



RADIO TEST REPORT

FCC ID : 2AIHD-2511
Equipment : Samsara LM11
Brand Name : Samsara
Model Name : 060-00010
Applicant : SAMSARA INC
1 De Haro Street, San Francisco, CA, 94107, USA
Manufacturer : WNC Corporation
20 Park Avenue II Hsinchu Science Park, Hsinchu
300, Taiwan
Standard : 47 CFR FCC Part 15.255

The product was received on Sep. 08, 2025, and testing was started from Sep. 12, 2025 and completed on Sep. 17, 2025. 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 C63.10-2020 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

Sportun International Inc. Hsinchu Laboratory

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



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Appendix A. Test Photos**Photographs of EUT v01**



History of this test report



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
-	15.207	AC Power Conducted Emissions	N/A	Note
3.1	15.255(e)	Occupied Bandwidth	PASS	-
3.2	15.255(c)(2)(iii)(B)	EIRP Power	PASS	-
3.3	15.255(d)	Transmitter Spurious Emissions	PASS	-
3.4	15.255(f)	Frequency Stability	PASS	-
3.5	15.255(a),(h)	Operation Restriction and Group Installation	PASS	-

Note:

The EUT was powered by battery(DC 3V*2); there is no need to test AC Power Port Conducted Emissions test.

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: Cathy Chiu



1 General Description

1.1 Information

1.1.1 RF General Information

RF General Information			
Frequency Range (GHz)	Operating Frequency Range (GHz)	Test Frequency (GHz)	Modulation
57-71 GHz	60.212	60.212	FMCW

1.1.2 Antenna Information

Ant.	Port		Brand	Model Name	Antenna Type	Connector	Gain (dBi)		
	TX	RX					60GHz	Bluetooth	UWB
1	1	1	Samsara	DVT2 lens	Embedded patch array antenna	N/A	17	-	-
2	1		WNC	CFR_0000002308	PCB trace antenna	N/A	-	3.82	-
3	1		WNC	CFR_0000002483	PCB trace antenna	N/A	-	-	4.4

Note1: The above information was declared by manufacturer.

Note2: The UWB function of Antenna 3 doesn't be enabled at this time.

For 60GHz function (1TX/1RX):

Only Port 1 can be used as transmitting/receiving antenna.

For Bluetooth function (1TX/1RX):

Only Port 1 can be used as transmitting/receiving antenna.

For UWB function (1TX/1RX):

Only Port 1 can be used as transmitting/receiving antenna.

1.1.3 Power Levels

Worst Power Levels		
Applicable power levels	<input type="checkbox"/> Conducted	<input checked="" type="checkbox"/> EIRP
Frequency (GHz)	Highest (P _{high}):	
	Mode	Peak Power (dBm)
60.212	FMCW	19.95



1.1.4 Operating Conditions

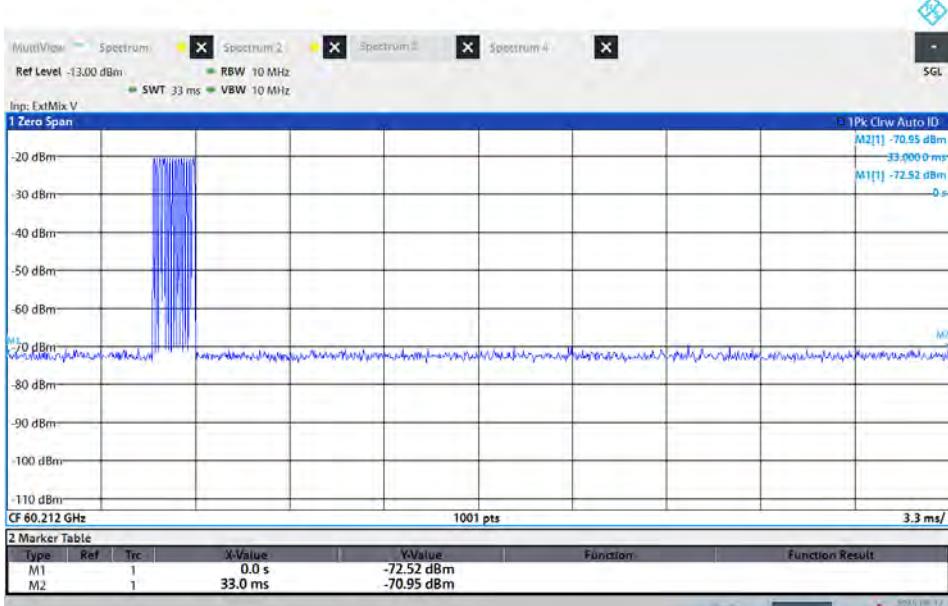
Operating Conditions			
<input type="checkbox"/> -20 °C to +50 °C			
<input type="checkbox"/> 0 °C to +40 °C			
<input checked="" type="checkbox"/> Other: -40 °C to +70 °C			
EUT Power Type	From internal battery*2 (DC 3V*2)		
Test Software Version	DOS [ver 6.1.7601]		
Supply Voltage	<input type="checkbox"/> AC	State AC voltage	V
Supply Voltage	<input checked="" type="checkbox"/> DC	State DC voltage	6 V

1.1.5 Equipment Use Condition

Equipment Use Condition
<input type="checkbox"/> Fixed field disturbance sensors at 61-61.5GHz
<input type="checkbox"/> Except fixed field disturbance sensors at 61-61.5GHz
<input type="checkbox"/> Except fixed field disturbance sensors
<input type="checkbox"/> Field disturbance sensors/radar
<input type="checkbox"/> For fixed field disturbance sensors that occupy 500 MHz or less
<input type="checkbox"/> Field disturbance sensor/radar Personal portable equipment
<input type="checkbox"/> Field disturbance Sensors /radar(Outdoor drones/UA uses)
<input type="checkbox"/> Field disturbance Sensors /radar(vehicular applications (e.g., in-cabin radars))
<input type="checkbox"/> Field disturbance Sensors /radar(unrestricted radar use-case applications)
<input checked="" type="checkbox"/> Field disturbance Sensors /radar(Fixed outdoor or vehicular uses)(except in-cabin)
<input type="checkbox"/> For pulsed field disturbance sensors/radars

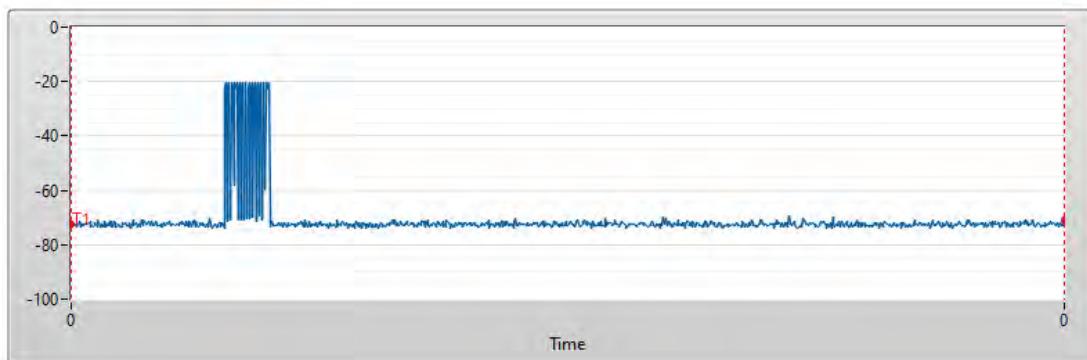


1.1.6 Duty Cycle

Spectrum plot						
TX-on per 33ms (ms)	One pulse off time (ms)	Off time per 33ms (ms)	One pulse off time limit (ms)	Off time per 33ms limit (ms)	Duty Cycle (%)	Test Result
1.12	148.20000	31.880	2	16.5	0.1288	Pass
On Time						
						



Scope Result

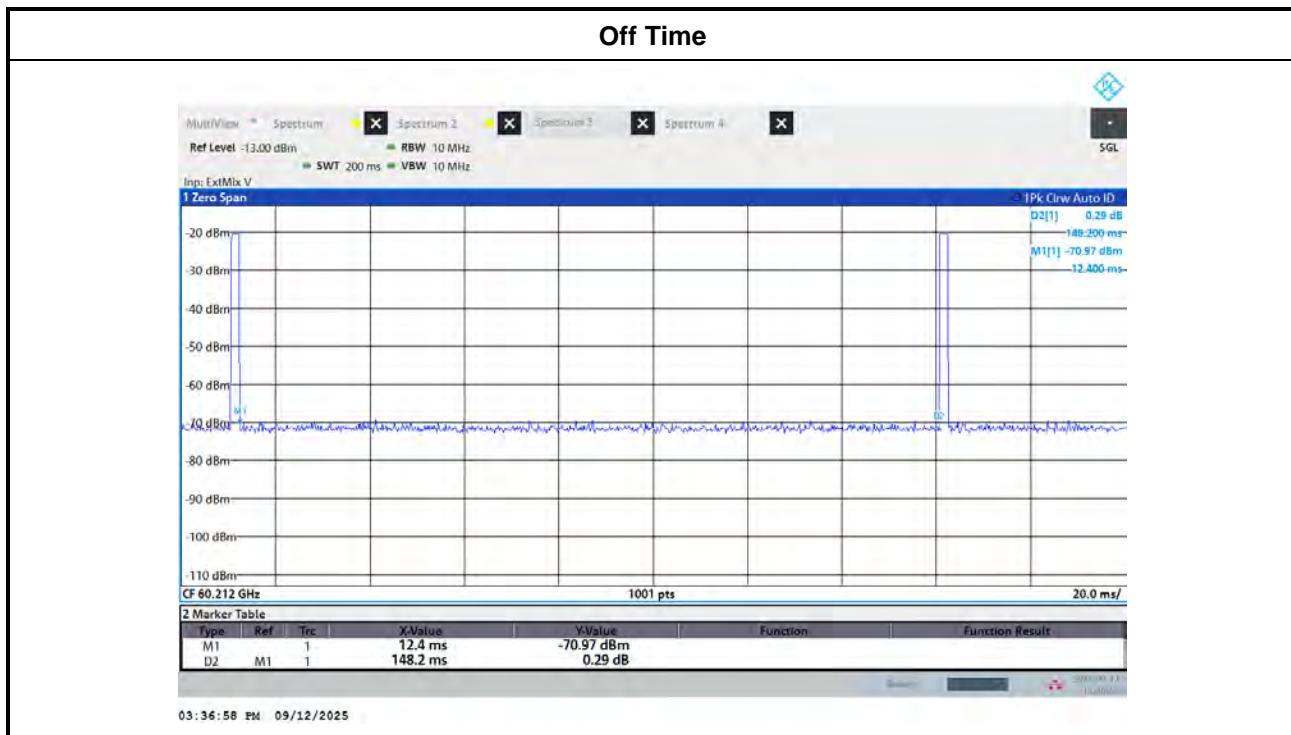


T1:0s, T2:33ms, Sample time = 33us

All TX sample = 34

All TX time = 33us x 34 = 1122us

Off Time = 33ms – 1.122us = 31.878 ms



1.1.7 Desensitization

FMCW Chirp Width (MHz)	Chirp Time (μs)	Chirp Rate (MHz/μs)	Chirp Rate (Hz/S)	RBW (MHz)	RBW (Hz)	Normalized Sweep Rate (lin)	Peak Amplitude Response (lin)	Desensitization Factor (dB)
3870	90	43.00	4.30E+13	1	1.00E+06	43.00	0.229	12.79



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 C63.10-2020 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
- ♦ FCC KDB 364244 D01 v01r01

1.3 Testing Location

Testing Location Information				
Test Lab. : Sporton International Inc. Hsinchu Laboratory				
Hsinchu (TAF: 3787)	ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)	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	TH03-CB	Eddie Weng	24.3-24.6 / 62-68	Sep. 17, 2025
Radiated	03CH04-CB	Justin Lin	21.4~22.6 / 57~61	Sep. 12, 2025~ Sep. 16, 2025



2 Test Configuration of Equipment under Test

2.1 Parameters of Test Software Setting

Frequency (GHz)	60.212
Software Setting	Default

2.2 Conformance Tests and Related Test Frequencies

Test Item	Test Frequencies (GHz)
Occupied Bandwidth	60.212
EIRP Power	60.212
Transmitter Spurious Emissions (below 1 GHz)	60.212
Transmitter Spurious Emissions (1 GHz-40 GHz)	60.212
Transmitter Spurious Emissions (above 40 GHz)	60.212
Frequency Stability	60.212

Note:

After evaluating, and the worst case was found at Z axis, so it was selected to perform test and its test result was written in the report.

2.3 EUT Operation during Test

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

2.4 Accessories

Accessories			
Equipment Name	Brand Name	Model Name	Rating
Battery*2	FDK	CR17450ES	Voltage: 3V

2.5 Far Field Boundary Calculations

The far-field boundary is given as:

$$\text{far field} = (2 * L^2) / \lambda$$

where:

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

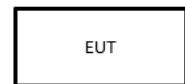
λ = wavelength in meters

Far Field (m)				
Frequency (GHz)	L (m)	Lambda (m)	d(Far Field) (m)	d(Far Field) (cm)
60.212	0.00243	0.0049824	0.002	0.24



2.6 Test Setup Diagram

Test Setup Diagram - Transmitter Spurious Emissions





3 Transmitter Test Result

3.1 Occupied Bandwidth

3.1.1 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.

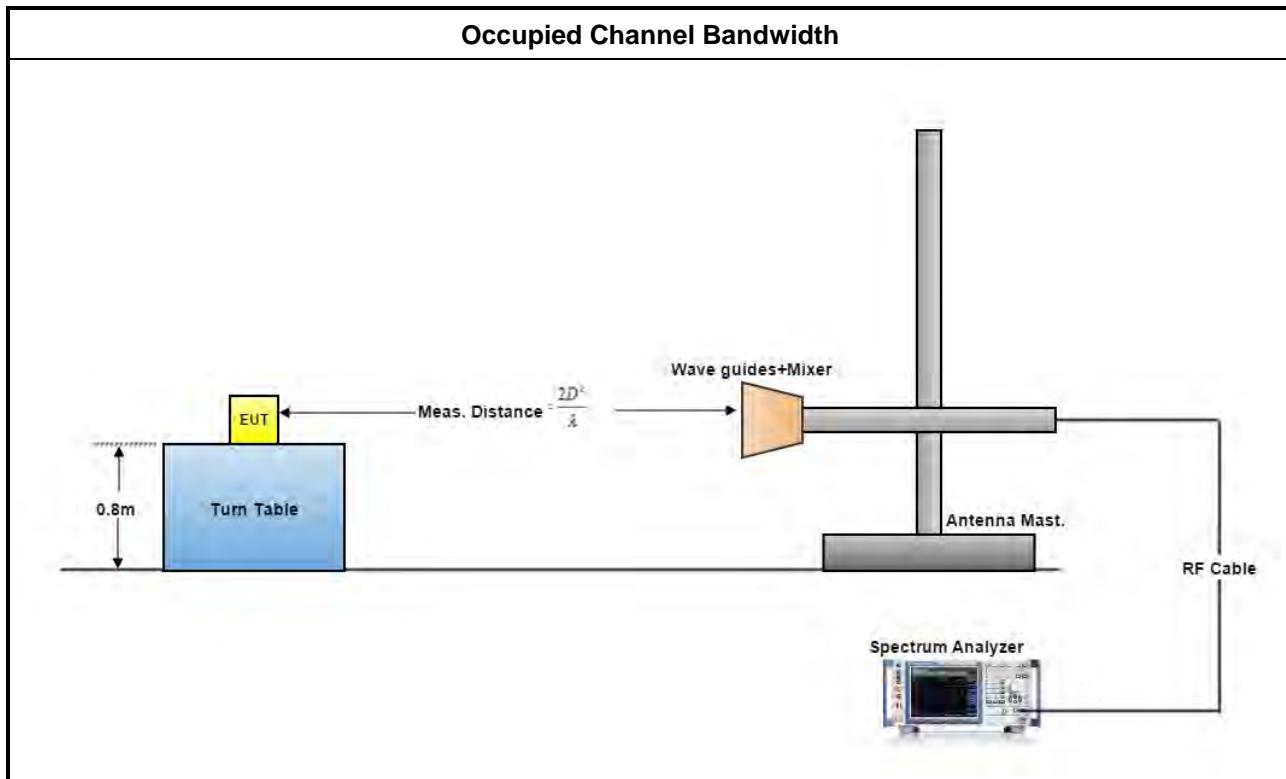
3.1.2 Measuring Instruments

Refer a measuring instruments list in this test report.

3.1.3 Test Procedures

Method of measurement: Refer as ANSI C63.10-2020, clauses 9.4.

3.1.4 Test Setup





3.1.5 Test Result of Occupied Bandwidth

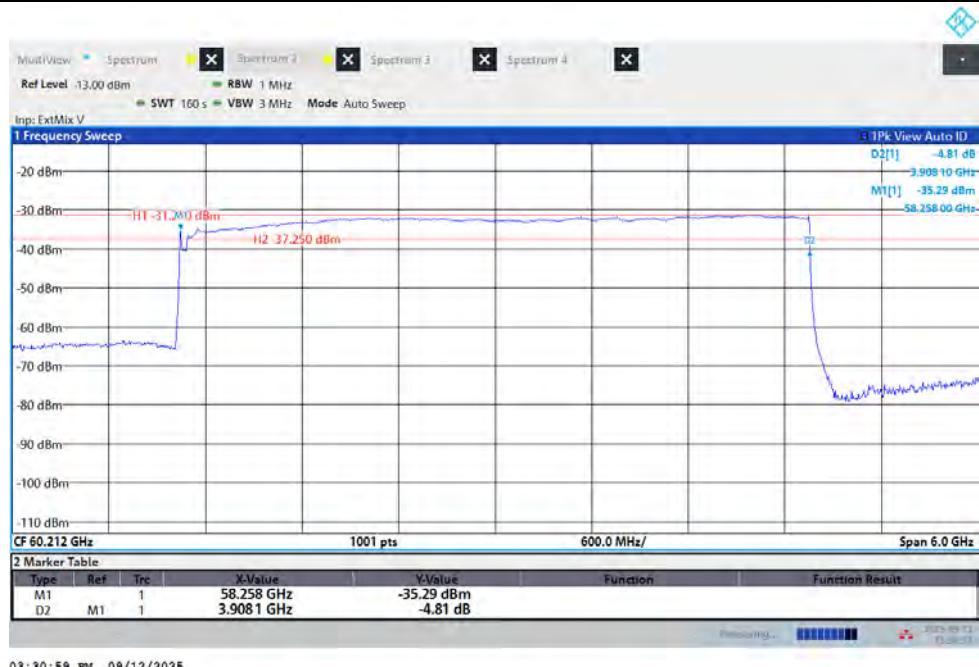
Test Conditions	see ANSI C63.10, clause 5.11
Test Setup	see ANSI C63.10, clause 9.4
NOTE: If equipment having different transmit operating modes (see test report clause 1.1.2), the measurements are uninfluenced by different transmit operating modes, may not need to be repeated for all the operating modes. 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.	

Test Results			
Test Freq. (GHz)	6 dBc Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit (MHz)
60.212	3908.10	3829.40	N/A



3.1.5.1 Bandwidth Plots

6 dBc Bandwidth



Occupied Bandwidth





3.2 EIRP Power

3.2.1 Limit of EIRP Power

Applications	Frequency Range (GHz)	Peak (dBm)	Average (dBm)	Duty Cycle Requirement
Field disturbance sensors/radar	57 ~ 71	< 10	N/A	N/A
For fixed field disturbance sensors that occupy 500 MHz or less	61 ~ 61.5	< 43	< 40	N/A
	57 ~ 61 & 61.5 ~ 71	< 13	< 10	N/A
Field disturbance sensor/radar Personal portable equipment	59.3 ~ 71	< 10	N/A	N/A
Field disturbance Sensors /radar (Outdoor drones/UA uses)	60 ~ 64	< 20	N/A	At least 16.5 ms off time per 33 ms Operation shall be limited to a maximum of 121.92 m above ground level.
Field disturbance Sensors /radar (vehicular applications (e.g., in-cabin radars))	57 ~ 59.4	Indoor < 20 Outdoor < 30	N/A	N/A
Field disturbance Sensors /radar (unrestricted radar use-case applications)	57 ~ 61.56	< 3	N/A	N/A
		< 20	N/A	At least 16.5 ms off time per 33 ms
	57 ~ 64	< 14	N/A	At least 25.5 ms off time per 33 ms
Field disturbance Sensors /radar (Fixed outdoor or vehicular uses) (except in-cabin)	57 ~ 64	< 20	N/A	At least 16.5 ms off time per 33 ms
For pulsed field disturbance sensors/radars	57 ~ 64	< 33	< 13	Pulse duration < 6 ns Duty cycle < 10%, in any 0.3 μs time window
	61.5 ~ 64	< 25	< 5	Any 0.3 μs time window

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

3.2.2 Measuring Instruments

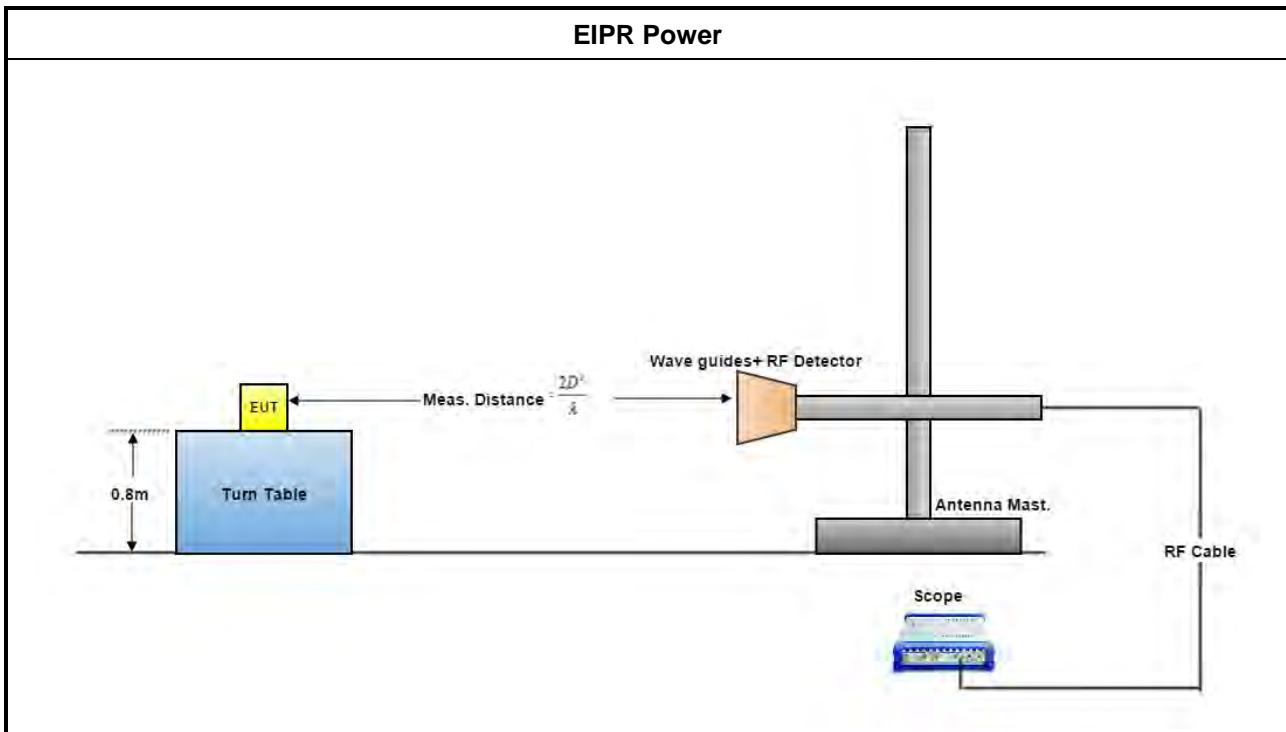
Refer a measuring instruments list in this test report.

3.2.3 Test Procedures

Method of measurement: Refer as ANSI C63.10-2020 clause 9.8.



3.2.4 Test Setup



3.2.5 Test Result of EIRP Power

Test Conditions	see ANSI C63.10, clause 5.11 & clause 9
Test Setup	see ANSI C63.10, clause 9.8
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.	



3.2.6 Test Result of EIRP Power

Freq. (GHz)	Rx Gain (dBi)	P-Peak (dBm)	Test Distance (m)	Desensitization Factor (dB)	EIRP-Peak (dBm)	EIRP-Peak Limit (dBm)	Test Result
60.212	23.6	-31.25	0.50	12.79	19.95	20	Pass

Calculate the EIRP from the radiated measurement in the far-field using Equation:

$$\text{EIRP} = 21.98 - 20\log(\lambda) + 20\log(D) + P - G$$

where:

EIRP: is the equivalent isotropic radiated power, in dBm

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.



3.3 Transmitter Spurious Emissions

3.3.1 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)

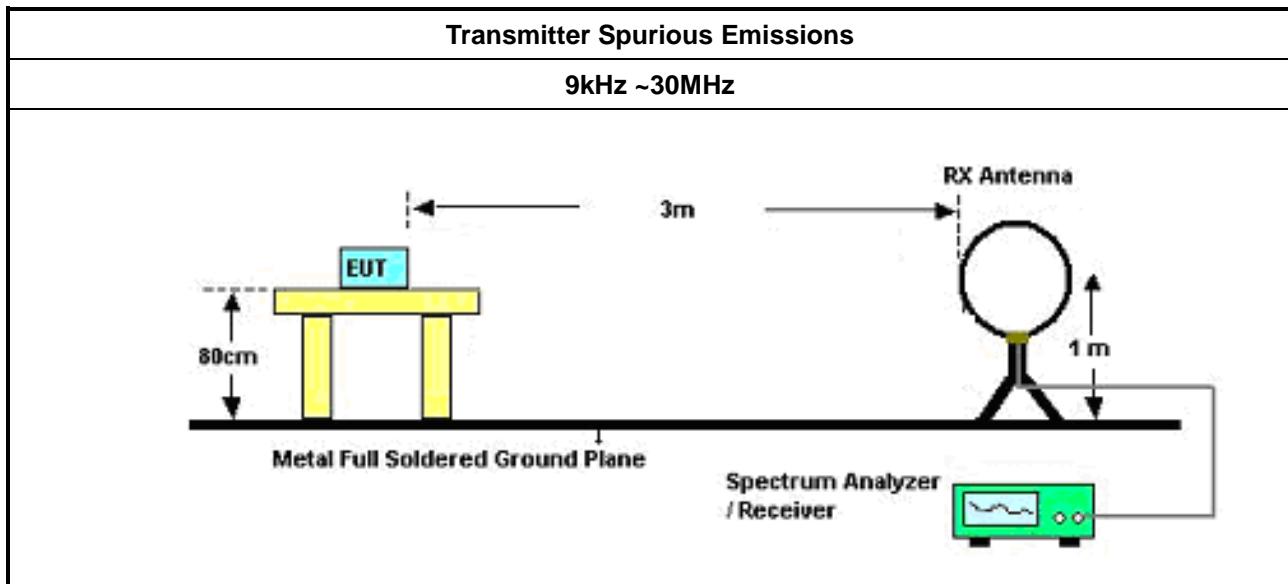
NOTE 1: For the applicable limit, see 15.255(d).

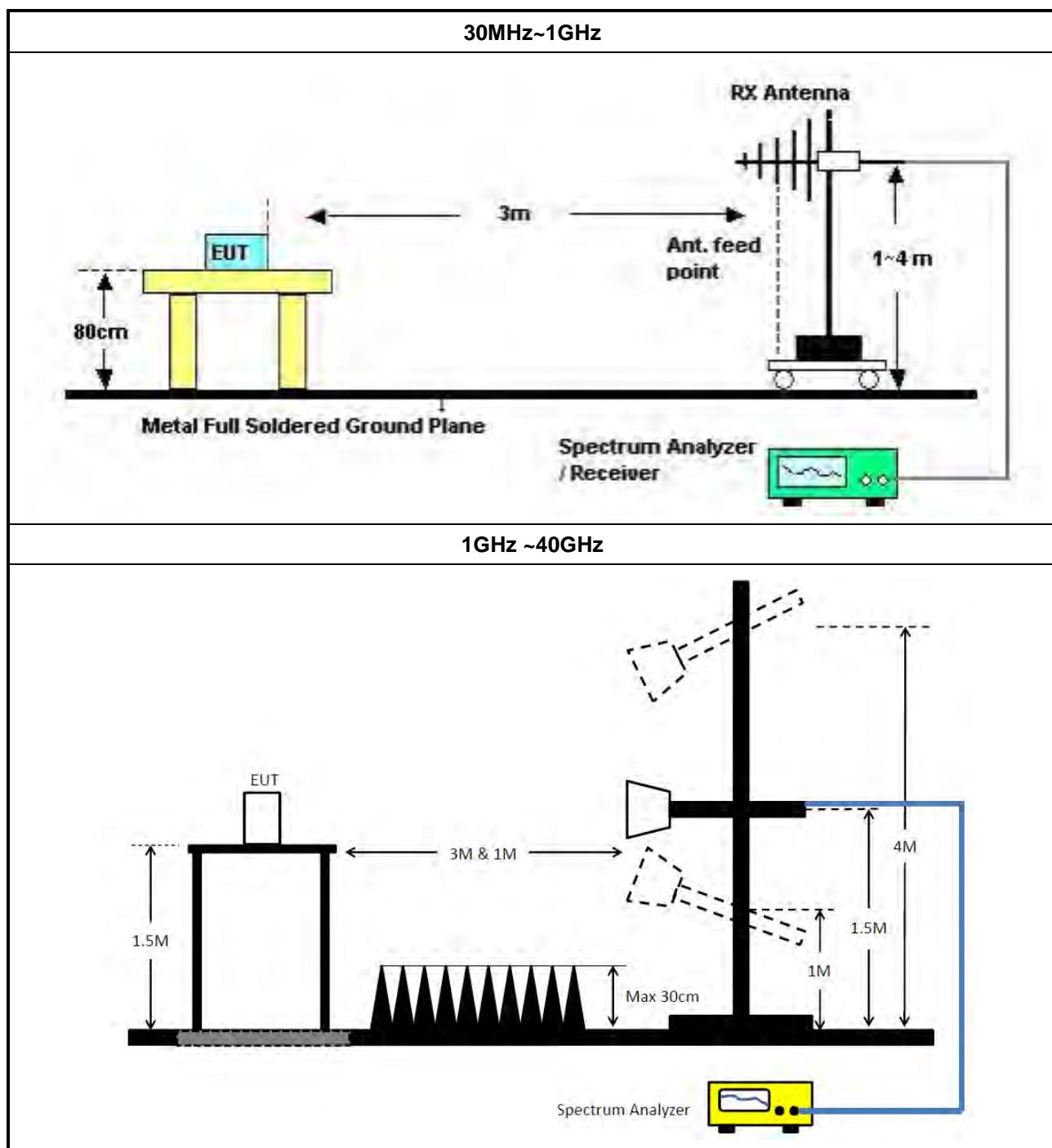
NOTE 2: Spurious emissions shall not exceed the level of the fundamental emission.

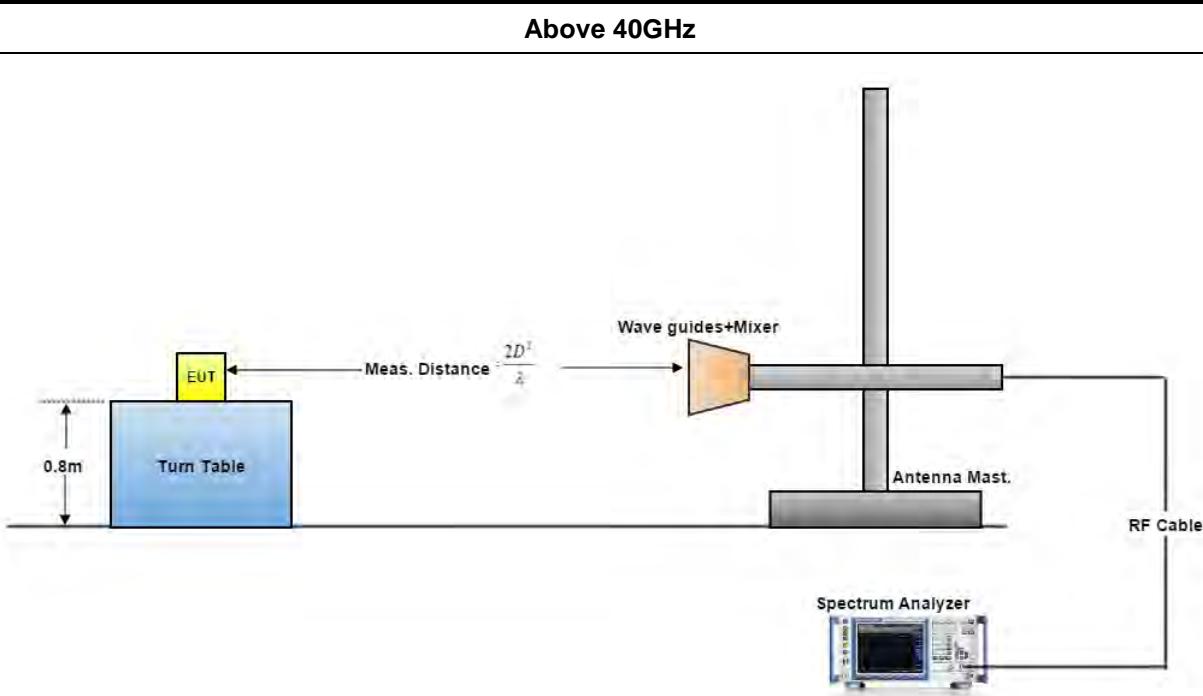
3.3.2 Test Procedures

Method of measurement: Refer as ANSI C63.10-2020, clause 9.11

3.3.3 Test Setup







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 = $20 \log (\text{spec. distance [3 m]} / \text{measurement distance [N m]})$ (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.

3.3.4 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

$EIRP = \text{Meas. Level} - \text{RX Antenna Gain} + 20 \log (4 \cdot \pi \cdot (3.14159) \cdot D / (300 / (\text{Frequency} \cdot 1000)))$



3.3.5 Test Result of Transmitter Spurious Emissions

Test Conditions	see ANSI C63.10, clause 5.11 & clause 9
Test Setup	see ANSI C63.10, clause 9.11, 9.12
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.	

3.3.5.1 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.

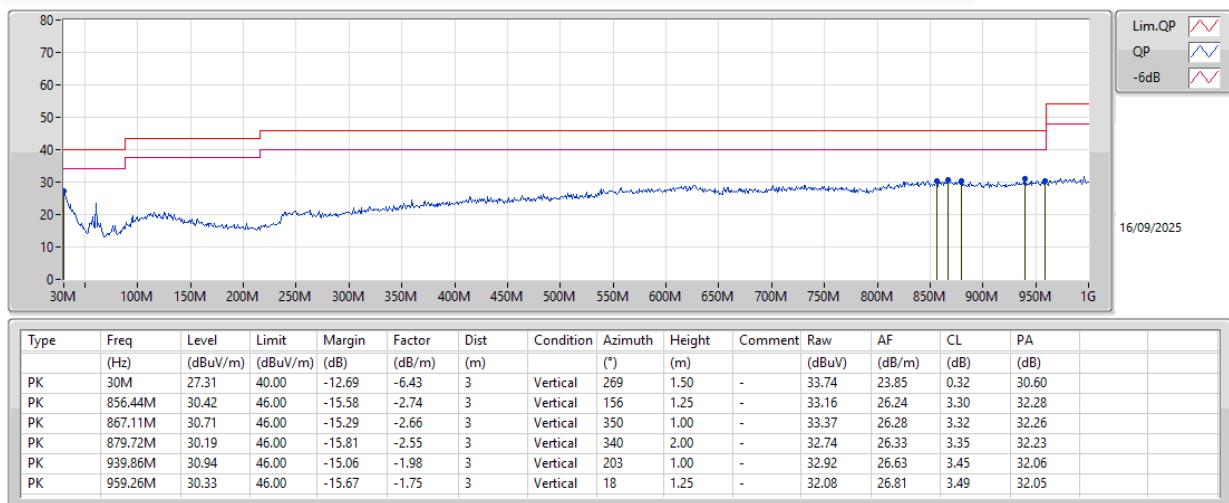


3.3.5.2 Test Result of Transmitter Spurious Emissions

Test Range	30 MHz – 1000 MHz	Test Distance	3 m
Test Configuration	CTX		

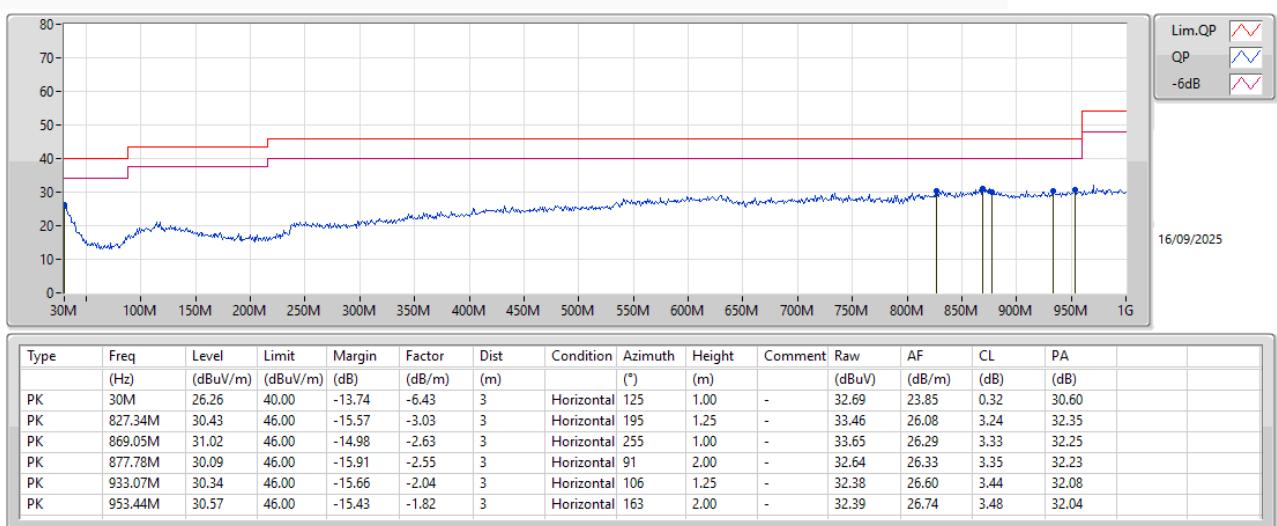
Vertical

Mode 1





Horizontal

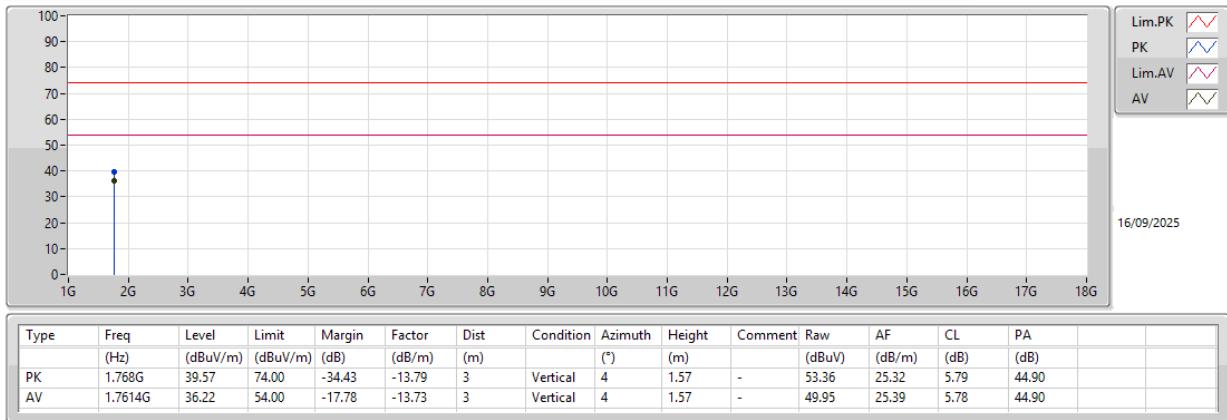
Mode 1



Test Range	1 GHz – 18 GHz	Test Distance	3 m
Test Freq. (GHz)	60.212		

Vertical

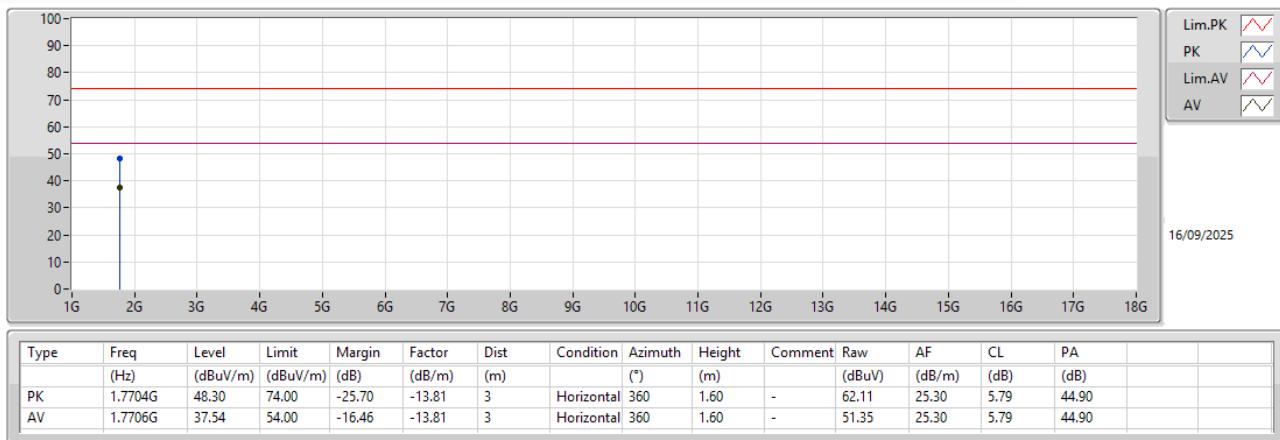
Mode 1



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB/m)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB/m)	CL (dB)	PA (dB)			
PK	1.768G	39.57	74.00	-34.43	-13.79	3	Vertical	4	1.57	-	53.36	25.32	5.79	44.90			
AV	1.7614G	36.22	54.00	-17.78	-13.73	3	Vertical	4	1.57	-	49.95	25.39	5.78	44.90			



Horizontal

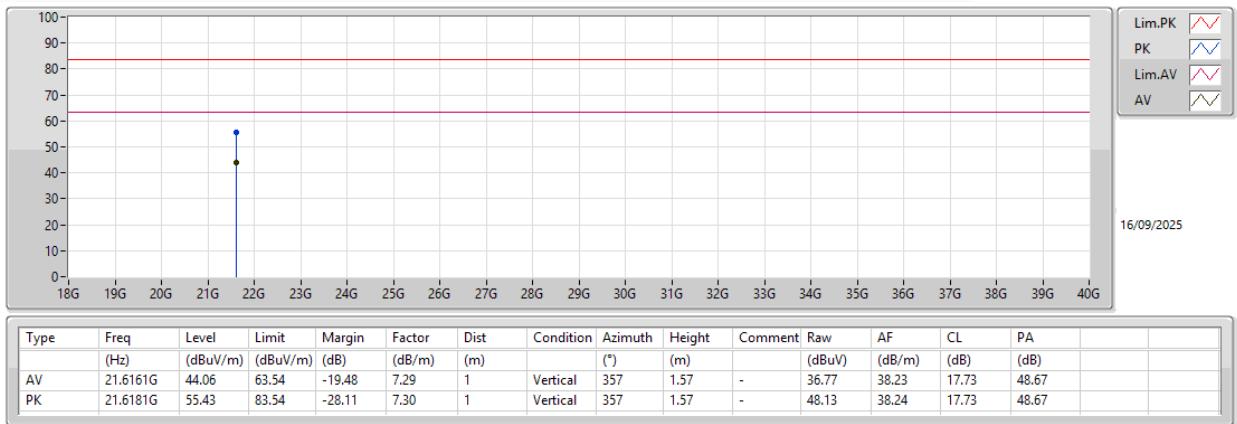
Mode 1



Test Range	18 GHz – 40 GHz	Test Distance	1 m
Test Freq. (GHz)	60.212		

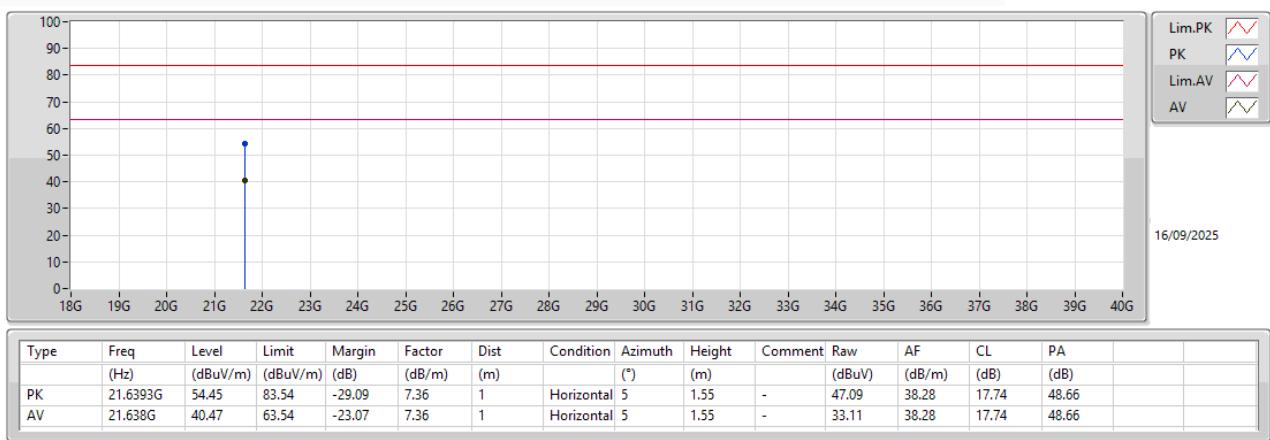
Vertical

Mode 1





Horizontal

Mode 1



Test Range	40GHz – 200GHz
------------	----------------

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
60.212	23.60	1.00	56.01	-84.42
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm^2)	Limit (pW/cm^2)	Test Result
-40.62	3	0.0767	90	PASS

Note:

Calculate the EIRP from the radiated measurement in the far-field using Equation:

$$\text{EIRP} = 21.98 - 20\log(\lambda) + 20\log(D) + P - G$$

where:

EIRP: is the equivalent isotropic radiated power, in dBm

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.

3.4 Frequency Stability

3.4.1 Limit of Frequency Stability

Frequency Stability	Limit
Refer as 15.255(f) and ANSI C63.10-2020, clause 9.5	within the frequency bands

Note: These measurements shall also be performed at normal and extreme test conditions.

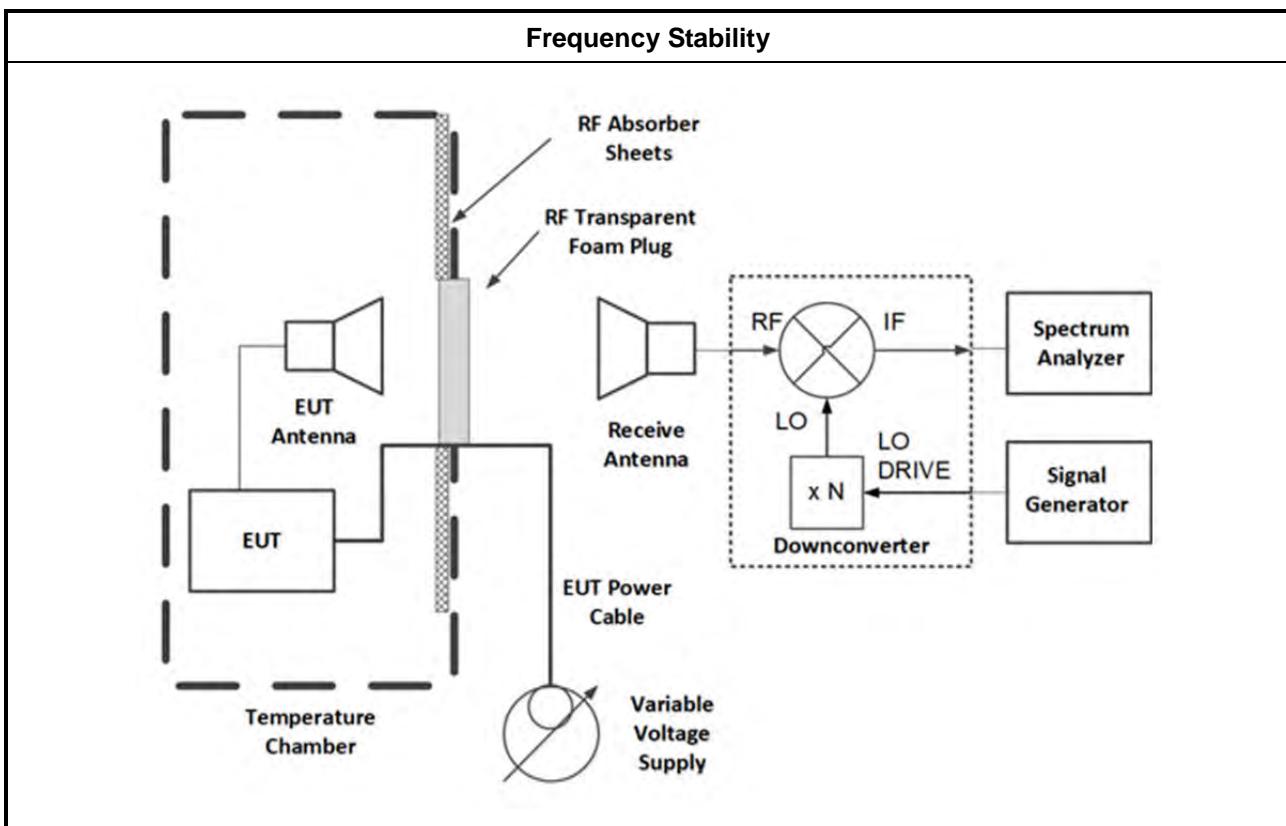
3.4.2 Measuring Instruments

Refer a measuring instruments list in this test report.

3.4.3 Test Procedures

Method of measurement: Refer as ANSI C63.10-2020, clauses 9.5.

3.4.4 Test Setup





3.4.5 Test Result of Frequency Stability

Test Conditions	see ANSI C63.10, clause 5.11 & clause 9
Test Setup	see ANSI C63.10, clause 9.5
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.	

3.4.5.1 Frequency Stability with Respect to Ambient Temperature

Frequency Stability with Respect to Ambient Temperature			
Test Results			
Test Temperature (°C)	Measured Frequency (MHz)	Delta Frequency (kHz)	Limit (±kHz)
-40	60244.34	20750	within band
-30	60249.115	25530	within band
-20	60249.415	25830	within band
-10	60244.04	20455	within band
0	60247.25	23665	within band
10	60425.635	202050	within band
20	60223.585	Reference	within band
30	60235.84	12255	within band
40	60240.54	16955	within band
50	60221.3	-2285	within band
65	60229.8	6215	within band
70	60238.39	14805	within band

NOTE: The manufacturer's specified temperature range of -40 to 70°C.

**3.4.5.2 Frequency Stability When Varying Supply Voltage**

Frequency Stability When Varying Supply Voltage			
Test Results			
Test Voltage: (Vdc)	Measured Frequency (MHz)	Delta Frequency (kHz)	Limit (±kHz)
5.1	60221.3	-2285	within band
6	60223.585	Reference	within band
6.9	60229.8	6215	within band



3.5 Operation Restriction and Group Installation

3.5.1 Limit of Operation Restriction and Group Installation

Item	Limit
Operation Restriction	<p>Operation is not permitted for the following products:</p> <ul style="list-style-type: none">• 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	<p>Operation is not permitted for the following products:</p> <ul style="list-style-type: none">• External phase-locking (Refer as 15.255 (h))

3.5.2 Result of Operation Restriction

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

3.5.3 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
Loop Antenna	Teseq	HLA 6121	65417	9kHz - 30MHz	Oct. 17, 2024	Oct. 16, 2025	Radiation (03CH04-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH04-CB	30 MHz ~ 1 GHz	Jul. 30, 2025	Jul. 29, 2026	Radiation (03CH04-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH04-CB	1GHz ~18GHz 3m	Feb. 21, 2025	Feb. 20, 2026	Radiation (03CH04-CB)
BILOG ANTENNA with 6 dB attenuator	Schaffner & EMCI	CBL6112B & N-6-06	22021&AT-N0607	30MHz ~ 1GHz	Oct. 05, 2024	Oct. 04, 2025	Radiation (03CH04-CB)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120D-01816	1GHz~18GHz	Dec. 20, 2024	Dec. 19, 2025	Radiation (03CH04-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Sep. 23, 2024	Sep. 22, 2025	Radiation (03CH04-CB)
Pre-Amplifier	EMCI	EMC330N	980391	20MHz ~ 3GHz	May 21, 2025	May 20, 2026	Radiation (03CH04-CB)
Pre-Amplifier	SGH	SGH5265	20211115-1	1~ 26.5GHz	Jan. 16, 2025	Jan. 15, 2026	Radiation (03CH04-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 25, 2024	Nov. 24, 2025	Radiation (03CH04-CB)
Spectrum Analyzer	R&S	FSP40	100142	9kHz~40GHz	Mar. 24, 2025	Mar. 23, 2026	Radiation (03CH04-CB)
EMI Test Receiver	R&S	ESR7	102172	9kHz ~ 7GHz	Oct. 21, 2024	Oct. 20, 2025	Radiation (03CH04-CB)
RF Cable-low	Woken	RG402	Low Cable-03+67	30MHz – 1GHz	Apr. 25, 2025	Apr. 24, 2026	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21	1GHz - 18GHz	Apr. 25, 2025	Apr. 24, 2026	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21+67	1GHz - 18GHz	Apr. 25, 2025	Apr. 24, 2026	Radiation (03CH04-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Apr. 30, 2025	Apr. 29, 2026	Radiation (03CH04-CB)
*Harmonic Mixer	R&S	FS-Z60	100114	40GHz~60GHz	Nov. 22, 2024	Nov. 21, 2026	Radiation (03CH04-CB)
*Harmonic Mixer	R&S	FS-Z75	100966	50GHz~75GHz	Nov. 22, 2024	Nov. 21, 2026	Radiation (03CH04-CB)
*Harmonic Mixer	R&S	FS-Z90	102135	60GHz~90GHz	Sep. 13, 2024	Sep. 12, 2026	Radiation (03CH04-CB)
*Harmonic Mixer	R&S	FS-Z140	101160	90GHz~140GHz	Jan. 20, 2025	Jan. 19, 2027	Radiation (03CH04-CB)
*Harmonic Mixer	R&S	FS-Z220	101065	140GHz~220GHz	Jan. 20, 2025	Jan. 19, 2027	Radiation (03CH04-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 (03CH04-CB)
Standard Horn Antenna	Custom Microwave	M15RH	V91113-A	50 ~ 75 GHz	N.C.R.	N.C.R.	Radiation (03CH04-CB)
Standard Horn Antenna	Custom Microwave	M12RH	E91113-A	60 ~ 90 GHz	N.C.R.	N.C.R.	Radiation (03CH04-CB)
Standard Horn Antenna	Custom Microwave	M08RH	F91113-A	90 ~ 140 GHz	N.C.R.	N.C.R.	Radiation (03CH04-CB)
Standard Horn Antenna	Custom Microwave	M05RH	G91113-A	140 ~ 220 GHz	N.C.R.	N.C.R.	Radiation (03CH04-CB)
Test Software	SPORTON	SENSE-EMI	V5.11.8	30MHz-40GHz	N.C.R.	N.C.R.	Radiation (03CH04-CB)
Spectrum analyzer	R&S	FSV40	101028	9kHz~40GHz	Jan. 02, 2025	Jan. 01, 2026	Radiation (TH03-CB)
Temp. and Humidity Chamber	Gaint Force	GTH-408-40-CP-AR	MAA1410-011	-40~100 degree	Aug. 25, 2025	Aug. 24, 2026	Radiation (TH03-CB)
RF Cable	Woken	RG402	High Cable-11	30MHz ~18 GHz	Oct. 01, 2024	Sep. 30, 2025	Radiation (TH03-CB)
RF Cable	Woken	RG402	High Cable-12	30MHz ~18 GHz	Oct. 01, 2024	Sep. 30, 2025	Radiation (TH03-CB)
RF Cable	Woken	RG402	High Cable-13	30MHz ~18 GHz	Oct. 01, 2024	Sep. 30, 2025	Radiation (TH03-CB)

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

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



5 Measurement Uncertainty

Test Items	Uncertainty	Remark
Radiated Emission (9kHz ~ 30MHz)	3.8 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.7 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.3 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)	3.2 dB	Confidence levels of 95%
Radiated Emission (90GHz ~ 200GHz)	3.1 dB	Confidence levels of 95%
Occupied Bandwidth	2.1 %	Confidence levels of 95%
Frequency Stability	0.02 ppm	Confidence levels of 95%
Radiated EIRP	3.2 dB	Confidence levels of 95%
Temperature	1.0°C	Confidence levels of 95%