



Test Report

Product Name : UHF USB Reader Module

Model No. : UEE005

FCC ID. : WQH-UEE007

Applicant : ClarIDy Solutions, Inc.

Address : 7F, No.9, Park Avenue II Rd., Hsinchu Science Park,
Hsinchu 300, Taiwan, R.O.C.

Date of Receipt : 2010/05/28

Issued Date : 2010/09/24

Report No. : 106389R-RFUSP43V01

Report Version : V1.0

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.

Test Report Certification

Issued Date : 2010/09/24

Report No. : 106389R-RFUSP43V01



Product Name : UHF USB Reader Module

Applicant : ClarIDy Solutions, Inc.

Address : 7F, No.9, Park Avenue II Rd., Hsinchu Science Park, Hsinchu
300, Taiwan, R.O.C.

Manufacturer : (1) SHIN PUU TECHNOLOGY CO.,LTD.
(2) CASHIDO CORPORATION

Model No. : UEE005

FCC ID. : WQH-UEE007

EUT Voltage : AC 100-240V, 50/60Hz

Trade Name : ClarIDy

Applicable Standard : FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2009

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 : Sandy Chuang
(Sandy Chuang / Engineering Adm. Assistant)

Reviewed By : Sheena Huang
(Sheena Huang / Engineer)

Approved By : Roy Wang
(Roy Wang / Manager)

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1. General Information

1.1. EUT Description

Product Name	UHF USB Reader Module
Trade Name	ClarIDy
Model No.	UEE005
Frequency Range	902.75MHz~927.25MHz
Channel Number	50
Type of Modulation	ASK
Antenna Type	PIFA
Antenna Gain	0.26dBi

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	902.75	01	903.25	02	903.75	03	904.25
04	904.75	05	905.25	06	905.75	07	906.25
08	906.75	09	907.25	10	907.75	11	908.25
12	908.75	13	909.25	14	909.75	15	910.25
16	910.75	17	911.25	18	911.75	19	912.25
20	912.75	21	913.25	22	913.75	23	914.25
24	914.75	25	915.25	26	915.75	27	916.25
28	916.75	29	917.25	30	917.75	31	918.25
32	918.75	33	919.25	34	919.75	35	920.25
36	920.75	37	921.25	38	921.75	39	922.25
40	922.75	41	923.25	42	923.75	43	924.25
44	924.75	45	925.25	46	925.75	47	926.25
48	926.75	49	927.25				

Note:

1. This device is a UHF USB Reader Module included a 2.4GHz transmitting function, and 2.4GHz receiving function.
2. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
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 15 regulations. The function receiving was measured and made a test report that the report number is 106389R-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 transmitting operation, which was shown in this test report and defined as follows:

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

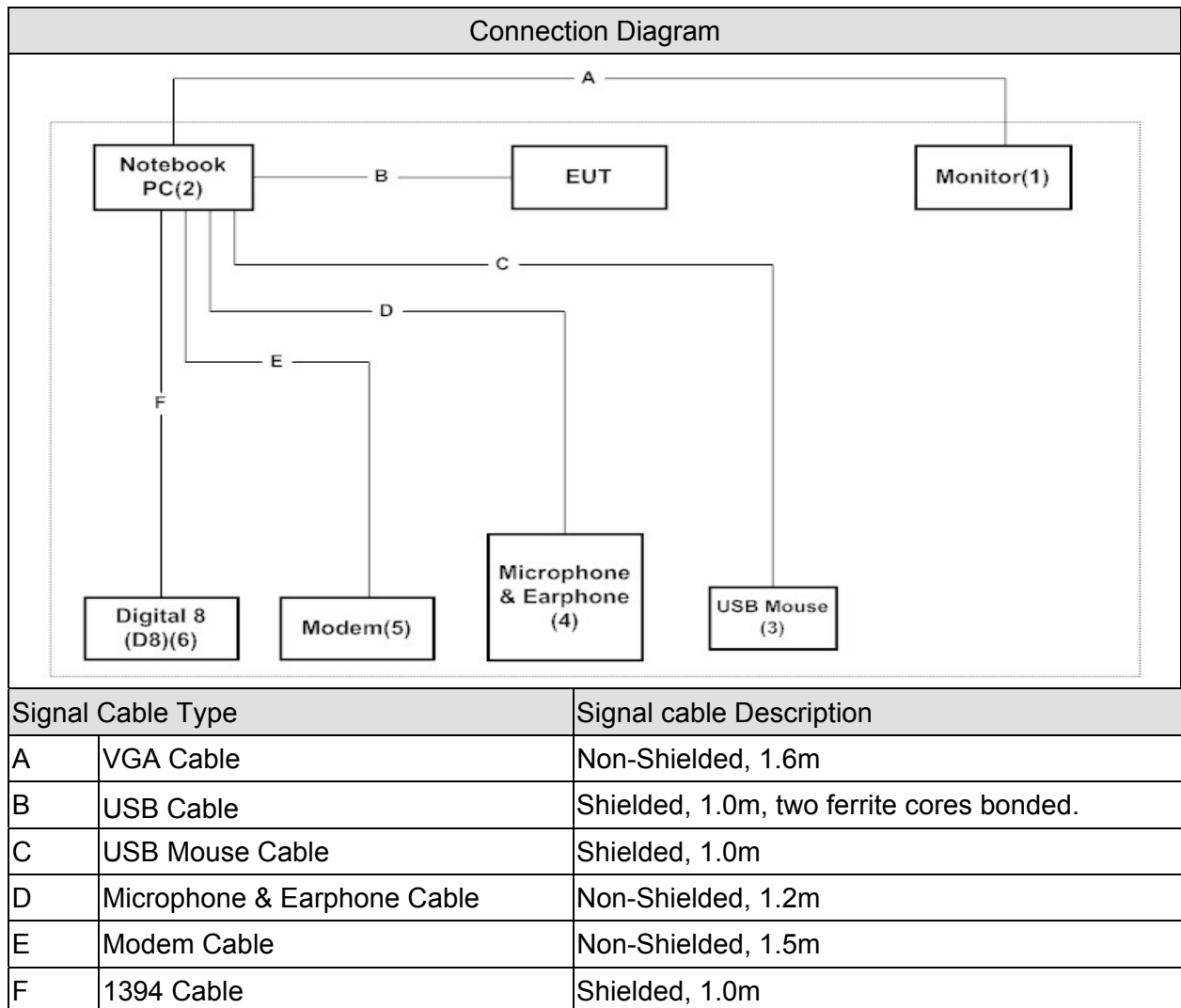
Emission	
Conducted Emission	Yes
Peak Power Output	Yes
Radiated Emission	Yes
Band Edge	Yes
Channel of Number	Yes
Channel Separation	Yes
Occupied Bandwidth	Yes
Dwell Time	Yes

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	Monitor	ViewSonic	E653	ER01502861	DoC	Non-Shielded, 1.8m
2	Notebook PC	DELL	LATITUDE D400	HK43D1S	DoC	Non-Shielded, 1.7m, a ferrite core bonded
3	USB Mouse	Logitech	M-UV83	LZE35005917	DoC	--
4	Microphone & Earphone	Fujiei	SBZ-38	N/A	DoC	--
5	Modem	ACEEX	DM-1414	0102027546	DoC	Non-Shielded, 1.6m
6	Digital 8 (D8)	SONY	DCR-TRV110	P35209	DoC	--

1.5. Configuration of tested System



1.6. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.5
2	Turn on the power of all equipment.
3	Data will communicate between the tag and the reader.
4	The personal computer's monitor will show the receiving characteristics when the communication is success.
5	Repeat at the above procedure (3) to (4)

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 B 15.107 Conducted Emission	15 - 35	25
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Peak Power Output (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	58
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Radiated Emission (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	54
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Band Edge (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Channel Of Number (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	53
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Channel Separation (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	54
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Occupied Bandwidth (FHSS)	15 - 35	24
Humidity (%RH)		25 - 75	57
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Dwell Time (FHSS)	15 - 35	25
Humidity (%RH)		25 - 75	58
Barometric pressure (mbar)		860 - 1060	950-1000

Site Description:

August 30, 2007 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, 2010



Accredited by NVLAP
NVLAP Lab Code: 200347-0
Effective through: September 30, 2011



Site Name: Quietek Corporation

Site Address: No.75-1, Wang-Yeh Valley, Yung-Hsing,
Chiung-Lin, Hsin-Chu County,
Taiwan, R.O.C.
TEL : 886-3-592-8858 / FAX : 886-3-592-8859
E-Mail : service@quietek.com

2. Conducted Emission

2.1. Test Equipment

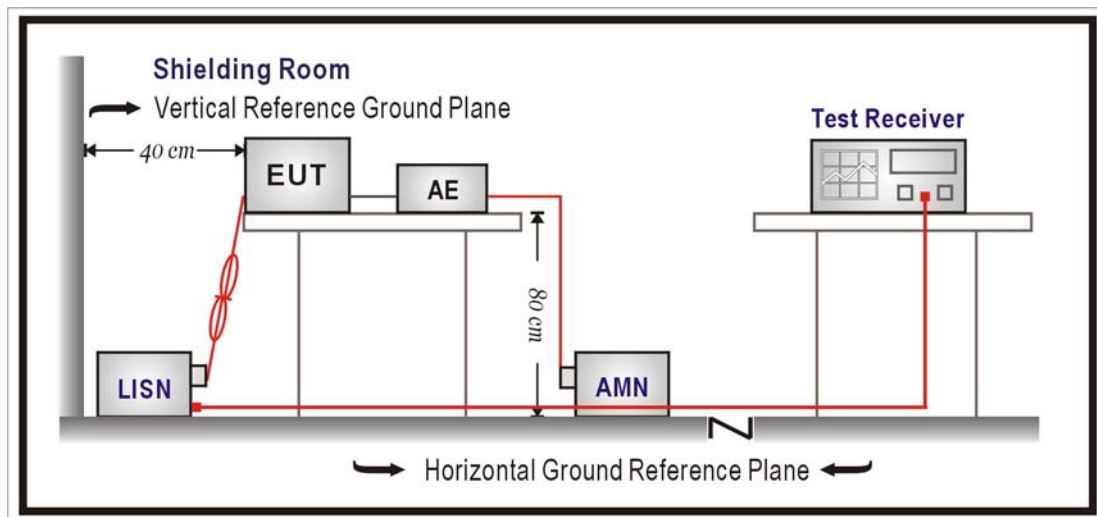
The following test equipment are used during the test:

Conducted Emission/ SR3

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
LISN	R&S	ENV216	100096	2010/09/27
LISN	R&S	ESH3-Z5	836679/022	2011/05/30
Test Receiver	R&S	ESCS 30	825442/017	2011/02/04

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency MHz	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT was setup and tested according to ANSI C63.4, 2009.

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Test Specification

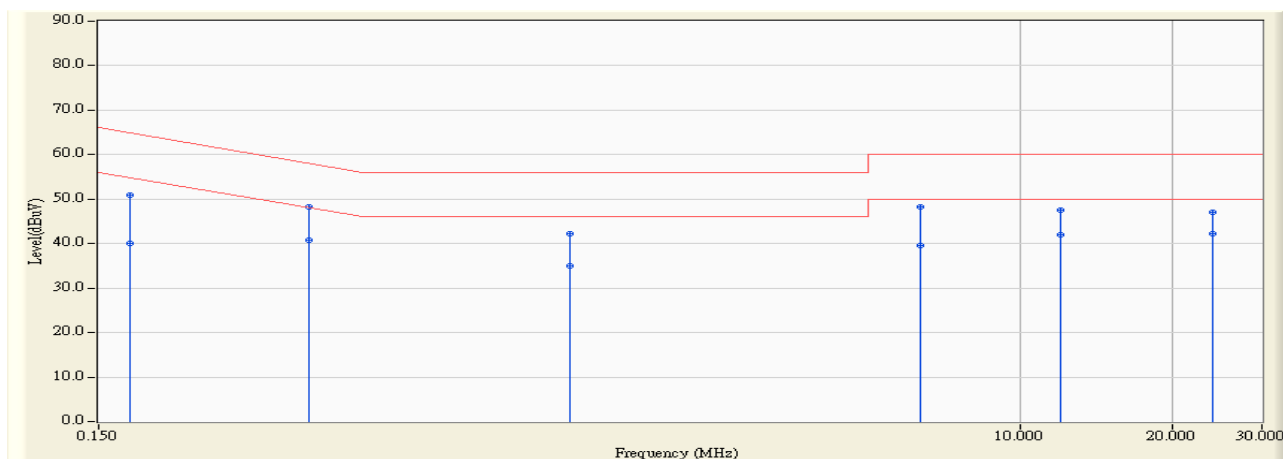
According to FCC Part 15 Subpart C Paragraph 15.207: 2009

2.6. Uncertainty

The measurement uncertainty is defined as ± 2.26 dB.

2.7. Test Result

Site : SR3	Time : 2010/06/08 - 13:59
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR3_LISN(16A) - Line1	Power : AC 120V/60Hz
EUT : UHF USB Reader Module	Note : TX

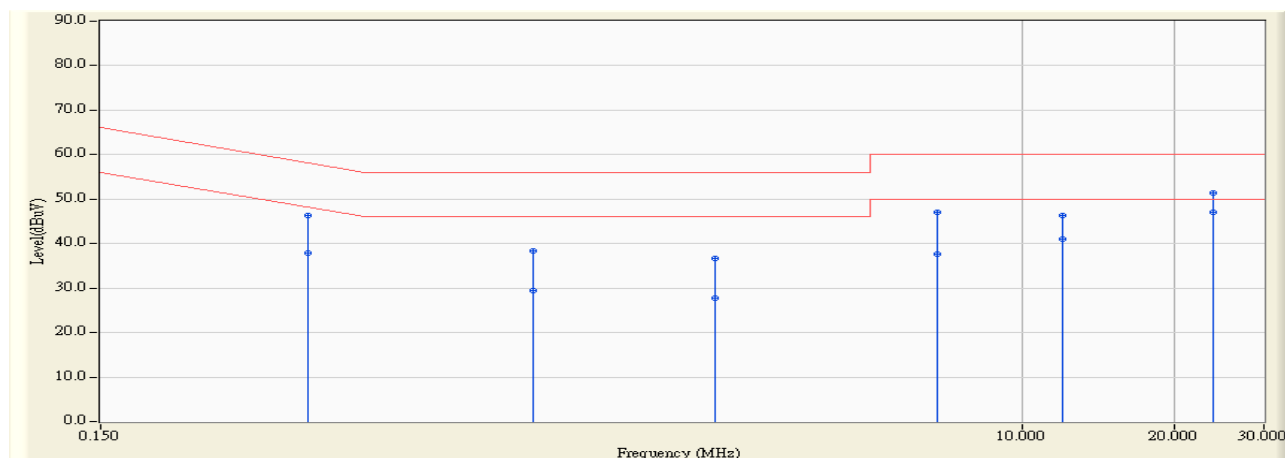


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.173	9.815	41.050	50.865	-13.929	64.794	QUASPEAK
2		0.173	9.815	30.150	39.965	-14.829	54.794	AVERAGE
3		0.392	9.781	38.560	48.341	-9.676	58.017	QUASPEAK
4	*	0.392	9.781	31.100	40.881	-7.136	48.017	AVERAGE
5		1.283	9.791	32.330	42.121	-13.879	56.000	QUASPEAK
6		1.283	9.791	25.120	34.911	-11.089	46.000	AVERAGE
7		6.341	9.957	38.280	48.237	-11.763	60.000	QUASPEAK
8		6.341	9.957	29.700	39.657	-10.343	50.000	AVERAGE
9		11.998	10.148	37.500	47.648	-12.352	60.000	QUASPEAK
10		11.998	10.148	31.770	41.918	-8.082	50.000	AVERAGE
11		24.002	10.274	36.780	47.054	-12.946	60.000	QUASPEAK
12		24.002	10.274	31.920	42.194	-7.806	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR3	Time : 2010/06/08 - 14:05
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR3_LISN(16A) - Line2	Power : AC 120V/60Hz
EUT : UHF USB Reader Module	Note : TX



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.384	9.784	36.490	46.274	-11.910	58.184	QUASIPeAK
2		0.384	9.784	27.990	37.774	-10.410	48.184	AVERAGE
3		1.072	9.768	28.540	38.308	-17.692	56.000	QUASIPeAK
4		1.072	9.768	19.720	29.488	-16.512	46.000	AVERAGE
5		2.462	9.875	26.700	36.575	-19.425	56.000	QUASIPeAK
6		2.462	9.875	17.780	27.655	-18.345	46.000	AVERAGE
7		6.755	10.001	37.000	47.001	-12.999	60.000	QUASIPeAK
8		6.755	10.001	27.730	37.731	-12.269	50.000	AVERAGE
9		11.999	10.204	36.210	46.414	-13.586	60.000	QUASIPeAK
10		11.999	10.204	30.740	40.944	-9.056	50.000	AVERAGE
11		23.877	10.479	40.830	51.309	-8.691	60.000	QUASIPeAK
12	*	23.877	10.479	36.470	46.949	-3.051	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

3. Peak Power Output

3.1. Test Equipment

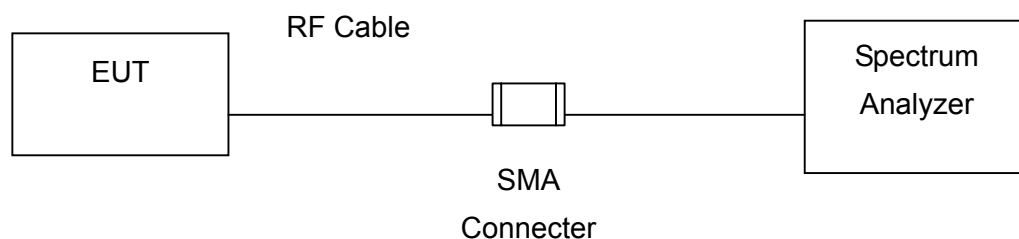
The following test equipments are used during the test:

Peak Power / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2011/02/04

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

3.2. Test Setup



3.3. Test procedures

The EUT was setup according to ANSI C63.4, 2003 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

3.4. Limits

For frequency hopping systems operating in the 902-928 MHz band: 1 Watt for systems employing at least 50 hopping channels; and, 0.25 Watts for systems employing less than 50 hopping channels.

For frequency hopping systems in the 2400-2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1Watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 Watt.

3.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2009

3.6. Uncertainty

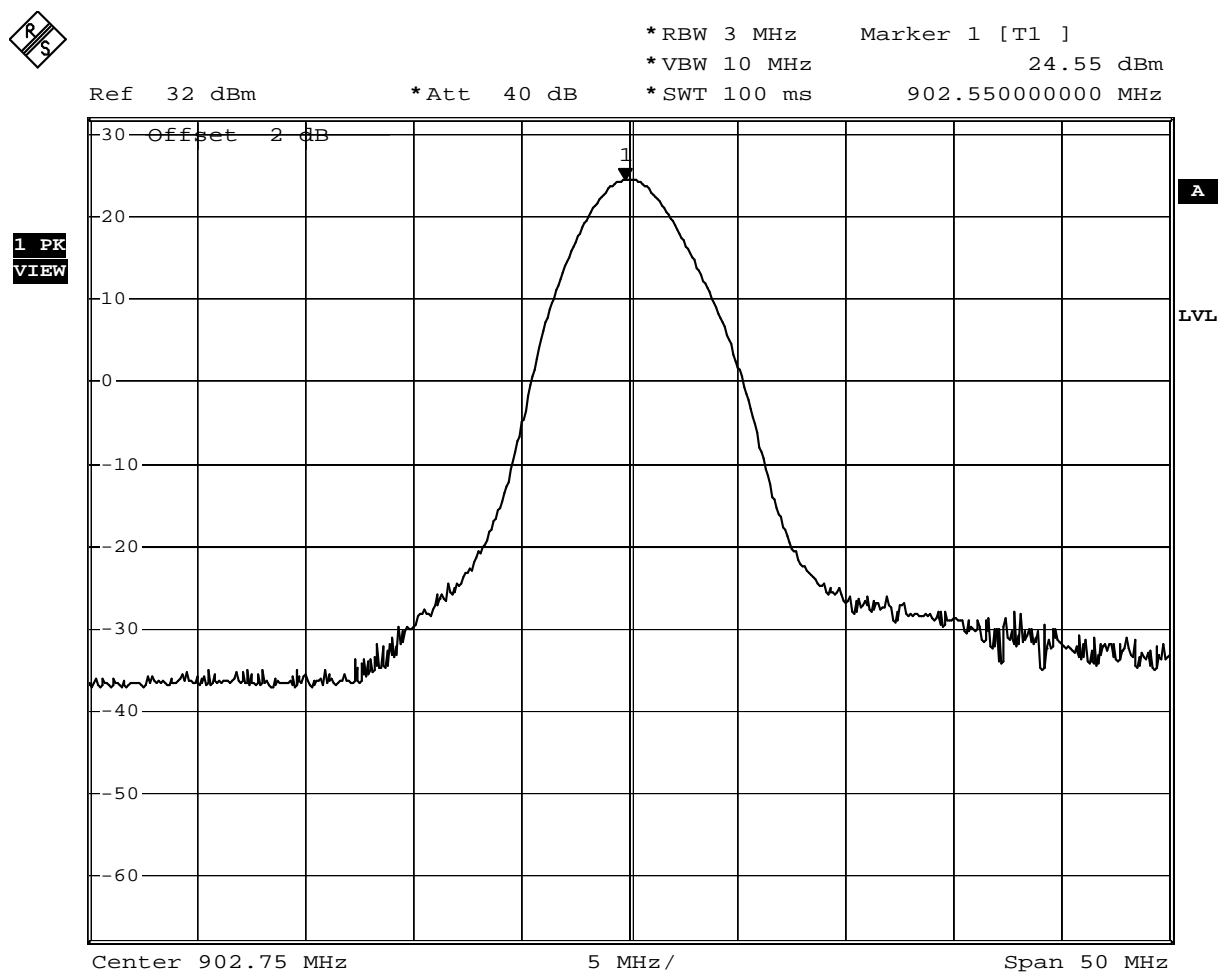
The measurement uncertainty is defined as ± 1.27 dB.

3.7. Test Result

Product	UHF USB Reader Module		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2010/06/08	Test Site	SR7

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
00	902.75	24.55	1Watt= 30 dBm	Pass
25	915.25	24.37	1Watt= 30 dBm	Pass
49	927.25	23.61	1Watt= 30 dBm	Pass

Channel 00



Date: 8.JUN.2010 10:40:07

Channel 25



*RBW 3 MHz Marker 1 [T1]
 *VBW 10 MHz 24.37 dBm
 *SWT 100 ms 915.350000000 MHz

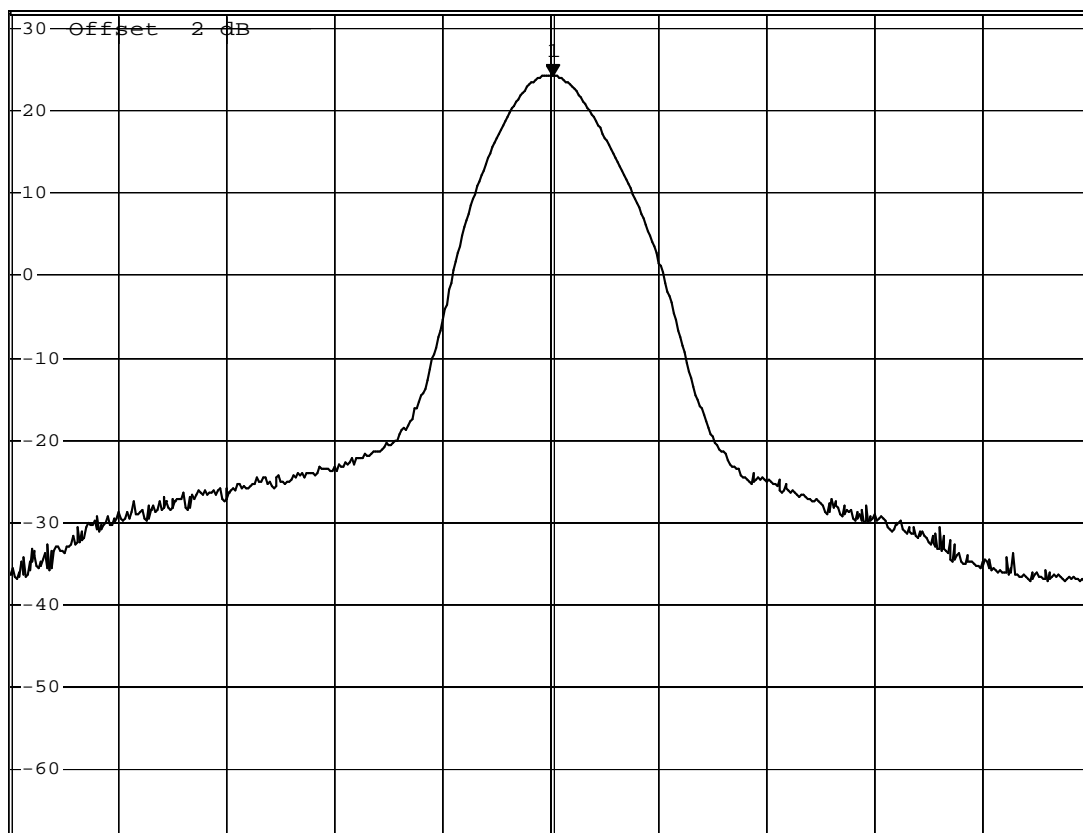
Ref 32 dBm

*Att 40 dB

*SWT 100 ms

915.350000000 MHz

1 PK
VIEW



A

LVL

Center 915.25 MHz

5 MHz/

Span 50 MHz

Date: 8.JUN.2010 10:41:51

Channel 49



*RBW 3 MHz Marker 1 [T1]
 *VBW 10 MHz 23.61 dBm
 *SWT 100 ms 927.350000000 MHz

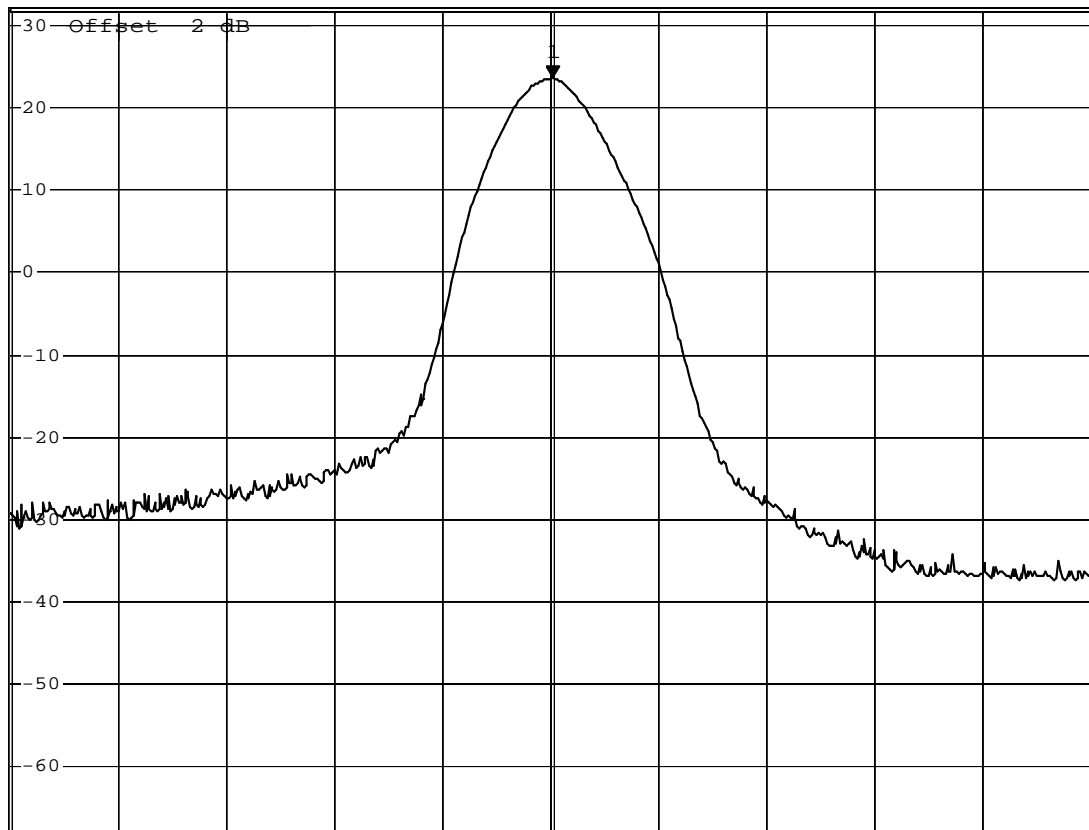
Ref 32 dBm

*Att 40 dB

*SWT 100 ms

927.350000000 MHz

1 PK
VIEW



A

LVL

Center 927.25 MHz

5 MHz/

Span 50 MHz

Date: 8.JUN.2010 10:39:09

4. Radiated Emission

4.1. Test Equipment

The following test equipments are used during the test:

Radiated Emission / CB1

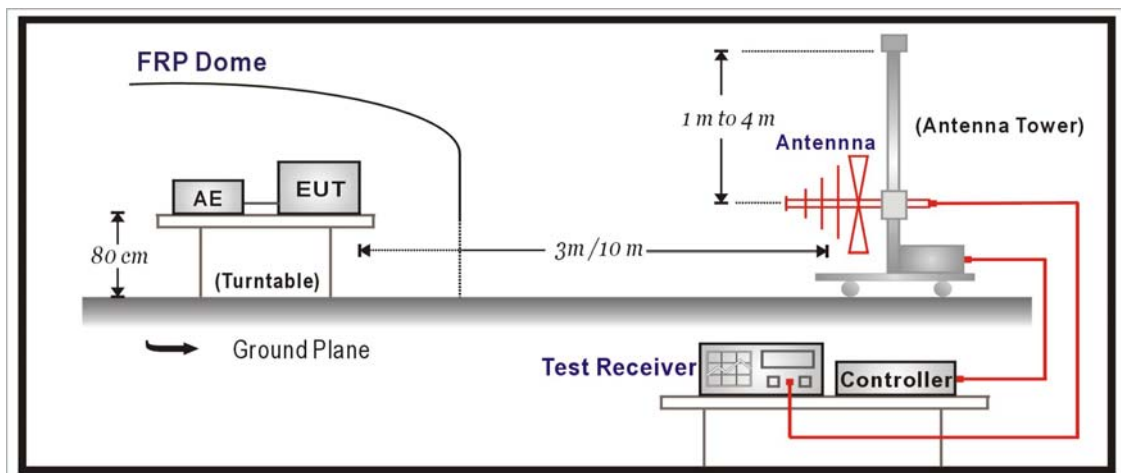
Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Bilog Antenna	SCHAFFNER	CBL6112B	2895	2010/08/14
Horn Antenna	Schwarzback	BBHA 9120D	743	2011/03/14
Pre-Amplifier	MITEQ	AMF-4D-005180-24-10P	888003	2010/12/03
Pre-Amplifier	QuieTek	AP-025C	CHM-0706049	2011/03/25
Spectrum Analyzer	Agilent	E4440A	MY46187335	2011/01/14
Coaxial Cable	Huber+Suhner AG	Sucoflex 102	25623/2	2011/04/07

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

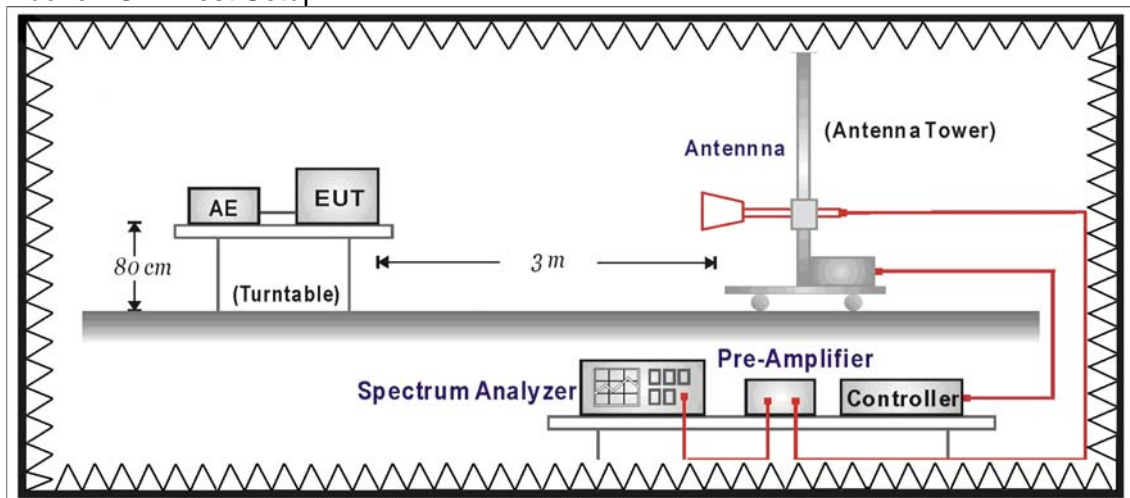
2. "N/A" Cal. Date is used to Pre-test, not final test.

4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	uV/m	dBuV/m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks: 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.4. 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.

On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit. The bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

4.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2009

4.6. Uncertainty

The measurement uncertainty

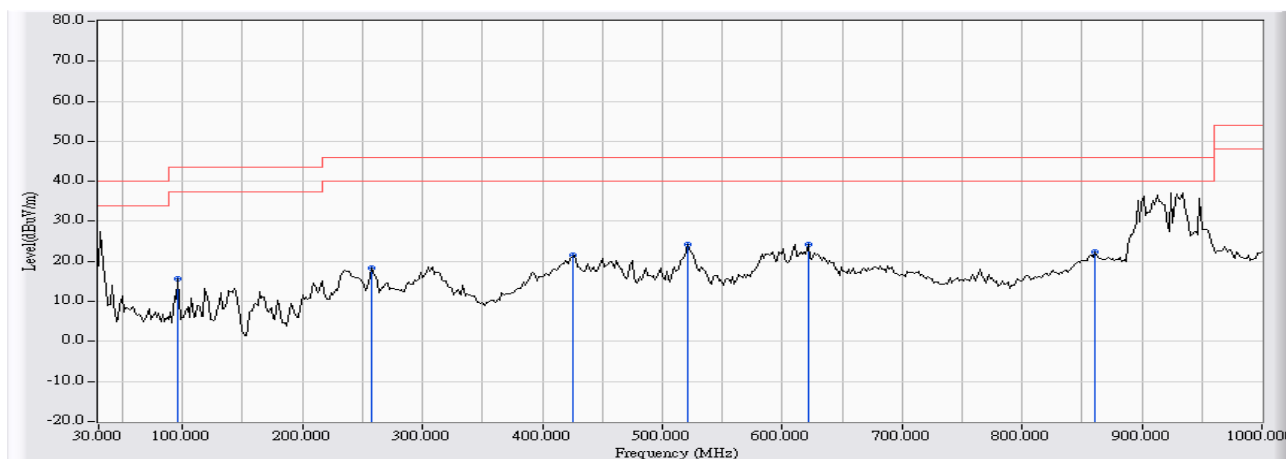
30MHz~1GHz as $\pm 3.43\text{dB}$

1GHz~26.5Ghz as $\pm 3.65\text{dB}$

4.7. Test Result

30MHz-1GHz Spurious:

Site : CB1	Time : 2010/05/28 - 12:16
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_FCC_30-1G(2009) - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHF USB Reader Module	Note : TX

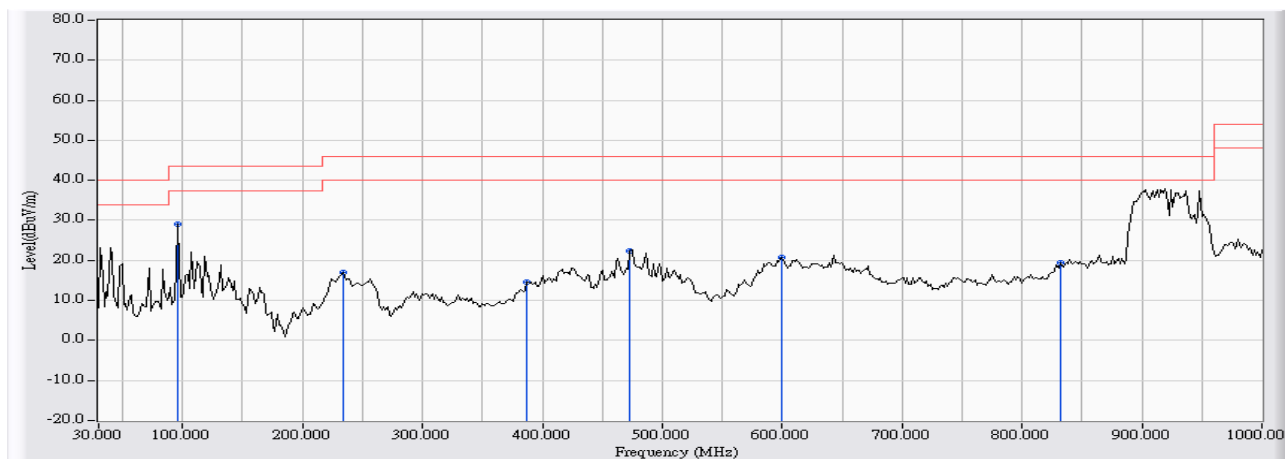


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		96.283	-15.808	31.379	15.572	-27.928	43.500	QUASIPeAK
2		257.950	-12.768	31.227	18.459	-27.541	46.000	QUASIPeAK
3		426.083	-5.040	26.653	21.613	-24.387	46.000	QUASIPeAK
4	*	521.467	-7.872	32.132	24.260	-21.740	46.000	QUASIPeAK
5		621.700	-3.286	27.523	24.236	-21.764	46.000	QUASIPeAK
6		860.967	0.192	22.179	22.370	-23.630	46.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB1	Time : 2010/05/28 - 13:06
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_FCC_30-1G(2009) - VERTICAL	Power : AC 120V/60Hz
EUT : UHF USB Reader Module	Note : TX



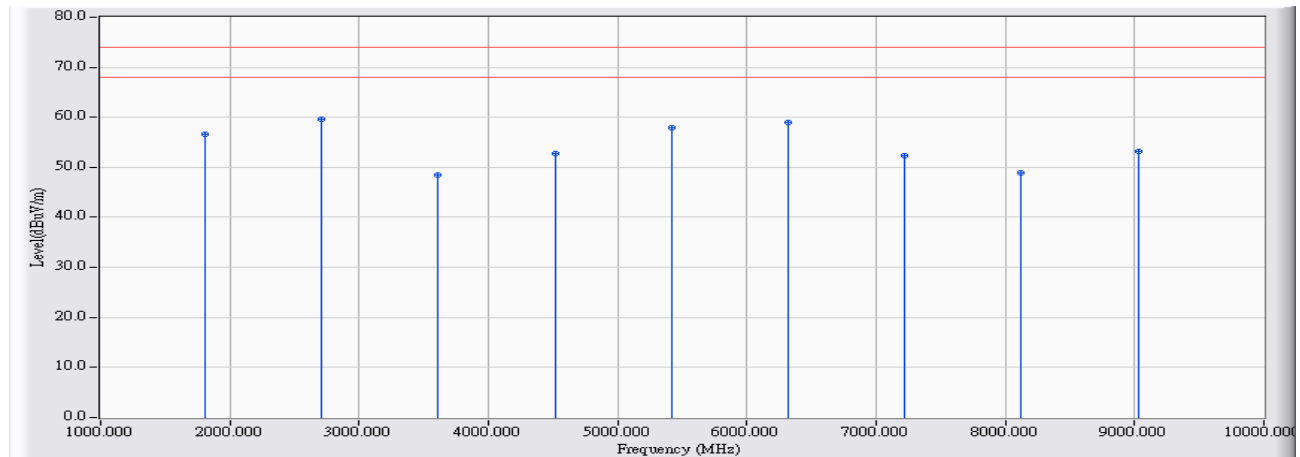
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	96.283	-13.087	42.193	29.106	-14.394	43.500	QUASIPeAK
2		233.700	-12.173	29.160	16.986	-29.014	46.000	QUASIPeAK
3		387.283	-8.799	23.516	14.717	-31.283	46.000	QUASIPeAK
4		472.967	-4.183	26.499	22.316	-23.684	46.000	QUASIPeAK
5		599.067	-3.026	23.663	20.638	-25.362	46.000	QUASIPeAK
6		831.867	-3.262	22.728	19.466	-26.534	46.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ * ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Harmonic & Spurious:

Site : CB1	Time : 2010/06/14 - 15:20
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G(2009-11) - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHF USB Reader Module	Note : V1.3-TX-902.75MHz

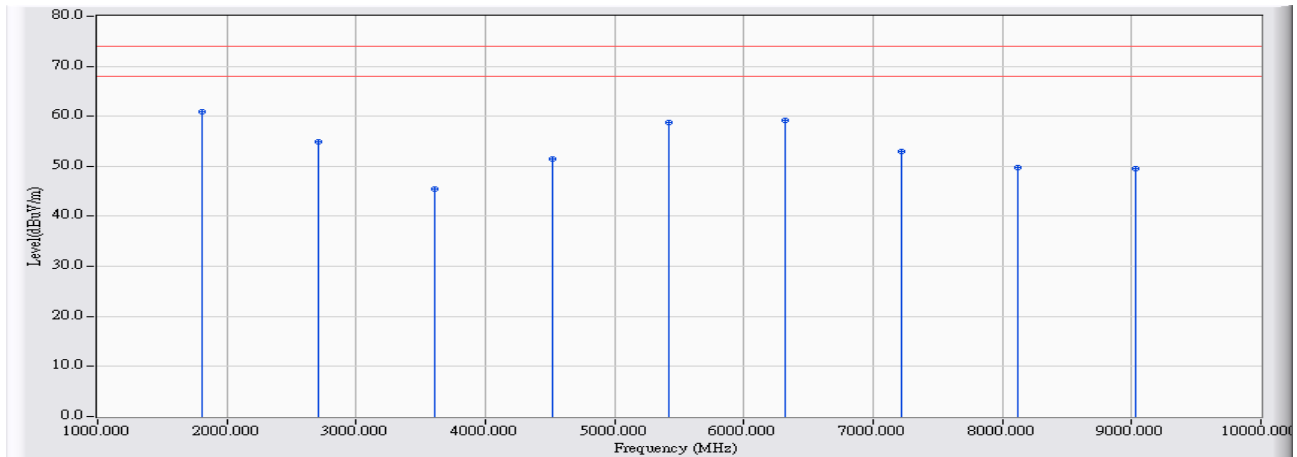


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1		1805.500	-11.896	68.440	56.544	-17.456	74.000	54.000	PEAK
2	*	2708.267	-7.554	67.090	59.537	-14.463	74.000	54.000	PEAK
3		3610.983	-4.020	52.440	48.421	-25.579	74.000	54.000	PEAK
4		4513.800	-1.833	54.570	52.738	-21.262	74.000	54.000	PEAK
5		5416.650	0.621	57.240	57.861	-16.139	74.000	54.000	PEAK
6		6319.250	2.306	56.770	59.077	-14.923	74.000	54.000	PEAK
7		7221.917	6.234	46.170	52.404	-21.596	74.000	54.000	PEAK
8		8124.767	7.305	41.680	48.985	-25.015	74.000	54.000	PEAK
9		9027.367	6.907	46.320	53.227	-20.773	74.000	54.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2010/06/14 - 16:06
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G(2009-11) - VERTICAL	Power : AC 120V/60Hz
EUT : UHF USB Reader Module	Note : V1.3-TX-902.75MHz

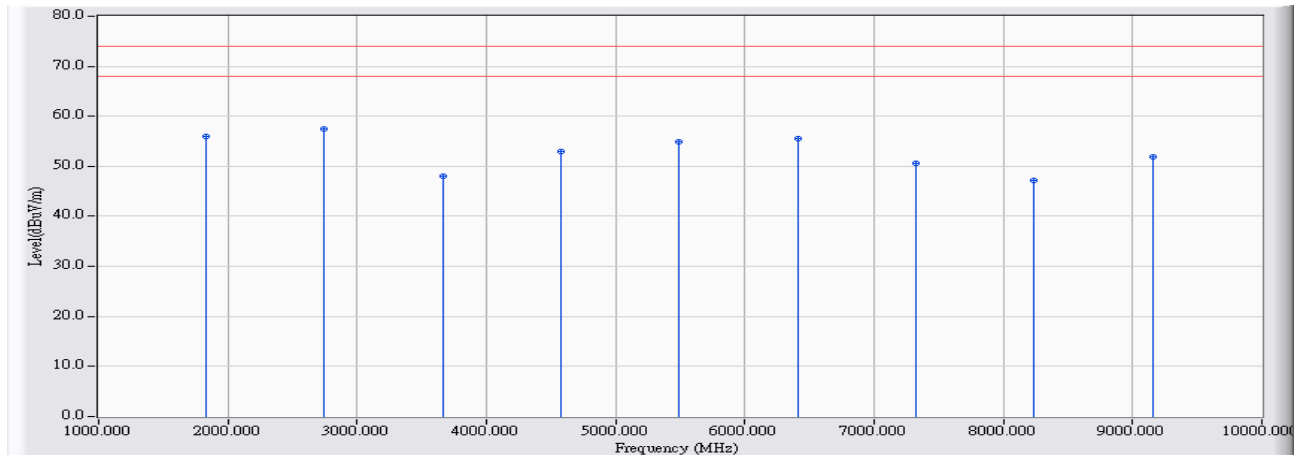


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1	*	1805.483	-7.729	68.630	60.902	-13.098	74.000	54.000	PEAK
2		2708.250	-8.944	63.850	54.906	-19.094	74.000	54.000	PEAK
3		3610.950	-6.736	52.280	45.544	-28.456	74.000	54.000	PEAK
4		4513.767	-2.265	53.650	51.386	-22.614	74.000	54.000	PEAK
5		5416.533	1.282	57.530	58.812	-15.188	74.000	54.000	PEAK
6		6319.233	2.051	57.120	59.171	-14.829	74.000	54.000	PEAK
7		7221.900	6.376	46.690	53.066	-20.934	74.000	54.000	PEAK
8		8124.683	7.086	42.640	49.726	-24.274	74.000	54.000	PEAK
9		9027.650	6.834	42.790	49.624	-24.376	74.000	54.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2010/06/14 - 16:46
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G(2009-11) - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHF USB Reader Module	Note : V1.3-TX-915.25MHz

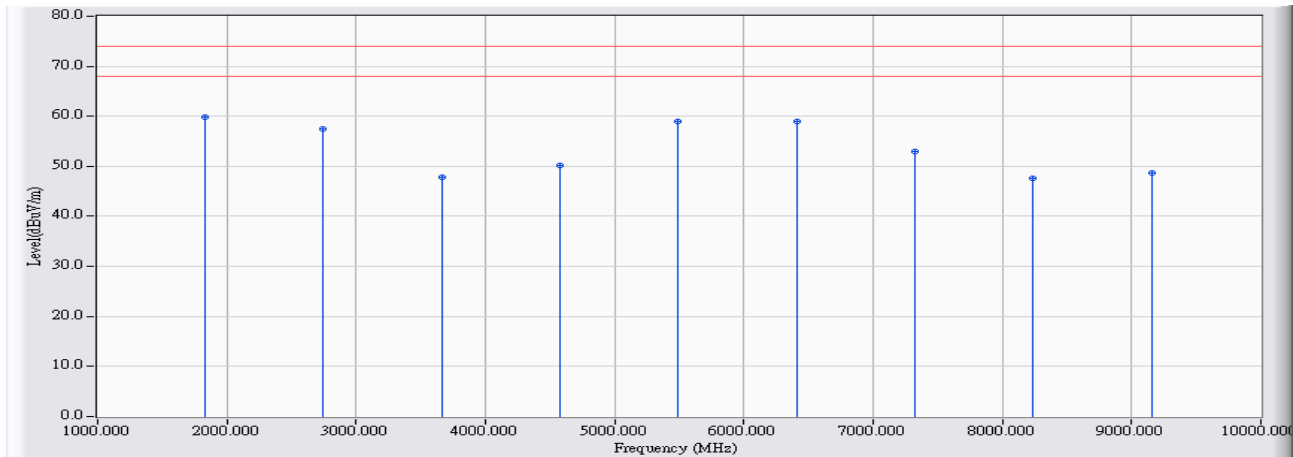


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1		1830.467	-11.653	67.700	56.047	-17.953	74.000	54.000	PEAK
2	*	2745.750	-7.264	64.820	57.556	-16.444	74.000	54.000	PEAK
3		3661.067	-3.638	51.580	47.942	-26.058	74.000	54.000	PEAK
4		4576.100	-1.457	54.420	52.962	-21.038	74.000	54.000	PEAK
5		5491.600	0.373	54.640	55.012	-18.988	74.000	54.000	PEAK
6		6406.617	2.661	52.940	55.600	-18.400	74.000	54.000	PEAK
7		7322.150	7.196	43.410	50.606	-23.394	74.000	54.000	PEAK
8		8237.383	7.126	40.040	47.166	-26.834	74.000	54.000	PEAK
9		9152.367	6.789	45.010	51.800	-22.200	74.000	54.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2010/06/14 - 17:17
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G(2009-11) - VERTICAL	Power : AC 120V/60Hz
EUT : UHF USB Reader Module	Note : V1.3-TX-915.25MHz

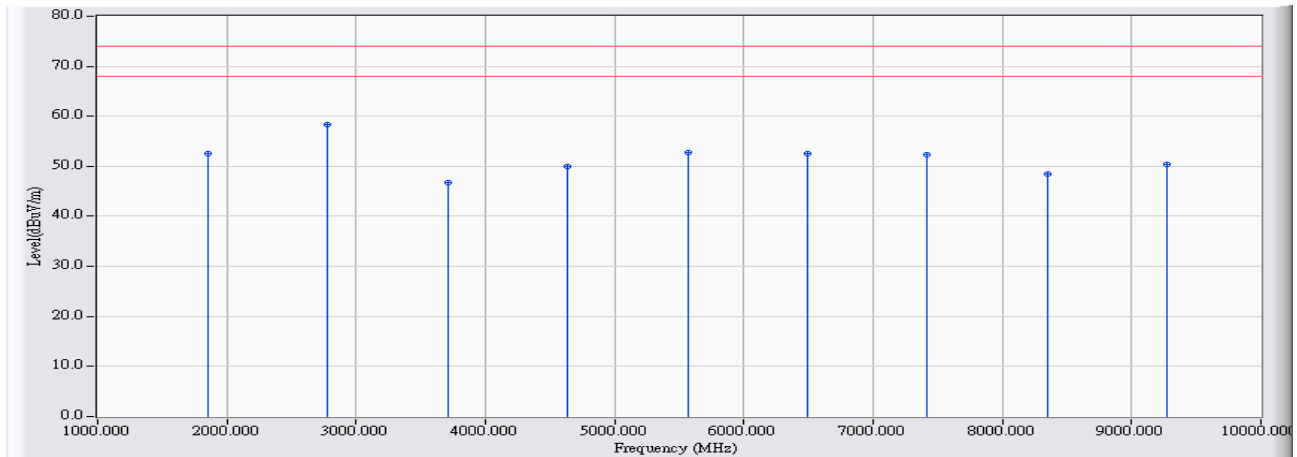


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1	*	1830.500	-7.543	67.360	59.816	-14.184	74.000	54.000	PEAK
2		2745.700	-8.674	66.250	57.577	-16.423	74.000	54.000	PEAK
3		3661.067	-6.221	54.050	47.829	-26.171	74.000	54.000	PEAK
4		4576.267	-1.826	51.980	50.154	-23.846	74.000	54.000	PEAK
5		5491.483	1.142	57.810	58.952	-15.048	74.000	54.000	PEAK
6		6406.817	2.377	56.560	58.937	-15.063	74.000	54.000	PEAK
7		7322.000	6.931	45.960	52.890	-21.110	74.000	54.000	PEAK
8		8237.383	7.012	40.580	47.592	-26.408	74.000	54.000	PEAK
9		9152.467	6.821	41.940	48.761	-25.239	74.000	54.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2010/06/14 - 17:52
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G(2009-11) - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHF USB Reader Module	Note : V1.3-TX-927.25MHz

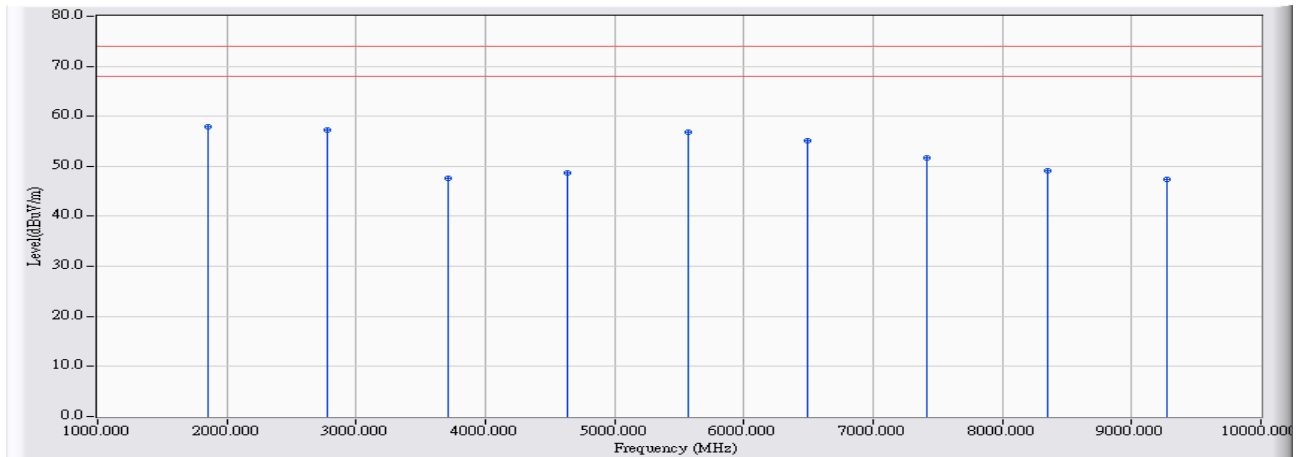


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1		1854.467	-11.508	63.990	52.483	-21.517	74.000	54.000	PEAK
2	*	2781.733	-7.148	65.580	58.432	-15.568	74.000	54.000	PEAK
3		3709.033	-3.187	49.950	46.762	-27.238	74.000	54.000	PEAK
4		4636.283	-1.374	51.440	50.066	-23.934	74.000	54.000	PEAK
5		5563.483	0.272	52.590	52.862	-21.138	74.000	54.000	PEAK
6		6490.700	3.018	49.550	52.568	-21.432	74.000	54.000	PEAK
7		7417.767	8.163	44.110	52.273	-21.727	74.000	54.000	PEAK
8		8345.317	6.997	41.430	48.426	-25.574	74.000	54.000	PEAK
9		9272.617	6.415	43.960	50.374	-23.626	74.000	54.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2010/06/14 - 18:42
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G(2009-11) - VERTICAL	Power : AC 120V/60Hz
EUT : UHF USB Reader Module	Note : V1.3-TX-927.25MHz



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Detector Type
1	*	1854.533	-7.449	65.420	57.972	-16.028	74.000	54.000	PEAK
2		2781.783	-8.566	65.800	57.234	-16.766	74.000	54.000	PEAK
3		3709.000	-5.627	53.280	47.652	-26.348	74.000	54.000	PEAK
4		4636.233	-1.684	50.390	48.706	-25.294	74.000	54.000	PEAK
5		5563.467	0.936	55.830	56.766	-17.234	74.000	54.000	PEAK
6		6490.667	2.709	52.330	55.039	-18.961	74.000	54.000	PEAK
7		7417.940	7.514	44.190	51.704	-22.296	74.000	54.000	PEAK
8		8345.130	6.978	42.100	49.078	-24.922	74.000	54.000	PEAK
9		9272.430	6.538	40.940	47.477	-26.523	74.000	54.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

TX Channel 00					
HORIZONTAL					
Frequency	RBW=1MHz VBW=10Hz	Duty cycle	Average level	Margin	Limit
1805.583	53.394	0.336	43.921	-10.079	54
2708.300	56.007		46.534	-7.466	54
3611.000	43.621		34.148	-19.852	54
4513.670	50.417		40.944	-13.056	54
5416.633	54.531		45.058	-8.942	54
6319.333	54.817		45.344	-8.656	54
7221.980	43.844		34.371	-19.629	54
8124.710	43.845		34.372	-19.628	54
9027.567	47.755		38.282	-15.718	54

TX Channel 00					
VERTICAL					
Frequency	RBW=1MHz VBW=10Hz	Duty cycle	Average level	Margin	Limit
1805.483	58.072	0.336	48.599	-5.401	54
2708.033	51.395		41.922	-12.078	54
3611.050	41.265		31.792	-22.208	54
4513.740	48.575		39.102	-14.898	54
5416.533	54.762		45.289	-8.711	54
6319.283	54.951		45.478	-8.522	54
7222.033	48.047		38.574	-15.426	54
8124.590	41.445		31.972	-22.028	54
9027.570	48.205		38.732	-15.268	54

TX Channel 25					
HORIZONTAL					
Frequency	RBW=1MHz VBW=10Hz	Duty cycle	Average level	Margin	Limit
1830.517	53.628	0.336	44.155	-9.845	54
2745.750	54.152		44.679	-9.321	54
3661.030	43.482		34.009	-19.991	54
4576.250	49.322		39.849	-14.151	54
5491.567	51.252		41.779	-12.221	54
6406.700	50.950		41.477	-12.523	54
7322.067	43.955		34.482	-19.518	54
8237.250	38.715		29.242	-24.758	54
9152.533	46.400		36.927	-17.073	54

TX Channel 25					
VERTICAL					
Frequency	RBW=1MHz VBW=10Hz	Duty cycle	Average level	Margin	Limit
1830.567	57.327	0.336	47.854	-6.146	54
2745.783	54.027		44.554	-9.446	54
3661.017	44.468		34.995	-19.005	54
4576.317	45.834		36.361	-17.639	54
5491.533	55.513		46.040	-7.960	54
6406.850	54.817		45.344	-8.656	54
7322.033	48.141		38.668	-15.332	54
8237.267	39.841		30.368	-23.632	54
9152.583	41.542		32.069	-21.931	54

TX Channel 49					
HORIZONTAL					
Frequency	RBW=1MHz VBW=10Hz	Duty cycle	Average level	Margin	Limit
1849.615	53.352	0.336	43.879	-10.121	54
2774.280	56.000		46.527	-7.473	54
3699.020	47.987		38.514	-15.486	54
4623.775	45.429		35.956	-18.044	54
5548.545	46.949		37.476	-16.524	54
6473.240	51.630		42.157	-11.843	54
7398.000	40.551		31.078	-22.922	54
8322.750	40.177		30.704	-23.296	54
9247.480	46.409		36.936	-17.064	54

TX Channel 49					
VERTICAL					
Frequency	RBW=1MHz VBW=10Hz	Duty cycle	Average level	Margin	Limit
1849.620	50.972	0.336	41.499	-12.501	54
2774.300	54.102		44.629	-9.371	54
3699.030	49.962		40.489	-13.511	54
4623.770	46.746		37.273	-16.727	54
5548.490	52.188		42.715	-11.285	54
6473.110	49.480		40.007	-13.993	54
7398.040	43.173		33.700	-20.300	54
8322.910	39.812		30.339	-23.661	54
9247.450	41.174		31.701	-22.299	54

Average level = (RBW=1MHz VBW=10Hz)+ 20 log duty cycle

duty cycle = 33.6ms / 100ms = 0.336

5. RF Conducted Emission

5.1. Test Equipment

The following test equipments are used during the test:

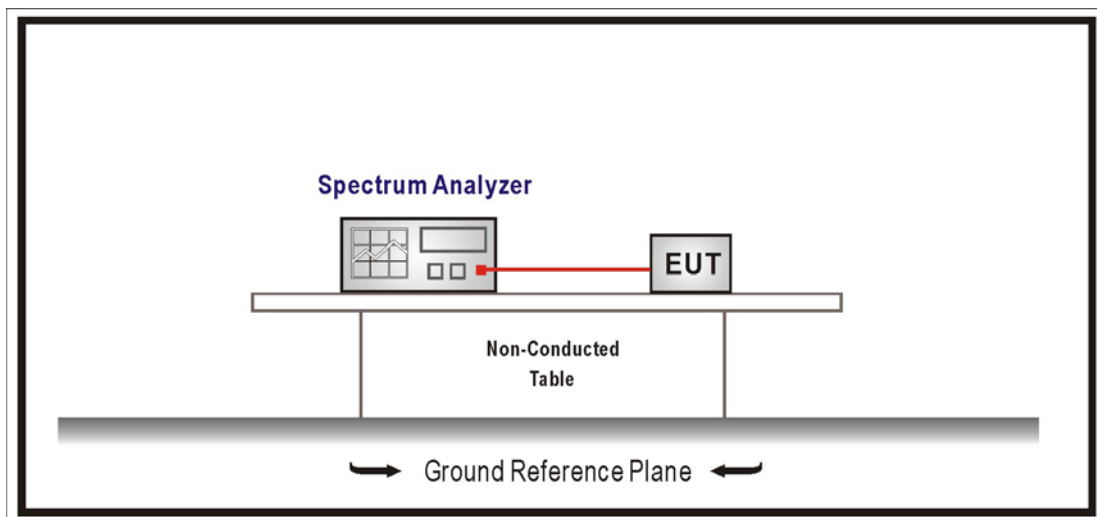
RF Antenna Conducted Test / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2011/02/04

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

5.2. Test Setup

RF Conducted Measurement:



5.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements.

5.5. Test Specification

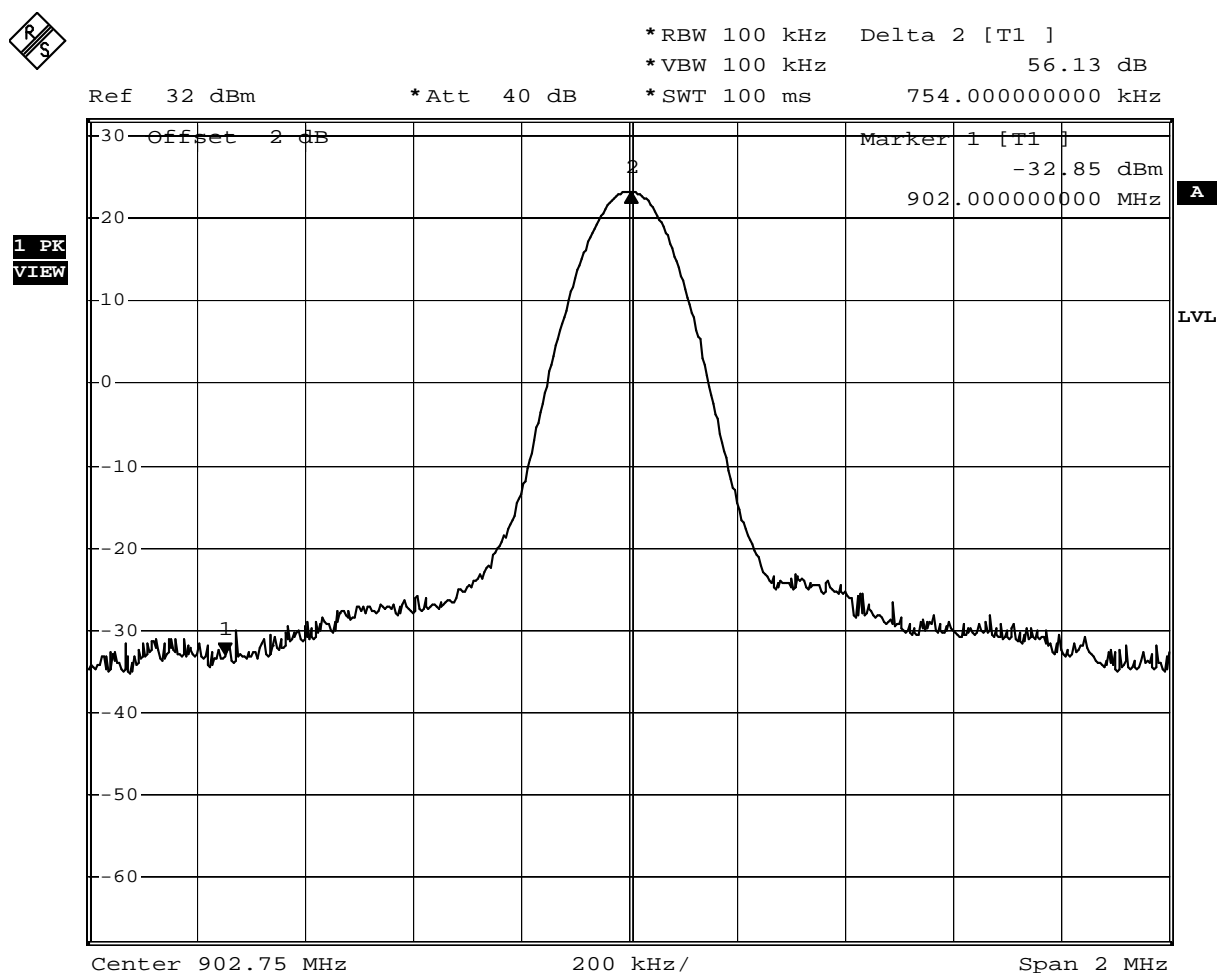
According to FCC Part 15 Subpart C Paragraph 15.247: 2009

5.6. Test Result

Product	UHF USB Reader Module		
Test Item	RF Conducted Emissions		
Test Mode	Mode 1: Transmit		
Date of Test	2010/06/08	Test Site	SR7

Channel No.	Frequency (MHz)	Measure Level (dBc)	Required Limit (dBc)	Result
00	902.75	56.13	≥20	Pass
49	927.25	53.04	≥20	Pass

Channel 00



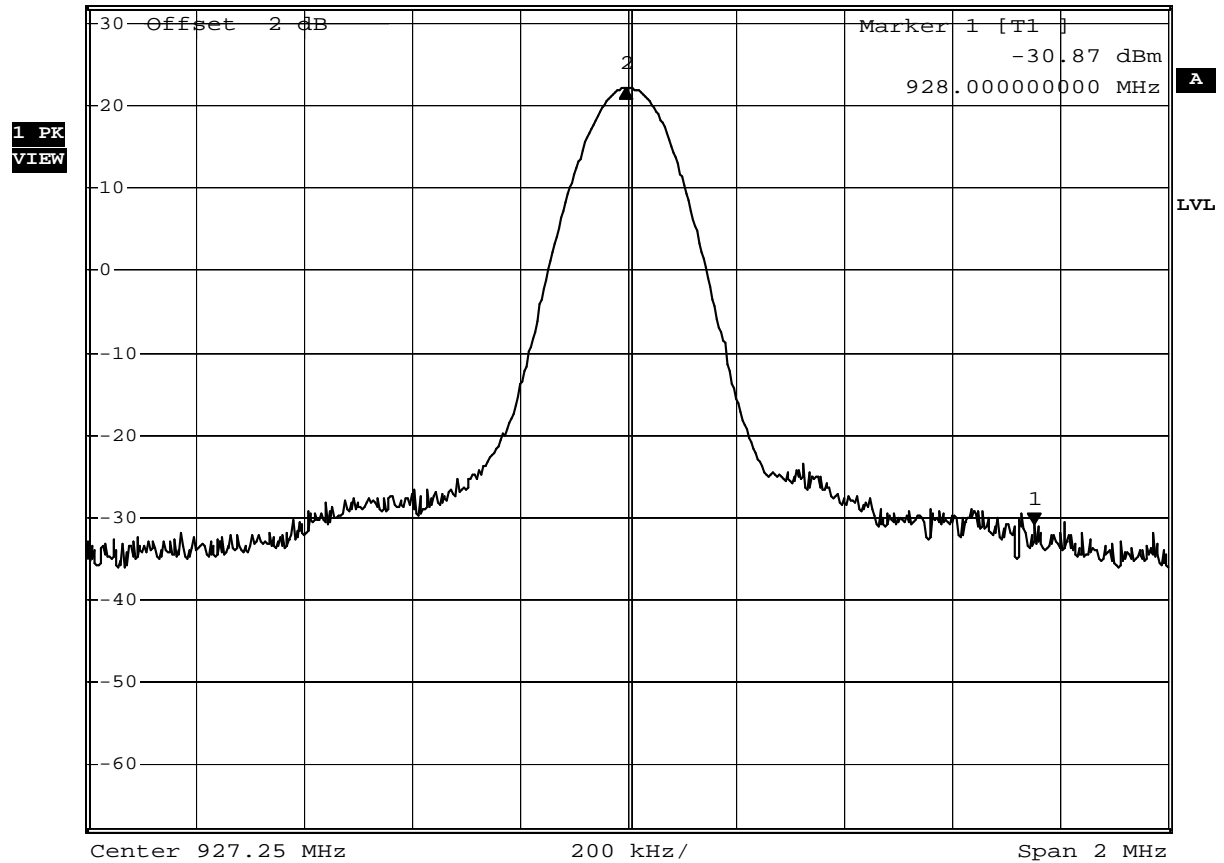
Date: 8.JUN.2010 11:06:47

Channel 49



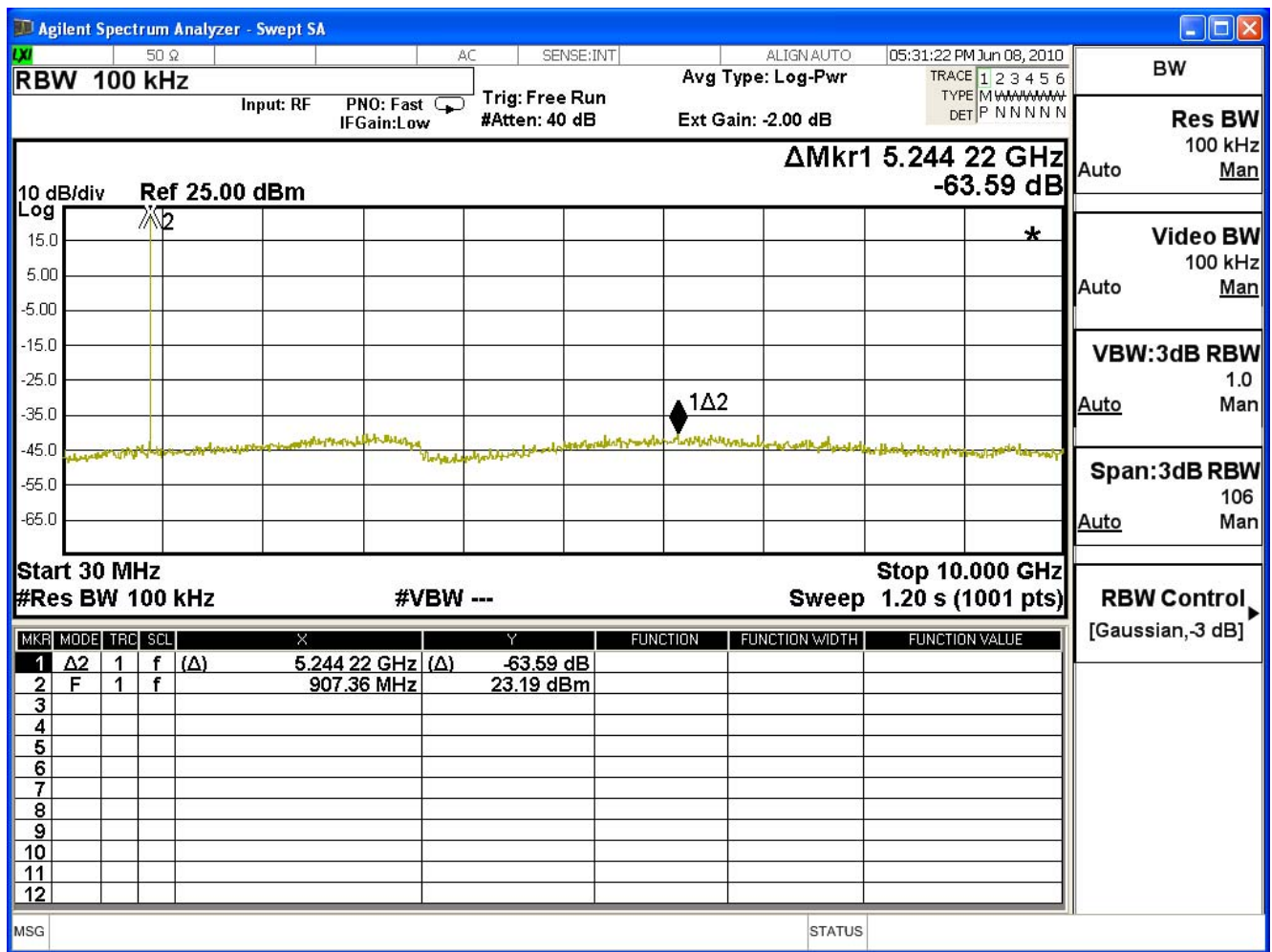
*RBW 100 kHz Delta 2 [T1]
 *VBW 100 kHz 53.04 dB

Ref 32 dBm *Att 40 dB *SWT 100 ms -754.000000000 kHz

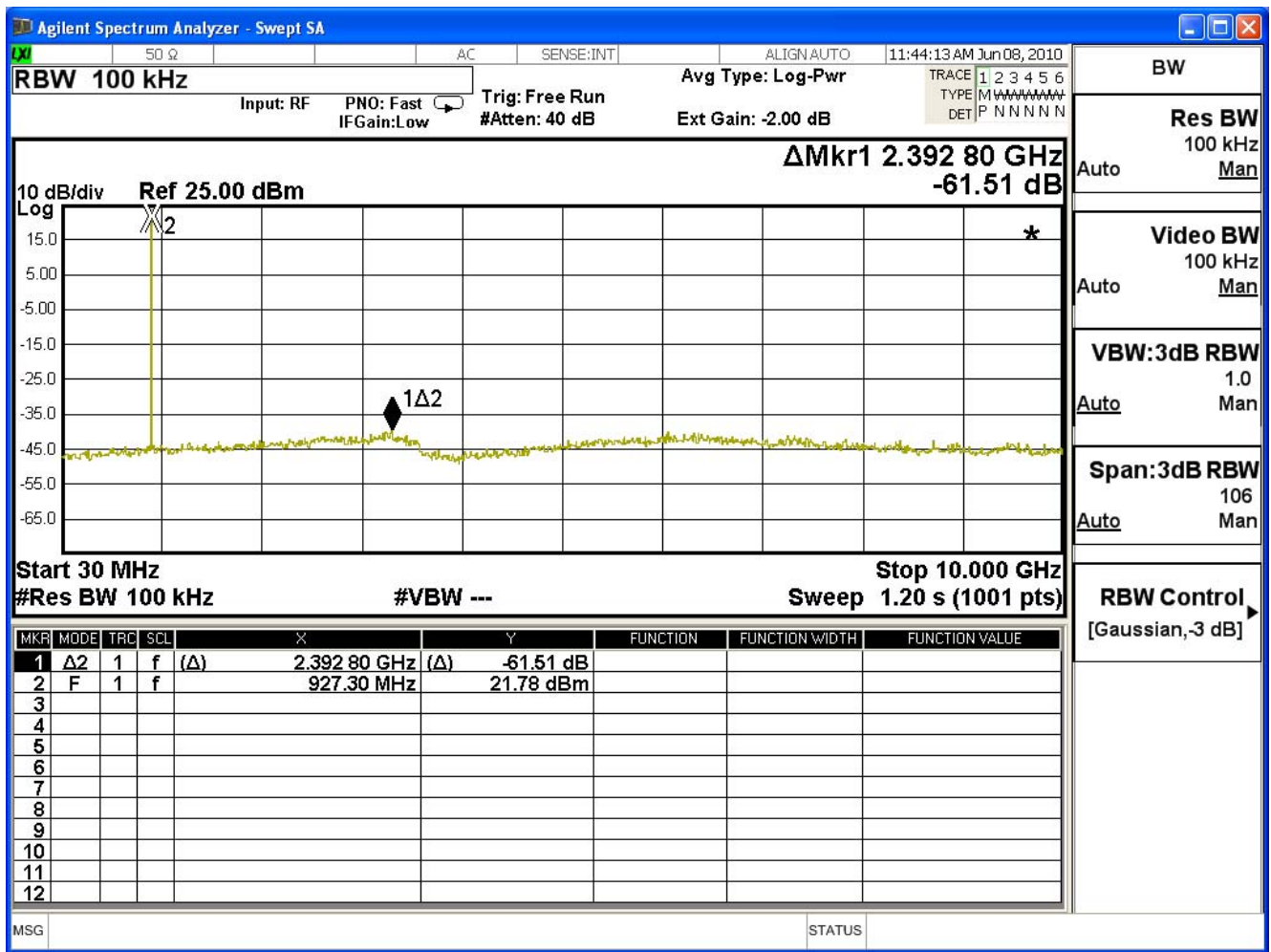


Date: 8.JUN.2010 11:08:49

Channel 00 (30M~10G)



Channel 49 (30M~10G)



6. Band Edge

6.1. Test Equipment

The following test equipments are used during the test:

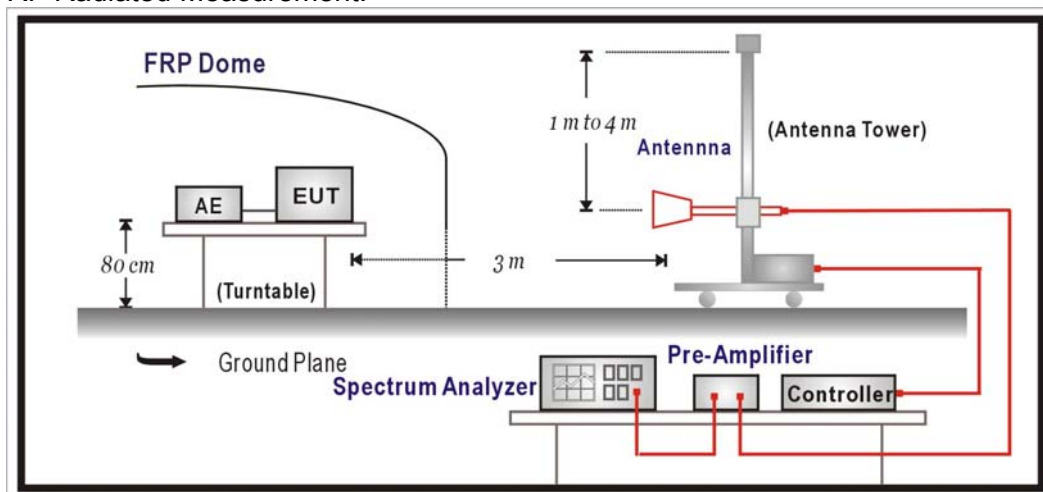
Band Edge / CB1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Horn Antenna	Schwarzback	BBHA 9120D	743	2011/03/14
Spectrum Analyzer	Agilent	E4440A	MY46187335	2011/01/14
Coaxial Cable	Huber+Suhner AG	Sucoflex 102	25623/2	2011/04/07

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

6.2. Test Setup

RF Radiated Measurement:



6.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

6.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

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 EUT was positioned such that the distance from antenna to the EUT was 3 meters.

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.

6.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2009

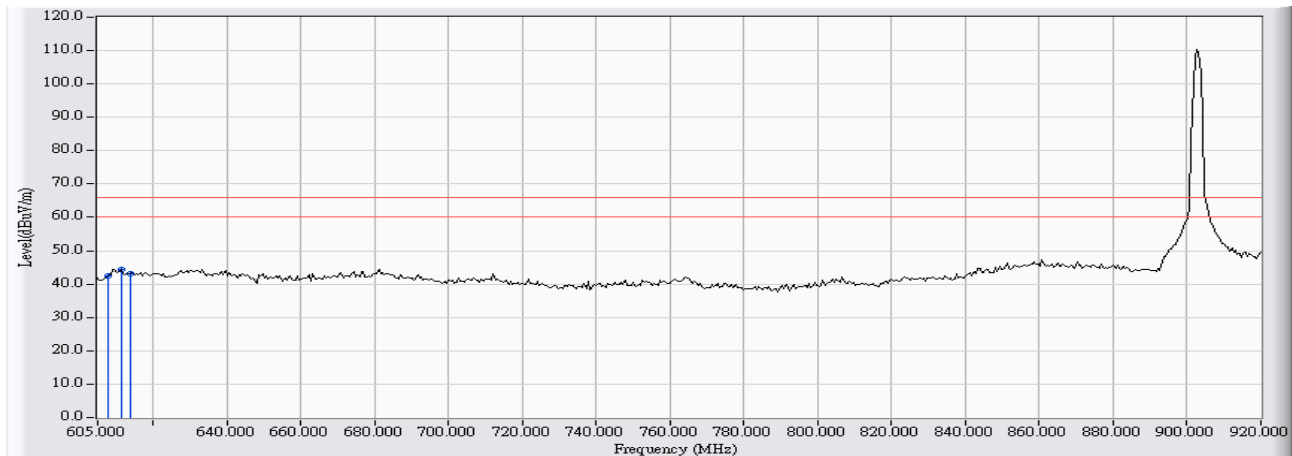
6.6. Uncertainty

The measurement uncertainty

± 3.9 dB above 1GHz

6.7. Test Result

Site : CB1	Time : 2010/06/04 - 14:04
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB3_FCC_30-1G(2009) - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHF USB Reader Module	Note : TX-902.75MHz

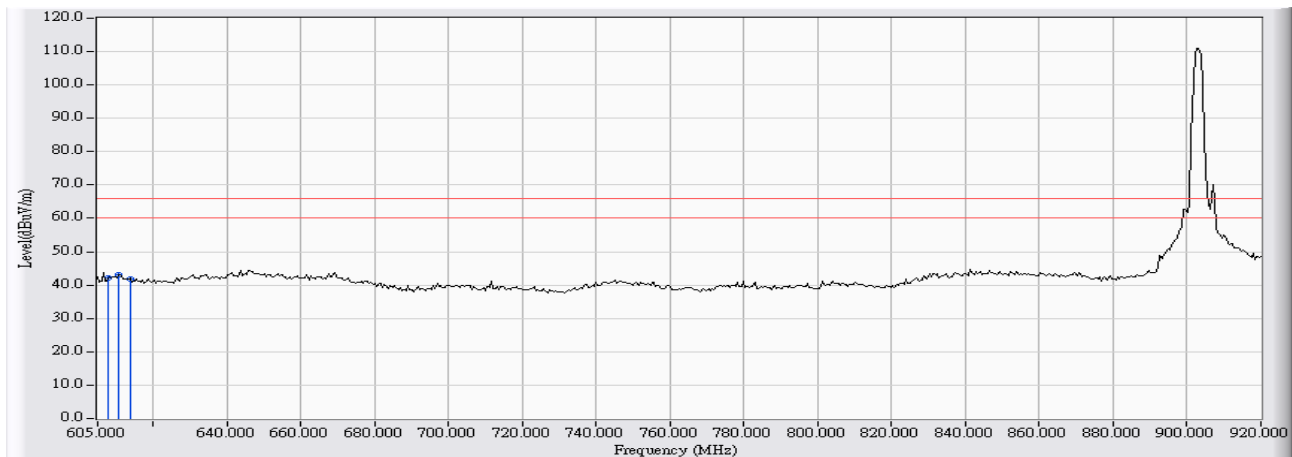


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		608.000	18.908	23.625	42.533	-23.487	66.020	PEAK
2	*	611.300	19.905	24.488	44.393	-21.627	66.020	PEAK
3		614.000	19.490	23.546	43.035	-22.985	66.020	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2010/06/04 - 14:09
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB3_FCC_30-1G(2009) - VERTICAL	Power : AC 120V/60Hz
EUT : UHF USB Reader Module	Note : TX-902.75MHz

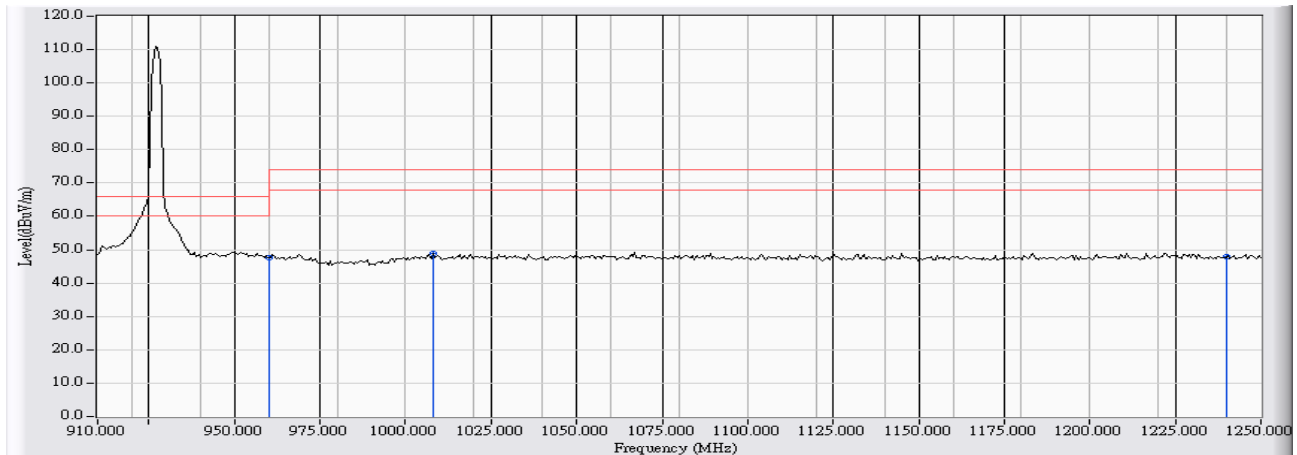


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		608.000	18.225	23.921	42.145	-23.875	66.020	PEAK
2	*	610.775	18.658	24.425	43.083	-22.937	66.020	PEAK
3		614.000	17.691	24.278	41.969	-24.051	66.020	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. “ * ”, means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2010/06/04 - 14:29
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB3_FCC_30-1G(2009) - HORIZONTAL	Power : AC 120V/60Hz
EUT : UHF USB Reader Module	Note : TX-927.25MHz

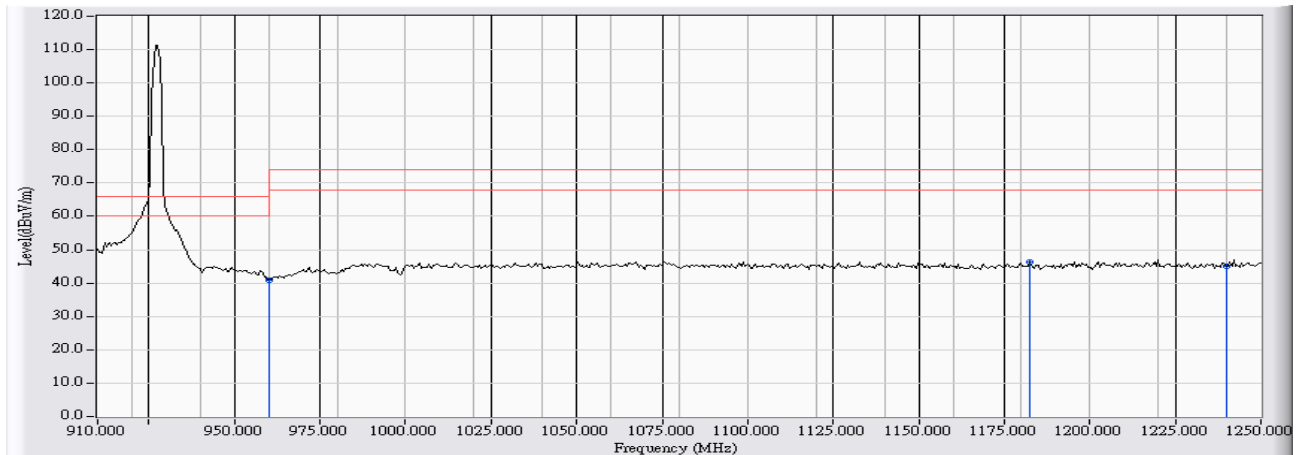


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	960.000	23.622	24.065	47.687	-18.333	66.020	PEAK
2		1008.033	23.658	25.281	48.939	-25.061	74.000	PEAK
3		1240.000	23.658	24.139	47.797	-26.203	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

Site : CB1	Time : 2010/06/04 - 14:35
Limit : FCC_SpartC_15.209_03M_PK	Margin : 6
Probe : CB3_FCC_30-1G(2009) - VERTICAL	Power : AC 120V/60Hz
EUT : UHF USB Reader Module	Note : TX-927.25MHz



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	960.000	17.347	23.467	40.814	-25.206	66.020	PEAK
2		1182.567	21.549	24.844	46.393	-27.607	74.000	PEAK
3		1240.000	21.549	23.477	45.026	-28.974	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The Emission above 13GHz were not included is because their levels are too low.

7. Number of hopping frequency

7.1. Test Equipment

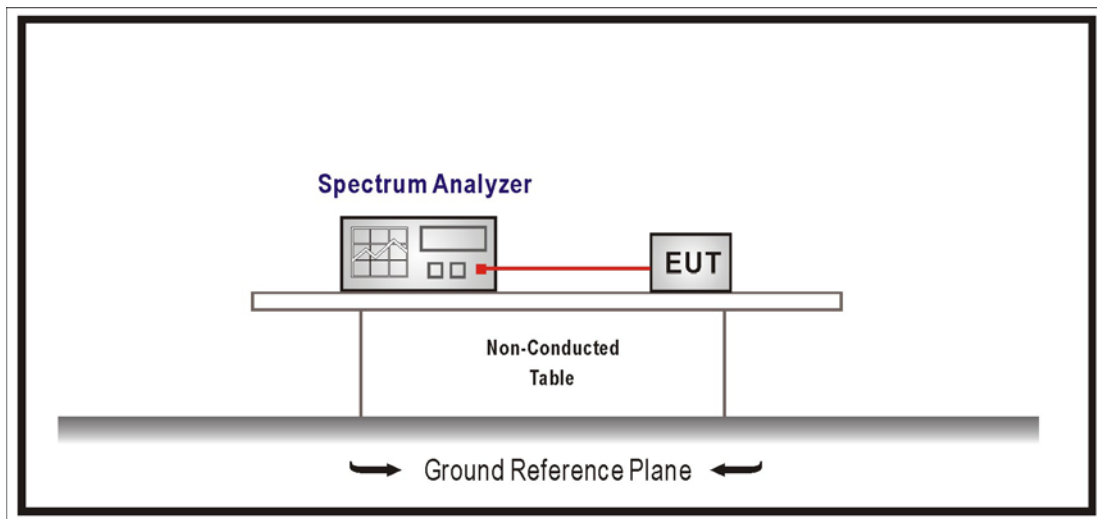
The following test equipments are used during the test:

Number Of Hopping Frequency / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2011/02/04

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

7.2. Test Setup



7.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

For frequency hopping systems operating in the 2400-2483.5 MHz bands, which use fewer than 75 hopping frequencies, may employ intelligent hopping techniques to avoid interference to other transmissions. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 non-overlapping channels are used.

For frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies.

7.4. Test Procedures

The EUT was setup according to ANSI C63.4, 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Span = the frequency band of operation

$RBW \geq 1\%$ of the span , $VBW \geq RBW$

Sweep = auto, Detector function = peak, Trace = max hold

7.5. Test Specification

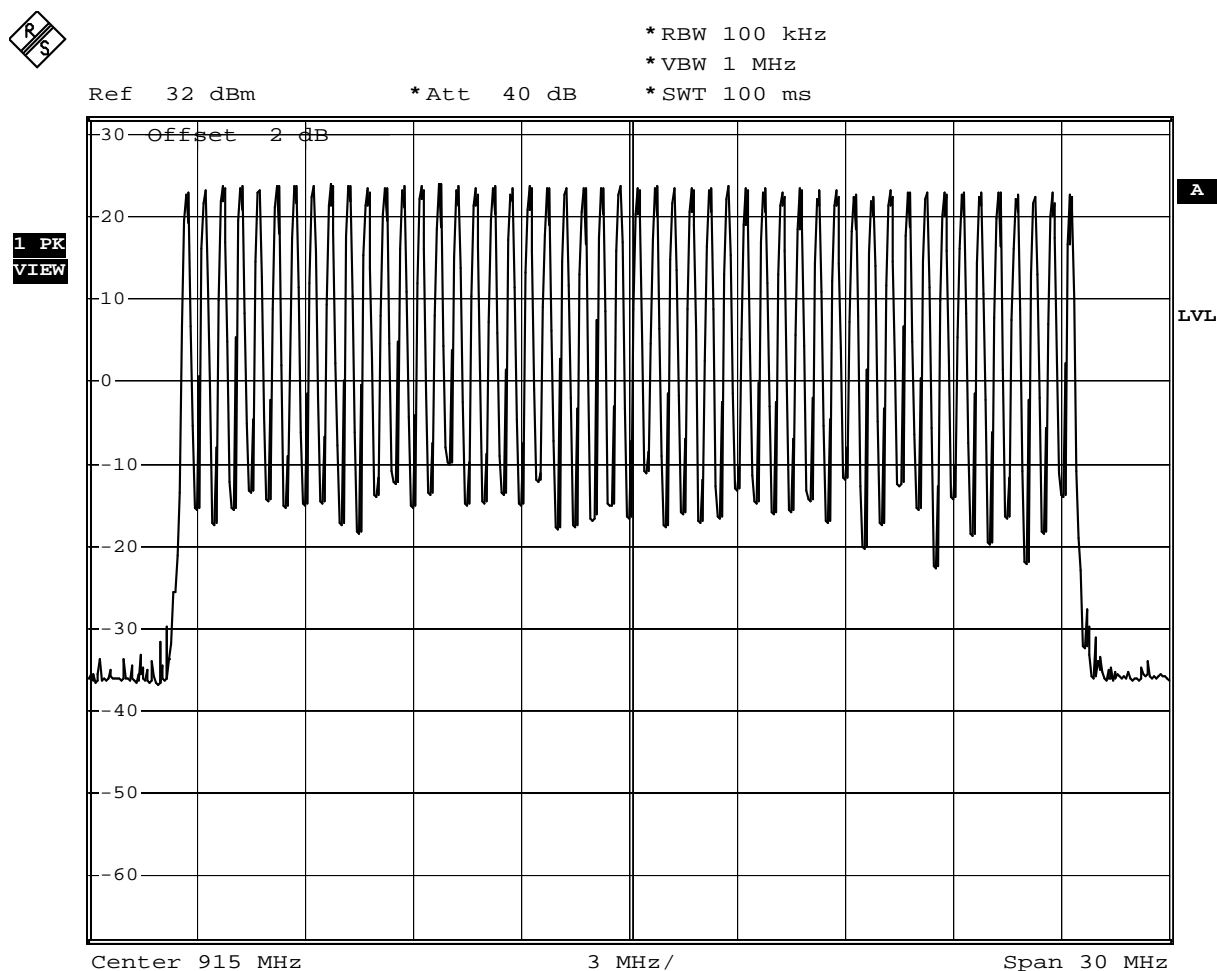
According to FCC Part 15 Subpart C Paragraph 15.247: 2009

7.6. Test Result

Product	UHF USB Reader Module		
Test Item	Number of hopping frequency		
Test Mode	Mode 1: Transmit		
Date of Test	2010/06/08	Test Site	SR7

Frequency Range (MHz)	Measure Level (Hopping Channel)	Limit (Hopping Channel)	Result
902~928	49	≥15	Pass

915MHz



Date: 8.JUN.2010 11:27:45

8. Carrier Frequency Separation

8.1. Test Equipment

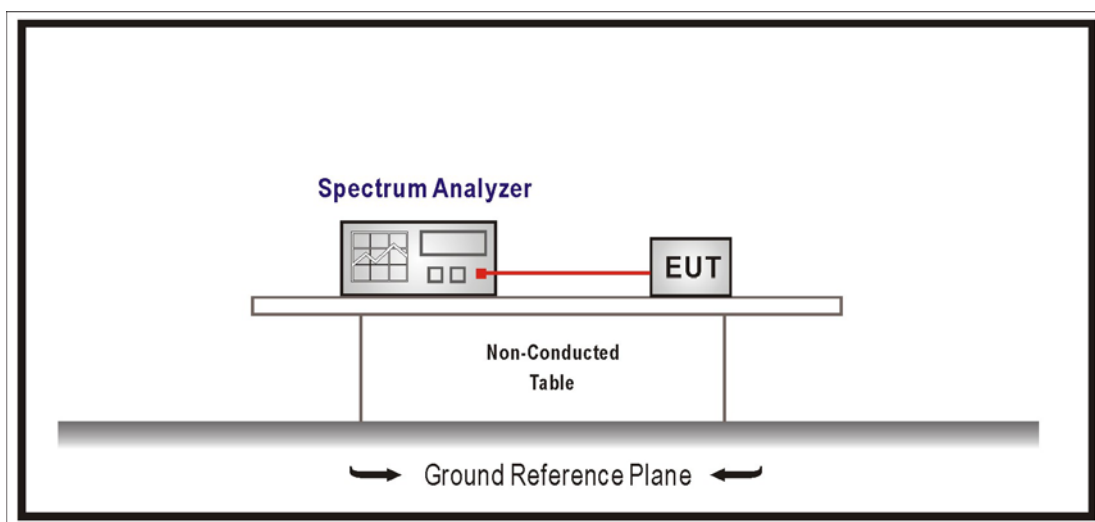
The following test equipment are used during the test:

Carrier Frequency Separation / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2011/02/04

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

8.2. Test Setup



8.3. Limits

For frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

8.4. Test Procedures

The EUT was setup according to ANSI C63.4, 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Span = wide enough to capture the peaks of two adjacent channels

Resolution Bandwidth (RBW) \geq 1% of the span, VBW \geq RBW

Sweep = auto, Detector function = peak, Trace = max hold

8.5. Test Specification

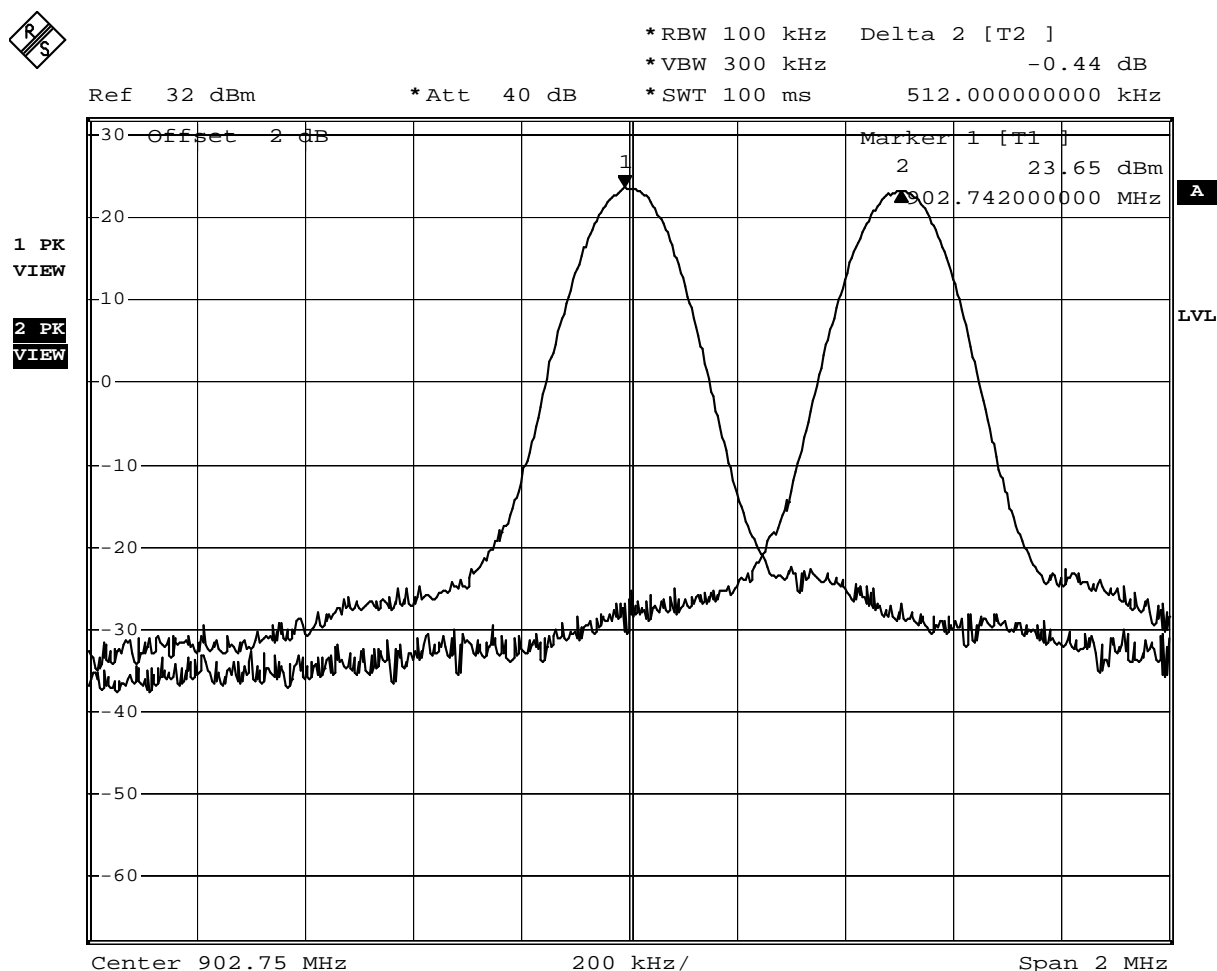
According to FCC Part 15 Subpart C Paragraph 15.247: 2009

8.6. Test Result

Product	UHF USB Reader Module		
Test Item	Carrier Frequency Separation		
Test Mode	Mode 1: Transmit		
Date of Test	2010/06/08	Test Site	SR7

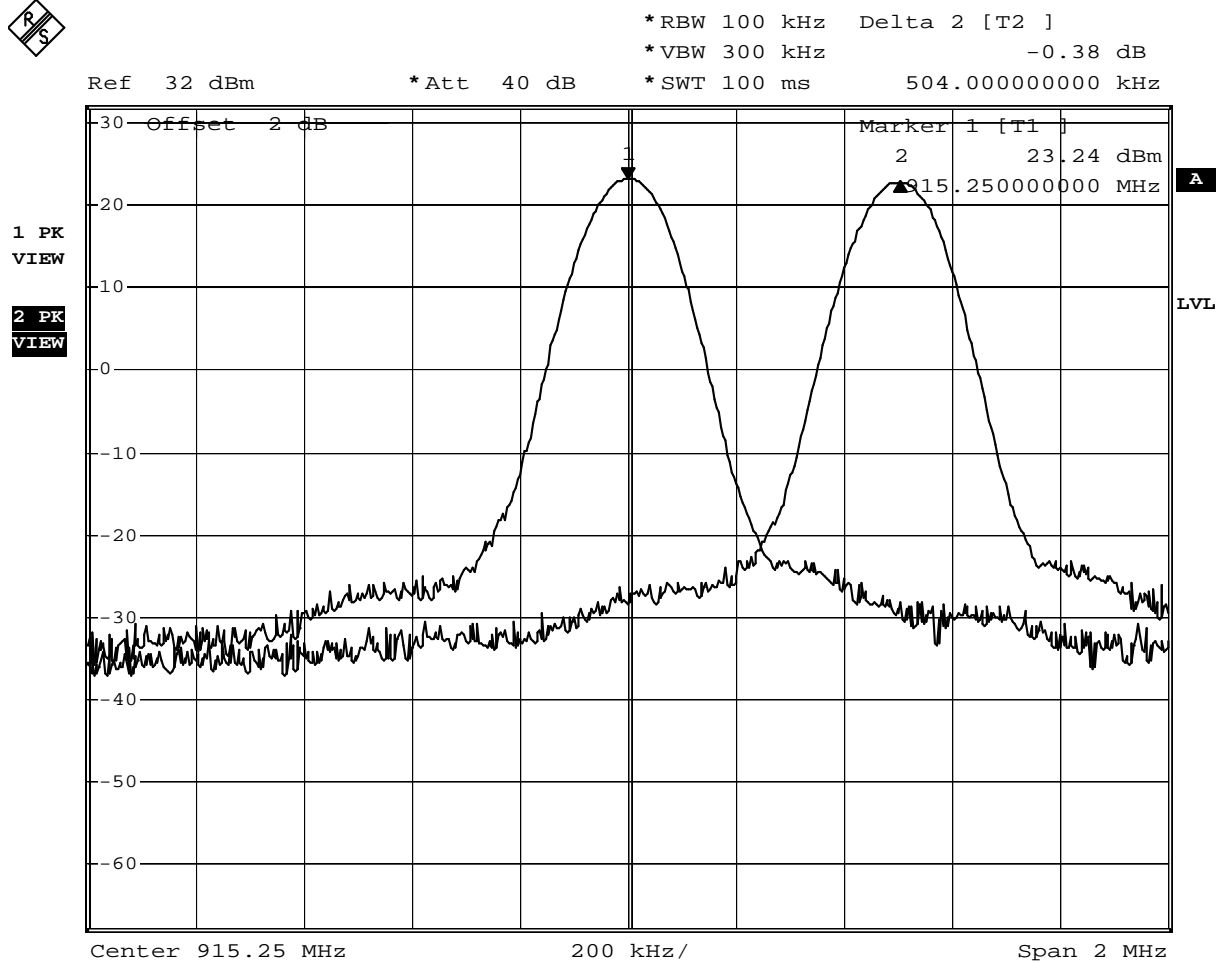
Channel No.	Frequency (MHz)	Measure Level (kHz)	Limit (kHz)	Result
0	902.75	512	≥ 284	Pass
25	915.25	504	≥ 284	Pass
49	927.25	500	≥ 284	Pass

Channel 00



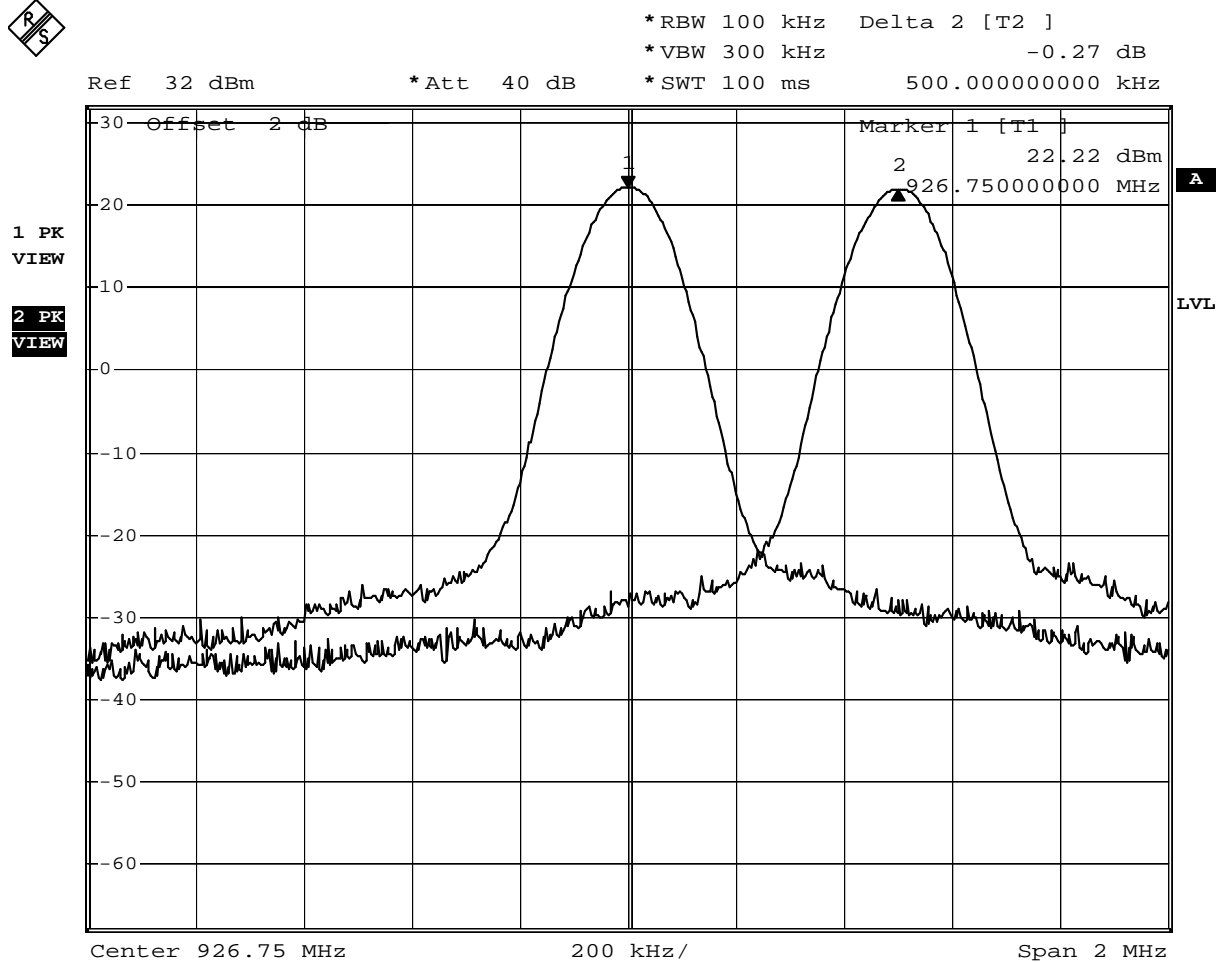
Date: 8.JUN.2010 11:14:32

Channel 25



Date: 8.JUN.2010 11:17:21

Channel 49



Date: 8.JUN.2010 11:18:49

9. Occupied Bandwidth

9.1. Test Equipment

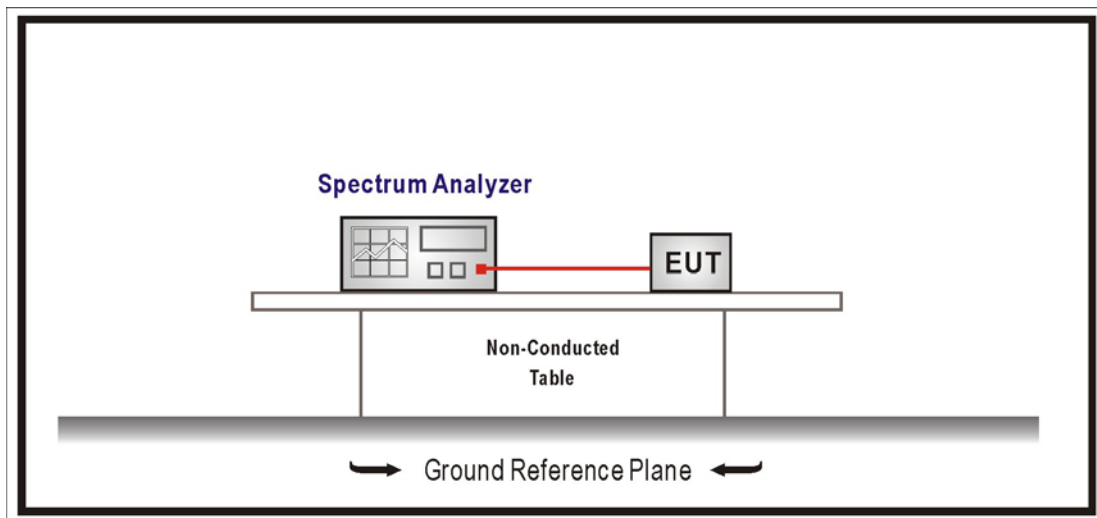
The following test equipment are used during the test:

Occupied Bandwidth / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2011/02/04

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

9.2. Test Setup



9.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

For frequency hopping systems operating in the 5725-5850 MHz bands. The maximum 20 dB bandwidth of the hopping channel is 1 MHz.

For frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

9.4. Test Procedures

The EUT was setup according to ANSI C63.4, 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Use the following spectrum analyzer settings:

Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel

RBW \geq 1% of the 20 dB bandwidth, VBW \geq RBW

Sweep = auto, Detector function = peak, Trace = max hold

The EUT should be transmitting at its maximum data rate.

9.5. Test Specification

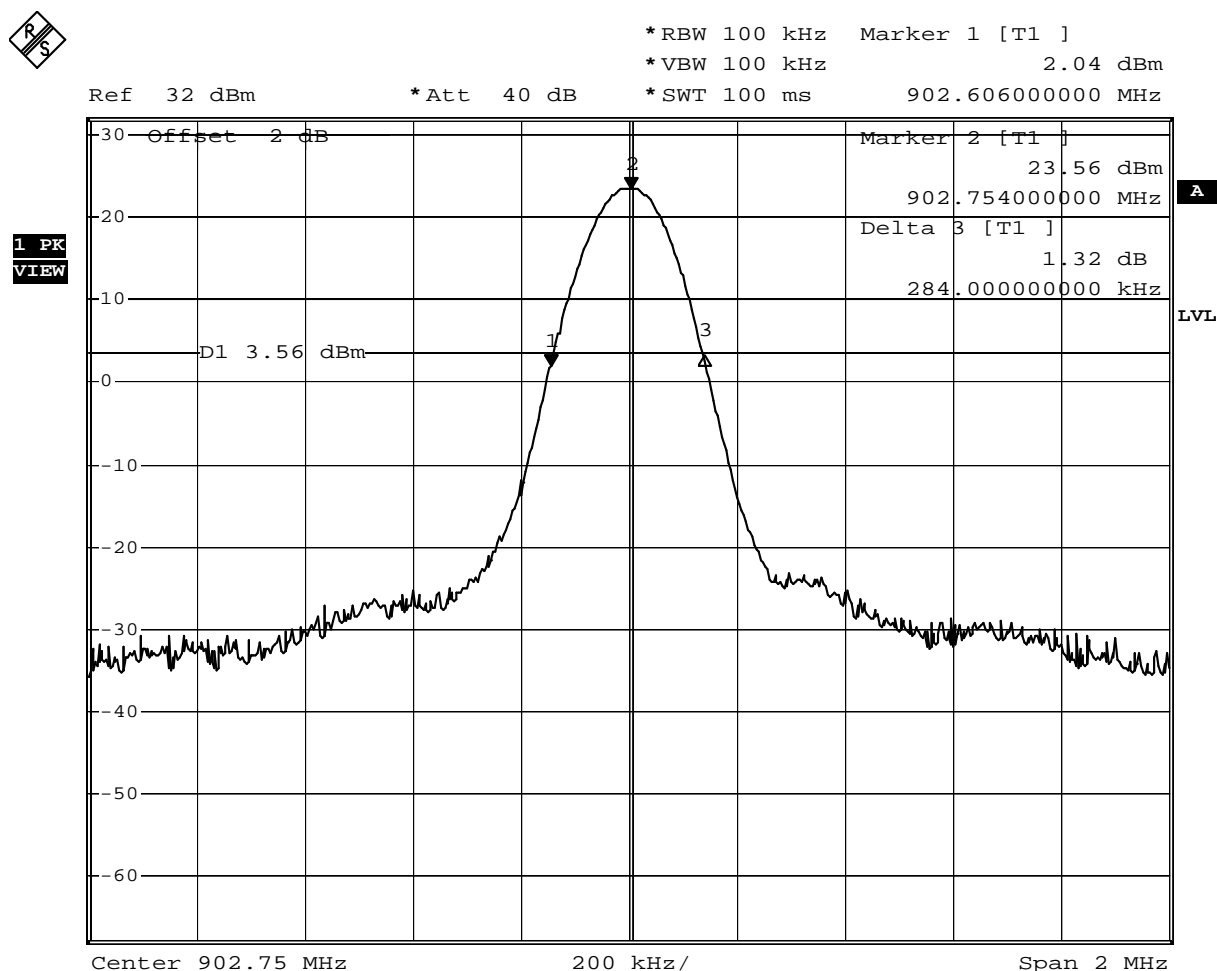
According to FCC Part 15 Subpart C Paragraph 15.247: 2009

9.6. Test Result

Product	UHF USB Reader Module		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2010/06/08	Test Site	SR7

Channel No.	Frequency (MHz)	Measure Level (kHz)	Limit (kHz)	Result
0	902.75	284	≤ 500	Pass
25	915.25	284	≤ 500	Pass
49	927.25	284	≤ 500	Pass

Channel 00



Date: 8.JUN.2010 10:56:02

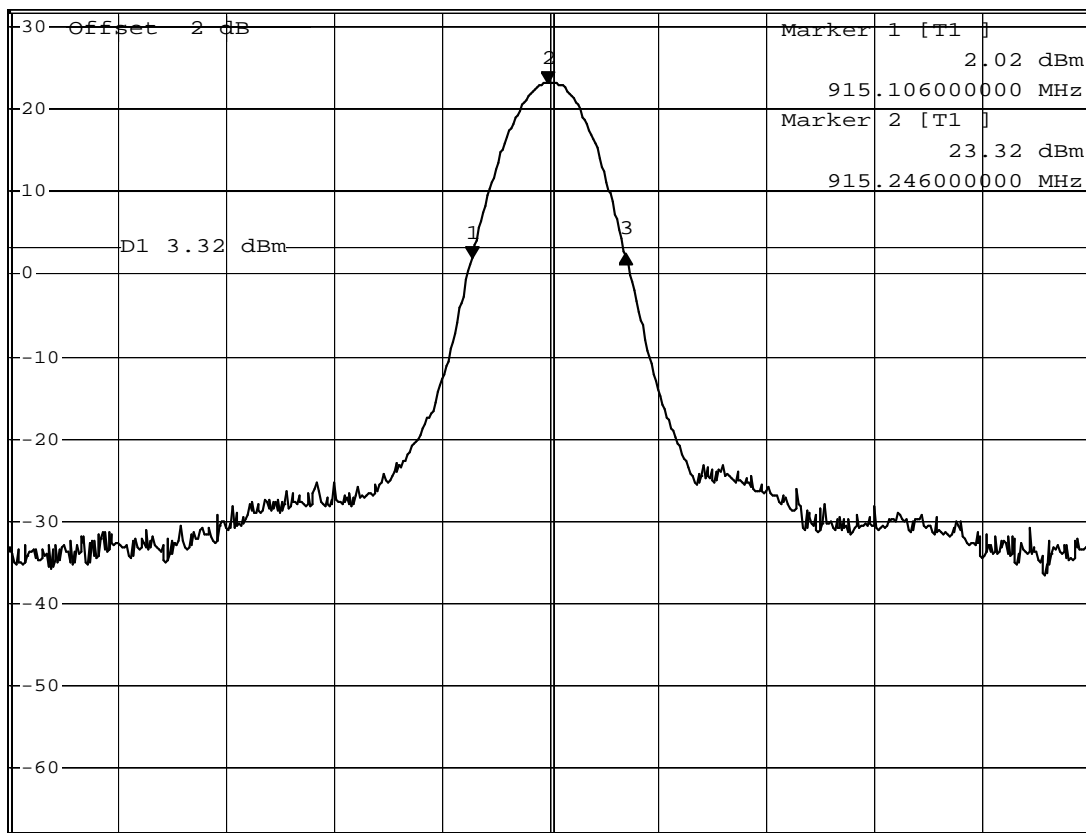
Channel 25



*RBW 100 kHz Delta 3 [T1]
 *VBW 100 kHz 0.58 dB
 *SWT 100 ms 284.00000000 kHz

Ref 32 dBm *Att 40 dB

1 PK
VIEW



Center 915.25 MHz 200 kHz/ Span 2 MHz

Date: 8.JUN.2010 10:57:45

Channel 49

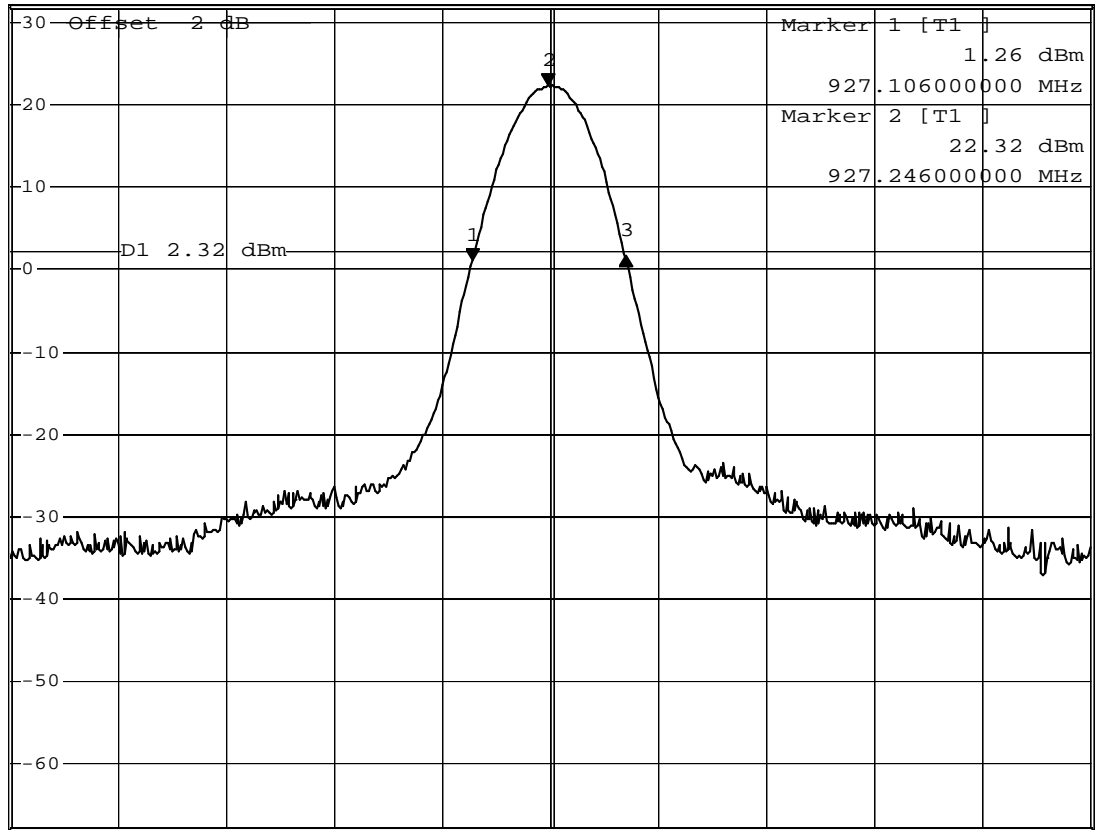


*RBW 100 kHz Delta 3 [T1]
 *VBW 100 kHz 0.35 dB
 *SWT 100 ms 284.000000000 kHz

Ref 32 dBm

*Att 40 dB

1 PK
VIEW



Center 927.25 MHz

200 kHz/

Span 2 MHz

Date: 8.JUN.2010 10:58:53

10. Dwell Time

10.1. Test Equipment

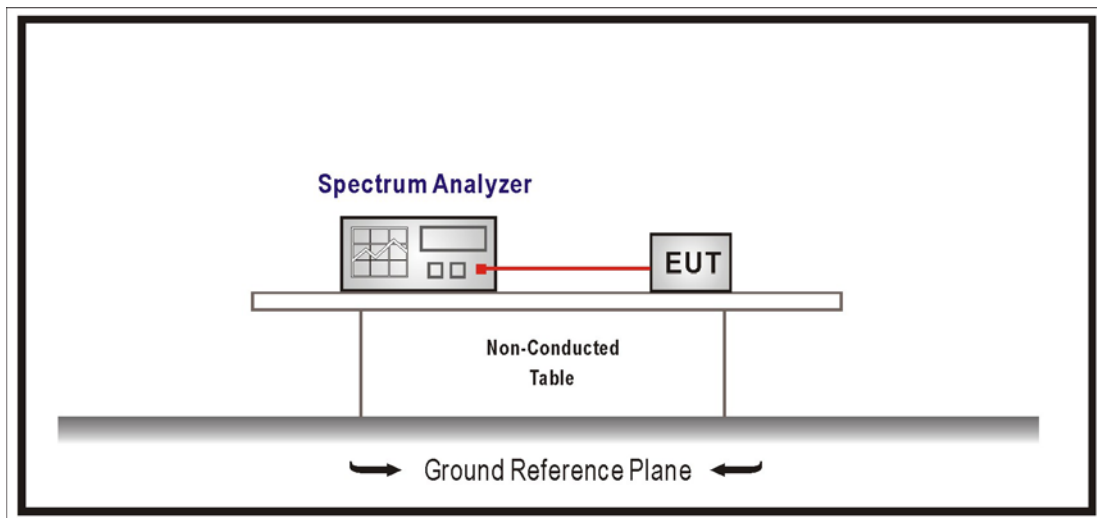
The following test equipment are used during the test:

Dwell Time / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2011/02/04

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

10.2. Test Setup



10.3. Limits

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. For frequency hopping systems operating in the 2400-2483.5 MHz bands. 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. For frequency hopping systems operating in the 5725-5850 MHz bands. The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

10.4. Test Procedures

The EUT was setup according to ANSI C63.4, 2009 and tested according to FHSS test procedure of FCC Public Notice DA 00-705 for compliance to FCC 47CFR 15.247 requirements

Span = zero span, centered on a hopping channel

RBW = 1 MHz, VBW \geq RBW

Sweep = as necessary to capture the entire dwell time per hopping channel

Detector function = peak, Trace = max hold

10.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2009

10.6. Test Result

Product	UHF USB Reader Module		
Test Item	Dwell Time		
Test Mode	Mode 1: Transmit		
Date of Test	2010/06/08	Test Site	SR7

Occupancy Time of Frequency Hopping System

A) 902.75MHz Test Time Period: 10sec , Hopping Times Within 1sec: 3/700msec=4.286 /sec

The Maximum Occupancy Time Within 10sec: $0.0336 \times (4.286/50) \times 10 = 0.0288\text{sec}$.

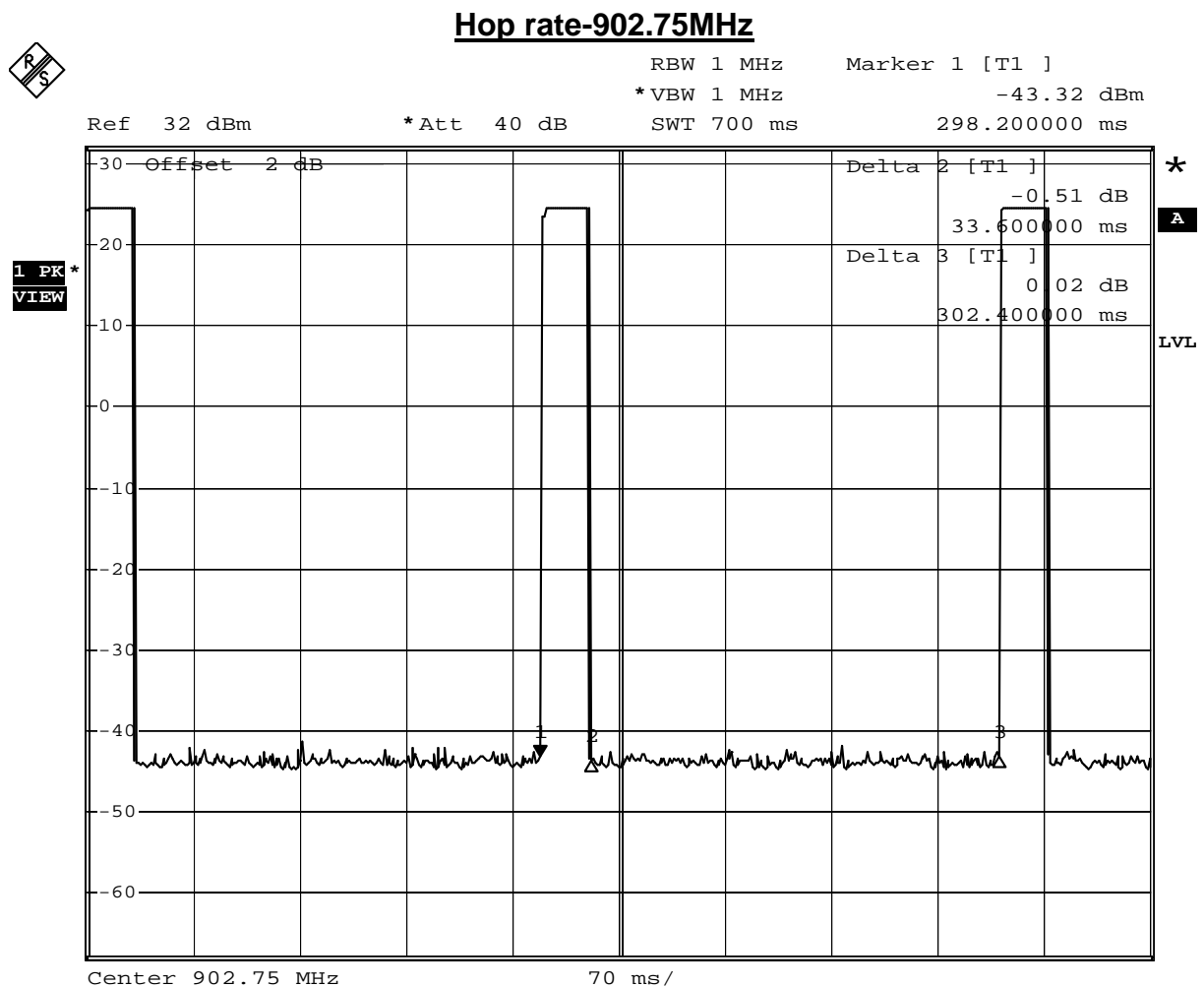
B) 915.25MHz Test Time Period: 10sec , Hopping Times Within 1sec: 3/700msec=4.286 /sec

The Maximum Occupancy Time Within 10sec: $0.0336 \times (4.286/50) \times 10 = 0.0288\text{sec}$.

C) 927.25MHz Test Time Period: 10sec , Hopping Times Within 1sec: 3/700msec=4.286 /sec

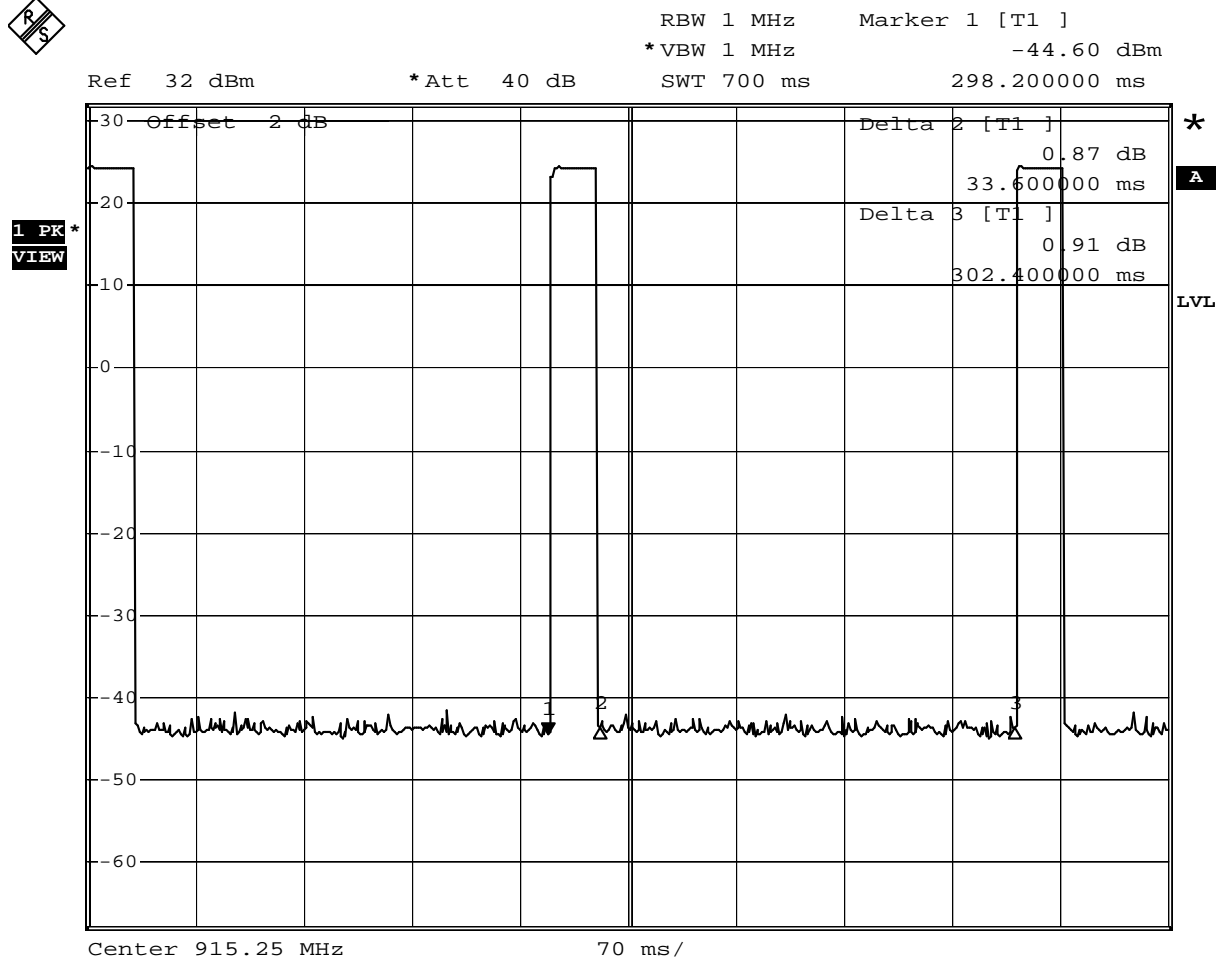
The Maximum Occupancy Time Within 10sec: $0.0336 \times (4.286/50) \times 10 = 0.0288\text{sec}$.

Test Result: The Average Occupancy Time of Each Highest , Middle and Lowest Channel Is Less Than 0.4sec , And Corresponds to The Standard .



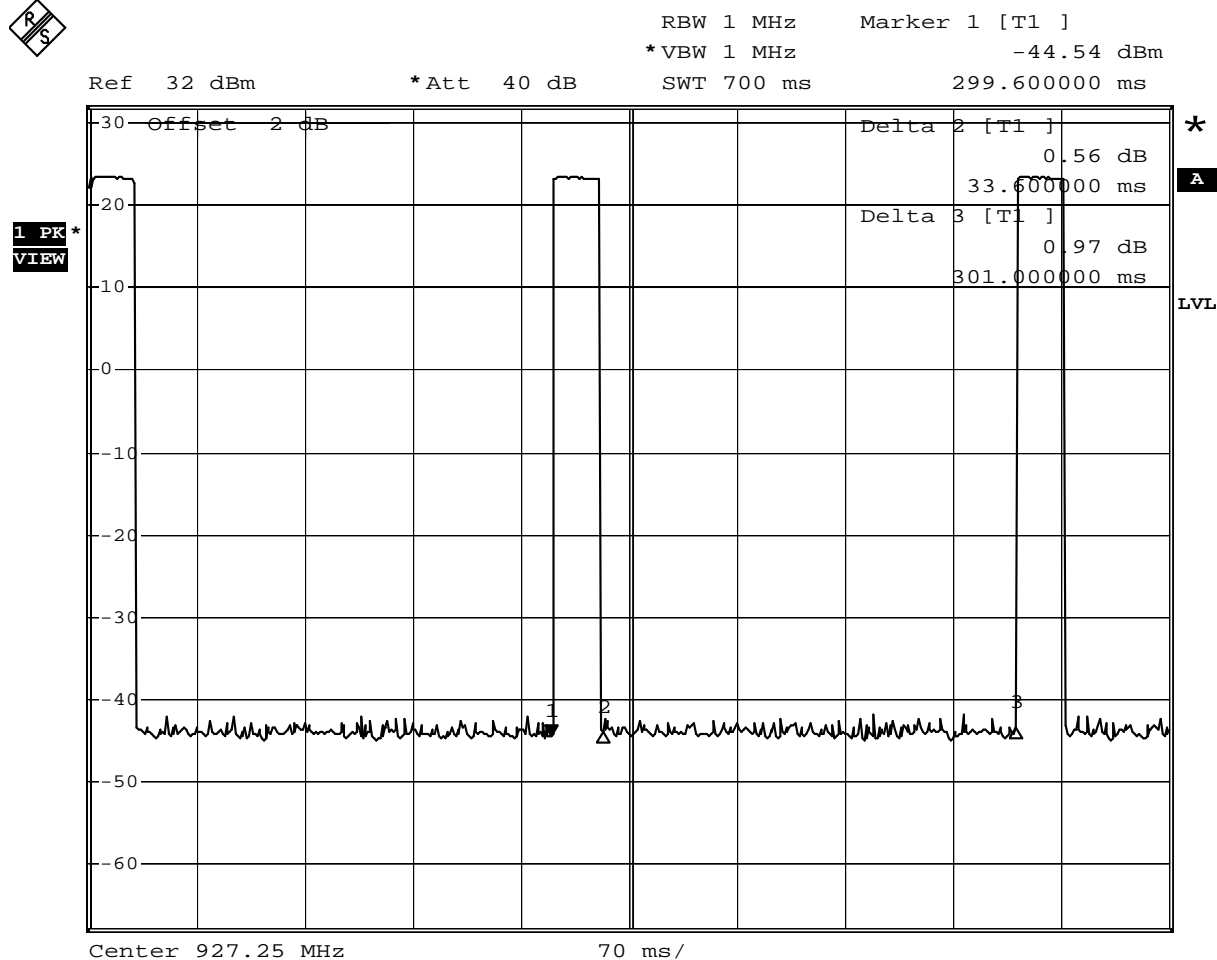
Date: 8.JUN.2010 10:45:24

Hop rate-915.25MHz



Date: 8.JUN.2010 10:47:52

Hop rate-927.25MHz



Date: 8.JUN.2010 10:49:16

Note: Dwell time=time slot length * hop rate / number of hopping channels * period