FCC PART 15.247

TEST REPORT

For

Circus World Displays Ltd.

4080 Montrose Rd, Niagara Falls, Ontario, Canada

FCC ID: SMH-32205

Report Type:	Product Type:
Original Report	2.4GHz Video Baby Monitor (Camera unit)

Test Engineer:	Simon Wang
Report Number:	RSZ151023005-00TX
Report Date:	2015-12-14
Reviewed By:	Candy Li RF Engineer
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Circus World Displays Ltd.*'s product, model number: *32200 (FCC ID: SMH-32205)* (the "EUT") in this report was a camera unit of *2.4GHz Video Baby Monitor*, which was measured approximately: 9.0 cm (L) x 9.0 cm (W) x 11.1 cm (H), rated with input voltage: DC 5.9V from adapter.

Adapter Information:
Model: HX-AD059080-U06
Input: AC 100-240V, 50/60Hz, 0.15A
Output: DC 5.9V, 0.8A

Note: This product, model 32205,32208,32202,32210 and 32200, they are identical schematics, the difference between them is explained in the attached product similarity declaration letter. Model 32200 was selected for full test,

** All measurement and test data in this report was gathered from production sample serial number: 1506880 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2015-10-23.*

Objective

This report is prepared on behalf of *Circus World Displays Ltd.* in accordance with Part 2-Subpart J, Part 15-Subparts A, B and C of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

Related Submittal(s)/Grant(s)

The monitor unit of a system with FCC ID: SMH-35052.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement uncertainty with radiated emission is 5.91 dB for 30MHz-1GHz and 4.92 dB for above 1GHz, 1.95dB for conducted measurement.

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) 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 on October 31, 2013. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.10-2013.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in an engineering mode which was selected by manufacturer.

EUT Exercise Software

No exercise software was used.

Equipment Modifications

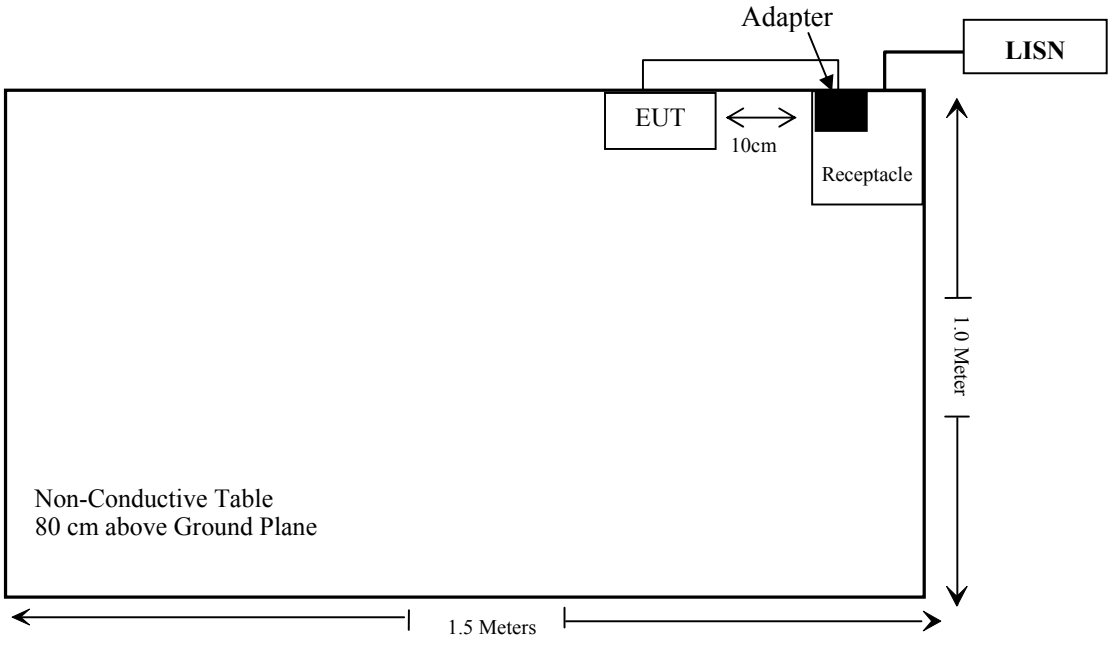
No modification was made to the EUT tested.

External I/O Cable

Cable Description	Length (m)	From/Port	To
Un-shielding Un-detachable DC Power Cable	2.8	EUT	Adapter

Block Diagram of Test Setup

For conducted emission:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §1.1307 (b)(1), §2.1091	Maximum Permissible Exposure (MPE)	Compliance
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.205, §15.209, §15.247(d)	Radiated Emissions	Compliance
§15.247 (a)(1)	20 dB Emission Bandwidth	Compliance
§15.247(a)(1)	Channel Separation	Compliance
§15.247(a)(1)(iii)	Time of Occupancy (Dwell Time)	Compliance
§15.247(a)(1)(iii)	Quantity of hopping channel	Compliance
§15.247(b)(1)	Peak Output Power Measurement	Compliance
§15.247(d)	Band Edges	Compliance

FCC §15.247 (i) & §1.1307 (b) (1) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 15.247 (i) and subpart 1.1307 (b)(1), 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for General Population/Uncontrolled Exposure

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

Result

Calculated Formulary:

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

S = power density (in appropriate units, e.g. mW/cm^2)
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)

Frequency (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
	(dBi)	(numeric)	(dBm)	(mW)			
2471.625	2	1.58	13.10	20.42	20	0.0064	1.0

Note: To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

Result: Compliance

FCC §15.203 – ANTENNA REQUIREMENT

Applicable Standard

According to FCC § 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.

Antenna Connector Construction

The EUT has one integrated antenna arrangement, which was permanently attached and the antenna gain is 2.0 dBi, fulfill the requirement of this section. Please refer to the EUT photos.

Result: Compliance.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207

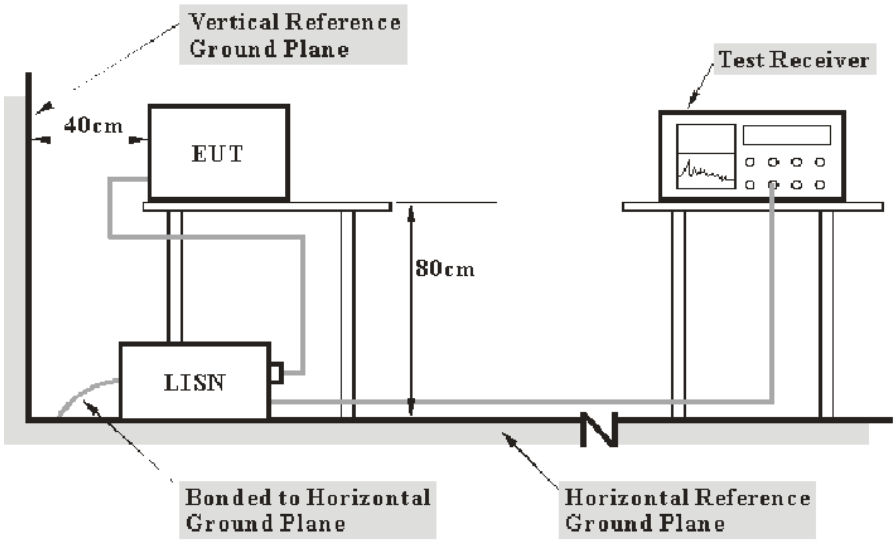
Measurement Uncertainty

Input quantities to be considered for conducted disturbance measurements maybe receiver reading, attenuation of the connection between AMN/ISN and receiver, AMN/ISN voltage division factor, AMN/ISN VDF frequency interpolation and receiver related input quantities, etc.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of conducted disturbance test at Bay Area Compliance Laboratories Corp. (Shenzhen) is shown as below. And the uncertainty will not be taken into consideration for the test data recorded in the report.

Port	Measurement uncertainty
AC Mains	3.26 dB (k=2, 95% level of confidence)
CAT 3	3.70 dB (k=2, 95% level of confidence)
CAT 5	3.86 dB (k=2, 95% level of confidence)
CAT 6	4.64 dB (k=2, 95% level of confidence)

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Schwarz	EMI Test Receiver	ESCI	101122	2015-06-03	2016-06-02
Rohde & Schwarz	LISN	ENV216	3560.6650.12-101613-Yb	2014-12-01	2015-12-01
Rohde & Schwarz	Transient limitator	ESH3Z2	DE25985	2015-05-14	2016-05-13
Rohde & Schwarz	CE Test software	EMC 32	V8.53	NCR	NCR

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that 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 Part 15.207, the worst margin reading as bellow:

12.6 dB at **1.775750 MHz** in the **Line** conducted mode

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level compliance with the limit if

$$L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$$

In BACL., $U_{(Lm)}$ is less than U_{cispr}, if L_m is less than L_{lim}, it implies that the EUT complies with the limit.

Test Data

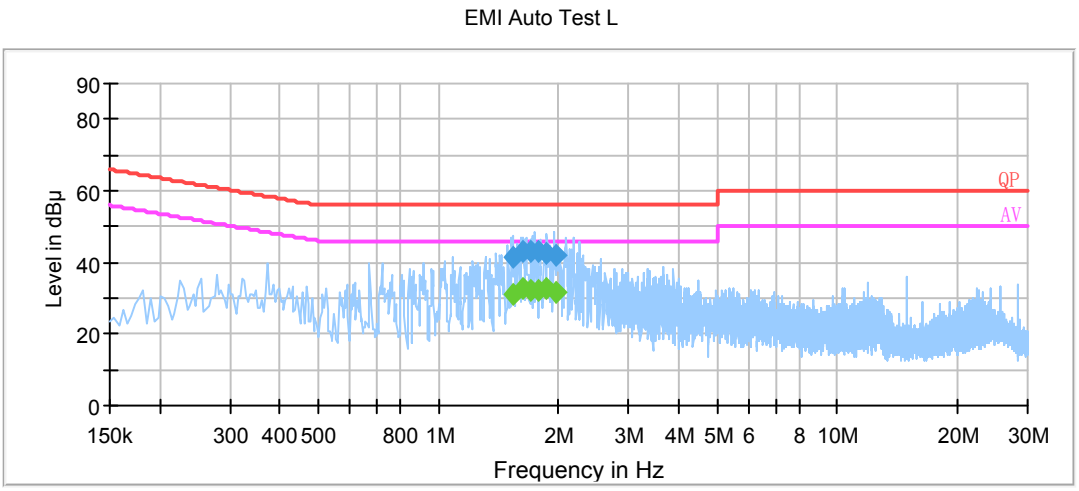
Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	51 %
ATM Pressure:	101.5 kPa

The testing was performed by Simon Wang on 2015-10-28.

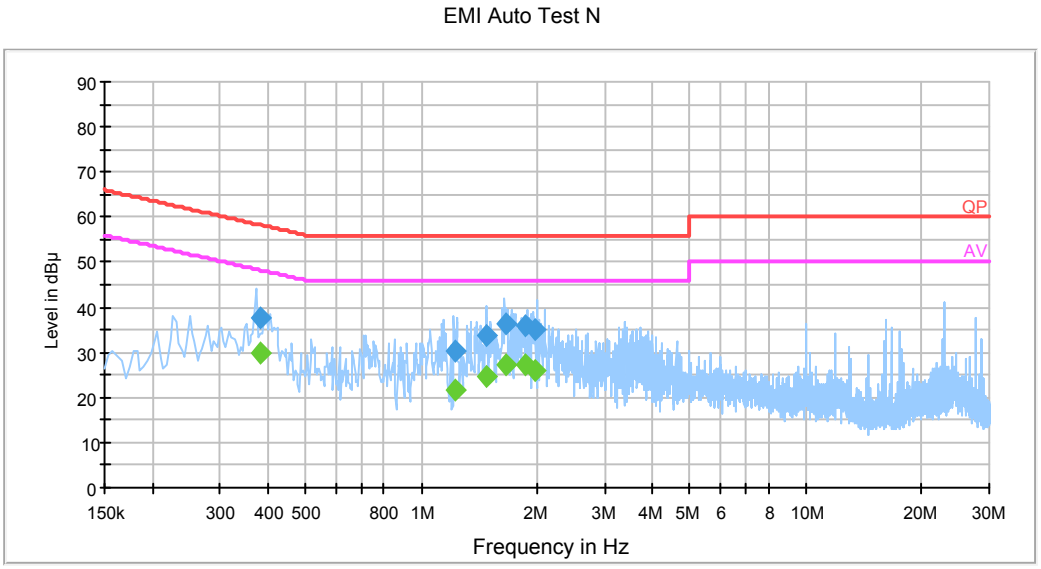
Test Mode: Transmitting

AC 120 V, 60 Hz, Line:



Frequency (MHz)	Corrected Amplitude (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/QP/Ave.)
1.538990	41.5	20.0	56.0	14.5	QP
1.538990	31.0	20.0	46.0	15.0	Ave.
1.629610	43.2	20.0	56.0	12.8	QP
1.629610	32.6	20.0	46.0	13.4	Ave.
1.708290	43.1	20.0	56.0	12.9	QP
1.708290	32.4	20.0	46.0	13.6	Ave.
1.775750	43.4	20.0	56.0	12.6	QP
1.775750	32.4	20.0	46.0	13.6	Ave.
1.865890	42.8	20.0	56.0	13.2	QP
1.865890	32.5	20.0	46.0	13.5	Ave.
1.964690	42.1	20.0	56.0	13.9	QP
1.964690	31.5	20.0	46.0	14.5	Ave.

AC 120V, 60 Hz, Neutral:



Frequency (MHz)	Corrected Amplitude (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/QP/Ave.)
0.379610	37.9	19.9	58.3	20.4	QP
0.379610	30.1	19.9	48.3	18.2	Ave.
1.231730	30.4	20.0	56.0	25.6	QP
1.231730	21.7	20.0	46.0	24.3	Ave.
1.475830	33.9	20.0	56.0	22.1	QP
1.475830	24.6	20.0	46.0	21.4	Ave.
1.669250	36.5	20.0	56.0	19.5	QP
1.669250	27.4	20.0	46.0	18.6	Ave.
1.869710	36.0	20.0	56.0	20.0	QP
1.869710	27.1	20.0	46.0	18.9	Ave.
1.975910	35.2	20.0	56.0	20.8	QP
1.975910	25.9	20.0	46.0	20.1	Ave.

Note:
1) Corrected Amplitude = Reading + Correction Factor
2) Correction Factor =LISN VDF (Voltage Division Factor) + Cable Loss
3) Margin = Limit – Corrected Amplitude

FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

FCC §15.247 (d); §15.209; §15.205;

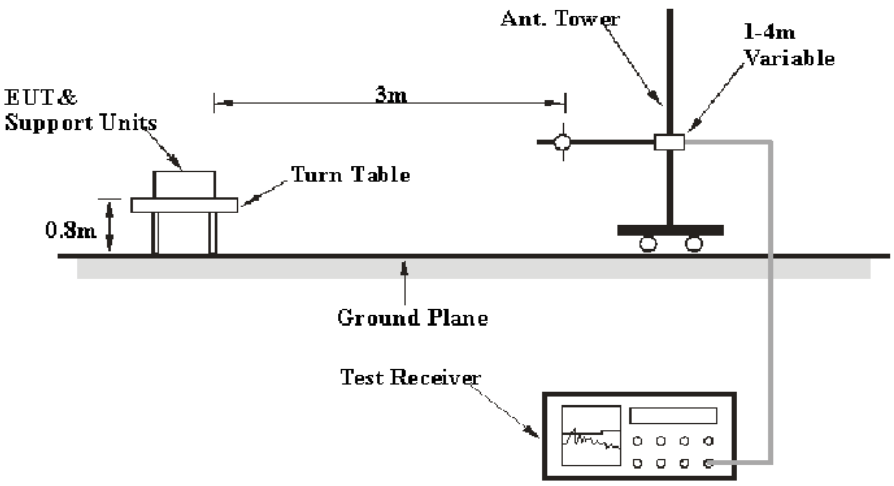
Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

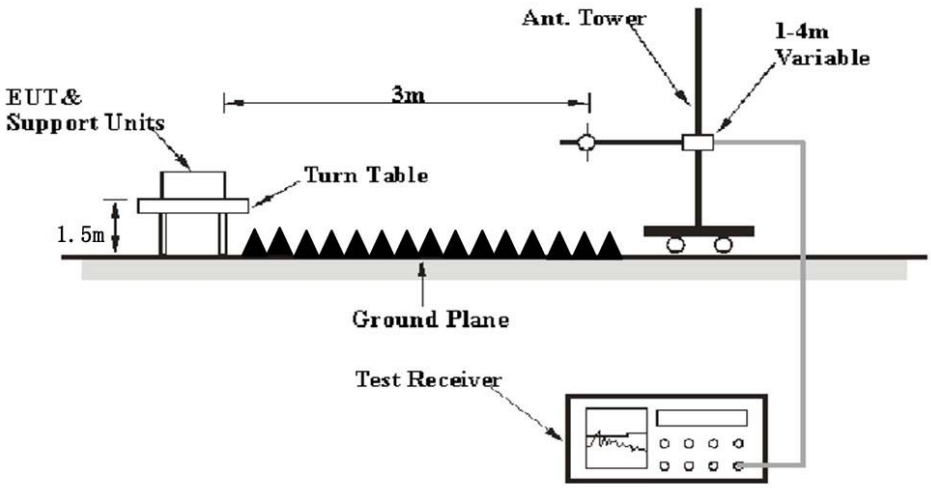
Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of radiation emissions at Bay Area Compliance Laboratories Corp. (Shenzhen) is 5.91 dB for 30MHz-1GHz and 4.92 dB for above 1GHz. And the uncertainty will not be taken into consideration for the test data recorded in the report

EUT Setup

Below 1 GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209 and FCC 15.247 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.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

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

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	Ave.

Test Procedure

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

All final data was recorded in Quasi-peak detection mode for frequency range of 30 MHz to 1GHz and peak and Average detection modes for frequencies above 1GHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447E	1937A01046	2015-05-06	2016-05-05
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2015-11-03	2016-11-03
Sunol Sciences	Bi-log Antenna	JB1	A040904-2	2014-12-07	2017-12-06
Mini	Amplifier	ZVA-183-S+	5969001149	2015-04-23	2016-04-22
A.H. System	Horn Antenna	SAS-200/571	135	2015-02-10	2016-02-10
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2014-12-11	2015-12-11
the electro-Mechanics Co.	Horn Antenna	3116	9510-2270	2013-10-14	2016-10-13
TDK	Chamber	Chamber A	2#	2015-10-15	2018-10-15
TDK	Chamber	Chamber B	1#	2015-07-22	2016-07-22
DUCOMMUN	Pre-amplifier	ALN-22093530-01	991373-01	2015-08-03	2016-08-03
R&S	Auto test Software	EMC32	V9.10	NCR	NCR

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

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:

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - 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:

Margin = Limit – Corrected Amplitude

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 15.247, the worst margin reading as bellow:

6.02 dB at **2483.50 MHz** in the **Horizontal** polarization for High Channel

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level compliance with the limit if

$$L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$$

In BACL., $U_{(Lm)}$ is less than + U_{cispr}, if L_m is less than L_{lim}, it implies that the EUT complies with the limit.

Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	49 %
ATM Pressure:	101.5 kPa

The testing was performed by Simon Wang on 2015-11-04.

30 MHz -25 GHz:

Test Mode: Transmitting

Frequency (MHz)	Receiver		Turn table Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.247/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
Low Channel (2410.875MHz)									
119.68	44.68	QP	132	1.1	H	-14.6	30.08	43.5	13.42
2410.88	103.87	PK	191	2.1	H	4.97	108.84	/	/
2410.88	96.05	Ave.	191	2.1	H	4.97	101.02	/	/
2410.88	96.57	PK	60	1.8	V	4.97	101.54	/	/
2410.88	88.54	Ave.	60	1.8	V	4.97	93.51	/	/
2389.04	47.65	PK	310	1.2	H	4.97	52.62	74	21.38
2389.04	35.43	Ave.	310	1.2	H	4.97	40.40	54	13.60
2389.84	48.14	PK	32	1.3	H	4.97	53.11	74	20.89
2389.84	35.92	Ave.	32	1.3	H	4.97	40.89	54	13.11
2483.50	37.21	PK	108	1.6	H	6.29	43.50	74	30.50
2483.50	22.25	Ave.	108	1.6	H	6.29	28.54	54	25.46
4821.75	35.12	PK	356	2.1	H	16.92	52.04	74	21.96
4821.75	17.00	Ave.	356	2.1	H	16.92	33.92	54	20.08
7232.63	33.54	PK	63	1.2	H	19.08	52.62	74	21.38
7232.63	16.23	Ave.	63	1.2	H	19.08	35.31	54	18.69
Middle Channel (2441.25MHz)									
119.68	44.72	QP	87	1.0	H	-14.6	30.12	43.5	13.38
2441.25	97.00	PK	37	1.8	H	4.97	101.97	/	/
2441.25	89.35	Ave.	37	1.8	H	4.97	94.32	/	/
2441.25	89.62	PK	359	2.3	V	4.97	94.59	/	/
2441.25	81.71	Ave.	359	2.3	V	4.97	86.68	/	/
2389.84	38.15	PK	141	1.8	H	4.97	43.12	74	30.88
2389.84	24.36	Ave.	141	1.8	H	4.97	29.33	54	24.67
2488.69	47.14	PK	37	1.1	H	6.29	53.43	74	20.57
2488.69	34.10	Ave.	37	1.1	H	6.29	40.39	54	13.61
2490.08	46.39	PK	146	1.2	H	6.29	52.68	74	21.32
2490.08	35.41	Ave.	146	1.2	H	6.29	41.70	54	12.30
4882.50	34.76	PK	98	1.2	H	16.91	51.67	74	22.33
4882.50	17.00	Ave.	98	1.2	H	16.91	33.91	54	20.09
7323.75	33.38	PK	15	2.4	V	19.40	52.78	74	21.22
7323.75	16.14	Ave.	15	2.4	V	19.40	35.54	54	18.46

Frequency (MHz)	Receiver		Turn table Degree	Rx Antenna		Corrected Factor (dB)	Corrected Amplitude (dBμV/m)	FCC Part 15.247/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
High Channel (2471.625 MHz)									
119.68	44.82	QP	132	1.1	H	-14.6	30.22	43.5	13.28
2471.63	98.94	PK	253	2.3	H	6.29	105.23	/	/
2471.63	90.57	Ave.	253	2.3	H	6.29	96.86	/	/
2471.63	91.67	PK	256	2.2	V	6.29	97.96	/	/
2471.63	83.60	Ave.	256	2.2	V	6.29	89.89	/	/
2376.37	45.91	PK	59	2.1	H	4.97	50.88	74	23.12
2376.37	36.55	Ave.	59	2.1	H	4.97	41.52	54	12.48
2483.50	54.79	PK	207	1.8	H	6.29	61.08	74	12.92
2483.50	41.69	Ave.	207	1.8	H	6.29	47.98	54	6.02
2483.89	53.78	PK	17	1.8	H	6.29	60.07	74	13.93
2483.89	40.99	Ave.	17	1.8	H	6.29	47.28	54	6.72
4943.25	34.76	PK	137	1.1	H	16.91	51.67	74	22.33
4943.25	17.00	Ave.	137	1.1	H	16.91	33.91	54	20.09
7414.88	33.55	PK	217	1.6	V	18.34	51.89	74	22.11
7414.88	16.49	Ave.	217	1.6	V	18.34	34.83	54	19.17

Note:
1. Corrected Factor=Antenna factor (RX) +cable loss – amplifier factor
2. Corrected Amplitude = Corrected Factor + Receiver Reading
3. Margin = Limit- Corrected Amplitude

FCC §15.247(a) (1)-CHANNEL SEPARATION

Applicable Standard

Frequency hopping systems shall have hoping channel carrier frequencies separated by a minimum of 25 kHz or the 20dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater provided the systems operate with an output power no greater than 125 mW.

Test Procedure

1. Set the EUT in operating mode, RBW was set at 100 kHz,VBW≥ 3RBW maxhold the channel.
2. Set the adjacent channel of the EUT maxhold another trace
3. Measure the channel separation.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESR	1316.3003K03-101746-zn	2015-06-13	2016-06-13

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

Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	51 %
ATM Pressure:	101.5 kPa

The testing was performed by Simon Wang on 205-10-28.

Test Result: Compliance.

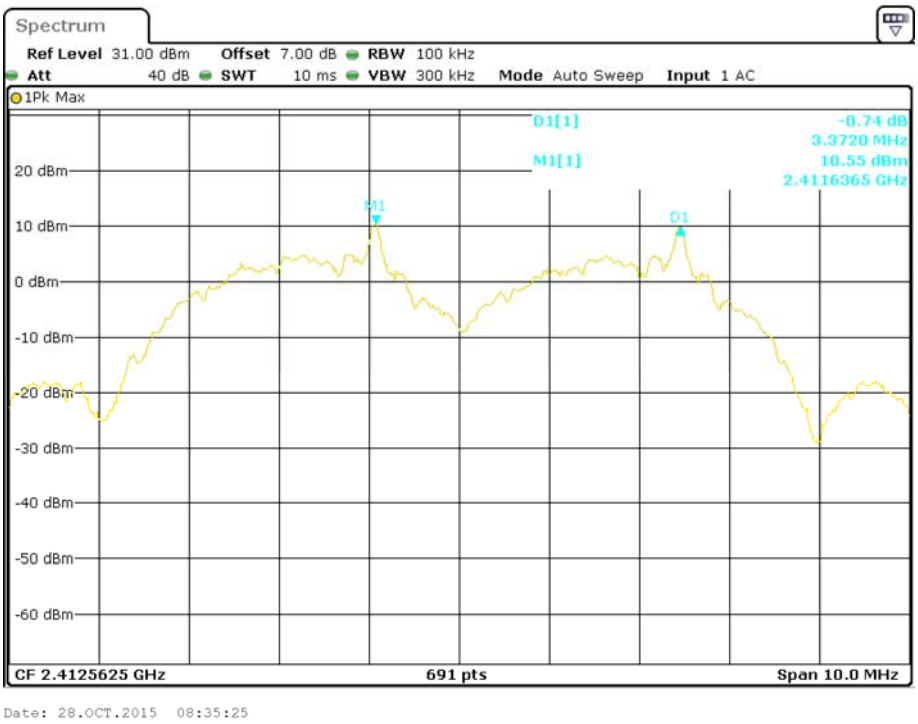
Please refer to following tables and plots

Test Mode: Transmitting

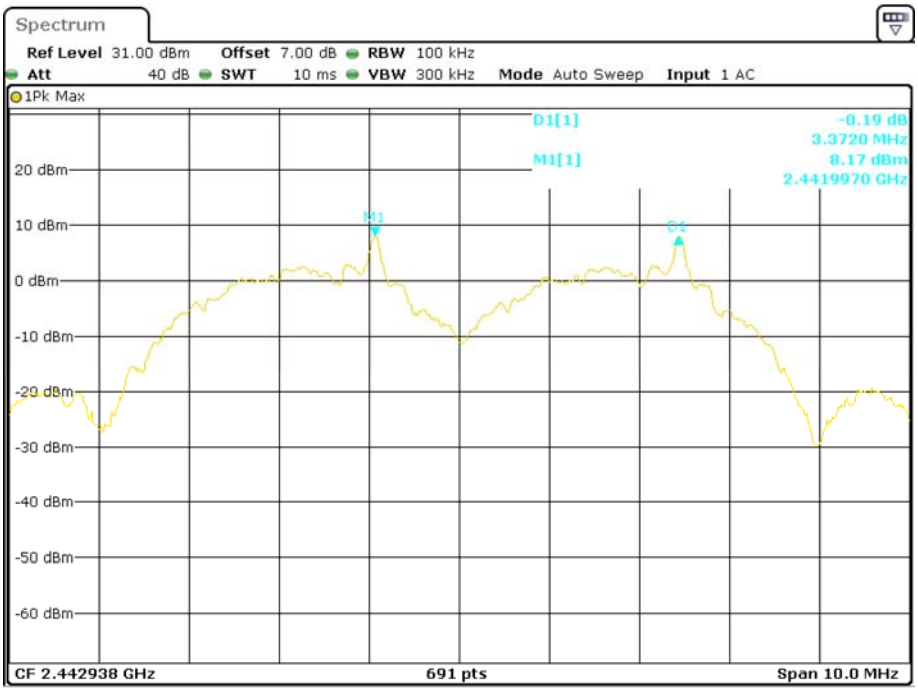
Channel	Channel Frequency (MHz)	Channel Separation (MHz)	≥ Limit (MHz)
Low	2410.875	3.372	2.345
Adjacent	2414.250		
Middle	2441.250	3.372	2.325
Adjacent	2444.625		
High	2471.625	3.386	2.345
Adjacent	2468.250		

Note: limit =2/3 of 20 dB bandwidth

Low Channel

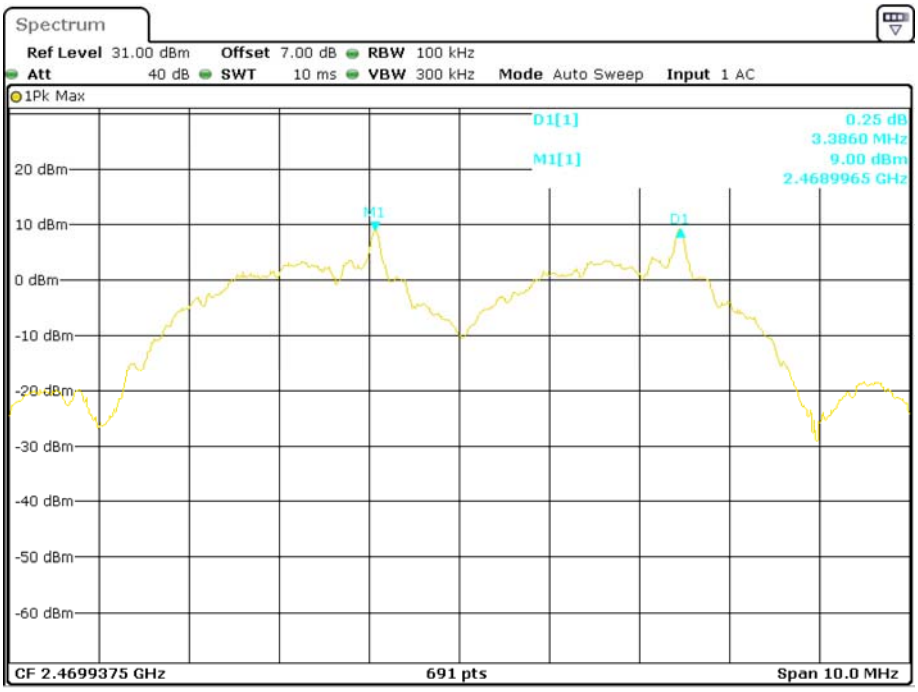


Middle Channel



Date: 28.OCT.2015 08:36:46

High Channel



Date: 28.OCT.2015 08:33:27

FCC §15.247(a) (1) – 20 dB EMISSION BANDWIDTH

Applicable Standard

Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125mW.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
3. Repeat above procedures until all frequencies measured were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESR	1316.3003K03-101746-zn	2015-06-13	2016-06-13

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

Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	51 %
ATM Pressure:	101.5 kPa

The testing was performed by Simon Wang on 2015-10-28.

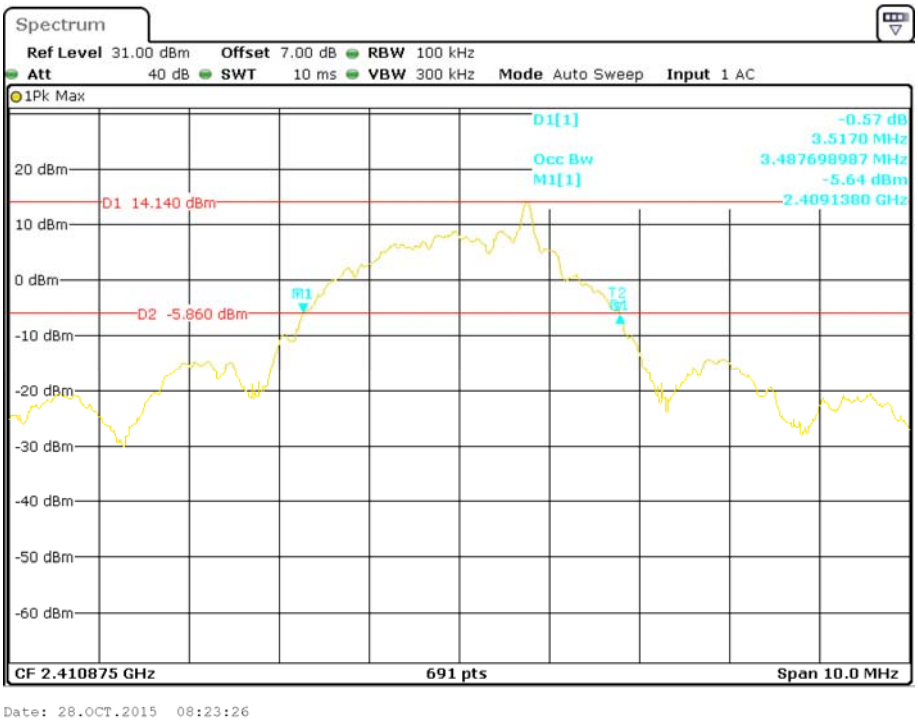
Test Result: Compliance.

Please refer to following tables and plots

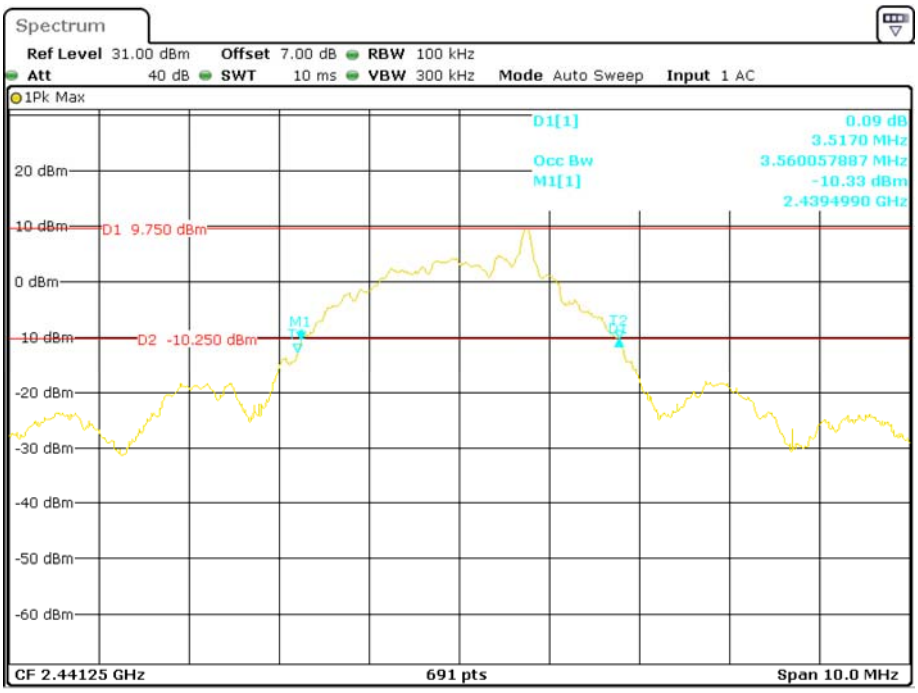
Test Mode: Transmitting

Channel	Frequency (MHz)	20 dB Emisson Bandwidth (MHz)	99% Bandwidth (MHz)
Low	2410.875	3.517	3.488
Middle	2441.250	3.517	3.560
High	2471.625	3.488	3.531

Low Channel

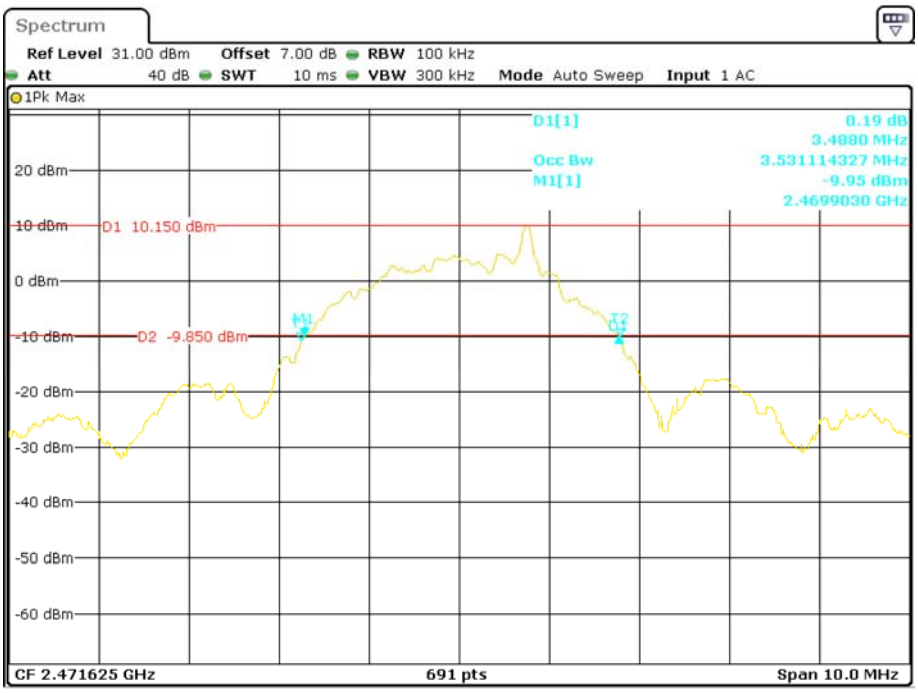


Middle Channel



Date: 28.OCT.2015 08:26:22

High Channel



Date: 28.OCT.2015 08:28:09

FCC §15.247(a) (1) (iii)-QUANTITY OF HOPPING CHANNEL

Applicable Standard

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

Test Procedure

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.

2. Set the EUT in hopping mode from first channel to last.

3. By using the max-hold function record the quantity of the channel.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESR	1316.3003K03-101746-zn	2015-06-13	2016-06-13

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

Test Data

Environmental Conditions

Temperature:	27 ℃
Relative Humidity:	50 %
ATM Pressure:	101.5 kPa

The testing was performed by Simon Wang on 2015-10-27.

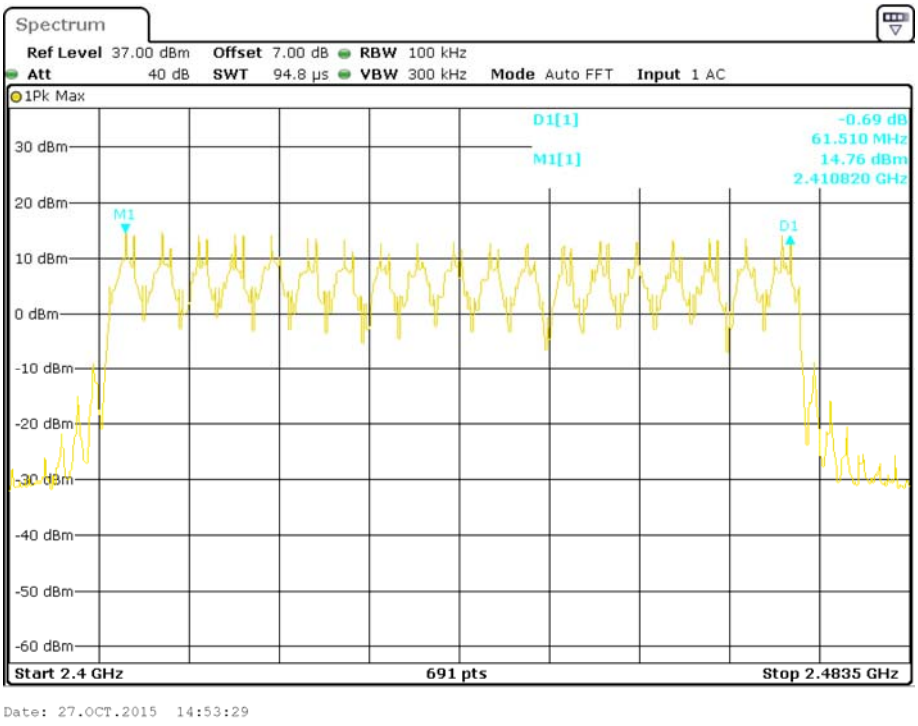
Test Result: Compliance.

Please refer to following tables and plots

Test Mode: Transmitting

Frequency Range (MHz)	Number of Hopping Channel	Limit
2400 ~ 2483.50	19	≥ 15

Number of Hopping Channels



FCC §15.247(a) (1) (iii) -TIME OF OCCUPANCY (DWELL TIME)

Applicable Standard

Frequency hopping systems in the 2400-2483.5 MHz shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

Test Procedure

The EUT was worked in channel hopping; spectrum span was set as 0. Sweep was set as 0.4 X channel no. (s), the quantity of pulse was get from single sweep. In addition, the time of single pulses was tested.

Dwell Time= Pulse time (ms) * hope rate/ number of hopping channels * hopping No.*0.4 s

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESR	1316.3003K03-101746-zn	2015-06-13	2016-06-13

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

Test Data

Environmental Conditions

Temperature:	27 ℃
Relative Humidity:	50 %
ATM Pressure:	101.5 kPa

The testing was performed by Simon Wang on 2015-10-27.

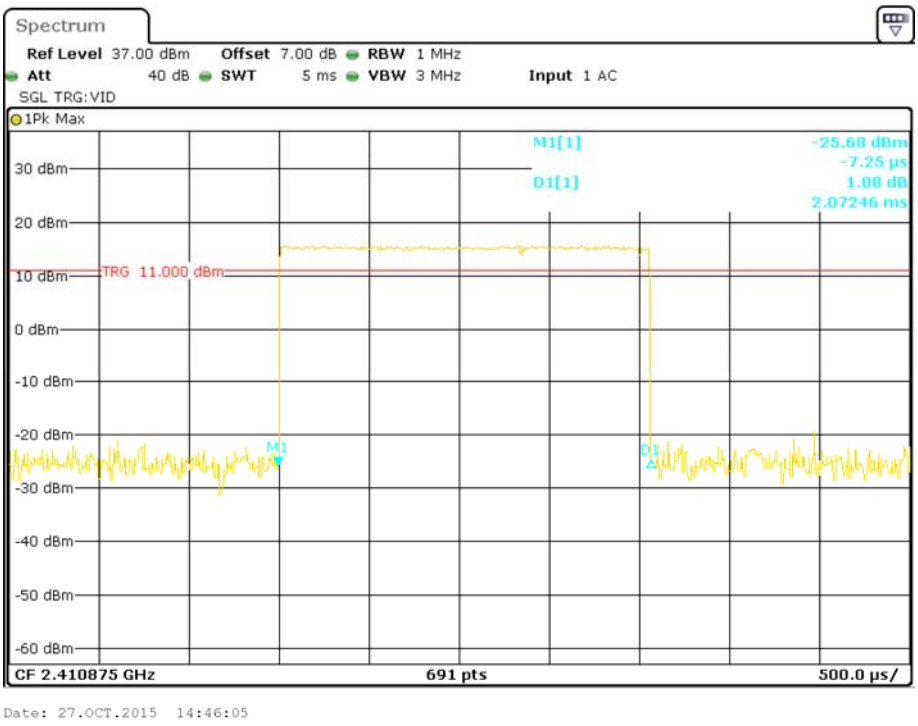
Test Result: Compliance.

Please refer to following tables and plots

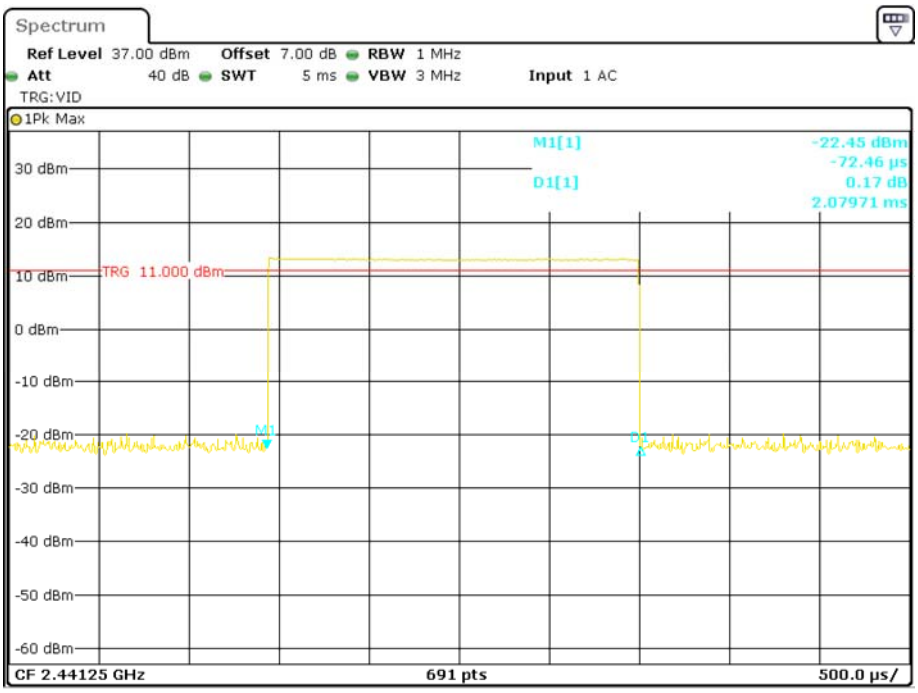
Test Mode: Transmitting

Channel	Pulse Width (ms)	Dwell Time (S)	Limit (S)	Result
Low	2.072	0.067	0.4	Pass
Middle	2.079	0.067	0.4	Pass
High	2.145	0.069	0.4	Pass
Note: Dwell time=Pulse time (ms) × (81/19) ×19*0.4 S Hopping rate =81 times per second				

Low Channel

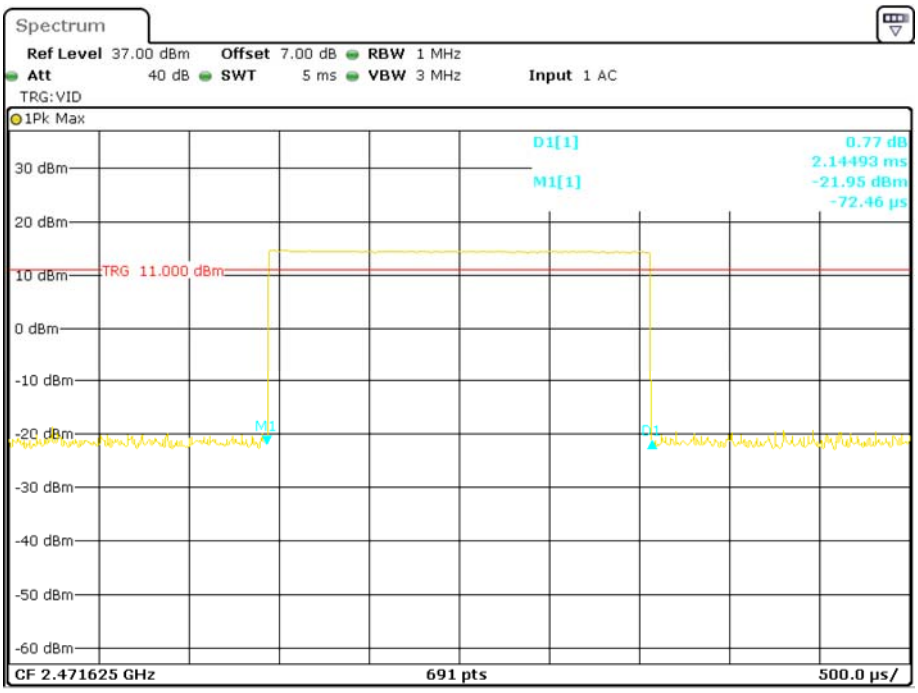


Middle Channel



Date: 27.OCT.2015 14:47:21

High Channel



Date: 27.OCT.2015 14:48:28

FCC §15.247(b) (1) - PEAK OUTPUT POWER MEASUREMENT

Applicable Standard

According to §15.247(b) (1), for frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.

Test Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to an EMI Test Receiver.
3. Add a correction factor to the display.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESR	1316.3003K03-101746-zn	2015-06-13	2016-06-13

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

Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	51 %
ATM Pressure:	101.5 kPa

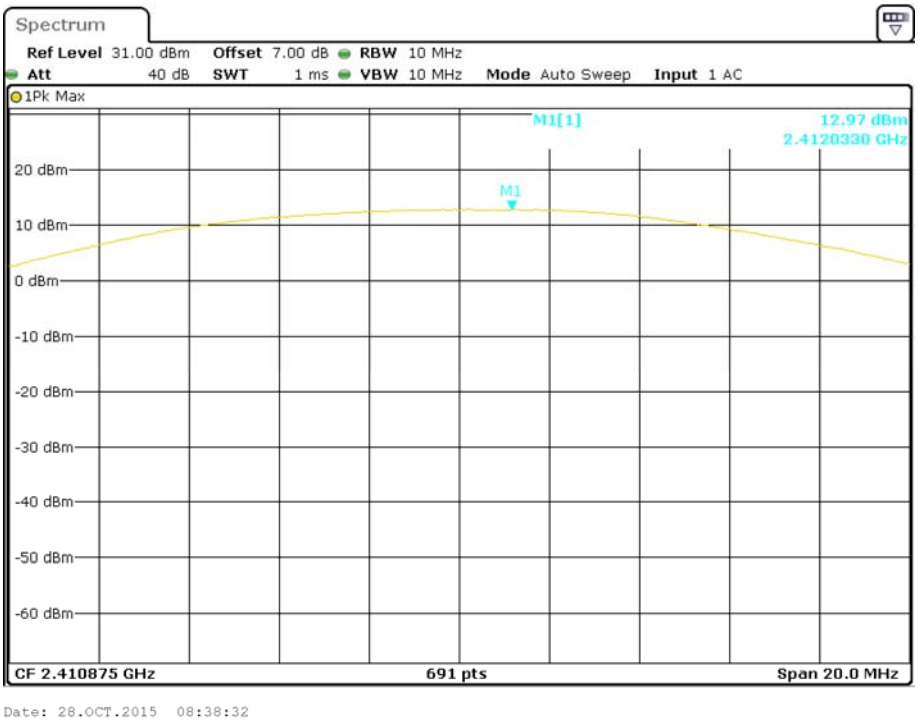
The testing was performed by Simon Wang on 2015-10-28.

Test Result: Compliance.

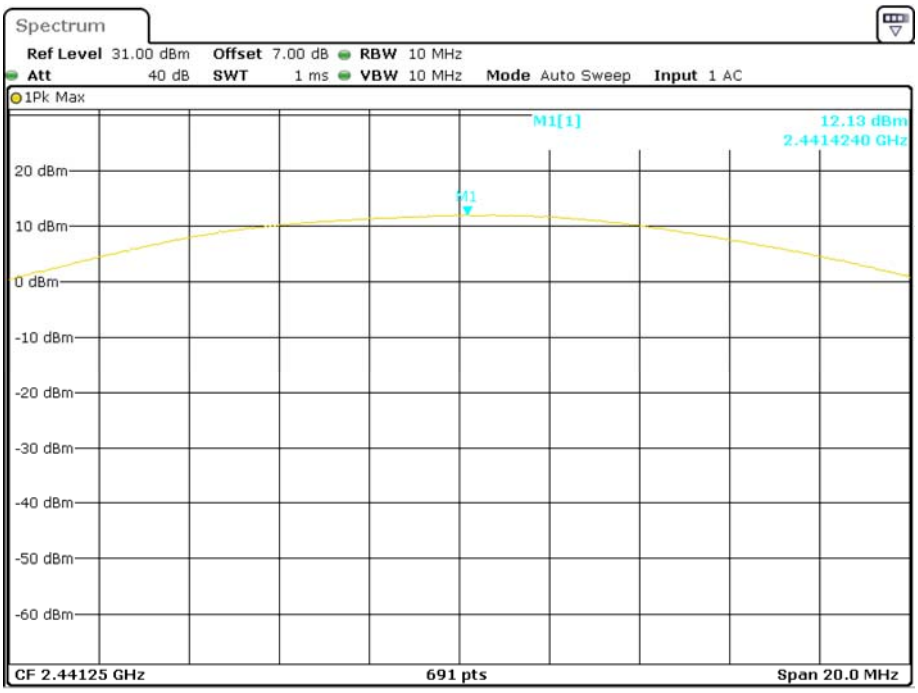
Test Mode: Transmitting

Channel	Channel Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)
Low	2410.875	12.97	21.00
Middle	2441.250	12.13	21.00
High	2471.625	13.10	21.00

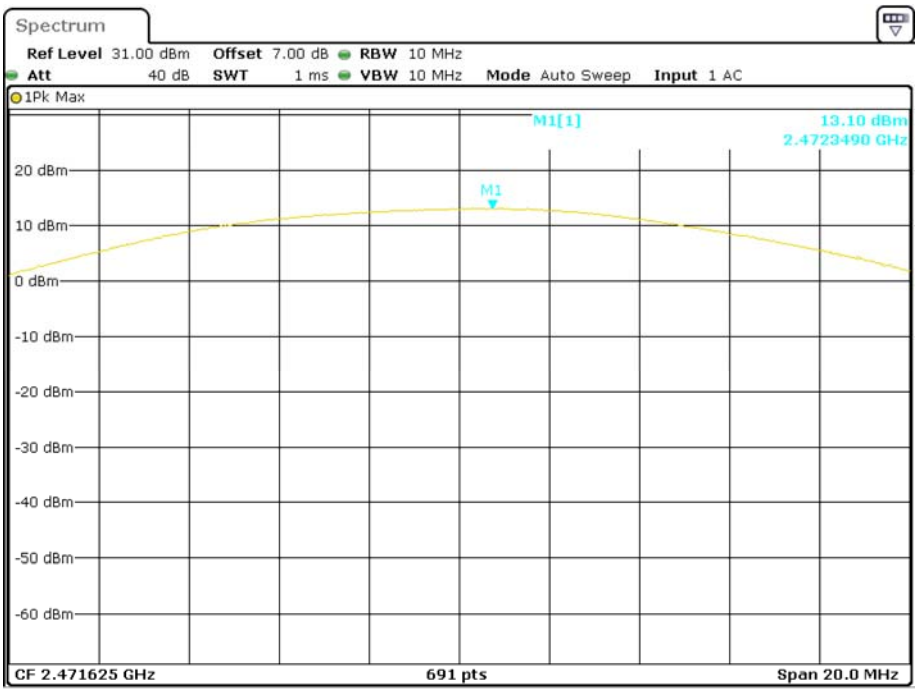
Low Channel



Middle Channel



High Channel



FCC §15.247(d) - BAND EDGES

Applicable Standard

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. 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.
3. Repeat above procedures until all measured frequencies were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESR	1316.3003K03-101746-zn	2015-06-13	2016-06-13

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

Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	51 %
ATM Pressure:	101.5 kPa

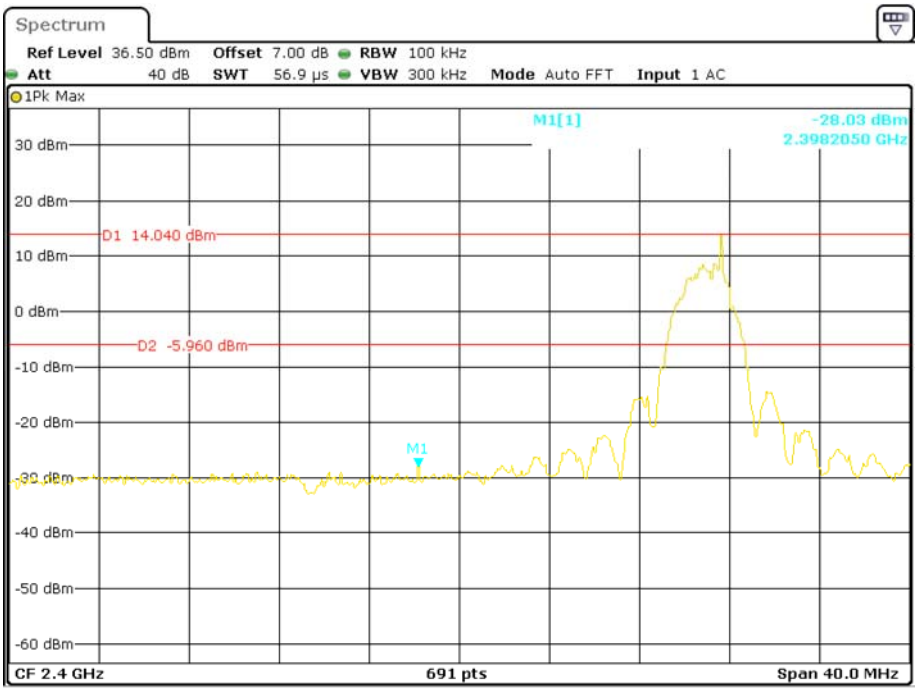
The testing was performed by Simon Wang on 2015-10-29.

Test Result: Compliance.

Test Mode: Transmitting

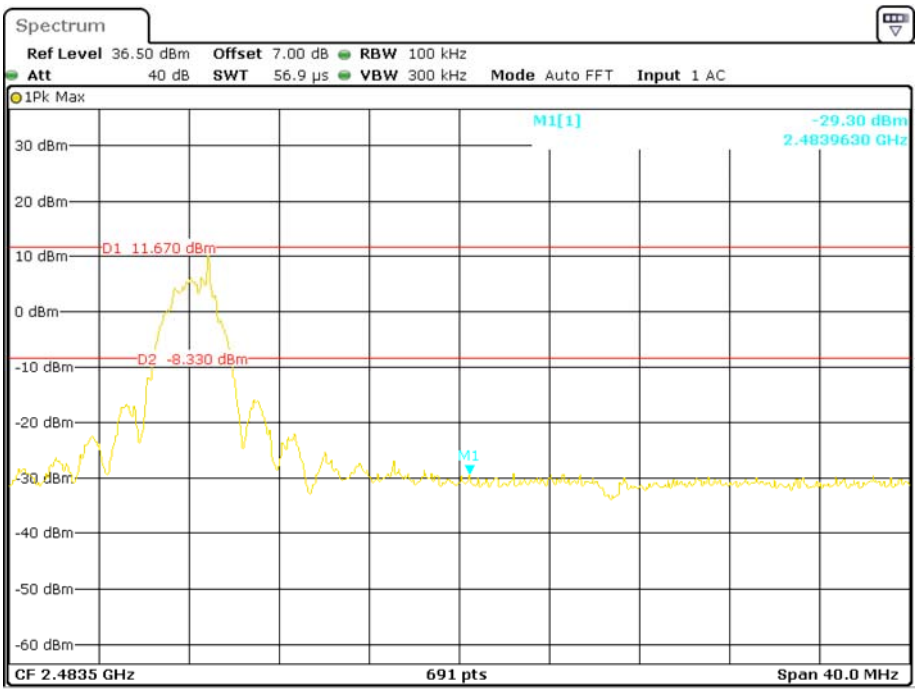
Please refer to follow plots:

Band Edge: Left Side



Date: 29.OCT.2015 07:50:07

Band Edge: Right Side



Date: 29.OCT.2015 07:52:47

PRODUCT SIMILARITY DECLARATION LETTER

CWD
Since 1961
CIRCUS WORLD DISPLAYS LTD
4080 Montrose Rd, Niagara Falls, ON, Canada, L2H 1J9
T> 905.353.0732 F> 905.353.1701 W> CWDlimited.com

Date: 2015-12-14

Product Similarity Declaration

To Whom It May Concern,

We, Circus World Displays Ltd., hereby declare that we have a product named as 2.4GHz Video Baby Monitor (Camera unit) (Model number: 32200) was tested by BACL, meanwhile, for our marketing purpose, we would like to list a series models (32205, 32208, 32202, 32210) on reports and certificate, all the models are identical schematics. Only named differently due to different combination, for details as below:

Model No	Model description
32200	1 Monitor Unit + 1 Camera Unit
32205	Additional Camera Unit
32208	1 Monitor Unit + 2 Camera Unit
32202	1 Monitor Unit + 1 Camera Unit
32210	1 Monitor Unit + 2 Camera Unit

No other changes are made to them.
We confirm that all information above is true, and we'll be responsible for all the consequences. Please contact me if you have any question.
Sincerely,

Signature:

Raj Jain
President

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