

Nemko Korea CO., Ltd.

300-2, Osan-Ri, Mohyun-Myun, Yongin-City, Kyungki-Do, KOREA

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FCC EVALUATION REPORT FOR CERTIFICATION

Applicant :**Dongyang Security Electronics Co., Ltd.****Block 45, Lot 6 Namdong Industrial Complex****435-6 Nonhyun-Dong, Namdong-Gu,****Incheon, 405-300, Korea****Attn : Mr. Tae-Woo, Lee****Dates of Issue : November 23, 2004****Test Report No. : NK2EE898****Test Site : Nemko Korea Co., Ltd.****EMC site, Korea****FCC ID****HH8TXA-3B527****CONTACT PERSON**

Dongyang Security Electronics Co., Ltd.
Block 45, Lot 6 Namdong Industrial Complex
435-6 Nonhyun-Dong, Namdong-Gu, Incheon,
405-300, Korea
Mr. Tae-Woo, Lee
Telephone No. : +82 32 814 8080

FCC Rule Part(s):

Part 15 & 2

Classification :

Part 15 Subpart C –Intentional Radiators

EUT Type:

Keyless Entry System

Output Frequency:

315.00MHz

The device bearing the FCC ID specified above has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-2001.

I attest to the accuracy of data and all measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.



Tested By : S. H. Baek
Engineer



Reviewed By : H.H. Kim
Manager & Chief Engineer

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SCOPE

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission under FCC part 15.

Responsible Party :	Dongyang Security Electronics Co., Ltd.
Contact Person :	Mr. Tae-Woo, Lee Tel : +82 32 814 8080
Manufacturer :	Dongyang Security Electronics Co., Ltd. Block 45, Lot 6 Namdong Industrial Complex 435-6 Nonhyun-Dong, Namdong-Gu, Incheon, 405-300 Korea
Factory :	Dongyang Security Electronics Co., Ltd. Block 45, Lot 6 Namdong Industrial Complex 435-6 Nonhyun-Dong, Namdong-Gu, Incheon, 405-300 Korea

- FCC ID: HH8TXA-3B527
- Model: TXA-3B527
- EUT Type: Keyless Entry System
- Classification: Part 15 Subpart C – Intentional Radiators
- Rule Part(s): FCC Part 15 & Part 2
- Test Procedure(s): ANSI C63.4 (2001)
- Dates of Test: November 11, 2004 to November 21, 2004
- Place of Tests: Nemko Korea Co., Ltd. EMC Site
- Test Report No.: NK2EE898

INTRODUCTION

The measurement procedure described in American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40GHz (ANSI C63.4-2001) was used in determining radiated and conducted emissions emanating from **Dongyang Security Electronics Co., Ltd.**

FCC ID : **HH8TXA-3B527, Keyless Entry System.**

These measurement tests were conducted at **Nemko Korea Co., Ltd. EMC Laboratory**.

The site address is 300-2, Osan-Ri, Mohyun-Myun, Yongin-City, Kyungki-Do, KOREA

The area of Nemko Korea Corporation Ltd. EMC Test Site is located in a mountain area at 80 kilometers (48 miles) southeast and Seoul International Airport (Incheon Airport), 30 kilometers (18miles) south-southeast from central Seoul.

It is located in the valley surrounded by mountains in all directions where ambient radio signal conditions are quiet and a favorable area to measure the radio frequency interference on open field test site for the computing and ISM devices manufactures.

The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4 on June 06, 2001.



Nemko Korea Co., Ltd.
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Fig. 1. The map above shows the Seoul in Korea vicinity area.

The map also shows Nemko Korea Corporation Ltd. EMC Lab and Incheon Airport.

TEST CONDITIONS & EUT INFORMATION

Operating During Test

The EUT was continuously operated at switch on mode.

Operational Description

When the button of the remote is pressed, the switching transistor (Q2) is turn ON and the power is applied to the Encoder I.C (U1) and RF ASK Mod Oscillator Stage (Q1). The Encoder I.C (U1) is generated to the security code and data (Manchester coding) according to the button switch, and applied to the transistor Q1-base of the ASK MOD oscillator stage. The ASK MOD oscillator stage is consisted of the SAW resonated oscillator (Q1, SAW1, C6, C7, C8, R3, loop antenna), and oscillated at the frequency of 315.00MHz band when the transistor Q1 base is biased, and stoped to oscillate when the transistor is not biased. The ASK modulation is performed by the Encoder data status, and the r.f signal is radiated through the integrated PWB loop antenna.

EUT Information

Chipset(s) :	U1(FP527)
Output Frequency	315.00MHz
Power Supply	12V DC (5V DC Regulation)

RECOMMENDATION/CONCLUSION

The data collected shows that the **Dongyang Security Electronics Co., Ltd.**
FCC ID : **HH8TXA-3B527**, **Keyless Entry System**. complies with § 15.209,
15.231 of the FCC Rules.

SAMPLE CALCULATION

$$\text{dB } \mu\text{V} = 20 \log_{10} (\mu\text{V}/\text{m})$$

$$\mu\text{V} = 10^{(\text{dB } \mu\text{V}/20)}$$

EX. 1.

@600 MHz

§ 15.231 limit = 1250 $\mu\text{V}/\text{m}$ = 61.9 dB $\mu\text{V}/\text{m}$

Reading = 39.9 dB μV (calibrated level)

Antenna factor + (Cable Loss + Amplifier) = 18.7 – 22.3 = -3.6dB

Total = 39.9 – 3.6 = 36.3 dB $\mu\text{V}/\text{m}$

Margin = 61.9 – 36.3 = 25.6dB

25.6 dB below the limit

DESCRIPTION OF TESTS

Radiated Emissions

Preliminary measurement were made indoors at 3 meter using broad band antennas, broadband amplifier, and spectrum analyzer to determine the frequency producing the maximum EME. Appropriate precaution was taken to ensure that all EME from the EUT were maximized and investigated. The Technology configuration, clock speed, mode of operation or video resolution, turntable azimuth with respect to the antenna was note for each frequency found.

The spectrum was scanned from 30 to 1000MHz using Biconical log Antenna(ARA, LPB-2520/A). Above 1GHz, Doppels Teg Horn antenna (Schwarzbeck, BBHA9120A :upto 0.8~5GHz) was used.

Final Measurements were made outdoors at 3 or 10m test range using Logbicon Super Antenna(Schwarzbeck, VULB9166) or Doppels Teg Horn antenna.(Schwarzbeck, BBHA9120A) The test equipment was placed on a wooden table.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition.

Each frequency found during pre-scan measurements was reexamined and investigated using EMI test receiver.(ESCS30) and spectrum analyzer (8566B).

The detector function was set to CISPR quasi-peak mode or Average mode or Peak mode and the bandwidth of the receiver was set to 120KHz or 1MHz depending on the frequency or type of signal.

The half wave dipole antenna was tuned to the frequency found during preliminary radiated measurements.

The EUT support equipment and interconnecting cables were re configured to the setup producing the maximum emission for the frequency and were placed on top of a 0.8m high non- metallic 1.0X 1.5 meter table.

The EUT, support equipment and interconnecting cables were re-arranged and manipulated to maximize each EME emission.

The turn table containing the Technology was rotated; the antenna height was varied 1 to 4meter and stopped at the azimuth or height producing the maximum emission.

Each EME reported was calibrated using the R/S signal generator.

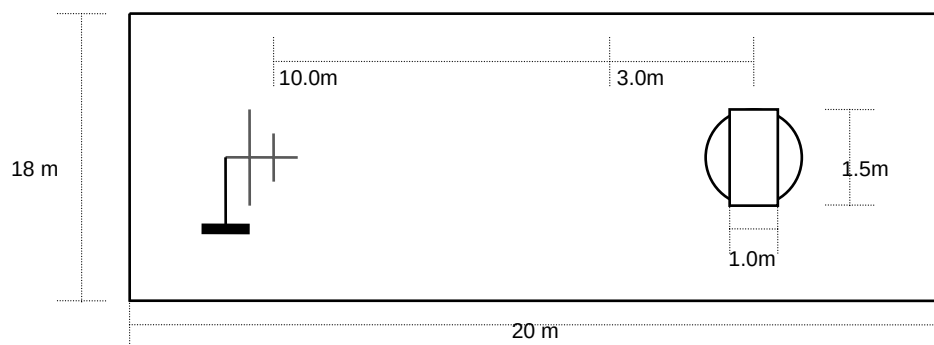


Fig. 2. Dimensions of Outdoor Test Site

§ 15.203 Antenna Requirement

An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the applicant can be used with the device. The use of permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with this requirement.

§ 15.231(a) (1) Provisions for periodic operation

The EUT employs a switch that will automatically deactivate the transmitter within no more than 5 seconds of being released.

Applied Modulation

The modulation used was the test procedure specified in ANSI C63.4-2001. For modulation, various keys were used to determine the worst-case modulation. The worst-case modulation that produces the widest bandwidth was used during final testing.

TEST DATA

Radiated Emissions; general requirements(Section 15.209)

FCC ID : HH8TXA-3B527

Frequency (MHz)	Reading (dB μ V)	Pol* (H/V)	AF+CL+Amp (dB)**	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
-	-	-	-	-	-	-

※ Any emission appearing on frequencies wasn't detected during radiated disturbance measurements.
Please see the page 10.

Table 1. Radiated Measurements at 3meters

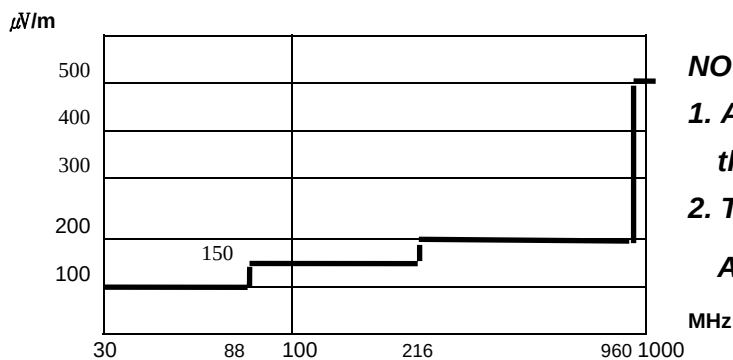


Fig. 3. Limits at 3 meters

NOTES:

1. All modes of operation were investigated the worst-case emission are reported.
2. The radiated limits are shown on Figure 3.
Above 1GHz the limit is 500 μ V/m.

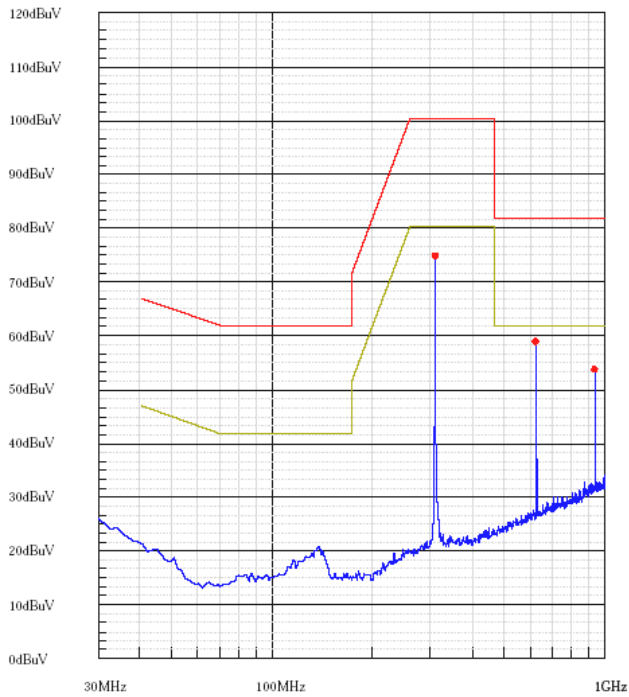
NOTES:

1. *Pol. H =Horizontal V=Vertical
2. **AF+CL+Amp. = Antenna Factor + Cable Loss + Amplifier.
3. Three orthogonal directions were investigated.

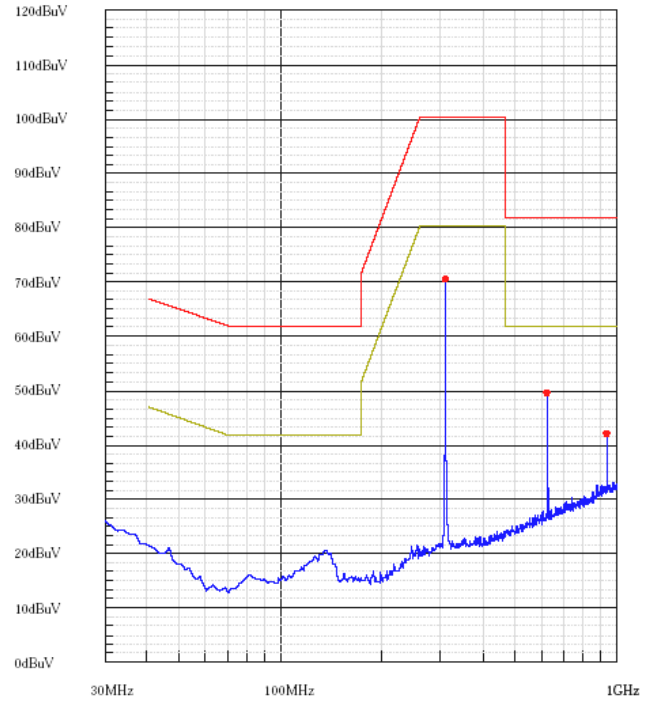
Baek Sung-hun

Tested by **S. H. Baek**

TEST DATA



Horizontal



Vertical

TEST DATA

Radiated Emissions; Above 70MHz (Section 15.231)

FCC ID : HH8TXA-3B527

Frequency range :30MHz to 1GHz

(X-axis)

Frequency (MHz)	Reading(dB μ V)		Pol* (H/V)	D.C.F (dB)	AF+CL +Amp (dB)**	Peak(dB μ V/m)		Limit(dB μ V/m)		Margin(dB)	
	PK	AV				PK	AV	PK	AV	PK	AV
***315.00	77.30	70.60	H	-6.80	-10.9	70.50	63.80	85.62	75.62	15.12	11.82
***630.01	54.70	48.40	H	-6.80	-2.8	47.90	41.60	65.62	55.62	17.72	14.02
***945.01	54.70	48.20	H	-6.80	4.7	47.90	41.40	65.62	55.62	17.72	14.22

(Y-axis)

Frequency (MHz)	Reading(dB μ V)		Pol* (H/V)	D.C.F (dB)	AF+CL +Amp (dB)**	Peak(dB μ V/m)		Limit(dB μ V/m)		Margin(dB)	
	PK	AV				PK	AV	PK	AV	PK	AV
***315.00	65.80	58.20	H	-6.80	-10.9	59.00	51.40	85.62	75.62	26.62	24.22
***630.01	45.00	38.20	H	-6.80	-2.8	38.20	31.40	65.62	55.62	27.42	24.22
***945.01	46.30	40.20	H	-6.80	4.7	39.50	33.40	65.62	55.62	26.12	22.22

(Z-axis)

Frequency (MHz)	Peak Reading		Pol* (H/V)	D.C.F (dB)	AF+CL +Amp (dB)**	Peak Result		Peak Limit		Peak Margin	
	PK	AV				PK	AV	PK	AV	PK	AV
***315.00	65.10	57.80	H	-6.80	-10.9	58.30	51.00	85.62	75.62	27.32	24.62
***630.01	44.50	38.00	H	-6.80	-2.8	37.70	31.20	65.62	55.62	27.92	24.42
***937.64	37.20	29.00	V	-6.80	4.6	30.40	22.20	65.62	55.62	35.22	33.42

Table 2. Radiated Measurements at 3meters

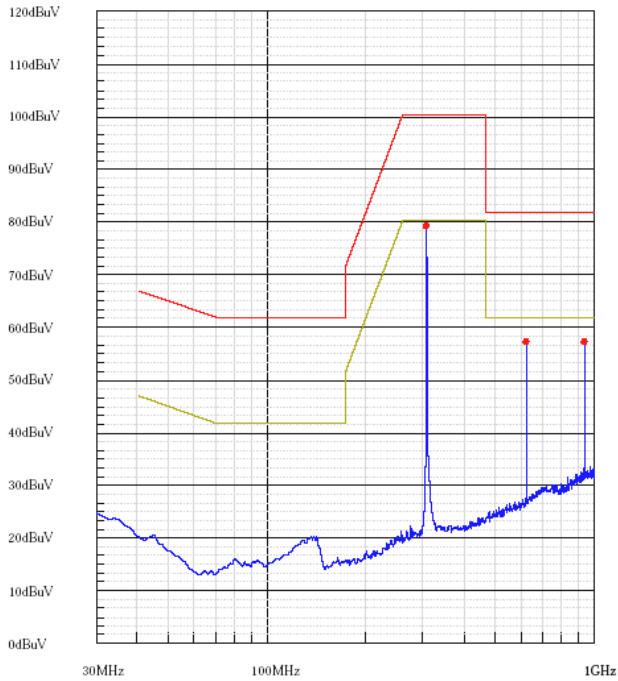
NOTES:

1. *Pol. H =Horizontal V=Vertical
2. **AF+CL+Amp. = Antenna Factor + Cable Loss + Amplifier.
3. "Duty Cycle Factor (D.C.F) = $20\log(1.59\text{msec} \times 15 + 0.58\text{msec} \times 10) / 65.25\text{msec}$
= -6.80dB (Please see the page 23)"
4. Please see the test graph at page 12~13.
5. ***restricted band

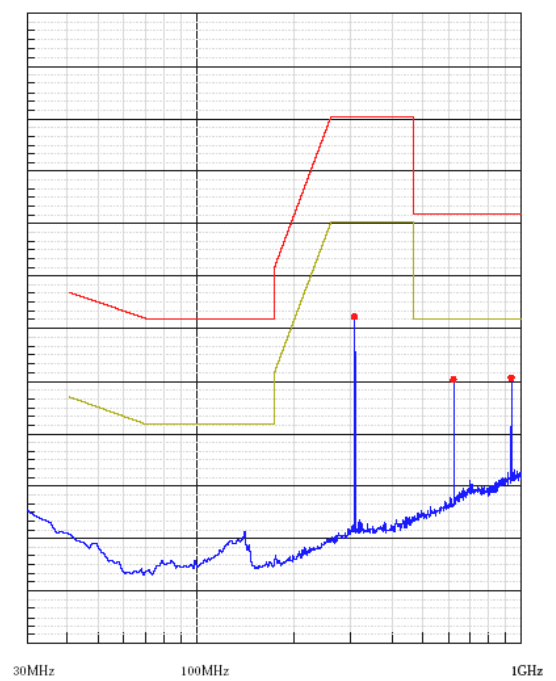
Baek Sung-hyun

Tested by S. H. Baek

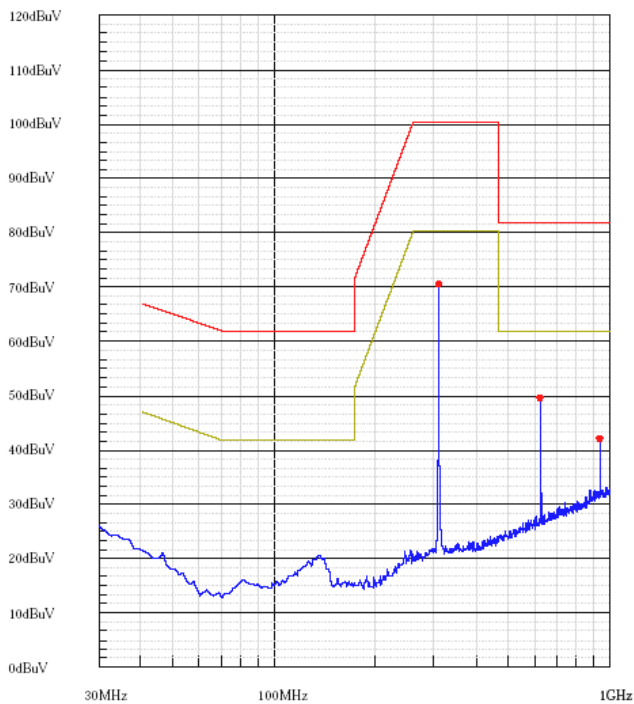
TEST DATA



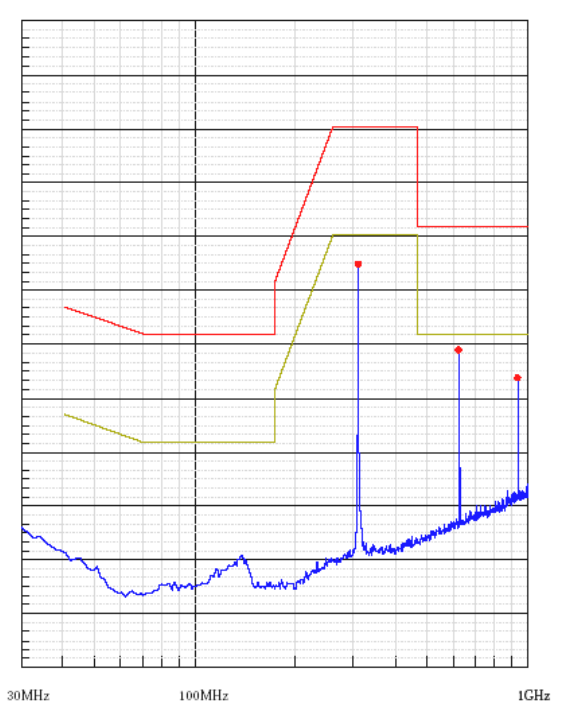
X-axis Horizontal



X-axis Vertical

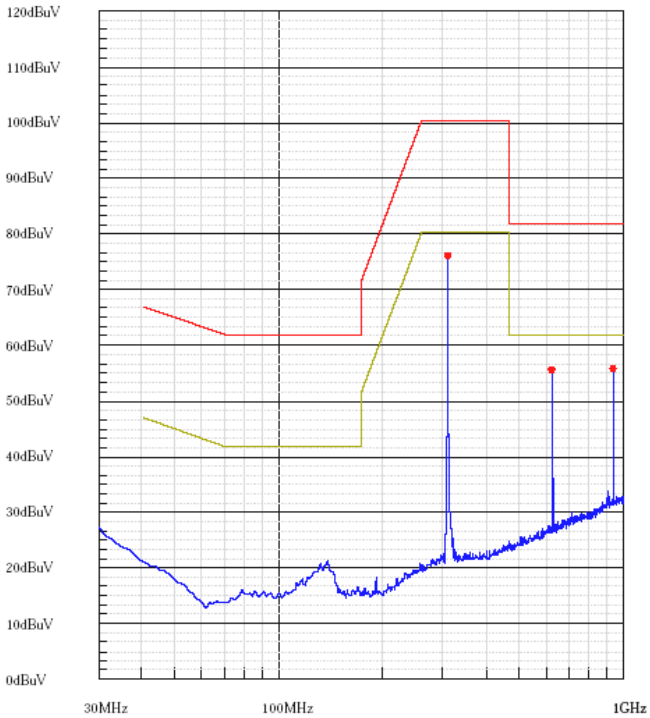


Y-axis Horizontal

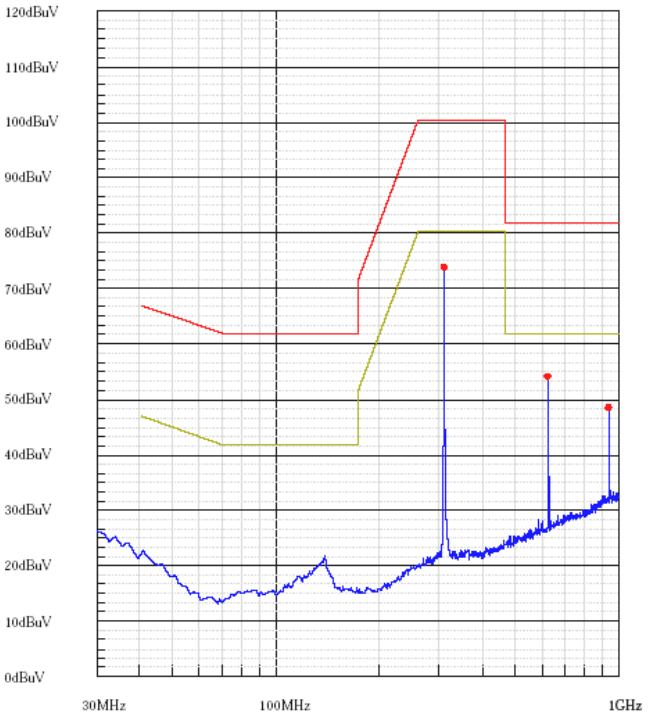


Y-axis Vertical

TEST DATA



Z-axis Horizontal



Z-axis Horizontal

TEST DATA

Radiated Emissions; Above 70MHz (Section 15.231)

FCC ID : HH8TXA-3B527

Frequency range : Above 1GHz

(X-axis)

Frequency (MHz)	Reading(dB μ V)		Pol* (H/V)	D.C.F (dB)	AF+CL +Amp (dB)**	Result(dB μ V/m)		Limit(dB μ V/m)		Margin(dB)	
	PK	AV				PK	AV	PK	AV	PK	AV
1260.00	57.90	43.20	H	-6.80	-4.00	47.10	32.40	65.62	55.62	18.52	23.22
***1570.00	56.15	44.30	V	-6.80	-2.20	47.15	35.30	74.00	54.00	26.85	18.70
1890.00	54.75	44.50	V	-6.80	-5.65	42.30	32.05	65.62	55.62	23.32	23.57
***2200.00	44.80	43.50	V	-6.80	-0.25	37.75	36.45	74.00	54.00	36.25	17.55
***2520.00	43.70	44.20	V	-6.80	0.82	37.72	38.22	74.00	54.00	36.28	15.78
***2830.00	45.60	31.24	V	-6.80	2.84	41.64	27.28	74.00	54.00	32.36	26.72
3150.00	45.00	35.54	V	-6.80	4.05	42.25	32.79	65.62	55.62	23.37	22.83
3460.00	44.45	34.45	H	-6.80	7.30	44.95	34.95	65.62	55.62	20.67	20.67
***3780.00	49.05	37.45	H	-6.80	7.25	49.50	37.90	74.00	54.00	24.50	16.10

(Y-axis)

Frequency (MHz)	Reading(dB μ V)		Pol* (H/V)	D.C.F (dB)	AF+CL +Amp (dB)**	Result(dB μ V/m)		Limit(dB μ V/m)		Margin(dB)	
	PK	AV				PK	AV	PK	AV	PK	AV
1260.00	61.45	47.05	V	-6.80	-4.00	50.65	36.25	65.62	55.62	14.97	19.37
***1570.00	60.50	46.35	V	-6.80	-2.20	51.50	37.35	74.00	54.00	22.50	16.65
1890.00	49.85	38.15	V	-6.80	-5.65	37.40	25.70	65.62	55.62	28.22	29.92
***2200.00	50.10	39.30	V	-6.80	-0.25	43.05	32.25	74.00	54.00	30.95	21.75
***2520.00	49.10	39.65	V	-6.80	0.82	43.12	33.67	74.00	54.00	30.88	20.33
***2830.00	50.70	39.00	V	-6.80	2.84	46.74	35.04	74.00	54.00	27.26	18.96
3150.00	49.65	39.20	V	-6.80	4.05	46.90	36.45	65.62	55.62	18.72	19.17
3460.00	46.45	36.50	V	-6.80	7.30	46.95	37.00	65.62	55.62	18.67	18.62
***3780.00	47.60	33.25	H	-6.80	7.25	48.05	33.70	74.00	54.00	25.95	20.30

(Z-axis)

Frequency (MHz)	Reading(dB μ V)		Pol* (H/V)	D.C.F (dB)	AF+CL +Amp (dB)**	Result(dB μ V/m)		Limit(dB μ V/m)		Margin(dB)	
	PK	AV				PK	AV	PK	AV	PK	AV
1260.00	52.00	40.32	V	-6.80	-4.00	41.20	29.52	65.62	55.62	24.42	26.10
***1570.00	55.80	43.24	V	-6.80	-2.20	46.80	34.24	74.00	54.00	27.20	19.76
1890.00	49.10	39.24	V	-6.80	-5.65	36.65	26.79	65.62	55.62	28.97	28.83
***2200.00	45.70	35.50	V	-6.80	-0.25	38.65	28.45	74.00	54.00	35.35	25.55
***2520.00	43.90	35.24	V	-6.80	0.82	37.92	29.26	74.00	54.00	36.08	24.74
***2830.00	52.60	37.43	V	-6.80	2.84	48.64	33.47	74.00	54.00	25.36	20.53
3150.00	50.65	40.45	H	-6.80	4.05	47.90	37.70	65.62	55.62	17.72	17.92
3460.00	50.80	40.54	V	-6.80	7.30	51.30	41.04	65.62	55.62	14.32	14.58
***3780.00	51.00	38.92	V	-6.80	7.25	51.45	39.37	74.00	54.00	22.55	14.63

Table 3. Radiated Measurements at 3meters

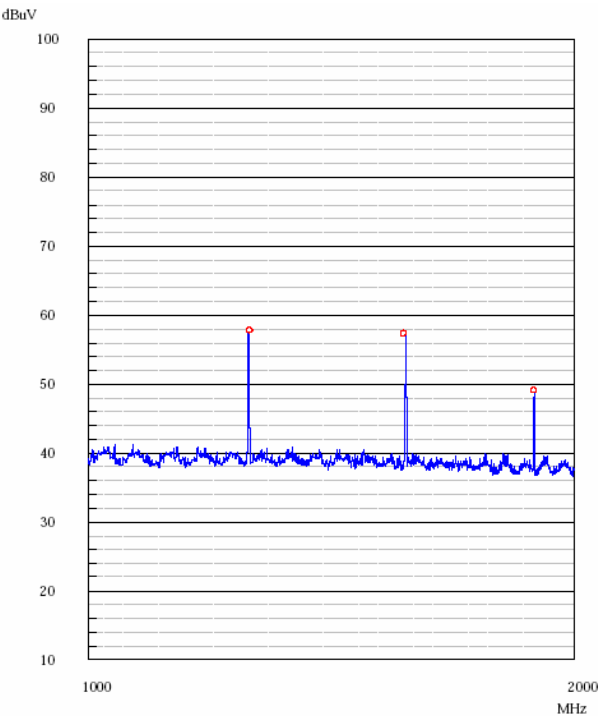
NOTES:

- *Pol. H =Horizontal V=Vertical
- **CL+Amp+AF = Cable Loss + Amplifier + Antenna Factor
- *** The limit at § 15.205 restricted bands of operation is the table shown in § 15.209.
- The Antenna is manipulated through typical positions and length during the tests.
- The emissions are maximized by changing polarity of the antenna.
- The preliminary radiated emissions testing was made by rotating through three orthogonal axes.
- The bandwidth of the emission at 20dB point shall be no wider than 0.25% of the center frequency.
- Up to the 10th harmonics were investigated according to § 15.33 and the worst –case is reported.
- “Duty Cycle Factor (D.C.F) = $20\log(29.79 / 65.25) = -6.80\text{dB}$ (Please see the page 23)

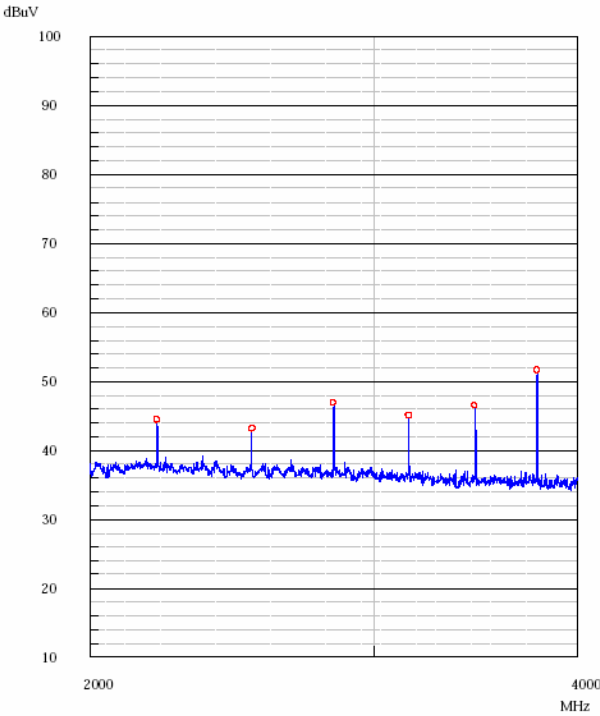
Baek Sung-hun

Tested by S. H. Baek

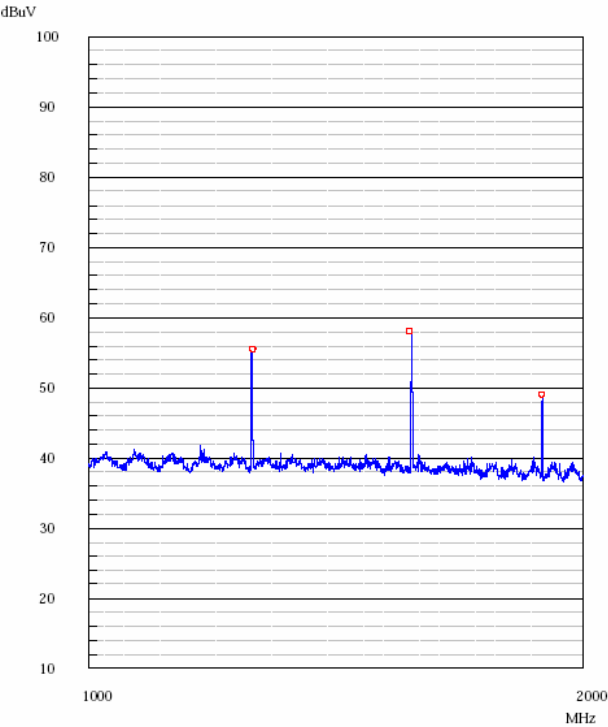
TEST DATA



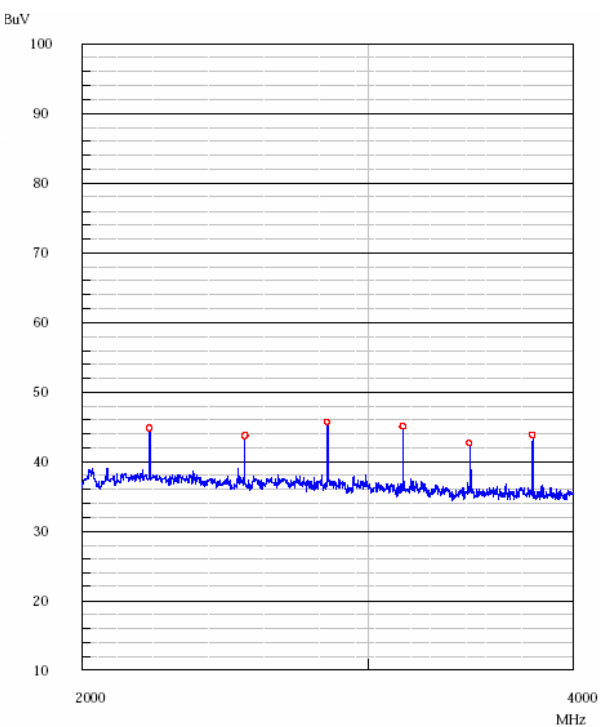
X-axis Horizontal (1GHz ~ 2GHz)



X-axis Horizontal (2GHz ~ 4GHz)

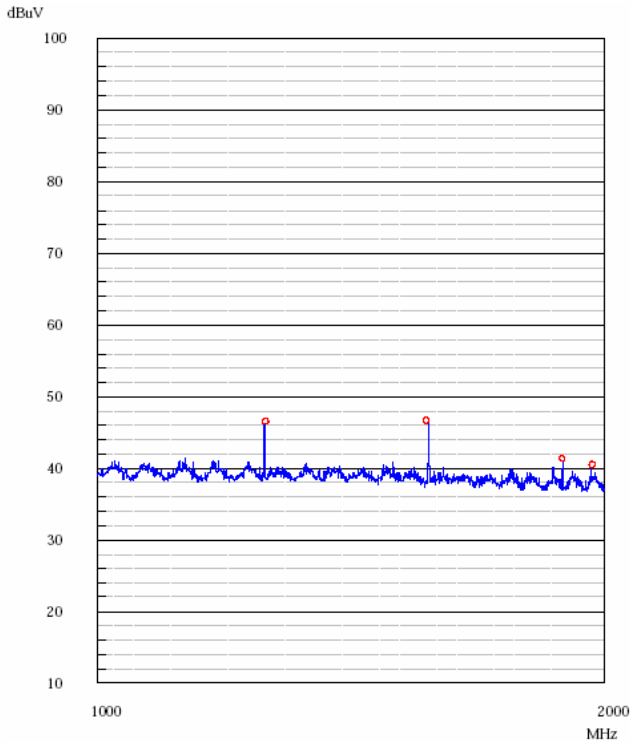


X-axis Vertical (1GHz ~ 2GHz)

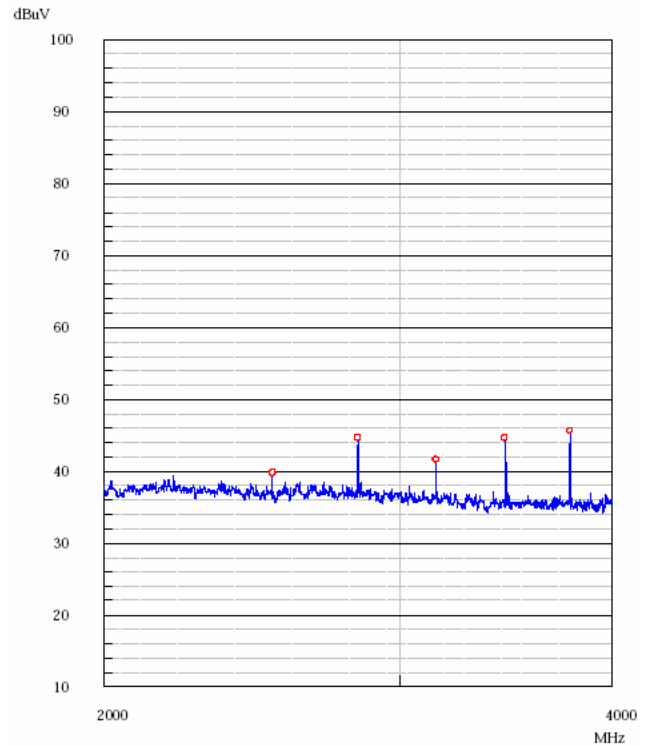


X-axis Vertical (2GHz ~ 4GHz)

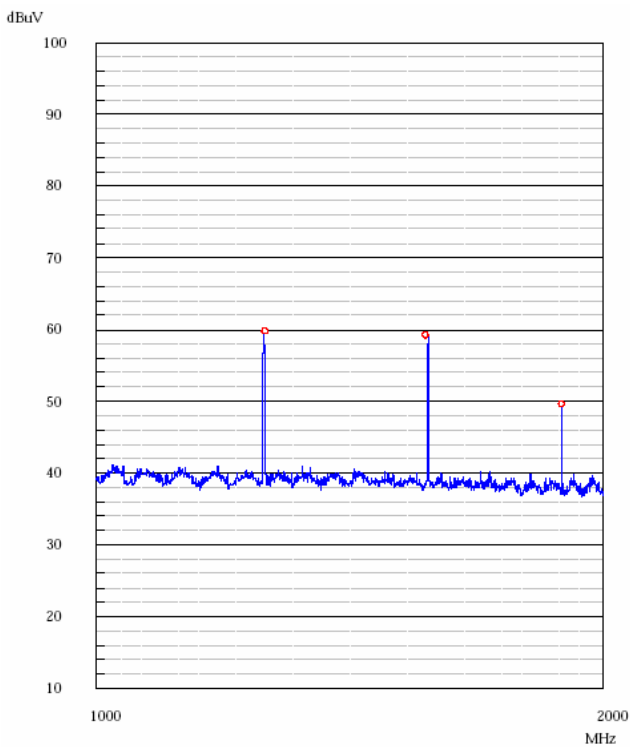
TEST DATA



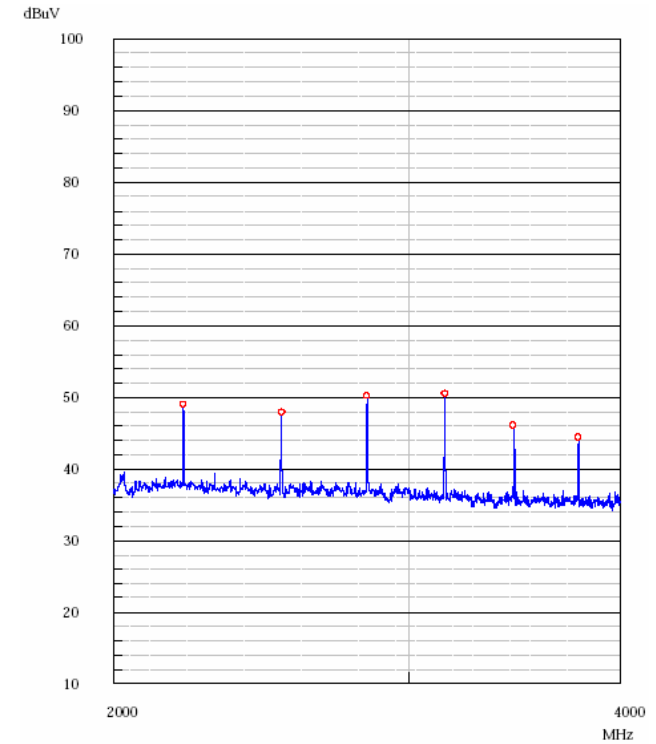
Y-axis Horizontal (1GHz ~ 2GHz)



Y-axis Horizontal (2GHz ~ 4GHz)

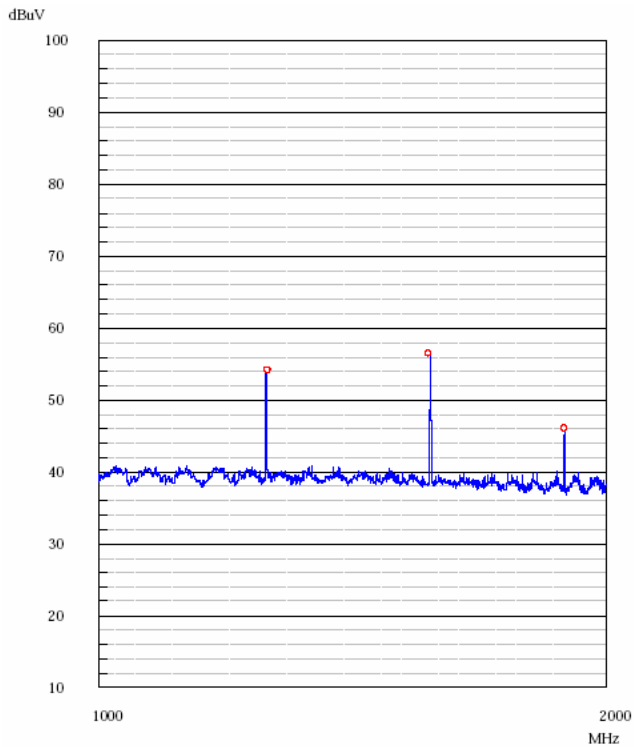


Y-axis Vertical (1GHz ~ 2GHz)

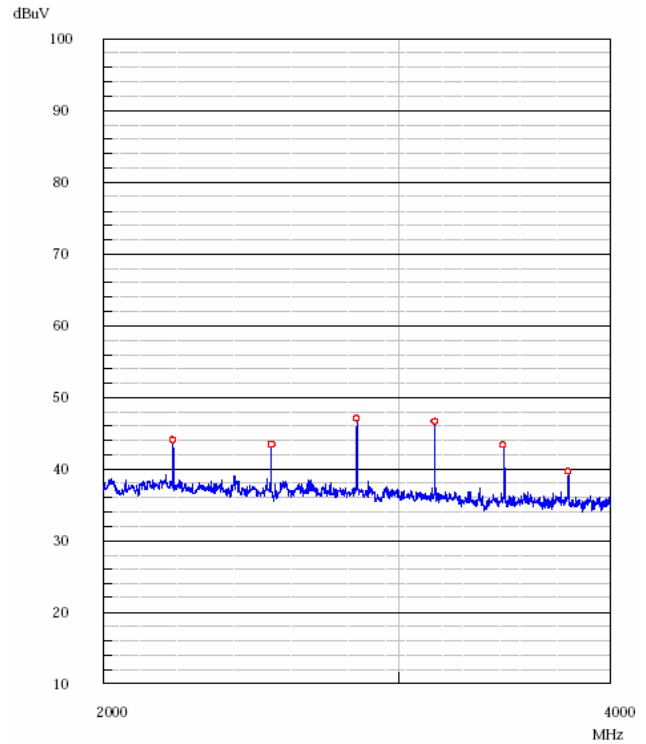


Y-axis Vertical (2GHz ~ 4GHz)

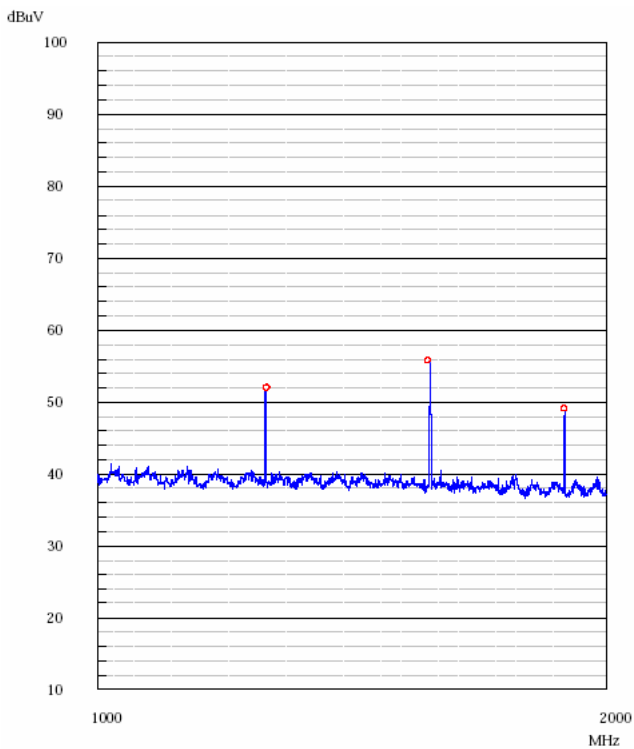
TEST DATA



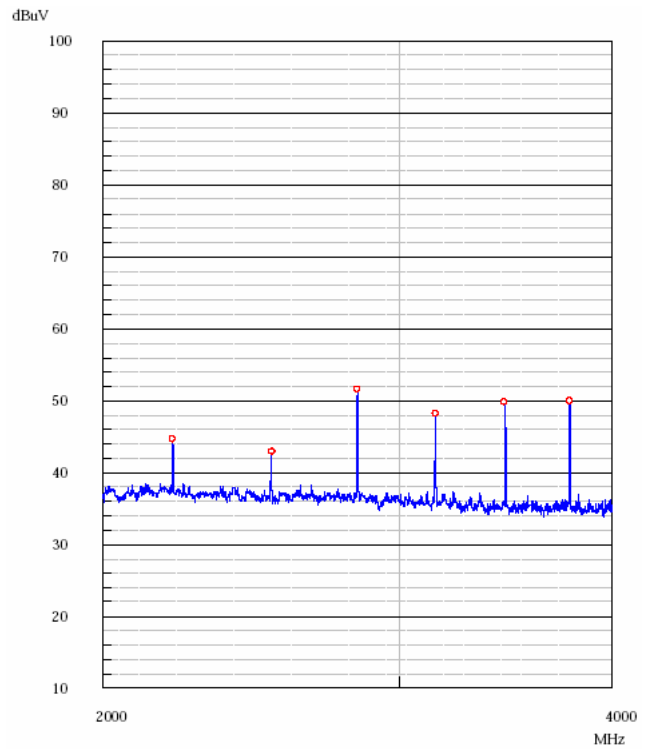
Z-axis Horizontal (1GHz ~ 2GHz)



Z-axis Horizontal (2GHz ~ 4GHz)



Z-axis Vertical (1GHz ~ 2GHz)



Z-axis Vertical (2GHz ~ 4GHz)

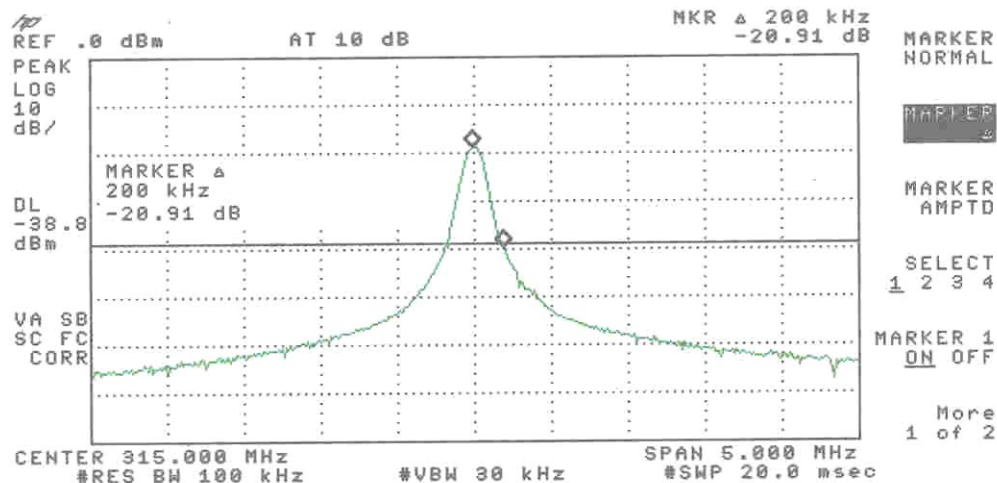
PLOTS OF EMISSIONS(Section 15.231(c))

Occupied bandwidth was performed by coupling the output of the EUT to the input of a spectrum analyzer.

FCC Part 15.231 states that the 20dB bandwidth of the modulated carrier shall be no greater than the limits shown in the following Table.

Frequency Range (MHz)	Occupied Bandwidth Limit
70-900MHz	0.25%

Occupied bandwidth Test Data



Occupied bandwidth Test Results

Frequency (MHz)	Bandwidth	Limit	Pass/Fail
315.00MHz	0.4MHz	0.787MHz	Pass

Figure of Duty Cycle(Section 15.35(c))

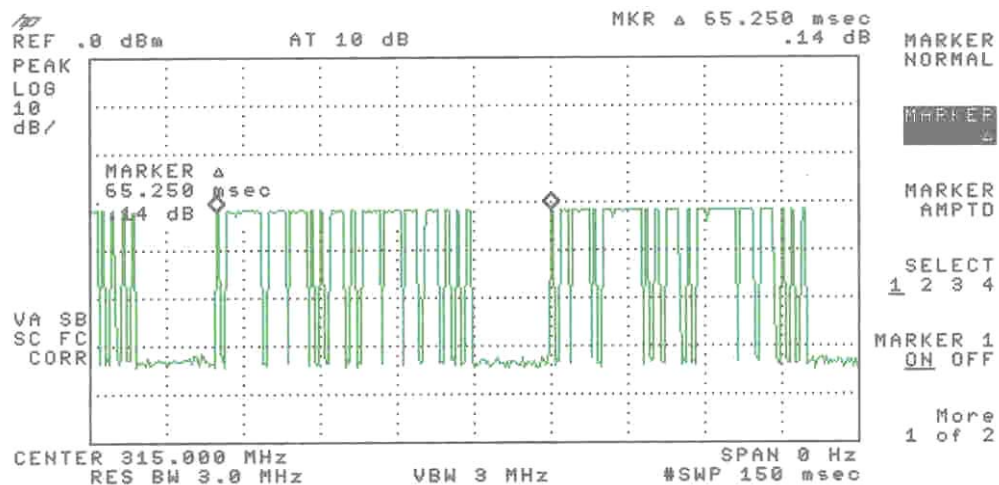
Duty Cycle Correction

Measurements may be adjusted where pulsed RF is utilized to find the average level associated with a quantity.

This calculation is applied to limits for pulsed licensed and unlicensed devices

The following show the plots of the modulated carrier. The spectrum analyzer was set to Zero Span. Calculations of the duty cycle correction factor were obtained from time provided by the plots.

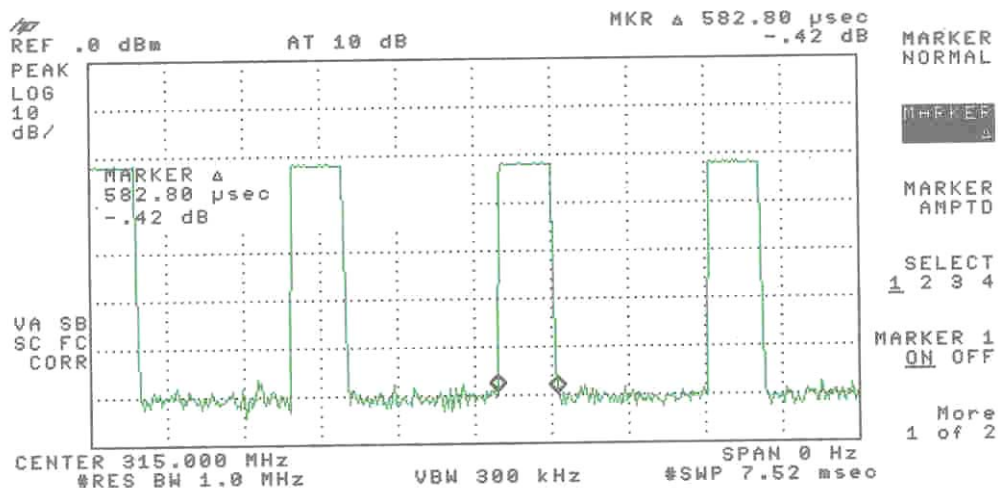
1. Total Time Per Code Group Test Data



Total Time = 65.250 msec (Period)

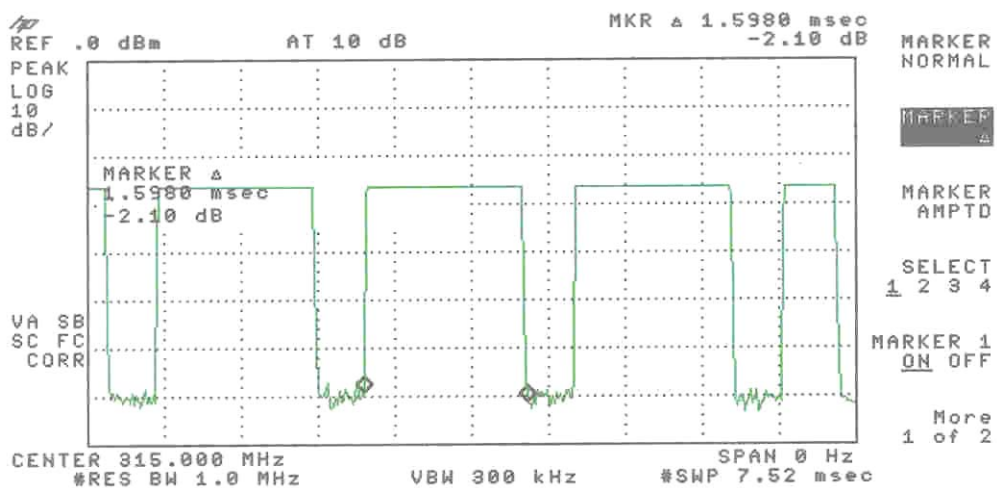
Figure of Duty Cycle(Section 15.35(c))

2.1 On Time Group Test Data



$$\text{On Time Group} = 0.5828 \text{ msec} * 10\text{EA} = 5.828 \text{ msec}$$

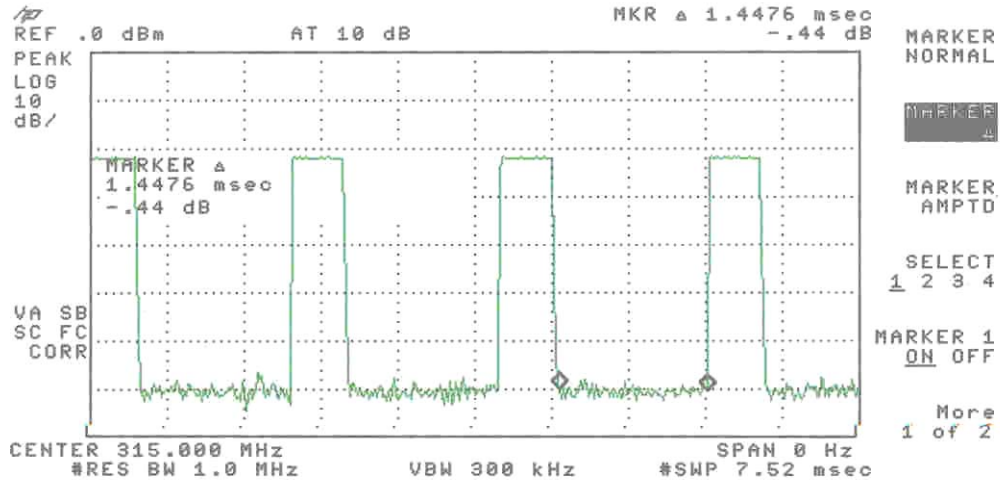
2.2 On Time Group Test Data



$$\text{On Time Group} = 1.5980 \text{ msec} * 15\text{EA} = 23.97 \text{ msec}$$

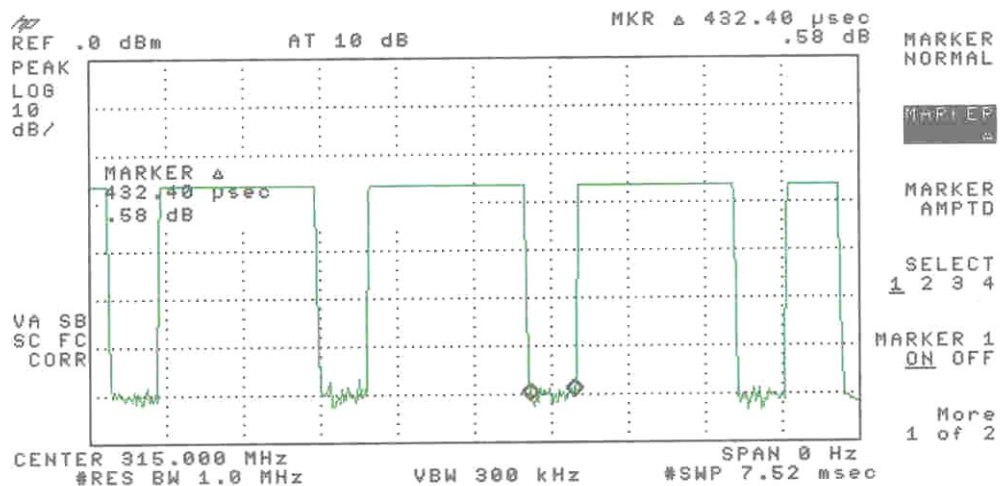
Figure of Duty Cycle(Section 15.35(c))

3.1 OFF Time Group Test Data



OFF Time Group = 1.4476 msec

3.2 OFF Time Group Test Data



OFF Time Group = 0.432 msec

Figure of Duty Cycle(Section 15.35(c))

From the data in Figure the following calculations are made.

1. Arm(Lock) / Disarm(Unlock) Key

On Time Group : $(1.5980 \text{ msec} * 10\text{EA}) + (0.5828 \text{ msec} * 11\text{EA}) = 22.390 \text{ msec}$

Total Time = 65.250 msec

Duty Cycle Factor (D.C.F) = $20\log (22.390 / 65.250) = -9.29\text{dB}$

2. 2CH(Trunk release) Key

On Time Group : $(1.5980 \text{ msec} * 14\text{EA}) + (0.5828 \text{ msec} * 9\text{EA}) = 27.617 \text{ msec}$

Total Time = 65.250 msec

Duty Cycle Factor (D.C.F) = $20\log (27.617 / 65.250) = -7.46\text{dB}$

3. 3CH Key

On Time Group : $(1.5980 \text{ msec} * 15\text{EA}) + (0.5828 \text{ msec} * 10\text{EA}) = 29.798 \text{ msec}$

Total Time = 65.250 msec

Duty Cycle Factor (D.C.F) = $20\log (29.798 / 65.250) = -6.80\text{dB}$

** The measured field strength shall be determined from the average absolute voltage during a 0.1 second*

*** Duty Cycle Factor is different according to the kind of function key and recorded worst data(3CH Key).*

ACCURACY OF MEASUREMENT

The Measurement Uncertainties stated were calculated in accordance with the requirements of NIST Technical Note 1297 with the confidence level of 95%

1. Radiation Uncertainty Calculation

Contribution	Probability Distribution	Uncertainty(+/-dB)
Antenna Factor	Normal (k=2)	± 0.5
Cable Loss	Normal (k=2)	± 0.04
Receiver Specification	Rectangular	± 2.0
Antenna directivity	Rectangular	± 1.0
Antenna Factor variation with Height		
Antenna Phase Center Variation		
Antenna Factor Frequency Interpolation		
Measurement Distance Variation		
Site Imperfections	Rectangular	± 2.0
Mismatch:Receiver VRC $r_i=0.3$ Antenna VRC $r_R=0.1(B_i)0.4(L_p)$ Uncertainty Limits $20\log(1+/-r_i r_R)$	U-Shaped	$+ 0.25 / - 0.26$
System Repeatibility	Std.deviation	± 0.05
Repeatability of EUT	-	-
Combined Standard Uncertainty	Normal	± 1.77
Expended Uncertainty U	Normal (k=2)	± 3.5

2. Conducted Uncertainty Calculation

Contribution	Probability Distribution	Uncertainty(+/-dB)
Receiver Specification	Normal (k=2)	± 2.0
LISN coupling spec.	Normal (k=2)	± 0.4
Cable and input attenuator cal.	Rectangular	± 0.4
Mismatch:Receiver VRC $r_i=0.3$ LISN vrc $r_g=0.1$ Uncertainty Limits $20\log(1+/-r_i r_R)$	U-Shaped	± 0.26
System Repeatibility	Std.deviation	± 0.68
Repeatability of EUT	-	-
Combined Standard Uncertainty	Normal	± 1.18
Expended Uncertainty U	Normal (k=2)	± 2.4

TEST EQUIPMENT

No.	Instrument	Manufacturer	Model	Calibration Date
1	*Test Receiver	R & S	ESCS 30	2004.08
2	Test Receiver	R & S	ESCS 30	2003.12
3	*Amplifier	HP	8447F	2004.01
4	*Amplifier	HP	8449B	2004.03
5	*Spectrum Analyzer	HP	8566B	2004.03
6	Spectrum Analyzer	HP	8568B	2004.10
7	*Logbicon Super Antenna	Schwarzbeck	VULB9166	2004.05
8	*Horn Antenna	Schwarzbeck	BBHA9120A	2004.08
9	Dipole Antenna	R & S	VHA9103	2004.05
10	Dipole Antenna	R & S	UHA9105	2004.05
11	*Biconical Log Antenna	ARA	LPB-2520/A	2004.05
12	High Voltage Probe	R & S	ESH2-Z3	2004.06
13	Signal Generater	R & S	SMP02	2004.03
14	LISN	R & S	ESH3-Z5	2004.10
15	LISN	Kyoritsu	KNW-407	2004.03
16	LISN	Kyoritsu	KNW-408	2003.12
17	CDN	FCC	NCD-T4	2004.05
18	CDN	FCC	NCD-T2	2004.05
19	*Position Controller	EM Eng.	N/A	N/A
20	*Turn Table	EM Eng.	N/A	N/A
21	*Antenna Mast	EM Eng.	N/A	N/A
22	*Anechoic Chamber	EM Eng.	N/A	N/A

*) Test equipment used during the test

APPENDIX D– BLOCK DIAGRAM

APPENDIX E – USER’S MANUAL

APPENDIX F – Schematic Diagrams
