



Test Report – FCC Part 74H Low Power Licensed Wireless Microphone Applicant: Zaxcom, Inc.

Approved for Release By:

Signature: Bruno Clavier

Name & Title: Bruno Clavier, General Manager

Date of Signature 8/17/2022

This test report shall not be reproduced except in full without the written and signed permission of Timco Engineering Inc. (IIA). This test report relates only to the items tested as identified and is not valid for any subsequent changes or modifications made to the equipment under test.



Table of Contents

1.	CUSTOMER INFORMATION.....	4
1.1	TEST RESULT SUMMARY	4
2.	LOCATION OF TESTING	5
2.1	TEST LABORATORY	5
2.2	TESTING WAS PERFORMED, REVIEWED BY	5
3.	TEST SAMPLE(S) (EUT/DUT).....	6
3.1	DESCRIPTION OF THE EUT.....	6
3.2	CONFIGURATION OF EUT	7
3.3	TEST SETUP OF EUT	7
4.	TEST METHODS & APPLICABLE REGULATORY LIMITS.....	8
4.1	TEST METHODS/STANDARDS/GUIDANCE	8
5.	MEASUREMENT UNCERTAINTY.....	8
6.	ENVIRONMENTAL CONDITIONS	8
7.	LIST OF TEST EQUIPMENT AND TEST FACILITY.....	9
8.	TEST RESULTS	10
8.1	RF POWER OUTPUT	11
8.2	OCCUPIED BANDWIDTH	12
8.2.1	99% Bandwidth Plot, 481 MHz.....	13
8.2.2	99% Bandwidth Plot, 550 MHz.....	14
8.2.3	99% Bandwidth Plot, 607 MHz	15
8.2.4	99% Bandwidth Plot, 654 MHz	16
8.2.5	99% Bandwidth Plot, 656 MHz	17
8.2.6	99% Bandwidth Plot, 945 MHz	18
8.2.7	99% Bandwidth Plot, 948 MHz	19
8.2.8	99% Bandwidth Plot, 951 MHz.....	20
8.2.9	Emission Mask Plot, 481 MHz.....	21
8.2.10	Emission Mask Plot, 550 MHz.....	22
8.2.11	Emission Mask Plot, 607 MHz	23
8.2.12	Emission Mask Plot, 654 MHz.....	24
8.2.13	Emission Mask Plot, 656 MHz	25
8.2.14	Emission Mask Plot, 945 MHz.....	26
8.2.15	Emission Mask Plot, 948 MHz	27
8.2.16	Emission Mask Plot, 951 MHz.....	28
8.3	SPURIOUS EMISSIONS AT ANTENNA TERMINALS (CONDUCTED).....	29
8.3.1	Conducted Emissions Below 1G, 481 MHz	30
8.3.2	Conducted Emissions Above 1G, 481 MHz.....	31
8.3.3	Conducted Emissions Below 1G, 550 MHz	32
8.3.4	Conducted Emissions Above 1G, 550 MHz.....	33
8.3.5	Conducted Emissions Below 1G, 607 MHz.....	34



8.3.6	Conducted Emissions Above 1G, 607 MHz	35
8.3.7	Conducted Emissions Below 1G, 654 MHz	36
8.3.8	Conducted Emissions Above 1G, 654 MHz	37
8.3.9	Conducted Emissions Below 1G, 656 MHz	38
8.3.10	Conducted Emissions Above 1G, 656 MHz	39
8.3.11	Conducted Emissions Below 1G, 945 MHz	40
8.3.12	Conducted Emissions Above 1G, 945 MHz	41
8.3.13	Conducted Emissions Below 1G, 948 MHz	42
8.3.14	Conducted Emissions Above 1G, 948 MHz	43
8.3.15	Conducted Emissions Below 1G, 951 MHz	44
8.3.16	Conducted Emissions Above 1G, 951 MHz	45
8.4	RADIATED EMISSIONS	46
8.4.1	Radiated Emissions Table, 481 MHz	47
8.4.2	Radiated Emissions Table, 550 MHz	48
8.4.3	Radiated Emissions Table, 607 MHz	49
8.4.4	Radiated Emissions Table, 654 MHz	50
8.4.5	Radiated Emissions Table, 656 MHz	51
8.4.6	Radiated Emissions Table, 945 MHz	52
8.4.7	Radiated Emissions Table, 948 MHz	53
8.4.8	Radiated Emissions Table, 951 MHz	54
8.5	FREQUENCY STABILITY	55
8.5.1	Frequency Stability Data	56
8.5.2	Frequency Stability Plot	57
9.	ANNEX-A - PHOTOGRAPHS OF THE EUT	58
10.	ANNEX-B – TEST SETUP PHOTOGRAPHS	58
11.	HISTORY OF TEST REPORT CHANGES	58



Timco Engineering, Inc., an IIA Company
849 NW State Road 45, Newberry, Florida 32669
(352) 472-5500 / testing@timcoengr.com

1. Customer Information

Applicant: Zaxcom, Inc.
Address: 230 West Parkway
Unit 9
Pompton Plains, New Jersey, 07444, United States

1.1 Test Result Summary

The following test procedure was used ANSI C63.26 and KDB 206256 D01 Wireless Microphone Certification. Full test results are available in this report.

No additions to the test methods were needed. There were no deviations, or exclusions from the test methods. No test results are from external providers or from the customer. The test results relate only to the items tested. Timco does not offer opinions and interpretations, only a pass/fail statement.

Clauses	Description of the Requirements	Result (Pass, Fail or N/A)
PART 2.1046(a), 74.861(e) (1) (ii), (iii)	Conducted Power	PASS
2.1049(c), 74.861(d)(4)(i)	Operating Bandwidth	PASS
PART 74.861(e)(7), ETSI EN 300-422-1 s. 8.3.2	Unwanted Emissions	PASS
2.1051(a), 74.861(e)(6)(iii)	Unwanted Emissions	PASS
2.1053, 74.861(e)(6)(iii)	Unwanted Emissions	PASS
2.1053, 74.861(e) (4)	Frequency Stability	N/A



Timco Engineering, Inc., an IIA Company
849 NW State Road 45, Newberry, Florida 32669
(352) 472-5500 / testing@timcoengr.com

2. Location of Testing

2.1 Test Laboratory

Timco Engineering Inc. is a subsidiary of Industrial Inspection & Analysis, Inc. ("IIA"). Testing was performed at Timco's permanent laboratory located at 849 NW State Road 45, Newberry, Florida 32669

FCC test firm # 578780

FCC Designation # US1070

FCC site registration is under A2LA certificate # 0955.01

ISED Canada test site registration # 2056A

EU Notified Body # 1177

For all designations see A2LA scope # 0955.01

2.2 Testing was performed, reviewed by

Dates of Testing: 6/15/2022- 6/17/2022

Signature:

Sr. EMC Engineer
EMC-003838-NE



Name & Title:

Tim Royer, EMC Engineer

Date of Signature

8/17/2022

Signature:

Name & Title:

Kristoffer Costa, EMC Technician

Date of Signature

8/17/2022



3. Test Sample(s) (EUT/DUT)

The test sample was received: 6/10/2022

3.1 Description of the EUT

A description as well as unambiguous identification of the EUT(s) tested. Where more than one sample is required for technical reasons (such as the use of connected units for the purpose of conducted output power testing where the product units will have integral antennas), each specific test shall identify which unit was tested.

Identification	
FCC ID:	PR6LA5
Brief Description	Wireless Microphone
Type of Modular	N/A
Model(s) #	TRXLA5, TRX743, TRX745, TRX-CL
Firmware version	N/A
Software version	N/A
Serial Number	N/A

Technical Characteristics	
Technology	Wireless Microphone
Frequency Range	470- 608 MHz, 653- 657 MHz, 941.5-952 MHz
RF O/P Power (Max.)	20.45 dBm/ 110.9175 mW
Bandwidth & Emission Class	113.07 kHz
Number of Channels	N/A
Duty Cycle	100%
Voltage Rating (AC or Batt.)	Battery

Antenna Characteristics			
Antenna	Frequency Range	Mode / BW	Antenna Gain
1	n/a	n/a	0 dBi

- Note: Information such as antenna gain, firmware/software numbers are provided by manufacturer and cannot be validated by the test lab.



3.2 Configuration of EUT

Test Modes			
Mode (#)	Mode (Type)	Test Frequencies (MHz)	BW (nominal) (kHz)
1	Transmit	470- 608 MHz, 653- 657 MHz, 941.5-952 MHz	113.07

Operating conditions during Testing:

No modifications of the device under test (including firmware, specific software settings, and input/output signal levels to the EUT).

Peripherals used during Testing:

No peripherals used.

3.3 Test Setup of EUT

Equipment, antenna, and cable arrangement. The setup of the equipment and cable or wire placement on the test site that produces the highest radiated and the highest ac power-line conducted emissions shall be shown clearly and described. Information on the orientation of portable equipment during testing shall be included. Drawings or photographs may be used for this purpose.

Test Setups are included in the test report.



4. Test methods & Applicable Regulatory Limits

4.1 Test methods/Standards/Guidance

The measurement was performed as per ANSI C63.2 and KDB 206256 D01 Wireless Microphone Certification. Full test results are available in this report.

Limits and Regulatory Limits:

- 1) FCC Part 74 H

5. Measurement Uncertainty

Parameter	Uncertainty (dB)
Conducted Emissions	± 3.14 dB
Radiated Emissions (9kHz – 30 MHz)	± 3.08 dB
Radiated Emissions (30 – 200 MHz)	± 2.16 dB
Radiated Emissions (200 – 1000 MHz)	± 2.15 dB
Radiated Emissions (1 GHz – 18 GHz)	± 2.14 dB
Radiated Emissions (18 GHz – 40 GHz)	± 2.31 dB
Note: The uncertainties provided in this table represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of K=2.	

6. Environmental Conditions

Temperature & Humidity

Measurements performed at the test site did not exceed the following:

Parameter	Measurement
Temperature	23 C +/- 5%
Humidity	55% +/- 5%
Barometric Pressure	30.05 in Hg
Note: Specific environmental conditions that are applicable to a specific test are available in the test result section.	



7. List of Test Equipment and Test Facility

The test equipment used identified by type, manufacturer, serial number, or other identification and the date on which the next calibration or service check is due.

Description of the firmware or software used to operate EUT for testing purposes.

A complete list of all test equipment used shall be included with the test report. The manufacturer's model and serial numbers, and date of last calibration, and calibration interval shall be included. Measurement cable loss, measuring instrument bandwidth and detector function, video bandwidth, if appropriate, and antenna factors shall also be included where applicable.

List of Test Equipment

Test Equipment						
Type	Device	Manufacturer	Model	SN#	Current Cal	Cal Due
Antenna, NSA	Log-Periodic 1243	Eaton	96005	1243	5/4/21	5/3/2024
Antenna	Double-Ridged Horn/ETS Horn 1	ETS-Lindgren	3117	00035923	2/25/20	2/24/2023
CHAMBER	CHAMBER	Panashield	3M	N/A	3/12/19	12/21/2023
Pre-amp	Pre-amp	RF-LAMBDA	RLNA00M45GA	NA	2/27/19	8/26/2022
Receiver	EMI Test Receiver R&S ESU 40	Rohde & Schwarz	ESU 40	100320	5/27/21	5/26/2024
Receiver	EMI Test Receiver R&S ESW44	Rohde & Schwarz	ESW44	103049	10/13/21	10/12/2024
Function Generator	Function Generator	Standford	DS340	25200	1/13/21	1/13/2024
Signal Generator	Signal Generator HP 8648C	HP	8648C	3847A04696	3/31/21	3/30/2024
Thermometer	Type K J Thermometer	Martel	303	080504494	1/18/20	1/17/2023

Software			
Software	Author	Version	Validation on
ESU Firmware	Rohde & Schwarz	4.43 SP3; BIOS v5.1-24-3	2018
RSCommander	Rohde & Schwarz	1.6.4	2014
ScopeExplorer	LeCroy	v2.25.0.0	2009
Field Strength	Timco	v4.10.7.0	2016



8. Test Results

The results of the test are usually indicated in the form of tables, spectrum analyzer plots, charts, sample calculations, as appropriate for each test procedure.

A description and/or a block diagram of the test setup is usually provided.

The measurement results, along with the appropriate limits for comparison, may be presented in tabular or graphical form. In addition, any variation in the measurement environment may be reported if applicable (e.g., a significant change of temperature that could affect the cable loss and amplifier response).

Units of measurement

Unless noted otherwise in the referenced standard, the measurements of ac power-line conducted emissions and conducted power output will be reported in units of dB μ V. Unless noted otherwise in the referenced standard, the measurements of radiated emissions will be reported in units of decibels, referenced to one microvolt per meter (dB μ V/m) for electric fields, or to one ampere per meter (dBA/m) for magnetic fields, at the distance specified in the appropriate standards or requirements. The measurements of antenna-conducted power for receivers may be reported in units of dB μ V if the impedance of the measuring instrument is also reported. Otherwise, antenna-conducted power will be reported in units of decibels referenced to one milliwatt (dBm). All formulas for data conversions and conversion factors, if used, will be included in this measurement report.

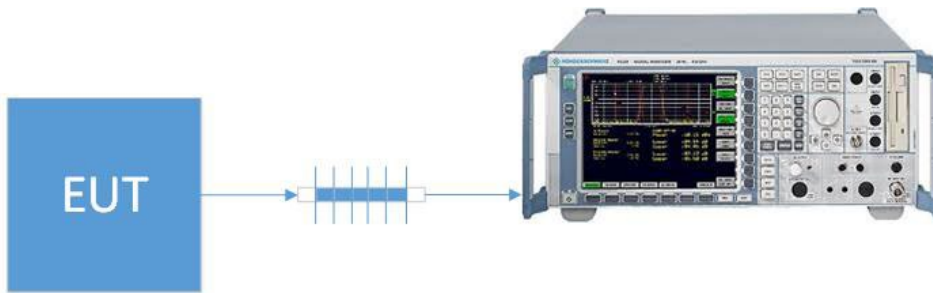
Example:

Freq (MHz)	Meter Reading	+ ACF	+CL	= FS
33	20 dB μ V	+ 10.36 dB/m	+0.40 dB	=30.36 dB μ V/m @ 3m

$$\text{EIRP} = \text{Pcond (dBm)} + \text{dBi}$$

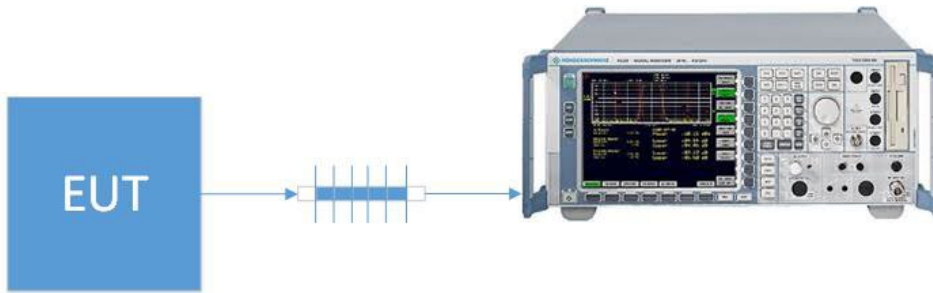
8.1 RF POWER OUTPUT

Limits from 2.1046(a), 74.861(e) (1) (ii) and test procedure from ANSI C63.26 and KDB 206256 D01 Wireless Microphone Certification.



Test Results, Mode 1				
Mode	Tuned Frequency (MHz)	Power Output (dBm)	Power Output (mW)	Power Output EIRP
1	481	20.26	106.1696	N/A
1	550	20.17	103.992	N/A
1	607	20.45	110.9175	N/A
1	654	10.52	11.27197	16.46
1	656	11.70	14.80649	19.99
1	945	19.26	84.33348	N/A
1	948	19.31	85.31001	N/A
1	951	19.31	85.31001	N/A

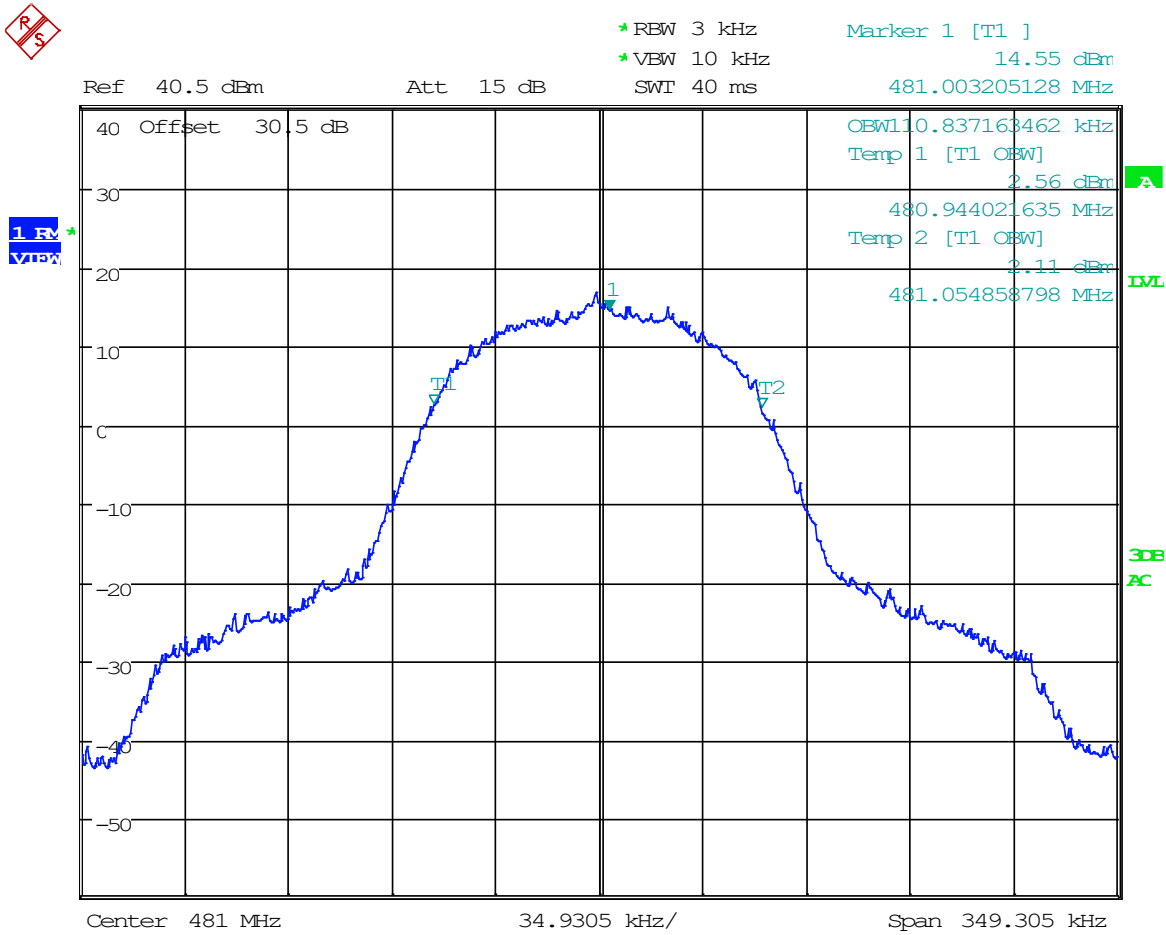
8.2 OCCUPIED BANDWIDTH



Tuned Frequency (MHz)	99% BW (kHz)
481	110.83
550	110.27
607	113.07
654	108.59
656	109.15
945	111.39
948	111.95
951	111.39

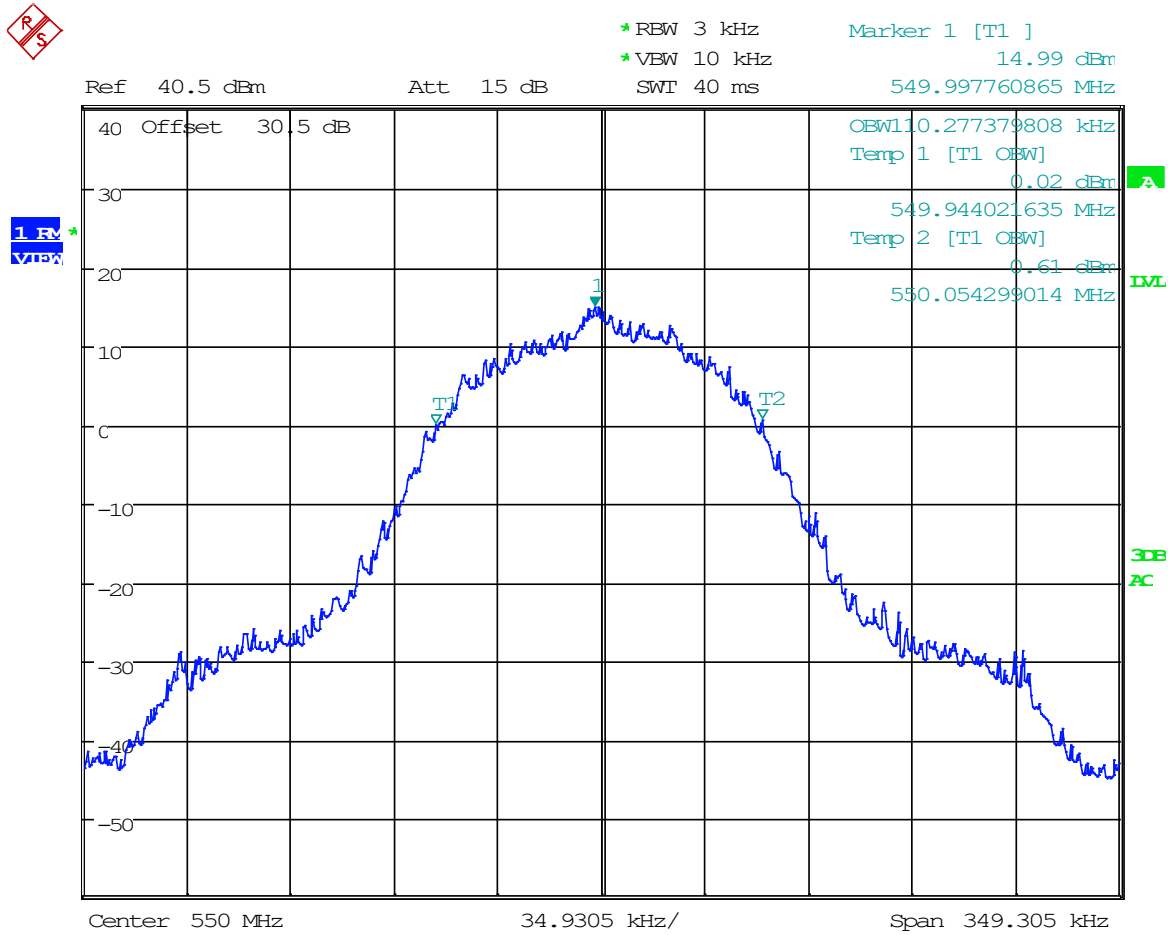


8.2.1 99% Bandwidth Plot, 481 MHz



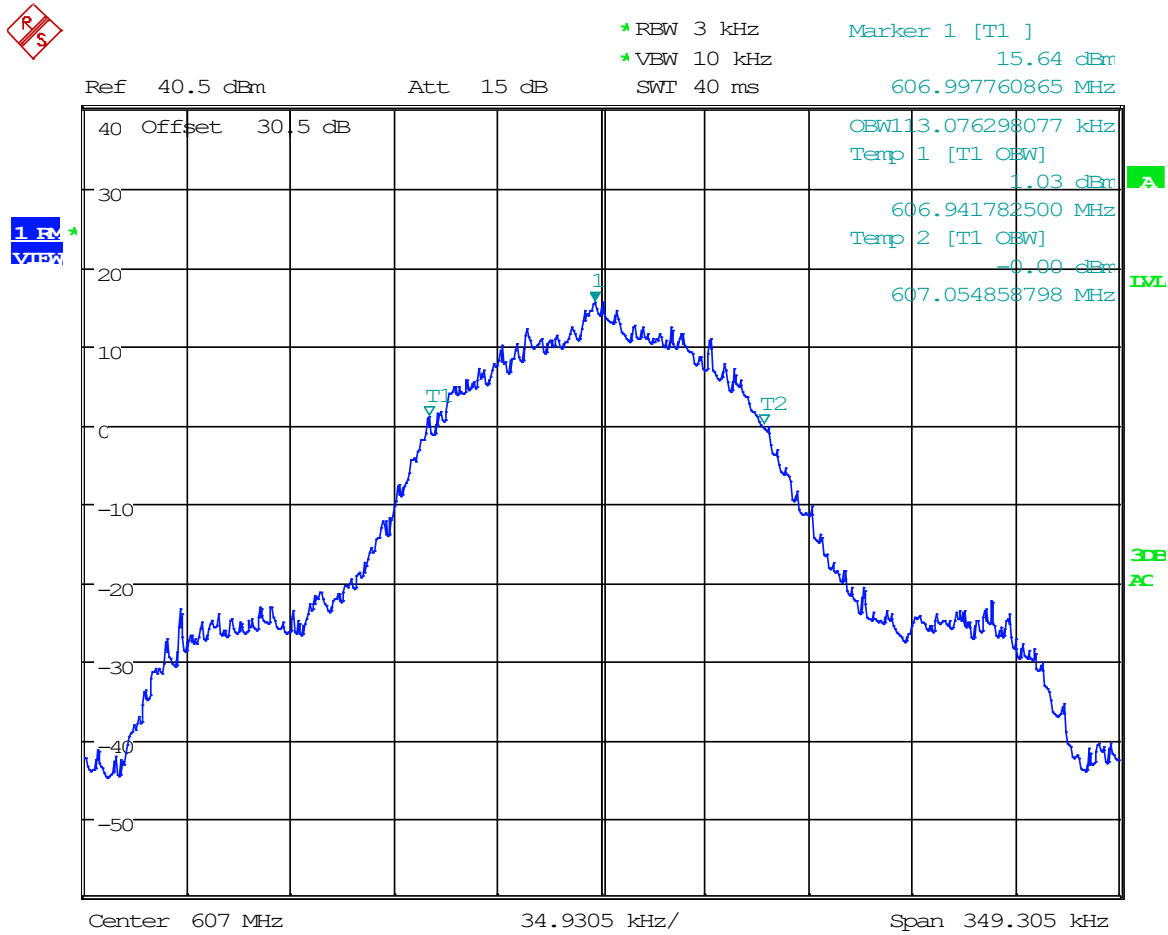
Date: 16.JUN.2022 09:53:00

8.2.2 99% Bandwidth Plot, 550 MHz



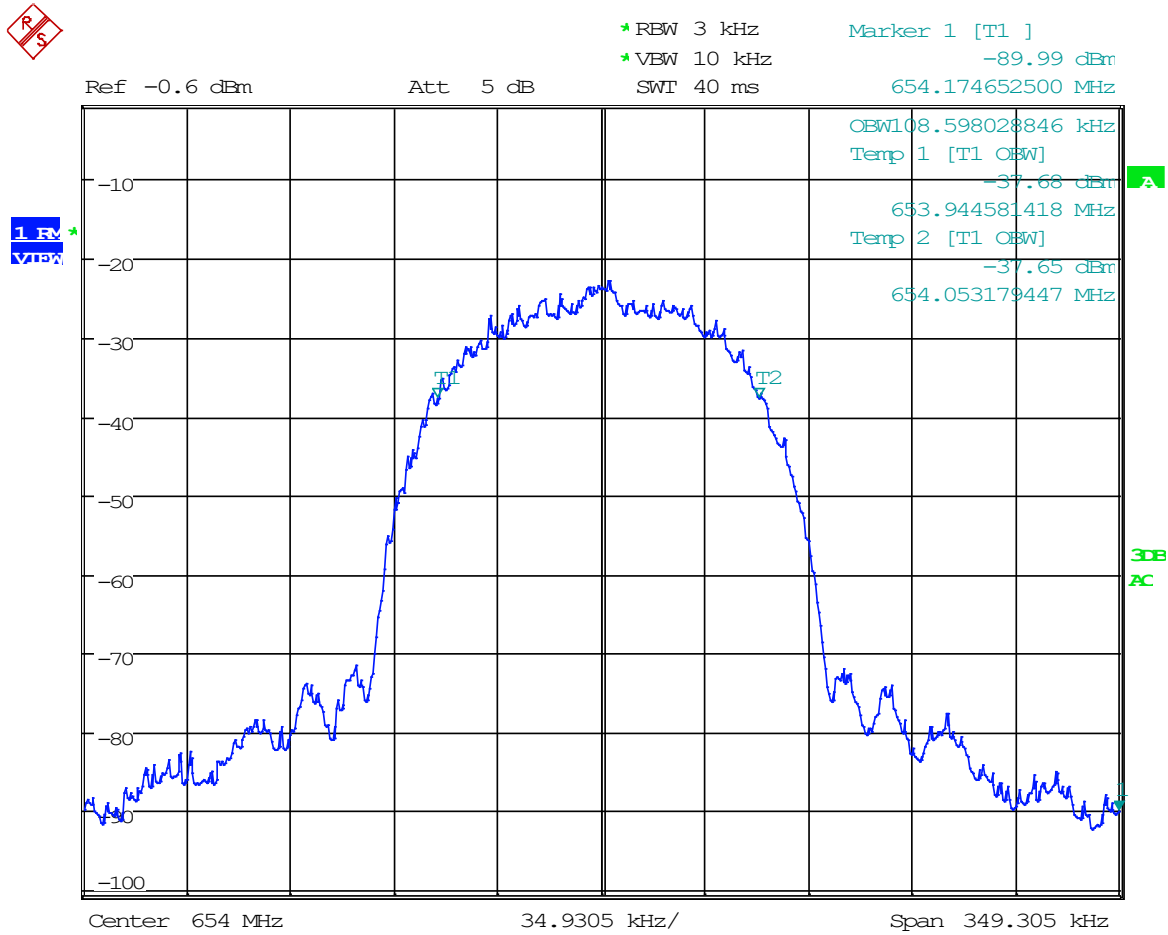
Date: 16.JUN.2022 09:55:55

8.2.3 99% Bandwidth Plot, 607 MHz



Date: 16.JUN.2022 09:56:43

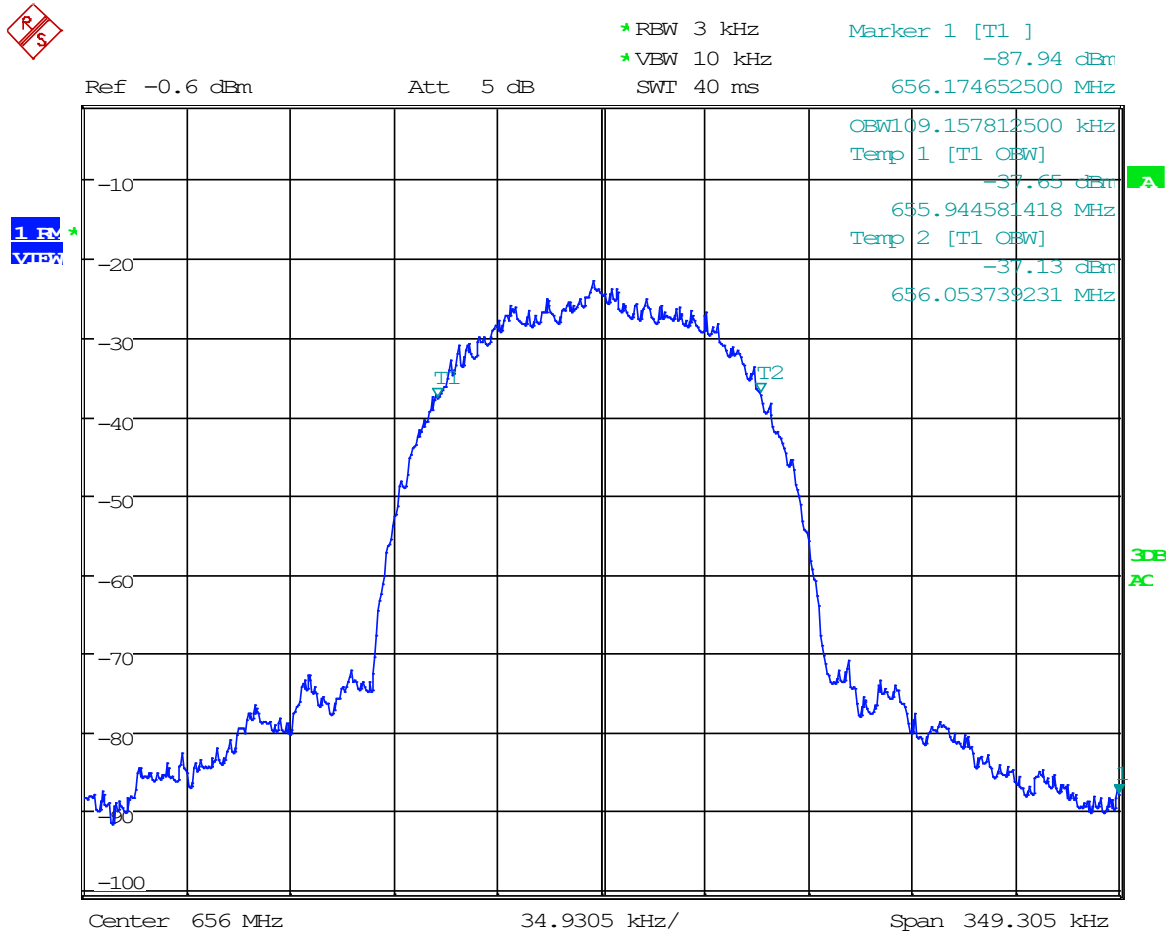
8.2.4 99% Bandwidth Plot, 654 MHz



Date: 16.JUN.2022 15:33:14



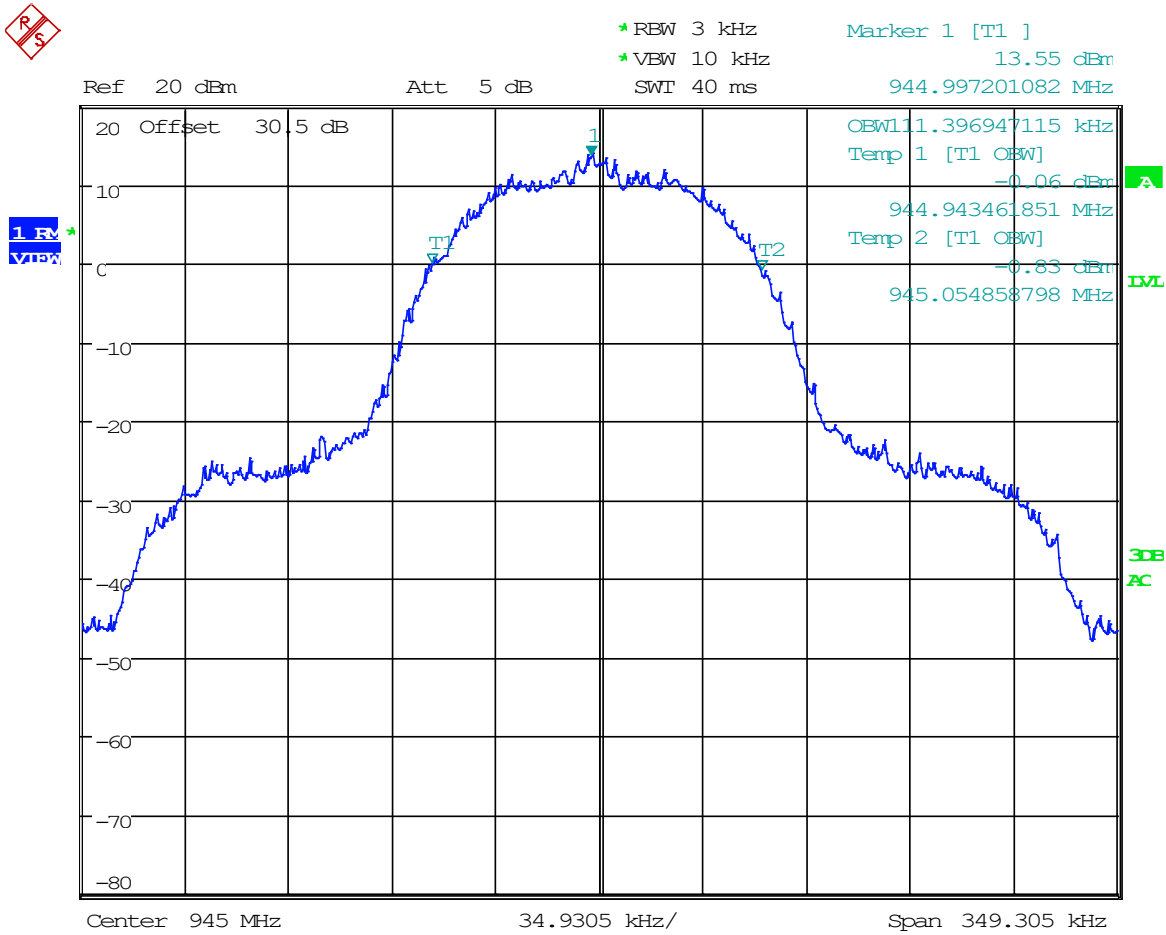
8.2.5 99% Bandwidth Plot, 656 MHz



Date: 16.JUN.2022 15:32:23



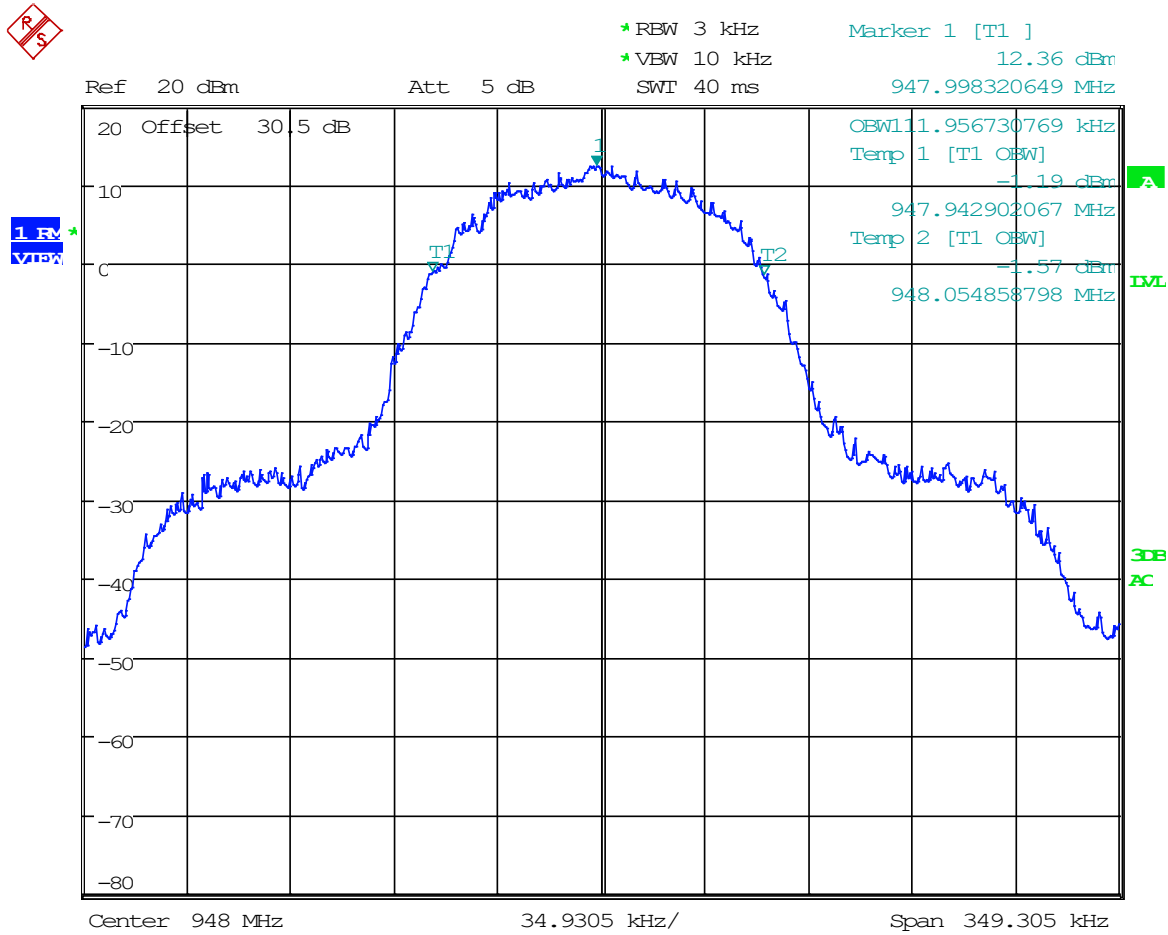
8.2.6 99% Bandwidth Plot, 945 MHz



Date: 16.JUN.2022 10:33:00



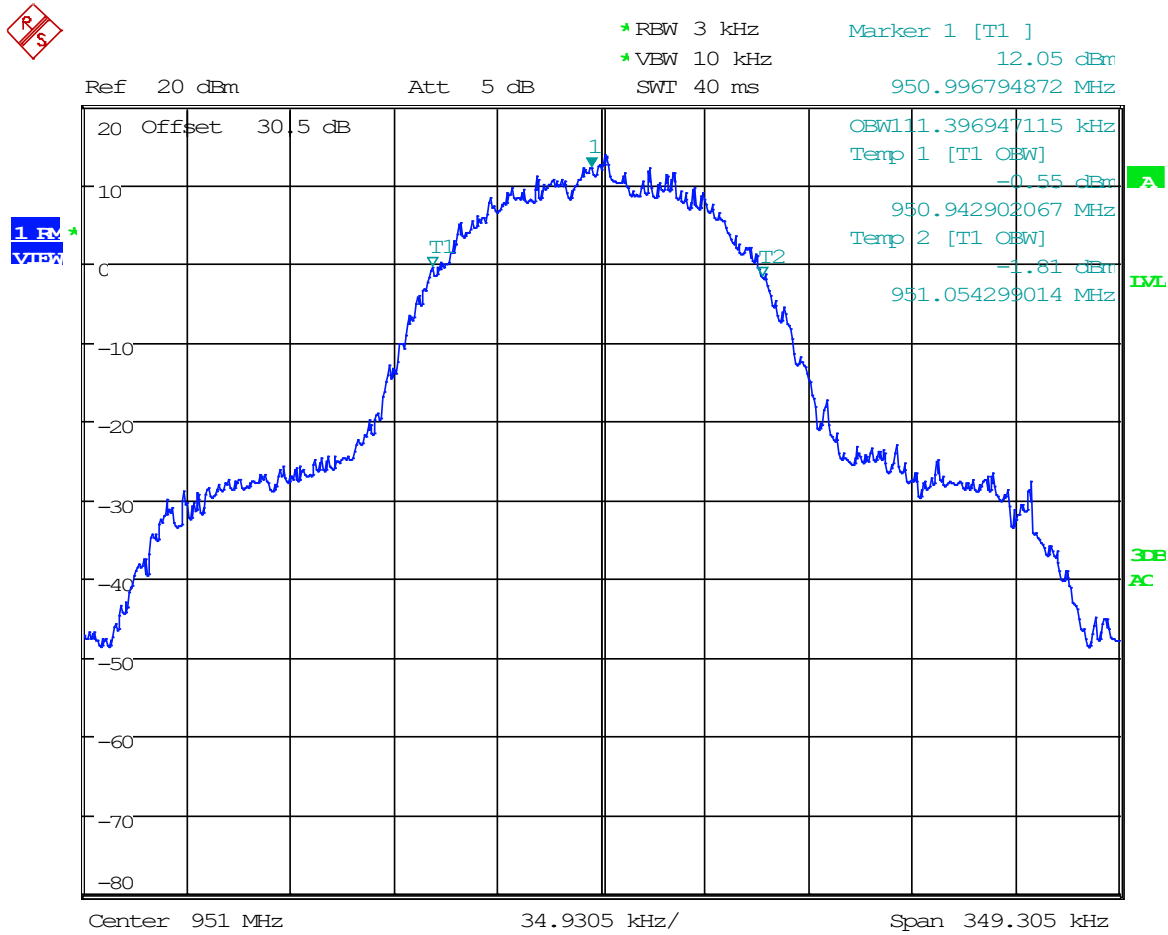
8.2.7 99% Bandwidth Plot, 948 MHz



Date: 16.JUN.2022 10:31:32

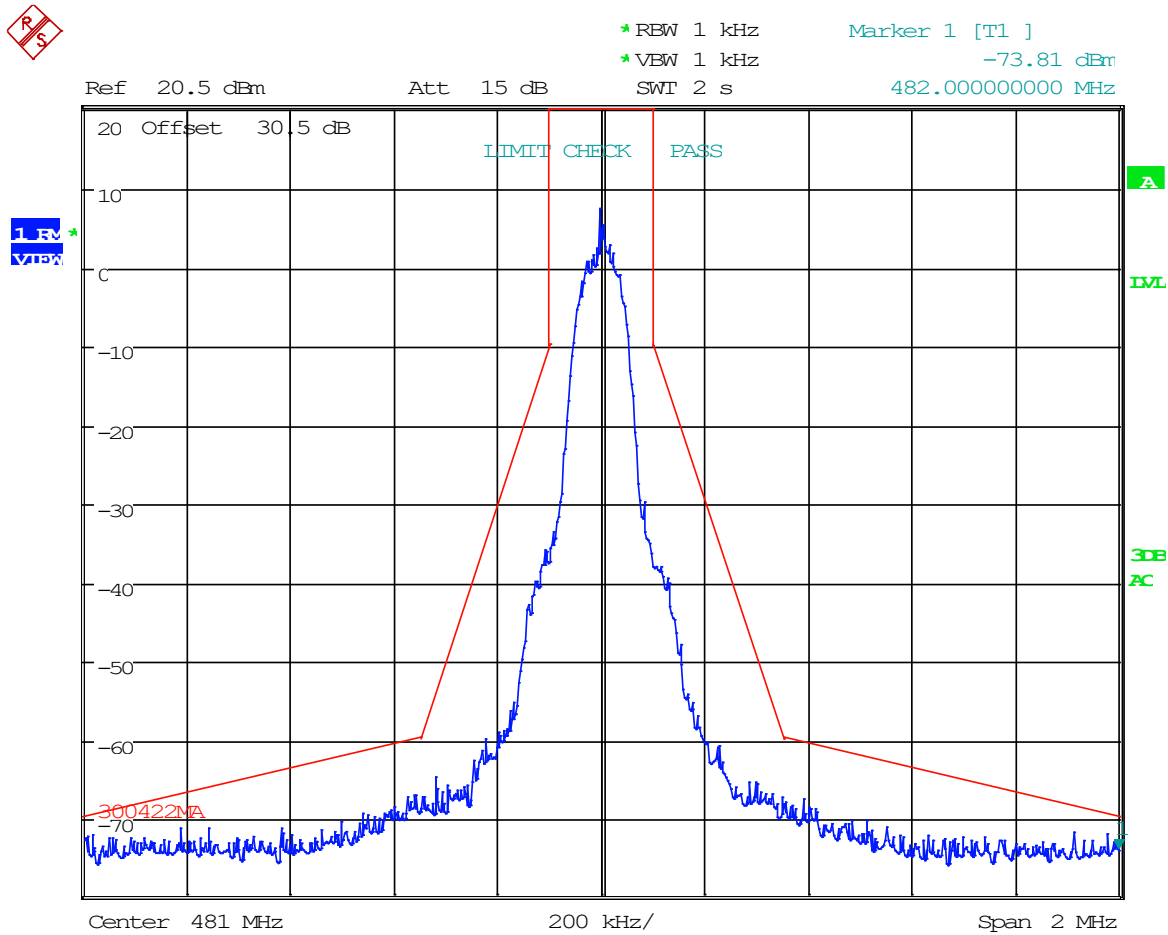


8.2.8 99% Bandwidth Plot, 951 MHz



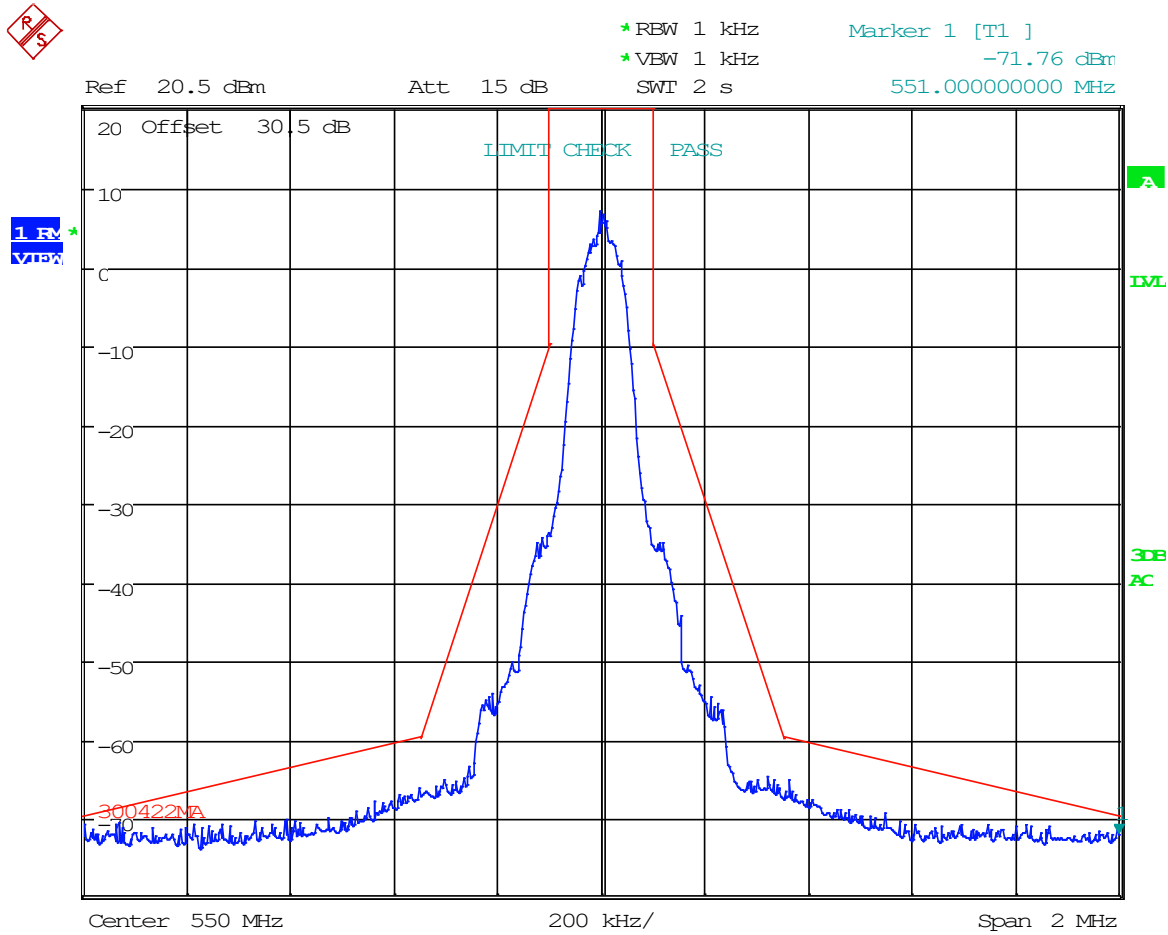
Date: 16.JUN.2022 10:30:54

8.2.9 Emission Mask Plot, 481 MHz



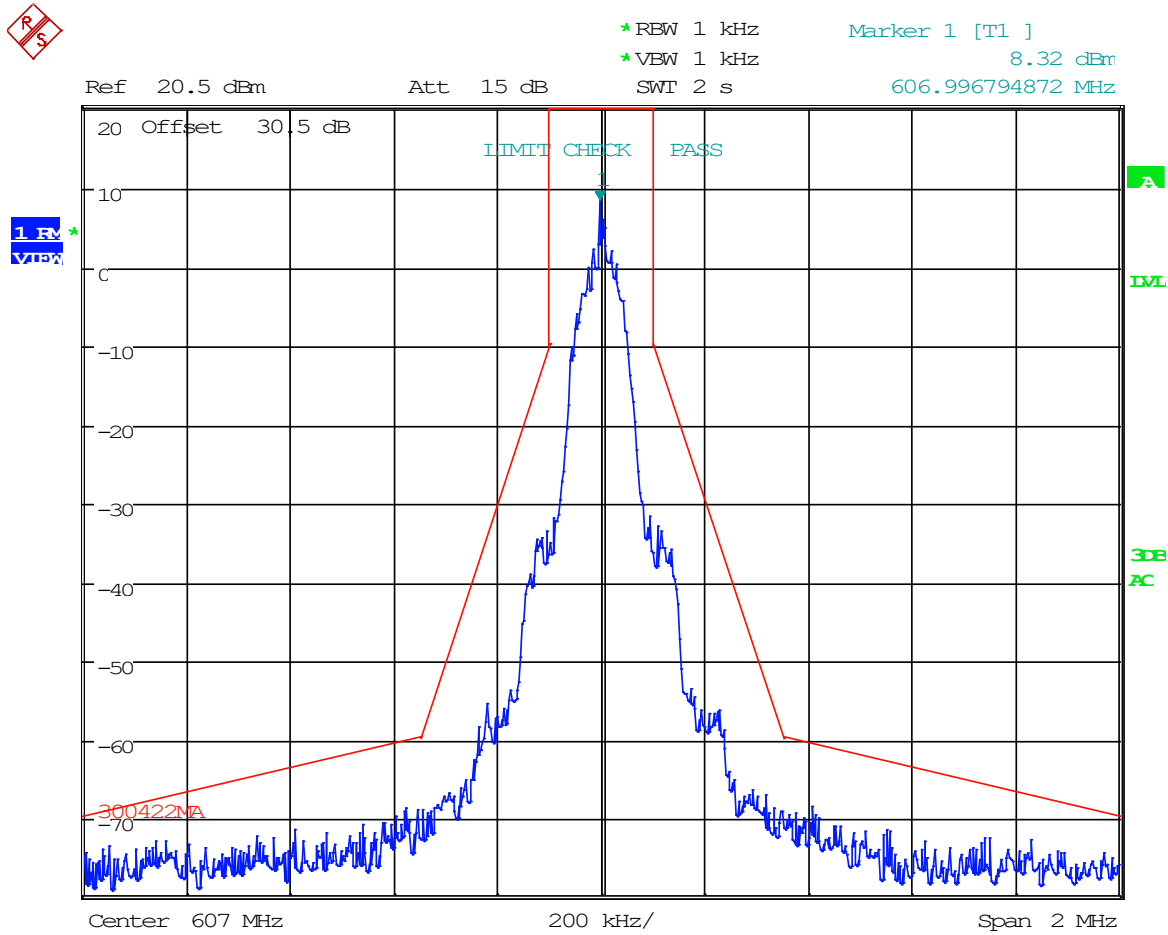
Date: 16.JUN.2022 10:16:44

8.2.10 Emission Mask Plot, 550 MHz



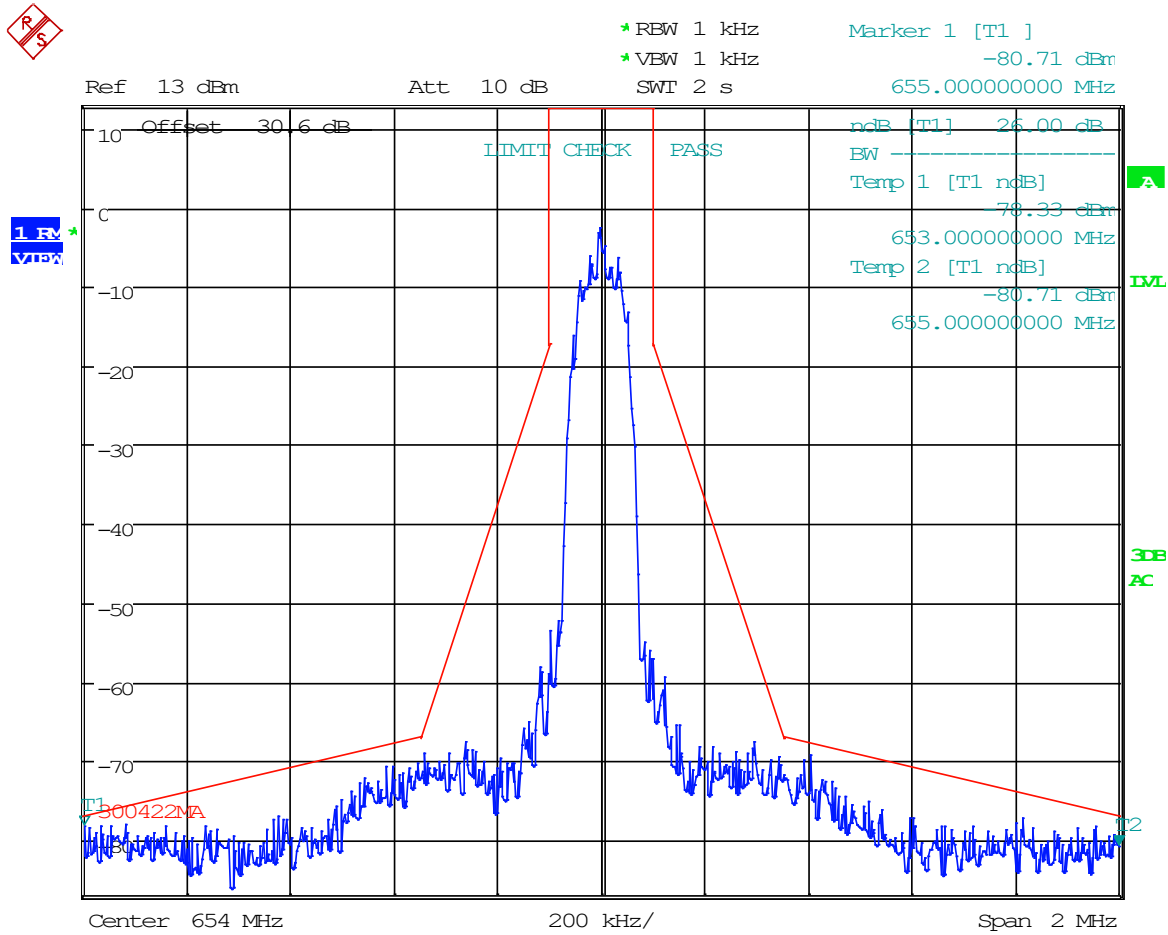
Date: 16.JUN.2022 10:15:12

8.2.11 Emission Mask Plot, 607 MHz



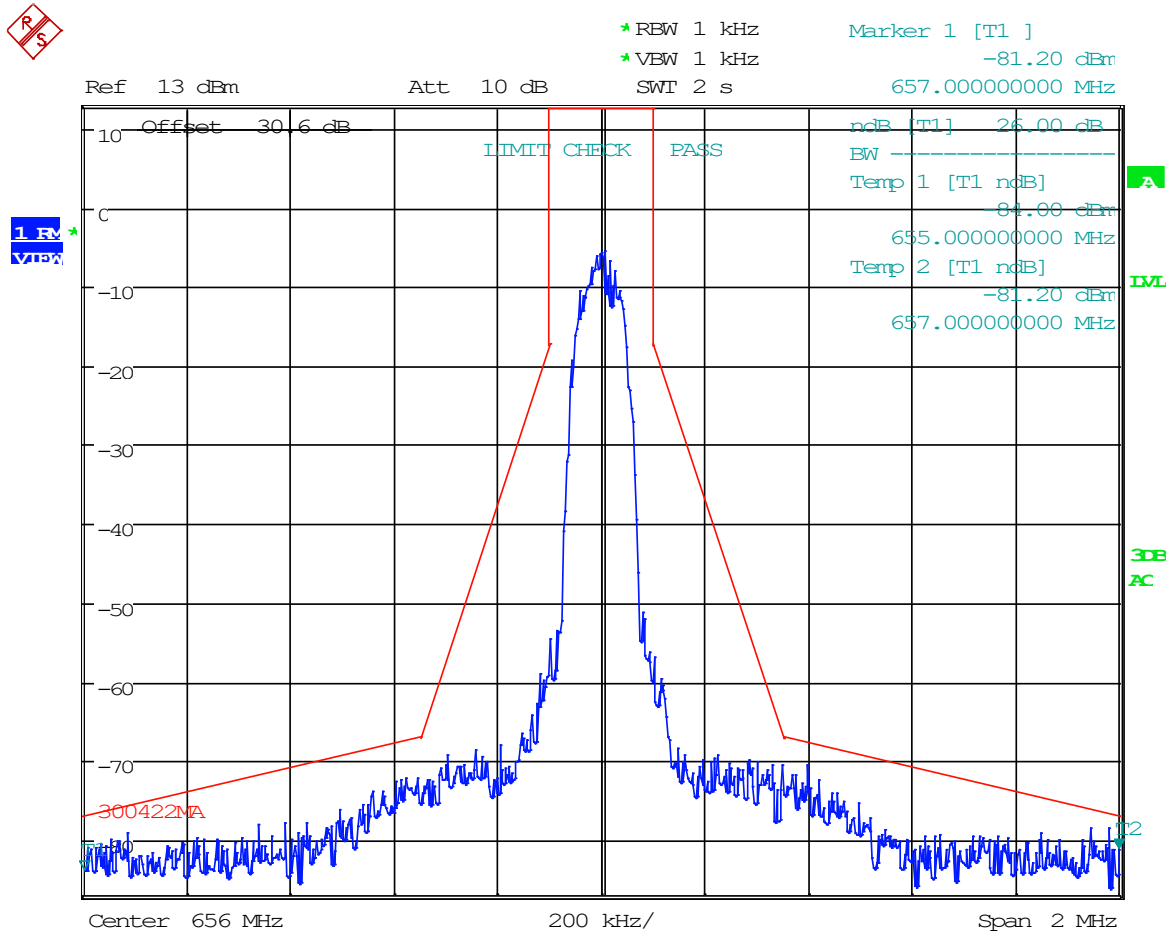
Date: 16.JUN.2022 10:03:39

8.2.12 Emission Mask Plot, 654 MHz



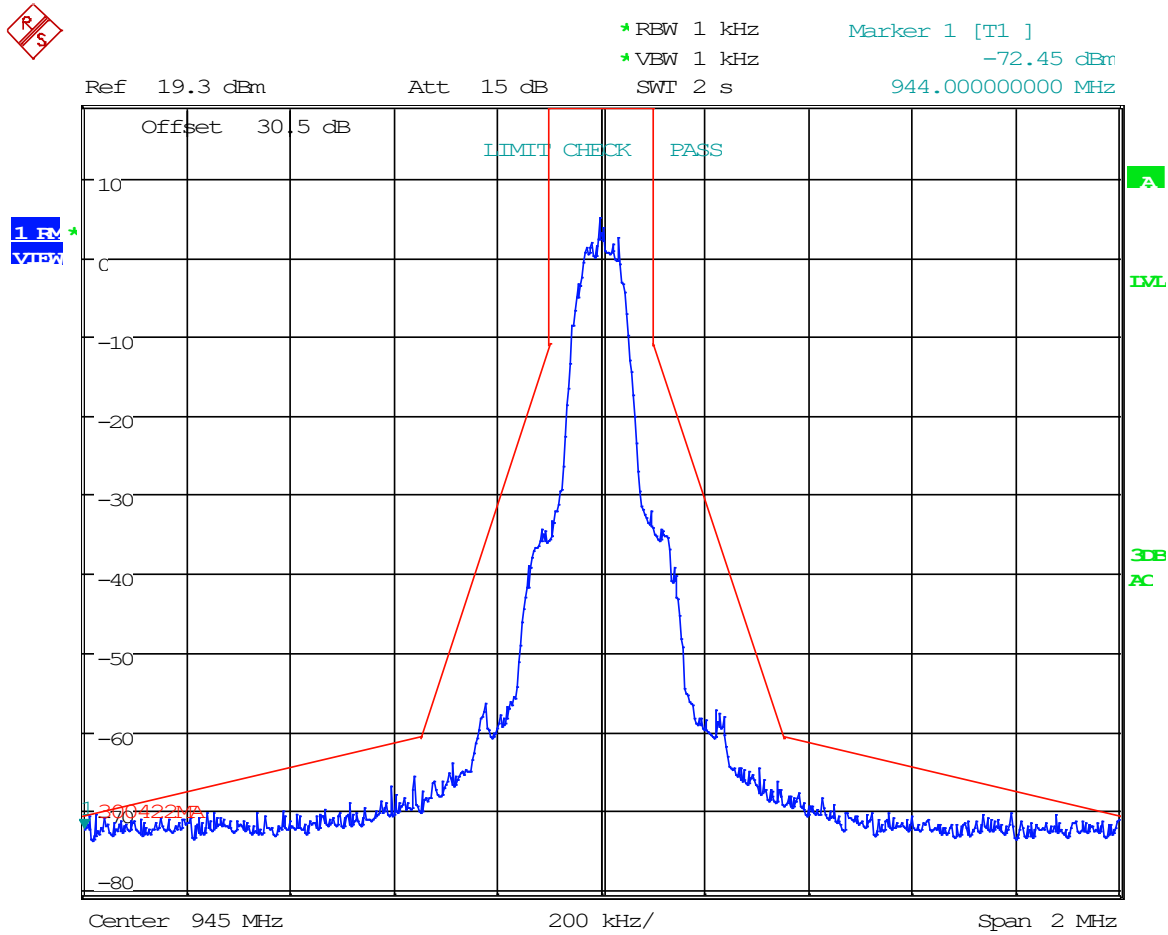
Date: 16.JUN.2022 16:04:14

8.2.13 Emission Mask Plot, 656 MHz



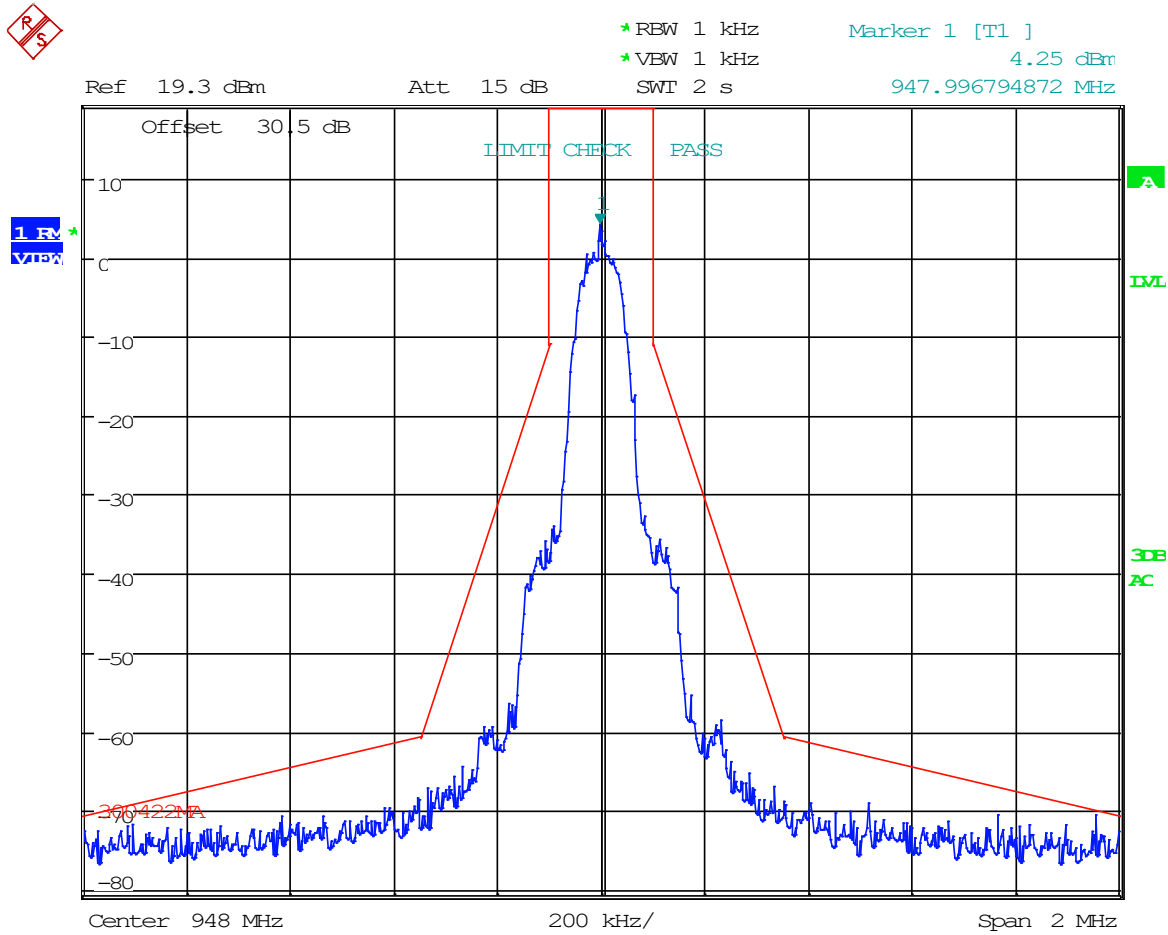
Date: 16.JUN.2022 16:03:47

8.2.14 Emission Mask Plot, 945 MHz

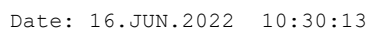


Date: 16.JUN.2022 10:29:02

8.2.15 Emission Mask Plot, 948 MHz

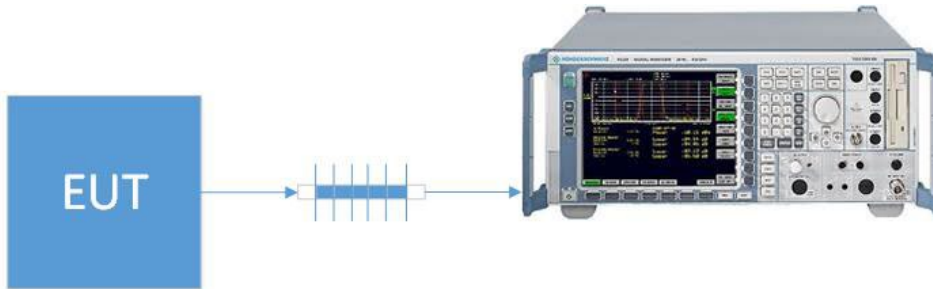


Date: 16.JUN.2022 10:29:42

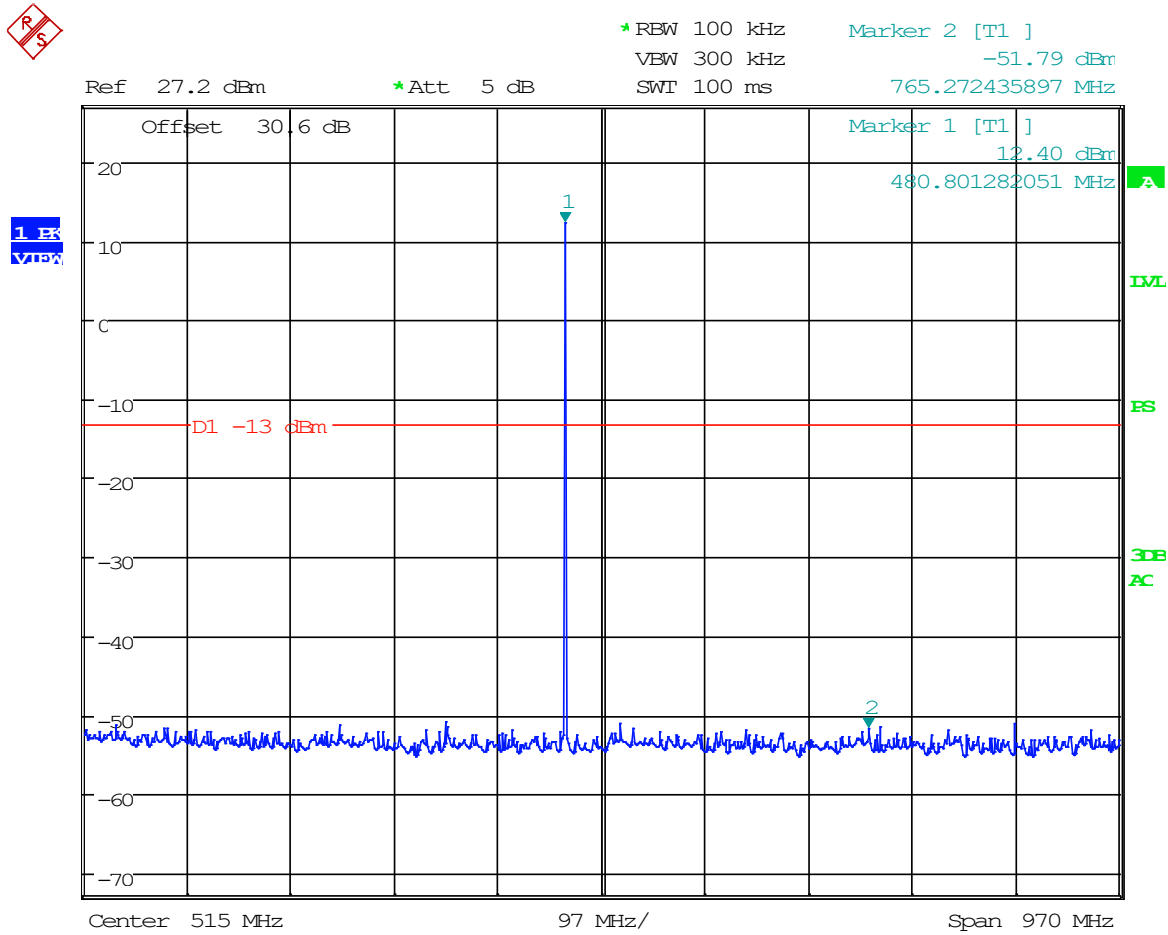


8.3 Spurious Emissions at antenna terminals (Conducted)

Limits from 2.1046(a), 74.861(e)(6)(iii) and test procedure from ANSI C63.26 and KDB 206256 D01 Wireless Microphone Certification.

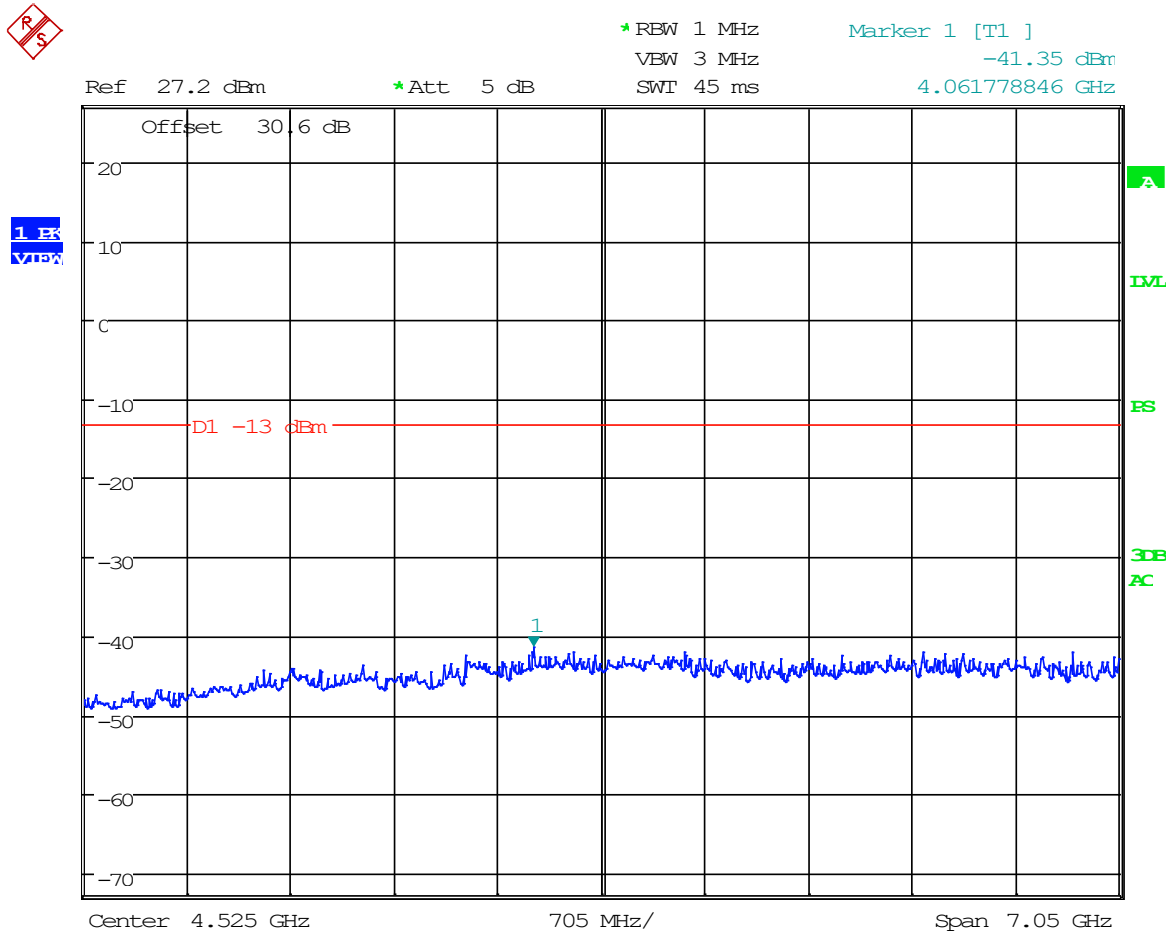


8.3.1 Conducted Emissions Below 1G, 481 MHz



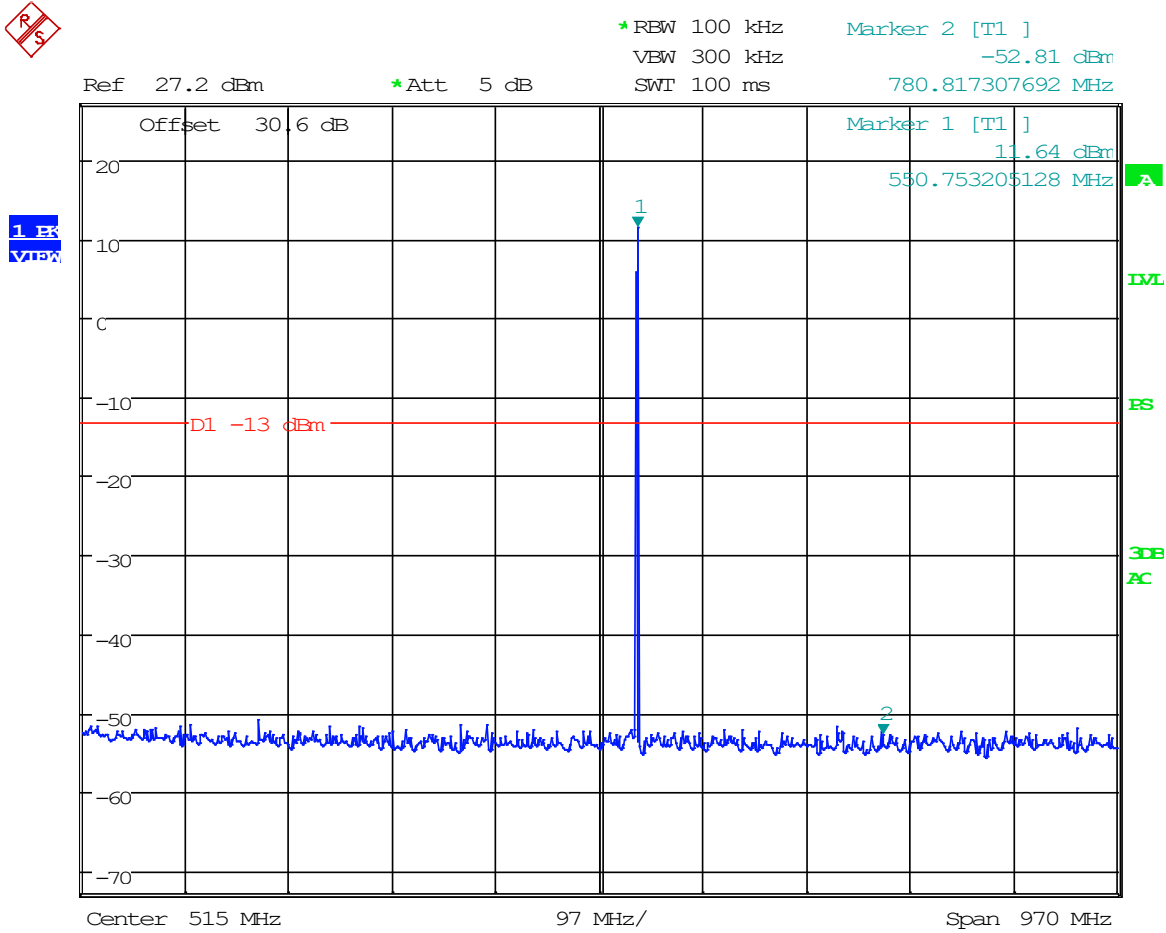
Date: 17.JUN.2022 09:57:32

8.3.2 Conducted Emissions Above 1G, 481 MHz



Date: 17.JUN.2022 09:58:10

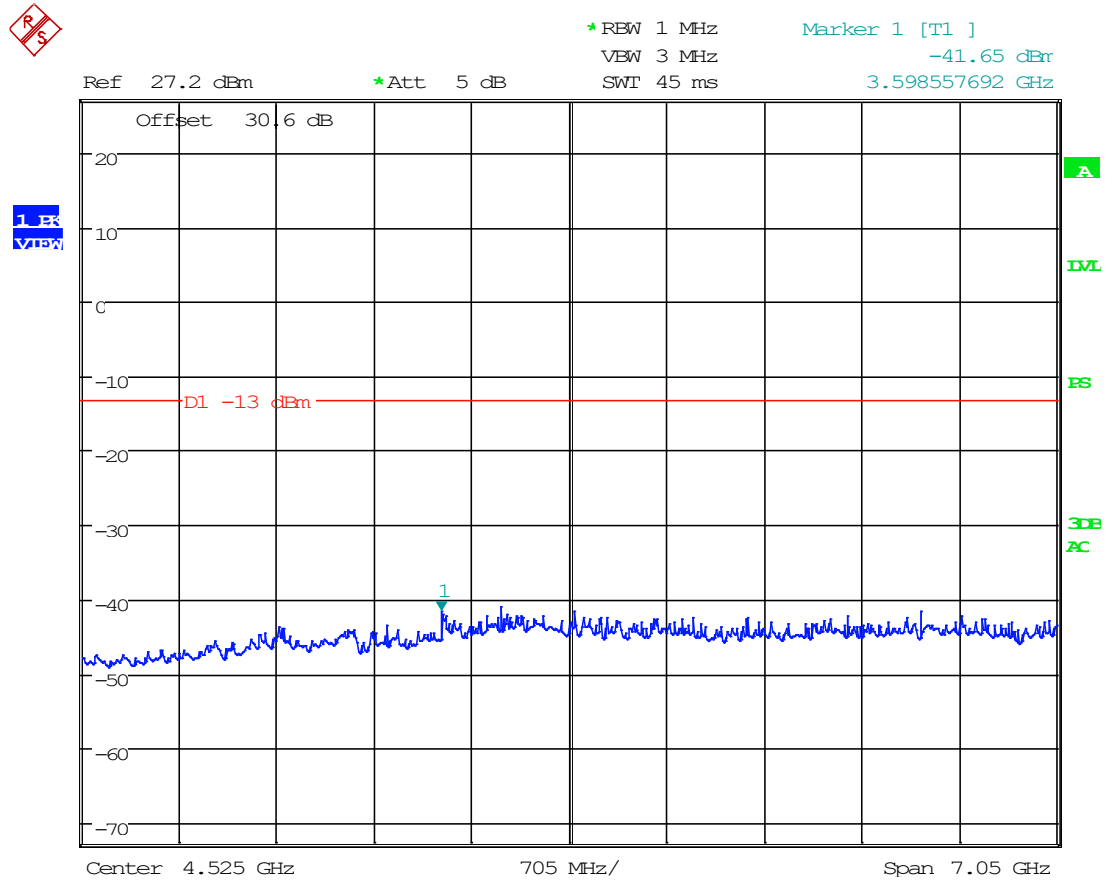
8.3.3 Conducted Emissions Below 1G, 550 MHz



Date: 17.JUN.2022 09:56:50



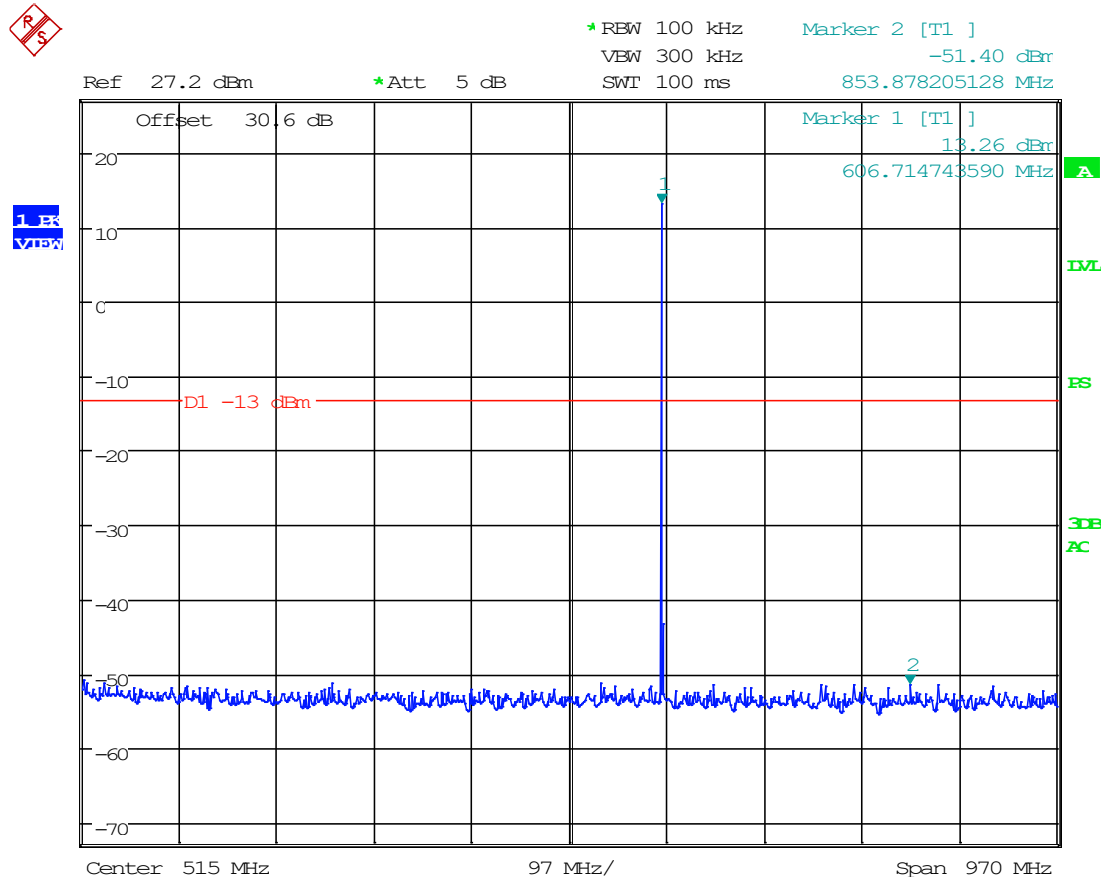
8.3.4 Conducted Emissions Above 1G, 550 MHz



Date: 17.JUN.2022 10:00:19



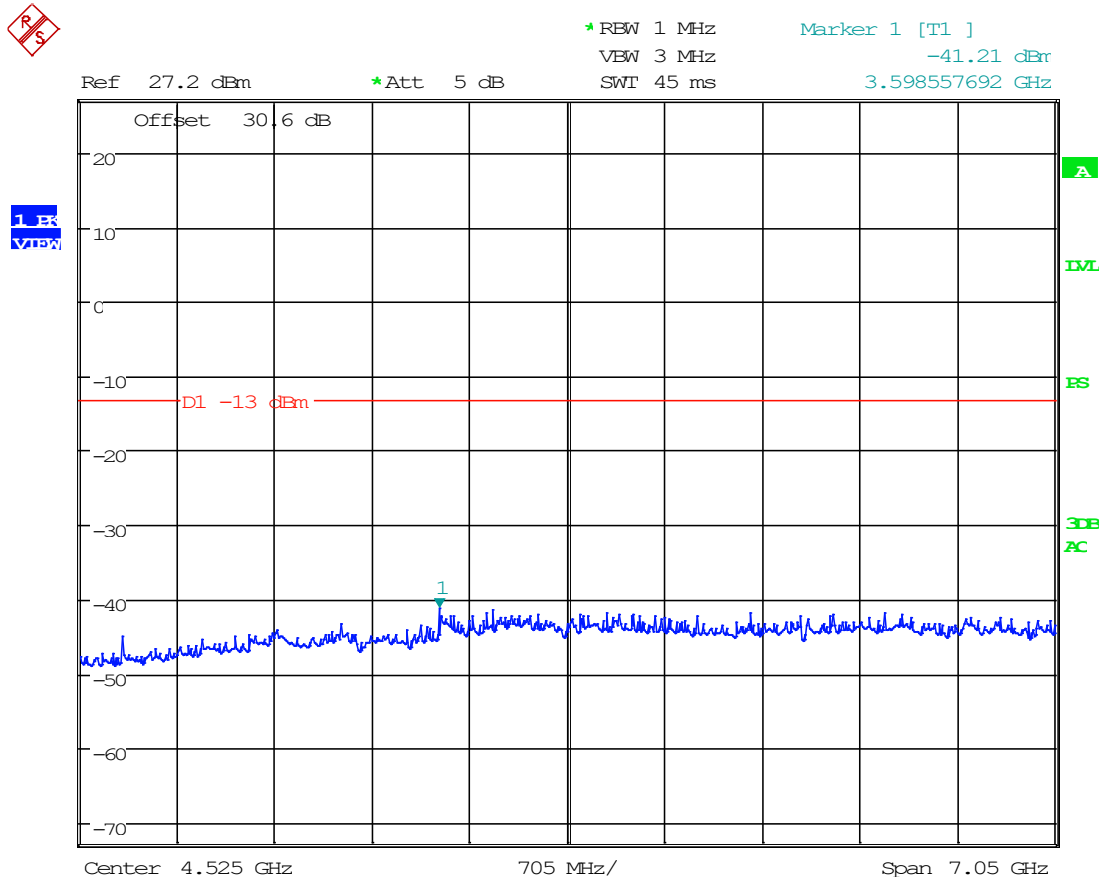
8.3.5 Conducted Emissions Below 1G, 607 MHz



Date: 17.JUN.2022 09:56:06

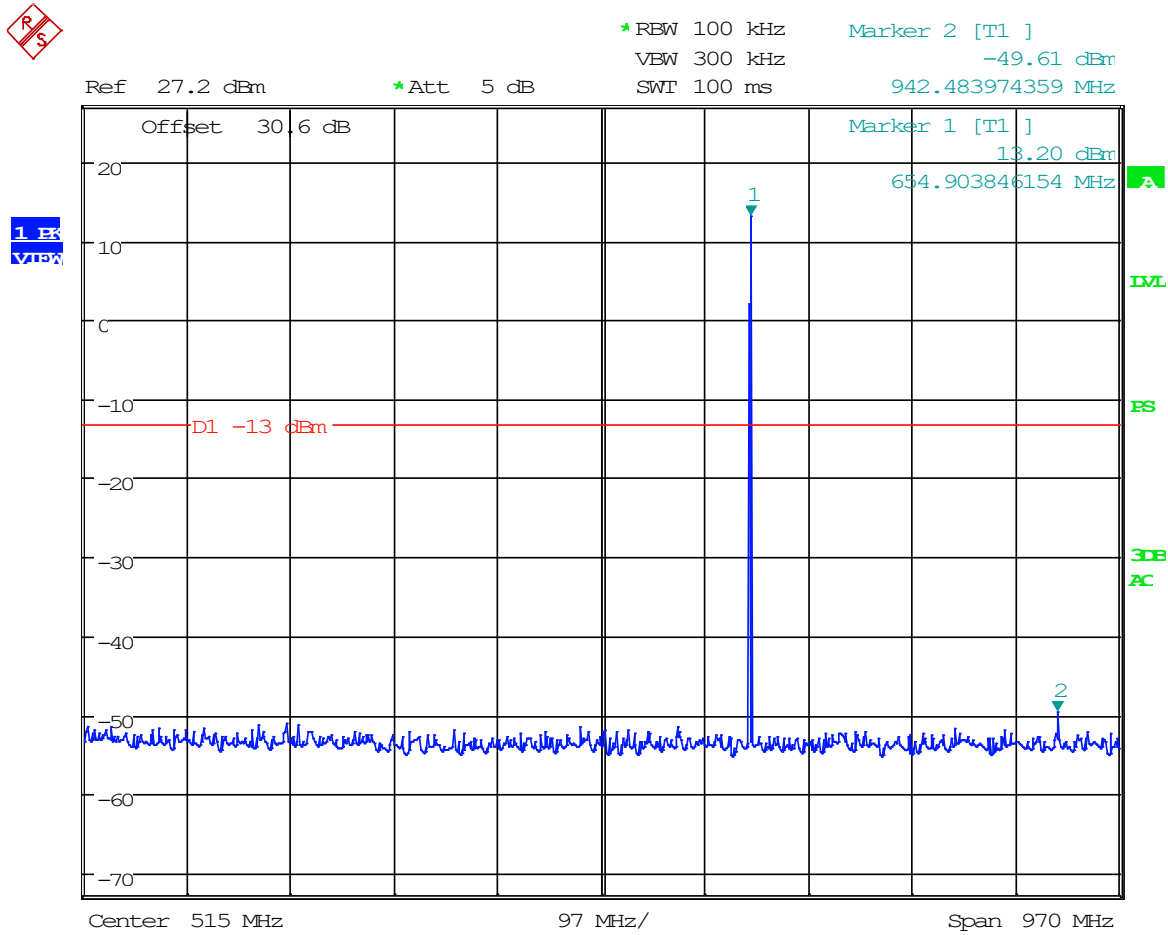


8.3.6 Conducted Emissions Above 1G, 607 MHz



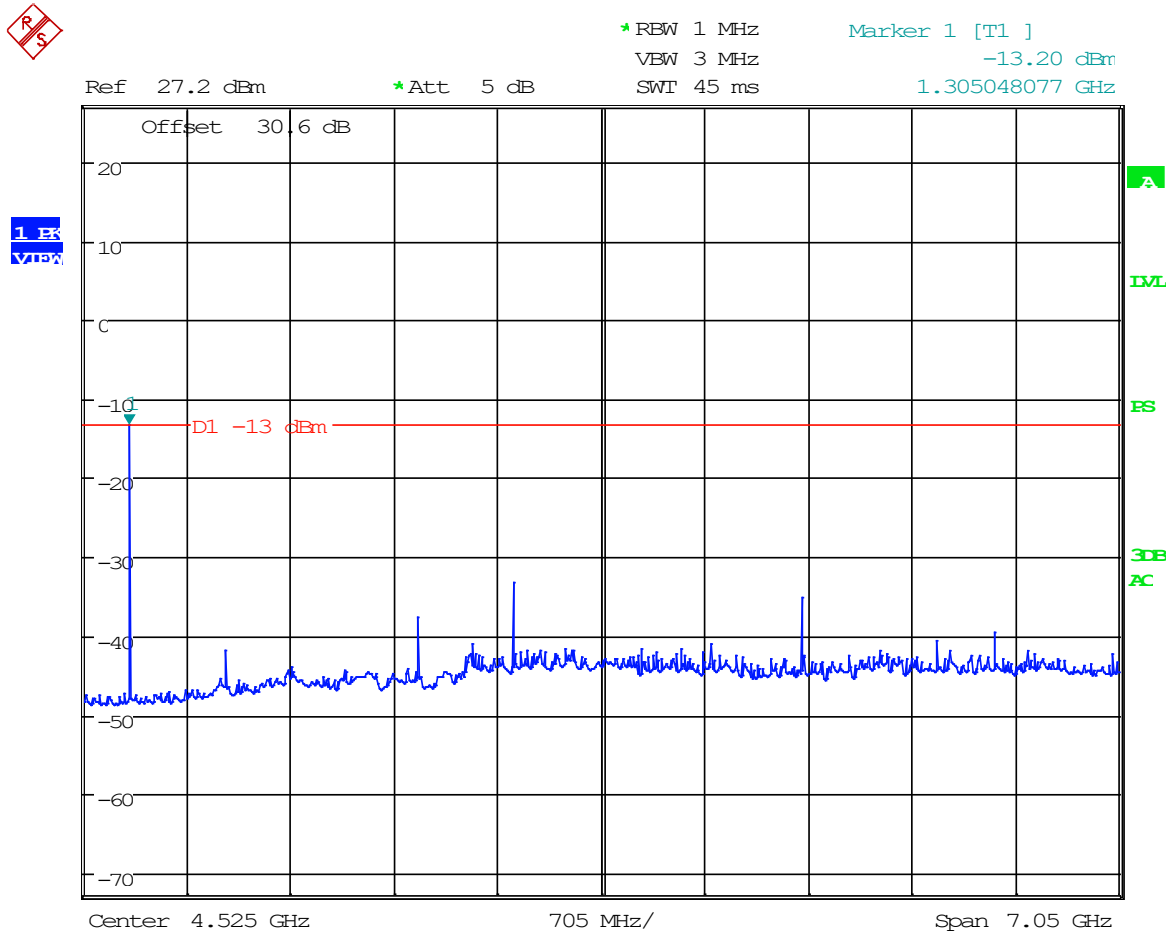
Date: 17.JUN.2022 09:59:34

8.3.7 Conducted Emissions Below 1G, 654 MHz



Date: 17.JUN.2022 09:53:34

8.3.8 Conducted Emissions Above 1G, 654 MHz

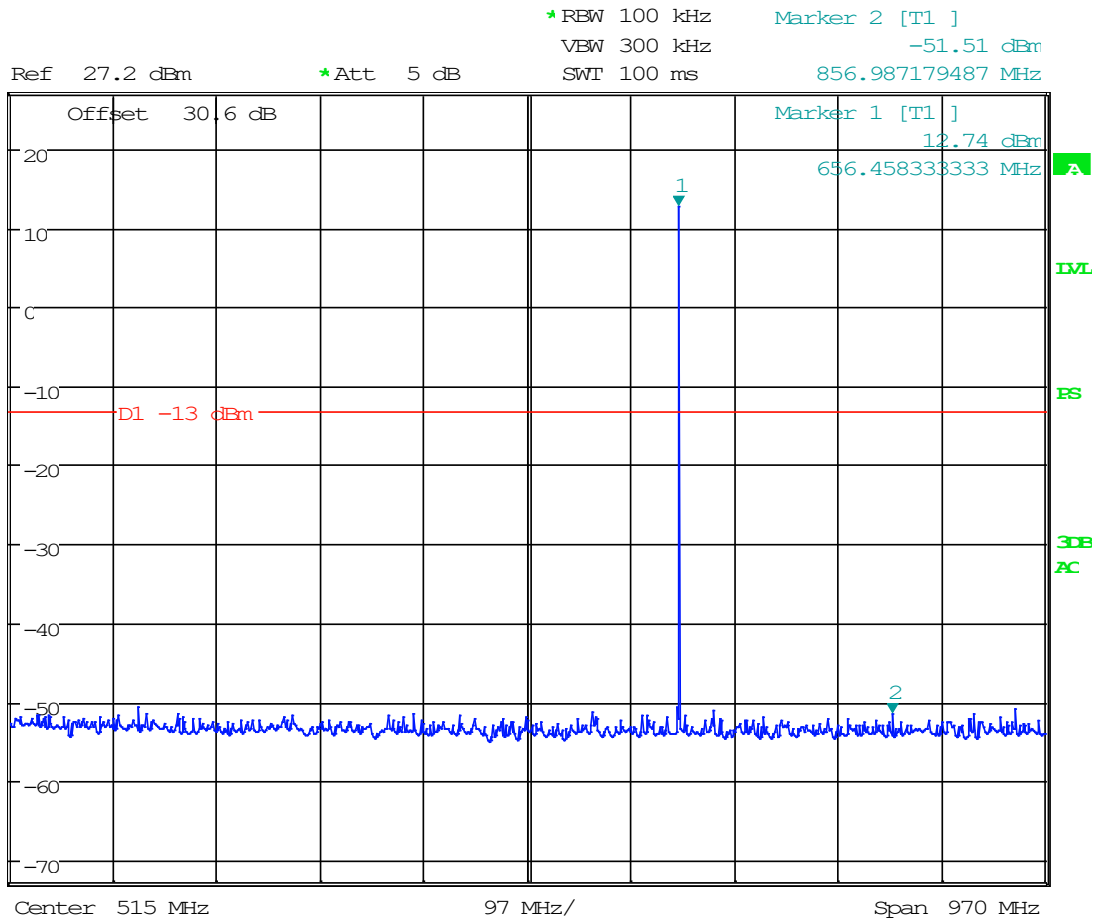


Date: 17.JUN.2022 08:31:52

8.3.9 Conducted Emissions Below 1G, 656 MHz

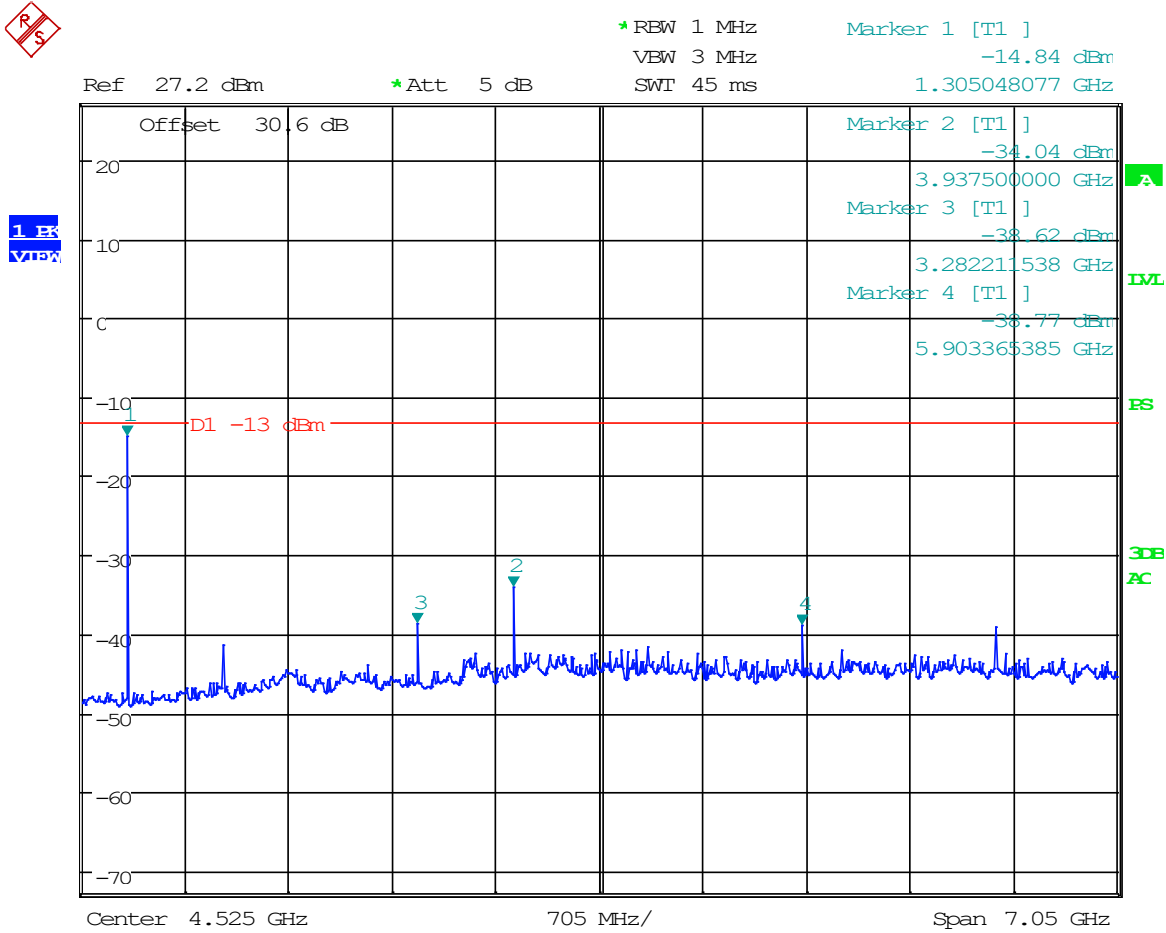


1 PK
V100%



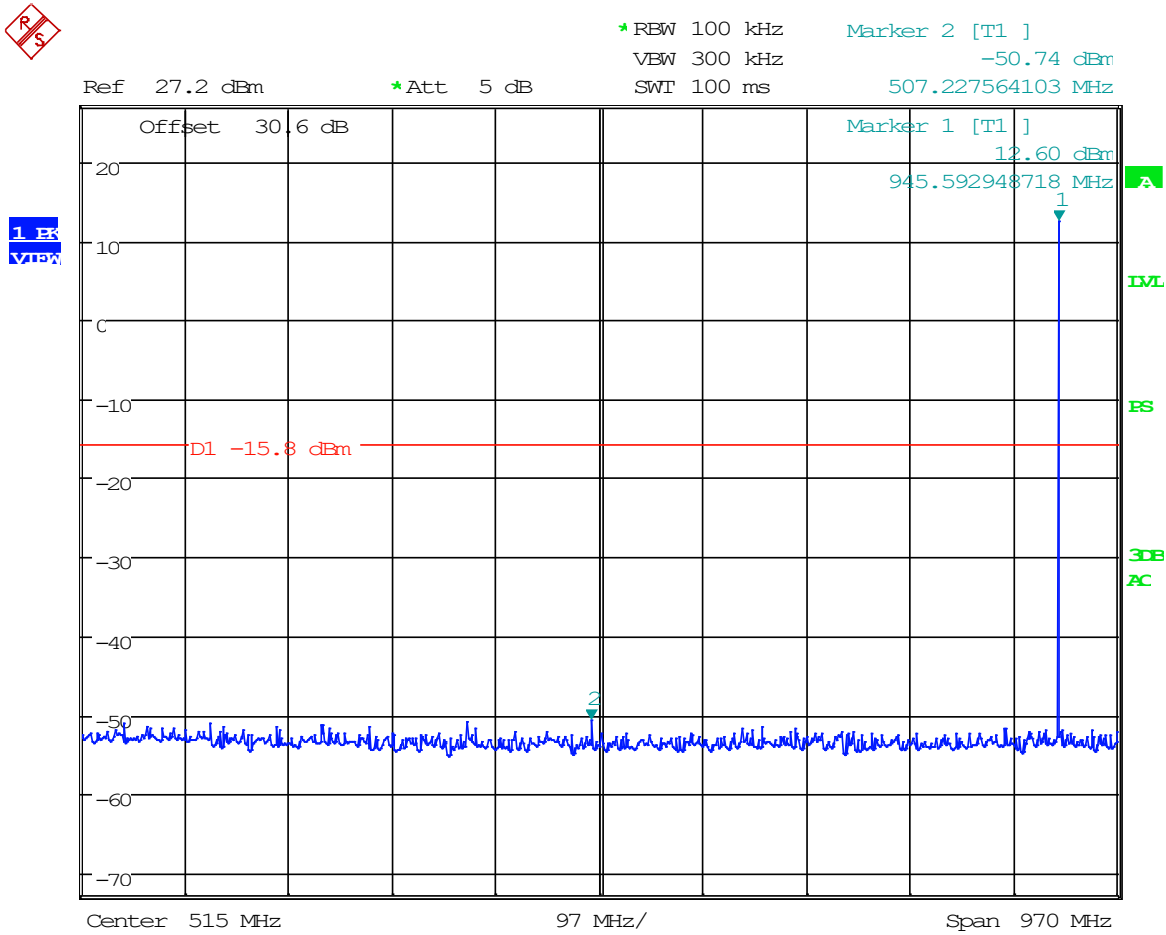
Date: 17.JUN.2022 09:53:06

8.3.10 Conducted Emissions Above 1G, 656 MHz



Date: 17.JUN.2022 08:32:42

8.3.11 Conducted Emissions Below 1G, 945 MHz

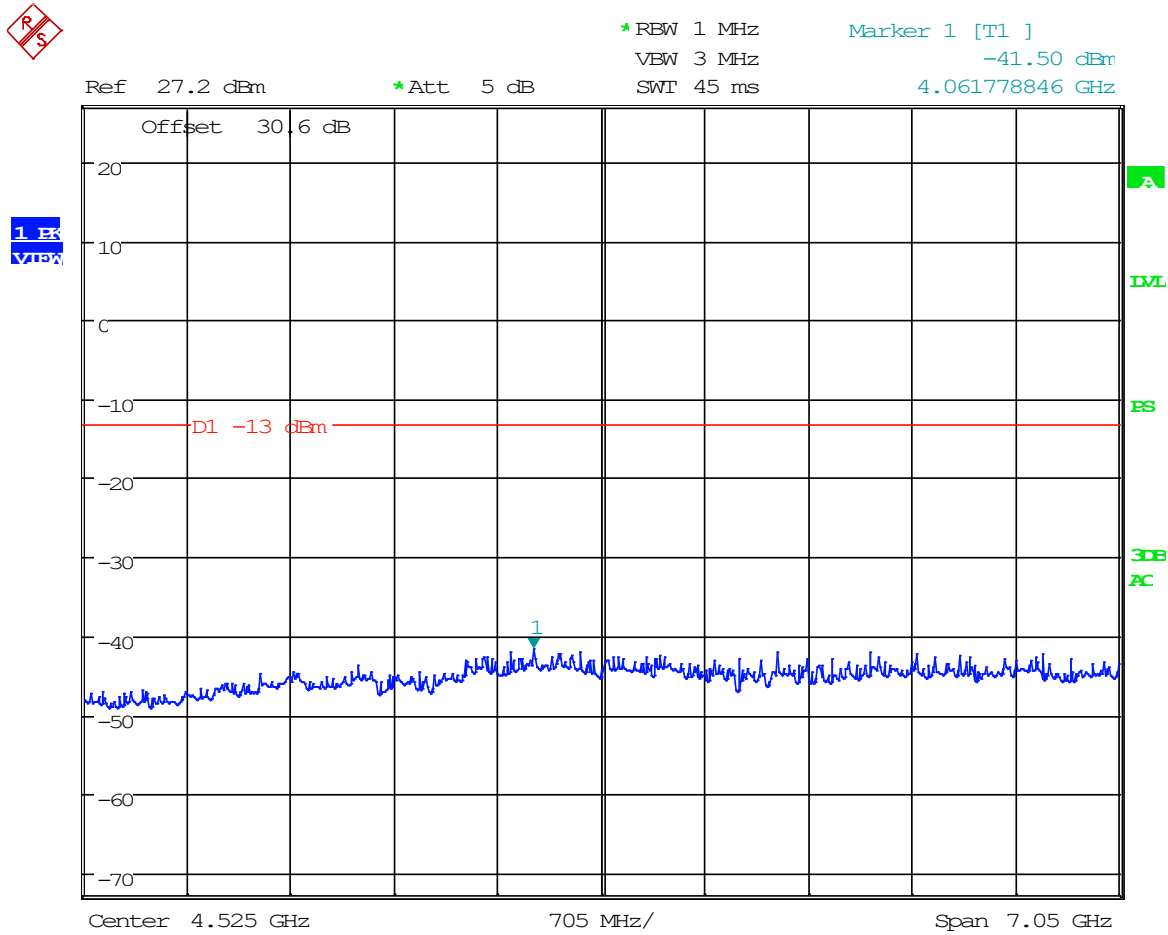


Date: 17.JUN.2022 09:50:24



Timco Engineering, Inc., an IIA Company
849 NW State Road 45, Newberry, Florida 32669
(352) 472-5500 / testing@timcoengr.com

8.3.12 Conducted Emissions Above 1G, 945 MHz

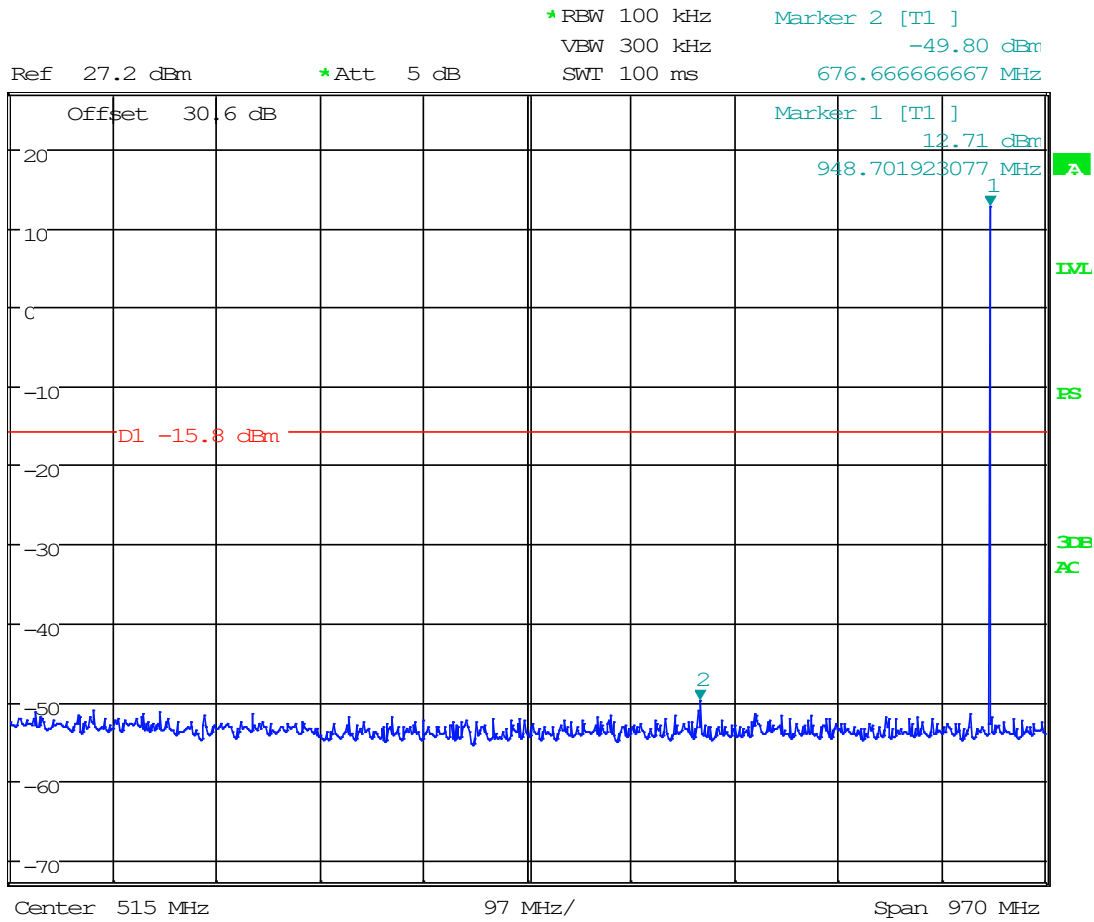


Date: 17.JUN.2022 08:43:57

8.3.13 Conducted Emissions Below 1G, 948 MHz



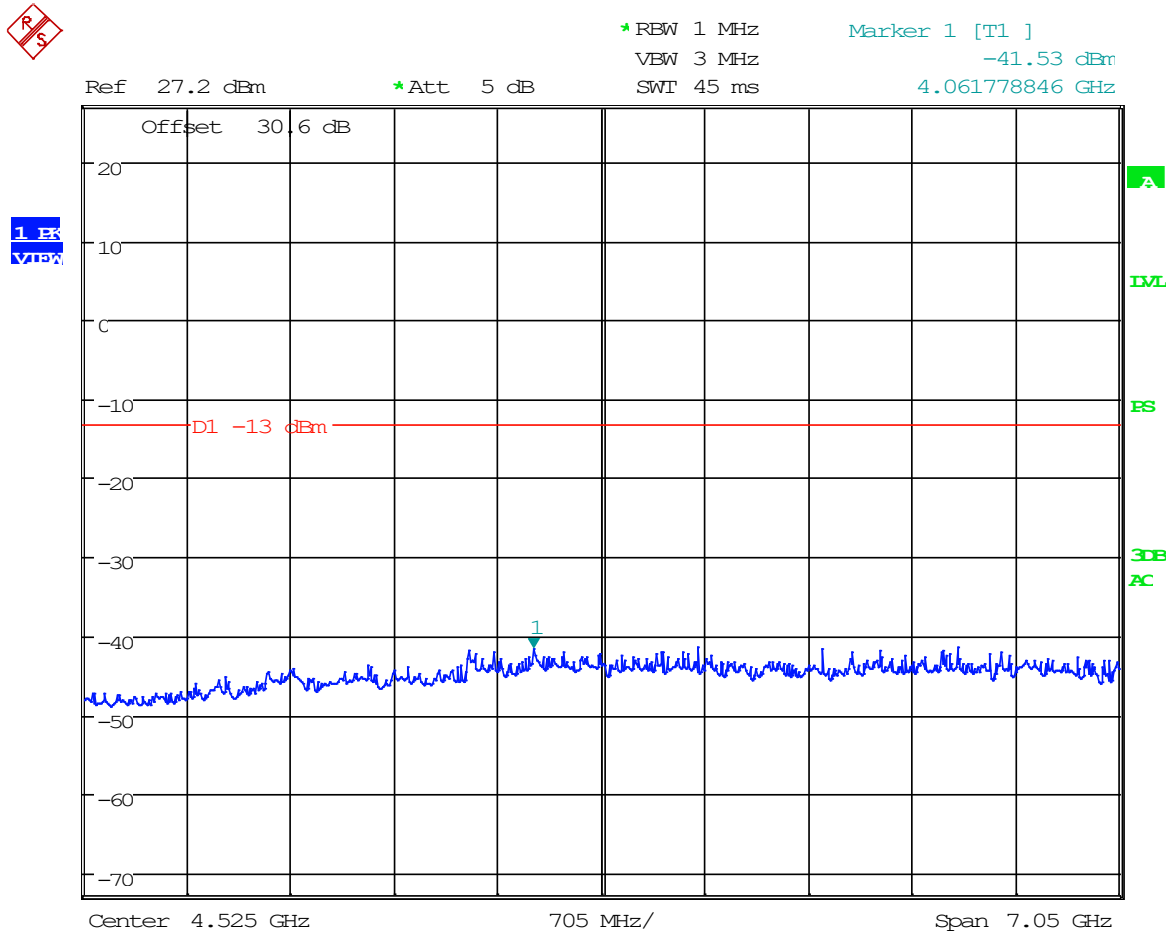
1 PK
VMAX



Date: 17.JUN.2022 09:49:40

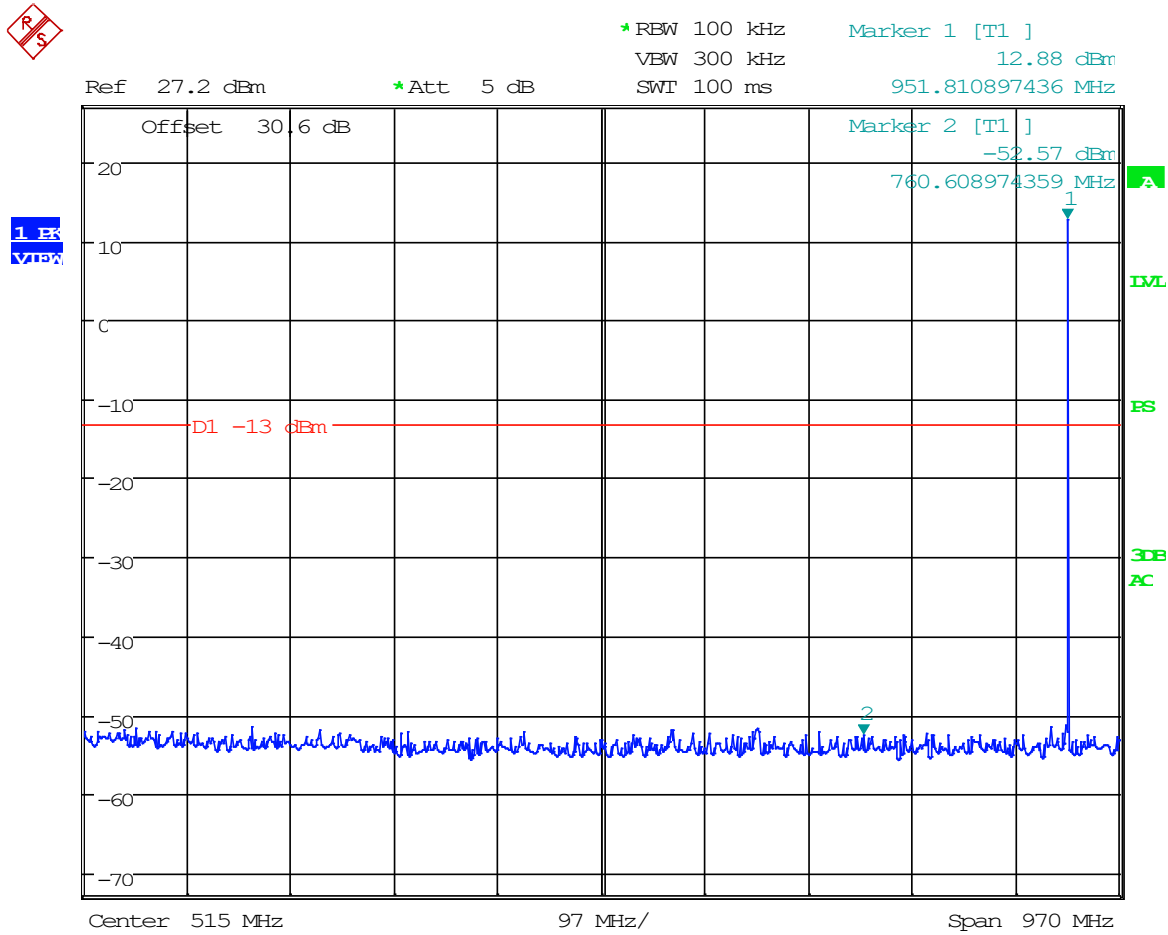


8.3.14 Conducted Emissions Above 1G, 948 MHz



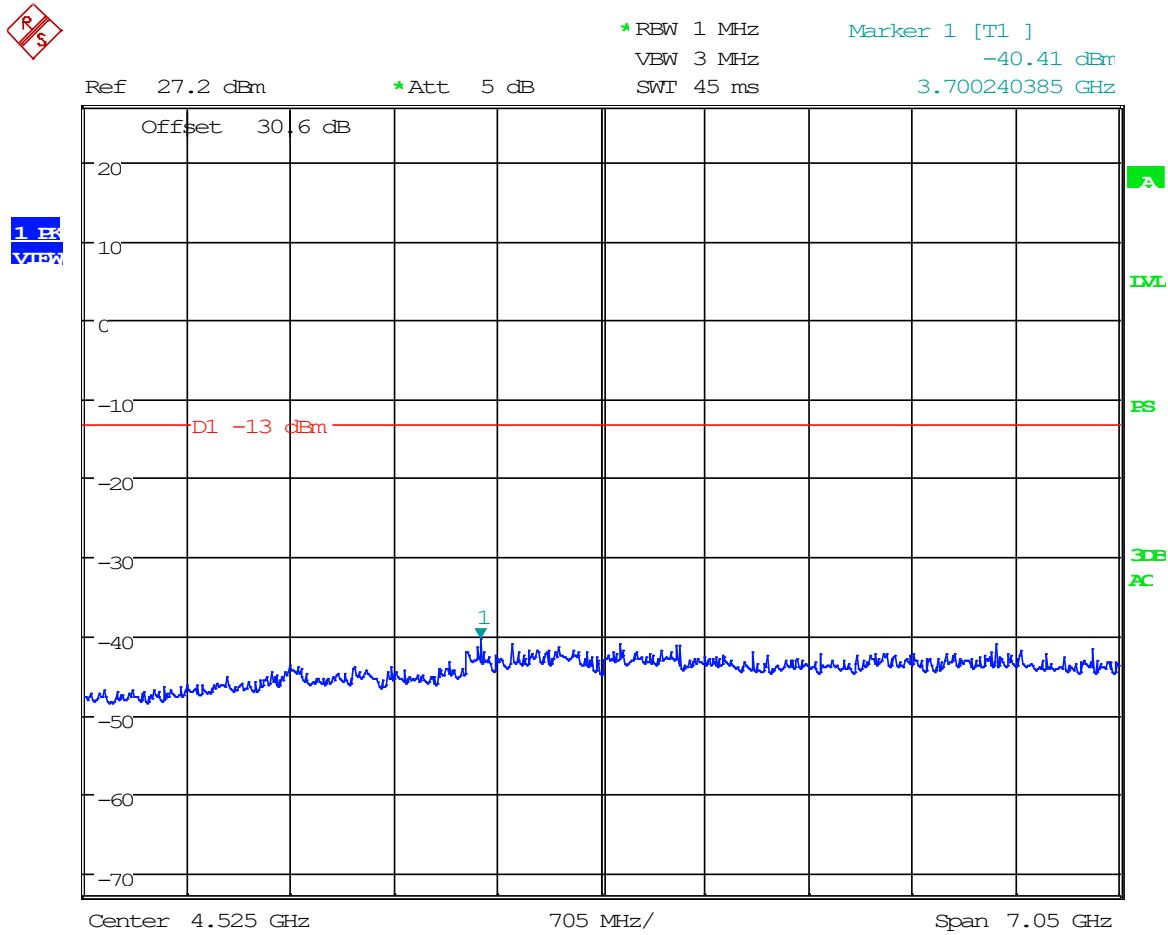
Date: 17.JUN.2022 08:44:34

8.3.15 Conducted Emissions Below 1G, 951 MHz



Date: 17.JUN.2022 09:48:33

8.3.16 Conducted Emissions Above 1G, 951 MHz

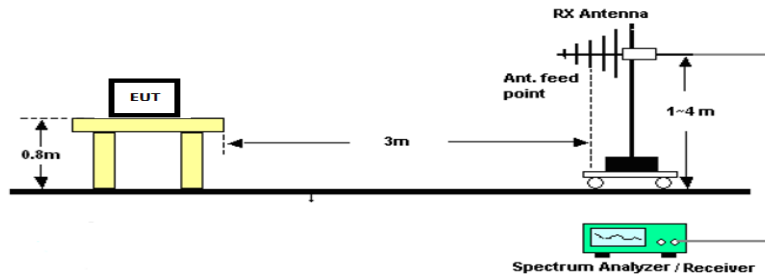


Date: 17.JUN.2022 08:45:01

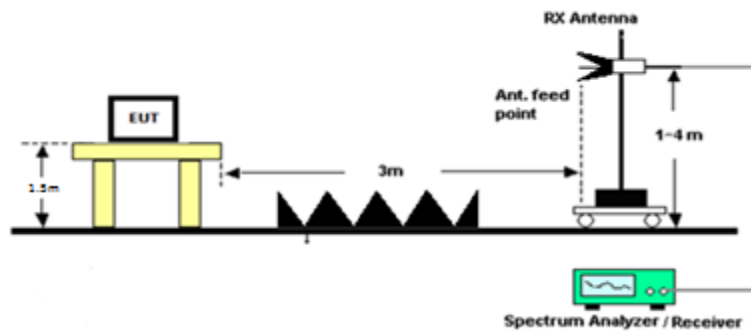
8.4 Radiated Emissions

Limits from 2.1046(a), 74.861(e)(6)(iii) and test procedure from ANSI C63.26 and KDB 206256 D01 Wireless Microphone Certification.

Radiated Test Setup, 30 – 1000 MHz



Radiated Test Setup, Above 1000 MHz





Timco Engineering, Inc., an IIA Company
849 NW State Road 45, Newberry, Florida 32669
(352) 472-5500 / testing@timcoengr.com

Radiated Emissions Tabular Data

8.4.1 Radiated Emissions Table, 481 MHz

Tuned Frequency (MHz)	Emission Frequency (MHz)	Detector	Meter Reading (dBuV)	Antenna Polarity	Coax Loss (dB)	Antenna Correction Factor (dB/m)	Distance (m)	Field Strength (dBuV/m)	ERP (dBm)	Spurious Limit (dBm)	Margin (dB)
481.00	962.00	PK	11.49	H	3.64	23.12	3.00	38.25	-59.13	-13.00	46.13
481.00	962.00	PK	17.50	V	3.64	23.12	3.00	44.26	-53.12	-13.00	40.12
481.00	1443.00	PK	12.40	H	4.34	28.13	3.00	44.87	-52.50	-13.00	39.50
481.00	1443.00	PK	12.89	V	4.34	28.13	3.00	45.36	-52.01	-13.00	39.01
481.00	1924.00	PK	13.10	H	5.10	31.14	3.00	49.34	-48.04	-13.00	35.04
481.00	1924.00	PK	11.72	V	5.10	31.14	3.00	47.96	-49.42	-13.00	36.42
481.00	2405.00	PK	11.75	H	5.61	31.88	3.00	49.24	-48.14	-13.00	35.14
481.00	2405.00	PK	12.05	V	5.61	31.88	3.00	49.54	-47.84	-13.00	34.84
481.00	2886.00	PK	11.96	H	6.22	32.24	3.00	50.41	-46.96	-13.00	33.96
481.00	2886.00	PK	12.12	V	6.22	32.24	3.00	50.57	-46.80	-13.00	33.80
481.00	3367.00	PK	16.20	H	6.73	32.64	3.00	55.57	-41.80	-13.00	28.80
481.00	3367.00	PK	10.96	V	6.73	32.64	3.00	50.33	-47.04	-13.00	34.04
481.00	3848.00	PK	11.95	H	6.58	33.20	3.00	51.73	-45.65	-13.00	32.65
481.00	3848.00	PK	10.85	V	6.58	33.20	3.00	50.63	-46.75	-13.00	33.75
481.00	4329.00	PK	10.54	H	7.49	33.53	3.00	51.55	-45.82	-13.00	32.82
481.00	4329.00	PK	12.61	V	7.49	33.53	3.00	53.62	-43.75	-13.00	30.75
481.00	4810.00	PK	11.77	H	7.11	33.93	3.00	52.82	-44.56	-13.00	31.56
481.00	4810.00	PK	12.84	V	7.11	33.93	3.00	53.89	-43.49	-13.00	30.49



Timco Engineering, Inc., an IIA Company
849 NW State Road 45, Newberry, Florida 32669
(352) 472-5500 / testing@timcoengr.com

8.4.2 Radiated Emissions Table, 550 MHz

Tuned Frequency (MHz)	Emission Frequency (MHz)	Detector	Meter Reading (dBuV)	Antenna Polarity	Coax Loss (dB)	Antenna Correction Factor (dB/m)	Distance (m)	Field Strength (dBuV/m)	ERP (dBm)	Spurious Limit (dBm)	Margin (dB)
550.00	1100.00	PK	11.63	H	3.85	27.17	3.00	42.65	-54.73	-13.00	41.73
550.00	1100.00	PK	1.57	V	3.85	27.17	3.00	32.59	-64.79	-13.00	51.79
550.00	1650.00	PK	10.80	H	4.73	28.61	3.00	44.13	-53.24	-13.00	40.24
550.00	1650.00	PK	12.21	V	4.73	28.61	3.00	45.54	-51.83	-13.00	38.83
550.00	2200.00	PK	12.67	H	5.37	31.32	3.00	49.35	-48.02	-13.00	35.02
550.00	2200.00	PK	13.07	V	5.37	31.32	3.00	49.75	-47.62	-13.00	34.62
550.00	2750.00	PK	11.05	H	6.10	32.38	3.00	49.53	-47.85	-13.00	34.85
550.00	2750.00	PK	11.19	V	6.10	32.38	3.00	49.67	-47.71	-13.00	34.71
550.00	3300.00	PK	12.43	H	6.71	32.62	3.00	51.76	-45.62	-13.00	32.62
550.00	3300.00	PK	11.34	V	6.71	32.62	3.00	50.67	-46.71	-13.00	33.71
550.00	3850.00	PK	11.22	H	6.59	33.20	3.00	51.01	-46.37	-13.00	33.37
550.00	3850.00	PK	11.25	V	6.59	33.20	3.00	51.04	-46.34	-13.00	33.34
550.00	4400.00	PK	10.26	H	7.30	33.67	3.00	51.23	-46.15	-13.00	33.15
550.00	4400.00	PK	10.97	V	7.30	33.67	3.00	51.94	-45.44	-13.00	32.44
550.00	4950.00	PK	10.50	H	7.75	33.94	3.00	52.19	-45.18	-13.00	32.18
550.00	4950.00	PK	10.17	V	7.75	33.94	3.00	51.86	-45.51	-13.00	32.51
550.00	5500.00	PK	9.78	H	8.06	34.47	3.00	52.31	-45.07	-13.00	32.07
550.00	5500.00	PK	12.75	V	8.06	34.47	3.00	55.28	-42.10	-13.00	29.10



Timco Engineering, Inc., an IIA Company
849 NW State Road 45, Newberry, Florida 32669
(352) 472-5500 / testing@timcoengr.com

8.4.3 Radiated Emissions Table, 607 MHz

Tuned Frequency (MHz)	Emission Frequency (MHz)	Detector	Meter Reading (dBuV)	Antenna Polarity	Coax Loss (dB)	Antenna Correction Factor (dB/m)	Distance (m)	Field Strength (dBuV/m)	ERP (dBm)	Spurious Limit (dBm)	Margin (dB)
607.00	1214.00	PK	11.85	H	4.02	28.15	3.00	44.02	-53.35	-13.00	40.35
607.00	1214.00	PK	12.76	V	4.02	28.15	3.00	44.93	-52.44	-13.00	39.44
607.00	1821.00	PK	11.46	H	4.92	30.54	3.00	46.92	-50.45	-13.00	37.45
607.00	1821.00	PK	11.44	V	4.92	30.54	3.00	46.90	-50.47	-13.00	37.47
607.00	2428.00	PK	11.41	H	5.61	31.86	3.00	48.88	-48.50	-13.00	35.50
607.00	2428.00	PK	11.68	V	5.61	31.86	3.00	49.15	-48.23	-13.00	35.23
607.00	3035.00	PK	12.69	H	6.38	32.60	3.00	51.67	-45.71	-13.00	32.71
607.00	3035.00	PK	12.93	V	6.38	32.60	3.00	51.91	-45.47	-13.00	32.47
607.00	3642.00	PK	11.48	H	6.62	33.18	3.00	51.28	-46.10	-13.00	33.10
607.00	3642.00	PK	12.06	V	6.62	33.18	3.00	51.86	-45.52	-13.00	32.52
607.00	4249.00	PK	12.56	H	7.19	33.34	3.00	53.08	-44.29	-13.00	31.29
607.00	4249.00	PK	12.59	V	7.19	33.34	3.00	53.11	-44.26	-13.00	31.26
607.00	4856.00	PK	11.14	H	7.24	33.94	3.00	52.32	-45.06	-13.00	32.06
607.00	4856.00	PK	14.30	V	7.24	33.94	3.00	55.48	-41.90	-13.00	28.90
607.00	5463.00	PK	11.14	H	8.11	34.48	3.00	53.72	-43.65	-13.00	30.65
607.00	5463.00	PK	11.51	V	8.11	34.48	3.00	54.09	-43.28	-13.00	30.28
607.00	6070.00	PK	11.07	H	8.64	35.20	3.00	54.91	-42.47	-13.00	29.47
607.00	6070.00	PK	12.85	V	8.64	35.20	3.00	56.69	-40.69	-13.00	27.69



Timco Engineering, Inc., an IIA Company
849 NW State Road 45, Newberry, Florida 32669
(352) 472-5500 / testing@timcoengr.com

8.4.4 Radiated Emissions Table, 654 MHz

Tuned Frequency (MHz)	Emission Frequency (MHz)	Detector	Meter Reading (dBuV)	Antenna Polarity	Coax Loss (dB)	Antenna Correction Factor (dB/m)	Distance (m)	Field Strength (dBuV/m)	ERP (dBm)	Spurious Limit (dBm)	Margin (dB)
654.00	1308.00	PK	11.36	H	4.19	28.69	3.00	44.24	-53.13	-13.00	40.13
654.00	1308.00	PK	11.27	V	4.19	28.69	3.00	44.15	-53.22	-13.00	40.22
654.00	1962.00	PK	11.60	H	5.14	31.31	3.00	48.05	-49.33	-13.00	36.33
654.00	1962.00	PK	14.67	V	5.14	31.31	3.00	51.12	-46.26	-13.00	33.26
654.00	2616.00	PK	12.84	H	5.82	32.41	3.00	51.08	-46.30	-13.00	33.30
654.00	2616.00	PK	10.79	V	5.82	32.41	3.00	49.03	-48.35	-13.00	35.35
654.00	3270.00	PK	11.98	H	6.67	32.66	3.00	51.31	-46.07	-13.00	33.07
654.00	3270.00	PK	15.49	V	6.67	32.66	3.00	54.82	-42.56	-13.00	29.56
654.00	3924.00	PK	11.65	H	7.15	33.30	3.00	52.10	-45.28	-13.00	32.28
654.00	3924.00	PK	11.64	V	7.15	33.30	3.00	52.09	-45.29	-13.00	32.29
654.00	4578.00	PK	12.08	H	7.53	34.03	3.00	53.64	-43.74	-13.00	30.74
654.00	4578.00	PK	12.56	V	7.53	34.03	3.00	54.12	-43.26	-13.00	30.26
654.00	5232.00	PK	11.51	H	7.80	34.25	3.00	53.56	-43.82	-13.00	30.82
654.00	5232.00	PK	11.01	V	7.80	34.25	3.00	53.06	-44.32	-13.00	31.32
654.00	5886.00	PK	12.07	H	8.43	35.00	3.00	55.51	-41.87	-13.00	28.87
654.00	5886.00	PK	11.91	V	8.43	35.00	3.00	55.35	-42.03	-13.00	29.03
654.00	6540.00	PK	10.87	H	9.17	35.55	3.00	55.60	-41.78	-13.00	28.78
654.00	6540.00	PK	11.02	V	9.17	35.55	3.00	55.75	-41.63	-13.00	28.63



Timco Engineering, Inc., an IIA Company
849 NW State Road 45, Newberry, Florida 32669
(352) 472-5500 / testing@timcoengr.com

8.4.5 Radiated Emissions Table, 656 MHz

Tuned Frequency (MHz)	Emission Frequency (MHz)	Detector	Meter Reading (dBuV)	Antenna Polarity	Coax Loss (dB)	Antenna Correction Factor (dB/m)	Distance (m)	Field Strength (dBuV/m)	ERP (dBm)	Spurious Limit (dBm)	Margin (dB)
656.00	1312.00	PK	10.17	H	4.20	28.70	3.00	43.07	-54.31	-13.00	41.31
656.00	1312.00	PK	11.20	V	4.20	28.70	3.00	44.10	-53.28	-13.00	40.28
656.00	1968.00	PK	11.82	H	5.15	31.31	3.00	48.28	-49.10	-13.00	36.10
656.00	1968.00	PK	11.30	V	5.15	31.31	3.00	47.76	-49.62	-13.00	36.62
656.00	2624.00	PK	11.30	H	5.84	32.41	3.00	49.56	-47.82	-13.00	34.82
656.00	2624.00	PK	12.40	V	5.84	32.41	3.00	50.66	-46.72	-13.00	33.72
656.00	3280.00	PK	13.30	H	6.68	32.65	3.00	52.63	-44.75	-13.00	31.75
656.00	3280.00	PK	12.14	V	6.68	32.65	3.00	51.47	-45.91	-13.00	32.91
656.00	3936.00	PK	10.89	H	7.25	33.33	3.00	51.47	-45.90	-13.00	32.90
656.00	3936.00	PK	12.24	V	7.25	33.33	3.00	52.82	-44.55	-13.00	31.55
656.00	4592.00	PK	13.04	H	7.54	34.05	3.00	54.63	-42.75	-13.00	29.75
656.00	4592.00	PK	11.05	V	7.54	34.05	3.00	52.64	-44.74	-13.00	31.74
656.00	5248.00	PK	11.42	H	7.77	34.28	3.00	53.47	-43.91	-13.00	30.91
656.00	5248.00	PK	11.22	V	7.77	34.28	3.00	53.27	-44.11	-13.00	31.11
656.00	5904.00	PK	11.19	H	8.45	35.02	3.00	54.66	-42.71	-13.00	29.71
656.00	5904.00	PK	10.82	V	8.45	35.02	3.00	54.29	-43.08	-13.00	30.08
656.00	6560.00	PK	10.68	H	9.21	35.58	3.00	55.47	-41.90	-13.00	28.90
656.00	6560.00	PK	11.29	V	9.21	35.58	3.00	56.08	-41.29	-13.00	28.29



Timco Engineering, Inc., an IIA Company
849 NW State Road 45, Newberry, Florida 32669
(352) 472-5500 / testing@timcoengr.com

8.4.6 Radiated Emissions Table, 945 MHz

Tuned Frequency (MHz)	Emission Frequency (MHz)	Detector	Meter Reading (dBuV)	Antenna Polarity	Coax Loss (dB)	Antenna Correction Factor (dB/m)	Distance (m)	Field Strength (dBuV/m)	ERP (dBm)	Spurious Limit (dBm)	Margin (dB)
945.00	1890.00	PK	12.14	H	5.05	30.96	3.00	48.15	-49.23	-13.00	36.23
945.00	1890.00	PK	12.76	V	5.05	30.96	3.00	48.77	-48.61	-13.00	35.61
945.00	2835.00	PK	12.30	H	6.21	32.37	3.00	50.88	-46.50	-13.00	33.50
945.00	2835.00	PK	12.58	V	6.21	32.37	3.00	51.16	-46.22	-13.00	33.22
945.00	3780.00	PK	10.76	H	6.42	33.14	3.00	50.31	-47.06	-13.00	34.06
945.00	3780.00	PK	11.17	V	6.42	33.14	3.00	50.72	-46.65	-13.00	33.65
945.00	4725.00	PK	11.32	H	7.07	33.89	3.00	52.28	-45.10	-13.00	32.10
945.00	4725.00	PK	11.91	V	7.07	33.89	3.00	52.87	-44.51	-13.00	31.51
945.00	5670.00	PK	10.60	H	8.09	34.57	3.00	53.25	-44.12	-13.00	31.12
945.00	5670.00	PK	11.29	V	8.09	34.57	3.00	53.94	-43.43	-13.00	30.43
945.00	6615.00	PK	12.99	H	9.18	35.66	3.00	57.83	-39.55	-13.00	26.55
945.00	6615.00	PK	10.97	V	9.18	35.66	3.00	55.81	-41.57	-13.00	28.57
945.00	7560.00	PK	10.34	H	9.74	35.85	3.00	55.93	-41.44	-13.00	28.44
945.00	7560.00	PK	11.89	V	9.74	35.85	3.00	57.48	-39.89	-13.00	26.89
945.00	8505.00	PK	10.05	H	10.30	35.94	3.00	56.29	-41.09	-13.00	28.09
945.00	8505.00	PK	11.33	V	10.30	35.94	3.00	57.57	-39.81	-13.00	26.81
945.00	9450.00	PK	10.84	H	11.01	36.45	3.00	58.30	-39.08	-13.00	26.08
945.00	9450.00	PK	10.84	V	11.01	36.45	3.00	58.30	-39.08	-13.00	26.08



Timco Engineering, Inc., an IIA Company
849 NW State Road 45, Newberry, Florida 32669
(352) 472-5500 / testing@timcoengr.com

8.4.7 Radiated Emissions Table, 948 MHz

Tuned Frequency (MHz)	Emission Frequency (MHz)	Detector	Meter Reading (dBuV)	Antenna Polarity	Coax Loss (dB)	Antenna Correction Factor (dB/m)	Distance (m)	Field Strength (dBuV/m)	ERP (dBm)	Spurious Limit (dBm)	Margin (dB)
948.00	1896.00	PK	11.90	H	5.05	30.98	3.00	47.93	-49.45	-13.00	36.45
948.00	1896.00	PK	13.44	V	5.05	30.98	3.00	49.47	-47.91	-13.00	34.91
948.00	2844.00	PK	12.35	H	6.20	32.34	3.00	50.89	-46.48	-13.00	33.48
948.00	2844.00	PK	11.59	V	6.20	32.34	3.00	50.13	-47.24	-13.00	34.24
948.00	3792.00	PK	10.94	H	6.40	33.14	3.00	50.48	-46.90	-13.00	33.90
948.00	3792.00	PK	11.85	V	6.40	33.14	3.00	51.39	-45.99	-13.00	32.99
948.00	4740.00	PK	10.44	H	6.99	33.90	3.00	51.33	-46.05	-13.00	33.05
948.00	4740.00	PK	11.03	V	6.99	33.90	3.00	51.92	-45.46	-13.00	32.46
948.00	5688.00	PK	12.47	H	8.03	34.59	3.00	55.09	-42.29	-13.00	29.29
948.00	5688.00	PK	11.77	V	8.03	34.59	3.00	54.39	-42.99	-13.00	29.99
948.00	6636.00	PK	11.12	H	9.17	35.65	3.00	55.93	-41.45	-13.00	28.45
948.00	6636.00	PK	11.18	V	9.17	35.65	3.00	55.99	-41.39	-13.00	28.39
948.00	7584.00	PK	11.41	H	9.83	35.85	3.00	57.09	-40.29	-13.00	27.29
948.00	7584.00	PK	12.16	V	9.83	35.85	3.00	57.84	-39.54	-13.00	26.54
948.00	8532.00	PK	10.40	H	10.18	35.96	3.00	56.54	-40.83	-13.00	27.83
948.00	8532.00	PK	11.64	V	10.18	35.96	3.00	57.78	-39.59	-13.00	26.59
948.00	9480.00	PK	10.55	H	10.85	36.51	3.00	57.91	-39.47	-13.00	26.47
948.00	9480.00	PK	10.13	V	10.85	36.51	3.00	57.49	-39.89	-13.00	26.89



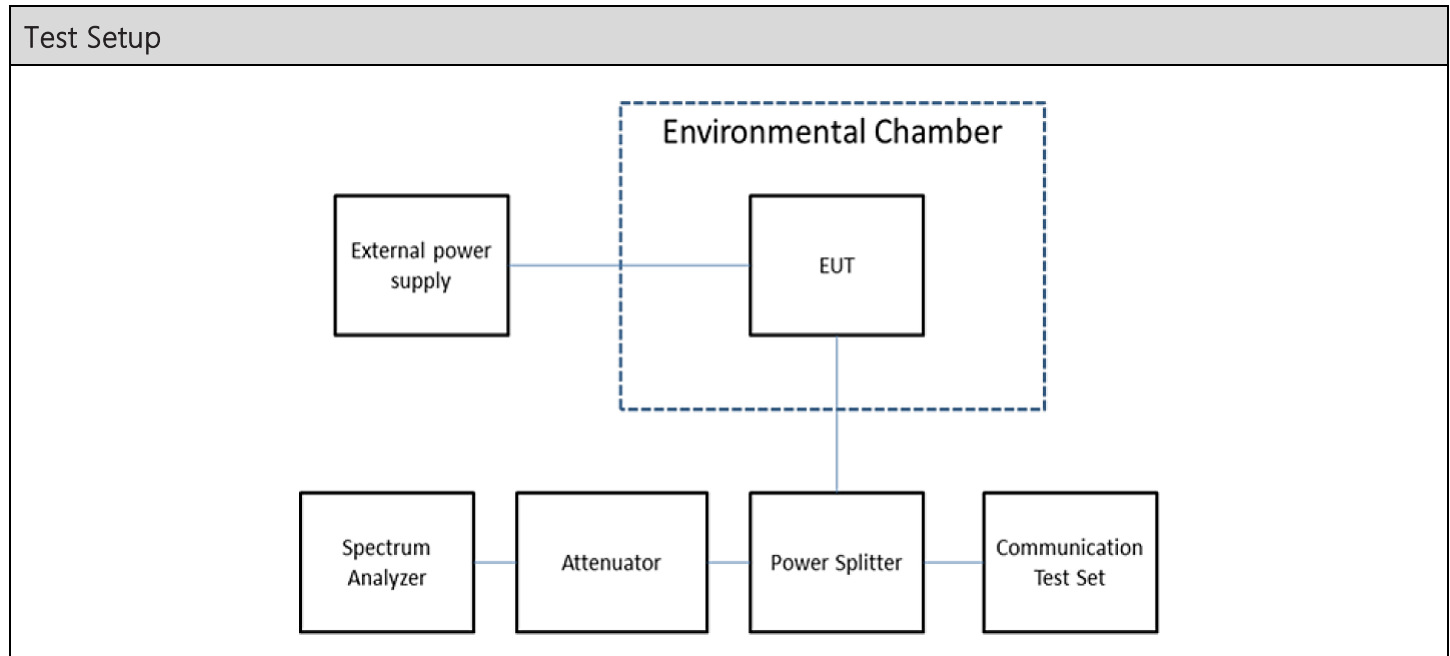
Timco Engineering, Inc., an IIA Company
849 NW State Road 45, Newberry, Florida 32669
(352) 472-5500 / testing@timcoengr.com

8.4.8 Radiated Emissions Table, 951 MHz

Tuned Frequency (MHz)	Emission Frequency (MHz)	Detector	Meter Reading (dBuV)	Antenna Polarity	Coax Loss (dB)	Antenna Correction Factor (dB/m)	Distance (m)	Field Strength (dBuV/m)	ERP (dBm)	Spurious Limit (dBm)	Margin (dB)
951.00	1902.00	PK	11.71	H	5.06	31.00	3.00	47.77	-49.61	-13.00	36.61
951.00	1902.00	PK	11.87	V	5.06	31.00	3.00	47.93	-49.45	-13.00	36.45
951.00	2853.00	PK	11.72	H	6.20	32.31	3.00	50.23	-47.15	-13.00	34.15
951.00	2853.00	PK	13.10	V	6.20	32.31	3.00	51.61	-45.77	-13.00	32.77
951.00	3804.00	PK	11.51	H	6.38	33.15	3.00	51.04	-46.34	-13.00	33.34
951.00	3804.00	PK	11.13	V	6.38	33.15	3.00	50.66	-46.72	-13.00	33.72
951.00	4755.00	PK	11.11	H	6.95	33.91	3.00	51.97	-45.41	-13.00	32.41
951.00	4755.00	PK	11.94	V	6.95	33.91	3.00	52.80	-44.58	-13.00	31.58
951.00	5706.00	PK	11.63	H	8.07	34.61	3.00	54.31	-43.07	-13.00	30.07
951.00	5706.00	PK	11.05	V	8.07	34.61	3.00	53.73	-43.65	-13.00	30.65
951.00	6657.00	PK	10.95	H	9.15	35.65	3.00	55.75	-41.63	-13.00	28.63
951.00	6657.00	PK	10.56	V	9.15	35.65	3.00	55.36	-42.02	-13.00	29.02
951.00	7608.00	PK	10.92	H	9.93	35.86	3.00	56.71	-40.67	-13.00	27.67
951.00	7608.00	PK	10.49	V	9.93	35.86	3.00	56.28	-41.10	-13.00	28.10
951.00	8559.00	PK	9.84	H	10.06	35.99	3.00	55.89	-41.49	-13.00	28.49
951.00	8559.00	PK	11.27	V	10.06	35.99	3.00	57.32	-40.06	-13.00	27.06
951.00	9510.00	PK	10.55	H	10.72	36.54	3.00	57.81	-39.57	-13.00	26.57
951.00	9510.00	PK	11.01	V	10.72	36.54	3.00	58.27	-39.11	-13.00	26.11

8.5 Frequency Stability

Limits from 2.1046(a), 74.861(e) (4) and test procedure from ANSI C63.26 and KDB 206256 D01 Wireless Microphone Certification.



Test Results, Mode 1		
Tuned Frequency (MHz)	Max Deviation (kHz)	Limit (kHz)
481	53.205	2405.220353

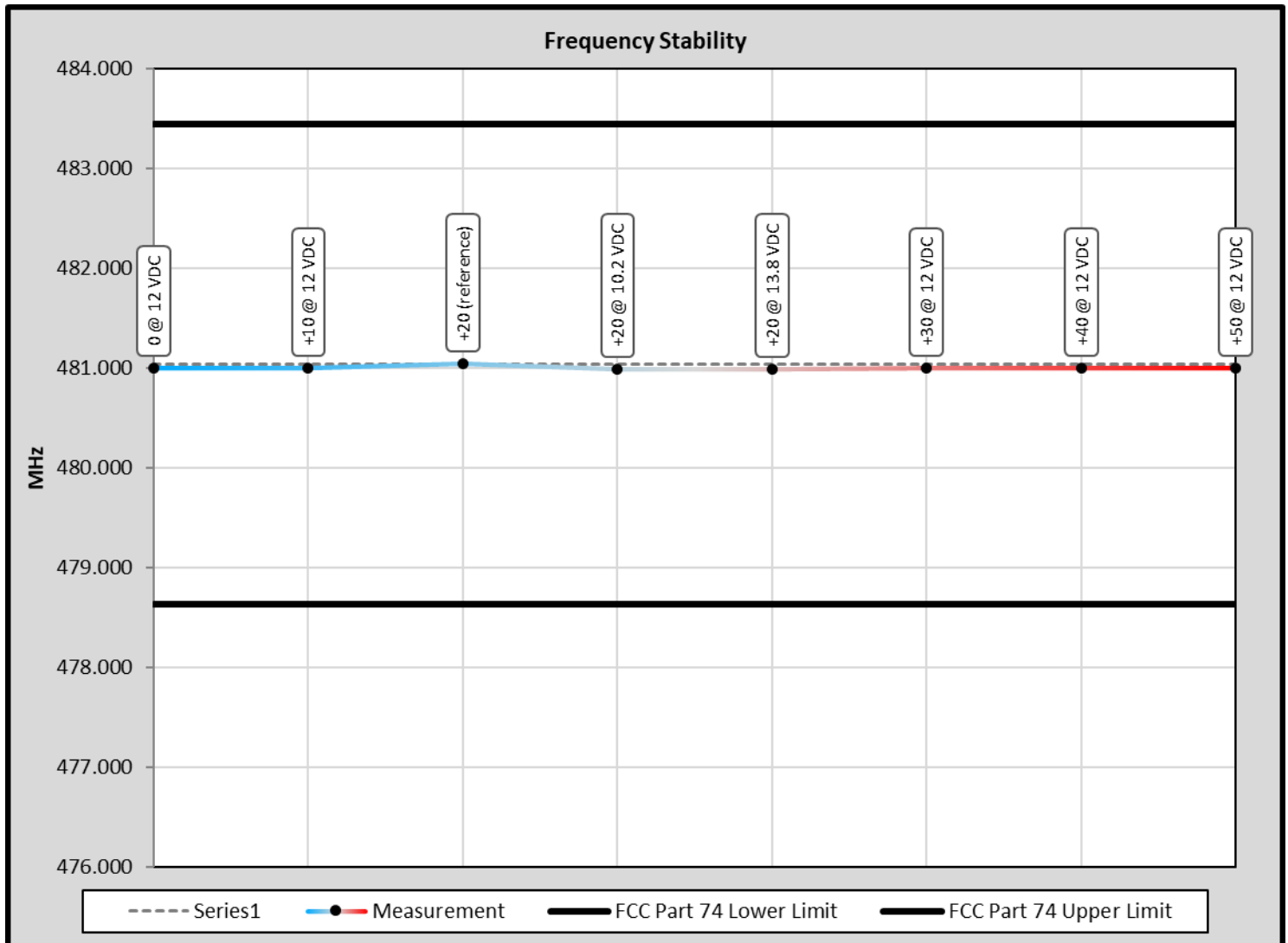


Timco Engineering, Inc., an IIA Company
849 NW State Road 45, Newberry, Florida 32669
(352) 472-5500 / testing@timcoengr.com

8.5.1 Frequency Stability Data

FCC Part 74 Limit	2405.220353	+/- kHz	
FCC Part 74 Lower Limit	478.638850	MHz	
FCC Part 74 Upper Limit	483.449291	MHz	
Rated Supply Voltage	12.0	☐ AC ☒ DC	
Temperature / Voltage Variation			
Temperature (°C)	Supplied Voltage (V)	Frequency (MHz)	Deviation (kHz)
0	12.0	480.998942	45.128
+10	12.0	480.999263	44.808
+20 (reference)	12.0	481.044071	0.000
+20	10.2	480.990865	53.205
+20	13.8	480.990865	53.205
+30	12.0	480.999583	44.487
+40	12.0	480.999744	44.327
+50	12.0	480.999423	44.647

8.5.2 Frequency Stability Plot





Timco Engineering, Inc., an IIA Company
849 NW State Road 45, Newberry, Florida 32669
(352) 472-5500 / testing@timcoengr.com

9. ANNEX-A - Photographs of the EUT

Photographs of the EUT and any manufacturer supplied accessories to be used with the EUT are in a separate document.

10. ANNEX-B – Test Setup Photographs

Test setup photographs are located in a separate document.

11. History of Test Report Changes

Test Report #	Revision #	Description	Date of Issue
TR_2670-22_FCC 74H_	1	Initial release	7/5/2022
	2	Updated Page 11	8/17/2022



Timco Engineering, Inc., an IIA Company
849 NW State Road 45, Newberry, Florida 32669
(352) 472-5500 / testing@timcoengr.com

END OF TEST REPORT
