Testing Laboratory 3787

RADIO TEST REPORT

FCC ID	:	2A7JMDNL1R0
Equipment	:	Argus
Brand Name	:	PLATO
Model Name	:	DNL1R0
Applicant	:	Unison Labs Suite 505, 1300 South El Camino Real, San Mateo, California
Manufacturer	:	AIMobile Co., Ltd. 6F, No. 166, Section 4, Chengde Road, Shilin District, Taipei City, 111
Standard	:	47 CFR FCC Part 15.255

The product was received on May 25, 2022, and testing was started from Jul. 05, 2022 and completed on Jul. 25, 2023. We, Sporton International Inc. Hsinchu Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 47 CFR FCC Part 15.255 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. Hsinchu Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory
No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)

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History of this test report

Report No.	Version	Description	Issued Date
FR252312-02	01	Initial issue of report	Oct. 13, 2023

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.207	AC Power Conducted Emissions	PASS	-
3.2	15.255(e)	Occupied Bandwidth	PASS	-
3.3	15.255(c)	EIRP Power	PASS	-
3.4	15.255(c)	Peak Conducted Power	PASS	-
3.5	15.255(d)	Transmitter Spurious Emissions	PASS	-
3.6	15.255(f)	Frequency Stability	PASS	-
3.7	15.255(a),(h)	Operation Restriction and Group Installation	PASS	-
Reference to Sporton Project No.: 252312, 252312-01.				

Conformity Assessment Condition:
1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account. 2. The measurement uncertainty please refer to each test result in the chapter "Measurement Uncertainty".
Disclaimer:
The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Sam Chen

Report Producer: Viola Huang

1 General Description

1.1 Information

1.1.1 The Channel Plan(s)

For Hawk waveform

RF General Information				
Frequency Range (GHz)	**Operating Frequency Range (GHz)**	**Test Frequency (GHz)**	**Bandwidth (MHz)**	**Modulation**
57-71 GHz	61.02~61.249	61.1345	229	Frequency Modulated Continuous Wave

For Owl waveform

RF General Information				
Frequency Range (GHz)	**Operating Frequency Range (GHz)**	**Test Frequency (GHz)**	**Bandwidth (MHz)**	**Modulation**
57-71 GHz	61.02~61.447	61.25	427.336	Frequency Modulated Continuous Wave

For Parliament waveform

RF General Information				
Frequency Range (GHz)	**Operating Frequency Range (GHz)**	**Test Frequency (GHz)**	**Bandwidth (MHz)**	**Modulation**
57-71 GHz	61.02~61.447	61.25	427.249	Frequency Modulated Continuous Wave

1.1.2 RF General Information

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	PLATO	01566000101	PCB Antenna	N/A	7
2	PLATO	01566000101	PCB Antenna	N/A	7
3	PLATO	01566000101	PCB Antenna	N/A	7

Note: The above information was declared by manufacturer.

For Hawk waveform

For 3TX

Ant. 1, Ant. 2 and Ant. 3 can be use as all antenna transmitting.

For Owl waveform and Parliament waveform

For 1TX

The EUT supports the Ant. 1 and Ant. 3 with TX diversity function.

At any time, there is only one antenna port can transmitting RF signal.

1.1.3 Table for waveform information

Waveform	Frequency range	Bandwidth	Radio Function
Hawk	61.02GHz~61.249GHz	229MHz	3 path transmit
Owl	61.02GHz~61.447GHz	427.336MHz	1 path transmit
Parliament	61.02 GHz~61.447 GHz	427.249 MHz	1 path transmit

Note 1: The maximum output power was Waveform Hawk was selected as representative model for AC power-line conducted emissions was tested and recorded in this test.

Note 2: From the above waveform: Hawk, Owl and Parliament were selected to test Occupied Bandwidth, EIRP Power, Peak Conducted Power, Transmitter Spurious Emissions, Frequency Stability.

Note 3: The above information was declared by manufacturer.

1.1.4 Power Levels

Worst Power Levels for Hawk waveform			
Applicable power levels	☐ Conducted ☒ EIRP		
Frequency (GHz)	Highest (P_{high}):		
	Mode	AV Power (dBm)	Peak Power (dBm)
61.1345	FMCW	17.73	27.24

1.1.5 Operating Conditions

Operating Conditions					
☒ -40 °C to +60 °C					
☐ 0 °C to +40 °C					
☐ Other:					
EUT Power Type	From PoE				
Test Software Version	Hardware				
Supply Voltage	☐ AC	State AC voltage	110	V	
Supply Voltage	☒ DC	State DC voltage	54	V	

1.1.6 Equipment Use Condition

Equipment Use Condition
☒ Fixed field disturbance sensors at 61-61.5GHz
☐ Except fixed field disturbance sensors at 61-61.5GHz
☐ Except fixed field disturbance sensors

1.1.7 Duty Cycle

For Hawk waveform:

Duty Cycle (%)	Duty Cycle Factor (dB)
21.38	6.70

For Owl waveform:

Duty Cycle (%)	Duty Cycle Factor (dB)
26.81	5.72

For Parliament waveform:

(Occupied Bandwidth / EIRP Power / Peak Conducted Power / Transmitter Spurious Emissions Below 40GHz)

Duty Cycle (%)	Duty Cycle Factor (dB)
10.14	9.94

(Transmitter Spurious Emissions Above 40GHz / Frequency Stability)

Duty Cycle (%)	Duty Cycle Factor (dB)
11	9.58

1.2 Applicable Standards

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

- 47 CFR FCC Part 15.255
- ANSI C63.10-2013 Section 9. “Procedures for testing millimeter-wave systems”

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

- FCC KDB 414788 D01 v01r01

1.3 Testing Location

Testing Location Information	
Test Lab.：Sporton International Inc. Hsinchu Laboratory	
Hsinchu	ADD: No.8, Ln. 724, Bo’ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)
(TAF: 3787)	TEL: 886-3-656-9065 FAX: 886-3-656-9085
	Test site Designation No. TW3787 with FCC.
	Conformity Assessment Body Identifier (CABID) TW3787 with ISED.

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
RF Radiated (frequency Stability)	TH03-CB	Test Mode1~2: Eddie Weng	25.4~26.8 / 66~71	Jul. 15, 2022
		Test Mode3: Gino Hung	23~24 / 59~64	Jul. 25, 2023
Radiated (below 1GHz)	10CH01-CB	Elvin Yeh	22~24 / 56~59	Feb. 02, 2023~May 22, 2023
Radiated (Transmitter Spurious Emissions 1GHz~40GHz)	03CH03-CB	Test Mode1: RJ Huang	24.4~25.5 / 55~58	May 22, 2023
	03CH05-CB	Test Mode1: RJ Huang	21.7~22.8 / 56~59	May 22, 2023
	03CH05-CB	Test Mode2~3: RJ Huang	21.7~22.8 / 56~59	Feb. 06, 2023~Feb. 15, 2023
Radiated (Transmitter Spurious Emissions 40GHz~200GHz)	03CH05-CB	Test Mode1~2: Eason Chen	24.4~25.5 / 55~58	Jul. 05, 2022~Aug. 16, 2022
	03CH03-CB	Test Mode1~2: Eason Chen	26~27.2 / 65~67	Jul. 05, 2022~Aug. 16, 2022
	03CH06-CB	Test Mode3: Gino Hung	21.2~22.2 / 55~58	Jul. 25, 2023
EIRP Power, Peak Conducted Power	03CH05-CB	Test Mode1~3: RJ Huang	21.7~22.8 / 56~59	Feb. 06, 2023~Feb. 15, 2023
Radiated Occupied Bandwidth	03CH05-CB	Test Mode1~2: RJ Huang	21.7~22.8 / 56~59	Nov. 23, 2022~Jan. 06, 2023
	03CH06-CB	Test Mode3: Gino Hung	21.2~22.2 / 55~58	Jul. 25, 2023
AC Conduction	CO01-CB	Joe Chu	23~24 / 58~60	Feb. 03, 2023

2 Test Configuration of Equipment under Test

2.1 Parameters of Test Software Setting

For Hawk waveform

Channel Plan (GHz)	61.1345
Software Setting	Default

For Owl waveform

Channel Plan (GHz)	61.25
Software Setting	Default

For Parliament waveform

Channel Plan (GHz)	61.25
Software Setting	Default

2.2 Conformance Tests and Related Test Frequencies

Test Item	**Test Frequencies (GHz)**		
	Hawk waveform	Owl waveform	Parliament waveform
AC Power Conducted Emissions	61.1345	-	-
Occupied Bandwidth	61.1345	61.25	61.25
EIRP Power	61.1345	61.25	61.25
Peak Conducted Power	61.1345	61.25	61.25
Transmitter Spurious Emissions (below 1 GHz)	61.1345	61.25	61.25
Transmitter Spurious Emissions (1 GHz-40 GHz)	61.1345	61.25	61.25
Transmitter Spurious Emissions (above 40 GHz)	61.1345	61.25	61.25
Frequency Stability	61.1345	61.25	61.25

Note1:

For AC Power Conducted Emissions:

Operating Mode: CTX

Mode 1: EUT (Hawk waveform) + PoE 1

For Transmitter Spurious Emissions (below 1 GHz)

Operating Mode: CTX

The EUT was performed at X axis, Y axis and Z axis position, and the worst case was found at Y axis from Transmitter Spurious Emissions above 1GHz. So the measurement will follow this same test configuration.

Mode 1: EUT in Y axis (Hawk waveform) + PoE 2

Mode 2: EUT in Y axis (Owl waveform) + PoE 2

Mode 3: EUT in Y axis (Parliament waveform) + PoE 2

Mode 3 generated the worst test result, so it was recorded in this report.

For Transmitter Spurious Emissions (above 1 GHz)

Operating Mode: CTX

The EUT was performed at X axis, Y axis and Z axis position, and the worst case was found as below. So the measurement will follow this same test configuration.

Mode 1: EUT in Y axis (Hawk waveform)

Mode 2: EUT in Y axis (Owl waveform)

Mode 3: EUT in Y axis (Parliament waveform)

For other test item mode

The EUT was performed at X axis, Y axis and Z axis position, and the worst case was found at Y axis from Transmitter Spurious Emissions above 1GHz. So the measurement will follow this same test configuration.

Mode 1: EUT in Y axis (Hawk waveform)

Mode 2: EUT in Y axis (Owl waveform)

Mode 3: EUT in Y axis (Parliament waveform)

Note2: The Adapter and PoE are for measurement only, would not be marketed.

Adapter and PoE information as below:

Power	Brand	Model
Adapter	FSP GROUP	FSP090-DBBN3
PoE 1	PLANET	POE-175-95
PoE 2	NEC	PoE-Y UNIT

2.3 EUT Operation during Test

During the test, executed the test program to control the EUT continuously transmit RF signal.

2.4 Accessories

Wall mount*1

2.5 Support Equipment

For AC Power Conducted Emissions

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	PoE 1	PLANET	POE-175-95	N/A
B	AP Router	ASUS	RP-N53	N/A
C	NB	DELL	E6430	N/A

For Transmitter Spurious Emissions (below 1 GHz):

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	PoE 2	NEC	PoE-Y UNIT	N/A
B	AP Router	ASUS	RP-N53	N/A
C	NB	DELL	E6430	N/A

For Transmitter Spurious Emissions (1GHz~40GHz): Test Mode 1~Mode 3

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	Fixture	N/A	PESNX1-SI1-EW	N/A
B	Adapter	FSP GROUP	FSP090-DBBN3	N/A

For Transmitter Spurious Emissions (40 GHz~200GHz): Test Mode 1~Mode 2

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	PoE 1	PLANET	POE-175-95	N/A
B	WLAN AP	D-LINK	DIR860L	KA2IR860LA1
C	NB	DELL	E4300	N/A

For Transmitter Spurious Emissions (40 GHz~200GHz): Test Mode 3

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
A	PoE 2	NEC	PoE-Y UNIT	N/A
B	WLAN AP	ASUS	RT-AX88U	MSQ-RTAXHP00
C	NB	DELL	E4300	N/A

2.6 Far Field Boundary Calculations

The far-field boundary is given as:

far field = (2 * L^2) /**λ**

where:

L = Largest Antenna Dimension, including the reflector, in meters

λ= wavelength in meters

For Hawk waveform

Far Field (m)				
Frequency (GHz)	**L (m)**	**Lambda (m)**	**d(Far Field) (m)**	**d(Far Field) (cm)**
61.1345	0.095	0.0049072	3.678	367.83

For Owl waveform

Far Field (m)				
Frequency (GHz)	**L (m)**	**Lambda (m)**	**d(Far Field) (m)**	**d(Far Field) (cm)**
61.25	0.095	0.0048980	3.685	368.52

For Parliament waveform

For Occupied Bandwidth / EIRP Power / Peak Conducted Power / Transmitter Spurious Emissions Below 40GHz

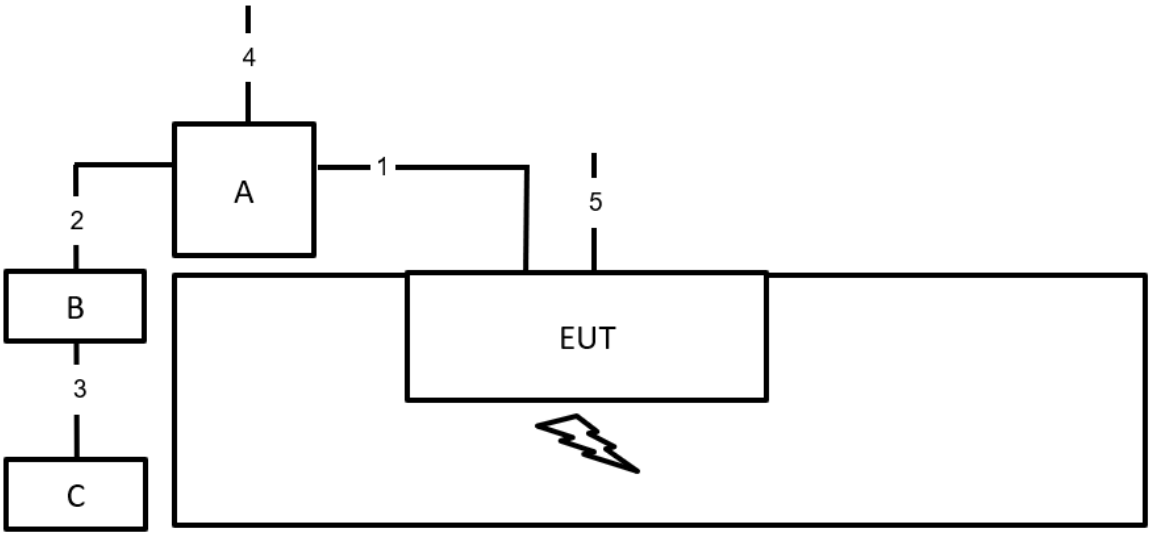
Far Field (m)				
Frequency (GHz)	**L (m)**	**Lambda (m)**	**d(Far Field) (m)**	**d(Far Field) (cm)**
61.25	0.095	0.0048980	3.685	368.52

For Transmitter Spurious Emissions Above 40GHz / Frequency Stability

Far Field (m)				
Frequency (GHz)	**L (m)**	**Lambda (m)**	**d(Far Field) (m)**	**d(Far Field) (cm)**
61.25	0.0095	0.0048980	0.037	3.69

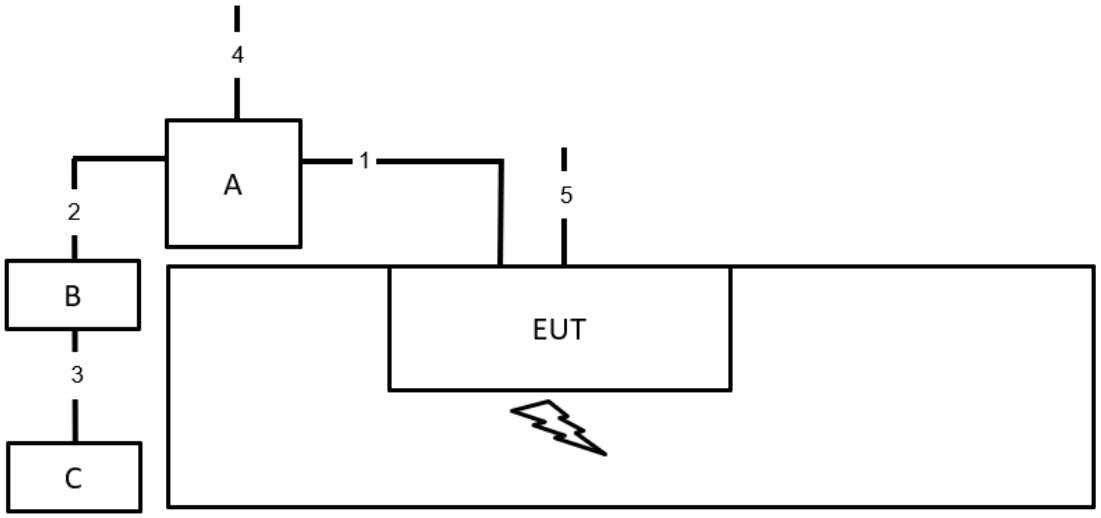
2.7 Test Setup Diagram

Test Setup Diagram - AC Power Conducted Emissions



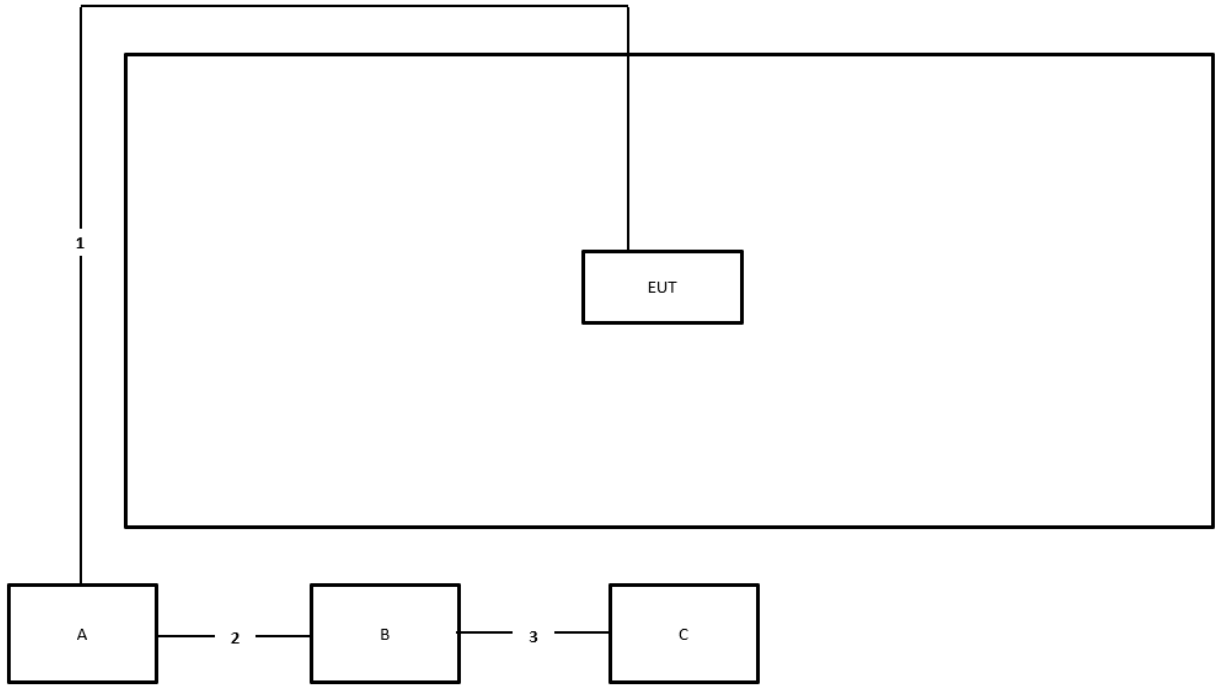
Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	1m
3	RJ-45 cable	No	1m
4	Ground cable	No	1.8m
5	Ground cable	No	1.8m

Test Setup Diagram - Transmitter Spurious Emissions below 1GHz



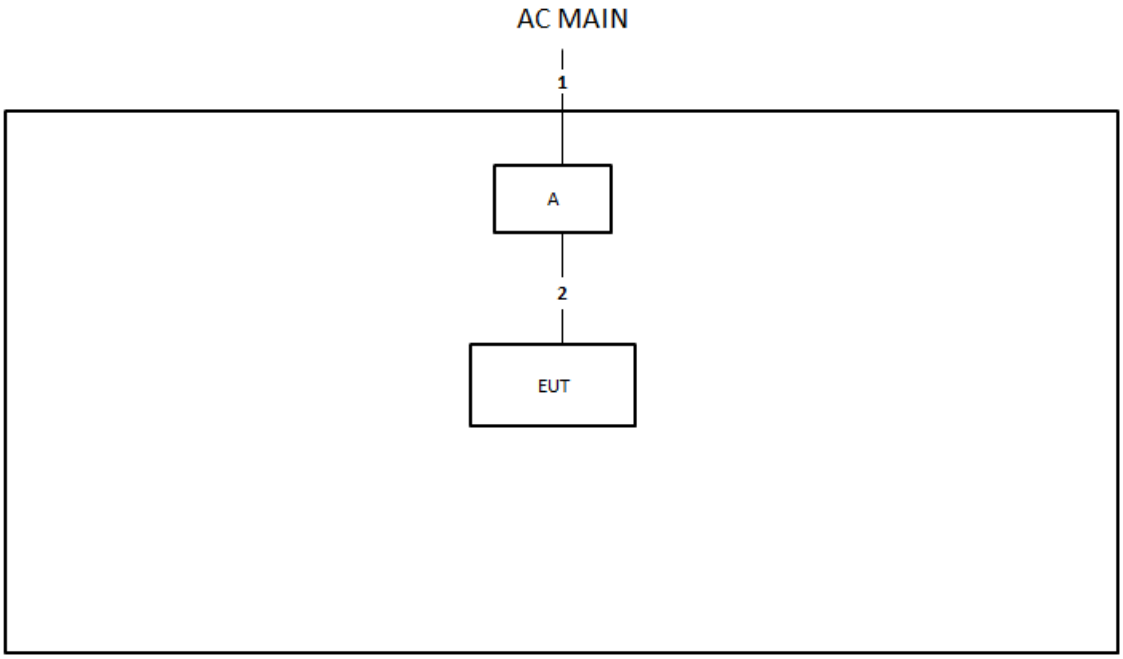
Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	1m
3	RJ-45 cable	No	1m
4	Ground cable	No	1.8m
5	Ground cable	No	1.8m

Test Setup Diagram - Transmitter Spurious Emissions 1GHz~40GHz / For Test Mode 1~Mode 3



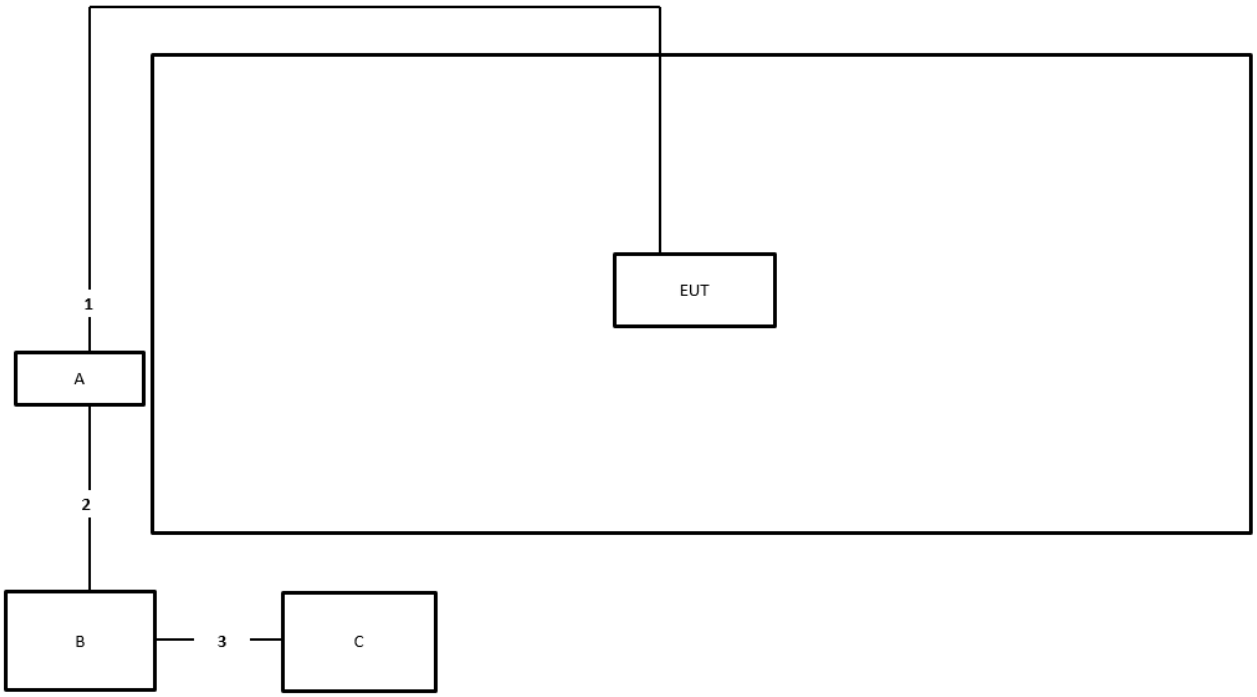
Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	1.5m
3	RJ-45 cable	No	1.5m

**Test Setup Diagram - Transmitter Spurious Emissions 40GHz~200GHz /
For Test Mode 1~Mode 2**



Item	Connection	Shielded	Length
1	Power cable	No	3.8m
2	Type-c to Type-c cable	No	0.5m

Test Setup Diagram - Transmitter Spurious Emissions 40GHz~200GHz / For Test Mode 3



Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	0.5m
3	RJ-45 cable	No	0.5m

3 Transmitter Test Result

3.1 AC Power Conducted Emissions

3.1.1 Limit of AC Power Conducted Emissions

AC Power Conducted Emissions Limit		
Frequency Emission (MHz)	**Quasi-Peak**	**Average**
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note: * Decreases with the logarithm of the frequency.		

3.1.2 Measuring Instruments

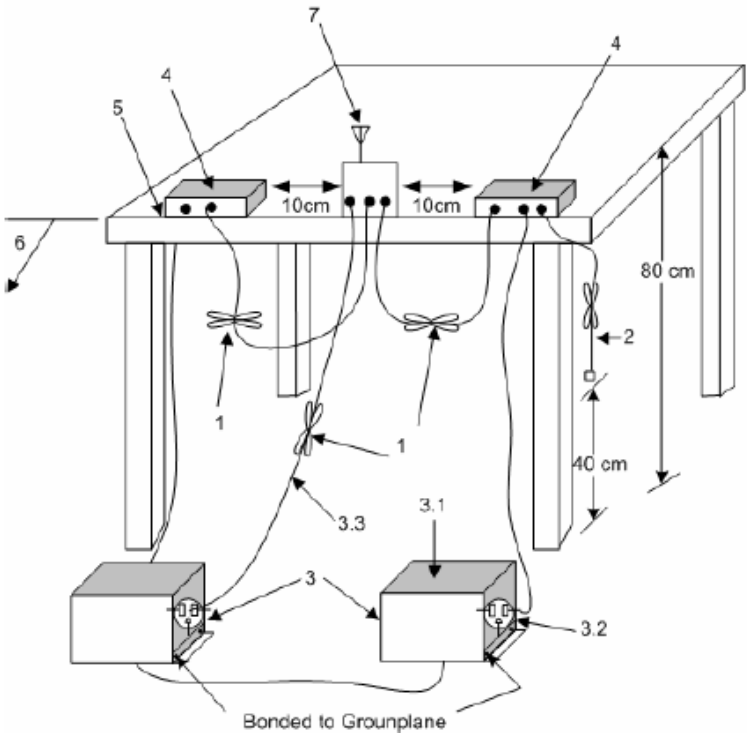
Refer a measuring instruments list in this test report.

3.1.3 Test Procedures

Method of measurement: Refer as ANSI C63.10-2013, clause 6.2.

3.1.4 Test Setup

AC Power Conducted Emissions



1—Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long.
2—The I/O cables that are not connected to an accessory shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
3—EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω loads. LISN may be placed on top of, or immediately beneath, reference ground plane.
3.1—All other equipment powered from additional LISN(s).
3.2—A multiple-outlet strip may be used for multiple power cords of non-EUT equipment.
3.3—LISN at least 80 cm from nearest part of EUT chassis.
4—Non-EUT components of EUT system being tested.
5—Rear of EUT, including peripherals, shall all be aligned and flush with edge of tabletop.
6—Edge of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.
7—Antenna can be integral or detachable. If detachable, then the antenna shall be attached for this test.

3.1.5 Measurement Results Calculation

The measured Level is calculated using:

a. Corrected Reading: LISN Factor (LISN) + Attenuator (AT/AUX) + Cable Loss (CL) + Read Level (Raw) = Level

b. Margin = -Limit + Level

3.1.6 Test Result of AC Power Conducted Emissions

Test Conditions	see ANSI C63.10, clause 5.11
Test Setup	see ANSI C63.10, clause 6.2.3

NOTE 1: If equipment having different channel plan and nominal channel bandwidth modes (see test report clause 1.1.1), the measurements are uninfluenced by different channel plan and nominal channel bandwidth modes, may not need to be repeated for all modes. If equipment having different transmit operating modes (see test report clause 1.1.2), the measurements are uninfluenced by different transmit operating modes, may not need to be repeated for all the operating modes. Similar, if the equipment supports different modulations and/or data rates, the measurements described in ANSI C63.10, clause 5.12 may not need to be repeated for all these modulations and data rates. Simple comparison of engineering test across all operating modes, modulations and data rates may need to be performed to define the worse case combination to be used for the conformance testing.

NOTE 2: “>20dB” means the tables in this clause should only list values of spurious emissions that exceed the level of 20 dB below the applicable limit, see ANSI C63.4, clause 10.1.8.1.

Refer as Appendix A

3.2 Occupied Bandwidth

3.2.1 Limit of Occupied Bandwidth

6dBc Bandwidth (see Note 1)	None
99% Occupied Bandwidth (see Note 2)	None

NOTE 1: The 6dBc bandwidth is the frequency bandwidth of the signal power at the -6 dBc points when measured with a 100 kHz resolution bandwidth. These measurements shall also be performed at normal test conditions.

NOTE 2: The 99% occupied bandwidth is the frequency bandwidth of the signal power at the 99% channel power of occupied bandwidth when resolution bandwidth should be approximately 1 % to 5 % of the occupied bandwidth (OBW). These measurements shall also be performed at normal test conditions.

3.2.2 Measuring Instruments

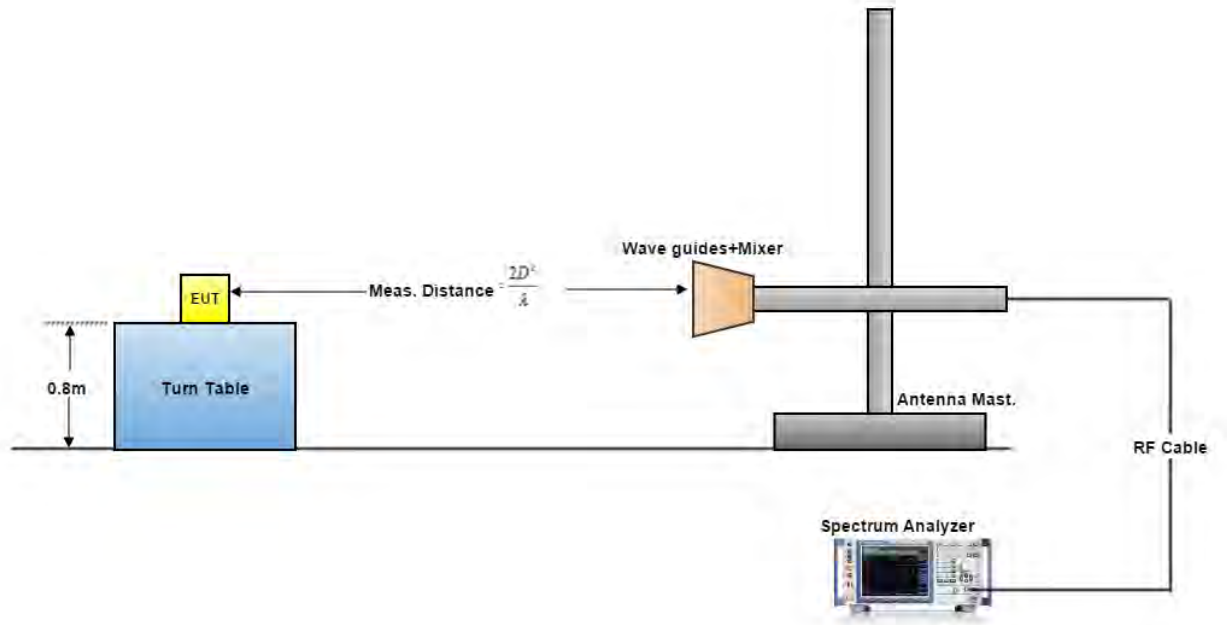
Refer a measuring instruments list in this test report.

3.2.3 Test Procedures

Method of measurement: Refer as ANSI C63.10-2013, clauses 6.9.2.

3.2.4 Test Setup

Occupied Channel Bandwidth



3.2.5 Test Result of Occupied Bandwidth

Test Conditions	see ANSI C63.10, clause 5.11
Test Setup	see ANSI C63.10, clause 6.9.2

NOTE: If equipment having different transmit operating modes (see test report clause 1.1.2), the measurements are uninfluenced by different transmit operating modes, may not need to be repeated for all the operating modes. Similar, if the equipment supports different modulations and/or data rates, the measurements described in ANSI C63.10, clause 5.11 may not need to be repeated for all these modulations and data rates. Simple comparison of engineering test across all operating modes, modulations and data rates may need to be performed to define the worse case combination to be used for the conformance testing. Refer as ANSI C63.10, clause 15, observe and record with plotted graphs or photographs the worst-case (i.e., widest) occupied bandwidth produced by these different modulation sources.

For Hawk waveform

Test Results			
Test Freq. (GHz)	**6 dBc Bandwidth (MHz)**	**99% Occupied Bandwidth (MHz)**	**Limit (MHz)**
61.1345	229.77	227.80	N/A

For Owl waveform

Test Results			
Test Freq. (GHz)	**6 dBc Bandwidth (MHz)**	**99% Occupied Bandwidth (MHz)**	**Limit (MHz)**
61.25	426.60	423.71	N/A

For Parliament waveform

Test Results			
Test Freq. (GHz)	**6 dBc Bandwidth (MHz)**	**99% Occupied Bandwidth (MHz)**	**Limit (MHz)**
61.25	424.40	422.54	N/A

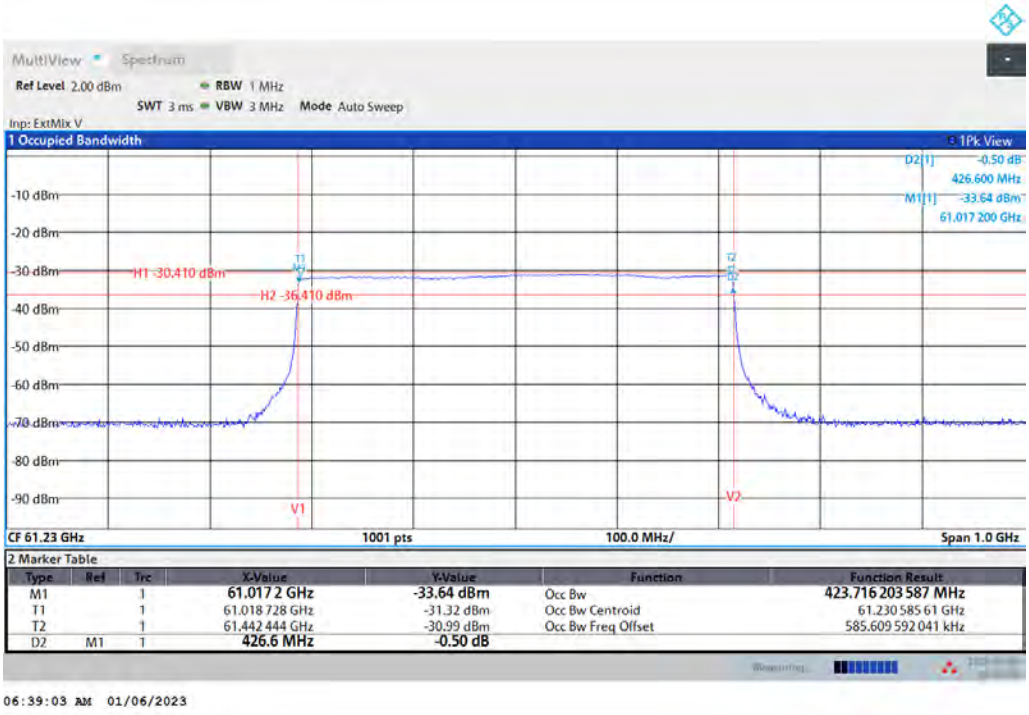
3.2.6 Bandwidth Plots

For Hawk waveform

Test Frequency: 61.1345 GHz
6 dBc/99% Occupied Bandwidth

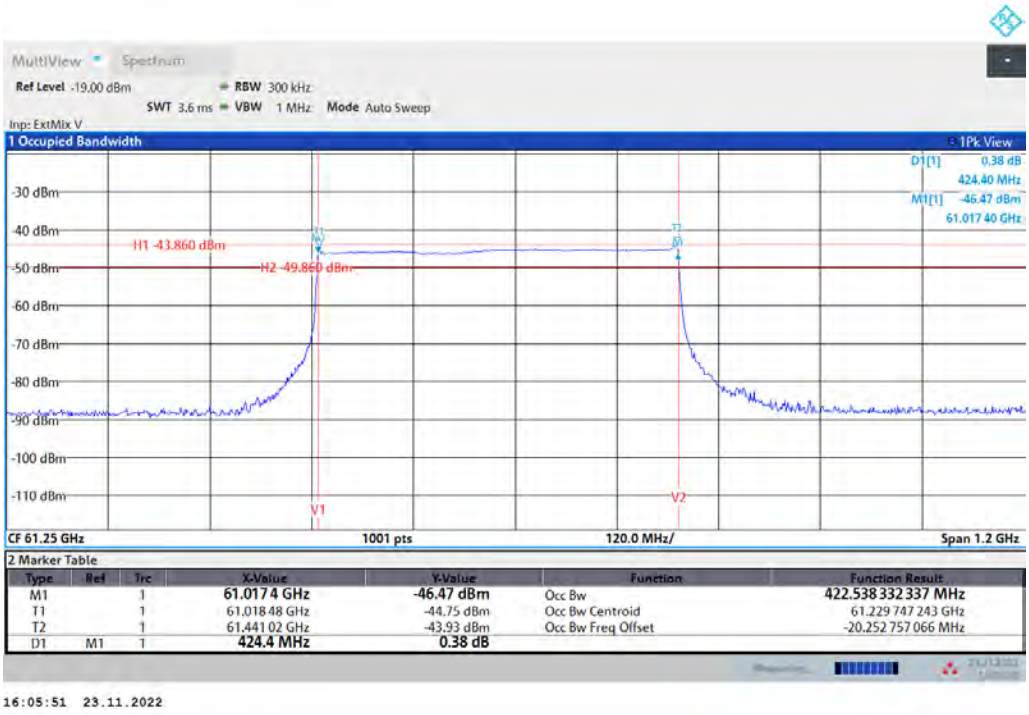
For Owl waveform

Test Frequency: 61.25 GHz
6 dBc/99% Occupied Bandwidth



For Parliament waveform

Test Frequency: 61.25 GHz
6 dBc/99% Occupied Bandwidth



3.3 EIRP Power

3.3.1 Limit of EIRP Power

EIRP Power Limit		
Use Condition	**EIRP Average Power**	**EIRP Peak Power**
Fixed field disturbance sensors at within the frequency band 61-61.5GHz	40 dBm	43 dBm
Fixed field disturbance sensors at outside of the band 61-61.5GHz	10 dBm	13 dBm
Except fixed field disturbance sensors at 61-61.5GHz	N/A	10 dBm
Except outdoor fixed Point to Point	40 dBm	43 dBm
Outdoor fixed Point to Point	82 dBm	85 dBm
Note: For fixed point-to-point transmitters located outdoors, the average power of any emission shall not exceed 82 dBm, and shall be reduced by 2 dB for every dB that the antenna gain is less than 51 dBi. The peak power of any emission shall not exceed 85 dBm, and shall be reduced by 2 dB for every dB that the antenna gain is less than 51 dBi.		

NOTE: For the applicable limit, see 15.255 (c)

3.3.2 Measuring Instruments

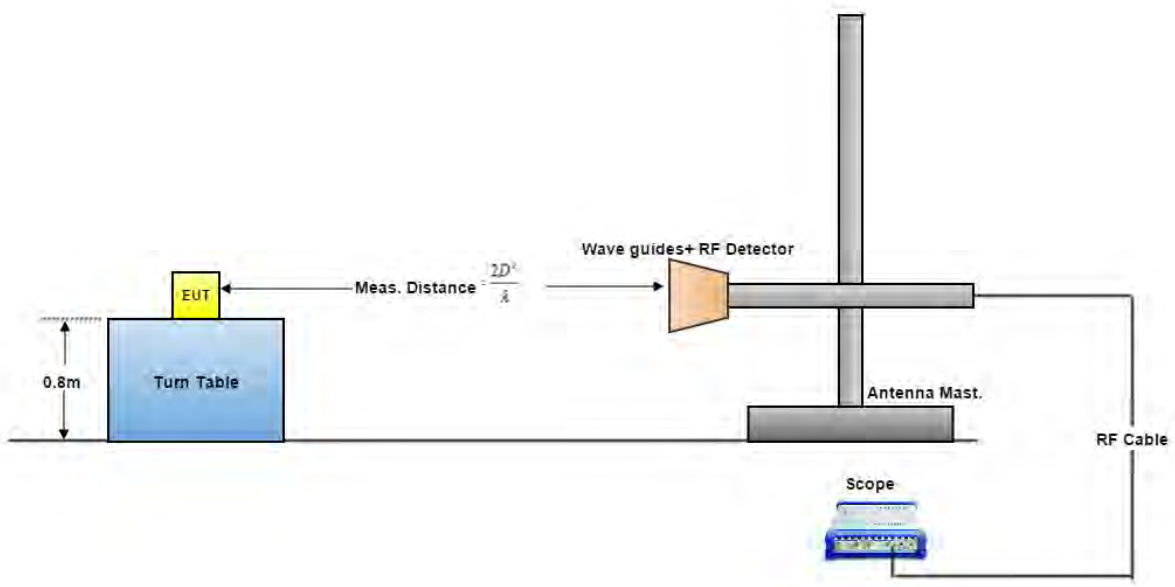
Refer a measuring instruments list in this test report.

3.3.3 Test Procedures

Method of measurement: Refer as ANSI C63.10-2013 clause 9.3 & 9.5.

3.3.4 Test Setup

EIPR Power



3.3.5 Test Result of EIRP Power

Test Conditions	see ANSI C63.10, clause 5.11 & clause 9
Test Setup	see ANSI C63.10, clause 9.11

NOTE: If the equipment supports different modulations and/or data rates, the measurements described in ANSI C63.10, clause 5.11 may not need to be repeated for all these modulations and data rates. Simple comparison of engineering test across all operating modes, modulations and data rates may need to be performed to define the worst case combination to be used for the conformance testing.

3.3.6 Test Result of EIRP Power

For Hawk waveform

Test Distance	1 m

Test Results

Test Freq. (GHz)	**Rx Gain (dBi)**	**DSO (mV)**		**Power Measured (dBm)**		**E_{Meas} (dBuV/m)**		**EIRP (dBm)**		**EIRP Limit (dBm) (note 1)**	
		Peak	AV	Peak	AV	Peak	AV	Peak	AV	Peak	AV
61.1345	23.6	38.62	6.53	-17.34	-26.85	132.04	122.53	27.24	17.73	43	40

The measured power level is converted to EIRP using the Friis equation:

For radiated emissions, calculate the field strength (E) in dBµV/meter.

$E = 126.8 – 20\log(\lambda) + P - G$

where:

E : is the field strength of the emission at the measurement distance, in dBµV/m

P : is the power measured at the output of the test antenna, in dBm

λ: is the wavelength of the emission under investigation [300/fMHz], in m

G : is the gain of the test antenna, in dBi For radiated emissions, calculate the EIRP (dBm). If the measurement was performed in the far field, calculate the EIRP.

EIRP = E-meas +20log(d-meas)-104.7

where:

EIRP : is the equivalent isotopically radiated power, in dBm

E-meas. : is the field strength of the emission at the measurement distance, in dBµV/m

d-meas. : is the measurement distance, in m

NOTE 1: For the applicable limit, see 15.255 (c)

NOTE 2: The comparison method which replaces EUT with a signal generator is used to find the correct conversion factor between “DSO(mV)” & “Power Measured(dBm)”.

For Owl waveform

Test Distance	1 m

Test Results

Test Freq. (GHz)	**Rx Gain (dBi)**	**DSO (mV)**		**Power Measured (dBm)**		**E_{Meas} (dBuV/m)**		**EIRP (dBm)**		**EIRP Limit (dBm) (note 1)**	
		Peak	AV	Peak	AV	Peak	AV	Peak	AV	Peak	AV
61.25	23.6	7.96	1.96	-25.92	-30.50	123.48	118.90	18.68	14.10	43	40

The measured power level is converted to EIRP using the Friis equation:

For radiated emissions, calculate the field strength (E) in dBµV/meter.

$E = 126.8 – 20\log(\lambda) + P - G$

where:

E : is the field strength of the emission at the measurement distance, in dBµV/m

P : is the power measured at the output of the test antenna, in dBm

λ: is the wavelength of the emission under investigation [300/fMHz], in m

G : is the gain of the test antenna, in dBi For radiated emissions, calculate the EIRP (dBm). If the measurement was performed in the far field, calculate the EIRP.

EIRP = E-meas +20log(d-meas)-104.7

where:

EIRP : is the equivalent isotopically radiated power, in dBm

E-meas. : is the field strength of the emission at the measurement distance, in dBµV/m

d-meas. : is the measurement distance, in m

NOTE 1: For the applicable limit, see 15.255 (c)

NOTE 2: The comparison method which replaces EUT with a signal generator is used to find the correct conversion factor between “DSO(mV)” & “Power Measured(dBm)”.

For Parliament waveform

Test Distance	1 m

Test Results

Test Freq. (GHz)	Rx Gain (dBi)	DSO (mV)		Power Measured (dBm)		E_{Meas} (dBuV/m)		EIRP (dBm)		EIRP Limit (dBm) (note 1)	
		Peak	AV	Peak	AV	Peak	AV	Peak	AV	Peak	AV
61.25	23.6	9.35	5.39	-24.85	-28.15	124.55	121.25	19.75	16.45	43	40

The measured power level is converted to EIRP using the Friis equation:

For radiated emissions, calculate the field strength (E) in dBµV/meter.

$E = 126.8 – 20\log(\lambda) + P - G$

where:

E : is the field strength of the emission at the measurement distance, in dBµV/m

P : is the power measured at the output of the test antenna, in dBm

λ: is the wavelength of the emission under investigation [300/fMHz], in m

G : is the gain of the test antenna, in dBi For radiated emissions, calculate the EIRP (dBm). If the measurement was performed in the far field, calculate the EIRP.

EIRP = E-meas +20log(d-meas)-104.7

where:

EIRP : is the equivalent isotopically radiated power, in dBm

E-meas. : is the field strength of the emission at the measurement distance, in dBµV/m

d-meas. : is the measurement distance, in m

NOTE 1: For the applicable limit, see 15.255 (c)

NOTE 2: The comparison method which replaces EUT with a signal generator is used to find the correct conversion factor between “DSO(mV)” & “Power Measured(dBm)”.

3.4 Peak Conducted Power

3.4.1 Limit of Peak Conducted Power

Peak Conducted Power Limit			
Use Condition	**6dBc Bandwidth**	**Occupied Bandwidth**	**Peak Conducted Power (note 1)**
Fixed field disturbance sensors at within the frequency band 61-61.5GHz	> 100MHz	≤500MHz	500mW
	≤ 100MHz		500mW x (BW/100) (see note 2)
Fixed field disturbance sensors at outside of the band 61-61.5GHz and within 57 -71 GHz	> 100MHz	N/A	500mW
	≤ 100MHz		500mW x (BW/100) (see note 2)
Except fixed field disturbance sensors at 61-61.5GHz	N/A	> 500MHz	-10 dBm
Except outdoor fixed Point to Point,	> 100MHz	N/A	500mW
Outdoor fixed Point to Point	≤ 100MHz	N/A	500mW x (BW/100) (see note 2)
NOTE 1: For the applicable limit, see FCC 15.255(c) NOTE 2: BW= 6dB bandwidth (measured at RBW 100kHz)			

3.4.2 Measuring Instruments

Refer a measuring instruments list in this test report.

3.4.3 Test Procedures

Method of measurement: Refer as ANSI C63.10-2013, clause 9.5

3.4.4 Test Result of Peak Conducted Power

Test Conditions	see ANSI C63.10, clause 5.11 & clause 9
Test Setup	see ANSI C63.10, clause 9.11
NOTE: If the equipment supports different modulations and/or data rates, the measurements described in ANSI C63.10, clause 5.11 may not need to be repeated for all these modulations and data rates. Simple comparison of engineering test across all operating modes, modulations and data rates may need to be performed to define the worst case combination to be used for the conformance testing.	

3.4.5 Peak Conducted Power

For Hawk waveform

Test Results						
Test Freq. (GHz)	EIRP (dBm)	Max. Ant. Gain (dBi)	Peak Power (dBm) (note1)	Peak Power (mW)	6dBc BW (MHz) (note2)	Peak Power Limit (mW) (note3)
61.1345	27.24	7	20.24	105.747	229.77	500.00

NOTE 1: Because EUT used for the integral antenna without temporary RF connector provided. Therefore peak conducted power is equal to EIRP power subtract the antenna gain.

NOTE 2: For the 6dBc bandwidth, see test report clause 3.2.5.

NOTE 3: For the applicable limit, see FCC 15.255(c)

NOTE 4: For radiated emission measurements, calculate conducted transmitter output power P(cond)(dBm)

P(cond) = EIRP - G(dBi)

where:

G(dBi) is gain of EUT antenna.

For Owl waveform

Test Results						
Test Freq. (GHz)	EIRP (dBm)	Max. Ant. Gain (dBi)	Peak Power (dBm) (note1)	Peak Power (mW)	6dBc BW (MHz) (note2)	Peak Power Limit (mW) (note3)
61.25	18.68	7	11.68	14.722	426.60	500.00

NOTE 1: Because EUT used for the integral antenna without temporary RF connector provided. Therefore peak conducted power is equal to EIRP power subtract the antenna gain.

NOTE 2: For the 6dBc bandwidth, see test report clause 3.2.5.

NOTE 3: For the applicable limit, see FCC 15.255(c)

NOTE 4: For radiated emission measurements, calculate conducted transmitter output power P(cond)(dBm)

P(cond) = EIRP - G(dBi)

where:

G(dBi) is gain of EUT antenna.

For Parliament waveform

Test Results						
Test Freq. (GHz)	EIRP (dBm)	Max. Ant. Gain (dBi)	Peak Power (dBm) (note1)	Peak Power (mW)	6dBc BW (MHz) (note2)	Peak Power Limit (mW) (note3)
61.25	19.75	7	12.75	18.835	424.40	500.00

NOTE 1: Because EUT used for the integral antenna without temporary RF connector provided. Therefore peak conducted power is equal to EIRP power subtract the antenna gain.

NOTE 2: For the 6dBc bandwidth, see test report clause 3.2.5.

NOTE 3: For the applicable limit, see FCC 15.255(c)

NOTE 4: For radiated emission measurements, calculate conducted transmitter output power P(cond)(dBm)

P(cond) = EIRP - G(dBi)

where:

G(dBi) is gain of EUT antenna.

3.5 Transmitter Spurious Emissions

3.5.1 Limit of Transmitter Spurious Emissions

Frequency Range	Limit
Radiated emissions below 40 GHz	Reference to section 15.209
Radiated emissions above 40 GHz – 200GHz	90 pW/cm^2 @ 3 m (Equivalent EIRP 102 μW, -9.91dBm)
NOTE 1: For the applicable limit, see 15.255(d)	
NOTE 2: Spurious emissions shall not exceed the level of the fundamental emission.	

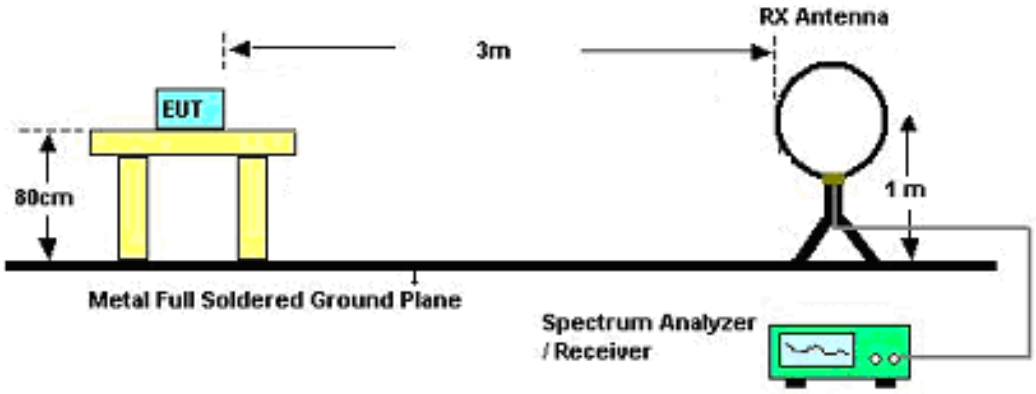
3.5.2 Test Procedures

Method of measurement: Refer as ANSI C63.10-2013, clause 9.12

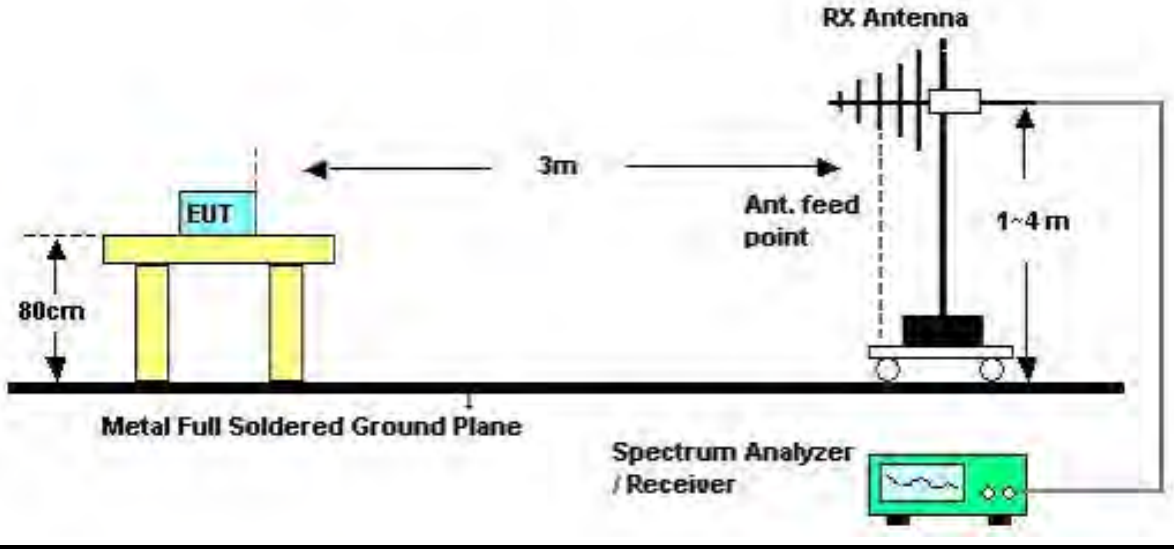
3.5.3 Test Setup

Transmitter Spurious Emissions

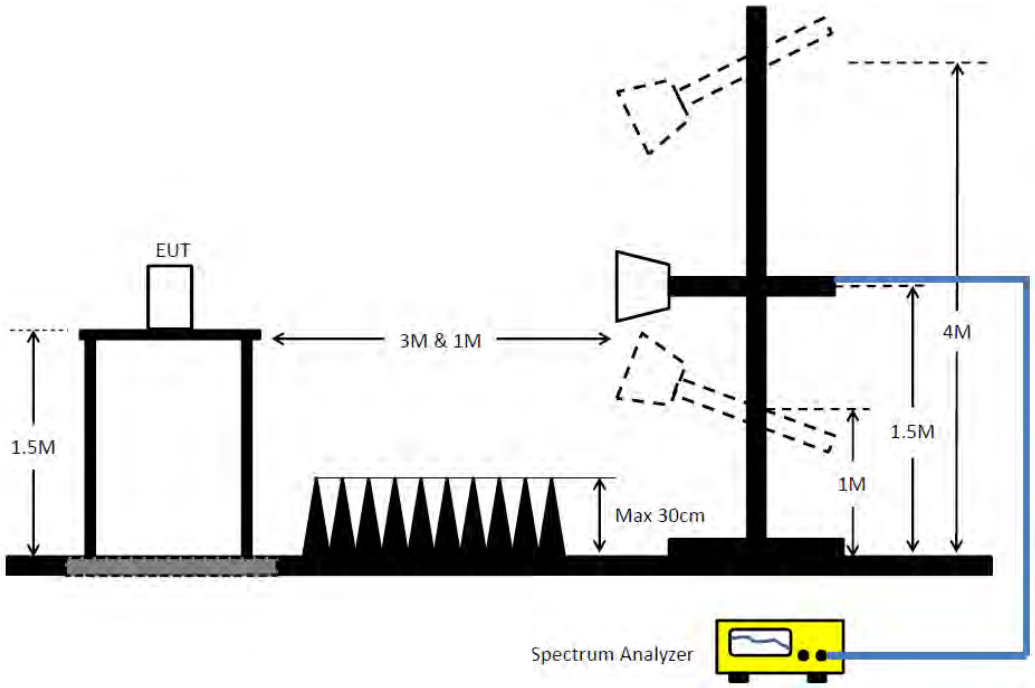
9kHz ~30MHz



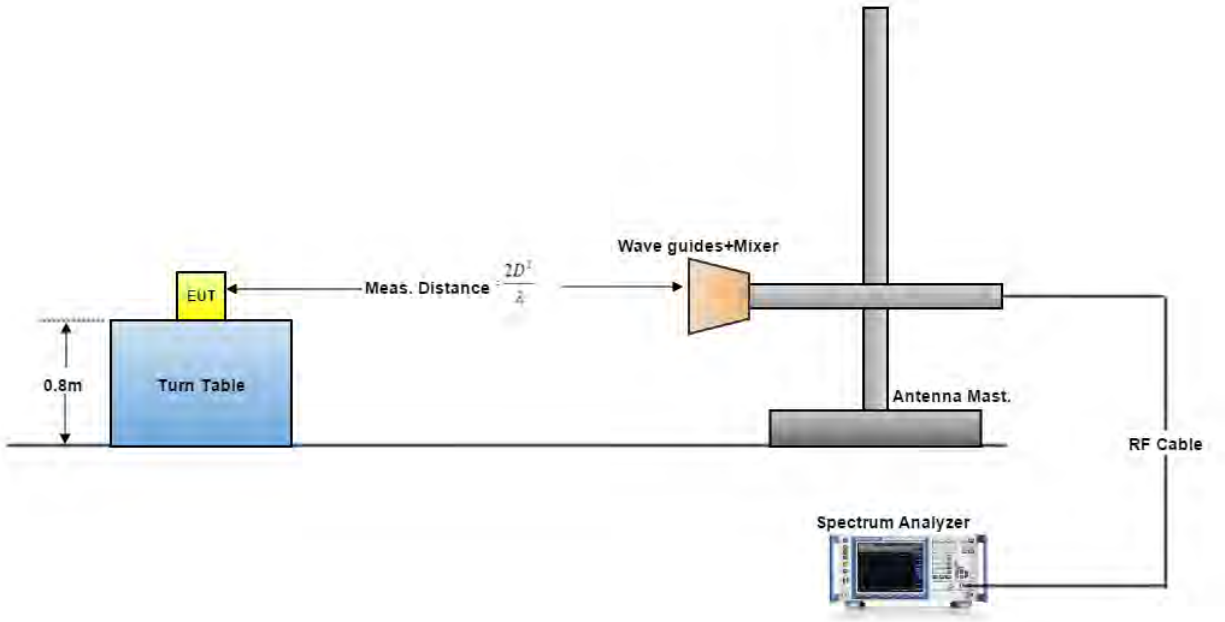
30MHz~1GHz



1GHz ~40GHz



Above 40GHz



A measuring distance of at 3 m shall be used for measurements at frequencies up to 15 GHz. For frequencies above 15 GHz, any suitable measuring distance may be used. The measurement distance is chosen up to far field distance, depending on the test system noise floor for detecting spurious emission signals. Then above 15 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from spec. distance (3 m) to measurement distance. Distance extrapolation factor = 20 log (spec. distance [3 m] / measurement distance [N m]) (dB) .The measurements described in ANSI C63.10, clause 7.8.6. If the emission cannot be detected at 1 m, reduce the RBW to increase system sensitivity. Note the value. If the emission still cannot be detected, move the horn closer to the EUT, noting the distance at which a measurement is made.

3.5.4 Measurement Results Calculation

The measured Level is calculated using:

For below 40GHz

Corrected Reading: Antenna factor (AF) + Cable loss (CL) + Read level (Raw) - Preamp factor (PA)(if applicable) = Level.

For above 40GHz

EIRP = Meas. Level - RX Antenna Gain + 20*log(4*Pi(3.14159)*D/(300/(Frequency*1000)))

3.5.5 Test Result of Transmitter Spurious Emissions

Test Conditions	see ANSI C63.10, clause 5.11 & clause 9
Test Setup	see ANSI C63.10, clause 9.12 、9.13
NOTE: If equipment having different channel plan and nominal channel bandwidth modes (see test report clause 1.1.1), the measurements are uninfluenced by different channel plan and nominal channel bandwidth modes, may not need to be repeated for all modes.	

3.5.6 Test Result of Transmitter Spurious Emissions (Below 30MHz)

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to KDB414788 Radiated Test Site, and the result came out very similar.

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

The radiated emissions were investigated from 9 kHz or the lowest frequency generated within the device, up to the 10 harmonic or 40 GHz, whichever is appropriate.

3.5.7 Test Result of Transmitter Spurious Emissions

Refer as Appendix B

3.6 Frequency Stability

3.6.1 Limit of Frequency Stability

Frequency Stability	Limit
Refer as 15.255(f) and ANSI C63.10-2013, clause 9.14	within the frequency bands
Note: These measurements shall also be performed at normal and extreme test conditions.	

3.6.2 Measuring Instruments

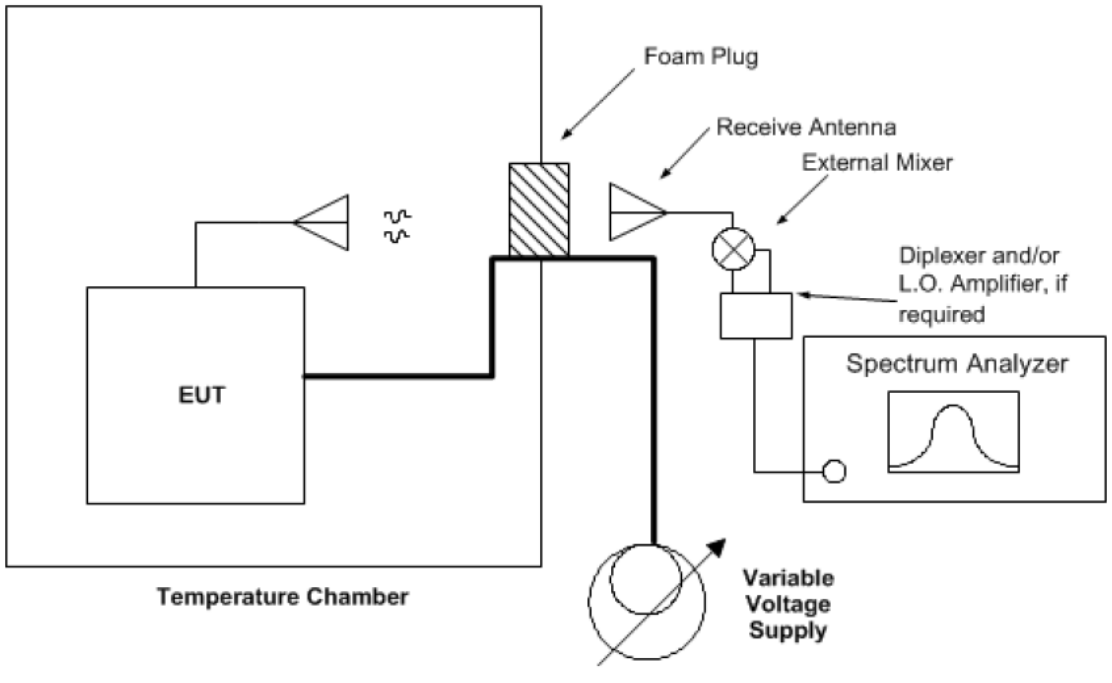
Refer a measuring instruments list in this test report.

3.6.3 Test Procedures

Method of measurement: Refer as ANSI C63.10-2013, clauses 9.14.

3.6.4 Test Setup

Frequency Stability



3.6.5 Test Result of Frequency Stability

Test Conditions	see ANSI C63.10, clause 5.11 & clause 9
Test Setup	see ANSI C63.10, clause 9.14
NOTE: If equipment having different channel plan and nominal channel bandwidth modes (see test report clause 1.1.1), the measurements are uninfluenced by different channel plan and nominal channel bandwidth modes, may not need to be repeated for all modes.	

3.6.6 Frequency Stability with Respect to Ambient Temperature

For Hawk waveform

Frequency Stability with Respect to Ambient Temperature			
Test Results			
Test Temp.erature (°C)	**Measured Frequency (MHz)**	**Delta Frequency (kHz)**	**Limit (±kHz)**
-40	61133.415	1447	within band
-30	61133.415	1447	within band
-20	61132.090	122	within band
-10	61132.514	546	within band
0	61131.968	0	within band
10	61131.968	0	within band
20	61131.968	Reference	within band
30	61132.691	724	within band
40	61132.691	724	within band
50	61132.255	287	within band
60	61131.461	-506	within band
NOTE: The manufacturer’s specified temperature range of -40 to 60°C.			

For Owl waveform

Frequency Stability with Respect to Ambient Temperature			
Test Results			
Test Temp.erature (°C)	**Measured Frequency (MHz)**	**Delta Frequency (kHz)**	**Limit (±kHz)**
-40	61232.585	2585	within band
-30	61232.585	2585	within band
-20	61231.226	1226	within band
-10	61232.585	2585	within band
0	61230.641	641	within band
10	61230.000	0	within band
20	61230.000	Reference	within band
30	61230.000	0	within band
40	61231.201	1201	within band
50	61232.561	2561	within band
60	61232.561	2561	within band
NOTE: The manufacturer’s specified temperature range of -40 to 60°C.			

For Parliament waveform

Frequency Stability with Respect to Ambient Temperature			
Test Results			
Test Temp.erature (°C)	**Measured Frequency (MHz)**	**Delta Frequency (kHz)**	**Limit (±kHz)**
-40	61233.07	-440	within band
-30	61232.94	-565	within band
-20	61232.88	-625	within band
-10	61232.88	-630	within band
0	61233.61	100	within band
10	61233.72	210	within band
20	61233.51	Reference	within band
30	61232.68	-830	within band
40	61232.63	-875	within band
50	61232.88	-625	within band
60	61232.91	-595	within band
NOTE: The manufacturer’s specified temperature range of -40 to 60°C.			

3.6.7 Frequency Stability When Varying Supply Voltage

For Hawk waveform

Frequency Stability When Varying Supply Voltage			
Test Results			
Test Voltage: (Vac)	Measured Frequency (MHz)	Delta Frequency (kHz)	Limit (±kHz)
102	61131.968	0	within band
120	61131.968	Reference	within band
138	61131.968	0	within band

For Owl waveform

Frequency Stability When Varying Supply Voltage			
Test Results			
Test Voltage: (Vac)	Measured Frequency (MHz)	Delta Frequency (kHz)	Limit (±kHz)
102	61230.000	0	within band
120	61230.000	Reference	within band
138	61231.201	1201	within band

For Parliament waveform

Frequency Stability When Varying Supply Voltage			
Test Results			
Test Voltage: (Vdc)	Measured Frequency (MHz)	Delta Frequency (kHz)	Limit (±kHz)
102	61232.94	-565	within band
120	61233.51	Reference	within band
138	61232.88	-625	within band

3.7 Operation Restriction and Group Installation

3.7.1 Limit of Operation Restriction and Group Installation

Item	Limit
Operation Restriction	Operation is not permitted for the following products: ♦ Equipment used on aircraft or satellites. (Refer as 15.255 (a)) ♦ Field disturbance sensors, including vehicle radar systems, unless the field disturbance sensors are employed for fixed operation. (Refer as 15.255 (a))
Group Installation	Operation is not permitted for the following products: ♦ External phase-locking (Refer as 15.255 (h))

3.7.2 Result of Operation Restriction

Manufacturer declares that EUT will not been used on aircraft or satellites. Then user manual will include a statement to caution EUT is not permitted for used on aircraft or satellites.

3.7.3 Result of Group Installation

The frequency, amplitude and phase of the transmit signal are set within the EUT. There are no external phase-locking inputs or any other means of combining two or more units together to realize a beam-forming array.

4 Test Equipment and Calibration Data

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Feb. 22, 2022	Feb. 21, 2023	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz~100MHz	Feb. 09, 2022	Feb. 08, 2023	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Apr. 12, 2022	Apr. 11, 2023	Conduction (CO01-CB)
Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Feb. 10, 2022	Feb. 09, 2023	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	Oct. 18, 2022	Oct. 17, 2023	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
10m Semi Anechoic Chamber NSA	TDK	SAC-10M	10CH01-CB	30MHz~1GHz 10m,3m	Jan. 18, 2023	Jan. 17, 2024	Radiation (10CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	May 14, 2022	May 13, 2023	Radiation (10CH01-CB)
Loop Antenna	Teseq	HLA 6120	31244	9kHz - 30 MHz	Mar. 23, 2023	Mar. 22, 2024	Radiation (10CH01-CB)
Amplifier	Agilent	8447D	2944A10783	9kHz ~ 1.3GHz	Mar. 11, 2022	Mar. 10, 2023	Radiation (10CH01-CB)
Amplifier	Agilent	8447D	2944A10783	9kHz ~ 1.3GHz	Mar. 10, 2023	Mar. 09, 2024	Radiation (10CH01-CB)
Amplifier	Agilent	8447D	2944A10784	9kHz ~ 1.3GHz	Mar. 11, 2022	Mar. 10, 2023	Radiation (10CH01-CB)
Amplifier	Agilent	8447D	2944A10784	9kHz ~ 1.3GHz	Mar. 10, 2023	Mar. 09, 2024	Radiation (10CH01-CB)
Low Cable	Woken	SUCOFLEX 104	low cable-01	25MHz ~ 1GHz	Oct. 18, 2022	Oct. 17, 2023	Radiation (10CH01-CB)
Low Cable	Woken	SUCOFLEX 104	low cable-02	25MHz ~ 1GHz	Oct. 18, 2022	Oct. 17, 2023	Radiation (10CH01-CB)
EMI Test Receiver	Rohde&Schwarz	ESCI	100186	9kHz ~ 3GHz	Jul. 11, 2022	Jul. 10, 2023	Radiation (10CH01-CB)
Spectrum Analyzer	Rohde&Schwarz	FSV30	101026	9kHz ~ 30GHz	Apr. 22, 2022	Apr. 21, 2023	Radiation (10CH01-CB)
Spectrum Analyzer	Rohde&Schwarz	FSV30	101026	9kHz ~ 30GHz	Apr. 19, 2023	Apr. 18, 2024	Radiation (10CH01-CB)
Bilog Antenna with 6dB Attenuator	Chase & EMCI	CBL6111A &N-6-06	1543 &AT-N0609	30MHz ~ 1GHz	Jun. 25, 2022	Jun. 24, 2023	Radiation (10CH01-CB)
Amplifier	EM	EM101	060703	10MHz ~ 1GHz	Oct. 19, 2022	Oct. 18, 2023	Radiation (10CH01-CB)
Low Cable	TITAN	T318E	low cable-03	30MHz ~ 1GHz	Oct. 18, 2022	Oct. 17, 2023	Radiation (10CH01-CB)

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (10CH01-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH03-CB	1GHz ~18GHz 3m	May 05, 2023	May 04, 2024	Radiation (03CH03-CB)
Horn Antenna	ETS·Lindgren	3115	6821	750MHz~18GHz	Feb. 03, 2023	Feb. 02, 2024	Radiation (03CH03-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2022	Aug. 21, 2023	Radiation (03CH03-CB)
Pre-Amplifier	Agilent	8449B	3008A02097	1GHz ~ 26.5GHz	Jul. 01, 2022	Jun. 30, 2023	Radiation (03CH03-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 16, 2022	Nov. 15, 2023	Radiation (03CH03-CB)
Spectrum Analyzer	R&S	FSP40	100019	9kHz ~ 40GHz	Jun. 10, 2022	Jun. 09, 2023	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-20+29	1GHz ~ 18GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-29	1GHz ~ 18GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH03-CB)
High Cable	Woken	WCA0929M	40G#5+7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH03-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH03-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 08, 2021	Dec. 07, 2022	Radiation (03CH03-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH03-CB)
High Cable	Woken	WCA0929M	40G#7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH03-CB)
High Cable	Woken	WCA0929M	40G#6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH03-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH03-CB)
Mixer	OML	M19HWA	U91113-1	40 ~ 60 GHz	Mar. 10, 2022	Mar. 09, 2023	Radiation (03CH03-CB)
*Mixer	OML	M12HWA	E91113-1	60 ~ 90 GHz	Nov. 14, 2020	Nov. 13, 2022	Radiation (03CH03-CB)
Mixer	OML	M08HWA	F91113-1	90 ~ 140 GHz	Mar. 10, 2022	Mar. 09, 2023	Radiation (03CH03-CB)
Mixer	OML	M05HW/A	G91113-1	140 ~ 220 GHz	Mar. 10, 2022	Mar. 09, 2023	Radiation (03CH03-CB)
Detector	Millitech	DET-15-RPF W0	#A18185(074)	50 ~ 75 GHz	Apr. 23, 2022	Apr. 22, 2023	Radiation (03CH03-CB)
PC Oscilloscope	PICO TECH	6402C	CX372/002	N/A	Jul. 08, 2021	Jul. 07, 2022	Radiation (03CH03-CB)
PC Oscilloscope	PICO TECH	6402C	CX372/002	N/A	Jul. 07, 2022	Jul. 06, 2023	Radiation (03CH03-CB)

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Standard Horn Antenna	Custom Microwave	M19RH	U91113-A	40 ~ 60 GHz	N.C.R.	N.C.R.	Radiation (03CH03-CB)
Standard Horn Antenna	Custom Microwave	M12RH	E91113-A	60 ~ 90 GHz	N.C.R.	N.C.R.	Radiation (03CH03-CB)
Standard Horn Antenna	Custom Microwave	M08RH	F91113-A	90 ~ 140 GHz	N.C.R.	N.C.R.	Radiation (03CH03-CB)
Standard Horn Antenna	Custom Microwave	M05RH	G91113-A	140 ~ 220 GHz	N.C.R.	N.C.R.	Radiation (03CH03-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH03-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH05-CB	1GHz ~18GHz 3m	Nov. 06, 2022	Nov. 05, 2023	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120 D-1291	1GHz~18GHz	Jun. 23, 2022	Jun. 22, 2023	Radiation (03CH05-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 22, 2022	Aug. 21, 2023	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC12630SE	980287	1GHz – 26.5GHz	Jul. 01, 2022	Jun. 30, 2023	Radiation (03CH05-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 16, 2022	Nov. 15, 2023	Radiation (03CH05-CB)
Signal Analyzer	R&S	FSV3044	101321	9kHz ~ 44GHz	Jun. 13, 2022	Jun. 12, 2023	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-28	1GHz~18GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-04+28	1GHz~18GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#5+7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 08, 2021	Dec. 07, 2022	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH05-CB)
*Mixer	OML	M19HWA	U91113-1	40 ~ 60 GHz	Mar. 10, 2022	Mar. 09, 2023	Radiation (03CH05-CB)
*Mixer	OML	M15HWA	V91113-1	50 ~ 75 GHz	Nov. 13, 2020	Nov. 12, 2022	Radiation (03CH05-CB)
Mixer	OML	M15HWA	V91113-1	50 ~ 75 GHz	Oct. 22, 2022	Oct. 21, 2023	Radiation (03CH05-CB)
*Mixer	OML	M12HWA	E91113-1	60 ~ 90 GHz	Nov. 14, 2020	Nov. 13, 2022	Radiation (03CH05-CB)

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Mixer	OML	M12HWA	E91113-1	60 ~ 90 GHz	Oct. 22, 2022	Oct. 21, 2023	Radiation (03CH05-CB)
*Mixer	OML	M08HWA	F91113-1	90 ~ 140 GHz	Mar. 10, 2022	Mar. 09, 2023	Radiation (03CH05-CB)
*Mixer	OML	M05HW/A	G91113-1	140 ~ 220 GHz	Mar. 10, 2022	Mar. 09, 2023	Radiation (03CH05-CB)
*Harmonic Mixer	R&S	FS-Z75	100966	50GHz~75GHz	Sep. 12, 2022	Sep. 11, 2024	Radiation (03CH05-CB)
*Harmonic Mixer	R&S	FS-Z90	102135	60GHz~90GHz	Jul. 28, 2022	Jul. 27, 2024	Radiation (03CH05-CB)
Detector	MI-WAVE	950V/385	04YYP5	50 ~ 75 GHz	Nov. 26. 2022	Nov. 25. 2023	Radiation (03CH05-CB)
PC Oscilloscope	PICO TECH	6402C	CX372/002	N/A	Jul. 08, 2021	Jul. 07, 2022	Radiation (03CH05-CB)
PC Oscilloscope	PICO TECH	6402C	CX372/002	N/A	Jul. 07, 2022	Jul. 06, 2023	Radiation (03CH05-CB)
Standard Horn Antenna	Custom Microwave	M19RH	U91113-A	40 ~ 60 GHz	N.C.R.	N.C.R.	Radiation (03CH05-CB)
Standard Horn Antenna	Custom Microwave	M15RH	V91113-A	50 ~ 75 GHz	N.C.R.	N.C.R.	Radiation (03CH05-CB)
Standard Horn Antenna	Custom Microwave	M12RH	E91113-A	60 ~ 90 GHz	N.C.R.	N.C.R.	Radiation (03CH05-CB)
Standard Horn Antenna	Custom Microwave	M08RH	F91113-A	90 ~ 140 GHz	N.C.R.	N.C.R.	Radiation (03CH05-CB)
Standard Horn Antenna	Custom Microwave	M05RH	G91113-A	140 ~ 220 GHz	N.C.R.	N.C.R.	Radiation (03CH05-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH05-CB)
Spectrum analyzer	R&S	FSP40	100080	9kHz~40GHz	Dec. 21, 2022	Dec. 20, 2023	Radiation (03CH06-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH06-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH06-CB)
High Cable	Woken	WCA0929M	40G#6	1GHz ~ 40 GHz	Dec. 07, 2022	Dec. 06, 2023	Radiation (03CH06-CB)
*Mixer	OML	M19HWA	U91113-1	40 ~ 60 GHz	Mar. 10, 2022	Mar. 09, 2024	Radiation (03CH06-CB)
*Mixer	OML	M12HWA	E91113-1	60 ~ 90 GHz	Oct. 22, 2022	Oct. 21, 2024	Radiation (03CH06-CB)
*Mixer	OML	M08HWA	F91113-1	90 ~ 140 GHz	Mar. 10, 2022	Mar. 09, 2024	Radiation (03CH06-CB)
*Mixer	OML	M05HW/A	G91113-1	140 ~ 220 GHz	Mar. 10, 2022	Mar. 09, 2024	Radiation (03CH06-CB)
*Mixer	OML	M03HWD	120320-1	220 ~ 325 GHz	Mar. 10, 2022	Mar. 09, 2024	Radiation (03CH06-CB)
*Harmonic Mixer	R&S	FS-Z75	100966	50GHz~75GHz	Sep. 12, 2022	Sep. 11, 2024	Radiation (03CH06-CB)

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
*Harmonic Mixer	R&S	FS-Z90	102135	60GHz~90GHz	Jul. 28, 2022	Jul. 27, 2024	Radiation (03CH06-CB)
PC Oscilloscope	PICO TECH	6402C	CX372/002	N/A	Jul. 05, 2023	Jul. 04, 2024	Radiation (03CH06-CB)
Standard Horn Antenna	Custom Microwave	M19RH	U91113-A	40 ~ 60 GHz	N.C.R.	N.C.R.	Radiation (03CH06-CB)
Standard Horn Antenna	Custom Microwave	M12RH	E91113-A	60 ~ 90 GHz	N.C.R.	N.C.R.	Radiation (03CH06-CB)
Standard Horn Antenna	Custom Microwave	M08RH	F91113-A	90 ~ 140 GHz	N.C.R.	N.C.R.	Radiation (03CH06-CB)
Standard Horn Antenna	Custom Microwave	M05RH	G91113-A	140 ~ 220 GHz	N.C.R.	N.C.R.	Radiation (03CH06-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSV40	101028	9kHz~40GHz	Jan. 07, 2022	Jan. 06, 2023	Radiation (TH03-CB)
Spectrum analyzer	R&S	FSV40	101028	9kHz~40GHz	Dec. 30, 2022	Dec. 29, 2023	Radiation (TH03-CB)
Temp. and Humidity Chamber	Gaint Force	GTH-408-40-CP-AR	MAA1410-011	-40~100 degree	Sep. 09, 2021	Sep. 08, 2022	Radiation (TH03-CB)
Temp. and Humidity Chamber	Gaint Force	GTH-408-40-CP-AR	MAA1410-011	-40~100 degree	Sep. 02, 2022	Sep. 01, 2023	Radiation (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-11	1 GHz –18 GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (TH03-CB)
RF Cable	Woken	RG402	High Cable-11	30MHz –18 GHz	Feb. 14, 2023	Feb. 13, 2024	Radiation (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-12	1 GHz –18 GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (TH03-CB)
RF Cable	Woken	RG402	High Cable-12	30MHz –18 GHz	Feb. 14, 2023	Feb. 13, 2024	Radiation (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-13	1 GHz –18 GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (TH03-CB)
RF Cable	Woken	RG402	High Cable-13	30MHz –18 GHz	Feb. 14, 2023	Feb. 13, 2024	Radiation (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-14	1 GHz –18 GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-14	1 GHz –18 GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-15	1 GHz –18 GHz	Oct. 04, 2021	Oct. 03, 2022	Radiation (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-15	1 GHz –18 GHz	Oct. 03, 2022	Oct. 02, 2023	Radiation (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P1	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Radiation (TH03-CB)

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	SWI-03-P2	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Radiation (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P3	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Radiation (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P4	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Radiation (TH03-CB)
RF Cable-high	Woken	RG402	SWI-03-P5	1 GHz –26.5 GHz	Dec. 13, 2021	Dec. 12, 2022	Radiation (TH03-CB)
Switch	SPTCB	SP-SWI	SWI-03	1 GHz –26.5 GHz	Oct. 04, 2022	Oct. 03, 2023	Radiation (TH03-CB)
Power Sensor	Anritsu	MA2411B	1726195	300MHz~40GHz	Sep. 04, 2022	Sep. 03, 2023	Radiation (TH03-CB)
Power Meter	Anritsu	ML2495A	1035008	300MHz~40GHz	Sep. 04, 2022	Sep. 03, 2023	Radiation (TH03-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (TH03-CB)

Note: Calibration Interval of instruments listed above is one year.

"*" Calibration Interval of instruments listed above is two year.

N.C.R. means Non-Calibration required.

5 Measurement Uncertainty

For date after May 31, 2022

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.4 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	5.2 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.7 dB	Confidence levels of 95%
Radiated Emission (40GHz ~ 60GHz)	3.0 dB	Confidence levels of 95%
Radiated Emission (60GHz ~ 90GHz)	3.2 dB	Confidence levels of 95%
Radiated Emission (90GHz ~ 200GHz)	4.3 dB	Confidence levels of 95%
Temperature	1.2°C	Confidence levels of 95%

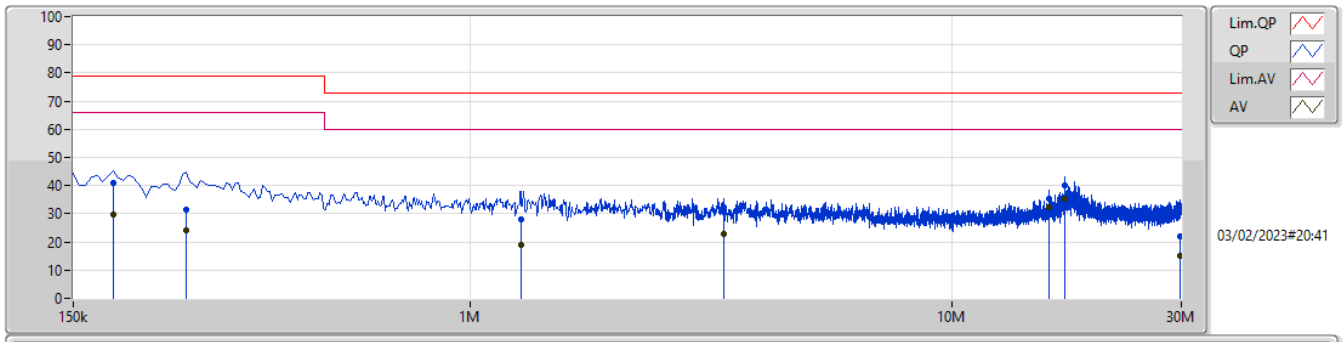
For date after May 31, 2023

Test Items	Uncertainty	Remark
Radiated Emission (1GHz ~ 18GHz)	4.1 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.2 dB	Confidence levels of 95%
Radiated Emission (40GHz ~ 60GHz)	3.0 dB	Confidence levels of 95%
Radiated Emission (60GHz ~ 90GHz)	3.0 dB	Confidence levels of 95%
Radiated Emission (90GHz ~ 200GHz)	4.3 dB	Confidence levels of 95%
Temperature	1.3°C	Confidence levels of 95%

Summary

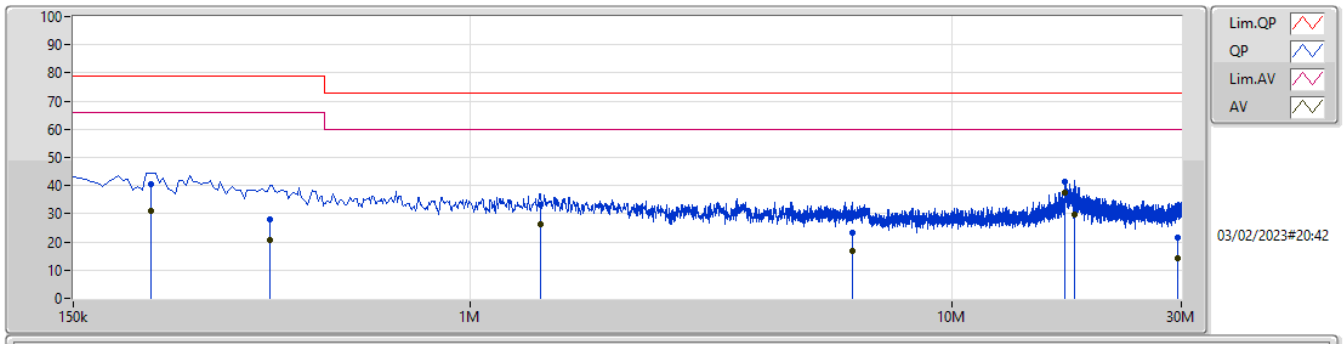
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	17.174M	37.62	60.00	-22.38	Neutral

Mode 1



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	181.5k	40.95	79.00	-38.05	9.99	Line	-	30.96	0.06	0.04	9.89
AV	181.5k	29.67	66.00	-36.33	9.99	Line	-	19.68	0.06	0.04	9.89
QP	258k	31.63	79.00	-47.37	10.00	Line	-	21.63	0.06	0.05	9.89
AV	258k	24.06	66.00	-41.94	10.00	Line	-	14.06	0.06	0.05	9.89
QP	1.275M	27.87	73.00	-45.13	10.03	Line	-	17.84	0.08	0.06	9.89
AV	1.275M	19.09	60.00	-40.91	10.03	Line	-	9.06	0.08	0.06	9.89
QP	3.368M	30.71	73.00	-42.29	10.10	Line	-	20.61	0.11	0.10	9.89
AV	3.368M	23.05	60.00	-36.95	10.10	Line	-	12.95	0.11	0.10	9.89
QP	15.977M	35.20	73.00	-37.80	10.39	Line	-	24.81	0.27	0.18	9.94
AV	15.977M	32.30	60.00	-27.70	10.39	Line	-	21.91	0.27	0.18	9.94
QP	17.178M	39.92	73.00	-33.08	10.42	Line	-	29.50	0.28	0.19	9.95
AV	17.178M	35.28	60.00	-24.72	10.42	Line	"Worst"	24.86	0.28	0.19	9.95
QP	29.859M	21.98	73.00	-51.02	10.76	Line	-	11.22	0.40	0.34	10.02
AV	29.859M	14.97	60.00	-45.03	10.76	Line	-	4.21	0.40	0.34	10.02

Mode 1

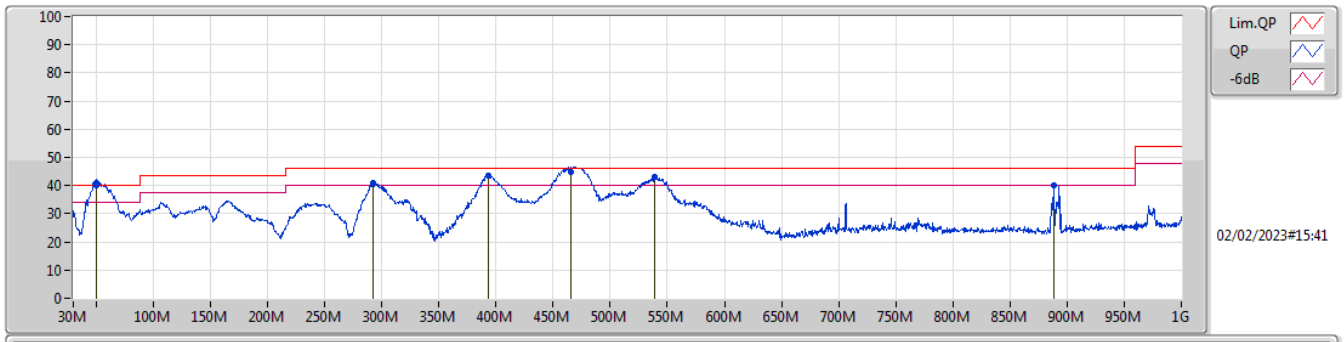


Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	217.5k	40.31	79.00	-38.69	10.00	Neutral	-	30.31	0.07	0.04	9.89
AV	217.5k	31.16	66.00	-34.84	10.00	Neutral	-	21.16	0.07	0.04	9.89
QP	384k	28.23	79.00	-50.77	10.02	Neutral	-	18.21	0.07	0.06	9.89
AV	384k	20.89	66.00	-45.11	10.02	Neutral	-	10.87	0.07	0.06	9.89
QP	1.397M	33.33	73.00	-39.67	10.04	Neutral	-	23.29	0.09	0.06	9.89
AV	1.397M	26.10	60.00	-33.90	10.04	Neutral	-	16.06	0.09	0.06	9.89
QP	6.23M	23.46	73.00	-49.54	10.21	Neutral	-	13.25	0.18	0.13	9.90
AV	6.23M	16.63	60.00	-43.37	10.21	Neutral	-	6.42	0.18	0.13	9.90
QP	17.174M	41.27	73.00	-31.73	10.43	Neutral	-	30.84	0.29	0.19	9.95
AV	17.174M	37.62	60.00	-22.38	10.43	Neutral	"Worst"	27.19	0.29	0.19	9.95
QP	17.975M	36.80	73.00	-36.20	10.44	Neutral	-	26.36	0.29	0.20	9.95
AV	17.975M	29.74	60.00	-30.26	10.44	Neutral	-	19.30	0.29	0.20	9.95
QP	29.49M	21.34	73.00	-51.66	10.66	Neutral	-	10.68	0.31	0.33	10.02
AV	29.49M	14.17	60.00	-45.83	10.66	Neutral	-	3.51	0.31	0.33	10.02

Summary

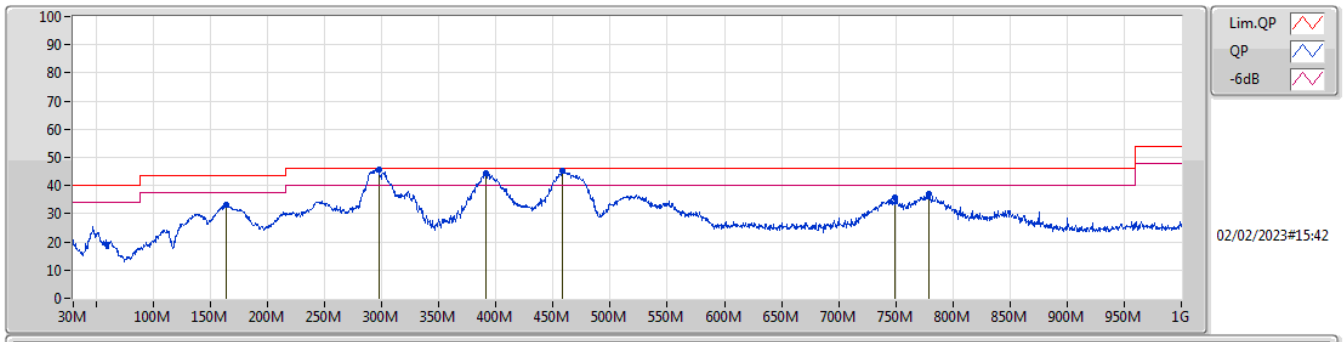
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 3	Pass	QP	49.89M	39.93	40.00	-0.07	Vertical

Mode 3



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
QP	49.89M	39.93	40.00	-0.07	-38.27	3	Vertical	0	1.00	"Worst"	78.20	15.00	0.87	54.14
PK	292.39M	40.84	46.00	-5.16	-32.92	3	Vertical	0	2.00	-	73.76	19.15	2.13	54.20
PK	393.75M	43.69	46.00	-2.31	-30.03	3	Vertical	0	2.00	-	73.72	21.69	2.53	54.25
QP	465.53M	44.78	46.00	-1.22	-28.12	3	Vertical	0	1.00	-	72.90	23.41	2.78	54.31
PK	539.25M	43.19	46.00	-2.81	-26.07	3	Vertical	0	3.00	-	69.26	24.91	2.95	53.93
PK	887.97M	40.00	46.00	-6.00	-20.06	3	Vertical	0	2.00	-	60.06	29.11	3.79	52.96

Mode 3

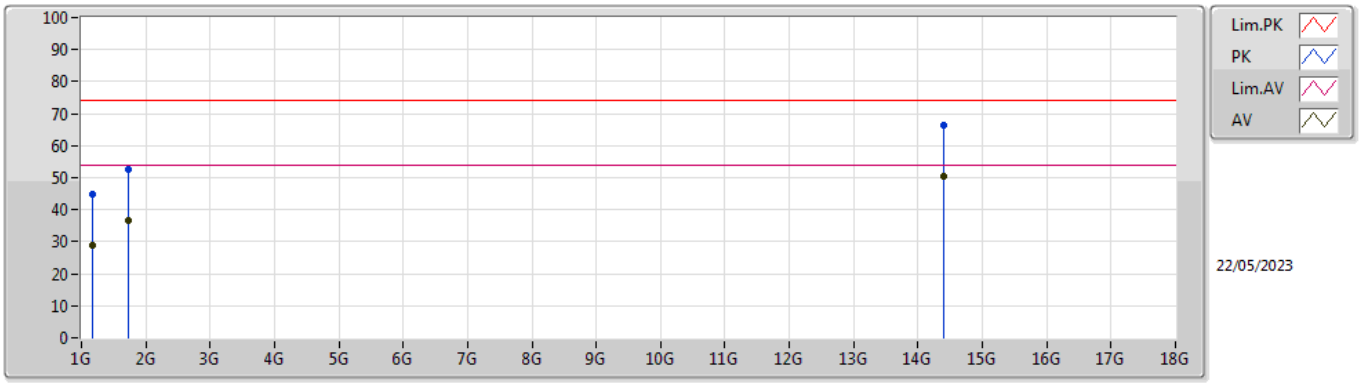


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	163.86M	33.19	43.50	-10.31	-36.75	3	Horizontal	0	1.00	-	69.94	15.92	1.60	54.27
PK	297.24M	45.64	46.00	-0.36	-32.88	3	Horizontal	0	1.00	"Worst"	78.52	19.19	2.15	54.22
PK	391.33M	44.59	46.00	-1.41	-30.11	3	Horizontal	0	4.00	-	74.70	21.64	2.52	54.27
PK	458.26M	45.12	46.00	-0.88	-28.25	3	Horizontal	0	2.00	-	73.37	23.29	2.77	54.31
PK	749.26M	35.83	46.00	-10.17	-21.16	3	Horizontal	0	3.00	-	56.99	28.33	3.53	53.02
PK	778.84M	37.25	46.00	-8.75	-21.33	3	Horizontal	0	2.00	-	58.58	28.07	3.61	53.01

Summary

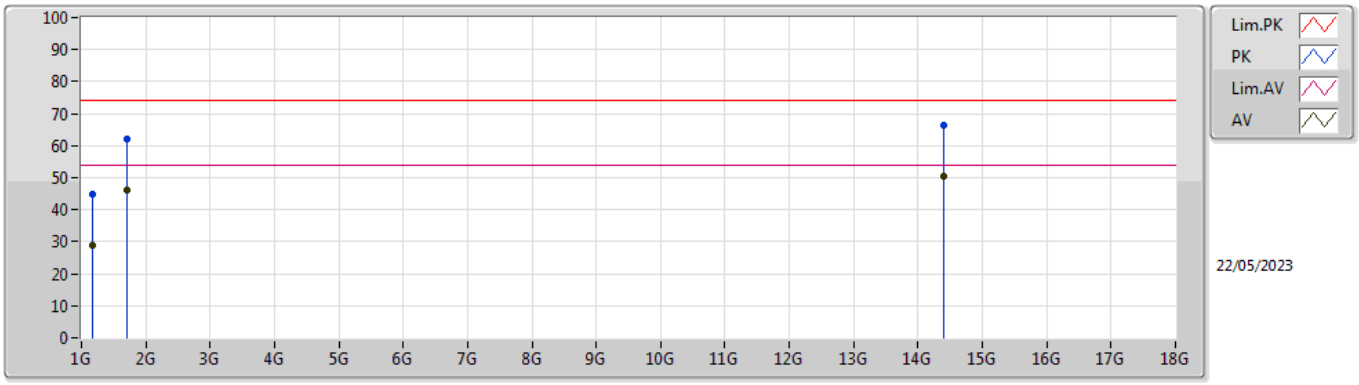
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Condition
Mode 1	Pass	AV	14.39408G	50.46	54.00	-3.54	Horizontal
Mode 2	Pass	AV	28.79928G	60.51	63.54	-3.03	Horizontal
Mode 3	Pass	PK	28.79899G	75.58	83.54	-7.96	Horizontal

Mode 1



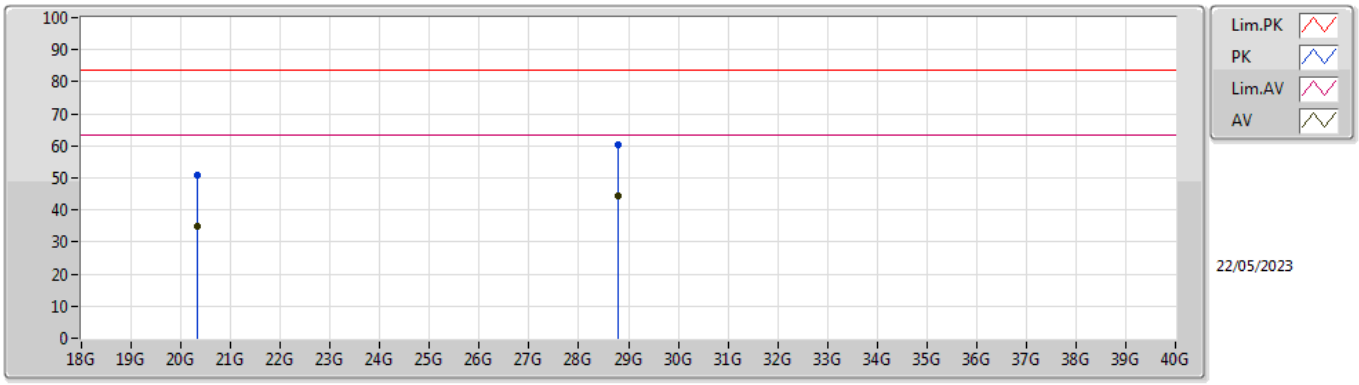
Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	1.17994G	44.86	74.00	-29.14	-6.69	3	Vertical	360	1.03	-	51.55	24.56	3.17	34.42
AV	1.17994G	28.85	54.00	-25.15	-6.69	3	Vertical	360	1.03	-	35.54	24.56	3.17	34.42
PK	1.72258G	52.57	74.00	-21.43	-4.47	3	Vertical	123	1.50	-	57.04	26.30	3.82	34.59
AV	1.72258G	36.56	54.00	-17.44	-4.47	3	Vertical	123	1.50	-	41.03	26.30	3.82	34.59
PK	14.39318G	66.23	74.00	-7.77	23.68	3	Vertical	360	1.09	-	42.55	41.80	15.09	33.21
AV	14.39318G	50.22	54.00	-3.78	23.68	3	Vertical	360	1.09	"Worst"	26.54	41.80	15.09	33.21

Mode 1



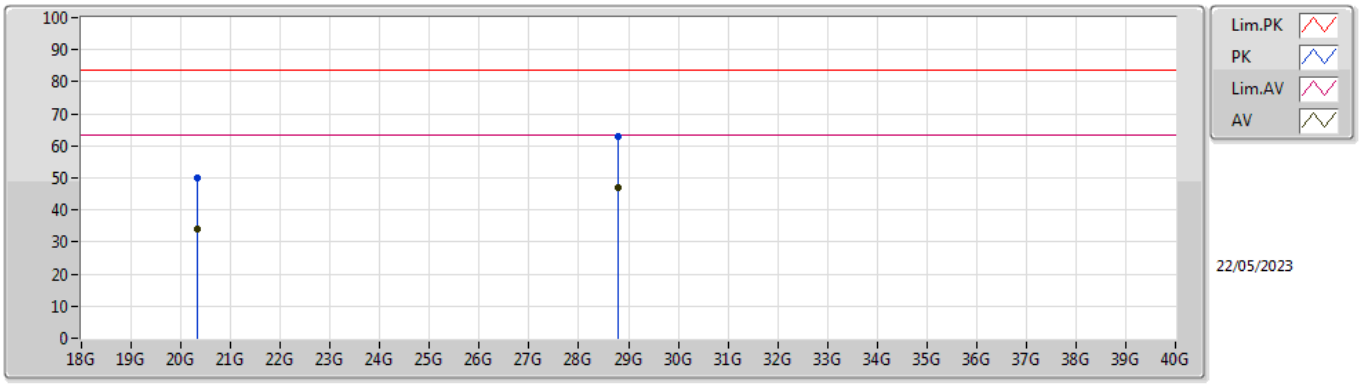
Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	1.17986G	44.95	74.00	-29.05	-6.69	3	Horizontal	320	1.42	-	51.64	24.56	3.17	34.42
AV	1.17986G	28.94	54.00	-25.06	-6.69	3	Horizontal	320	1.42	-	35.63	24.56	3.17	34.42
PK	1.71622G	61.93	74.00	-12.07	-4.47	3	Horizontal	167	1.50	-	66.40	26.30	3.82	34.59
AV	1.71622G	45.92	54.00	-8.08	-4.47	3	Horizontal	167	1.50	-	50.39	26.30	3.82	34.59
PK	14.39408G	66.47	74.00	-7.53	23.68	3	Horizontal	360	1.00	-	42.79	41.80	15.09	33.21
AV	14.39408G	50.46	54.00	-3.54	23.68	3	Horizontal	360	1.00	"Worst"	26.78	41.80	15.09	33.21

Mode 1



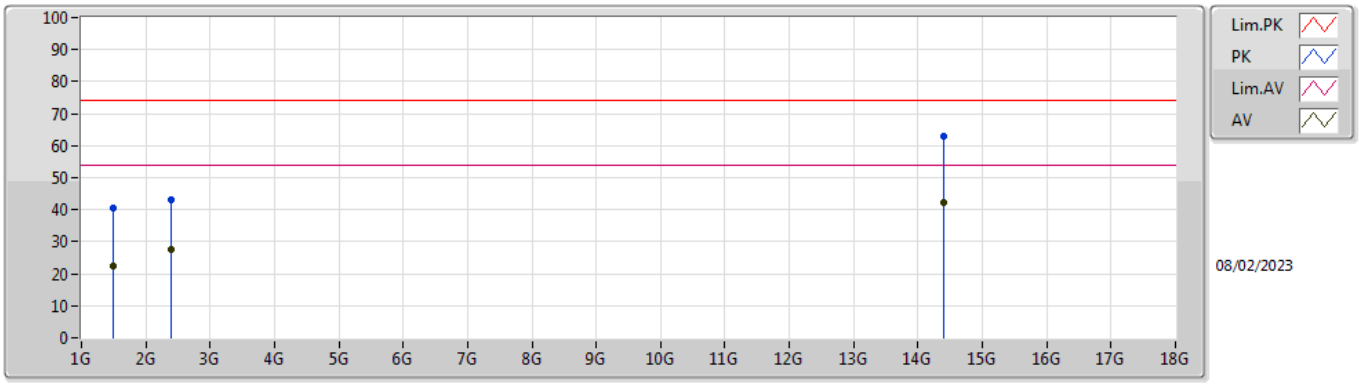
Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	20.33939G	51.04	83.54	-32.50	3.08	1	Vertical	45	1.58	-	47.96	37.64	17.41	51.97
AV	20.33939G	35.03	63.54	-28.51	3.08	1	Vertical	45	1.58	-	31.95	37.64	17.41	51.97
PK	28.7991G	60.55	83.54	-22.99	12.20	1	Vertical	360	1.56	-	48.35	39.92	21.32	49.04
AV	28.7991G	44.54	63.54	-19.00	12.20	1	Vertical	360	1.56	"Worst"	32.34	39.92	21.32	49.04

Mode 1



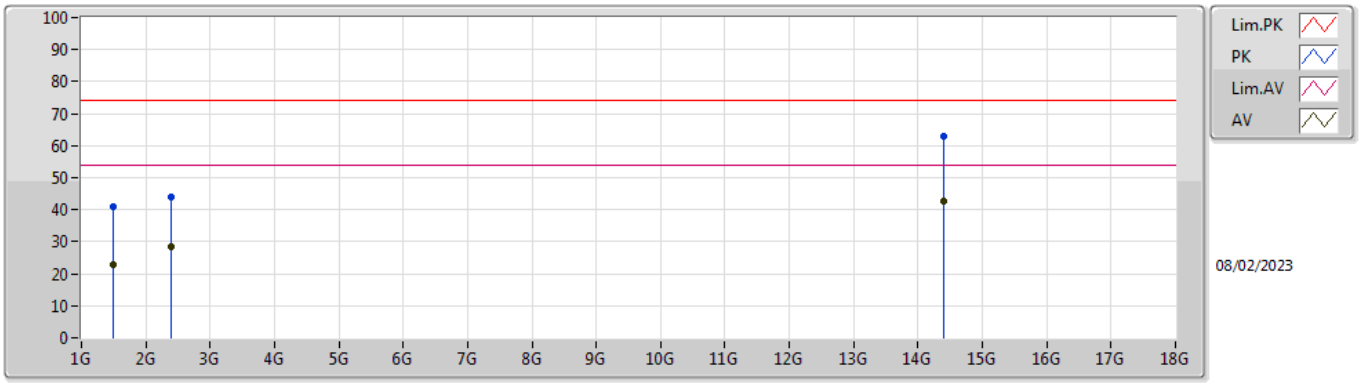
Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	20.34349G	50.01	83.54	-33.53	3.08	1	Horizontal	79	1.50	-	46.93	37.64	17.41	51.97
AV	20.34349G	34.00	63.54	-29.54	3.08	1	Horizontal	79	1.50	-	30.92	37.64	17.41	51.97
PK	28.79896G	62.94	83.54	-20.60	12.20	1	Horizontal	55	1.55	-	50.74	39.92	21.32	49.04
AV	28.79896G	46.93	63.54	-16.61	12.20	1	Horizontal	55	1.55	"Worst"	34.73	39.92	21.32	49.04

Mode 2



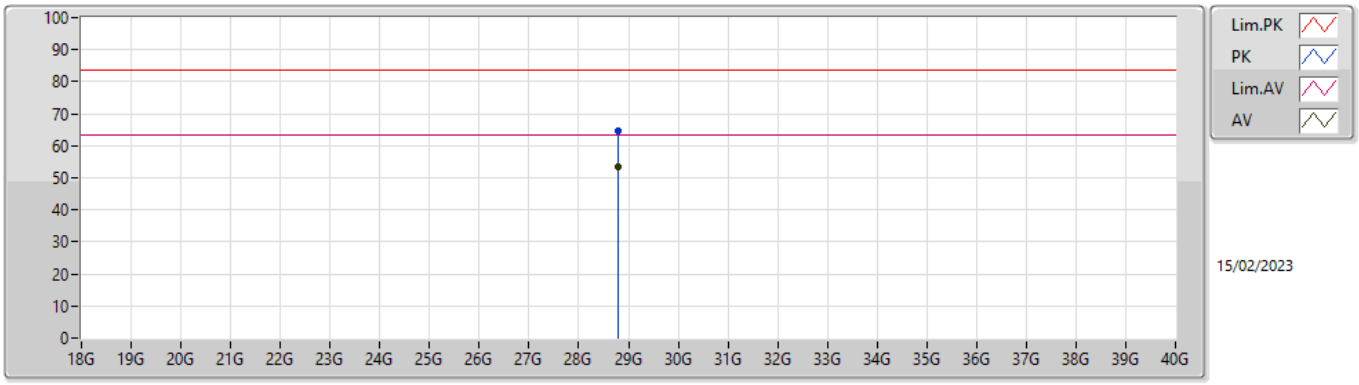
Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	1.49993G	40.68	74.00	-33.32	-7.38	3	Vertical	319	1.16	-	48.06	25.60	3.45	36.43
AV	1.50002G	22.54	54.00	-31.46	-7.38	3	Vertical	319	1.16	-	29.92	25.60	3.45	36.43
PK	2.40001G	43.11	74.00	-30.89	-4.63	3	Vertical	346	2.85	-	47.74	27.40	4.40	36.43
AV	2.39986G	27.76	54.00	-26.24	-4.63	3	Vertical	346	2.85	-	32.39	27.40	4.40	36.43
PK	14.3996G	62.79	74.00	-11.21	18.42	3	Vertical	45	1.50	"Worst"	44.37	40.40	10.42	32.40
AV	14.39942G	42.21	54.00	-11.79	18.42	3	Vertical	45	1.50	-	23.79	40.40	10.42	32.40

Mode 2



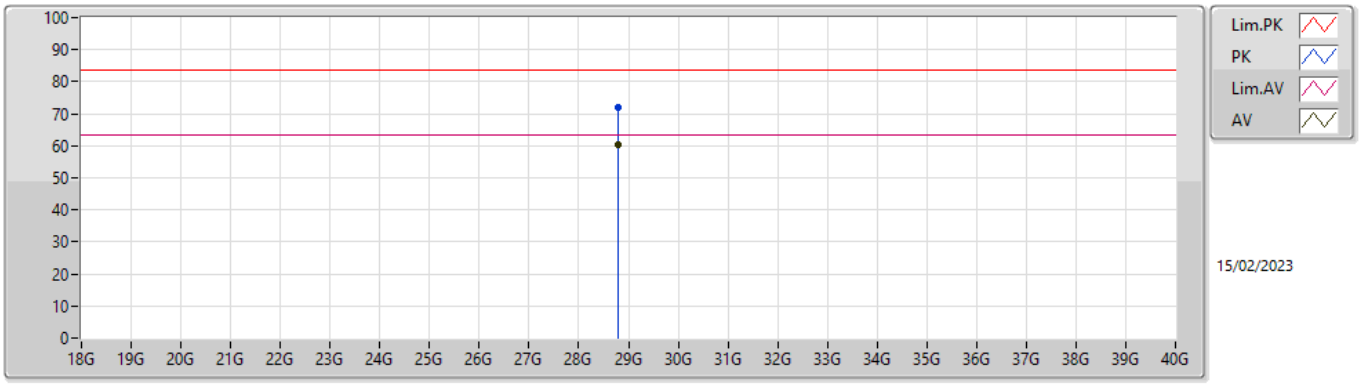
Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	1.49996G	41.15	74.00	-32.85	-7.38	3	Horizontal	338	1.66	-	48.53	25.60	3.45	36.43
AV	1.49999G	22.66	54.00	-31.34	-7.38	3	Horizontal	338	1.66	-	30.04	25.60	3.45	36.43
PK	2.39987G	43.95	74.00	-30.05	-4.63	3	Horizontal	350	1.16	-	48.58	27.40	4.40	36.43
AV	2.39994G	28.35	54.00	-25.65	-4.63	3	Horizontal	350	1.16	-	32.98	27.40	4.40	36.43
PK	14.39956G	62.83	74.00	-11.17	18.42	3	Horizontal	287	1.28	"Worst"	44.41	40.40	10.42	32.40
AV	14.3995G	42.60	54.00	-11.40	18.42	3	Horizontal	287	1.28	-	24.18	40.40	10.42	32.40

Mode 2



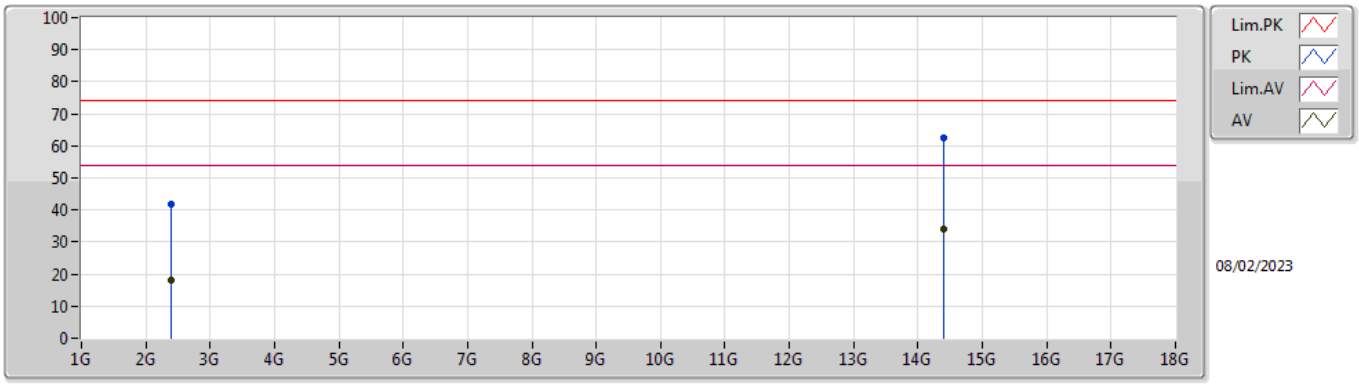
Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	28.79928G	64.79	83.54	-18.75	12.20	1	Vertical	331	1.73	-	52.59	39.92	21.32	49.04
AV	28.79928G	53.36	63.54	-10.18	12.20	1	Vertical	331	1.73	"Worst"	41.16	39.92	21.32	49.04

Mode 2



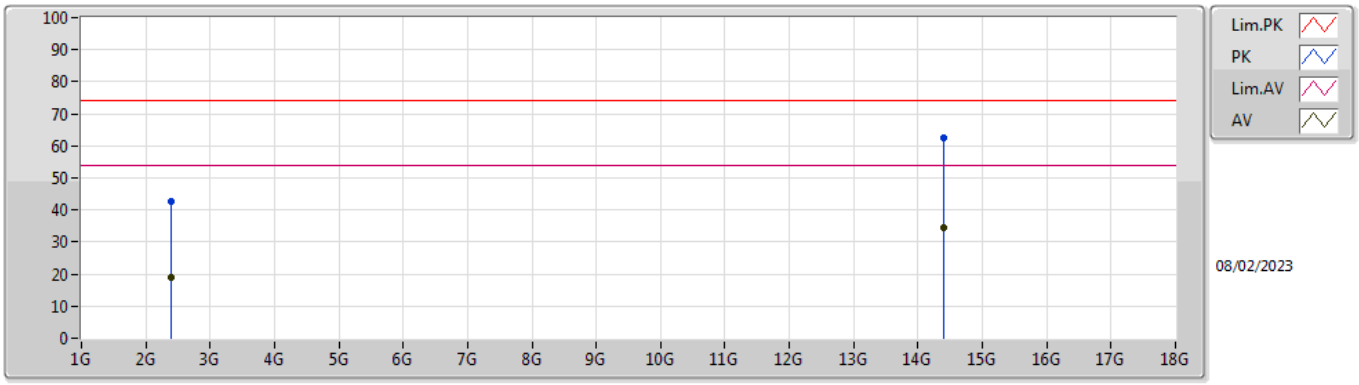
Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	28.79928G	71.94	83.54	-11.60	12.20	1	Horizontal	43	1.75	-	59.74	39.92	21.32	49.04
AV	28.79928G	60.51	63.54	-3.03	12.20	1	Horizontal	43	1.75	"Worst"	48.31	39.92	21.32	49.04

Mode 3



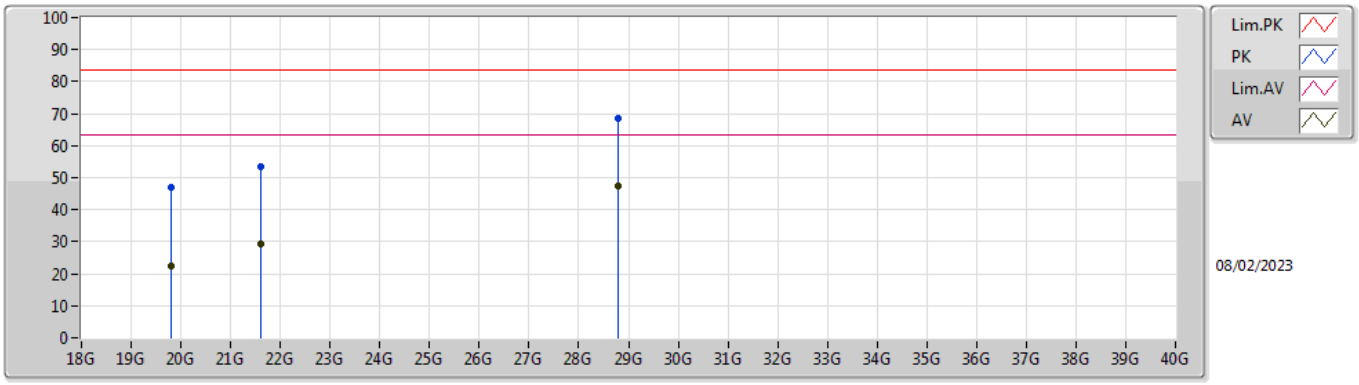
Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	2.39979G	41.78	74.00	-32.22	-4.63	3	Vertical	315	1.23	-	46.41	27.40	4.40	36.43
AV	2.39991G	18.29	54.00	-35.71	-4.63	3	Vertical	315	1.23	-	22.92	27.40	4.40	36.43
PK	14.39926G	62.42	74.00	-11.58	18.42	3	Vertical	37	1.50	"Worst"	44.00	40.40	10.42	32.40
AV	14.39928G	34.22	54.00	-19.78	18.42	3	Vertical	37	1.50	-	15.80	40.40	10.42	32.40

Mode 3



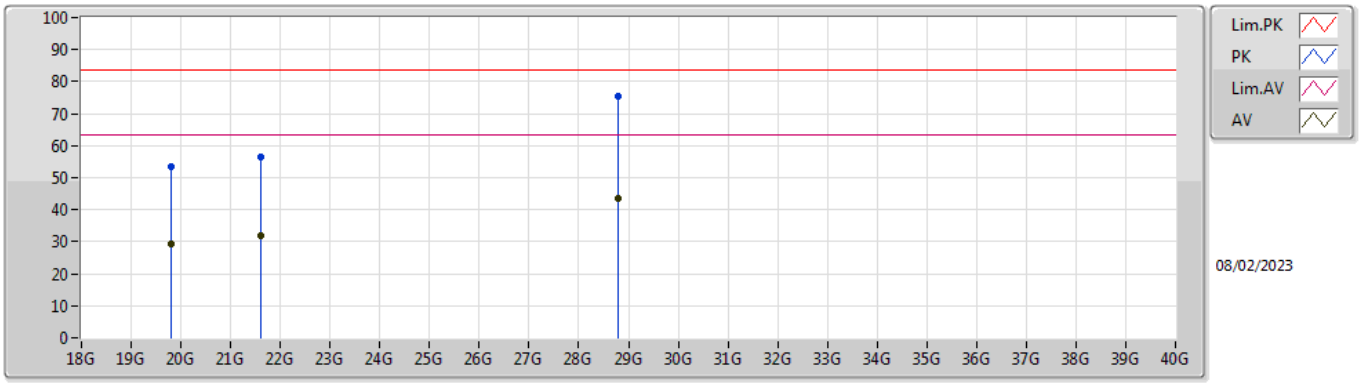
Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	2.39986G	42.56	74.00	-31.44	-4.63	3	Horizontal	43	1.16	-	47.19	27.40	4.40	36.43
AV	2.39988G	19.06	54.00	-34.94	-4.63	3	Horizontal	43	1.16	-	23.69	27.40	4.40	36.43
PK	14.39937G	62.57	74.00	-11.43	18.42	3	Horizontal	321	1.29	"Worst"	44.15	40.40	10.42	32.40
AV	14.39926G	34.65	54.00	-19.35	18.42	3	Horizontal	321	1.29	-	16.23	40.40	10.42	32.40

Mode 3



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	19.79921G	47.07	83.54	-36.47	3.04	1	Vertical	42	1.59	-	44.03	37.56	17.18	51.70
AV	19.79929G	22.56	63.54	-40.98	3.04	1	Vertical	42	1.59	-	19.52	37.56	17.18	51.70
PK	21.59907G	53.32	83.54	-30.22	3.80	1	Vertical	345	1.46	-	49.52	37.86	17.96	52.02
AV	21.59917G	29.52	63.54	-34.02	3.80	1	Vertical	345	1.46	-	25.72	37.86	17.96	52.02
PK	28.79912G	68.49	83.54	-15.05	12.20	1	Vertical	334	1.50	"Worst"	56.29	39.92	21.32	49.04
AV	28.79911G	47.35	63.54	-16.19	12.20	1	Vertical	334	1.50	-	35.15	39.92	21.32	49.04

Mode 3



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB/m)	(m)		(°)	(m)		(dBuV/m)	(dB/m)	(dB)	(dB)
PK	19.79927G	53.56	83.54	-29.98	3.04	1	Horizontal	7	1.58	-	50.52	37.56	17.18	51.70
AV	19.79924G	29.40	63.54	-34.14	3.04	1	Horizontal	7	1.58	-	26.36	37.56	17.18	51.70
PK	21.59913G	56.31	83.54	-27.23	3.80	1	Horizontal	14	1.50	-	52.51	37.86	17.96	52.02
AV	21.59914G	31.89	63.54	-31.65	3.80	1	Horizontal	14	1.50	-	28.09	37.86	17.96	52.02
PK	28.79899G	75.58	83.54	-7.96	12.20	1	Horizontal	46	1.54	"Worst"	63.38	39.92	21.32	49.04
AV	28.79902G	43.66	63.54	-19.88	12.20	1	Horizontal	46	1.54	-	31.46	39.92	21.32	49.04

Test Mode: Mode 1

Test Range	40GHz – 200GHz

Test Frequency (GHz)	**Rx Antenna Gain (dBi)**	**Measurement Distance (m)**	**Read Worse Frequency (GHz)**	**Read Level (dBm)**
61.1345	24.3	1.0	89.98	-83.42
EIRP (dBm)	**Specification Distance (m)**	**Power Density (pW/cm^2)**	**Limit (pW/cm^2)**	**Test Result**
-36.20	3	0.2123	90	PASS

Note:
EIRP = Prx – Grx + Free Space Path Loss = Prx – Grx + 20Log(4πd/ λ)2
Which
Prx = Read Level.
Grx = Rx Antenna Gain.
A distance factor is offset and the formula is 20LOG(D1/D2)
Which
D1 = Specification Distance
D2 = Measurement Distance

Test Mode: Mode 2

Test Range	40GHz – 200GHz

Test Frequency (GHz)	**Rx Antenna Gain (dBi)**	**Measurement Distance (m)**	**Read Worse Frequency (GHz)**	**Read Level (dBm)**
61.25	24.3	1.00	89.34	-82.59
EIRP (dBm)	**Specification Distance (m)**	**Power Density (pW/cm^2)**	**Limit (pW/cm^2)**	**Test Result**
-35.43	3	0.2534	90	PASS

Note:
EIRP = Prx – Grx + Free Space Path Loss = Prx – Grx + 20Log(4πd/ λ)2
Which
Prx = Read Level.
Grx = Rx Antenna Gain.
A distance factor is offset and the formula is 20LOG(D1/D2)
Which
D1 = Specification Distance
D2 = Measurement Distance

Test Mode: Mode 3

Test Range	40GHz – 200GHz

Test Frequency (GHz)	**Rx Antenna Gain (dBi)**	**Measurement Distance (m)**	**Read Worse Frequency (GHz)**	**Read Level (dBm)**
61.25	23.6	1.00	68.83	-85.45
EIRP (dBm)	**Specification Distance (m)**	**Power Density (pW/cm^2)**	**Limit (pW/cm^2)**	**Test Result**
-39.85	1.0	0.8232	90	PASS

Note:
EIRP = Prx – Grx + Free Space Path Loss = Prx – Grx + 20Log(4πd/ λ)2
Which
Prx = Read Level.
Grx = Rx Antenna Gain.
A distance factor is offset and the formula is 20LOG(D1/D2)
Which
D1 = Specification Distance
D2 = Measurement Distance