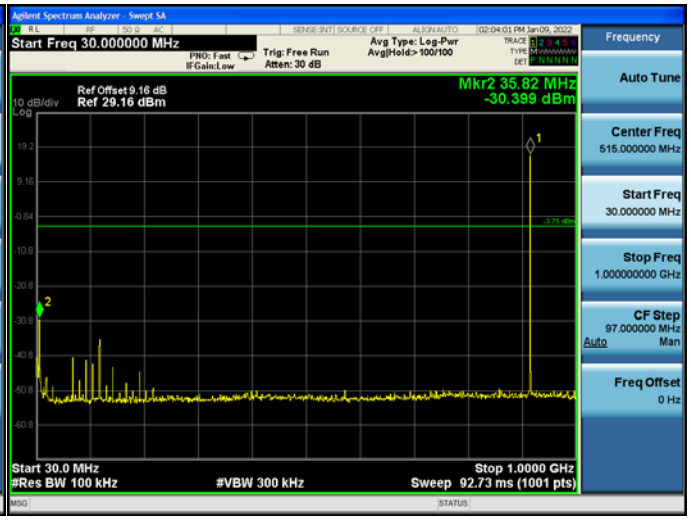
5.9.4 Test results

Notes:
All modes of operation of the EUT were investigated, and only the worst-case results are reported.

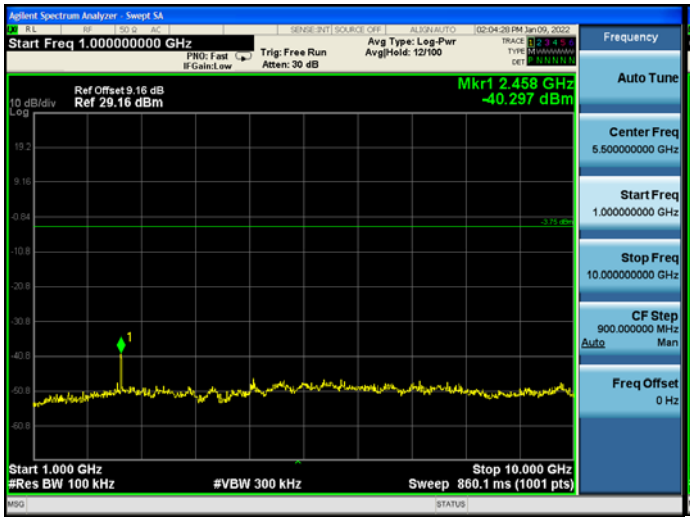
Conducted spurious emissions – NA2 mode

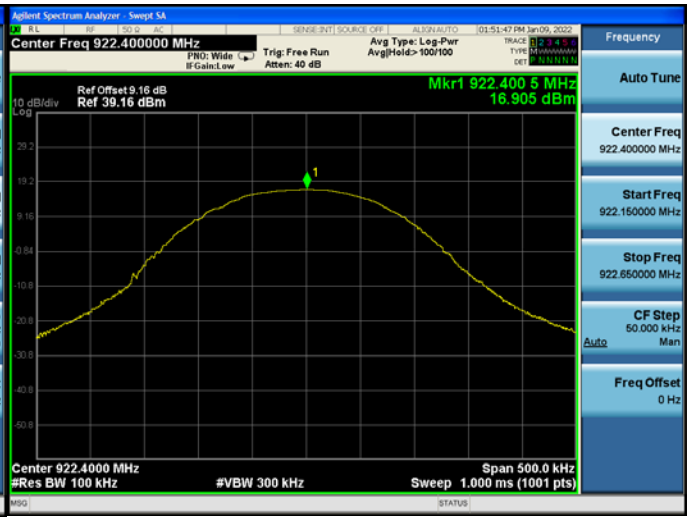
917.4 MHz **917.4 MHz**



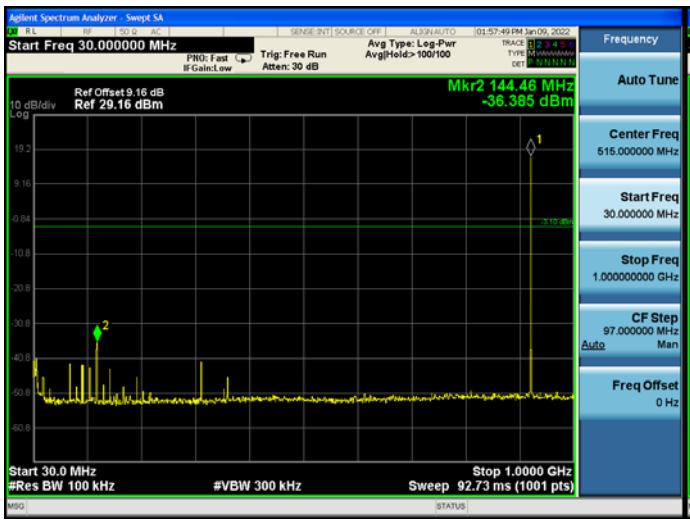


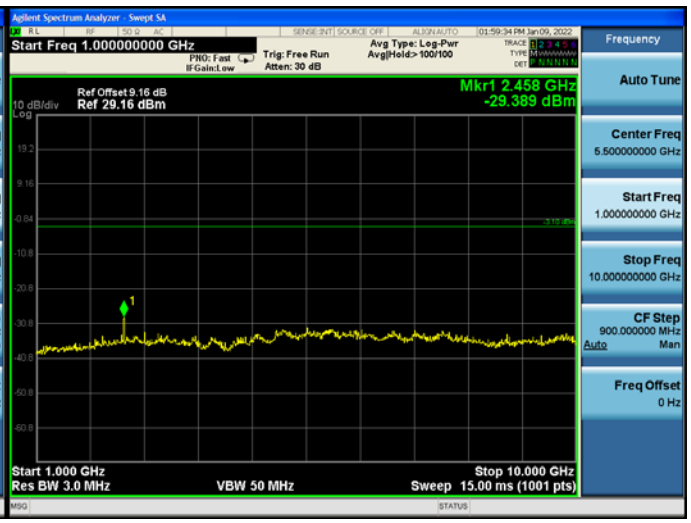
917.4 MHz **922.4 MHz**



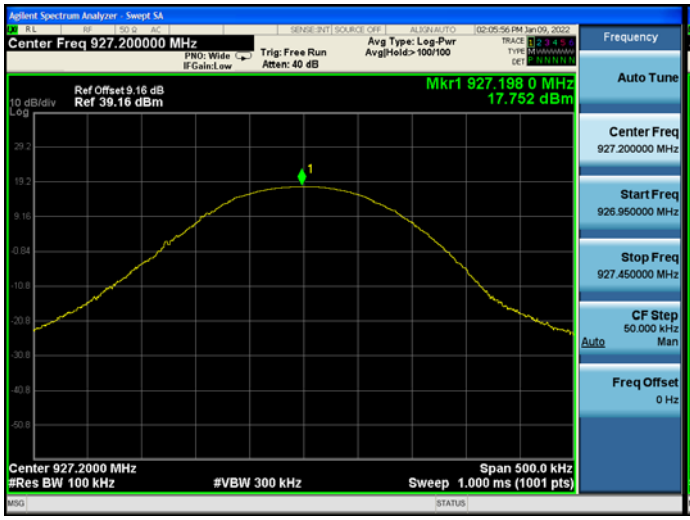


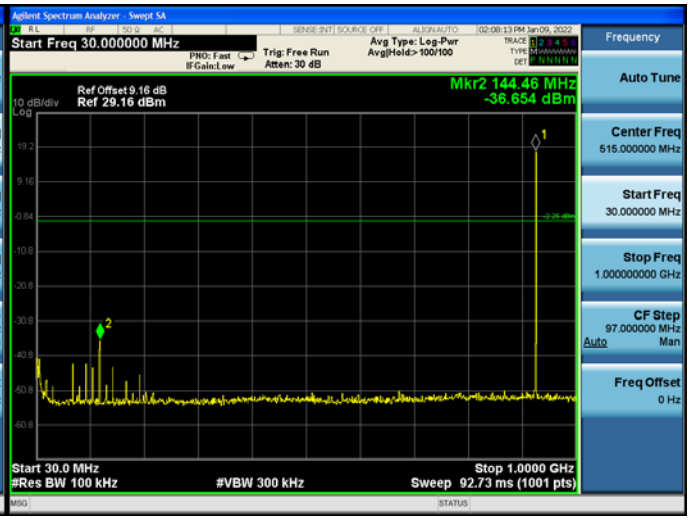
922.4 MHz **922.4 MHz**





927.2 MHz **927.2 MHz**

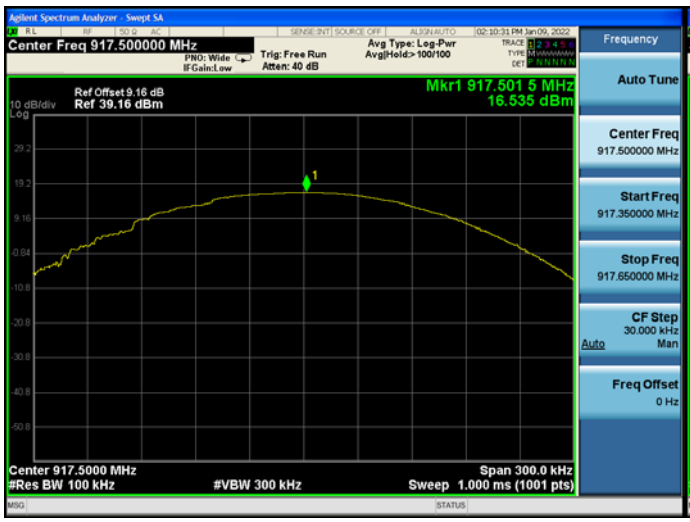


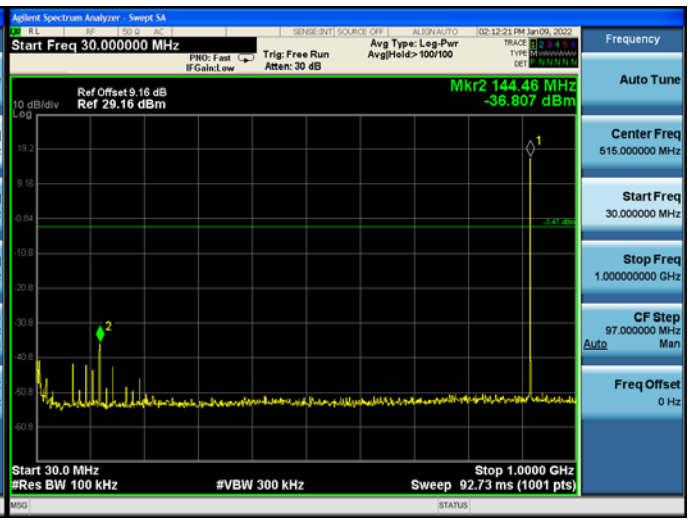


927.2 MHz

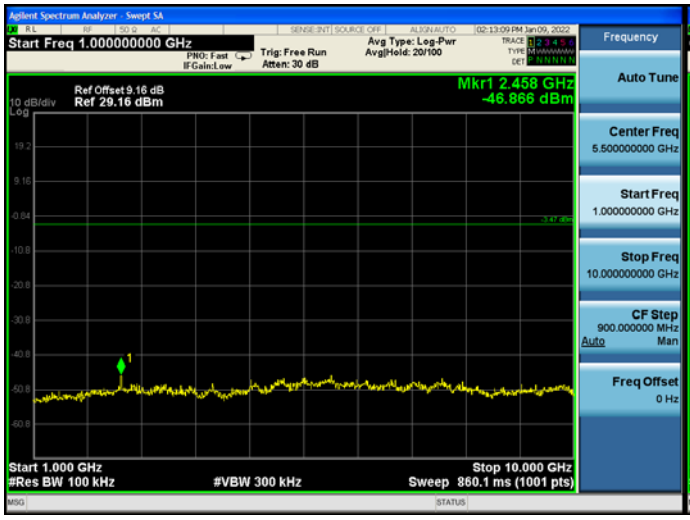
Conducted spurious emissions – NA3 mode

917.5 MHz **917.5 MHz**

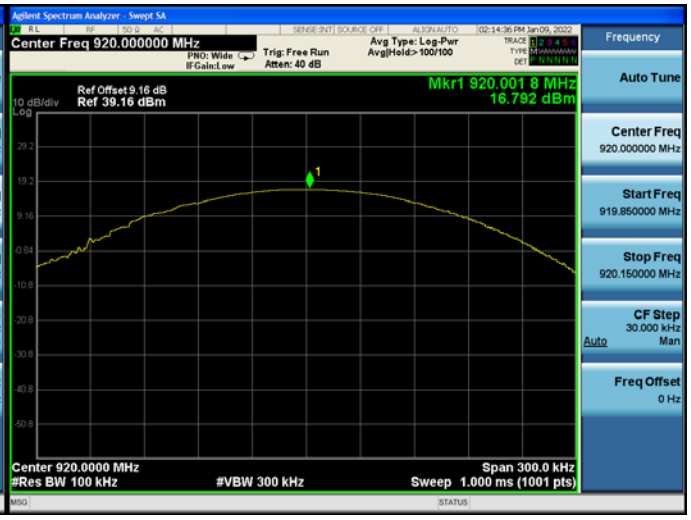




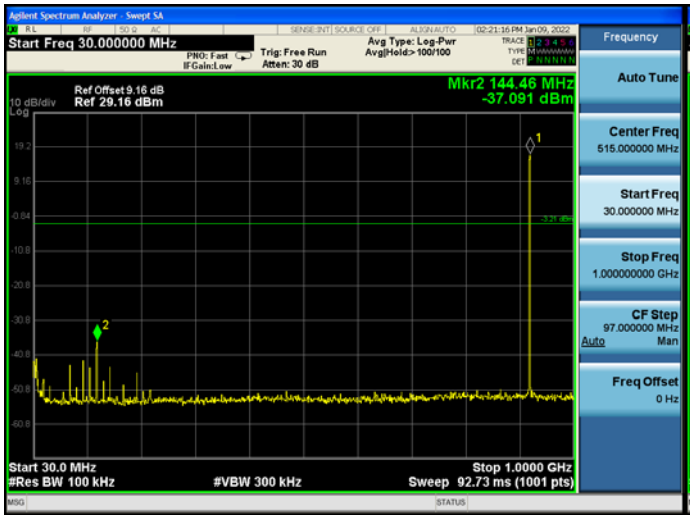
917.5 MHz



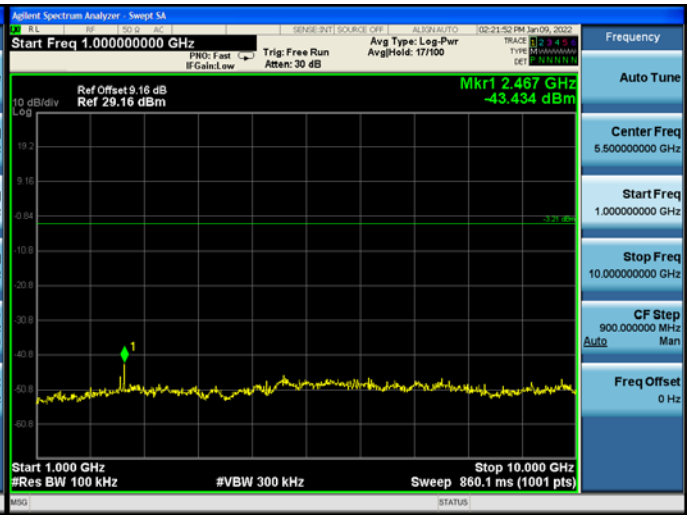
920.0 MHz



920.0 MHz

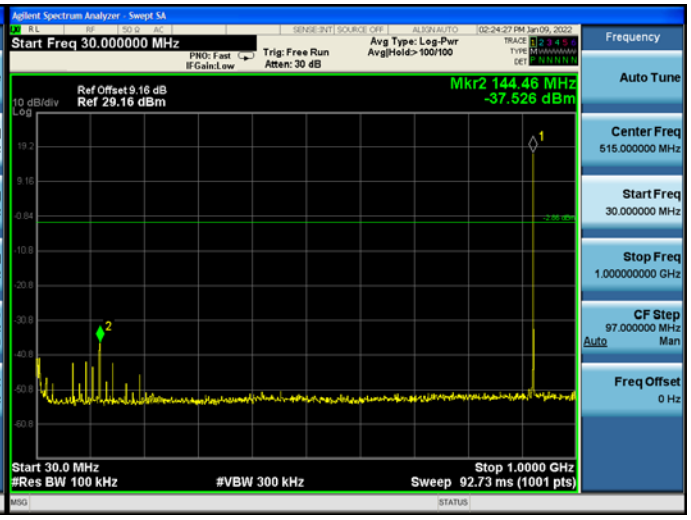


920.0 MHz

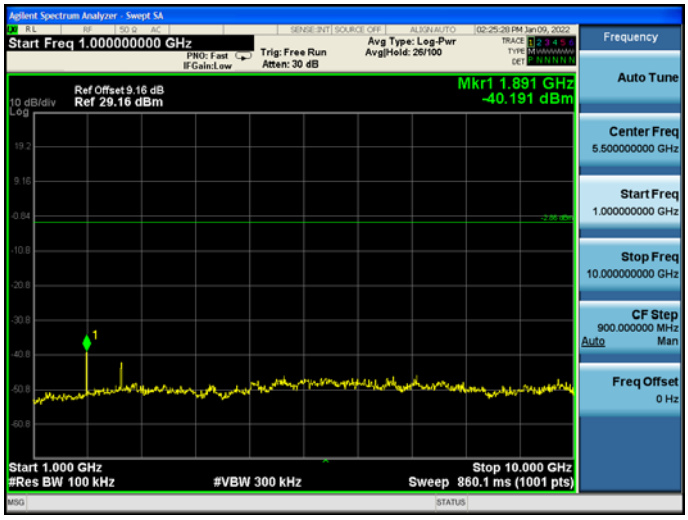


922.5 MHz

922.5 MHz



922.5 MHz


Agilent Spectrum Analyzer - Swept SA
Start Freq 1.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 26/100
Ref Offset 9.16 dB
10 dB/div
Log
Ref 29.16 dBm
Mkr1 1.891 GHz
-40.191 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 10.000 GHz
Sweep 860.1 ms (1001 pts)
Frequency
Auto Tune
Center Freq
5.500000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
10.000000000 GHz
CF Step
900.000000 MHz
Auto
Man
Freq Offset
0 Hz

5.10 Radiated spurious emissions

5.10.1 Limits

§ 15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

§ 15.209 Radiated emission limits; general requirements.

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

Note 1: the tighter limit applies at the band edges.
Note 2: the emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector

§ 15.35 (b) requirements:
When average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, e.g., see §§ 15.250, 15.252, 15.253(d), 15.255, 15.256, and 15.509 through 15.519, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test.

According to ANSI C63.10-2013, the tests shall be performed in the frequency range shown in the following table:

Frequency range of measurements for unlicensed wireless device

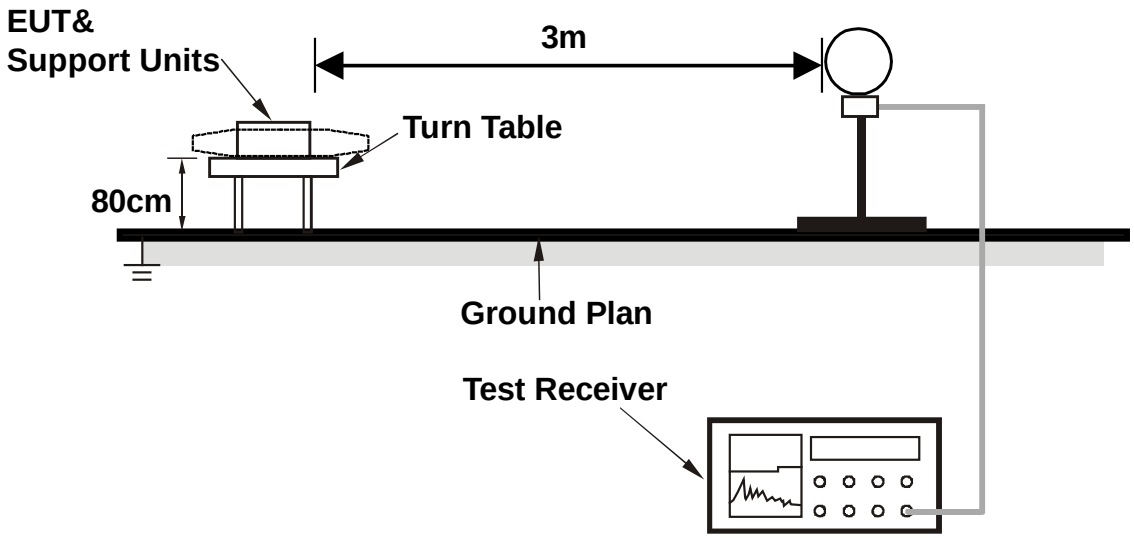
Lowest frequency generated in the device	Upper frequency range of measurement
9 kHz to below 10 GHz	10th harmonic of highest fundamental frequency or to 40 GHz, whichever is lower
At or above 10 GHz to below 30 GHz	5th harmonic of highest fundamental frequency or to 100 GHz, whichever is lower
At or above 30 GHz	5th harmonic of highest fundamental frequency or to 200 GHz, whichever is lower, unless otherwise specified

Frequency range of measurements for unlicensed wireless device with digital device

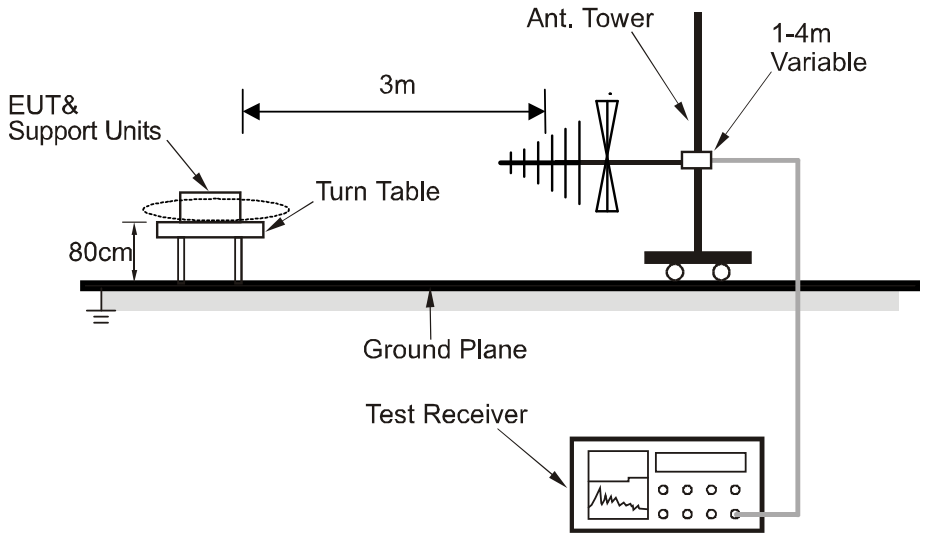
Highest frequency generated or used in the device or on which the device operates or tunes	Upper frequency range of measurement
Below 1.705 MHz	30 MHz
1.705 MHz to 108 MHz	1000 MHz
108 MHz to 500 MHz	2000 MHz
500 MHz to 1000 MHz	5000 MHz
Above 1000 MHz	5th harmonic of the highest frequency or 40 GHz, whichever is lower

5.10.2 Test setup

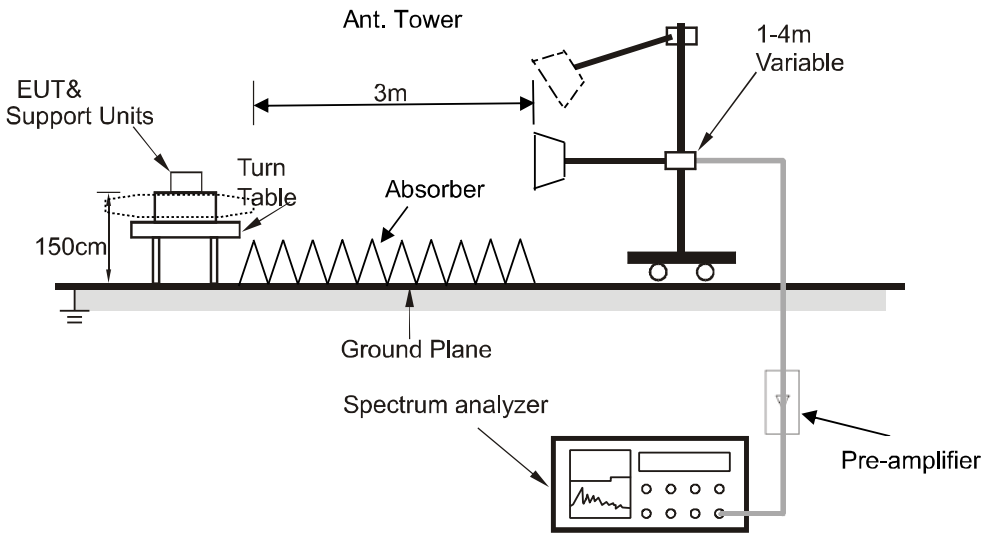
Below 30MHz



30MHz~1GHz



Above 1GHz



For the actual test configuration, please refer to the related item – Photographs of the test setup.

5.10.3 Test procedure

a) Test method: ANSI C63.10-2013 Section 6.3, 6.4, 6.5, 6.6, 6.10.
b) The EUT is placed on an on-conducting table 0.8 meters above the ground plane for measurement below 1GHz, 1.5 meters above the ground plane for measurement above 1GHz.
c) Emission blew 18 GHz were measured at a 3 meters test distance, above 18 GHz were measured at 1.5-meter test distance with the application of a distance correction factor
d) The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

KDB 558074 D01 15.247 Meas Guidance v05r02
The use of a duty cycle correction factor (DCCF) is permitted for calculating average radiated field strength emission levels for an FHSS device in 15.247. This DCCF can be applied when the unwanted emission limit is subject to an average field strength limit (e.g., within a Government Restricted band) and the conditions specified in Section 15.35(c) can be satisfied. The average radiated field strength is calculated by subtracting the DCCF from the maximum radiated field strength level as determined through measurement. The maximum radiated field strength level represents the worst-case (maximum amplitude) RMS measurement of the emission(s) during continuous transmission (i.e., not including any time intervals during which the transmitter is off or is transmitting at a reduced power level). It is also acceptable to apply the DCCF to a measurement performed with a peak detector instead of the specified RMS power averaging detector. Note that Section 15.35(c) specifies that the DCCF shall represent the worst-case (greatest duty cycle) over any 100 msec transmission period.

Test instrument setup

Frequency	Test receiver / Spectrum analyzer setting
9 kHz ~ 150 kHz	Quasi Peak / RBW: 200 Hz
150 kHz ~ 30 MHz	Quasi Peak / RBW: 9 kHz
30 MHz ~ 1 GHz	Quasi Peak / RBW: 120 kHz
Above 1 GHz	Peak / RBW: 1 MHz, VBW: 3MHz, Peak detector AVG / RBW: 1 MHz, VBW: 1/T, Peak detector

5.10.4 Test results

Notes:

The amplitude of spurious emissions which are attenuated more than 20 dB below the limits are not reported.

All modes of operation of the EUT were investigated, and only the worst-case results are reported.

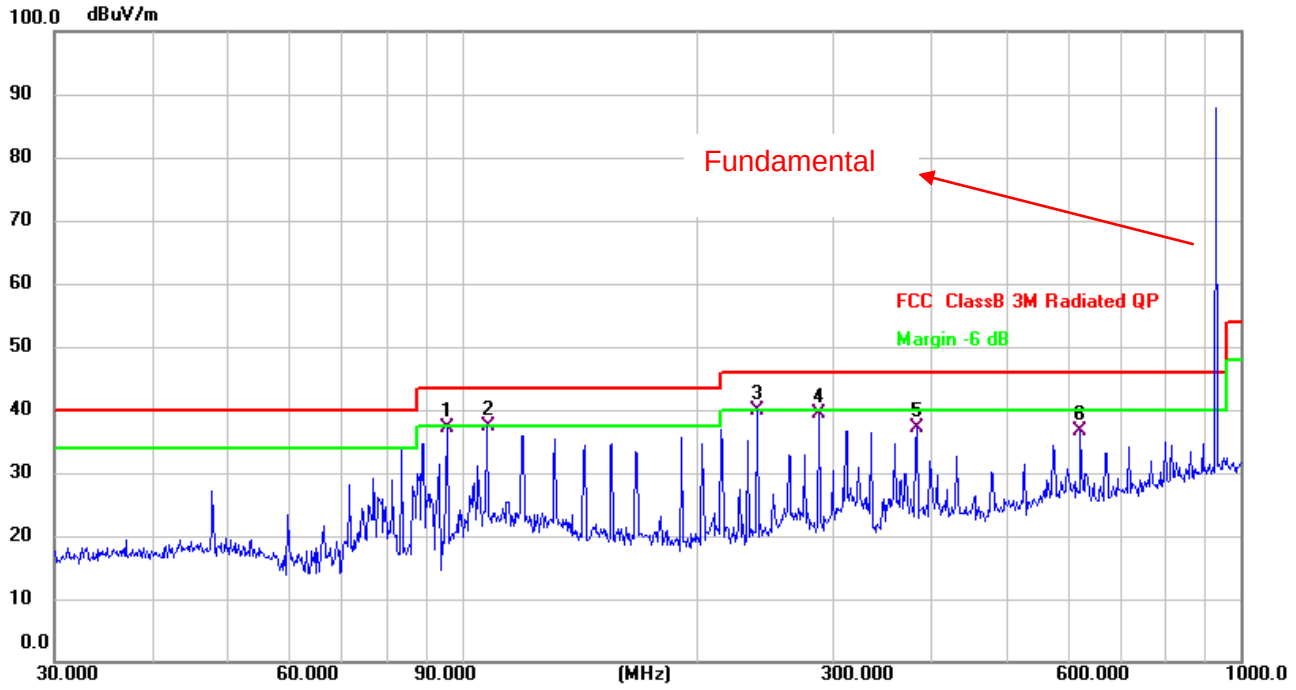
There were no emissions found below 30MHz within 20dB of the limit.

Calculation formula:
Measurement (dBμV/m) = Reading Level (dBμV) + Correct Factor (dB/m)
Over (dB) = Measurement (dBμV/m) – Limit (dBμV/m)

For NA2 mode - Radiated emissions between 30MHz – 1GHz

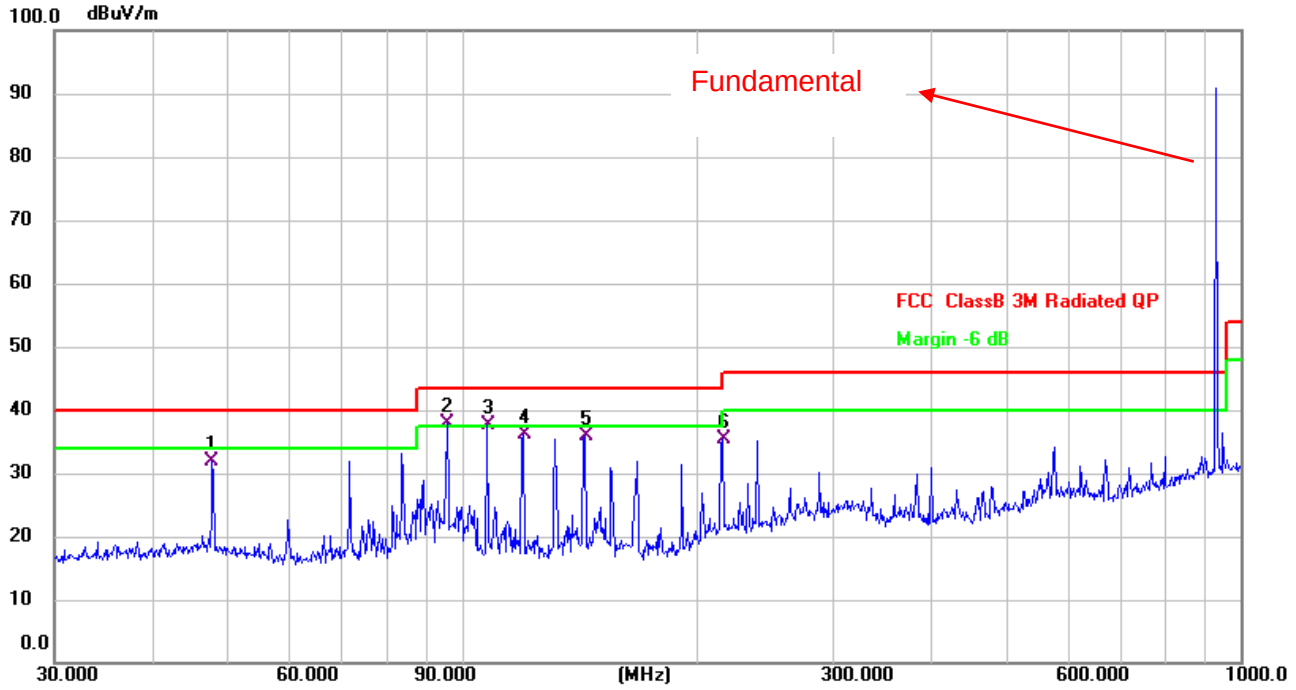
The model for GM60-240250-F AC/DC adapter test data:

Test mode:	TX(Highest channel)	Polarization:	Horizontal
Power supply:	Power by AC/DC adapter (AC 120V/60Hz)	Test site:	RE chamber 2



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		95.7622	45.83	-8.67	37.16	43.50	-6.34	QP
2		107.8877	45.98	-8.71	37.27	43.50	-6.23	QP
3	*	239.1473	46.17	-6.35	39.82	46.00	-6.18	QP
4		287.9904	45.08	-5.76	39.32	46.00	-6.68	QP
5		383.9318	41.52	-4.45	37.07	46.00	-8.93	QP
6		622.8900	36.74	-0.09	36.65	46.00	-9.35	QP

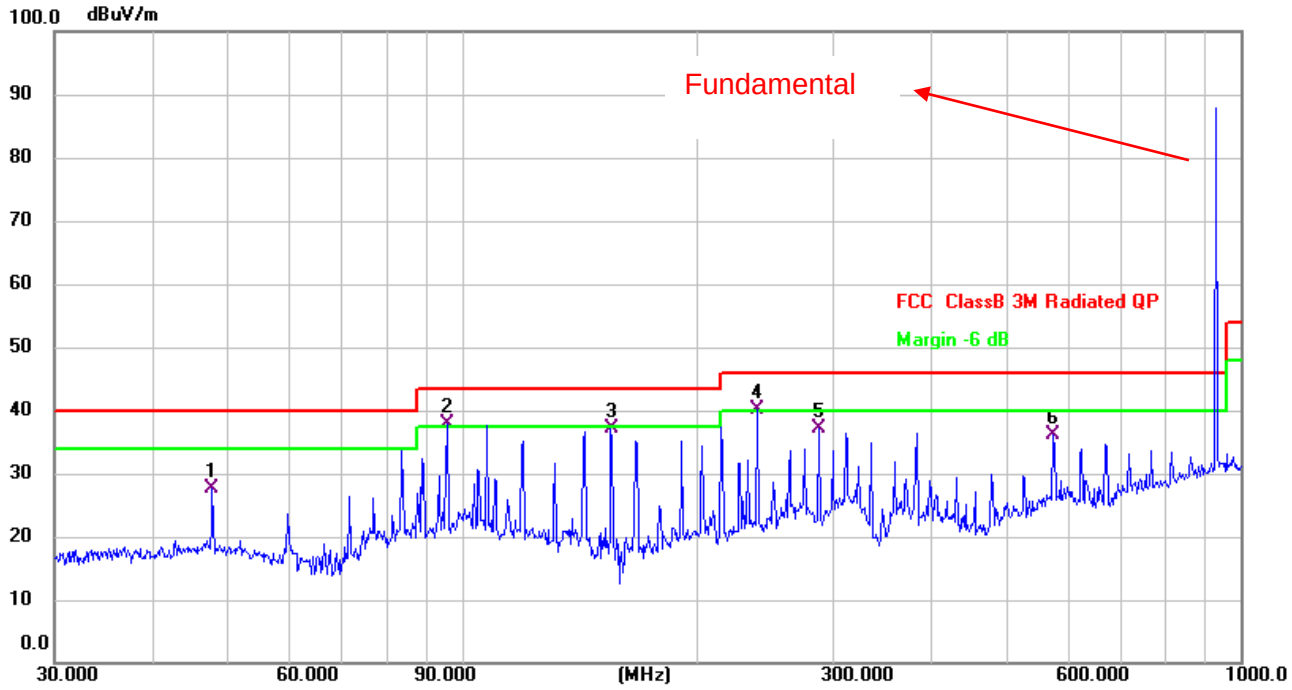
Test mode:	TX(Highest channel)	Polarization:	Vertical
Power supply:	Power by AC/DC adapter (AC 120V/60Hz)	Test site:	RE chamber 2



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		47.8260	39.45	-7.53	31.92	40.00	-8.08	QP
2	*	95.7622	46.43	-8.67	37.76	43.50	-5.74	QP
3	!	107.8877	46.33	-8.71	37.62	43.50	-5.88	QP
4		119.8556	46.25	-10.21	36.04	43.50	-7.46	QP
5		143.8295	46.54	-10.69	35.85	43.50	-7.65	QP
6		216.0240	42.56	-7.24	35.32	46.00	-10.68	QP

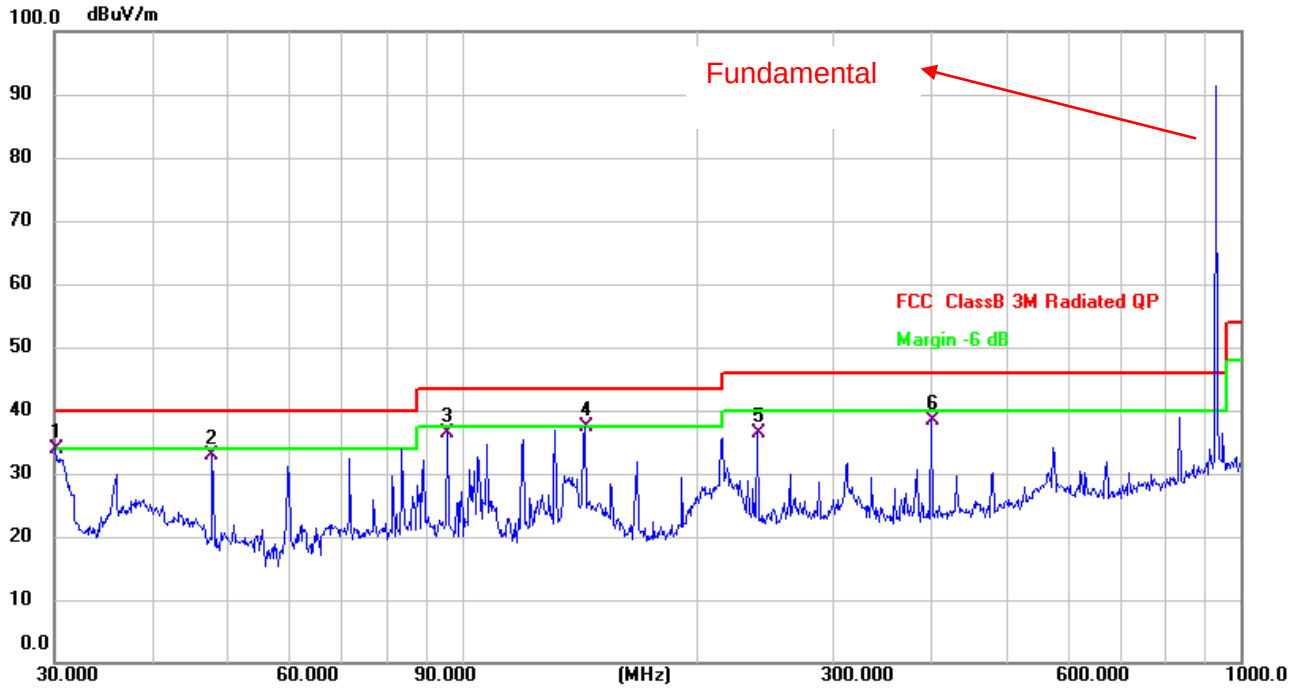
The model for AP115G-24250 AC/DC adapter test data:

Test mode:	TX(Highest channel)	Polarization:	Horizontal
Power supply:	Power by AC/DC adapter (AC 120V/60Hz)	Test site:	RE chamber 2



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		47.8260	35.09	-7.53	27.56	40.00	-12.44	QP
2	*	95.7622	46.46	-8.67	37.79	43.50	-5.71	QP
3		155.3644	47.17	-10.08	37.09	43.50	-6.41	QP
4	!	239.1473	46.58	-6.35	40.23	46.00	-5.77	QP
5		286.9823	42.78	-5.74	37.04	46.00	-8.96	QP
6		574.6258	36.48	-0.29	36.19	46.00	-9.81	QP

Test mode:	TX(Highest channel)	Polarization:	Vertical
Power supply:	Power by AC/DC adapter (AC 120V/60Hz)	Test site:	RE chamber 2

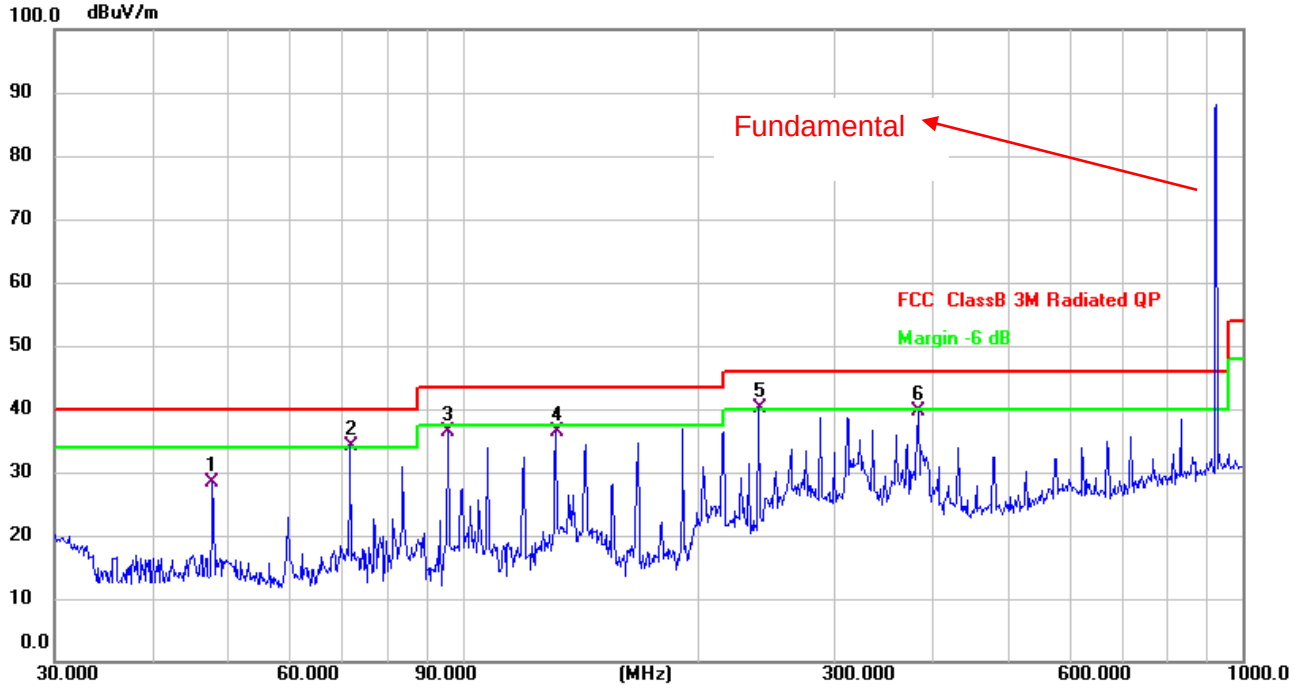


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	30.1054	42.79	-8.89	33.90	40.00	-6.10	QP
2		47.8260	40.37	-7.53	32.84	40.00	-7.16	QP
3		95.7622	45.00	-8.67	36.33	43.50	-7.17	QP
4		143.8295	48.02	-10.69	37.33	43.50	-6.17	QP
5		239.9874	42.63	-6.30	36.33	46.00	-9.67	QP
6		400.4319	42.80	-4.42	38.38	46.00	-7.62	QP

For NA3 mode - Radiated emissions between 30MHz – 1GHz

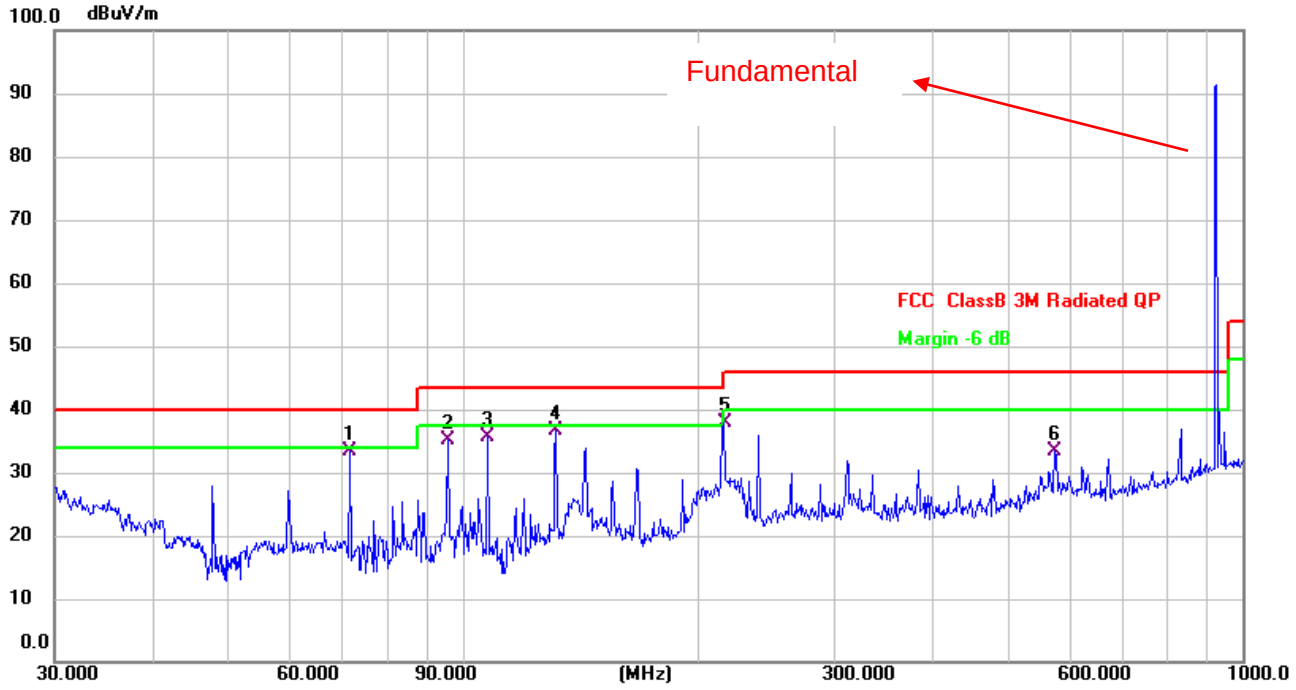
The model for GM60-240250-F AC/DC adapter test data:

Test mode:	TX(Highest channel)	Polarization:	Horizontal
Power supply:	Power by AC/DC adapter (AC 120V/60Hz)	Test site:	RE chamber 2



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		47.8260	35.98	-7.53	28.45	40.00	-11.55	QP
2	!	71.8320	44.12	-10.03	34.09	40.00	-5.91	QP
3		95.7622	45.00	-8.67	36.33	43.50	-7.17	QP
4		131.7577	47.22	-10.81	36.41	43.50	-7.09	QP
5	*	239.9874	46.48	-6.30	40.18	46.00	-5.82	QP
6		383.9318	44.04	-4.45	39.59	46.00	-6.41	QP

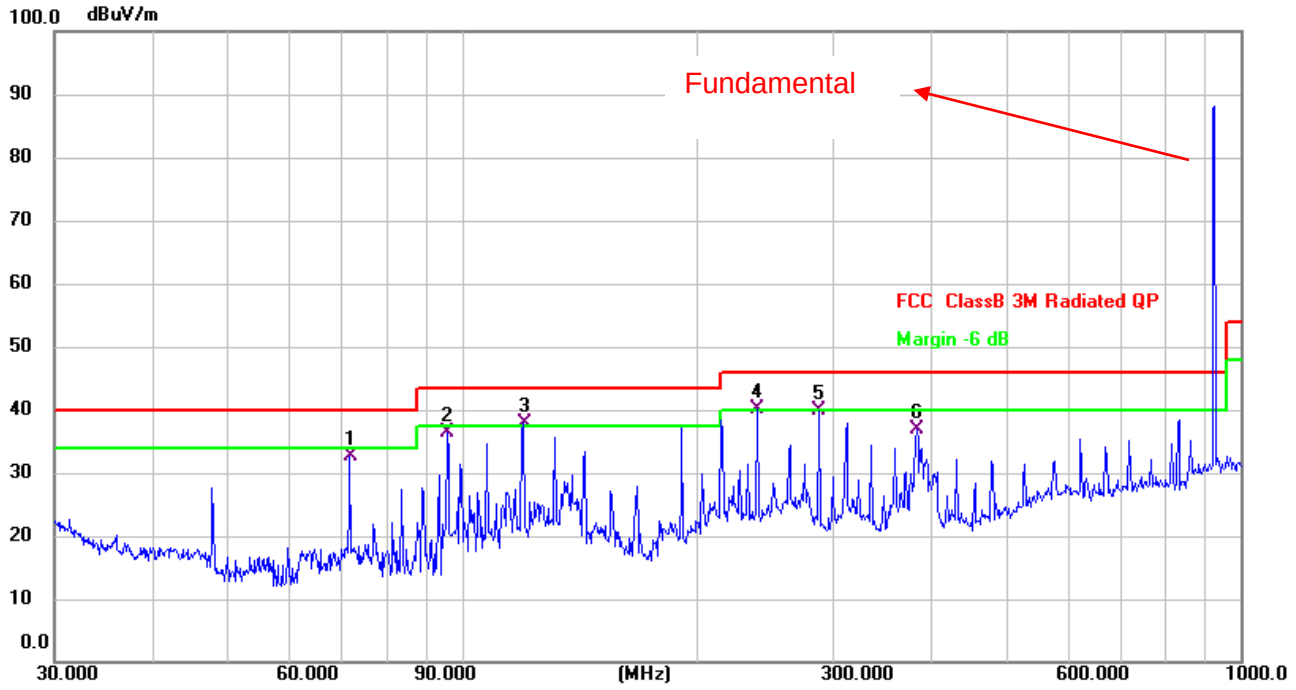
Test mode:	TX(Highest channel)	Polarization:	Vertical
Power supply:	Power by AC/DC adapter (AC 120V/60Hz)	Test site:	RE chamber 2



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	71.8320	43.30	-10.03	33.27	40.00	-6.73	QP
2		95.7622	43.87	-8.67	35.20	43.50	-8.30	QP
3		107.8877	44.31	-8.71	35.60	43.50	-7.90	QP
4		131.7577	47.41	-10.81	36.60	43.50	-6.90	QP
5		216.0240	45.04	-7.24	37.80	46.00	-8.20	QP
6		574.6258	33.72	-0.29	33.43	46.00	-12.57	QP

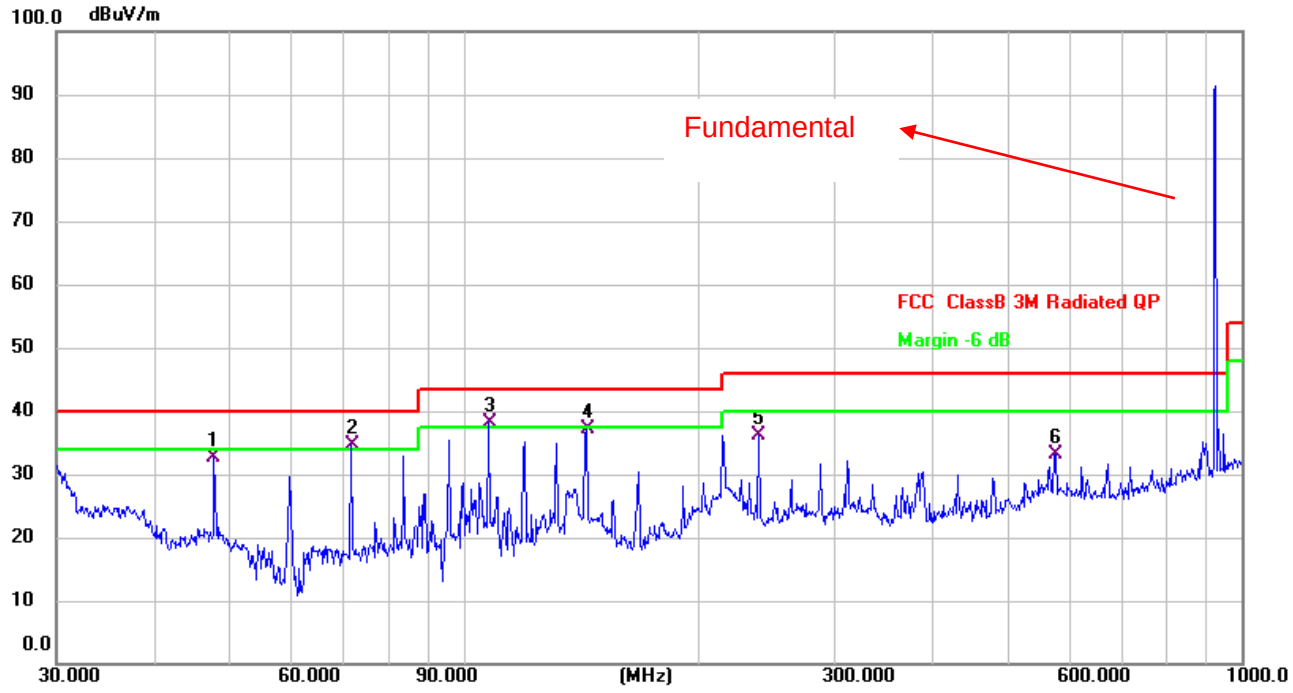
The model for AP115G-24250 AC/DC adapter test data:

Test mode:	TX(Highest channel)	Polarization:	Horizontal
Power supply:	Power by AC/DC adapter (AC 120V/60Hz)	Test site:	RE chamber 2



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		71.8320	42.77	-10.03	32.74	40.00	-7.26	QP
2		95.7622	45.14	-8.67	36.47	43.50	-7.03	QP
3	*	119.8556	48.04	-10.21	37.83	43.50	-5.67	QP
4	!	239.1473	46.60	-6.35	40.25	46.00	-5.75	QP
5		287.9904	45.64	-5.76	39.88	46.00	-6.12	QP
6		383.9318	41.41	-4.45	36.96	46.00	-9.04	QP

Test mode:	TX (Highest channel)	Polarization:	Vertical
Power supply:	Power by AC/DC adapter (AC 120V/60Hz)	Test site:	RE chamber 2



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	30.1054	42.79	-8.89	33.90	40.00	-6.10	QP
2		47.8260	40.37	-7.53	32.84	40.00	-7.16	QP
3		95.7622	45.00	-8.67	36.33	43.50	-7.17	QP
4		143.8295	48.02	-10.69	37.33	43.50	-6.17	QP
5		239.9874	42.63	-6.30	36.33	46.00	-9.67	QP
6		400.4319	42.80	-4.42	38.38	46.00	-7.62	QP

For NA2 mode - Radiated emissions 1 GHz ~ 10 GHz

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
917.4 MHz							
1834.800	46.17	-10.58	35.59	74.00	-38.41	Peak	V
1834.800	36.18	-10.58	25.60	54.00	-28.40	AVG	V
2752.200	43.93	-5.17	38.76	74.00	-35.24	Peak	V
2752.200	33.77	-5.17	28.60	54.00	-25.40	AVG	V
3669.600	44.43	-2.67	41.76	74.00	-32.24	Peak	V
3669.600	34.37	-2.67	31.70	54.00	-22.30	AVG	V
1834.800	46.24	-10.58	35.66	74.00	-38.34	Peak	H
1834.800	36.28	-10.58	25.70	54.00	-28.30	AVG	H
2752.200	44.64	-5.17	39.47	74.00	-34.53	Peak	H
2752.200	34.77	-5.17	29.60	54.00	-24.40	AVG	H
3669.600	44.43	-2.67	41.76	74.00	-32.24	Peak	H
3669.600	34.27	-2.67	31.60	54.00	-22.40	AVG	H
922.4 MHz							
1844.800	46.08	-10.43	35.65	74.00	-38.35	Peak	V
1844.800	36.03	-10.43	25.60	54.00	-28.40	AVG	V
2767.200	44.13	-5.14	38.99	74.00	-35.01	Peak	V
2767.200	34.04	-5.14	28.90	54.00	-25.10	AVG	V
3689.600	42.14	-2.60	39.54	74.00	-34.46	Peak	V
3689.600	32.40	-2.60	29.80	54.00	-24.20	AVG	V
1844.800	46.41	-10.43	35.98	74.00	-38.02	Peak	H
1844.800	35.83	-10.43	25.40	54.00	-28.60	AVG	H
2767.200	43.91	-5.14	38.77	74.00	-35.23	Peak	H
2767.200	33.74	-5.14	28.60	54.00	-25.40	AVG	H
3689.600	43.14	-2.60	40.54	74.00	-33.46	Peak	H
3689.600	33.40	-2.60	30.80	54.00	-23.20	AVG	H
927.2 MHz							
1854.400	46.38	-10.28	36.10	74.00	-37.90	Peak	V
1854.400	36.58	-10.28	26.30	54.00	-27.70	AVG	V
2781.600	44.87	-5.10	39.77	74.00	-34.23	Peak	V
2781.600	34.40	-5.10	29.30	54.00	-24.70	AVG	V
3708.800	42.39	-2.55	39.84	74.00	-34.16	Peak	V
3708.800	32.45	-2.55	29.90	54.00	-24.10	AVG	V
1854.400	46.05	-10.28	35.77	74.00	-38.23	Peak	H
1854.400	35.88	-10.28	25.60	54.00	-28.40	AVG	H

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
2781.600	43.58	-5.10	38.48	74.00	-35.52	Peak	H
2781.600	33.60	-5.10	28.50	54.00	-25.50	AVG	H
3708.800	41.59	-2.55	39.04	74.00	-34.96	Peak	H
3708.800	31.65	-2.55	29.10	54.00	-24.90	AVG	H

For NA3 mode - Radiated emissions 1 GHz ~ 10 GHz

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
917.5 MHz							
1835.000	45.88	-10.57	35.31	74.00	-38.69	Peak	V
1835.000	37.60	-10.57	27.03	54.00	-26.97	AVG	V
2752.500	43.36	-5.17	38.19	74.00	-35.81	Peak	V
2752.500	34.12	-5.17	28.95	54.00	-25.05	AVG	V
3670.000	43.15	-2.67	40.48	74.00	-33.52	Peak	V
3670.000	32.96	-2.67	30.29	54.00	-23.71	AVG	V
1835.000	45.63	-10.57	35.06	74.00	-38.94	Peak	H
1835.000	36.27	-10.57	25.70	54.00	-28.30	AVG	H
2752.500	44.98	-5.17	39.81	74.00	-34.19	Peak	H
2752.500	34.67	-5.17	29.50	54.00	-24.50	AVG	H
3670.000	42.79	-2.67	40.12	74.00	-33.88	Peak	H
3670.000	33.17	-2.67	30.50	54.00	-23.50	AVG	H
920.0 MHz							
1840.000	43.96	-10.49	33.47	74.00	-40.53	Peak	V
1840.000	34.19	-10.49	23.70	54.00	-30.30	AVG	V
2760.000	45.53	-5.15	40.38	74.00	-33.62	Peak	V
2760.000	35.45	-5.15	30.30	54.00	-23.70	AVG	V
3680.000	44.85	-2.63	42.22	74.00	-31.78	Peak	V
3680.000	34.83	-2.63	32.20	54.00	-21.80	AVG	V
1840.000	43.37	-10.49	32.88	74.00	-41.12	Peak	H
1840.000	33.39	-10.49	22.90	54.00	-31.10	AVG	H
2760.000	43.04	-5.15	37.89	74.00	-36.11	Peak	H
2760.000	32.75	-5.15	27.60	54.00	-26.40	AVG	H
3680.000	46.92	-2.63	44.29	74.00	-29.71	Peak	H
3680.000	37.23	-2.63	34.60	54.00	-19.40	AVG	H
922.5 MHz							
1845.000	44.00	-10.41	33.59	74.00	-40.41	Peak	V
1845.000	33.91	-10.41	23.50	54.00	-30.50	AVG	V
2767.500	44.02	-5.14	38.88	74.00	-35.12	Peak	V
2767.500	33.94	-5.14	28.80	54.00	-25.20	AVG	V
3690.000	42.40	-2.60	39.80	74.00	-34.20	Peak	V
3690.000	32.50	-2.60	29.90	54.00	-24.10	AVG	V
1845.000	46.05	-10.41	35.64	74.00	-38.36	Peak	H
1845.000	36.21	-10.41	25.80	54.00	-28.20	AVG	H

Frequency	Reading Level	Correct Factor	Measurement	Limits	Over	Detector	Polarization
(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	Peak/AVG	H/V
2767.500	43.83	-5.14	38.69	74.00	-35.31	Peak	H
2767.500	33.74	-5.14	28.60	54.00	-25.40	AVG	H
3690.000	43.96	-2.60	41.36	74.00	-32.64	Peak	H
3690.000	33.90	-2.60	31.30	54.00	-22.70	AVG	H

For NA2 mode - Radiated emissions at band edge

PASS
Note：The adjacent to the restricted frequency band (608-614MHz and 960-1240MHz) is far away the fundamental, it is noise only. Please refer to section 5.10 for the test data

For NA3 mode - Radiated emissions at band edge

PASS
Note：The adjacent to the restricted frequency band (608-614MHz and 960-1240MHz) is far away the fundamental, it is noise only. Please refer to section 5.10 for the test data

Photographs of the Test Setup

See the appendix – Test Setup Photos.

Photographs of the EUT

See the appendix - EUT Photos.

----End of Report----