



Test Report - FCC Part 97

Applicant: Acom Ltd.

Signature:

A handwritten signature in black ink, appearing to read "Tim Royer".

Sr. EMC Engineer
EMC-003838-NE



Name & Title: Tim Royer, EMC Engineer

Date of Signature 2/24/2025

Signature:

A handwritten signature in black ink, appearing to read "Kristoffer Costa".

Name & Title Kristoffer Costa, EMC Technician

Date of Signature 2/24/2025

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.	APPLICANT INFORMATION.....	4
1.1	PART 97 TEST RESULT SUMMARY	4
2.	LOCATION OF TESTING	5
2.1	TEST LABORATORY	5
3.	TEST SAMPLE(S) (EUT/DUT)	5
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
4.2	APPLIED LIMITS AND REGULATORY LIMITS:.....	8
5.	MEASUREMENT UNCERTAINTY.....	8
6.	ENVIRONMENTAL CONDITIONS	8
6.1	TEMPERATURE & HUMIDITY	8
7.	LIST OF TEST EQUIPMENT AND TEST FACILITY.....	9
7.1	LIST OF TEST EQUIPMENT	9
8.	TEST RESULTS	10
8.1	POWER AT THE FINAL AMPLIFIER.....	11
8.2	RF OUTPUT POWER	12
8.2.1	RF Power Output Plot, 1.87 MHz	14
8.2.2	RF Power Output Plot, 3.65 MHz.....	15
8.2.3	RF Power Output Plot, 7.19 MHz	16
8.2.4	RF Power Output Plot, 10.125 MHz	17
8.2.5	RF Power Output Plot, 14.17 MHz	18
8.2.6	RF Power Output Plot, 18.12 MHz	19
8.2.7	RF Power Output Plot, 21.22 MHz	20
8.2.8	RF Power Output Plot, 24.99 MHz	21
8.2.9	RF Power Output Plot, 28.5 MHz	22
8.2.10	RF Power Output Plot, 52 MHz	23
8.3	EMISSION LIMITATIONS, OUT-OF-BAND	24
8.3.1	Conducted Emissions, 10kHz- 150kHz, 1.87 MHz.....	25
8.3.2	Conducted Emissions, 150kHz- 30MHz, 1.87 MHz	26
8.3.3	Conducted Emissions, 30MHz- 1GHz, 1.87 MHz.....	27
8.3.4	Conducted Emissions, Above 1GHz, 1.87 MHz	28
8.3.5	Conducted Emissions, 10kHz- 150kHz, 3.65 MHz.....	29
8.3.6	Conducted Emissions, 150kHz- 30MHz, 3.65 MHz.....	30
8.3.7	Conducted Emissions, 30MHz- 1GHz, 3.65 MHz	31
8.3.8	Conducted Emissions, Above 1GHz, 3.65 MHz	32
8.3.9	Conducted Emissions, 10kHz- 150kHz, 7.19 MHz	33

8.3.10	Conducted Emissions, 150kHz- 30MHz, 7.19 MHz	34
8.3.11	Conducted Emissions, 30MHz- 1GHz, 7.19 MHz	35
8.3.12	Conducted Emissions, Above 1GHz, 7.19 MHz	36
8.3.13	Conducted Emissions, 10kHz- 150kHz, 10.125 MHz	37
8.3.14	Conducted Emissions, 150kHz- 30MHz, 10.125 MHz	38
8.3.15	Conducted Emissions, 30MHz- 1GHz, 10.125 MHz	39
8.3.16	Conducted Emissions, Above 1GHz, 10.125 MHz	40
8.3.17	Conducted Emissions, 10kHz- 150kHz, 14.17 MHz.....	41
8.3.18	Conducted Emissions, 150kHz- 30MHz, 14.17 MHz	42
8.3.19	Conducted Emissions, 30MHz- 1GHz, 14.17 MHz.....	43
8.3.20	Conducted Emissions, Above 1GHz, 14.17 MHz.....	44
8.3.21	Conducted Emissions, 10kHz- 150kHz, 18.12 MHz.....	45
8.3.22	Conducted Emissions, 150kHz- 30MHz, 18.12 MHz	46
8.3.23	Conducted Emissions, 30MHz- 1GHz, 18.12 MHz.....	47
8.3.24	Conducted Emissions, Above 1GHz, 18.12 MHz.....	48
8.3.25	Conducted Emissions, 10kHz- 150kHz, 21.22 MHz	49
8.3.26	Conducted Emissions, 150kHz- 30MHz, 21.22 MHz	50
8.3.27	Conducted Emissions, 30MHz- 1GHz, 21.22 MHz	51
8.3.28	Conducted Emissions, Above 1GHz, 21.22 MHz	52
8.3.29	Conducted Emissions, 10kHz- 150kHz, 24.99 MHz.....	53
8.3.30	Conducted Emissions, 150kHz- 30MHz, 24.99 MHz	54
8.3.31	Conducted Emissions, 30MHz- 1GHz, 24.99 MHz.....	55
8.3.32	Conducted Emissions, Above 1GHz, 24.99 MHz.....	56
8.3.33	Conducted Emissions, 10kHz- 150kHz, 28.5 MHz	57
8.3.34	Conducted Emissions, 150kHz- 30MHz, 28.5 MHz	58
8.3.35	Conducted Emissions, 30MHz- 1GHz, 28.5 MHz	59
8.3.36	Conducted Emissions, Above 1GHz, 28.5 MHz	60
8.3.37	Conducted Emissions, 10kHz- 150kHz, 52 MHz.....	61
8.3.38	Conducted Emissions, 150kHz- 30MHz, 52 MHz	62
8.3.39	Conducted Emissions, 30MHz- 1GHz, 52 MHz.....	63
8.3.40	Conducted Emissions, Above 1GHz, 52 MHz.....	64
8.4	STRENGTH OF RADIATED SPURIOUS EMISSIONS.....	65
8.4.1	Radiated Emissions, 1.87 MHz	66
8.4.2	Radiated Emissions, 3.65 MHz	67
8.4.3	Radiated Emissions, 7.19 MHz	68
8.4.4	Radiated Emissions, 10.125 MHz.....	69
8.4.5	Radiated Emissions, 14.17 MHz	70
8.4.6	Radiated Emissions, 18.12 MHz.....	71
8.4.7	Radiated Emissions, 21.22 MHz.....	72
8.4.8	Radiated Emissions, 24.99 MHz	73
8.4.9	Radiated Emissions, 28.5 MHz.....	74
8.4.10	Radiated Emissions, 52 MHz	75
9.	ANNEX-B – TEST SETUP PHOTOGRAPHS.....	76
10.	HISTORY OF TEST REPORT CHANGES.....	76

1. Applicant Information

Applicant: Acom Ltd.
Address: 6 Valeri Petrov Str.
Sofia-Bozhurishte Industrial Park
Bozhurishte, 2227, Bulgaria

1.1 Part 97 Test Result Summary

The following test procedure and guidance were used for measuring FCC PART 97 (Amateur Radio Service); ANSI/ TIA 603-C:2004 & ANSI C63.4-2004. Full test results are available in this report.

Applicable Clauses from Part 2		
FCC Clauses	Description of the requirements	Result: (Pass, Fail, N/A)
2.1033 (c)(8)	Power at the Final Amplifier	Reported
2.1046 (a)	RF Output Power	Pass
2.1051	Spurious emissions at antenna terminals	Pass
2.1053	Field strength of spurious radiation	Pass

Applicable Clauses from Part 90		
FCC Clauses	Description of the requirements	Result: (Pass, Fail, N/A)
97.317(a)(1)	Transmitter Power	Pass
97.317(a)(1)	Spurious emissions during TX, Stand-By, and Off	Pass
97.317(a)(2)	Gain	Pass
97.317(a)(3)	Gain in 27 MHz band	Pass

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.

2. Location of Testing

2.1 Test Laboratory

Timco Engineering Inc. is a subsidiary of Industrial Inspection & Analysis, Inc. ("IIA"). Testing was performed at IIA's permanent laboratory located at 13146 NW 86th Drive, Suite 400, Alachua, Florida 32615.

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

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

The test sample was received: 12/26/2024

Dates of Testing: 1/31/2025 – 2/21/2025

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:	2AJXZ1003
Brief Description	Amplifier
Model(s) #	A1003
Firmware version	N/A
Software version	N/A
Serial Number	250102

Technical Characteristics	
Frequency Range	1.8 MHz- 54 MHz
RF O/P Power (Max.)	59.62 dBm/ 916.22 W
Duty Cycle	100%
Antenna Connector	UFL
Voltage Rating (AC or Batt.)	240 VAC

Antenna Characteristics			
Antenna	Frequency Range	Mode / BW	Antenna Gain
1	1.8 MHz- 54 MHz	n/a	15 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	
Range	Test Frequencies (MHz)
1.8-2	1.87
3.5-4	3.65
7-7.3	7.19
10.1-10.15	10.125
14-14.35	14.17
18.086-18.168	18.12
21-21.45	21.22
24.89-24.99	24.99
28-29.7	28.5
50-54	52

Operating conditions during Testing:

The device was operated without the provided antenna(s).

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

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:

Test procedures and guidance for measuring Licensed Part 97 Licensed device:

- 1) ANSI/ TIA 603-C:2004
- 2) ANSI C63.4-2003

4.2 Applied Limits and Regulatory Limits:

- 1) FCC CFR 47 Part 97 (2017)

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

6.1 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.

7.1 List of Test Equipment

Test Equipment						
Type	Device	Manufacturer	Model	SN#	Current Cal	Cal Due
Antenna	Biconical 1057	Eaton	94455-1	1057	11/19/24	12/18/2027
Antenna, NSA	Log-Periodic 1243	Eaton	96005	1243	5/4/24	12/18/2027
Antenna	Double-Ridged Horn/ETS Horn 1	ETS-Lindgren	3117	00035923	5/31/23	5/30/2026
CHAMBER	CHAMBER	Panashield	3M	N/A	12/29/23	12/18/2025
Pre-amp	Pre-amp	RF-LAMBDA	RLNA00M45GA	NA	7/27/22	7/26/2025
Receiver	EMI Test Receiver R&S ESU 40	Rohde & Schwarz	ESU 40	100320	9/18/24	9/18/2027
Receiver	EMI Test Receiver R&S ESW44	Rohde & Schwarz	ESW44	103049	1/20/25	1/20/2028
Signal Generator	Signal Generator HP 8648C	HP	8648C	35537A01679	8/4/22	8/03/2025

Software			
Software	Author	Version	Validation on
ESU Firmware	Rohde & Schwarz	4.43 SP3; BIOS v5.1-24-3	2018
RSCCommander	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).

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

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

8.1 Power at the Final Amplifier

Limits from FCC Parts 2.1033(c)(8), and 97.313; and test procedure from ANSI/ TIA 603-C:2004 & ANSI C63.4-2003

TEST PROCEDURES: Radiation Interference: The test procedure used was ANSI/TIA 603-C: 2004 using a Agilent spectrum analyzer with a preselector. In the frequency range 10 kHz to 30 MHz the RBW was 10 kHz and from 30-1000 MHz the RBW of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a micro volt at the output of the antenna. The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz.

Formula of Conversion Factors: The field strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the preselector was accounted for in the spectrum analyzer meter reading.

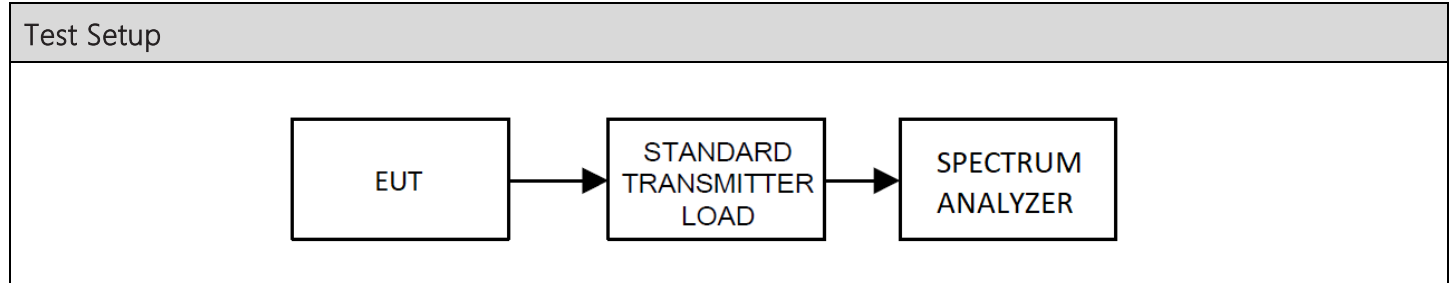
Example: Freq (MHz) Meter Reading + ACF + CL = FS 33 20 dBuV + 10.36 dB/m +0.4 dB = 30.76 dBuV/m @ 3m

Test Results		
EUT Operating Voltage (V)	EUT Current (A)	Power at the Final Amplifier (W)
240	4.18	1000

8.2 RF Output Power

Limits from FCC Parts 2.1046(a), and 97.313; and test procedure from ANSI/ TIA 603-C:2004 & ANSI C63.4-2003

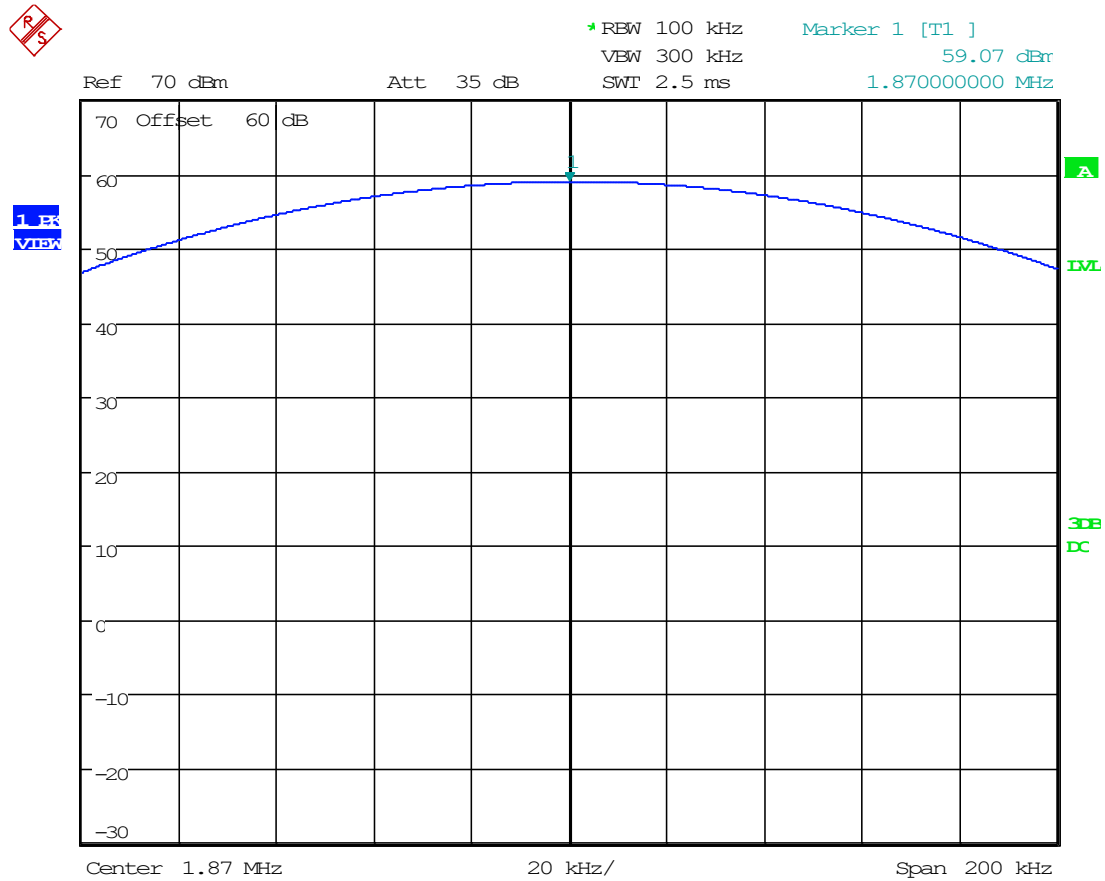
Test Procedure: RF power is measured by connecting a 50-ohm, resistive wattmeter to the RF output connector with a nominal input voltage of 240 AC Volts.



Test Results		
Tuned Frequency (MHz)	Power Output (dBm)	Power Output (W)
1.87	59.07	807.24
3.65	59.14	820.35
7.19	59.62	916.22
10.125	59.19	829.85
14.17	59.33	857.04
18.12	59.49	889.20
21.22	59.44	879.02
24.99	59.21	833.68
28.5	58.99	792.50
52	58.75	749.89

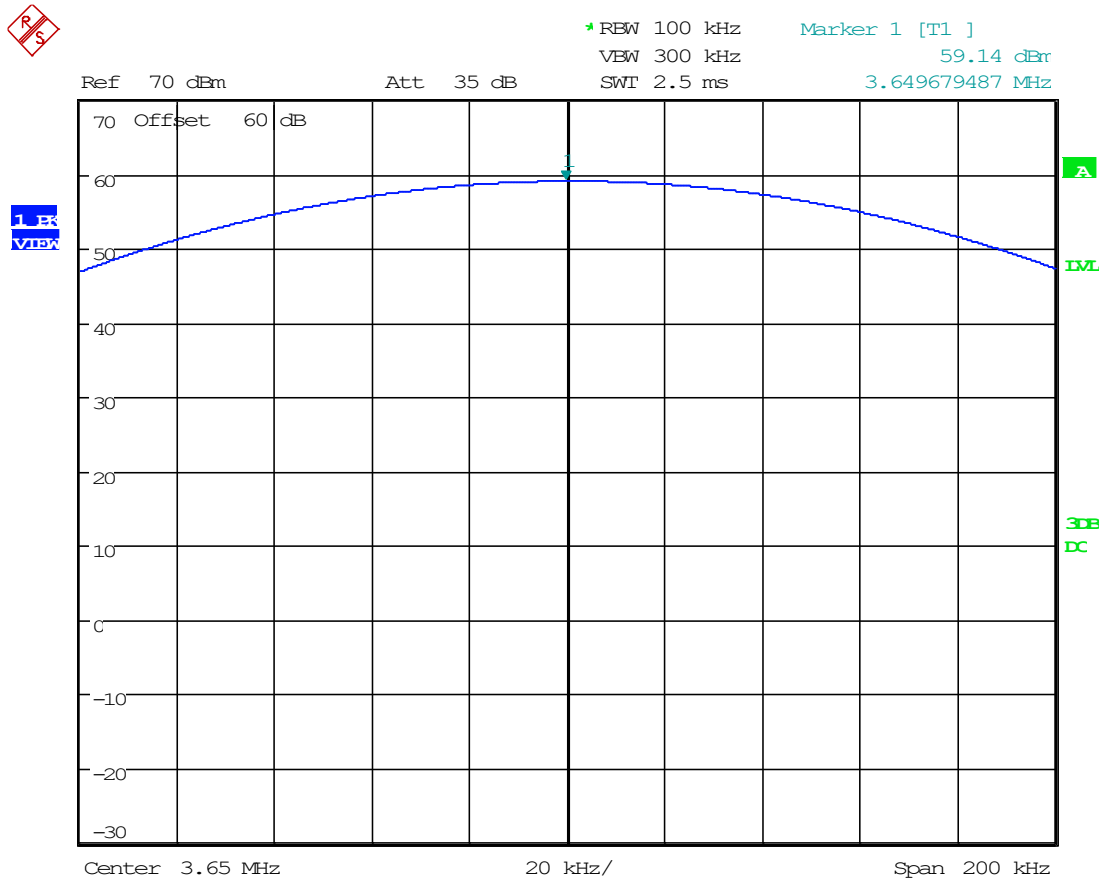
Test Results			
Tuned Frequency (MHz)	Power Input (dBm)	PEP Output (dBm)	Gain (dB)
1.87	42.94	49.07	6.13
3.65	42.5	49.14	6.64
7.19	42.52	49.15	6.63
10.125	40.09	49.19	9.1
14.17	40.05	49.33	9.28
18.12	40.19	49.49	9.3
21.22	40.67	49.44	8.77
24.99	40.27	49.21	8.94
28.5	41.05	48.99	7.94
52	41.78	48.75	6.97

8.2.1 RF Power Output Plot, 1.87 MHz



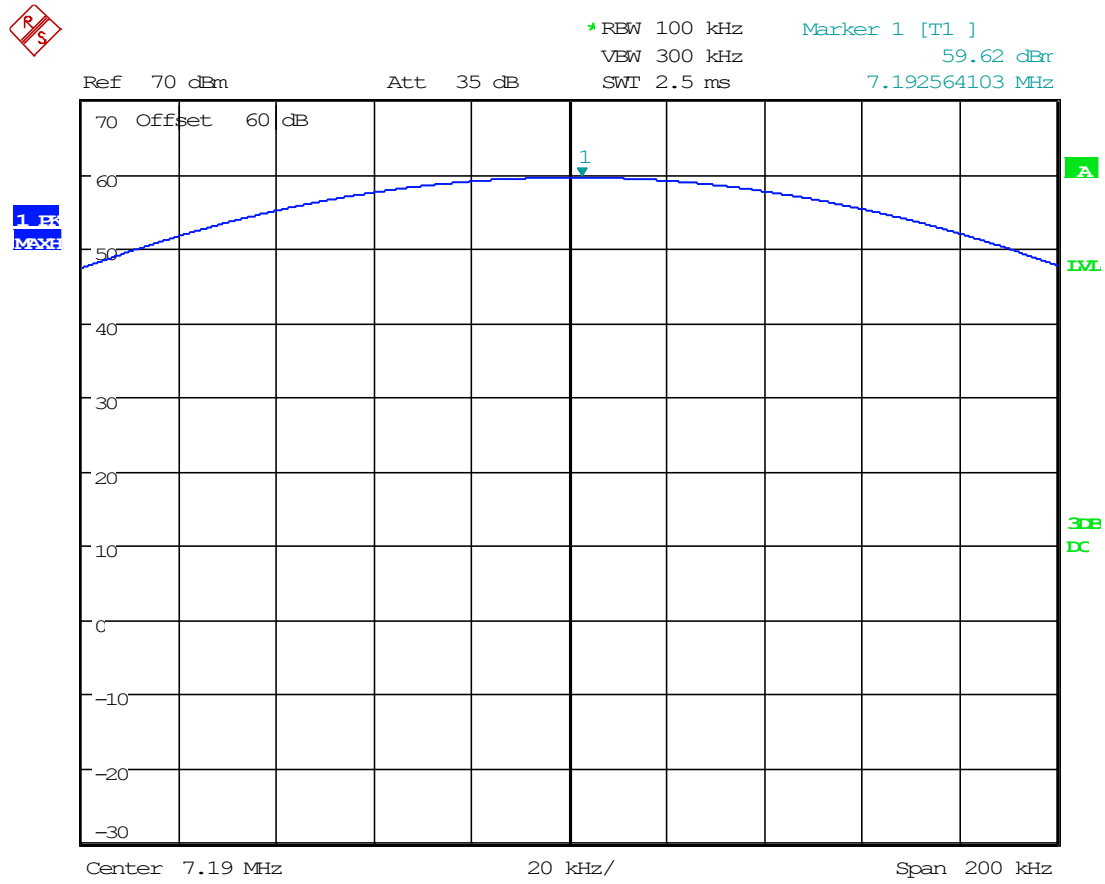
Date: 31.JAN.2025 11:51:02

8.2.2 RF Power Output Plot, 3.65 MHz



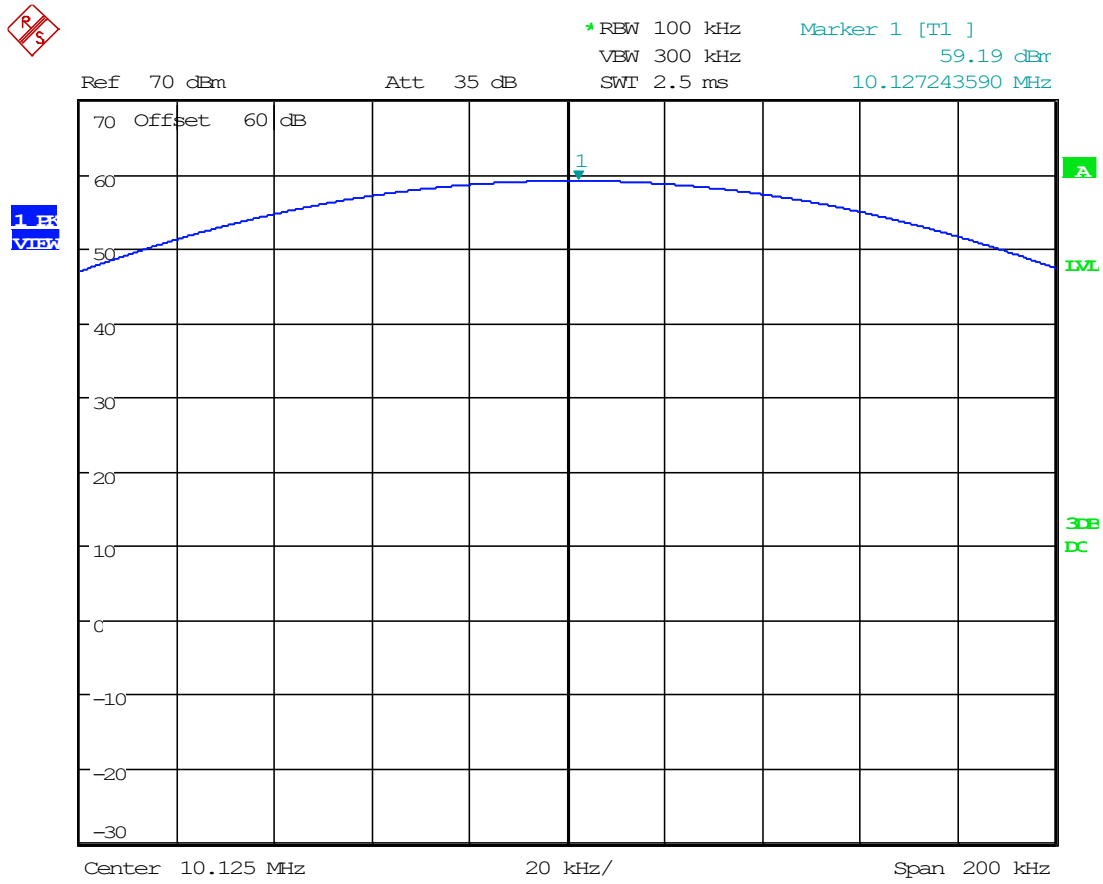
Date: 31.JAN.2025 12:11:53

8.2.3 RF Power Output Plot, 7.19 MHz



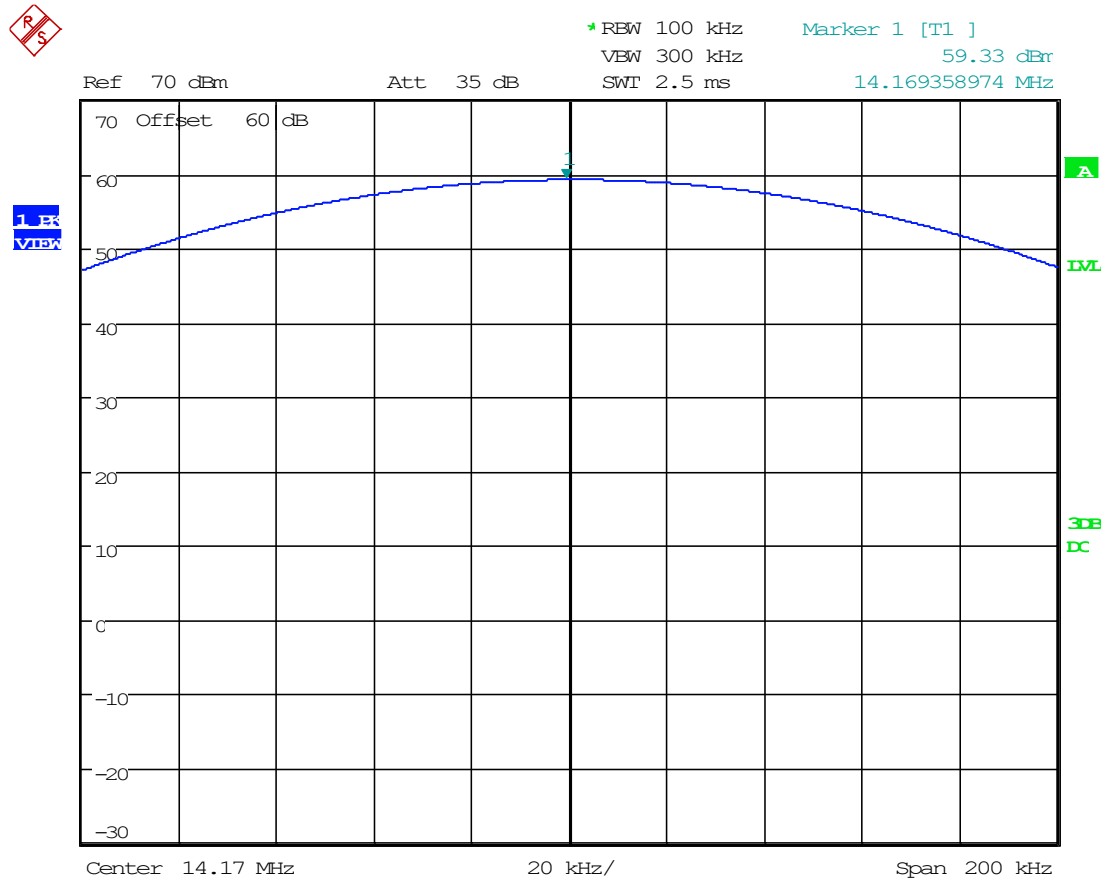
Date: 31.JAN.2025 12:16:00

8.2.4 RF Power Output Plot, 10.125 MHz



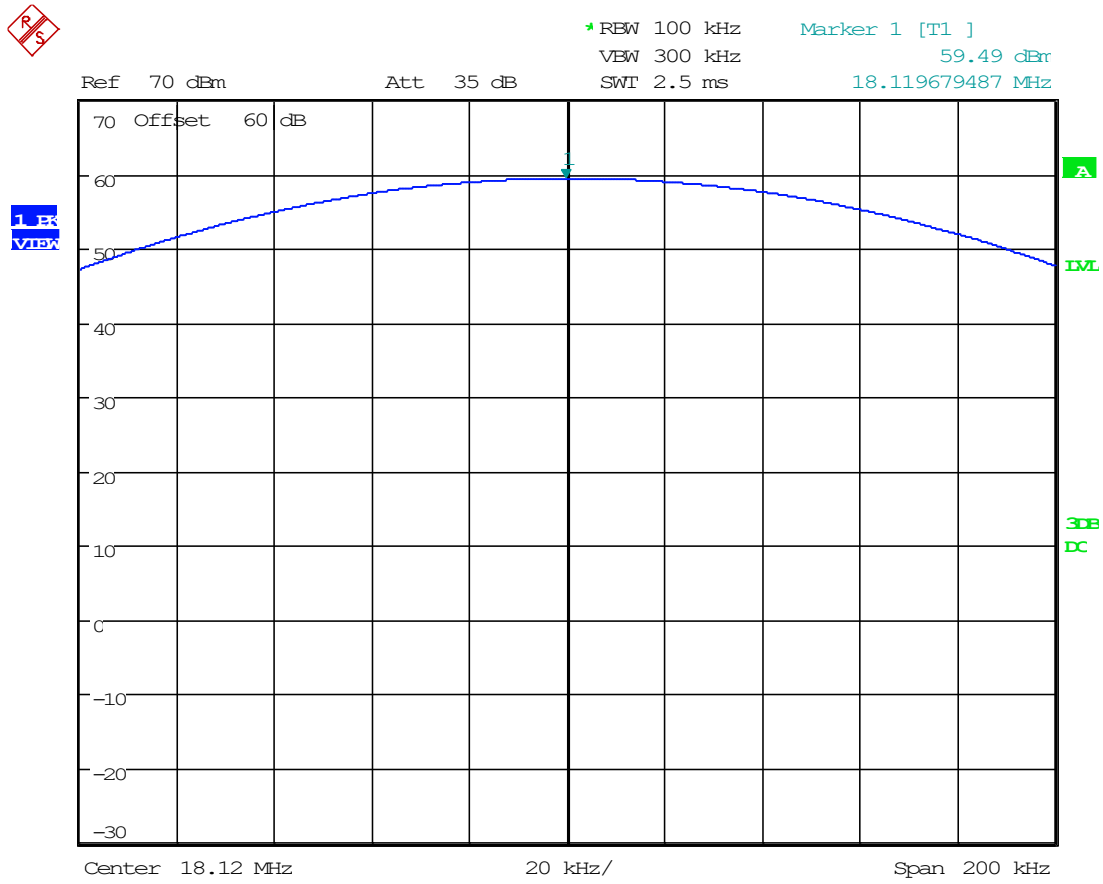
Date: 31.JAN.2025 14:36:16

8.2.5 RF Power Output Plot, 14.17 MHz



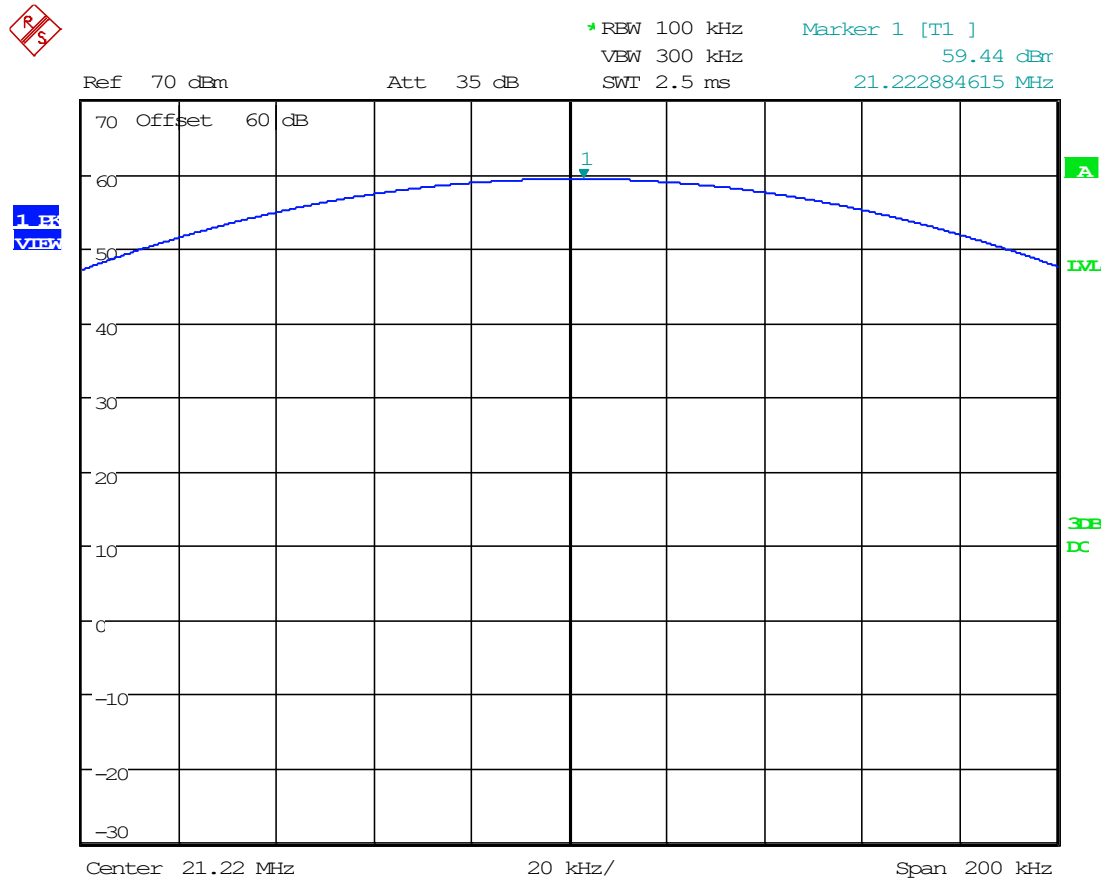
Date: 31.JAN.2025 14:39:46

8.2.6 RF Power Output Plot, 18.12 MHz



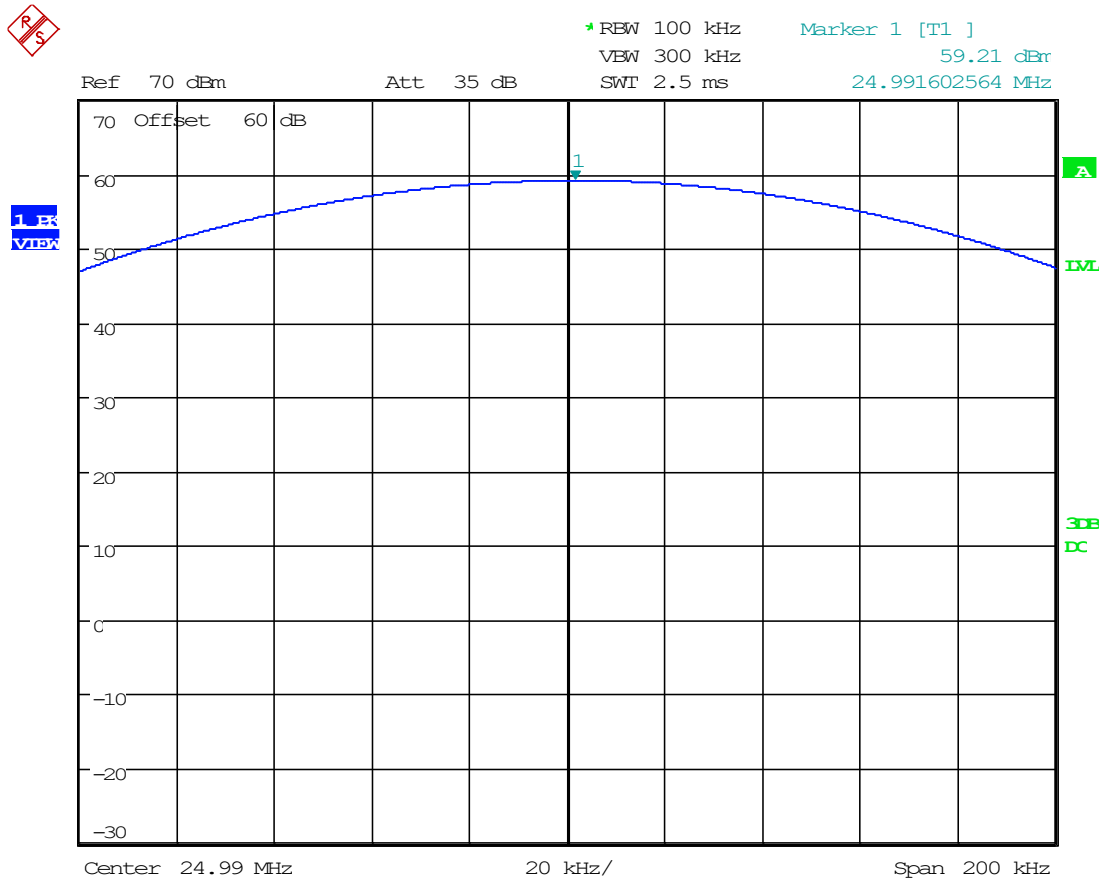
Date: 31.JAN.2025 14:42:28

8.2.7 RF Power Output Plot, 21.22 MHz



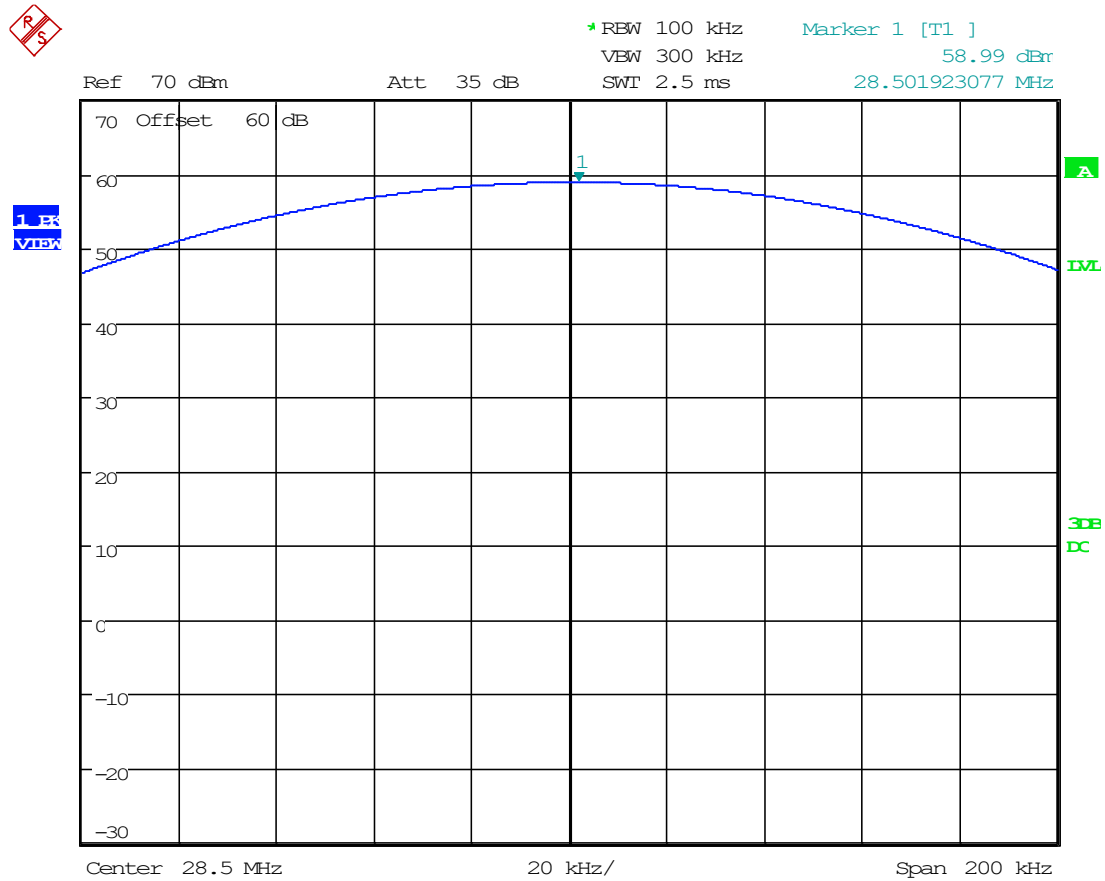
Date: 31.JAN.2025 14:44:25

8.2.8 RF Power Output Plot, 24.99 MHz



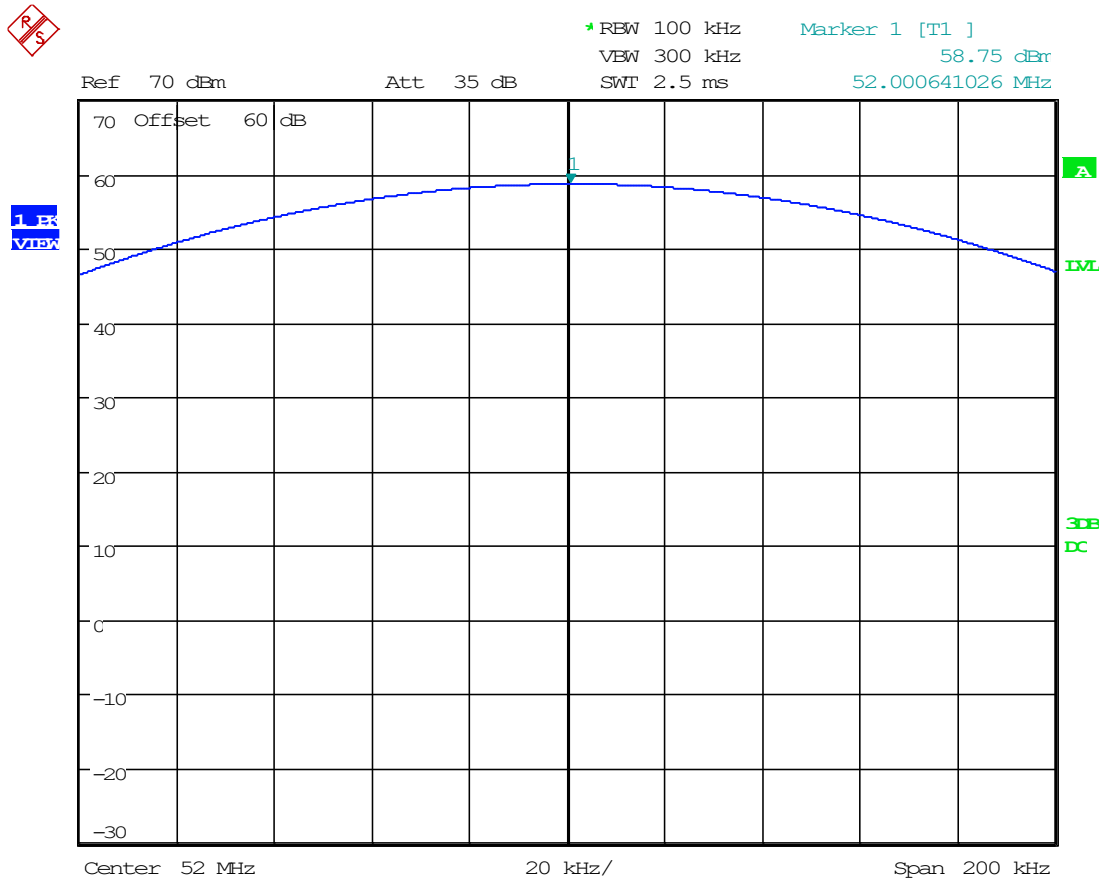
Date: 31.JAN.2025 14:47:05

8.2.9 RF Power Output Plot, 28.5 MHz



Date: 31.JAN.2025 14:49:14

8.2.10 RF Power Output Plot, 52 MHz



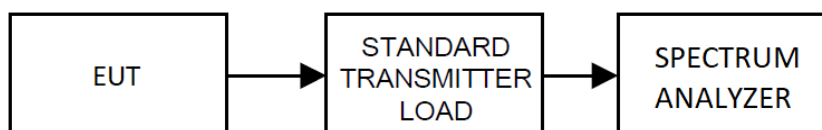
Date: 31.JAN.2025 14:53:50

8.3 Emission Limitations, Out-of-Band

Limits from FCC Parts 2.1053, and 97.307(d)(e); and test procedure from ANSI/ TIA 603-C:2004 & ANSI C63.4-2003

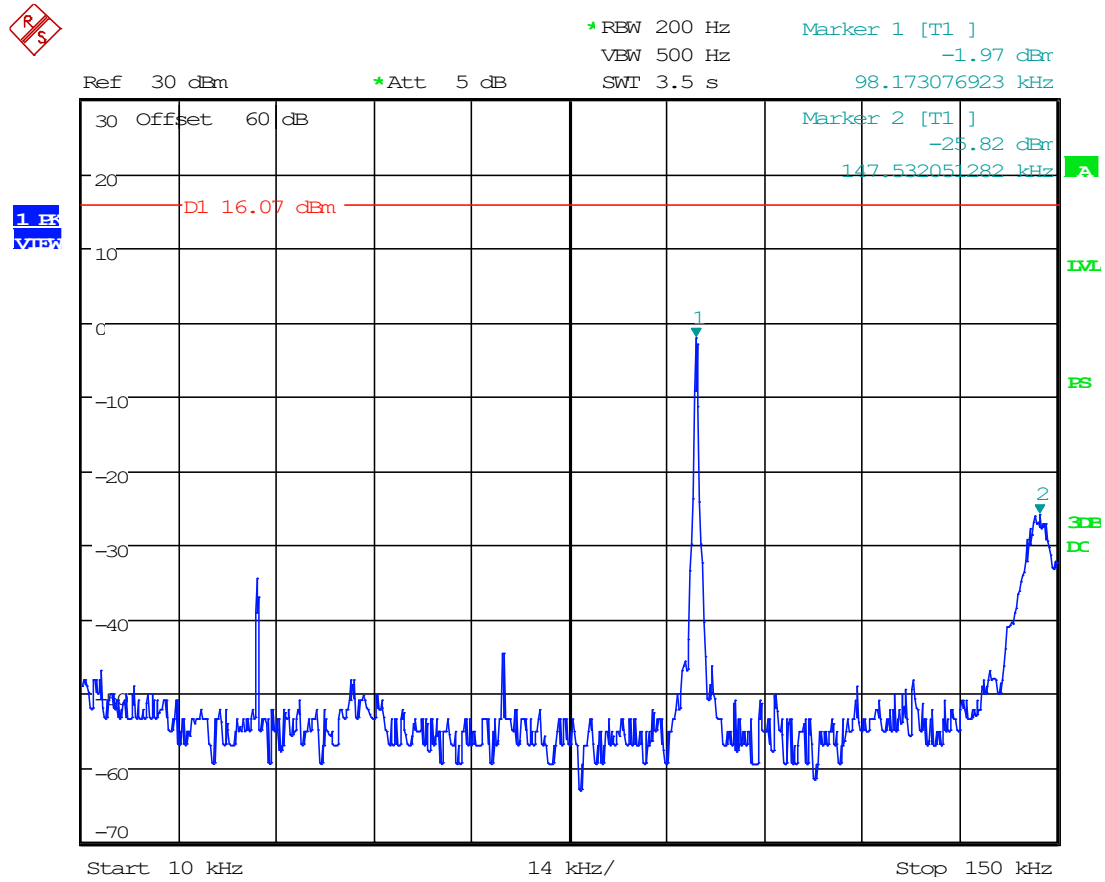
Requirements: The FCC Limits for spurious emissions of a transmitting operating on a frequency below 30 MHz must be at least 43dB below the mean power. For the transmitter frequency operating at 50 MHz, the RF spurious emissions must be at least 60 dB below the mean power of the fundamental.

Conducted Test Setup



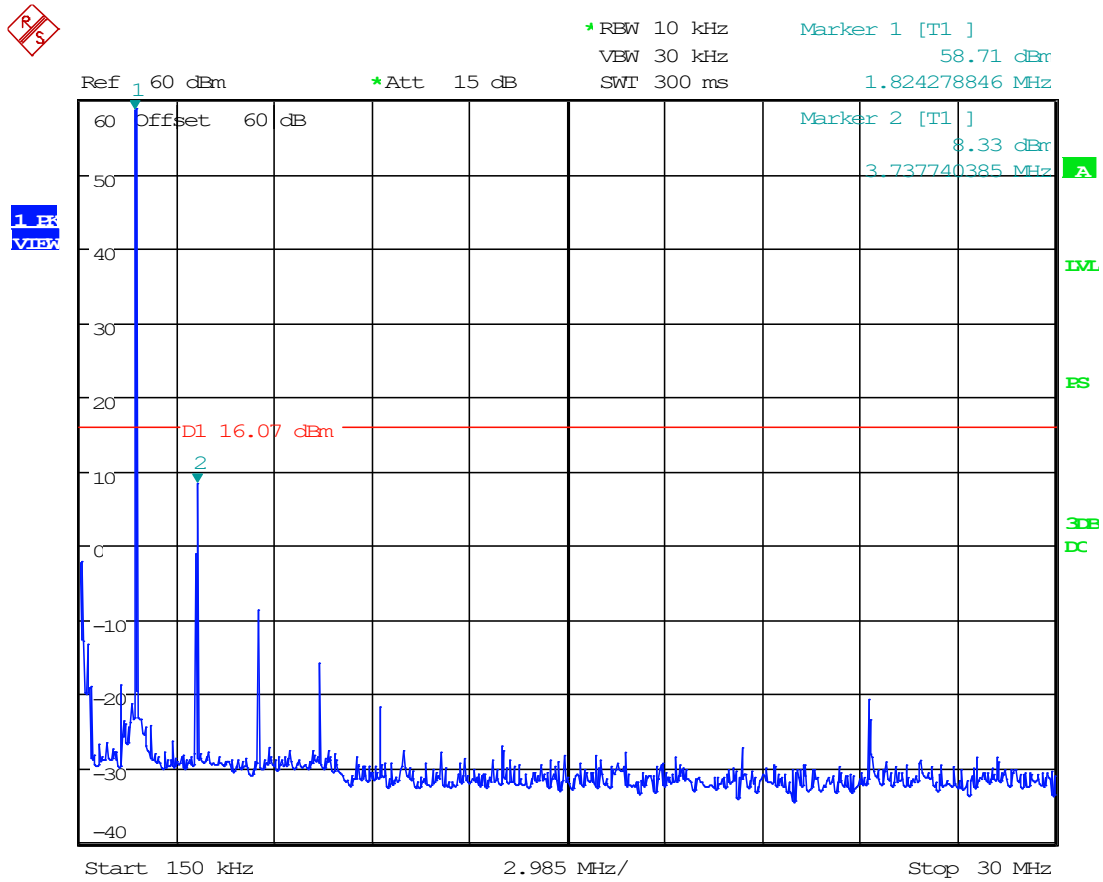
Conducted Emissions Spectrum Plots

8.3.1 Conducted Emissions, 10kHz- 150kHz, 1.87 MHz



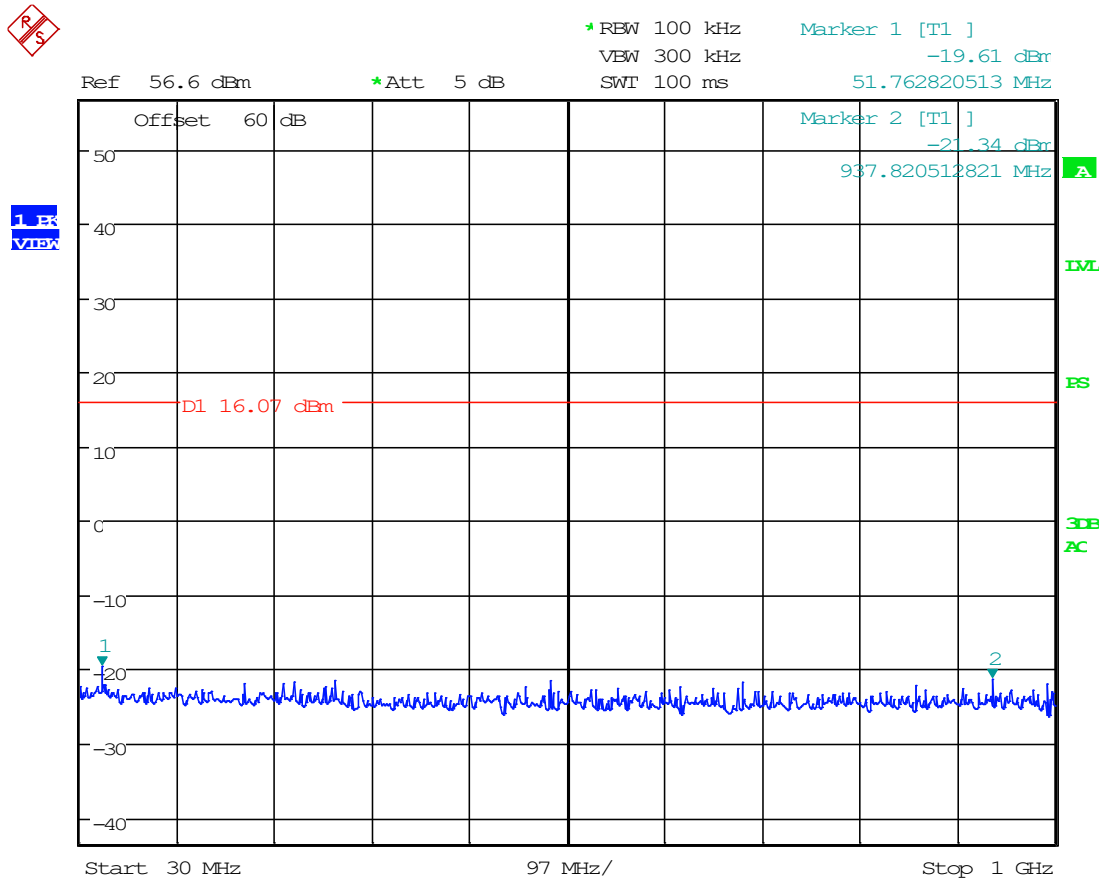
Date: 31.JAN.2025 15:08:40

8.3.2 Conducted Emissions, 150kHz- 30MHz, 1.87 MHz



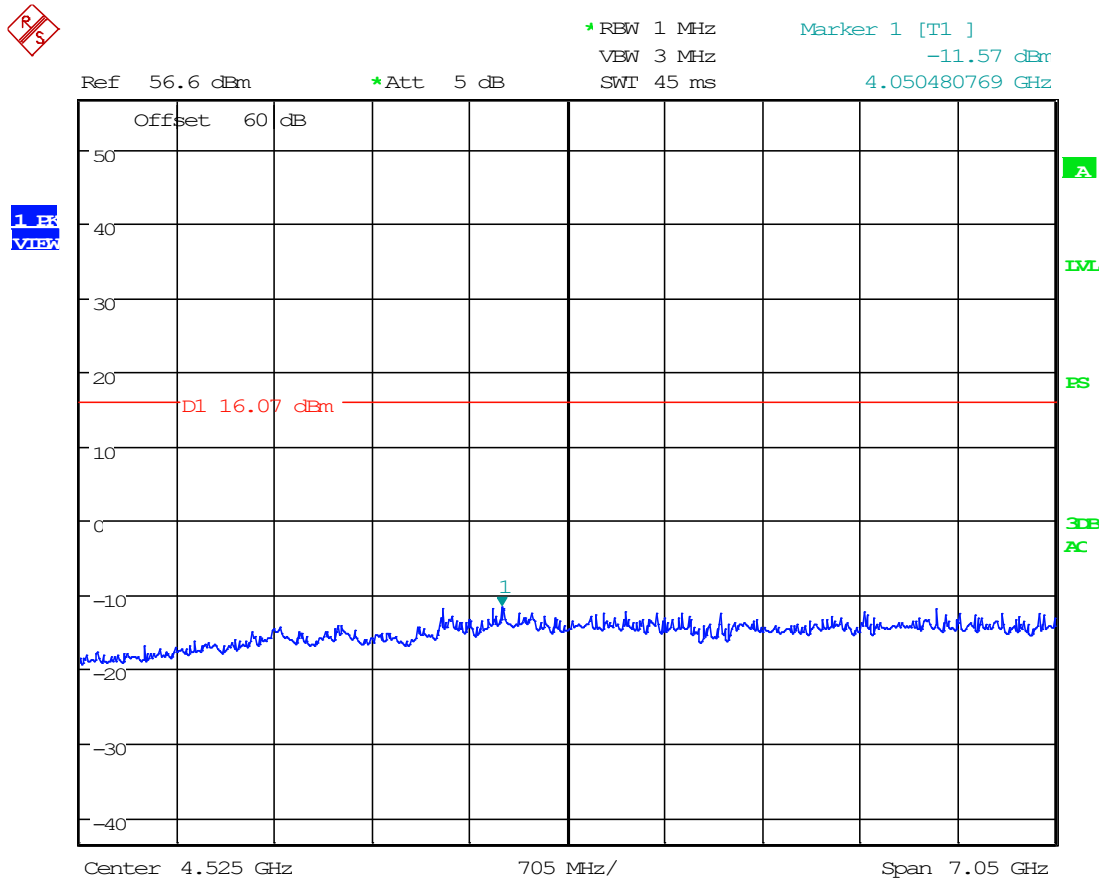
Date: 31.JAN.2025 15:39:26

8.3.3 Conducted Emissions, 30MHz- 1GHz, 1.87 MHz



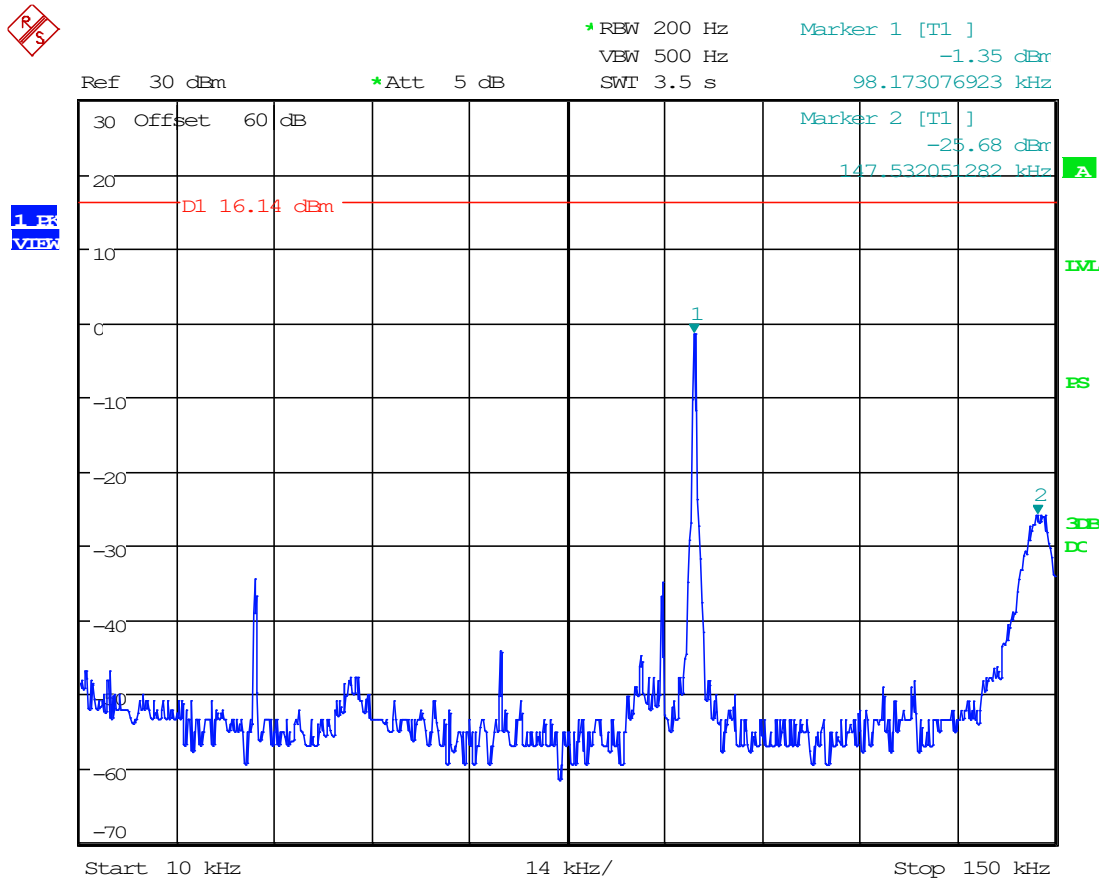
Date: 31.JAN.2025 16:29:43

8.3.4 Conducted Emissions, Above 1GHz, 1.87 MHz



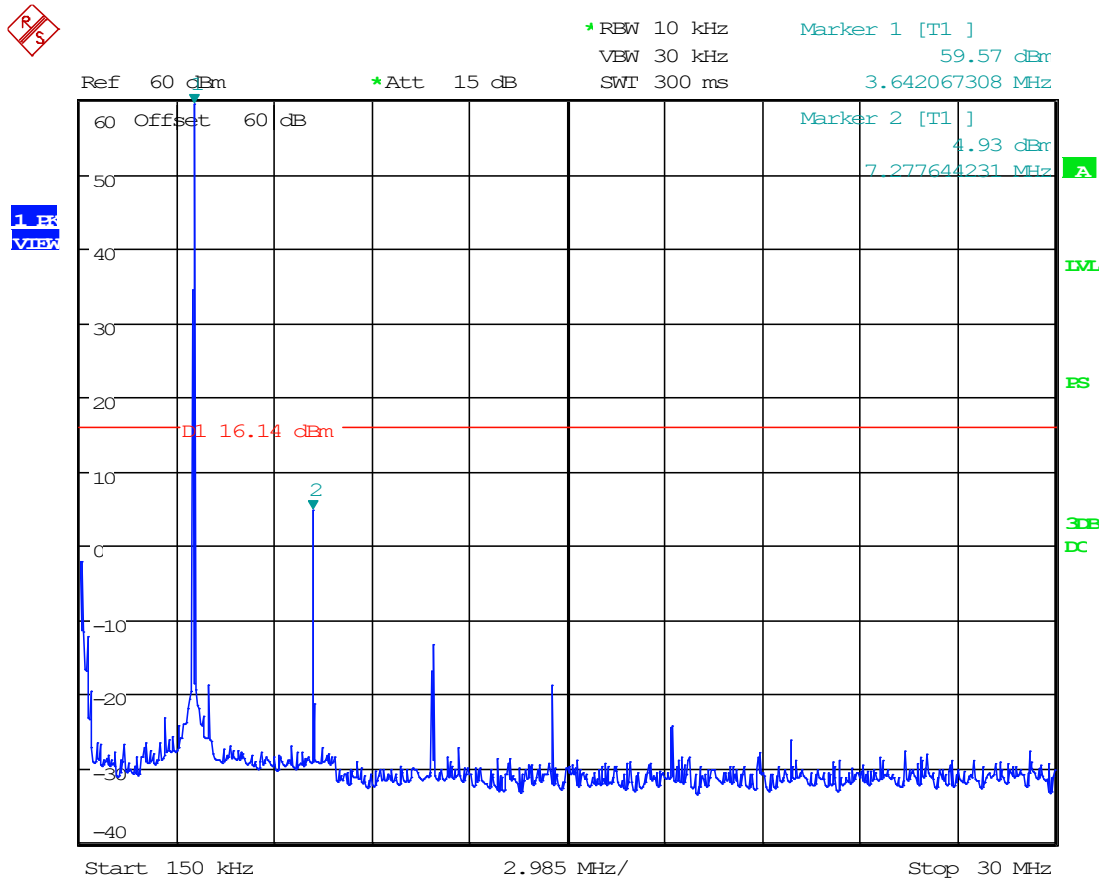
Date: 31.JAN.2025 16:50:39

8.3.5 Conducted Emissions, 10kHz- 150kHz, 3.65 MHz



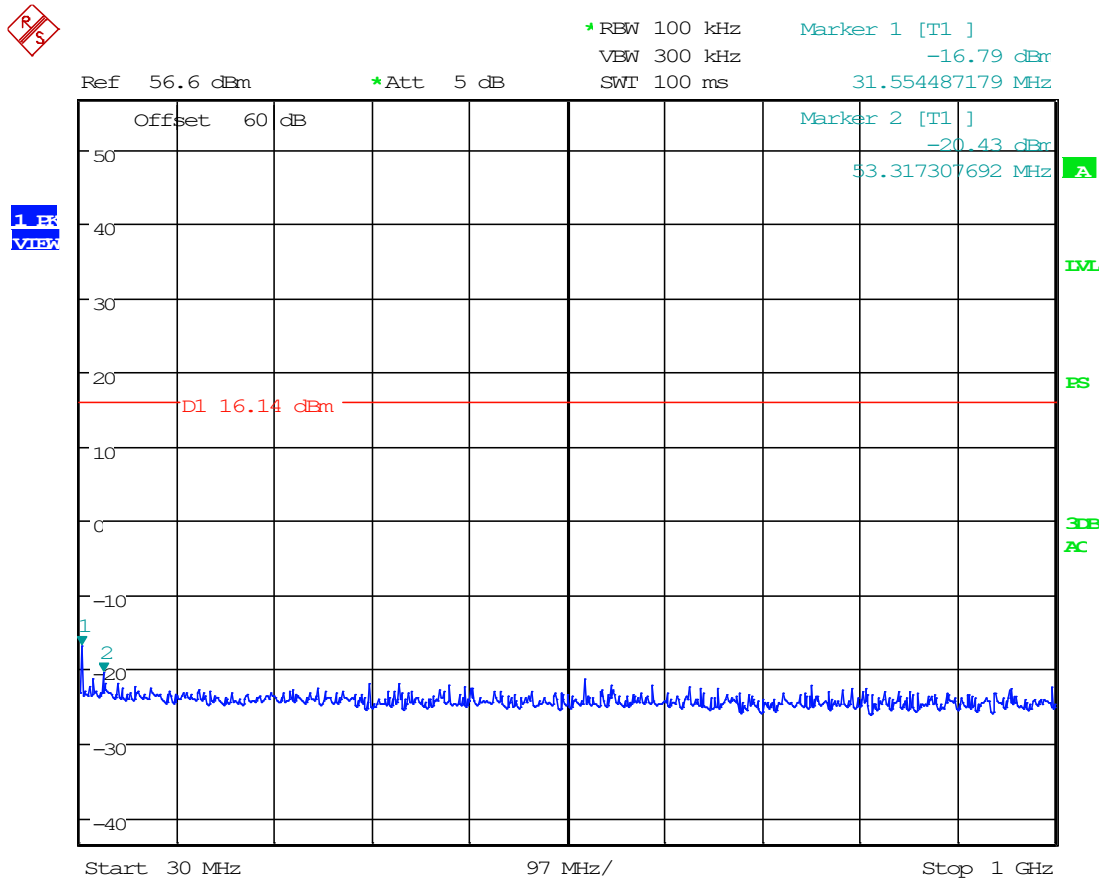
Date: 31.JAN.2025 15:11:34

8.3.6 Conducted Emissions, 150kHz- 30MHz, 3.65 MHz



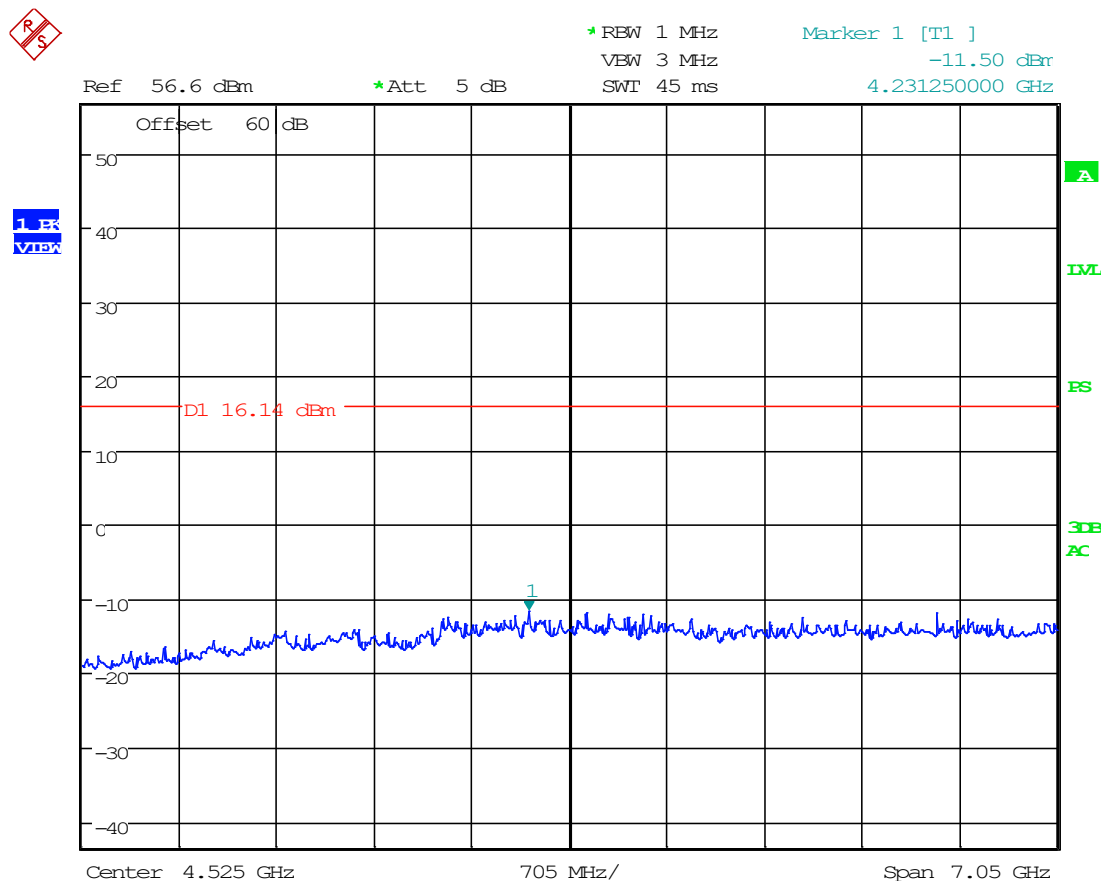
Date: 31.JAN.2025 15:41:51

8.3.7 Conducted Emissions, 30MHz- 1GHz, 3.65 MHz



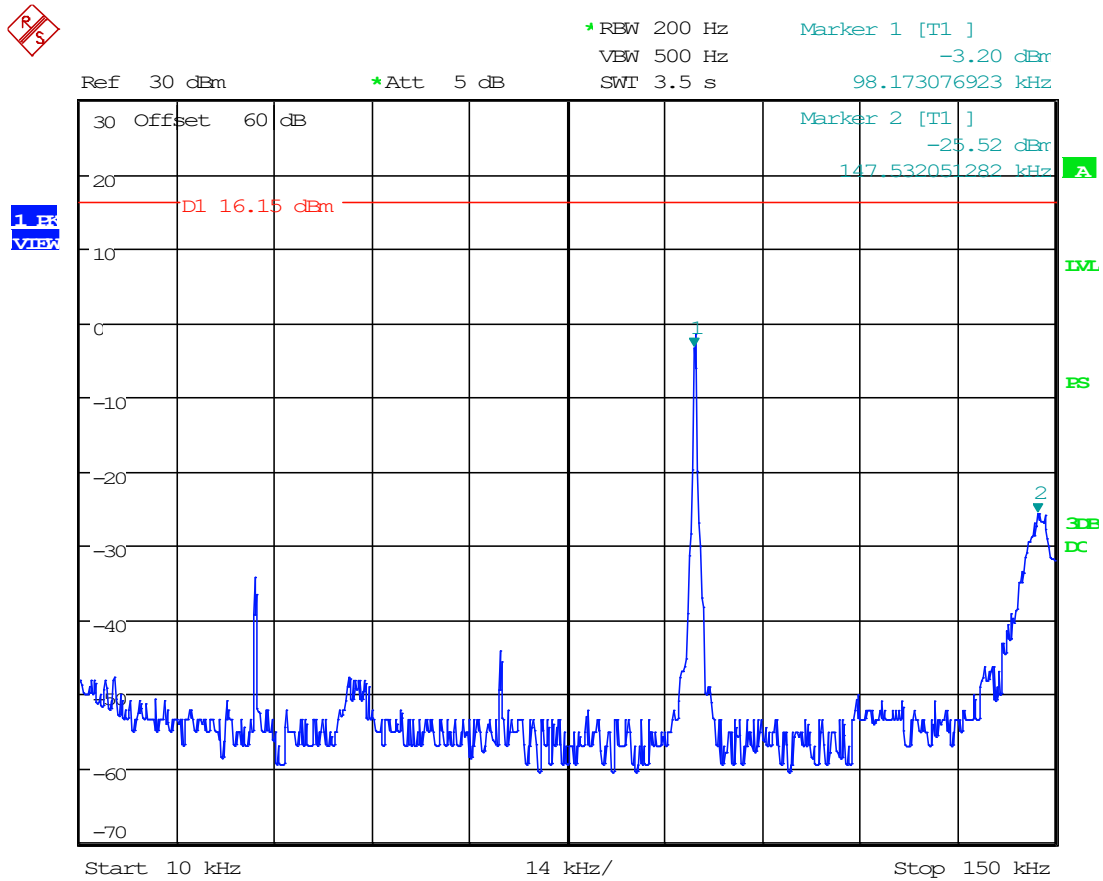
Date: 31.JAN.2025 16:33:29

8.3.8 Conducted Emissions, Above 1GHz, 3.65 MHz



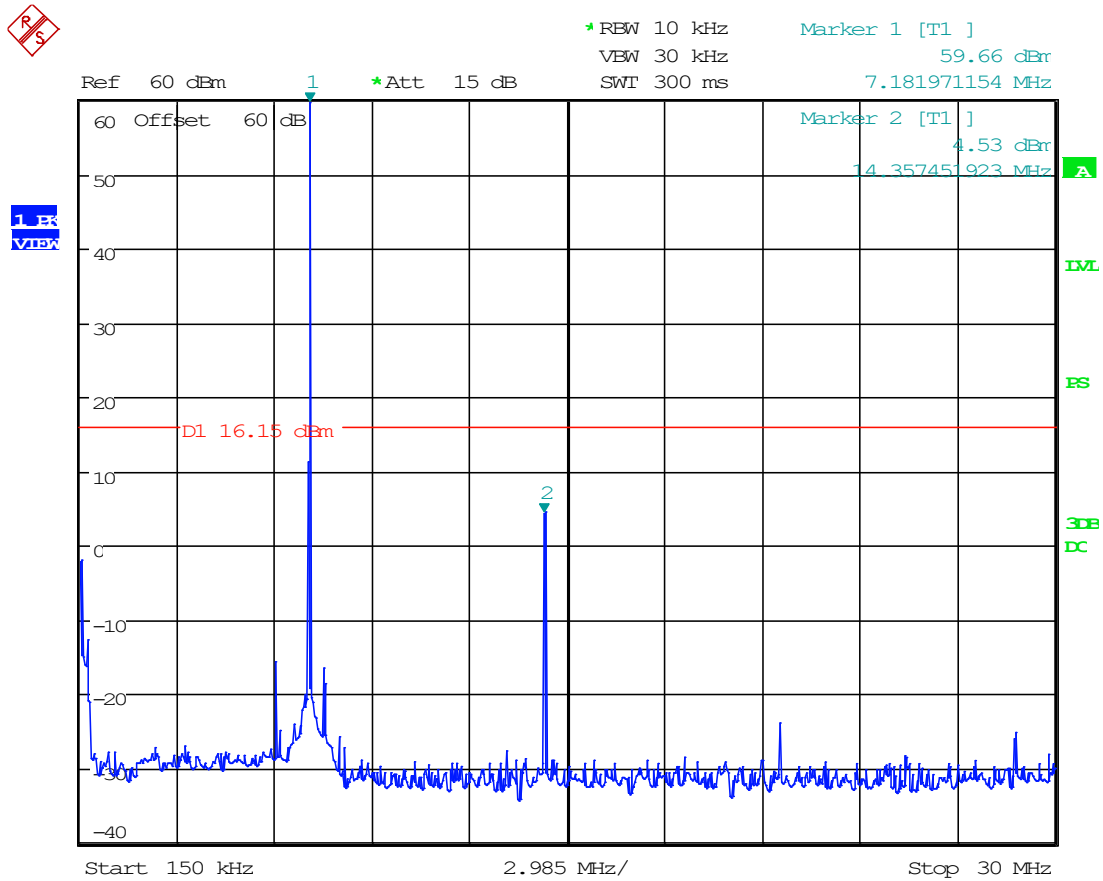
Date: 31.JAN.2025 16:51:56

8.3.9 Conducted Emissions, 10kHz- 150kHz, 7.19 MHz



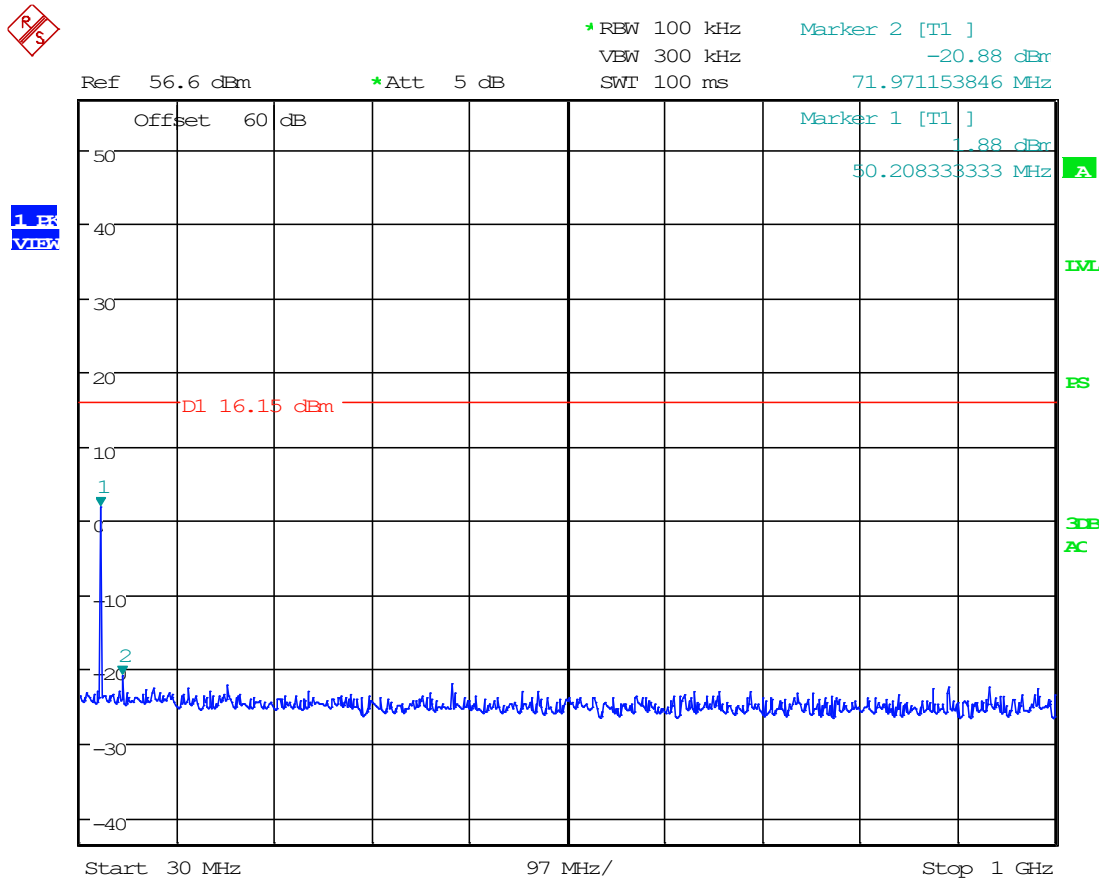
Date: 31.JAN.2025 15:13:23

8.3.10 Conducted Emissions, 150kHz- 30MHz, 7.19 MHz



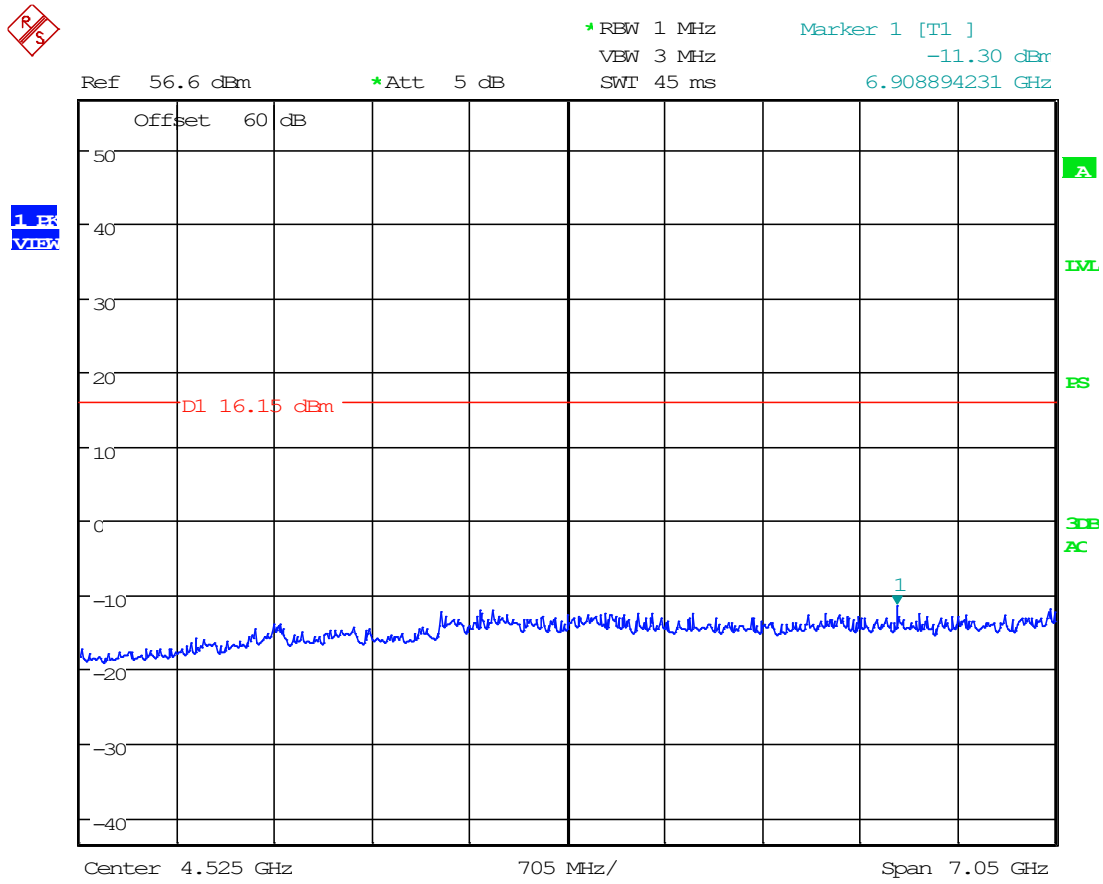
Date: 31.JAN.2025 15:44:05

8.3.11 Conducted Emissions, 30MHz- 1GHz, 7.19 MHz



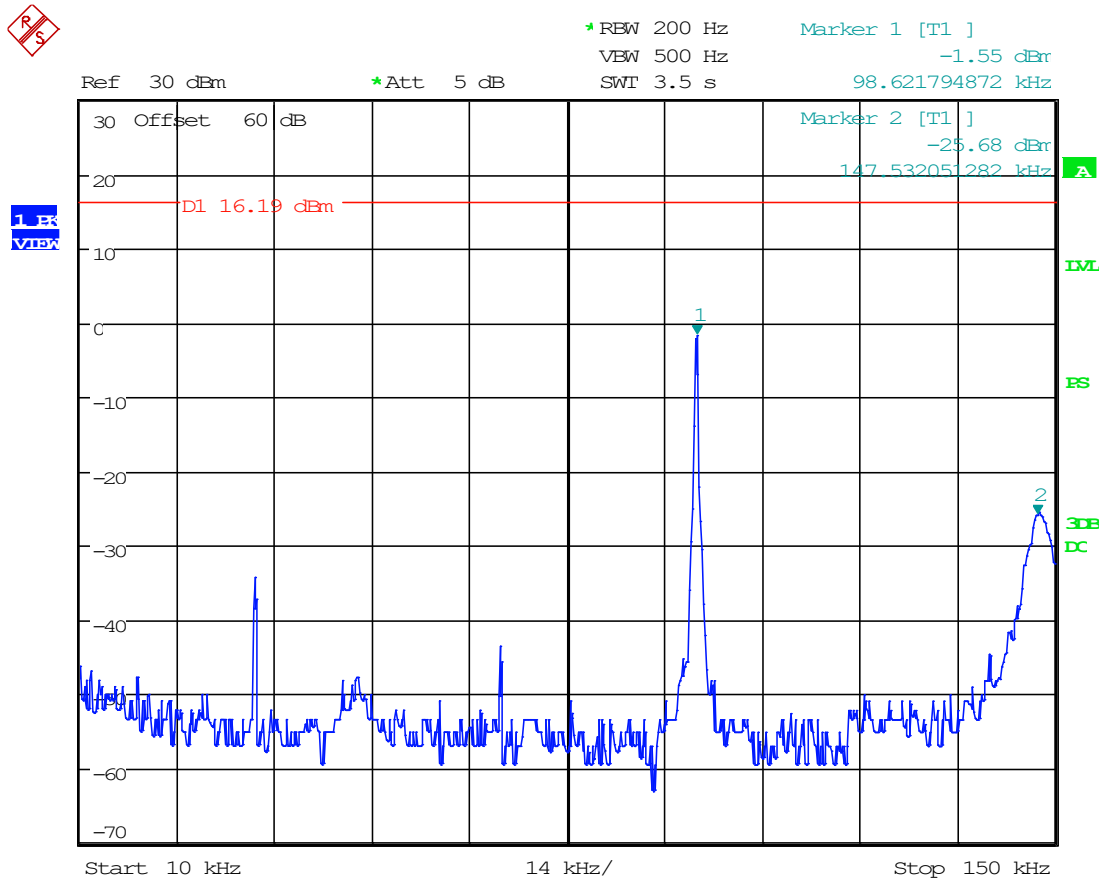
Date: 31.JAN.2025 16:35:50

8.3.12 Conducted Emissions, Above 1GHz, 7.19 MHz



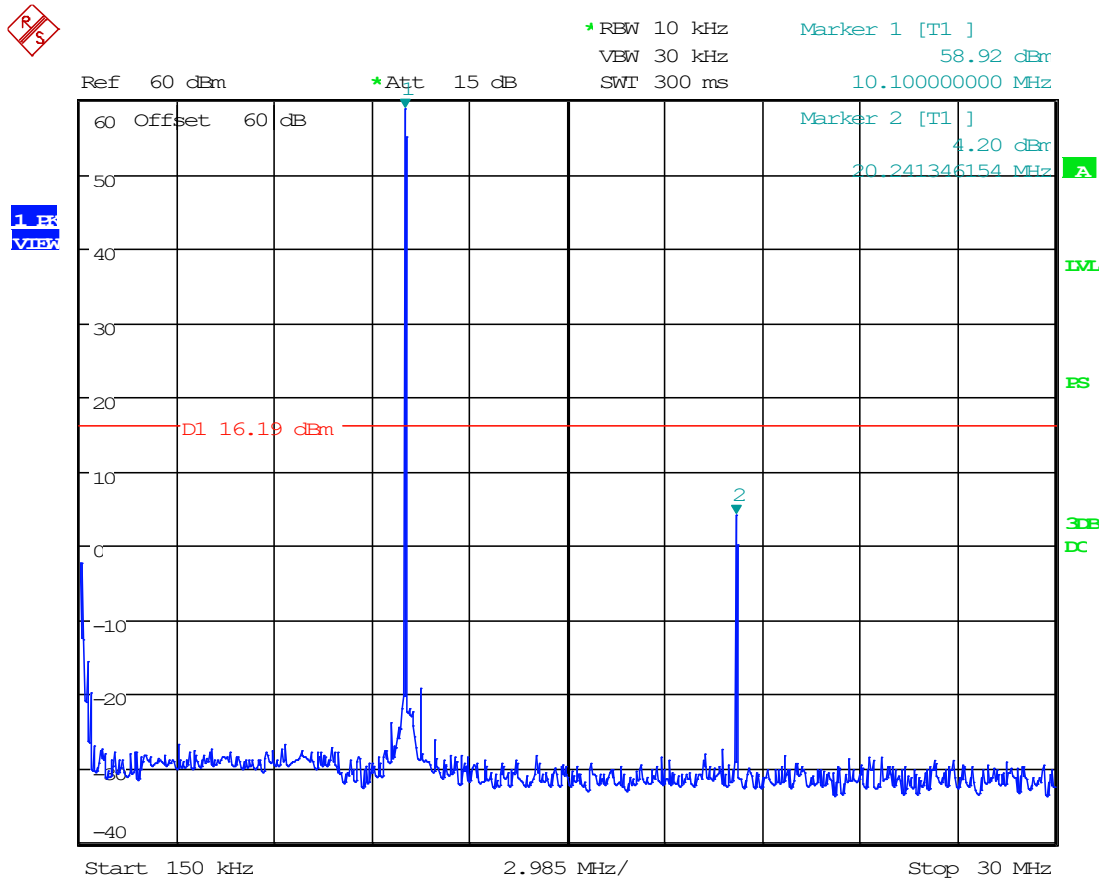
Date: 31.JAN.2025 16:53:47

8.3.13 Conducted Emissions, 10kHz- 150kHz, 10.125 MHz



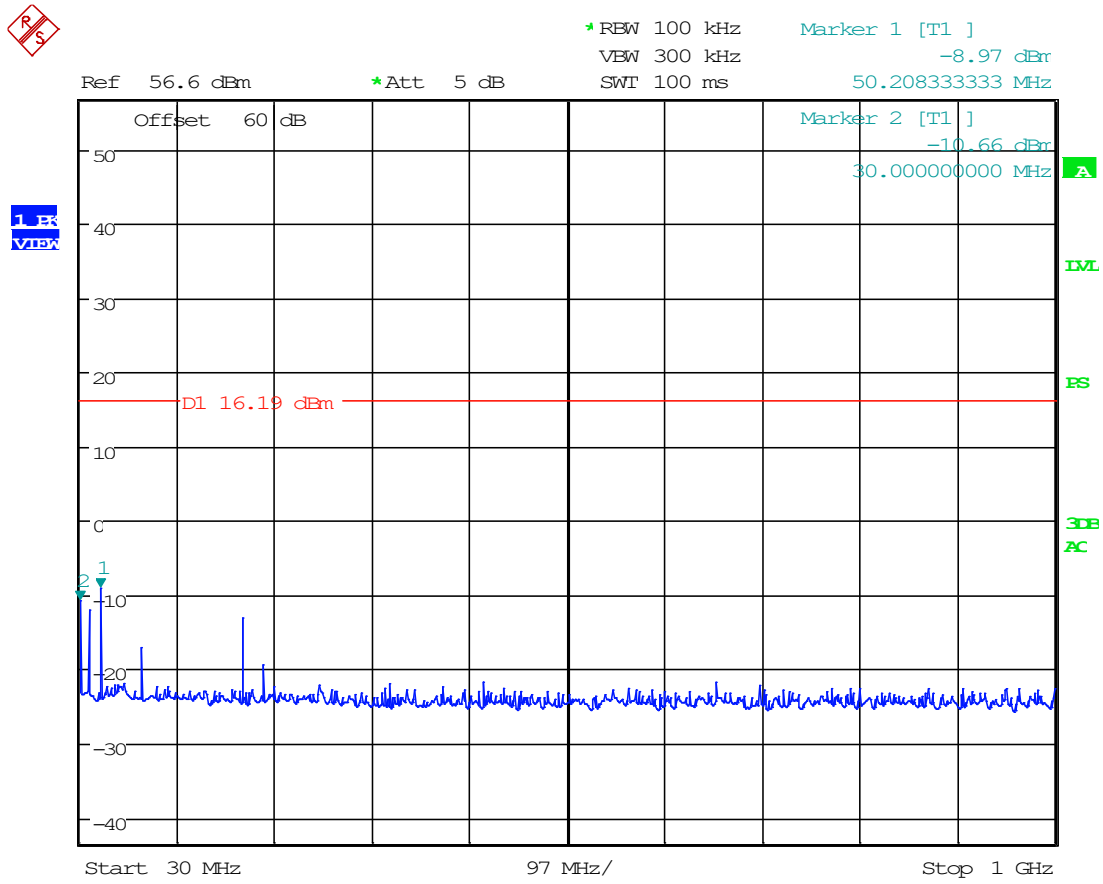
Date: 31.JAN.2025 15:16:20

8.3.14 Conducted Emissions, 150kHz- 30MHz, 10.125 MHz



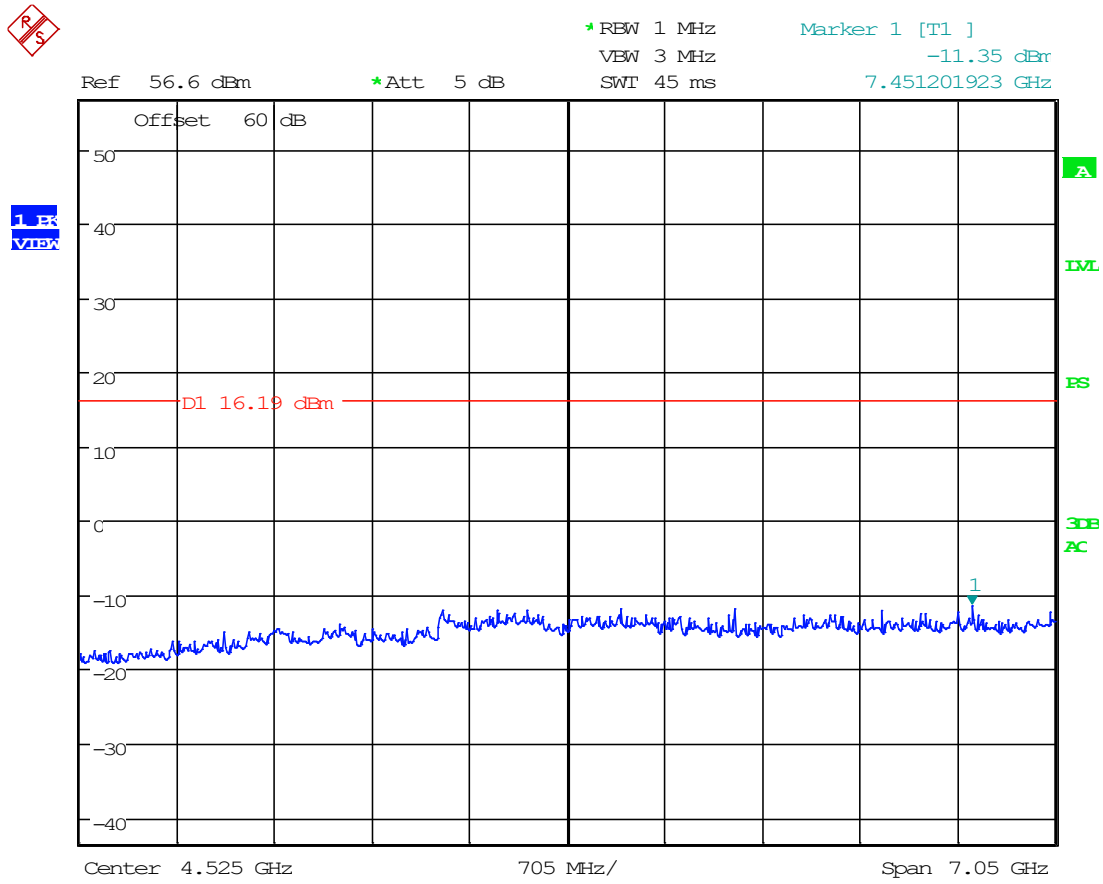
Date: 31.JAN.2025 15:50:23

8.3.15 Conducted Emissions, 30MHz- 1GHz, 10.125 MHz



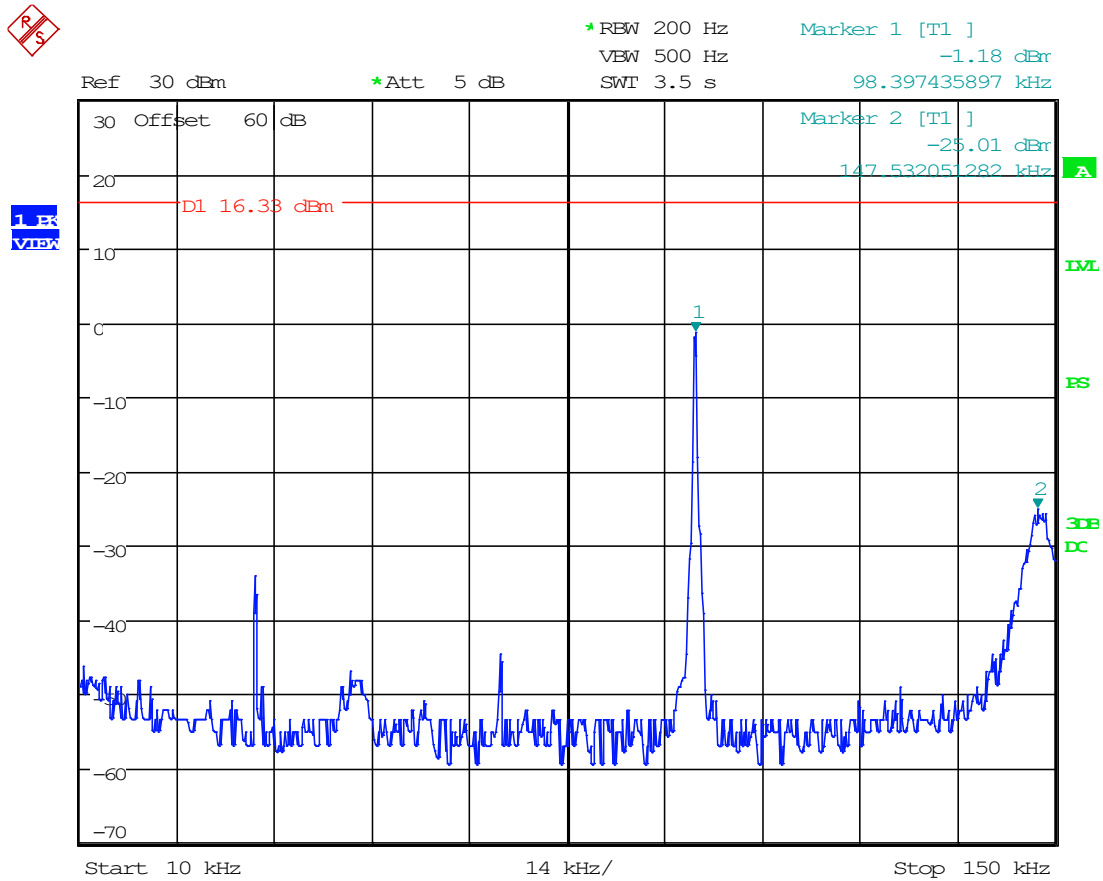
Date: 31.JAN.2025 16:37:44

8.3.16 Conducted Emissions, Above 1GHz, 10.125 MHz



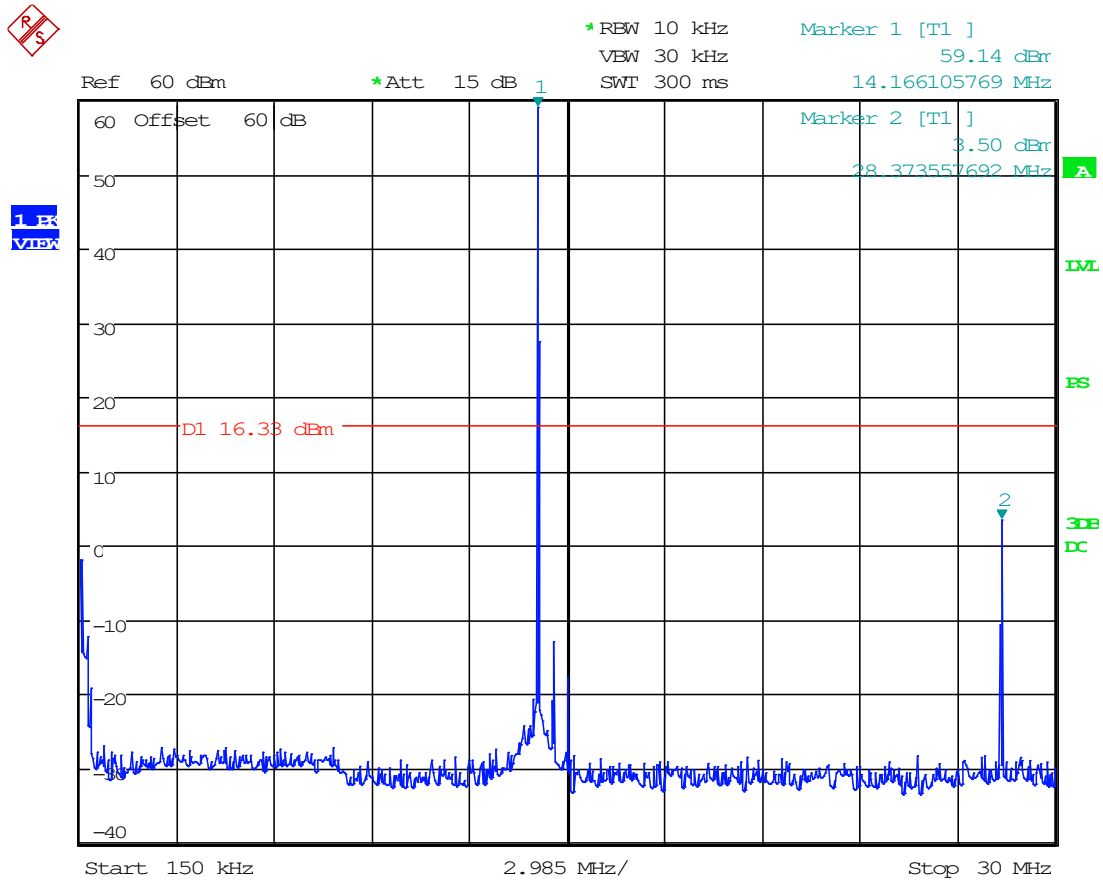
Date: 31.JAN.2025 16:54:58

8.3.17 Conducted Emissions, 10kHz- 150kHz, 14.17 MHz



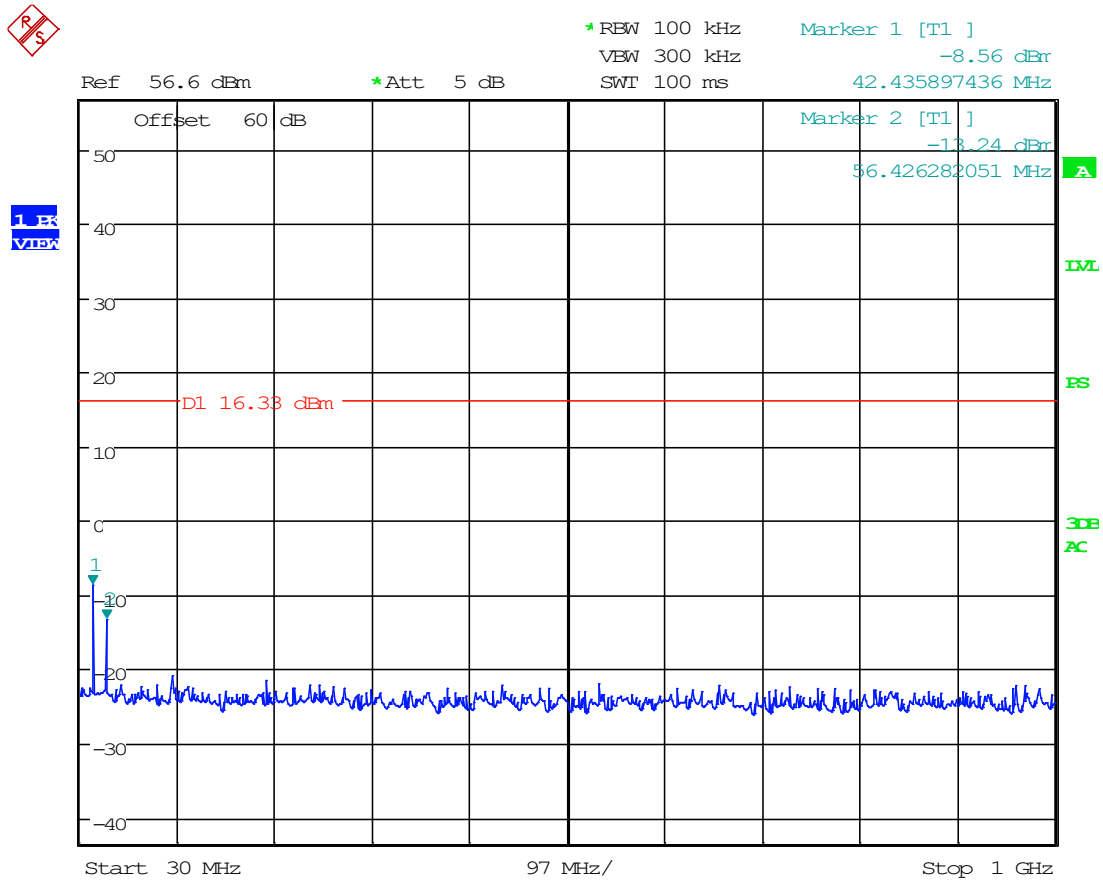
Date: 31.JAN.2025 15:21:24

8.3.18 Conducted Emissions, 150kHz- 30MHz, 14.17 MHz



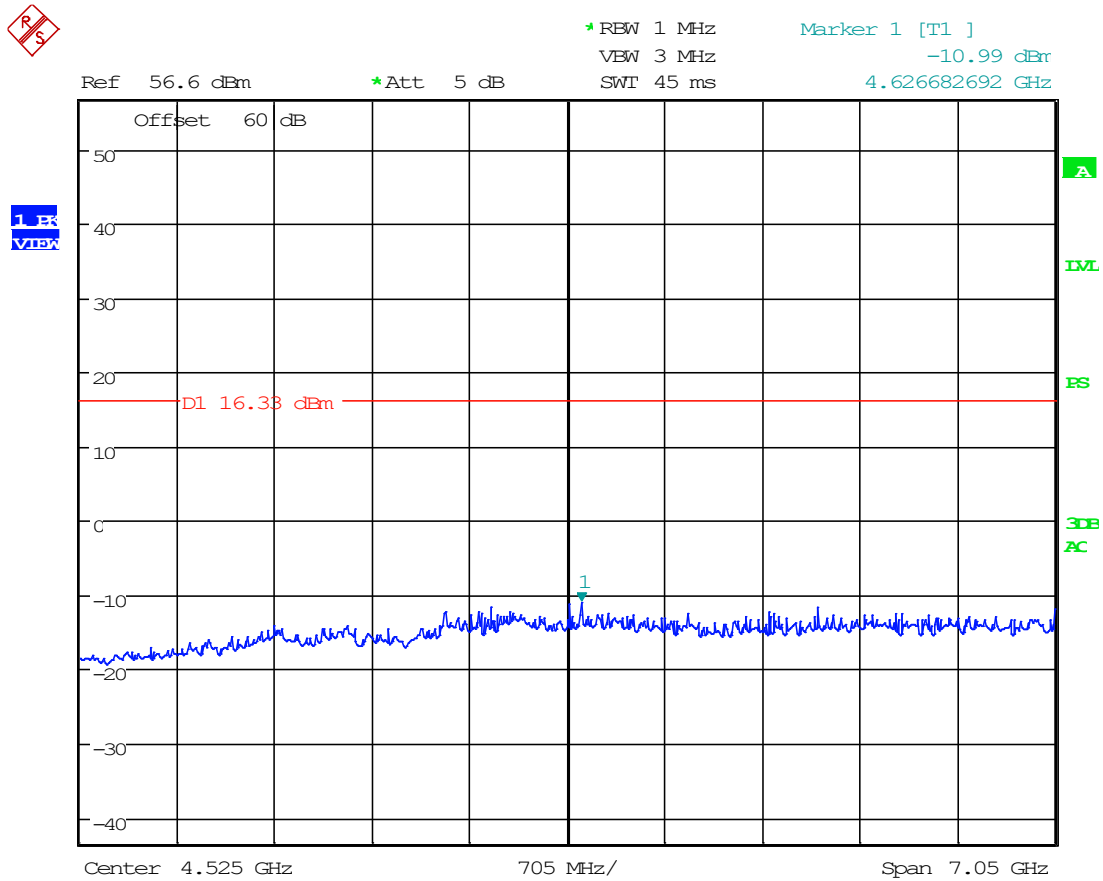
Date: 31.JAN.2025 15:52:06

8.3.19 Conducted Emissions, 30MHz- 1GHz, 14.17 MHz



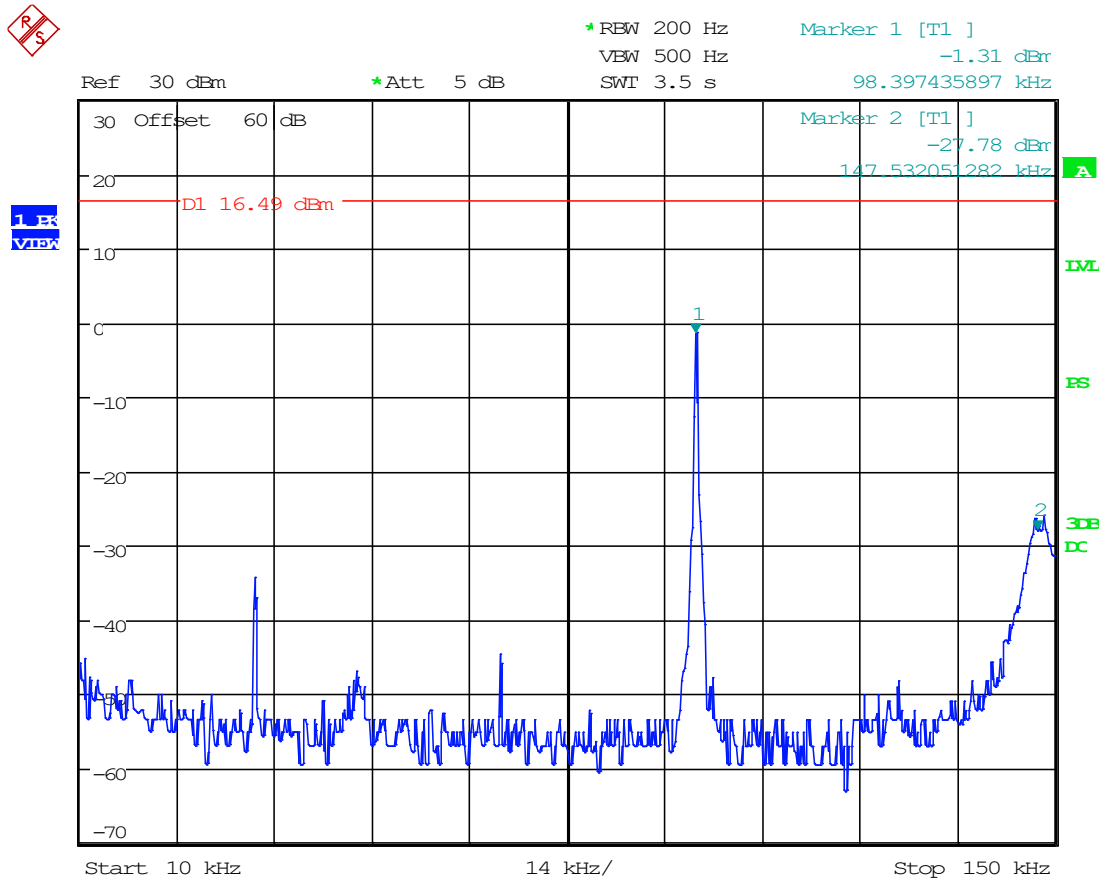
Date: 31.JAN.2025 16:39:25

8.3.20 Conducted Emissions, Above 1GHz, 14.17 MHz



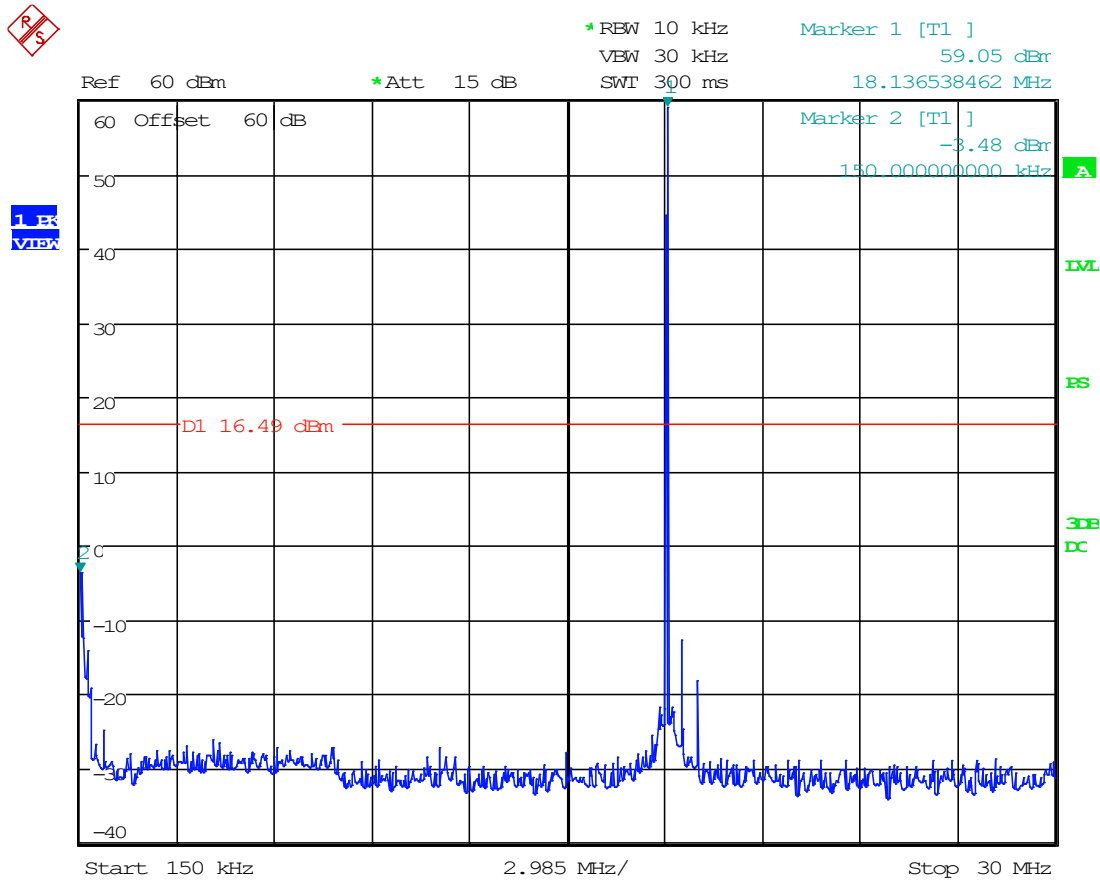
Date: 31.JAN.2025 16:56:20

8.3.21 Conducted Emissions, 10kHz- 150kHz, 18.12 MHz



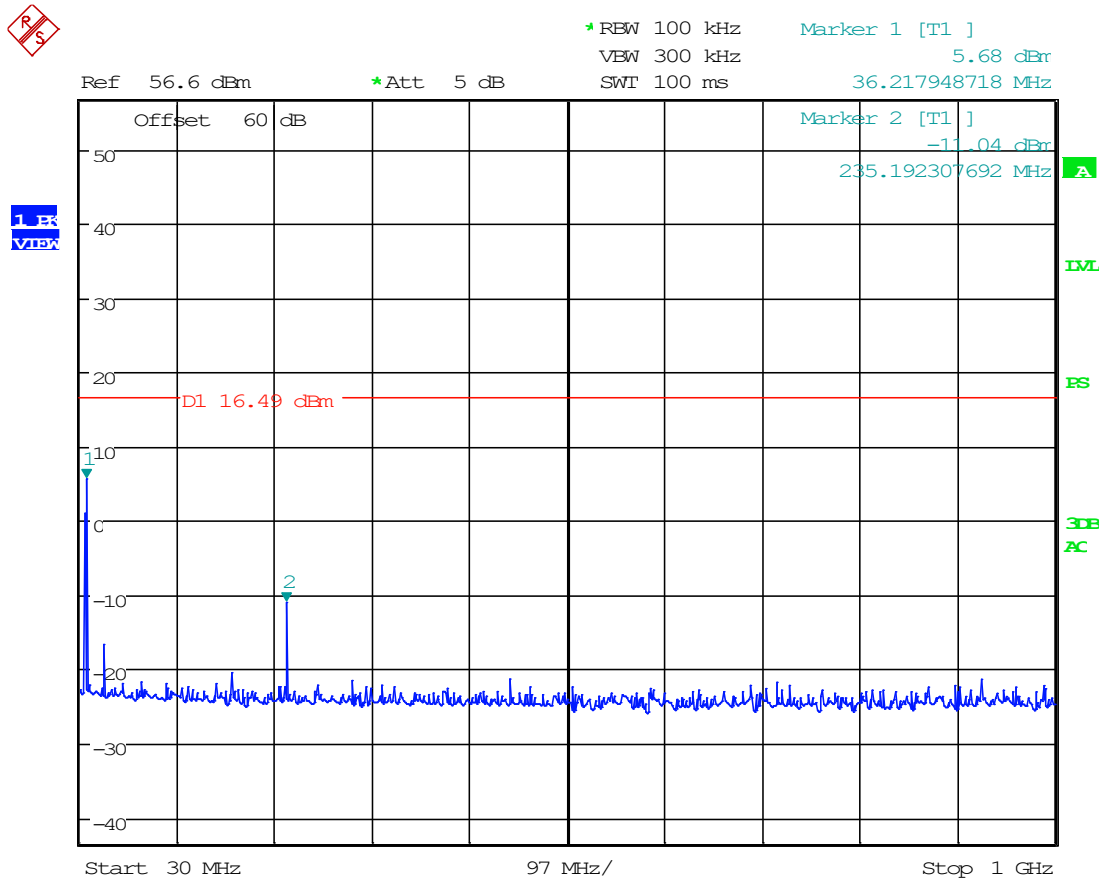
Date: 31.JAN.2025 15:24:14

8.3.22 Conducted Emissions, 150kHz- 30MHz, 18.12 MHz



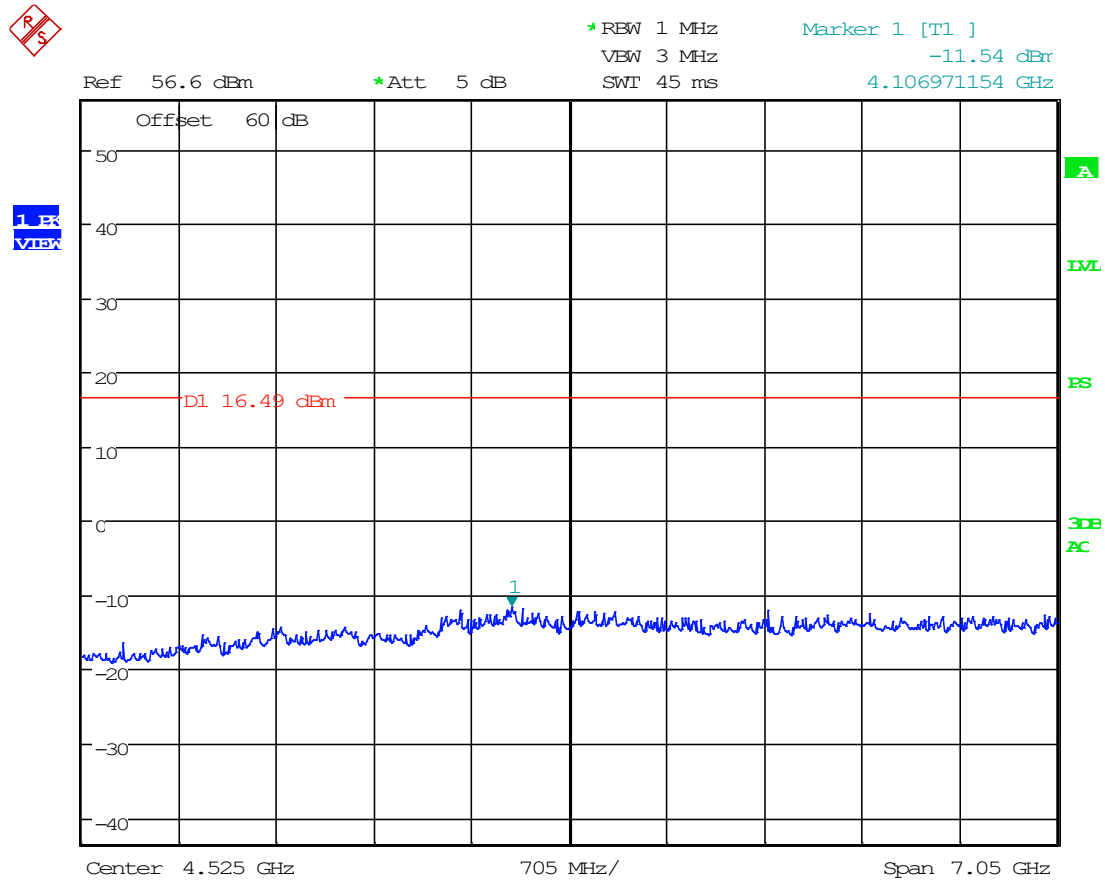
Date: 31.JAN.2025 15:54:07

8.3.23 Conducted Emissions, 30MHz- 1GHz, 18.12 MHz



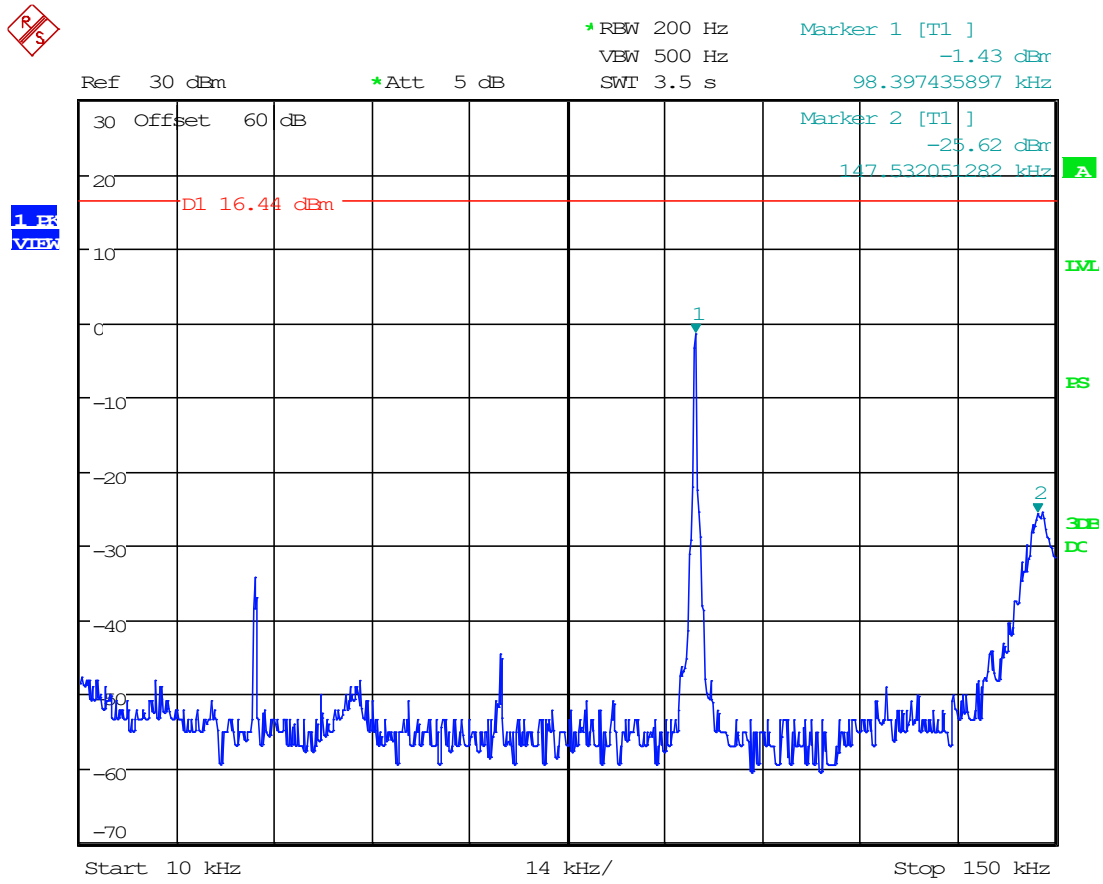
Date: 31.JAN.2025 16:40:52

8.3.24 Conducted Emissions, Above 1GHz, 18.12 MHz



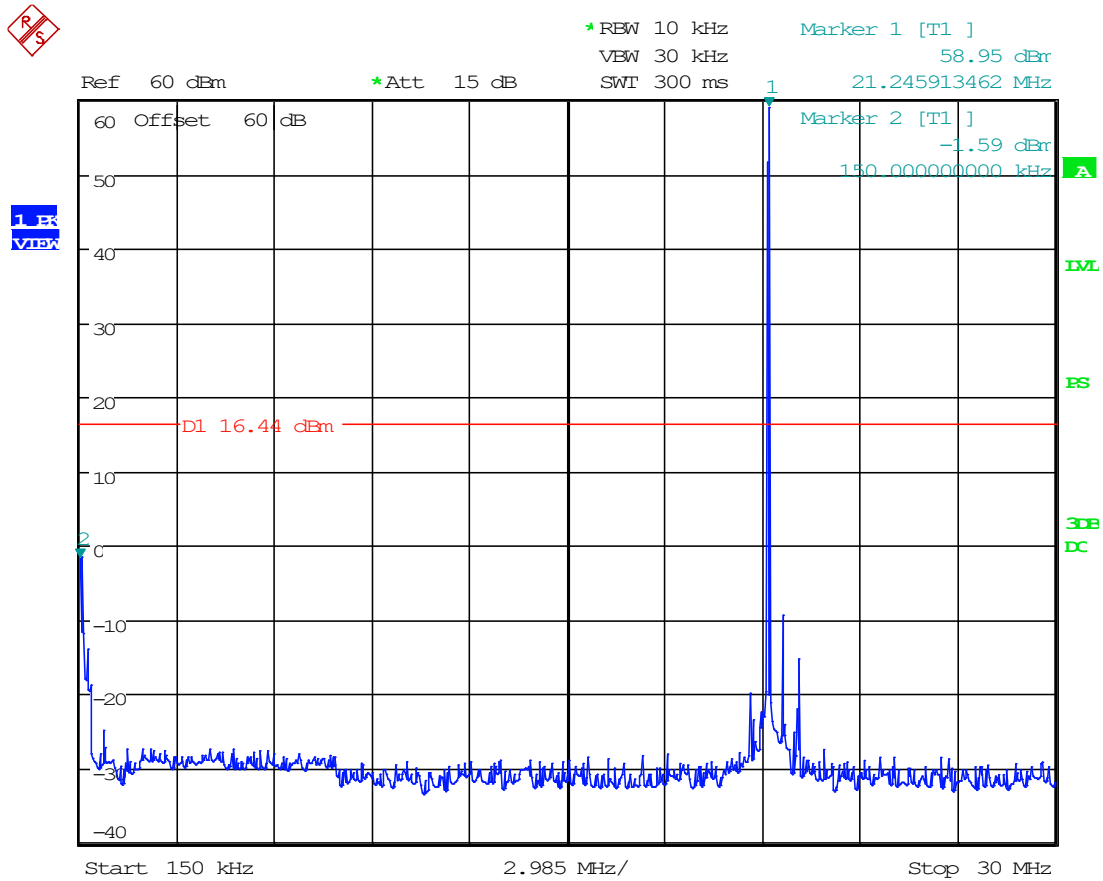
Date: 31.JAN.2025 16:57:25

8.3.25 Conducted Emissions, 10kHz- 150kHz, 21.22 MHz



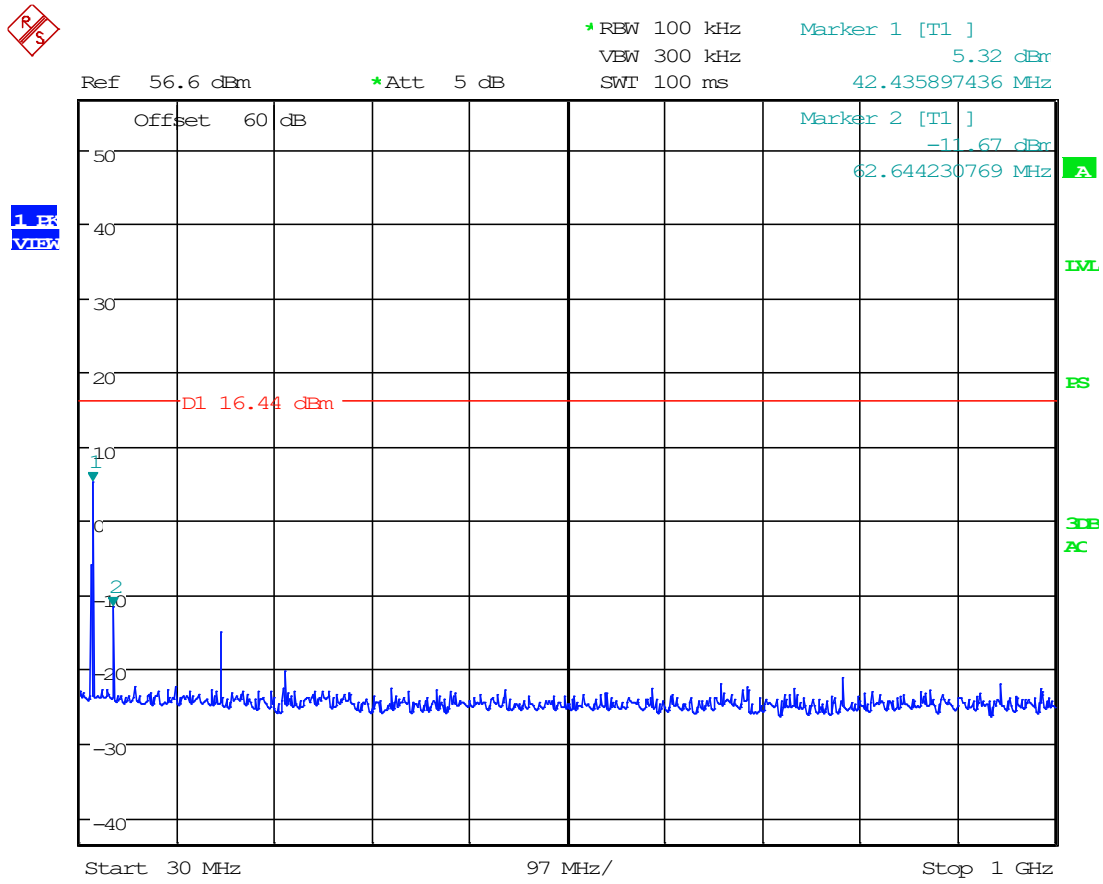
Date: 31.JAN.2025 15:29:15

8.3.26 Conducted Emissions, 150kHz- 30MHz, 21.22 MHz



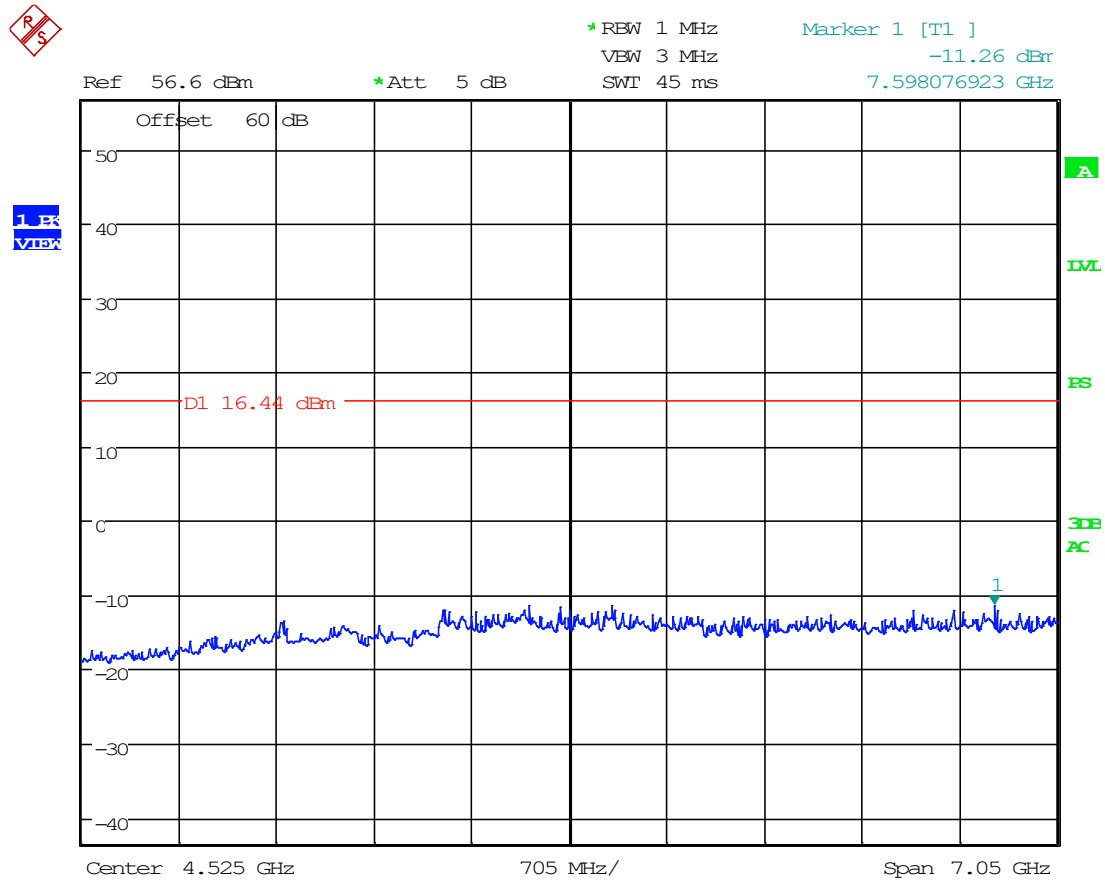
Date: 31.JAN.2025 15:55:39

8.3.27 Conducted Emissions, 30MHz- 1GHz, 21.22 MHz



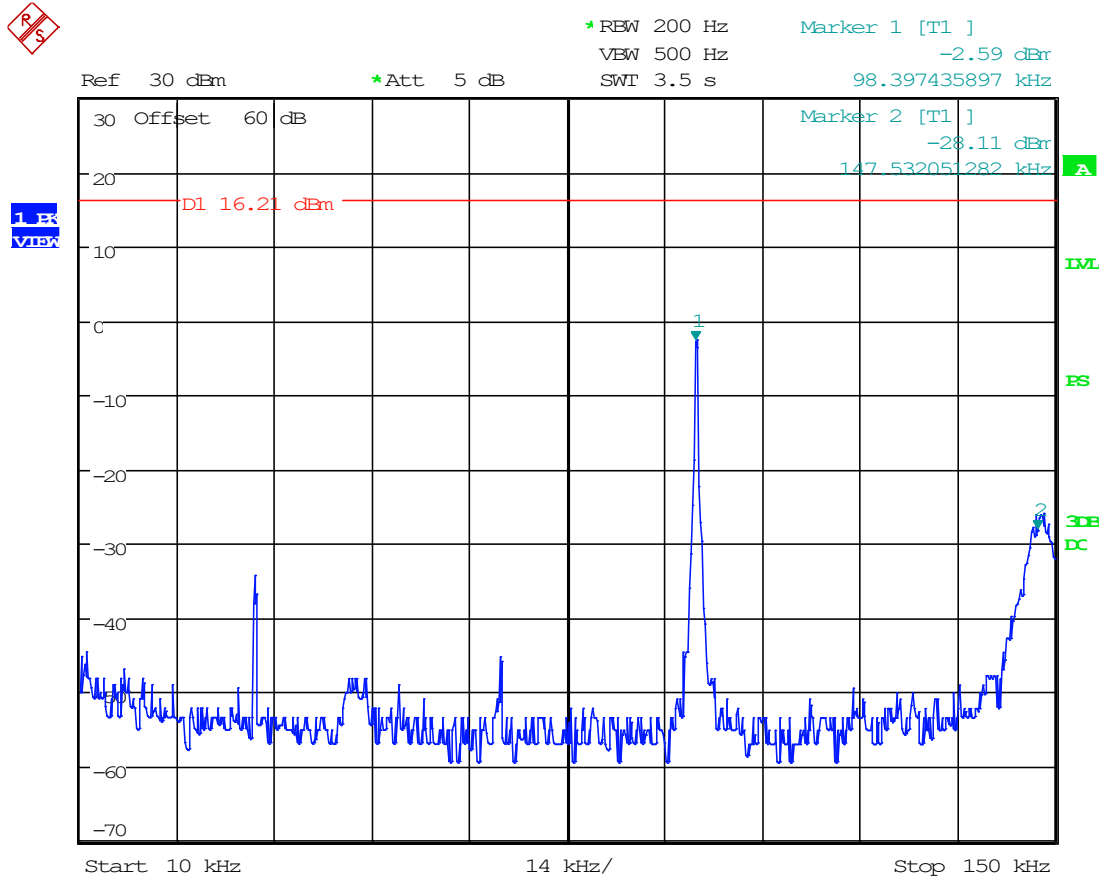
Date: 31.JAN.2025 16:42:21

8.3.28 Conducted Emissions, Above 1GHz, 21.22 MHz



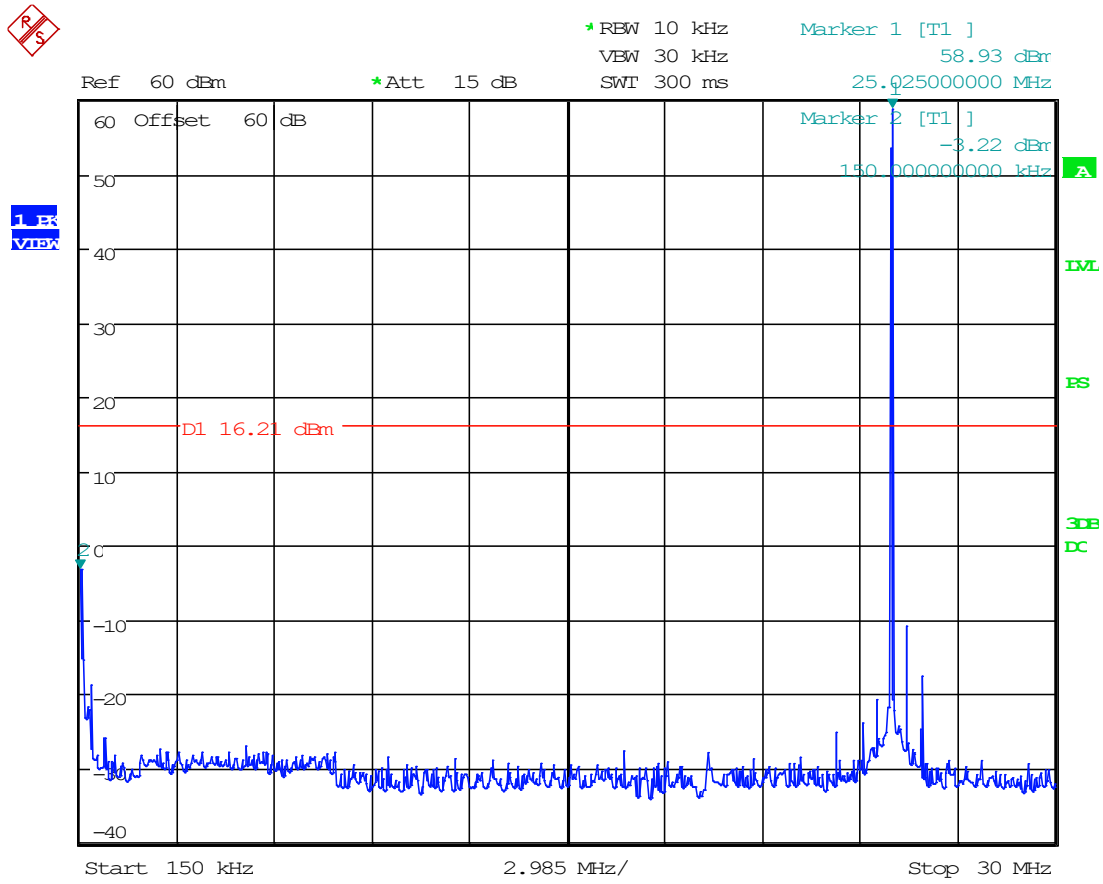
Date: 31.JAN.2025 16:58:32

8.3.29 Conducted Emissions, 10kHz- 150kHz, 24.99 MHz



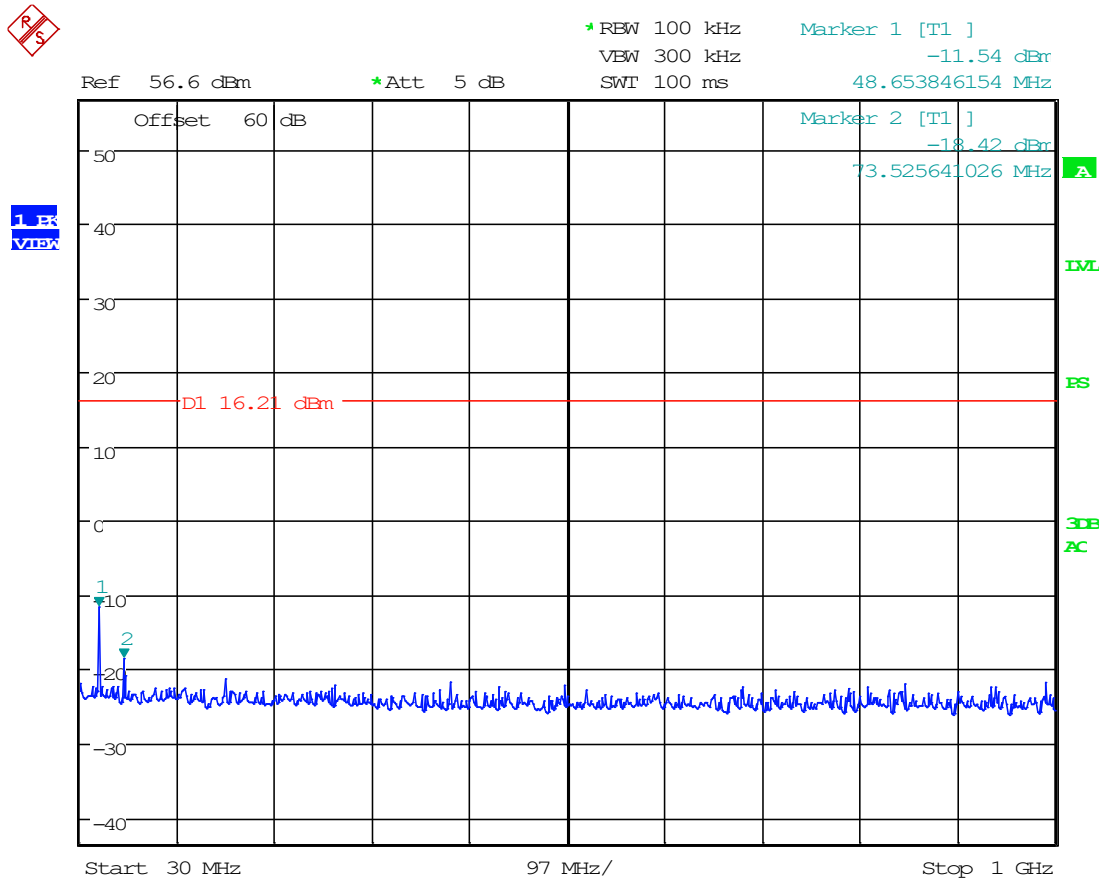
Date: 31.JAN.2025 15:31:22

8.3.30 Conducted Emissions, 150kHz- 30MHz, 24.99 MHz



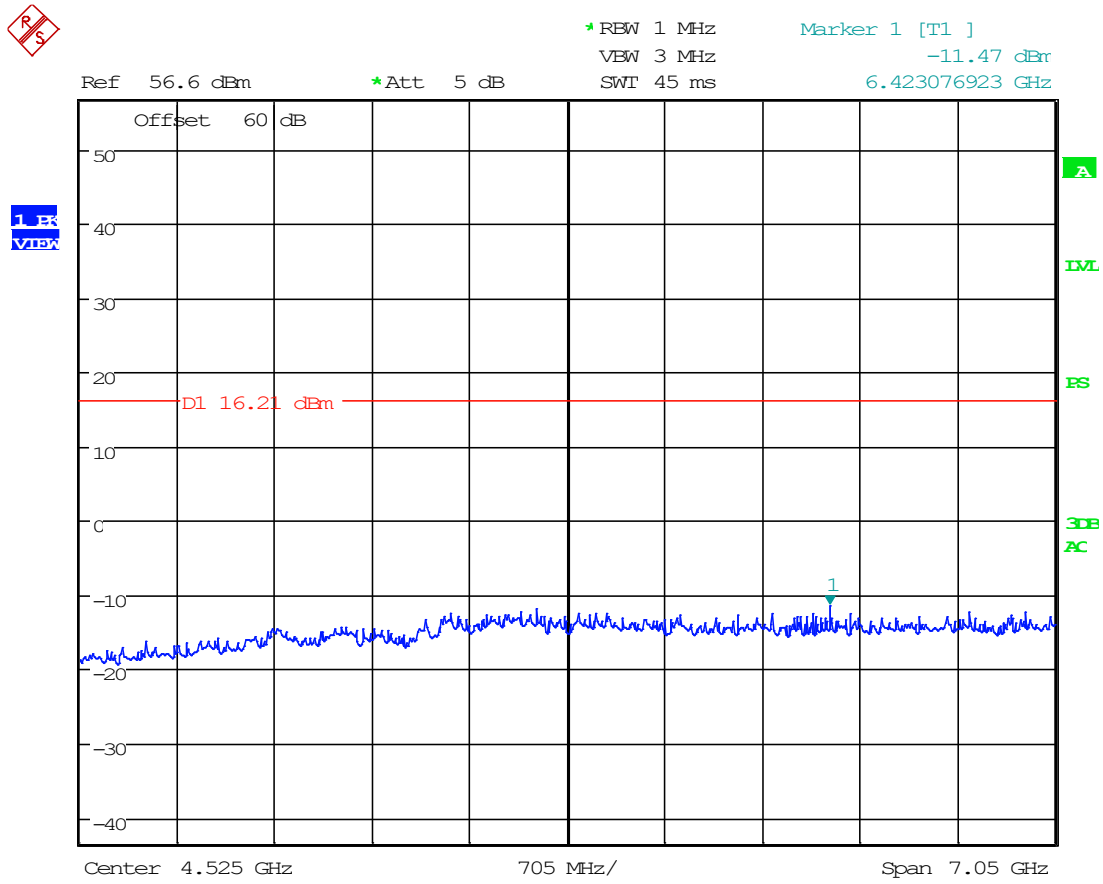
Date: 31.JAN.2025 15:57:43

8.3.31 Conducted Emissions, 30MHz- 1GHz, 24.99 MHz



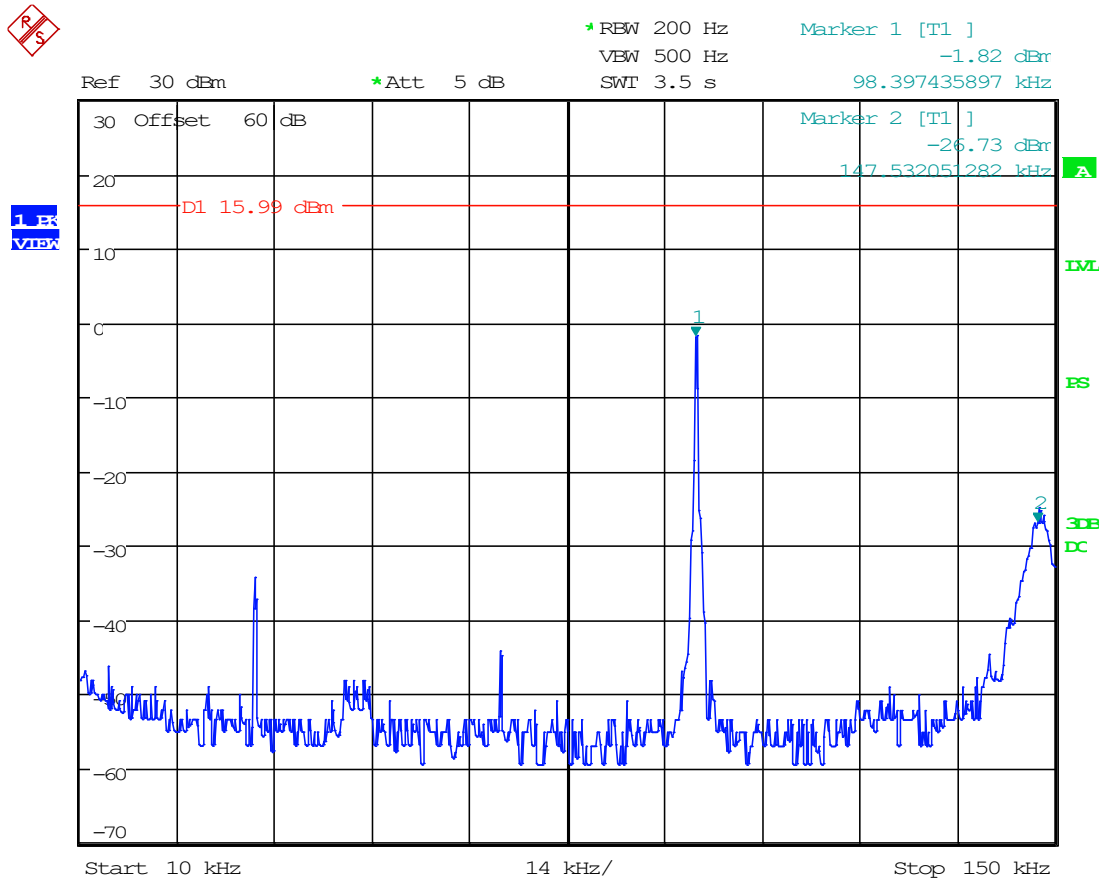
Date: 31.JAN.2025 16:43:43

8.3.32 Conducted Emissions, Above 1GHz, 24.99 MHz



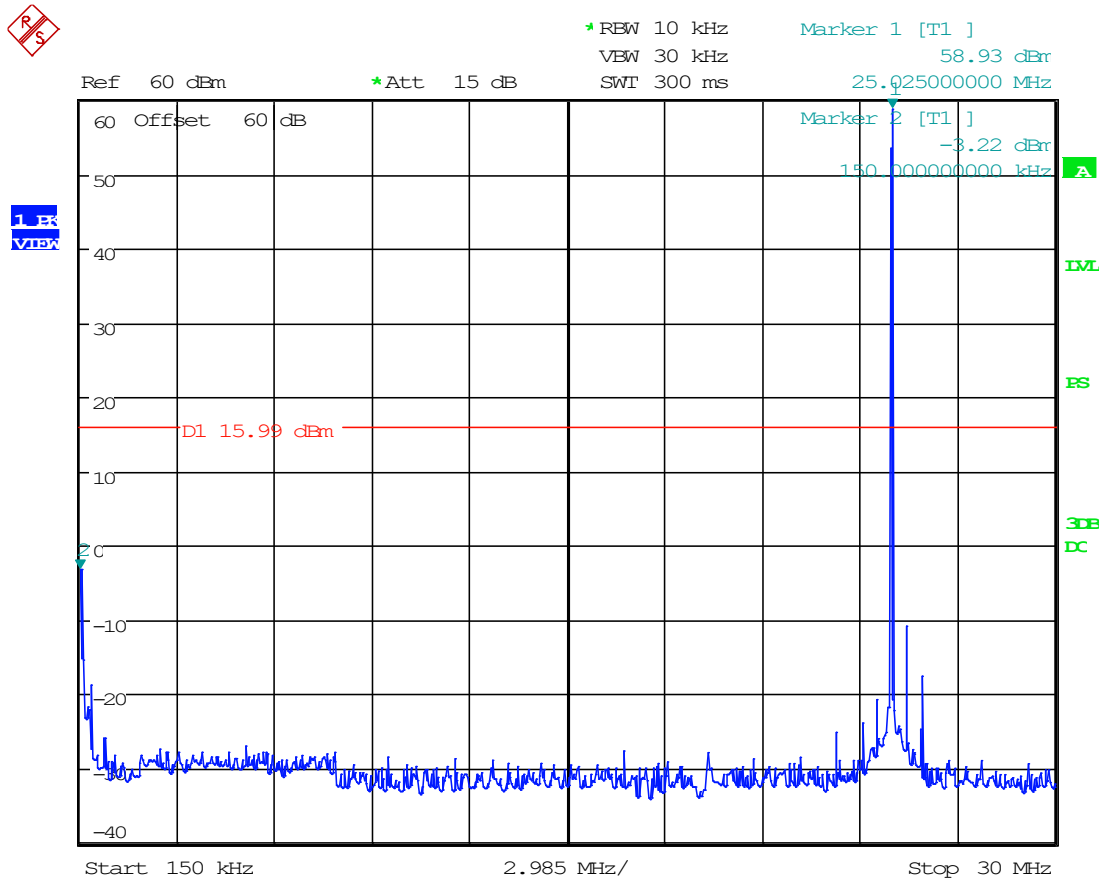
Date: 31.JAN.2025 16:59:33

8.3.33 Conducted Emissions, 10kHz- 150kHz, 28.5 MHz



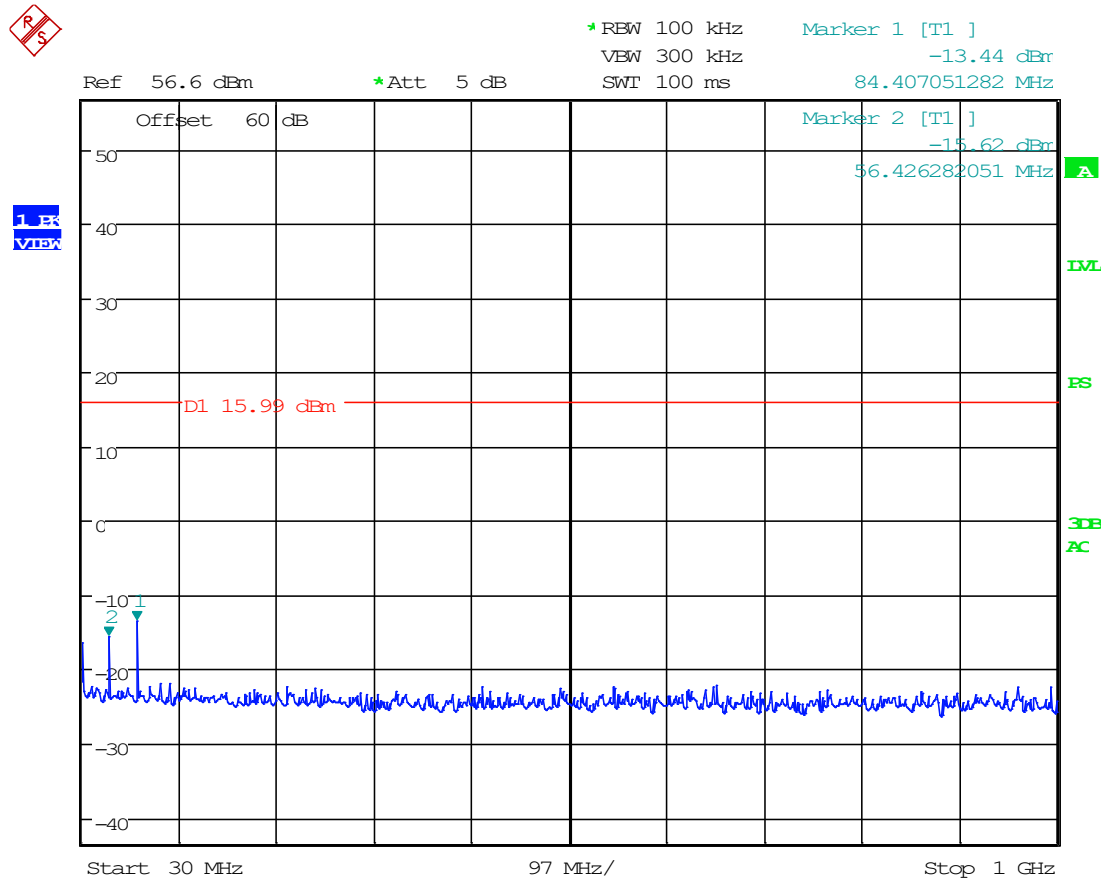
Date: 31.JAN.2025 15:33:01

8.3.34 Conducted Emissions, 150kHz- 30MHz, 28.5 MHz



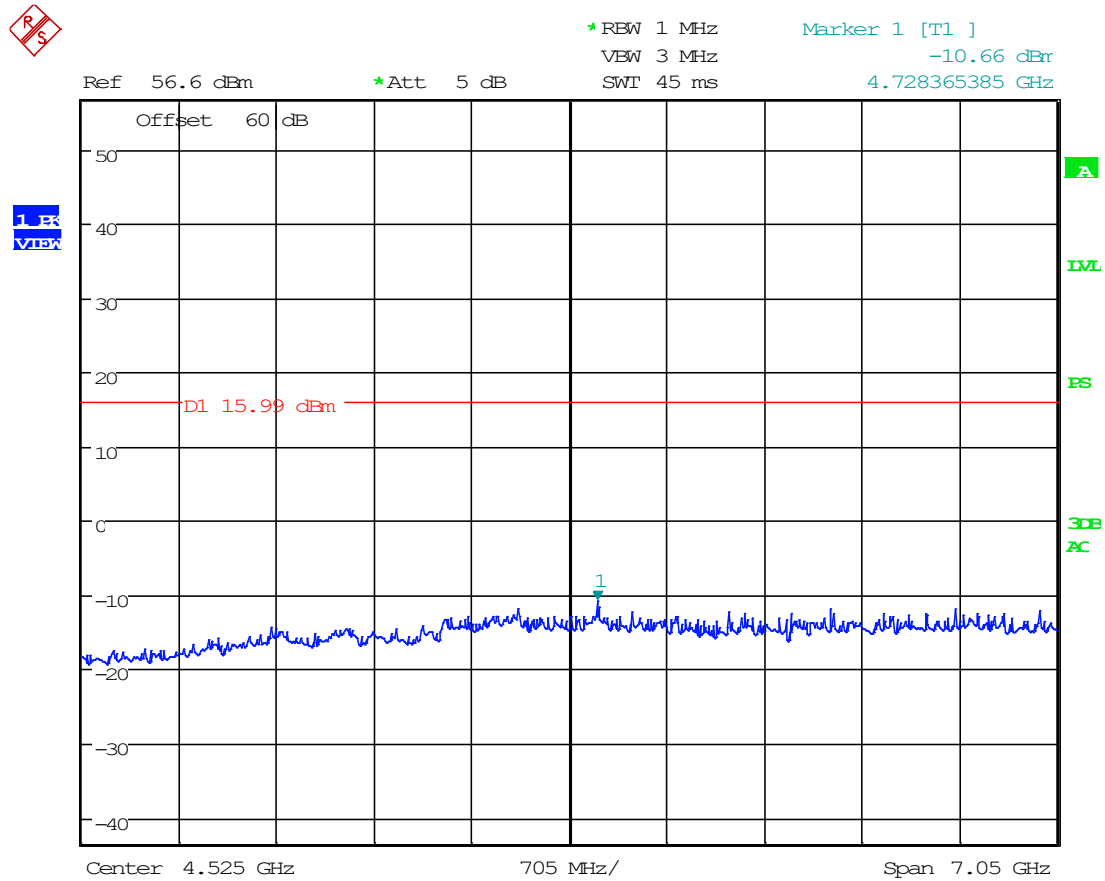
Date: 31.JAN.2025 16:23:21

8.3.35 Conducted Emissions, 30MHz- 1GHz, 28.5 MHz



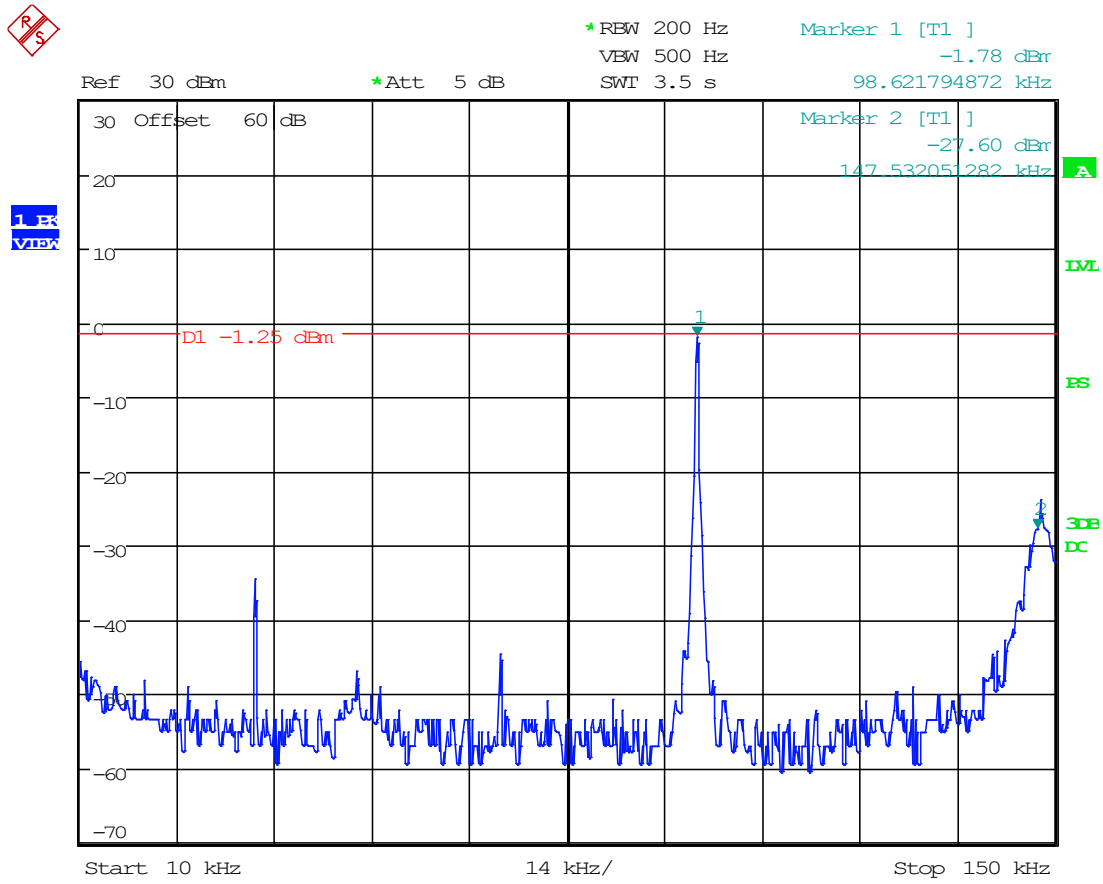
Date: 31.JAN.2025 16:44:54

8.3.36 Conducted Emissions, Above 1GHz, 28.5 MHz



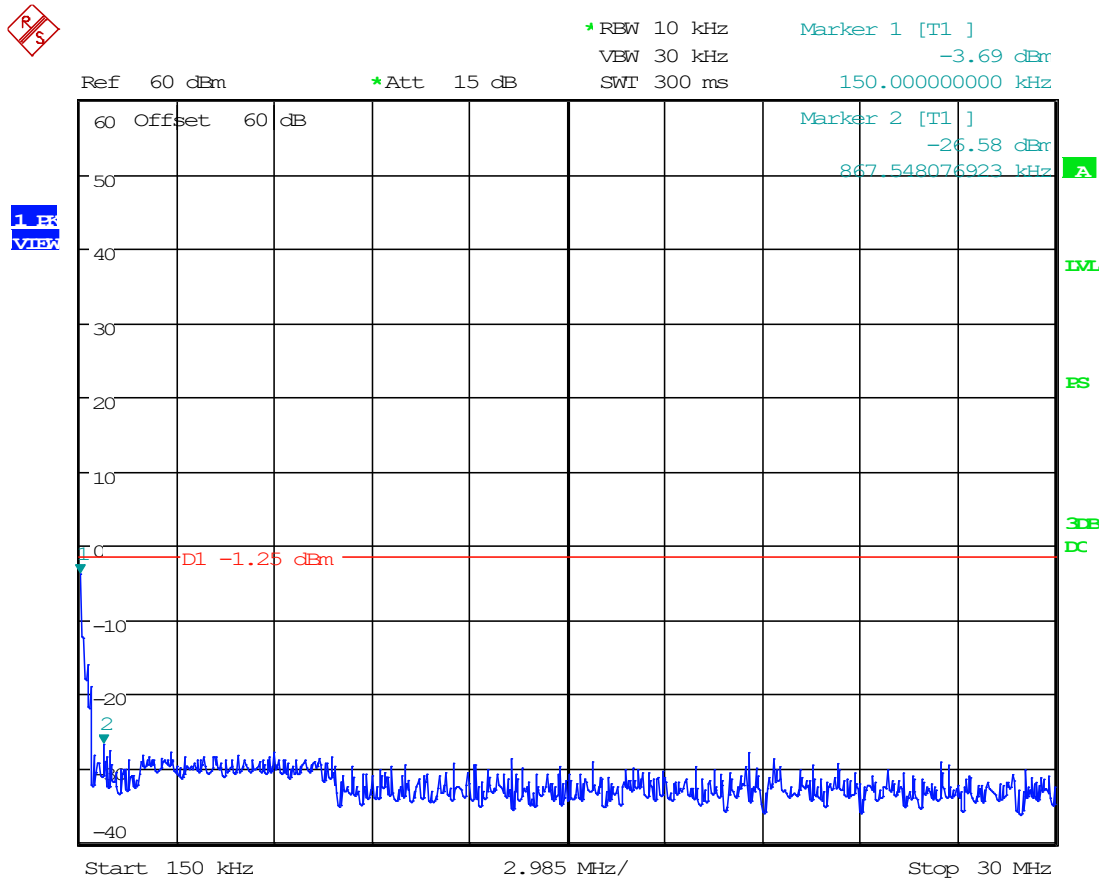
Date: 31.JAN.2025 17:00:29

8.3.37 Conducted Emissions, 10kHz- 150kHz, 52 MHz



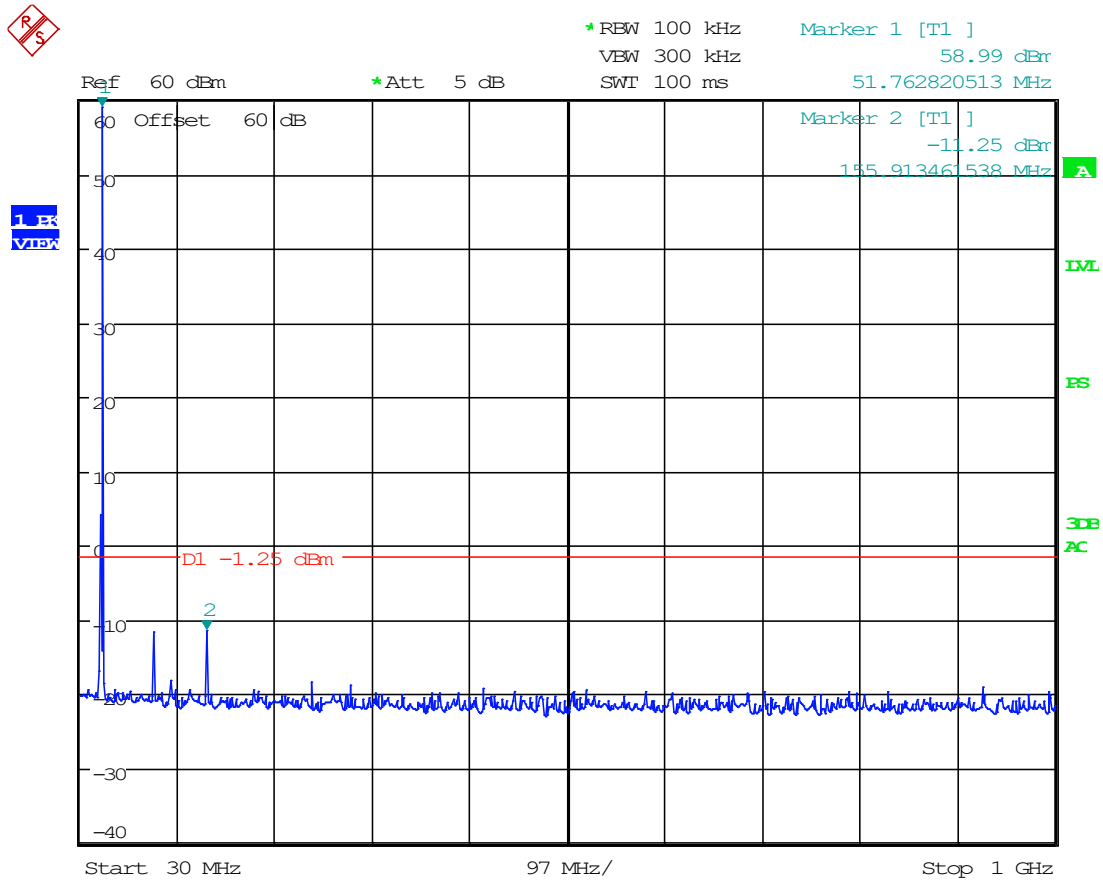
Date: 31.JAN.2025 15:34:39

8.3.38 Conducted Emissions, 150kHz- 30MHz, 52 MHz



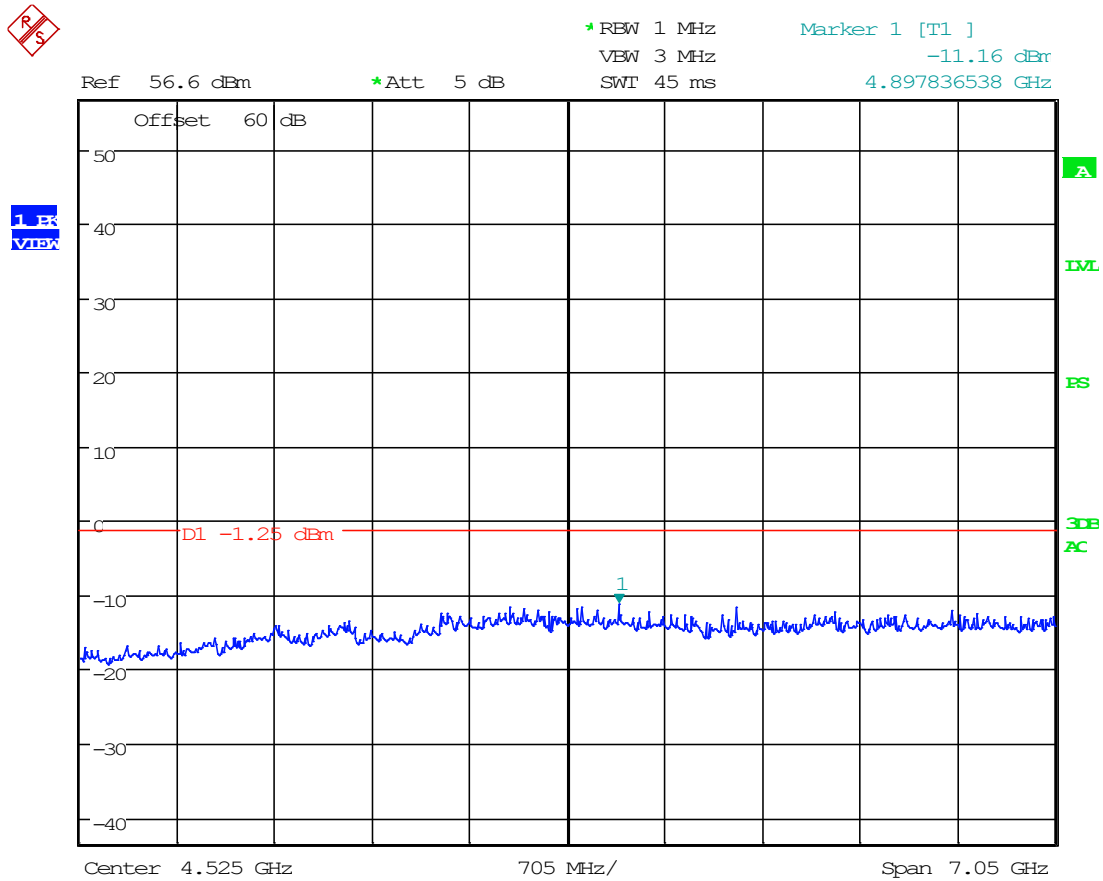
Date: 31.JAN.2025 16:26:03

8.3.39 Conducted Emissions, 30MHz- 1GHz, 52 MHz



Date: 31.JAN.2025 16:46:28

8.3.40 Conducted Emissions, Above 1GHz, 52 MHz



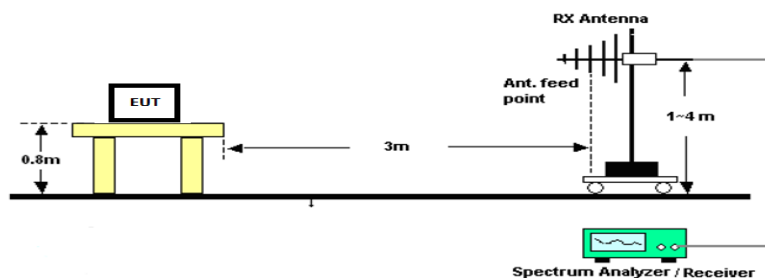
Date: 31.JAN.2025 17:01:31

8.4 Strength of Radiated Spurious Emissions

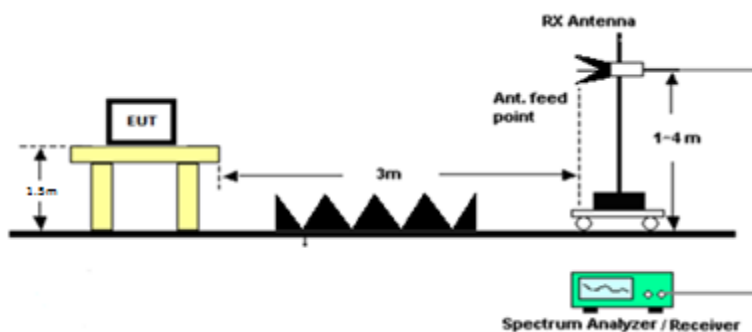
Limits from FCC Parts 2.1053, and 97.307(d)(e); and test procedure from ANSI/ TIA 603-C:2004 & ANSI C63.4-2003

Requirements: The FCC Limits for spurious emissions of a transmitting operating on and above 50 MHz, the RF spurious emissions must be at least 60 dB below the mean power of the fundamental.

Radiated Test Setup, 30 – 1000 MHz



Radiated Test Setup, Above 1000 MHz



Radiated Emissions, Tabular Data

8.4.1 Radiated Emissions, 1.87 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)
1.870	3.740	PK	33.60	V	-0.65	11.30	3.00	44.25	-53.13	15.99	69.12
1.870	5.610	PK	26.20	V	-0.65	11.04	3.00	36.59	-60.79	15.99	76.78
1.870	7.480	PK	23.80	V	-0.65	10.80	3.00	33.95	-63.42	15.99	79.41
1.870	9.350	PK	22.10	V	-0.65	10.64	3.00	32.09	-65.29	15.99	81.28
1.870	11.220	PK	21.20	V	-0.65	10.60	3.00	31.15	-66.23	15.99	82.22
1.870	13.090	PK	20.30	V	-0.65	10.60	3.00	30.25	-67.13	15.99	83.12
1.870	14.960	PK	19.60	V	-0.65	10.50	3.00	29.45	-67.92	15.99	83.91
1.870	16.830	PK	20.30	V	-0.65	10.32	3.00	29.97	-67.41	15.99	83.40
1.870	18.700	PK	19.40	V	-0.65	10.20	3.00	28.95	-68.43	15.99	84.42

8.4.2 Radiated Emissions, 3.65 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)
3.650	7.300	PK	29.30	V	-0.65	10.84	3.00	39.49	-57.89	15.99	73.88
3.650	10.950	PK	20.90	V	-0.65	10.61	3.00	30.86	-66.52	15.99	82.51
3.650	14.600	PK	20.60	V	-0.65	10.54	3.00	30.49	-66.89	15.99	82.88
3.650	18.250	PK	20.50	V	-0.65	10.20	3.00	30.05	-67.33	15.99	83.32
3.650	21.900	PK	21.30	V	-0.65	9.81	3.00	30.46	-66.92	15.99	82.91
3.650	25.550	PK	20.50	V	-0.65	9.19	3.00	29.04	-68.34	15.99	84.33
3.650	29.200	PK	20.50	V	-0.65	8.46	3.00	28.31	-69.07	15.99	85.06
3.650	32.850	PK	11.80	H	-0.65	13.39	3.00	24.54	-72.84	15.99	88.83
3.650	32.850	PK	30.00	V	-0.65	13.39	3.00	42.74	-54.64	15.99	70.63
3.650	36.500	PK	12.50	H	-0.68	13.40	3.00	25.22	-72.15	15.99	88.14
3.650	36.500	PK	25.60	V	-0.68	13.40	3.00	38.32	-59.05	15.99	75.04

8.4.3 Radiated Emissions, 7.19 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)
7.190	14.380	PK	21.40	V	-0.65	10.56	3.00	31.31	-66.07	15.99	82.06
7.190	21.570	PK	23.70	V	-0.65	9.84	3.00	32.89	-64.48	15.99	80.47
7.190	28.760	PK	22.00	V	-0.65	8.55	3.00	29.90	-67.48	15.99	83.47
7.190	35.950	PK	19.20	H	-0.67	13.40	3.00	31.93	-65.45	15.99	81.44
7.190	35.950	PK	36.10	V	-0.67	13.40	3.00	48.83	-48.55	15.99	64.54
7.190	43.140	PK	16.80	H	-0.74	12.69	3.00	28.75	-68.63	15.99	84.62
7.190	43.140	PK	28.50	V	-0.74	12.69	3.00	40.45	-56.93	15.99	72.92
7.190	50.330	PK	15.60	H	-0.82	10.90	3.00	25.68	-71.70	15.99	87.69
7.190	50.330	PK	28.90	V	-0.82	10.90	3.00	38.98	-58.40	15.99	74.39
7.190	57.520	PK	11.90	H	-0.89	8.29	3.00	19.30	-78.07	15.99	94.06
7.190	57.520	PK	23.60	V	-0.89	8.29	3.00	31.00	-66.37	15.99	82.36
7.190	64.710	PK	12.80	H	-0.95	6.23	3.00	18.08	-79.30	15.99	95.29
7.190	64.710	PK	23.50	V	-0.95	6.23	3.00	28.78	-68.60	15.99	84.59
7.190	71.900	PK	16.80	H	-1.01	6.19	3.00	21.98	-75.39	15.99	91.38
7.190	71.900	PK	33.70	V	-1.01	6.19	3.00	38.88	-58.49	15.99	74.48

8.4.4 Radiated Emissions, 10.125 MHz

Tuned Frequency (MHz)	Emission Frequency (MHz)	Detector		Antenna Polarity	Coax Loss (dB)	Antenna Correction Factor (dB/m)	Distance (m)	Field Strength (dBμV/m)	ERP (dBm)	Spurious Limit (dBm)	Margin (dB)
10.125	20.250	PK	25.70	V	-0.65	10.05	3.00	35.10	-62.28	15.99	78.27
10.125	30.375	PK	20.30	H	-0.63	13.20	3.00	32.87	-64.51	15.99	80.50
10.125	30.375	PK	41.00	V	-0.63	13.20	3.00	53.57	-43.81	15.99	59.80
10.125	40.500	PK	14.70	H	-0.71	13.10	3.00	27.09	-70.28	15.99	86.27
10.125	40.500	PK	37.60	V	-0.71	13.10	3.00	49.99	-47.38	15.99	63.37
10.125	50.625	PK	15.80	H	-0.83	10.81	3.00	25.79	-71.59	15.99	87.58
10.125	50.625	PK	28.80	V	-0.83	10.81	3.00	38.79	-58.59	15.99	74.58
10.125	60.750	PK	13.70	H	-0.92	7.18	3.00	19.96	-77.42	15.99	93.41
10.125	60.750	PK	25.50	V	-0.92	7.18	3.00	31.76	-65.62	15.99	81.61
10.125	70.875	PK	13.10	H	-1.00	6.09	3.00	18.19	-79.19	15.99	95.18
10.125	70.875	PK	27.80	V	-1.00	6.09	3.00	32.89	-64.49	15.99	80.48
10.125	81.000	PK	18.90	H	-1.09	8.60	3.00	26.41	-70.96	15.99	86.95
10.125	81.000	PK	30.90	V	-1.09	8.60	3.00	38.41	-58.96	15.99	74.95
10.125	91.125	PK	22.90	H	-1.14	10.51	3.00	32.27	-65.11	15.99	81.10
10.125	91.125	PK	26.40	V	-1.14	10.51	3.00	35.77	-61.61	15.99	77.60
10.125	101.250	PK	19.50	H	-1.17	10.80	3.00	29.14	-68.24	15.99	84.23
10.125	101.250	PK	22.80	V	-1.17	10.80	3.00	32.44	-64.94	15.99	80.93

8.4.5 Radiated Emissions, 14.17 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)
14.17	28.34	PK	27.40	V	-0.63	8.63	3.00	35.40	-61.98	15.99	77.97
14.17	42.51	PK	22.00	H	-0.73	12.85	3.00	34.12	-63.26	15.99	79.25
14.17	42.51	PK	44.40	V	-0.73	12.85	3.00	56.52	-40.86	15.99	56.85
14.17	56.68	PK	12.40	H	-0.88	8.63	3.00	20.15	-77.23	15.99	93.22
14.17	56.68	PK	23.20	V	-0.88	8.63	3.00	30.95	-66.43	15.99	82.42
14.17	70.85	PK	20.20	H	-1.00	6.09	3.00	25.29	-72.09	15.99	88.08
14.17	70.85	PK	37.30	V	-1.00	6.09	3.00	42.39	-54.99	15.99	70.98
14.17	85.02	PK	28.70	H	-1.11	9.70	3.00	37.29	-60.09	15.99	76.08
14.17	85.02	PK	24.40	V	-1.11	9.70	3.00	32.99	-64.39	15.99	80.38
14.17	99.19	PK	25.20	H	-1.16	10.90	3.00	34.94	-62.44	15.99	78.43
14.17	99.19	PK	29.80	V	-1.16	10.90	3.00	39.54	-57.84	15.99	73.83
14.17	113.36	PK	20.80	H	-1.22	10.30	3.00	29.88	-67.49	15.99	83.48
14.17	113.36	PK	27.30	V	-1.22	10.30	3.00	36.38	-60.99	15.99	76.98
14.17	127.53	PK	23.00	H	-1.28	12.41	3.00	34.13	-63.25	15.99	79.24
14.17	127.53	PK	26.20	V	-1.28	12.41	3.00	37.33	-60.05	15.99	76.04
14.17	141.70	PK	24.70	H	-1.35	15.77	3.00	39.12	-58.26	15.99	74.25
14.17	141.70	PK	30.30	V	-1.35	15.77	3.00	44.72	-52.66	15.99	68.65

8.4.6 Radiated Emissions, 18.12 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)
18.12	36.24	PK	18.00	H	-0.67	13.40	3.00	30.73	-66.65	15.99	82.64
18.12	36.24	PK	32.70	V	-0.67	13.40	3.00	45.43	-51.95	15.99	67.94
18.12	54.36	PK	24.30	H	-0.86	9.46	3.00	32.90	-64.48	15.99	80.47
18.12	54.36	PK	34.60	V	-0.86	9.46	3.00	43.20	-54.18	15.99	70.17
18.12	72.48	PK	18.50	H	-1.01	6.34	3.00	23.83	-73.55	15.99	89.54
18.12	72.48	PK	37.70	V	-1.01	6.34	3.00	43.03	-54.35	15.99	70.34
18.12	90.60	PK	27.50	H	-1.14	10.46	3.00	36.82	-60.56	15.99	76.55
18.12	90.60	PK	37.50	V	-1.14	10.46	3.00	46.82	-50.56	15.99	66.55
18.12	108.72	PK	32.00	H	-1.19	10.43	3.00	41.23	-56.14	15.99	72.13
18.12	108.72	PK	37.60	V	-1.19	10.43	3.00	46.83	-50.54	15.99	66.53
18.12	126.84	PK	25.60	H	-1.28	12.25	3.00	36.57	-60.80	15.99	76.79
18.12	126.84	PK	30.40	V	-1.28	12.25	3.00	41.37	-56.00	15.99	71.99
18.12	144.96	PK	20.50	H	-1.37	16.29	3.00	35.42	-61.95	15.99	77.94
18.12	144.96	PK	28.20	V	-1.37	16.29	3.00	43.12	-54.25	15.99	70.24
18.12	163.08	PK	26.00	H	-1.47	16.69	3.00	41.22	-56.16	15.99	72.15
18.12	163.08	PK	23.50	V	-1.47	16.69	3.00	38.72	-58.66	15.99	74.65
18.12	181.20	PK	37.30	H	-1.56	13.56	3.00	49.30	-48.08	15.99	64.07
18.12	181.20	PK	34.80	V	-1.56	13.56	3.00	46.80	-50.58	15.99	66.57

8.4.7 Radiated Emissions, 21.22 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)
21.22	42.44	PK	21.00	H	-0.73	12.87	3.00	33.14	-64.24	15.99	80.23
21.22	42.44	PK	38.60	V	-0.73	12.87	3.00	50.74	-46.64	15.99	62.63
21.22	63.66	PK	19.60	H	-0.94	6.40	3.00	25.06	-72.31	15.99	88.30
21.22	63.66	PK	29.90	V	-0.94	6.40	3.00	35.36	-62.01	15.99	78.00
21.22	84.88	PK	34.90	H	-1.11	9.66	3.00	43.45	-53.92	15.99	69.91
21.22	84.88	PK	38.20	V	-1.11	9.66	3.00	46.75	-50.62	15.99	66.61
21.22	106.10	PK	35.90	H	-1.18	10.59	3.00	45.31	-52.07	15.99	68.06
21.22	106.10	PK	41.90	V	-1.18	10.59	3.00	51.31	-46.07	15.99	62.06
21.22	127.32	PK	27.80	H	-1.28	12.36	3.00	38.88	-58.49	15.99	74.48
21.22	127.32	PK	36.40	V	-1.28	12.36	3.00	47.48	-49.89	15.99	65.88
21.22	148.54	PK	16.30	H	-1.39	16.70	3.00	31.61	-65.77	15.99	81.76
21.22	148.54	PK	21.40	V	-1.39	16.70	3.00	36.71	-60.67	15.99	76.66
21.22	169.76	PK	42.60	H	-1.52	15.75	3.00	56.83	-40.55	15.99	56.54
21.22	169.76	PK	39.90	V	-1.52	15.75	3.00	54.13	-43.25	15.99	59.24
21.22	190.98	PK	40.00	H	-1.59	14.20	3.00	52.60	-44.77	15.99	60.76
21.22	190.98	PK	38.30	V	-1.59	14.20	3.00	50.90	-46.47	15.99	62.46
21.22	212.20	PK	17.70	H	-1.65	11.34	3.00	27.40	-69.98	15.99	85.97
21.22	212.20	PK	20.80	V	-1.65	11.34	3.00	30.50	-66.88	15.99	82.87

8.4.8 Radiated Emissions, 24.99 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)
24.99	49.98	PK	19.10	H	-0.82	11.01	3.00	29.29	-68.09	15.99	84.08
24.99	49.98	PK	35.60	V	-0.82	11.01	3.00	45.79	-51.59	15.99	67.58
24.99	74.97	PK	27.20	H	-1.03	6.89	3.00	33.06	-64.32	15.99	80.31
24.99	74.97	PK	42.60	V	-1.03	6.89	3.00	48.46	-48.92	15.99	64.91
24.99	99.96	PK	39.50	H	-1.16	10.90	3.00	49.24	-48.14	15.99	64.13
24.99	99.96	PK	45.30	V	-1.16	10.90	3.00	55.04	-42.34	15.99	58.33
24.99	124.95	PK	31.60	H	-1.27	11.69	3.00	42.02	-55.36	15.99	71.35
24.99	124.95	PK	36.50	V	-1.27	11.69	3.00	46.92	-50.46	15.99	66.45
24.99	149.94	PK	43.00	H	-1.40	16.79	3.00	58.39	-38.98	15.99	54.97
24.99	149.94	PK	34.20	V	-1.40	16.79	3.00	49.59	-47.78	15.99	63.77
24.99	174.93	PK	32.30	H	-1.54	14.71	3.00	45.47	-51.90	15.99	67.89
24.99	174.93	PK	28.40	V	-1.54	14.71	3.00	41.57	-55.80	15.99	71.79
24.99	199.92	PK	27.80	H	-1.62	17.37	3.00	43.55	-53.83	15.99	69.82
24.99	199.92	PK	20.90	V	-1.62	17.37	3.00	36.65	-60.73	15.99	76.72
24.99	224.91	PK	17.30	H	-1.72	11.10	3.00	26.68	-70.69	15.99	86.68
24.99	224.91	PK	13.20	V	-1.72	11.10	3.00	22.58	-74.79	15.99	90.78
24.99	249.90	PK	20.30	H	-1.89	12.26	3.00	30.67	-66.70	15.99	82.69
24.99	249.90	PK	20.10	V	-1.89	12.26	3.00	30.47	-66.90	15.99	82.89

8.4.9 Radiated Emissions, 28.5 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)
28.50	57.00	PK	20.40	H	-0.88	8.50	3.00	28.02	-69.36	15.99	85.35
28.50	57.00	PK	37.00	V	-0.88	8.50	3.00	44.62	-52.76	15.99	68.75
28.50	85.50	PK	32.60	H	-1.11	9.75	3.00	41.24	-56.14	15.99	72.13
28.50	85.50	PK	37.00	V	-1.11	9.75	3.00	45.64	-51.74	15.99	67.73
28.50	114.00	PK	46.70	H	-1.22	10.30	3.00	55.78	-41.60	15.99	57.59
28.50	114.00	PK	50.00	V	-1.22	10.30	3.00	59.08	-38.30	15.99	54.29
28.50	142.50	PK	27.70	H	-1.36	15.90	3.00	42.25	-55.13	15.99	71.12
28.50	142.50	PK	33.00	V	-1.36	15.90	3.00	47.55	-49.83	15.99	65.82
28.50	171.00	PK	39.80	H	-1.52	15.60	3.00	53.88	-43.50	15.99	59.49
28.50	171.00	PK	36.20	V	-1.52	15.60	3.00	50.28	-47.10	15.99	63.09
28.50	199.50	PK	28.20	H	-1.62	17.20	3.00	43.78	-53.60	15.99	69.59
28.50	199.50	PK	19.10	V	-1.62	17.20	3.00	34.68	-62.70	15.99	78.69
28.50	228.00	PK	26.10	H	-1.73	11.13	3.00	35.50	-61.88	15.99	77.87
28.50	228.00	PK	18.60	V	-1.73	11.13	3.00	28.00	-69.38	15.99	85.37
28.50	256.50	PK	18.10	H	-1.97	12.40	3.00	28.54	-68.84	15.99	84.83
28.50	256.50	PK	22.10	V	-1.97	12.40	3.00	32.54	-64.84	15.99	80.83
28.50	285.00	PK	25.90	H	-2.07	13.53	3.00	37.36	-60.02	15.99	76.01
28.50	285.00	PK	11.60	V	-2.07	13.53	3.00	23.06	-74.32	15.99	90.31

8.4.10 Radiated Emissions, 52 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)
52.00	104.00	PK	47.60	H	-1.18	10.70	3.00	57.12	-40.25	15.99	56.24
52.00	104.00	PK	34.30	V	-1.18	10.70	3.00	43.82	-53.55	15.99	69.54
52.00	156.00	PK	45.20	H	-1.43	17.00	3.00	60.77	-36.61	15.99	52.60
52.00	156.00	PK	35.50	V	-1.43	17.00	3.00	51.07	-46.31	15.99	62.30
52.00	208.00	PK	40.90	H	-1.63	11.45	3.00	50.72	-46.66	15.99	62.65
52.00	208.00	PK	35.90	V	-1.63	11.45	3.00	45.72	-51.66	15.99	67.65
52.00	260.00	PK	33.30	H	-2.01	12.50	3.00	43.79	-53.59	15.99	69.58
52.00	260.00	PK	23.90	V	-2.01	12.50	3.00	34.39	-62.99	15.99	78.98
52.00	312.00	PK	31.90	H	-2.08	14.83	3.00	44.65	-52.73	15.99	68.72
52.00	312.00	PK	25.80	V	-2.08	14.83	3.00	38.55	-58.83	15.99	74.82
52.00	364.00	PK	28.60	H	-2.18	15.21	3.00	41.63	-55.75	15.99	71.74
52.00	364.00	PK	22.80	V	-2.18	15.21	3.00	35.83	-61.55	15.99	77.54
52.00	416.00	PK	31.40	H	-2.33	16.07	3.00	45.14	-52.23	15.99	68.22
52.00	416.00	PK	29.40	V	-2.33	16.07	3.00	43.14	-54.23	15.99	70.22
52.00	468.00	PK	27.30	H	-2.52	17.11	3.00	41.89	-55.49	15.99	71.48
52.00	468.00	PK	28.20	V	-2.52	17.11	3.00	42.79	-54.59	15.99	70.58
52.00	520.00	PK	24.90	H	-2.73	18.25	3.00	40.42	-56.96	15.99	72.95
52.00	520.00	PK	29.70	V	-2.73	18.25	3.00	45.22	-52.16	15.99	68.15

9. ANNEX-B – Test Setup Photographs

Test setup photographs are located in a separate supplementary ANNEX-B document.

10. History of Test Report Changes

Test Report #	Revision #	Description	Date of Issue
TR_20211-25_A1003_FCC 97_	1	Initial release	2/24/2025
	2	Updated 3.1	4/9/2025
	3	Updated page 13	5/7/2025

END OF TEST REPORT
