



Project No.: TM-2509000394P
Report No.: TMWK2509004137KR

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JAPAN SPECIFIED RADIO EQUIPMENT

TEST REPORT

For

Environmental Sensor

Trade Name: logi, logicool

Model: VR0051

Issued to

LOGITECH FAR EAST LTD.

#2 Creation Rd. 4, Science-Based Ind. Park Hsinchu Taiwan, R.O.C.

Issued by

Compliance Certification Services Inc.

Wugu Laboratory

**No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City, Taiwan.**

Issued Date: January 07, 2026

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	January 07, 2026	Initial Issue	ALL	Allison Chen

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1. TEST RESULT CERTIFICATION

Applicant: LOGITECH FAR EAST LTD.
#2 Creation Rd. 4, Science-Based Ind. Park Hsinchu
Taiwan, R.O.C.

Manufacturer: Logitech Europe S.A.
EPFL – Quartier de l’Innovation Daniel Borel Innovation
Center, 1015 Lausanne, Switzerland.

Equipment Under Test: Environmental Sensor

Model Number: VR0051

Detailed EUT Description: See Item 3 of this report

EUT Receive Date: August 05, 2025

Date of Test: September 25~27, 2025

APPLICABLE STANDARDS	
CLASSIFICATION	TEST RESULT
Article 2 Clause 1 Item 8	Compliance
Statements of Conformity	
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.	

The above equipment was tested by Compliance Certification Services Inc. for compliance with the requirements set forth in Article 2 Clause 1 Item 8. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Measurement was conducted by the following test method: the test method of Ordinance Concerning Technical Regulations Conformity Certification etc. of Specified Radio Equipment in Annex 1, the Ministry of Internal Affairs and Communication notification in Annex 22-16 of Article 88, Paragraph 1 or the test method more than equivalent.

Approved by:

Sehni Hu

Sehni Hu
Supervisor
Compliance Certification Services Inc.



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2. EUT DESCRIPTION

Product Name	Environmental Sensor
Model Name	VR0051
Trade Name	logi, logicool
Power Supply	1. Power from USB Type-C to adapter. (DC 5V/500mA) 2. Power from Lithium battery. (DC 3.6V/100mA) TADIRAN / TL-4930
Frequency Range	59.2-60.5 GHz
Rated Antenna Power (mW)	2.5119
Measured Antenna Power (mW)	2.286335758
Test Category	Millimeter-Wave Radar Equipment
Modulation Technique	FMCW
Antenna Specification	PCB etched antenna / Gain: 8.65 dBi
H.W Version	PB2
S.W Version	1.0.138
Serial number	2528CGW401K8

Remark:

1. For more details, please refer to the User's manual of the EUT.
2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

3. TEST METHODOLOGY & CONDITIONS

3.1 TEST CONDITIONS

Voltage Fluctuation Test	Normal Voltage	High Voltage + 10% of Normal Voltage	Low Voltage - 10% of Normal Voltage
Input DC Power	5	5.25	4.75
Output DC Power	1.2	1.2	1.2
Voltage Variation (%)	0	0	0

Regulator IC: TPS631000DRLR

Extreme conditions declared by the manufacturer.

Voltage Variation (%) = (Output High or Low Voltage - Output Normal Voltage) / Output Normal Voltage * 100

During the input supply voltage to the EUT from the external power source is varied by +/- 10%, if output voltage had been confirmed that the fluctuation of power supply to the RF circuit of EUT (excluding power source) is equal to or less than +/- 1%. Exempt extremely high and low supply voltage condition tests, EUT only operated in normal voltage to test all regulations.

3.2 TESTING APPLIED STANDARDS

MIC Notice No.88 Appendix No.1

MIC Notification, No. 88 of 2004, appendix 22-16

MIC Certification Rule, Article 2 Paragraph 1 Item 8 (60GHz band Detection sensor of moving objects)

Article 49-14, Paragraph 1, Item 12 and the relevant articles Test Method

ARIB STD-T73



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3.3 DESCRIPTION OF TEST MODES

The EUT (model: VR0051) had been tested under operating condition.
The EUT was programmed to be in continuously transmitting/receiving mode.

Frequency (59.2-60.5 GHz) were chosen for full testing.

Radiated Emission Measurement Above 1G	
Test Condition	Radiated Emission Above 1G
Power supply Mode	Mode 1: EUT power by USB type-C to adapter
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4
Worst Position	☐ Placed in fixed position. ☒ Placed in fixed position at X-Plane (E2-Plane) ☐ Placed in fixed position at Y-Plane (E1-Plane) ☐ Placed in fixed position at Z-Plane (H-Plane)

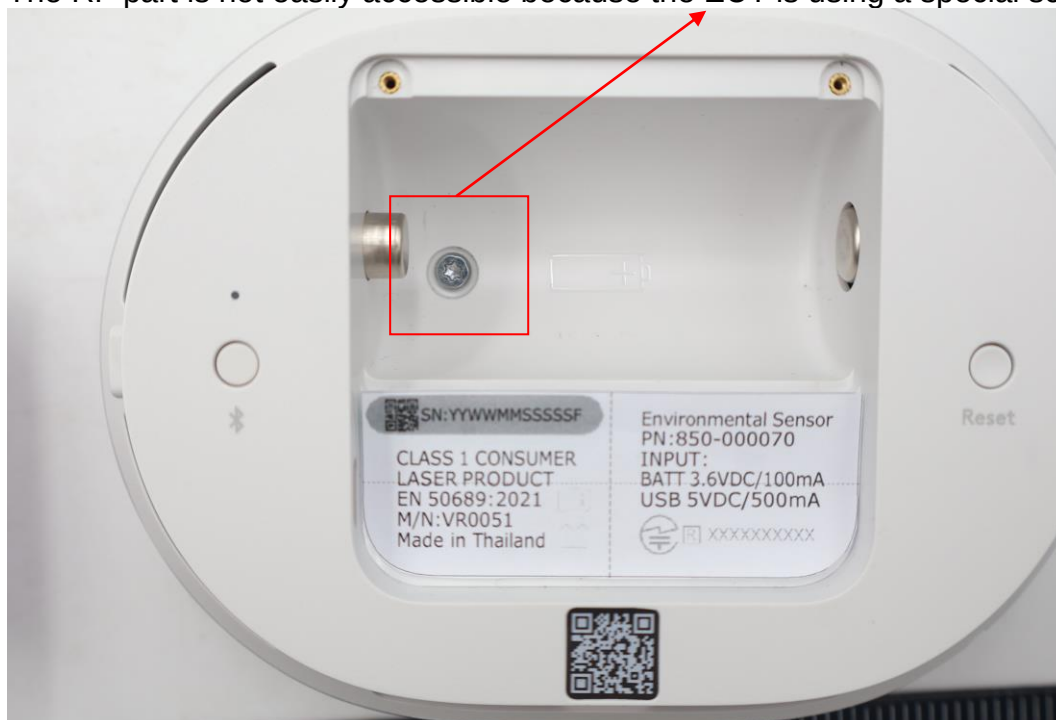
Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Power supply Mode	Mode 1: EUT power by USB type-C to adapter
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4

Remark:

1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(X-Plane) were recorded in this report

3.4 RF SHIELDING METHOD.

The RF part is not easily accessible because the EUT is using a special screw as below.



3.5 SETUP OF EQUIPMENT UNDER TEST

Setup Diagram

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

Support Equipment

Support Unit List					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Type-C Cable	XiaoMi	SJX10ZM	N/A	N/A	N/A
Adapter	Apple	A1385	N/A	N/A	N/A



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4 INSTRUMENT AND CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2 TEST AND MEASUREMENT EQUIPMENT

The following list contains measurement equipment used for testing. The equipment conforms to the requirement of CISPR 16-1, ANSI C63.2 and other equivalent standards.

Calibration of all test and measurement, including any accessories that may effect such calibration, is checked frequently to ensure the accuracy. Adjustments are made and correction factors are applied in accordance with the instructions contained in the respective manual.

4.3 EQUIPMENT USED FOR EMISSION MEASUREMENT

966A Radiated mmwave								
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due	Calibration Lab	Accreditation Organization of the-Cal. Lab	Calibration Method
Active Loop Antenna	COM-POWER	AL-130	121051	2025-02-18	2026-02-17	ETC	TAF	c
Preamplifier	EMEC	EM330	060609	2025-02-20	2026-02-19	ETC	TAF	c
Thermo-Hygro Meter	HTC	HTC-1	HTC-D06	2025-05-26	2026-05-25	ETC	TAF	c
Signal Analyzer	Aglient	N9010A	MY52220817	2025-03-05	2026-03-04	ETC	TAF	c
Preamplifier	HP	8449B	3008A00965	2024-12-18	2025-12-17	ETC	TAF	c
Cable	EMCI	EMC101G	221012+230205+250204	2025-03-03	2026-03-02	ETC	TAF	c
Signal Generator	R&S	SMB100A	175936	2025-01-23	2026-01-22	ETC	TAF	c
STANDARD GAIN HORN ANTENNA	CMI	RCHO05R	RCHO05R	2023-06-22	2026-06-21	HCT	TAF	c
STANDARD GAIN HORN ANTENNA	CMI	RCHO08R	RCHO08R	2023-06-16	2026-06-15	HCT	TAF	c
STANDARD GAIN HORN ANTENNA	CMI	RCHO12R	RCHO12R	2023-06-16	2026-06-15	HCT	TAF	c
STANDARD GAIN HORN ANTENNA	CMI	RCHO19R	RCHO19R	2023-06-15	2026-06-14	HCT	TAF	c
Horn Antenna	CMI	WR-15	WR-15-03	2023-11-29	2026-11-28	HCT	TAF	
SA EXTENSION MODULE	VDI	SAX WR8.0	SAX982	2023-06-14	2026-06-13	HCT	TAF	c
SA EXTENSION MODULE	VDI	SAX WR12	SAX983	2023-06-14	2026-06-13	HCT	TAF	c
SA EXTENSION MODULE	VDI	SAX WR19	SAX993	2023-06-14	2026-06-13	HCT	TAF	c
SA EXTENSION MODULE	VDI	SAX WR5.1	SAX995	2023-06-16	2026-06-15	HCT	TAF	c
SA EXTENSION MODULE	VDI	SAX WR15	SAX994	2024-06-14	2026-06-13	HCT	TAF	
Bi-Log Antenna	Sunol Sciences	JB3	A030105&532	2025-06-26	2026-06-25	ETC	TAF	c
Horn Antenna	ETC	MCTD 1209	DRH13M02003	2024-12-20	2025-12-19	ETC	TAF	c
Horn Antenna	SCHWARZBECK	BBHA9170	1047	2024-12-06	2025-12-05	ETC	TAF	c
Pre-Amplifier	EMCI	EMC184045SE	980860	2024-12-02	2025-12-01	ETC	TAF	c
Horn Antenna	ETS LINDGREN	3116	26370	2024-12-20	2025-12-19	ETC	TAF	c
Bi-Log Antenna	Sunol Sciences	JB1	A052609&533	2025-01-03	2026-01-02	ETC	TAF	c
Antenna	SHWARZBECK	BBHA 9120 D	779	2025-01-09	2026-01-08	ETC	TAF	c
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R	CCS	TAF	c
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R	CCS	TAF	c
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R	CCS	TAF	c
Software	e3 V9-210616c							



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Conducted TELEC								
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due	Calibration Lab	Accreditation Organization of the-Cal. Lab	Calibration Method
Constant Temperature Humidity Chamber	TERCHY	MHG-150LF	930619	2024-10-15	2025-10-14	ETC	TAF	c
Coaxial Cable	TELEDYNE	ROHS-095-0004-1.2MTR	201100-013	2025-05-19	2026-05-18	ETC	TAF	c
Horn Antenna	CMI	WR-15	WR-15-03	2023-11-29	2026-11-28	HCT	TAF	c
PXA Signal Analyzer	Keysight	N9030B	MY62291089	2025-09-24	2026-09-23	ETC	TAF	c
Vibration testing machine	ETS LINDGREN	EM-200F2K-25N50	RM103104391	2025-08-20	2026-08-19	KD	TAF	c
SA EXTENSION MODULE	VDI	SAX WR15	SAX994	2023-06-14	2026-06-13	HCT	TAF	c
Software	N/A							

Remark:

- Each piece of equipment is scheduled for calibration once a year.
- Calibration Method:
 - Calibration conducted by the National Institute of Information and Communications Technology (NICT) (hereinafter referred to as "NICT") or a designated calibration agency under Article 102-18 paragraph (1)
 - Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992)
 - Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1)
 - Calibration conducted by using measuring instruments and other equipment listed in the right column of Table No. 3 attached hereto, which shall have been given any of calibration, etc. listed above from a) to c)

4.4 MEASUREMENT UNCERTAINTY

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated in accordance with TR 100 028-1 [2] and shall correspond to an expansion factor (coverage factor) $k = 1,96$ or $k = 2$ (which provide confidence levels of respectively 95 % and 95,45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

Table is based on such expansion factors.

Table: Maximum measurement uncertainty

Parameter	Uncertainty
RF frequency	$\pm 1 \times 10^{-5}$
Total RF power conducted	$\pm 1,5$ dB
RF power density, conducted	± 3 dB
Spurious emissions, conducted	± 3 dB
All emissions, radiated	± 6 dB
Humidity	± 5 %
Temperature	$\pm 1^{\circ}\text{C}$
DC and low frequency voltages	$\pm 3\%$

Lab's MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
Radiated Emission_9kHz-30MHz	± 3.492 dB
Radiated Emission_30MHz-200MHz	± 3.683 dB
Radiated Emission_200MHz-1GHz	± 3.966 dB
Radiated Emission_1GHz-6GHz	± 5.063 dB
Radiated Emission_6GHz-18GHz	± 5.122 dB
Radiated Emission_18GHz-26GHz	± 3.032 dB
Radiated Emission_26GHz-40GHz	± 3.271 dB
Radiated Emission_40GHz-60GHz	± 2.294 dB
Radiated Emission_60GHz-90GHz	± 2.209 dB
Radiated Emission_90GHz-140GHz	± 2.208 dB
Radiated Emission_140GHz-220GHz	± 2.217 dB
Radiated Emission_220GHz-325GHz	± 2.306 dB



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5 SUMMARY OF TEST RESULTS

Report Chapter	Classification of EUT	Result
5.2	Frequency Tolerance	Compliance
5.3	Occupied Bandwidth	Compliance
5.4	Output Power Tolerance	Compliance
5.5	Unwanted Emission Strength, Secondary Radiated Emission Strength	Compliance
5.6	Transmission time restriction	Compliance
3.4	Construction Protection Confirmation	Compliance



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5.1 TEST RESULT

Temperature: 25.3~25.4°C
Humidity: 52~54% RH

Test date: September 25~27, 2025
Tested by: Tony Chao

Environment of Test Room	Temperature	25.3~25.4	°C
	Humidity	52~54	%
Description	Value		Limit
Peak Antenna Gain	8.65	dBi	<35dBi
Declaration Output Power	2.5119	mW	10mW
Declaration Output Power	4	dBm	10dBm
E.I.R.P	16.75	mW	
	12.24	dBm	
Input Power Voltage	5	VDC	

5.2 FREQUENCY TOLERANCE

Limit

Within the designated frequency band: 57~64 GHz.

Spectrum Analyzer Conditions

Span: Wide enough to capture the complete power envelope, including all sidebands

RBW: 1MHz

VBW: 1MHz

Log scal : 10dB/Div, Data points : 501points (400 points or more)

Detection: Positive Peak, Sweep mode: Continuous

Test Procedure

1. EUT and measurement system setup as Measurement System Diagram;
2. Spectrum analyzer setup as Spectrum Condition;
3. EUT was set into operating mode;
4. Turn the turning table around;
5. Wait the trace of spectrum analyzer stabilization, marking as requirements;
6. Capture the trace or recorded the data.
7. Repeat under other environment conditions to measurement.



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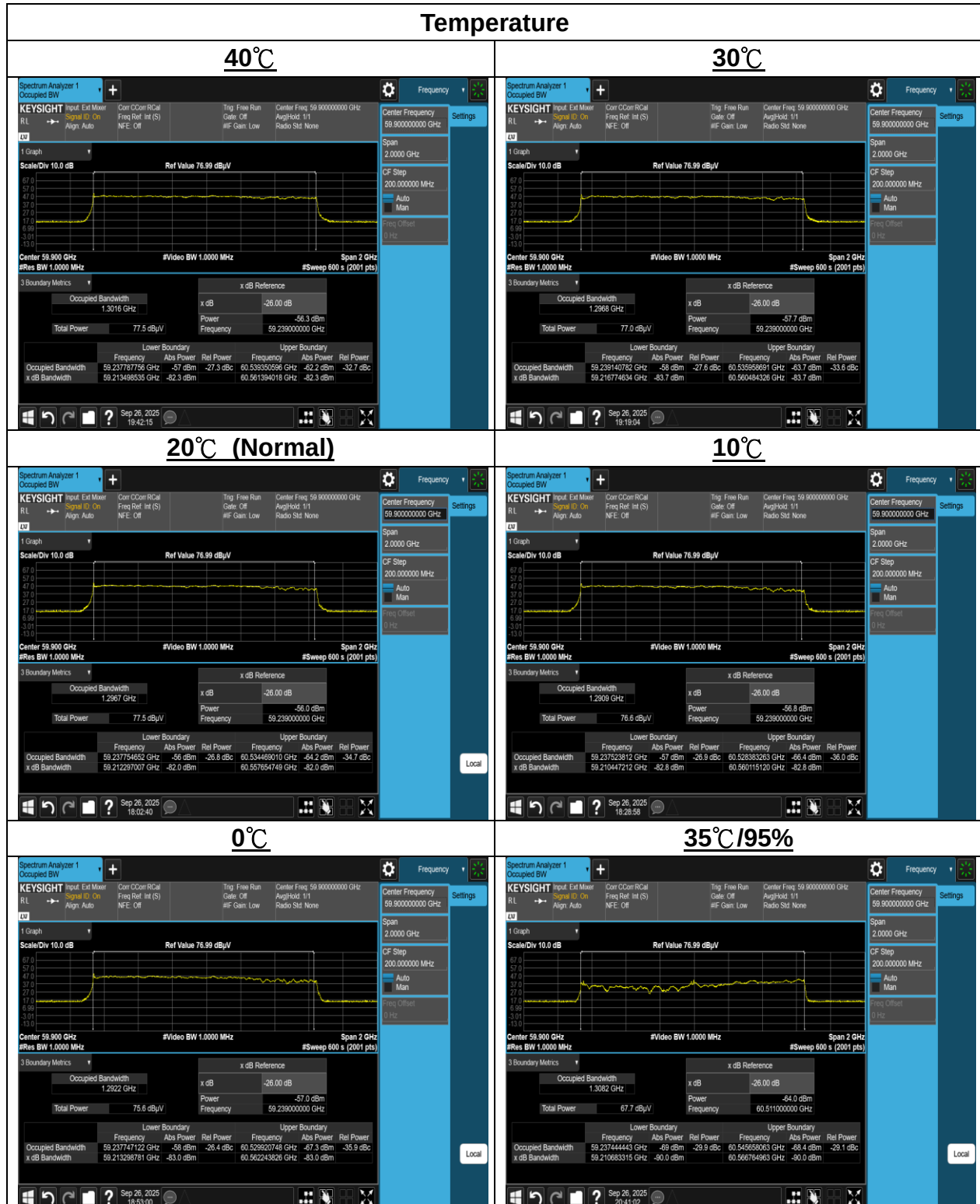
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Test Data

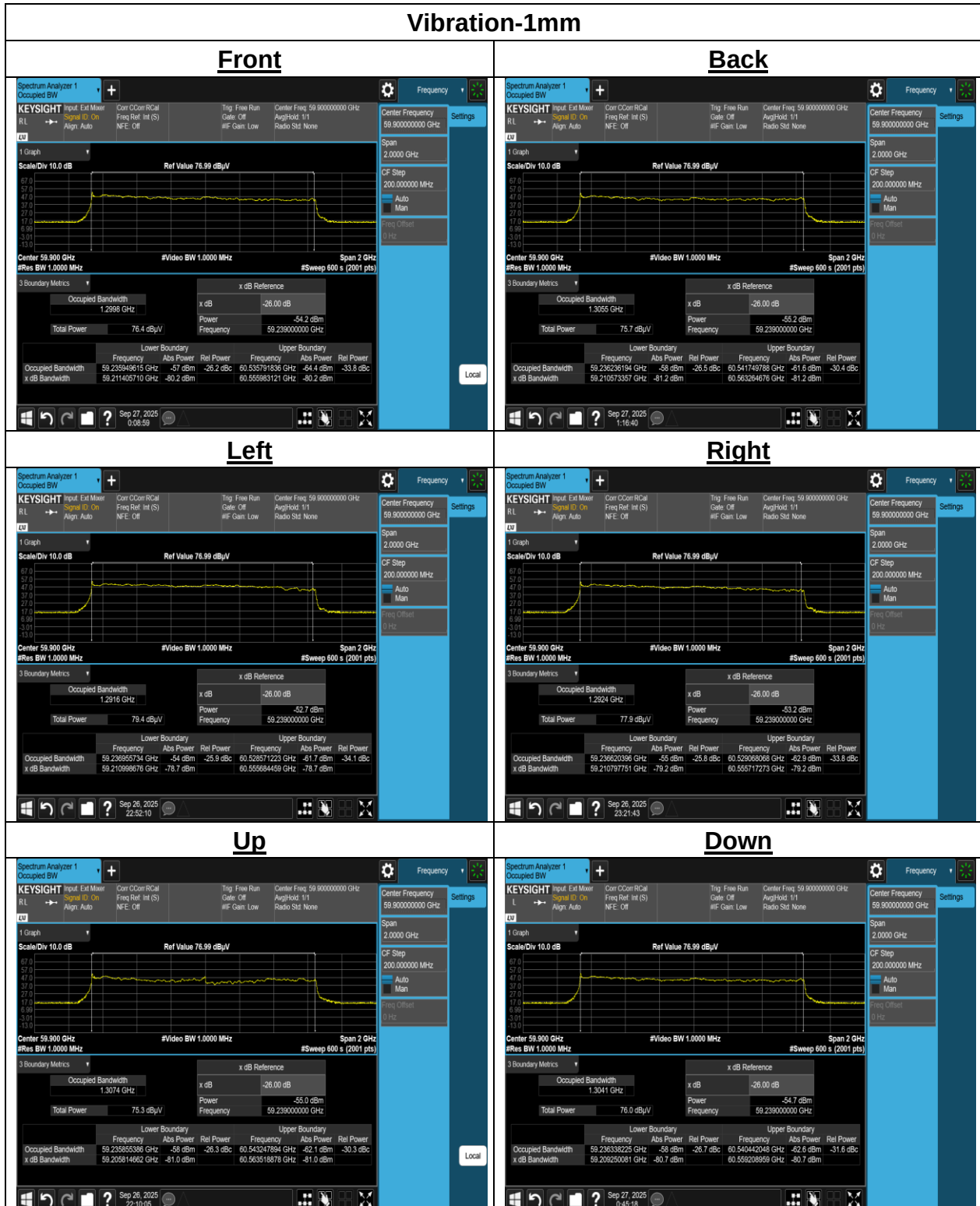
Frequency Error					
Frequency Tolerance - Temperature		---	Freq. Low	Freq. High	---
40°C	Reading Frequency	GHz	59.237787756	60.539350596	Pass
30°C	Reading Frequency	GHz	59.239140782	60.535958691	Pass
20°C(Normal)	Reading Frequency	GHz	59.237754652	60.534469010	Pass
10°C	Reading Frequency	GHz	59.237523812	60.528383263	Pass
0°C	Reading Frequency	GHz	59.237747122	60.529920748	Pass
Frequency Tolerance - Humidity		---	Freq. Low	Freq. High	---
35°C/95%	Reading Frequency	GHz	59.237444443	60.545658063	Pass

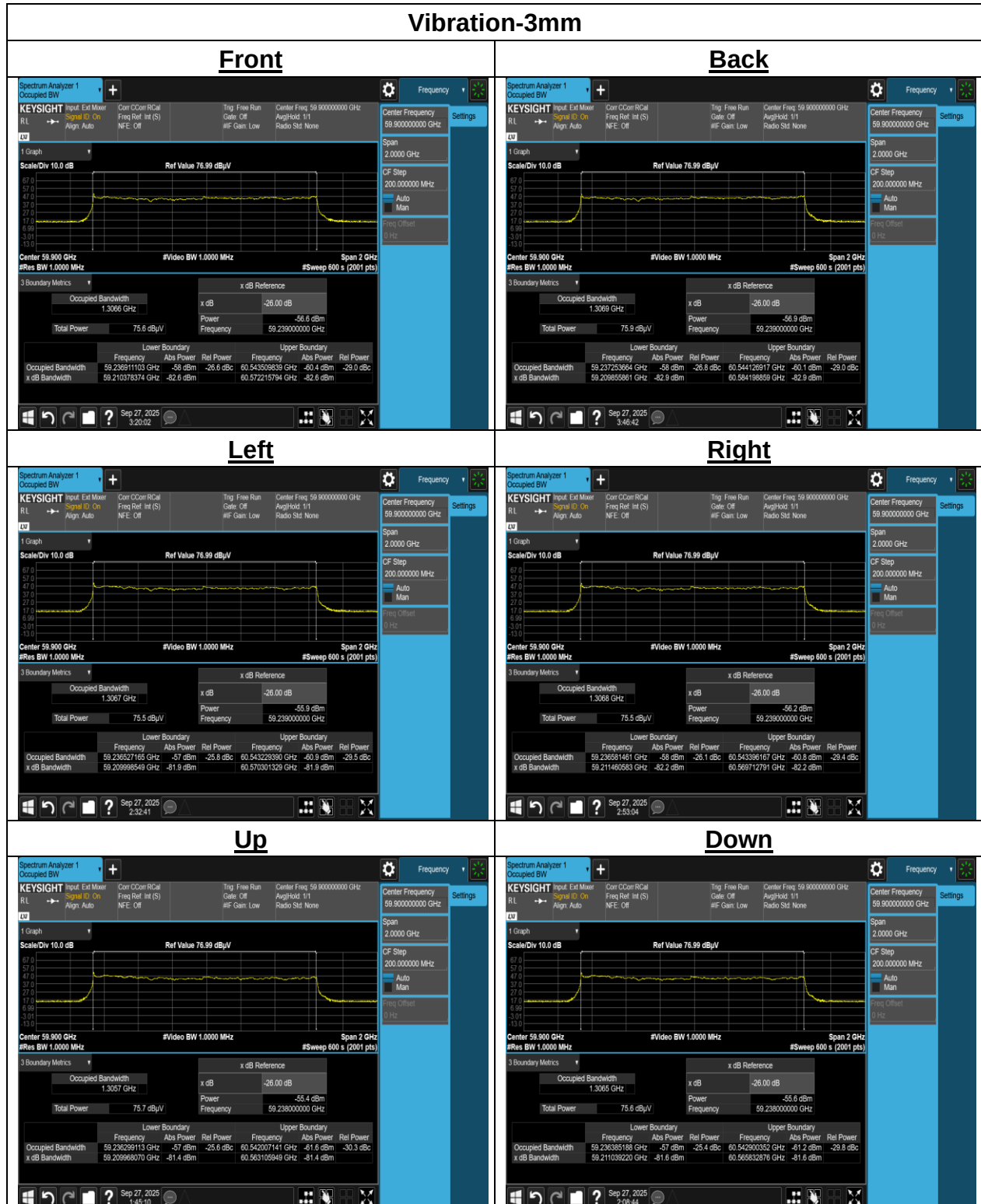
Frequency Error					
Frequency Tolerance-Vibration-1mm		---	Freq. Low	Freq. High	---
Front	Reading Frequency	GHz	59.235949615	60.535791836	Pass
Back	Reading Frequency	GHz	59.236236194	60.541749788	Pass
Left	Reading Frequency	GHz	59.236955734	60.528571223	Pass
Right	Reading Frequency	GHz	59.236620396	60.529068068	Pass
Up	Reading Frequency	GHz	59.235855386	60.543247894	Pass
Down	Reading Frequency	GHz	59.236338225	60.540442048	Pass
Frequency Tolerance-Vibration-3mm		---	Freq. Low	Freq. High	---
Front	Reading Frequency	GHz	59.236911103	60.543509839	Pass
Back	Reading Frequency	GHz	59.237253664	60.544126917	Pass
Left	Reading Frequency	GHz	59.236527165	60.543229390	Pass
Right	Reading Frequency	GHz	59.236581461	60.543396167	Pass
Up	Reading Frequency	GHz	59.236299113	60.542007141	Pass
Down	Reading Frequency	GHz	59.236385188	60.542900352	Pass

Test Plots



Test Plots







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5.3 OCCUPIED BANDWIDTH

Limit

Occupied bandwidth: 7 GHz

Spectrum Analyzer Conditions

Span: Wide enough to capture the complete power envelope, including all sidebands

RBW: 1MHz

VBW: 1MHz

Log scal : 10dB/Div, Data points : 501points (400 points or more)

Detection: Positive Peak, Sweep mode: Continuous

Test Procedure

1. EUT and measurement system setup as Measurement System Diagram;
2. Spectrum analyzer setup as Spectrum Condition;
3. EUT was set into operating mode;
4. Turn the turning table around;
5. Wait the trace of spectrum analyzer stabilization, marking as requirements;
6. Capture the trace or recorded the data.
7. Repeat under other voltage conditions to measurement



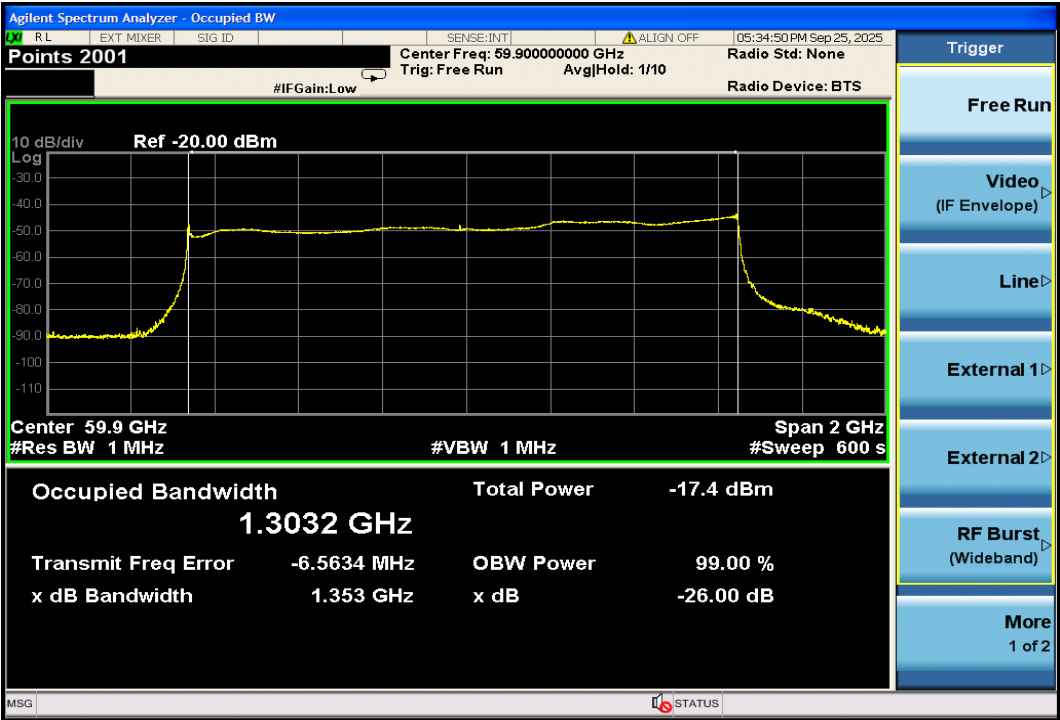
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Occupied Bandwidth				
Frequency Range (GHz)	Freq. Low	Freq. High	OBW(GHz)	Limit
57GHz~64GHz	59241.84	60545.04	1303.2	<7GHz

Test Plots



5.4 ANTENNA POWER/ANTENNA POWER TOLERANCE/TRANSMITTER ANTENNA GAIN

Limit

The output power should 10mW or less (Peak).

The Output Power Tolerance must be within +50%, -70%.

EIRP should 13dBm or less

Spectrum Analyzer Conditions

Frequency Center: Frequency to measure

RBW : 1MHz

VBW : 1MHz

Sweep Mode: continues Sweep

Detection: Peak

Log scale : 10dB/Div, Data points : 501points (400 points or more)

Reference level : Enough level for maximum dynamic range

Test Procedure

1. EUT and measurement system setup as Measurement System Diagram;
2. Spectrum analyzer setup as Spectrum Condition;
3. EUT was set into operating mode;
4. Turn the turning table around;
5. Wait the trace of spectrum analyzer stabilization, marking as requirements;
6. Capture the trace or recorded the data.
7. Repeat under other voltage conditions to measurement.

Test Data

Measurement Frequency	MHz		Result	NOTES
-	-	-	-----	
Occupied Bandwidth	GHz	1303.2	PASS	<7GHz
RF Output Power	mW	2.2863	PASS	<10mW
RF Output Power Tolerance	%	-8.98	PASS	+50~-70
RF Output Power	dBm	3.59	PASS	<10dBm
EIRP Output Power	dBm	12.24	PASS	<13dBm

EIRP_Power										
Measurement Frequency		MHz								
Measurement distance(D)	Frequency Range (GHz)	Worst Freq. (GHz)	Measurement Level(dBuV/m)	AF(dB/m)	Mixer	Cable	Worst EIRP Level (dBm)	Worst EIRP Level (mW)	Limit (dBm)	Result
0.5	57GHz~64GHz	59.9	62.253	44.5	14.9	1.409	12.24	16.755	13.00	Pass

Antenna Power Tolerance								
Measurement distance(D)	Frequency Range (GHz)	Measurement Frequency (GHz)	EIRP(dBm)	Gain of EUT ANT	Antenna Power(dBm)	Antenna Power(mW)	Limit(mW)	Result
0.5	57GHz~64GHz	59.9	12.24	8.65	3.59	2.286335758	10	Pass

Note:

1. Refer to the following for the worst mode.
2. Factor= AF(dB/m)+ Mixer loss + Cable loss+20*log(d)-104.77
EIPR=Measurement level(dBuV/m)+Factor
Antenna Power=EIRP[dBm]-Gain of the EUT Antenna



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5.5 SPURIOUS EMISSION STRENGTH, OUT-BAND AREA/UNWANTED EMISSION STRENGTH, SPURIOUS AREA

Limit

55.62Ghz or less: -30dBm/MHz or less
Over 55.62GHz, 67.5GHz or less: -26dBm/MHz or less
(except designated frequency band)
Over 67.5GHz: -30dBm/MHz or less

Spectrum Analyzer Conditions

Sweep the spectrum analyser (or equivalent equipment) over a frequency range and measure the power of spurious emission.

Test Procedure

1. EUT and measurement system setup as Measurement System Diagram;
2. Spectrum analyzer setup as Spectrum Condition;
3. EUT was set into operating mode;
4. Turn the turning table around;
5. Wait the trace of spectrum analyzer stabilization, marking as requirements;
6. Capture the trace or recorded the data.
7. Repeat under other voltage conditions to measurement.

Test Data

966A EIRP 30M~18G @3m, 18G~40G @1m							
Transmitter Spurious Emissions		Freq.(MHz)	POL	Level (dBm/MHz)	Level (uW/MHz)	Limit (dBm/MHz)	Result
	Under 1GHz	199.2	V	-52.68	0.0054	-30	PASS
		187.6969	H	-50.76	0.0084	-30	PASS
	1GHz~18GHz	6023.708	V	-48.55	0.0140	-30	PASS
		8485.182	H	-42.55	0.0556	-30	PASS
	18GHz~40GHz	26773.92	V	-55.47	0.0028	-30	PASS
		30276.04	H	-53.57	0.0044	-30	PASS

Tx Spurious										
Measurement Frequency		MHz								
Measurement distance(D)	Transmitter Spurious Emissions	Worst Freq. (GHz)	Measurement Level(dBuV/m)	AF(dB/m)	Mixer	Cable	Worst EIRP Level (dBm/MHz)	Worst EIRP Level (uW/MHz)	Limit (dBm/MHz)	Result
0.5	40GHz~55.62GHz	44.2	5.37	42.2	16.11	6.214	-40.89	0.081	-30.00	Pass
0.5	55.62GHz~59.2GHz	56.6	5.33	43.2	13.42	7.12	-41.72	0.067	-26.00	Pass
0.5	60.5GHz~67.5GHz	67.17	5.53	45.8	12.34	6.23	-40.89	0.081	-26.00	Pass
0.5	67.5GHz~90GHz	88.8	5.5	46.7	12.66	7.53	-38.40	0.145	-30.00	Pass
0.2	90GHz~140GHz	119.8	5.6	50.5	13.04	8.32	-41.29	0.074	-30.00	Pass
0.15	140GHz~170GHz	154.4	5.69	53.8	13.96	6.81	-41.01	0.079	-30.00	Pass

Note:
below 40GHz
Use substitution method for measurement.
EIRP=SG level+antenna gain-cable
Margin=Limit-EIRP

above 40GHz
Factor= AF(dB/m)+ Mixer loss + Cable loss+20*log(d)-104.77
EIPR=Measurement level(dBuV/m)+Factor

966A EIRP 30M~18G @3m, 18G~40G @1m-							
Receiver Spurious Emissions		Freq.(MHz)	POL	Level (dBm/MHz)	Level	Limit	Result
					(nW/MHz)	dBm/MHz	
	Under 1GHz	80.10161	V	-55.69	2.6977	-30	PASS
		186.0542	H	-51.56	6.9823	-30	PASS
	1GHz~18GHz	5937.341	V	-49.12	12.2462	-30	PASS
		8485.182	H	-42.55	55.5904	-30	PASS
	18GHz~40GHz	25786.62	V	-55.76	2.6546	-30	PASS
		30108.38	H	-53.58	4.3853	-30	PASS

Rx Spurious										
Measurement Frequency		MHz								
Measurement distance(D)	Receiver Spurious Emissions	Worst Freq. (GHz)	Measurement Level(dBuV/m)	AF(dB/m)	Mixer	Cable	Worst EIRP Level (dBm/MHz)	Worst EIRP Level (nW/MHz)	Limit (dBm/MHz)	Result
0.5	40GHz~55.62GHz	44.88	5.6	42.4	15.54	6.24	-41.01	79.239	-30.00	Pass
0.5	55.62GHz~59.2GHz	56.78	5.31	43.2	13.46	7.13	-41.69	67.755	-26.00	Pass
0.5	60.5GHz~67.5GHz	66.99	5.57	45.79	12.41	6.22	-40.80	83.165	-26.00	Pass
0.5	67.5GHz~90GHz	81.9	5.51	46.4	12.63	6.94	-39.31	117.203	-30.00	Pass
0.2	90GHz~140GHz	118	5.59	50.4	13.99	8.48	-40.29	93.553	-30.00	Pass
0.15	140GHz~170GHz	167.2	5.63	54.7	13.46	7.04	-40.37	91.801	-30.00	Pass

Note:
below 40GHz
Use substitution method for measurement.
EIRP=SG level+antenna gain-cable
Margin=Limit-EIRP

above 40GHz
Factor= AF(dB/m)+ Mixer loss + Cable loss+20*log(d)-104.77
EIPR=Measurement level(dBuV/m)+Factor



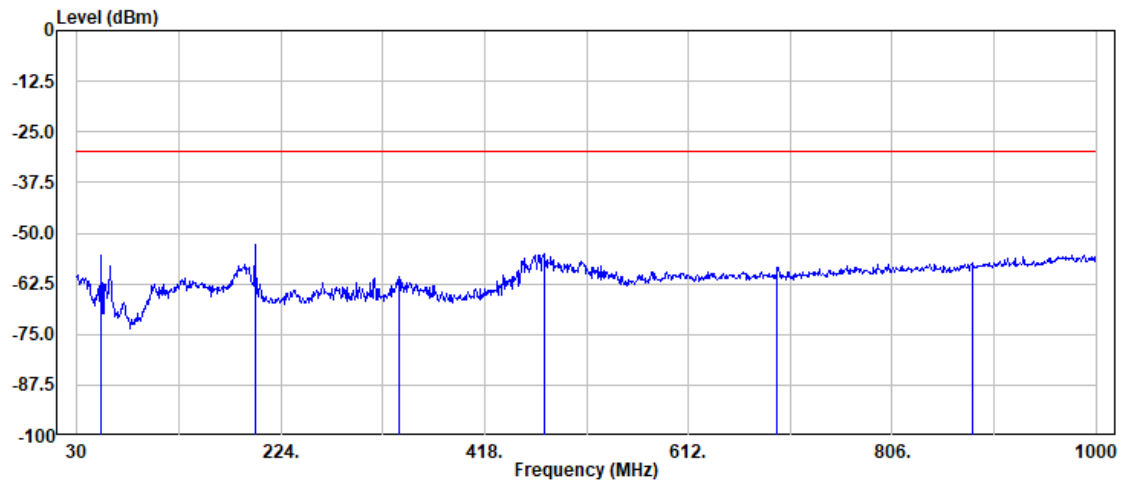
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Test Plots: TX Spurious

30MHz ~ 1GHz

Project No	: TM-2509000394P	Test Date	: 2025-09-25
Operation Band	: Radar	Temp./Humi.	: 25.4/52
Frequency	: 59.9 GHz	Antenna Pol.	: VERTICAL
Operation Mode	: TX	Engineer	: Tony.Chao
EUT Pol	: H	Test Chamber	: 966A
Setting	:		



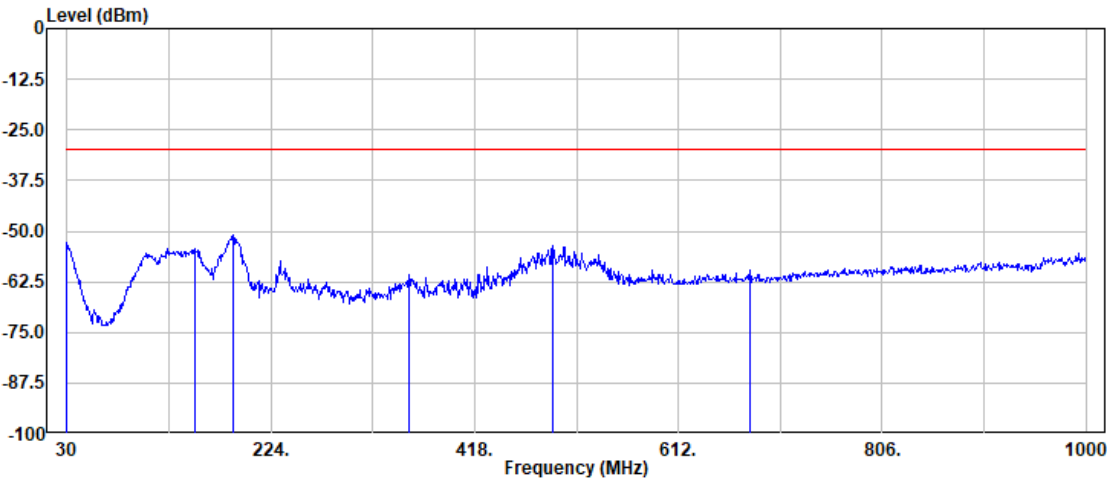
Freq	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
-----	-----	-----	-----	-----	-----	-----
MHz	dBm	dBm	dBi/dBd	dB	dBm	
53.00	-55.64	-47.12	-8.26	0.27	-30.00	-25.64
199.20	-52.68	-49.89	-2.28	0.51	-30.00	-22.68
336.36	-60.94	-61.15	0.87	0.66	-30.00	-30.94
475.17	-55.01	-54.51	0.29	0.79	-30.00	-25.01
696.93	-58.59	-58.63	0.98	0.95	-30.00	-28.59
882.55	-57.50	-57.45	1.02	1.07	-30.00	-27.50



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Project No	: TM-2509000394P	Test Date	: 2025-09-25
Operation Band	: Radar	Temp./Humi.	: 25.4/52
Frequency	: 59.9 GHz	Antenna Pol.	: HORIZONTAL
Operation Mode	: TX	Engineer	: Tony.Chao
EUT Pol	: H	Test Chamber	: 966A
Setting	:		



Freq	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
-----	-----	-----	-----	-----	-----	-----
MHz	dBm	dBm	dBi/dBd	dB	dBm	
30.00	-52.97	-25.48	-27.30	0.19	-30.00	-22.97
152.38	-54.20	-49.31	-4.45	0.44	-30.00	-24.20
187.70	-50.76	-48.76	-1.51	0.49	-30.00	-20.76
355.25	-60.86	-61.05	0.86	0.68	-30.00	-30.86
492.41	-53.42	-52.97	0.35	0.80	-30.00	-23.42
679.68	-59.64	-59.80	1.10	0.94	-30.00	-29.64

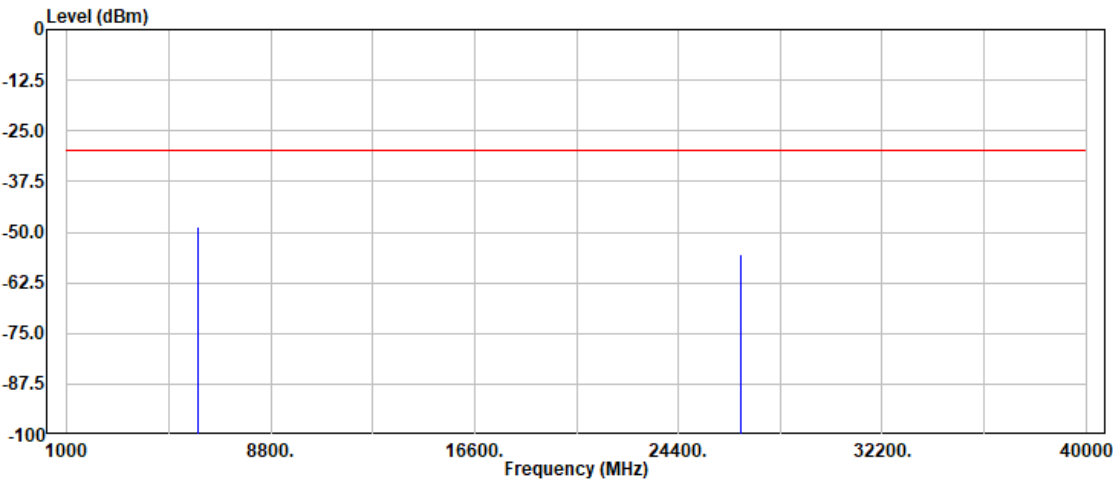


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1GHz ~ 40GHz

Project No	: TM-2509000394P	Test Date	: 2025-09-25
Operation Band	: Radar	Temp./Humi.	: 25.4/52
Frequency	: 59.9 GHz	Antenna Pol.	: VERTICAL
Operation Mode	: TX	Engineer	: Ben.Yang
EUT Pol	: H	Test Chamber	: 966A
Setting	:		



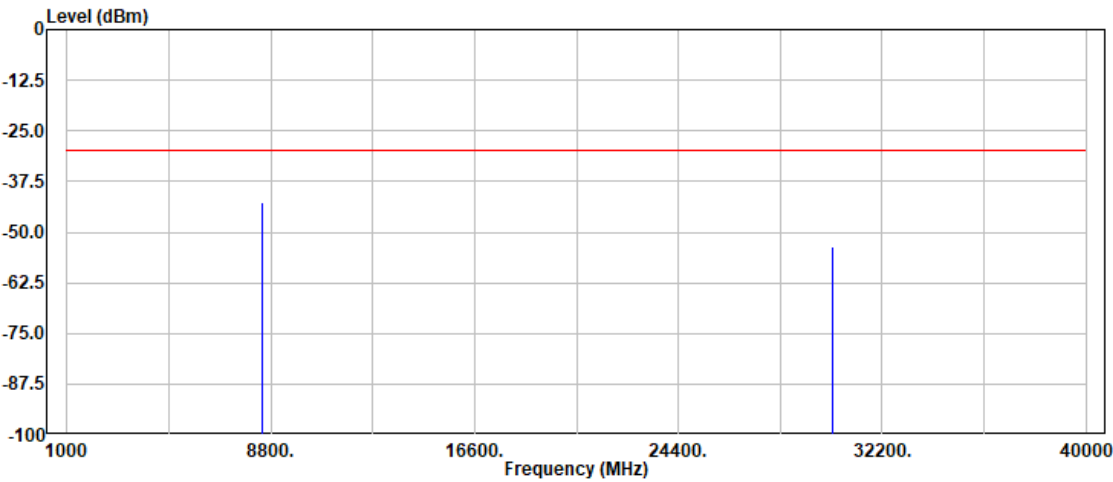
Freq	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
-----	-----	-----	-----	-----	-----	-----
MHz	dBm	dBm	dBi/dBd	dB	dBm	
6023.71	-48.55	-55.84	10.20	2.91	-30.00	-18.55
26773.92	-55.47	-61.61	12.62	6.47	-30.00	-25.47



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Project No	: TM-2509000394P	Test Date	: 2025-09-25
Operation Band	: Radar	Temp./Humi.	: 25.4/52
Frequency	: 59.9 GHz	Antenna Pol.	: HORIZONTAL
Operation Mode	: TX	Engineer	: Ben.Yang
EUT Pol	: H	Test Chamber	: 966A
Setting	:		



Freq	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
-----	-----	-----	-----	-----	-----	-----
MHz	dBm	dBm	dBi/dBd	dB	dBm	
8485.18	-42.55	-51.84	12.77	3.48	-30.00	-12.55
30276.04	-53.57	-60.91	14.26	6.92	-30.00	-23.57



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40GHz ~ 170GHz

Project No : TM-2509000394P

Operation Band : Radar

Frequency : 59.9 GHz

Operation Mode : TX

EUT Pol : H

Setting :

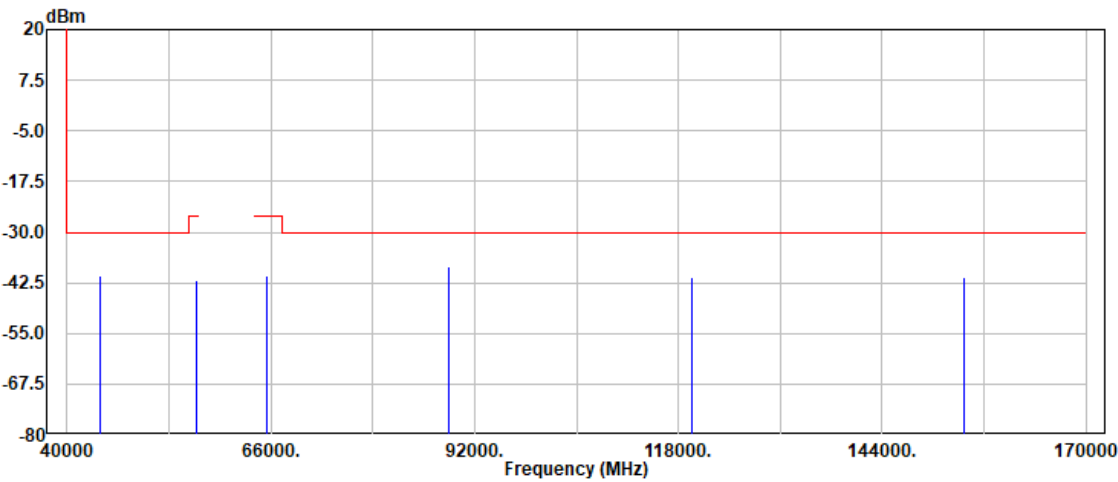
Test Date : 2025-09-25

Temp./Humi. : 25.4/52

Antenna Pol. : Horizontal

Engineer : Tony.Chao

Test Chamber : 966A



Freq	Read		Actual			Detector
-----	Level	Factor	FS	Limit	Margin	Mode
MHz	dBuV	dB	dBm	dBm	dB	PK/QP/AV
44200.00	5.38	-46.27	-40.89	-30.00	-10.89	Average
56600.00	5.33	-47.05	-41.72	-26.00	-15.72	Average
65400.00	5.58	-46.25	-40.67	-26.00	-14.67	Average
88800.00	5.50	-43.90	-38.40	-30.00	-8.40	Average
119800.00	5.60	-46.89	-41.29	-30.00	-11.29	Average
154400.00	5.69	-46.70	-41.01	-30.00	-11.01	Average



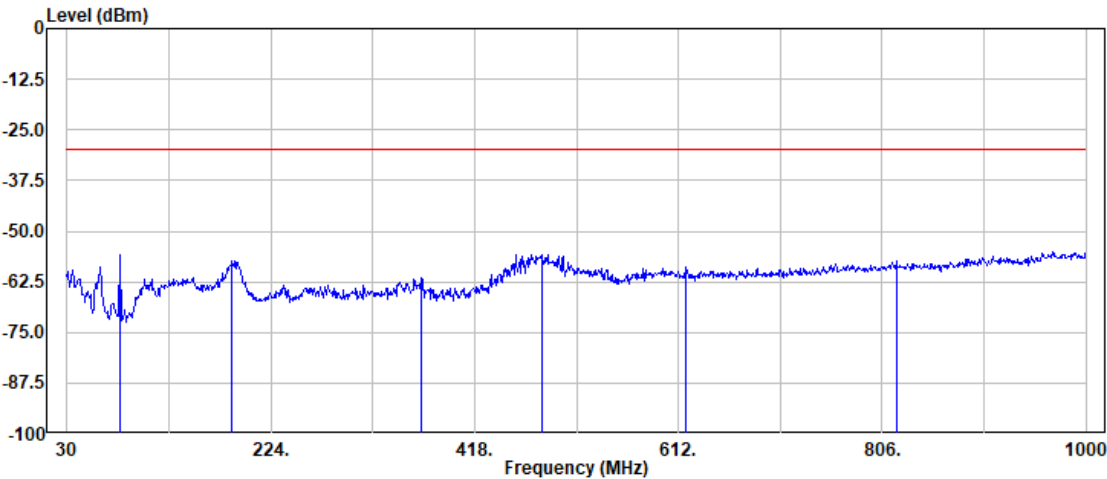
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Test Plots: RX Spurious

30MHz ~ 1GHz

Project No	: TM-2509000394P	Test Date	: 2025-09-25
Operation Band	: Radar	Temp./Humi.	: 25.4/52
Frequency	: 59.9 GHz	Antenna Pol.	: VERTICAL
Operation Mode	: RX	Engineer	: Tony.Chao
EUT Pol	: H	Test Chamber	: 966A
Setting	:		



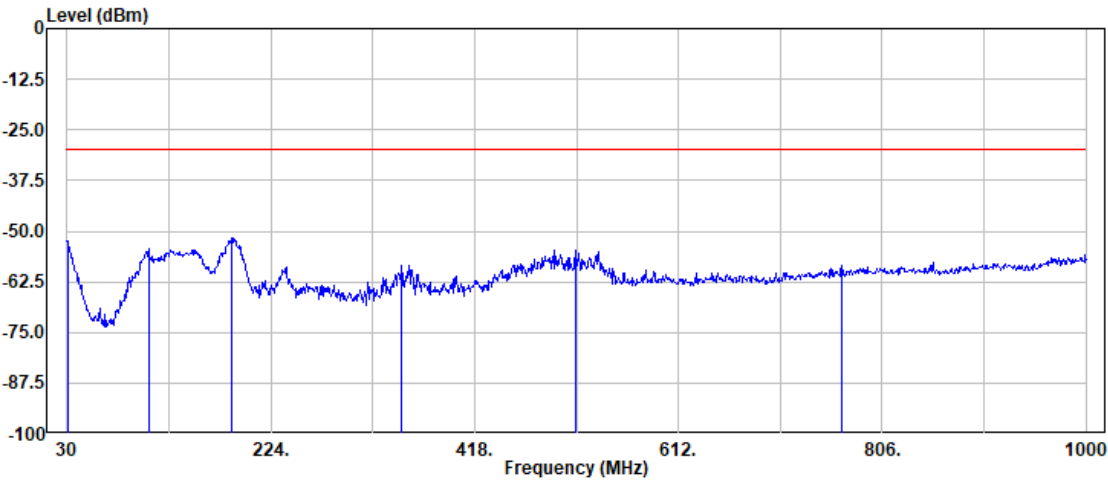
Freq	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
-----	-----	-----	-----	-----	-----	-----
MHz	dBm	dBm	dBi/dBd	dB	dBm	
80.10	-55.69	-50.29	-5.07	0.33	-30.00	-25.69
186.88	-57.20	-55.12	-1.59	0.49	-30.00	-27.20
367.57	-61.36	-61.43	0.76	0.69	-30.00	-31.36
482.56	-56.69	-55.12	0.23	0.79	-30.00	-26.69
619.72	-58.83	-58.85	0.91	0.89	-30.00	-28.83
819.31	-57.38	-57.39	1.04	1.03	-30.00	-27.38



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Project No	: TM-2509000394P	Test Date	: 2025-09-25
Operation Band	: Radar	Temp./Humi.	: 25.4/52
Frequency	: 59.9 GHz	Antenna Pol.	: HORIZONTAL
Operation Mode	: RX	Engineer	: Tony.Chao
EUT Pol	: H	Test Chamber	: 966A
Setting	:		



Freq	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
-----	-----	-----	-----	-----	-----	-----
MHz	dBm	dBm	dBi/dBd	dB	dBm	
30.82	-52.53	-25.92	-26.41	0.19	-30.00	-22.53
108.03	-54.37	-46.72	-7.28	0.37	-30.00	-24.37
186.05	-51.56	-49.61	-1.46	0.49	-30.00	-21.56
348.68	-58.59	-58.78	0.86	0.67	-30.00	-28.59
513.77	-54.71	-54.66	0.77	0.82	-30.00	-24.71
767.56	-58.49	-58.60	1.11	1.00	-30.00	-28.49

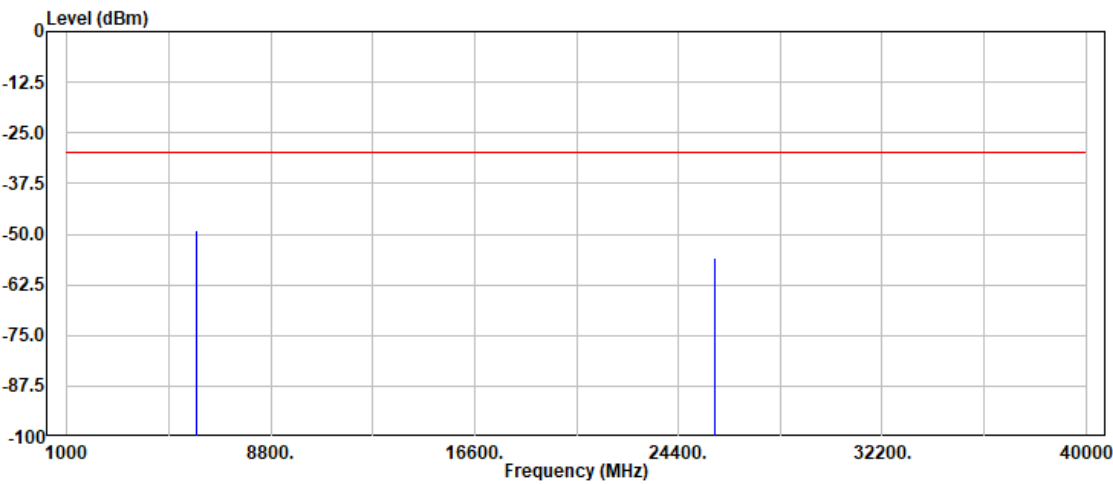


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1GHz ~ 40GHz

Project No	: TM-2509000394P	Test Date	: 2025-09-25
Operation Band	: Radar	Temp./Humi.	: 25.4/52
Frequency	: 59.9 GHz	Antenna Pol.	: VERTICAL
Operation Mode	: RX	Engineer	: Ben.Yang
EUT Pol	: H	Test Chamber	: 966A
Setting	:		



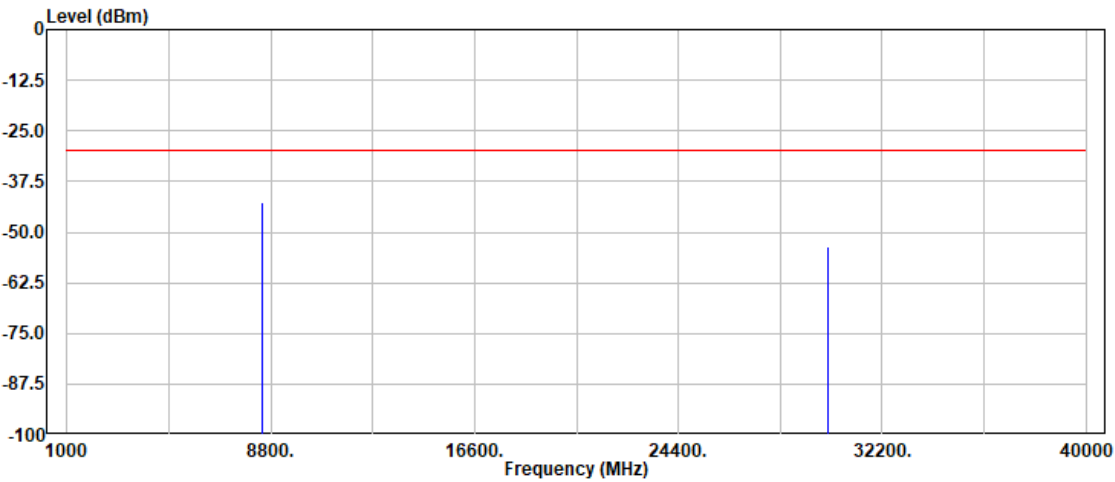
Freq	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
-----	-----	-----	-----	-----	-----	-----
MHz	dBm	dBm	dBi/dBd	dB	dBm	
5937.34	-49.12	-56.43	10.20	2.88	-30.00	-19.12
25786.62	-55.76	-61.90	12.46	6.32	-30.00	-25.76



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Project No	: TM-2509000394P	Test Date	: 2025-09-25
Operation Band	: Radar	Temp./Humi.	: 25.4/52
Frequency	: 59.9 GHz	Antenna Pol.	: HORIZONTAL
Operation Mode	: RX	Engineer	: Ben.Yang
EUT Pol	: H	Test Chamber	: 966A
Setting	:		



Freq	ERP/EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
-----	-----	-----	-----	-----	-----	-----
MHz	dBm	dBm	dBi/dBd	dB	dBm	
8485.18	-42.55	-51.84	12.77	3.48	-30.00	-12.55
30108.38	-53.58	-60.52	13.85	6.90	-30.00	-23.58

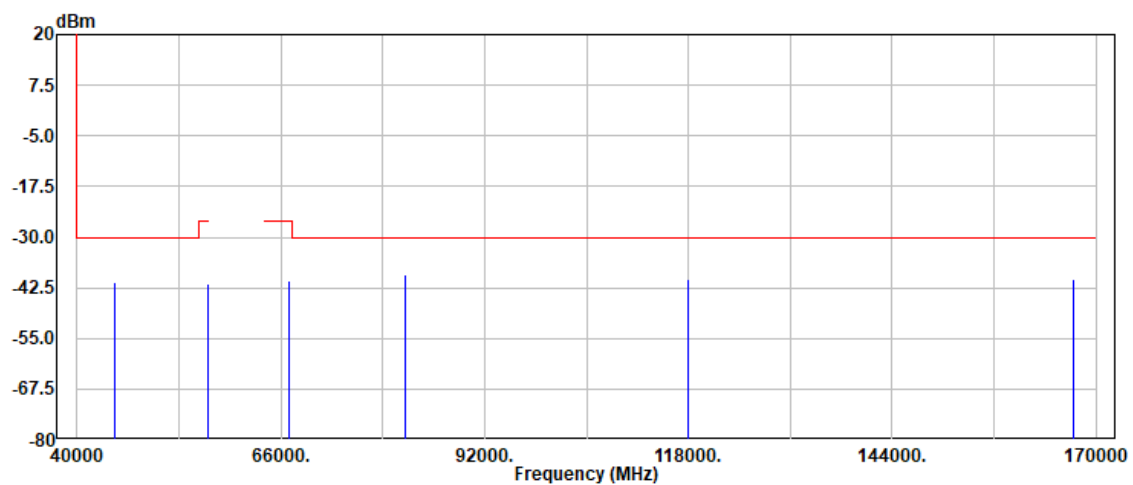


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40GHz ~ 170GHz

Project No	: TM-2509000394P	Test Date	: 2025-09-25
Operation Band	: Radar	Temp./Humi.	: 25.4/52
Frequency	: 59.9 GHz	Antenna Pol.	: Horizontal
Operation Mode	: RX	Engineer	: Tony.Chao
EUT Pol	: H	Test Chamber	: 966A
Setting	:		



Freq	Read		Actual			Detector
-----	Level	Factor	FS	Limit	Margin	Mode
MHz	dBuV	dB	dBm	dBm	dB	PK/QP/AV
44880.00	5.60	-46.61	-41.01	-30.00	-11.01	Average
56780.00	5.31	-47.00	-41.69	-26.00	-15.69	Average
66990.00	5.57	-46.37	-40.80	-26.00	-14.80	Average
81900.00	5.51	-44.82	-39.31	-30.00	-9.31	Average
118000.00	5.59	-45.88	-40.29	-30.00	-10.29	Average
167200.00	5.63	-46.00	-40.37	-30.00	-10.37	Average



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5.6 TRANSMISSION TIME RESTRICTION

Limit

3.3ms or less per 33ms

Spectrum Analyzer Conditions

Span: 0Hz

RBW: 1MHz

VBW: 1MHz

Sweep time: Wide enough to capture the complete duty cycle

Log scal : 10dB/Div, Data points : 501points (400 points or more)

Detection: Positive Peak, Sweep mode: Single

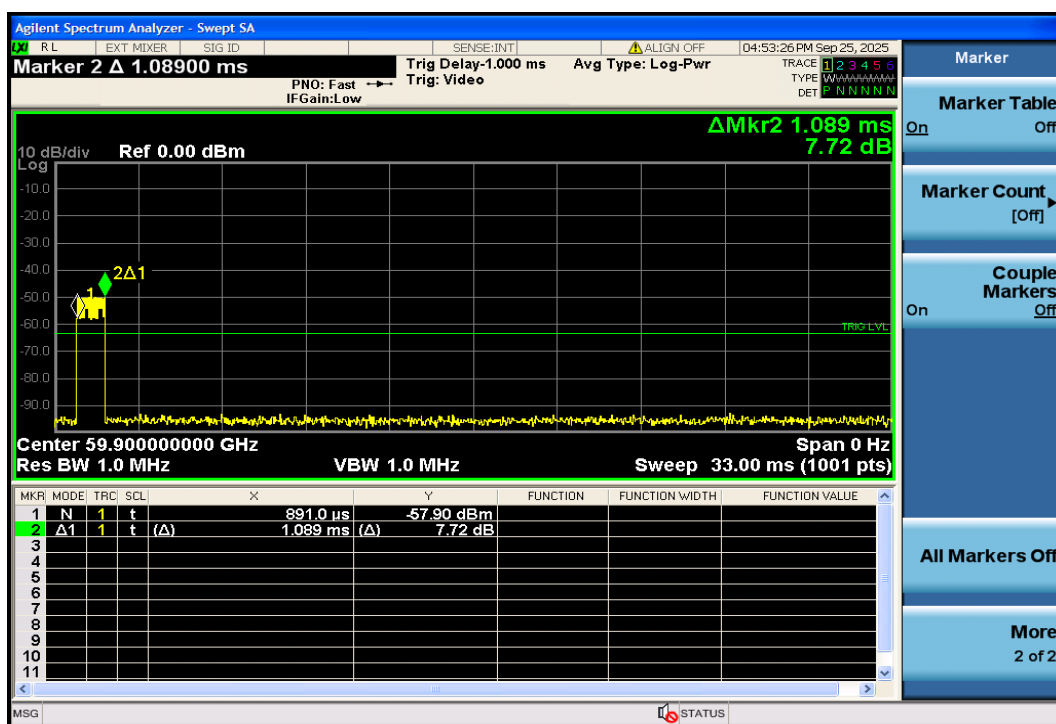
Test Procedure

1. EUT and measurement system setup as Measurement System Diagram;
2. Spectrum analyzer setup as Spectrum Condition;
3. EUT was set into operating mode;
4. Wait the trace of spectrum analyzer stabilization, marking as requirements;
5. Capture the trace or recorded the data.

Test Data

Tx time			
Frequency Range (GHz)	ON(ms)	Result	Limit 10% or less for 33msec
57GHz~64GHz	1.089	Pass	

Note:
One burst: 1.089ms
33ms's 10%=3.3ms



- End of Test Report -