



CERTIFICATION TEST REPORT

Report Number. : 4791130549-FR2V1

Applicant : BH EVS Co.,Ltd
5, Magokjungang 8-ro 5-gil, Gangseo-gu, Seoul, 07794 Republic of Korea

Model : WCSTE40A

FCC ID : 2A6WXWCSTE40A

EUT Description : Wireless Charger

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C

Date Of Issue:
2024-02-28

Prepared by:
UL KOREA LTD.

26th floor, 152, Teheran-ro, Gangnam-gu Seoul, 06236, Korea

Suwon Test Site: UL KOREA LTD. Suwon Laboratory
218 Maeyeong-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16675, Korea
TEL: (031) 337-9902
FAX: (031) 213-5433



Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2024-02-28	Initial issue	SunGeun Lee

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	4
2. TEST METHODOLOGY	5
3. FACILITIES AND ACCREDITATION	5
4. CALIBRATION AND UNCERTAINTY	6
4.1. <i>MEASURING INSTRUMENT CALIBRATION.....</i>	6
4.2. <i>SAMPLE CALCULATION.....</i>	6
4.3. <i>MEASUREMENT UNCERTAINTY</i>	6
4.4. <i>DECISION RULE</i>	6
5. EQUIPMENT UNDER TEST	7
5.1. <i>DESCRIPTION OF EUT.....</i>	7
5.2. <i>MAXIMUM E-FIELD STRENGTH.....</i>	7
5.3. <i>WORST-CASE CONFIGURATION AND MODE</i>	7
5.4. <i>DESCRIPTION OF TEST SETUP</i>	8
6. TEST AND MEASUREMENT EQUIPMENT	9
7. 20dB & 99% BANDWIDTH.....	10
8. RADIATED EMISSION TEST RESULTS.....	11
8.1. <i>LIMITS AND PROCEDURE</i>	11
8.1.1. <i>FUNDAMENTAL AND SPURIOUS EMISSIONS (0.15 – 30 MHz)</i>	13
8.1.2. <i>SPURIOUS EMISSION 0.009 TO 30 MHz</i>	15
8.1.3. <i>TX SPURIOUS EMISSION 30 TO 1000 MHz</i>	17
9. FREQUENCY STABILITY	19

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: BH EVS Co.,Ltd
EUT DESCRIPTION: Wireless Charger
MODEL NUMBER: WCSTE40A
SERIAL NUMBER: Proto Type (RADIATED)
DATE TESTED: 2023-12-18 ~ 2024-02-28

APPLICABLE STANDARDS		TEST RESULTS
STANDARD		
CFR 47 Part 15 Subpart C		Complies

UL KOREA LTD. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL KOREA LTD. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL KOREA LTD. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL KOREA LTD. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL KOREA LTD. By:



Seokhwan Hong
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:



Sungeun Lee
Suwon Lab Engineer
UL Korea, Ltd.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with following methods.

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 15.
3. ANSI C63.10-2013.
4. KDB 414788 D01 Radiated Test Site v01r01

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea. Line conducted emissions are measured only at the 218 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

218 Maeyeong-ro	
<input type="checkbox"/>	Chamber 1(3m semi-anechoic chamber)
<input checked="" type="checkbox"/>	Chamber 2(3m semi-anechoic chamber)
<input type="checkbox"/>	Chamber 3(3m semi-anechoic chamber)
<input type="checkbox"/>	Chamber 4(3m Full-anechoic chamber)
<input type="checkbox"/>	Chamber 5(3m Full-anechoic chamber)

UL KOREA LTD. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at <https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.pdf>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) +

Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

Corrected Reading (dBuV) = Meter Reading (dBuV) + External Cable (dB) +

Cableloss (dB)

46.62 dBuV + 9.8 dB + 0.1 dB = 56.52 dBuV

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Occupied Bandwidth	0.20 %
Frequency Stability	2.0×10^{-8}
Conducted Disturbance, 0.15 to 30 MHz	2.80 dB
Radiated Disturbance, 9 kHz to 30 MHz	1.69 dB
Radiated Disturbance, 30 MHz to 1 GHz	3.92 dB

Uncertainty figures are valid to a confidence level of 95%.

4.4. DECISION RULE

Decision rule for statement(s) of conformity is based on Clause 4.3.3 in IEC Guide 115:2023.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is the wireless charger.

This test report addresses the DXX (NFC) operational mode.

5.2. MAXIMUM E-FIELD STRENGTH

Fundamental Frequency (MHz)	Test Case	E-Field (30m distance) FCC (dBuV/m)
13.56	2	34.47

5.3. WORST-CASE CONFIGURATION AND MODE

Mode	Test Case	Description
NFC Tag Mode	1	Type 1 Position
	2 (Worst case)	Type 2 Position

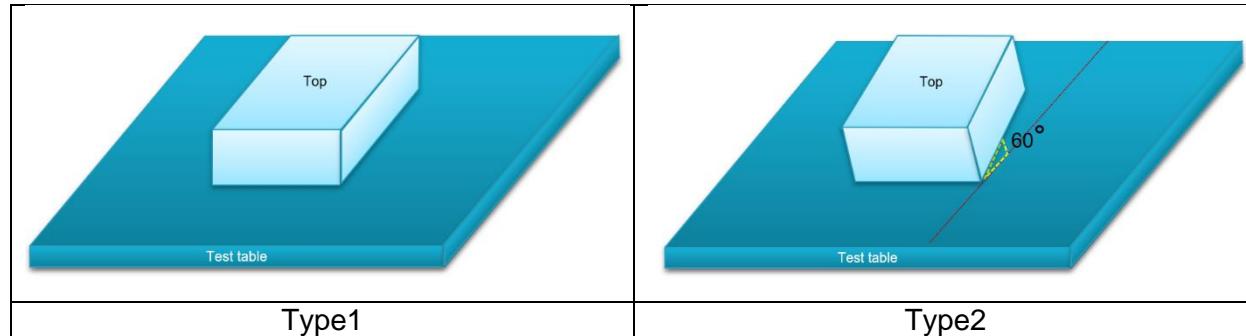
The NFC function was tested at its' fundamental and only operational frequency of 13.56 MHz.

Radiated(fundamental level and spurious emissions) tests was performed with reading a passive tag condition.

The EUT will be connected DC power (Car battery). So AC line conducted test not performed.

Two types of EUT configuration were investigated for Radiated testing. The two configurations supported by EUT are shown as below.

- Type1 position: The EUT lying flat on the test table.
- Type2 position: The EUT lying diagonally on the test table.



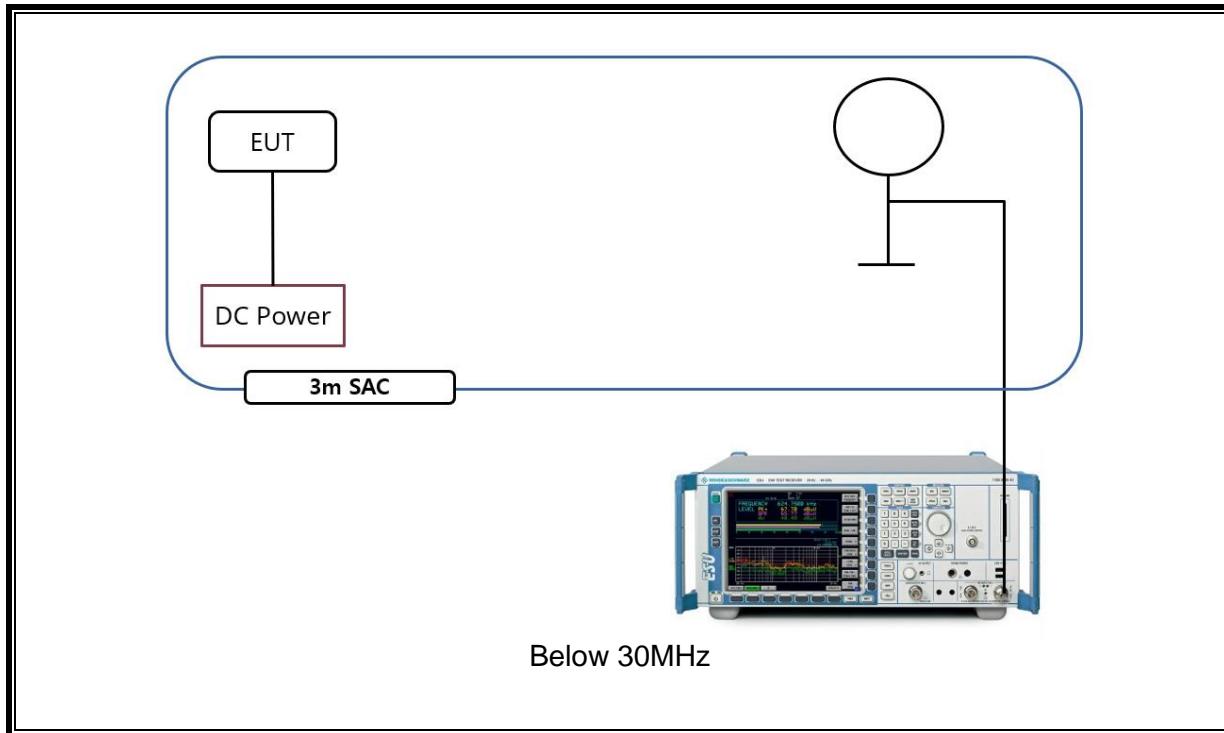
5.4. DESCRIPTION OF TEST SETUP

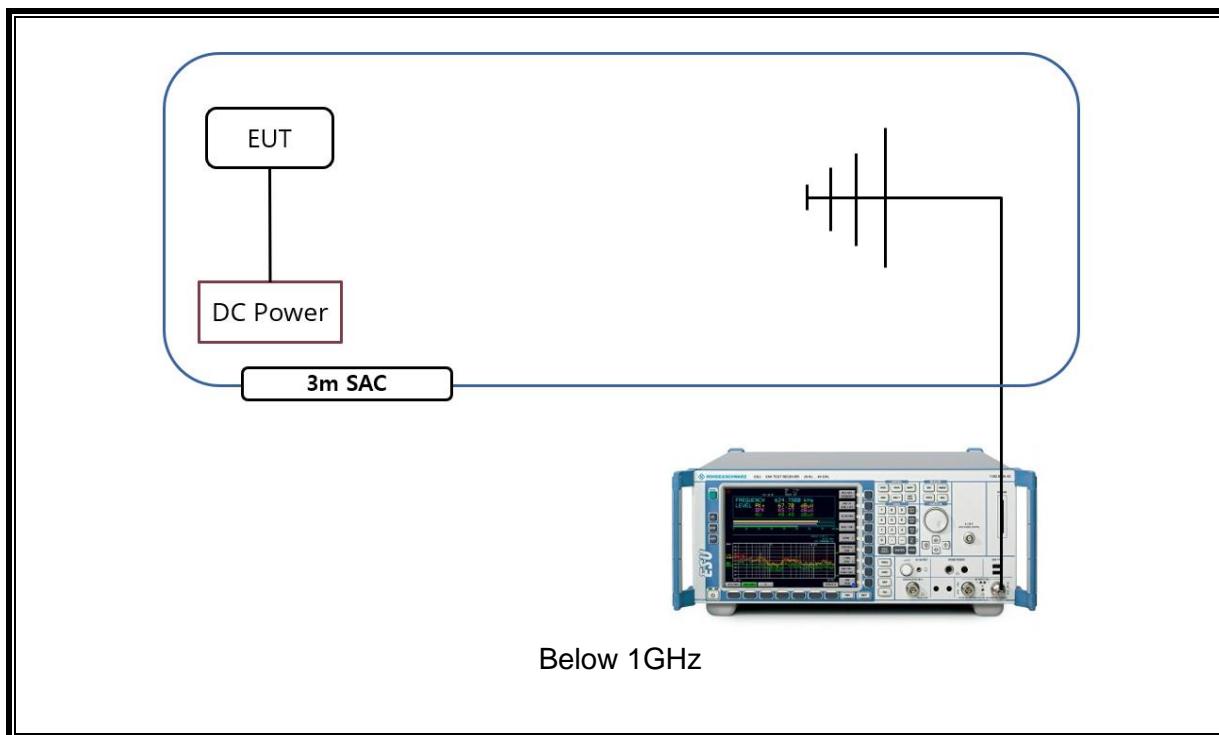
SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
-	-	-	-	-

The EUT is a stand-alone device configured and tested in a worst-case setup.

SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)





6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List				
Description	Manufacturer	Model	S/N	Cal Due
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	2024-08-15
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	2024-08-15
Preamplifier, 1000 MHz	Sonoma	310N	341282	2024-07-24
Preamplifier, 1000 MHz	Sonoma	310N	351741	2024-07-24
Spectrum Analyzer, 7 GHz	Agilent / HP	N9010A	MY54200580	2024-07-23
Spectrum Analyzer, 44 GHz	KEYSIGHT	N9030A	MY54170614	2024-07-24
EMI Test Receive, 3 GHz	R&S	ESR3	101832	2024-07-23
DC Power Supply	Agilent / HP	E3640A	MY54226395	2024-07-24
Temperature Chamber	ESPEC	SH-642	93001109	2024-07-24
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	2025-09-06
UL Software				
Description	Manufacturer	Model	Version	
Radiated software	UL	UL EMC	Ver 9.5	

7. 20dB & 99% BANDWIDTH

LIMITS

FCC: §15.215

(c) Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated

§15.225

Operation within the band 13.110 – 14.010MHz

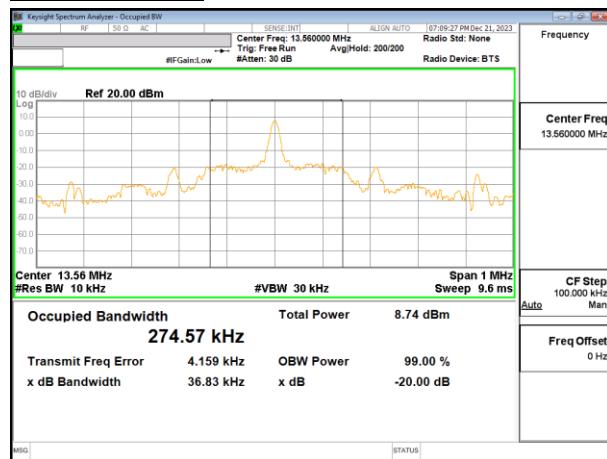
TEST PROCEDURE

The spectrum analyzer connected receive antenna and the EUT placed on near the receive antenna. The RBW is set to 1-5% of emission BW. The VBW is set to 3 times the RBW. The sweep time is coupled.

RESULTS

Frequency [MHz]	20 dB Bandwidth [kHz]	99% Bandwidth [kHz]
13.56	36.83	274.57

Bandwidth Plot



8. RADIATED EMISSION TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMIT

FCC §15.225

- (a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/ meter at 30 meters.
- (b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
- (c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.
- (d) The field strength of any emissions appearing outside of the 13.110–14.010 MHz and shall not exceed the general radiated emission limits in § 15.209 as follows:
- §15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (μ V/m)	Measurement Distance (m)
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

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

Formula for converting the filed strength from μ V/m to dB μ V/m is:

Limit (dB μ V/m) = 20 log limit (μ V/m)

In addition:

§15.209 (d) The emission limits shown 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 emissions limits in these three bands are based on measurements employing an average detector.

§15.209 (d) The provisions in §§ 15.225, measuring emissions at distances other than the distances specified in the above table, determining the frequency range over which radiated emissions are to be measured, and limiting peak emissions apply to all devices operated under this part.

TEST PROCEDURE

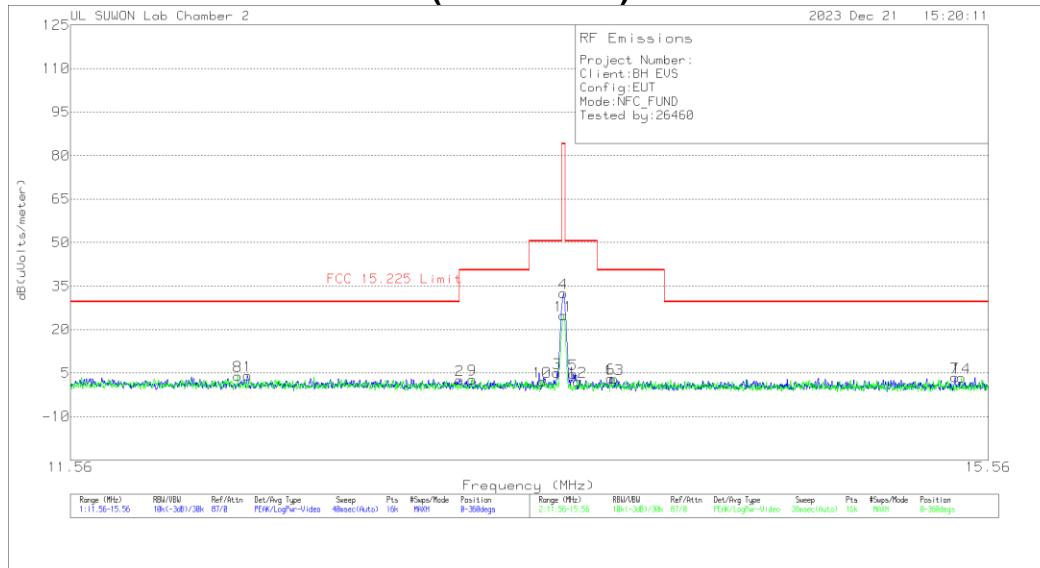
ANSI C63.10-2013

The EUT is an intentional radiator that incorporates a digital device. The highest fundamental frequency generated or used in the device is 13.56 MHz. The frequency range was investigated from 0.15 MHz to the 10th harmonic of the highest fundamental frequency, or 1000 MHz, whichever is greater (1000MHz)

RESULTS

No non-compliance noted:

8.1.1. FUNDAMENTAL AND SPURIOUS EMISSIONS (0.15 – 30 MHz)
[EUT with passive TAG mode]
(Test Case 1)



Trace Markers
Face on

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Antenna Correction Factor(dB/m)	Dist Corr 30m (dB)	Cable Loss (dB)	Corrected Reading (dBuV/m)	FCC 15.225 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	12.24163	23.35	Pk	20.2	-40	.5	4.05	29.54	-25.49	0-360
2	13.11363	22.07	Pk	20.1	-40	.5	2.67	40.51	-37.84	0-360
3	13.53225	24.42	Pk	20.1	-40	.5	5.02	50.5	-45.48	0-360
**4	13.56025	51.93	Pk	20.1	-40	.5	32.53	84	-51.47	0-360
5	13.60275	23.94	Pk	20.1	-40	.6	4.64	50.5	-45.86	0-360
6	13.77063	22.53	Pk	20.1	-40	.6	3.23	40.51	-37.28	0-360
7	15.39388	22.77	Pk	20.1	-40	.6	3.47	29.54	-26.07	0-360

Face off

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Antenna Correction Factor(dB/m)	Dist Corr 30m (dB)	Cable Loss (dB)	Corrected Reading (dBuV/m)	FCC 15.225 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
8	12.20388	23.31	Pk	20.2	-40	.5	4.01	29.54	-25.53	0-360
9	13.16688	22.22	Pk	20.1	-40	.5	2.82	40.51	-37.69	0-360
10	13.467	21.51	Pk	20.1	-40	.5	2.11	50.5	-48.39	0-360
**11	13.56063	44.15	Pk	20.1	-40	.5	24.75	84	-59.25	0-360
12	13.62163	21.33	Pk	20.1	-40	.6	2.03	50.5	-48.47	0-360
13	13.786	22.25	Pk	20.1	-40	.6	2.95	40.51	-37.56	0-360
14	15.42538	22.64	Pk	20.1	-40	.6	3.34	29.54	-26.2	0-360

Pk - Peak detector

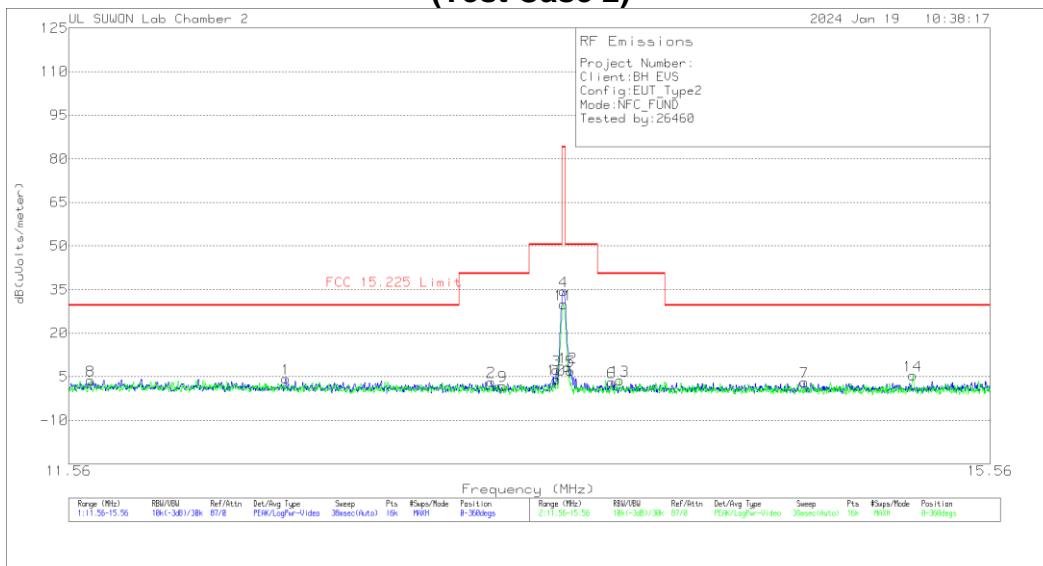
**Fundamental

Note 1 : Although these tests were performed other than open filed test site, adequate comparison measurements were confirmed against 30 m open are test site.

Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

Note 2: Radiated test were investigated with three receiving antenna axes: Face-on, Face-off and horizontal (parallel to the ground plane) and the worse orientations of Face-on and Face-off were set for final test.

(Test Case 2)



Trace Markers

Face on

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Antenna Correction Factor(dB/m)	Dist Corr 30m (dB)	Cable Loss (dB)	Corrected Reading (dBuV/m)	FCC 15.225 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	12.39813	23.59	Pk	20.2	-40	.5	4.29	29.54	-25.25	0-360
2	13.24738	22.66	Pk	20.1	-40	.5	3.26	40.51	-37.25	0-360
3	13.52963	26.67	Pk	20.1	-40	.5	7.27	50.5	-43.23	0-360
**4	13.56025	53.87	Pk	20.1	-40	.5	34.47	84	-49.53	0-360
5	13.59238	26.33	Pk	20.1	-40	.6	7.03	50.5	-43.47	0-360
6	13.77325	22.53	Pk	20.1	-40	.6	3.23	40.51	-37.28	0-360
7	14.655	22.38	Pk	20.1	-40	.6	3.08	29.54	-26.46	0-360

Face off

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Antenna Correction Factor(dB/m)	Dist Corr 30m (dB)	Cable Loss (dB)	Corrected Reading (dBuV/m)	FCC 15.225 Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
8	11.64238	23.03	Pk	20.2	-40	.5	3.73	29.54	-25.81	0-360
9	13.29763	21.19	Pk	20.1	-40	.5	1.79	40.51	-38.72	0-360
10	13.52988	23.42	Pk	20.1	-40	.5	4.02	50.5	-46.48	0-360
**11	13.55988	49.34	Pk	20.1	-40	.5	29.94	84	-54.06	0-360
12	13.57913	27.57	Pk	20.1	-40	.6	8.27	50.5	-42.23	0-360
13	13.80838	23.08	Pk	20.1	-40	.6	3.78	40.51	-36.73	0-360
14	15.17788	24.81	Pk	20.1	-40	.6	5.51	29.54	-24.03	0-360

Pk - Peak detector

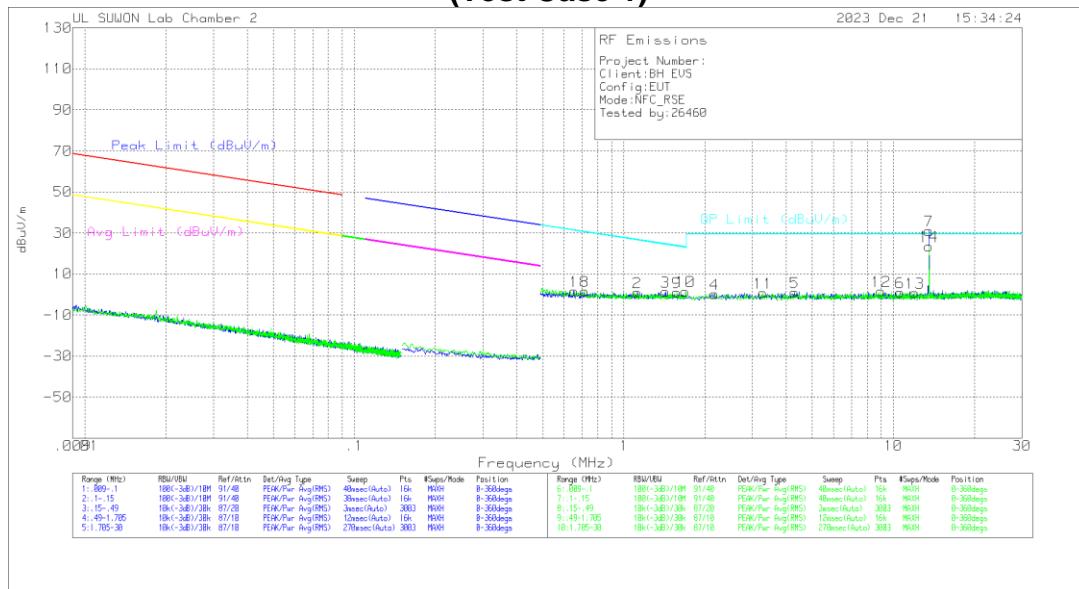
**Fundamental

Note 1 : Although these tests were performed other than open filed test site, adequate comparison measurements were confirmed against 30 m open are test site.

Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

Note 2: Radiated test were investigated with three receiving antenna axes: Face-on, Face-off and horizontal (parallel to the ground plane) and the worse orientations of Face-on and Face-off were set for final test.

8.1.2. SPURIOUS EMISSION 0.009 TO 30 MHz
[EUT with passive TAG mode]
(Test Case 1)



Trace Markers

Face on

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Antenna Correction Factor(dB/m)	Cable Loss (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.6523	21.62	Pk	20	.1	-40	1.72	31.32	-29.6	0-360
2	1.12281	20.78	Pk	20	.2	-40	.98	26.62	-25.64	0-360
3	1.42499	21.11	Pk	20	.2	-40	1.31	24.55	-23.24	0-360
4	2.16683	20.02	Pk	20.1	.2	-40	.32	29.5	-29.18	0-360
5	4.29688	20.64	Pk	20.2	.3	-40	1.14	29.5	-28.36	0-360
6	10.59749	20.46	Pk	20.2	.5	-40	1.16	29.5	-28.34	0-360
**7	13.56165	50.41	Pk	20.1	.5	-40	31.01	29.5	1.51	0-360

Face off

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Antenna Correction Factor(dB/m)	Cable Loss (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
8	.71492	21.53	Pk	20	.1	-40	1.63	30.53	-28.9	0-360
9	1.5722	20.8	Pk	20.1	.2	-40	1.1	23.7	-22.6	0-360
10	1.69167	21.22	Pk	20.1	.2	-40	1.52	23.07	-21.55	0-360
11	3.27898	20.31	Pk	20.2	.3	-40	.81	29.5	-28.69	0-360
12	9.00938	20.84	Pk	20.2	.5	-40	1.54	29.5	-27.96	0-360
13	12.02538	20.15	Pk	20.2	.5	-40	.85	29.5	-28.65	0-360
**14	13.56165	42.96	Pk	20.1	.5	-40	23.56	29.5	-5.94	0-360

Pk - Peak detector

**Fundamental

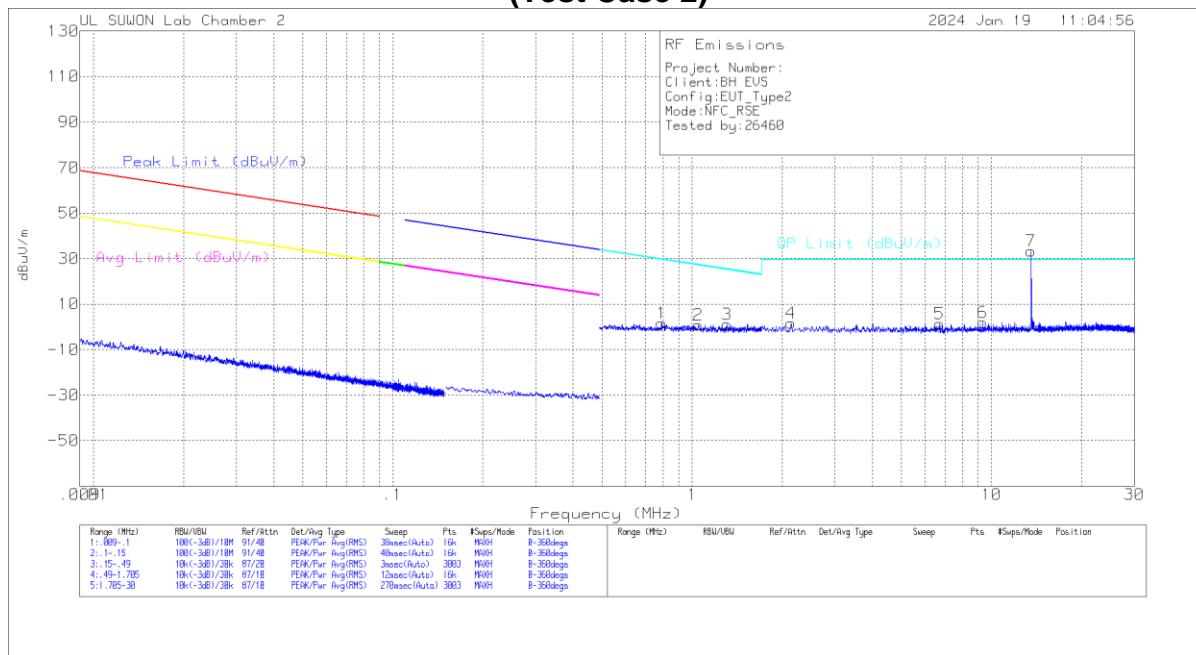
Note 1: The data for marker number 7 and 14 are the fundamental signal.

Please refer to section 8.1.1 about the fundamental level.

Frequency range 0.009MHz ~ 0.490MHz, only noise floor level and more than 20dB margin.

Note 2: Radiated test were investigated with three receiving antenna axes: Face-on, Face-off and horizontal (parallel to the ground plane) and the worse orientations of Face-on and Face-off were set for final test.

(Test Case 2)



Trace Markers

Face on

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Antenna Correction Factor(dB/m)	Cable Loss (dB)	Dist Corr 30m (dB)	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.79009	21.35	Pk	20	.2	-40	1.55	29.66	-28.11	0-360
2	1.0475	20.73	Pk	20	.2	-40	.93	27.22	-26.29	0-360
3	1.30795	20.92	Pk	20	.2	-40	1.12	25.3	-24.18	0-360
4	2.13855	21.35	Pk	20.1	.2	-40	1.65	29.5	-27.85	0-360
5	6.70025	20.85	Pk	20.2	.4	-40	1.45	29.5	-28.05	0-360
6	9.33925	21.27	Pk	20.2	.5	-40	1.97	29.5	-27.53	0-360
**7	13.56165	52.67	Pk	20.1	.5	-40	33.27	29.5	3.77	0-360

Pk - Peak detector

**Fundamental

Note 1: The data for marker number 7 and 14 are the fundamental signal.

Please refer to section 8.1.2 about the fundamental level.

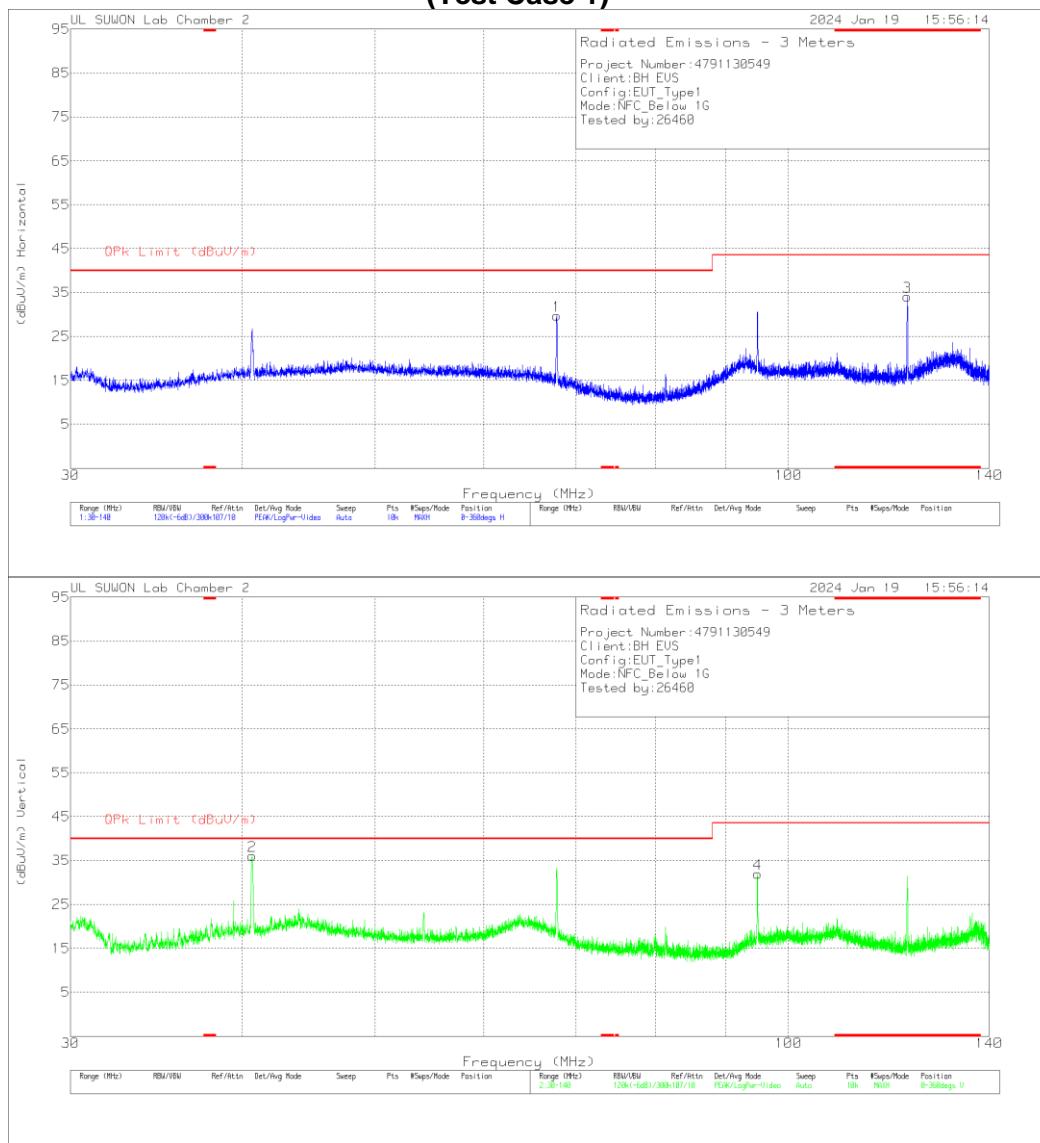
Frequency range 0.009MHz ~ 0.490MHz, only noise floor level and more than 20dB margin.

Note 2: Radiated test was performed at Face-on (Worst case).

8.1.3. TX SPURIOUS EMISSION 30 TO 1000 MHz

[EUT with passive TAG mode]

(Test Case 1)



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Antenna Correction Factor(dB/m)	LossdB	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	67.818	44.83	Pk	16.4	-31.5	29.73	40	-10.27	0-360	200	H
3	* 122.048	49.92	Pk	15.3	-31.1	34.12	43.52	-9.4	0-360	200	H
2	40.681	48.96	Pk	18.9	-31.8	36.06	40	-3.94	0-360	100	V
4	94.933	46.68	Pk	16.6	-31.3	31.98	43.52	-11.54	0-360	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

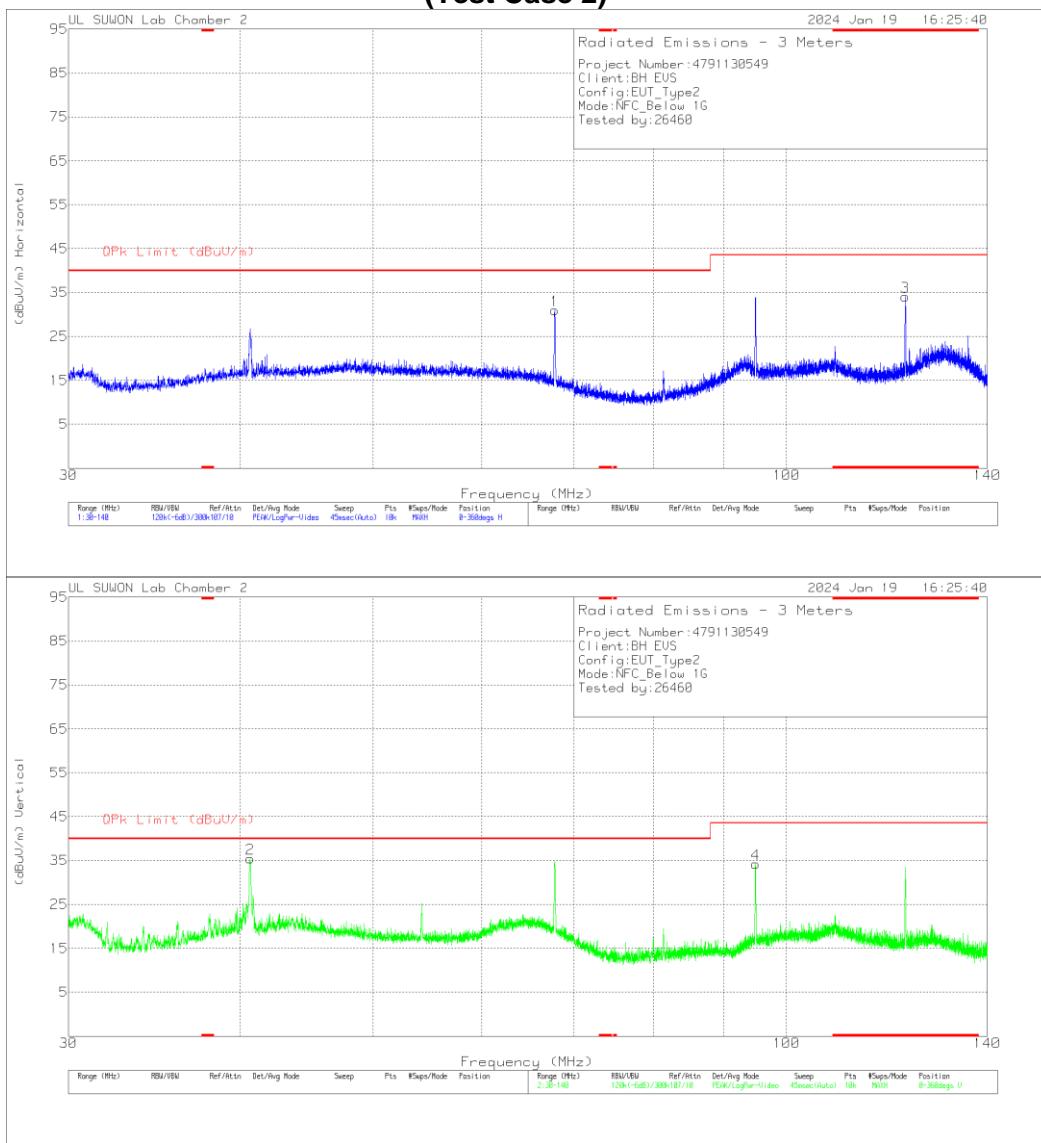
Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	Antenna Correction Factor(dB/m)	LossdB	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
40.681	46.75	Qp	18.9	-31.8	33.85	40	-6.15	341	103	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Qp - Quasi-Peak detector

(Test Case 2)



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Antenna Correction Factor(dB/m)	LossdB	Corrected Reading (dBuV/m)	QPK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	67.807	46.07	Pk	16.4	-31.5	30.97	40	-9.03	0-360	100	H
3	* 122.048	49.86	Pk	15.3	-31.1	34.06	43.52	-9.46	0-360	200	H
2	40.703	48.36	Pk	18.9	-31.8	35.46	40	-4.54	0-360	100	V
4	94.933	48.87	Pk	16.6	-31.3	34.17	43.52	-9.35	0-360	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	Antenna Correction Factor(dB/m)	LossdB	Corrected Reading (dBuV/m)	QPK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
40.68	47.12	Qp	18.9	-31.8	34.22	40	-5.78	30	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Qp - Quasi-Peak detector

9. FREQUENCY STABILITY

LIMIT

§15.225 (e) The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ 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. For battery operated equipment, the equipment tests shall be performed using a new battery.

TEST PROCEDURE

ANSI C63.10 §6.8

RESULTS

Reference Frequency: EUT Channel 13.56 MHz @ 20°C Limit: ± 100 ppm = 1.356 kHz										
Power Supply (Vdc)	Envir. Temp (°C)	Frequency Deviation Measured with Time Elapse								
		Start up (MHz)	Delta (ppm)	@ 2mins (MHz)	Delta (ppm)	@ 5mins (MHz)	Delta (ppm)	@ 10 mins (MHz)	Delta (ppm)	Limit (ppm)
14.00	50	13.559893215	-0.153	13.560077654	13.449	13.560197542	22.291	13.559899274	0.294	100
14.00	40	13.559896325	0.077	13.559945356	3.693	13.559975341	5.904	13.559983623	6.515	100
14.00	30	13.559920553	1.864	13.559936412	3.033	13.559926487	2.301	13.560086942	14.134	100
14.00	20	13.559895284	0.000	13.559915749	1.509	13.560160695	19.573	13.560115374	16.231	100
14.00	10	13.560213552	23.471	13.560108657	15.736	13.560241473	25.530	13.560056816	11.912	100
14.00	0	13.560140494	18.083	13.560087252	14.157	13.560107548	15.654	13.560114364	16.156	100
14.00	-10	13.560187363	21.540	13.560204212	22.782	13.560157363	19.328	13.560184259	21.311	100
14.00	-20	13.560008145	8.323	13.560001252	7.815	13.560154254	19.098	13.560159115	19.457	100
14.00	-30	13.560212358	23.383	13.560285465	28.775	13.560090364	14.387	13.560014356	8.781	100

Reference Frequency: EUT Channel 13.56 MHz @ 20°C Limit: ± 100 ppm = 1.356 kHz										
Power Supply (Vdc)	Envir. Temp (°C)	Frequency Deviation Measured with Time Elapse								
		Start up (MHz)	Delta (ppm)	@ 2mins (MHz)	Delta (ppm)	@ 5mins (MHz)	Delta (ppm)	@ 10 mins (MHz)	Delta (ppm)	Limit (ppm)
11.90	20	13.560073249	13.124	13.560084323	13.941	13.560084154	13.929	13.560084415	13.948	100
14.00	20	13.559895284	0.000	13.559915749	1.509	13.560160695	19.573	13.560115374	16.231	100
16.10	20	13.560301142	29.931	13.560236654	25.175	13.560214452	23.538	13.560208597	23.106	100

No non-compliance noted.

END OF TEST REPORT