
FCC Test Report

Report No.: AGC09691210602FE04

FCC ID : 2ARN3-UWMIC9TX9
APPLICATION PURPOSE : Original Equipment
PRODUCT DESIGNATION : UHF Wireless Microphone System
BRAND NAME : Saramonic
MODEL NAME : UwMic9 TX9
APPLICANT : Shenzhen Jiayz photo industrial ., Ltd
DATE OF ISSUE : Jul 23, 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. 23, 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 TX9
Date of test	Jun. 10, 2021 to Jul. 23, 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		
	John Zeng (Project Engineer)	Jul. 23, 2021
Reviewed By		
	Max Zhang (Reviewer)	Jul. 23, 2021
Approved By		
	Forrest Lei (Authorized Officer)	Jul. 23, 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: 2.663dBm Group B: 2.534dBm
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	TX9_RF_V01
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 expended 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 TX9	2ARN3-UWMIC9TX9	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. OUPUT 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.

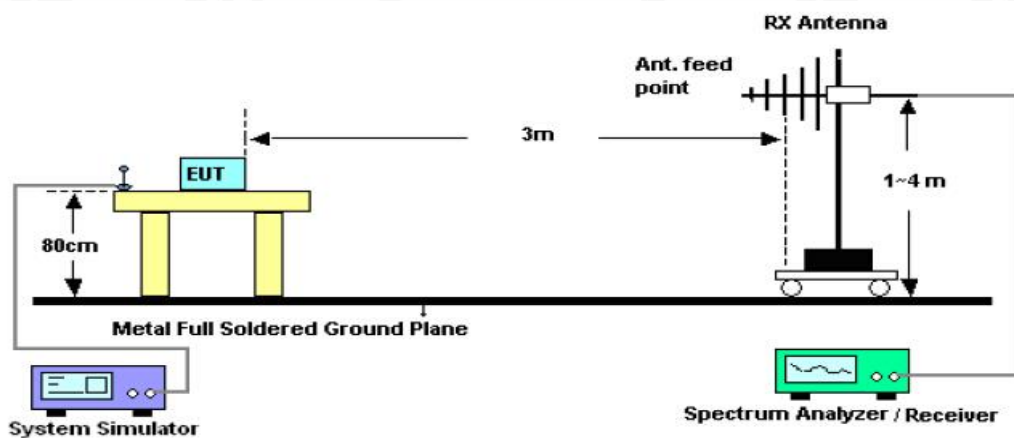
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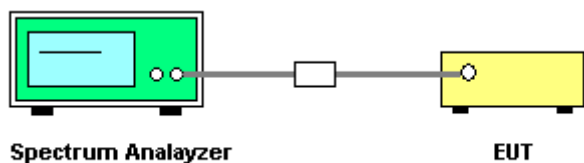


7.3. TEST SETUP

☐ 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	2.450	17
	Middle power	2.501	17
	High power	2.437	17
533.830	Low power	2.415	17
	Middle power	2.380	17
	High power	2.416	17
553.510	Low power	2.574	17
	Middle power	2.663	17
	High power	2.425	17

Group B

Test Channel	Test power	Peak Power	Limit
(MHz)	--	(dBm)	(dBm)
556.510	Low power	2.449	17
	Middle power	2.407	17
	High power	2.436	17
575.780	Low power	2.534	17
	Middle power	2.428	17
	High power	2.357	17
595.460	Low power	2.317	17
	Middle power	2.452	17
	High power	2.507	17

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8. OCCUPIED BANDWIDTH

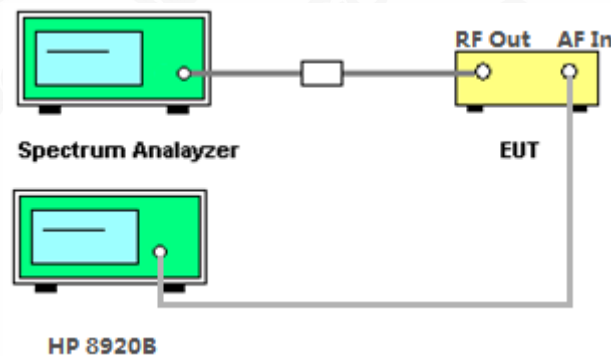
8.1. TEST LIMIT

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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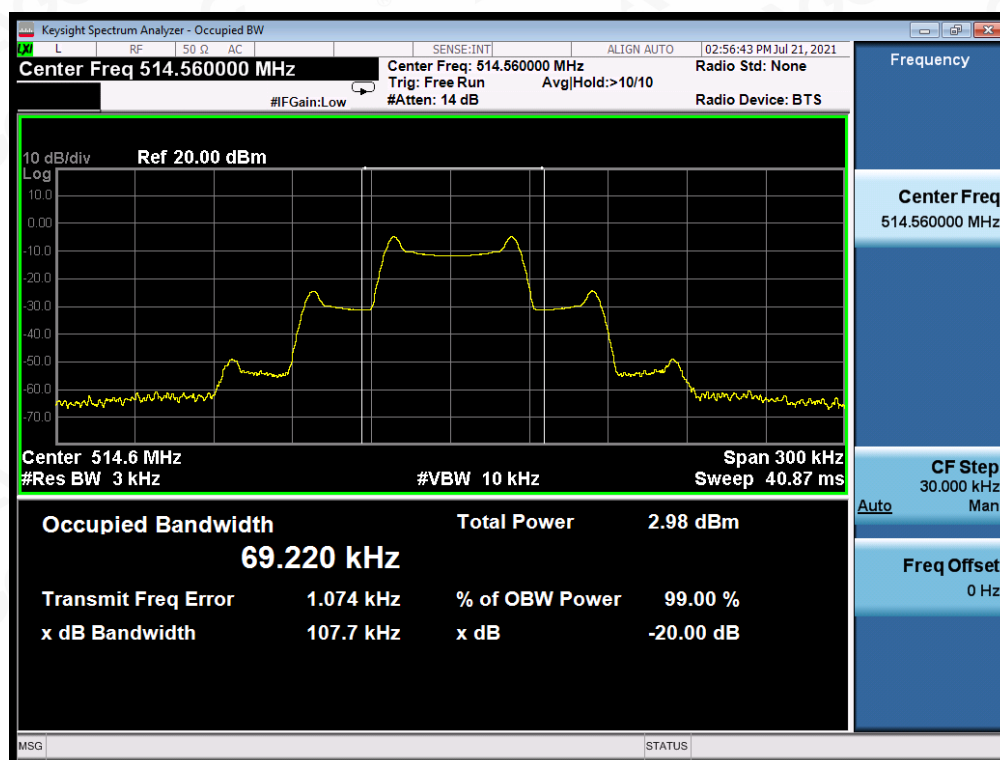


8.4. MEASUREMENT RESULTS

Group A

Test Channel	Test power	-20dBc EBW (kHz)	99% OBW (kHz)	Limit (kHz)
514.560MHz	Low power	107.7	69.220	200
	Middle power	107.6	69.083	200
	High power	106.7	68.504	200
533.830MHz	Low power	107.6	69.055	200
	Middle power	107.1	68.424	200
	High power	107.7	68.793	200
553.510MHz	Low power	107.6	68.822	200
	Middle power	107.4	68.759	200
	High power	107.5	69.181	200

TEST PLOT OF BANDWIDTH FOR 514.560MHz AT LOW POWER



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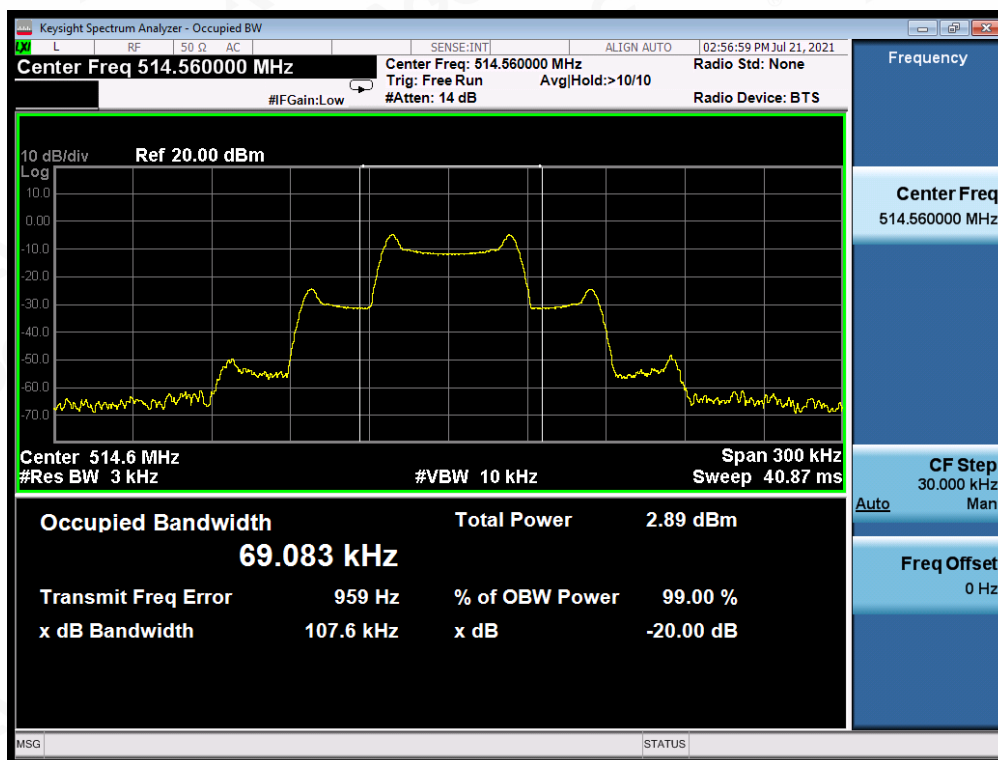
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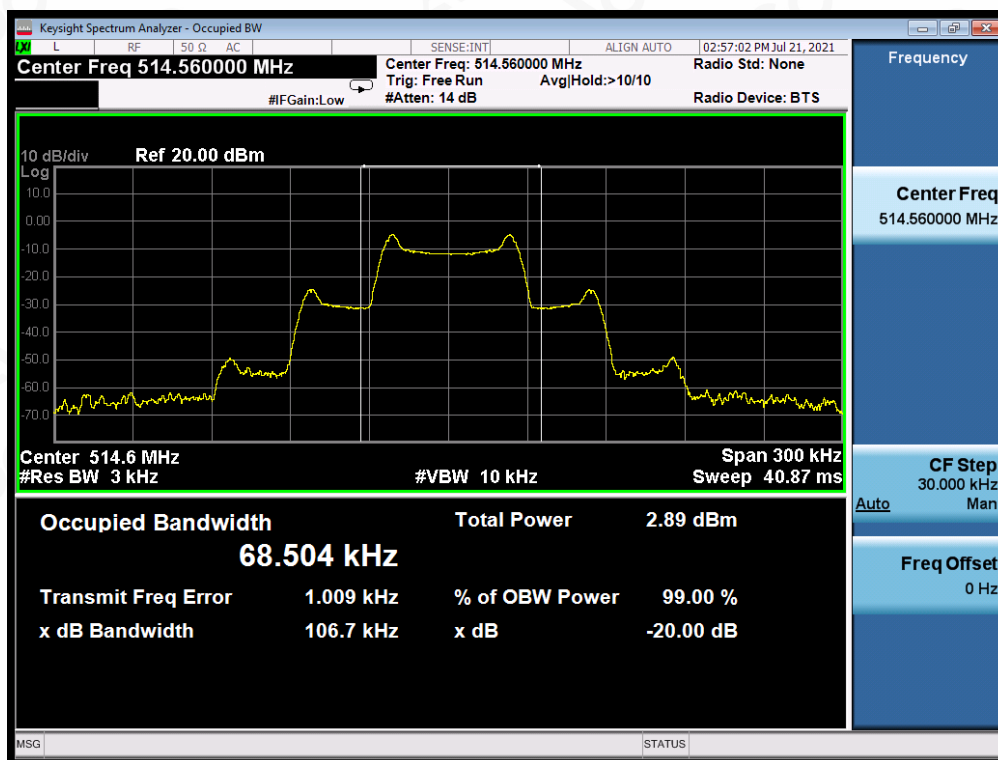
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TEST PLOT OF BANDWIDTH FOR 514.560MHz AT MIDDLEPOWER



TEST PLOT OF BANDWIDTH FOR 514.560MHz AT HIGH POWER



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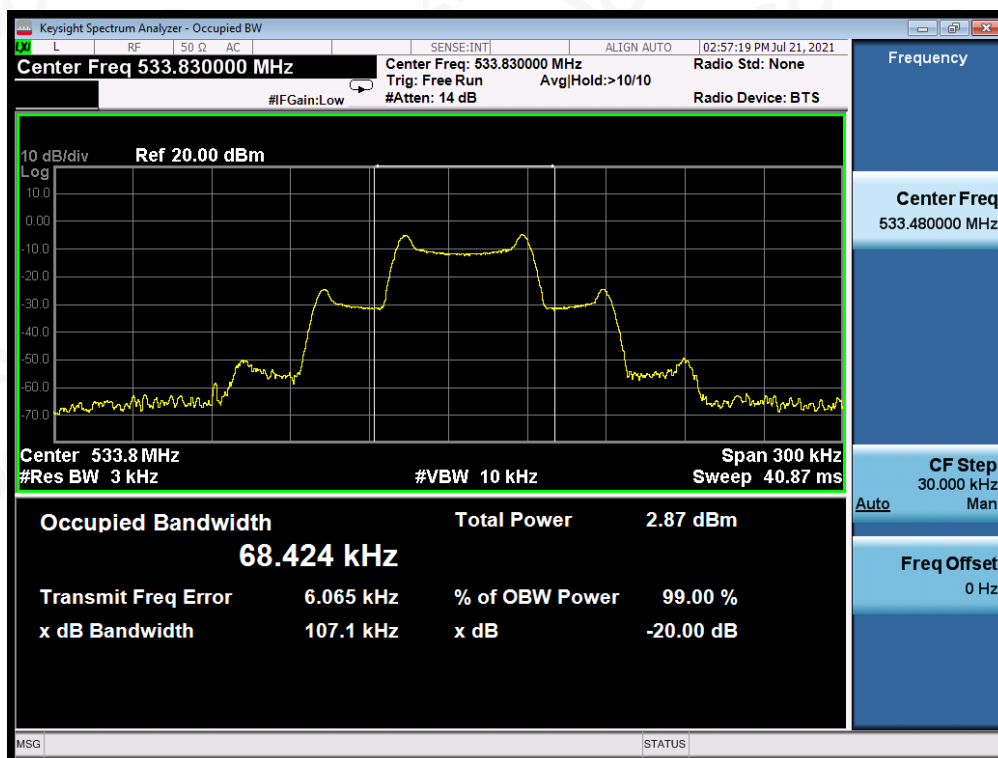
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TEST PLOT OF BANDWIDTH FOR 533.830MHz AT LOW POWER



TEST PLOT OF BANDWIDTH FOR 533.830MHz AT MIDDLEPOWER



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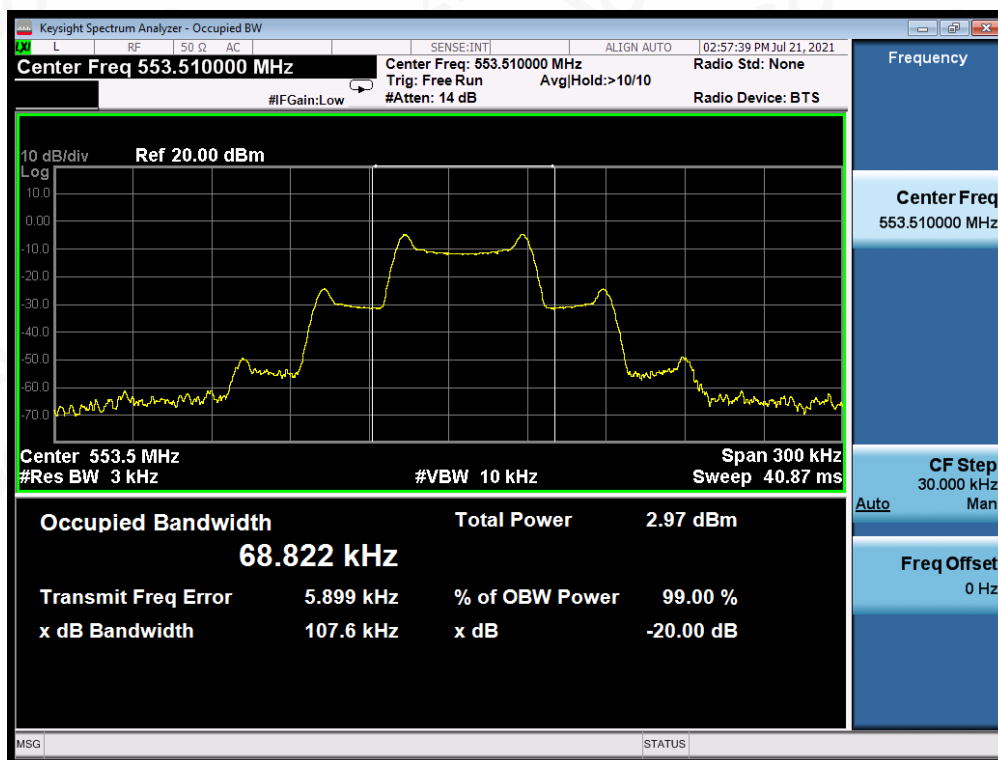
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TEST PLOT OF BANDWIDTH FOR 533.830MHz AT HIGH POWER



TEST PLOT OF BANDWIDTH FOR 553.510MHz AT LOW POWER

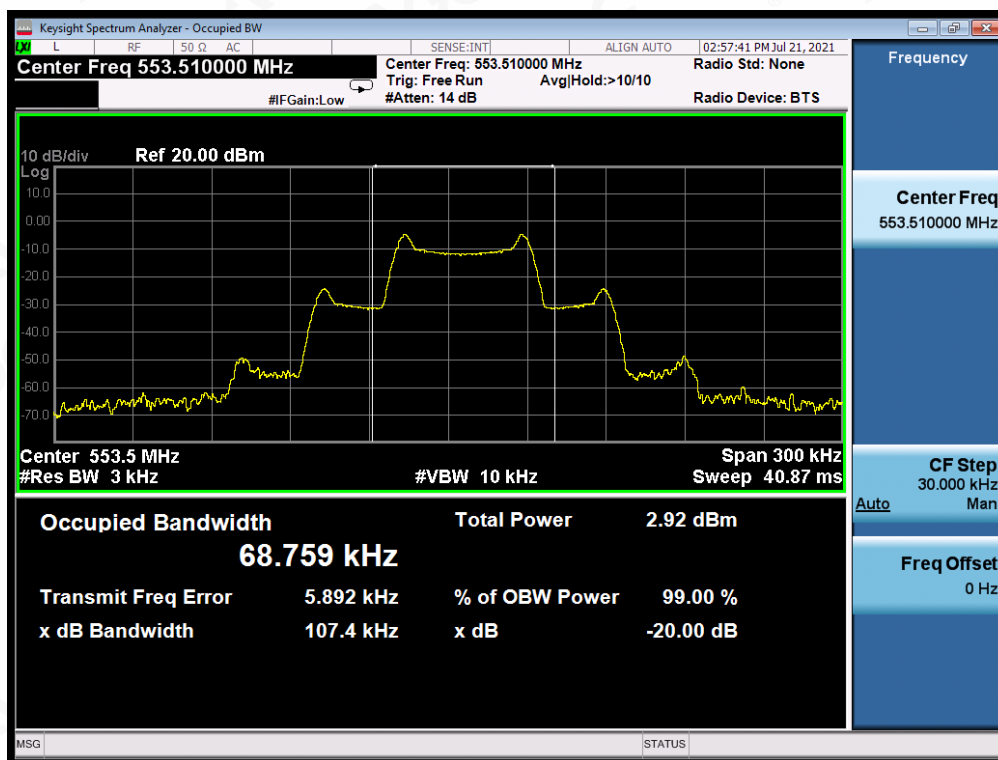


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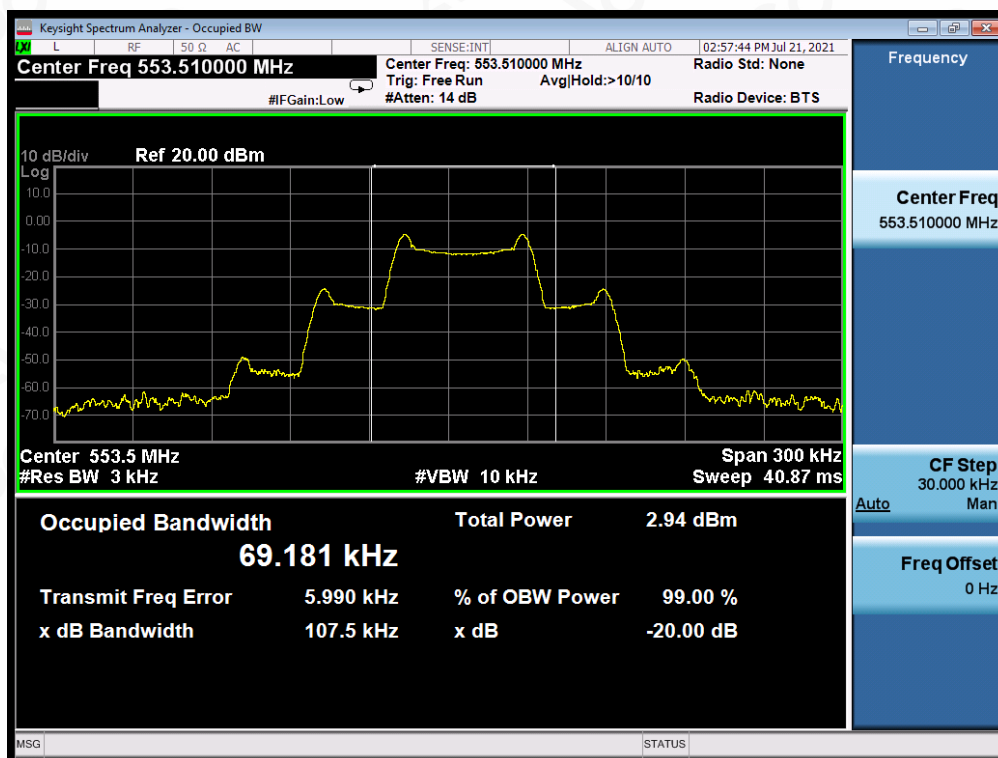
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TEST PLOT OF BANDWIDTH FOR 553.510MHz AT MIDDLEPOWER



TEST PLOT OF BANDWIDTH FOR 553.510MHz AT HIGH POWER



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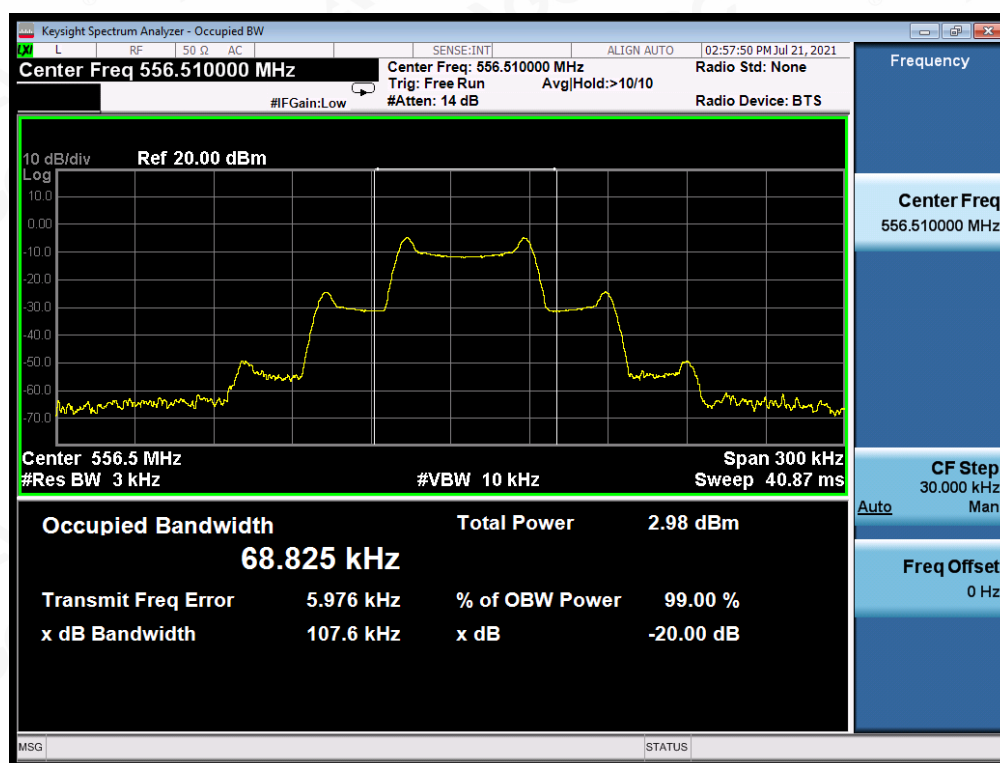
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Group B

Test Channel	Test power	-20dBc EBW (kHz)	99% OBW (kHz)	Limit (kHz)
556.51MHz	Low power	107.6	68.825	200
	Middle power	107.3	68.945	200
	High power	107.1	68.921	200
575.780MHz	Low power	107.6	68.932	200
	Middle power	107.5	68.687	200
	High power	107.4	68.786	200
595.460MHz	Low power	107.2	68.799	200
	Middle power	107.3	68.793	200
	High power	107.6	68.402	200

TEST PLOT OF BANDWIDTH FOR 556.510MHz AT LOW POWER



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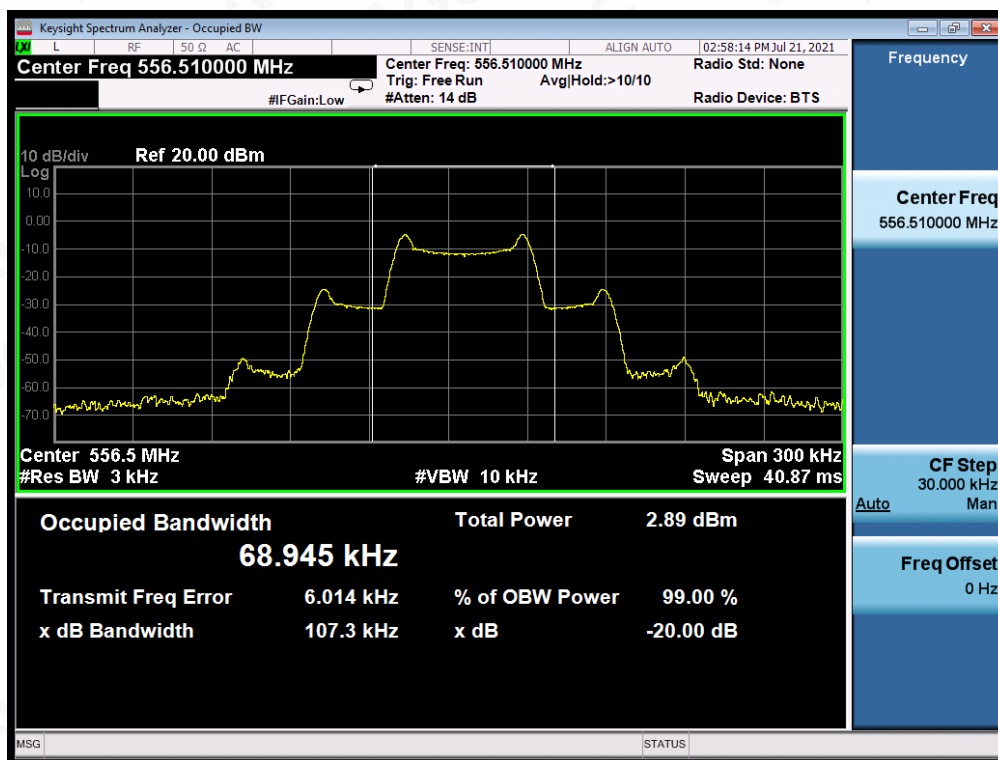
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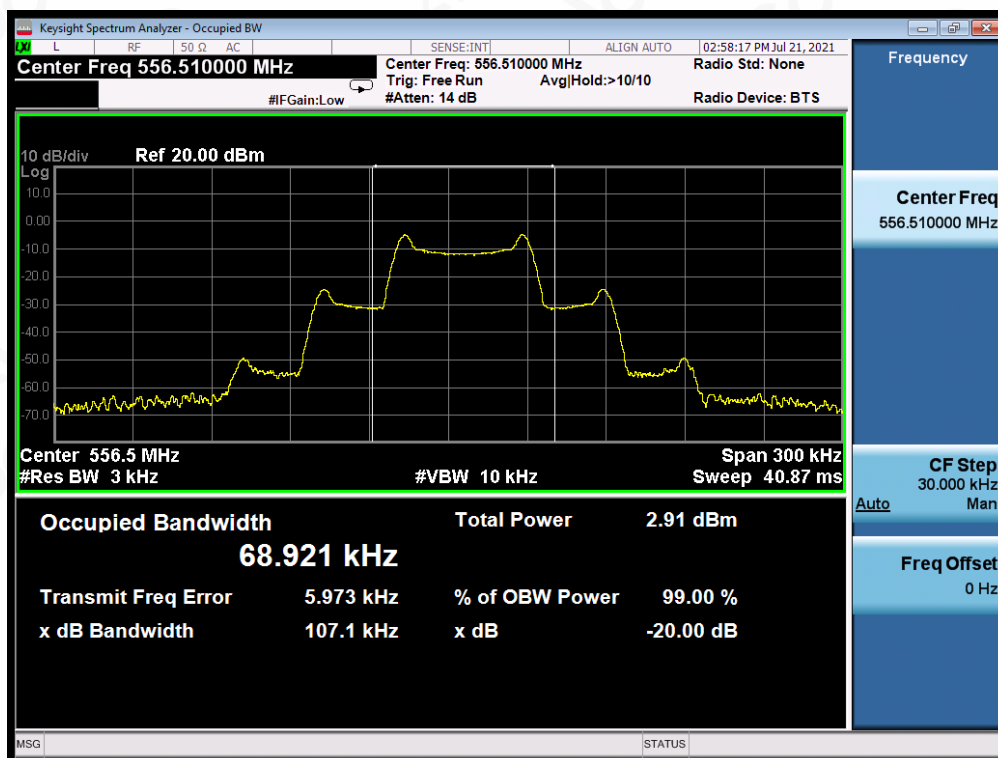
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TEST PLOT OF BANDWIDTH FOR 556.510MHz AT MIDDLEPOWER



TEST PLOT OF BANDWIDTH FOR 556.510MHz AT HIGH POWER

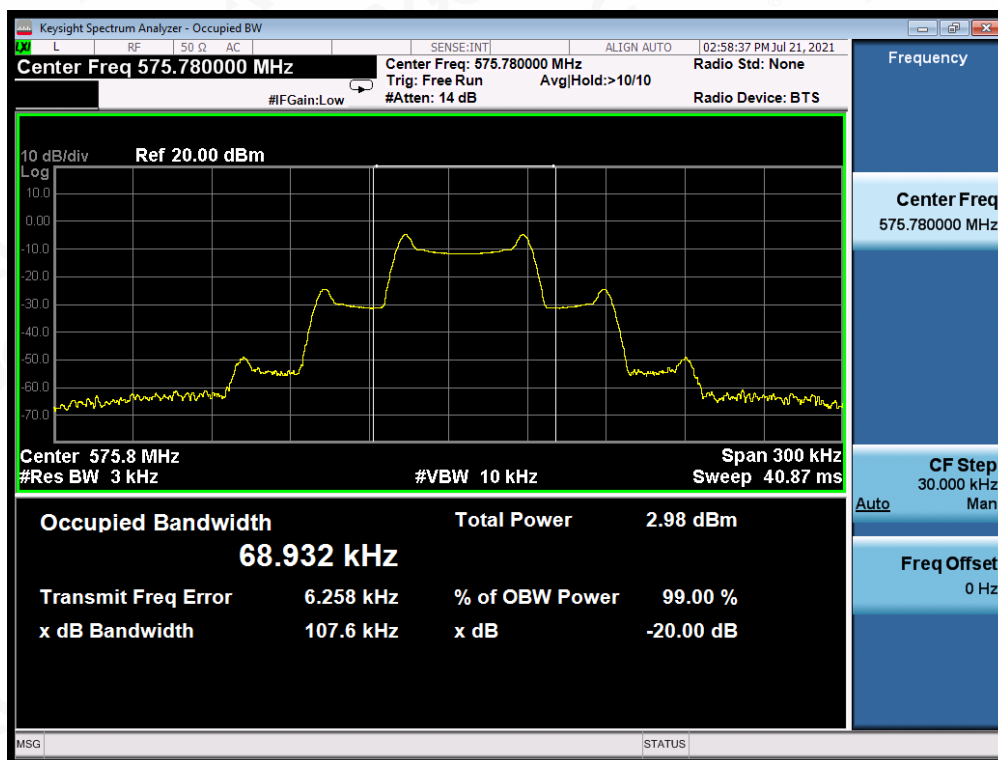


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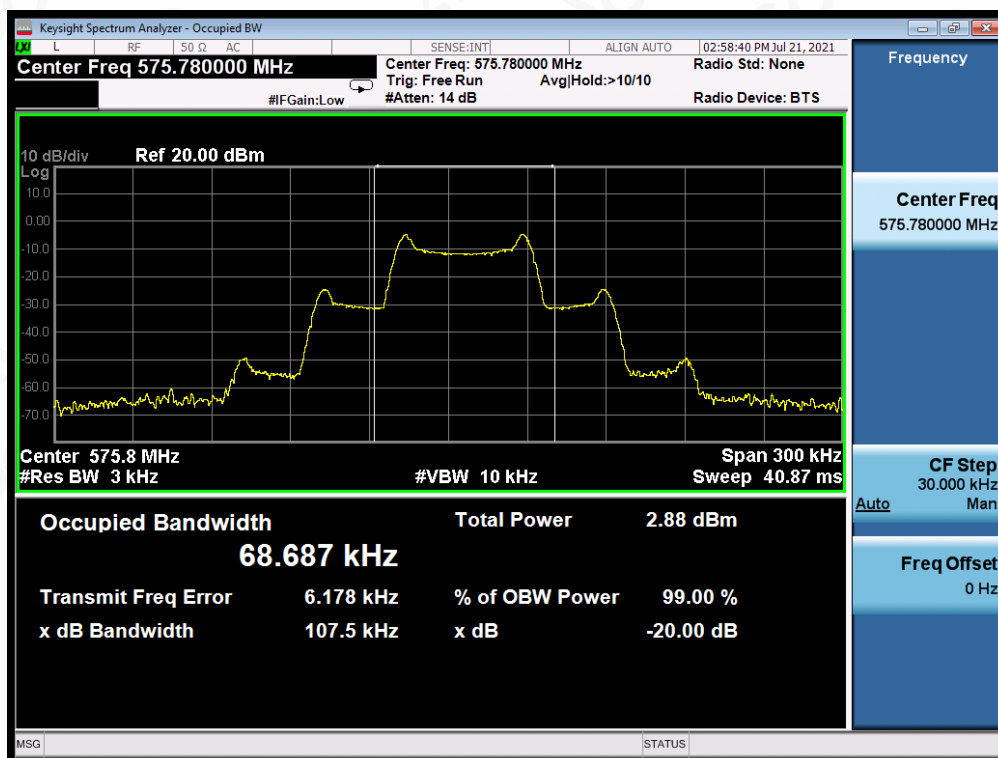
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TEST PLOT OF BANDWIDTH FOR 575.780MHz AT LOW POWER



TEST PLOT OF BANDWIDTH FOR 575.780MHz AT MIDDLEPOWER

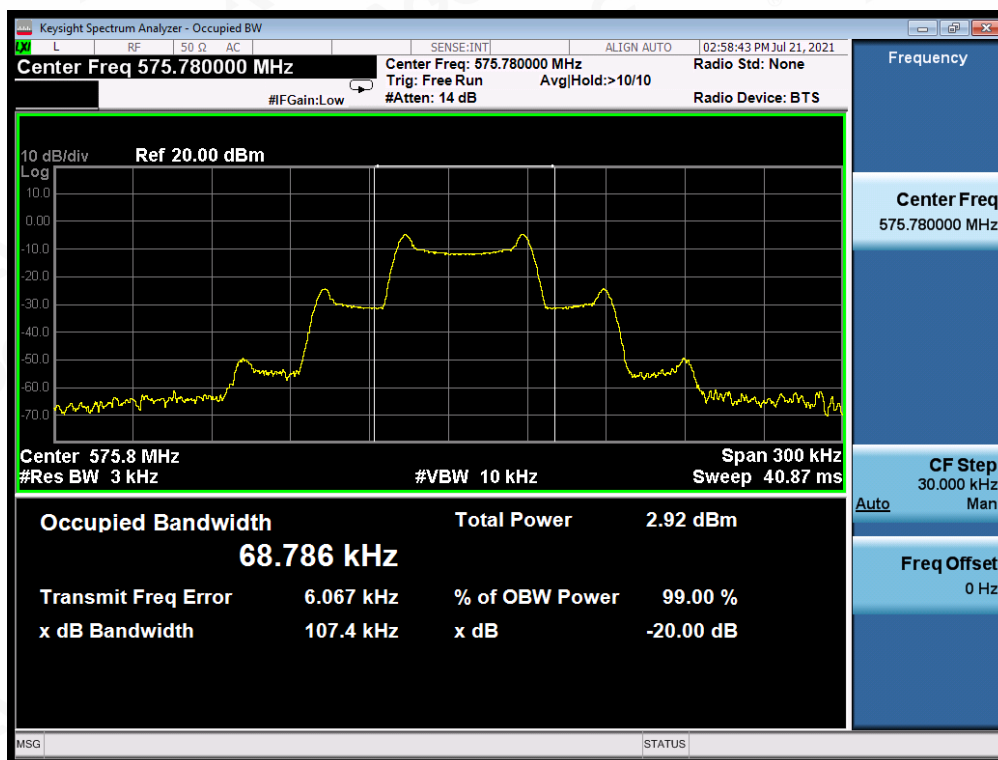


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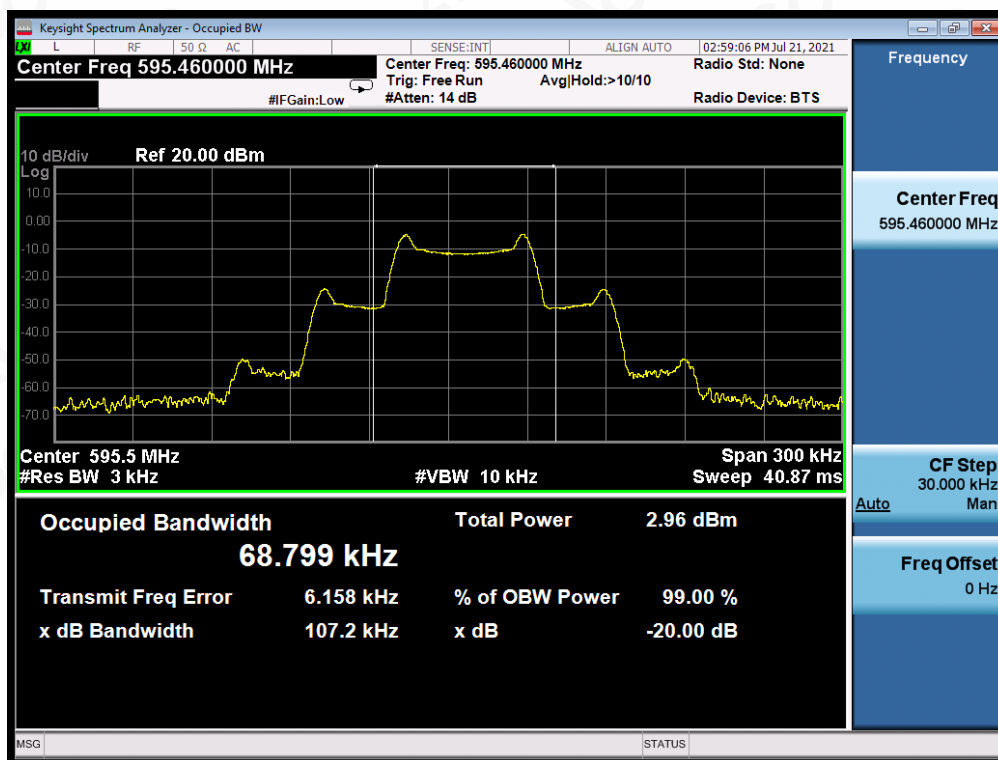
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TEST PLOT OF BANDWIDTH FOR 575.780MHz AT HIGH POWER



TEST PLOT OF BANDWIDTH FOR 595.460MHz AT LOW POWER



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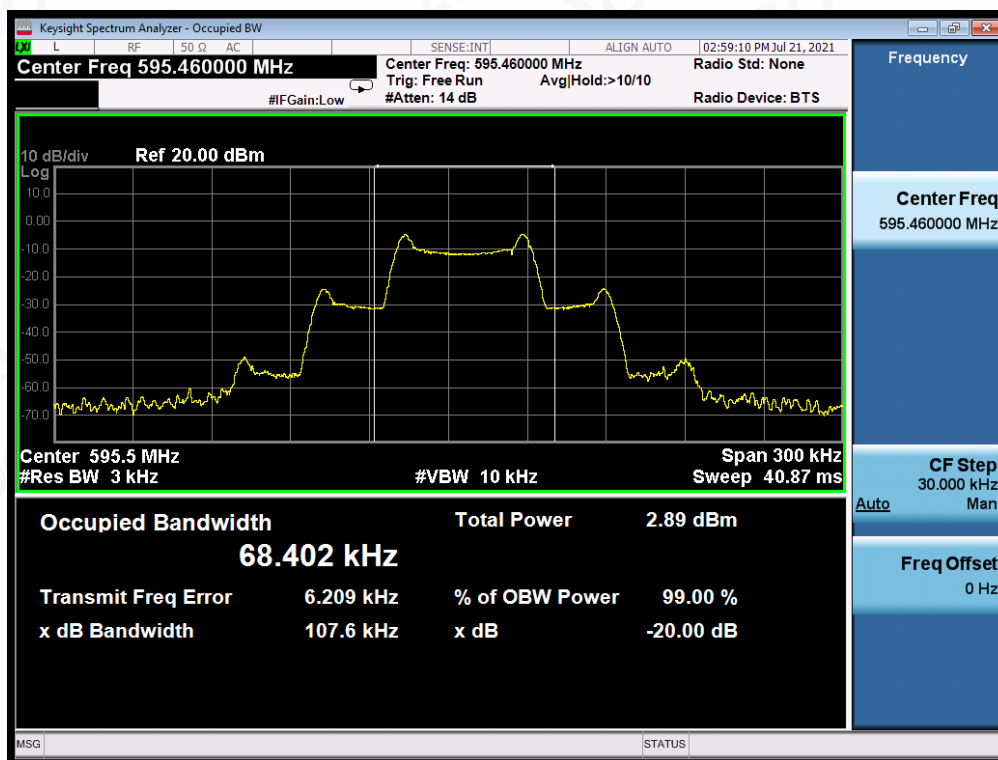
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TEST PLOT OF BANDWIDTH FOR 595.460MHz AT MIDDLEPOWER



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

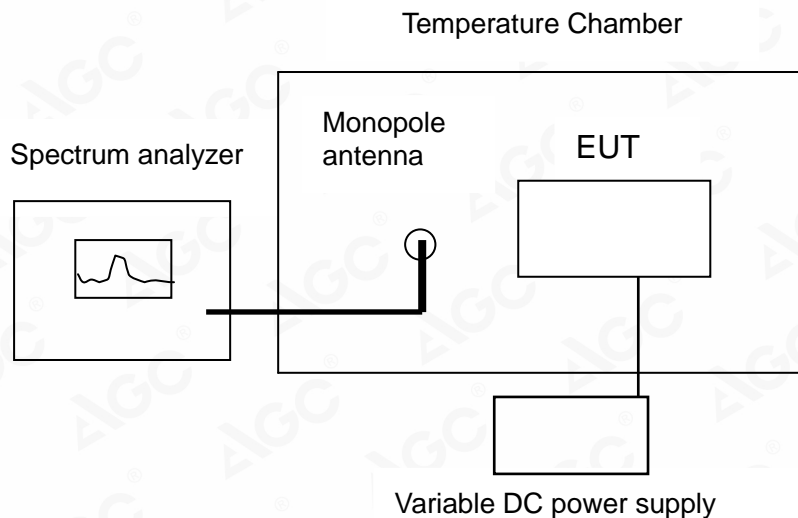
1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the operation frequency.
3. Set SPA Centre Frequency = Operation Frequency, RBW= 1 KHz, VBW $\geq 3 \times$ RBW.
4. Set SPA Trace 1 Max hold, then View.
5. The test extreme voltage is to change the 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	514.5721	0.0126	0.03	PASS
3.0	514.5720			
3.45	514.5726			

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

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	514.5721	0.0128	0.03	PASS
-20°C	514.5726			
-10°C	514.5728			
0°C	514.5724			
10°C	514.5725			
20°C	514.5720			
30°C	514.5723			
40°C	514.5725			
50°C	514.5724			

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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	514.5654	0.0054	0.03	PASS
3.0	514.5650			
3.45	514.5653			

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

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	514.5655	0.0059	0.03	PASS
-20°C	514.5658			
-10°C	514.5659			
0°C	514.5653			
10°C	514.5656			
20°C	514.5650			
30°C	514.5653			
40°C	514.5652			
50°C	514.5654			

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	514.5685	0.0087	0.03	PASS
3.0	514.5680			
3.45	514.5687			

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

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	514.5682	0.0088	0.03	PASS
-20°C	514.5684			
-10°C	514.5685			
0°C	514.5688			
10°C	514.5683			
20°C	514.5680			
30°C	514.5681			
40°C	514.5684			
50°C	514.5682			

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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	533.8364	0.0064	0.03	PASS
3.0	533.8360			
3.45	533.8360			

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

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	533.8362	0.0067	0.03	PASS
-20°C	533.8364			
-10°C	533.8366			
0°C	533.8367			
10°C	533.8361			
20°C	533.8360			
30°C	533.8363			
40°C	533.8364			
50°C	533.8365			

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	533.8404	0.0106	0.03	PASS
3.0	533.8400			
3.45	533.8406			

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

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	533.8401	0.0107	0.03	PASS
-20°C	533.8402			
-10°C	533.8405			
0°C	533.8407			
10°C	533.8406			
20°C	533.8400			
30°C	533.8402			
40°C	533.8403			
50°C	533.8406			

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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	533.8422	0.0125	0.03	PASS
3.0	533.8420			
3.45	533.8425			

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

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	533.8421	0.0128	0.03	PASS
-20°C	533.8424			
-10°C	533.8427			
0°C	533.8428			
10°C	533.8423			
20°C	533.8420			
30°C	533.8424			
40°C	533.8426			
50°C	533.8422			

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	553.5236	0.0137	0.03	PASS
3.0	553.5230			
3.45	553.5237			

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

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	553.5232	0.0138	0.03	PASS
-20°C	553.5236			
-10°C	553.5238			
0°C	553.5231			
10°C	553.5232			
20°C	553.5230			
30°C	553.5236			
40°C	553.5233			
50°C	553.5237			

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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	553.5184	0.0084	0.03	PASS
3.0	553.5180			
3.45	553.5183			

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

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	553.5184	0.0088	0.03	PASS
-20°C	553.5185			
-10°C	553.5181			
0°C	553.5188			
10°C	553.5186			
20°C	553.5180			
30°C	553.5182			
40°C	553.5181			
50°C	553.5185			

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	553.5196	0.0096	0.03	PASS
3.0	553.5190			
3.45	553.5193			

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

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	553.5195	0.0098	0.03	PASS
-20°C	553.5194			
-10°C	553.5191			
0°C	553.5196			
10°C	553.5198			
20°C	553.5190			
30°C	553.5192			
40°C	553.5199			
50°C	553.5193			

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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	556.514	0.008	0.03	PASS
3.0	556.518			
3.45	556.513			

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

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

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	556.529	0.019	0.03	PASS
3.0	556.523			
3.45	556.521			

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

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	556.521	0.017	0.03	PASS
-20°C	556.524			
-10°C	556.525			
0°C	556.527			
10°C	556.522			
20°C	556.523			
30°C	556.526			
40°C	556.523			
50°C	556.524			

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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	556.524	0.018	0.03	PASS
3.0	556.522			
3.45	556.528			

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

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	556.518	0.015	0.03	PASS
-20°C	556.524			
-10°C	556.523			
0°C	556.525			
10°C	556.520			
20°C	556.522			
30°C	556.523			
40°C	556.524			
50°C	556.521			

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	575.7816	0.0016	0.03	PASS
3.0	575.7810			
3.45	575.7813			

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

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	575.7811	0.0018	0.03	PASS
-20°C	575.7815			
-10°C	575.7814			
0°C	575.7816			
10°C	575.7818			
20°C	575.7810			
30°C	575.7813			
40°C	575.7815			
50°C	575.7812			

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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	575.7863	0.0064	0.03	PASS
3.0	575.7860			
3.45	575.7864			

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

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	575.7862	0.0068	0.03	PASS
-20°C	575.7864			
-10°C	575.7868			
0°C	575.7867			
10°C	575.7863			
20°C	575.7860			
30°C	575.7861			
40°C	575.7866			
50°C	575.7865			

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	575.7934	0.0134	0.03	PASS
3.0	575.7930			
3.45	575.7931			

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

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	575.7932	0.0138	0.03	PASS
-20°C	575.7934			
-10°C	575.7938			
0°C	575.7936			
10°C	575.7931			
20°C	575.7930			
30°C	575.7933			
40°C	575.7938			
50°C	575.7932			

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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	595.4723	0.0126	0.03	PASS
3.0	595.4720			
3.45	595.4726			

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

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	595.4722	0.0128	0.03	PASS
-20°C	595.4725			
-10°C	595.4728			
0°C	595.4721			
10°C	595.4723			
20°C	595.4720			
30°C	595.4726			
40°C	595.4724			
50°C	595.4725			

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	595.4683	0.0084	0.03	PASS
3.0	595.4680			
3.45	595.4684			

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

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	595.4682	0.0087	0.03	PASS
-20°C	595.4684			
-10°C	595.4685			
0°C	595.4687			
10°C	595.4686			
20°C	595.4680			
30°C	595.4683			
40°C	595.4682			
50°C	595.4685			

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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	595.4712	0.0115	0.03	PASS
3.0	595.4710			
3.45	595.4715			

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

Temperature	Measurement Frequency (MHz)	Max. Deviation (MHz)	Limit (MHz)	Conclusion
-30°C	595.4712	0.0118	0.03	PASS
-20°C	595.4713			
-10°C	595.4715			
0°C	595.4717			
10°C	595.4718			
20°C	595.4710			
30°C	595.4714			
40°C	595.4711			
50°C	595.4716			

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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

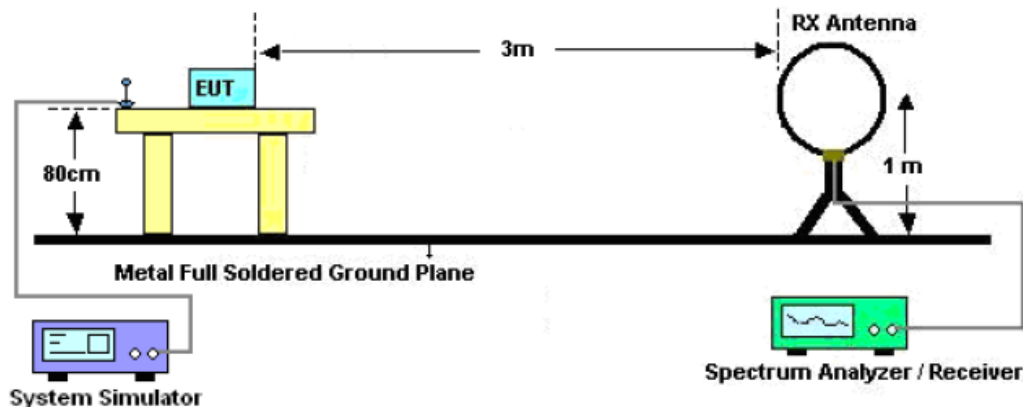
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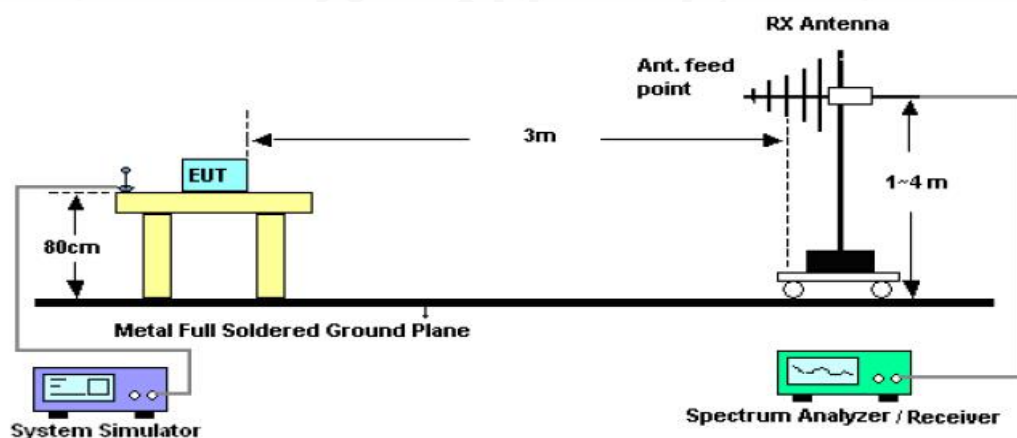


10.3. TEST SETUP

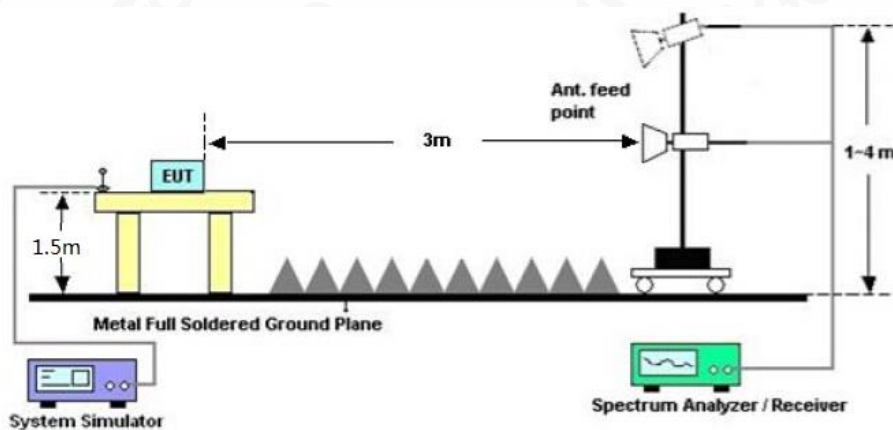
Emission outside the band Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



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