



FCC CERTIFICATION RADIO MEASUREMENT TECHNICAL REPORT

On Model Name: Transmitter

Model Numbers : BL-T001 - BL-T042

Brand Name : BaoXiang

FCC ID : WWWBLT001-T042

Prepared for Wenzhou Baoxiang Electrical Co., Ltd.

According to FCC Part 15.231

Test Report #: WEN-0810-8086-FCC-Tx

Prepared by: Chris Huang

Reviewed by: Harry Zhao

QC Manager: Paul Chen

Test Report Released by: Paul J. Chen 2008, November 26

Paul Chen *Date*

Test Location

Tests performed in a Certified ANSI Semi-Anechoic Chamber and Shielded Room performed testing.

Test Site Location: *ECMG Worldwide Certification Solution, Inc. (China)*
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Accreditation Bodies

The report is prepared by ECMG Worldwide Certification Solution, Inc., which is a fully accredited Test Laboratory for ITE, ISM and Telecommunications Products.

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Opinions and Interpretations

This test report relates to the abovementioned equipment under test (EUT). Without the permission of ECMG Worldwide Certification Solution, Inc. Test Lab this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark on this or similar products. The manufacturer has sole responsibility of continued compliance of the device.

Statement of Measurement Uncertainty

The data and results referenced in the document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities that can account for a nominal measurement error. Furthermore, component and process variability of devices similar to that tested may result in additional deviation.

Administrative Data

Test Sample : Transmitter

Model Numbers : BL-T001 - BL-T042

Model Tested : BL-T042

Brand Name : Baoxiang

Date Tested : 2008, November 17th -27th

*Applicant : Wenzhou Baoxiang Electrical Co., Ltd.
No.1, 132 Alley, West Road of Transverse
Street, Wenzhou Economic Development
Zone, Zhejiang, China*

Telephone : 86-577-28818072

Fax : 86-577-28818073

*Manufacturer : Wenzhou Baoxiang Electrical Co., Ltd.
No.1, 132 Alley, West Road of Transverse
Street, Wenzhou Economic Development
Zone, Zhejiang, China*

EUT Description

Wenzhou Baoxiang Electrical Co., Ltd. model tested BL-T042 (referred to as the EUT in this test report) is a transmitter.

Type of Deriver

*The models BL-T001 - BL-T042 means the models listed below:
BL-T001, BL-T002, BL-T003, BL-T004, BL-T005, BL-T006, BL-T007, BL-T008, BL-T009, BL-T010, BL-T011, BL-T012, BL-T013, BL-T014, BL-T015, BL-T016, BL-T017, BL-T018, BL-T019, BL-T020, BL-T021, BL-T022, BL-T023, BL-T024, BL-T025, BL-T026, BL-T027, BL-T028, BL-T029, BL-T030, BL-T031, BL-T032, BL-T033, BL-T034, BL-T035, BL-T036, BL-T037, BL-T038, BL-T039, BL-T040, BL-T041, BL-T042.*

All the models have identical principle of circuits and the layout except the case for different plastic shape.

Test Summary

The Electromagnetic Compatibility requirements on BL-T042 for this test are stated below. All results listed in this report relate exclusively to this above-mentioned model as the Equipment Under Test. This report confers no approval or endorsement upon any other component, host or subsystem used in the test set-up.

EMC Test Items			
Reference FCC Part 15 (2007), Subpart C			
Specification	Description	Test Results	Remark
FCC Part 15.203	Antenna Requirement	Compliance	Attachment 1
FCC Part 15.205	Restricted Band of Operation	Compliance	Attachment 2
FCC Part 15.209	Radiated Emission Limits	Compliance	Refer to Attachment 4
FCC Part 15.231	Periodic Operation in the Band 40.66-40.70MHz and above 70MHz		
(a)	Operation Mode	Compliance	Attachment 3
(b)	Field Strength of Fundamental and Spurious Emissions	Compliance	Attachment 4
(c)	Bandwidth	Compliance	Attachment 5

Test Mode Justification

The test modes (Lie, Side, Stand) were done for testing.

Note: Lie mode means let EUT put flat;

Side mode means let EUT side stand;

Stand mode means let EUT stand up.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

EUT Exercise Software

The device is not programmable and does not use software.

Equipment Modification

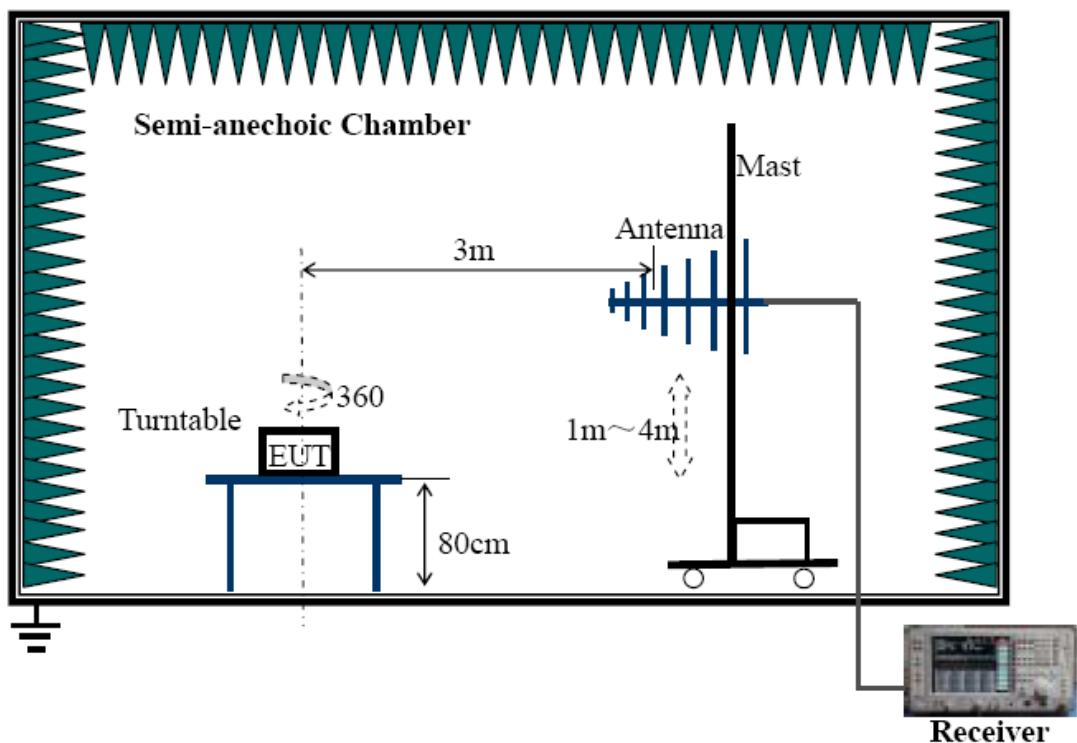
Any modifications installed previous to testing by Wenzhou Baoxiang Electrical Co., Ltd. will be incorporated in each production model sold or leased in United States.

There were no modifications installed by ECMG Worldwide Certification Solution, Inc. (China) test personnel.

Test System Details

EUT	
Model Numbers:	BL-T001 - BL-T042
Model Tested:	BL-T042
Trademark::	Baoxiang
Serial Number:	Engineering Sample
Input Voltage:	DC 12V
Description:	Transmitter
Manufacturer:	Wenzhou Baoxiang Electrical Co., Ltd.
Support Equipment	
None	
Cable Description	
None	

Configuration of Tested System



ATTACHMENT 1 - ANTENNA REQUIREMENT

CLIENT:	Wenzhou Baoxiang Electrical CO., Ltd.	TEST STANDARD:	FCC Part 15.203
MODEL TESTED:	BL-T042	PRODUCT:	Transmitter
SERIAL NO.:	Engineering Sample	EUT DESIGNATION:	RF Equipment
TEMPERATURE:	21°C	HUMIDITY:	55%RH
ATM PRESSURE:	101.8 kPa	GROUNDING:	No Grounding
TESTED BY:	Cloud Feng	DATE OF TEST:	2008, November 17
SETUP METHOD:	N/A		
ANTENNA REQUIREMENT:	An intentional radiator shall be designed to ensure that no antenna other than 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.		
TEST VOLTAGE:	12V DC		
TEST STATUS:	Normal Operation As Usual		
RESULTS:	The EUT meets the Antenna requirement. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Worldwide Certification Solution, Inc.(China) test personnel.		
M. UNCERTAINTY:	N/A		

FCC Section	FCC Rules	Conclusion
15.203	<p>Described how the EUT complies with the requirement that either its antenna is permanently attached, or that it employs a unique antenna connector, for every antenna proposed for use with the EUT.</p> <p>The exception is in those cases where EUT must be professionally installed. In order to demonstrate that professional installation is required, the following 3 points must be addressed:</p> <ul style="list-style-type: none"> ● <i>The application (or intended use) of the EUT</i> ● <i>The installation requirements of the EUT</i> ● <i>The method by which the EUT will be marketed</i> 	The RF Device uses an integral antenna without connector.

ATTACHMENT 2 – RESTRICTED BAND OF OPERATION

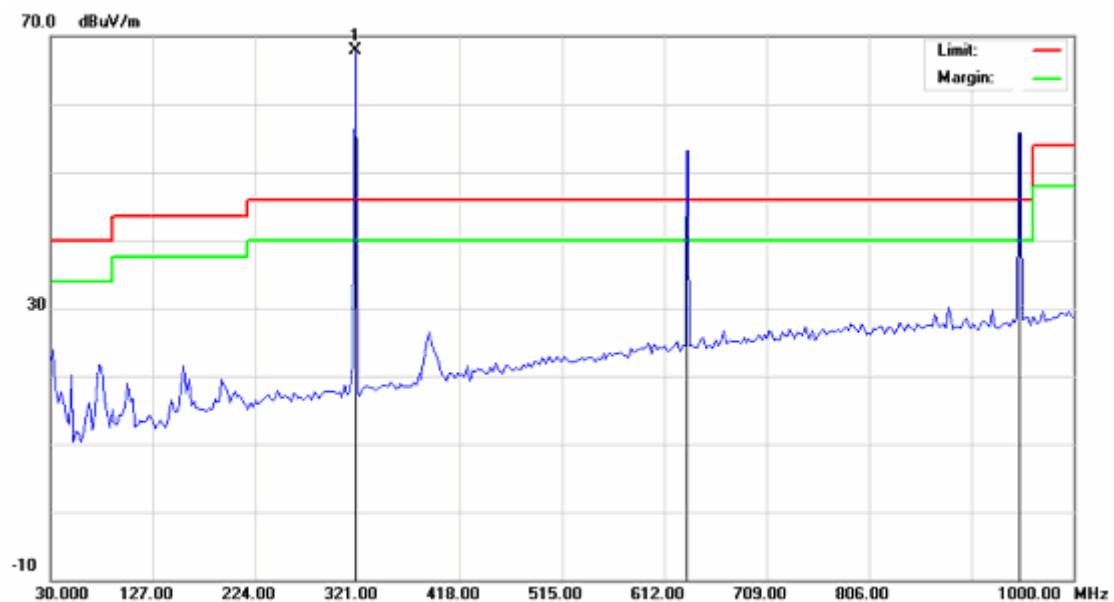
CLIENT:	Wenzhou Baoxiang Electrical Co., Ltd.	TEST STANDARD:	FCC 15.205
MODEL TESTED:	BL-T042	PRODUCT:	Transmitter
SERIAL NO.:	Engineering Sample	EUT DESIGNATION:	RF Equipment
TEMPERATURE:	21°C	HUMIDITY:	55%RH
ATM PRESSURE:	101.6 kPa	GROUNDING:	No Grounding
TESTED BY:	Cloud Feng	DATE OF TEST:	2008, November 17
SETUP METHOD:	ANSI C63.4 - 2003		
RESTRICTED BANDS OF OPERATION REQUIREMENT:	The only spurious emissions are permitted in any of the frequency bands listed below table of next page.		
TESTED RANGE:	30MHz to 4000MHz		
TEST VOLTAGE:	12V DC		
TEST STATUS:	Keep Tx in continuous transmission mode, modulated		
RESULTS:	The EUT meets the restricted bands of operation requirement. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Worldwide Certification Solution, Inc.(China) test personnel.		
M. UNCERTAINTY:	Freq. $\pm 2 \times 10^{-7} \times$ Center Freq., Amp ± 2.6 dB		

FCC Restricted band

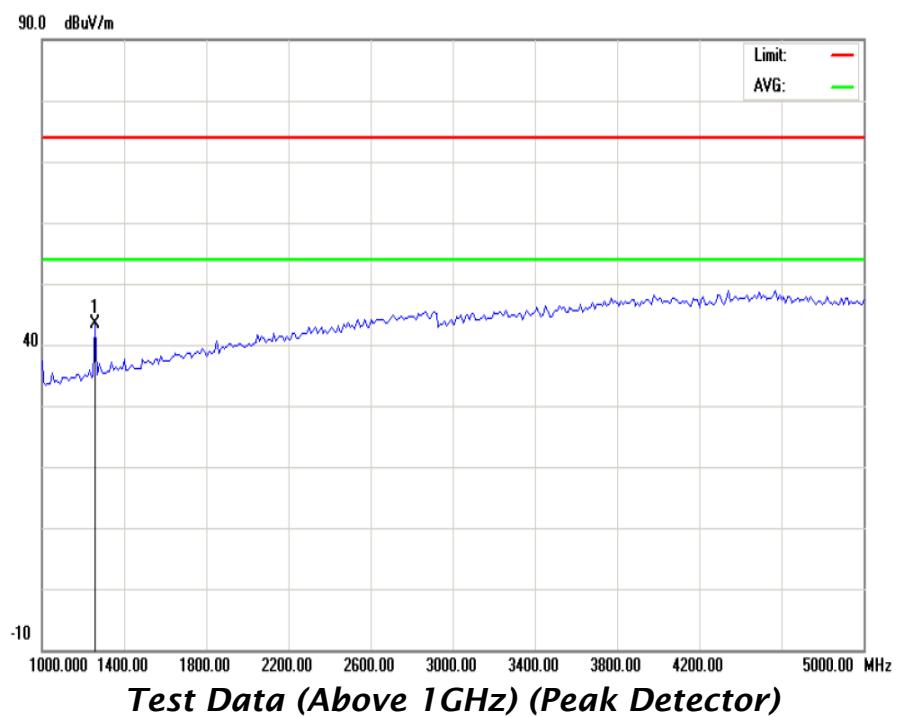
MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41			

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6



Test Data (Below 1GHz) (Peak Detector)



Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due Date
Broadband Antenna	Sunol	JB5	A110503	11/29/07	11/28/08
Preamplifier	HP	8449B	2944A06849	11/29/07	11/28/08
EMI Receiver	HP	85462A	3650A00363	11/29/07	11/28/08
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

SIGNED BY:

Cloud Feng

ENGINEER

REVIEWED BY:

Hang Zhou

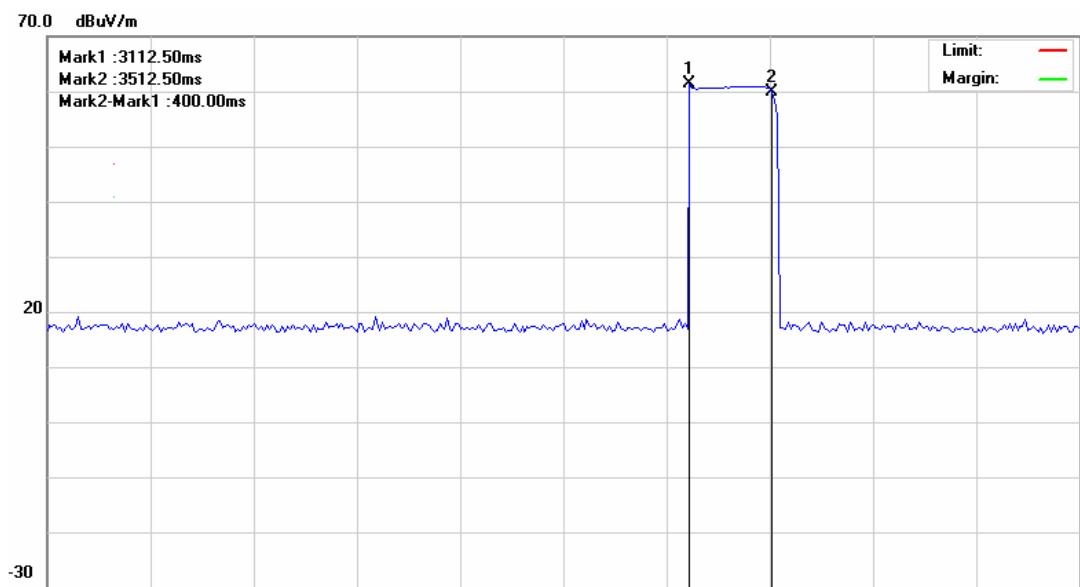
SENIOR ENGINEER

ATTACHMENT 3 – OPERATION MODE

CLIENT:	Wenzhou Baoxiang Electrical Co., Ltd.	TEST STANDARD:	FCC Part 15.231(a)
MODEL TESTED:	BL-T042	PRODUCT:	Transmitter
SERIAL NO.:	Engineering Sample	EUT DESIGNATION:	RF Equipment
TEMPERATURE:	21°C	HUMIDITY:	55%RH
ATM PRESSURE:	101.8 kPa	GROUNDING:	No Grounding
TESTED BY:	Cloud Feng	DATE OF TEST:	2008, November 17
SETUP METHOD:	N/A		
OPERATION MODE REQUIREMENT:	(1) A manually operated transmitter shall employ a switch that will automatically stop the transmitter within not more than 5 seconds of being released. (2) A transmitter activated automatically shall cease transmission within 5 seconds after activation. (3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used on security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour. (4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition.		
TEST VOLTAGE:	12V DC		
TEST STATUS:	Keep Tx in continuous transmission mode, modulated		
RESULTS:	The EUT meets the operation mode requirement. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Worldwide Certification Solution, Inc.(China) test personnel.		
M. UNCERTAINTY:	N/A		

FCC Section	FCC Rules	Conclusion
15.231 (a)	<p><i>The provisions of this Section are restricted to periodic operation within the band 40.66 - 40.70 MHz and above 70 MHz. Except as shown in paragraph (e) of 15.231 Section, the intentional radiator is restricted to the transmission of a control signal such as those used with alarm systems, door openers, remote switches, etc. Continuous transmissions, voice, video and the radio control of toys are not permitted. Data is permitted to be sent with a control signal. The following conditions shall be met to comply with the provisions for this periodic operation:</i></p> <p class="list-item-l1">(1) <i>A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released</i></p> <p class="list-item-l1">(2) <i>A transmitter activated automatically shall cease transmission within 5 seconds after activation.</i></p> <p class="list-item-l1">(3) <i>Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used on security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.</i></p> <p class="list-item-l1">(4) <i>Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an</i></p>	<p><i>The transmitter operates manually and employs a switch that automatically deactivates the transmitter and ceases transmission within 5 seconds after deactivation.</i></p> <p><i>The transmitter does not perform periodic transmissions.</i></p>

	<i>alarm, may operate during the pendency of the alarm condition.</i>	
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Plot of the duration

Description: Push the button on for a while and then release it, then the transmitting signal disappears at once.

ATTACHMENT 4 -FIELD STRENGTH OF FUNDAMENTAL AND SPURIOUS EMISSIONS

CLIENT:	Wenzhou Baoxiang Electrical Co., Ltd.		TEST STANDARD:	FCC Part 15.231(b) FCC Part 15.35																				
MODEL TESTED:	BL-T042		PRODUCT:	Transmitter																				
SERIAL NO.:	Engineering Sample		EUT DESIGNATION:	RF Equipment																				
TEMPERATURE:	23°C		HUMIDITY:	53%RH																				
ATM PRESSURE:	101.6 kPa		GROUNDING:	No Grounding																				
TESTED BY:	Cloud Feng		DATE OF TEST:	2008, November 17																				
SETUP METHOD:	ANSI C63.4 : 2003, FCC Part 15.35																							
FCC REQUIREMENT:	15.231 (b) In addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators operated under this Section shall not exceed the following: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Fundamental Frequency (MHz)</th> <th style="text-align: center;">Field Strength of Fundamental (microvolts/meter)</th> <th style="text-align: center;">Field Strength of Spurious Emission (microvolts/meter)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">40.66-40.70</td><td style="text-align: center;">2,250</td><td style="text-align: center;">225</td></tr> <tr> <td style="text-align: center;">70-130</td><td style="text-align: center;">1,250</td><td style="text-align: center;">125</td></tr> <tr> <td style="text-align: center;">130-174</td><td style="text-align: center;">1,250 to 3,750 **</td><td style="text-align: center;">125 to 375 **</td></tr> <tr> <td style="text-align: center;">174-260</td><td style="text-align: center;">3,750</td><td style="text-align: center;">375</td></tr> <tr> <td style="text-align: center;">260-470</td><td style="text-align: center;">3,750 to 125,00 **</td><td style="text-align: center;">375 to 1,250 **</td></tr> <tr> <td style="text-align: center;">Above 470</td><td style="text-align: center;">12,500</td><td style="text-align: center;">1,250</td></tr> </tbody> </table> ** linear interpolations			Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emission (microvolts/meter)	40.66-40.70	2,250	225	70-130	1,250	125	130-174	1,250 to 3,750 **	125 to 375 **	174-260	3,750	375	260-470	3,750 to 125,00 **	375 to 1,250 **	Above 470	12,500	1,250
Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emission (microvolts/meter)																						
40.66-40.70	2,250	225																						
70-130	1,250	125																						
130-174	1,250 to 3,750 **	125 to 375 **																						
174-260	3,750	375																						
260-470	3,750 to 125,00 **	375 to 1,250 **																						
Above 470	12,500	1,250																						
	[Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows: for the band 130-174 MHz, $\mu\text{V/m at 3 meters} = 56.81818(F) - 6136.3636$; for the band 260-470 MHz, $\mu\text{V/m at 3 meters} = 41.6667(F) - 7083.3333$. The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.]																							

CONTINUE ON THE NEXT PAGE...

TEST PROCEDURE:	<p>a. The EUT was placed on a rotatable table with 0.8 meters above ground.</p> <p>b. The EUT was set 3 meters from the interference-receiving antenna, which was mounted on the top of a variable height antenna tower.</p> <p>c. The antenna was varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna were set to make measurement.</p> <p>d. For each suspected emission the EUT was arranged to its worst case and then change the antenna tower height (from 1m to 4m) and turn table (from 0 degree to 360 degree) to find the maximum reading.</p> <p>e. If the emission level of the EUT in peak mode was 20 dB lower than the specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be tested using the quasi-peak method in about six maximal points and the results will be reported.</p> <p>f. Broadband antenna (Calibrated antenna) was used as receiving antenna below 1000MHz. Horn antenna were used as receiving antenna above 1000MHz.</p> <p>g. The bandwidth is 120 kHz below 1000 MHz, and 1 MHz above 1000 MHz</p> <p>Explanation of the Correction Factor are given as follows:</p> <p>FS = RA + AF + CF - AG - DC</p> <p>Where: FS = Field Strength</p> <p>RA = Receiver Amplitude</p> <p>AF = Antenna Factor</p> <p>CF = Cable Attenuation Factor</p> <p>AG = Amplifier Gain</p> <p>DC = Duty Cycle Correction Factor</p>
TESTED RANGE:	30MHz to 5000MHz
TEST VOLTAGE:	12V DC
TEST STATUS:	Keep Tx in continuous transmission mode, modulated
RESULTS:	The EUT meets the requirements of field strength test. The test results relate only equipment under test provided by client.
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Worldwide Certification Solution, Inc.(China) test personnel.
M. UNCERTAINTY:	Freq. $\pm 2 \times 10^{-7} \times$ Center Freq., Amp ± 2.6 dB

Average value of the measured emissions:

Direction	Polarization	Frequency Type	Frequency (MHz)	Field Strength dB(µV/m)	Limit dB(µV/m)	Over Limit dB(µV/m)	Read Level dB(µV)	Factor (dB)	Duty cycle Correction Factor (dB)
Lie	Horizontal	Fundamental	315.08	57.09	75.63	-18.54	74.10	-5.73	11.28
		Spurious	630.16	40.39	55.63	-15.24	59.07	-7.40	11.28
		Spurious	945.24	44.68	55.63	-10.95	57.05	-1.09	11.28
		Spurious	1260.32	35.55	55.63	-20.08	43.96	2.87	11.28
		Spurious	1575.39	37.29	54.00	-16.71	47.84	0.73	11.28
		Spurious	1890.45	32.36	55.63	-23.27	42.75	0.89	11.28
	Vertical	Fundamental	315.08	57.62	75.63	-18.01	74.63	-5.73	11.28
		Spurious	630.16	50.92	55.63	-4.71	69.60	-7.40	11.28
		Spurious	945.24	41.69	55.63	-13.94	54.06	-1.09	11.28
		Spurious	1260.32	35.36	55.63	-20.27	43.77	2.87	11.28
		Spurious	1575.39	36.29	54.00	-17.71	46.84	0.73	11.28
		Spurious	1890.45	33.65	55.63	-21.98	44.04	0.89	11.28
Stand	Horizontal	Fundamental	315.08	58.12	75.63	-17.51	75.13	-5.73	11.28
		Spurious	630.16	36.55	55.63	-19.08	55.23	-7.40	11.28
		Spurious	945.24	43.65	55.63	-11.98	56.02	-1.09	11.28
		Spurious	1260.32	30.75	55.63	-24.88	39.16	2.87	11.28
		Spurious	1575.39	30.21	54.00	-23.79	40.76	0.73	11.28
		Spurious	1890.45	30.84	55.63	-24.79	41.23	0.89	11.28
	Vertical	Fundamental	315.08	61.33	75.63	-14.30	78.34	-5.73	11.28
		Spurious	630.16	38.36	55.63	-17.27	57.04	-7.40	11.28
		Spurious	945.24	40.92	55.63	-14.71	53.29	-1.09	11.28
		Spurious	1260.32	33.62	55.63	-22.01	42.03	2.87	11.28
		Spurious	1575.39	33.98	54.00	-20.02	44.53	0.73	11.28
		Spurious	1890.45	32.96	55.63	-22.67	43.35	0.89	11.28
Stand	Horizontal	Fundamental	315.08	64.13	75.63	-11.50	81.14	-5.73	11.28
		Spurious	630.16	39.45	55.63	-16.18	58.13	-7.40	11.28
		Spurious	945.24	43.93	55.63	-11.70	56.30	-1.09	11.28
		Spurious	1260.32	32.87	55.63	-22.76	41.28	2.87	11.28
		Spurious	1575.39	29.29	54.00	-24.71	39.84	0.73	11.28
		Spurious	1890.45	31.70	55.63	-23.93	42.09	0.89	11.28
	Vertical	Fundamental	315.08	62.02	75.63	-13.61	79.03	-5.73	11.28
		Spurious	630.16	39.00	55.63	-16.63	57.68	-7.40	11.28
		Spurious	945.24	40.66	55.63	-14.97	53.03	-1.09	11.28
		Spurious	1260.32	35.54	55.63	-20.09	43.95	2.87	11.28
		Spurious	1575.39	35.94	54.00	-18.06	46.49	0.73	11.28
		Spurious	1890.45	29.95	55.63	-25.68	40.34	0.89	11.28

Peak value of the measured emissions:

Direction	Polarization	Frequency Type	Frequency (MHz)	Read Level dB(μV)	Factor (dB)	Field Strength dB(μV/m)	Limit dB(μV/m)	Over Limit dB(μV/m)
Lie	Horizontal	Fundamental	315.08	74.10	-5.73	68.37	95.63	-27.26
		Spurious	630.16	59.07	-7.40	51.67	75.63	-23.96
		Spurious	945.24	57.05	-1.09	55.96	75.63	-19.67
		Spurious	1260.32	43.96	2.87	46.83	75.63	-28.80
		Spurious	1575.39	47.84	0.73	48.57	74.00	-25.43
		Spurious	1890.45	42.75	0.89	43.64	75.63	-31.99
	Vertical	Fundamental	315.08	74.63	-5.73	68.90	95.63	-26.73
		Spurious	630.16	69.60	-7.40	62.20	75.63	-13.43
		Spurious	945.24	54.06	-1.09	52.97	75.63	-22.66
		Spurious	1260.32	43.77	2.87	46.64	75.63	-28.99
		Spurious	1575.39	46.84	0.73	47.57	74.00	-26.43
		Spurious	1890.45	44.04	0.89	44.93	75.63	-30.70
Side	Horizontal	Fundamental	315.08	75.13	-5.73	69.40	95.63	-26.23
		Spurious	630.16	55.23	-7.40	47.83	75.63	-27.80
		Spurious	945.24	56.02	-1.09	54.93	75.63	-20.70
		Spurious	1260.32	39.16	2.87	42.03	75.63	-33.60
		Spurious	1575.39	40.76	0.73	41.49	74.00	-32.51
		Spurious	1890.45	41.23	0.89	42.12	75.63	-33.51
	Vertical	Fundamental	315.08	78.34	-5.73	72.61	95.63	-23.02
		Spurious	630.16	57.04	-7.40	49.64	75.63	-25.99
		Spurious	945.24	53.29	-1.09	52.20	75.63	-23.43
		Spurious	1260.32	42.03	2.87	44.90	75.63	-30.73
		Spurious	1575.39	44.53	0.73	45.26	74.00	-28.74
		Spurious	1890.45	43.35	0.89	44.24	75.63	-31.39
Stand	Horizontal	Fundamental	315.08	81.14	-5.73	75.41	95.63	-20.22
		Spurious	630.16	58.13	-7.40	50.73	75.63	-24.90
		Spurious	945.24	56.30	-1.09	55.21	75.63	-20.42
		Spurious	1260.32	41.28	2.87	44.15	75.63	-31.48
		Spurious	1575.39	39.84	0.73	40.57	74.00	-33.43
		Spurious	1890.45	42.09	0.89	42.98	75.63	-32.65
	Vertical	Fundamental	315.08	79.03	-5.73	73.30	95.63	-22.33
		Spurious	630.16	57.68	-7.40	50.28	75.63	-25.35
		Spurious	945.24	53.03	-1.09	51.94	75.63	-23.69
		Spurious	1260.32	43.95	2.87	46.82	75.63	-28.81
		Spurious	1575.39	46.49	0.73	47.22	74.00	-26.78
		Spurious	1890.45	40.34	0.89	41.23	75.63	-34.40

Note:

- Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follow:

For fundamental frequency ($F=315.08\text{MHz}$)

Average field Strength of Fundamental (dB $\mu\text{V}/\text{m}$)

$$\begin{aligned}
 &= 20 \log (41.6667 \times F - 7083.3333) \\
 &= 20 \log (41.6667 \times 315.08 - 7083.3333) \\
 &= 75.63 \text{ dBuV/m}
 \end{aligned}$$

Average field Strength of Spurious (dBuV/m) = $75.63 - 20 = 55.63 \text{ dBuV/m}$

According to FCC 15.35(b), maximum permitted peak field strength is 20dB above the maximum permitted average emission limit.

2. Field Strength=Read Level + Factor – Duty Cycle Correction Factor

Factor = Antenna Factor + Cable Loss - Preamp Factor

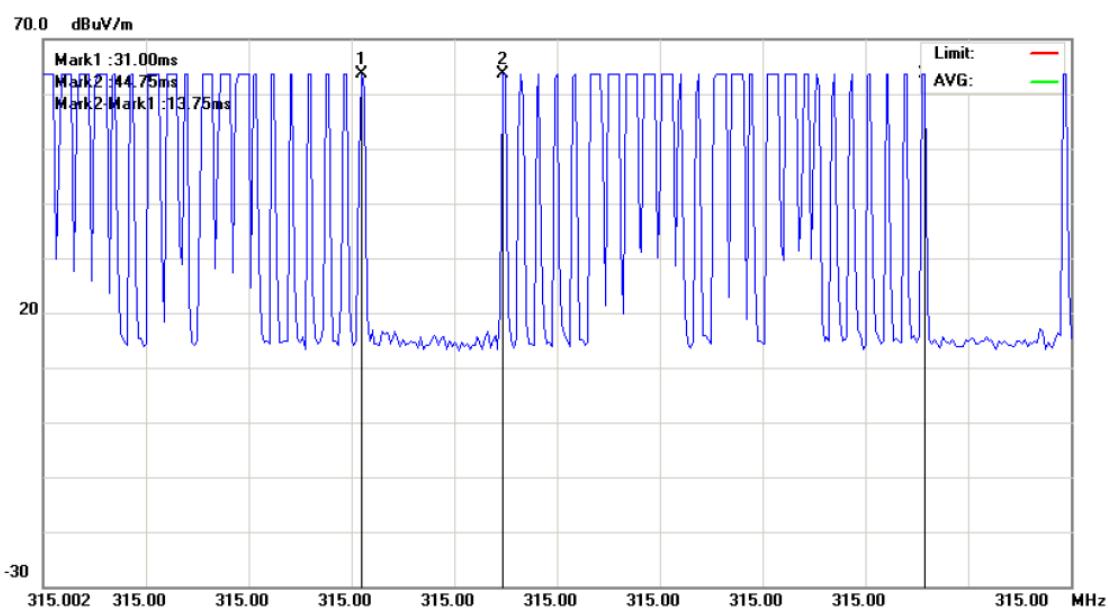
Duty Cycle Correction Factor is calculated by averaging the sum of the pulse train. Correction factor is measured as follows:

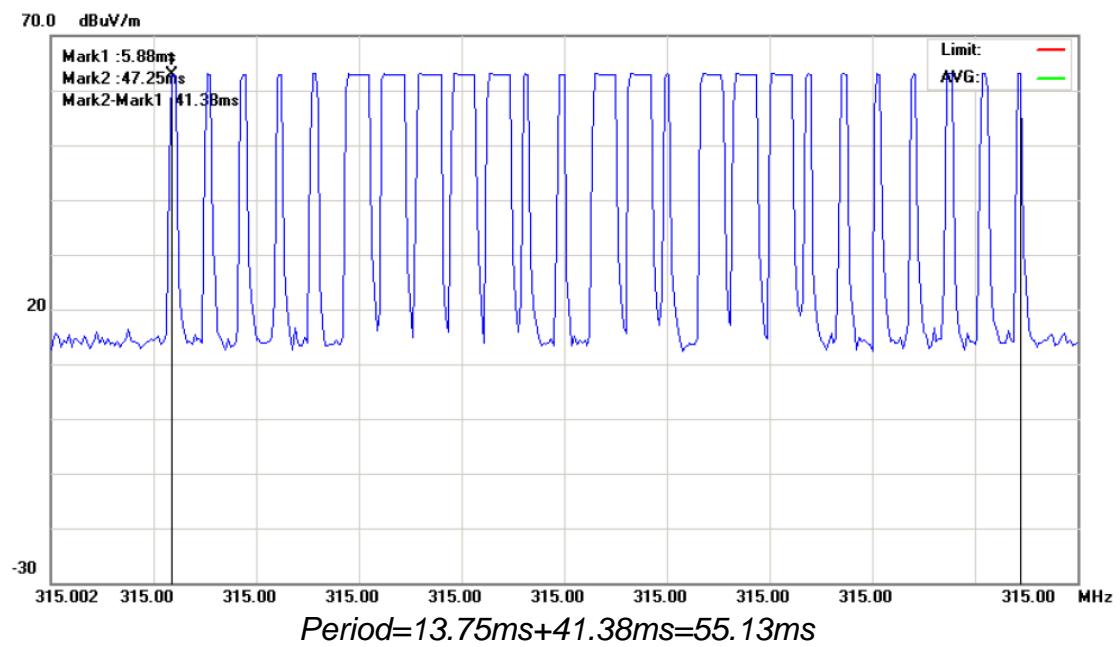
Keep the EUT in continuous transmission mode (modulated), and set the spectrum to the fundamental frequency and set the span width to 0 Hz. Then connect a storage oscilloscope to the video output of the spectrum that is used to detect the pulse train. Adjust the oscilloscope settings to observe the pulse train and determine the number and width of the pulses, as well as the period of the train.

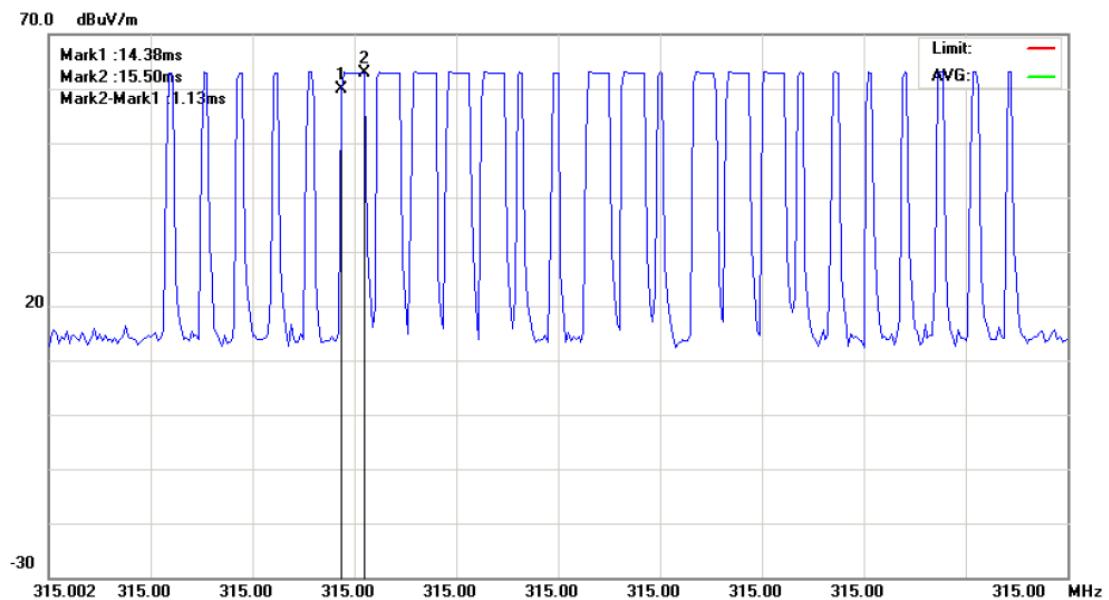
Duty Cycle Correction Factor at its maximum value

$$\begin{aligned}
 \text{Duty Cycle} &= 20 \log (10^* \text{Pulse 1} + 15^* \text{Pulse 2}) / \text{Period} \\
 &= 20 \log (10^* 1.13 + 15^* 0.25) / 55.13 \\
 &= 20 \log 0.273 = 11.28 \text{ dB}
 \end{aligned}$$

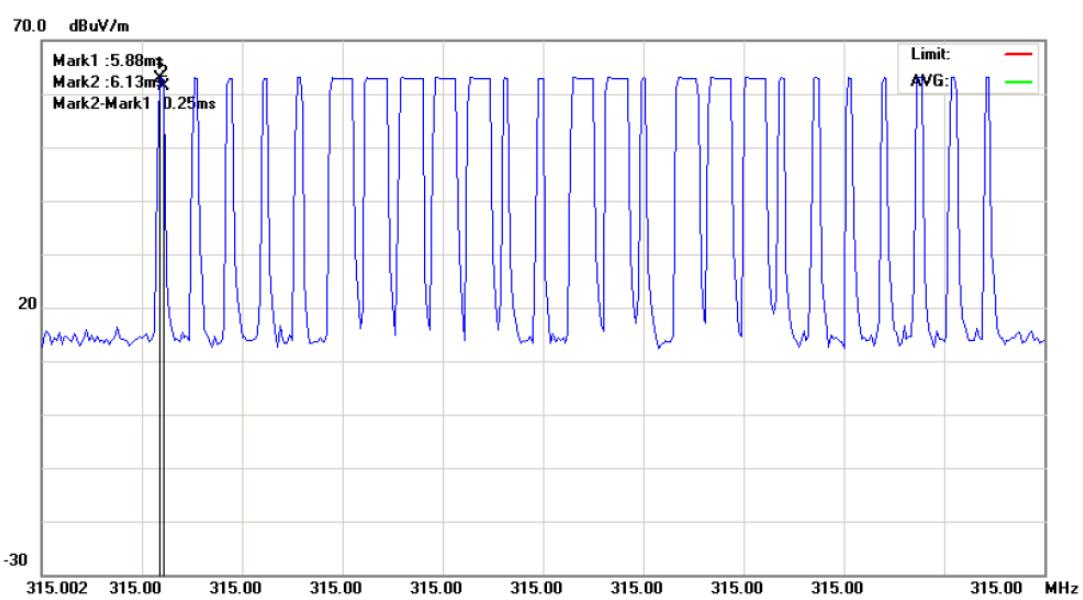
(please refer to the following test graph below)







Pulse 1=1.13ms



Pulse 2=0.25ms

Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due Date
Broadband Antenna	Sunol	JB5	A110503	11/29/07	11/28/08
EMI Receiver	HP	85462A	3650A00363	11/29/07	11/28/08
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

SIGNED BY:

Cloud Feng

ENGINEER

REVIEWED BY:

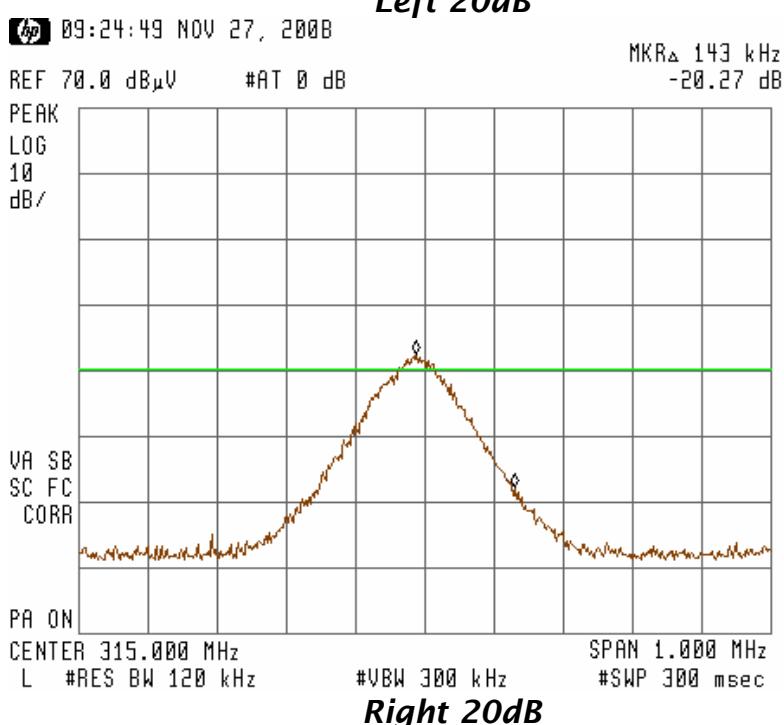
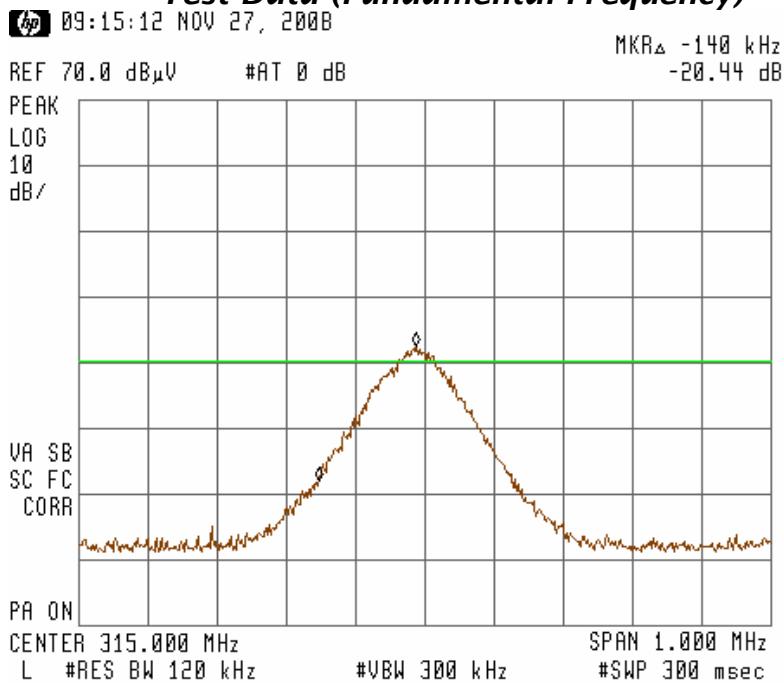
Hang Zhou

SENIOR ENGINEER

ATTACHMENT 5 – BANDWIDTH TEST

CLIENT:	Wenzhou Baoxiang Electrical Co., Ltd.	TEST STANDARD:	FCC Part 15.231 (C)
MODEL TESTED:	BL-T042	PRODUCT:	Transmitter
SERIAL NO.:	Engineering Sample	EUT DESIGNATION:	RF Equipment
TEMPERATURE:	21°C	HUMIDITY:	53%RH
ATM PRESSURE:	101.6 kPa	GROUNDING:	No Grounding
TESTED BY:	Cloud Feng	DATE OF TEST:	2008, November 27
SETUP METHOD:	ANSI C63.4 - 2003		
FCC BANDWIDTH REQUIREMENT:	The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, The emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.		
TEST PROCEDURE:	Use the search peak function to set the marker to the peak of the emission; Use the delta-mark function to measure 20dB down to both sides of the emission; The 20dB BW is the delta reading between two 20dB down marker.		
TEST VOLTAGE:	12V DC		
TEST STATUS:	Keep Tx in continuous transmission mode, modulated		
RESULTS:	The EUT meets the bandwidth requirement. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by ECMG Worldwide Certification Solution, Inc.(China) test personnel.		
M. UNCERTAINTY:	Freq. $\pm 2 \times 10^{-7} \times$ Center Freq., Amp ± 2.6 dB		

Test Data (Fundamental Frequency)



FCC part 15.231 (c)

20 dB Bandwidth (MHz)	Bandwidth Limit (MHz) ($F_{center} \times 0.25\%$)	Conclusion
0.140+0.143=0.283	0.7875	Compliance

Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due Date
EMI Receiver	HP	85462A	3650A00363	11/29/07	11/28/08
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

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REVIEWED BY:

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