

TEST REPORT

1. Applicant

Name : INTsys Co.,Ltd
Address : 4th fl. Heehoon Tower building Guro5Dong, Guro-Gu, Seoul, Korea (152-055)

2. Products

Name : N-GEN
Model/Type : INT-910HA
Manufacturer : INTsys Co.,Ltd

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

4. Test Method : ANSI C63.4-2003

5. Test Result : Positive

6. Date of Application : January 4, 2008

7. Date of Issue : February 1, 2008

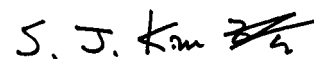
Tested by



Bum-Jong Kim

Telecommunication Team
Engineer

Approved by



Seok-Jin Kim

Telecommunication Team
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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I . GENERAL INFORMATION

1.1 Applicant (Client)

Name	Intsys.Co.Ltd.
Address	4th fl. Heehoon Tower building Guro5Dong, Guro-Gu, Seoul, Korea (152-055)
Contact Person	Jung-Ho, Park
Telephone No.	+82-2-3281-1777
Facsimile No.	+82-2-3281-1528
E-mail address	parkjh@intsys.co.kr

1.2 Equipment (EUT)

Type of equipment	N-GEN
Model Name	INT-910HA
FCC ID	VZA-INT910HA
Frequency Band	902.7 ~ 927.2 MHz
Type of Modulation	ASK/FHSS
Number of Channels	50 channels
Antenna Gain	-3 dB
Function Type	Transceiver
Power Source	AC 220V adaptor
Manufacturer Name	Intsys.Co.Ltd.
Manufacturer Address	4 th fl. Heehoon Tower building Guro5Dong, Guro-Gu, Seoul, Korea (152-055)

1.3 Testing Laboratory

Testing Place	Korea Testing Laboratory (KTL) 1271-12, Sa-Dong Sangnok-Gu, Ansan-si Gyunggi-Do , Korea
Test Engineer	Bum-Jong KIM
Telephone number	+82 31 5000 131
Facsimile number	+82 31 5000 159
E-mail address	temple@ktl.re.kr
Other Comments	-

II. SUMMARY OF TEST RESULTS

Testing performed for : N-GEN

Equipment Under Test : INT-910HA

Receipt of Test Sample : January 4, 2008

Test Start Date : January 5, 2008

Test End Date : February 1, 2008

The following table represents the list of measurements required under the FCC CFR47 Part 15.207, 15.247, 15.209

RFID mode

FCC Rules	Test Requirements	Result
15.247(a)(1)	20dB Bandwidth	Pass
15.247(a)(1)	Hopping channel Separation	Pass
15.247(a)(1)(iii)	Number of Hopping Frequency Used	Pass
15.247(a)(1)(iii)	Dwell Time of Each Frequency	Pass
15.247(b)	Output Power	Pass
15.247(c)	100 KHz Bandwidth of Frequency Band Edges	Pass
15.209(a)	Radiated Emission	Pass
15.207	Conducted Emission	Pass

Note 1 : Test results reported in this document relate only to the items tested

Note 2 : The required tests demonstrated compliance as per client declaration of test configuration, monitoring methodology and associated pass/fail criteria

Note 3 : Test results apply only to the item(s) tested

* Modifications required for compliance

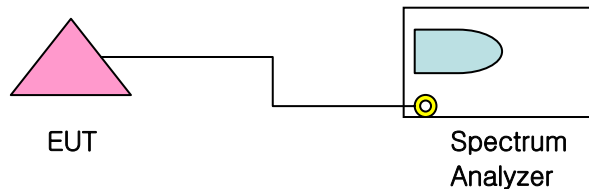
No modifications were implemented by KTL.

All results in this report pertain to the un-modified sample provided to KTL.

III. Measurement & Results

3.1 20dB Bandwidth

3.1.1 Test Setup Layout



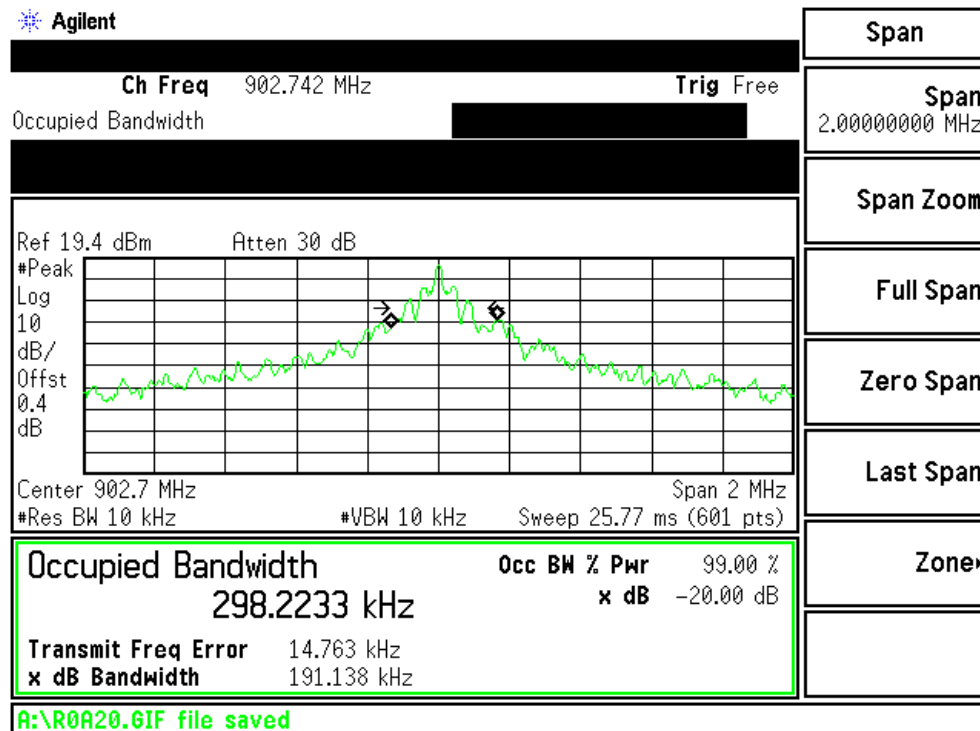
3.1.2 Test Condition

- Set RBW of Spectrum analyzer to 100 kHz
- The 20dB bandwidth is defined as the frequency range where the power is higher than the peak power minus 20dB . Frequency hopping systems is using 20dB.

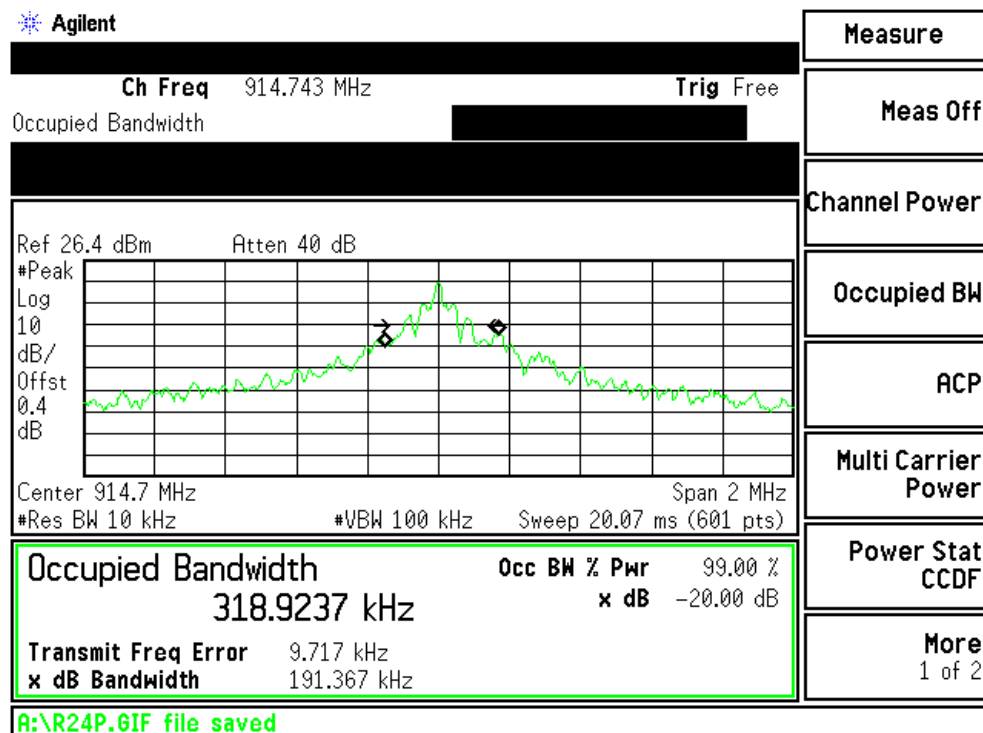
3.1.3 Test result

RFID

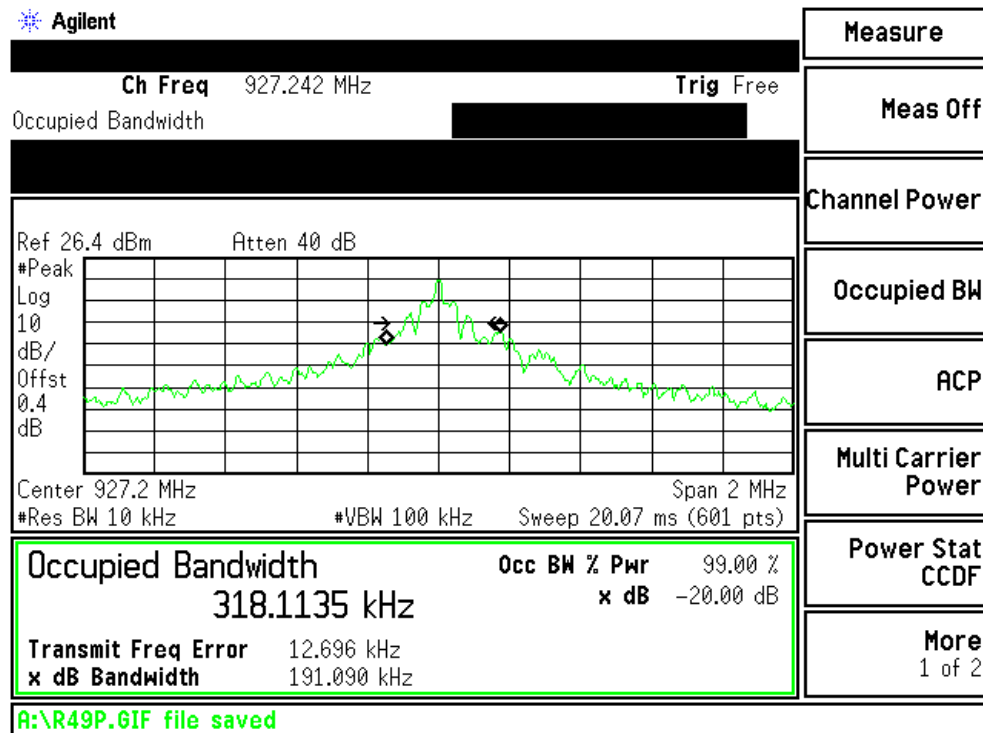
Channels	Frequency (MHz)	Result (MHz)	Limit (MHz)	Verdict	Protocol
0	902.7	0.191	≤ 0.25	Pass	Gen 2
24	914.7	0.193	≤ 0.25	Pass	Gen 2
49	927.2	0.191	≤ 0.25	Pass	Gen 2



- RFID CH 0 -



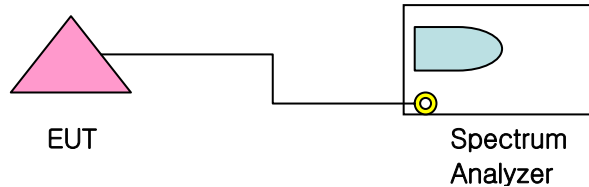
- RFID CH 24 -



– RFID CH 49 –

3.2 Maximum Peak Power

3.2.1 Test Setup Layout



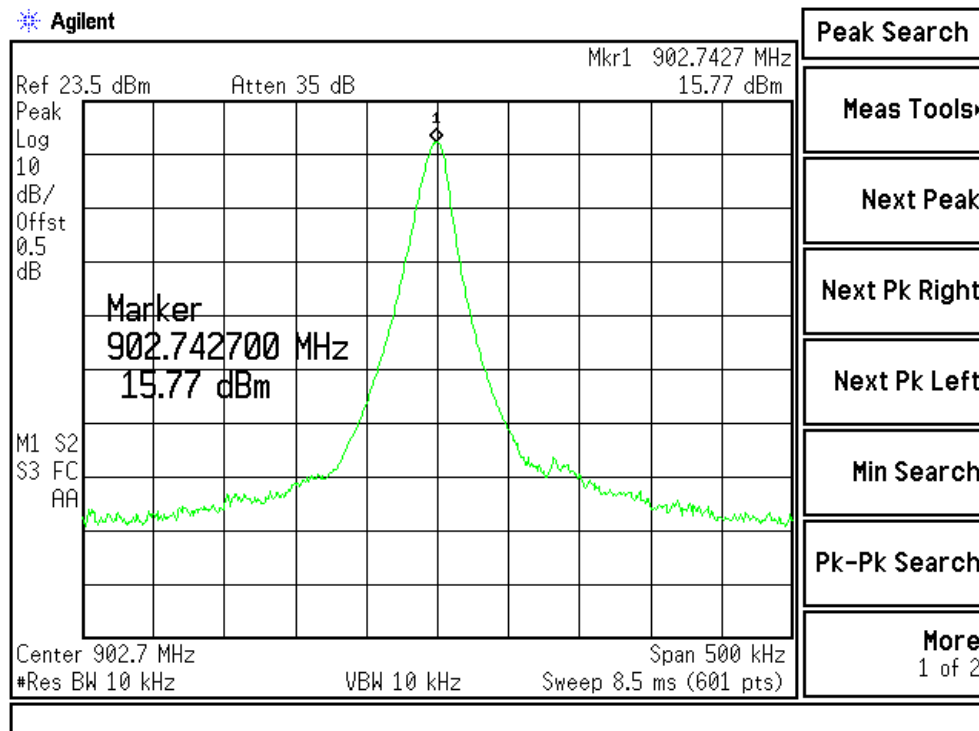
3.2.2 Test Condition

- Set RBW of Spectrum analyzer to 30 kHz
- The Maximum Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level.

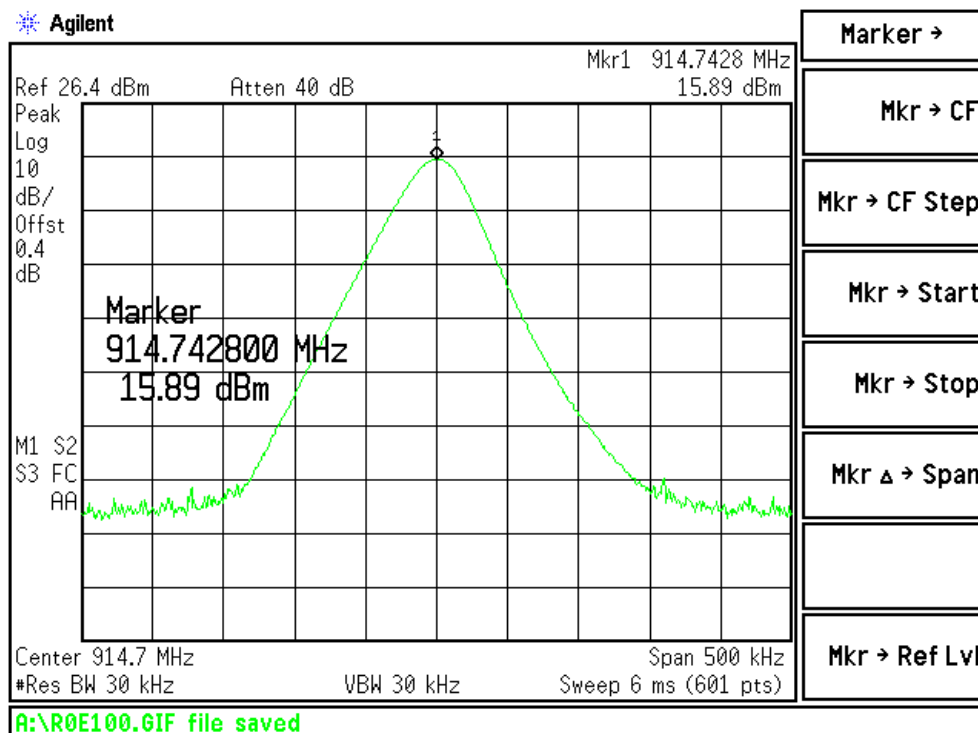
3.2.3 Test result

RFID

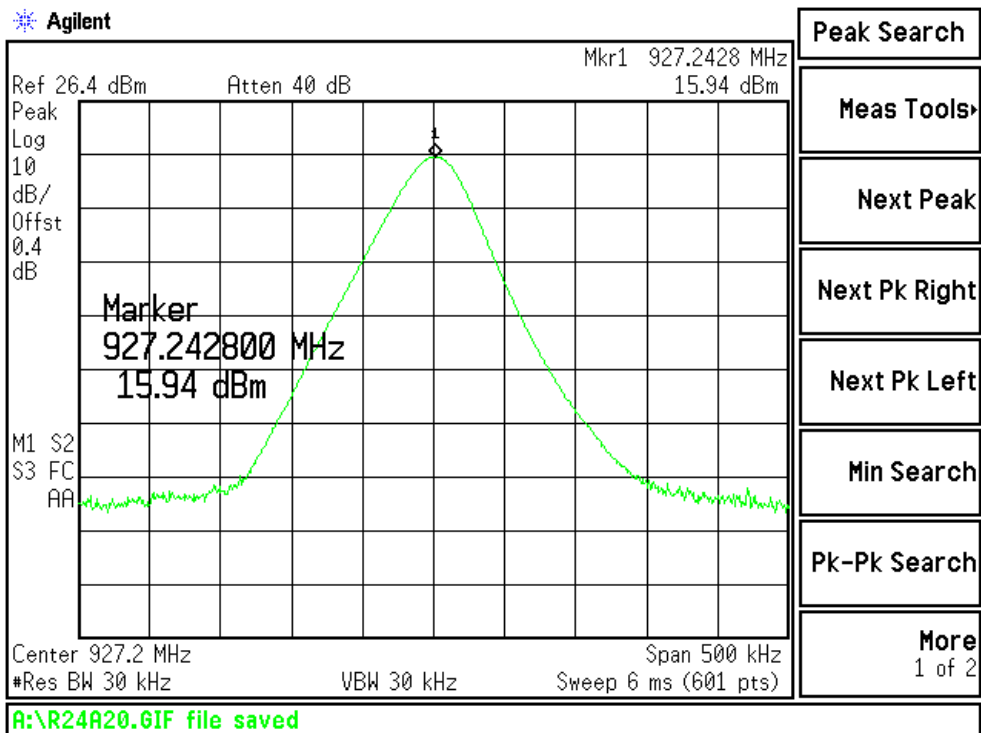
Channels	Frequency (MHz)	Result (dBm)	Limit (dB) 30dBm = 1W	Verdict
0	902.7	15.77	≤ 30	Pass
24	914.7	15.89	≤ 30	Pass
49	927.2	15.94	≤ 30	Pass



– RFID CH 0 –



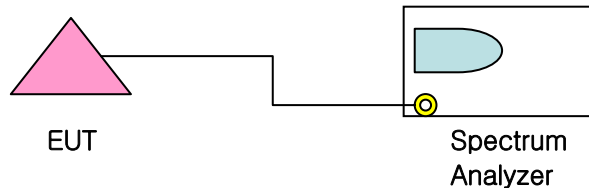
– RFID CH 24 –



– RFID CH 49 –

3.3 100 KHz Bandwidth of Frequency Band Edges

3.3.1 Test Setup Layout



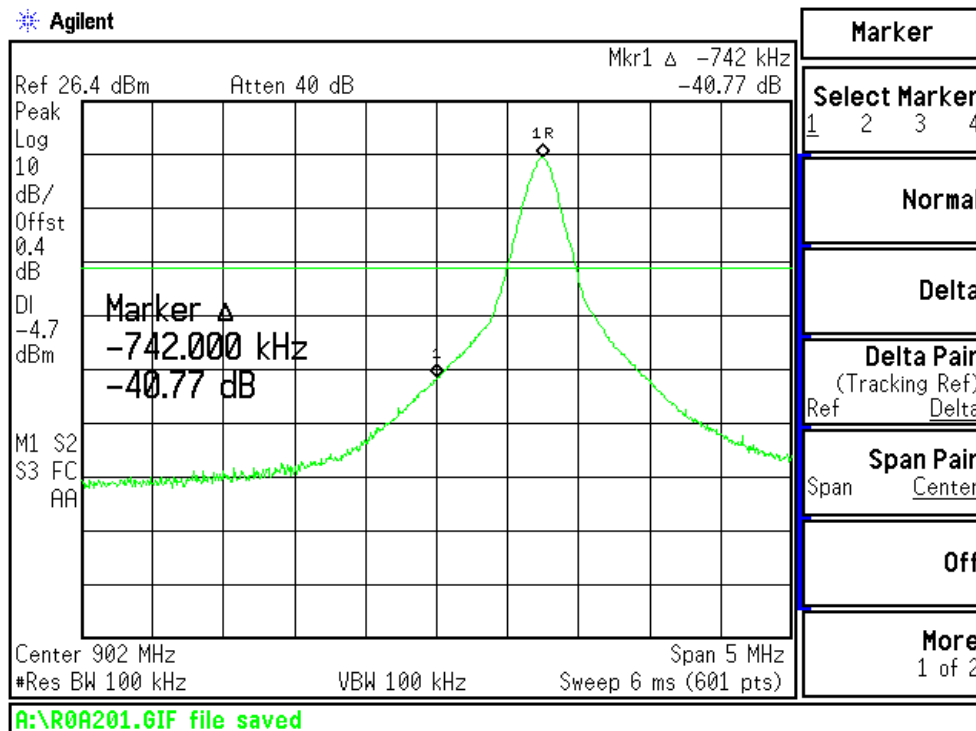
3.3.2 Test Condition

- Set RBW of Spectrum analyzer to 100 kHz
- 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.
- **The maximum frequency range measuring with the spectrum from 30 MHz to 10 GHz is investigated with the transmitter**

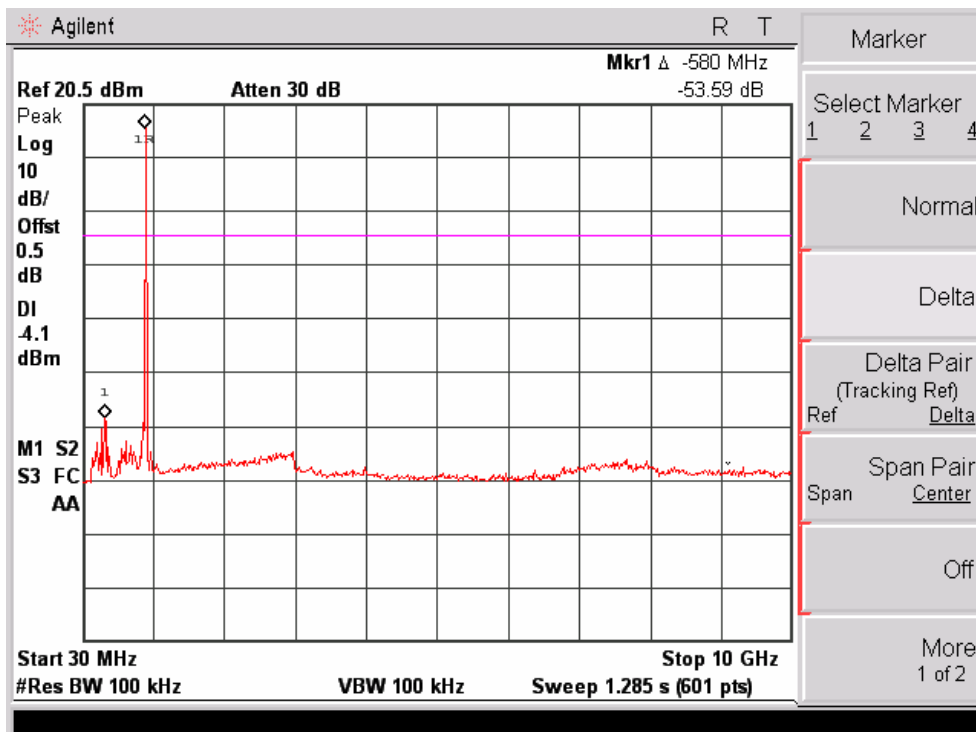
3.3.3 Test result

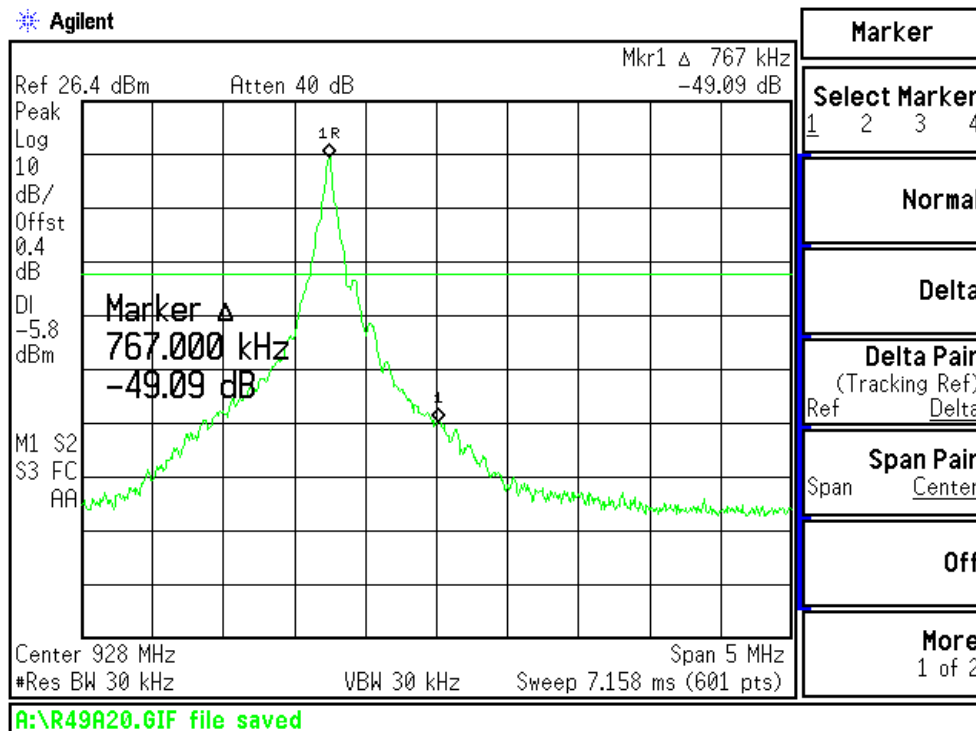
RFID

Channels	Frequency (MHz)	Result (dBc)	Limit (dBc)	Verdict
0	902.7	40.77	≥ 20	Pass
49	927.2	49.09	≥ 20	Pass

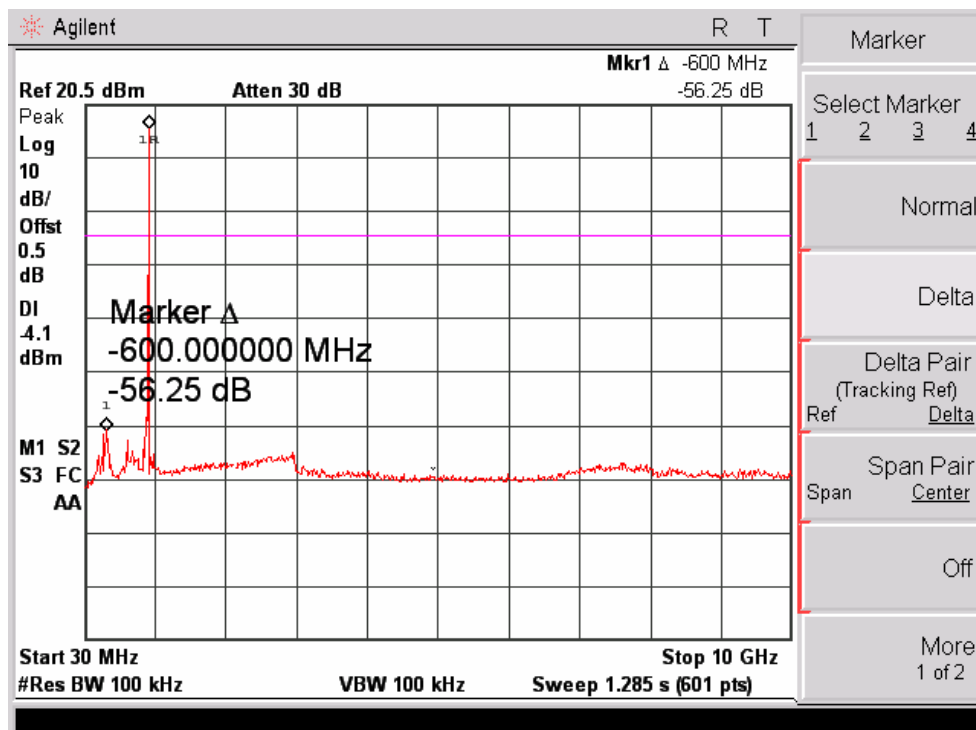


- RFID CH 0 -



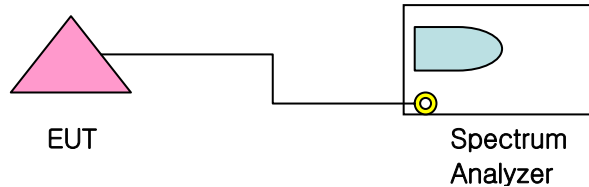


- RFID CH 49 -



3.4 Hopping Channel separation

3.5.1 Test Setup Layout



3.4.2 Test Condition

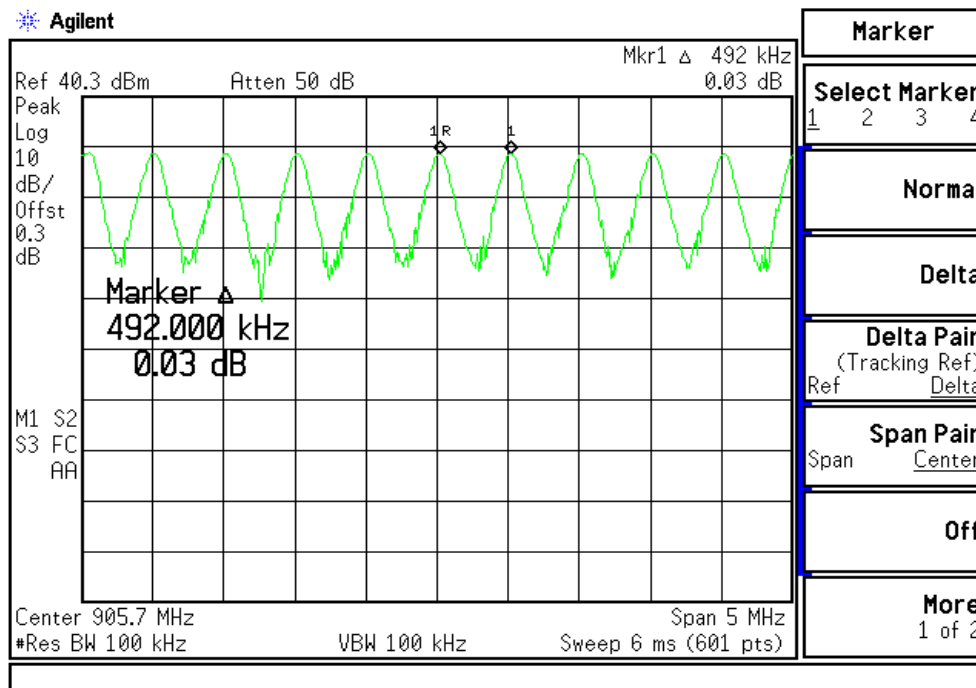
- Set RBW of Spectrum analyzer to 100 kHz
- Frequency hopping system shall have hopping channel carrier frequencies separated by minimum of 25 kHz or the 20dB bandwidth of the hopping channel, whichever is greater.

3.4.3 Test result

RFID

Mode	Frequency (MHz)	Result (kHz)	Limit (kHz)	Verdict
Hopping mode	-	492	193	Pass

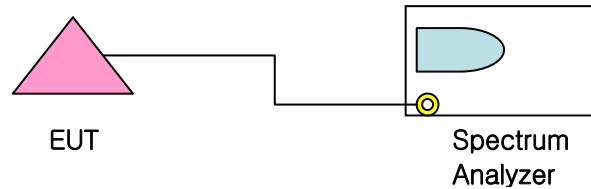
※ Remark : 20dB bandwidth is 193 kHz



– RFID channel separation –

3.5 Number of Hopping Channels

3.5.1 Test Setup Layout



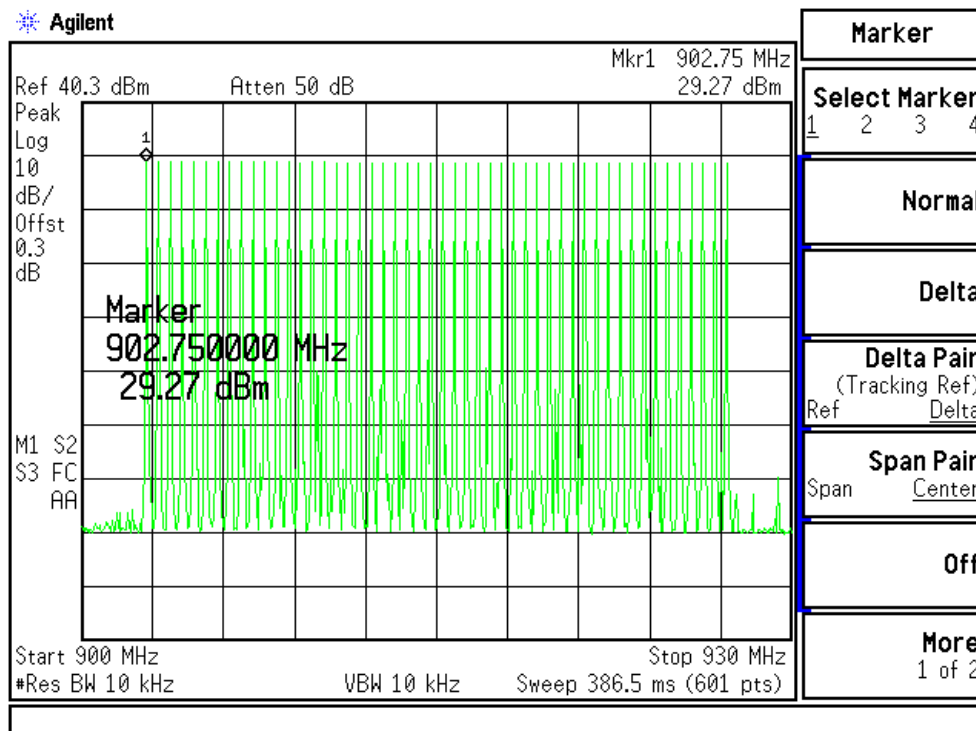
3.5.2 Test Condition

- Set RBW of Spectrum analyzer to 10 kHz
- For frequency hopping systems operating in the 902-928 MHz : if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping.

3.5.3 Test result

RFID

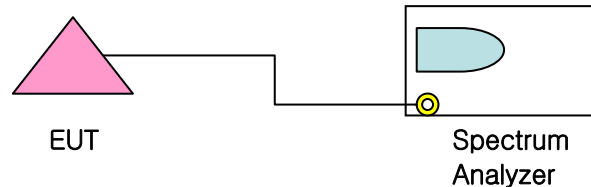
Mode	Frequency (MHz)	Result (channel)	Limit (channel)	Verdict
Hopping mode	-	50	50	Pass



– Number of Hopping –

3.6 Time of Occupancy

3.6.1 Test Setup Layout



3.6.2 Limits

- For frequency hopping systems operating in the 902-928 MHz : 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.

3.6.3 Test procedure

- The span is set to 0 Hz, selected hopping channel. The selected channel will be displayed at the highest amplitude, while all other channels will be at a lower amplitude due to the response of the RBW and VBW filter in the spectrum analyzer. The threshold is set between the amplitude of the selected channel and the amplitude of any other channel. The total aggregate ON time is calculated by counting the number of spectrum analyzer that exceed the threshold and the following equation:

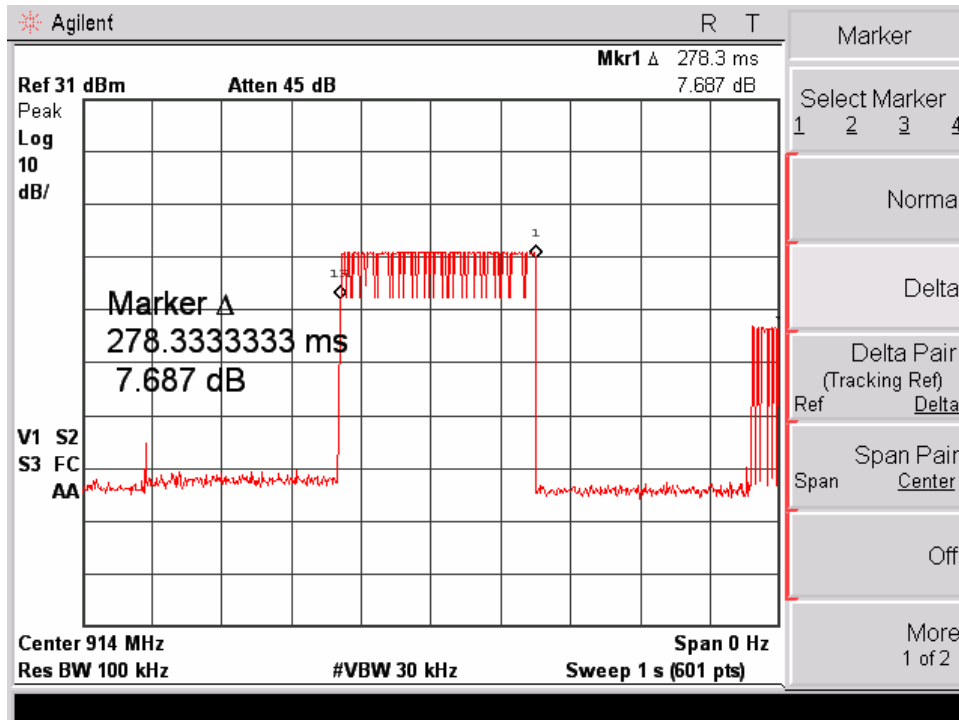
Time of Occupancy = Period/time between occupancy * Dwell time

3.6.4 Test result

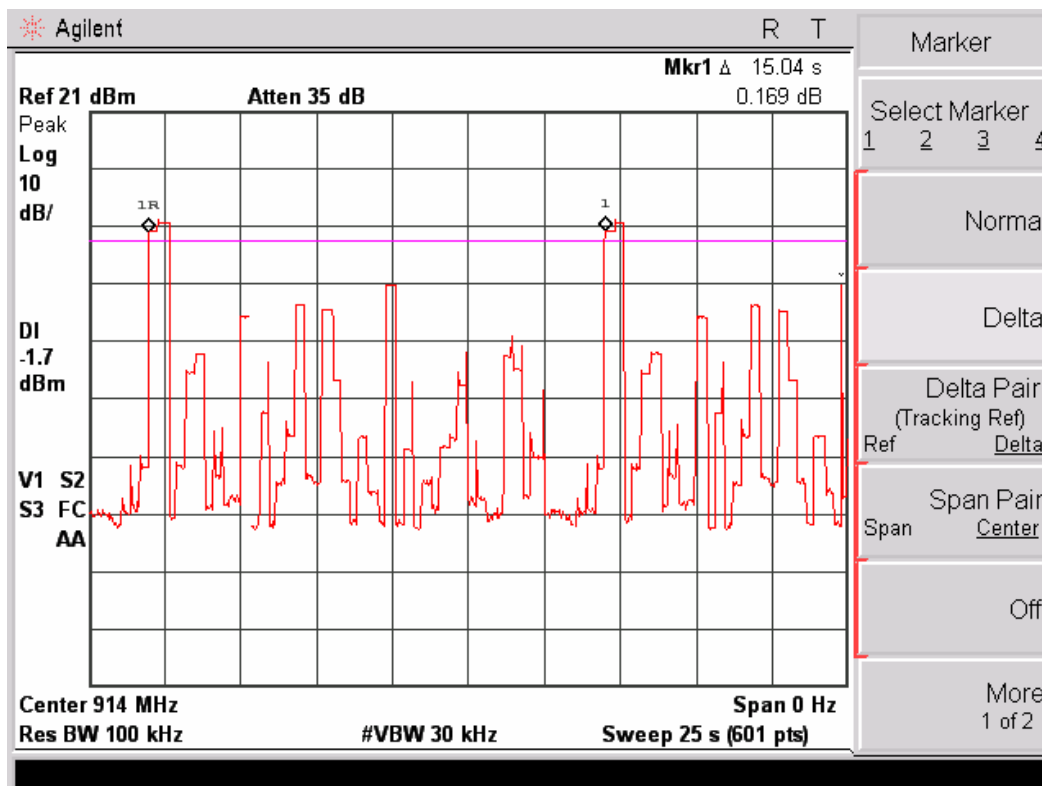
RFID

Mode	Time of occupancy (msec)	Limit (msec)	Verdict
Hopping mode	370.12	400	Pass

Calculate : $20 / 15.04 * 278.33 = 370.12$



– Pulse duration –



– Time between occupancy –

3.7 Radiated Emissions (FCC Part15.209)

3.7.1 Test Procedure

3.7.1.1 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 18 GHz) was placed at the distance of 1 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 by a plotter.

3.7.1.2 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

3.7.2 Limits

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

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

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency Field Strength Measurement Distance (MHz) (microvolts/meter) (meters)

30 - 88	100 **	3
88 - 216	150 **	3
216 - 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., Sections 15.231 and 15.241.

3.7.3 Sample Calculation

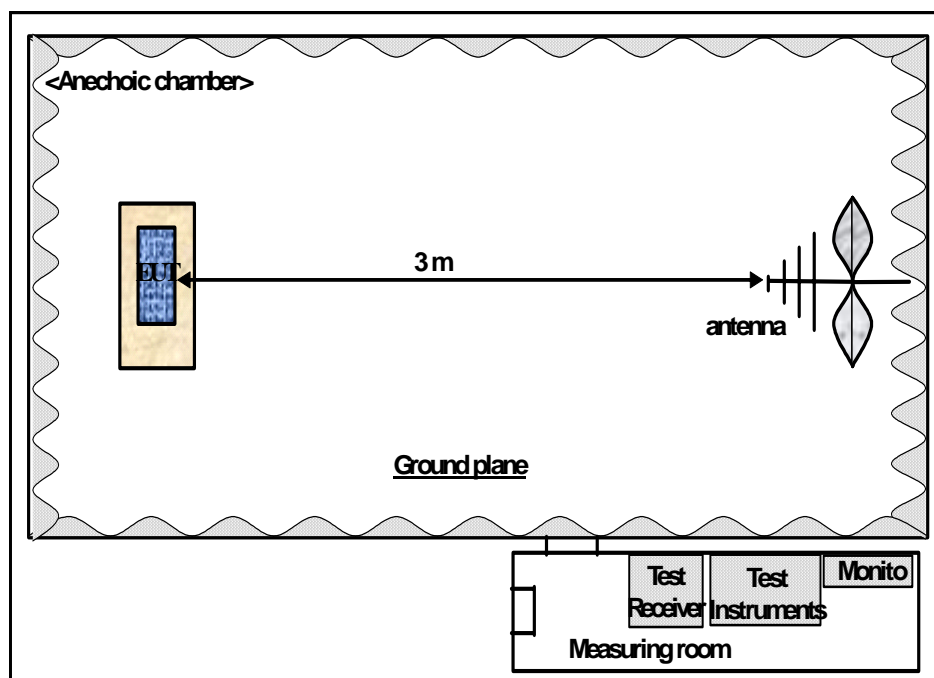
The emission level measured in decibels above one microvolt ($\text{dB } \mu\text{V}$) was converted into microvolt per meter ($\mu\text{V/m}$) as shown in following sample calculation.

For example :

Measured Value at <u>4824 MHz</u>	38.9 dB μV
+ Antenna Factor & Cable loss	39.2 dB
- Preamplifier	-30.0 dB
- Distance Correction Factor *	0.0 dB
<hr/>	
= Radiated Emission	48.1 dB $\mu\text{V/m}$

* Extrapolated from the measured distance to the specified distance by an inverse linear distance extrapolation.

3.7.4 Photograph for the test configuration



3.7.5 Test Results

3.7.5.1 Intentional Spurious Emission (15.209)

- Measurement mode : **RFID**
- Resolution Bandwidth: x CISPR Quasi-Peak (6dB Bandwidth : 120kHz for below 1GHz)
Peak&Average (3dB Bandwidth : 1MHz for above 1GHz)
- Measurement channel : **Ch 0**
- Measurement Distance : 3 Meter
- The worst case is Y axes

Frequency (MHz)		* D.M.	* A.P.	Measured Value (dB μ V)	A.F. + C.L. (dB/m)	* A.G. (dB)	* D.C.F. (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	** Margin (dB)
CH 0	1805	P	H	67.0	33.1	-30	0	70.1	74	-3.9
	1805	A	H	49.1	33.1	-30	0	52.2	54	-1.8
	2708	P	H	49.5	35.4	-30	0	54.9	74	-19.1
	2708	A	H	29.6	35.4	-30	0	35	54	-19.0
	3610	P	H	44.6	36.5	-30	0	51.1	74	-22.9
	3610	A	H	34.9	36.5	-30	0	41.4	54	-12.6
	4510	P	H	44.3	38.7	-30	0	53	74	-21.0
	4510	A	H	42.7	38.7	-30	0	51.4	54	-2.6
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-

Note

The observed Spectrum Analyser(E4448A) noise floor level was 2.0 dB μ V. And all other emissions not reported on data were more than 25 dB below the permitted level.

- * D.M. : Detect Mode (P : Peak, Q : Quasi-Peak, A : Average)
- A.P. : Antenna Polarization (H : Horizontal, V : Vertical)
- A.F. : Antenna Factor
- C.L. : Cable Loss
- A.G. : Amplifier Gain
- D.C.F. : Distance Correction Factor
- < : Less than

** Margin (dB) = Emission Level (dB) - Limit (dB)

- Measurement mode : **RFID**
- Resolution Bandwidth: x CISPR Quasi-Peak (6dB Bandwidth : 120kHz for below 1GHz)
Peak&Average (3dB Bandwidth : 1MHz for above 1GHz)
- Measurement channel : **Ch 24**
- Measurement Distance : 3 Meter
- The worst case is Y axes

Frequency (MHz)		* D.M.	* A.P.	Measured Value (dB μ V)	A.F. + C.L (dB/m)	A.G. (dB)	D.C.F. (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
CH 24	1829	P	H	65.2	33.1	-30	0	68.3	74	-5.7
	1829	A	H	49.7	33.1	-30	0	52.8	54	-1.2
	2744	P	H	50.7	35.4	-30	0	56.1	74	-17.9
	2744	A	H	30.4	35.4	-30	0	35.8	54	-18.2
	3670	P	H	51.0	36.5	-30	0	57.5	74	-16.5
	3670	A	H	44.4	36.5	-30	0	50.9	54	-3.1
	4574	P	H	49.4	38.7	-30	0	58.1	74	-15.9
	4574	A	H	42.7	38.7	-30	0	51.4	54	-2.6
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-

Note

The observed Spectrum Analyer(E4448A) noise floor level was 2.0 dB μ V. And all other emissions not reported on data were more than 25 dB below the permitted level.

- * D.M. : Detect Mode (P : Peak, Q : Quasi-Peak, A : Average)
 A.P. : Antenna Polarization (H : Horizontal, V : Vertical)
 A.F. : Antenna Factor
 C.L. : Cable Loss
 A.G. : Amplifier Gain
 D.C.F. : Distance Correction Factor
 < : Less than

** Margin (dB) = Emission Level (dB) - Limit (dB)

- Measurement mode : **RFID**
- Resolution Bandwidth: x CISPR Quasi-Peak (6dB Bandwidth : 120kHz for below 1GHz)
Peak&Average (3dB Bandwidth : 1MHz for above 1GHz)
- Measurement channel : **Ch 49**
- Measurement Distance : 3 Meter
- The worst case is Y axes

Frequency (MHz)		* D.M.	* A.P.	Measured Value (dB μ V)	A.F. + C.L (dB/m)	* A.G. (dB)	* D.C.F. (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	** Margin (dB)
CH 49	1854	P	H	66.5	33.1	-30	0	69.6	74	-4.4
	1854	A	H	48.8	33.1	-30	0	51.9	54	-2.1
	2781	P	H	52.6	35.4	-30	0	58	74	-16.0
	2781	A	H	36.7	35.4	-30	0	42.1	54	-11.9
	3708	P	H	50.3	36.5	-30	0	56.8	74	-17.2
	3708	A	H	41.7	36.5	-30	0	48.2	54	-5.8
	4636	P	H	47.6	38.7	-30	0	56.3	74	-17.7
	4636	A	H	41.0	38.7	-30	0	49.7	54	-4.3
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-

Note

The observed Spectrum Analyser(E4448A) noise floor level was 2.0 dB μ V. And all other emissions not reported on data were more than 25 dB below the permitted level.

- * D.M. : Detect Mode (P : Peak, Q : Quasi-Peak, A : Average)
- A.P. : Antenna Polarization (H : Horizontal, V : Vertical)
- A.F. : Antenna Factor
- C.L. : Cable Loss
- A.G. : Amplifier Gain
- D.C.F. : Distance Correction Factor
- < : Less than

** Margin (dB) = Emission Level (dB) - Limit (dB)

3.7.5.2 Radiated Emission (Receiving mode)

- Measurement mode : **RFID**
- Resolution Bandwidth: x CISPR Quasi-Peak (6dB Bandwidth : 120kHz for below 1GHz)
Peak (3dB Bandwidth : 1MHz for above 1GHz)
- Measurement channel : Ch0, Ch 24, Ch 49
- Measurement Distance : 3 Meter
- The worst case is Y axes

Frequency (MHz)	* D.M.	* A.P.	Measured Value (dB μ V)	* A.F. + C.L. (dB/m)	* A.G. (dB)	* D.C.F. (dB)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	** Margin (dB)
33.9	Q	V	17.7	13.1	0.0	0.0	30.8	40.0	-9.2
59.4	Q	V	20.9	13.8	0.0	0.0	34.7	40.0	-5.3
60.5	Q	V	19.5	13.8	0.0	0.0	33.3	40.0	-6.7
104.0	Q	V	21.1	10.7	0.0	0.0	31.8	43.5	-11.7
130.0	Q	H	21.3	13.4	0.0	0.0	34.7	43.5	-8.8
135.8	Q	H	20.7	18.5	0.0	0.0	39.2	43.5	-4.3
418.9	Q	V	14.6	18.7	0.0	0.0	33.3	46.0	-12.7
444.9	Q	V	14.9	19.6	0.0	0.0	34.5	46.0	-11.5
450.6	Q	V	15.6	19.8	0.0	0.0	35.4	46.0	-10.6
520.0	Q	V	14.2	20.9	0.0	0.0	35.1	46.0	-10.9
-	-	-	-	-	-	-	-	-	-

Note

The observed EMI receiver(ESVS30) noise floor level was 2.0 dB μ V. And all other emissions not reported on data were more than 25 dB below the permitted level.

- * D.M. : Detect Mode (P : Peak, Q : Quasi-Peak, A : Average)
 A.P. : Antenna Polarization (H : Horizontal, V : Vertical)
 A.F. : Antenna Factor
 C.L. : Cable Loss
 A.G. : Amplifier Gain
 D.C.F. : Distance Correction Factor
 < : Less than

** Margin (dB) = Emission Level (dB) - Limit (dB)

3.8 Conducted Emissions (FCC Part 15.207)

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

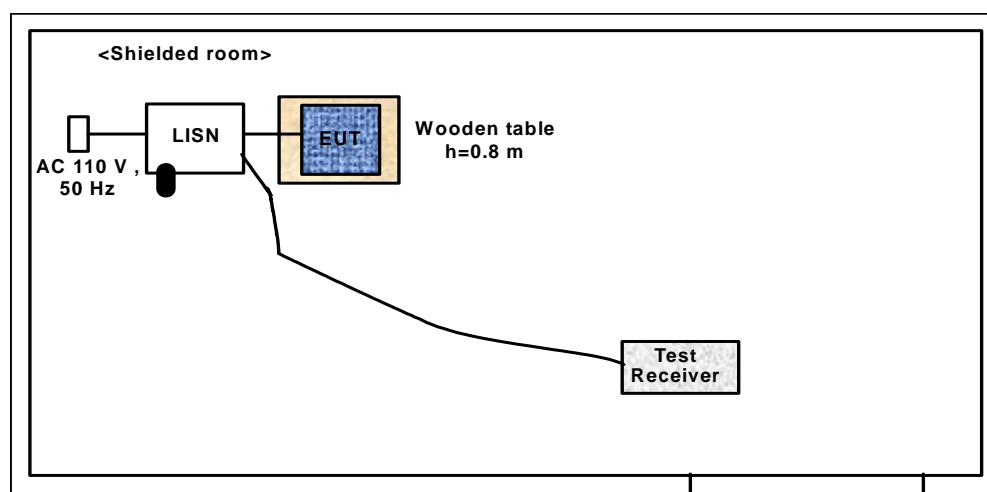
LISN(Line Impedance Stabilization Network, ROHDE & SCHWARZ, ESH3-Z5, 50 ohm / 50 μ H) was installed and electrically boned to the conducting ground plane. The EUT was connected to the LISN using a typical power adapter.

One of two 50 ohm output terminals of the LISN was connected to the EMI Receiver (ROHDE & SCHWARZ, ESI, 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, ESI, 9 kHz to 3 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 Photograph for the test configuration



3.8.3 Sample calculation

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

For example :

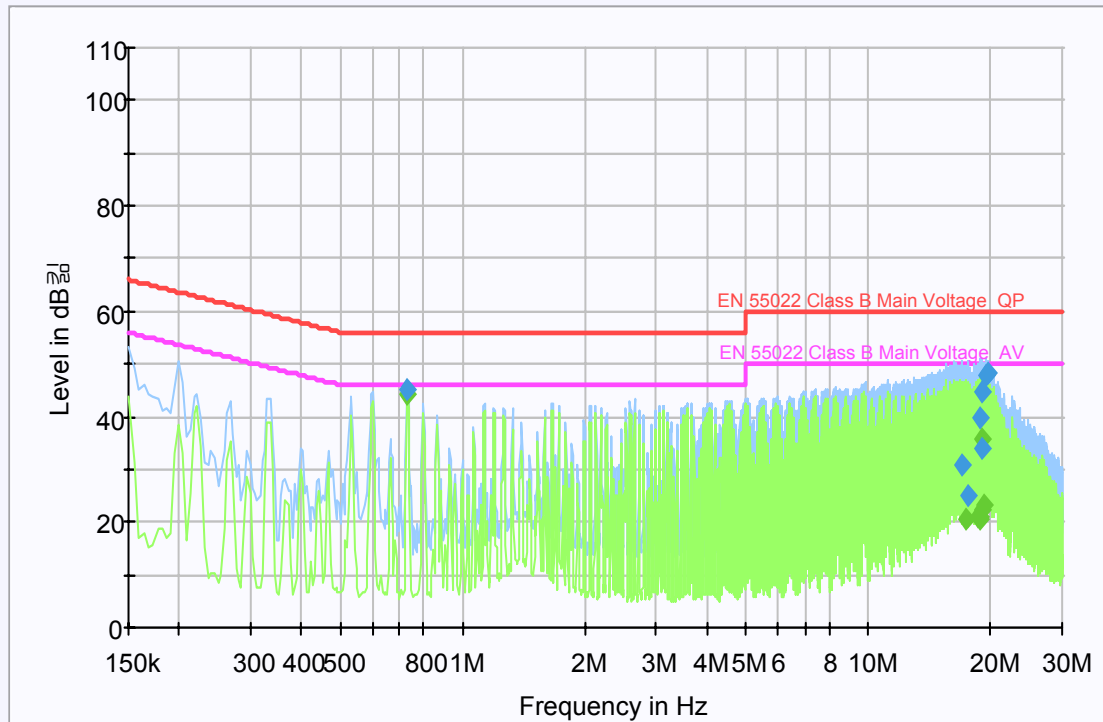
Measured Value at	16.38 MHz	25.1 dB μV @ Q-Peak mode
+ Correct factor *		10.7 dB

= Conducted Emission		35.8 dB μV

* Correct factor is adding RF cable loss and Attenuation.

3.8.4 Test Results

FCC 15.207(a) - RFID



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.726000	45.2	L1	10.2	10.8	56.0
16.926000	30.9	L1	10.8	29.1	60.0
17.641500	25.2	L1	10.8	34.8	60.0
18.906000	39.7	L1	10.8	20.3	60.0
18.969000	33.9	L1	10.8	26.1	60.0
19.036500	44.6	L1	10.8	15.4	60.0
19.563000	48.0	L1	10.8	12.0	60.0
19.630500	48.4	L1	10.8	11.6	60.0

Final Measurement Detector 2

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.726000	44.4	L1	10.2	1.6	46.0
17.304000	20.7	N	10.7	29.3	50.0
18.622500	20.9	L1	10.8	29.1	50.0
18.753000	20.4	L1	10.8	29.6	50.0
18.883500	21.1	L1	10.8	28.9	50.0
19.014000	35.9	L1	10.8	14.1	50.0
19.077000	22.3	N	10.7	27.7	50.0
19.275000	23.5	L1	10.8	26.5	50.0

VI. TEST EQUIPMENTS

No.	Equipment	Manufacturer	Model	S/N	Effective Cal.Duration
1	EMI Receiver (20 MHz ~ 1 GHz)	R&S	ESVS30	830516002	03/15/2007 ~ 03/15/2008
2	EMI Receiver (9 kHz ~ 3 GHz)	R&S	ESCI	100076	03/28/2007 ~ 03/28/2008
3	Spectrum Analyzer (100 Hz ~ 26.5 GHz)	Agilent	E4407B	US41443316	12/01/2007 ~ 12/01/2008
4	Spectrum Analyzer (3 Hz ~ 50 GHz)	Agilent	E4448A	MY43360322	02/26/2007 ~ 02/26/2008
5	Test Receiver (9 kHz ~ 30 MHz)	R&S	ESH3	860905001	06/18/2007 ~ 06/18/2008
6	Pre-Amplifier (100 kHz ~ 3 GHz)	H.P.	8347A	2834A00543	05/19/2007 ~ 05/19/2008
7	Pre-Amplifier (1 GHz ~ 26.5 GHz)	H.P.	8449B	3008A00302	06/14/2007 ~ 06/14/2008
8	LISN(50 Ω , 50 μ H) (10 kHz ~ 100 MHz)	R&S	ESH3-Z5	826789009	07/05/2007 ~ 07/05/2008
9	Biconi-Log Ant. (30 MHz ~ 1000 MHz)	Schwarzbeck	VULB9168	9168-168	08/16/2007 ~ 08/16/2008
10	Horn Ant. (1 GHz ~ 18 GHz)	EMCO	3115	--	05/09/2007 ~ 05/09/2008
11	Active Loop Ant. (9 kHz ~ 30 MHz)	EMCO	6502	2532	06/08/2007 ~ 06/08/2008
12	Shielded Room (5.0 m x 4.5 m)	SIN-MYUNG	--	--	--
13	Signal Generator (250 kHz ~ 20 GHz)	Agilent	E8257D	MY44320379	01/02/2007 ~ 01/02/2008
14	DC Power Supply	Agilent	E4356A	MY41000296	09/28/2007 ~ 09/28/2008
15	Power Splitter	H.P.	11667A	21063	10/09/2007 ~ 10/09/2008
16	Power Meter	Agilent	E4417A	GB4129075	09/17/2007 ~ 09/17/2008
17	Attenuator	Weinschel	56-20	N8257	01/13/2007 ~ 01/13/2008
18	Oscillator	Kenwood	AG-203D	10040568	10/23/2007 ~ 10/23/2008

APPENDIXS

1. EUT photo



2. Test setup photo



<Radiated Emission>



<Conducted Emission>



<RF Conducted TEST>