

FCC Test Report

Report No.: AGC09691210603FE04

FCC ID : 2ARN3-UWMIC9XLR9
APPLICATION PURPOSE : Original Equipment
PRODUCT DESIGNATION : UHF Wireless Microphone System
BRAND NAME : Saramonic
MODEL NAME : UwMic9 TX-XLR9
APPLICANT : Shenzhen Jiayz photo industrial, Ltd
DATE OF ISSUE : Jul 22, 2021
STANDARD(S) : FCC Part 15.236
REPORT VERSION : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd



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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Jul. 22, 2021	Valid	Initial Release

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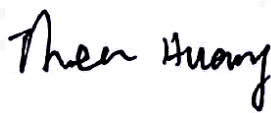




1. VERIFICATION OF CONFORMITY

Applicant	Shenzhen Jiayz photo industrial., Ltd
Address	A16 Building, Intelligent Terminal Industrial Park of Silicon Valley Power, Guanlan, Longhua District, Shenzhen, China
Manufacturer	Shenzhen Jiayz photo industrial., Ltd
Address	A16 Building, Intelligent Terminal Industrial Park of Silicon Valley Power, Guanlan, Longhua District, Shenzhen, China
Factory	Shenzhen Jiayz photo industrial., Ltd
Address	A16 Building, Intelligent Terminal Industrial Park of Silicon Valley Power, Guanlan, Longhua District, Shenzhen, China
Product Designation	UHF Wireless Microphone System
Brand Name	Saramonic
Test Model	UwMic9 TX-XLR9
Date of test	Jun. 04, 2021 to Jul. 22, 2021
Deviation	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-US-LPAS/RF

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10:2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Part 15.236.

Prepared By		
	Thea Huang (Project Engineer)	Jul. 22, 2021
Reviewed By		
	Max Zhang (Reviewer)	Jul. 22, 2021
Approved By		
	Forrest Lei (Authorized Officer)	Jul. 22, 2021

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2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

Operation Frequency	Group A: 514.56MHz -553.51MHz Group B: 556.51MHz -595.46MHz
Maximum Radiated Power	Group A: 3.786dBm Group B: 3.989dBm
Modulation	FM
Number of channels	Group A: 96 Group B: 96
Antenna Gain	0dBi
Antenna Designation	UHF Cable Antenna (Met 15.203 Antenna requirement)
Hardware Version	TX_XLR_RF_NEW_V02
Software Version	V1.0
Power Supply	DC 3V by battery

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Channel list: Group A

Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
1	514.560	25	524.400	49	534.240	73	544.080
2	514.970	26	524.810	50	534.650	74	544.490
3	515.380	27	525.220	51	535.060	75	544.900
4	515.790	28	525.630	52	535.470	76	545.310
5	516.200	29	526.040	53	535.880	77	545.720
6	516.610	30	526.450	54	536.290	78	546.130
7	517.020	31	526.860	55	536.700	79	546.540
8	517.430	32	527.270	56	537.110	80	546.950
9	517.840	33	527.680	57	537.520	81	547.360
10	518.250	34	528.090	58	537.930	82	547.770
11	518.660	35	528.500	59	538.340	83	548.180
12	519.070	36	528.910	60	538.750	84	548.590
13	519.480	37	529.320	61	539.160	85	549.000
14	519.890	38	529.730	62	539.570	86	549.410
15	520.300	39	530.140	63	539.980	87	549.820
16	520.710	40	530.550	64	540.390	88	550.230
17	521.120	41	530.960	65	540.800	89	550.640
18	521.530	42	531.370	66	541.210	90	551.050
19	521.940	43	531.780	67	541.620	91	551.460
20	522.350	44	532.190	68	542.030	92	551.870
21	522.760	45	532.600	69	542.440	93	552.280
22	523.170	46	533.010	70	542.850	94	552.690
23	523.580	47	533.420	71	543.260	95	553.100
24	523.990	48	533.830	72	543.670	96	553.510

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Channel list: Group B

Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
1	556.510	25	566.350	49	576.190	73	586.030
2	556.920	26	566.760	50	576.600	74	586.440
3	557.330	27	567.170	51	577.010	75	586.850
4	557.740	28	567.580	52	577.420	76	587.260
5	558.150	29	567.990	53	577.830	77	587.670
6	558.560	30	568.400	54	578.240	78	588.080
7	558.970	31	568.810	55	578.650	79	588.490
8	559.380	32	569.220	56	579.060	80	588.900
9	559.790	33	569.630	57	579.470	81	589.310
10	560.200	34	570.040	58	579.880	82	589.720
11	560.610	35	570.450	59	580.290	83	590.130
12	561.020	36	570.860	60	580.700	84	590.540
13	561.430	37	571.270	61	581.110	85	590.950
14	561.840	38	571.680	62	581.520	86	591.360
15	562.250	39	572.090	63	581.930	87	591.770
16	562.660	40	572.500	64	582.340	88	592.180
17	563.070	41	572.910	65	582.750	89	592.590
18	563.480	42	573.320	66	583.160	90	593.000
19	563.890	43	573.730	67	583.570	91	593.410
20	564.300	44	574.140	68	583.980	92	593.820
21	564.710	45	574.550	69	584.390	93	594.230
22	565.120	46	574.960	70	584.800	94	594.640
23	565.530	47	575.370	71	585.210	95	595.050
24	565.940	48	575.780	72	585.620	96	595.460

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2.2. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

2.3. SPECIAL ACCESSORIES

Refer to section 5.2.

2.4. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

2.5. ANTENNA REQUIREMENT

This intentional radiator is designed with a permanently attached antenna of an antenna to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

For more information of the antenna, please refer to the APPENDIX B: PHOTOGRAPHS OF EUT.

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3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

Item	Measurement Uncertainty
Uncertainty of Conducted Emission for AC Port	$U_c = \pm 3.1 \text{ dB}$
Uncertainty of Radiated Emission below 1GHz	$U_c = \pm 4.0 \text{ dB}$
Uncertainty of Radiated Emission above 1GHz	$U_c = \pm 4.8 \text{ dB}$
Uncertainty of total RF power, conducted	$U_c = \pm 0.8 \text{ dB}$
Uncertainty of spurious emissions, conducted	$U_c = \pm 2 \%$
Uncertainty of Occupied Channel Bandwidth	$U_c = \pm 2 \%$

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4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Group A TX mode at Low channel (CH01:514.56MHz)-Low power
2	Group A TX mode at Low channel (CH01:514.56MHz)-Middle power
3	Group A TX mode at Low channel (CH01:514.56MHz)-High power
4	Group A TX mode at Middle channel (CH48: 533.830MHz)-Low power
5	Group A TX mode at Middle channel (CH48: 533.830MHz)-Middle power
6	Group A TX mode at Middle channel (CH48: 533.830MHz)-High power
7	Group A TX mode at High channel (CH96: 553.510MHz)-Low power
8	Group A TX mode at High channel (CH96: 553.510MHz)-Middle power
9	Group A TX mode at High channel (CH96: 553.510MHz)-High power
10	Group B TX mode at Low channel (CH01:556.510MHz)-Low power
11	Group B TX mode at Low channel (CH01:556.510MHz)-Middle power
12	Group B TX mode at Low channel (CH01:556.510MHz)-High power
13	Group B TX mode at Middle channel (CH48: 575.780MHz)-Low power
14	Group B TX mode at Middle channel (CH48: 575.780MHz)-Middle power
15	Group B TX mode at Middle channel (CH48: 575.780MHz)-High power
16	Group B TX mode at High channel (CH96: 595.460MHz)-Low power
17	Group B TX mode at High channel (CH96: 595.460MHz)-Middle power
18	Group B TX mode at High channel (CH96: 595.460MHz)-High power

Note:

1. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
2. For Conducted Test method, a temporary antenna connector is provided by the manufacture.
3. For battery operated equipment, the equipment tests are performed using a new battery.
4. All the requirements have been tested by modulating the transmitter with a 1 khz tone at a fixed level which set to the manufacturer's maximum rated input to the modulator.

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5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Radiated Emission Configure:



5.2 EQUIPMENT USED IN TESTED SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	UHF Wireless Microphone System	UwMic9 TX-XLR9	2ARN3-UWMIC9XLR9	EUT

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.203	Antenna requirement	Compliant
§15.236(d)(1)	Maximum radiated power	Compliant
§15.236(f)(2)	Occupied bandwidth	Compliant
§15.236(f)(3)	Frequency stability	Compliant
§15.236(g)	Emissions within the band	Compliant
§15.236(g)	Emissions outside of this band	Compliant
15.207	Line Conducted Emission	Not applicable

The conducted emission tests at AC port are not required for devices which only employ battery power for operation.

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6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Designation Number	CN1259
FCC Test Firm Registration Number	975832
A2LA Cert. No.	5054.02
Description	Attestation of Global Compliance (Shenzhen) Co., Ltd is accredited by A2LA

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	May 15, 2021	May 14, 2022
EXA Signal Analyzer	Aglient	N9020A	MY52090123	Sep. 03, 2020	Sep. 02, 2021
Attenuator	Warriors	W13	11324	Aug. 21, 2020	Aug. 20, 2021
Horn antenna	ETS-LINDGREN	3117	00154520	Sep. 03, 2020	Sep. 02, 2021
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	May 22, 2020	May 21, 2022
Double-Ridged Waveguide Horn	ETS-LINDGREN	3117	00034609	May 17, 2021	May 16, 2022
Broadband Preamplifier	ETS-LINDGREN	3117PA	00225134	Sep. 03, 2020	Sep. 02, 2021
ANTENNA	SCHWARZBECK	VULB9168	494	Sep. 20, 2019	Sep. 19, 2021
Wireless communication tester	HP	8920B	US35010161	Sep. 03, 2020	Sep. 02, 2021
Test software	Tonscend	JS32-RE (Ver. 2.5)	N/A	N/A	N/A

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7. OUTPUT POWER

7.1. TEST LIMIT

The power may not exceed the following values.

470-608 MHz bands: 50 mW EIRP

7.2. MEASUREMENT PROCEDURE

☐ EIRP Test Method

1. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. $EIRP [dBm] = E[dB(\mu V)/m] - 95.3$
- 4.7dB shall be added as an upper bound on the field strength that would be observed on a test range with a ground plane for frequencies between 30MHz and 1000MHz, or an additional 6dB shall be added for frequencies below 30 MHz.

☒ Conducted Power Test Method

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. $RBW \geq OBW$.
3. $VBW \geq 3 \times RBW$.
4. $Span \geq 2 \times OBW$.
5. Sweep time $\geq 10 \times (\text{number of points in sweep}) \times (\text{transmission symbol period})$
6. Detector function: Peak.
7. Trace: Max hold.
8. Allow trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power, after any corrections for external attenuators and cables.

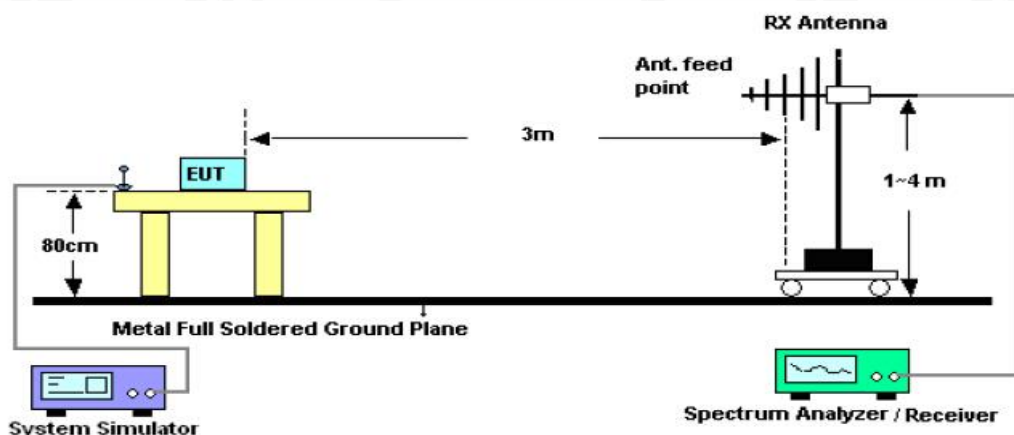
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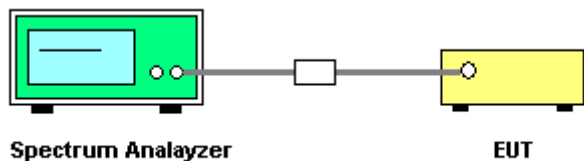


7.3. TEST SETUP

☐ EIRP Test Method



☒ Conducted Power Test Method



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7.4. TEST RESULT

Group A

Test Channel	Test power	Peak Power	Limit
(MHz)	--	(dBm)	(dBm)
514.560	Low power	3.453	17
	Middle power	3.423	17
	High power	3.491	17
533.830	Low power	3.617	17
	Middle power	3.650	17
	High power	3.620	17
553.510	Low power	3.767	17
	Middle power	3.741	17
	High power	3.786	17

Group B

Test Channel	Test power	Peak Power	Limit
(MHz)	--	(dBm)	(dBm)
556.510	Low power	3.579	17
	Middle power	3.552	17
	High power	3.573	17
575.780	Low power	3.694	17
	Middle power	3.696	17
	High power	3.762	17
595.460	Low power	3.989	17
	Middle power	3.965	17
	High power	3.933	17

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8. OCCUPIED BANDWIDTH

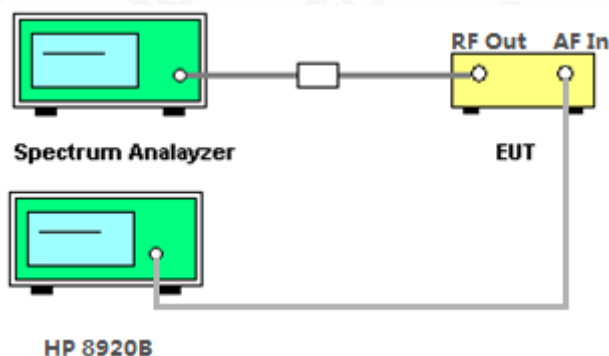
8.1. TEST LIMIT

The operating bandwidth shall not exceed 200 kHz.

8.2. MEASUREMENT PROCEDURE

1. For the occupied bandwidth measurements, the input signal shall be a 1 kHz tone. The level of the tone shall be set to the manufacturer's maximum rated input to the modulator.
2. Set the EUT Work on operation frequency.
3. Set Span = approximately 1.5 times the occupied bandwidth, centered on a channel
The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW; Sweep = auto; Detector function = peak
4. Set SPA Trace 1 Max hold, then View.

8.3. TEST SET-UP



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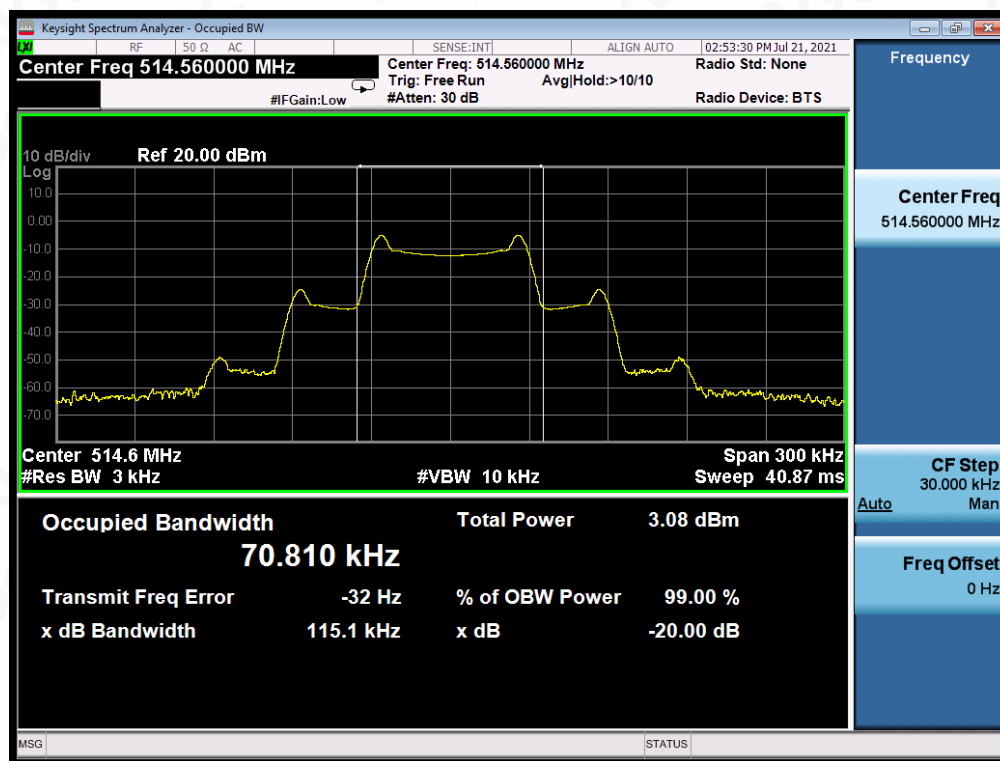


8.4. MEASUREMENT RESULTS

Group A

Test Channel	Test power	-20dBc EBW (kHz)	99% OBW (kHz)	Limit (kHz)
514.560MHz	Low power	115.1	70.810	200
	Middle power	115.0	70.322	200
	High power	114.7	70.083	200
533.830MHz	Low power	114.7	69.827	200
	Middle power	115.0	70.248	200
	High power	114.9	70.704	200
553.510MHz	Low power	115.0	70.406	200
	Middle power	115.0	69.866	200
	High power	114.9	70.395	200

TEST PLOT OF BANDWIDTH FOR 514.560MHz AT LOW POWER



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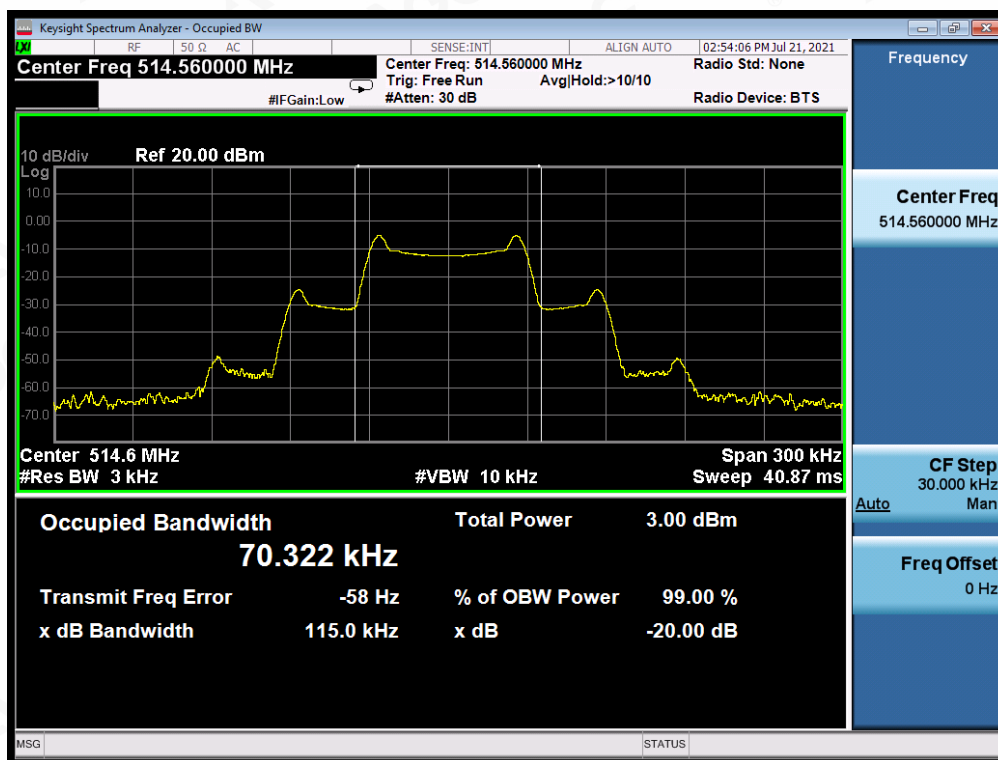
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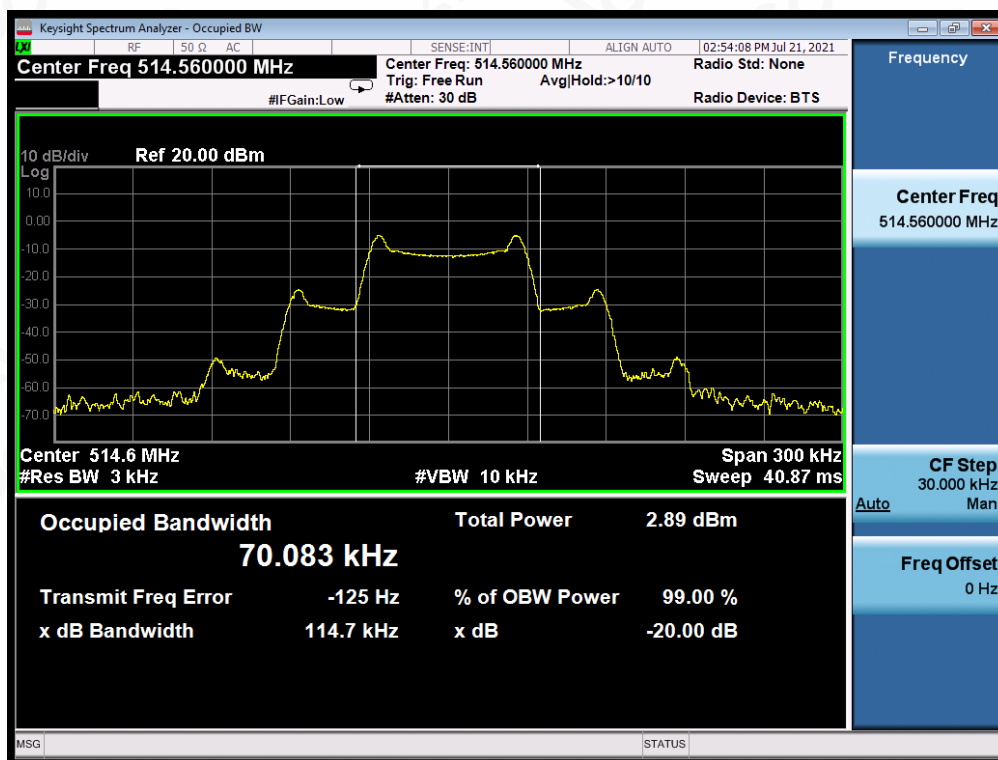
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TEST PLOT OF BANDWIDTH FOR 514.560MHz AT MIDDLEPOWER



TEST PLOT OF BANDWIDTH FOR 514.560MHz AT HIGH POWER

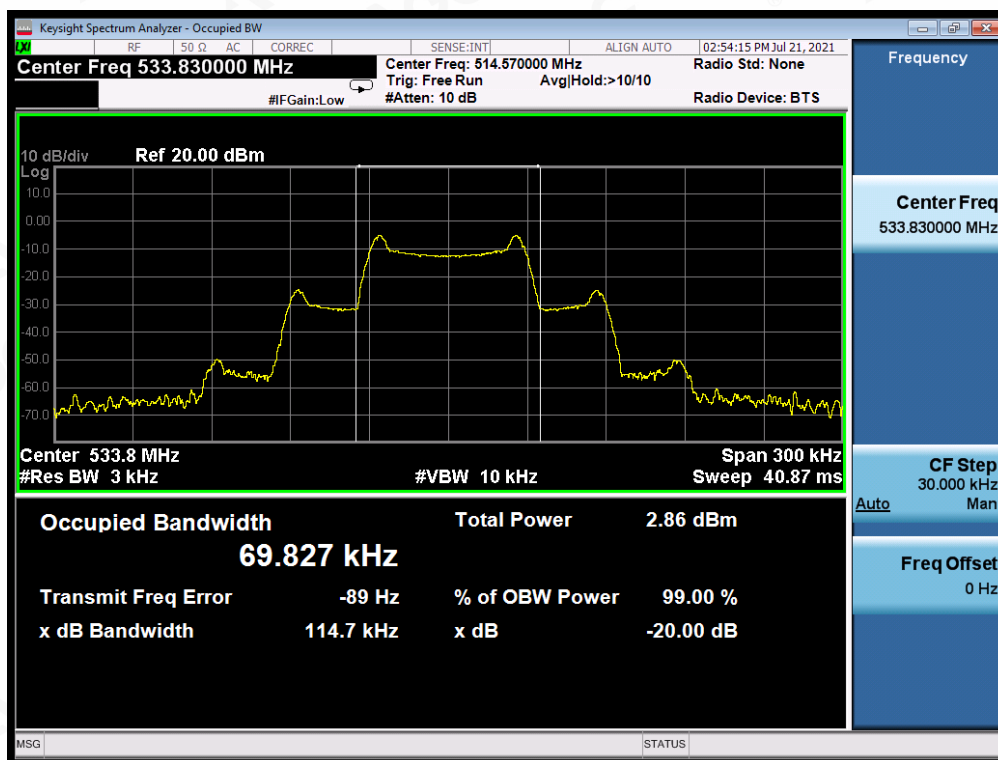


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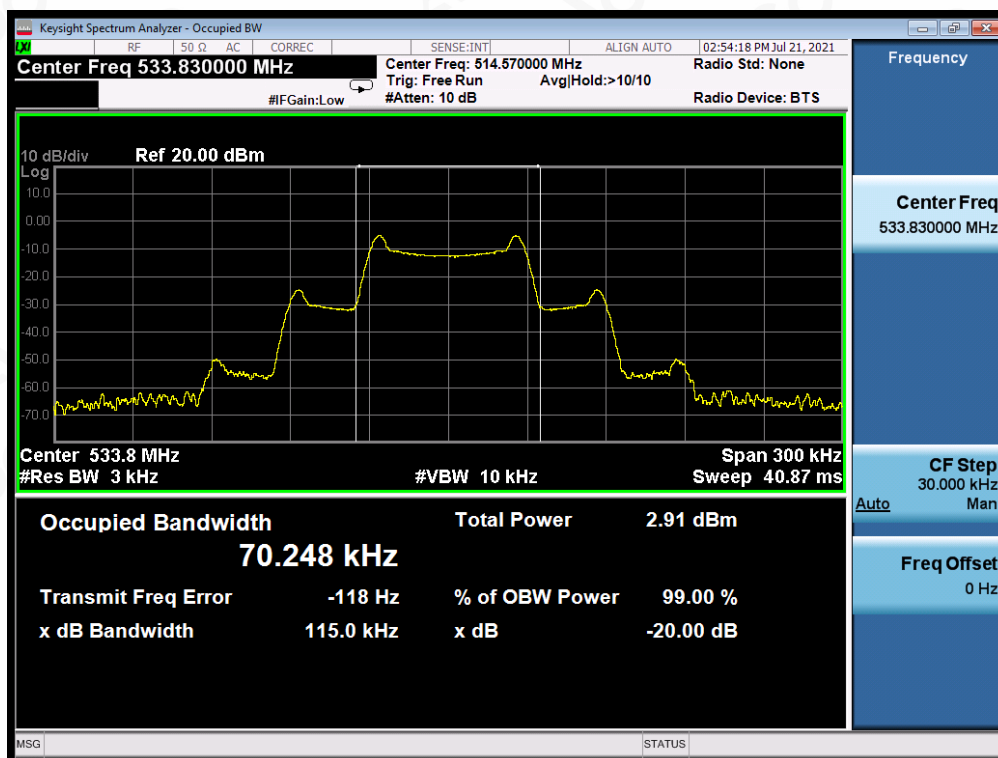
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TEST PLOT OF BANDWIDTH FOR 533.830MHz AT LOW POWER



TEST PLOT OF BANDWIDTH FOR 533.830MHz AT MIDDLEPOWER

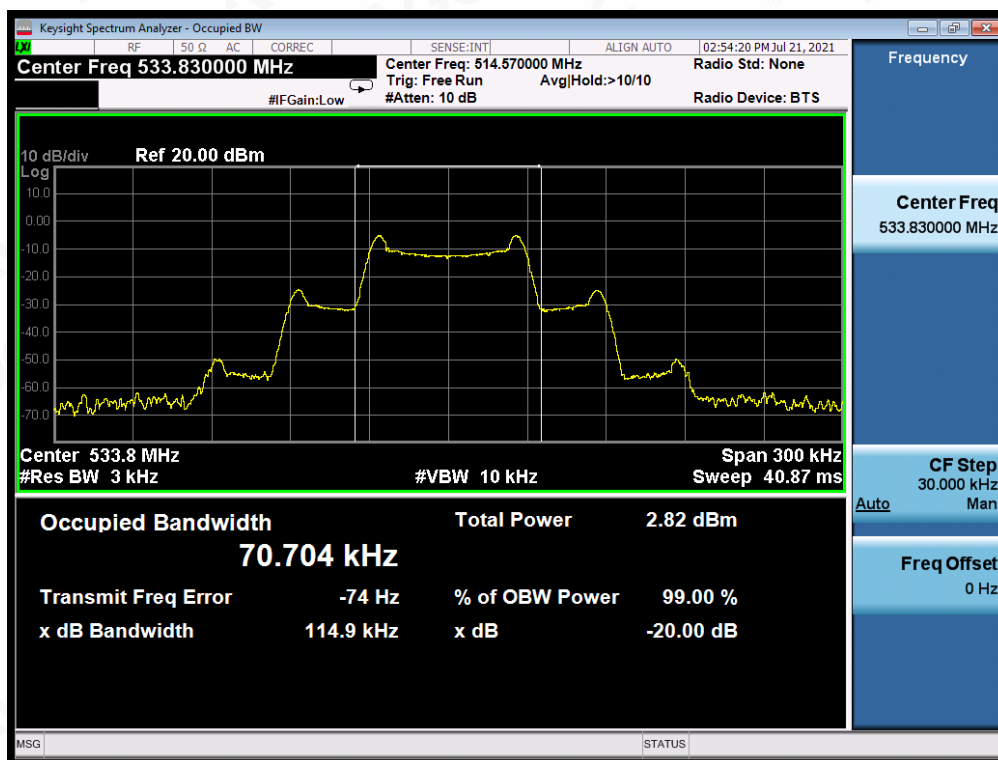


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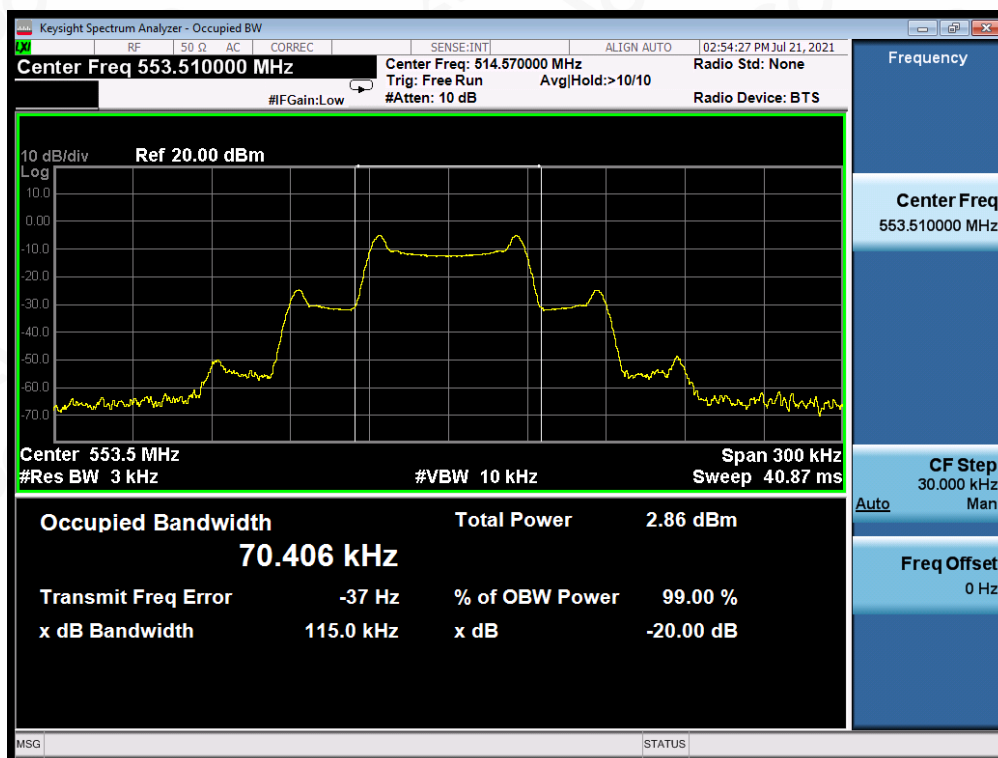
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TEST PLOT OF BANDWIDTH FOR 533.830MHz AT HIGH POWER



TEST PLOT OF BANDWIDTH FOR 553.510MHz AT LOW POWER

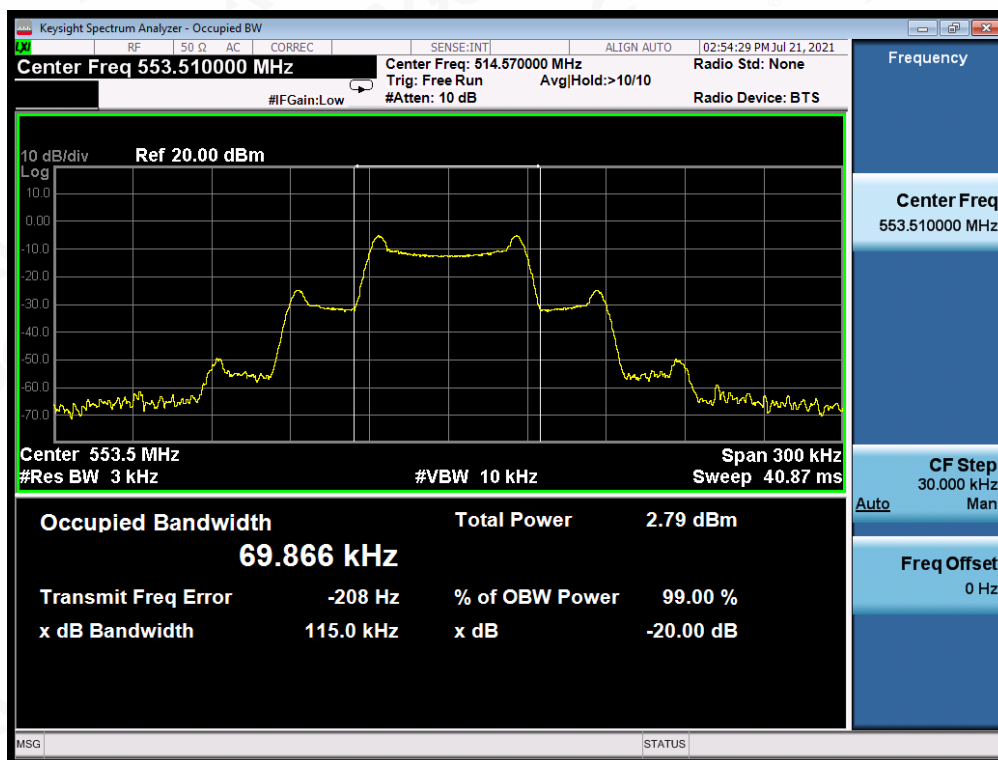


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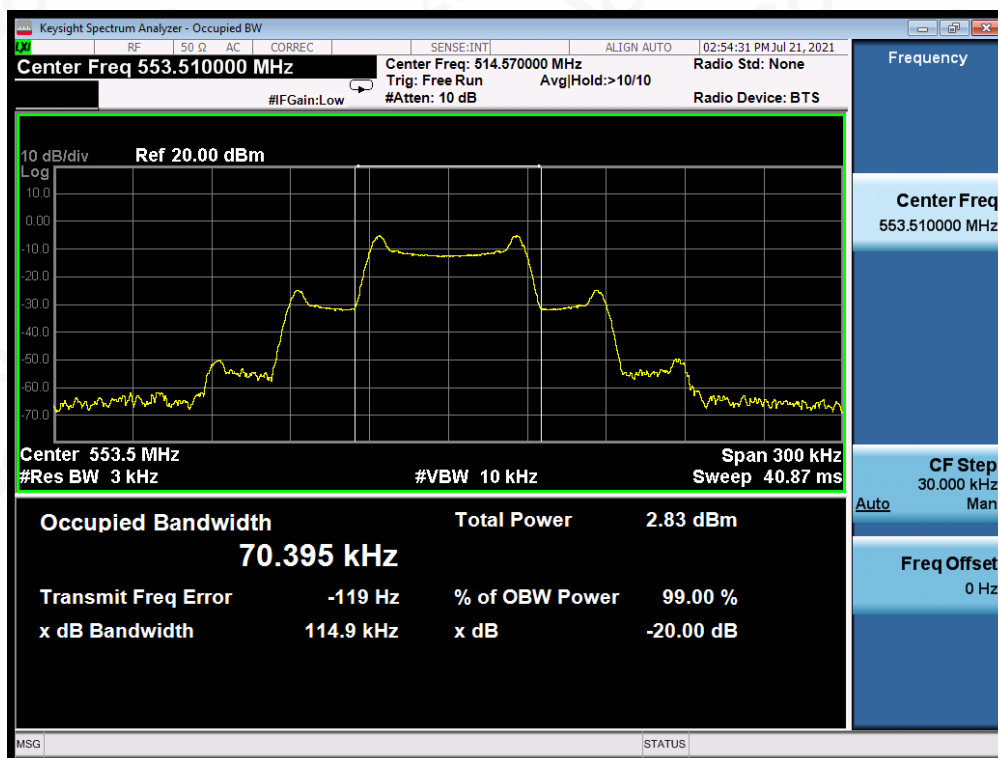
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TEST PLOT OF BANDWIDTH FOR 553.510MHz AT MIDDLEPOWER



TEST PLOT OF BANDWIDTH FOR 553.510MHz AT HIGH POWER



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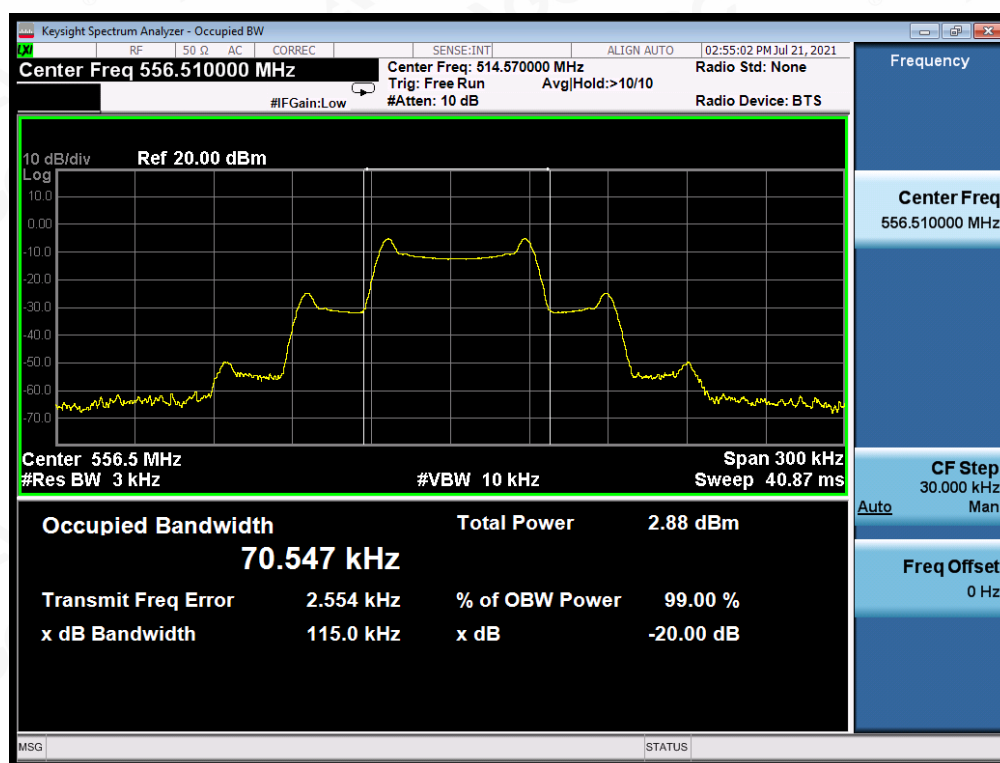
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Group B

Test Channel	Test power	-20dBc EBW (kHz)	99% OBW (kHz)	Limit (kHz)
556.51MHz	Low power	115.0	70.547	200
	Middle power	115.2	70.134	200
	High power	115.1	70.686	200
575.780MHz	Low power	115.1	70.105	200
	Middle power	115.1	70.037	200
	High power	115.0	70.053	200
595.460MHz	Low power	115.1	70.037	200
	Middle power	115.2	70.159	200
	High power	115.1	70.233	200

TEST PLOT OF BANDWIDTH FOR 556.510MHz AT LOW POWER



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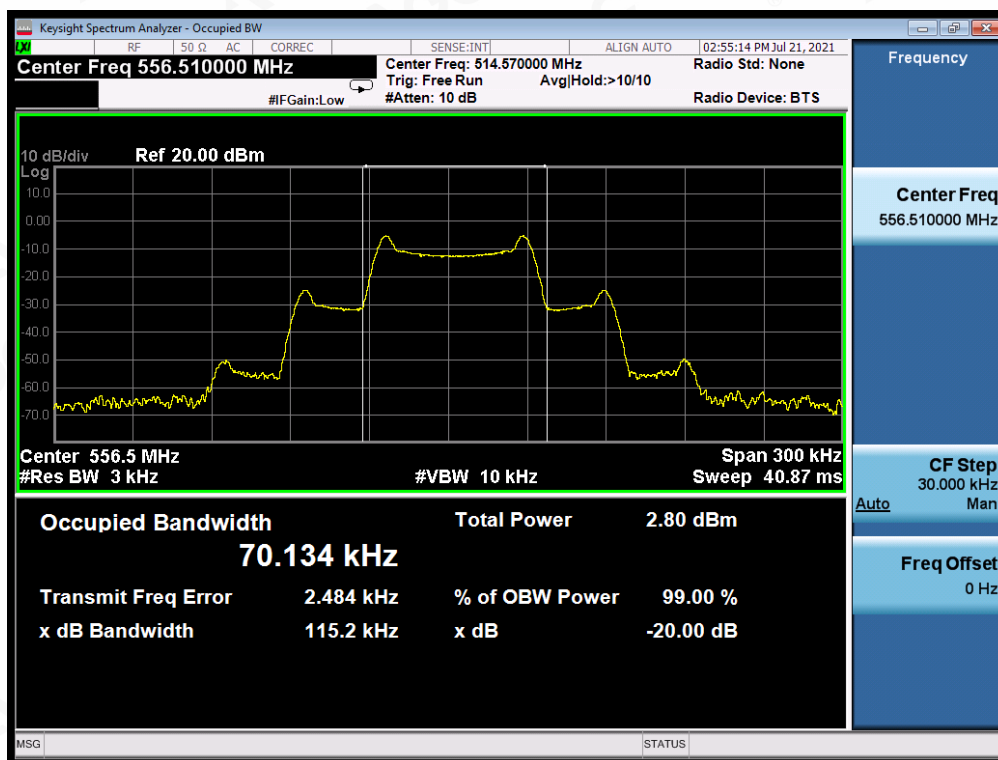
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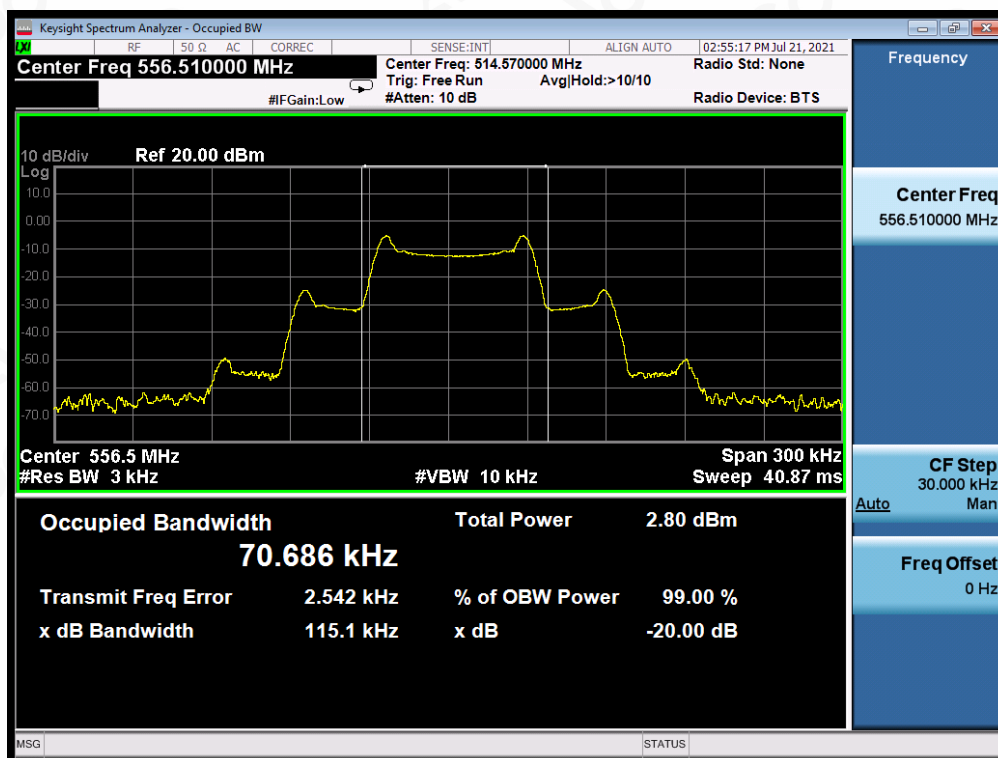
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TEST PLOT OF BANDWIDTH FOR 556.510MHz AT MIDDLEPOWER



TEST PLOT OF BANDWIDTH FOR 556.510MHz AT HIGH POWER

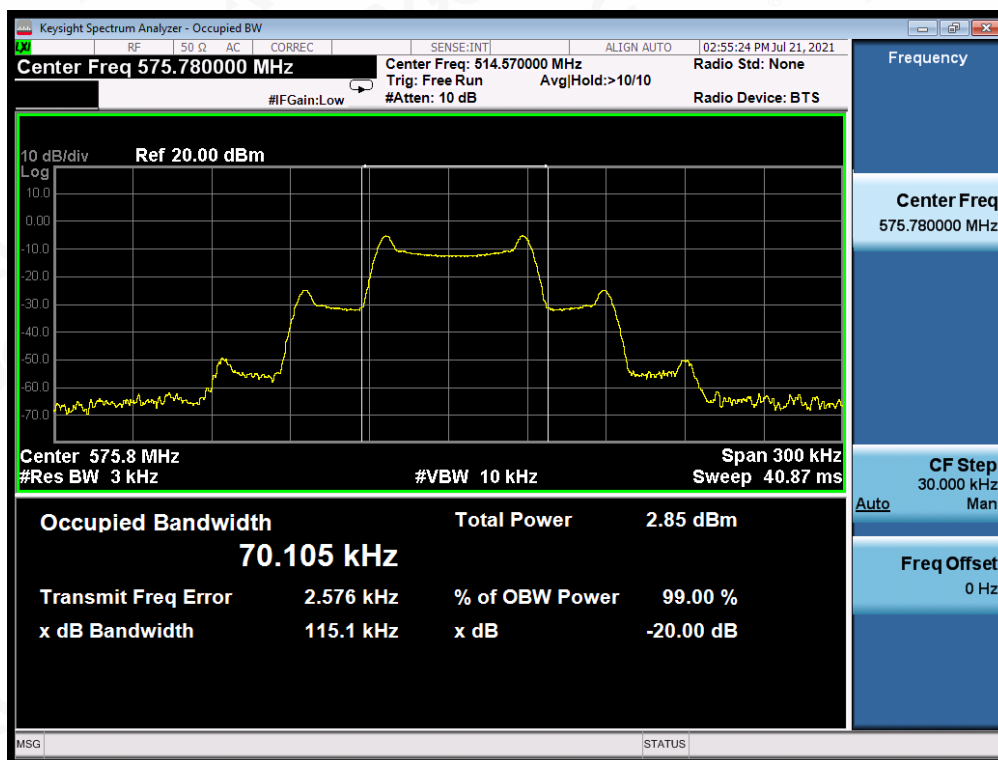


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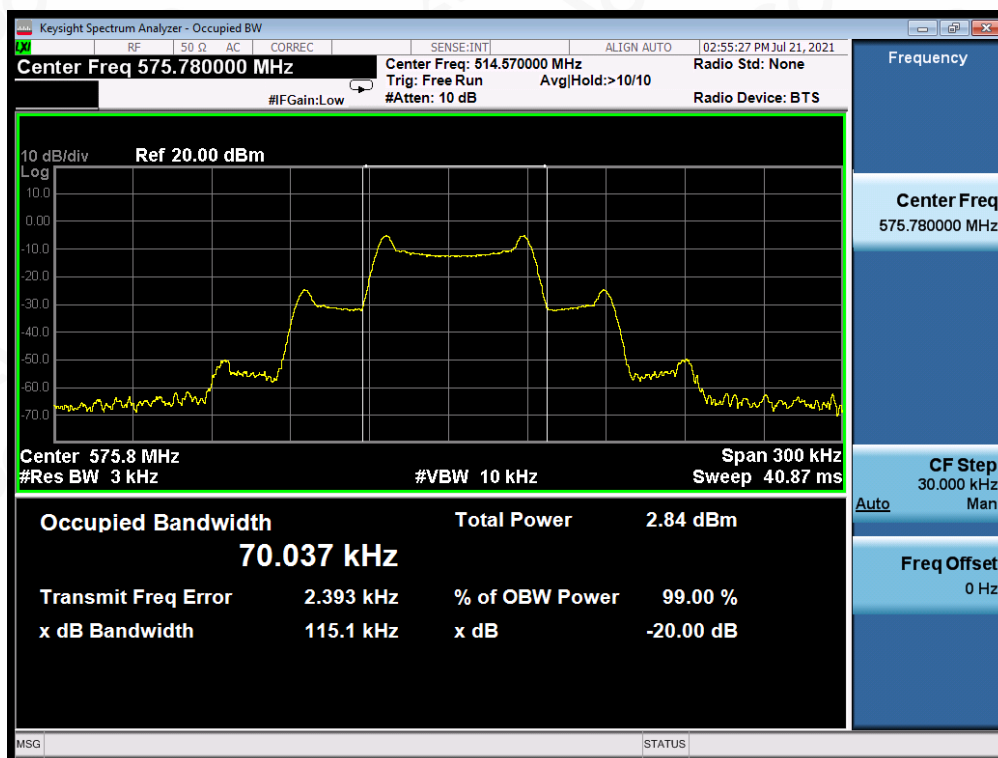
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TEST PLOT OF BANDWIDTH FOR 575.780MHz AT LOW POWER



TEST PLOT OF BANDWIDTH FOR 575.780MHz AT MIDDLEPOWER

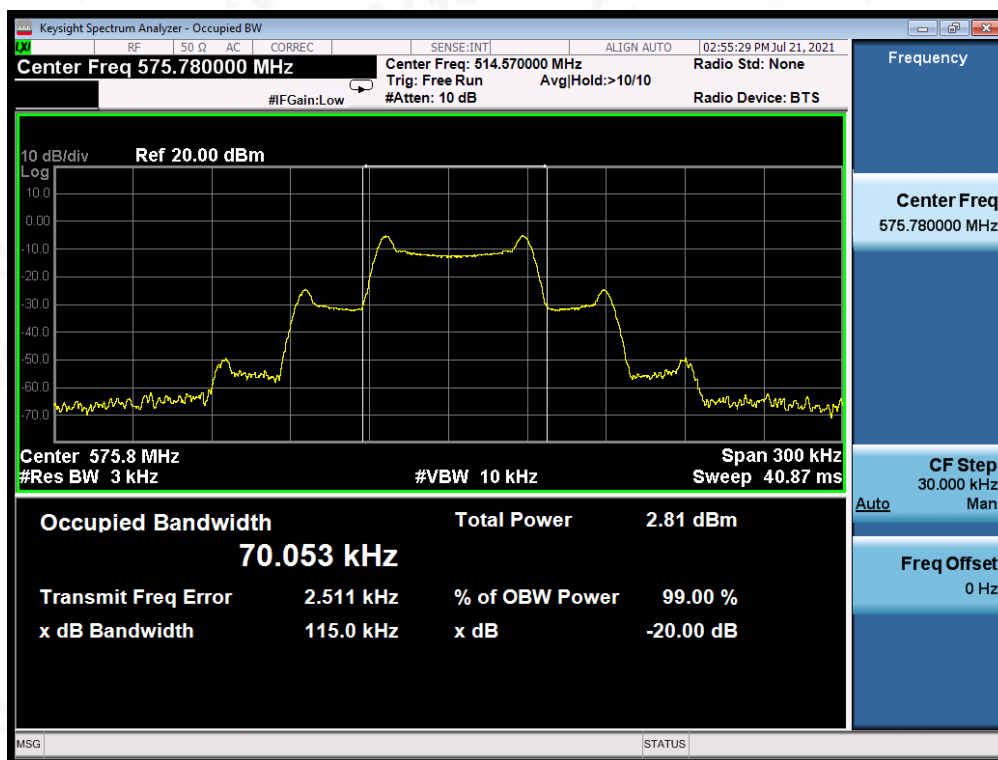


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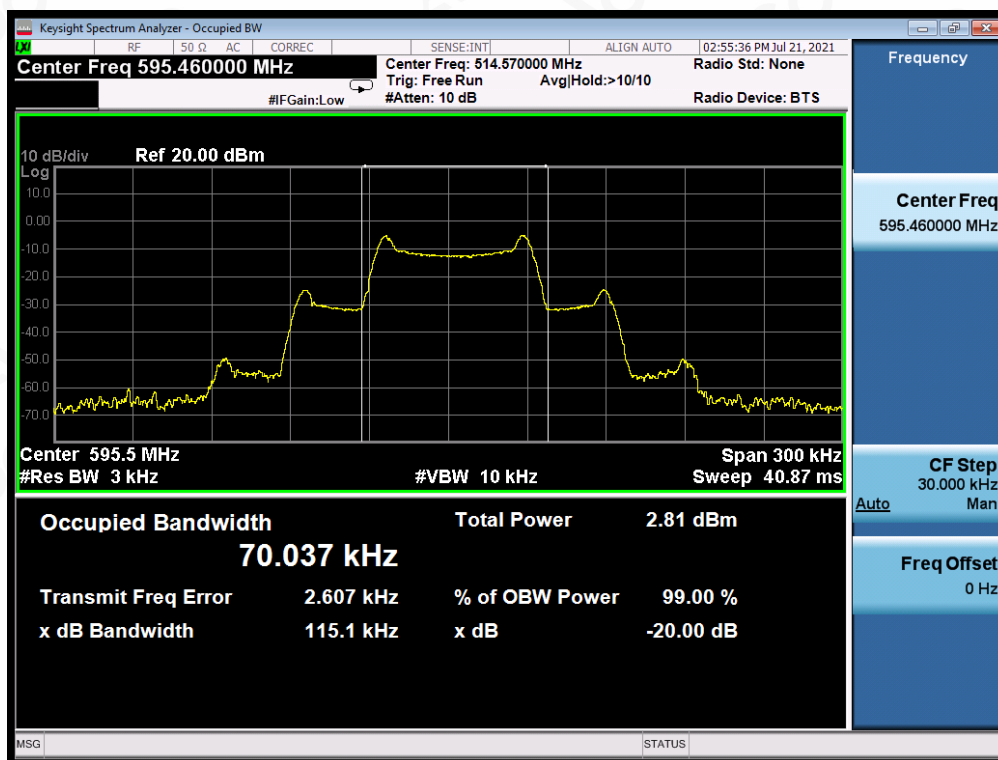
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TEST PLOT OF BANDWIDTH FOR 575.780MHz AT HIGH POWER



TEST PLOT OF BANDWIDTH FOR 595.460MHz AT LOW POWER

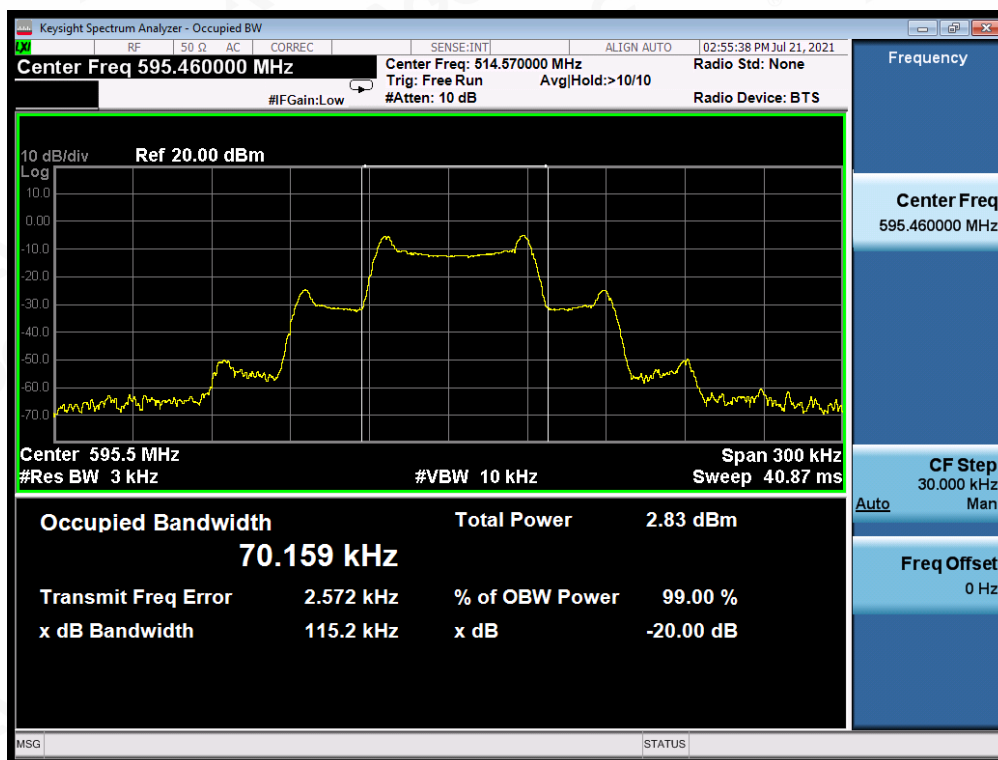


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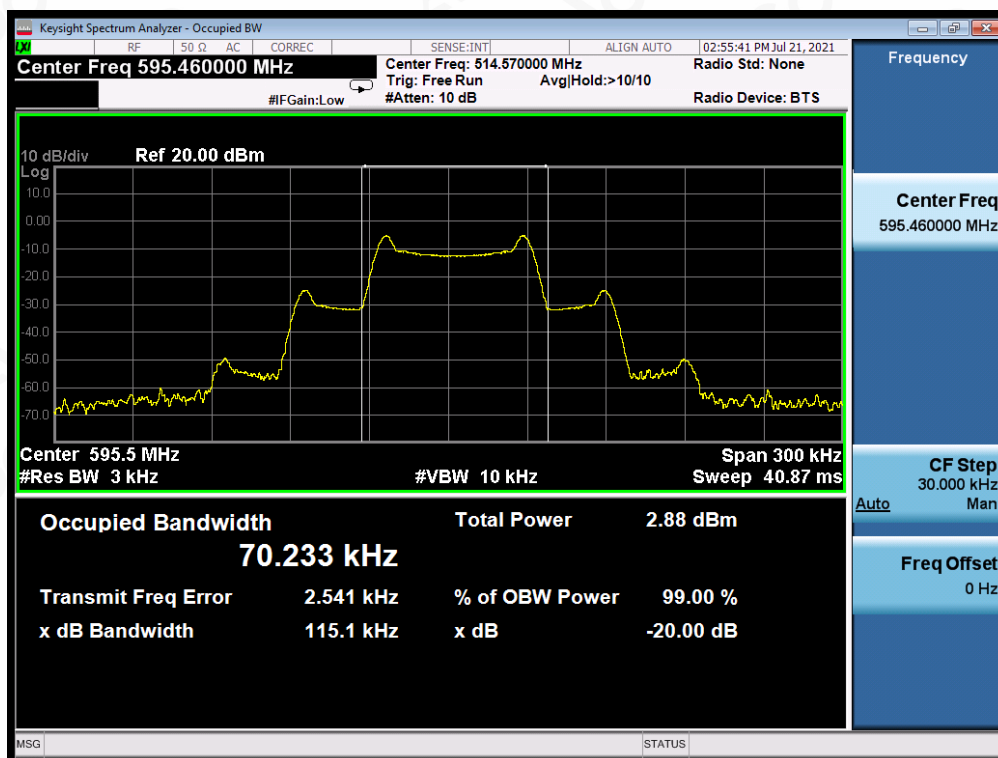
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TEST PLOT OF BANDWIDTH FOR 595.460MHz AT MIDDLEPOWER



TEST PLOT OF BANDWIDTH FOR 595.460MHz AT HIGH POWER



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9. FREQUENCY STABILITY

9.1. TEST LIMIT

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.005\%$ of the operating frequency over a temperature variation of -30 degrees to $+50$ degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

9.2. MEASUREMENT PROCEDURE

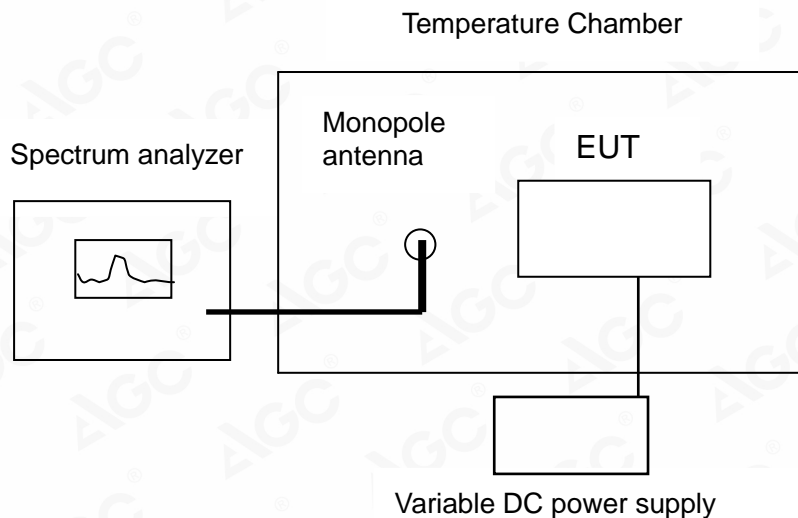
1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the operation frequency.
3. Set SPA Centre Frequency = Operation Frequency, RBW= 1 KHz, VBW $\geq 3 \times$ RBW.
4. Set SPA Trace 1 Max hold, then View.
5. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
6. Extreme temperature rule is $-30^{\circ}\text{C} \sim 50^{\circ}\text{C}$.

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9.3. TEST SET-UP



9.4. TEST RESULT

Group A

Test frequency: 514.560MHz-Low power

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
2.55	514.5498	0.0104	0.03	PASS
3.0	514.5501			
3.45	514.5496			

Temperature vs. Frequency Stability (Test Voltage: 3V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	514.5496	0.0111	0.03	PASS
-20°C	514.5495			
-10°C	514.5491			
0°C	514.5493			
10°C	514.5492			
20°C	514.5501			
30°C	514.5503			
40°C	514.5489			
50°C	514.5490			

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Test frequency: 514.560MHz-Middle power

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
2.55	514.5742	0.0149	0.03	PASS
3.0	514.5749			
3.45	514.5745			

Temperature vs. Frequency Stability (Test Voltage: 3V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	514.5745	0.0150	0.03	PASS
-20°C	514.5744			
-10°C	514.5743			
0°C	514.5748			
10°C	514.5745			
20°C	514.5746			
30°C	514.5749			
40°C	514.5750			
50°C	514.5742			

Test frequency: 514.560MHz-High power

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
2.55	514.5891	0.0294	0.03	PASS
3.0	514.5894			
3.45	514.5890			

Temperature vs. Frequency Stability (Test Voltage: 3V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	514.5892	0.0294	0.03	PASS
-20°C	514.5893			
-10°C	514.5889			
0°C	514.5887			
10°C	514.5883			
20°C	514.5894			
30°C	514.5890			
40°C	514.5888			
50°C	514.5884			

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Test frequency: 533.830MHz-Low power

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
2.55	533.8353	0.0059	0.03	PASS
3.0	533.8350			
3.45	533.8359			

Temperature vs. Frequency Stability (Test Voltage: 3V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	533.8352	0.0058	0.03	PASS
-20°C	533.8355			
-10°C	533.8358			
0°C	533.8353			
10°C	533.8351			
20°C	533.8350			
30°C	533.8354			
40°C	533.8352			
50°C	533.8357			

Test frequency: 533.830MHz-Middle power

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
2.55	533.8361	0.0061	0.03	PASS
3.0	533.8350			
3.45	533.83557			

Temperature vs. Frequency Stability (Test Voltage: 3V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	533.8353	0.0062	0.03	PASS
-20°C	533.8358			
-10°C	533.8357			
0°C	533.8356			
10°C	533.8352			
20°C	533.8350			
30°C	533.8362			
40°C	533.8358			
50°C	533.8354			

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Test frequency: 533.830MHz-High power

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
2.55	533.8356	0.0058	0.03	PASS
3.0	533.8350			
3.45	533.8357			

Temperature vs. Frequency Stability (Test Voltage: 3V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	533.8353	0.0057	0.03	PASS
-20°C	533.8354			
-10°C	533.8355			
0°C	533.8356			
10°C	533.8357			
20°C	533.8350			
30°C	533.8352			
40°C	533.8351			
50°C	533.8354			

Test frequency: 553.510MHz-Low power

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
2.55	553.5149	0.0049	0.03	PASS
3.0	553.5140			
3.45	553.5145			

Temperature vs. Frequency Stability (Test Voltage: 3V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	553.5145	0.0048	0.03	PASS
-20°C	553.5146			
-10°C	553.5141			
0°C	553.5147			
10°C	553.5148			
20°C	553.5140			
30°C	553.5146			
40°C	553.5141			
50°C	553.5146			

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Test frequency: 553.510MHz-Moddle power

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
2.55	553.5144	0.0052	0.03	PASS
3.0	553.5140			
3.45	553.5152			

Temperature vs. Frequency Stability (Test Voltage: 3V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	553.5143	0.0049	0.03	PASS
-20°C	553.5144			
-10°C	553.5145			
0°C	553.5148			
10°C	553.5149			
20°C	553.5140			
30°C	553.5145			
40°C	553.5141			
50°C	553.5146			

Test frequency: 553.510MHz-High power

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
2.55	553.5147	0.0047	0.03	PASS
3.0	553.5140			
3.45	553.5146			

Temperature vs. Frequency Stability (Test Voltage: 3V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	553.5142	0.0046	0.03	PASS
-20°C	553.5146			
-10°C	553.5144			
0°C	553.5143			
10°C	553.5145			
20°C	553.5140			
30°C	553.5144			
40°C	553.5145			
50°C	553.5142			

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Group B

Test frequency: 556.510MHz-Low power

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
2.55	556.513	0.007	0.03	PASS
3.0	556.516			
3.45	556.517			

Temperature vs. Frequency Stability (Test Voltage: 3V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	556.512	0.009	0.03	PASS
-20°C	556.514			
-10°C	556.516			
0°C	556.513			
10°C	556.517			
20°C	556.516			
30°C	556.519			
40°C	556.514			
50°C	556.512			

Test frequency: 556.510MHz-Middle power

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
2.55	556.514	0.009	0.03	PASS
3.0	556.516			
3.45	556.519			

Temperature vs. Frequency Stability (Test Voltage: 3V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	556.516	0.008	0.03	PASS
-20°C	556.511			
-10°C	556.512			
0°C	556.518			
10°C	556.515			
20°C	556.516			
30°C	556.512			
40°C	556.514			
50°C	556.517			

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Test frequency: 556.510MHz-High power

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
2.55	556.516	0.006	0.03	PASS
3.0	556.516			
3.45	556.512			

Temperature vs. Frequency Stability (Test Voltage: 3V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	556.511	0.009	0.03	PASS
-20°C	556.514			
-10°C	556.516			
0°C	556.519			
10°C	556.518			
20°C	556.516			
30°C	556.513			
40°C	556.512			
50°C	556.514			

Test frequency: 575.780MHz-Low power

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
2.55	575.7831	0.0036	0.03	PASS
3.0	575.7830			
3.45	575.7836			

Temperature vs. Frequency Stability (Test Voltage: 3V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	575.7832	0.0038	0.03	PASS
-20°C	575.7834			
-10°C	575.7838			
0°C	575.7835			
10°C	575.7836			
20°C	575.7830			
30°C	575.7833			
40°C	575.7834			
50°C	575.7835			

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Test frequency: 575.780MHz-Middle power

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
2.55	575.7833	0.0037	0.03	PASS
3.0	575.7830			
3.45	575.7837			

Temperature vs. Frequency Stability (Test Voltage: 3V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	575.7836	0.0038	0.03	PASS
-20°C	575.7835			
-10°C	575.7834			
0°C	575.7838			
10°C	575.7836			
20°C	575.7830			
30°C	575.7833			
40°C	575.7831			
50°C	575.7836			

Test frequency: 575.780MHz-High power

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
2.55	575.7834	0.0039	0.03	PASS
3.0	575.7830			
3.45	575.7839			

Temperature vs. Frequency Stability (Test Voltage: 3V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	575.7832	0.0038	0.03	PASS
-20°C	575.7834			
-10°C	575.7836			
0°C	575.7834			
10°C	575.7838			
20°C	575.7830			
30°C	575.7833			
40°C	575.7831			
50°C	575.7835			

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Test frequency: 595.460MHz-Low power

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
2.55	595.4662	0.0067	0.03	PASS
3.0	595.4660			
3.45	595.4667			

Temperature vs. Frequency Stability (Test Voltage: 3V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	595.4666	0.0068	0.03	PASS
-20°C	595.4664			
-10°C	595.4665			
0°C	595.4668			
10°C	595.4666			
20°C	595.4660			
30°C	595.4662			
40°C	595.4664			
50°C	595.4665			

Test frequency: 595.460MHz-Middle power

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
2.55	595.4665	0.0068	0.03	PASS
3.0	595.4660			
3.45	595.4668			

Temperature vs. Frequency Stability (Test Voltage: 3V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	595.4661	0.0069	0.03	PASS
-20°C	595.4665			
-10°C	595.4663			
0°C	595.4664			
10°C	595.4668			
20°C	595.4660			
30°C	595.4666			
40°C	595.4669			
50°C	595.4662			

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Test frequency: 595.460MHz-High power

Voltage vs. Frequency Stability (Test Temperature: 20°C)

Voltage(V)	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
2.55	595.4663	0.0069	0.03	PASS
3.0	595.4660			
3.45	595.4669			

Temperature vs. Frequency Stability (Test Voltage: 3V)

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	595.4661	0.0068	0.03	PASS
-20°C	595.4665			
-10°C	595.4666			
0°C	595.4668			
10°C	595.4664			
20°C	595.4660			
30°C	595.4663			
40°C	595.4661			
50°C	595.4665			

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10. EMISSIONS WITHIN THE BAND AND OUTSIDE THE BAND

10.1. TEST LIMIT

Emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in §8.3 of ETSI EN 300 422-1 V1.4.2 (2011-08).

Emissions outside of this band shall comply with the limits specified in section 8.4 of ETSI EN 300 422-1 V1.4.2 (2011-08).

10.2. MEASUREMENT PROCEDURE

Emission outside the band:

1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. $EIRP [dBm] = E[dB(\mu V)/m] - 95.2$

The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
Start ~Stop Frequency	1000MHz~6000MHz/RB 1MHz for QP

Emission within the band:

- ☒ Method of Measurement for Analogue Systems in ETSI EN 300 422-1 Subclass 8.3.1
☐ Method of Measurement for Digital Systems in ETSI EN 300 422-1 Subclass 8.3.2

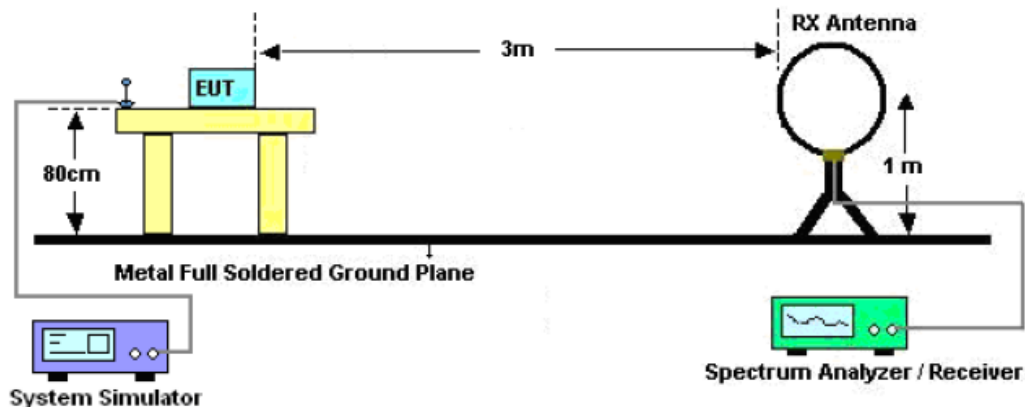
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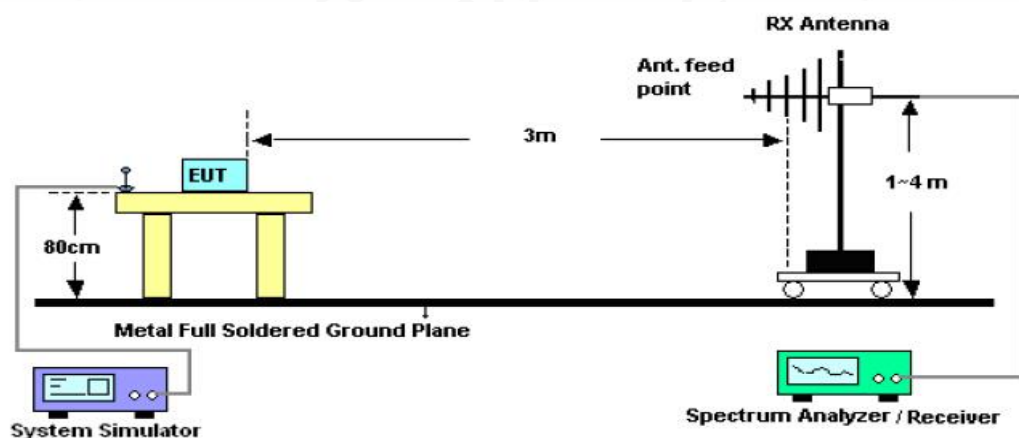


10.3. TEST SETUP

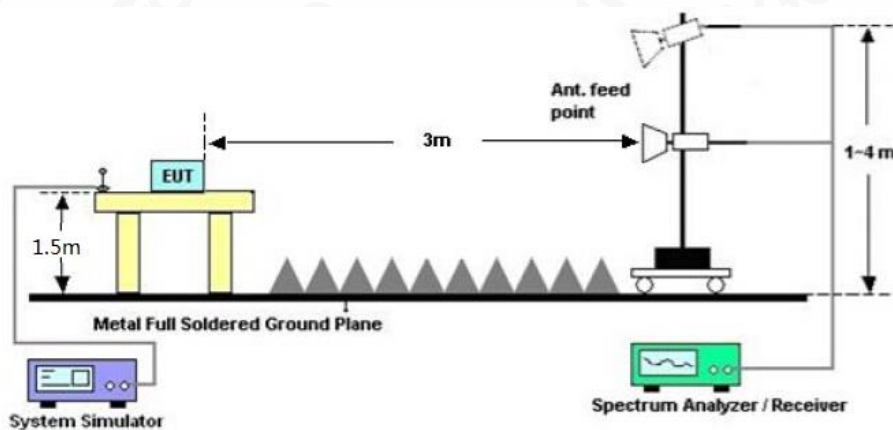
Emission outside the band Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



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