CONFORMANCE TEST REPORT
FOR
FCC 47 CFR, Part 15 Subpart C

Report No.: 09-12-MAS-078

Client:	AMIC Technology Corporation
Product:	RFID Reader
Model:	A9245-D-002-232
FCC ID:	S8R-A9245-D-002
Manufacturer/supplier:	AMIC Technology Corporation

Date test item received:	2009/12/03
Date test campaign completed:	2010/02/22
Date of issue:	2010/06/15

Total number of pages of this test report: 78 pages
Total number of pages of photos: External photos 5 pages
Internal photos 8 pages
Setup photos 6 pages

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Client	: AMIC Technology Corporation
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Manufacturer	: AMIC Technology Corporation
Address	: No. 2, Li-Hsin 6th Road, Science-Based Industrial Park, Hsin-Chu City 300,Taiwan, R.O.C
EUT	: RFID Reader
Trade name	: AMIC
Model No.	: A9245-D-002-232
Power Source	: Adaptor (DSA-0421S-12 2 36) Input 100-240V，50/60Hz，1.2A Output 5V，6A
Regulations applied	: FCC 47 CFR, Part 15 Subpart C (2008)

The testing described in this report has been carried out to the best of our knowledge and ability, and our responsibility is limited to the exercise of reasonable care. This certification is not intended to believe the sellers from their legal and/or contractual obligations.

The compliance test is only certified for the test equipment and the results of the testing report relate only to the item tested. The compliance test of this report was conducted in accordance with the appropriate standards. It's not intention to assure the quality and performance of the product. This report shall not be reproduced except in full, without the approval of ETC. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

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② ISO/IEC 17025: BSMI, CNLA, DGT, NVLAP, CCIBLAC, UL, Compliance

③ Filing: FCC, Industry Canada, VCCI

④ MRA: Australia, Hong Kong, New Zealand, Singapore, USA, Japan, Korea, China, APLAC through TAF

⑤ FCC Registration Number: 90588, 91094, 91095

⑥ Industry Canada Site Regisitation number: IC 2949A-1

NVLAP Lab Code 200133-0

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1 GENERAL INFORMATION

1.1 Product Description

a) Type of EUT : RFID Reader
b) Trade Name : AMIC
c) Model No. : A9245-D-002-232
d) FCC ID : S8R-A9245-D-002
e) Operation frequency : 903.25 MHz ~ 926.75 MHz
f) Channels : 48

1.2 Characteristics of Device

The EUT is a RFID Reader. The main operation principle of RFID is utilizing the reading device (Reader) Send RF wave for the electronic label that is planted into or stuck on the things(Tag) in order to distinguish the wireless materials. The composition component of RFID system includes Reader, Tag, PAD or cell-phone and the contents. The rated output power is 20.32 dBm (107.65 mW).

1.3 Test Methodology

All testing were performed according to the procedures in ANSI C63.4 (2003) an FCC CFR 47 Part 2 and Part 15.

1.4 Modifiction List of EUT

N/A

1.5 Test Facility

The semi-anechoic chamber and conducted measurement facility used to collect the radiated and conducted data are located inside the Building at No.8, Lane 29, Wen-ming Road, Lo-shan Tsun, Kweishan Hsiang, Taoyuan, Taiwan, R.O.C.
This site has been accreditation as a FCC filing site.

1.6 Test Summary

Requirement	FCC Paragraph #	Test Pass
Radiated Emission	15.247 (d)	☒
Conducted Emission	15.207	☒
Antenna Requirement	15.203	☒
20dB Emission Bandwidth	15.247 (a)(1)	☒
Output Power	15.247 (b)(2)	☒
OUT-OF-BAND RF Conducted Spurious Emission	15.247 (d)	☒
Number of Hopping Channels	15.247 (a)(1)(i)	☒
Hopping Channel Carrier Frequency Seperated	15.247 (a)(1)	☒
Dwell Time	15.247 (a)(1)(i)	☒

2 PROVISIONS APPLICABLE

2.1 Definition

Unintentional radiator:
A device that intentionally generates and radio frequency energy for use within the device, or that sends radio frequency signals by conduction to associated equipment via connecting wiring, but which is not intended to emit RF energy by radiation or induction.

Class A Digital Device:
A digital device which is marketed for use in commercial or business environment; exclusive of a device which is market for use by the general public, or which is intended to be used in the home.

Class B Digital Device :
A digital device which is marketed for use in a residential environment notwithstanding use in a commercial, business of industrial environment. Example of such devices that are marketed for the general public.

Note : A manufacturer may also qualify a device intended to be marketed in a commercial, business, or industrial environment as a Class B digital device, and in fact is encouraged to do so, provided the device complies with the technical specifications for a Class B Digital Device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B Digital Device, Regardless of its intended use.

Intentional radiator:
A device that intentionally generates and emits radio frequency energy by radiation or induction.

2.2 Requirement for Compliance

(1) Conducted Emission Requirement

For unintentional device, according to §15.107(a) Line Conducted Emission Limits is as following:

Frequency MHz	Quasi Peak dB μV	Average dB μV
0.15 - 0.5	66-56*	56-46*
0.5 - 5.0	56	46
5.0 - 30.0	60	50

*Decreases with the logarithm of the frequency.

For intentional device, according to §15.207(a) Line Conducted Emission Limits is same as above table.

(2) Radiated Emission Requirement

For unintentional device, according to §15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency MHz	Distance Meters	Radiated dB μV/m	Radiated μV/m
30 - 88	3	40.0	100
88 - 216	3	43.5	150
216 - 960	3	46.0	200
above 960	3	54.0	500

For intentional device, according to §15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

(3) Antenna Requirement

For intentional radiator, according to §15.203, shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

(4) 20dB Bandwidth Requirement

For frequency hopping systems, according to 15.247(a)(1), hopping channel carrier frequencies seperated by a minimum of 25kHz or the 20dB bandwidth of hopping channel, whichever is greater.

For frequency hopping systems, According to 15.247(a)(1)(i), 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 shll 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.

(5) Output Power Requirement

For frequency hopping systems, according to 15.247(b)(2), operating in the 902-928 MHz band: 1 watt for system employing at least 50 hopping channels; and , 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(6) 100 kHz Bandwidth of Frequency Band Edges Requirement

According to 15.247(d), if any 100 kHz bandwidth outside these frequency bands, the radio frequency power that is produced by the modulation products of the spreading sequence, the information sequence and the carrier frequency shall be either at least 20 dB below that in any 100 kHz bandwidth within the band that contains the highest level of the desired power or shall not exceed the general levels specified in §15.209(a), whichever results in the lesser attenuation.

(7) Number of Hopping Channels

For frequency hopping systems, According to 15.247(a)(1)(i), 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 shll not be greater than 0.4 seconds within a 10 second period.

(8) Channel Carrier Frequencies Seperation

For frequency hopping systems, According to 15.247(a)(1), hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

(9) Dwell Time

For frequency hopping systems, According to 15.247(a)(1)(i), 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 shll not be greater than 0.4 seconds within a 10 second period.

2.3 Restricted Bands of Operation

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	4.5-5.25
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	2655-2900	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	Above 38.6
13.36-13.41			

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

2.4 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device :

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

2.5 User Information

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual.

The Federal Communications Commission Radio Frequency Interference Statement includes the following paragraph.

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio / TV technician for help.

To comply with the FCC RF exposure compliance requirement, this device and its antenna must not be co-located or operating to conjunction with any other antenna or transmitter.

3. SYSTEM TEST CONFIGURATION

3.1 Justification

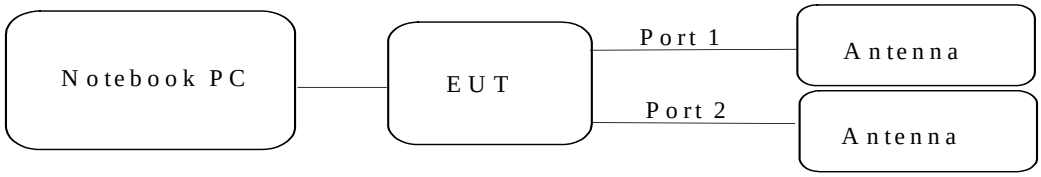
For the purposes of this test report ancillary equipment is defined as equipment which is used in conjunction with the EUT to provide operational and control features to the EUT during the test. Notebook PC was used to control the RF channel under the hightest, middle and lowest frequency and transmit the maximun RF power. Customer would not use it. But never the less ancillary equipment can influence the test results..

3.2 Devices for Tested System

Device	Manufacture	Model	Cable Description
* RFID Reader	AMIC Technology Corporation	A9245-D-002-232	5.0m*2, Shielded Line 1.8m*1, Unshielded Power Line / Adaptor
Notebook PC	HP	nx6320	3.3m*1, Unshielded Power Line / Adaptor 1.5m Unshielded Signal Line

Note:

1. "*" means equipment under test.



2. A HP notebook was used to control the test mode by the software. After setting ok, the notebook was took away for final testing.
3. The Software for Testing: AMIC A9245-D
4. The EUT has two RF ports but will not operate at the same time. The RF signal will switch to two ports. The testing chooses "Port 1" for final testing.
5. There are three antennas for the EUT.

	Model No.	Gain (dB)	Choose for Testing	Power Setting
Antenna A	A9295-A-0K	12.0	V	17 dB
Antenna B	A9235-A002-NET	8.0	V	21 dB
Antenna C	A9295-A-0J	5.0		21 dB

4 RADIATED EMISSION MEASUREMENT

4.1 Applicable Standard

For unintentional radiator, the radiated emission shall comply with §15.109(a).

For intentional radiators, according to §15.247 (a), operation under this provision is limited to frequency hopping and digitally modulated, and the out band emission shall be comply with § 15.247 (c)

4.2 Measurement Procedure

A.Preliminary Measurement For Portable Devices.

For mobile with rotatable antenna device (the antenna doesn't fix on the device), the following procedure was performed to determine the maximum emission axis of EUT antenna (X and Y axis):

1. With the receiving antenna is H polarization, rotate the antenna of EUT in turns with two orthogonal axis to determine the axis of maximum emission.
2. With the receiving antennna is V polarization, rotate the EUT in turns with two orthogonal axis to determine the axis of maximum emission.
3. Compare the results derived from above two steps. The axis of maximum emission from EUT was determined and the configuration was used to perform the final measurement.
4. The position in which the maximum noise occurred was "X axis". (Please see the test setup photos)

B. Final Measurement

1. Setup the configuration per figure 1 and 2 for frequencies measured below and above 1 GHz respectively.
2. For emission frequencies measured below 1 GHz, it is performed in a semi-anechoic chamber to determine the accurate frequencies of higher emissions. For emission frequencies measured above 1 GHz, a pre-scan be performed with a 1 meter measuring distance before final test.
3. For emission frequencies measured below and above 1 GHz, set the spectrum analyzer on a 120 kHz and 1 MHz resolution bandwidth respectively for each frequency measured in step 2.
4. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ° to 360 ° with a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading. A RF test receiver is also used to confirm emissions measured.
   Note : A filter was used to avoid pre-amplifier saturated when measure TX operation mode.
5. Repeat step 4 until all frequencies need to be measured were complete.
6. Repeat step 5 with search antenna in vertical polarized orientations.
7. Check the three frequencies of highest emission with varying the datarate, placement of ANT. cables associated with EUT to obtain the worse case and record the result.

Figure 1 : Frequencies measured below 1 GHz configuration

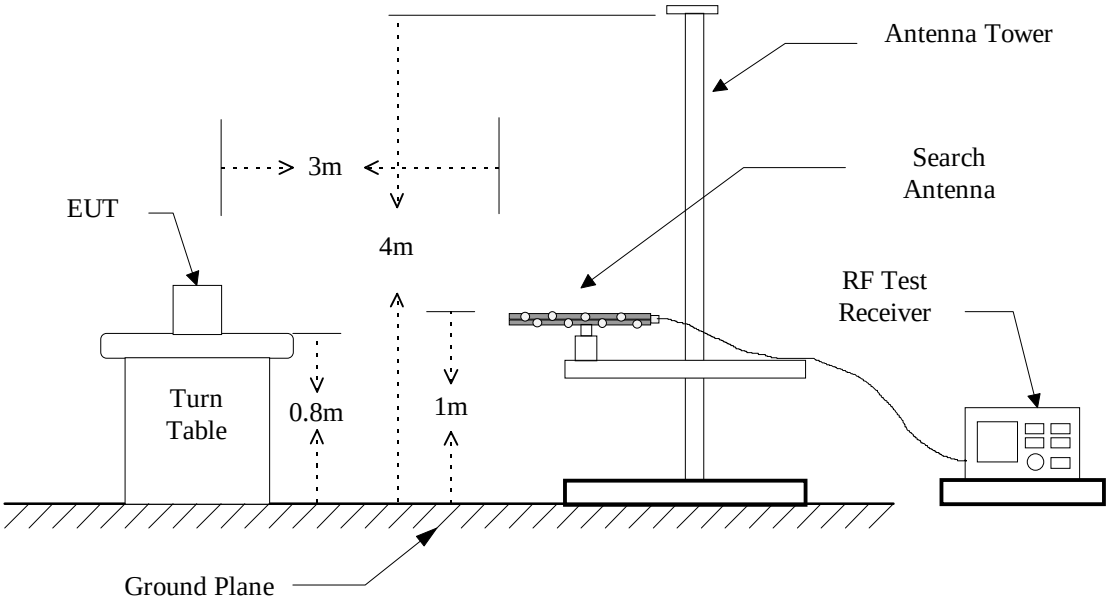
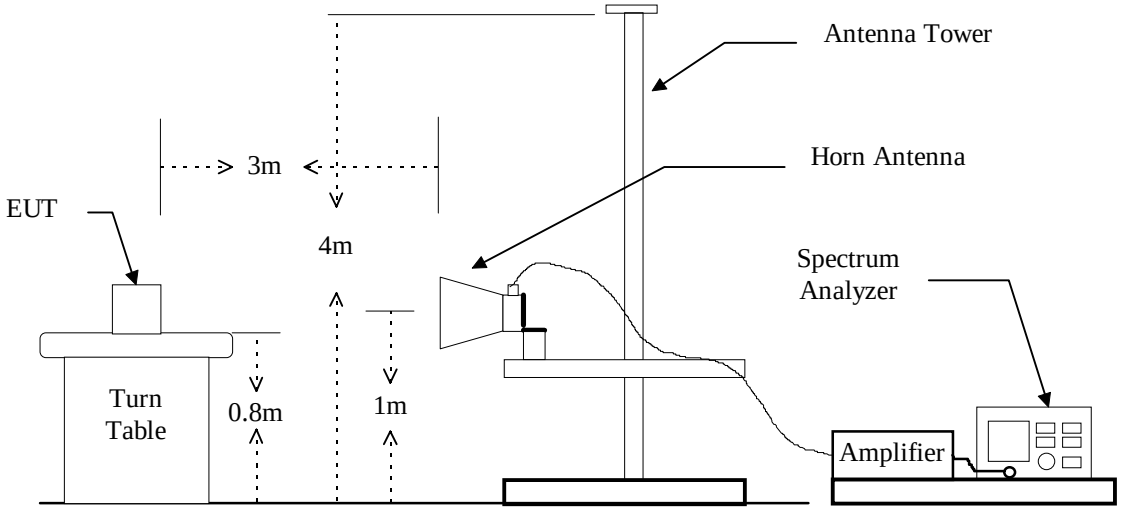


Figure 2 : Frequencies measured above 1 GHz configuration



4.3 Measuring Instrument

The following instrument are used for radiated emissions measurement :

Equipment	Manufacturer	Model No.	Next Cal. Due
EMI Test Receiver	R&S	ESIB7	07/19/2010
Spectrum Analyzer	Rohde & Schwarz	FSU46	11/18/2010
Horn Antenna	EMCO	3115	06/07/2010
BiLog Antenna	Schaffner	CBL 6112B	08/18/2010
Horn Antenna	EMCO	3116	07/13/2010
Preamplifier	Hewlett-Packard	8449B	10/11/2010

Measuring instrument setup in measured frequency band when specified detector function is used :

Frequency Band (MHz)	Instrument	Function	Resolution Bandwidth	Video Bandwidth
30 to 1000	RF Test Receiver	Quasi-Peak	120 kHz	300 kHz
	RF Test Receiver	Peak	120 kHz	300 kHz
Above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz
	Spectrum Analyzer	Average	1 MHz	10 Hz

4.4 Radiated Emission Data

4.4.1 RF Portion

4.4.1.1 A9235-A-002-NET

4.4.1.1.1 Fundamental Frequency : 903.250 MHz

Test Date : Dec. 14, 2009 Temperature : 26℃ Humidity : 52%

Frequency (MHz)	Reading (dBuV) H Peak	H Ave	V Peak	V Ave	Factor (dB) Corr.	Result @3m (dBuV/m) Peak (H/V Max.)	Result @3m (dBuV/m) Ave (H/V Max.)	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.
1806.500	---	---	---	---	-9.8	---	---	74.0	54.0
2709.750	---	---	---	---	-8.4	---	---	74.0	54.0
3613.000	---	---	---	---	-5.2	---	---	74.0	54.0
4516.250	---	---	---	---	-3.4	---	---	74.0	54.0
5419.500	---	---	---	---	-1.4	---	---	74.0	54.0

4.4.1.1.2 Fundamental Frequency : 914.750 MHz

Frequency (MHz)	Reading (dBuV) H Peak	H Ave	V Peak	V Ave	Factor (dB) Corr.	Result @3m (dBuV/m) Peak (H/V Max.)	Result @3m (dBuV/m) Ave (H/V Max.)	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.
1829.500	---	---	63.4	---	-9.8	53.6	---	74.0	54.0
2744.250	---	---	55.8	---	-8.4	47.4	---	74.0	54.0
3659.000	---	---	---	---	-5.2	---	---	74.0	54.0
4573.750	---	---	---	---	-3.4	---	---	74.0	54.0
5488.500	---	---	---	---	-1.4	---	---	74.0	54.0

4.4.1.1.3 Fundamental Frequency : 926.750 MHz

Frequency (MHz)	Reading (dBuV) H Peak	H Ave	V Peak	V Ave	Factor (dB) Corr.	Result @3m (dBuV/m) Peak (H/V Max.)	Result @3m (dBuV/m) Ave (H/V Max.)	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.
1853.500	---	---	58.6	---	-9.8	48.8	---	74.0	54.0
2780.250	---	---	---	---	-8.4	---	---	74.0	54.0
3707.000	---	---	---	---	-5.2	---	---	74.0	54.0
4633.750	---	---	---	---	-3.4	---	---	74.0	54.0
5560.500	---	---	---	---	-1.4	---	---	74.0	54.0

Note :

1. Item of margin shown in above table refer to average limit.
2. Remark "---" means that the emissions level is too low to be measured.
3. Item "Margin" referred to Average limit while there is only peak result.
4. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.

4.4.1.2 A9295-A-0K

4.4.1.2.1 Fundamental Frequency : 903.250 MHz

Test Date : Dec. 14, 2009 Temperature : 26℃ Humidity : 52%

Frequency (MHz)	Reading (dBuV) H Peak	H Ave	V Peak	V Ave	Factor (dB) Corr.	Result @3m (dBuV/m) Peak (H/V Max.)	Result @3m (dBuV/m) Ave (H/V Max.)	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.
1806.500	---	---	---	---	-9.8	---	---	74.0	54.0
2709.750	---	---	---	---	-8.4	---	---	74.0	54.0
3613.000	---	---	---	---	-5.2	---	---	74.0	54.0
4516.250	---	---	---	---	-3.4	---	---	74.0	54.0
5419.500	---	---	---	---	-1.4	---	---	74.0	54.0

4.4.1.2.2 Fundamental Frequency : 914.750 MHz

Frequency (MHz)	Reading (dBuV) H Peak	H Ave	V Peak	V Ave	Factor (dB) Corr.	Result @3m (dBuV/m) Peak (H/V Max.)	Result @3m (dBuV/m) Ave (H/V Max.)	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.
1829.500	---	---	---	---	-9.8	---	---	74.0	54.0
2744.250	---	---	---	---	-8.4	---	---	74.0	54.0
3659.000	---	---	---	---	-5.2	---	---	74.0	54.0
4573.750	---	---	---	---	-3.4	---	---	74.0	54.0
5488.500	---	---	---	---	-1.4	---	---	74.0	54.0

4.4.1.2.3 Fundamental Frequency : 926.750 MHz

Frequency (MHz)	Reading (dBuV) H Peak	H Ave	V Peak	V Ave	Factor (dB) Corr.	Result @3m (dBuV/m) Peak (H/V Max.)	Result @3m (dBuV/m) Ave (H/V Max.)	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) Ave.
1853.500	---	---	---	---	-9.8	---	---	74.0	54.0
2780.250	---	---	---	---	-8.4	---	---	74.0	54.0
3707.000	---	---	---	---	-5.2	---	---	74.0	54.0
4633.750	---	---	---	---	-3.4	---	---	74.0	54.0
5560.500	---	---	---	---	-1.4	---	---	74.0	54.0

Note :

1. Item of margin shown in above table refer to average limit.
2. Remark "---" means that the emissions level is too low to be measured.
3. Item "Margin" referred to Average limit while there is only peak result.
4. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.

4.4.2 Other Emission

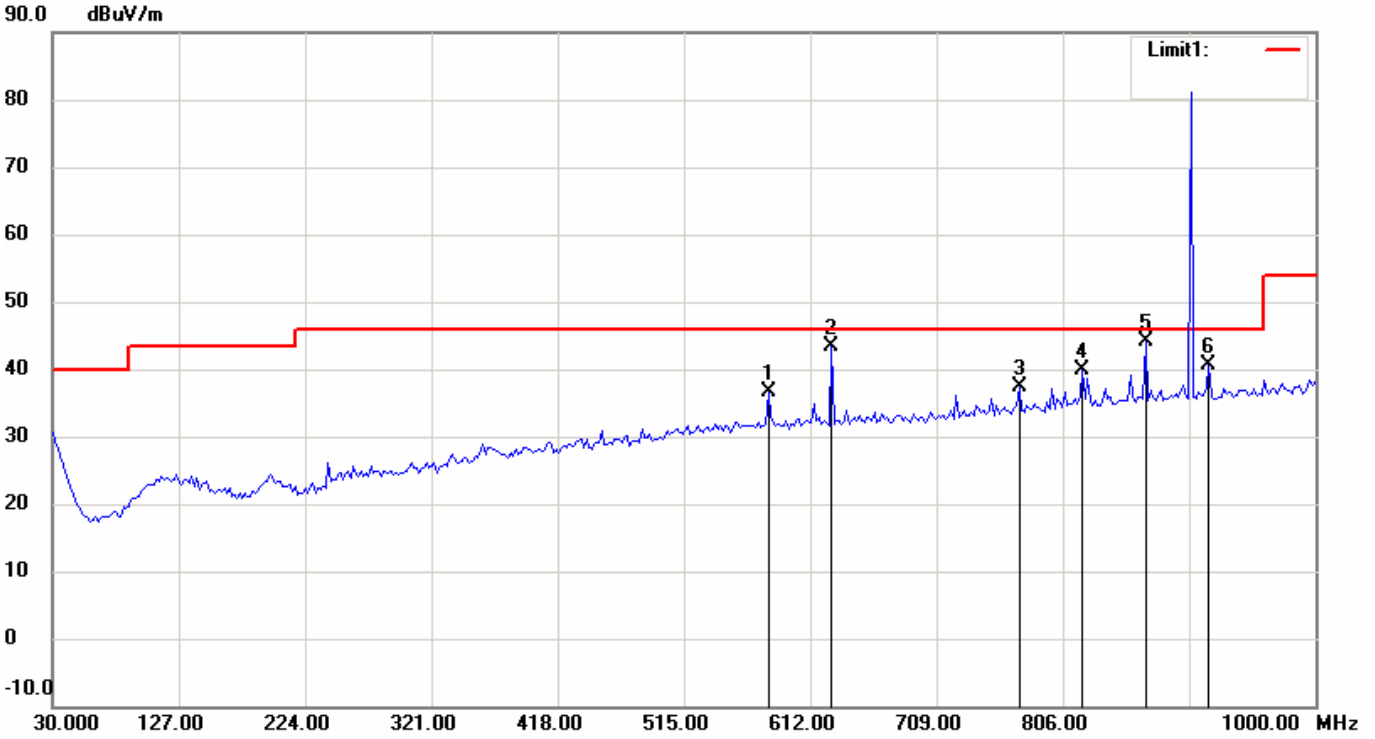
4.4.2.1 A9235-A-002-NET

4.4.2.1.1 Operation Mode: CH Low，903.250 MHz

A. below 1GHz

File: 09-12-MAS-078 Data: #1 **Date: 2009/12/14** **Temperature: 26 ℃**

Time: AM 09:29:17 **Humidity: 52 %**



Condition: **FCC Part15 RE-Class B_30-1000MHz** **Polarization:** **Horizontal**

EUT: **900MHz UHF RFID Reader/Writer** **Distance:** **3m**

Model: **A9245-D-002-232**

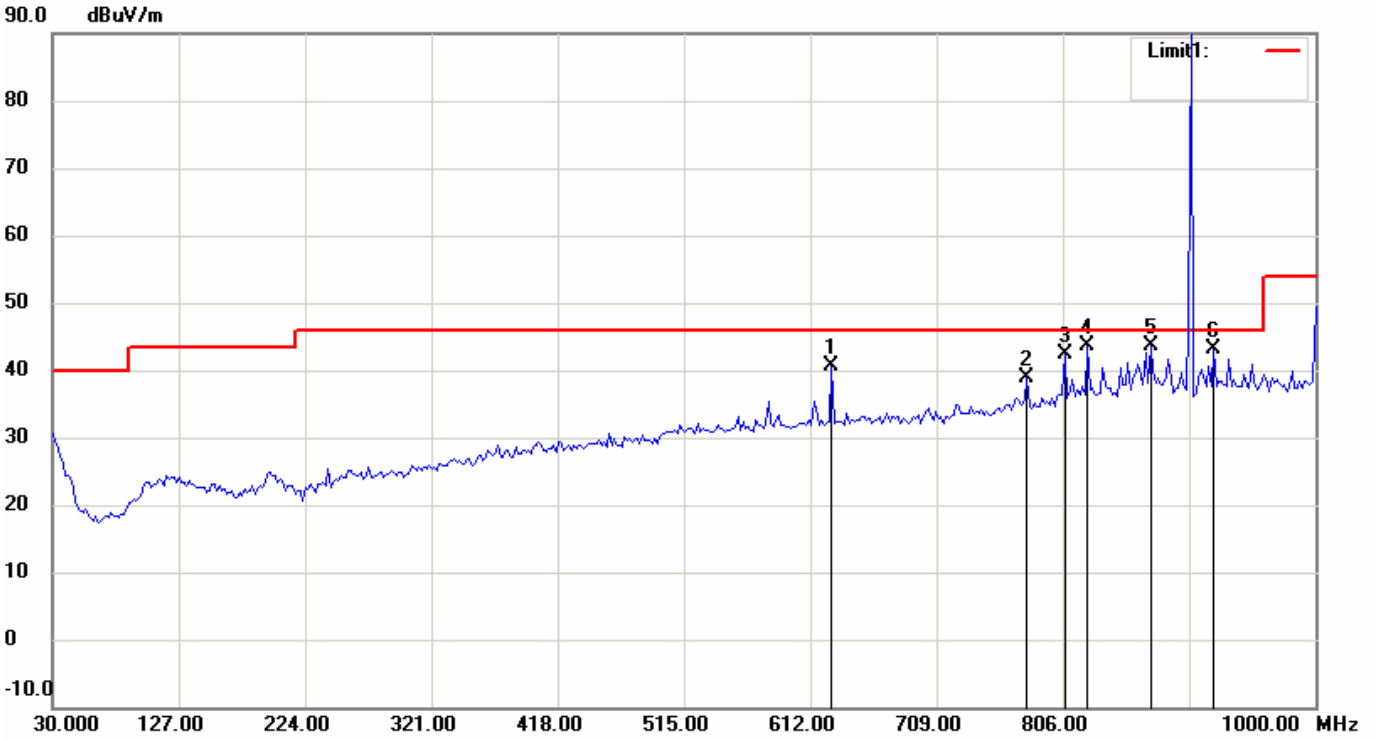
Test Mode: **+Notch Filter**

Note: **port 1 low CH**

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	580.1201	14.45	peak	22.06	36.51	46.00	-9.49
2	628.7174	20.63	peak	22.65	43.28	46.00	-2.72
3	772.5651	13.40	peak	24.07	37.47	46.00	-8.53
4	821.1623	15.29	peak	24.67	39.96	46.00	-6.04
5	869.7595	18.71	peak	25.31	44.02	46.00	-1.98
6	918.3567	14.90	peak	25.77	40.67	46.00	-5.33

File: 09-12-MAS-078 Data: #2 **Date: 2009/12/14** **Temperature: 26 ℃**

Time: AM 09:33:59 **Humidity: 52 %**



Condition: **FCC Part15 RE-Class B_30-1000MHz** **Polarization:** **Vertical**

EUT: **900MHz UHF RFID Reader/Writer** **Distance:** **3m**

Model: **A9245-D-002-232**

Test Mode: **+Notch Filter**

Note: **port 1 low CH**

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	628.7174	18.08	peak	22.65	40.73	46.00	-5.27
2	778.3968	14.83	peak	24.12	38.95	46.00	-7.05
3	807.5551	17.93	peak	24.45	42.38	46.00	-3.62
4	825.0501	18.95	peak	24.73	43.68	46.00	-2.32
5	873.6473	18.20	peak	25.34	43.54	46.00	-2.46
6	922.2445	17.22	peak	25.81	43.03	46.00	-2.97

B. above 1GHz

Frequency (MHz)	Ant Pol H / V	Reading (dBuV) Peak	Correct Factor (dB)	Duty Factor (dB)	Result @3m (dBuV/m) Peak AVG	Limit @3m (dBuV/m) Peak AVG	Margins (dB)
Radiated emission frequencies above 1 GHz to 10 GHz were too low to be measured.							

Note:

1. Place of Measurement: Measuring site of the ETC.
2. If the data table appeared symbol of "***" means the value was too low to be measured.
3. The estimated measurement uncertainty of the result measurement is
   ±4.6dB (30MHz≦f<300MHz).
   ±4.4dB (300MHz≦f<1000MHz).
   ±4.1dB (1GHz≦f≦18GHz).
   ±4.4dB (18GHz<f≦40GHz).

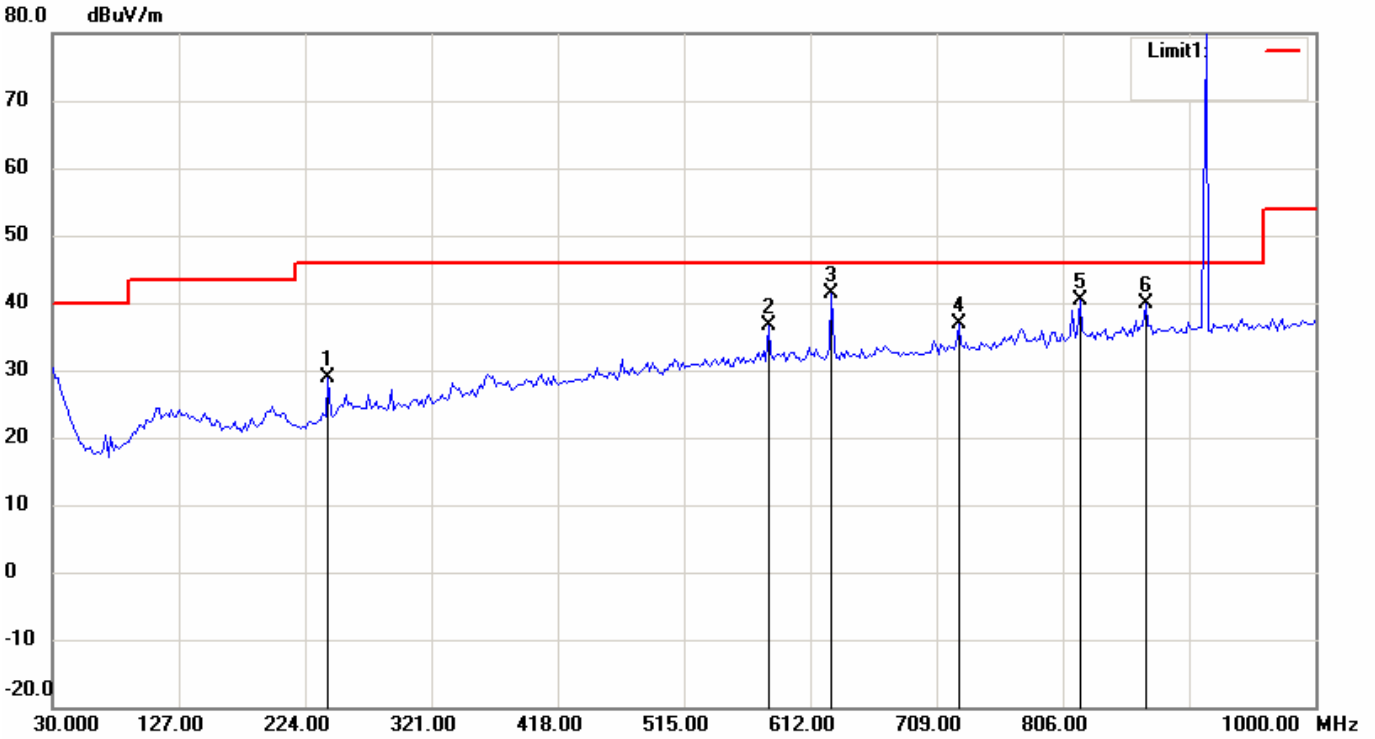
4 Remark “---” means that the emissions level is too low to be measured.

4.4.2.1.2 Operation Mode: CH Mid，914.750 MHz

A. below 1GHz

File: 09-12-MAS-078 Data: #5 **Date: 2009/12/14** **Temperature: 26 ℃**

Time: AM 09:57:29 **Humidity: 52 %**



Condition: **FCC Part15 RE-Class B_30-1000MHz** **Polarization:** **Horizontal**

EUT: **900MHz UHF RFID Reader/Writer** **Distance:** **3m**

Model: **A9245-D-002-232**

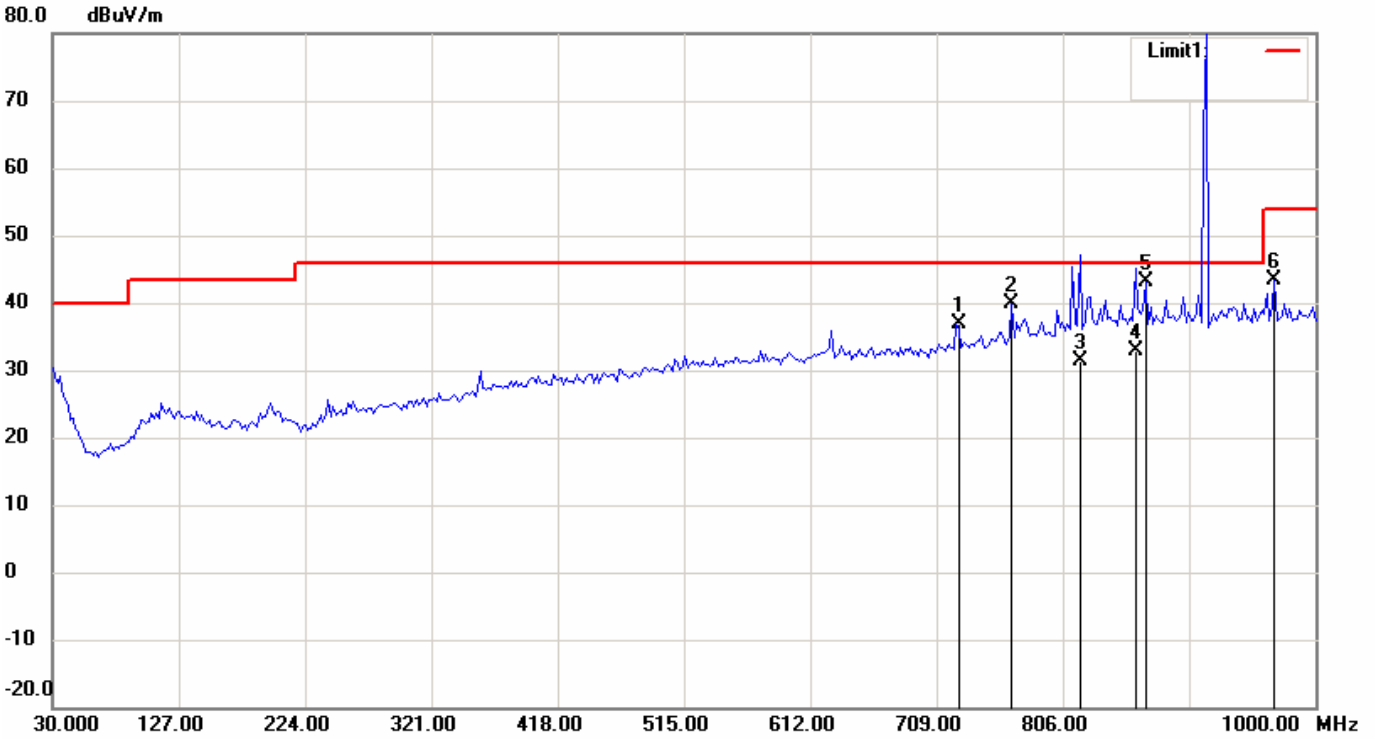
Test Mode: **+Notch Filter**

Note: **port 1 mid CH**

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	241.8838	14.71	peak	14.12	28.83	46.00	-17.17
2	580.1201	14.50	peak	22.06	36.56	46.00	-9.44
3	628.7174	18.80	peak	22.65	41.45	46.00	-4.55
4	725.9118	13.35	peak	23.46	36.81	46.00	-9.19
5	819.2184	15.70	peak	24.64	40.34	46.00	-5.66
6	869.7595	14.68	peak	25.31	39.99	46.00	-6.01

File: 09-12-MAS-078 Data: #6 **Date: 2009/12/14** **Temperature: 26 ℃**

Time: AM 10:01:15 **Humidity: 52 %**



Condition: **FCC Part15 RE-Class B_30-1000MHz** **Polarization:** **Vertical**

EUT: **900MHz UHF RFID Reader/Writer** **Distance:** **3m**

Model: **A9245-D-002-232**

Test Mode: **+Notch Filter**

Note: **port 1 mid CH**

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	723.9680	13.39	peak	23.43	36.82	46.00	-9.18
2	766.7335	15.98	peak	24.01	39.99	46.00	-6.01
3	819.2184	6.76	QP	24.64	31.40	46.00	-14.60
4	861.9840	7.56	QP	25.24	32.80	46.00	-13.20
5	869.7595	17.73	peak	25.31	43.04	46.00	-2.96
6	968.8978	17.12	peak	26.30	43.42	54.00	-10.58

B. above 1GHz

Frequency (MHz)	Reading (dBuV)				Correct Factor (dB/m)	Result @3m (dBuV/m)		Limit @3m (dBuV/m)	
	H		V						
	Peak	AVG	Peak	AVG		Peak	AVG	Peak	AVG
1000.000	---	68.8	---	54.4	-14.7	---	54.1	74.0	54.0

Note:
1. Place of Measurement: Measuring site of the ETC.
2. If the data table appeared symbol of "***" means the value was too low to be measured.
3. The estimated measurement uncertainty of the result measurement is
   ±4.6dB (30MHz≦f<300MHz).
   ±4.4dB (300MHz≦f<1000MHz).
   ±4.1dB (1GHz≦f≦18GHz).
   ±4.4dB (18GHz<f≦40GHz).

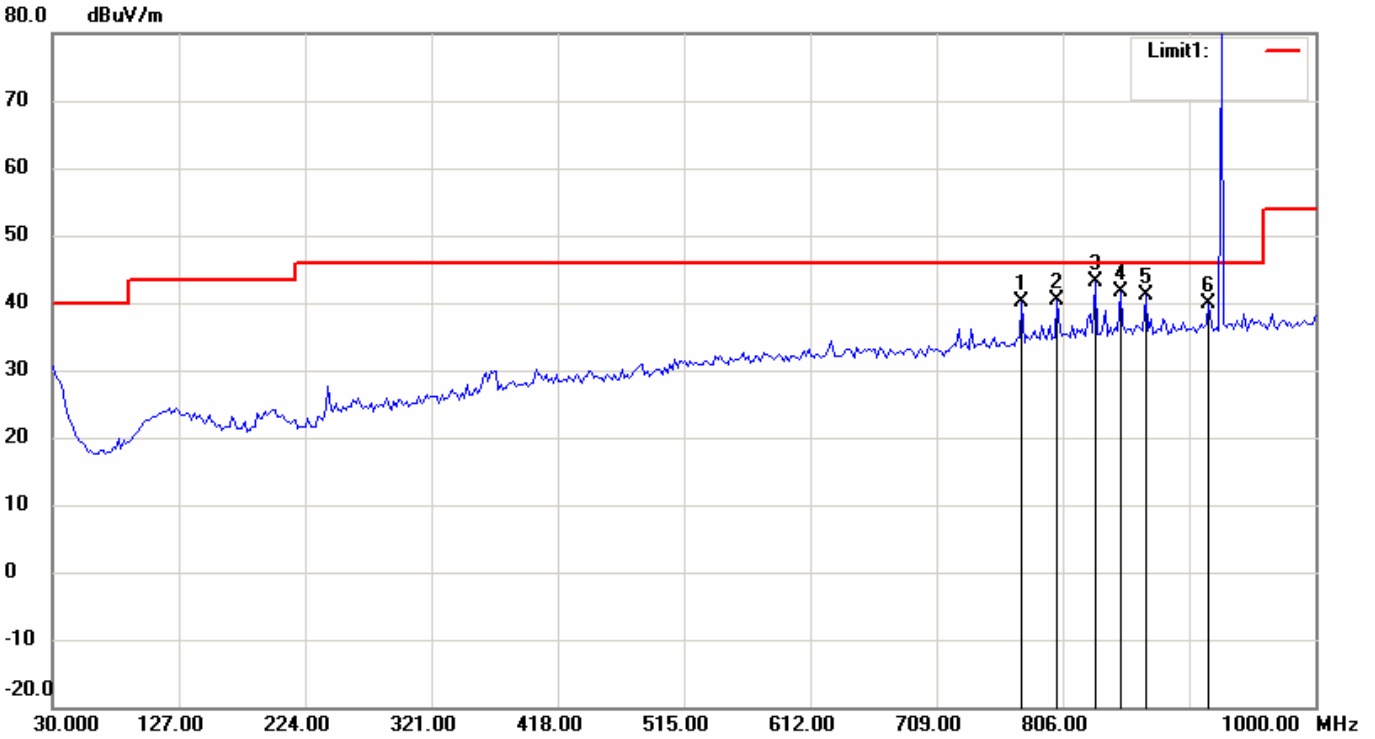
4 Remark “---” means that the emissions level is too low to be measured.

4.4.2.1.3 Operation Mode: CH High，926.750 MHz

A. below 1GHz

File: 09-12-MAS-078 Data: #7 **Date: 2009/12/14** **Temperature: 26 ℃**

Time: AM 10:20:58 **Humidity: 52 %**



Condition: **FCC Part15 RE-Class B_30-1000MHz** **Polarization:** **Horizontal**

EUT: **900MHz UHF RFID Reader/Writer** **Distance:** **3m**

Model: **A9245-D-002-232**

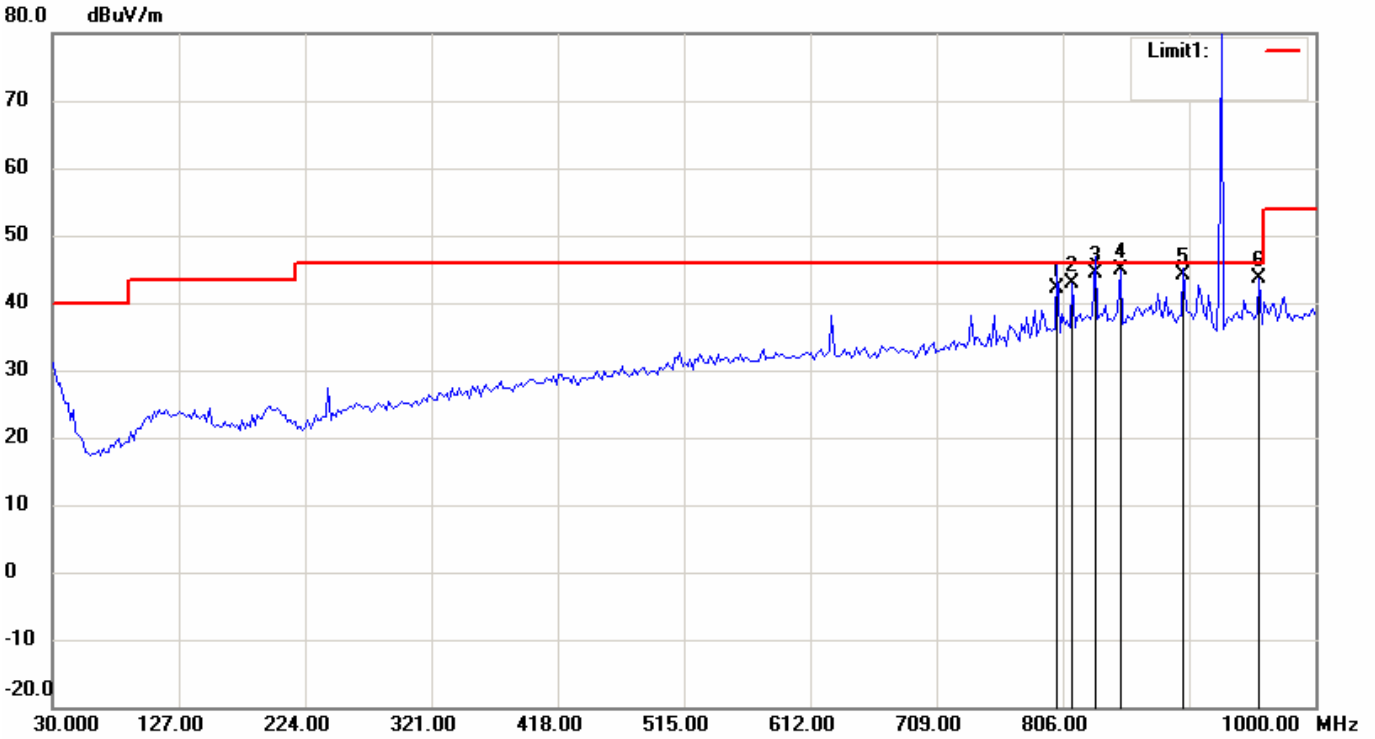
Test Mode: **+Notch Filter**

Note: **port 1 high CH**

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	774.5090	16.06	peak	24.09	40.15	46.00	-5.85
2	801.7234	15.96	peak	24.34	40.30	46.00	-5.70
3	830.8817	18.33	peak	24.82	43.15	46.00	-2.85
4	850.3206	16.41	peak	25.14	41.55	46.00	-4.45
5	869.7595	15.74	peak	25.31	41.05	46.00	-4.95
6	918.3567	14.22	peak	25.77	39.99	46.00	-6.01

File: 09-12-MAS-078 Data: #8 **Date: 2009/12/14** **Temperature: 26 ℃**

Time: AM 10:23:32 **Humidity: 52 %**



Condition: **FCC Part15 RE-Class B_30-1000MHz** **Polarization:** **Vertical**

EUT: **900MHz UHF RFID Reader/Writer** **Distance:** **3m**

Model: **A9245-D-002-232**

Test Mode: **+Notch Filter**

Note: **port 1 high CH**

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	801.7234	17.86	QP	24.34	42.20	46.00	-3.80
2	813.3867	18.26	peak	24.54	42.80	46.00	-3.20
3	830.8817	19.46	QP	24.82	44.28	46.00	-1.72
4	850.3206	19.70	peak	25.14	44.84	46.00	-1.16
5	898.9178	18.60	QP	25.56	44.16	46.00	-1.84
6	957.2345	17.55	peak	26.18	43.73	46.00	-2.27

B. above 1GHz

Frequency (MHz)	Reading (dBuV)				Correct Factor (dB/m)	Result @3m (dBuV/m)		Limit @3m (dBuV/m)	
	H		V						
	Peak	AVG	Peak	AVG		Peak	AVG	Peak	AVG
1014.100	---	68.6	---	54.3	-14.7	---	53.9	74.0	54.0

Note:
1. Place of Measurement: Measuring site of the ETC.
2. If the data table appeared symbol of "***" means the value was too low to be measured.
3. The estimated measurement uncertainty of the result measurement is
   ±4.6dB (30MHz≦f<300MHz).
   ±4.4dB (300MHz≦f<1000MHz).
   ±4.1dB (1GHz≦f≦18GHz).
   ±4.4dB (18GHz<f≦40GHz).

4 Remark “---” means that the emissions level is too low to be measured.

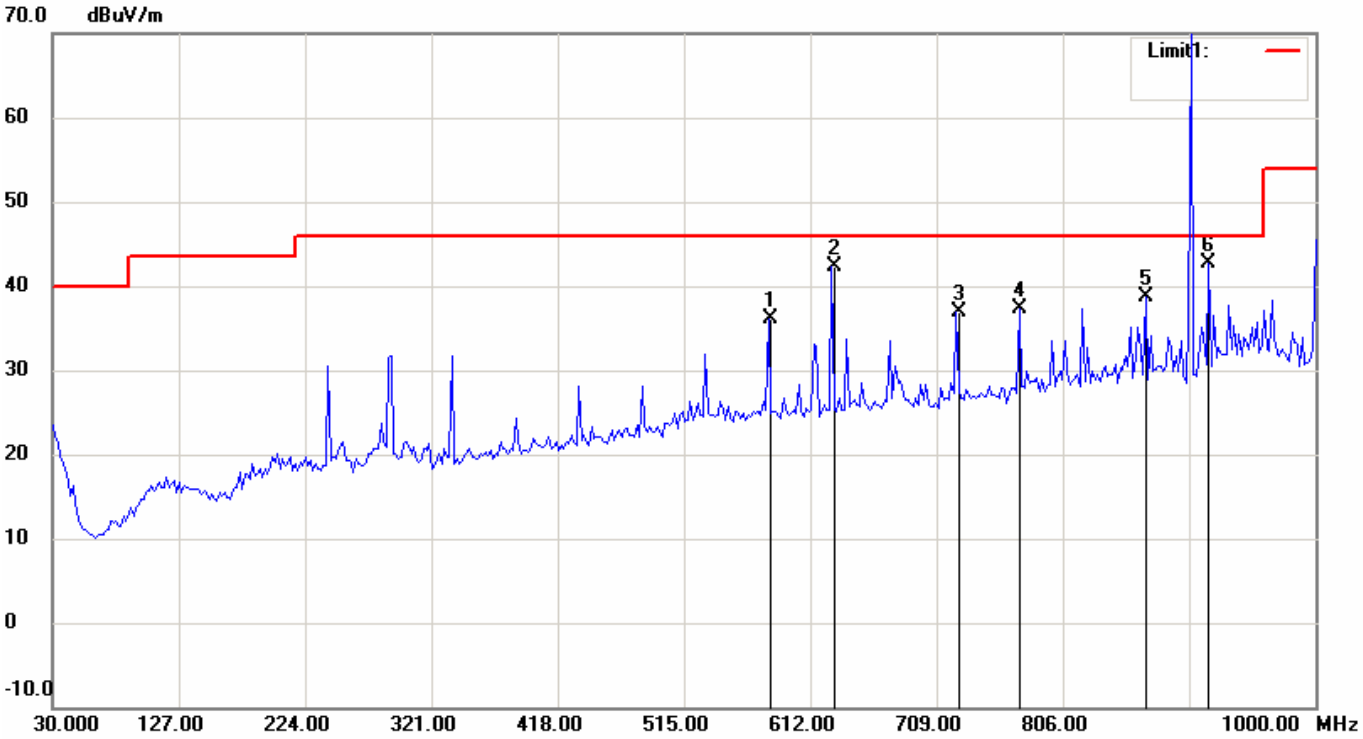
4.4.2.2 A9295-A-0K

4.4.2.2.1 Operation Mode: CH Low，903.250 MHz

A. below 1GHz

File: 09-12-MAS-078 **Data:** #21 **Date:** 2010/2/10 **Temperature:** 22 ℃

Time: PM 02:32:33 **Humidity:** 63 %



Condition: NCC_LP0002_30-1000MHz **Polarization:** Horizontal

EUT: 900MHz UHF RFID Reader/Writer **Distance:** 3m

Model: A9245-D-002-232

Test Mode: +Notch Filter

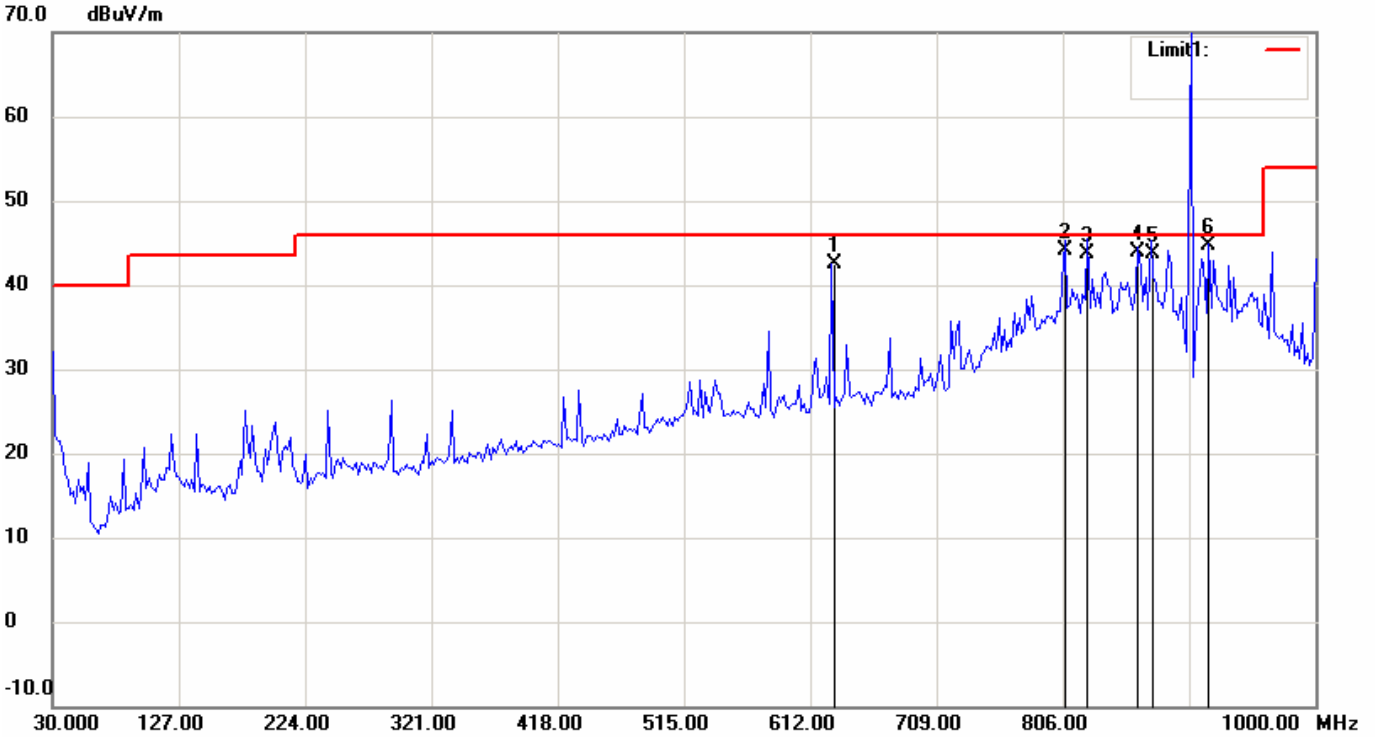
Note: port 1 LOW ANT Gain 12 power setting 17

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	580.1201	14.08	peak	22.06	36.14	46.00	-9.86
2	628.7174	19.75	peak	22.65	42.40	46.00	-3.60
3	723.9680	13.45	peak	23.43	36.88	46.00	-9.12
4	772.5651	13.23	peak	24.07	37.30	46.00	-8.70
5	869.7595	13.47	peak	25.31	38.78	46.00	-7.22
6	918.3567	16.93	peak	25.77	42.70	46.00	-3.30

File: **09-12-MAS-078** **Data:** **#22** **Date:** **2010/2/10** **Temperature:** **22 ℃**

Time **PM 02:36:07** **Humidity:** **63 %**

:



Condition: **NCC_LP0002_30-1000MHz** **Polarization:** **Vertical**

EUT: **900MHz UHF RFID Reader/Writer** **Distance:** **3m**

Model: **A9245-D-002-232**

Test Mode: **+Notch Filter**

Note: **port 1 LOW ANT Gain 12 power setting 17**

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	628.7174	19.91	peak	22.65	42.56	46.00	-3.44
2	807.5551	19.60	QP	24.45	44.05	46.00	-1.95
3	825.0501	18.93	QP	24.73	43.66	46.00	-2.34
4	863.9280	18.56	QP	25.26	43.82	46.00	-2.18
5	873.6473	18.30	QP	25.34	43.64	46.00	-2.36
6	918.3567	19.01	QP	25.77	44.78	46.00	-1.22

B. above 1GHz

Frequency (MHz)	Ant Pol H / V	Reading (dBuV) Peak	Correct Factor (dB)	Duty Factor (dB)	Result @3m (dBuV/m) Peak AVG	Limit @3m (dBuV/m) Peak AVG	Margins (dB)
Radiated emission frequencies above 1 GHz to 10 GHz were too low to be measured.							

Note:

1. Place of Measurement: Measuring site of the ETC.
2. If the data table appeared symbol of "***" means the value was too low to be measured.
3. The estimated measurement uncertainty of the result measurement is
   ±4.6dB (30MHz≦f<300MHz).
   ±4.4dB (300MHz≦f<1000MHz).
   ±4.1dB (1GHz≦f≦18GHz).
   ±4.4dB (18GHz<f≦40GHz).

4 Remark “---” means that the emissions level is too low to be measured.

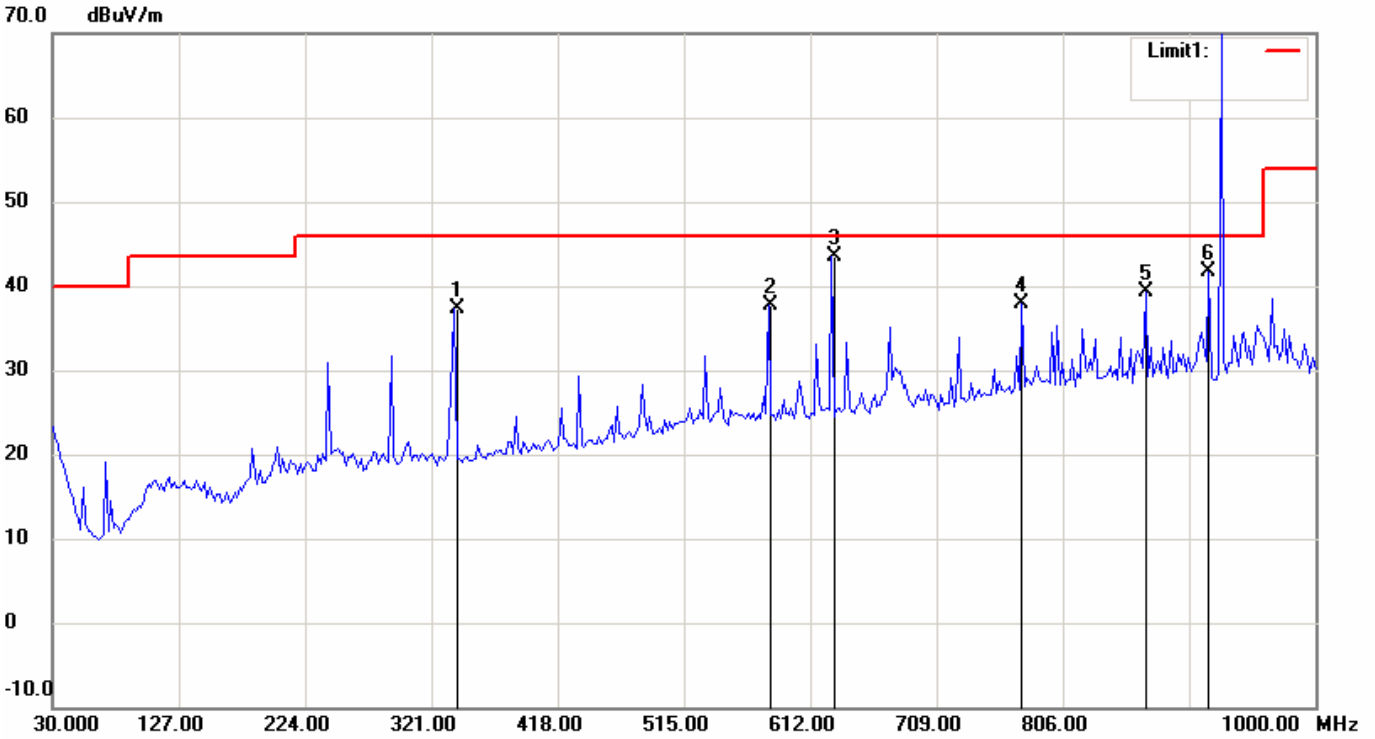
4.4.2.2.2 Operation Mode: CH Mid，914.750 MHz

A. below 1GHz

File: 09-12-MAS-078 **Data:** #25 **Date:** 2010/2/10 **Temperature:** 22 ℃

Time PM 02:59:05 **Humidity:** 63 %

:



Condition: NCC_LP0002_30-1000MHz **Polarization:** Horizontal

EUT: 900MHz UHF RFID Reader/Writer **Distance:** 3m

Model: A9245-D-002-232

Test Mode: +Notch Filter

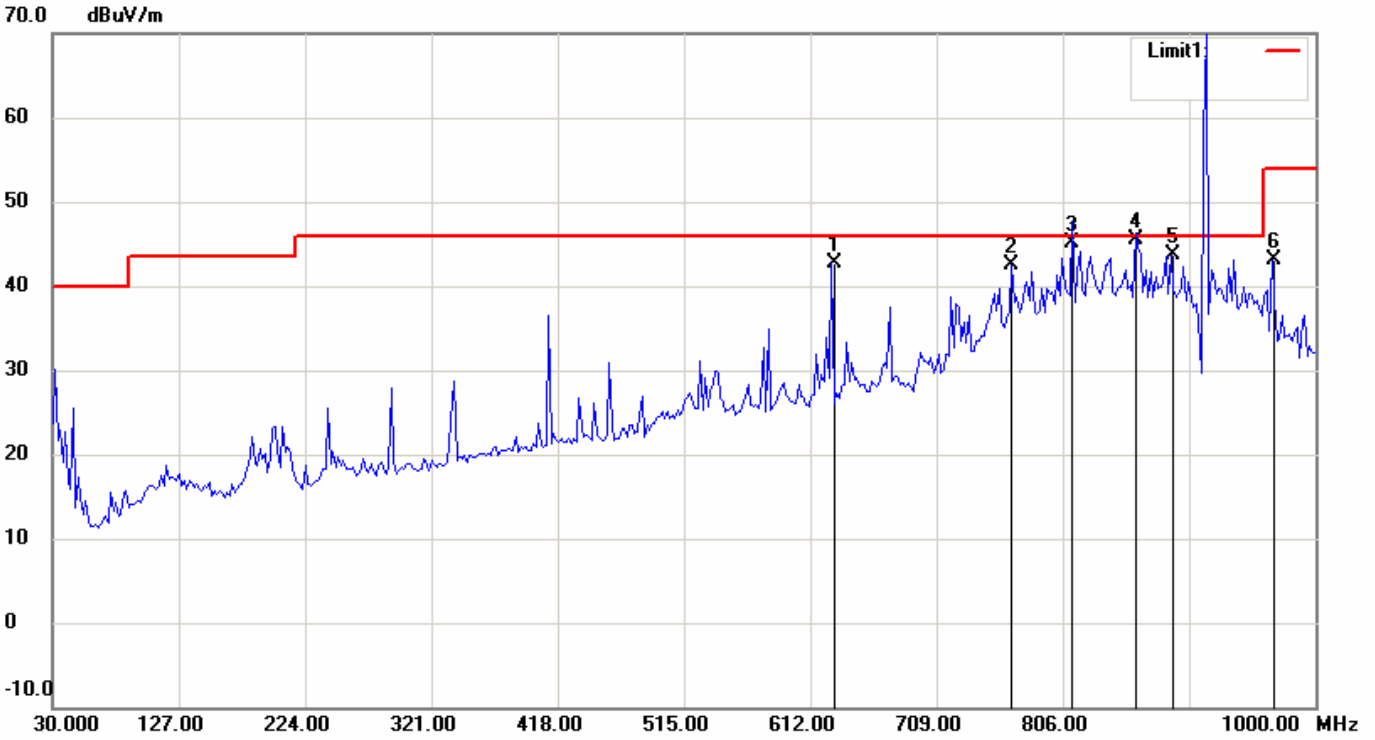
Note: port 1 HIGH ANT Gain 12 power setting 17

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	339.0782	19.97	peak	17.28	37.25	46.00	-8.75
2	580.1201	15.72	peak	22.06	37.78	46.00	-8.22
3	628.7174	20.90	peak	22.65	43.55	46.00	-2.45
4	774.5090	13.82	peak	24.09	37.91	46.00	-8.09
5	869.7595	13.97	peak	25.31	39.28	46.00	-6.72
6	918.3567	15.93	peak	25.77	41.70	46.00	-4.30

File: 09-12-MAS-078 **Data:** #24 **Date:** 2010/2/10 **Temperature:** 22 ℃

Time PM 02:52:05 **Humidity:** 63 %

:



Condition: NCC_LP0002_30-1000MHz **Polarization:** Vertical

EUT: 900MHz UHF RFID Reader/Writer **Distance:** 3m

Model: A9245-D-002-232

Test Mode: +Notch Filter

Note: port 1 MID ANT Gain 12 power setting 17

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	628.7174	20.00	peak	22.65	42.65	46.00	-3.35
2	766.7335	18.45	peak	24.01	42.46	46.00	-3.54
3	813.3867	20.63	QP	24.54	45.17	46.00	-0.83
4	861.9840	20.21	QP	25.24	45.45	46.00	-0.55
5	889.1984	18.17	peak	25.48	43.65	46.00	-2.35
6	966.9540	16.77	peak	26.28	43.05	54.00	-10.95

B. above 1GHz

Frequency (MHz)	Ant Pol H / V	Reading (dBuV) Peak	Correct Factor (dB)	Duty Factor (dB)	Result @3m (dBuV/m) Peak AVG	Limit @3m (dBuV/m) Peak AVG	Margins (dB)
Radiated emission frequencies above 1 GHz to 10 GHz were too low to be measured.							

Note:
1. Place of Measurement: Measuring site of the ETC.
2. If the data table appeared symbol of "***" means the value was too low to be measured.
3. The estimated measurement uncertainty of the result measurement is
   ±4.6dB (30MHz≦f<300MHz).
   ±4.4dB (300MHz≦f<1000MHz).
   ±4.1dB (1GHz≦f≦18GHz).
   ±4.4dB (18GHz<f≦40GHz).

4 Remark “---” means that the emissions level is too low to be measured.

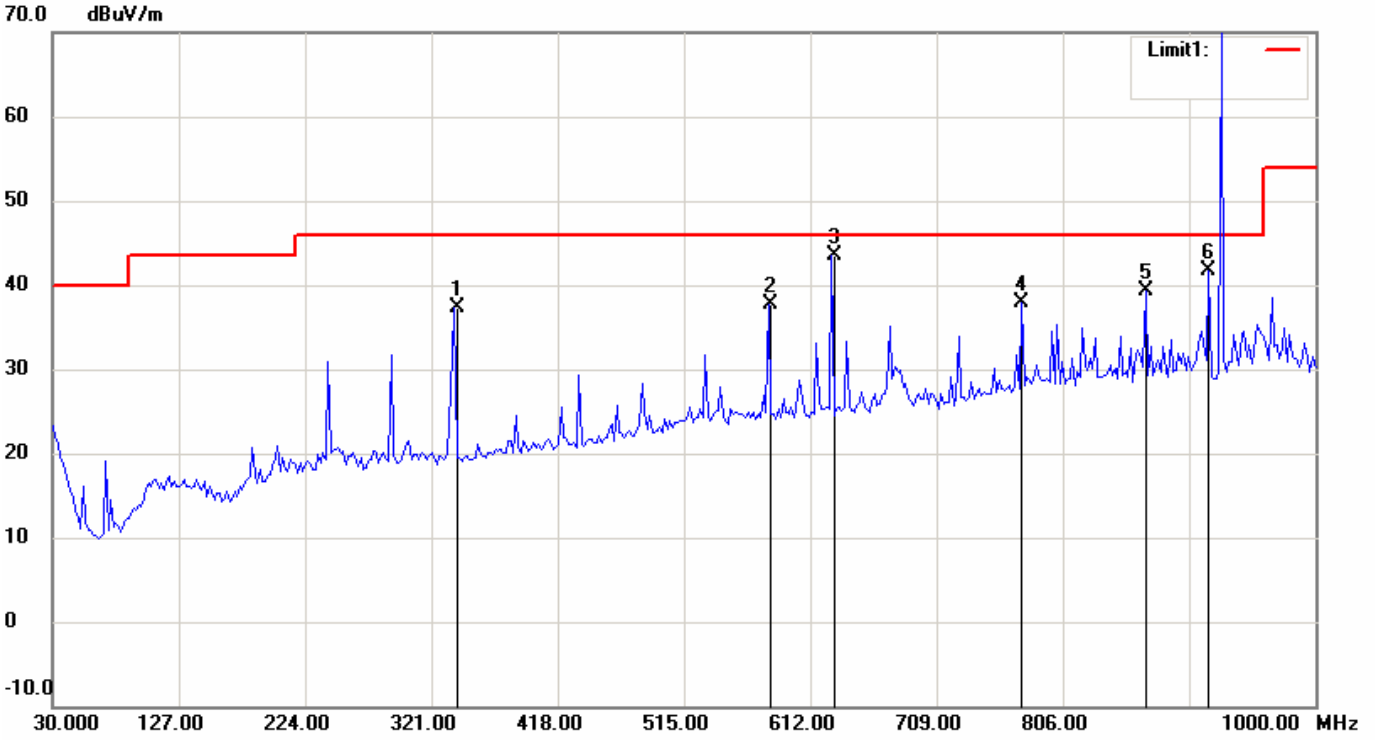
4.4.2.2.3 Operation Mode: CH High，926.750 MHz

A. below 1GHz

File: 09-12-MAS-078 **Data:** #25 **Date:** 2010/2/10 **Temperature:** 22 ℃

Time PM 02:59:05 **Humidity:** 63 %

:



Condition: NCC_LP0002_30-1000MHz **Polarization:** Horizontal

EUT: 900MHz UHF RFID Reader/Writer **Distance:** 3m

Model: A9245-D-002-232

Test Mode: +Notch Filter

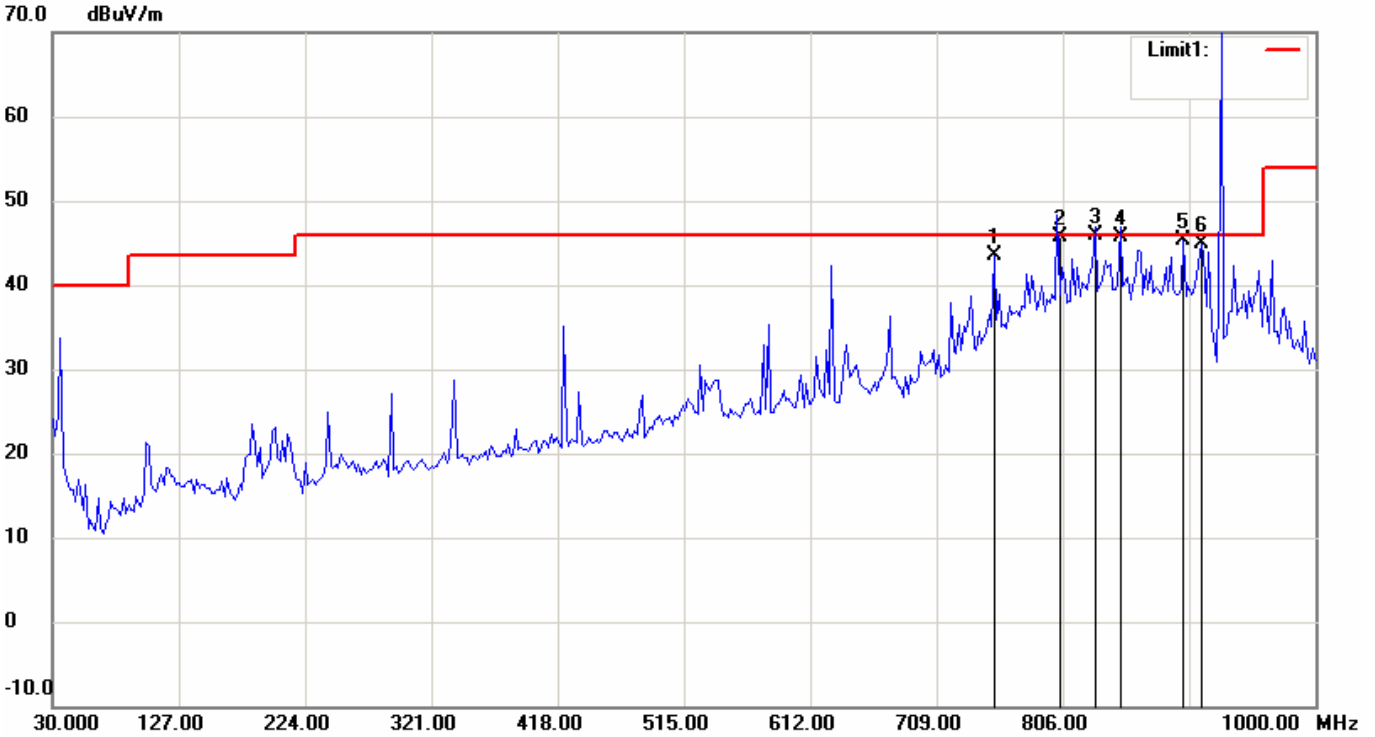
Note: port 1 HIGH ANT Gain 12 power setting 17

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	339.0782	19.97	peak	17.28	37.25	46.00	-8.75
2	580.1201	15.72	peak	22.06	37.78	46.00	-8.22
3	628.7174	20.90	peak	22.65	43.55	46.00	-2.45
4	774.5090	13.82	peak	24.09	37.91	46.00	-8.09
5	869.7595	13.97	peak	25.31	39.28	46.00	-6.72
6	918.3567	15.93	peak	25.77	41.70	46.00	-4.30

File: **09-12-MAS-078** **Data:** **#26** **Date:** **2010/2/10** **Temperature:** **22 ℃**

Time **PM 03:02:06** **Humidity:** **63 %**

:



Condition: **NCC_LP0002_30-1000MHz** **Polarization:** **Vertical**

EUT: **900MHz UHF RFID Reader/Writer** **Distance:** **3m**

Model: **A9245-D-002-232**

Test Mode: **+Notch Filter**

Note: **port 1 HIGH ANT Gain 12 power setting 17**

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	753.1263	19.71	QP	23.89	43.60	46.00	-2.40
2	801.7234	21.43	QP	24.34	45.77	46.00	-0.23
3	830.8817	21.00	QP	24.82	45.82	46.00	-0.18
4	850.3206	20.60	QP	25.14	45.74	46.00	-0.26
5	898.9178	19.66	QP	25.56	45.22	46.00	-0.78
6	912.5250	19.21	QP	25.70	44.91	46.00	-1.09

B. above 1GHz

Frequency (MHz)	Ant Pol H / V	Reading (dBuV) Peak	Correct Factor (dB)	Duty Factor (dB)	Result @3m (dBuV/m) Peak AVG	Limit @3m (dBuV/m) Peak AVG	Margins (dB)
Radiated emission frequencies above 1 GHz to 10 GHz were too low to be measured.							

Note:
1. Place of Measurement: Measuring site of the ETC.
2. If the data table appeared symbol of "***" means the value was too low to be measured.
3. The estimated measurement uncertainty of the result measurement is
   ±4.6dB (30MHz≦f<300MHz).
   ±4.4dB (300MHz≦f<1000MHz).
   ±4.1dB (1GHz≦f≦18GHz).
   ±4.4dB (18GHz<f≦40GHz).

4 Remark “---” means that the emissions level is too low to be measured.

4.4.3 Radiated Measurement at Bandedge with Fundamental Frequencies

Channel High

Operation Mode : Transmitting

Fundamental Frequency : 968.890 MHz

Frequency	Reading (dBuV)		Factor	Result @3m (dBuV/m)	Limit @3m (dBuV/m)
	H	V	(dB)		
(MHz)	QP	QP	Corr.	QP	QP
968.890	8.60	17.12	26.30	43.42	54.0

Note:

The result is the highest value of radiated emission from restrict band of 960 ~1240 MHz.

4.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor, High Pass Filter Loss(if used) and Cable Loss, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

where

Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Amplifier Gain

5 CONDUCTED EMISSION MEASUREMENT

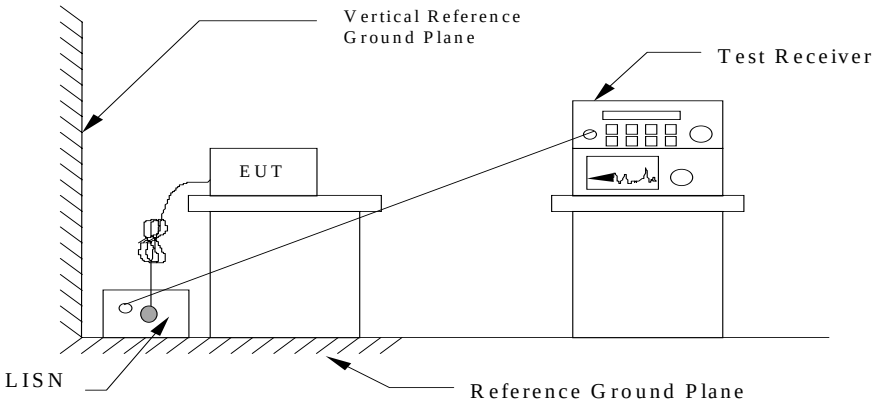
5.1 Standard Applicable

For unintentional and intentional device, Line Conducted Emission Limits are in accordance to § 15.107(a) and §15.207(a) respectively. Both Limits are identical specification.

5.2 Measurement Procedure

1. Setup the configuration per figure 3.
2. A preliminary scan with a spectrum monitor is performed to identify the frequency of emission that has the highest amplitude relative to the limit by operating the EUT in selected modes of operation, typical cable positions, and with a typical system configuration.
3. Record the 6 highest emissions relative to the limit.
4. Measure each frequency obtained from step 3 by a test receiver set on quasi peak detector function, and then record the accuracy frequency and emission level. If all emissions measured in the specified band are attenuated more than 20 dB from the limit, this step would be ignored, and the peak detector function would be used.
5. Confirm the highest three emissions with variation of the EUT cable configuration and record the final data.
6. Repeat all above procedures on measuring each operation mode of EUT.

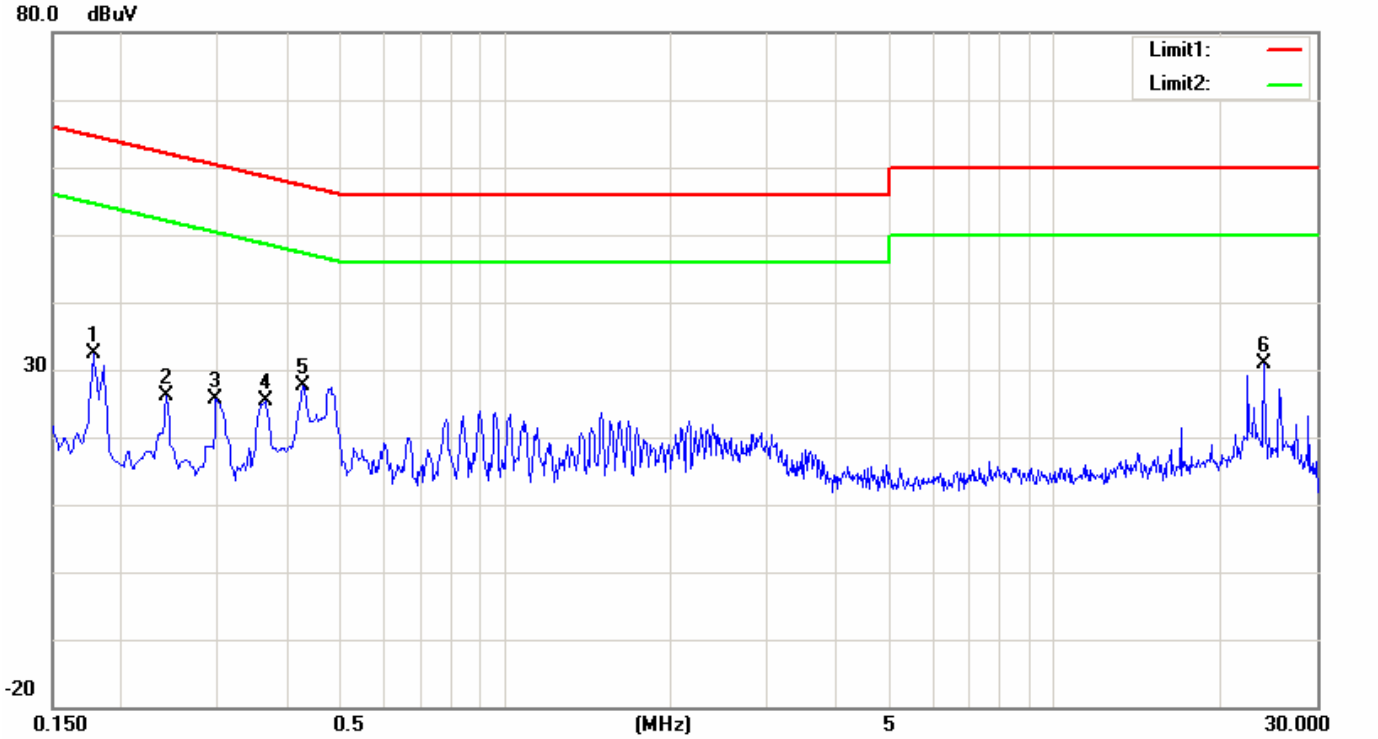
Figure 3 : Conducted emissions measurement configuration



5.3 Conducted Emission Data

5.3.1 A9235-A-002-NET

File: 09-12-MAS-078 **Data:** #2 **Date:** 2009/12/16 **Time:** AM 10:12:43 **Temperature:** 22 ℃ **Humidity:** 60 %



Condition: FCC Part 15 Class B Conduction(QP) **Phase:** L1
EUT: 900MHz UHF RFID Reader/Writer
Model: A9245-D-002-232
Test Mode:

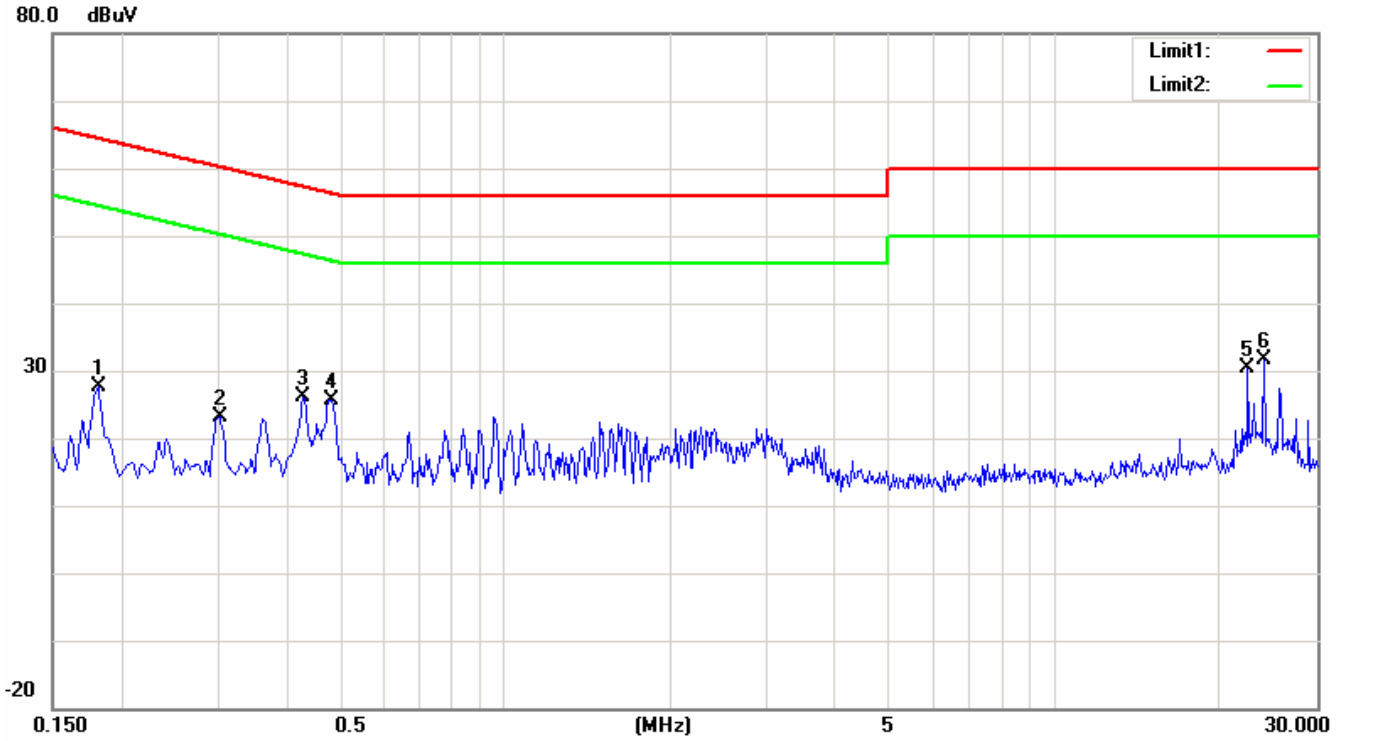
No.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	0.1780	22.77	peak	9.73	32.50	64.58	-32.08
2	0.2420	16.43	peak	9.71	26.14	62.03	-35.89
3	0.2980	15.99	peak	9.71	25.70	60.30	-34.60
4	0.3660	15.66	peak	9.71	25.37	58.59	-33.22
5	0.4300	17.85	peak	9.71	27.56	57.25	-29.69
6	24.1140	21.00	peak	9.97	30.97	60.00	-29.03

Note:

1. Place of measurement: EMC LAB. of the ETC.
2. “***” means the value was too low to be measured.
3. If the data table appeared symbol of "----" means the Q.P. value is under the limit of AVG. so, the AVG. value doesn't need to be measured.
4. “#” means the noise was too low, so record the peak value.
5. The estimated measurement uncertainty of the result measurement is ±2.5dB.

File: **09-12-MAS-078** **Data:** **#3** **Date:** **2009/12/16** **Temperature:** **22 ℃**

Time: **AM 10:15:11** **Humidity:** **60 %**



Condition: **FCC Part 15 Class B Conduction(QP)** **Phase:** **N**

EUT: **900MHz UHF RFID Reader/Writer**

Model: **A9245-D-002-232**

Test Mode:

No.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	0.1820	17.96	peak	9.73	27.69	64.39	-36.70
2	0.3020	13.51	peak	9.71	23.22	60.19	-36.97
3	0.4300	16.37	peak	9.71	26.08	57.25	-31.17
4	0.4820	15.99	peak	9.71	25.70	56.30	-30.60
5	22.5020	20.45	peak	9.96	30.41	60.00	-29.59
6	24.1140	21.54	peak	9.97	31.51	60.00	-28.49

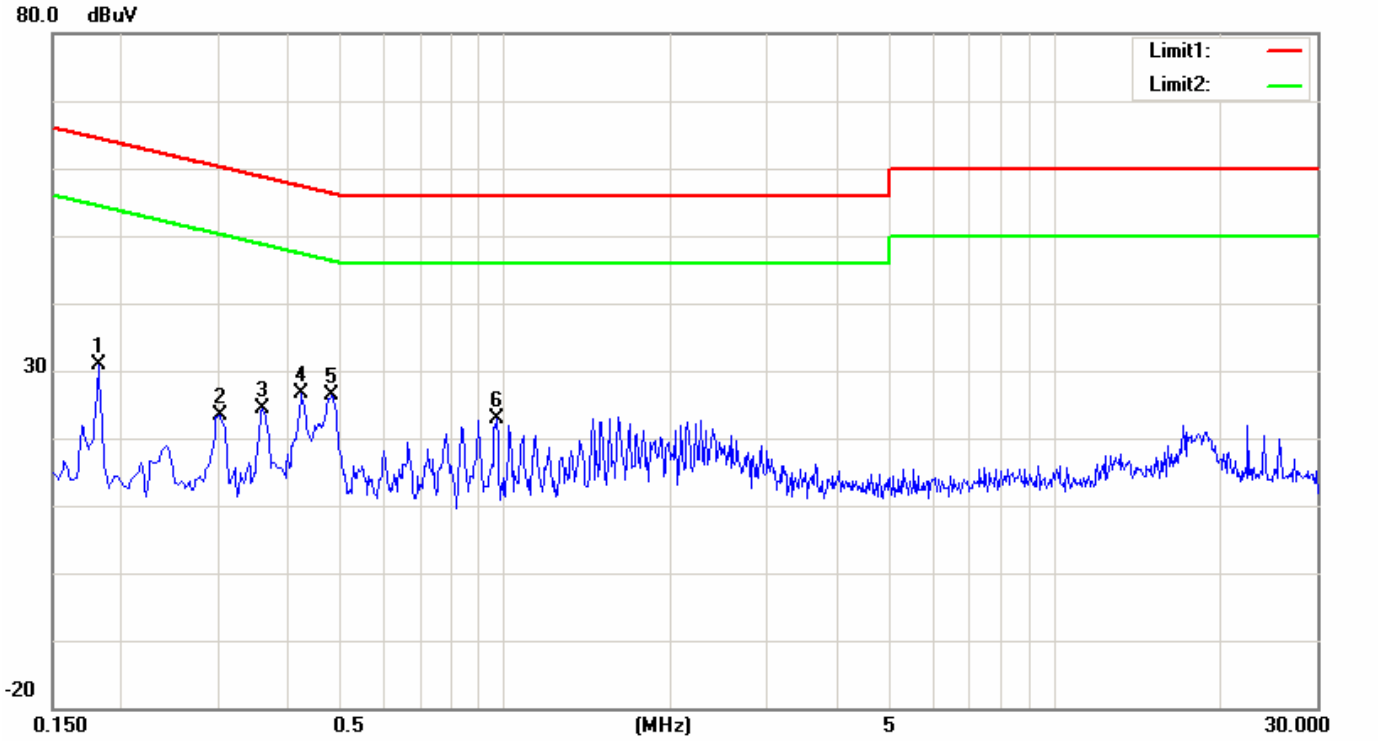
Note:

1. Place of measurement: EMC LAB. of the ETC.
2. “***” means the value was too low to be measured.
3. If the data table appeared symbol of "----" means the Q.P. value is under the limit of AVG. so, the AVG. value doesn't need to be measured.
4. “#” means the noise was too low, so record the peak value.
5. The estimated measurement uncertainty of the result measurement is ±2.5dB.

5.3.2 A9295-A-0K

File: 09-12-MAS-078 **Data:** #5 **Date:** 2010/2/22 **Temperature:** 21 ℃

Time: AM 10:58:25 **Humidity:** 65 %



Condition: EN55022 Class B Conduction(QP) **Phase:** L1

EUT: 900MHz UHF RFID Reader/Writer

Model: A9245-D-002-232

Test Mode:

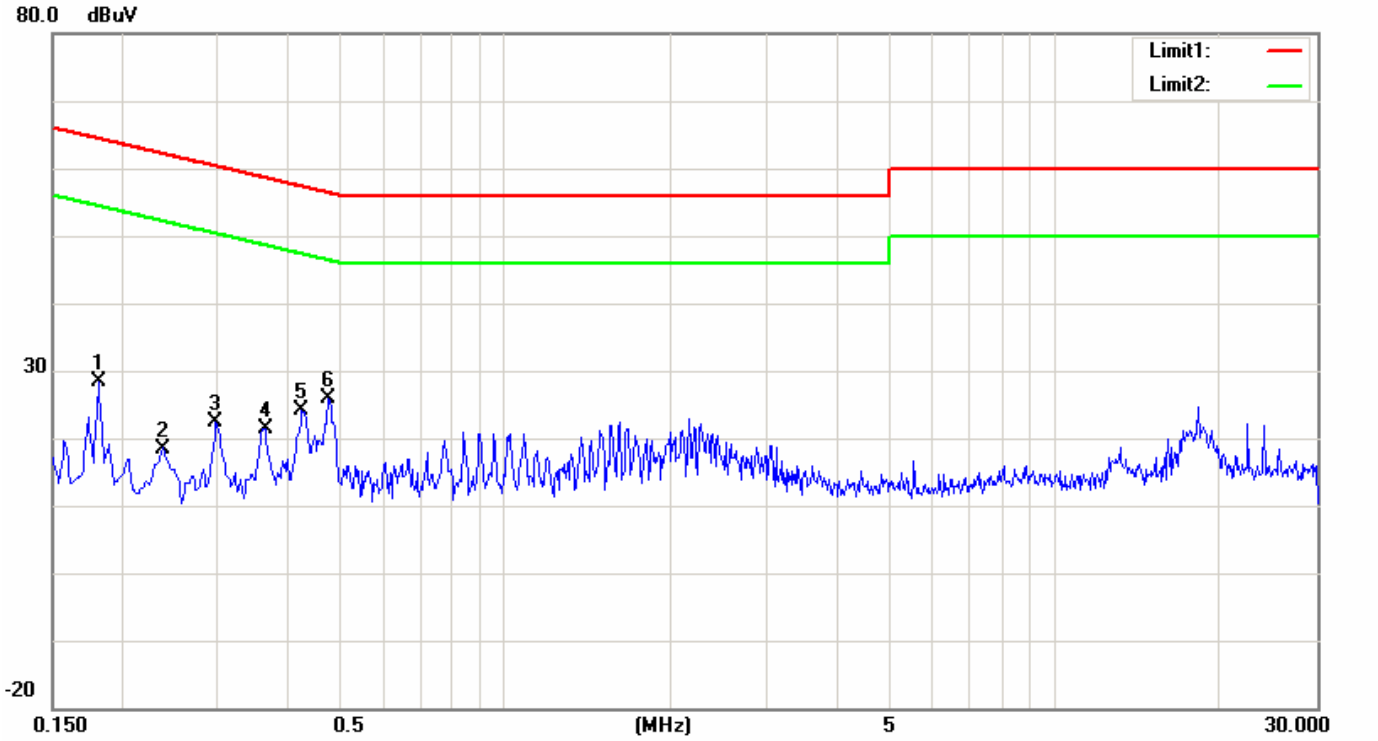
No.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	0.1820	21.11	peak	9.73	30.84	64.39	-33.55
2	0.3020	13.68	peak	9.71	23.39	60.19	-36.80
3	0.3620	14.72	peak	9.71	24.43	58.68	-34.25
4	0.4260	16.99	peak	9.71	26.70	57.33	-30.63
5	0.4860	16.63	peak	9.71	26.34	56.24	-29.90
6	0.9660	13.05	peak	9.72	22.77	56.00	-33.23

Note:

1. Place of measurement: EMC LAB. of the ETC.
2. “***” means the value was too low to be measured.
3. If the data table appeared symbol of "----" means the Q.P. value is under the limit of AVG. so, the AVG. value doesn't need to be measured.
4. “#” means the noise was too low, so record the peak value.
5. The estimated measurement uncertainty of the result measurement is ±2.5dB.

File: 09-12-MAS-078 **Data:** #6 **Date:** 2010/2/22 **Temperature:** 21 ℃

Time: AM 10:59:39 **Humidity:** 65 %



Condition: EN55022 Class B Conduction(QP) **Phase:** N

EUT: 900MHz UHF RFID Reader/Writer

Model: A9245-D-002-232

Test Mode:

No.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	0.1820	18.64	peak	9.64	28.28	64.39	-36.11
2	0.2380	8.84	peak	9.66	18.50	62.17	-43.67
3	0.2980	12.74	peak	9.65	22.39	60.30	-37.91
4	0.3660	11.74	peak	9.66	21.40	58.59	-37.19
5	0.4260	14.59	peak	9.65	24.24	57.33	-33.09
6	0.4780	16.12	peak	9.65	25.77	56.37	-30.60

Note:

1. Place of measurement: EMC LAB. of the ETC.
2. “***” means the value was too low to be measured.
3. If the data table appeared symbol of "----" means the Q.P. value is under the limit of AVG. so, the AVG. value doesn't need to be measured.
4. “#” means the noise was too low, so record the peak value.
5. The estimated measurement uncertainty of the result measurement is ±2.5dB.

5.4 Result Data Calculation

The result data is calculated by adding the LISN Factor to the measured reading. The basic equation with a sample calculation is as follows:

RESULT = READING + LISN FACTOR (Included Cable Loss)

5.5 Conducted Measurement Equipment

The following test equipment are used during the conducted test.

Equipment	Manufacturer	Model No.	Next Cal. Due
RF Test Receiver	Rohde and Schwarz	ESCS30	08/22/2010
LISN	EMCO	37100/2M	02/11/2010

6 ANTENNA REQUIREMENT

6.1 Standard Applicable

For intentional radiator, according to §15.203, shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

6.2 Antenna Construction

Model No.	A9235-A-002-NET
Frequency range	870 MHz ~ 960 MHz
Antenna Gain	8.0 dBi
Antenna Connector Type	SMA Plug

Model No.	A9295-A-0K
Frequency range	870 MHz ~ 960 MHz
Antenna Gain	12.0 dBi
Antenna Connector Type	SMA Plug

Model No.	A9295-A-0J
Frequency range	870 MHz ~ 960 MHz
Antenna Gain	5.0 dBi
Antenna Connector Type	SMA Plug

The EUT must be professionally installed. The installer shall be responsible for ensuring that the proper antenna is employed to that the limits in FCC Part 15 are not exceeded.

7 20dB EMISSION BANDWIDTH MEASUREMENT

7.1 Standard Applicable

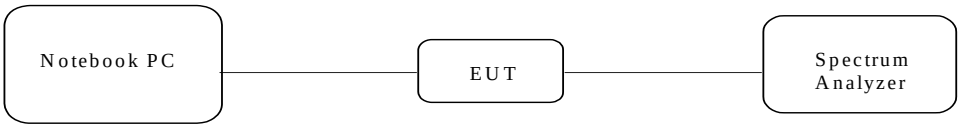
For frequency hopping systems, according to 15.247(a)(1), hopping channel carrier frequencies seperated by a minimum of 25kHz or the 20dB bandwidth of hopping channel, whichever is greater.

For frequency hopping systems, According to 15.247(a)(1)(i), 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 shll 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.

7.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The setup of the EUT as shown in figure 4. Turn on the EUT and connect it to measurement instrument. Then set it to any convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

Figure 4: Emission bandwidth measurement configuration.



7.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Agilent	E4446A	09/27/2010

7.4 Measurement Data

7.4.1 A9235-A-002-NET

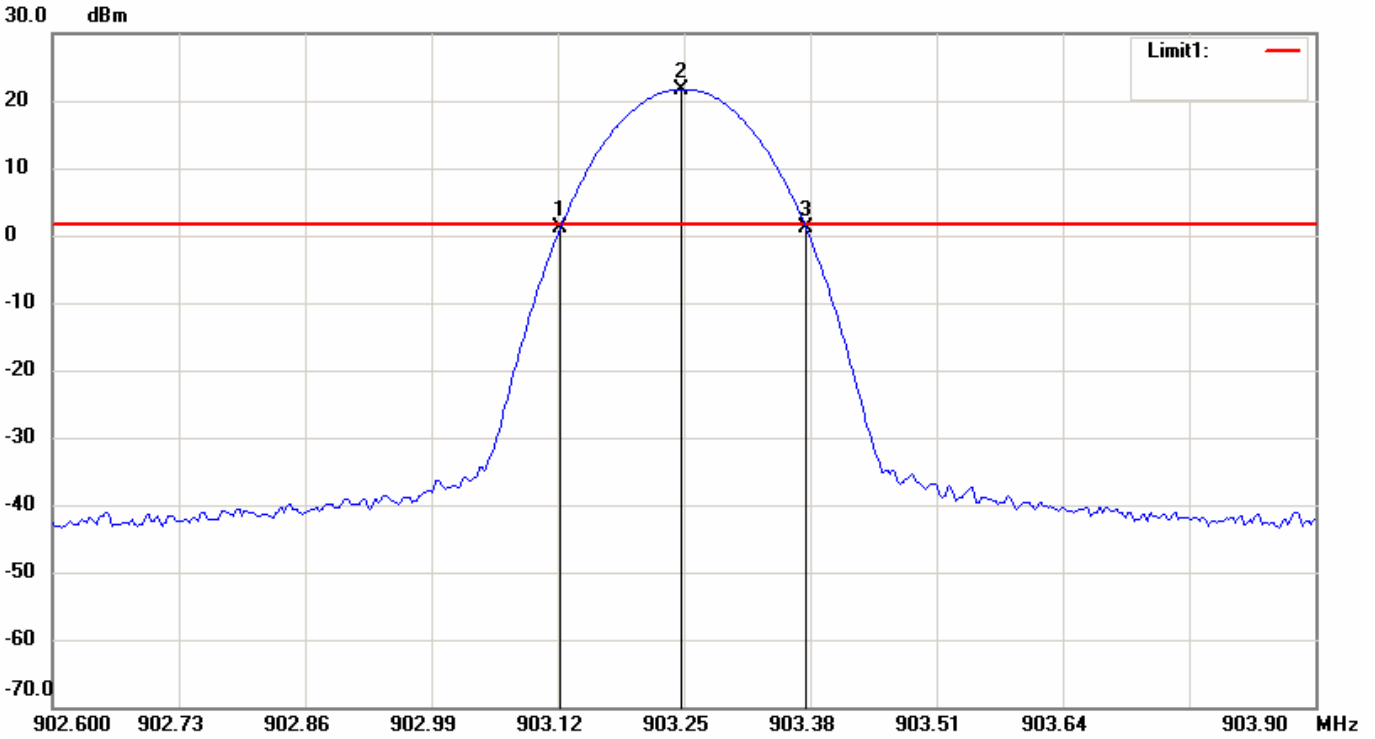
Test Date : Dec. 08, 2009 Temperature : 26℃ Humidity : 51%

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)	Limit (MHz)	Chart
Low	903.250	0.2535	0.5	Page 46
Mid	914.750	0.2535	0.5	Page 47
High	926.750	0.2513	0.5	Page 48

Note: Please refer to page 46 to page 48 for chart.

File: 09-12-MAS-078 Data: #9 **Date: 2009/12/8** **Temperature: 26 ℃**

Time: PM 01:19:08 **Humidity: 51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 1ms Att.: 40dB**

Model: **RBW: 100 KHz VBW: 100 KHz**

Test Mode:

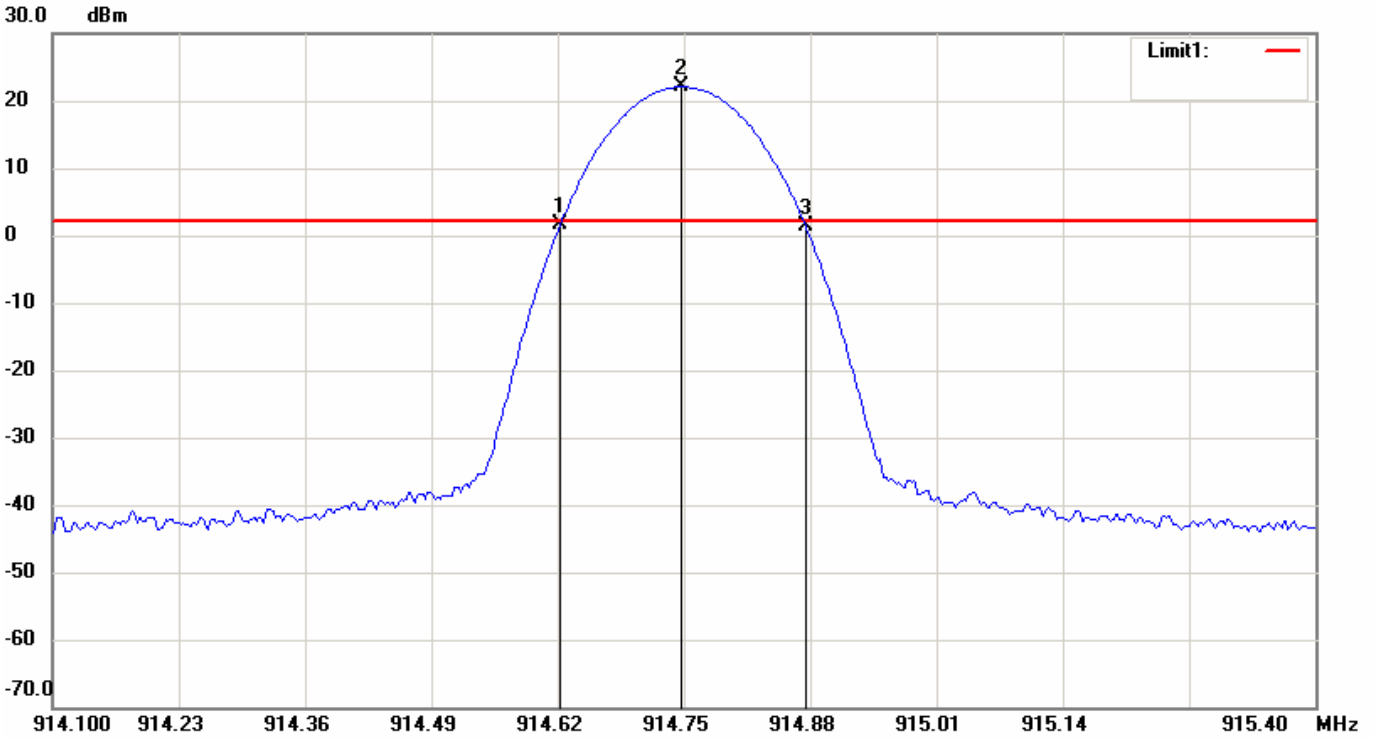
Note: **LOW**

No.	Frequency(MHz)	Level(dBm)
1	903.1222	1.04
2	903.2478	21.74
3	903.3757	1.08

No.		△Frequency(MHz)	△Level(dB)
1	mk3-mk1	0.2535	0.04

File: 09-12-MAS-078 Data: #10 **Date: 2009/12/8** **Temperature: 26 ℃**

Time: PM 01:22:23 **Humidity: 51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 1ms Att.: 40dB**

Model: **RBW: 100 KHz VBW: 100 KHz**

Test Mode:

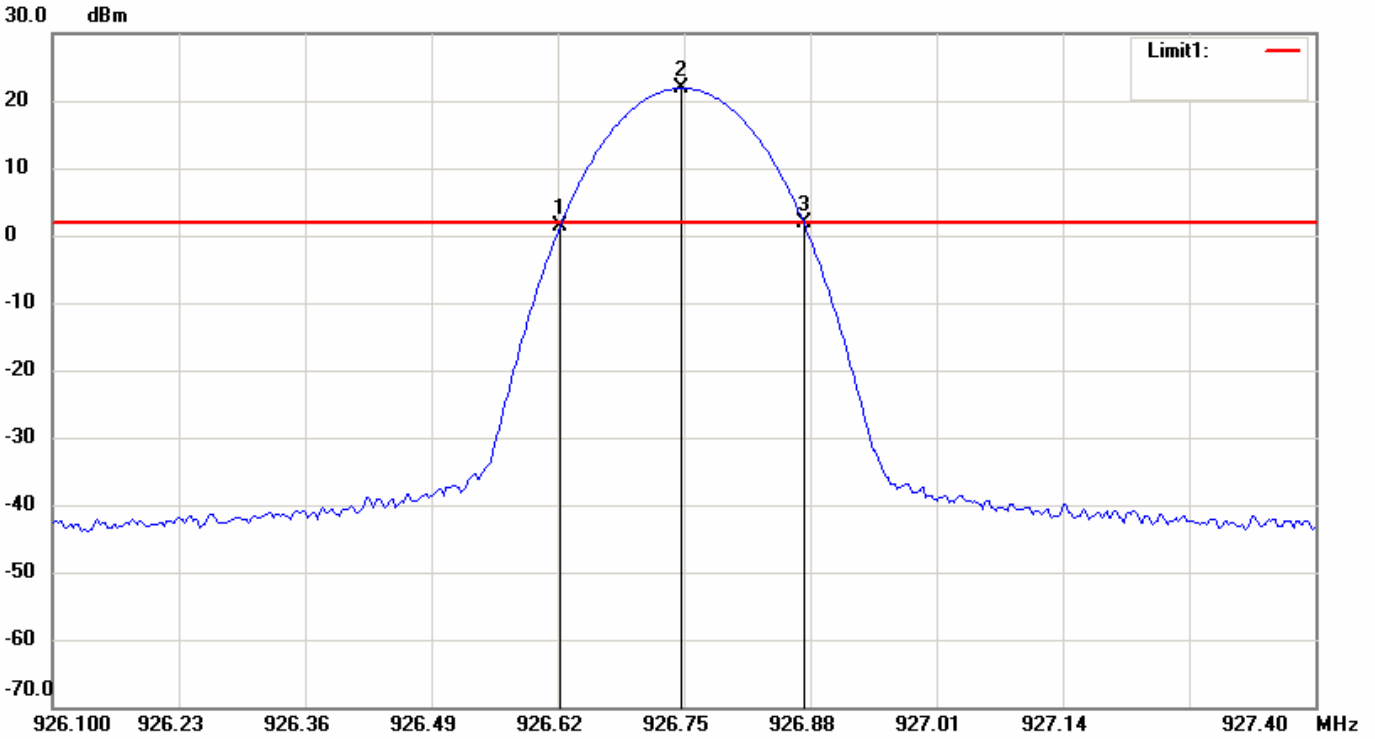
Note: **MID**

No.	Frequency(MHz)	Level(dBm)
1	914.6222	1.60
2	914.7478	22.04
3	914.8757	1.30

No.		△Frequency(MHz)	△Level(dB)
1	mk3-mk1	0.2535	-0.3

File: 09-12-MAS-078 Data: #11 **Date: 2009/12/8** **Temperature: 26 ℃**

Time: PM 01:30:41 **Humidity: 51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 1ms Att.: 40dB**

Model: **RBW: 100 KHz VBW: 100 KHz**

Test Mode:

Note: **HIGH**

No.	Frequency(MHz)	Level(dBm)
1	926.6222	1.26
2	926.7478	21.84
3	926.8735	1.80

No.		△Frequency(MHz)	△Level(dB)
1	mk3-mk1	0.2513	0.54

7.4.2 A9295-A-0K

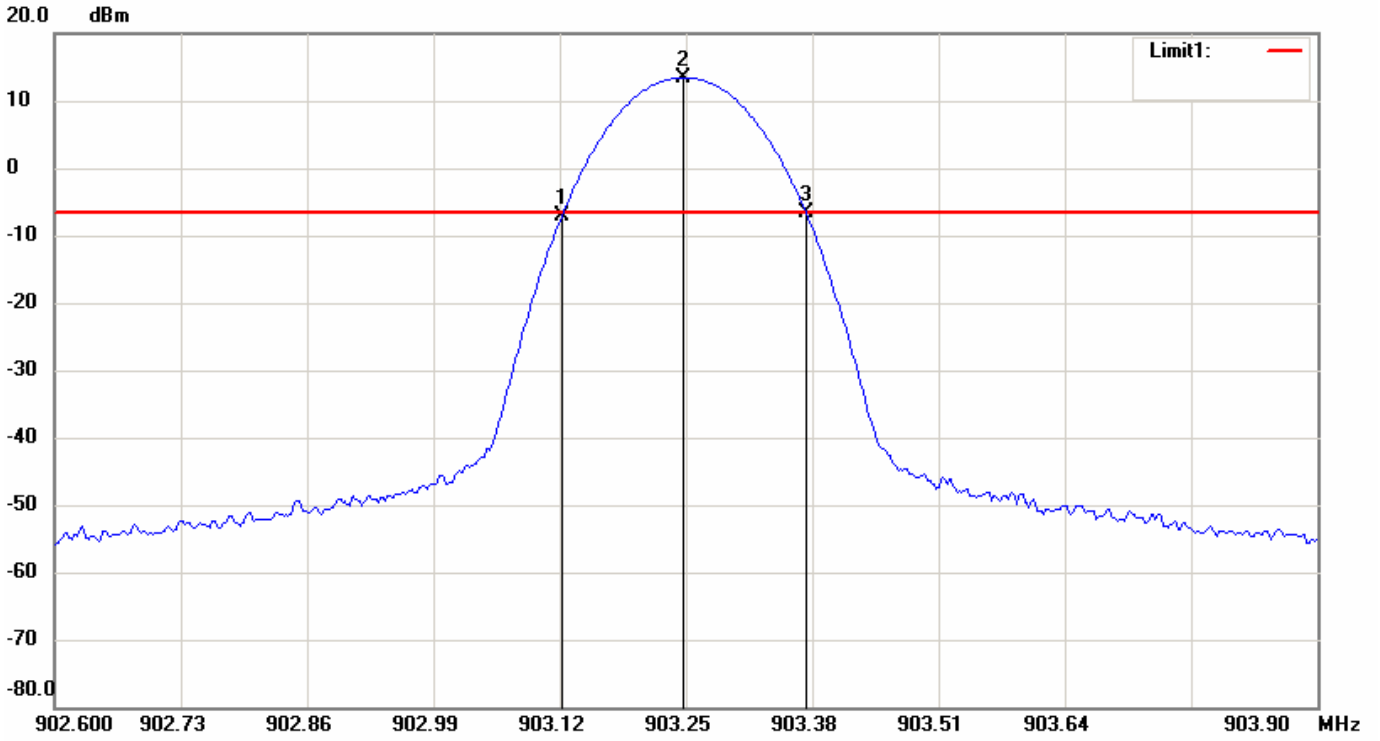
Test Date : Feb. 22, 2010 Temperature : 16℃ Humidity : 51%

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)	Limit (MHz)	Chart
Low	903.250	0.2513	0.5	Page 50
Mid	914.750	0.2535	0.5	Page 51
High	926.750	0.2535	0.5	Page 52

Note: Please refer to page 50 to page 52 for chart.

File: 09-12-MAS-078 Data: #16 **Date: 2010/2/22** **Temperature: 16 ℃**

Time: AM 09:25:40 **Humidity: 51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 1ms Att.: 30dB**

Model: **RBW: 100 KHz VBW: 100 KHz**

Test Mode:

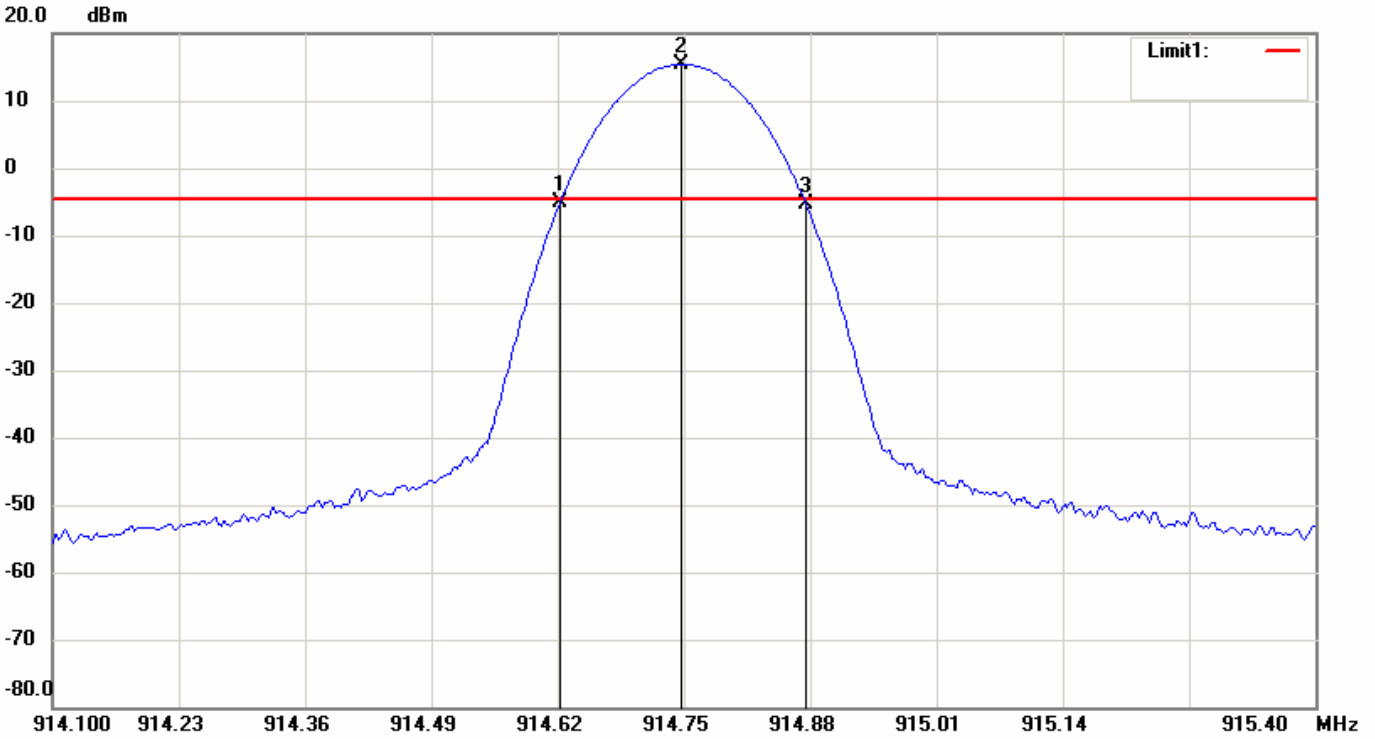
Note: **LOW**

No.	Frequency(MHz)	Level(dBm)
1	903.1222	-7.06
2	903.2477	13.47
3	903.3735	-6.59

No.		△Frequency(MHz)	△Level(dB)
1	mk3-mk1	0.2513	0.47

File: **09-12-MAS-078** **Data:** **#17** **Date:** **2010/2/22** **Temperature:** **16 ℃**

Time: **AM 09:28:29** **Humidity:** **51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 1ms** **Att.: 30dB**

Model: **RBW: 100 KHz** **VBW: 100 KHz**

Test Mode:

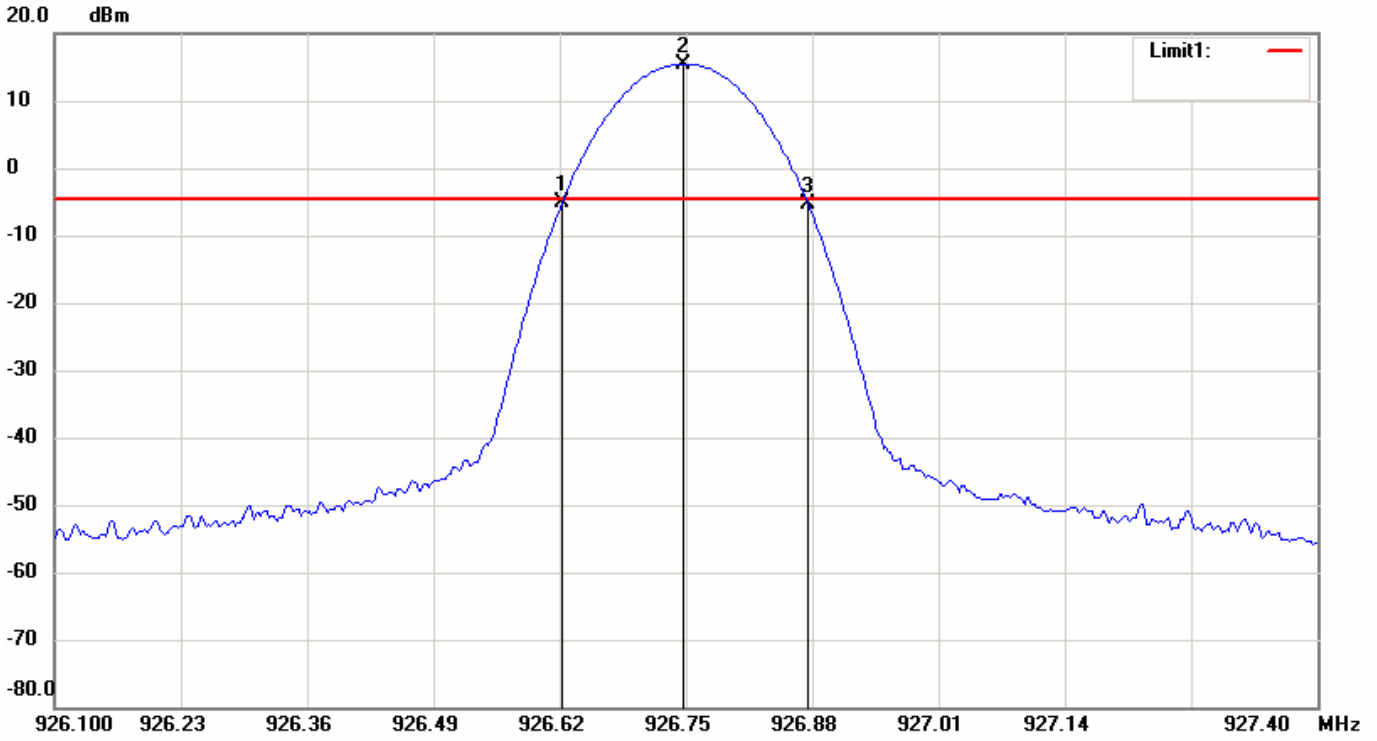
Note: **MID**

No.	Frequency(MHz)	Level(dBm)
1	914.6222	-5.19
2	914.7477	15.37
3	914.8757	-5.32

No.		△Frequency(MHz)	△Level(dB)
1	mk3-mk1	0.2535	-0.13

File: 09-12-MAS-078 Data: #18 **Date: 2010/2/22** **Temperature: 16 ℃**

Time: AM 09:30:22 **Humidity: 51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 1ms Att.: 30dB**

Model: **RBW: 100 KHz VBW: 100 KHz**

Test Mode:

Note: HIGH

No.	Frequency(MHz)	Level(dBm)
1	926.6222	-5.21
2	926.7478	15.47
3	926.8757	-5.25

No.		△Frequency(MHz)	△Level(dB)
1	mk3-mk1	0.2535	-0.04

8 OUTPUT POWER MEASUREMENT

8.1 Standard Applicable

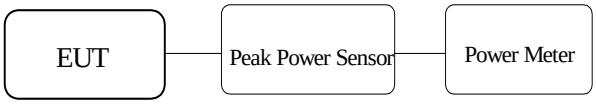
For frequency hopping systems, according to 15.247(b)(2), operating in the 902-928 MHz band: 1 watt for system employing at least 50 hopping channels; and , 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

8.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The setup of the EUT as shown in figure 5. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any measured frequency within its operating range and make sure the instrument is operated in its linear range.
6. Record the level to calculate result data.
4. Repeat above procedures until all frequencies measured were complete.

Figure 5: Output power measurement configuration.



8.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Power Meter	Agilent	N1922A	11/02/2010
Peak Power Sensor	Agilent	N1912A	11/02/2010

8.4 Measurement Data

8.4.1 A9235-A-002-NET

Test Date : Dec. 08, 2009 Temperature : 26℃ Humidity : 51%

Channel	Frequency (MHz)	Fixd limit (dBm)	Maximum Peak Output Power (dBm)	Maximum Peak Output Power (mW)	FCC Limit (dBm)	Chart
Low	903.250	24	20.25	105.92	22	-
Mid	914.750	24	20.32	107.65	22	-
High	926.750	24	20.16	103.75	22	-

The highest antenna gain is “8 dBi”, the FCC limit is 24 dBm – (8-6) dB = 22 dBm

Note:

1. Fixed Limit = 0.25W=24dBm
2. If antenna gain ≦ 6dBi, FCC Limit = (Fixed Limit) dBm
3. If antenna gain > 6dBi, FCC Limit = (Fixed Limit) dBm – (highest antenna gain – 6 dBi)
4. The estimated measurement uncertainty of the result measurement is +0.92 dB/-0.94 dB (30MHz≦f≦40GHz)

8.4.2 A9295-A-0K

Test Date : Feb. 22, 2010 Temperature : 16℃ Humidity : 51%

Channel	Frequency (MHz)	Fixd limit (dBm)	Maximum Peak Output Power (dBm)	Maximum Peak Output Power (mW)	FCC Limit (dBm)	Chart
Low	903.250	24	15.65	36.728	18	-
Mid	914.750	24	15.58	36.141	18	-
High	926.750	24	15.55	35.892	18	-

The highest antenna gain is “12 dBi”, the FCC limit is 24 dBm – (12-6) dB = 18 dBm

Note:

1. Fixed Limit = 0.25W=24dBm
2. If antenna gain ≦ 6dBi, FCC Limit = (Fixed Limit) dBm
3. If antenna gain > 6dBi, FCC Limit = (Fixed Limit) dBm – (highest antenna gain – 6 dBi)
4. The estimated measurement uncertainty of the result measurement is +0.92 dB/-0.94 dB (30MHz≦f≦40GHz)

9 OUT-OF-BAND RF CONDUCTED SPURIOUS EMISSION MEASUREMENT

9.1 Standard Applicable

According to 15.247(d), if any 100 kHz bandwidth outside these frequency bands, the radio frequency power that is produced by the modulation products of the spreading sequence, the information sequence and the carrier frequency shall be either at least 20 dB below that in any 100 kHz bandwidth within the band that contains the highest level of the desired power or shall not exceed the general levels specified in §15.209(a), whichever results in the lesser attenuation.

9.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The setup of the EUT as shown in figure 4. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

9.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Agilent	E4446A	09/27/2010

9.4 Measurement Data

9.4.1 A9235-A-002-NET

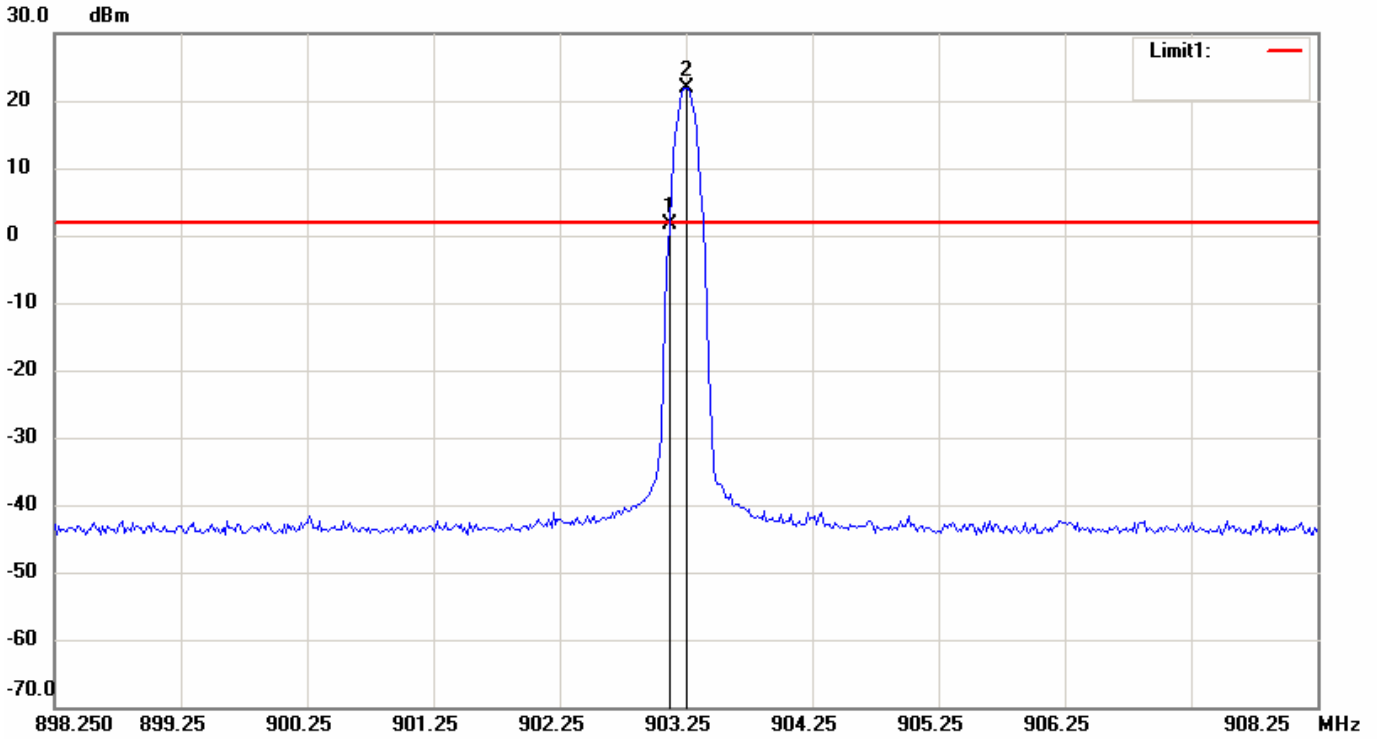
Test Date : Dec. 08, 2009 Temperature : 26℃ Humidity : 51%

Channel	Test Frequency Range	Note	Chart
Low	897.75 MHz – 907.75 MHz	Lower Band Edge	Page 58
High	922.25 MHz – 932.25 MHz	Upper Band Edge	Page 59
Low	30 MHz - 10 GHz		Page 60
Mid	30 MHz - 10 GHz		Page 61
High	30 MHz - 10 GHz		Page 62

Note: Please refer to page 58 to page 62 for chart.

File: 09-12-MAS-078 Data: #1 **Date: 2009/12/8** **Temperature: 26 ℃**

Time: PM 12:56:20 **Humidity: 51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 500ms Att.: 40dB**

Model: **RBW: 100 KHz VBW: 100 KHz**

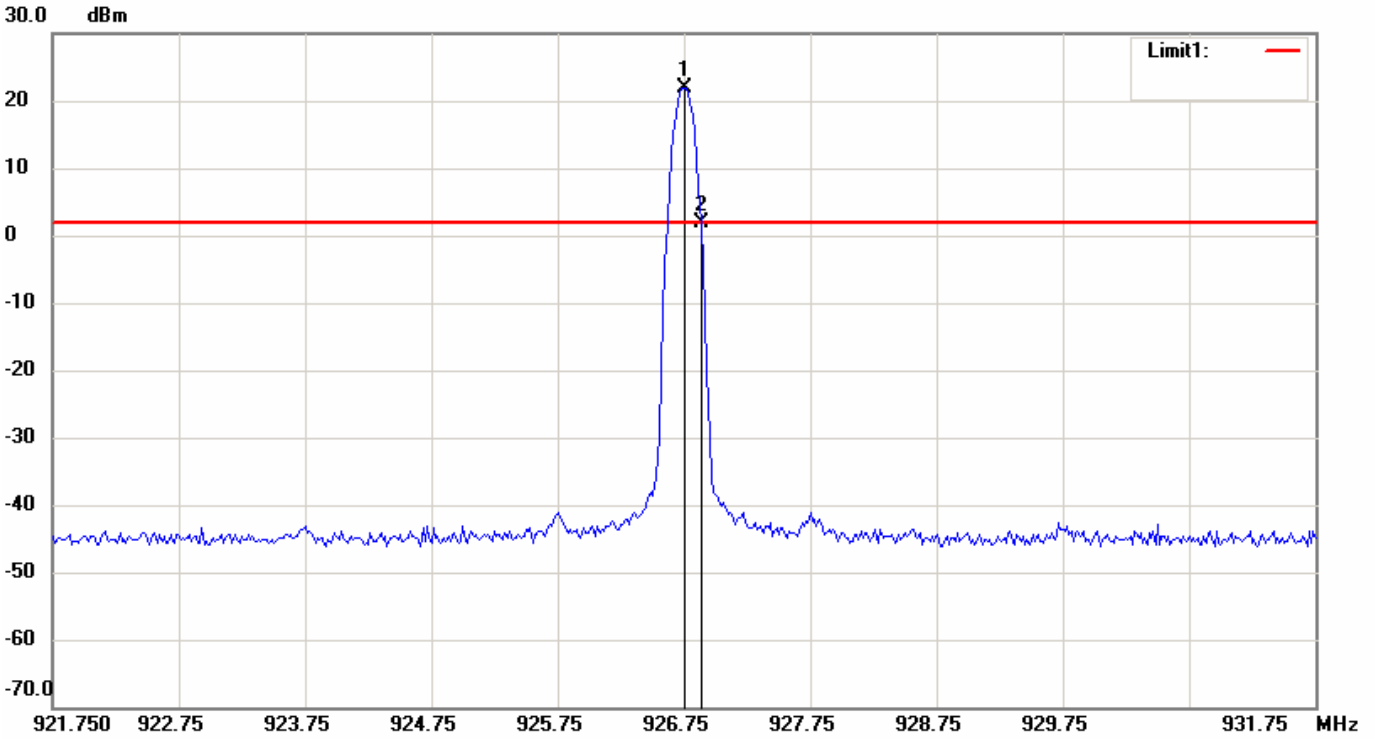
Test Mode:

Note:

No.	Frequency(MHz)	Level(dBm)
1	903.1167	1.63
2	903.2500	21.91

File: 09-12-MAS-078 Data: #2 **Date: 2009/12/8** **Temperature: 26 ℃**

Time: PM 12:57:53 **Humidity: 51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 500ms Att.: 40dB**

Model: **RBW: 100 KHz VBW: 100 KHz**

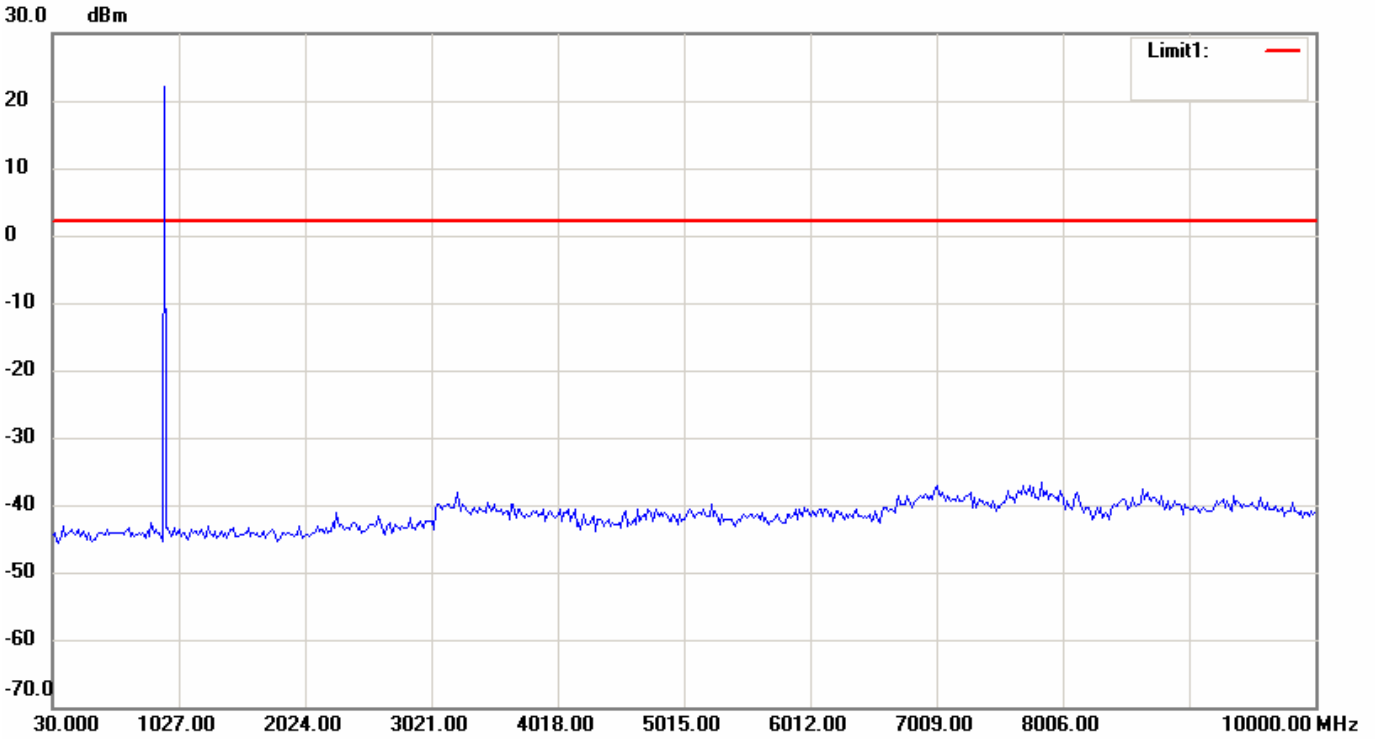
Test Mode:

Note:

No.	Frequency(MHz)	Level(dBm)
1	926.7500	21.97
2	926.8832	1.99

File: 09-12-MAS-078 Data: #5 **Date: 2009/12/8** **Temperature: 26 ℃**

Time: PM 01:01:57 **Humidity: 51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 1202ms** **Att.: 40dB**

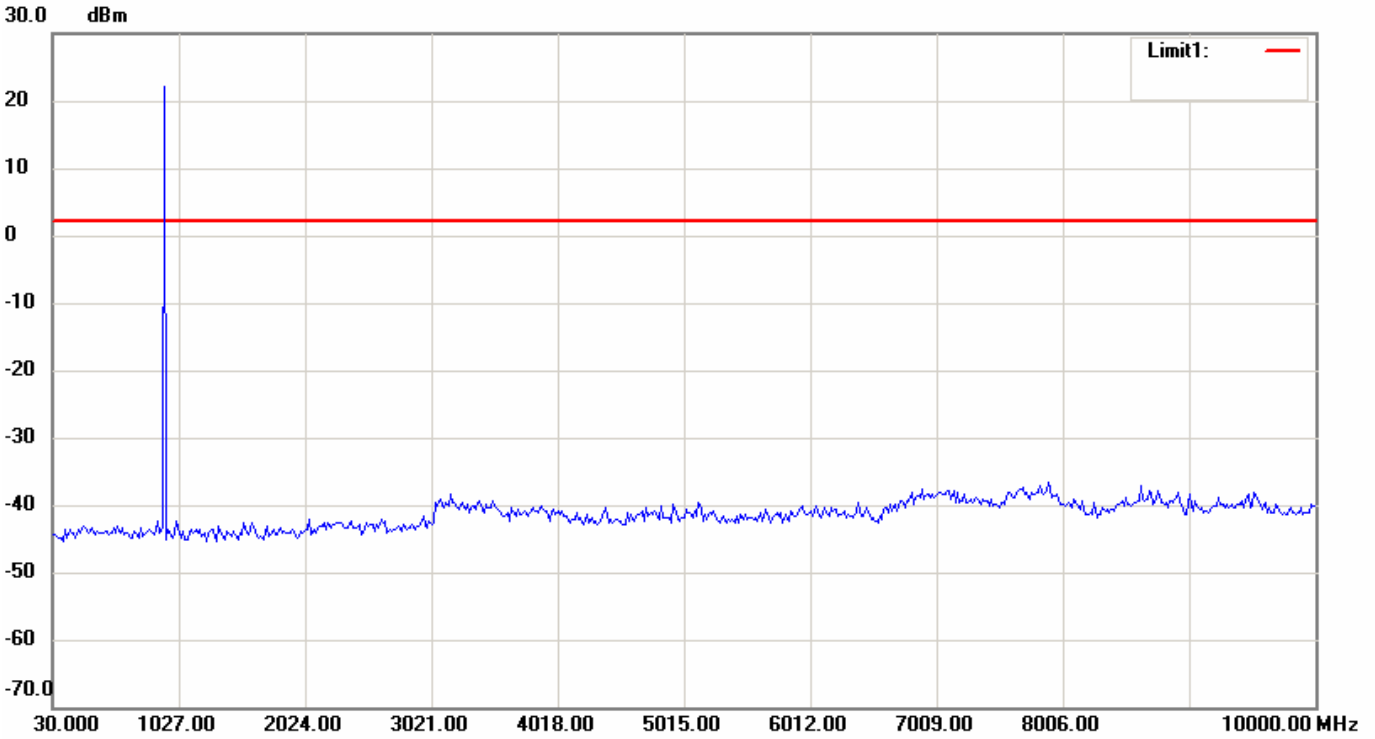
Model: **RBW: 100 KHz** **VBW: 100 KHz**

Test Mode:

Note: **LOW**

File: 09-12-MAS-078 Data: #4 **Date: 2009/12/8** **Temperature: 26 ℃**

Time: PM 01:00:58 **Humidity: 51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 1202ms** **Att.: 40dB**

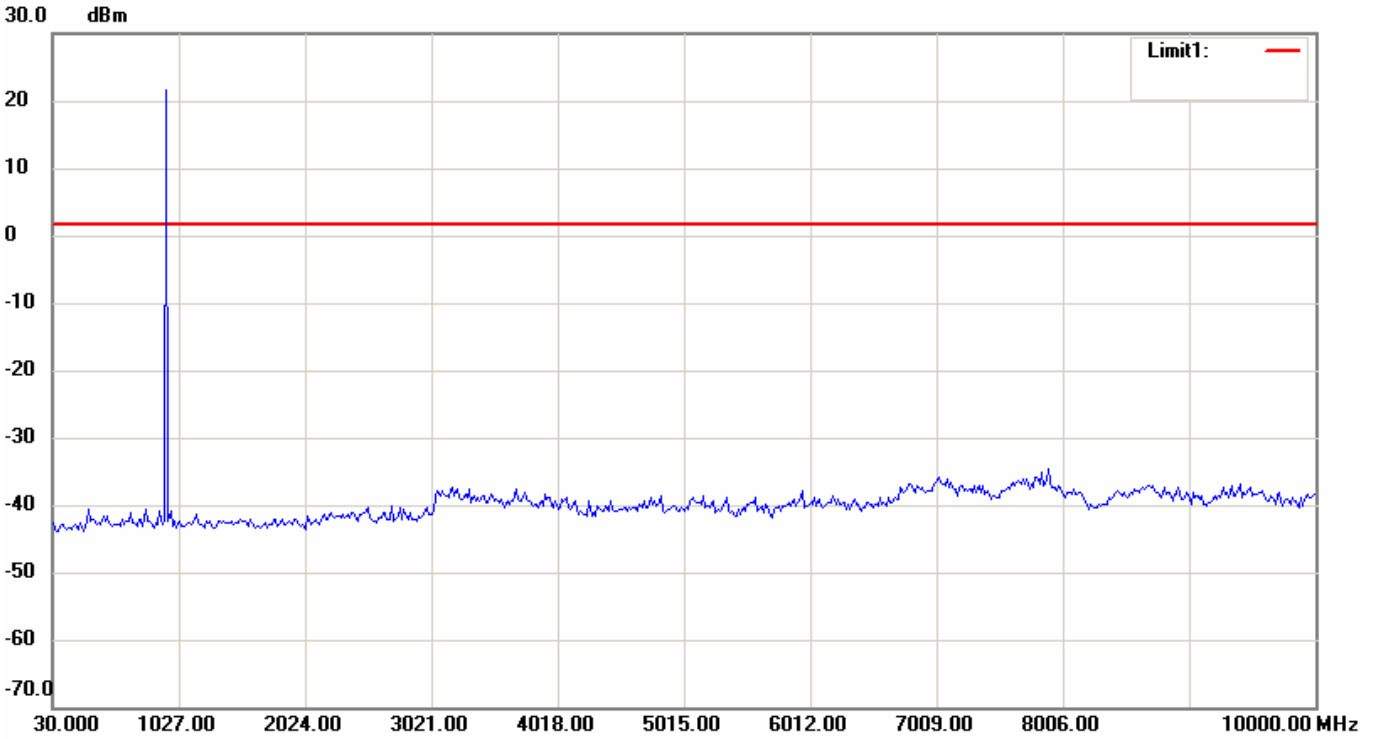
Model: **RBW: 100 KHz** **VBW: 100 KHz**

Test Mode:

Note: **MID**

File: 09-12-MAS-078 Data: #3 **Date: 2009/12/8** **Temperature: 26 ℃**

Time: PM 12:59:41 **Humidity: 51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 1202ms** **Att.: 40dB**

Model: **RBW: 100 KHz** **VBW: 100 KHz**

Test Mode:

Note: **HIGH**

9.4.2 A9295-A-0K

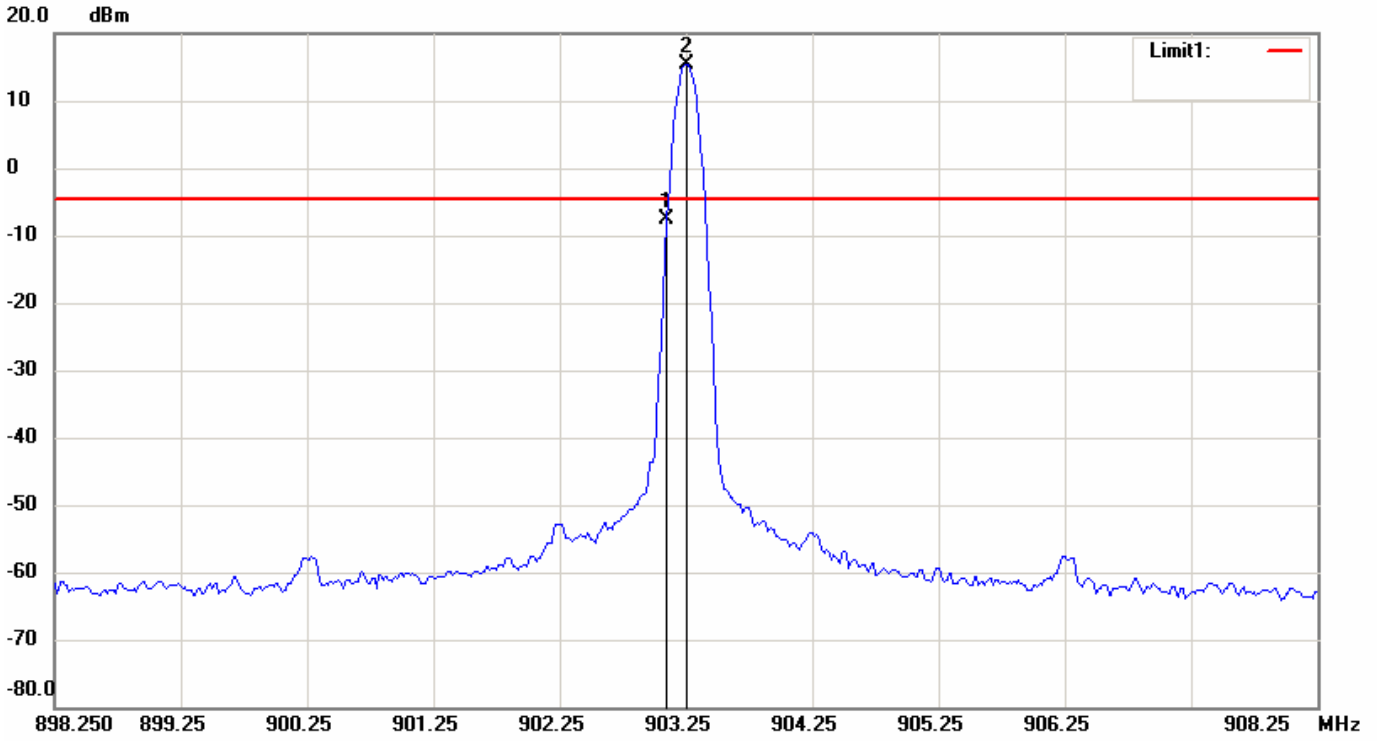
Test Date : Feb. 22, 2010 Temperature : 16℃ Humidity : 51%

Channel	Test Frequency Range	Note	Chart
Low	897.75 MHz – 907.75 MHz	Lower Band Edge	Page 64
High	922.25 MHz – 932.25 MHz	Upper Band Edge	Page 65
Low	30 MHz - 10 GHz		Page 66
Mid	30 MHz - 10 GHz		Page 67
High	30 MHz - 10 GHz		Page 68

Note: Please refer to page 64 to page 68 for chart.

File: 09-12-MAS-078 Data: #19 **Date: 2010/2/22** **Temperature: 16 ℃**

Time: AM 09:37:47 **Humidity: 51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 1.24ms Att.: 30dB**

Model: **RBW: 100 KHz VBW: 100 KHz**

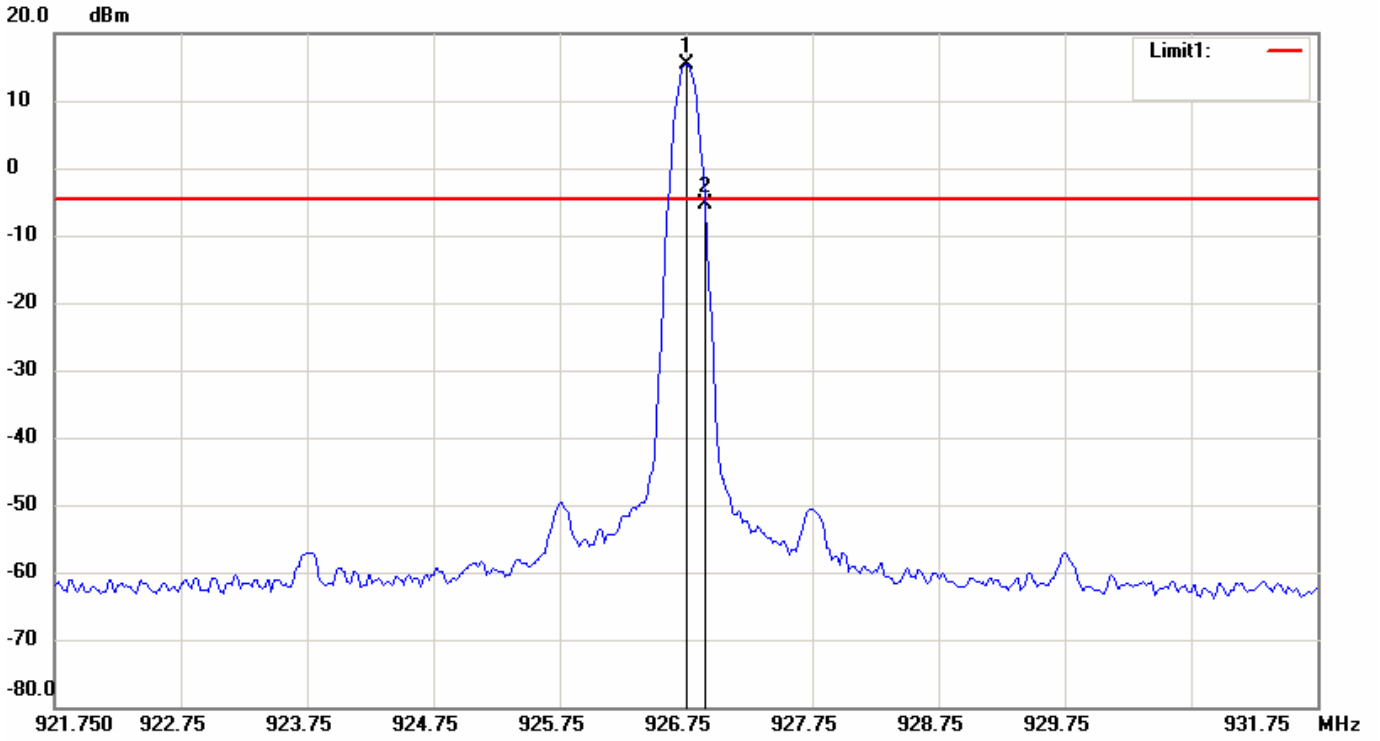
Test Mode:

Note: **LOW**

No.	Frequency(MHz)	Level(dBm)
1	903.1000	-7.58
2	903.2500	15.36

File: 09-12-MAS-078 Data: #20 **Date: 2010/2/22** **Temperature: 16 ℃**

Time: AM 09:39:49 **Humidity: 51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 1.24ms Att.: 30dB**

Model: **RBW: 100 KHz VBW: 100 KHz**

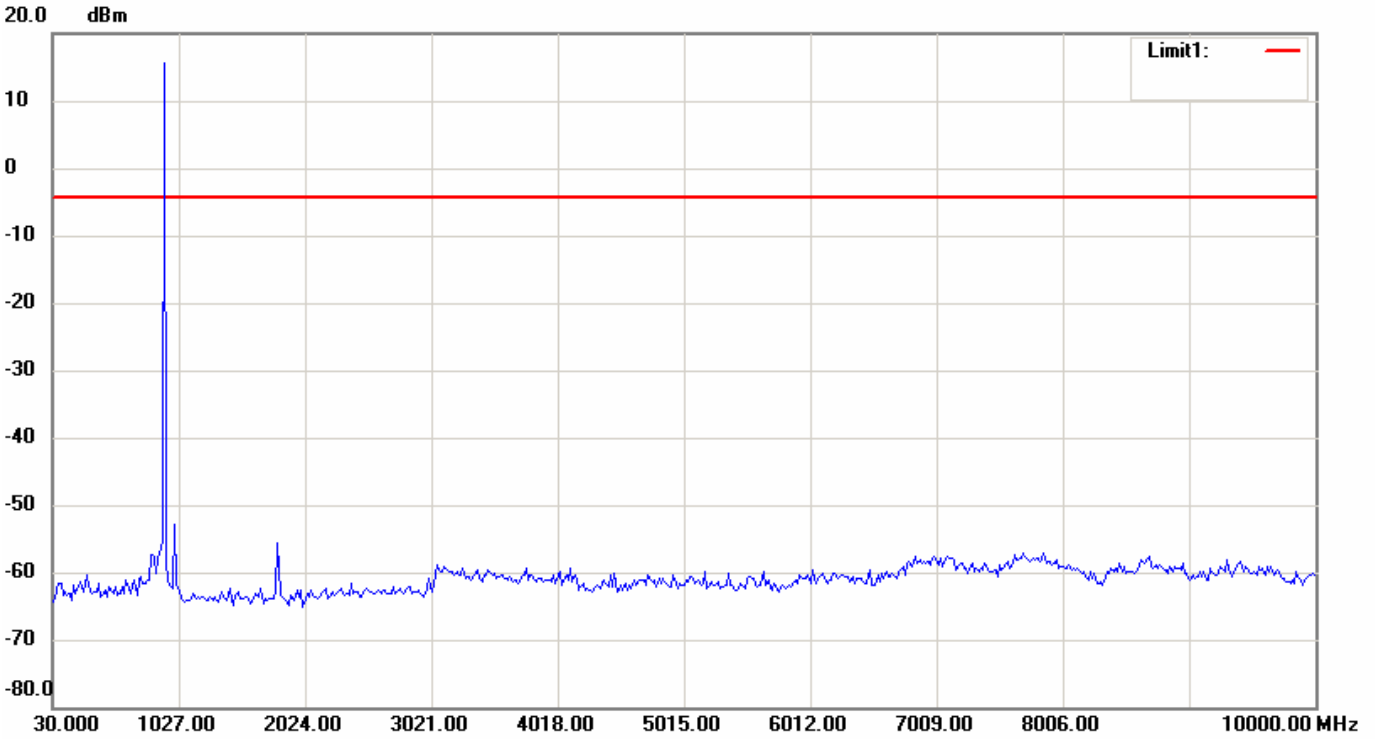
Test Mode:

Note: **HIGH**

No.	Frequency(MHz)	Level(dBm)
1	926.7500	15.36
2	926.9000	-5.43

File: **09-12-MAS-078** **Data:** **#22** **Date:** **2010/2/22** **Temperature:** **16 ℃**

Time: **AM 09:44:02** **Humidity:** **51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 1202ms** **Att.: 30dB**

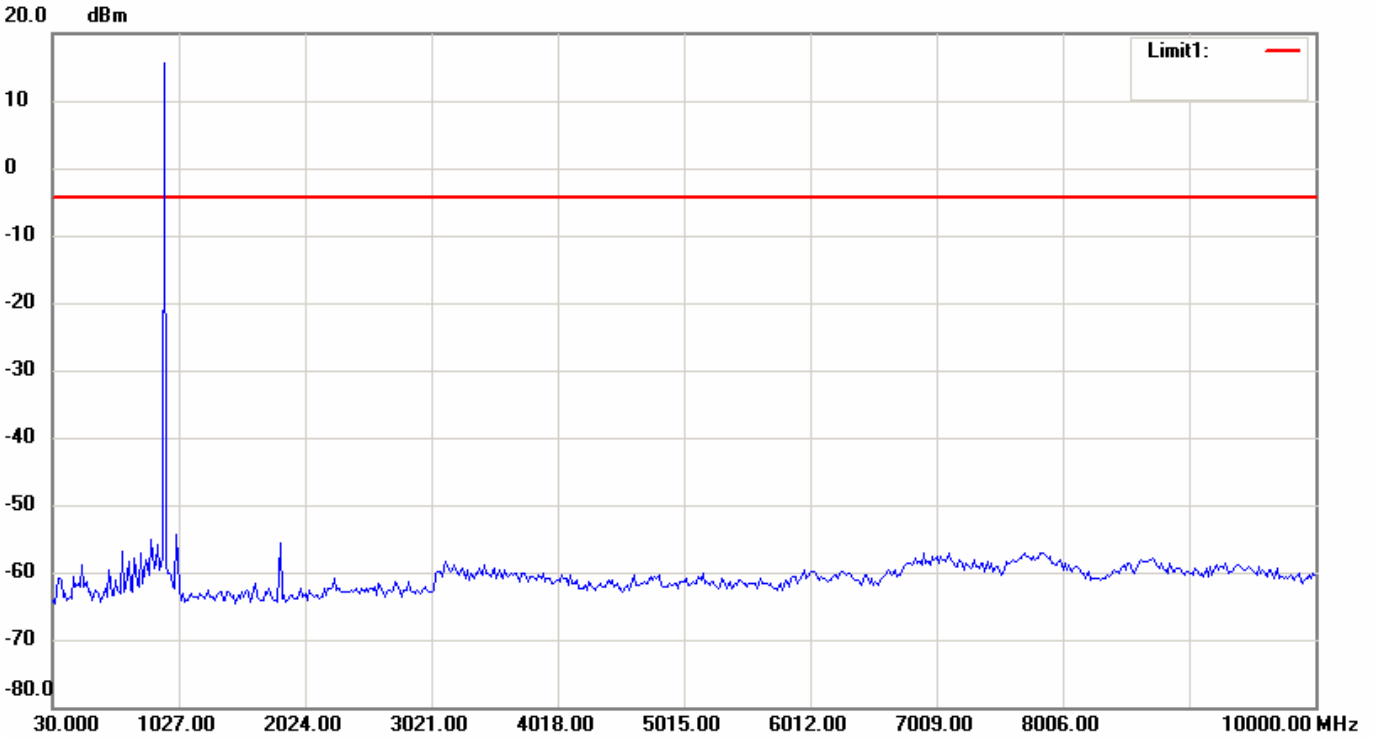
Model: **RBW: 100 KHz** **VBW: 100 KHz**

Test Mode:

Note: **LOW**

File: **09-12-MAS-078** **Data:** **#23** **Date:** **2010/2/22** **Temperature:** **16 ℃**

Time: **AM 09:46:02** **Humidity:** **51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 1202ms** **Att.: 30dB**

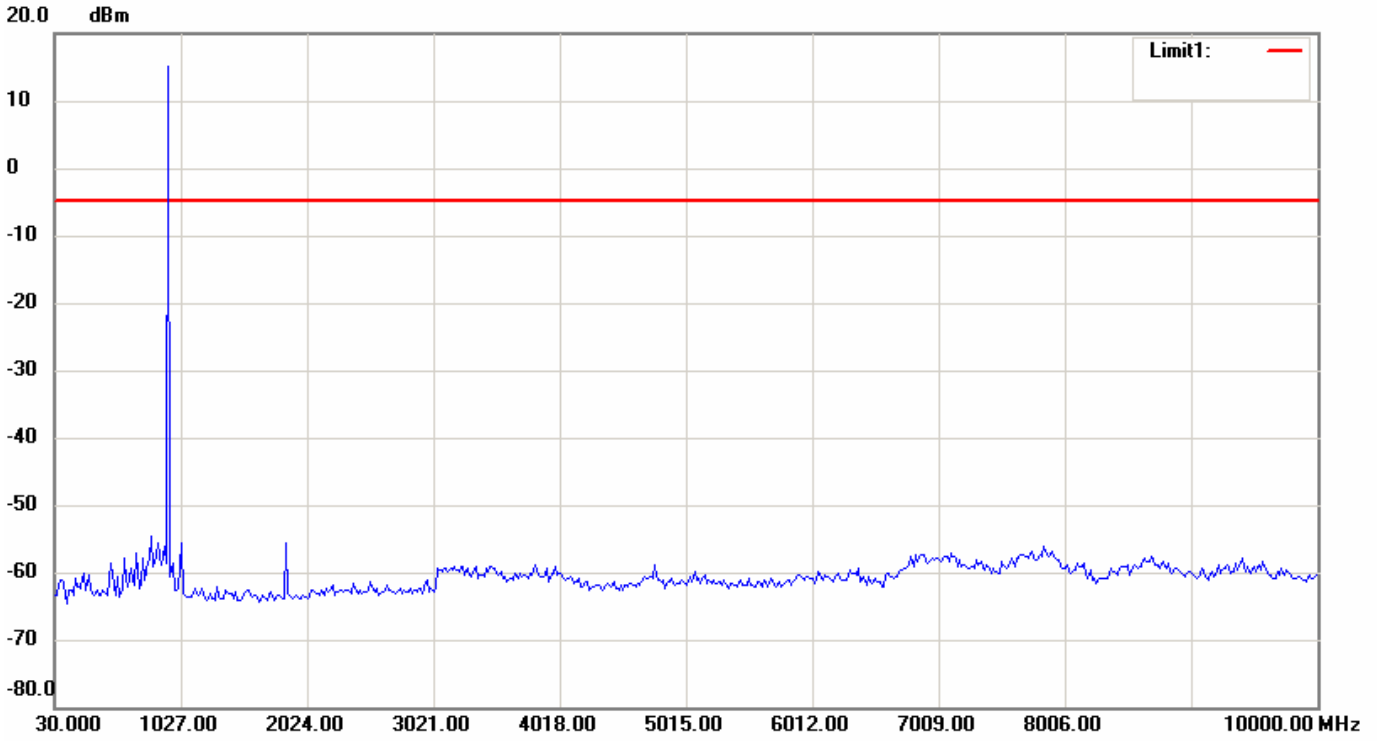
Model: **RBW: 100 KHz** **VBW: 100 KHz**

Test Mode:

Note: **MID**

File: 09-12-MAS-078 Data: #21 **Date: 2010/2/22** **Temperature: 16 ℃**

Time: AM 09:41:59 **Humidity: 51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 1202ms** **Att.: 30dB**

Model: **RBW: 100 KHz** **VBW: 100 KHz**

Test Mode:

Note: **HIGH**

10 NUMBER of HOPPING CHANNELS

10.1 Standard Applicable

For frequency hopping systems, According to 15.247(a)(1)(i), 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 shll not be greater than 0.4 seconds within a 10 second period.

10.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The setup of the EUT as shown in figure 4. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set EUT to hopping operating mode and set spectrum analyzer miximum to measure the number of hopping channels.

10.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Agilent	E4446A	09/27/2010

10.4 Measurement Data

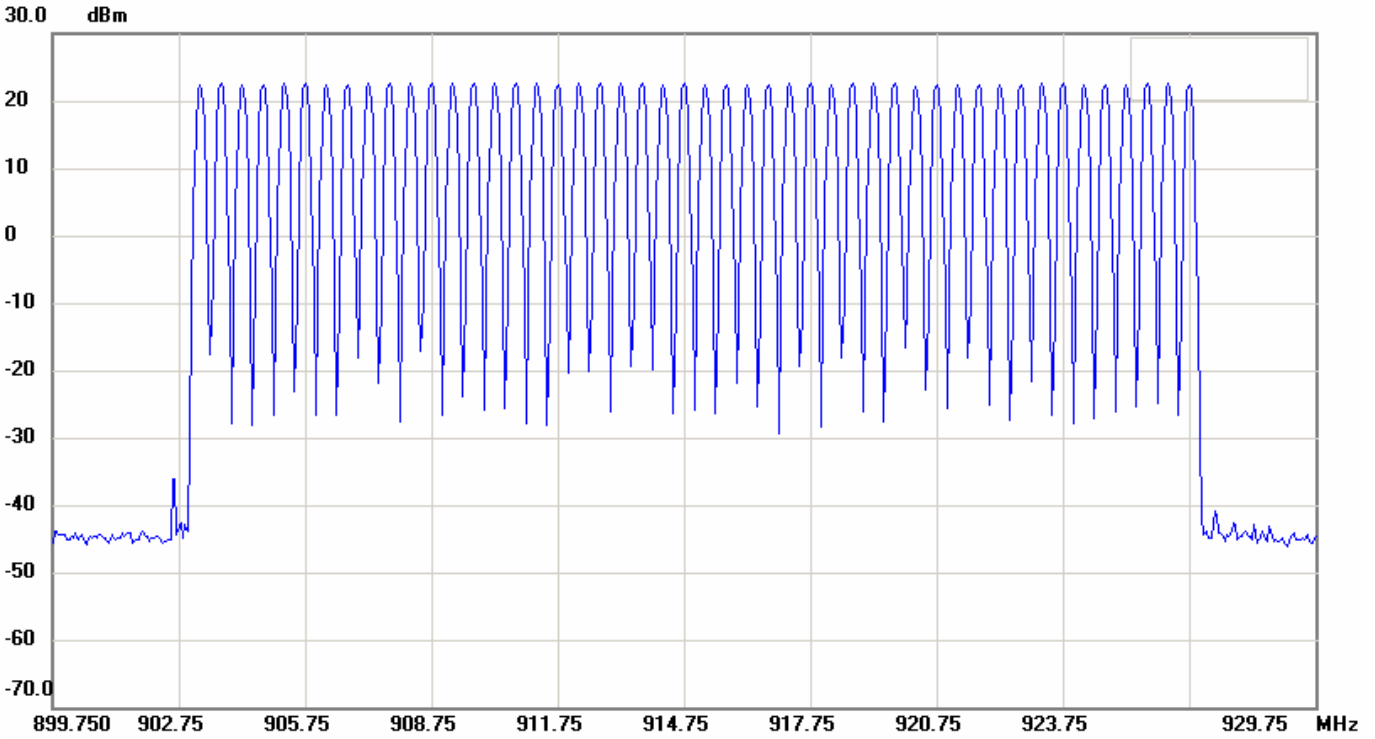
Test Date : Dec. 08, 2009 Temperature : 26℃ Humidity : 51%

Number of hopping channels = 48 channels

Note: Please refer to page 70 for chart.

File: 09-12-MAS-078 Data: #12 **Date: 2009/12/8** **Temperature: 26 ℃**

Time: PM 01:33:55 **Humidity: 51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 3.64ms Att.: 40dB**

Model: **RBW: 100 KHz VBW: 100 KHz**

Test Mode:

Note:

11 HOPPING CHANNEL CARRIER FREQUENCY SEPARATED

11.1 Standard Applicable

For frequency hopping systems, According to 15.247(a)(1), hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

11.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The setup of the EUT as shown in figure 4. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any measurement frequency within its operating ragne and make sure the instrument is operated in its linear range.
3. Set spectrum analyzer maximum hold to measure channel carrier frequency , then adjust channel carrier frequency to adjacent channel.
4. Repeat above procedure until all measured frequencies were complete.

11.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Agilent	E4446A	09/27/2010

11.4 Measurement Data

11.4.1 A9235-A-002-NET

Test Date : Dec. 08, 2009 Temperature : 26℃ Humidity : 51%

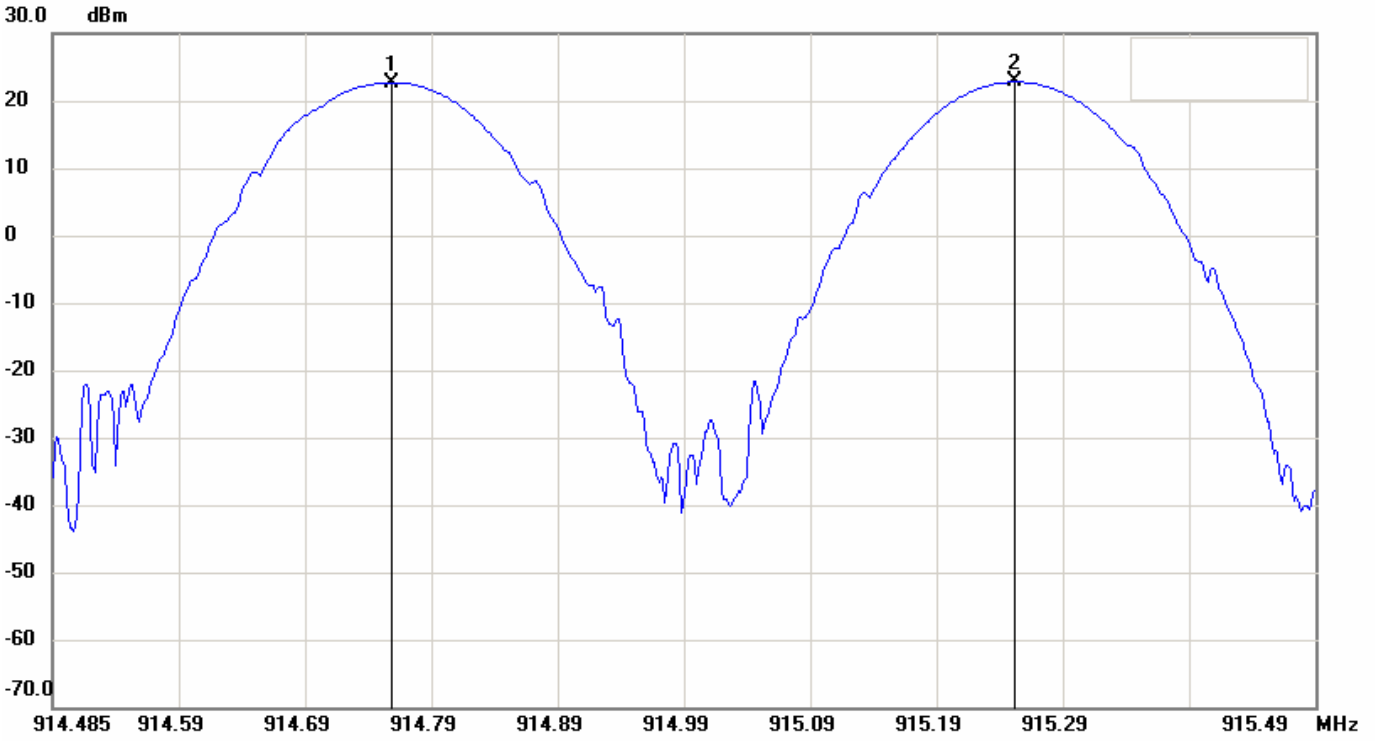
Channel	Frequency (MHz)	Hopping Channel Carrier Frequency Separated (MHz)	Chart
Mid	914.750	0.4934	Page 73

Note: 1. Please refer to page 73 for chart.

2. CH Low, CH Mid and CH High have the same test result. Only CH Mid test result showed in the test report.

File: 09-12-MAS-078 Data: #7 **Date: 2009/12/8** **Temperature: 26 ℃**

Time: PM 01:12:09 **Humidity: 51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 1ms Att.: 40dB**

Model: **RBW: 100 KHz VBW: 100 KHz**

Test Mode:

Note: **MID**

No.	Frequency(MHz)	Level(dBm)
1	914.7533	22.74
2	915.2467	22.79

No.		△Frequency(MHz)	△Level(dB)
1	mk2-mk1	0.4934	0.05

11.4.2 A9295-A-0K

Test Date : Feb. 22, 2010 Temperature : 16℃ Humidity : 51%

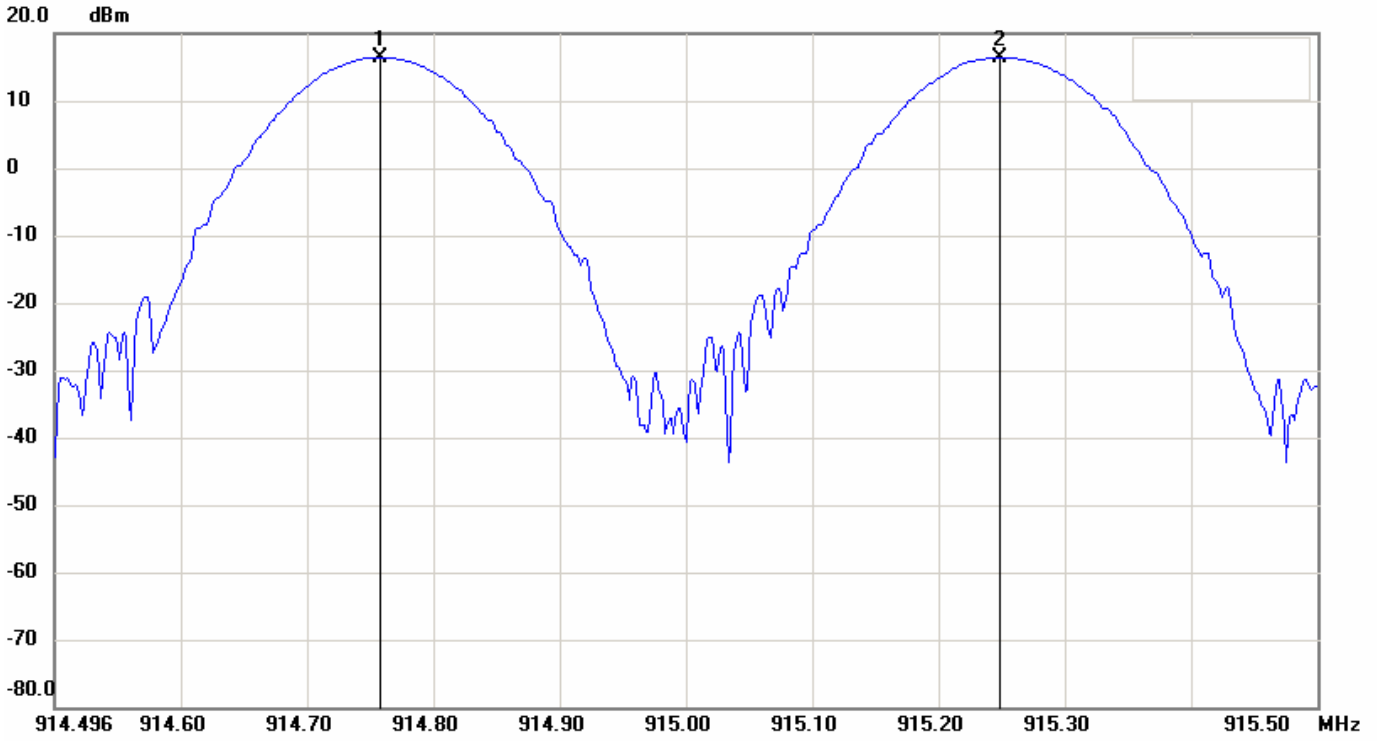
Channel	Frequency (MHz)	Hopping Channel Carrier Frequency Separated (MHz)	Chart
Mid	914.750	0.4916	Page 75

Note: 1. Please refer to page 75 for chart.

2. CH Low, CH Mid and CH High have the same test result. Only Mid test result showed in the test report.

File: 09-12-MAS-078 Data: #25 **Date: 2010/2/22** **Temperature: 16 ℃**

Time: AM 09:51:53 **Humidity: 51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 1ms Att.: 30dB**

Model: **RBW: 100 KHz VBW: 100 KHz**

Test Mode:

Note:

No.	Frequency(MHz)	Level(dBm)
1	914.7530	16.45
2	915.2446	16.43

No.		△Frequency(MHz)	△Level(dB)
1	mk2-mk1	0.4916	-0.02

12 Dwell Time

12.1 Standard Applicable

For frequency hopping systems, According to 15.247(a)(1)(i), 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 shll not be greater than 0.4 seconds within a 10 second period.

12.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The setup of the EUT as shown in figure 4.

12.3 Measurement Equipment

Equipment	Manufacturer	Model No.	Next Cal. Due
Spectrum Analyzer	Agilent	E4446A	09/27/2010

12.4 Measurement Data

Test Date : Dec. 08, 2009 Temperature : 26℃ Humidity : 51%

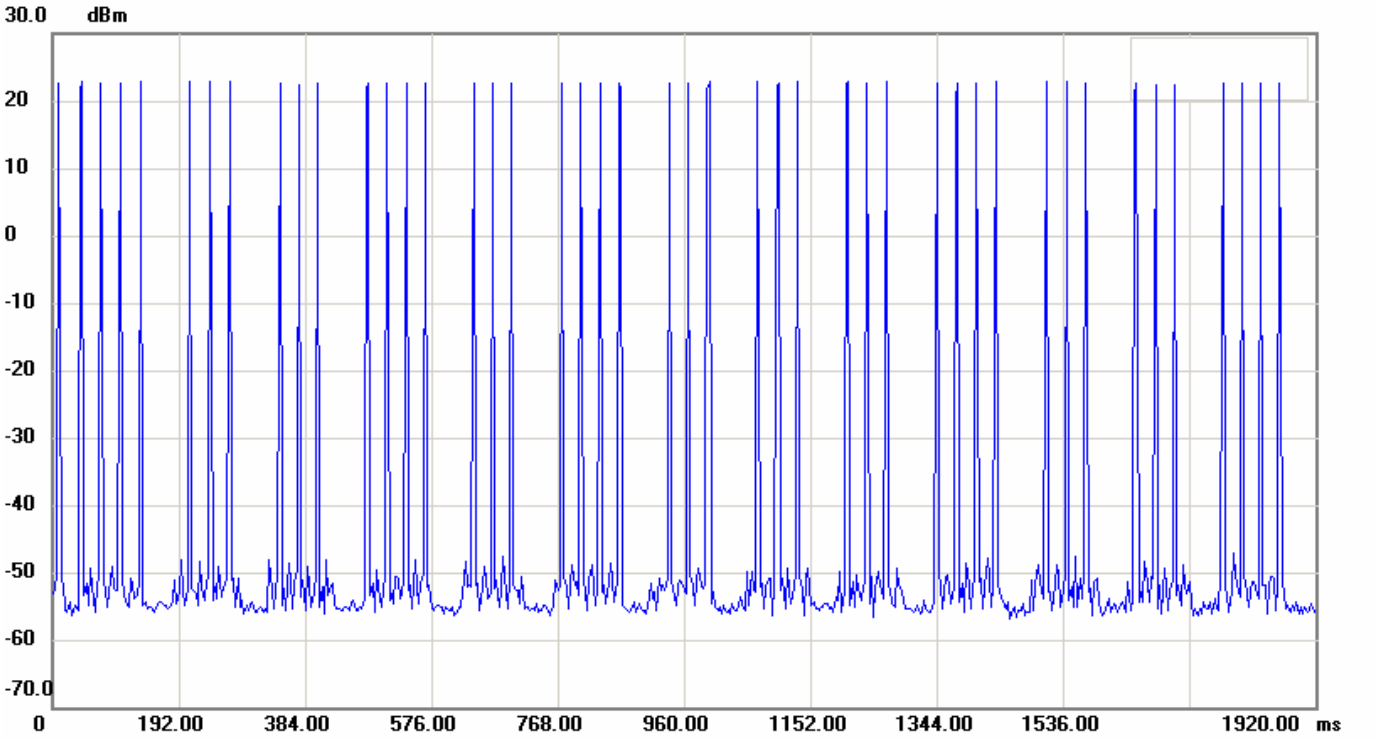
Limit: 0.4 sec
Ch Mid dwell time = 0.4 (s) × 48 (ch) = 19.2 (s)
5.17 × 45 = 232.65 (ms)

Note: 1. Please refer to page 77 to page 78 for chart. . The main peak of CH Mid is rerified to appear one time in the Chart.

2. CH Low, CH Mid and CH High have the same test result. Only Mid test result showed in the test report.

File: **09-12-MAS-078** **Data:** **#14** **Date:** **2009/12/8** **Temperature:** **26 ℃**

Time: **PM 02:01:20** **Humidity:** **51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 1920ms** **Att.: 40dB**

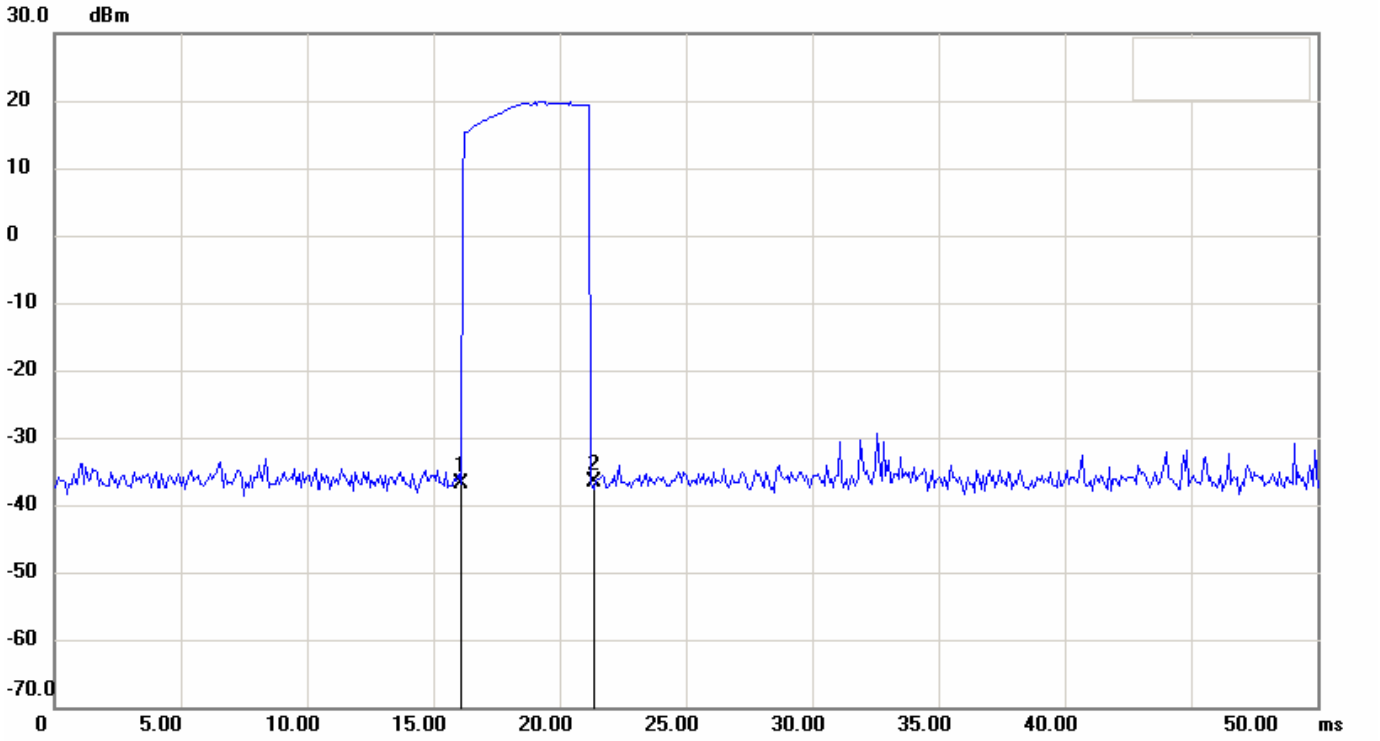
Model: **RBW: 10 KHz** **VBW: 100 KHz**

Test Mode:

Note: ***45**

File: 09-12-MAS-078 Data: #15 **Date: 2009/12/8** **Temperature: 26 ℃**

Time: PM 02:06:11 **Humidity: 51 %**



Condition: **RF Conducted**

EUT: **Sweep Time: 50ms Att.: 40dB**

Model: **RBW: 1000 KHz VBW: 1000 KHz**

Test Mode:

Note:

No.	Sweep time(ms)	Level(dBm)
1	16.0833	-36.82
2	21.2500	-36.59

No.		△Time(ms)	△Level(dB)
1	mk2-mk1	5.1667	0.23