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CERTIFICATION TEST REPORT

Manufacturer: Datacolor, Inc.
5 Princess Road
Lawrenceville, New Jersey 08648-2301 USA

Applicant: Same as Above

Product Name: LCM200

Product Description: Household/commercial product, battery powered with (2) AAA batteries, handheld.

Operating Voltage/Freq. of EUT During Testing: Battery-Operated (3 VDC)

Model(s): LCM200

FCC ID: 2BGE7-LCM200

Testing Commenced: 2024-05-15

Testing Ended: 2024-05-15

Summary of Test Results: **In Compliance**

The EUT complies with the EMC requirements when manufactured identically as the unit tested in this report, including any required modifications and/or manufacturer's statement. Any changes to the design or build of this unit subsequent to this testing may deem it non-compliant.

Standards:

- ❖ **FCC Part 15 Subpart C, Section 15.249**
- ❖ **FCC Part 15 Subpart C, Section 15.215(c) – Additional provisions to the general radiated emission limitations**
- ❖ **FCC Part 15 Subpart A, Section 15.31(e) – Measurement Standards**



Order No(s): F2P31546

Applicant: Datacolor, Inc.
Model: LCM200

Evaluation Conducted by:

Erik Tobin, EMC Engineer

Julius Chiller, Senior Wireless Project Engineer

Report Reviewed by:

Ken Littell, Vice President of Operations

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1 ADMINISTRATIVE INFORMATION

1.1 Measurement Location:

F2 Labs in Middlefield, Ohio. Site description and attenuation data are on file with the FCC's Sampling and Measurement Branch at the FCC Laboratory in Columbia, MD.

1.2 Measurement Procedure:

All measurements were performed according to the 2013 version of ANSI C63.10 and recommended FCC procedure of measurement under Section 15.249. A list of the measurement equipment can be found in Section 6.



1.3 Uncertainty Budget:

The uncertainty in EMC measurements arises from several factors which affect the results, some associated with environmental conditions in the measurement room, the test equipment being used, and the measurement techniques adopted.

The measurement uncertainty budgets detailed below are calculated from the test and calibration data and are expressed with a 95% confidence factor using a coverage factor of $k=2$. The Uncertainty for a laboratory is referred to as U_{lab} . For Radiated and Conducted Emissions, the Expanded Uncertainty is compared to the U_{cispr} values to determine if a specific margin is required to deem compliance.

U_{lab}

Measurement Range	Combined Uncertainty	Expanded Uncertainty
Radiated Emissions <1 GHz @ 3m	2.54dB	5.07dB
Radiated Emissions <1 GHz @ 10m	2.55dB	5.09dB
Radiated Emissions 1 GHz to 2.7 GHz	1.81dB	3.62dB
Radiated Emissions 2.7 GHz to 18 GHz	1.55dB	3.10dB
AC Power Line Conducted Emissions, 150kHz to 30 MHz	1.38dB	2.76dB
AC Power Line Conducted Emissions, 9kHz to 150kHz	1.66dB	3.32dB

U_{cispr}

Measurement Range	Expanded Uncertainty
Radiated Emissions <1 GHz @ 3m	5.2dB
Radiated Emissions <1 GHz @ 10m	5.2dB
Radiated Emissions 1 GHz to 2.7 GHz	Under Consideration
Radiated Emissions 2.7 GHz to 18 GHz	Under Consideration
AC Power Line Conducted Emissions, 150kHz to 30 MHz	3.6dB
AC Power Line Conducted Emissions, 9kHz to 150kHz	4.0dB

If U_{lab} is less than or equal to U_{cispr} , then:

- compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.

If U_{lab} is greater than U_{cispr} in table 1, then:

- compliance is deemed to occur if no measured disturbance, increased by $(U_{lab} - U_{cispr})$, exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance, increased by $(U_{lab} - U_{cispr})$, exceeds the disturbance limit.

Note: Only measurements listed in the tables above that relate to tests included in this Test Report are applicable.



1.4 Document History:

Document Number	Description	Issue Date	Approved By
F2P31546-07E	First Issue	2024-06-21	K. Littell

**2 SUMMARY OF TEST RESULTS**

Test Name	Standard(s)	Results
99% Occupied Bandwidth	CFR 47 Part 15.215(c)	Complies
-20dB Occupied Bandwidth	CFR 47 Part 15.215(c)	Complies
Field Strength of Emissions	CFR 47 Part 15.249(a)(d)	Complies*
Variation of the Input Power	CFR 47 Part 15.31(e)	Complies**
Conducted Emissions	CFR 47 Part 15.207(a)	N/A

***Product is battery-operated. Compliance achieved by using new batteries.*

Modifications Made to the Equipment
*Required transmit power to be turned down to -4dBm to meet Radiated Spurious Emissions requirements.



3 TABLE OF MEASURED RESULTS

Test	Low Channel 2402 MHz	Mid Channel 2440 MHz	High Channel 2480 MHz
Average Field Strength of Fundamental	92.4 dB μ V/m, 41.6 mV/m	92.1 dB μ V/m, 40.2 mV/m	91.3 dB μ V/m, 36.7 mV/m
Average Limit for Fundamental	50 millivolts/meter (93.97 dB μ V/m)	50 millivolts/meter (93.97 dB μ V/m)	50 millivolts/meter (93.97 dB μ V/m)
Peak Field Strength of Fundamental	101.1 dB μ V/m 113.5 mV/m	93.0 dB μ V/m 44.6 mV/m	98.6 dB μ V/m 85.1 mV/m
Peak Limit for Fundamental	113.97 dB μ V/m	113.97 dB μ V/m	113.97 dB μ V/m
-20dB Occupied Bandwidth	1.129 MHz	1.177 MHz	1.002 MHz
99% Occupied Bandwidth (MHz)	1.104 MHz	1.077 MHz	1.019 MHz

The -20dB bandwidth of the emission shall be contained within the frequency band designated in the rule section under which the equipment is operated.



4 ENGINEERING STATEMENT

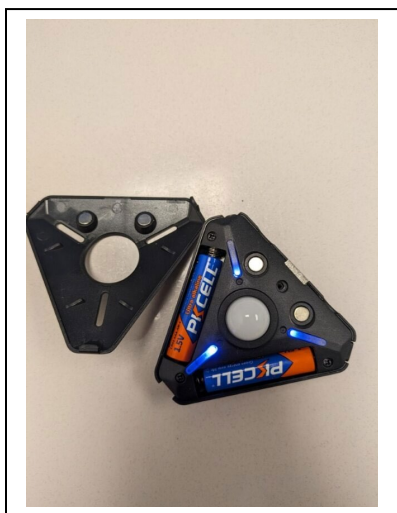
This report has been prepared on behalf of Datacolor, Inc. to provide documentation for the testing described herein. This equipment has been tested and found to comply with part 15.249 of the FCC Rules using ANSI C63.10 2013 standard. The test results found in this test report relate only to the items tested.



5 EUT INFORMATION AND DATA

5.1 Equipment Under Test:

Product: Light/color Meter
Model: LCM200
Serial No.: 202152
Firmware: 036-600001 V1.0
Hardware: 036-200001, Rev. A
Software: Illuminati Light Meter V.1.0.65
FCC ID: 2BGE7-LCM200



5.2 Trade Name:

Datacolor, Inc.

5.3 Power Supply:

(3) AAA Batteries

5.4 Applicable Rules:

CFR 47, Part 15.249, subpart C

5.5 Antenna:

Integral, trace in PCB

5.6 Accessories:

N/A

5.7 Test Item Condition:

The equipment to be tested was received in good condition.

5.8 Testing Algorithm:

EUT was set up in a normal operating mode, on transmitting, 90% duty cycle. Device was transmitting in three different channels (low, mid and high).

**6 LIST OF MEASUREMENT INSTRUMENTATION**

Equipment Type	Asset Number	Manufacturer	Model	Serial Number	Calibration Due Date
Shielded Chamber 2018	CL251-E-3m	Albatross Projects	US170028	B83117-FG639-T261	2024-11-08
Spectrum Analyzer	CL138	Agilent Technologies	E4407B	US41192779	2025-04-11
Low Loss Cable Set	CL315 / CL318	Fairview Microwave	FMC0202914-72/FMC0202914-240	None Spec.	2025-04-09 / 2025-04-10
Horn Antenna	CL098	Emco	3115	9809-5580	2025-01-02
Horn Antenna 18-26.5 GHz	CL114	A.H. Systems, Inc.	SAS-572	237	2026-01-09
Pre-Amplifier	CL153	Keysight Tech.	83006A	MY39500791	2024-11-14
Pre-Amplifier	CL284	A.H. Systems, Inc.	PAM-1001	131	2025-04-10
Antenna, JB3 Combination	CL175	Sunol Sciences	JB3	A030315	2024-09-25
Amplifier w/Monopole & 18" Loop	CL163-Loop	A.H. Systems, Inc.	EHA-52B	100	2024-12-14
Software:	EMC 32, Version 8.53.0 Software Verified: 2024-05-15				
Temp/Hum. Recorder	CL296	Thermpro	TP50	4	2026-04-27



7 FCC PART 15.215(e), OCCUPIED BANDWIDTH

7.1 Requirements:

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 -20dB 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. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage.

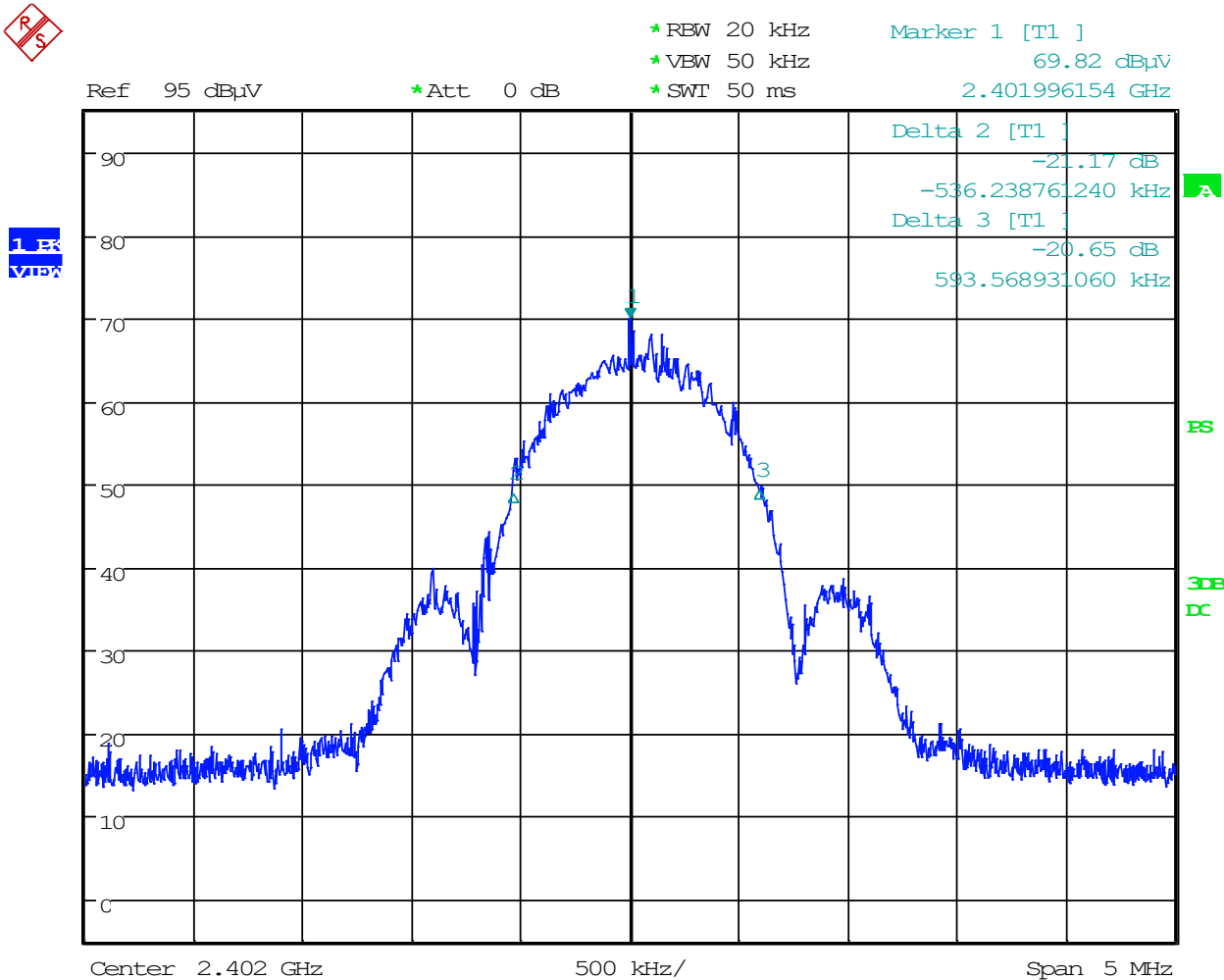
Bandwidth measurements were made at the low (2.402 GHz), mid (2.440 GHz) and upper (2.480 GHz) frequencies. The bandwidth was measured using the analyzer's marker function.



7.2 Occupied Bandwidth Test Data

Test Date(s):	2024-05-15	Test Engineer(s):	E. Tobin
Standards:	CFR 47 Part 15.215(c)	Air Temperature:	20.3°C
		Relative Humidity:	40%

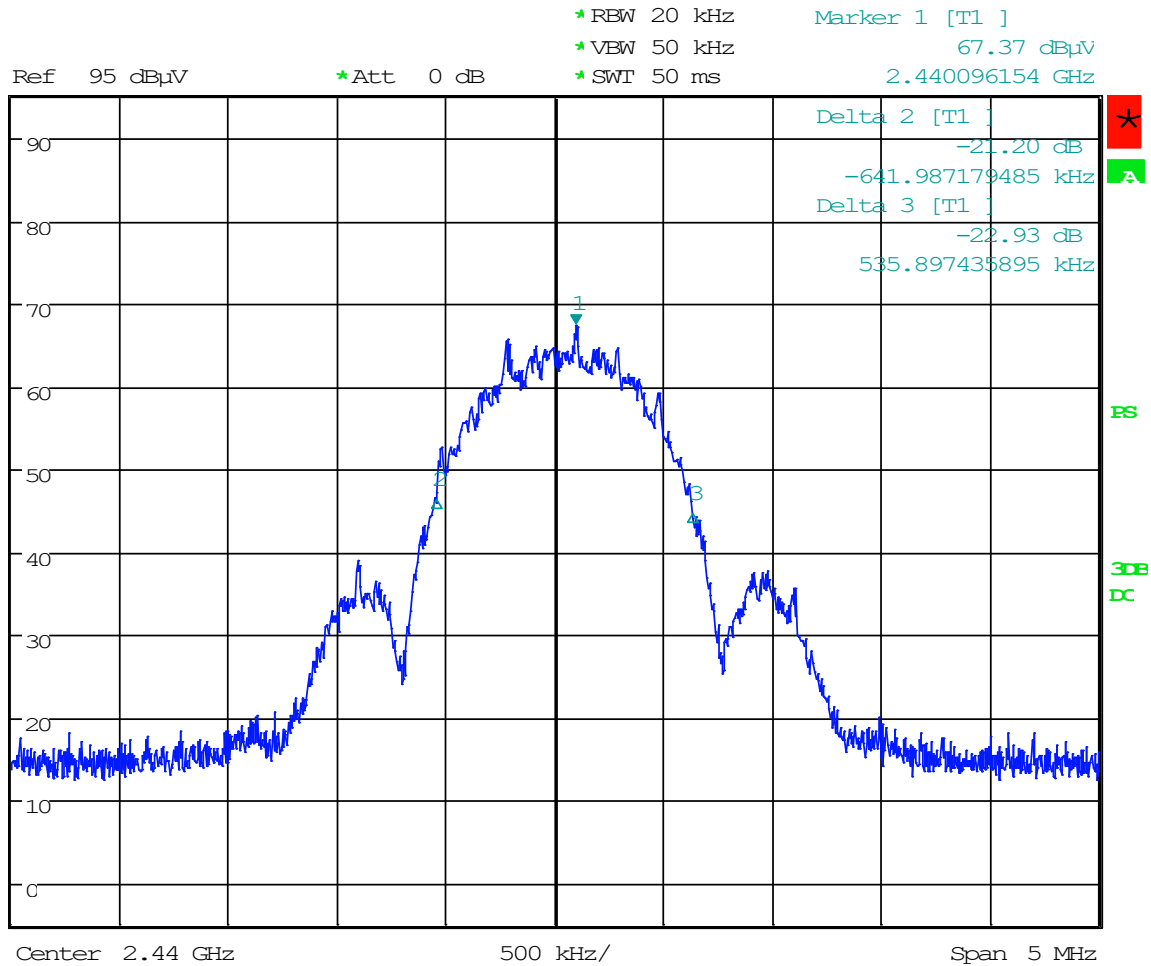
-20dB, Low Channel



Date: 15.MAY.2024 13:00:02



-20dB, Mid Channel



Date: 15.MAY.2024 13:10:00



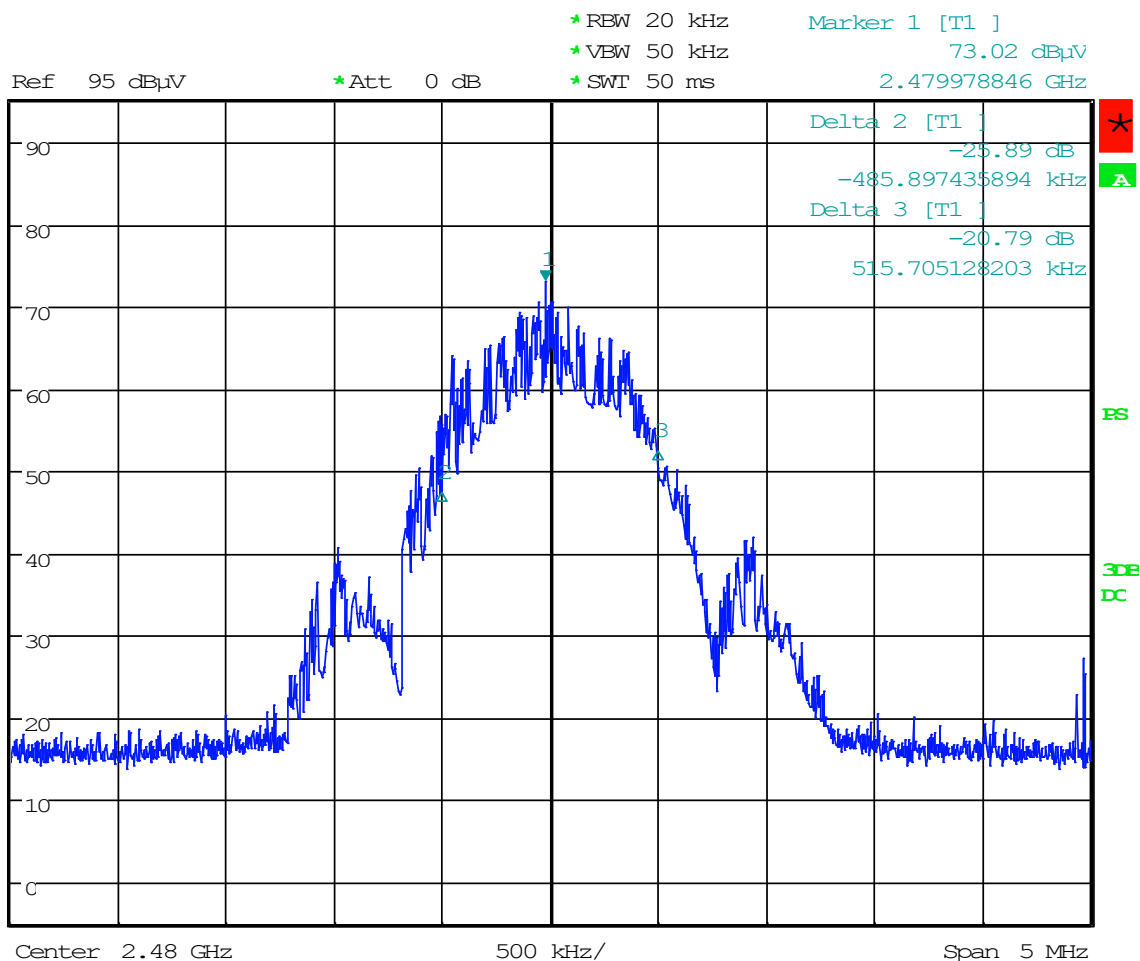
Order No(s): F2P31546

Applicant: Datacolor, Inc.
Model: LCM200

-20dB, High Channel



1.00
V1000



Date: 15.MAY.2024 13:17:26



Order No(s): F2P31546

Applicant: Datacolor, Inc.
Model: LCM200

99%, Low Channel



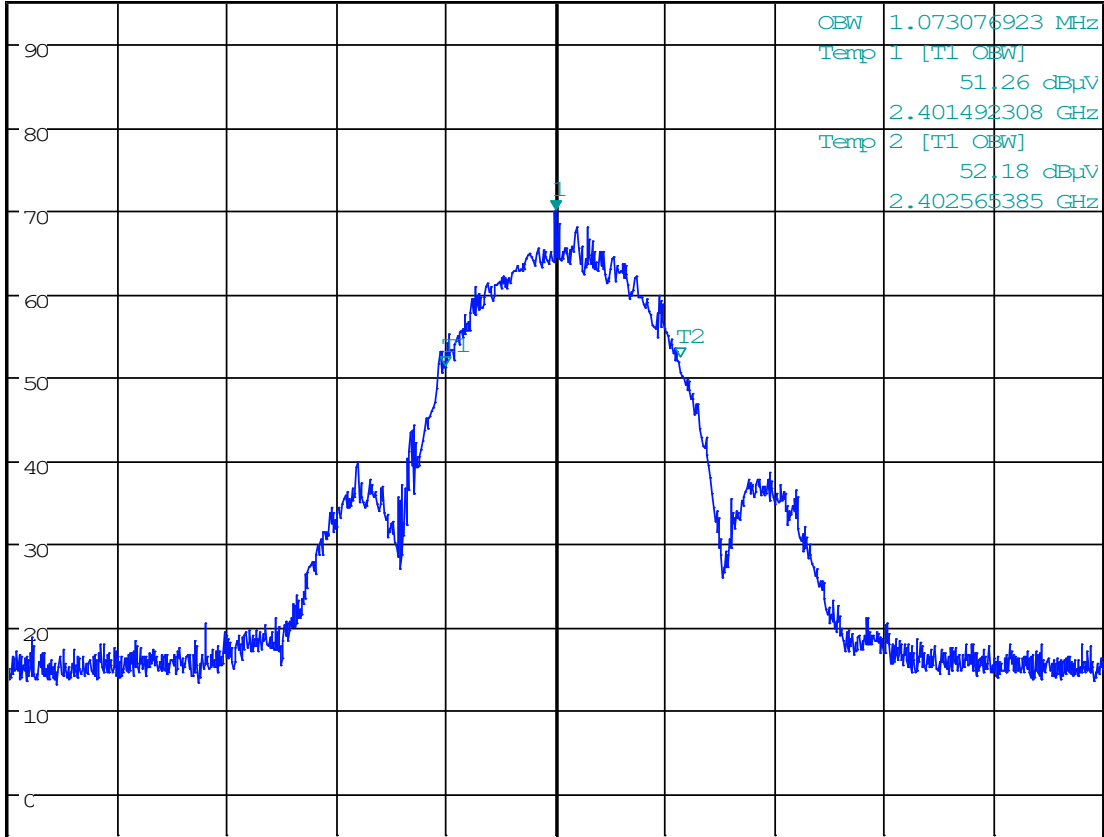
*RBW 20 kHz
*VBW 50 kHz
*SWT 50 ms

Marker 1 [T1]
69.82 dBuV
2.401996154 GHz

Ref 95 dBuV

*Att 0 dB

1 PK
VIEW



Center 2.402 GHz

500 kHz/

Span 5 MHz

Date: 15.MAY.2024 13:01:03



Order No(s): F2P31546

Applicant: Datacolor, Inc.
Model: LCM200

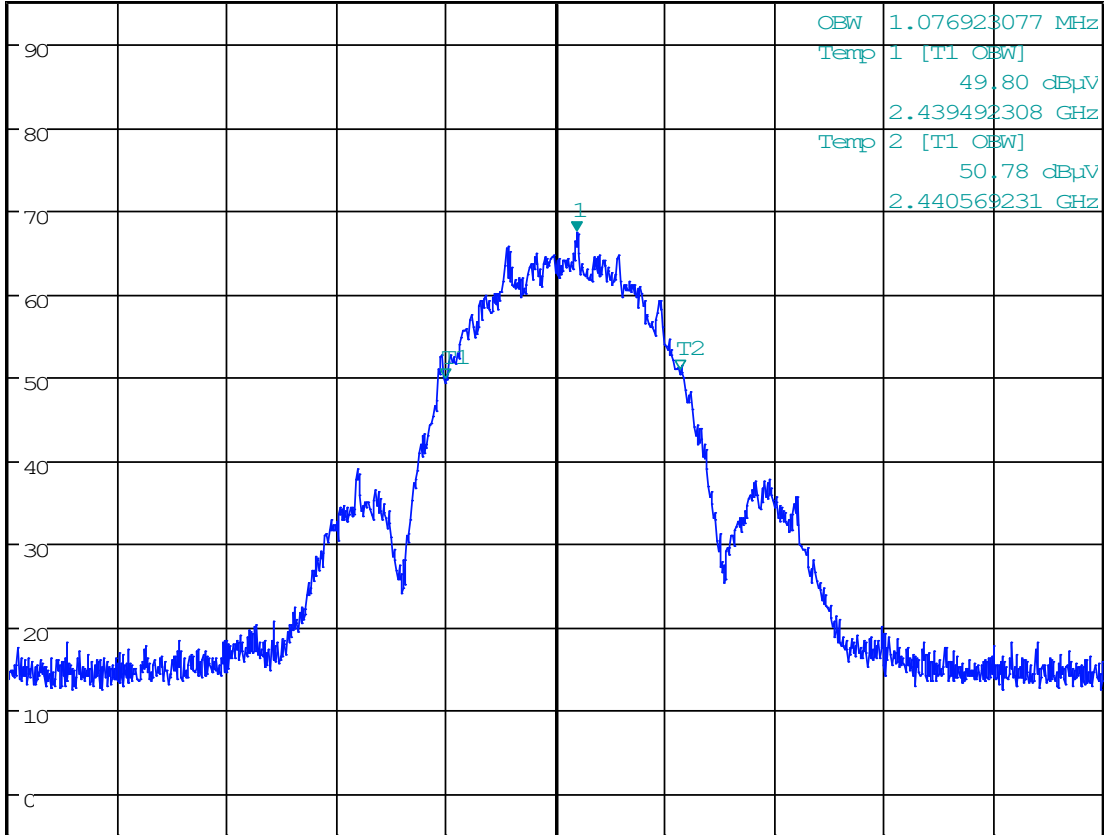
99%, Mid Channel



* RBW 20 kHz Marker 1 [T1]
* VBW 50 kHz 67.37 dBμV
* SWI 50 ms 2.440096154 GHz

Ref 95 dBμV * Att 0 dB

1 BK
VIDA



Center 2.44 GHz 500 kHz/ Span 5 MHz

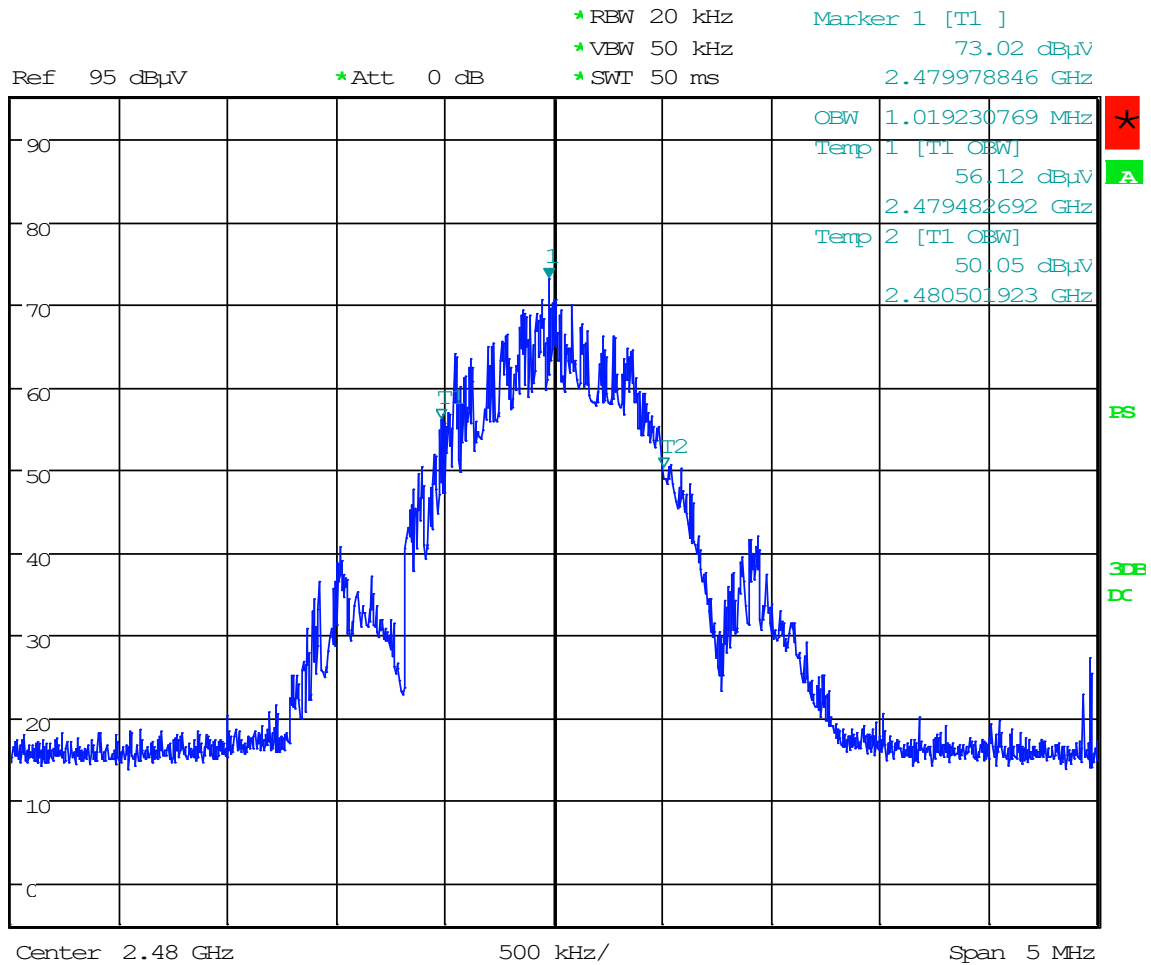
Date: 15.MAY.2024 13:06:15



99%, High Channel



1 PK
VBW



Date: 15.MAY.2024 13:18:01



8 FIELD STRENGTH OF EMISSIONS FROM INTENTIONAL RADIATORS

- (a) Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

- (d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

NOTE: During the pre-scan evaluation, the EUT was rotated in all possible directions to find the maximum emissions. The orthogonal position that showed the highest emissions was used. The antenna was raised between 1 and 4 meters and the EUT turntable was rotated 360 degrees to maximize the emissions.

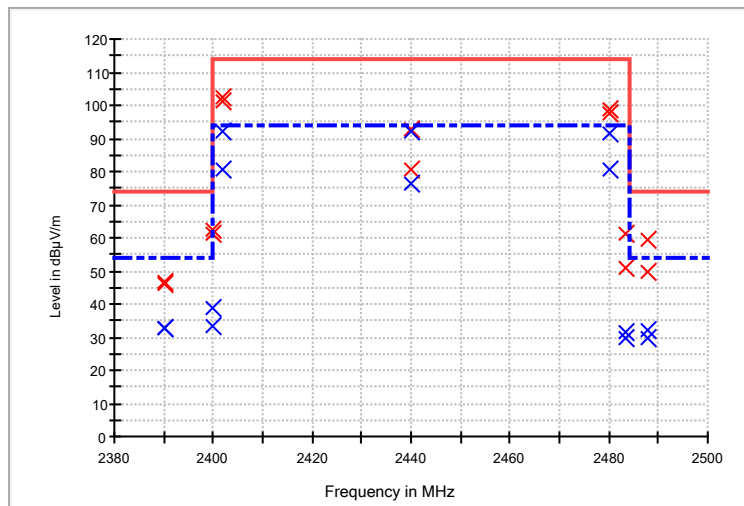


8.1 Test Data - Field Strength of Emissions from Intentional Radiators

Test Date(s):	2024-05-15	Test Engineer(s):	J. Chiller
Standards:	CFR 47 Part 15.249(a)	Air Temperature:	20.4°C
		Relative Humidity:	47%

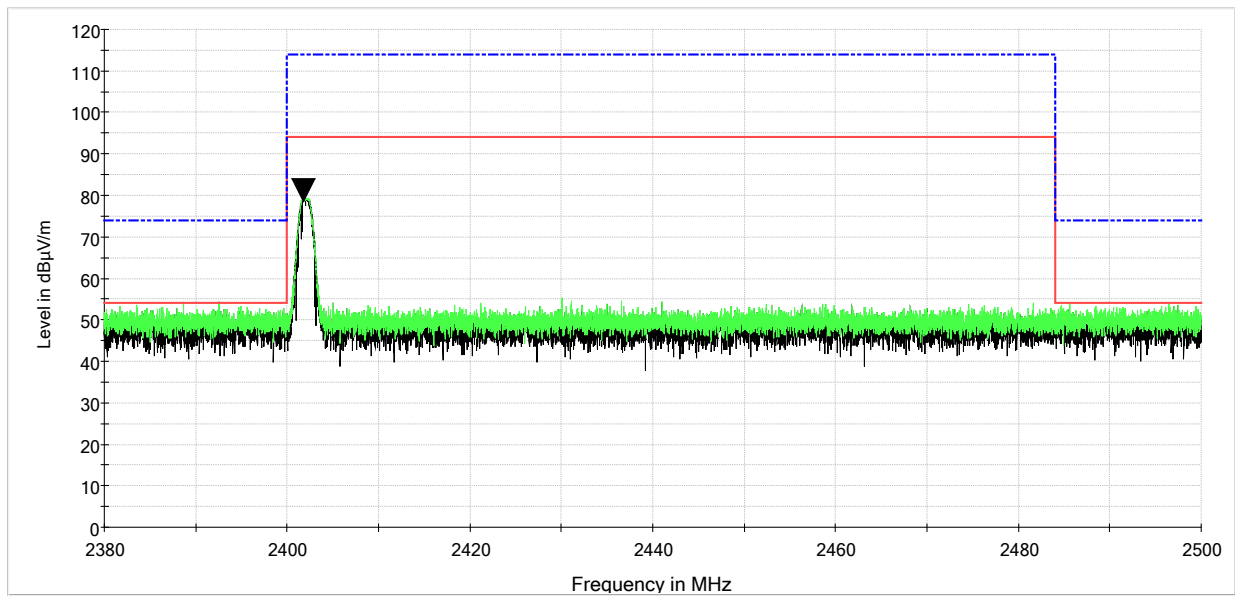
Field Strength of the Fundamentals

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBμV/m)
2390.000000	46.2	32.7	1000.0	1000.000	150.0	V	10.0	8.2	21.3	54.0
2390.000000	46.8	32.8	1000.0	1000.000	150.0	H	0.0	8.2	21.2	54.0
2400.000000	62.3	33.5	1000.0	1000.000	150.0	V	355.0	8.2	20.5	54.0
2400.000000	61.4	39.0	1000.0	1000.000	150.0	H	3.0	8.2	15.0	54.0
2402.000000	101.1	92.4	1000.0	1000.000	150.0	H	358.0	8.2	1.6	94.0
2402.000000	102.2	80.4	1000.0	1000.000	150.0	V	4.0	8.2	13.6	94.0
2440.000000	80.4	76.6	1000.0	1000.000	150.0	V	18.0	8.2	17.4	94.0
2440.000000	93.0	92.1	1000.0	1000.000	150.0	H	357.0	8.2	1.9	94.0
2480.000000	98.6	91.3	1000.0	1000.000	150.0	H	4.0	8.3	2.7	94.0
2480.000000	97.5	80.7	1000.0	1000.000	150.0	V	358.0	8.3	13.3	94.0
2483.500000	61.1	29.5	1000.0	1000.000	150.0	V	0.0	8.3	24.5	54.0
2483.500000	51.0	31.5	1000.0	1000.000	150.0	H	0.0	8.3	22.5	54.0
2488.000000	49.5	31.9	1000.0	1000.000	150.0	H	0.0	8.4	22.1	54.0
2488.000000	59.2	29.8	1000.0	1000.000	150.0	V	349.0	8.4	24.2	54.0

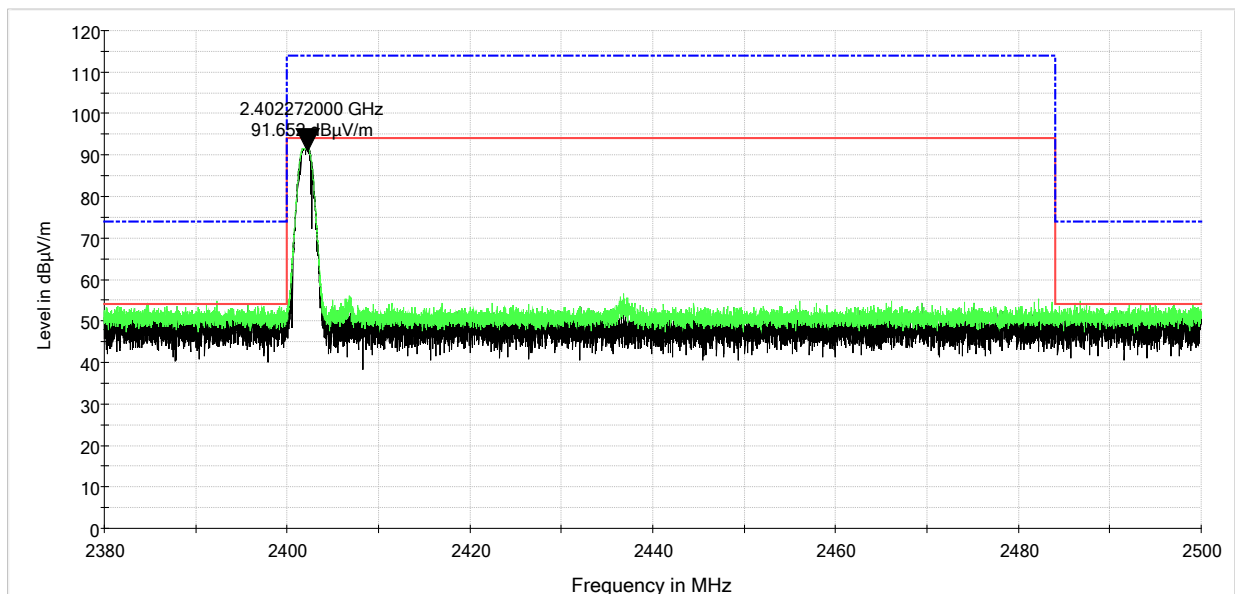




Low Band Edge - Vertical

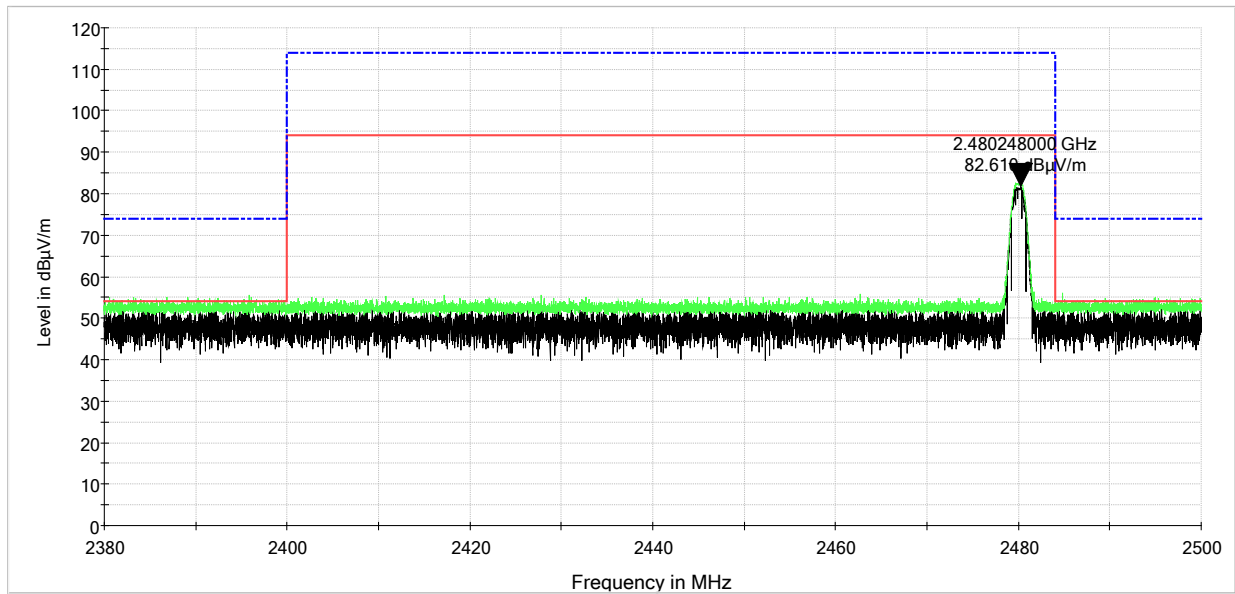


Low Band Edge - Horizontal

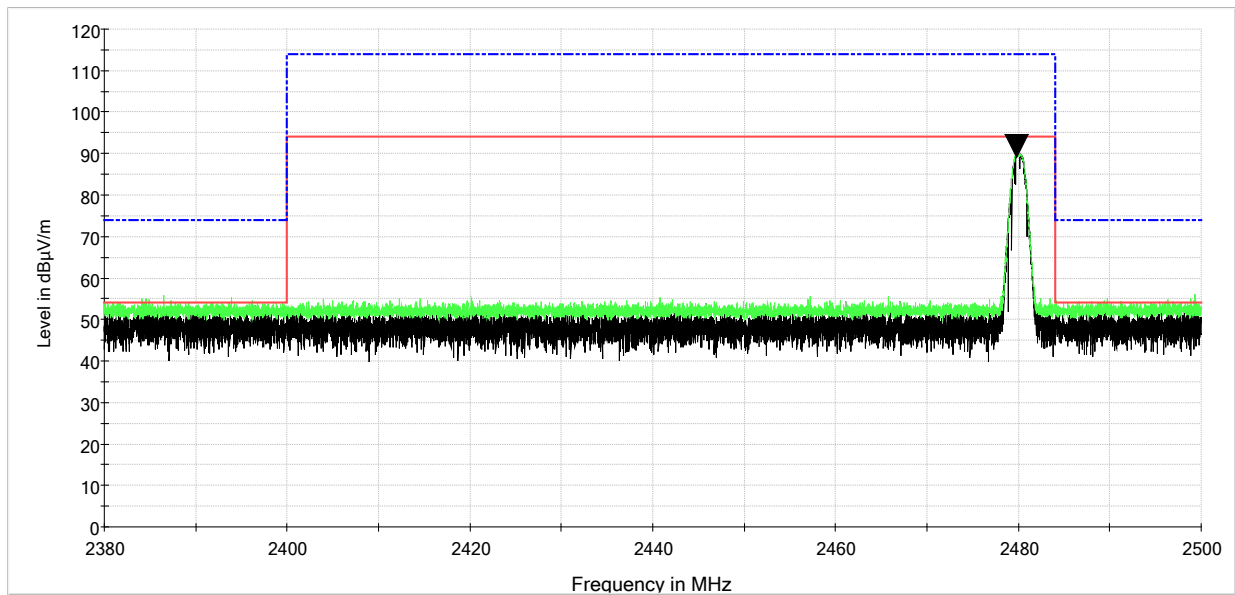




High Band Edge - Vertical



High Band Edge – Horizontal





8.2 Test Data – Spurious Emissions

Notes: Plots are peak, max hold pre-scan data included only to determine what frequencies to investigate and measure. During the pre-scan evaluation, the EUT was rotated in all possible directions to find the maximum emissions. The orthogonal position that showed the highest emissions was used. At some frequencies, no emissions from the EUT were measurable over the ambient noise floor. The readings did not change with EUT on and EUT off.

At least 6 of the highest frequencies were measured per ANSI 63.4 in a 3-meter anechoic chamber. Frequencies below 1 GHz were measured using a quasi-peak detector. The antenna was raised between 1 and 4 meters and the EUT turntable was rotated 360 degrees to maximize the emissions. Some of the frequencies did not change with the EUT on or off. At those frequencies, the test distance was shortened to 1 meter and still no emissions from the EUT were visible or over the ambient or limit. Frequencies were scanned from 9kHz to 26 GHz and the highest emissions are listed below.

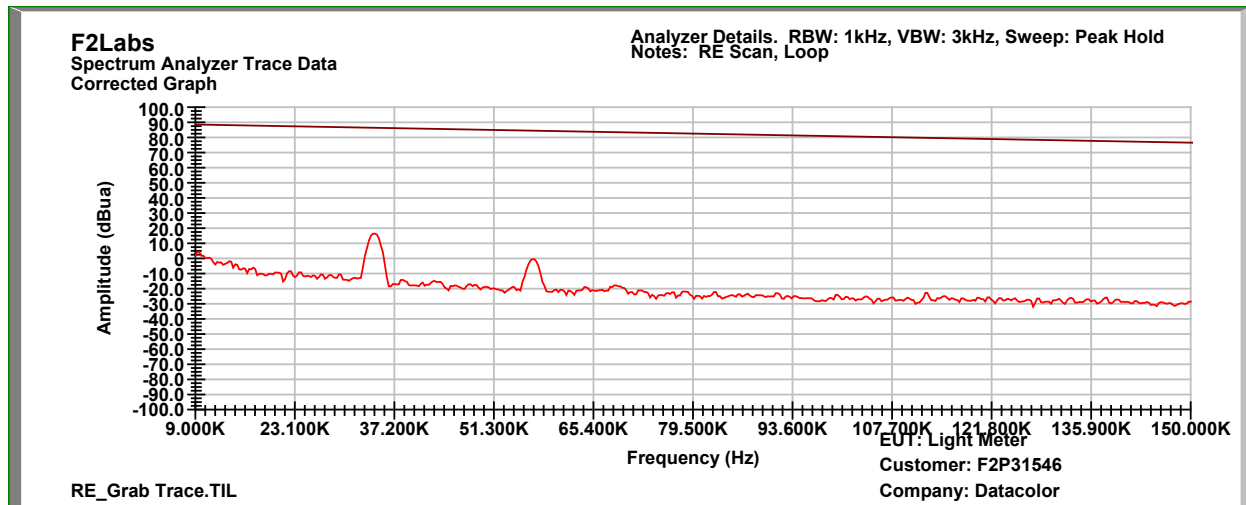


Order No(s): F2P31546

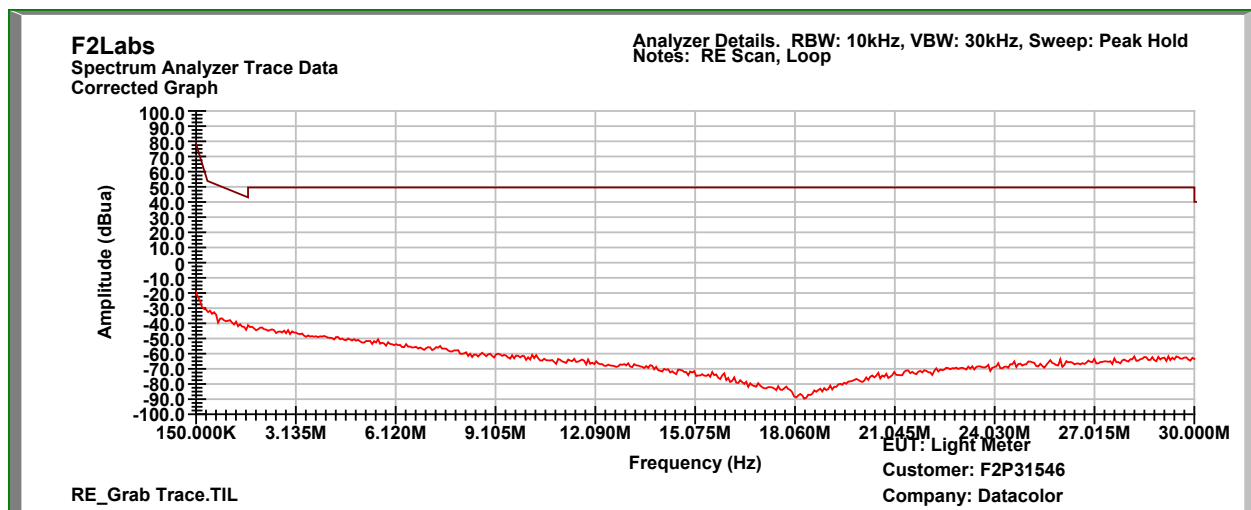
Applicant: Datacolor, Inc.
Model: LCM200

Test Date(s):	2024-05-15	Test Engineer(s):	J. Chiller
Standards:	CFR 47 Part 15.249(d) / Part 15.209	Air Temperature:	20.4°C
		Relative Humidity:	47%

Characterization Scan, 9 kHz to 150 kHz

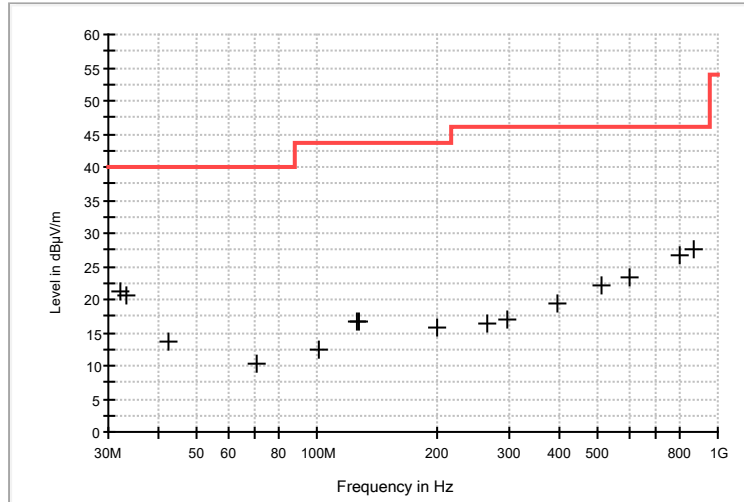


Characterization Scan, 150 kHz to 30 MHz





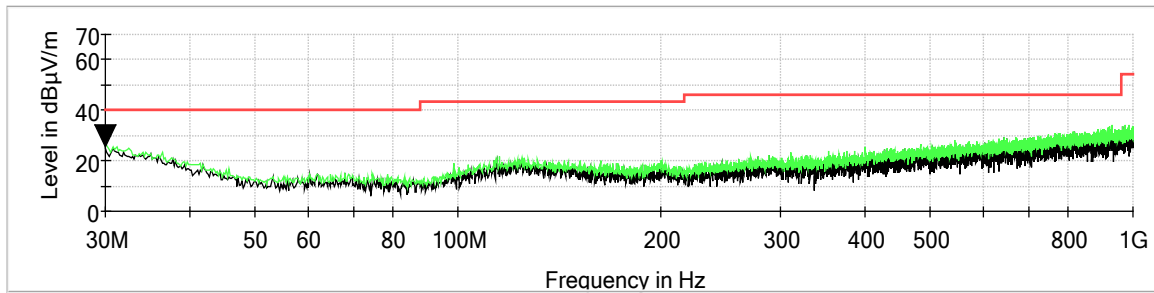
30 MHz to 1000 MHz - Measurements



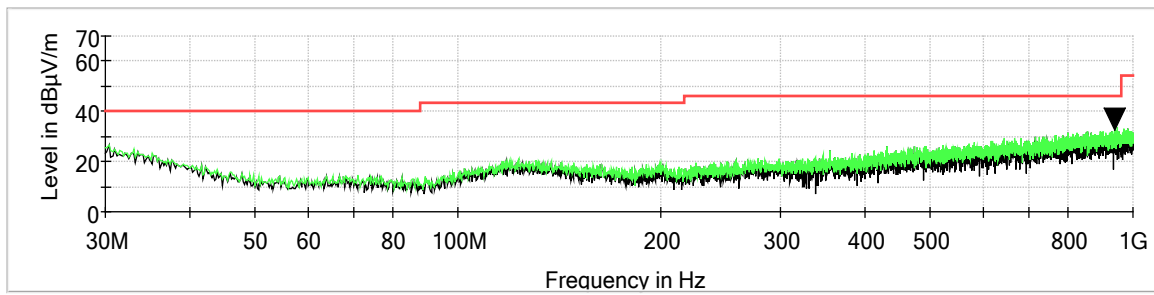
Frequency (MHz)	QuasiPeak (dBμV/m)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBμV/m)
32.130000	21.3	120.000	100.0	H	0.0	-20.6	18.7	40.0
33.100000	20.7	120.000	100.0	V	0.0	-21.3	19.3	40.0
42.420000	13.6	120.000	100.0	H	0.0	-28.2	26.4	40.0
70.350000	10.3	120.000	100.0	V	0.0	-31.5	29.7	40.0
100.230000	12.5	120.000	100.0	H	0.0	-29.4	31.0	43.5
125.060000	16.5	120.000	100.0	V	0.0	-25.5	27.0	43.5
126.220000	16.8	120.000	100.0	H	0.0	-25.5	26.7	43.5
199.360000	15.8	120.000	100.0	V	0.0	-26.1	27.7	43.5
264.930000	16.3	120.000	100.0	H	0.0	-25.5	29.7	46.0
297.140000	16.9	120.000	100.0	V	0.0	-25.1	29.1	46.0
397.240000	19.2	120.000	100.0	H	0.0	-22.8	26.8	46.0
510.150000	22.2	120.000	100.0	V	0.0	-20.6	23.8	46.0
605.210000	23.2	120.000	100.0	H	0.0	-19.4	22.8	46.0
799.020000	26.8	120.000	100.0	H	0.0	-15.6	19.2	46.0
875.650000	27.7	120.000	100.0	V	0.0	-14.1	18.3	46.0



Characterization Scan, 30 MHz to 1000 MHz – Vertical

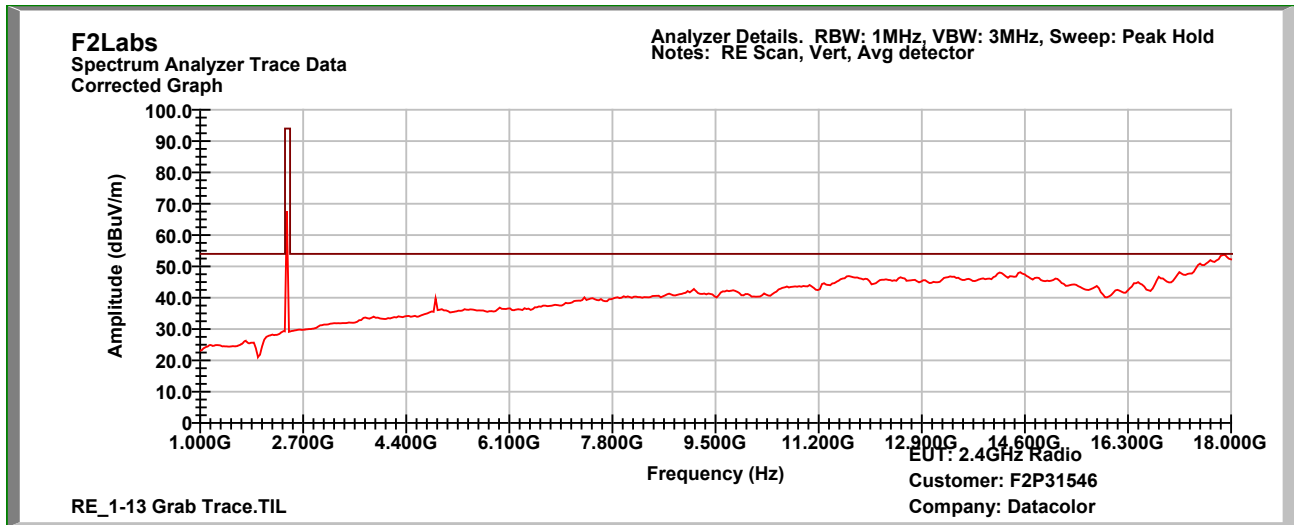


Characterization Scan, 30 MHz to 1000 MHz – Horizontal

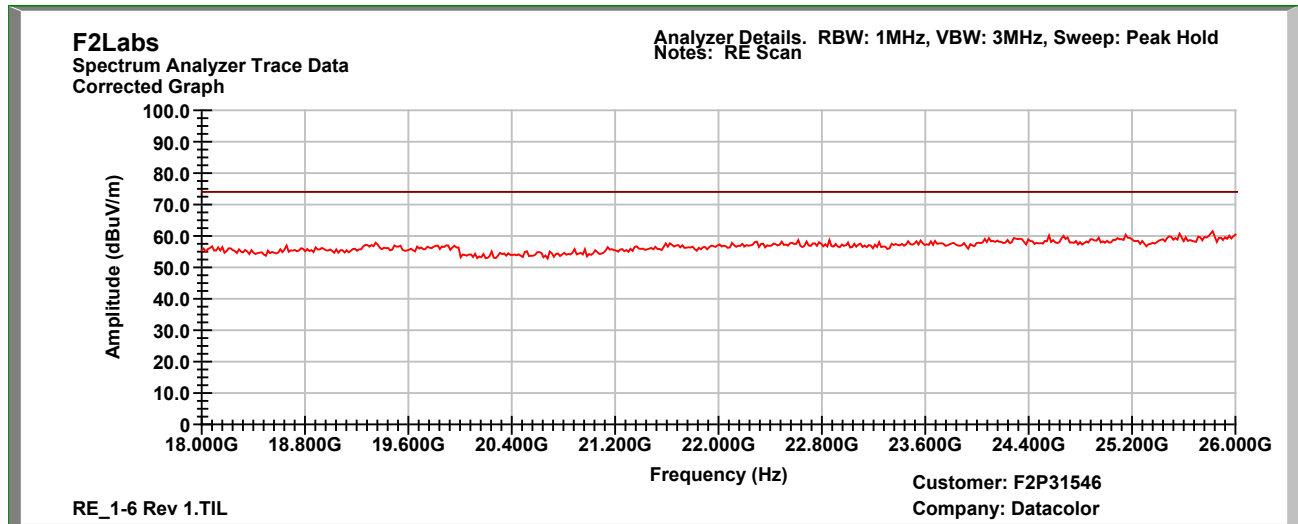




Low Channel, 1 GHz to 18 GHz, Vertical

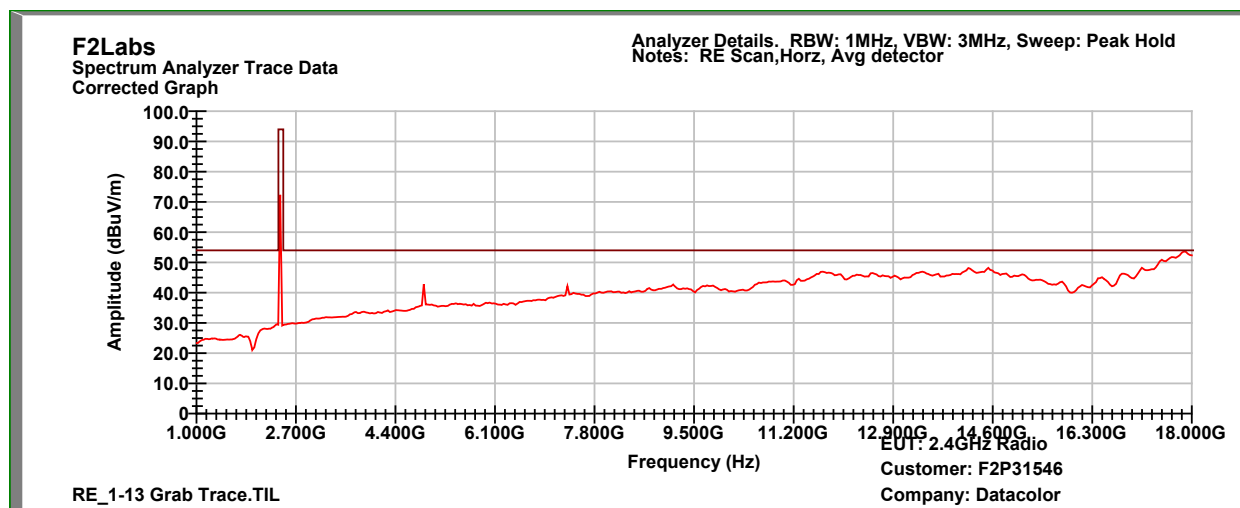


Low Channel, 18 GHz to 26 GHz, Vertical

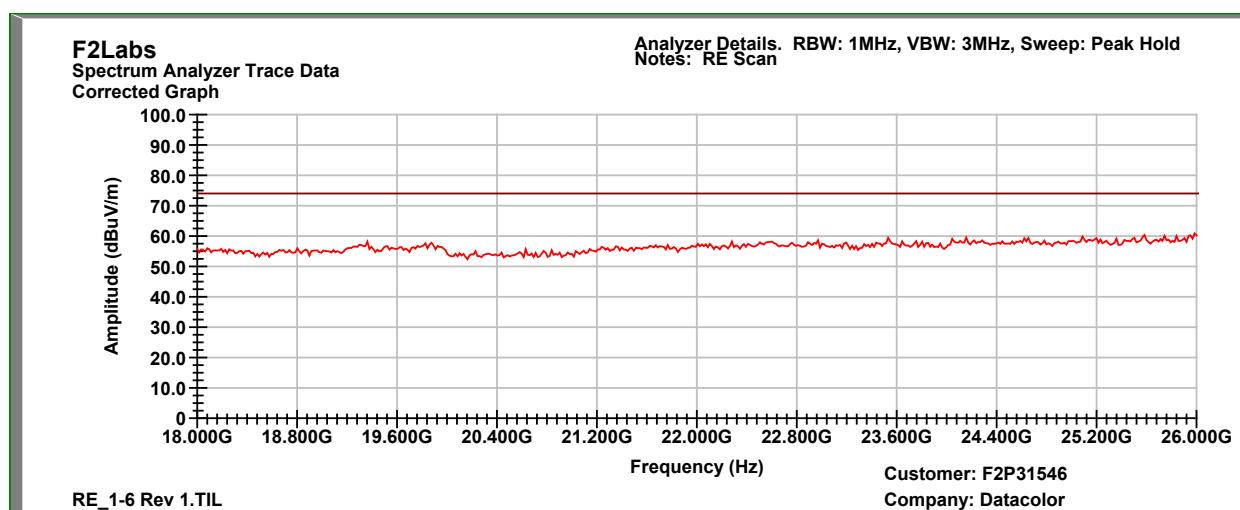




Low Channel, 1 GHz to 18 GHz, Horizontal



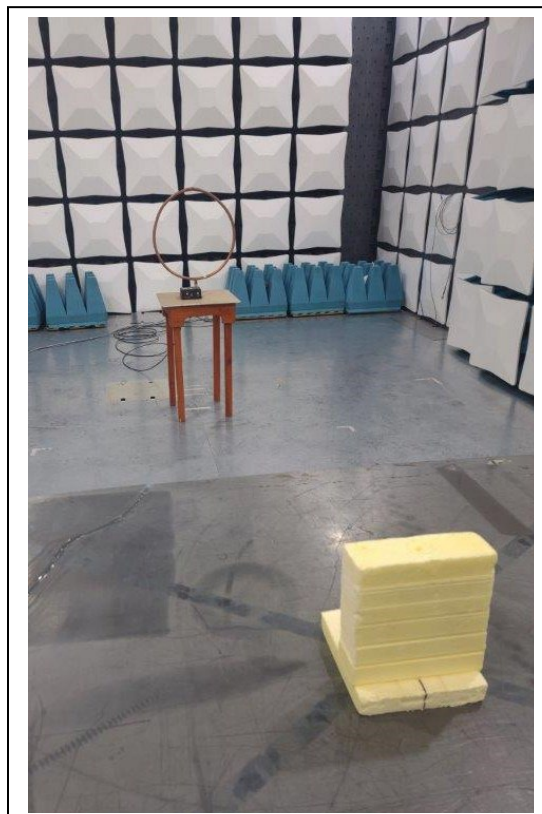
Low Channel, 18 GHz to 26 GHz, Horizontal





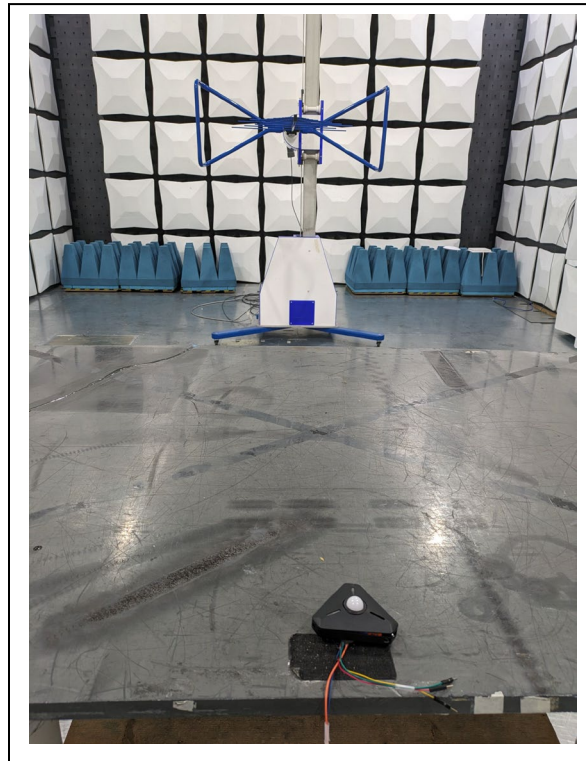
9 PHOTOGRAPHS - TEST SETUPS

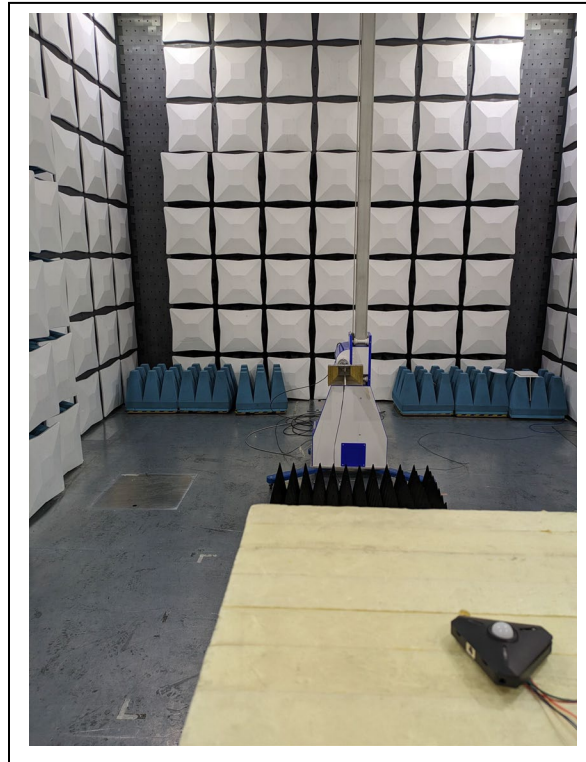
Loop Antenna





Radiated Spurious Emissions: 30 MHz to 100 MHz



Field Strength of Emissions: 1 GHz to 18 GHz, Occupied Bandwidth**Field Strength of Emissions: 18 GHz to 26 GHz, Occupied Bandwidth**