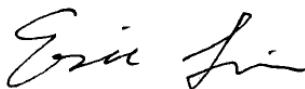


TEST REPORT

Application No.:	KSCR2211002351HS (SHCR2208001775ME)	
FCC ID:	2AQ9VMMWS	
Applicant:	Shanghai United Imaging Healthcare Co., Ltd.	
Address of Applicant:	2258 Chengbei Rd., Jiading District, Shanghai	
Manufacturer:	Shanghai United Imaging Healthcare Co., Ltd.	
Address of Manufacturer:	2258 Chengbei Rd., Jiading District, Shanghai	
Factory:	Shanghai United Imaging Healthcare Co., Ltd.	
Address of Factory:	2258 Chengbei Rd., Jiading District, Shanghai	
Equipment Under Test (EUT):		
EUT Name:	MMWS	
Model No.:	mmw100, mmw101	
Remark :	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.	
Standard(s) :	47 CFR Part 15, Subpart C 15.255	
Date of Receipt:	2022-08-29	
Date of Test:	2022-09-23 to 2022-10-10	
Date of Issue:	2022-11-30	
Test Result:	Pass*	

* In the configuration tested, the EUT complied with the standards specified above.



Eric Lin
Laboratory Manager



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Revision Record			
Version	Description	Date	Remark
00	Original	2022-11-30	/

Authorized for issue by:			
		Damon Zhou	
		Damon Zhou / Project Engineer	
		Eric Lin	
		Eric Lin / Reviewer	



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Report No.: KSCR221100235101

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2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.255	N/A	47 CFR Part 15, Subpart C 15.203	Pass

N/A: Not applicable

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Peak EIRP and Peak conducted output power	47 CFR Part 15, Subpart C 15.255	ANSI C63.10, Sections 9.4,9.5,9.10	47 CFR Part 15, Subpart C 15.255(c)(3)	PASS
Occupied bandwidth	47 CFR Part 15, Subpart C 15.255	ANSI C63.10 (2013) Section 9.3	47 CFR Part 15, Subpart C 15.215(c),15.255(c2)	PASS
Radiated spurious emissions below 40 GHz	47 CFR Part 15, Subpart C 15.255	ANSI C63.10 (2013) Section 9.11	47 CFR Part 15, Subpart C 15.255(d)(2)	PASS
Radiated emissions outside assigned band and above 40 GHz up to 200 GHz	47 CFR Part 15, Subpart C 15.255	ANSI C63.10 (2013) Section 9.10	47 CFR Part 15, Subpart C 15.255(d)(3)	PASS
Frequency stability	47 CFR Part 15, Subpart C 15.255	ANSI C63.10 (2013) Section 9.5	47 CFR Part 15, Subpart C 15.255(f)	PASS

Declaration of EUT Family Grouping:

Note: There are series models mentioned in this report, and they are the similar in electrical and electronic characters. Only the model mmw100 was tested since their differences were the model number and appearance.

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4 General Information

4.1 Details of E.U.T.

Power supply: DC 12V
Test voltage: AC 120V/60Hz For PWDT
Frequency: 59GHz-64GHz
Center Frequency: 61.79GHz
Channel Number: 1
Modulation Type: FMCW
Antenna Type: Integrated Patch Antenna

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
PWDT	United Imaging	78006835	10004

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	8.4 x 10 ⁻⁸
2	Occupied Bandwidth	3%
3	RF Radiated Power	5.2dB (Below 1GHz)
		5.9dB (Above 1GHz)
4	Radiated Spurious Emission Test	4.2dB (Below 30MHz)
		4.5dB (30MHz-1GHz)
		5.1dB (1GHz-18GHz)
		5.4dB (Above 18GHz)
5	Temperature Test	1°C
6	Humidity Test	3%
7	Supply Voltages	1.5%
8	Time	3%

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



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4.4 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:

- 1.SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).
- 2.SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- A2LA

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

- FCC

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

- ISED

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E

- VCCI

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



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5 Equipment List

Item	Equipment	Manufacturer	Model	Serial Number	Cal Date	Cal. Due Date
RF Radiated Test						
1	Spectrum Analyzer	R&S	FSV40	101493	10/11/2021	10/10/2023
2	Signal Generator	Agilent	E8257C	MY43321570	10/18/2021	10/17/2023
3	Loop Antenna	Schwarzbeck	HXYZ9170	9170-108	02/21/2022	02/20/2023
4	Bilog Antenna	TESEQ	CBL 6112D	35403	06/21/2021	06/20/2023
5	Bilog Antenna	SCHWARZBECK	VULB9160	9160-3342	04/13/2021	04/12/2023
6	Horn-antenna(1-18GHz)	Schwarzbeck	BBHA9120D	267	10/26/2020	10/25/2022
7	Horn-antenna(1-18GHz)	ETS-LINDGREN	3117	00143290	02/22/2021	02/21/2023
8	Horn Antenna(18-40GHz)	Schwarzbeck	BBHA9170	BBHA9170171	02/21/2022	02/20/2023
9	Horn-antenna(40-60GHz)	REBES	SAZ-2410-19-S1	06299-01	N/A	N/A
10	Horn-antenna(50-75GHz)	REBES	SAZ-2410-15-S1	01731-01	N/A	N/A
11	Horn-antenna(75-110GHz)	REBES	SAZ-2410-10-S1	01773-09	N/A	N/A
12	Horn-antenna(110-170GHz)	REBES	SAZ-2410-06-S1	01776-05	N/A	N/A
13	Horn-antenna(140-220GHz)	REBES	SAZ-2410-05-S1	01759-04	N/A	N/A
14	Horn-antenna(220-325GHz)	REBES	SAR-2309-03-S2	06300-01	N/A	N/A
15	Extended waveguide(40-60GHz)	REBES	SWG-19025-FB	06303-01	N/A	N/A
16	Extended waveguide(50-75GHz)	REBES	SWG-15025-FB	01525-09	N/A	N/A
17	Extended waveguide(75-110GHz)	REBES	SWG-10025-FB	01509-01	N/A	N/A
18	Extended waveguide(110-170GHz)	REBES	SWG-06025-FB	06302-01	N/A	N/A
19	Extended waveguide(140-220GHz)	REBES	SWG-05025-FB	06304-01	N/A	N/A
20	Extended waveguide(220-325GHz)	REBES	SWG-03025-FB	06301-01	N/A	N/A
21	Harmonic mixer(110-170GHz)	REBES	STH-06SF-S1	06110-01	N/A	N/A
22	Harmonic mixer(40-60GHz)	REBES	STH-19SF-S1	06937-01	N/A	N/A
23	Waveguide Harmonic Mixer(50-75GHz)	KEYSIGHT	M1970V	MY51390966	N/A	N/A
24	Waveguide Harmonic Mixer(50-75GHz) cable	Silverline	SLU18-SMSM-01.00M	99612	N/A	N/A
25	Waveguide Harmonic Mixer(75-110GHz)	KEYSIGHT	M1970W	MY51430883	N/A	N/A
26	Waveguide Harmonic Mixer(75-110GHz) cable	Silverline	SLU18-SMSM-01.00M	94202	N/A	N/A
27	Pre-Amplifier(30MHz~18GHz)	LNA	/	/	04/14/2022	04/13/2023
28	Amplifier(18~40GHz)	COM-POWER	PAM-840A	461332	10/18/2021	10/17/2023
29	Low Pass Filter	MICRO-TRONICS	VLFX-950	RV142900829	N.C.R	N.C.R
30	High Pass Filter	Mini-Circuits	VHF-1200	15542	N.C.R	N.C.R
31	RE test cable	/	RE01-RE04	/	04/14/2022	04/13/2023
32	PXA Spectrum Analyzer	KEYSIGHT	N9010A	MY56480443	01/30/2022	01/29/2023
33	Vector Signal Generator	R&S	SMW200A	110074	10/12/2021	10/12/2023
34	Software	Farad	EZ-EMC	CCS-03A1	N/A	N/A

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6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

FCC 47 CFR Part 15C Section 15.203

6.1.2 Conclusion

Standard Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is Integrated patch antenna and no consideration of replacement.

Antenna location: Refer to EUT Photos.



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7 Radio Spectrum Matter Test Results

7.1 Occupied bandwidth

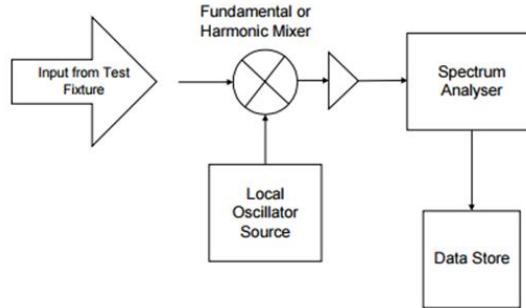
Test Requirement 47 CFR Part 15, Subpart C 15.215(c)
Test Method: ANSI C63.10, Section 9.3

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar
Test Mode: a: TX mode _ Keep the EUT in continuously transmitting mode.

7.1.2 Test Setup Diagram



7.1.3 Measurement Procedure and Data

- 1) Place the EUT on the table and set it in the transmitting mode
- 2) SA set RBW=5MHz, VBW=RBW and Detector=Peak
- 3) Measure and record the result of 20dB bandwidth



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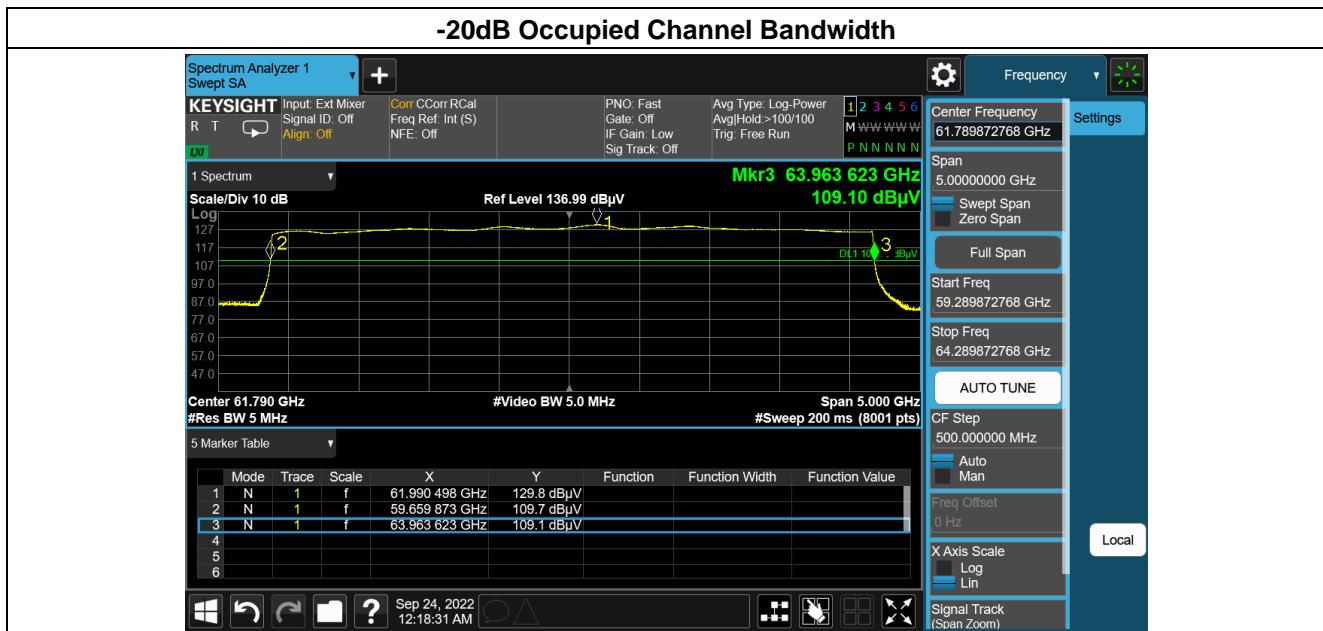
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Centre Frequency (GHz)	-20dB OCW (GHz)	F _L (GHz)	Limit (GHz)	F _H (GHz)	Limit (GHz)	Result
61.790	4.394	59.659	57	63.963	71	Pass

Remark:

F_L : Frequency Low Band Edge, F_H : Frequency High Band Edge

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7.2 Peak EIRP conducted output power

Test Requirement 47 CFR Part 15, Subpart C 15.255(c)(2)

Test Method: ANSI C63.10, Sections 9.4, 9.5

Limit:

Assigned frequency range (MHz)	Maximum output power
	Peak EIRP (dBm)
57000 - 71000	10

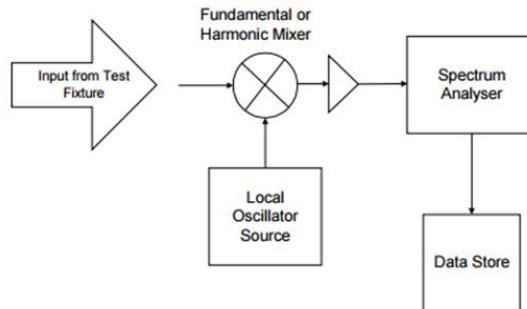
7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test Mode: a: TX mode _ Keep the EUT in continuously transmitting mode.

7.2.2 Test Setup Diagram



7.2.3 Measurement Procedure and Data

- 1) Place the EUT on the table and set it in the transmitting mode
- 2) SA set RBW=3MHz , VBW=3*RBW , Detector=Peak/Average, Trace: Mask Hold, Peak Search
- 3) The EUT was turned from 0 degrees to 360 degrees to find the maximum reading.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



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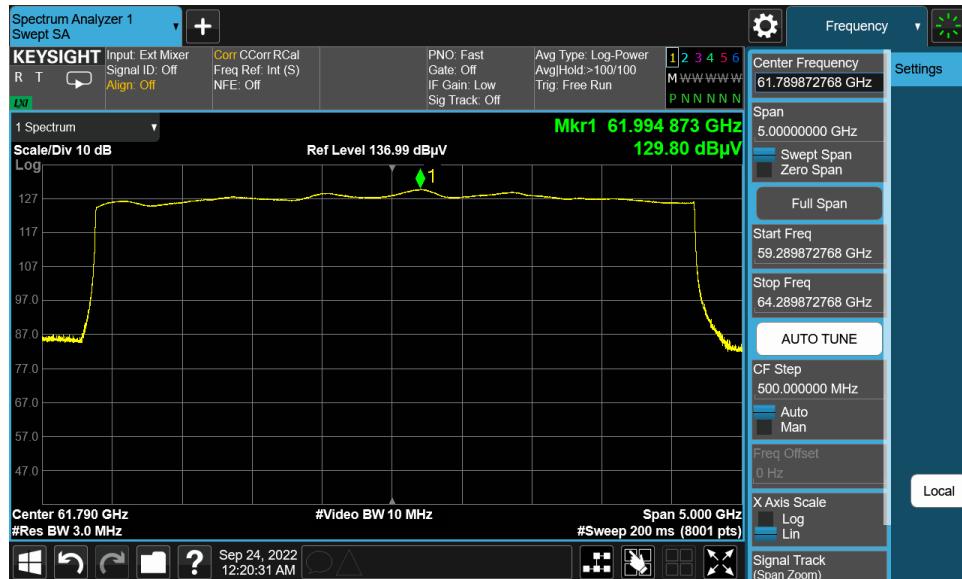
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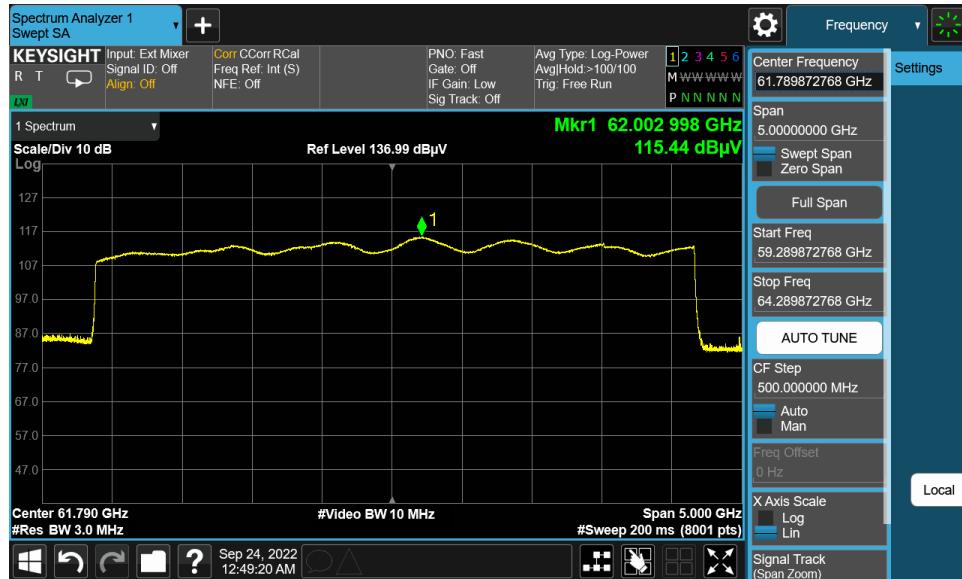
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Peak Power- Horizontal



Peak Power- Vertical



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Frequency (GHz)	Distance (cm)	Polarity	dBuV/m @ 0.15m	E.I.R.P. Power (dBm)	E.I.R.P Limit (dBm)	Result	Remark
61.790	15	Horizontal	129.80	8.55	10	Pass	peak
		Vertical	115.44	-5.81	10	Pass	peak

Remark:

$E[\text{dB}\mu\text{V}/\text{m}] = \text{EIRP}[\text{dBm}] - 20 \log(d[\text{meters}]) + 104.77$, where E = field strength and d = distance at which field strength limit is specified in the rules

$\text{EIRP}[\text{dBm}] = E[\text{dB}\mu\text{V}/\text{m}] + 20 \log(d[\text{meters}]) - 104.77$



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7.3 Peak conducted output power

Test Requirement 47 CFR Part 15, Subpart C 15.255(c)(3)

Test Method: ANSI C63.10, Sections 9.10

Limit:

Assigned frequency range (MHz)	Maximum output power
Peak conducted output power (dBm)	
57000 - 71000	-10

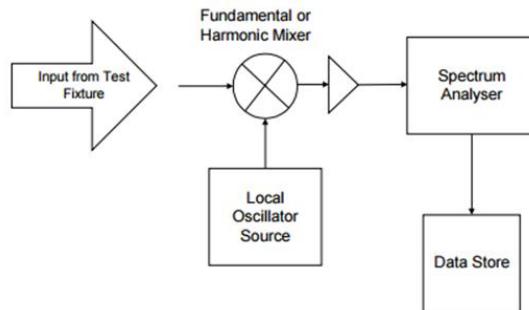
7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test Mode: a: TX mode _ Keep the EUT in continuously transmitting mode.

7.3.2 Test Setup Diagram



7.3.3 Measurement Procedure and Data

- 1) connect the external mixer and spectrum analyzer to the output port of the EUT
- 2) SA set RBW=8MHz , VBW=50MHz , Detector=Peak, Trace: Mask Hold, Peak Search

Remark 1: Level= Read Level+ Cable Loss

Frequency (GHz)	Peak conducted output power (dBm)	Peak conducted output power (dBm)	Result	Remark
61.790	-11.669	-10	Pass	peak



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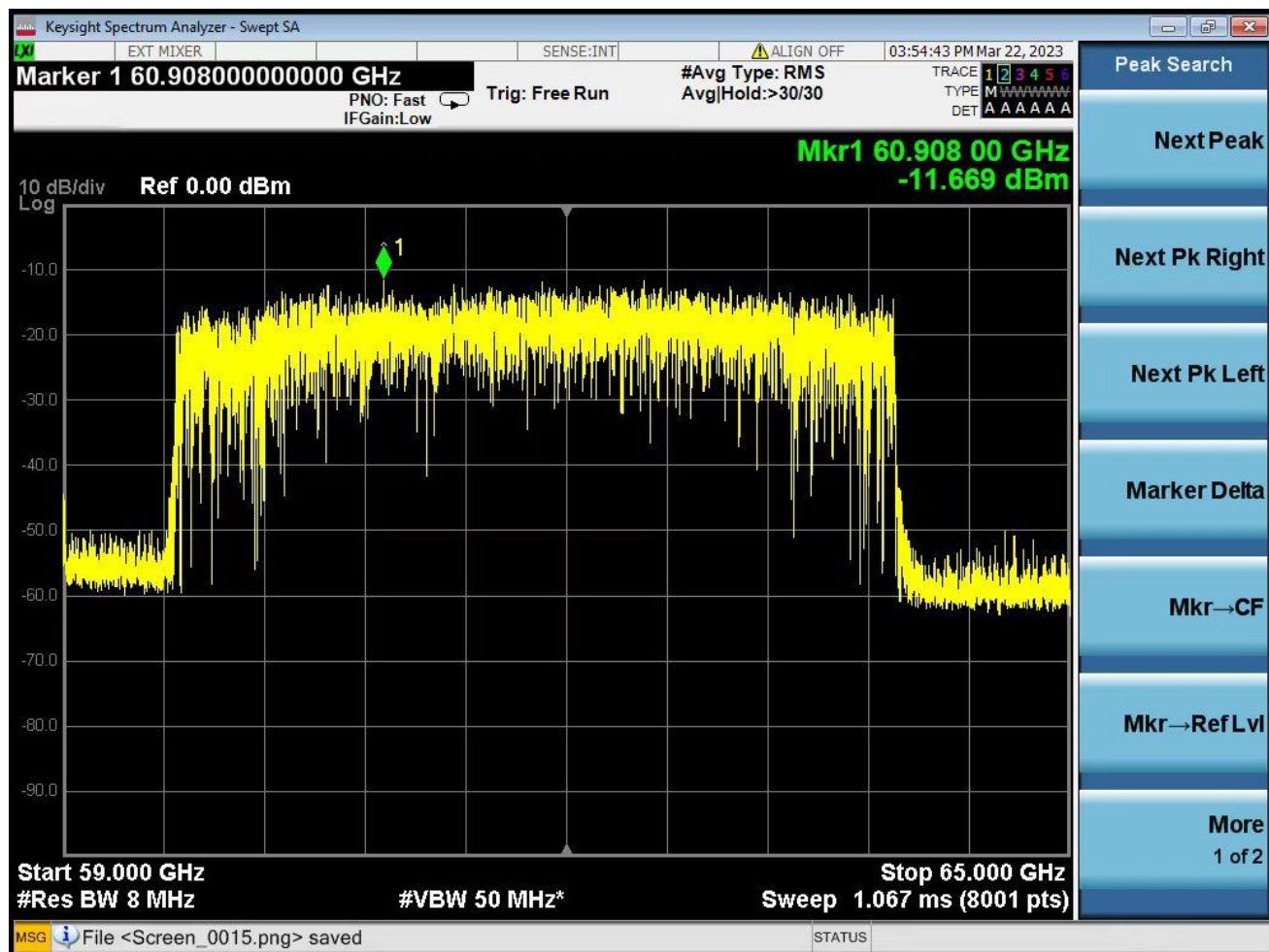
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7.4 Out of band radiated emissions below 40 GHz

Test Requirement 47 CFR Part 15, Subpart C 15.255(d)(2)

Test Method: ANSI C63.10, Section 9.13

Limit:

Below 30MHz

Frequency	Field Strength (μ V/m)	Measurement Distance (metres)
9 - 490 kHz	2,400/F (kHz)	300
490 - 1,705 kHz	24,000/F (kHz)	30
1.705-30 MHz	30	30

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

Above 30MHz

Frequency (MHz)	Field Strength (μ V/m)	Measurement Distance (metres)
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.

Frequency (MHz)	Field strength at 3 m, dB(μ V/m)*		
	Within restricted bands		
	Peak	Quasi Peak	Average
0.009 - 0.090	148.5 - 128.5	NA	128.5 - 108.5**
0.090 - 0.110	NA	108.5 - 106.8**	NA
0.110 - 0.490	126.8 - 113.8	NA	106.8 - 93.8**
0.490 - 1.705		73.8 - 63.0**	NA
1.705 - 30.0*		69.5	
30 - 88		40.0	
88 - 216		43.5	
216 - 960		46.0	
Above 960		54.0	

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1000 - 200000	74.0	N/A	54.0
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*- The limit for 3 m test distance was calculated using the inverse square distance extrapolation factor as follows:

$$L_{mS2} = L_{mS1} + 20 \log (S1/S2),$$

where S1 and S2 - standard defined and test distance respectively in meters.

**- The limit decreases linearly with the logarithm of frequency.

Note: The above field strength limits applied from the lowest radio frequency generated in the device, without going below 9 kHz up to the tenth harmonic of the highest fundamental frequency but not exceeding 40 GHz for intentional radiators operated below 10 GHz and up to the fifth harmonic of the highest fundamental frequency but not exceeding 200 GHz for intentional radiators operated above 30 GHz.

Frequency (MHz)	Field strength at 1 m, dB(uV/m)*		
	Peak	Quasi Peak	Average
1000 - 200000	83.5	N/A	63.5

7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test Mode : a: TX mode _ Keep the EUT in continuously transmitting mode powered.

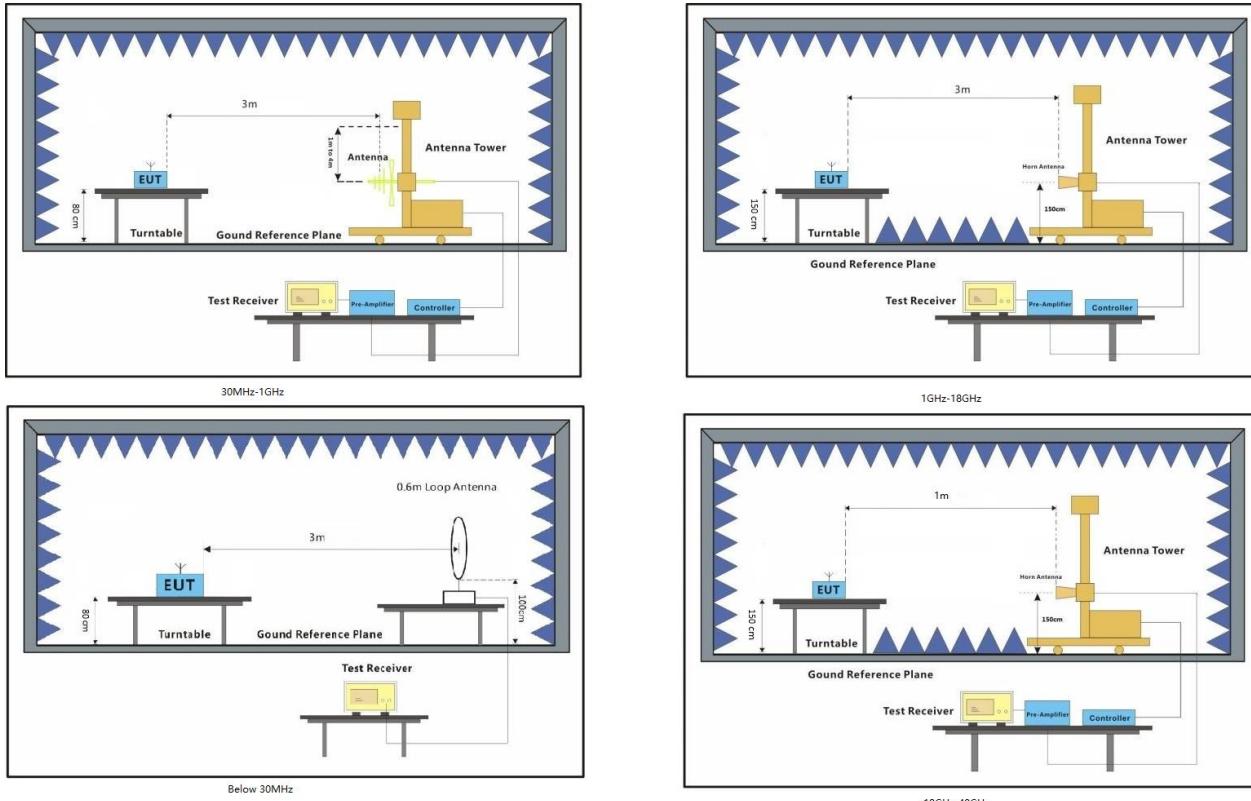


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7.4.2 Test Setup Diagram


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7.4.3 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For 1-18GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. For 18-40GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 1 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to the same height (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

Remark 3: Scan from 9kHz to 40GHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.



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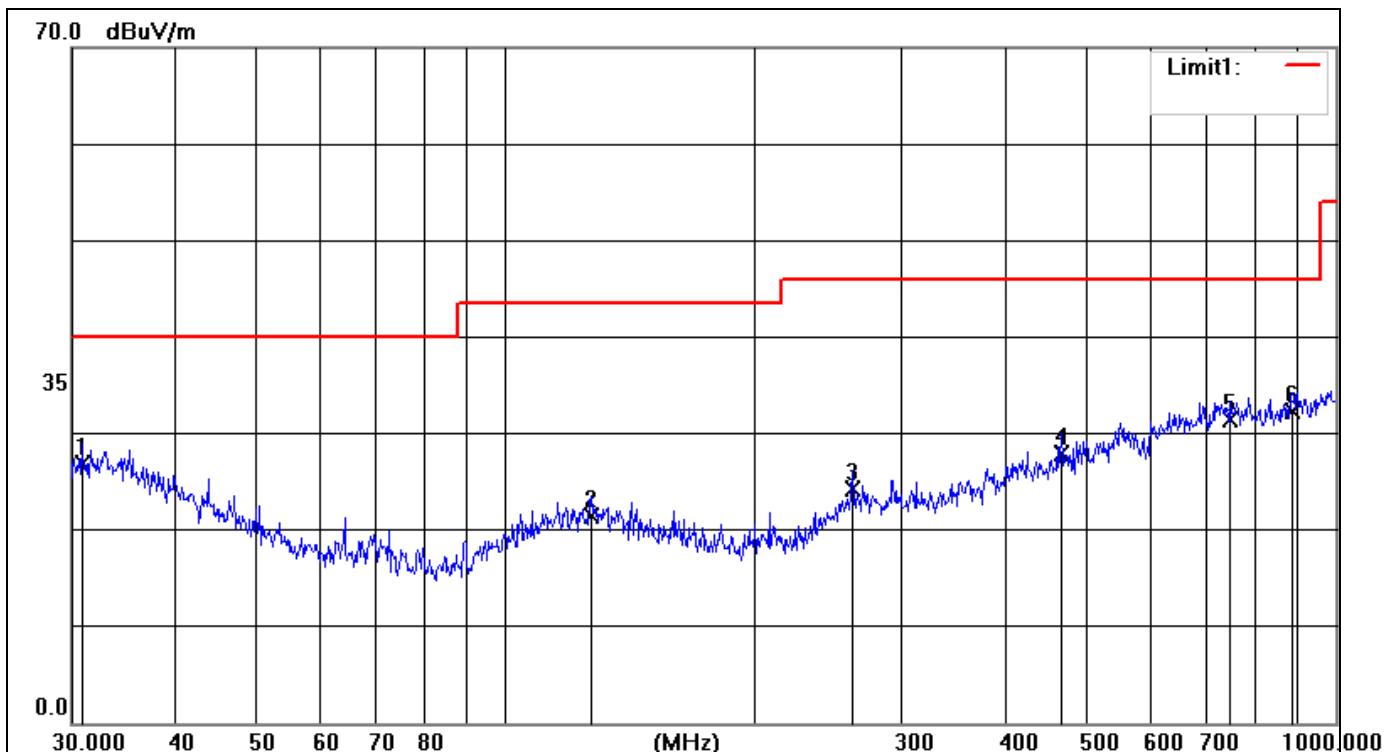
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Radiation Spurious Emission 30MHz-1GHz Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.8535	1.75	25.14	26.89	40.00	-13.11	QP
2	126.7723	2.03	19.46	21.49	43.50	-22.01	QP
3	261.9753	3.18	21.04	24.22	46.00	-21.78	QP
4	467.2348	2.98	24.98	27.96	46.00	-18.04	QP
5	747.4825	29.02	2.37	31.39	46.00	-14.61	QP
6	887.6100	29.89	2.37	32.26	46.00	-13.74	QP



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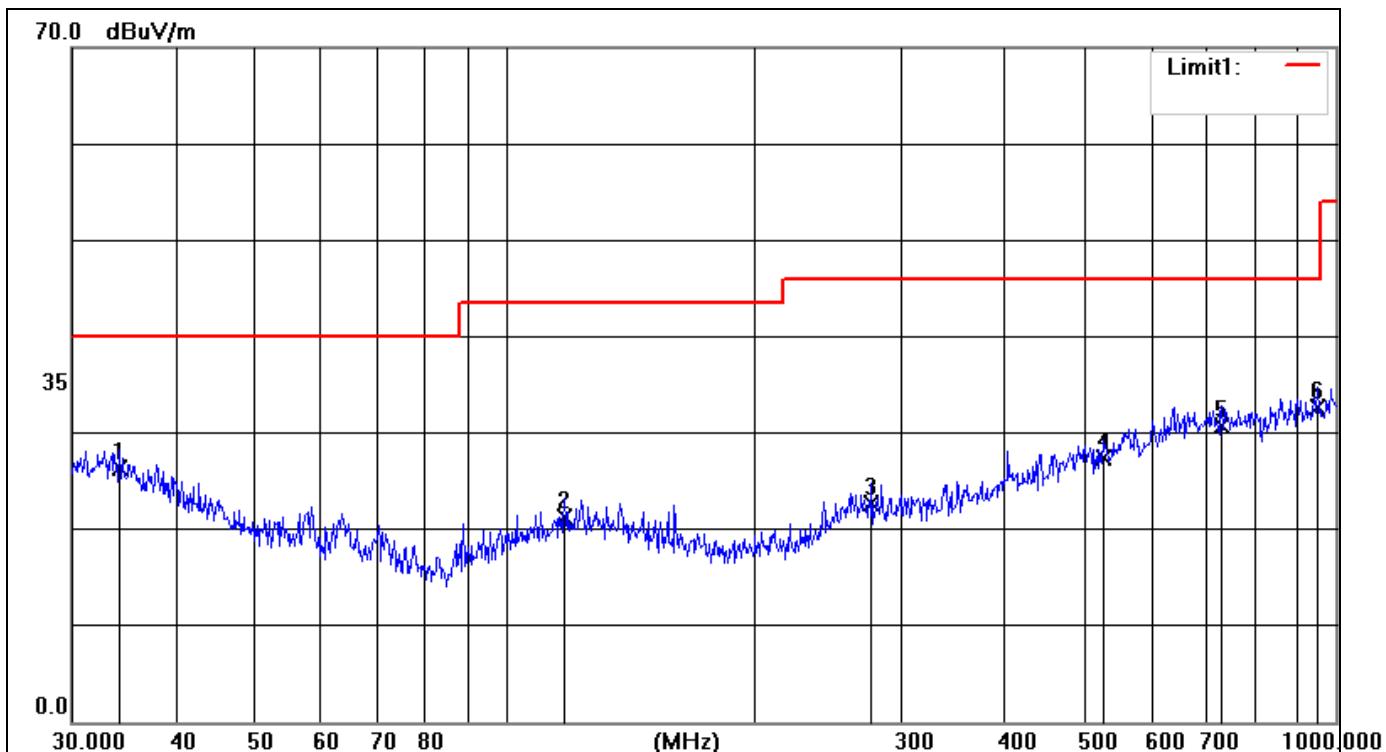
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30MHz-1GHz Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	34.2760	1.43	24.83	26.26	40.00	-13.74	QP
2	117.7724	1.95	19.25	21.20	43.50	-22.30	QP
3	276.1235	2.45	20.25	22.70	46.00	-23.30	QP
4	524.5540	1.39	25.93	27.32	46.00	-18.68	QP
5	729.3582	28.39	2.41	30.80	46.00	-15.20	QP
6	952.0937	30.10	2.62	32.72	46.00	-13.28	QP

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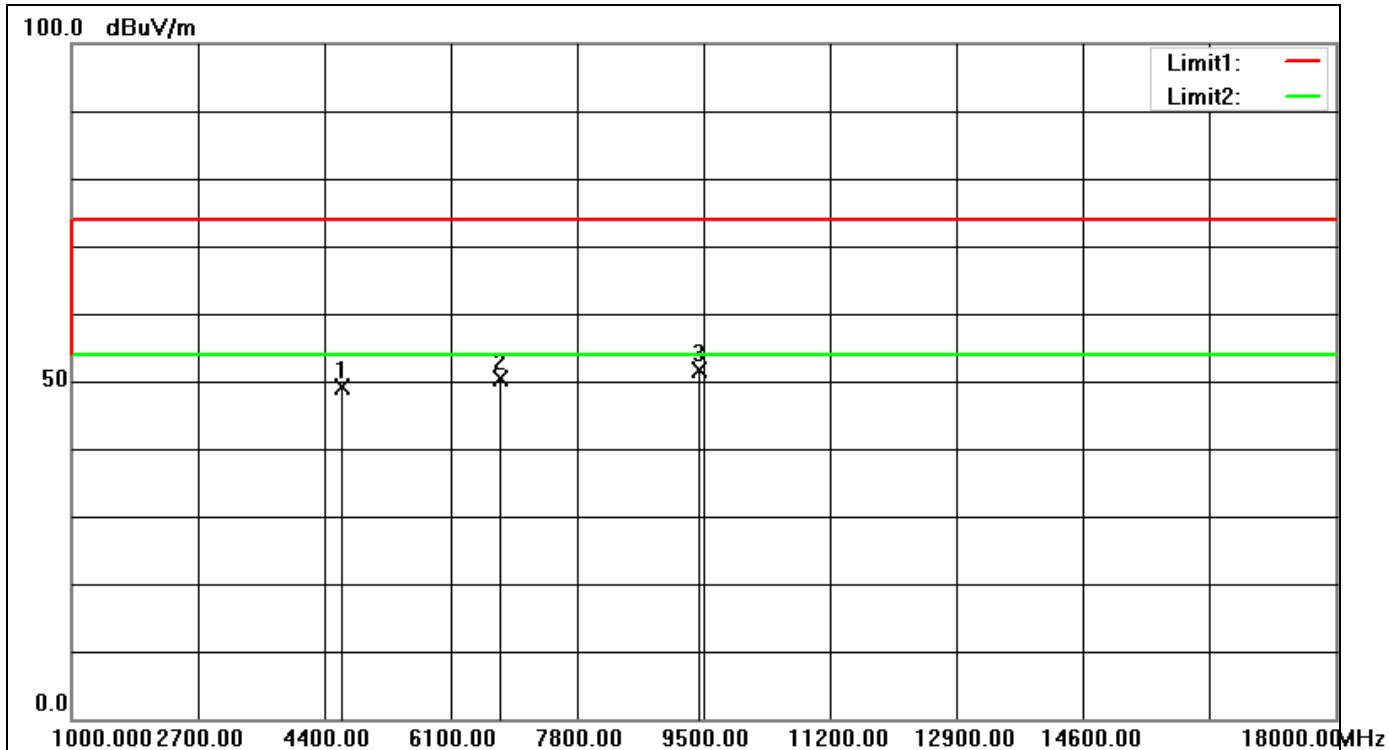
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1-18GHz Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4628.000	60.89	-11.82	49.07	74.00	-24.93	peak
2	6759.000	56.46	-6.01	50.45	74.00	-23.55	peak
3	9449.000	52.23	-0.54	51.69	74.00	-22.31	peak



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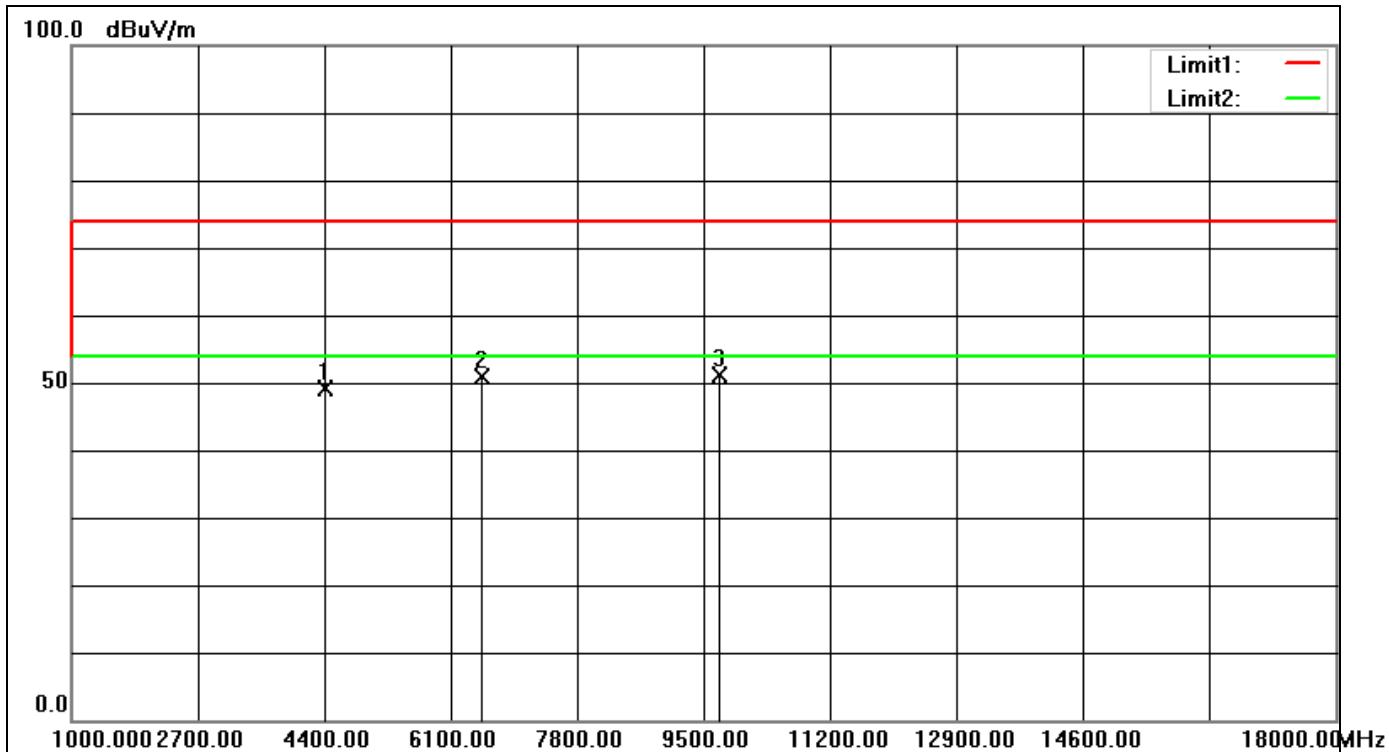
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1-18GHz Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4413.000	61.46	-12.30	49.16	74.00	-24.84	peak
2	6524.000	56.90	-6.12	50.78	74.00	-23.22	peak
3	9715.000	51.17	-0.11	51.06	74.00	-22.94	peak



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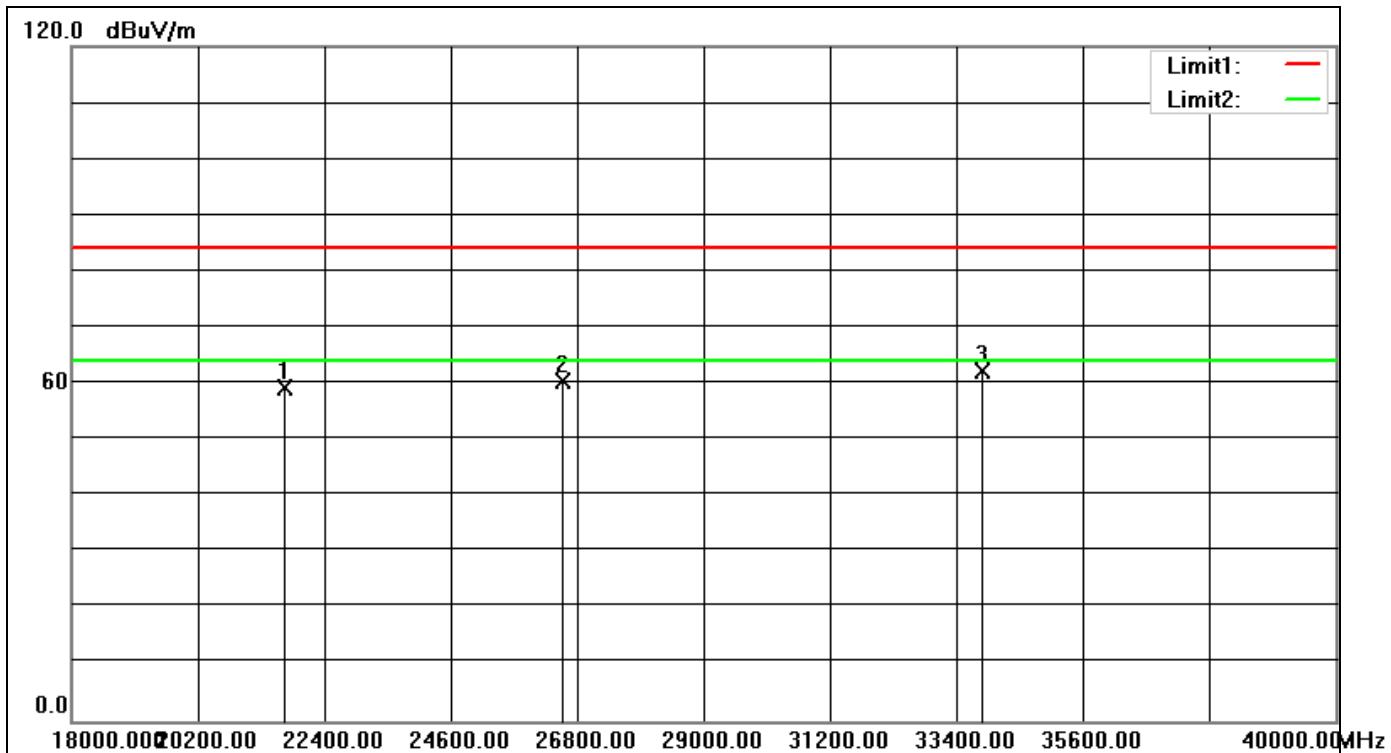


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18-40GHz Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	21696.00	46.47	12.79	59.26	83.50	-24.24	peak
2	26542.00	44.52	15.88	60.40	83.50	-23.10	peak
3	33864.00	43.13	19.22	62.35	83.50	-21.15	peak



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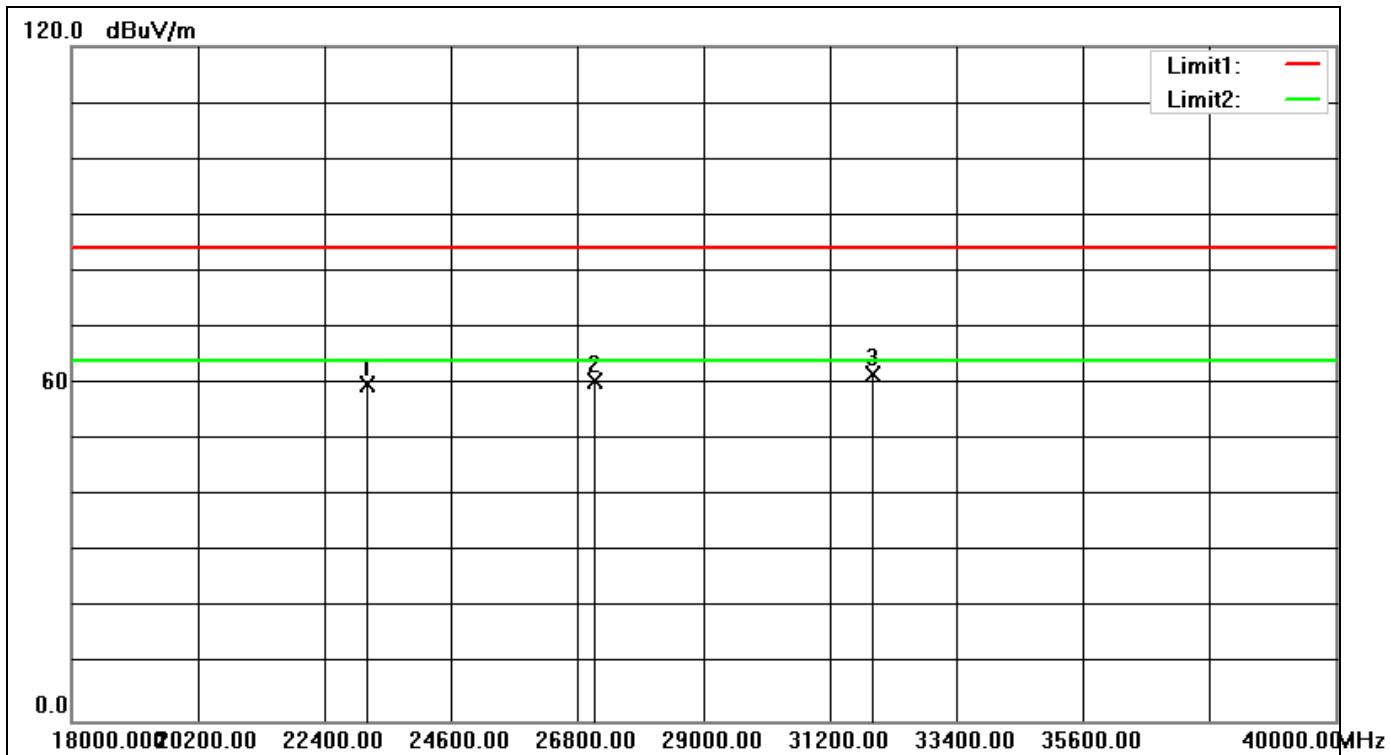
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18-40GHz Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	23146.000	47.41	12.47	59.88	83.50	-23.62	peak
2	27094.000	44.50	16.01	60.51	83.50	-22.99	peak
3	31940.000	47.08	14.71	61.79	83.50	-21.71	peak

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7.5 Out of band radiated emissions above 40 GHz

Test Requirement 47 CFR Part 15, Subpart C 15.255(d)(3)

Test Method: ANSI C63.10, Section 9.9, 9.12

Limit:

Above 40GHz

Frequency (GHz)	Power density at 3 m distance (pW/cm ²)	Distance (m)	Field strength (dBuV/m)*, peak	Field strength (dBuV/m)*, average
40 - 200	90	3.0	105.31	85.31
40 - 200	90	0.15	131.33**	111.33**

* - Field strength was calculated per equation (26) of ANSI C63.10-2013 section 9 as follows: $E = \sqrt{PD \times 377}$, where PD is the power density at the distance specified by the limit in W/m², E- field strength in V/m.

**- The limit for other test distance was calculated using the inverse distance extrapolation factor as follows:

$\text{LimS2} = \text{LimS1} + 20 \log(S1/S2)$, where S1 and S2 - standard defined and test distance respectively in meters.

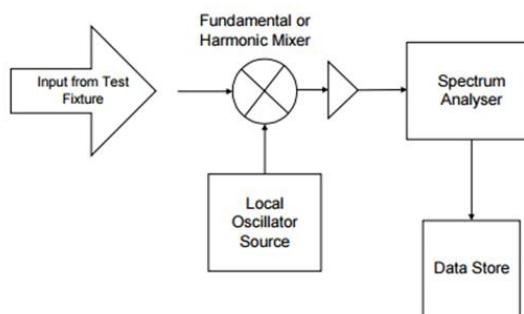
7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode: a: TX mode _ Keep the EUT in continuously transmitting mode.

7.5.2 Test Setup Diagram



Above 40GHz



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7.5.3 Measurement Procedure and Data

- a. For above 40GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at fully-anechoic chamber. The distance from EUT to the test antenna is 0.15 meter, The EUT was rotated 360 degrees to determine the position of the highest radiation
- b. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- c. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to the same height (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- d. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- e. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- f. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- g. Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.



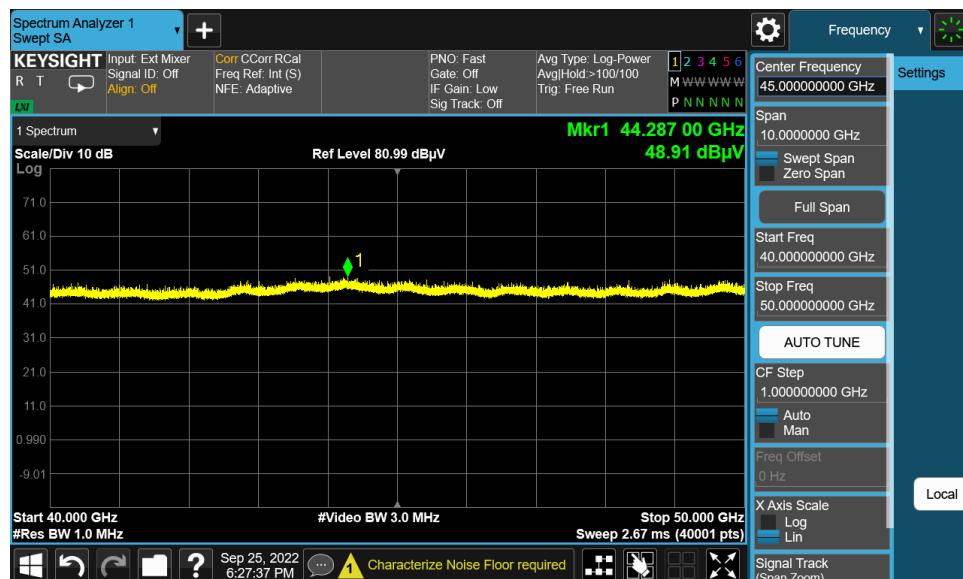
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40-50GHz Horizontal

40-50GHz Vertical


Frequency (GHz)	Distance (M)	Peak Value (dBuv/m)	AV Limit (dBuv/m)	Polarization	Result
44.23250	0.15	49.56	111.33	V	PASS
44.28700	0.15	48.91	111.33	H	PASS



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50-75GHz Horizontal



50-75GHz Vertical



Frequency (GHz)	Distance (M)	Peak Value (dBuv/m)	AV Limit (dBuv/m)	Polarization	Result
56.8350	0.15	82.18	111.33	H	PASS
56.8350	0.15	83.67	111.33	V	PASS

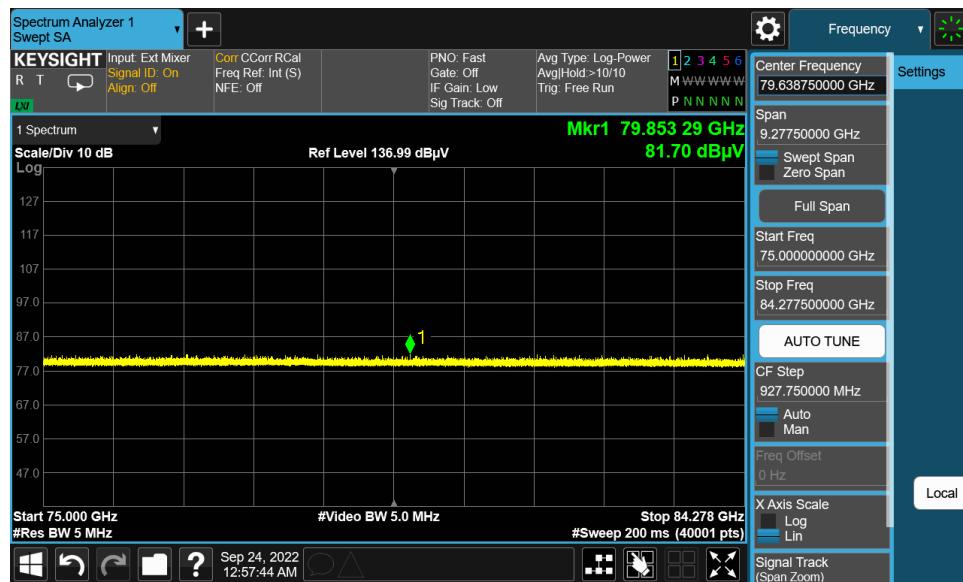


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75-110GHz Horizontal

75-110GHz Vertical


Frequency (GHz)	Distance (M)	Peak Value (dBuv/m)	AV Limit (dBuv/m)	Polarization	Result
79.85329	0.15	81.70	111.33	H	PASS
80.51942	0.15	81.36	111.33	V	PASS



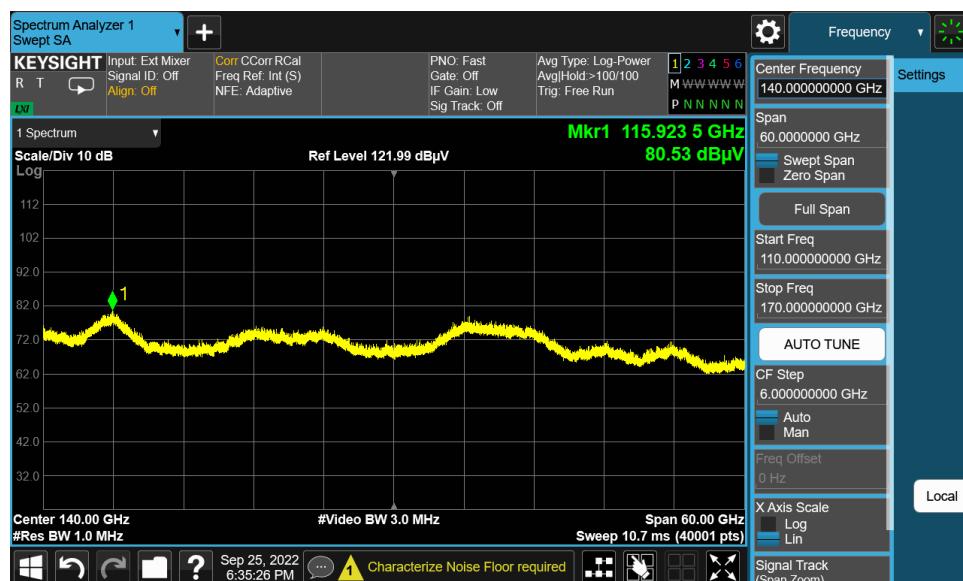
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110-170GHz Horizontal

110-170GHz Vertical


Frequency (GHz)	Distance (M)	Peak Value (dBuv/m)	AV Limit (dBuv/m)	Polarization	Result
115.2110	0.15	80.45	111.33	H	PASS
115.9235	0.15	80.53	111.33	V	PASS

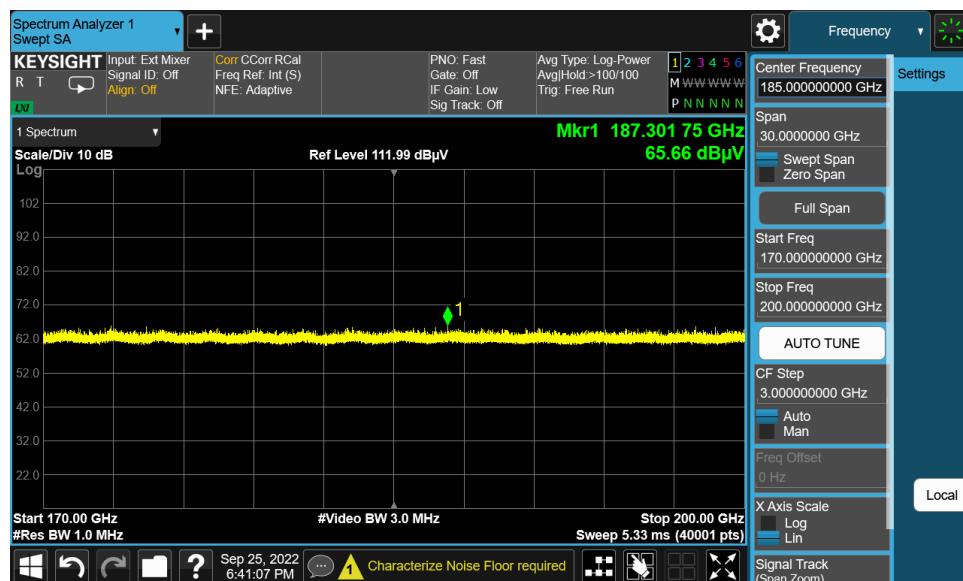
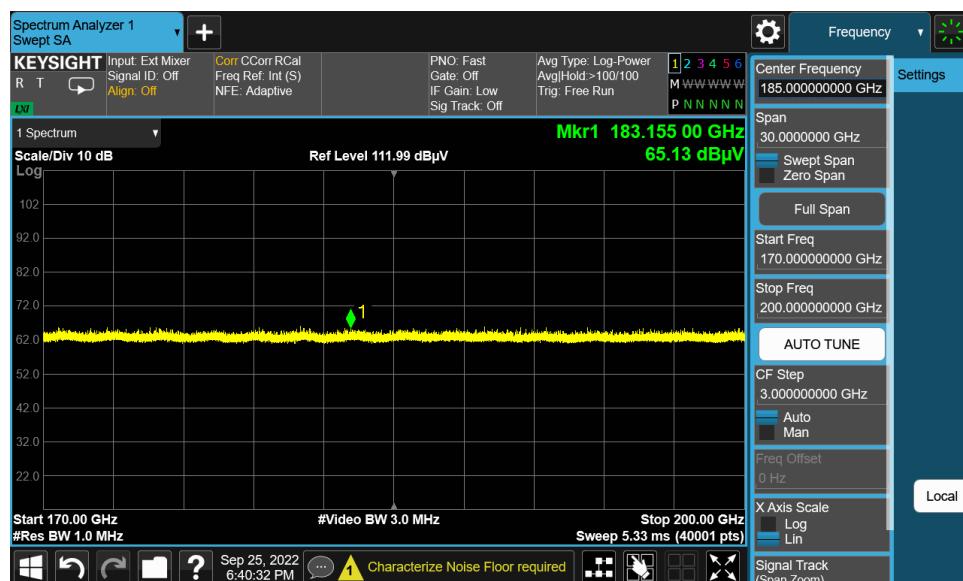


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170-200GHz Horizontal

170-200GHz Vertical


Frequency (GHz)	Distance (M)	Peak Value (dB _{UV} /m)	AV Limit (dB _{UV} /m)	Polarization	Result
187.30175	0.15	65.66	111.33	H	PASS
183.15500	0.15	65.13	111.33	V	PASS



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7.6 Frequency stability

Test Requirement 47 CFR Part 15, Subpart C 15. 255(f)

Test Method: ANSI C63.10, Section 9.14

Limit:

Frequency (GHz)	Limit
57 - 71	The signal must be contained within assigned frequency band

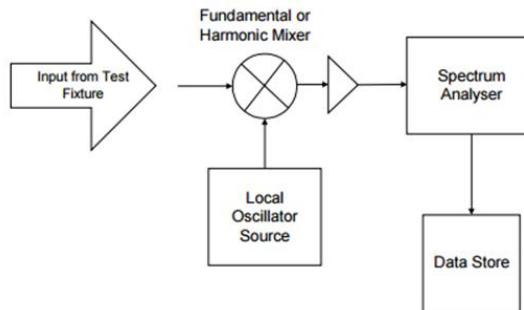
7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode: a: TX mode _ Keep the EUT in continuously transmitting mode.

7.6.2 Test Setup Diagram



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7.6.3 Measurement Procedure and Data

1. Temperature conditions:

- a) The RF output port of the EUT was connected to Frequency Meter;
- b) Set the working Frequency in the middle channel;
- c) record the 20°C and nominal voltage frequency value as reference point;
- d) vary the temperature from -20°C to 50°C with step 10°C
- e) when reach a temperature point, keep the temperature balance at least 1 hour to make the product working in this status;
- f) read the frequency at the relative temperature.

2. Voltage conditions:

- a) record the 20°C and nominal voltage frequency value as reference point;
- b) vary the voltage from -15% nominal voltage to +15% voltage;

read the frequency at the relative voltage.

Frequency Stability vs temperature:

1. Test for 57GHz to 71GHz (Channel=61.790GHz)

Frequency (GHz)	Temperature (°C)	Voltage (V dc)	F _L (GHz)	Limit (GHz)	F _H (GHz)	Limit (GHz)	Result
57 – 71	50	12	59.648	57	63.966	71	Pass
	40	12	59.652	57	63.960	71	Pass
	30	12	59.649	57	63.962	71	Pass
	20	12	59.659	57	63.963	71	Pass
	10	12	59.652	57	63.966	71	Pass
	0	12	59.660	57	63.962	71	Pass
	-10	12	59.658	57	63.961	71	Pass
	-20	12	59.652	57	63.965	71	Pass

Frequency Stability vs voltage:

1. Test for 57GHz to 71GHz (Channel=61.790GHz)

Frequency (GHz)	Voltage (V dc)	Temperature (°C)	F _L (GHz)	Limit (GHz)	F _H (GHz)	Limit (GHz)	Result
57 – 71	10.2	20	59.654	57	63.967	71	Pass
	12.0	20	59.659	57	63.963	71	Pass
	13.8	20	59.655	57	63.962	71	Pass

Remark:

F_L: Frequency Low Band Edge, F_H: Frequency High Band Edge

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8 Test Setup Photo

Refer to Appendix - Test Setup Photo for KSCR2211002351HS

9 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for KSCR2211002351HS

- End of the Report -



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