



**FCC CFR47 PART 15 SUBPART C
IC RSS-247 Issue 2**

Keyless Entry System

CERTIFICATION TEST REPORT

FOR

DTS 907 MHz 919 MHz

MODEL NUMBER : 2WG15R-SS

FCC ID: VA5REH500-2WLR

IC ID: 7087A-2WREH500LR

REPORT NUMBER: 4788040726-E1V1

ISSUE DATE: Aug 11, 2017

Prepared for

SEGI LIMITED

**UNIT S, 3-F, HARIBEST INDUSTRIAL BUILDING,
45-47, AU PUI WAN STREET, SHATIN, NT,
HONGKONG**

Prepared by

**UL Korea, Ltd. Suwon Laboratory
218 Maeyeong-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16675, Korea**

TEL: (031) 337-9902

FAX: (031) 213-5433



ACCREDITED

TL-637

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
-	-	Initial issue	-

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	4
2. TEST METHODOLOGY	5
3. FACILITIES AND ACCREDITATION	5
4. CALIBRATION AND UNCERTAINTY	5
4.1. <i>MEASURING INSTRUMENT CALIBRATION</i>	<i>5</i>
4.2. <i>SAMPLE CALCULATION</i>	<i>5</i>
4.3. <i>MEASUREMENT UNCERTAINTY.....</i>	<i>6</i>
5. EQUIPMENT UNDER TEST	7
5.1. <i>DESCRIPTION OF EUT</i>	<i>7</i>
5.2. <i>MAXIMUM OUTPUT POWER.....</i>	<i>7</i>
5.3. <i>DESCRIPTION OF AVAILABLE ANTENNAS</i>	<i>7</i>
5.4. <i>WORST-CASE CONFIGURATION AND MODE.....</i>	<i>7</i>
5.5. <i>DESCRIPTION OF TEST SETUP.....</i>	<i>8</i>
6. TEST AND MEASUREMENT EQUIPMENT	9
7. REFERENCE MEASUREMENT RESULTS.....	10
7.1. <i>99% BANDWIDTH.....</i>	<i>10</i>
8. SUMMARY TABLE	12
9. ANTENNA PORT TEST RESULTS.....	13
9.1. <i>6 dB BANDWIDTH.....</i>	<i>13</i>
9.2. <i>OUTPUT POWER.....</i>	<i>15</i>
9.3. <i>AVERAGE POWER.....</i>	<i>17</i>
9.4. <i>PSD</i>	<i>18</i>
9.5. <i>OUT-OF-BAND EMISSIONS</i>	<i>20</i>
10. RADIATED TEST RESULTS	24
10.1. <i>LIMITS AND PROCEDURE.....</i>	<i>24</i>
10.2. <i>TRANSMITTER ABOVE 1 GHz.....</i>	<i>27</i>
10.3. <i>WORST-CASE BELOW 1 GHz</i>	<i>33</i>
11. AC POWER LINE CONDUCTED EMISSIONS	35
12. SETUP PHOTOS	36

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SEGI LIMITED
EUT DESCRIPTION: Keyless Entry System
MODEL NUMBER: 2WG15R-SS
DATE TESTED: June 27, 2017 - July 24, 2017 (Original Test)

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass
RSS-247 Issue2 / RSS-GEN Issue 4	

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:



Changyoung Choi
Lead Test Engineer
UL Korea, Ltd.

Tested By:



Hyunsik Yun
Laboratory 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. IC RSS-GEN Issue 4
4. IC RSS-247 Issue 2
5. KDB 558074 D01 DTS Meas Guidance v04.
6. ANSI C63.10-2013.

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 checked="" type="checkbox"/>	Chamber 1
<input type="checkbox"/>	Chamber 2

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at <http://www.iasonline.org/PDF/TL/TL-637.pdf>.

FCC lab number: KR0161

IC test site registration number: 2324M-1

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:

$$\text{Field Strength (dBuV/m)} = \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \text{Preamp Gain (dB)}$$

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	2.32 dB
Radiated Disturbance, Below 1GHz	4.14 dB
Radiated Disturbance, Above 1 GHz	5.97 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a 2 WAY 1 BUTTON REMOTES and using DTS operating under FCC Part 15.247. This test report addresses the DTS operational mode.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum total conducted output power as follows:

Frequency Range[MHz]	Modulation Type	Power Mode	Output Power [dBm]	Output Power [mW]
907 ~ 919	DSSS	Peak	19.26	84.33

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an internal antenna, with a maximum gain of -8.4 dBi

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission below 1GHz and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Radiated emission above 1GHz was performed with the EUT set to transmit low/mid/high channels.

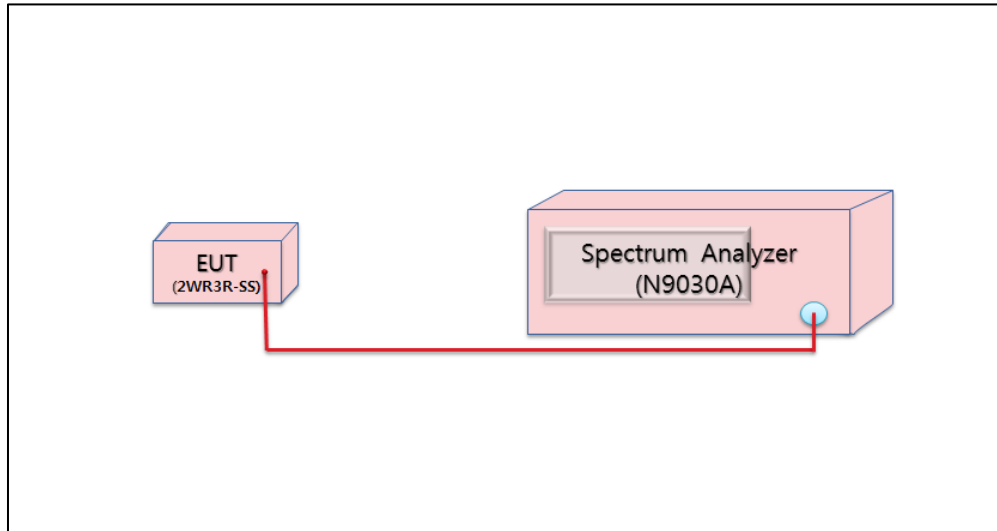
The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z it was determined that Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z orientation.

5.5. DESCRIPTION OF TEST SETUP

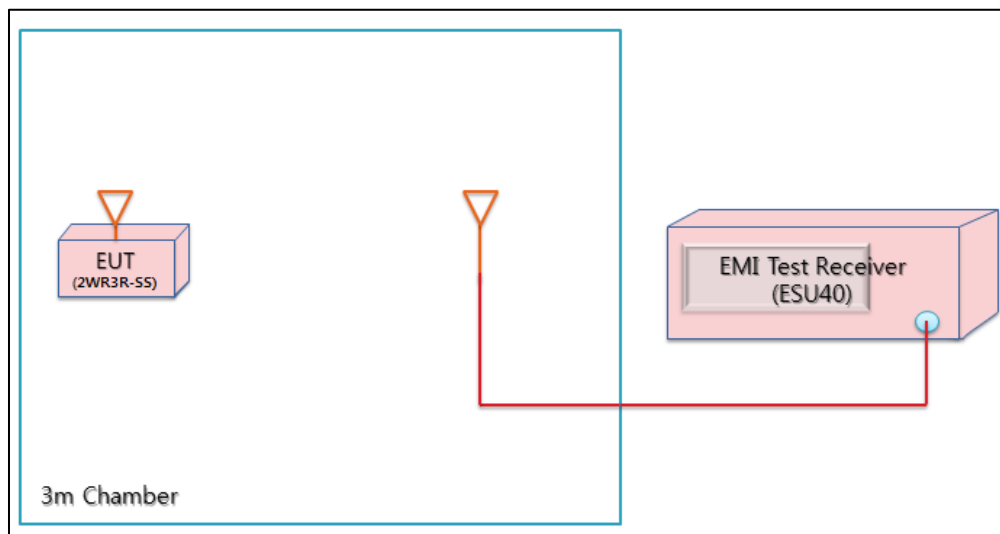
TEST SETUP

The EUT is a stand-alone unit during the tests.

SETUP DIAGRAM FOR CONDUCTION TESTS



SETUP DIAGRAM FOR RADIATION TESTS



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	750	10-14-18
Antenna, Horn, 18 GHz	ETS	3117	00168724	05-31-19
Preamplifier, 1000 MHz	Sonoma	310N	341282	08-09-18
Preamplifier	ETS	3115-PA	00167475	08-09-18
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	08-07-18
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	08-18-08
EMI Test Receive, 40 GHz	R&S	ESU40	100439	08-18-08
Spectrum Analyzer	R&S	FSW40	101237	08-17-18
Filter	MICRO-TRONICS	HPM50108-02	G005	08-09-18
Attenuator / Switch driver	HP	11713A	3748A04272	N/A
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	11-25-17
UL Software				
Description	Manufacturer	Model	Version	
Radiated software	UL	UL EMC	Ver 9.5	

7. REFERENCE MEASUREMENT RESULTS

7.1. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

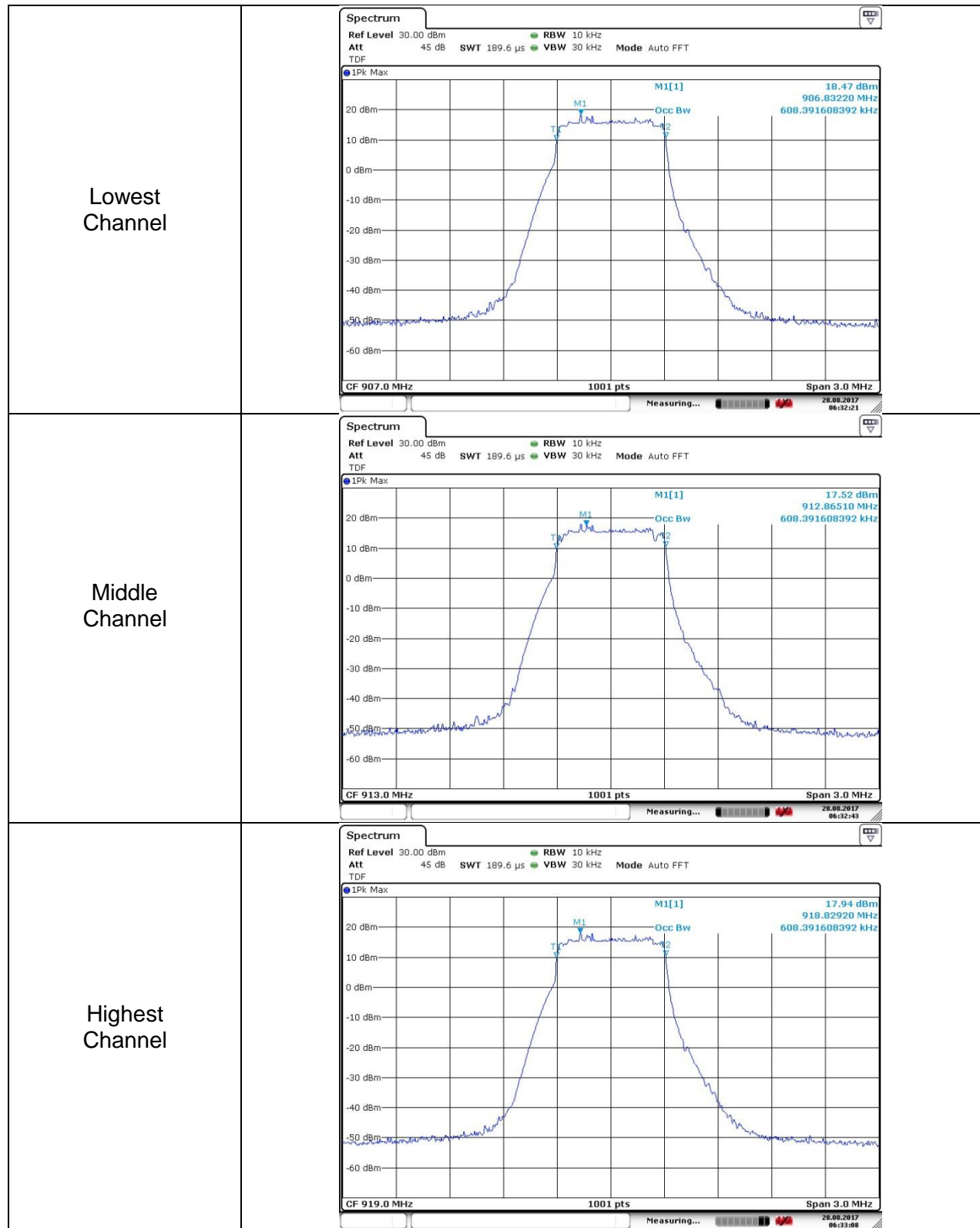
TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency [MHz]	99 % Bandwidth [MHz]
Lowest	907	0.608
Middle	913	0.608
Highest	919	0.608
Maximum		0.608

99% BANDWIDTH PLOTS



8. SUMMARY TABLE

FCC Part Section	IC Section	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.247 (a)(2)	RSS-247 5.2(a)	Occupied Band width (6dB)	>500KHz	Conducted	Pass	763.2kHz
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-32.52 dBc
15.247	RSS-247 5.4(d)	TX conducted output power	<30dBm		Pass	19.260 dBm (Peak)
15.247	RSS-247 5.2(b)	PSD	<8dBm		Pass	7.07 dBm (Peak)
15.205, 15.209	RSS-GEN Clause 8.9	Radiated Spurious Emission	< 54dBuV/m	Radiated	Pass	52.42 dBuV/m (Average)

9. ANTENNA PORT TEST RESULTS

9.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2) & IC RSS-247 (5.2) (a)
The minimum 6 dB bandwidth shall be at least 500 kHz.

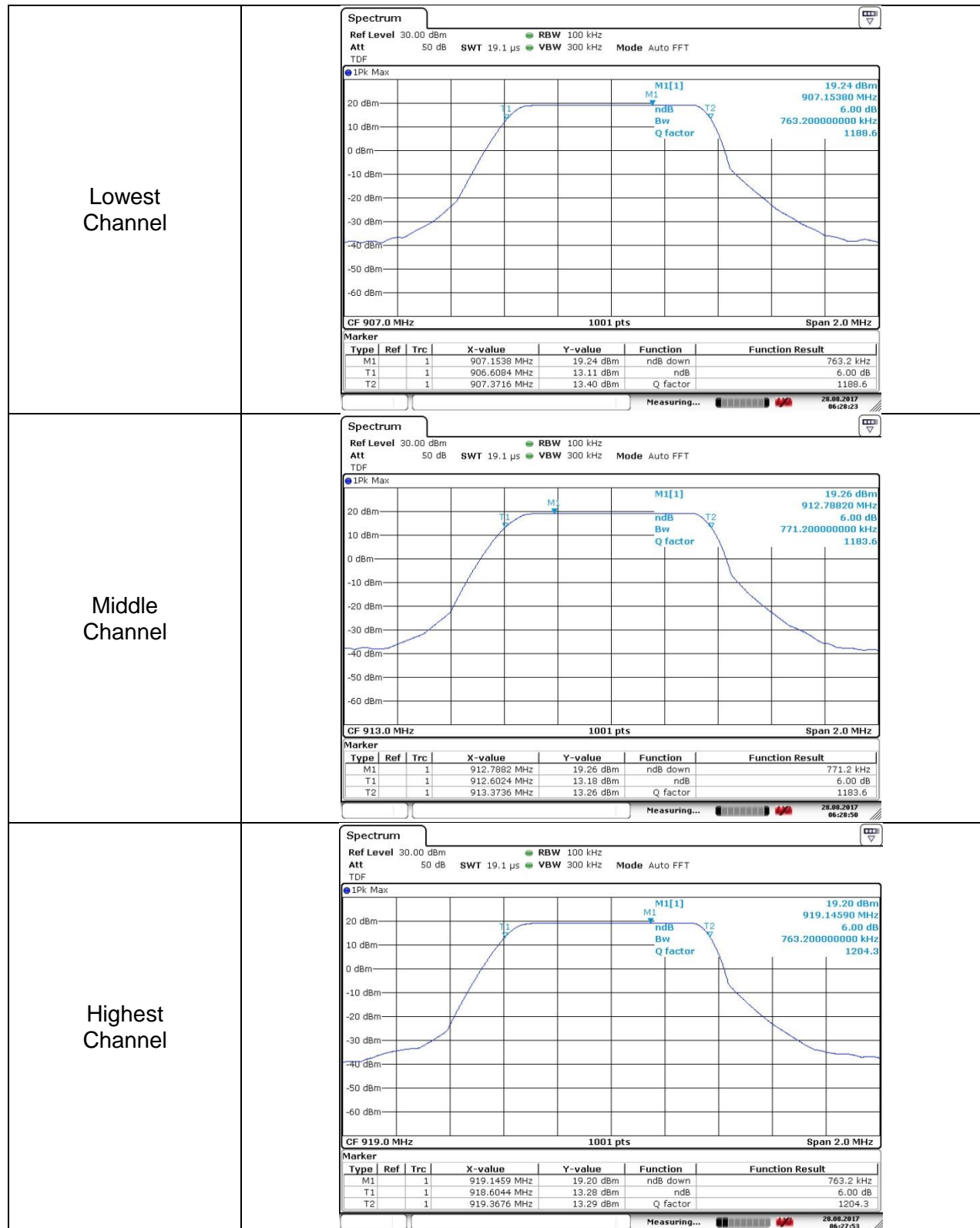
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

Channel	Frequency [MHz]	6 dB Bandwidth [kHz]	Minimum Limit [kHz]
Lowest	907	763.2	500.0
Middle	913	771.2	500.0
Highest	919	763.2	500.0
Worst		763.2	500.0

6 dB BANDWIDTH PLOTS



9.2. OUTPUT POWER

LIMITS

FCC §15.247 (b) &

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

IC RSS-247 Issue 2 (5.4) (d)

For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).

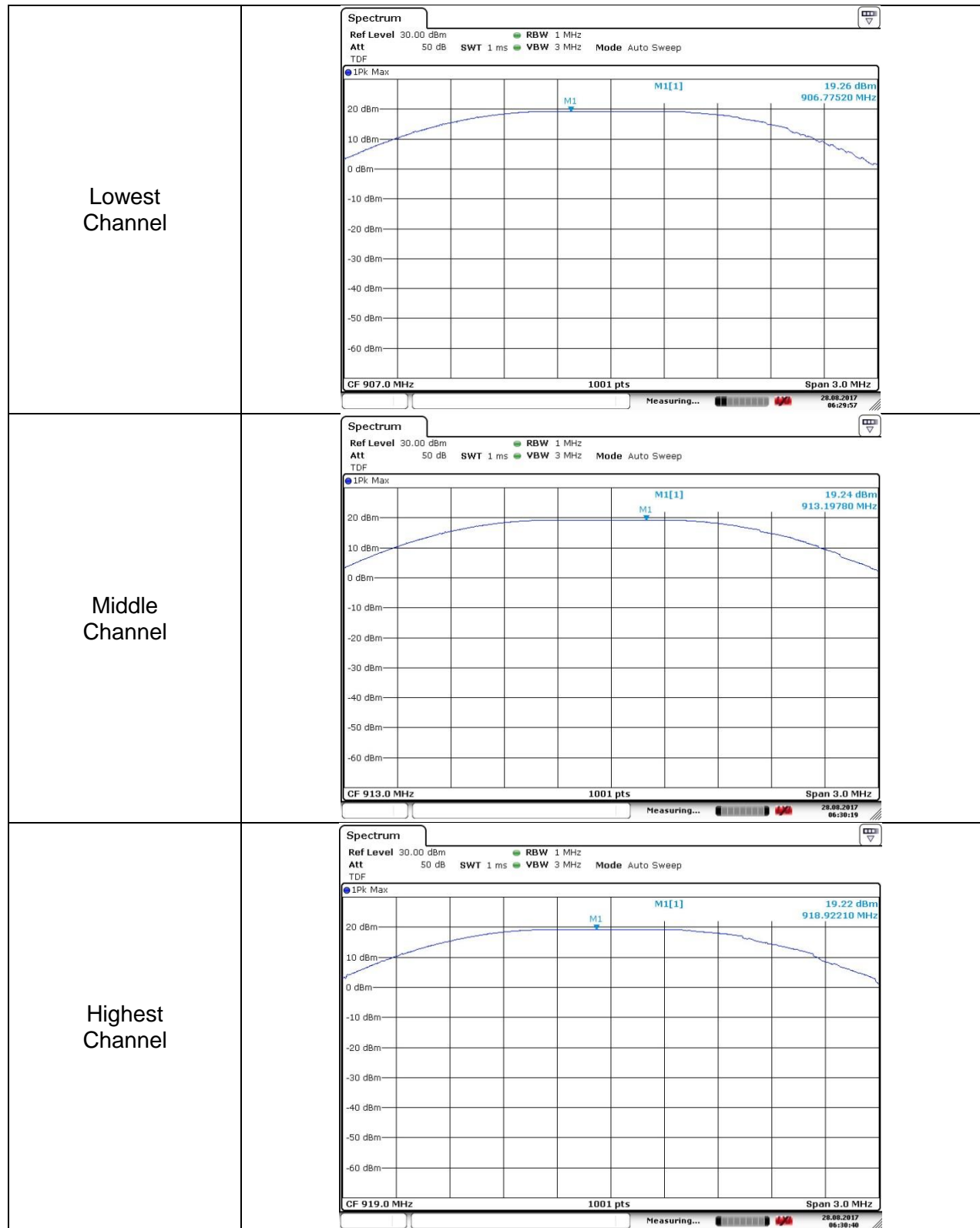
TEST PROCEDURE

Peak power is measured using KDB558074 D01 DTS Meas Guidance v04 under section 9.1.1 utilizing spectrum analyzer.

RESULTS

Channel	Frequency [MHz]	Peak Power Reading [dBm]	Limit [dBm]	Margin [dB]
Lowest	907	19.260	30.000	-10.740
Middle	913	19.240	30.000	-10.760
Highest	919	19.220	30.000	-10.780
Worst		19.260		-10.740

OUTPUT POWER PLOTS



9.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

RESULTS

According to manufacturer's declaration, duty cycle of this device is as following of refer to an Operational description.

T period [ms]	T on [ms]	Duty Cycle [x]	Duty cycle correction $10\log(\text{duty cycle})$
2170	670	0.309	-5.104

Channel	Frequency [MHz]	Peak power [dBm]	Duty Cycle Correction factor[dB]	Average power [dBm]
Lowest	907	19.260	-5.104	14.156
Middle	913	19.240	-5.104	14.136
Highest	919	19.220	-5.104	14.116

9.4. PSD

LIMITS

FCC §15.247 & IC RSS-247 Issue2 (5.2) (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

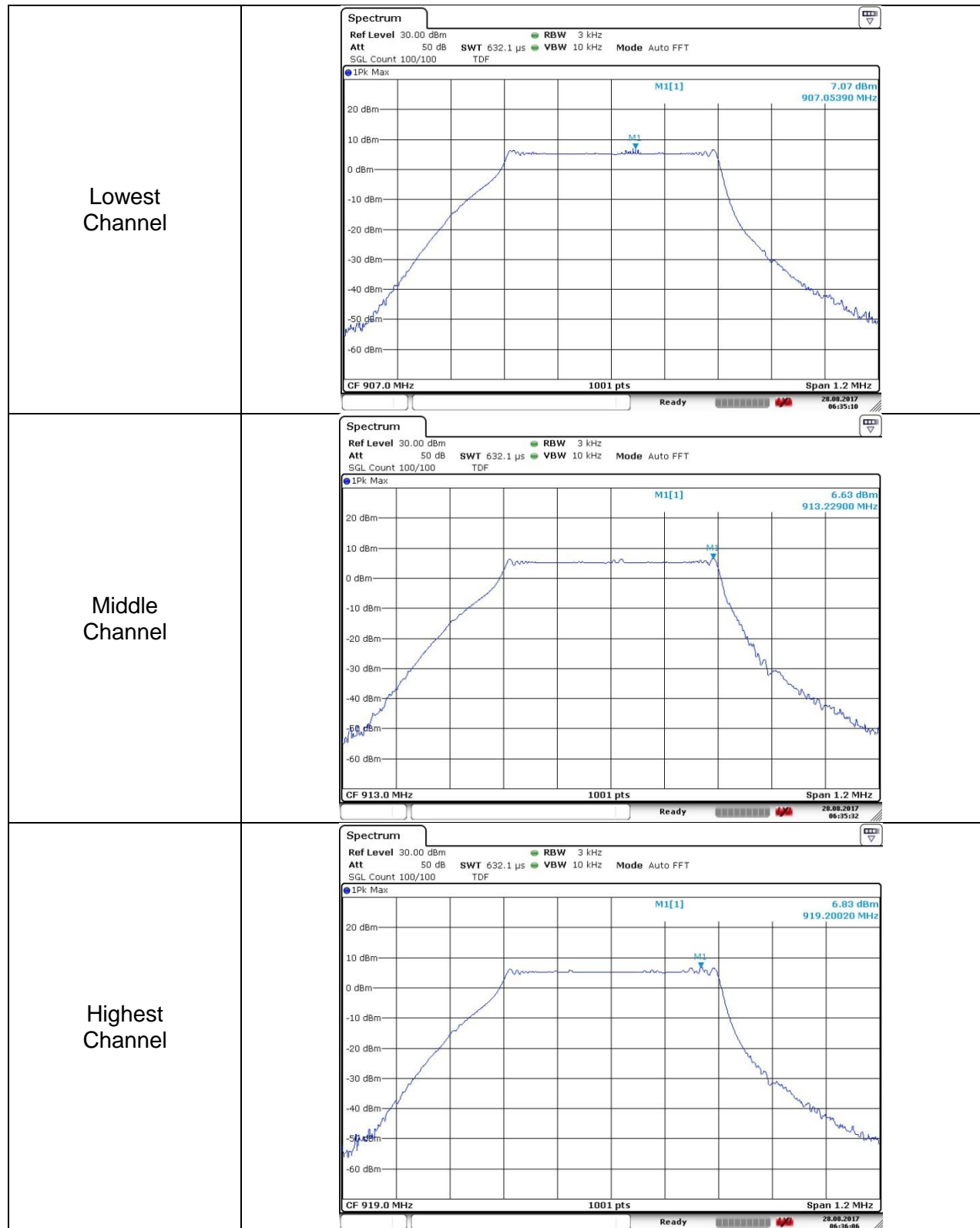
TEST PROCEDURE

Power Spectral Density was performed utilizing the “§10.2 Method PKPSD (Peak PSD)” under KDB558074 D01 DTS Meas Guidance v04

RESULTS

Channel	Frequency [MHz]	PSD [dBm]	Limit [dBm]	Margin [dB]
Lowest	907	7.07	8.00	-0.93
Middle	913	6.63	8.00	-1.37
Highest	919	6.83	8.00	-1.17

POWER SPECTRAL DENSITY PLOTS



9.5. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d) & IC RSS 247 Issue 2 (5.5)

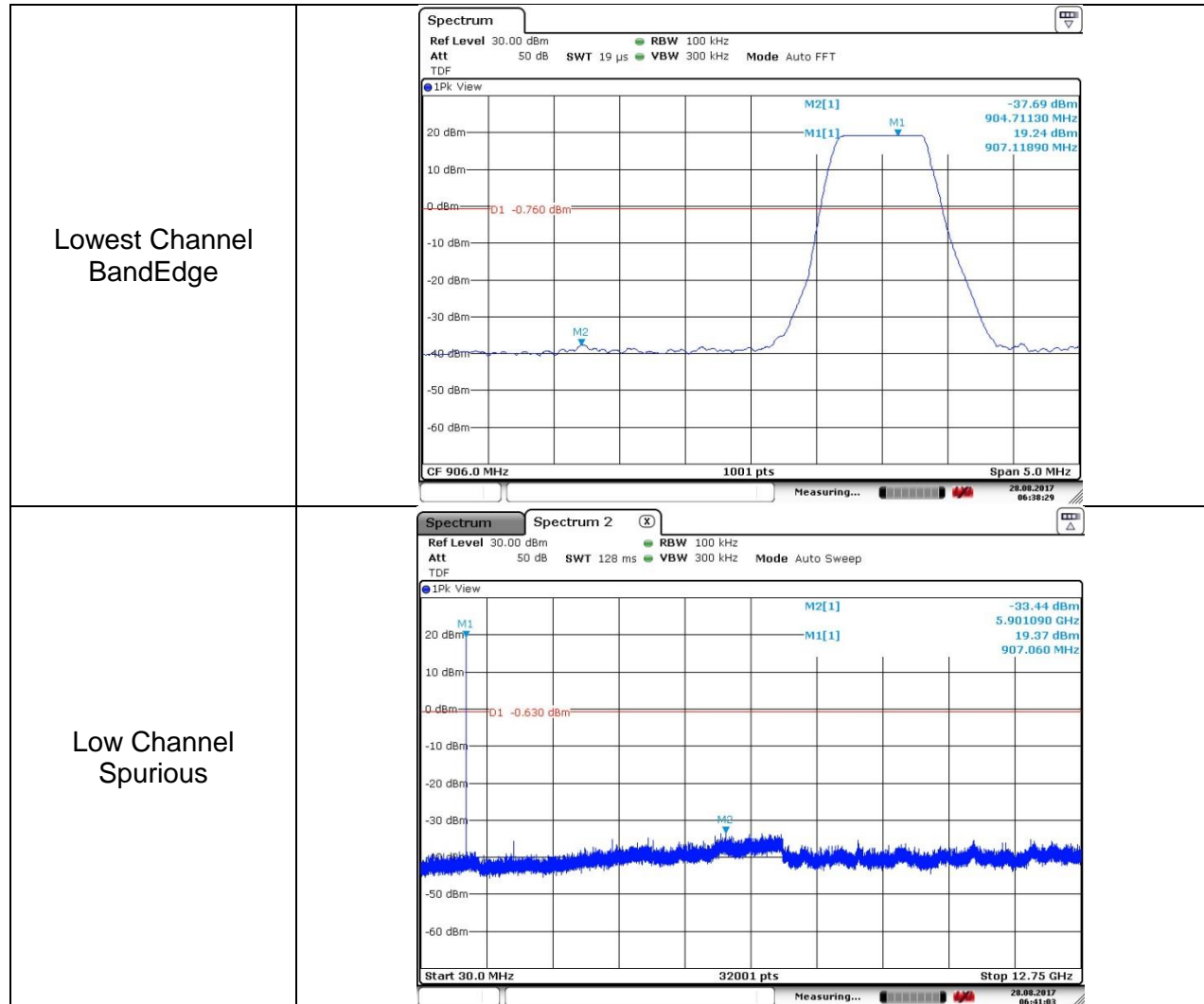
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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.

TEST PROCEDURE

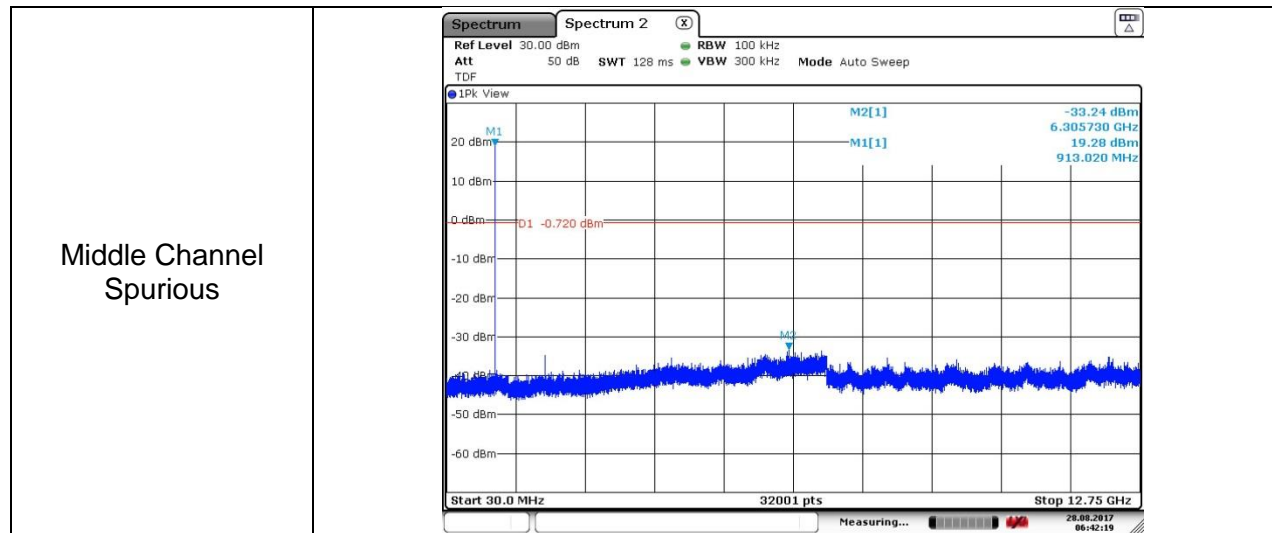
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

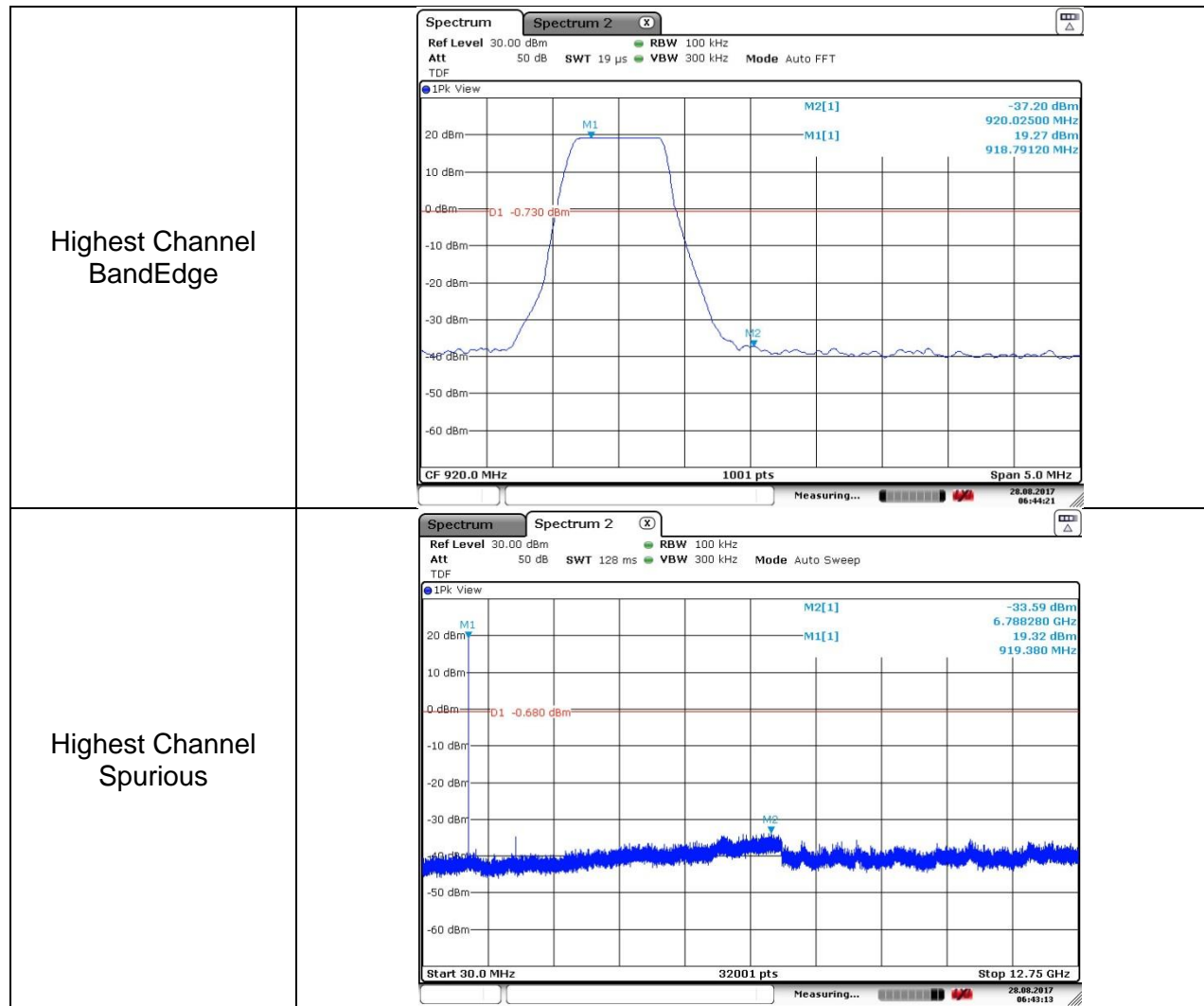
BANDEDGE & SPURIOUS EMISSIONS, LOW CHANNEL



SPURIOUS EMISSIONS, MID CHANNEL



SPURIOUS EMISSIONS, HIGH CHANNEL



10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (µV/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.

IC RSS-GEN (8.9)

Frequency (MHz)	Field Strength (µv/m at 3 metres)
30-88	100
88-216	150
216-960	200
Above 960*	500

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 150 cm for above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements. (Restricted bandedge, Final detection of spurious harmonic emissions)
Duty cycle factor = $10 \log(1/x)$. For this sample: $DCF = 10 \log(1/0.198) = 7.03 \text{ dB}$
(Spectrum Analyzer round it up to 7.03 dB)

Note. This EUT was operating at 19.8 % duty cycle was used for testing purpose.

Pre-scans to detect harmonic and spurious emissions, the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

The spectrum from 1 GHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 900 MHz band.
(From 30MHz to 1GHz, test was performed with the EUT set to transmit at the channel with highest output power)

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.

Unwanted emissions within Restricted Bands are measured using traditional radiated procedures.

Band edge emissions within Restricted Bands are measured using RMS with duty cycle factor offset method.

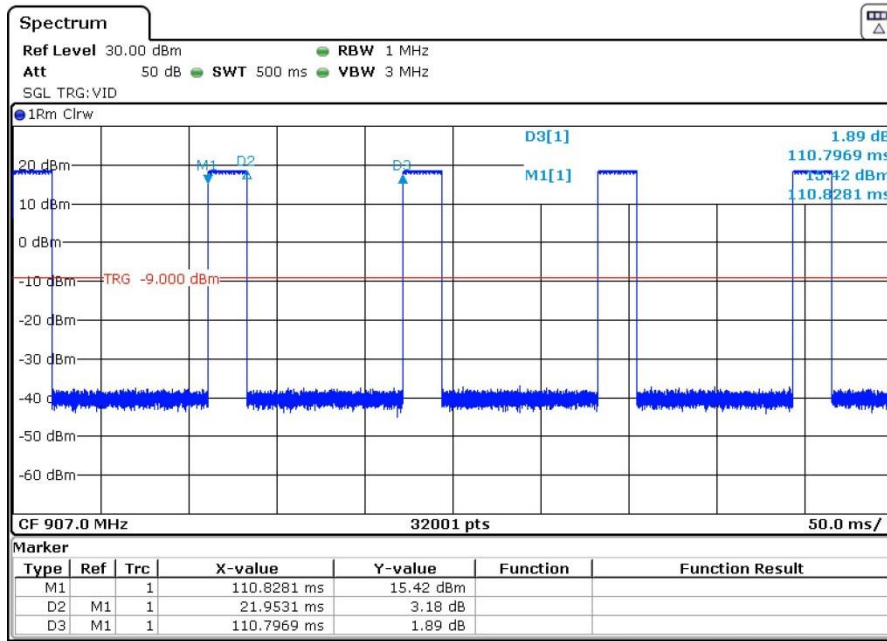
Note : Emission was pre-scanned from 9KHz to 30MHz; No emissions were detected which was at least 20dB below the specification limit (consider distance correction factor).
Per FCC part 15.31(o), test results were not reported.

Formula for converting the filed strength from uV/m to dBuV/m is:

Limit (dBuV/m) = $20 \log \text{limit (uV/m)}$

Although these tests were performed other than open area 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 one of tests made in an open field based on KDB 414788.

DUYU CYCLE FACTOR

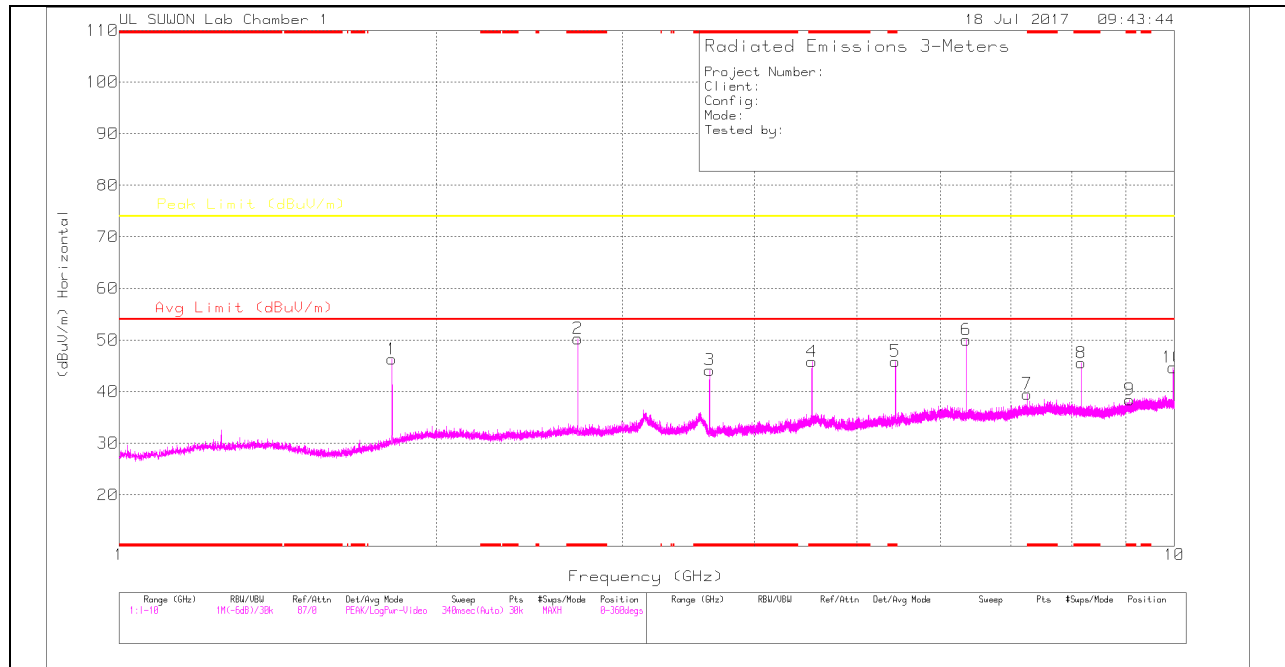


Duty cycle factor = 10 log (1/x).
 $x = 21.95\text{ms} / 110.80\text{ ms} = 0.198$
 $\text{DCF} = 10\log(1/0.198) = 7.03\text{ dB}$

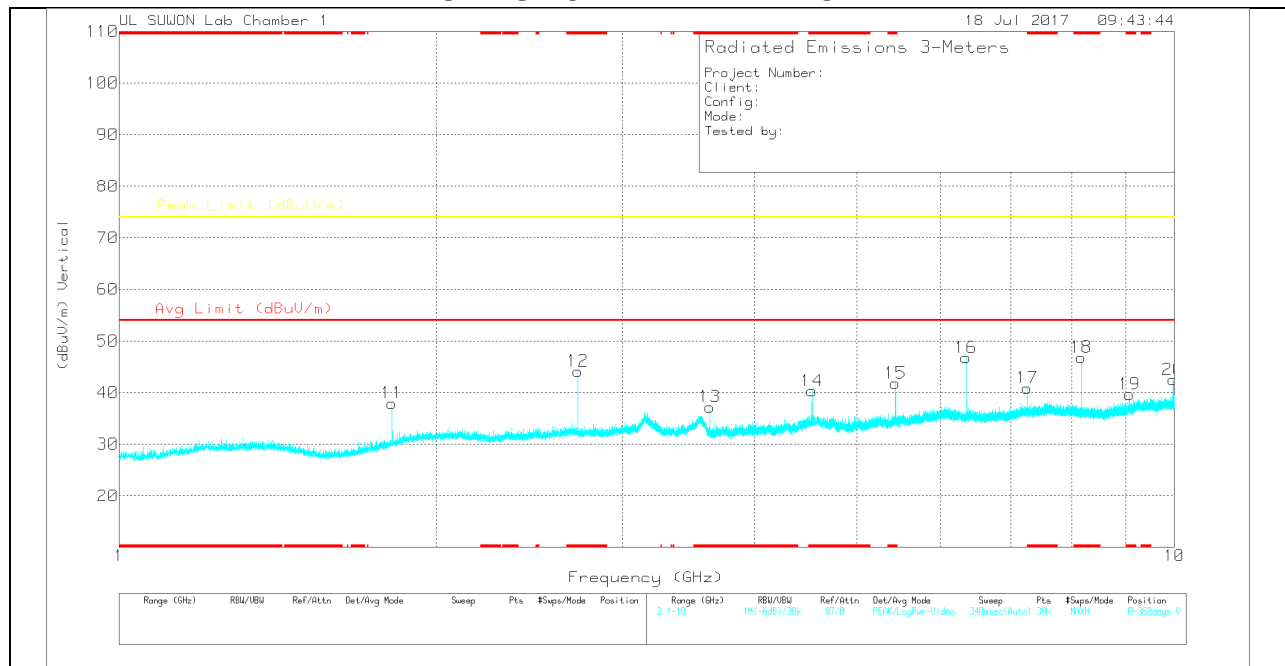
10.2. TRANSMITTER ABOVE 1 GHz

HARMONICS AND SPURIOUS EMISSIONS

LOWEST CHANNEL HORIZONTAL



LOWEST CHANNEL VERTICAL



Note: Emission was scanned up to 10 GHz

LOWEST CHANNEL DATA

Radiated Emissions

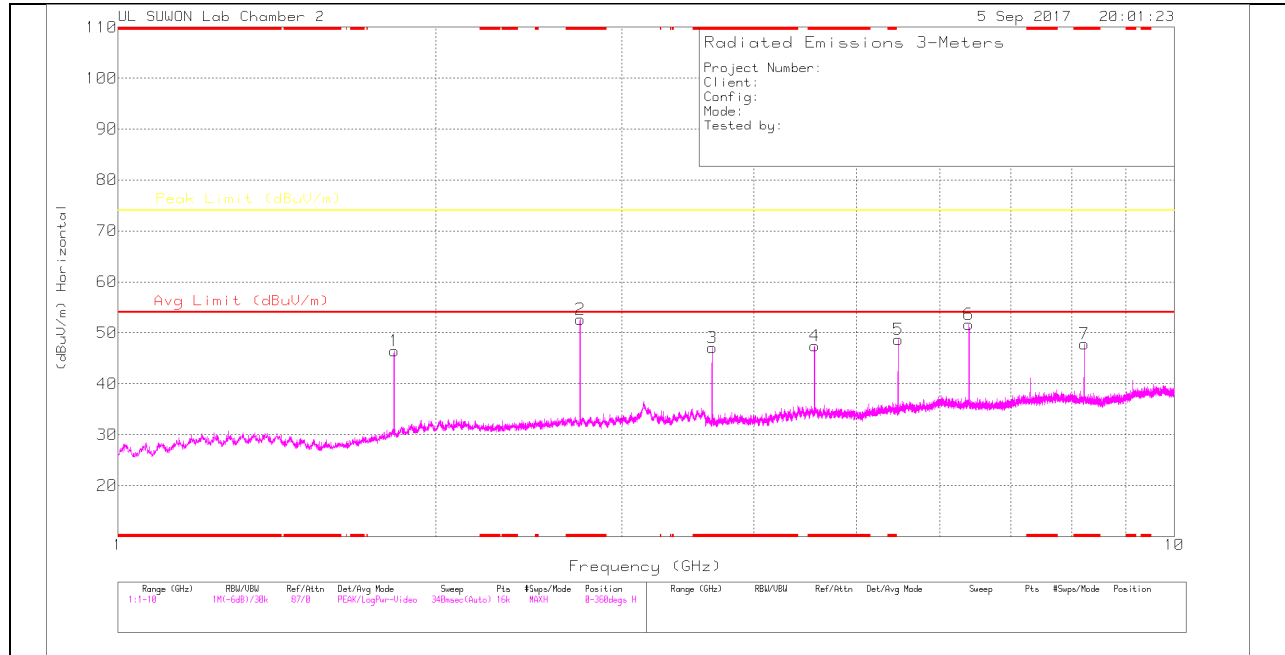
Frequency (GHz)	Meter Reading (dBuV)	Det	2017053 1.3117 0016871 7	1-18G(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.814	58.3	PK2	30.1	-39.2	0	49.2	-	-	74	-24.8	203	332	H
* 2.721	60.96	PK2	32.1	-38.4	0	54.66	-	-	74	-19.34	258	120	H
* 2.721	51.64	MAv1	32.1	-38.4	7.03	52.37	54	-1.63	-	-	258	120	H
* 3.627	52.31	PK2	32.8	-35.7	0	49.41	-	-	74	-24.59	263	120	H
* 4.534	51.75	PK2	33.8	-34.7	0	50.85	-	-	74	-23.15	204	120	H
* 5.442	51.62	PK2	34.3	-33.4	0	52.52	-	-	74	-21.48	242	105	H
6.35	51.99	PK2	35.1	-32	0	55.09	-	-	74	-18.91	222	385	H
* 7.256	44.61	PK2	35.9	-31.8	0	48.71	-	-	74	-25.29	103	120	H
* 8.163	47.22	PK2	35.7	-30.8	0	52.12	-	-	74	-21.88	109	100	H
1.814	53.73	PK2	30.1	-39.2	0	44.63	-	-	74	-29.37	167	117	V
* 2.721	56.32	PK2	32.1	-38.3	0	50.12	-	-	74	-23.88	200	400	V
* 3.627	48.69	PK2	32.8	-35.7	0	45.79	-	-	74	-28.21	27	360	V
* 4.535	48.83	PK2	33.8	-34.7	0	47.93	-	-	74	-26.07	176	385	V
* 5.441	48.68	PK2	34.3	-33.4	0	49.58	-	-	74	-24.42	68	105	V
6.347	49.06	PK2	35.1	-32	0	52.16	-	-	74	-21.84	39	100	V
* 7.255	44.81	PK2	35.9	-31.8	0	48.91	-	-	74	-25.09	322	100	V
* 8.163	47.72	PK2	35.7	-30.8	0	52.62	-	-	74	-21.38	321	110	V
* 9.069	41.91	PK2	36.3	-29.6	0	48.61	-	-	74	-25.39	188	330	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

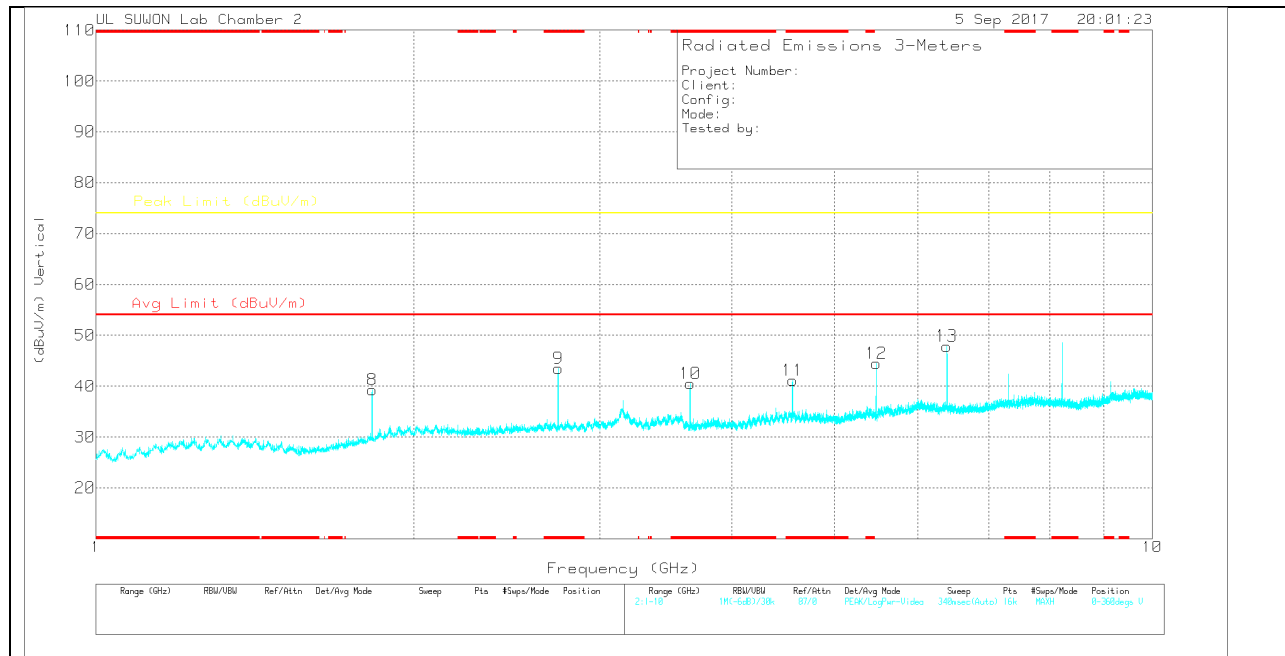
PK2 - KDB558074 Method: Maximum Peak

Note. If peak measurement data meet average limit, average test was omitted.

MIDDLE CHANNEL HORIZONTAL



MIDDLE CHANNEL VERTICAL



Note: Emission was scanned up to 10 GHz

MIDDLE CHANNEL DATA

Radiated Emissions

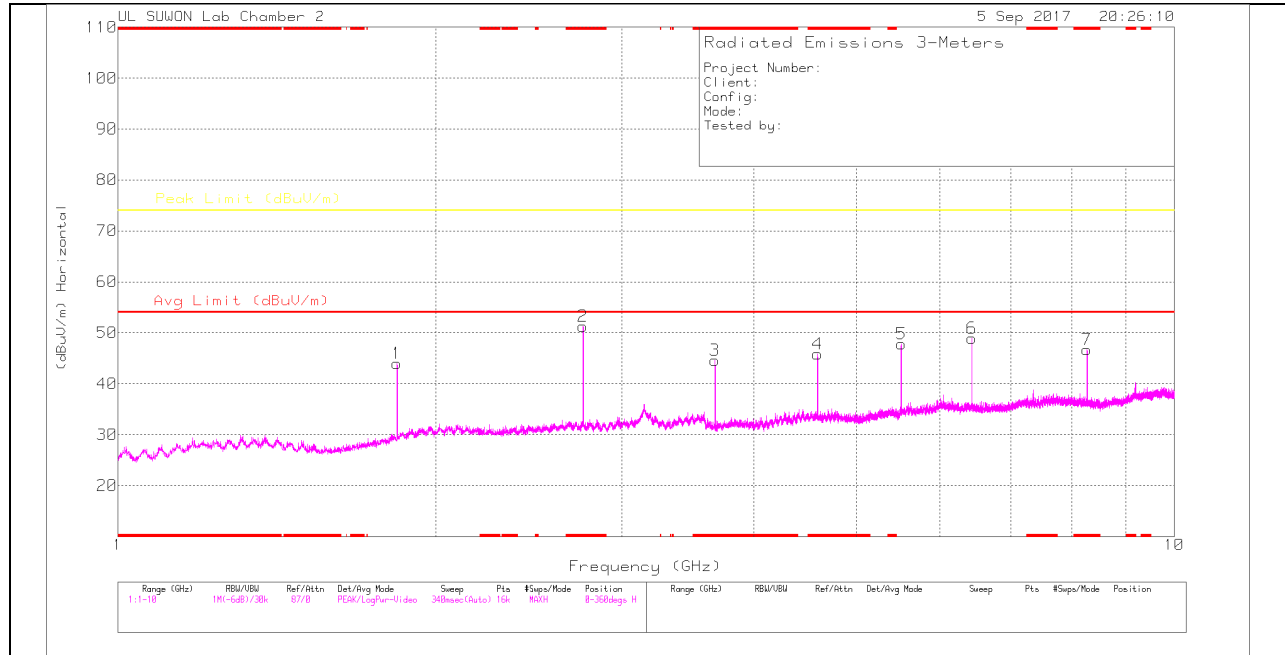
Frequency (GHz)	Meter Reading (dBuV)	Det	2017053 1_3117_0016871 7	1-18G(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.826	45.12	PK2	30.3	-29	46.42	-	-	-	74	-27.58	215	314	H
* 2.739	48.11	PK2	32.1	-27.6	52.61	-	-	-	74	-21.39	252	121	H
* 3.651	41.2	PK2	32.7	-26.8	47.1	-	-	-	74	-26.9	261	123	H
* 4.566	39.57	PK2	33.8	-25.9	47.47	-	-	-	74	-26.53	202	117	H
5.478	39.42	PK2	34.4	-25.1	48.72	-	-	-	74	-25.28	247	121	H
6.391	40.27	PK2	35.1	-23.7	51.67	-	-	-	74	-22.33	226	377	H
* 8.218	33.37	PK2	35.6	-21.1	47.87	-	-	-	74	-26.13	112	102	H
1.826	37.98	PK2	30.3	-29	39.28	-	-	-	74	-34.72	169	121	V
* 2.739	39	PK2	32.1	-27.6	43.5	-	-	-	74	-30.5	197	356	V
* 3.651	34.67	PK2	32.7	-26.8	40.57	-	-	-	74	-33.43	17	314	V
* 4.566	33.23	PK2	33.8	-25.9	41.13	-	-	-	74	-32.87	171	377	V
5.479	35.12	PK2	34.4	-25	44.52	-	-	-	74	-29.48	72	101	V
6.39	36.38	PK2	35.1	-23.6	47.88	-	-	-	74	-26.12	44	109	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

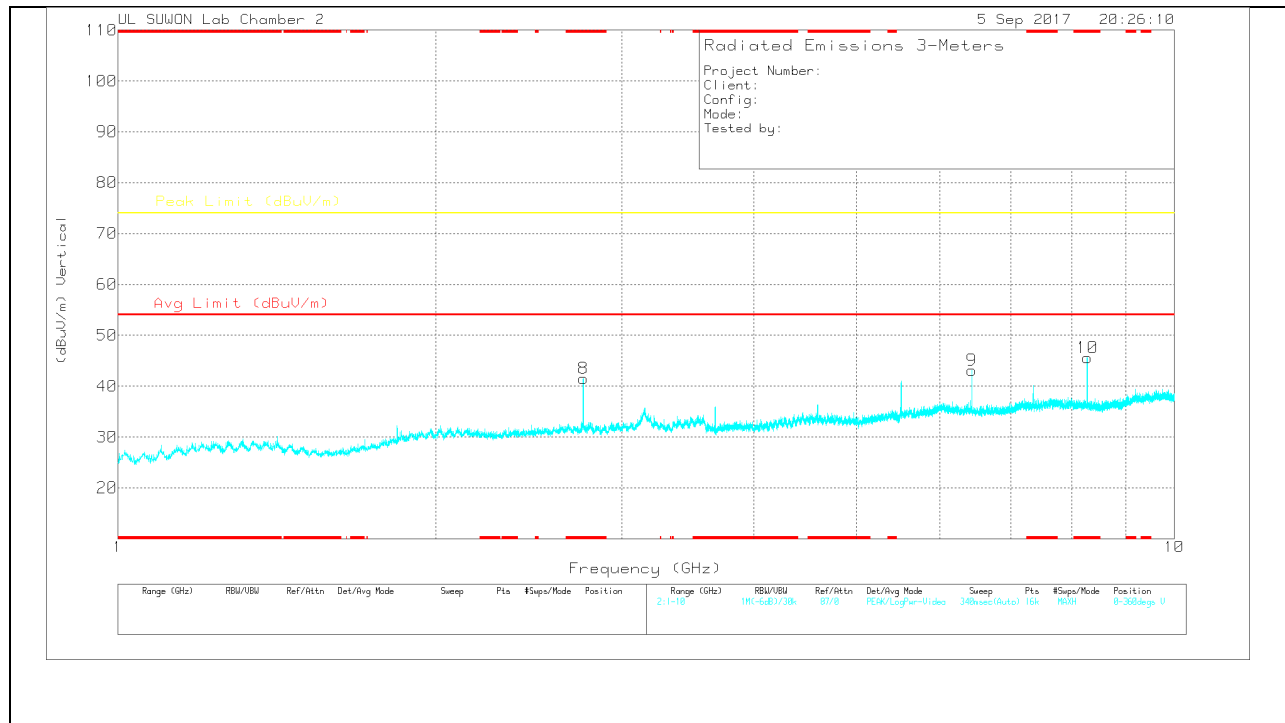
PK2 - KDB558074 Method: Maximum Peak

Note. If peak measurement data meet average limit, average test was omitted.

HIGHEST CHANNEL HORIZONTAL



HIGHEST CHANNEL VERTICAL



Note: Emission was scanned up to 10 GHz

HIGHEST CHANNEL DATA

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	2017053 1.3117 0016871 7	1- 18G(dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.838	42.59	PK2	30.4	-29	43.99	-	-	-	74	-30.01	210	304	H
* 2.757	46.89	PK2	32.1	-27.7	51.29	-	-	-	74	-22.71	242	111	H
* 3.675	38.89	PK2	32.6	-26.9	44.59	-	-	-	74	-29.41	250	119	H
* 4.595	38.03	PK2	33.8	-26	45.83	-	-	-	74	-28.17	205	116	H
5.515	38.4	PK2	34.4	-25	47.8	-	-	-	74	-26.2	245	123	H
6.432	37.42	PK2	35.1	-23.6	48.92	-	-	-	74	-25.08	223	371	H
* 8.269	31.85	PK2	35.7	-20.9	46.65	-	-	-	74	-27.35	110	100	H
* 2.757	37.11	PK2	32.1	-27.7	41.51	-	-	-	74	-32.49	194	388	V
6.433	31.62	PK2	35.1	-23.6	43.12	-	-	-	74	-30.88	44	102	V
* 8.272	30.8	PK2	35.7	-20.9	45.6	-	-	-	74	-28.4	327	116	

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

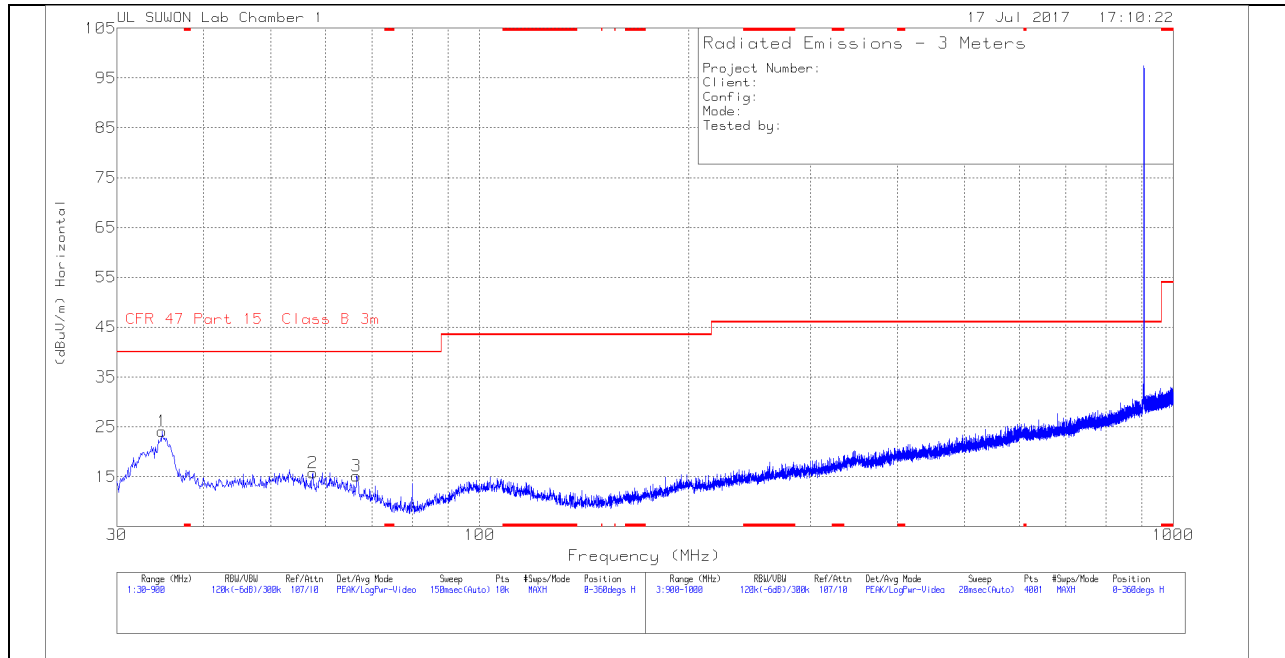
PK2 - KDB558074 Method: Maximum Peak

Note. If peak measurement data meet average limit, average test was omitted.

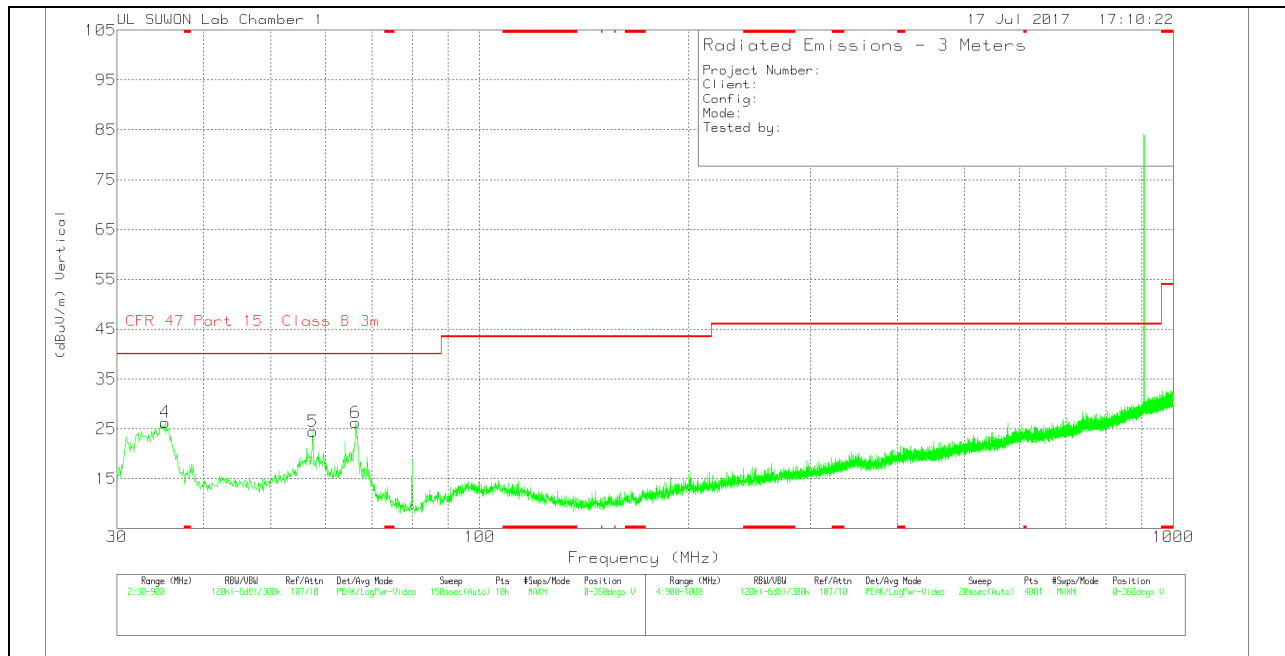
10.3. WORST-CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)

HORIZONTAL PLOT



VERTICAL PLOT



BELOW 1 GHz TABLE

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750(dB)	30-1000MHz[dB]	Corrected Reading (dBuV/m)	CFR 47 Part 15 Class B 3m	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	34.872	43.06	Pk	10.7	-29.6	24.16	40	-15.84	0-360	300	H
2	57.492	31.9	Pk	13.1	-29.2	15.8	40	-24.2	0-360	400	H
3	66.453	33.35	Pk	10.7	-28.9	15.15	40	-24.85	0-360	400	H
4	35.22	45.12	Pk	10.8	-29.6	26.32	40	-13.68	0-360	100	V
5	57.492	40.64	Pk	13.1	-29.2	24.54	40	-15.46	0-360	100	V
6	66.279	44.49	Pk	10.8	-29	26.29	40	-13.71	0-360	100	V

Pk - Peak detector

Note1: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than Quasi-Peak limit.

Note2: The test was processed 907 MHz(worst case)

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

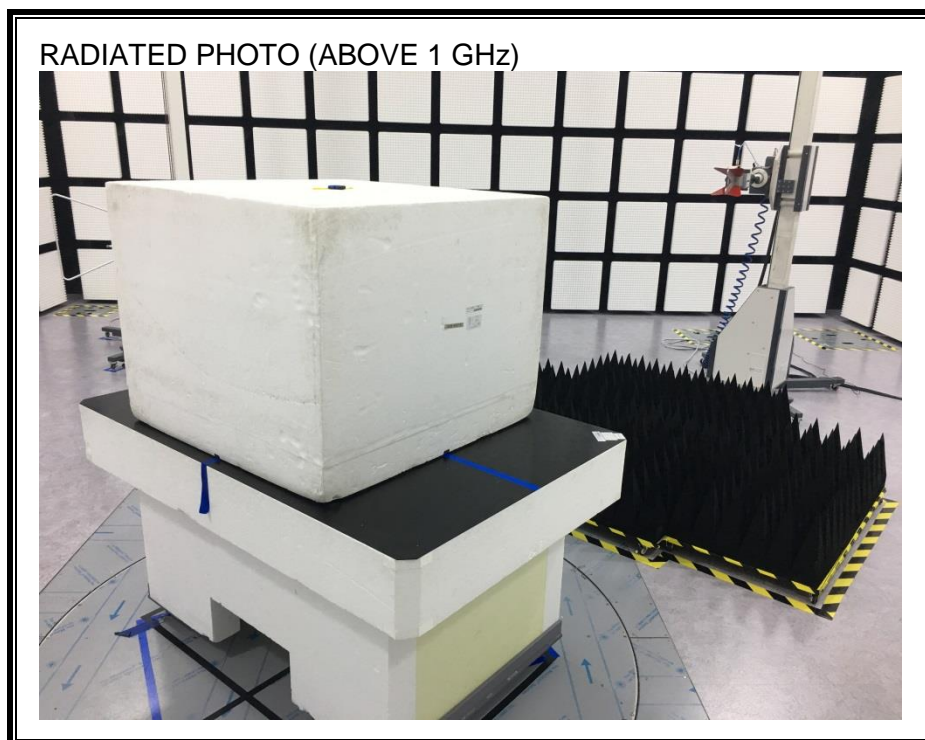
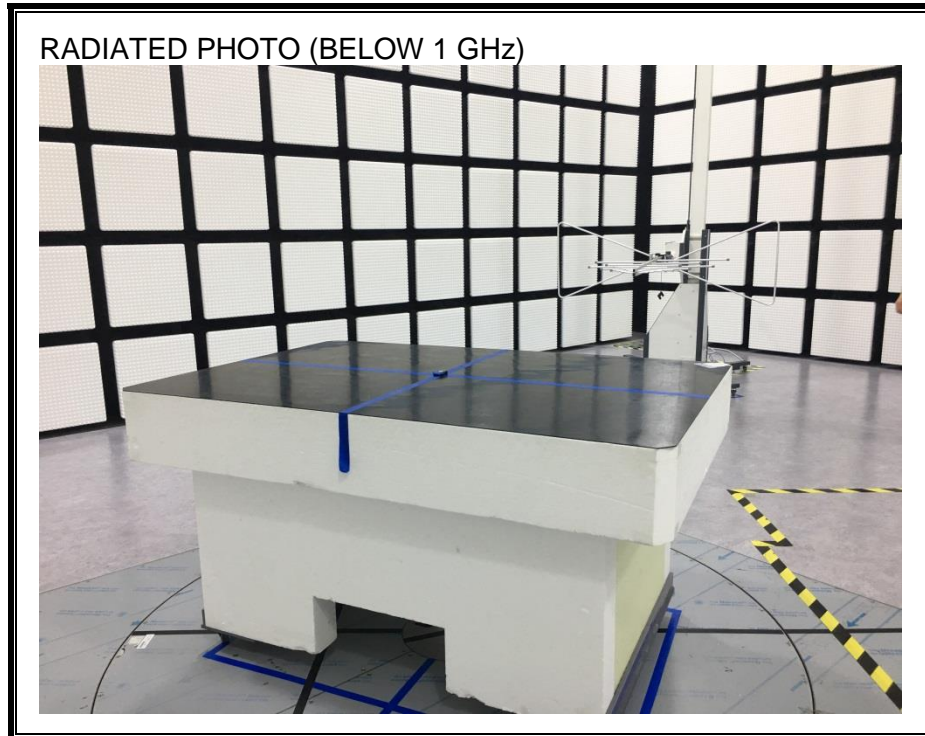
Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS: N/A

Note. EUT use Non-rechargeable battery.

12. SETUP PHOTOS

RADIATED RF MEASUREMENT SETUP



END OF REPORT