Test Report – FCC Part 15B Unintentional Radiator
Applicant: ICOM Incorporated

Approved for Release By:

Signature: Bruno Clavier

Name & Title: Bruno Clavier, General Manager

Date of Signature 03/11/2024

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1. Applicant Information

Applicant: ICOM Incorporated
Address: 1-1-32 Kamininami, Hirano-Ku
Osaka, Japan 547-0003

1.1 Test Result Summary

The following test procedure was used ANSI C63.4-2014. 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)
Applicable Clauses from FCC 15 B		
15.107	Conducted Emission Limits	Pass
15.111 (a)	Receiver Conducted Power	N/A
15.121	38 dB Rejection	Pass [(1)]
15.109	Radiated Emission Limits	Pass

Notes: 1) EUT is not capable of operating in the Part 22 Cellular Radiotelephone band

2. Location of Testing

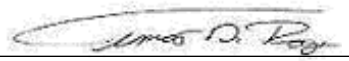
2.1 Test Laboratory

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

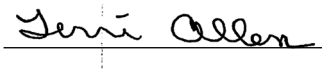
2.2 Testing was performed, reviewed by

Dates of Testing: 02/15/2024 – 02/20/2024

Signature:  Sr. EMC Engineer EMC-003838-NE

Name & Title: Tim Royer, EMC Engineer

Date of Signature 03/11/2024

Signature: 

Name & Title: Terri Allen, Project Specialist

Date of Signature 03/11/2024

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

The test sample was received: 02/15/2024

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	
Brief Description:	Analogue Scanning Receiver
FCC ID:	AFJ432200
Contains FCC ID:	2AMWOFSC-BT1036C
Model(s) #:	IC-R15
HVIN:	432200-01
Receiver Frequencies:	88.000 – 500.000 MHz (A Band) 108.000 – 500.000 MHz (B Band)
Frequencies Tested:	88 MHz, 144 MHz, 220 MHz, 450 MHz, and Scanning
Mode:	FM / WFM / AM
Software version:	N/A
Serial Number:	00000207
Voltage Rating (AC or Batt.):	DC 5V (for USB) / DC 3.6V (BP-287)

3.2 Configuration of EUT

Frequency	Bands Tested (MHz)	Mode	Number of Ant.
88- 500 MHz	88 MHz, 144 MHz, 220 MHz, 450 MHz, and Scanning	Receive, Band A	1
108 – 500 MHz	144 MHz, 220 MHz, 450 MHz, and Scanning	Receive, Band B	1

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 63.4. Full test results are available in this report.

Limits and Regulatory Limits:

1) FCC 15.109 (2015)

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	Biconical 1057	Eaton	94455-1	1057	11/19/21	11/18/2024
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	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 ESW44	Rohde & Schwarz	ESW44	103049	10/13/21	10/12/2024
LISN	LISN (Primary)	Electro-Metrics	ANS-25/2	2604	11/10/23	11/10/2026

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 dBµV. 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 (dBµV/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 dBµV 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.

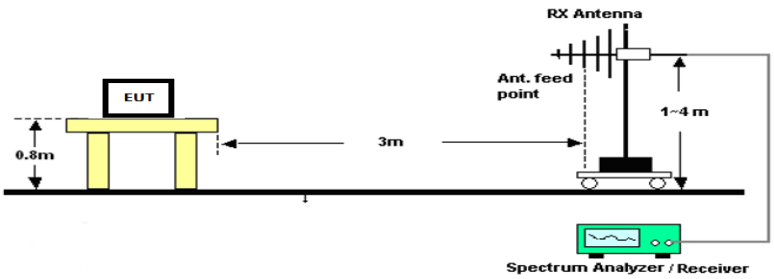
Example:

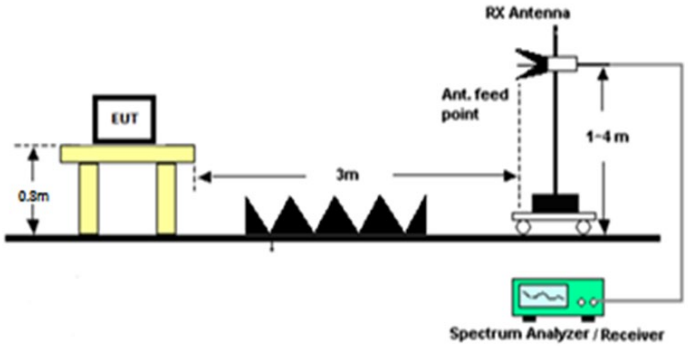
Freq (MHz)	Meter Reading	+ ACF	+CL	= FS
33	20 dBµV	+ 10.36 dB/m	+0.40 dB	=30.36 dBµV/m @ 3m

EIRP = Pcond (dBm) + dBi

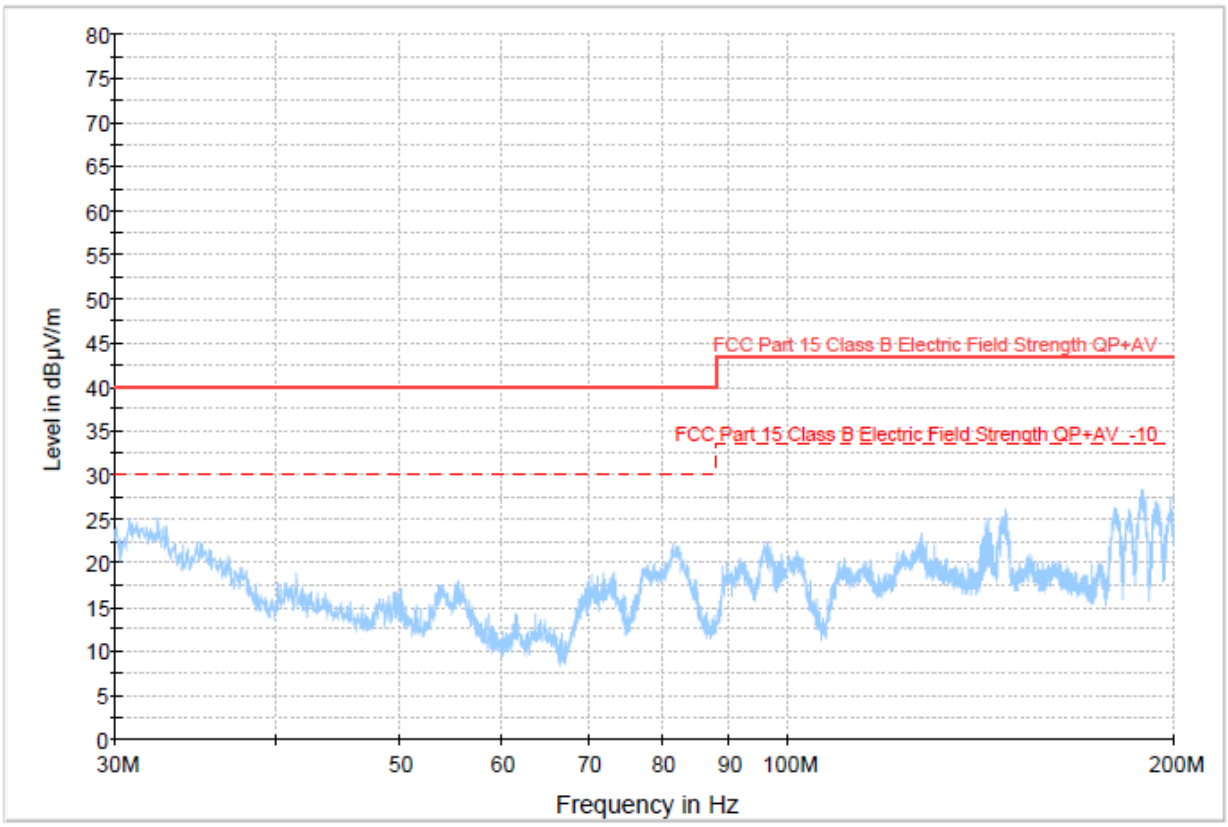
8.1 Radiated Emissions

Limits from FCC 15.109 and test procedure from ANSI C63.4-2014.

Radiated Test Setup, 30 – 1000 MHz


Radiated Test Setup, Above 1000 MHz


8.1.1 Scanning Receiver Function, 30 MHz to 200 MHz, Horizontal/ Vertical Polarity Plot -Band A



2/20/2024 8:24:49 AM

8.1.2 Scanning Receiver Function, 30 MHz to 200 MHz, Horizontal/ Vertical Polarity Table -Band A

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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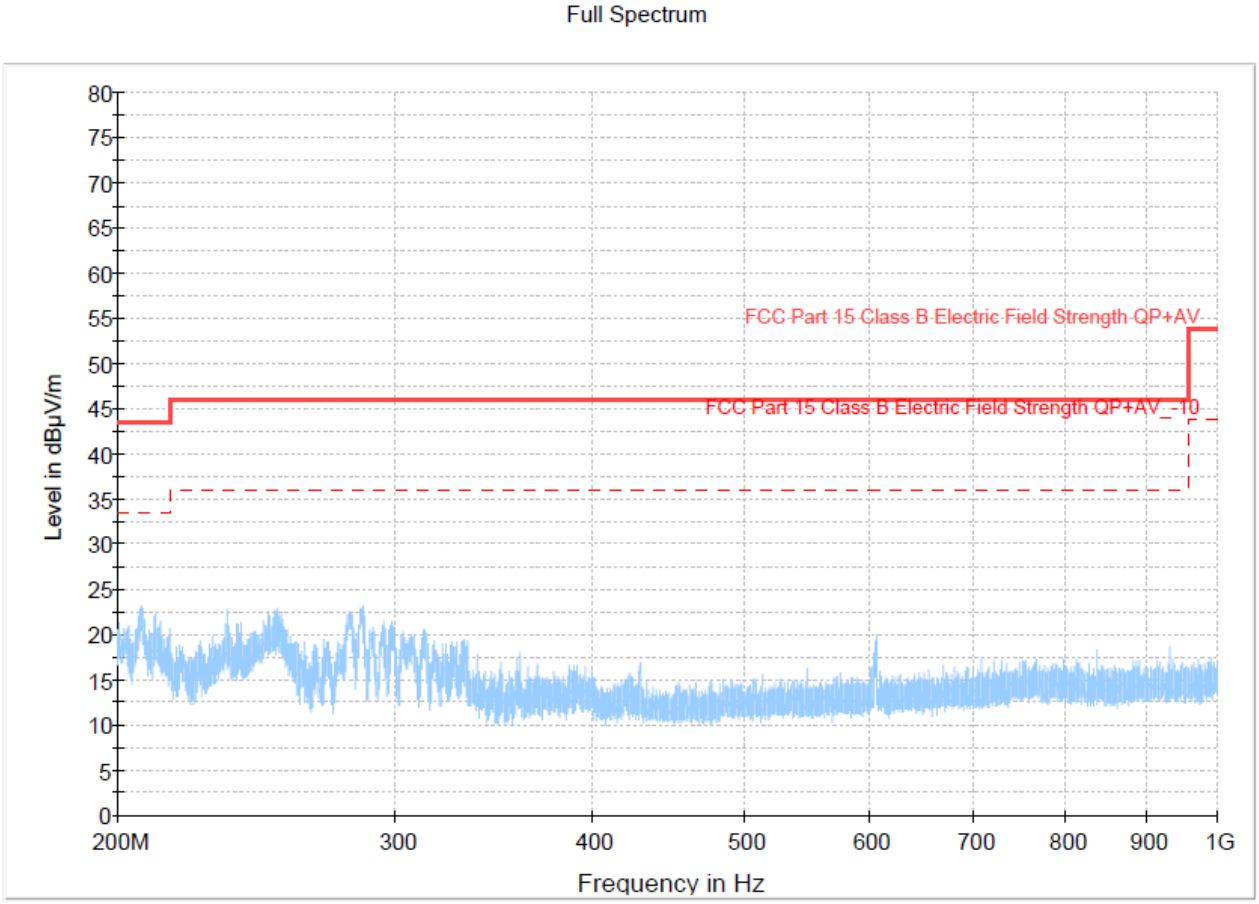
8.1.3 Scanning Receiver Function, 200 MHz to 1000 MHz, Horizontal/ Vertical Polarity Plot -Band A



2/20/2024 8:51:22 AM

8.1.4 Scanning Receiver Function, 200 MHz to 1000 MHz, Horizontal/ Vertical Polarity Table -Band A

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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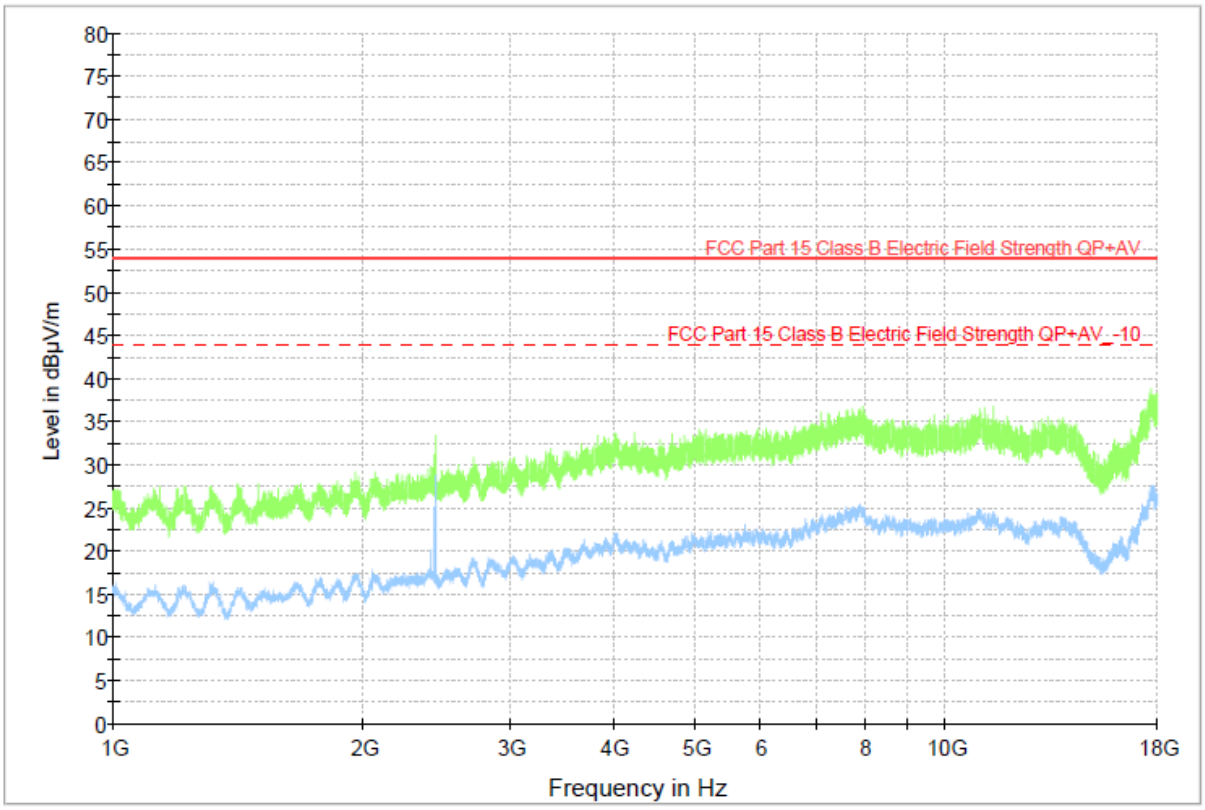
8.1.5 Scanning Receiver Function, above 1000 MHz, Horizontal/ Vertical Polarity Plot -Band A



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8.1.6 Scanning Receiver Function, above 1000 MHz, Horizontal/ Vertical Polarity Table -Band A

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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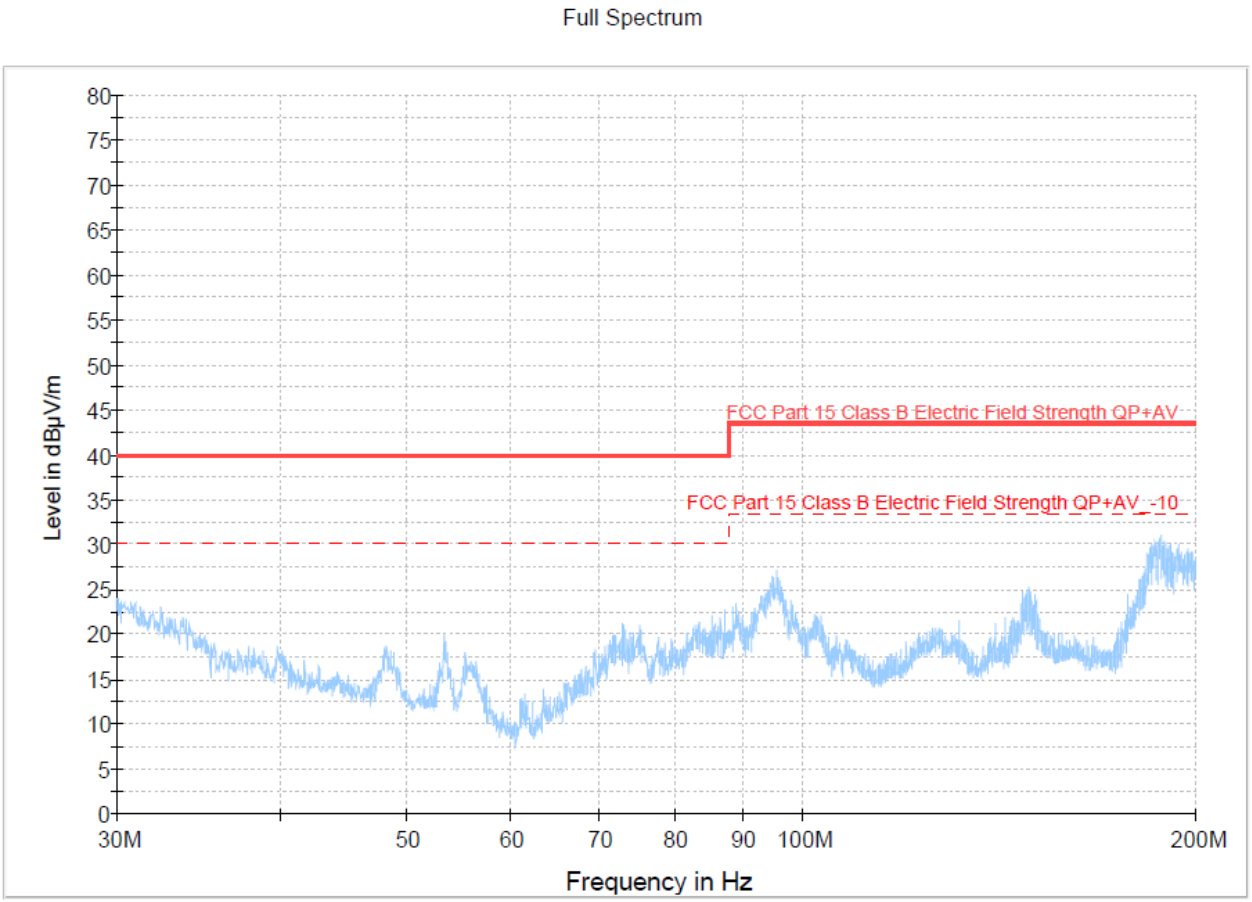
8.1.7 88 MHz, 30 MHz to 200 MHz, Horizontal/ Vertical Polarity Plot -Band A



2/16/2024 11:11:51 AM

8.1.8 88 MHz, 30 MHz to 200 MHz, Horizontal/ Vertical Polarity Table -Band A

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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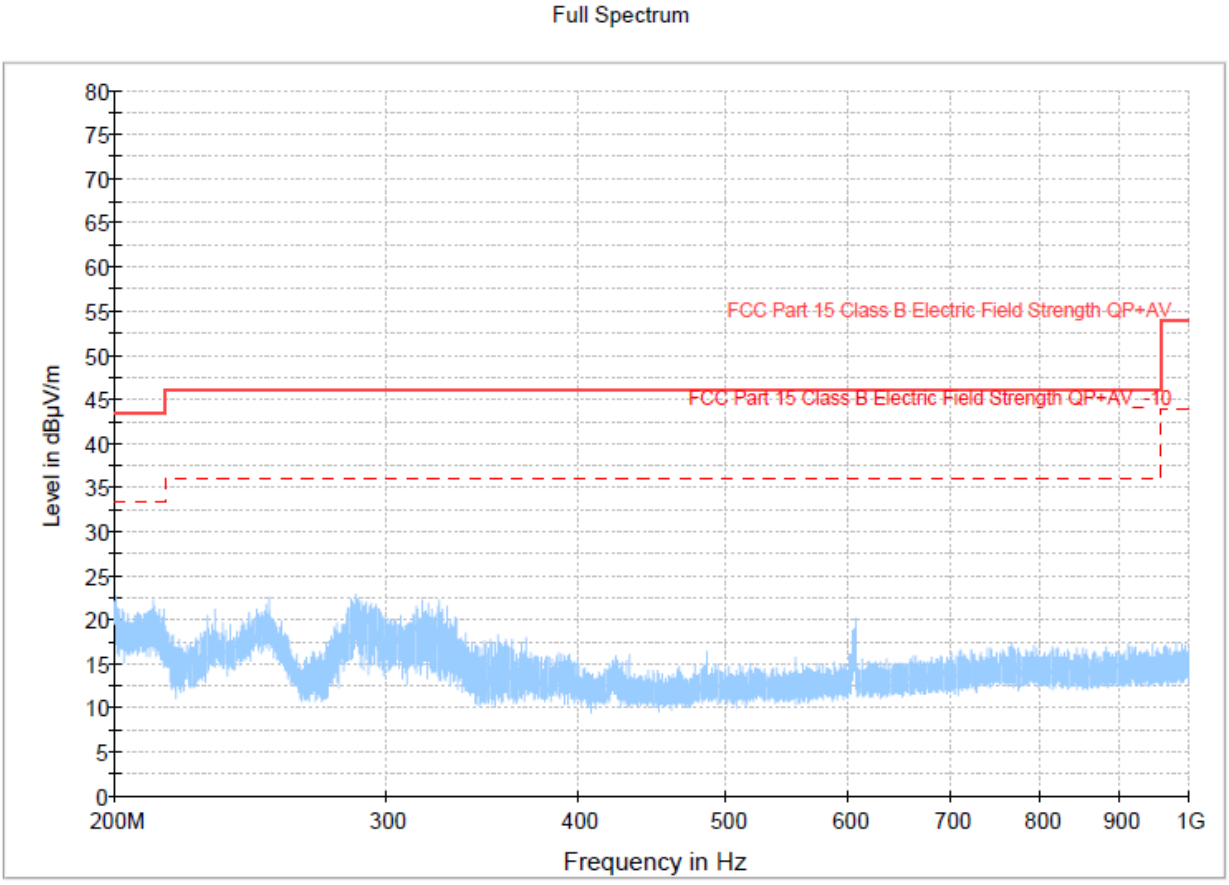
8.1.9 88 MHz, 200 MHz to 1000 MHz, Horizontal/ Vertical Polarity Plot -Band A



2/16/2024 9:05:29 AM

8.1.10 88 MHz, 200 MHz to 1000 MHz, Horizontal/ Vertical Polarity Table -Band A

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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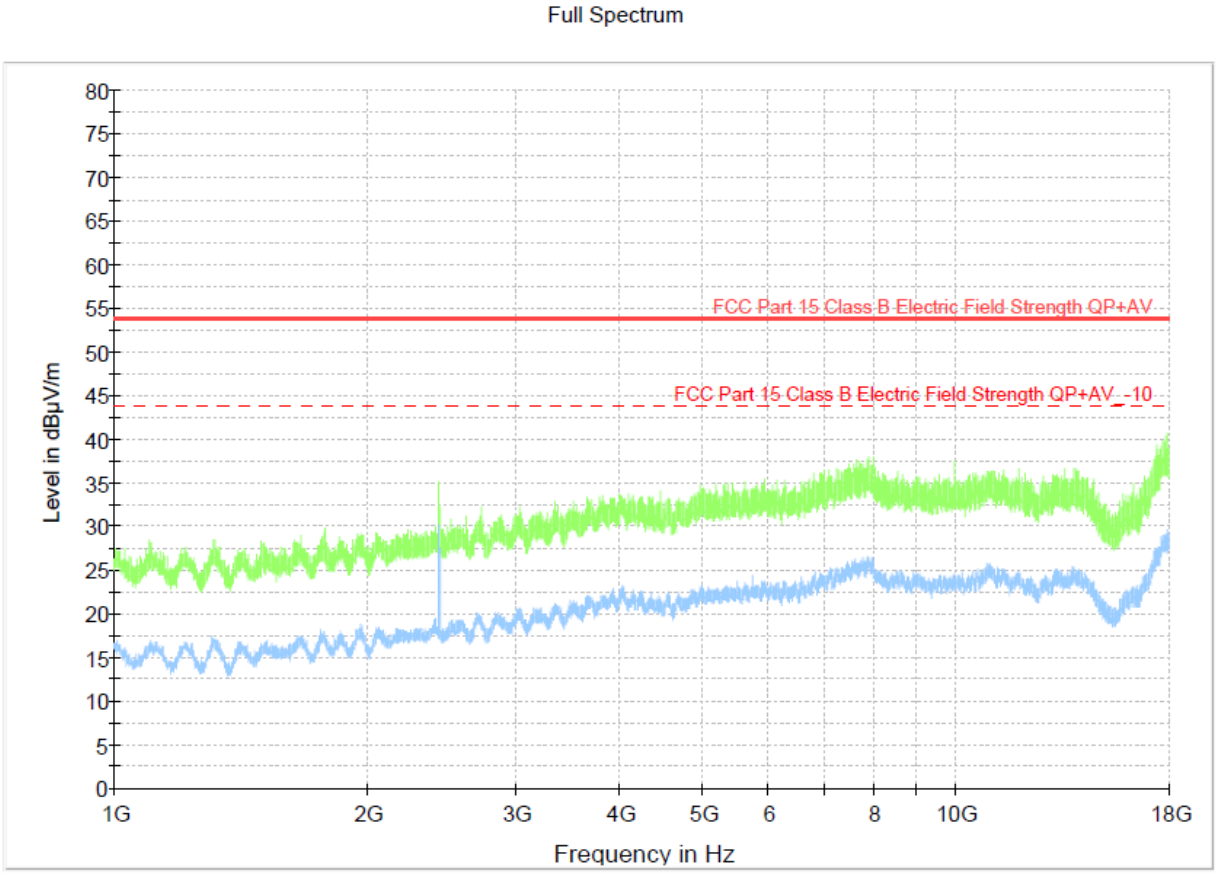
8.1.11 88 MHz, above 1000 MHz, Horizontal/ Vertical Polarity Plot -Band A



2/16/2024 8:08:04 AM

8.1.12 88 MHz, above 1000 MHz, Horizontal/ Vertical Polarity Table -Band A

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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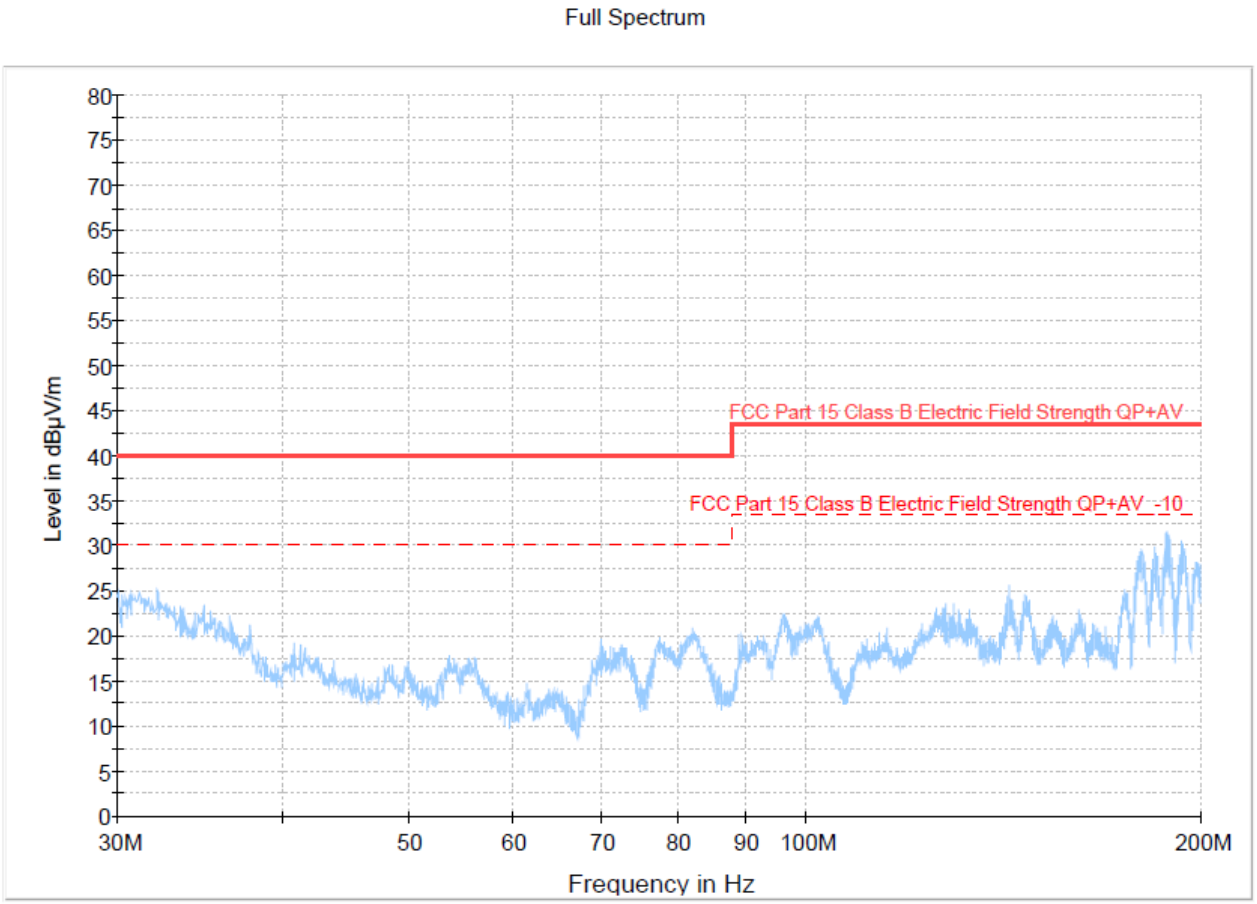
8.1.13 144 MHz, 30 MHz to 200 MHz, Horizontal/ Vertical Polarity Plot -Band A



2/20/2024 8:13:19 AM

8.1.14 144 MHz, 30 MHz to 200 MHz, Horizontal/ Vertical Polarity Table -Band A

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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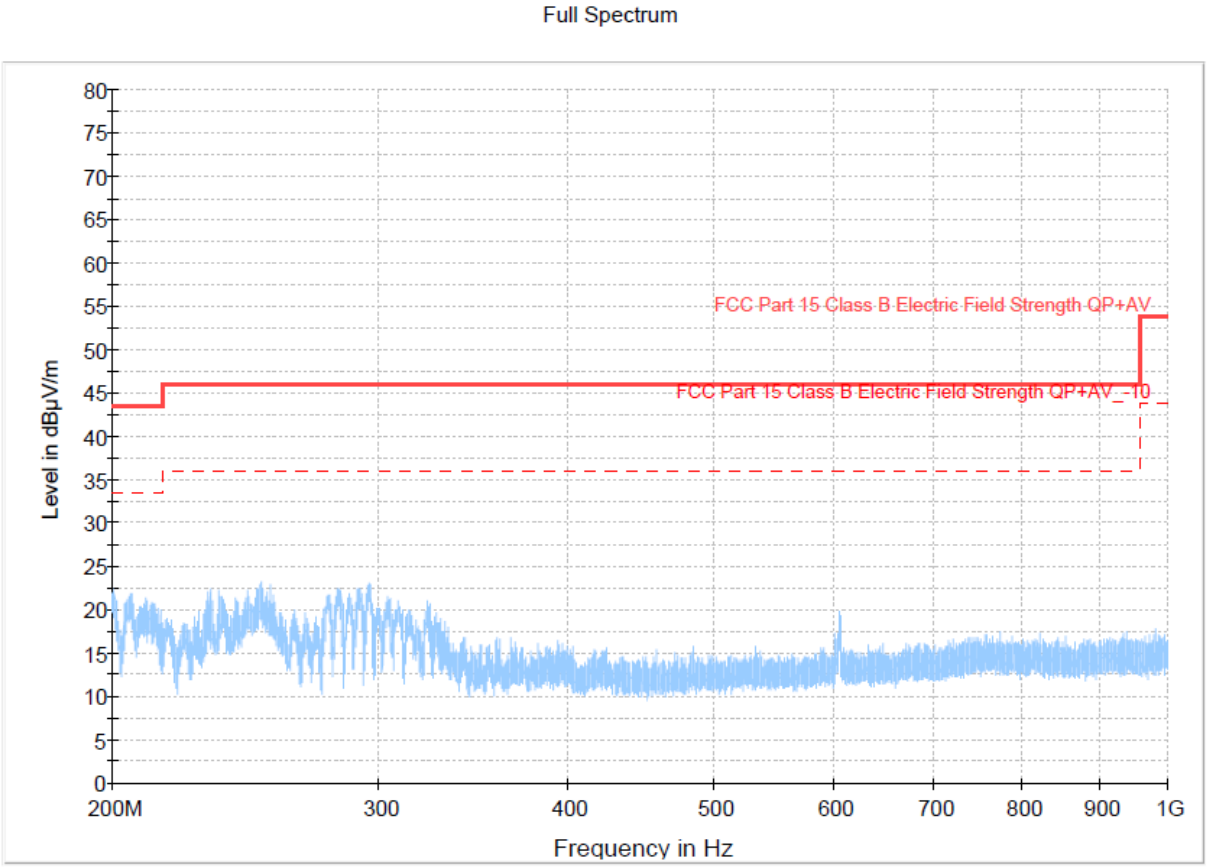
8.1.15 144 MHz, 200 MHz to 1000 MHz, Horizontal/ Vertical Polarity Plot -Band A



2/20/2024 9:16:52 AM

8.1.16 144 MHz, 200 MHz to 1000 MHz, Horizontal/ Vertical Polarity Table -Band A

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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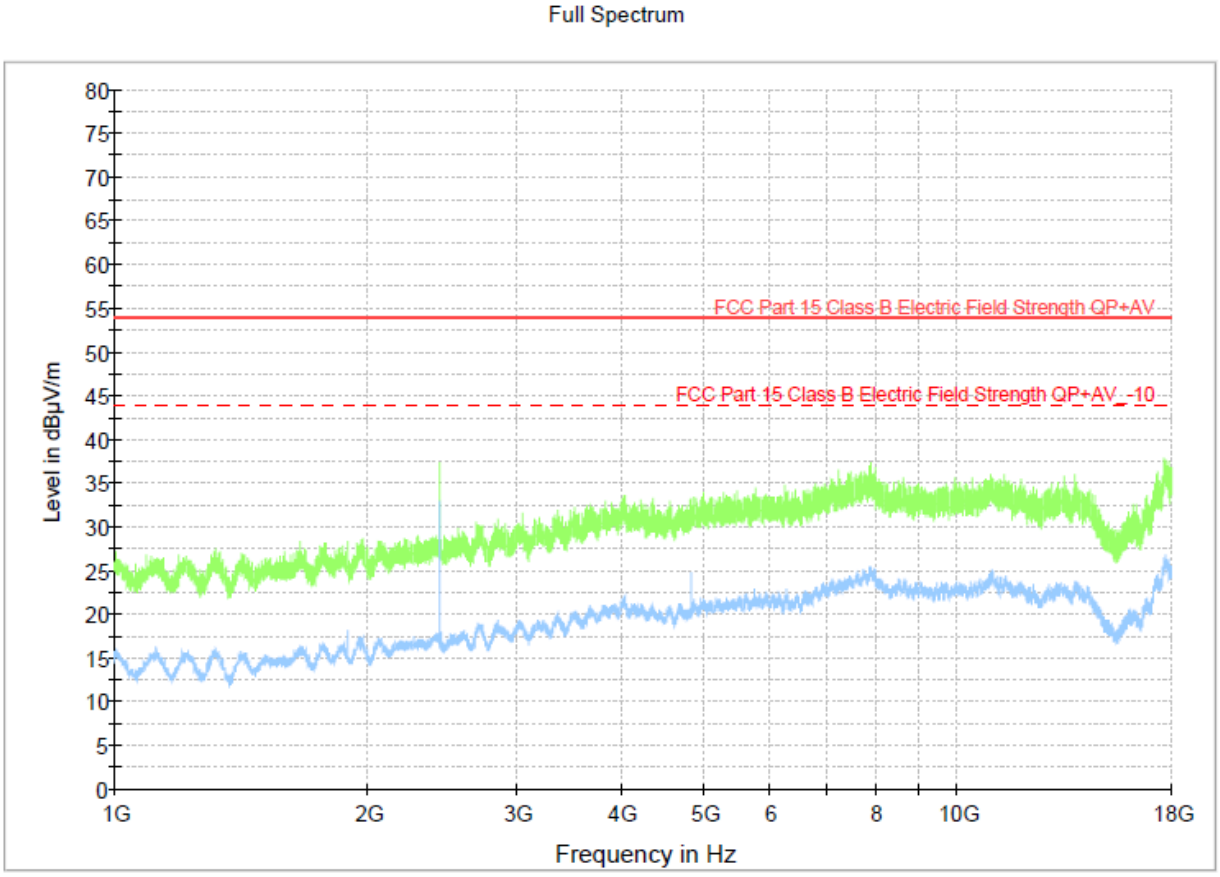
8.1.17 144 MHz, above 1000 MHz, Horizontal/ Vertical Polarity Plot -Band A



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8.1.18 144 MHz, above 1000 MHz, Horizontal/ Vertical Polarity Table -Band A

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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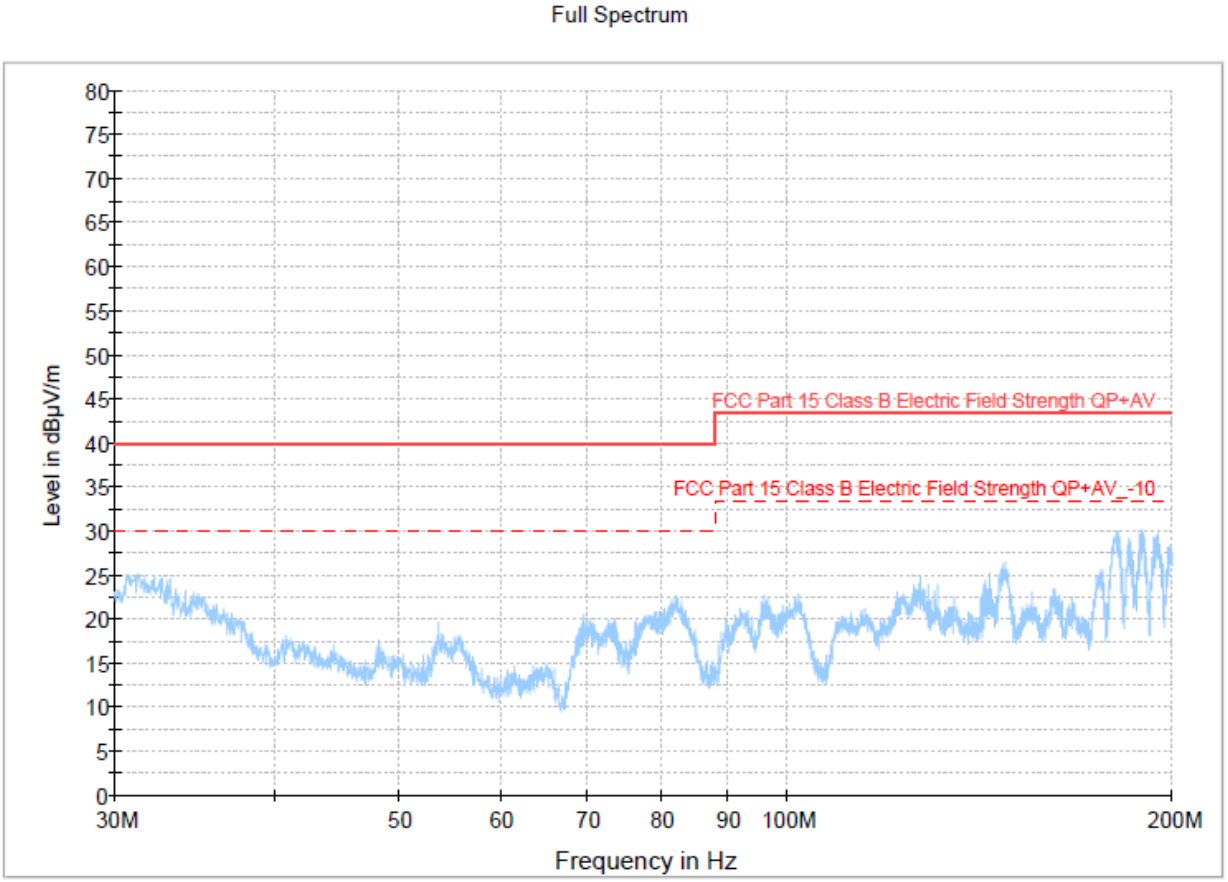
8.1.19 220 MHz, 30 MHz to 200 MHz, Horizontal/ Vertical Polarity Plot -Band A



2/20/2024 8:03:07 AM

8.1.20 220 MHz, 30 MHz to 200 MHz, Horizontal/ Vertical Polarity Table -Band A

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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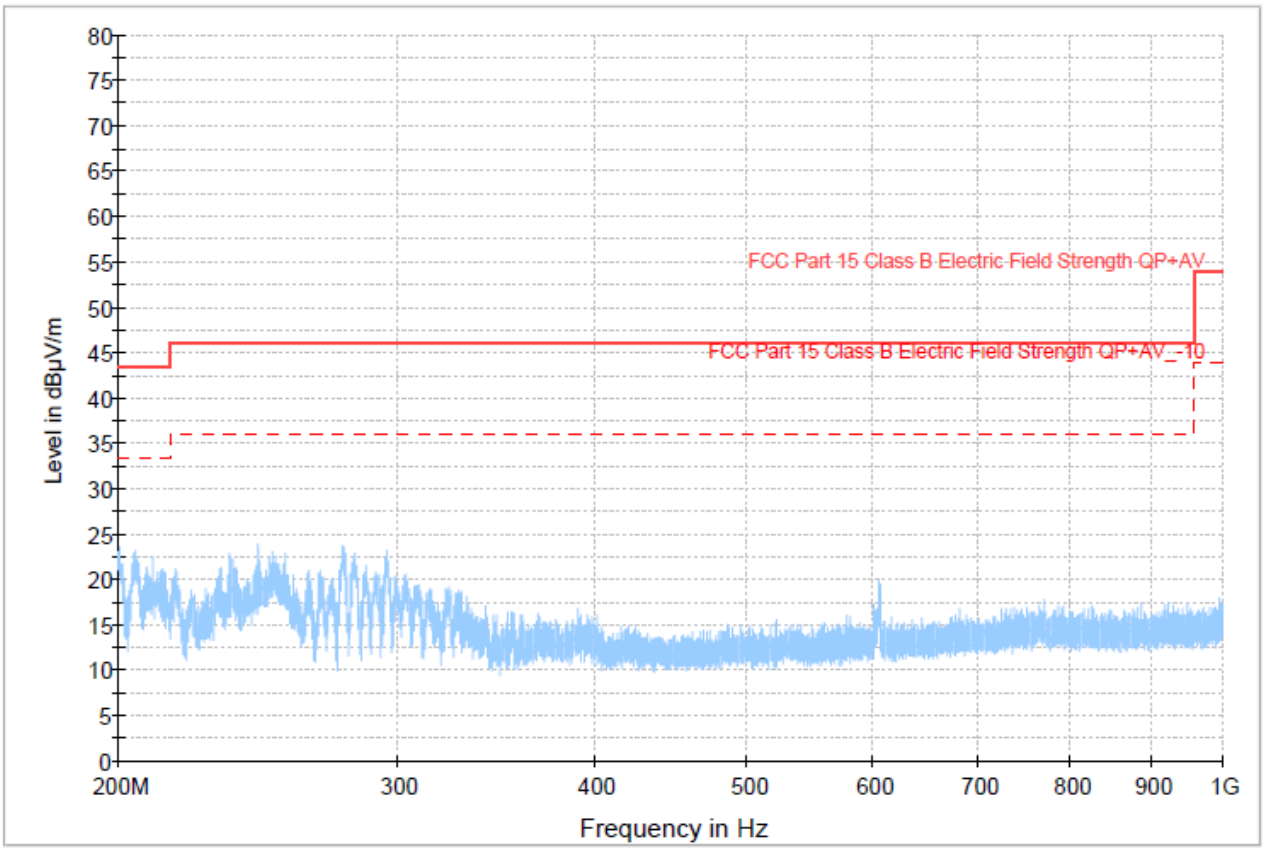
8.1.21 220 MHz, 200 MHz to 1000 MHz, Horizontal/ Vertical Polarity Plot -Band A



2/20/2024 9:39:09 AM

8.1.22 220 MHz, 200 MHz to 1000 MHz, Horizontal/ Vertical Polarity Table -Band A

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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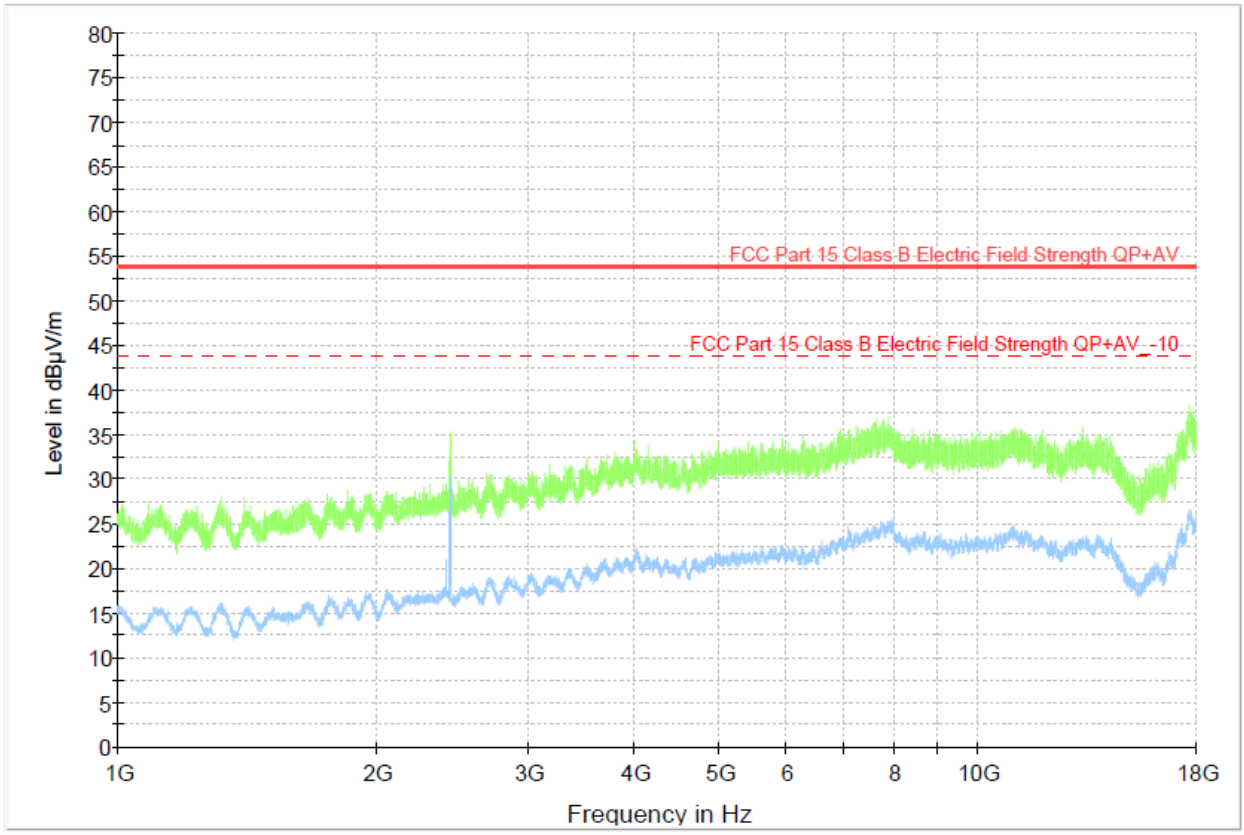
8.1.23 220 MHz, above 1000 MHz, Horizontal/ Vertical Polarity Plot -Band A



2/19/2024 3:11:42 PM

8.1.24 220 MHz, above 1000 MHz, Horizontal/ Vertical Polarity Table -Band A

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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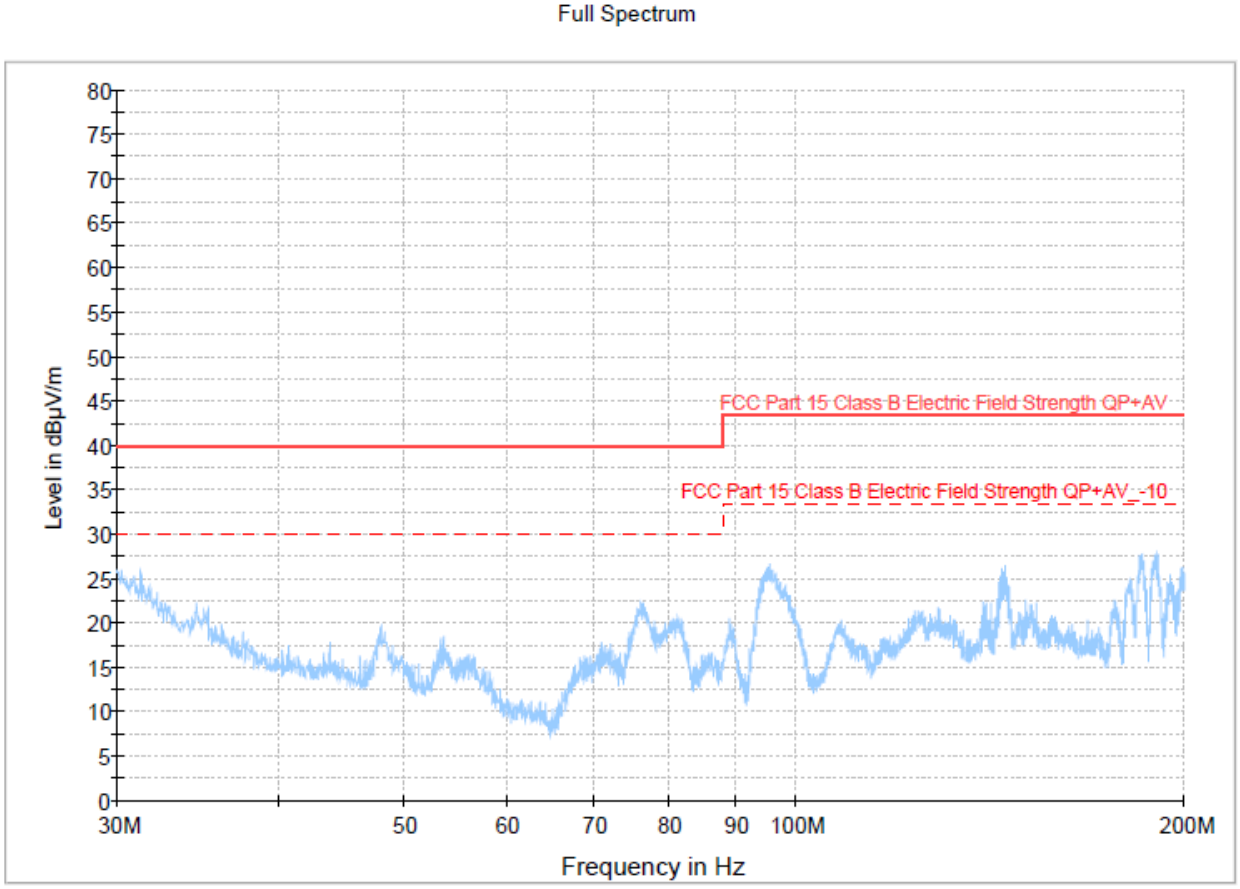
8.1.25 450 MHz, 30 MHz to 200 MHz, Horizontal/ Vertical Polarity Plot -Band A



2/19/2024 4:47:56 PM

8.1.26 450 MHz, 30 MHz to 200 MHz, Horizontal/ Vertical Polarity Table -Band A

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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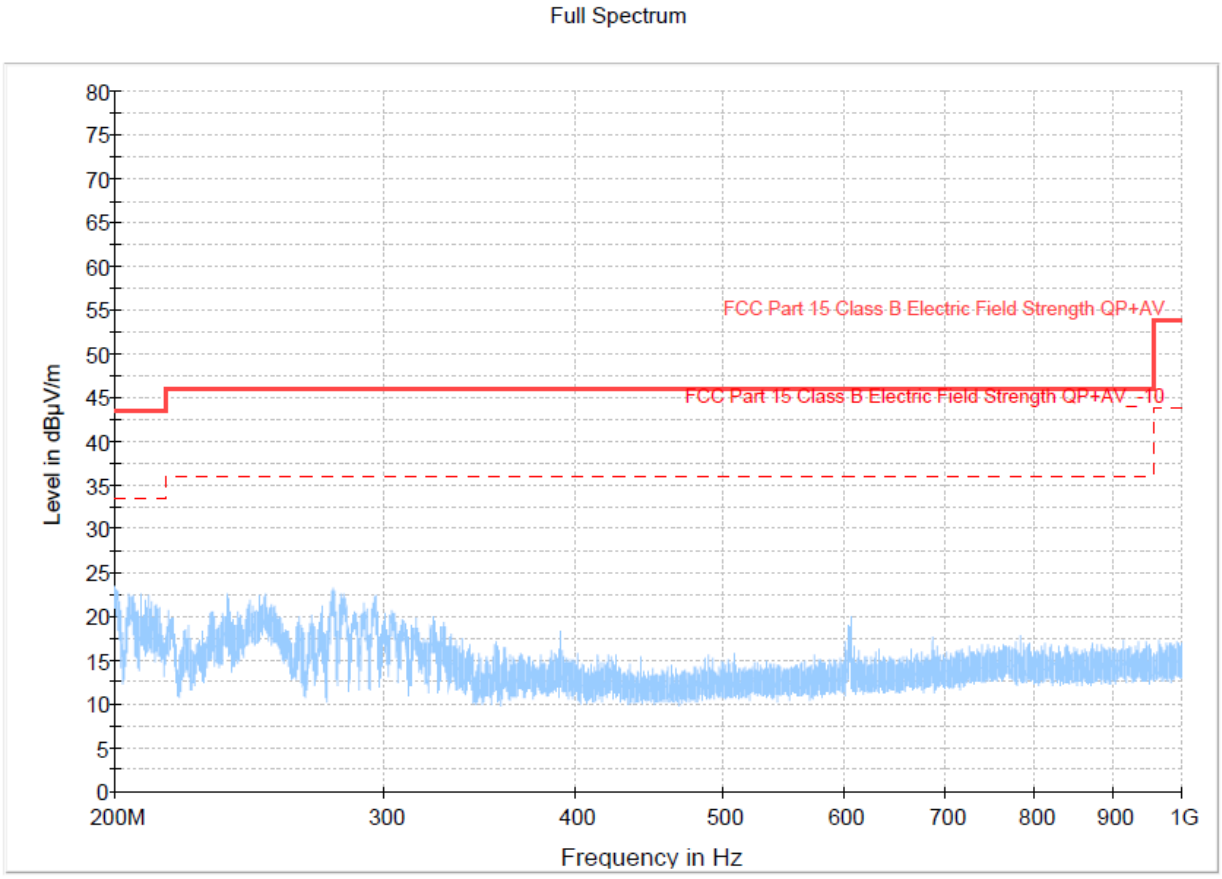
8.1.27 450 MHz, 200 MHz to 1000 MHz, Horizontal/ Vertical Polarity Plot -Band A



2/20/2024 10:01:54 AM

8.1.28 450 MHz, 200 MHz to 1000 MHz, Horizontal/ Vertical Polarity Table -Band A

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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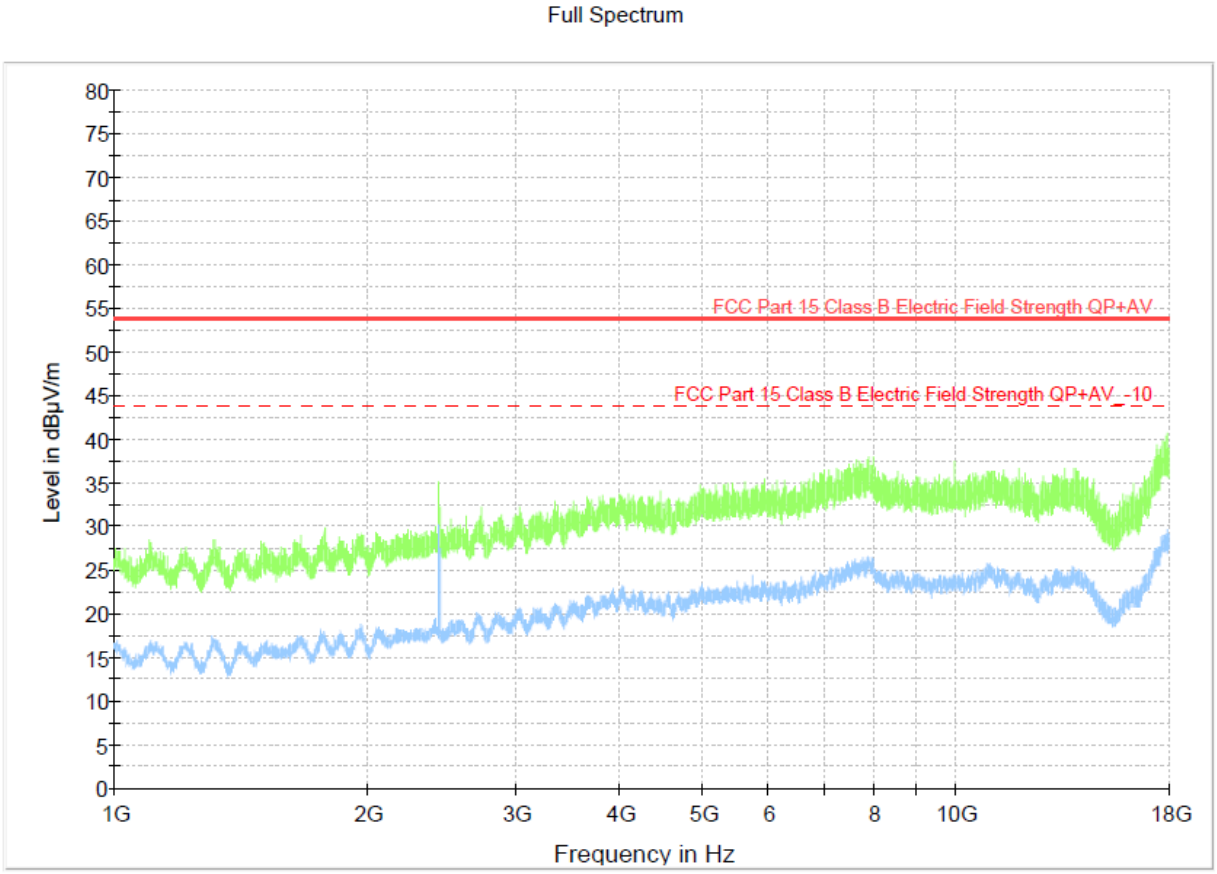
8.1.29 450 MHz, above 1000 MHz, Horizontal/ Vertical Polarity Plot -Band A



2/16/2024 8:08:04 AM

8.1.30 450 MHz, above 1000 MHz, Horizontal/ Vertical Polarity Table -Band A

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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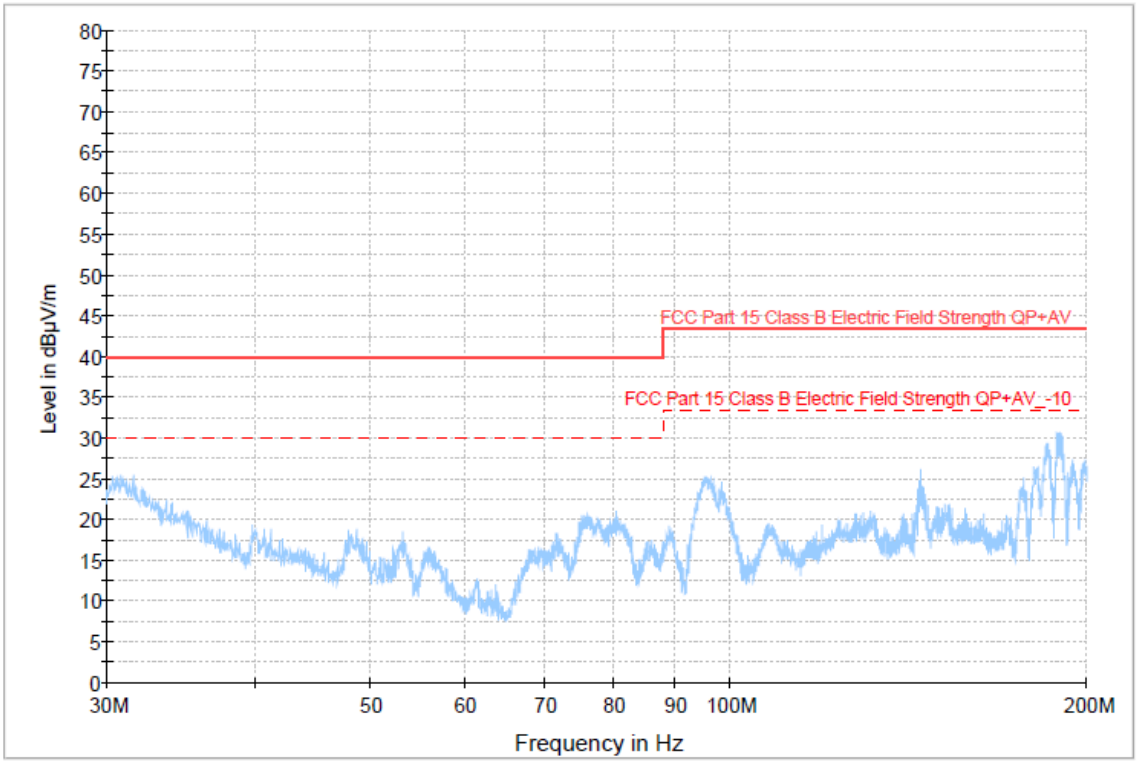
8.1.31 Scanning Receiver Function, 30 MHz to 200 MHz, Horizontal/ Vertical Polarity Plot -Band B

EMI Auto Test(1) 2 / 6

Full Spectrum



2/16/2024 11:55:00 AM

8.1.32 Scanning Receiver Function, 30 MHz to 200 MHz, Horizontal/ Vertical Polarity Table -Band B

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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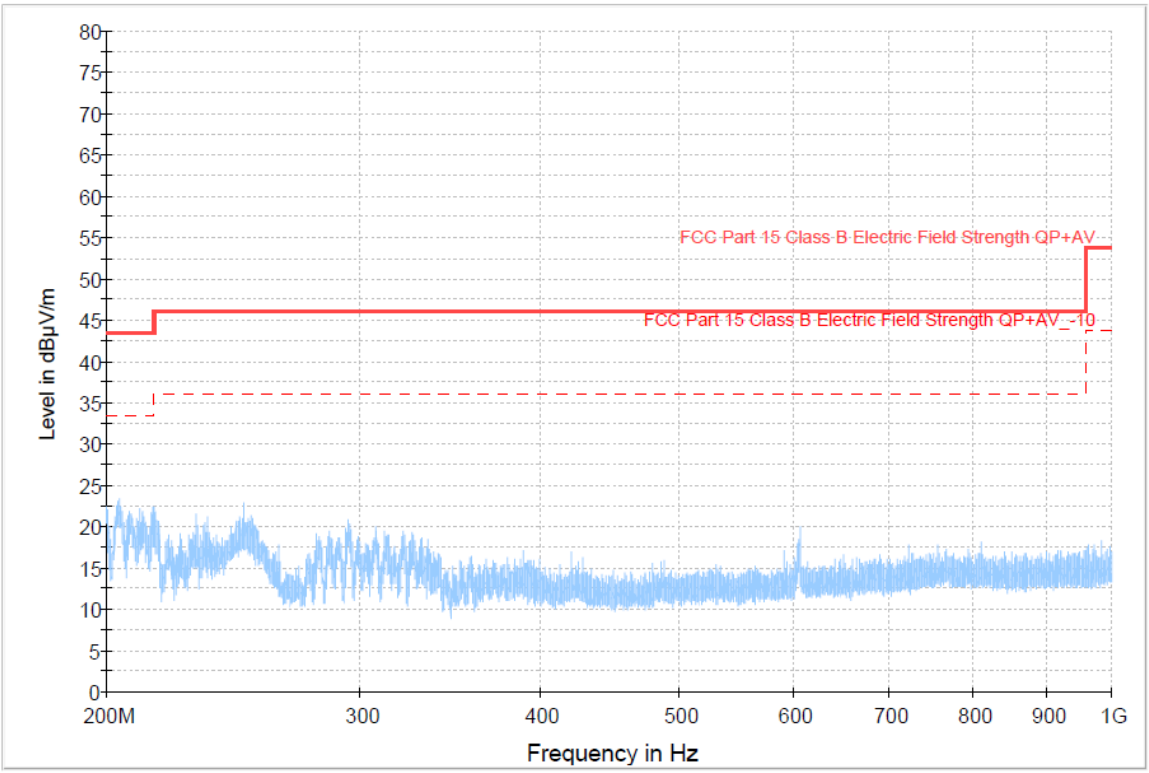
8.1.33 Scanning Receiver Function, 200 MHz to 1000 MHz, Horizontal/ Vertical Polarity Plot -Band B

EMI Auto Test(1) 2 / 6

Full Spectrum



2/16/2024 10:48:24 AM

8.1.34 Scanning Receiver Function, 200 MHz to 1000 MHz, Horizontal/ Vertical Polarity Table -Band B

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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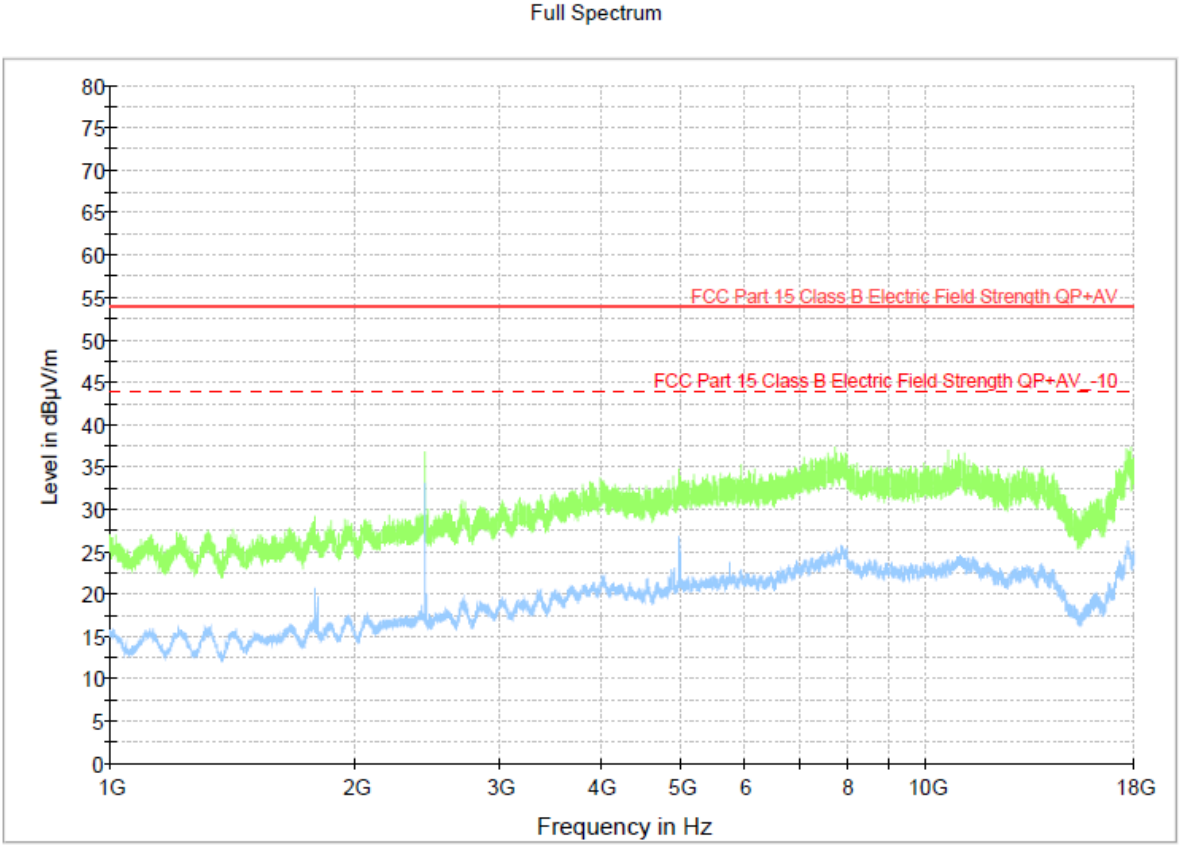
8.1.35 Scanning Receiver Function, above 1000 MHz, Horizontal/ Vertical Polarity Plot -Band B



2/15/2024 4:04:25 PM

8.1.36 Scanning Receiver Function, above 1000 MHz, Horizontal/ Vertical Polarity Table -Band B

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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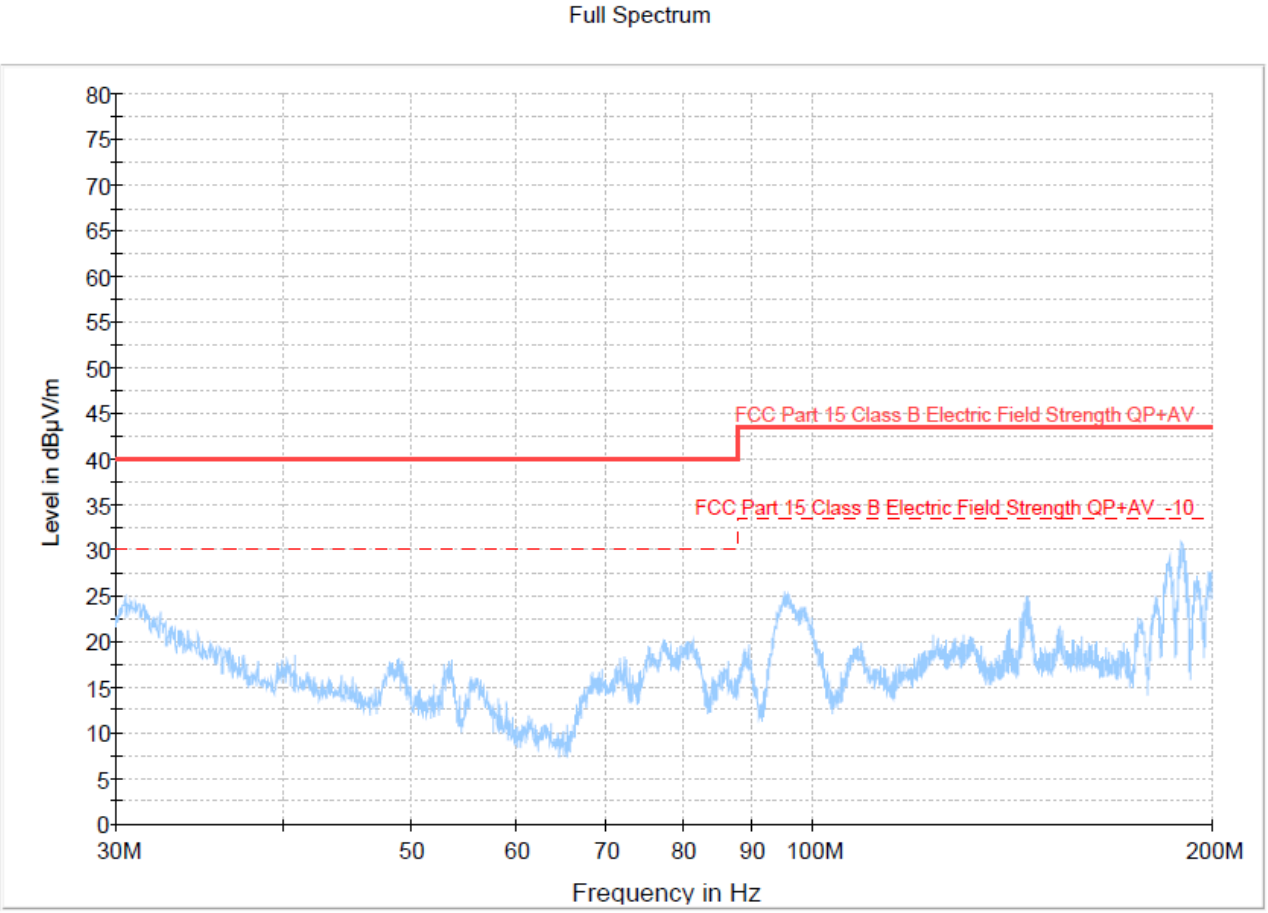
8.1.37 144 MHz, 30 MHz to 200 MHz, Horizontal/ Vertical Polarity Plot -Band B



2/16/2024 11:23:32 AM

8.1.38 144 MHz, 30 MHz to 200 MHz, Horizontal/ Vertical Polarity Table -Band B

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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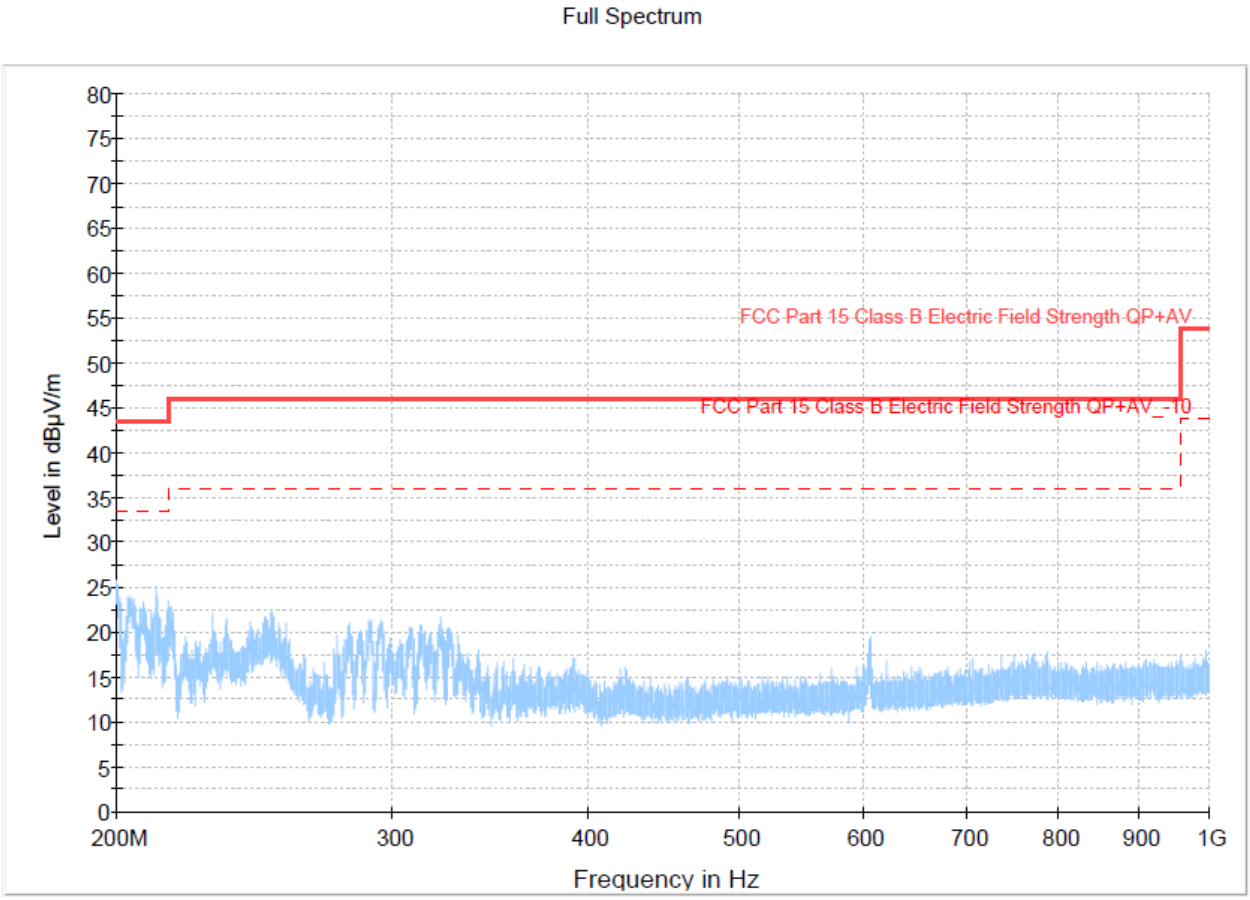
8.1.39 144 MHz, 200 MHz to 1000 MHz, Horizontal/ Vertical Polarity Plot -Band B



2/16/2024 9:41:05 AM

8.1.40 144 MHz, 200 MHz to 1000 MHz, Horizontal/ Vertical Polarity Table -Band B

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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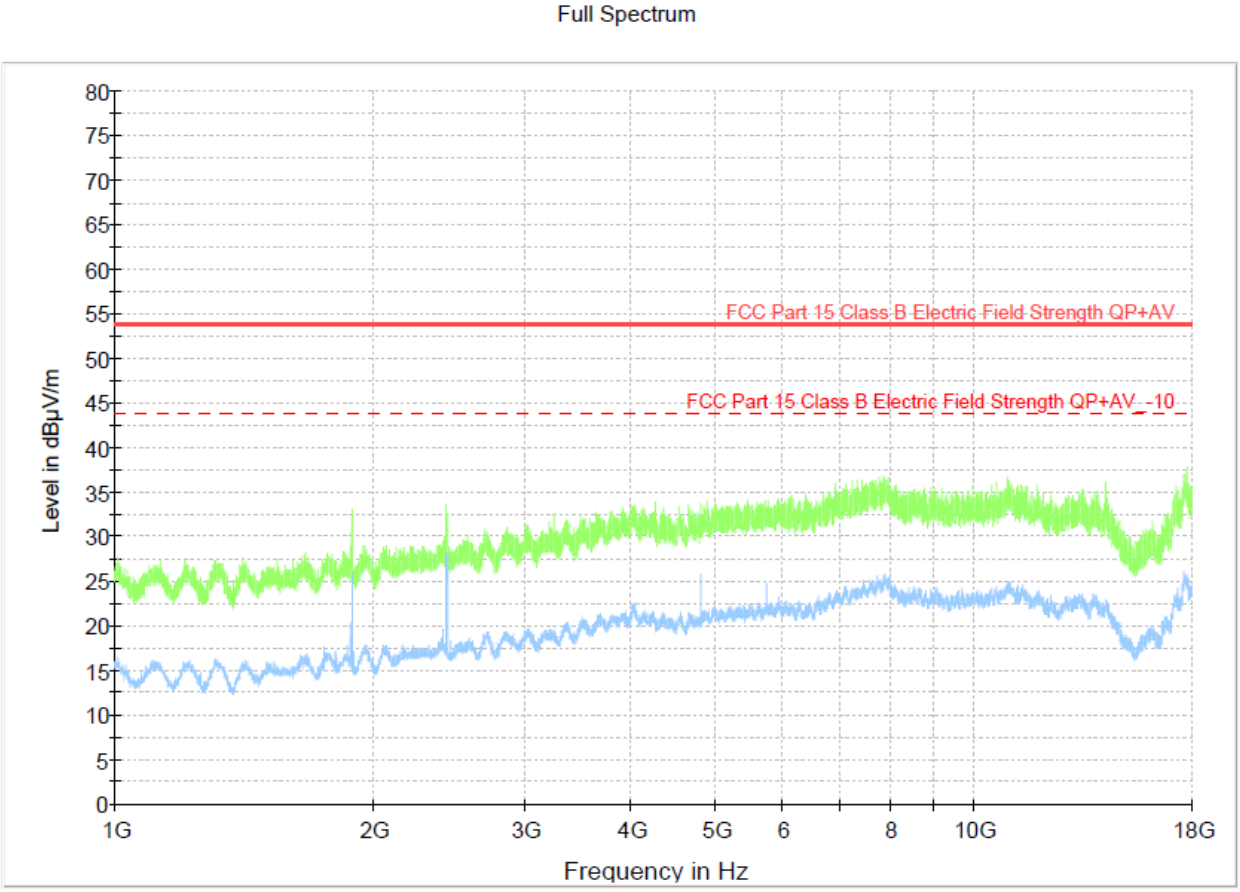
8.1.41 144 MHz, above 1000 MHz, Horizontal/ Vertical Polarity Plot -Band B



2/15/2024 2:36:15 PM

8.1.42 144 MHz, above 1000 MHz, Horizontal/ Vertical Polarity Table -Band B

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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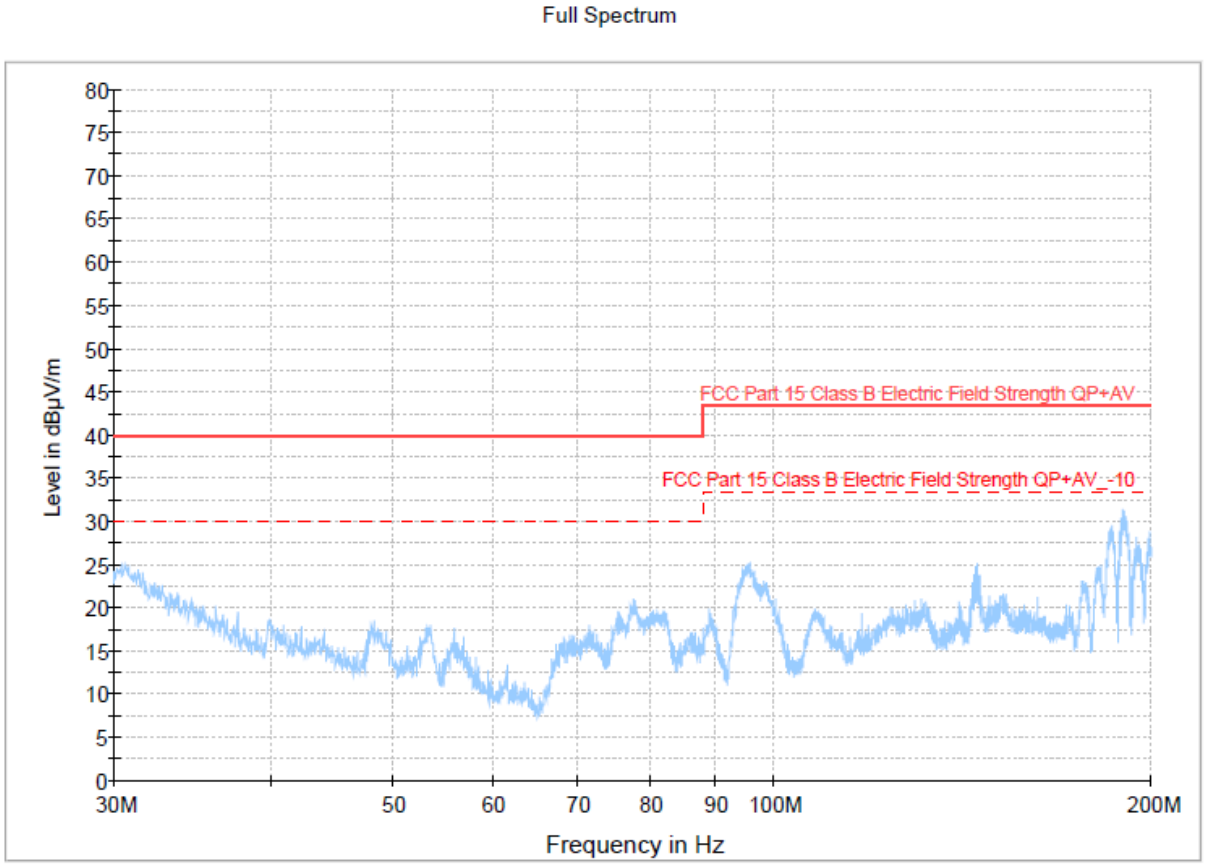
8.1.43 220 MHz, 30 MHz to 200 MHz, Horizontal/ Vertical Polarity Plot -Band B



2/16/2024 11:35:01 AM

8.1.44 220MHz, 30 MHz to 200 MHz, Horizontal/ Vertical Polarity Table -Band B

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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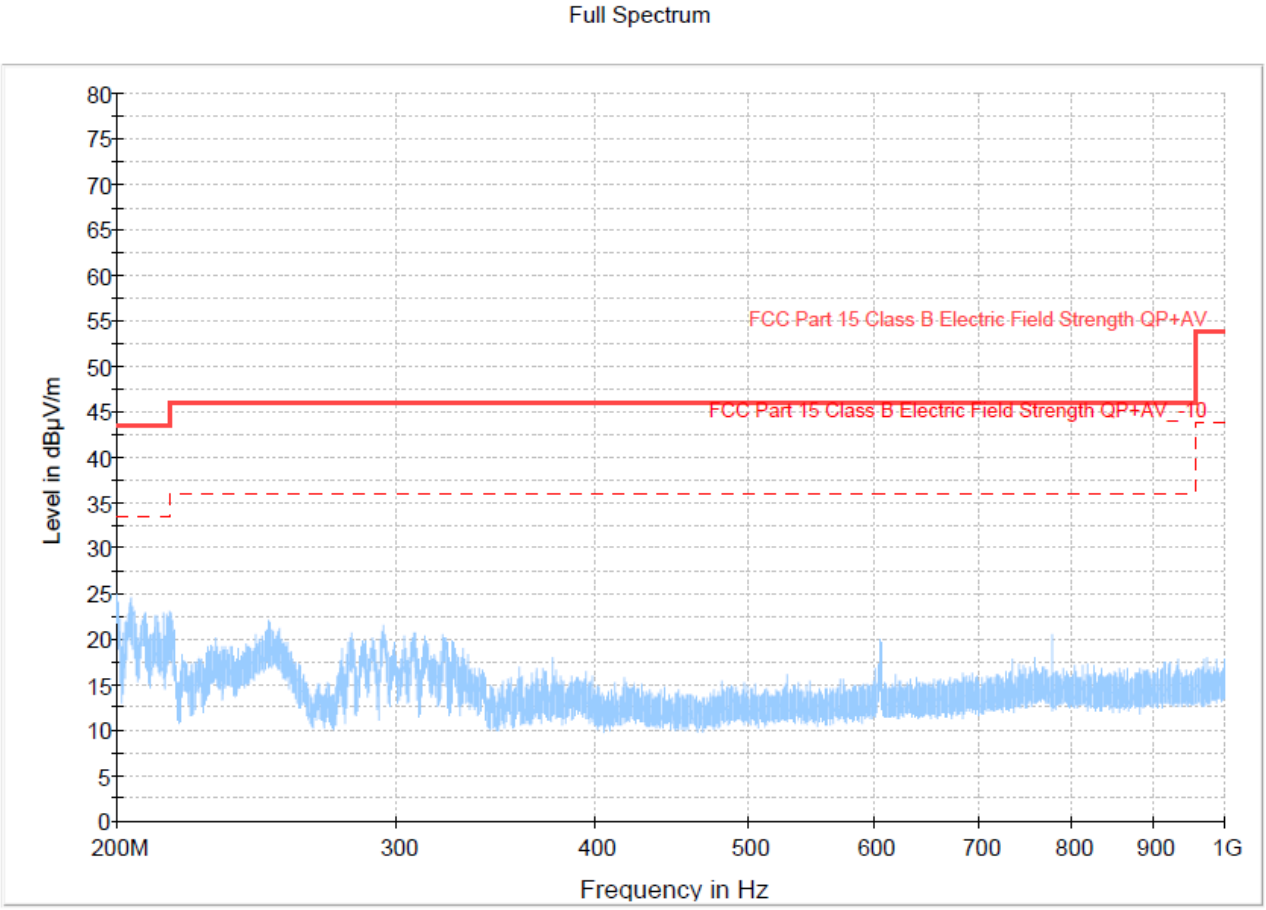
8.1.45 220 MHz, 200 MHz to 1000 MHz, Horizontal/ Vertical Polarity Plot -Band B



2/16/2024 10:03:40 AM

8.1.46 220 MHz, 200 MHz to 1000 MHz, Horizontal/ Vertical Polarity Table -Band B

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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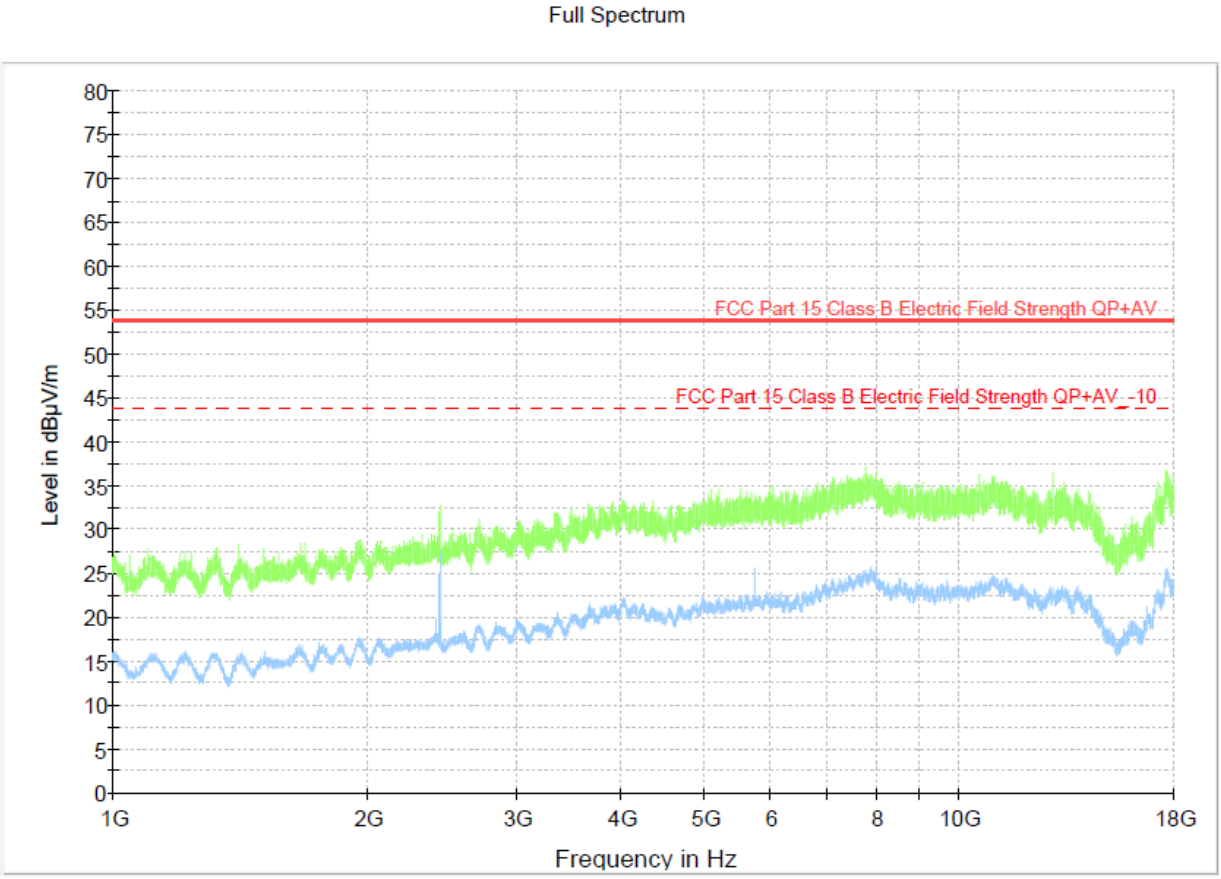
8.1.47 220 MHz, above 1000 MHz, Horizontal/ Vertical Polarity Plot -Band B



2/16/2024 1:20:39 PM

8.1.48 220 MHz, above 1000 MHz, Horizontal/ Vertical Polarity Table -Band B

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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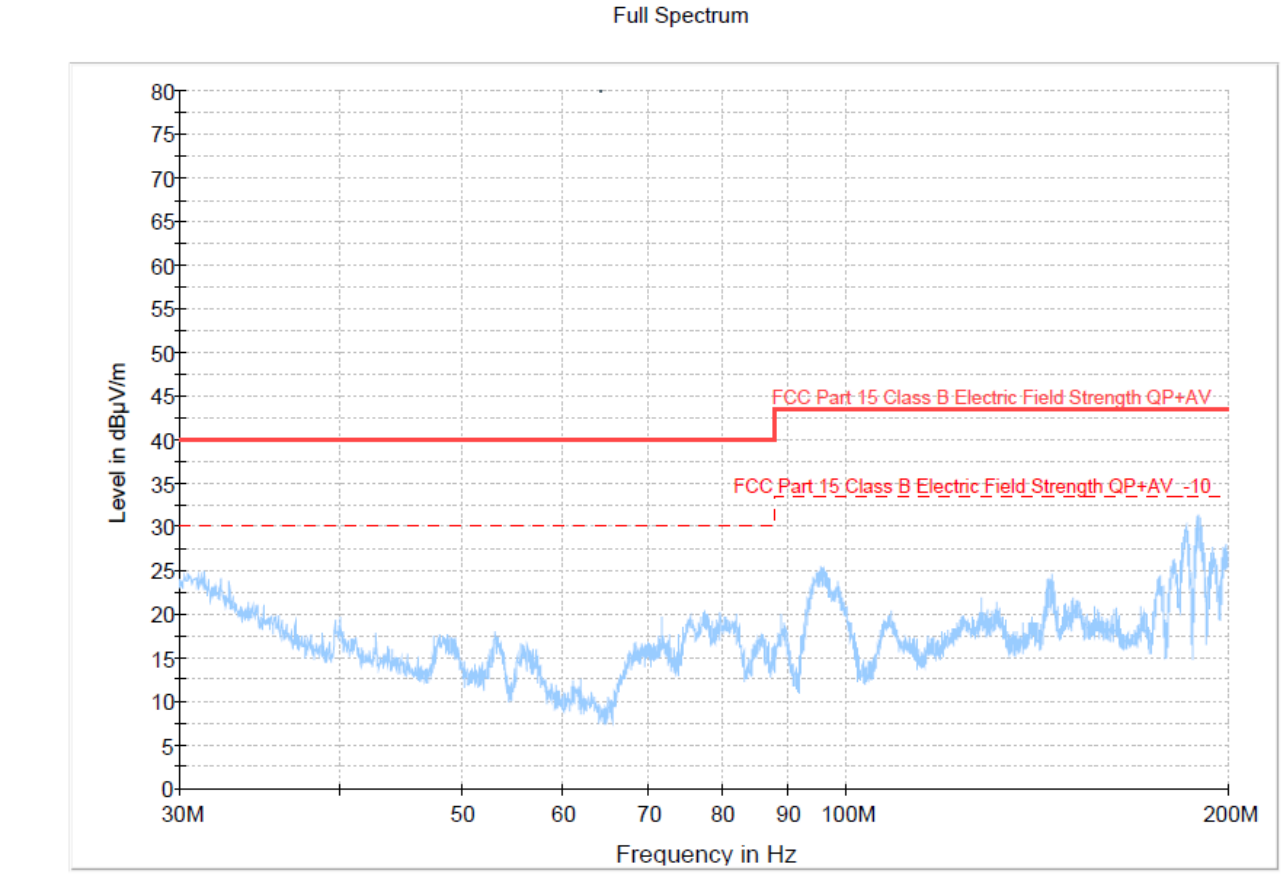
8.1.49 450 MHz, 30 MHz to 200 MHz, Horizontal/ Vertical Polarity Plot -Band B



2/16/2024 11:45:07 AM

8.1.50 450 MHz, 30 MHz to 200 MHz, Horizontal/ Vertical Polarity Table -Band B

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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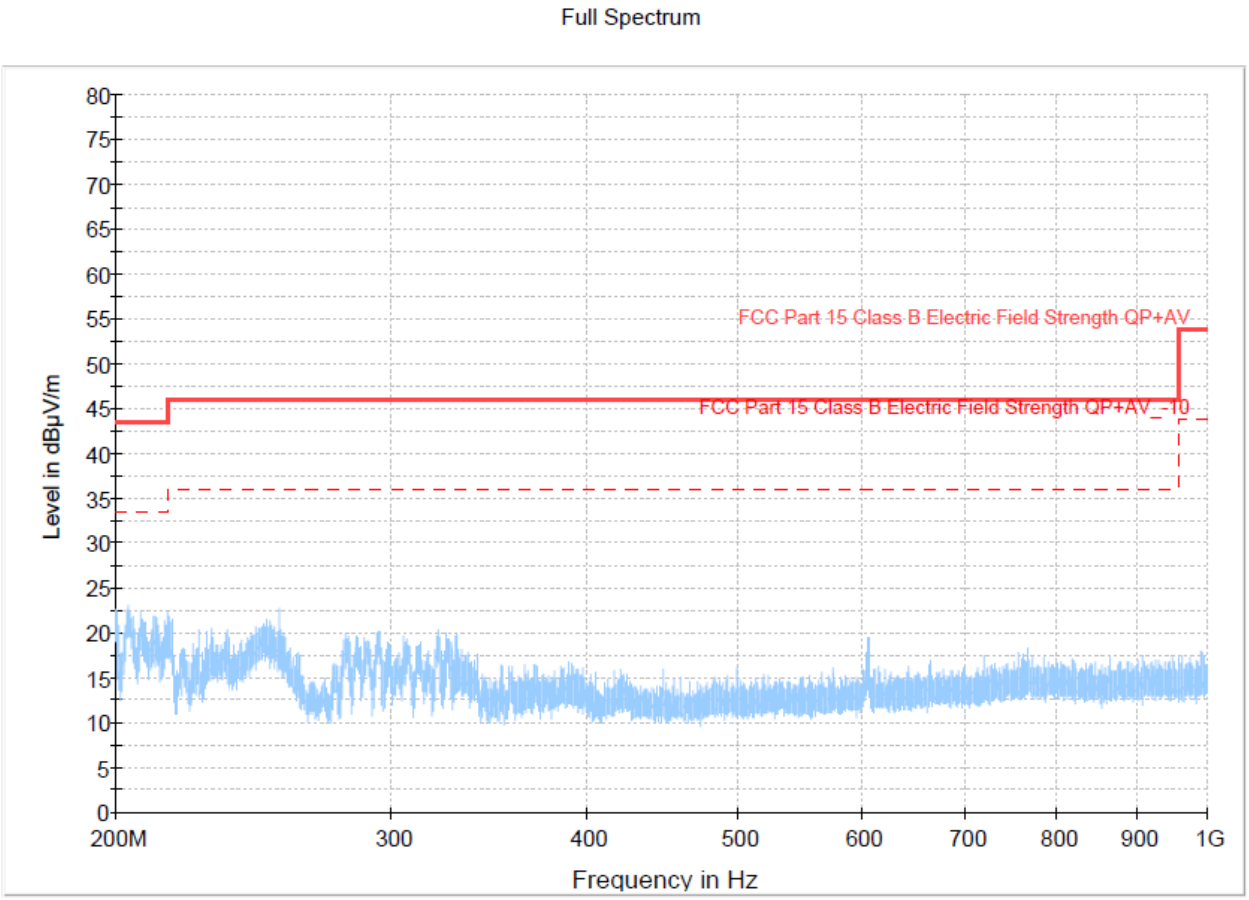
8.1.51 450 MHz, 200 MHz to 1000 MHz, Horizontal/ Vertical Polarity Plot -Band B



2/16/2024 10:26:00 AM

8.1.52 450 MHz, 200 MHz to 1000 MHz, Horizontal/ Vertical Polarity Table -Band B

EMI Auto Test(1) 3 / 6

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
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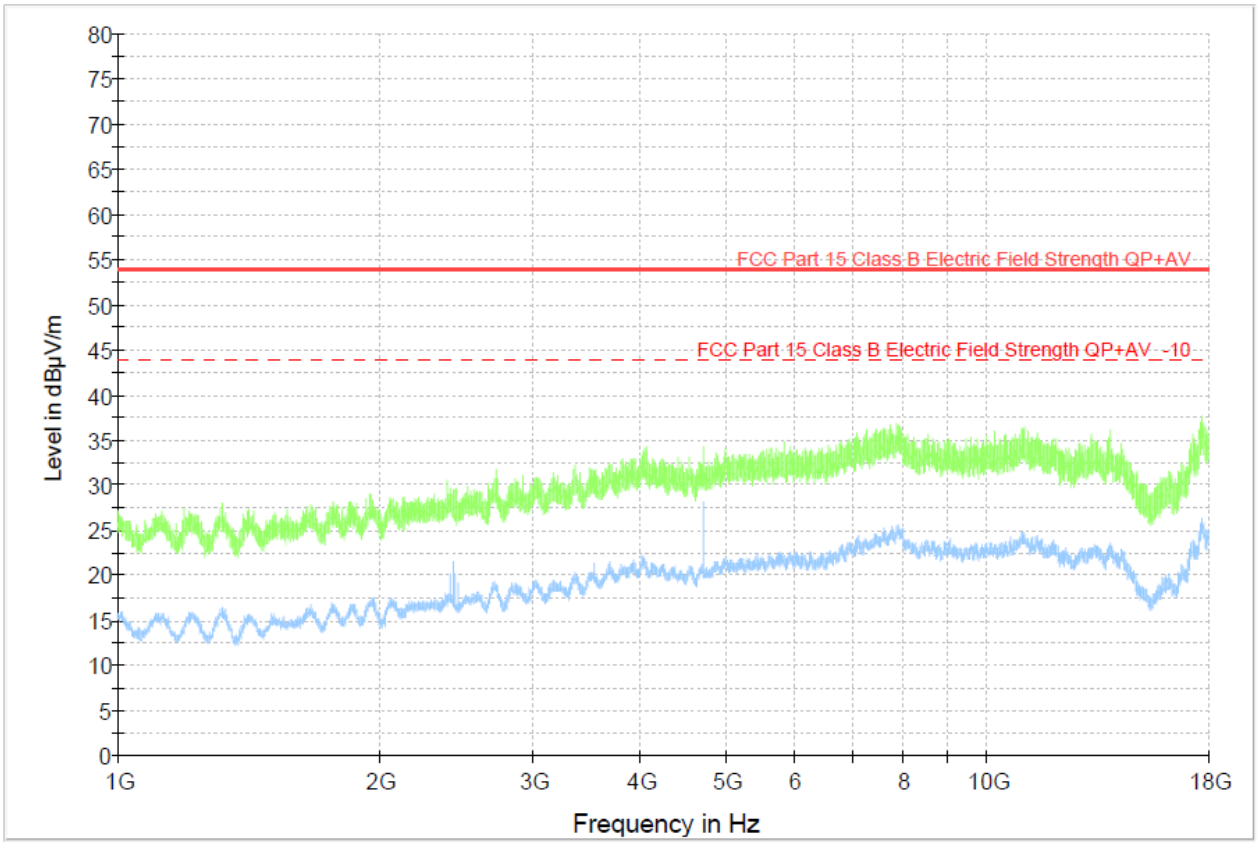
8.1.53 450 MHz, above 1000 MHz, Horizontal/ Vertical Polarity Plot -Band B



2/15/2024 3:20:07 PM

8.1.54 450 MHz, above 1000 MHz, Horizontal/ Vertical Polarity Table -Band B

EMI Auto Test(1) 3 / 6

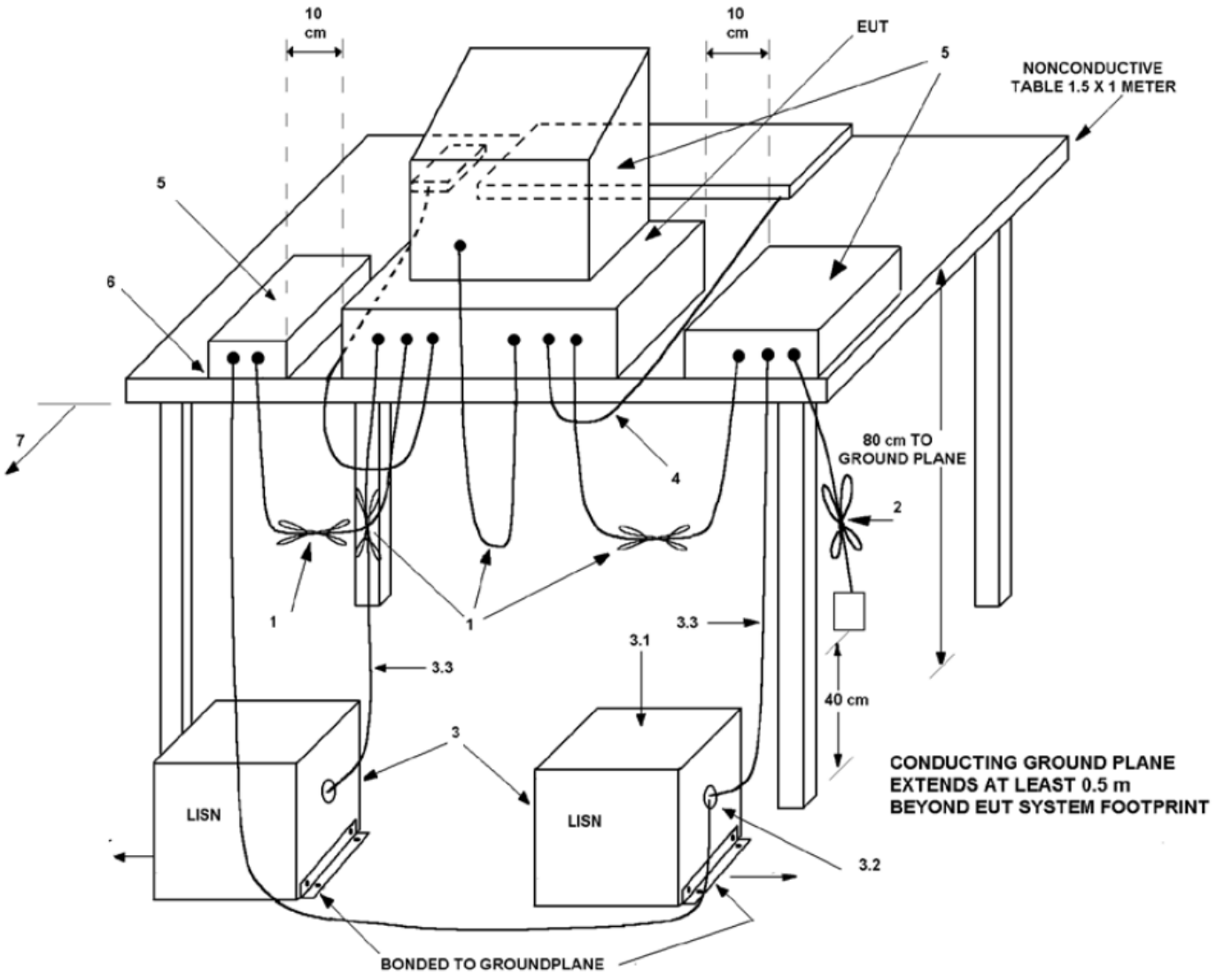
Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Comment
---	---	---	---	---	---	---	---		---	---	

8.2 Conducted Emissions

Limits from FCC 15.107 and test procedure from ANSI C63.4-2014.

Conducted Test Setup

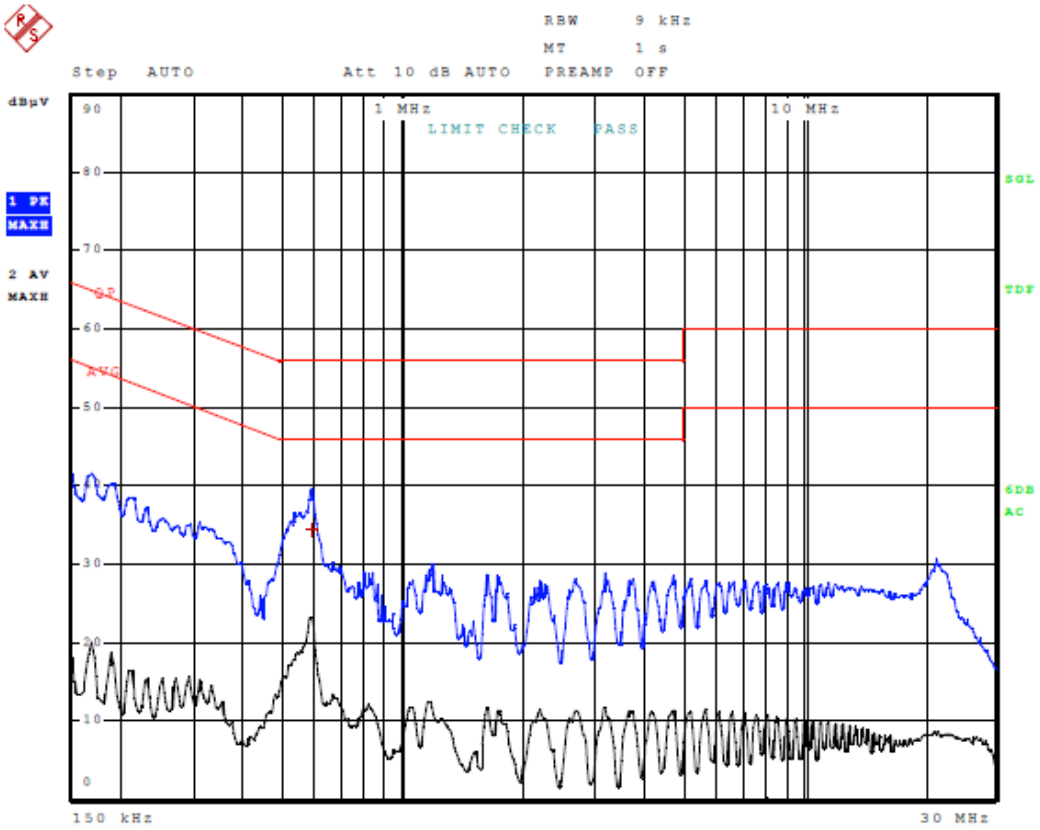


8.2.1 Scanning, Line 1 Plot -Band A

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.2.2 Scanning, Line 1 Table -Band A

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 1

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
1	590.000000000 kHz	34.24	Quasi Peak	-21.76

Transducer Table

Name: tdf_20
Interpolation: LIN
Comment: ANS 25/2 Primary LISN IL Line 1 + Coax Cable IL

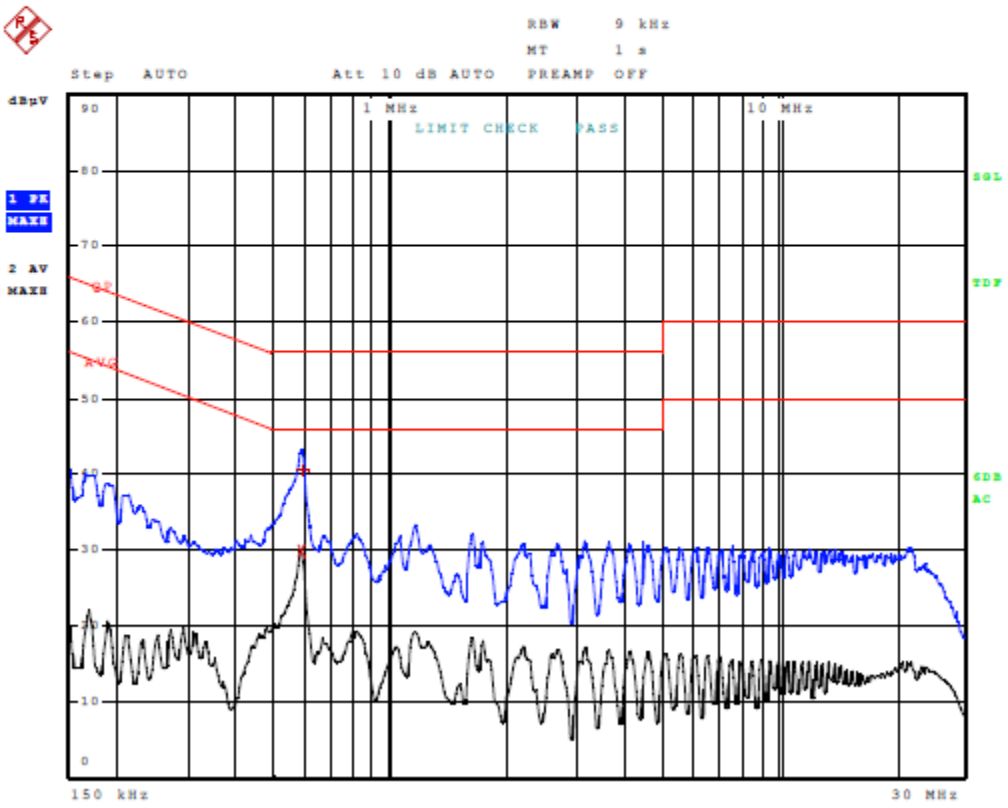
Frequency	Factor (dB)
150.00 kHz	0.19
170.00 kHz	0.17
200.00 kHz	0.16
250.00 kHz	0.13
300.00 kHz	0.12
350.00 kHz	0.12
400.00 kHz	0.11
500.00 kHz	0.12
600.00 kHz	0.12
700.00 kHz	0.11
800.00 kHz	0.13
900.00 kHz	0.12
1.00 MHz	0.21
1.20 MHz	0.22
1.50 MHz	0.28
2.00 MHz	0.37
2.50 MHz	0.41
3.00 MHz	0.59
4.00 MHz	0.40
5.00 MHz	0.47
7.00 MHz	0.63
10.00 MHz	0.88
15.00 MHz	1.08
20.00 MHz	1.01
30.00 MHz	1.80

8.2.3 Scanning, Line 2 Plot -Band A

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.2.4 Scanning, Line 2 Table -Band A

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 2

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	586.000000000 kHz	29.75	Average	-16.25
1	590.000000000 kHz	40.37	Quasi Peak	-15.63

Transducer Table

Name: tdf_20
Interpolation: LIN
Comment: ANS 25/2 Primary LISN IL Line 1 + Coax Cable IL

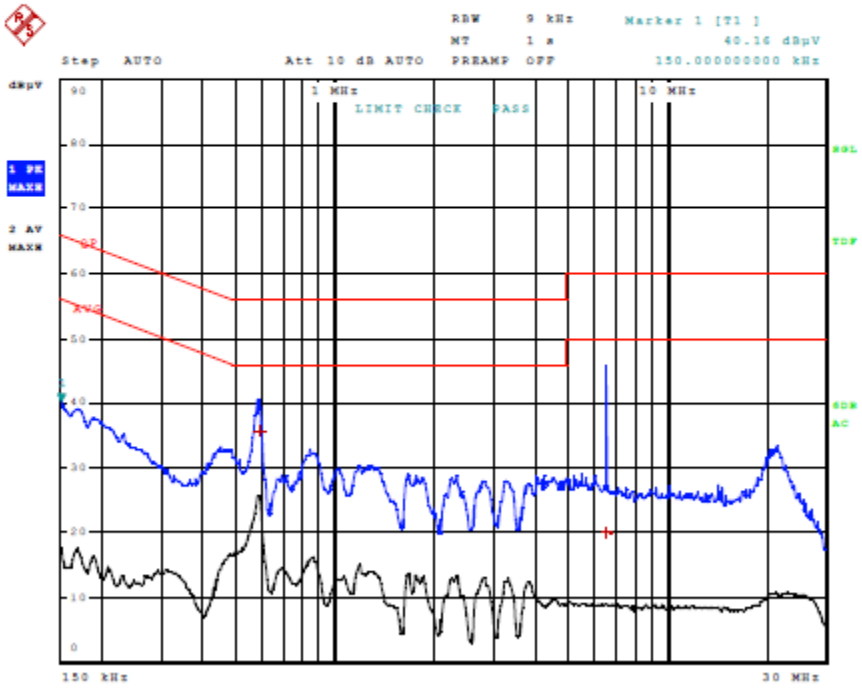
Frequency	Factor (dB)
150.00 kHz	0.19
170.00 kHz	0.17
200.00 kHz	0.16
250.00 kHz	0.13
300.00 kHz	0.12
350.00 kHz	0.12
400.00 kHz	0.11
500.00 kHz	0.12
600.00 kHz	0.12
700.00 kHz	0.11
800.00 kHz	0.13
900.00 kHz	0.12
1.00 MHz	0.21
1.20 MHz	0.22
1.50 MHz	0.28
2.00 MHz	0.37
2.50 MHz	0.41
3.00 MHz	0.59
4.00 MHz	0.40
5.00 MHz	0.47
7.00 MHz	0.63
10.00 MHz	0.88
15.00 MHz	1.08
20.00 MHz	1.01
30.00 MHz	1.80

8.2.5 88 MHz, Line 1 Plot -Band A

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.2.6 88 MHz, Line 1 Table -Band A

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 2

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
1	590.000000000 kHz	35.59	Quasi Peak	-20.41
1	6.574000000 MHz	20.03	Quasi Peak	-39.97

Page 1 of 2

Transducer Table

Name: tdf_20
Interpolation: LIN
Comment: ANS 25/2 Primary LISN IL Line 1 + Coax Cable IL

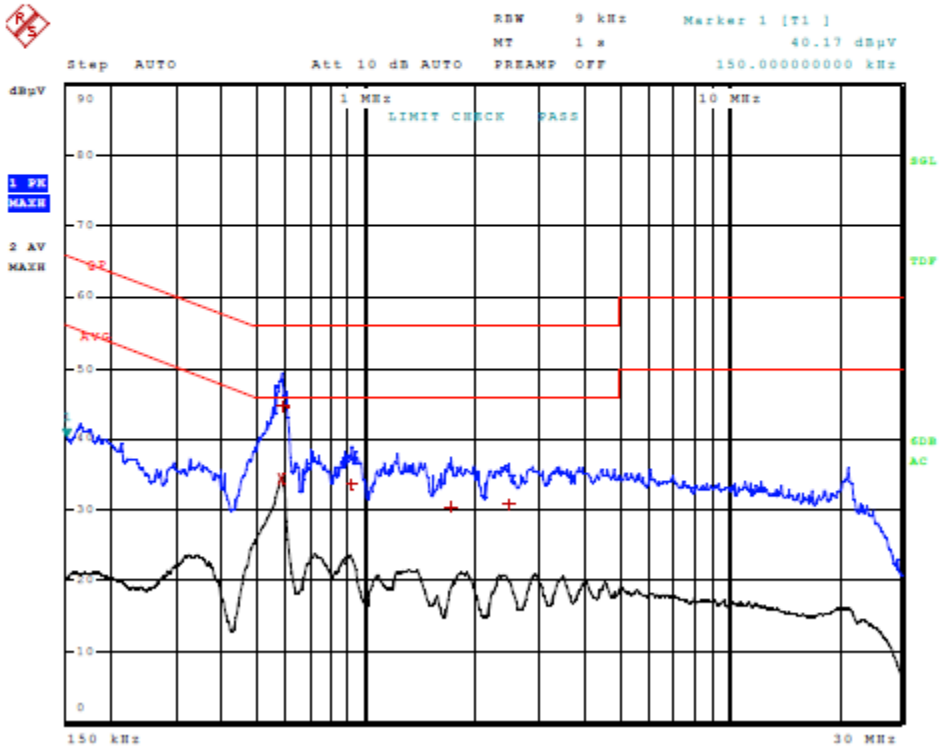
Frequency	Factor (dB)
150.00 kHz	0.19
170.00 kHz	0.17
200.00 kHz	0.16
250.00 kHz	0.13
300.00 kHz	0.12
350.00 kHz	0.12
400.00 kHz	0.11
500.00 kHz	0.12
600.00 kHz	0.12
700.00 kHz	0.11
800.00 kHz	0.13
900.00 kHz	0.12
1.00 MHz	0.21
1.20 MHz	0.22
1.50 MHz	0.28
2.00 MHz	0.37
2.50 MHz	0.41
3.00 MHz	0.59
4.00 MHz	0.40
5.00 MHz	0.47
7.00 MHz	0.63
10.00 MHz	0.88
15.00 MHz	1.08
20.00 MHz	1.01
30.00 MHz	1.80

8.2.7 88 MHz, Line 2 Plot -Band A

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.2.8 88 MHz, Line 2 Table -Band A

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 5

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	578.000000000 kHz	34.41	Average	-11.59
1	586.000000000 kHz	44.62	Quasi Peak	-11.38
1	910.000000000 kHz	33.61	Quasi Peak	-22.39
1	1.710000000 MHz	30.39	Quasi Peak	-25.61
1	2.462000000 MHz	30.80	Quasi Peak	-25.20

Transducer Table

Name: tdf_20
Interpolation: LIN
Comment: ANS 25/2 Primary LISN IL Line 1 + Coax Cable IL

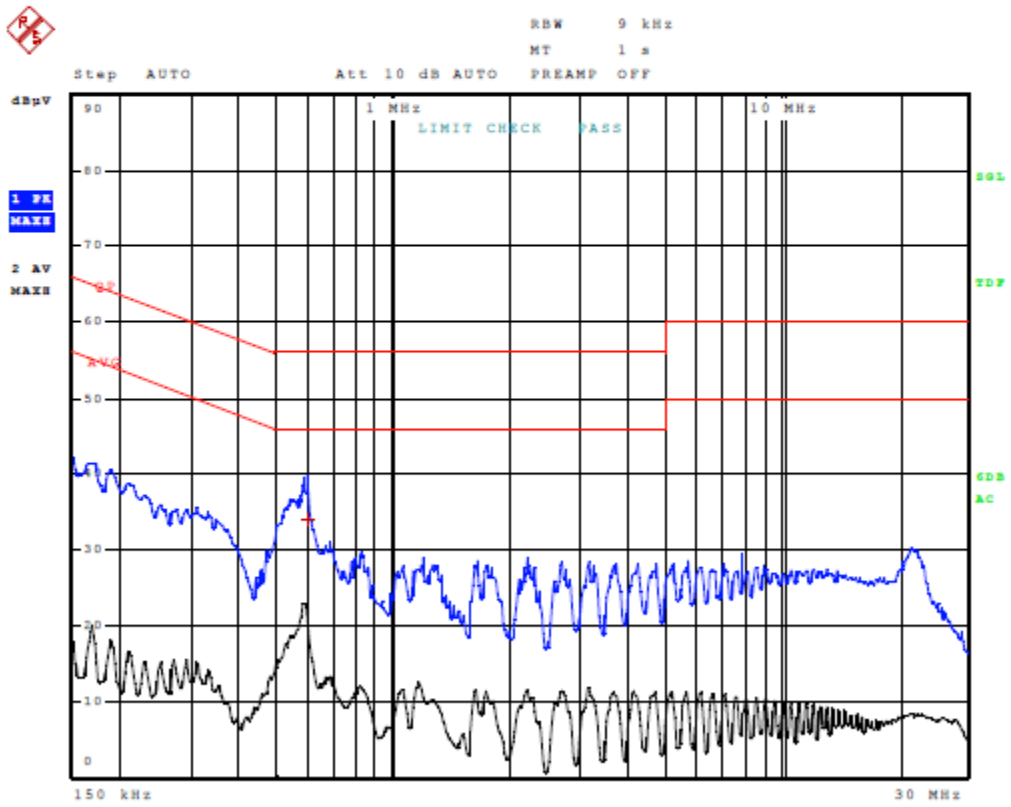
Frequency	Factor (dB)
150.00 kHz	0.19
170.00 kHz	0.17
200.00 kHz	0.16
250.00 kHz	0.13
300.00 kHz	0.12
350.00 kHz	0.12
400.00 kHz	0.11
500.00 kHz	0.12
600.00 kHz	0.12
700.00 kHz	0.11
800.00 kHz	0.13
900.00 kHz	0.12
1.00 MHz	0.21
1.20 MHz	0.22
1.50 MHz	0.28
2.00 MHz	0.37
2.50 MHz	0.41
3.00 MHz	0.59
4.00 MHz	0.40
5.00 MHz	0.47
7.00 MHz	0.63
10.00 MHz	0.88
15.00 MHz	1.08
20.00 MHz	1.01
30.00 MHz	1.80

8.2.9 144 MHz, Line 1 Plot -Band A

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.2.10 144 MHz, Line 1 Table -Band A

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 1

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
1	594.000000000 kHz	34.01	Quasi Peak	-21.99

Transducer Table

Name: tdf_20
Interpolation: LIN
Comment: ANS 25/2 Primary LISN IL Line 1 + Coax Cable IL

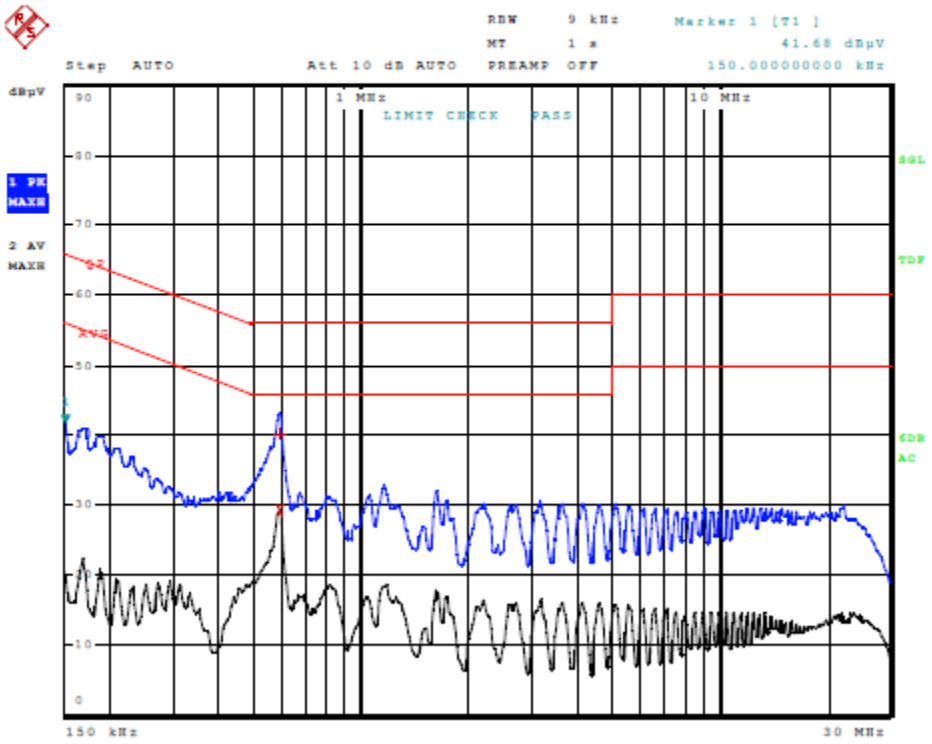
Frequency	Factor (dB)
150.00 kHz	0.19
170.00 kHz	0.17
200.00 kHz	0.16
250.00 kHz	0.13
300.00 kHz	0.12
350.00 kHz	0.12
400.00 kHz	0.11
500.00 kHz	0.12
600.00 kHz	0.12
700.00 kHz	0.11
800.00 kHz	0.13
900.00 kHz	0.12
1.00 MHz	0.21
1.20 MHz	0.22
1.50 MHz	0.28
2.00 MHz	0.37
2.50 MHz	0.41
3.00 MHz	0.59
4.00 MHz	0.40
5.00 MHz	0.47
7.00 MHz	0.63
10.00 MHz	0.88
15.00 MHz	1.08
20.00 MHz	1.01
30.00 MHz	1.80

8.2.11 144 MHz, Line 2 Plot -Band A

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.2.12 144 MHz, Line 2 Table -Band A

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 2

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
1	590.000000000 kHz	40.24	Quasi Peak	-15.76
2	590.000000000 kHz	29.22	Average	-16.78

Transducer Table

Name: tdf_20
Interpolation: LIN
Comment: ANS 25/2 Primary LISN IL Line 1 + Coax Cable IL

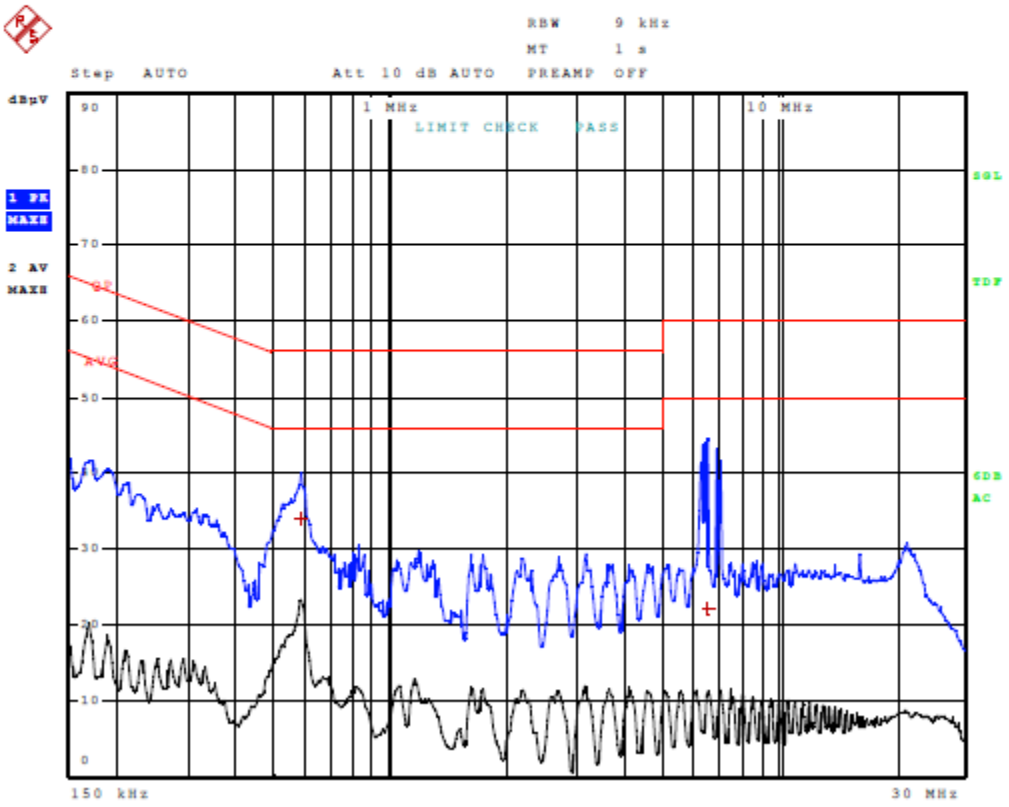
Frequency	Factor (dB)
150.00 kHz	0.19
170.00 kHz	0.17
200.00 kHz	0.16
250.00 kHz	0.13
300.00 kHz	0.12
350.00 kHz	0.12
400.00 kHz	0.11
500.00 kHz	0.12
600.00 kHz	0.12
700.00 kHz	0.11
800.00 kHz	0.13
900.00 kHz	0.12
1.00 MHz	0.21
1.20 MHz	0.22
1.50 MHz	0.28
2.00 MHz	0.37
2.50 MHz	0.41
3.00 MHz	0.59
4.00 MHz	0.40
5.00 MHz	0.47
7.00 MHz	0.63
10.00 MHz	0.88
15.00 MHz	1.08
20.00 MHz	1.01
30.00 MHz	1.80

8.2.13 220 MHz, Line 1 Plot -Band A

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.2.14 220 MHz, Line 1 Table -Band A

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 2

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
1	586.000000000 kHz	33.87	Quasi Peak	-22.13
1	6.534000000 MHz	22.04	Quasi Peak	-37.96

Transducer Table

Name: tdf_20
Interpolation: LIN
Comment: ANS 25/2 Primary LISN IL Line 1 + Coax Cable IL

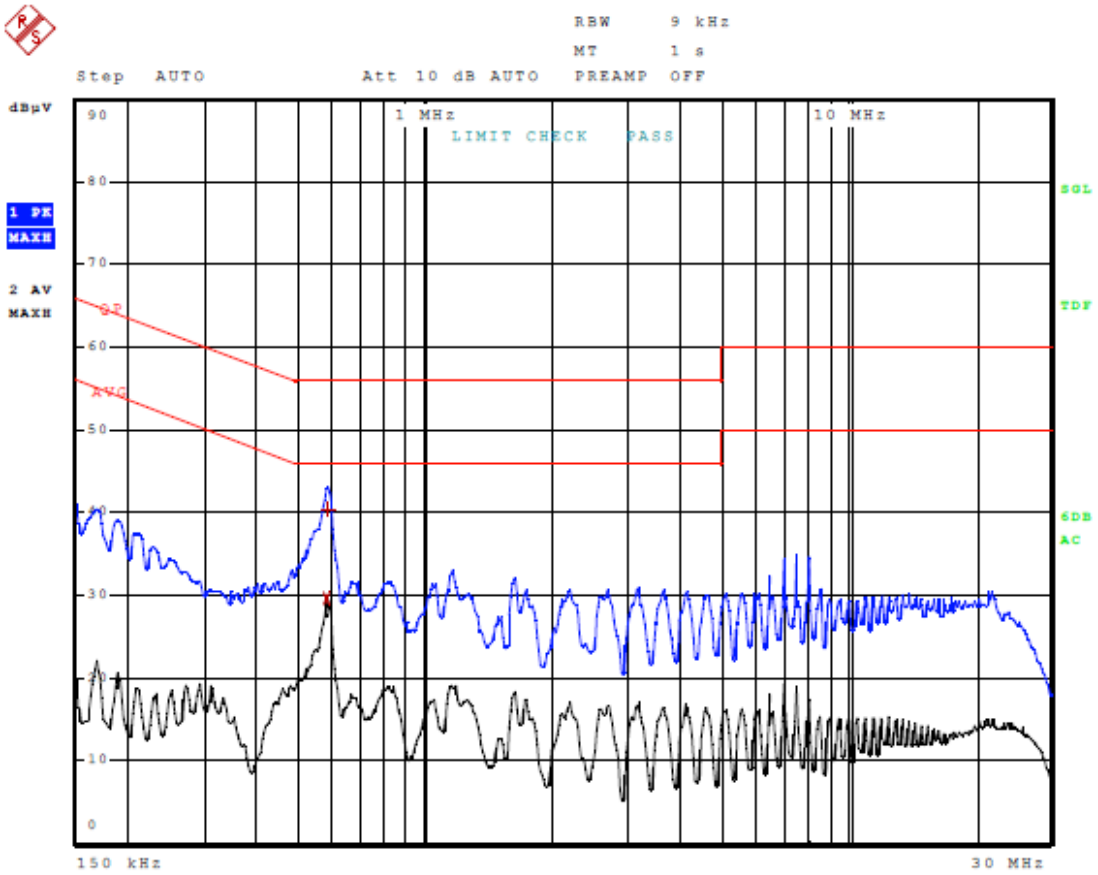
Frequency	Factor (dB)
150.00 kHz	0.19
170.00 kHz	0.17
200.00 kHz	0.16
250.00 kHz	0.13
300.00 kHz	0.12
350.00 kHz	0.12
400.00 kHz	0.11
500.00 kHz	0.12
600.00 kHz	0.12
700.00 kHz	0.11
800.00 kHz	0.13
900.00 kHz	0.12
1.00 MHz	0.21
1.20 MHz	0.22
1.50 MHz	0.28
2.00 MHz	0.37
2.50 MHz	0.41
3.00 MHz	0.59
4.00 MHz	0.40
5.00 MHz	0.47
7.00 MHz	0.63
10.00 MHz	0.88
15.00 MHz	1.08
20.00 MHz	1.01
30.00 MHz	1.80

8.2.15 220 MHz, Line 2 Plot -Band A

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.2.16 220 MHz, Line 2 Table -Band A

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 2

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	582.000000000 kHz	29.57	Average	-16.43
1	586.000000000 kHz	40.46	Quasi Peak	-15.54

Transducer Table

Name: tdf_20
Interpolation: LIN
Comment: ANS 25/2 Primary LISN IL Line 1 + Coax Cable IL

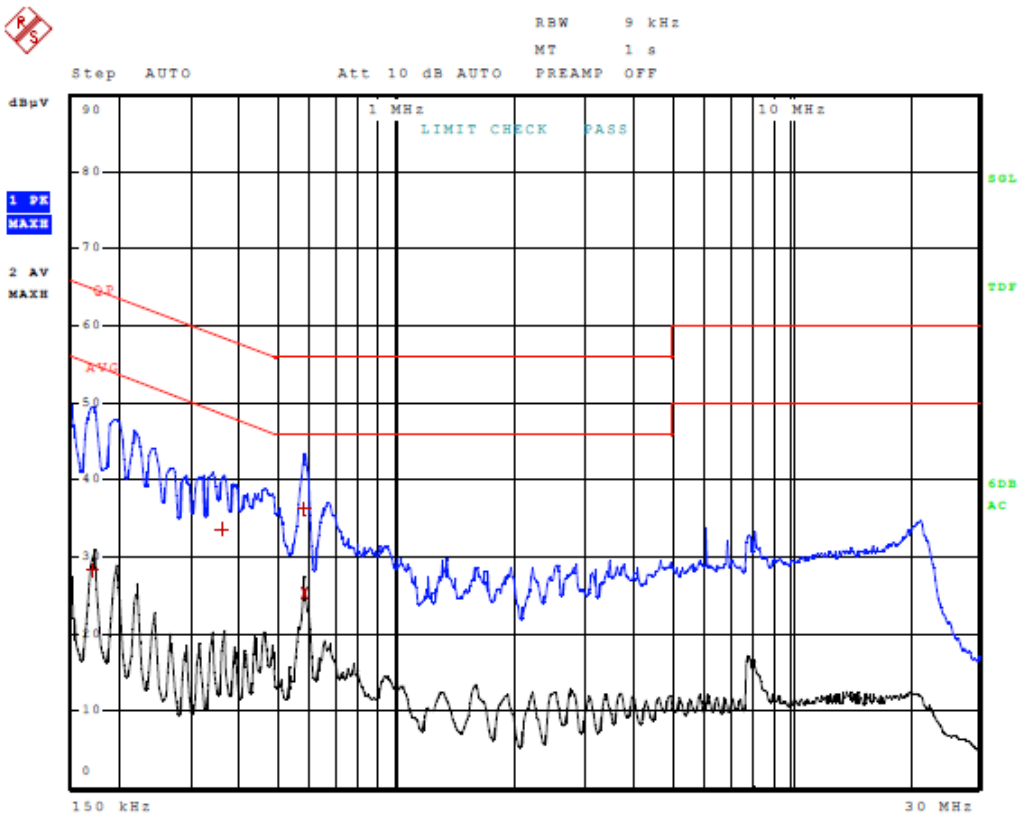
Frequency	Factor (dB)
150.00 kHz	0.19
170.00 kHz	0.17
200.00 kHz	0.16
250.00 kHz	0.13
300.00 kHz	0.12
350.00 kHz	0.12
400.00 kHz	0.11
500.00 kHz	0.12
600.00 kHz	0.12
700.00 kHz	0.11
800.00 kHz	0.13
900.00 kHz	0.12
1.00 MHz	0.21
1.20 MHz	0.22
1.50 MHz	0.28
2.00 MHz	0.37
2.50 MHz	0.41
3.00 MHz	0.59
4.00 MHz	0.40
5.00 MHz	0.47
7.00 MHz	0.63
10.00 MHz	0.88
15.00 MHz	1.08
20.00 MHz	1.01
30.00 MHz	1.80

8.2.17 450 MHz, Line 1 Plot -Band A

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.2.18 450 MHz, Line 1 Table -Band A

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 4

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
1	170.000000000 kHz	28.17	Quasi Peak	-36.79
1	362.000000000 kHz	33.62	Quasi Peak	-25.06
1	582.000000000 kHz	36.20	Quasi Peak	-19.80
2	582.000000000 kHz	25.33	Average	-20.67

Transducer Table

Name: tdf_20
Interpolation: LIN
Comment: ANS 25/2 Primary LISN IL Line 1 + Coax Cable IL

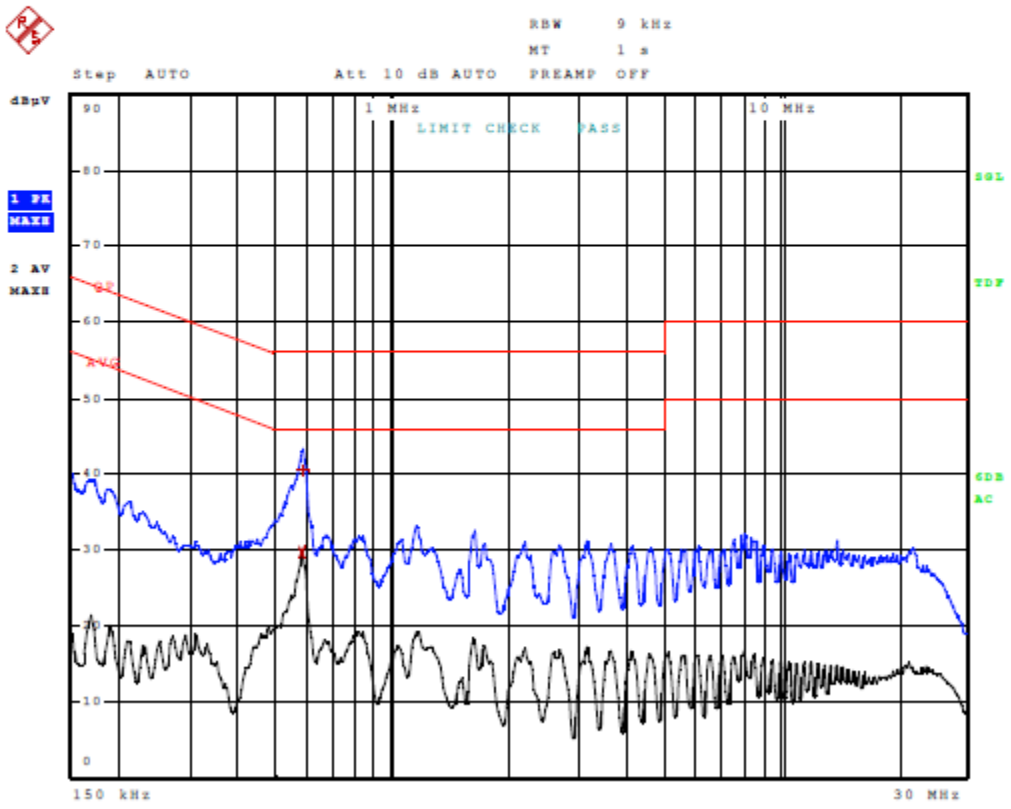
Frequency	Factor (dB)
150.00 kHz	0.19
170.00 kHz	0.17
200.00 kHz	0.16
250.00 kHz	0.13
300.00 kHz	0.12
350.00 kHz	0.12
400.00 kHz	0.11
500.00 kHz	0.12
600.00 kHz	0.12
700.00 kHz	0.11
800.00 kHz	0.13
900.00 kHz	0.12
1.00 MHz	0.21
1.20 MHz	0.22
1.50 MHz	0.28
2.00 MHz	0.37
2.50 MHz	0.41
3.00 MHz	0.59
4.00 MHz	0.40
5.00 MHz	0.47
7.00 MHz	0.63
10.00 MHz	0.88
15.00 MHz	1.08
20.00 MHz	1.01
30.00 MHz	1.80

8.2.19 450 MHz, Line 2 Plot -Band A

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.2.20 450 MHz, Line 2 Table -Band A

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 2

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	582.000000000 kHz	29.58	Average	-16.42
1	586.000000000 kHz	40.30	Quasi Peak	-15.70

Transducer Table

Name: tdf_20
Interpolation: LIN
Comment: ANS 25/2 Primary LISN IL Line 1 + Coax Cable IL

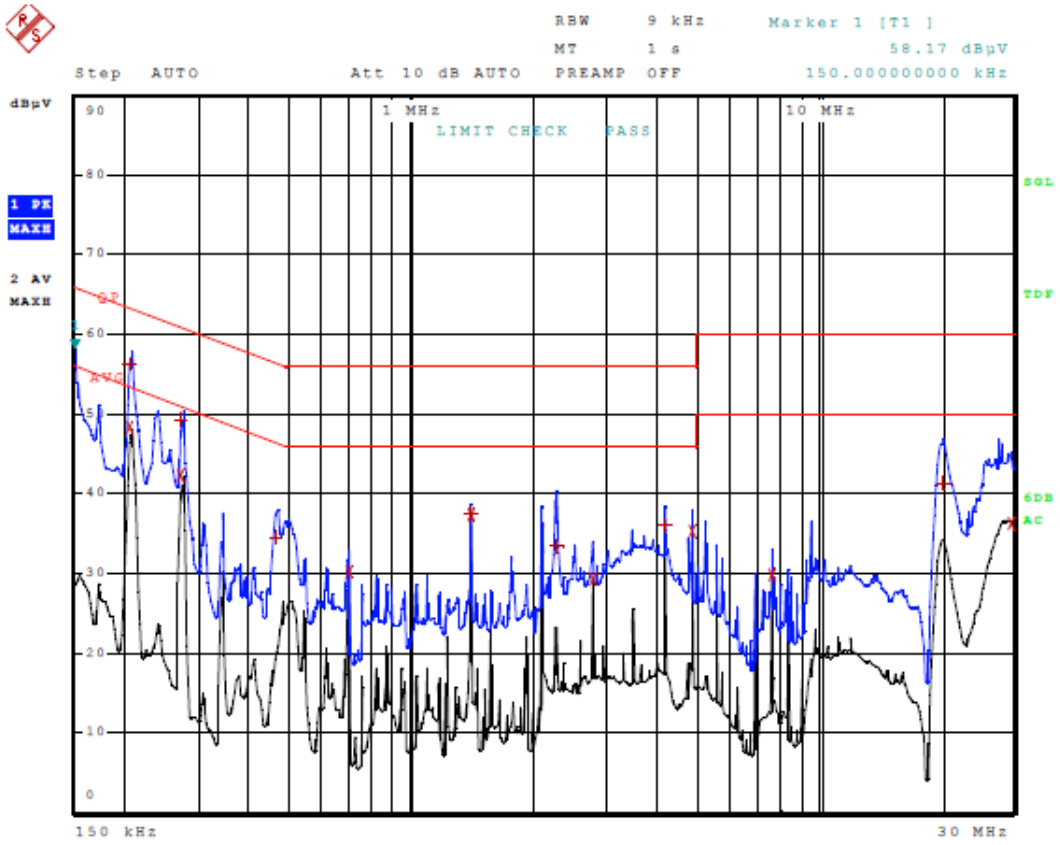
Frequency	Factor (dB)
150.00 kHz	0.19
170.00 kHz	0.17
200.00 kHz	0.16
250.00 kHz	0.13
300.00 kHz	0.12
350.00 kHz	0.12
400.00 kHz	0.11
500.00 kHz	0.12
600.00 kHz	0.12
700.00 kHz	0.11
800.00 kHz	0.13
900.00 kHz	0.12
1.00 MHz	0.21
1.20 MHz	0.22
1.50 MHz	0.28
2.00 MHz	0.37
2.50 MHz	0.41
3.00 MHz	0.59
4.00 MHz	0.40
5.00 MHz	0.47
7.00 MHz	0.63
10.00 MHz	0.88
15.00 MHz	1.08
20.00 MHz	1.01
30.00 MHz	1.80

8.2.21 Scanning, Line 1 Plot -Band B

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.2.22 Scanning, Line 1 Table -Band B

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 15

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
1	206.000000000 kHz	56.33	Quasi Peak	-7.03
2	206.000000000 kHz	48.23	Average	-5.13
1	274.000000000 kHz	49.21	Quasi Peak	-11.79
2	274.000000000 kHz	42.18	Average	-8.81
1	466.000000000 kHz	34.48	Quasi Peak	-22.11
2	698.000000000 kHz	30.09	Average	-15.91
1	1.394000000 MHz	37.54	Quasi Peak	-18.46
2	1.394000000 MHz	37.29	Average	-8.71
1	2.262000000 MHz	33.37	Quasi Peak	-22.63
2	2.786000000 MHz	29.15	Average	-16.85
1	4.182000000 MHz	35.96	Quasi Peak	-20.04
2	4.878000000 MHz	35.22	Average	-10.78
2	7.666000000 MHz	29.87	Average	-20.13
1	20.166000000 MHz	41.29	Quasi Peak	-18.71
2	29.442000000 MHz	36.22	Average	-13.78

Transducer Table

Name: tdf_20
Interpolation: LIN
Comment: ANS 25/2 Primary LISN IL Line 1 + Coax Cable IL

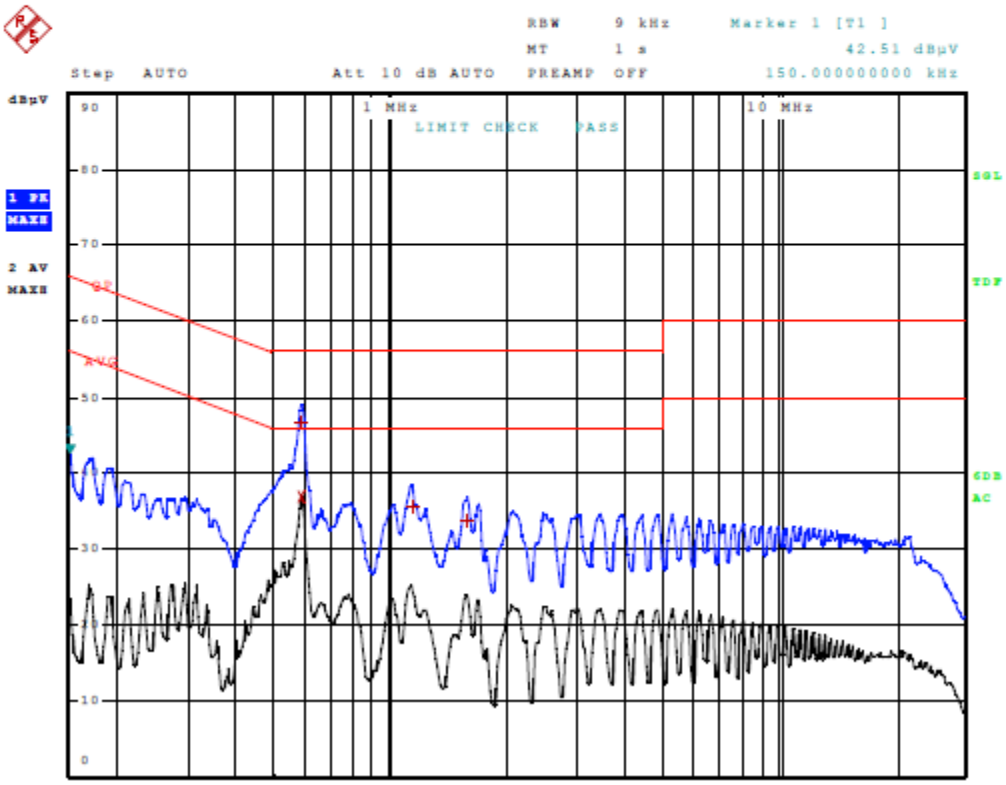
Frequency	Factor (dB)
150.00 kHz	0.19
170.00 kHz	0.17
200.00 kHz	0.16
250.00 kHz	0.13
300.00 kHz	0.12
350.00 kHz	0.12
400.00 kHz	0.11
500.00 kHz	0.12
600.00 kHz	0.12
700.00 kHz	0.11
800.00 kHz	0.13
900.00 kHz	0.12
1.00 MHz	0.21
1.20 MHz	0.22
1.50 MHz	0.28
2.00 MHz	0.37
2.50 MHz	0.41
3.00 MHz	0.59
4.00 MHz	0.40
5.00 MHz	0.47
7.00 MHz	0.63
10.00 MHz	0.88
15.00 MHz	1.08
20.00 MHz	1.01
30.00 MHz	1.80

8.2.23 Scanning, Line 2 Plot -Band B

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.2.24 Scanning, Line 2 Table -Band B

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 4

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
1	586.000000000 kHz	46.64	Quasi Peak	-9.36
2	586.000000000 kHz	36.81	Average	-9.19
1	1.134000000 MHz	35.37	Quasi Peak	-20.63
1	1.566000000 MHz	33.63	Quasi Peak	-22.37

Transducer Table

Name: tdf_20
Interpolation: LIN
Comment: ANS 25/2 Primary LISN IL Line 1 + Coax Cable IL

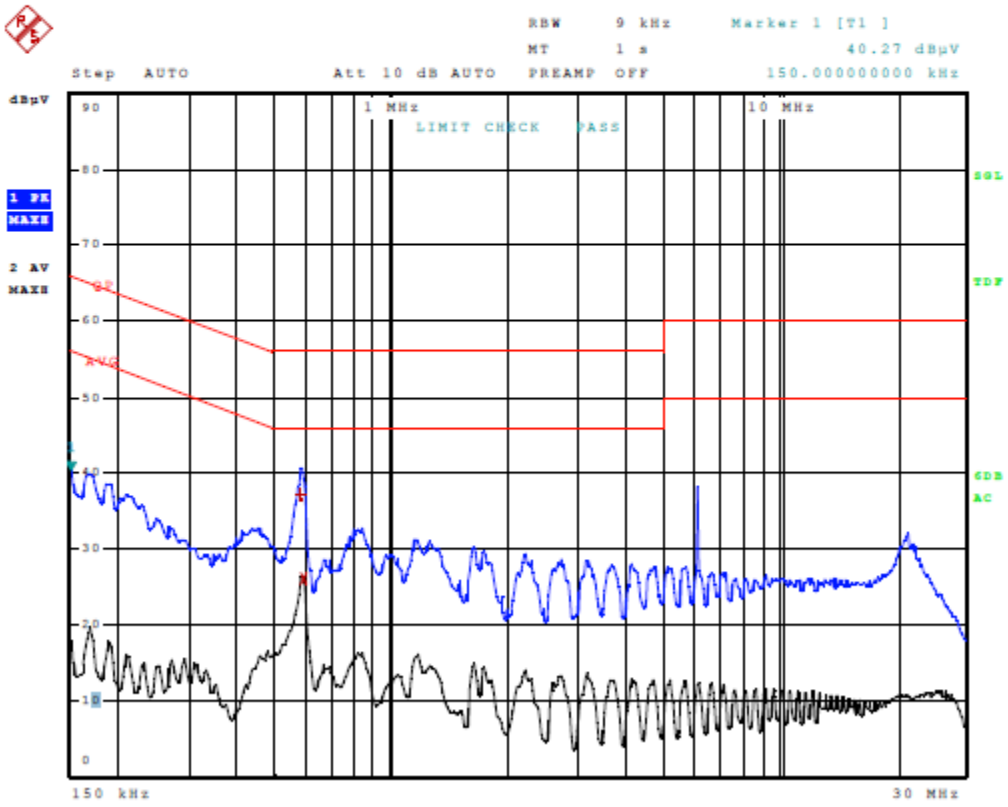
Frequency	Factor (dB)
150.00 kHz	0.19
170.00 kHz	0.17
200.00 kHz	0.16
250.00 kHz	0.13
300.00 kHz	0.12
350.00 kHz	0.12
400.00 kHz	0.11
500.00 kHz	0.12
600.00 kHz	0.12
700.00 kHz	0.11
800.00 kHz	0.13
900.00 kHz	0.12
1.00 MHz	0.21
1.20 MHz	0.22
1.50 MHz	0.28
2.00 MHz	0.37
2.50 MHz	0.41
3.00 MHz	0.59
4.00 MHz	0.40
5.00 MHz	0.47
7.00 MHz	0.63
10.00 MHz	0.88
15.00 MHz	1.08
20.00 MHz	1.01
30.00 MHz	1.80

8.2.25 144 MHz, Line 1 Plot -Band B

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.2.26 144 MHz, Line 1 Table -Band B

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 5

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	578.000000000 kHz	34.41	Average	-11.59
1	586.000000000 kHz	44.62	Quasi Peak	-11.38
1	910.000000000 kHz	33.61	Quasi Peak	-22.39
1	1.710000000 MHz	30.39	Quasi Peak	-25.61
1	2.462000000 MHz	30.80	Quasi Peak	-25.20

Transducer Table

Name: tdf_20
Interpolation: LIN
Comment: ANS 25/2 Primary LISN IL Line 1 + Coax Cable IL

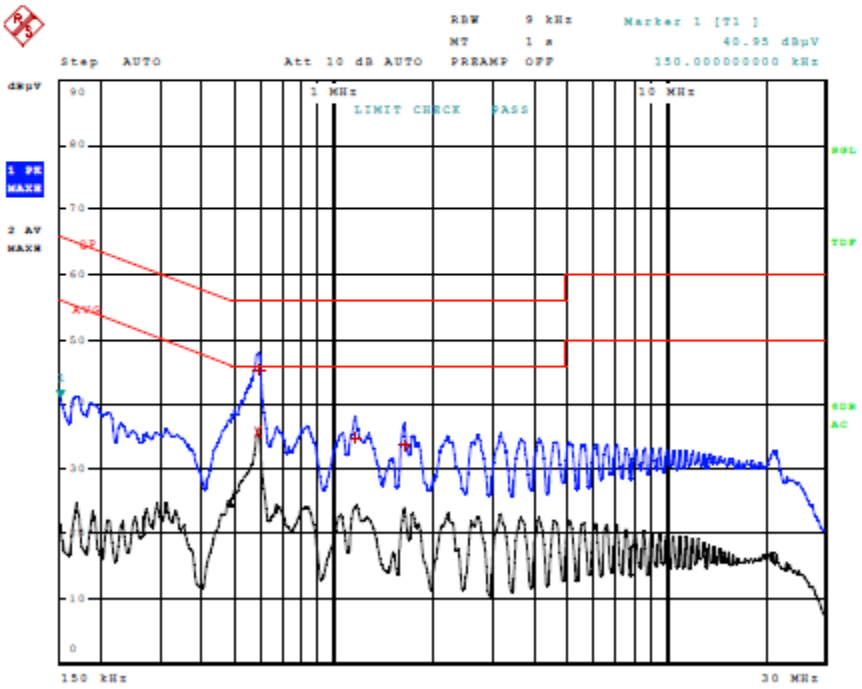
Frequency	Factor (dB)
150.00 kHz	0.19
170.00 kHz	0.17
200.00 kHz	0.16
250.00 kHz	0.13
300.00 kHz	0.12
350.00 kHz	0.12
400.00 kHz	0.11
500.00 kHz	0.12
600.00 kHz	0.12
700.00 kHz	0.11
800.00 kHz	0.13
900.00 kHz	0.12
1.00 MHz	0.21
1.20 MHz	0.22
1.50 MHz	0.28
2.00 MHz	0.37
2.50 MHz	0.41
3.00 MHz	0.59
4.00 MHz	0.40
5.00 MHz	0.47
7.00 MHz	0.63
10.00 MHz	0.88
15.00 MHz	1.08
20.00 MHz	1.01
30.00 MHz	1.80

8.2.27 144 MHz, Line 2 Plot -Band B

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.2.28 144 MHz, Line 2 Table -Band B

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 4

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	586.000000000 kHz	35.56	Average	-10.44
1	590.000000000 kHz	45.23	Quasi Peak	-10.77
1	1.154000000 MHz	34.66	Quasi Peak	-21.34
1	1.622000000 MHz	33.51	Quasi Peak	-22.49

Transducer Table

Name: tdf_20
Interpolation: LIN
Comment: ANS 25/2 Primary LISN IL Line 1 + Coax Cable IL

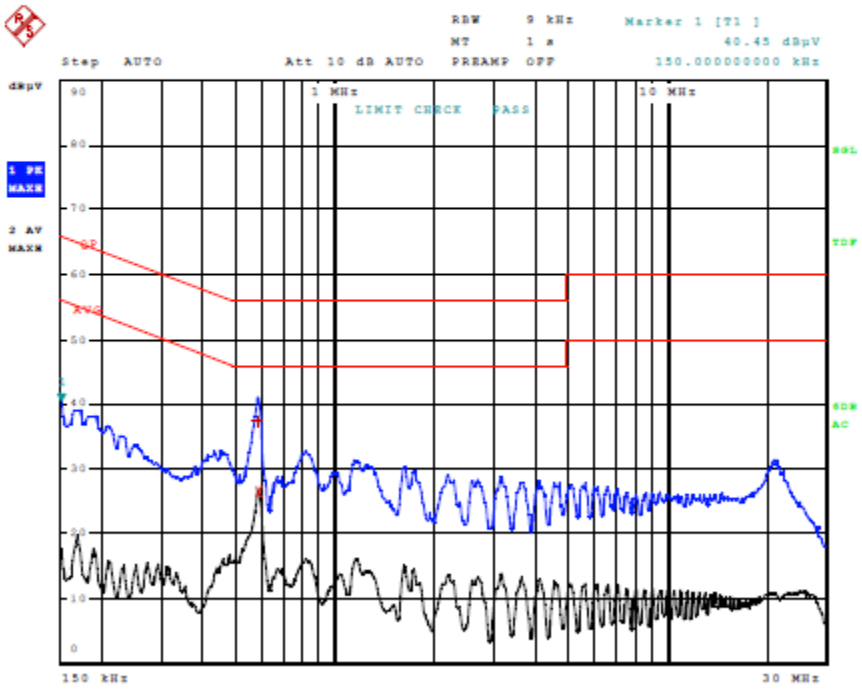
Frequency	Factor (dB)
150.00 kHz	0.19
170.00 kHz	0.17
200.00 kHz	0.16
250.00 kHz	0.13
300.00 kHz	0.12
350.00 kHz	0.12
400.00 kHz	0.11
500.00 kHz	0.12
600.00 kHz	0.12
700.00 kHz	0.11
800.00 kHz	0.13
900.00 kHz	0.12
1.00 MHz	0.21
1.20 MHz	0.22
1.50 MHz	0.28
2.00 MHz	0.37
2.50 MHz	0.41
3.00 MHz	0.59
4.00 MHz	0.40
5.00 MHz	0.47
7.00 MHz	0.63
10.00 MHz	0.88
15.00 MHz	1.08
20.00 MHz	1.01
30.00 MHz	1.80

8.2.29 220 MHz, Line 1 Plot -Band B

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.2.30 220 MHz, Line 1 Table -Band B

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 2

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
1	582.000000000 kHz	37.30	Quasi Peak	-18.70
2	586.000000000 kHz	26.30	Average	-19.70

Page 1 of 2

Transducer Table

Name: tdf_20
Interpolation: LIN
Comment: ANS 25/2 Primary LISN IL Line 1 + Coax Cable IL

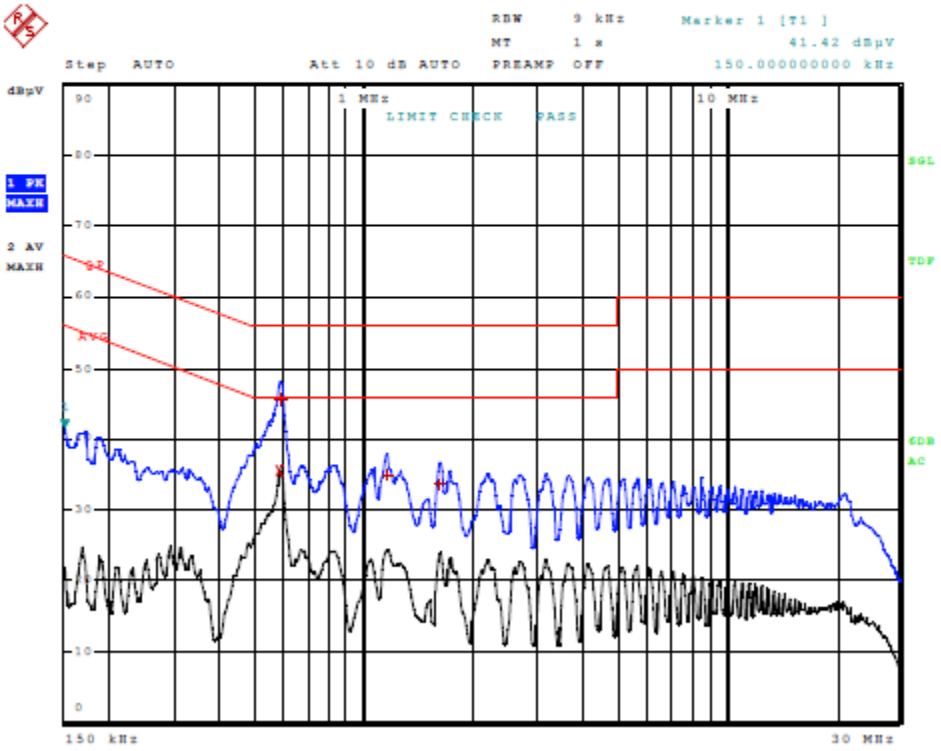
Frequency	Factor (dB)
150.00 kHz	0.19
170.00 kHz	0.17
200.00 kHz	0.16
250.00 kHz	0.13
300.00 kHz	0.12
350.00 kHz	0.12
400.00 kHz	0.11
500.00 kHz	0.12
600.00 kHz	0.12
700.00 kHz	0.11
800.00 kHz	0.13
900.00 kHz	0.12
1.00 MHz	0.21
1.20 MHz	0.22
1.50 MHz	0.28
2.00 MHz	0.37
2.50 MHz	0.41
3.00 MHz	0.59
4.00 MHz	0.40
5.00 MHz	0.47
7.00 MHz	0.63
10.00 MHz	0.88
15.00 MHz	1.08
20.00 MHz	1.01
30.00 MHz	1.80

8.2.31 220 MHz, Line 2 Plot -Band B

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.2.32 220 MHz, Line 2 Table -Band B

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 4

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	582.000000000 kHz	35.44	Average	-10.56
1	586.000000000 kHz	45.49	Quasi Peak	-10.51
1	1.158000000 MHz	34.82	Quasi Peak	-21.18
1	1.614000000 MHz	33.64	Quasi Peak	-22.36

Transducer Table

Name: tdf_20
Interpolation: LIN
Comment: ANS 25/2 Primary LISN IL Line 1 + Coax Cable IL

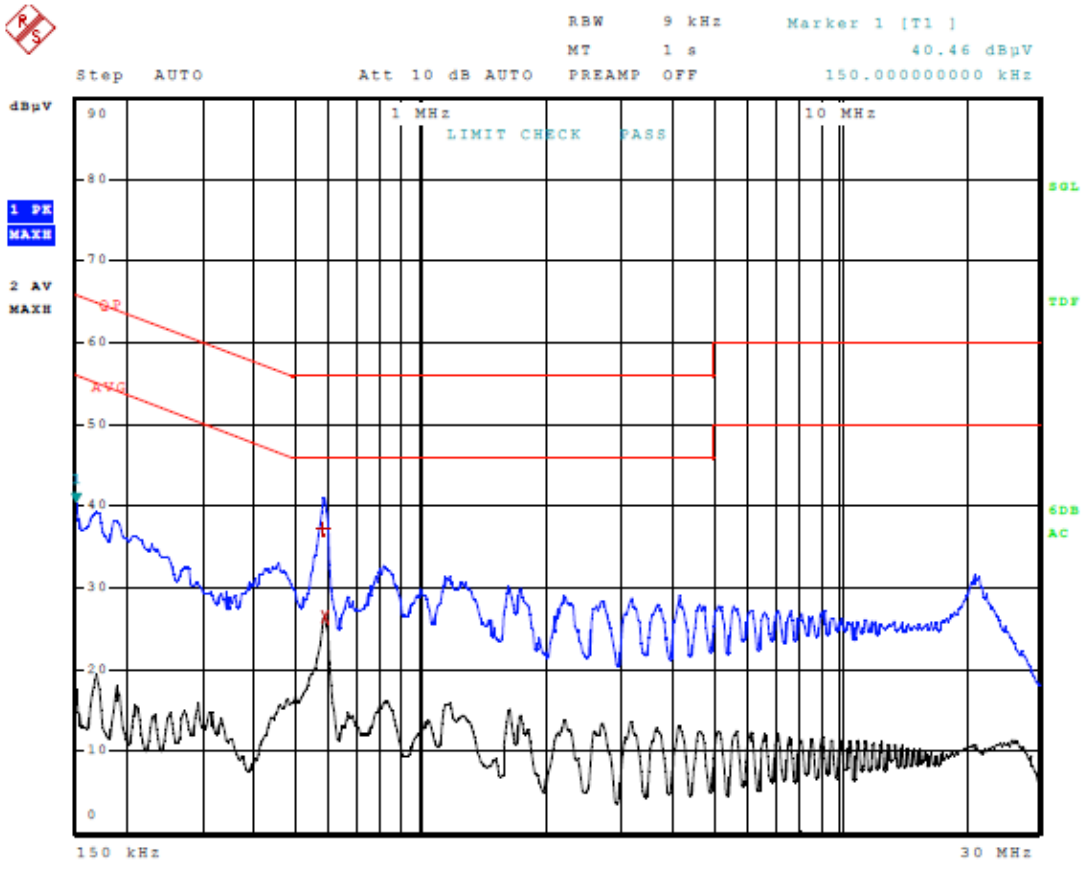
Frequency	Factor (dB)
150.00 kHz	0.19
170.00 kHz	0.17
200.00 kHz	0.16
250.00 kHz	0.13
300.00 kHz	0.12
350.00 kHz	0.12
400.00 kHz	0.11
500.00 kHz	0.12
600.00 kHz	0.12
700.00 kHz	0.11
800.00 kHz	0.13
900.00 kHz	0.12
1.00 MHz	0.21
1.20 MHz	0.22
1.50 MHz	0.28
2.00 MHz	0.37
2.50 MHz	0.41
3.00 MHz	0.59
4.00 MHz	0.40
5.00 MHz	0.47
7.00 MHz	0.63
10.00 MHz	0.88
15.00 MHz	1.08
20.00 MHz	1.01
30.00 MHz	1.80

8.2.33 450MHz, Line 1 Plot -Band B

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.2.34 450 MHz, Line 1 Table -Band B

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 2

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
1	582.000000000 kHz	37.22	Quasi Peak	-18.78
2	586.000000000 kHz	26.32	Average	-19.68

Transducer Table

Name: tdf_20
Interpolation: LIN
Comment: ANS 25/2 Primary LISN IL Line 1 + Coax Cable IL

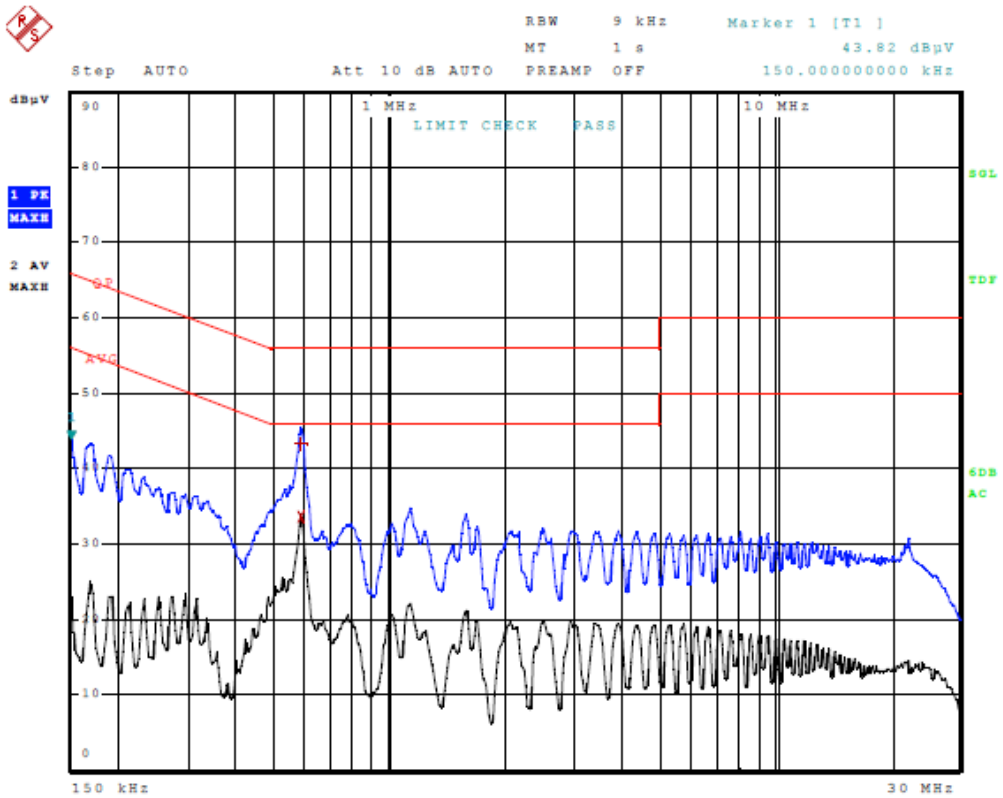
Frequency	Factor (dB)
150.00 kHz	0.19
170.00 kHz	0.17
200.00 kHz	0.16
250.00 kHz	0.13
300.00 kHz	0.12
350.00 kHz	0.12
400.00 kHz	0.11
500.00 kHz	0.12
600.00 kHz	0.12
700.00 kHz	0.11
800.00 kHz	0.13
900.00 kHz	0.12
1.00 MHz	0.21
1.20 MHz	0.22
1.50 MHz	0.28
2.00 MHz	0.37
2.50 MHz	0.41
3.00 MHz	0.59
4.00 MHz	0.40
5.00 MHz	0.47
7.00 MHz	0.63
10.00 MHz	0.88
15.00 MHz	1.08
20.00 MHz	1.01
30.00 MHz	1.80

8.2.35 450 MHz, Line 2 Plot -Band B

Stepped Scan (1 Range)

Scan Start: 150 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK Trace 2: Average
Transducer: tdf_20

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	100 ms	Auto	0 dB	INPUT2



8.2.36 450 MHz, Line 2 Table -Band B

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 2

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
1	586.000000000 kHz	43.26	Quasi Peak	-12.74
2	586.000000000 kHz	33.58	Average	-12.42

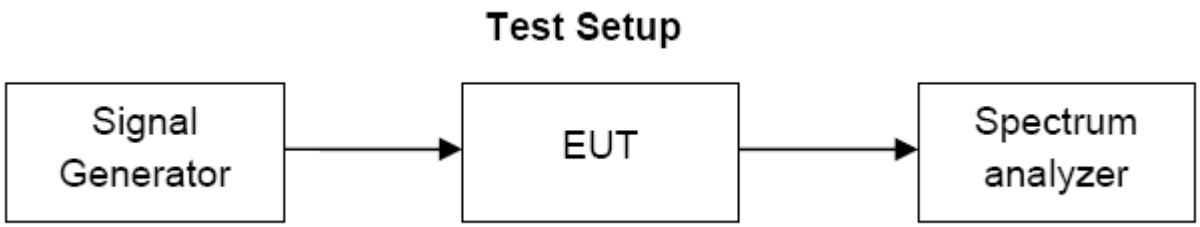
Transducer Table

Name: tdf_20
Interpolation: LIN
Comment: ANS 25/2 Primary LISN IL Line 1 + Coax Cable IL

Frequency	Factor (dB)
150.00 kHz	0.19
170.00 kHz	0.17
200.00 kHz	0.16
250.00 kHz	0.13
300.00 kHz	0.12
350.00 kHz	0.12
400.00 kHz	0.11
500.00 kHz	0.12
600.00 kHz	0.12
700.00 kHz	0.11
800.00 kHz	0.13
900.00 kHz	0.12
1.00 MHz	0.21
1.20 MHz	0.22
1.50 MHz	0.28
2.00 MHz	0.37
2.50 MHz	0.41
3.00 MHz	0.59
4.00 MHz	0.40
5.00 MHz	0.47
7.00 MHz	0.63
10.00 MHz	0.88
15.00 MHz	1.08
20.00 MHz	1.01
30.00 MHz	1.80

8.3 38 dB Band Rejection

Limits from FCC 15.121 and test procedure from ANSI C63.4-2014.

Test Setup


8.3.1 Test Results

Test Mode:	Frequency MHz:	Level:	Results
Scanning	824 - 869	12 dB SINAD	Pass

9. Statements of Compatibility with FCC Rules – part 15.121

FCC ID: AFJ432200

This scanning receiver cannot be used or modified to receive cellular radiotelephony frequencies. This is achieved by the key features described in detailed statements below. 1. Statement assessing the vulnerability of Analogue Scanning Receiver to possible modifications and describing design steps taken to make the tuning, control, and filtering circuitry inaccessible (15.121 (a)): The receiver portion of the equipment under this application scans the frequency bands 88 MHz to 500 MHz. The receiver circuitry cannot be altered to enable it to scan the cellular bands by means of clipping the leads of components, installing a diode and/or jumper wire, or by any other such simple modification. Nor can the receiver be made to scan the cellular bands by replacing a plug-in semiconductor chip, because no such plug-in chips are utilized anywhere in the receiver. The semiconductor chips that are utilized in the tuning function of the equipment cannot be reprogrammed. The tuning, control and filtering circuitry of the receiver is controlled by a microprocessor firmware, which is unalterable by the user (and it is also unalterable by the manufacturer's own support and distribution staff, and their resellers). Any attempt to modify the circuitry cannot therefore result in achieving access to the cellular bands but is likely to make the receiver inoperable.

2. Statement relating to cellular band rejection (15.121 (b)): The FCC requirement stipulates that scanning receivers shall reject any signals from the cellular radiotelephone service frequency bands that are 38dB or lower (at 12 dB SINAD). The construction of the equipment under this application is such that image rejection is typically 60 dB, therefore with a more than sufficient margin for adequate suppression of any image frequencies related to the cellular radiotelephone signals. This aspect was tested by the receiver placed in a scanning mode. There were no spurious responses detected within the entire frequency range of the receiver with a rejection ratio less than 44 dB. In view of the above, the equipment complies with part 15.121 of the FCC rules.

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_12255-24_FCC 15B_Scanning Receiver_	1	Initial release	03/07/2024
	2	Updated Description Page 7	03/11/2024
	3		

END OF TEST REPORT