



RADIO TEST REPORT

FCC ID : 2BX8Y-AW-ULTRA-01
Equipment : AirWave Ultra
Brand Name : Atheer Connectivity
Model Name : AW-ULTRA-01
Applicant : Tawasul Al Atheer Company
2535 Abdulaziz bin Muhammad Al-Zamzami, Al
Qiruwan, Riyadh 13532, Saudi Arabia
Manufacturer : Tawasul Al Atheer Company
2535 Abdulaziz bin Muhammad Al-Zamzami, Al
Qiruwan, Riyadh 13532, Saudi Arabia
Standard : 47 CFR FCC Part 15.255

The product was received on Aug. 20, 2026, and testing was started from Aug. 20, 2026 and completed on Sep. 03, 2026. 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 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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TEL : 886-3-656-9065
FAX : 886-3-656-9085
Report Temp.late No.: CB-A9_2 Ver1.3



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	-

Note: The AC Power Line Conduction Emissions test results of this report reference the Sporton Report No.: 681813-02.

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/manufacture 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: Muse Chan



1 General Description

1.1 Information

1.1.1 RF General Information

RF General Information	
Frequency Range	57-71 GHz
The Channel Plan(s)	Bandwidth: 2.16 GHz Channels
	Channel 1: 58.32 GHz Channel 2: 60.48 GHz Channel 3: 62.64 GHz Channel 4: 64.80 GHz Channel 5: 66.96 GHz Channel 6: 69.12 GHz
	Bandwidth: 1.08 GHz Channels
	Channel 1: 58.32 GHz Channel 2: 59.40 GHz Channel 3: 60.48 GHz Channel 4: 61.56 GHz Channel 5: 62.64 GHz Channel 6: 63.72 GHz Channel 7: 64.80 GHz Channel 8: 65.88 GHz Channel 9: 66.96 GHz Channel 10: 68.04 GHz Channel 11: 69.12 GHz Channel 12: 70.20 GHz

1.1.2 Modulation

IEEE 802.11ad Modulation Scheme

MCS Index	Modulation	Code rate	Data rate (Mbit/s)
1	$\pi/2$ -BPSK	1/2	385
2	$\pi/2$ -BPSK	1/2	770
3	$\pi/2$ -BPSK	5/8	962.5
4	$\pi/2$ -BPSK	3/4	1155
5	$\pi/2$ -BPSK	13/16	1251.25
6	$\pi/2$ -QPSK	1/2	1540
7	$\pi/2$ -QPSK	5/8	1925
8	$\pi/2$ -QPSK	3/4	2310
9	$\pi/2$ -QPSK	13/16	2502.5
10	$\pi/2$ -16QAM	1/2	3080
11	$\pi/2$ -16QAM	5/8	3850
12	$\pi/2$ -16QAM	3/4	4620

1.1.3 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Tawasul Al Atheer Company	AW-ULTRA-01 dish assembly: Peraso PRM2141X-V array feeding a 38.6 cm parabolic reflector	Parabolic reflector, array-fed, integral	N/A	46.15

Note: The above information was declared by manufacturer.

1.1.4 Operating Conditions

Operating Conditions			
☐ -20 °C to +50 °C			
☐ 0 °C to +40 °C			
☒ Other: -40 °C to +60 °C			
EUT Power Type	From PoE		
Test Software Version	DOS [ver 6.1.7601]		
Supply Voltage	☒ AC	State AC voltage	120 V
Supply Voltage	☐ DC	State DC voltage	V

**1.1.5 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

1.1.6 User Condition

Intended Operation	
☐	Indoor
☐	Outdoor (except outdoor fixed Point to Point)
☒	Outdoor fixed Point to Point

Note: The above information was declared by manufacturer.

1.1.7 Duty Cycle

For Bandwidth: 2.16 GHz

TX-on(ms)	TX-on+TX-off(ms)	Duty Cycle (%)	Duty Cycle factor(dB)
101.60	102.40	99.22	0.03

For Bandwidth: 1.08 GHz

TX-on(ms)	TX-on+TX-off(ms)	Duty Cycle (%)	Duty Cycle factor(dB)
101.40	102.00	99.41	0.03



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

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
Radiated	TH03-CB	Eddie Weng	24.2~24.9 / 61-63	Aug. 31, 2026
Radiated	03CH03-CB	Kevin Huang	24.1~24.2 / 50~67	Aug. 20, 2026~ Sep. 03, 2026
	03CH04-CB	Stim Sung	24.0~24.4 / 62~70	
AC Conduction	CO01-CB	Joe Chu	22~23 / 57~58	Sep. 03, 2026



2 Test Configuration of Equipment under Test

2.1 Parameters of Test Software Setting

Parameters of Test Software Setting	
Test Frequencies (GHz)	Software Setting
Bandwidth: 2.16 GHz Channels	
58.32	3
64.80	2
69.12	2
Bandwidth: 1.08 GHz Channels	
58.32	3
64.80	0
70.20	0

2.2 Conformance Tests and Related Test Frequencies

For Bandwidth: 2.16 GHz Channels

Test Item	Test Frequencies (GHz)
Occupied Bandwidth	58.32, 64.80, 69.12
EIRP Power	58.32, 64.80, 69.12
Peak Conducted Power	58.32, 64.80, 69.12
Transmitter Spurious Emissions (1 GHz-40 GHz)	58.32, 64.80, 69.12
Transmitter Spurious Emissions (above 40 GHz)	58.32, 64.80, 69.12
Frequency Stability	64.80

**For Bandwidth: 1.08 GHz Channels**

Test Item	Test Frequencies (GHz)
Occupied Bandwidth	58.32, 64.80, 70.20
EIRP Power	58.32, 64.80, 70.20
Peak Conducted Power	58.32, 64.80, 70.20
Transmitter Spurious Emissions (below 1 GHz)	58.32
Transmitter Spurious Emissions (1 GHz-40 GHz)	58.32, 64.80, 70.20
Transmitter Spurious Emissions (above 40 GHz)	58.32, 64.80, 70.20
Frequency Stability	64.80

Note: The PoE is for measurement only, would not be marketed.

Power	Brand	Model
PoE	TOPOW	TPT60S54A-PSE-01

< AC Power Line Conduction Emissions>

Mode 1: Normal link with EUT + PoE (Test Voltage: 120Vac / 60Hz)

< Radiated Emissions below 1GHz Test >

After evaluating, the worst case was found at Y axis, thus the measurement will follow this same test configuration.

The EUT supports two channel bandwidths (1.08 GHz and 2.16 GHz). As the 1.08 GHz mode was found to be the worst-case mode for the above 1 GHz test, it was selected to perform the below 1 GHz evaluation.

Mode 1: EUT in Y axis_ Bandwidth: 1.08 GHz + PoE

< Radiated Emissions above 1GHz Test >

After evaluating, the worst case was found at Y axis, thus the measurement will follow this same test configuration.

Mode 1: EUT in Y axis_ Bandwidth: 1.08 GHz + PoE

Mode 2: EUT in Y axis_ Bandwidth: 2.16 GHz + PoE

2.3 EUT Operation during Test

For Other Modes:

During the test, "DOS [ver 6.1.7601]" under WIN 10 was executed the test program to control the EUT continuously transmit RF signal.

For Normal Link Mode:

During the test, the EUT operation to normal function.



2.4 Accessories

Accessories
Waterproof connector 1*1
Waterproof connector 2*1
Waterproof connector 3*1
Wall-mounted rack*1

2.5 Support Equipment

For AC Power Conducted Emissions test:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Transceiver	CISCO	SFP-10G-LR	N/A
B	10G LAN PC	ASUS	S300TA	TX2-RTL8821CE
C	Device	Tachyon Networks	TNA-303X	N/A
D	10G SFP+ PC	DELL	D30M	N/A
E	GPS Simulator	WELNAVIGATE	GS-100	N/A
F	PoE	TOPOW	TPT60S54A-PSE-01	N/A

For other test items:

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Client	Tachyon Networks	TNA-303X	Z9W-TNA303X
B	PoE	TOPOW	TPT60S54A-PSE-01	N/A
C	Notebook	DELL	E4300	N/A
D	Notebook	DELL	E4300	N/A



2.6 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

For Bandwidth: 2.16 GHz Channels

Far Field (m) (Without Reflector)				
Frequency (GHz)	L (m)	Lambda (m)	d(Far Field) (m)	d(Far Field) (cm)
58.32	0.025	0.0051440	0.243	24.30
64.80	0.025	0.0046296	0.270	27.00
69.12	0.025	0.0043403	0.288	28.80

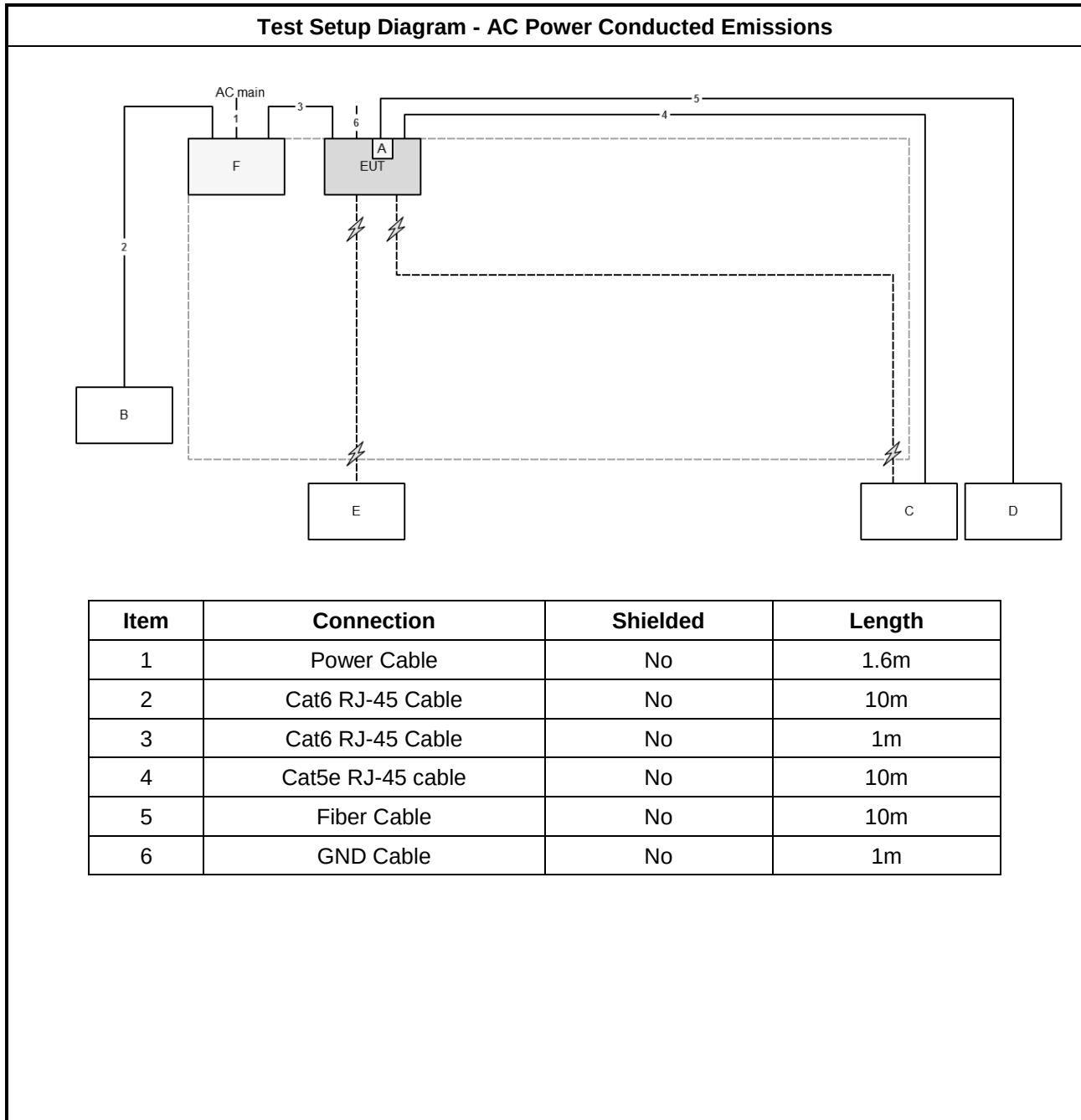
Far Field (m) (With Reflector)				
Frequency (GHz)	L (m)	Lambda (m)	d(Far Field) (m)	d(Far Field) (cm)
58.32	0.42	0.0051440	68.584	6858.43
64.80	0.42	0.0046296	76.205	7620.48
69.12	0.42	0.0043403	81.285	8128.51

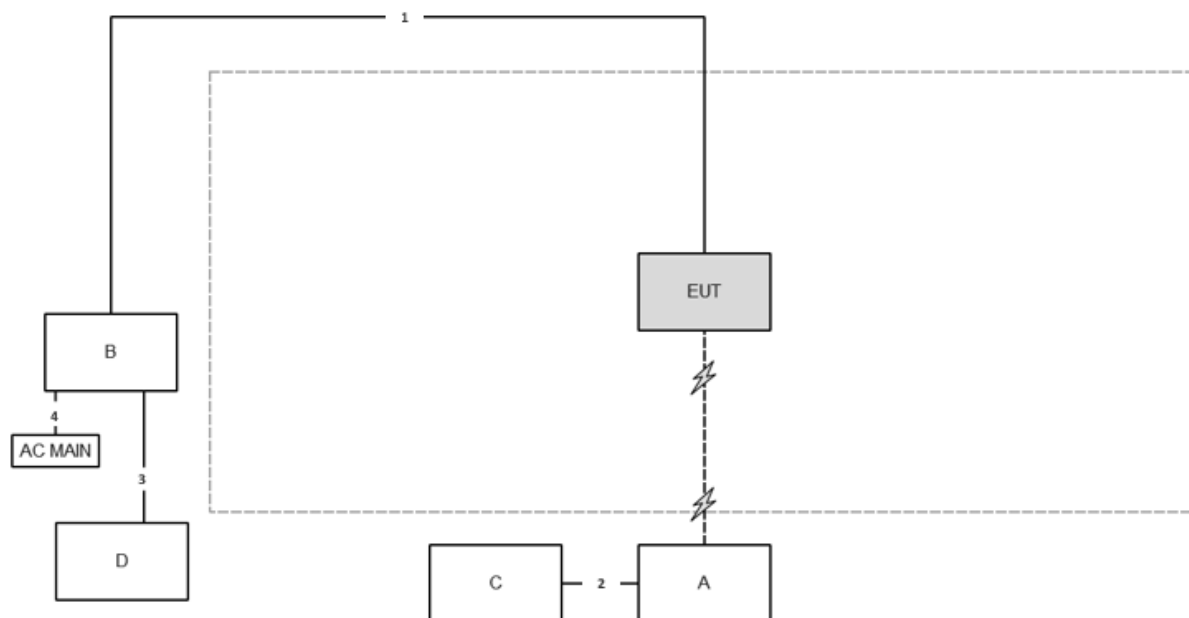
For Bandwidth: 1.08 GHz Channels

Far Field (m) (Without Reflector)				
Frequency (GHz)	L (m)	Lambda (m)	d(Far Field) (m)	d(Far Field) (cm)
58.32	0.025	0.0051440	0.243	24.30
64.80	0.025	0.0046296	0.270	27.00
70.20	0.025	0.0042735	0.293	29.25

Far Field (m) (With Reflector)				
Frequency (GHz)	L (m)	Lambda (m)	d(Far Field) (m)	d(Far Field) (cm)
58.32	0.42	0.0051440	68.584	6858.43
64.80	0.42	0.0046296	76.205	7620.48
70.20	0.42	0.0042735	82.555	8255.52

2.7 Test Setup Diagram



Test Setup Diagram - Transmitter Spurious Emissions


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

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

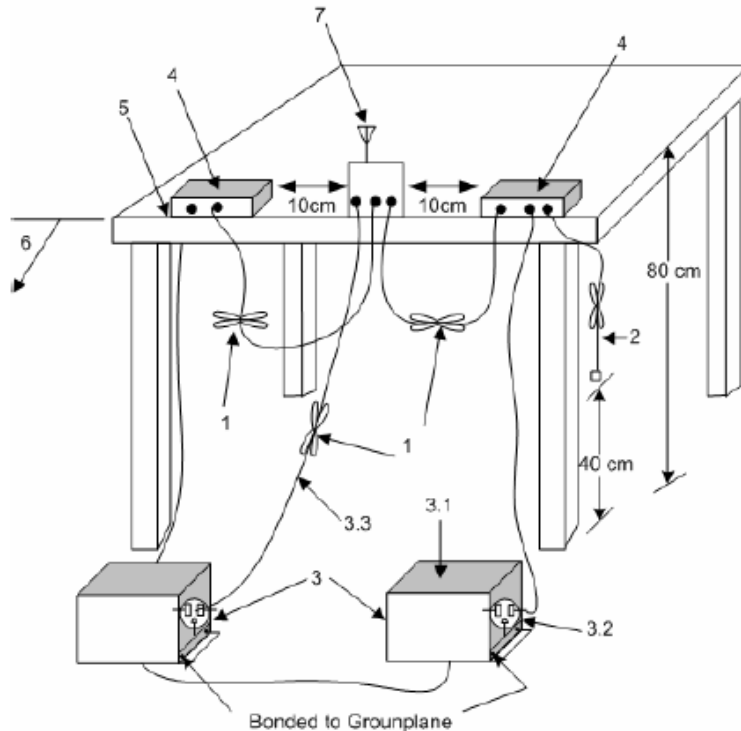
Refer a measuring instruments list in this test report.

3.1.3 Test Procedures

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

- Corrected Reading: LISN Factor (LISN) + Attenuator (AT/AUX) + Cable Loss (CL) + Read Level (Raw) = Level
- Margin = -Limit + Level



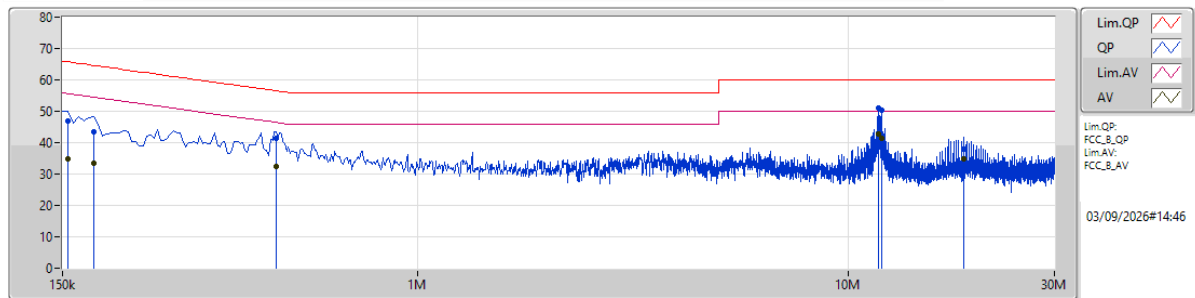
3.1.6 Test Result of AC Power Conducted Emissions

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.	



Phase	Line	Configuration	Normal Link
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Mode 1

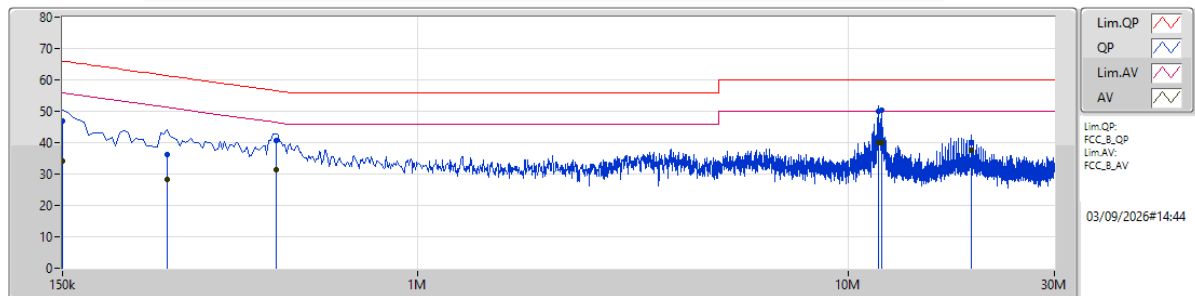


Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	154.5k	46.73	65.75	-19.02	10.03	Line	-	36.70	0.08	0.09	9.86						
AV	154.5k	34.94	55.75	-20.81	10.03	Line	-	24.91	0.08	0.09	9.86						
QP	177k	43.50	64.62	-21.12	9.97	Line	-	33.53	0.08	0.08	9.81						
AV	177k	33.29	54.62	-21.33	9.97	Line	-	23.32	0.08	0.08	9.81						
QP	469.5k	41.55	56.52	-14.97	10.11	Line	-	31.44	0.08	0.13	9.90						
AV	469.5k	32.32	46.52	-14.20	10.11	Line	-	22.21	0.08	0.13	9.90						
QP	11.747M	51.02	60.00	-8.98	10.77	Line	-	40.25	0.25	0.31	10.21						
AV	11.747M	42.59	50.00	-7.41	10.77	Line	"Worst"	31.82	0.25	0.31	10.21						
QP	11.918M	50.18	60.00	-9.82	10.77	Line	-	39.41	0.25	0.31	10.21						
AV	11.918M	41.33	50.00	-8.67	10.77	Line	-	30.56	0.25	0.31	10.21						
QP	18.506M	37.77	60.00	-22.23	10.99	Line	-	26.78	0.28	0.35	10.36						
AV	18.506M	34.70	50.00	-15.30	10.99	Line	-	23.71	0.28	0.35	10.36						



Phase	Neutral	Configuration	Normal Link
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Mode 1



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)						
QP	150k	46.86	66.00	-19.14	10.04	Neutral	-	36.82	0.06	0.10	9.88						
AV	150k	34.21	56.00	-21.79	10.04	Neutral	-	24.17	0.06	0.10	9.88						
QP	262.5k	36.17	61.35	-25.18	9.95	Neutral	-	26.22	0.06	0.08	9.81						
AV	262.5k	28.38	51.35	-22.97	9.95	Neutral	-	18.43	0.06	0.08	9.81						
QP	469.5k	40.68	56.52	-15.84	10.09	Neutral	-	30.59	0.06	0.13	9.90						
AV	469.5k	31.37	46.52	-15.15	10.09	Neutral	-	21.28	0.06	0.13	9.90						
QP	11.747M	50.15	60.00	-9.85	10.74	Neutral	-	39.41	0.22	0.31	10.21						
AV	11.747M	39.92	50.00	-10.08	10.74	Neutral	-	29.18	0.22	0.31	10.21						
QP	11.913M	50.24	60.00	-9.76	10.74	Neutral	"Worst"	39.50	0.22	0.31	10.21						
AV	11.913M	40.12	50.00	-9.88	10.74	Neutral	-	29.38	0.22	0.31	10.21						
QP	19.253M	40.07	60.00	-19.93	10.96	Neutral	-	29.11	0.25	0.34	10.37						
AV	19.253M	37.72	50.00	-12.28		Neutral	-	26.76	0.25	0.34	10.37						



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.	

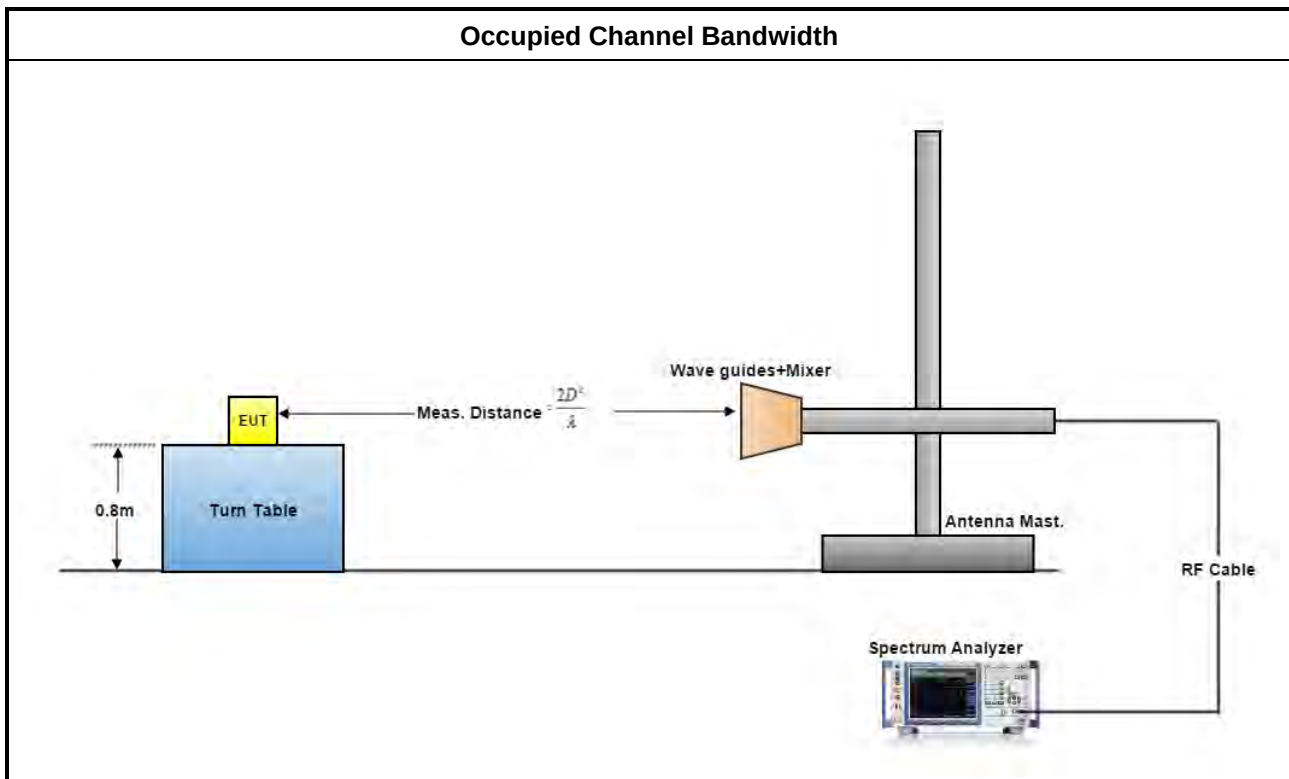
3.2.2 Measuring Instruments

Refer a measuring instruments list in this test report.

3.2.3 Test Procedures

Method of measurement: Refer as ANSI C63.10-2020, clauses 6.9.2.

3.2.4 Test Setup



**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 Bandwidth: 2.16 GHz Channels

Test Results			
Test Freq. (GHz)	6 dBc Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit (MHz)
58.32	1088.90	1750.23	N/A
64.80	1553.40	1841.53	N/A
69.12	1523.50	1841.76	N/A

For Bandwidth: 1.08 GHz Channels

Test Results			
Test Freq. (GHz)	6 dBc Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit (MHz)
58.32	729.30	933.62	N/A
64.80	705.30	952.40	N/A
70.20	711.30	943.95	N/A

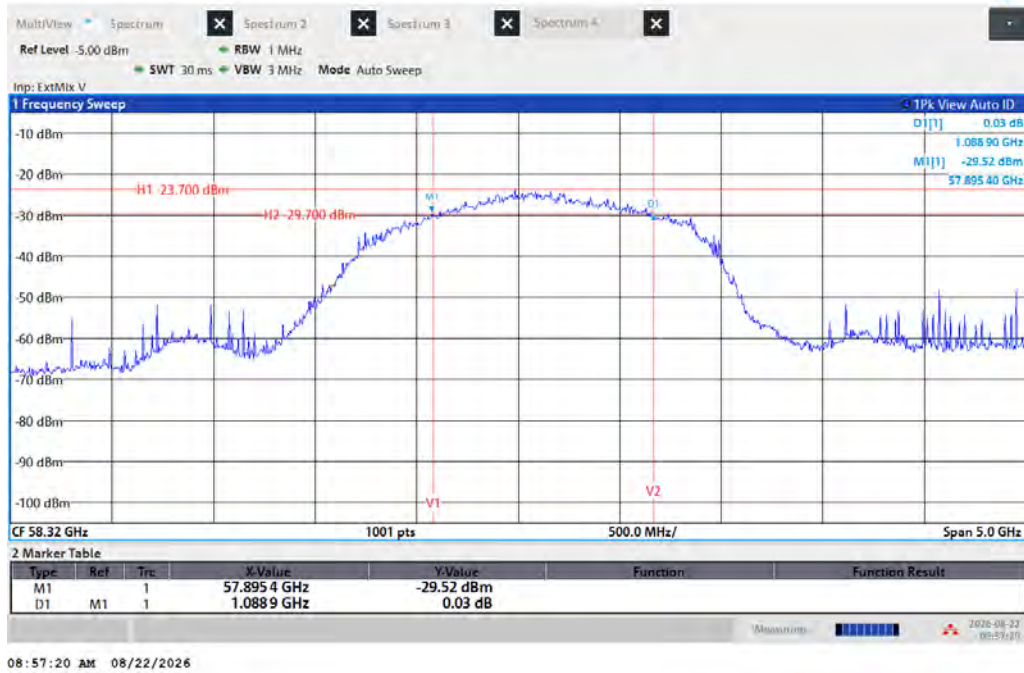


3.2.5.1 Bandwidth Plots

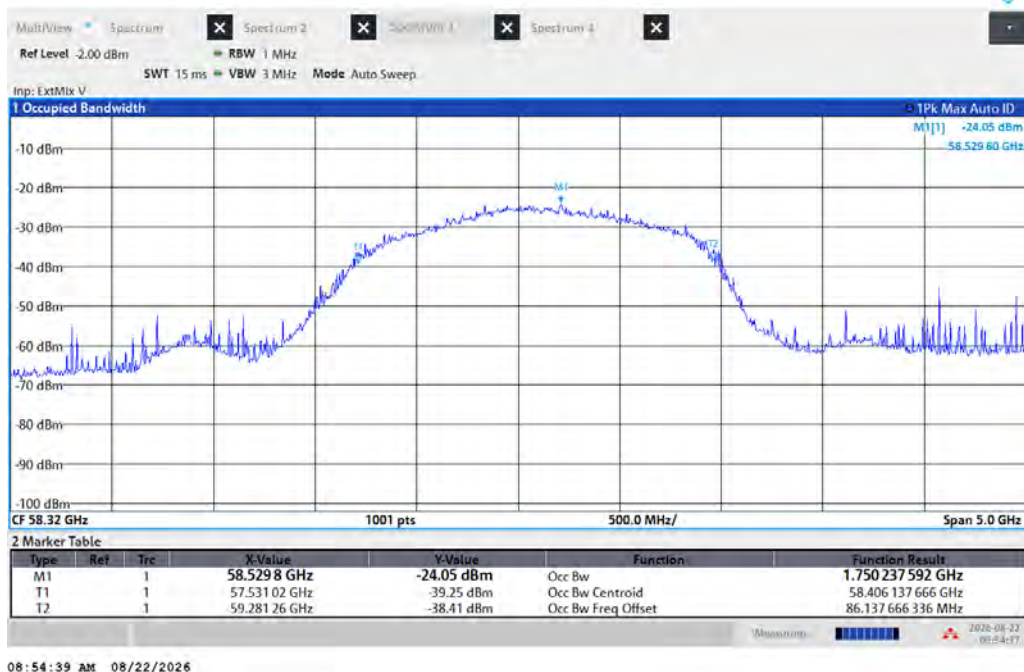
For Bandwidth: 2.16 GHz Channels

Test Frequency: 58.32 GHz

6 dBc Bandwidth



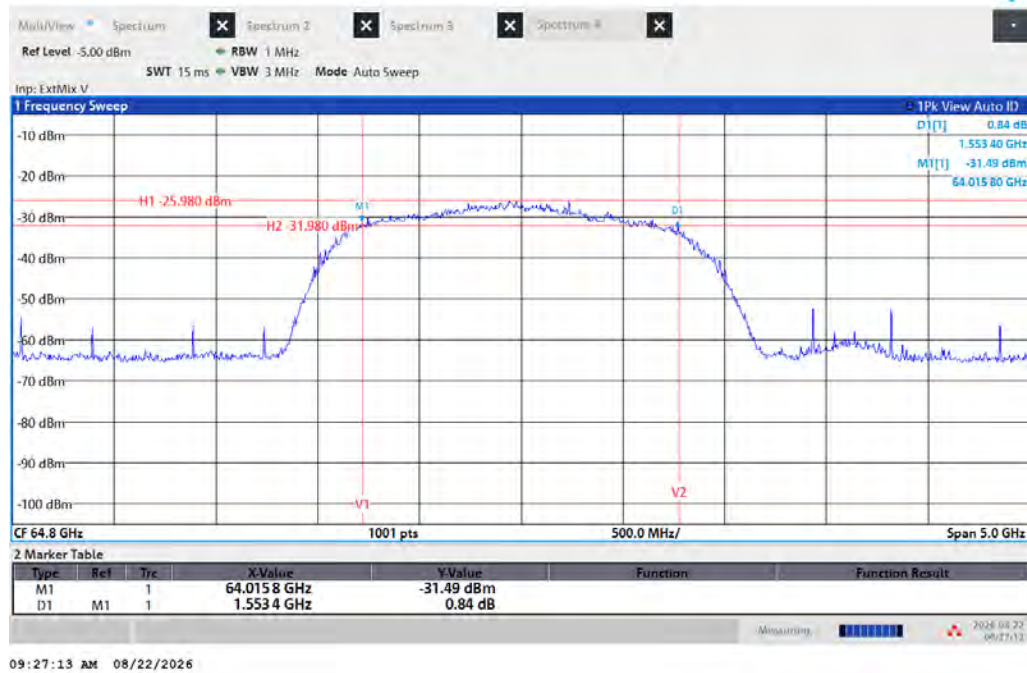
Occupied Bandwidth



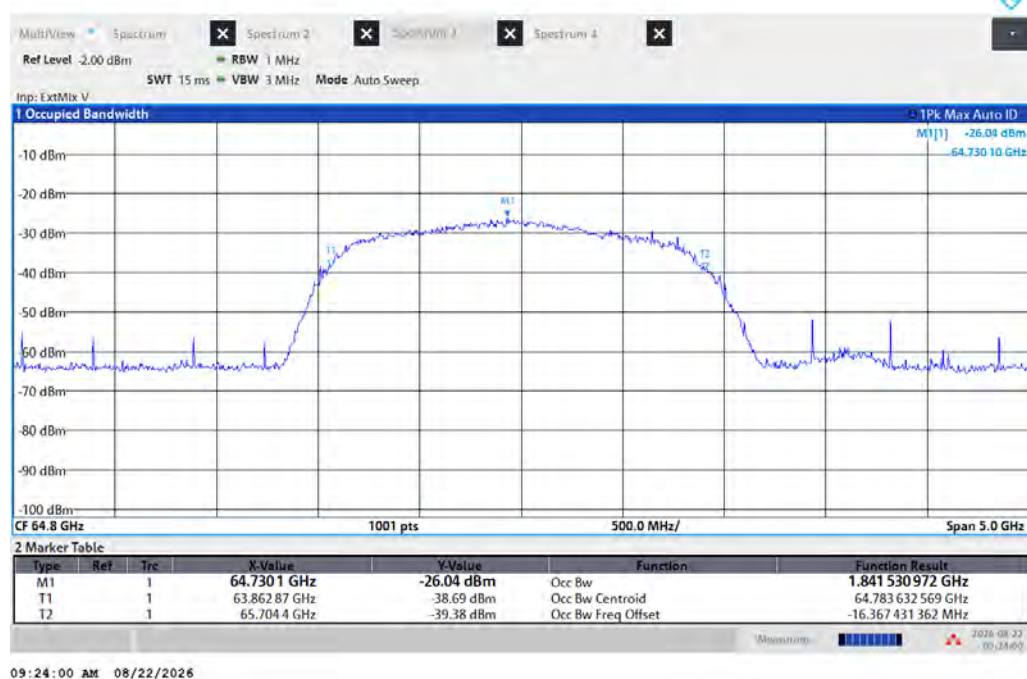


Test Frequency: 64.80 GHz

6 dBc Bandwidth



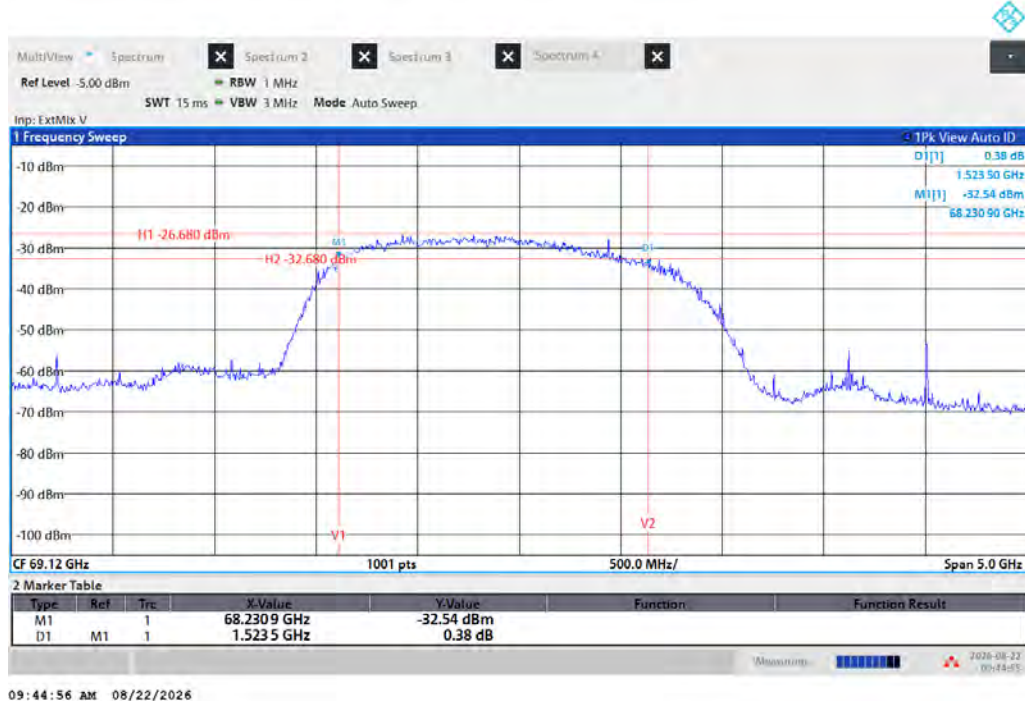
Occupied Bandwidth



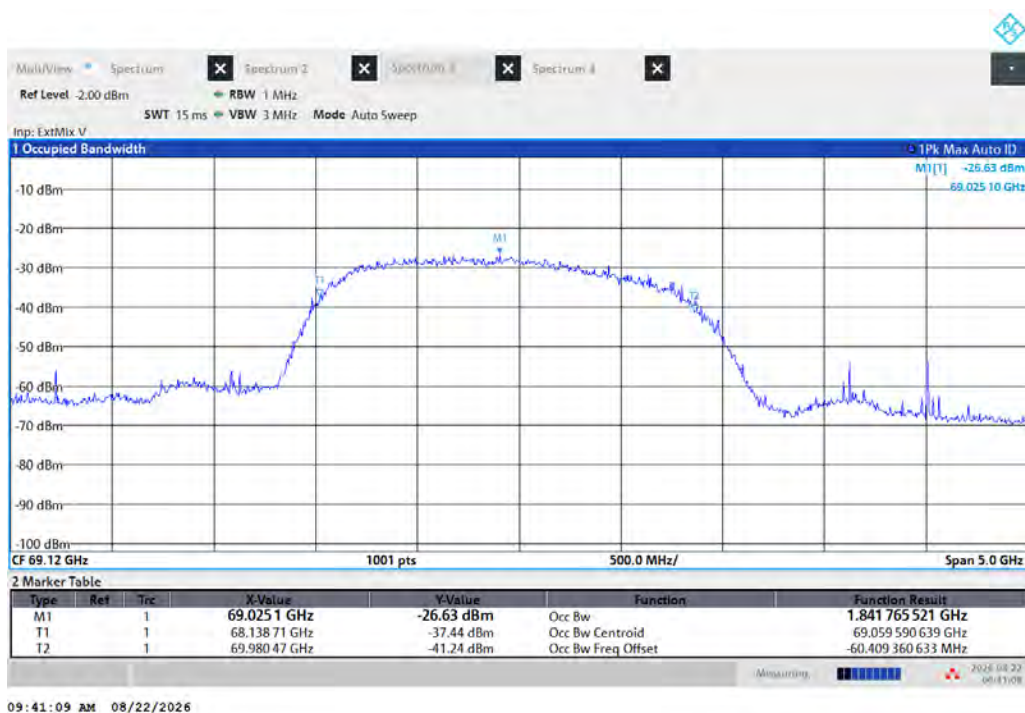


Test Frequency: 69.12 GHz

6 dBc Bandwidth



Occupied Bandwidth

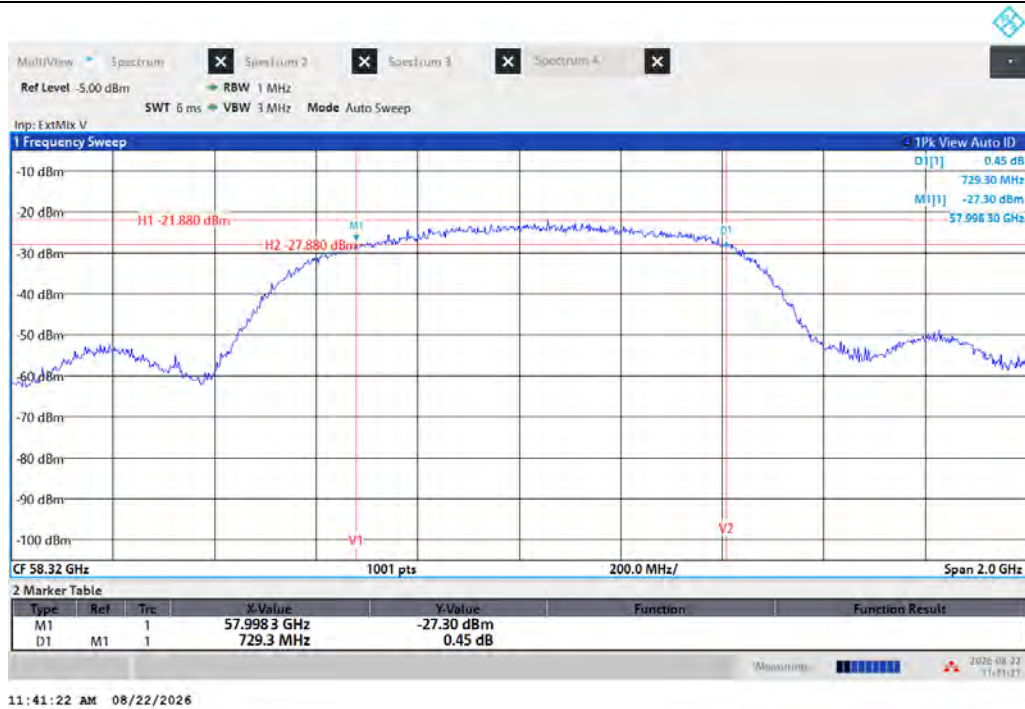




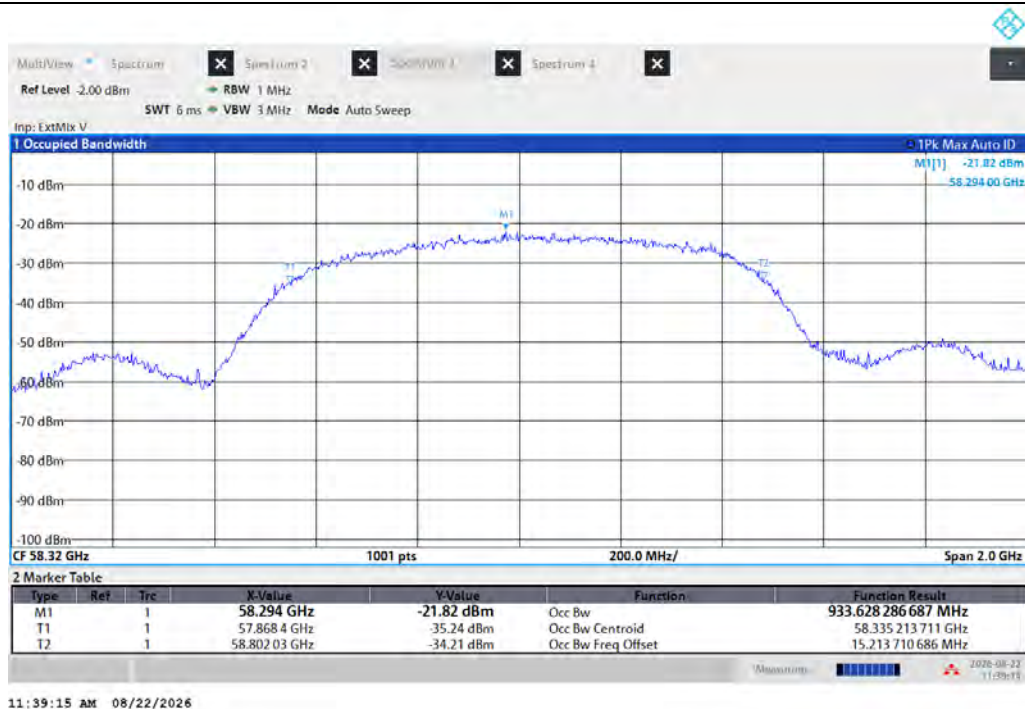
For Bandwidth: 1.08 GHz Channels

Test Frequency: 58.32 GHz

6 dBc Bandwidth



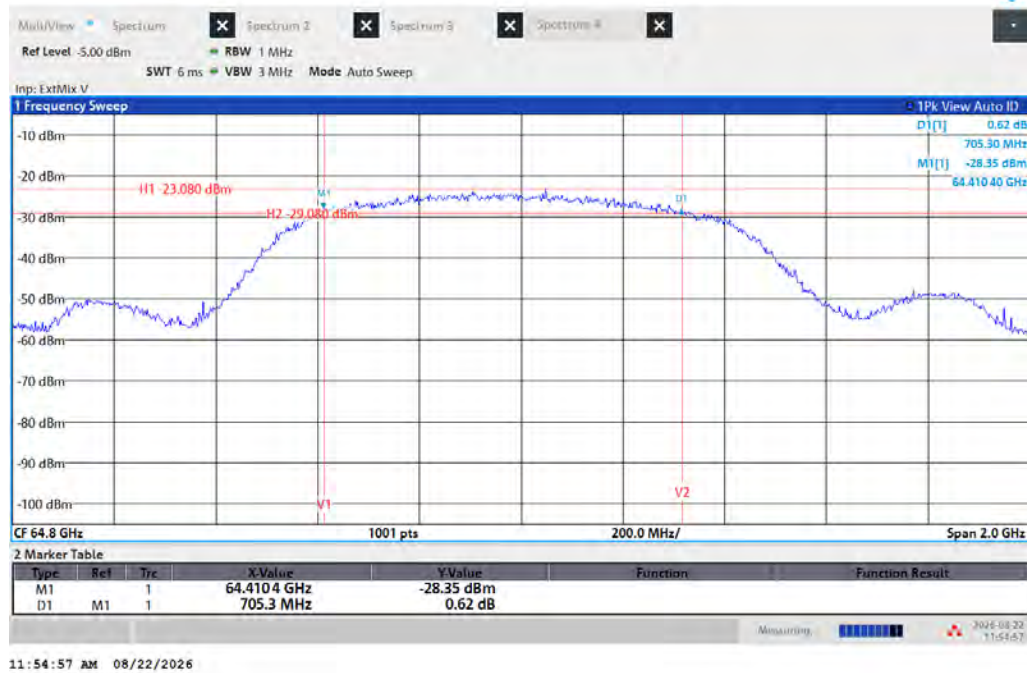
Occupied Bandwidth



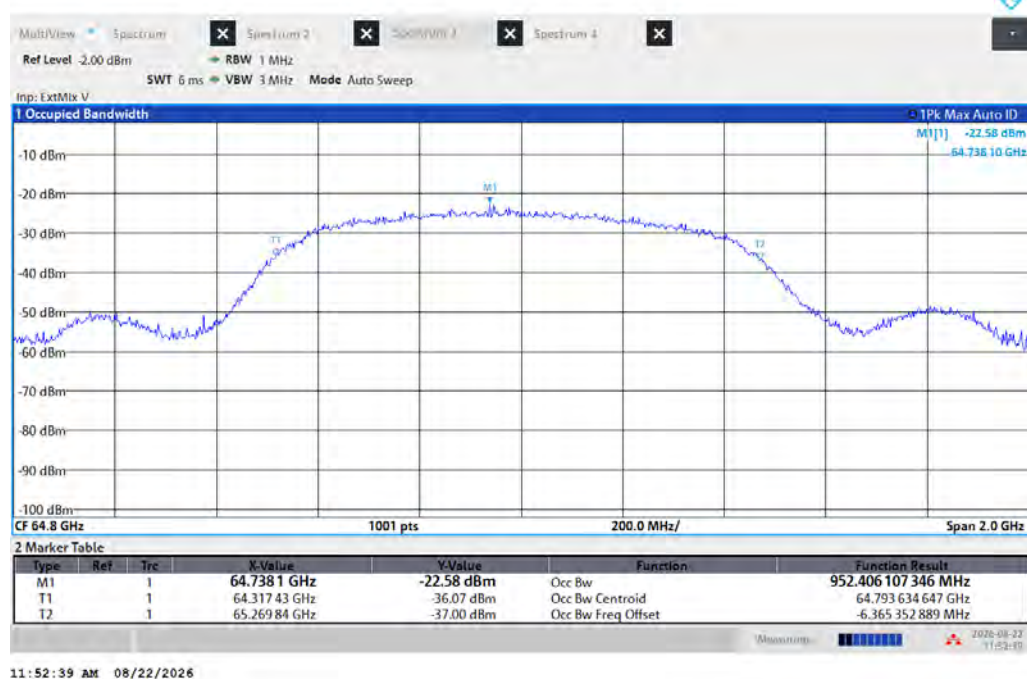


Test Frequency: 64.80 GHz

6 dBc Bandwidth



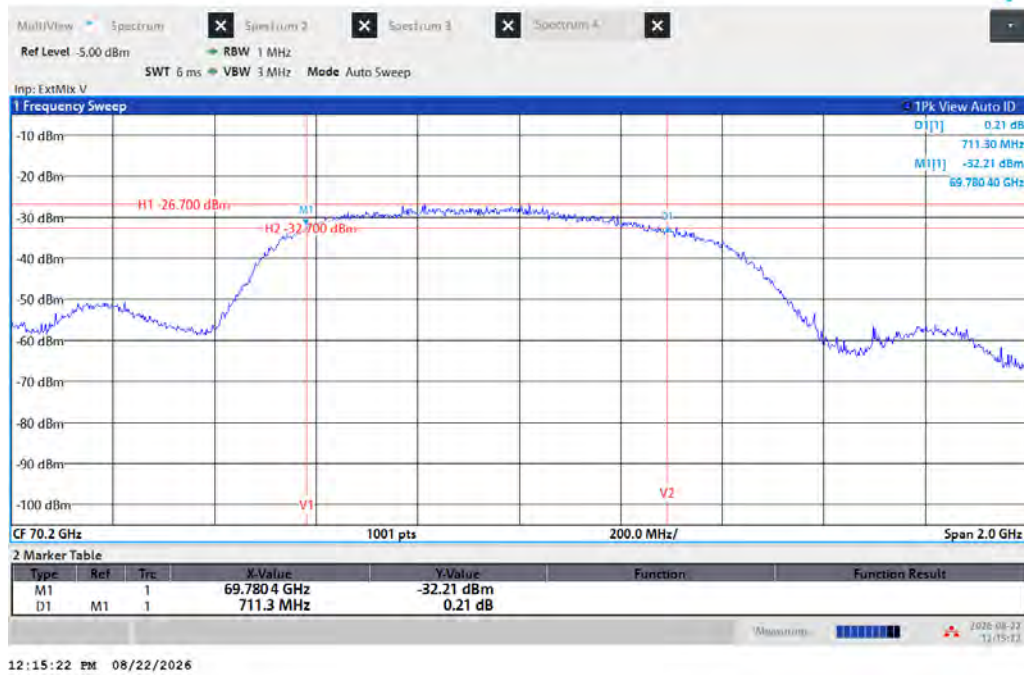
Occupied Bandwidth



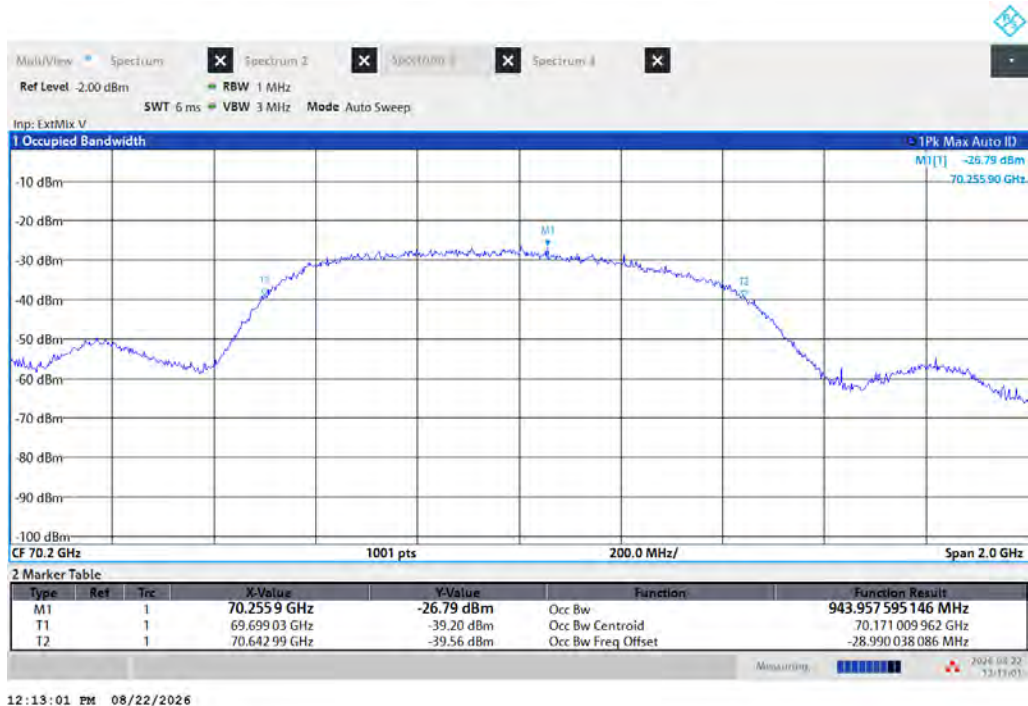


Test Frequency: 70.20 GHz

6 dBc Bandwidth



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)

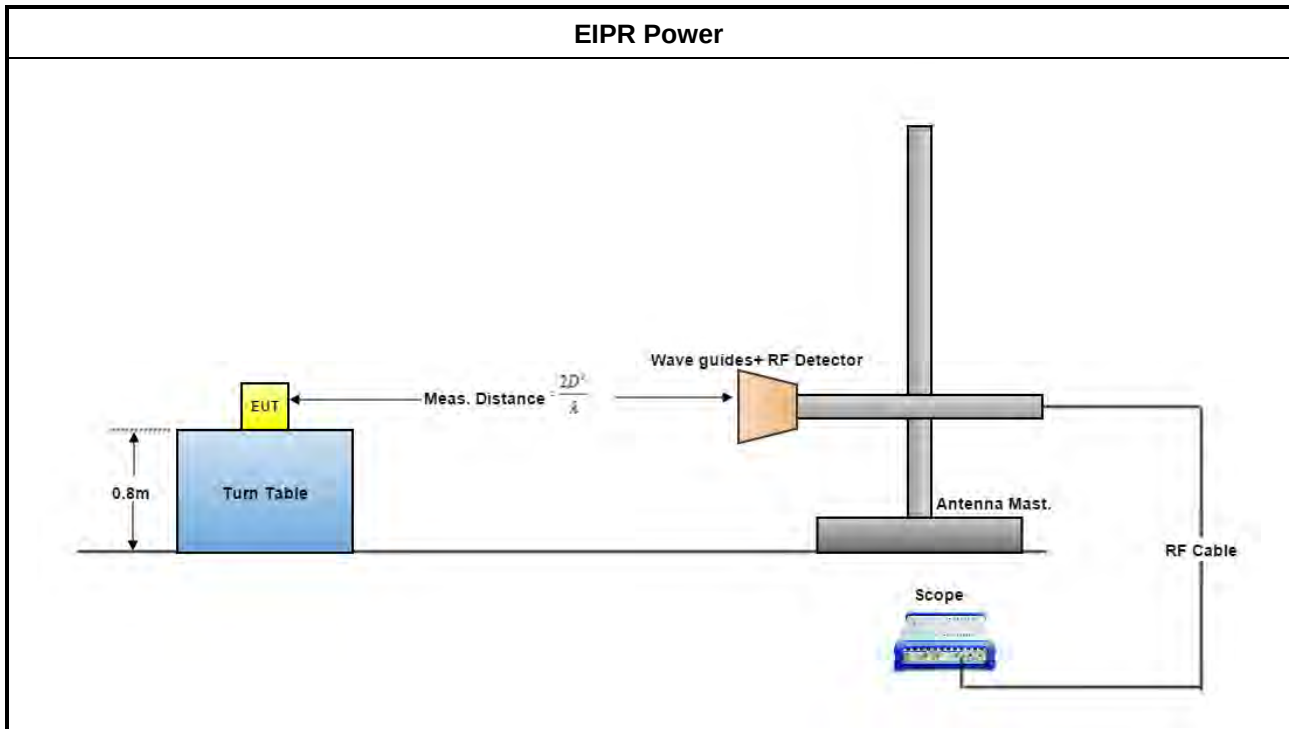
3.3.2 Measuring Instruments

Refer a measuring instruments list in this test report.

3.3.3 Test Procedures

Method of measurement: Refer as ANSI C63.10-2020 clause 9.3 & 9.5.

3.3.4 Test Setup



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.

**3.3.5.1 Test Result of EIRP Power****For Bandwidth: 2.16 GHz Channels**

Test Distance				0.5 m								
Test Results												
Test Freq. (GHz)	Rx Gain (dBi)	DSO (mV)		Power Measured (dBm)		E _{Meas} (dBuV/m)		Reflector Gain (dBi)	EIRP (dBm)		EIRP Limit (dBm) (note 1)	
		Peak	AV	Peak	AV	Peak	AV		Peak	AV	Peak	AV
58.32	23.6	286.08	122.32	2.14	-5.24	151.11	143.73	27.61	67.90	60.52	70.62	67.62
64.80	23.6	318.04	130.91	3.06	-4.65	152.95	145.24	29.94	72.07	64.36	75.30	72.30
69.12	23.6	310.09	130.16	2.84	-4.70	153.29	145.75	29.95	72.42	64.88	75.28	72.28

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

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

$$E = 126.8 - 20\log(\lambda) + P - G$$

where:

E : is the field strength of the emission at the measurement distance, in dBuV/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.

$$\text{EIRP} = E\text{-meas} + 20\log(d\text{-meas}) - 104.7$$

where:

EIRP : is the equivalent isotopically radiated power, in dBm

E-meas. : is the field strength of the emission at the measurement distance, in dBuV/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)".

NOTE 3: Due to the large dimensions of the reflector, the far field measurement distance is in excess of 80 m. For in-band tests, the reflector was removed, allowing measurements to be made in the far field at 0.5 m. The reflector gain was added to the measured results.

**For Bandwidth: 1.08 GHz Channels**

Test Distance	0.5 m
----------------------	-------

Test Results												
Test Freq. (GHz)	Rx Gain (dBi)	DSO (mV)		Power Measured (dBm)		E_{Meas} (dBuV/m)		Reflector Gain (dBi)	EIRP (dBm)		EIRP Limit (dBm) (note 1)	
		Peak	AV	Peak	AV	Peak	AV		Peak	AV	Peak	AV
58.32	23.6	270.08	119.53	1.64	-5.44	150.61	143.53	27.61	67.40	60.32	70.62	67.62
64.80	23.6	310.45	154.88	2.85	-3.19	152.74	146.70	29.94	71.86	65.82	75.30	72.30
70.20	23.6	218.77	106.78	-0.19	-6.42	150.39	144.16	29.95	69.52	63.29	75.28	72.28

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

For radiated emissions, calculate the field strength (E) in dB μ V/meter.

$$E = 126.8 - 20\log(\lambda) + P - G$$

where:

E : is the field strength of the emission at the measurement distance, in dB μ V/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.

$$\text{EIRP} = E\text{-meas} + 20\log(d\text{-meas}) - 104.7$$

where:

EIRP : is the equivalent isotopically radiated power, in dBm

E-meas. : is the field strength of the emission at the measurement distance, in dB μ V/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)".

NOTE 3: Due to the large dimensions of the reflector, the far field measurement distance is in excess of 80 m. For in-band tests, the reflector was removed, allowing measurements to be made in the far field at 0.5 m. The reflector gain was added to the measured results.

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 C63.10-2020, 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.	

**3.4.4.1 Peak Conducted Power****For Bandwidth: 2.16 GHz Channels**

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)
58.32	67.90	43.81	24.09	256.645	1088.90	500.00
64.80	72.07	46.15	25.92	390.704	1553.40	500.00
69.12	72.42	46.14	26.28	424.527	1523.50	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) $P(\text{cond}) = \text{EIRP} - G(\text{dBi})$ where: G(dBi) is gain of EUT antenna.						

For Bandwidth: 1.08 GHz Channels

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)
58.32	67.40	43.81	23.59	228.735	729.30	500.00
64.80	71.86	46.15	25.71	372.261	705.30	500.00
70.20	69.52	46.14	23.38	217.957	711.30	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) $P(\text{cond}) = \text{EIRP} - G(\text{dBi})$ where: G(dBi) is gain of EUT antenna.						



3.5 Transmitter Spurious Emissions

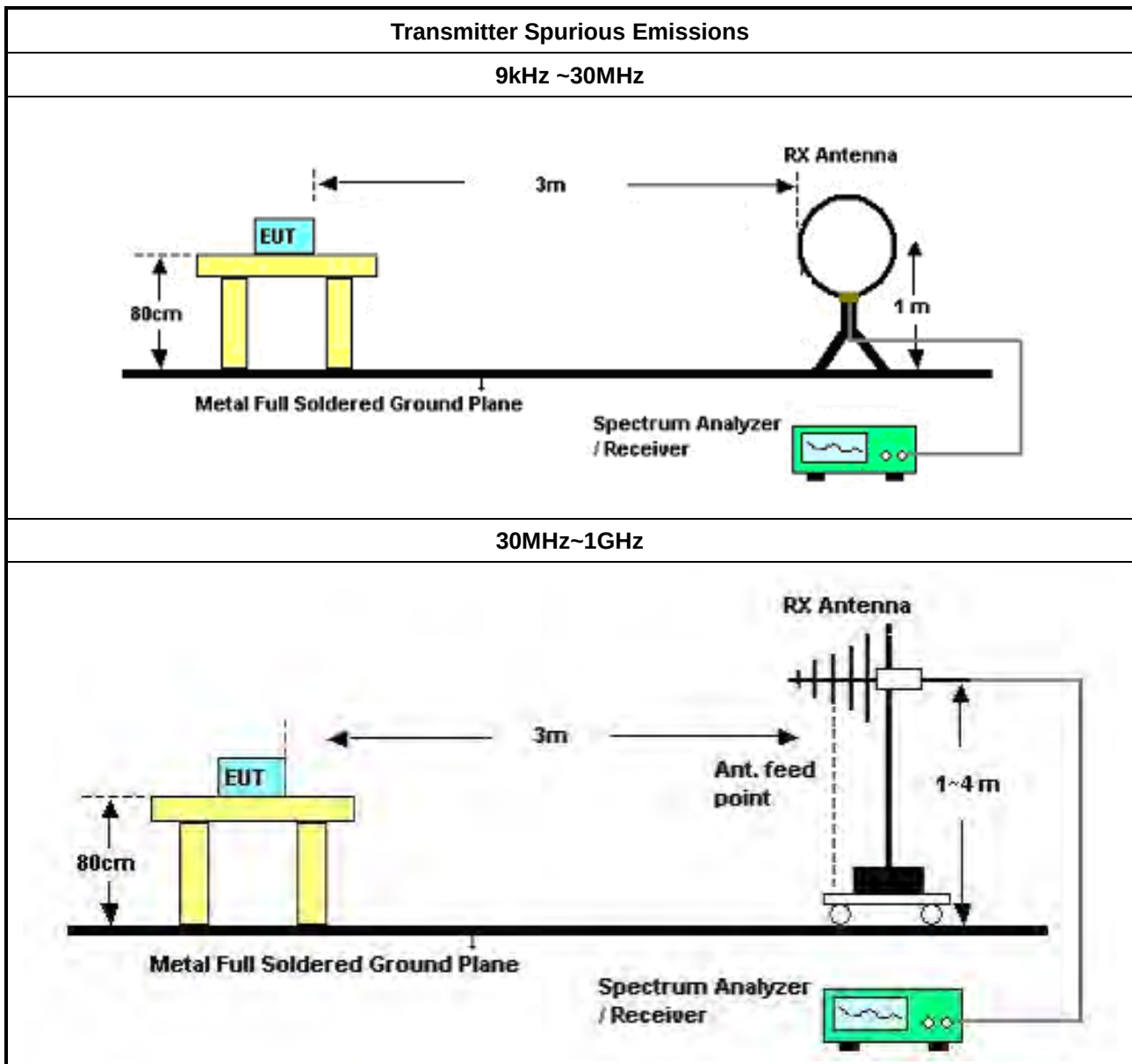
3.5.1 Limit of Transmitter Spurious Emissions

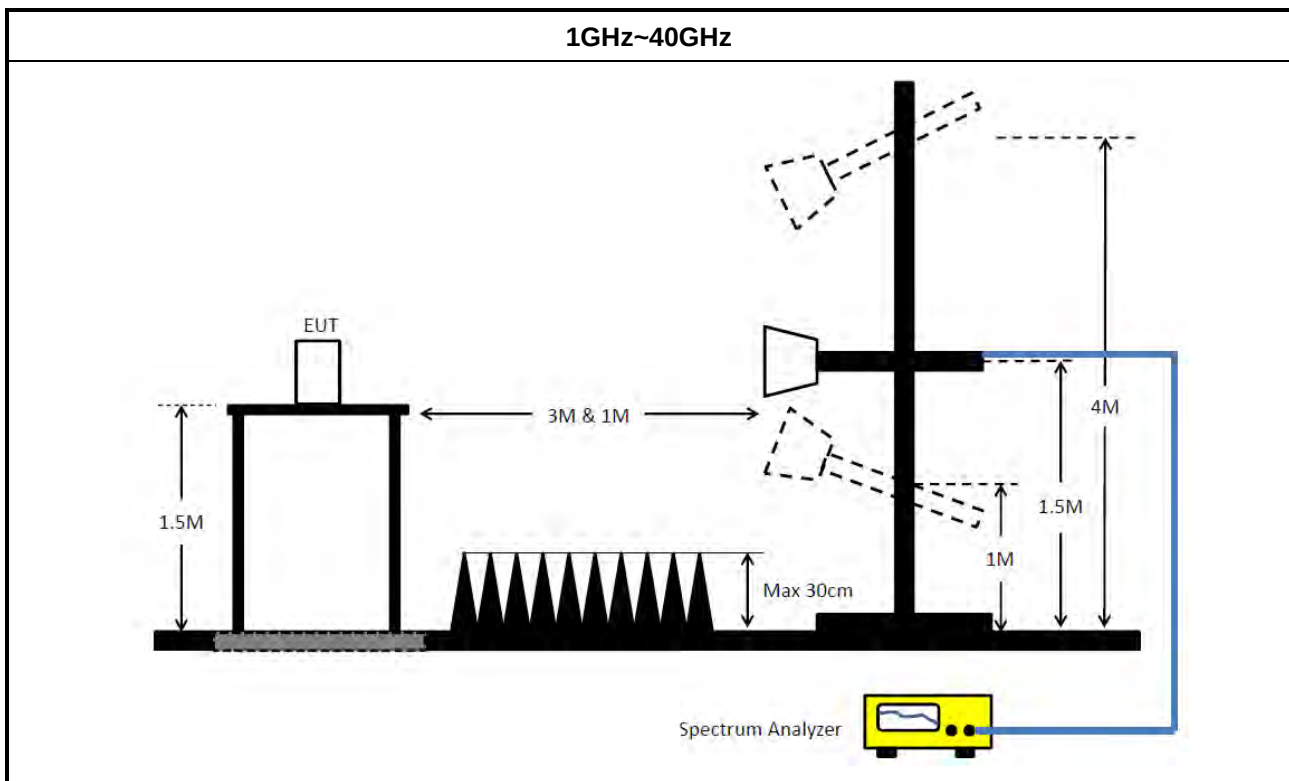
Frequency Range	Limit
Radiated emissions below 40 GHz	Reference to section 15.209
Radiated emissions above 40 GHz – 200GHz	90 pW/cm ² @ 3 m (Equivalent EIRP 102 µW, -9.91dBm)
NOTE 1: For the applicable limit, see 15.255(d)	
NOTE 2: Spurious emissions shall not exceed the level of the fundamental emission.	

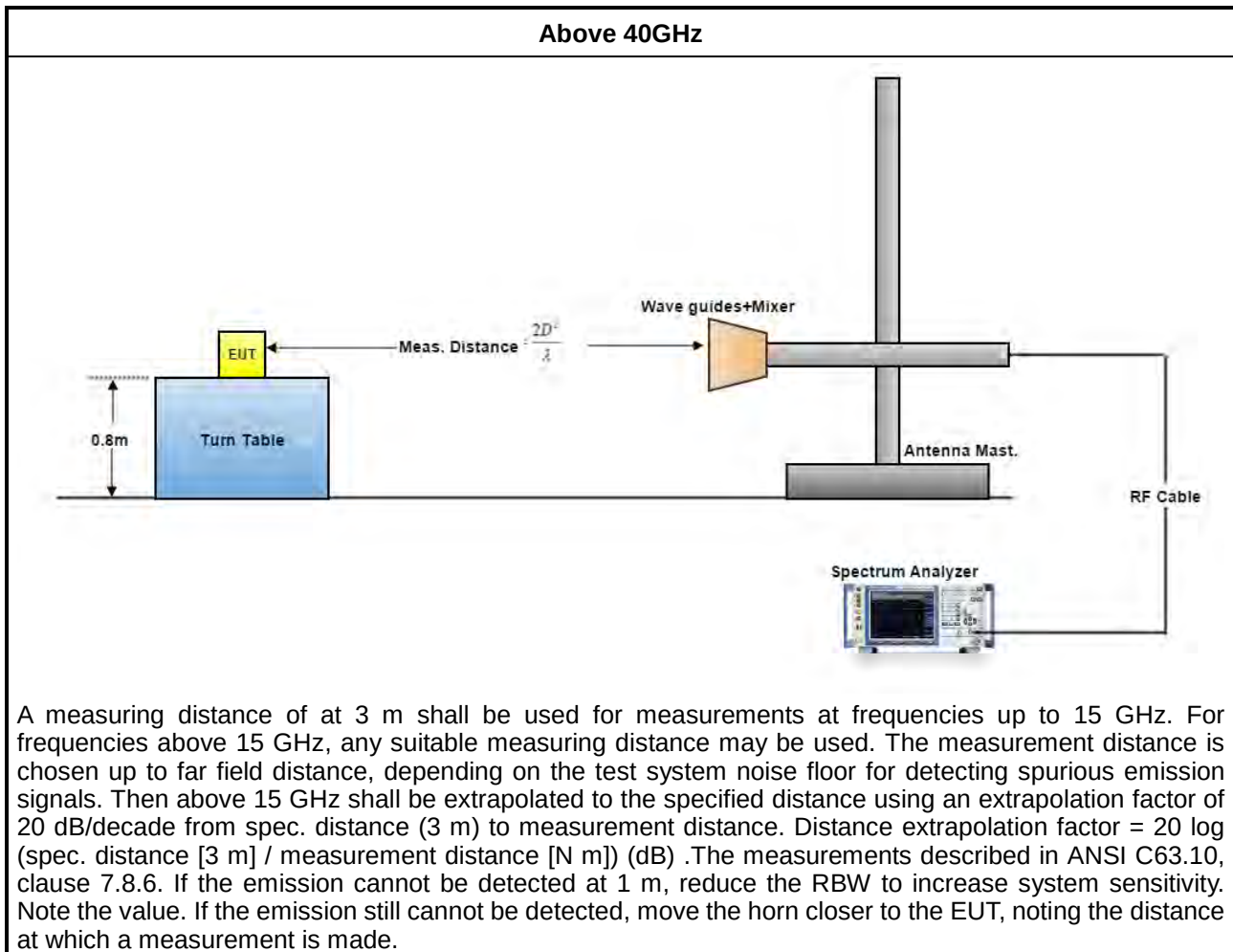
3.5.2 Test Procedures

Method of measurement: Refer as ANSI C63.10-2020, clause 9.12

3.5.3 Test Setup







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

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



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.	

3.5.5.1 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.

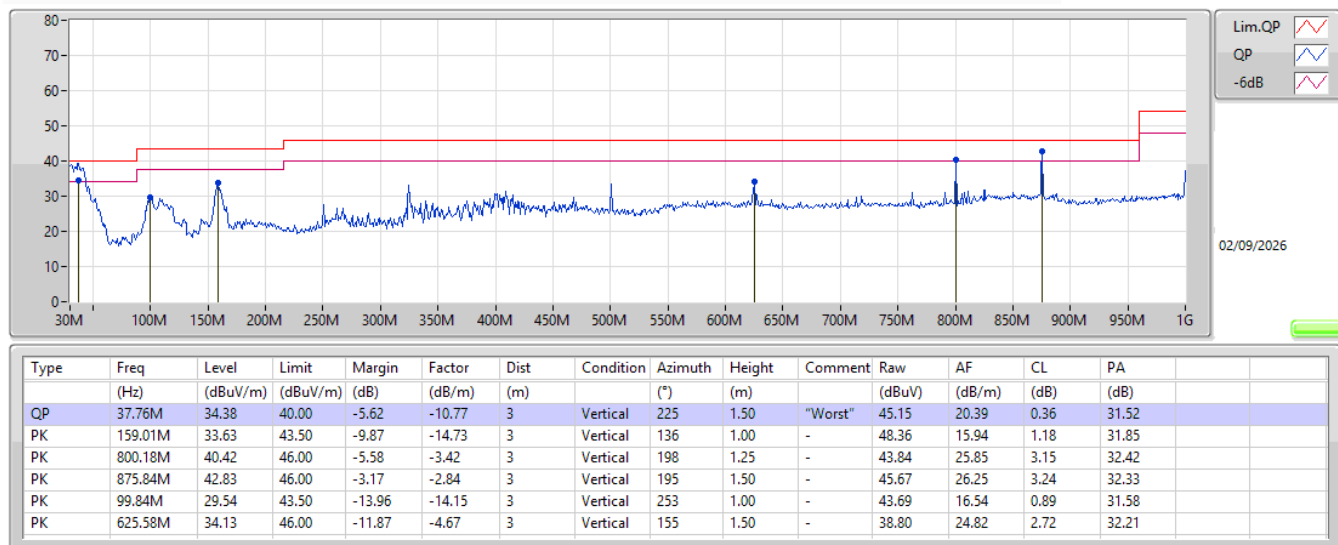
All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

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.

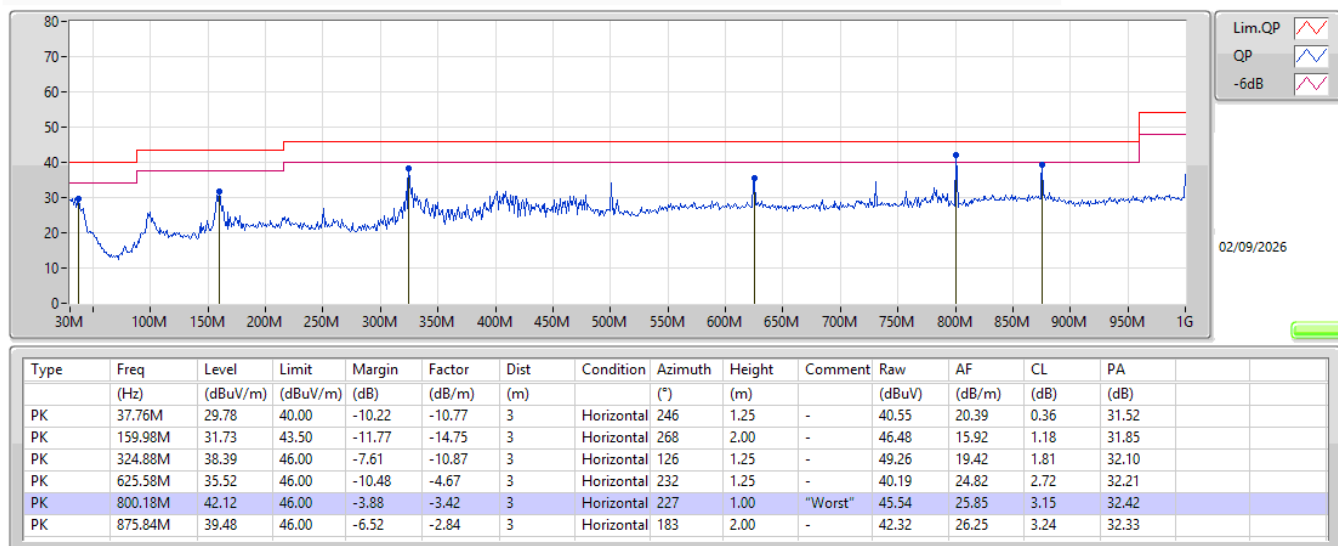
**3.5.5.2 Test Result of Transmitter Spurious Emissions**

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

Vertical

Mode 1

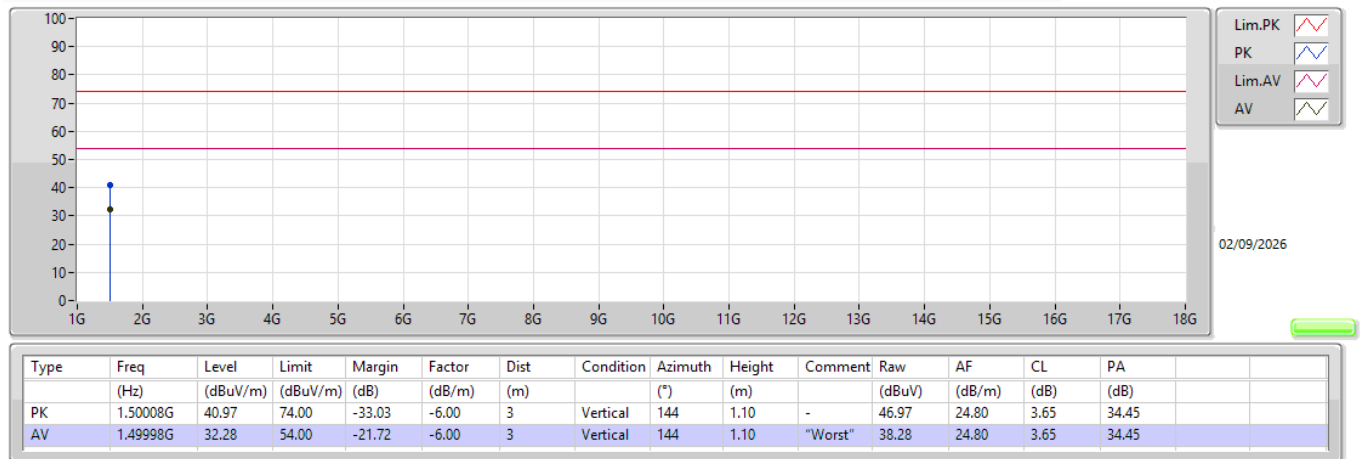
Horizontal

Mode 1

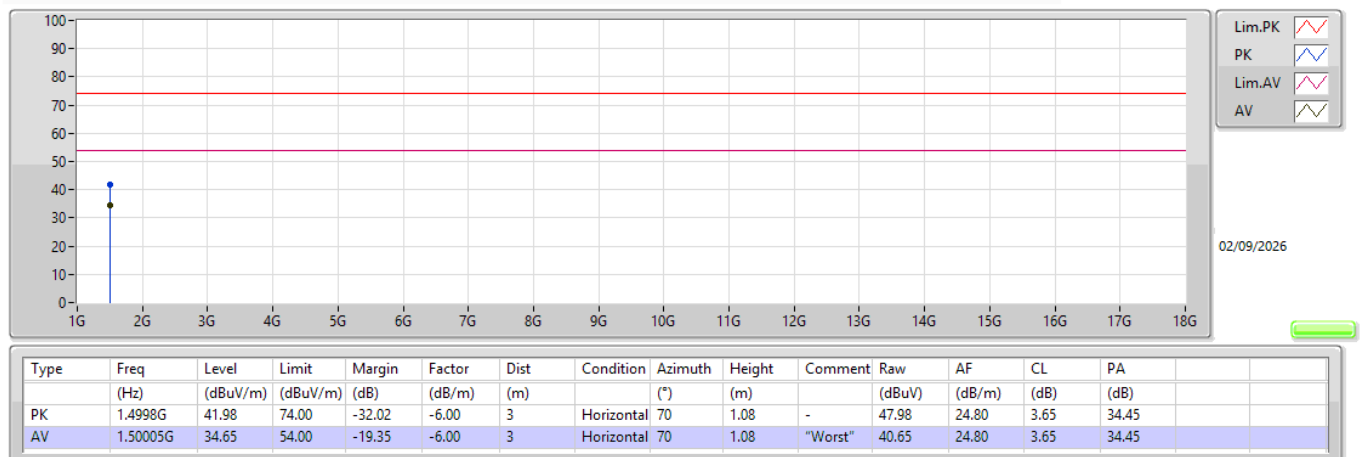
**For Test Mode: Mode 1**

Test Range	1 GHz – 18 GHz	Test Distance	3 m
Test Freq. (GHz)	58.32		

Vertical

Mode 1

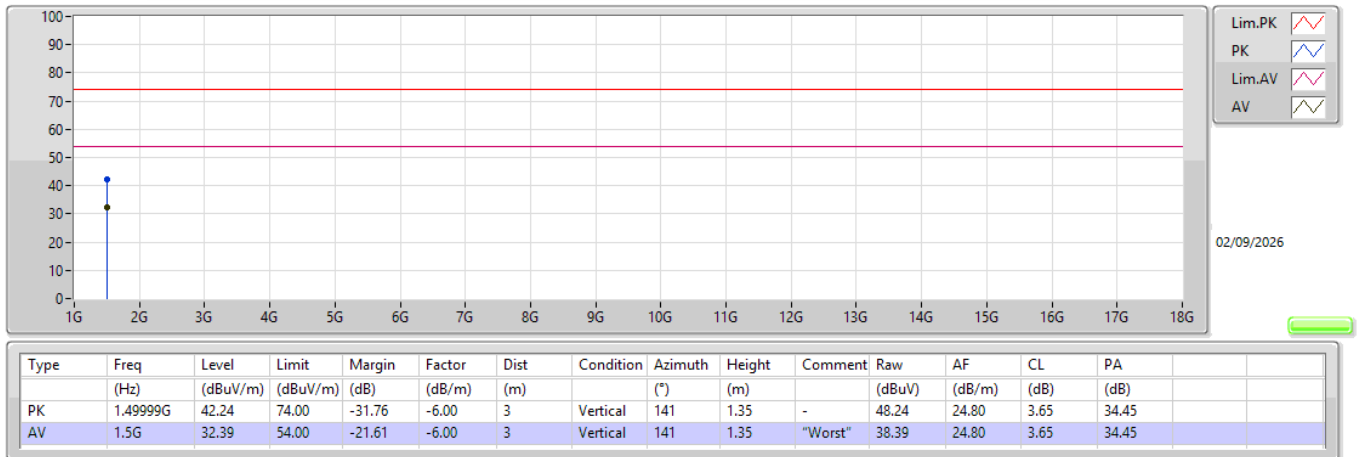
Horizontal

Mode 1

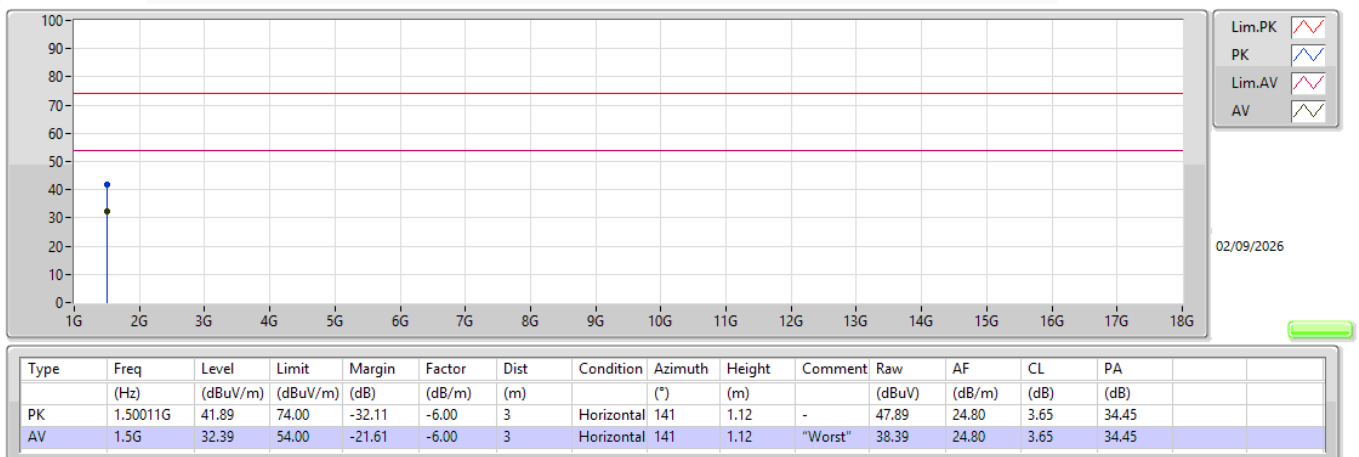


Test Range	1 GHz – 18 GHz	Test Distance	3 m
Test Freq. (GHz)	64.80		

Vertical

Mode 1

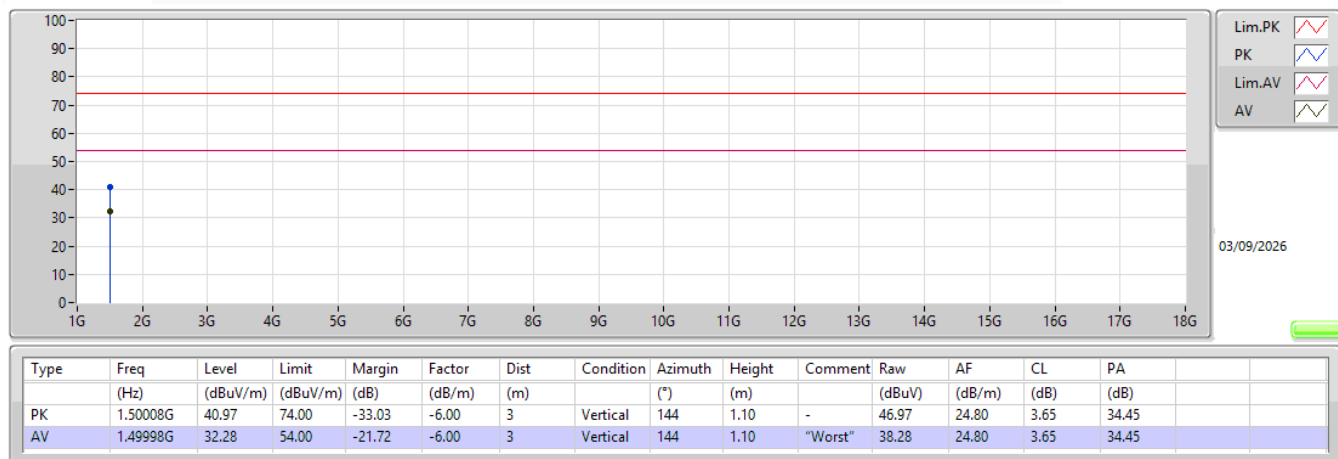
Horizontal

Mode 1

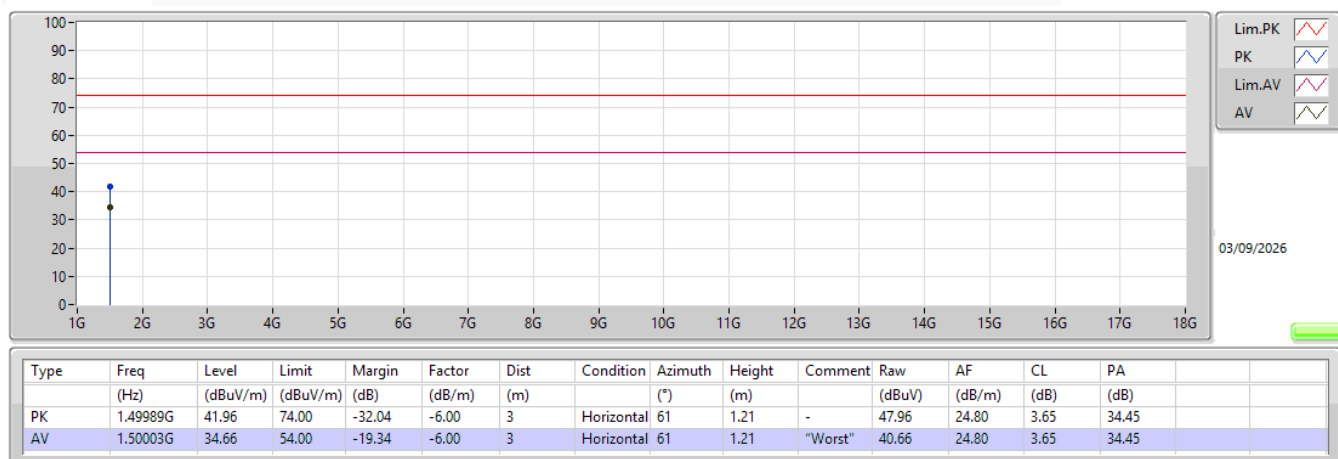


Test Range	1 GHz – 18 GHz	Test Distance	3 m
Test Freq. (GHz)	69.12		

Vertical

Mode 1

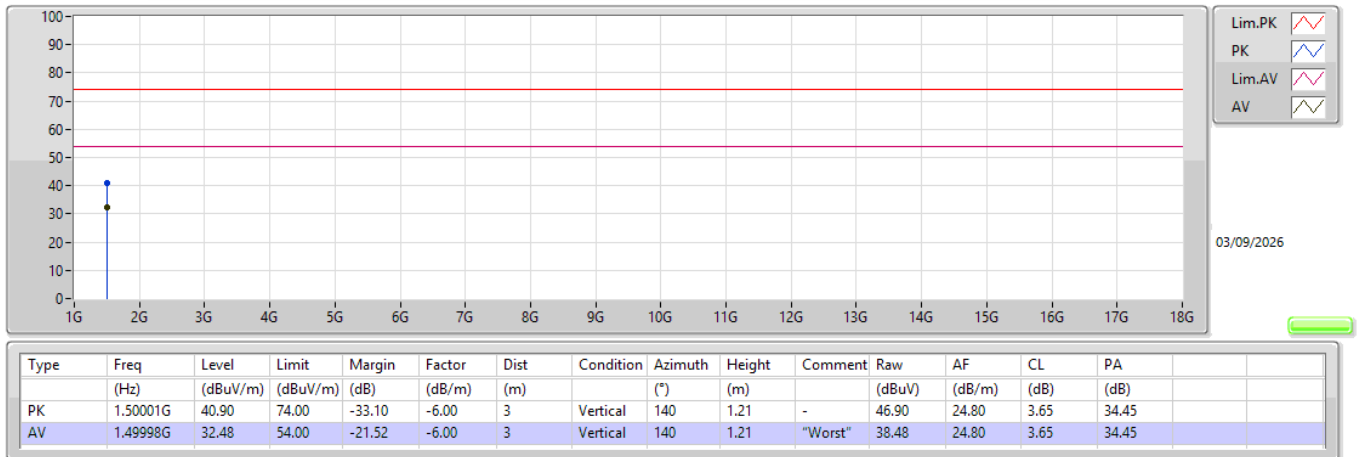
Horizontal

Mode 1

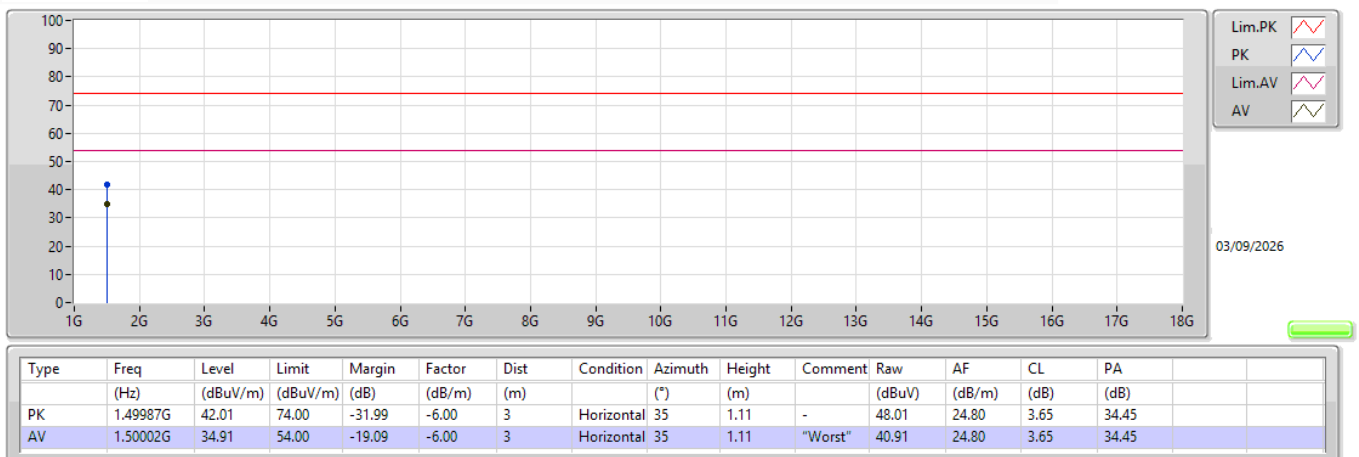
**For Test Mode: Mode 2**

Test Range	1 GHz – 18 GHz	Test Distance	3 m
Test Freq. (GHz)	58.32		

Vertical

Mode 2

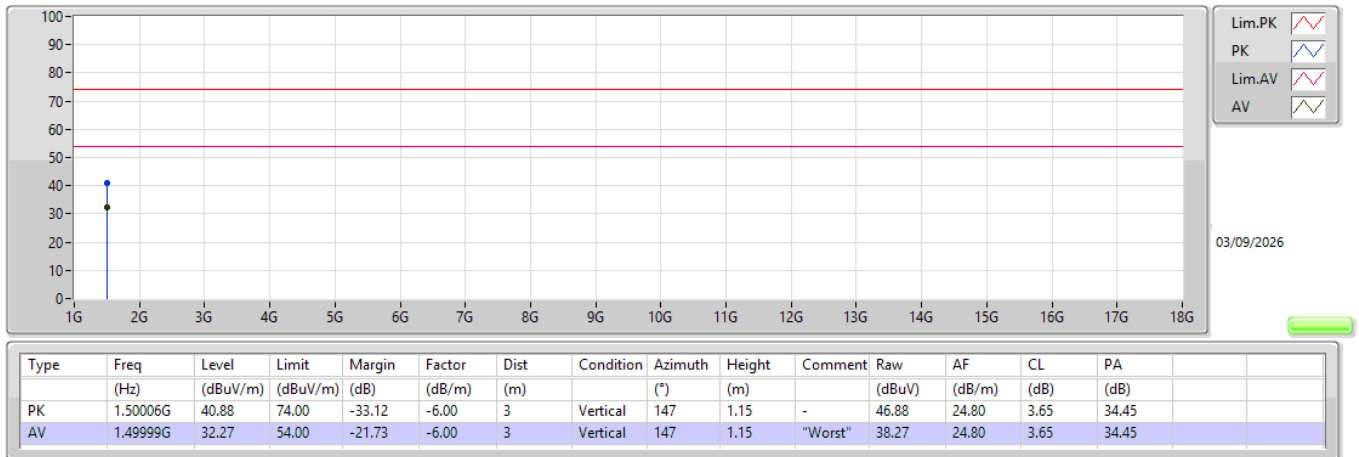
Horizontal

Mode 2

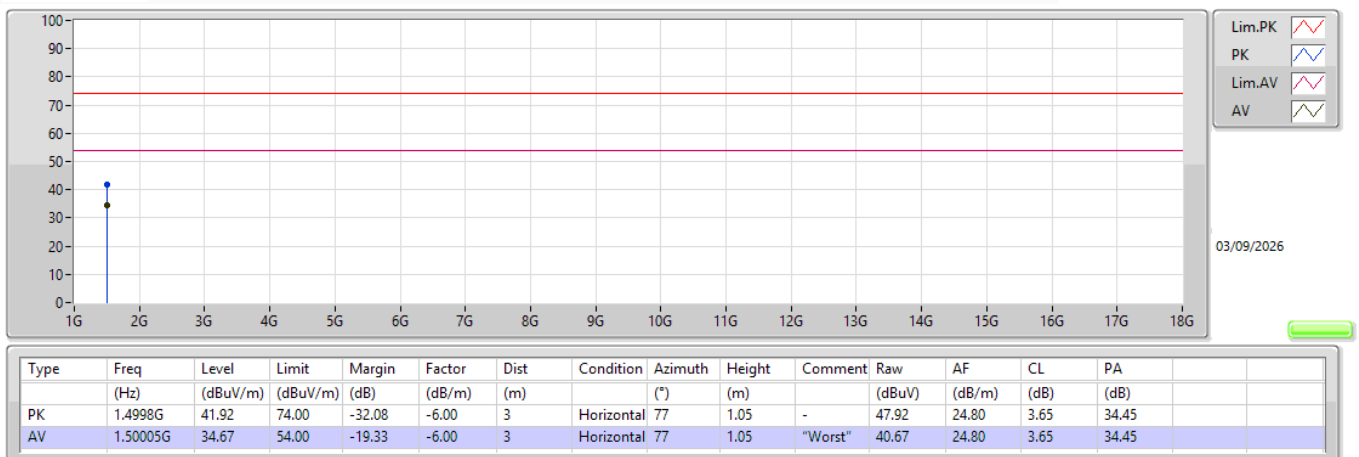


Test Range	1 GHz – 18 GHz	Test Distance	3 m
Test Freq. (GHz)	64.80		

Vertical

Mode 2

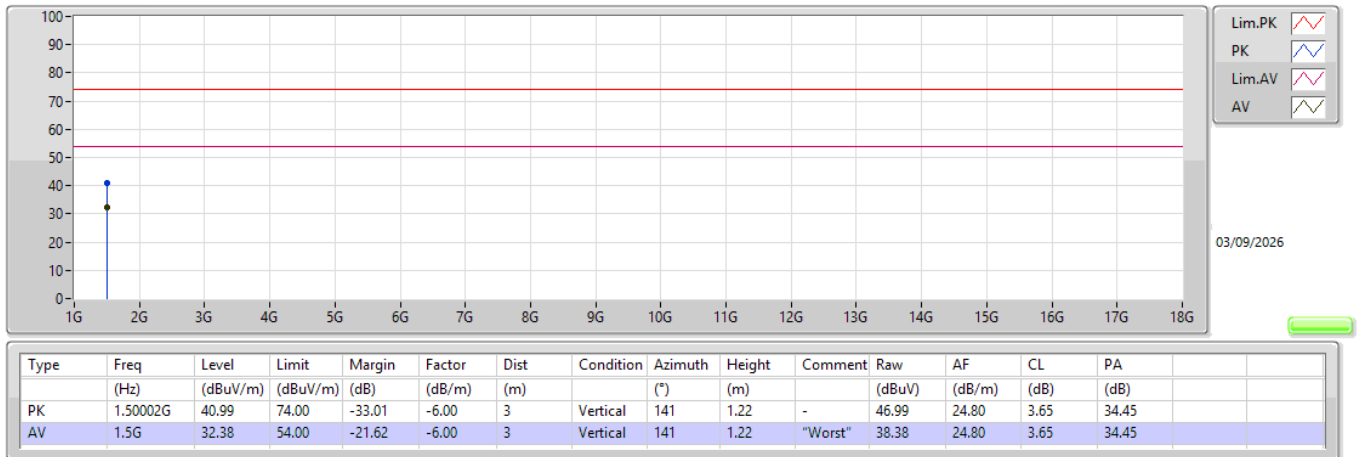
Horizontal

Mode 2

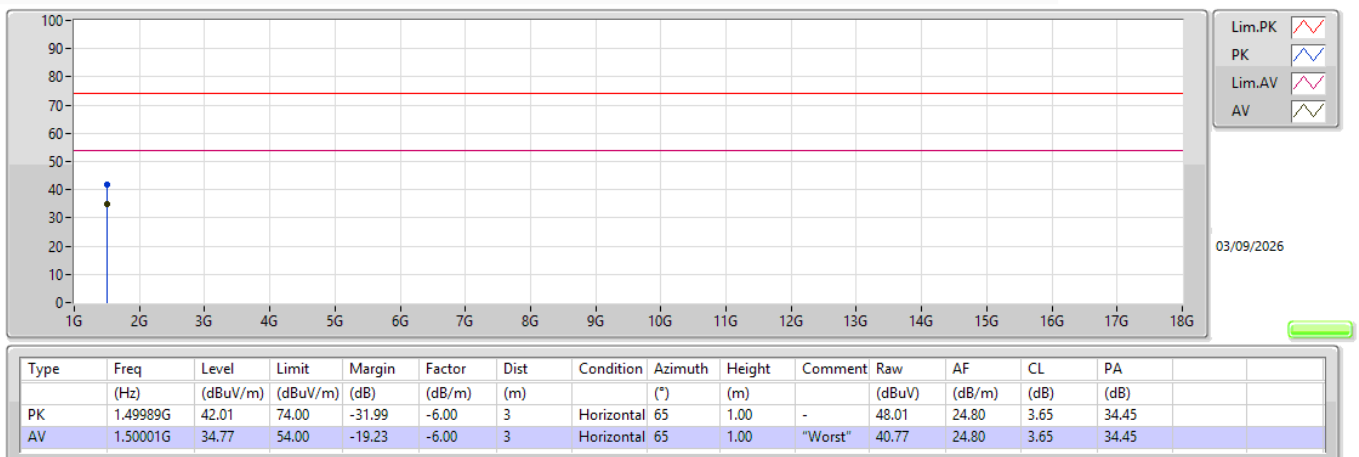


Test Range	1 GHz – 18 GHz	Test Distance	3 m
Test Freq. (GHz)	70.20		

Vertical

Mode 2

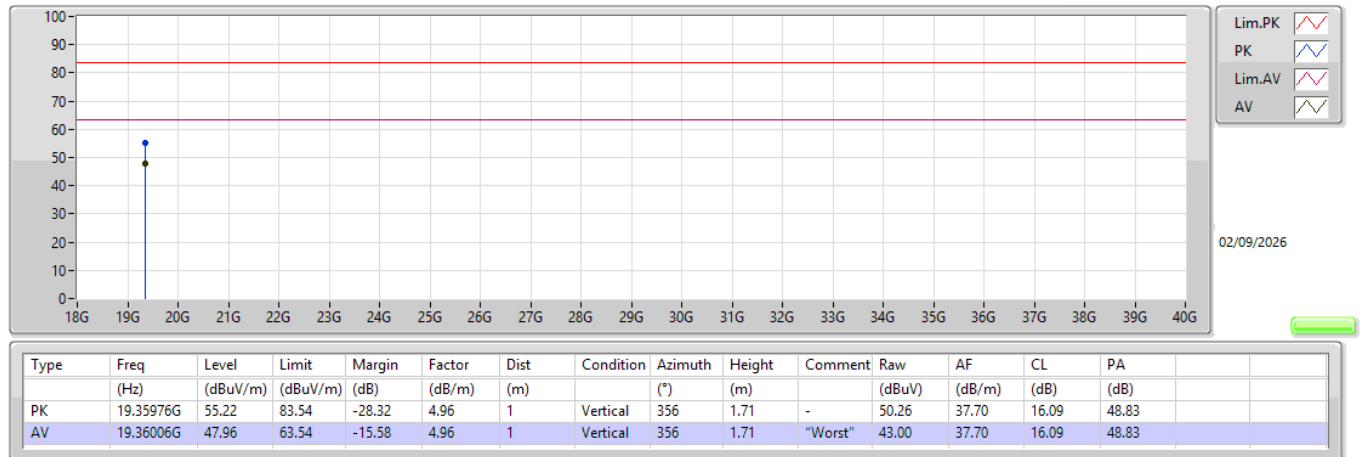
Horizontal

Mode 2

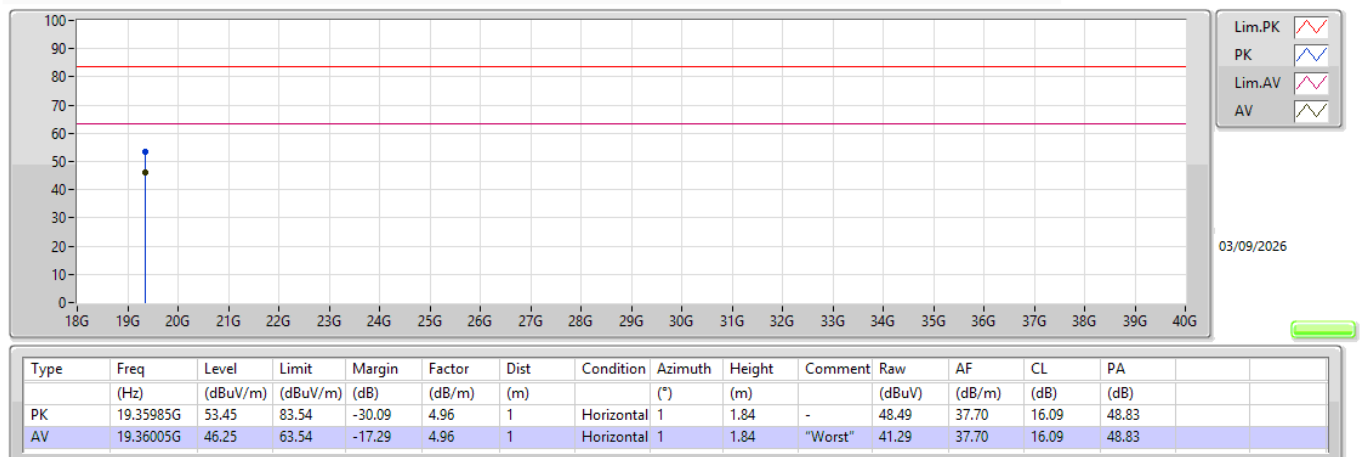


Test Range	18 GHz – 40 GHz	Test Distance	1 m
Test Freq. (GHz)	58.32		

Vertical

Mode 1

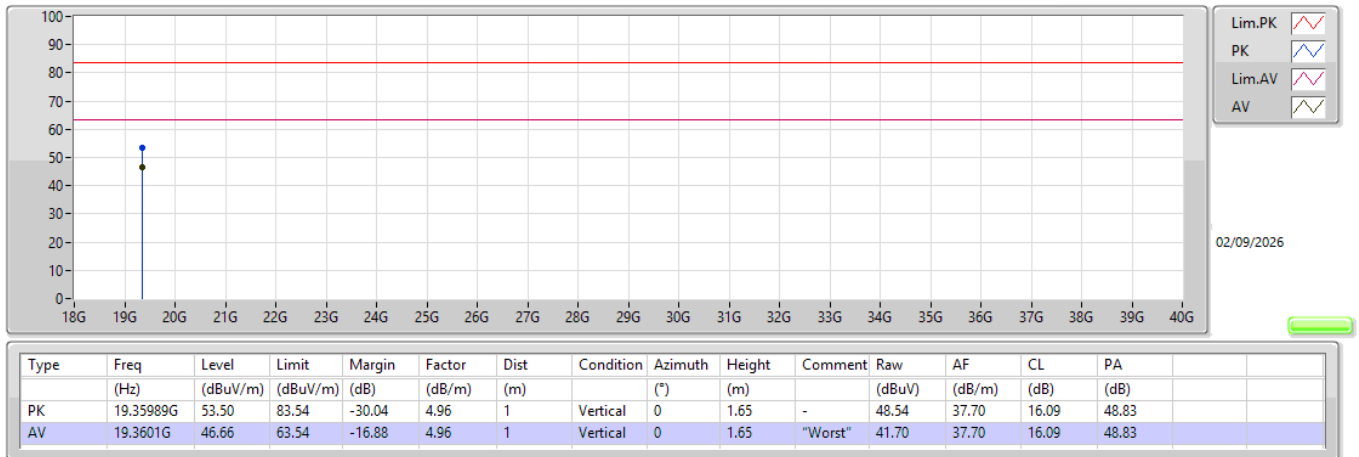
Horizontal

Mode 1

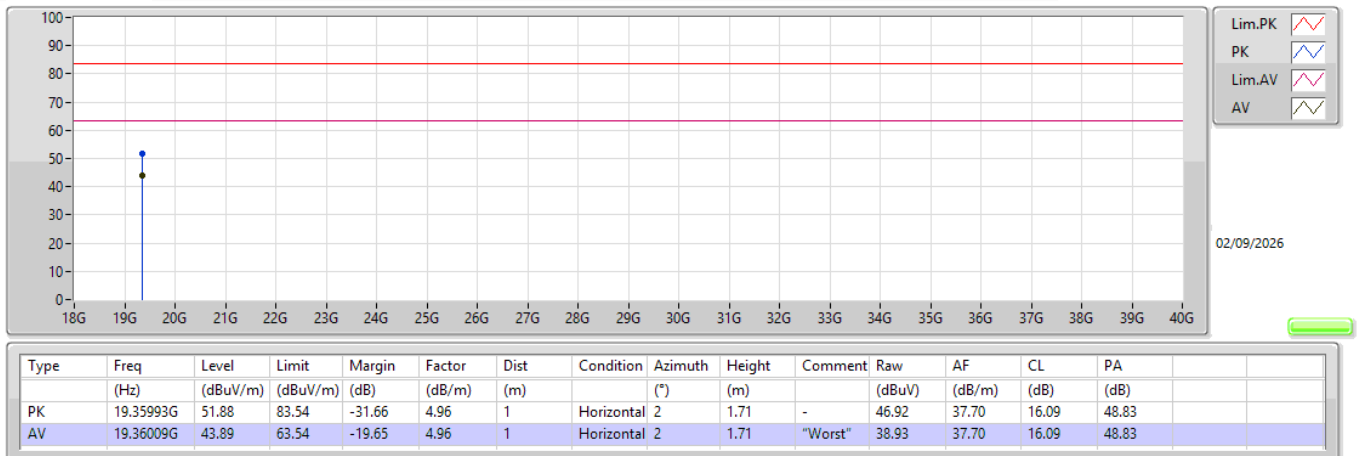


Test Range	18 GHz – 40 GHz	Test Distance	1 m
Test Freq. (GHz)	64.80		

Vertical

Mode 1

Horizontal

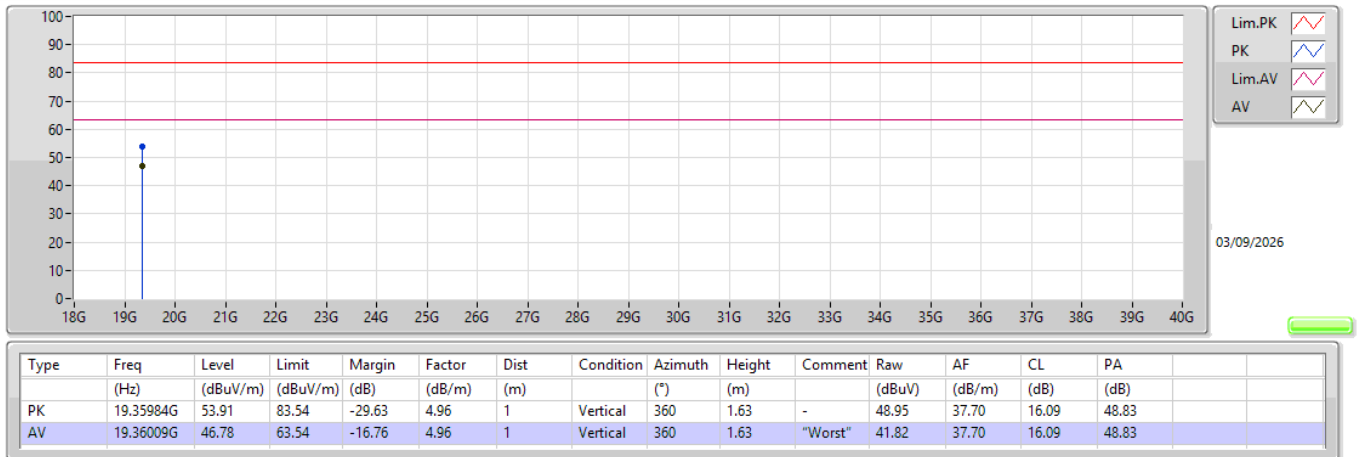
Mode 1



Test Range	18 GHz – 40 GHz	Test Distance	1 m
Test Freq. (GHz)	69.12		

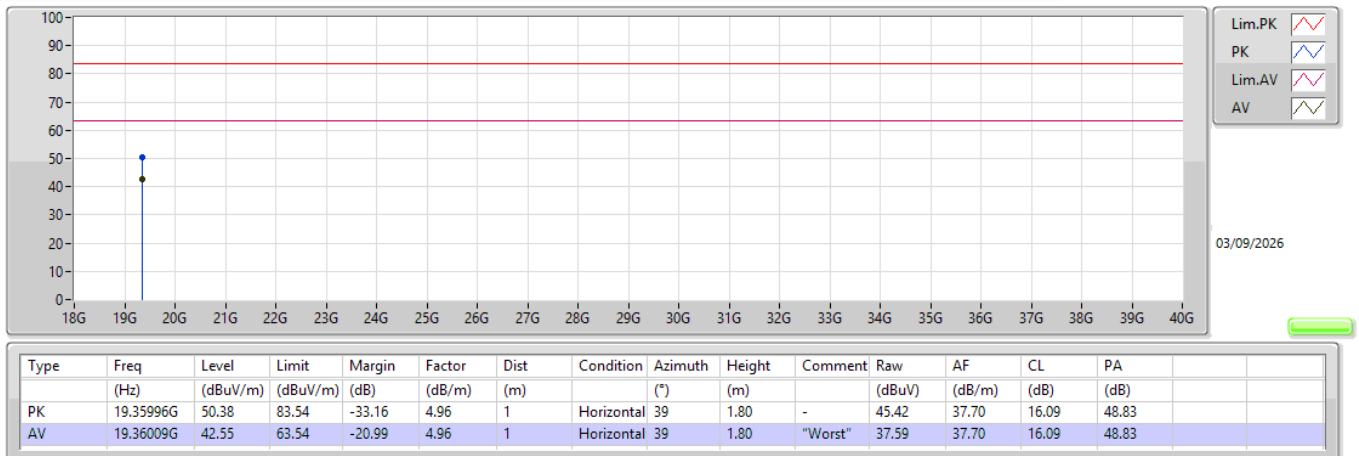
Vertical

Mode 1



Horizontal

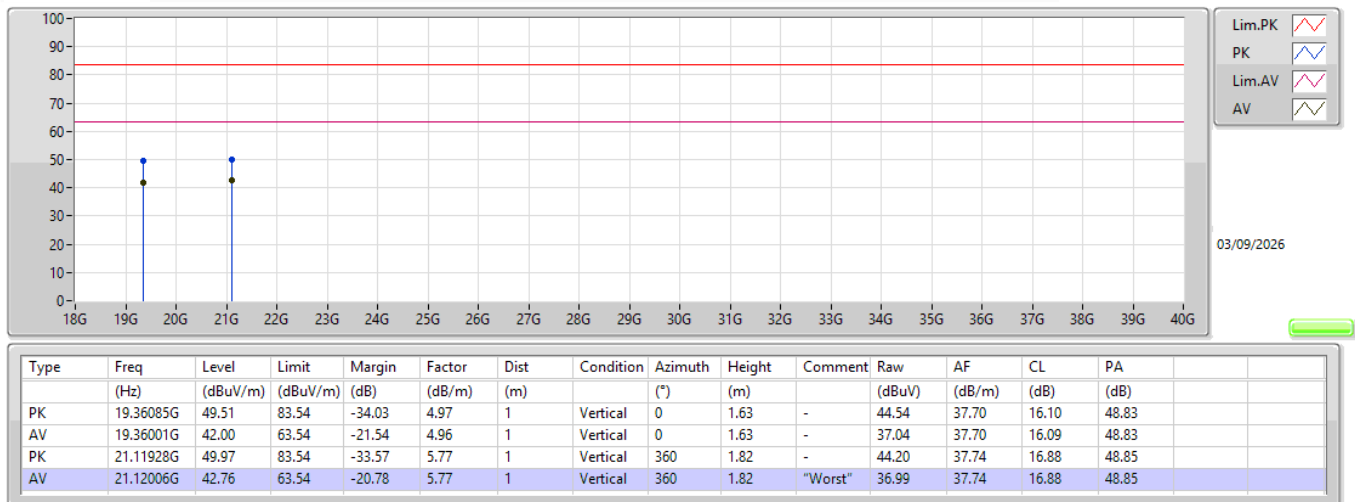
Mode 1



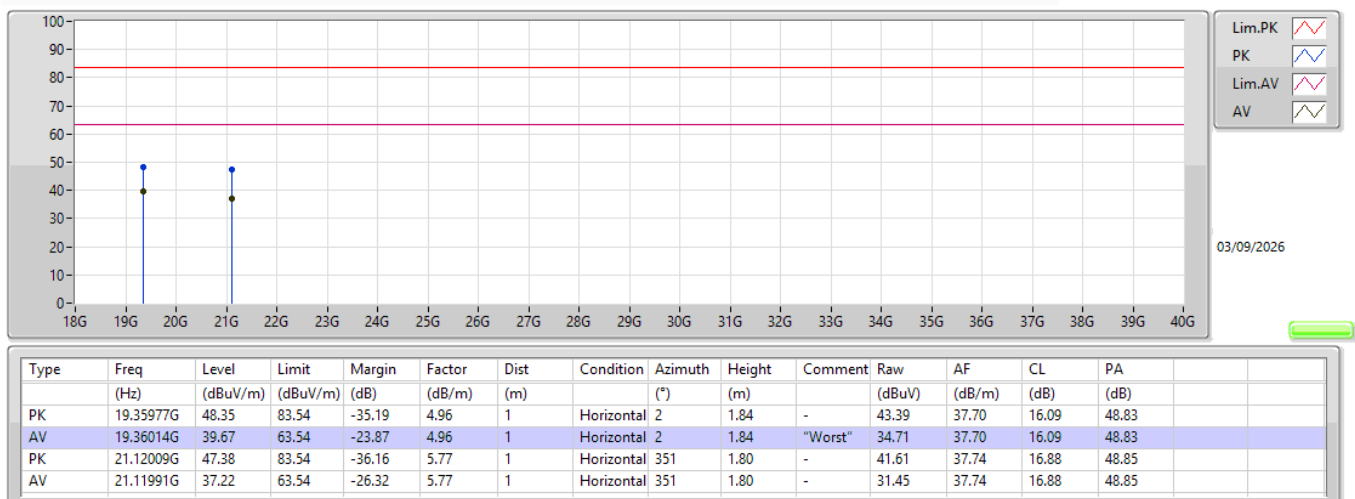


Test Range	18 GHz – 40 GHz	Test Distance	1 m
Test Freq. (GHz)	58.32		

Vertical

Mode 2

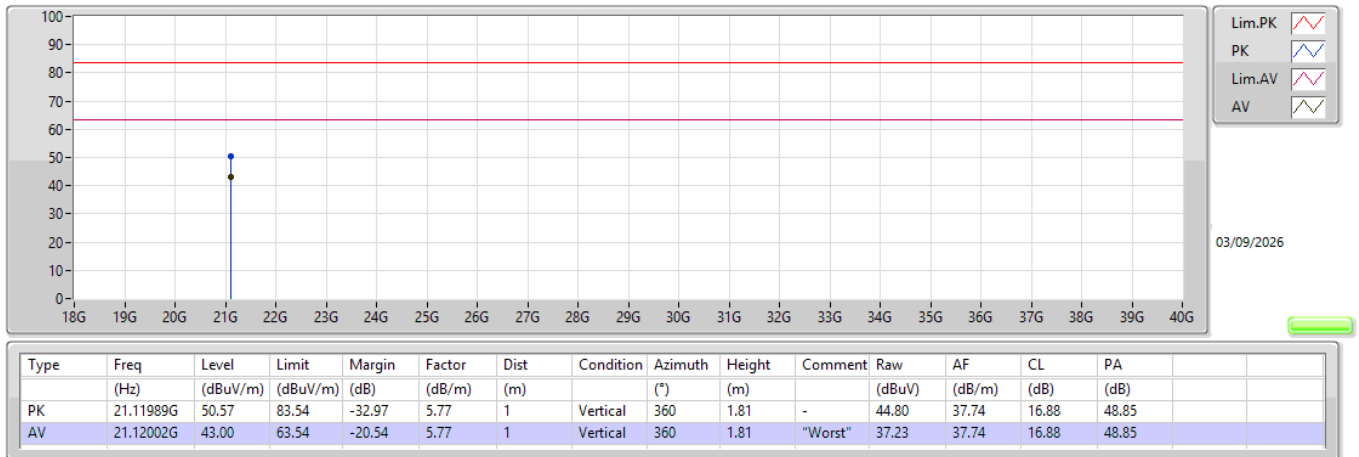
Horizontal

Mode 2

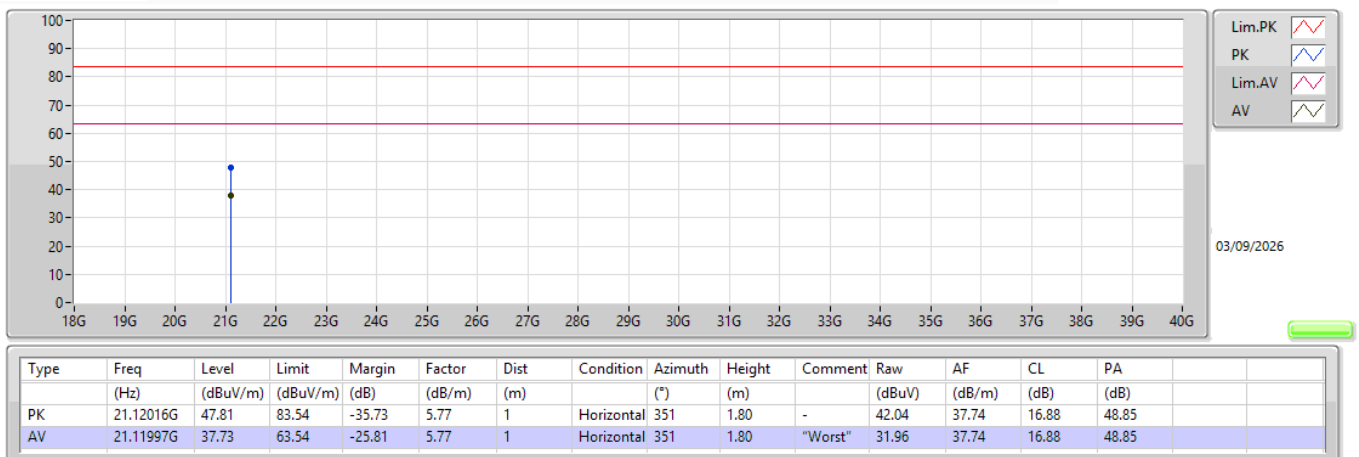


Test Range	18 GHz – 40 GHz	Test Distance	1 m
Test Freq. (GHz)	64.80		

Vertical

Mode 2

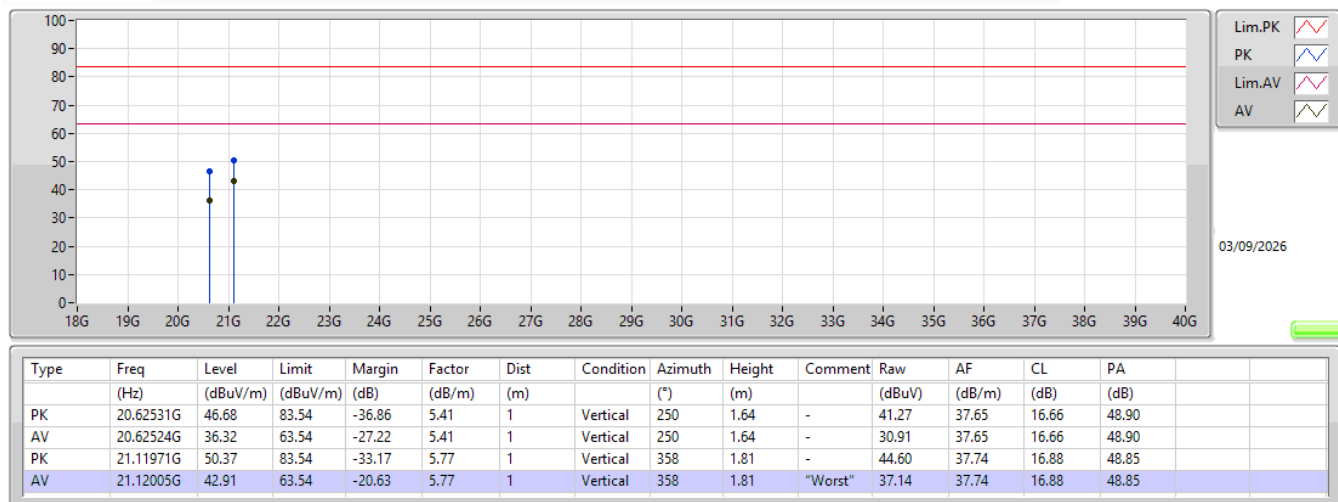
Horizontal

Mode 2

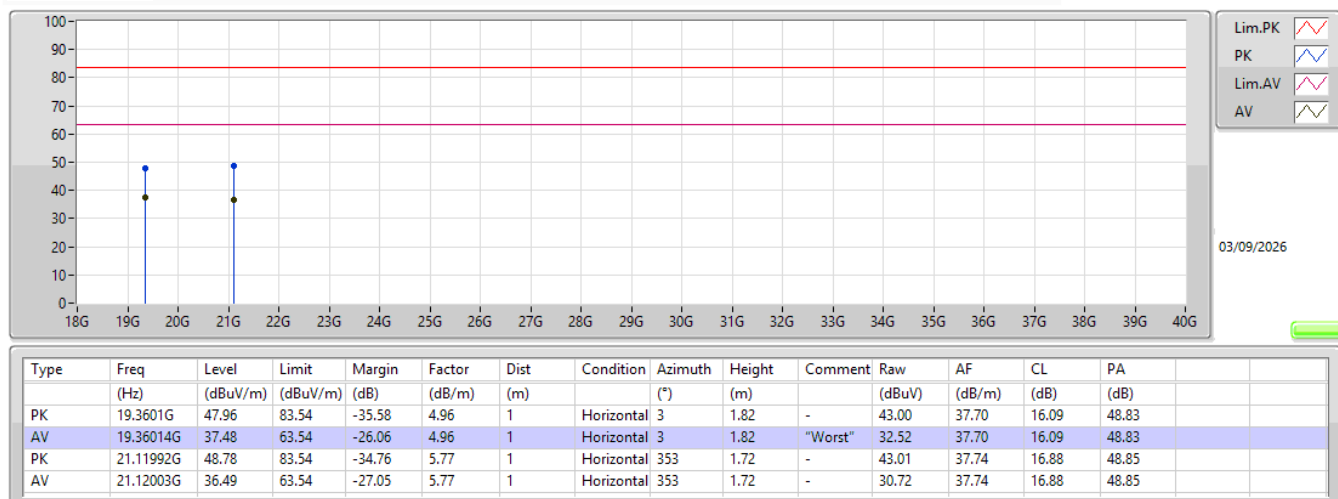


Test Range	18 GHz – 40 GHz	Test Distance	1 m
Test Freq. (GHz)	70.20		

Vertical

Mode 2

Horizontal

Mode 2

**For Bandwidth: 2.16 GHz Channels**

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

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
58.32	23.6	1.00	80.55	-82.10
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm²)	Limit (pW/cm²)	Test Result
-35.14	3	0.2707	90.00	PASS

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
64.80	23.6	1.00	80.38	-86.36
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm²)	Limit (pW/cm²)	Test Result
-39.42	3	0.1011	90.00	PASS

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
69.12	23.6	1.00	82.73	-84.67
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm²)	Limit (pW/cm²)	Test Result
-37.48	3	0.1580	90.00	PASS

Note:

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

where

EIRP is the equivalent isotropic radiated power, in dBm

 λ is the wavelength of the emission under investigation $[300/f(\text{MHz})]$, in m

d Meas is the measurement distance, in m

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

G is the gain of the measurement antenna, in dBi

**For Bandwidth: 1.08 GHz Channels**

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

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
58.32	23.6	1.00	80.38	-84.87
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm²)	Limit (pW/cm²)	Test Result
-37.93	3	0.1424	90.00	PASS

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
64.80	23.6	1.00	80.21	-85.51
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm²)	Limit (pW/cm²)	Test Result
-38.59	3	0.1224	90.00	PASS

Test Frequency (GHz)	Rx Antenna Gain (dBi)	Measurement Distance (m)	Read Worse Frequency (GHz)	Read Level (dBm)
70.20	23.6	1.00	80.36	-86.47
EIRP (dBm)	Specification Distance (m)	Power Density (pW/cm²)	Limit (pW/cm²)	Test Result
-39.53	3	0.0985	90.00	PASS

Note:

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

where

EIRP is the equivalent isotropic radiated power, in dBm

 λ is the wavelength of the emission under investigation $[300/f(\text{MHz})]$, in m

d Meas is the measurement distance, in m

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

G is the gain of the measurement antenna, in dBi

3.6 Frequency Stability

3.6.1 Limit of Frequency Stability

Frequency Stability	Limit
Refer as 15.255(f) and ANSI C63.10-2020, clause 9.14	within the frequency bands
Note: These measurements shall also be performed at normal and extreme test conditions.	

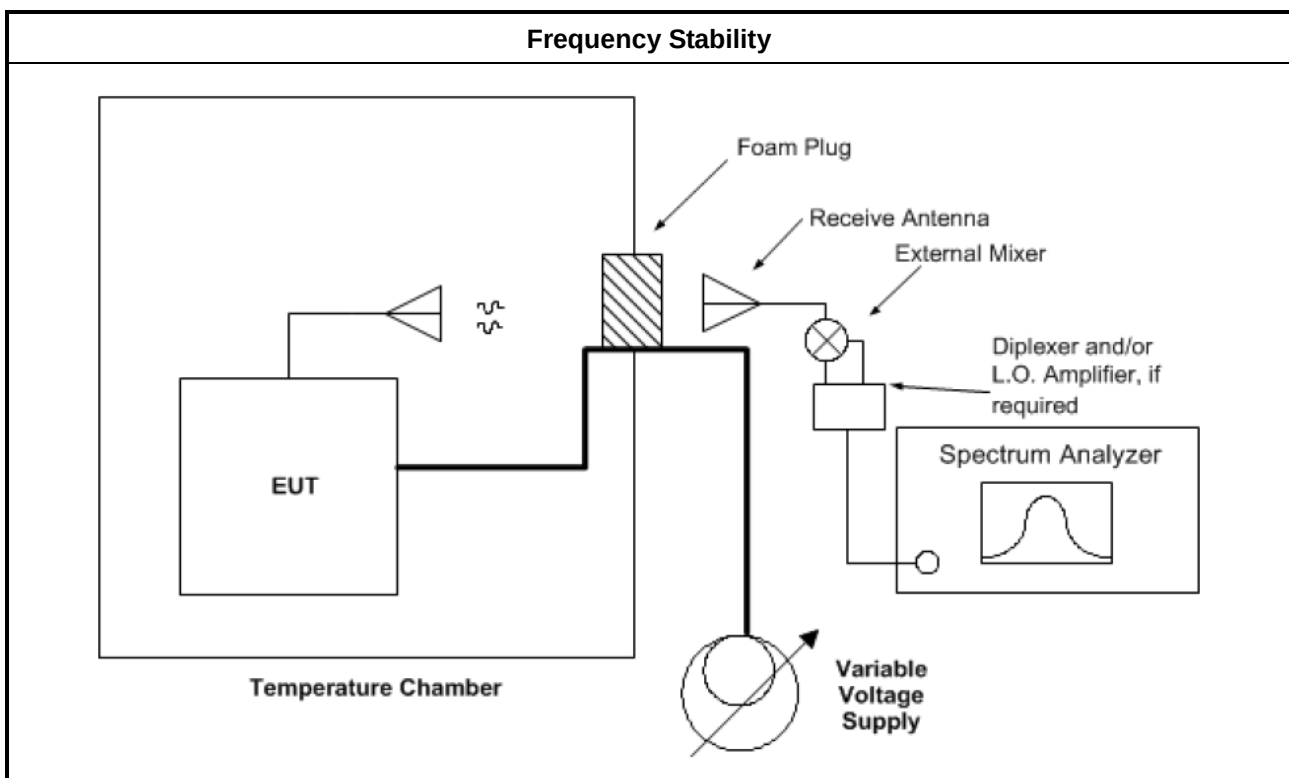
3.6.2 Measuring Instruments

Refer a measuring instruments list in this test report.

3.6.3 Test Procedures

Method of measurement: Refer as ANSI C63.10-2020, clauses 9.14.

3.6.4 Test Setup





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.	

3.6.5.1 Frequency Stability with Respect to Ambient Temperature

For Bandwidth: 2.16 GHz Channels

Frequency Stability with Respect to Ambient Temperature			
Test Results			
Test Temperature (°C)	Measured Frequency (MHz)	Delta Frequency (kHz)	Limit (±kHz)
-40	64840.35	50550	Within band
-30	64779.68	-10120	Within band
-20	64785.26	-4540	Within band
-10	64786.37	-3430	Within band
0	64790.18	380	Within band
10	64795.17	5370	Within band
20	64789.8	Reference	Within band
30	64779.37	-10430	Within band
40	64782.12	-7680	Within band
50	64780.83	-8970	Within band
60	64779.54	-10260	Within band
NOTE: The manufacturer's specified temperature range of -40 to 60°C.			

**For Bandwidth: 1.08 GHz Channels**

Frequency Stability with Respect to Ambient Temperature			
Test Results			
Test Temperature (°C)	Measured Frequency (MHz)	Delta Frequency (kHz)	Limit (±kHz)
-40	64844.96	42130	Within band
-30	64780.42	-22410	Within band
-20	64790.68	-12150	Within band
-10	64799.18	-3650	Within band
0	64801.7	-1130	Within band
10	64805.22	2390	Within band
20	64802.83	Reference	Within band
30	64795.09	-7740	Within band
40	64794.5	-8330	Within band
50	64791.54	-11290	Within band
60	64789.87	-12960	Within band
NOTE: The manufacturer's specified temperature range of -40 to 60°C.			

**3.6.5.2 Frequency Stability When Varying Supply Voltage****For Bandwidth: 2.16 GHz Channels**

Frequency Stability When Varying Supply Voltage			
Test Results			
Test Voltage: (Vac)	Measured Frequency (MHz)	Delta Frequency (kHz)	Limit (±kHz)
102	64789.8	0	Within band
120	64789.8	Reference	Within band
138	64792.53	2730	Within band

For Bandwidth: 1.08 GHz Channels

Frequency Stability When Varying Supply Voltage			
Test Results			
Test Voltage: (Vac)	Measured Frequency (MHz)	Delta Frequency (kHz)	Limit (±kHz)
102	64802.83	0	Within band
120	64802.83	Reference	Within band
138	64805.22	2390	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 be used on aircraft or satellites. Then user manual will include a statement to caution EUT is not permitted for use 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
COND Cable	Woken	Cable	CO01	9kHz ~ 30MHz	Sep. 14, 2025	Sep. 13, 2026	Conduction (CO01-CB)
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Mar. 12, 2026	Mar. 11, 2027	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Feb. 04, 2026	Feb. 03, 2027	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Apr. 10, 2026	Apr. 09, 2027	Conduction (CO01-CB)
Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Sep. 14, 2025	Sep. 13, 2026	Conduction (CO01-CB)
Test Software	SPORTON	SENSE-EMI	V5.11	150kHz-30MHz	N.C.R.	N.C.R.	Conduction (CO01-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH03-CB	30 MHz ~ 1 GHz	Jan. 16, 2026	Jan. 15, 2027	Radiation (03CH03-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH03-CB	1GHz ~18GHz 3m	May 01, 2026	Apr. 30, 2027	Radiation (03CH03-CB)
RF Cable-low	Woken	RG402	Low Cable-02+29	30MHz ~ 1GHz	Sep. 25, 2025	Sep. 24, 2026	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-20+29	1GHz ~ 18GHz	Sep. 25, 2025	Sep. 24, 2026	Radiation (03CH03-CB)
RF Cable-high	Woken	RG402	High Cable-29	1GHz ~ 18GHz	Sep. 25, 2025	Sep. 24, 2026	Radiation (03CH03-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Feb. 11, 2026	Feb. 10, 2027	Radiation (03CH03-CB)
Amplifier	SGH	SGH301	20240606-1	30MHz ~ 1GHz	Jun. 02, 2026	Jun. 01, 2027	Radiation (03CH03-CB)
Pre-Amplifier	Agilent	8449B	3008A02097	1GHz ~ 26.5GHz	Jun. 27, 2026	Jun. 26, 2027	Radiation (03CH03-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 21, 2025	Nov. 20, 2026	Radiation (03CH03-CB)
Bilog Antenna with 6dB Attenuator	Schwarzbeck & EMCI	VULB9168 & EMCI-N-6-06	1808 & AT-06039	25MHz ~ 1GHz	May 22, 2026	May 21, 2027	Radiation (03CH03-CB)
Horn Antenna	ETS-Lindgren	3115	6821	750MHz~18GHz	Feb. 06, 2026	Feb. 05, 2027	Radiation (03CH03-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Oct. 07, 2025	Oct. 06, 2026	Radiation (03CH03-CB)
Loop Antenna	Teseq	HLA 6121	65417	9kHz - 30MHz	Oct. 20, 2025	Oct. 19, 2026	Radiation (03CH03-CB)
EMI Test Receiver	R&S	ESR7	102172	9kHz ~ 7GHz	Oct. 29, 2025	Oct. 28, 2026	Radiation (03CH03-CB)
Signal Analyzer	R&S	FSP40	100019	9kHz ~ 40GHz	Jul. 21, 2026	Jul. 20, 2027	Radiation (03CH03-CB)
*Harmonic Mixer	R&S	FS-Z60	100114	40GHz~60GHz	Nov. 22, 2024	Nov. 21, 2026	Radiation (03CH03-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
*Harmonic Mixer	R&S	FS-Z75	100966	50GHz~75GHz	Nov. 22, 2024	Nov. 21, 2026	Radiation (03CH03-CB)
*Harmonic Mixer	R&S	FS-Z90	102135	60GHz~90GHz	Sep. 13, 2024	Sep. 12, 2026	Radiation (03CH03-CB)
*Harmonic Mixer	R&S	FS-Z140	101160	90GHz~140GHz	Jan. 20, 2025	Jan. 19, 2027	Radiation (03CH03-CB)
*Harmonic Mixer	R&S	FS-Z220	101065	140GHz~220GHz	Jan. 20, 2025	Jan. 19, 2027	Radiation (03CH03-CB)
*Harmonic Mixer	R&S	FS-Z325	101026	220GHz~325GHz	Jan. 20, 2025	Jan. 19, 2027	Radiation (03CH03-CB)
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	M15RH	V91113-A	50 ~ 75 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)
Standard Horn Antenna	Custom Microwave	M03RH	120320-A	220 ~ 325 GHz	N.C.R.	N.C.R.	Radiation (03CH03-CB)
Detector	MI-WAVE	950V/385	04YYP5	50 GHz ~ 75 GHz	Dec. 05, 2025	Dec. 04, 2026	Radiation (03CH03-CB)
PC Oscilloscope	PICO TECH	6402C	CX372/002	N/A	Jun. 05, 2026	Jun. 04, 2027	Radiation (03CH03-CB)
Test Software	SPORTON	SENSE-EMI	V5.11.10	30MHz-40GHz	N.C.R.	N.C.R.	Radiation (03CH03-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH04-CB	30 MHz ~ 1 GHz	Jul. 28, 2026	Jul. 27, 2027	Radiation (03CH04-CB)
3m Semi Anechoic Chamber VSWR	TDK	SAC-3M	03CH04-CB	1GHz ~18GHz 3m	Feb. 13, 2026	Feb. 12, 2027	Radiation (03CH04-CB)
RF Cable-low	Woken	RG402	Low Cable-03+67	30MHz – 1GHz	Apr. 24, 2026	Apr. 23, 2027	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21	1GHz - 18GHz	Apr. 24, 2026	Apr. 23, 2027	Radiation (03CH04-CB)
RF Cable-high	Woken	RG402	High Cable-21+67	1GHz - 18GHz	Apr. 24, 2026	Apr. 23, 2027	Radiation (03CH04-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Feb. 11, 2026	Feb. 10, 2027	Radiation (03CH04-CB)
Pre-Amplifier	SGH	SGH5265	20211115-1	1~ 26.5GHz	Jan. 13, 2026	Jan. 12, 2027	Radiation (03CH04-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 21, 2025	Nov. 20, 2026	Radiation (03CH04-CB)
Pre-Amplifier	EMCI	EMC330N	980391	20MHz ~ 3GHz	May 20, 2026	May 19, 2027	Radiation (03CH04-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
BILOG ANTENNA with 6 dB attenuator	Schaffner & EMCI	CBL6112B & N-6-06	22021&AT-N0607	30MHz ~ 1GHz	Oct. 04, 2025	Oct. 03, 2026	Radiation (03CH04-CB)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120D-01816	1GHz~18GHz	Dec. 31, 2025	Dec. 30, 2026	Radiation (03CH04-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Oct. 07, 2025	Oct. 06, 2026	Radiation (03CH04-CB)
Loop Antenna	Teseq	HLA 6121	65417	9kHz - 30MHz	Oct. 20, 2025	Oct. 19, 2026	Radiation (03CH04-CB)
EMI Test Receiver	R&S	ESR7	102172	9kHz ~ 7GHz	Oct. 29, 2025	Oct. 28, 2026	Radiation (03CH04-CB)
Signal Analyzer	R&S	FSP40	100142	9kHz~40GHz	Mar. 30, 2026	Mar. 29, 2027	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)
*Harmonic Mixer	R&S	FS-Z325	101026	220GHz~325GHz	Jan. 20, 2025	Jan. 19, 2027	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	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	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)
Standard Horn Antenna	Custom Microwave	M03RH	120320-A	220 ~ 325 GHz	N.C.R.	N.C.R.	Radiation (03CH04-CB)
Detector	MI-WAVE	950V/385	04YYP5	50 GHz ~ 75 GHz	Dec. 05, 2025	Dec. 04, 2026	Radiation (03CH04-CB)
PC Oscilloscope	PICO TECH	6402C	CX372/002	N/A	Jun. 05, 2026	Jun. 04, 2027	Radiation (03CH04-CB)
Test Software	SPORTON	SENSE-EMI	V5.11.10	30MHz-40GHz	N.C.R.	N.C.R.	Radiation (03CH04-CB)
Temp. and Humidity Chamber	Gaint Force	GTH-408-40-CP-AR	MAA1410-011	-40~100 degree	Aug. 21, 2026	Aug. 20, 2027	Radiation (TH03-CB)
Spectrum analyzer	R&S	FSV40	101028	9kHz~40GHz	Jan. 14, 2026	Jan. 13, 2027	Radiation (TH03-CB)
RF Cable	Woken	RG402	High Cable-11	30MHz ~18 GHz	Sep. 30, 2025	Sep. 29, 2026	Radiation (TH03-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable	Woken	RG402	High Cable-12	30MHz –18 GHz	Sep. 30, 2025	Sep. 29, 2026	Radiation (TH03-CB)
RF Cable	Woken	RG402	High Cable-13	30MHz –18 GHz	Sep. 30, 2025	Sep. 29, 2026	Radiation (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-14	1 GHz –18 GHz	Sep. 30, 2025	Sep. 29, 2026	Radiation (TH03-CB)
RF Cable-high	Woken	RG402	High Cable-15	1 GHz –18 GHz	Sep. 30, 2025	Sep. 29, 2026	Radiation (TH03-CB)

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

“*” Calibration Interval of instruments listed above is two years.

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



5 Measurement Uncertainty

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.9 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.9 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.5 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (40GHz ~ 60GHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (60GHz ~ 90GHz)	5.8 dB	Confidence levels of 95%
Radiated Emission (90GHz ~ 200GHz)	3.0 dB	Confidence levels of 95%
Occupied Bandwidth	0.4 %	Confidence levels of 95%
Frequency Stability	0.02 ppm	Confidence levels of 95%
Radiated EIRP	3.0 dB	Confidence levels of 95%
Temperature	1.0°C	Confidence levels of 95%