



CERTIFICATION TEST REPORT

Report Number. : 4790485268-FR1V2

Applicant : Automotive Data Solutions Inc.
8400 Bougainville Montreal Quebec Canada H4P 2G1

Model : TR4650A

FCC ID : 2AEPJ-TR4650A
IC : 11418A-TR4650A

EUT Description : Keyless Entry System

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-247 Issue 2
INDUSTRY CANADA RSS-GEN Issue 5

Date Of Issue:
2022-10-21

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REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2022-10-20	Initial issue	Jaejin Lee
V2	2022-10-21	Updated to address about the TCB's question	Jaejin Lee

TABLE OF CONTENTS

REPORT REVISION HISTORY	2
TABLE OF CONTENTS	3
1. ATTESTATION OF TEST RESULTS	4
2. TEST METHODOLOGY	5
3. FACILITIES AND ACCREDITATION	5
4. DECISION RULES AND MEASUREMENT UNCERTAINTY	6
4.1. METROLOGICAL TRACEABILITY	6
4.2. SAMPLE CALCULATION	6
4.3. MEASUREMENT UNCERTAINTY	6
4.4. DECISION RULES	6
5. EQUIPMENT UNDER TEST	7
5.1. EUT DESCRIPTION	7
5.2. MAXIMUM OUTPUT POWER	7
5.3. DESCRIPTION OF AVAILABLE ANTENNAS	7
5.4. WORST-CASE CONFIGURATION AND MODE	7
5.5. DESCRIPTION OF TEST SETUP	8
6. MEASUREMENT METHOD	11
7. TEST AND MEASUREMENT EQUIPMENT	12
8. SUMMARY TABLE	13
9. ANTENNA PORT TEST RESULTS	14
9.1. ON TIME AND DUTY CYCLE	14
9.2. 99% BANDWIDTH	15
9.3. 6 dB BANDWIDTH	17
9.4. PEAK OUTPUT POWER	19
9.5. POWER SPECTRAL DENSITY	21
9.6. CONDUCTED SPURIOUS EMISSIONS	23
10. RADIATED TEST RESULTS	25
10.1. LIMITS AND PROCEDURE	25
10.2. TRANSMITTER ABOVE 1 GHz	28
10.3. WORST CASE BELOW 1 GHz	30
11. AC POWER LINE CONDUCTED EMISSIONS	32

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Automotive Data Solutions Inc.

EUT DESCRIPTION: Keyless Entry System

MODEL: TR4650A

SERIAL NUMBER: Prototype (CONDUCTED)
Prototype (RADIATED);

DATE TESTED: 2022-09-13 ~ 2022-09-27

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Complies
INDUSTRY CANADA RSS-247 Issue 2	Complies
INDUSTRY CANADA RSS-GEN Issue 5	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.

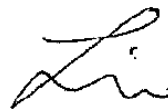
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration 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:



Anthony Kim
Senior Laboratory Engineer
UL Korea, Ltd.

Tested By:



Jaejin Lee
Laboratory Engineer
UL Korea, Ltd.

2. TEST METHODOLOGY

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 15.
3. IC RSS-247 Issue 2
4. IC RSS-GEN Issue 5
5. KDB 558074 D01 15.247 Meas Guidance v05r02.
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
<input checked="" type="checkbox"/> Chamber 3

Used ISED Test Site Reg.(company number): 2324L
CAB Identifier: KR0161

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. DECISION RULES AND MEASUREMENT UNCERTAINTY

4.1. METROLOGICAL TRACEABILITY

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:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 28.9 \text{ dBuV/m} &= 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} \end{aligned}$$

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	2.87 dB
Radiated Disturbance, 30 MHz to 1 GHz	4.05 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.78 dB
Radiated Disturbance, 18 GHz to 40 GHz	5.58 dB

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

4.4. DECISION RULES

Decision rule for statement(s) of conformity is based on Procedure 2, Clause 4.4.3 in IEC Guide 115:2021.

5. EQUIPMENT UNDER TEST

5.1. EUT DESCRIPTION

The EUT is Keyless Entry System.
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]
915	DSSS	Peak	14.29	26.85

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

**The internal antenna was Permanently attached.
Therefore this E.U.T Complies with the requirement of §15.203.**

The radio utilizes an internal antenna, with a maximum gain of -9.7 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 highest output power as worst-case scenario.

Radiated emission above 1GHz was performed with the EUT set to transmit a channel.

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

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
N/A	N/A	N/A	N/A	N/A

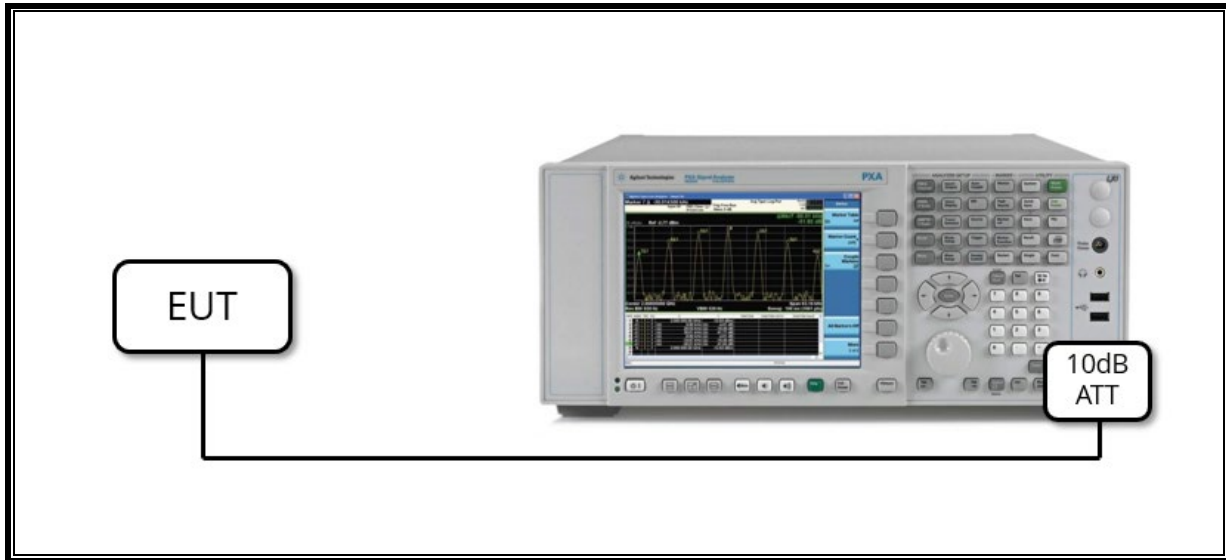
I/O CABLE

Cable No	Port	# of identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
N/A	N/A	N/A	N/A	N/A	N/A	N/A

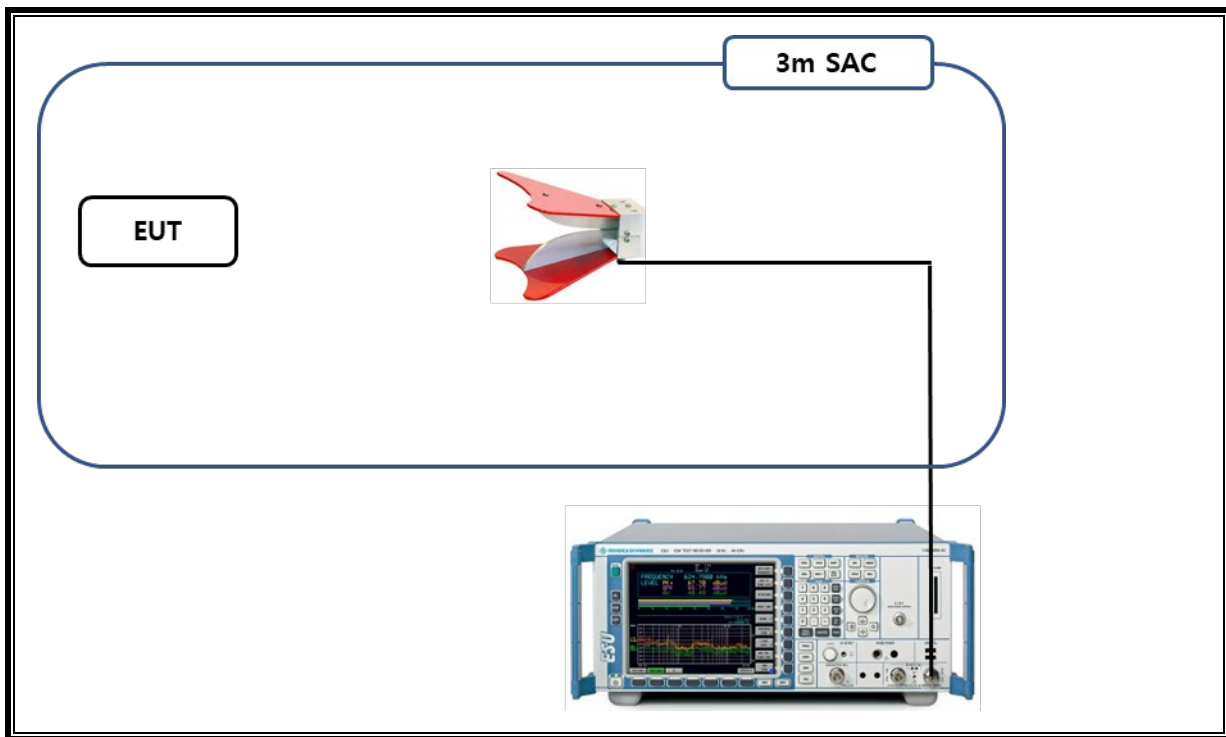
TEST SETUP

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

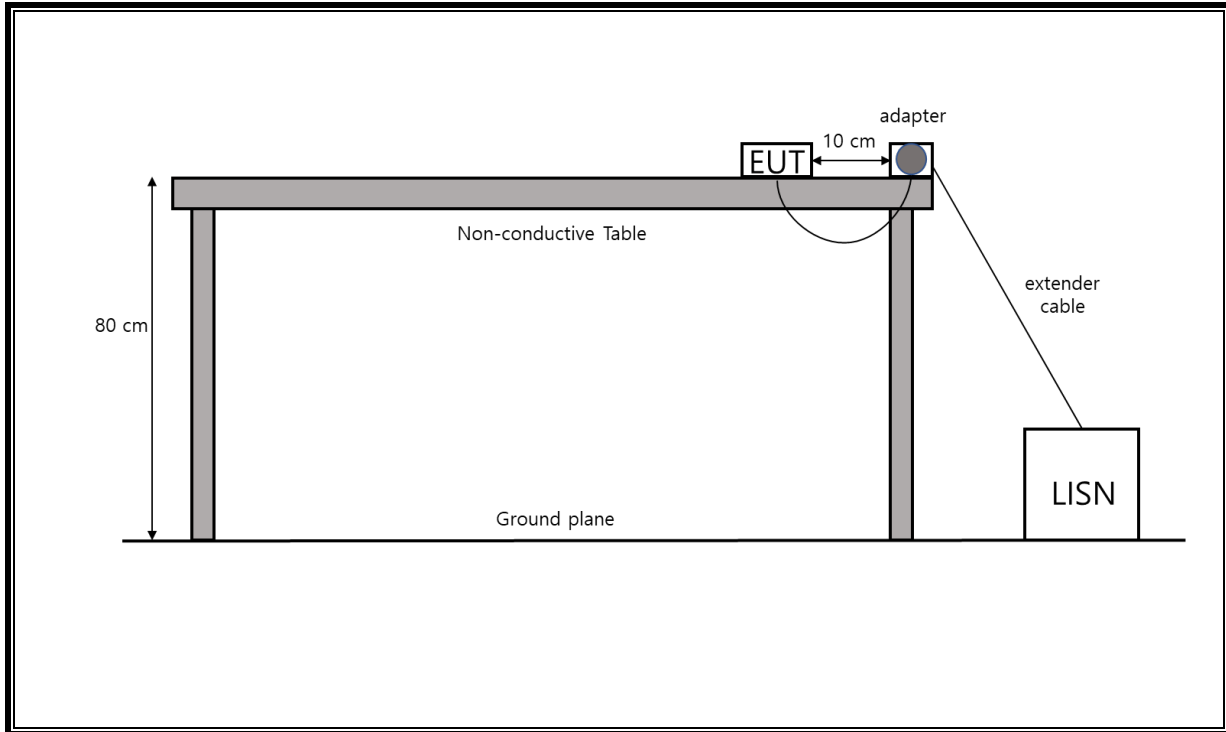
SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



SETUP DIAGRAM FOR TESTS (AC LINE CONDUCTED TEST SETUP)



6. MEASUREMENT METHOD

6 dB BW : ANSI C63.10-2013, Section 11.8.2 Option 2

OUTPUT POWER : ANSI C63.10-2013, Section 11.9.1.1

POWER SPECTRAL DENSITY : ANSI C63.10-2013, Section 11.10.2

Out-of-band Emissions (Conducted) : ANSI C63.10-2013, Section 11.11 Emissions in nonrestricted frequency bands

Out-of-band Emissions in Non-restricted Bands : ANSI C63.10-2013, Section 11.11 Emissions in nonrestricted frequency bands

Out-of-band Emissions in Restricted Bands : ANSI C63.10-2013, Section 11.12 Emissions in restricted frequency bands

AC Power Line Conducted Emission : ANSI C63.10-2013, Section 6.2

7. 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	2024-08-15
Antenna, Horn, 18 GHz	ETS	3117	00218957	2023-01-15
Preamplifier	ETS	3116C-PA	00168841	2023-08-04
Preamplifier, 1000 MHz	Sonoma	310N	341282	2023-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	2023-08-01
Spectrum Analyzer, 44 GHz	KEYSIGHT	N9030B	MY57143717	2023-08-05
Spectrum Analyzer, 44 GHz	KEYSIGHT	N9030B	MY57143652	2023-08-05
Attenuator	PASTERNAK	PE7087-10	A001	2023-08-03
EMI Test Receive, 40 GHz	R&S	ESU40	100439	2023-08-02
EMI Test Receive, 3 GHz	R&S	ESR3	102592	2023-08-01
EMI Test Receive, 44 GHz	R&S	ESW44	101590	2023-08-01
High Pass Filter 1.2GHz	MICRO-TRONICS	HPM50108-02	G005	2023-08-01
LISN	R&S	ENV216	102478	2023-08-03
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	2023-10-06
UL Software				
Description	Manufacturer	Model	Version	
Radiated software	UL	UL EMC	Ver 9.5	
AC Line Conducted software	R&S	EMC32	Ver 10.60.10	

8. SUMMARY TABLE

FCC Part Section	IC Section	Test Description	Test Limit	Test Condition	Test Result
15.247 (a)(2)	RSS-247 5.2(a)	Occupied Band width (6dB)	> 500KHz	Conducted	PASS
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-20dBc		PASS
15.247 (b)(3)	RSS-247 5.4(d)	TX conducted output power	< 30dBm		PASS
15.247 (e)	RSS-247 5.2(b)	PSD	< 8dBm		PASS
15.205, 15.209	RSS-GEN 8.9 & 8.10	Radiated Spurious Emission	< 54dBuV/m	Radiated	PASS
15.207 (a)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 11	Power Line Conducted	PASS

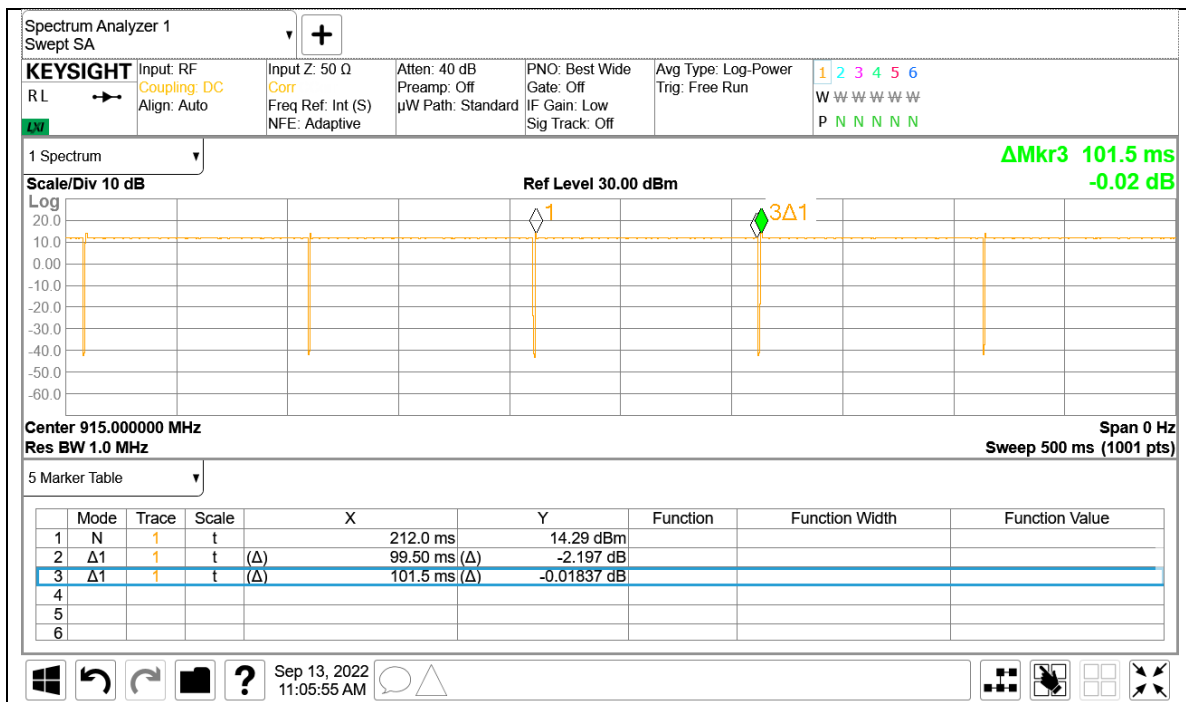
9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

Mode	T on [ms]	T period [ms]	Duty Cycle x [linear]	Duty Cycle [%]	Duty Cycle Correction Factor [dB]
DSSS	99.5	101.5	0.9803	98.03%	0.00



9.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

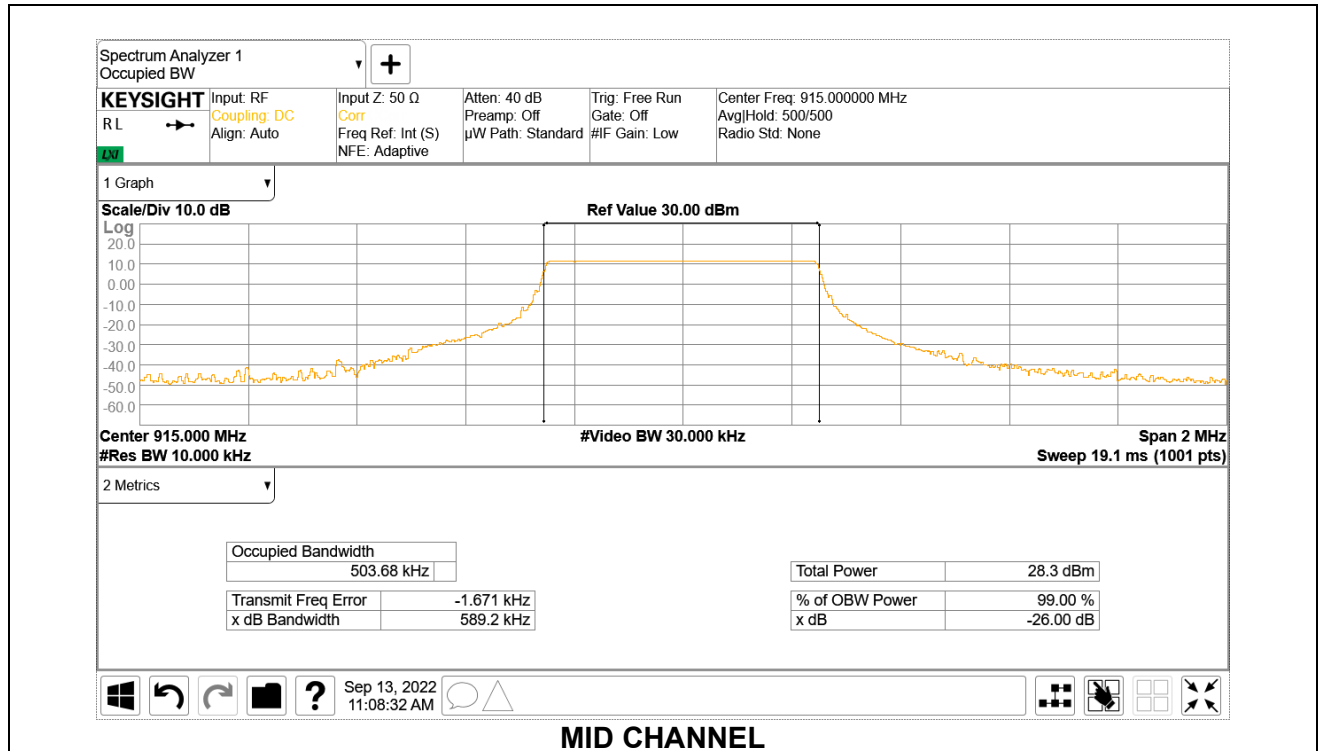
TEST PROCEDURE

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 spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

99% BANDWIDTH data

Channel	Frequency [MHz]	99% Bandwidth [kHz]
Mid	915	503.68
Worst		503.68



9.3. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

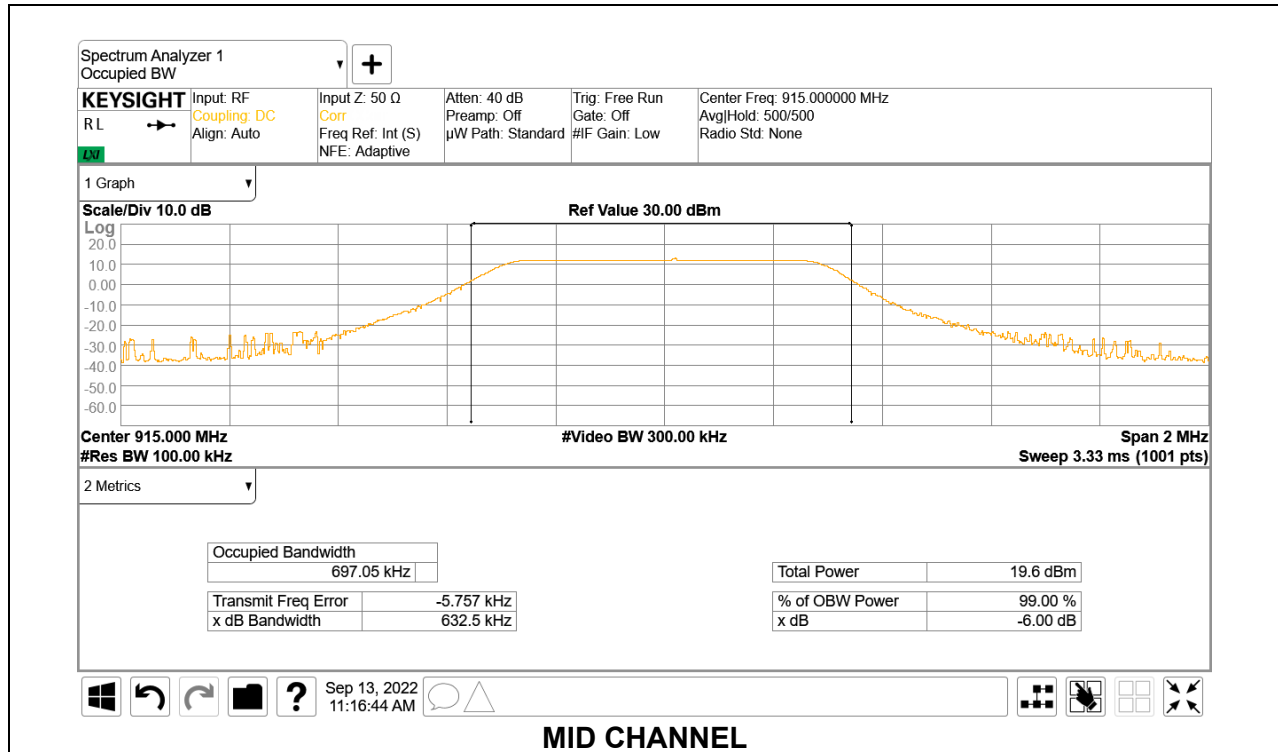
IC RSS-247 5.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

6dB Bandwidth data

Channel	Frequency [MHz]	6 dB Bandwidth [kHz]	Minumun Limit [kHz]
Mid	915	632.5	500.0
Worst		632.5	500.0



9.4. PEAK OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)

IC RSS-247 5.4 (d)

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

TEST PROCEDURE

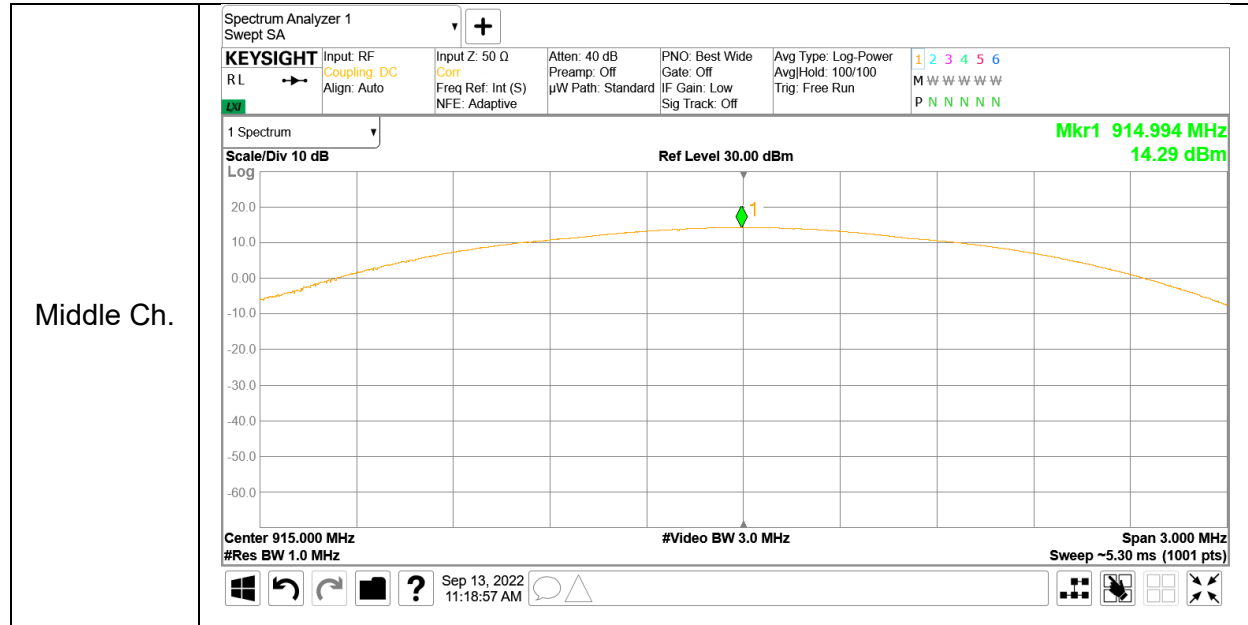
Peak power is measured using ANSI C63.10(2013) under section 11.9.1.1 utilizing spectrum analyzer.

RESULTS

PEAK OUTPUT POWER data

Channel	Frequency [MHz]	Peak Power [dBm]	Limit [dBm]	Margin [dB]
Mid	915	14.29	30.00	-15.71
Worst		14.29	30.00	-15.71

PEAK OUTPUT POWER PLOTS



9.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-247 (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.

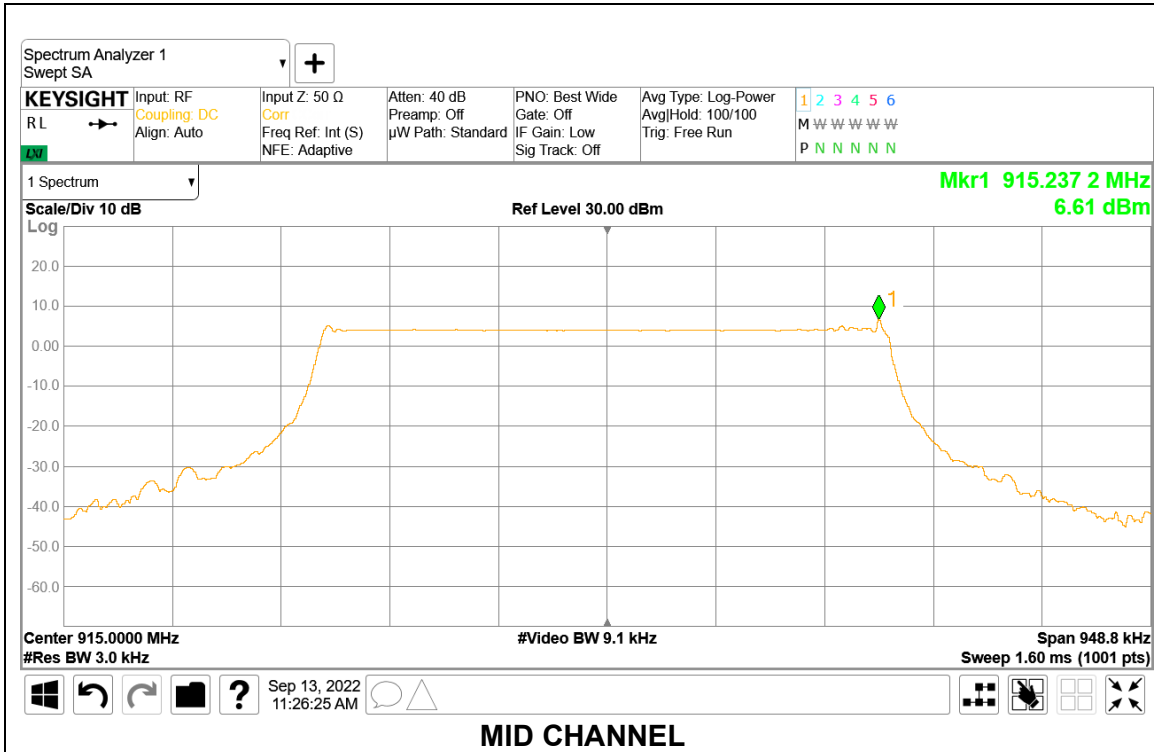
TEST PROCEDURE

Power Spectral Density was measured using ANSI C63.10(2013) under section 11.10.2 utilizing spectrum analyzer.

RESULTS

PSD data

Channel	Frequency [MHz]	PSD [dBm/3kHz]	Limit [dBm/3kHz]	Margin [dB]
Mid	915	6.61	8.00	-1.39



9.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-247 5.5

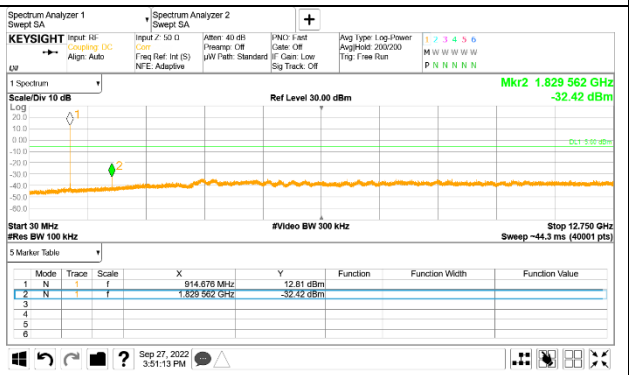
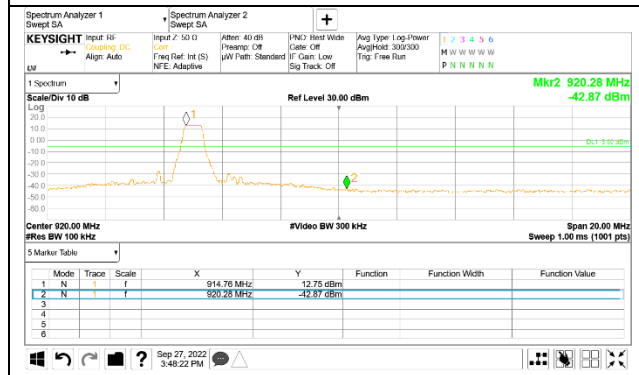
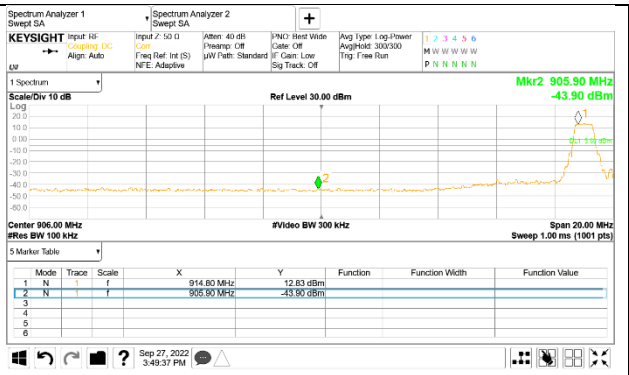
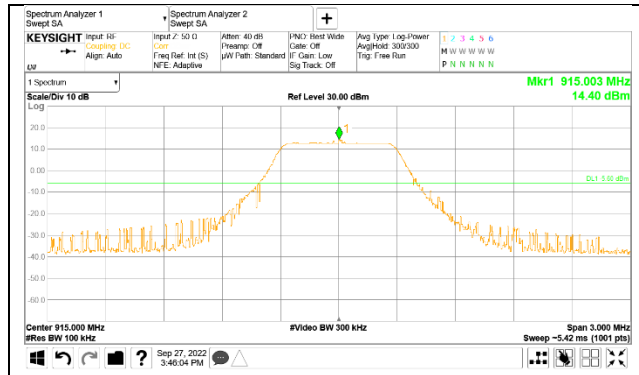
Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

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

CONDUCTED SPURIOUS EMISSIONS PLOTS



10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209
 IC RSS-GEN 8.9 and 8.10

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.

Formula for converting the filed strength from uV/m to dBuV/m is:
 Limit (dBuV/m) = 20 log limit (uV/m)

Frequency (MHz)	Magnetic field strength (H-Field) (µA/m)	Measurement Distance (m)
0.009–0.490 ^{Note 1}	6.37/F (F in kHz)	300
0.490–1.705	63.7/F (F in kHz)	30
1.705–30.0	0.08	30

Note 1: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

Note: The limits for spurious emissions below 30 MHz in RSS GEN Section 8.9 Table 6 are given in uA/m(dBuA/m) while the FCC Part 15.209(a) limits are expressed in uV/m(dBuV/m). Using the free space impedance of 377Ω to convert between electric and magnetic field strength (a factor of 51.5dB in logarithmic units) the two sets of limits are equivalent and therefore a measured value of X dBuV/m shown in the tables is equal to a magnetic field strength of (X - 51.5) dBuA/m and the margin of that emission relative to the RSS GEN limit (FCC 15.209 limit – 51.5) dBuA/m would be the same as the margin to the FCC limit detailed in those tables.

FCC Part 15.205 (a) : Only spurious emissions are permitted in any of the frequency bands listed below :

MHz	MHz	MHz	MHz	GHz	GHz
0.009 ~ 0.110	8.41425 ~ 8.41475	108 ~ 121.94	1300 ~ 1427	4.5 ~ 5.15	14.47 ~ 14.5
0.495 ~ 0.505	12.29 ~ 12.293	123 ~ 138	1435 ~ 1626.5	5.35 ~ 5.46	15.35 ~ 16.2
2.1735 ~ 2.1905	12.51975 ~ 12.52025	149.9 ~ 150.05	1645.5 ~ 1646.5	7.25 ~ 7.75	17.7 ~ 21.4
4.125 ~ 4.128	12.57675 ~ 12.57725	156.52475 ~	1660 ~ 1710	8.025 ~ 8.5	22.01 ~ 23.12
4.17725 ~ 4.17775	13.36 ~ 13.41	156.52525	1718.8 ~ 1722.2	9.0 ~ 9.2	23.6 ~ 24.0
4.20725 ~ 4.20775	16.42 ~ 16.423	156.7 ~ 156.9	2200 ~ 2300	9.3 ~ 9.5	31.2 ~ 31.8
6.215 ~ 6.218	16.69475 ~ 16.69525	162.0125 ~	2310 ~ 2390	10.6 ~ 12.7	36.43 ~ 36.5
6.26775 ~ 6.26825	16.80425 ~ 16.80475	167.17	2483.5 ~ 2500	13.25 ~ 13.4	Above 38.6
6.31175 ~ 6.31225	25.5 ~ 25.67	167.72 ~ 173.2	2655 ~ 2900		
8.291 ~ 8.294	37.5 ~ 38.25	240 ~ 285	3260 ~ 3267		
8.362 ~ 8.366	73 ~ 74.6	322 ~ 335.4	3332 ~ 3339		
8.37625 ~ 8.38675	74.8 ~ 75.2	399.90 ~ 410	3345.8 ~ 3358		
		608 ~ 614	3600 ~ 4400		
		960 ~ 1240			

▪ FCC Part 15.205(b) : The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

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 band-edge, Final detection of spurious harmonic emissions)

Duty cycle factor = $10 \log(1/x)$. But this EUT operated on a duty cycle of over 98% during test. Therefore, duty cycle factor is not applied.

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 10 GHz is investigated with the transmitter set to one channel (915 MHz).

(From 30MHz to 1GHz, test was performed with the EUT set to transmit 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.

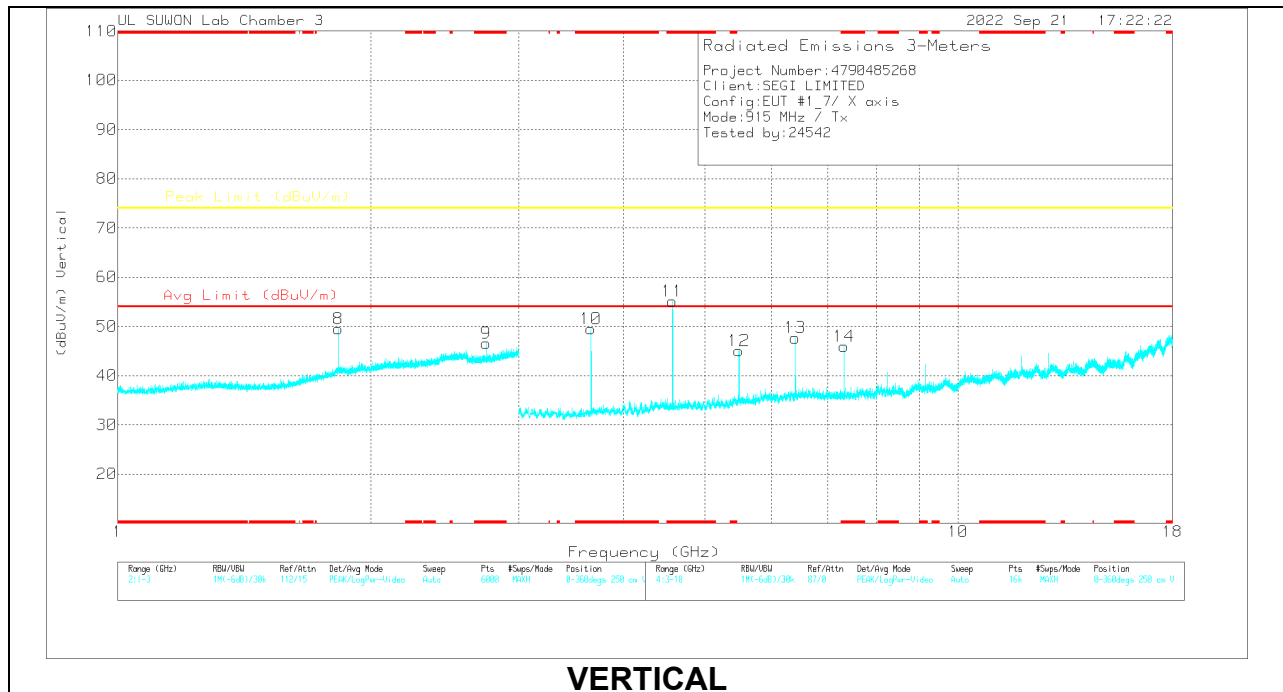
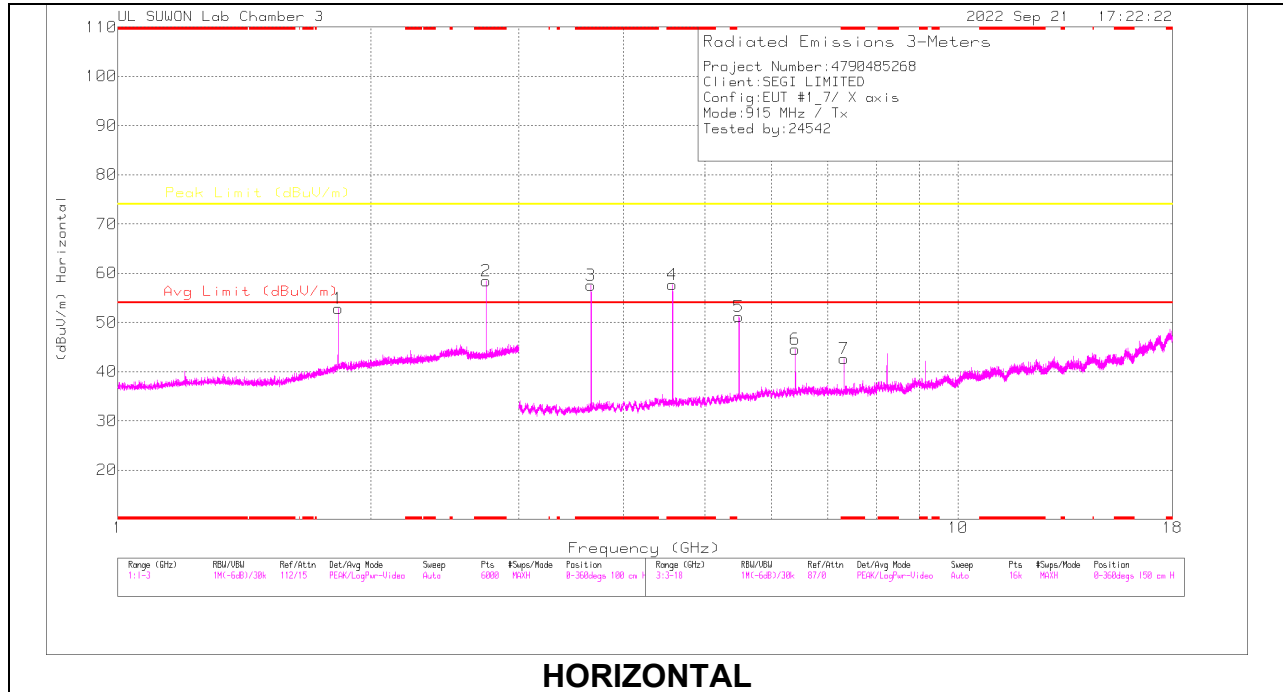
Note : Emission was pre-scanned from 9kHz to 30MHz; No emissions were detected which was at least 20dB below the specification limit (consider distance correction factor).
Per FCC part 15.31(o), test results were not reported.

Although these tests were performed other than open field 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.

10.2. TRANSMITTER ABOVE 1 GHz

HARMONICS AND SPURIOUS EMISSIONS

MID CHANNEL RESULTS



RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.82958	55.81	PK2	31.1	-25.5	61.41	-	-	74	-12.59	269	243	H
* 2.74422	52.9	PK2	32.8	-24.4	61.3	-	-	74	-12.7	126	292	H
* 2.7444	44.24	MAV1	32.8	-24.4	52.64	54	-1.36	-	-	126	292	H
1.82958	49.36	PK2	31.1	-25.5	54.96	-	-	74	-19.04	295	346	V
* 2.74444	49.9	PK2	32.8	-24.4	58.3	-	-	74	-15.7	179	329	V
* 2.74436	40.79	MAV1	32.8	-24.4	49.19	54	-4.81	-	-	179	329	V

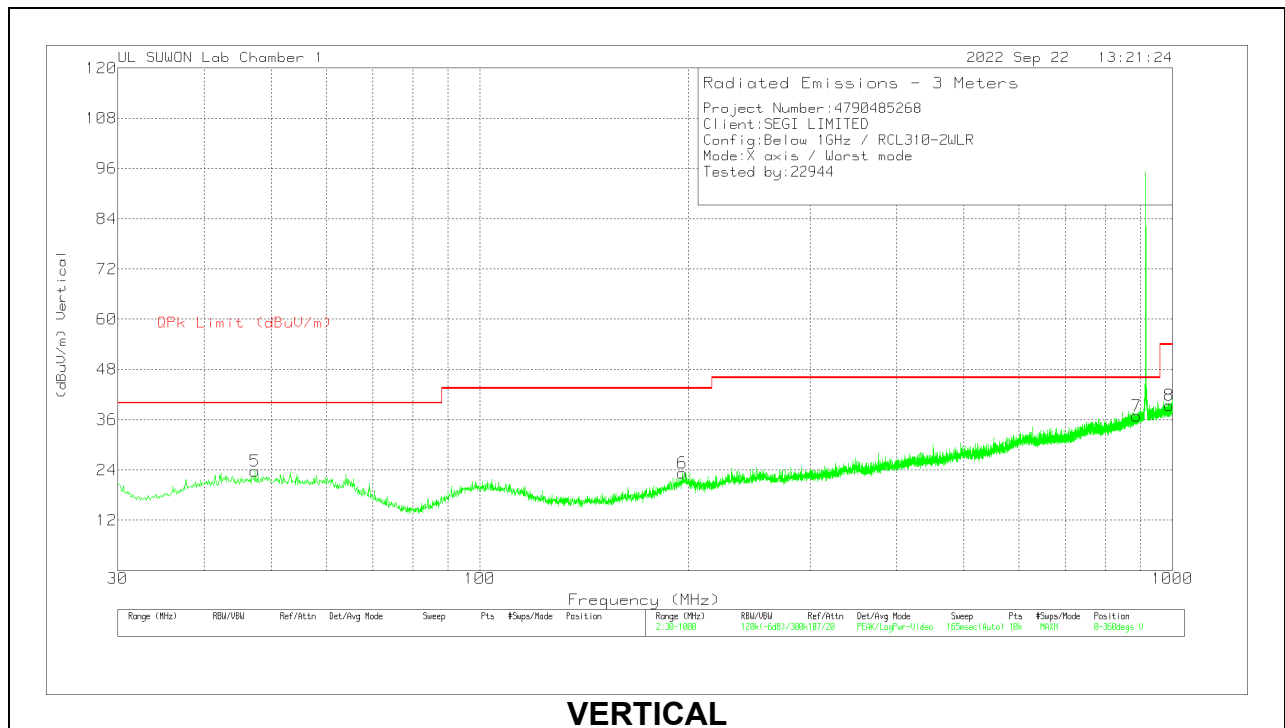
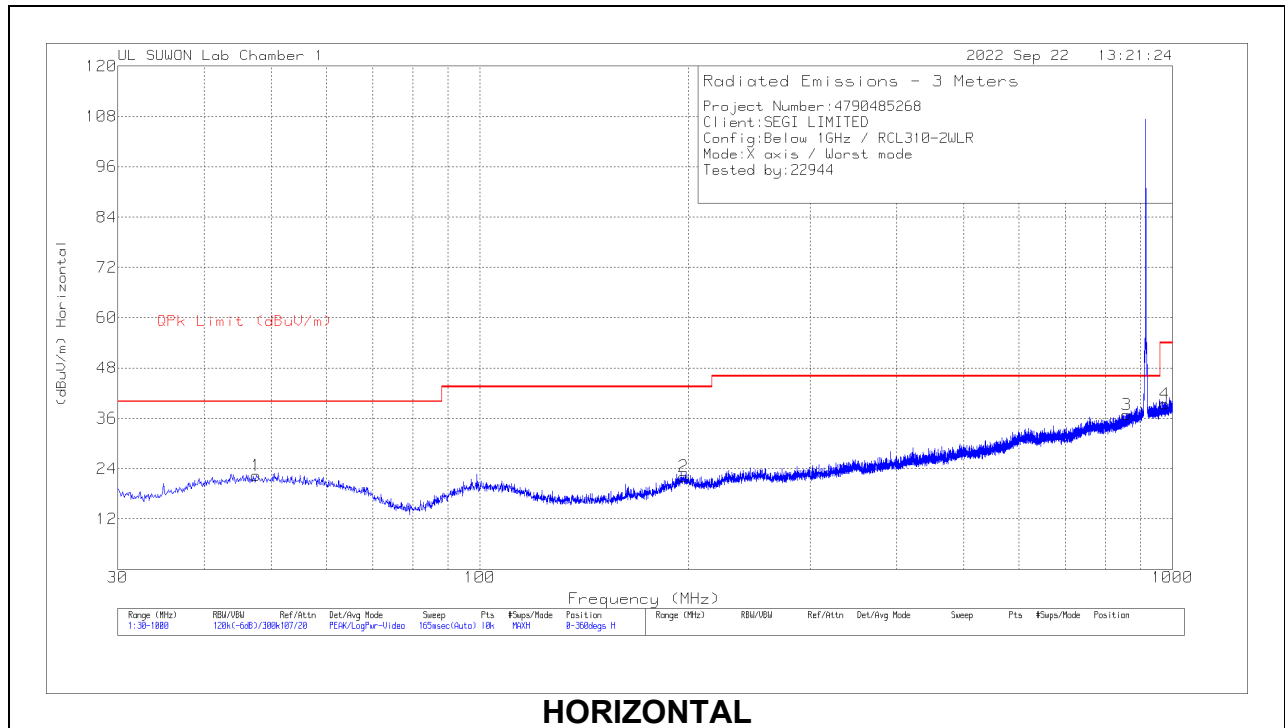
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAV1 - KDB558074 Option 1 Maximum RMS Average

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	3GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.65898	56.98	PK2	33.6	-32.1	58.48	-	-	74	-15.52	142	339	H
* 3.65915	50.38	MAV1	33.6	-32.1	51.88	54	-2.12	-	-	142	339	H
* 4.57399	57.05	PK2	34.4	-31.1	60.35	-	-	74	-13.65	30	373	H
* 4.57383	49.78	MAV1	34.4	-31.1	53.08	54	-9.2	-	-	30	373	H
5.48886	48.79	PK2	35.3	-28.1	55.99	-	-	74	-18.01	306	101	H
6.40367	44.05	PK2	36.3	-27.9	52.45	-	-	74	-21.55	349	100	H
* 7.31865	40.79	PK2	36	-25.2	51.59	-	-	74	-22.41	58	277	H
* 7.31851	26.53	MAV1	36	-25.2	37.33	54	-16.67	-	-	58	277	H
* 3.65914	54.68	PK2	33.6	-32.1	56.18	-	-	74	-17.82	214	342	V
* 3.65914	47.63	MAV1	33.6	-32.1	49.13	54	-4.87	-	-	214	342	V
* 4.57376	55.71	PK2	34.4	-31.1	59.01	-	-	74	-14.99	118	107	V
* 4.57385	48.61	MAV1	34.4	-31.1	51.91	54	-2.09	-	-	118	107	V
5.4901	47.2	PK2	35.3	-28.2	54.3	-	-	74	-19.7	126	108	V
6.40378	44.52	PK2	36.3	-27.9	52.92	-	-	74	-21.08	293	100	V
* 7.31837	40.13	PK2	36	-25.2	50.93	-	-	74	-23.07	312	101	V
* 7.31833	25.86	MAV1	36	-25.2	36.66	54	-17.34	-	-	312	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAV1 - KDB558074 Option 1 Maximum RMS Average

10.3. WORST CASE BELOW 1 GHZ

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



Below 1GHz Data

Radiated Emissions

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_749	Below 1G[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	47.557	33.79	Pk	19.8	-31.2	22.39	40	-17.61	0-360	300	H
2	196.937	33.55	Pk	18.3	-29.7	22.15	43.52	-21.37	0-360	200	H
3	859.641	35.61	Pk	27.5	-26.2	36.91	46.02	-9.11	0-360	200	H
4	975.168	35.79	Pk	28.4	-24.8	39.39	53.97	-14.58	0-360	200	H
5	47.363	35.18	Pk	19.8	-31.2	23.78	40	-16.22	0-360	300	V
6	196.064	34.88	Pk	18.2	-29.8	23.28	43.52	-20.24	0-360	100	V
7	888.547	34.75	Pk	28	-25.8	36.95	46.02	-9.07	0-360	100	V
8	990.106	35.57	Pk	28.4	-24.6	39.37	53.97	-14.6	0-360	300	V

Pk - Peak detector

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

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

IC RSS-GEN 8.8

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.

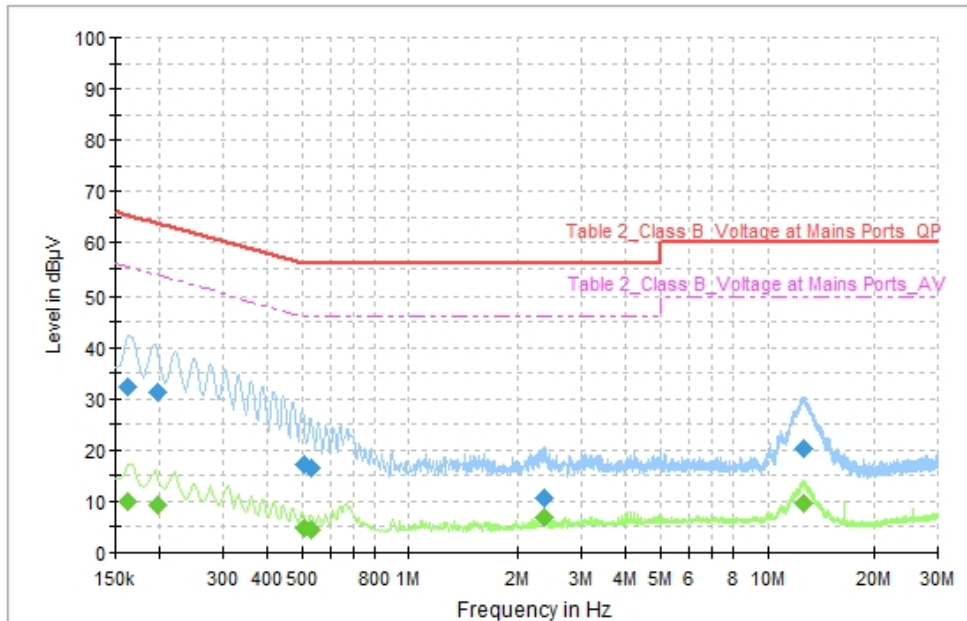
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS:

WORST EMISSIONS

LINE 1 DATA



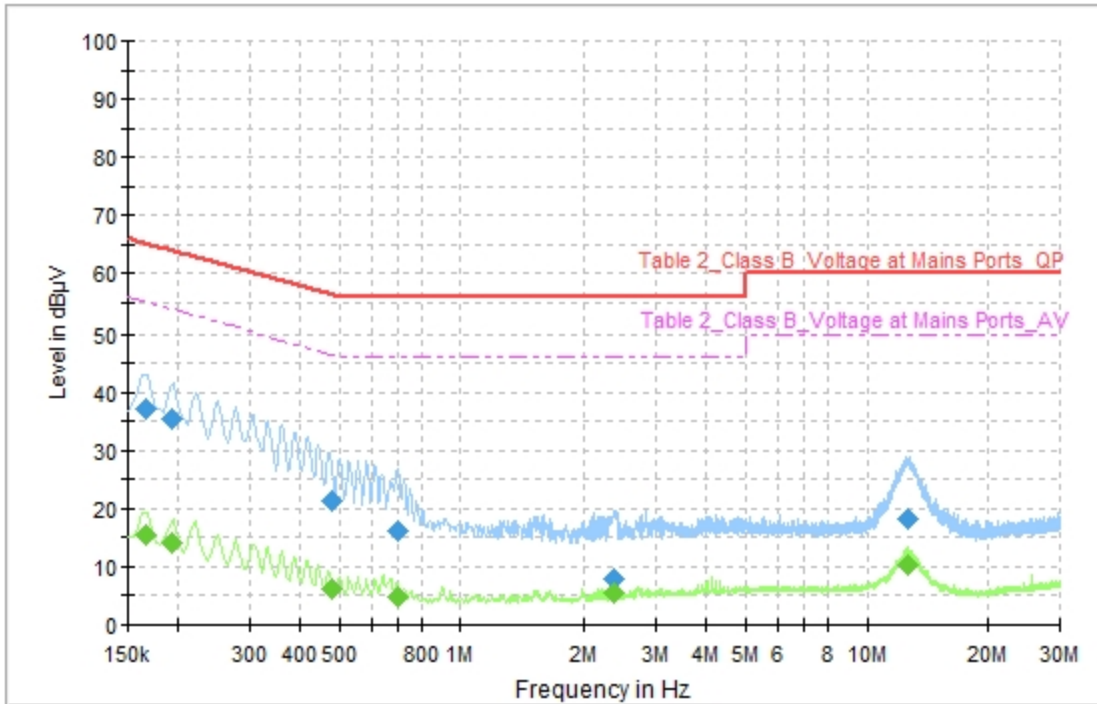
Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.163059	32.38	65.31	32.93	L1	ON	9.9
0.197397	31.41	63.72	32.31	L1	ON	9.9
0.505676	17.28	56.00	38.72	L1	ON	9.9
0.531015	16.38	56.00	39.62	L1	ON	9.9
2.358232	10.56	56.00	45.44	L1	ON	9.8
12.581313	20.16	60.00	39.84	L1	ON	10.1

Final_Result_CAV

Frequency (MHz)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.163059	10.14	55.31	45.17	L1	ON	9.9
0.197397	9.23	53.72	44.48	L1	ON	9.9
0.505676	4.74	46.00	41.26	L1	ON	9.9
0.531015	4.43	46.00	41.57	L1	ON	9.9
2.358232	7.04	46.00	38.96	L1	ON	9.8
12.581313	9.49	50.00	40.51	L1	ON	10.1

LINE 2 DATA



Final Result QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.166669	37.27	65.13	27.85	N	ON	10.0
0.193397	35.35	63.89	28.54	N	ON	9.9
0.478338	21.46	56.37	34.91	N	ON	9.9
0.702213	16.09	56.00	39.91	N	ON	9.9
2.354600	7.98	56.00	48.02	N	ON	9.8
12.662875	18.20	60.00	41.80	N	ON	10.1

Final Result CAV

Frequency (MHz)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.166669	15.54	55.13	39.59	N	ON	10.0
0.193397	13.92	53.89	39.96	N	ON	9.9
0.478338	6.31	46.37	40.06	N	ON	9.9
0.702213	4.70	46.00	41.30	N	ON	9.9
2.354600	5.63	46.00	40.37	N	ON	9.8
12.662875	10.14	50.00	39.86	N	ON	10.1

END OF TEST REPORT