

May 21, 2026

HID Global Corporation (US)
611 Center Ridge Drive
Austin, TX 78753
USA

Dear Erik Ray,

Enclosed is the EMC test report for compliance testing of HID Global Corporation (US), Color Card Printer, DTC4500e, tested to the requirements of:

- Title 47 of the CFR, Part 15.225, Subpart C for Certification as an Intentional Radiator.
- RSS-210: Issue 11, License-Exempt Radio Apparatus: Category 1 Equipment

Thank you for using the services of Eurofins E&E North America. If you have any questions regarding these results or if we can be of further service to you, please feel free to contact me.

Sincerely,



Nancy LaBrecque
Documentation Department
Eurofins Electrical and Electronic Testing NA, Inc.

Reference: WIRA139159-FCC-IC-HF Rev 4

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Eurofins MET Laboratories Inc. (Eurofins E&E North America) is part of the Eurofins Electrical & Electronics (E&E) global compliance network.



**13.56MHz RFID
Test Report**

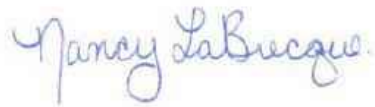
for the

**HID Global Corporation (US)
Color Card Printer, DTC4500e (Model: DTC4500e)**

Tested under
the FCC Certification Rules
contained in
15.225 Subpart C and
RSS-210: Issue 11
for Intentional Radiators



Bryan Taylor, Wireless Team Lead
Electromagnetic Compatibility Lab



Nancy LaBrecque
Documentation Department

Engineering Statement: The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.



Matthew Hinojosa
EMC Manager, Austin Electromagnetic Compatibility Lab

Report Status Sheet

Revision	Report Date	Reason for Revision
Ø	January 12, 2026	Initial Issue.
1	January 30, 2026	Customer Requested Changes.
2	April 8, 2026	Customer Requested Changes.
3	April 27, 2026	Customer Requested Changes.
4	May 21, 2026	TCB Reviewer Comments

Executive Summary

A. Purpose of Test

An EMC evaluation was performed to determine compliance of the HID Global Corporation (US) Color Card Printer, DTC4500e, with the requirements of Part 15, §15.225 and RSS-210 Issue 11, Annex B, B.6. All references are to the most current version of Title 47 of the Code of Federal Regulations and RSS-210 in effect. The following data is presented in support of the Certification of the Color Card Printer, DTC4500e. HID Global Corporation (US) should retain a copy of this document which should be kept on file for at least two years after the manufacturing of the Color Card Printer, DTC4500e, has been **permanently** discontinued.

B. Executive Summary

The following tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, §15.225 and RSS-210, in accordance with HID Global Corporation (US), under purchase order number HID028120. All tests were conducted using measurement procedures ANSI C63.4-2014 and ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024.

FCC Reference	ISED Reference	Description	Compliance
Part 15 §15.203	---	Antenna Requirement	Compliant
Part 15 §15.207(a)	RSS-Gen (8.8)	Conducted Emission Limits	Compliant
Part 15 §15.215	---	20dB Occupied Bandwidth	Compliant
---	RSS-Gen (6.7)	99% Occupied Bandwidth	Compliant
Part 15 §15.225(a)	RSS-210 (B.6.a.i)	Field Strength emissions within the band 13.553 – 13.567 MHz	Compliant
Part 15 §15.225(b)	RSS-210 (B.6.a.ii)	Field Strength emissions within the band 13.410 – 13.553 MHz and 13.567 – 13.710 MHz	Compliant
Part 15 §15.225(c)	RSS-210 (B.6.a.iii)	Field Strength emissions within the band 13.110 – 13.410 MHz and 13.710 – 14.010 MHz	Compliant
Part 15 §15.225(d)	RSS-210 (B.6.a.iv)	Outside-Band Field Strength emissions per 15.209 - 13.110 – 14.010 MHz	Compliant
Part 15 §15.225(e)	RSS-210 (B.6.b)	Frequency Tolerance of the Carrier	Compliant

Table 1. Executive Summary

Equipment Configuration

A. Overview

Eurofins E&E North America was contracted by HID Global Corporation (US) to perform testing on the Color Card Printer, DTC4500e.

This document describes the test setups, test methods, required test equipment, and the test limit criteria used to perform compliance testing of the HID Global Corporation (US) Color Card Printer, DTC4500e.

The results obtained relate only to the item(s) tested.

Product Name:	Color Card Printer, DTC4500e	
Model(s) Tested:	DTC4500e	
Model(s) Covered:	DTC4500e	
Test Sample Number:	25939-35, 25939-36, 25939-37	
EUT Specifications:	Primary Power: 24VDC via AC / DC Power Adapter	
	Type of Modulation(s):	ASK
	Equipment Code:	DXX
	Maximum Fundamental Field Strength:	65.61dBuV/m
	Antenna Type:	loop
	EUT Frequency Ranges:	13.56MHz
Analysis:	The results obtained relate only to the item(s) tested.	
Environmental Test Conditions:	Temperature: 15-35° C	
	Relative Humidity: 30-60%	
	Barometric Pressure: 860-1060 mbar	
Evaluated by:	Bryan Taylor	
Sample Receive Date:	10/09/2025	
Test Start Date:	10/20/2025	
Report Date:	May 21, 2026	

Table 2. EUT Summary Table

B. References

CFR 47, Part 15, Subpart C	Federal Communication Commission, Code of Federal Regulations, Title 47, Part 15: General Rules and Regulations, Allocation, Assignment, and Use of Radio Frequencies
RSS-210 Issue 11	Licence-Exempt Radio Apparatus: Category I Equipment
ANSI C63.4:2017	Methods and Measurements of Radio-Noise Emissions from Low-Voltage Electrical And Electronic Equipment in the Range of 9 kHz to 40 GHz
ISO/IEC 17025:2017	General Requirements for the Competence of Testing and Calibration Laboratories
ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024	American National Standard for Testing Unlicensed Wireless Devices

Table 3. References

C. Test Site

Eurofins MET Laboratories Inc. (Eurofins E&E North America) is part of the Eurofins Electrical & Electronics (E&E) global compliance network.

All testing was performed at Eurofins E&E North America, 13501 McCallen Pass, Austin, TX 78753. All equipment used in making physical determinations is accurate and bears recent traceability to the National Institute of Standards and Technology.

ISED Lab Info:

CAB Identifier: US0004

Company Number: 2043D

FCC Lab Info:

Designation Number: US1127

Radiated Emissions measurements were performed in a 10 meter semi-anechoic chamber (equivalent to an Open Area Test Site). In accordance with §2.948(a)(3), a complete site description is contained at MET Laboratories.

Correlation between semi-anechoic chamber and OATS:

Two calibrated Loop antennas were used on an OATS. One antenna was driven by a signal generator with a known power. The receive antenna was initially placed 1m away from the transmit antenna. The two antennas were placed parallel to each other. The receive antenna was in turn connected to a calibrated spectrum analyzer. The emissions were swept from 9 kHz to 30 MHz. The receive antenna was then rotated 90 degrees and measurements re-taken. Additional measurements were taken when the receive antenna was placed at 3meters.

This same setup was taken to inside the semi-anechoic chamber and the measurements repeated.

The data was used to correlate the semi-anechoic chamber and OATS.

D. Measurement Uncertainty

Test Method	Typical Expanded Uncertainty	K	Confidence Level
RF Frequencies	±4.52 Hz	2	95%
RF Power Conducted Emissions	±2.97 dB	2	95%
RF Power Radiated Emissions	±2.95 dB	2	95%
Radiated Emissions, (30 MHz – 1 GHz)	±2.95	2	95%
Radiated Emissions, (1 GHz – 18 GHz)	±3.54	2	95%
Conducted Emission Voltage	±2.97	2	95%

Table 4. Uncertainty Calculations Summary

E. Description of Test Sample

The Color Card Printer, DTC4500e is a modular, direct-to-card printer system designed to print, laminate, and encode ID cards. Three systems were tested to cover all optional modules as follows:

Configuration 0 (Base Model Without OMNIKEY):

Input Hopper, Printer, Flipper, Mag Encoder, Contact Encoder, Laminator Upper RFID, Laminator Lower RFID, Ribbon RFID

Configuration 1 (SN C5140451):

Input Hopper, Printer, Flipper, Laminator Upper RFID, Laminator Lower RFID, Mag Encoder, Contact Encoder, OMNIKEY 5122

Configuration 2 (SN C5140450):

Input Hopper, Printer, Flipper, Laminator Upper RFID, Laminator Lower RFID, Mag Encoder, Contact Encoder, OMNIKEY 5127SI

Configuration 3 (SN C5140431):

Input Hopper, Printer, Flipper, Laminator Upper RFID, Laminator Lower RFID, Mag Encoder, Contact Encoder, OMNIKEY 5127CK MINI

Each of the three configurations above are identical with the exception of the OMNIKEY encoder installed into each. Each version includes an identical "ribbon" radio operating at 13.56MHz and identical "Laminator" radios (upper and lower) operating at 13.56MHz. The table below indicates the radios onboard each OMNIKEY encoder option:

Test Configuration	Model Number	OMNIKEY Encoder Installed	Transmitters Onboard
Configuration 0	DTC4500e	None	Ribbon (13.56MHz) Laminator Upper RFID (13.56MHz) Laminator Lower RFID (13.56MHz)
Configuration 1	DTC4500e-1	OMNIKEY 5122	Ribbon (13.56MHz) Laminator Upper RFID (13.56MHz) Laminator Lower RFID (13.56MHz) OMNIKEY 5122 (13.56MHz)
Configuration 2	DTC4500e-2	OMNIKEY 5127SI	Ribbon (13.56MHz) Laminator Upper RFID (13.56MHz) Laminator Lower RFID (13.56MHz) OMNIKEY 5127SI (125kHz, 13.56MHz)
Configuration 3	DTC4500e-3	OMNIKEY 5127CK MINI	Ribbon (13.56MHz) Laminator Upper RFID (13.56MHz) Laminator Lower RFID (13.56MHz) OMNIKEY 5127CK MINI (125kHz, 13.56MHz) BLE (See Note)

Note that the BLE radio onboard the OMNIKEY 5127 CK MINI encoder is not used and is disabled within the DTC4500e.

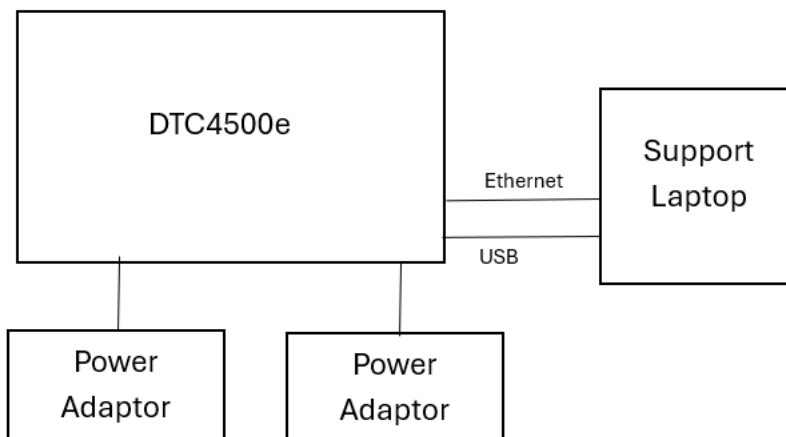


Figure 1. Block Diagram of Test Configuration

F. Equipment Configuration

The individual radios onboard were controlled by software on the support laptop. The software did not allow for adjusting of output power since that is at a fixed non-adjustable level.

G. Support Equipment

Support equipment necessary for the operation and testing of the EUT is included in the following list.

Ref. ID	Name/Description	Manufacturer	Model Number	Customer Supplied Calibration Data
	Laptop Computer	Dell	Latitude	N/A

Table 5. Support Equipment

Ports and Cabling Information

Ref. Id	Port Name on EUT	Cable Description or reason for no cable	Qty	Length as tested (m)	Max Length (m)	Shielded? (Y/N)	Termination Box ID & Port Name
	USB	USB-A to USB- C Cable	1	2	2	Yes	Laptop
	Ethernet	Unshielded Network Cable	1	3	>3m	No	Laptop
	Power	DC Power Cable	2	2	2	No	AC outlet

Table 6. Ports and Cabling Information

H. Mode of Operation

The individual radios onboard were controlled by software on the support laptop. The software tools used were proprietary and provided by HID Global Corporation (US) for the sole purpose of controlling the radios during testing. The software did not allow for adjusting of output power since that is at a fixed non-adjustable level. The test tools used are as follows:

- Utility Commander – hdpX Agency edition v2.3
- SC Reader Radio Control Tool v4

I. Modifications

a) Modifications to EUT

No modifications were made to the EUT.

b) Modifications to Test Standard

No modifications were made to the test standard.

J. Disposition of EUT

The test sample including all support equipment submitted to the Electro-Magnetic Compatibility Lab for testing was returned to HID Global Corporation (US) upon completion of testing.

Antenna Requirements

§ 15.203 Antenna Requirement

Test Requirement:

§ 15.203: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

The structure and application of the EUT were analyzed to determine compliance with Section 15.203 of the Rules. Section 15.203 states that the subject device must meet at least one of the following criteria:

- a.) Antenna must be permanently attached to the unit.
- b.) Antenna must use a unique type of connector to attach to the EUT.
- c.) Unit must be professionally installed. Installer shall be responsible for verifying that the correct antenna is employed with the unit.

Results:

The Color Card Printer, DTC4500e as evaluated, was compliant as the antennas were permanently attached.

Test Engineer(s):

Bryan Taylor

Test Date(s):

10/20/2025

Conducted Emissions

§ 15.207(a) Conducted Emissions Limits

Test Requirement(s): § 15.207 (a): For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 Ω line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency range (MHz)	§ 15.207(a), Conducted Limit (dB μ V)	
	Quasi-Peak	Average
* 0.15 - 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

Table 7. Conducted Limits for Intentional Radiators from FCC Part 15 § 15.207(a)

Note: *Decreases with the logarithm of the frequency.

RSS-GEN (8.8) AC Power-Line Conducted Emissions Limits

Test Requirement(s): **RSS-GEN (8.8):** Unless stated otherwise in the applicable RSS, for radio apparatus that are designed to be connected to the public utility AC power network, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the range 150 kHz to 30 MHz shall not exceed the limits in the below figure, as measured using a 50 μ H / 50 Ω line impedance stabilization network (LISN). This requirement applies for the radio frequency voltage measured between each power line and the ground terminal of each AC power-line mains cable of the EUT.

For an EUT that connects to the AC power lines indirectly, through another device, the requirement for compliance with the limits in the below figure shall apply at the terminals of the AC power-line mains cable of a representative support device, while it provides power to the EUT. The lower limit applies at the boundary between the frequency ranges. The device used to power the EUT shall be representative of typical applications.

Frequency (MHz)	Conducted Limit (dB μ V)	
	Quasi-Peak	Average
* 0.15-0.5	66 to 56	56 to 46 ¹
0.5-5	56	46
5-30	60	50

Table 8. AC Power Line Conducted Emissions Limits

Note: *Decreases with the logarithm of the frequency.

Test Procedure: The EUT was placed on a 0.8 m-high non-conducting table above a ground plane. The EUT was situated such that the back of the EUT was 0.4 m from one wall of the vertical ground plane, and the remaining sides of the EUT were no closer than 0.8 m from any other conductive surface. The EUT was powered from a 50 Ω /50 μ H Line Impedance Stabilization Network (LISN). The EMC receiver scanned the frequency range from 150 kHz to 30 MHz. Conducted Emissions measurements were made in accordance with *ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 "Procedures for Compliance Testing of Unlicensed Wireless Devices"*. The measurements were performed over the frequency range of 0.15 MHz to 30 MHz using a 50 Ω /50 μ H LISN as the input transducer to an EMI receiver.

Test Results: The Color Card Printer, DTC4500e was compliant with this requirement. Testing was performed on the AC input to an AC to DC power supply that was feeding the 12VDC to the Color Card Printer, DTC4500e.

Test Engineer(s): An Dang

Test Date(s): 10/20/2025

Conducted Emissions Voltage Test Setup

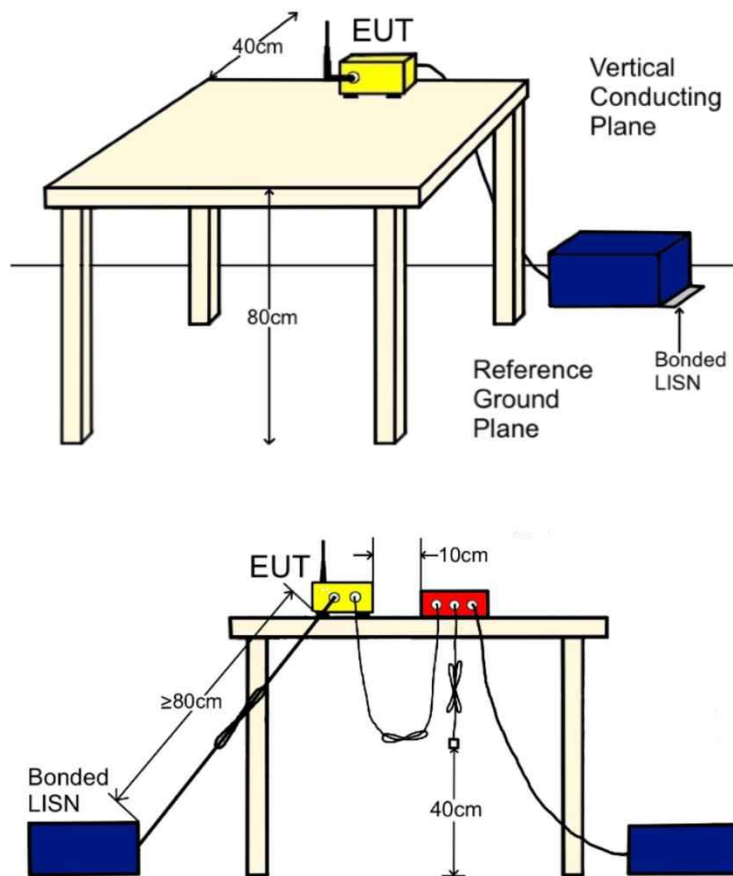
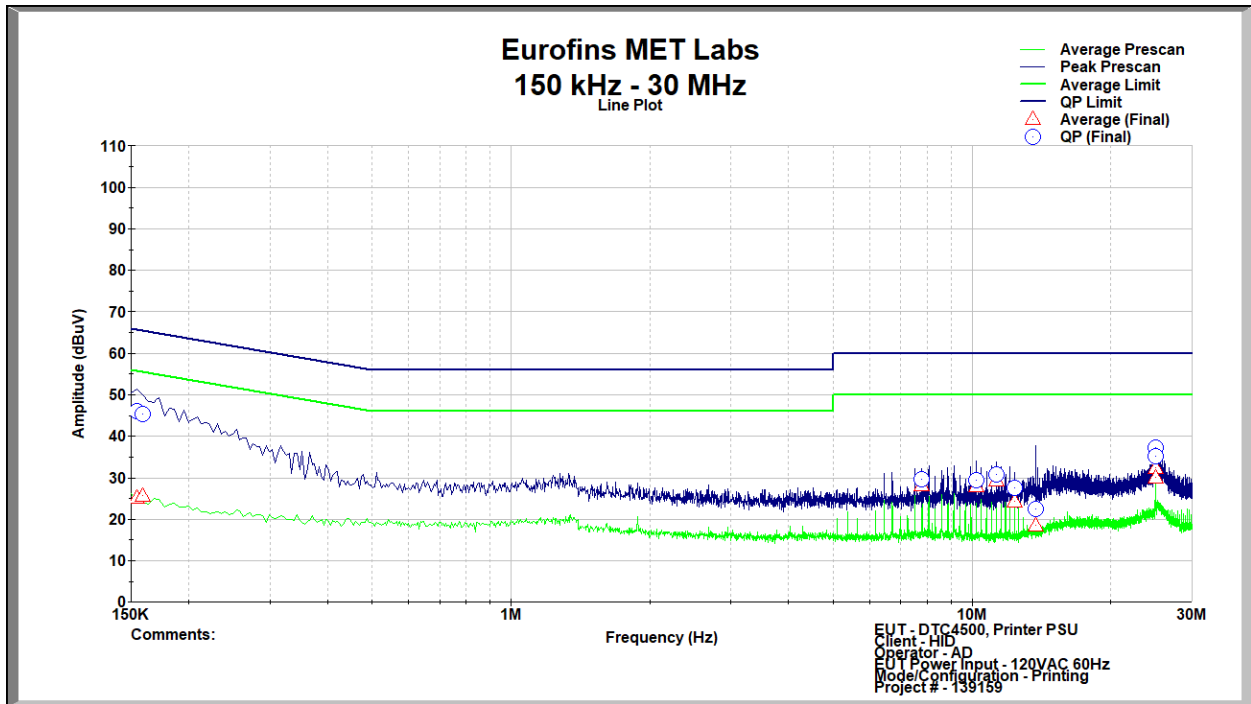


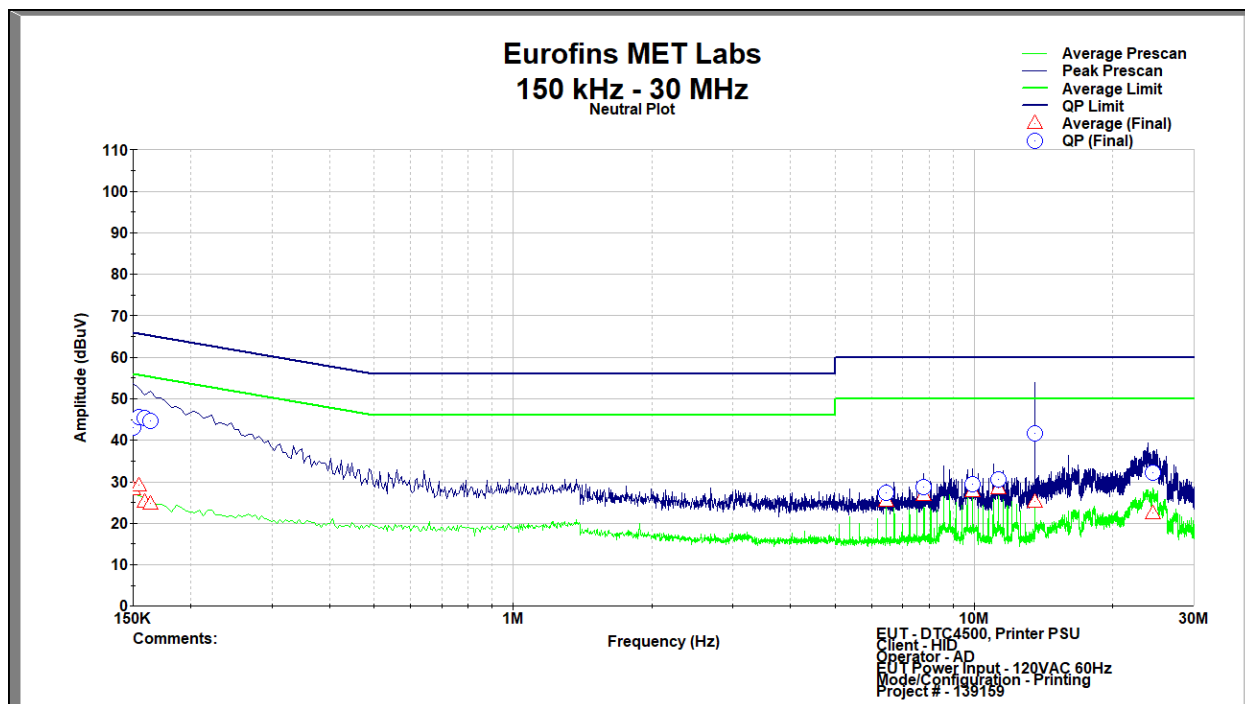
Figure 2. CEV Test Setup



Conducted Emissions, 15.207(a), Phase (Configuration 1)

Frequency (MHz)	Quasi-Peak (dBμV/m)	Quasi-Peak Limit (dBμV/m)	Quasi-Peak Margin (dB)	Average (dBμV/m)	Average Limit (dBμV/m)	Average Margin (dB)
0.154	46.046	65.871	19.826	25.325	55.871	30.546
0.159	45.449	65.743	20.294	25.755	55.743	29.988
7.79	29.636	60	30.364	28.151	50	21.849
10.207	29.349	60	30.651	28.005	50	21.995
11.278	30.908	60	29.092	29.506	50	20.494
12.355	27.473	60	32.527	24.286	50	25.714
13.768	22.405	60	37.595	18.506	50	31.494
25.002	37.165	60	22.835	32.355	50	17.645
25.006	35.169	60	24.831	30.053	50	19.947

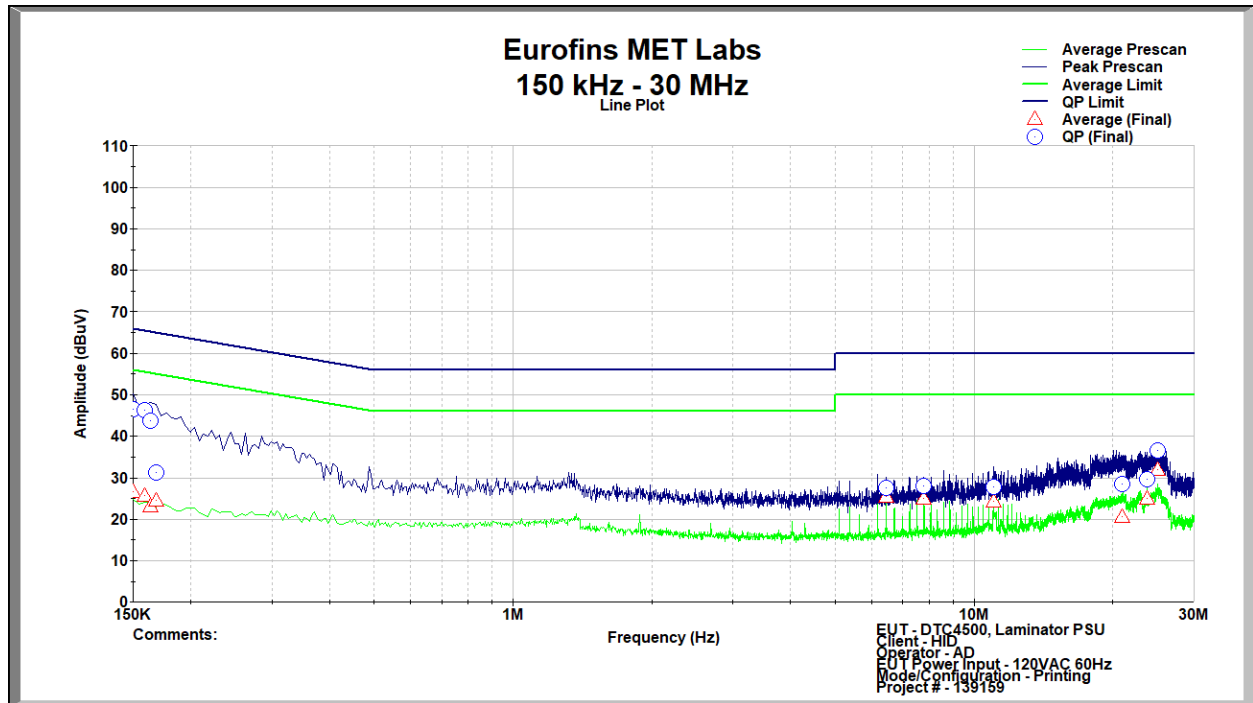
Table 9. Conducted Emissions, 15.207(a), Phase, Test Results (Configuration 1)



Conducted Emissions, 15.207(a), Neutral (Configuration 1)

Frequency (MHz)	Quasi-Peak (dBμV)	Quasi-Peak Limit (dBμV)	Quasi-Peak Margin (dB)	Average (dBμV)	Average Limit (dBμV)	Average Margin (dB)
0.15	43.099	66	22.901	28.28	56	27.72
0.154	45.666	65.871	20.205	29.164	55.871	26.707
0.159	45.38	65.743	20.363	25.191	55.743	30.552
0.164	44.748	65.614	20.866	24.726	55.614	30.889
6.444	27.311	60	32.689	25.419	50	24.581
7.79	28.793	60	31.207	26.888	50	23.112
9.938	29.478	60	30.522	27.699	50	22.301
11.278	30.615	60	29.385	28.502	50	21.498
13.566	41.579	60	18.421	25.162	50	24.838
24.439	32.143	60	27.857	22.553	50	27.447

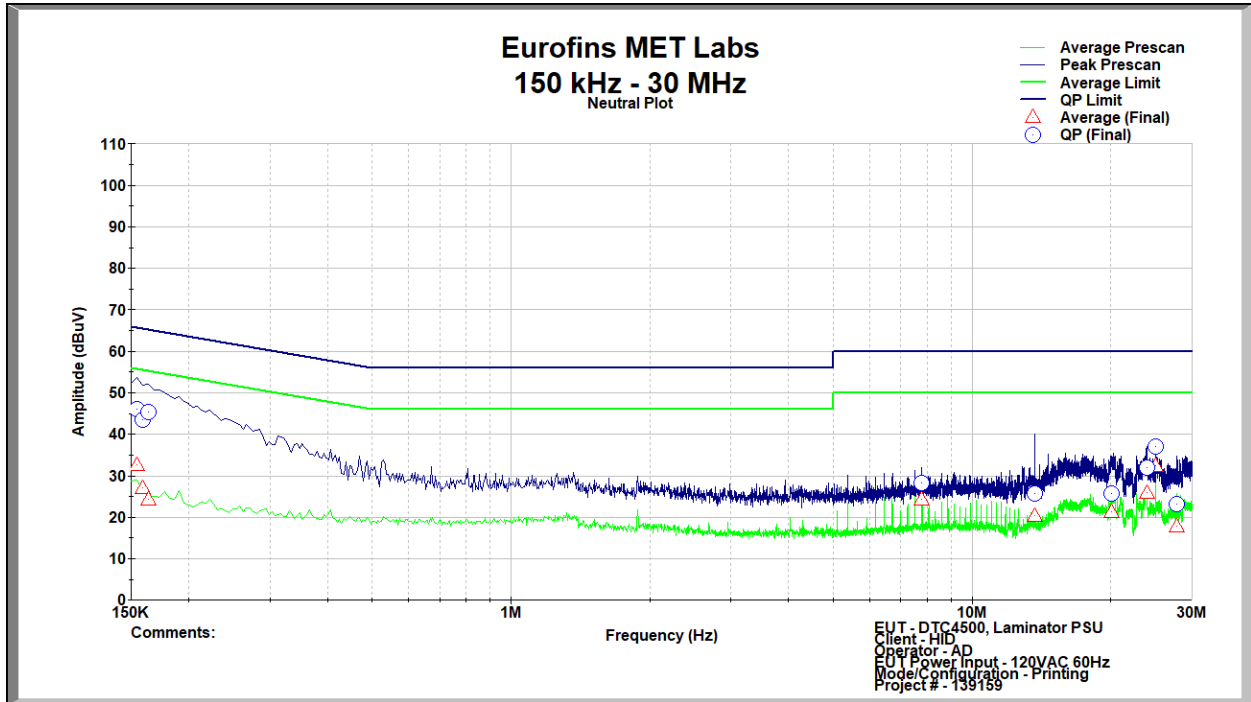
Table 10. Conducted Emissions, 15.207(a), Neutral, Test Results (Configuration 1)



Conducted Emissions, 15.207(a), Phase (Configuration 1, Laminator)

Frequency (MHz)	Quasi-Peak (dB μ V/m)	Quasi-Peak Limit (dB μ V/m)	Quasi-Peak Margin (dB)	Average (dB μ V/m)	Average Limit (dB μ V/m)	Average Margin (dB)
0.15	46.59	66	19.41	26.529	56	29.471
0.159	46.183	65.743	19.56	25.695	55.743	30.048
0.164	43.687	65.614	21.927	23.118	55.614	32.497
0.168	31.27	65.486	34.216	24.531	55.486	30.954
6.449	27.658	60	32.342	25.459	50	24.541
7.79	27.957	60	32.043	24.988	50	25.012
11.013	27.811	60	32.189	24.344	50	25.656
20.971	28.523	60	31.477	20.711	50	29.289
23.686	29.654	60	30.346	24.908	50	25.092
25.002	36.545	60	23.455	31.877	50	18.123

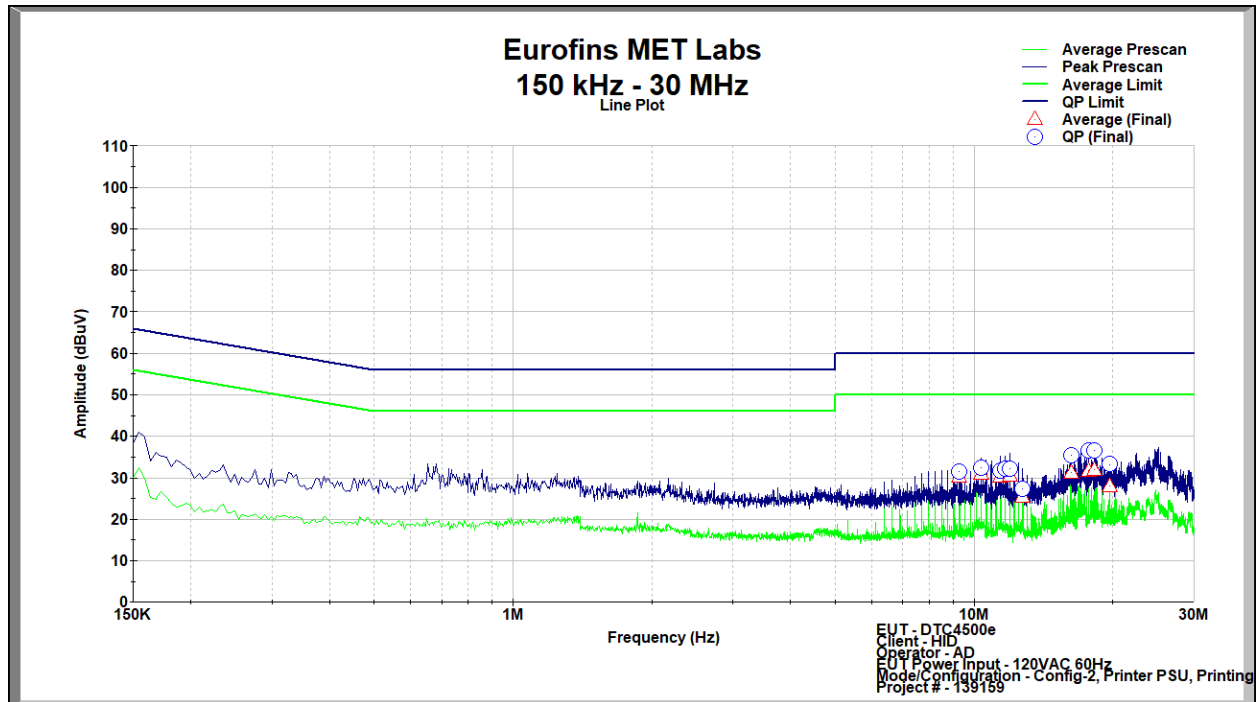
Table 11. Conducted Emissions, 15.207(a), Phase, Test Results (Configuration 1, Laminator)



Conducted Emissions, 15.207(a), Neutral (Configuration 1, Laminator)

Frequency (MHz)	Quasi-Peak (dBμV)	Quasi-Peak Limit (dBμV)	Quasi-Peak Margin (dB)	Average (dBμV)	Average Limit (dBμV)	Average Margin (dB)
0.154	46.07	65.871	19.801	32.571	55.871	23.3
0.159	43.387	65.743	22.356	26.997	55.743	28.746
0.164	45.247	65.614	20.368	24.33	55.614	31.284
7.79	28.367	60	31.633	24.315	50	25.685
13.701	25.739	60	34.261	20.357	50	29.643
20.067	25.62	60	34.38	21.317	50	28.683
24.002	31.9	60	28.1	25.987	50	24.013
25.002	37.062	60	22.938	32.389	50	17.611
27.789	23.261	60	36.739	17.821	50	32.179

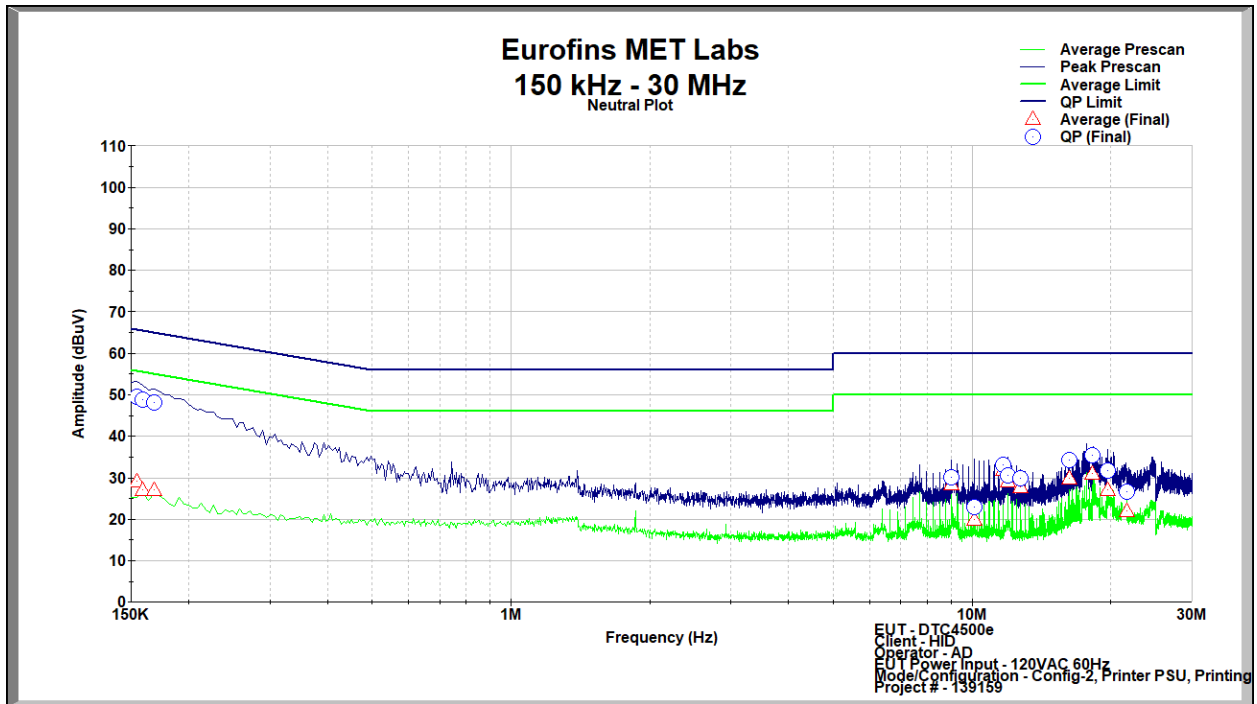
Table 12. Conducted Emissions, 15.207(a), Neutral, Test Results (Configuration 1, Laminator)



Conducted Emissions, 15.207(a), Phase (Configuration 2)

Frequency (MHz)	Quasi-Peak (dBμV/m)	Quasi-Peak Limit (dBμV/m)	Quasi-Peak Margin (dB)	Average (dBμV/m)	Average Limit (dBμV/m)	Average Margin (dB)
9.299	31.531	60	28.469	30.395	50	19.605
10.361	32.412	60	27.588	31.101	50	18.899
11.427	31.638	60	28.362	30.392	50	19.608
11.693	32.148	60	27.852	31.186	50	18.814
11.958	32.072	60	27.928	30.594	50	19.406
12.756	27.26	60	32.74	25.533	50	24.467
16.227	35.346	60	24.654	31.278	50	18.722
17.694	36.554	60	23.446	31.716	50	18.284
18.244	36.624	60	23.376	31.854	50	18.146
19.712	33.22	60	26.78	28.056	50	21.944

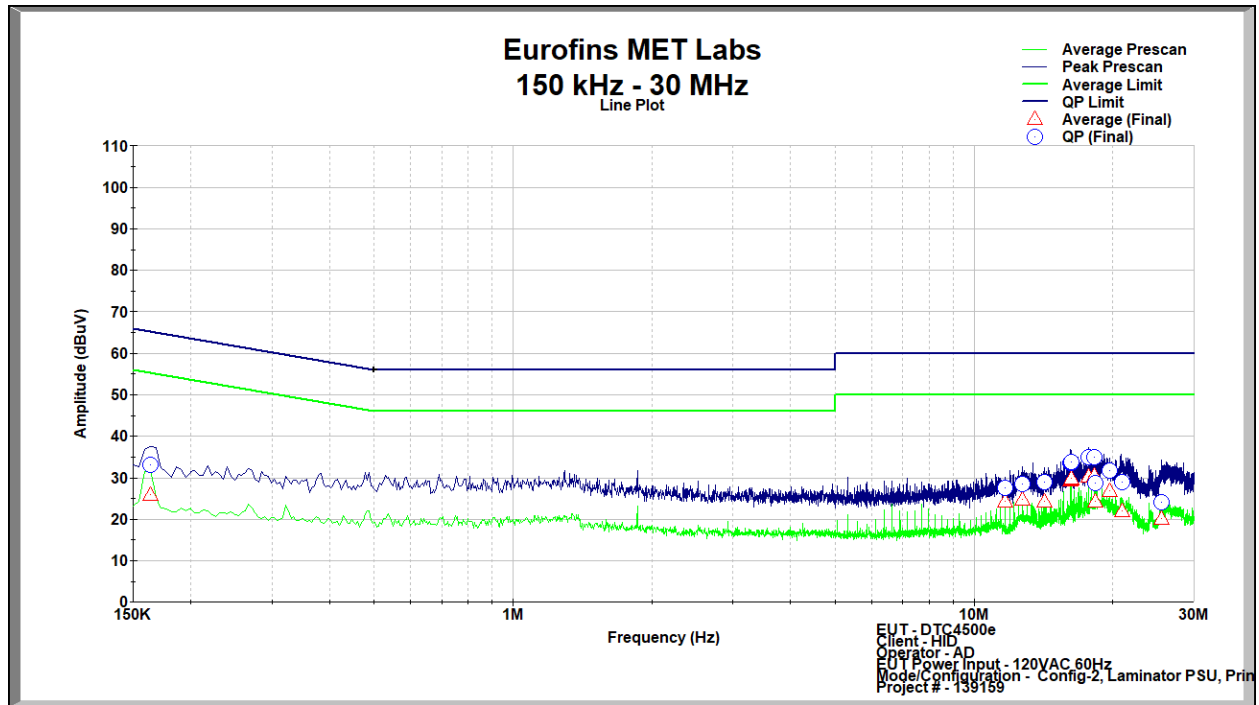
Table 13. Conducted Emissions, 15.207(a), Phase, Test Results (Configuration 2)



Conducted Emissions, 15.207(a), Neutral (Configuration 2)

Frequency (MHz)	Quasi-Peak (dBμV)	Quasi-Peak Limit (dBμV)	Quasi-Peak Margin (dB)	Average (dBμV)	Average Limit (dBμV)	Average Margin (dB)
0.154	49.545	65.871	16.326	29.222	55.871	26.65
0.159	48.764	65.743	16.979	27.093	55.743	28.65
0.168	48.064	65.486	17.422	27.099	55.486	28.387
9.03	30.164	60	29.836	28.51	50	21.49
10.1	22.862	60	37.138	19.829	50	30.171
11.688	32.999	60	27.001	31.966	50	18.034
11.95	30.613	60	29.387	29.068	50	20.932
12.752	29.844	60	30.156	27.806	50	22.194
16.227	34.193	60	25.807	29.76	50	20.24
18.244	35.363	60	24.637	31.115	50	18.885
19.712	31.704	60	28.296	27.097	50	22.903
21.666	26.709	60	33.291	22.12	50	27.88

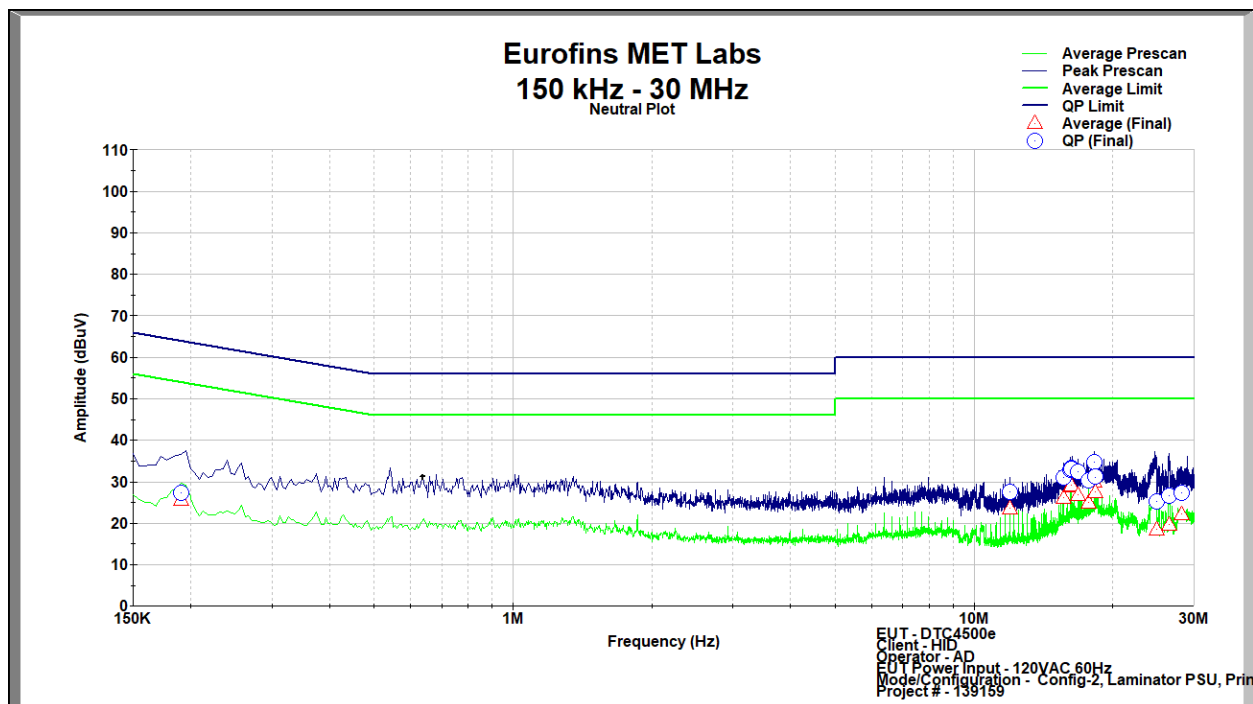
Table 14. Conducted Emissions, 15.207(a), Neutral, Test Results (Configuration 2)



Conducted Emissions, 15.207(a), Phase (Configuration 2, Laminator)

Frequency (MHz)	Quasi-Peak (dBμV/m)	Quasi-Peak Limit (dBμV/m)	Quasi-Peak Margin (dB)	Average (dBμV/m)	Average Limit (dBμV/m)	Average Margin (dB)
0.164	33.077	65.614	32.537	26.044	55.614	29.571
11.688	27.494	60	32.506	24.335	50	25.665
12.752	28.502	60	31.498	24.832	50	25.168
14.214	29.039	60	30.961	24.277	50	25.723
16.169	33.581	60	26.419	29.521	50	20.479
16.227	33.473	60	26.527	29.615	50	20.385
16.232	33.841	60	26.159	29.782	50	20.218
17.694	34.974	60	25.026	30.263	50	19.737
18.244	34.851	60	25.149	30.51	50	19.49
18.3	28.692	60	31.308	24.254	50	25.746
19.712	31.617	60	28.383	26.829	50	23.171
20.99	28.854	60	31.146	22.01	50	27.99
25.53	24.119	60	35.881	20.242	50	29.758

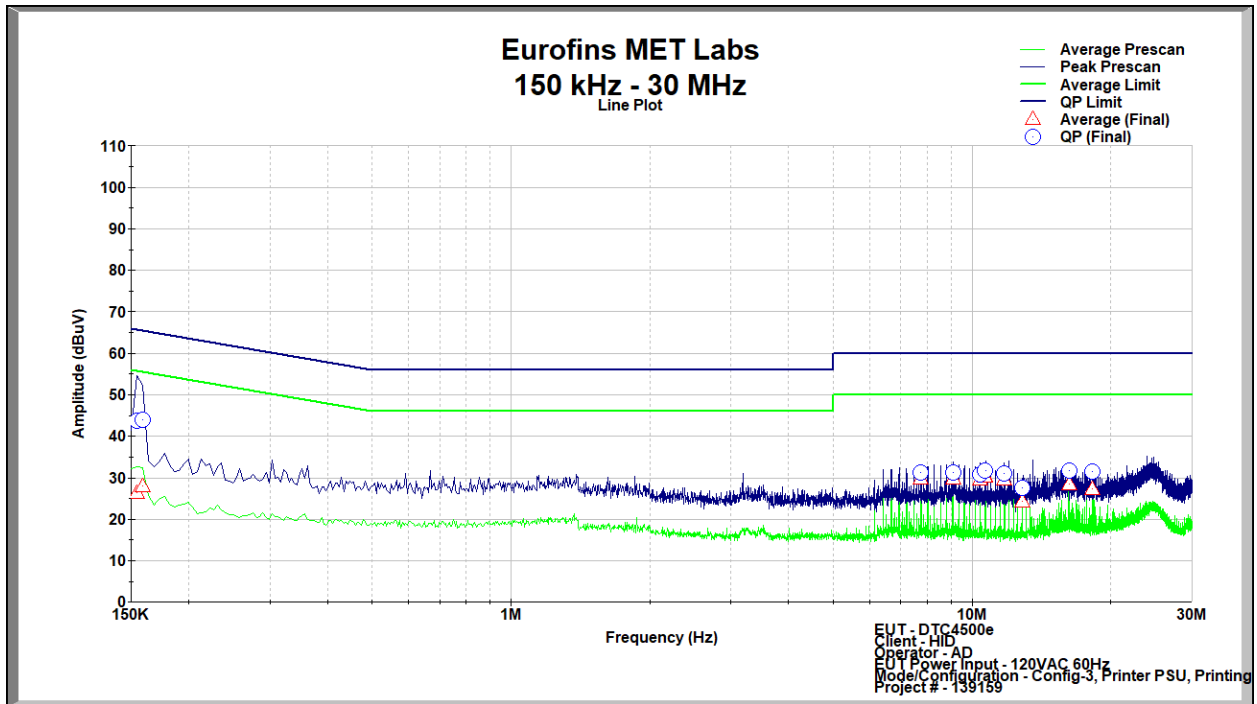
Table 15. Conducted Emissions, 15.207(a), Phase, Test Results (Configuration 2, Laminator)



Conducted Emissions, 15.207(a), Neutral (Configuration 2, Laminator)

Frequency (MHz)	Quasi-Peak (dBμV)	Quasi-Peak Limit (dBμV)	Quasi-Peak Margin (dB)	Average (dBμV)	Average Limit (dBμV)	Average Margin (dB)
0.191	27.419	64.843	37.424	25.679	54.843	29.164
11.954	27.49	60	32.51	23.627	50	26.373
15.62	31.038	60	28.962	26.095	50	23.905
16.169	32.913	60	27.087	28.944	50	21.056
16.227	33.344	60	26.656	29.007	50	20.993
16.232	33.199	60	26.801	29.28	50	20.72
16.84	32.428	60	27.572	26.86	50	23.14
17.69	30.403	60	29.597	24.946	50	25.054
18.244	34.62	60	25.38	30.116	50	19.884
18.308	31.124	60	28.876	27.509	50	22.491
24.858	25.323	60	34.677	18.508	50	31.492
26.469	26.606	60	33.394	19.775	50	30.225
28.239	27.419	60	32.581	22.276	50	27.724

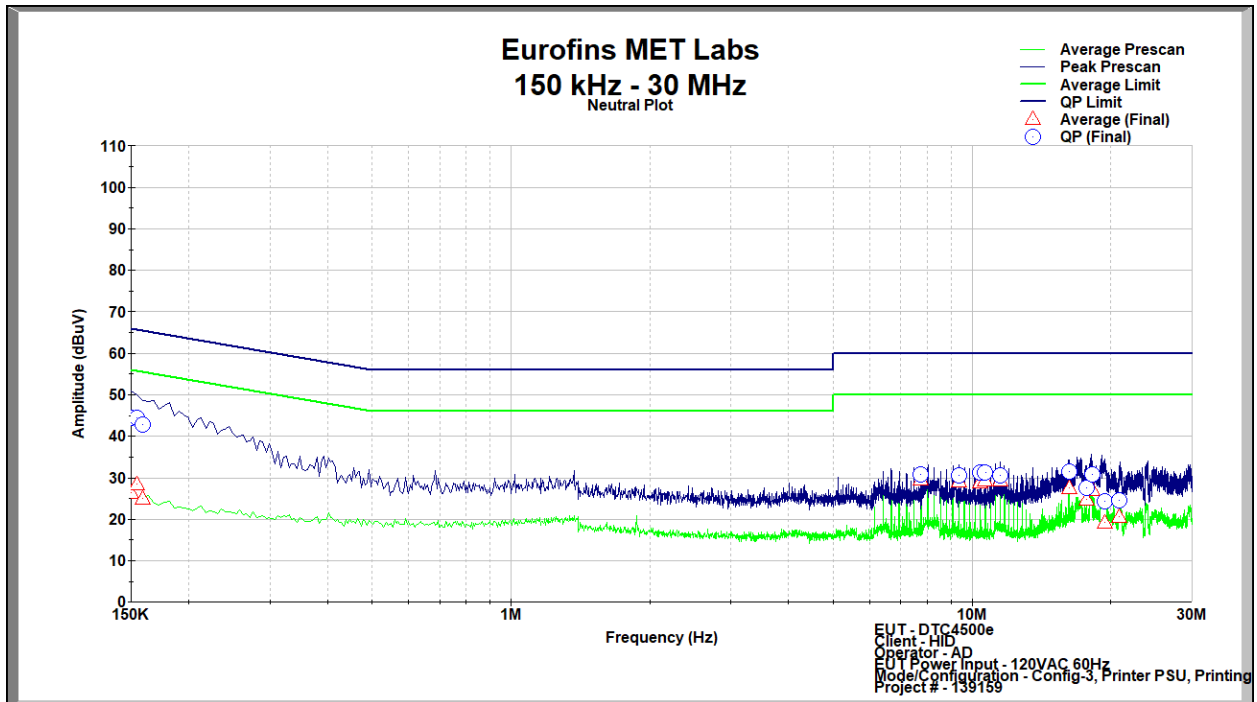
Table 16. Conducted Emissions, 15.207(a), Neutral, Test Results (Configuration 2, Laminator)



Conducted Emissions, 15.207(a), Phase (Configuration 3)

Frequency (MHz)	Quasi-Peak (dBμV/m)	Quasi-Peak Limit (dBμV/m)	Quasi-Peak Margin (dB)	Average (dBμV/m)	Average Limit (dBμV/m)	Average Margin (dB)
0.154	43.669	65.871	22.202	26.466	55.871	29.406
0.159	43.972	65.743	21.77	28.095	55.743	27.648
7.749	31.277	60	28.723	29.948	50	20.052
9.085	31.323	60	28.677	29.963	50	20.037
10.424	30.777	60	29.223	29.744	50	20.256
10.689	31.761	60	28.239	30.516	50	19.484
10.69	31.8	60	28.2	30.252	50	19.748
11.76	31.019	60	28.981	29.553	50	20.447
12.828	27.627	60	32.373	24.377	50	25.623
16.227	31.749	60	28.251	28.553	50	21.447
18.244	31.556	60	28.444	27.382	50	22.618

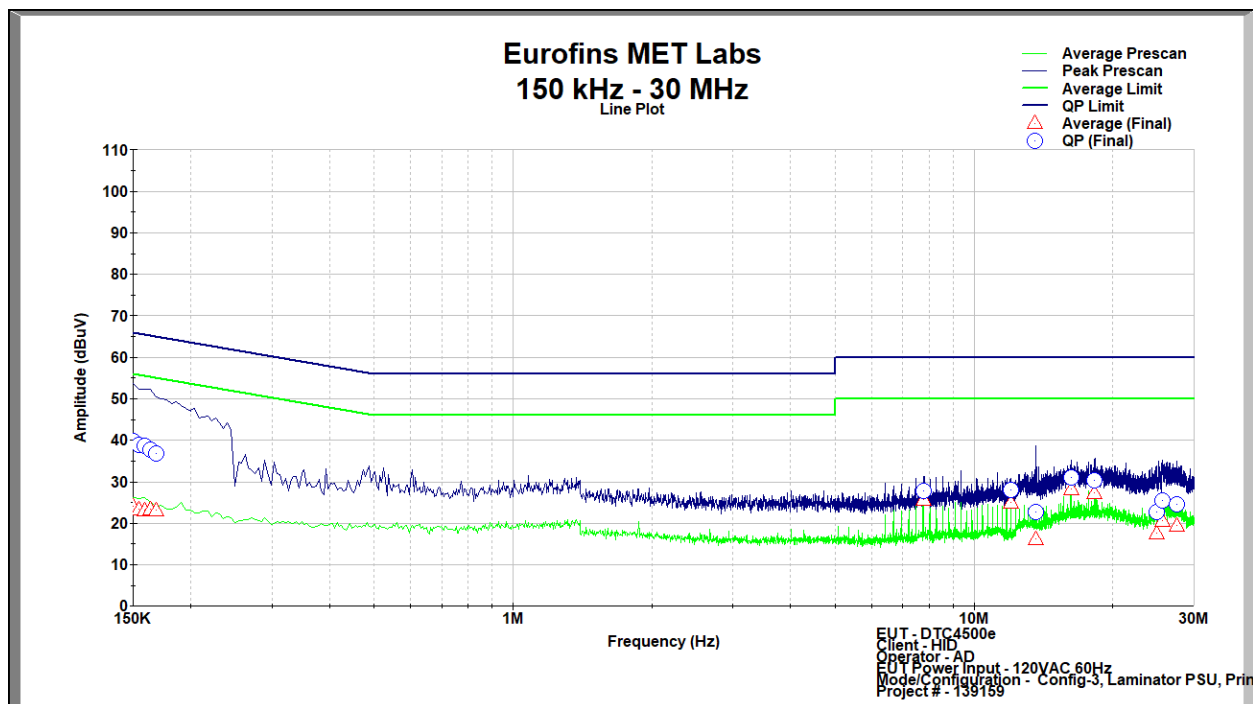
Table 17. Conducted Emissions, 15.207(a), Phase, Test Results (Configuration 3)



Conducted Emissions, 15.207(a), Neutral (Configuration 3)

Frequency (MHz)	Quasi-Peak (dBμV)	Quasi-Peak Limit (dBμV)	Quasi-Peak Margin (dB)	Average (dBμV)	Average Limit (dBμV)	Average Margin (dB)
0.15	44.36	66	21.64	26.357	56	29.643
0.154	44.518	65.871	21.354	28.463	55.871	27.409
0.159	42.875	65.743	22.868	25.12	55.743	30.623
7.749	30.808	60	29.192	29.532	50	20.468
9.352	30.462	60	29.538	29.26	50	20.74
10.424	31.163	60	28.837	29.022	50	20.978
10.689	31.288	60	28.712	29.476	50	20.524
11.49	30.576	60	29.424	29.348	50	20.652
16.227	31.381	60	28.619	27.659	50	22.341
17.69	27.485	60	32.515	24.751	50	25.249
18.244	30.756	60	29.244	27.02	50	22.98
19.43	24.249	60	35.751	19.322	50	30.678
20.87	24.614	60	35.386	20.585	50	29.415

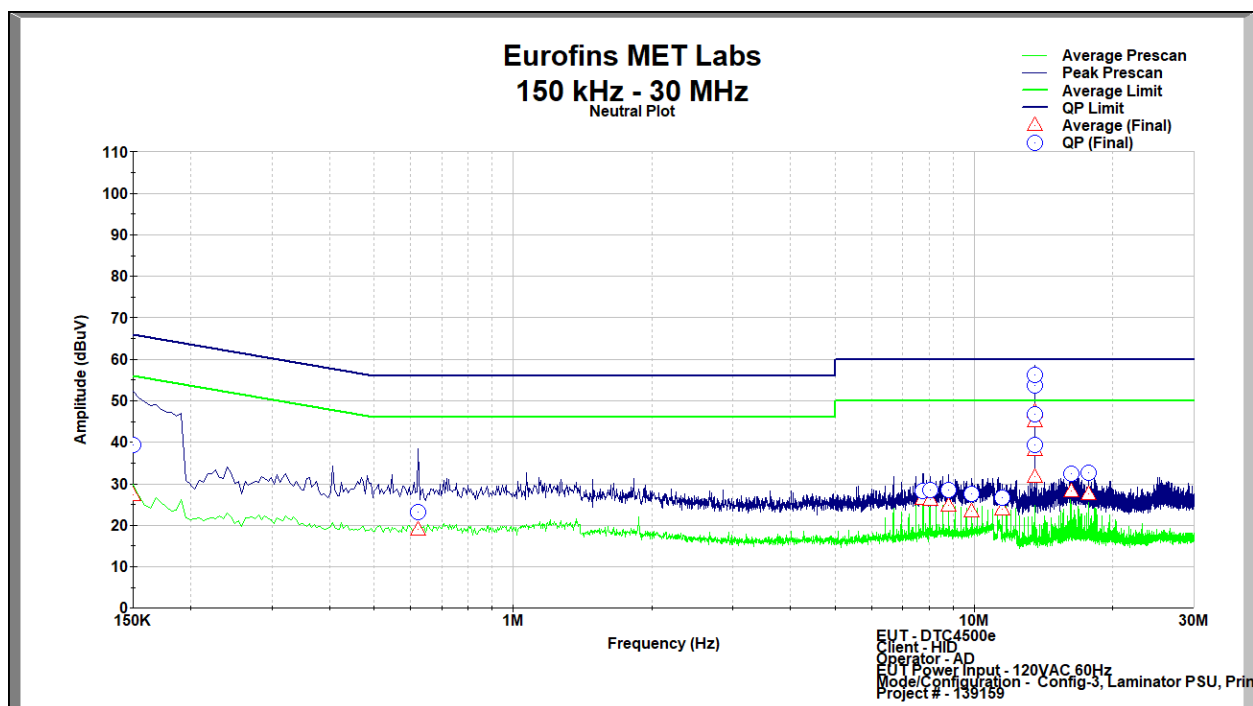
Table 18. Conducted Emissions, 15.207(a), Neutral, Test Results (Configuration 3)



Conducted Emissions, 15.207(a), Phase (Configuration 3, Laminator)

Frequency (MHz)	Quasi-Peak (dBμV/m)	Quasi-Peak Limit (dBμV/m)	Quasi-Peak Margin (dB)	Average (dBμV/m)	Average Limit (dBμV/m)	Average Margin (dB)
0.15	39.85	66	26.15	23.986	56	32.014
0.154	38.988	65.871	26.883	23.327	55.871	32.545
0.159	38.668	65.743	27.075	23.244	55.743	32.499
0.164	37.689	65.614	27.925	23.3	55.614	32.314
0.168	36.851	65.486	28.635	23.105	55.486	32.38
7.753	27.895	60	32.105	25.737	50	24.263
12.03	27.924	60	32.076	25.066	50	24.934
13.643	22.709	60	37.291	16.3	50	33.7
16.227	30.918	60	29.082	28.362	50	21.638
18.244	30.351	60	29.649	27.406	50	22.594
24.89	22.813	60	37.187	17.644	50	32.356
25.66	25.495	60	34.505	20.516	50	29.484
27.47	24.515	60	35.485	19.564	50	30.436

Table 19. Conducted Emissions, 15.207(a), Phase, Test Results (Configuration 3, Laminator)



Conducted Emissions, 15.207(a), Neutral (Configuration 3, Laminator)

Frequency (MHz)	Quasi-Peak (dBμV)	Quasi-Peak Limit (dBμV)	Quasi-Peak Margin (dB)	Average (dBμV)	Average Limit (dBμV)	Average Margin (dB)
0.15	39.29	66	26.71	27.353	56	28.647
0.623	23.242	56	32.758	18.979	46	27.021
7.75	28.357	60	31.643	26.441	50	23.559
8.019	28.392	60	31.608	26.096	50	23.904
8.82	28.423	60	31.577	24.842	50	25.158
9.89	27.566	60	32.434	23.472	50	26.528
11.495	26.686	60	33.314	23.821	50	26.179
13.553	39.432	60	20.568	31.709	50	18.291
13.557	53.709	60	6.291	45.234	50	4.766
13.562	56.173	60	3.827	47.519	50	2.481
13.566	46.756	60	13.244	38.246	50	11.754
16.227	32.341	60	27.659	28.254	50	21.746
17.694	32.625	60	27.375	27.513	50	22.487

Table 20. Conducted Emissions, 15.207(a), Neutral, Test Results (Configuration 3, Laminator)

Occupied Bandwidth Measurements

§ 15.215(c) 20 dB Occupied Bandwidth

Test Requirement(s):	§ 15.215 (c) Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.
Test Procedure:	The transmitter was on and transmitting at the highest output power. The bandwidth of the fundamental frequency was measured with the spectrum analyzer. Per ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 the RBW should be between 1% and 5% of the occupied bandwidth.
Test Results:	The Color Card Printer, DTC4500e was compliant with this requirement. The 20dB Bandwidth is shown on the plots on the following pages.
Test Engineer(s):	Bryan Taylor
Test Date(s):	11/20/2025

RSS-GEN (6.7) 99% Occupied Bandwidth

Test Requirements: The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

Test Procedure: The EUT was on and transmitting at the highest output power. The bandwidth of the fundamental frequency was measured with the spectrum analyzer. Per ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 the RBW should be between 1% and 5% of the occupied bandwidth.

Test Results The Color Card Printer, DTC4500e was compliant with this requirement. The 99% Bandwidth is shown on the plots on the following pages.

Test Engineer(s): Bryan Taylor

Test Date(s): 11/20/2025

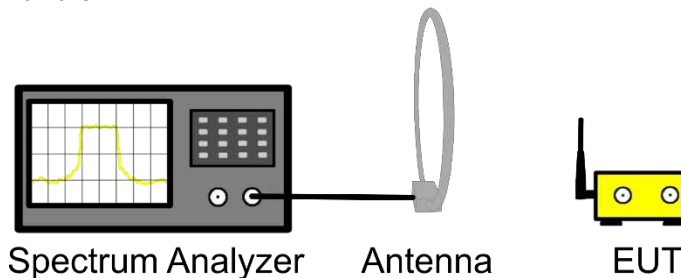


Figure 3. 20 dB Bandwidth and 99% Bandwidth Test Setup

Configuration Tested	Radio	Center Frequency (MHz)	20 dB Bandwidth	99% Bandwidth
Configuration 1	Ribbon	13.56MHz	25.18Hz	21.70Hz
Configuration 1	OMNIKEY 5122	13.56MHz	212.0Hz	680.17Hz
Configuration 2	OMNIKEY 5127SI	13.56MHz	49.49Hz	65.70Hz
Configuration 3	OMNIKEY 5127 CK MINI	13.56MHz	77.57Hz	338.64Hz
Configuration 2	Laminator Upper	13.56MHz	55.57Hz	236.61Hz
Configuration 2	Laminator Lower	13.56MHz	54.05Hz	204.77Hz

Table 21. Occupied Bandwidth Test Results (With Credential In Place)

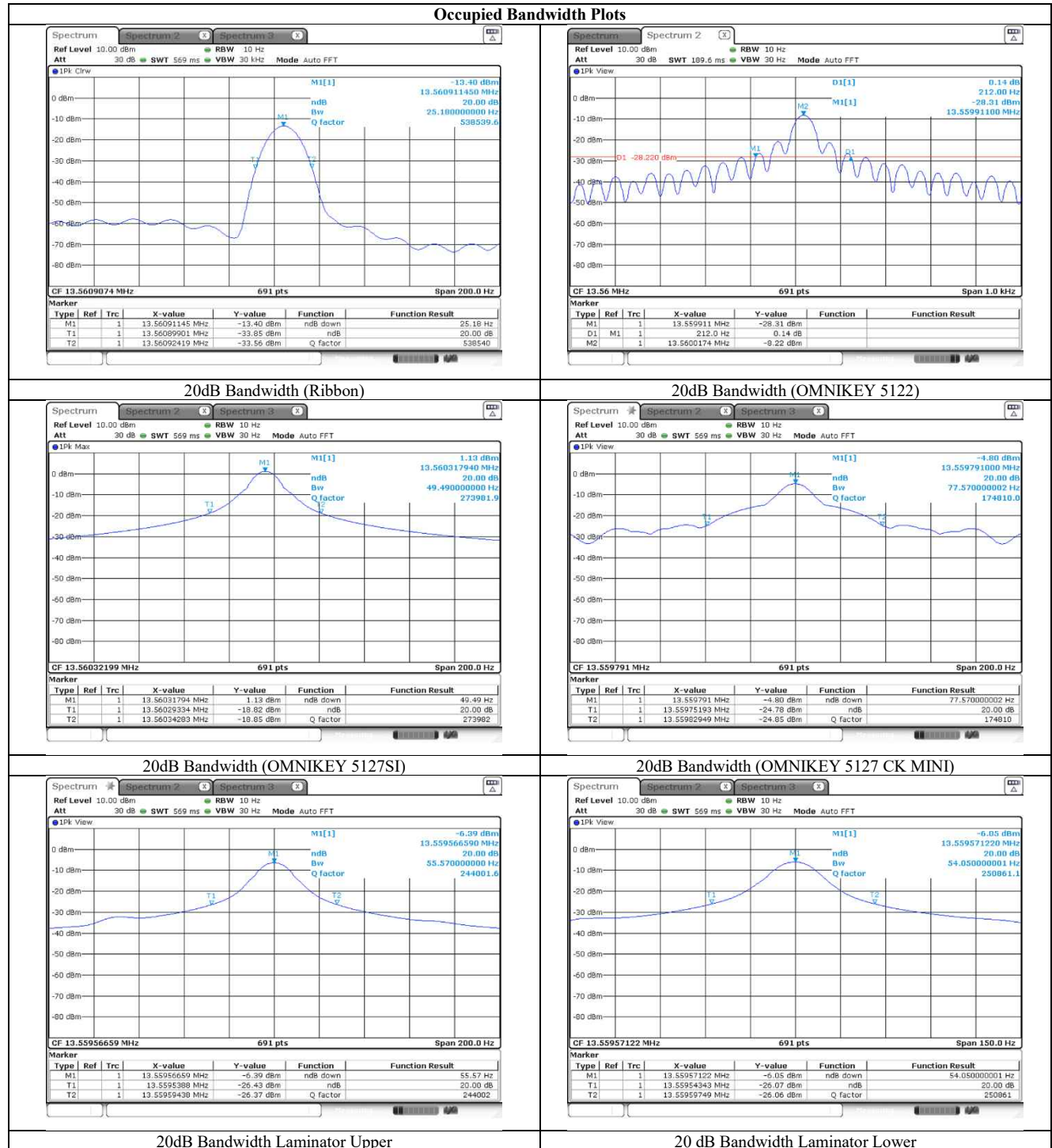


Table 22. 20dB Occupied Bandwidth Test Results (With Credential In Place)

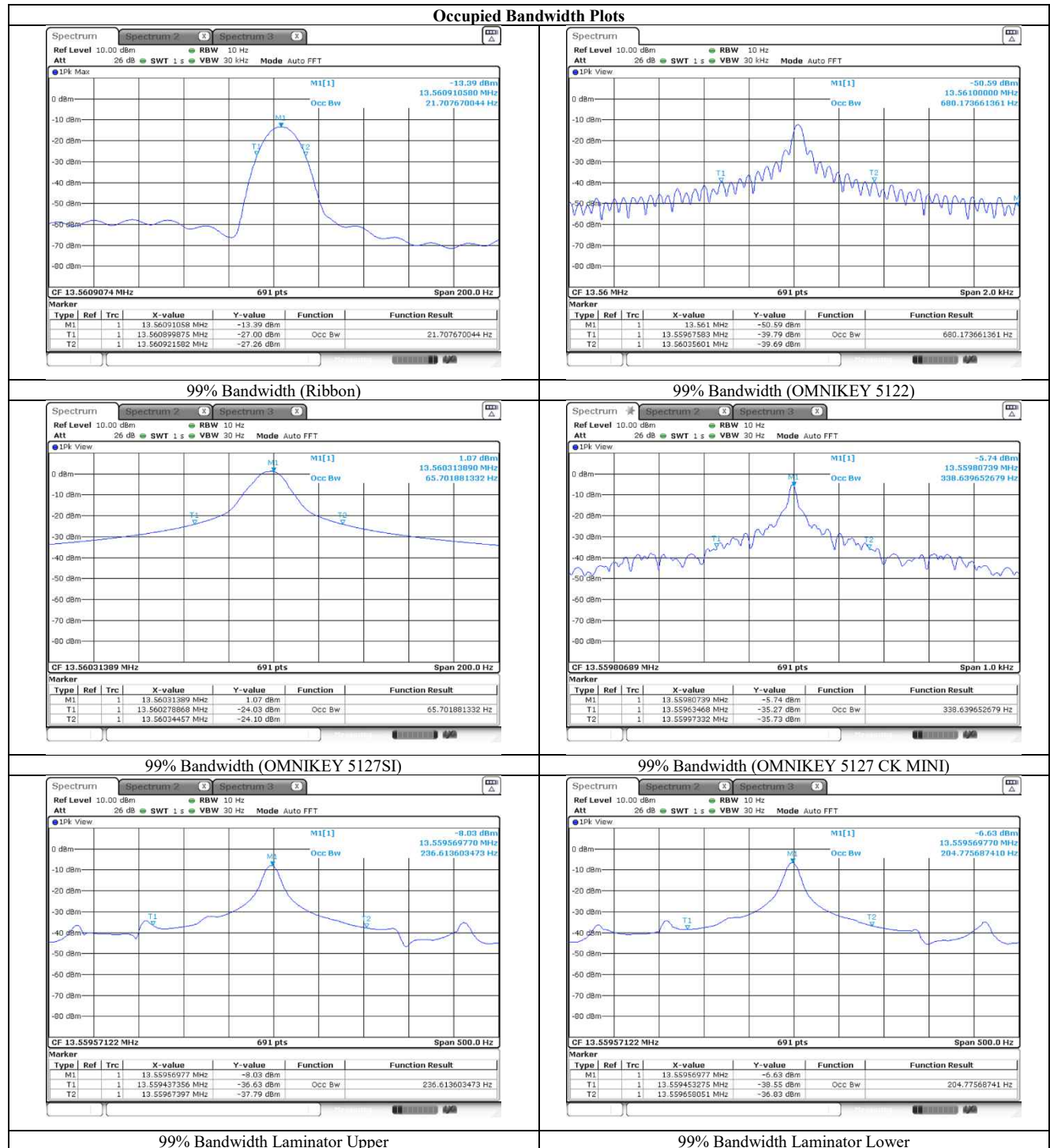


Table 23. 99% Occupied Bandwidth Test Results (With Credential In Place)

Configuration Tested	Radio	Center Frequency (MHz)	20 dB Bandwidth	99% Bandwidth
Configuration 1	Ribbon	13.56MHz	24.89Hz	21.41Hz
Configuration 1	OMNIKEY 5122	13.56MHz	213.50Hz	610.71Hz
Configuration 2	OMNIKEY 5127SI	13.56MHz	49.19Hz	63.96Hz
Configuration 3	OMNIKEY 5127 CK MINI	13.56MHz	78.15Hz	345.87Hz
Configuration 2	Laminator Upper	13.56MHz	53.84Hz	220.69Hz
Configuration 2	Laminator Lower	13.56MHz	48.84Hz	201.15Hz

Table 24. Occupied Bandwidth Test Results (Without Credential)

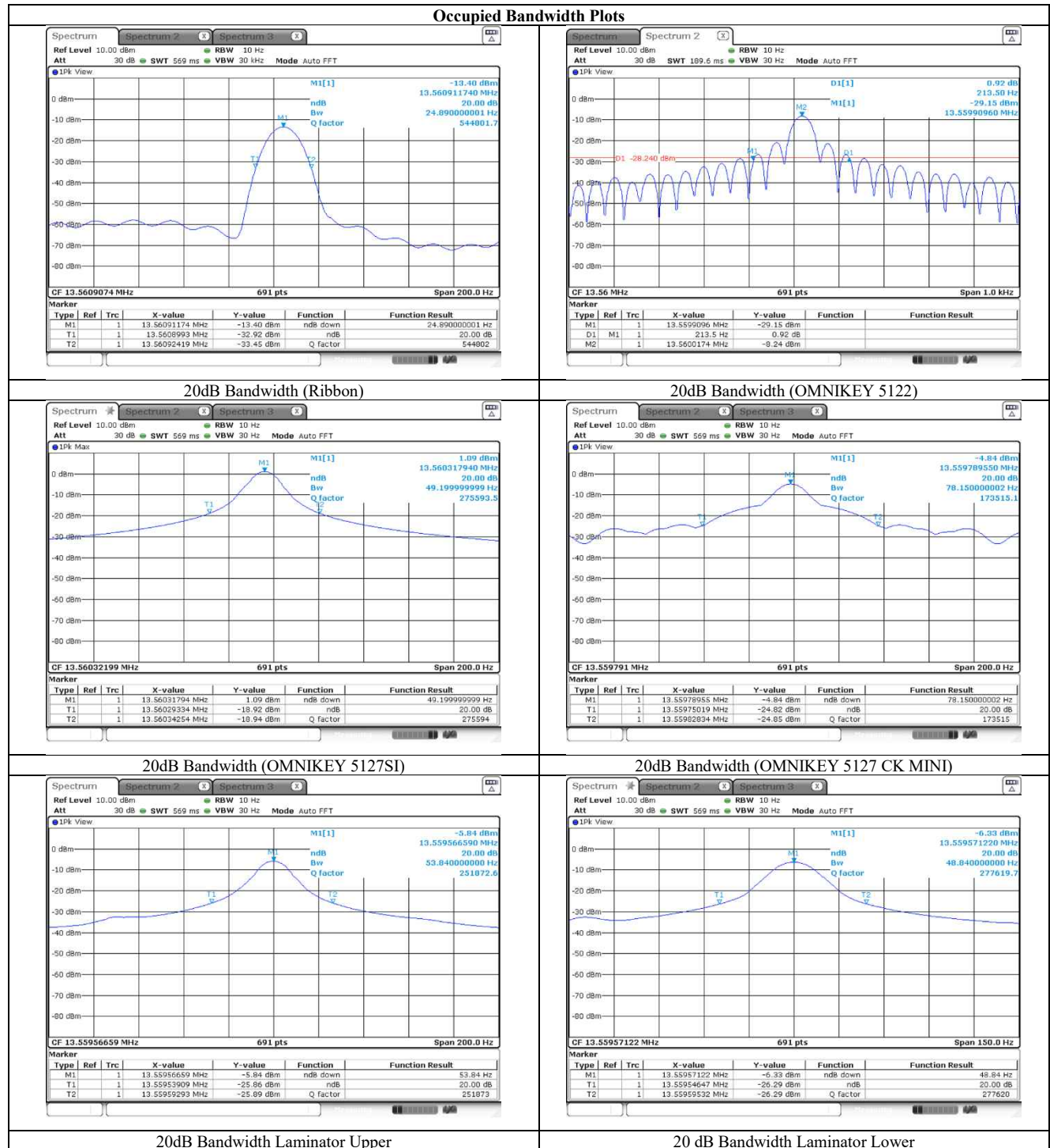


Table 25. 20dB Occupied Bandwidth Test Results (Without Credential)

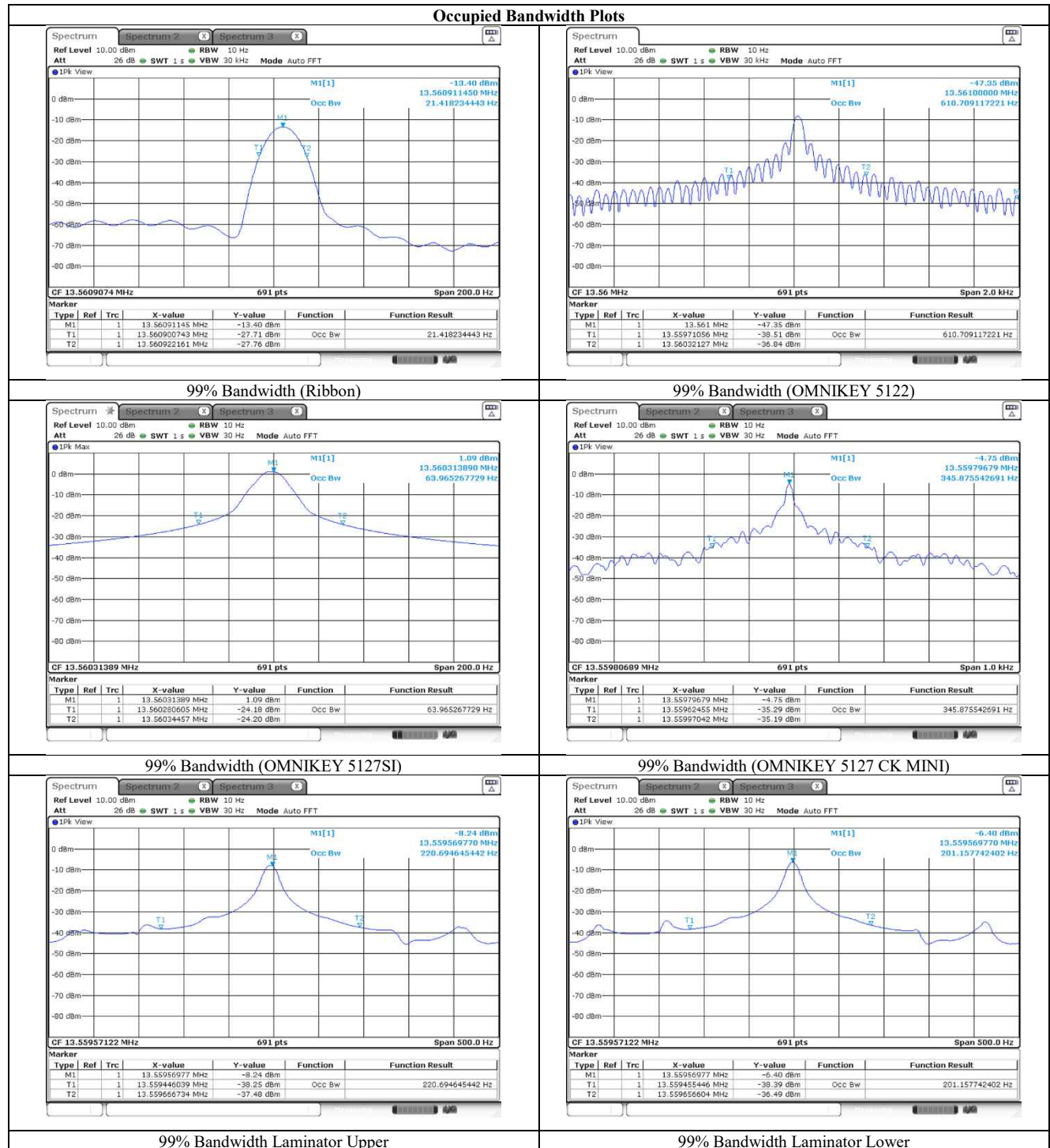


Table 26. 99% Occupied Bandwidth Test Results (Without Credential)

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.225(a-d) Field Strength of Radiated Emissions

- Test Requirement(s):** **15.225 (a)** The field strength of any emissions within the band 13.553 – 13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.
- 15.225 (b)** Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
- 15.225 (c)** Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.
- 15.225 (d)** The field strength of any emissions appearing outside of the 13.110–14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

RSS-210 (B.6.a(ii - iv)) Field Strength of Radiated Emissions

- Test Requirement(s):** **RSS-210 (B.6.a(i))** The field strength of any emissions within the band 13.553 – 13.567 MHz shall not exceed 15.848 mV/m (84 dBμV/m) at 30 meters.
- RSS-210 (B.6.a(ii))** Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 μV/m (50.5 dBμV/m) at 30 meters.
- RSS-210 (B.6.a(iii))** Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 μV/m (40.5 dBμV/m) at 30 meters.
- RSS-210 (B.6.a(iv))** The field strength of any emissions appearing outside of the 13.110–14.010 MHz band shall not exceed the general radiated emission limits in RSS-GEN Section 8.9.

Test Procedure:

The EUT was set to transmit and placed on a 0.8 m-high wooden stand inside a semi-anechoic chamber. The method of testing and test conditions of ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 were used. For measurements below 30 MHz a loop antenna placed 3m away from the unit was used. For measurements above 30 MHz a biconalog antenna placed 10 m away from the unit was used. Measurements below 30 MHz were conducted with the loop antenna at coaxial (parallel) and planar (perpendicular) orientations. Measurements above 30 MHz were conducted with the biconalog antenna in the vertical and horizontal polarizations. A peak detector was used to perform a pre-scan from 9 kHz to 10 times the fundamental frequency. Spurious emissions within 20 dB of the applicable limit were measured using a quasi-peak detector and recorded in the subsequent section. Peak emissions that were observed over the applicable limit were determined to be digital emissions subject to the requirements of FCC Part 15 Subpart B and ICES-003 subsection 6.2 for Class A devices.

The measurements were made at 3 m with the loop antenna (below 30MHz). They were then extrapolated to 30m or 300 m using the following correction factors which were applied to the limit.

$$40\log(30/3) = 40 \text{ dB}$$
$$40\log(300/3) = 80 \text{ dB}$$

The measurements made at 10 m with the biconilog antenna (above 30MHz) were then extrapolated to the 3m using the following correction factor.

$$20\log(10/3) = +10.46 \text{ dB}$$

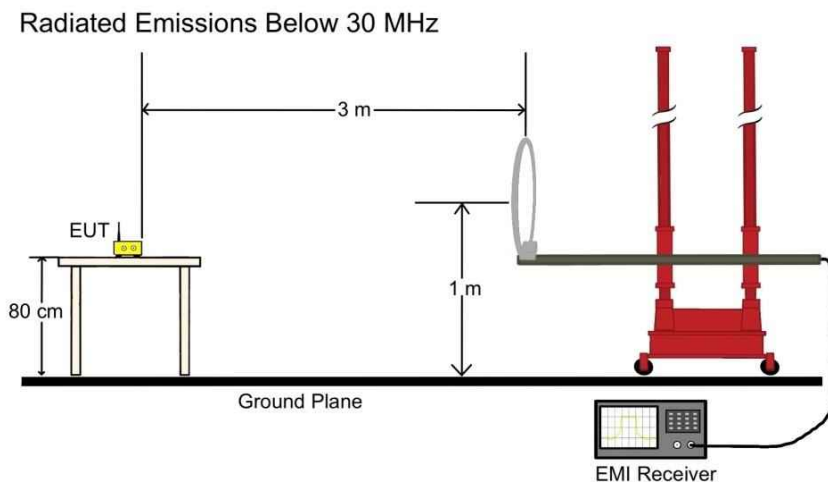


Figure 4: Radiated Emissions (Below 30MHz), Test Setup

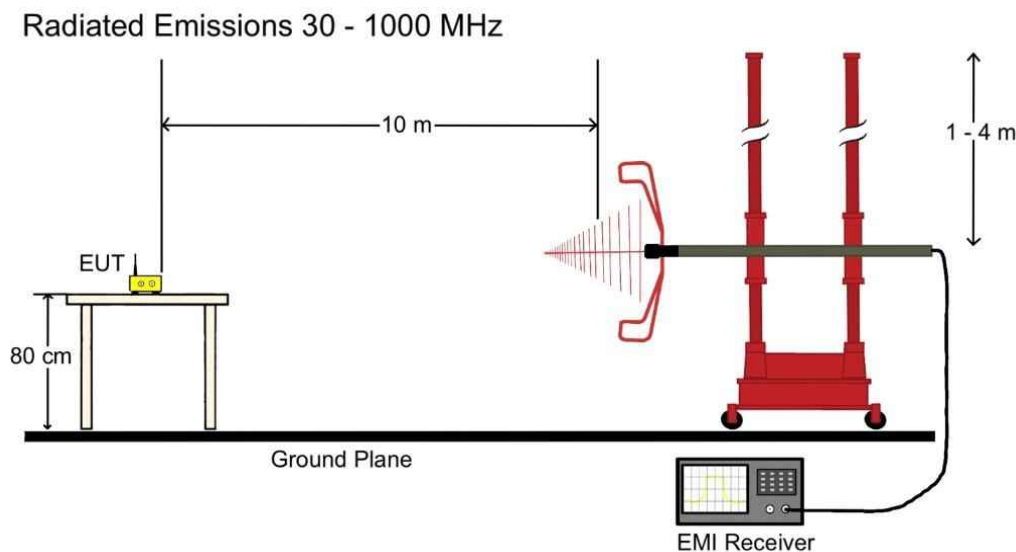


Figure 5. Radiated Emissions (Above 30MHz), Test Setup

Test Results: The Color Card Printer, DTC4500e was compliant with the requirements of §15.225(a - d) and RSS-210 RSS-210 (B.6.a(i, ii, iii, and iv)).

Test Engineer(s): Bryan Taylor

Test Date(s): 10/21/2025 – 11/17/2025

Radiated Field Strength Test Results

Frequency [MHz]	Peak Level [dBμV/m] ¹	Limit [dBμV/m]	Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
13.160	18.32	80.50	62.18	10.62	H	127	1.00	9.000	Pass
13.191	17.22	80.50	63.28	10.62	V	135.5	1.00	9.000	Pass
13.412	18.58	90.50	71.92	10.61	V	64.6	1.00	9.000	Pass
13.421	27.68	90.50	62.82	10.61	H	189.4	1.00	9.000	Pass
13.560	62.68	124.00	61.32	10.61	H	341.4	1.00	9.000	Pass
13.560	62.65	124.00	61.35	10.61	V	343.3	1.00	9.000	Pass
13.677	22.53	90.50	67.97	10.60	V	240.6	1.00	9.000	Pass
13.835	19.06	80.50	61.44	10.60	H	276.4	1.00	9.000	Pass
13.893	18.89	80.50	61.61	10.59	V	213.3	1.00	9.000	Pass
13.983	18.31	80.50	62.19	10.59	H	245.7	1.00	9.000	Pass

Figure 6. Worst Case In-Band Field Strength, Ribbon

Frequency [MHz]	Peak Level [dBμV/m] ¹	Limit [dBμV/m]	Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
0.411	45.35	95.33	49.97	11.26	V	200.3	1.00	9.000	Pass
0.573	44.70	72.44	27.74	11.41	H	303.7	1.00	9.000	Pass
0.731	41.57	70.33	28.76	11.46	V	254.6	1.00	9.000	Pass
1.370	37.41	64.86	27.46	11.70	H	65.9	1.00	9.000	Pass
13.560	54.85	69.50	14.65	10.61	H	241.9	1.00	9.000	Pass
13.560	54.77	69.50	14.73	10.61	V	239.7	1.00	9.000	Pass

Figure 7. Worst Case Field Strength Below 30MHz, Ribbon

Frequency [MHz]	QPK Level [dBμV/m] ¹	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
40.680	23.82	29.55	5.73	-8.17	V	122.1	1.07	120.000	Pass
59.970	23.33	29.55	6.22	-14.11	V	99.7	1.43	120.000	Pass
84.000	22.05	29.55	7.50	-12.51	H	214.7	2.33	120.000	Pass
180.000	28.54	33.07	4.53	-10.07	H	292.8	2.26	120.000	Pass
180.000	29.58	33.07	3.49	-9.87	V	236.9	1.00	120.000	Pass
300.030	31.31	35.57	4.26	-5.64	H	286.2	1.35	120.000	Pass
660.000	28.53	35.57	7.04	2.08	H	87.1	0.99	120.000	Pass
677.790	16.36	35.57	19.21	2.64	V	100.3	1.08	120.000	Pass

Figure 8. Worst Case Field Strength Above 30MHz, Ribbon

¹ This corrected level includes the factor shown in the “correction” column. The corrected level = Raw Reading + Correction Factor. The raw reading is not shown in the table above.

² This correction factor includes cable loss in dB, preamplifier gain in dB, and an electric field antenna factor in (dB/m).

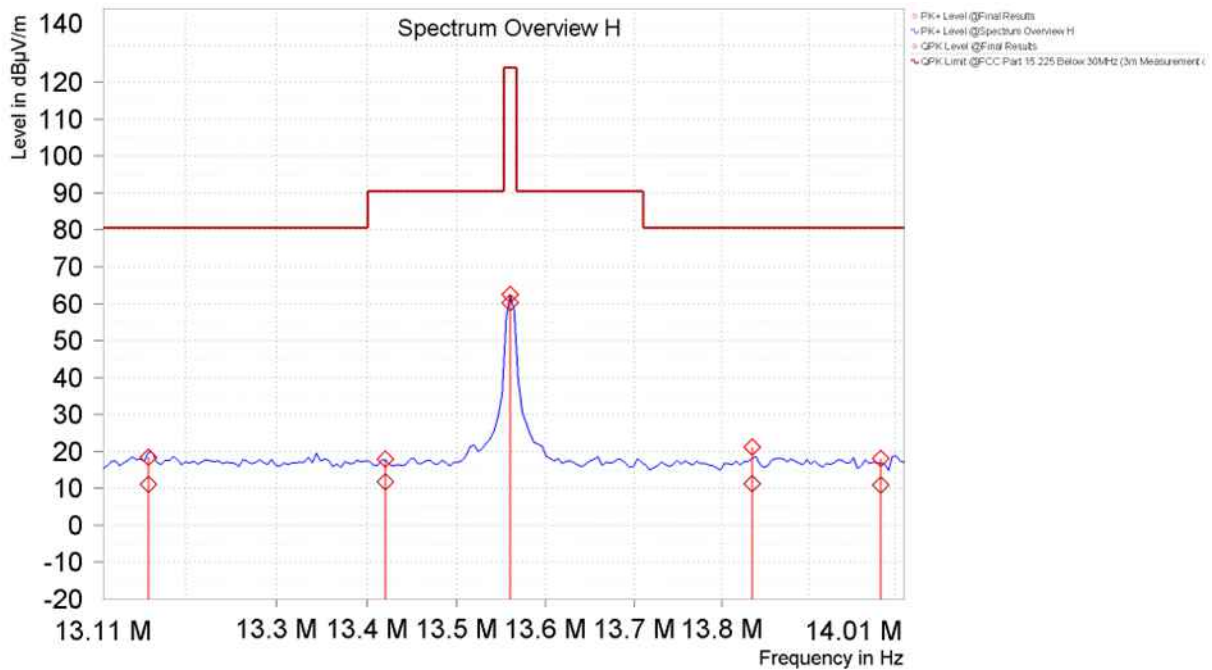


Figure 9. In-Band Emission Mask, Coplanar Loop, Ribbon

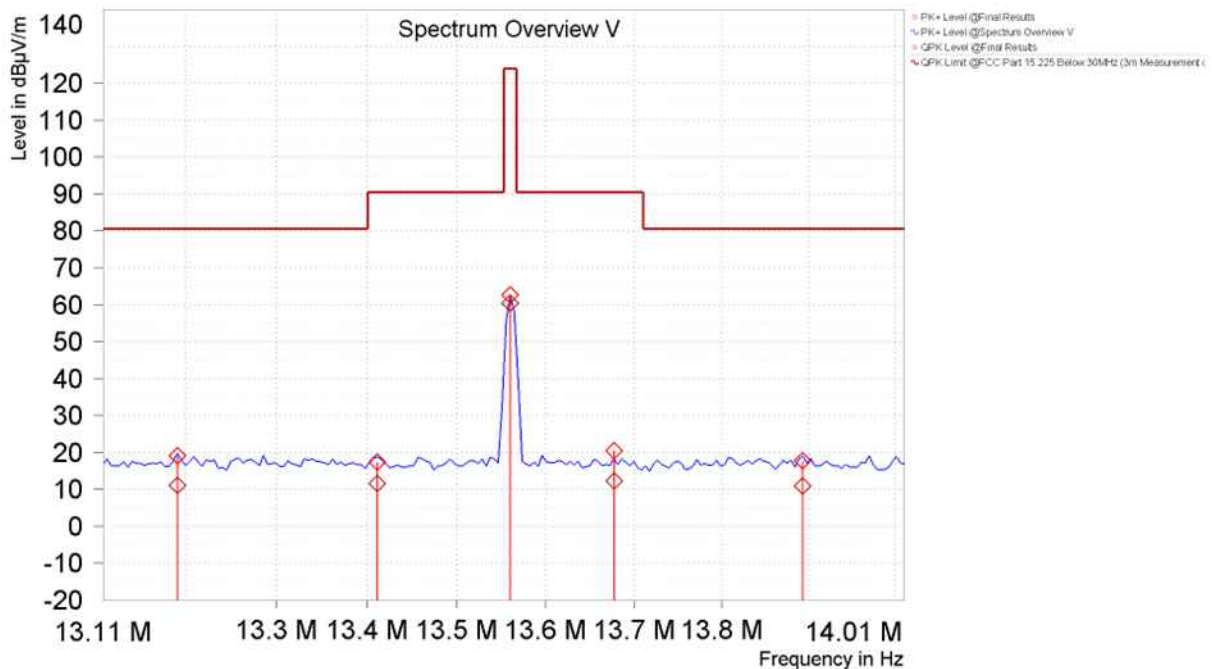


Figure 10. In-Band Emission Mask, Coaxial Loop, Ribbon

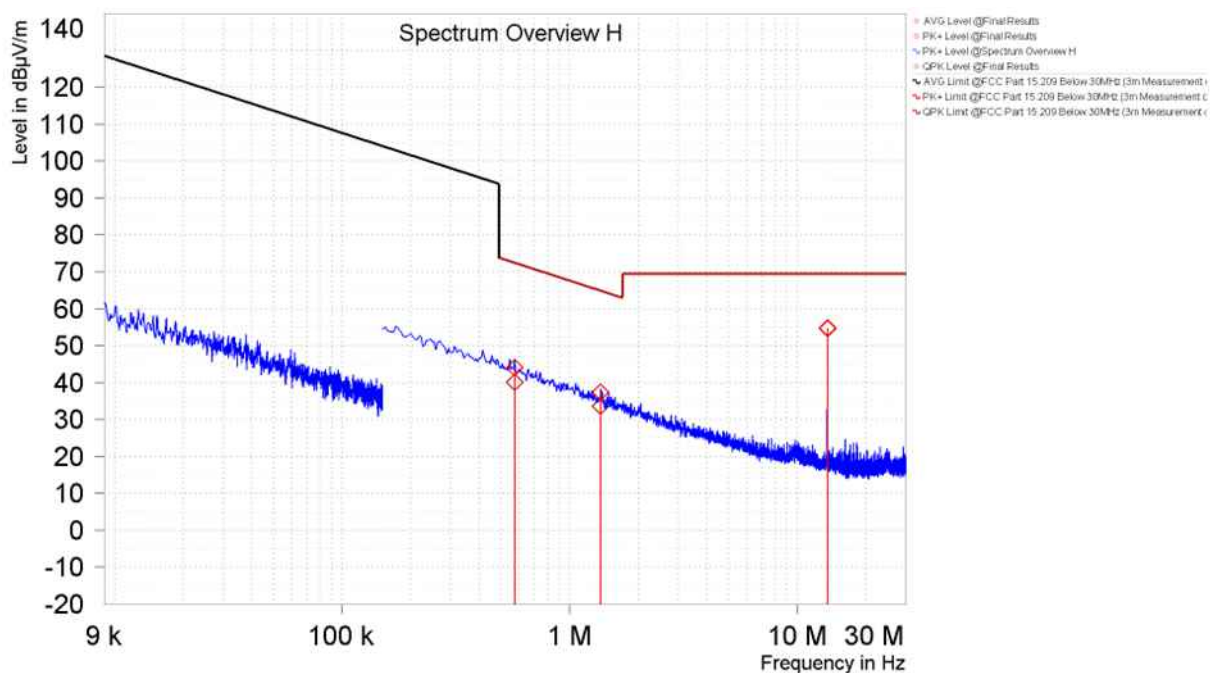


Figure 11. Out of Band Emissions Below 30MHz, Coplanar Loop, Ribbon

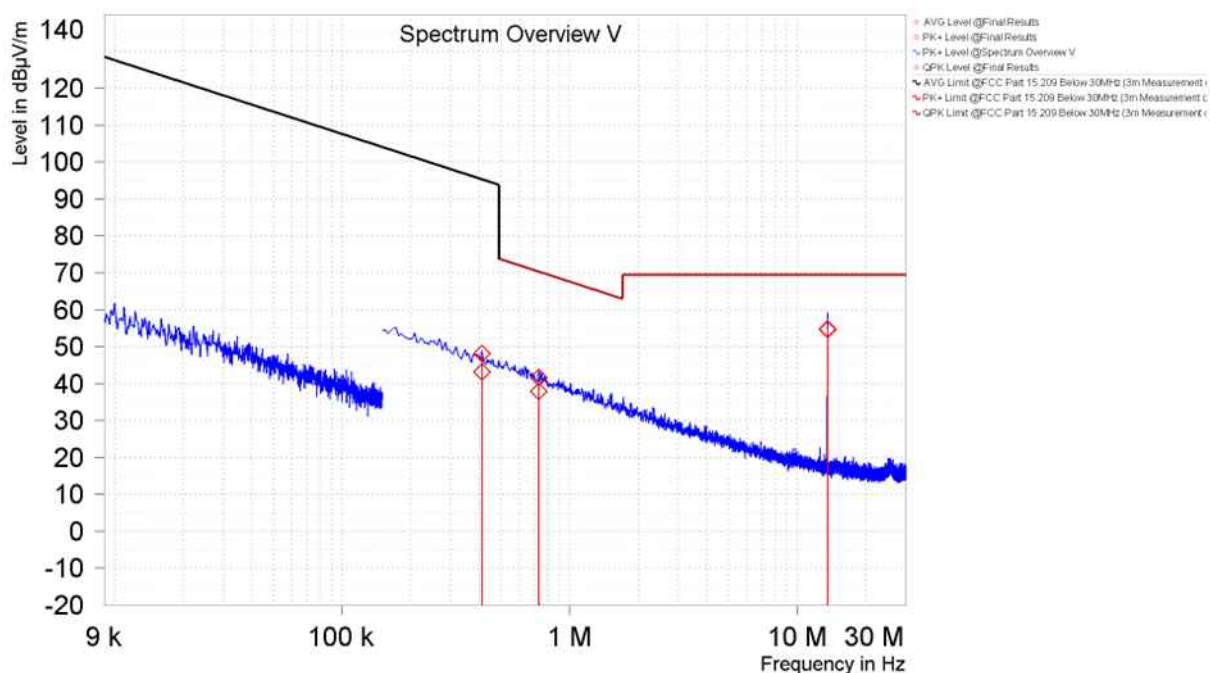


Figure 12. Out of Band Emissions Below 30MHz, Coaxial Loop, Ribbon

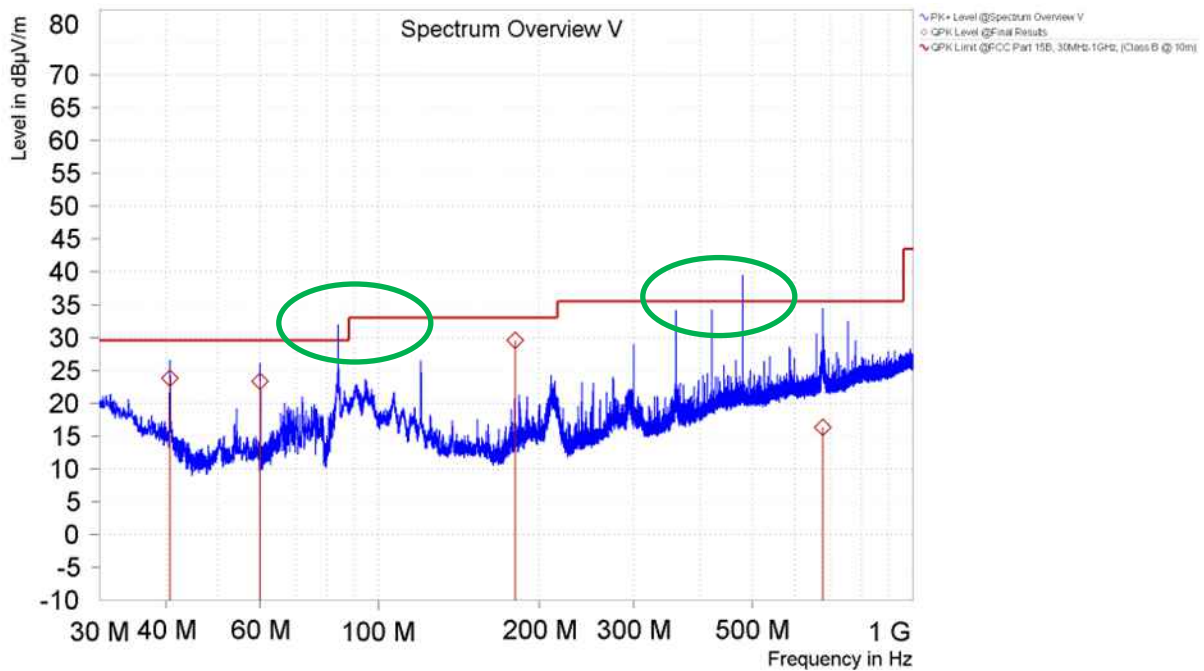


Figure 13. Out of Band Emissions Above 30MHz, Vertical Polarity, Ribbon³

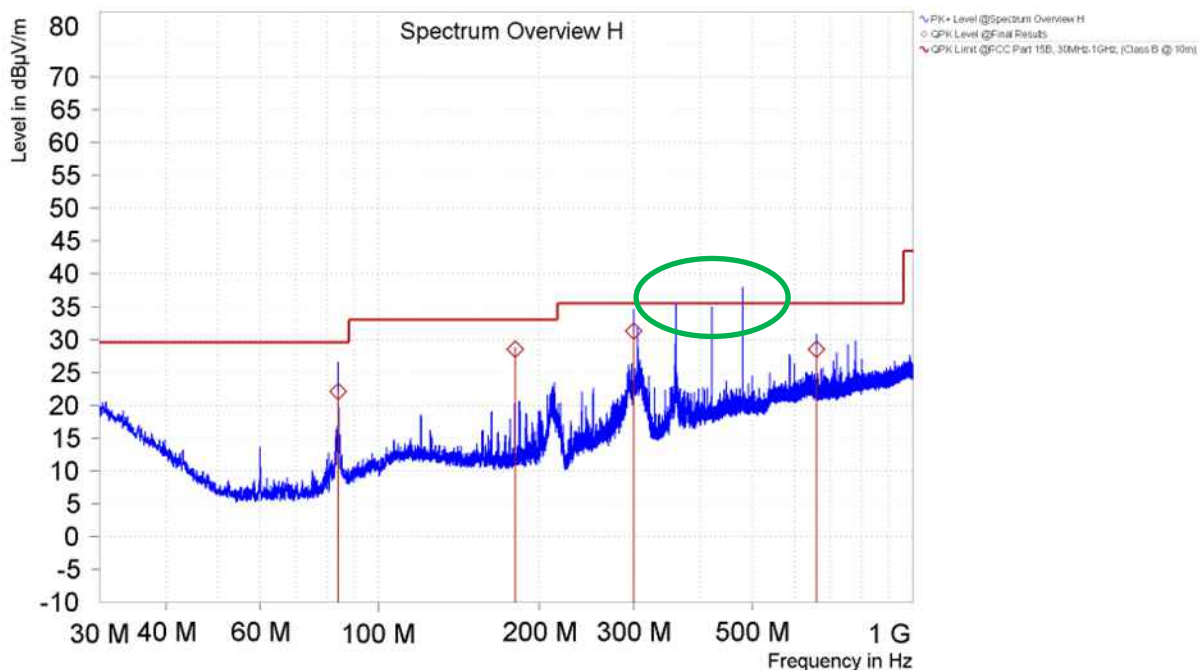


Figure 14. Out of Band Emissions Above 30MHz, Vertical Polarity, Ribbon³

³ The emissions circled in green were determined to originate from digital functions onboard the Color Card Printer, DTC4500e which is a class A device. These emissions were assessed under a separate FCC part 15B test report.

Frequency [MHz]	Peak Level [dBμV/m] ⁴	Limit [dBμV/m]	Margin [dB]	Correction [dB] ⁵	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
13.218	19.15	80.50	61.35	10.62	H	265.1	1.00	9.000	Pass
13.227	20.27	80.50	60.23	10.62	V	181.9	1.00	9.000	Pass
13.425	19.30	90.50	71.20	10.61	H	287.8	1.00	9.000	Pass
13.448	24.93	90.50	65.57	10.61	V	0	1.00	9.000	Pass
13.560	62.66	124.00	61.34	10.61	H	350.1	1.00	9.000	Pass
13.560	62.20	124.00	61.80	10.61	V	212.4	1.00	9.000	Pass
13.686	18.95	90.50	71.55	10.60	V	12.7	1.00	9.000	Pass
13.808	17.59	80.50	62.91	10.60	H	37.3	1.00	9.000	Pass
13.884	17.75	80.50	62.75	10.59	V	226.8	1.00	9.000	Pass
13.898	17.75	80.50	62.75	10.59	H	354.7	1.00	9.000	Pass

Figure 15. Worst Case In-Band Field Strength, Ribbon (No Credential)

Frequency [MHz]	Peak Level [dBμV/m] ¹	Limit [dBμV/m]	Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
0.016	60.36	123.67	62.99	16.05	H	318.7	1.00	0.200	Pass
0.016	60.88	123.67	62.43	16.05	V	205.6	1.00	0.200	Pass
0.614	44.17	71.85	27.22	11.40	H	124.9	1.00	9.000	Pass
0.843	41.30	69.08	26.58	11.44	V	156.7	1.00	9.000	Pass
13.560	35.06	69.50	35.45	10.61	H	301.3	1.00	9.000	Pass
13.560	35.00	69.50	36.12	10.61	V	296.5	1.00	9.000	Pass

Figure 16. Worst Case Field Strength Below 30MHz, Ribbon (No Credential)

Frequency [MHz]	QPK Level [dBμV/m] ¹	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
60.000	24.62	29.55	4.93	-14.11	V	105.6	1.80	120.000	Pass
84.000	21.72	29.55	7.83	-12.51	H	222.9	2.49	120.000	Pass
120.000	23.62	33.07	9.45	-7.67	V	360.1	0.99	120.000	Pass
180.000	28.52	33.07	4.55	-10.07	H	289.1	2.24	120.000	Pass
180.000	29.76	33.07	3.31	-9.87	V	244.8	1.11	120.000	Pass
300.000	32.95	35.57	2.62	-5.64	H	273.1	1.60	120.000	Pass
660.000	29.29	35.57	6.28	2.08	H	97.6	1.00	120.000	Pass
756.000	32.25	35.57	3.32	3.71	V	350.3	1.23	120.000	Pass

Figure 17. Worst Case Field Strength Above 30MHz, Ribbon (No Credential)

⁴ This corrected level includes the factor shown in the “correction” column. The corrected level = Raw Reading + Correction Factor. The raw reading is not shown in the table above.

⁵ This correction factor includes cable loss in dB, preamplifier gain in dB, and an electric field antenna factor in (dB/m).

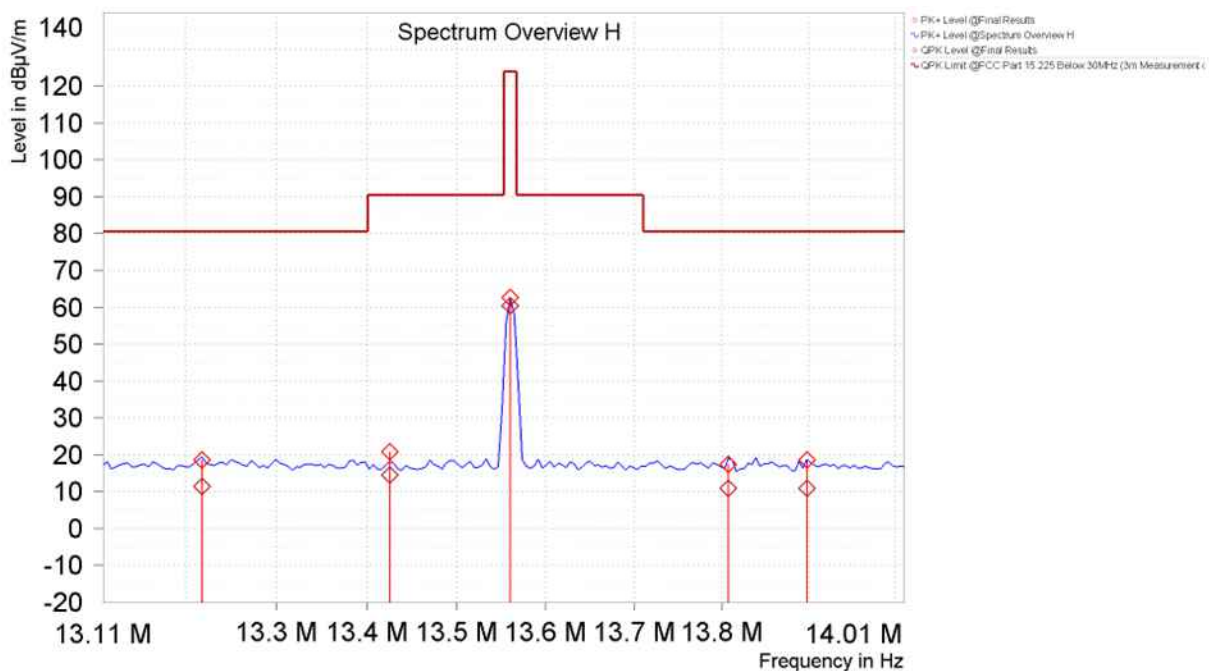


Figure 18. In-Band Emission Mask, Coplanar Loop, Ribbon (No Credential)

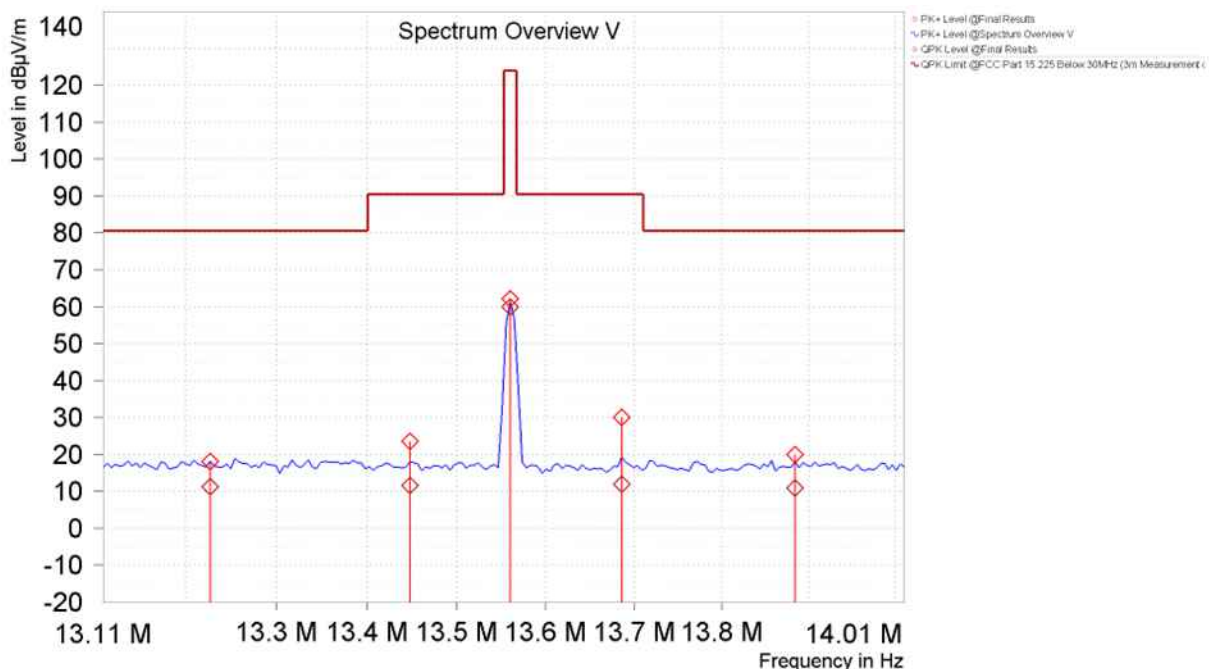


Figure 19. In-Band Emission Mask, Coaxial Loop, Ribbon (No Credential)

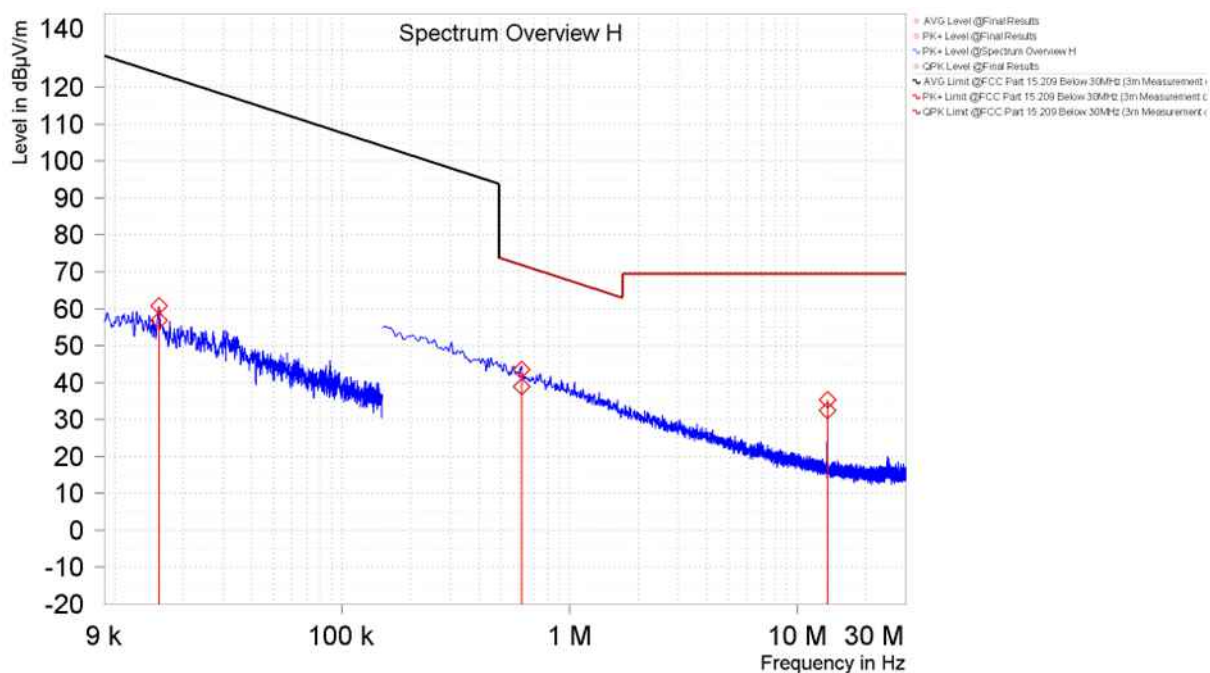


Figure 20. Out of Band Emissions Below 30MHz, Coplanar Loop, Ribbon (No Credential)

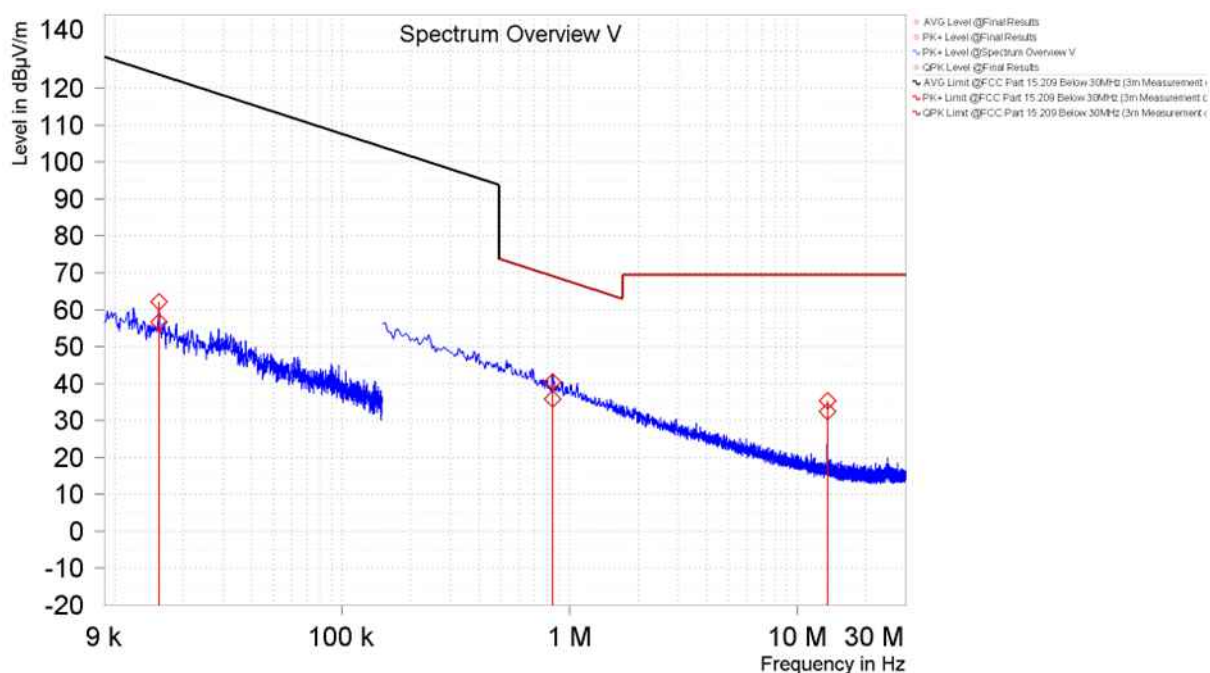


Figure 21. Out of Band Emissions Below 30MHz, Coaxial Loop, Ribbon (No Credential)

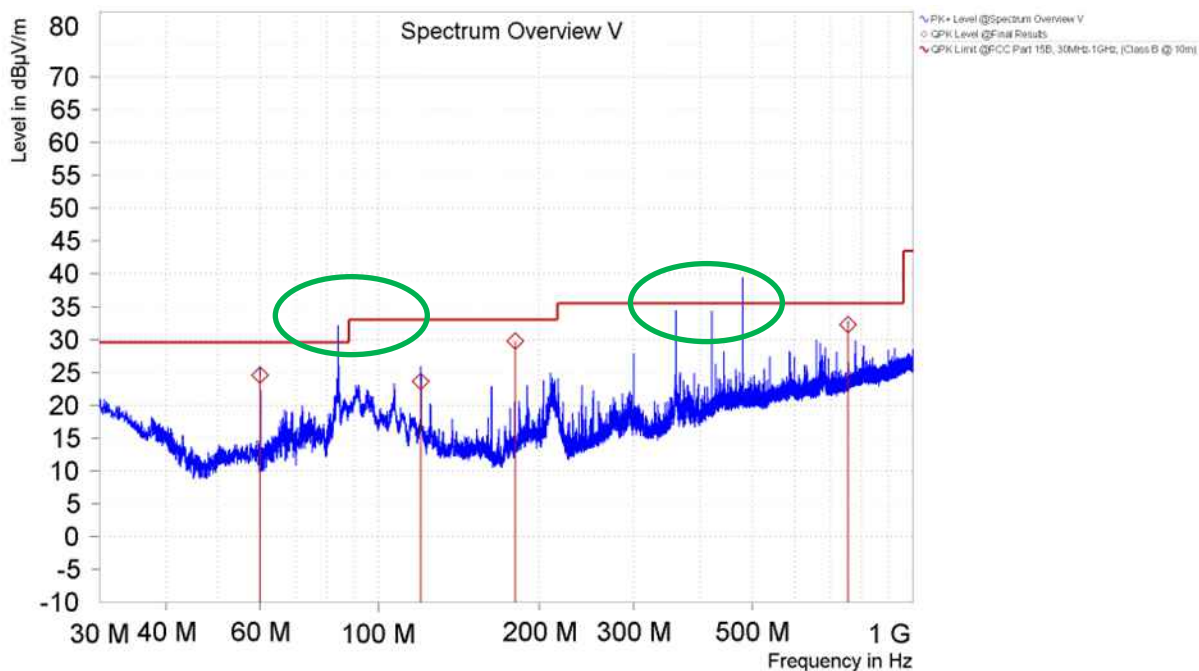


Figure 22. Out of Band Emissions Above 30MHz, Vertical Polarity, Ribbon (No Credential)⁶

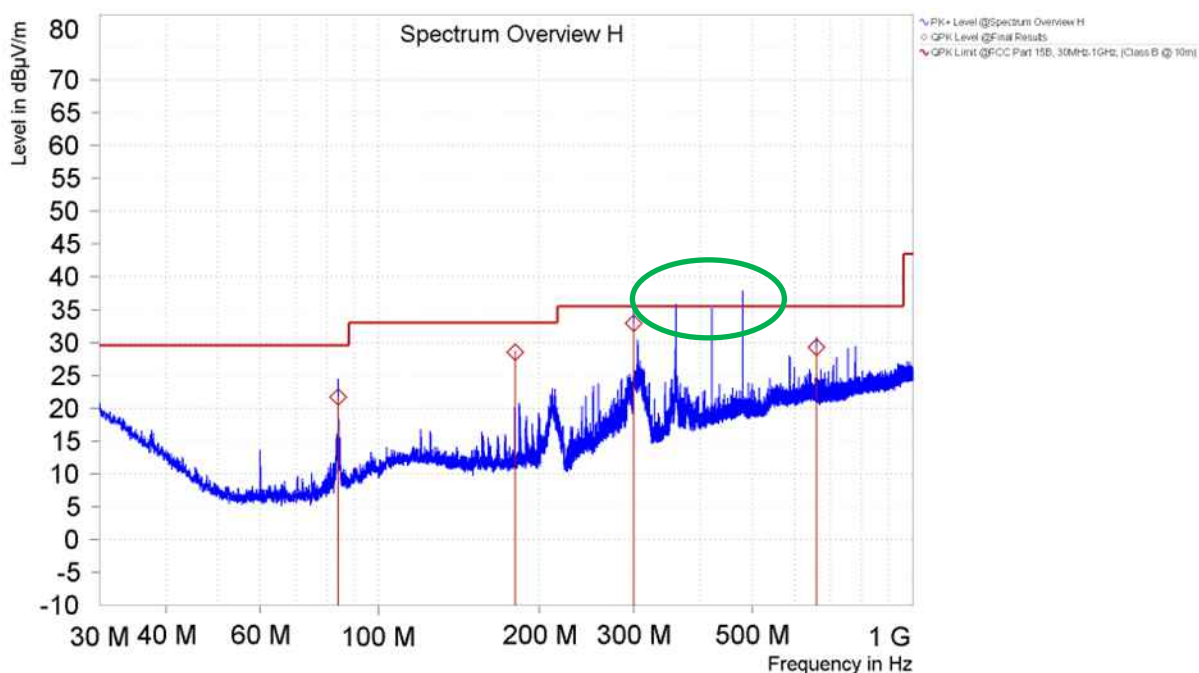


Figure 23. Out of Band Emissions Above 30MHz, Vertical Polarity, Ribbon (No Credential)⁶

⁶ The emissions circled in green were determined to originate from digital functions onboard the Color Card Printer, DTC4500e which is a class A device. These emissions were assessed under a separate FCC part 15B test report.

Frequency [MHz]	Peak Level [dBμV/m] ⁷	Limit [dBμV/m]	Margin [dB]	Correction [dB] ⁸	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
13.394	17.65	80.50	62.85	10.61	H	265.2	1.00	9.000	Pass
13.439	17.61	90.50	72.89	10.61	V	131	1.00	9.000	Pass
13.515	18.71	90.50	71.79	10.61	H	269.8	1.00	9.000	Pass
13.560	59.44	124.00	64.56	10.61	H	178.6	1.00	9.000	Pass
13.560	65.45	124.00	58.55	10.61	V	296.9	1.00	9.000	Pass
13.655	18.26	90.50	72.24	10.60	H	306.5	1.00	9.000	Pass
13.745	17.42	80.50	63.08	10.60	V	268.7	1.00	9.000	Pass

Figure 24. Worst Case In-Band Field Strength, 5122

Frequency [MHz]	Peak Level [dBμV/m] ¹	Limit [dBμV/m]	Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
0.506	44.58	73.53	27.10	11.31	V	180.8	1.00	9.000	Pass
0.654	42.71	71.29	26.44	11.39	H	154	1.00	9.000	Pass
0.753	41.60	70.06	28.25	11.45	V	92.6	1.00	9.000	Pass
0.839	41.11	69.13	26.78	11.43	H	262.5	1.00	9.000	Pass
1.388	35.89	64.75	27.40	11.70	V	163.9	1.00	9.000	Pass
13.560	39.00	69.50	30.17	10.61	H	177.5	1.00	9.000	Pass
25.004	19.14	69.50	47.10	9.72	H	165	1.00	9.000	Pass

Figure 25. Worst Case Field Strength Below 30MHz, 5122

Frequency [MHz]	QPK Level [dBμV/m] ¹	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
60.000	27.80	29.55	1.75	-14.11	V	285.1	2.37	120.000	Pass
83.940	10.37	29.55	19.18	-12.52	H	196	2.43	120.000	Pass
84.000	29.36	29.55	0.19	-11.81	V	225.1	1.55	120.000	Pass
120.000	22.61	33.07	10.46	-7.67	V	34.6	1.30	120.000	Pass
180.000	33.07	33.07	0.00	-9.87	V	45	1.00	120.000	Pass
211.350	18.20	33.07	14.87	-10.00	H	282.8	2.33	120.000	Pass
300.000	28.51	35.57	7.06	-5.64	H	85.7	1.76	120.000	Pass
300.000	30.22	35.57	5.35	-5.04	V	183.5	1.06	120.000	Pass

Figure 26. Worst Case Field Strength Above 30MHz, 5122

⁷ This corrected level includes the factor shown in the “correction” column. The corrected level = Raw Reading + Correction Factor. The raw reading is not shown in the table above.

⁸ This correction factor includes cable loss in dB, preamplifier gain in dB, and an electric field antenna factor in (dB/m).

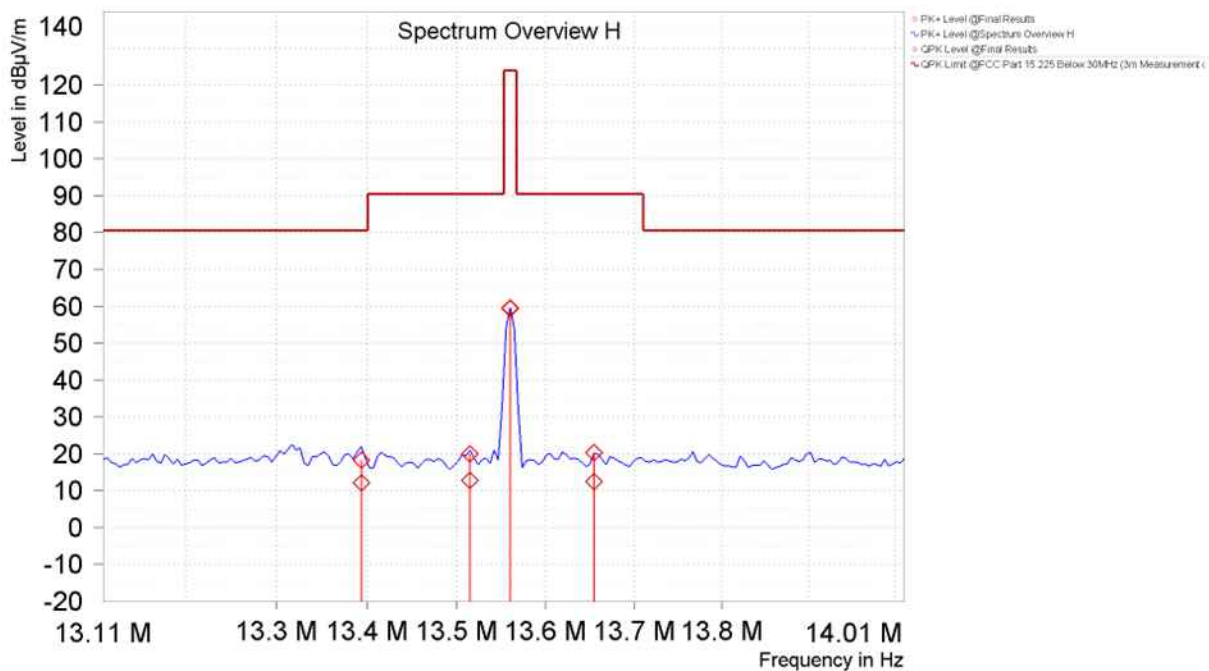


Figure 27. In-Band Emission Mask, Coplanar Loop, 5122

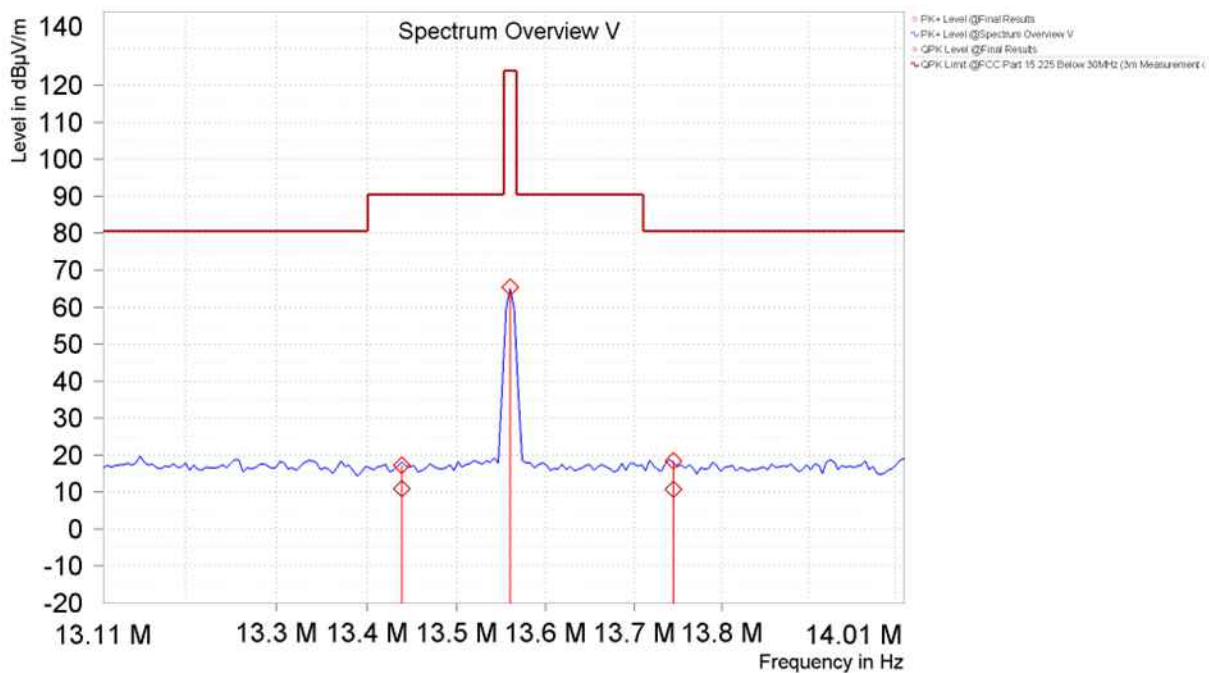


Figure 28. In-Band Emission Mask, Coaxial Loop, 5122

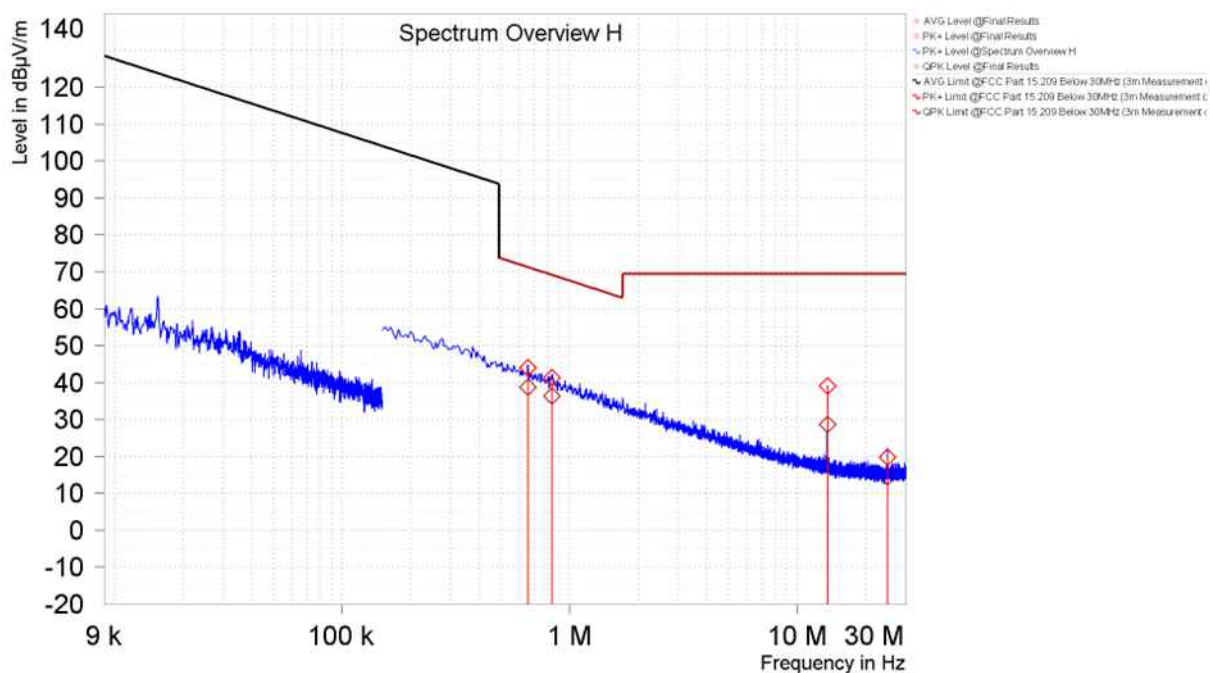


Figure 29. Out of Band Emissions Below 30MHz, Coplanar Loop, 5122

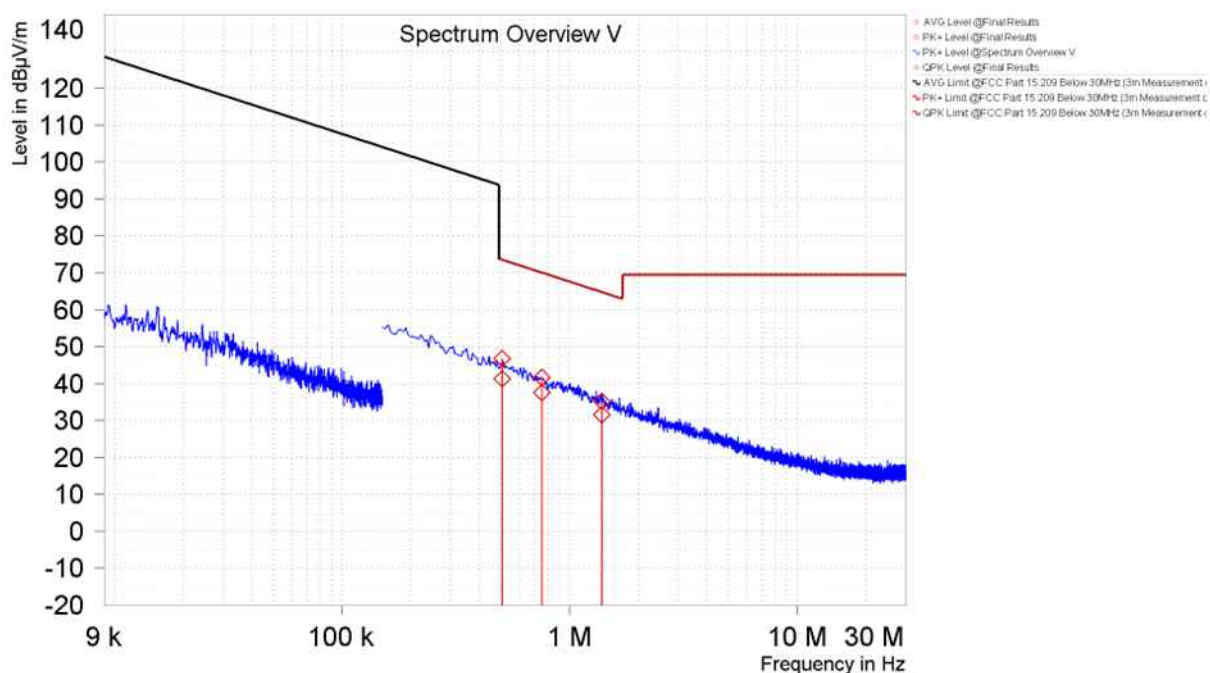


Figure 30. Out of Band Emissions Below 30MHz, Coaxial Loop, 5122

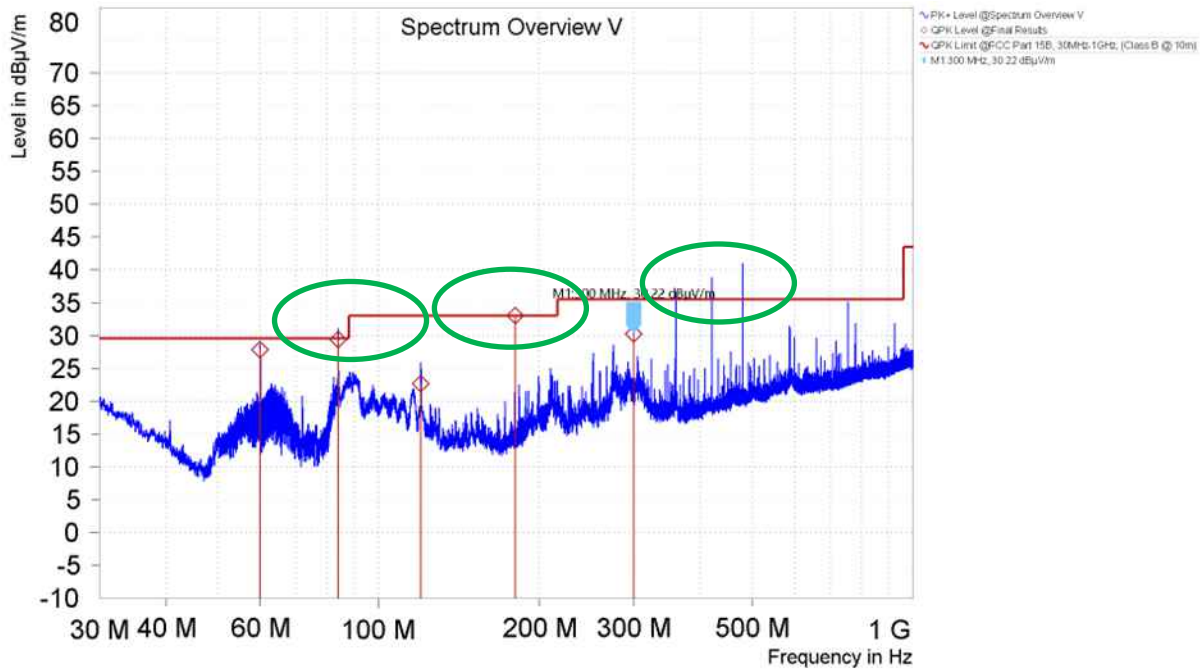


Figure 31. Out of Band Emissions Above 30MHz, Vertical Polarity, 5122⁹

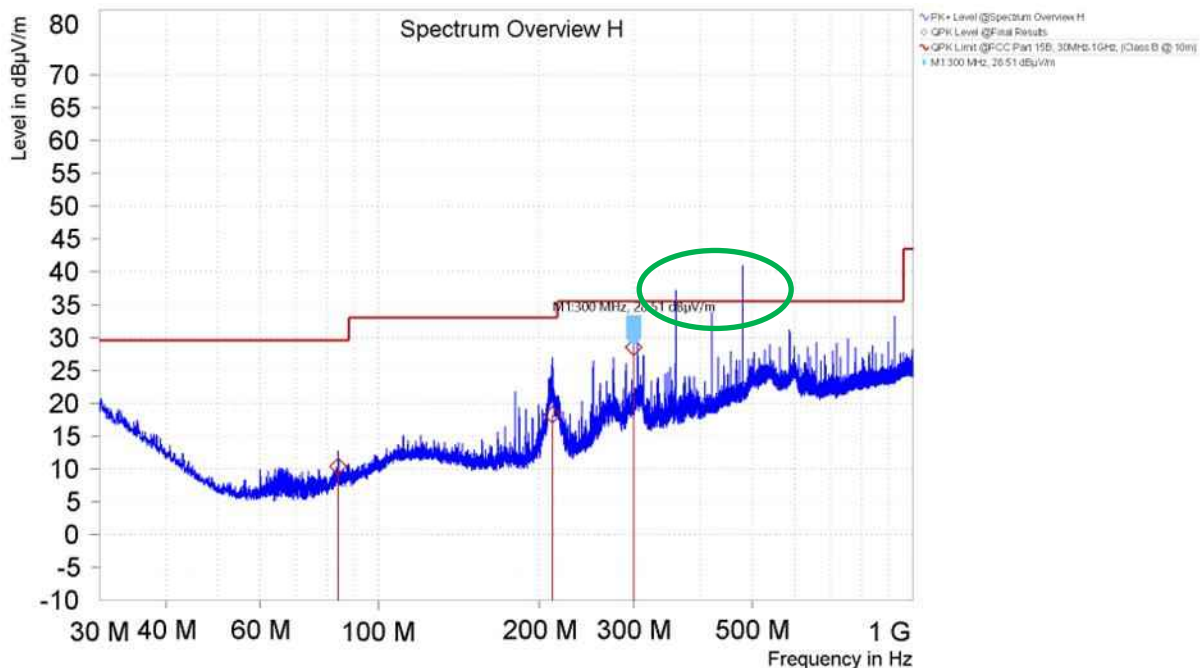


Figure 32. Out of Band Emissions Above 30MHz, Vertical Polarity, 5122⁹

⁹ The emissions circled in green were determined to originate from digital functions onboard the Color Card Printer, DTC4500e which is a class A device. These emissions were assessed under a separate FCC part 15B test report.

Frequency [MHz]	Peak Level [dBμV/m] ¹⁰	Limit [dBμV/m]	Margin [dB]	Correction [dB] ¹¹	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
13.331	17.26	80.50	63.24	10.62	V	99.1	1.00	9.000	Pass
13.448	17.51	90.50	72.99	10.61	H	209.2	1.00	9.000	Pass
13.560	59.59	124.00	64.41	10.61	H	174.9	1.00	9.000	Pass
13.560	65.19	124.00	58.81	10.61	V	303.5	1.00	9.000	Pass
13.677	20.00	90.50	70.50	10.60	H	67.2	1.00	9.000	Pass
13.884	16.48	80.50	64.02	10.59	V	307.7	1.00	9.000	Pass

Figure 33. Worst Case In-Band Field Strength, 5122 (No Credential)

Frequency [MHz]	Peak Level [dBμV/m] ¹	Limit [dBμV/m]	Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
0.053	45.26	113.04	67.78	11.72	H	73.2	1.00	0.200	Pass
0.108	39.94	106.91	66.97	11.36	H	360.1	1.00	0.200	Pass
0.434	46.89	94.86	47.97	11.27	V	260.2	1.00	9.000	Pass
0.587	43.97	72.24	28.27	11.34	H	28.8	1.00	9.000	Pass
13.560	62.59	69.50	6.91	10.61	V	345.1	1.00	9.000	Pass

Figure 34. Worst Case Field Strength Below 30MHz, 5122 (No Credential)

Frequency [MHz]	QPK Level [dBμV/m] ¹	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
60.000	27.92	29.55	1.63	-14.11	V	268.8	2.50	120.000	Pass
84.000	12.83	29.55	16.72	-12.51	H	354.6	2.19	120.000	Pass
210.150	16.57	33.07	16.50	-9.83	H	168	2.42	120.000	Pass
252.000	24.07	35.57	11.50	-6.28	H	97.2	2.45	120.000	Pass
300.030	27.43	35.57	8.14	-5.04	V	145.4	1.02	120.000	Pass
756.000	33.74	35.57	1.83	3.71	V	360.1	1.98	120.000	Pass

Figure 35. Worst Case Field Strength Above 30MHz, 5122 (No Credential)

¹⁰ This corrected level includes the factor shown in the “correction” column. The corrected level = Raw Reading + Correction Factor. The raw reading is not shown in the table above.

¹¹ This correction factor includes cable loss in dB, preamplifier gain in dB, and an electric field antenna factor in (dB/m).

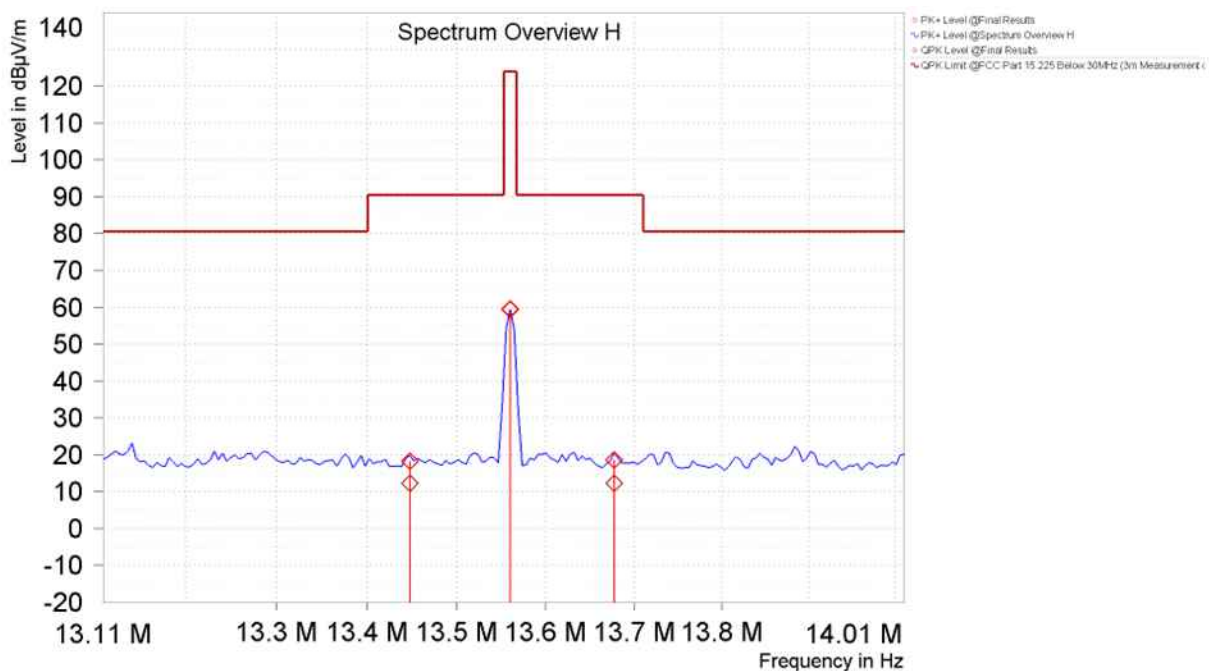


Figure 36. In-Band Emission Mask, Coplanar Loop, 5122 (No Credential)

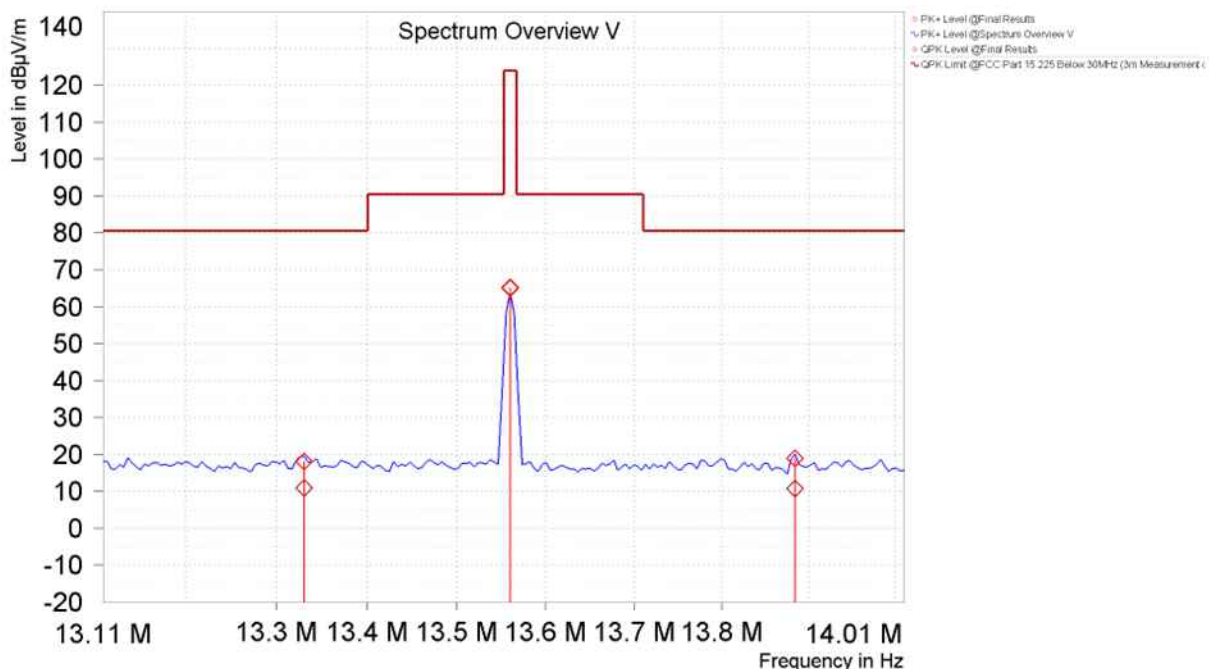


Figure 37. In-Band Emission Mask, Coaxial Loop, 5122 (No Credential)

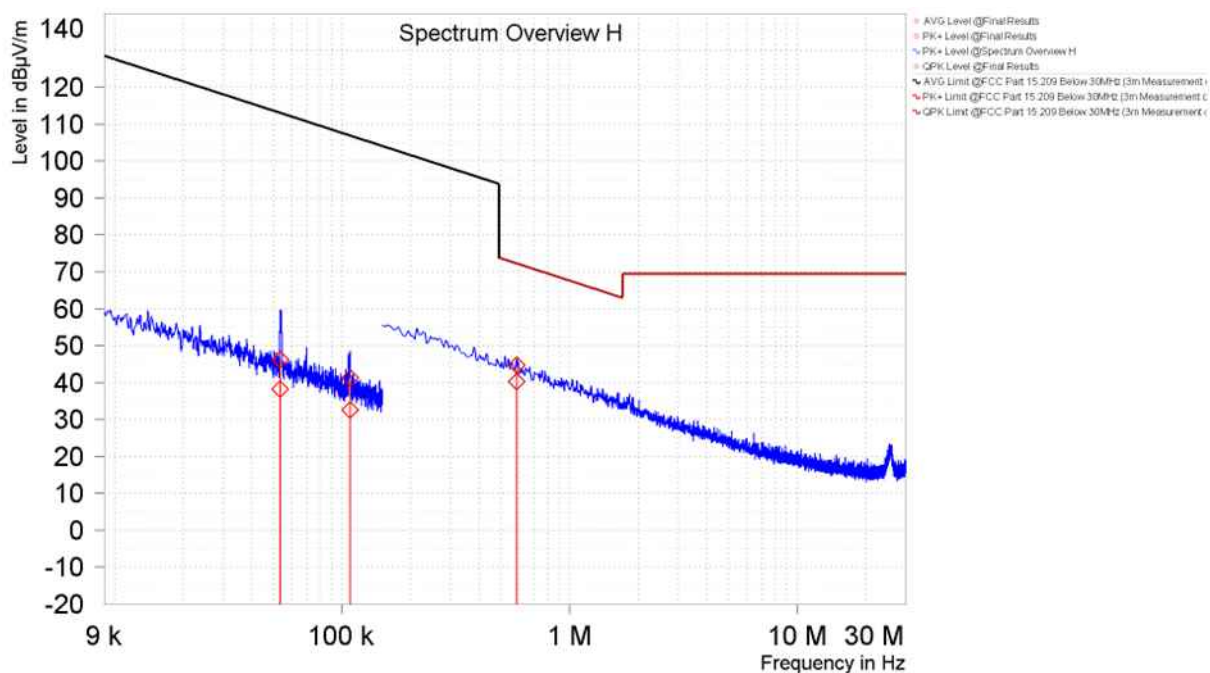


Figure 38. Out of Band Emissions Below 30MHz, Coplanar Loop, 5122 (No Credential)

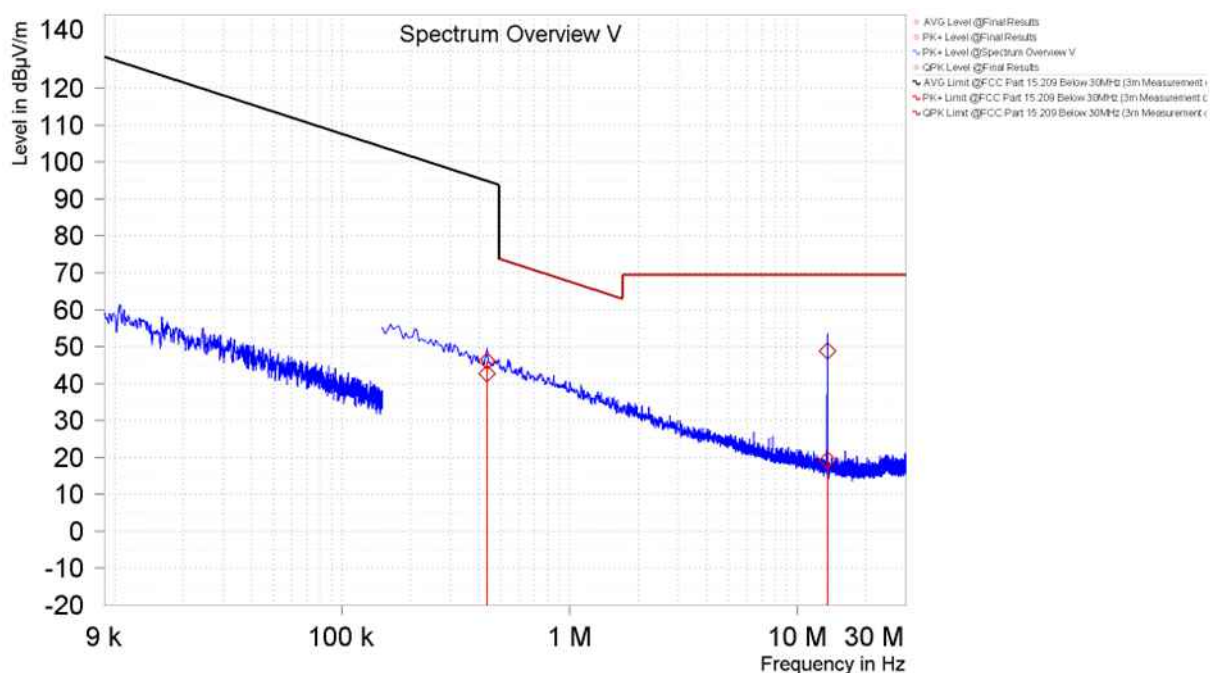


Figure 39. Out of Band Emissions Below 30MHz, Coaxial Loop, 5122 (No Credential)

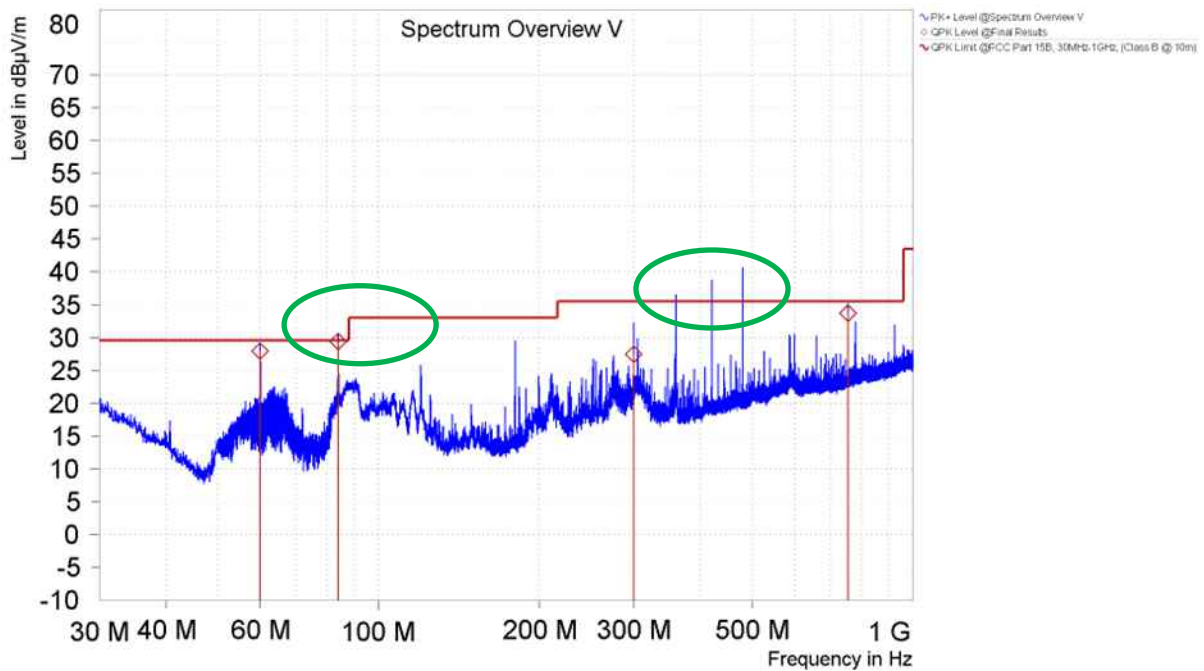


Figure 40. Out of Band Emissions Above 30MHz, Vertical Polarity, 5122 (No Credential)¹²

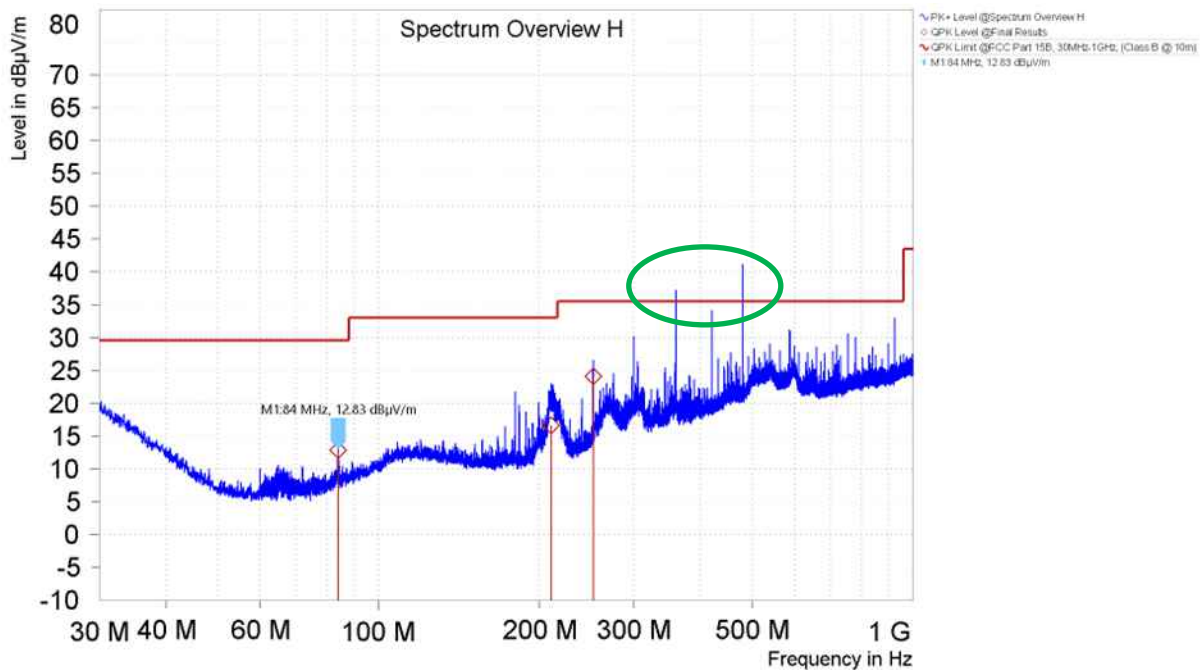


Figure 41. Out of Band Emissions Above 30MHz, Vertical Polarity, 5122 (No Credential)¹²

¹² The emissions circled in green were determined to originate from digital functions onboard the Color Card Printer, DTC4500e which is a class A device. These emissions were assessed under a separate FCC part 15B test report.

Frequency [MHz]	Peak Level [dBμV/m] ¹³	Limit [dBμV/m]	Margin [dB]	Correction [dB] ¹⁴	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
13.205	17.93	80.50	62.57	10.62	H	255.1	1.00	9.000	Pass
13.236	17.33	80.50	63.17	10.62	V	112	1.00	9.000	Pass
13.335	17.50	80.50	63.00	10.62	H	197.1	1.00	9.000	Pass
13.376	18.11	80.50	62.39	10.61	V	116.6	1.00	9.000	Pass
13.560	58.29	124.00	65.71	10.61	H	180.7	1.00	9.000	Pass
13.560	58.29	124.00	65.71	10.61	V	182.7	1.00	9.000	Pass
13.673	16.34	90.50	74.16	10.60	H	44.9	1.00	9.000	Pass
13.785	17.15	80.50	63.35	10.60	H	246.5	1.00	9.000	Pass
13.848	17.44	80.50	63.06	10.60	V	45.1	1.00	9.000	Pass
13.943	17.90	80.50	62.60	10.59	V	201.1	1.00	9.000	Pass

Figure 42. Worst Case In-Band Field Strength, 5127SI

Frequency [MHz]	Peak Level [dBμV/m] ¹	Limit [dBμV/m]	Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
0.012	55.15	125.86	70.71	17.81	H	0	1.00	0.200	Pass
0.027	53.27	119.09	65.82	14.02	V	326.1	1.00	0.200	Pass
0.103	41.33	107.33	66.00	11.30	H	69	1.00	0.200	Pass
0.371	47.34	96.23	48.89	11.18	V	292.7	1.00	9.000	Pass
0.524	45.10	73.23	28.13	11.35	H	66.7	1.00	9.000	Pass
3.233	28.06	69.50	41.44	11.55	V	272.1	1.00	9.000	Pass
13.560	58.31	69.50	11.19	10.61	H	184.9	1.00	9.000	Pass
13.560	58.26	69.50	11.24	10.61	V	181.3	1.00	9.000	Pass
24.999	20.74	69.50	48.76	9.72	H	17.5	1.00	9.000	Pass
25.004	20.74	69.50	48.76	9.72	V	48.4	1.00	9.000	Pass

Figure 43. Worst Case Field Strength Below 30MHz, 5127SI

¹³ This corrected level includes the factor shown in the “correction” column. The corrected level = Raw Reading + Correction Factor. The raw reading is not shown in the table above.

¹⁴ This correction factor includes cable loss in dB, preamplifier gain in dB, and an electric field antenna factor in (dB/m).

Frequency [MHz]	QPK Level [dBμV/m] ¹	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
60.000	12.64	29.55	16.91	-14.31	H	198.3	2.50	120.000	Pass
60.000	25.35	29.55	4.20	-14.11	V	110.6	1.32	120.000	Pass
84.000	19.28	29.55	10.27	-12.51	H	201.9	2.12	120.000	Pass
180.000	31.22	33.07	1.85	-10.07	H	258.8	2.50	120.000	Pass
180.000	29.18	33.07	3.89	-9.87	V	203.9	1.00	120.000	Pass
299.970	31.42	35.57	4.15	-5.64	H	253.7	1.45	120.000	Pass
756.000	32.89	35.57	2.68	3.71	V	24.3	1.23	120.000	Pass
780.000	28.79	35.57	6.78	3.43	H	115.3	1.58	120.000	Pass

Figure 44. Worst Case Field Strength Above 30MHz, 5127SI

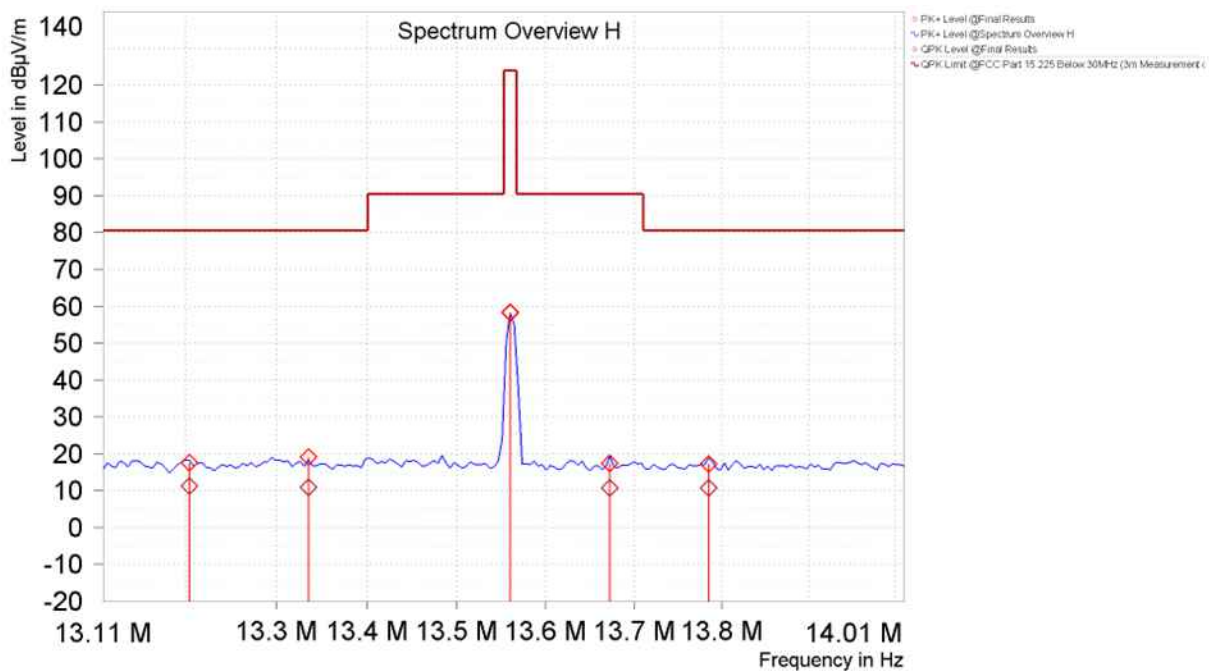


Figure 45. In-Band Emission Mask, Coplanar Loop, 5127SI

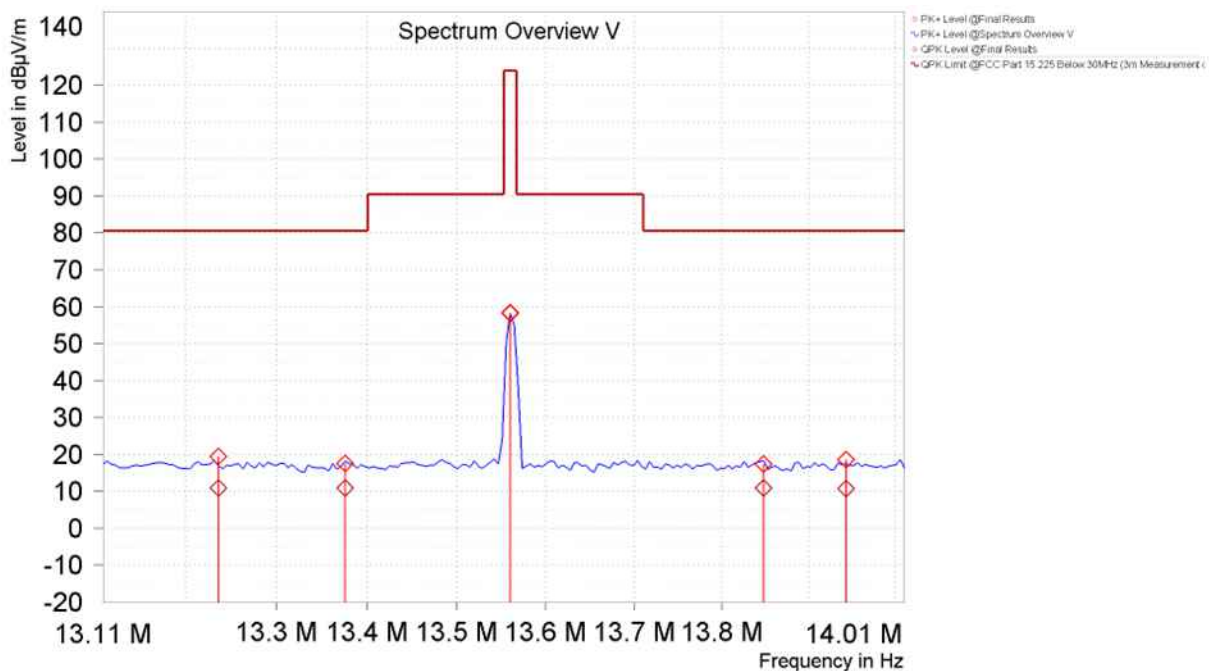


Figure 46. In-Band Emission Mask, Coaxial Loop, 5127SI

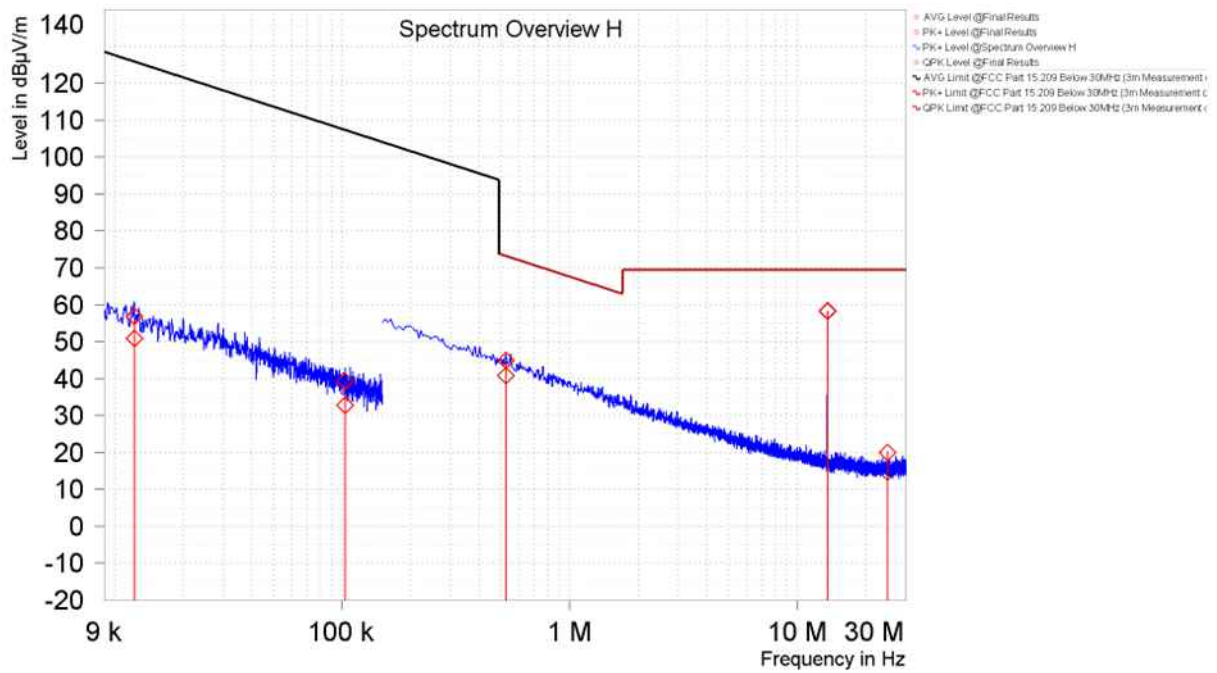


Figure 47. Out of Band Emissions Below 30MHz, Coplanar Loop, 5127SI

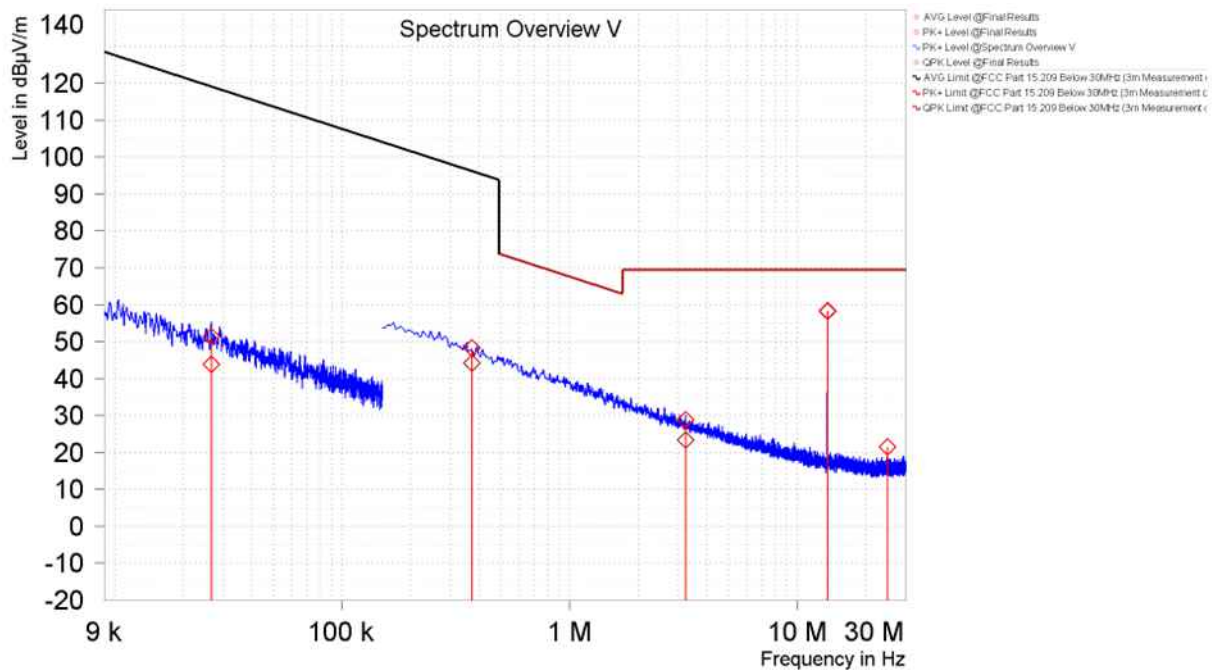


Figure 48. Out of Band Emissions Below 30MHz, Coaxial Loop, 5127SI

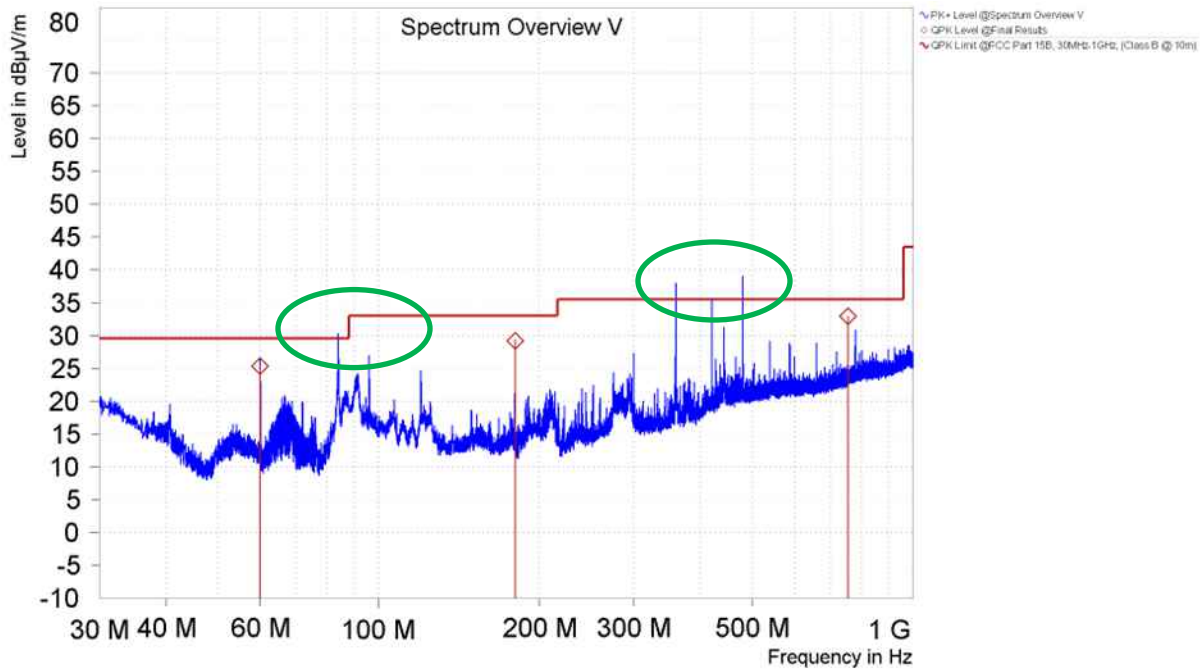


Figure 49. Out of Band Emissions Above 30MHz, Vertical Polarity, 5127SI¹⁵

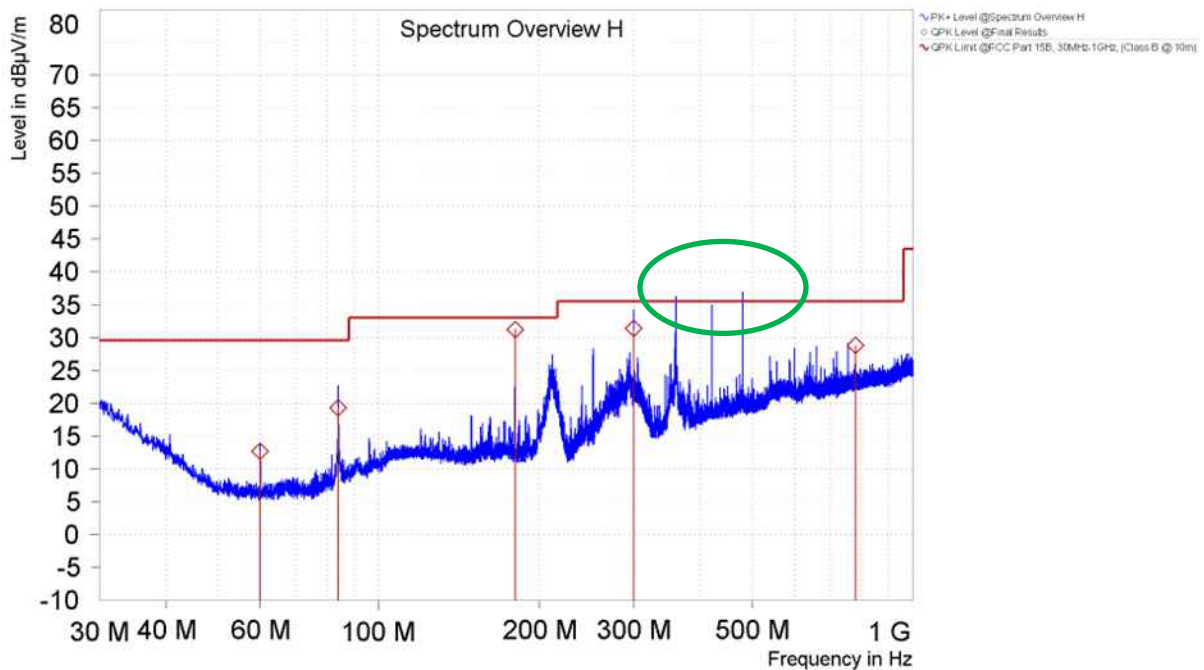


Figure 50. Out of Band Emissions Above 30MHz, Vertical Polarity, 5127SI¹⁵

¹⁵ The emissions circled in green were determined to originate from digital functions onboard the Color Card Printer, DTC4500e which is a class A device. These emissions were assessed under a separate FCC part 15B test report.

Frequency [MHz]	Peak Level [dBμV/m] ¹⁶	Limit [dBμV/m]	Margin [dB]	Correction [dB] ¹⁷	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
13.164	16.68	80.50	63.82	10.62	V	277.6	1.00	9.000	Pass
13.223	17.19	80.50	63.31	10.62	H	245.4	1.00	9.000	Pass
13.326	18.54	80.50	61.96	10.62	V	285.1	1.00	9.000	Pass
13.461	17.43	90.50	73.07	10.61	H	255	1.00	9.000	Pass
13.560	58.28	124.00	65.72	10.61	H	183.2	1.00	9.000	Pass
13.560	58.28	124.00	65.72	10.61	V	183.6	1.00	9.000	Pass
13.736	16.97	80.50	63.53	10.60	V	90.7	1.00	9.000	Pass
13.803	17.21	80.50	63.29	10.60	H	198.9	1.00	9.000	Pass
13.889	17.64	80.50	62.86	10.59	V	345	1.00	9.000	Pass
13.925	17.76	80.50	62.74	10.59	H	311.3	1.00	9.000	Pass

Figure 51. Worst Case In-Band Field Strength, 5127SI (No Credential)

Frequency [MHz]	Peak Level [dBμV/m] ¹	Limit [dBμV/m]	Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
0.011	56.23	126.92	70.69	18.67	V	130.8	1.00	0.200	Pass
0.019	54.81	121.97	67.15	14.72	H	74.9	1.00	0.200	Pass
0.051	45.71	113.42	67.71	11.68	H	33.8	1.00	0.200	Pass
0.407	48.67	95.42	46.76	11.24	V	161.7	1.00	9.000	Pass
0.528	46.01	73.15	27.14	11.37	H	333.3	1.00	9.000	Pass
8.502	21.74	69.50	47.76	10.80	V	67	1.00	9.000	Pass
13.560	58.28	69.50	11.22	10.61	H	180	1.00	9.000	Pass
13.560	58.31	69.50	11.19	10.61	V	181.7	1.00	9.000	Pass
22.740	16.19	69.50	53.31	9.88	H	25.4	1.00	9.000	Pass
25.004	20.38	69.50	49.12	9.72	V	25.3	1.00	9.000	Pass

Figure 52. Worst Case Field Strength Below 30MHz, 5127SI (No Credential)

¹⁶ This corrected level includes the factor shown in the “correction” column. The corrected level = Raw Reading + Correction Factor. The raw reading is not shown in the table above.

¹⁷ This correction factor includes cable loss in dB, preamplifier gain in dB, and an electric field antenna factor in (dB/m).

Frequency [MHz]	QPK Level [dBμV/m] ¹	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
60.000	25.35	29.55	4.20	-14.11	V	110.1	1.50	120.000	Pass
84.000	19.44	29.55	10.11	-12.51	H	183.5	2.27	120.000	Pass
180.000	31.01	33.07	2.06	-10.07	H	257	2.24	120.000	Pass
180.000	29.60	33.07	3.47	-9.87	V	218.8	1.00	120.000	Pass
300.000	33.23	35.57	2.34	-5.64	H	256.9	1.27	120.000	Pass
300.000	25.83	35.57	9.74	-5.04	V	244	0.99	120.000	Pass
660.000	25.86	35.57	9.71	2.08	H	249.4	2.04	120.000	Pass
756.000	32.67	35.57	2.90	3.71	V	22.9	1.25	120.000	Pass

Figure 53. Worst Case Field Strength Above 30MHz, 5127SI (No Credential)

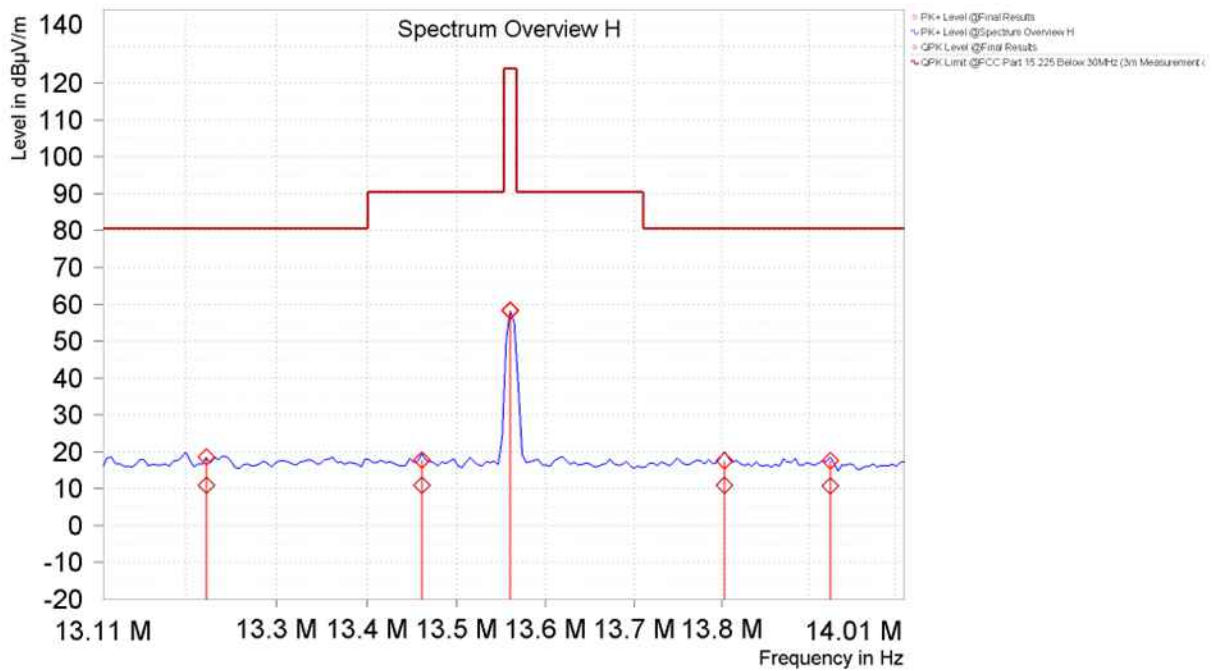


Figure 54. In-Band Emission Mask, Coplanar Loop, 5127SI (No Credential)

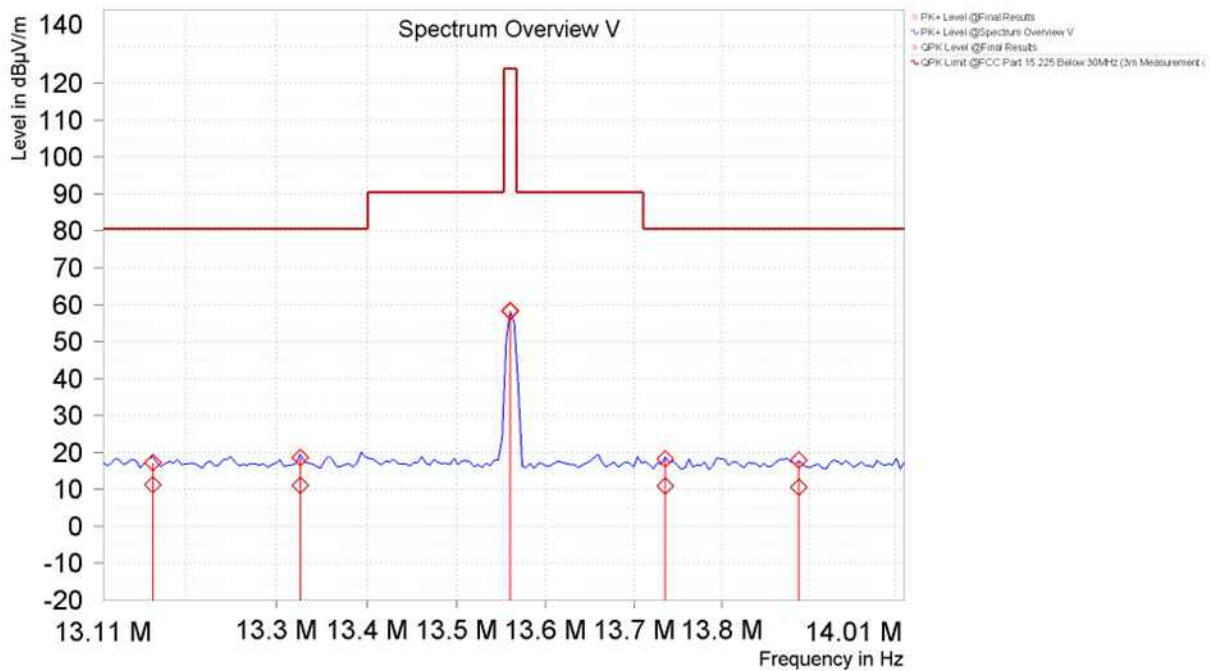


Figure 55. In-Band Emission Mask, Coaxial Loop, 5127SI (No Credential)

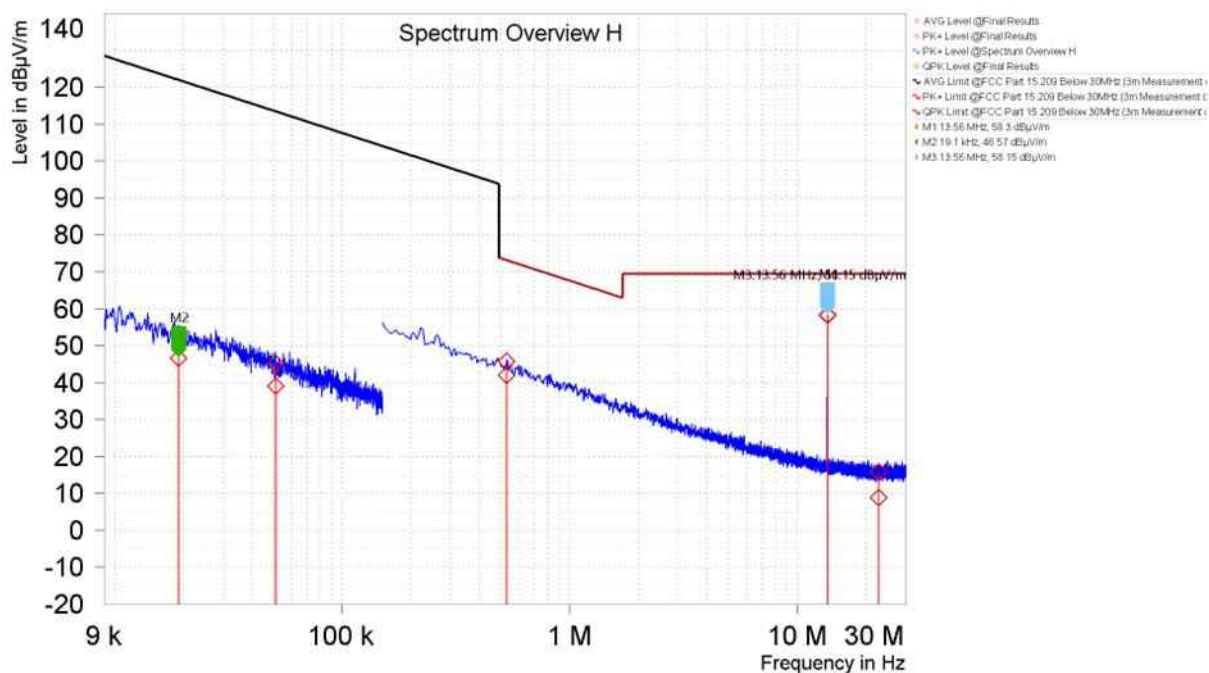


Figure 56. Out of Band Emissions Below 30MHz, Coplanar Loop, 5127SI (No Credential)

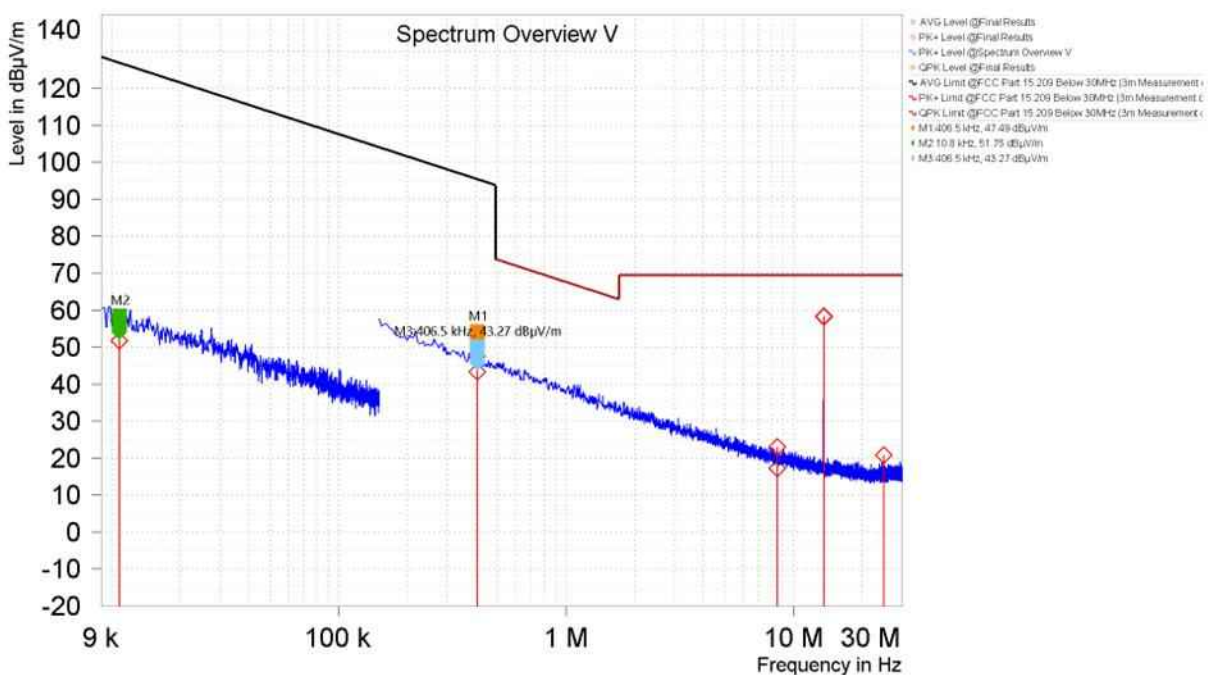


Figure 57. Out of Band Emissions Below 30MHz, Coaxial Loop, 5127SI (No Credential)

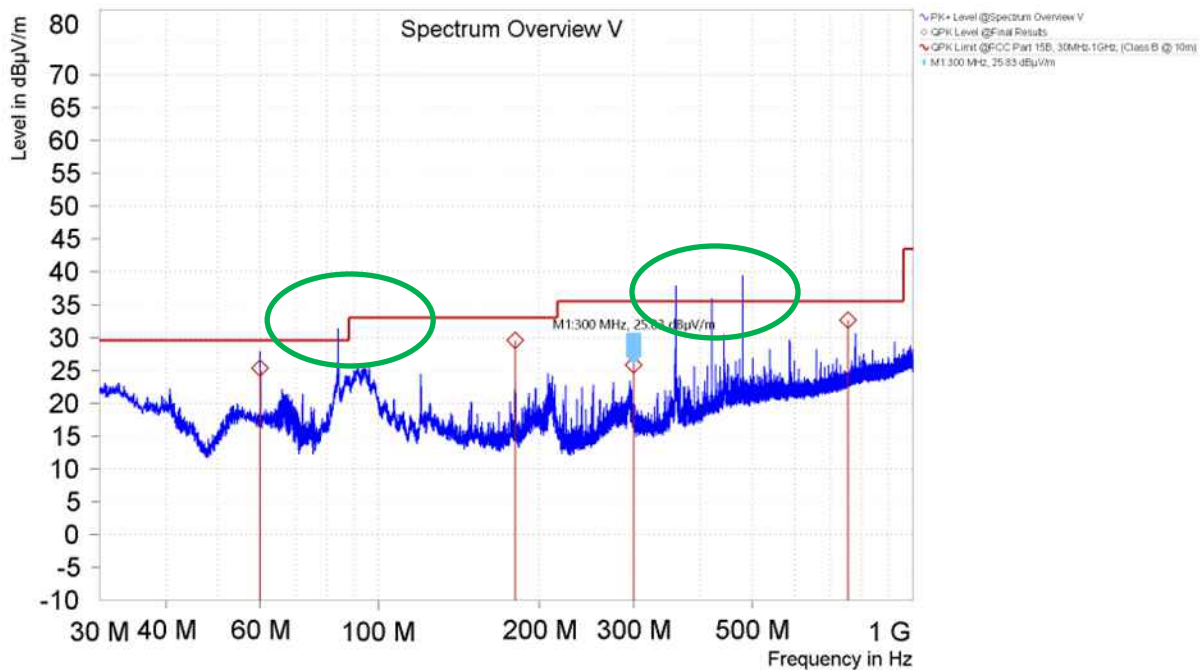


Figure 58. Out of Band Emissions Above 30MHz, Vertical Polarity, 5127SI (No Credential)¹⁸

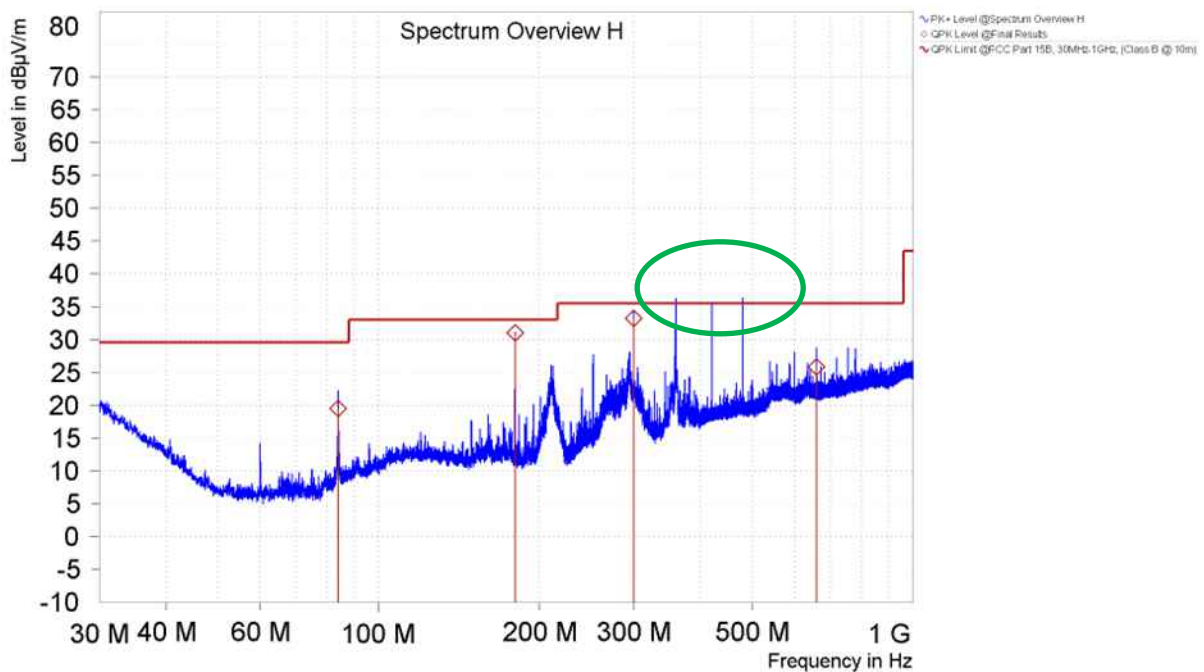


Figure 59. Out of Band Emissions Above 30MHz, Vertical Polarity, 5127SI (No Credential)¹⁸

¹⁸ The emissions circled in green were determined to originate from digital functions onboard the Color Card Printer, DTC4500e which is a class A device. These emissions were assessed under a separate FCC part 15B test report.

Frequency [MHz]	Peak Level [dBμV/m] ¹⁹	Limit [dBμV/m]	Margin [dB]	Correction [dB] ²⁰	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
13.142	18.18	80.50	62.32	10.62	V	217.9	1.00	9.000	Pass
13.236	17.30	80.50	63.20	10.62	H	279.5	1.00	9.000	Pass
13.353	18.10	80.50	62.40	10.62	V	97.1	1.00	9.000	Pass
13.430	18.75	90.50	71.75	10.61	H	206	1.00	9.000	Pass
13.560	62.65	124.00	61.35	10.61	H	347.5	1.00	9.000	Pass
13.560	62.66	124.00	61.34	10.61	V	344.2	1.00	9.000	Pass
13.695	16.53	90.50	73.97	10.60	H	195	1.00	9.000	Pass
13.853	17.20	80.50	63.30	10.60	V	234.1	1.00	9.000	Pass
13.920	18.33	80.50	62.17	10.59	H	203.9	1.00	9.000	Pass
13.983	17.73	80.50	62.77	10.59	V	214	1.00	9.000	Pass

Figure 60. Worst Case In-Band Field Strength, 5127 CK MINI

Frequency [MHz]	Peak Level [dBμV/m] ¹	Limit [dBμV/m]	Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
0.213	54.18	101.03	46.85	11.38	V	112.5	1.00	9.000	Pass
0.222	54.53	100.67	46.15	11.38	H	254.8	1.00	9.000	Pass
0.708	43.61	70.60	26.99	11.47	V	105	1.00	9.000	Pass
0.713	42.15	70.55	28.40	11.48	H	285.2	1.00	9.000	Pass
13.560	49.82	69.50	19.68	10.61	H	22.2	1.00	9.000	Pass
13.560	57.51	69.50	11.99	10.61	V	272.9	1.00	9.000	Pass

Figure 61. Worst Case Field Strength Below 30MHz, 5127 CK MINI

Frequency [MHz]	QPK Level [dBμV/m] ¹	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
30.570	19.82	29.55	9.73	-2.60	V	230.2	2.14	120.000	Pass
30.600	20.59	29.55	8.96	-2.54	H	257	2.24	120.000	Pass
54.240	20.92	29.55	8.63	-13.49	V	159.7	1.19	120.000	Pass
252.000	26.91	35.57	8.66	-6.28	H	300.8	2.29	120.000	Pass
274.890	21.81	35.57	13.76	-5.40	V	64.1	1.00	120.000	Pass
756.000	32.46	35.57	3.11	3.71	V	0	2.07	120.000	Pass

Figure 62. Worst Case Field Strength Above 30MHz, 5127 CK MINI

¹⁹ This corrected level includes the factor shown in the “correction” column. The corrected level = Raw Reading + Correction Factor. The raw reading is not shown in the table above.

²⁰ This correction factor includes cable loss in dB, preamplifier gain in dB, and an electric field antenna factor in (dB/m).

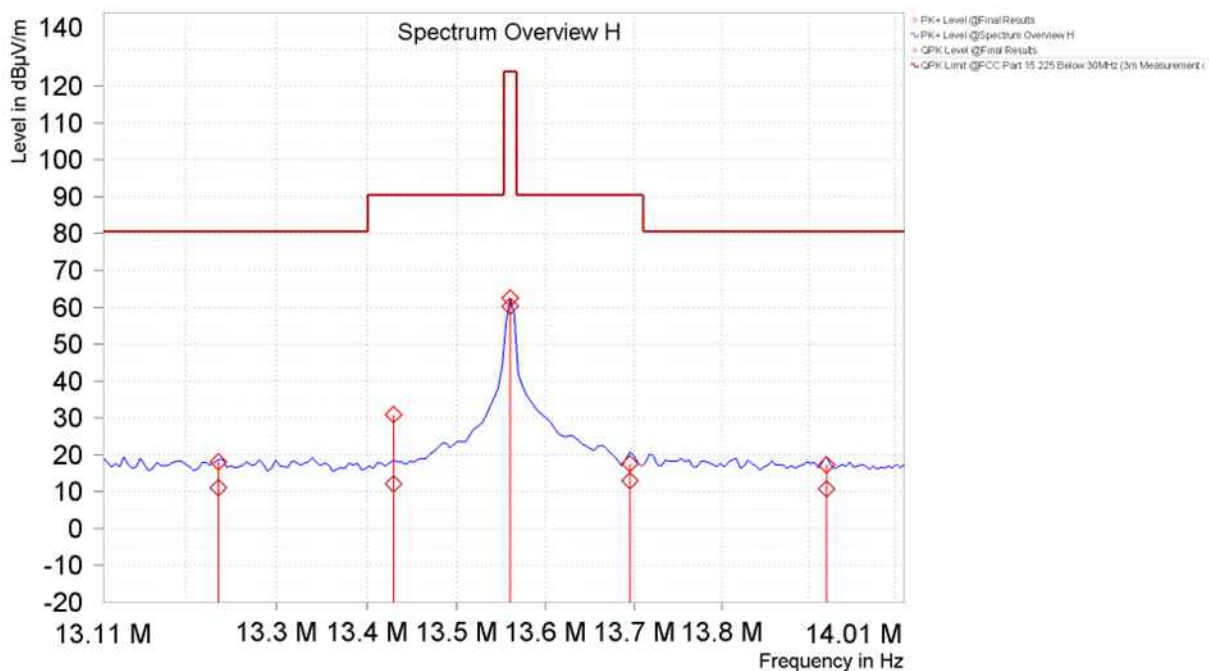


Figure 63. In-Band Emission Mask, Coplanar Loop, 5127 CK MINI

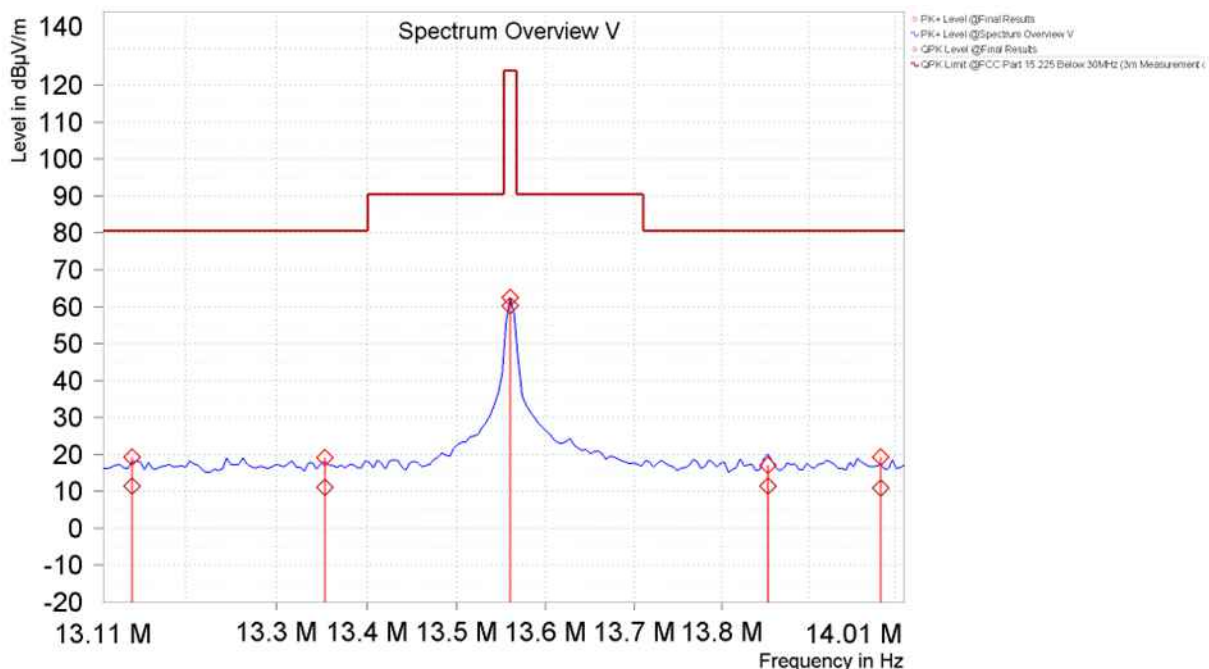


Figure 64. In-Band Emission Mask, Coaxial Loop, 5127 CK MINI

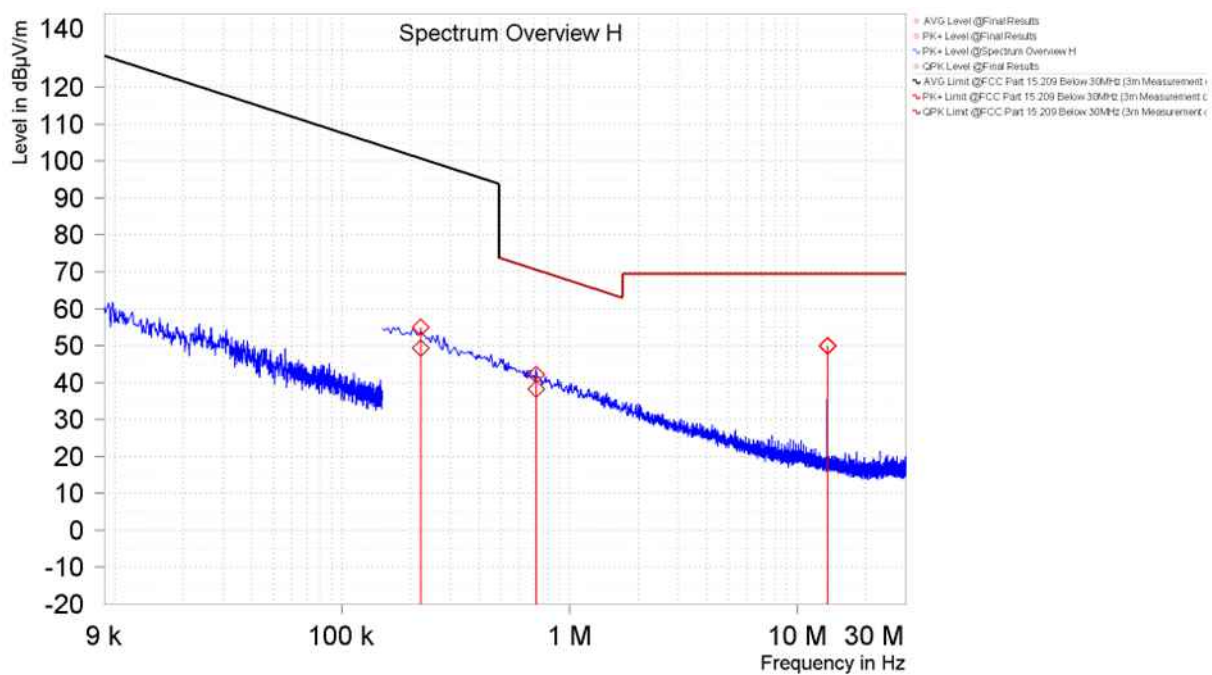


Figure 65. Out of Band Emissions Below 30MHz, Coplanar Loop, 5127 CK MINI

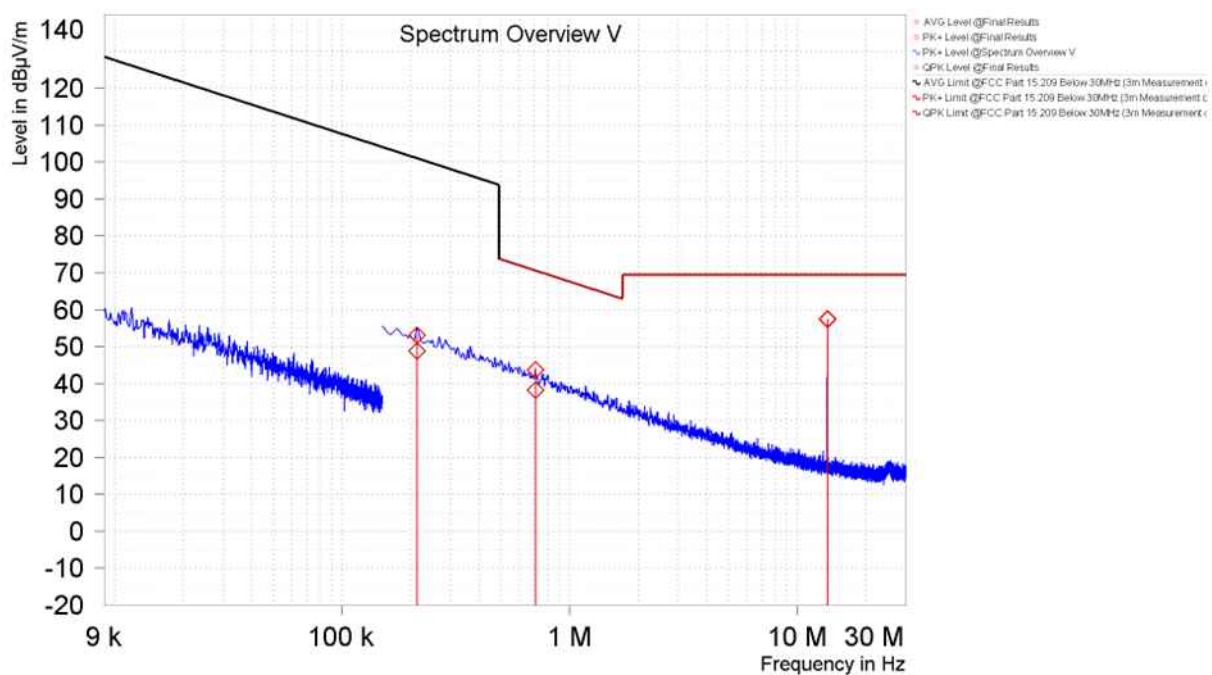


Figure 66. Out of Band Emissions Below 30MHz, Coaxial Loop, 5127 CK MINI

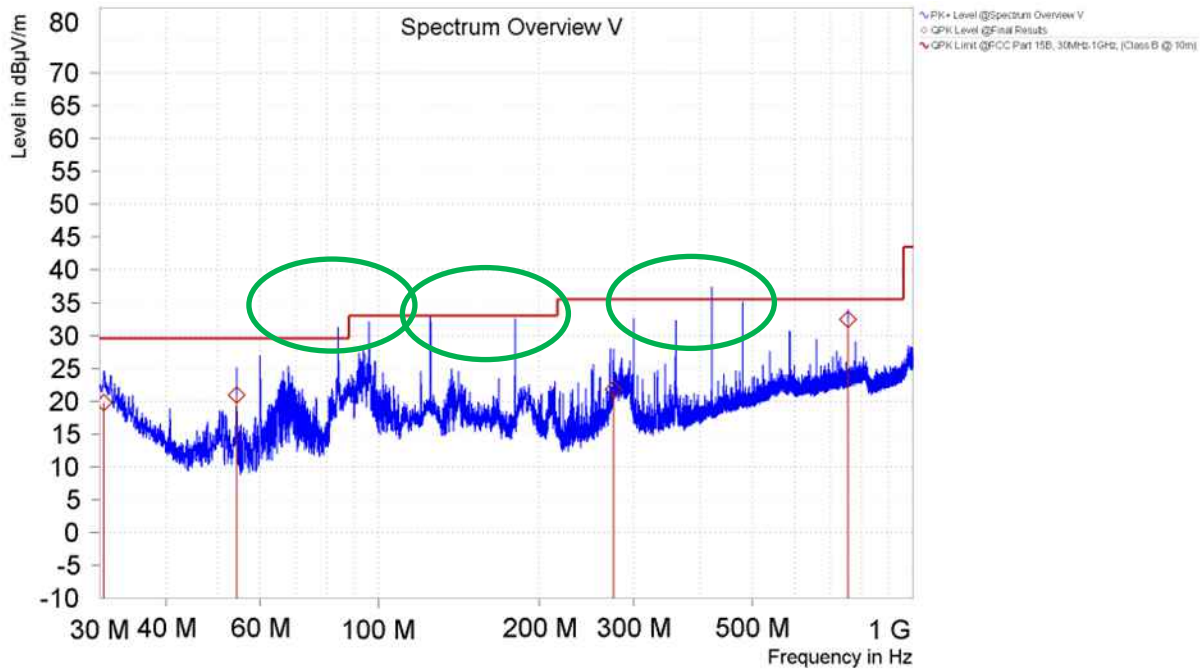


Figure 67. Out of Band Emissions Above 30MHz, Vertical Polarity, 5127 CK MINI²¹

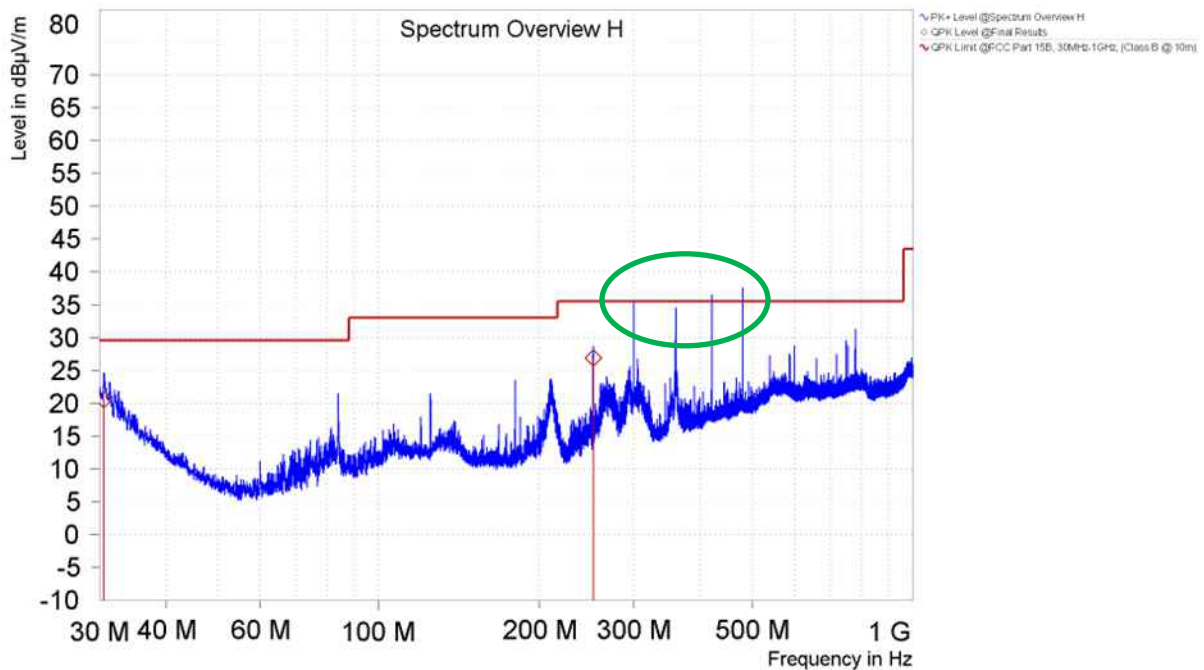


Figure 68. Out of Band Emissions Above 30MHz, Vertical Polarity, 5127 CK MINI²¹

²¹ The emissions circled in green were determined to originate from digital functions onboard the Color Card Printer, DTC4500e which is a class A device. These emissions were assessed under a separate FCC part 15B test report.

Frequency [MHz]	Peak Level [dBμV/m] ²²	Limit [dBμV/m]	Margin [dB]	Correction [dB] ²³	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
13.214	18.17	80.50	62.33	10.62	V	65	1.00	9.000	Pass
13.259	18.74	80.50	61.76	10.62	H	51.4	1.00	9.000	Pass
13.389	18.63	80.50	61.87	10.61	V	10.7	1.00	9.000	Pass
13.407	18.24	90.50	72.26	10.61	H	324.9	1.00	9.000	Pass
13.560	58.07	124.00	65.93	10.61	H	283.3	1.00	9.000	Pass
13.560	58.05	124.00	65.95	10.61	V	290.8	1.00	9.000	Pass
13.731	17.79	80.50	62.71	10.60	V	135.1	1.00	9.000	Pass
13.758	17.44	80.50	63.06	10.60	H	240.1	1.00	9.000	Pass
13.875	18.31	80.50	62.19	10.59	H	192.1	1.00	9.000	Pass
13.934	18.76	80.50	61.74	10.59	V	133.6	1.00	9.000	Pass

Figure 69. Worst Case In-Band Field Strength, 5127 CK MINI (No Credential)

Frequency [MHz]	Peak Level [dBμV/m] ¹	Limit [dBμV/m]	Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
0.016	60.47	123.73	63.26	16.10	V	15	1.00	0.200	Pass
0.026	53.14	119.19	66.05	14.04	H	104.3	1.00	0.200	Pass
0.492	45.18	73.76	28.58	11.31	H	261.4	1.00	9.000	Pass
0.704	42.38	70.66	28.28	11.46	V	108.7	1.00	9.000	Pass
13.560	35.12	69.50	34.38	10.61	H	284.1	1.00	9.000	Pass
13.560	34.99	69.50	34.51	10.61	V	304.9	1.00	9.000	Pass

Figure 70. Worst Case Field Strength Below 30MHz, 5127 CK MINI (No Credential)

Frequency [MHz]	QPK Level [dBμV/m] ¹	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
30.600	22.13	29.55	7.42	-2.62	V	330.9	2.50	120.000	Pass
30.630	20.78	29.55	8.77	-2.56	H	304.5	2.16	120.000	Pass
67.830	21.43	29.55	8.12	-14.14	V	174.7	1.16	120.000	Pass
96.060	21.07	33.07	12.00	-9.76	V	86.3	1.93	120.000	Pass
138.390	21.45	33.07	11.62	-8.02	V	350.8	1.46	120.000	Pass
779.970	27.74	35.57	7.83	3.43	H	84.5	1.00	120.000	Pass

Figure 71. Worst Case Field Strength Above 30MHz, 5127 CK MINI (No Credential)

²² This corrected level includes the factor shown in the “correction” column. The corrected level = Raw Reading + Correction Factor. The raw reading is not shown in the table above.

²³ This correction factor includes cable loss in dB, preamplifier gain in dB, and an electric field antenna factor in (dB/m).

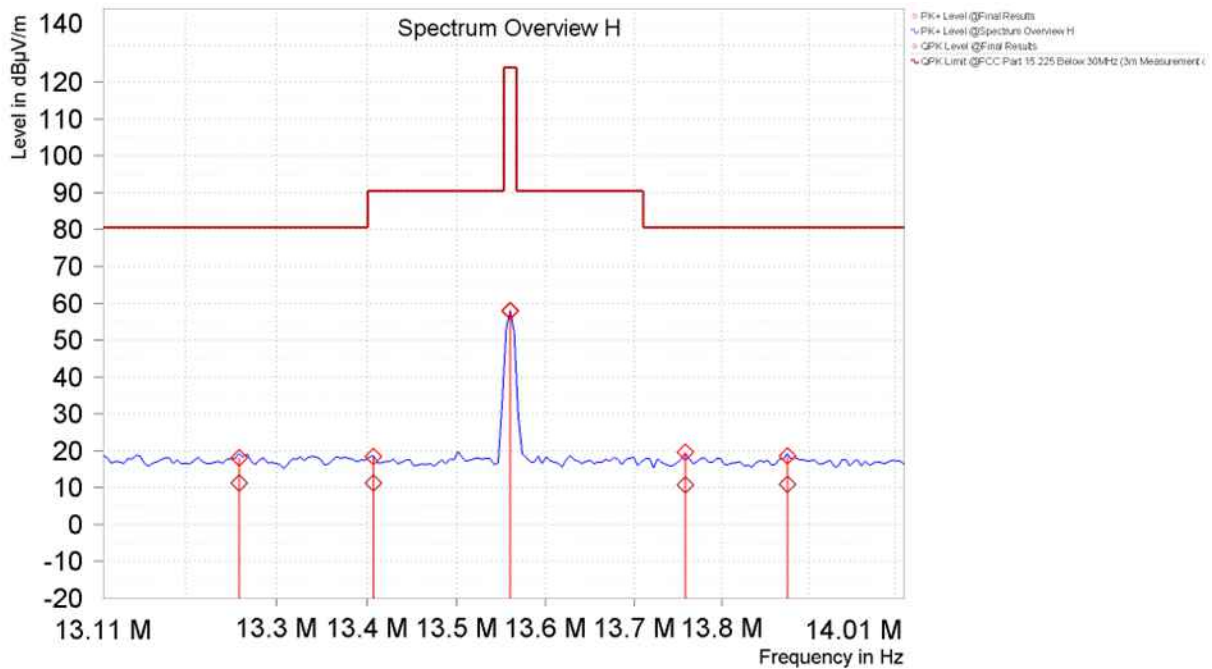


Figure 72. In-Band Emission Mask, Coplanar Loop, 5127 CK MINI (No Credential)

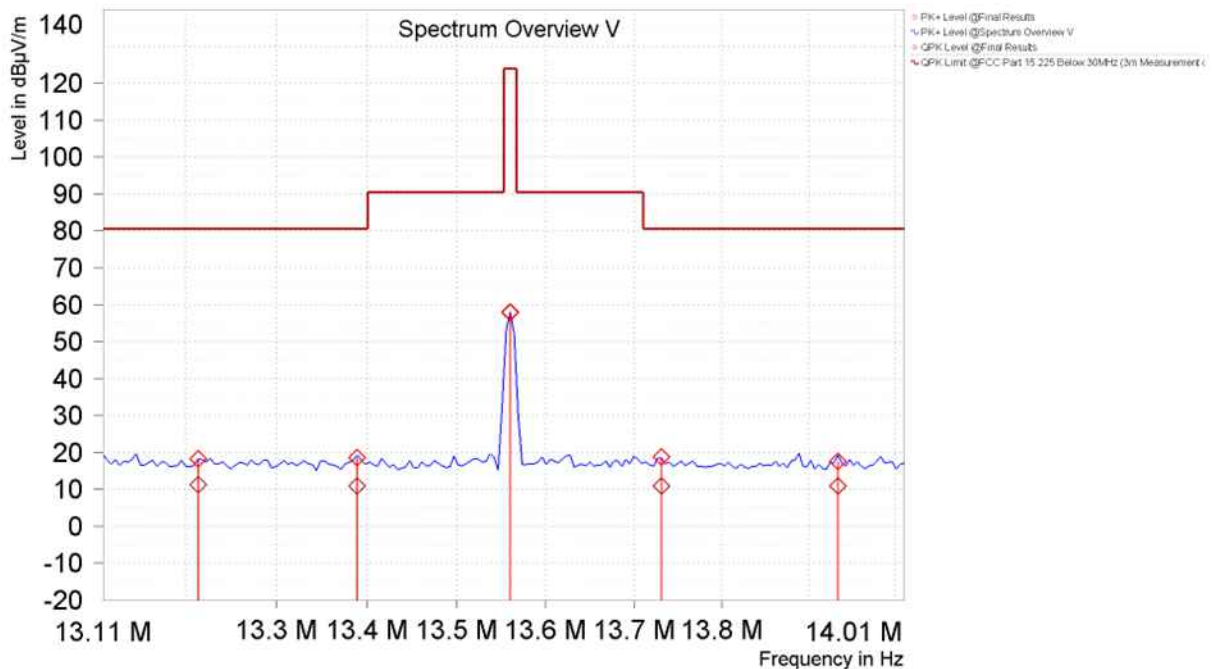


Figure 73. In-Band Emission Mask, Coaxial Loop, 5127 CK MINI (No Credential)

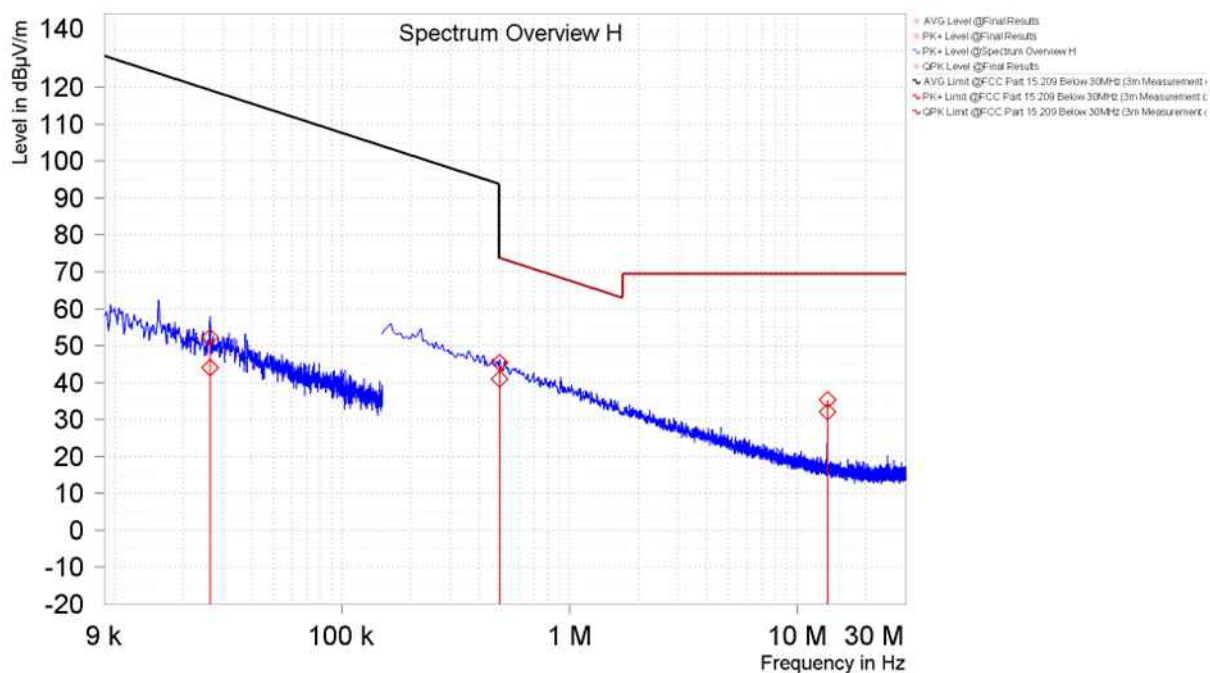


Figure 74. Out of Band Emissions Below 30MHz, Coplanar Loop, 5127 CK MINI (No Credential)

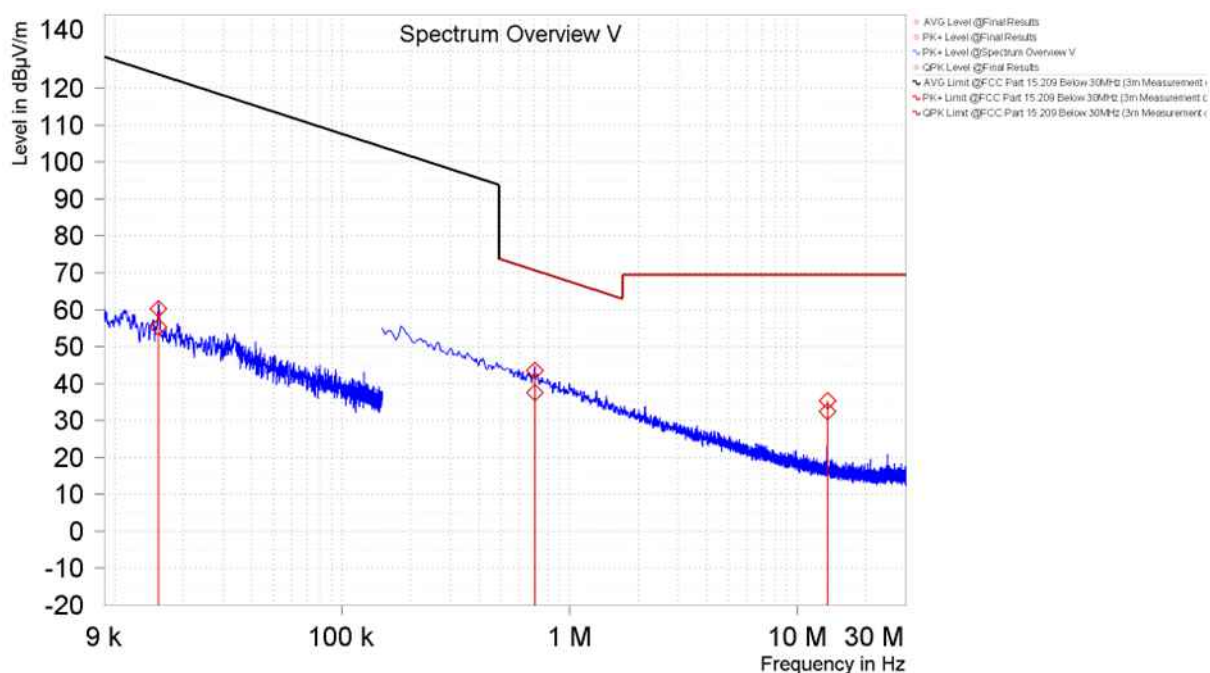


Figure 75. Out of Band Emissions Below 30MHz, Coaxial Loop, 5127 CK MINI (No Credential)

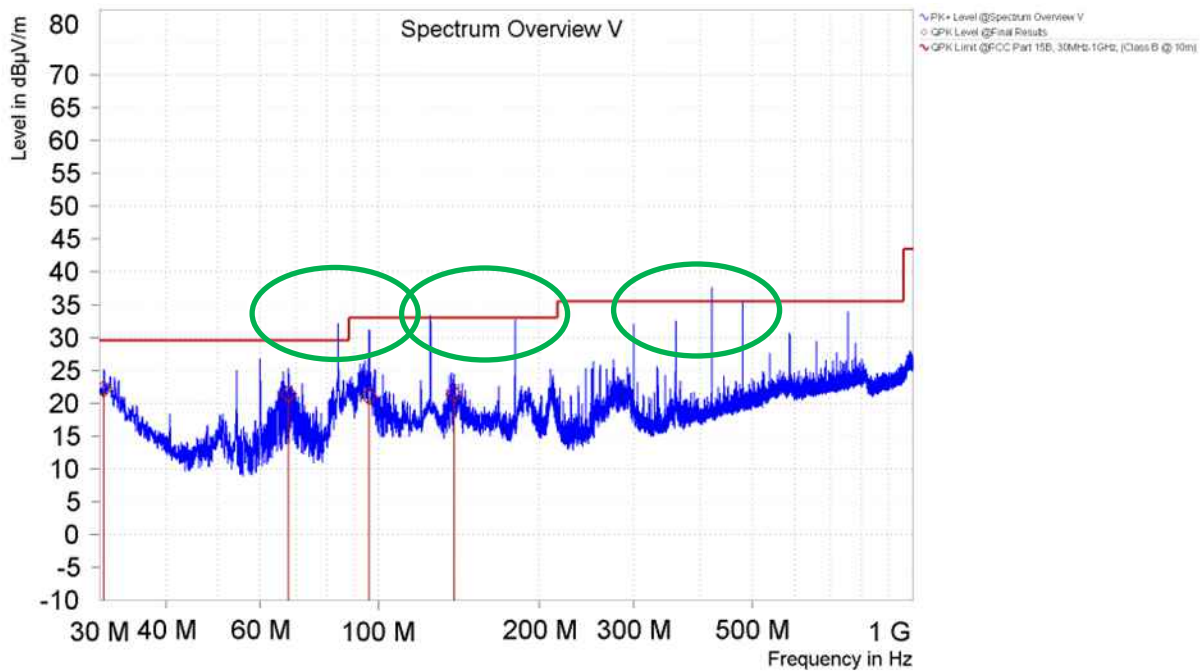


Figure 76. Out of Band Emissions Above 30MHz, Vertical Polarity, 5127 CK MINI (No Credential)²⁴

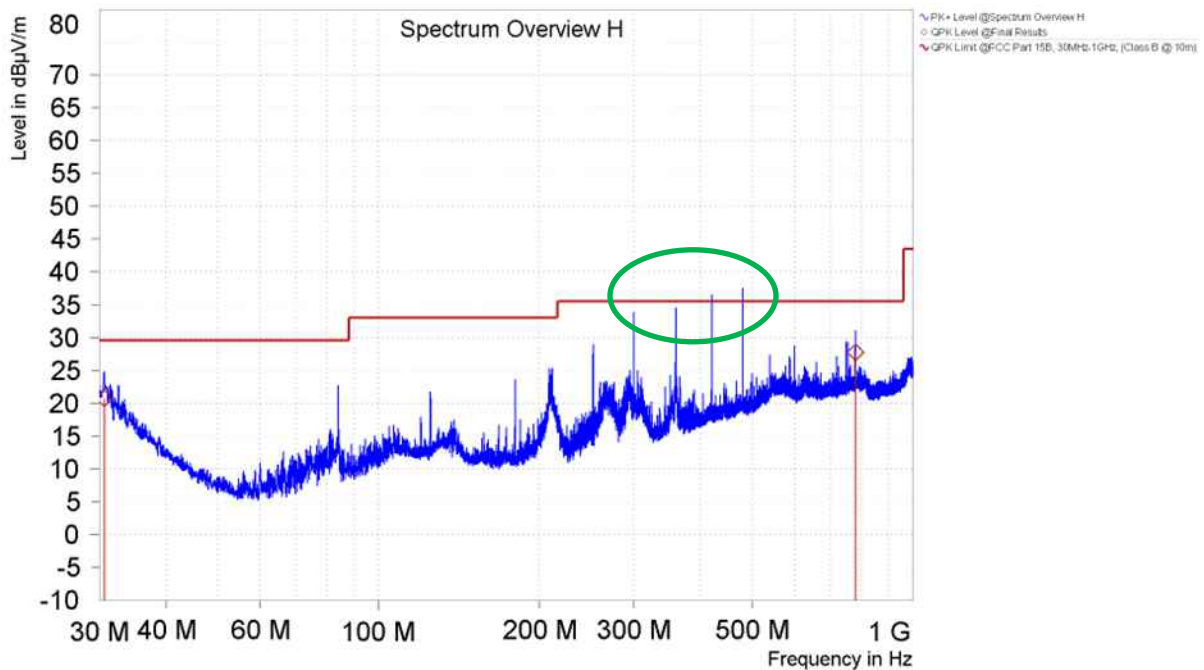


Figure 77. Out of Band Emissions Above 30MHz, Vertical Polarity, 5127 CK MINI (No Credential)²⁴

²⁴ The emissions circled in green were determined to originate from digital functions onboard the Color Card Printer, DTC4500e which is a class A device. These emissions were assessed under a separate FCC part 15B test report.

Frequency [MHz]	Peak Level [dBμV/m] ²⁵	Limit [dBμV/m]	Margin [dB]	Correction [dB] ²⁶	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
13.137	40.24	80.50	40.26	10.62	V	190.1	1.00	9.000	Pass
13.308	27.50	80.50	53.00	10.62	H	355.3	1.00	9.000	Pass
13.515	34.55	90.50	55.95	10.61	H	66.5	1.00	9.000	Pass
13.560	57.40	124.00	66.60	10.61	H	274.3	1.00	9.000	Pass
13.560	65.61	124.00	58.39	10.61	V	359.9	1.00	9.000	Pass
13.637	17.59	90.50	72.91	10.60	H	105	1.00	9.000	Pass
13.817	17.05	80.50	63.45	10.60	H	149.1	1.00	9.000	Pass
13.983	31.33	80.50	49.17	10.59	V	-0.1	1.00	9.000	Pass
13.137	40.24	80.50	40.26	10.62	V	190.1	1.00	9.000	Pass
13.308	27.50	80.50	53.00	10.62	H	355.3	1.00	9.000	Pass

Figure 78. Worst Case In-Band Field Strength, Laminator Lower

Frequency [MHz]	Peak Level [dBμV/m] ¹	Limit [dBμV/m]	Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
0.699	41.78	70.71	28.93	11.46	H	327.8	1.00	9.000	Pass
0.776	42.38	69.81	27.43	11.46	V	248.4	1.00	9.000	Pass
1.109	38.33	66.70	28.38	11.76	V	88.3	1.00	9.000	Pass
1.275	35.37	65.49	30.12	11.71	H	135	1.00	9.000	Pass
13.560	48.96	69.50	20.54	10.61	H	195	1.00	9.000	Pass
13.560	65.18	69.50	4.32	10.61	V	173.7	1.00	9.000	Pass

Figure 79. Worst Case Field Strength Below 30MHz, Laminator Lower

Frequency [MHz]	QPK Level [dBμV/m] ¹	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
30.570	19.04	29.55	10.51	-2.53	H	260.8	2.01	120.000	Pass
30.630	20.37	29.55	9.18	-2.65	V	171.3	2.28	120.000	Pass
96.060	22.32	33.07	10.75	-9.76	V	94.2	1.44	120.000	Pass
779.970	28.09	35.57	7.48	3.43	H	92.5	1.10	120.000	Pass

Figure 80. Worst Case Field Strength Above 30MHz, Laminator Lower

²⁵ This corrected level includes the factor shown in the “correction” column. The corrected level = Raw Reading + Correction Factor. The raw reading is not shown in the table above.

²⁶ This correction factor includes cable loss in dB, preamplifier gain in dB, and an electric field antenna factor in (dB/m).

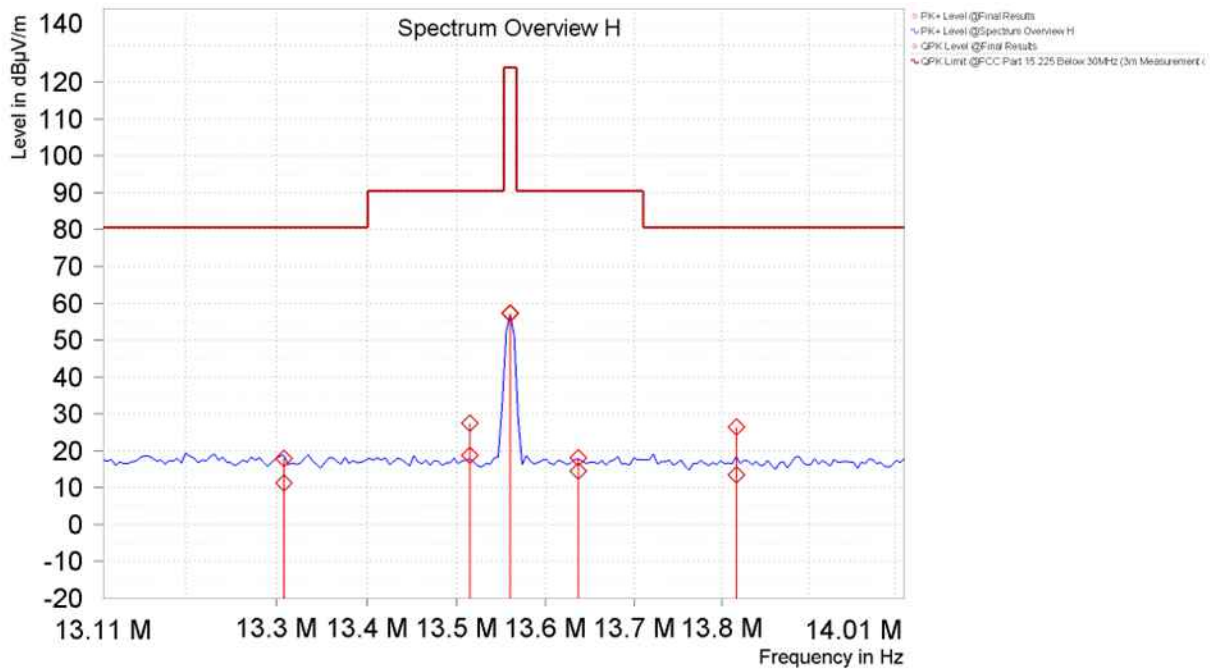


Figure 81. In-Band Emission Mask, Coplanar Loop, Laminator Lower

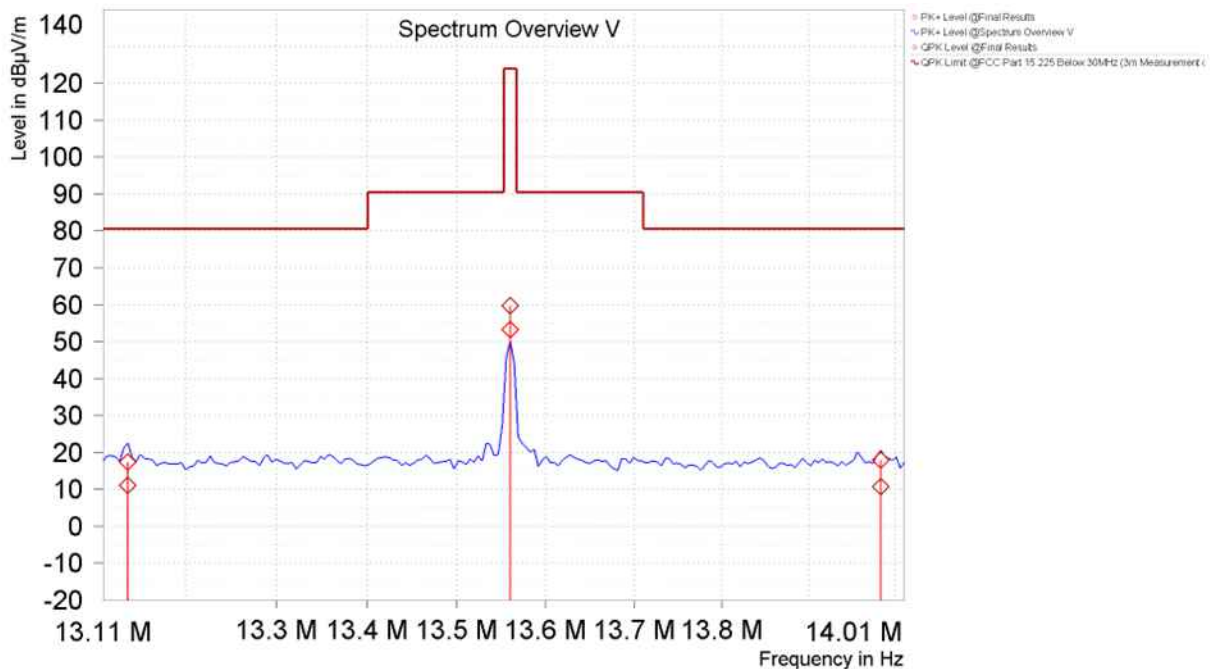


Figure 82. In-Band Emission Mask, Coaxial Loop, Laminator Lower

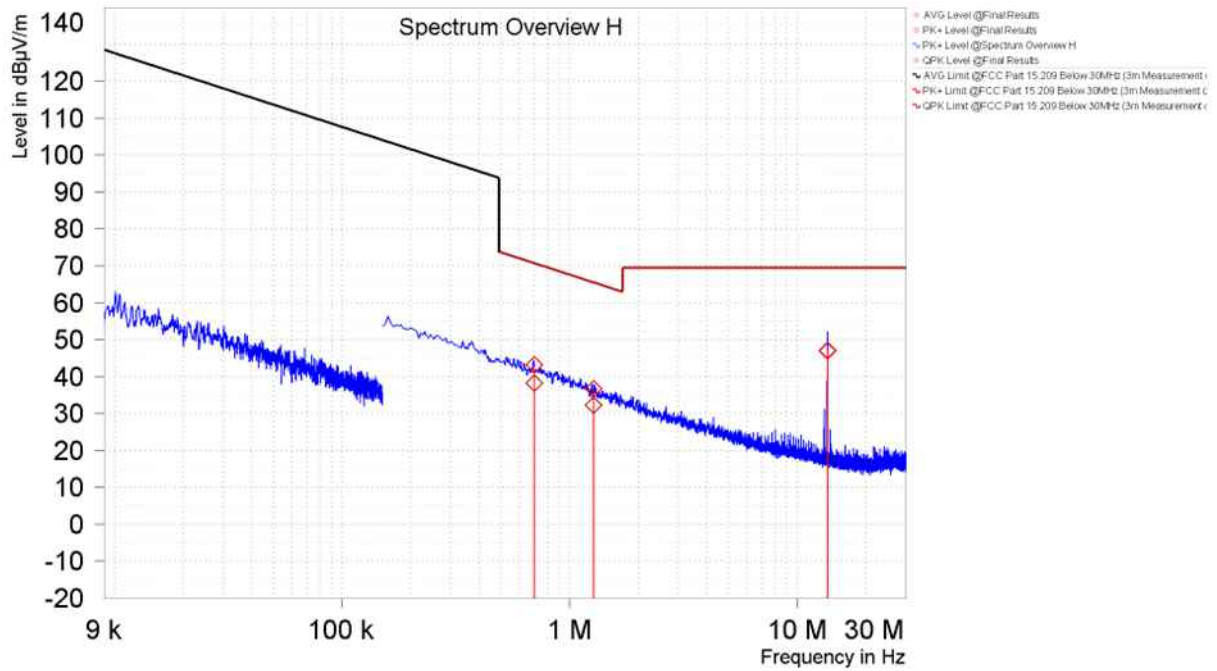


Figure 83. Out of Band Emissions Below 30MHz, Coplanar Loop, Laminator Lower

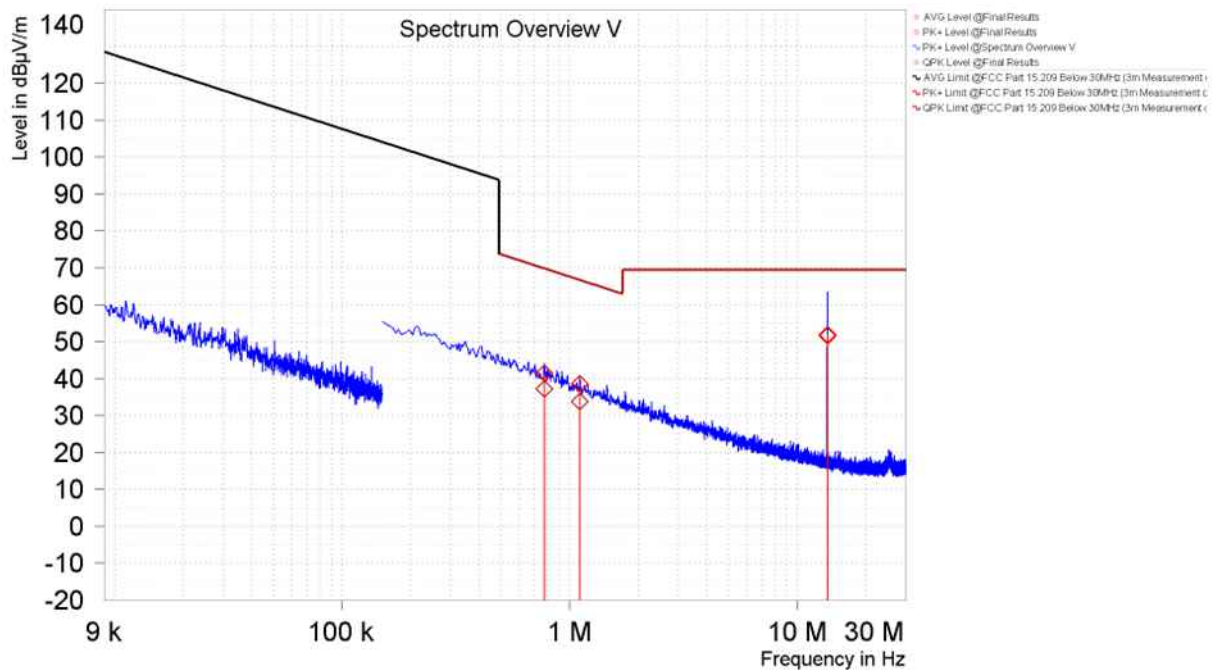


Figure 84. Out of Band Emissions Below 30MHz, Coaxial Loop, Laminator Lower

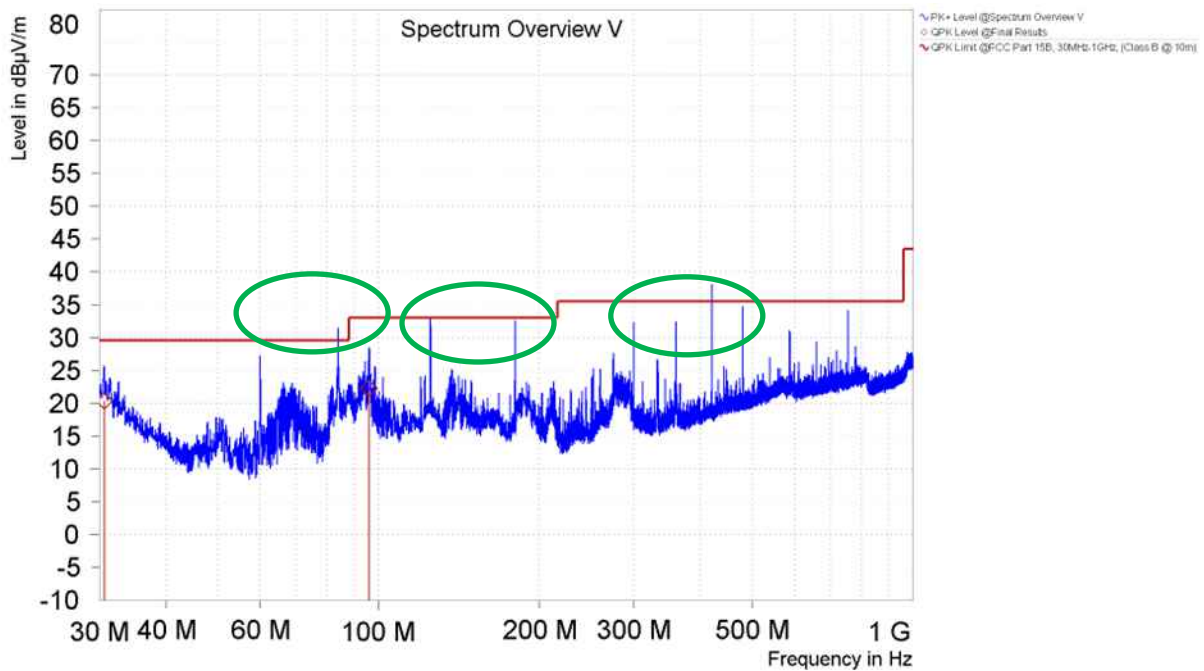


Figure 85. Out of Band Emissions Above 30MHz, Vertical Polarity, Laminator Lower²⁷

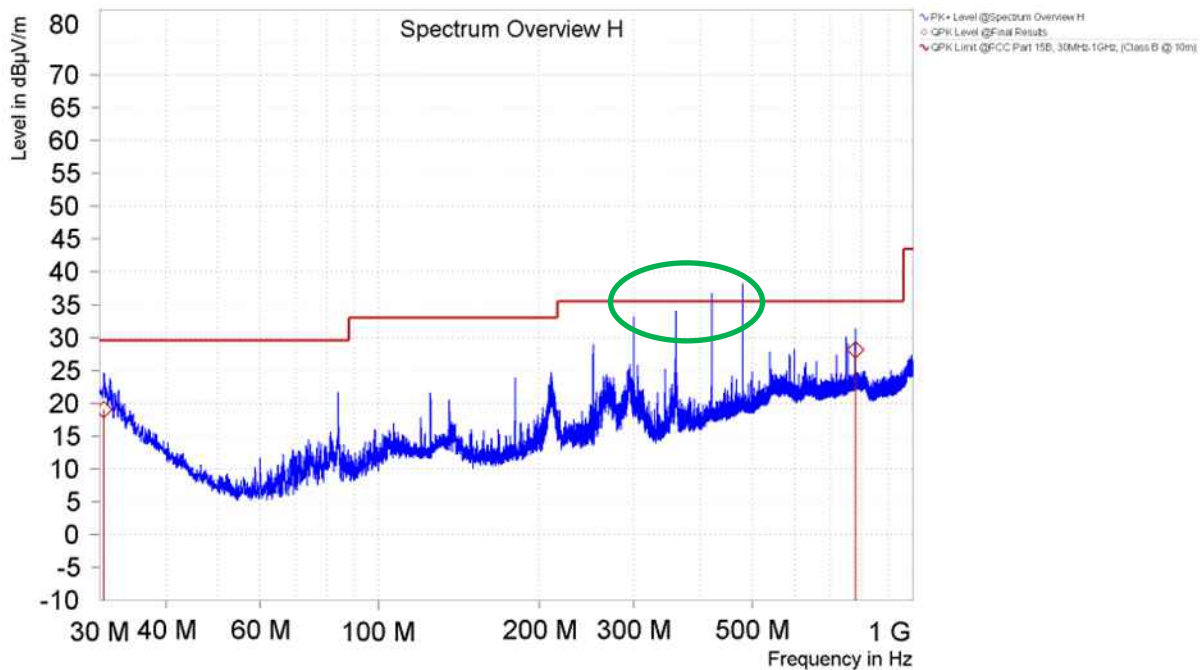


Figure 86. Out of Band Emissions Above 30MHz, Vertical Polarity, Laminator Lower³

²⁷ The emissions circled in green were determined to originate from digital functions onboard the Color Card Printer, DTC4500e which is a class A device. These emissions were assessed under a separate FCC part 15B test report.

Frequency [MHz]	Peak Level [dBμV/m] ²⁸	Limit [dBμV/m]	Margin [dB]	Correction [dB] ²⁹	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
13.137	39.36	80.50	41.14	10.62	V	335.7	1.00	9.000	Pass
13.479	35.76	90.50	54.74	10.61	H	180.8	1.00	9.000	Pass
13.560	63.91	124.00	60.09	10.61	H	225	1.00	9.000	Pass
13.560	57.05	124.00	66.95	10.61	V	277.6	1.00	9.000	Pass
13.641	34.00	90.50	56.50	10.60	H	176.1	1.00	9.000	Pass
13.983	21.25	80.50	59.25	10.59	V	255	1.00	9.000	Pass

Figure 87. Worst Case In-Band Field Strength, Laminator Lower (No Credential)

Frequency [MHz]	Peak Level [dBμV/m] ¹	Limit [dBμV/m]	Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
0.182	53.71	102.42	48.71	11.24	V	214.9	1.00	9.000	Pass
0.204	53.63	101.41	47.78	11.36	H	163.4	1.00	9.000	Pass
0.780	41.47	69.76	28.29	11.46	V	72.6	1.00	9.000	Pass
1.302	37.44	65.30	27.86	11.71	H	24.4	1.00	9.000	Pass
13.560	65.18	69.50	4.32	10.61	H	206.1	1.00	9.000	Pass
13.560	48.67	69.50	20.83	10.61	V	130	1.00	9.000	Pass

Figure 88. Worst Case Field Strength Below 30MHz, Laminator Lower (No Credential)

Frequency [MHz]	QPK Level [dBμV/m] ¹	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
30.570	19.32	29.55	10.23	-2.53	H	264	2.25	120.000	Pass
60.000	25.77	29.55	3.78	-14.11	V	66.1	2.50	120.000	Pass
211.110	16.97	33.07	16.10	-10.00	H	82	2.49	120.000	Pass
275.040	20.77	35.57	14.80	-5.40	V	100.6	1.03	120.000	Pass
780.000	28.98	35.57	6.59	3.43	H	94.6	1.06	120.000	Pass

Figure 89. Worst Case Field Strength Above 30MHz, Laminator Lower (No Credential)

²⁸ This corrected level includes the factor shown in the “correction” column. The corrected level = Raw Reading + Correction Factor. The raw reading is not shown in the table above.

²⁹ This correction factor includes cable loss in dB, preamplifier gain in dB, and an electric field antenna factor in (dB/m).

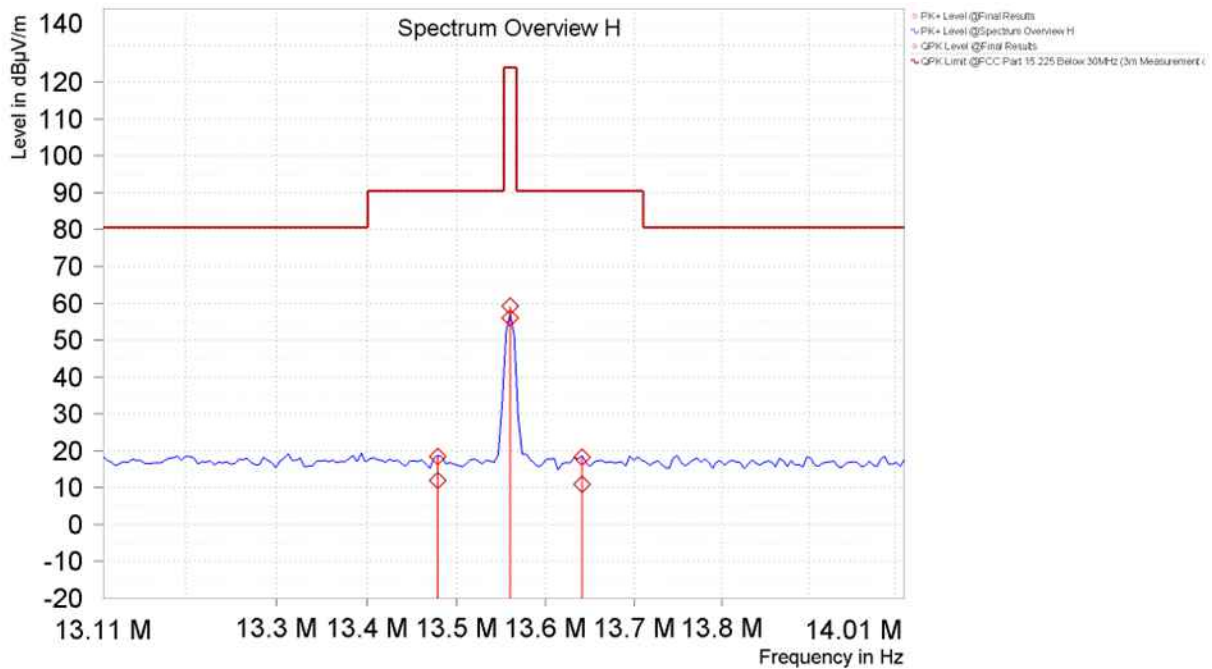


Figure 90. In-Band Emission Mask, Coplanar Loop, Laminator Lower (No Credential)

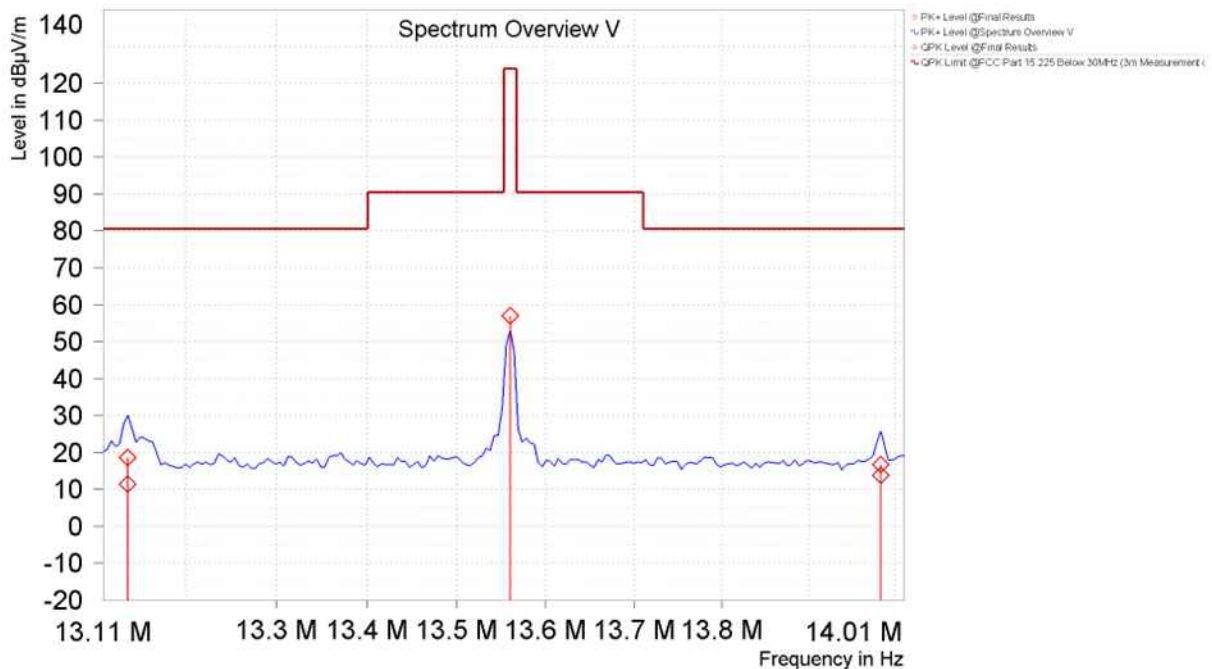


Figure 91. In-Band Emission Mask, Coaxial Loop, Laminator Lower (No Credential)

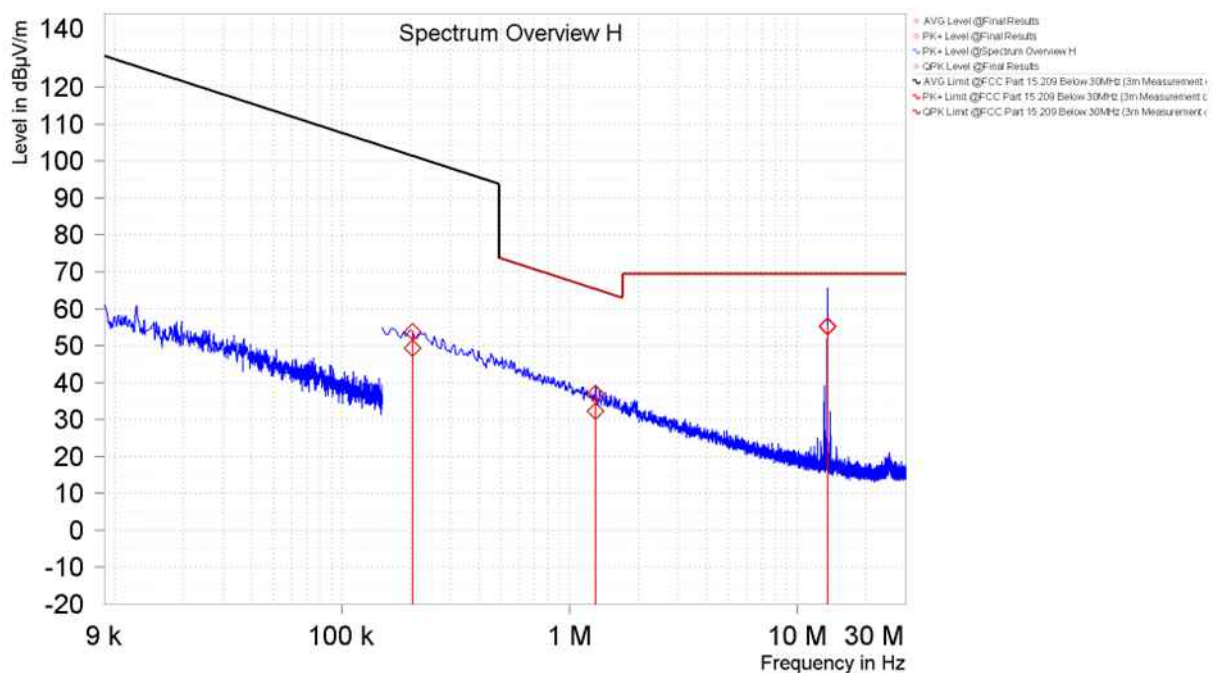


Figure 92. Out of Band Emissions Below 30MHz, Coplanar Loop, Laminator Lower (No Credential)

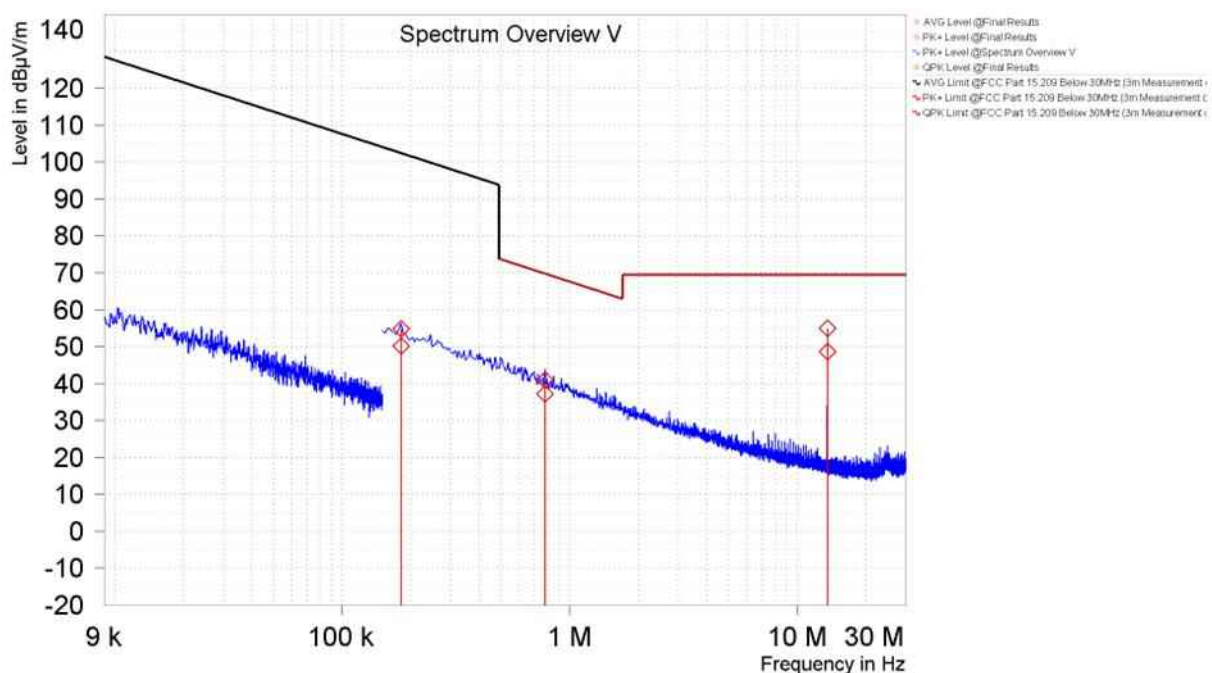


Figure 93. Out of Band Emissions Below 30MHz, Coaxial Loop, Laminator Lower (No Credential)

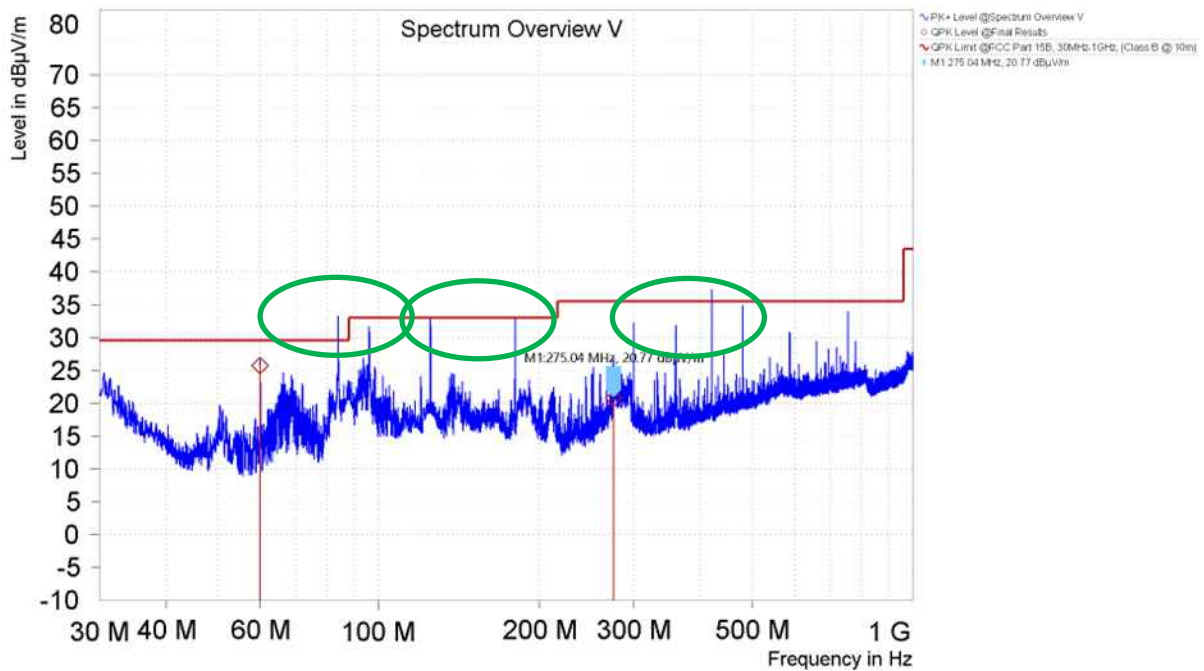


Figure 94. Out of Band Emissions Above 30MHz, Vertical Polarity, Laminator Lower (No Credential)³⁰

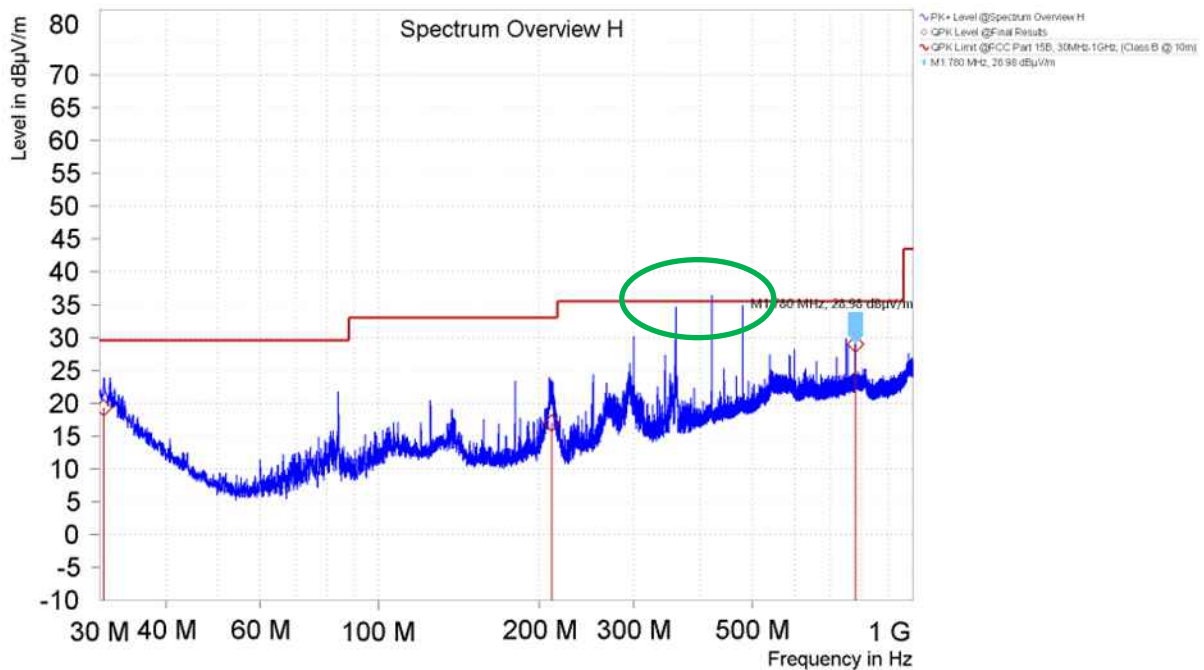


Figure 95. Out of Band Emissions Above 30MHz, Vertical Polarity, Laminator Lower (No Credential)³

³⁰ The emissions circled in green were determined to originate from digital functions onboard the Color Card Printer, DTC4500e which is a class A device. These emissions were assessed under a separate FCC part 15B test report.

Frequency [MHz]	Peak Level [dBμV/m] ³¹	Limit [dBμV/m]	Margin [dB]	Correction [dB] ³²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
13.371	24.85	80.50	55.65	10.61	V	227.8	1.00	9.000	Pass
13.466	19.25	90.50	71.25	10.61	V	252.6	1.00	9.000	Pass
13.560	65.13	124.00	58.87	10.61	H	169.9	1.00	9.000	Pass
13.560	57.37	124.00	66.63	10.61	V	268.4	1.00	9.000	Pass
13.659	20.64	90.50	69.86	10.60	H	31.2	1.00	9.000	Pass
13.889	17.11	80.50	63.39	10.59	V	231.9	1.00	9.000	Pass

Figure 96. Worst Case In-Band Field Strength, Laminator Upper

Frequency [MHz]	Peak Level [dBμV/m] ¹	Limit [dBμV/m]	Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
0.034	48.81	117.01	68.20	13.37	H	215.4	1.00	0.200	Pass
0.037	49.95	116.27	66.32	13.03	V	225.1	1.00	0.200	Pass
0.681	42.09	70.94	28.85	11.46	V	225.2	1.00	9.000	Pass
0.924	40.99	68.29	27.30	11.60	H	257.5	1.00	9.000	Pass
13.560	50.75	69.50	18.75	10.61	H	231.8	1.00	9.000	Pass
13.560	58.91	69.50	10.59	10.61	V	55.6	1.00	9.000	Pass

Figure 97. Worst Case Field Strength Below 30MHz, Laminator Upper

Frequency [MHz]	QPK Level [dBμV/m] ¹	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
67.830	0.94	29.55	28.61	-13.99	H	15.5	2.86	120.000	Pass
67.830	15.13	29.55	14.42	-14.14	V	150.1	2.69	120.000	Pass
81.360	19.94	29.55	9.61	-12.88	H	360.1	3.81	120.000	Pass
81.360	23.50	29.55	6.05	-12.45	V	143.8	1.81	120.000	Pass
108.450	12.57	33.07	20.50	-8.02	H	360.1	4.00	120.000	Pass
135.600	16.82	33.07	16.25	-8.16	H	-0.1	3.65	120.000	Pass
135.600	17.43	33.07	15.64	-7.84	V	69	1.20	120.000	Pass

Figure 98. Worst Case Field Strength Above 30MHz, Laminator Upper

³¹ This corrected level includes the factor shown in the “correction” column. The corrected level = Raw Reading + Correction Factor. The raw reading is not shown in the table above.

³² This correction factor includes cable loss in dB, preamplifier gain in dB, and an electric field antenna factor in (dB/m).

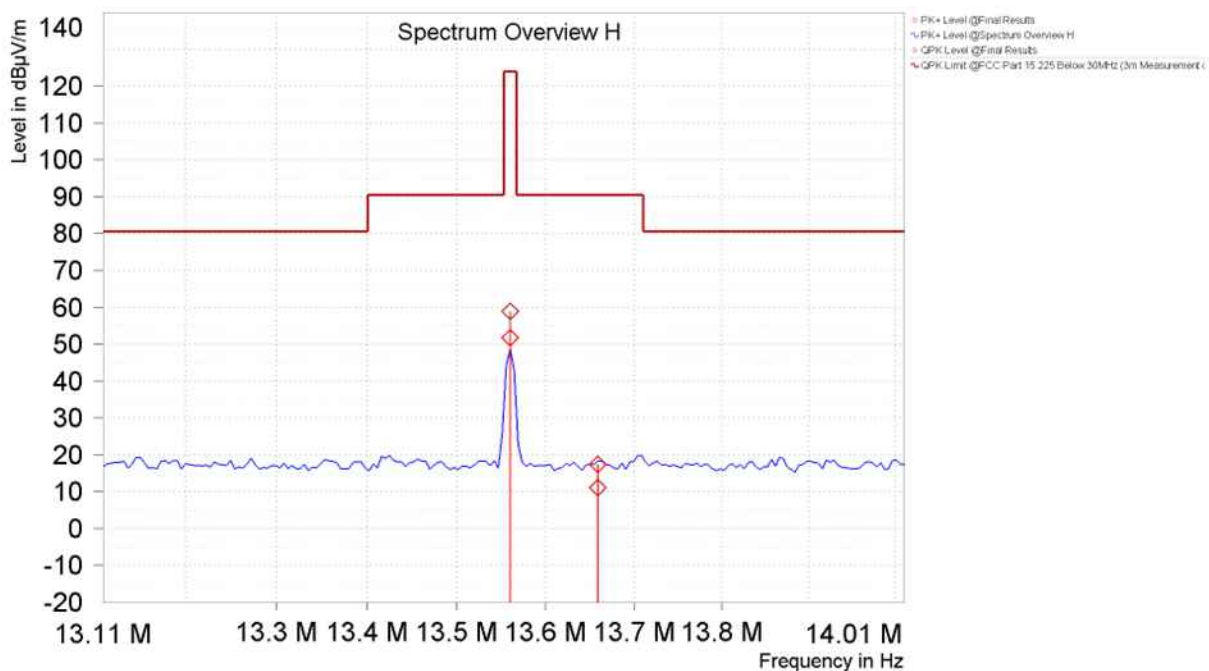


Figure 99. In-Band Emission Mask, Coplanar Loop, Laminator Upper

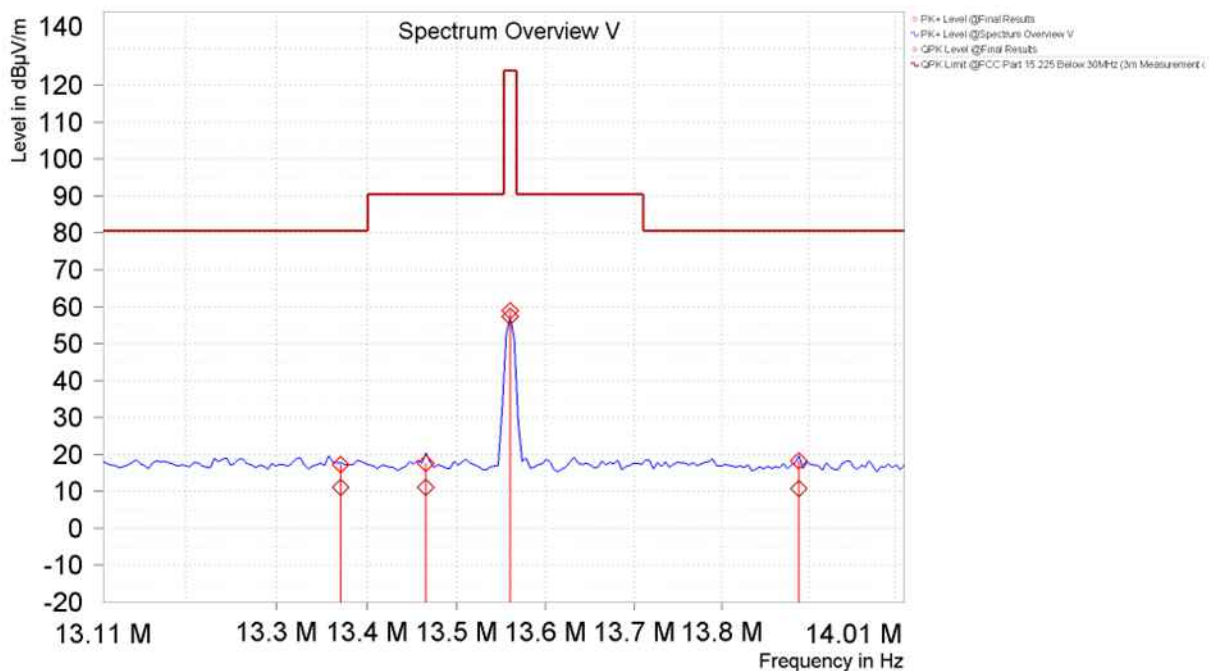


Figure 100. In-Band Emission Mask, Coaxial Loop, Laminator Upper

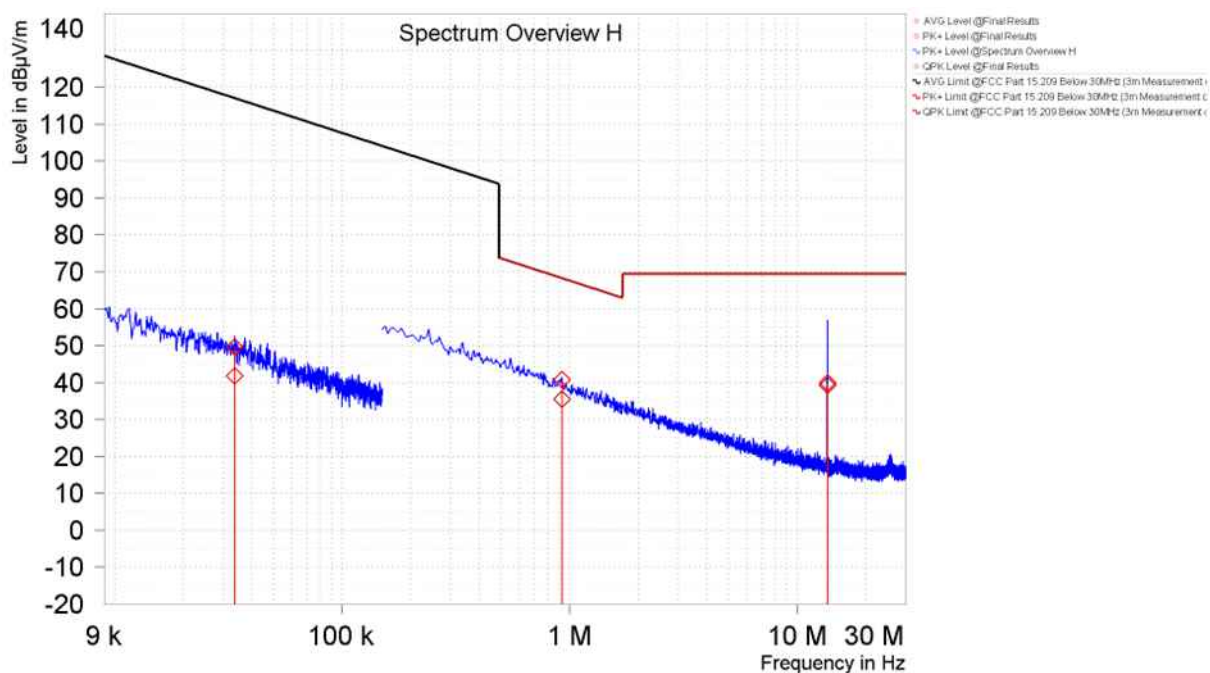


Figure 101. Out of Band Emissions Below 30MHz, Coplanar Loop, Laminator Upper

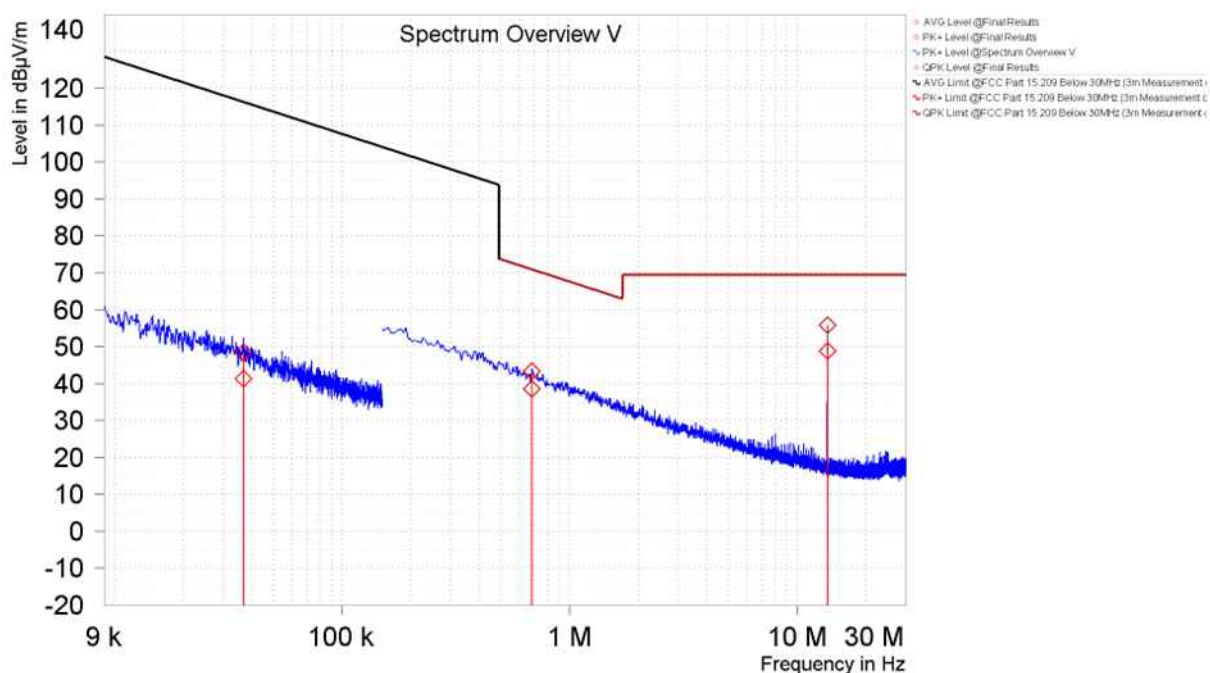


Figure 102. Out of Band Emissions Below 30MHz, Coaxial Loop, Laminator Upper

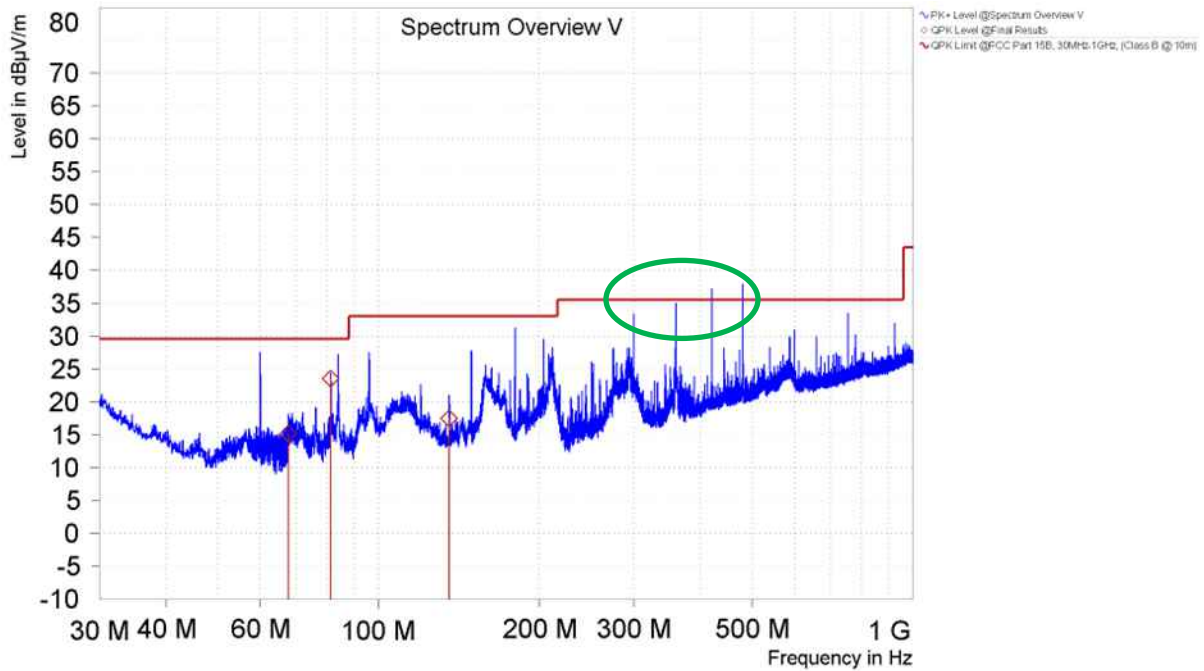


Figure 103. Out of Band Emissions Above 30MHz, Vertical Polarity, Laminator Upper ³³

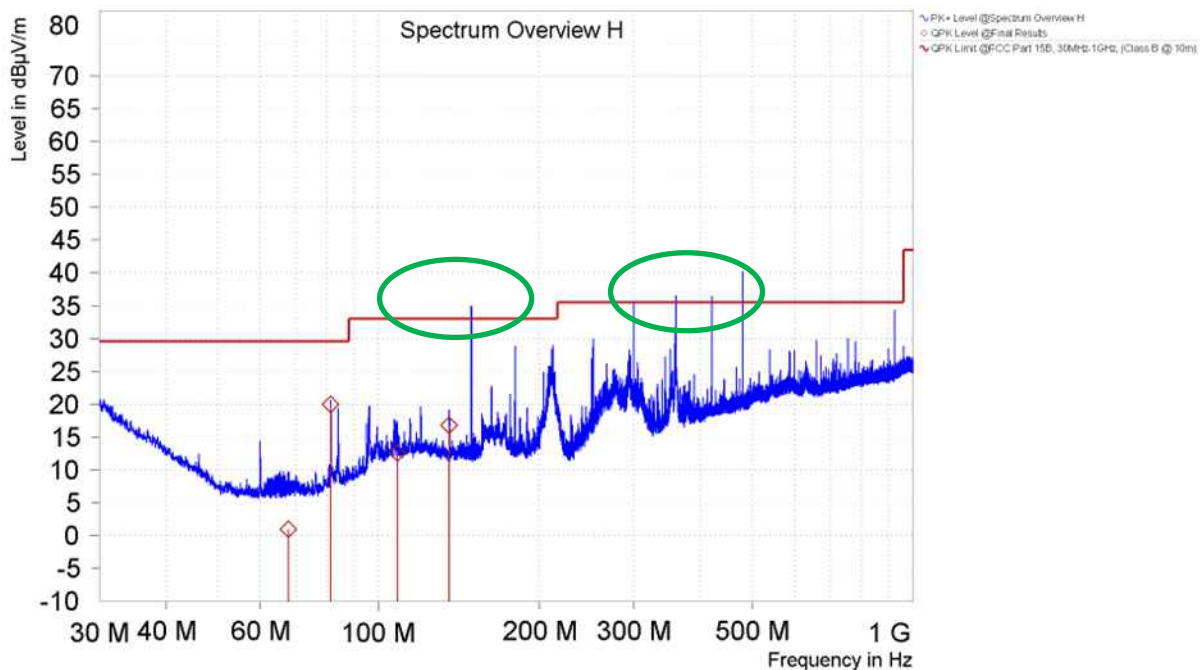


Figure 104. Out of Band Emissions Above 30MHz, Vertical Polarity, Laminator Upper ³

³³ The emissions circled in green were determined to originate from digital functions onboard the Color Card Printer, DTC4500e which is a class A device. These emissions were assessed under a separate FCC part 15B test report.

Frequency [MHz]	Peak Level [dBμV/m] ³⁴	Limit [dBμV/m]	Margin [dB]	Correction [dB] ³⁵	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
13.137	37.94	80.50	42.56	10.62	H	328.8	1.00	9.000	Pass
13.533	15.50	90.50	75.00	10.61	H	305.1	1.00	9.000	Pass
13.560	60.50	124.00	63.50	10.61	H	294.1	1.00	9.000	Pass
13.560	63.91	124.00	60.09	10.61	V	156.2	1.00	9.000	Pass
13.587	38.96	90.50	51.54	10.61	H	304.3	1.00	9.000	Pass
13.983	25.87	80.50	54.63	10.59	H	303.5	1.00	9.000	Pass

Figure 105. Worst Case In-Band Field Strength, Laminator Upper (No Credential)

Frequency [MHz]	Peak Level [dBμV/m] ¹	Limit [dBμV/m]	Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
0.533	46.36	73.08	26.72	11.37	H	195.2	1.00	9.000	Pass
0.614	43.43	71.85	28.42	11.40	V	277.9	1.00	9.000	Pass
7.751	26.52	69.50	42.98	10.86	V	93.7	1.00	9.000	Pass
8.282	24.93	69.50	44.57	10.84	H	112.7	1.00	9.000	Pass
13.560	61.55	69.50	7.95	10.61	H	113.5	1.00	9.000	Pass
13.560	60.46	69.50	9.04	10.61	V	56.1	1.00	9.000	Pass

Figure 106. Worst Case Field Strength Below 30MHz, Laminator Upper (No Credential)

³⁴ This corrected level includes the factor shown in the “correction” column. The corrected level = Raw Reading + Correction Factor. The raw reading is not shown in the table above.

³⁵ This correction factor includes cable loss in dB, preamplifier gain in dB, and an electric field antenna factor in (dB/m).

Frequency [MHz]	QPK Level [dBμV/m] ¹	QPK Limit [dBμV/m]	QPK Margin [dB]	Correction [dB] ²	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	Result
54.240	7.33	29.55	22.22	-13.89	H	319.3	3.65	120.000	Pass
54.240	20.26	29.55	9.29	-13.49	V	89.4	2.78	120.000	Pass
81.330	8.23	29.55	21.32	-12.89	H	323.9	4.00	120.000	Pass
81.360	20.35	29.55	9.20	-12.45	V	150.2	1.50	120.000	Pass
95.940	12.37	33.07	20.70	-10.09	H	158.3	3.99	120.000	Pass
108.480	20.73	33.07	12.34	-8.02	H	344	3.83	120.000	Pass
108.480	18.29	33.07	14.78	-7.92	V	353.9	2.57	120.000	Pass
122.010	14.80	33.07	18.27	-7.56	H	343.4	3.91	120.000	Pass
122.010	21.41	33.07	11.66	-7.66	V	278.2	1.73	120.000	Pass
135.600	18.51	33.07	14.56	-8.16	H	116.7	3.61	120.000	Pass
135.600	28.19	33.07	4.88	-7.84	V	270.2	1.02	120.000	Pass

Figure 107. Worst Case Field Strength Above 30MHz, Laminator Upper (No Credential)

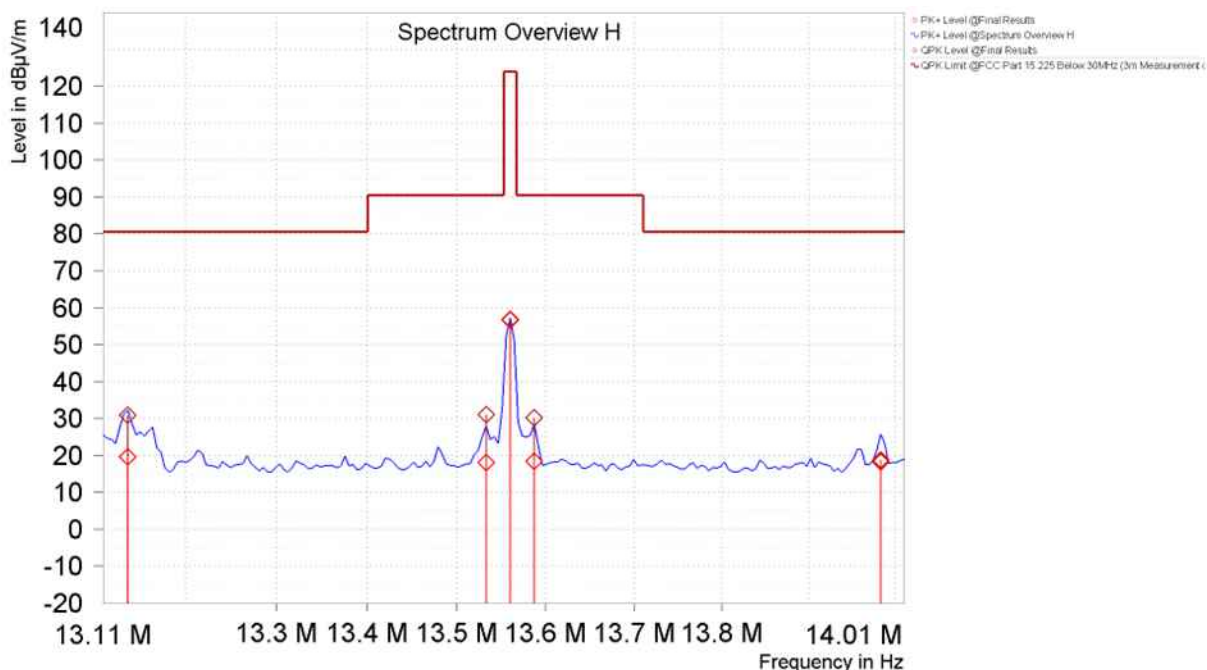


Figure 108. In-Band Emission Mask, Coplanar Loop, Laminator Upper (No Credential)

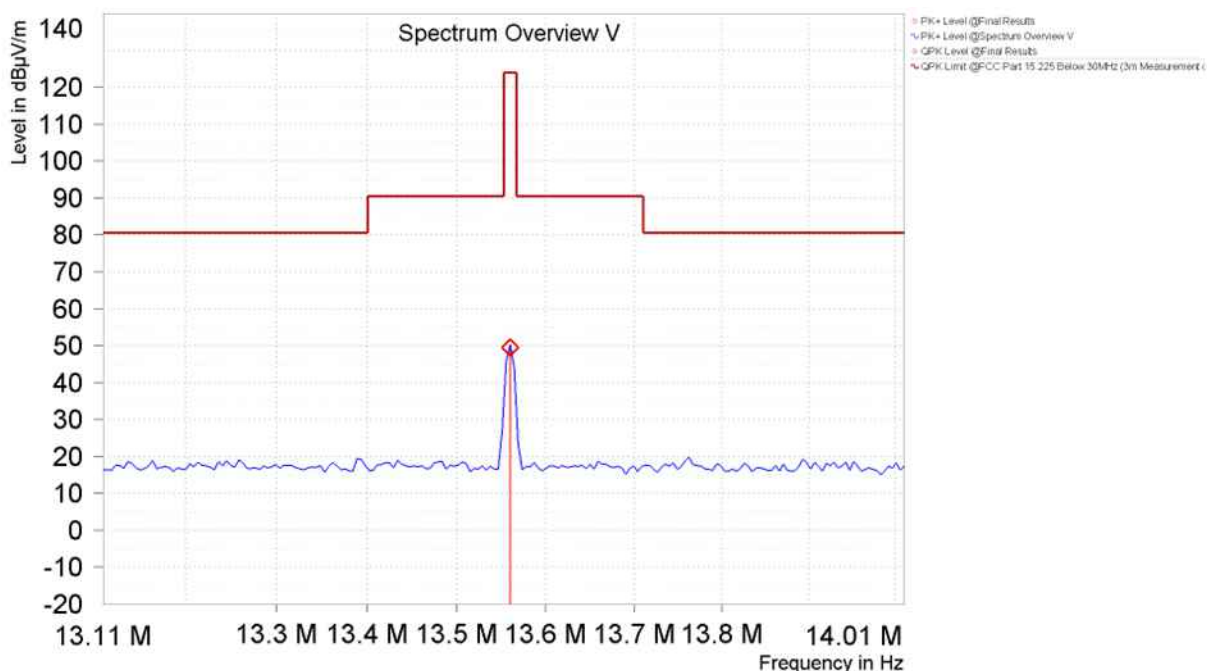


Figure 109. In-Band Emission Mask, Coaxial Loop, Laminator Upper (No Credential)

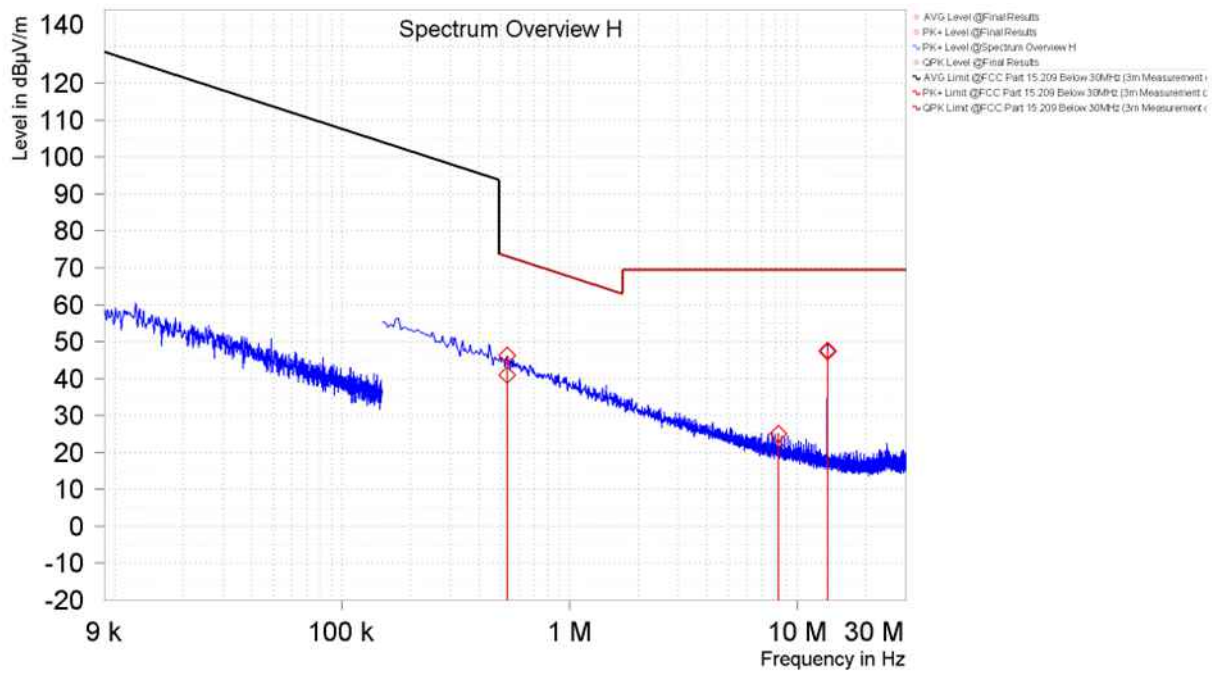


Figure 110. Out of Band Emissions Below 30MHz, Coplanar Loop, Laminator Upper (No Credential)

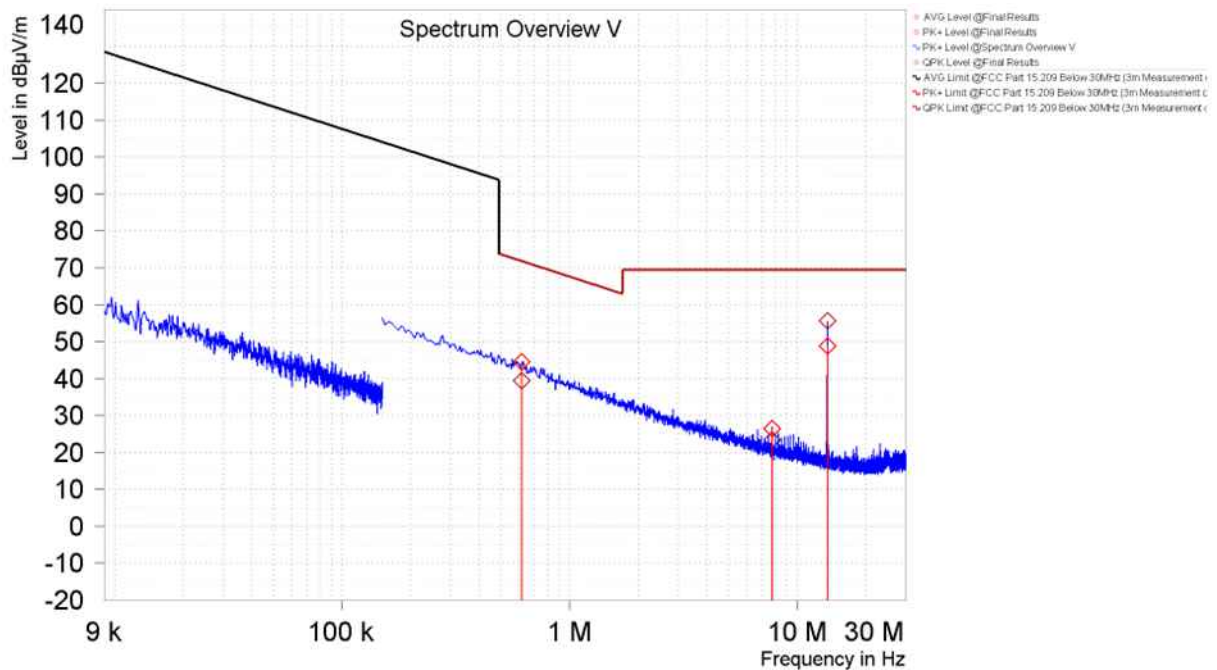


Figure 111. Out of Band Emissions Below 30MHz, Coaxial Loop, Laminator Upper (No Credential)

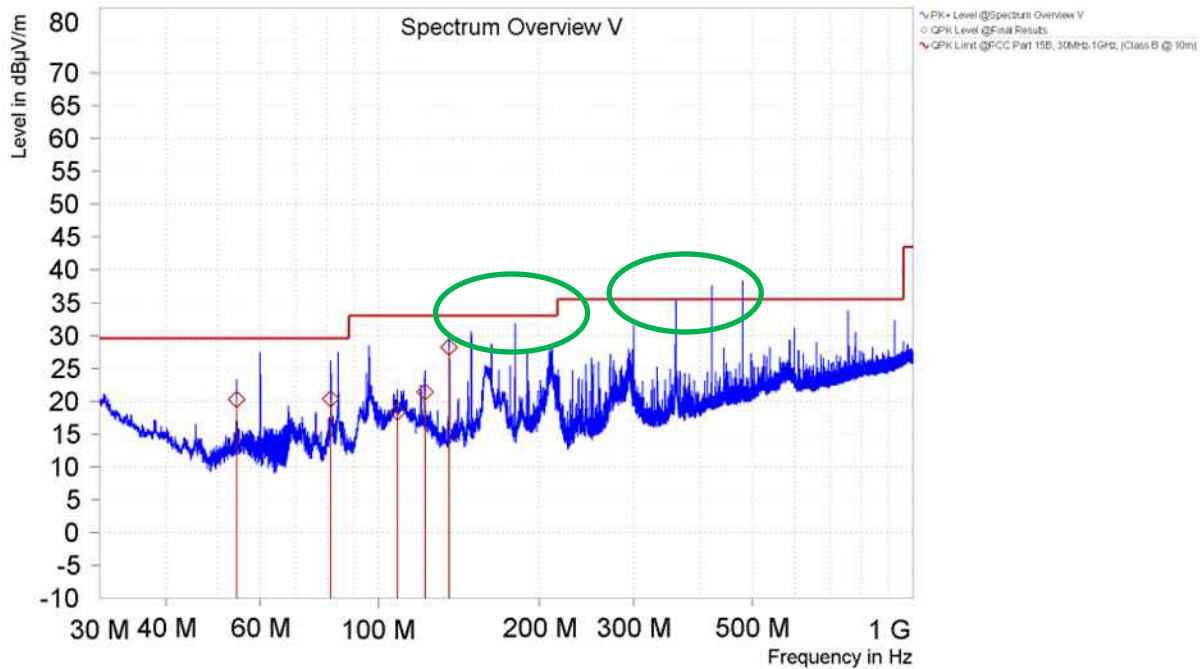


Figure 112. Out of Band Emissions Above 30MHz, Vertical Polarity, Laminator Upper (No Credential) ³⁶

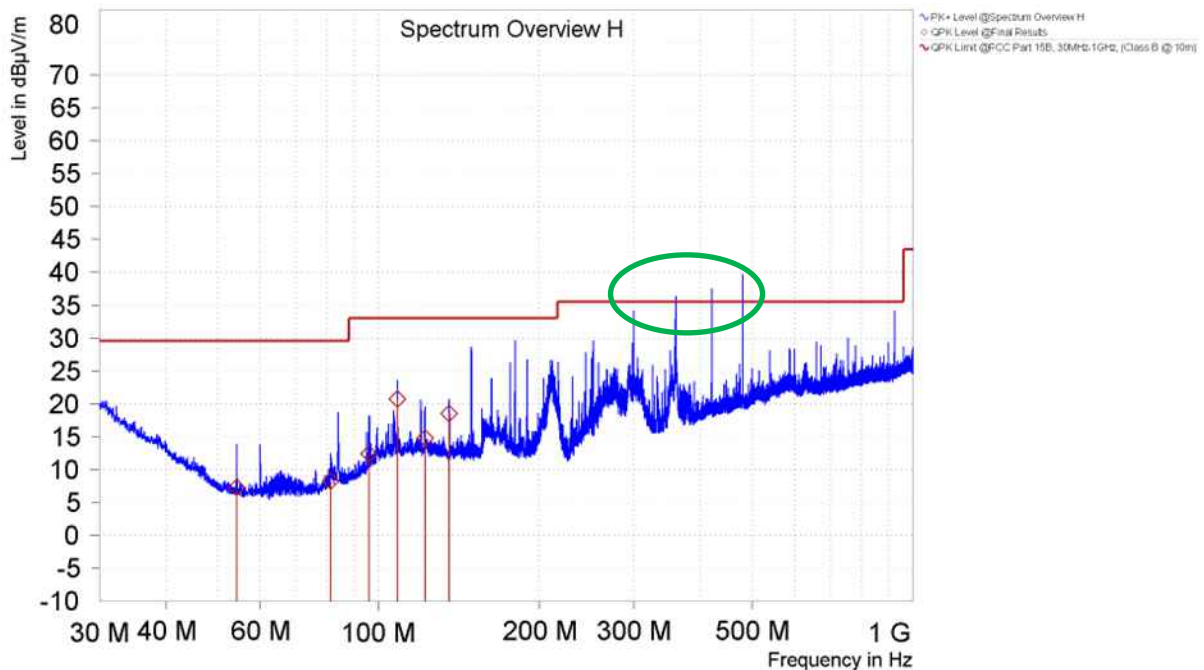


Figure 113. Out of Band Emissions Above 30MHz, Vertical Polarity, Laminator Upper (No Credential) ³

³⁶ The emissions circled in green were determined to originate from digital functions onboard the Color Card Printer, DTC4500e which is a class A device. These emissions were assessed under a separate FCC part 15B test report.

Electromagnetic Compatibility Criteria for Intentional Radiators

Frequency Stability

Test Requirement(s): **15.225(e)** The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

RSS-210 (B.6.b) The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ (± 100 ppm) of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

Test Procedure: Measurements are in accordance with section 6.8 of ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024. The EUT was placed in the Environmental Chamber and allowed to reach desired temperature. A spectrum analyzer was connected to a magnetic field loop antenna and used to measure the frequency drift via a radiated path measurement. The EUT was set to transmit in the operating frequency range. Frequency drift was investigated for the extreme temperatures and nominal temperature, until the unit is stabilized then recorded the reading in tabular format with the temperature range of -20° to 50°C.

Test Results: The Color Card Printer, DTC4500e was compliant with Part 15.225 (e) and RSS-210 (B.6.b) requirement(s) of this section.

Test Engineer(s): Bryan Taylor

Test Date(s): 10/23/2025 – 10/27/2025

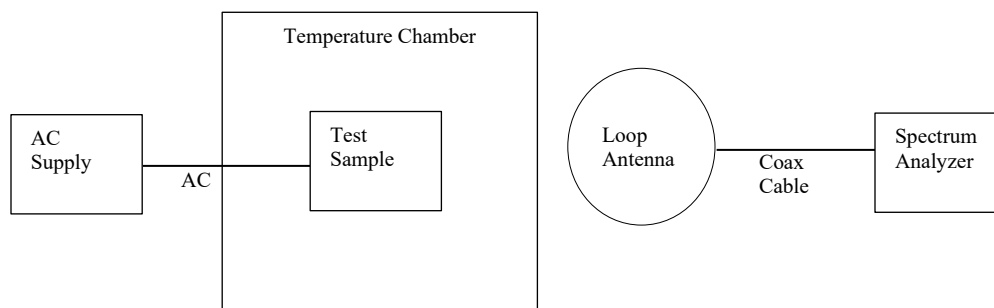


Figure 114. Temperature Stability Test Setup

Operating Frequency:		13,560,000	Hz			
Reference Voltage:		120	VAC			
Deviation Limit:		0.01	%			
Voltage %	Voltage (VAC)	Temp (°C)	Measured Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	Limit (%)
100%	120	-30	13,560,789	789	0.0058	0.01
100%	120	-20	13,560,808	808	0.0060	0.01
100%	120	-10	13,560,812	812	0.0060	0.01
100%	120	0	13,560,776	776	0.0057	0.01
100%	120	10	13,560,797	797	0.0059	0.01
100%	120	20	13,560,816	816	0.0060	0.01
100%	120	30	13,560,822	822	0.0061	0.01
100%	120	40	13,560,858	858	0.0063	0.01
100%	120	50	13,560,823	823	0.0061	0.01
115%	138	20	13,560,876	876	0.0065	0.01
85%	102	20	13,560,911	911	0.0067	0.01

Figure 115. Frequency Stability Test Results (Ribbon)

Operating Frequency:		13,560,000	Hz			
Reference Voltage:		120	VAC			
Deviation Limit:		0.01	%			
Voltage %	Voltage (VAC)	Temp (°C)	Measured Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	Limit (%)
100%	120	-30	13,560,017	17	0.0001	0.01
100%	120	-20	13,560,032	32	0.0002	0.01
100%	120	-10	13,560,028	28	0.0002	0.01
100%	120	0	13,560,033	33	0.0002	0.01
100%	120	10	13,560,029	29	0.0002	0.01
100%	120	20	13,560,037	37	0.0003	0.01
100%	120	30	13,560,029	29	0.0002	0.01
100%	120	40	13,560,041	41	0.0003	0.01
100%	120	50	13,560,039	39	0.0003	0.01
115%	138	20	13,560,044	44	0.0003	0.01
85%	102	20	13,560,041	41	0.0003	0.01

Figure 116. Frequency Stability Test Results (5122)

Operating Frequency:		13,560,000	Hz			
Reference Voltage:		120	VAC			
Deviation Limit:		0.01	%			
Voltage %	Voltage (VAC)	Temp (°C)	Measured Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	Limit (%)
100%	120	-30	13,560,313	313	0.0023	0.01
100%	120	-20	13,560,311	311	0.0023	0.01
100%	120	-10	13,560,321	321	0.0024	0.01
100%	120	0	13,560,323	323	0.0024	0.01
100%	120	10	13,560,316	316	0.0023	0.01
100%	120	20	13,560,311	311	0.0023	0.01
100%	120	30	13,560,322	322	0.0024	0.01
100%	120	40	13,560,321	321	0.0024	0.01
100%	120	50	13,560,323	323	0.0024	0.01
115%	138	20	13,560,321	321	0.0024	0.01
85%	102	20	13,560,322	322	0.0024	0.01

Figure 117. Frequency Stability Test Results (5127SI)

Operating Frequency:		13,560,000	Hz			
Reference Voltage:		120	VAC			
Deviation Limit:		0.01	%			
Voltage %	Voltage (VAC)	Temp (°C)	Measured Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	Limit (%)
100%	120	-30	13,559,796	-204	-0.0015	0.01
100%	120	-20	13,559,798	-202	-0.0015	0.01
100%	120	-10	13,559,792	-208	-0.0015	0.01
100%	120	0	13,559,799	-201	-0.0015	0.01
100%	120	10	13,559,803	-197	-0.0015	0.01
100%	120	20	13,559,809	-191	-0.0014	0.01
100%	120	30	13,559,812	-188	-0.0014	0.01
100%	120	40	13,559,810	-190	-0.0014	0.01
100%	120	50	13,559,811	-189	-0.0014	0.01
115%	138	20	13,559,809	-191	-0.0014	0.01
85%	102	20	13,559,806	-194	-0.0014	0.01

Figure 118. Frequency Stability Test Results (5127 CK MINI)

Operating Frequency: 13,560,000 Hz
Reference Voltage: 120 VAC
Deviation Limit: 0.01 %

Voltage %	Voltage (VAC)	Temp (°C)	Measured Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	Limit (%)
100%	120	-30	13,559,568	-432	-0.0032	0.01
100%	120	-20	13,559,566	-434	-0.0032	0.01
100%	120	-10	13,559,571	-429	-0.0032	0.01
100%	120	0	13,559,572	-428	-0.0032	0.01
100%	120	10	13,559,577	-423	-0.0031	0.01
100%	120	20	13,559,581	-419	-0.0031	0.01
100%	120	30	13,559,582	-418	-0.0031	0.01
100%	120	40	13,559,579	-421	-0.0031	0.01
100%	120	50	13,559,583	-417	-0.0031	0.01
115%	138	20	13,559,581	-419	-0.0031	0.01
85%	102	20	13,559,579	-421	-0.0031	0.01

Figure 119. Frequency Stability Test Results (Laminator Upper)

Operating Frequency: 13,560,000 Hz
Reference Voltage: 120 VAC
Deviation Limit: 0.01 %

Voltage %	Voltage (VAC)	Temp (°C)	Measured Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	Limit (%)
100%	120	-30	13,559,569	-431	-0.0032	0.01
100%	120	-20	13,559,572	-428	-0.0032	0.01
100%	120	-10	13,559,568	-432	-0.0032	0.01
100%	120	0	13,559,576	-424	-0.0031	0.01
100%	120	10	13,559,571	-429	-0.0032	0.01
100%	120	20	13,559,577	-423	-0.0031	0.01
100%	120	30	13,559,578	-422	-0.0031	0.01
100%	120	40	13,559,575	-425	-0.0031	0.01
100%	120	50	13,559,576	-424	-0.0031	0.01
115%	138	20	13,559,576	-424	-0.0031	0.01
85%	102	20	13,559,577	-423	-0.0031	0.01

Figure 120. Frequency Stability Test Results (Laminator Lower)

Test Equipment

Calibrated test equipment utilized during testing was maintained in a current state of calibration per the requirements of ISO/IEC 17025:2017.

MET Asset #	Description	Manufacturer	Model	Last Cal Date	Cal Due Date
1A1234	FSV Signal Analyzer	Rohde & Schwarz	FSV 40	03/13/2025	03/13/2026
1A1250	EMI Test Receiver	Rohde & Schwarz	ESW44	03/28/2025	03/28/2026
1A1176	Active Loop Antenna (9KHz-30MHz)	ETS-Lindgren	6502	08/22/2024	08/22/2026
1A1050	Bi-Log Antenna	Schaffner	CBL-6112D	03/05/2024	03/05/2026
1A1065	EMI Test Receiver	Rohde & Schwarz	ESCI	08/28/2025	08/28/2026
1A1177	Pulse Limiter	Rohde & Schwarz	ESH3Z2	12/11/2024	12/11/2025
3A3215	DC Milli-Ohm Meter	Valhalla	4150ATC	05/28/2025	05/28/2026
3A3377	Thermohygrometer with barometer	Omega	Q68706	03/31/2025	03/31/2026
1A1257	True-RMS Multimeter	Fluke	179	02/07/2025	02/07/2026
1A1123	LISN	TESEQ	NNB 51	12/11/2024	12/11/2025
1A1225	Environmental Chamber	Espec	EXP-2H/New	05/16/2025	05/16/2026
1A1044	Generator	Com-Power	CG-520	See Note	
1A1073	Multi Device Controller	ETS	2090	See Note	
1A1074	System Controller	Panasonic	WV-CU101	See Note	
1A1080	Multi-Device	ETS	2090	See Note	

Table 27. Test Equipment List

Note: Functionally tested equipment is verified using calibrated instrumentation at the time of testing.

End of Report