

TEST REPORT

Regulation : FCC Part15C – Section 15.247
Industry Canada RSS-210 Issue 7
(Frequency Hopping Spread Spectrum Systems)

Applicant	Testing Laboratory
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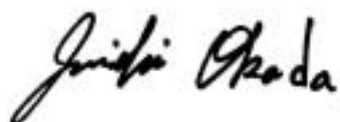
Equipment Type	Bluetooth Module
Category	Car Entertainment System
Trademark	JVC
Model (s)	NAU0004
Serial No.	00:0B:5D:8B:FE:03
FCC ID	ASIV7V002
IC	2320A-V7V002
Test Result	Complied
Report Number	ESJ-107172
Report Issue Date	September 20, 2007

This equipment has been shown to be capable of compliance with the applicable standard(s) as indicated in the test report. I attest to the accuracy of data. 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.

This test report shall not be reproduced partially, or in full, without the prior written approval of ETL SEMKO Japan K.K. The results and statements contained in this report pertain only to the equipment evaluated.

Approved by

Tested by




Junichi Okada
[Site Manager]

Kazuo Masuda



Lab Code 100290-0

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SECTION 1. GENERAL INFORMATION

TEST PERFORMED

Location	Kashima No.1 Test Site (FCC Reg. : 934283) (IC File No. : IC 2065A-1)
EUT Received	August 06, 2007
Test Started	August 07, 2007
Test Completed	August 21, 2007
Standard Applied	FCC Part15C – Section 15.247 Intentional Radiators Industry Canada RSS-210 Issue 7 Low Power Licence-Exempt Radiocommunication Devices (All Frequency Bands)
Test Setup	ANSI C63.4-2003
Deviation from Standard (s)	No deviation

TEST TRACEABILITY

Traceability to national standards of test result is achieved by means of calibration traceability to national or international standards.

LIMITATIONS ON RESULTS

The test result of this report is effective for equipment under test itself and under the test configuration described on the report.

This test report does not assure that whether the test result taken in other testing laboratory is compatible or reproducible to the test result on this report or not.

ABBREVIATIONS

AE = Associated Equipment

AMN = Artificial Mains Network

AMP = Amplifier, ATT = Attenuator

ANT = Antenna, BBA = Broadband Antenna

AVG = Average

Cal = Calibration

CDN = Coupling Decoupling Network

LCD = Liquid-Crystal Display

Ch = Channel

PSU = Power Supply Unit

DIP = Dipole Antenna

DoC = Device for Declaration of Conformity

EUT = Equipment Under Test

ISN = Impedance Stabilization Network

LISN = Line Impedance Stabilization Network

PK = Peak

Q-P = Quasi-peak

RX = Receive

TX = Transmit

SECTION 2. SUMMARY OF RESULTS

Test	Reference < FCC >	Reference < IC >	Result
20dB Bandwidth	15.247(a)(1)	A8.1(a)	Complied
Carrier Frequency Separation	15.247(a)(1)	A8.1(b)	Complied
Number of Hopping Frequencies	15.247(a)(1)(iii)	A8.1(d)	Complied
Time of Occupancy (Dwell Time)	15.247(a)(1)(iii)	A8.1(d)	Complied
Maximum Peak Output Power - RF Antenna Conducted	15.247(b)(1)	A8.1(b) A8.4(2)	Complied
Band Edge Compliance of RF Conducted Emissions	15.247(d)	A8.5	Complied
Spurious Emissions - RF Antenna Conducted	15.247(d)	A8.5	Complied
Spurious Emissions - Radiated	15.247(d) 15.205, 15.209	A8.5	Complied
Restricted Bands of Operation	15.247(d) 15.205, 15.209	A8.5 (2.7 Table 1)	Complied
Power Spectral Density	15.247(e)	A8.2	Complied
Variation Carrier Output Power	15.31(e)	2.1	Complied
Variation Carrier Frequency Stability	15.31(e)	2.1	Complied

Note : As for the FCC Part 15 Subpart B-Unintentional Radiators, the EUT has been measured and declared as Verification by Victor Company of Japan, Limited.

SECTION 3. INFORMATION ABOUT EUT

The equipment under test (EUT) consisted of the following equipment.

3.1 List of System Configuration

Symbol	Item	Model No.	Serial No.	Manufacturer	Notes	FCC ID
A1	Bluetooth Module	NAU0004	00:0B:5D:8B:FE:03	Sony EMCS Corporation Senmaya TEC	EUT	ASIV7V002
A2	Pattern Antenna	BT ANT	None	JVC	EUT	ASIV7V002
Power Ratings of EUT : DC 2.9 – 3.6 V						
Power Supply : DC 3.3V						
Condition of Equipment		Prototype				
Type		Built-in				

3.2 Overview of EUT :

Frequency Ranges	2402 – 2480 MHz
Communication Method	Bluetooth specification Ver.2.0
Number of RF Channel	79
Carrier Spacing	1.0 MHz
Modulation Method	Gaussian Frequency Shift Keying (GFSK)
Spread Method	Frequency Hopping Spread Spectrum (FHSS)
Nominal Hop Rate	1600 hops/sec.
Symbol Rate on channel	1 Mbps
Receiver Input Bandwidth	1 MHz
Output Power	3.57dBm (Measurement value)
Antenna Gain	-0.18dBi (Maximum)

Note :

3.3 Oscillator(s) / Crystal (s) :

Oscillator	Operating Frequency	Board Name	Notes
24 MHz	2402 – 2480 MHz	Bluetooth Module	

3.4 Port(s)/Connector(s) :

Port Name	Connector Type	Connector Pin (Line)	Notes
UART	—	4 line	
SPI	—	4 line	
Audio In	—	4 line	
Audio Out	—	4 line	
GPIO	—	15 line	

3.5 Frequency allocation :

Channel Number	Frequency (MHz)	Note
1	2402	Tested Chanel (Low)
2	2403	
3	2404	
.	.	
.	.	
.	.	
39	2440	
40	2441	Tested Chanel (Mid)
41	2442	
.	.	
.	.	
.	.	
77	2478	
78	2479	
79	2480	Tested Chanel (High)

SECTION 4. SUPPORT EQUIPMENT(S)

The EUT was supported by the following equipment during the test.

Symbol	Item	Model No.	Serial No.	Manufacturer	FCC ID / DoC	Note
B	Board	Type 1	None	FUJITSU DEVICES	N.A.	
C	Computer	PSJ40N-06R002	65112984H	TOSHIBA	DoC	
D	Mouse	M-S34	LNA12785508	DELL	DZL211029	
E	AC Adaptor	PA3282U-1ACA	G71C0002S410	TOSHIBA	N.A.	
F	DC Power Sply	PS-3020	301207	DAIWA	N.A.	
Power Supply :						
E	AC120V,60Hz					
F	AC100V,50Hz					

Note : Every test was done with a testing board and a computer because it is not possible to use commercial goods (Car Entertainment System) due to the program during the test.

The testing board (M/N:Type1) which was used for the test doesn't affect RF quality of EUT.

– See Annex C –

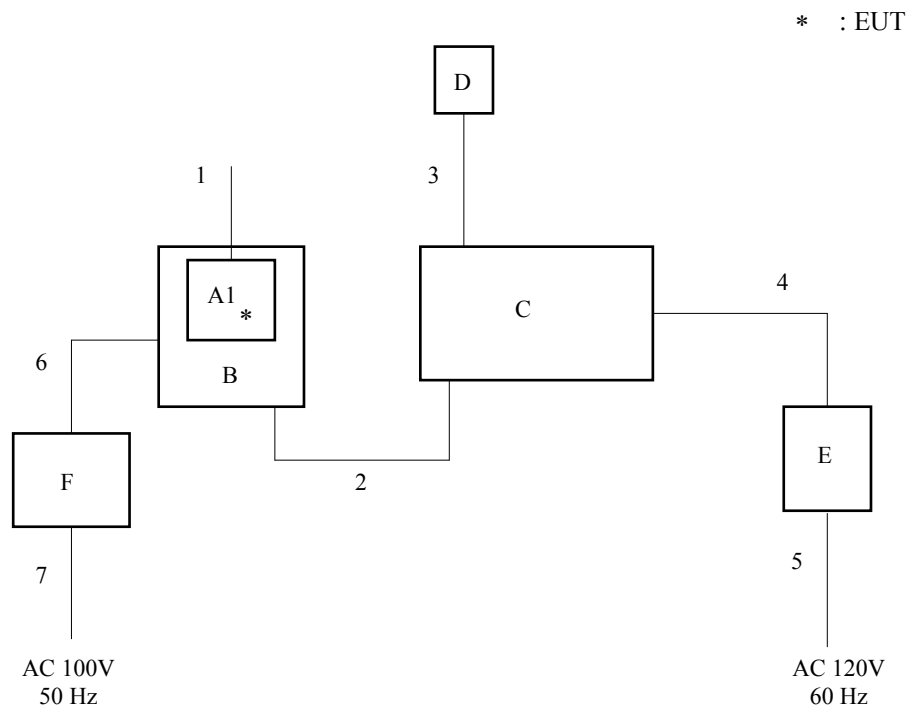
SECTION 5. USED CABLE(S)

The following cable(s) was used for the test.

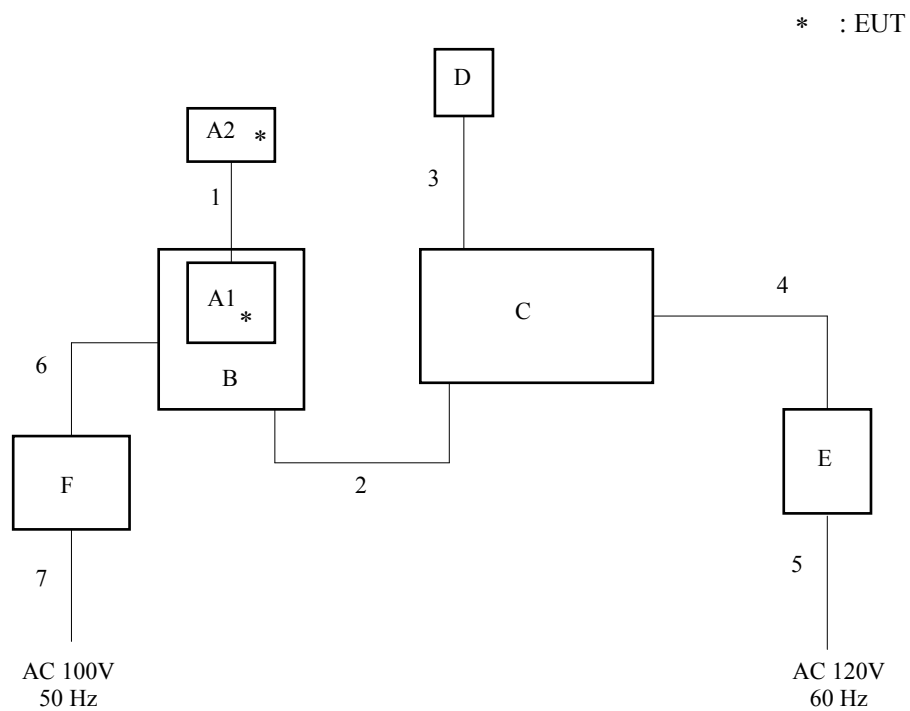
No.	Name	Length (m)	Shield	Connector Type	Ferrite Core
1	Antenna cable	0.08 m	Yes	Metal	
2	UART cable	1.5 m	Yes	Metal	
3	Mouse cable	1.8 m	Yes	Metal	
4	Power cable for Computer (DC)	1.7 m	No		
5	Power cable for Computer (AC)	2.0 m	No		
6	Power cable for PSU (DC)	1.4 m	No		
7	Power cable for PSU (AC)	1.8 m	No		

SECTION 6. CONSTRUCTION OF EQUIPMENT

6.1 RF Conducted Emission Test



6.2 Radiated Emission Test



The symbols and numbers assigned to the equipments and cables on this diagram correspond to the ones in Sections 3 to 5.

SECTION 7. OPERATING CONDITION

The EUT was operated under the following conditions during the test.

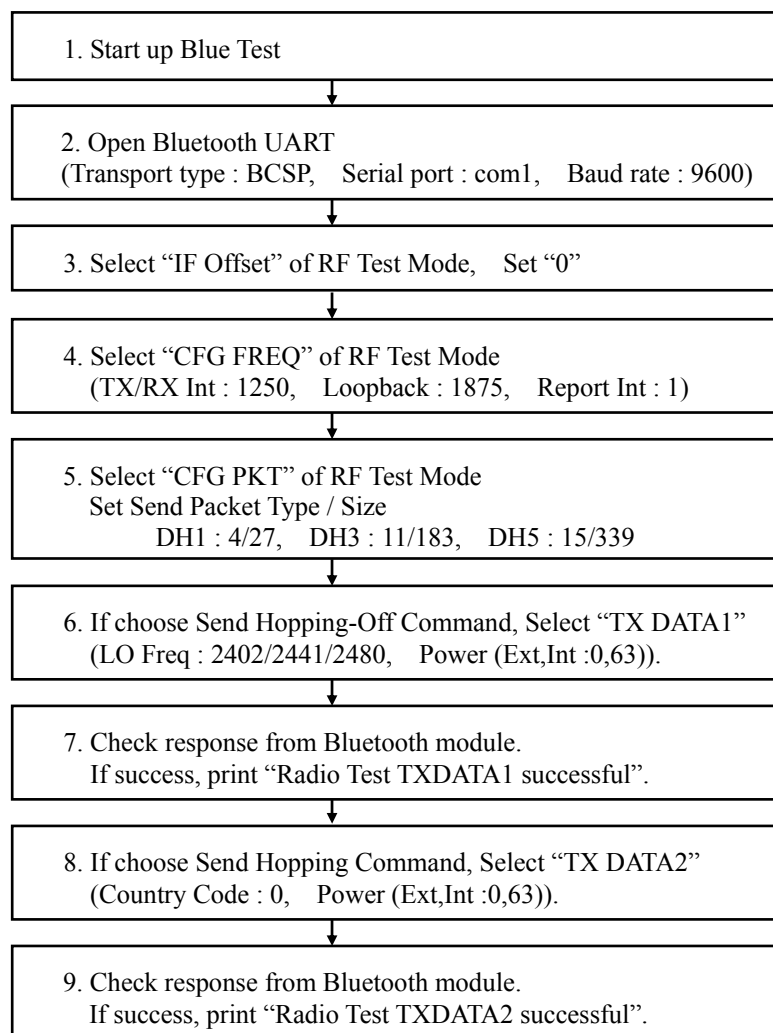
7.1 Operating condition

The test was carried out under TX mode, Inquiry mode and Page mode.
EUT was examined in the operating conditions that had maximum emissions.

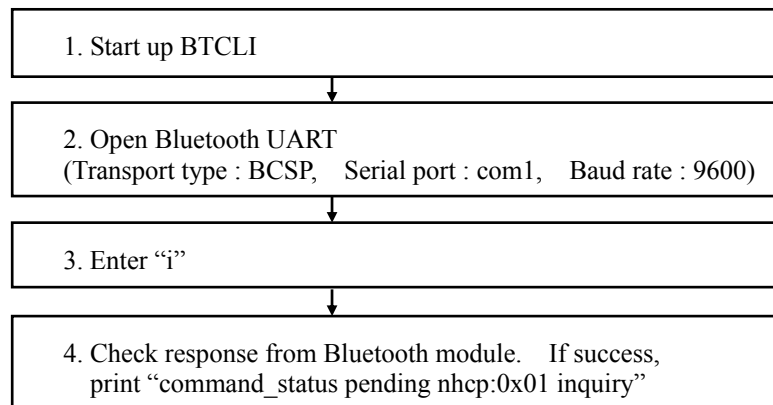
7.2 Operating flow

Following programs were performed continuously.

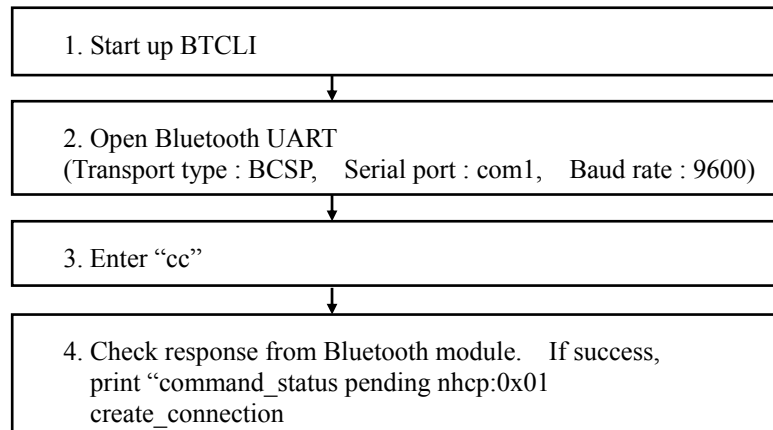
7.2.1 TX mode



7.2.2 Inquiry mode



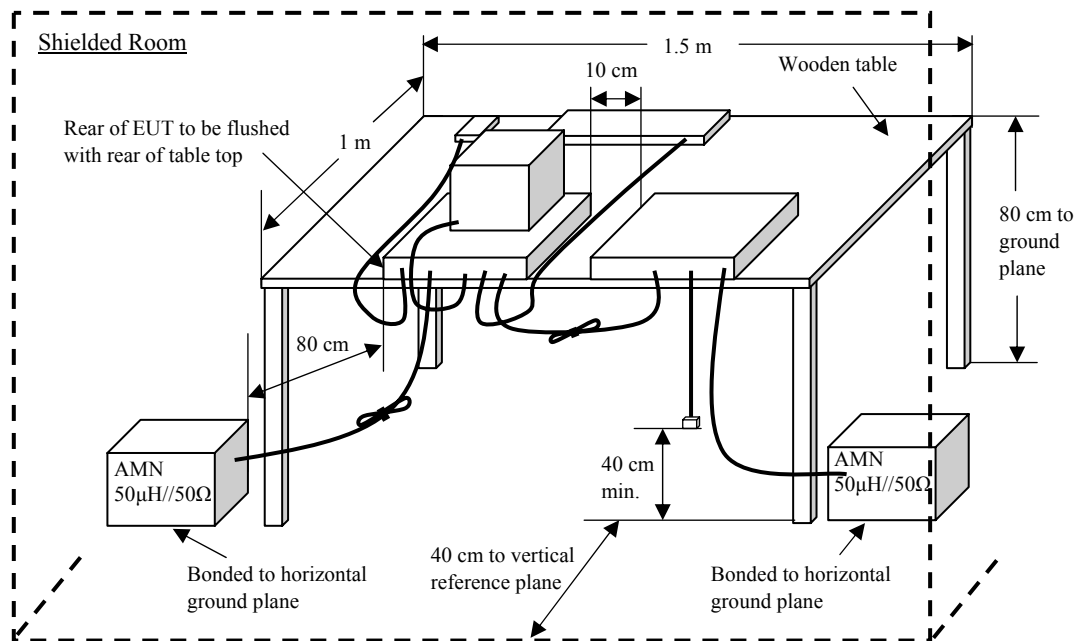
7.2.3 Page mode



SECTION 8. TEST PROCEDURE(S)

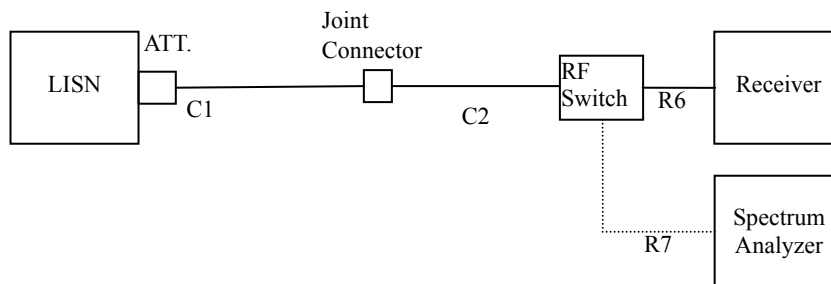
Test was carried out under the following conditions.

Conducted Voltages on Mains Port



* Reference Ground plane : greater than 2 x 2m

Schema for the conducted voltages on mains port measurement



[Instrument Setup]

Frequency [MHz]	Instrument	Detector Function	Resolution Bandwidth	Video Bandwidth
0.15 – 30	Receiver	Quasi Peak	10 kHz	N.A.
		Average	10 kHz	N.A.

[Preliminary Measurement]

EUT is tested on all operating conditions.

The spectrum analyzer is controlled by the computer program to sweep the frequency range to be measured, then spectrum chart are plotted out to find the worst emission conditions in operating mode and/or configuration decision for the final test.

All leads other than safety ground are tested.

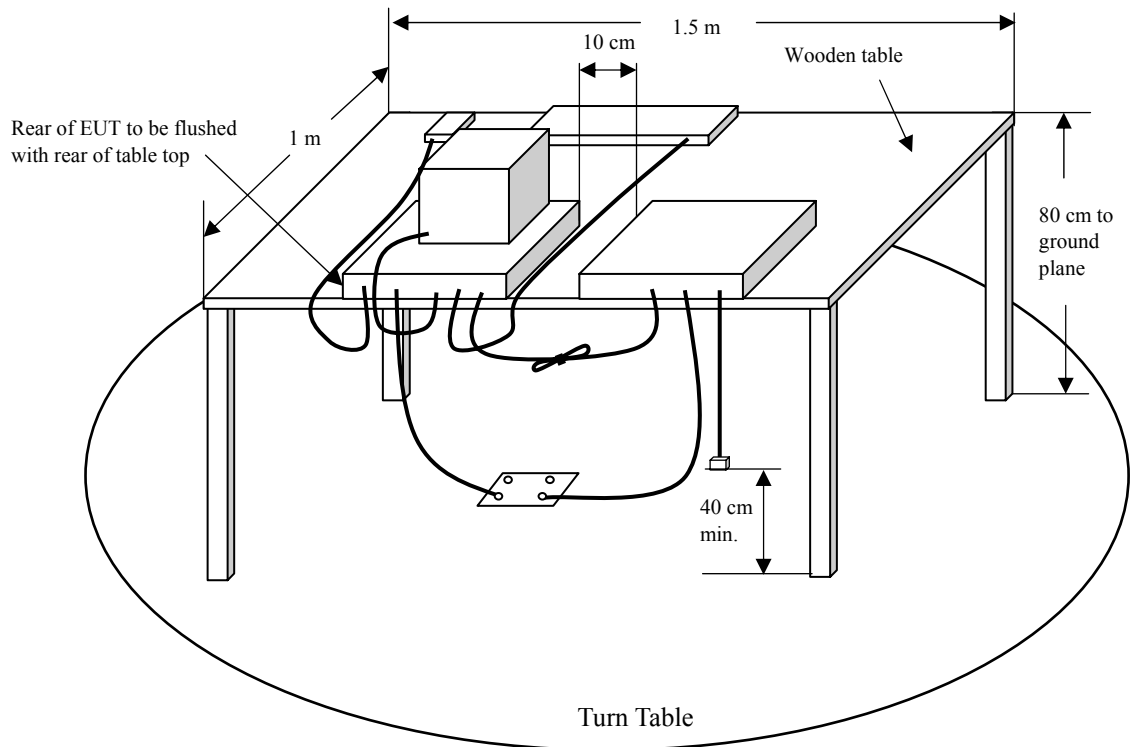
[Final Measurement]

The EUT is operated in the worst emission condition found by the preliminary test.

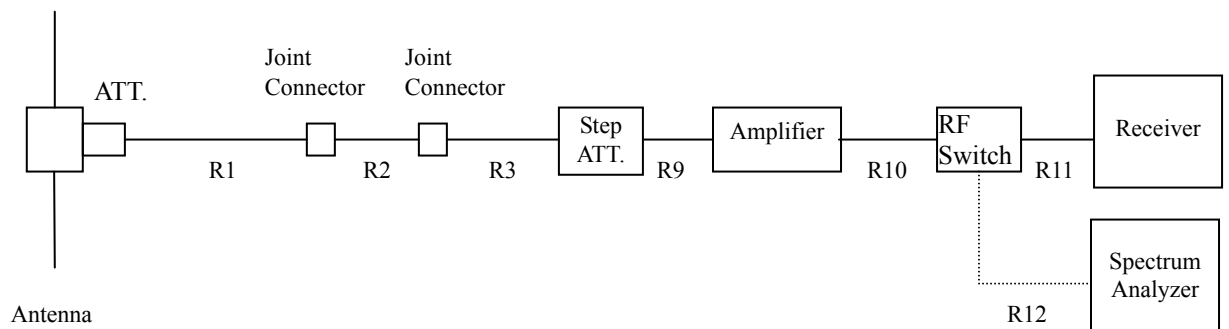
The equipment and cables are arranged or manipulated within the range of the test standard in the above condition.

At least six highest spectrum are measured in quasi-peak and average (if necessary) using the test receiver.

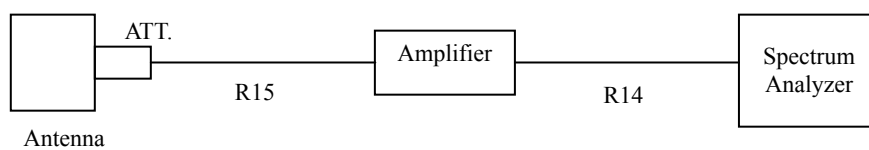
Radiated Electric Field



Schema for the radiated electric field measurement (30-1000MHz)



Above 1GHz



[Instrument Setup]

Frequency [MHz]	Instrument	Detector Function	Resolution Bandwidth	Video Bandwidth
30 to 1000	Receiver	Quasi Peak	120 kHz	N.A.
Above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz
		Average	1 MHz	10 Hz

[Preliminary Measurement]

EUT is tested on all operating conditions.

The spectrum analyzer is set max-hold mode and swept during turntable was rotated 0 to 360 degree. Then spectrum chart are plotted out to find the worst emission conditions in configuration, operating mode, or ambient noise notation.

[Final Measurement]

The EUT operated in the worst emission condition found by the preliminary test.

The turntable azimuth (EUT direction) and antenna height (1 to 4 meters) are adjusted the position so that maximum field strength is obtained for each frequency spectrum to be measured.

The equipment and cables are arranged or manipulated within the range of the test standard in the above condition.

At least six highest spectrum are measured by the test receiver (quasi-peak) and spectrum analyzer (peak and average).

When the uncertain result was obtained, the measurement is retried by using the half wave dipole antenna instead of the broadband antenna.

SECTION 9. EVALUTION OF TEST RESULTS

9.1 20dB Bandwidth [15.247(a)(1)]

9.1.1 MEASUREMENT PROCEDURE:

- The Spectrum Analyzer was connected directly to the antenna cable port .
- The Spectrum Analyzer was setup using RBW = 30kHz, VBW = 30kHz, span = 3.0MHz and sweep time = Auto.
- Following data is the worst case.
- The next page shows the chart of the observed RF profiles.

9.1.2 TX mode

The EUT was set to operate with following conditions.

- Hopping Off [ch 1(low), ch 40(mid) and ch 79(high)]
- DH5 packet (Max. Length of 5 time slots)

Test date : August 16, 2007
Temperature : 25 °C
Humidity : 53 %

[TX mode] – DH5 packet (Max. Length of 5 time slots)

Ch	Frequency (MHz)	20dB Bandwidth (MHz)
1	2402.0	0.936
40	2441.0	0.831
79	2480.0	0.834

9.1.3 Inquiry mode and Page mode

The EUT was set to operate with following conditions.

- Hopping Off [ch 40(:Inquiry), ch 39(:Page)]

Test date : August 16, 2007
Temperature : 25 °C
Humidity : 53 %

[Inquiry mode]

Ch	Frequency (MHz)	20dB Bandwidth (MHz)
40	2441.0	0.765

[Page mode]

Ch	Frequency (MHz)	20dB Bandwidth (MHz)
39	2440.0	0.669

Chart of TX mode [Ch:1]



Chart of TX mode [Ch:40]



Chart of TX mode [Ch:79]



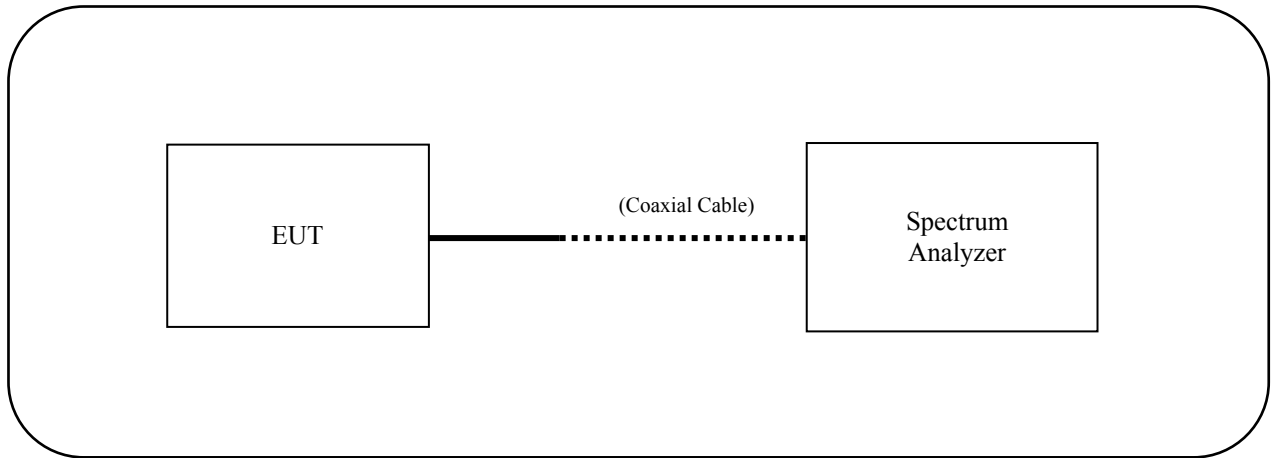
Chart of Inquiry mode



Chart of Page mode



TEST INSTRUMENTS CONFIGURATION



Instrument	Model No.	Serial No.	Manufacturer	Cal. Date	Calibration Expired
Spectrum Analyzer	R3182	111100429	ADVANTEST	Mar. 26, 07	Mar. 31, 08
Coaxial cable	5B-048-98-98-500	040511	Candox Systems	Jul. 17, 07	Jul. 31, 08

9.2 Carrier Frequency Separation [15.247(a)(1)]

9.2.1 MEASUREMENT PROCEDURE:

- The Spectrum Analyzer was connected directly to the antenna cable port.
- The Spectrum Analyzer was setup using RBW = 100kHz, VBW = 300kHz, span = 5MHz and sweep time = Auto.
- The measurements were carried out between each of 5 hopping channels in the middle of the authorized band.
- The next shows the chart of the observed RF profiles.

9.2.2 TX mode

The EUT was set to operate with following conditions.

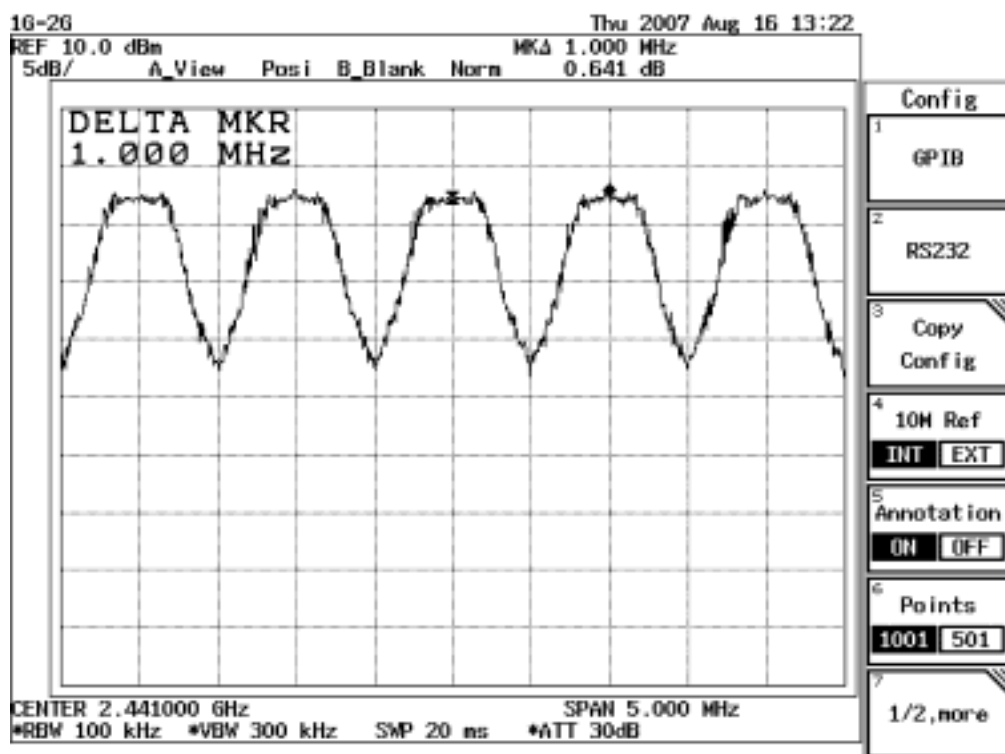
- Hopping On
- DH5 packet (Max. Length of 5 time slots)

Test date : August 16, 2007
Temperature : 25 °C
Humidity : 53 %

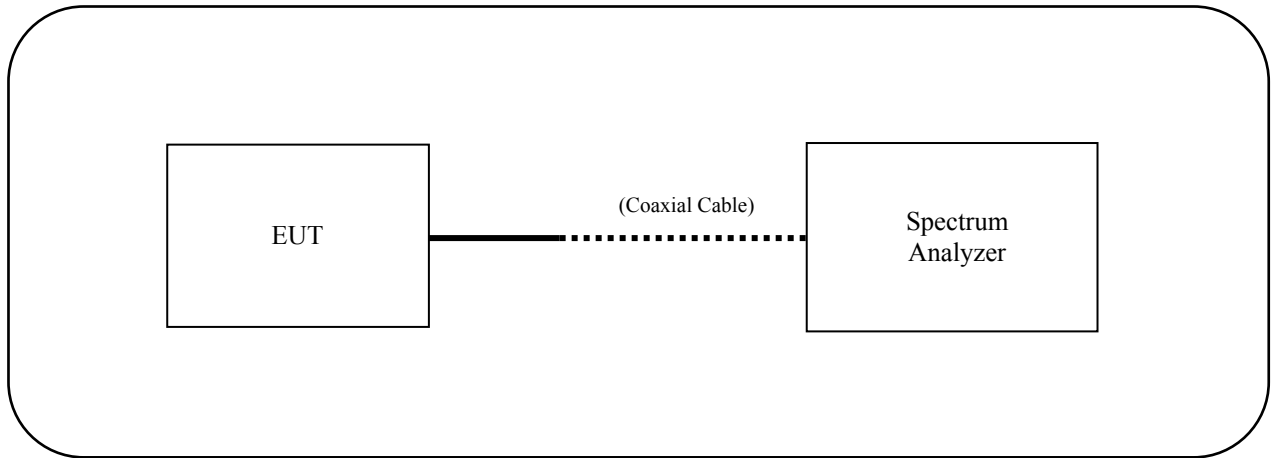
[TX mode] – DH5 packet (Max. Length of 5 time slots)

Channel Separation (MHz)	FCC Limit
1.000	Greater than 25kHz or 20dB bandwidth

Chart of Carrier Frequency Separation in ch 40



TEST INSTRUMENTS CONFIGURATION



Instrument	Model No.	Serial No.	Manufacturer	Cal. Date	Calibration Expired
Spectrum Analyzer	R3182	111100429	ADVANTEST	Mar. 26, 07	Mar. 31, 08
Coaxial cable	5B-048-98-98-500	040511	Candox Systems	Jul. 17, 07	Jul. 31, 08

9.3 Number of Hopping Frequencies [15.247(a)(1)(iii)]

9.3.1 MEASUREMENT PROCEDURE:

- The Spectrum Analyzer was connected directly to the antenna cable port.
- The Spectrum Analyzer was setup using RBW = 1.0MHz, VBW = 1.0MHz and sweep time = Auto.
- The next page shows the chart of the observed RF profiles.

9.3.2 TX mode

The EUT was set to operate with following conditions.

- Hopping On
- DH5 packet (Max. Length of 5 time slots)

Test date : August 08, 2007
Temperature : 25 °C
Humidity : 54 %

[TX mode] – DH5 packet (Max. Length of 5 time slots)

Number of Channels	FCC Limit
79	≥ 15

9.3.3 Inquiry mode and Page mode

The EUT was set to operate with following conditions.

- Hopping On

Test date : August 08, 2007
Temperature : 25 °C
Humidity : 54 %

[Inquiry mode]

Number of Channels	FCC Limit
32	≥ 15

[Page mode]

Number of Channels	FCC Limit
32	≥ 15

Chart of TX mode – DH5 packet (Max. Length of 5 time slots)

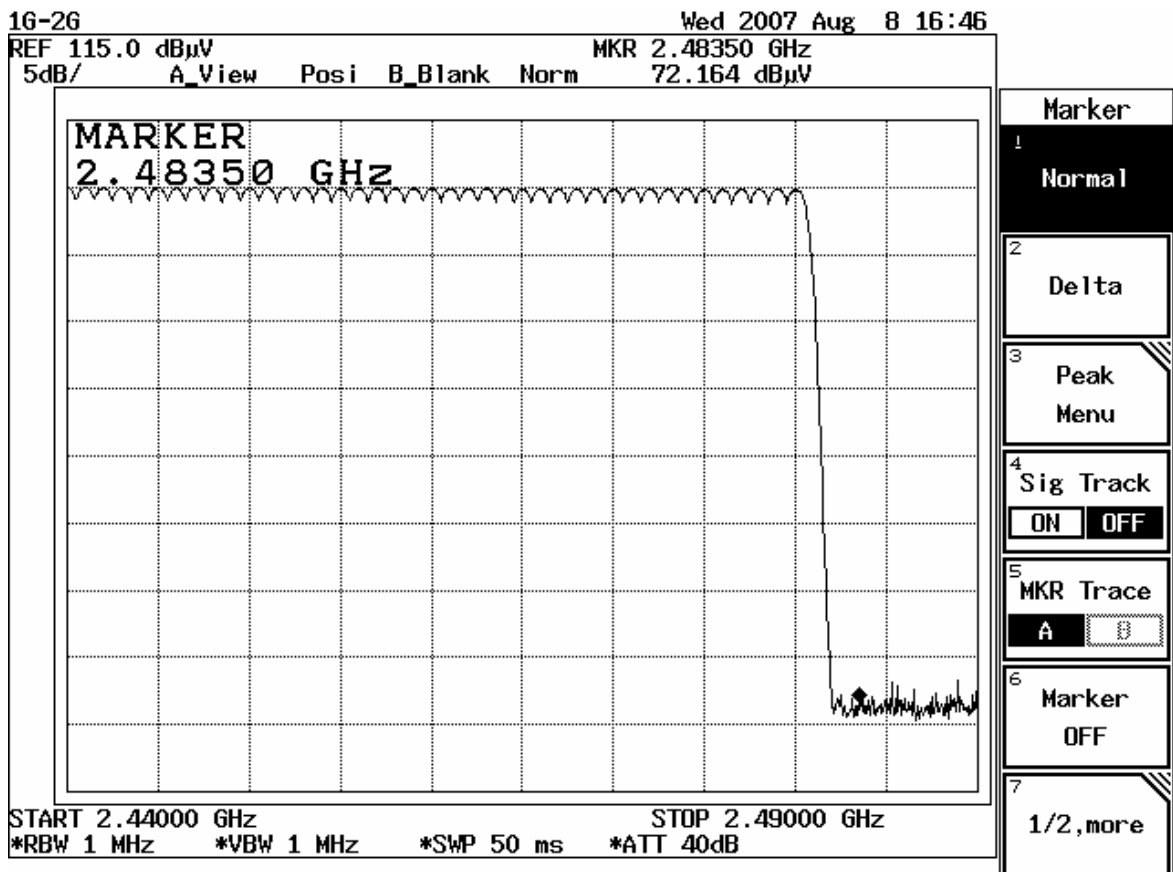
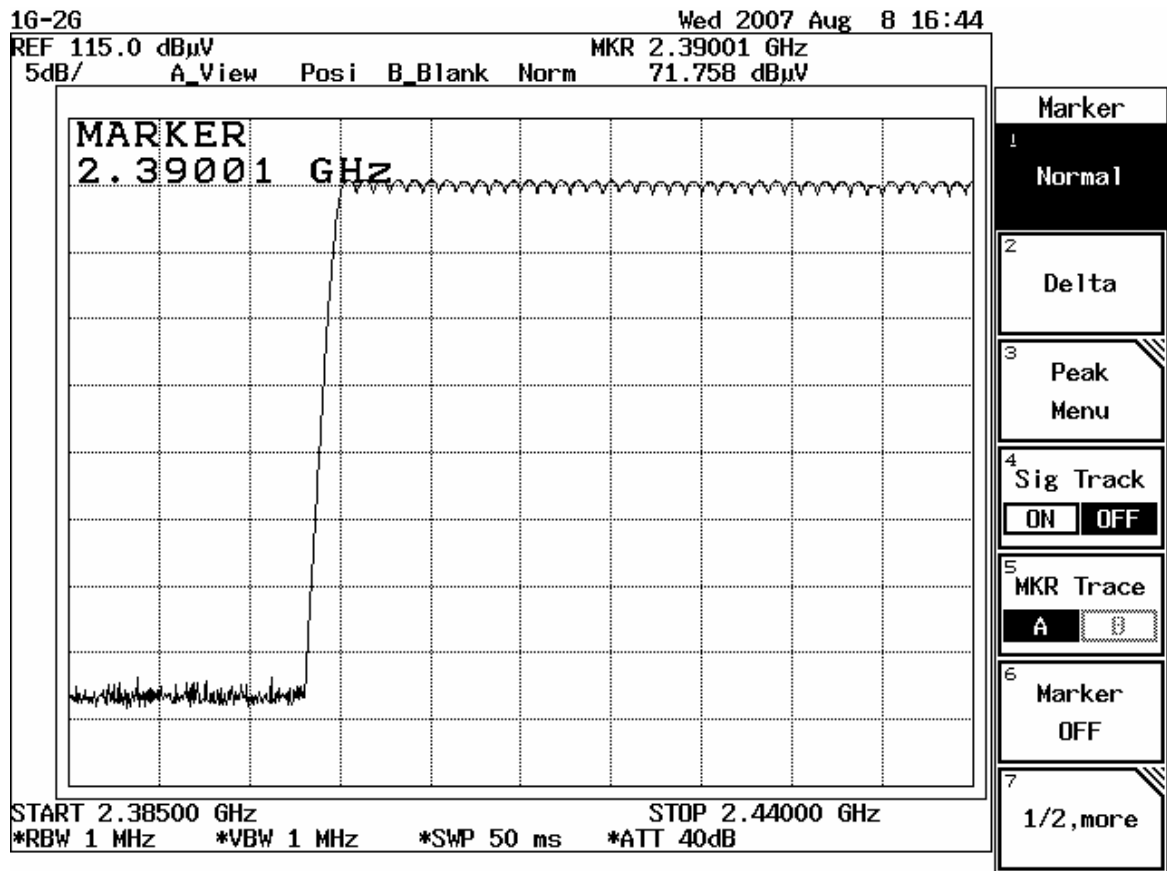


Chart of Inquiry mode

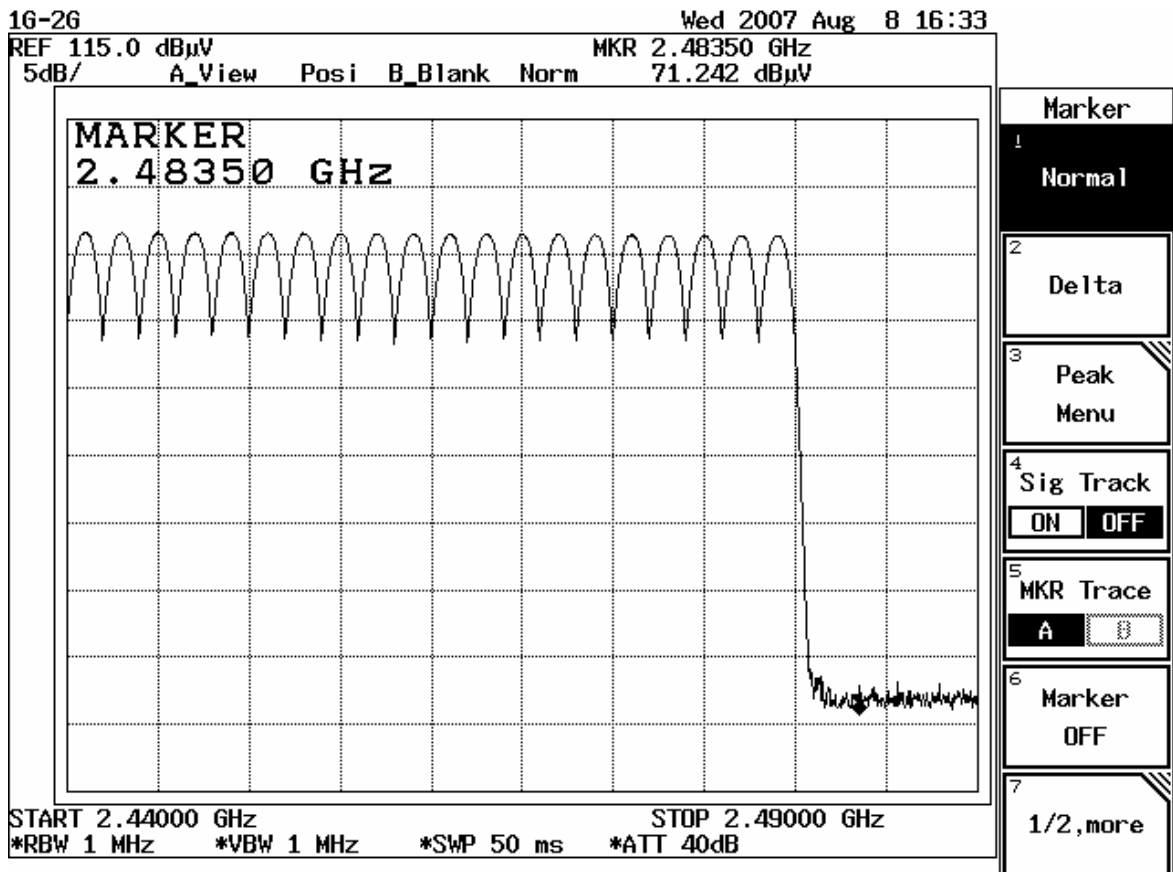
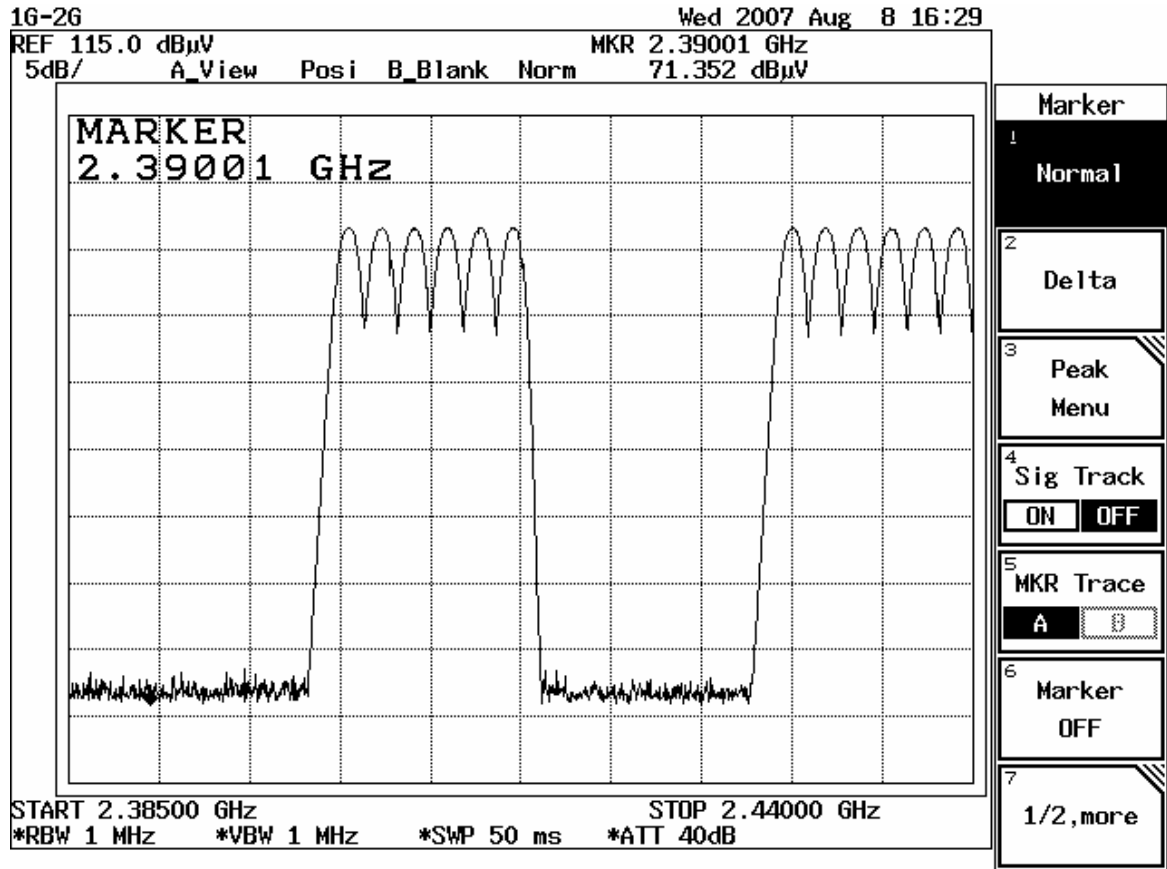
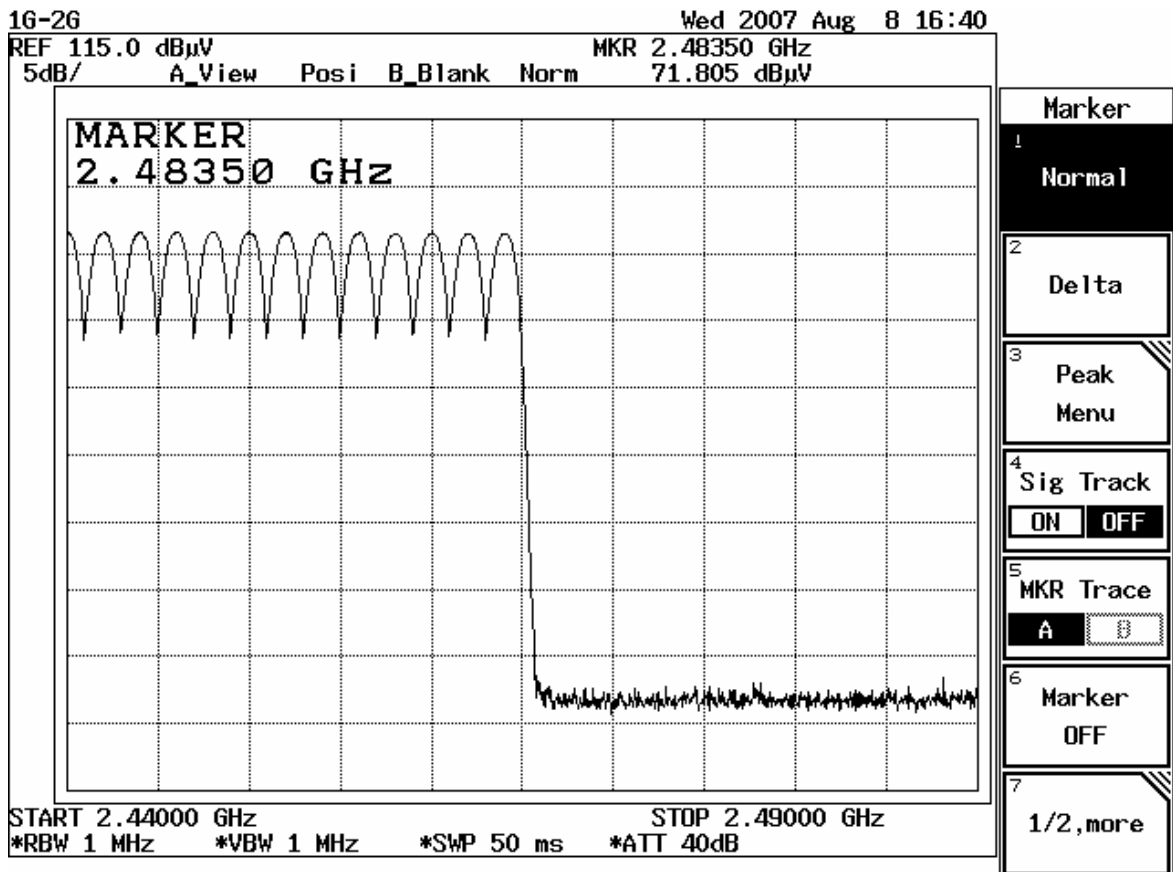
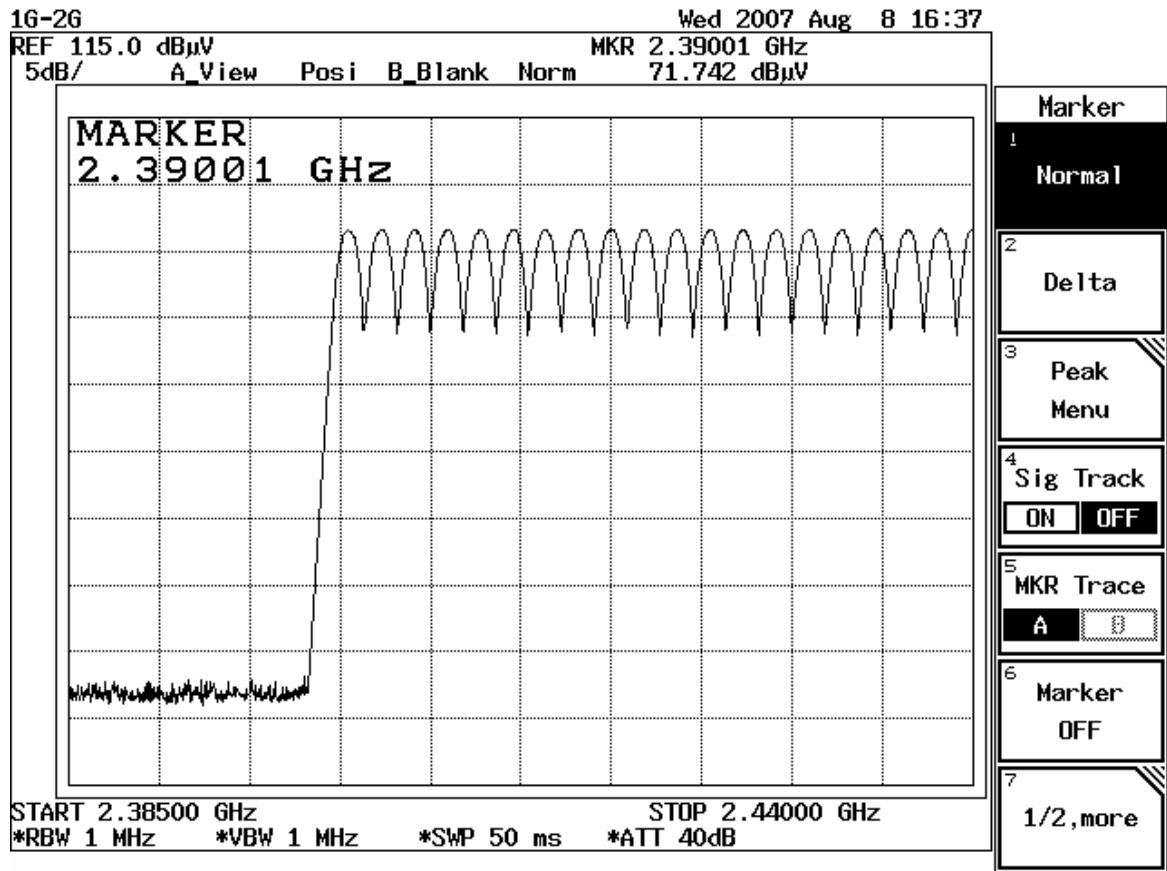
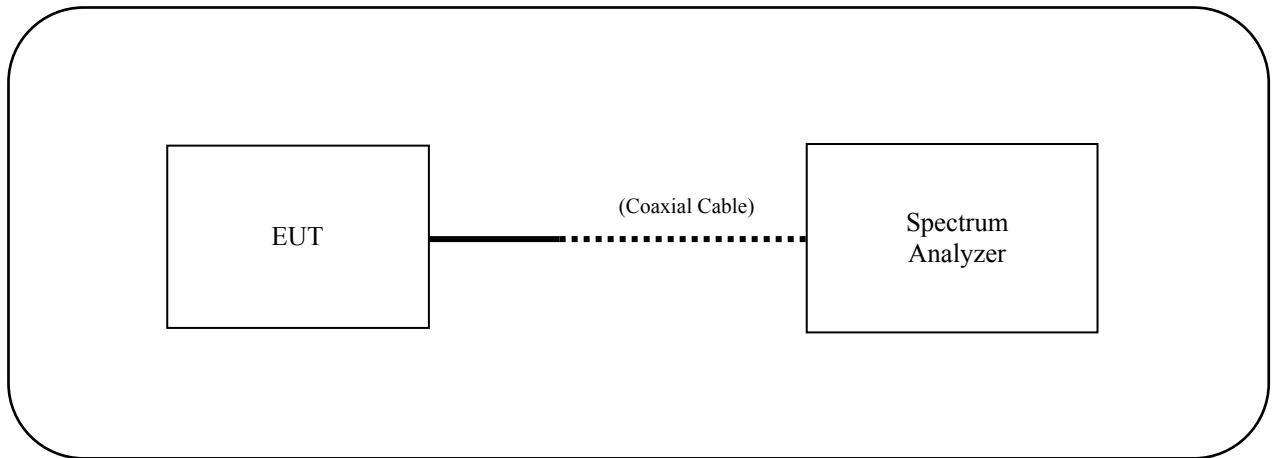


Chart of Page mode



TEST INSTRUMENTS CONFIGURATION



Instrument	Model No.	Serial No.	Manufacturer	Cal. Date	Calibration Expired
Spectrum Analyzer	R3182	111100429	ADVANTEST	Mar. 26, 07	Mar. 31, 08
Coaxial cable	5B-048-98-98-500	040511	Candox Systems	Jul. 17, 07	Jul. 31, 08

9.4 Time of Occupancy (Dwell Time) [15.247(a)(1)(iii)]

9.4.1 MEASUREMENT PROCEDURE:

- The Spectrum Analyzer was connected directly to the antenna cable port.
- The Spectrum Analyzer was setup using RBW = 1MHz, VBW = 1MHz, sweep time = 10 msec. and span = zero span.
- Following data is the worst case.
- The next page shows the chart of the observed RF profiles.

9.4.2 TX mode

The EUT was set to operate with following conditions.

- Hopping On
- DH1 packet (Max. length of 1 time slot), DH3 packet (Max. length of 3 time slot) and DH5 packet (Max. length of 5 time slot)

Test date : August 09, 2007
Temperature : 25 °C
Humidity : 55 %

[DH1 packet (Max. length of 1 time slot)]

Sweep No.	No. of Transmissions on a Single Channel in a 3 second period
1	30
2	30
3	31
4	30
5	31
Average	30.4

$$0.47\text{msec.} \times 30.4 \times 10 = 142.88\text{msec.}$$

Average time of occupancy during a 31.6 second period	A15.247(a)(1)(iii) Limit
$142.88\text{msec.} \times 31.6 / 30 = 150.50\text{msec.}$	< 400msec. (per 31.6sec.)

Note : The maximum period is 79 ch \times 0.4sec. = 31.6sec.

[DH3 packet (Max. length of 3 time slot)]

SWEEP No.	No. of Transmissions on a Single Channel in a 10 second period
1	50
2	50
3	50
4	50
5	51
Average	50.2

$$1.70\text{msec.} \times 50.2 \times 3 = 256.02\text{msec.}$$

Average time of occupancy during a 31.6 second period	A15.247(a)(1)(iii) Limit
$256.02\text{msec.} \times 31.6 / 30 = \mathbf{269.67\text{msec.}}$	< 400msec. (per 31.6sec.)

[DH5 packet (Max. length of 5 time slot)]

SWEEP No.	No. of Transmissions on a Single Channel in a 30 second period
1	102
2	100
3	100
4	101
5	101
Average	101.8

$$2.94\text{msec.} \times 101.8 = 299.29\text{msec.}$$

Average time of occupancy during a 31.6 second period	A15.247(a)(1)(iii) Limit
$299.29\text{msec.} \times 31.6 / 30 = \mathbf{315.25\text{msec.}}$	< 400msec. (per 31.6sec.)

Chart of TX mode – DH1 packet (Max. Length of 1 time slots)

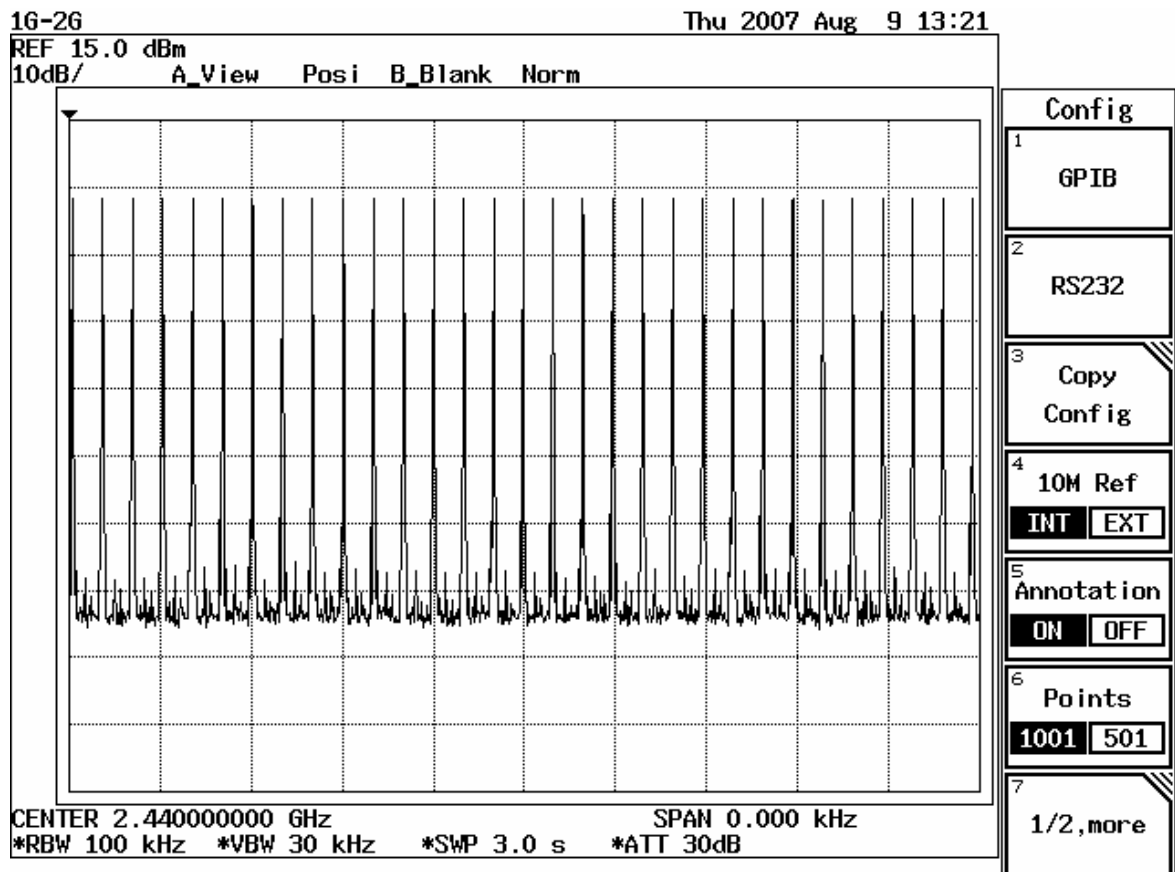
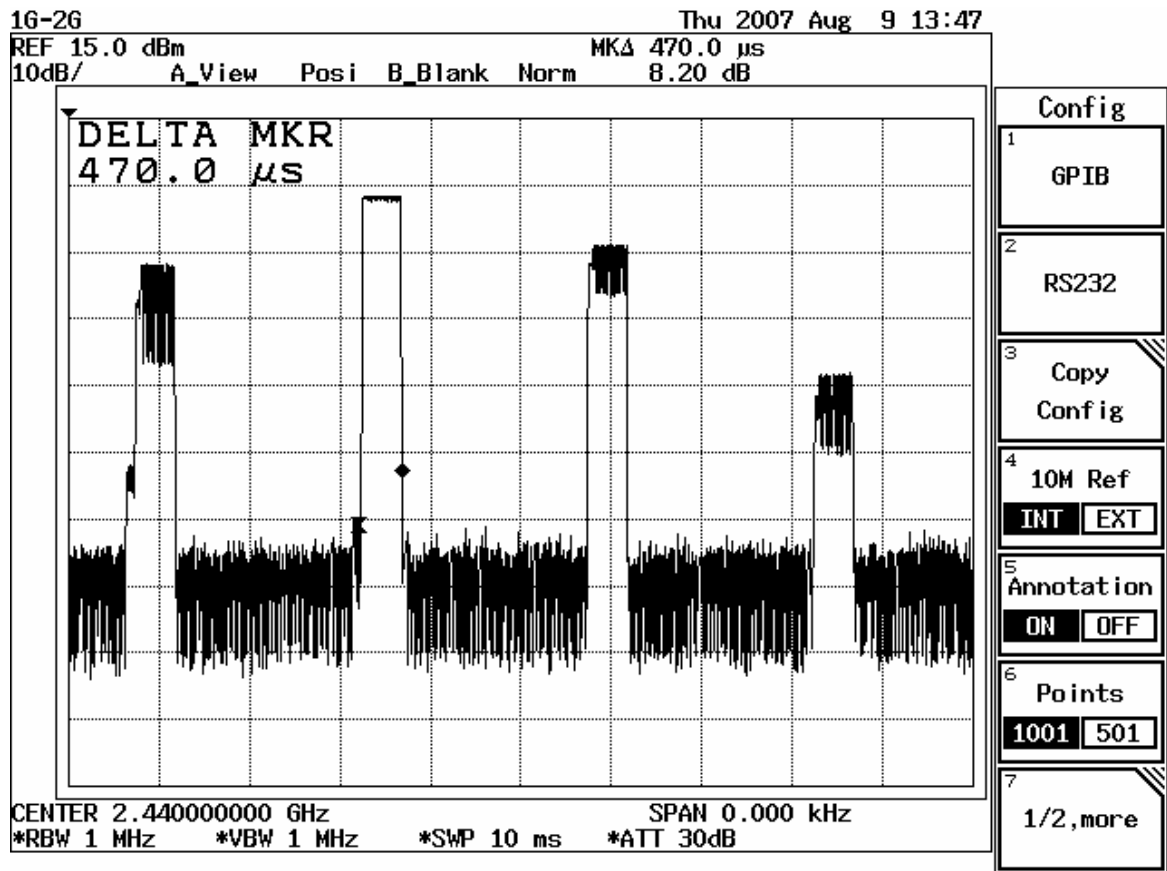


Chart of TX mode – DH3 packet (Max. Length of 3 time slots)

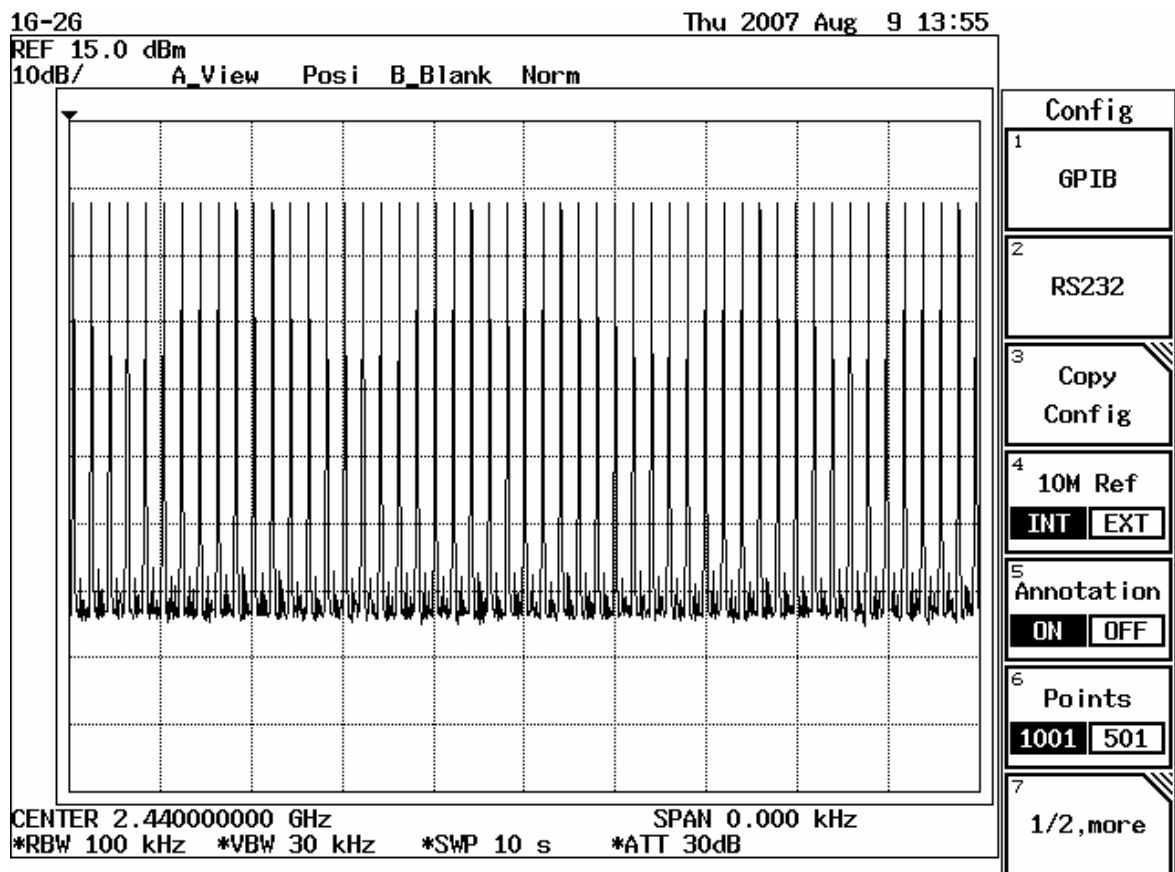
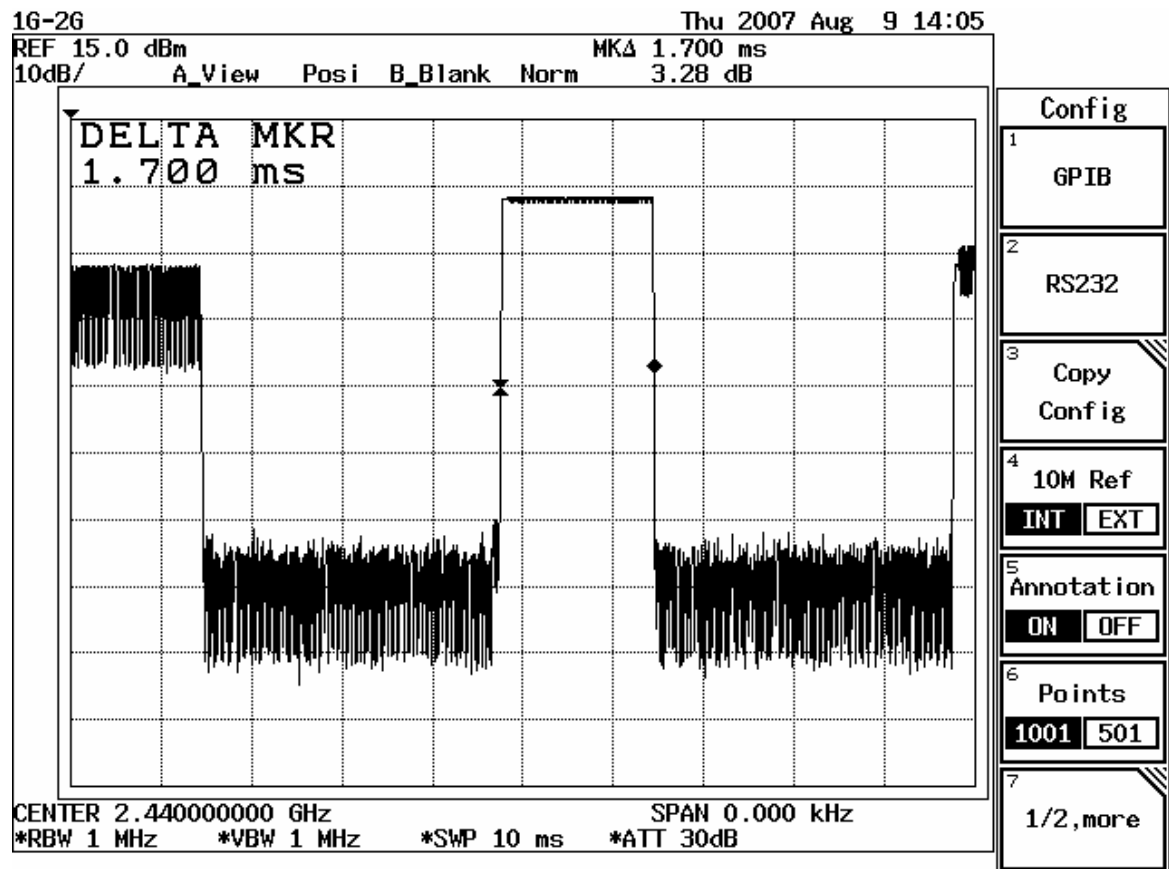
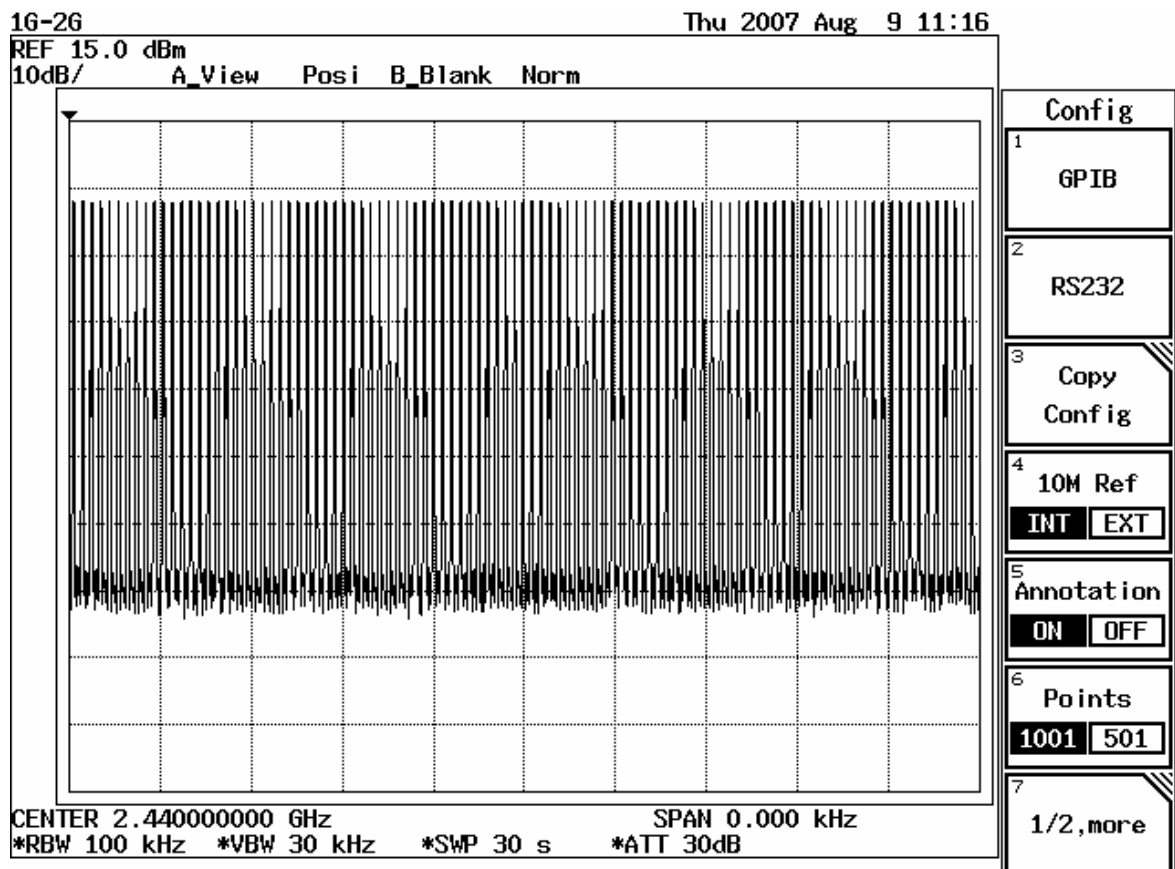
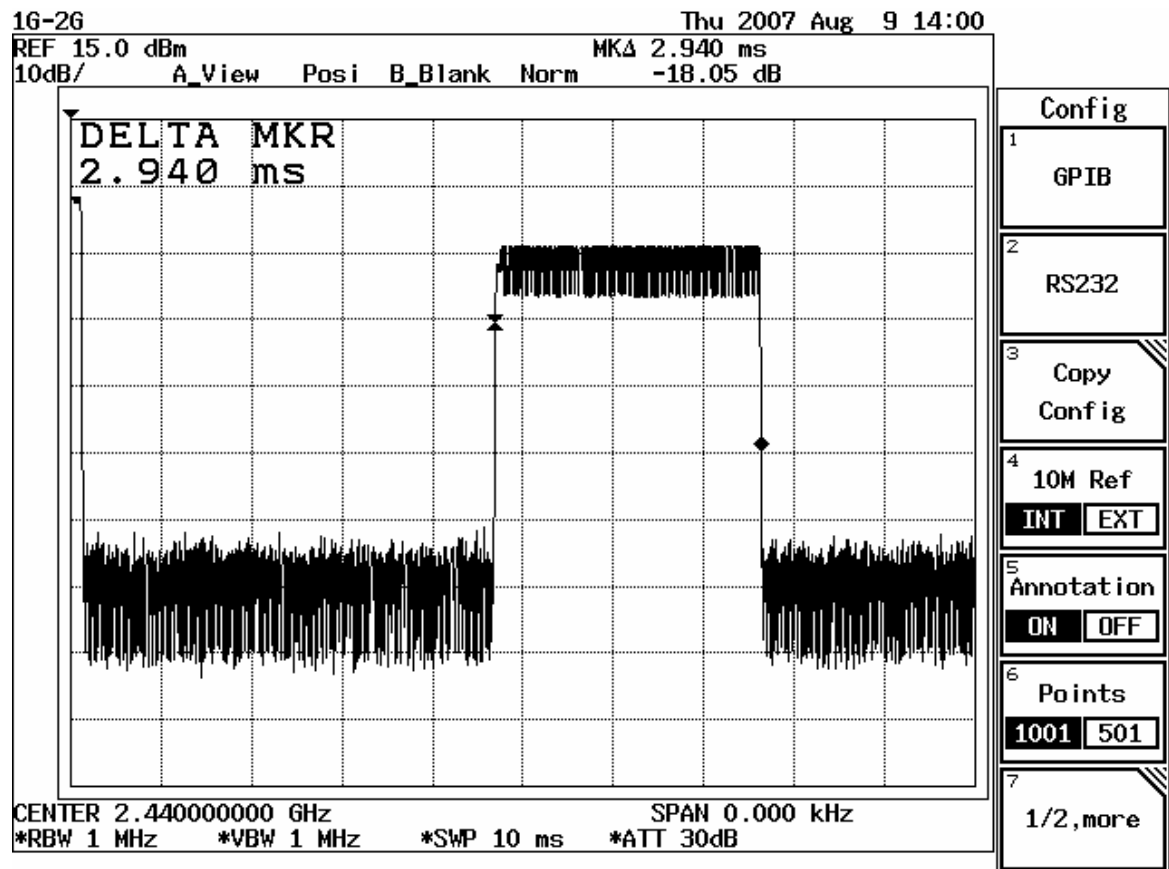
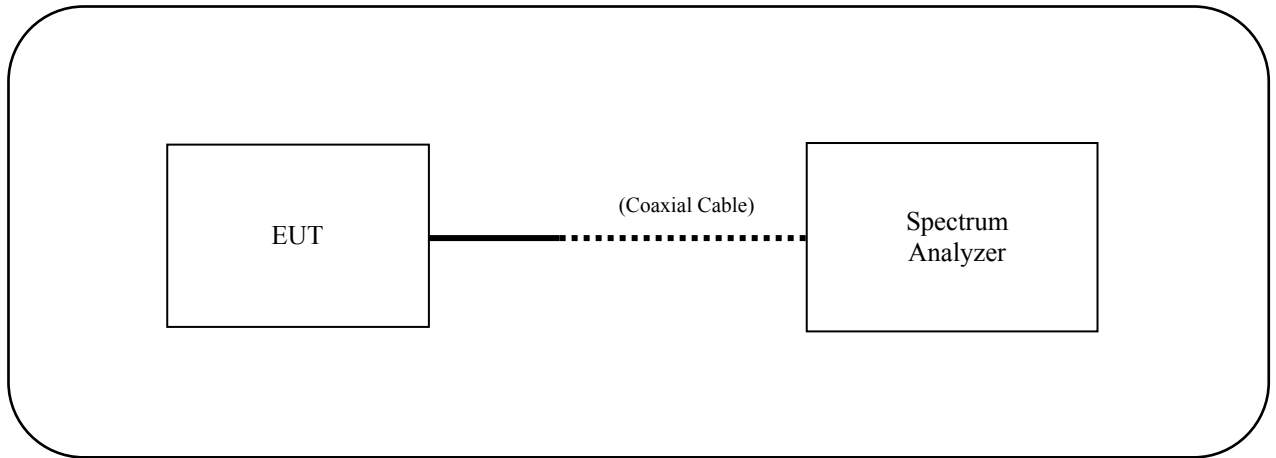


Chart of TX mode – DH5 packet (Max. Length of 5 time slots)



TEST INSTRUMENTS CONFIGURATION



Instrument	Model No.	Serial No.	Manufacturer	Cal. Date	Calibration Expired
Spectrum Analyzer	R3182	111100429	ADVANTEST	Mar. 26, 07	Mar. 31, 08
Coaxial cable	5B-048-98-98-500	040511	Candox Systems	Jul. 17, 07	Jul. 31, 08

9.5 Maximum Peak Output Power – RF Antenna Conducted [15.247(b)(1)]

9.5.1 MEASUREMENT PROCEDURE:

- The Power Meter was connected directly to the antenna cable port.
- Maximum Antenna Gain : -0.18dBi
- Following data is the worst case.

9.5.2 TX mode

- The EUT was set to operate with following conditions.
- Hopping Off [ch 1(low), ch 40(mid) and ch 79(high)]
- Unmodulated-carrier

Test date : August 21, 2007
Temperature : 24 °C
Humidity : 54 %

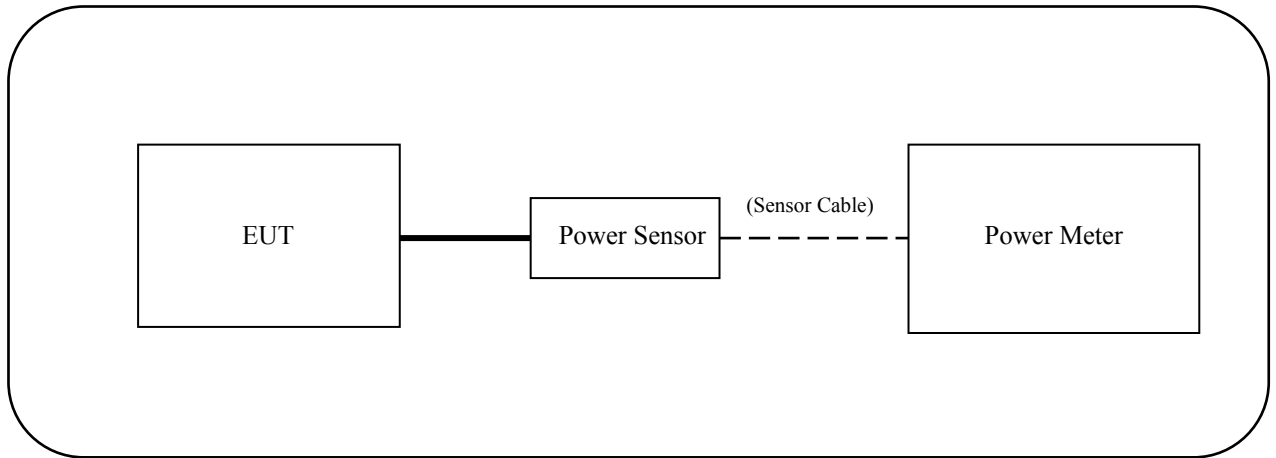
ch	Freq. (MHz)	Output Power Reading (dBm)	Antenna Gain (dBi)	Maximum Peak Output Power (mW)	15.247(b)(1) Limit (mW)
1	2402.0	3.57	-0.63	2.275	125
40	2441.0	3.48	-0.18	2.228	125
79	2480.0	3.39	-0.31	2.183	125

Note : Maximum peak output power was detected at ch1.

= 3.57 dBm (= 2.275 mW)

Therefor, the maximum EIRP = 3.57 dBm + (-0.18) dBi = 3.39 dBm = 2.183 mW

TEST INSTRUMENTS CONFIGURATION



Instrument	Model No.	Serial No.	Manufacturer	Cal. Date	Calibration Expired
Power Meter	E4418B	GB38410265	Hewlett Packard	May 17, 07	May 31, 08
Power Sensor	8482A	US37292237	Hewlett Packard	May 09, 07	May 31, 08

9.6 Band Edge Compliance of RF Conducted Emissions [15.247(d)]

9.6.1 MEASUREMENT PROCEDURE:

- The Spectrum Analyzer was connected directly to the antenna cable port.
- The Spectrum Analyzer was setup using RBW = 100kHz, VBW = 100kHz, sweep time = Auto and span = 10MHz.
- Following data is the worst case.
- The next page shows the chart of the observed RF profiles.

9.6.2 TX mode

The EUT was set to operate with following conditions.

- Hopping On and Hopping Off [ch 1(low) and ch 79(high)]
- DH5 packet (Max. Length of 5 time slots)

Test date : August 07, 2007
Temperature : 24 °C
Humidity : 58 %

[Hopping On] – DH5 packet (Max. Length of 5 time slots)

ch	Frequency (MHz)	Difference of Level (dB)	15.247(d) Limit (dB)
1	2402.0	32.58	20
79	2480.0	32.20	20

[Hopping Off] – DH5 packet (Max. Length of 5 time slots)

ch	Frequency (MHz)	Difference of Level (dB)	15.247(d) Limit (dB)
1	2402.0	36.30	20
79	2480.0	31.92	20

Chart of TX mode [Hopping On] Ch:Low

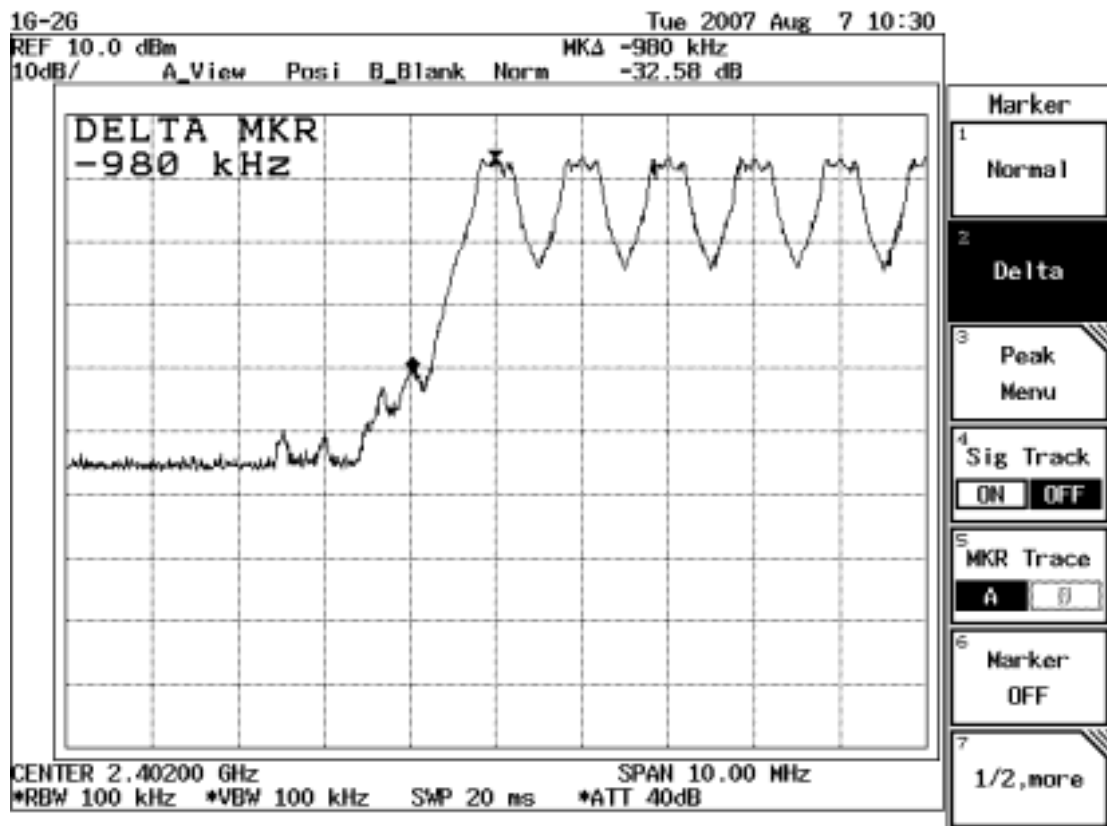


Chart of TX mode [Hopping On] Ch:High

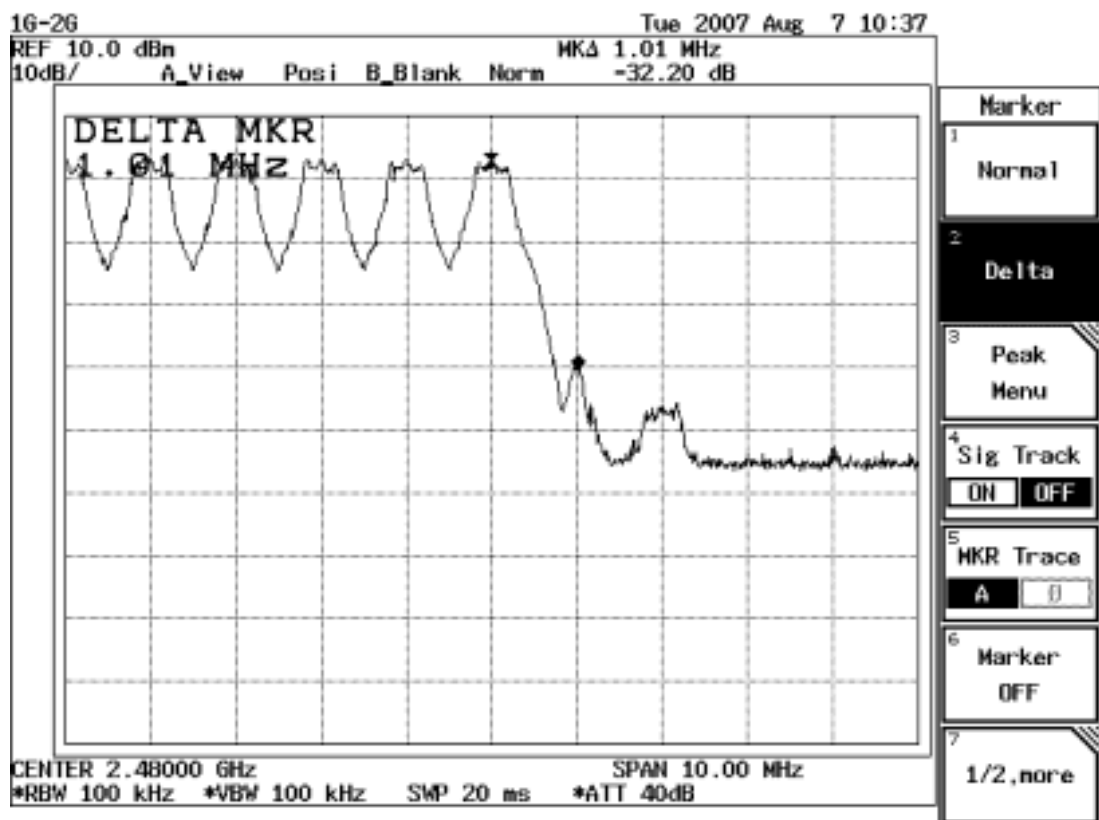


Chart of TX mode [Hopping Off] Ch:Low

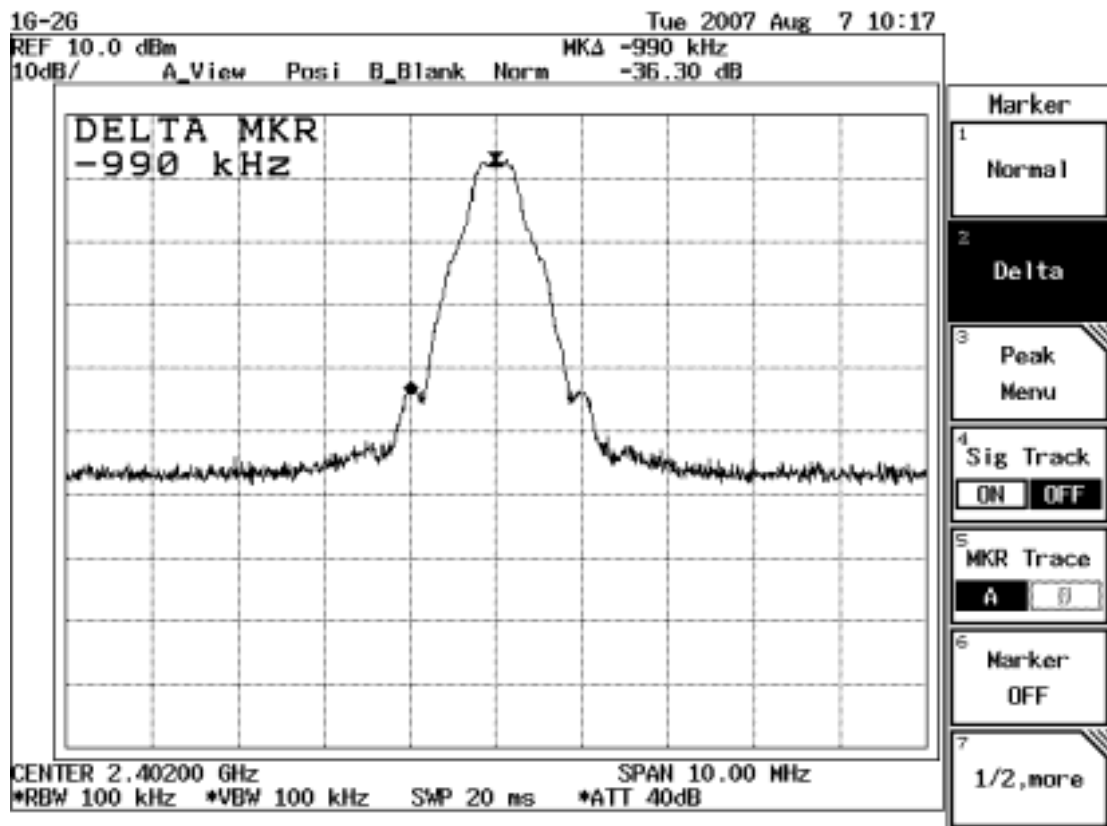
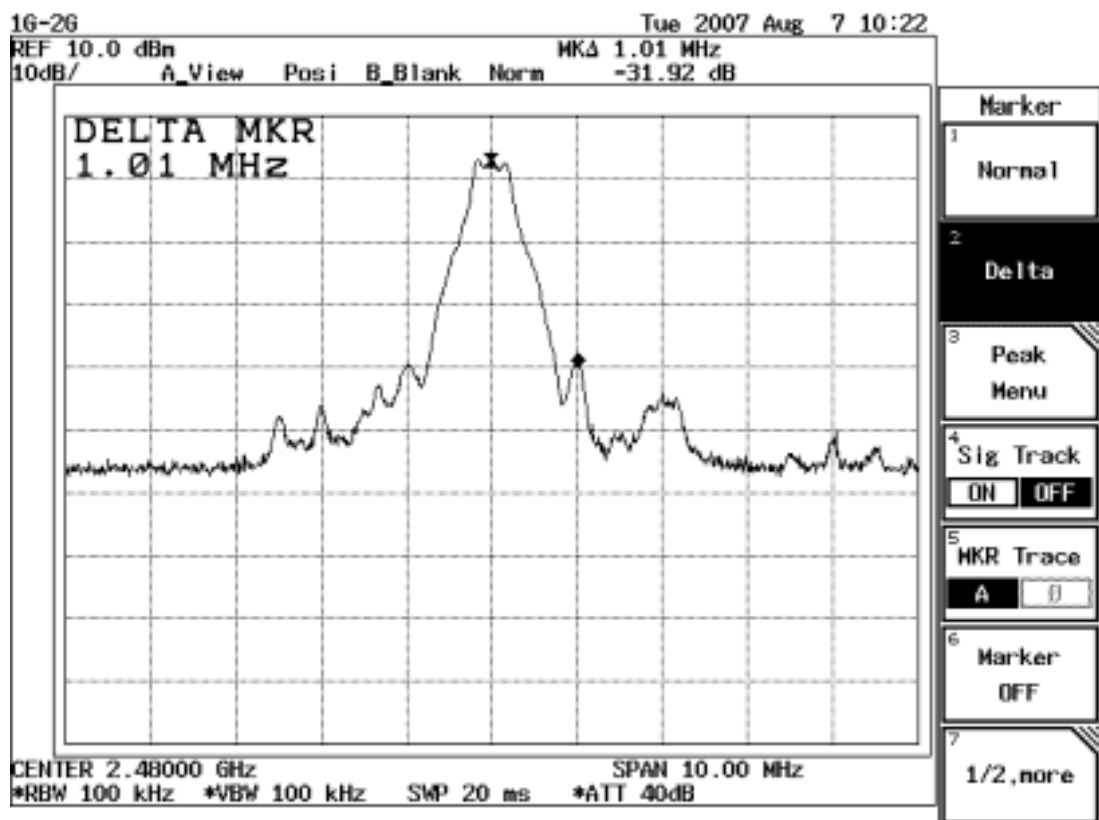
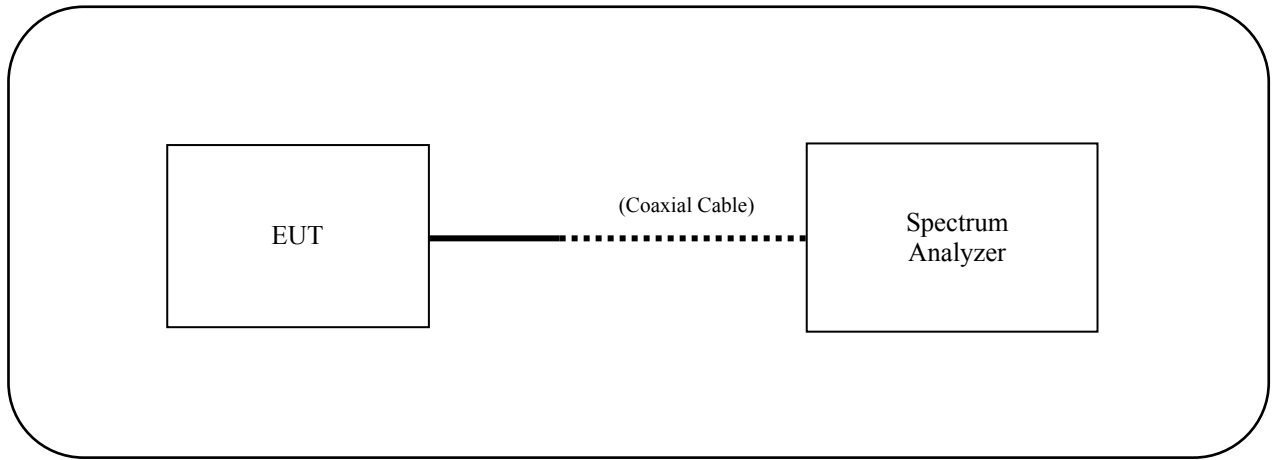


Chart of TX mode [Hopping Off] Ch:High



TEST INSTRUMENTS CONFIGURATION



Instrument	Model No.	Serial No.	Manufacturer	Cal. Date	Calibration Expired
Spectrum Analyzer	R3182	111100429	ADVANTEST	Mar. 26, 07	Mar. 31, 08
Coaxial cable	5B-048-98-98-500	040511	Candox Systems	Jul. 17, 07	Jul. 31, 08

9.7 Spurious Emissions – RF Antenna Conducted Test [15.247(d)]

9.7.1 MEASUREMENT PROCEDURE:

- The Spectrum Analyzer was connected directly to the antenna cable port.
- The Spectrum Analyzer was setup using RBW = 100kHz, VBW = 100kHz and sweep time = Auto.
- Following data is the worst case.
- As for the chart of the observed RF profiles, refer to Annex A and B.

9.7.2 TX mode

The EUT was set to operate with following conditions.

- Hopping On and Hopping Off [ch 1(low) , ch 40 (mid) and ch 79(high)]
- DH5 packet (Max. Length of 5 time slots)

Test date : August 17, 2007
Temperature : 25 °C
Humidity : 55 %

[Hopping On] – DH5 packet (Max. Length of 5 time slots)

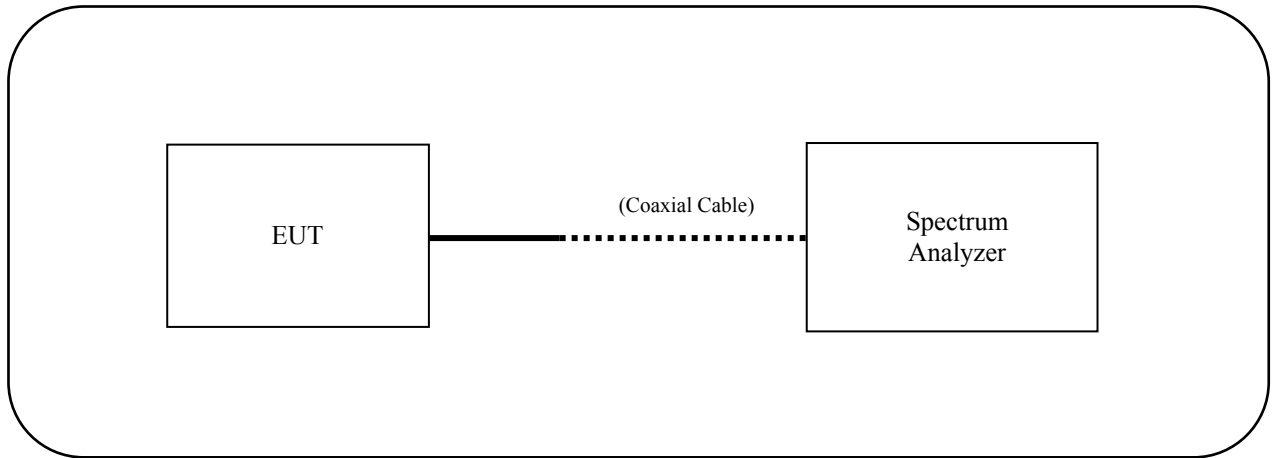
Frequency (MHz)	Chart	
2402.0 – 2480.0	Annex A	Page 2-4

[Hopping Off] – DH5 packet (Max. Length of 5 time slots)

ch	Frequency (MHz)	Chart	
1	2402.0	Annex B	Page 2-4
40	2441.0	Annex B	Page 5-7
79	2480.0	Annex B	Page 8-10

Note : All out-of-band conducted emissions were more than 20 dB below a carrier.

TEST INSTRUMENTS CONFIGURATION



Instrument	Model No.	Serial No.	Manufacturer	Cal. Date	Calibration Expired
Spectrum Analyzer	R3182	111100429	ADVANTEST	Mar. 26, 07	Mar. 31, 08
Coaxial cable	5B-048-98-98-500	040511	Candox Systems	Jul. 17, 07	Jul. 31, 08

9.8 Spurious Emissions – Radiated Emission Test [15.247(d), 15.205, 15.209]

9.8.1 MEASUREMENT PROCEDURE:

See Section 8 for details.

- Following data is the worst case.
- The next page shows the data.

9.8.2 TX mode

The EUT was set to operate with following conditions.

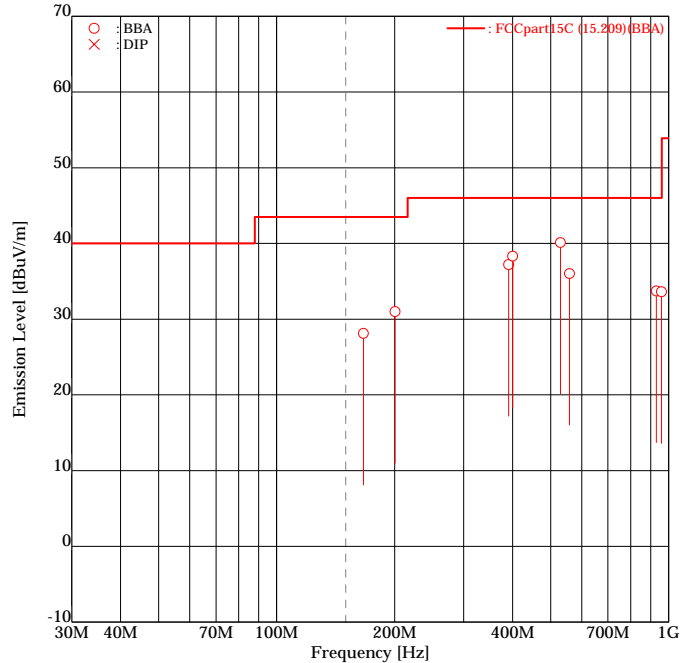
- Hopping Off [ch 1(low), ch 40(mid) and ch 79(high)]
- DH5 packet (Max. Length of 5 time slots)

Data of ch 1 (30 – 1000MHz)

ETL SEMKO Japan K.K.
Kashima No.1 Test Site
Spurious Emissions - Radiated Test

APPLICANT : Victor Company of Japan, Limited
EUT NAME : Bluetooth Module
MODEL NO. : NAU0004
SERIAL NO. : 00:0B:5D:8B:FE:03
TEST MODE : TX Hopping Off (Ch : Low)
POWER SOURCE : DC3.3V
DATE TESTED : Aug 10 2007
FILE NO. : ESJ-107172
REGULATION : FCCpart15C (15.209)
TEST METHOD : ANSI C63.4:2003
DISTANCE : 3.00 [m]
TEMPERATURE : 24.0 [degC]
HUMIDITY : 57.0 [%]
NOTE :

ENGINEER : Kazuo Masuda



FREQUENCY [No]	FREQ [MHz]	ANT.	READING [dBuV]		FACTOR [dB/m]		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	166.54	BBA	30.8	-	-2.7	-2.7	28.1	-	43.5	15.4	-
2	200.45	BBA	35.8	-	-4.8	-4.8	31.0	-	43.5	12.5	-
3	390.92	BBA	-	<u>35.5</u>	1.7	1.7	-	<u>37.2</u>	46.0	-	<u>8.8</u>
4	399.98	BBA	<u>36.5</u>	-	1.8	1.8	<u>38.3</u>	-	46.0	<u>7.7</u>	-
5	529.76	BBA	26.5	<u>34.4</u>	5.7	5.7	32.2	<u>40.1</u>	46.0	13.8	<u>5.9</u>
6	558.40	BBA	-	<u>29.4</u>	6.6	6.6	-	<u>36.0</u>	46.0	-	<u>10.0</u>
7	930.67	BBA	-	<u>20.2</u>	13.5	13.5	-	<u>33.7</u>	46.0	-	<u>12.3</u>
8	959.30	BBA	-	<u>19.5</u>	14.1	14.1	-	<u>33.6</u>	46.0	-	<u>12.4</u>

Higher six points are underlined.

Other frequencies : Below the FCCpart15C (15.209) limit

Emission Level = Read + Factor(Antenna, Pad, Cable, Preamp)

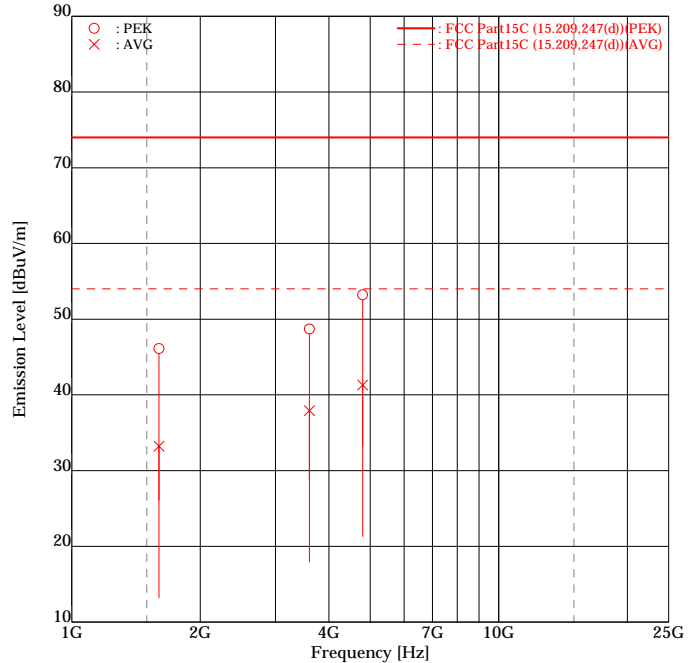
ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

Data of ch 1 (1000 – 25000MHz)

ETL SEMKO Japan K.K.
Kashima No.1 Test Site
Radiated Electric Field

APPLICANT : Victor Company of Japan, Limited
EUT NAME : Bluetooth Module
MODEL NO. : NAU0004
SERIAL NO. : 00:0B:5D:8B:FE:03
TEST MODE : TX Hopping Off (Ch : Low)
POWER SOURCE : DC3.3V
DATE TESTED : Aug 09 2007
FILE NO. : ESJ-107172
REGULATION : FCC Part15C (15.209,247(d))
TEST METHOD : ANSI C63.4-2003
DISTANCE : 3.00 [m]
TEMPERATURE : 25.0 [degC]
HUMIDITY : 55.0 [%]
NOTE :

ENGINEER : Kazuo Masuda



FREQUENCY [No]	MODE [MHz]		READING [dBuV]		FACTOR [dB/m]		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	1602.00	PEK	<u>45.7</u>	45.0	0.4	0.4	<u>46.1</u>	45.4	74.0	<u>27.9</u>	28.6
2	1602.00	AVG	<u>32.8</u>	32.4	0.4	0.4	<u>33.2</u>	32.8	54.0	<u>20.8</u>	21.2
3	3603.00	PEK	<u>39.7</u>	39.7	9.0	9.0	<u>48.7</u>	48.7	74.0	<u>25.3</u>	25.3
4	3603.00	AVG	<u>28.9</u>	28.9	9.0	9.0	<u>37.9</u>	37.9	54.0	<u>16.1</u>	16.1
5	4804.00	PEK	<u>40.6</u>	39.5	12.6	12.6	<u>53.2</u>	52.1	74.0	<u>20.8</u>	21.9
6	4804.00	AVG	28.4	<u>28.7</u>	12.6	12.6	41.0	<u>41.3</u>	54.0	13.0	<u>12.7</u>

Higher six points are underlined.

Other frequencies : Below the FCC Part15C (15.209,247(d)) limit

Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)

ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

Data of ch 40 (30 – 1000MHz)

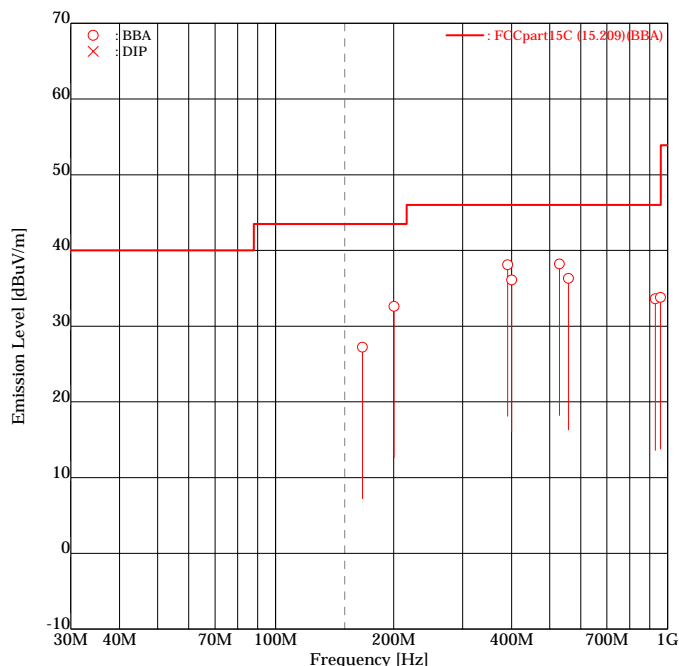
ETL SEMKO Japan K.K.

Kashima No.1 Test Site

Spurious Emissions - Radiated Test

APPLICANT : Victor Company of Japan, Limited
EUT NAME : Bluetooth Module
MODEL NO. : NAU0004
SERIAL NO. : 00:0B:5D:8B:FE:03
TEST MODE : TX Hopping Off (Ch : Mid)
POWER SOURCE : DC3.3V
DATE TESTED : Aug 10 2007
FILE NO. : ESJ-107172
REGULATION : FCCpart15C (15.209)
TEST METHOD : ANSI C63.4:2003
DISTANCE : 3.00 [m]
TEMPERATURE : 24.0 [degC]
HUMIDITY : 57.0 [%]
NOTE :

ENGINEER : Kazuo Masuda



FREQUENCY [No]	ANT. [MHz]		READING [dBuV]		FACTOR [dB/m]		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	166.54	BBA	29.9	-	-2.7	-2.7	27.2	-	43.5	16.3	-
2	200.45	BBA	<u>37.4</u>	-	-4.8	-4.8	<u>32.6</u>	-	43.5	<u>10.9</u>	-
3	390.92	BBA	-	<u>36.4</u>	1.7	1.7	-	<u>38.1</u>	46.0	-	<u>7.9</u>
4	399.98	BBA	<u>34.3</u>	-	1.8	1.8	<u>36.1</u>	-	46.0	<u>9.9</u>	-
5	529.76	BBA	27.4	<u>32.5</u>	5.7	5.7	33.1	<u>38.2</u>	46.0	12.9	<u>7.8</u>
6	558.40	BBA	-	<u>29.7</u>	6.6	6.6	-	<u>36.3</u>	46.0	-	<u>9.7</u>
7	930.67	BBA	20.1	19.2	13.5	13.5	33.6	32.7	46.0	12.4	13.3
8	959.30	BBA	-	<u>19.7</u>	14.1	14.1	-	<u>33.8</u>	46.0	-	<u>12.2</u>

Higher six points are underlined.

Other frequencies : Below the FCCpart15C (15.209) limit

Emission Level = Read + Factor(Antenna, Pad, Cable, Preamp)

ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

Data of ch 40 (1000 – 25000MHz)

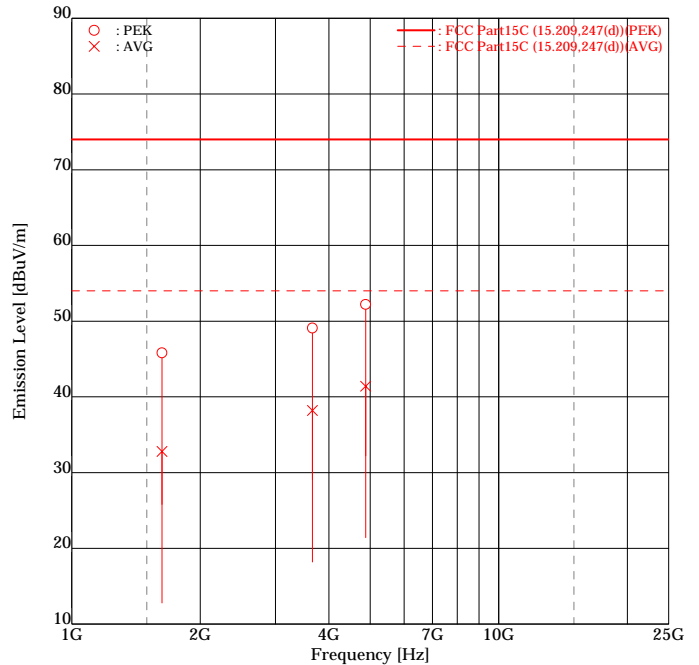
ETL SEMKO Japan K.K.

Kashima No.1 Test Site

Radiated Electric Field

APPLICANT : Victor Company of Japan, Limited
EUT NAME : Bluetooth Module
MODEL NO. : NAU0004
SERIAL NO. : 00:0B:5D:8B:FE:03
TEST MODE : TX Hopping Off (Ch : Mid)
POWER SOURCE : DC3.3V
DATE TESTED : Aug 09 2007
FILE NO. : ESJ-107172
REGULATION : FCC Part15C (15.209,247(d))
TEST METHOD : ANSI C63.4-2003
DISTANCE : 3.00 [m]
TEMPERATURE : 25.0 [degC]
HUMIDITY : 55.0 [%]
NOTE :

ENGINEER : Kazuo Masuda



FREQUENCY [No]	MODE [MHz]		READING [dBuV]		FACTOR [dB/m]		EMISSION [dBuV/m]		LIMIT [dBuV/m]		MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert			Hori	Vert
1	1628.00	PEK	<u>45.2</u>	44.5	0.6	0.6	<u>45.8</u>	45.1	74.0		<u>28.2</u>	28.9
2	1628.00	AVG	<u>32.2</u>	31.9	0.6	0.6	<u>32.8</u>	32.5	54.0		<u>21.2</u>	21.5
3	3661.00	PEK	<u>39.9</u>	39.4	9.2	9.2	<u>49.1</u>	48.6	74.0		<u>24.9</u>	25.4
4	3661.00	AVG	<u>29.0</u>	28.8	9.2	9.2	<u>38.2</u>	38.0	54.0		<u>15.8</u>	16.0
5	4882.00	PEK	<u>39.4</u>	39.1	12.8	12.8	<u>52.2</u>	51.9	74.0		<u>21.8</u>	22.1
6	4882.00	AVG	<u>28.6</u>	28.5	12.8	12.8	<u>41.4</u>	41.3	54.0		<u>12.6</u>	12.7

Higher six points are underlined.

Other frequencies : Below the FCC Part15C (15.209,247(d)) limit

Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)

ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

Data of ch 79 (30 – 1000MHz)

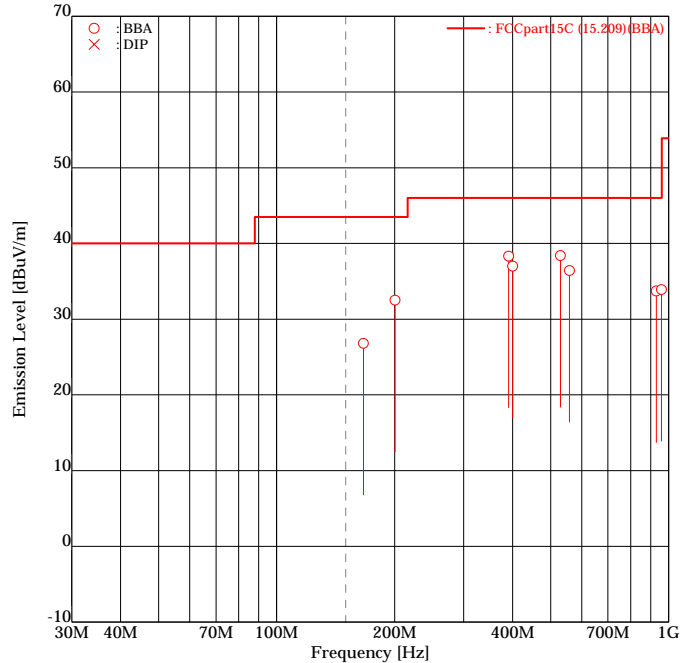
ETL SEMKO Japan K.K.

Kashima No.1 Test Site

Spurious Emissions - Radiated Test

APPLICANT : Victor Company of Japan, Limited
EUT NAME : Bluetooth Module
MODEL NO. : NAU0004
SERIAL NO. : 00:0B:5D:8B:FE:03
TEST MODE : TX Hopping Off (Ch : High)
POWER SOURCE : DC3.3V
DATE TESTED : Aug 10 2007
FILE NO. : ESJ-107172
REGULATION : FCCpart15C (15.209)
TEST METHOD : ANSI C63.4:2003
DISTANCE : 3.00 [m]
TEMPERATURE : 24.0 [degC]
HUMIDITY : 57.0 [%]
NOTE :

ENGINEER : Kazuo Masuda



FREQUENCY [No]	[MHz]	ANT.	READING [dBuV]		FACTOR [dB/m]		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	166.54	BBA	29.5	-	-2.7	-2.7	26.8	-	43.5	16.7	-
2	200.45	BBA	<u>37.3</u>	-	-4.8	-4.8	<u>32.5</u>	-	43.5	<u>11.0</u>	-
3	390.92	BBA	-	<u>36.6</u>	1.7	1.7	-	<u>38.3</u>	46.0	-	<u>7.7</u>
4	399.98	BBA	<u>35.2</u>	-	1.8	1.8	<u>37.0</u>	-	46.0	<u>9.0</u>	-
5	529.76	BBA	27.0	<u>32.7</u>	5.7	5.7	32.7	<u>38.4</u>	46.0	13.3	<u>7.6</u>
6	558.40	BBA	-	<u>29.8</u>	6.6	6.6	-	<u>36.4</u>	46.0	-	<u>9.6</u>
7	930.67	BBA	20.2	19.2	13.5	13.5	33.7	32.7	46.0	12.3	13.3
8	959.30	BBA	-	<u>19.8</u>	14.1	14.1	-	<u>33.9</u>	46.0	-	<u>12.1</u>

Higher six points are underlined.

Other frequencies : Below the FCCpart15C (15.209) limit

Emission Level = Read + Factor(Antenna, Pad, Cable, Preamp)

ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

Data of ch 79 (1000 – 25000MHz)

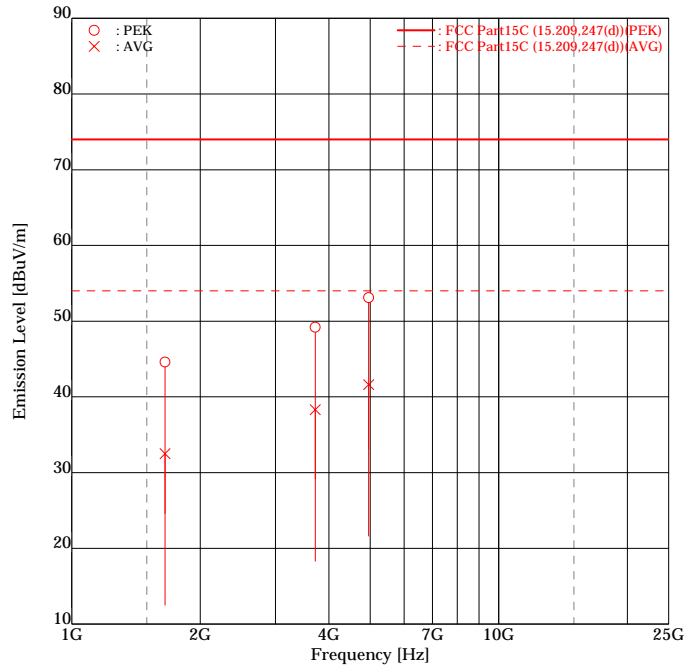
ETL SEMKO Japan K.K.

Kashima No.1 Test Site

Radiated Electric Field

APPLICANT : Victor Company of Japan, Limited
EUT NAME : Bluetooth Module
MODEL NO. : NAU0004
SERIAL NO. : 00:0B:5D:8B:FE:03
TEST MODE : TX Hopping Off (Ch : High)
POWER SOURCE : DC3.3V
DATE TESTED : Aug 09 2007
FILE NO. : ESJ-107172
REGULATION : FCC Part15C (15.209,247(d))
TEST METHOD : ANSI C63.4-2003
DISTANCE : 3.00 [m]
TEMPERATURE : 25.0 [degC]
HUMIDITY : 55.0 [%]
NOTE :

ENGINEER : Kazuo Masuda



FREQUENCY [No]	MODE [MHz]		READING [dBuV]		FACTOR [dB/m]		EMISSION [dBuV/m]		LIMIT [dBuV/m]	MARGIN [dB]	
			Hori	Vert	Hori	Vert	Hori	Vert		Hori	Vert
1	1654.00	PEK	<u>43.8</u>	42.6	0.8	0.8	<u>44.6</u>	43.4	74.0	<u>29.4</u>	30.6
2	1654.00	AVG	<u>31.7</u>	31.3	0.8	0.8	<u>32.5</u>	32.1	54.0	<u>21.5</u>	21.9
3	3720.00	PEK	<u>39.7</u>	<u>39.8</u>	9.4	9.4	<u>49.1</u>	<u>49.2</u>	74.0	<u>24.9</u>	<u>24.8</u>
4	3720.00	AVG	<u>28.8</u>	<u>28.9</u>	9.4	9.4	<u>38.2</u>	<u>38.3</u>	54.0	<u>15.8</u>	<u>15.7</u>
5	4960.00	PEK	<u>39.9</u>	39.7	13.2	13.2	<u>53.1</u>	52.9	74.0	<u>20.9</u>	21.1
6	4960.00	AVG	<u>28.4</u>	28.4	13.2	13.2	<u>41.6</u>	41.6	54.0	<u>12.4</u>	12.4

Higher six points are underlined.

Other frequencies : Below the FCC Part15C (15.209,247(d)) limit

Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)

ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

Instrument	Model No.	Serial No.	Manufacturer	Cal. Date	Calibration Expired
Tri-log Antenna	VULB9168	106	Schwarzbeck	Jun. 14, 07	Jun. 30, 08
Attenuator	MP721B	M57593	Anritsu	Jan. 15, 07	Jan. 31, 08
Step Attenuator	8494B	2726A14513	Hewlett Packard	Jan. 15, 07	Jan. 31, 08
Amplifier	ZX60-3018G	001	ETL SEMKO	Jan. 15, 07	Jan. 31, 08
Coaxial Cable	5D-2W (9.0m)	R1	ETL SEMKO	Jan. 15, 07	Jan. 31, 08
Coaxial Cable	10D-2W (5.5m)	R2	ETL SEMKO	Jan. 15, 07	Jan. 31, 08
Coaxial Cable	5D-2W (2.0m)	R3	ETL SEMKO	Jan. 15, 07	Jan. 31, 08
Coaxial Cable	5D-2W (0.2m)	R4	ETL SEMKO	Jan. 15, 07	Jan. 31, 08
Coaxial Cable	5D-2W (1.0m)	R5	ETL SEMKO	Jan. 15, 07	Jan. 31, 08
Coaxial Cable	5D-2W (1.0m)	R6	ETL SEMKO	Jan. 15, 07	Jan. 31, 08
Coaxial Cable	5D-2W (1.0m)	R7	ETL SEMKO	Jan. 15, 07	Jan. 31, 08
Test Receiver	ESS (Firmware Version 1.07)	844861/004	Rohde & Schwarz	May 21, 07	May 31, 08
Double Ridged Antenna	3115	5044	EMCO	Mar. 26, 07	Mar. 31, 08
Attenuator	4768-3	79	narda	Sep. 27, 06	Sep. 30, 07
Amplifier	83051A	3332A00329	Hewlett Packard	Sep. 27, 06	Sep. 30, 07
Coaxial cable	SUCOFLEX102	712/2	SUHNER	Sep. 27, 06	Sep. 30, 07
Coaxial cable	KPS-1501-2362-KPS	03292004	Insulated Wire	Sep. 27, 06	Sep. 30, 07
Spectrum Analyzer	R3182	111100429	ADVANTEST	Mar. 26, 07	Mar. 31, 08

9.9 Restricted Bands of Operation [15.247(d),15.205,15.209]

9.9.1 MEASUREMENT PROCEDURE:

- The Spectrum Analyzer was setup using
 - Peak mode: RBW = 1MHz, VBW = 1MHz
 - Average mode: RBW = 1MHz, VBW = 10Hz
- Measurement distance was 3 meter.
- Following data is the worst case.
- The next page shows the data.

9.9.2 Test mode

The EUT was set to operate with following conditions.

- Hopping On
- DH5 packet (Max. length of 5 time slot)

Data of Hopping On

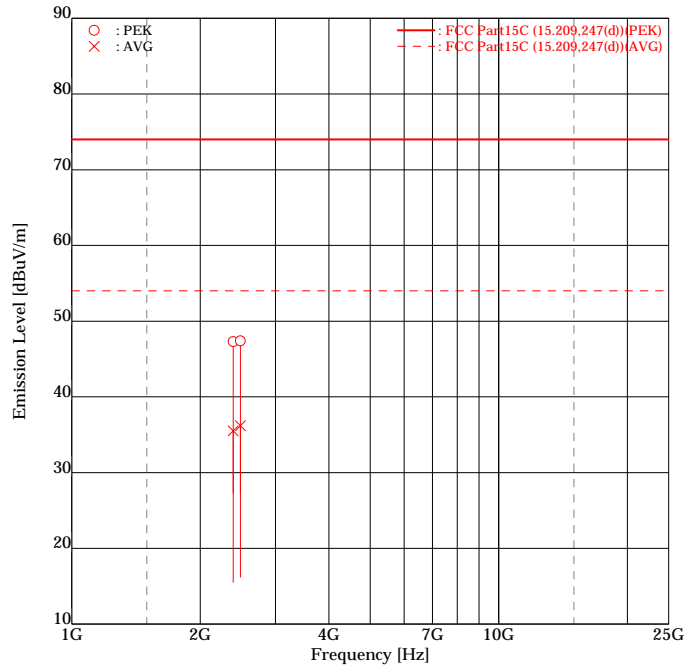
ETL SEMKO Japan K.K.

Kashima No.1 Test Site

Radiated Electric Field

APPLICANT : Victor Company of Japan, Limited
EUT NAME : Bluetooth Module
MODEL NO. : NAU0004
SERIAL NO. : 00:0B:5D:8B:FE:03
TEST MODE : TX Hopping On
POWER SOURCE : DC3.3V
DATE TESTED : Aug 09 2007
FILE NO. : ESJ-107172
REGULATION : FCC Part15C (15.209,247(d))
TEST METHOD : ANSI C63.4-2003
DISTANCE : 3.00 [m]
TEMPERATURE : 25.0 [degC]
HUMIDITY : 55.0 [%]
NOTE : Restricted Bands of Operation

ENGINEER : Kazuo Masuda



FREQUENCY [No]	MODE	READING [dBuV]		FACTOR [dB/m]		EMISSION [dBuV/m]		LIMIT [dBuV/m]		MARGIN [dB]	
		Hori	Vert	Hori	Vert	Hori	Vert	Hori	Vert	Hori	Vert
1	2390.00	PEK	<u>42.9</u>	42.5	4.4	4.4	<u>47.3</u>	46.9	74.0	<u>26.7</u>	27.1
2	2390.00	AVG	<u>31.1</u>	31.0	4.4	4.4	<u>35.5</u>	35.4	54.0	<u>18.5</u>	18.6
3	2483.50	PEK	<u>42.8</u>	41.3	4.6	4.6	<u>47.4</u>	45.9	74.0	<u>26.6</u>	28.1
4	2483.50	AVG	<u>31.6</u>	31.0	4.6	4.6	<u>36.2</u>	35.6	54.0	<u>17.8</u>	18.4

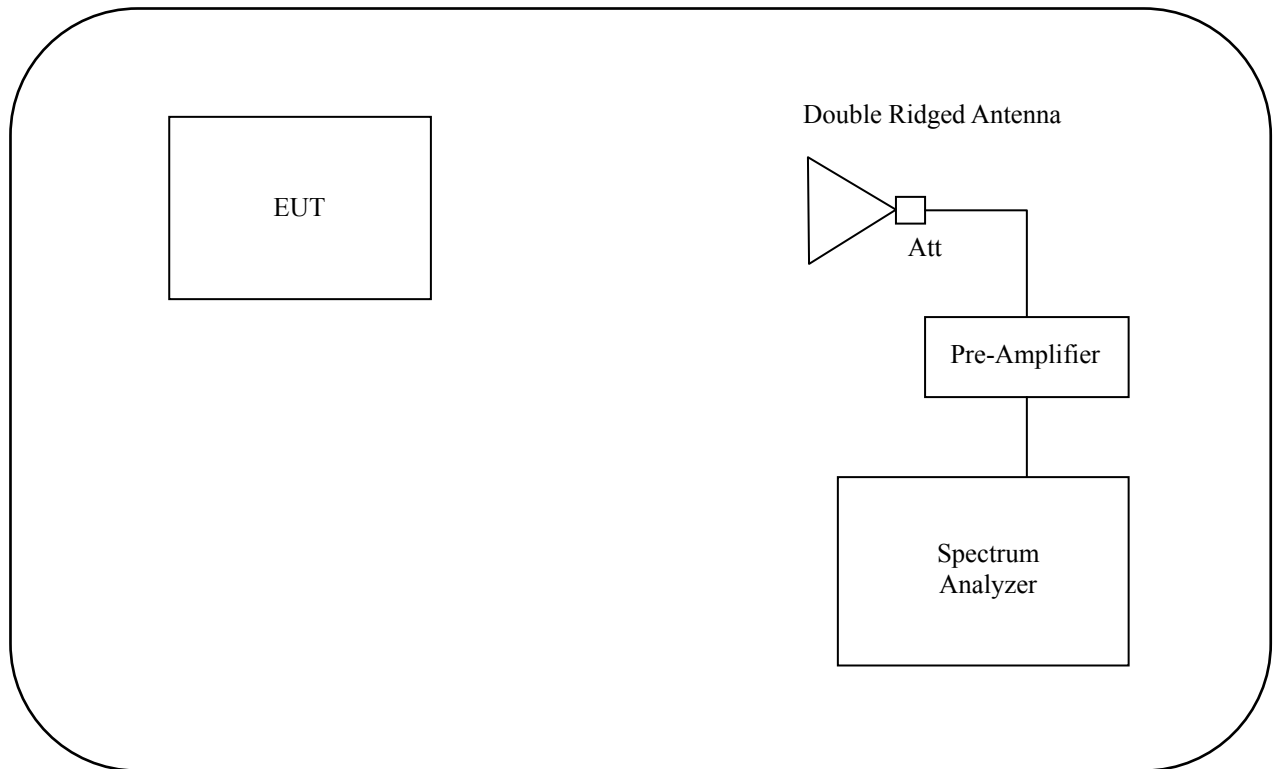
Higher six points are underlined.

Other frequencies : Below the FCC Part15C (15.209,247(d)) limit

Emission Level = Read + Factor(Antenna,Antenna Pad,Cable,Preamp)

ANT. : Used antenna(BBA = Broadband antenna, DIP = Dipole antenna)

TEST INSTRUMENTS CONFIGURATION



Instrument	Model No.	Serial No.	Manufacturer	Cal. Date	Calibration Expired
Double Ridged Antenna	3115	5044	EMCO	Mar. 26, 07	Mar. 31, 08
Attenuator	4768-3	79	narda	Sep. 27, 06	Sep. 30, 07
Amplifier	83051A	3332A00329	Hewlett Packard	Sep. 27, 06	Sep. 30, 07
Coaxial cable	SUCOFLEX102	712/2	SUHNER	Sep. 27, 06	Sep. 30, 07
Coaxial cable	KPS-1501-2362-KPS	03292004	Insulated Wire	Sep. 27, 06	Sep. 30, 07
Spectrum Analyzer	R3182	111100429	ADVANTEST	Mar. 26, 07	Mar. 31, 08

9.10 Power Spectral Density [15.247(e)]

9.10.1 MEASUREMENT PROCEDURE:

- The Spectrum Analyzer was connected directly to the antenna cable port.
- The Spectrum Analyzer was setup using RBW = 3kHz, VBW = 10kHz, span = 300kHz and sweep = 100sec.(span/3kHz).
- Following data is the worst case.
- The next page shows the chart of the observed RF profiles.

9.10.2 TX mode

The EUT was set to operate with following conditions.

- Hopping Off [ch 40 (mid)]

Test date : August 16, 2007
Temperature : 25 °C
Humidity : 53 %

[TX mode] – DH5 packet (Max. Length of 5 time slots)

Ch	Frequency (MHz)	Reading (dBm)	Cable Loss (dB)	Power Spectral Density (dBm)	15.247(e) Limit (dBm)
40	2441.0	-5.41	0.3	-5.11	8

9.10.3 Inquiry mode and Page mode

The EUT was set to operate with following conditions.

- Hopping Off

Test date : August 16, 2007
Temperature : 25 °C
Humidity : 53 %

[Inquiry mode]

Ch	Frequency (MHz)	Reading (dBm)	Cable Loss (dB)	Power Spectral Density (dBm)	15.247(e) Limit (dBm)
40	2441.0	-9.26	0.3	-8.96	8

[Page mode]

Ch	Frequency (MHz)	Reading (dBm)	Cable Loss (dB)	Power Spectral Density (dBm)	15.247(e) Limit (dBm)
39	2440.0	-11.29	0.3	-10.99	8

Chart of TX mode

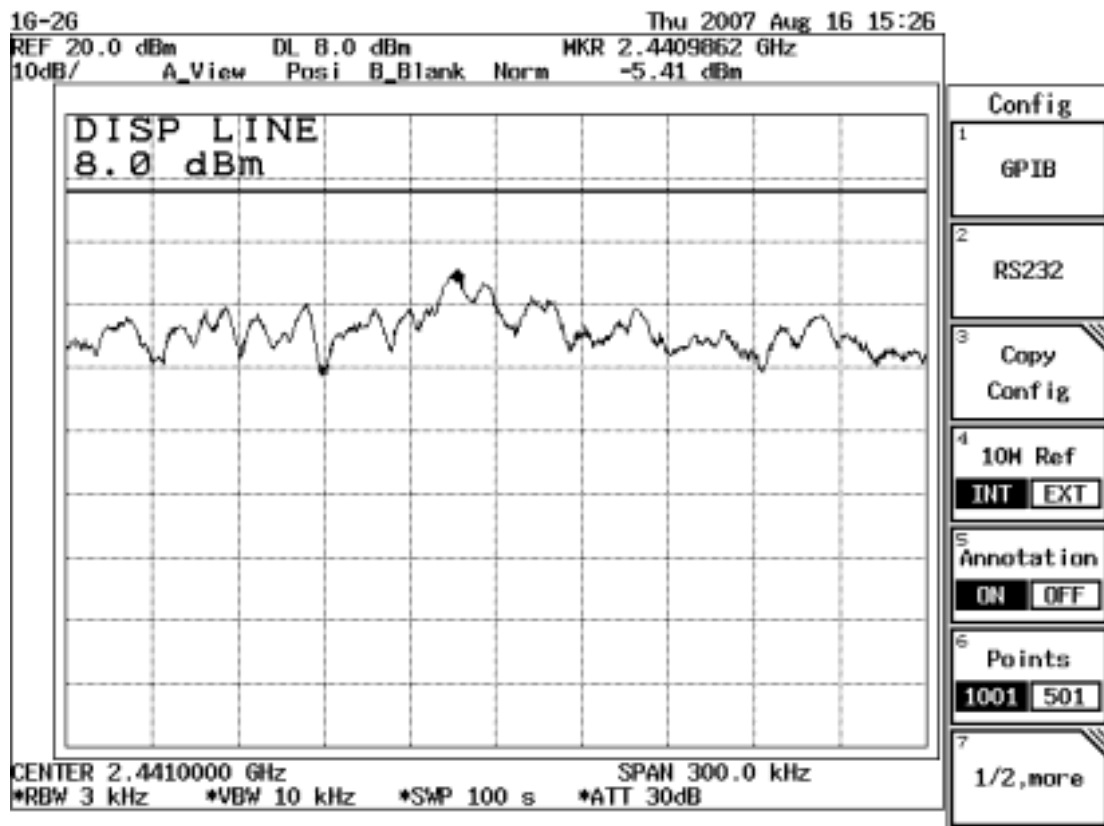


Chart of Inquiry mode

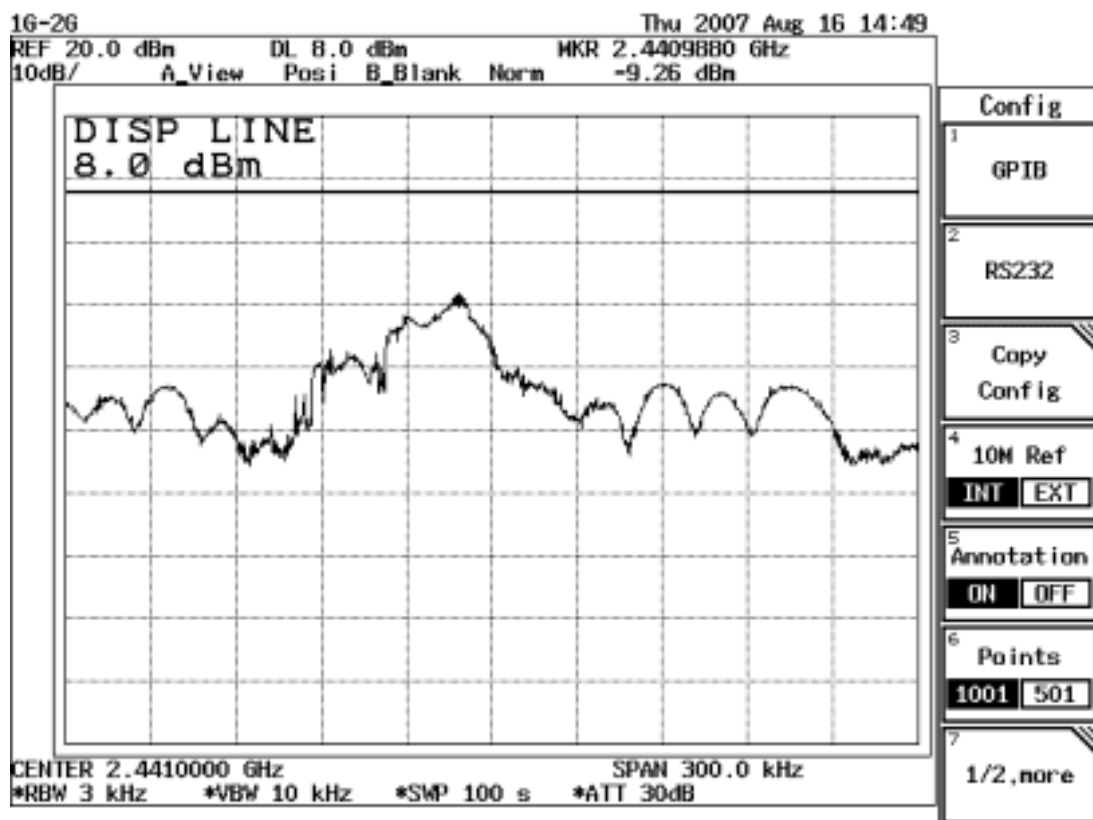
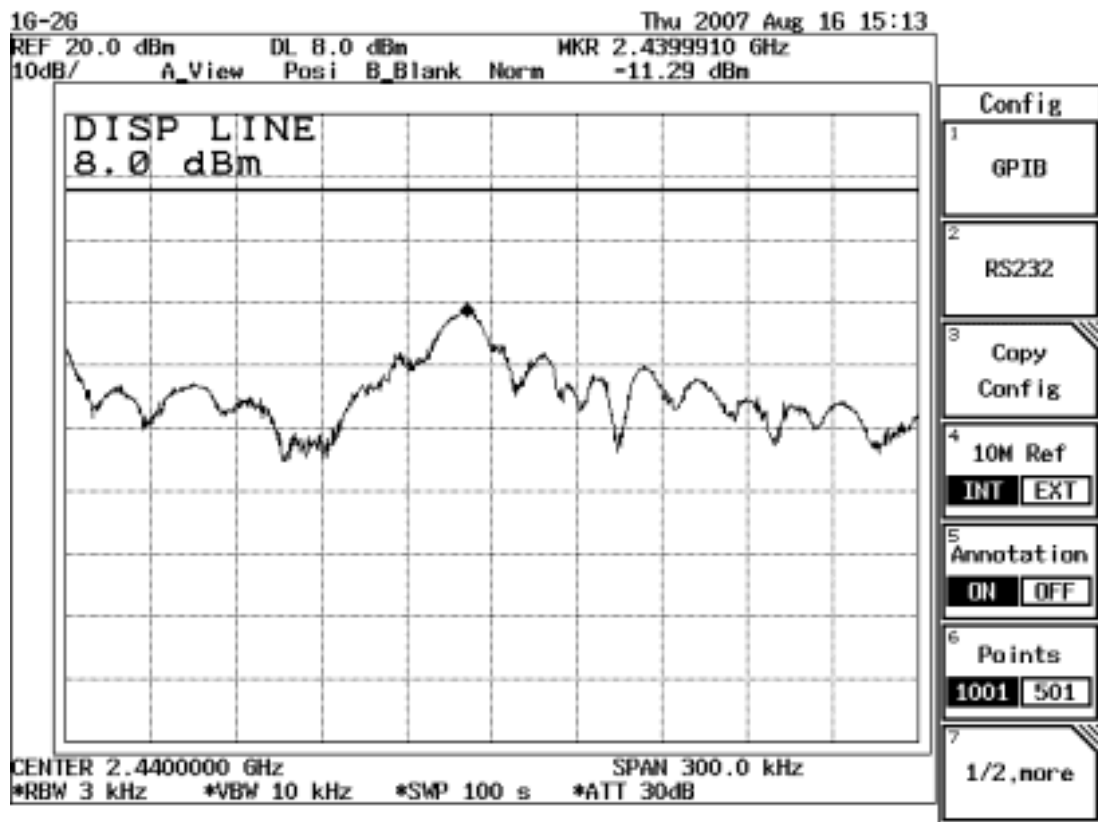
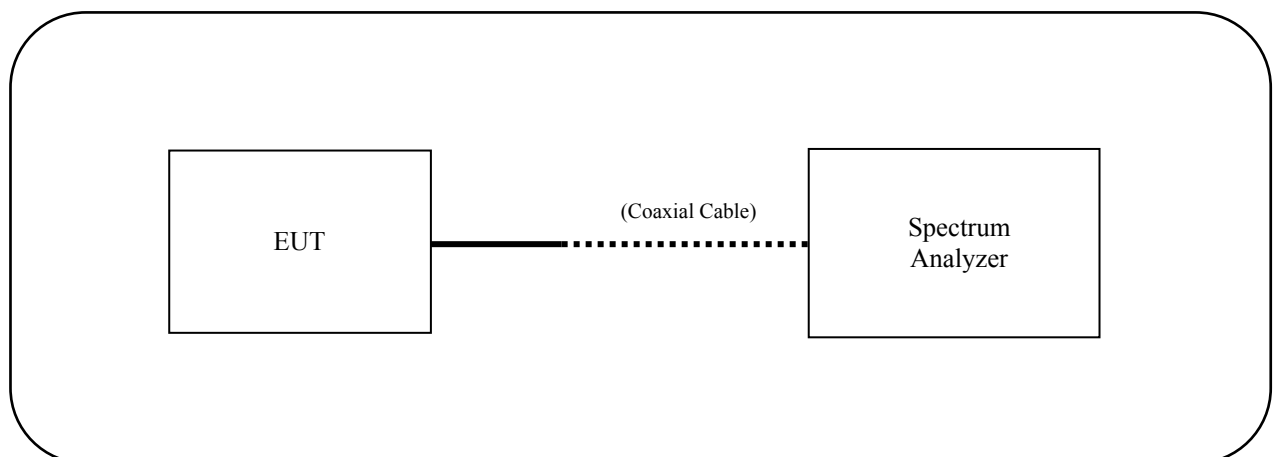


Chart of Page mode



TEST INSTRUMENTS CONFIGURATION



Instrument	Model No.	Serial No.	Manufacturer	Cal. Date	Calibration Expired
Spectrum Analyzer	R3182	111100429	ADVANTEST	Mar. 26, 07	Mar. 31, 08
Coaxial cable	5B-048-98-98-500	040511	Candox Systems	Jul. 17, 07	Jul. 31, 08

9.11 Variation Carrier Output Power [15.31(e)]

9.11.1 MEASUREMENT PROCEDURE:

- The Power Meter was connected directly to the antenna cable port.
- Following data is the worst case.
- The next shows the data.

9.11.2 TX mode

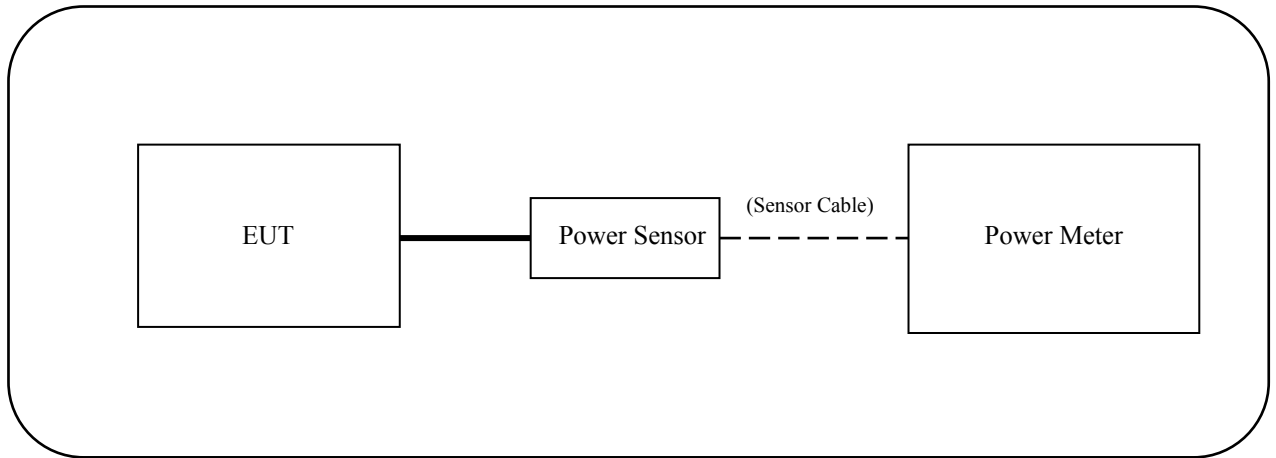
- The EUT was set to operate with following conditions.
- Hopping Off [ch 1(low), ch 40(mid) and ch 79(high)]
- Unmodulated-carrier

Test date : August 21, 2007
Temperature : 24 °C
Humidity : 54 %

Note : EUT is not able to operate below 2.9V and above 3.6V. There is no transmitting conditions.

Ch	Rate (%)	Voltage (V)	Maximum Output Power (dBm)	Deviation (dBm)
1	85	2.7	—	—
	90	2.9	3.55	-0.02
	100	3.3	3.57	0
	110	3.6	3.54	-0.03
	115	3.8	—	—
40	85	2.7	—	—
	90	2.9	3.40	-0.04
	100	3.3	3.48	0
	110	3.6	3.47	-0.01
	115	3.8	—	—
79	85	2.7	—	—
	90	2.9	3.37	-0.02
	100	3.3	3.39	0
	110	3.6	3.40	+0.01
	115	3.8	—	—

TEST INSTRUMENTS CONFIGURATION



Instrument	Model No.	Serial No.	Manufacturer	Cal. Date	Calibration Expired
Power Meter	E4418B	GB38410265	Hewlett Packard	May 17, 07	May 31, 08
Power Sensor	8482A	US37292237	Hewlett Packard	May 09, 07	May 31, 08

9.12 Variation Carrier Frequency Stability [15.31(e)]

9.12.1 MEASUREMENT PROCEDURE:

- The Spectrum Analyzer was connected directly to the antenna cable port.
- The Spectrum Analyzer was setup using RBW = 1MHz, VBW = 3MHz.
- Following data is the worst case.
- The next shows the data.

9.12.2 TX mode

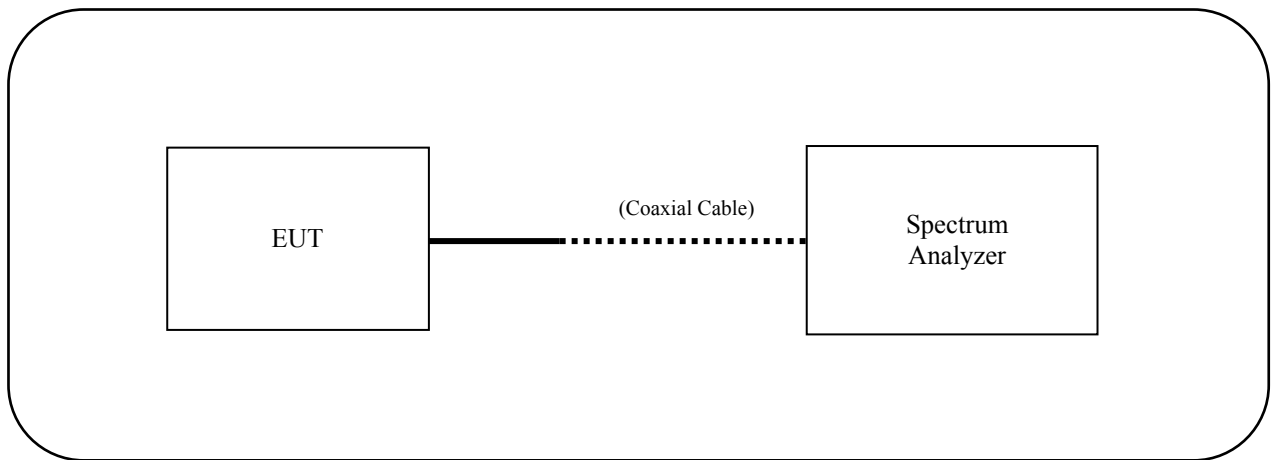
- The EUT was set to operate with following conditions.
- Hopping Off [ch 1(low), ch 40(mid) and ch 79(high)]
- Unmodulated-carrier

Test date : August 21, 2007
Temperature : 24 °C
Humidity : 54 %

Note : EUT is not able to operate below 2.9V and above 3.6V. There is no transmitting conditions.

Ch	Rate (%)	Voltage (V)	Frequency (MHz)	Deviation (ppm)
1	85	2.7	—	—
	90	2.9	2401.993538	0.29
	100	3.3	2401.992865	0
	110	3.6	2401.994202	0.58
	115	3.8	—	—
40	85	2.7	—	—
	90	2.9	2440.993353	0.12
	100	3.3	2440.993047	0
	110	3.6	2440.993215	0.08
	115	3.8	—	—
79	85	2.7	—	—
	90	2.9	2479.993332	0.24
	100	3.3	2479.992701	0
	110	3.6	2479.993029	0.12
	115	3.8	—	—

TEST INSTRUMENTS CONFIGURATION



Instrument	Model No.	Serial No.	Manufacturer	Cal. Date	Calibration Expired
Spectrum Analyzer	E4407B	MY45102460	Agilent	Oct. 03, 06	Oct. 31, 07
Coaxial cable	5B-048-98-98-500	040511	Candox Systems	Jul. 17, 07	Jul. 31, 08

SECTION 10. MEASUREMENT UNCERTAINTY

The uncertainty of the measurements performed for this report lies:

20dB Bandwidth		
Above 1 GHz	± 30 kHz	15.247(a)(1)
Carrier Frequency Separation		
Above 1 GHz	± 50 kHz	15.247(a)(1)
Time of Occupancy (Dwell Time)		
	± 2 %	15.247(a)(1)(iii)
Maximum Peak Output Power – RF Antenna Conducted		
Above 1 GHz	± 0.3 dB	15.247(b)(1)
Band Edge Compliance of RF Conducted Emission		
Above 1 GHz	± 1.5 dB	15.247(d)
Spurious Emissions – RF Antenna Conducted		
Above 1 GHz	± 1.5 dB	15.247(d)
Spurious Emissions – Radiated Emission		
Above 1 GHz	± 4.3 dB	15.247(d), 15.205, 15.209
Power Spectral Density		
Above 1 GHz	± 1.5 dB	15.247(e)
Restricted Bands of Operation		
Above 1 GHz	± 4.3 dB	15.247(d) , 15.205, 15.209
Variation Carrier Frequency Stability		
Above 1 GHz	± 0.2 kHz	15.31(e)
Radiated Emission from Digital Part		
30 MHz – 1000 MHz	± 4.8 dB	15.109

Note on Radiated Electric Field measurement uncertainty

The following items are not included in the calculations in spite of their own uncertainty components because it is impracticable to find the value.

It is our problem awaiting solution in future.

(1) Repeatability of measurement

It is not possible to calculate repeatability since the measurement was carried out only one time.

(2) Antenna factor variation

The definition of measured (radiated electric field strength) is not completed on the referred standard(s).




(3) Loss of EUT radiation propagation



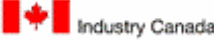
It is certainly one of the uncertainty components, however is not able to calculate.

Please note that these uncertainties are not reflected to the compliance judgment of the test results in this report.

SECTION 11. DESCRIPTION OF TEST LABORATORY

ETL SEMKO is a division of Intertek plc (LSE: ITRK), a global leader in testing, inspection and certification services, operating in 273 laboratories and 521 offices in 100 countries throughout the world. The ETL SEMKO division of Intertek provides access to global markets through its local services, which include product safety testing and certification, EMC testing and performance testing for customers in such industries as wireless technology, security, appliances, HVAC, cables and wiring accessories, industrial machinery, medical devices, telecommunications, lighting, automotive, semiconductor, building products and electronics.

ACCREDITATION	SCOPE	LAB. CODE
 NVLAP USA	EMC Testing	100290-0
 VLAC JAPAN	EMC Testing	VLAC-008-1
 BSMI TAIWAN	EMC Testing	SL2-IN-E-6008

FILING	SCOPE	LAB. CODE
 VCCI JAPAN	EMC Testing	-
 FCC USA	EMC Testing	Registration Number 934283
 IC CANADA	EMC Testing Telecom Testing	IC 2065A
SAUDI ARABIA	EMC Testing	-