

FCC PART 15.407



TEST REPORT

For

Shenzhen Crystal Video Technology Co., LTD.

F13, F518 Idea Land, Baoyuan Road, Baoan Central Area, Shenzhen, China

FCC ID: Y3HCB662020120206

Report Type: Class II Permissive Change	Product Type: wireless high-definition receiver
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Report Number:	R2DG130603002-00A1
Report Date:	2013-06-19
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Shenzhen Crystal Video Technology Co.,LTD.*'s product, model number: *CB6620 (FCC ID: Y3HCB662020120206)* ("EUT") in this report is a *wireless high-definition receiver*, which was measured approximately: 14.7 cm (L) x 9.7cm (W) x 2.1 cm (H), the operating frequency is 5150~5250MHz, 5725~5825MHz ,rated input voltage: DC 5V from AC/DC adapter.

Adapter information:

Trade Name: GOSPELL

Model: GP005U-050-200

Input: 100-240V, 50/60Hz, 0.5A

Output: 5VDC, 2A

Note: The series product, model CB6620,CV6620,CV6620-IL,CB6620-IL,CB6628,5002R and 5003R are electrically identical, the difference between them is just the model name, we selected CB6620 for fully testing, the details was explained in the attached declaration letter.

** All measurement and test data in this report was gathered from production sample serial number: 130603002 (Assigned by Shenzhen BACL). The EUT was received on 2013-06-06.*

Objective

This type approval report is prepared on behalf of *Shenzhen Crystal Video Technology Co.,LTD.* in accordance with Part 2-Subpart J, Part 15-Subparts A, B and E of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules.

This is the Class II permissive change application of the device. The difference between the original device and the current one is as follows:

Part	Original	New
Operating frequency	5150~5250MHz	5150~5250MHz 5725~5825MHz

For the changes made to the device, all item testing were performed except Antenna Requirement and Conducted Emissions, the test results of 5150~5250MHz, please refer to the test report No.: R1DG120210005-00.

Related Submittal(s)/Grant(s)

Original submission with FCC ID: Y3HCB662020120206 which was granted on 2012-03-17.

Test Methodology

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 02, 2012. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Dongguan) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 500069-0).



The current scope of accreditations can be found at <http://ts.nist.gov/standards/scopes/5000690.htm>

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in an engineering mode, which was provided by manufacture. For the operating frequency range 5150MHz~5250MHz, the test frequencies are 5190MHz and 5230MHz, those are requested by the applicant. For the operating frequency range 5725MHz~5825MHz, the test frequencies are 5755MHz and 5795MHz.

EUT Exercise Software

The test was performed under “AppCom_3.0.3.16”.

Equipment Modifications

No modification was made to the unit tested.

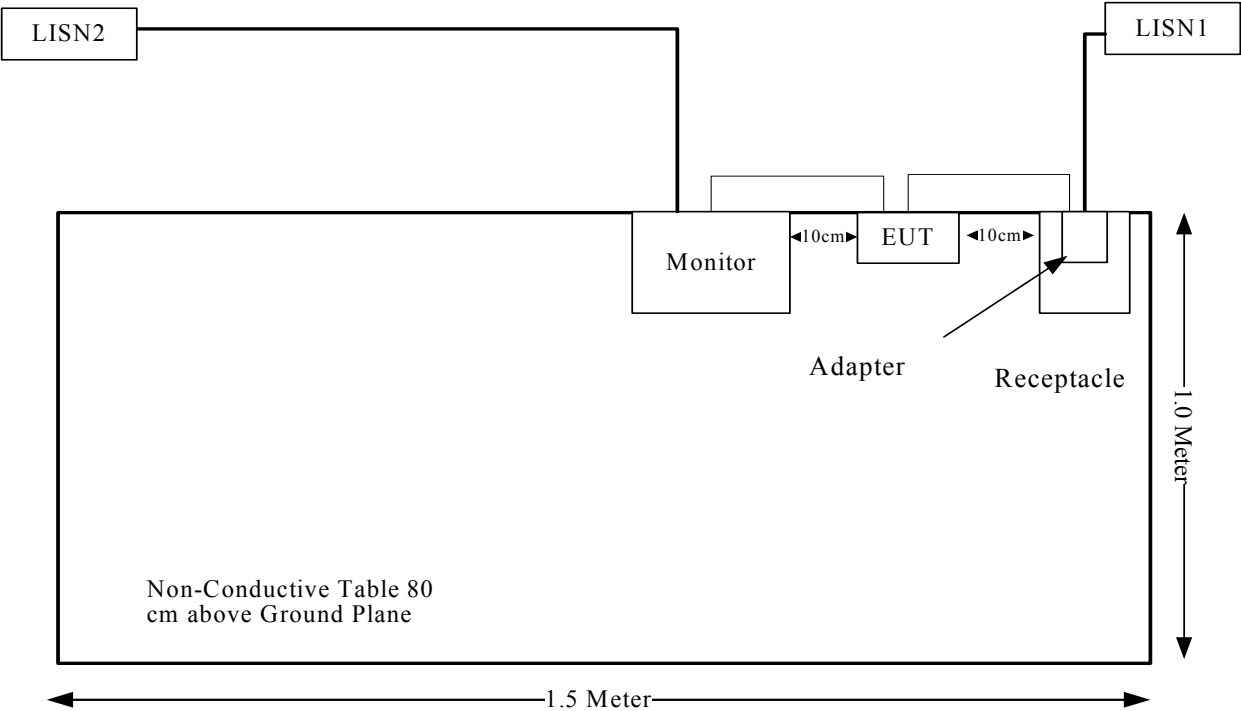
Local Support Equipment

Manufacturer	Description	Model	Serial Number
DELL	Monitor	U3011t	CN-OPH5NY-74445-16T-290L

External Cable

Cable Description	Length (m)	From/Port	To
shielded detachable HDMI cable	2.5	EUT	Monitor

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.407 (f), §2.1091, §1.1310	RF Exposure Evaluation	Compliance
§15.203	Antenna Requirement	Compliance*
§15.407(b)(6)& §15.207(a)	Conducted Emissions	Compliance*
§15.205& §15.209 &§15.407(b) (1),(6),(7)	Undesirable Emission& Restricted Bands	Compliance**
§15.407(b) (1) (2) (3) (4)	OUT Of Band Emissions	Compliance
§15.407(a) (1)	26 dB Bandwidth	Compliance**
§15.407(a)(1),	Conducted Transmitter Output Power	Compliance**
§15.407 (a)(1),(5)	Power Spectral Density	Compliance**
§15.407(a)(6)	Peak Excursion Ratio	Compliance**

Note:

Compliance*: The test result is compliance; please refer to the test report No.: R1DG120210005-00

Compliance**: The test results of 5150~5250MHz please refer to the test report No.: R1DG120210005-00.

FCC §15.407 (f), §2.1091, §1.1310– RF EXPOSURE EVALUATION

Applicable Standard

According to subpart 15.407(f) and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

Calculated Formulary:

Predication of MPE limit at a given distance

$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm²);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Calculated Data:

Frequency	Antenna Gain		Conducted Power		Evaluation Distance	Power Density	MPE Limit
(MHz)	(dBi)	(numeric)	(dBm)	(mW)	(cm)	(mW/cm ²)	(mW/cm ²)
5755	2.9	1.95	15.12	32.51	20.00	0.01262	1.0

Result: The device meet FCC MPE at 20cm distance

§15.205 & §15.209 & §15.407(B) (1),(6),(7)– UNDESIRABLE EMISSION & RESTRICTED BANDS

Applicable Standard

FCC §15.407 (b) (1),(2), (3), (6), (7); §15.209; §15.205;

For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz.

For transmitters operating in the 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz. Devices operating in the 5.25–5.35 GHz band that generate emissions in the 5.15–5.25 GHz band must meet all applicable technical requirements for operation in the 5.15–5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of –27 dBm/MHz in the 5.15–5.25 GHz band.

For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of –27 dBm/MHz.

For transmitters operating in the 5.725–5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of –17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of –27 dBm/MHz.

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

Measurement Uncertainty

Compliance or non-compliance with a disturbance limit shall be determined in the following manner:

If U_{lab} is less than or equal to U_{cisp} of Table 1, then:

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

If U_{lab} is greater than U_{cisp} of Table 1, then:

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

Based on CISPR 16-4-2-2011, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Dongguan) is:

30M~200MHz: 5.0 dB

200M~1GHz: 6.2 dB

1G~6GHz: 4.45 dB

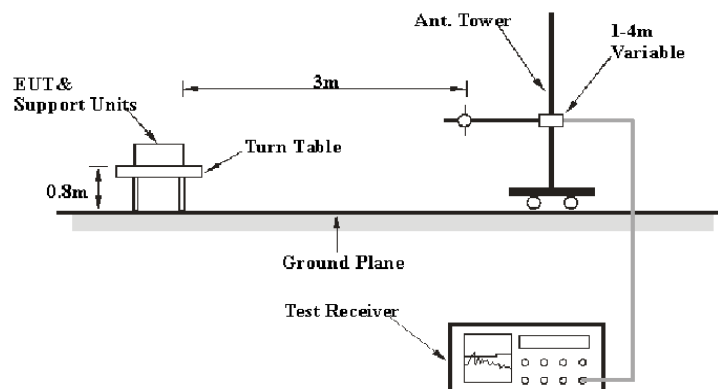
6G~18GHz: 5.23 dB

Table 1 – Values of U_{cispr}

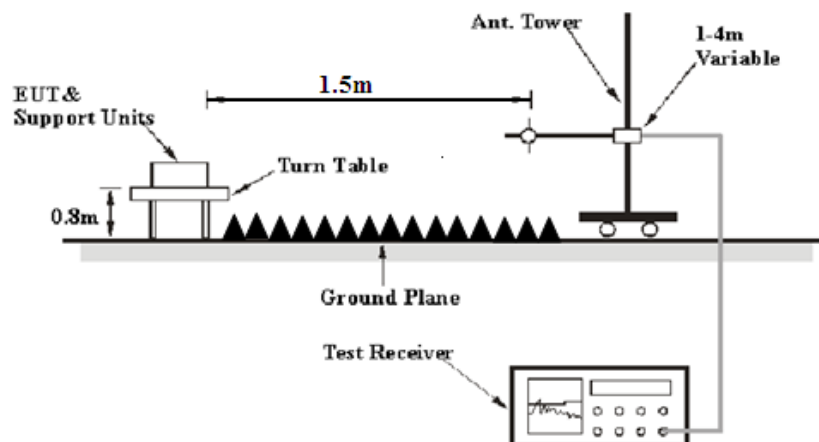
Measurement	U_{cispr}
Radiated disturbance (electric field strength at an OATS or in a SAC) (30 MHz to 1000 MHz)	6.3 dB
Radiated disturbance (electric field strength in a FAR) (1 GHz to 6 GHz)	5.2 dB
Radiated disturbance (electric field strength in a FAR) (6 GHz to 18 GHz)	5.5 dB

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission tests were performed in the 1.5 meters chamber test site, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC 15.209, and FCC 15.407 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The adapter was connected to a 120 VAC/60 Hz power source,

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 40 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

<i>Frequency Range</i>	<i>RBW</i>	<i>Video B/W</i>	<i>Detector</i>
30 MHz – 1000 MHz	100 kHz	300 kHz	QP
1000 MHz – 40 GHz	1 MHz	3 MHz	PK
1000 MHz – 40 GHz	1 MHz	10 Hz	Ave.

Test Procedure

During the radiated emission test, the adapter was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all the installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1GHz, peak and Average detection modes for frequencies above 1GHz.

The EUT is set 1.5 meter away from the testing antenna, which is varied from 1-4 mete, and the EUT is placed on a turntable, which is 0.8 meter above ground plane, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna should be changed the polarization both of horizontal and vertical.

According to C63.4, the above 1G test result shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade from 3m to 1.5m

Distance extrapolation factor = $20 \log (3\text{m}/1.5\text{m})$ dB

Extrapolation result = Corrected Amplitude (dBμV/m) -6dB

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI TEST RECEIVER	ESCI	100224	2013-5-6	2014-5-5
Sunol Sciences	Antenna	JB3	A060611-1	2012-9-6	2015-9-5
HP	HP AMPLIFIER	8447E	2434A02181	N/A	N/A
R&S	Spectrum analyzer	FSEM 30	849016/001	2012-9-4	2013-9-3
ETS LINDGREN	horn antenna	3115	000 527 35	2012-9-6	2015-9-5
Mini-Circuit	Amplifier	ZVA-213-S+	54201245	N/A	N/A
R&S	Spectrum analyzer	FSP 38	100478	2013-6-16	2014-6-15

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Primary Standards and International System of Units (SI).

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, Section 15.205, 15.209 and 15.407, with the worst margin reading of:

2.35 dB at 11510 MHz in the Vertical polarization

Test Data**Environmental Conditions**

Temperature:	26.1 ° C
Relative Humidity:	59 %
ATM Pressure:	99.7 kPa

The testing was performed by Ares Liu on 2013-06-18.

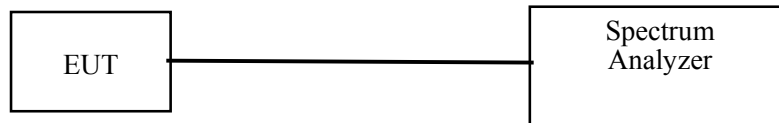
Mode: Transmitting

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	FCC 15.407	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	Limit (dBμV/m)	Margin (dB)
Channel: 5755 MHz										
5755	64.84	PK	H	32.15	5.17	0.00	102.16	96.16	N/A	N/A
5755	55.31	AV	H	32.15	5.17	0.00	92.63	86.63	N/A	N/A
5755	72.34	PK	V	32.15	5.17	0.00	109.66	103.66	N/A	N/A
5755	62.69	AV	V	32.15	5.17	0.00	100.01	94.01	N/A	N/A
5725	36.79	PK	V	32.15	4.83	0.00	73.77	67.77	78.20	10.43
5715	34.09	PK	V	32.14	4.69	0.00	70.92	64.92	68.20	3.28 *
11510	42.21	PK	V	37.90	7.84	25.92	62.03	56.03	68.20	12.17
11510	37.83	AV	V	37.90	7.84	25.92	57.65	51.65	54.00	2.35*
17265	32.37	PK	V	41.09	12.54	24.88	61.12	55.12	68.20	13.08
1485	42.34	PK	V	23.56	3.00	27.03	41.87	35.87	68.20	32.33
1485	38.39	AV	V	23.56	3.00	27.03	37.92	31.92	54.00	22.08
325.62	30.62	QP	V	14.62	2.16	21.58	25.82	25.82	46.00	20.18
Channel: 5795 MHz										
5795	65.15	PK	H	32.16	5.14	0.00	102.45	96.45	N/A	N/A
5795	55.72	AV	H	32.16	5.14	0.00	93.02	87.02	N/A	N/A
5795	72.34	PK	V	32.16	5.14	0.00	109.64	103.64	N/A	N/A
5795	62.69	AV	V	32.16	5.14	0.00	99.99	93.99	N/A	N/A
5825	37.98	PK	V	32.17	5.35	0.00	75.50	69.50	78.20	8.70
5835	32.42	PK	V	32.17	5.43	0.00	70.02	64.02	68.20	4.18*
11590	40.47	PK	V	37.90	8.01	25.91	60.47	54.47	68.20	13.73
11590	37.31	AV	V	37.90	8.01	25.91	57.31	51.31	54.00	2.69*
17385	32.65	PK	V	41.81	12.17	24.61	62.02	56.02	68.20	12.18
1485	40.21	PK	V	23.56	3.00	27.03	39.74	33.74	68.20	34.46
1485	36.49	AV	V	23.56	3.00	27.03	36.02	30.02	54.00	23.98
327.11	31.38	QP	V	14.64	2.16	21.59	26.59	26.59	46.00	19.41

*Within measurement uncertainty!

Conducted Spurious Emission at Antenna Port**Test Procedure**

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The Resolution bandwidth is set to 1MHz, The Video bandwidth is set to ≥ 1 MHz, report the peak value out of the operating band.
3. Repeat above procedures until all frequencies measured were complete.

**Test Data****Environmental Conditions**

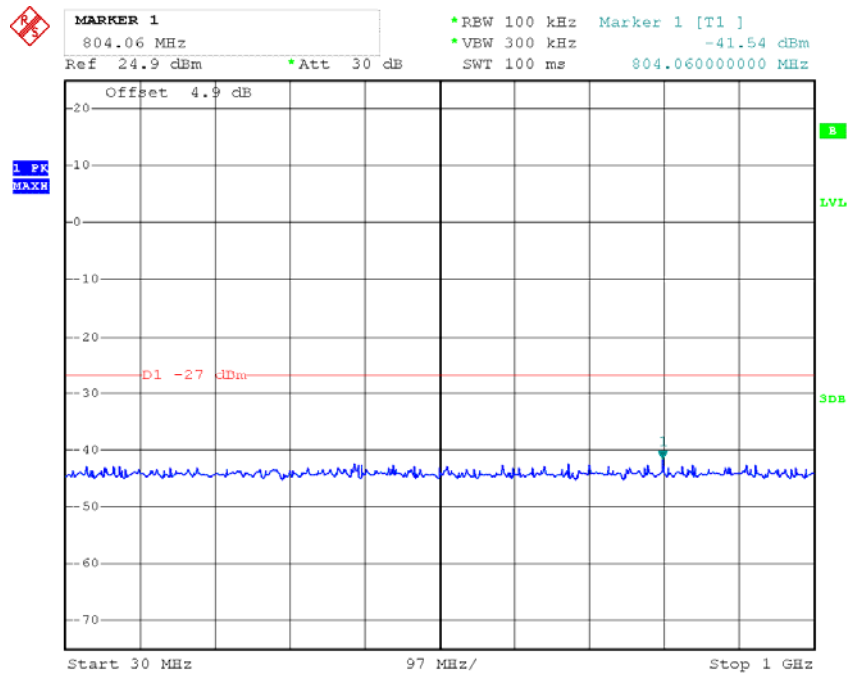
Temperature:	24.7~26.1°C
Relative Humidity:	59~66 %
ATM Pressure:	99.7~99.9 kPa

The testing was performed by Ares Liu from 2013-06-17 to 2013-06-18.

Please refer to the following table and plots.

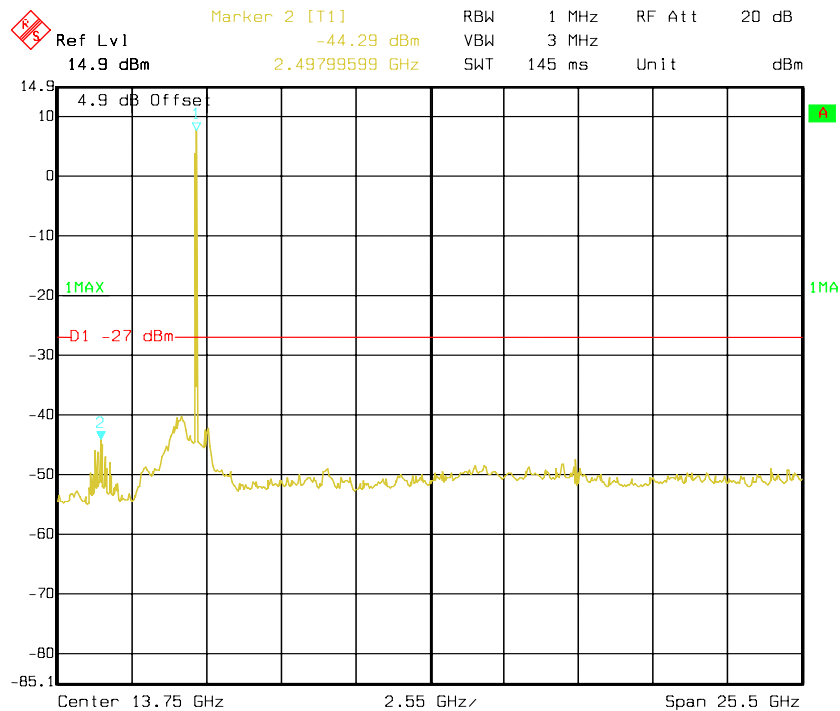
Frequency (MHz)	Worst Reading Level (dBm)	Limit (dBm)	Result
5755	-40.11	-27	PASS
5795	-39.58	-27	PASS

5755MHz(30MHz-1GHz)



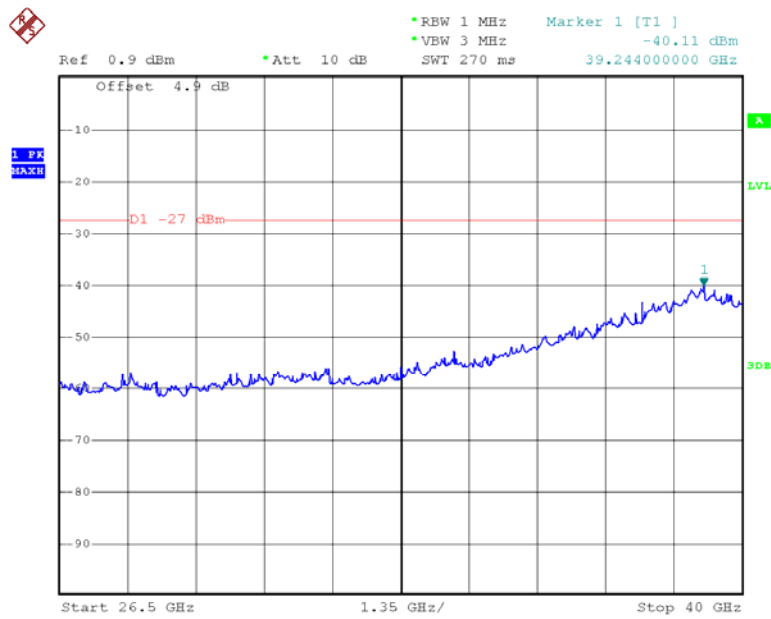
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5755MHz(1GHz-26.5GHz)



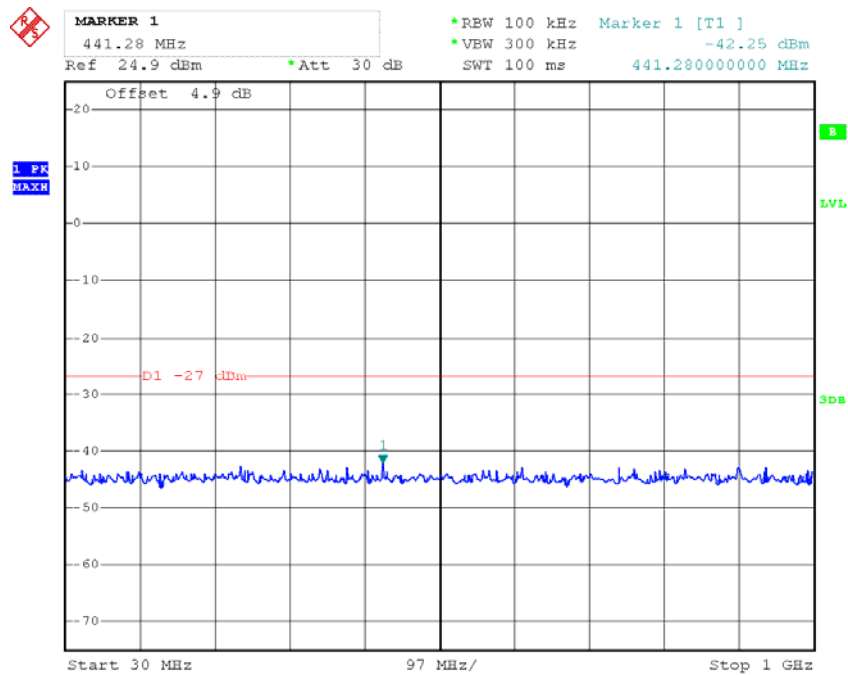
Date: 18.JUN.2013 13:46:53

5755MHz(26.5GHz-40GHz)



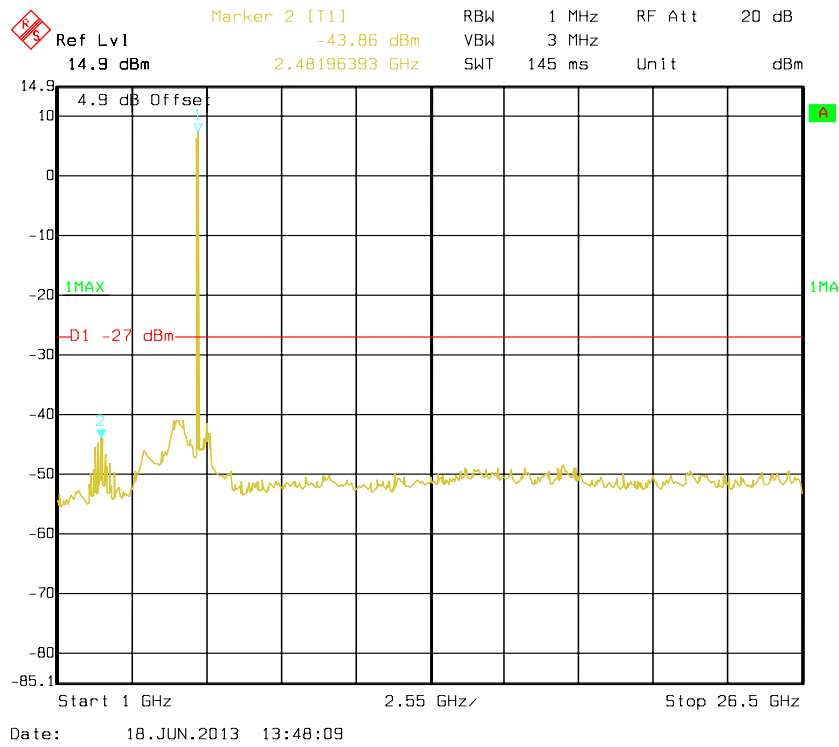
Date: 17.JUN.2013 11:53:38

5795MHz(30MHz-1GHz)

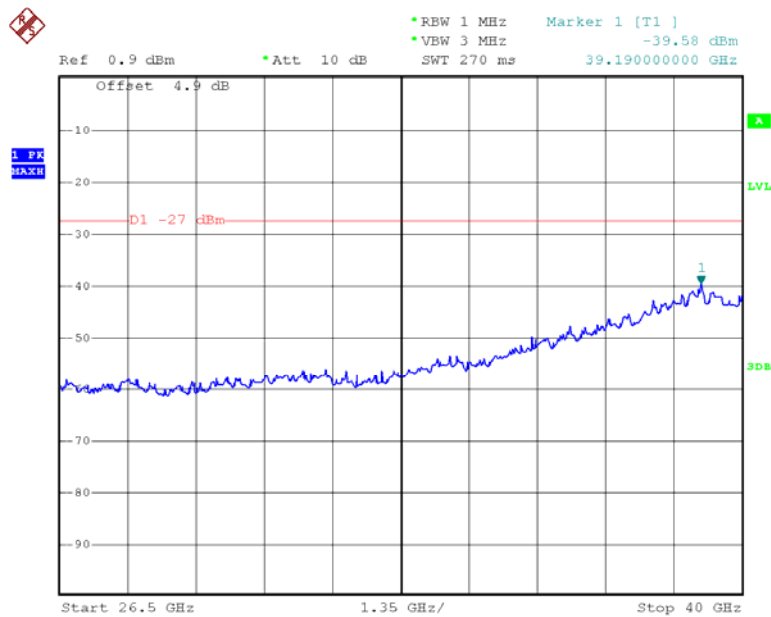


Date: 18.JUN.2013 11:32:07

5795MHz(1GHz-26.5GHz)



5795MHz(26.5GHz-40GHz)



Date: 17.JUN.2013 11:46:12

FCC §15.407(b) (1) (2) (3) (4) – OUT OF BAND EMISSIONS**Applicable Standard**

FCC §15.407 (b) (1), (2), (3), (4),;

For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz.

For transmitters operating in the 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz. Devices operating in the 5.25–5.35 GHz band that generate emissions in the 5.15–5.25 GHz band must meet all applicable technical requirements for operation in the 5.15–5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of –27 dBm/MHz in the 5.15–5.25 GHz band.

For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of –27 dBm/MHz.

For transmitters operating in the 5.725–5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of –17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of –27 dBm/MHz.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibration or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 1 MHz and VBW to 3MHz of spectrum analyzer.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum analyzer	ESPI	100337	2012-11-10	2013-11-9

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Primary Standards and International System of Units (SI).

Test Data

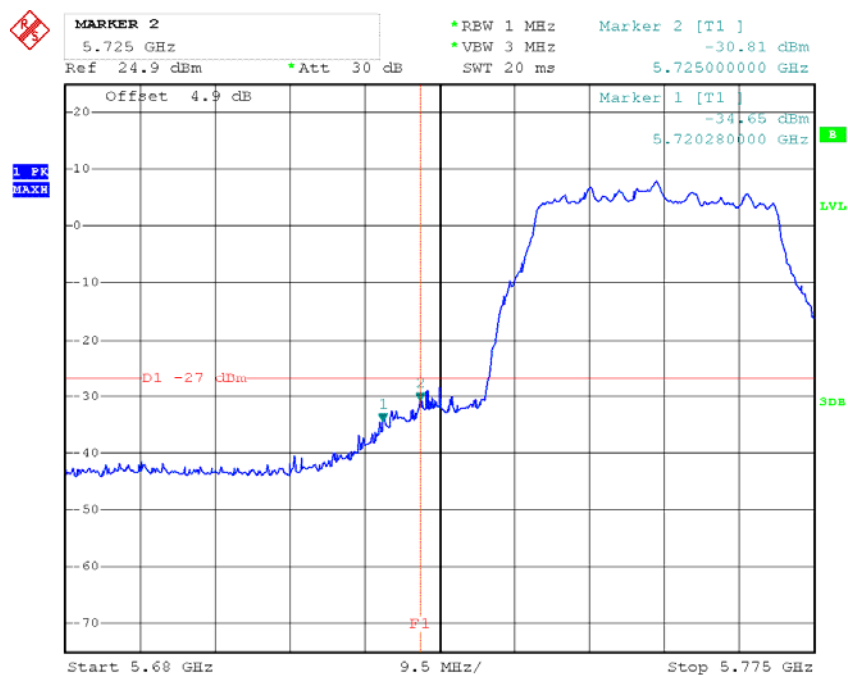
Environmental Conditions

Temperature:	27.8 °C
Relative Humidity:	67 %
ATM Pressure:	99.7 kPa

The testing was performed by Ares Liu on 2013-06-18.

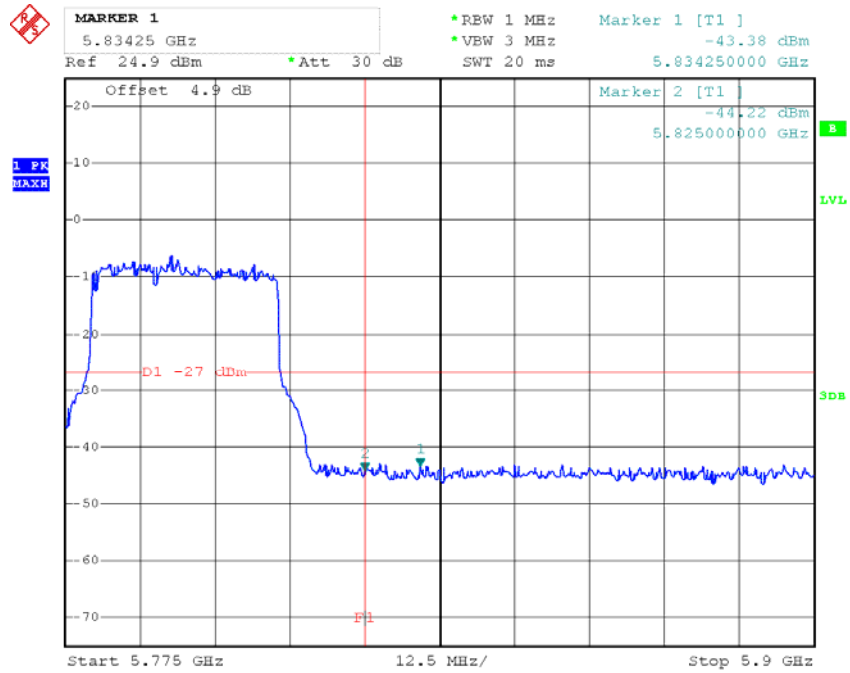
Test mode: transmitting

5755 MHz



Date: 18.JUN.2013 11:15:15

5795 MHz



Date: 18.JUN.2013 11:33:00

FCC §15.407(a) (1) – 26 dB OCCUPIED BANDWIDTH**Applicable Standard**

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725–5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 17 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

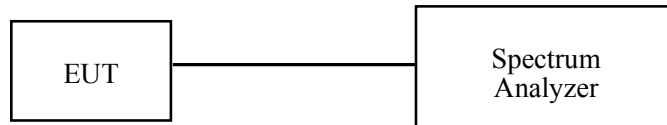
Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum analyzer	ESPI	100337	2012-11-10	2013-11-9

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Primary Standards and International System of Units (SI).

Test Procedure

6. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
7. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
8. Use a RBW = approximately 1% of the emission bandwidth. Set the VBW > RBW. Use a peak detector. Do not use the Max Hold function. Rather, use the view button to capture the emission. Measure maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat, measurement as needed until the RBW/EBW ratio is approximately 1%.
9. Repeat above procedures until all frequencies measured were complete.

**Test Data****Environmental Conditions**

Temperature:	27.8 °C
Relative Humidity:	67 %
ATM Pressure:	99.7 kPa

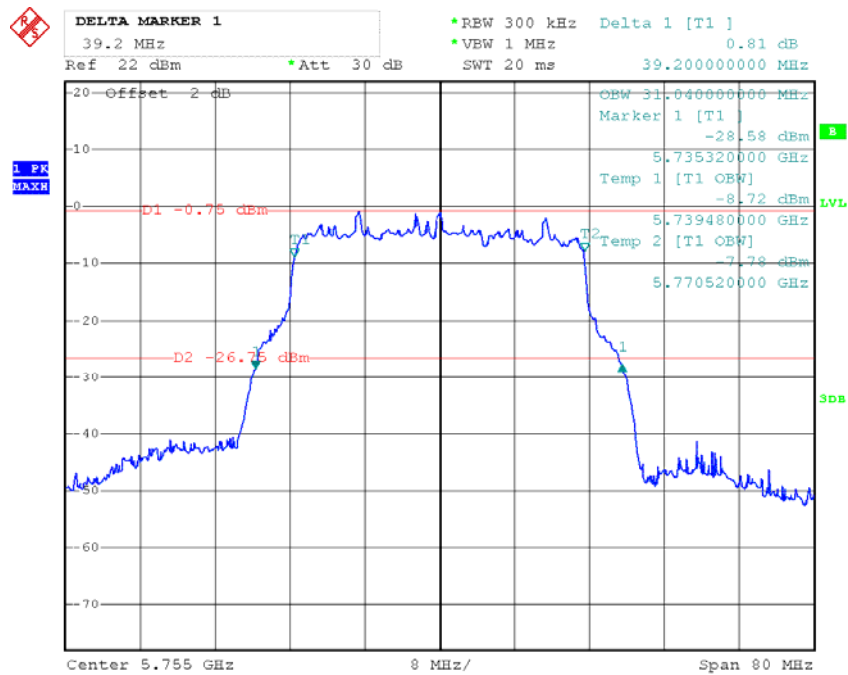
The testing was performed by Ares Liu on 2013-06-18.

Test Result: Pass.

Please refer to the following tables and plots.

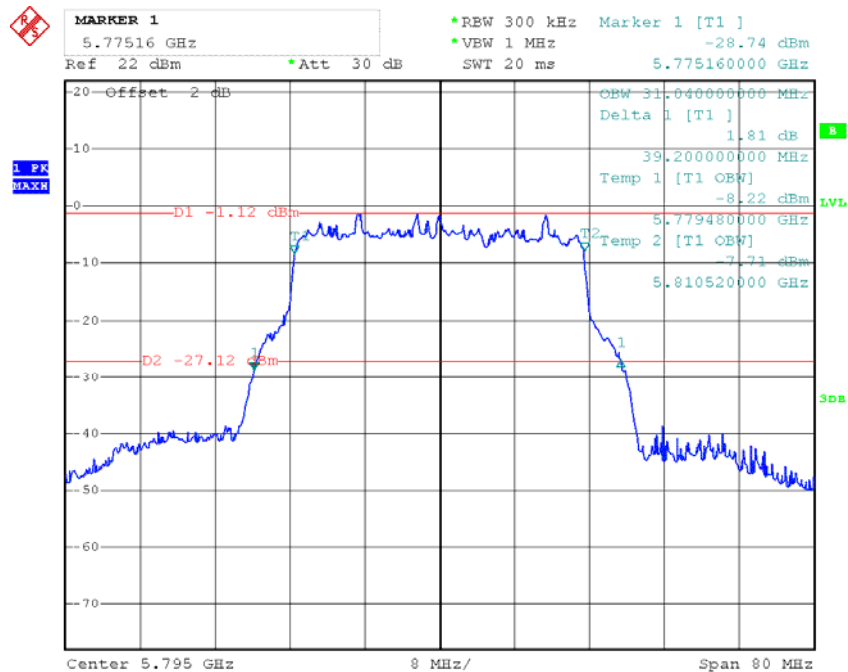
Frequency	26 dB Bandwidth
(MHz)	(MHz)
5755	39.2
5795	39.2

5755 MHz



Date: 18.JUN.2013 11:02:44

5795 MHz



Date: 18.JUN.2013 11:25:01

FCC §15.407(a) (1) – CONDUCTED TRANSMITTER OUTPUT POWER**Applicable Standard**

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725–5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 17 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum analyzer	ESPI	100337	2012-11-10	2013-11-9

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Primary Standards and International System of Units (SI).

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set span to encompass the entire emission bandwidth (EBW) of the signal. Set RBW = 1 MHz. Set VBW \geq 3 MHz. Use sample detector mode Use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at full control power for entire sweep of every sweep. If the device transmits continuously, with no off intervals or reduced power intervals, the trigger may be set to “free run”. Trace average 100 traces in power averaging mode. Compute power by integrating the spectrum across the 26 dB EBW of the signal. The integration can be performed using the spectrum analyzer’s band power measurement function with band limits set equal to the EBW band edges or by summing power levels in each 1 MHz band in linear power terms.

4. The 1 MHz band power levels to be summed can be obtained by averaging, in linear power terms, power levels in each frequency bin across the 1 MHz.
5. Repeat above procedures until all frequencies measured were complete.

Test Data

Environmental Conditions

Temperature:	27.8 °C
Relative Humidity:	67 %
ATM Pressure:	99.7 kPa

The testing was performed by Ares Liu on 2013-06-18.

Test Mode: Transmitting

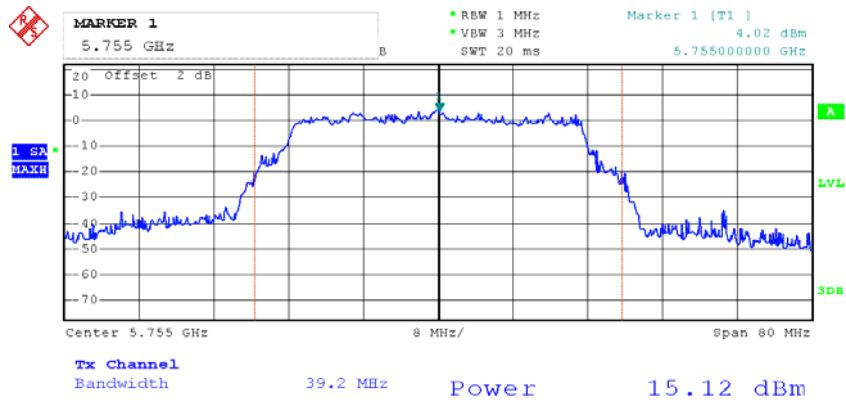
Test Result: Pass

Please refer to the following tables and plots.

Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Result
5755	15.12	30	PASS
5795	15.01	30	PASS

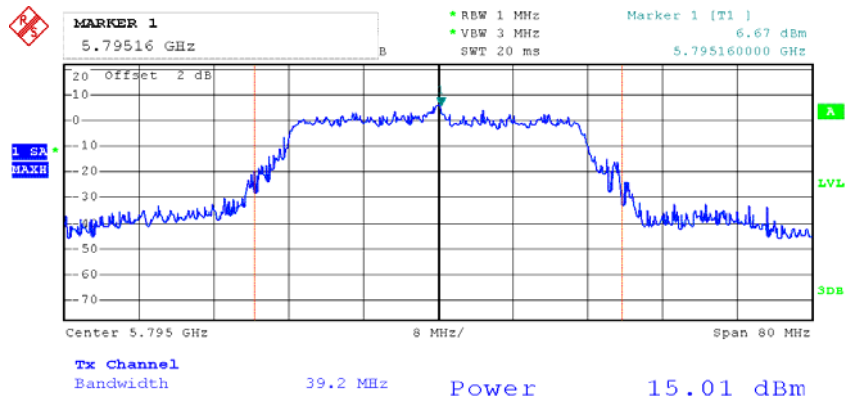
*Note: The antenna Gain is 2.9dBi.

RF Output Power, 5755 MHz



Date: 18.JUN.2013 10:54:03

RF Output Power, 5795 MHz



Date: 18.JUN.2013 11:26:10

FCC §15.407(a) (1) (5) - POWER SPECTRAL DENSITY**Applicable Standard**

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725–5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 17 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Use sample detector and power averaging (not video averaging) mode. Set RBW= 1 MHz*, VBW > 1 MHz. The PPSD is the highest level found across the emission in any 1-MHz band after 100 sweeps of averaging. This method is permitted only if the transmission pulse or sequence of pulses remains at maximum transmits power throughout each of the 100 sweeps of averaging and that the interval between pulses is not included in any of the sweeps.
4. Repeat above procedures until all frequencies measured were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum analyzer	ESPI	100337	2012-11-10	2013-11-9

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Primary Standards and International System of Units (SI).

Test Data**Environmental Conditions**

Temperature:	27.8 °C
Relative Humidity:	67 %
ATM Pressure:	99.7 kPa

The testing was performed by Ares Liu on 2013-06-18.

Test Mode: Transmitting

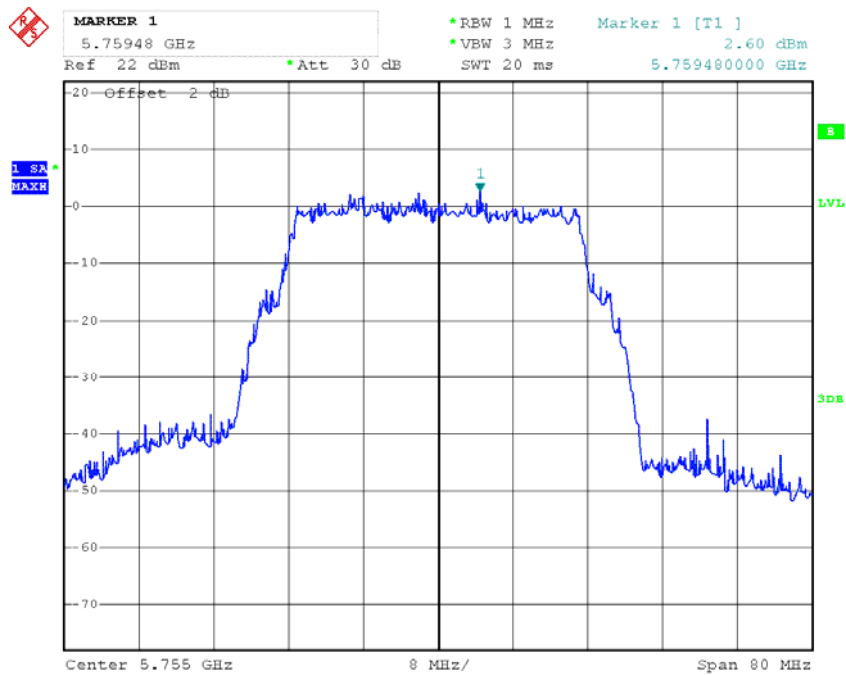
Test Result: Pass

Please refer to the following tables and plots.

Frequency (MHz)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)
5755	2.60	17
5795	3.23	17

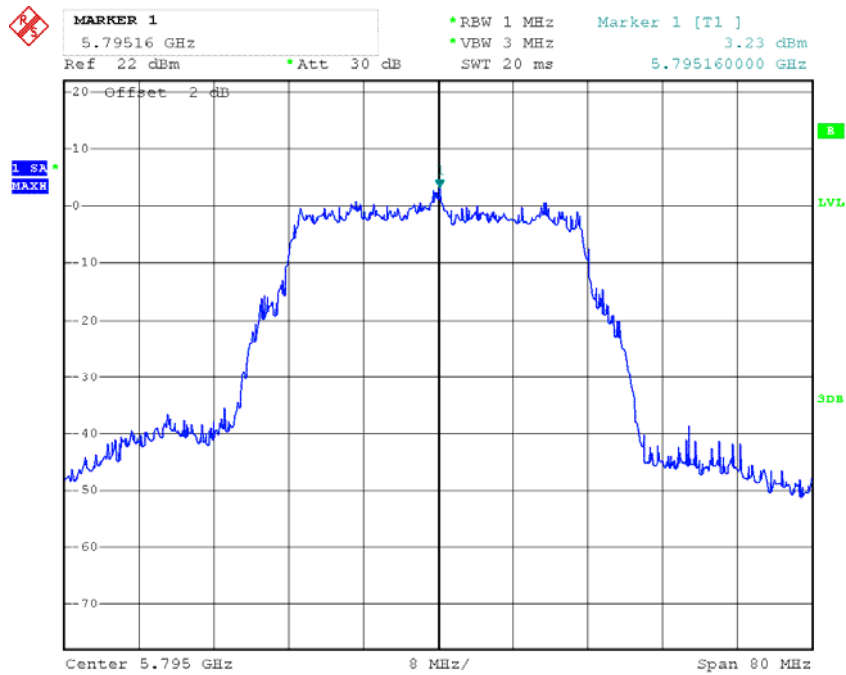
*Note: The antenna Gain is 2.9dBi.

5755 MHz



Date: 18.JUN.2013 10:57:31

5795 MHz



Date: 18.JUN.2013 11:27:54

FCC §15.407(a) (6) – PEAK EXCURSION RATIO

Applicable Standard

According to §15.407(a) (6), the ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

Test Procedure

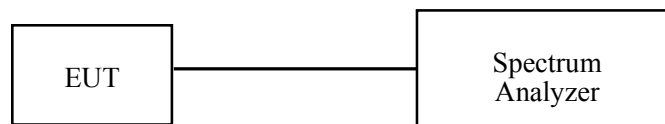
Set the spectrum analyzer span to view the entire emission bandwidth.
The largest difference between the following two traces must be ≤ 13 dB for all frequencies across the emission bandwidth. Submit a plot.

1st Trace:

- Set RBW = 1 MHz, VBW ≥ 3 MHz with peak detector and maxhold settings.

2nd Trace:

- create the 2nd trace using the settings described in the setion “FCC §15.407(a)(1)(2) – CONDUCTED TRANSMITTER OUTPUT POWER”.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum analyzer	ESPI	100337	2012-11-10	2013-11-9

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	27.8 °C
Relative Humidity:	67 %
ATM Pressure:	99.7 kPa

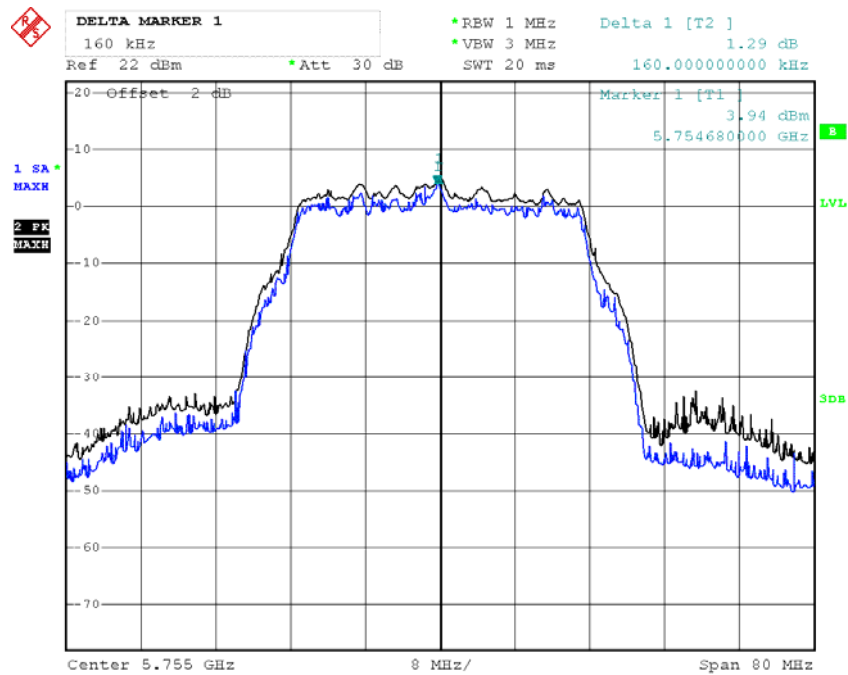
The testing was performed by Ares Liu on 2013-06-18.

Test Mode: Transmitting

Please refer to the following tables and plots.

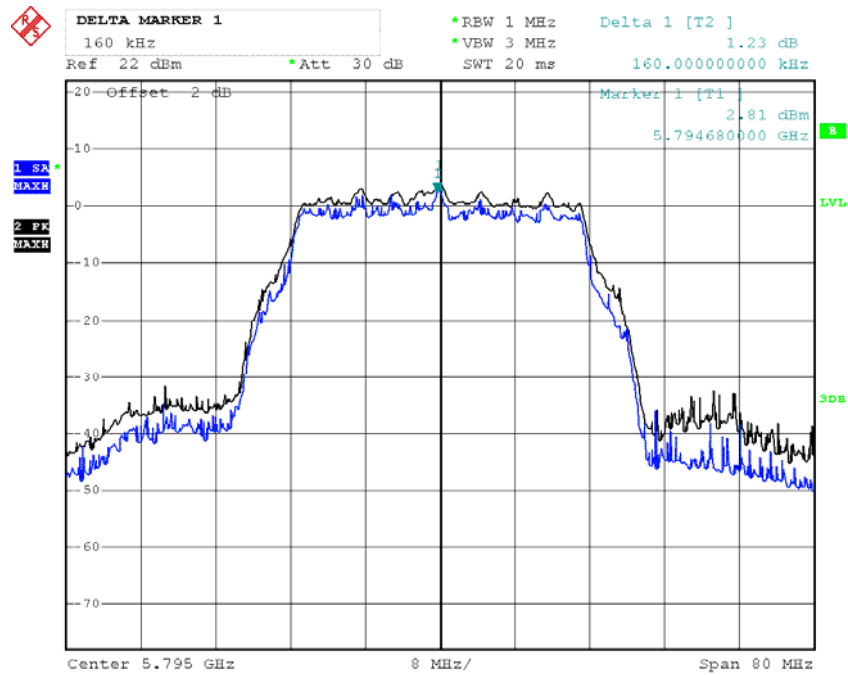
Channel Frequency MHz	Peak Excursion Ratio (dB)	Limit (dB)
5755	1.29	13
5795	1.23	13

5755 MHz



Date: 18.JUN.2013 11:00:10

5795 MHz



Date: 18.JUN.2013 11:29:10

DECLARATION OF SIMILARITY



Shenzhen Crystal Video Technology Co.,LTD.

Add: F13, F518 Idea Land, Baoyuan Road, Baoan Central Area, Shenzhen, China

Tel: 0755-26716030

Fax: 0755-23496331

DECLARATION OF SIMILARITY

Date: 2013-6-3

To:

Bay Area Compliance Laboratories Corp. (Dongguan)

No.69 Pulong Village Puxinhu Industry Zone Tangxia,
Dongguan, China

Tel: +86 769 86858888 Fax: +86 769 86858891

<http://www.baclcorp.com>

Dear Sir or Madam:

We, Shenzhen Crystal Video Technology Co.,LTD., hereby declare that product: wireless high-definition receiver, models: CV6620, CV6620-IL, CB6620-IL, CB6628, 5002R, 5003R are electrically identical with the model: CB6620 which was tested by BACL with the same electromagnetic emissions and electromagnetic compatibility characteristics. The results of which are featured in BACL project: R2DG130603002-A1.

A description of the difference among the seven models and those that are declared similar are as follows:

They are the same product, and just have the different model name, the rest are the same.

Please contact me should there be need for any additional clarification or information.

Best Regards,

Xiao, Jun

Project Manager

***** END OF REPORT *****