Oracle America, Inc

RF TEST REPORT

Report Type:
FCC Part 15.225 & RSS-210 RF report

Model:
MICROS Express Station 4

REPORT NUMBER:
200100153SHA-002

ISSUE DATE:
Feb 14, 2020

DOCUMENT CONTROL NUMBER:
TTRFFCCPART15C_V1 © 2018 Intertek

Intertek Testing Services Shanghai
Building No.86, 1198 Qinzhou Road (North)
Caohejing Development Zone
Shanghai 200233, China

Telephone: 86 21 6127 8200
www.intertek.com

Total Quality. Assured.

TEST REPORT

Report no.: 200100153SHA-002

Applicant	:	Oracle America, Inc 500 Oracle Parkway Redwood City, CA 94065 US
Manufacturer	:	Oracle America, Inc 500 Oracle Parkway Redwood City, CA 94065 US
Factory	:	GES Manufacturing Services (M) SDN BHD Plo 34 Fasa 2, Kawasan Perindustrian, Senai 81400, Johor, Malaysia
FCC ID	:	A4HEWS4
IC	:	9870A-EWS4

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

47CFR Part 15 (2018): Radio Frequency Devices (Subpart C)

RSS-210 (Issue 9): Licence-Exempt Radio Apparatus: Category I Equipment

RSS-Gen (Issue 5): General Requirements for Compliance of Radio Apparatus

ANSI C63.10 (2013): American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

PREPARED BY:	**REVIEWED BY:**
Project Engineer Stephanie Zhang	Reviewer Wakeyou Wang

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

Content

REVISION HISTORY 5
MEASUREMENT RESULT SUMMARY 6
1 GENERAL INFORMATION 7
1.1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT) 7
1.2 TECHNICAL SPECIFICATION 7
1.3 DESCRIPTION OF TEST FACILITY 8
2 TEST SPECIFICATIONS 9
2.1 STANDARDS OR SPECIFICATION 9
2.2 MODE OF OPERATION DURING THE TEST 9
2.3 TEST SOFTWARE LIST 9
2.4 TEST PERIPHERALS LIST 9
2.5 TEST ENVIRONMENT CONDITION: 9
2.6 INSTRUMENT LIST 10
2.7 MEASUREMENT UNCERTAINTY 11
3 FUNDAMENTAL EMISSION 12
3.1 LIMIT 12
3.2 MEASUREMENT PROCEDURE 12
3.3 TEST CONFIGURATION 13
3.4 TEST RESULTS OF FUNDAMENTAL EMISSIONS 14
4 SPURIOUS EMISSION 15
4.1 LIMIT 15
4.2 MEASUREMENT PROCEDURE 15
4.3 TEST CONFIGURATION 16
4.4 TEST RESULTS OF RADIATED EMISSIONS 18
5 FREQUENCY STABILITY (TEMPERATURE VARIATION) 20
5.1 TEST LIMIT 20
5.2 TEST CONFIGURATION 20
5.3 TEST PROCEDURE AND TEST SETUP 20
5.4 TEST PROTOCOL 21
6 FREQUENCY STABILITY (VOLTAGE VARIATION) 22
6.1 TEST LIMIT 22
6.2 TEST CONFIGURATION 22
6.3 TEST PROCEDURE AND TEST SETUP 22
6.4 TEST PROTOCOL 23
7 CONDUCTED EMISSIONS 24
7.1 LIMIT 24
7.2 TEST CONFIGURATION 24
7.3 MEASUREMENT PROCEDURE 25
7.4 TEST RESULTS OF CONDUCTED EMISSIONS 26
8 99% AND 20DB BANDWIDTH 28
8.1 LIMIT 28
8.2 TEST CONFIGURATION 28
8.3 TEST PROCEDURE AND TEST SET UP 29
8.4 TEST PROTOCOL 30

Total Quality. Assured.

TEST REPORT

9 ANTENNA REQUIREMENT..... 31

Total Quality. Assured.

TEST REPORT

Revision History

Report No.	Version	Description	Issued Date
200100153SHA-002	Rev. 01	Initial issue of report	Jan 20, 2020
200100153SHA-002	Rev. 02	The product name and model were modified	Feb 14, 2020

TEST REPORT

Measurement result summary

TEST ITEM	FCC REFERANCE	IC REFERANCE	RESULT
Fundamental emission	15.225(a) (b) (c)	RSS-210 Annex B.6(a) (b) (c)	Pass
Spurious emission	15.225(d)	RSS-210 Annex B.6(d)	Pass
Frequency stability	15.225(e)	RSS-210 Annex B.6(e)	Pass
Conducted emissions	15.207	RSS-GEN Clause 8.8	Pass
99% and 20dB Bandwidth	15.215(c)	RSS-GEN Clause 6.7	Pass
Antenna requirement	15.203	-	Pass

Notes: 1: NA =Not Applicable
2: Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.

TEST REPORT

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	Express Station
Type/Model:	MICROS Express Station 4
Description of EUT:	There is one model only. The RF function is assessed in this report. The device supports 802.11a/b/g/n/ac, Bluetooth and RFID functions. Among this report only 13.56MHz RFID was assessed.
Rating:	100-240VAC, 1.7A-0.8A, 50-60Hz
Category of EUT:	Class A
EUT type:	☒ Table top ☐ Floor standing
Software Version:	/
Hardware Version:	/
Sample received date:	June 14, 2019
Date of test:	June 14, 2019 – Jan 20, 2020

1.2 Technical Specification

Frequency Range:	13.56MHz ~ 13.56 MHz

1.3 Description of Test Facility

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN1175
	IC Registration Lab Registration code No.: 2042B-1
	VCCI Registration Lab Registration No.: R-4243, G-845, C-4723, T-2252
	NVLAP Accreditation Lab NVLAP LAB CODE: 200849-0
	A2LA Accreditation Lab Certificate Number: 3309.02

2 TEST SPECIFICATIONS

2.1 Standards or specification

47CFR Part 15 (2018)
RSS-210 (Issue 9)
RSS-Gen (Issue 5)
ANSI C63.10 (2013)

2.2 Mode of operation during the test

While testing, the internal modulation and continuously transmission was applied.

2.3 Test software list

Test Items	Software	Manufacturer	Version
Conducted emission	ESxS-K1	R&S	V2.1.0
Radiated emission	ES-K1	R&S	V1.71

2.4 Test peripherals list

Item No	Description	Band and Model	S/No
1	/	/	/

2.5 Test environment condition:

Test items	Temperature	Humidity
Radiated emission	18°C	54% RH
Power line conducted emission	18°C	54% RH

2.6 Instrument list

Radiated Emission					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Test Receiver	R&S	ESIB 26	EC 3045	2020-09-16
☒	Bilog Antenna	TESEQ	CBL 6112D	EC 4206	2020-12-09
☒	Pre-amplifier	R&S	AFS42-00101800-25-S-42	EC5262	2020-06-11
☒	Horn antenna	R&S	HF 906	EC 3049	2020-11-15
☒	Active loop antenna	Schwarzbeck	FMZB1519	EC 5345	2020-03-14
RF test					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	PXA Signal Analyzer	Keysight	N9030A	EC 5338	2020-03-04
☐	Power sensor	Agilent	U2021XA	EC 5338-1	2020-03-04
☐	Vector Signal Generator	Agilent	N5182B	EC 5175	2020-03-04
☒	Climate chamber	GWS	MT3065	EC 6021	2020-07-02
☐	Spectrum Analyzer	Keysight	N9030A	EC 6078	2020-6-11
Tet Site					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Shielded room	Zhongyu	-	EC 2838	2021-01-12
☐	Shielded room	Zhongyu	-	EC 2839	2021-01-12
☒	Semi-anechoic chamber	Albatross project	-	EC 3048	2020-06-31
☐	Fully-anechoic chamber	Albatross project	-	EC 3047	2020-06-31
Additional instrument					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Therom-Hygrograph	ZJ1-2A	S.M.I.F.	EC 3325	2020-04-07
Conducted Emission/Disturbance Power/Tri-loop Test/CDN method					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Test Receiver	R&S	ESCS 30	EC 2107	2020-07-14
☒	A.M.N.	R&S	ESH2-Z5	EC 3119	2019-11-29

2.7 Measurement uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2)
Conducted emission at mains ports	9kHz ~ 150kHz	3.52 dB
	150kHz ~ 30MHz	3.19 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	4.90 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.02 dB
	6GHz ~ 18GHz	5.28 dB

3 Fundamental Emission

Test result: **Pass**

3.1 Limit

Frequencies (MHz)	Limit at 30m (dBuV/m)	Limit at 3m (dBuV/m)
13.110 – 13.410	40.50	80.50
13.410 – 13.553	50.50	90.50
13.553 – 13.567	84.00	124.00
13.567 – 13.710	50.50	90.50
13.710 – 14.010	40.50	80.50

3.2 Measurement Procedure

a) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
b) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c) Both X and Y axes of the antenna are set to make the measurement.
d) For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e) The test-receiver system was set to PK Detect Function and Specified Bandwidth with Maximum Hold Mode.

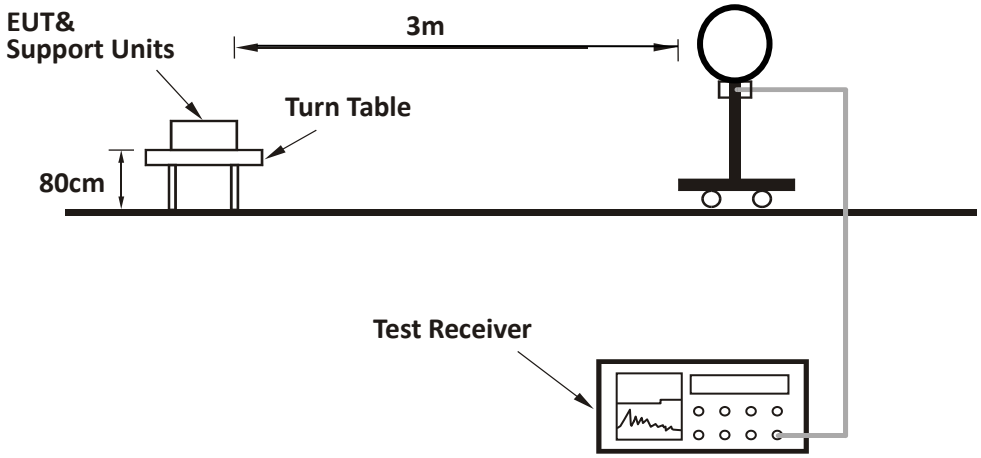
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

Total Quality. Assured.

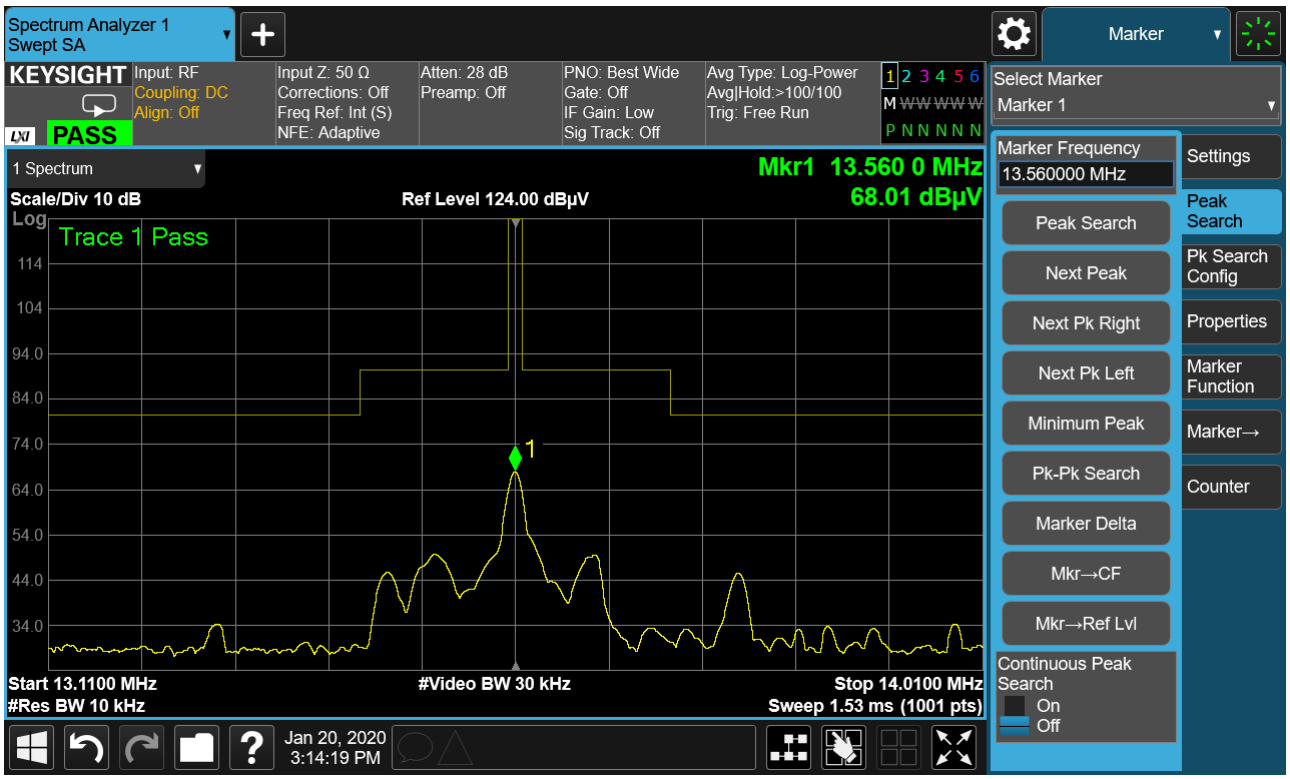
TEST REPORT

3.3 Test Configuration



TEST REPORT

3.4 Test Results of Fundamental Emissions



Antenna Polarization	Frequency (MHz)	Corrected Reading (dBuV/m)	Correct Factor (dB/m)	Limit (dBuV/m)	Margin	Detector
X	13.56	61.00	20.40	124.00	63.00	PK
Y	13.56	53.70	20.40	124.00	70.30	PK
Z	13.56	68.01	20.40	124.00	55.99	PK

Remark: 1. Correct Factor = Antenna Factor + Cable Loss (+ Amplifier, for higher than 1GHz), the value was added to Original Receiver Reading by the software automatically.
2. Corrected Reading = Original Receiver Reading + Correct Factor
3. Margin = Limit - Corrected Reading

Example: Assuming Antenna Factor = 30.20dB/m, Cable Loss = 2.00dB,
Gain of Preamplifier = 32.00dB, Original Receiver Reading = 10.00dBuV,
Limit = 40.00dBuV/m.
Then Correct Factor = 30.20 + 2.00 – 32.00 = 0.20dB/m;
Corrected Reading = 10dBuV + 0.20dB/m = 10.20dBuV/m;
Margin = 40.00dBuV/m - 10.20dBuV/m = 29.80dB.

TEST REPORT

4 Spurious Emission

Test result: **Pass**

4.1 Limit

Frequencies (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

4.2 Measurement Procedure

For Radiated emission below 30MHz:

f) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
g) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
h) Both X and Y axes of the antenna are set to make the measurement.
i) For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
j) The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

NOTE:

2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz:

a) The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
b) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c) The height of antenna is varied from one meter to four meters above the ground to determine the

maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d) For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e) The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

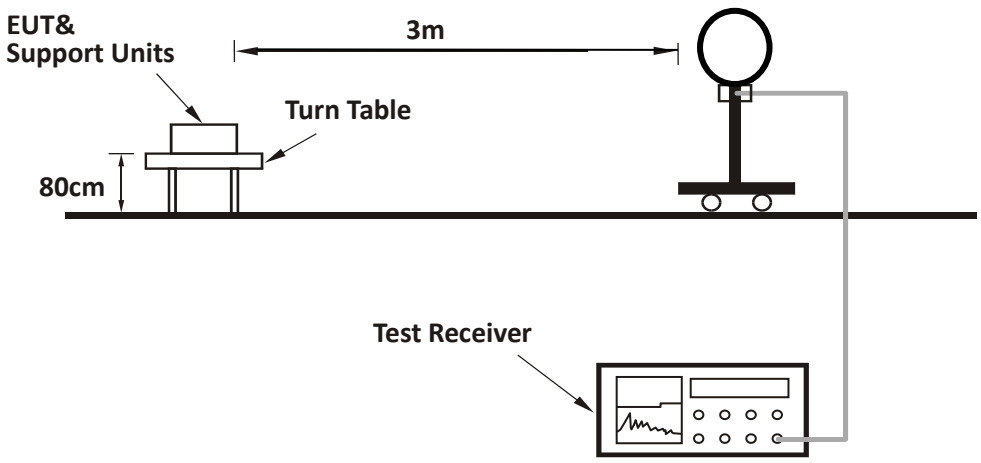
f) The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. All modes of operation were evaluated and the worst-case emissions were reported

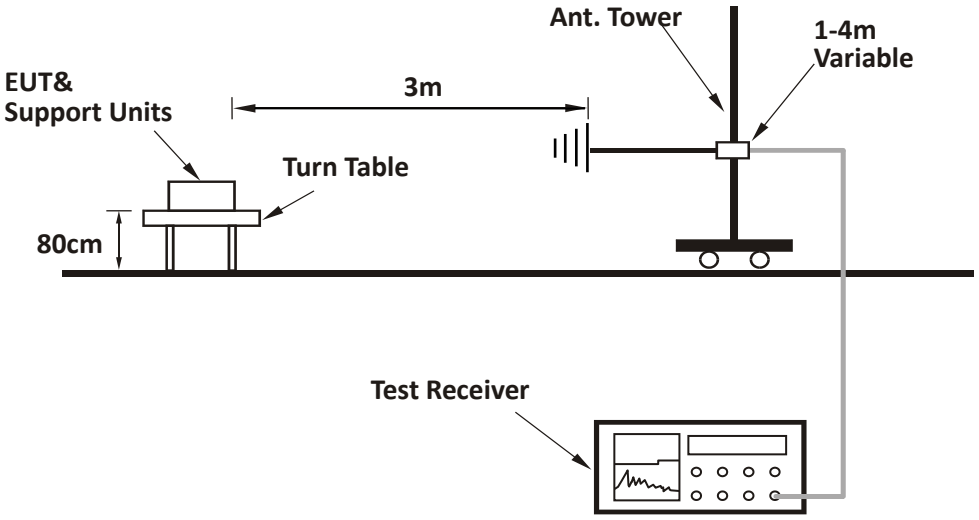
4.3 Test Configuration

For Radiated emission below 30MHz:

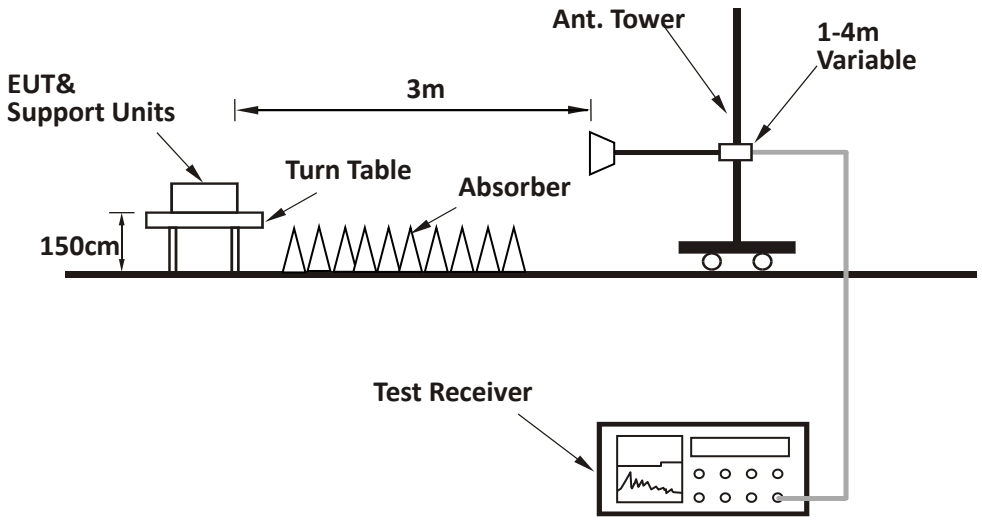


TEST REPORT

For Radiated emission 30MHz to 1GHz:



For Radiated emission above 1GHz:



4.4 Test Results of Radiated Emissions

Test data below 30MHz:

Antenna Polarization	Frequency (MHz)	Corrected Reading (dBuV/m)	Correct Factor (dB/m)	Limit (dBuV/m)	Margin	Detector	Remark
X	1.167	45.90	20.20	66.26	20.36	PK	Spurious
X	1.525	38.60	20.20	63.94	25.34	PK	Spurious
X	2.423	38.20	20.30	69.50	31.30	PK	Spurious
Y	3.081	33.10	20.30	69.50	36.40	PK	Spurious
Y	4.457	33.60	20.30	69.50	35.90	PK	Spurious
Y	7.328	44.20	20.20	69.50	25.30	PK	Spurious
Y	7.986	32.40	20.20	69.50	37.10	PK	Spurious
Y	26.650	30.40	20.60	69.50	39.10	PK	Spurious
Z	6.789	30.10	20.20	69.50	39.40	PK	Spurious

Test data from 30MHz to 1000MHz:

Antenna Polarization	Frequency (MHz)	Corrected Reading (dBuV/m)	Correct Factor (dB/m)	Limit (dBuV/m)	Margin	Detector
H	70.821	37.30	7.40	49.00	11.70	PK
H	140.801	32.90	12.50	53.50	20.60	PK
H	212.725	39.40	10.90	53.50	14.10	PK
H	342.965	37.80	16.20	56.50	18.70	PK
H	354.629	45.40	16.60	56.50	11.10	PK
H	652.044	43.90	21.30	56.50	12.60	PK
H	2478.957	58.10	-4.10	79.50	21.40	PK
H	6717.434	48.90	7.30	79.50	30.60	PK
V	37.775	37.30	14.50	49.00	11.70	PK
V	70.821	39.70	7.40	49.00	9.30	PK
V	86.372	32.10	9.30	49.00	16.90	PK
V	453.767	39.10	18.80	56.50	17.40	PK
V	568.456	45.80	20.50	56.50	10.70	PK
V	881.422	49.40	23.60	56.50	7.10	PK
V	3164.328	51.70	-3.00	79.50	27.80	PK
V	7961.923	48.70	9.30	79.50	30.80	PK

Remark: 1. Correct Factor = Antenna Factor + Cable Loss (+ Amplifier, for higher than 1GHz), the value was added to Original Receiver Reading by the software automatically.
2. Corrected Reading = Original Receiver Reading + Correct Factor
3. Margin = Limit - Corrected Reading
4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.

TEST REPORT

Example: Assuming Antenna Factor = 30.20dB/m, Cable Loss = 2.00dB,
Gain of Preamplifier = 32.00dB, Original Receiver Reading = 10.00dBuV,
Limit = 40.00dBuV/m.
Then Correct Factor = 30.20 + 2.00 – 32.00 = 0.20dB/m;
Corrected Reading = 10dBuV + 0.20dB/m = 10.20dBuV/m;
Margin = 40.00dBuV/m - 10.20dBuV/m = 29.80dB.

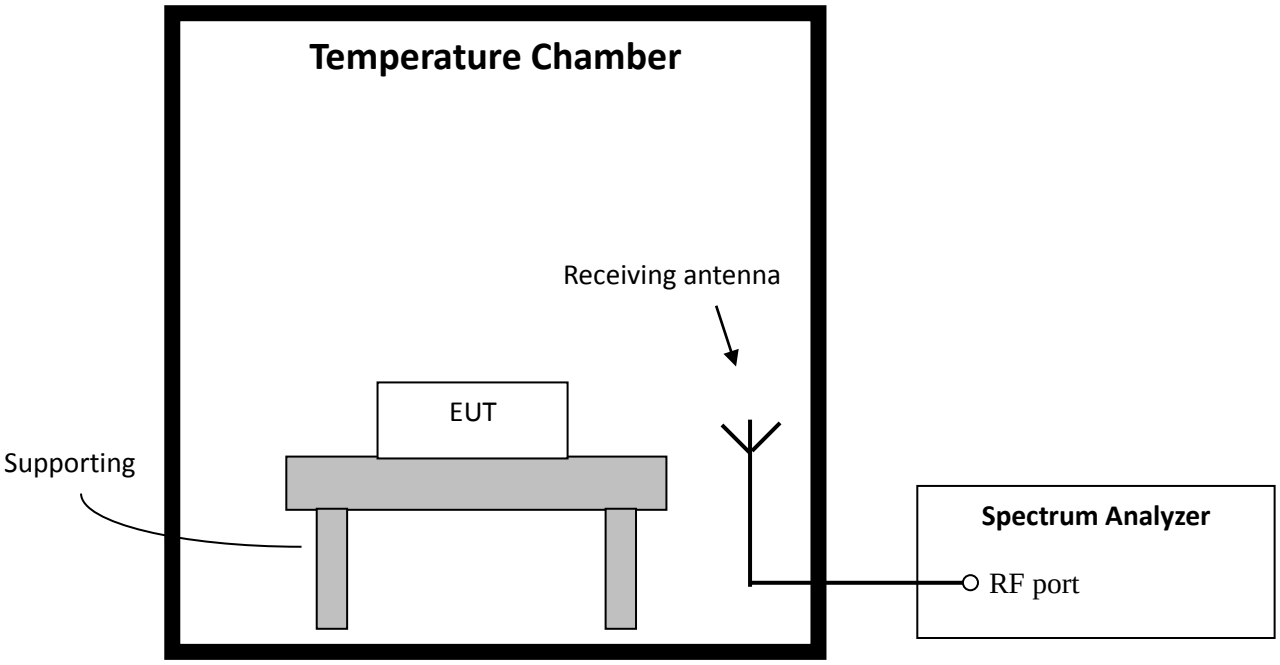
5 Frequency Stability (Temperature Variation)

Test result: PASS

5.1 Test limit

The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of −20 degrees to +50 degrees C at normal supply voltage.

5.2 Test Configuration



5.3 Test procedure and test setup

Test Procedure as per ANSI 63.10 clause 6.8.1.

TEST REPORT

5.4 Test protocol

Voltage (V)	Temp (ºC)	Freq measured (MHz)	Freq nominal (MHz)	Tolerance (%)	Limit (%)
120	-20	13.559	13.560	0.007	0.01
	-10	13.559		0.007	
	0	13.560		0	
	10	13.560		0	
	20	13.560		0	
	30	13.560		0	
	40	13.560		0	
	50	13.559		0.007	

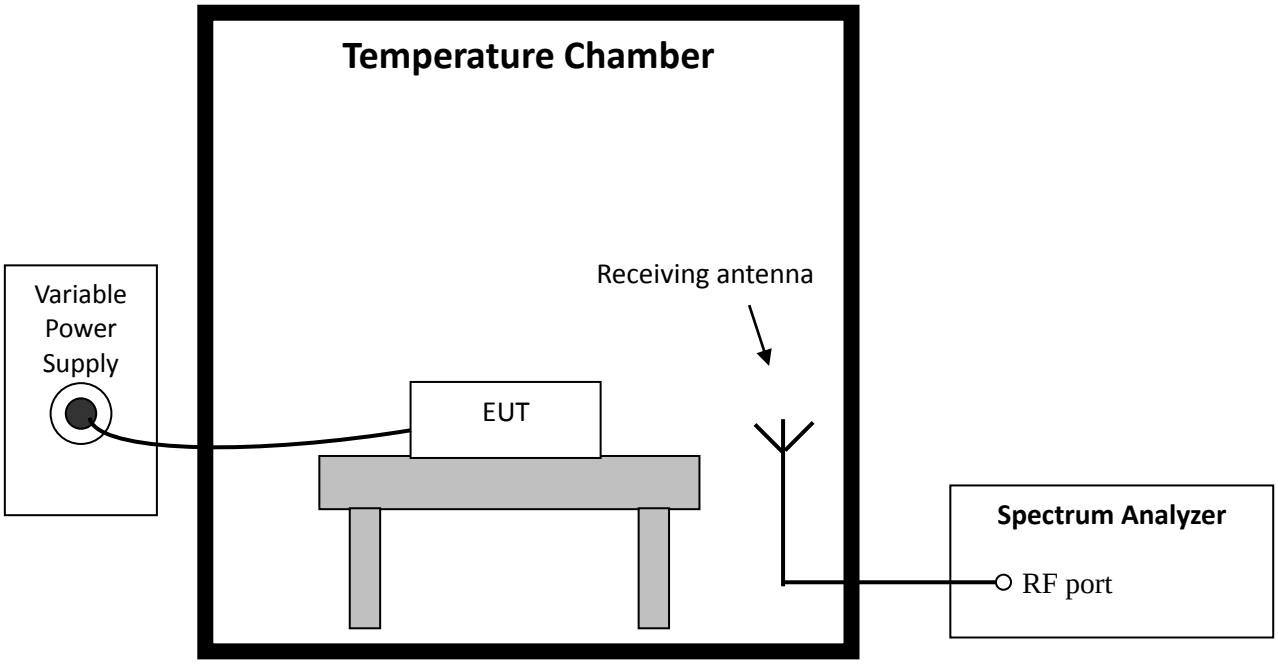
6 Frequency Stability (Voltage Variation)

Test result: PASS

6.1 Test limit

The frequency tolerance of the carrier signal shall be maintained within ±0.01% for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

6.2 Test Configuration



6.3 Test procedure and test setup

Test Procedure as per ANSI 63.10 clause 6.8.2.

TEST REPORT

6.4 Test protocol

Temp (ºC)	Voltage (V)	Freq Measured (MHz)	Freq nominal (MHz)	Tolerance (%)	Limit (%)
20	120	13.560	13.560	0	0.01
	102	13.559		0.007	
	138	13.559		0.007	

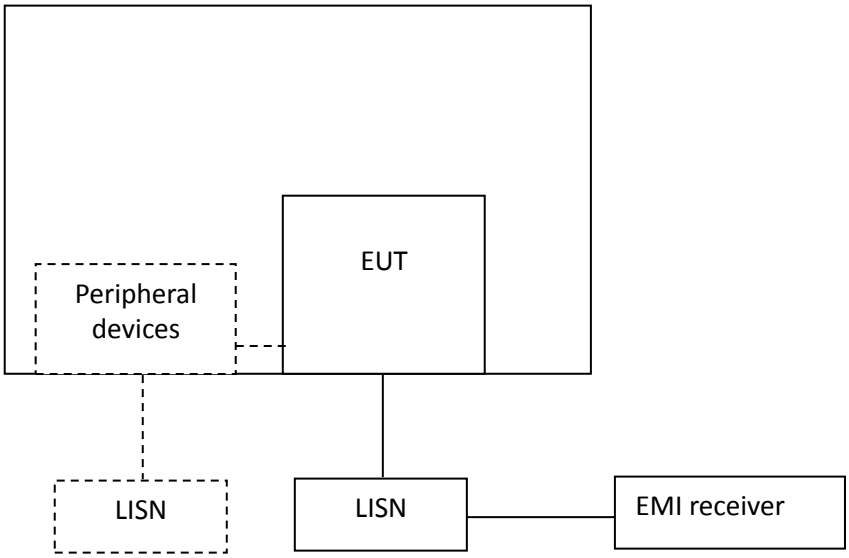
7 Conducted emissions

Test result: **Pass**

7.1 Limit

Frequency of Emission (MHz)	Conducted Emissions Limit (dBuV)	
	QP	AV
0.15 ~ 0.5	79	66
0.5 ~ 30	73	60
* Decreases with the logarithm of the frequency.		

7.2 Test Configuration



7.3 Measurement Procedure

Measured levels of ac power-line conducted emission shall be the emission voltages from the voltage probe, where permitted, or across the 50 Ω LISN port (to which the EUT is connected), where permitted, terminated into a 50 Ω measuring instrument. All emission voltage and current measurements shall be made on each current-carrying conductor at the plug end of the EUT power cord by the use of mating plugs and receptacles on the LISN, if used. Equipment shall be tested with power cords that are normally supplied or recommended by the manufacturer and that have electrical and shielding characteristics that are the same as those cords normally supplied or recommended by the manufacturer. For those measurements using a LISN, the 50 Ω measuring port is terminated by a measuring instrument having 50 Ω input impedance. All other ports are terminated in 50 Ω loads.

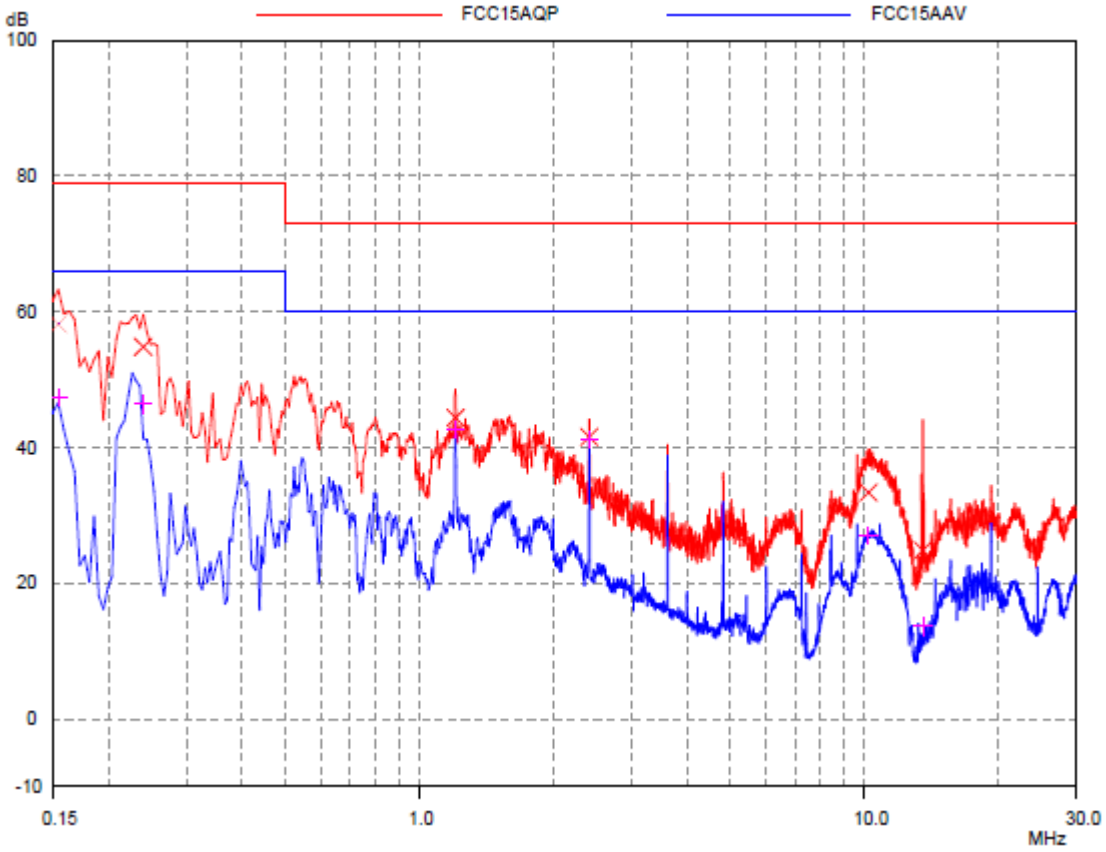
Tabletop devices shall be placed on a platform of nominal size 1 m by 1.5 m, raised 80 cm above the reference ground plane. The vertical conducting plane or wall of an RF-shielded (screened) room shall be located 40 cm to the rear of the EUT. Floor-standing devices shall be placed either directly on the reference ground-plane or on insulating material as described in ANSI C63.4. All other surfaces of tabletop or floor-standing EUTs shall be at least 80 cm from any other grounded conducting surface, including the case or cases of one or more LISNs.

The bandwidth of the test receiver is set at 9 kHz.

TEST REPORT

7.4 Test Results of Conducted Emissions

L-Line

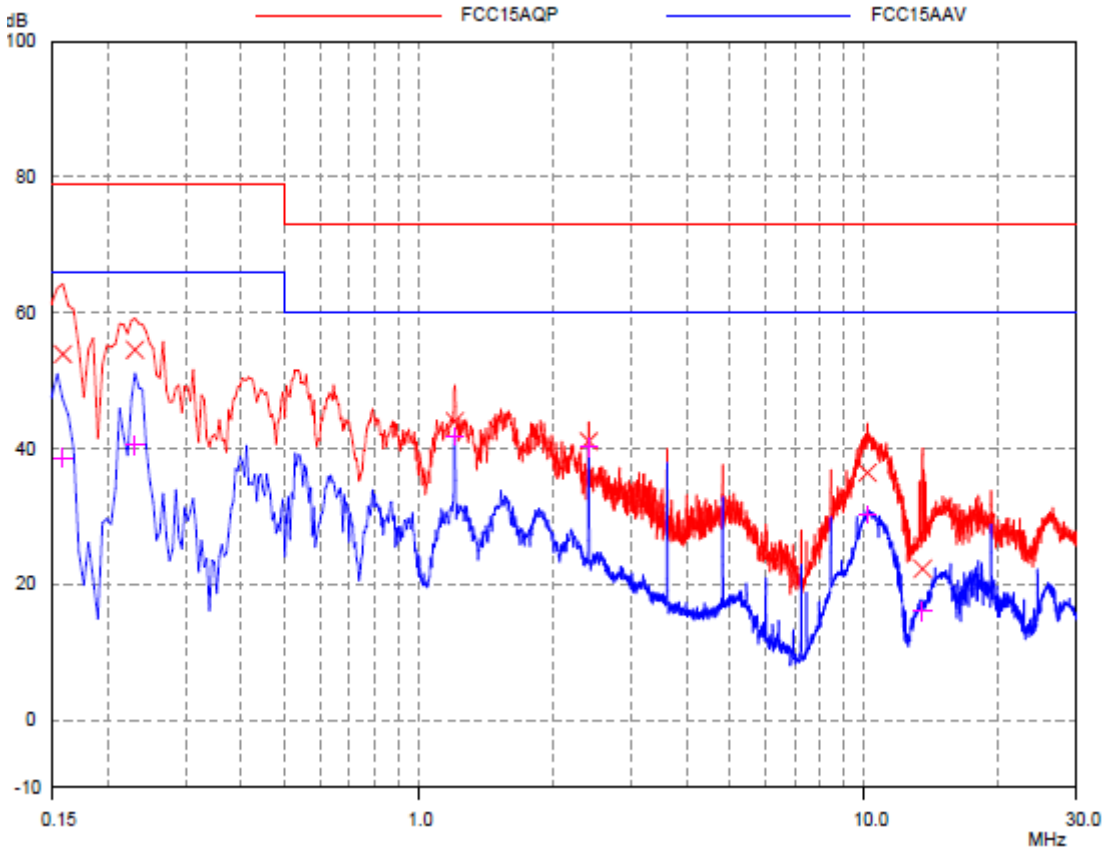


Frequency MHz	QP Level dB	QP Limit dB	QP Delta dB
0.1545	58.19	79.00	20.81
0.24	54.83	79.00	24.17
1.2075	44.37	73.00	28.63
2.4135	41.57	73.00	31.43
10.2525	33.36	73.00	39.64
13.569	24.84	73.00	48.16

Frequency MHz	AV Level dB	AV Limit dB	AV Delta dB
0.1545	47.41	66.00	18.59
0.24	46.37	66.00	19.63
1.2075	42.67	60.00	17.33
2.4135	41.15	60.00	18.85
10.2525	27.00	60.00	33.00
13.569	13.66	60.00	46.34

TEST REPORT

N-Line



Frequency MHz	QP Level dB	QP Limit dB	QP Delta dB
0.159	53.90	79.00	25.10
0.231	54.53	79.00	24.47
1.2075	44.03	73.00	28.97
2.4135	41.09	73.00	31.91
10.194	36.40	73.00	36.60
13.5465	22.28	73.00	50.72

Frequency MHz	QP Level dB	QP Limit dB	QP Delta dB
0.159	38.59	66.00	27.41
0.231	40.53	66.00	25.47
1.2075	41.82	60.00	18.18
2.4135	40.19	60.00	19.81
10.194	30.29	60.00	29.71
13.5465	15.97	60.00	44.03

Remark: 1. Correct Factor = LISN Factor + Cable Loss, the value was added to Original Receiver Reading by the software automatically.
2. Corrected Reading = Original Receiver Reading + Correct Factor
3. Margin = Limit - Corrected Reading
4. If the PK Corrected Reading is lower than AV limit, the AV test can be elided.

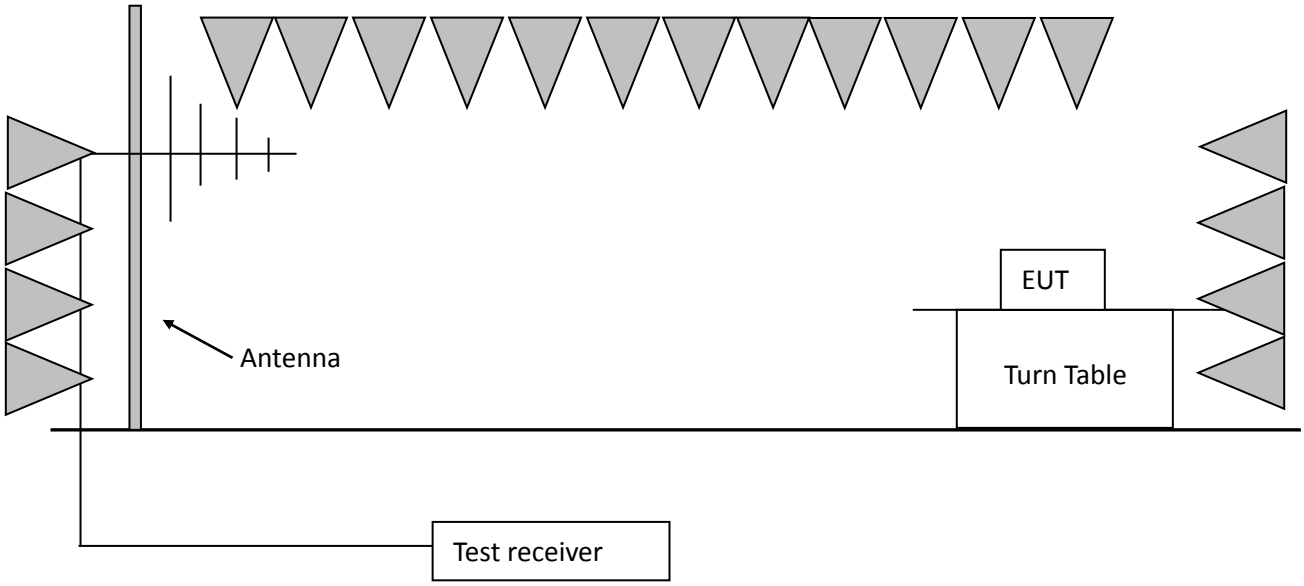
8 99% and 20dB Bandwidth

Test result: Pass

8.1 Limit

The 20dB bandwidth should be fallen in the allocated operating frequency range.
No limit for 99% bandwidth.

8.2 Test configuration



TEST REPORT

8.3 Test procedure and test set up

The measurement was applied in a 3m semi-anechoic chamber.

The center of the loop antenna shall be 1 m above the horizontal metal ground plane.

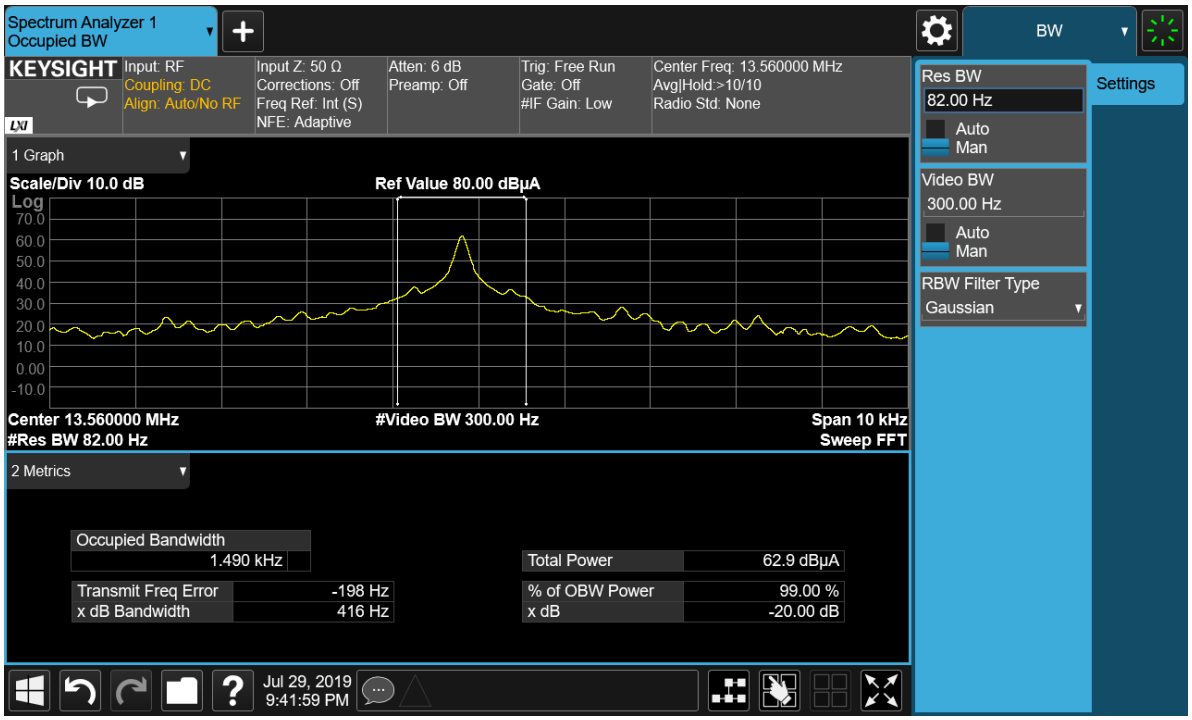
The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set RBW = 1 % to 5 % of the OBW
3. Set VBW ≥ 3 · RBW
4. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
5. Use the 99 % power bandwidth function of the instrument (if available).
6. the 20dB bandwidth is also measured with the same setting.

TEST REPORT

8.4 Test protocol

	Lower point (MHz)	Higher point (MHz)	Bandwidth (kHz)	Allocated bandwidth (MHz)
99% Bandwidth	13.5592	13.5607	1.49	/
20dB Bandwidth	13.5597	13.5601	0.42	13.553 ~ 13.567



9 Antenna requirement

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.

Result:
EUT uses permanently attached antenna to the intentional radiator, so it can comply with the provisions of this section.

********** END **********