



A Test Lab Techno Corp.

No.140-1, Chang-an St., Bade City, Tao-Yuan County 334, Taiwan (R.O.C.)
Tel : +886-3-2710188 / Fax : +886-3-2710190

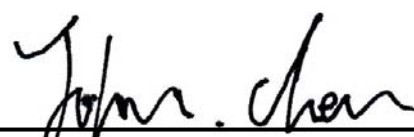
Part 15 C Measurement Report



Report No.	: 0907FR19-01
Applicant	: Applied Wireless Identifications Group Inc.
Trade Mark	: AWID
Product Model	: MPR-1910
Product Type	: MPR-1910 RFID Reader Module
FCC ID	: OGSMPR1910
IC ID	: 6449A-MPR1910
Dates of Test	: Jul. 22 ~ Oct. 06, 2009
Test Specification	: 47 CFR §15.247 (2008-10) RSS-210 Issue 7(2007)
Location of Test Lab.	: Chang-An Lab.

1. The test operations have to be performed with cautious behavior, the test results are as attached.
2. The test results are under chamber environment of A Test Lab Techno Corp. A Test Lab Techno Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples.
3. The measurement report has to be written approval of A Test Lab Techno Corp. It may only be reproduced or published in full. This report shall not be reproduced except in full, without the written approval of A Test Lab Techno Corp.
4. This document may be altered or revised by A Test Lab Techno. Corp. personnel only, and shall be noted in the revision section of the document.


Miller Lee 20091007
Approve Signer


John Cheng 20091007
Testing Engineer



CERTIFICATION

We hereby verify that:

The test data, data evaluation, test procedures and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2003. All test were conducted by *A Test Lab Techno Corp. No.140-1, Chang-an St., Bade City, Tao-Yuan County 334, Taiwan (R.O.C.)* Also, we attest to the accuracy of each.

We further submit that the energy emitted by the sample EUT tested as described in the report is in compliance with Class B radiated and conducted emission limit of FCC Rules Part 15 Subpart C (15.247) & RSS-210 Issue 7(2007).

EUT : MPR-1910 RFID Reader Module
Applicant : Applied Wireless Identifications Group Inc.
18300 Sutter Blvd, Morgan Hill, CA 95037 USA
Trade Mark : AWID
Model No : MPR-1910
FCC ID : OGSMMPR1910
IC ID : 6449A-MPR1910

Approved by : Miller Lee
Miller Lee 2009/10/07

Prepared by : John Cheng
John Cheng 2009/10/18

A Test Lab Techno Corp.

*No.140-1, Chang-an St., Bade City, Tao-Yuan County 334, Taiwan (R.O.C.)
Tel : 03-2710188 / Fax : 03-2710190*



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1. GENERAL

1.1 Description of Equipment under Test (EUT)

Applicant	: Applied Wireless Identifications Group Inc
Applicant Address	: 18300 Sutter Blvd, Morgan Hill, CA 95037 USA
Manufacturer	: EMMT SYSTEMS CORPORATION
Manufacturer Address	: TAICHUNG EXPORT PROCESSING ZONE P.O BOX 1-45, TAN-TZU TAICHUNG. NO.16-1 NAN-ER ROAD,TAN-TZU,TAICHUNG HSIEN,TAIWAN R.O.C
Trade Mark	: AWID
Product Model	: MPR-1910
Product Type	: MPR-1910 RFID Reader Module
FCC ID	: OGSMMPR1910
IC ID	: 6449A-MPR1910
Hardware Version	: V1.14
Software Version	: 25.05.t6
Type of Modulation	: ASK
RF Operating Frequency	: 902 MHz to 928 MHz
Number of Channels	: 125
RF Output Power	: 29.69 dBm (Peak)
Rated Voltage	: 3.3 V
Type of Antenna	: ANT-915CPS-A : Balanced Quadruple Circular Polarized Antenna, 5.70dBi ANT-915CPS-CP10 : Compact CP Antenna, 1.4dBi SL4M-ANT : Coupler antenna, -12 dBi

During testing the EUT was operated at Tx or Rx mode for each emission measured. This was done in order to ensure that maximum emission levels were attained.

Gen 2 and ISO are air protocol of RFID tag. Gen 2 is simplified from EPC Class 1 Gen 2. ISO is simplified from ISO-18000-6 Type B/C.



1.2 Introduction

The following measurement report is submitted on behalf of **Applied Wireless Identifications Group Inc.** In support of a Class B Digital Device certification in accordance with Part2 Subpart J and Part 15 Subpart A , B, C and RSS 210 Issue7(2007) of the Commission's and Regulations.

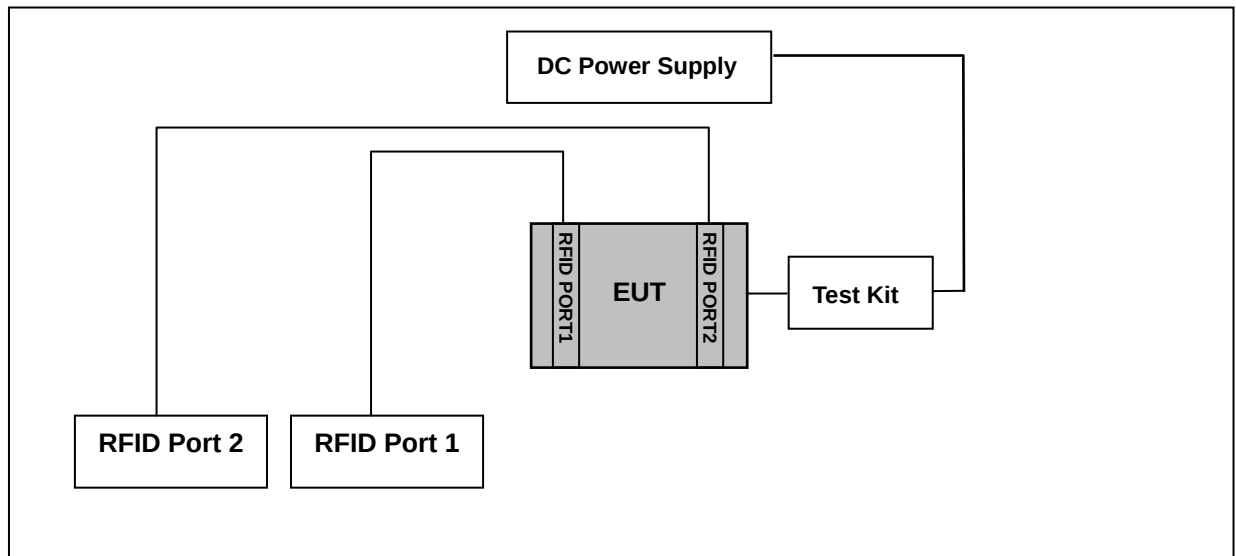
1.3 Summary of Tests

47 CFR Part 15 Subpart C & RSS 210 Issue7					
Reference		Test	Results		Section
CFR 47 Part 15.247	RSS 210 Issue7		ISO	Gen 2	
15.205	RSS 210(A8.5)	Restricted Band of Operation	PASS	PASS	----
15.207(a)	RSS Gen(7.2.2)	Conducted Emissions Voltage	PASS	PASS	2.5
15.209; 15.247(d)	RSS 210(A8.5)	Radiated Spurious Emissions	PASS	N/A (Note1)	3.5
15.247(b)	RSS 210(A8.4)	Output Power	PASS	PASS	4.4
15.247(a)(1)	RSS 210(A8.1)	Occupied Bandwidth	PASS	PASS	5.4
15.247(a)(1)(i)	RSS 210(A8.1)	Carrier Frequency Separation Requirements	PASS	N/A	6.4
15.247(a)(1)	RSS 210(A8.1)	Number of Hopping Channels	PASS	N/A	7.4
15.247(a)(1)	RSS 210(A8.1)	Time of Occupancy	PASS	PASS	8.3
15.247(d)	RSS 210(A8.5)	Conducted Spurious Emissions	PASS	PASS	9.5
15.203		Antenna Requirement	PASS		11.2
15.247(c)	RSS 210(A8.4)	Antenna Gain < 6 dBi	PASS		11.2
15.247(e)	RSS 210(A8.3)	Power Spectral Density	N/A		----
15.247(f)	RSS 210(A8.3)	Hybrid System Requirement	N/A		----
CFR 47 Part 15.247 (2008) / RSS 210 Issue7 (2007) / ANSI C63.4: 2003 / RSS-Gen Issue 2: 2007					
Note 1: The RF output power worst case is ISO link mode. The Radiated Spurious Emissions are testing the worst case output power mode of ISO link mode.					

1.4 Description of Support Equipment

Describe	Manufacturer	Model	Serial No.	FCC ID
----	----	----	----	----

1.5 Configuration of System under Test



During testing the EUT connected to the test Kit. The EUT's RFID antenna port connected to the RFID Antenna.

1.6 Test Procedure

All measurements contained in this report were performed according to the techniques described in Measurement procedure ANSI C63.4-2003 "Measurement of un-Intentional Radiators."

1.7 General Test Condition

The conditions under which the EUT operates were varied to determine their effect on the equipment's emission characteristics. The final configuration of the test system and the mode of operation used during these tests were chosen as that which produced the highest emission levels. However, only those conditions which the EUT was considered likely to encounter in normal use were investigated. The systems radiated and conducted emissions were investigated while the computer alternately transferred data to the EUT as well as to the monitor and printer. Using a test program which sent a continuous data and transferred data to and from the EUT was proven to worst case emissions. The system's physical layout and cabling was randomly arranged to ensure that maximum emission levels were attained.



2.3 Test Equipment List

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Advantest	R3132	160300103	Mar. 10, 2009	Mar. 10, 2010
Test Receiver	R&S	ESCI	100367	Jul. 01, 2009	Jul. 01, 2010
LISN	EMCO	3816/2 SH	00060110	Jun. 17, 2009	Jun. 17, 2010
LISN	EMCO	3816/2 SH	00060111	Jun. 29, 2009	Jun. 29, 2010
Transient Limiter	ELECTRO-METRICS	EM-7600	777	Sep. 22, 2008	Sep. 22, 2009

2.4 Limits

Frequency range (MHz)	Limits (dBuV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5.0	56	46
5.0 to 30	60	50

2.5 Test Results

EUT : MPR-1910 RFID Reader Module

Model No : MPR-1910

Test Mode : ISO Mode

Test Date : 7/22/2009

- Notes:
1. L1: One end & Ground L2: The other end & Ground
 2. Height of table on which the EUT was placed: 0.8 m.
 3. The Quasi-Peak Value have already met the Average Value Limit showed on above limits.
 4. The above test results are obtained under the normal condition.
 5. The test results are the worse case.



Conducted Emission Measurement

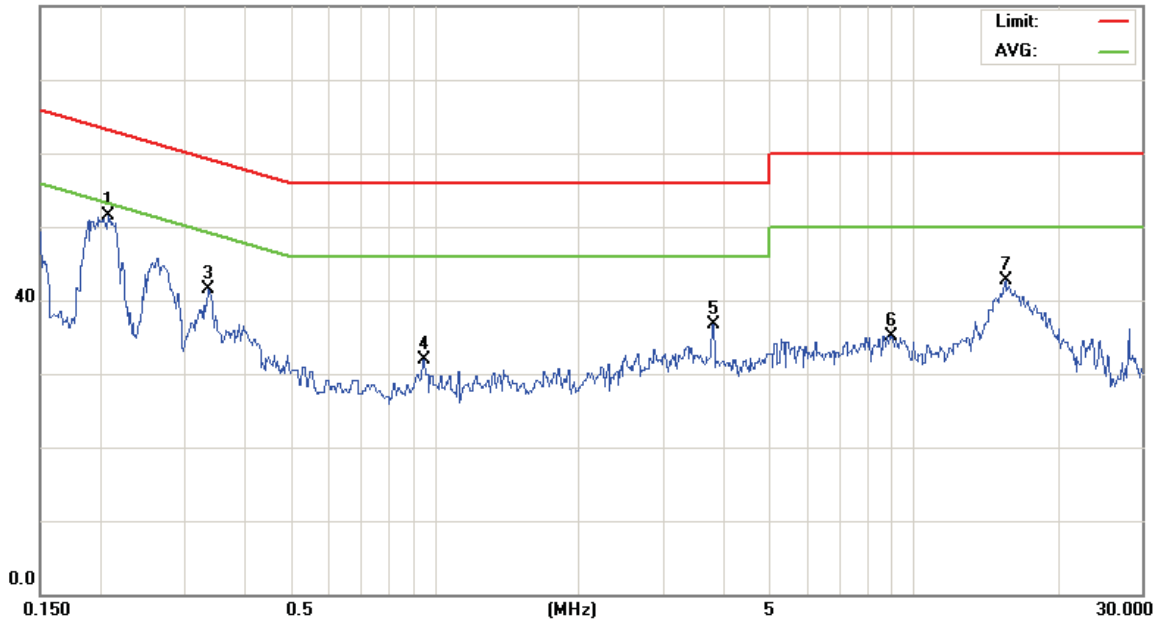
File :MPR-1910(FCC)

Data :#5

Date: 2009/7/22

Time: 下午 03:30:30

80.0 dBuV



Site site#1

Phase: **L1**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 55 %

EUT:

M/N: 09-0177-E

Mode: ISO Mode

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	0.2081	41.77	9.74	51.51	63.28	-11.77	peak	
2		0.2081	27.46	9.74	37.20	53.28	-16.08	AVG	
3		0.3348	31.63	9.78	41.41	59.33	-17.92	peak	
4		0.9500	22.13	9.81	31.94	56.00	-24.06	peak	
5		3.8030	26.76	9.95	36.71	56.00	-19.29	peak	
6		8.9500	25.04	10.09	35.13	60.00	-24.87	peak	
7		15.5500	32.34	10.27	42.61	60.00	-17.39	peak	

*:Maximum data x:Over limit !:over margin

●Reference Only



Conducted Emission Measurement

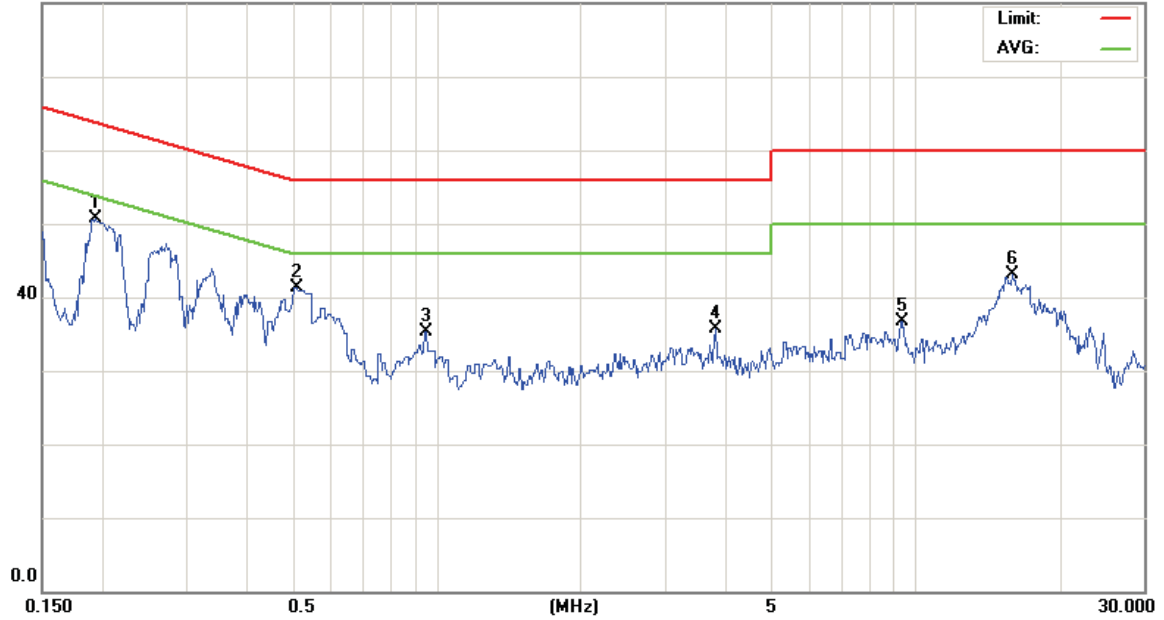
File :MPR-1910(FCC)

Data :#6

Date: 2009/7/22

Time: 下午 03:52:14

80.0 dBuV



Site site#1

Phase: **L2**

Temperature: 26 °C

Limit: CISPR22 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 55 %

EUT:

M/N: 09-0177-E

Mode: ISO Mode

Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1934	40.97	9.74	50.71	63.88	-13.17	peak	
2		0.5090	31.45	9.79	41.24	56.00	-14.76	peak	
3		0.9500	25.41	9.81	35.22	56.00	-20.78	peak	
4		3.8120	25.68	9.95	35.63	56.00	-20.37	peak	
5		9.3500	26.71	10.08	36.79	60.00	-23.21	peak	
6		15.9000	32.94	10.26	43.20	60.00	-16.80	peak	

*:Maximum data x:Over limit !:over margin

●Reference Only



3. Radiated Emissions Requirements

3.1 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 C63.4:2003 on radiated measurement.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters for the frequency under 1GHz and 3 meters for the frequency above 1GHz.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCI is 120 kHz and above 1GHz is 1MHz.

The attenuation required under this paragraph shall be 30 dB. Attenuation below the general limits specified in Sec. 15.209(a) is not required.

In addition, radiated emissions which fall in the restricted bands, as defined in Sec. 15.205(a), must also comply with the radiated emission limits specified in Sec. 15.209(a)

Test result:

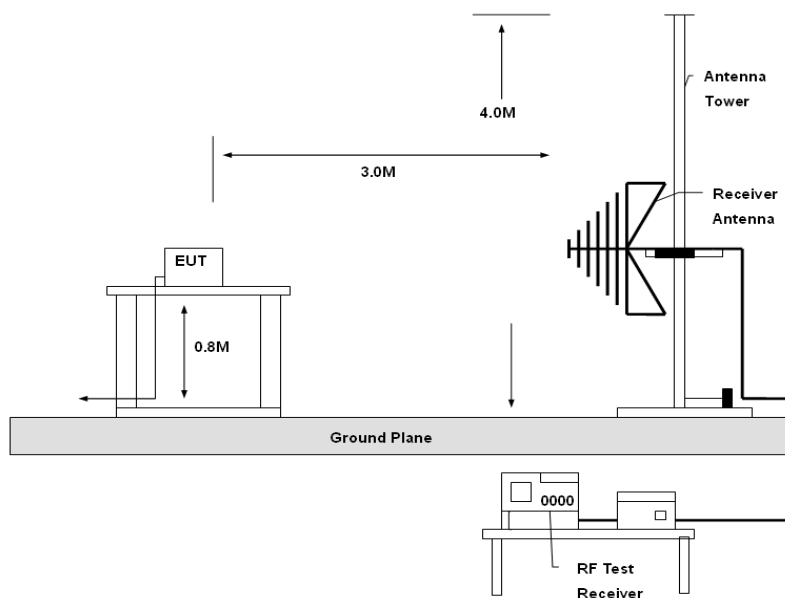
Margin= Amplitude - Limits

Amplitude= Reading Amplitude - Amplifier gain + Cable loss + Antenna factor

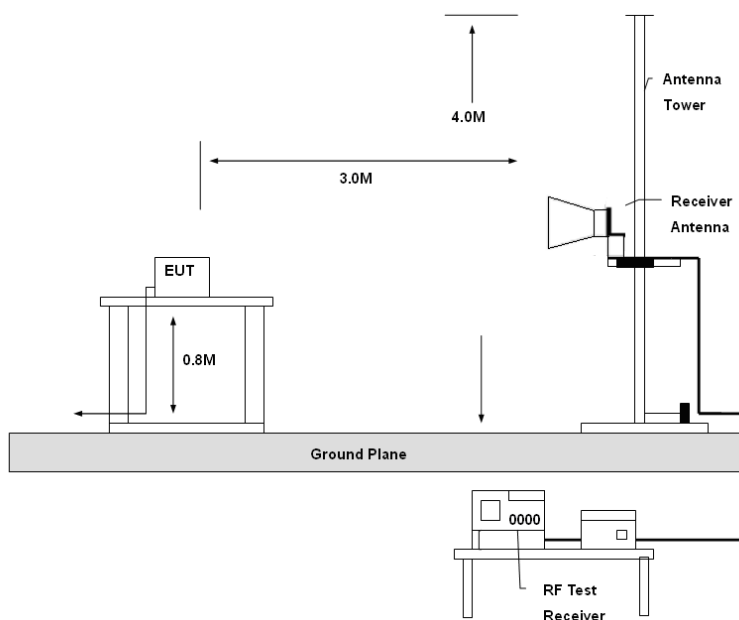
(Auto calculate in spectrum analyzer)

3.2 Test Instruments Configuration

Below 1G



Above 1G



3.3 Test Equipment List

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4408B	MY45107753	Jun. 23, 2009	Jun. 23, 2010
Pre Amplifier	Agilent	8449B	3008A02237	Jul. 01, 2009	Jul. 01, 2010
Pre Amplifier	Agilent	8447D	2944A10961	Jun. 30, 2009	Jun. 30, 2010
Test Receiver	R&S	ESCI	100367	Jul. 01, 2009	Jul. 01, 2010
Biconilog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	Jun. 23, 2009	Jun. 23, 2010
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	Jul. 01, 2009	Jul. 01, 2010
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	Jun. 30, 2009	Jun. 30, 2010
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120E	0899	Jun. 23, 2009	Jun. 23, 2010

3.4 Limits

Frequency range (MHz)	Field strength (microvolts/meter)	Measure-ment dis-tance (meters)
0.009 to 0.490	2400/F(kHz)	300
0.490 to 1.705	24000/F(kHz)	30
1.705 to 30.0	30	30
30 to 88	100**	3
88 to 216	150**	3
216 to 960	200**	3
Above 960	500**	3

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



3.5 Test Results

3.5.1 Antenna Model: ANT-915CPS-A _ ISO Mode

EUT : MPR-1910 RFID Reader Module

Model No : MPR-1910

Test Date : 09/16/2009

Above 1.5GHz data please refer to next page.

Test Mode : 902.75 MHz _ Below 1.5GHz							
Fundamental TX level : Horizontal - 119.20dBuV/m, Vertical - 119.71dBuV/m							
Frequency (MHz)	Polarization	Read level	Factor	Amplitude (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector
279.21	H	52.56	-9.84	42.72	46	-3.28	Peak
288.93	H	49.85	-9.55	40.30	46	-5.70	Peak
333.60	H	50.73	-8.82	41.91	46	-4.09	QP
41.61	V	36.19	-1.91	34.28	40	-5.72	Peak
59.97	V	39.12	-5.2	33.92	40	-6.08	QP
330.80	V	51.86	-8.88	42.98	46	-3.02	Peak

Test Mode : 914.75 MHz _ Below 1.5GHz							
Fundamental TX level : Horizontal - 118.58dBuV/m, Vertical -119.87dBuV/m							
Frequency (MHz)	Polarization	Read level	Factor	Amplitude (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector
59.97	H	35.89	-5.20	30.69	40	-9.31	Peak
297.57	H	51.18	-9.66	41.52	46	-4.48	Peak
334.30	H	51.32	-8.81	42.51	46	-3.49	QP
64.83	V	41.14	-7.43	33.71	40.0	-6.29	Peak
274.62	V	47.50	-10.16	37.34	46	-8.66	Peak
332.90	V	50.12	-8.84	41.28	46	-4.72	QP

Test Mode : 927.25 MHz _ Below 1.5GHz							
Fundamental TX level : Horizontal -119.09dBuV/m, Vertical -119.75dBuV/m							
Frequency (MHz)	Polarization	Read level	Factor	Amplitude (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector
60.24	H	38.67	-5.31	33.36	40.0	-6.64	Peak
294.87	H	52.11	-9.73	42.38	46.0	-3.62	Peak
333.60	H	50.88	-8.82	42.06	46.0	-3.94	QP
32.97	V	34.81	-1.21	33.60	40.0	-6.40	Peak
98.85	V	44.85	-7.29	37.56	43.5	-5.94	Peak
330.80	V	49.34	-8.88	40.46	46.0	-5.54	QP



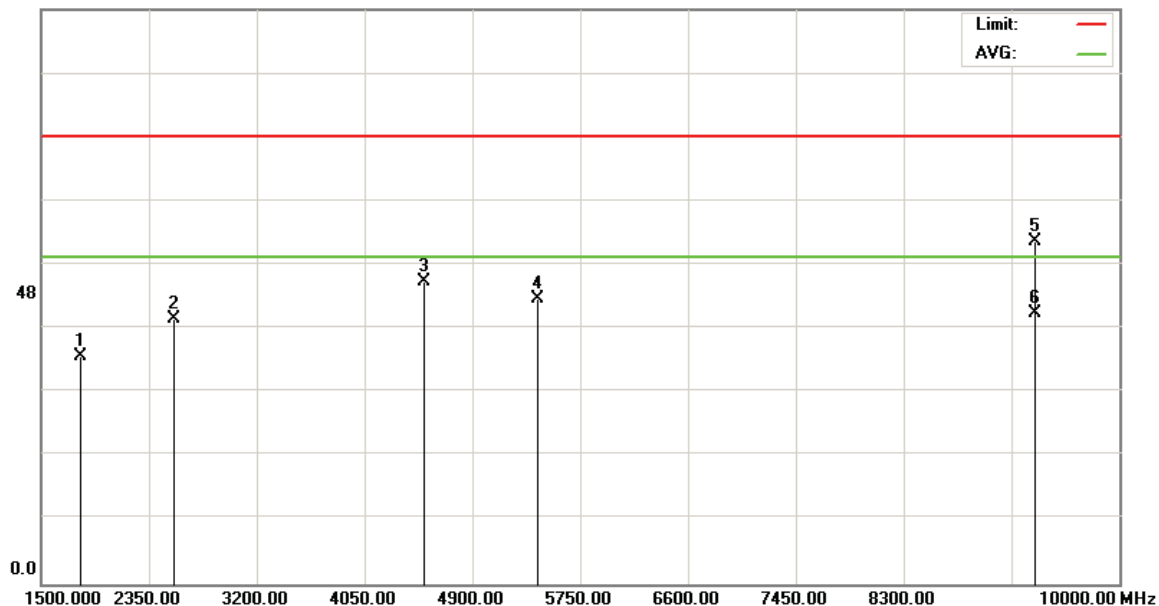
File:MPR-1910 CH00

Data :#9

Date: 2009/9/16

Time: 上午 01:40:01

95.0 dBuV



Site site #1

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-E

Mode: ISO Mode CH00

Note: ANT-915CPS-A

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		1805.200	40.25	-2.51	37.74	74.00	-36.26	peak			
2		2540.000	43.01	0.86	43.87	74.00	-30.13	peak			
3		4510.000	43.52	6.53	50.05	74.00	-23.95	peak			
4		5415.600	38.72	8.44	47.16	74.00	-26.84	peak			
5		9334.000	39.63	17.11	56.74	74.00	-17.26	peak			
6	*	9334.000	27.65	17.11	44.76	54.00	-9.24	AVG			

*:Maximum data x:Over limit !:over margin

●Reference Only



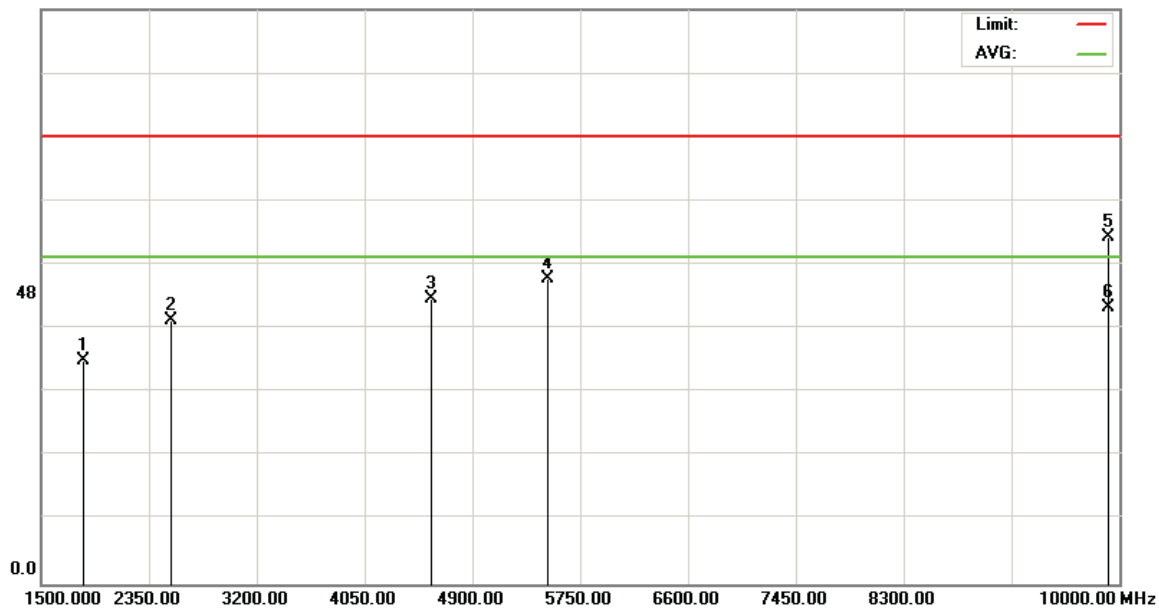
File:MPR-1910 CH62

Data :#9

Date: 2009/9/16

Time: 上午 12:27:49

95.0 dBuV



Site site #1

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-E

Mode: ISO Mode CH62

Note: ANT-915CPS-A

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		1830.000	39.43	-2.43	37.00	74.00	-37.00	peak			
2		2523.750	42.86	0.76	43.62	74.00	-30.38	peak			
3		4575.000	40.37	6.76	47.13	74.00	-26.87	peak			
4		5490.000	41.82	8.69	50.51	74.00	-23.49	peak			
5		9910.000	39.35	17.93	57.28	74.00	-16.72	peak			
6	*	9910.000	27.73	17.93	45.66	54.00	-8.34	AVG			

*:Maximum data x:Over limit !:over margin

●Reference Only



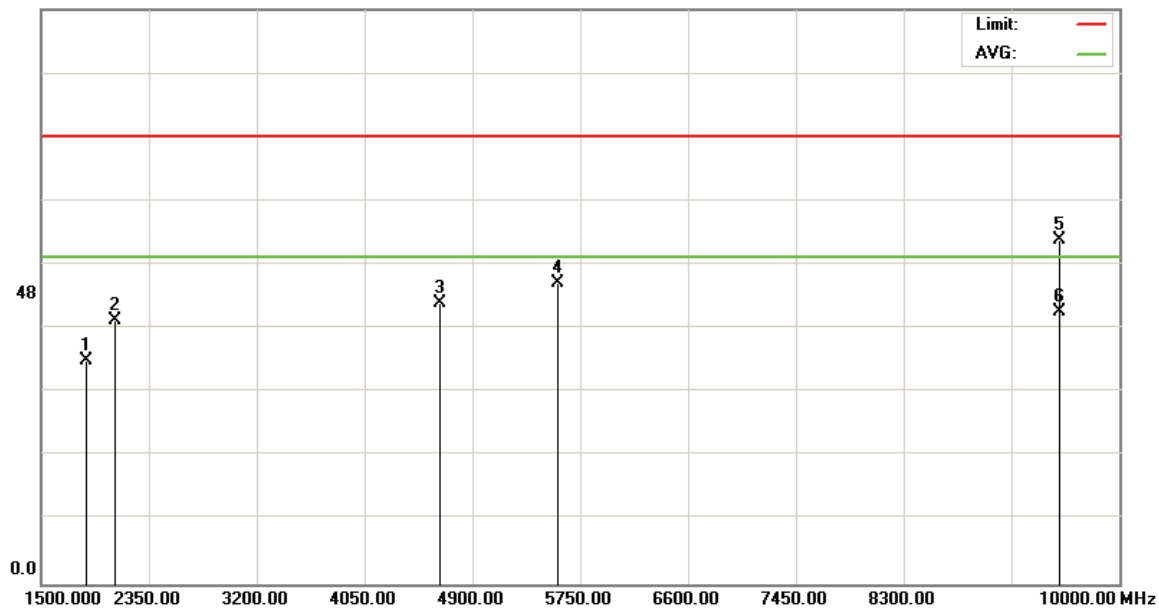
File:MPR-1910 CH124

Data :#9

Date: 2009/9/16

Time: 上午 12:49:51

95.0 dBuV



Site site #1

Polarization: *Vertical*

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-E

Mode: ISO Mode CH124

Note: ANT-915CPS-A

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		1854.800	39.14	-2.21	36.93	74.00	-37.07	peak			
2		2081.750	44.00	-0.39	43.61	74.00	-30.39	peak			
3		4637.000	39.49	7.03	46.52	74.00	-27.48	peak			
4		5564.400	40.76	8.97	49.73	74.00	-24.27	peak			
5		9532.000	39.63	17.34	56.97	74.00	-17.03	peak			
6	*	9532.000	27.75	17.34	45.09	54.00	-8.91	AVG			

*:Maximum data x:Over limit !:over margin

●Reference Only



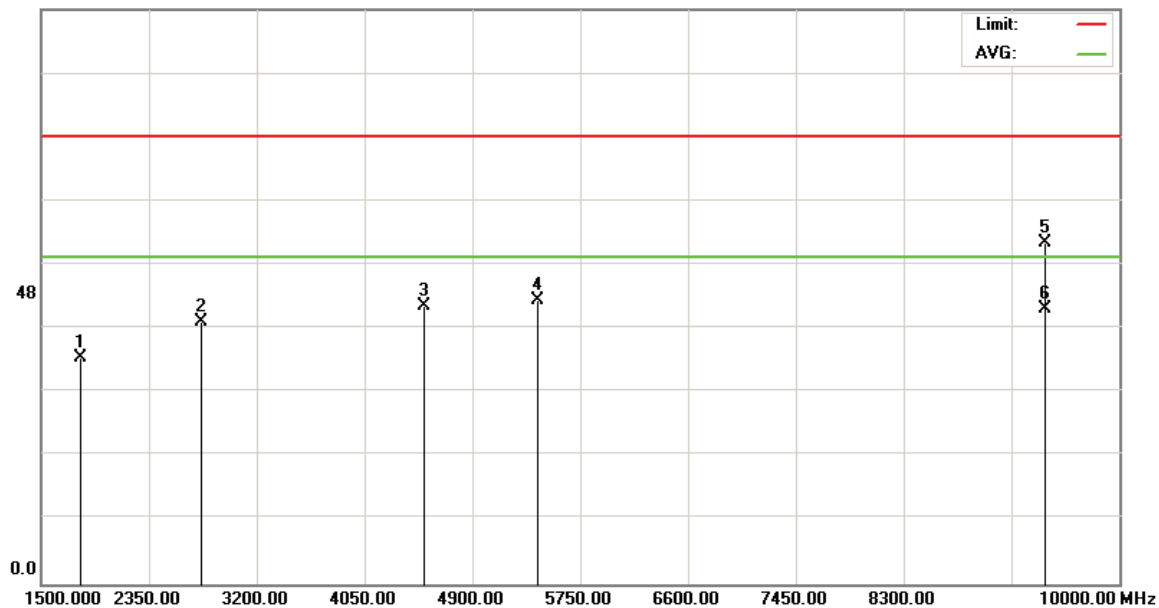
File:MPR-1910 CH00

Data :#10

Date: 2009/9/16

Time: 上午 01:46:59

95.0 dBuV



Site site #1

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-E

Mode: ISO Mode CH00

Note: ANT-915CPS-A

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree degree	Comment
1		1805.200	39.88	-2.51	37.37	74.00	-36.63	peak		
2		2764.250	41.89	1.48	43.37	74.00	-30.63	peak		
3		4513.000	39.30	6.54	45.84	74.00	-28.16	peak		
4		5415.600	38.45	8.44	46.89	74.00	-27.11	peak		
5		9406.000	39.01	17.34	56.35	74.00	-17.65	peak		
6	*	9406.000	28.09	17.34	45.43	54.00	-8.57	AVG		

*:Maximum data x:Over limit !:over margin

●Reference Only



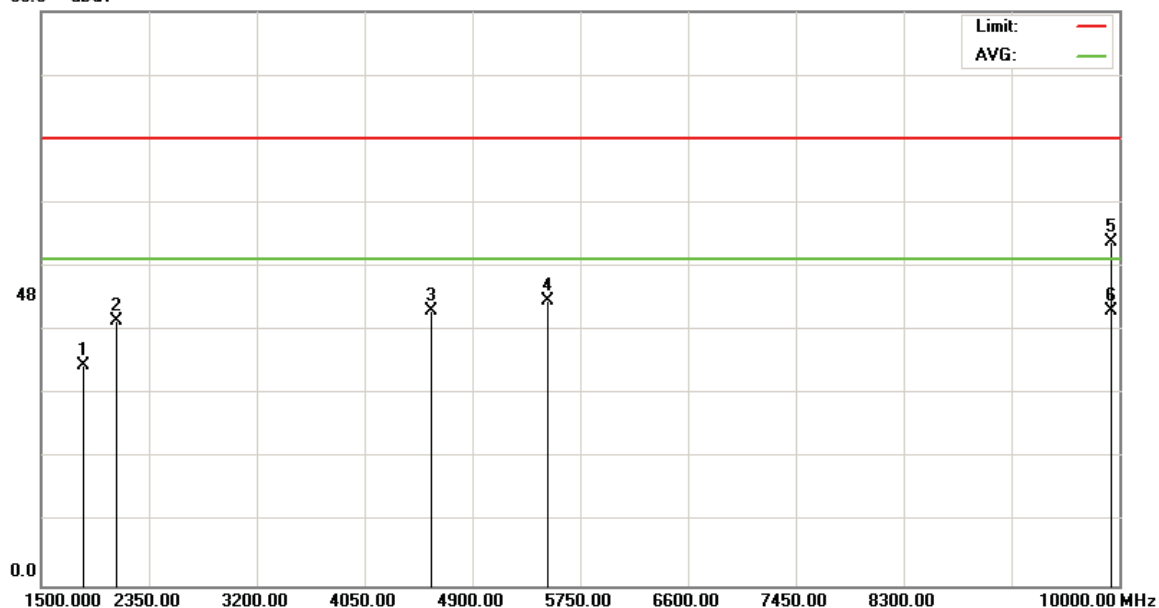
File:MPR-1910 CH62

Data :#10

Date: 2009/9/16

Time: 上午 12:40:02

95.0 dBuV



Site site #1

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-E

Mode: ISO Mode CH62

Note: ANT-915CPS-A

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree degree	Comment
1		1830.000	38.86	-2.43	36.43	74.00	-37.57	peak		
2		2091.500	44.01	-0.25	43.76	74.00	-30.24	peak		
3		4575.000	38.83	6.76	45.59	74.00	-28.41	peak		
4		5490.000	38.45	8.69	47.14	74.00	-26.86	peak		
5		9928.000	39.06	17.86	56.92	74.00	-17.08	peak		
6	*	9928.000	27.70	17.86	45.56	54.00	-8.44	AVG		

*:Maximum data x:Over limit !:over margin

●Reference Only



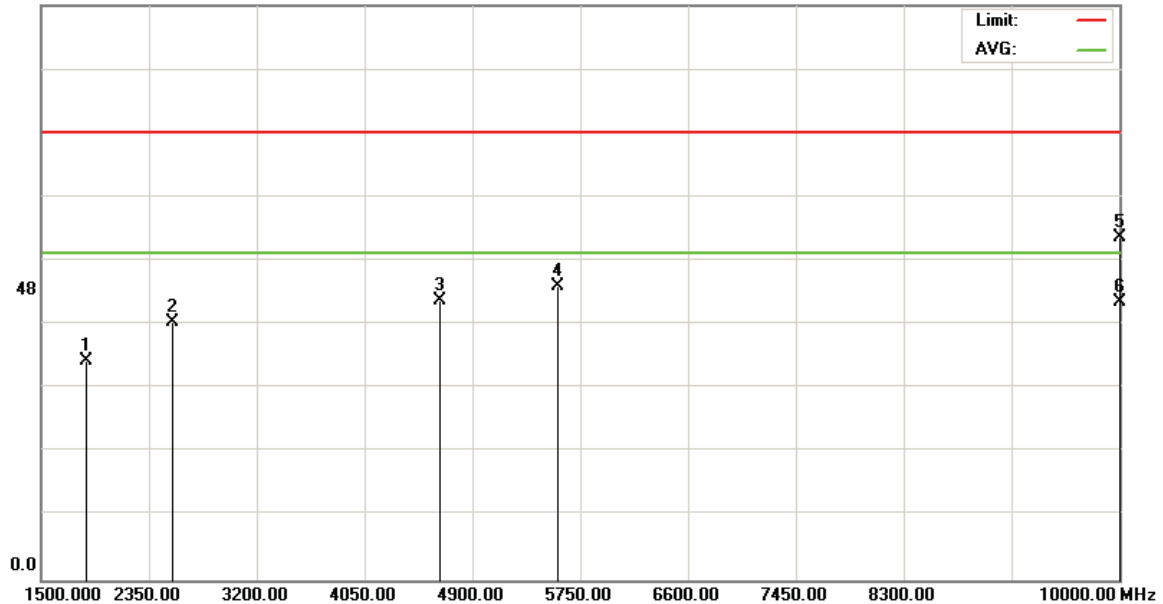
File:MPR-1910 CH124

Data :#10

Date: 2009/9/16

Time: 上午 12:57:01

95.0 dBuV



Site site #1

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-E

Mode: ISO Mode CH124

Note: ANT-915CPS-A

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree degree	Comment
1		1854.800	38.39	-2.21	36.18	74.00	-37.82	peak		
2		2530.250	41.79	0.81	42.60	74.00	-31.40	peak		
3		4637.000	39.10	7.03	46.13	74.00	-27.87	peak		
4		5564.400	39.56	8.97	48.53	74.00	-25.47	peak		
5		10000.00	38.23	18.43	56.66	74.00	-17.34	peak		
6	*	10000.00	27.64	18.43	46.07	54.00	-7.93	AVG		

*:Maximum data x:Over limit !:over margin

●Reference Only



3.5.2 Antenna Model: ANT-915CPS-CP10 _ ISO Link

EUT : MPR-1910 RFID Reader Module

Model No : MPR-1910

Test Date : 09/16/2009

Above 1.5GHz data please refer to next page.

Test Mode : 902.75 MHz _ Below 1.5GHz							
Fundamental TX level : Horizontal - 114.58dBuV/m, Vertical - 115.32dBuV/m							
Frequency (MHz)	Polarization	Read level	Factor	Amplitude (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector
60.24	H	37.31	-5.31	32.00	40	-8.00	Peak
276.78	H	51.36	-10.02	41.34	46	-4.66	Peak
333.60	H	51.46	-8.82	42.64	46	-3.36	Peak
32.97	V	36.03	-1.21	34.82	40	-5.18	Peak
59.97	V	39.99	-5.20	34.79	40	-5.21	Peak
330.80	V	49.86	-8.88	40.98	46	-5.02	Peak

Test Mode : 914.75 MHz _ Below 1.5GHz							
Fundamental TX level : Horizontal - 119.55dBuV/m, Vertical -121.08dBuV/m							
Frequency (MHz)	Polarization	Read level	Factor	Amplitude (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector
268.95	H	48.91	-10.25	38.66	46	-7.34	Peak
288.12	H	50.15	-9.59	40.56	46	-5.44	Peak
334.30	H	50.65	-8.81	41.84	46	-4.16	Peak
32.97	V	36.09	-1.21	34.88	40	-5.12	Peak
60.51	V	38.86	-5.43	33.43	40	-6.57	Peak
332.90	V	49.34	-8.84	40.50	46	-5.50	Peak

Test Mode: 927.25 MHz _ Below 1.5GHz							
Fundamental TX level : Horizontal -120.35dBuV/m, Vertical -121.11dBuV/m							
Frequency (MHz)	Polarization	Read level	Factor	Amplitude (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector
59.97	H	37.18	-5.20	31.98	40.0	-8.02	Peak
284.88	H	50.33	-9.75	40.58	46.0	-5.42	Peak
333.60	H	49.76	-8.82	40.94	46.0	-5.06	Peak
32.97	V	35.10	-1.21	33.89	40.0	-6.11	Peak
102.90	V	43.78	-7.61	36.17	43.5	-7.33	Peak
330.80	V	50.43	-8.88	41.55	46.0	-4.45	Peak



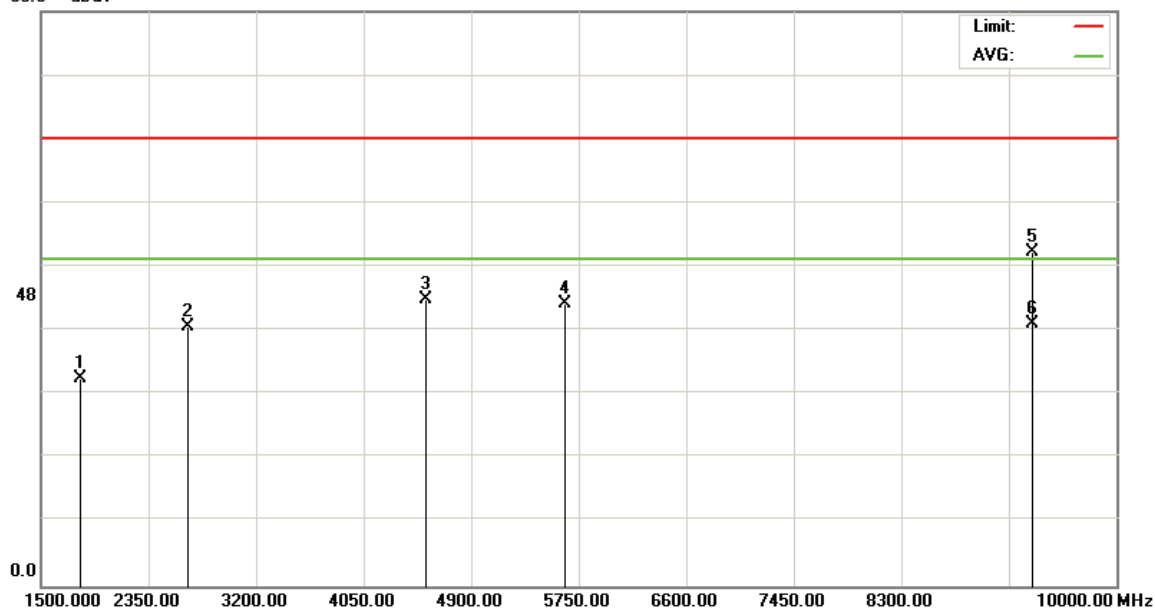
File :MPR-1910 CH00

Data :#9

Date:2009/9/16

Time:

95.0 dBuV



Site site#1

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-E

Mode: ISO Mode CH00

Note: ANT-915CPS-CP10

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree degree	Comment
1		1805.200	36.84	-2.51	34.33	74.00	-39.67	peak		
2		2648.960	41.62	1.17	42.79	74.00	-31.21	peak		
3		4537.210	40.76	6.59	47.35	74.00	-26.65	peak		
4		5638.790	37.65	8.93	46.58	74.00	-27.42	peak		
5		9331.000	38.11	17.10	55.21	74.00	-18.79	peak		
6	*	9331.000	26.33	17.10	43.43	54.00	-10.57	AVG		

*:Maximum data x:Over limit !:over margin

●Reference Only



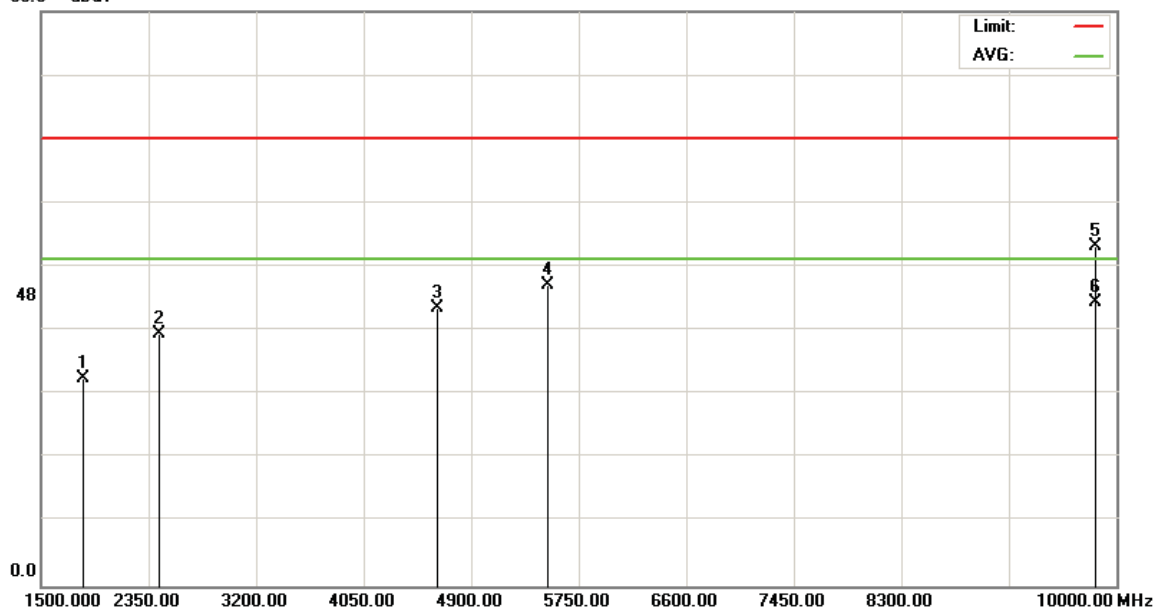
File :MPR-1910 CH62

Data :#9

Date:2009/9/16

Time:

95.0 dBuV



Site site#1

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-E

Mode: ISO Mode CH62

Note: ANT-915CPS-CP10

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		1830.000	36.76	-2.43	34.33	74.00	-39.67	peak			
2		2427.460	41.47	0.32	41.79	74.00	-32.21	peak			
3		4635.280	39.02	6.89	45.91	74.00	-28.09	peak			
4		5501.630	40.98	8.71	49.69	74.00	-24.31	peak			
5		9837.620	38.50	17.78	56.28	74.00	-17.72	peak			
6	*	9837.620	29.03	17.78	46.81	54.00	-7.19	AVG			

*:Maximum data x:Over limit !:over margin

●Reference Only



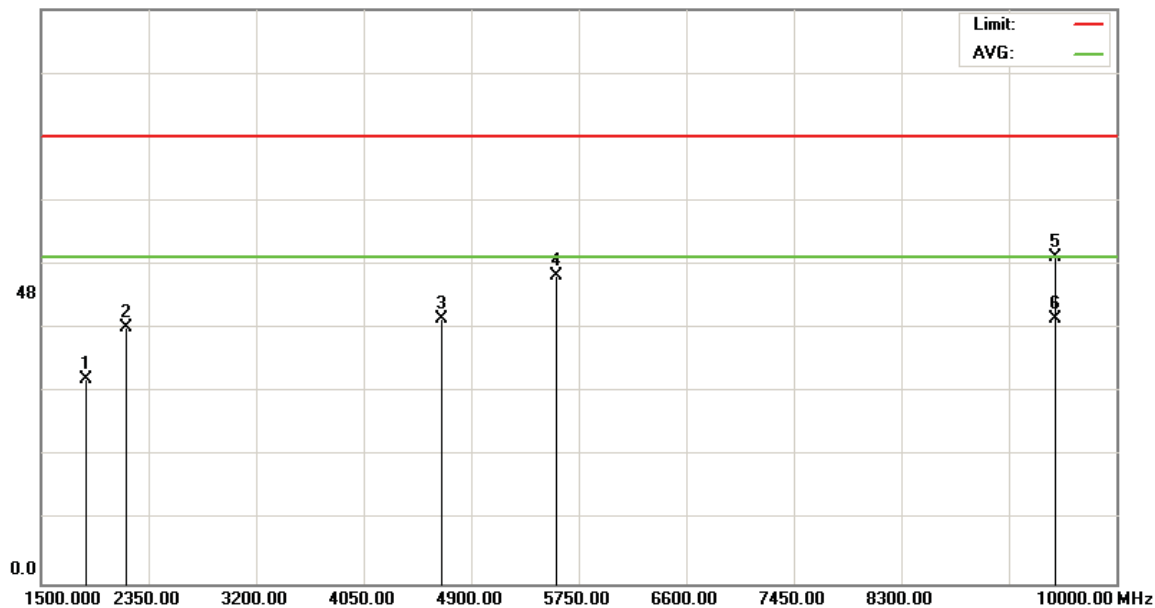
File :MPR-1910 CH124

Data :#9

Date:2009/9/16

Time:

95.0 dBuV



Site site#1

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-E

Mode: ISO Mode CH124

Note: ANT-915CPS-CP10

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree degree	Comment
1		1854.800	36.17	-2.21	33.96	74.00	-40.04	peak		
2		2169.450	42.56	-0.14	42.42	74.00	-31.58	peak		
3		4668.870	36.79	7.10	43.89	74.00	-30.11	peak		
4		5563.790	41.96	8.97	50.93	74.00	-23.07	peak		
5		9511.000	36.66	17.30	53.96	74.00	-20.04	peak		
6	*	9511.000	26.53	17.30	43.83	54.00	-10.17	AVG		

*:Maximum data x:Over limit !:over margin

●Reference Only



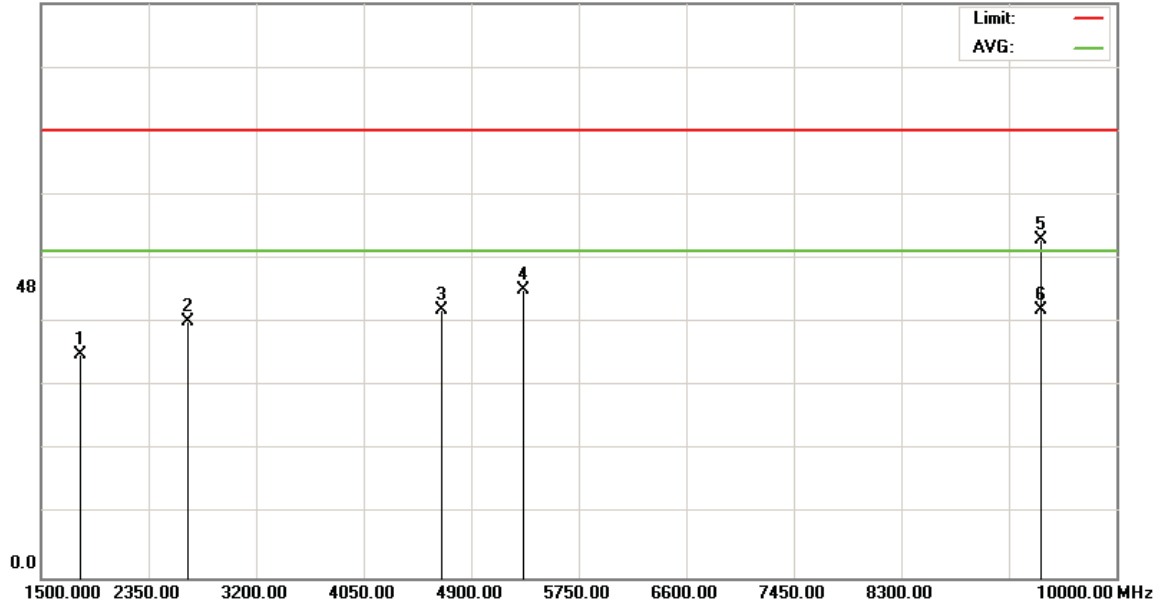
File :MPR-1910 CH00

Data :#10

Date:2009/9/16

Time:

95.0 dBuV



Site site#1

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-E

Mode: ISO Mode CH00

Note: ANT-915CPS-CP10

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree degree	Comment
1		1805.200	39.38	-2.51	36.87	74.00	-37.13	peak		
2		2648.330	41.36	1.00	42.36	74.00	-31.64	peak		
3		4654.000	37.51	6.84	44.35	74.00	-29.65	peak		
4		5312.000	39.47	8.22	47.69	74.00	-26.31	peak		
5		9404.240	38.52	17.34	55.86	74.00	-18.14	peak		
6	*	9404.247	27.03	17.34	44.37	54.00	-9.63	AVG		

*:Maximum data x:Over limit !:over margin

●Reference Only



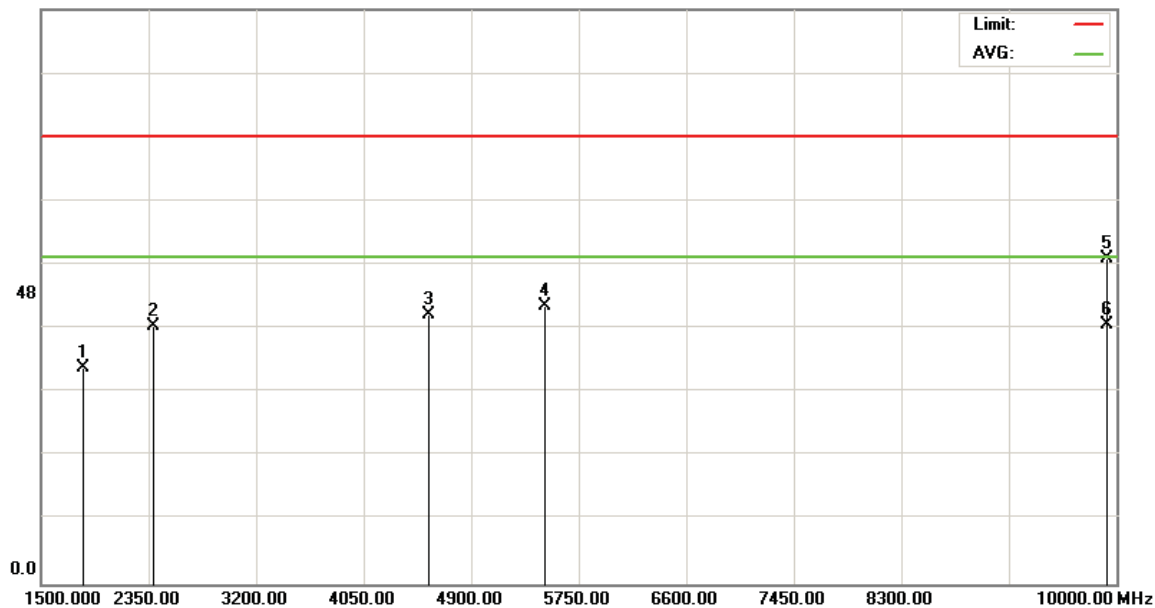
File :MPR-1910 CH62

Data :#10

Date:2009/9/16

Time:

95.0 dBuV



Site site#1

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-E

Mode: ISO Mode CH62

Note: ANT-915CPS-CP10

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree degree	Comment
1		1830.000	38.16	-2.43	35.73	74.00	-38.27	peak		
2		2381.000	42.05	0.57	42.62	74.00	-31.38	peak		
3		4568.000	37.89	6.74	44.63	74.00	-29.37	peak		
4		5485.760	37.18	8.68	45.86	74.00	-28.14	peak		
5		9921.580	35.89	17.85	53.74	74.00	-20.26	peak		
6	*	9921.580	25.13	17.85	42.98	54.00	-11.02	AVG		

*:Maximum data x:Over limit !:over margin

●Reference Only



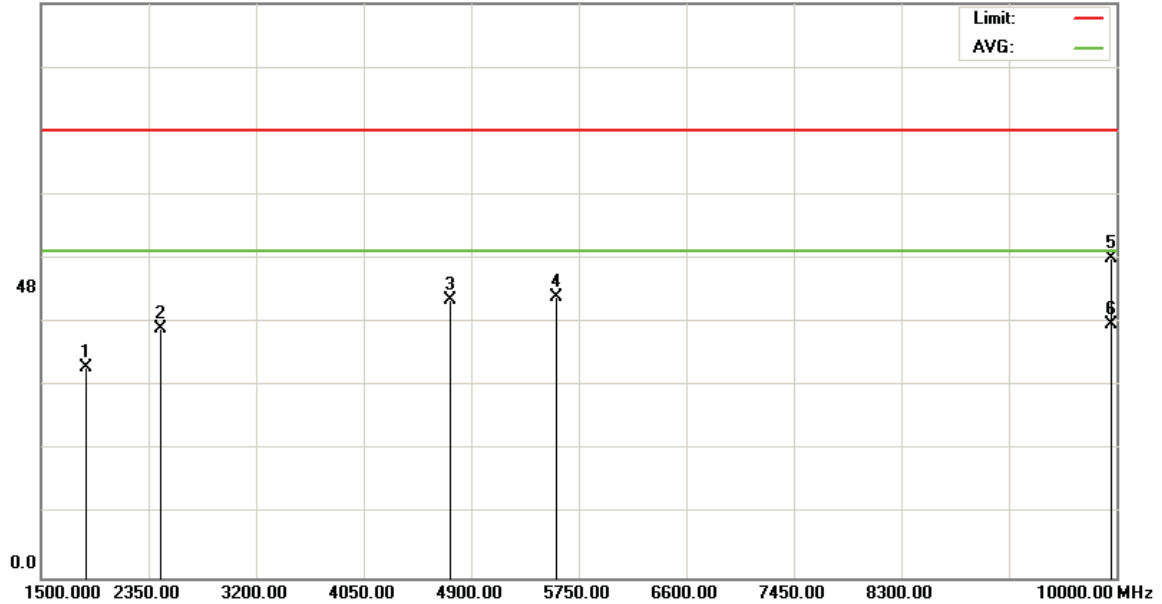
File :MPR-1910 CH124

Data :#10

Date:2009/9/16

Time:

95.0 dBuV



Site site#1

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-E

Mode: ISO Mode CH124

Note: ANT-915CPS-CP10

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		1854.800	37.04	-2.21	34.83	74.00	-39.17	peak			
2		2438.000	40.76	0.40	41.16	74.00	-32.84	peak			
3		4735.960	38.60	7.24	45.84	74.00	-28.16	peak			
4		5563.810	37.54	8.97	46.51	74.00	-27.49	peak			
5		9957.000	34.55	18.34	52.89	74.00	-21.11	peak			
6	*	9957.000	23.63	18.34	41.97	54.00	-12.03	AVG			

*:Maximum data x:Over limit !:over margin

●Reference Only



3.5.3 Antenna Model: SL4M-ANT _ ISO Link

EUT : MPR-1910 RFID Reader Module

Model No : MPR-1910

Test Date : 09/16/2009

Above 1.5GHz data please refer to next page.

Test Mode : 902.75 MHz _ Below 1.5GHz							
Fundamental TX level : Horizontal - 101.41dBuV/m, Vertical - 101.85dBuV/m							
Frequency (MHz)	Polarization	Read level	Factor	Amplitude (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector
60.24	H	36.81	-5.31	31.50	40.0	-8.50	Peak
288.12	H	51.11	-9.59	41.52	46.0	-4.48	Peak
333.60	H	53.46	-8.82	44.64	46.0	-1.36	Peak
32.97	V	36.03	-1.21	34.82	40.0	-5.18	Peak
107.49	V	45.18	-8.20	36.98	43.5	-6.52	Peak
330.80	V	51.86	-8.88	42.98	46.0	-3.02	Peak

Test Mode : 914.75 MHz _ Below 1.5GHz							
Fundamental TX level : Horizontal - 106.43dBuV/m, Vertical -107.54dBuV/m							
Frequency (MHz)	Polarization	Read level	Factor	Amplitude (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector
59.97	H	36.78	-5.20	31.58	40	-8.42	Peak
284.07	H	50.20	-9.76	40.44	46	-5.56	Peak
334.30	H	50.15	-8.81	41.34	46	-4.66	Peak
41.61	V	36.18	-1.91	34.27	40	-5.73	peak
264.63	V	47.87	-10.30	37.57	46	-8.43	peak
332.90	V	50.84	-8.84	42.00	46	-4.00	peak

Test Mode: 927.25 MHz _ Below 1.5GHz							
Fundamental TX level : Horizontal -106.85dBuV/m, Vertical -107.34dBuV/m							
Frequency (MHz)	Polarization	Read level	Factor	Amplitude (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector
59.97	H	36.18	-5.20	30.98	40	-9.02	Peak
280.02	H	50.05	-9.78	40.27	46	-5.73	Peak
333.60	H	49.76	-8.82	40.94	46	-5.06	Peak
32.97	V	36.60	-1.21	35.39	40	-4.61	Peak
59.97	V	38.12	-5.20	32.92	40	-7.08	Peak
330.80	V	50.93	-8.88	42.05	46	-3.95	Peak



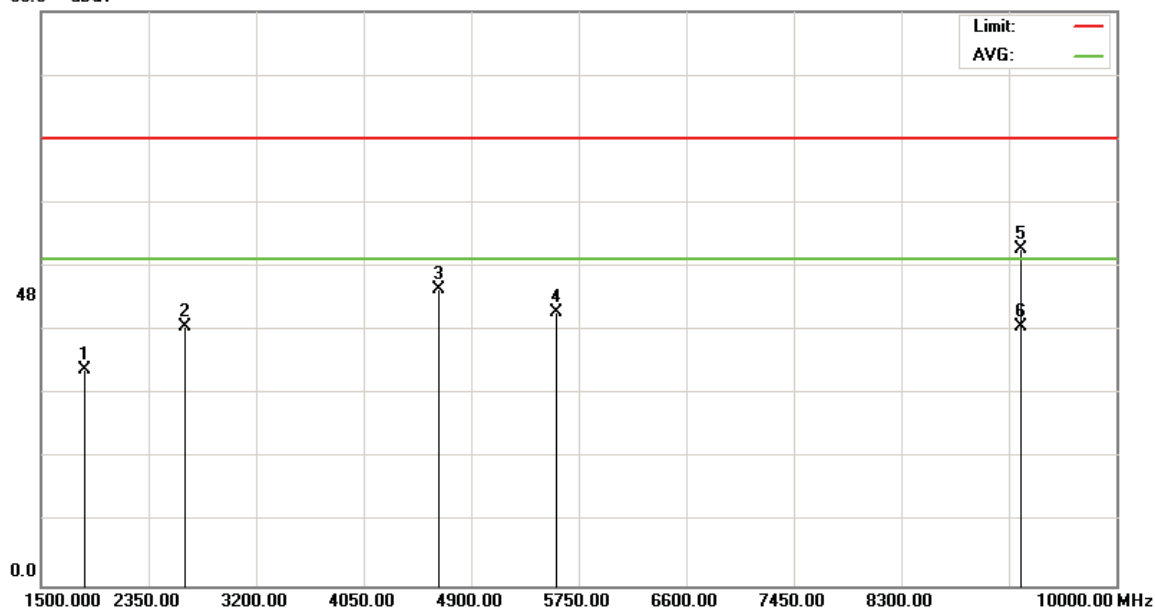
File :MPR-1910 CH00

Data :#9

Date:2009/9/16

Time:

95.0 dBuV



Site site#1

Polarization: *Vertical*

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-E

Mode: ISO Mode CH00

Note: SL4M-ANT

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree degree	Comment
1		1844.000	38.11	-2.33	35.78	74.00	-38.22	peak		
2		2631.730	41.65	1.12	42.77	74.00	-31.23	peak		
3		4639.510	42.35	6.80	49.15	74.00	-24.85	peak		
4		5568.720	36.55	8.78	45.33	74.00	-28.67	peak		
5		9241.790	38.70	16.91	55.61	74.00	-18.39	peak		
6	*	9241.790	25.87	16.91	42.78	54.00	-11.22	AVG		

*:Maximum data x:Over limit !:over margin

●Reference Only



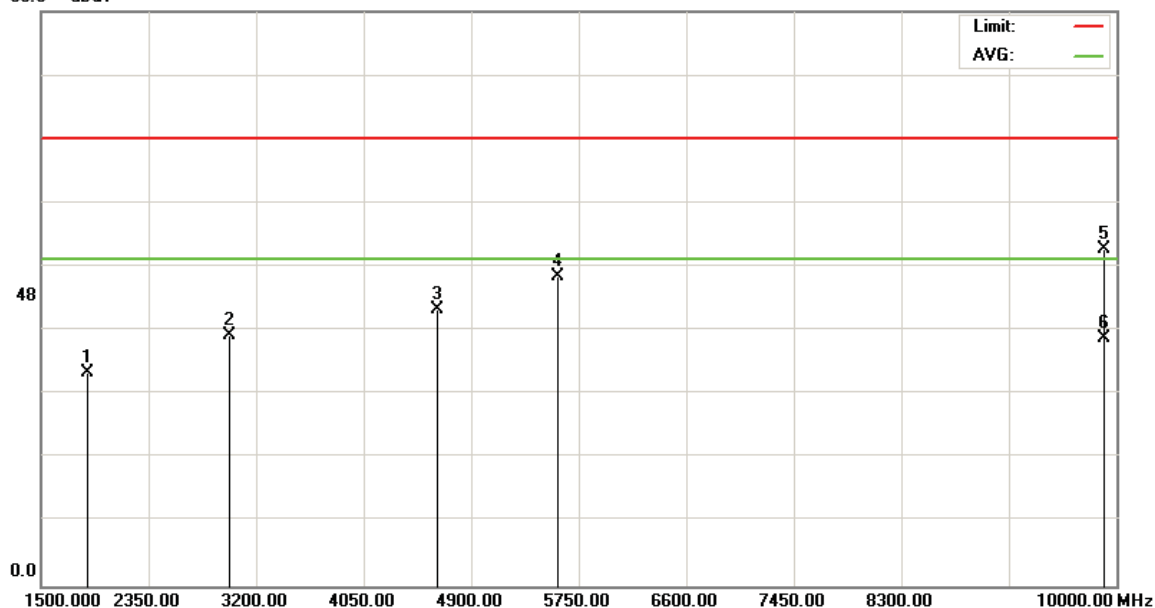
File :MPR-1910 CH62

Data :#9

Date:2009/9/16

Time:

95.0 dBuV



Site site#1

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-E

Mode: ISO Mode CH62

Note: SL4M-ANT

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree degree	Comment
1		1863.360	37.49	-2.28	35.21	74.00	-38.79	peak		
2		2981.380	39.26	2.10	41.36	74.00	-32.64	peak		
3		4627.760	38.96	6.87	45.83	74.00	-28.17	peak		
4		5575.180	42.42	8.87	51.29	74.00	-22.71	peak		
5		9904.000	37.88	17.92	55.80	74.00	-18.20	peak		
6	*	9904.000	23.11	17.92	41.03	54.00	-12.97	AVG		

*:Maximum data x:Over limit !:over margin

●Reference Only



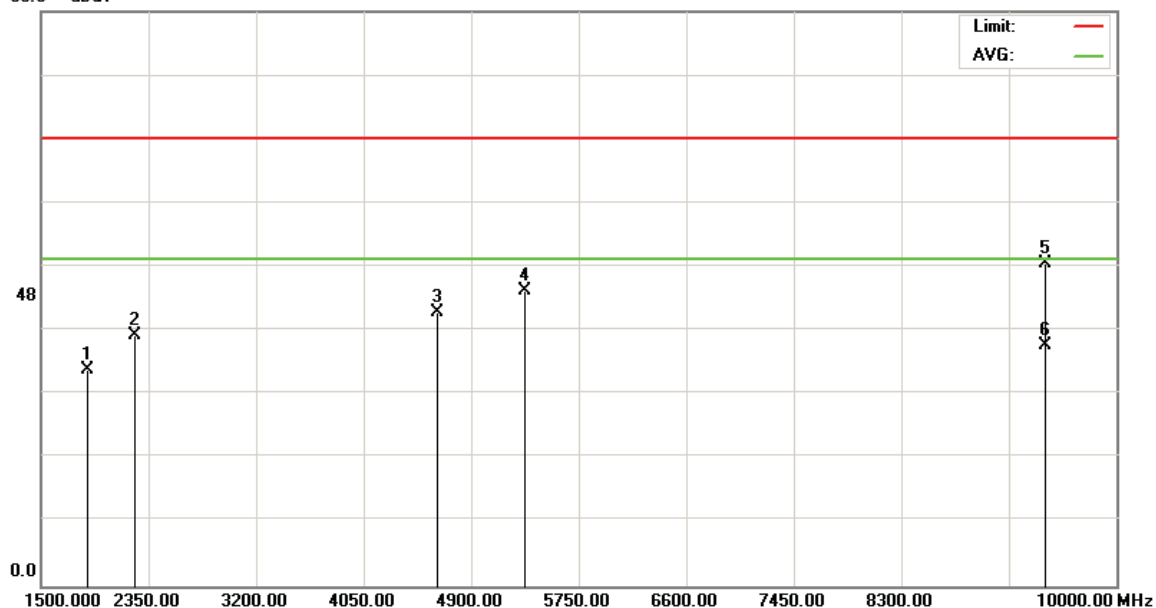
File :MPR-1910 CH124

Data :#9

Date:2009/9/16

Time:

95.0 dBuV



Site site#1

Polarization: **Vertical**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-E

Mode: ISO Mode CH124

Note: SL4M-ANT

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree degree	Comment
1		1860.960	37.85	-2.16	35.69	74.00	-38.31	peak		
2		2238.000	41.37	0.06	41.43	74.00	-32.57	peak		
3		4621.770	38.22	6.99	45.21	74.00	-28.79	peak		
4		5318.000	40.31	8.45	48.76	74.00	-25.24	peak		
5		9432.000	36.16	17.13	53.29	74.00	-20.71	peak		
6	*	9432.000	22.72	17.13	39.85	54.00	-14.15	AVG		

*:Maximum data x:Over limit !:over margin

●Reference Only



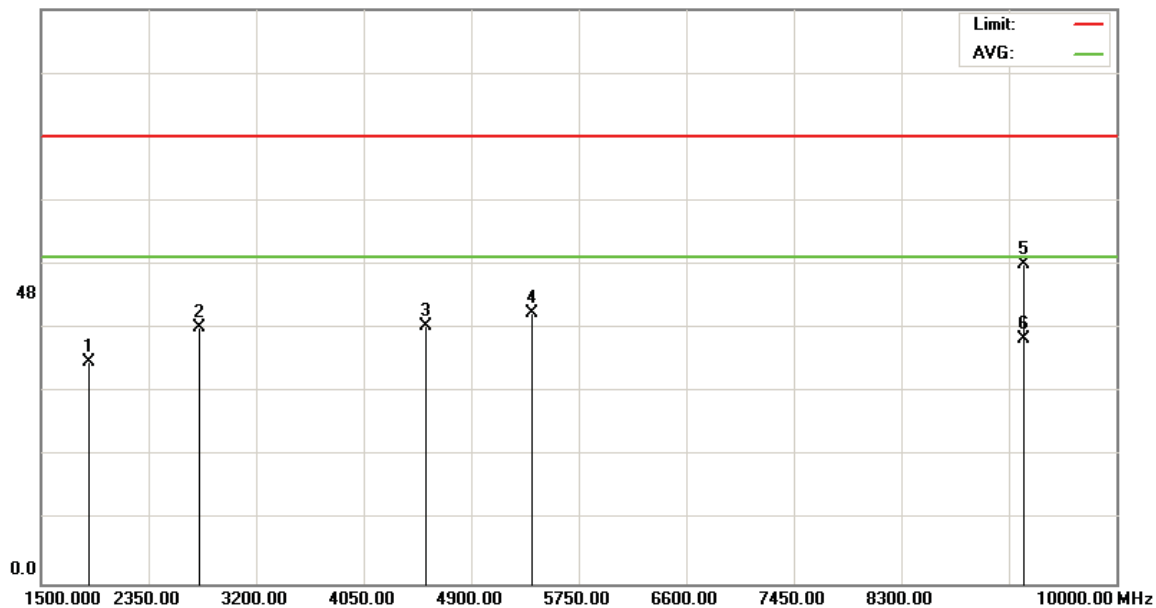
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Data :#10

Date:2009/9/16

Time:

95.0 dBuV



Site site#1

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-E

Mode: ISO Mode CH00

Note: SL4M-ANT

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		1869.210	38.95	-2.24	36.71	74.00	-37.29	peak			
2		2742.380	40.96	1.39	42.35	74.00	-31.65	peak			
3		4543.000	35.93	6.60	42.53	74.00	-31.47	peak			
4		5381.000	36.34	8.37	44.71	74.00	-29.29	peak			
5		9269.000	35.73	17.03	52.76	74.00	-21.24	peak			
6	*	9269.000	23.35	17.03	40.38	54.00	-13.62	AVG			

*:Maximum data x:Over limit !:over margin

●Reference Only



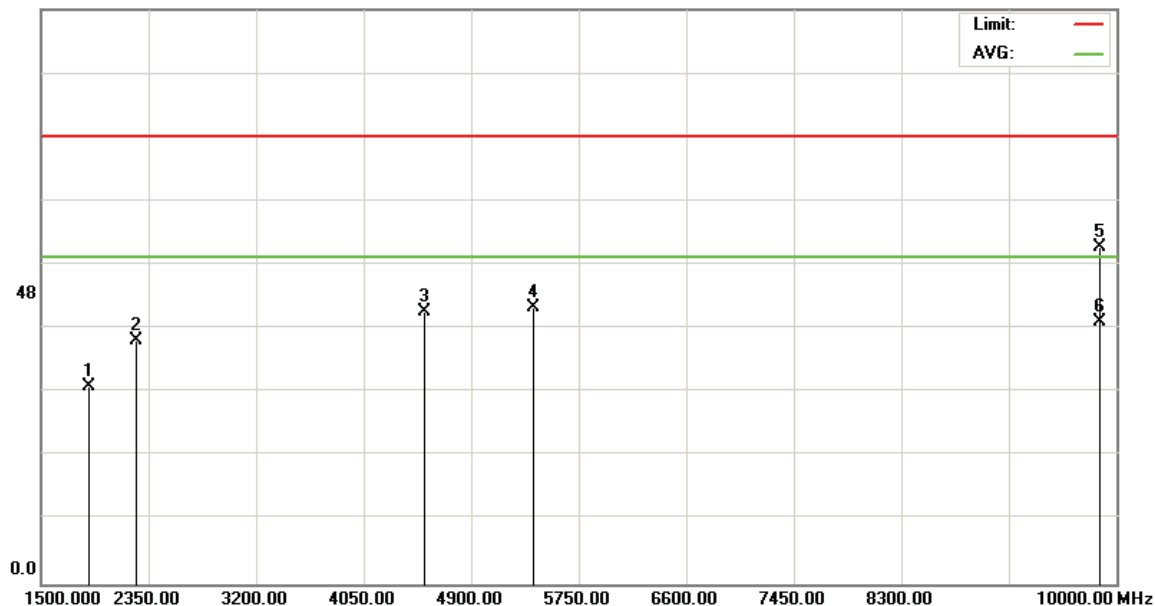
File :MPR-1910 CH62

Data :#10

Date:2009/9/16

Time:

95.0 dBuV



Site site#1

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-E

Mode: ISO Mode CH62

Note: SL4M-ANT

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree degree	Comment
1		1869.380	34.64	-2.10	32.54	74.00	-41.46	peak		
2		2246.000	40.14	0.19	40.33	74.00	-33.67	peak		
3		4531.910	38.32	6.64	44.96	74.00	-29.04	peak		
4		5389.000	37.23	8.48	45.71	74.00	-28.29	peak		
5		9871.000	38.04	17.74	55.78	74.00	-18.22	peak		
6	*	9871.000	25.70	17.74	43.44	54.00	-10.56	AVG		

*:Maximum data x:Over limit !:over margin

●Reference Only



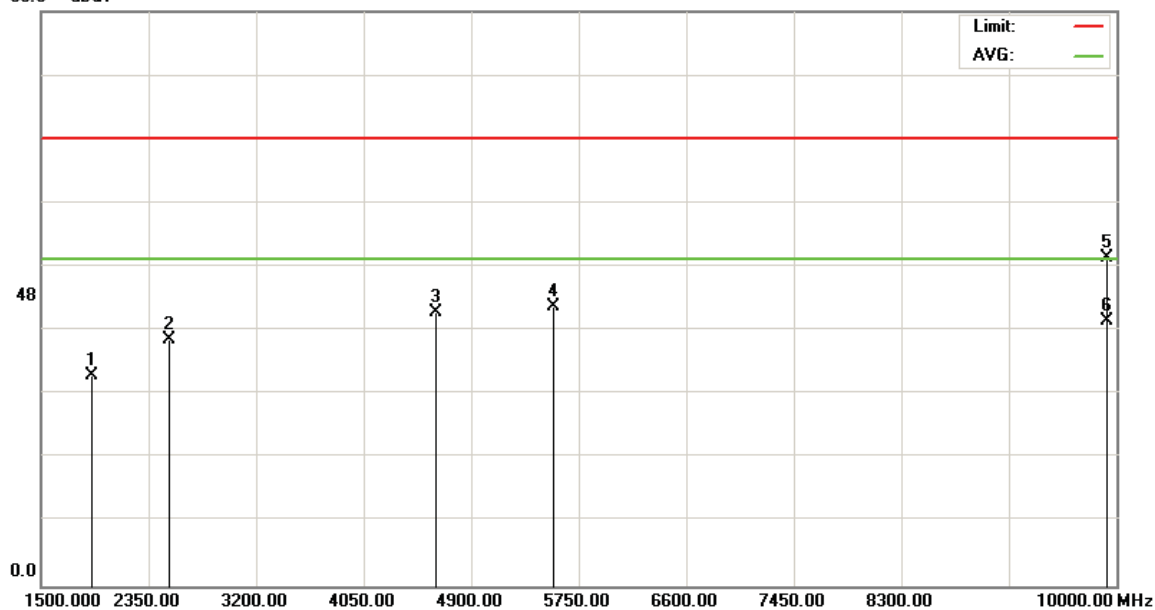
File :MPR-1910 CH124

Data :#10

Date:2009/9/16

Time:

95.0 dBuV



Site site#1

Polarization: **Horizontal**

Temperature: 22 °C

Limit: FCC part 15 (PK)

Power:

Humidity: 60 %

EUT:

Distance: 3m

M/N: 09-0177-E

Mode: ISO Mode CH124

Note: SL4M-ANT

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		1896.720	36.90	-2.02	34.88	74.00	-39.12	peak			
2		2508.510	40.10	0.71	40.81	74.00	-33.19	peak			
3		4611.290	38.24	6.95	45.19	74.00	-28.81	peak			
4		5543.830	37.28	8.93	46.21	74.00	-27.79	peak			
5		9921.830	35.95	18.26	54.21	74.00	-19.79	peak			
6	*	9921.830	25.62	18.26	43.88	54.00	-10.12	AVG			

*:Maximum data x:Over limit !:over margin

●Reference Only

4. Maximum Conducted Output Power Requirements

4.1 Test Procedure

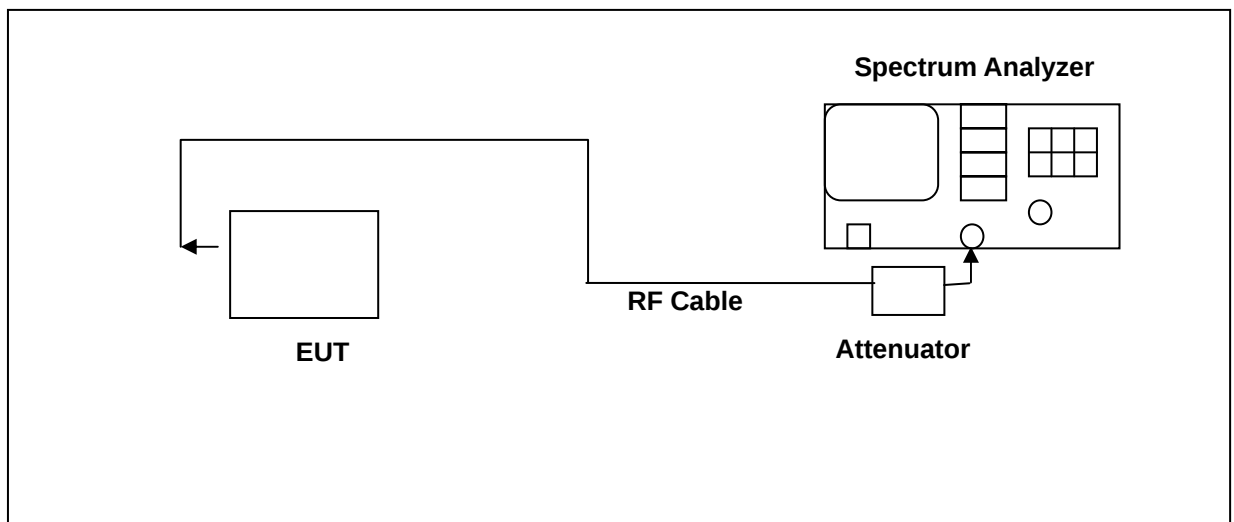
The tests below are run with the EUT's transmitter set at high power in TX mode. The EUT is needed to force selection of output power level and channel number. While testing, EUT was set to transmit continuously. Remove the Subjective device's antenna and connect the RF output port to spectrum analyzer. The maximum peak output power shall not exceed 1 watt.

Use a direct connection between the antenna port of transmitter and the spectrum Analyzer, for prevent the spectrum analyzer input attenuation 40-50 dB. Connect 6dB attenuator for average power and 10.5 dB attenuator for peak power during test. Set the RBW Bandwidth of the emission or use a channel power meter mode.

For antennas with gains of 6 dBi or less, maximum allowed transmitter output is 1 watt (+30 dBm). For antennas with gains greater than 6 dBi, transmitter output level must be decreased by an amount equal to $(\text{GAIN} - 6)/3$ dBm.

The antenna port of the EUT was connected to the input of a spectrum analyzer. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.

4.2 Test Instruments Configuration





4.3 Test Equipment List

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY45300744	Dec. 22, 2008	Dec. 22, 2009
Attenuator	RADIALL	R415710000	0603033065	NA	NA
Attenuator	Suhner	6606.19AB	546456	NA	NA

4.4 Test Result

ISO Mode _ Port 1

Frequency (MHz)	RF Output Power		Required Limit
	Average (dBm)	Peak (dBm)	
902.75	25.26	29.45	<30dBm
914.75	25.33	29.69	<30dBm
927.25	25.21	29.63	<30dBm

ISO Mode _ Port 2

Frequency (MHz)	Output Power		Required Limit
	Average (dBm)	Peak (dBm)	
902.75	24.91	28.83	<30dBm
914.75	24.83	29.45	<30dBm
927.25	24.81	29.33	<30dBm

Gen 2 Mode _ Port 1

Frequency (MHz)	RF Output Power		Required Limit
	Average (dBm)	Peak (dBm)	
902.75	25.44	29.46	<30dBm
914.75	25.51	29.62	<30dBm
927.25	25.15	29.51	<30dBm

Gen 2 Mode _ Port 2

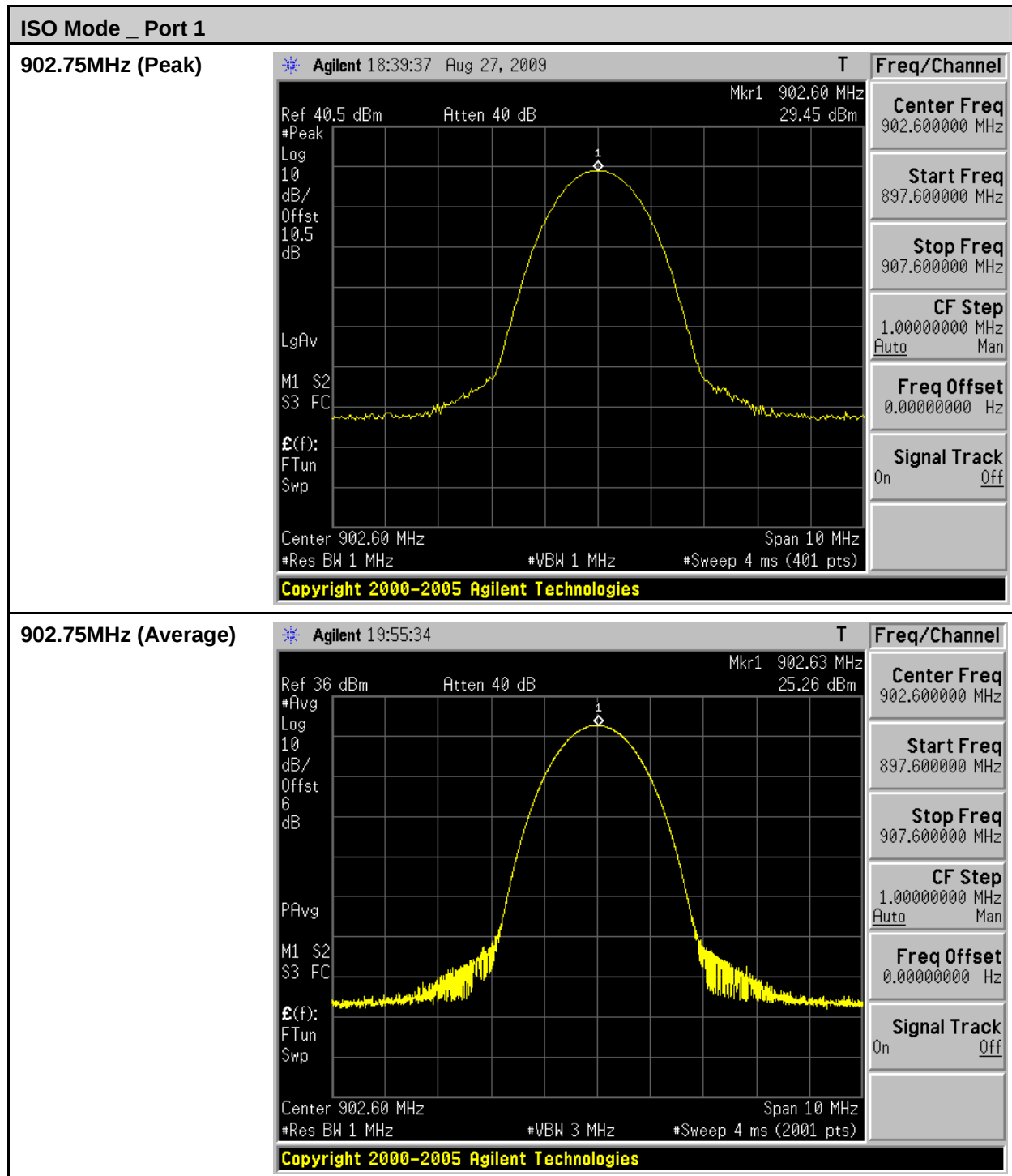
Frequency (MHz)	RF Output Power		Required Limit
	Average (dBm)	Peak (dBm)	
902.75	25.29	29.25	<30dBm
914.75	25.66	29.38	<30dBm
927.25	25.41	29.30	<30dBm

Note: 1. Two test modes are operated for this device: Gen 2 Link and ISO Link. The worst case of maximum conducted output power is ISO Link.

2. Test Graphs See next page.

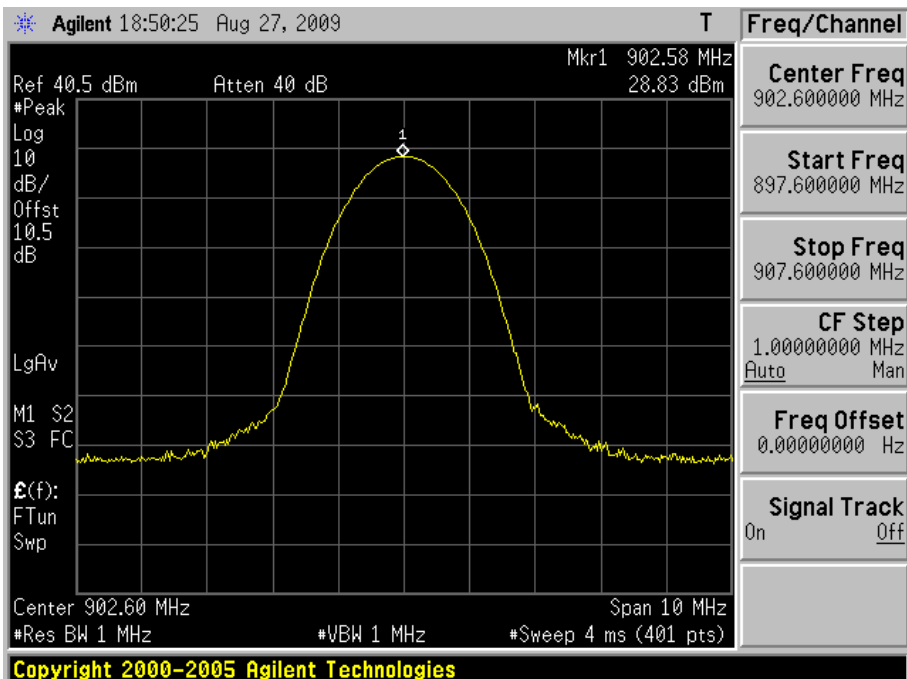
4.5 Test Graphs

4.5.1 ISO Mode _ Port 1

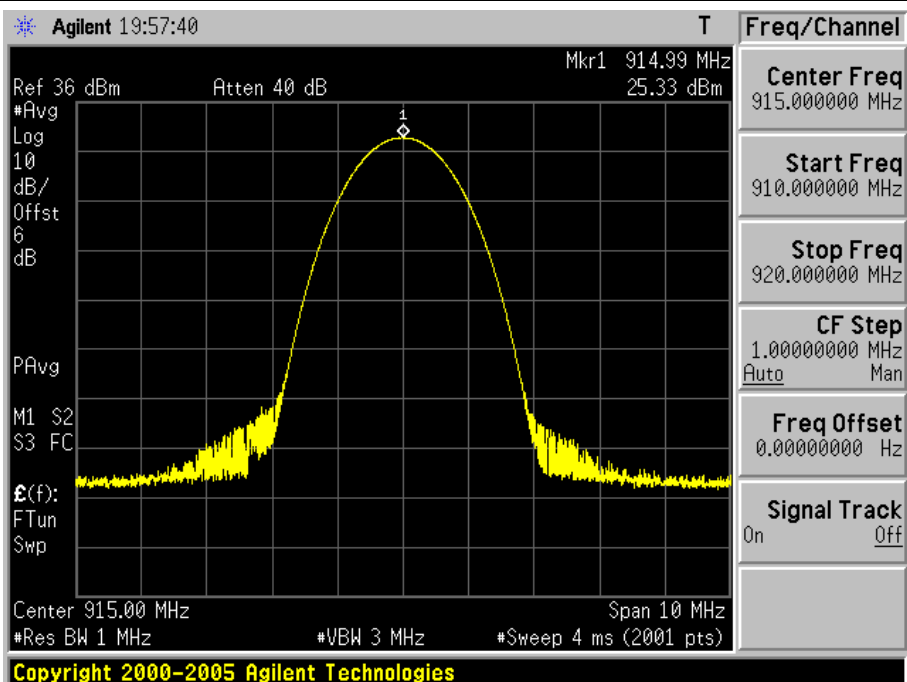


ISO Mode _ Port 1

914.75MHz (Peak)

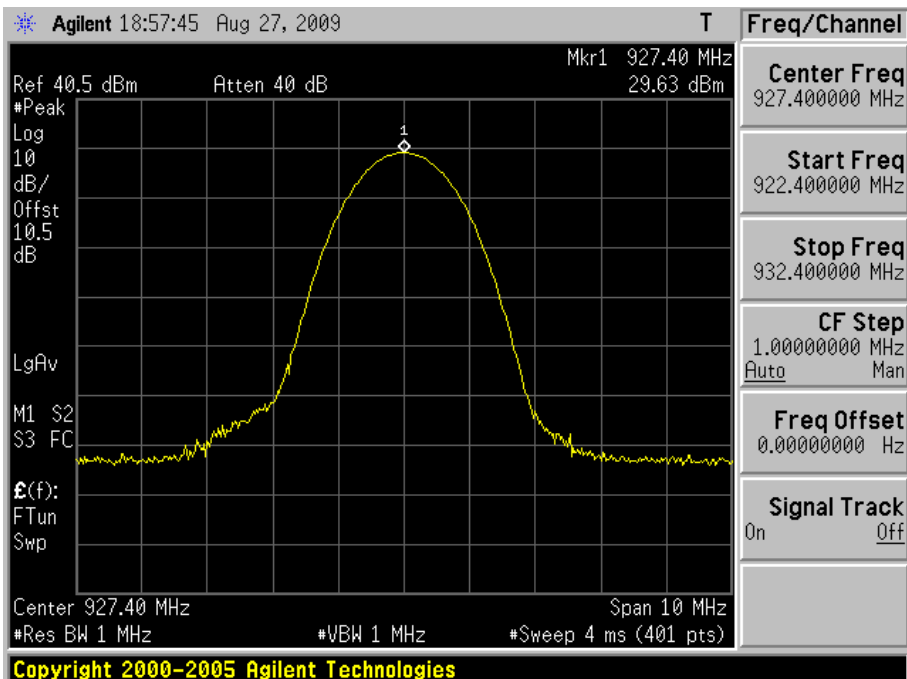


914.75MHz (Average)

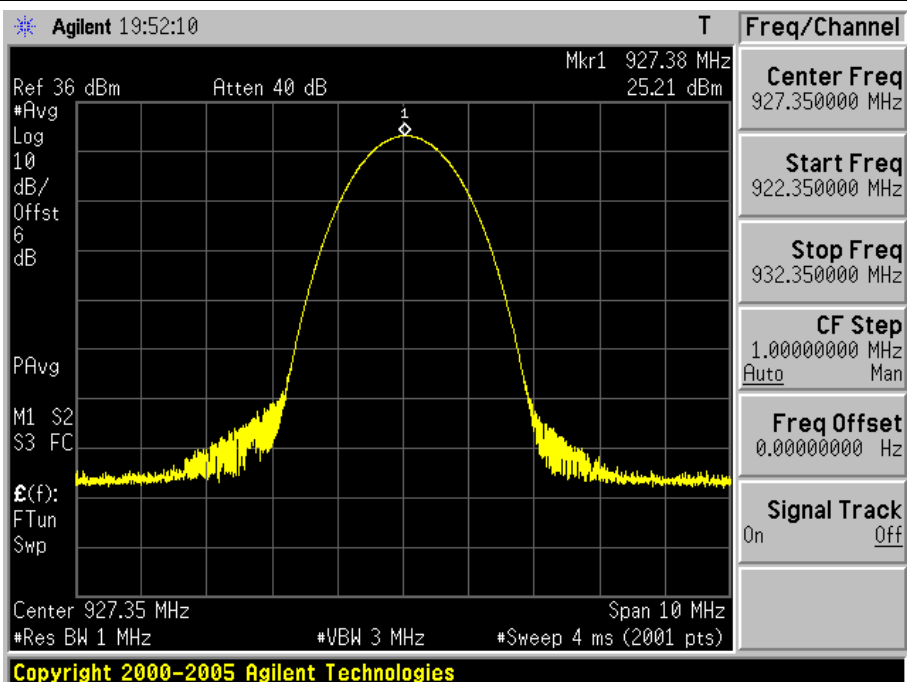


ISO Mode _ Port 1

927.25MHz (Peak)

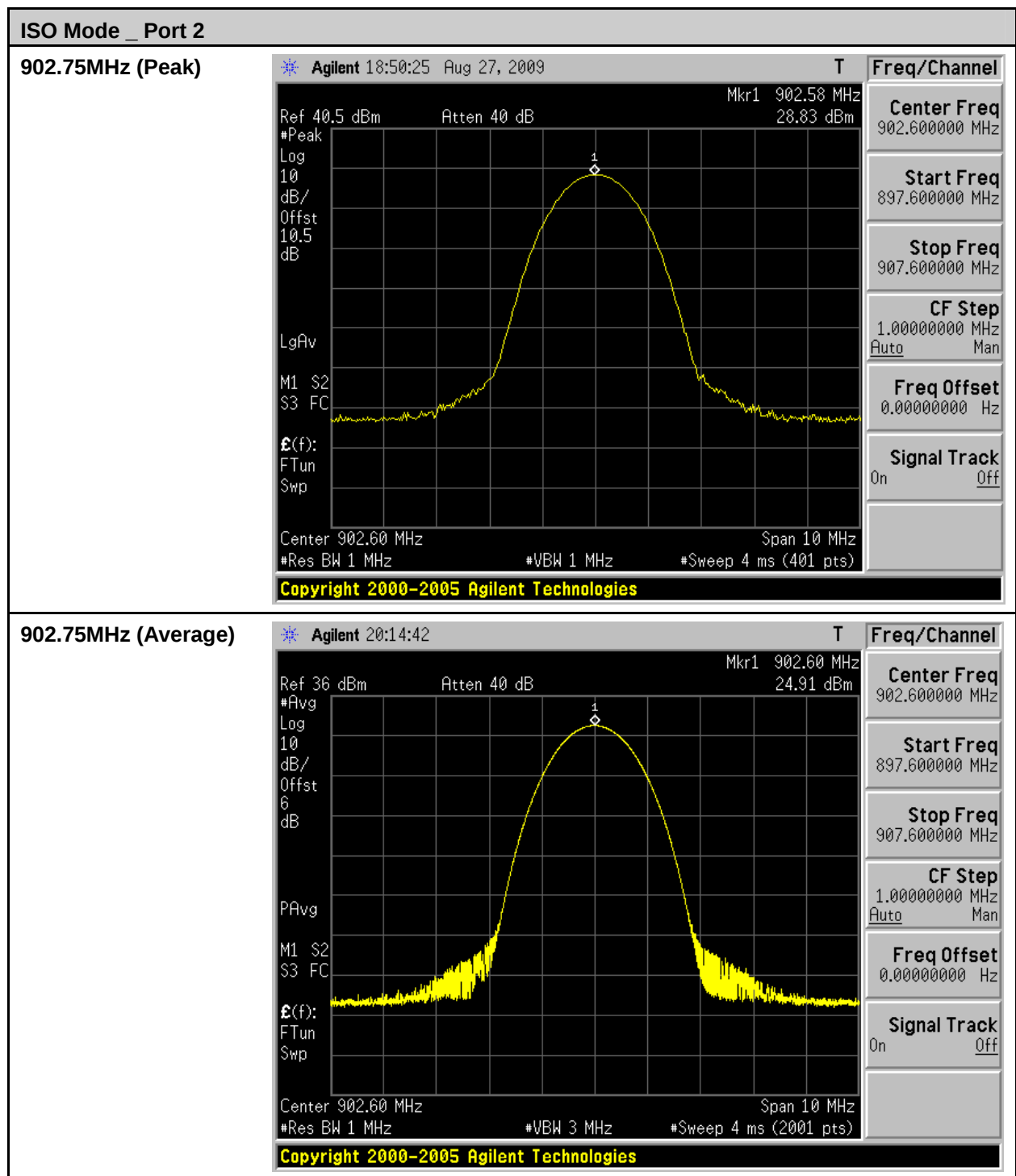


927.25MHz (Average)



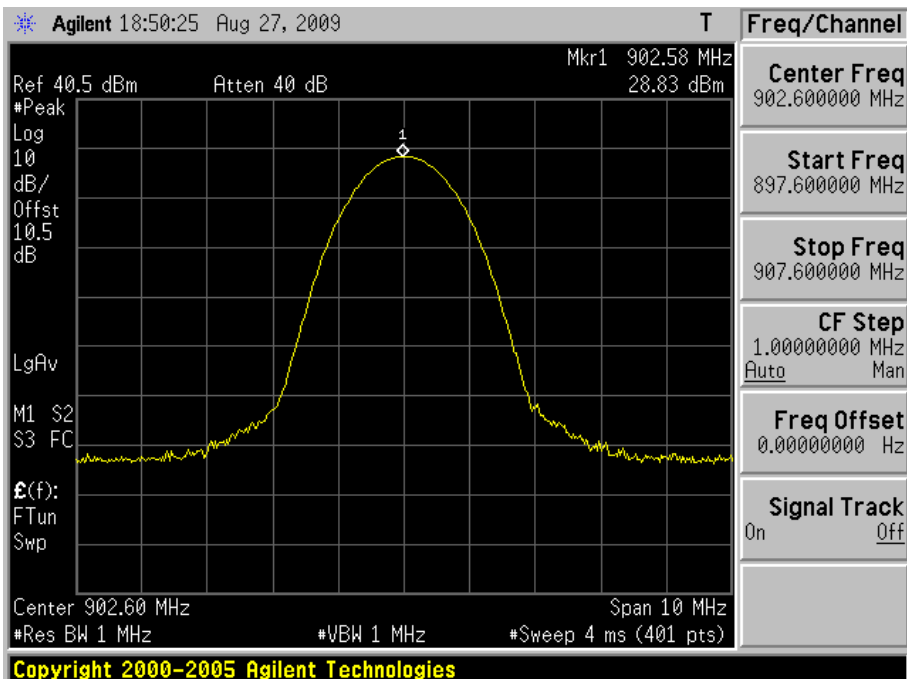


4.5.2 ISO Mode _ Port 2

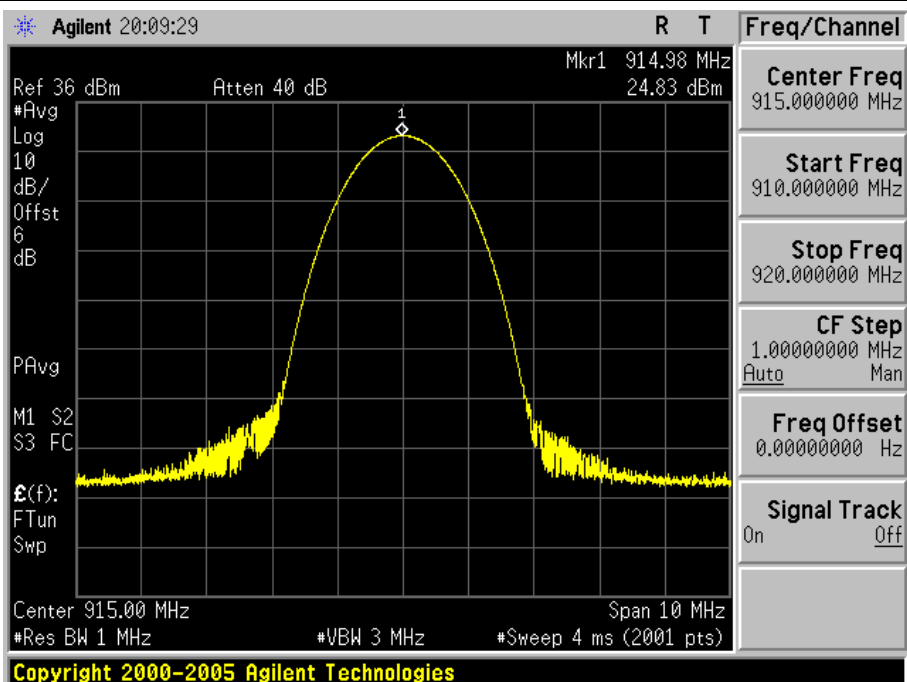


ISO Mode _ Port 2

914.75MHz (Peak)

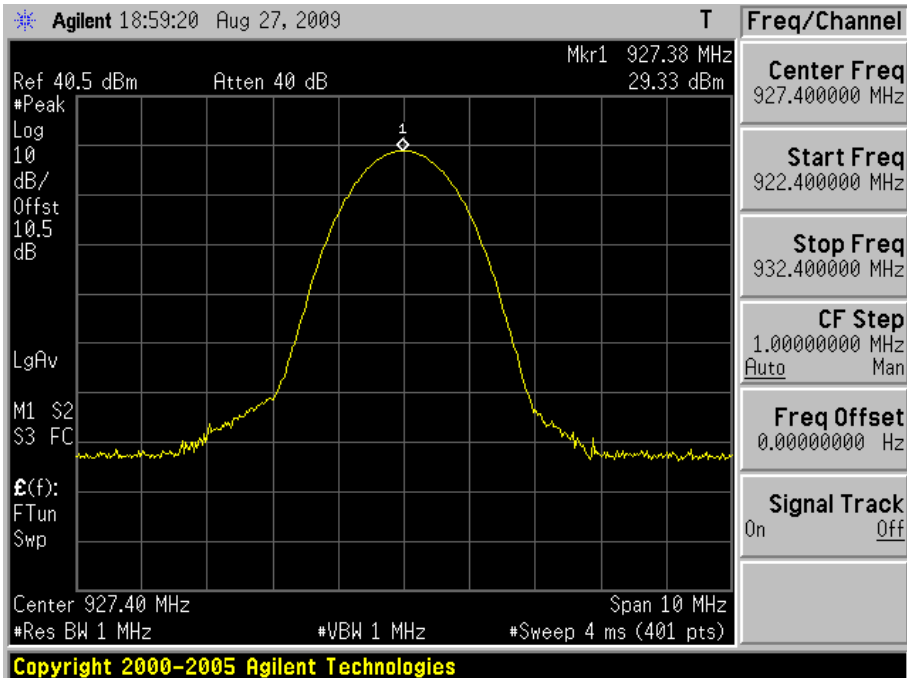


914.75MHz (Average)

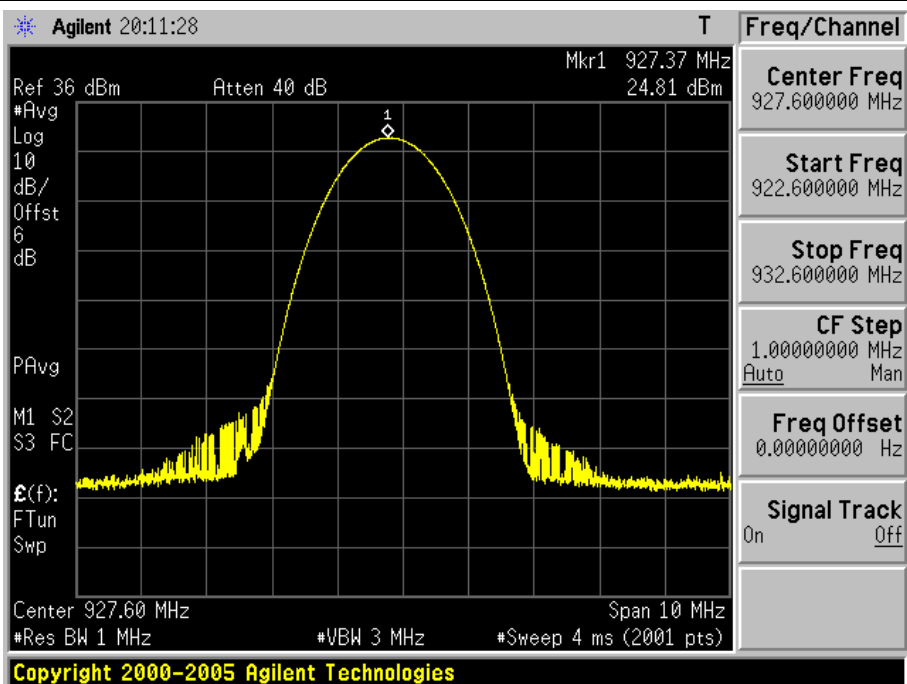


ISO Mode _ Port 2

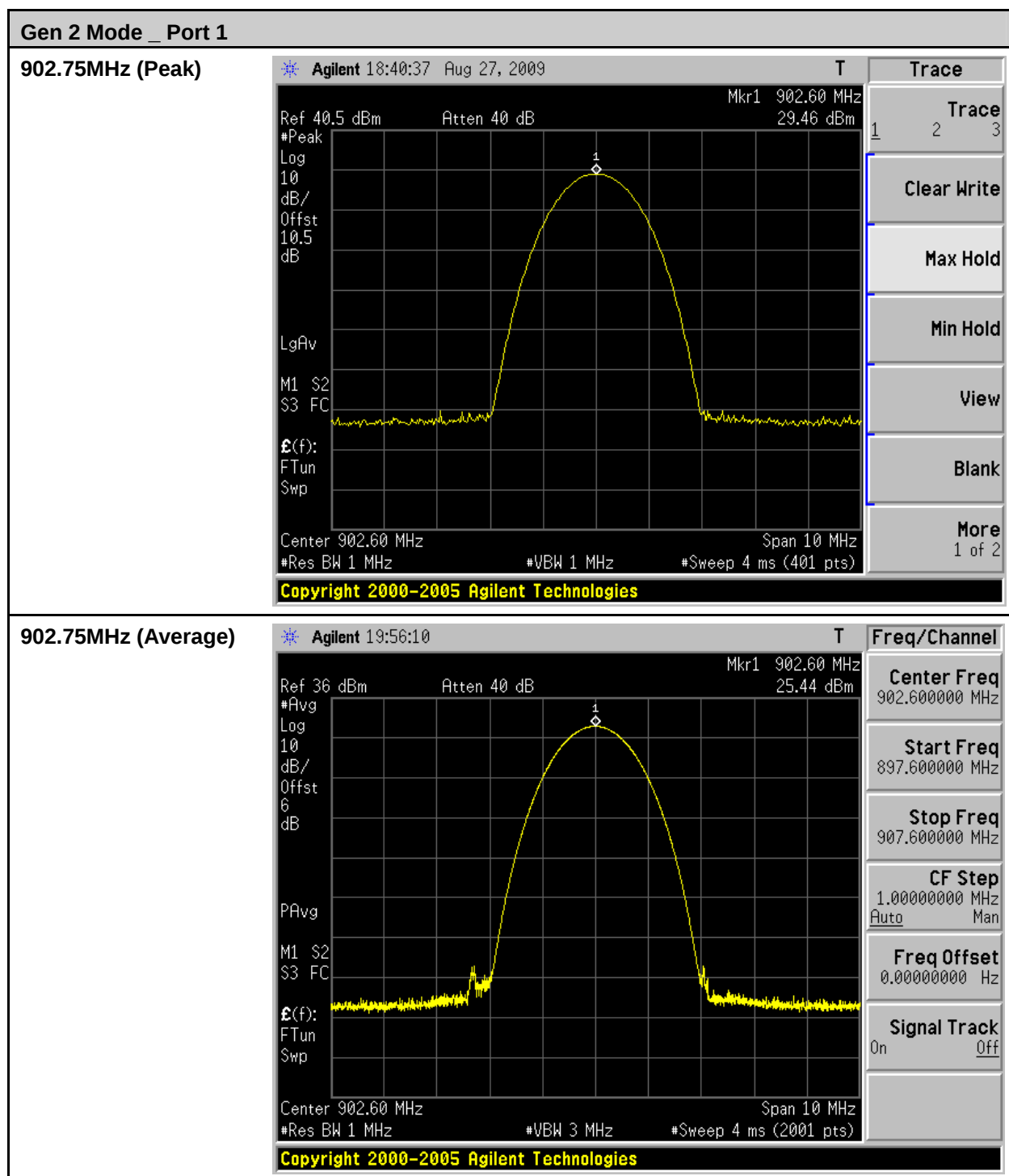
927.25MHz (Peak)



927.25MHz (Average)

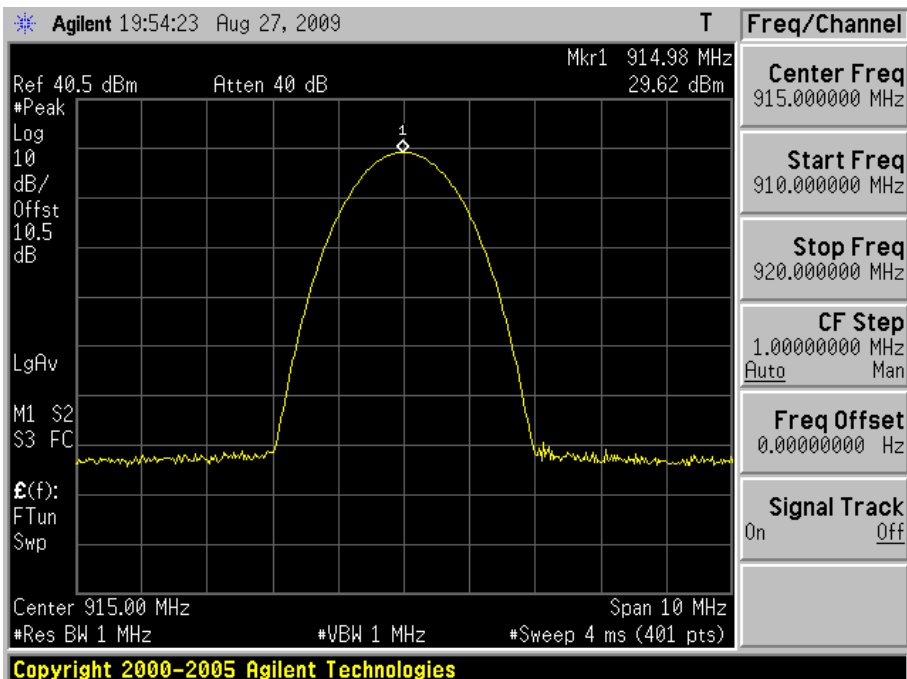


4.5.3 Gen 2 Mode _ Port 1

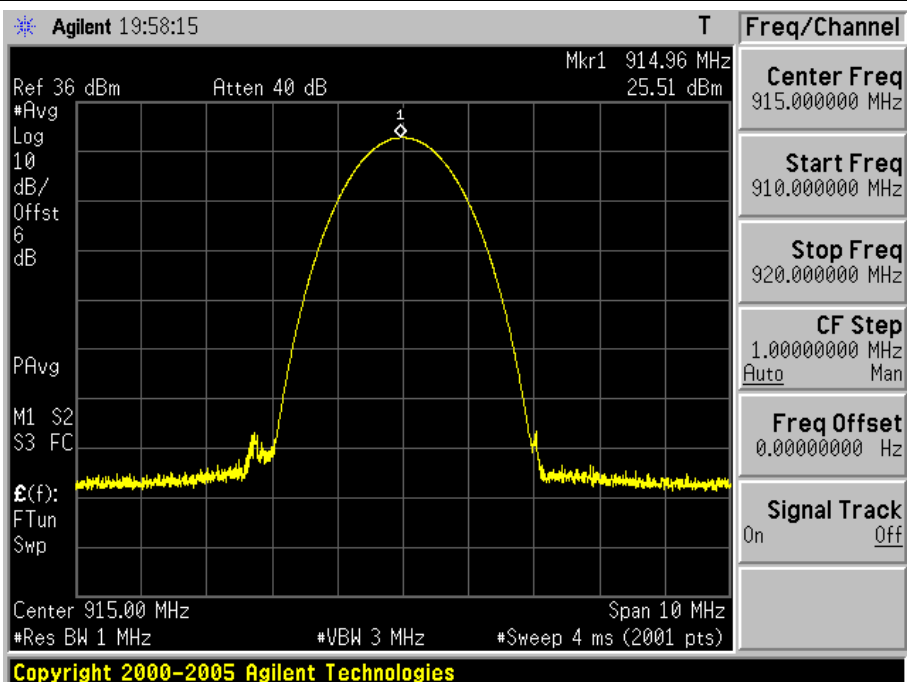


Gen 2 Mode _ Port 1

914.75MHz (Peak)

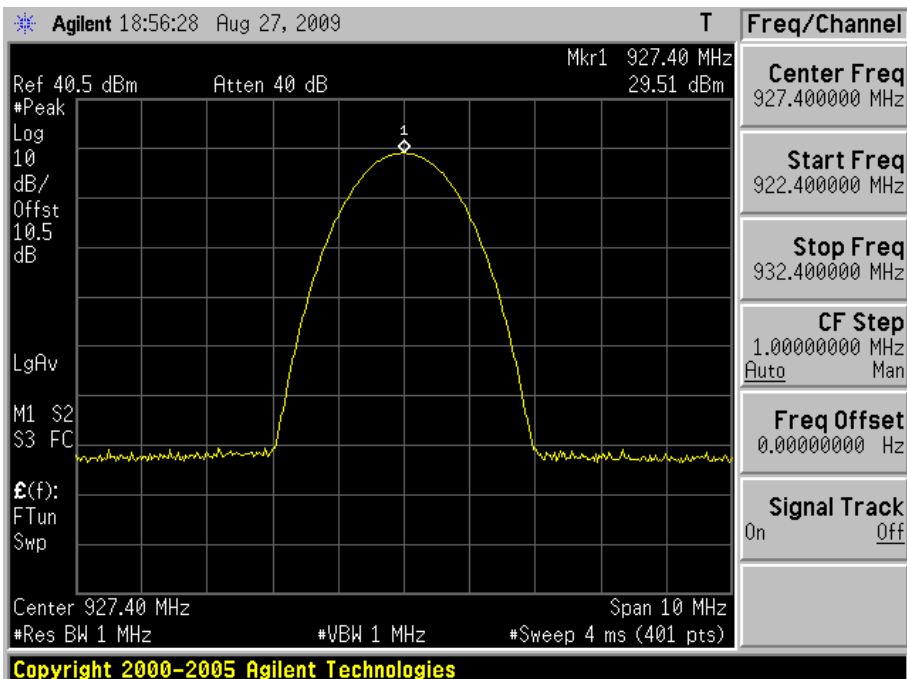


914.75MHz (Average)

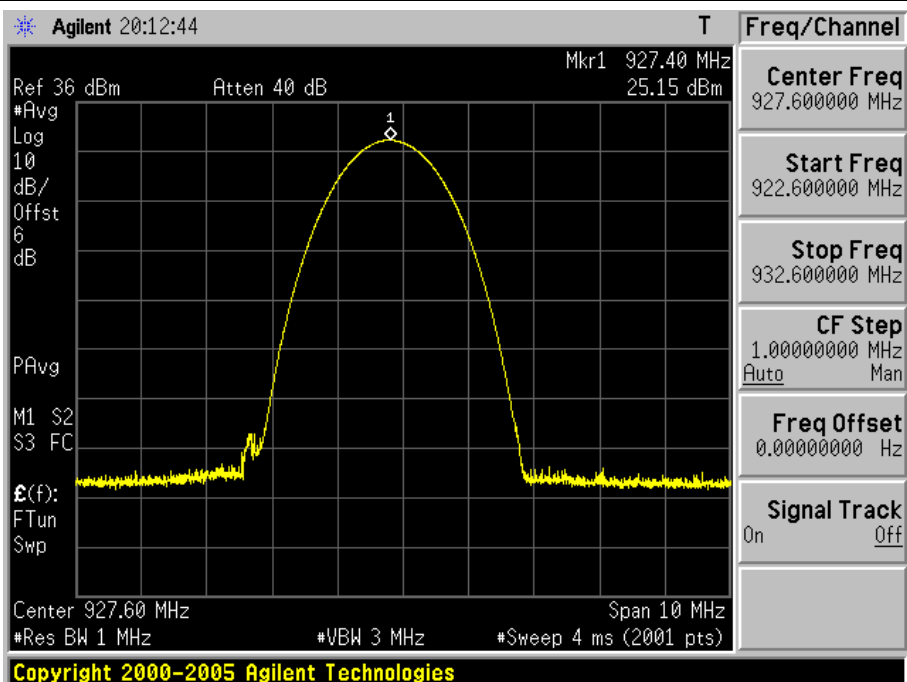


Gen 2 Mode _ Port 1

927.25MHz (Peak)

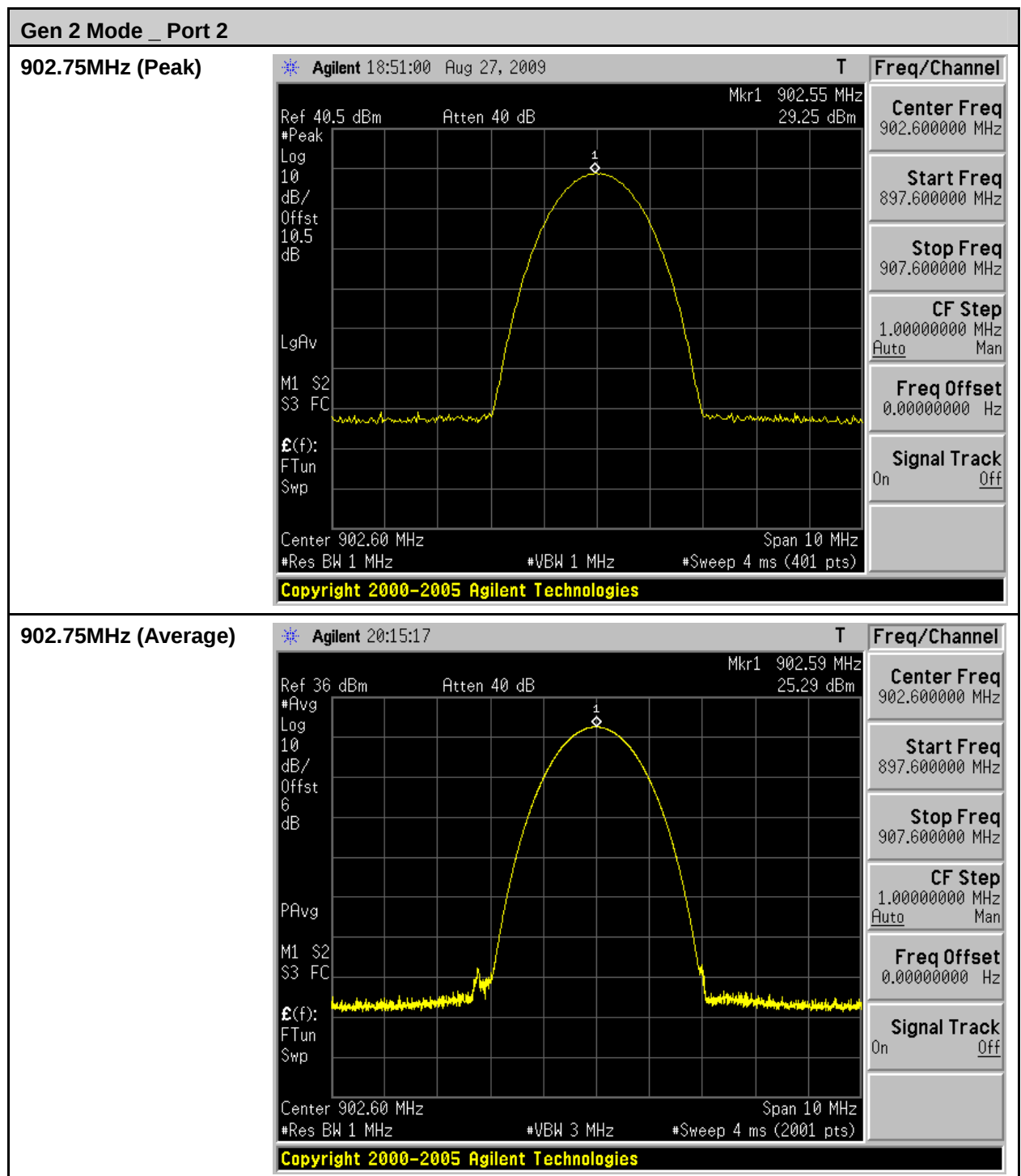


927.25MHz (Average)



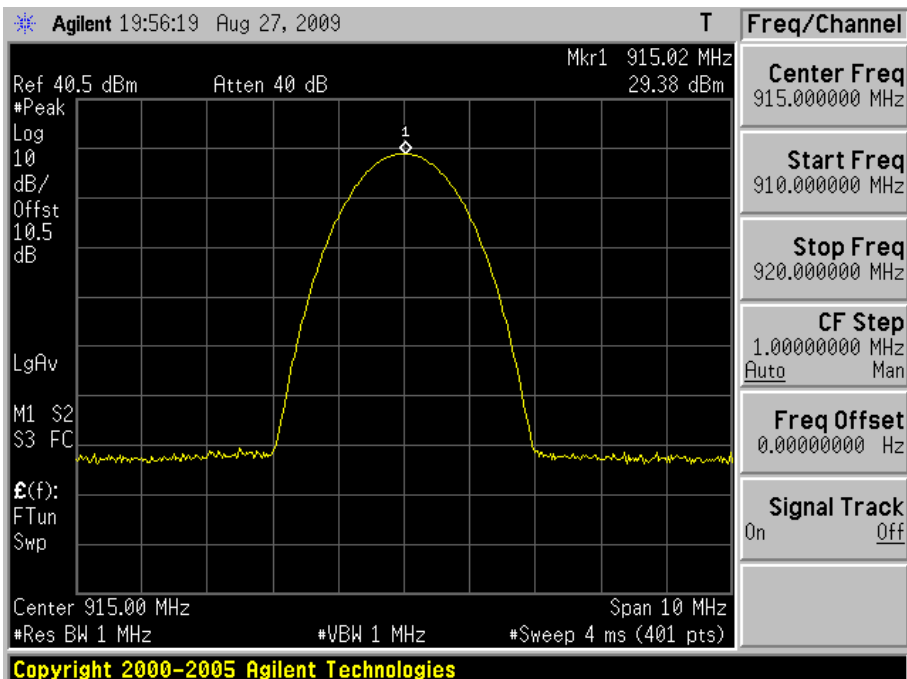


4.5.4 Gen 2 Mode _Port 2

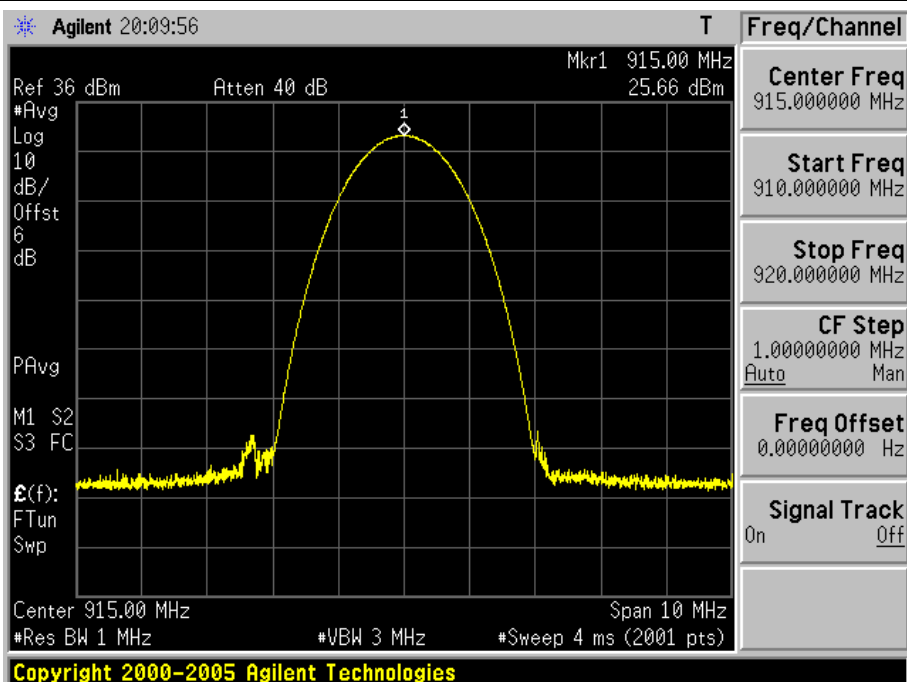


Gen 2 Mode _ Port 2

914.75MHz (Peak)

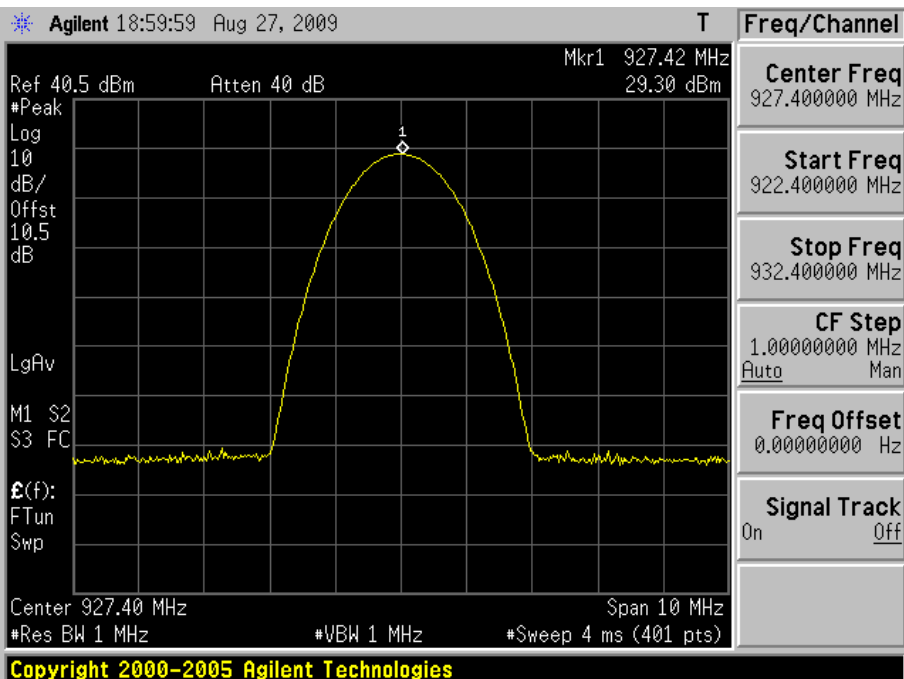


914.75MHz (Average)

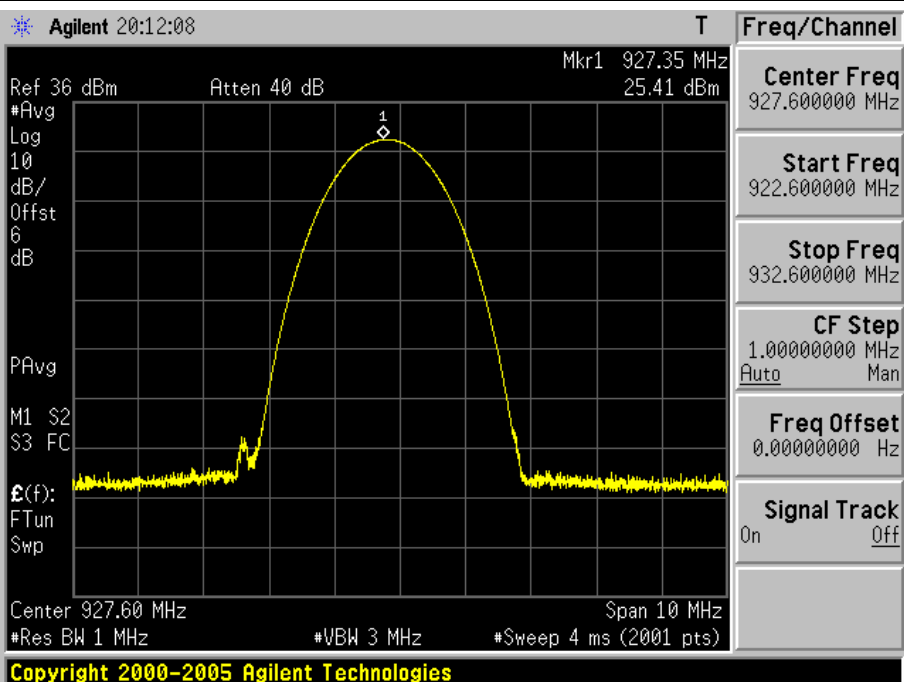


Gen 2 Mode _ Port 2

927.25MHz (Peak)



927.25MHz (Average)



5. 99% Occupied Bandwidth

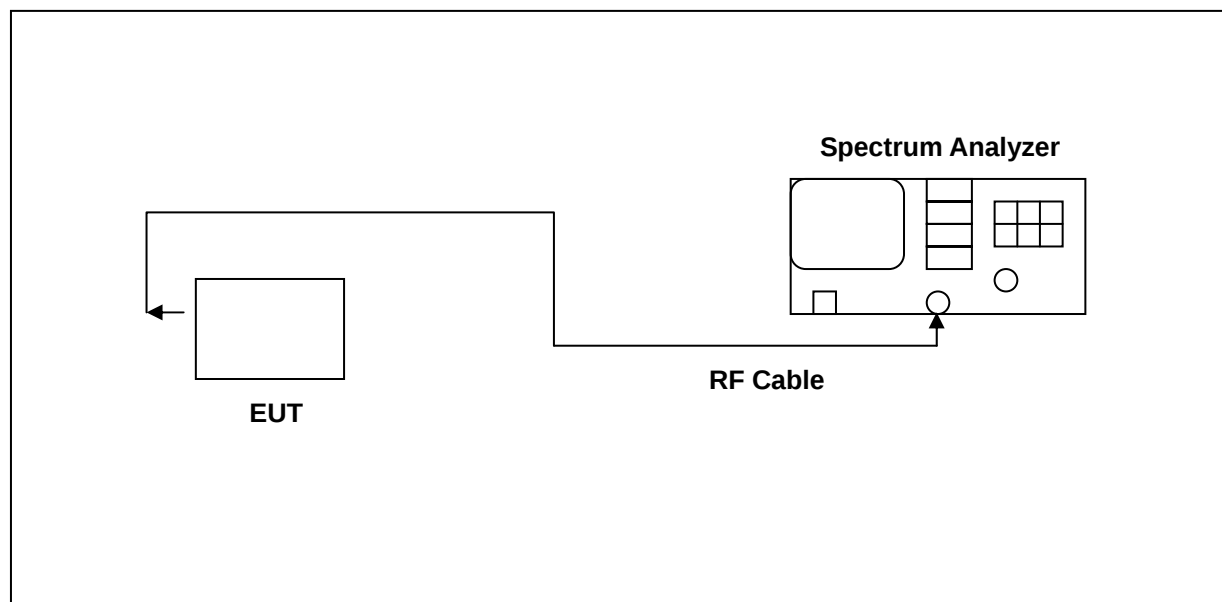
5.1 Test Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth frequency hopping function of the EUT was enabled. The spectrum analyzer used the following settings:

1. Span = approx. 2 to 3 times the 20dB bandwidth, centered on a hopping frequency
2. RBW $\geq$ 1% of the 20dB span
3. VBW $\geq$ RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

The trace was allowed to stabilize. The EUT was transmitting at its maximum data rate. The marker-to-peak function was used to set the marker to the peak of the emission. The marker-delta function was used to measure 20dB down one side of the emission. The marker-delta function and marker was moved to the other side of the emission until it was even with the reference marker. The marker-delta reading at this point was the 20dB bandwidth of the emission.

5.2 Test Instruments Configuration





5.3 Test Equipment List

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY45300744	Dec. 22, 2008	Dec. 22, 2009

5.4 Test Result

ISO Mode

Frequency (MHz)	20dB Bandwidth (KHz)	99 % Bandwidth (KHz)	Required Limit
902.75	90.3	111.5225	<500 kHz
914.75	90.3	112.1964	<500 kHz
927.25	91.3	115.4485	<500 kHz

Gen 2 Mode

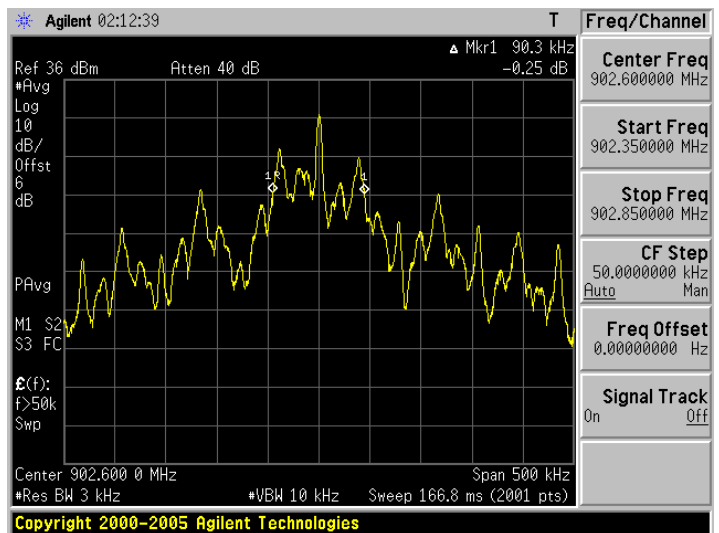
Frequency (MHz)	20dB Bandwidth (KHz)	99 % Bandwidth (KHz)	Required Limit
902.75	84.2	85.1717	<500 kHz
914.75	86.5	84.2734	<500 kHz
927.25	85.8	83.8232	<500 kHz



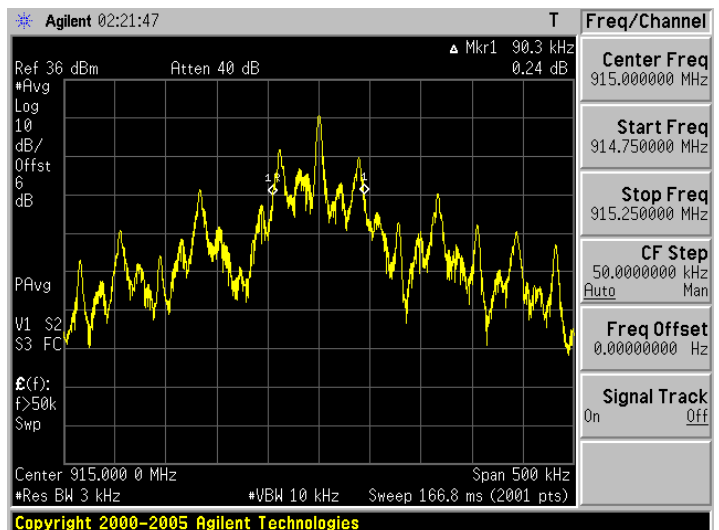
5.5 Test Graphs

5.5.1 ISO Mode

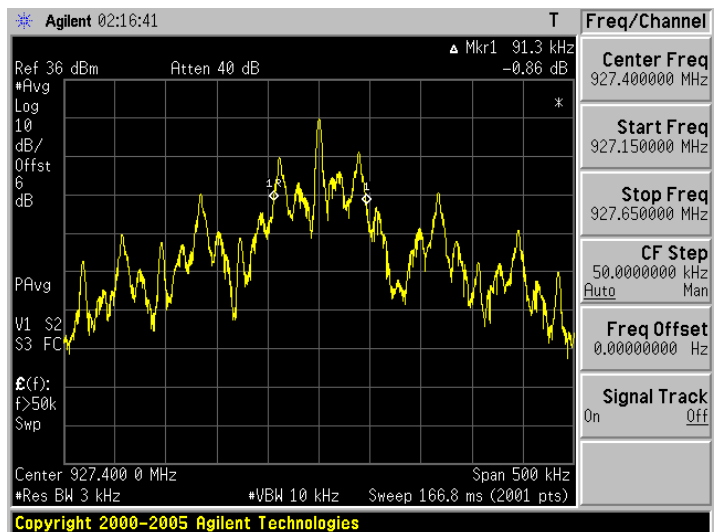
20 dB Bandwidth _ 902.75MHz



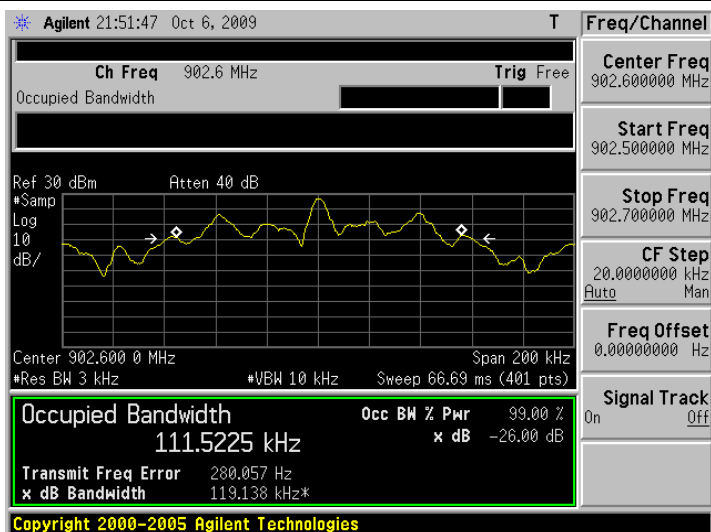
20 dB Bandwidth _ 914.75MHz



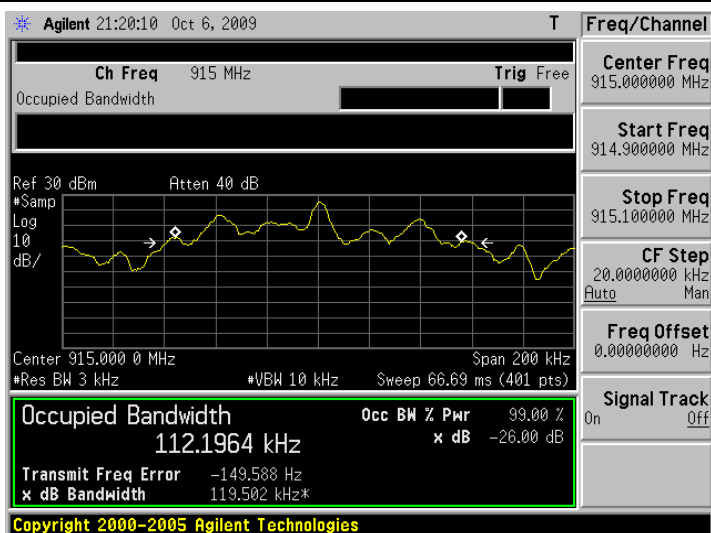
20 dB Bandwidth _ 927.25MHz



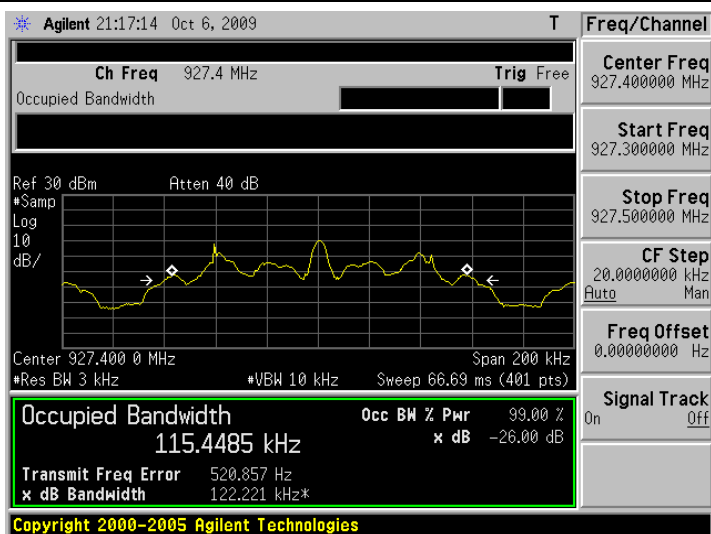
99% Bandwidth _ 902.75MHz



99% Bandwidth _ 914.75MHz

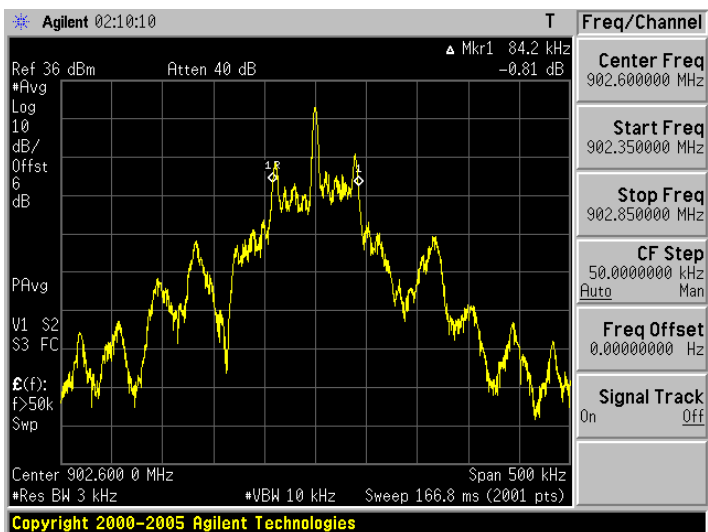


99% Bandwidth _ 927.25MHz

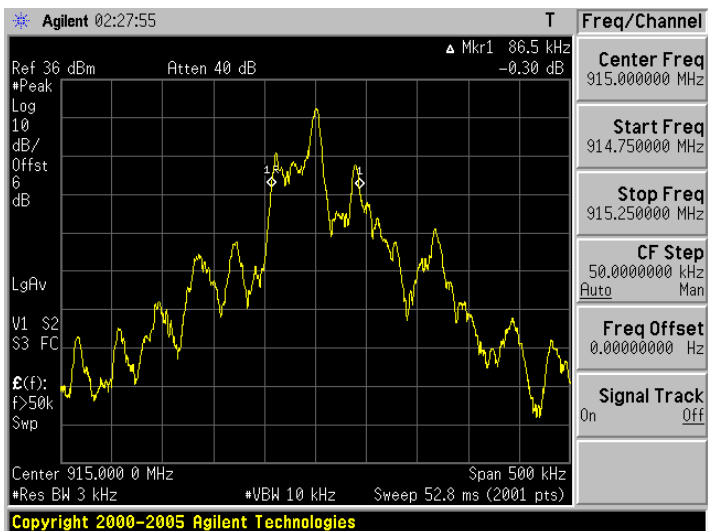


5.5.2 Gen 2 Mode

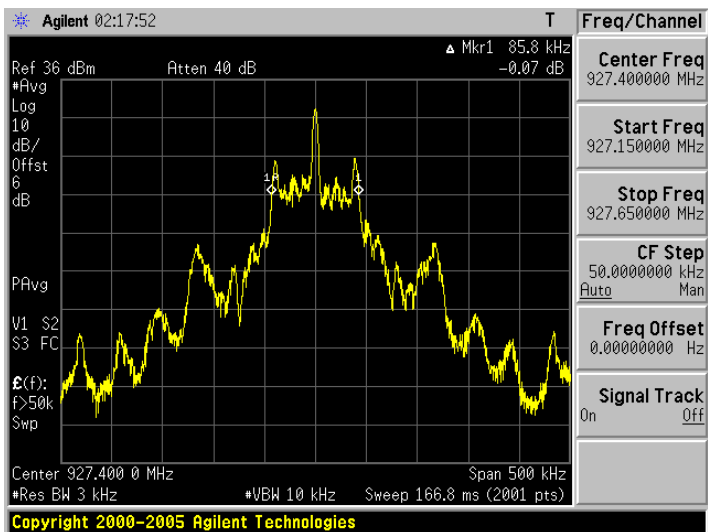
20 dB Bandwidth _ 902.75MHz



20 dB Bandwidth _ 914.75MHz

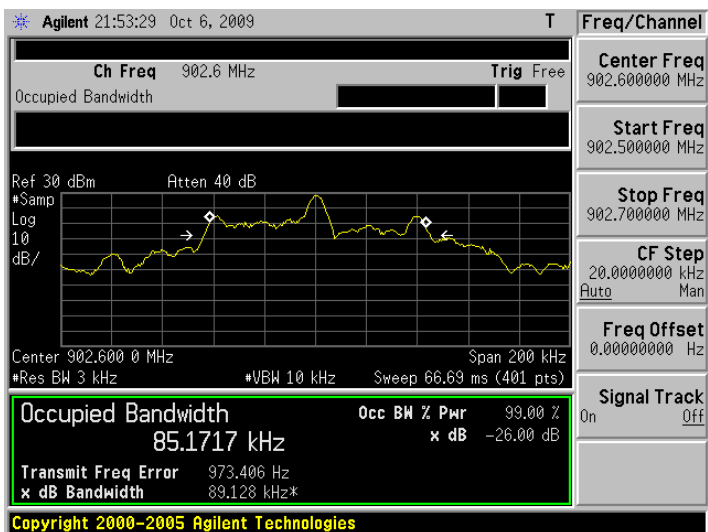


20 dB Bandwidth _ 927.25MHz

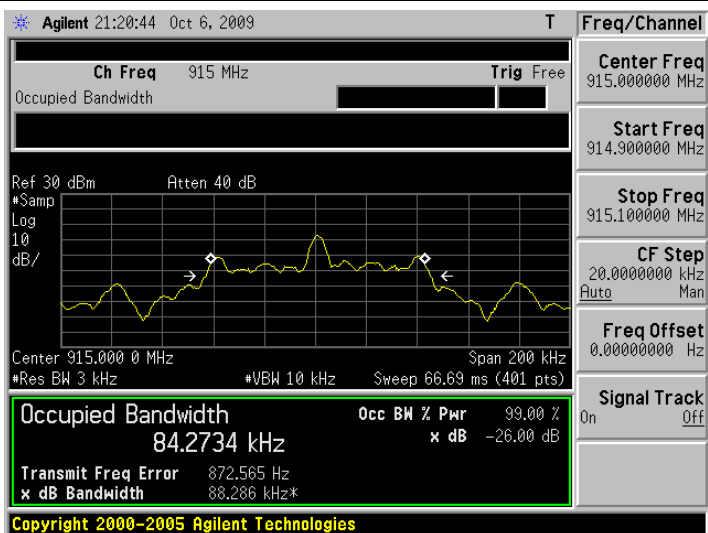




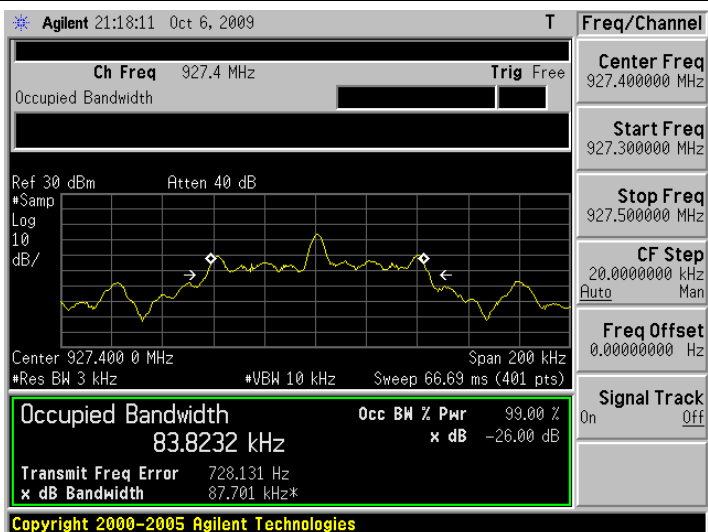
99% Bandwidth _ 902.75MHz



99% Bandwidth _ 914.75MHz



99% Bandwidth _ 927.25MHz



6. Carrier Frequency Separation Requirements

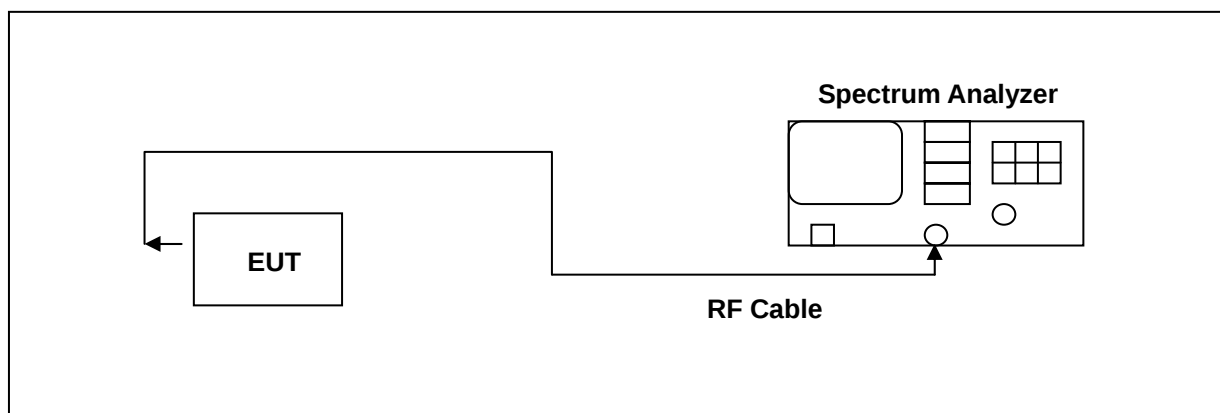
6.1 Test Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth transmitter of the V6 had its hopping function enabled. The following spectrum analyzer settings were used:

1. Span = wide enough to capture the peaks of two adjacent channels
2. Resolution (or IF) Bandwidth (RBW) $\geq$ 1% of the span
3. Video (or Average) Bandwidth (VBW) $\geq$ RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

The trace was allowed to stabilize. The marker-delta function was used to determine the separation between the peaks of the adjacent channels.

6.2 Test Instruments Configuration:



6.3 Test Equipment List

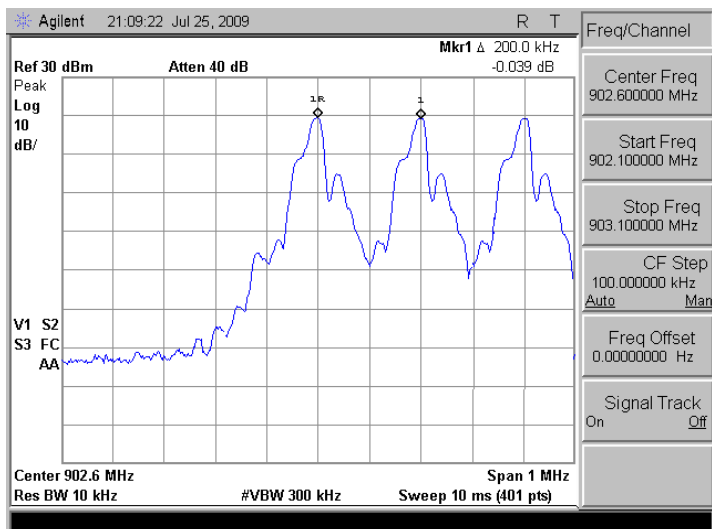
Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY45300744	Dec. 22, 2008	Dec. 22, 2009
Attenuator	RADIALL	R41572000	0603033073	NA	NA

6.4 Test Result

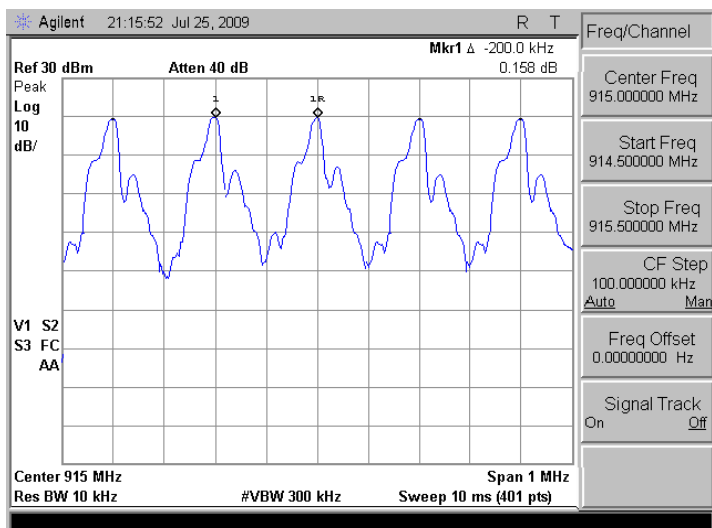
Carrier Frequency Separation Measure:	200 kHz
---------------------------------------	---------

6.5 Test Graphs

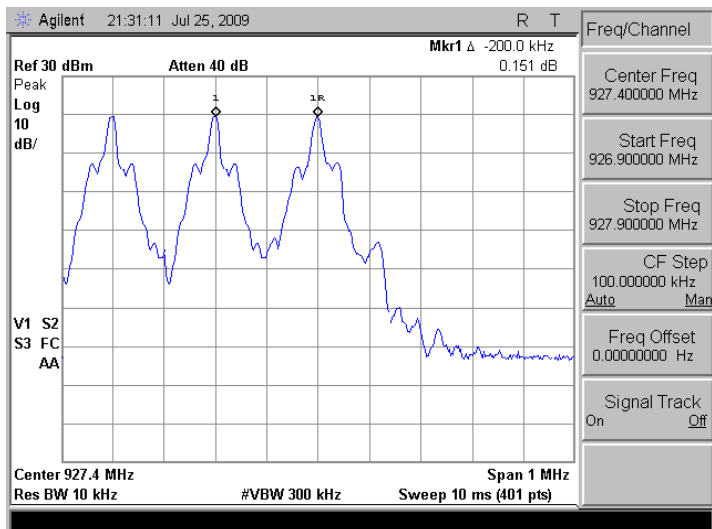
902.75MHz



914.75MHz



927.25MHz



7. Number of Hopping Requirements

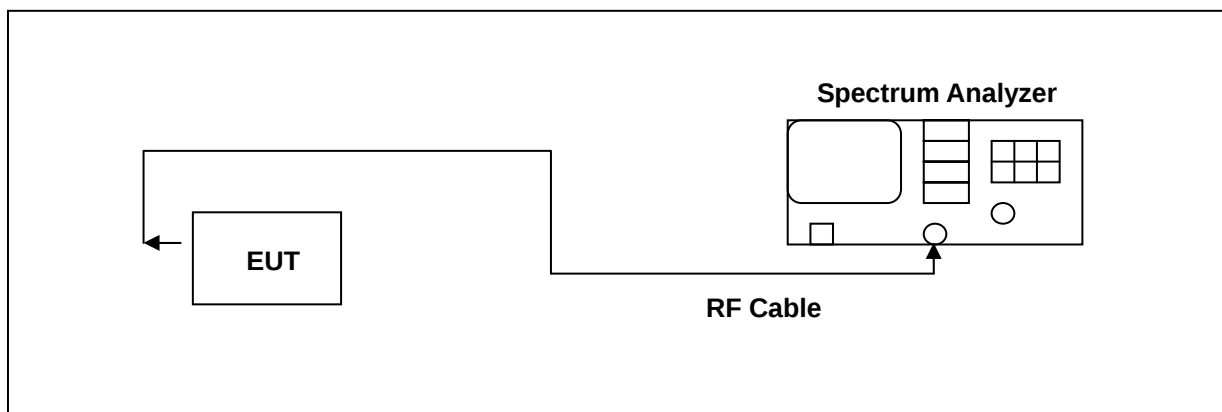
7.1 Test Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth frequency hopping function of the EUT was enabled. The spectrum analyzer used the following settings:

1. Span = the frequency band of operation
2. RBW $\geq$ 1% of the span
3. VBW $\geq$ RBW
4. Sweep = auto
5. Detector function = peak
6. Trace = max hold

The trace was allowed to stabilize.

7.2 Test Instruments Configuration



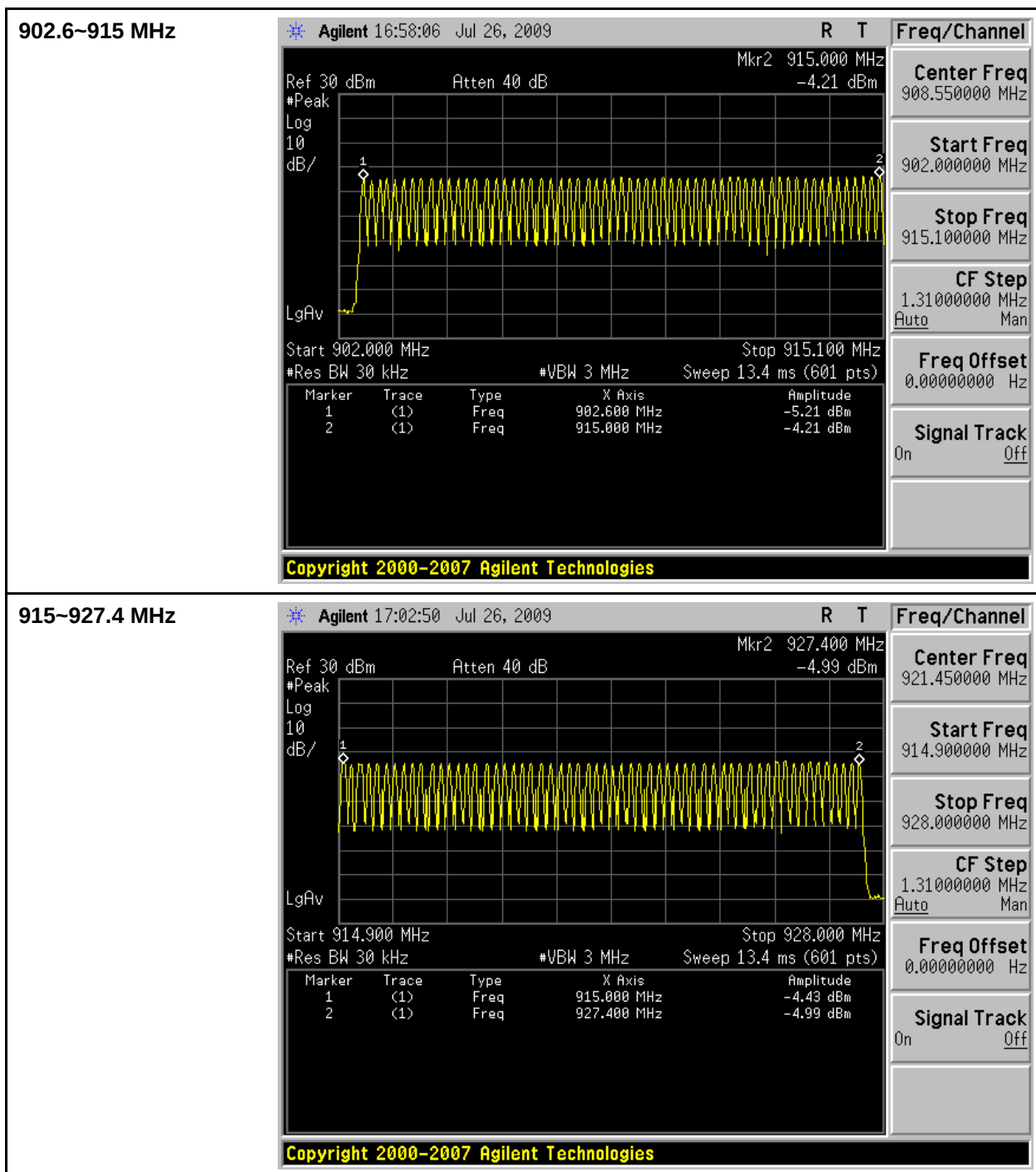
7.3 Test Equipment List

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY45300744	Dec. 22, 2008	Dec. 22, 2009
Attenuator	RADIALL	R41572000	0603033073	NA	NA

7.4 Test Result

Number of Hopping Measure:	125 CH
----------------------------	--------

7.5 Test Graphs



8. Time of Occupancy (Dwell Time) Requirements

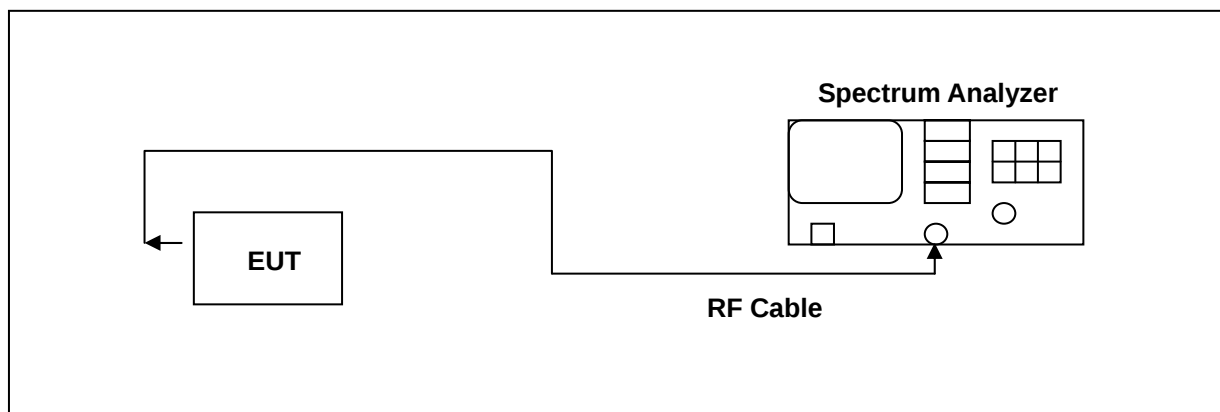
8.1 Test Procedure

The RF output port of the Equipment-Under-Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 10dB passive attenuator. A fully charged battery was used for the supply voltage. The Bluetooth hopping function of the EUT was enabled. The following spectrum analyzer settings were used:

1. Span = zero span, centered on a hopping channel
2. RBW = 3 kHz
3. VBW $\geq$ RBW
4. Sweep = as necessary to capture the entire dwell time per hopping channel
5. Detector function = peak
6. Trace = max hold

The marker-delta function was used to determine the dwell time.

8.2 Test Instruments Configuration



8.3 Test Equipment List

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY45300744	Dec. 22, 2008	Dec. 22, 2009
Attenuator	RADIALL	R41572000	0603033073	NA	NA

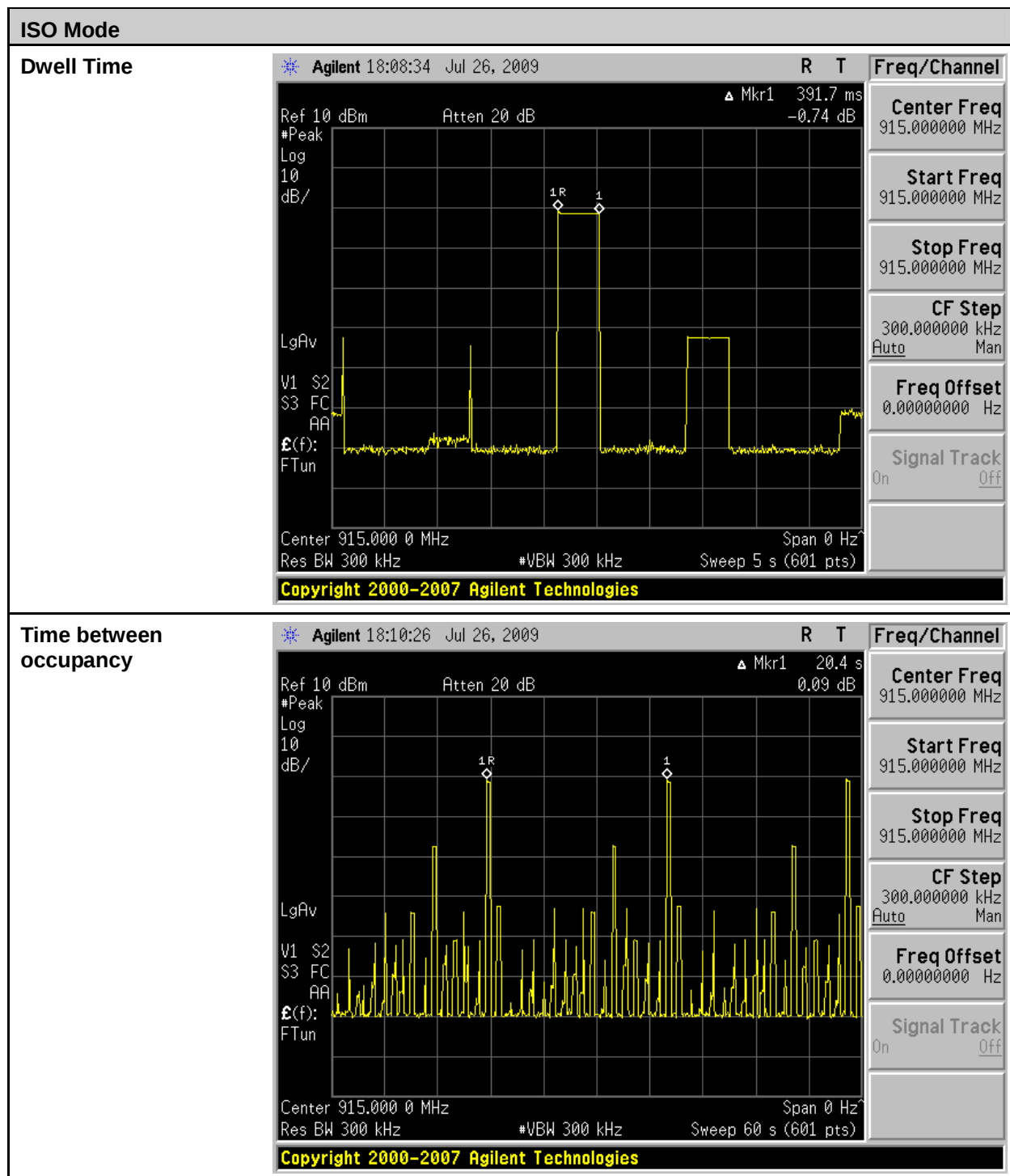
8.4 Test Result

ISO Mode	
Period	20
Dwell Time	0.3917 s
Time between occupancy	20.4 s
Time of occupancy =(Period/ Time between occupancy)* Dwell Time	0.384 ms
Limit (msec)	<=400
The average time of occupancy shall not be greater than 0.4 second within a 20 second period.	

Gen 2 Mode	
Period	20
Dwell Time	0.4000 s
Time between occupancy	20.2 s
Time of occupancy = (Period/ Time between occupancy)* Dwell Time	0.396 ms
Limit (msec)	<=400
The average time of occupancy shall not be greater than 0.4 second within a 20 second period.	

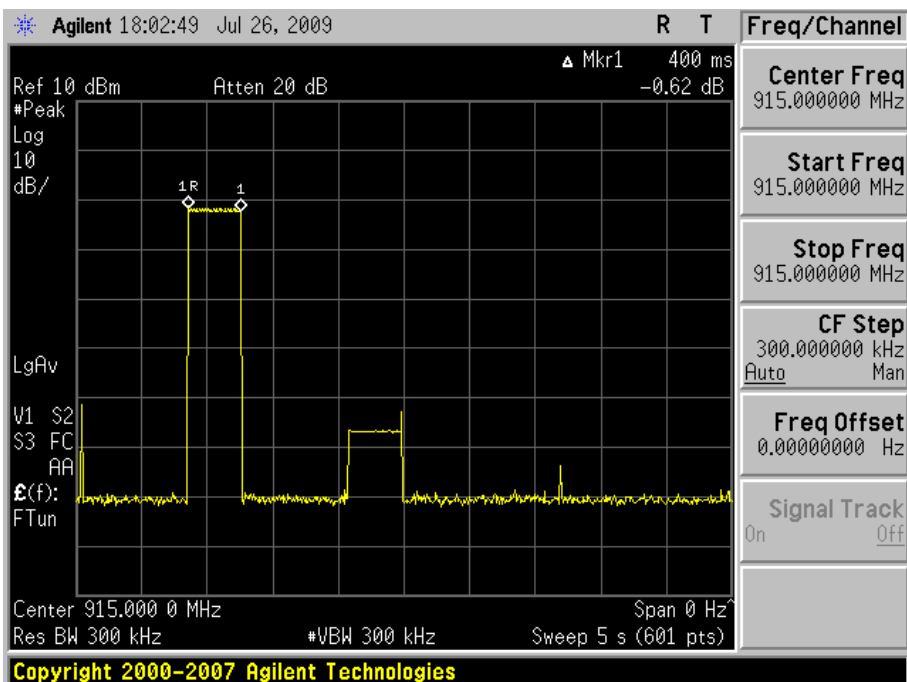
Note: RB=3KHz; VB=10kHz; SPAN=0MHz; Sweep Time=2 sec

8.5 Test Graphs

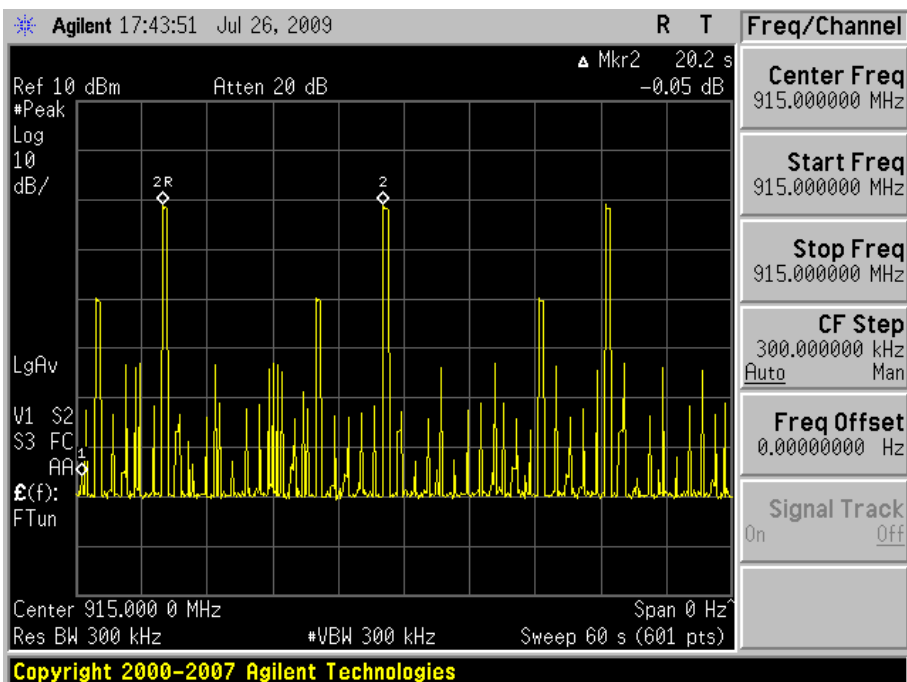


Gen 2 Mode

Dwell Time



Time between occupancy



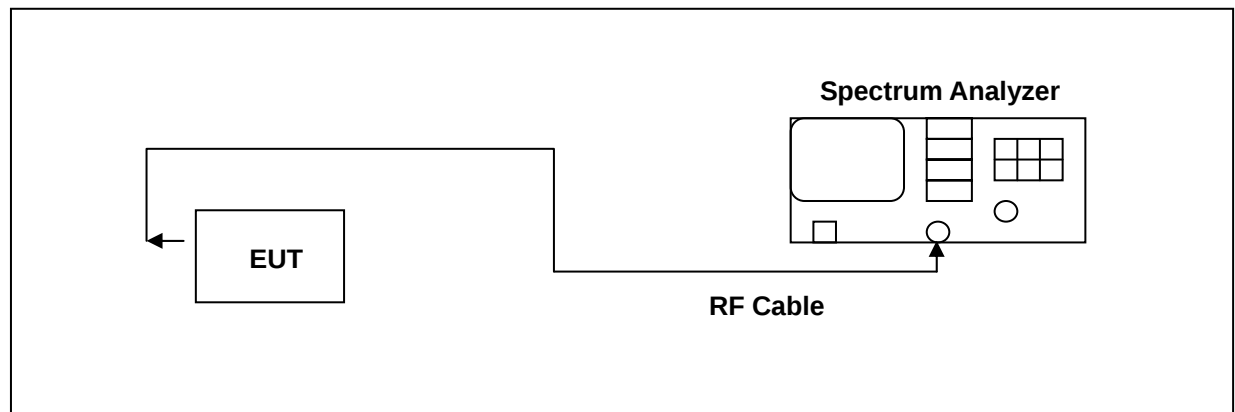
9. Out of Band Conducted Emissions Requirements

9.1 Test Procedure

In any 100 kHz bandwidth outside the EUT pass band, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20 dB below that of the maximum in-band 100 kHz emission, antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the pass band. The test was performed at 3 channels (Channel 0, 62, 124)

9.2 Test Instruments Configuration



9.3 Test Equipment List

Describe	Manufacturer	Model	Serial Number	Calibration	
				Cal. Date	Due Date
Spectrum Analyzer	Agilent	E4445A	MY45300744	Dec. 22, 2008	Dec. 22, 2009

9.4 Test Result

Refer to attached data sheets. Data shows out of band emissions are suppressed well below the -20 dBc minimum required by the Rules.

EUT : MPR-1910 RFID Reader Module

Model No : MPR-1910

Test Mode : ISO Mode

Test Date : 07/26/2009

Please refer to next page of detail testing data.



Radiated Emission Measurement

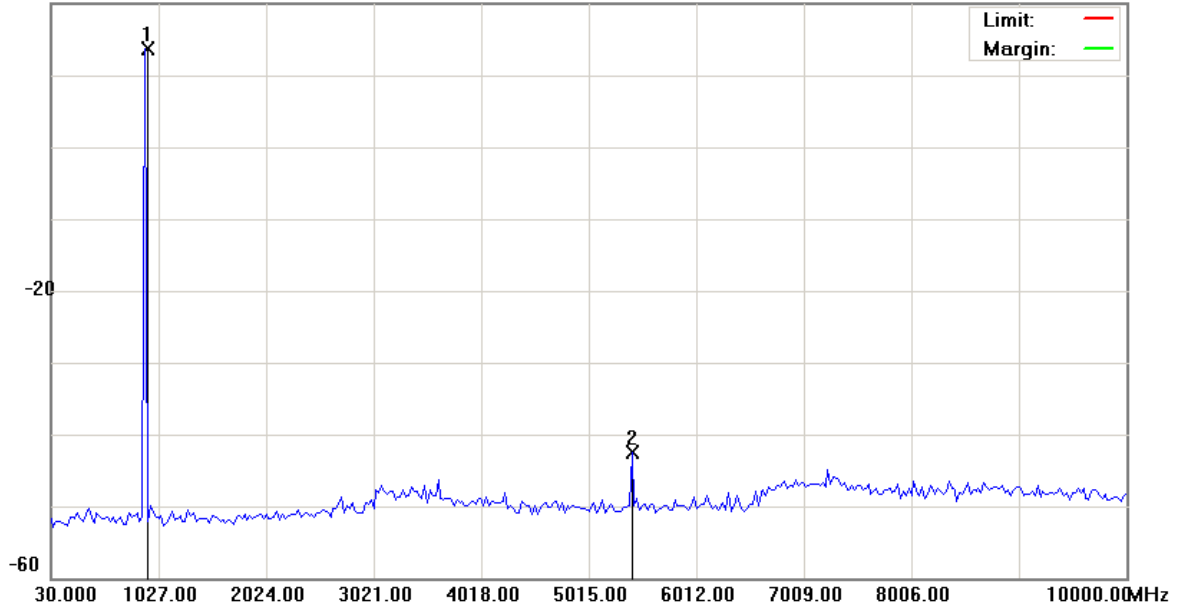
File :FCC(20dB)(PORT1)(ISO)

Data :#1

Date: 2009/7/26

Time: 下午 07:34:53

20.0 dBm



Site: site #1

Limit:

EUT:

M/N: 09-0177-E

Mode: ISO

Note: CH0

Polarization:

Power:

Distance:

Temperature: 26 °C

Humidity: 60 %

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	902.6000	12.78	1.00	13.78			peak		
2		5413.800	-43.47	1.03	-42.44			peak		

*:Maximum data x:Over limit !:over margin



Radiated Emission Measurement

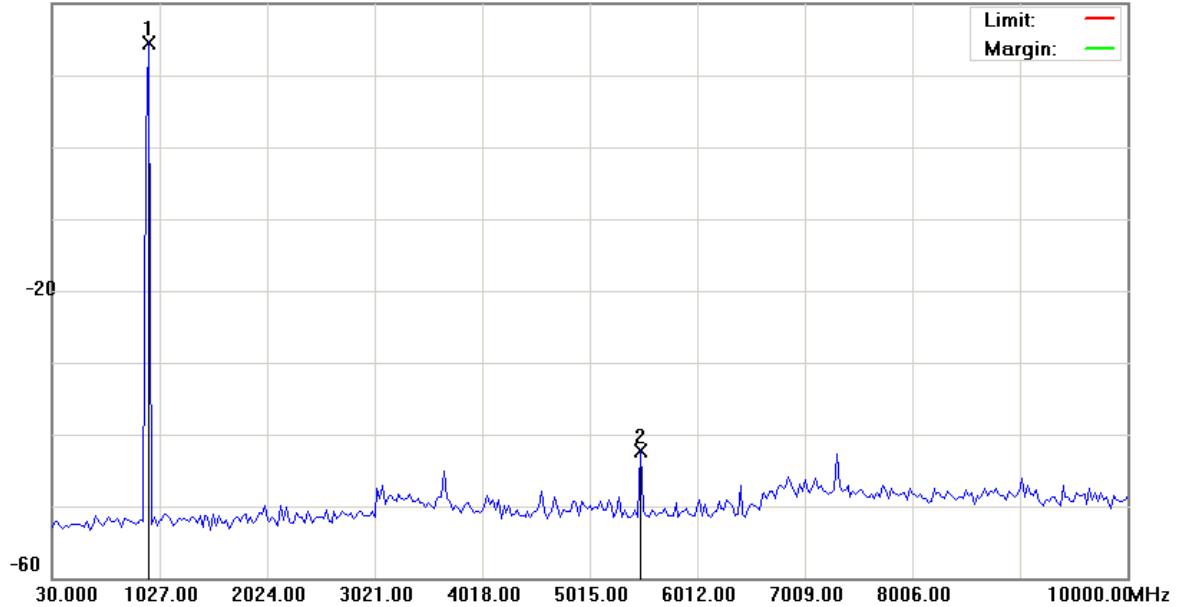
File :FCC(20dB)(PORT1)(ISO)

Data :#2

Date: 2009/7/26

Time: 下午 07:41:53

20.0 dBm



Site: site #1

Polarization:

Temperature: 26 °C

Limit:

Power:

Humidity: 60 %

EUT:

Distance:

M/N: 09-0177-E

Mode: ISO

Note: CH62

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	915.0000	13.41	1.00	14.41			peak		
2		5488.575	-43.24	1.03	-42.21			peak		

*:Maximum data x:Over limit !:over margin



Radiated Emission Measurement

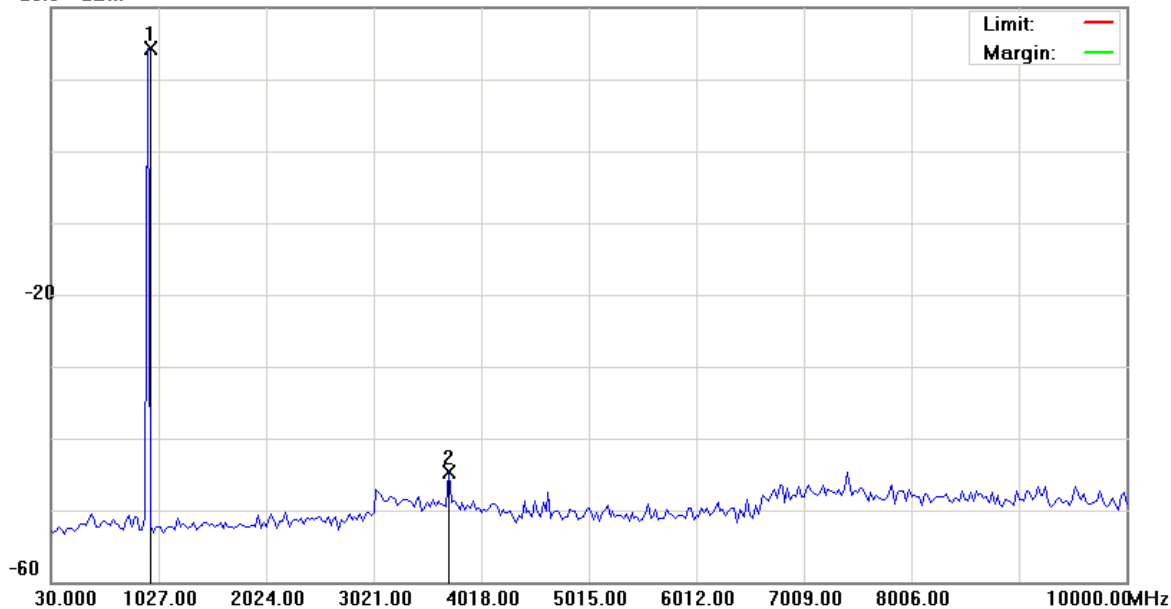
File :FCC(20dB)(PORT1)(ISO)

Data :#3

Date: 2009/7/26

Time: 下午 07:43:26

20.0 dBm



Site: site #1

Limit:

EUT:

M/N: 09-0177-E

Mode: ISO

Note: CH124

Polarization:

Power:

Distance:

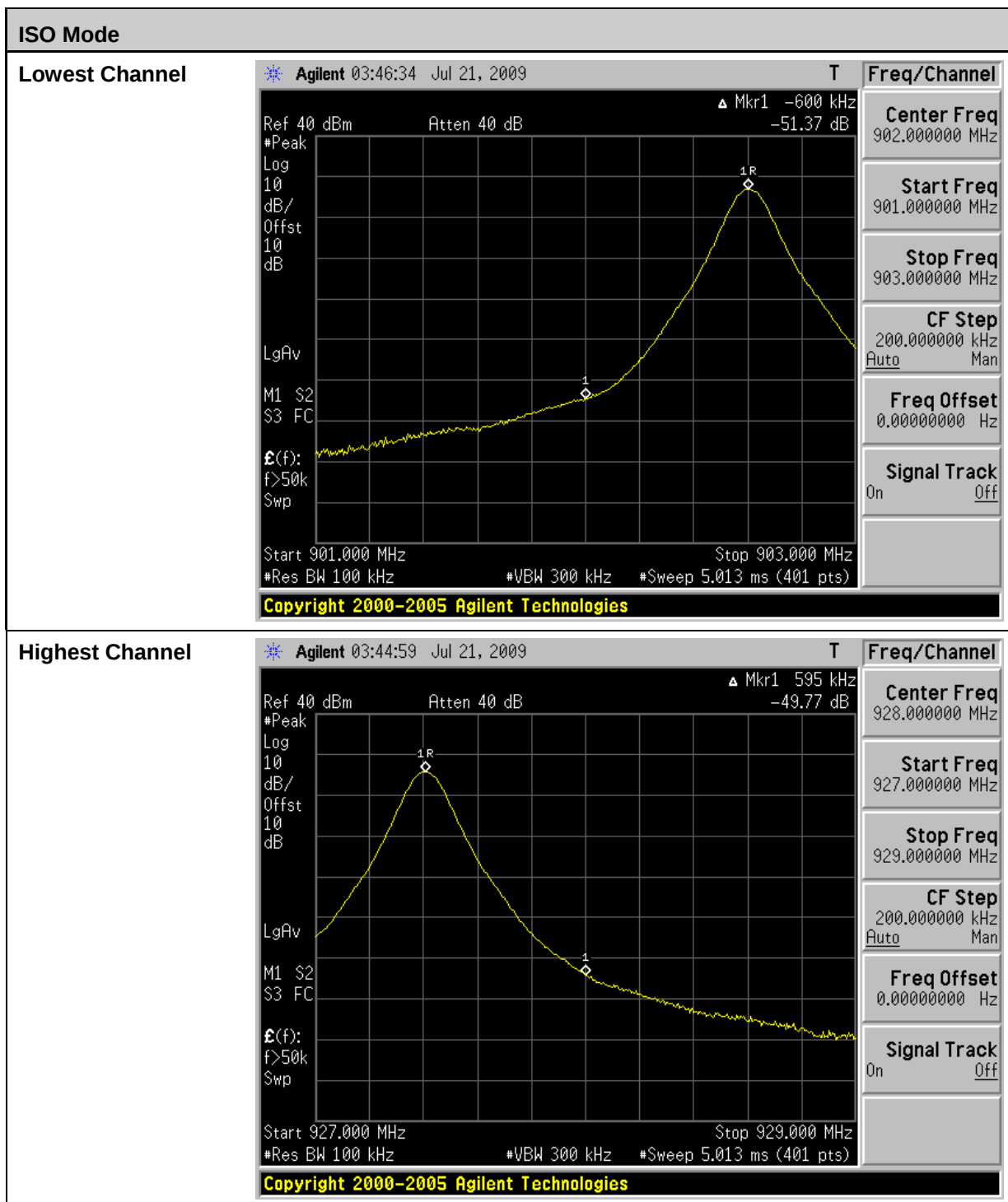
Temperature: 26 °C

Humidity: 60 %

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	927.4000	13.31	1.00	14.31			peak		
2		3718.900	-45.72	1.02	-44.70			peak		

*:Maximum data x:Over limit !:over margin

9.5 Test Graphs





10. Antenna Requirements

10.1 Standard Applicable

For intentional device, according to 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And According to 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

10.2 Antenna Connector Construction

The antenna used in this product is external antenna. And the maximum Gain is **5.70dBi**.