

**FCC PART 15 SUBPART B and C
TEST REPORT**
for
TRANSMITTER
MODEL: ColorCue

Prepared for

 COLORMAKER, INC.
 980 SUNSHINE LANE, SUITE T
 ALTAMONTE SPRINGS, FLORIDA 32714

 Prepared by: 

KYLE FUJIMOTO

 Approved by: 

JAMES ROSS

 COMPATIBLE ELECTRONICS INC.
 114 OLINDA DRIVE
 BREA, CALIFORNIA 92823
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DATE: OCTOBER 19, 2011

	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
PAGES	16	2	2	2	13	10	45

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1	Conducted Emissions Test Setup
2	Plot Map And Layout of Radiated Test Site – 3 Meters

GENERAL REPORT SUMMARY

Compatible Electronics Inc. generates this electromagnetic emission test report, which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product endorsement by NVLAP, NIST or any other agency of the U.S. Government.

Device Tested: Transmitter
Model: ColorCue
S/N: N/A

Product Description: See Expository Statement

Modifications: Please refer to Appendix B for details.

Customer: ColorMaker, Inc
980 Sunshine Lane, Suite T
Altamonte Springs, Florida 32714

Test Date(s): November 1 and 2, 2011

Test Specifications: Emissions requirements
CFR Title 47, Part 15, Subpart B and
Subpart C, sections 15.205, 15.209 and 15.249

Test Procedure: ANSI C63.4

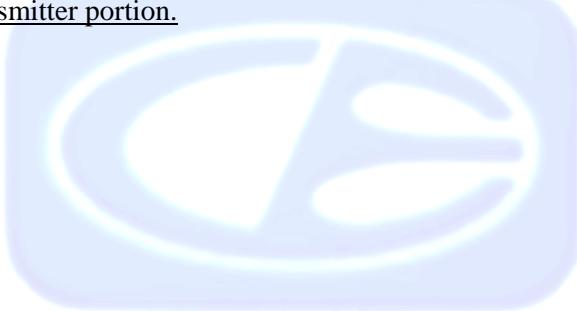
Test Deviations: The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions 150 kHz to 30 MHz	This test was not performed because the EUT operates on battery power only.
2	Radiated RF Emissions 10 kHz – 9.165 MHz	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.249.

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Transmitter, Model: ColorCue. The emissions measurements were performed according to the measurement procedure described in ANSI C63.4. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the Class B specification limits defined by CFR Title 47, Part 15, Subpart B for the digital portion; and the limits defined in Subpart C, sections 15.205, 15.209, and 15.249 for the transmitter portion.



2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Color Maker, Inc.

Jerry Mabie **President**

Compatible Electronics Inc.

Alex Benitez Test Technician
Kyle Fujimoto Test Engineer
James Ross Test Engineer

2.4 Date Test Sample was Received

The test sample was received prior to the date of testing.

2.5 Disposition of the Test Sample

The test sample has not yet been returned as of the date of this report.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

FCC	Federal Communications Commission
RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
ITE	Information Technology Equipment
LISN	Line Impedance Stabilization Network
NVLAP	National Voluntary Laboratory Accreditation Program
CFR	Code of Federal Regulations
N/A	Not Applicable
Ltd.	Limited
Inc.	Incorporated
IR	Infrared

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this Emissions Test Report.

SPEC	TITLE
CFR Title 47, Part 15	FCC Rules – Radio frequency devices (including digital devices)
ANSI C63.4: 2009	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration – Emissions

The Transmitter, Model: ColorCue (EUT) was tested as a stand alone unit in three orthogonal axis. The EUT was continuously transmitting.

It was determined that the emissions were at their highest level when the EUT was operating in the above configuration. The final emissions data was taken in this mode of operation and any cables were maximized. All initial investigations were performed with the measurement receiver in manual mode scanning the frequency range continuously. Photographs of the test setup are in Appendix D of this report.

4.1.1 Cable Construction and Termination

The EUT had no external cables.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT**5.1 EUT and Accessory List**

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
TRANSMITTER	COLORMAKER, INC.	COLORCUE	N/A	Z4RCUE



5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	2637A03618	May 27, 2011	May 27, 2012
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2648A13404	May 27, 2011	May 27, 2012
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	May 27, 2011	May 27, 2012
EMI Receiver	Rohde & Schwarz	ESIB40	100194	November 19, 2010	November 19, 2012
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
Loop Antenna	Com-Power	AL-130	17089	January 21, 2011	January 21, 2012
Biconical Antenna	Com Power	AB-900	15250	June 8, 2011	June 8, 2012
Log Periodic Antenna	Com Power	AL-100	16252	June 8, 2011	June 8, 2012
Horn Antenna	Com-Power	AH-118	071175	March 18, 2010	March 18, 2012
Preamplifier	Com-Power	PA-102	1017	January 11, 2011	January 12, 2012
Microwave Preamplifier	Com-Power	PA-118	181656	December 22, 2010	December 22, 2011
Turntable	Com Power	TT-100	N/A	N/A	N/A
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 and 7.1.2 of this report for Emissions test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was not grounded.

6.3 Facility Environmental Characteristics

When applicable refer to the data sheets in Appendix E for the relative humidity, air temperature, and barometric pressure.

7. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

7.1 RF Emissions

7.1.1 Conducted Emissions Test

The measurement receiver was used as a measuring meter. The data was collected with the measurement receiver in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A transient limiter was used for the protection of the measurement receiver's input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the measurement receiver. The output of the second LISN was terminated by a 50-ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the Compatible Electronics conducted emissions software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

Test Results:

This test was not performed because the EUT operates on battery power only.

7.1.2

Radiated Emissions (Spurious and Harmonics) Test

The spectrum analyzer and EMI Receiver were used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument (the Loop Antenna contains a built in amplifier). The Com-Power Preamplifier Model: PA-102 was used for the frequencies from 30 MHz to 1 GHz, while the Com-Power Microwave Preamplifier Model: PA-118 was used for the frequencies from 1 GHz to 10 GHz. The spectrum analyzer and the EMI Receiver were used in the peak detect mode with the “Max Hold” feature activated. In this mode, the measuring receiver records the highest measured reading over all the sweeps.

The quasi-peak adapter was used only for those readings which are marked accordingly on the data sheets.

The frequencies above 1 GHz were averaged manually by narrowing the video filter down to 10 Hz and putting the sweep time on AUTO on the EMI Receiver to keep the amplitude reading calibrated.

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 300 MHz	120 kHz	Biconical Antenna
300 MHz to 1000 MHz	120 kHz	Log Periodic Antenna
1 GHz to 9.165 GHz	1 MHz	Horn Antenna

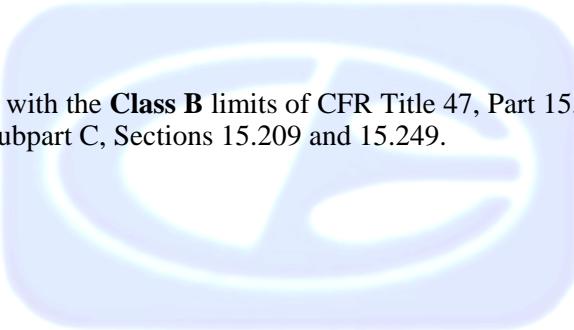
The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT by the Radiated Emission Manual Test software. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The loop antenna was also rotated in the horizontal and vertical axis in order to ensure accurate results.

Radiated Emissions (Spurious and Harmonics) Test (continued)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3-meter test distance to obtain the final test data (10 meters for the Loop Antenna).

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Sections 15.209 and 15.249.



7.1.3 RF Emissions Test Results

Table 1.0 RADIATED EMISSION RESULTS
 Transmitter, Model: ColorCue

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
916.5 Horizontal – X-Axis	93.55 (QP)	94.00	-0.45
916.5 Horizontal – Z-Axis	92.88 (QP)	94.00	-1.12
916.5 Vertical – Y-Axis	89.60	94.00	-4.40
916.5 Vertical – Z-Axis	88.30	94.00	-5.70
1833 Horizontal – X-Axis	47.51 (A)	54.00	-6.49
1833 Horizontal – Z-Axis	46.61 (A)	54.00	-7.39

Notes:

- * The complete emissions data is given in Appendix E of this report.
- A Average Reading
- QP Quasi-Peak

8. CONCLUSIONS

The Transmitter, Model: ColorCue, as tested, meets all of the **Class B** specification limits defined in **CFR Title 47, Part 15, Subpart B** for the digital portion; and the limits defined in **Subpart C**, sections **15.205, 15.209, and 15.249** for the transmitter portion.



APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

LABORATORY ACCREDITATIONS AND RECOGNITIONS


 NVLAP LAB CODES 200063-0,
 200528-0, 200527-0

For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025. Please follow the link to the NIST/NVLAP site for each of our facilities' NVLAP certificate and scope of accreditation

[NVLAP listing links](#)

[Agoura Division](#) / [Brea Division](#) / [Silverado/Lake Forest Division](#)

.Quote from ISO-ILAC-IAF Communiqué on 17025:

"A laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 Quality Management Systems — Requirements."



ANSI listing [CETCB](#)



Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA).

[US/EU MRA list](#) [NIST MRA site](#)



Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for Taiwan/BSMI under the US/APEC (Asia-Pacific Economic Cooperation) Mutual Recognition Agreement (MRA).

[APEC MRA list](#) [NIST MRA site](#)

We are also listed for IT products by the following country/agency:



VCCI Support member: Please visit http://www.vcci.jp/vcci_e/



FCC Listing, from FCC OET site
[FCC test lab search](https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm) <https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm>



Compatible Electronics IC listing can be found at:
<http://www.ic.gc.ca/eic/site/ic1.nsf/eng/home>

APPENDIX B

MODIFICATIONS TO THE EUT

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC 15.249 and/or FCC **Class B** specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

- R10 was set to 15,000 ohms.



APPENDIX C

ADDITIONAL MODELS COVERED UNDER THIS REPORT

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Transmitter
Model: ColorCue
S/N: N/A

ALSO APPROVED UNDER THIS REPORT:

There were no additional models covered under this report.



APPENDIX D

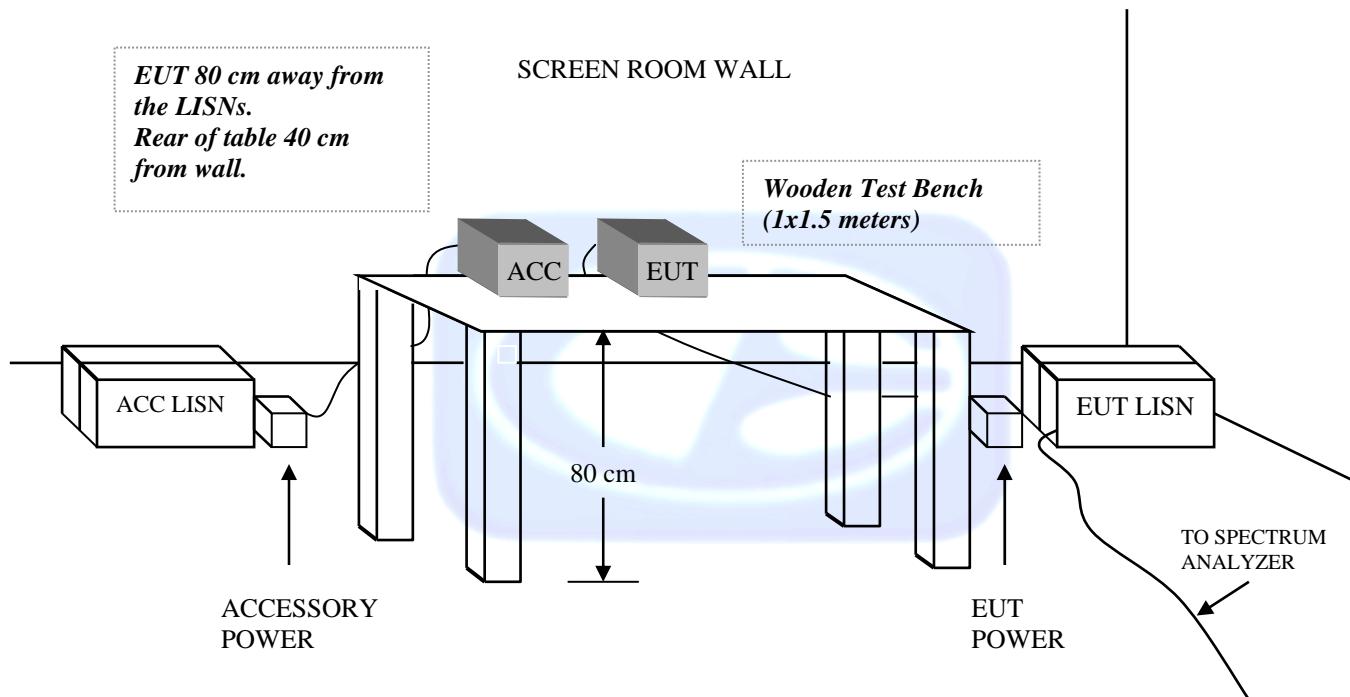
DIAGRAMS, CHARTS, AND PHOTOS

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

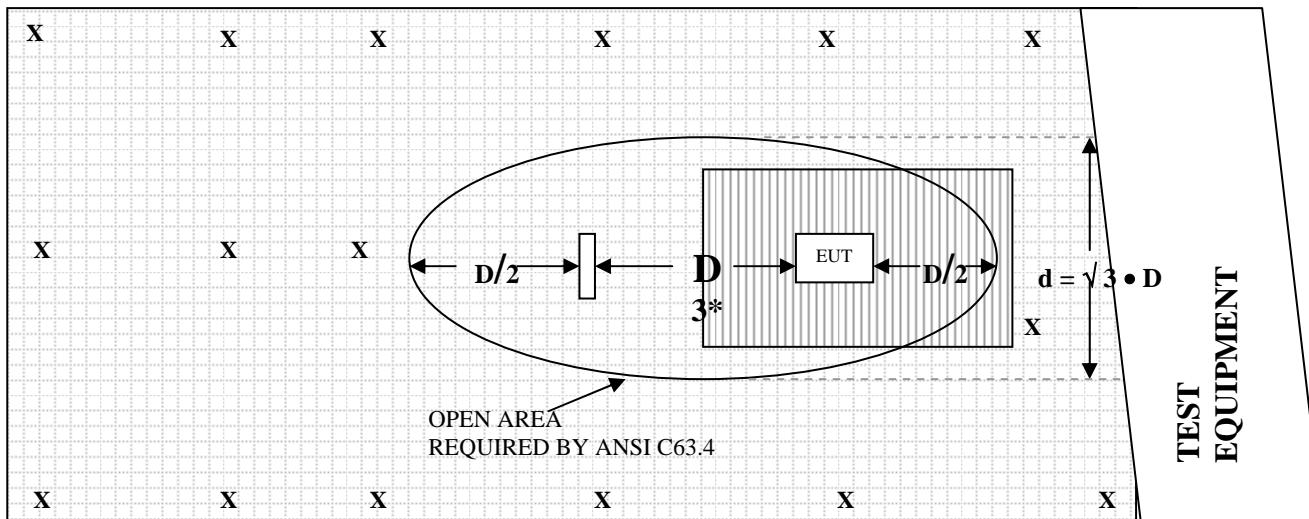
Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP


**FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE –
3* METERS**

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

	= GROUND RODS		= GROUND SCREEN
	= TEST DISTANCE (meters)		= WOOD COVER

**ONLY THE LOOP ANTENNA WAS PLACED AT 10 METERS, ALL OTHER ANTENNAS WERE PLACED AT 3 METERS.*

COM-POWER AL-130
LOOP ANTENNA
S/N: 17089
CALIBRATION DATE: JANUARY 21, 2011

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-41.9	9.6
0.01	-41.79	9.71
0.02	-41.43	10.07
0.05	-41.53	9.97
0.07	-41.47	10.03
0.1	-41.44	10.06
0.2	-41.61	9.89
0.3	-41.62	9.88
0.5	-41.66	9.84
0.7	-41.48	10.02
1	-41.13	10.37
2	-40.89	10.61
3	-41.00	10.50
4	-41.14	10.36
5	-41.02	10.48
10	-40.69	10.82
15	-40.41	11.09
20	-41.07	10.43
25	-42.10	9.40
30	-41.15	10.35

COM-POWER AB-900
BICONICAL ANTENNA
S/N: 15250
CALIBRATION DATE: JUNE 8, 2011

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	10.90	100	9.50
35	11.00	120	12.10
40	11.80	140	11.40
45	11.60	160	12.40
50	11.40	180	15.70
60	9.80	200	16.20
70	7.00	250	16.10
80	5.70	275	19.00
90	7.00	300	9.50

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16252

CALIBRATION DATE: JUNE 8, 2011

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	13.30	700	20.40
400	15.50	800	20.60
500	15.80	900	20.10
600	20.20	1000	22.80

COM POWER AH-118
HORN ANTENNA
S/N: 071175
CALIBRATION DATE: MARCH 18, 2010

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	22.2	10.0	39.8
1.5	24.2	10.5	40.2
2.0	27.2	11.0	39.7
2.5	27.8	11.5	39.9
3.0	30.5	12.0	41.7
3.5	30.9	12.5	42.7
4.0	31.9	13.0	42.3
4.5	33.2	13.5	40.3
5.0	33.6	14.0	42.6
5.5	36.2	14.5	43.4
6.0	35.8	15.0	41.9
6.5	36.1	15.5	40.8
7.0	37.9	16.0	41.0
7.5	37.4	16.5	41.5
8.0	38.0	17.0	44.5
8.5	38.8	17.5	47.6
9.0	38.0	18.0	50.8
9.5	39.2		

COM-POWER PA-102
PREAMPLIFIER
S/N: 1017
CALIBRATION DATE: JANUARY 11, 2011

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	38.1	300	38.1
40	38.2	350	38.0
50	38.2	400	37.9
60	38.2	450	37.7
70	38.2	500	37.6
80	38.2	550	37.9
90	38.2	600	37.9
100	38.1	650	37.7
125	38.2	700	37.9
150	38.2	750	37.5
175	38.2	800	37.6
200	38.2	850	37.6
225	38.2	900	37.0
250	38.2	950	37.2
275	38.2	1000	36.8

COM-POWER PA-118
PREAMPLIFIER
S/N: 181656
CALIBRATION DATE: DECEMBER 22, 2010

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	24.90	10.0	26.07
1.5	26.50	10.5	24.97
2.0	26.79	11.0	24.79
2.5	26.90	11.5	24.33
3.0	27.03	12.0	24.24
3.5	26.94	12.5	24.92
4.0	27.18	13.0	24.52
4.5	26.79	13.5	24.33
5.0	26.25	14.0	24.56
5.5	26.16	14.5	24.99
6.0	25.52	15.0	26.06
6.5	25.29	15.5	26.87
7.0	24.45	16.0	25.95
7.5	24.18	16.5	24.69
8.0	24.02	17.0	24.20
8.5	24.54	17.5	25.12
9.0	24.91	18.0	26.03
9.5	25.42		

**Below 30 MHz****FRONT VIEW**

COLORMAKER, INC.
TRANSMITTER
MODEL: ColorCue

FCC SUBPART B AND C – RADIATED EMISSIONS – 11/02/2011

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

**Below 30 MHz****REAR VIEW**

**COLORMAKER, INC.
TRANSMITTER
MODEL: ColorCue**

FCC SUBPART B AND C – RADIATED EMISSIONS – 11/02/2011

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

**FRONT VIEW**

**COLORMAKER, INC.
TRANSMITTER
MODEL: ColorCue**

FCC SUBPART B AND C – RADIATED EMISSIONS – 11/01/2011 and 11/02/2011

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

Brea Division
114 Olinda Drive
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**REAR VIEW**

COLORMAKER, INC.
TRANSMITTER
MODEL: ColorCue

FCC SUBPART B AND C – RADIATED EMISSIONS – 11/01/2011 and 11/02/2011

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

Brea Division
114 Olinda Drive
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Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

APPENDIX E

DATA SHEETS

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

RADIATED EMISSIONS

DATA SHEETS

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

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Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

FCC 15.249

 ColorMaker
 Transmitter
 Model: ColorCue

 Date: 11/01/2011
 Labs: B and D
 Tested By: Kyle Fujimoto

X-Axis - Fundamental and Harmonics

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
916.5	86.1	V	94	-7.9	Peak	1	135	
1833	40.51	V	74	-33.49	Peak	1.25	155	
1833	35.96	V	54	-18.04	Avg	1.25	155	
2749.5	39.22	V	74	-34.78	Peak	1.25	155	
2749.5	29.91	V	54	-24.09	Avg	1.25	155	
3666	44.64	V	74	-29.36	Peak	1.25	155	
3666	38.03	V	54	-15.97	Avg	1.25	155	
4582.5	46.58	V	74	-27.42	Peak	1.25	165	
4582.5	36.888	V	54	-17.112	Avg	1.25	165	
5499								No Emission
5499								Detected
6415.5								No Emission
6415.5								Detected
7332								No Emission
7332								Detected
8248.5								No Emission
8248.5								Detected
9165								No Emission
9165								Detected

FCC 15.249

 ColorMaker
 Transmitter
 Model: ColorCue

 Date: 11/01/2011
 Labs: B and D
 Tested By: Kyle Fujimoto

X-Axis - Fundamental and Harmonics

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
916.5	94.2	H	94	0.2	Peak	1.25	165	
916.5	93.55	H	94	-0.45	QP	1.25	165	
1833	49.21	H	74	-24.79	Peak	1.25	135	
1833	47.51	H	54	-6.49	Avg	1.25	135	
2749.5	41.45	H	74	-32.55	Peak	1.25	155	
2749.5	34.02	H	54	-19.98	Avg	1.25	155	
3666	48.51	H	74	-25.49	Peak	1.35	225	
3666	43.51	H	54	-10.49	Avg	1.35	225	
4582.5	45.29	H	74	-28.71	Peak	1.25	135	
4582.5	29.585	H	54	-24.415	Avg	1.25	135	
5499								No Emission
5499								Detected
6415.5								No Emission
6415.5								Detected
7332								No Emission
7332								Detected
8248.5								No Emission
8248.5								Detected
9165								No Emission
9165								Detected

FCC 15.249

 ColorMaker
 Transmitter
 Model: ColorCue

 Date: 11/01/2011
 Labs: B and D
 Tested By: Kyle Fujimoto

Y-Axis - Fundamental and Harmonics

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
916.5	89.6	V	94	-4.4	Peak	1	135	
1833	44.52	V	74	-29.48	Peak	1.25	155	
1833	42.34	V	54	-11.66	Avg	1.25	155	
2749.5	40.71	V	74	-33.29	Peak	1.25	165	
2749.5	32.75	V	54	-21.25	Avg	1.25	165	
3666	43.88	V	74	-30.12	Peak	1.25	155	
3666	37.75	V	54	-16.25	Avg	1.25	155	
4582.5	46.12	V	74	-27.88	Peak	1.25	155	
4582.5	35.19	V	54	-18.81	Avg	1.25	155	
5499								No Emission
5499								Detected
6415.5								No Emission
6415.5								Detected
7332								No Emission
7332								Detected
8248.5								No Emission
8248.5								Detected
9165								No Emission
9165								Detected

FCC 15.249

 ColorMaker
 Transmitter
 Model: ColorCue

 Date: 11/01/2011
 Labs: B and D
 Tested By: Kyle Fujimoto

Y-Axis - Fundamental and Harmonics

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
916.5	82.2	H	94	-11.8	Peak	1	90	
1833	35.48	H	74	-38.52	Peak	1.25	155	
1833	26.83	H	54	-27.17	Avg	1.25	155	
2749.5	41.27	H	74	-32.73	Peak	1.25	165	
2749.5	35.19	H	54	-18.81	Avg	1.25	165	
3666	44.74	H	74	-29.26	Peak	1.25	155	
3666	36.59	H	54	-17.41	Avg	1.25	155	
4582.5	47.33	H	74	-26.67	Peak	1.25	225	
4582.5	40.82	H	54	-13.18	Avg	1.25	225	
5499								No Emission
5499								Detected
6415.5								No Emission
6415.5								Detected
7332								No Emission
7332								Detected
8248.5								No Emission
8248.5								Detected
9165								No Emission
9165								Detected

FCC 15.249

 ColorMaker
 Transmitter
 Model: ColorCue

 Date: 11/01/2011
 Labs: B and D
 Tested By: Kyle Fujimoto

Z-Axis - Fundamental and Harmonics

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
916.5	88.3	V	94	-5.7	Peak	1	150	
1833	45.06	V	74	-28.94	Peak	1.25	135	
1833	42.81	V	54	-11.19	Avg	1.25	135	
2749.5	41.42	V	74	-32.58	Peak	1.25	155	
2749.5	32.92	V	54	-21.08	Avg	1.25	155	
3666	45.45	V	74	-28.55	Peak	1.25	165	
3666	38.89	V	54	-15.11	Avg	1.25	165	
4582.5	45.79	V	74	-28.21	Peak	1.25	155	
4582.5	32.22	V	54	-21.78	Avg	1.25	155	
5499								No Emission
5499								Detected
6415.5								No Emission
6415.5								Detected
7332								No Emission
7332								Detected
8248.5								No Emission
8248.5								Detected
9165								No Emission
9165								Detected

FCC 15.249

 ColorMaker
 Transmitter
 Model: ColorCue

 Date: 11/01/2011
 Labs: B and D
 Tested By: Kyle Fujimoto

Z-Axis - Fundamental and Harmonics

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
916.5	93.3	H	94	-0.7	Peak	1.25	225	
916.5	92.88	H	94	-1.12	QP	1.25	225	
1833	48.94	H	74	-25.06	Peak	1.25	135	
1833	46.61	H	54	-7.39	Avg	1.25	135	
2749.5	41.65	H	74	-32.35	Peak	1.25	115	
2749.5	34.18	H	54	-19.82	Avg	1.25	115	
3666	47.53	H	74	-26.47	Peak	1.25	125	
3666	42.22	H	54	-11.78	Avg	1.25	125	
4582.5	46.31	H	74	-27.69	Peak	1.25	135	
4582.5	36.88	H	54	-17.12	Avg	1.25	135	
5499								No Emission
5499								Detected
6415.5								No Emission
6415.5								Detected
7332								No Emission
7332								Detected
8248.5								No Emission
8248.5								Detected
9165								No Emission
9165								Detected

FCC 15.249

ColorMaker
Transmitter
Model: ColorCu

Date: 11/01/2011

Labs: B and D

Tested By: Kyle Fujimoto

Digital Portion and Non-Harmonic Emissions from the Transmitter 1 GHz to 9.165 GHz

Test Location : Compatible Electronics **Page** : 1/1
Customer : Color Maker, Inc. **Date** : 11/02/2011
Manufacturer : Color Maker, Inc. **Time** : 13:33:55
Eut name : Transmitter **Lab** : D
Model : Color Cue **Test Distance** : 3.0
Serial # : N/A
Specification : FCC Class B
Distance correction factor (20 * log(test/spec)) : 0.00
Test Mode : Test Type: Radiated Emissions
Test Range: 10 kHz to 1 GHz
Tested: 3-Axis (X, Y, and Z) 916 MHz Tx
Tested By: Alex Benitez

Pol	Freq	Rdng	Cable	Ant	Amp	Cor'd	Limit	Delta
	MHz	dBuV	loss	factor	gain	rdg = R	= L	R-L
1V	100.000	50.30	1.20	9.50	38.10	22.90	43.50	-20.60
2V	200.000	51.60	1.70	16.20	38.20	31.30	43.50	-12.20
3V	300.000	37.20	2.20	13.50	38.10	14.80	46.00	-31.20
4V	400.000	39.90	2.60	15.50	37.90	20.10	46.00	-25.90
5V	500.000	36.00	2.80	15.80	37.60	17.00	46.00	-29.00
6V	600.000	53.20	3.10	20.20	37.90	38.60	46.00	-7.40
7V	700.000	34.20	3.40	20.40	37.90	20.10	46.00	-25.90
8V	800.000	36.20	3.70	20.60	37.60	22.90	46.00	-23.10
9V	900.000	34.40	4.30	20.10	37.00	21.80	46.00	-24.20
10V	1000.000	33.60	4.40	22.80	36.80	24.00	54.00	-30.00
11V	930.813	41.50	4.30	20.96	37.12	29.64	46.00	-16.36
12H	930.791	49.40	4.30	20.96	37.12	37.54	46.00	-8.46

The above 10 readings were frequency checks of 100 MHz steps. The only actual emission coming from the EUT was at 930 MHz with X-axis being worst case.