FCC TEST REPORT

FCC ID	:	**2ATIMATFPG3**
Equipment	:	**Tyre Pressure Monitoring Sensor**
Brand Name	:	**SENSATA TECHNOLOGIES LTD**
Model Name	:	**ATFPG3**
Applicant	:	**Sensata Technologies** **Unit 11, Antrim Technology Park, Antrim, BT41 1QS, United Kingdom of Great Britain And Northern Ireland**
Manufacturer	:	**Schrader Electronics Ltd.** **11 Technology Park, Belfast Road, Antrim, BT41 1QS, UK**
Standard	:	**47 CFR FCC Part 15.231**

The product was received on Feb. 06, 2023, and testing was started from Apr. 07, 2023 and completed on May 31, 2023. We, SPORTON INTERNATIONAL INC. Hsinhua Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Hsinhua Laboratory, the test report shall not be reproduced except in full.

Approved by: Jackson Tsai

SPORTON INTERNATIONAL INC. Hsinhua Laboratory

No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)

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History of this test report

Report No.	Version	Description	Issued Date
FR320208AF	01	Initial issue of report	Sep. 12, 2023
FR320208AF	02	Revise typo This report is the latest version replacing for the report issued on Sep. 12, 2023	Sep. 21, 2023
FR320208AF	03	Revise typo This report is the latest version replacing for the report issued on Sep. 21, 2023	Sep. 22, 2023

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
-	15.207	AC Power-line Conducted Emissions	Not Required	Only employ battery power.
3.1	15.231(c)	Emission Bandwidth	PASS	-
3.2	15.231(b)	Fundamental Emissions	PASS	-
3.3	15.231(b)	Transmitter Radiated Unwanted Emissions	PASS	-
3.3.7	15.231(a)/(e)	Operation Restriction	PASS	-

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
None.

Reviewed by: Ryan Hsiao

Report Producer: Debby Hung

1 General Description

1.1 Information

1.1.1 RF General Information

RF General Information				
Frequency Range(MHz)	**Modulation**	**Ch. Frequency (MHz)**	**Channel Number**	**Fundamental Field Strength (dBuV/m)**
315	FSK	314.92	1	58.32
Note 1: Field strength performed average level at 3m.				

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Sensata	JP20230301-1	loop antenna	N/A	-24.6

1.1.3 Type of EUT

Operational Condition		
EUT Power Type	From Battery	
Type of EUT		
☒	Stand-alone	
☐	Combined (EUT where the radio part is fully integrated within another device)	
	Combined Equipment - Brand Name / Model No.:	…
☐	Plug-in radio (EUT intended for a variety of host systems)	
	Host System - Brand Name / Model No.:	…
☐	Other:	

1.1.4 Test Signal Duty Cycle

Test Signal Duty Cycle (%)	T(s)
15%	0.015

1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR FCC Part 15
- ANSI C63.10-2013

The following reference test guidance is not within the scope of accreditation of TAF:

- KDB 414788 D01 v01r01

1.3 Testing Location Information

Test Lab.：Sporton International Inc. Hsinhua Laboratory				
☒ Hsinhua **(TAF:** 3785**)**	**ADD:** No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan (R.O.C.)			
	TEL: 886-3-327-3456		**FAX:** 886-3-327-0973	
Test site Designation No. TW3785 with FCC.				
Test Condition	**Test Site No.**	**Test Engineer**	**Test Environment**	**Test Date**
RF Conducted	TH01-HY	Johnny Yu	21.9~22.3°C / 54~57%	07/Apr/2023~31/May/2023
☒ Wen 33rd.St. **(TAF:** 3785**)**	**ADD:** No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.)			
	TEL: 886-3-318-0787		**FAX:** 886-3-318-0287	
Test site Designation No. TW0008 with FCC.				
Test Condition	**Test Site No.**	**Test Engineer**	**Test Environment**	**Test Date**
Radiated	03CH09-HY	Nick Wu	22.5~24.1°C / 51~59%	22/May/2023~23/May/2023

1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Test Items	Uncertainty	Remark
AC Power-line Conducted Emissions	4.53 dB	Confidence levels of 95%
Emission Bandwidth	3 MHz	Confidence levels of 95%
Fundamental Emissions	4.8 dB	Confidence levels of 95%
Transmitter Radiated Unwanted Emissions	4.8 dB	Confidence levels of 95%
Receiver Radiated Emissions	4.8 dB	Confidence levels of 95%
Temperature	0.41 °C	Confidence levels of 95%
Humidity	3.4 %	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Condition

Condition Item	Abbreviation/Remark	Remark
Tnom Vnom	Tnom	20°C
-	Vnom	3V

2.2 The Worst Case Modulation Configuration

Modulation Used for Conformance Testing		
Mode	**Field Strength (dBuV/m at3m)**	**Test Channel Frequencies (MHz)**
Wireless transmit	58.32	314.92

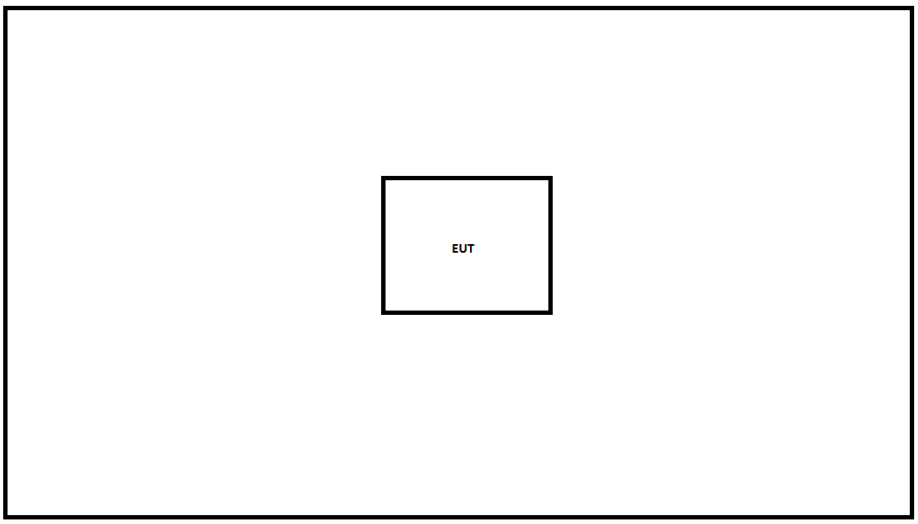
2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests			
Tests Item	Emission Bandwidth, Fundamental Emissions, Radiated Unwanted Emissions		
Test Condition	Radiated measurement		
User Position	☐ EUT will be placed in fixed position.		
	☐ EUT will be placed in mobile position and operating multiple positions.		
	☒ EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions.		
Operating Mode	CTX		
	☒ 1. Battery Mode		
Orthogonal Planes of EUT	**X Plane**	**Y Plane**	**Z Plane**
			
Worst Planes of EUT	V		

The Worst Case Mode for Following Conformance Tests	
Tests Item	Operation Restriction (silent time and operated time)
Test Condition	Conducted measurement
Test Mode	Operated normally mode for worst duty cycle condition.

2.4 Test Setup Diagram

Test Setup Diagram - Radiated Test



3 Transmitter Test Result

3.1 Emission Bandwidth

3.1.1 Emission Bandwidth Limit

Emission Bandwidth Limit
☒ Emission bandwidth falls completely within authorized band.
☒ Fc(70~900MHz): BW ≤ fc x 0.25%
☐ Fc(>900MHz): BW ≤ fc x 0.5%

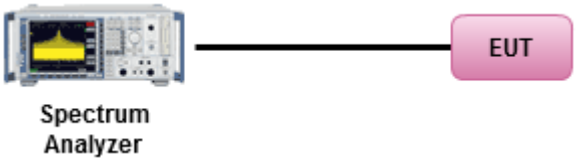
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method
☒ Refer as ANSI C63.10, clause 6.9.3 for 20 dB emission bandwidth and 99% occupied bandwidth measurement.

3.1.4 Test Setup

Emission Bandwidth


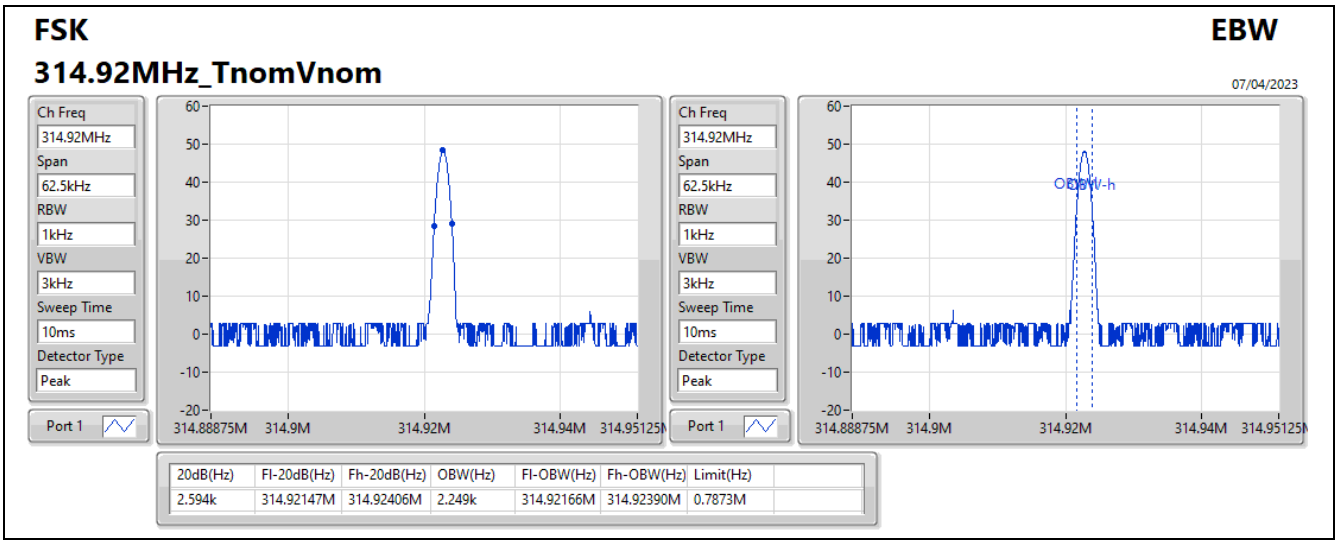
3.1.5 Test Result of Emission Bandwidth

Summary

Mode	20dB (Hz)	Fl-20dB (Hz)	Fh-20dB (Hz)	OBW (Hz)	Limit (Hz)
314.92M	-	-	-	-	-
FSK	2.594k	314.92147M	314.92406M	2.249k	0.7873M-

Result

Mode	Result	20dB (Hz)	Fl-20dB (Hz)	Fh-20dB (Hz)	OBW (Hz)	Fl-OBW (Hz)	Fh-OBW (Hz)	Limit (Hz)
FSK	-	-	-	-	-	-	-	-
314.92MHz_TnomVnom	Pass	2.594k	314.92147M	314.92406M	2.249k	314.92166M	314.92390M	0.7873M-



3.2 Fundamental Emissions

3.2.1 Fundamental Emissions Limit

For manually operated within 5 sec, activated automatically within 5 sec, periodic transmissions		
Frequency Band (MHz)	**Fundamental Limit (uV/m) at 3m**	**Fundamental Limit (dBuV/m) at 3m**
40.66-40.70	2250	67
70-130	1250	61.9
130-174	1250-3750(**)	61.9-71.5
174-260	3750	71.5
260-470	3750-12500(**)	71.5-81.9
Above 470	12500	81.9
**1. Linear interpolations. Based on the average value of the measured emissions.		

For periodic transmissions (lower field strength)		
Frequency Band (MHz)	**Fundamental Limit (uV/m) at 3m**	**Fundamental Limit (dBuV/m) at 3m**
40.66-40.70	1000	60
70-130	500	54
130-174	500-1500(**)	54-63.5
174-260	1500	63.5
260-470	1500-5000(**)	63.5-74
Above 470	5000	74
** 1. Linear interpolations. Based on the average value of the measured emissions.		

3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

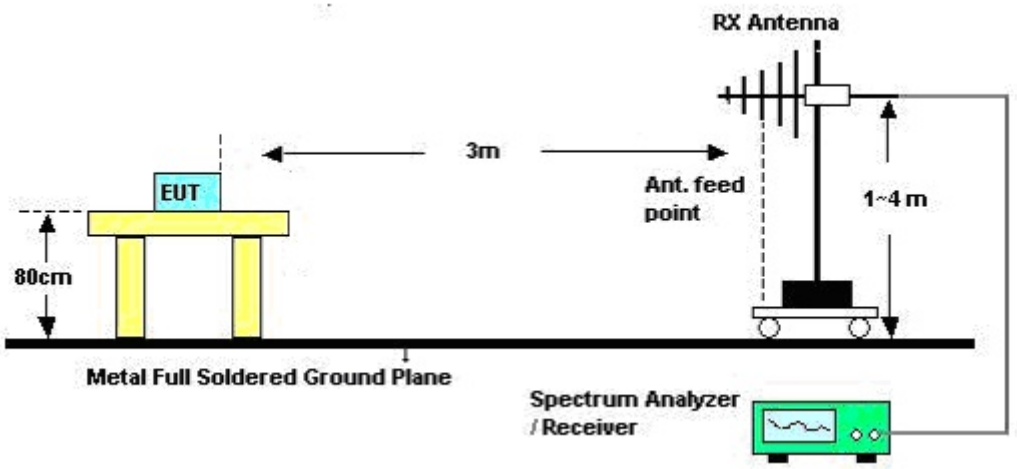
☒	For the transmitter emissions shall be measured using following options below:	
	☐	Refer as ANSI C63.10, clause 4.1.4.2.3 (Reduced VBW) – Duty cycle ≥ 100%.
	☒	Refer as ANSI C63.10, clause 4.1.4.2.4 average value of pulsed emissions. Adjusted by a “duty cycle correction factor”, derived from 20log (dwell time/100 ms). Average emission = peak emission + 20 log (duty cycle).
	☒	Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.
☒	For radiated measurement, refer as ANSI C63.10, clause 6.5 for radiated emissions	

3.2.4 Measurement Results Calculation

The measured Level is calculated using:
Corrected Reading: Raw(Read Level) + AF(Antenna Factor) + CL(Cable Loss) - PA(Preamp Factor)

3.2.5 Test Setup

Fundamental Emissions



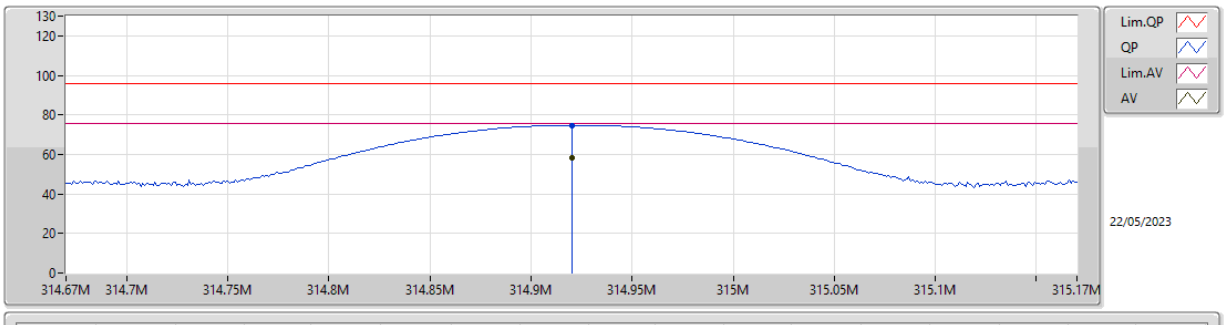
3.2.6 Test Result of Fundamental Emissions

Field Strength of Fundamental Emissions Result					
Modulation Mode	**Frequency (MHz)**	**Fundamental (dBuV/m)@3m**	**Margin (dB)**	**Limit (dBuV/m)@3m**	**Type**
FSK	314.92	58.32	17.30	75.62	Average
FSK	314.92	74.80	20.82	95.62	Peak
Result		**Complied**			

Note 1: Measurement worst emissions of receive antenna polarization: Horizontal
Note 2: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).

314.92MHz_SRD

314.92MHz_Battery



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	314.92M	58.32	75.62	-17.30	20.30	3	Horizontal	273	1.51	38.02	18.53	1.77	-
PK	314.92M	74.80	95.62	-20.82	20.30	3	Horizontal	273	1.51	54.50	18.53	1.77	-

3.3 Transmitter Radiated Unwanted Emissions

3.3.1 Transmitter Radiated Unwanted Emissions Limit

For manually operated within 5 sec, activated automatically within 5 sec, periodic transmissions		
Unwanted emissions limit follow this table or the general limits FCC 15.209, whichever limit permits higher field strength.		
Frequency Band (MHz)	**Spurious Limit (uV/m) at 3m**	**Spurious Limit (dBuV/m) at 3m**
40.66-40.70	225	47
70-130	125	41.9
130-174	125-375(**)	41.9-51.5
174-260	375	51.5
260-470	375-1250(**)	51.5-61.9
Above 470	1250	61.9
**1. Linear interpolations. Based on the average value of the measured emissions.		

For periodic transmissions (lower field strength)		
Unwanted emissions limit follow this table or the general limits FCC 15.209, whichever limit permits higher field strength.		
Frequency Band (MHz)	**Spurious Limit (uV/m) at 3m**	**Spurious Limit (dBuV/m) at 3m**
40.66-40.70	100	40
70-130	50	34
130-174	50-150(**)	34-43.5
174-260	150	43.5
260-470	150-500(**)	43.5-54
Above 470	500	54
** 1. Linear interpolations Based on the average value of the measured emissions.		

3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

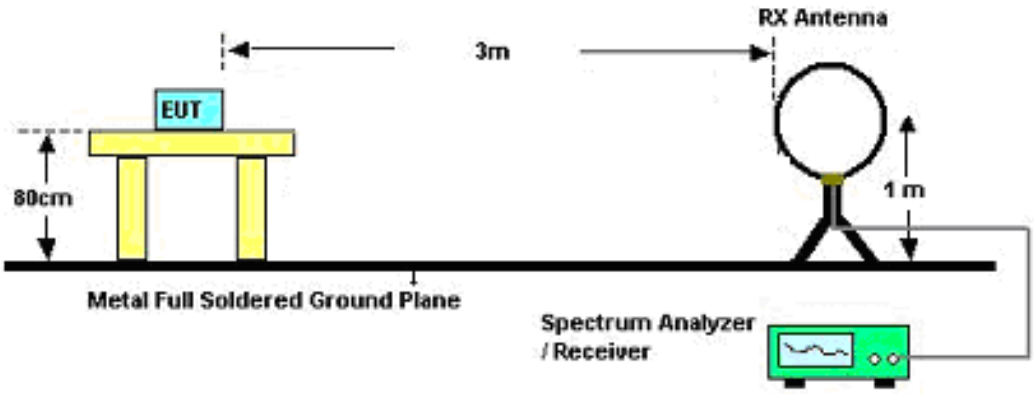
Test Method – General Information	
☒	The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].
☐	Refer as ANSI C63.10, clause 6.10.3 bandedge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.
☒	For the transmitter unwanted emissions shall be measured using following options below:
☐	Refer as ANSI C63.10, clause 4.1.4.2.3 (Reduced VBW) – Duty cycle ≥ 100%.
☒	Refer as ANSI C63.10, clause 4.1.4.2.4 average value of pulsed emissions. Adjusted by a “duty cycle correction factor”, derived from 20log (dwell time/100 ms). Average emission = peak emission + 20 log (duty cycle).
☒	Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.
☒	For the transmitter bandedge emissions shall be measured using following options below:
☒	Refer as ANSI C63.10, clause 6.10 for band-edge testing.
☐	Refer as ANSI C63.10, clause 6.10.6.2 for marker-delta method for band-edge measurements.
☒	For radiated measurement.
☒	Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
☒	Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
☒	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1 GHz and test distance is 3m.
☒	The any unwanted emissions level shall not exceed the fundamental emission level.
☒	All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.
▪	KDB 414788 Open-Field Test Sites and Chamber Correlation Justification.
▪	Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field.
▪	Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

3.3.4 Measurement Results Calculation

The measured Level is calculated using:
Corrected Reading: Raw(Read Level) + AF(Antenna Factor) + CL(Cable Loss) - PA(Preamp Factor)

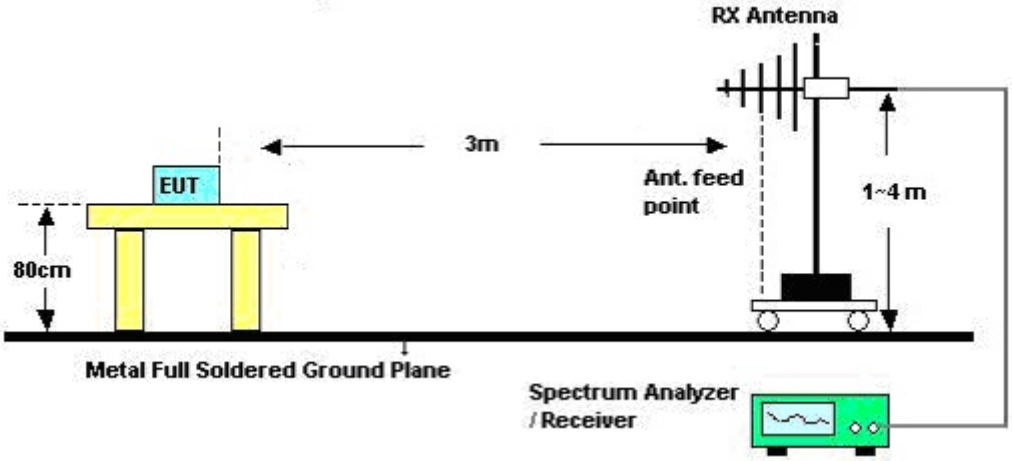
3.3.5 Test Setup

Transmitter Spurious and Out of Band Emissions (9 kHz - 30 MHz)



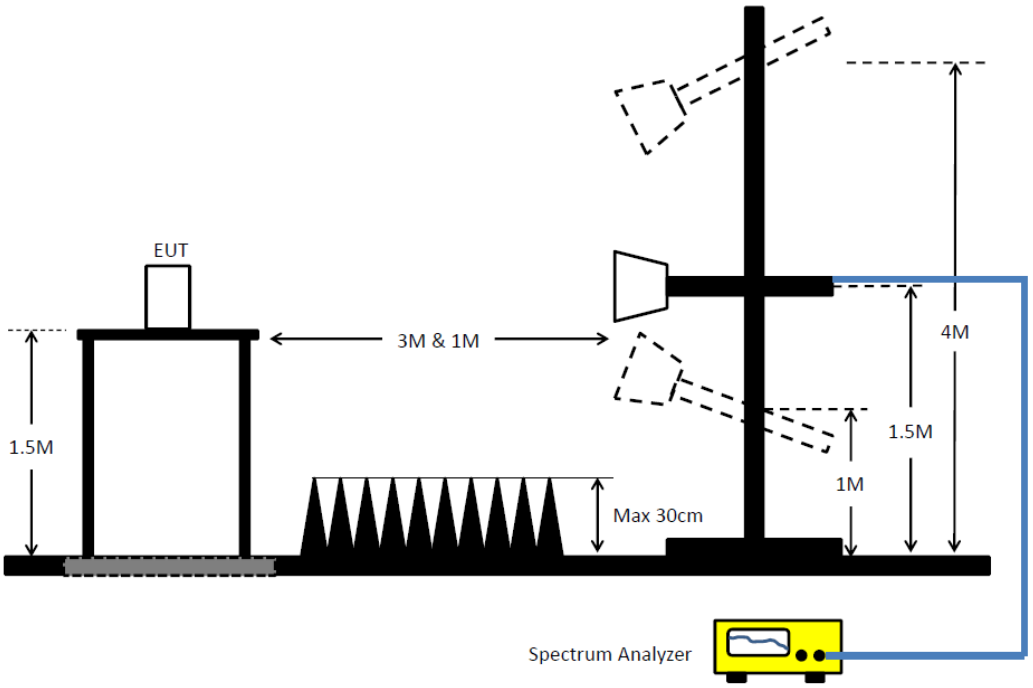
Magnetic field tests shall be performed in the frequency range of 9 kHz to 30 MHz using a calibrated loop antenna.

Transmitter Radiated Unwanted Emissions (below 1GHz)



Electric field tests shall be performed in the frequency range of 30 MHz to 1000 MHz using a calibrated bi-log antenna.

Transmitter Radiated Unwanted Emissions (Above 1GHz)



Electric field tests shall be performed in the frequency range of 1 GHz to 10th harmonic of highest fundamental frequency or 40 GHz using a calibrated horn antenna.

3.3.6 Transmitter Radiated Unwanted Emissions (Below 30MHz)

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

3.3.7 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Summary

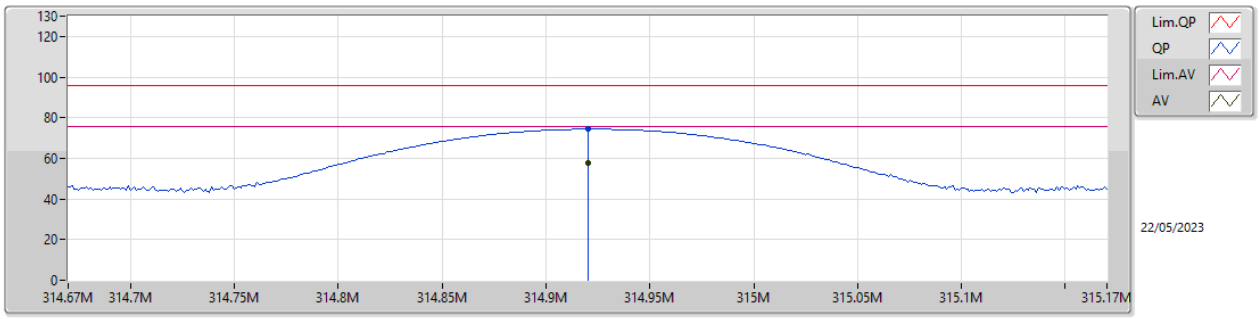
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
314.92MHz	-	-	-	-	-	-	-	-	-	-
SRD	Pass	PK	945.68M	41.07	46.00	-4.93	3	Vertical	360	1.00

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
SRD	-	-	-	-	-	-	-	-	-	-
314.92MHz	Pass	AV	314.92M	57.87	75.62	-17.75	3	Vertical	174	1.00
314.92MHz	Pass	PK	314.92M	74.35	95.62	-21.27	3	Vertical	174	1.00
314.92MHz	Pass	AV	314.92M	58.32	75.62	-17.30	3	Horizontal	273	1.51
314.92MHz	Pass	PK	314.92M	74.80	95.62	-20.82	3	Horizontal	273	1.51
314.92MHz	Pass	PK	90.14M	26.59	43.50	-16.91	3	Vertical	360	1.00
314.92MHz	Pass	PK	107.6M	26.96	43.50	-16.54	3	Vertical	360	1.00
314.92MHz	Pass	PK	222.06M	35.78	46.00	-10.22	3	Vertical	360	1.00
314.92MHz	Pass	PK	247.28M	40.71	46.00	-5.29	3	Vertical	360	1.00
314.92MHz	Pass	PK	561.56M	33.74	46.00	-12.26	3	Vertical	360	1.00
314.92MHz	Pass	PK	945.68M	41.07	46.00	-4.93	3	Vertical	360	1.00
314.92MHz	Pass	PK	68.8M	32.82	40.00	-7.18	3	Horizontal	0	1.00
314.92MHz	Pass	PK	86.26M	29.09	40.00	-10.91	3	Horizontal	0	1.00
314.92MHz	Pass	PK	245.34M	28.47	46.00	-17.53	3	Horizontal	0	1.00
314.92MHz	Pass	PK	573.2M	29.10	46.00	-16.90	3	Horizontal	0	1.00
314.92MHz	Pass	PK	629.46M	37.31	46.00	-8.69	3	Horizontal	0	1.00
314.92MHz	Pass	PK	945.68M	31.97	46.00	-14.03	3	Horizontal	0	1.00
314.92MHz	Pass	AV	629.85M	13.01	55.62	-42.61	3	Vertical	280	1.00
314.92MHz	Pass	AV	944.77M	25.50	55.62	-30.12	3	Vertical	42	1.18
314.92MHz	Pass	PK	629.84M	29.49	75.62	-46.13	3	Vertical	280	1.00
314.92MHz	Pass	PK	944.77M	41.98	75.62	-33.64	3	Vertical	42	1.18
314.92MHz	Pass	AV	629.85M	14.85	55.62	-40.77	3	Horizontal	207	1.22
314.92MHz	Pass	AV	944.78M	17.92	55.62	-37.70	3	Horizontal	182	1.00
314.92MHz	Pass	PK	629.85M	31.33	75.62	-44.29	3	Horizontal	207	1.22
314.92MHz	Pass	PK	944.78M	34.40	75.62	-41.22	3	Horizontal	182	1.00

314.92MHz_SRD

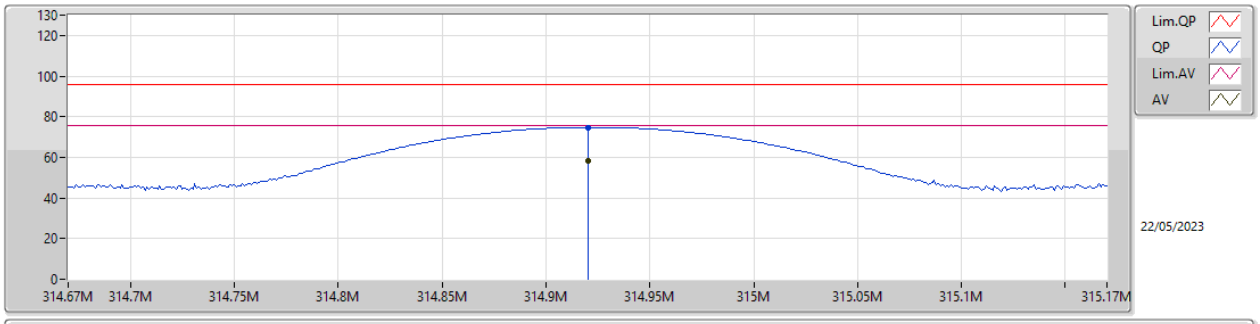
314.92MHz_Battery



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	314.92M	57.87	75.62	-17.75	20.63	3	Vertical	174	1.00	37.24	18.53	2.10	-
PK	314.92M	74.35	95.62	-21.27	20.63	3	Vertical	174	1.00	53.72	18.53	2.10	-

314.92MHz_SRD

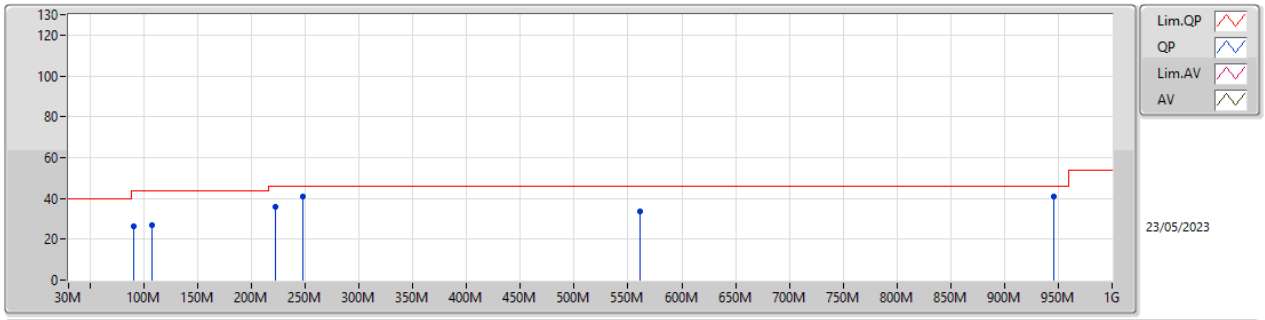
314.92MHz_Battery



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	314.92M	58.32	75.62	-17.30	20.30	3	Horizontal	273	1.51	38.02	18.53	1.77	-
PK	314.92M	74.80	95.62	-20.82	20.30	3	Horizontal	273	1.51	54.50	18.53	1.77	-

314.92MHz_SRD

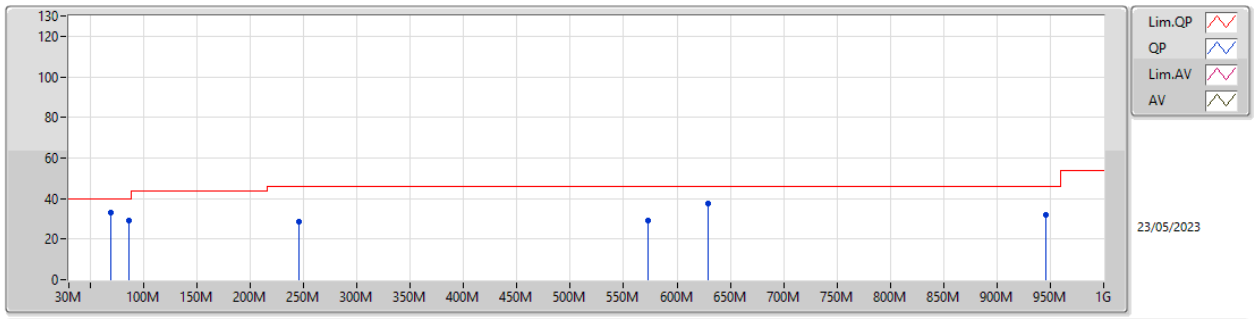
314.92MHz_Battery



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
PK	90.14M	26.59	43.50	-16.91	-21.59	3	Vertical	360	1.00	48.18	14.02	1.05	36.66
PK	107.6M	26.96	43.50	-16.54	-19.46	3	Vertical	360	1.00	46.42	15.97	1.14	36.57
PK	222.06M	35.78	46.00	-10.22	-20.13	3	Vertical	360	1.00	55.91	14.46	1.71	36.30
PK	247.28M	40.71	46.00	-5.29	-17.24	3	Vertical	360	1.00	57.95	17.34	1.83	36.41
PK	561.56M	33.74	46.00	-12.26	-8.86	3	Vertical	360	1.00	42.60	25.26	2.94	37.06
PK	945.68M	41.07	46.00	-4.93	-3.75	3	Vertical	360	1.00	44.82	29.76	3.90	37.41

314.92MHz_SRD

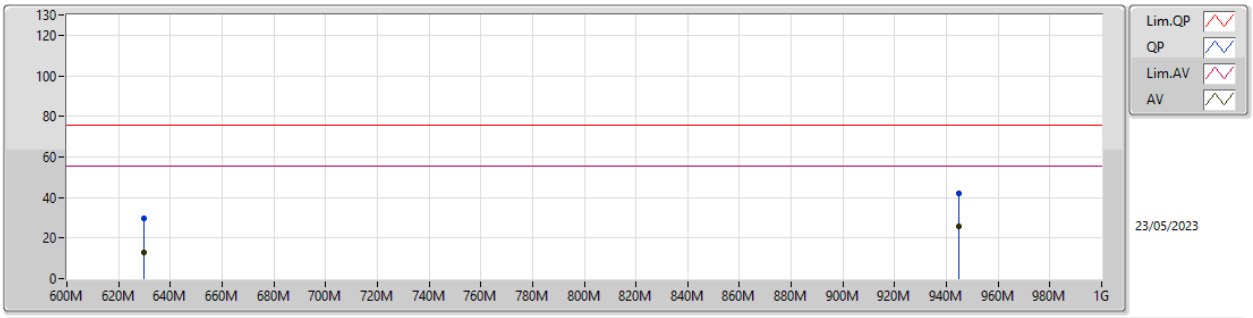
314.92MHz_Battery



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
PK	68.8M	32.82	40.00	-7.18	-24.53	3	Horizontal	0	1.00	57.35	11.47	0.89	36.89
PK	86.26M	29.09	40.00	-10.91	-22.22	3	Horizontal	0	1.00	51.31	13.45	1.03	36.70
PK	245.34M	28.47	46.00	-17.53	-17.50	3	Horizontal	0	1.00	45.97	17.08	1.82	36.40
PK	573.2M	29.10	46.00	-16.90	-9.09	3	Horizontal	0	1.00	38.19	25.01	2.97	37.07
PK	629.46M	37.31	46.00	-8.69	-8.42	3	Horizontal	0	1.00	45.73	25.54	3.11	37.07
PK	945.68M	31.97	46.00	-14.03	-3.75	3	Horizontal	0	1.00	35.72	29.76	3.90	37.41

314.92MHz_SRD

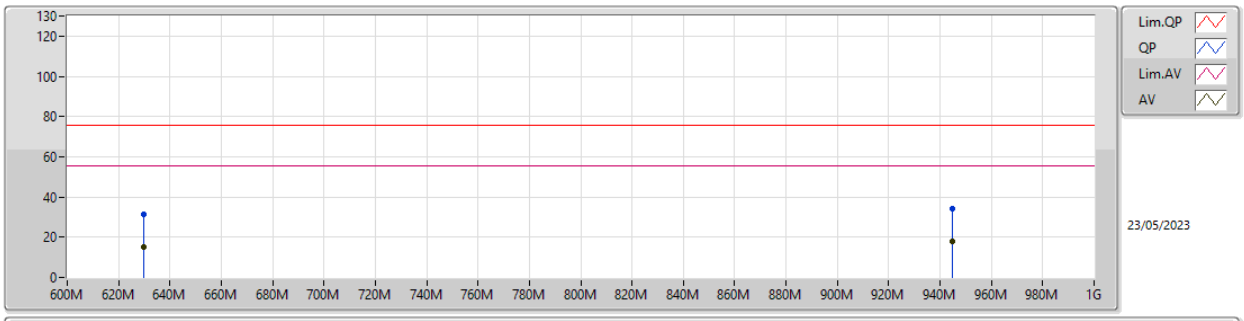
314.92MHz_Battery



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	629.85M	13.01	55.62	-42.61	-8.41	3	Vertical	280	1.00	21.42	25.55	3.11	37.07
AV	944.77M	25.50	55.62	-30.12	-3.79	3	Vertical	42	1.18	29.29	29.72	3.90	37.41
PK	629.84M	29.49	75.62	-46.13	-8.41	3	Vertical	280	1.00	37.90	25.55	3.11	37.07
PK	944.77M	41.98	75.62	-33.64	-3.79	3	Vertical	42	1.18	45.77	29.72	3.90	37.41

314.92MHz_SRD

314.92MHz_Battery



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	629.85M	14.85	55.62	-40.77	-8.41	3	Horizontal	207	1.22	23.26	25.55	3.11	37.07
AV	944.78M	17.92	55.62	-37.70	-3.79	3	Horizontal	182	1.00	21.71	29.72	3.90	37.41
PK	629.85M	31.33	75.62	-44.29	-8.41	3	Horizontal	207	1.22	39.74	25.55	3.11	37.07
PK	944.78M	34.40	75.62	-41.22	-3.79	3	Horizontal	182	1.00	38.19	29.72	3.90	37.41

3.3.8 Transmitter Radiated Unwanted Emissions (Above 1GHz)

Summary

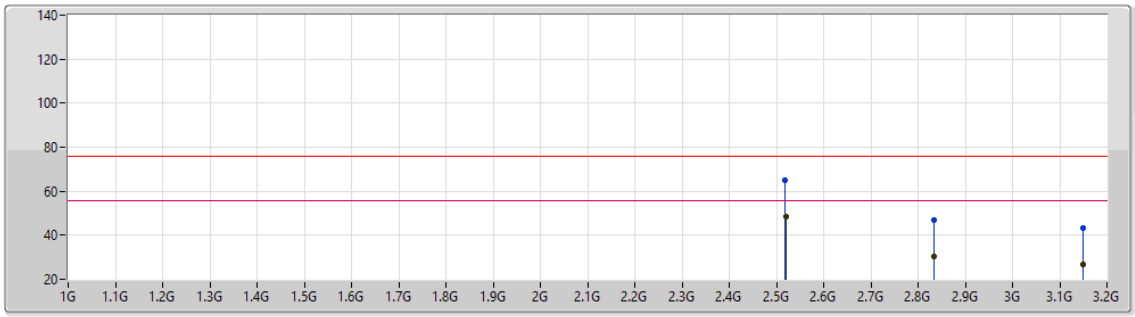
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
314.92MHz	-	-	-	-	-	-	-	-	-	-
SRD	Pass	AV	2.5194G	48.57	55.62	-7.05	3	Vertical	123	2.54

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)
SRD	-	-	-	-	-	-	-	-	-	-
314.92MHz	Pass	AV	2.5194G	48.57	55.62	-7.05	3	Vertical	123	2.54
314.92MHz	Pass	AV	2.8343G	30.47	55.62	-25.15	3	Vertical	313	1.16
314.92MHz	Pass	AV	3.14931G	26.93	55.62	-28.69	3	Vertical	209	1.51
314.92MHz	Pass	PK	2.51913G	65.05	75.62	-10.57	3	Vertical	123	2.54
314.92MHz	Pass	PK	2.83447G	46.95	75.62	-28.67	3	Vertical	313	1.16
314.92MHz	Pass	PK	3.14929G	43.41	75.62	-32.21	3	Vertical	209	1.51
314.92MHz	Pass	AV	2.51941G	44.54	55.62	-11.08	3	Horizontal	222	2.03
314.92MHz	Pass	AV	2.83434G	31.23	55.62	-24.39	3	Horizontal	32	1.13
314.92MHz	Pass	AV	3.14924G	33.77	55.62	-21.85	3	Horizontal	247	1.45
314.92MHz	Pass	PK	2.51863G	61.02	75.62	-14.60	3	Horizontal	222	2.03
314.92MHz	Pass	PK	2.83436G	47.71	75.62	-27.91	3	Horizontal	32	1.13
314.92MHz	Pass	PK	3.14917G	50.25	75.62	-25.37	3	Horizontal	247	1.45

314.92MHz_SRD

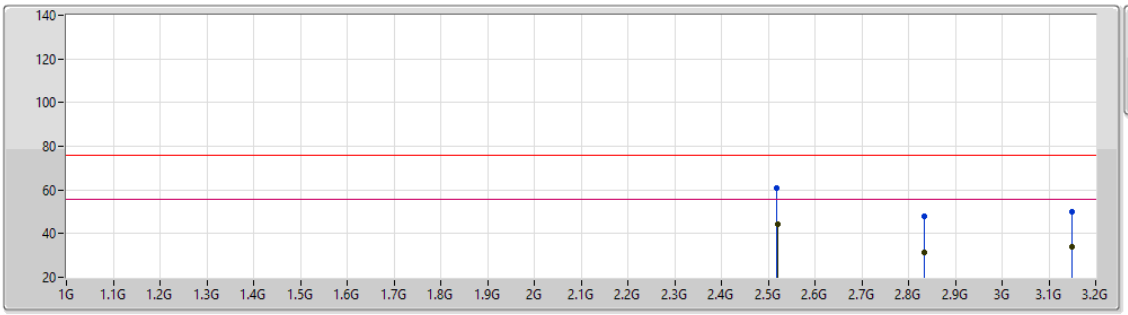
314.92MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	2.5194G	48.57	55.62	-7.05	-3.00	3	Vertical	123	2.54	51.57	27.88	3.87	34.75
AV	2.8343G	30.47	55.62	-25.15	-2.17	3	Vertical	313	1.16	32.64	28.50	4.09	34.76
AV	3.14931G	26.93	55.62	-28.69	-0.42	3	Vertical	209	1.51	27.35	30.00	4.31	34.73
PK	2.51913G	65.05	75.62	-10.57	-3.00	3	Vertical	123	2.54	68.05	27.88	3.87	34.75
PK	2.83447G	46.95	75.62	-28.67	-2.17	3	Vertical	313	1.16	49.12	28.50	4.09	34.76
PK	3.14929G	43.41	75.62	-32.21	-0.42	3	Vertical	209	1.51	43.83	30.00	4.31	34.73

314.92MHz_SRD

314.92MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	(dBuV)	(dB)	(dB)	(dB)
AV	2.51941G	44.54	55.62	-11.08	-3.00	3	Horizontal	222	2.03	47.54	27.88	3.87	34.75
AV	2.83434G	31.23	55.62	-24.39	-2.17	3	Horizontal	32	1.13	33.40	28.50	4.09	34.76
AV	3.14924G	33.77	55.62	-21.85	-0.42	3	Horizontal	247	1.45	34.19	30.00	4.31	34.73
PK	2.51863G	61.02	75.62	-14.60	-3.01	3	Horizontal	222	2.03	64.03	27.87	3.87	34.75
PK	2.83436G	47.71	75.62	-27.91	-2.17	3	Horizontal	32	1.13	49.88	28.50	4.09	34.76
PK	3.14917G	50.25	75.62	-25.37	-0.42	3	Horizontal	247	1.45	50.67	30.00	4.31	34.73

3.4 Operation Restriction

3.4.1 Operation Restriction Limit

Operation Restriction Limit	
☐	Manually operated: manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 sec of being released.
☐	Activated automatically: transmitter activated automatically shall cease transmission within 5 sec after activation.
☒	Periodic transmissions: permitted with total transmission time of 2 sec per hour or less.
☐	Periodic transmissions (lower field strength): each transmission is not greater than 1 sec and the silent period between transmissions is at least 30 times the duration of the transmission but in no case less than 10 sec.

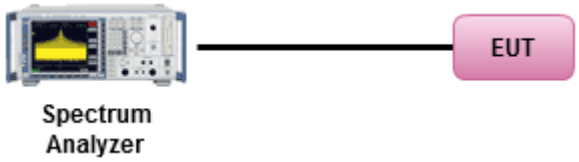
3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

Test Method	
☒	Refer as ANSI C63.10, clause 7.4 for periodic operation measurement.

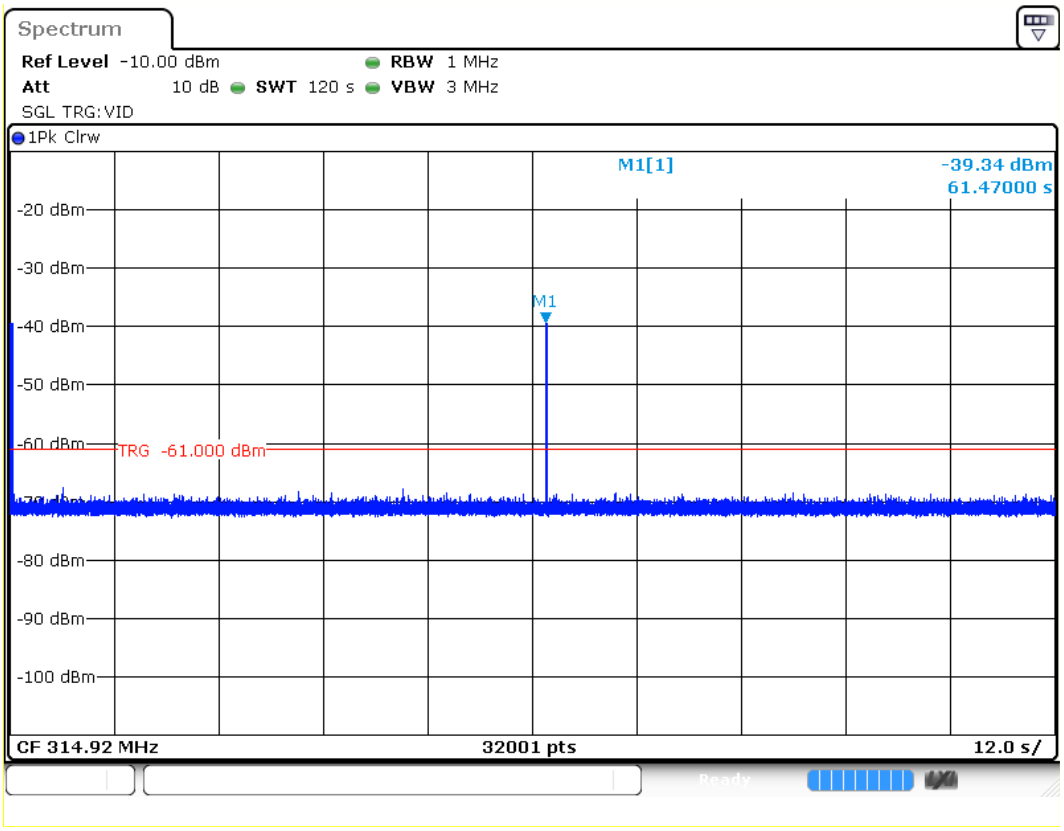
3.4.4 Test Setup

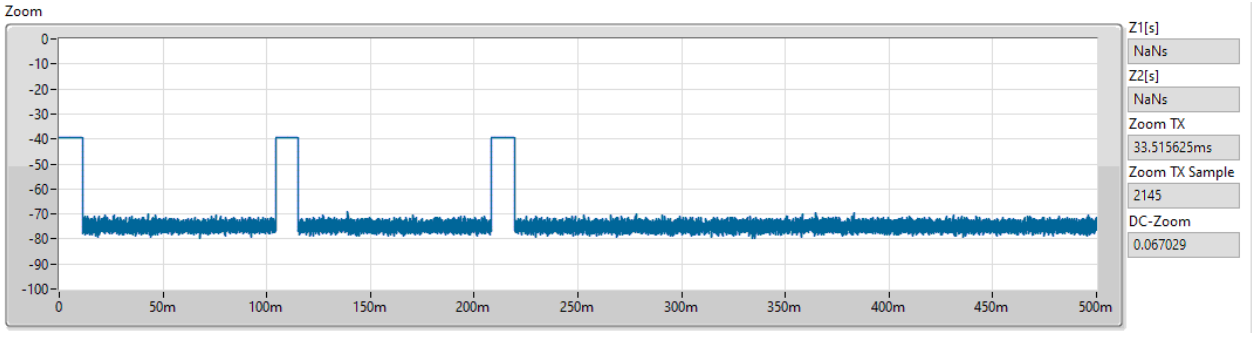
Operation Restriction


3.4.5 Test Result of Operation Restriction

Operation Condition	Pulse Duration (s)	Limits (s)
One Transmission Time	0.034	-
Total Transmission Time per hour	1.977	2.00
Total Transmission Time = 0.03352*(3600/61.47)=1.977		

Transmission cycle





4 Test Equipment and Calibration Data

Instrument for Conducted Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101029	10Hz~40GHz	10/Nov/2022	09/Nov/2023
SENSE-NFC	Sporton	V5.11.0	N/A	N/A	N/A	N/A
DFS-Adaptivity	Sporton	Ver 2.7	N/A	N/A	N/A	N/A

Instrument for Radiated Test

Instrument	Manufacturer /Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Site V.S.W.R	TDK	SAC-3M	03CH09-HY	1GHz~18GHz 3m	14/Mar/2023	13/Mar/2024
N.S.A. Measurement	TDK	SAC-3M	03CH09-HY	30 MHz ~ 1 GHz 3m	15/Mar/2023	14/Mar/2024
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz~44GHz	11/Aug/2022	10/Aug/2023
Microwave Preamplifier	Agilent	8449B	3008A02096	1GHz~26.5GHz	22/Jul/2022	21/Jul/2023
Preamplifier	EMCI	EMC9135	980232	9kHz~1GHz	07/Apr/2023	06/Apr/2024
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D&MTJ 6102-05	35418 & 3	30MHz~1GHz	28/Aug/2022	27/Aug/2023
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1531	1GHz~18GHz	30/Dec/2022	29/Dec/2023
RF Cable-low	HUBER+SUHNER	SUCOFLEX104	03CH09-cable-01	9kHz~1GHz	21/Feb/2023	20/Feb/2024
RF CABLE 5m+3m+1m	HUBER+SUHNER	SUCOFLEX104	03CH09-cable-02	1GHz~40GHz	21/Feb/2023	20/Feb/2024
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	23/Mar/2023	22/Mar/2024
EMI Test Receiver	R&S	ESR3	102052	9kHz~3.6GHz	26/May/2023	25/May/2024
SENSE-15247_DTS	Sporton	Sporton	V5.11.6	NA	NA	NA