Test Report

Product Name	：	CB TRANSCEIVER
Model No.	：	TRE-SBMD
FCC ID.	：	C2R-TRE-SBMD

Applicant	：	Ranger Electronic Communications, Inc.
Address	：	No. 70 Pei Nei Street, Shulin Dist., New Taipei City 23849, Taiwan

Date of Receipt	：	2011/05/23
Issued Date	：	2011/06/15
Report No.	：	115430R-RFUSP38V01
Report Version	：	V1.0

Test Report Certification

Issued Date : 2011/06/15
Report No. : 115430R-RFUSP38V01

QuieTek

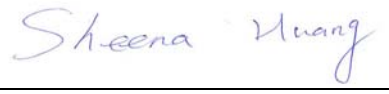
Product Name	:	CB TRANSCEIVER
Applicant	:	Ranger Electronic Communications, Inc.
Address	:	No. 70 Pei Nei Street, Shulin Dist., New Taipei City 23849, Taiwan
Manufacturer	:	Ranger Electronic Communications, Inc.
Model No.	:	TRE-SBMD
Trade Name	:	TEXAS RANGER
FCC ID.	:	C2R-TRE-SBMD
EUT Voltage	:	13.8V DC
Applicable Standard	:	FCC CFR Title 47 Part 95 Subpart D: 2010
Test Result	:	Complied

The test results relate only to the samples tested.

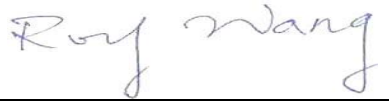
The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.

Documented By : 

(Carol Tsai / Adm. Specialist)

Tested By : 

(Sheena Huang / Engineer)

Approved By : 

(Roy Wang / Manager)

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1. General Information

1.1. EUT Description

Product Name	CB TRANSCEIVER
Trade Name	TEXAS RANGER
Model No.	TRE-SBMD
Frequency Range	26.965~ 27.405MHz
Channel Number	40
Type of Modulation	AM
Channel Control	Manual
Microphone	1 Set
ANT	None (Terminator)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
01	26.965	11	27.085	21	27.215	31	27.315
02	26.975	12	27.105	22	27.225	32	27.325
03	26.985	13	27.115	23	27.255	33	27.335
04	27.005	14	27.125	24	27.235	34	27.345
05	27.015	15	27.135	25	27.245	35	27.355
06	27.025	16	27.155	26	27.265	36	27.365
07	27.035	17	27.165	27	27.275	37	27.375
08	27.055	18	27.175	28	27.285	38	27.385
09	27.065	19	27.185	29	27.295	39	27.395
10	27.075	20	27.205	30	27.305	40	27.405

Note:

1. This device is a CB TRANSCEIVER included a 27MHz transceiver function and a 27MHz transceiver function.
2. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 95 Subpart D.
3. Regards to the frequency band operation; the lowest、middle and highest frequency of channel were selected to perform the test, and then shown on this report.
4. This device is a composite device in accordance with Part 95 regulations. The function receiving was measured and made a test report that the report number is 115430R-RFUSP37V02 under Declaration of Conformity.

1.3. Test Mode

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Pre-Test Mode	
EMI	Mode 1: Transmit
Final Test Mode	
TX	Mode 1: Transmit

Emission	
Performed Item	Test
Conducted Emission	No
Output Power	Yes
Modulation Characteristic	Yes
Bandwidth	Yes
Conducted Spurious Emission	Yes
Radiated Spurious Emission	Yes
Frequency Stability	Yes

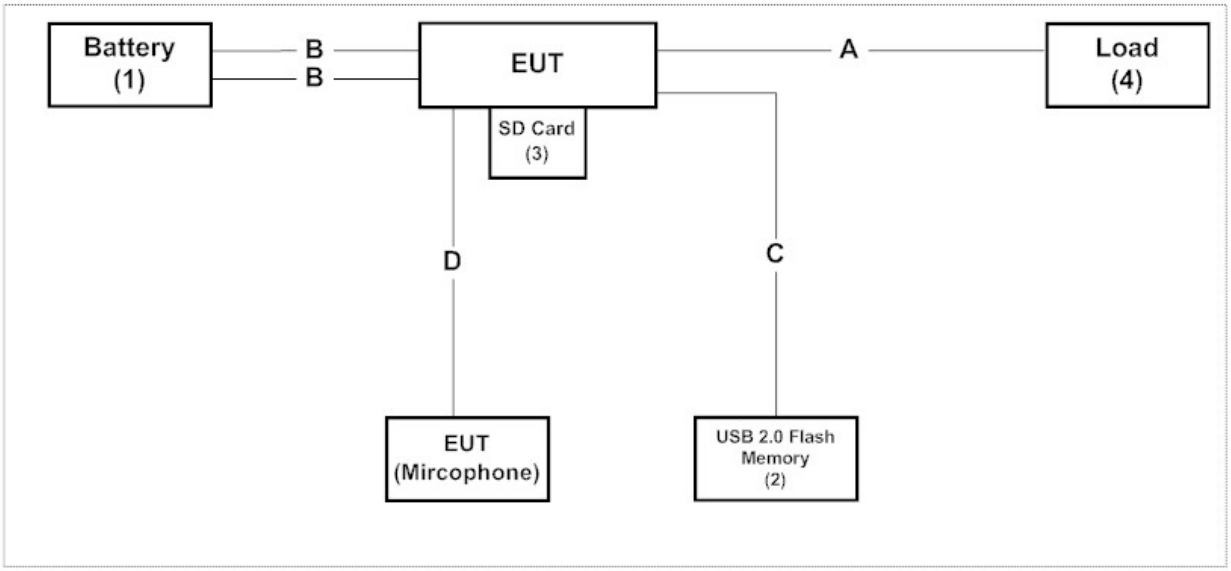
1.4. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	Battery	YUASA	N/A	N/A	DoC	--
2	USB 2.0 Flash Memory	Sony	USM2GJX	N/A	DoC	--
3	SD Card	Transcend	TS1GSD80	155511-2004	DoC	--
4	Load	--				

1.5. Configuration of tested System

Connection Diagram



Signal Cable Type		Signal cable Description
A	RF Cable	Shielded, 1m
B	Power Line	Non-Shielded, 1m, 2 PCS
C	USB 2.0 Flash Memory Cable	Shielded, 1m
D	Microphone Cable	Non-Shielded, 0.5m

1.6. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.4.
2	Turn on the power.
3	The RF signal's status will continue transmit through EUT.
4	Repeat the above procedure (3)

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 95D Output Power	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 2.1047 Modulation Characteristic	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 95D Bandwidth	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 95D Conducted Spurious Emission	15 - 35	25
Humidity (%RH)		25 - 75	55
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 95D Radiated Spurious Emission	15 - 35	25
Humidity (%RH)		25 - 75	65
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 2.1055 Frequency Stability	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000

Site Description: September 27, 2010 File on
Federal Communications Commission
Laboratory Division
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 365520

Accredited by TAF
Accreditation Number: 1313
Effective through: December 27, 2013

Testing Laboratory
1313

Site Name: Quietek Corporation

Site Address: No. 75-2, 3rd Lin, Wangye Keng, Yonghxing
Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan
TEL : 886-3-5928858 / FAX : 886-3-5928859
E-Mail : service@quietek.com

2. Output Power

2.1. Test Equipment

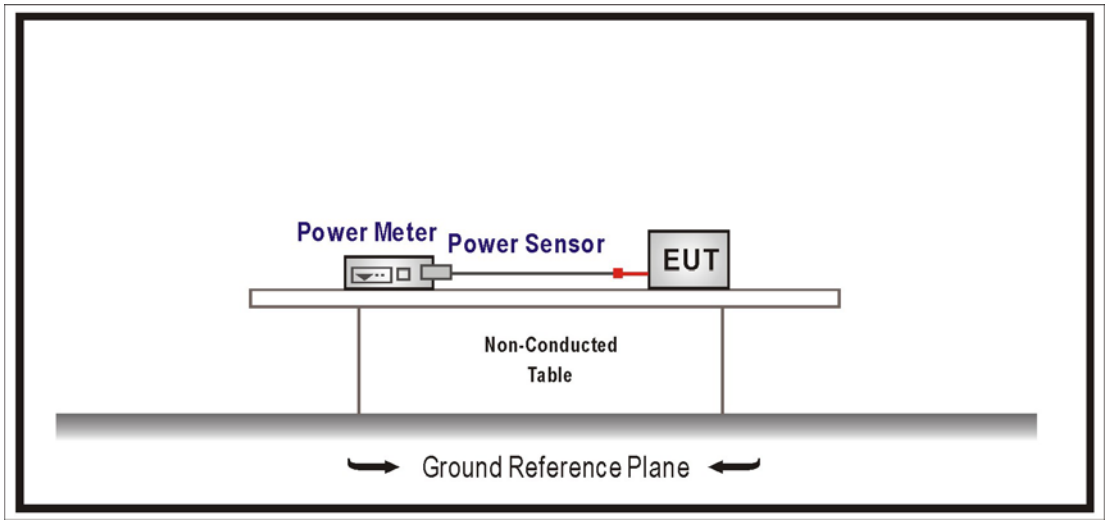
The following test equipments are used during the test:

Output Power **/** SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Power Meter	Agilent	N1911A	MY45101353	2012/01/04
Power Sensor	Agilent	N1921A	MY45241670	2012/01/04

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

2.2. Test Setup



2.3. Limits

The maximum peak power shall be less 4 watts (carrier power).

2.4. Test Procedure

Use a peak power meter to measure the carrier power.

2.5. Test Specification

According to FCC Part 95 Subpart D: 2010.

2.6. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

2.7. Test Result

Product	CB TRANSCEIVER		
Test Item	Output Power		
Test Mode	Mode 1: Transmit		
Date of Test	2011/06/01	Test Site	SR7

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	26.965	35.23	4Watt = 36dBm	Pass
21	27.215	35.08	4Watt = 36dBm	Pass
40	27.405	34.78	4Watt = 36dBm	Pass

3. Modulation Characteristic

3.1. Test Equipment

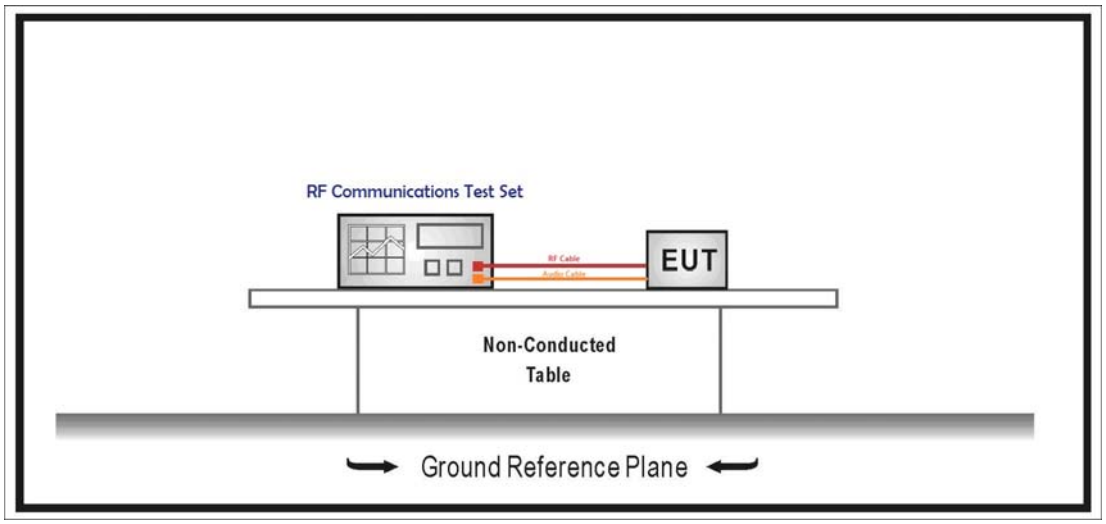
The following test equipments are used during the test:

Modulation Characteristic **/** SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
RF Communications Test Set	HP	8920A	3614A08091	2012/04/26

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

3.2. Test Setup



3.3. Limits

The modulation shall be less 100%.

3.4. Test Procedure

Use the RF Communicaitons Test Set to generate audio signal to connect to the EUT and measure the AM modulation depth via RF cable.
Curve are provied for audio input frequencies of 300, 1000, and 3000Hz.

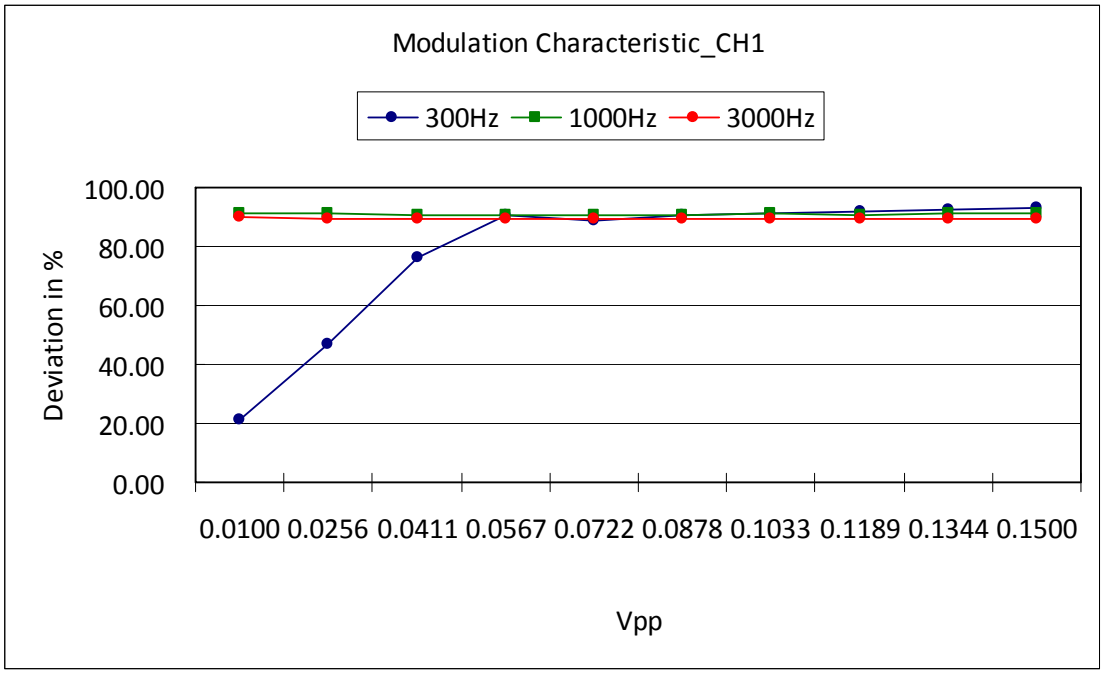
3.5. Test Specification

According to FCC Part 95 Subpart D: 2010.

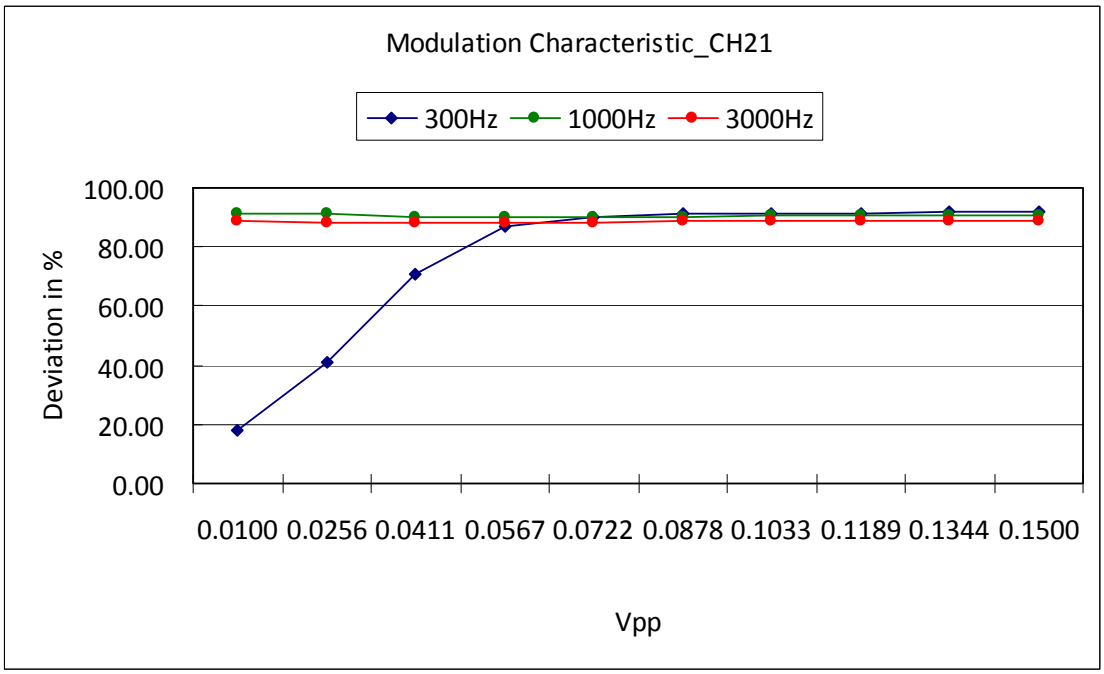
3.6. Test Result

Product	CB TRANSCEIVER		
Test Item	Modulation Characteristic		
Test Mode	Mode 1: Transmit		
Date of Test	2011/06/01	Test Site	SR7

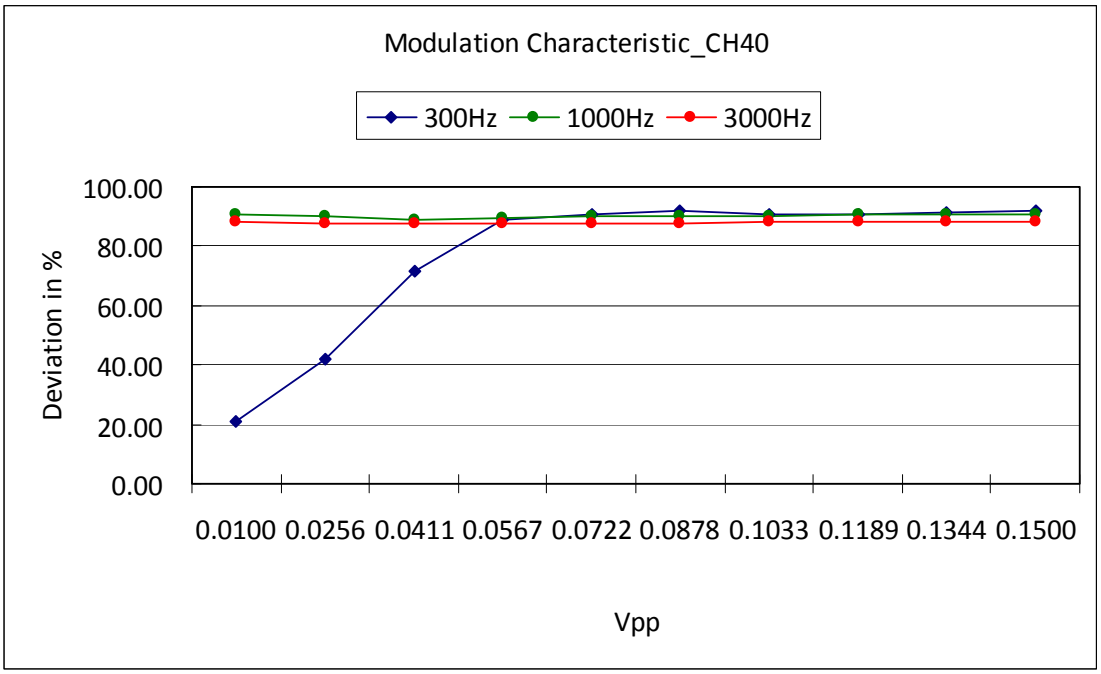
Modulation Characteristic_CH1



Modulation Characteristic_CH21



Modulation Characteristic_CH40



4. Bandwidth

4.1. Test Equipment

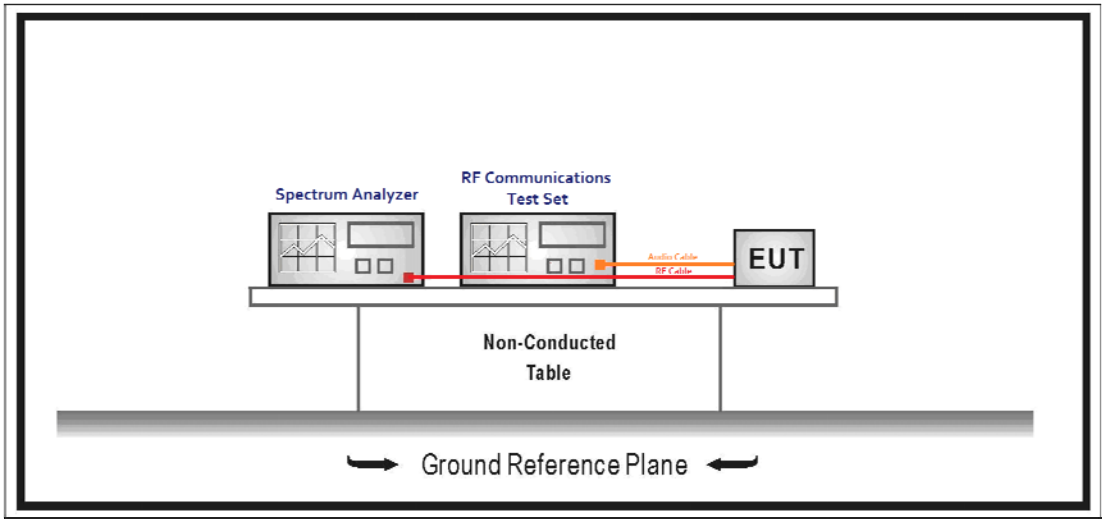
The following test equipments are used during the test:

Bandwidth / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
RF Communications Test Set	HP	8920A	3614A08091	2012/04/26
Spectrum Analyzer	R&S	FSP	100561	2012/01/16

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

4.2. Test Setup



4.3. Limits

(1) At least 25 dB (decibels) on any frequency removed from the center of the authorized bandwidth by more than 50% up to and including 100% of the authorized bandwidth.

(2) At least 35 dB on any frequency removed from the center of the authorized bandwidth by more than 100% up to and including 250% of the authorized bandwidth.

(3) At least 53 + 10 log10 (T) dB on any frequency removed from the center of the authorized bandwidth by more than 250%.

4.4. Test Procedure

Use the RF Communicaitons Test Set to generate audio signal and connect to the EUT. Use the Spectrum Analyzer to measure the AM modulation signal via RF cable. The transmitter was modulated with 2500Hz, adjucted for 50% modulation plus 16dB.

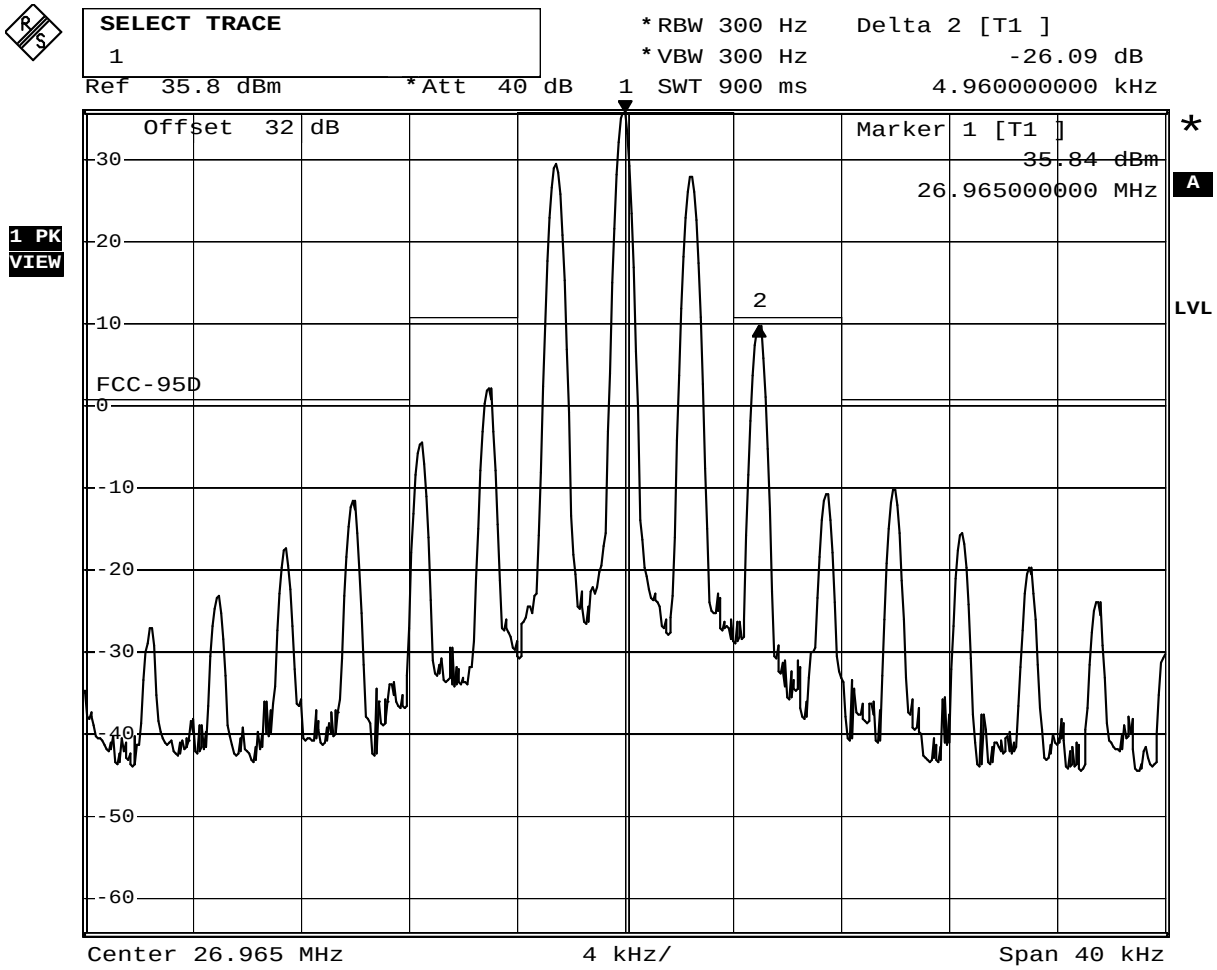
4.5. Test Specification

According to FCC Part 95 Subpart D: 2010.

4.6. Test Result

Product	CB TRANSCEIVER		
Test Item	Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2011/06/02	Test Site	SR7

Bandwidth_CH1



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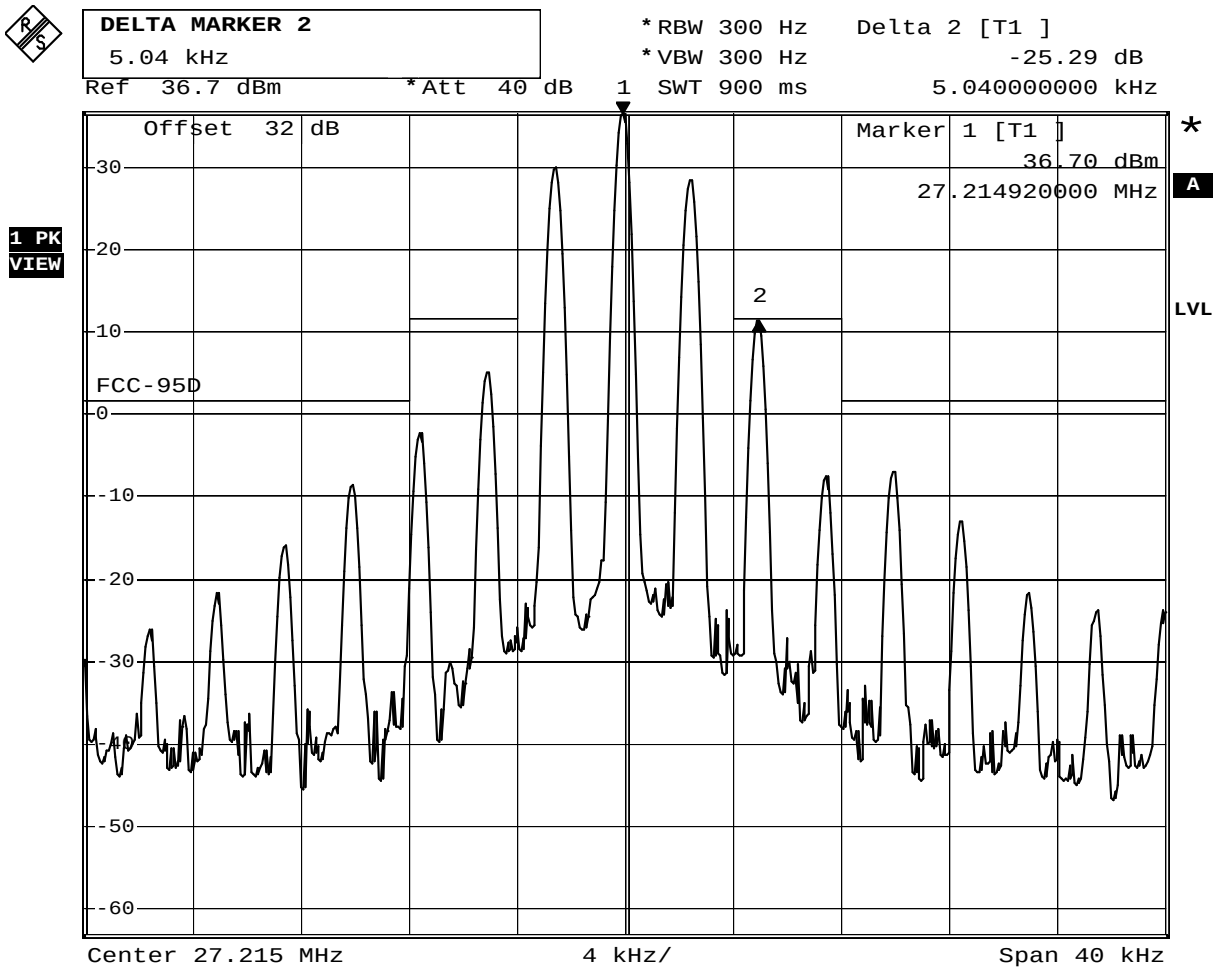
Bandwidth_CH21



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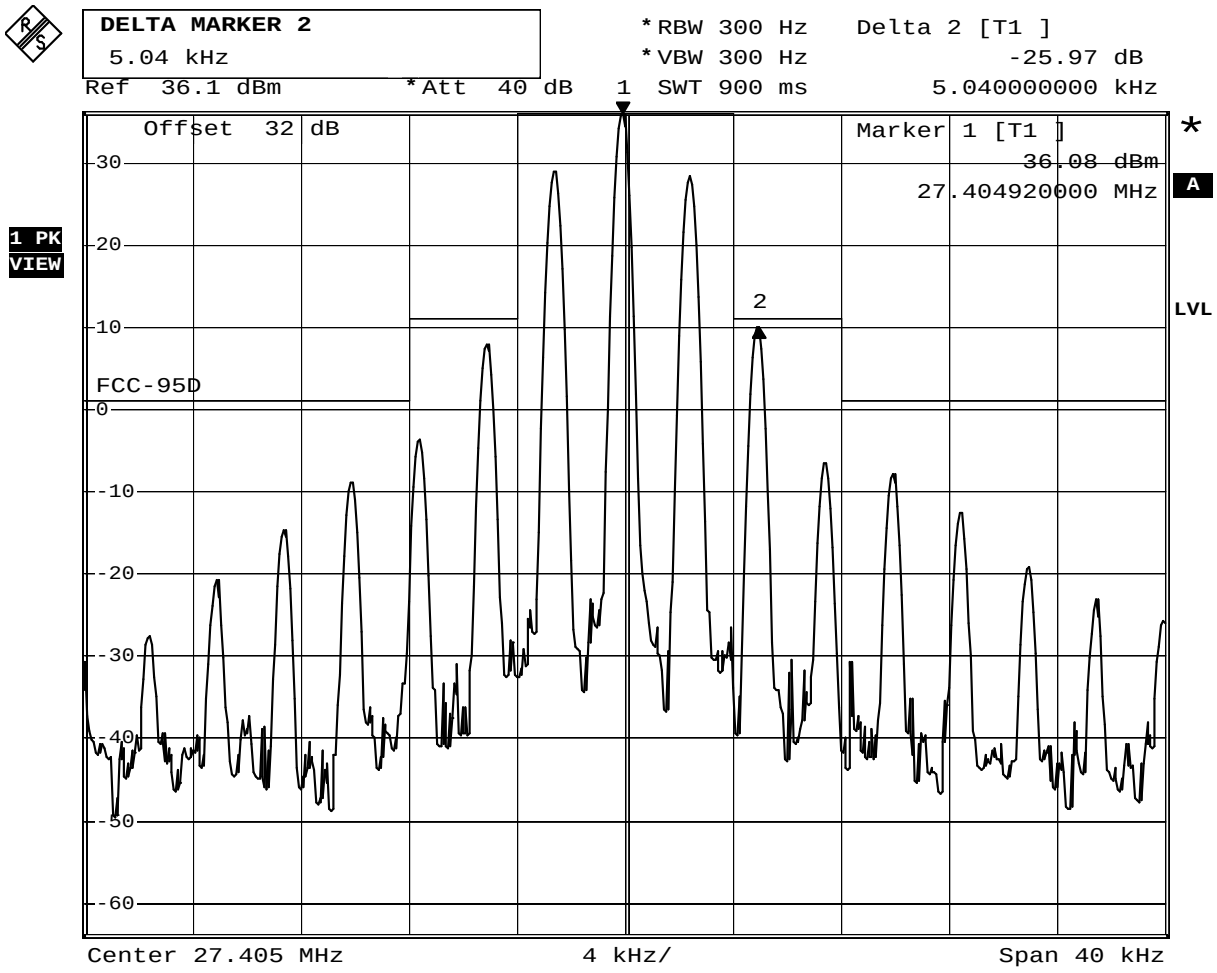
Bandwidth_CH40



Date: 2.JUN.2011 16:53:10

5. Conducted Spurious Emission

5.1. Test Equipment

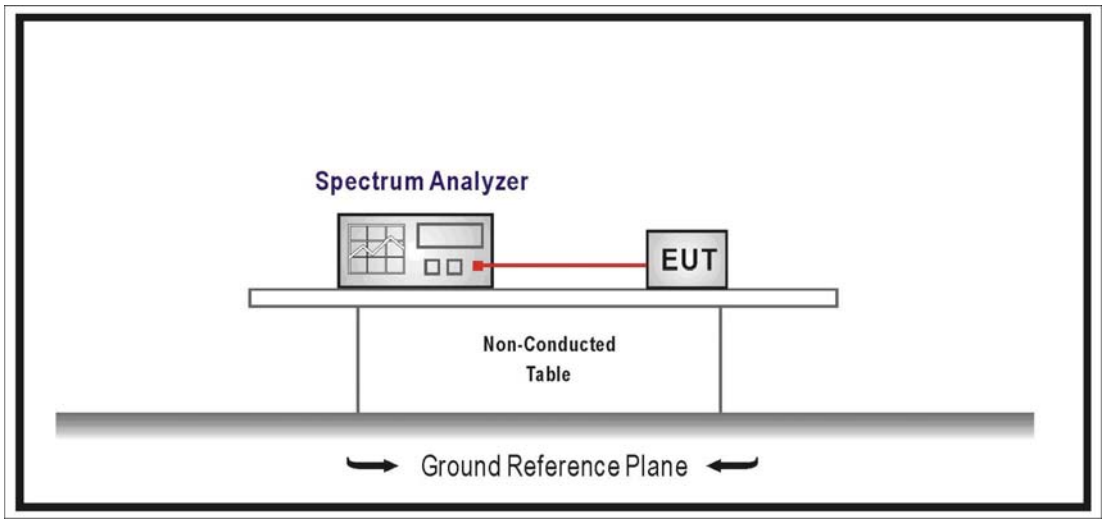
The following test equipments are used during the test:

Conducted Spurious Emission **/** SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2012/01/16

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

5.2. Test Setup



5.3. Limits

(1) At least 25 dB (decibels) on any frequency removed from the center of the authorized bandwidth by more than 50% up to and including 100% of the authorized bandwidth.

(2) At least 35 dB on any frequency removed from the center of the authorized bandwidth by more than 100% up to and including 250% of the authorized bandwidth.

(3) At least 53 + 10 log10 (T) dB on any frequency removed from the center of the authorized bandwidth by more than 250%.

(4) At least 60 dB on any frequency twice or greater than twice the fundamental frequency

5.4. Test Procedure

Use the spectrum analyzer to measure the conducted spurious emission.

The spectrum analyzer set as bleow:

RBW = 100KHz; VBW = 300kHz; Span: 10MHz to 300MHz

5.5. Test Specification

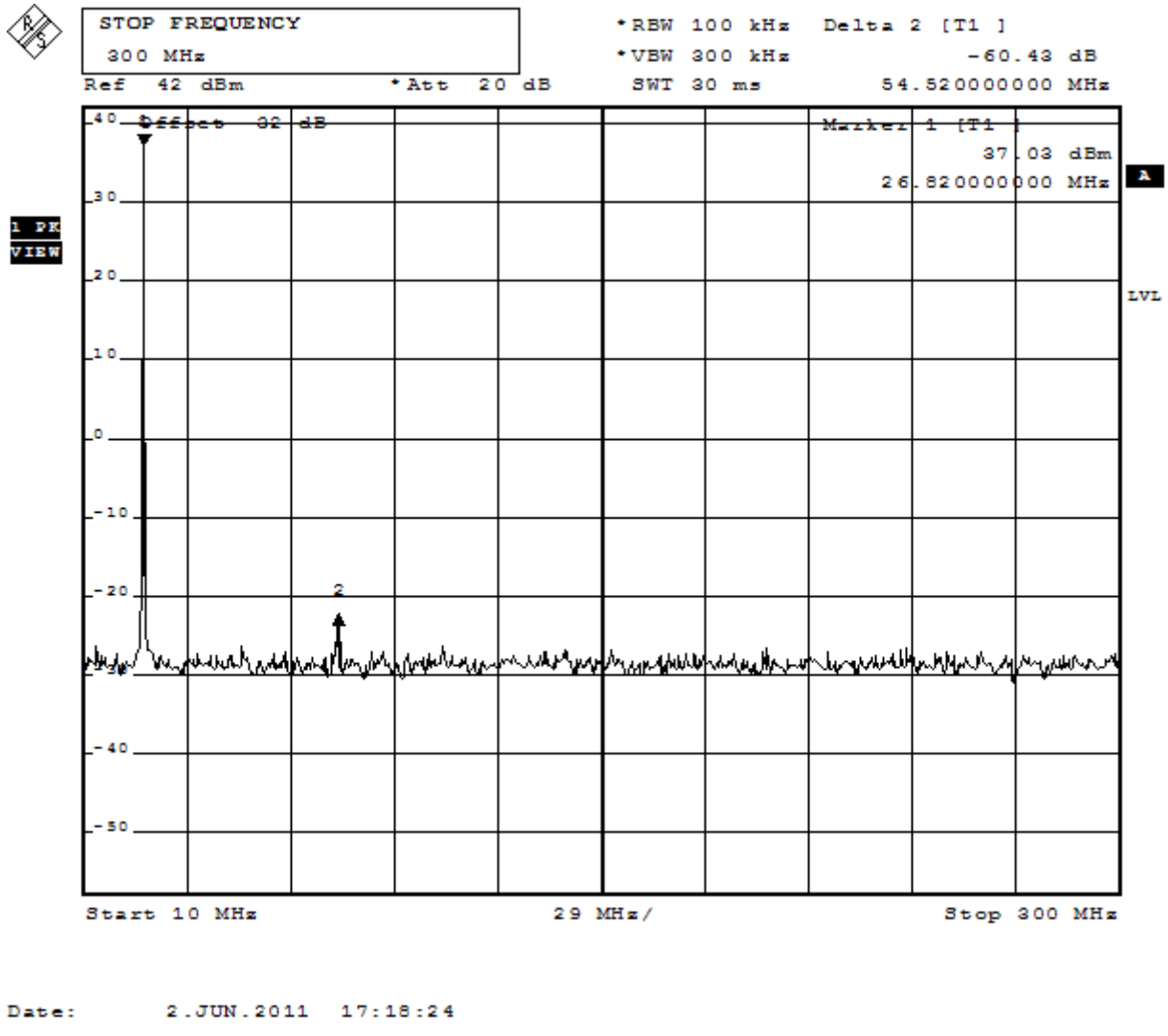
According to FCC Part 95 Subpart D: 2010.

5.6. Test Result

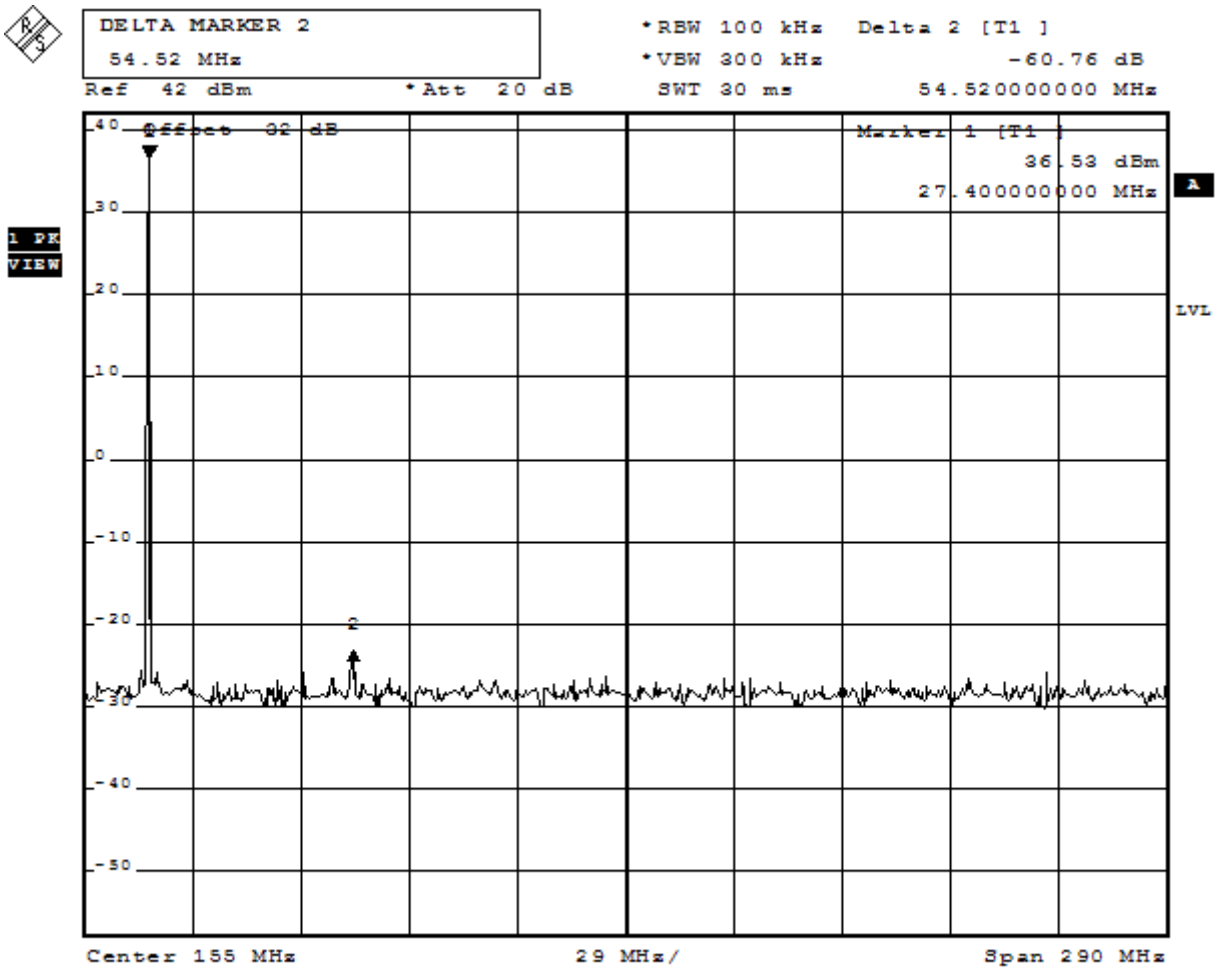
Product	CB TRANSCEIVER		
Test Item	Conducted Spurious Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2011/06/02	Test Site	SR7

Channel No.	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
01	26.965	60.43	≧ 60	Pass
21	27.215	60.76	≧ 60	Pass
40	27.405	60.45	≧ 60	Pass

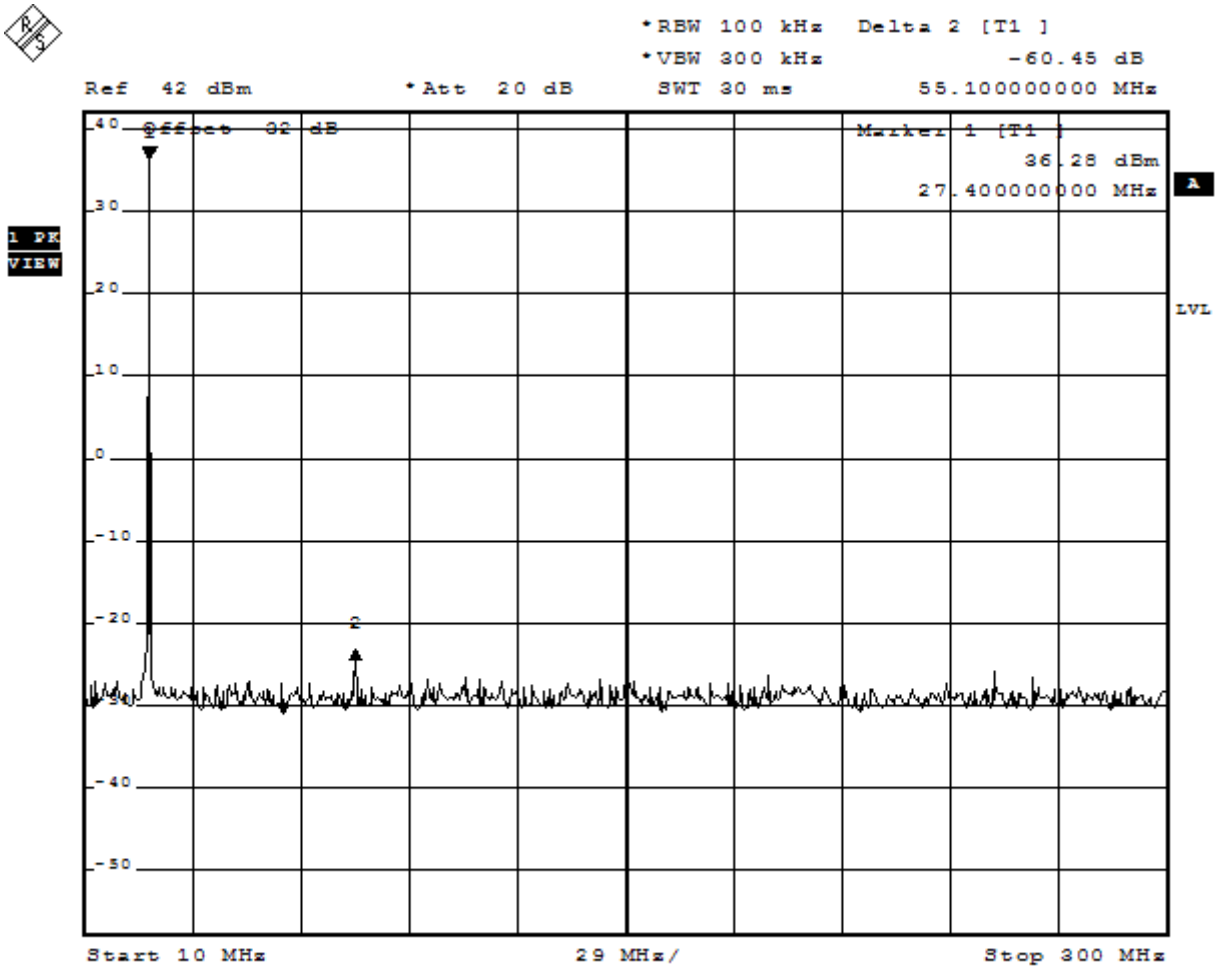
Conducted Spurious Emission_CH1



Conducted Spurious Emission_CH21



Conducted Spurious Emission_CH40



Date: 2.JUN.2011 17:20:11

6. Radiated Emission

6.1. Test Equipment

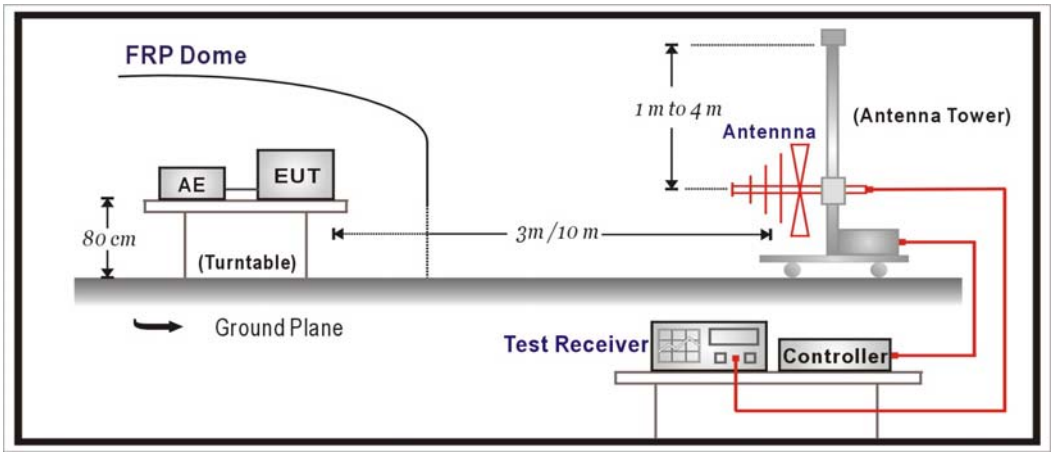
The following test equipments are used during the test:

Radiated Emission / CB1				
Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Bilog Antenna	SCHAFFNER	CBL6112B	2895	2011/08/14
Pre-Amplifier	QuieTek	AP-025C	CHM-0706049	2012/03/10
PSA Series Spectrum analyzer	Agilent	E4440A	MY46187335	2012/01/06
Coaxial Cable	Huber+Suhner AG	Sucoflex 102	25623/2	2012/03/21

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

6.2. Test Setup

Under 1GHz Test Setup:



6.3. Limits

(1) At least 25 dB (decibels) on any frequency removed from the center of the authorized bandwidth by more than 50% up to and including 100% of the authorized bandwidth.

(2) At least 35 dB on any frequency removed from the center of the authorized bandwidth by more than 100% up to and including 250% of the authorized bandwidth.

(3) At least 53 + 10 log10 (T) dB on any frequency removed from the center of the authorized bandwidth by more than 250%.

(4) At least 60 dB on any frequency twice or greater than twice the fundamental frequency

6.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2009 on radiated measurement.
The bandwidth below 1GHz setting on the field strength meter is 100 kHz and above 1GHz is 1MHz.

6.5. Test Specification

According to FCC Part 95 Subpart D: 2010

6.6. Uncertainty

The measurement uncertainty
30MHz～1GHz as ±3.43dB

6.7. Test Result

Product	CB TRANSCEIVER		
Test Item	Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2011/06/01	Test Site	CB1

CH1: 26.965MHz				
ANT. Polarity	Emission Frequency (MHz)	dB below carrier (dBc)	Limit(dBc)	Result
HORIZONTAL	101.28	101.70	>60	Pass
	161.76	104.11	>60	Pass
	188.76	100.30	>60	Pass
	242.76	105.23	>60	Pass
	269.76	91.29	>60	Pass
	296.76	85.53	>60	Pass

ANT. Polarity	Emission Frequency (MHz)	dB below carrier (dBc)	Limit(dBc)	Result
VERTICAL	53.76	100.00	>60	Pass
	134.76	101.29	>60	Pass
	161.76	102.67	>60	Pass
	188.76	93.63	>60	Pass
	242.76	97.57	>60	Pass
	269.76	94.79	>60	Pass

CH21: 27.215MHz				
ANT. Polarity	Emission Frequency (MHz)	dB below carrier (dBc)	Limit(dBc)	Result
HORIZONTAL	137.46	104.00	>60	Pass
	163.38	105.67	>60	Pass
	190.38	101.80	>60	Pass
	244.92	100.10	>60	Pass
	272.46	92.41	>60	Pass
	299.46	89.37	>60	Pass

ANT. Polarity	Emission Frequency (MHz)	dB below carrier (dBc)	Limit(dBc)	Result
VERTICAL	54.30	98.63	>60	Pass
	135.84	103.13	>60	Pass
	163.38	102.93	>60	Pass
	190.38	94.36	>60	Pass
	244.92	94.31	>60	Pass
	272.46	100.96	>60	Pass

CH40: 27.405MHz				
ANT. Polarity	Emission Frequency (MHz)	dB below carrier (dBc)	Limit(dBc)	Result
HORIZONTAL	54.00	106.00	>60	Pass
	137.46	103.19	>60	Pass
	152.58	105.11	>60	Pass
	192.00	102.82	>60	Pass
	247.08	102.60	>60	Pass
	274.08	101.57	>60	Pass

ANT. Polarity	Emission Frequency (MHz)	dB below carrier (dBc)	Limit(dBc)	Result
VERTICAL	54.84	97.55	>60	Pass
	166.62	101.43	>60	Pass
	192.00	95.26	>60	Pass
	219.54	106.49	>60	Pass
	247.08	97.85	>60	Pass
	274.08	99.74	>60	Pass

7. Frequency Stability

7.1. Test Equipment

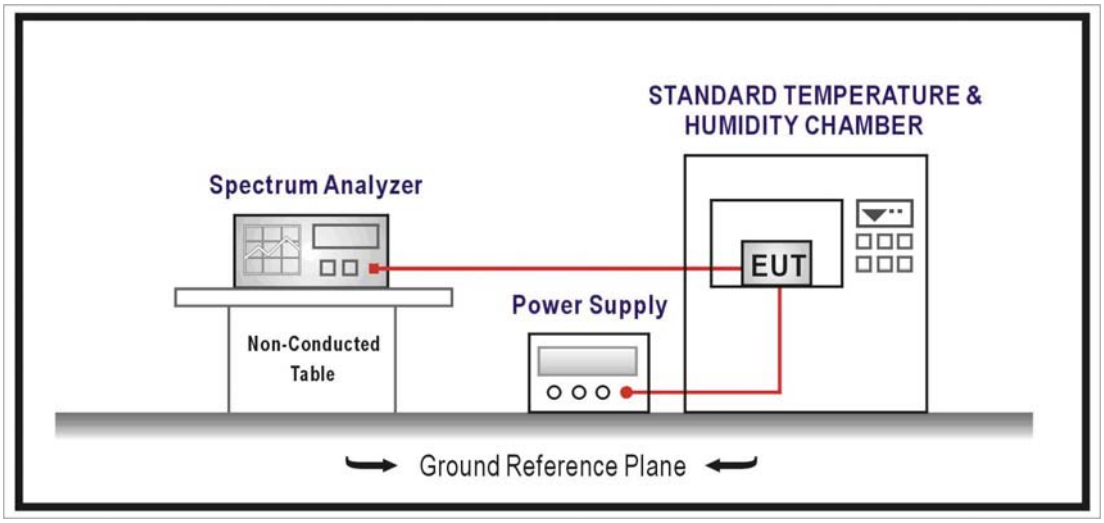
The following test equipments are used during the test:

Frequency Stability / SR7

Instrument	Manufacturer	Type No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2012/01/16
Standard Temperature & Humidity Chamber	WIT	TH-1S-B	1082101	2012/01/30

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

7.2. Test Setup



7.3. Limits

The frequency stability shall be measured with variation of ambient temperature as follows: From -30° to +50° centigrade for all equipment. Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10° centigrade through the range.

Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

Temperature and voltage tests were performed to verify that the frequency remains within the 50 ppm(0.05%) specification limit.

7.4. Test Procedure

Power must be turned off when changing from one temperature to another. Power warm up is at least 15 min and power applied should perform before recording frequency error. The temperature range step is 10 degrees in this test items. All temperature levels shall be holding the ± 0.5℃ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

Power must be removed when changing from one voltage to another voltage. EUT is connected the external power supply to control the DC input power. The various Volts set from the minimum 4.5 Volts to 5.5 Volts. Each step shall be record the frequency error rate.

7.5. Test Specification

According to FCC Part 95 Subpart D: 2010

7.6. Uncertainty

The measurement uncertainty is defined as ±100KHz.

7.7. Test Result

Product	CB TRANSCEIVER		
Test Item	Frequency Stability		
Test Mode	Mode 1: Transmit		
Date of Test	2011/06/07	Test Site	SR7

CH1: 26.965MHz				
Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	13.80	26.9651	2.8107	Pass
-10		26.9653	9.7323	Pass
0		26.9655	20.3186	Pass
10		26.9651	1.9471	Pass
20		26.9658	31.3233	Pass
30		26.9654	13.1024	Pass
40		26.9650	0.9941	Pass
50		26.9655	17.7576	Pass

Temperature Interval (°C)	AC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	11.73	26.9657	24.4158	Pass
	13.80	26.9655	17.0680	Pass
	15.87	26.9652	8.1203	Pass

CH21: 27.215MHz				
Temperature Interval (°C)	DC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	13.80	27.2155	17.0981	Pass
-10		27.2152	8.4420	Pass
0		27.2156	21.0759	Pass
10		27.2153	12.4949	Pass
20		27.2158	30.9484	Pass
30		27.2151	2.2638	Pass
40		27.2153	10.2280	Pass
50		27.2159	34.1638	Pass

Temperature Interval (°C)	DC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	11.73	27.2154	14.4419	Pass
	13.80	27.2153	12.6467	Pass
	15.87	27.2157	24.6340	Pass

CH40: 27.405MHz				
Temperature Interval (°C)	DC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
-20	13.80	27.4052	6.6691	Pass
-10		27.4055	17.6778	Pass
0		27.4051	3.5865	Pass
10		27.4055	17.8102	Pass
20		27.4057	26.7170	Pass
30		27.4059	34.3905	Pass
40		27.4052	8.3819	Pass
50		27.4051	5.3465	Pass

Temperature Interval (°C)	DC Voltage (V)	Frequency (MHz)	Deviation (ppm)	Result
25	11.73	27.4051	2.4830	Pass
	13.80	27.4058	30.0502	Pass
	15.87	27.4054	13.5155	Pass