

TEST REPORT

1. Applicant

Name : SEGI LIMITED
Address : Room 1808, 18/F, Tower 2, Admiralty Center, 18
Harcourt road, Hongkong City, 186, CHINA

2. Products

Name : CAR Alarm Transceiver
Model/Type : 2W901R-SS
Manufacturer : SEGI LIMITED

3. Test Standard : FCC CFR 47 Part 15, Subpart C section 15.247

4. Test Method : ANSI C63.4-2009

5. Test Result : Positive

6. Date of Application : November. 04, 2010

7. Date of Issue : December. 21, 2010

Tested by

Sung-kyu Cho

Sung-kyu Cho

Telecommunication Center
Engineer

Approved by

Jeong-min Kim

Jeong-min Kim

Telecommunication Center
Manager

The test results contained apply only to the test sample(s) supplied by the applicant, and this test report shall not be reproduced in full or in part without approval of the KTL in advance.

Korea Testing Laboratory

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1. GENERAL INFORMATIONS

1.1. Applicant (Client)

Name	SEGI LIMITED
Address	Room 1808, 18/F, Tower 2, Admiralty Center, 18 Harcourt road, Hongkong City, 186, CHINA
Contact Person	Eui-Seok Chung
Telephone No.	82-32-623-5550 (#272)
Facsimile No.	82-32-623-6667
E-mail address	euseok@magicar.com
Manufacturer Name	SEGI LIMITED
Manufacturer Address	Chenjiapucun, Liaobu Town, Dongguan City, Guangdong Province, P.R.China (523-408)

1.2. Equipment (EUT)

FCC Classification	DSS – Part 15 Spread Spectrum Transmitter
Model Name	2W901R-SS
FCC ID	VA5JR901-2WSS
IC Number	7087A-R901WSS
Frequency Band	910.92 ~ 919.08 MHz
EUT Modes of Operation	Transceiver
Type of Modulation	FHSS
Number of Channels	25 channels
Antenna Type	Helical Antenna
Max. Antenna gain	-0.68 dBi
Input power supply	+3.7 V (Lithium polymer battery)

1.3. Testing Laboratory

Testing Place	Korea Testing Laboratory (KTL) 1271-12, Sa-Dong Sangnok-Gu, Ansan-si Gyunggi-Do , Korea
FCC registration number	408324
Industry Canada filing number	6298A
Test Engineer	Sung-kyu Cho
Telephone number	+82 31 5000 132
Facsimile number	+82 31 5000 149
E-mail address	skcho@ktl.re.kr
Other Comments	-

2. SUMMARY OF TEST RESULTS

Testing performed for : SEGI Limited.

Equipment Under Test : 2W901R-SS

Receipt of Test Sample : 2010. 11. 04

Test Start Date : 2010. 11. 20

Test End Date : 2010. 12. 15

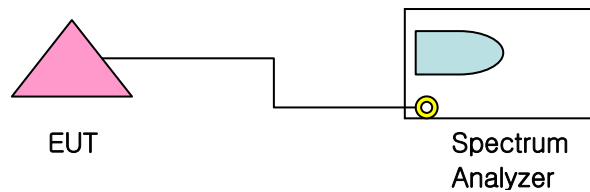
The following table represents the list of measurements required under the FCC CFR 47 Part 15.205, 15.247, and 15.207, 15.209 & IC RSS-210.

FCC Part 15 Rules	IC RSS-210 Rules	Test Requirements	Result	Comments
15.247 (a)(1)	Annex A8.1(1)	20dB Bandwidth	Pass	See Data sheets
15.247 (b)(1)	Annex A8.4(1)	Maximum Peak Power	Pass	See Data sheets
15.247(d)	Annex A8.5	100 KHz Bandwidth of Frequency Band Edges	Pass	See Data sheets
15.247 (a)(1)	Annex A8.1(2)	Hopping channel separation	Pass	See Data sheets
15.247 (a)(1)(i)	Annex A8.1(3)	Number of hopping channels	Pass	See Data sheets
15.247 (a)(1)(i)	Annex A8.1(4)	Dwell time	Pass	See Data sheets
15.247 (d)	Annex A8.5	Conducted Spurious Emission	Pass	See Data sheets
15.207	Gen 7.2.2	Conducted Emission	Pass	See Data sheets
15.205 & 15.209	Table 1 & Table 2	Radiated Spurious Emissions	Pass	See Data sheets

3. Measurement & Results

3.1. 20 dB Bandwidth : Session 15.247(a)(1)

3.1.1. Test Setup Layout

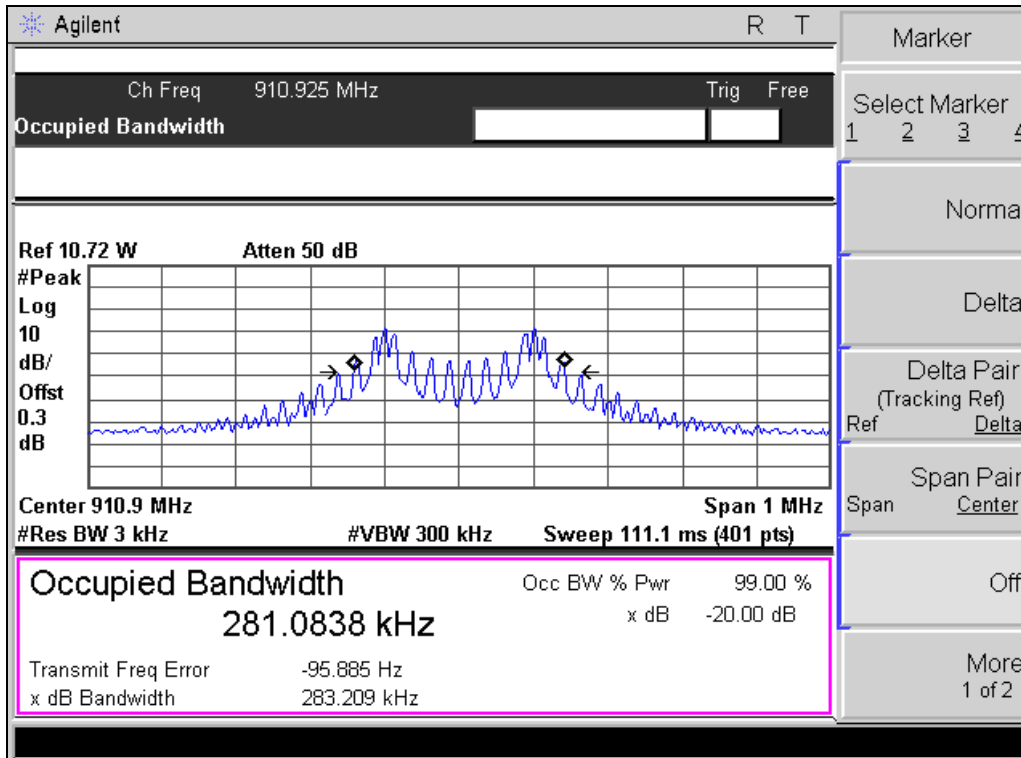


3.1.2. Limit

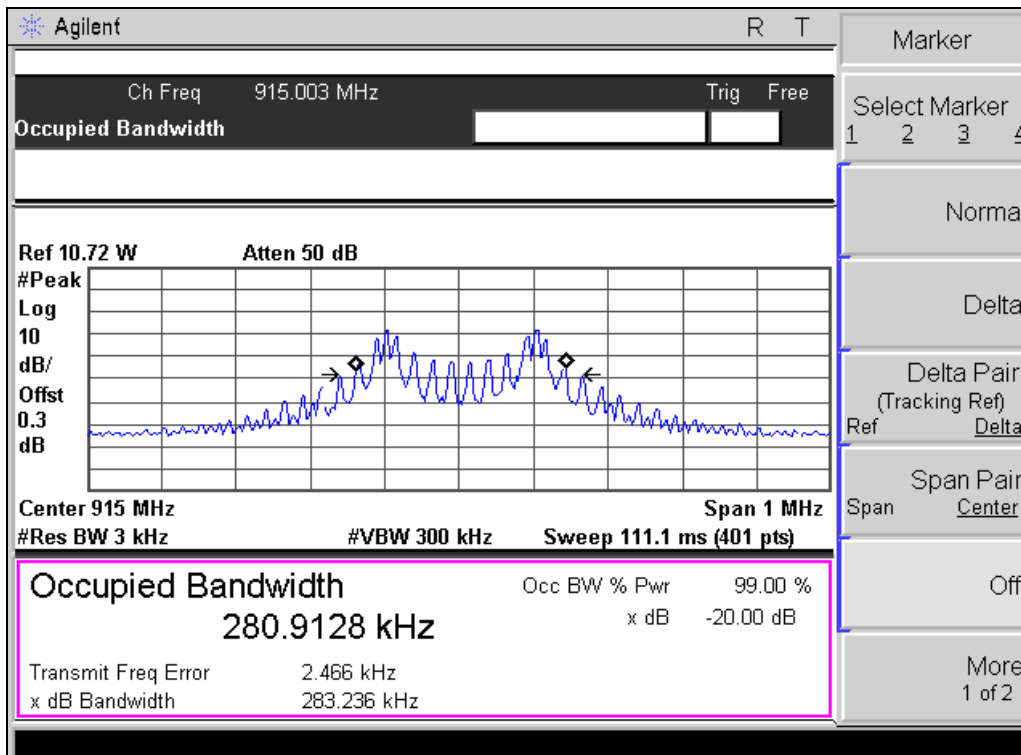
- The 20 dB bandwidth is defined as the frequency range where the power is higher than the peak power minus 20 dB. Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater

3.1.3. Test result

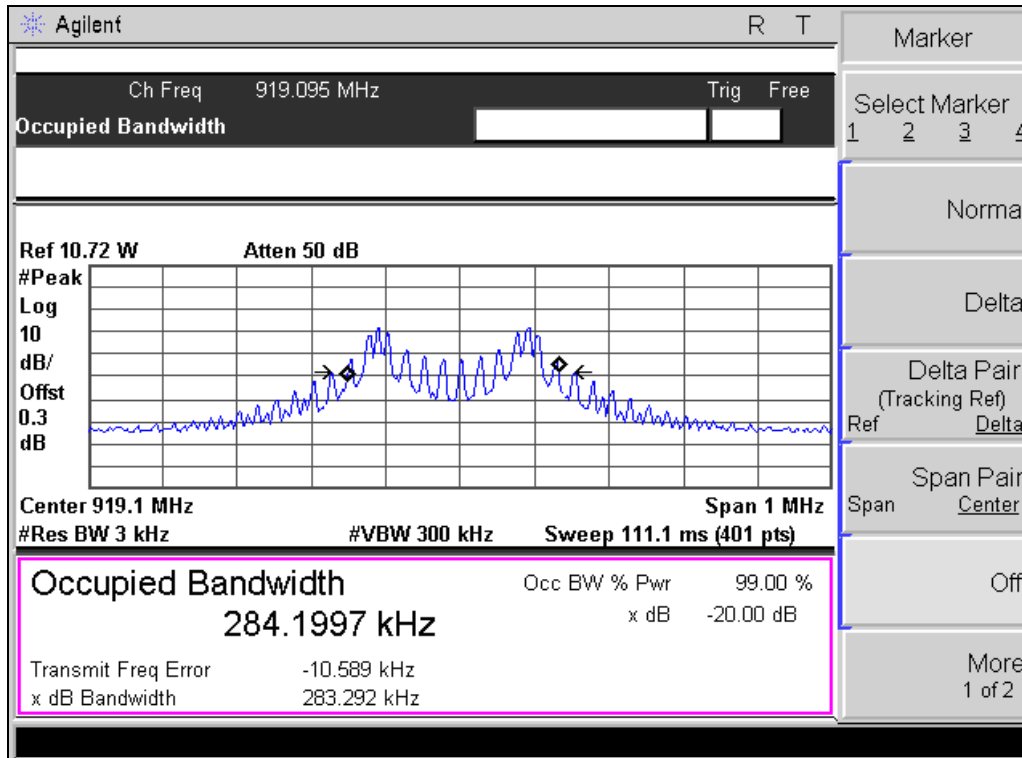
Frequency (MHz)	Channel Number	Result (kHz)	Verdict
910.92	1	283.2	Pass
915.00	13	283.2	Pass
919.08	25	283.3	Pass



- Occupied Bandwidth : Ch 1 -



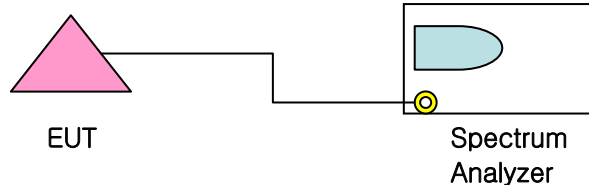
- Occupied Bandwidth : Ch 13 -



- Occupied Bandwidth : Ch 25 -

3.2. Maximum Peak Power : Section 15.247(b)(1)

3.2.1. Test Setup Layout

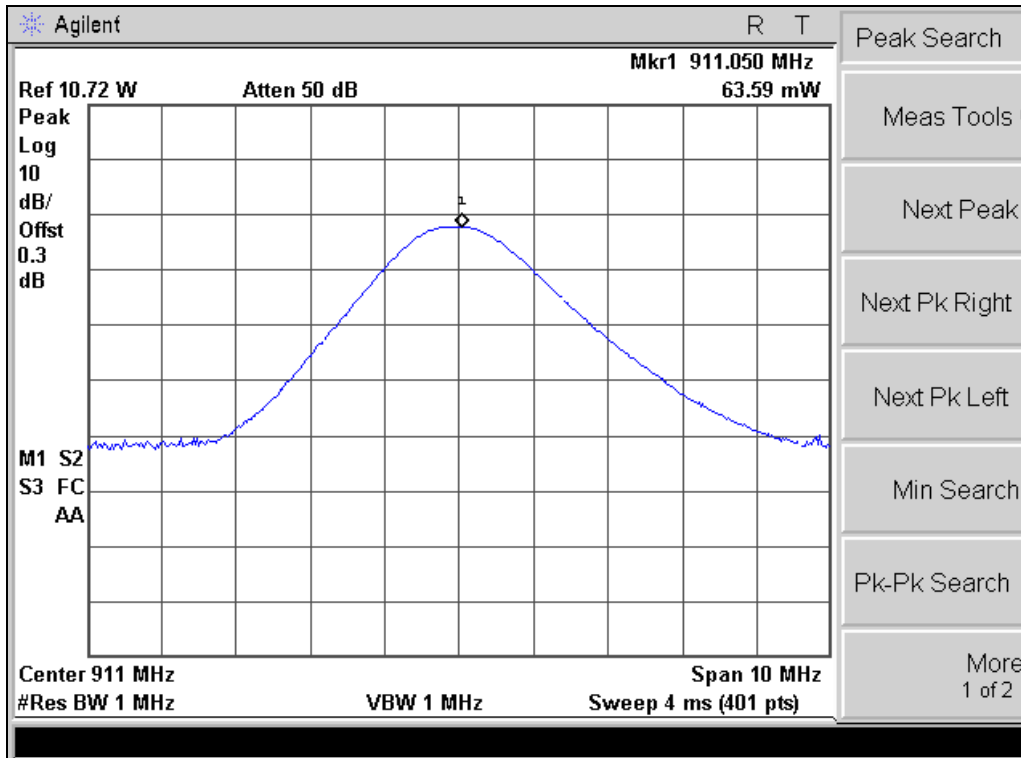


3.2.2. Limit

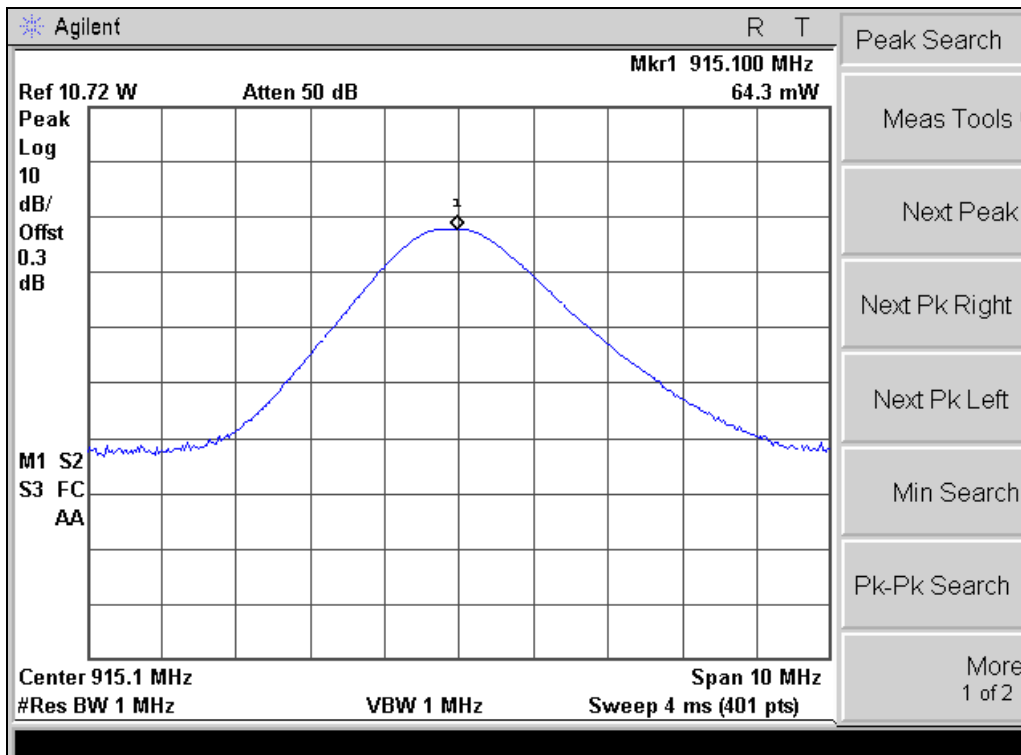
- For Frequency hopping systems operating in the 902~928 MHz band: 1 watt for systems employing at least 50 hopping channels; and 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.

3.2.3. Test result

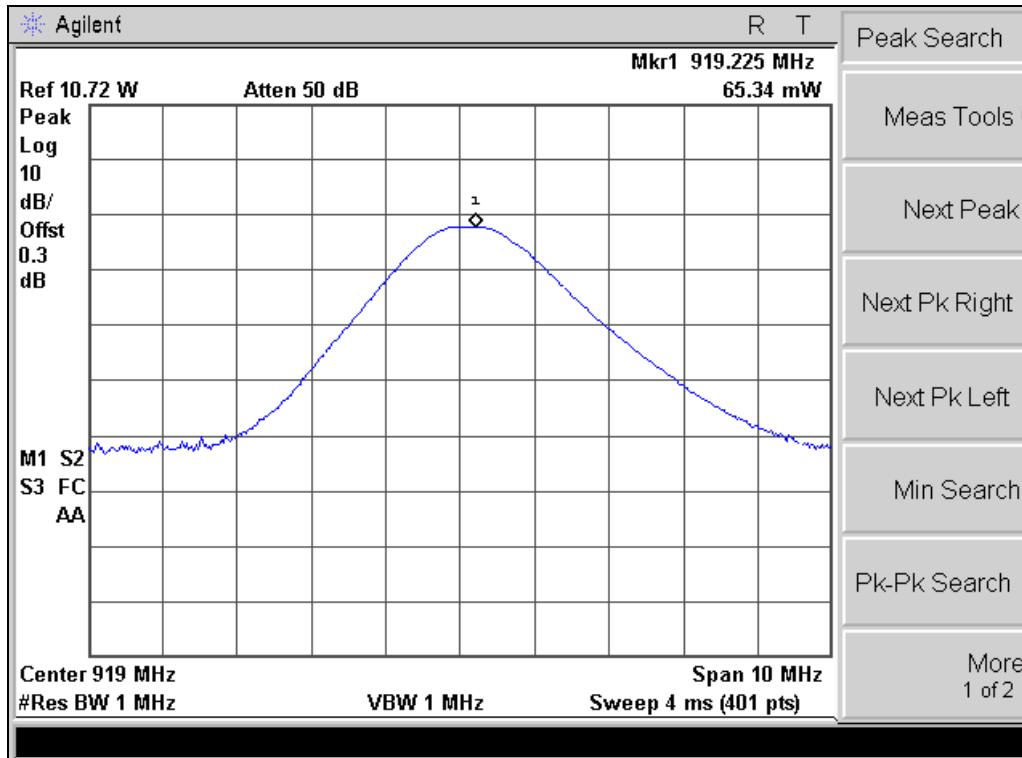
Frequency (MHz)	Channel Number	Result (mW)	Limit (W)	Verdict
910.92	1	63.59	0.25	Pass
915.00	13	64.30	0.25	Pass
919.08	25	65.34	0.25	Pass



- Output Power : Ch 1 -



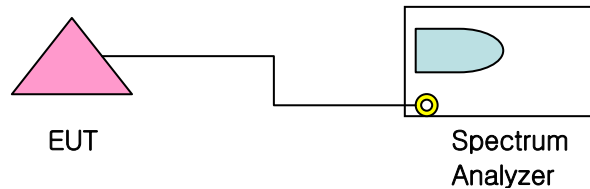
- Output Power : Ch 13 -



- Output Power : Ch 25 -

3.3. 100 KHz Bandwidth of Frequency Band Edges : Section 15.247(d)

3.3.1. Test Setup Layout

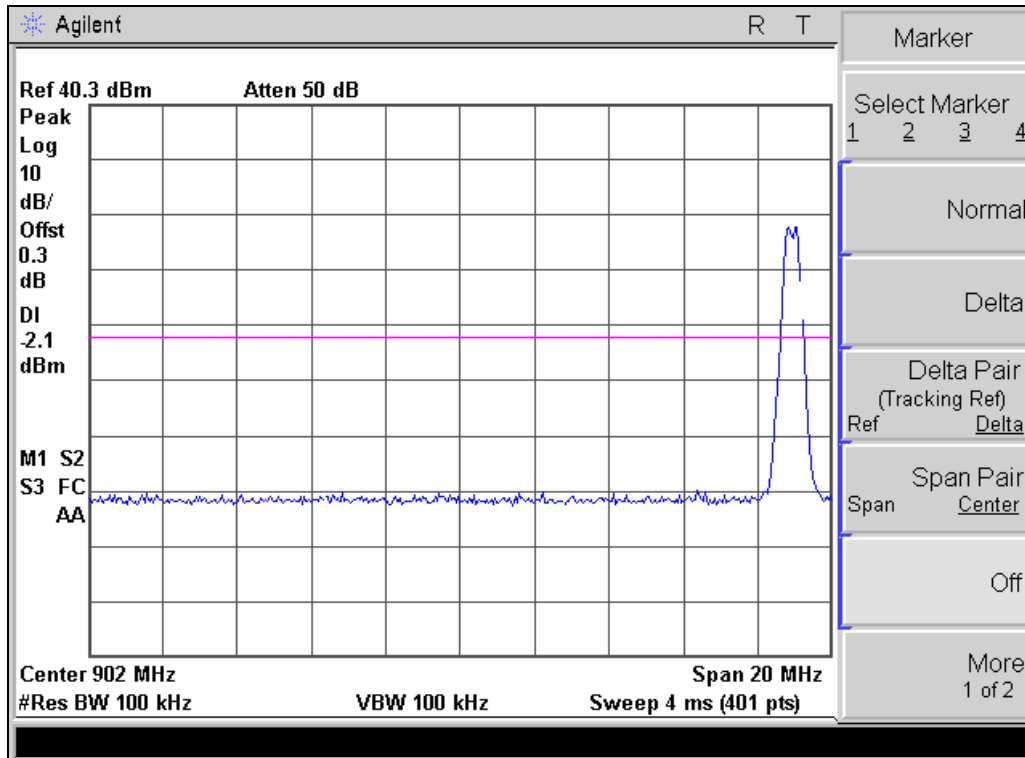


3.3.2. Limit

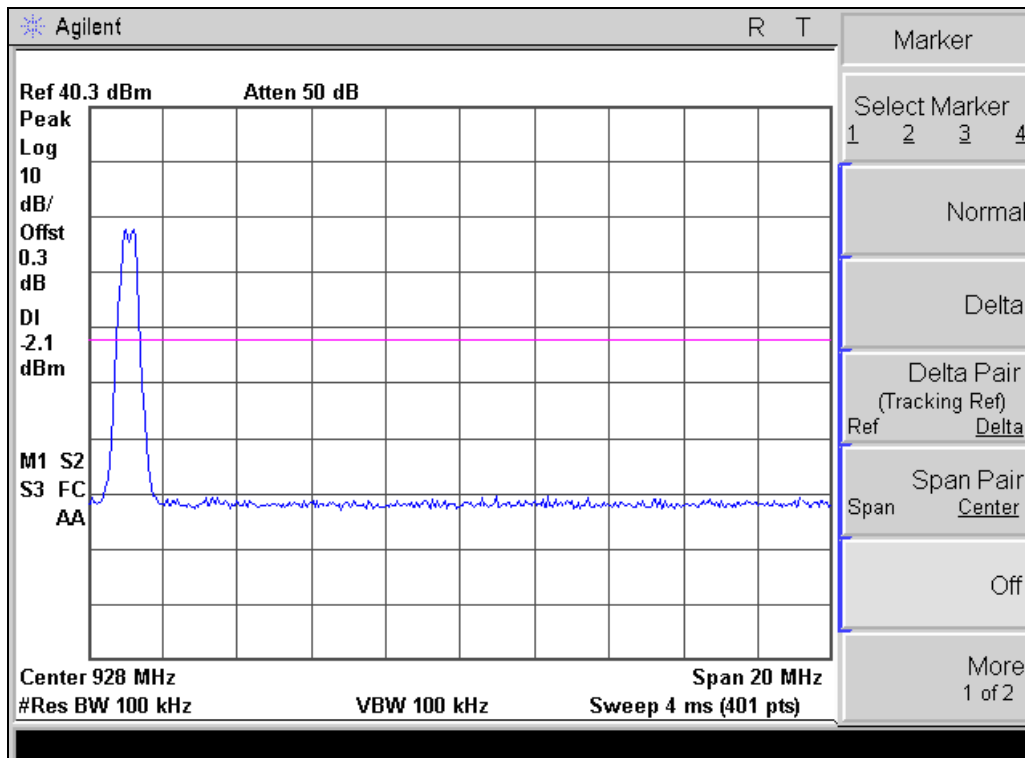
- In any 100 kHz bandwidth outside the frequency band in which the spread spectrum of digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in section 15.209(a) is not required.

3.3.3. Test result

Frequency (MHz)	Channel Number	Result (dBc)	Limit (dBc)	Verdict
910.92	1	40 >	20	Pass
919.08	25	40 >	20	Pass



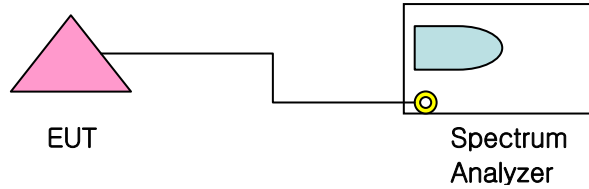
- Lower side band edge -



- Upper side band edge -

3.4. Hopping Channel Separation : Section 15.247(a)(1)

3.4.1. Test Setup Layout

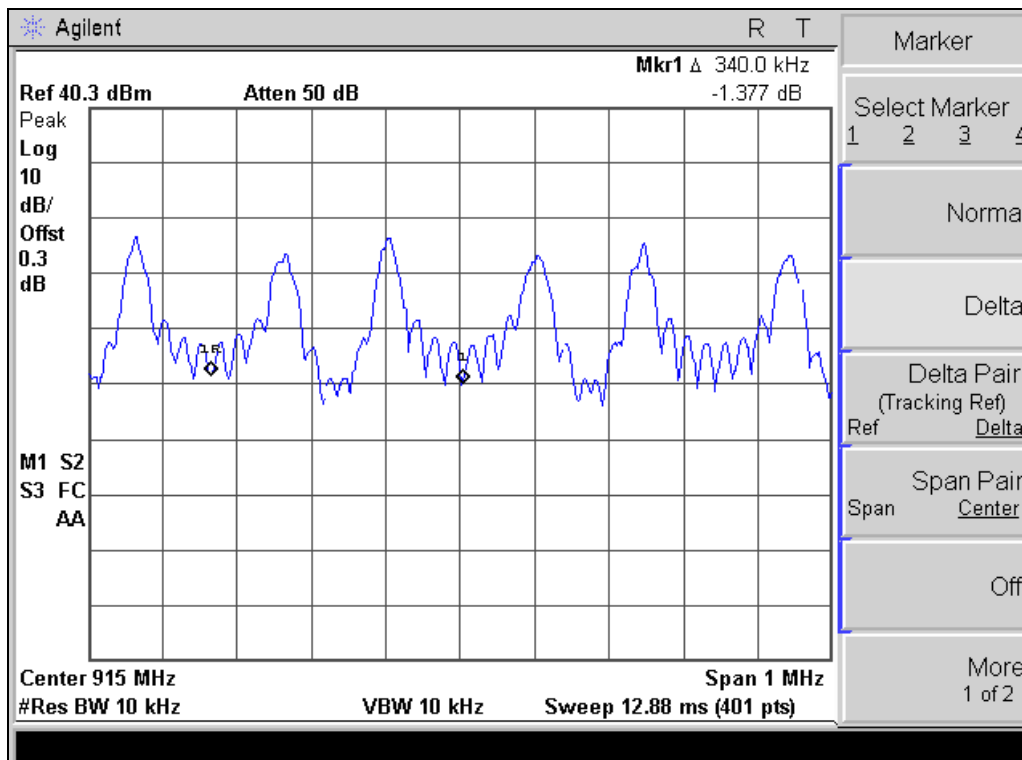


3.4.2. Limit

- Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB Bandwidth of the hopping channel, whichever greater.

3.4.3. Test result

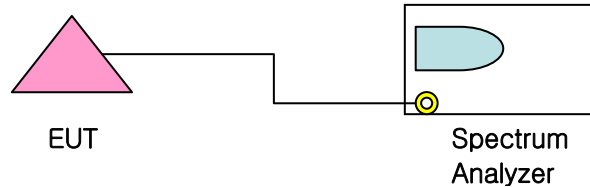
Mode	Result (kHz)	Limit (kHz)	Verdict
Hopping mode	340	> 25	Pass



– Hopping Channel Separation –

3.5. Number of Hopping Channels : Session 15.247(a)(1)(i)

3.5.1. Test Setup Layout

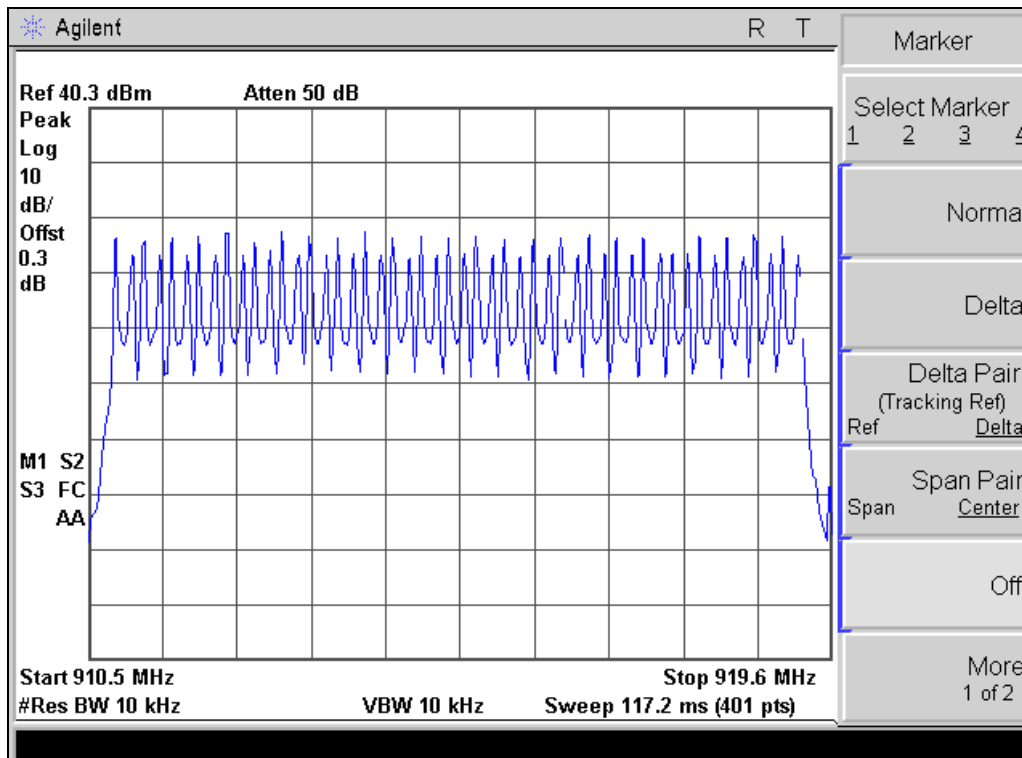


3.5.2. Limit

- For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies

3.5.3. Test result

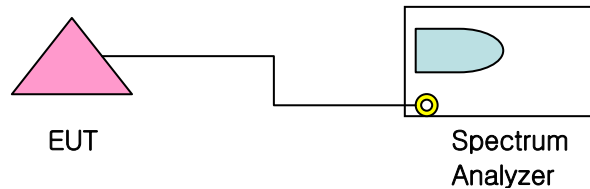
Mode	Result (channel)	Limit (channel)	Verdict
Hopping mode	25	≥ 25	Pass



- Number of hopping Channels -

3.6. Dwell Time : Session 15.247(a)(1)(i)

3.6.1. Test Setup Layout



3.6.2. Limit

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

The dwell time is calculated by:

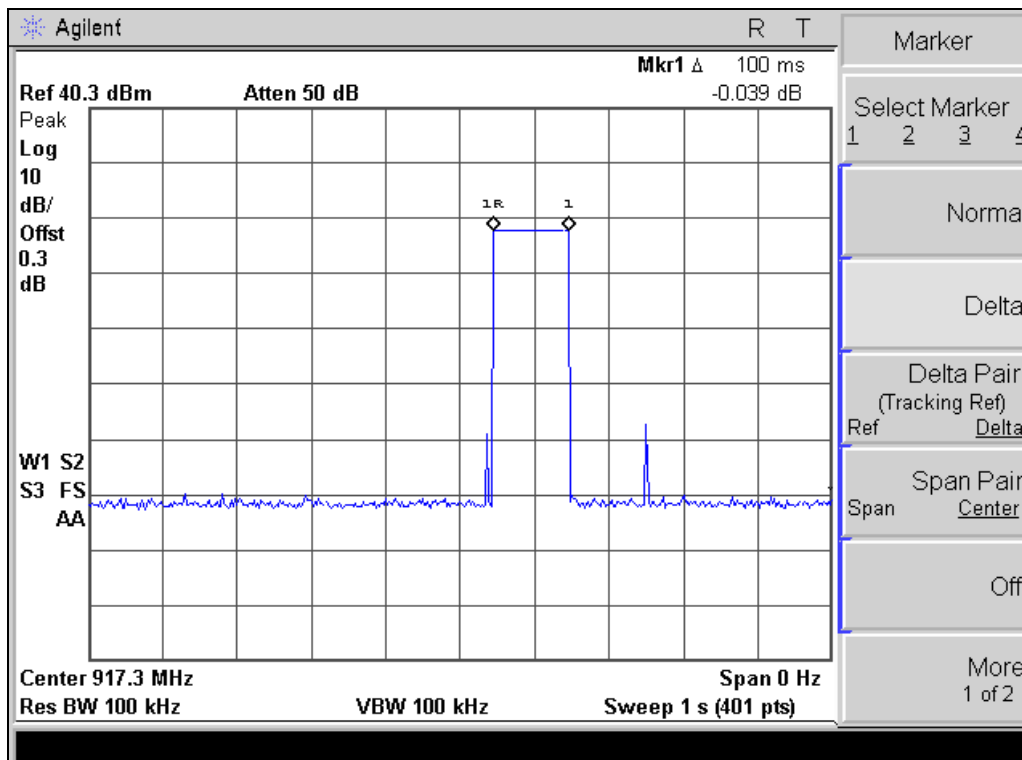
The longest pulse train length = 100 ms

The maximum occurrences in 10 seconds = 2

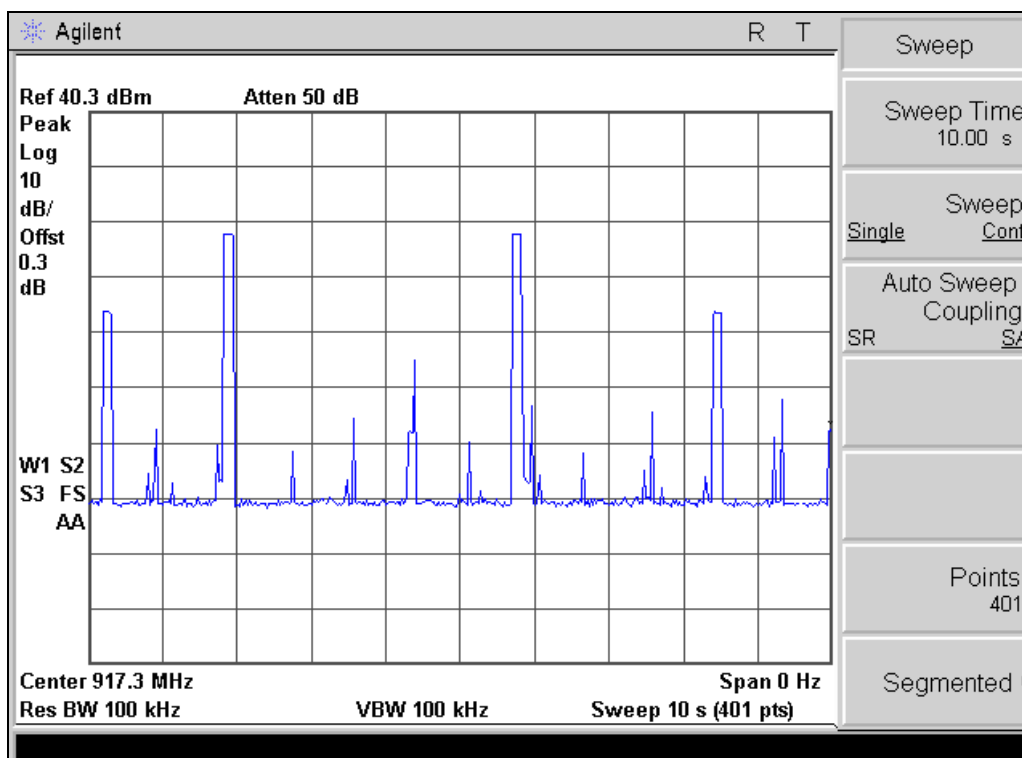
Dwell Time = 100 ms x 2 = 200 ms

3.6.3. Test result

Dwell time (ms)	Limits (ms)	Verdict
200	≤ 400	Pass



- The longest pulse train length -

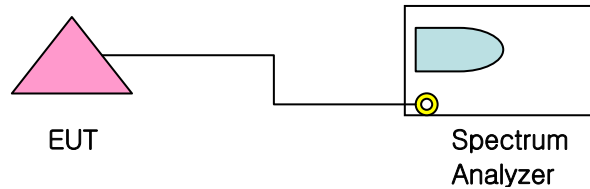


- The maximum occurrences in 10s -

3.7. Conducted Spurious Emission : Session 15.247(d)

3.7.1.

3.7.2. Test Setup Layout

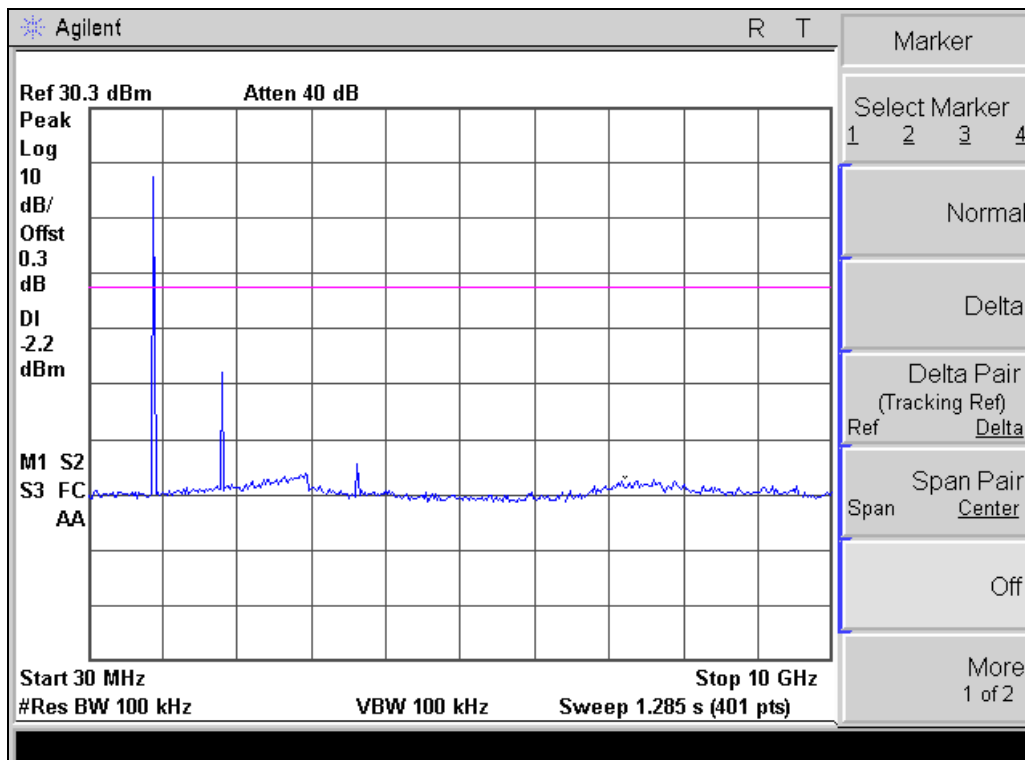


3.7.3. Limit

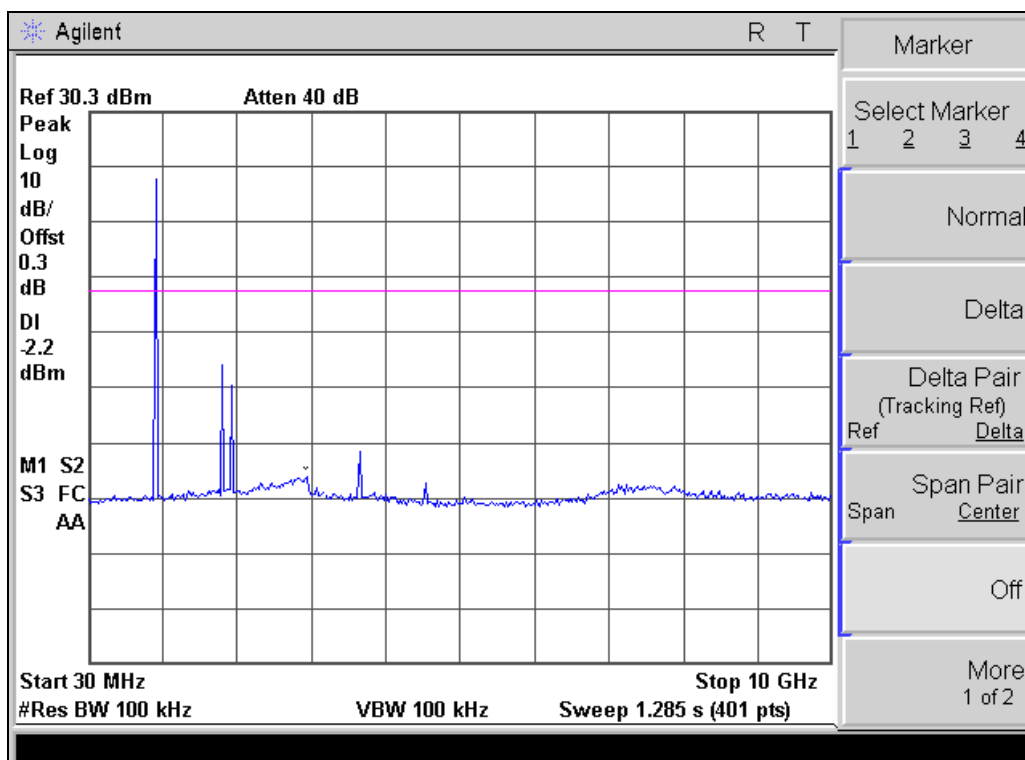
- In any 100 kHz bandwidth outside the frequency band in which the spread spectrum of digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in section 15.209(a) is not required.

3.7.4. Test result

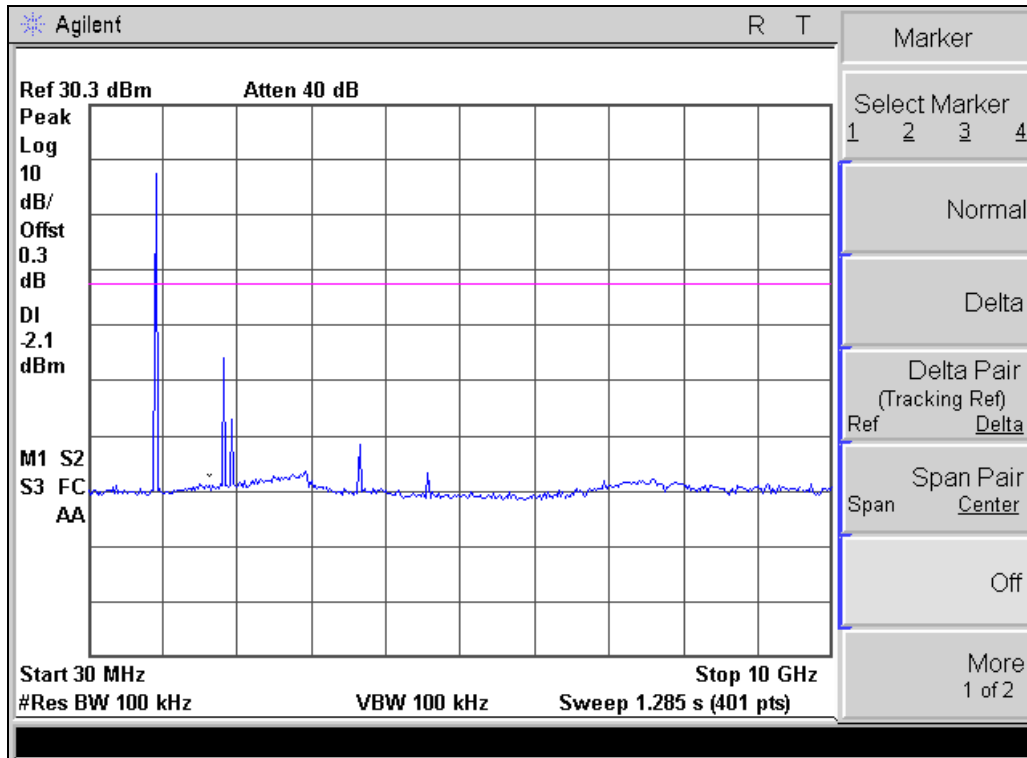
Frequency (MHz)	Channel Number	Result (dBc)	Limit (dBc)	Verdict
910.92	1	50 >	20	Pass
915.00	13	50 >	20	Pass
919.08	25	50 >	20	Pass



- Spurious emission of Ch 1 -



- Spurious emission of Ch 13 -



- Spurious emission of Ch 25 -

3.8. AC Conducted Emissions : Session 15.107 & 207

3.8.1. Test Procedure

Conducted emission measurements on the EUT were performed by "AC Power Line Conducted Emissions Testing" procedure as per ANSI C63.4. The EUT was set up on a wooden table 0.8 meters height, 1.0 by 1.5 meters in size, placed in the shielded enclosed with a side of wall of which constituted a vertical conducting surface of 2.2 m x 3.1 m in size to maintain 40 cm from the rear of EUT

LISN(Line Impedance Stabilization Network, ROHDE & SCHWARZ, ESH3-Z5, 50 ohm / 50 μ H) was installed and electrically bonded to the conducting ground plane. The EUT was connected to the LISN using a typical power adapter.

One of two 50 ohm output terminals of the LISN was connected to the EMI Receiver (ROHDE & SCHWARZ, ESCI, 9 kHz to 3 GHz) and the other was terminated in 50 ohms. Measurements were again performed after interchanging such a connection oppositely.

The frequency range from 150 kHz to 30 MHz was examined and the remarkable frequencies were measured with Quasi-peak and Average values using the EMI receiver instrument (ROHDE & SCHWARZ, ESIB, 9 kHz to 26.5 GHz ; Detector Function ; CISPR Quasi-Peak & Average). The 6 dB bandwidth of the Receiver was set to 9 kHz

The position of connecting cables of the EUT was changed to find the worst case configuration during measurements. The maximum emission level from the EUT occurred in such configuration as shown in the following photograph.

3.8.2. Limits

Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency (MHz)	Conducted Limits (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

3.8.3. Sample calculation

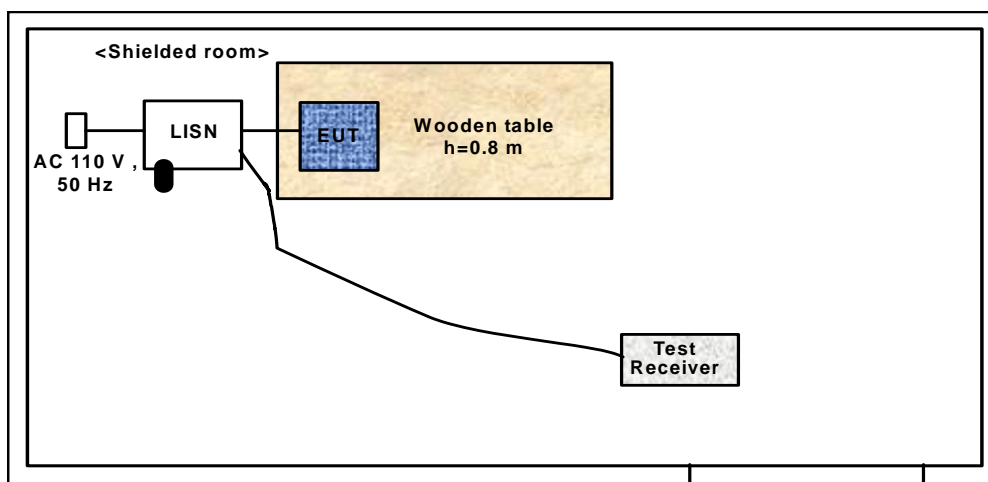
The emission level measured in decibels above one microvolt (dB μ V) was converted into microvolt (μ V) as shown in following sample calculation.

For example :

Measured Value at	0.32 MHz	36.7dB μ V @ Q-Peak mode
+ Correct factor *		9.7 dB
= Conducted Emission		46.4dB μ V

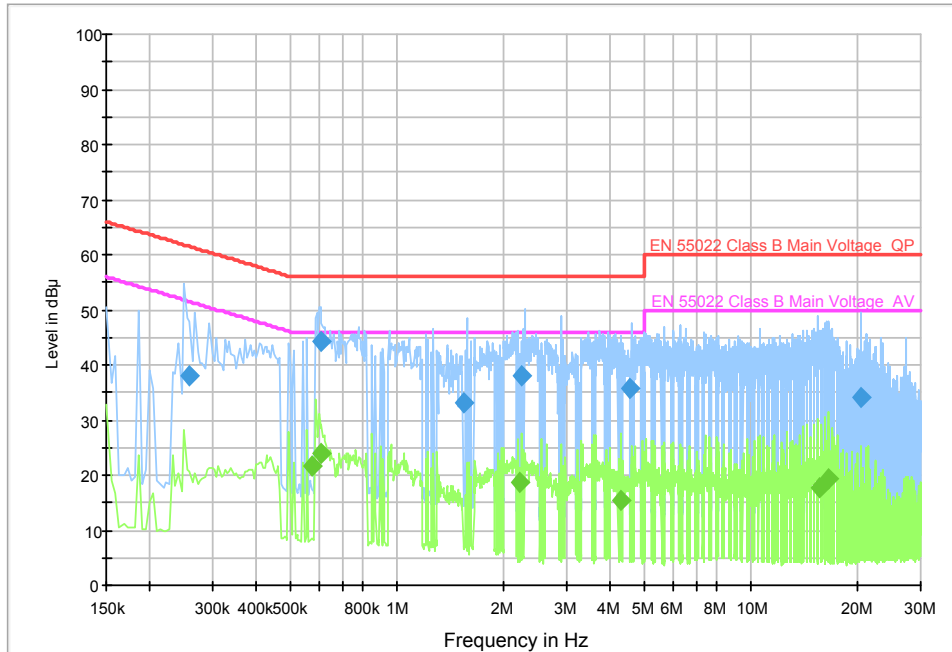
* Correct factor is adding RF cable loss and Attenuation

3.8.4. Photograph for the test configuration



3.8.5. Test Results (Transmission mode)

EN 55022 Voltage(ENV216)-Class B



Final Measurement - QuasiPeak

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Margin (dB)	Limit (dB μ V)
0.2580	37.9	L1	23.9	61.8
0.6045	44.2	L1	11.8	56.0
1.5360	33.2	L1	22.8	56.0
2.2425	37.9	L1	18.1	56.0
4.5195	35.6	L1	20.4	56.0
20.2470	34.0	N	26.0	60.0

Final Measurement - Average

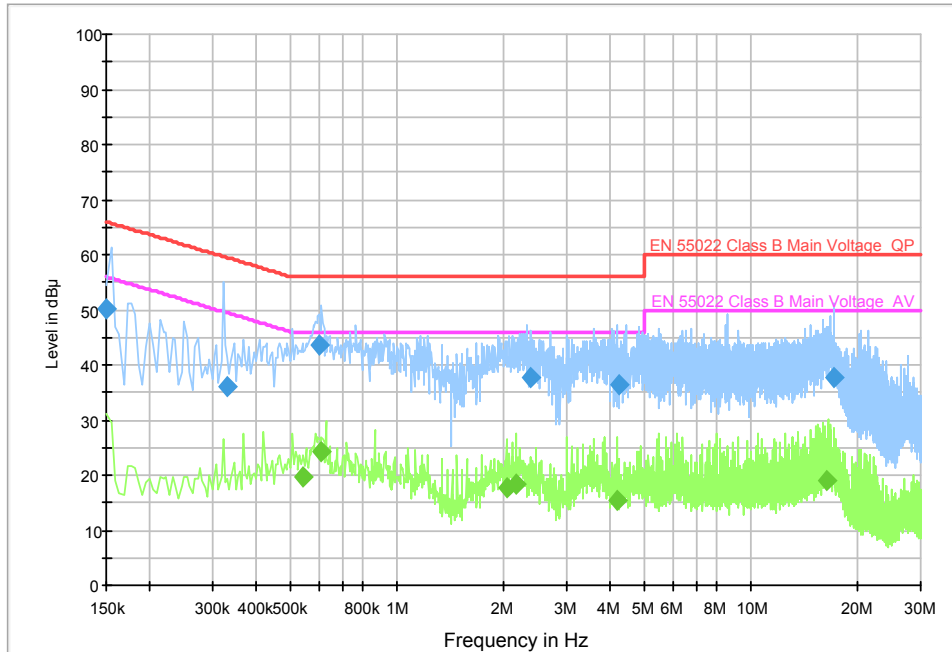
Frequency (MHz)	QuasiPeak (dB μ V)	Line	Margin (dB)	Limit (dB μ V)
0.5730	21.7	N	34.3	46.0
0.6045	24.0	L1	32.0	46.0
2.2200	18.7	L1	37.3	46.0
4.2540	15.4	N	40.6	46.0
15.4635	17.7	L1	42.3	50.0
16.4265	19.2	L1	40.8	50.0

Notes:

1. All Modes of operation were investigated and the worst-case emissions are reported.
2. Trace shown in plot are made using a peak detector.

3.8.6. Test Results (Charging mode)

EN 55022 Voltage(ENV216)-Class B



Final Measurement - QuasiPeak

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Margin (dB)	Limit (dB μ V)
0.1500	50.0	N	16.0	66.0
0.3300	36.2	L1	23.3	59.5
0.6000	43.7	N	12.3	56.0
2.3595	37.9	L1	18.1	56.0
4.2045	36.5	L1	19.5	56.0
17.1240	37.6	L1	22.4	60.0

Final Measurement - Average

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Margin (dB)	Limit (dB μ V)
0.5370	19.8	N	36.2	46.0
0.6045	24.4	N	31.6	46.0
2.0355	17.7	N	38.3	46.0
2.1480	18.5	N	37.5	46.0
4.1730	15.5	L1	40.5	46.0
16.3635	18.9	N	41.1	50.0

Notes:

1. All Modes of operation were investigated and the worst-case emissions are reported.
2. Trace shown in plot are made using a peak detector.

3.9. Radiated Spurious Emissions : Session 15.205 & 15.209

3.9.1. Test Procedure

3.9.1.1 Preliminary Testing for Reference

Preliminary testing was performed in a KTL absorber-lined room to determine the emission characteristics of the EUT. The EUT was placed on the wooden table which has dimensions of 0.8 meters in height, 1 meter in length and 1.5 meters in width. Receiving antenna (Biconi-Log antenna : 30 to 1000 MHz or Horn Antenna : 1 to 40 GHz) was placed at the distance of 3 meter from the EUT.

An attempt was made to maximize the emission level with the various configurations of the EUT. Emission levels from the EUT with various configurations were examined on a spectrum analyzer connected with a RF amplifier and graphed.

The emission was within the illumination area of the 3 dB beam width of the antenna so that the maximum emission from the EUT is measured.

3.9.1.2 Final Radiated Emission Test at an Absorber-Lined Room

The final measurement of radiated field strength was carried out in a KTL Absorber-Lined Room that was listed up at FCC according to the "Radiated Emissions Testing" procedure specified by ANSI C63.4.

Based on the test results in preliminary test, measurement was made in same test set up and configuration which produced maximum emission level. Receiving antenna was installed at 3-meter distance from the EUT, and was connected to an EMI receiver.

Turntable was rotated through 360 degrees and receiving antenna height was varied from 1 to 4 meters above the ground plane to read maximum emission level. Receiving antenna polarization was changed vertical and horizontal. The worst value was recorded.

If necessary, the radiated emission measurements could be performed at a closer distance than specified distance to ensure higher accuracy and their results were extrapolated to the specified distance using an inverse linear distance extrapolation factor (20 dB/decade) as per Section 15.31(f).

The maximum emission level from the EUT occurred in such configuration as shown in the following photograph.

Tested in x, y, z axis and worst case results are reported

The maximum frequency range measuring with the spectrum from 30 MHz to 10th harmonic was investigated with the transmitter.

3.9.1.3 Limits

Radiated emissions which fall in the restricted bands, as defined in 15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see 15.205(c)). In addition, where an average detector is used for determining compliance with the limits in 15.209(a), there is a corresponding peak limit 20 dB above the specified average limit according to 15.35(b)

MHz	MHz	MHz	MHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(2)
13.36 - 13.41			

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

² Above 38.6

3.9.1.4 Sample Calculation

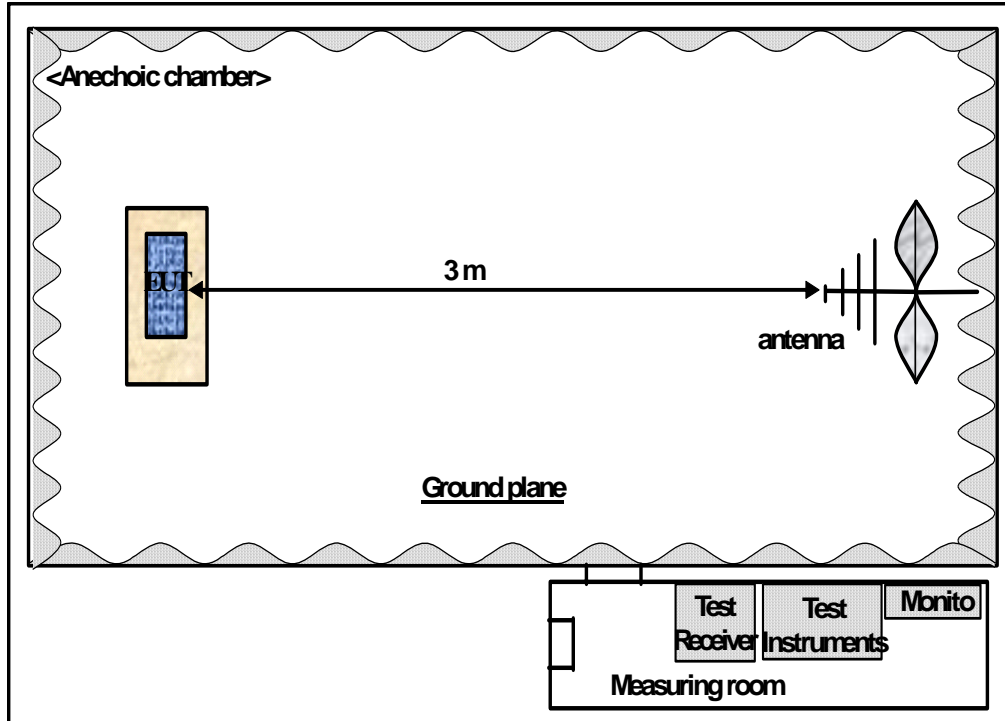
The emission level measured in decibels above one microvolt (dB) was following sample calculation.

For example ;

Measured Value at <u>4824 MHz</u>	33.9 dB μ V μ V
Antenna Factor & Cable loss	45.0 dB/m
- Pre-amplifier	-30.0 dB

= Radiated Emission	48.9 dB μ V/m

3.9.1.5 Photograph for the test configuration



3.9.2. Test Results

3.9.2.1 Fundamental Raidated Emission

Model No. : 2W901R-SS
 Test distance : 3m
 Test mode : Continuous TX
 Date : December 15, 2010

Channel	Frequency (MHz)	Antenna Pol. H/V	Bandwidth (kHz) Detector	Reading Level dB μ V	Correction factor dB	Level Corrected dB μ V/m	Limit dB μ V/m	Margin +/-	Remark	EUT Plane (X/Y/Z)
Low	910.92	H	100, Peak	88.21	25.85	114.06	N/A	N/A	Peak	Y
Low	910.92	V	100, Peak	83.06	25.85	108.91	N/A	N/A	Peak	Y
Middle	915.00	H	100, Peak	88.75	25.85	114.60	N/A	N/A	Peak	Y
Middle	915.00	V	100, Peak	78.37	25.85	104.22	N/A	N/A	Peak	Y
High	919.08	H	100, Peak	87.93	25.85	113.78	N/A	N/A	Peak	Y
High	919.08	V	100, Peak	78.31	25.85	104.16	N/A	N/A	Peak	Y

Level Corrected = Reading level + Correction factor (dB/m)

Correction factor = Antenna factor + Cable loss – Pre-amplifier (when using a pre-amplifier)

- Note**
1. Measurement was done over the frequency range from 30 MHz to 10th harmonic. The EUT was rotated and the antenna was changed to a range of height of from 1 m to 4 m above the ground plane for maximum response.
 2. If the Peak Emission Level is lower than 54 dB μ V/m, average test was not performed.
 3. Pre-amplifier was used in the range between 1 ~ 10 GHz.

- Remark**
1. Noise floor of 30 ~ 1000 MHz : <20 dBuV at 3m distance
 2. Noise floor of 1000 ~ 5000 MHz : <40 dBuV at 3m distance
 3. Noise floor of 5000 ~ 10000 MHz : <45 dBuV at 3m distance

3.9.2.2 Radiated Spurious Emission

Model No. : 2W901R-SS
 Test distance : 3m
 Test mode : Continuous TX
 Date : December 15, 2010

Channel	Frequency (MHz)	Antenna Pol. H/V	Bandwidth (kHz) Detector	Reading Level dB μ V	Correction factor dB	Level Corrected dB μ V/m	Limit dB μ V/m	Margin +/-	Remark	EUT Plane (X/Y/Z)
Low	2732.76	H	1000, Peak	48.64	5.52	54.16	74.00	19.84	Peak	X
Low	2732.76	V	1000, Peak	52.16	5.52	57.68	74.00	16.32	Peak	X
Middle	2745.00	H	1000, Peak	50.77	5.52	56.29	74.00	17.71	Peak	X
Middle	2745.00	V	1000, Peak	51.43	5.52	56.95	74.00	17.05	Peak	X
High	2757.24	H	1000, Peak	47.29	5.52	52.81	74.00	21.19	Peak	X
High	2757.24	V	1000, Peak	51.35	5.52	56.87	74.00	17.13	Peak	X
Low	3643.68	H	1000, Peak	43.15	12.49	55.64	74.00	18.36	Peak	X
Low	3643.68	V	1000, Peak	44.33	12.49	56.82	74.00	17.18	Peak	X
Middle	3660.00	H	1000, Peak	47.71	12.49	60.20	74.00	13.80	Peak	X
Middle	3660.00	V	1000, Peak	47.32	12.49	59.81	74.00	14.19	Peak	X
High	3676.32	H	1000, Peak	48.09	12.49	60.58	74.00	13.42	Peak	X
High	3676.32	V	1000, Peak	50.70	12.49	63.19	74.00	10.81	Peak	X
Low	4554.60	H	1000, Peak	45.41	15.45	60.86	74.00	13.14	Peak	X
Low	4554.60	V	1000, Peak	47.03	15.45	62.48	74.00	11.52	Peak	X
Middle	4575.00	H	1000, Peak	46.02	15.45	61.47	74.00	12.53	Peak	X
Middle	4575.00	V	1000, Peak	47.96	15.45	63.41	74.00	10.59	Peak	X
High	4595.40	H	1000, Peak	43.93	15.45	59.38	74.00	14.62	Peak	X
High	4595.40	V	1000, Peak	47.01	15.45	62.46	74.00	11.54	Peak	X

The frequencies fall into the restricted bands are blue marked.

Level Corrected = Reading level + Correction factor (dB/m)

Correction factor = Antenna factor + Cable loss – Pre-amplifier (when using a pre-amplifier)

- Note**
1. Measurement was done over the frequency range from 30 MHz to 10th harmonic. The EUT was rotated and the antenna was changed to a range of height of from 1 m to 4 m above the ground plane for maximum response.
 2. If the Peak Emission Level is lower than 54 dB μ V/m, average test was not performed.
 3. Pre-amplifier was used in the range between 1 ~ 10 GHz.

- Remark**
1. Noise floor of 30 ~ 1000 MHz : <20 dBuV at 3m distance
 2. Noise floor of 1000 ~ 5000 MHz : <40 dBuV at 3m distance
 3. Noise floor of 5000 ~ 10000 MHz : <45 dBuV at 3m distance

3.9.2.3 Radiated Spurious Emission

Model No. : 2W901R-SS
 Test distance : 3m
 Test mode : Continuous TX
 Date : December 15, 2010

Channel	Frequency (MHz)	Antenna Pol. H/V	Bandwidth (kHz) Detector	Reading Level dBμV	Correction factor dB	Level Corrected dBμV/m	Limit dBμV/m	Margin +/-	Remark	EUT Plane (X/Y/Z)
Low	2732.76	H	1000, Peak	39.90	5.52	0.00	45.42	54.00	8.58	Average
Low	2732.76	V	1000, Peak	43.04	5.52	0.00	48.56	54.00	5.44	Average
Middle	2745.00	H	1000, Peak	44.42	5.52	0.00	49.94	54.00	4.06	Average
Middle	2745.00	V	1000, Peak	47.43	5.52	0.00	52.95	54.00	1.05	Average
High	2757.24	H	1000, Peak	42.27	5.52	0.00	47.79	54.00	6.21	Average
High	2757.24	V	1000, Peak	47.25	5.52	0.00	52.77	54.00	1.23	Average
Low	3643.68	H	1000, Peak	30.18	12.49	0.00	42.67	54.00	11.33	Average
Low	3643.68	V	1000, Peak	33.08	12.49	0.00	45.57	54.00	8.43	Average
Middle	3660.00	H	1000, Peak	33.74	12.49	0.00	46.23	54.00	7.77	Average
Middle	3660.00	V	1000, Peak	37.21	12.49	0.00	49.70	54.00	4.30	Average
High	3676.32	H	1000, Peak	35.40	12.49	0.00	47.89	54.00	6.11	Average
High	3676.32	V	1000, Peak	37.27	12.49	0.00	49.76	54.00	4.24	Average
Low	4554.60	H	1000, Peak	26.57	15.45	0.00	42.02	54.00	11.98	Average
Low	4554.60	V	1000, Peak	33.09	15.45	0.00	48.54	54.00	5.46	Average
Middle	4575.00	H	1000, Peak	28.02	15.45	0.00	43.47	54.00	10.53	Average
Middle	4575.00	V	1000, Peak	35.77	15.45	0.00	51.22	54.00	2.78	Average
High	4595.40	H	1000, Peak	24.76	15.45	0.00	40.21	54.00	13.79	Average
High	4595.40	V	1000, Peak	33.57	15.45	0.00	49.02	54.00	4.98	Average

The frequencies fall into the restricted bands are blue marked.

Level Corrected = Reading level + Correction factor (dB/m)

Correction factor = Antenna factor + Cable loss – Pre-amplifier (when using a pre-amplifier)

- Note**
1. Measurement was done over the frequency range from 30 MHz to 10th harmonic. The EUT was rotated and the antenna was changed to a range of height of from 1 m to 4 m above the ground plane for maximum response.
 2. If the Peak Emission Level is lower than 54 dBμV/m, average test was not performed.
 3. Pre-amplifier was used in the range between 1 ~ 10 GHz.

- Remark**
1. Noise floor of 30 ~ 1000 MHz : <20 dBuV at 3m distance
 2. Noise floor of 1000 ~ 5000 MHz : <40 dBuV at 3m distance
 3. Noise floor of 5000 ~ 10000 MHz : <45 dBuV at 3m distance

3.9.2.4 Receiver Spurious Radiated Emission (Section 15.109)

Model No. : 2W901R-SS
 Test distance : 3m
 Test mode : Receiver mode
 Date : December 15, 2010

Frequency (MHz)	Antenna Pol. H/V	Bandwidth (kHz) Detector	Reading Level dBμV	Correction factor dB	Level Corrected dBμV/m	Limit dBμV/m	Margin +/-	Remark	EUT Plane (X/Y/Z)
No emission above 20 dBuV/m was detected.									

Level Corrected = Reading level + Correction factor (dB/m)

Correction factor = Antenna factor + Cable loss – Pre-amplifier (when using a pre-amplifier)

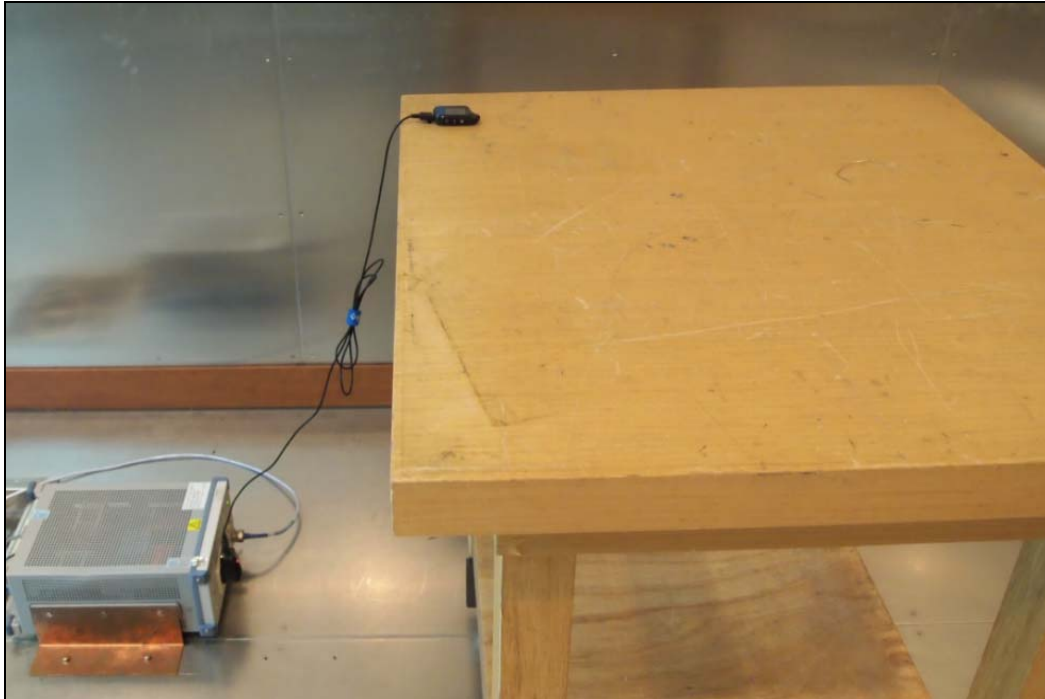
- Note**
- Measurement was done over the frequency range from 30 MHz to 10th harmonic. The EUT was rotated and the antenna was changed to a range of height of from 1 m to 4 m above the ground plane for maximum response.
 - If the Peak Emission Level is lower than 54 dBμV/m, average test was not performed.
 - Pre-amplifier was used in the range between 1 ~ 10 GHz.

- Remark**
- Noise floor of 30 ~ 1000 MHz : <20 dBuV at 3m distance
 - Noise floor of 1000 ~ 5000 MHz : <40 dBuV at 3m distance
 - Noise floor of 5000 ~ 10000 MHz : <45 dBuV at 3m distance

4. TEST EQUIPMENTS

No.	Equipment	Manufacturer	Model	S/N	Effective Cal.Duration
1	EMI Receiver (20 Hz ~ 26.5 GHz)	R&S	ESIB	100280	08/17/2010 ~ 08/17/2011
2	Spectrum Analyzer (100 Hz ~ 26.5 GHz)	Agilent	E4407B	US41443316	12/01/2010 ~ 12/01/2011
3	Spectrum Analyzer (3 Hz ~ 50 GHz)	Agilent	E4448A	MY43360322	08/30/2010 ~ 08/30/2011
4	Pre-Amplifier (100 kHz ~ 1 GHz)	SONOMA.	310N	186270	08/25/2010 ~ 08/25/2011
5	Pre-Amplifier (0.5 GHz ~ 26.5 GHz)	Agilent	83017A	MY39500982	04/02/2010 ~ 04/02/2011
6	LISN(50 Ω , 50 μH) (10 kHz ~ 100 MHz)	R&S	ESH3-Z5	826789009	07/05/2010 ~ 07/05/2011
7	Biconi-Log Ant. (30 MHz ~ 1000 MHz)	Schwarzbeck	VULB9168	9168-180	08/24/2010 ~ 08/24/2012
8	Horn Ant. (1 GHz ~ 18 GHz)	EMCO	3115	9012-3595	03/26/2009 ~ 03/26/2011
9	Horn Ant. (18 GHz ~ 40 GHz)	EMCO	3116	2664	03/26/2009 ~ 03/26/2011
10	Active Loop Ant. (9 kHz ~ 30 MHz)	EMCO	6502	2532	06/08/2010 ~ 06/08/2012
11	DC Power Supply	Agilent	E4356A	MY41000296	10/01/2010 ~ 10/01/2011
12	Power Meter	Agilent	E4417A	GB4129075	09/17/2010~ 09/17/2011

Appendix.1 Test setup photo



<Conducted Emission>



<Radiated Emission>