



Radio Test Report

Report No.: STS2601302W02

Issued for

CAD Audio, LLC

154 Woodlawn Rd, Suite C Berlin Connecticut 06037 United States

Product Name: Wireless Microphone

Brand Name: CAD Audio

Model Name: WX1800

Series Model: AWX500, WX1000, WX1400

FCC ID: OQ5-WX1800

Test Standard: FCC Part 15.236

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Shenzhen STS Test Services Co., Ltd.

**TEST REPORT**

Applicant's Name: CAD Audio, LLC
Address.....: 154 Woodlawn Rd, Suite C Berlin Connecticut 06037 United States
Manufacturer's Name.....: CAD Audio, LLC
Address.....: 154 Woodlawn Rd, Suite C Berlin Connecticut 06037 United States

Product Description

Product Name: Wireless Microphone
Brand Name: CAD Audio
Model Name.....: WX1800
Series Model: AWX500, WX1000, WX1400

Test Standards: FCC Part 15.236

Test Procedure.....: ANSI C63.10-2020

This device described above has been tested by STS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test:
Date of receipt of test item: 8 Aug. 2025
Date of performance of tests.....: 8 Aug. 2025 to 8 Jan. 2026
Date of Issue: 8 Jan. 2026
Test Result.....: Pass

Testing Engineer :

Aaron Bu

(Aaron Bu)

Technical Manager :

Skylar Li

(Skylar Li)

Authorized Signatory :

Bovey Yang

(Bovey Yang)





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**Revision History**

Rev.	Issue Date	Report No.	Effect Page	Contents
00	8 Jan. 2026	STS2601302W02	ALL	Initial Issue



1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

The EUT has been tested according to FCC CFR 47:

Part 15.236: Operation of wireless microphones in the bands 54-72 MHz, 76-88 MHz, 174-216 MHz, 470-608 MHz, 614-698 MHz and 657-663MHz.

Standard	Item	Limit	Result
FCC 15.236(d)(2)	EIRP	≤ 50 mW	PASS
FCC 15.236(f)(1)	Occupied Bandwidth	--	PASS
FCC 15.236(f)(1)	Frequency tolerance	$\pm 0.005\%$	PASS
FCC 15.236(g)	Necessary Bandwidth (Mask)	Refer to 300 422-1 V2.2.1 (4.2.4)	PASS
FCC 15.207	Conducted Emission	--	N/A
FCC 15.236(g)(4)	Radiated Spurious Emission	Refer to 300 422-1 V2.2.1 (4.2.4)	PASS
15.203	Antenna Requirement	--	PASS

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report.



1.1 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD

Add. : 101, Building B, Zhuoke Science Park, No.190 Chongqing Road, ZhanChengShequ, Fuhai Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration Number: 625569

IC test Firm Registration Number: 12108A

A2LA Certificate No.: 4338.01

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	RF output power, conducted	$\pm 0.755\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.874\text{dB}$
3	All emissions, radiated 30-1GHz	$\pm 4.18\text{dB}$
4	All emissions, radiated 1G-6GHz	$\pm 4.90\text{dB}$
5	All emissions, radiated >6G	$\pm 5.24\text{dB}$
6	Conducted Emission (9KHz-150KHz)	$\pm 2.19\text{dB}$
7	Conducted Emission (150KHz-30MHz)	$\pm 2.53\text{dB}$



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	Wireless Microphone	
Brand Name	CAD Audio	
Model Name	WX1800	
Serial Model(s)	AWX500,WX1000,WX1400	
Model Difference	All the model are the same circuit and RF module, except model names.	
Power Rating:	555.1MHz-579.85MHz	
Operation Frequency	FM	
Modulation mode / type	-20 °C~50 °C	
Temperature Range	555.1MHz-579.85MHz	
Test frequency list	DC 3V from battery	
Adapter	N/A	
Battery	DC 3V	
Software version number	N/A	
Hardware version number	N/A	
Connecting I/O Port(s)	N/A	Please ref

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User Manual.
2. The antenna details in this report are based on the manufacturer provided antenna specification documents and apply only to the tested sample identified herein.
Any discrepancies in the antenna information may affect the accuracy of the test results, and the customer assumes responsibility for any related issues.



3.

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	555.1	34	563.6	67	571.85
1	555.35	35	563.85	68	572.1
2	555.6	36	564.1	69	572.35
3	555.85	37	564.35	70	572.6
4	556.1	38	564.6	71	572.85
5	556.35	39	564.85	72	573.1
6	556.6	40	565.1	73	573.35
7	556.85	41	565.35	74	573.6
8	557.1	42	565.6	75	573.85
9	557.35	43	565.85	76	574.1
10	557.6	44	566.1	77	574.35
11	557.85	45	566.35	78	574.6
12	558.1	46	566.6	79	574.85
13	558.35	47	566.85	80	575.1
14	558.6	48	567.1	81	575.35
15	558.85	49	567.35	82	575.6
16	559.1	50	567.6	83	575.85
17	559.35	51	567.85	84	576.1
18	559.6	52	568.1	85	576.35
19	559.85	53	568.35	86	576.6
20	560.1	54	568.6	87	576.85
21	560.35	55	568.85	88	577.1
22	560.6	56	569.1	89	577.35
23	560.85	57	569.35	90	577.6
24	561.1	58	569.6	91	577.85
25	561.35	59	569.85	92	578.1
26	561.6	60	570.1	93	578.35
27	561.85	61	570.35	94	578.6
28	562.1	62	570.6	95	578.85
29	562.35	63	570.85	96	579.1
30	562.6	64	571.1	97	579.35
31	562.85	65	571.35	98	579.6
32	563.1	66	571.6	99	579.85
33	563.35				

4. Table for Filed Antenna

Ant	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	FeiMin	LDM-575.IOMHz	Internal antenna	/	1.92	Antenna



5. Test frequency list

Test Channel List For 555.1MHz -579.85MHz		
Test Channel	EUT Channel	Test Frequency (MHz)
lowest	0	555.1
middle	49	567.35
highest	99	579.85

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, please see the above listed frequency for testing.

2.2 DESCRIPTION OF THE TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	CH00
Mode 2	CH49
Mode 3	CH99

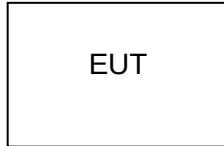
Note:

(1) Due to the different configuration and test, in this list only some worse mode. The worst test data of the worse mode is reported by this report.



2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious Emission Test





2.4 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Note

Item	Shielded Type	Ferrite Core	Length	Note

Note:

- (1) For detachable type I/O cable should be specified the length in cm in 『Length』 column.



2.5 TEST EQUIPMENT

RF Radiation Test Equipment					
Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
Temperature & Humidity	SW-108	SuWei	N/A	2025.02.24	2026.02.23
Wireless Communications Test Set	R&S	CMW 500	117239	2025.02.22	2026.02.21
Pre-Amplifier(0.1M-3GHz)	EM	EM330	060665	2025.09.25	2026.09.24
Pre-Amplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2025.02.22	2026.02.21
Pre-Amplifier(18G-40GHz)	SKET	LNPA_1840-50	SK2018101801	2025.02.24	2026.02.23
Positioning Controller	MF	MF-7802	MF-780208587	N/A	N/A
Signal Analyzer	R&S	FSV 40-N	101823	2025.09.26	2026.09.25
Switch Control Box	N/A	N/A	N/A	N/A	N/A
Filter Box	BALUN Technology	SU319E	BL-SZ1530051	N/A	N/A
Video Controller	SKET	FCS C-3	N/A	N/A	N/A
Bilog Antenna	TESEQ	CBL6111D	34678	2025.09.27	2027.09.26
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	2025.09.27	2027.09.26
Horn Antenna	A-INFOMW	LB-180400-KF	J211020657	2025.09.27	2027.09.26
Antenna Mast	MF	MFA-440H	N/A	N/A	N/A
Turn Table	MF	N/A	N/A	N/A	N/A
AC Power Source	APC	KDF-11010G	F214050035	N/A	N/A
DC Power Supply	Zhaoxin	RXN 605D	20R605D11010081	N/A	N/A
Test SW	EMC Test Software	15.2.0.339			
RF Connected Test Equipment					
Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
Temperature & Humidity	SW-108	SuWei	N/A	2025.02.24	2026.02.23
Universal Radio communication tester	R&S	CMU200	119907	2025.02.24	2026.02.23
Signal Generator	Agilent	N5182A	MY46240556	2025.02.24	2026.02.23
Signal Analyzer	Agilent	N9020A	MY52440124	2025.02.22	2026.02.21
Temperature & Humidity Test Chamber	Safety test	AG80L	171200018	2025.09.23	2026.09.22
Programmable Power Supply	Agilent	E3642A	MY40002025	N/A	N/A
Attenuator	HP	8494B	DC-18G	2025.02.22	2026.02.21
AC Power Source	APC	KDF-11010G	F214050035	N/A	N/A



3. PART 15.236 REQUIREMENTS

3.1 CONDUCTED EMISSION MEASUREMENT

The radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table.

FREQUENCY (MHz)	Conducted Emission limit (dBuV)	
	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of “ * ” marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

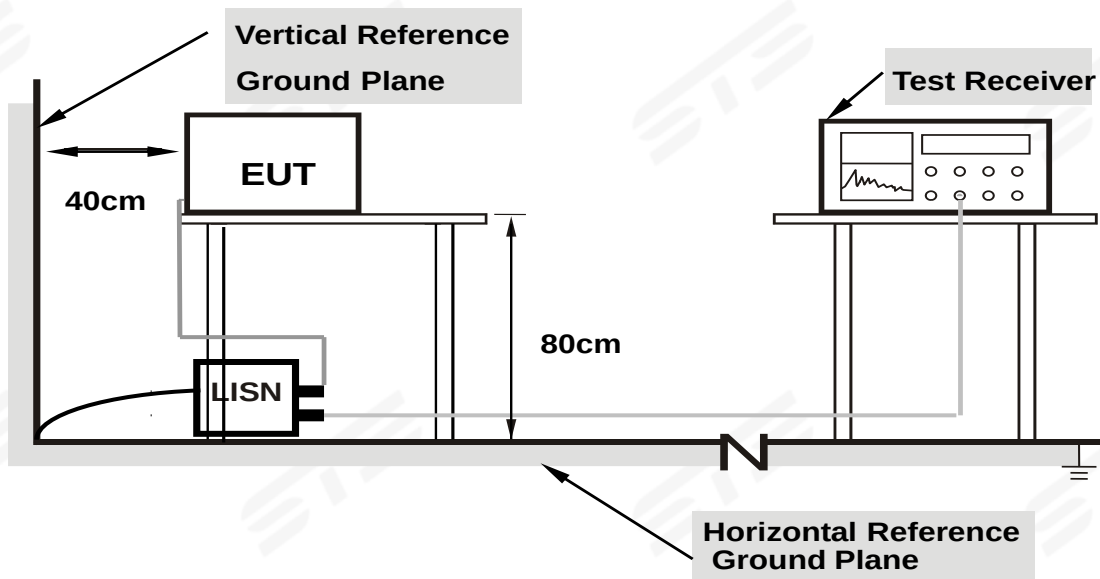
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.1 TEST PROCEDURE

- The EUT is 0.8 m from the horizontal ground plane and 0.4 m from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments are powered from additional LISN(s). The LISN provides 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN is at least 80 cm from the nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.2 TEST SETUP



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes support units.

3.1.3 TEST RESULT

Temperature:	26 °C	Relative Humidity:	54 %
Test Voltage:	AC 120V/60Hz	Phase:	L
Test Mode:	Mode 1		

Note: EUT is only power by battery, So it is not applicable for this test.



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS

According to Part 15.236 (g) and ETSI EN 300 422-1 V2.2.1 section 4.2.4, the limit will follow the following table.

**Table 4: Transmitter unwanted emission limits
(from ERC Recommendation 74-01 [2])**

Frequency range	Maximum power	RBW
9 kHz - 150 kHz	-36 dBm	1 kHz
150 kHz - 30 MHz	-36 dBm	10 kHz
30 MHz - 1 GHz	-36 dBm	$F_c + 2,5 B \leq f \leq f_c + 4 B$: 1 kHz $F_c + 4 B < f \leq f_c + 10 B$: 10 kHz $f > f_c + 10 B$: 100 kHz $f < f_c - 10 B$: 100 kHz $f_c - 10 B \leq f < f_c - 4 B$: 10 kHz $f_c - 4 B \leq f \leq f_c - 2,5 B$: 1 kHz
except:		
47 MHz - 74 MHz 87,5 MHz - 118 MHz	-54 dBm	100 kHz
174 MHz - 230 MHz 470 MHz - 862 MHz	-54 dBm	$F_c + 2,5 B \leq f \leq f_c + 4 B$: 1 kHz $F_c + 4 B < f \leq f_c + 10 B$: 10 kHz $f > f_c + 10 B$: 100 kHz $f < f_c - 10 B$: 100 kHz $f_c - 10 B \leq f < f_c - 4 B$: 10 kHz $f_c - 4 B \leq f \leq f_c - 2,5 B$: 1 kHz
$1 \text{ GHz} < f \leq F_{\text{upper}}$	-30 dBm	$F_c + 2,5 B \leq f \leq f_c + 10 B$: 30 kHz $F_c + 10 B < f \leq f_c + 12 B$: 300 kHz $f > f_c + 12 B$: 1 MHz $f < f_c - 12 B$: 1 MHz $f_c - 12 B \leq f < f_c - 10 B$: 300 kHz $f_c - 10 B \leq f \leq f_c - 2,5 B$: 30 kHz



For Radiated Emission

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak/QP/AV
Start Frequency	9 KHz/150KHz(Peak/QP/AV)
Stop Frequency	150KHz/30MHz(Peak/QP/AV)
RB / VB (emission in restricted band)	200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz); 200Hz (From 9kHz to 0.15MHz)/ 9KHz (From 0.15MHz to 30MHz)

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak/QP
Start Frequency	30 MHz(Peak/QP)
Stop Frequency	1000 MHz (Peak/QP)
RB / VB (emission in restricted band)	120 KHz / 300 KHz

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak/AV
Start Frequency	1000 MHz(Peak/AV)
Stop Frequency	10th carrier hamonic(Peak/AV)
RB / VB (emission in restricted band)	1 MHz / 3 MHz(Peak) 1 MHz/1/T MHz(AVG)

For Restricted band

Spectrum Parameter	Setting
Detector	Peak/AV
Start/Stop Frequency	390 to 620 MHz
RB / VB	1 MHz / 3 MHz(Peak) 1 MHz/1/T MHz(AVG)



Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	90kHz~110kHz / RB 200Hz for QP
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	490kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

- The measuring distance at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz, and above 1GHz.
- The EUT was placed on the top of a rotating table 0.8 m (above 1GHz is 1.5 m) above the ground at a 3 m anechoic chamber test site. The table was rotated 360 degree to determine the position of the highest radiation.
- The height of the equipment shall be 0.8 m (above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. Horizontal and vertical polarization of the antenna are set to make the measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and QuasiPeak detector mode will be re-measured.
- If the Peak Mode measured value is compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and no additional QP Mode measurement was performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

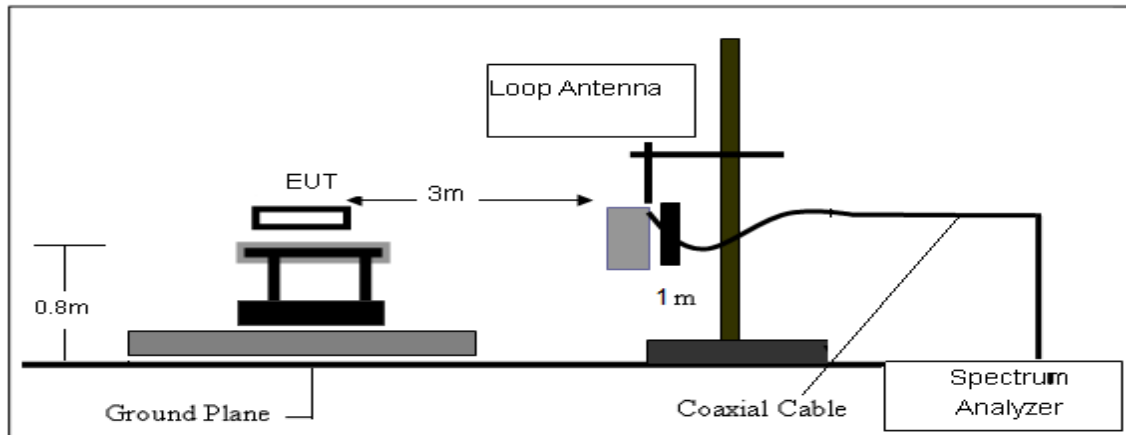
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

3.2.3 DEVIATION FROM TEST STANDARD

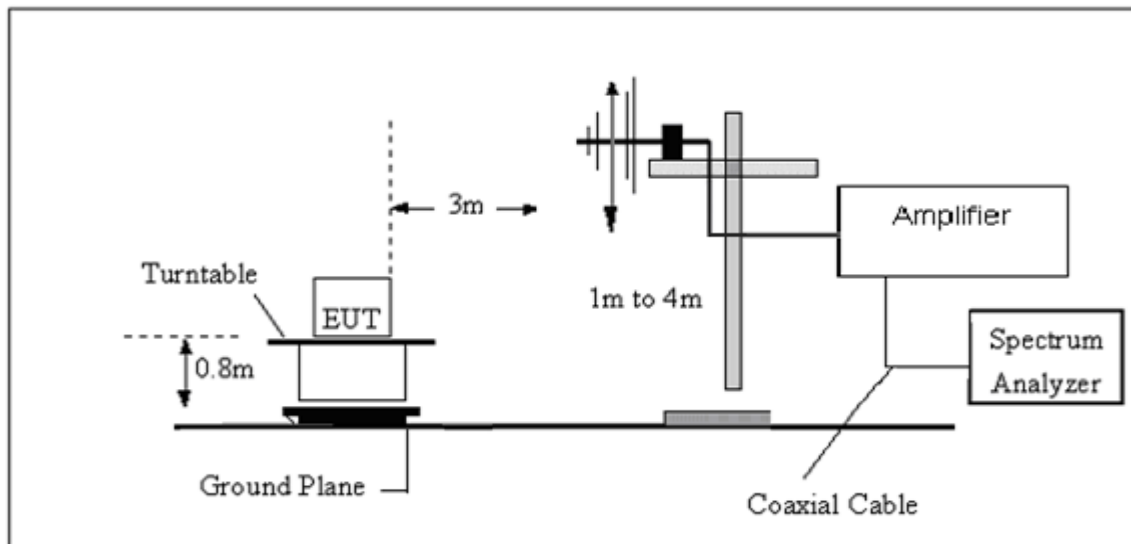
No deviation.

3.2.4 TESTSETUP

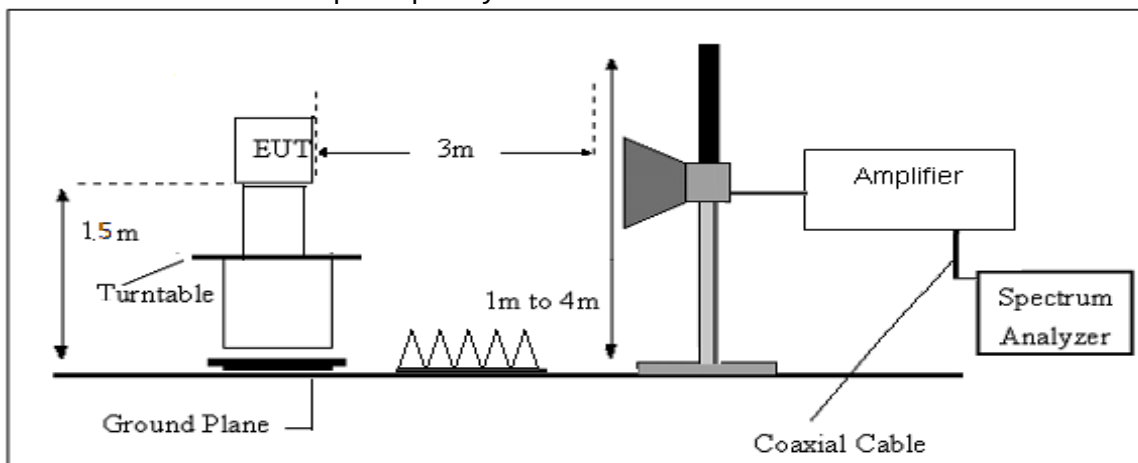
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



3.2.5 EUT OPERATING CONDITIONS

Please refer to section 2.3 of this report.



3.2.6 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where

FS = Field Strength

CL = Cable Attenuation Factor (Cable Loss)

RA = Reading Amplitude

AG = Amplifier Gain

AF = Antenna Factor

For example

Frequency	FS	RA	AF	CL	AG	Factor
(MHz)	(dBμV/m)	(dBμV/m)	(dB)	(dB)	(dB)	(dB)
300	40	58.1	12.2	1.6	31.9	-18.1

$$\text{Factor} = \text{AF} + \text{CL} - \text{AG}$$



3.2.7 TEST RESULTS

Temperature:	26 °C	Relative Humidity:	54 %
Test Voltage:	DC 3V	Test Mode:	TX Mode

Freq.	Reading	Limit	Margin	State	Test Result
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F	
--	--	--	--	--	PASS
--	--	--	--	--	PASS

Note:

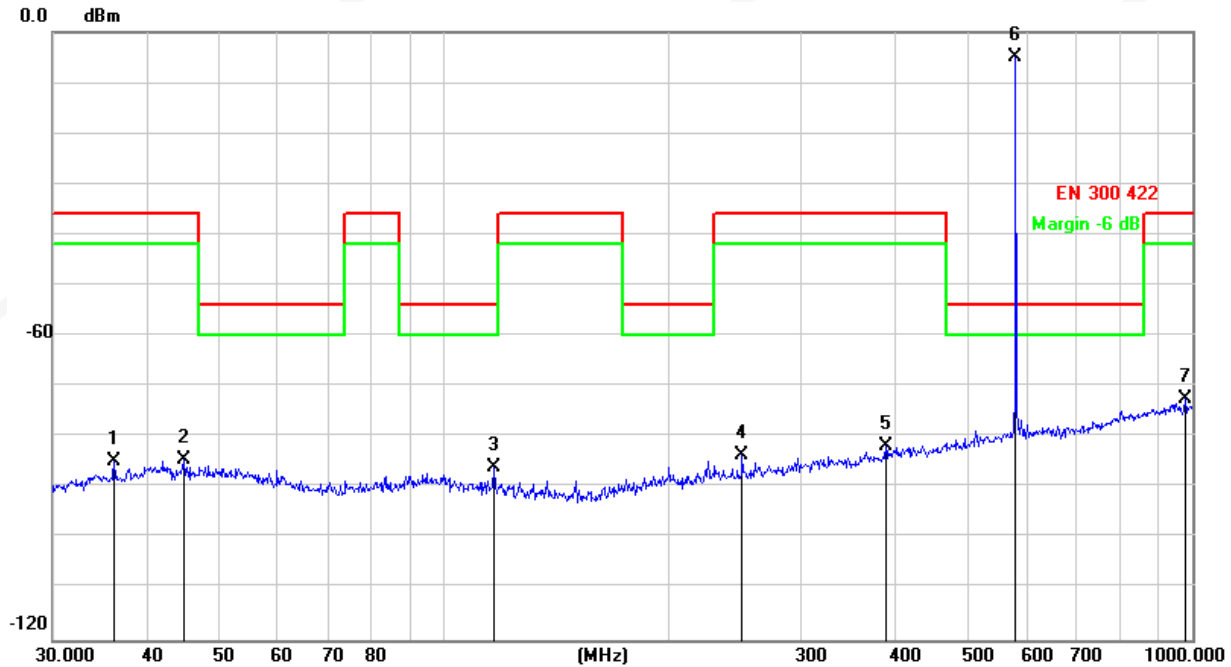
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.



Temperature:	26 °C	Relative Humidity:	54 %
Test Voltage:	DC 3V	Phase:	Horizontal
Test Mode:	Mode 3		



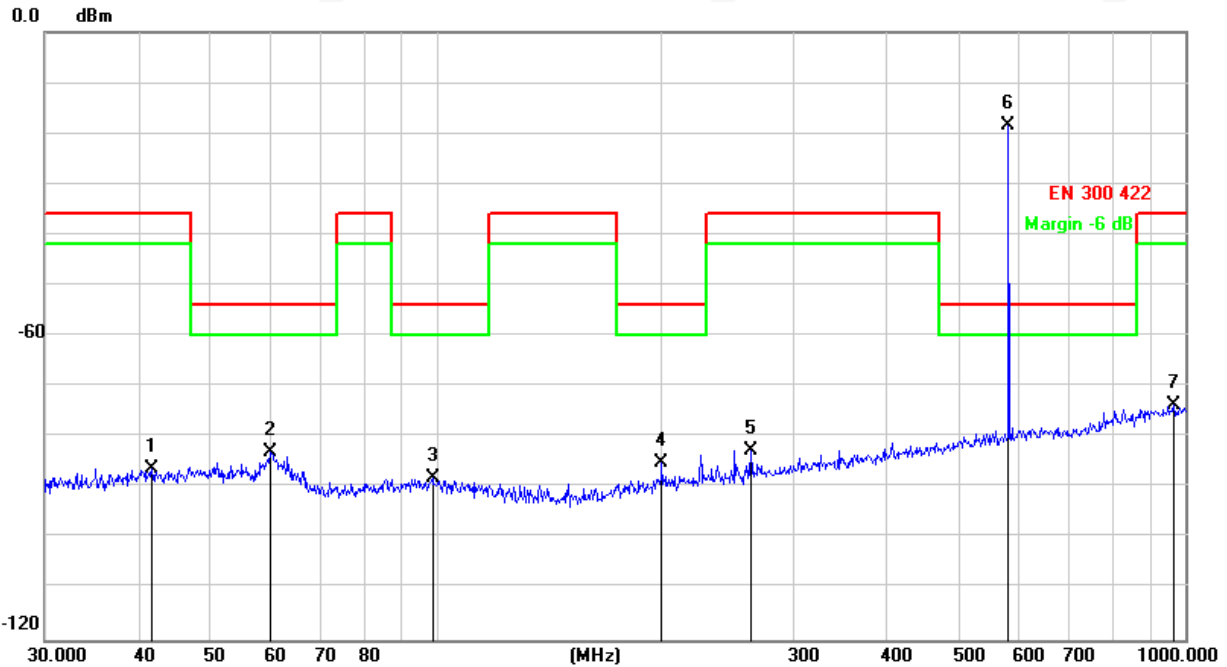
Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	dBm	Factor	ment	dB	dB	Detector
1		36.2541	-76.39	-8.25	-84.64	-36.00	-48.64	QP
2		44.9006	-77.08	-7.25	-84.33	-36.00	-48.33	QP
3		116.5401	-76.63	-9.45	-86.08	-54.00	-32.08	QP
4		250.3012	-76.48	-6.94	-83.42	-36.00	-47.42	QP
5		389.3549	-78.41	-3.44	-81.85	-36.00	-45.85	QP
6	*	580.7026	-5.49	0.45	-5.04	-54.00	48.96	peak
7		979.1804	-77.99	5.66	-72.33	-36.00	-36.33	QP



Temperature:	26 °C	Relative Humidity:	54 %
Test Voltage:	DC 3V	Phase:	Vertical
Test Mode:	Mode 3		



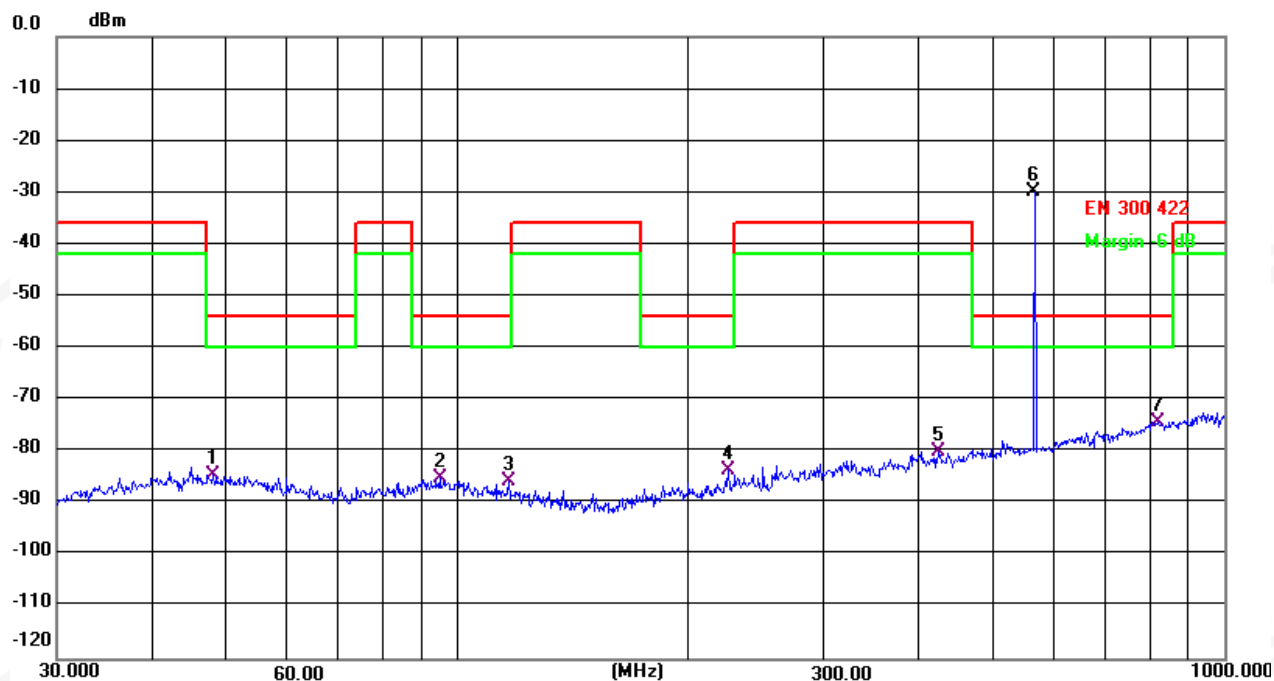
Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dB	Over dB	Detector
1		41.7129	-78.63	-7.62	-86.25	-36.00	-50.25	QP
2		60.0690	-74.54	-8.47	-83.01	-54.00	-29.01	QP
3		98.8324	-79.62	-8.53	-88.15	-54.00	-34.15	QP
4		199.9856	-77.00	-8.17	-85.17	-54.00	-31.17	QP
5		262.8955	-76.02	-6.64	-82.66	-36.00	-46.66	QP
6	*	580.7025	-18.79	0.45	-18.34	-54.00	35.66	peak
7		965.5421	-79.15	5.54	-73.61	-36.00	-37.61	QP



Temperature:	26 °C	Relative Humidity:	54 %
Test Voltage:	DC 3V	Phase:	Horizontal
Test Mode:	Mode 2		



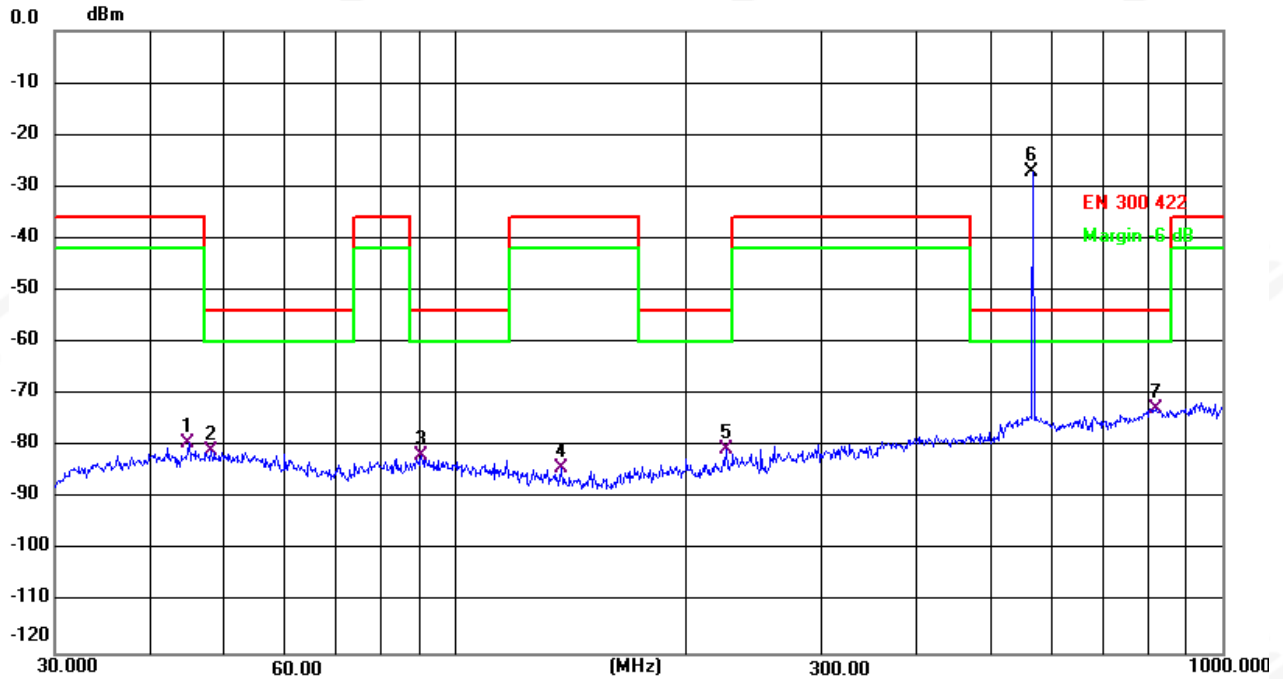
Remark:

1. Margin = Result (Result = Reading + Factor) – Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) – Amplifier gain

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	47.9938	-77.44	-6.89	-84.33	-54.00	-30.33	QP
2	94.7600	-76.42	-8.77	-85.19	-54.00	-31.19	QP
3	116.5400	-76.13	-9.45	-85.58	-54.00	-31.58	QP
4	225.3077	-76.14	-7.55	-83.69	-54.00	-29.69	QP
5	423.5403	-77.25	-2.69	-79.94	-36.00	-43.94	QP
6 *	566.6221	-29.88	0.17	-29.71	-54.00	24.29	peak
7	818.8341	-78.02	3.89	-74.13	-54.00	-20.13	QP



Temperature:	26 °C	Relative Humidity:	54 %
Test Voltage:	DC 3V	Phase:	Vertical
Test Mode:	Mode 2		



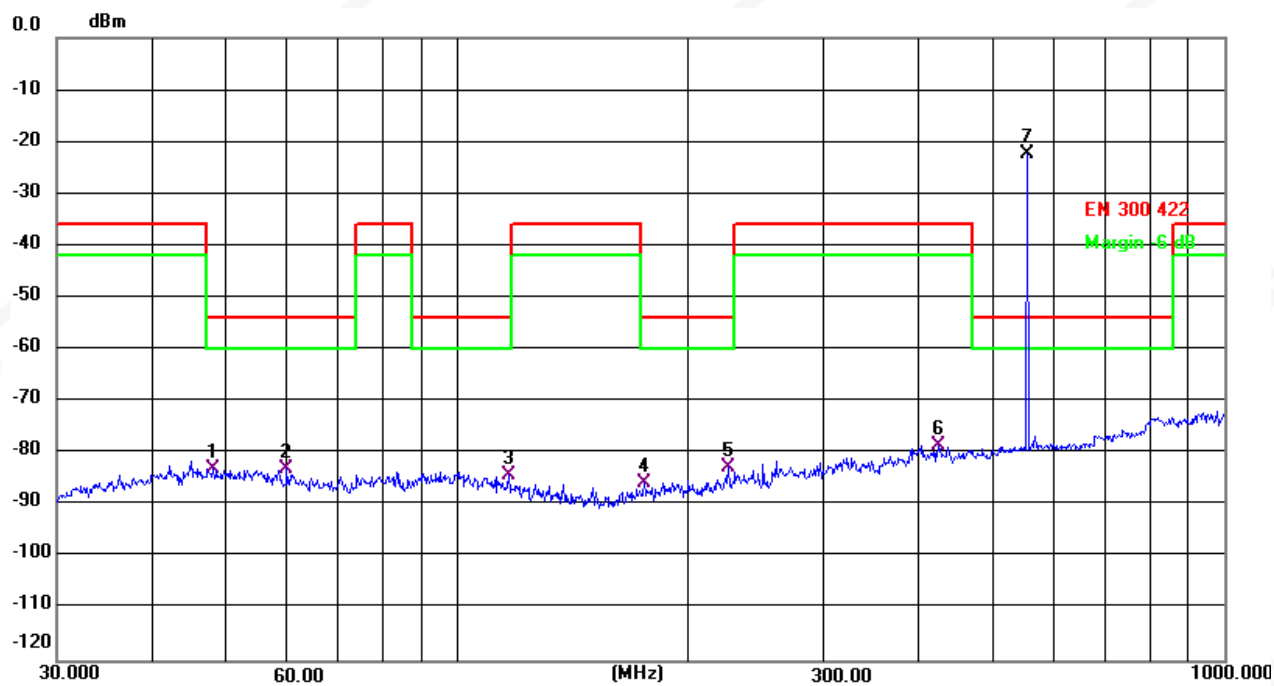
Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	44.9004	-72.08	-7.25	-79.33	-36.00	-43.33	QP
2	47.9938	-73.94	-6.89	-80.83	-54.00	-26.83	QP
3	90.2205	-72.79	-9.05	-81.84	-54.00	-27.84	QP
4	137.4200	-73.36	-10.65	-84.01	-36.00	-48.01	QP
5	225.3077	-73.14	-7.55	-80.69	-54.00	-26.69	QP
6 *	566.6221	-27.38	0.17	-27.21	-54.00	26.79	peak
7	818.8341	-76.52	3.89	-72.63	-54.00	-18.63	QP



Temperature:	26 °C	Relative Humidity:	54 %
Test Voltage:	DC 3V	Phase:	Horizontal
Test Mode:	Mode 1		



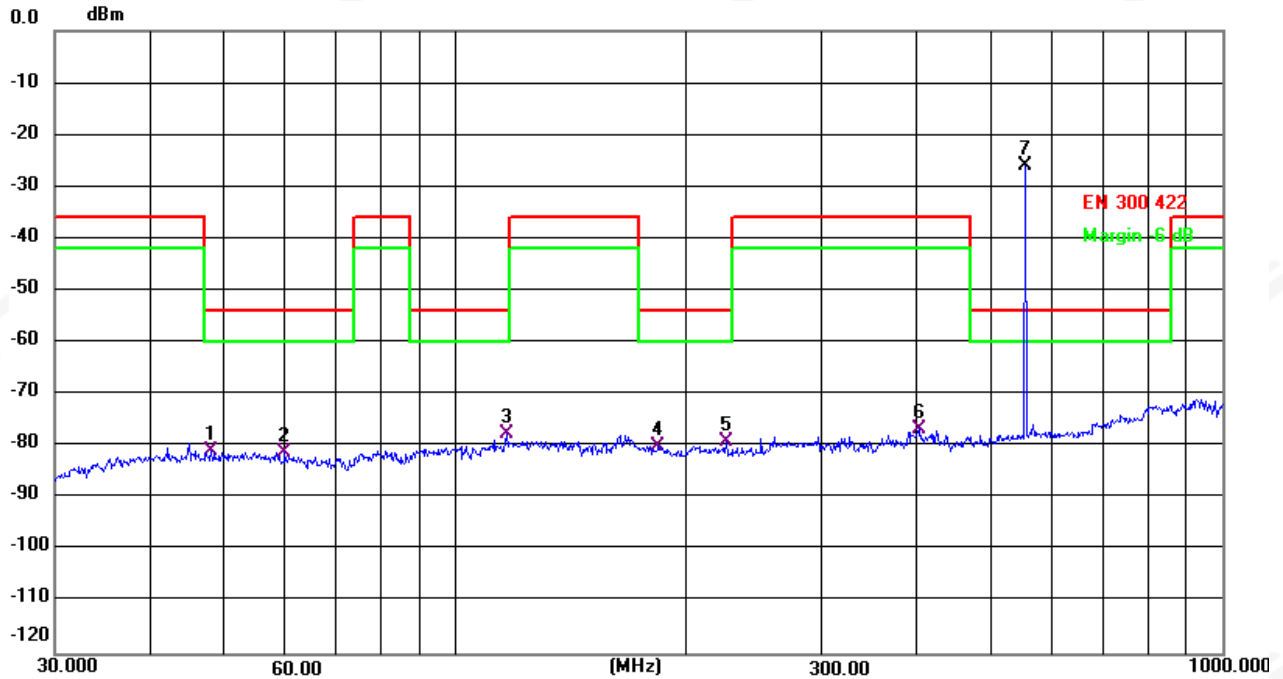
Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	47.9938	-75.94	-6.89	-82.83	-54.00	-28.83	QP
2	59.8588	-74.59	-8.43	-83.02	-54.00	-29.02	QP
3	116.5400	-74.63	-9.45	-84.08	-54.00	-30.08	QP
4	175.0363	-76.01	-9.76	-85.77	-54.00	-31.77	QP
5	225.3077	-75.14	-7.55	-82.69	-54.00	-28.69	QP
6	423.5403	-75.75	-2.69	-78.44	-36.00	-42.44	QP
7 *	552.8831	-22.21	-0.11	-22.32	-54.00	31.68	peak



Temperature:	26 °C	Relative Humidity:	54 %
Test Voltage:	DC 3V	Phase:	Vertical
Test Mode:	Mode 1		



Remark:

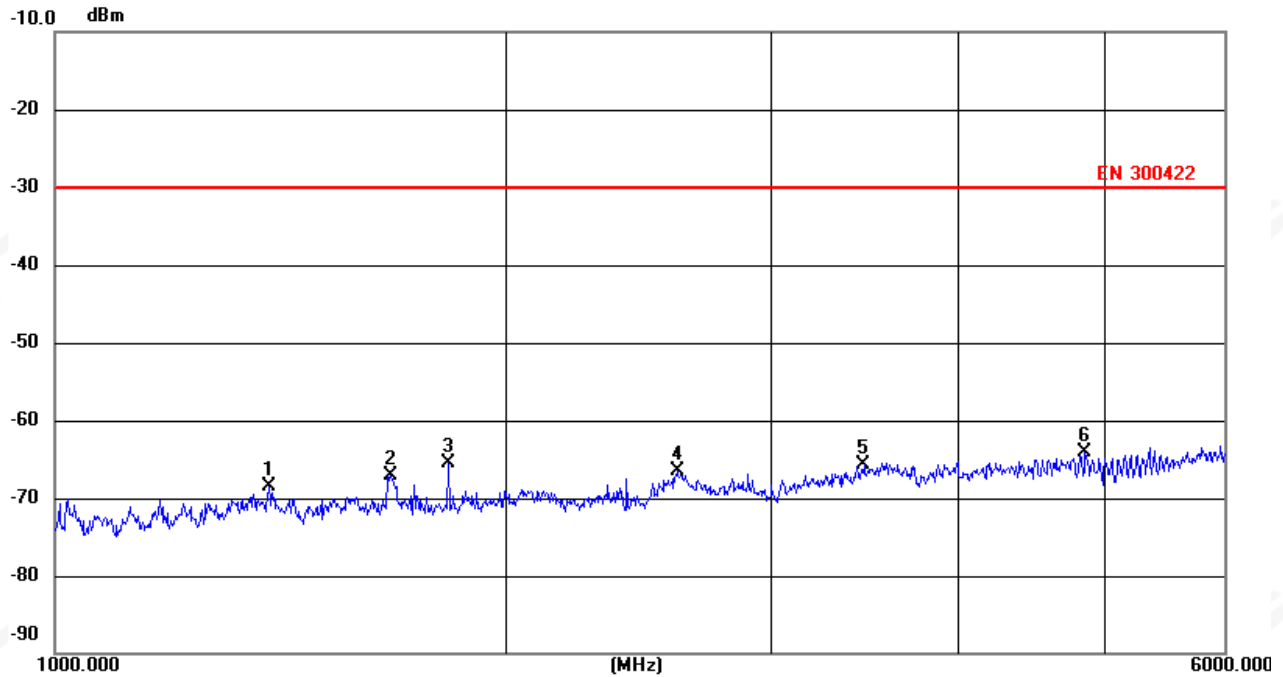
1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	47.9938	-73.94	-6.89	-80.83	-54.00	-26.83	QP
2	59.8588	-72.59	-8.43	-81.02	-54.00	-27.02	QP
3	116.5400	-68.13	-9.45	-77.58	-54.00	-23.58	QP
4	183.8437	-70.73	-9.20	-79.93	-54.00	-25.93	QP
5	225.3077	-71.64	-7.55	-79.19	-54.00	-25.19	QP
6	403.2500	-73.47	-3.09	-76.56	-36.00	-40.56	QP
7 *	552.8831	-25.71	-0.11	-25.82	-54.00	28.18	peak



Spurious Emission Above 1GHz

Temperature:	26 °C	Relative Humidity:	54 %
Test Voltage:	DC 3V	Phase:	Horizontal
Test Mode:	Mode 1		



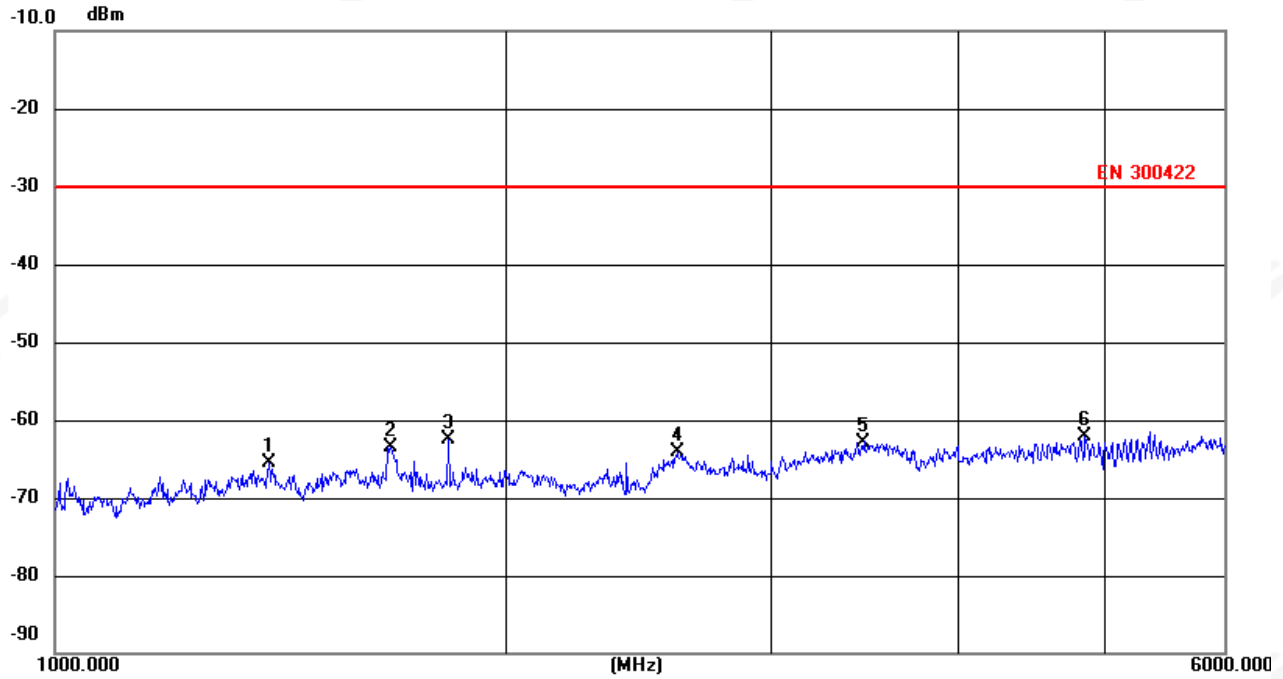
Remark:

1. Margin = Result (Result = Reading + Factor) – Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) – Amplifier gain

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	1388.039	-41.03	-27.52	-68.55	-30.00	-38.55	peak
2	1672.359	-39.96	-27.06	-67.02	-30.00	-37.02	peak
3	1829.098	-38.66	-26.84	-65.50	-30.00	-35.50	peak
4	2594.039	-41.06	-25.47	-66.53	-30.00	-36.53	peak
5	3455.259	-41.90	-23.90	-65.80	-30.00	-35.80	peak
6 *	4847.873	-43.87	-20.30	-64.17	-30.00	-34.17	peak



Temperature:	26 °C	Relative Humidity:	54 %
Test Voltage:	DC 3V	Phase:	Vertical
Test Mode:	Mode 1		



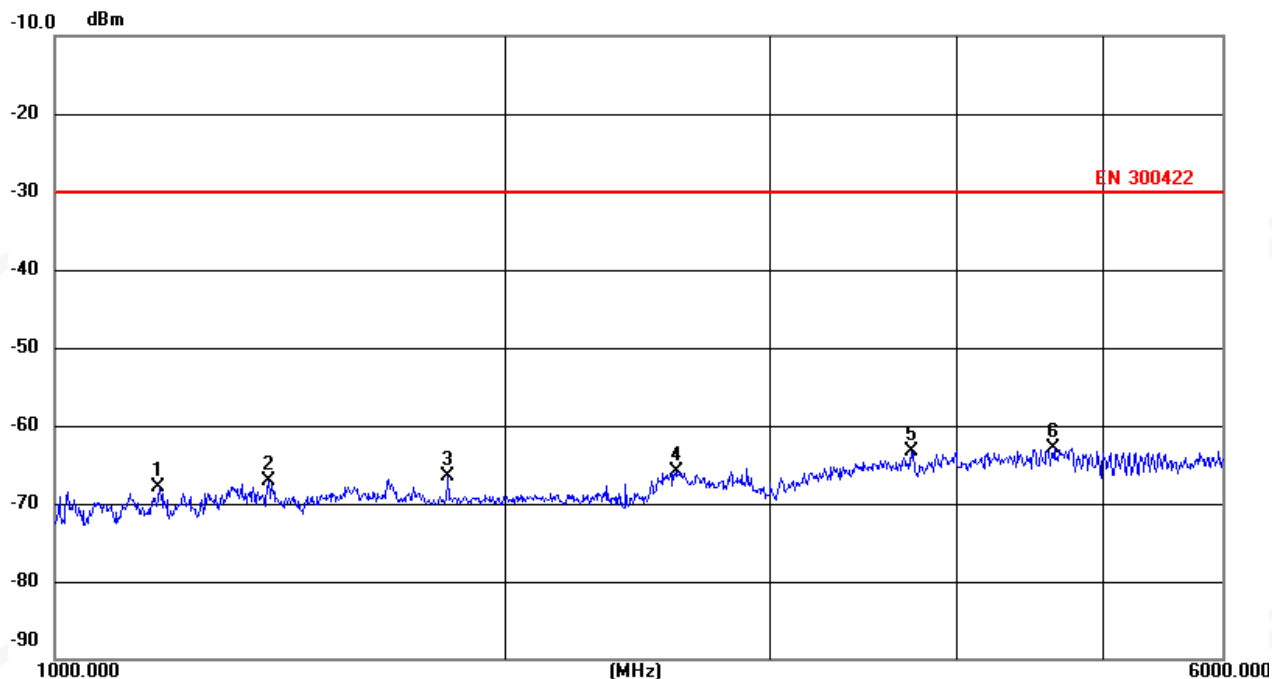
Remark:

1. Margin = Result (Result = Reading + Factor) – Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) – Amplifier gain

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	1388.039	-38.03	-27.52	-65.55	-30.00	-35.55	peak
2	1672.359	-36.46	-27.06	-63.52	-30.00	-33.52	peak
3	1829.098	-35.66	-26.84	-62.50	-30.00	-32.50	peak
4	2594.039	-38.56	-25.47	-64.03	-30.00	-34.03	peak
5	3455.259	-38.90	-23.90	-62.80	-30.00	-32.80	peak
6 *	4847.873	-41.88	-20.29	-62.17	-30.00	-32.17	peak



Temperature:	26 °C	Relative Humidity:	54 %
Test Voltage:	DC 3V	Phase:	Horizontal
Test Mode:	Mode 2		



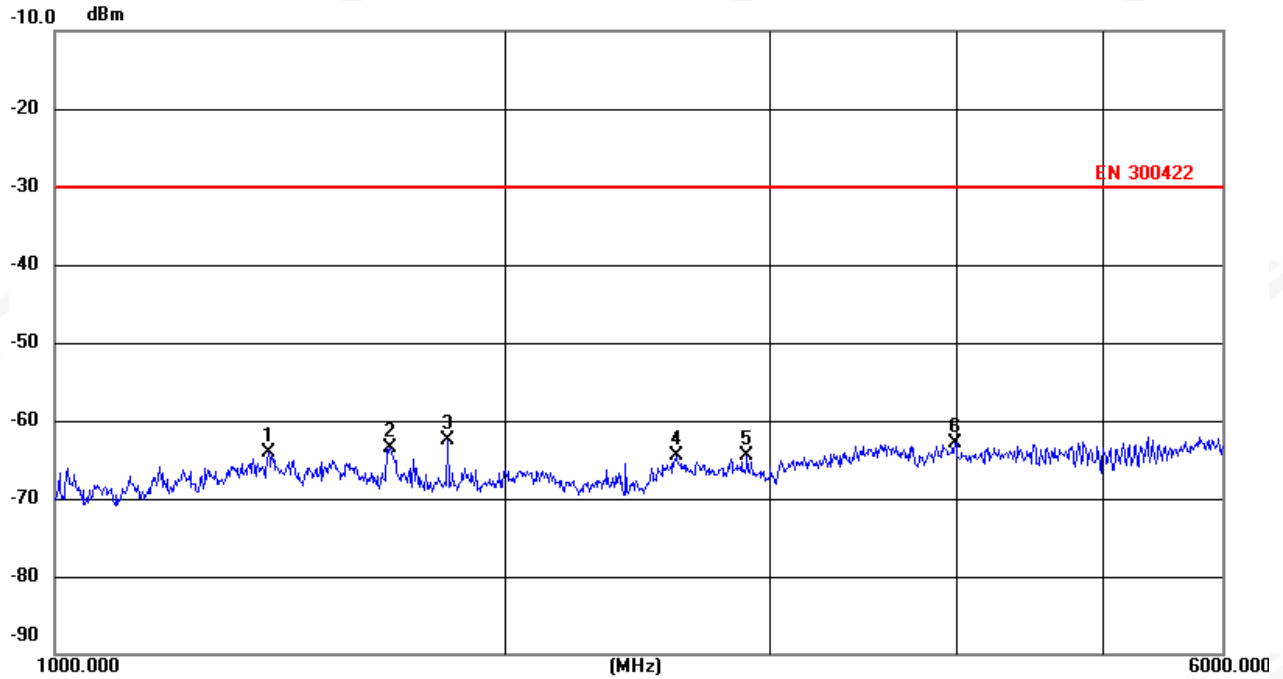
Remark:

1. Margin = Result (Result = Reading + Factor) – Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) – Amplifier gain

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	1174.988	-39.92	-27.95	-67.87	-30.00	-37.87	peak
2	1388.039	-39.53	-27.52	-67.05	-30.00	-37.05	peak
3	1829.098	-39.66	-26.84	-66.50	-30.00	-36.50	peak
4	2598.691	-40.47	-25.46	-65.93	-30.00	-35.93	peak
5	3725.315	-40.00	-23.35	-63.35	-30.00	-33.35	peak
6 *	4635.509	-42.08	-20.85	-62.93	-30.00	-32.93	peak



Temperature:	26 °C	Relative Humidity:	54 %
Test Voltage:	DC 3V	Phase:	Vertical
Test Mode:	Mode 2		



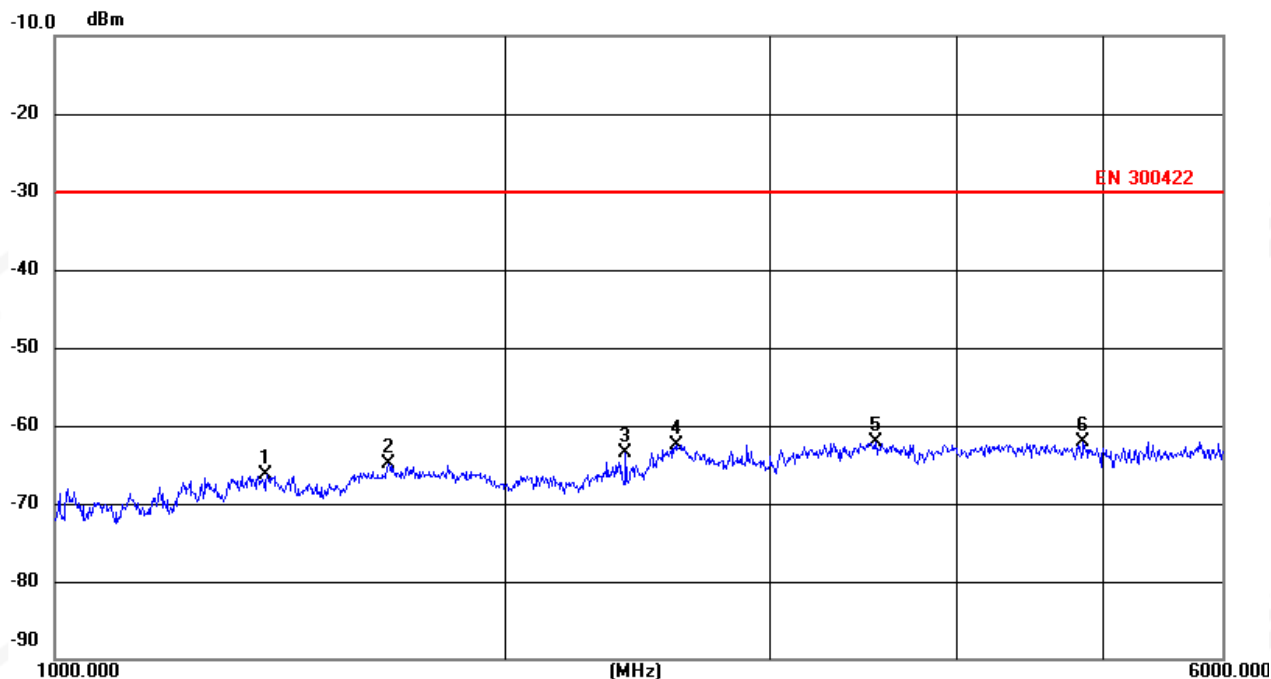
Remark:

1. Margin = Result (Result = Reading + Factor) – Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) – Amplifier gain

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	1388.039	-36.53	-27.52	-64.05	-30.00	-34.05	peak
2	1672.359	-36.46	-27.06	-63.52	-30.00	-33.52	peak
3 *	1829.098	-35.66	-26.84	-62.50	-30.00	-32.50	peak
4	2594.039	-39.06	-25.47	-64.53	-30.00	-34.53	peak
5	2893.635	-39.43	-25.05	-64.48	-30.00	-34.48	peak
6	3987.794	-40.05	-22.82	-62.87	-30.00	-32.87	peak



Temperature:	26 °C	Relative Humidity:	54 %
Test Voltage:	DC 3V	Phase:	Horizontal
Test Mode:	Mode 3		



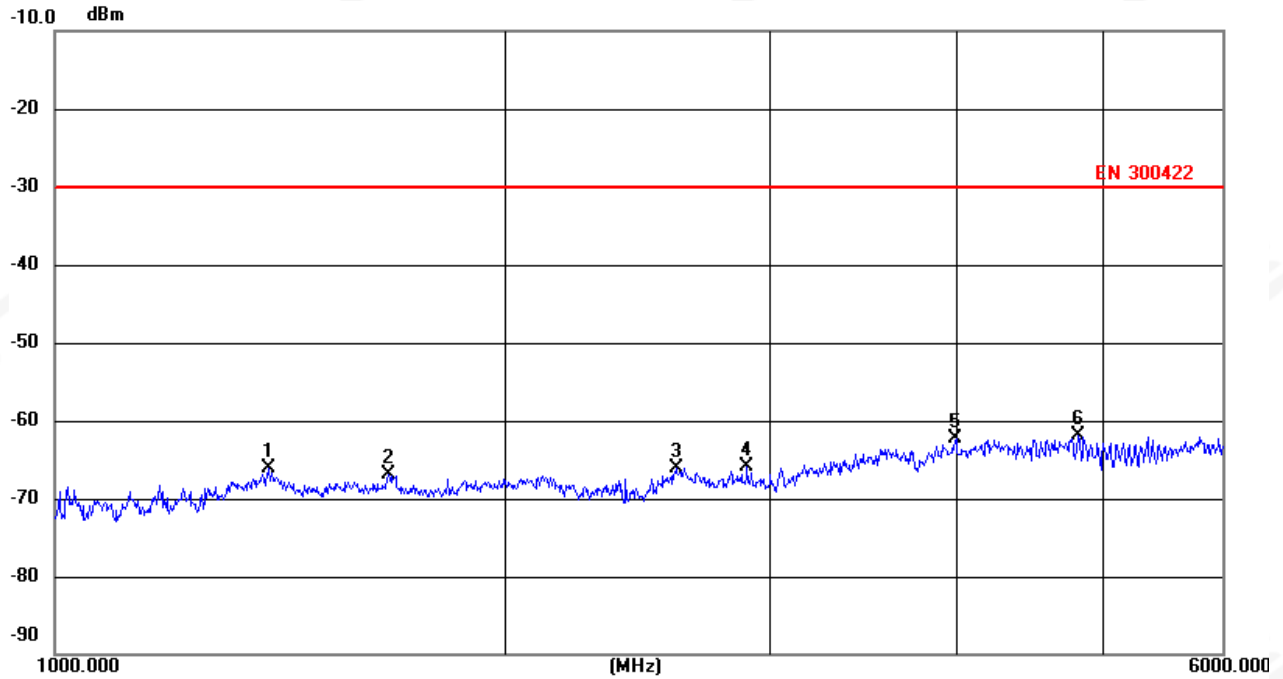
Remark:

1. Margin = Result (Result = Reading + Factor) – Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) – Amplifier gain

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	1385.554	-38.78	-27.53	-66.31	-30.00	-36.31	peak
2	1669.365	-37.91	-27.06	-64.97	-30.00	-34.97	peak
3	2401.684	-37.77	-25.80	-63.57	-30.00	-33.57	peak
4	2598.691	-36.97	-25.46	-62.43	-30.00	-32.43	peak
5 *	3524.036	-38.25	-23.75	-62.00	-30.00	-32.00	peak
6	4847.873	-41.87	-20.30	-62.17	-30.00	-32.17	peak



Temperature:	26 °C	Relative Humidity:	54 %
Test Voltage:	DC 3V	Phase:	Vertical
Test Mode:	Mode 3		



Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	1388.039	-38.53	-27.52	-66.05	-30.00	-36.05	peak
2	1669.365	-39.91	-27.06	-66.97	-30.00	-36.97	peak
3	2594.039	-40.56	-25.47	-66.03	-30.00	-36.03	peak
4	2893.635	-40.93	-25.05	-65.98	-30.00	-35.98	peak
5	3987.794	-39.55	-22.82	-62.37	-30.00	-32.37	peak
6 *	4804.636	-41.54	-20.41	-61.95	-30.00	-31.95	peak

3.3 EMISSION MASK

3.3.1 TEST LIMITS

- a. - According to Part 15.236 (g) and ETSI EN 300 422-1 V2.2.1 Clause 4.2.4.2
The transmitter output spectrum shall be within the mask defined in figure 1 where B is the declared channel bandwidth

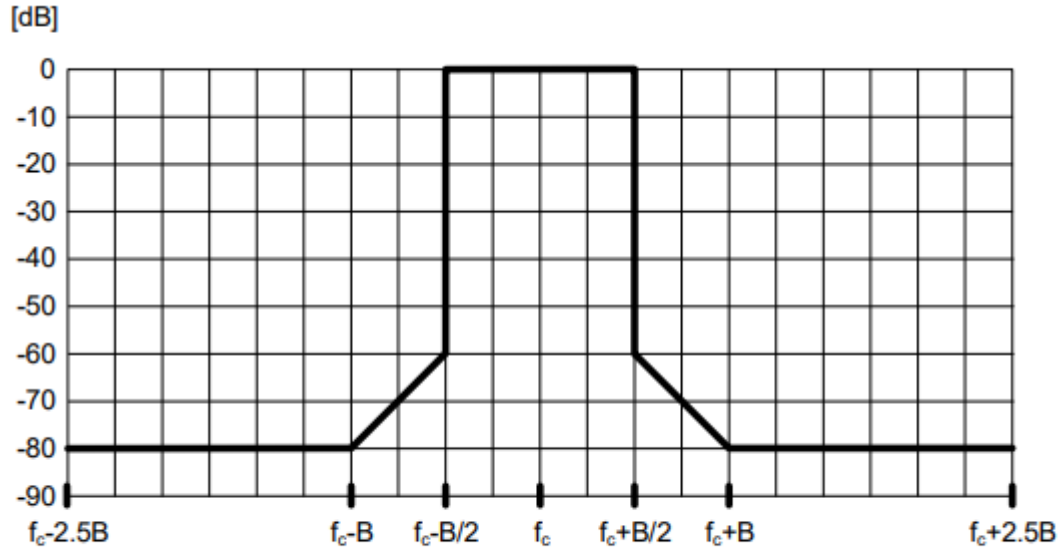


Figure 1: Transmit spectral power mask for equipment employing analogue modulation, RBW = 1 kHz



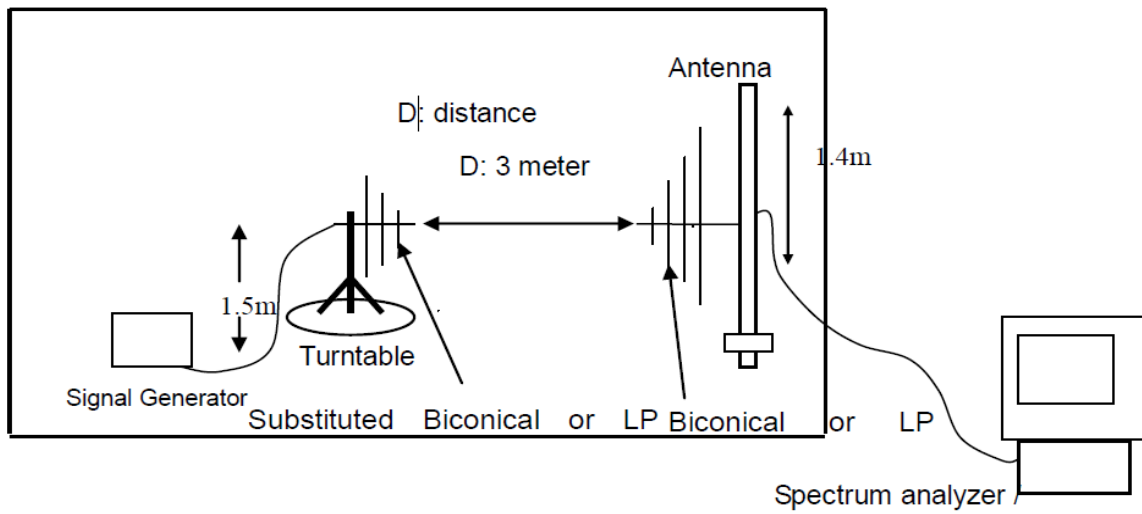
3.3.2 TEST PROCEDURE

- a. On a test site, the EUT shall be placed on a turntable and in the position closest to the normal use as declared by the user.
- b. The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.
- c. The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
- d. The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
- e. The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.
- f. The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- g. The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.
- h. The maximum signal level detected by the measuring receiver shall be noted.
 - i. The measurement shall be repeated with the test antenna set to horizontal polarization.
 - j. Replace the antenna with a proper Antenna (substitution antenna).
- k. The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.
- l. The substitution antenna shall be connected to a calibrated signal generator.
- m. If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- n. The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
- o. The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.
- p. The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
- q. The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

3.3.3 TEST CONFIGURATION

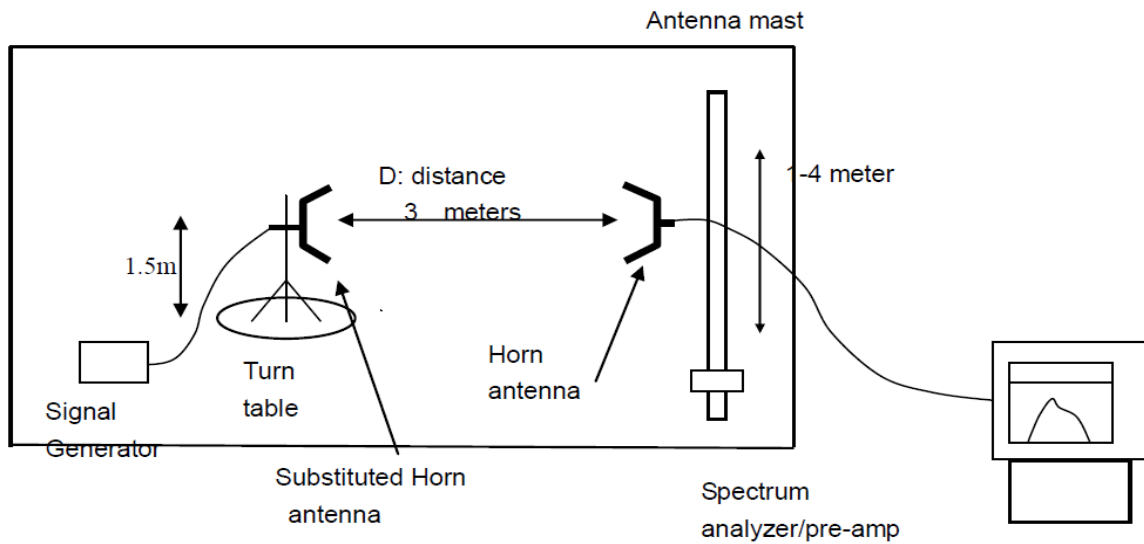
(A) Radiated Emission Test-Up Frequency Above 30MHz

Ground Plane



(B) Radiated Emission Test-Up Frequency Above 1GHz

Ground plane

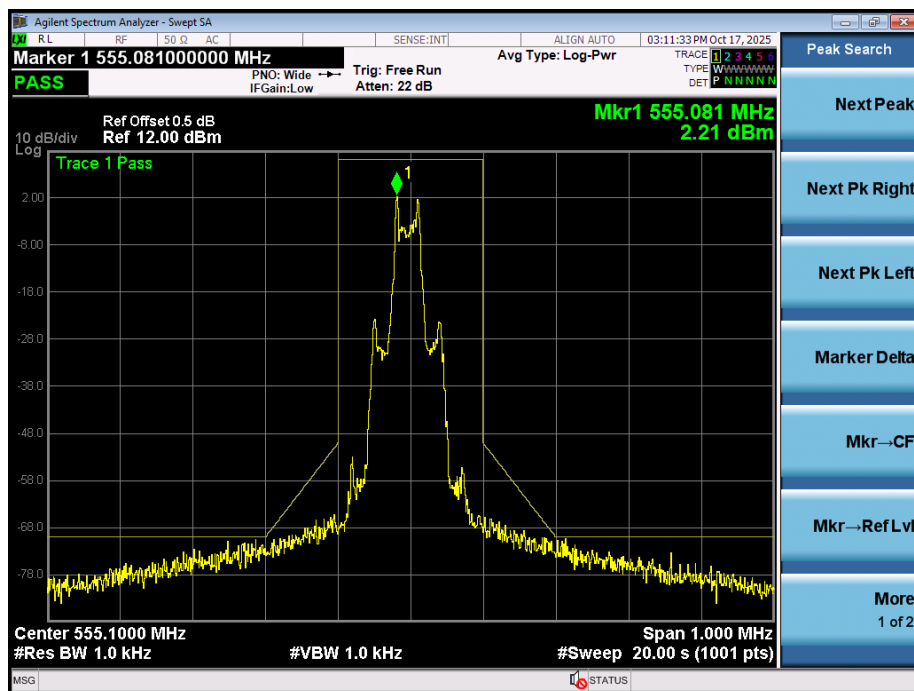
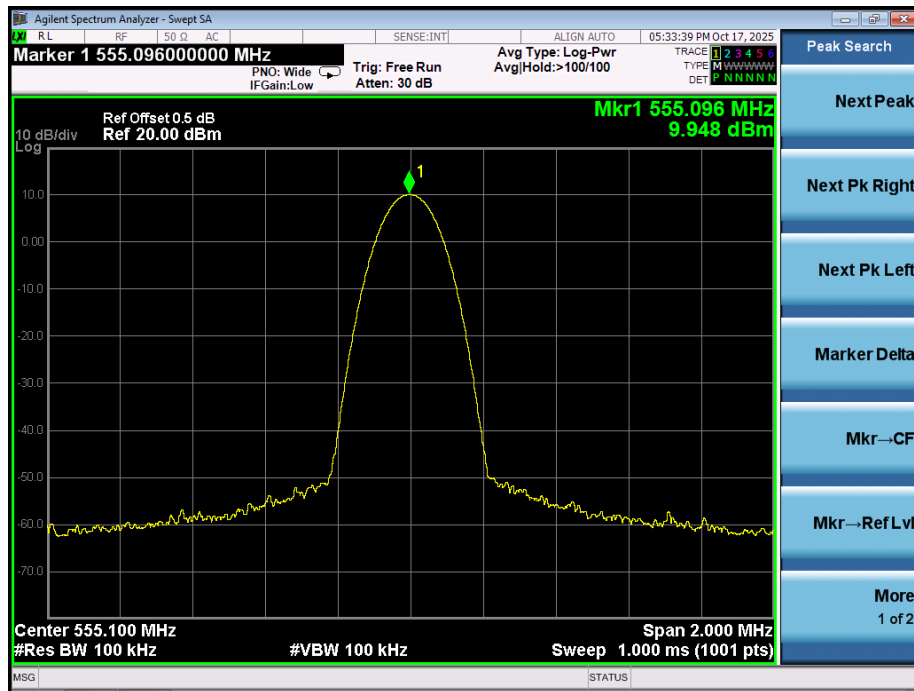




3.3.4 TEST RESULTS

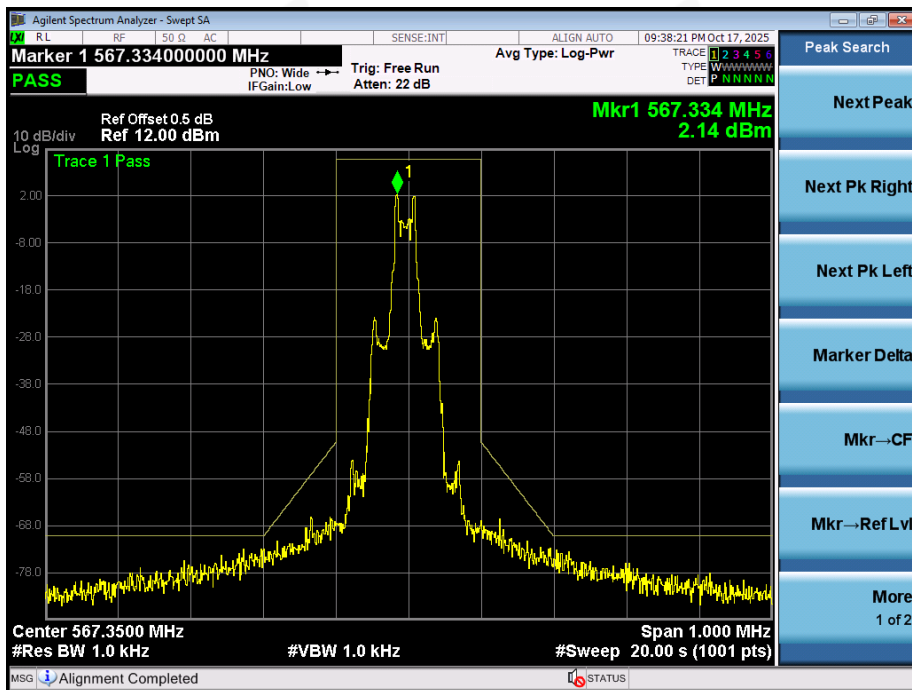
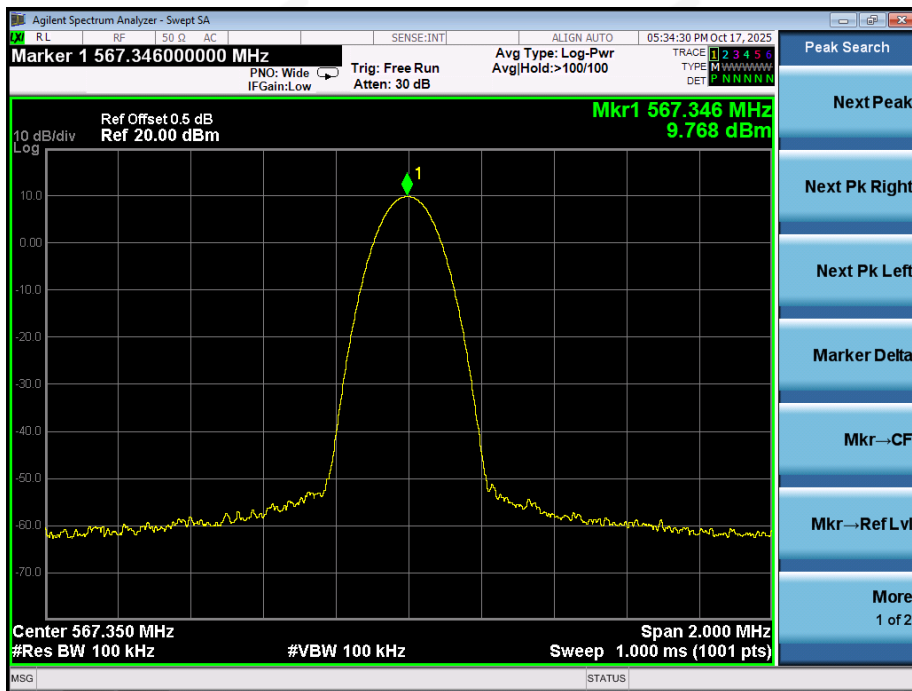
Emission Mask

Mode 1

Mask:
Channel 0

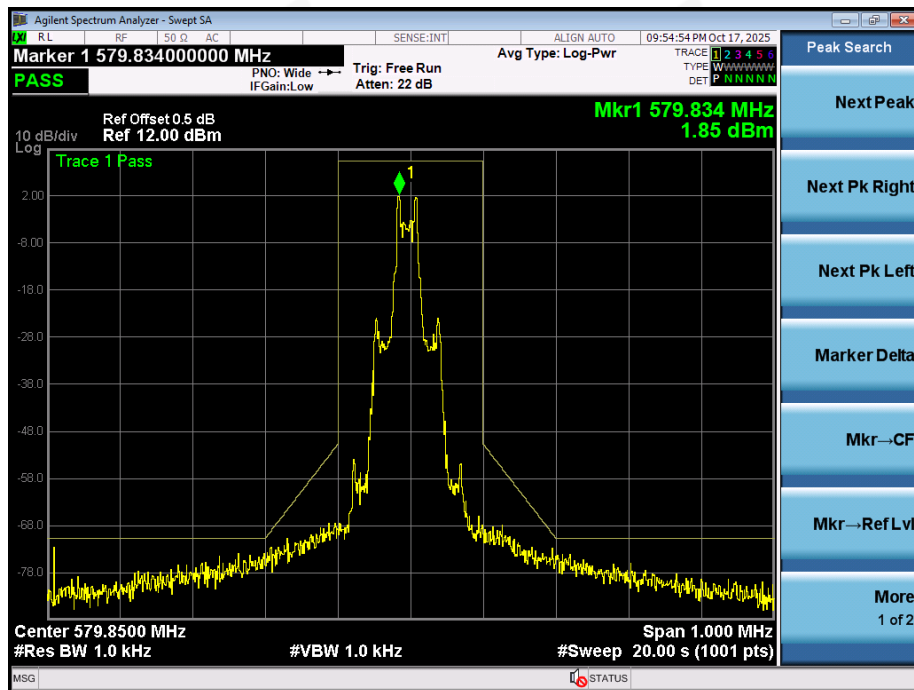
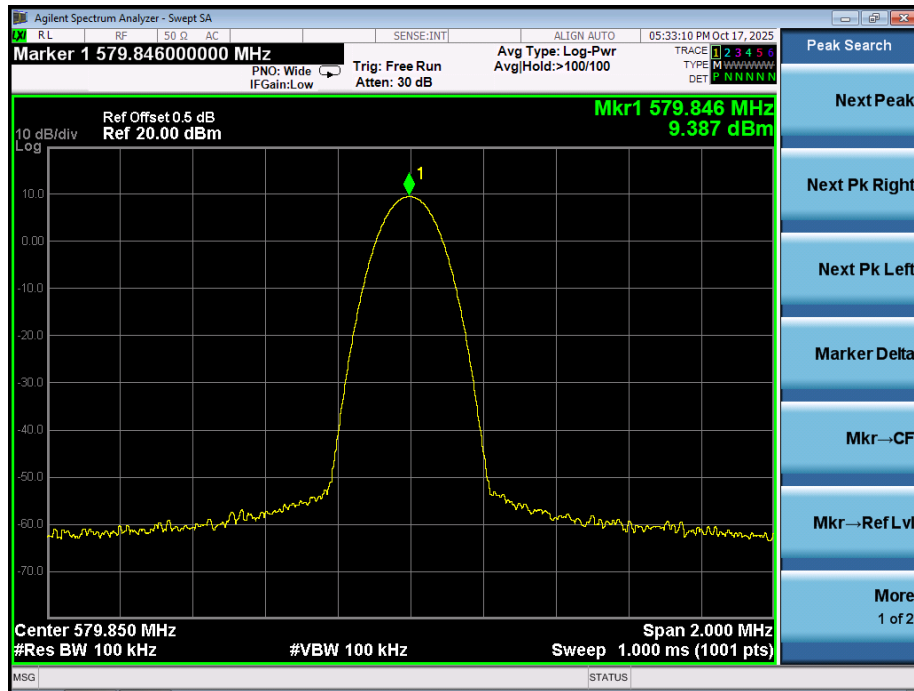


Channel 49





Channel 99

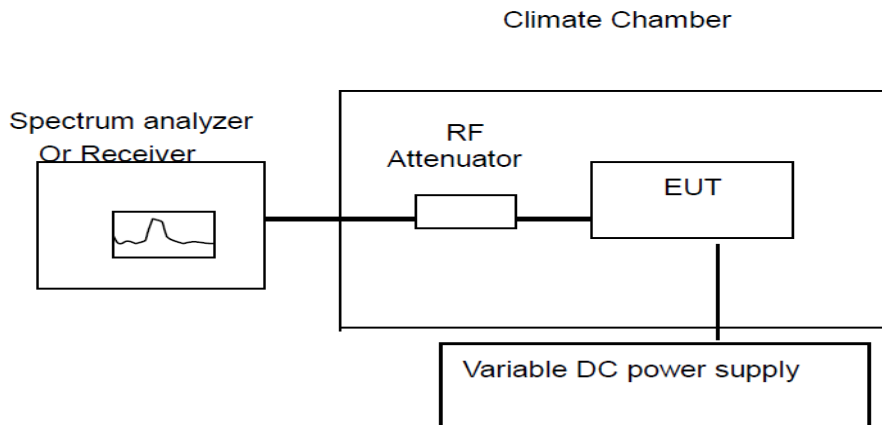


3.5 FREQUENCY STABILITY VS. TEMPERATURE & VOLTAGE

3.5.1 TEST LIMIT

According to Part 15.236 (f)(3), the frequency tolerance of the carrier signal shall be maintained within $\pm 0.005\%$ of the operating frequency over a temperature variation of -20 degrees to $+50$ degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. Battery operated equipment shall be tested using a new battery.

TEST CONFIGURATION



3.5.2 TEST PROCEDURE

The EUT was connected to an external DC power supply and the RF output was connected to a frequency counter via feed through attenuators. The EUT was placed inside the temperature chamber. The DC leads and the RF output cable, exited the chamber through an opening made for that purpose.

After the temperature stabilized the frequency output was recorded from the counter.

An external variable DC power supply was connected to the battery terminals of the equipment under test.

- b. For hand carried, battery powered equipment primary supply voltage was reduced to the battery operating end point as specified by the manufacturer. The output frequency was recorded for each battery voltage.



3.5.3 TEST RESULTS

- (1) Frequency stability versus input voltage (Supply Nominal voltage is DC 3V)
(2) Frequency stability versus input voltage (Supply battery operating end point which shall be specified by the manufacturer DC 3.3V)

Test conditions		Frequency Error(MHz)		
		555.1	567.35	579.85
T _{min} (-20°C)	V _{min} (2.7V)	555.0952	567.3455	579.8452
	V _{max} (3.3V)	555.0932	567.3449	579.8426
T(-20°C)	V _{nom} (3V)	555.0904	567.3421	579.8388
T(-10°C)	V _{nom} (3V)	555.0882	567.3385	579.8369
T(0°C)	V _{nom} (3V)	555.0858	567.3354	579.8360
T(10°C)	V _{nom} (3V)	555.0840	567.3322	579.8350
T _{nom} (20°C)	V _{nom} (3V)	555.0833	567.3313	579.8317
T(30°C)	V _{nom} (3V)	555.0826	567.3292	579.8316
T(40°C)	V _{nom} (3V)	555.0815	567.3267	579.8296
T _{max} (50°C)	V _{min} (2.7V)	555.0780	567.3252	579.8261
	V _{max} (3.3V)	555.0748	567.3214	579.8230
Max. frequency error (ppm)		-8.65	-7.93	-8.28
Limit (ppm)		±50ppm		



3.6 OCCUPIED BANDWIDTH

3.6.1 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting : RBW= 3KHz, VBW $\geq$ RBW, Sweep time = Auto.

3.6.2 TEST CONFIGURATION



3.6.3 EUT OPERATION CONDITIONS

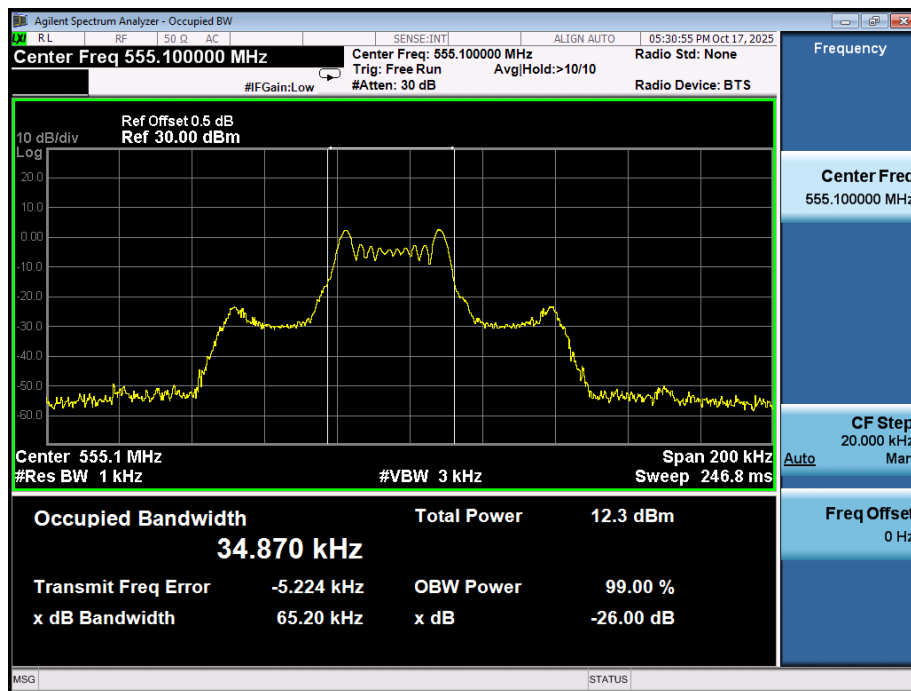
TX mode.

3.6.4 TEST RESULT

Mode 1

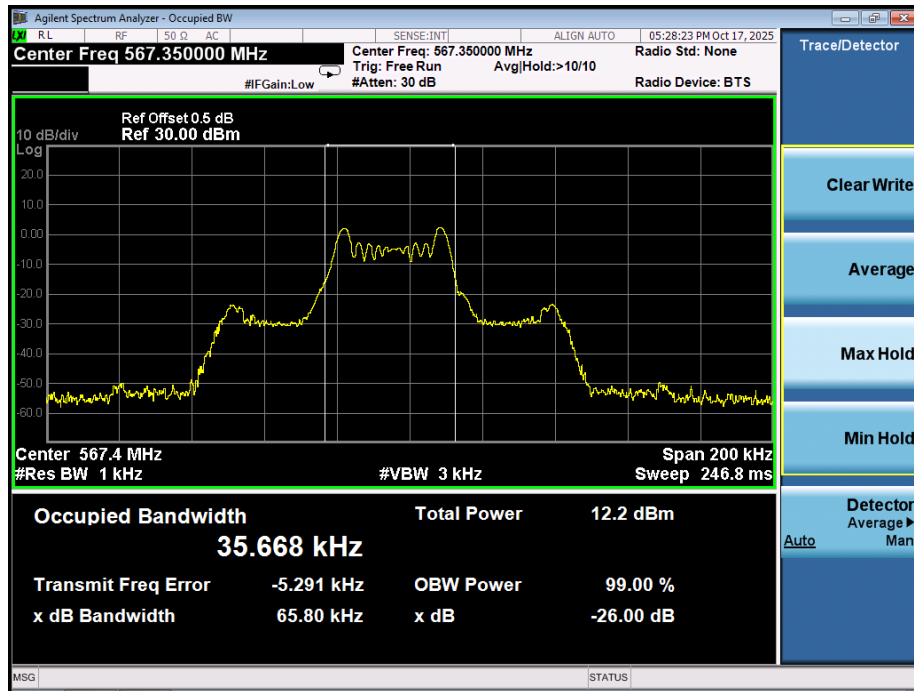
Test Channel	Frequency (MHz)	99% Bandwidth (kHz)	Limit (kHz)
0	555.1	34.870	200
49	567.35	35.668	200
99	579.85	35.189	200

Channel 0

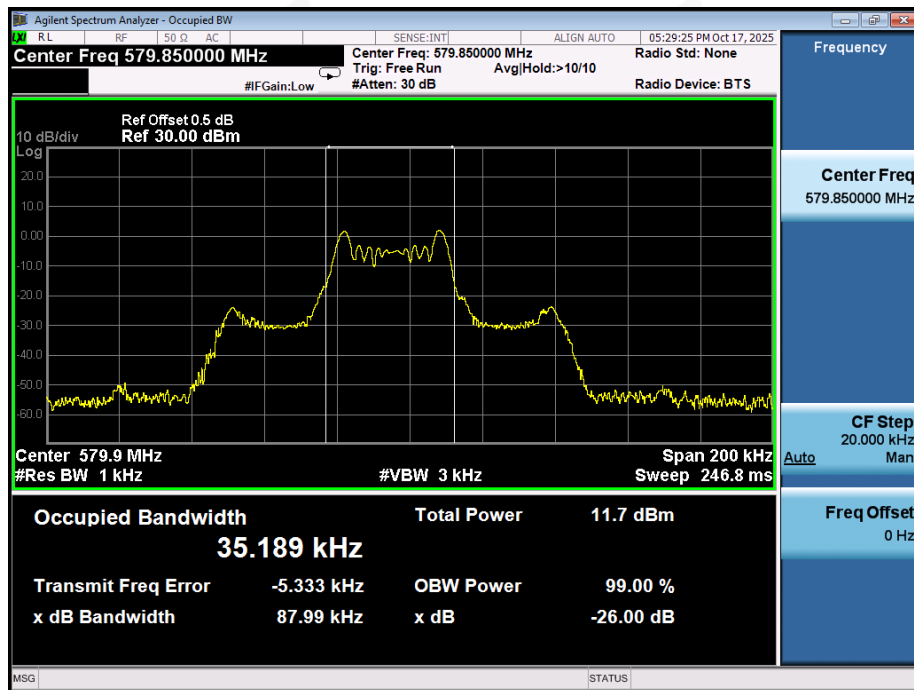




Channel 49



Channel 99



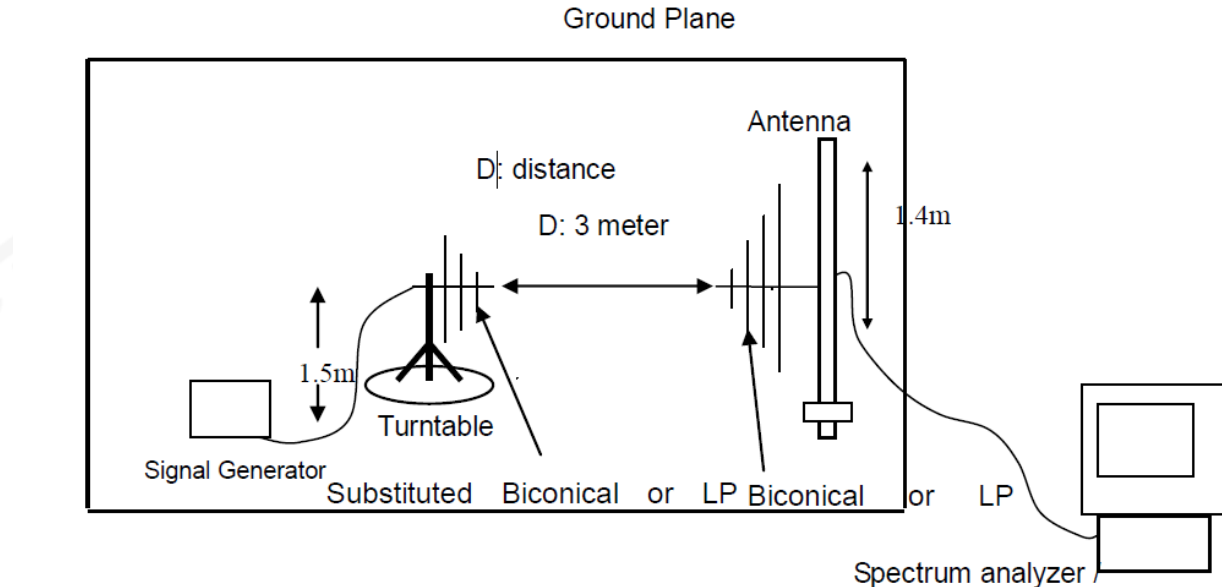
3.7 RADIATED POWER

3.7.1 TEST LIMIT

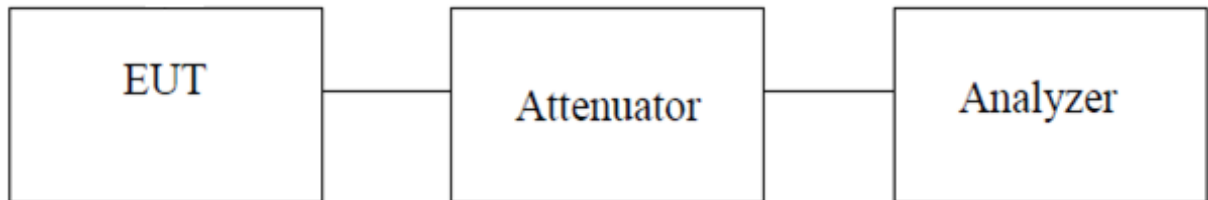
According to Part 15.236(d), the maximum radiated power shall not exceed the following:

- (1) In the bands allocated and assigned for broadcast television and in the 600 MHz service band: 50 mW EIRP
- (2) In the 600 MHz guard band and the 600 MHz duplex gap: 20 mW EIRP.

3.7.2 TEST CONFIGURATION



Conduction



3.7.3 TEST PROCEDURE

- a. On a test site, the EUT shall be placed on a turntable and in the position closest to the normal use as declared by the user.
- b. The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.
- c. The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
- d. The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
- e. The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.
- f. The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- g. The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.
- h. The maximum signal level detected by the measuring receiver shall be noted.
- i. The measurement shall be repeated with the test antenna set to horizontal polarization.



- j Replace the antenna with a proper Antenna (substitution antenna).
- k The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.
- l The substitution antenna shall be connected to a calibrated signal generator.
- m If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- n The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
- o The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.
- p The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
- q The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

3.7.4 TEST PROCEDURE (Conduction)

- a. The RF output of the transceiver was connected to the input of the spectrum analyzer through sufficient attenuation.
- b. Set the $RBW=3KHz$, $VBW>3 \times RBW$.
- c. Detector = peak.
- d. Sweep time = auto couple.
- e. Trace mode = max hold.
- f. Allow trace to fully stabilize.
- g. Use the peak marker function to determine the maximum amplitude level.

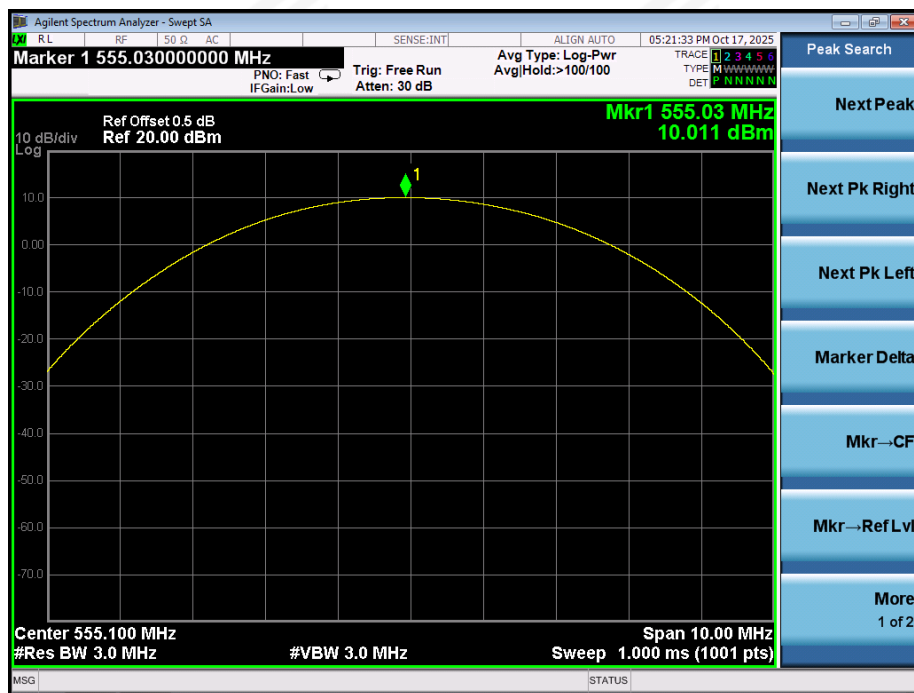


3.7.5 TEST RESULT

Frequency Channel (MHz)	Conducted Output Power (dBm)	Ant Gain (dBi)	EIRP (dBm)	EIRP (mW)	Limits (mW)
555.1	10.011	1.92	11.931	15.60	50
567.35	9.805	1.92	11.725	14.88	50
579.85	9.409	1.92	11.329	13.58	50

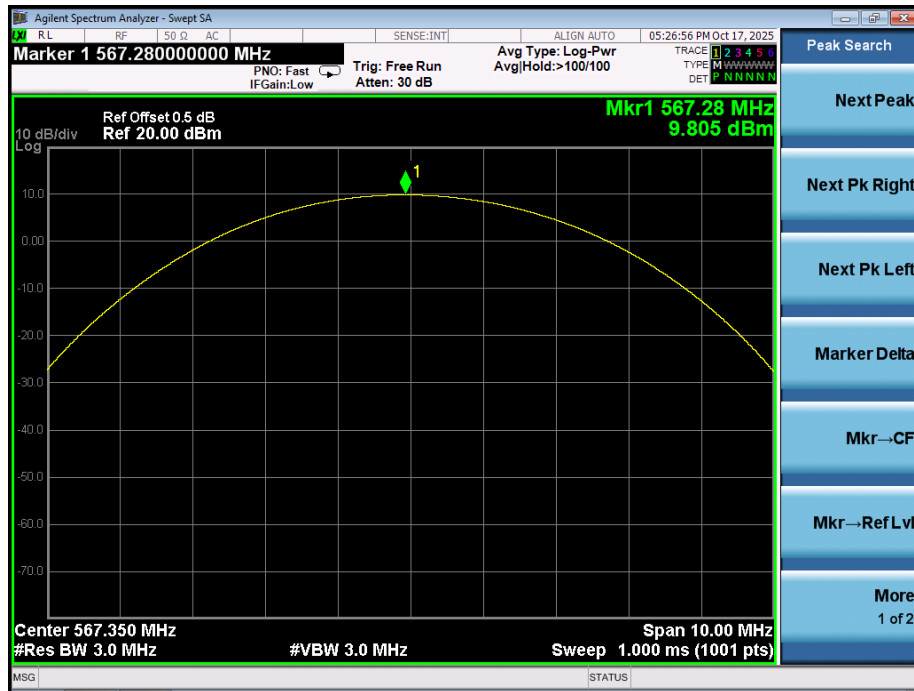
Mode 1

Channel 0

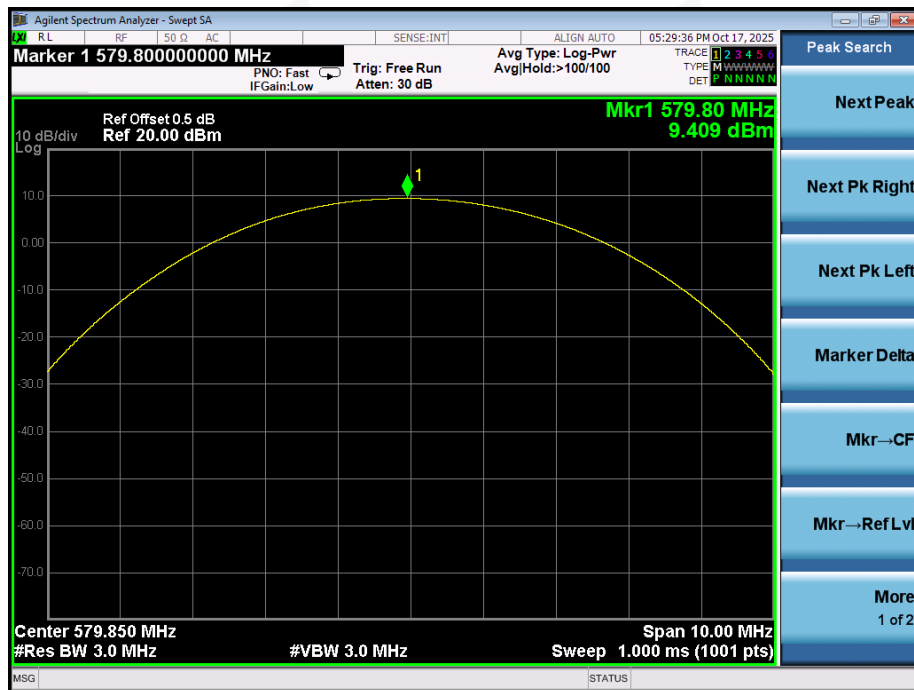




Channel 49



Channel 99





4. ANTENNA REQUIREMENT

4.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: 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.

4.2 EUT ANTENNA

The EUT antenna is Internal Antenna. It comply with the standard requirement.



PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

※※※※※END OF THE REPORT※※※※※