



Test Report - FCC PARTS 80 (MRD) & 90 (TNB)

Prepared For: Terma A/S

Approved for Release By:

Signature: Bruno Clavier

Name & Title: Bruno Clavier, General Manager

Date of Signature

(YYYY-MM-DD): 2021-05-06

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1. Customer Information

Applicant: Terma A/S
Address: Hovmarken 4
 Lystrup 8520, DK-8520 Denmark

1.1 Part 80 Test Result Summary

The following test procedure and guidance were used for measuring FCC PART 80 (STATIONS IN THE MARITIME SERVICES) known as Licensed Maritime Radiotelephone; ANSI C63.26-2015. Full test results are available in this report.

The Following is for Test item FCC ID: N9MSC2000

Applicable Clauses from Part 2		
FCC Clauses	Description of the requirements	Result: (Pass, Fail, N/A)
2.202	Bandwidth & Emission	Pass
2.1033 (c)(8)	Power at the Final Amplifier	Reported
2.1046 (a)	RF Output Power	Pass
2.1047	Modulation characteristics	Pass
2.1049	Occupied Bandwidth	Pass
2.1051	Spurious emissions at antenna terminals	Pass
2.1053	Field strength of spurious radiation	Pass
2.1055	Frequency stability	Pass

Applicable Clauses from Part 80		
FCC Clauses	Description of the requirements	Result: (Pass, Fail, N/A)
80.205 (a), (d)	Bandwidths & Emission designator	Reported
80.209 (c)	Transmitter Frequency Tolerance	Pass
80.211 (f)	Emission Limitations, In-band	Pass
80.211 (f)	Emission Limitations, Out-of-band	Pass
80.213 (g)	Modulation Requirements	Pass
80.215 (a) (3), (n) (3)	Transmitter Power	Pass

1.2 Part 90 Test Result Summary

The following test procedure and guidance were used for measuring FCC PART 90 (PRIVATE LAND MOBILE RADIO SERVICES) known as Licensed Land Mobile; ANSI C63.26-2015. Full test results are available in this report.

Applicable Clauses from Part 90		
FCC Clauses	Description of the requirements	Result: (Pass, Fail, N/A)
90.205 (r)	Transmitter Power	Pass
90.207 (n)	Emission designator	Reported
90.209 (b) (5) footnote 2	Bandwidth limitations	Pass
90.210 (n)	Emission masks, In-band	Pass
90.210 (n)	Emission masks, Out-of-band	Pass
90.213 (a) footnote 10	Frequency stability	Pass
90.214	Transient Frequency Behavior	n/a
90.221	Adjacent channel power limits	n/a

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 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: April 21 – May 05, 2021

Signature:



Name & Title: Terri Allen, Technical Assistant

Date of Signature

(YYYY-MM-DD): 2021-05-06

Signature:



Sr. EMC Engineer
EMC-003838-NE



Name & Title: Tim Royer, EMC Engineer

Date of Signature

(YYYY-MM-DD): 2021-05-06

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

The test sample was received: April 21, 2021

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:	N9MSC2000
Brief Description	SCANTER 2000 Series Radar Transceiver
Type of Modular	n/a
Model(s) #	SCANTER 2202, SCANTER 2602
Trade name	n/a
Firmware version	n/a
Software version	902085-003, rev.B
Serial Number	3285

Technical Characteristics	
Technology	Licensed Non-Broadcast Station Transmitter
Frequency Range	9300-9500 MHz
RF O/P Power (Max.)	10.74 W, Mean
Modulation	Pulse w/ no modulated information
Bandwidth & Emission Class	200MV7N, 200MPON
Number of Channels	n/a
Duty Cycle	20%
Antenna Connector	WR-90 adapter for testing
Voltage Rating (AC or Batt.)	AC 120 V

Antenna Characteristics				
Antenna Name	Frequency Range	Antenna Type	Dimensions	Antenna Gain
Compact Antenna	9.0 – 9.5 GHz	Linear Array	7'	≤31 dBi
Compact Antenna	9.0 – 9.5 GHz	Linear Array	9'	≤32 dBi
Compact Antenna	9.0 – 9.5 GHz	Linear Array	12'	≤34 dBi
High Gain Antenna	9.0 – 9.5 GHz	Linear Array	18'	≤37 dBi
High Gain Antenna	9.0 – 9.5 GHz	Linear Array	21'	≤38 dBi

3.2 Configuration of EUT

Test Modes				
Band	Mode (#)	Mode (Type)	BW (nominal)	Modulation
9384.7	1	6nm	140.53 MHz	Pulse
9384.7	2	24nm	111.62 MHz	Pulse
9384.7	3	NAV12NM	170.66 MHz	Pulse
9384.7	4	NAV24NM	136.51 MHz	Pulse

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:

A laptop provided by the manufacturer was used to control the EUT.

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 80 & 90 Licensed device:

- 1) ANSI C63.26-2015
- 2) ITU-R M.1177-3 (per 80.273 (a) (6))

4.2 Applied Limits and Regulatory Limits:

- 1) FCC CFR 47 Part 80
- 2) FCC CFR 47 Part 90

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:

Temperature	23 C +/- 5%
Humidity	55% +/- 5%
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

Device	Manufacturer	Model	SN #	Current Cal	Cal Due
Audio Analyzer	HP	8903B	3011A13084	1/13/21	1/13/2024
Function Generator	Standford	DS340	25200	1/13/21	1/13/2024
Modulation Analyzer	HP	8901A	3050A05856	4/23/20	4/23/2023
Oscilloscope	LeCroy	LT364	00414	3/28/19	3/27/2022
Signal Generator HP 8648C	HP	8648C	3847A04696	3/31/21	3/30/2024
Signal Generator R&S SMU-200A	Rohde & Schwarz	SMU200A	103195	5/23/18	5/22/2021
Sweep/Signal Generator	Anritsu	68369B	985112	1/19/21	1/19/2024
Digital Multimeter	Fluke	77	35053830	9/9/20	9/9/2023
Digital Multimeter	Fluke	77	43850817	7/20/19	7/19/2022
Digital Multimeter	Fluke	FLUKE-77-3	79510408	9/9/20	9/9/2023
Multimeter	HP	973A	JP37006959	9/9/20	9/9/2023
R&S 18 GHz USB Peak Power Sensor	Rohde & Schwarz	NRP-Z85	1411.7501.02-102085-VV	2/4/19	2/3/2022
Active Loop	ETS-Lindgren	6502	00062529	10/20/20	10/20/2023
Biconical 1057	Eaton	94455-1	1057	10/16/20	10/16/2023
Log-Periodic 1243	Eaton	96005	1243	5/20/18	5/19/2021
Double-Ridged Horn/ETS Horn 1	ETS-Lindgren	3117	00035923	2/25/20	2/24/2023
Double-Ridged Horn 18-40 GHz	EMCO	3116	9011-2145	10/19/20	10/19/2023
CHAMBER	Panashield	3M	N/A	3/12/19	3/11/2022
Pre-amp	RF-LAMBDA	RLNA00M45GA	NA	2/27/19	2/26/2022
EMI Test Receiver R&S ESIB 40	Rohde & Schwarz	ESIB 40	100274	7/22/19	7/21/2022
EMI Test Receiver R&S ESU 40	Rohde & Schwarz	ESU 40	100320	8/28/18	8/27/2021
Frequency Counter Small	HP	5385A	3242A07460	9/9/20	9/9/2023
Type K J Thermometer	Martel	303	080504494	1/18/20	1/17/2023

Software	Author	Version	Validation Or
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.

8.1 Power at the Final Amplifier

Limits from FCC Part 2.1033 (c)(8).

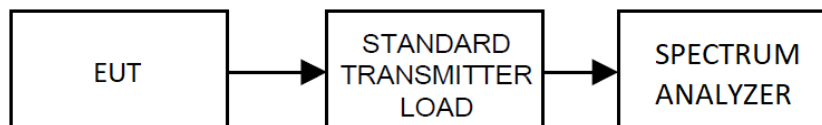
No method of measurement is specified. The result has been calculated based on all available information.

Test Results		
EUT Operating Voltage (V)	EUT Current (A)	Power at the Final Amplifier
120 V AC	1.55 A	186 W

8.2 RF Output Power

Limits from FCC Parts 2.1046(a), 80.215 (a) (3), (n) (3) and 90.205 (r); and test procedure from ANSI C63.26-2015.

Test Setup



Test Results

Mode	Tuned Frequency (MHz)	Method	Measured Peak Power Output (dBm)	Duty Cycle Correction	Average Power Output (W)
6nm	9384.7	Conducted	45.89	0.2	7.76
24nm	9384.7	Conducted	46.73	0.2	9.427
NAV12NM	9384.7	Conducted	43.2	0.2	4.178
NAV24NM	9384.7	Conducted	47.3	0.2	10.74

Note : The mean power was calculated based on formula:
 $P_a = P_m \cdot DC$

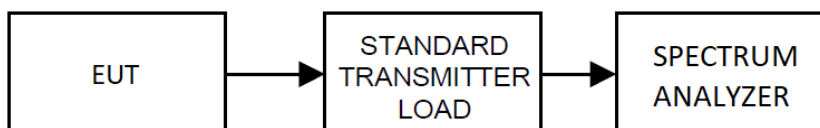
Maximum Mean Power: 10.74 W

Maximum Peak Power: 53.7 W

8.3 Bandwidth & Emission

Limits from FCC Parts 2.1049, 80.205 (a), (d) & 90.207 (n) & 90.209 (b) (5) footnote 2, and test procedure from ANSI C63.26-2015.

Test Setup



Test Results, Authorized Bandwidth

Rule Part	Operating Range	Authorized Bandwidth
Part 80	9.3 – 9.5 GHz	200 MHz
Part 90	9.0 – 9.5 GHz	2050 MHz

Test Results, Occupied Bandwidth

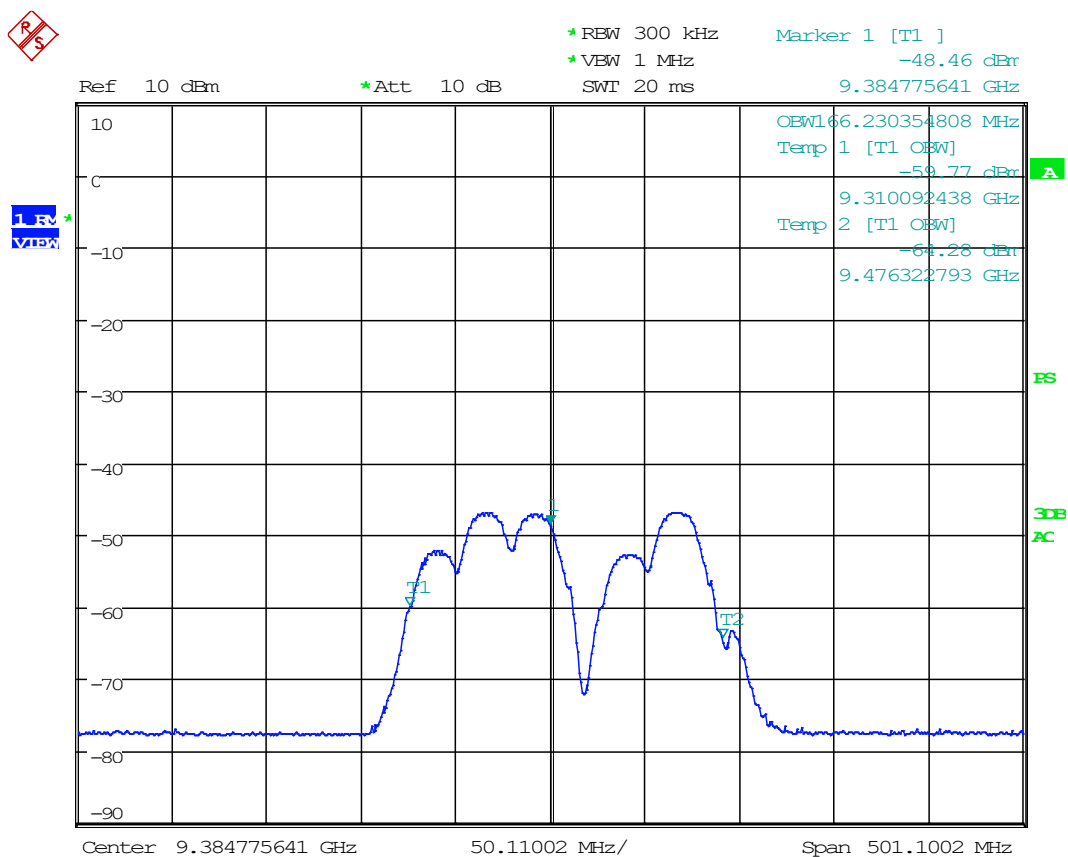
Tuned Frequency (MHz)	Occupied Bandwidth (MHz)	Bandwidth Type
9384.7, 6 nm	166.23	99% Power
9384.7, 24 nm	136.51	99% Power
9384.7, NAV12 nm	170.24	99% Power
9384.7, NAV24 nm	160.60	99% Power
9384.7, 6 nm	140.53	40 dB
9384.7, 24 nm	111.62	40 dB
9384.7, NAV12 nm	17.66	40 dB
9384.7, NAV24 nm	136.51	40 dB

Test Results, Necessary Bandwidth

Tuned Frequency (MHz)	Necessary Bandwidth (MHz)	Emission Designator	Bandwidth Type
9384.7	170.24	V7N	99%
9384.7	170.24	PON	99%

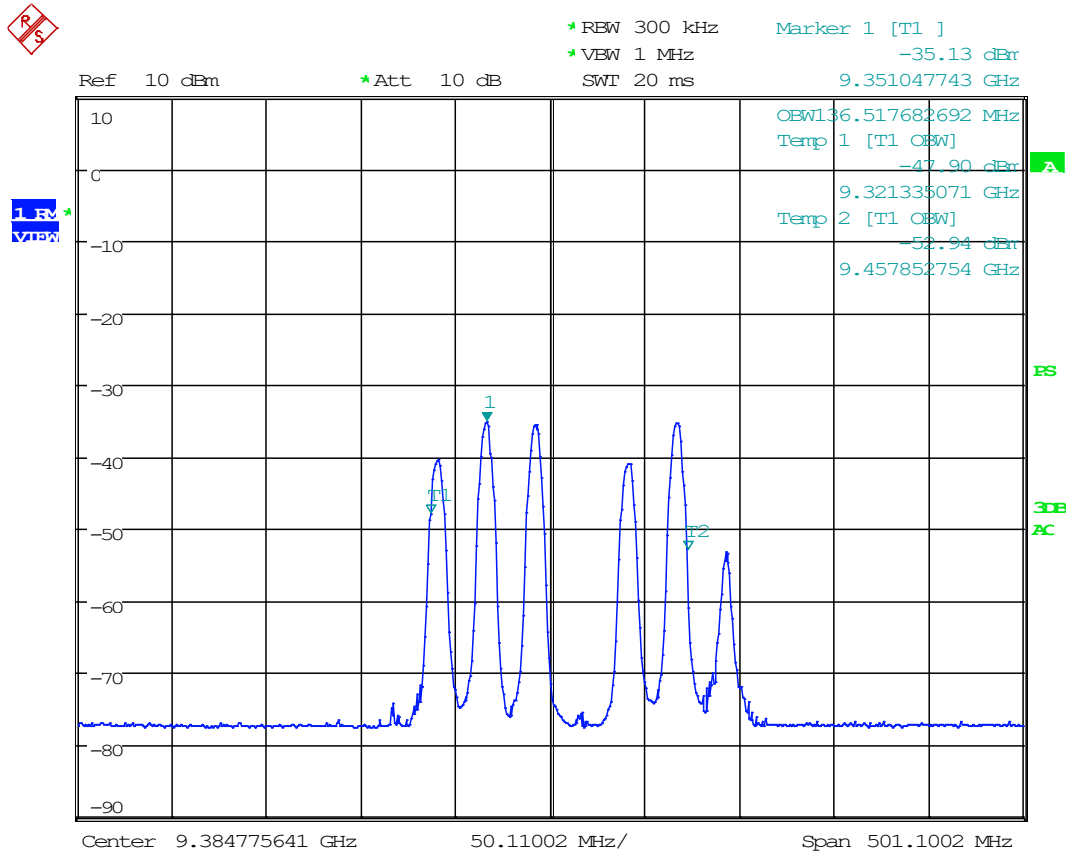
Occupied Bandwidth, Spectrum Plots

8.3.1 Bandwidth Plot, 99%, 9384.7 MHz, 6nm



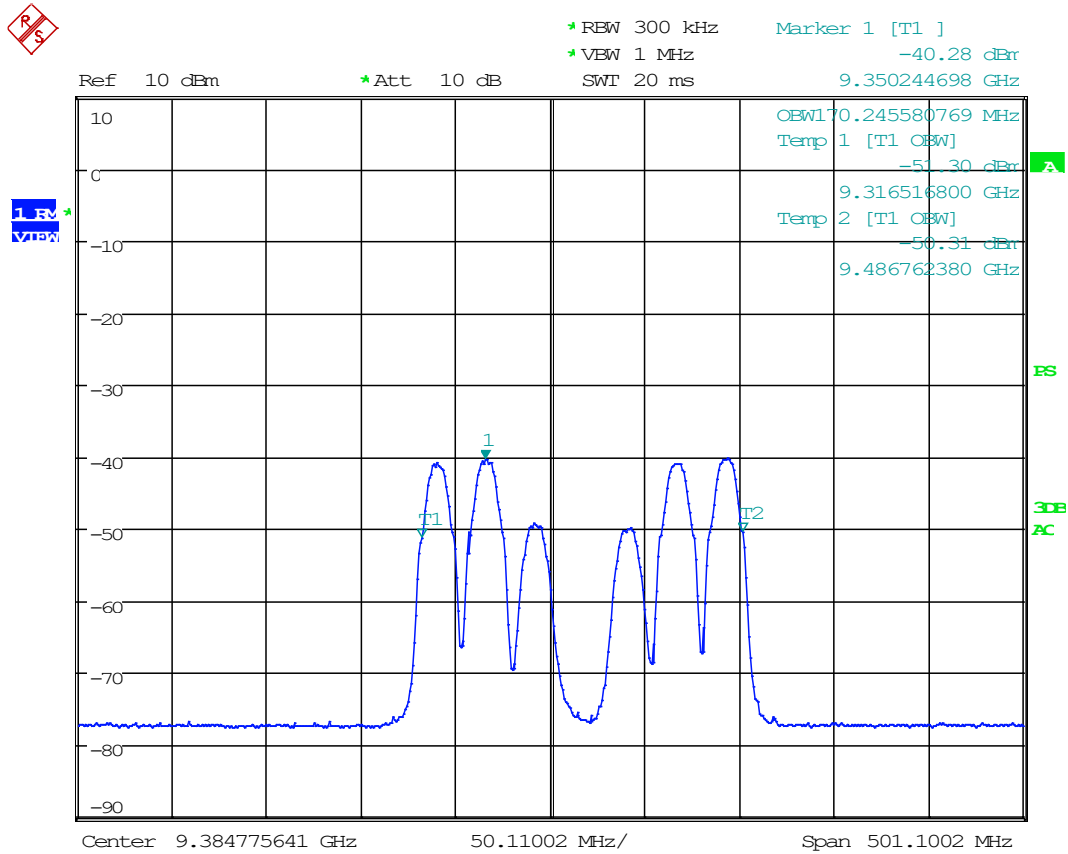
Date: 5.MAY.2021 12:36:28

8.3.2 Bandwidth Plot, 99%, 9384.7 MHz, 24nm



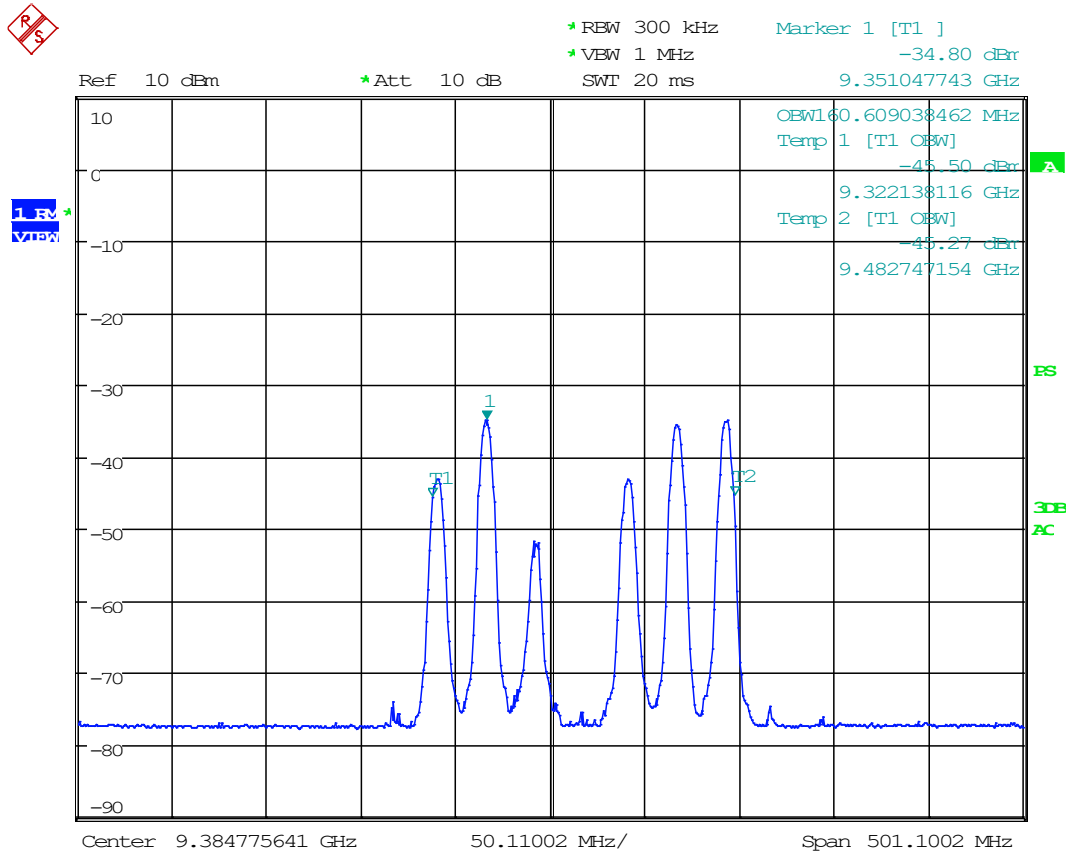
Date: 5.MAY.2021 12:40:23

8.3.3 Bandwidth Plot, 99%, 9384.7 MHz, NAV12 nm



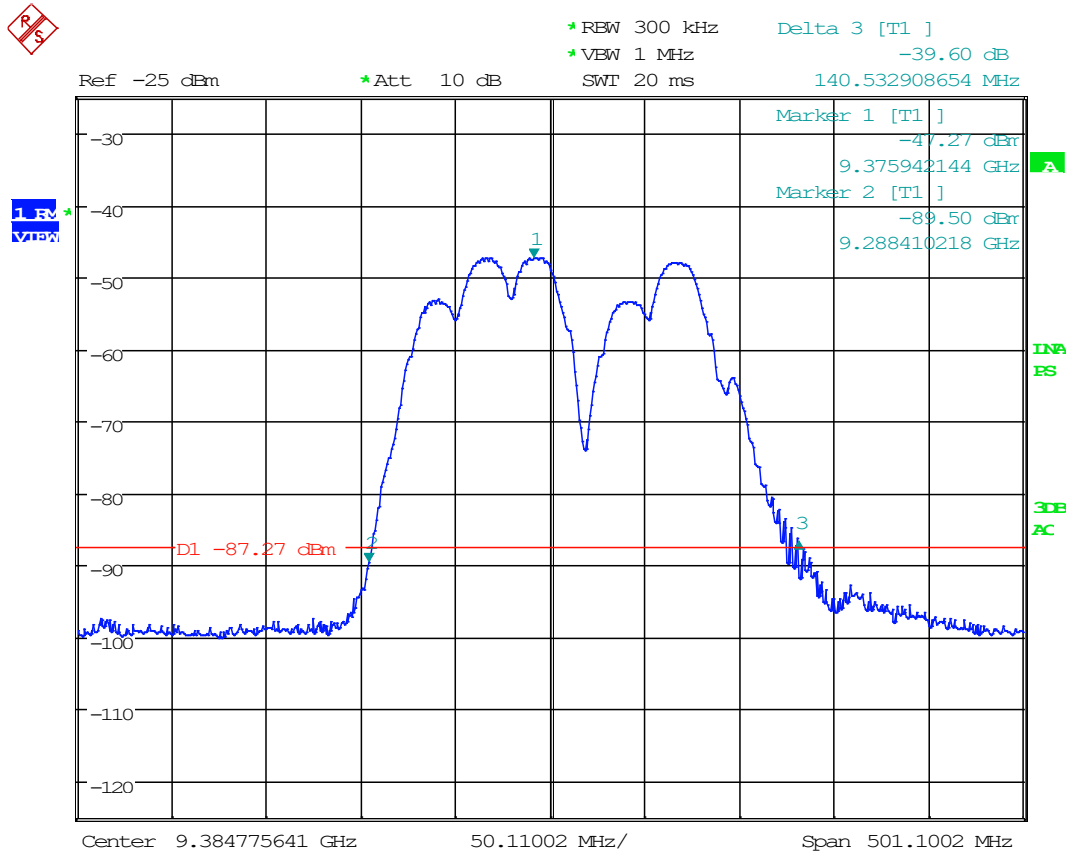
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8.3.1 Bandwidth Plot, 99%, 9384.7 MHz, NAV24nm



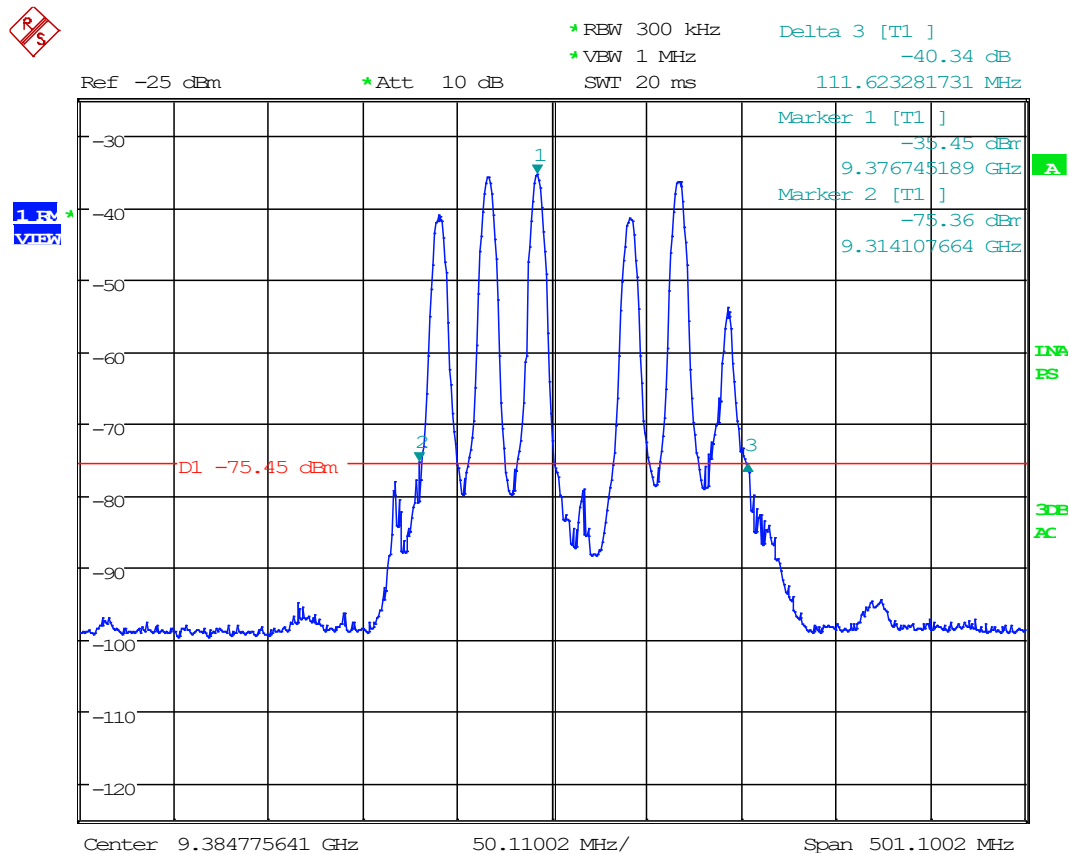
Date: 5.MAY.2021 12:43:29

8.3.2 Bandwidth Plot, 40 dB BW, 9384.7 MHz, 6nm



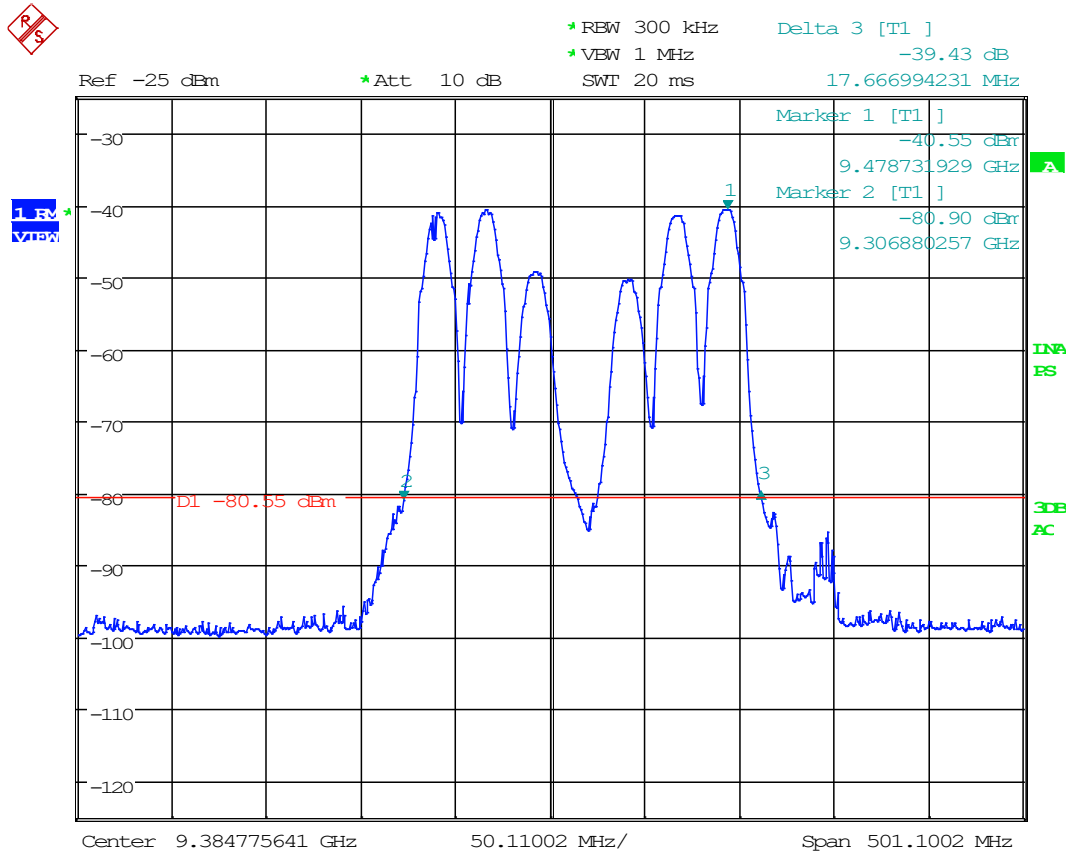
Date: 5.MAY.2021 12:53:08

8.3.3 Bandwidth Plot, 40 dB BW, 9384.7 MHz, 24nm



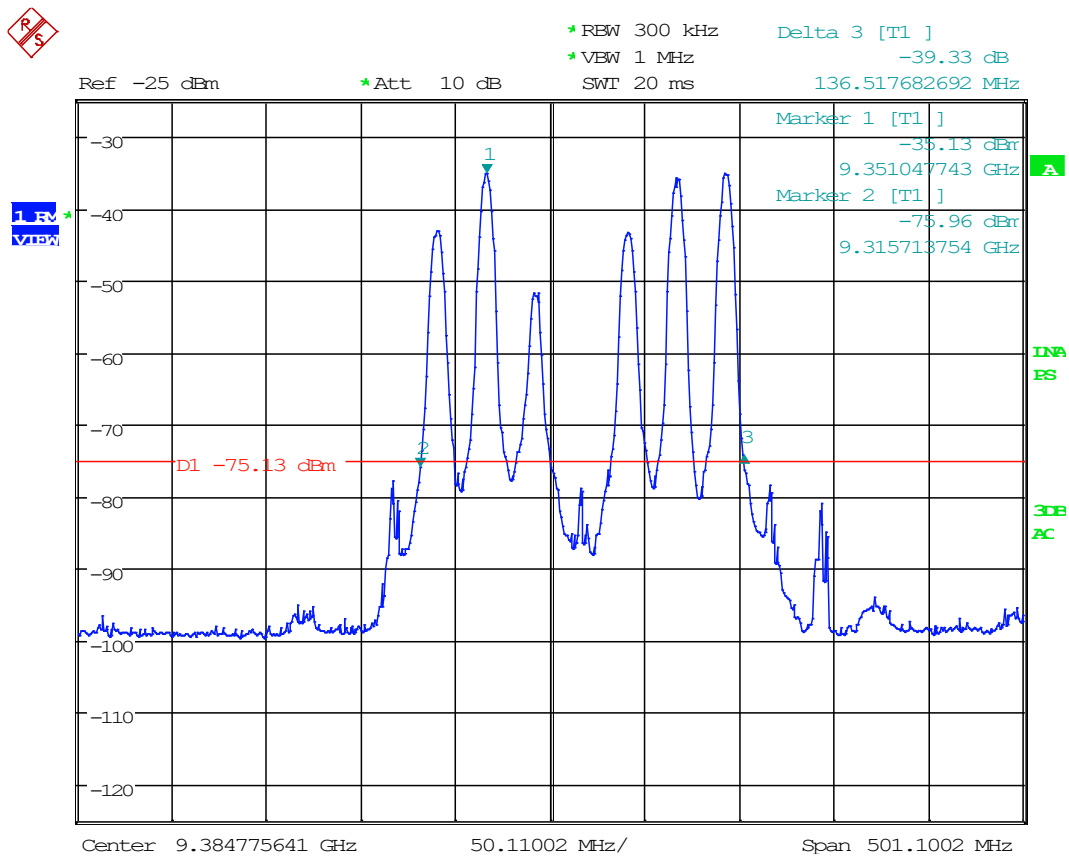
Date: 5.MAY.2021 12:51:27

8.3.4 Bandwidth Plot, 40 dB BW, 9384.7 MHz, NAV12nm



Date: 5.MAY.2021 12:49:44

8.3.5 Bandwidth Plot, 40 dB BW, 9384.7 MHz, NAV24nm

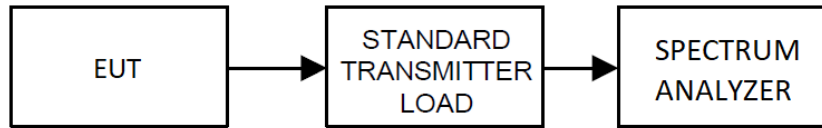


Date: 5.MAY.2021 12:47:56

8.4 Emission Limitations, In-Band

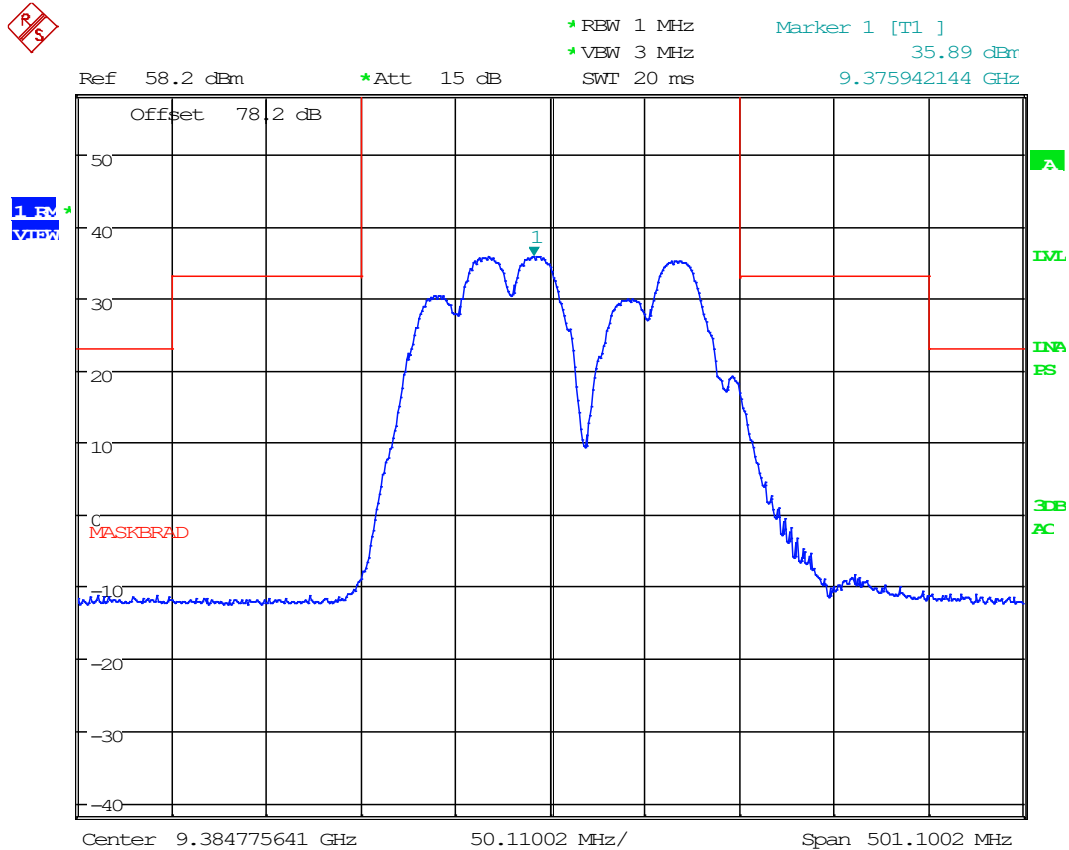
Limits from FCC Parts 80.211 (f), and 90.210 (n); and test procedure from ANSI C63.26-2015.

Conducted Test Setup



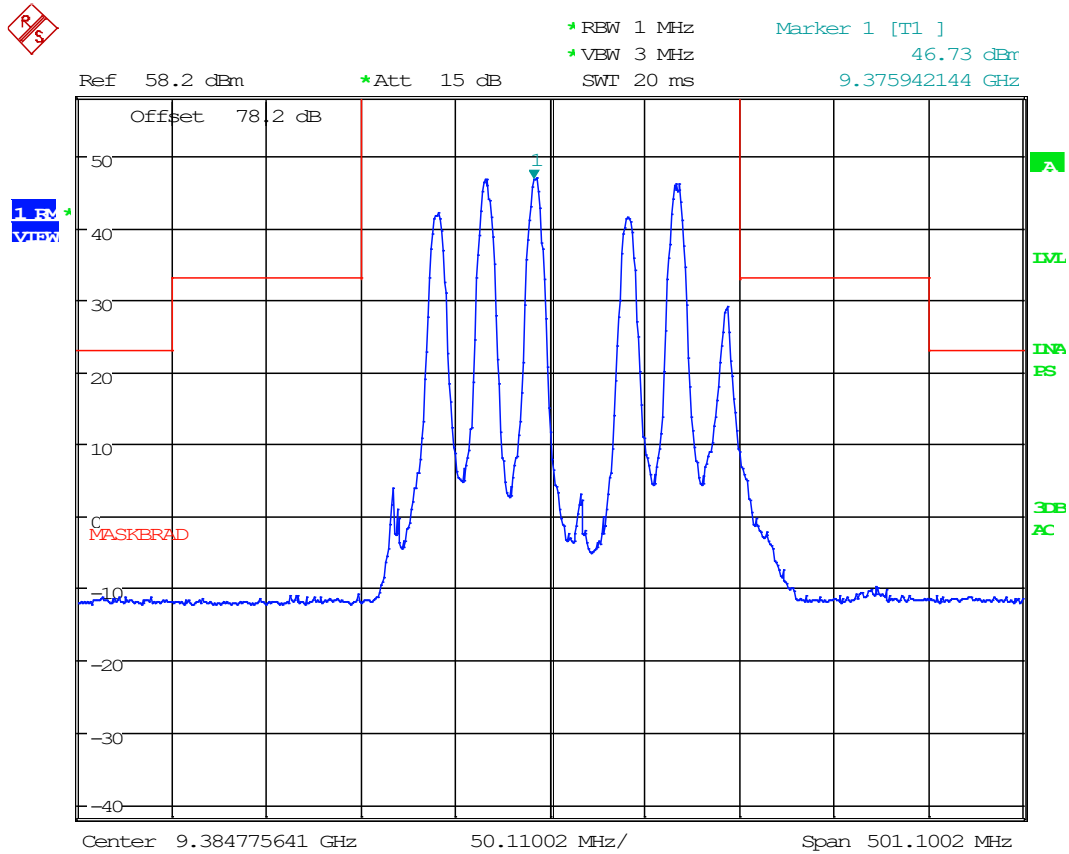
Conducted Emissions Mask, Spectrum Plots

8.4.1 Emission Mask, 9384.7 MHz, 6nm



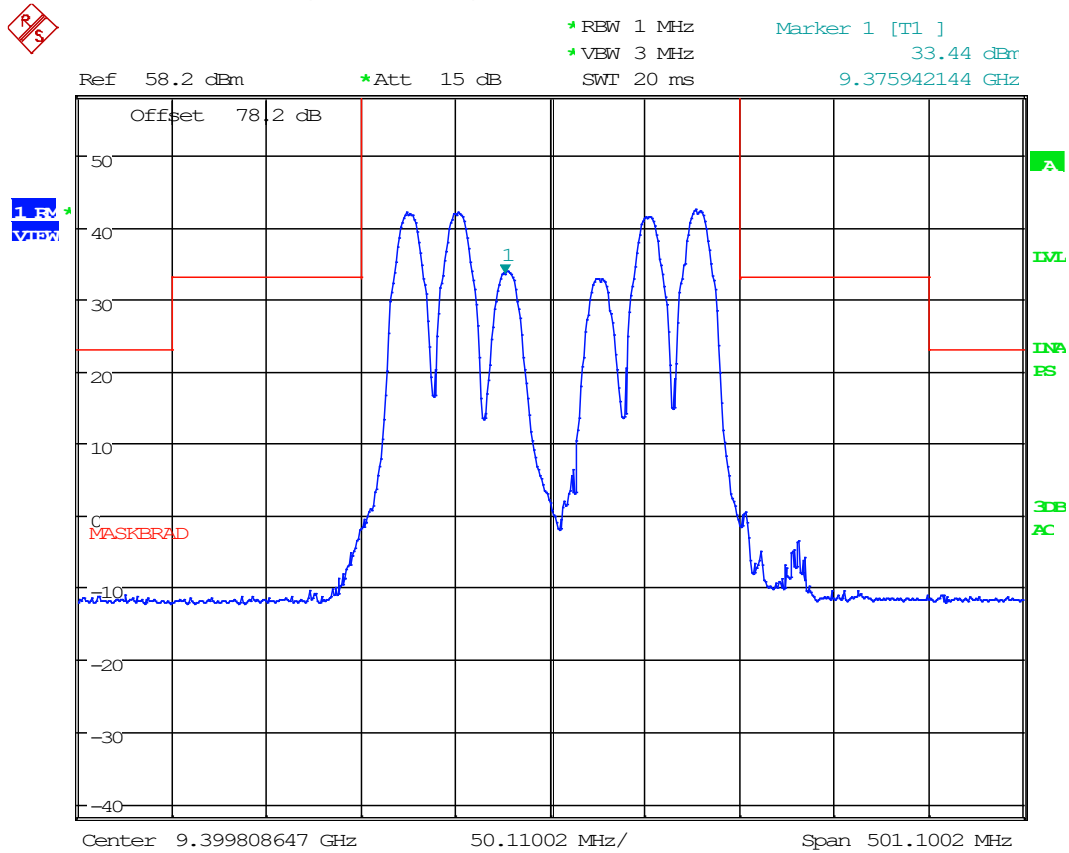
Date: 5.MAY.2021 13:05:38

8.4.2 Emission Mask, 9384.7 MHz, 24nm



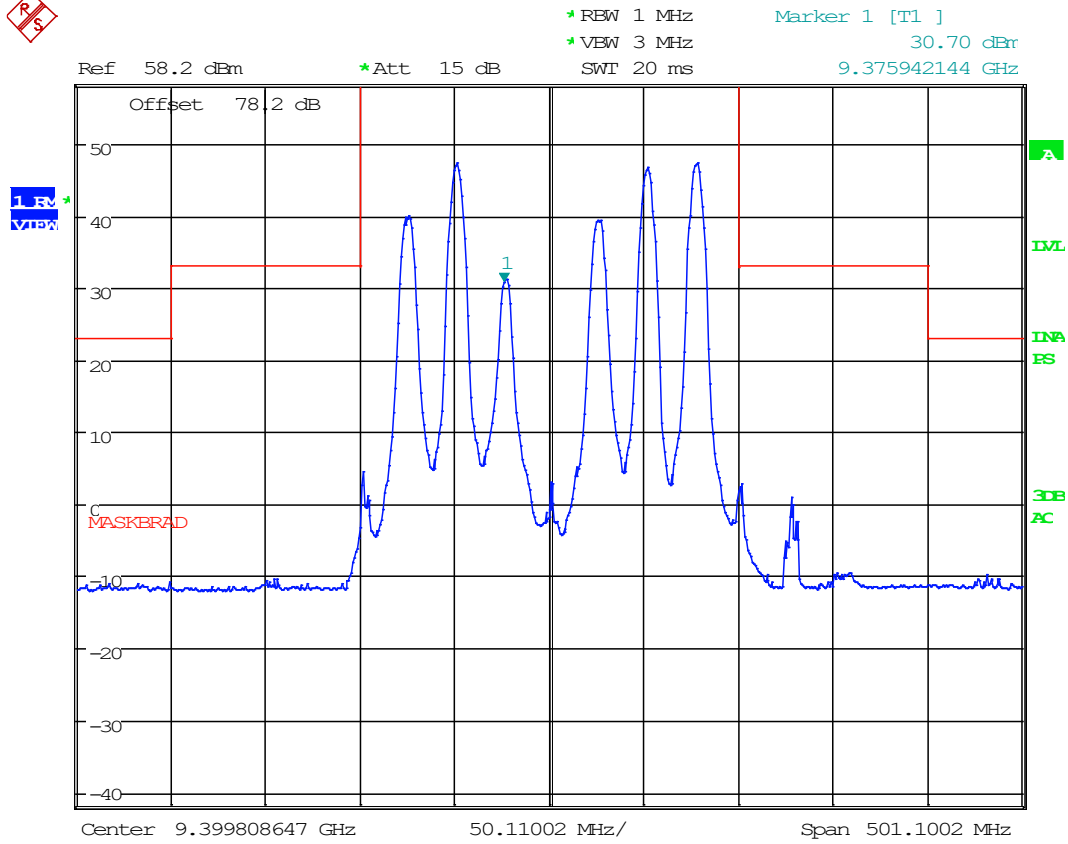
Date: 5.MAY.2021 13:06:38

8.4.3 Emission Mask, 9399.8 MHz, NAV12nm



Date: 5.MAY.2021 13:08:01

8.4.4 Emission Mask, 9399.8 MHz, NAV24nm

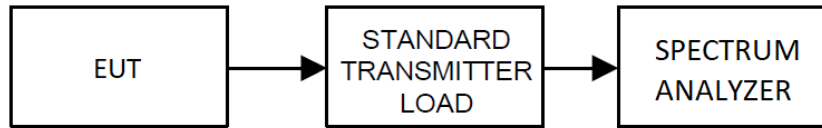


Date: 5.MAY.2021 13:09:21

8.5 Emission Limitations, Out-of-Band

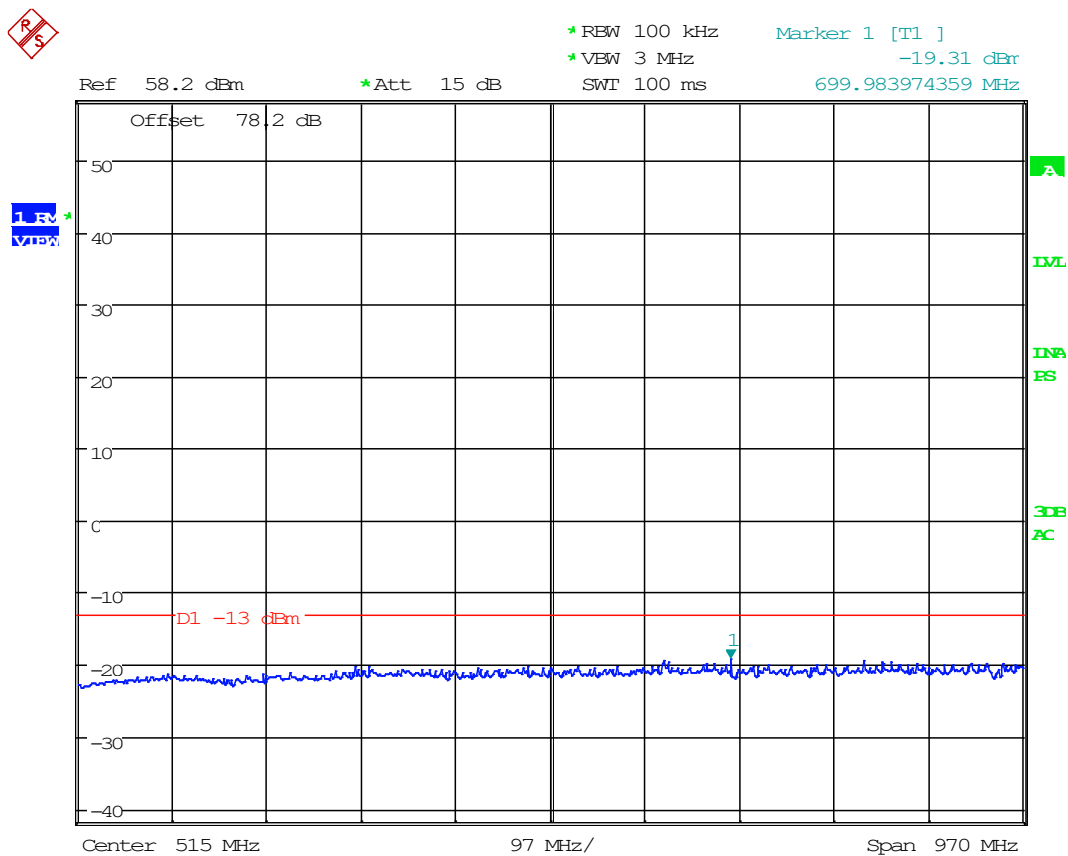
Limits from FCC Parts 2.1051, 80.211 (f) and 90.210 (n); and test procedure from ANSI C63.26-2015.

Conducted Test Setup



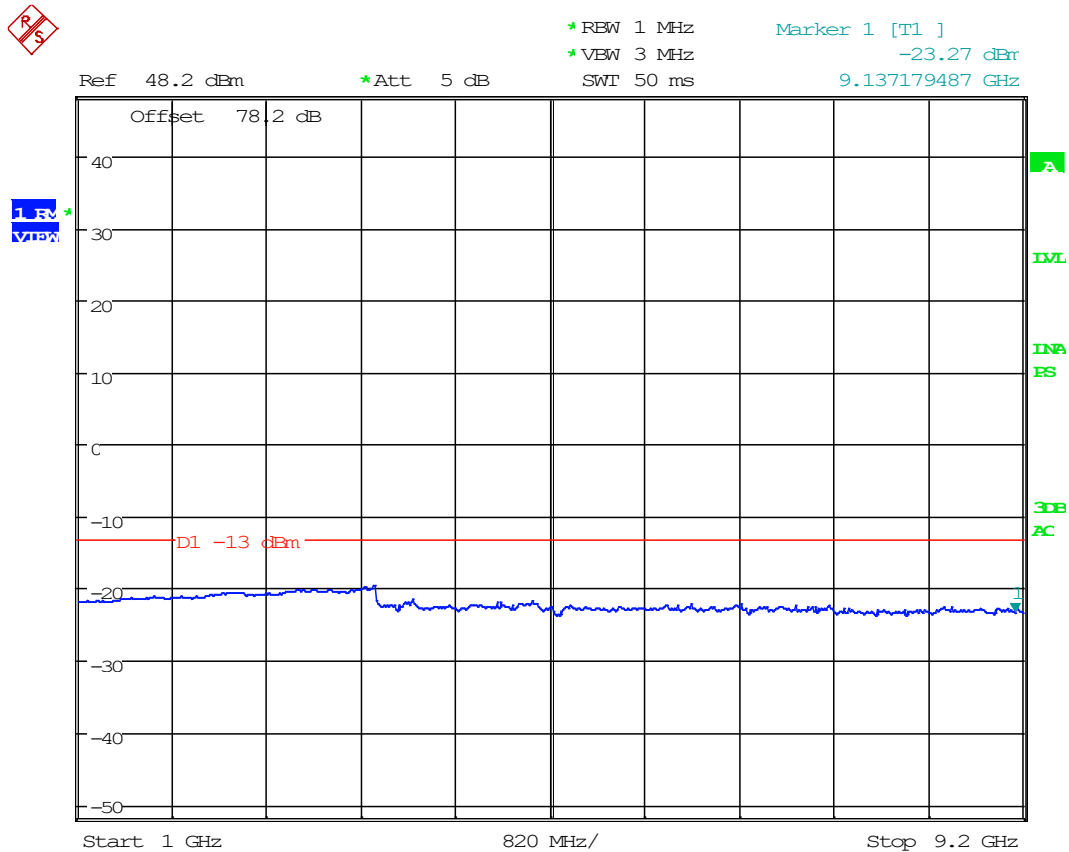
Emission Limitations, Out-of-Band Spectrum Plots

8.5.1 Emission Limitations, Out-of-Band below 1 GHz, 9384.7 MHz, 6nm



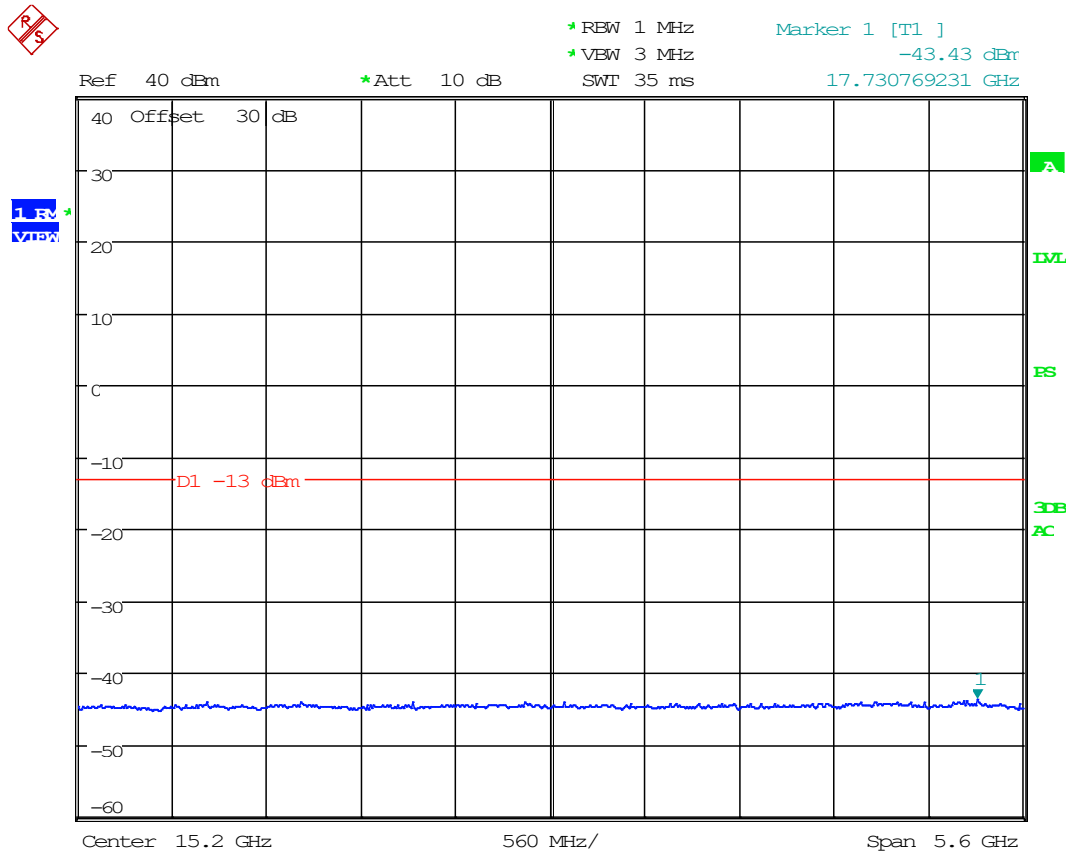
Date: 5.MAY.2021 13:13:22

8.5.2 Emission Limitations, Out-of-Band above 1 GHz, 9384.7 MHz, 6nm



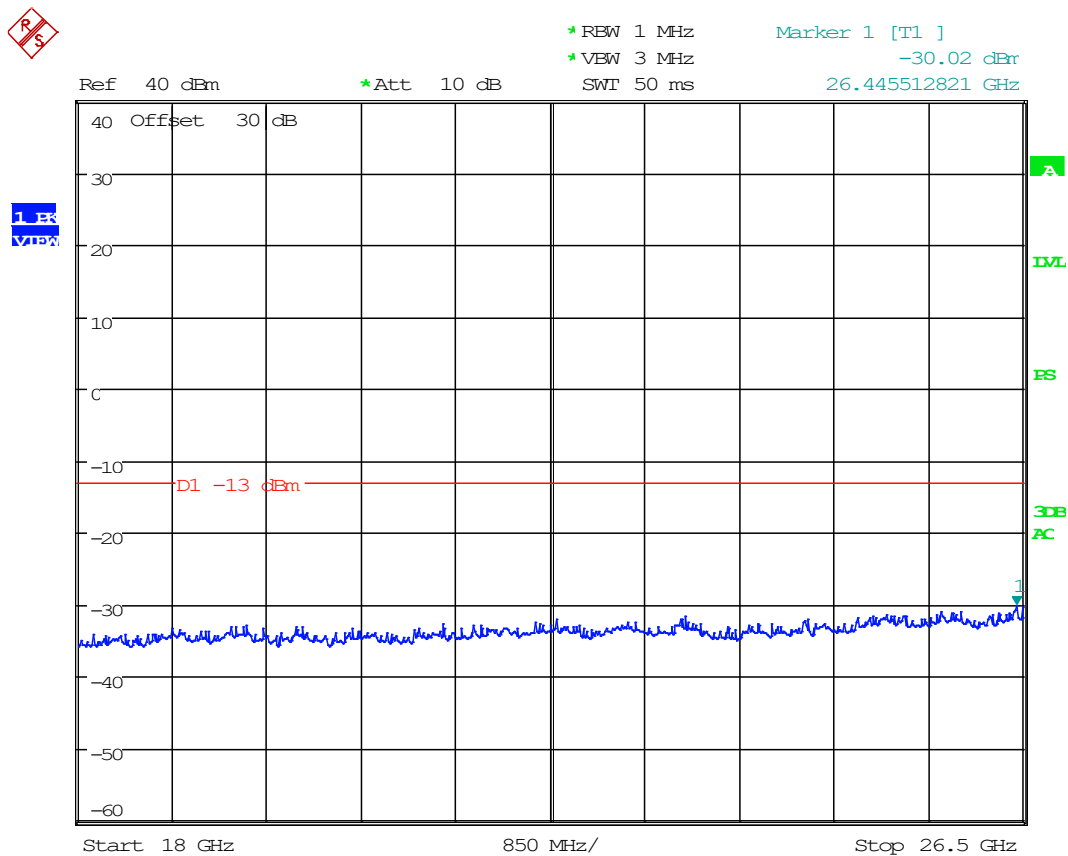
Date: 5.MAY.2021 13:15:49

8.5.3 Emission Limitations, Out-of-Band 12-18 GHz, 9384.7 MHz, 6nm



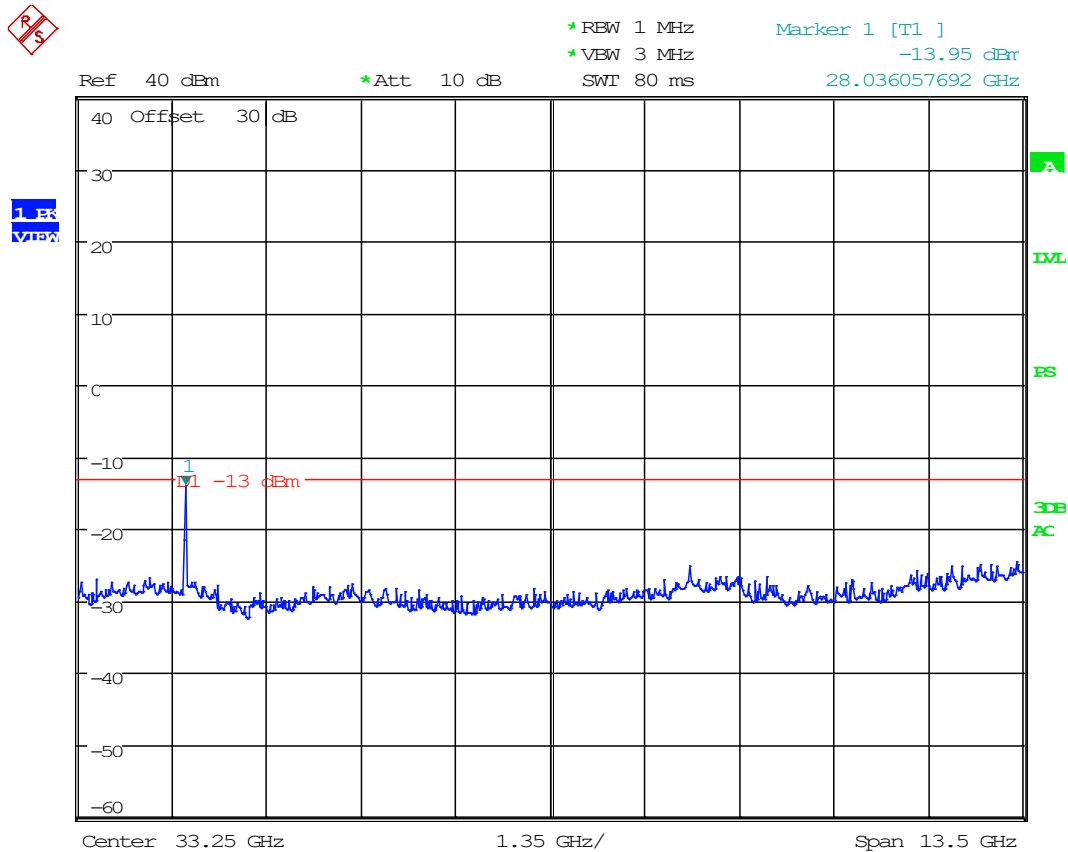
Date: 5.MAY.2021 13:54:18

8.5.4 Emission Limitations, Out-of-Band 18-26 GHz, 9384.7 MHz, 6nm



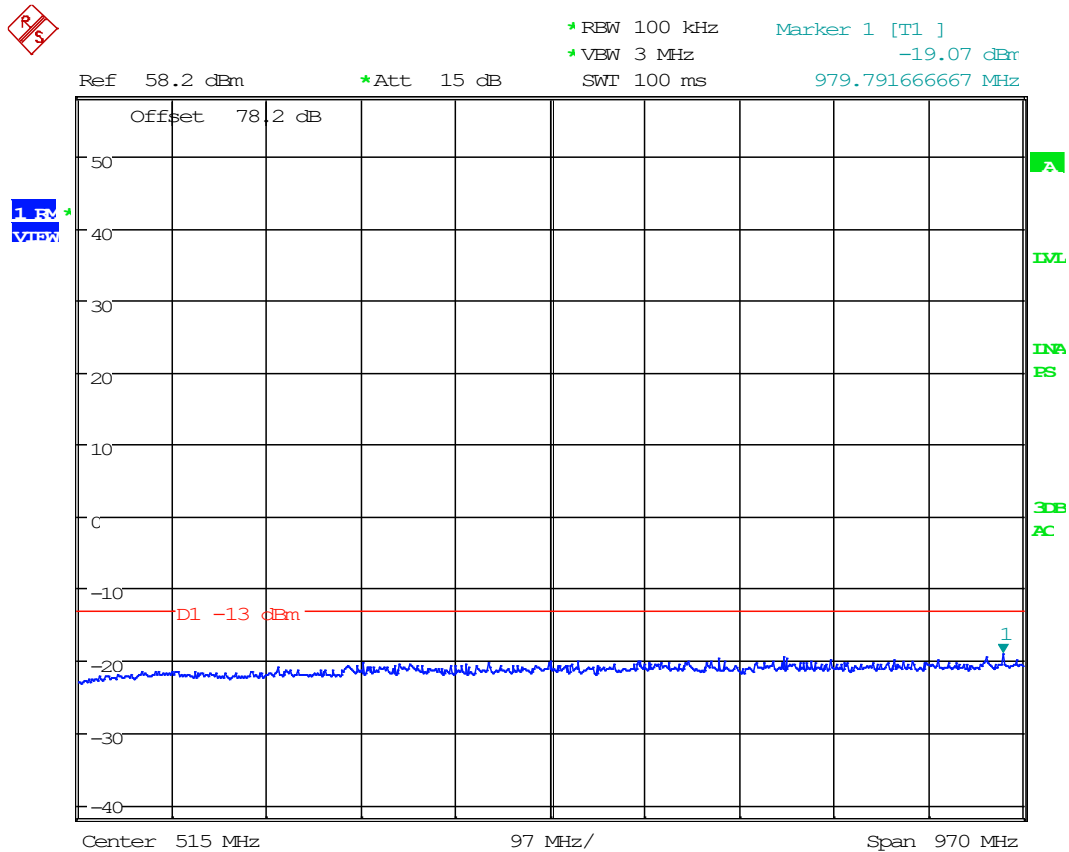
Date: 5.MAY.2021 15:42:47

8.5.5 Emission Limitations, Out-of-Band 26-40 GHz, 9384.7 MHz, 6nm



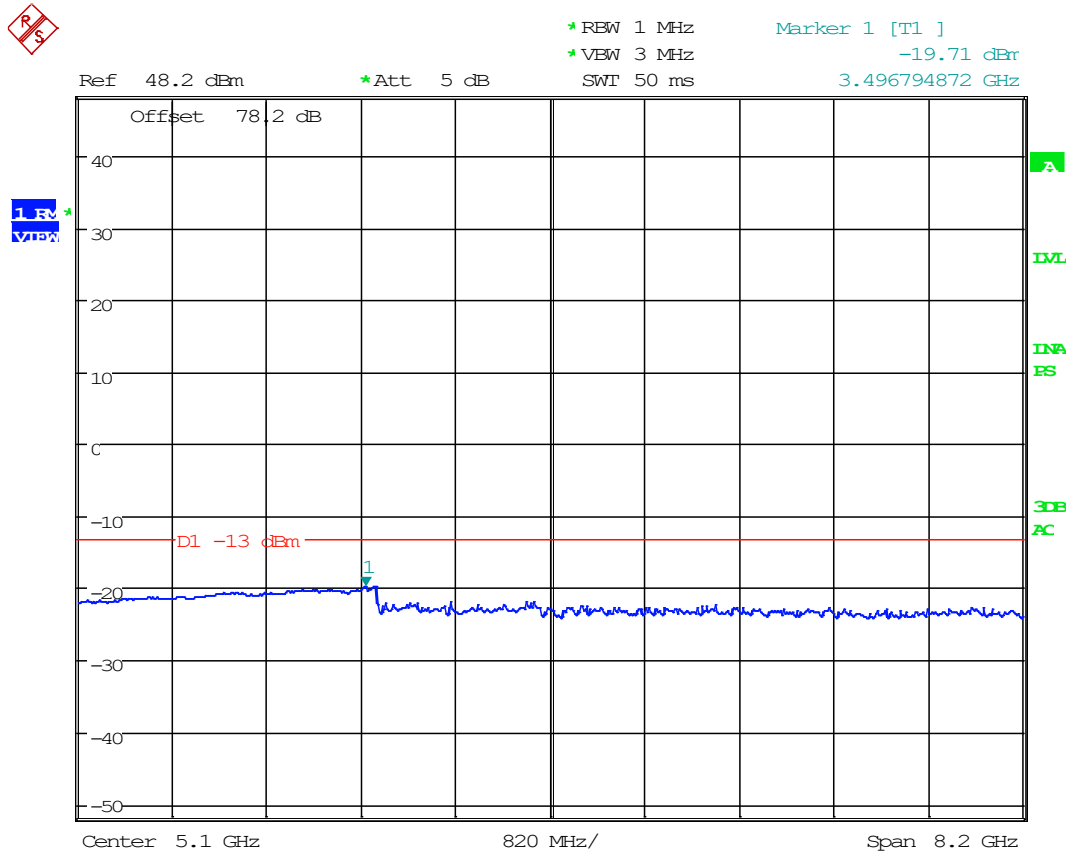
Date: 5.MAY.2021 16:38:28

8.5.1 Emission Limitations, Out-of-Band below 1 GHz, 9384.7 MHz, 24nm



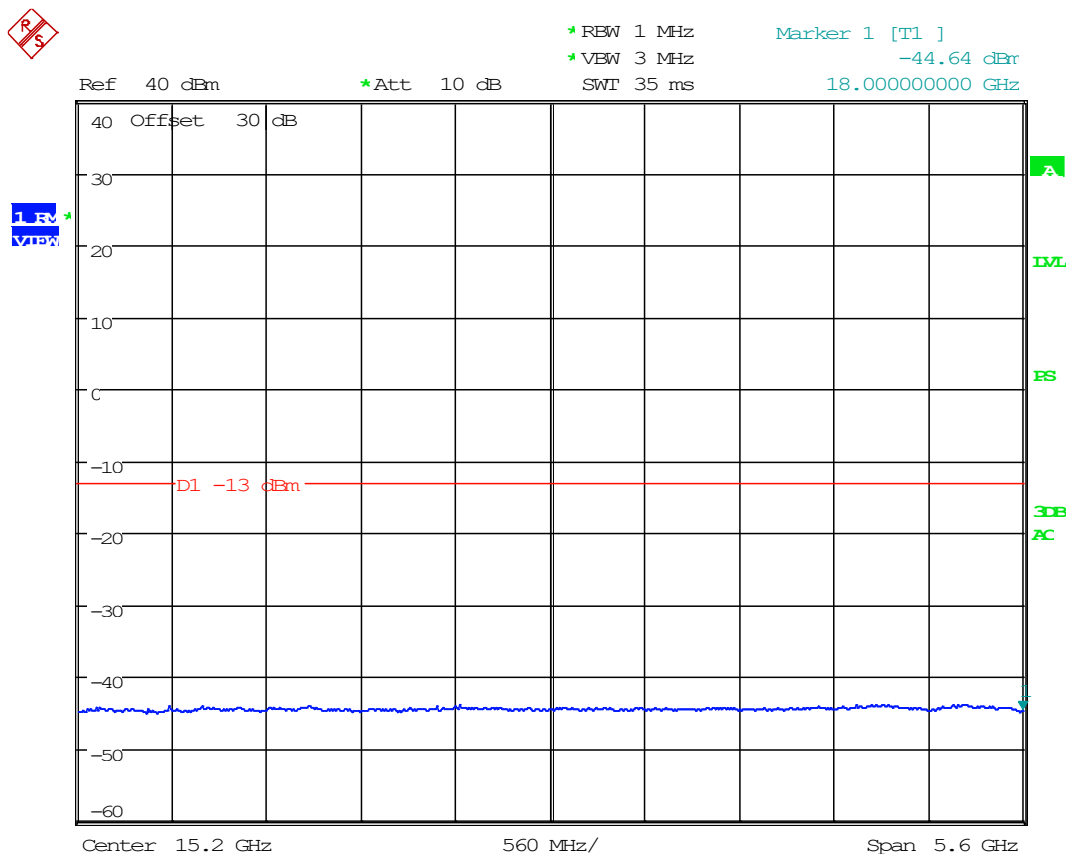
Date: 5.MAY.2021 13:12:39

8.5.2 Emission Limitations, Out-of-Band above 1 GHz, 9384.7 MHz, 24nm



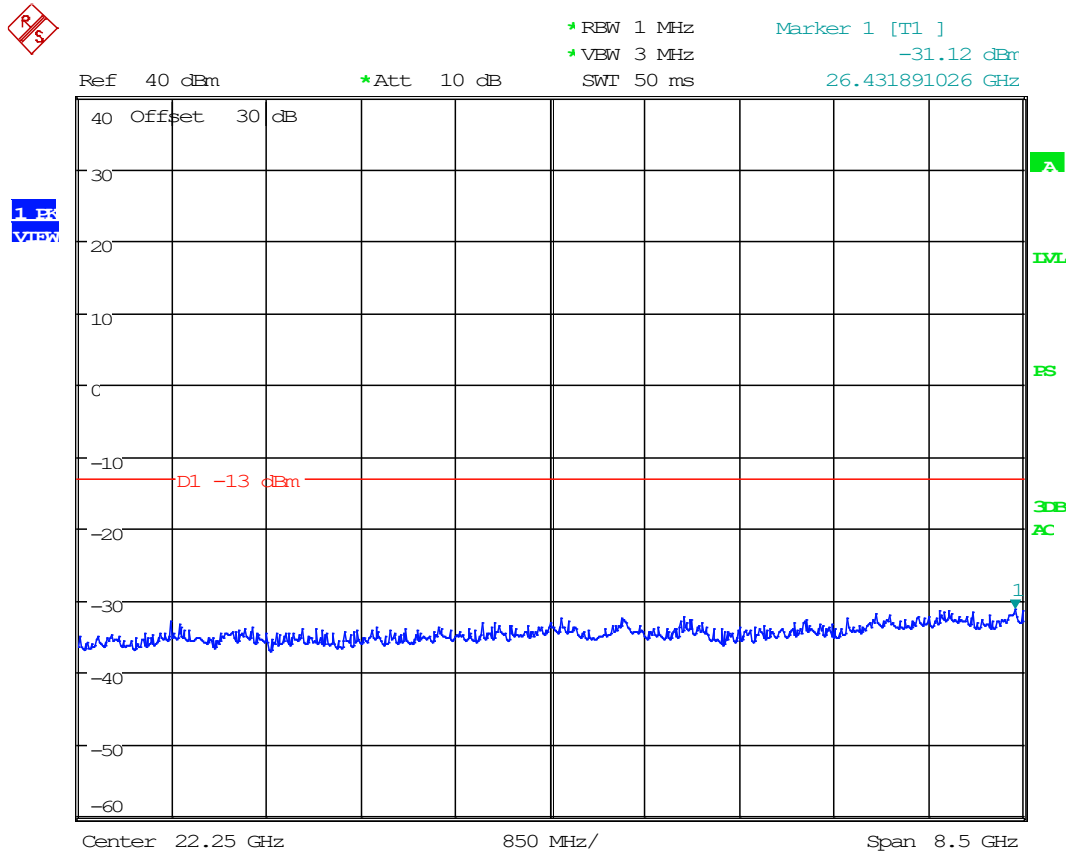
Date: 5.MAY.2021 13:16:32

8.5.3 Emission Limitations, Out-of-Band 12 -18 GHz, 9384.7 MHz, 24nm



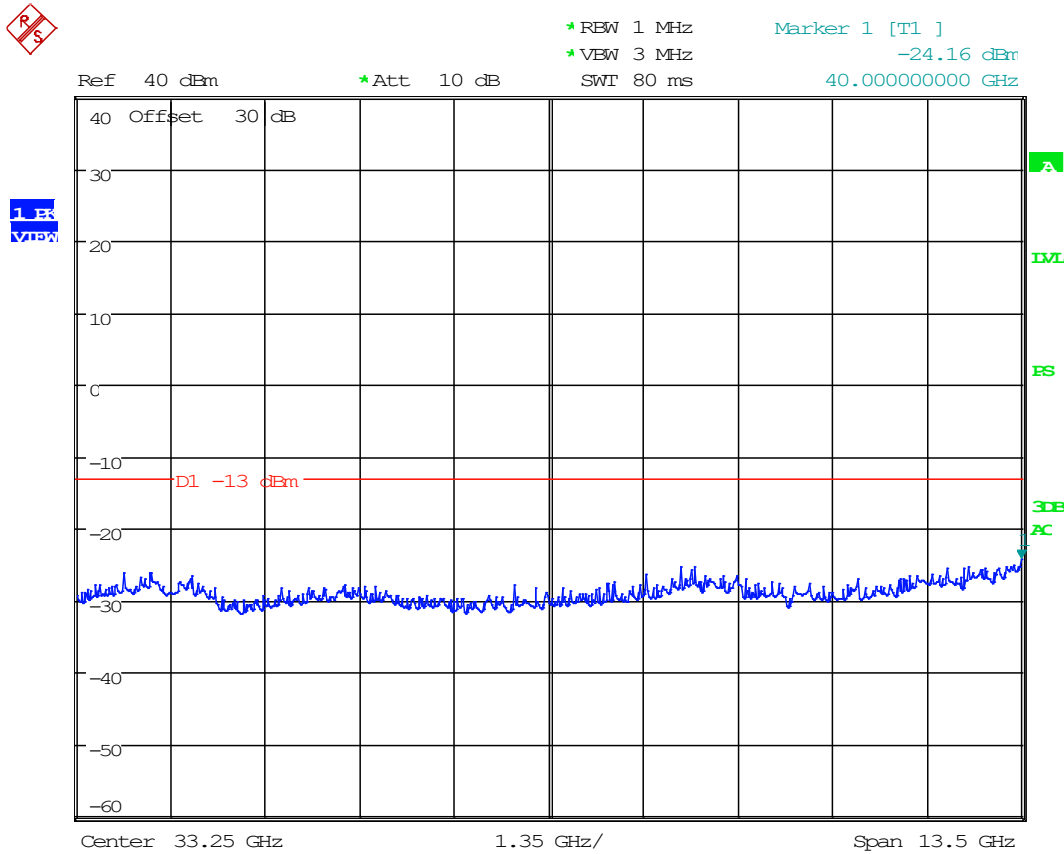
Date: 5.MAY.2021 13:52:04

8.5.4 Emission Limitations, Out-of-Band 18-26 GHz, 9384.7 MHz, 24nm



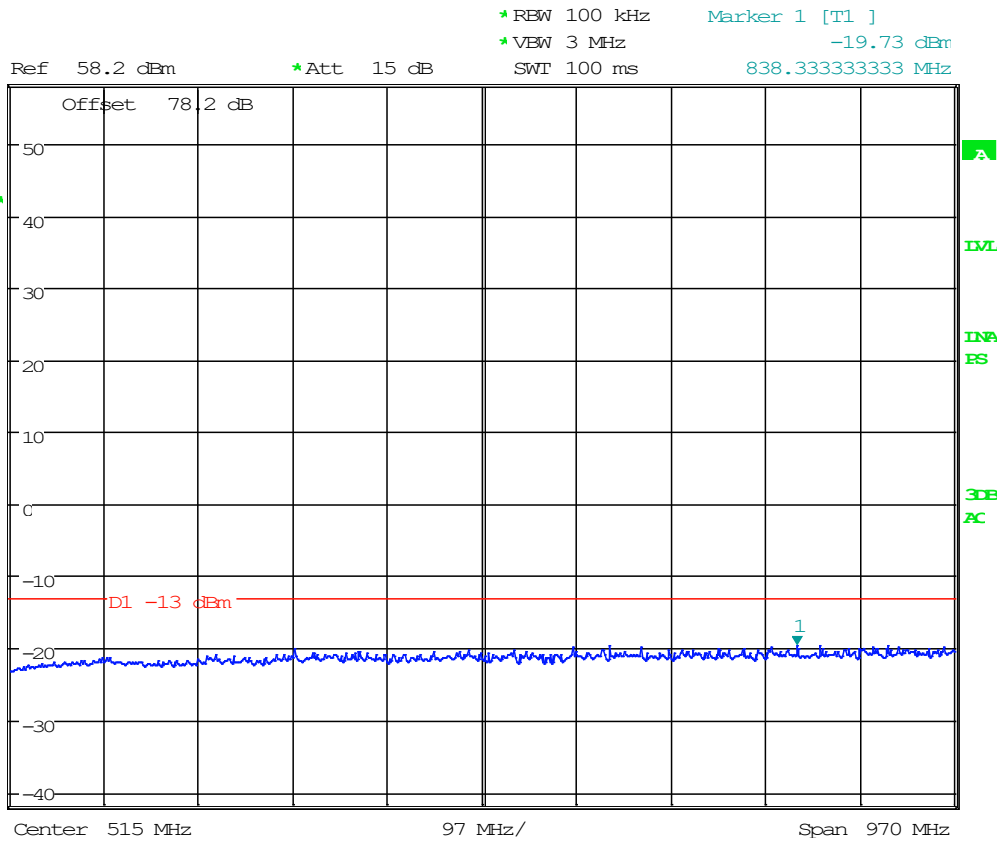
Date: 5.MAY.2021 16:06:02

8.5.5 Emission Limitations, Out-of-Band 26-40 GHz, 9384.7 MHz, 24nm



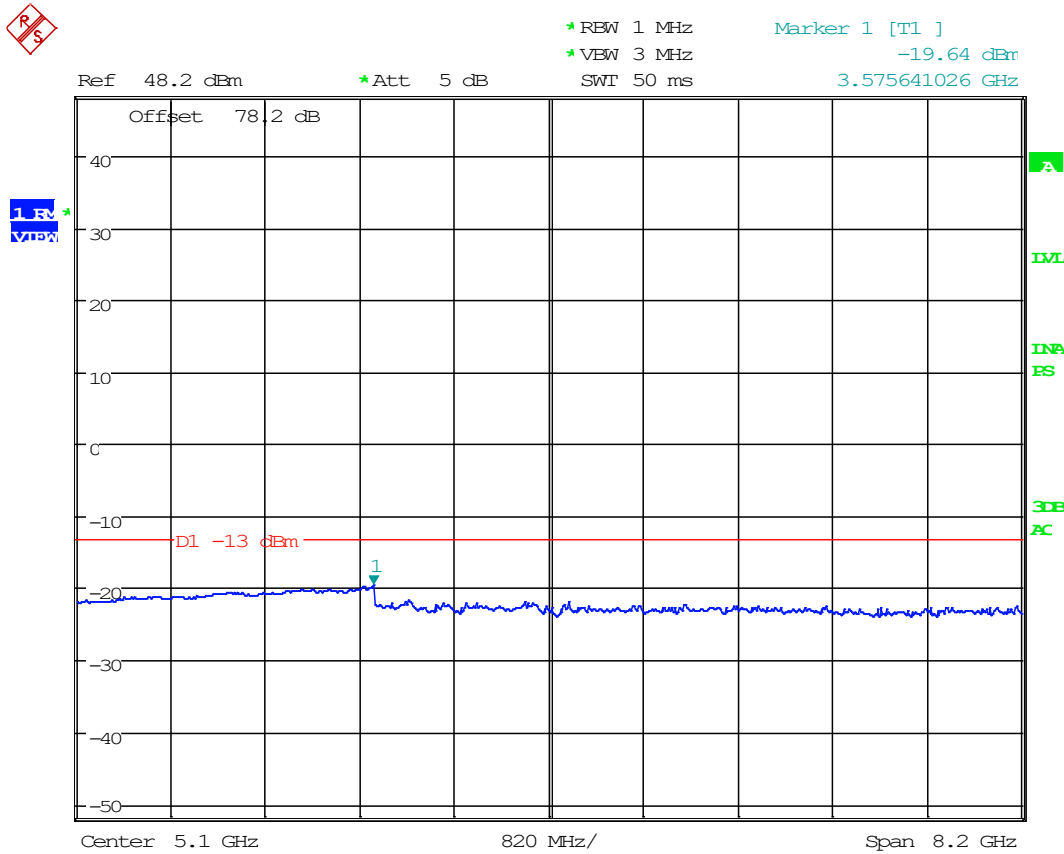
Date: 5.MAY.2021 16:37:42

8.5.6 Emission Limitations, Out-of-Band below 1 GHz, 9384.7 MHz, NAV12nm



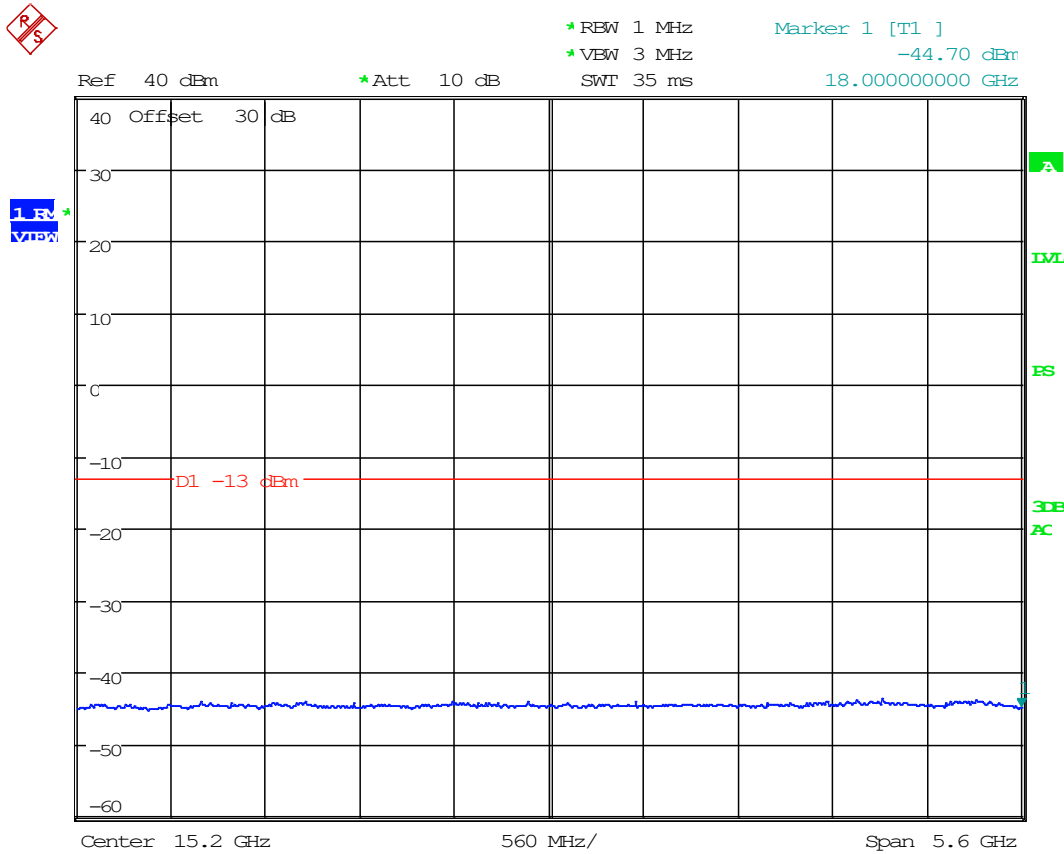
Date: 5.MAY.2021 13:12:04

8.5.7 Emission Limitations, Out-of-Band above 1 GHz, 9384.7 MHz, NAV12nm



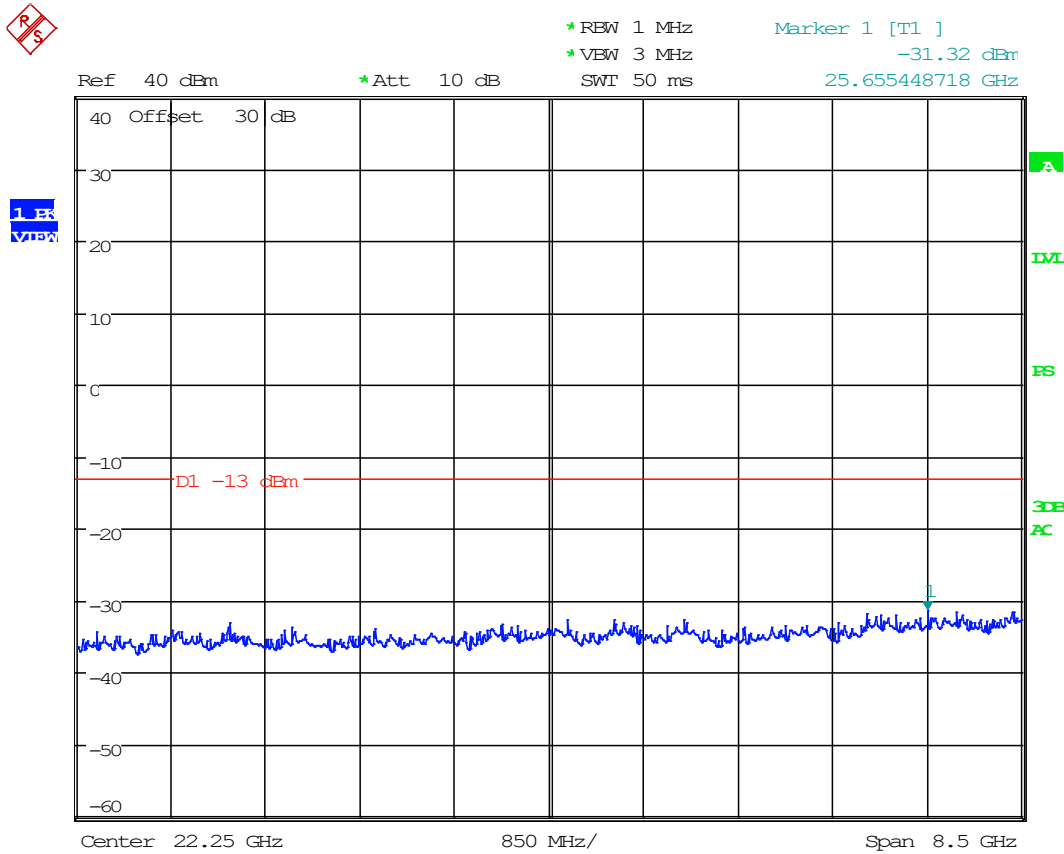
Date: 5.MAY.2021 13:17:09

8.5.8 Emission Limitations, Out-of-Band 12 -18 GHz, 9384.7 MHz, NAV12nm



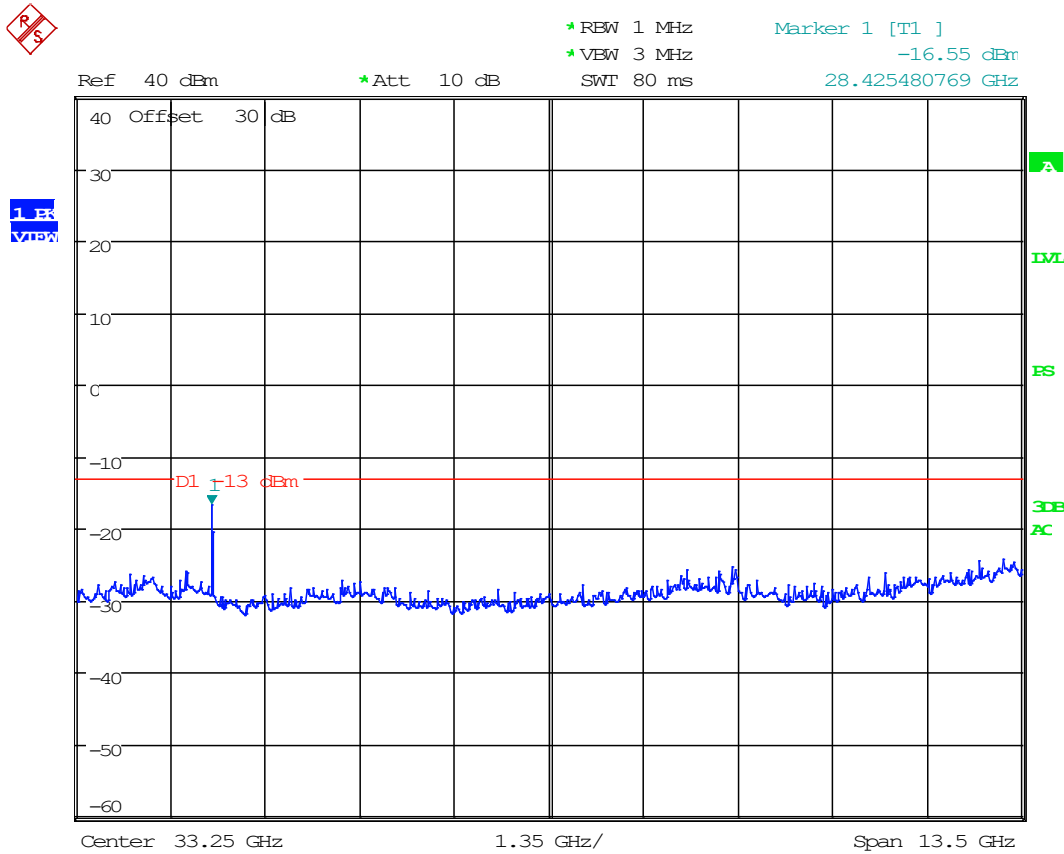
Date: 5.MAY.2021 13:51:19

8.5.9 Emission Limitations, Out-of-Band 18-26 GHz, 9384.7 MHz, NAV12nm



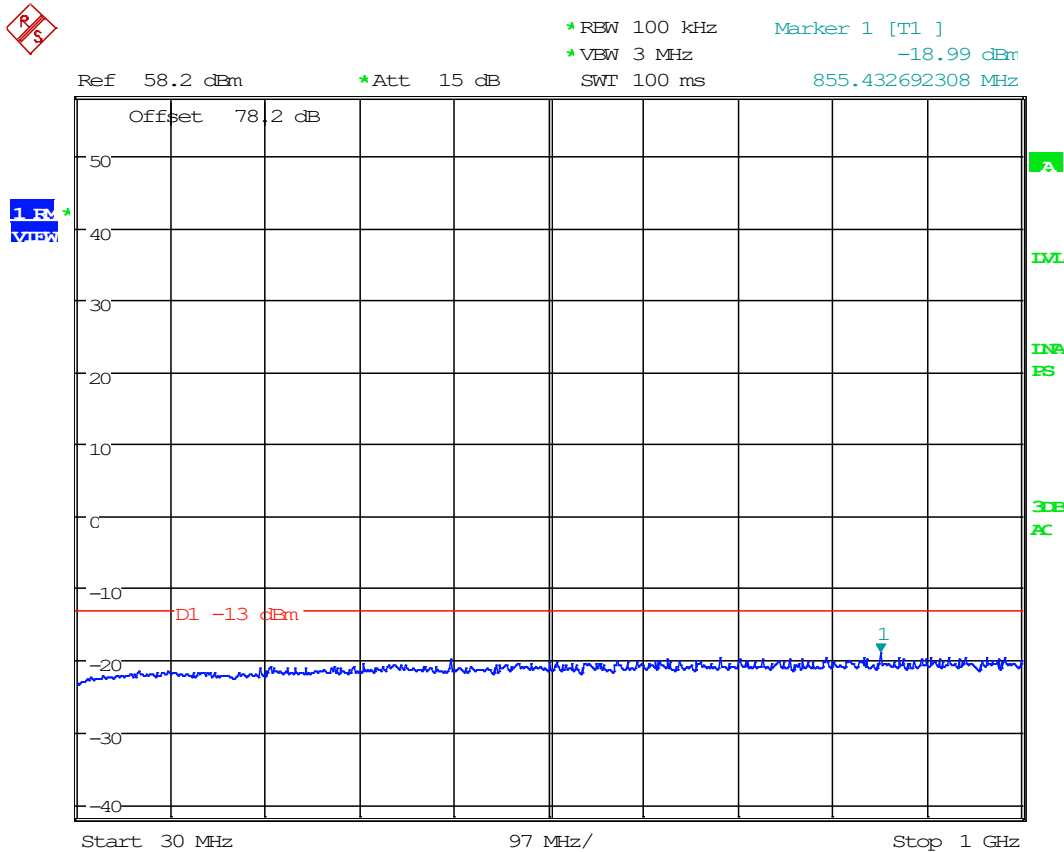
Date: 5.MAY.2021 16:06:39

8.5.10 Emission Limitations, Out-of-Band 26-40 GHz, 9384.7 MHz, NAV12nm



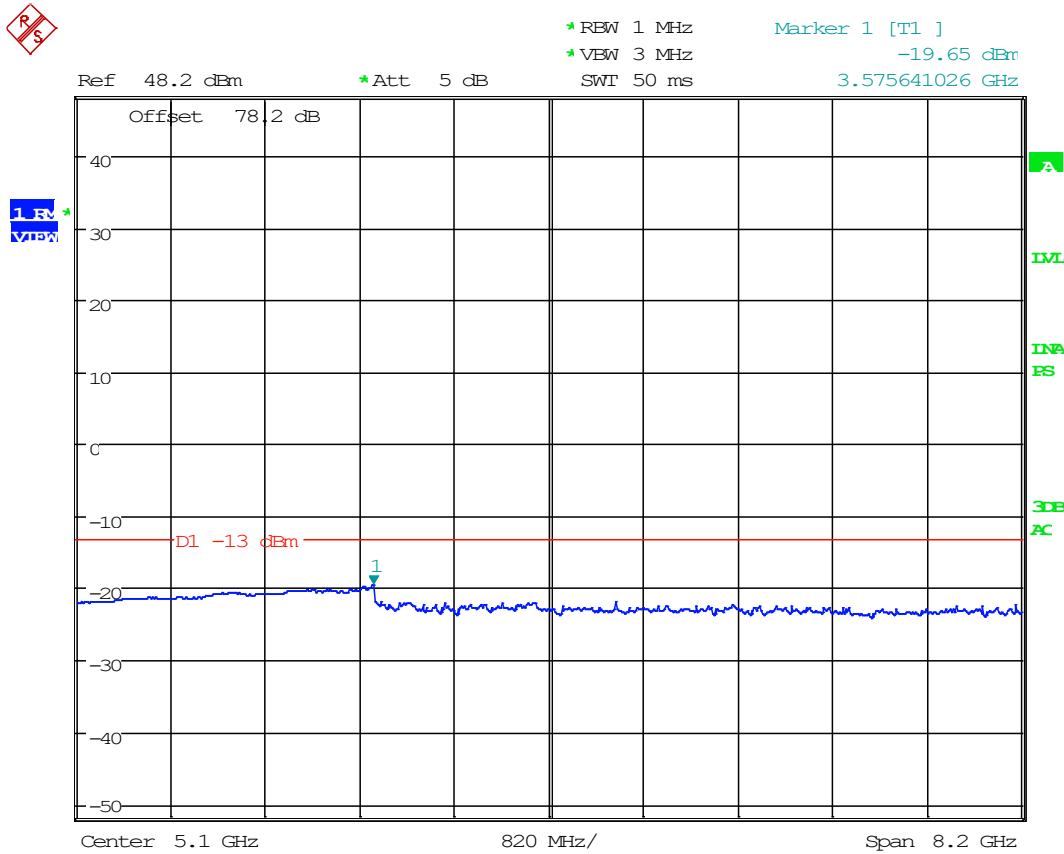
Date: 5.MAY.2021 16:37:11

8.5.11 Emission Limitations, Out-of-Band below 1 GHz, 9384.7 MHz, NAV24nm



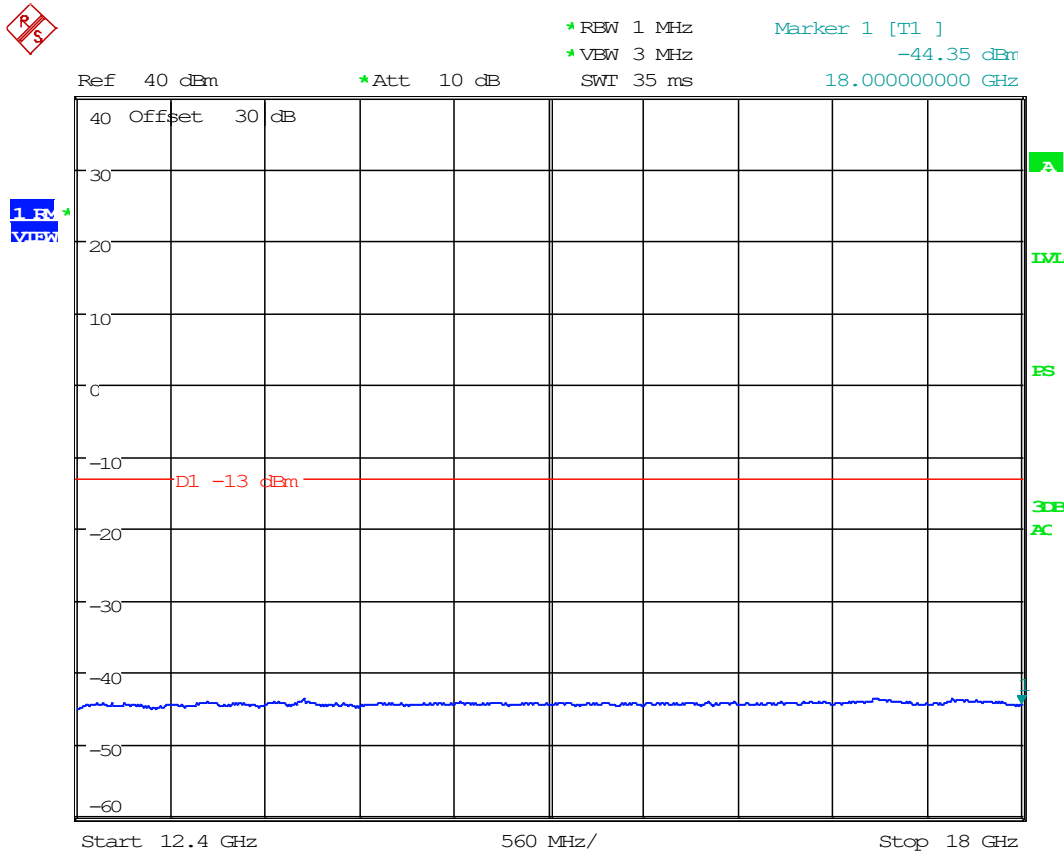
Date: 5.MAY.2021 13:11:29

8.5.12 Emission Limitations, Out-of-Band above 1 GHz, 9384.7 MHz, NAV24nm



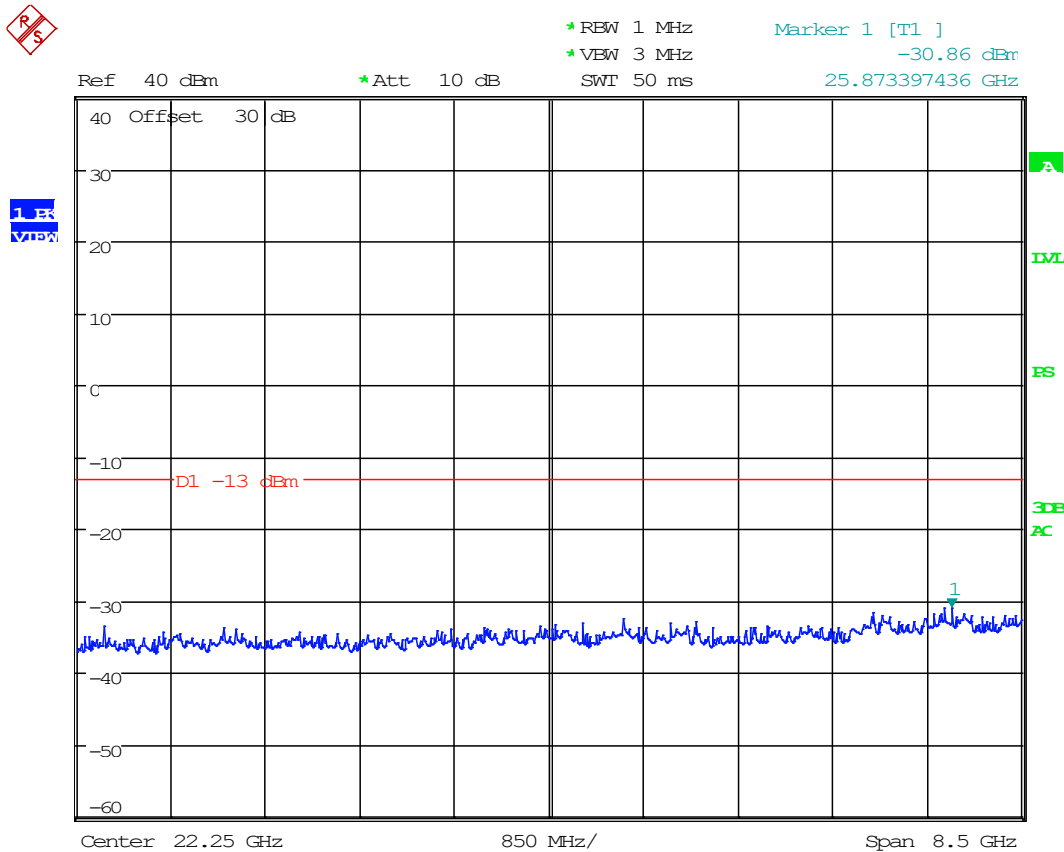
Date: 5.MAY.2021 13:17:59

8.5.13 Emission Limitations, Out-of-Band 12 -18 GHz, 9384.7 MHz, NAV24nm



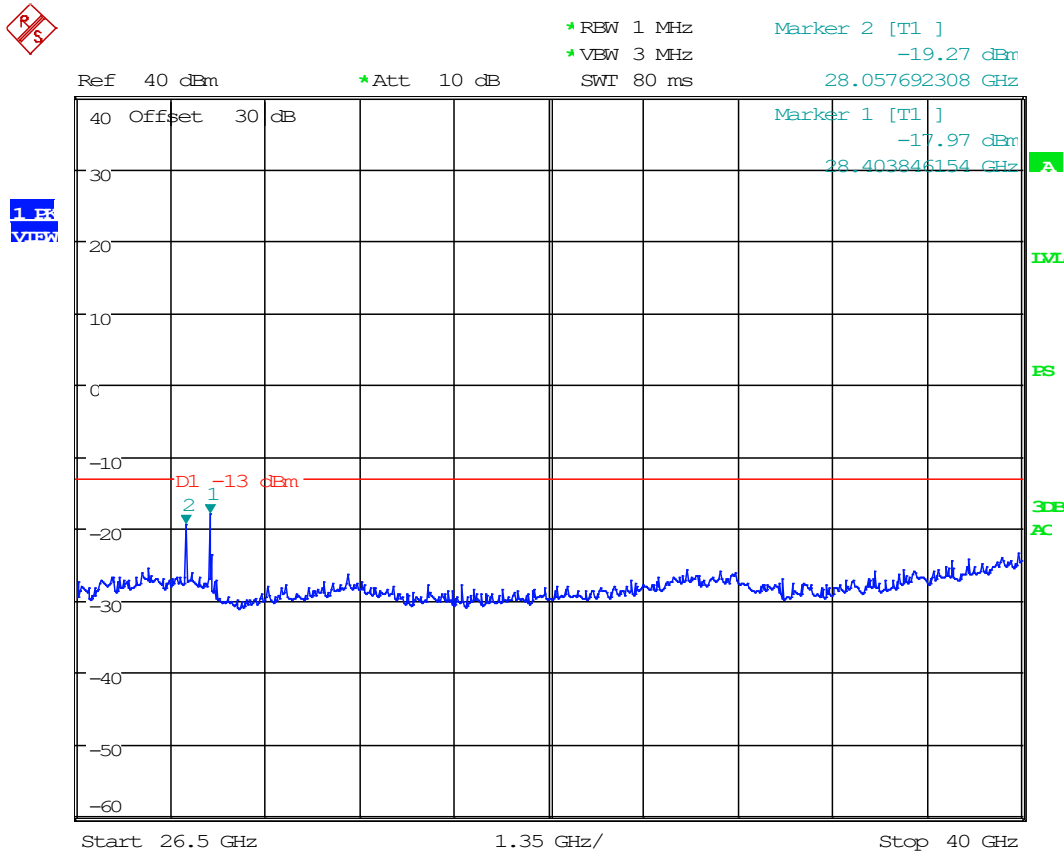
Date: 5.MAY.2021 13:50:06

8.5.14 Emission Limitations, Out-of-Band 18-26 GHz, 9384.7 MHz, NAV24nm



Date: 5.MAY.2021 16:07:20

8.5.15 Emission Limitations, Out-of-Band 26-40 GHz, 9384.7 MHz, NAV24nm

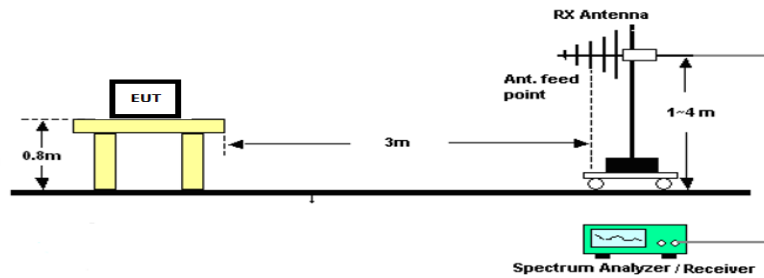


Date: 5.MAY.2021 16:36:10

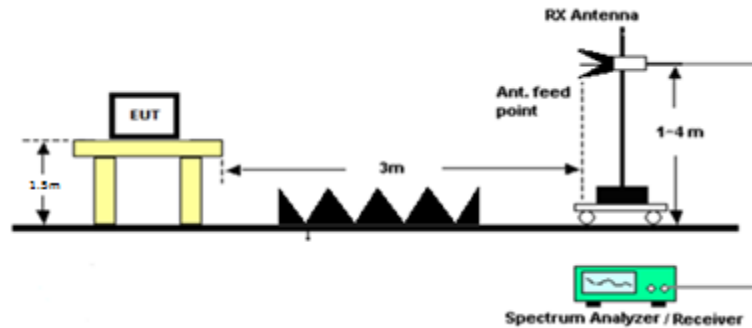
8.6 Radiated Emissions

Limits from FCC Parts 2.1053, 80.211 (f) and 90.210 (n); and test procedure from ANSI C63.26-2015.

Radiated Test Setup, 30 – 1000 MHz



Radiated Test Setup, Above 1000 MHz



Radiated Emissions, Tabular Data

8.6.1 Radiated Emissions, 9384.7 MHz. 6nm

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)
9384.70	18769.40	PK	17.14	H	15.46	44.93	3.00	77.53	-19.85	-13.00	6.85
9384.70	18769.40	PK	18.19	V	15.46	44.93	3.00	78.58	-18.80	-13.00	5.80
9384.70	28154.10	PK	20.38	H	18.89	25.82	3.00	65.09	-32.29	-13.00	19.29
9384.70	28154.10	PK	20.58	V	18.89	25.82	3.00	65.29	-32.09	-13.00	19.09
9384.70	37538.80	PK	28.53	H	22.38	25.12	3.00	76.03	-21.35	-13.00	8.35
9384.70	37538.80	PK	25.27	V	22.38	25.12	3.00	72.77	-24.61	-13.00	11.61

8.6.2 Radiated Emissions, 9384.7 MHz. 24nm

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)
9384.70	18769.40	PK	9.84	H	15.46	44.93	3.00	70.23	-27.15	-13.00	14.15
9384.70	18769.40	PK	13.84	V	15.46	44.93	3.00	74.23	-23.15	-13.00	10.15
9384.70	28154.10	PK	12.46	H	18.89	25.82	3.00	57.17	-40.21	-13.00	27.21
9384.70	28154.10	PK	14.61	V	18.89	25.82	3.00	59.32	-38.06	-13.00	25.06
9384.70	37538.80	PK	17.21	H	22.38	25.12	3.00	64.71	-32.67	-13.00	19.67
9384.70	37538.80	PK	17.31	V	22.38	25.12	3.00	64.81	-32.57	-13.00	19.57

8.6.3 Radiated Emissions, 9384.7 MHz. NAV12nm

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)
9384.70	18769.40	PK	21.32	H	15.46	44.93	3.00	81.71	-15.67	-13.00	2.67
9384.70	18769.40	PK	17.72	V	15.46	44.93	3.00	78.11	-19.27	-13.00	6.27
9384.70	28154.10	PK	12.32	H	18.89	25.82	3.00	57.03	-40.35	-13.00	27.35
9384.70	28154.10	PK	13.08	V	18.89	25.82	3.00	57.79	-39.59	-13.00	26.59
9384.70	37538.80	PK	17.51	H	22.38	25.12	3.00	65.01	-32.37	-13.00	19.37
9384.70	37538.80	PK	16.83	V	22.38	25.12	3.00	64.33	-33.05	-13.00	20.05

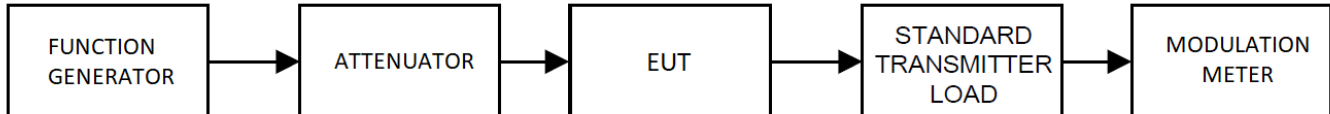
8.6.4 Radiated Emissions, 9384.7 MHz. NAV24nm

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)
9384.70	39.80	PK	25.16	V	0.70	13.30	3.00	39.16	-58.22	-13.00	45.22
9384.70	186.10	PK	28.46	H	1.58	13.40	3.00	43.44	-53.94	-13.00	40.94
9384.70	207.69	PK	25.72	H	1.63	10.59	3.00	37.94	-59.44	-13.00	46.44
9384.70	334.61	PK	14.66	V	2.10	13.70	3.00	30.46	-66.91	-13.00	53.91
9384.70	12578.50	PK	7.32	H	12.31	39.26	3.00	58.89	-38.49	-13.00	25.49
9384.70	14839.70	PK	8.40	V	13.37	40.31	3.00	62.07	-35.30	-13.00	22.30
9384.70	18769.40	PK	23.47	H	15.46	44.86	3.00	83.79	-13.59	-13.00	0.59
9384.70	18769.40	PK	18.02	V	15.46	44.86	3.00	78.34	-19.04	-13.00	6.04
9384.70	28154.10	PK	12.74	H	18.89	34.23	3.00	65.86	-31.52	-13.00	18.52
9384.70	28154.10	PK	12.33	V	18.89	34.23	3.00	65.45	-31.93	-13.00	18.93
9384.70	37538.80	PK	16.59	H	22.38	33.38	3.00	72.35	-25.03	-13.00	12.03
9384.70	37538.80	PK	16.68	V	22.38	33.38	3.00	72.44	-24.94	-13.00	11.94

8.7 Modulation Characteristics

Limits from FCC Parts 2.1047 and 80.213 (g) and test procedure from ANSI C63.26-2015

Conducted Test Setup



FCC 80.213(g) – Device is allowed any modulation type.

8.7.1 Audio Frequency Response

N/A. Device does not carry Audio.

8.7.2 Low Pass Filter Response

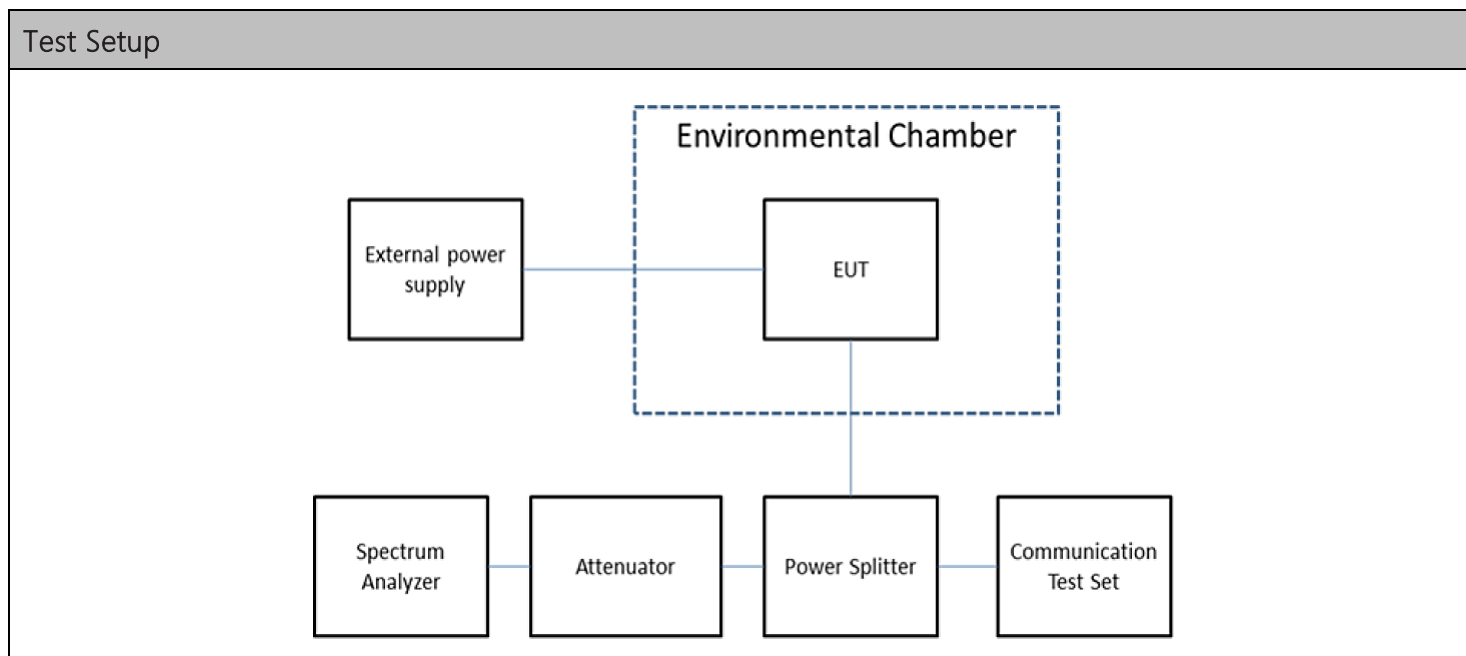
N/A. Device does not carry Audio.

8.7.3 Modulation Limiting

N/A. Device does not need to limit modulation.

8.8 Frequency Stability

Limits from FCC Parts 2.1055, 80.209 (c) and 90.213 (a) footnote 10; and test procedure from ANSI C63.26-2015.



Test Results, Mode 1		
Tuned Frequency (MHz)	Max Deviation (ppm)	Limit (ppm)
9384.7	396	1250

Note: This EUT is designed to operate within FCC Parts 80 and 90, and in accordance with ISSED RSS-238. Therefore, in lieu of FCC Part 90 unspecified stability limit, the EUT shall meet Frequency Stability limits from the appropriate standards (1250 ppm).

Note: The frequency determining element is the same component for both low and high ranges. The Frequency Stability testing was not repeated for both bands.

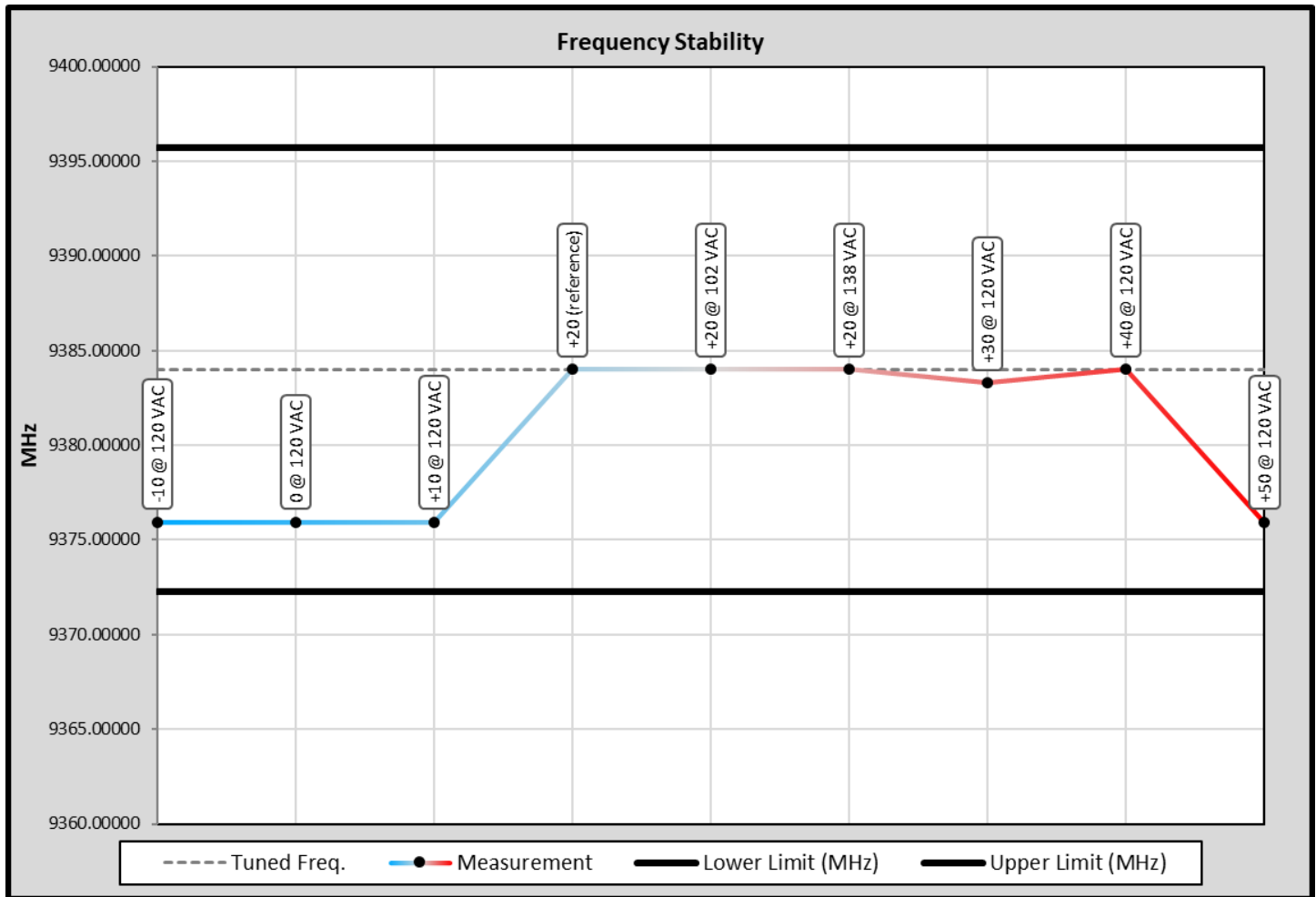
Frequency Stability, Tabular Data

8.8.1 Frequency Stability Data

Limit (ppm)		1250.00	
Limit (Hz)		11730000.000	
Lower Limit (MHz)		9372.270000	
Upper Limit (MHz)		9395.730000	
Rated Supply Voltage		120.0	☒ AC ☐ DC
Temperature / Voltage Variation			
Temperature (°C)	Supplied Voltage (V)	Frequency (MHz)	Deviation (kHz)
-10	120.0	9375.939103	8060.897
0	120.0	9375.939103	8060.897
+10	120.0	9375.939103	8060.897
+20 (reference)	120.0	9384.000000	0.000
+20	102.0	9384.000000	0.000
+20	138.0	9384.000000	0.000
+30	120.0	9383.278847	721.154
+40	120.0	9384.000000	0.000
+50	120.0	9375.939103	8060.897

Note: The EUT's built-in power supply is designed to run stable and eliminated voltage differences from AC Mains. Input voltage variation was found to have no effect on the result.

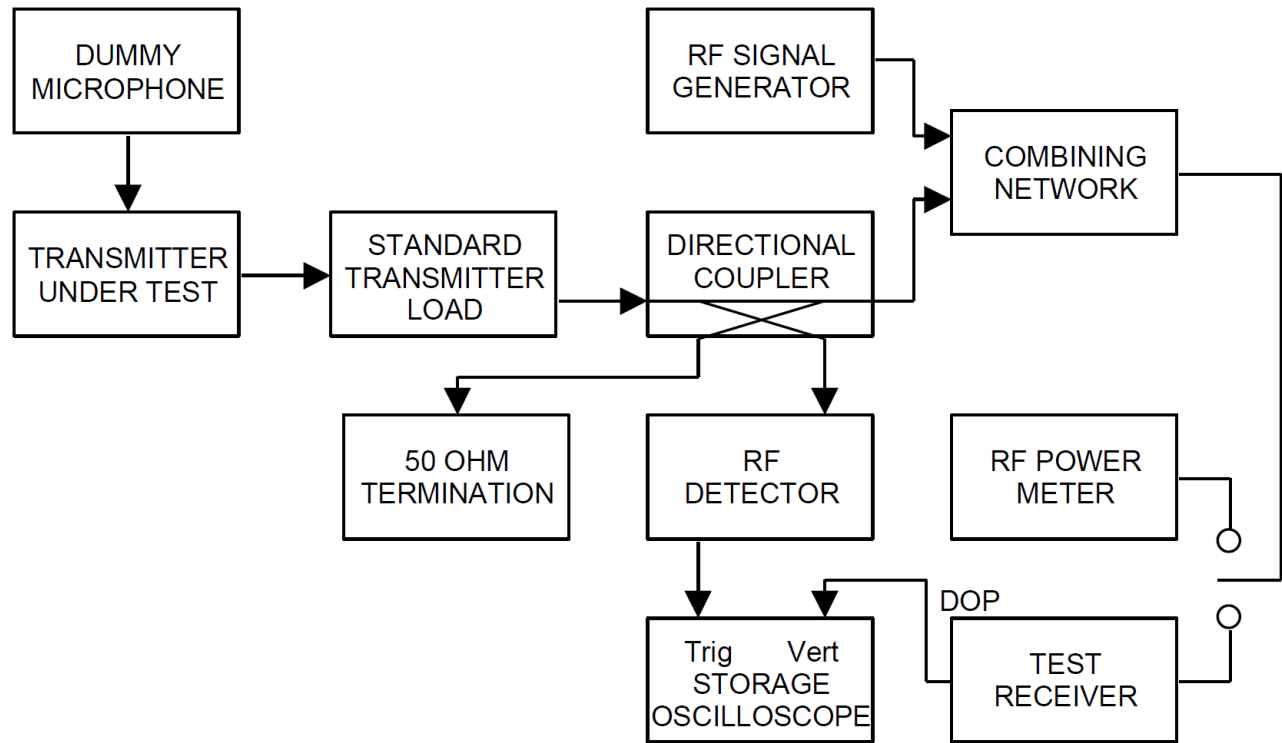
8.8.2 Frequency Stability Plot



8.9 Transient Frequency Behavior

Limits from FCC Part 90.214; and test procedure from ANSI C63.26-2015.

Conducted Test Setup

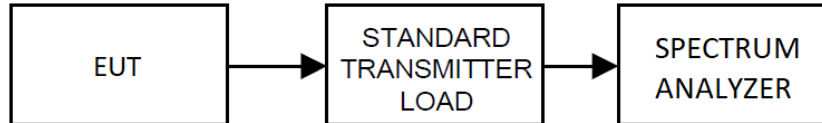


N/A. Device does not operate in a band requiring TFR measurement.

8.10 Adjacent channel power limits

Limits from FCC Part 90.221, and test procedure from ANSI C63.26-2015.

Conducted Test Setup



N/A. Device does not operate in a band requiring ACP measurement.

9. ANNEX-A - Photographs of the EUT

Photographs of the EUT and any manufacturer supplied accessories to be used with the EUT are in separate supplementary documents labelled EXTERNAL PHOTOS and INTERNAL PHOTOS.

10. ANNEX-B – Test Setup Photographs

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

11. History of Test Report Changes

Test Report #	Revision #	Description	Date of Issue
TR_1884-21_FCC_PT80-90_1	1	Initial release	May 6, 2021

END OF TEST REPORT
