TEST REPORT

Classification: **EMC**
Report Number.: **S110101E-TX**
Date: **2011, March 17**

Applicant : **American Technology Components Inc.**

Address : **2905 Lavanture Place, Elkhart IN. 46514 USA**

Product : **RF Controller**

Model Number : **GS, GS-W**

Brand name/Trade mark : **Genesis**

According to :
FCC CFR Title 47 Part 15 Subpart C: 2009 (Section 15.231)
ANSI C63.4: 2009
ANSI C63.10: 2009

SIC INTERNATIONAL CERTIFICATION GROUP

SIC
Certification Group

Contents

Administrative Data

Report No. .....:	S110101E-TX
Tested by (name and signature) .....:	Tony Liu
Reviewed by (name and signature) . :	Angel Xie
Approved by (name and signature).. :	Catherine Xing
Date of issue .....:	2011-03-17
Accreditation Bodies .....:	SIC International Certification Group
Address .....:	505 Wuning Road Shanghai P.R. China
Testing location.....:	Jiangsu Electronic Information Product Quality Supervision & Inspection Research Institute
Address .....:	No.107, Zhongqiaogexiang, Wuxi, Jiangsu, China
Applicant's name .....:	American Technology Components Inc.
Address .....:	2905 Lavanture Place, Elkhart IN. 46514 USA
Manufacturer.....:	American Technology Components Inc.
Address .....:	2905 Lavanture Place, Elkhart IN. 46514 USA
Test specification:	
Standard(s).....:	FCC CFR Title 47 Part 15 Subpart C: 2009 (Section 15.231)
Standard test method.....:	ANSI C63.10-2009
Non-standard test method.....:	N/A
Test case verdicts	
Test case does't apply to the test object	N(N/A)
Test item does meet the requirement:	P(Pass)
Test item does't meet the requirement:	F(Fail)
Testing	
Date of receipt of test item :	2011-01-18
Date(s) of performance of test :	2011-01-20 to 2011-01-24

General Remarks:

This report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item(s) tested.

”(see remark #)" refers to a remark appended to the report.

"(see Annex #)" refers to an annex appended to the report.

Throughout this report a comma is used as the decimal separator.

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.

General product information:

Test Sample.....:	RF Controller
Model Number.....:	GS, GS-W
Model Tested.....:	GS-W
Serial Number.....:	Engineering Sample
FCC ID.....:	YGN-RFKTBX001
Input Voltage..... :	12 VDC
Frequency Range.....:	433.855
Channel Number.....:	1
Type of Modulation.....:	FSK
Channel Control.....:	Manual Operate
Antenna Type.....:	Film
Antenna Gain.....:	2dBi
EUT Exercise Software.....:	The EUT is not programmable and doesn’t exercise any software.
Equipment Modification.....:	Any modifications installed previous to testing by American Technology Components Inc. will be incorporated in each production model sold or leased in United States. There were no modifications installed by SIC International Certification Group test personnel.

American Technology Components Inc. Model number GS-W (referred to as the EUT in this test report) is a transmitter of RF controller.

Model：GS

Description： only wireless transmitter, send the RF message

Model：GS- W

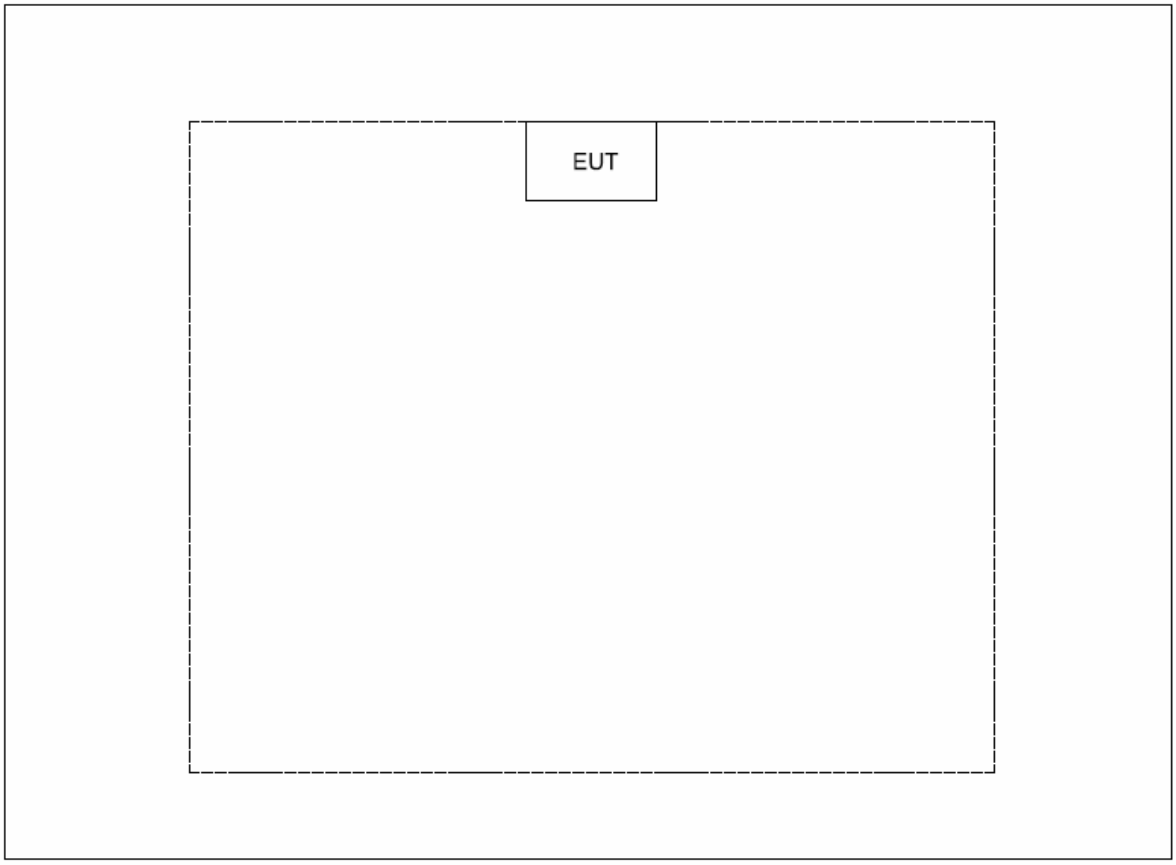
Description：the Wireless/Wire transmitter，

The Wireless function is same the GS model.

The wire function is to send the same message through wire.

The message can only send through wireless or wire, the default is wireless.

Configuration of Tested System

Connection Diagram


Signal Cable Type		Signal cable Description
N/A	N/A	N/A

EUT Exercise Software

1	Setup the EUT and simulators as shown on configuration.
2	Press RF button to keep Tx in continuous transmission mode.

Test Summary

The Electromagnetic Compatibility requirements on model GS tested 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.

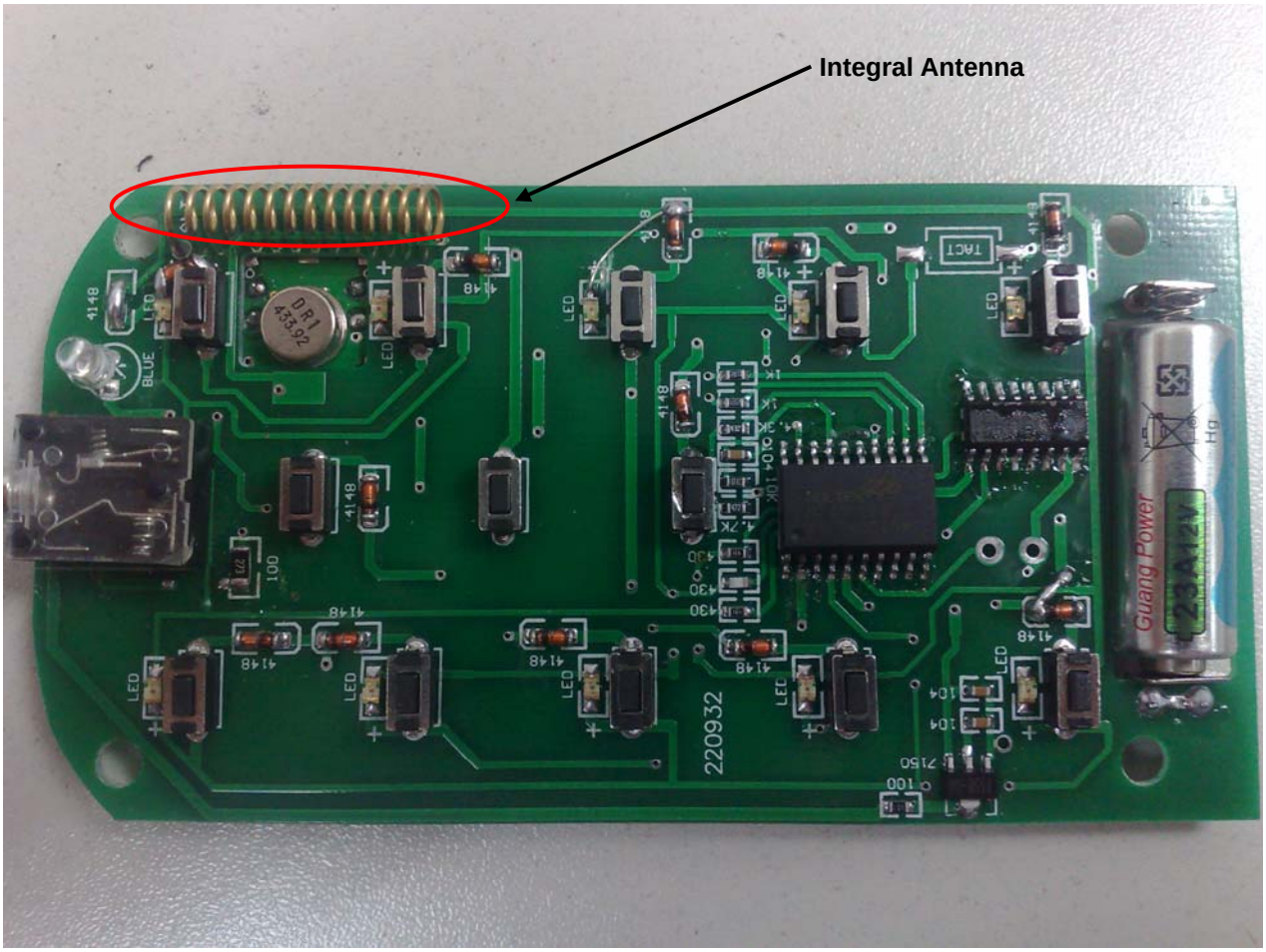
Performed Test Item	Normative References	Test Performed	Deviation
Antenna Requirement	FCC CFR Title 47 Part 15 Subpart C: 2009 Section 15.203	Yes	No
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2009 Section 15.207	N/A	N/A
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2009 Section 15.209, 15.231(b)	Yes	No
Transmit Activated Time	FCC CFR Title 47 Part 15 Subpart C: 2009 Section 15.231(a)(1)(2)(3)	Yes	No
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2009 Section 15.231 (c)	Yes	No

ATTACHMENT 1 – ANTENNA REQUIREMENT

CLIENT:	American Technology Components Inc.	**TEST STANDARD:**	FCC Part 15.203
MODEL TESTED:	GS-W	**PRODUCT:**	RF Controller
SERIAL NO.:	Engineering Sample	**EUT DESIGNATION:**	RF Transmitter(DSC)
TEMPERATURE:	21°C	**HUMIDITY:**	43%RH
ATM PRESSURE:	101.6kPa	**GROUNDING:**	No Grounding
TESTED BY:	Tony	**DATE OF TEST:**	2011.01.24
TEST REFERENCE:	FCC Part 15.203		
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:	1x12V DC Battery		
RESULTS:	The antenna of EUT is intergratl without antenna connector, so it meets the antenna requirement of FCC Part 15.203. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by SIC International Certification Group test personnel.		
M. UNCERTAINTY:	N/A		

FCC Section	FCC Rules	Conclusion
15.203	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. 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: ● The application (or intended use) of the EUT ● The installation requirements of the EUT ● The method by which the EUT will be marketed	The RF Device is used an integral antenna without connector

Integral Antenna without Connector View



ATTACHMENT 2 - CONDUCTED EMISSION

CLIENT:	American Technology Components Inc.	**TEST STANDARD:**	FCC Part 15.207
MODEL TESTED:	GS-W	**PRODUCT:**	RF Controller
SERIAL NO.:	Engineering Sample	**EUT DESIGNATION:**	RF Transmitter(DSC)
TEMPERATURE:	N/A	**HUMIDITY:**	N/A
ATM PRESSURE:	N/A	**GROUNDING:**	No Grounding
TESTED BY:	N/A	**DATE OF TEST:**	N/A

TEST REFERENCE:	ANSI C63.4: 2009 & ANSI C63.10: 2009
TEST PROCEDURE:	a) The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface. b) Connect EUT to the power mains through a line impedance stabilization network (LISN) c) The LISN provides 50ohm coupling impedance for the measuring instrument d) Both sides of AC line were checked for maximum conduced interference. e) The frequency range from 150kHz to 30MHz was searched. f) Set the test-receiver system to Peak Detect Function and Specified bandwidth. g) 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.
TESTED RANGE:	150kHz-30MHz
TEST VOLTAGE:	1x12V DC Battery
RESULTS:	EUT is portable device which is powred by a internal battery (DC12V), so the test item is not necessary performed. The test results relate only to the equipment under test provided by client.
CHANGES OR MODIFICATIONS:	There were no modifications installed by SIC International Certification Group test personnel.
M. UNCERTAINTY:	The maximum measurement uncertainty is evaluated as ±3.48dB.

ATTACHMENT 3 – RADIATED EMISSION

CLIENT:	American Technology Components Inc.	**TEST STANDARD:**	FCC Part 15.209, 15231(b)
MODEL TESTED:	GS-W	**PRODUCT:**	RF Controller
SERIAL NO.:	Engineering Sample	**EUT DESIGNATION:**	RF Transmitter(DSC)
TEMPERATURE:	23°C	**HUMIDITY:**	41%RH
ATM PRESSURE:	101.2kPa	**GROUNDING:**	No Grounding
TESTED BY:	Tony	**DATE OF TEST:**	2011.01.21

TEST REFERENCE:	ANSI C63.4: 2009 & ANSI C63.10: 2009
RESTRICTED BANDS OF OPERATION REQUIREMENT:	The only spurious emissions are permitted in any of the frequency bands listed by FCC 15.205 requiremt, and limited to comply with table of FCC 15.209
FUNDAMENTAL AND HARMONIC SPURIOUS REQUIREMENT:	The field strength of fundamental and harmonic spurious are limited to comply with FCC 15.231b
TEST PROCEDURE:	a) The EUT was placed on a rotatable table with 0.8 meters above ground. b) The EUT was set 3 meters from the interference-receiving antenna, which was mounted on the top of a variable height antenna tower. 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. 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. 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. f) Broadband antenna (Calibrated antenna) was used as receiving antenna below 1000MHz. Horn antenna were used as receiving antenna above 1000MHz. g) The bandwidth is 120 kHz below 1000 MHz, and 1 MHz above 1000 MHz Note: When perfomed the test for bateery operated equipment, the equipment tests shall be performed using a new battery. hand-held or body-worn devices shall be rotated of the EUT through three orthogonal axes to determine the attitude that maximizes the emissions. Explanation of the Correction Factor are given as follows: FS= RA + AF + CF – AG

	Where: FS = Field Strength RA = Receiver Amplitude AF = Antenna Factor CF = Cable Attenuation Factor AG = Amplifier Gain
TESTED RANGE	30MHz to 10,000MHz, 1GHz to 4.5GHz (Tenth harmonic of the highest fundamental)
TEST VOLTAGE:	1x12V DC Battery
RESULTS:	The EUT meets the requirements of field strength test. The test results relate only to the equipment under test provided by client.
CHANGES OR MODIFICATIONS:	There were no modifications installed by SIC International Certification Group test personnel.
M. UNCERTAINTY:	The maximum measurement uncertainty is evaluated as ±4.27dB(Below 1GHz) and ± 4.85dB(above 1GHz)

Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

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

Radiated emission limits, general requirements

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

Radiated emission limit for fundamental and harmonic spurious

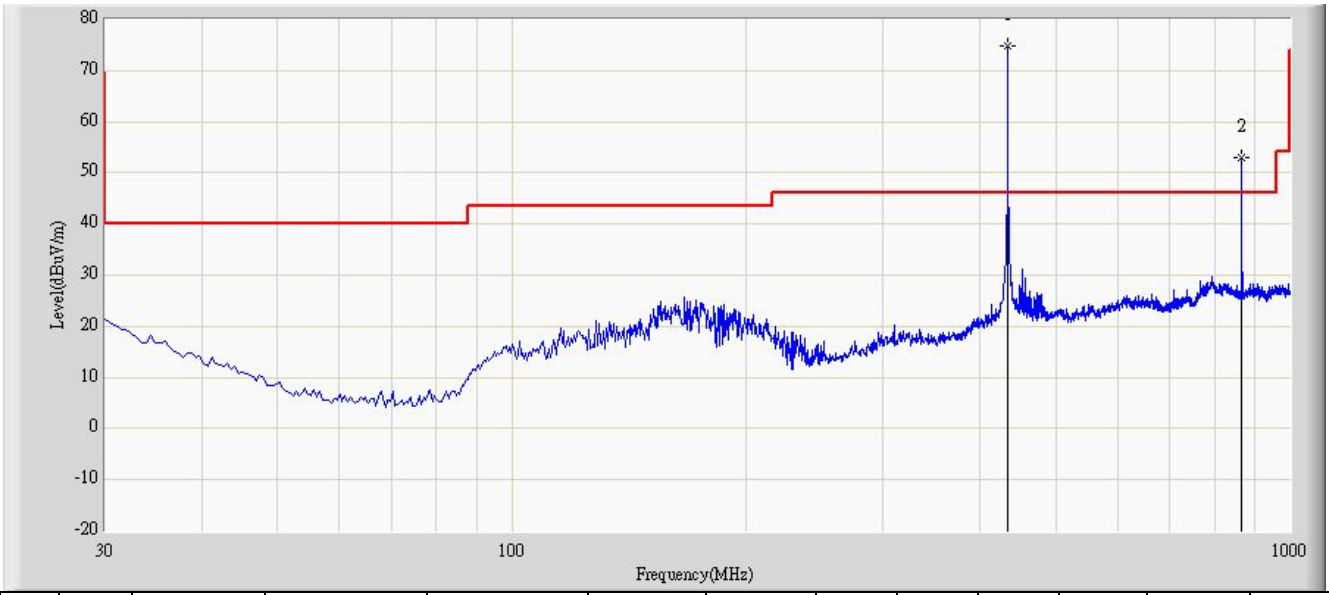
(b) In addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators operated under this Section shall not exceed the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emissions (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 12,500 **	375 to 1,250 **
Above 470	12,500	1,250

** linear interpolations

[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, μV/m at 3 meters = 56.81818(F) - 6136.3636; for the band 260-470 MHz, μV/m at 3 meters = 41.6667(F) - 7083.3333. The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.]

Horizontal

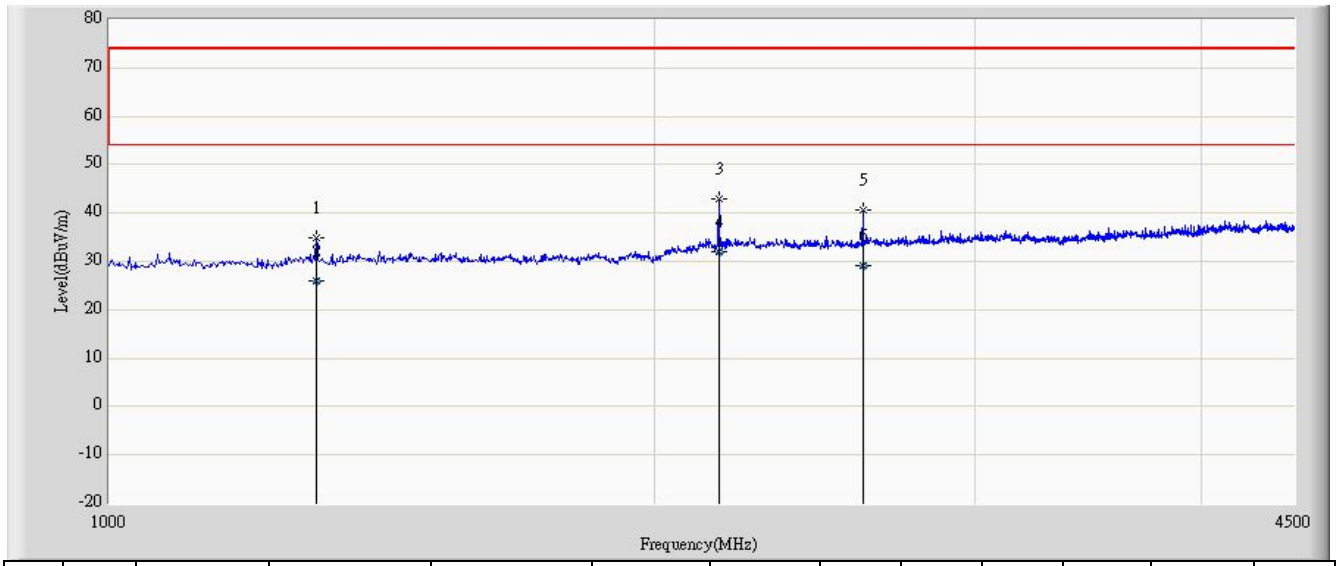


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1	*	433.850	74.879	74.959	28.879	46.000	21.044	2.305	23.430	0	0	PK
2		867.700	52.895	50.013	6.895	46.000	21.900	3.461	22.478	0	0	PK

Vertical

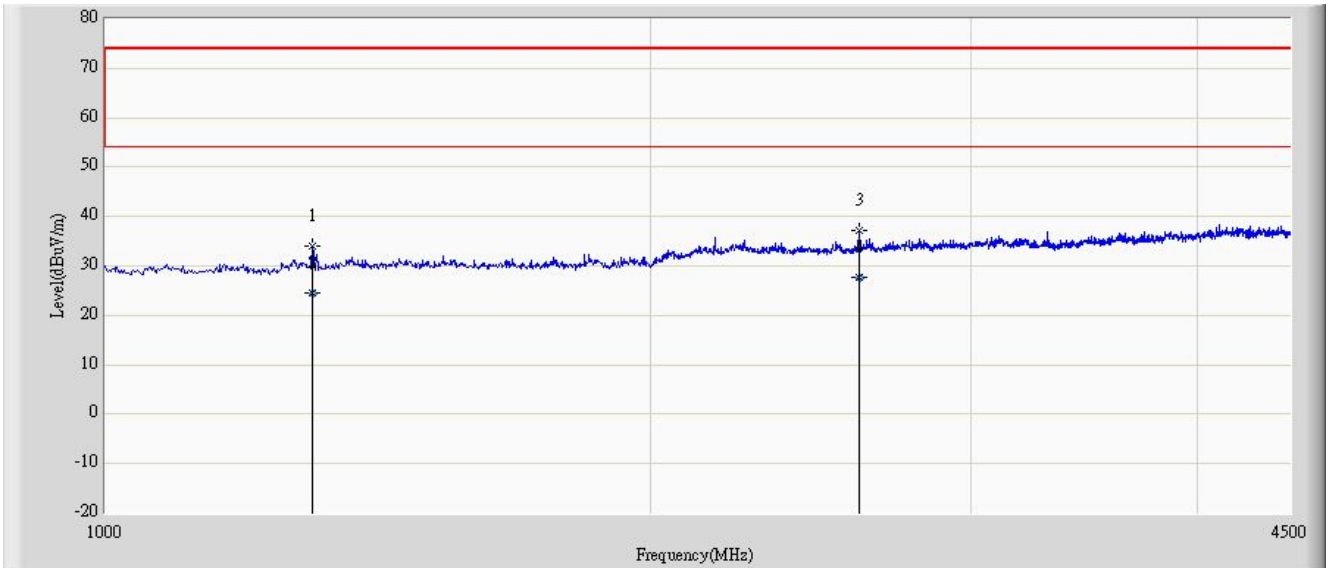
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1	*	433.850	63.739	66.060	17.739	46.000	18.804	2.305	23.430	0	0	PK
2		867.700	46.030	40.819	0.030	46.000	24.229	3.461	22.478	0	0	PK

Horizontal



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		1301.000	34.834	44.157	-39.166	74.000	25.016	2.361	36.700	0	0	PK
2		1301.595	25.979	35.297	-28.021	54.000	25.019	2.362	36.699	100	301	AV
3		2169.000	42.862	49.005	-31.138	74.000	27.614	2.991	36.748	0	0	PK
4	*	2169.265	31.877	38.018	-22.123	54.000	27.616	2.992	36.749	100	236	AV
5		2603.000	40.537	46.065	-33.463	74.000	27.756	3.552	36.836	0	0	PK
6		2603.190	29.016	34.543	-24.984	54.000	27.756	3.552	36.836	100	212	AV

Vertical



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		1301.000	34.156	43.479	-39.844	74.000	25.016	2.361	36.700	0	0	PK
2		1301.580	24.455	33.773	-29.545	54.000	25.019	2.362	36.699	100	17	AV
3		2603.000	37.172	42.700	-36.828	74.000	27.756	3.552	36.836	0	0	PK
4	*	2603.180	27.650	33.177	-26.350	54.000	27.756	3.552	36.836	100	175	AV

Radiated emission test result for fundamental and harmonic spurious

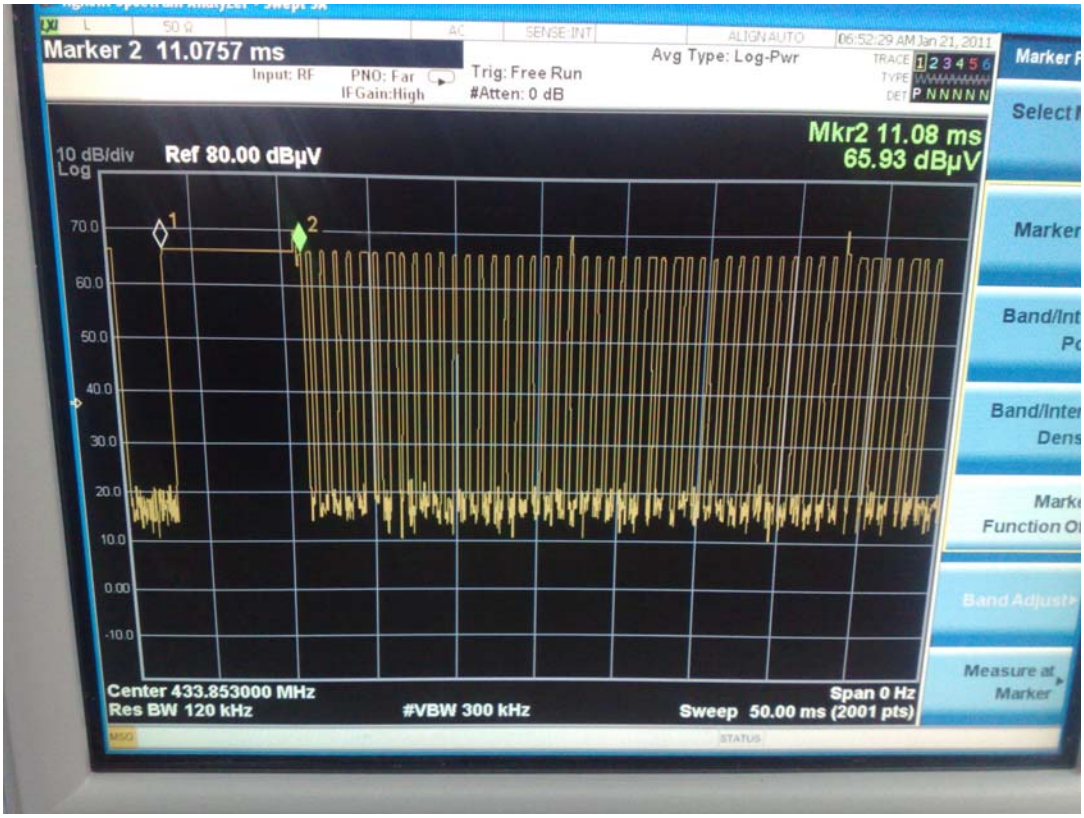
Polarization	Emission Type	Frequency (MHz)	Field Strength dB(μV/m)	Detector	Limit dB(μV/m)	Margin (dB)	Read Level dB(μV)	Factor (dB)	Duty cycle Correction Factor (dB)
Horizontal	Fundamental	433.850	74.879	Peak	N/A	N/A	74.959	-0.080	N/A
	Fundamental	433.850	72.339	AV	80.823	8.484	72.419	-0.080	2.54
	Harmonic	867.700	52.895	Peak	N/A	N/A	50.013	2.882	N/A
	Harmonic	867.700	50.355	AV	60.823	10.468	47.473	2.882	2.54
	Harmonic	1301.550	34.834	Peak	80.823	45.989	44.157	-9.323	N/A
	Harmonic	1301.550	25.979	AV	60.823	34.844	35.302	-9.323	N/A
	Harmonic	2169.250	42.862	Peak	80.823	37.961	49.005	-6.203	N/A
	Harmonic	2169.250	31.877	AV	60.823	28.946	38.080	-6.203	N/A
	Harmonic	2603.100	40.537	Peak	80.823	40.286	46.065	-5.528	N/A
	Harmonic	2603.100	29.016	AV	60.823	31.807	34.544	-5.528	N/A
Vertical	Fundamental	433.850	63.739	Peak	N/A	N/A	66.060	-2.321	N/A
	Fundamental	433.850	61.199	AV	80.823	19.624	63.520	-2.321	2.54
	Harmonic	867.700	46.030	Peak	N/A	N/A	40.819	5.211	N/A
	Harmonic	867.700	43.490	AV	60.823	17.333	38.279	5.211	2.54
	Harmonic	1301.550	34.156	Peak	80.823	46.667	43.479	-9.323	N/A
	Harmonic	1301.550	24.455	AV	60.823	36.368	33.778	-9.323	N/A
	Harmonic	2603.100	37.172	Peak	80.823	43.651	42.700	-5.528	N/A
	Harmonic	2603.100	27.650	AV	60.823	33.173	33.178	-5.528	N/A

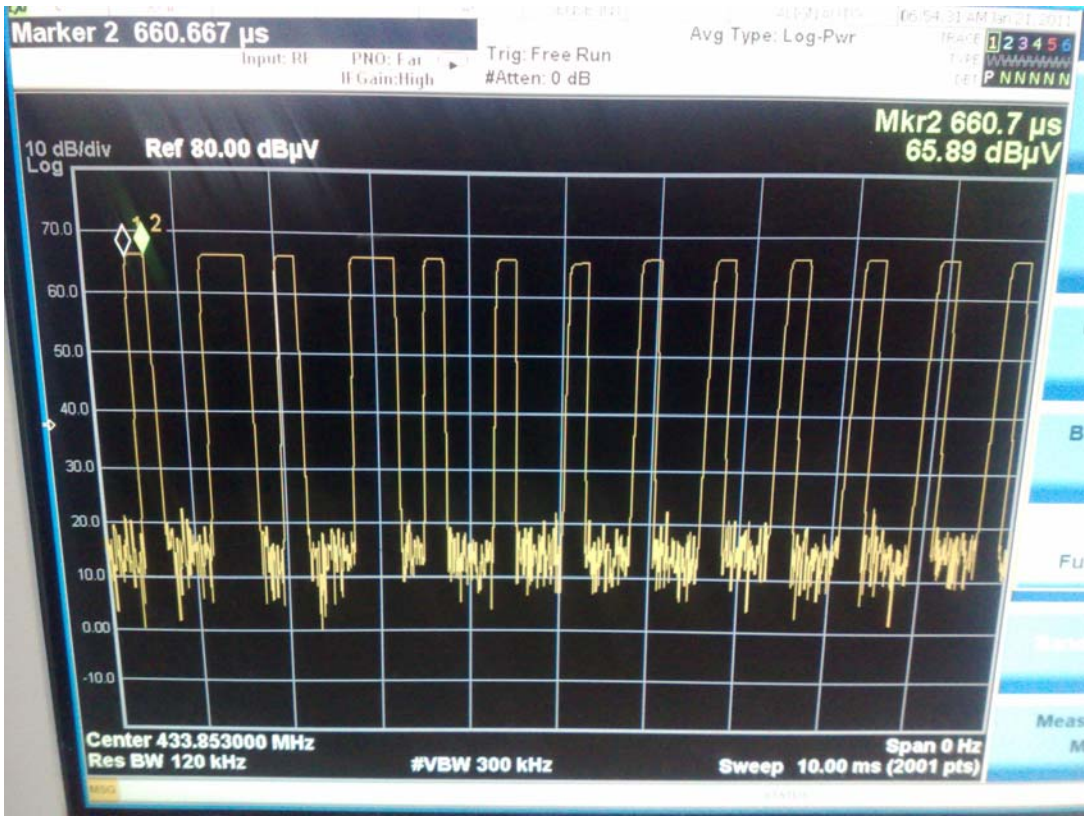
Note:

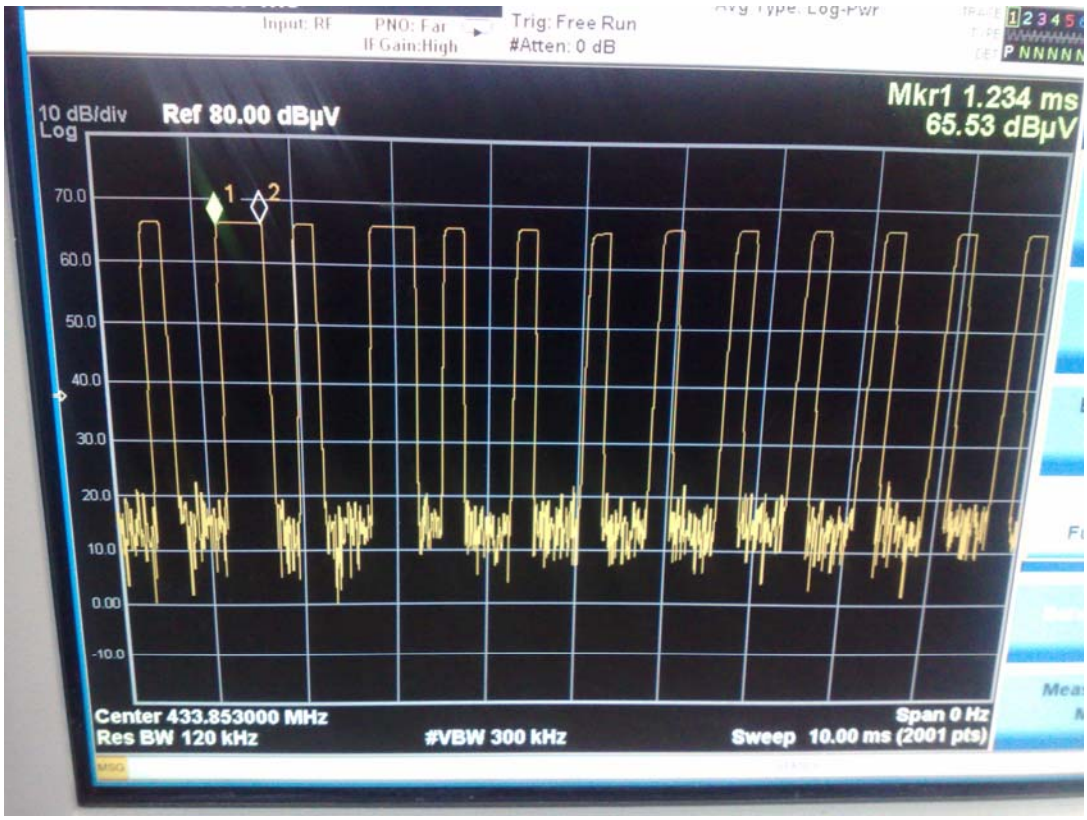
1. Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follow:
   For fundamental frequency (F=433.850MHz)
   Field Strength of fundamental (dBuV/m) = 20log (41.6667 * F – 7083.3333)
   = 20log (41.6667 * 433.850 – 7083.333)
   = **80.823 dBuV/m**
   Field strength of haromic spurious (dBuV/m) = 80.823 – 20 = **60.823 dBuV/m**
2. Field Strength=Read Level + Factor – Duty Cycle Correction Factor
   Factor = Antenna Factor + Cable Loss - Preamp Factor
   Duty Cycle Correction Fact 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 = |20log [(11.08*1+0.66*42+1.234*7)/63.55]| = **2.54 dB**
   (please refer to the following test graph of next page for duty cycle)

3. During the radiated emission test, EUT have been rotaed through three orthogonal axes to determine the attitude that maximizes the emissions, so the test data for report only been showed the worest case emission.


Input: RF
PNO: Far
IFGain:High
Trig: Free Run
#Atten: 0 dB
Avg Type: Log-Pwr
10 dB/div
Log
Ref 80.00 dBµV
Mkr2 63.55 ms
66.28 dBµV
Center 433.853000 MHz
Res BW 120 kHz
#VBW 300 kHz
Span 0 Hz
Sweep 165.1 ms (2001 pts)


Marker 2 11.0757 ms
Input: RF
PNO: Far
IFGain:High
Trig: Free Run
#Atten: 0 dB
Avg Type: Log-Pwr
10 dB/div
Log
Ref 80.00 dBµV
Mkr2 11.08 ms
65.93 dBµV
Center 433.853000 MHz
Res BW 120 kHz
#VBW 300 kHz
Span 0 Hz
Sweep 50.00 ms (2001 pts)


Marker 2 660.667 µs
Input: RF PNO: Far
IFGain:High
Trig: Free Run
#Atten: 0 dB
Avg Type: Log-Pwr
10 dB/div
Log
Ref 80.00 dBµV
Mkr2 660.7 µs
65.89 dBµV
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.00
-10.0
Center 433.853000 MHz
Res BW 120 kHz
#VBW 300 kHz
Span 0 Hz
Sweep 10.00 ms (2001 pts)


Input: RF PNO: Far
IFGain:High
Trig: Free Run
#Atten: 0 dB
10 dB/div
Log
Ref 80.00 dBµV
Mkr1 1.234 ms
65.53 dBµV
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.00
-10.0
Center 433.853000 MHz
Res BW 120 kHz
#VBW 300 kHz
Span 0 Hz
Sweep 10.00 ms (2001 pts)

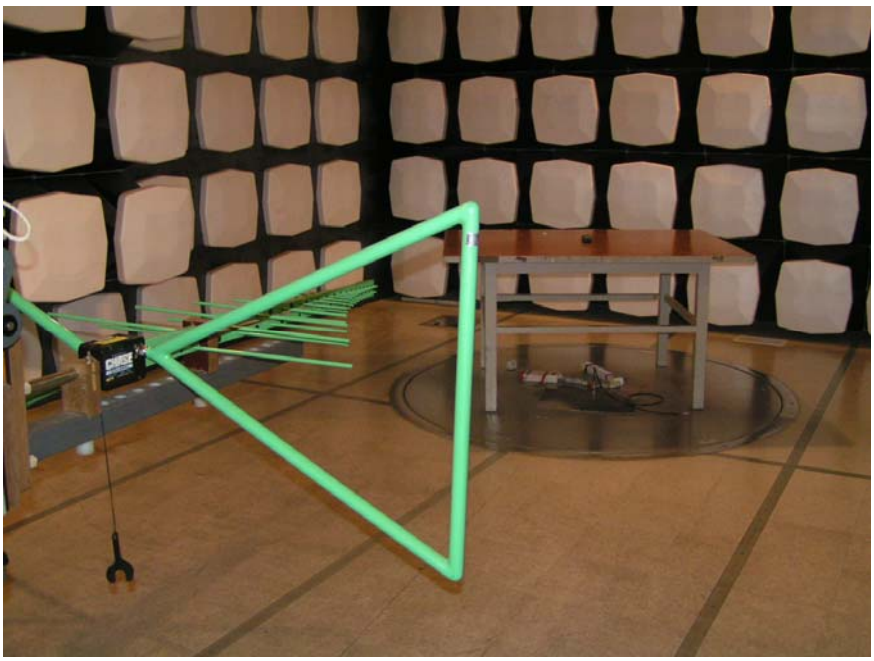
Equipment List

Instrument	Manufacturer	Model No.	Serial No.	Cali. Due Date
Test Receiver	ESIB26	R&S	1088.7490.26	2011.08.20
Spectrum Analyzer	Agilent	N9010A	MY48030494	2011.04.23
Preamplifier	HP	CC4494	3520	2011.05.24
Preamplifier	Agilent	8449B	3008A02597	2011.04.10
Bilog Antenna	Chase	HL562	4041.3000.02	2011.06.17
Horn Antenna	Schwarzbeck	9120D	576	2011.06.10

SIGNED BY: Tony Liu _____ **REVIEWED BY:** Angel Xie _____

ENGINEER **SENIOR ENGINNER**

Radiated Emission Test for Below 1GHz



Radiated Emission Test for Above 1GHz

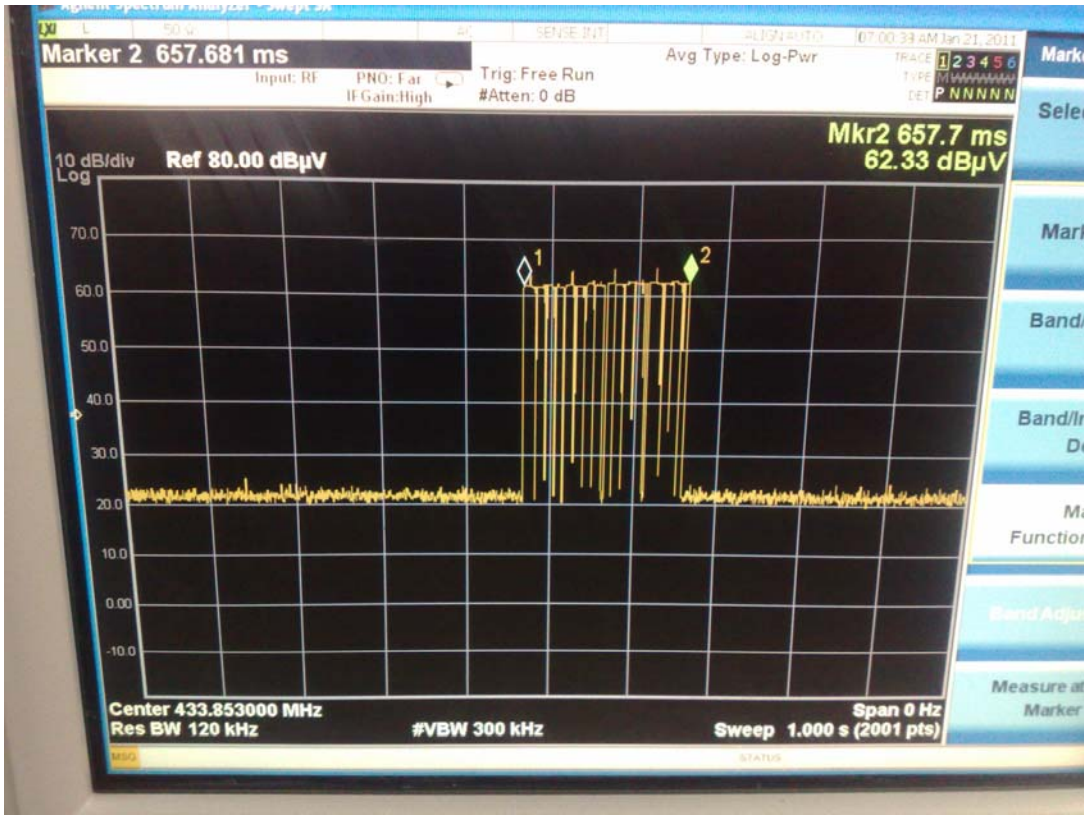
ATTACHMENT 4 – TRANSMIT ACTIVATED TIME

CLIENT:	American Technology Components Inc.	**TEST STANDARD:**	FCC Part 15.231(a)
MODEL TESTED:	GS-W	**PRODUCT:**	RF Controller
SERIAL NO.:	Engineering Sample	**EUT DESIGNATION:**	RF Transmitter(DSC)
TEMPERATURE:	23°C	**HUMIDITY:**	41%RH
ATM PRESSURE:	101.2kPa	**GROUNDING:**	No Grounding
TESTED BY:	Tony	**DATE OF TEST:**	2011.01.21

TEST REFERENCE:	FCC Part 15.231(a)
TRANSMIT ACTIVATED TIME REQUIREMENT:	(1) A manually operated transmitter shall employ a switch that will automatically deactivate 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 in 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.
TEST VOLTAGE:	1x12V DC Battery
RESULTS:	The EUT meets the requirements of transmit activated time. The test results relate only to the equipment under test provided by client.
CHANGES OR MODIFICATIONS:	There were no modifications installed by SIC International Certification Group test personnel.
M. UNCERTAINTY:	Freq. $\pm$ 2x10^{-7} x Center Freq., Amp $\pm$ 2.6 dB

FCC Section	FCC Rules	Conclusion
15.231 (a)	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: (1) A manually operated transmitter shall employ a switch that will automatically 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.	The transmitter operate manually and employ a switch that automatically deactivates the transmitter and ceases transmission within 5 seconds after deactivation. The transmitter does not perform periodic transmissions.

Transmit Activated Time



Equipment List

Instrument	Manufacturer	Model No.	Serial No.	Cali. Due Date
Test Receiver	ESIB26	R&S	1088.7490.26	2011.08.20
Spectrum Analyzer	Agilent	N9010A	MY48030494	2011.04.23
Preamplifier	HP	CC4494	3520	2011.05.24
Preamplifier	Agilent	8449B	3008A02597	2011.04.10
Bilog Antenna	Chase	HL562	4041.3000.02	2011.06.17
Horn Antenna	Schwarzbeck	9120D	576	2011.06.10

SIGNED BY: Tony Liu **REVIEWED BY:** Angel Xie

ENGINEER **Senior enginner**

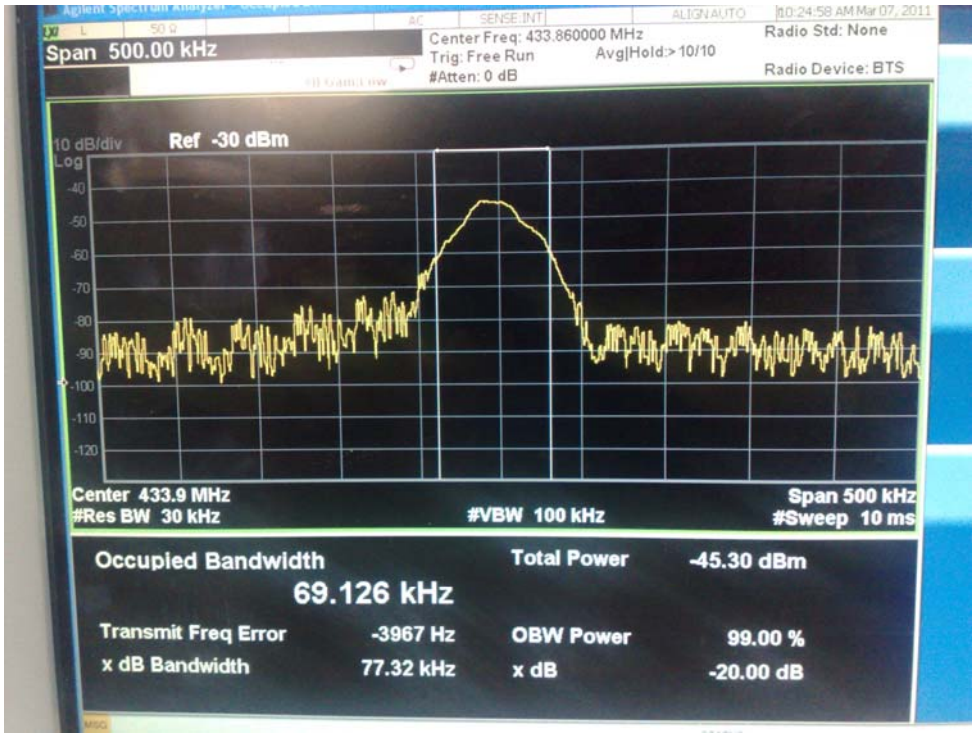
ATTACHMENT 5 – OCCUPIED BANDWIDTH

CLIENT:	American Technology Components Inc.	**TEST STANDARD:**	FCC Part 15.231(c)
MODEL TESTED:	GS-W	**PRODUCT:**	RF Controller
SERIAL NO.:	Engineering Sample	**EUT DESIGNATION:**	RF Transmitter(DSC)
TEMPERATURE:	23°C	**HUMIDITY:**	41%RH
ATM PRESSURE:	101.2kPa	**GROUNDING:**	No Grounding
TESTED BY:	Tony	**DATE OF TEST:**	2011.01.21

TEST REFERENCE:	ANSI C63.10: 2009
OCCUPIED 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 VOLTAGE:	1x12V DC Battery
RESULTS:	The EUT meets the requirements of occupied bandwidth. The test results relate only to the equipment under test provided by client.
CHANGES OR MODIFICATIONS:	There were no modifications installed by SIC International Certification Group test personnel.
M. UNCERTAINTY:	Freq. $\pm$ 2x10^{-7} x Center Freq., Amp $\pm$ 2.6 dB

20dB Occupied Bandwidth (MHz)	Bandwidth Limit (MHz) (Fcente x 0.25%)	Conclusion
0.077	1.085	Compliance

20dB Occupied Bandwidth



Equipment List

Instrument	Manufacturer	Model No.	Serial No.	Cali. Due Date
Test Receiver	ESIB26	R&S	1088.7490.26	2011.08.20
Spectrum Analyzer	Agilent	N9010A	MY48030494	2011.04.23
Preamplifier	HP	CC4494	3520	2011.05.24
Preamplifier	Agilent	8449B	3008A02597	2011.04.10
Bilog Antenna	Chase	HL562	4041.3000.02	2011.06.17
Horn Antenna	Schwarzbeck	9120D	576	2011.06.10

SIGNED BY: Tony Liu _____ **REVIEWED BY:** Angel Xie _____

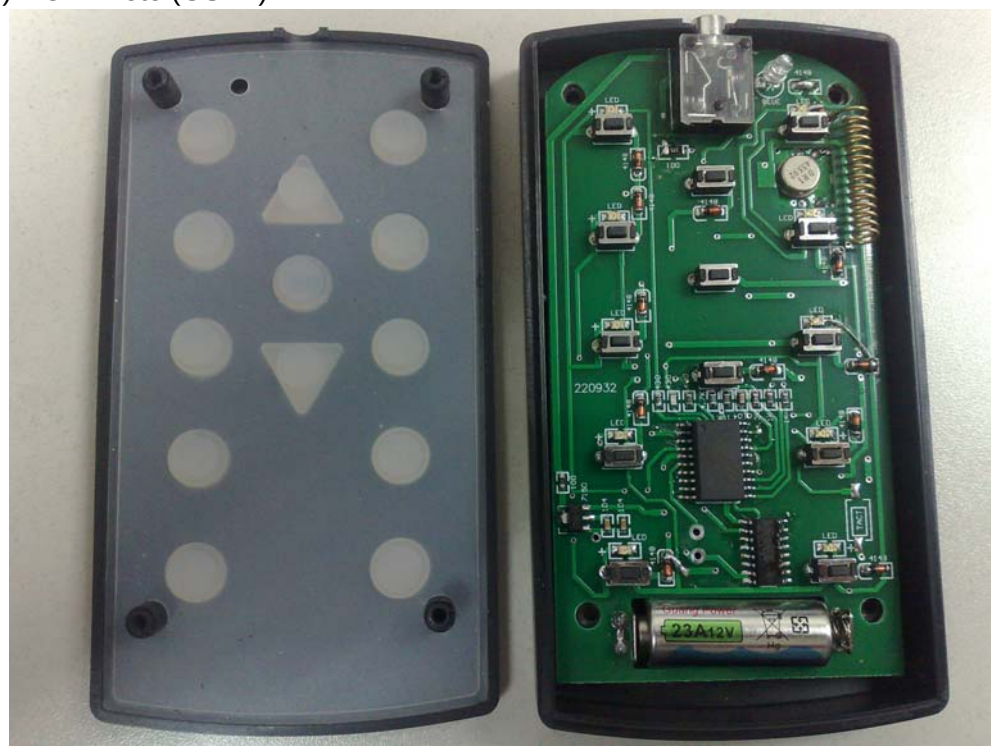
ENGINEER **Senior enginner**

EUT Photograph

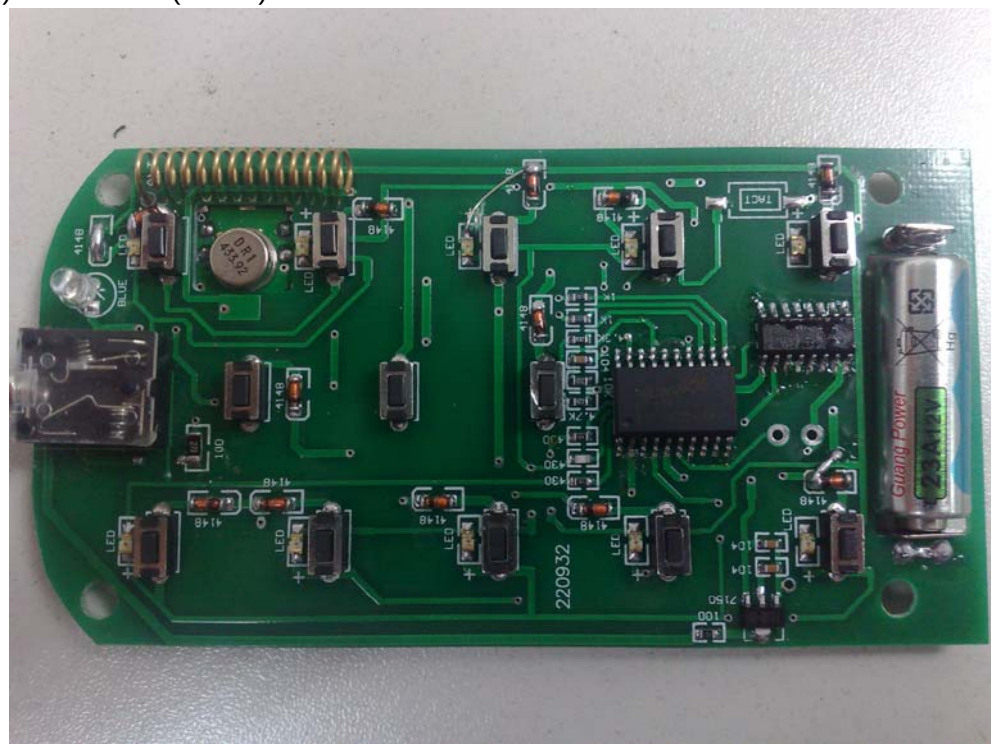
(1) EUT Photo (GS-W)

(2) EUT Photo (GS-W)

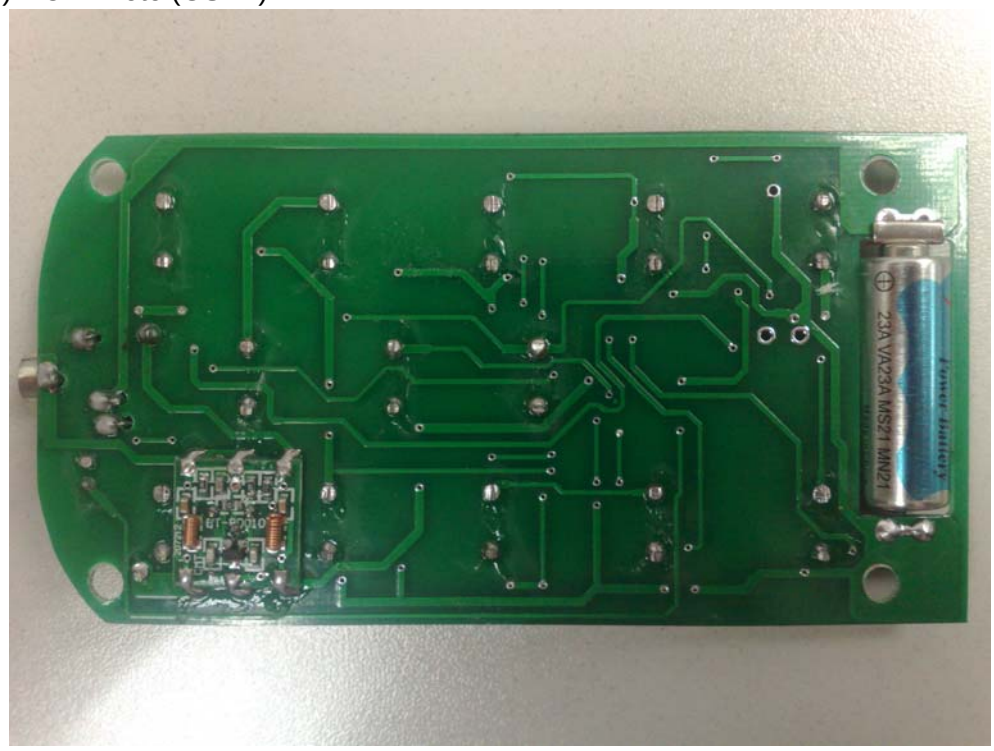
(3) EUT Photo (GS-W)



(4) EUT Photo (GS-W)



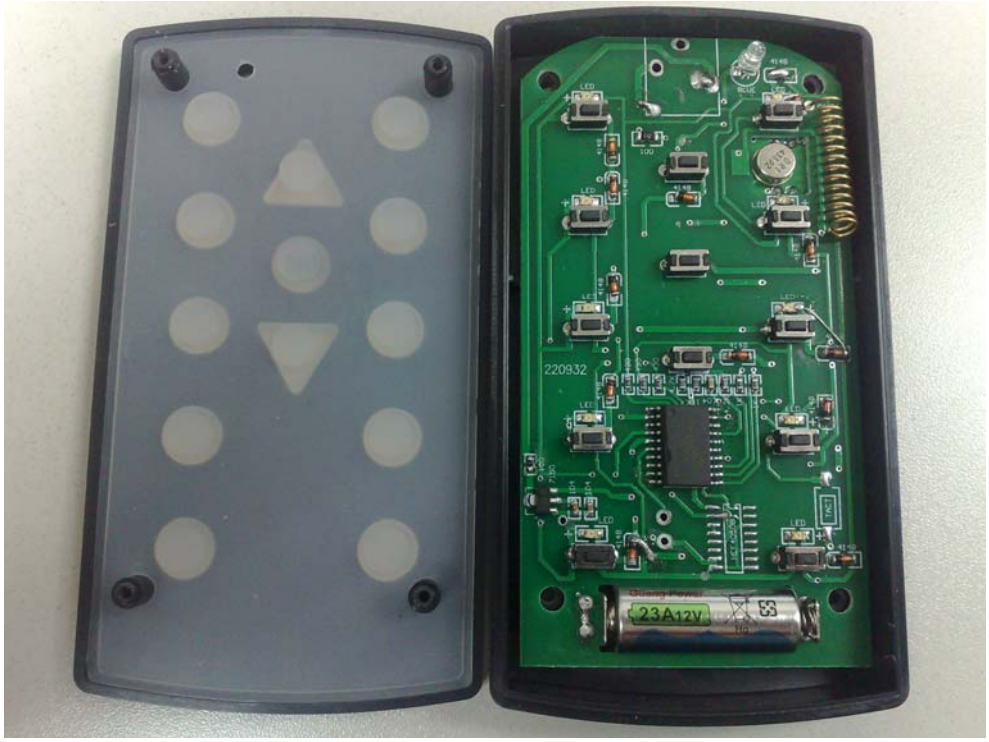
(5) EUT Photo (GS-W)



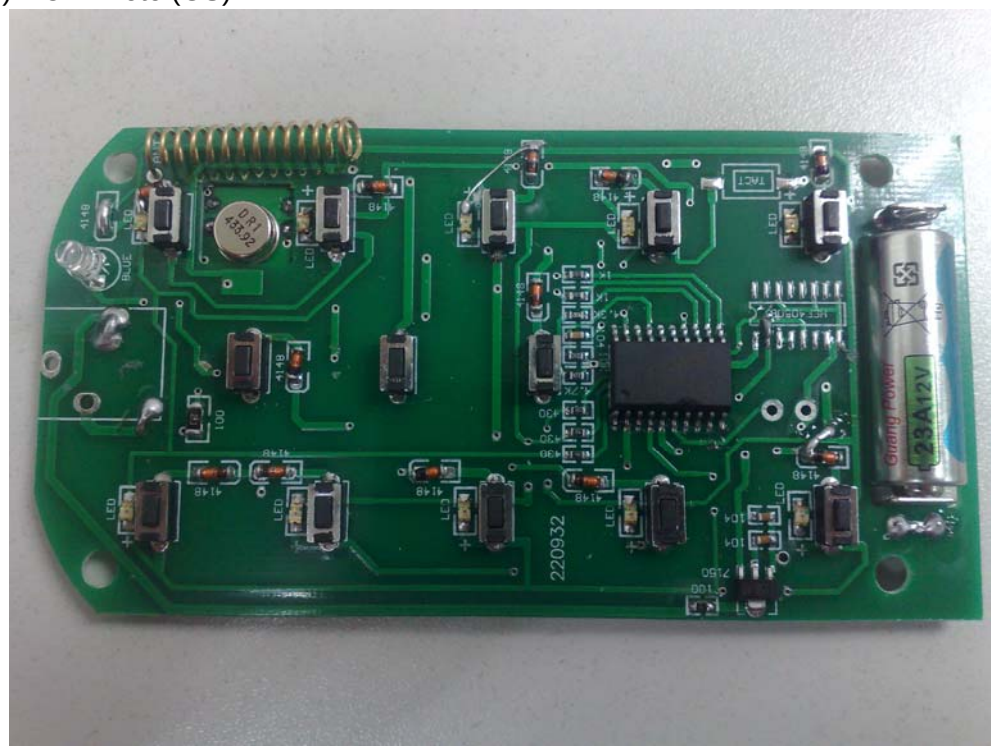
(6) EUT Photo (GS)

(7) EUT Photo (GS)

(8) EUT Photo (GS)



(9) EUT Photo (GS)



(10) EUT Photo (GS)