

**HYUNDAI CALIBRATION & CERTIFICATION TECH. CO., LTD.**



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**CERTIFICATE OF COMPLIANCE**

**FCC Part 15C Certification**

**EGI Co.,Ltd**

C-1402, Intellige, 24, Jeongja-dong, Bundang-gu,  
Seongnam-si, Gyeonggi-do, 463-841 Korea

Date of Issue: Mar. 20, 2007

Test Report No.: HCT-SAR07-0308

Test Site: HYUNDAI CALIBRATION & CERTIFICATION  
TECHNOLOGIES CO., LTD.

**FCC ID** :

**APPLICANT** :

**U3XNEON7**

**EGI Co.,Ltd**

**EUT:** Tri-Band GSM Phone (GSM 850/ DCS1800/ PCS1900) – Prototype  
**Trade Name:** EGI  
**Model:** NEON7  
**Frequency Range:** 2402 — 2480 MHz (Bluetooth)  
**Max. RF Output Power:** 0.00078 W Bluetooth (-1.06 dBm)  
**FCC Classification:** FCC Part 15 Frequency Hopping Spread Spectrum Transceiver (DSS)  
**FCC Rule Part(s):** Part 15 subpart C (15.247)  
**Application Type:** Certification

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in § 2.947.

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.

Hyundai C-Tech Co., Ltd. Certifies that no party to this application has been denied FCC benefits pursuant to section 5301 of the Anti- Drug Abuse Act of 1998, 21 U.S. C. 853(a)

**Report prepared by: Ki-Soo Kim**

**Manager of Product Compliance Team**

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## 1. TEST RESULT CERTIFICATION

Applicant: EGI Co.,Ltd.  
C-1402, Intellige, 24, Jeongja-dong, Bundang-gu, Seongnam-si,  
Gyeonggi-do, 463-841 Korea

Date of Test: March 19, 2007

## 2. EUT DESCRIPTION

<b>Product</b>	Tri -Band GSM Phone (GSM 850/ DCS1800/ PCS1900) – Prototype
<b>Trade Name</b>	EGI
<b>Model</b>	NEON7
<b>Power Supply</b>	DCV power from the battery
<b>Frequency Range</b>	2402 ~ 2480 MHz
<b>Transmit Power</b>	0.00078 W Bluetooth (- 1.06 dBm)
<b>Bandwidth</b>	860 kHz
<b>Modulation Technique</b>	FHSS(GMSK)
<b>Number of Channels</b>	79 Channels
<b>Antenna Specification</b>	Manufacturer: IMTech Inc. Antenna type: Chip Type Ant Part number : IMABB02 Antenna Gain (Peak): 0 dBi

### 3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4. (Version :2003) Radiated testing was performed at an antenna to EUT distance 3 meters.

#### 3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

#### 3.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

#### 3.3 GENERAL TEST PROCEDURES

##### Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4. (Version :2003) Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

##### Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.4. (Version: 2003)

#### 3.4 DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed. Channel low, mid and high with highest data rate (worst case) is chosen for full testing.

#### 4. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

## **5. FACILITIES AND ACCREDITATIONS**

### **5.1 FACILITIES**

The open area test site and conducted measurement facility used to collect the radiated data are located at the 254-1, Maekok-Ri, Hobup-Myun, Ichon-Si, Kyoungki-Do, 467-701, KOREA. The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2003) and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated July 6, 2006(Registration Number: 90661)

### **5.2 EQUIPMENT**

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements. Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

## **6. SETUP OF EQUIPMENT UNDER TEST**

### **6.1 SETUP CONFIGURATION OF EUT**

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

## 7. FCC PART 15.247 REQUIREMENTS

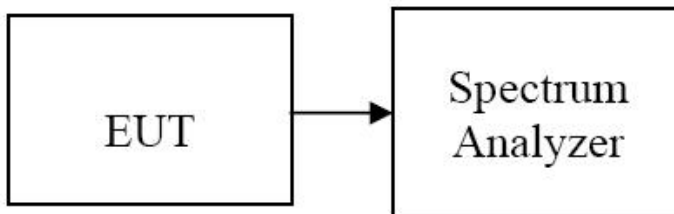
### 7.1 PEAK POWER

#### LIMIT

The maximum peak output power of the intentional radiator shall not exceed the following:

1. For systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 watt.
2. Except as shown in paragraphs (b)(3) (i), (ii) and (iii) of this section, if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### Test Configuration



#### TEST PROCEDURE

The transmitter output is connected to the RF Power Meter. The RF Power Meter is set to the peak power detection.

#### TEST RESULTS

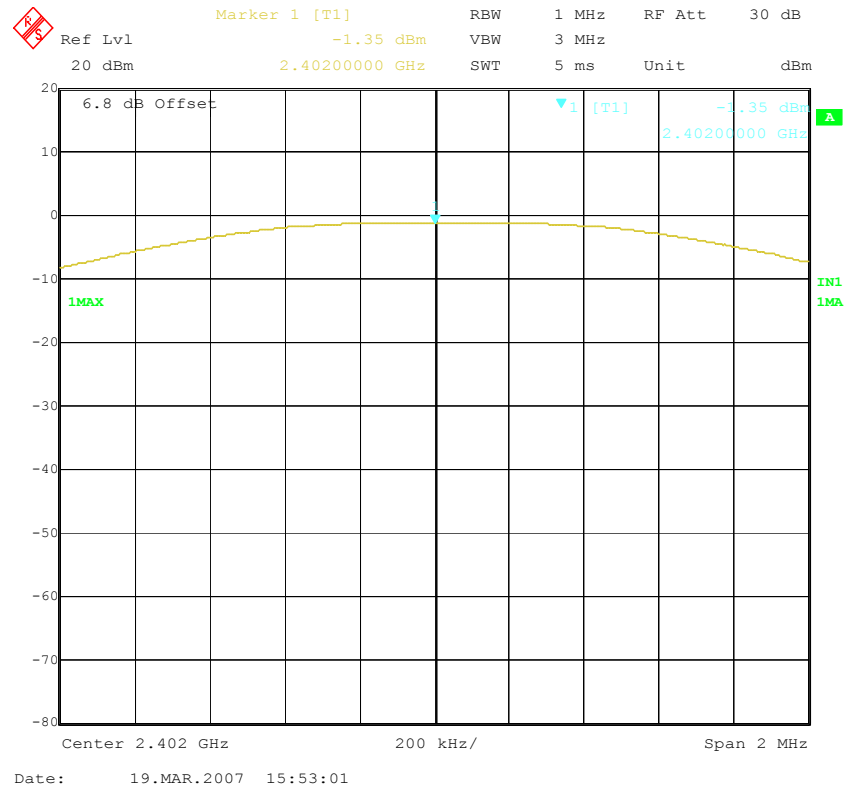
*No non-compliance noted*

#### Test Data

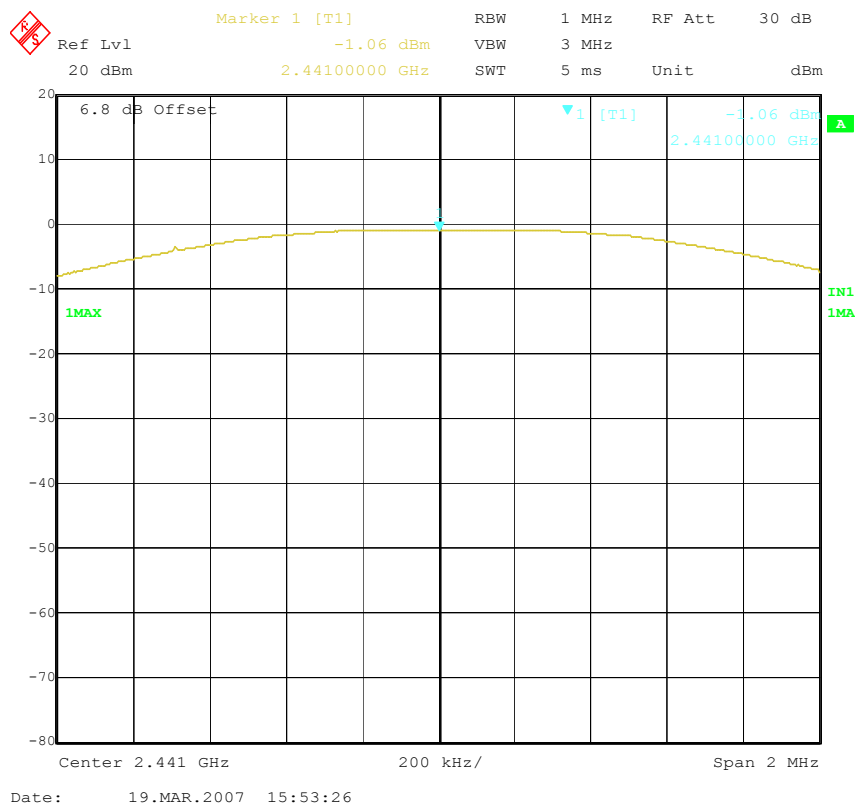
Channel	Frequency (MHz)	Reading Power (dBm)	Factor (dB)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
Low	2402	- 9.55	8.2	- 1.35	0.00073	1	PASS
Mid	2440	- 9.26	8.2	- 1.06	0.00078		PASS
High	2480	- 10.20	8.2	- 2.00	0.00063		PASS

## Test Plot

### Peak Power (CH Low)

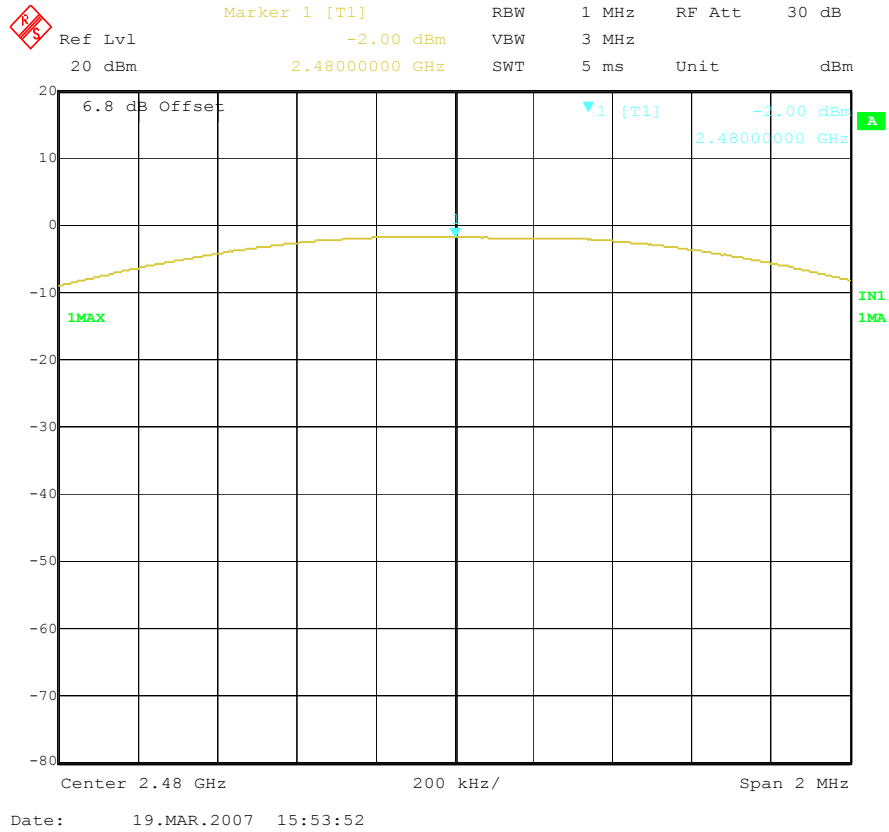


### Peak Power (CH Mid)





## Peak Power (CH High)

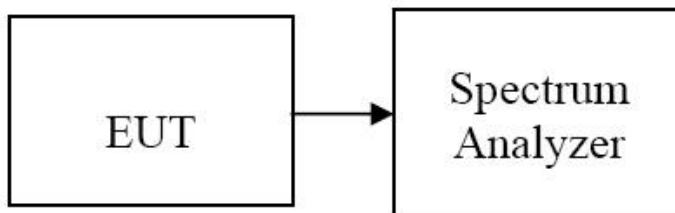


## 7.2 PEAK POWER SPECTRAL DENSITY

### LIMIT

1. For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.
2. The direct sequence operating of the hybrid system, with the frequency hopping operation turned off, shall comply with the power density requirements of paragraph (d) of this section.

### Test Configuration



### TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 300kHz, Sweep=100s
4. Record the max. reading.
5. Repeat the above procedure until the measurements for all frequencies are completed.

### TEST RESULTS

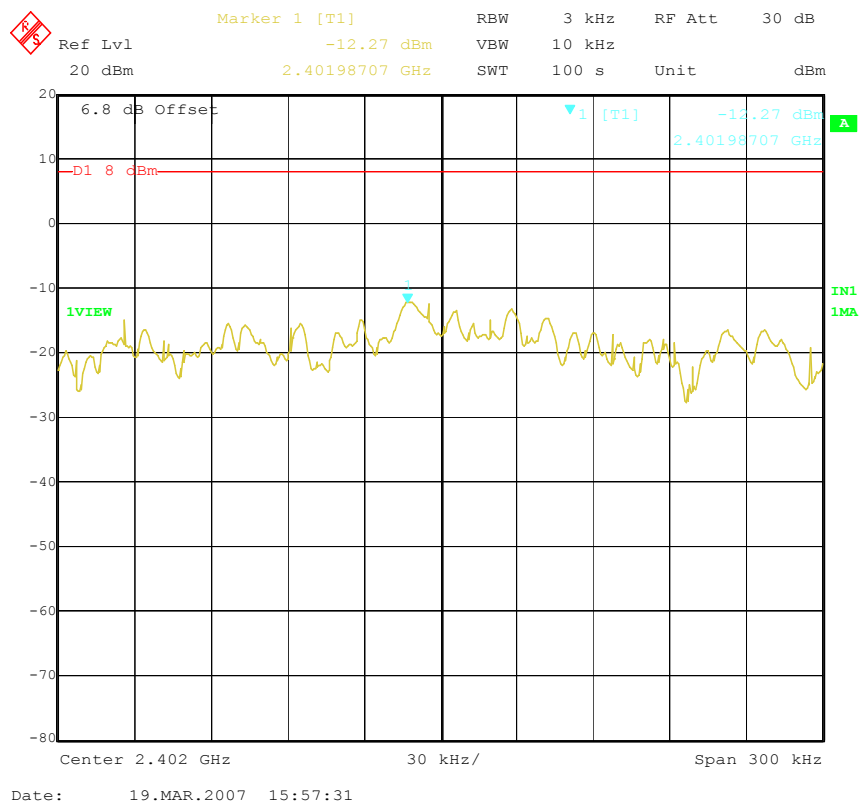
*No non-compliance noted*

### Test Data

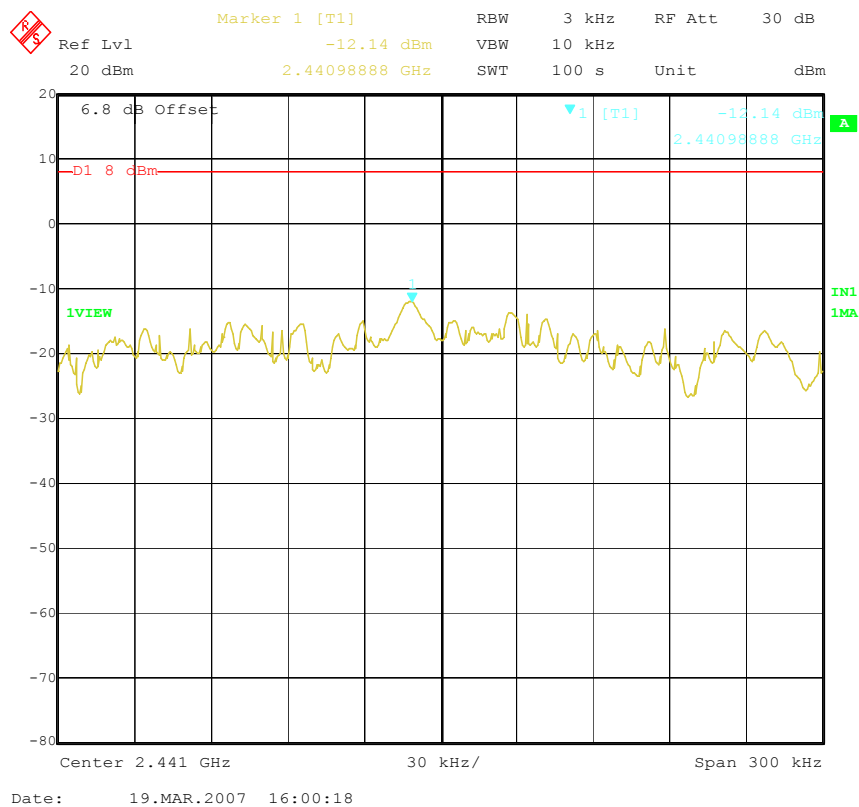
Channel	Frequency (MHz)	Reading Power (dBm)	Factor (dB)	Output Power (dBm)	Limit (dBm)	Result
Low	2402	- 20.47	8.2	- 12.27	8.0	PASS
Mid	2440	- 20.34	8.2	- 12.14		PASS
High	2480	- 20.75	8.2	- 12.55		PASS

## Test Plot

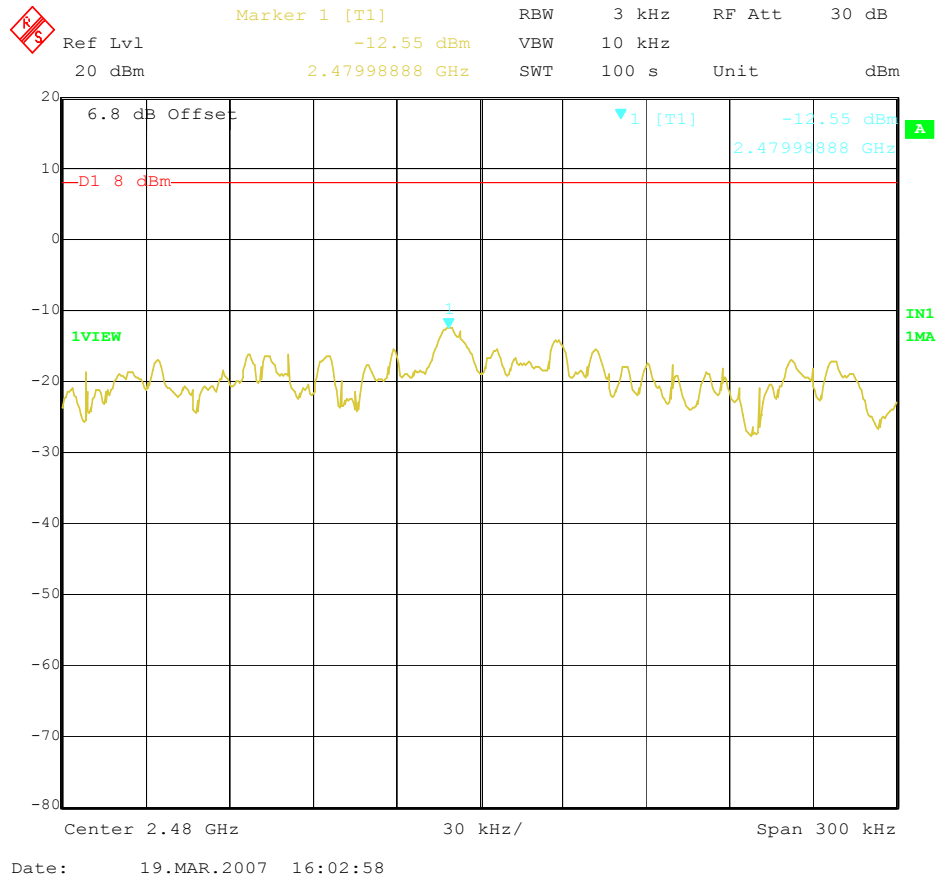
### PPSD (CH Low)



### PPSD (CH Mid)



**PPSD (CH High)**

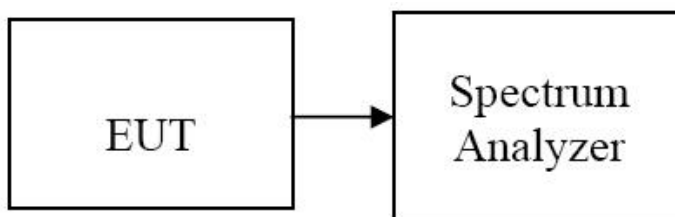


### 7.3 BAND EDGES MEASUREMENT (Conducted)

#### LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

#### Test Configuration



#### TEST PROCEDURE

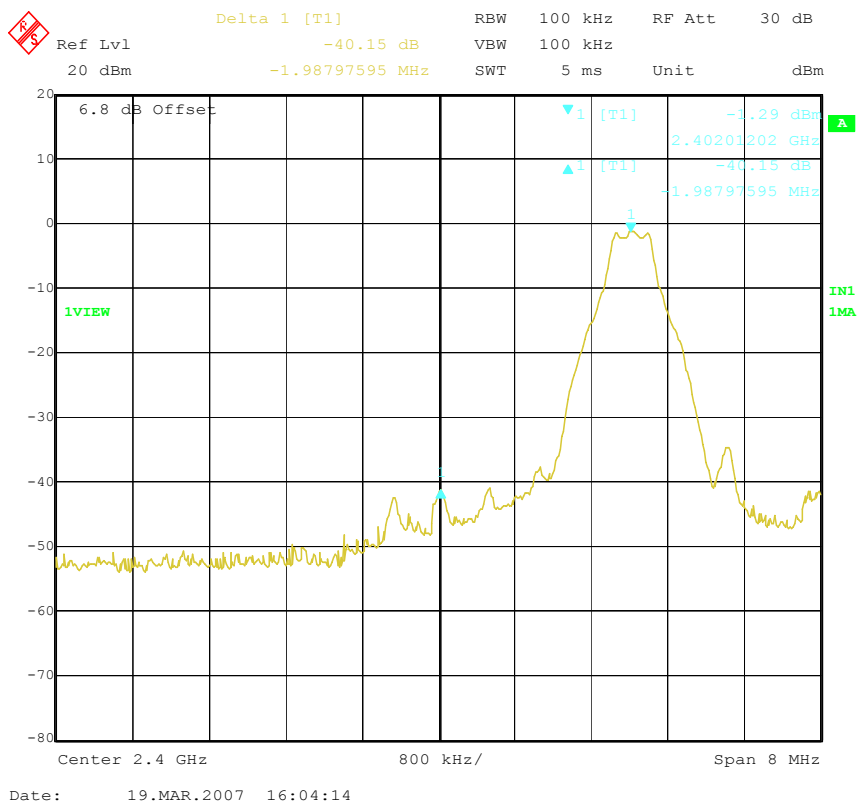
1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 100kHz, VBW = 100kHz, Span = 8MHz, Sweep=5ms
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

#### TEST RESULTS

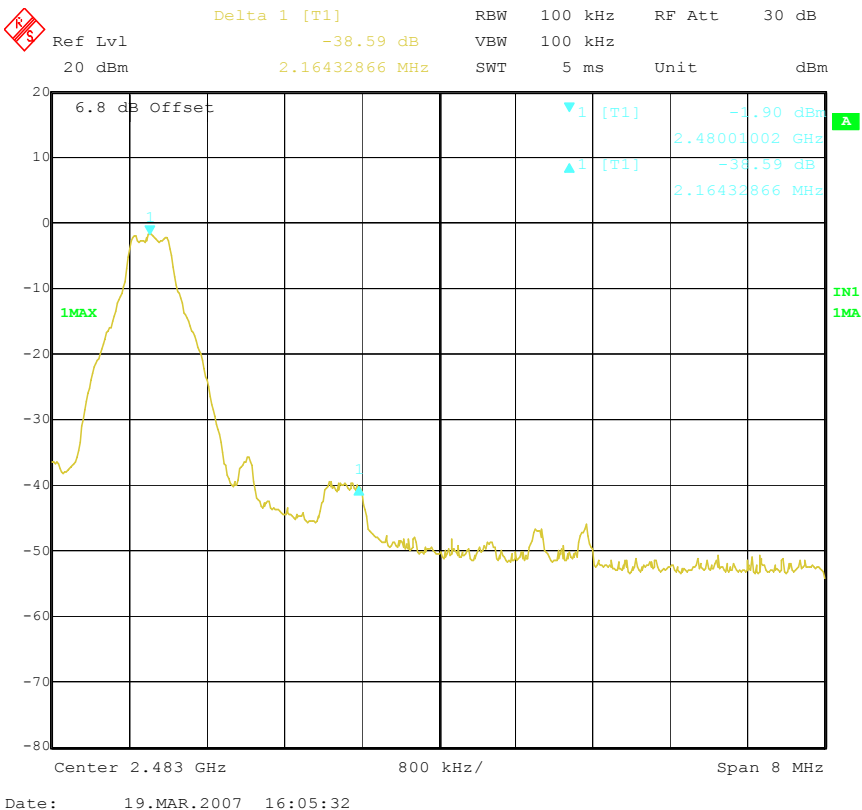
Refer to attach spectrum analyzer data chart.

## Test Data

### Band Edges (CH-Low)



### Band Edges (CH-Low)

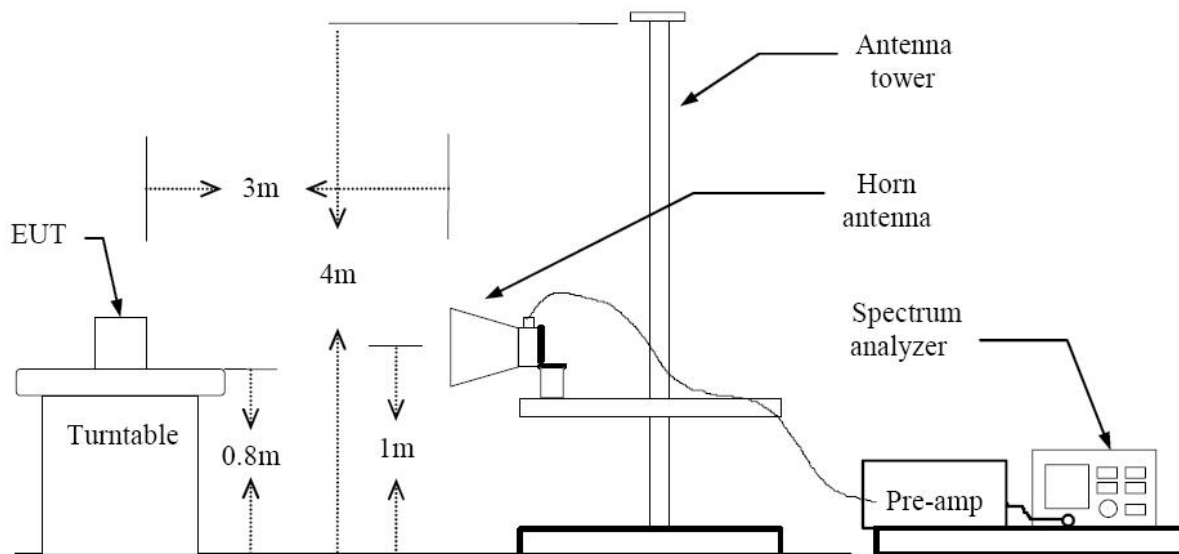


### 7.3.1 BAND EDGES MEASUREMENT (Radiated)

#### LIMIT

According to §15.247(c), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

#### Test Configuration



#### TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
  - (a) PEAK: RBW = VBW = 1 MHz / Sweep = AUTO
  - (b) AVERAGE: RBW = 1 MHz / VBW = 10 Hz / Sweep = AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

#### TEST RESULTS

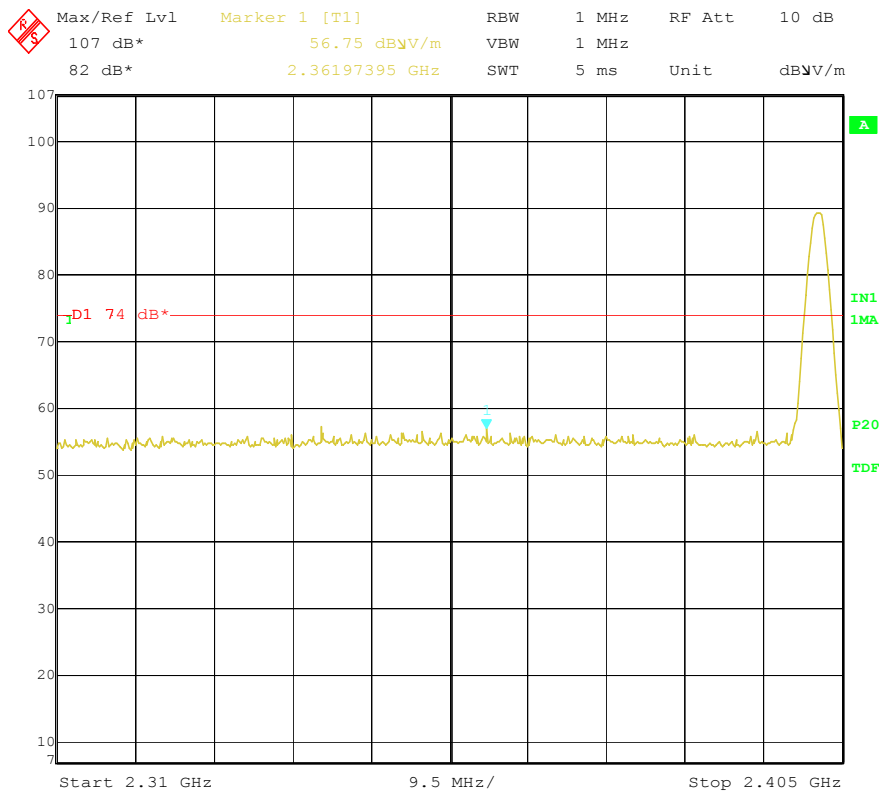
Refer to attach spectrum analyzer data chart.

#### Test Data

## Band Edges (CH-Low)

Detector mode: Peak

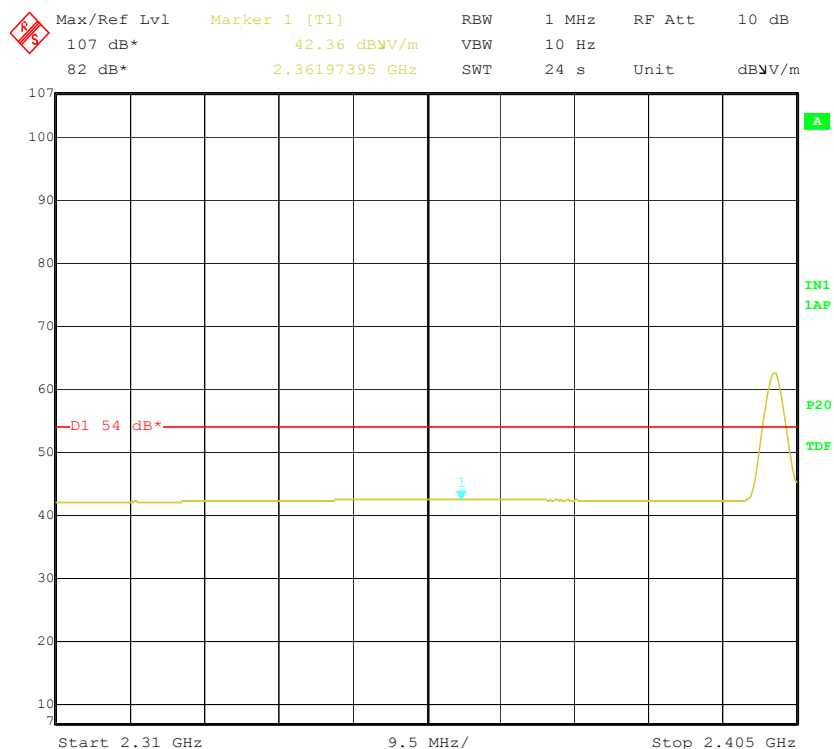
Polarity: Vertical



Date: 19.MAR.2007 17:00:47

Detector mode: Average

Polarity: Vertical

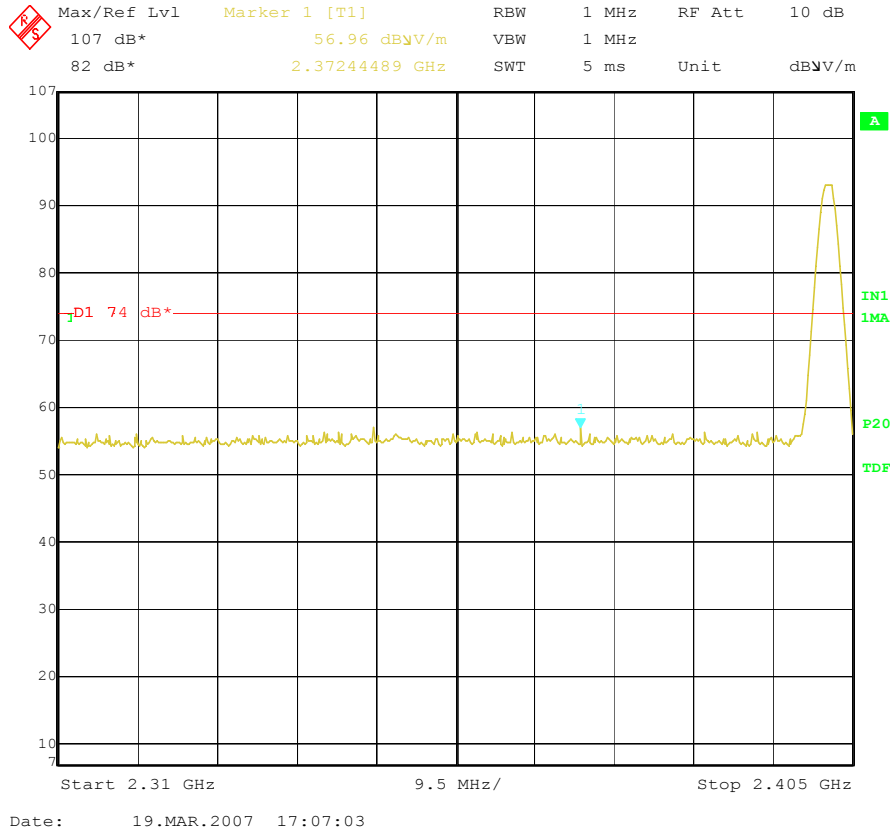


Date: 19.MAR.2007 17:02:41



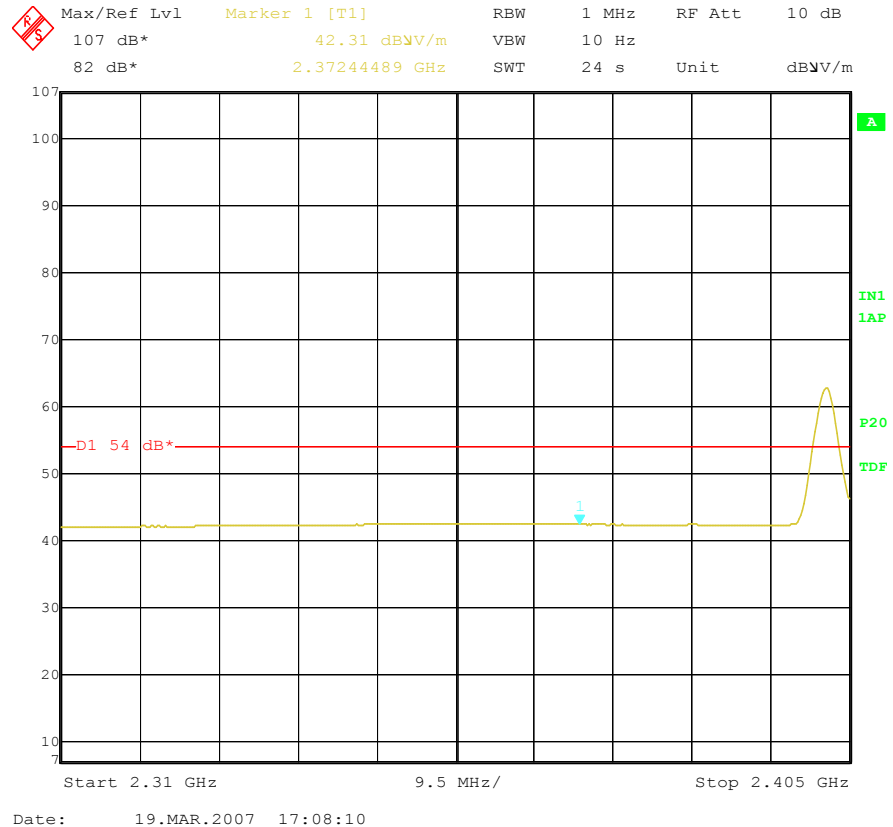
**Detector mode: Peak**

**Polarity: Horizontal**



**Detector mode: Average**

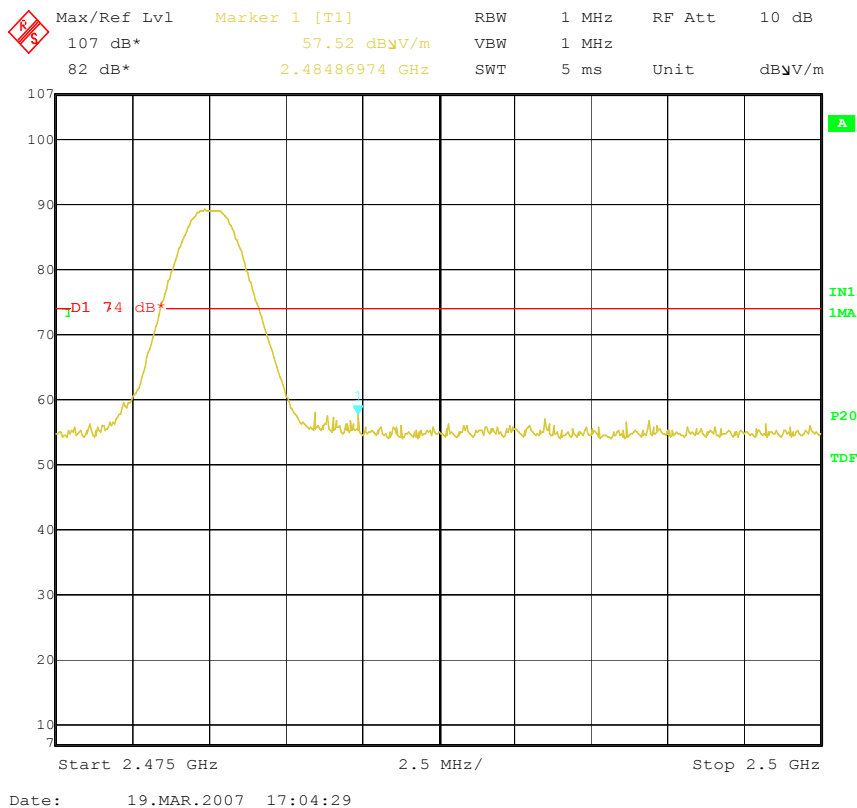
**Polarity: Horizontal**



## Band Edges (CH-High)

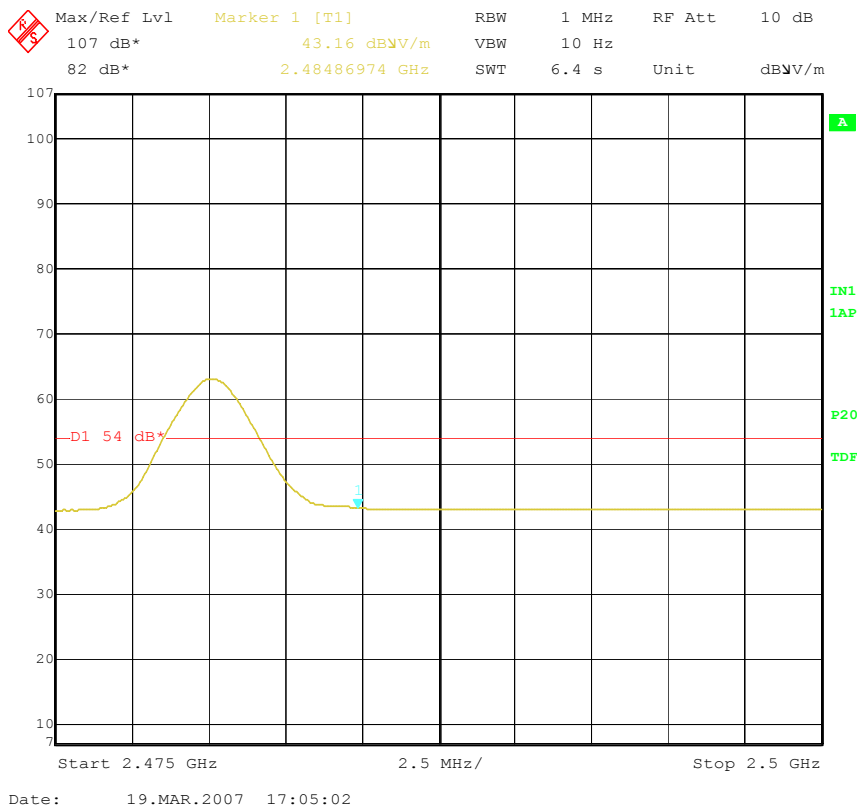
Detector mode: Peak

Polarity: Vertical



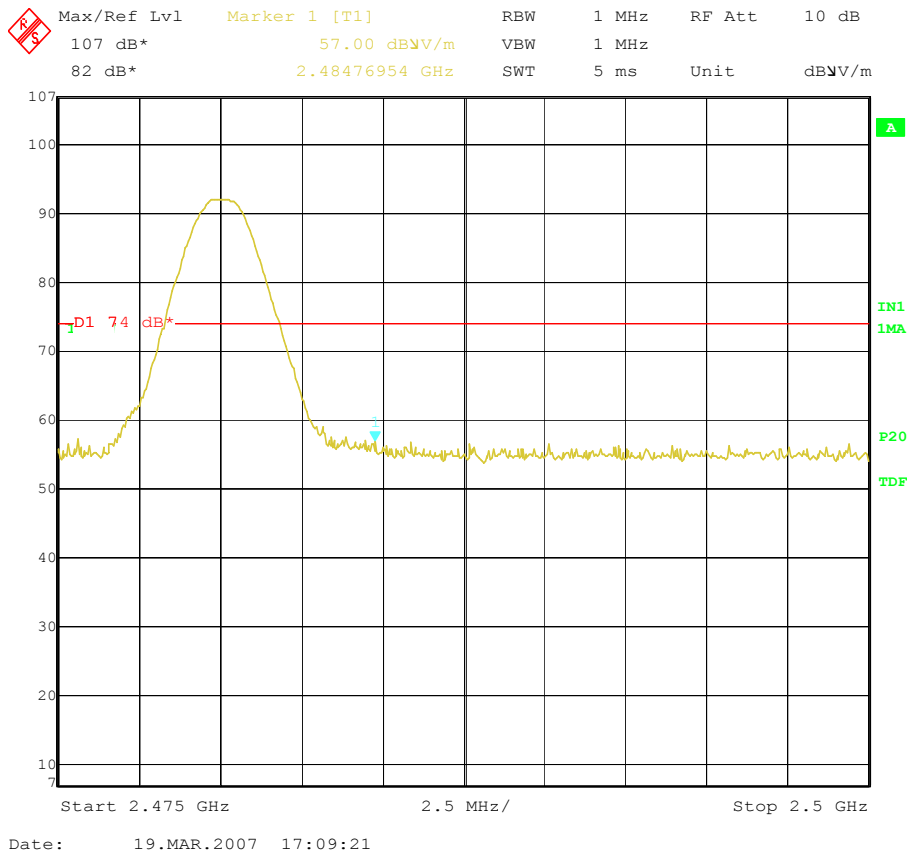
Detector mode: Average

Polarity: Vertical



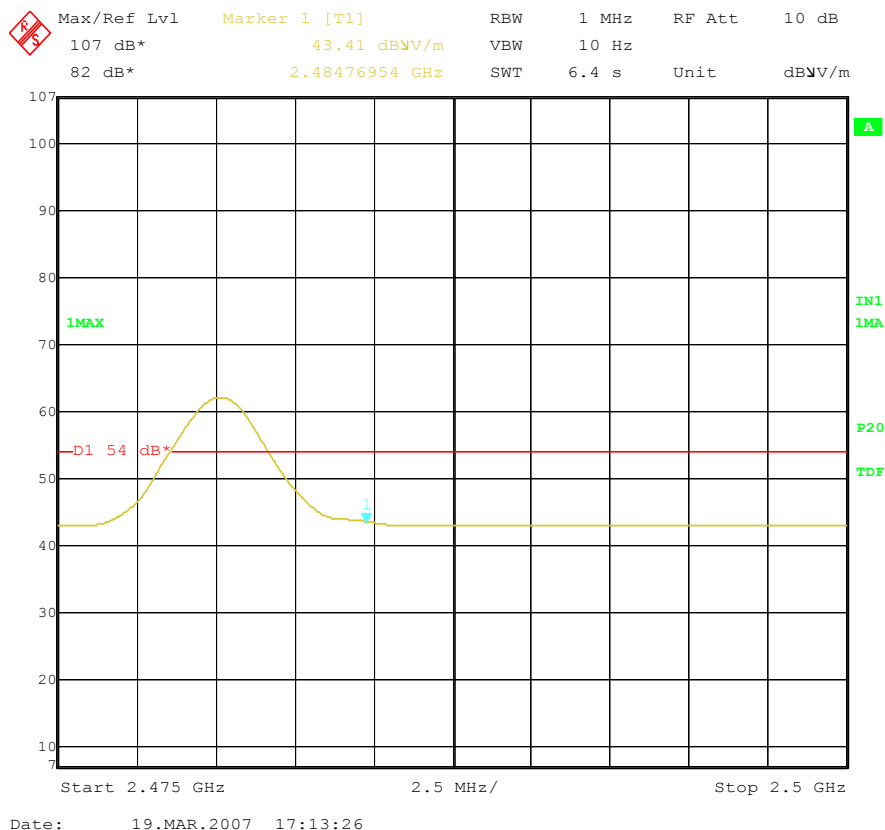
**Detector mode: Peak**

**Polarity: Horizontal**



**Detector mode: Average**

**Polarity: Horizontal**

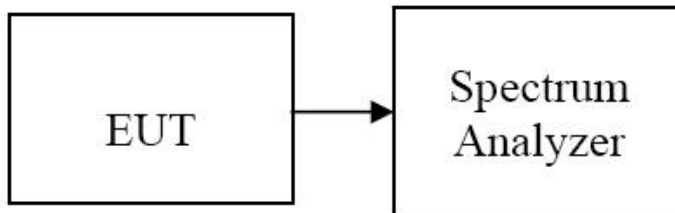


## 7.4 FREQUENCY SEPARATION

### LIMIT

According to §15.247(a)(1), Frequency hopping systems shall have hopping channel carrier frequencies separated by minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater.

### Test Configuration



### TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = middle of hopping channel.
4. Set the spectrum analyzer as RBW, VBW=100kHz, Adjust Span to 5 MHz, Sweep = auto.
5. Max hold. Mark 3 Peaks of hopping channel and record the 3 peaks frequency.

### TEST RESULTS

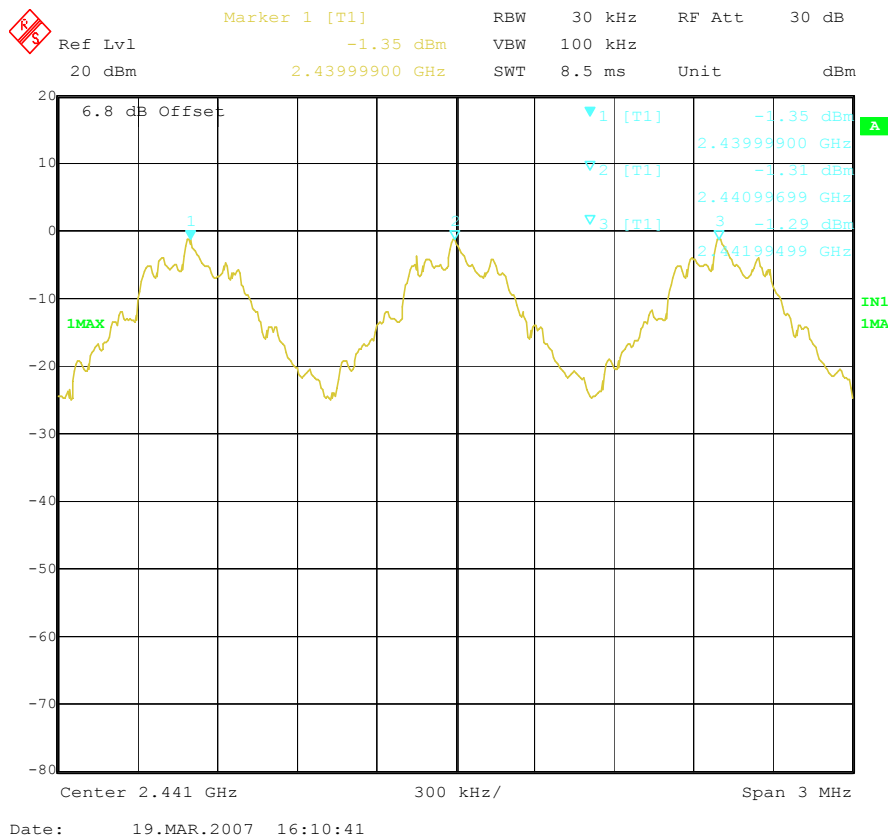
*No non-compliance noted*

#### Test Data

Channel Separation (MHz)	20dB Bandwidth (kHz)	Limit (kHz)	Result
1.00	859	> 25	Pass

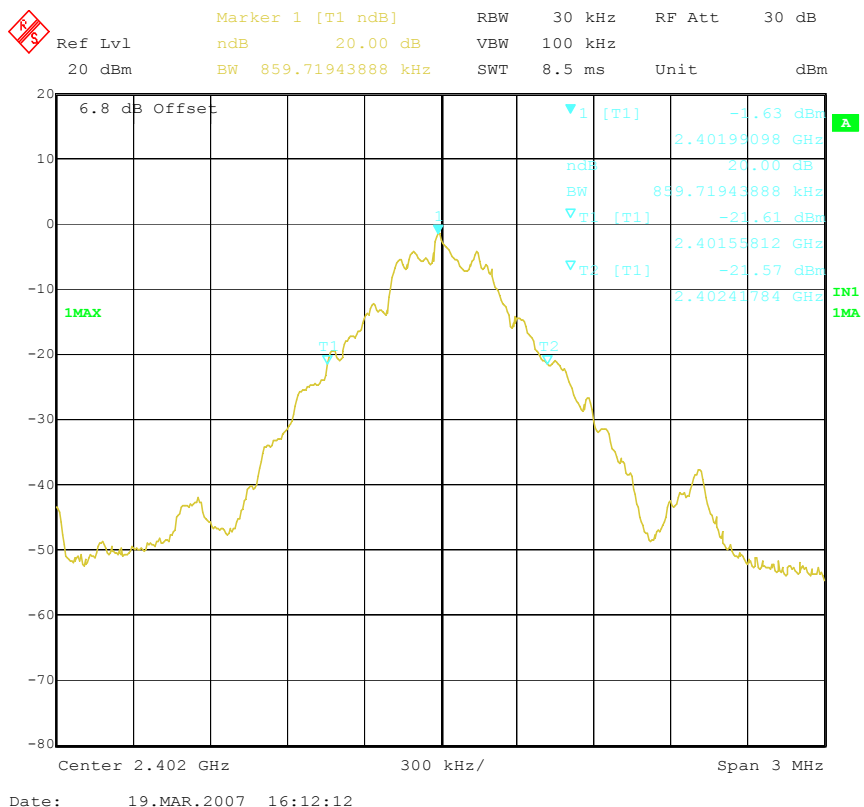
## Test Plot

### Measurement of Channel Separation

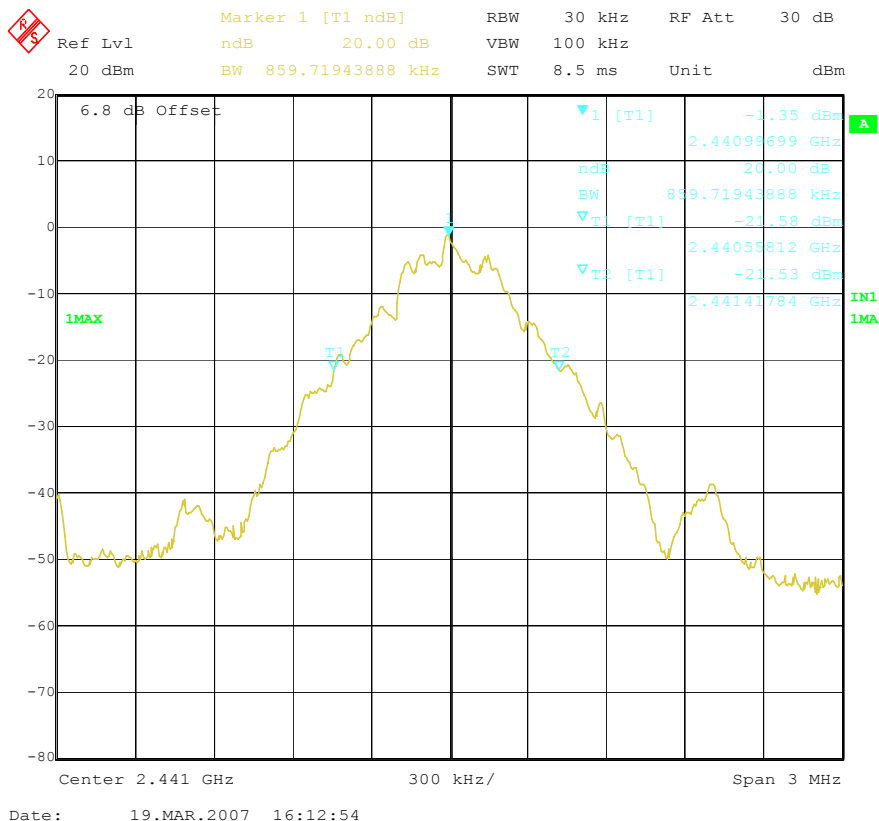


## Test Plot

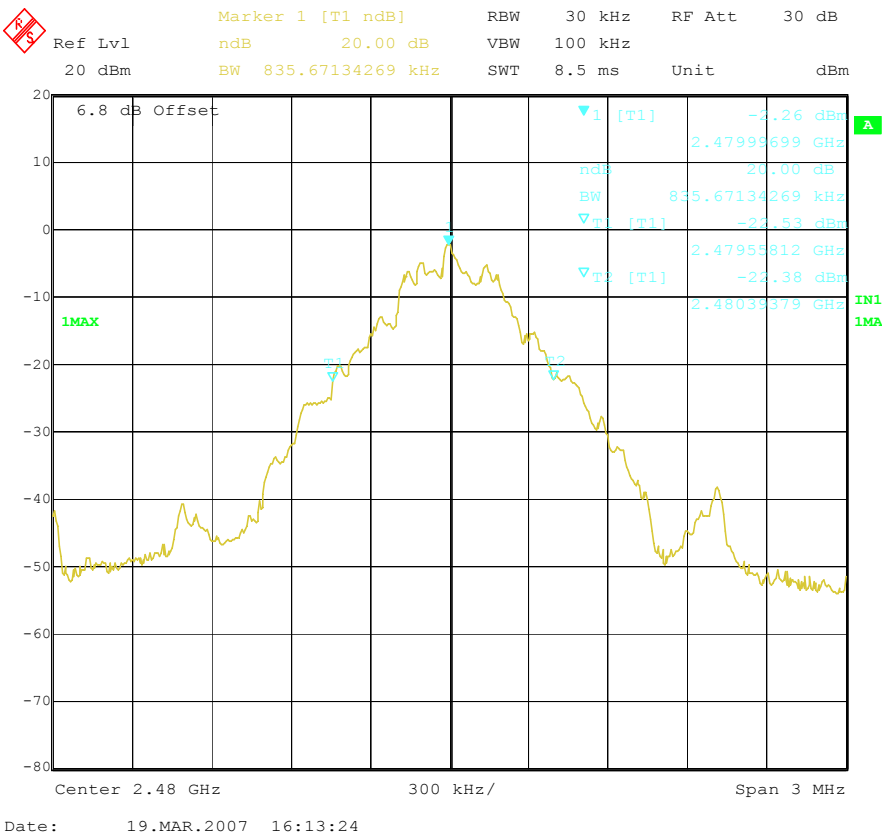
### 20 dB bandwidth (lowest: 0ch)



## 20 dB bandwidth (Middle: 39ch)



## 20 dB bandwidth (Highest: 78ch)

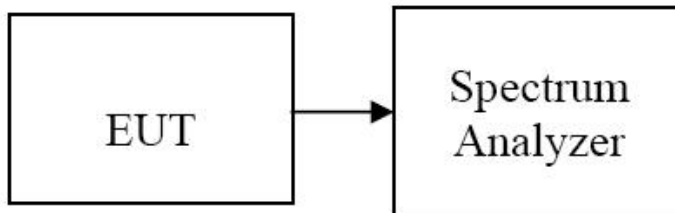


## 7.5 NUMBER OF HOPPING FREQUENCY

### LIMIT

According to §15.247(a)(1)(ii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz bands shall use at least 15 hopping frequencies.

### Test Configuration



### TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set spectrum analyzer Start = 2400 MHz, Stop = 2441.5 MHz, Sweep = 250 s and Start = 2441.5 MHz, Stop = 2483.5 MHz, Sweep = 250 s.
4. Set the spectrum analyzer as RBW, VBW = 100 kHz,
5. Max hold, view and count how many channel in the band.

### TEST RESULTS

*No non-compliance noted*

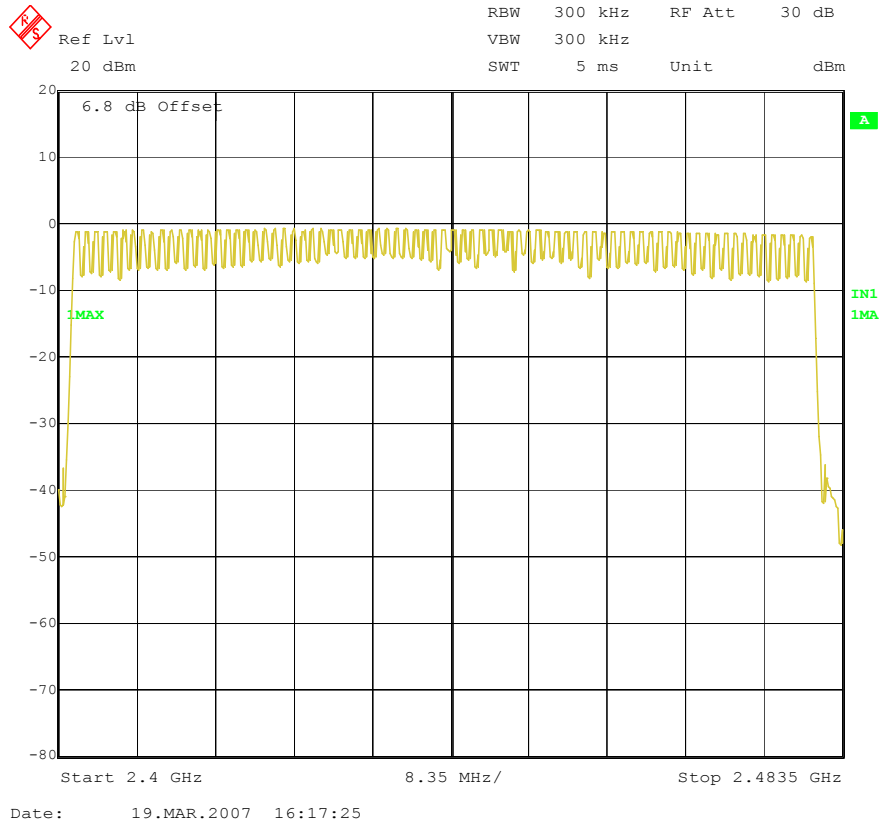
### Test Data

Result (No. of CH)	Limit (No. of CH)	Result
79	> 75	Pass

## Test Plot

### Channel Number

2.4 GHz – 2.4835 GHz



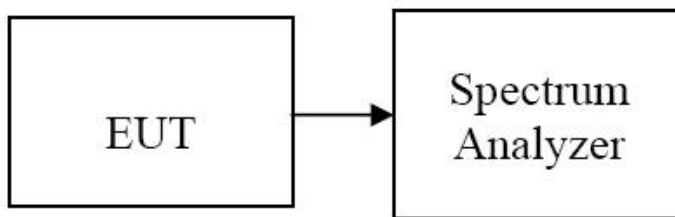


## 7.6 TIME OF OCCUPANCY (DWEELL TIME)

### LIMIT

According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz bands. The average time of occupancy on any channels shall not greater than 0.4 s within a period 0.4 s multiplied by the number of hopping channels employed.

### Test Configuration



### TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = operating frequency.
4. Set the spectrum analyzer as RBW, VBW=1MHz, Span = 0Hz, Sweep = auto.
5. Repeat above procedures until all frequency measured were complete.

### TEST RESULTS

*No non-compliance noted*

**Test Data****DH 1**CH Low:  $0.410 * (1600/2)/79 * 31.6 = 131.2$  (ms)CH Mid:  $0.410 * (1600/2)/79 * 31.6 = 131.2$  (ms)CH High:  $0.410 * (1600/2)/79 * 31.6 = 131.2$  (ms)

Channel	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Low	0.410	131.2	31.6	400	PASS
Mid	0.410	131.2	31.6		PASS
High	0.410	131.2	31.6		PASS

**DH 3**CH Low:  $1.67 * (1600/4)/79 * 31.6 = 267.2$  (ms)CH Mid:  $1.67 * (1600/4)/79 * 31.6 = 267.2$  (ms)CH High:  $1.67 * (1600/4)/79 * 31.6 = 267.2$  (ms)

Channel	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Low	1.67	267.2	31.6	400	PASS
Mid	1.67	267.2	31.6		PASS
High	1.67	267.2	31.6		PASS

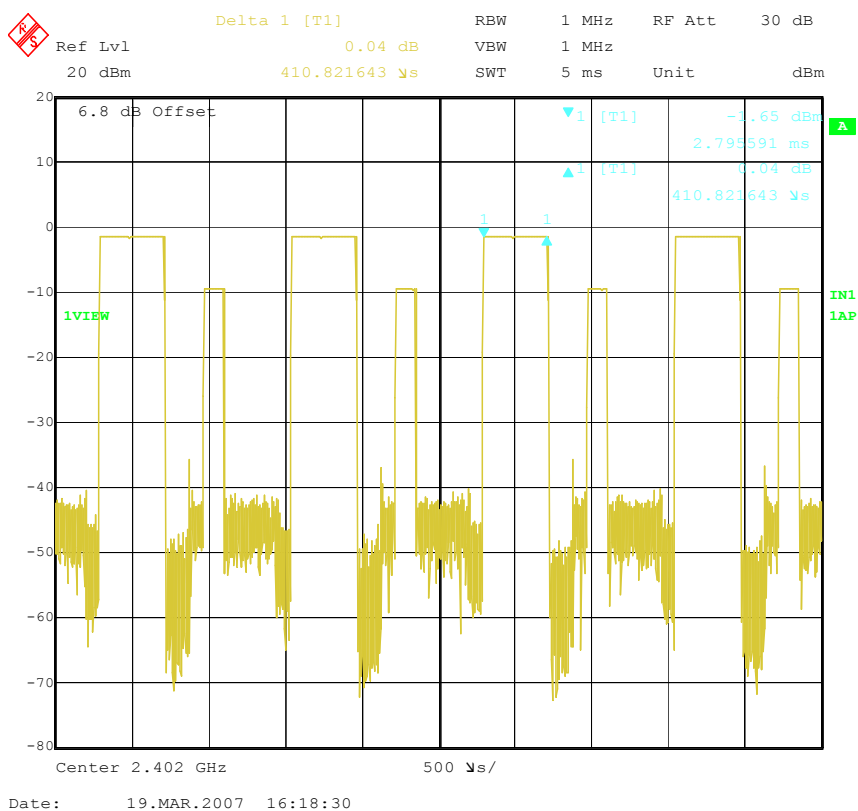
**DH 5**CH Low:  $2.93 * (1600/6)/79 * 31.6 = 312.5$  (ms)CH Mid:  $2.93 * (1600/6)/79 * 31.6 = 312.5$  (ms)CH High:  $2.93 * (1600/6)/79 * 31.6 = 312.5$  (ms)

Channel	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
Low	2.93	312.5	31.6	400	PASS
Mid	2.93	312.5	31.6		PASS
High	2.93	312.5	31.6		PASS

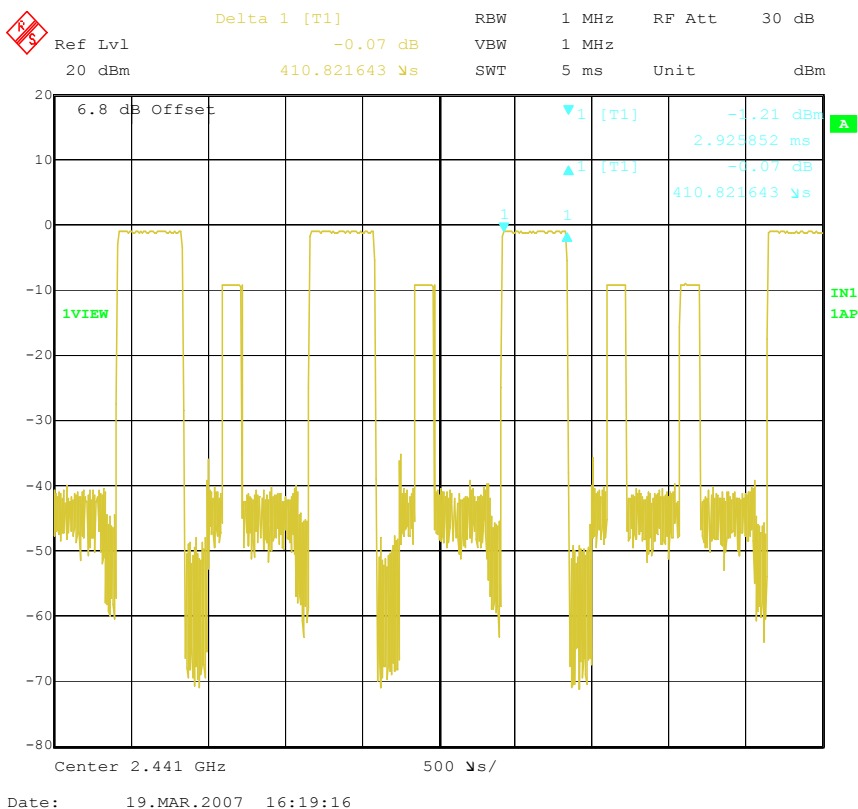
## Test Plot

### DH 1

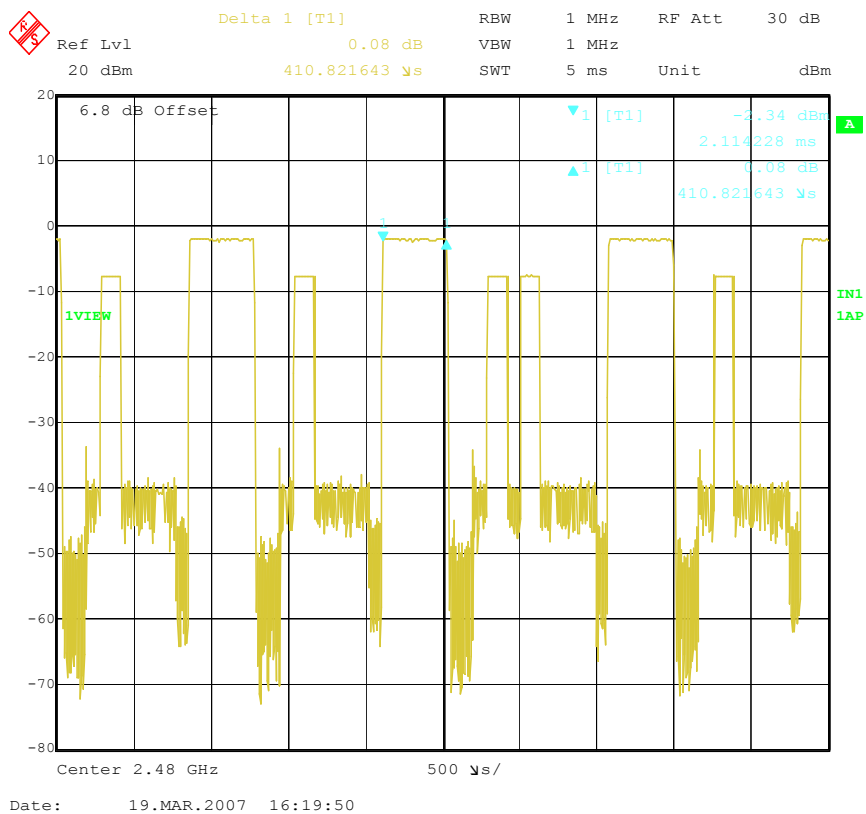
### (CH Low)



### (CH Mid)

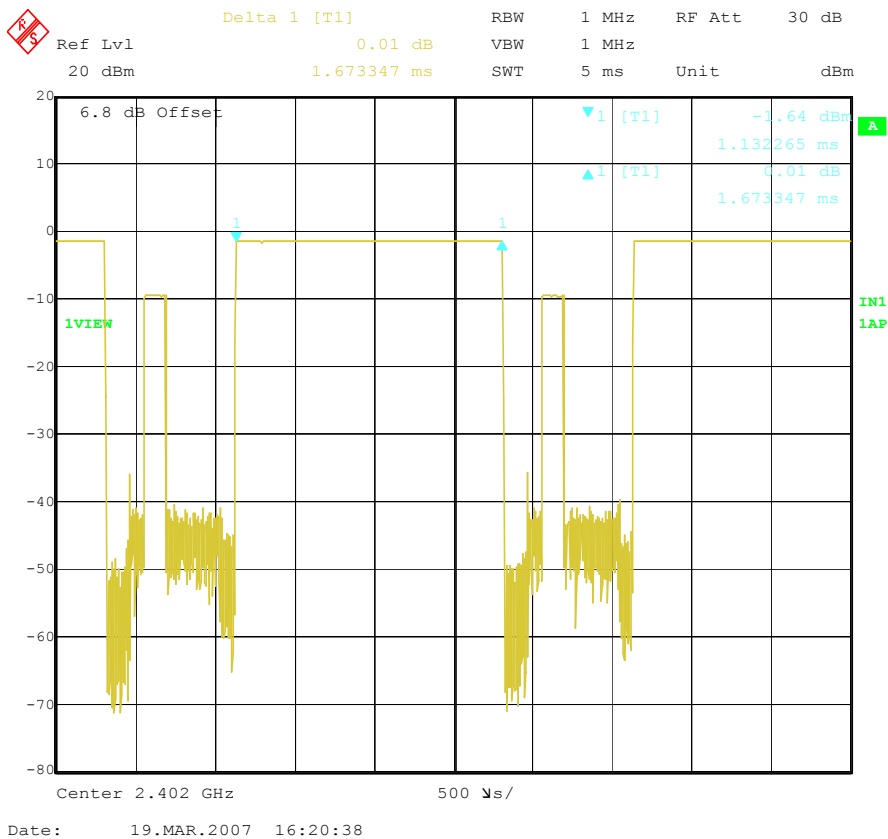


**(CH High)**

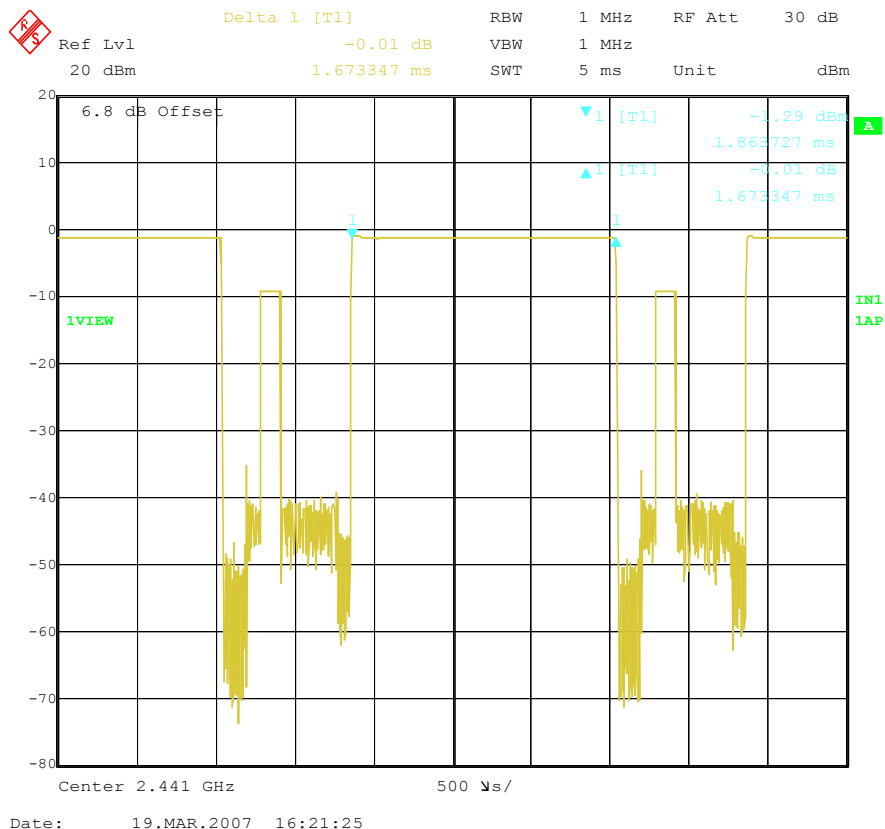


**DH 3**

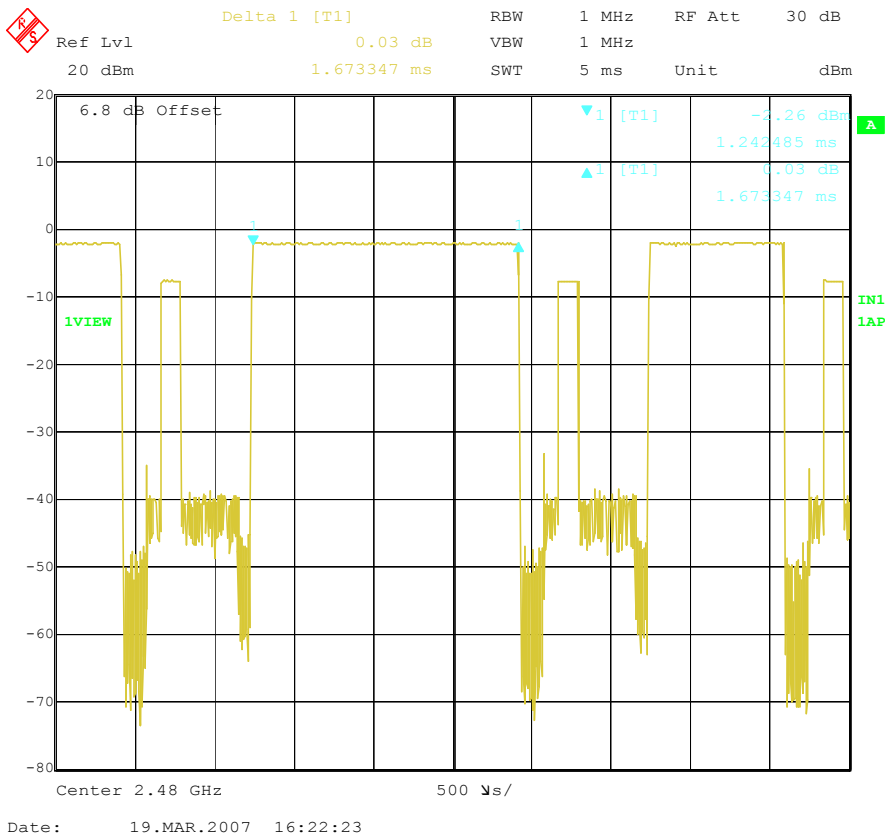
**(CH Low)**



**(CH Mid)**

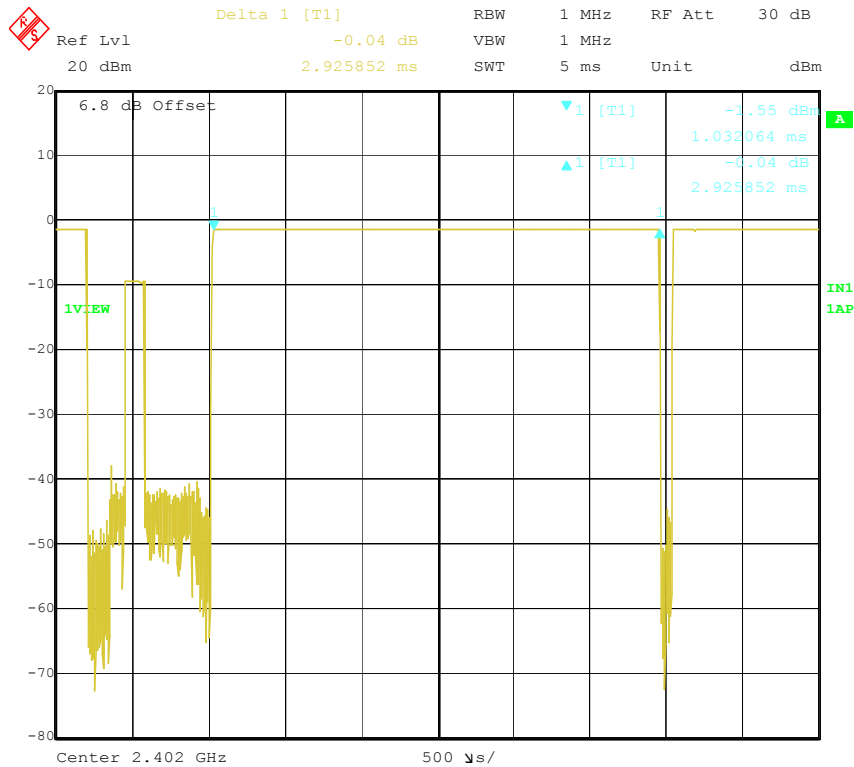


**(CH High)**



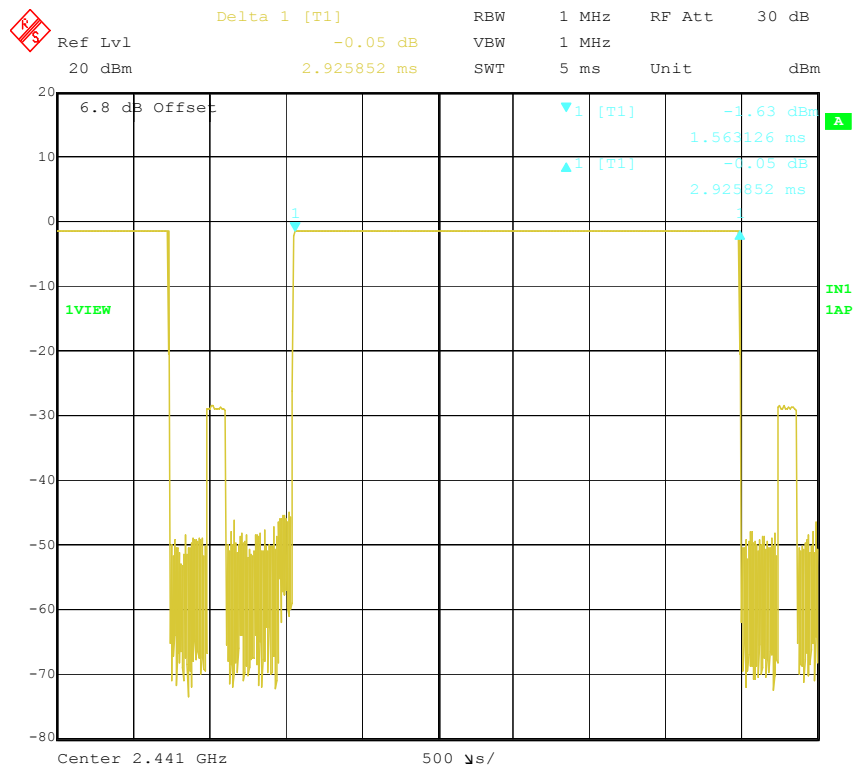
## DH 5

### (CH Low)



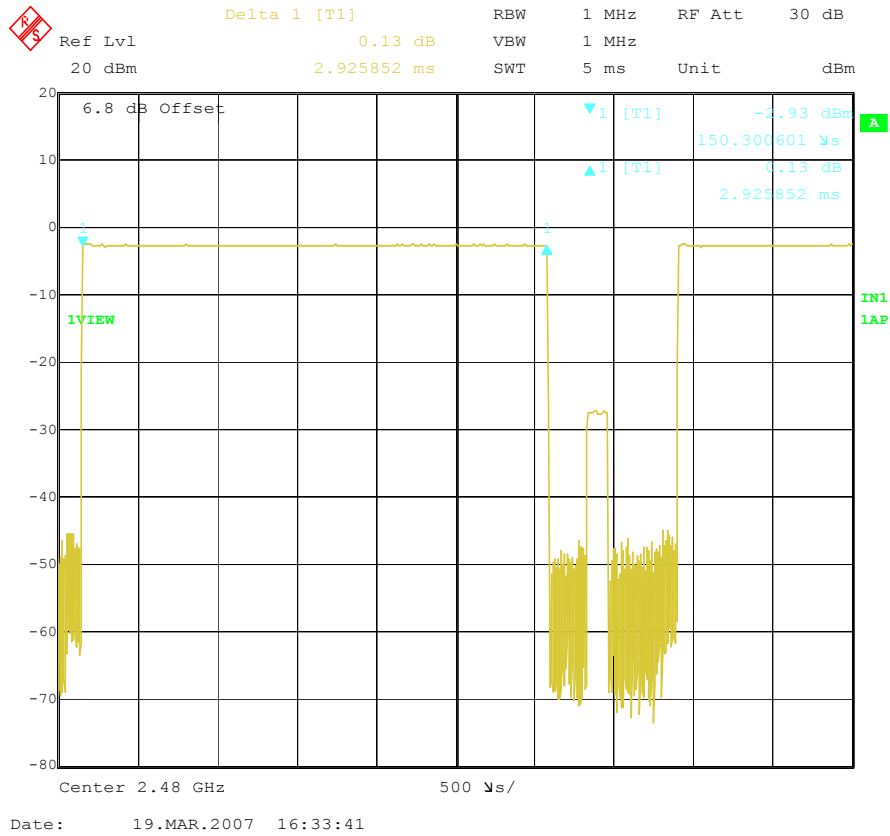
Date: 19.MAR.2007 16:23:10

### (CH Mid)



Date: 19.MAR.2007 16:33:01

### (CH High)



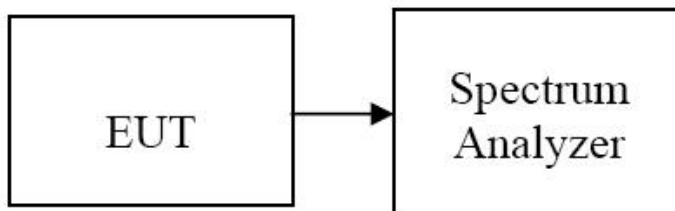
## SPURIOUS EMISSIONS

### 7.7 Conducted Measurement

#### LIMIT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

#### Test Configuration



#### TEST PROCEDURE

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 KHz. The video bandwidth is set to 100 KHz.

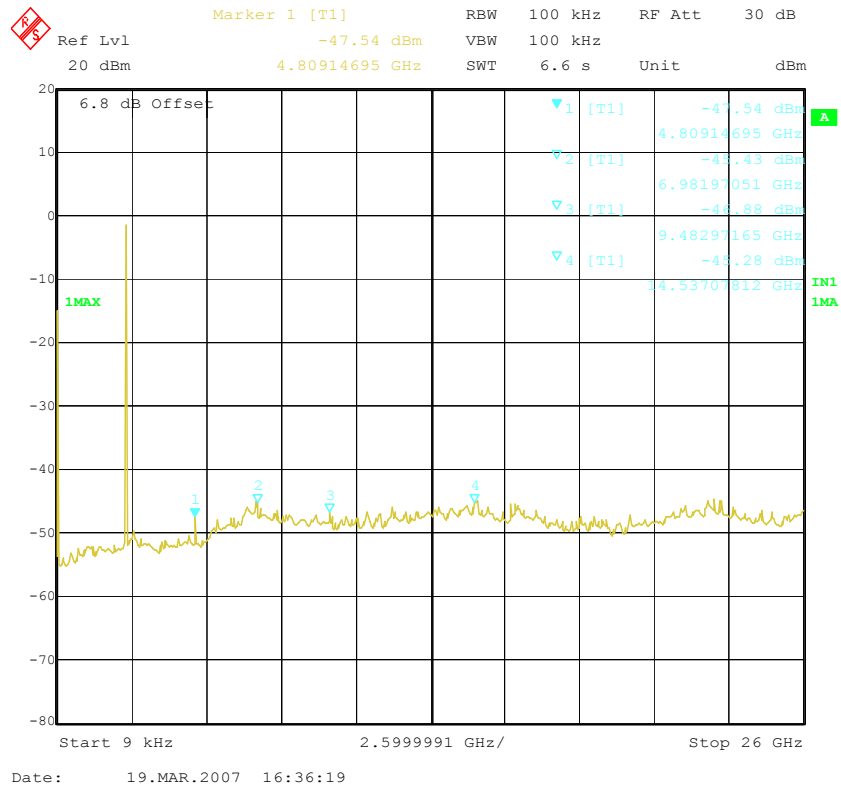
Measurements are made over the 30 MHz to 26 GHz range with the transmitter set to the lowest, middle, and highest channels.

#### TEST RESULTS

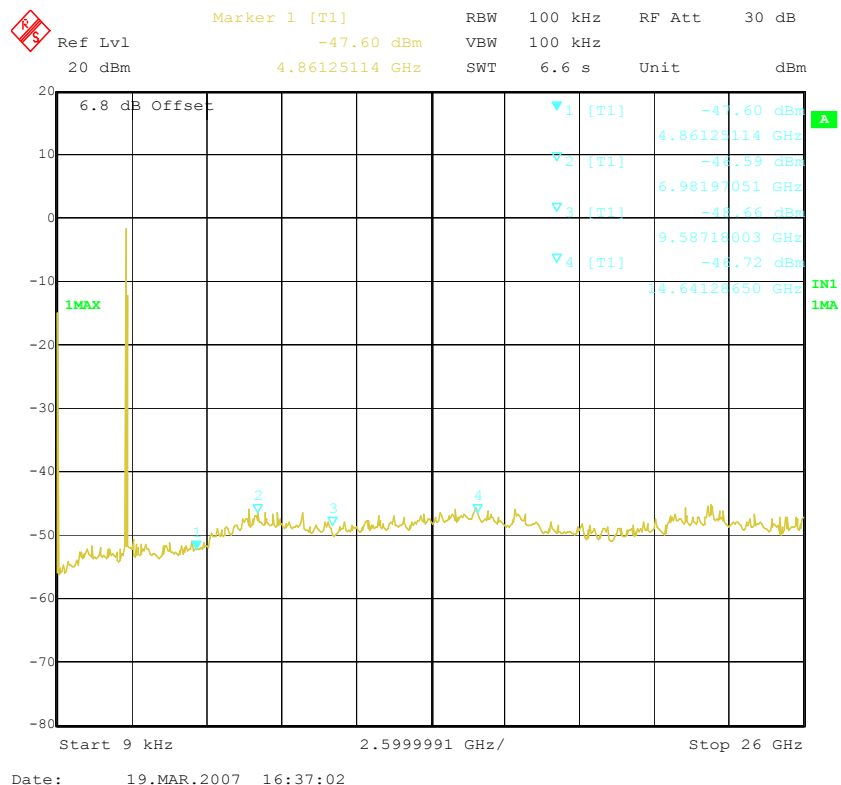
*No non-compliance noted*



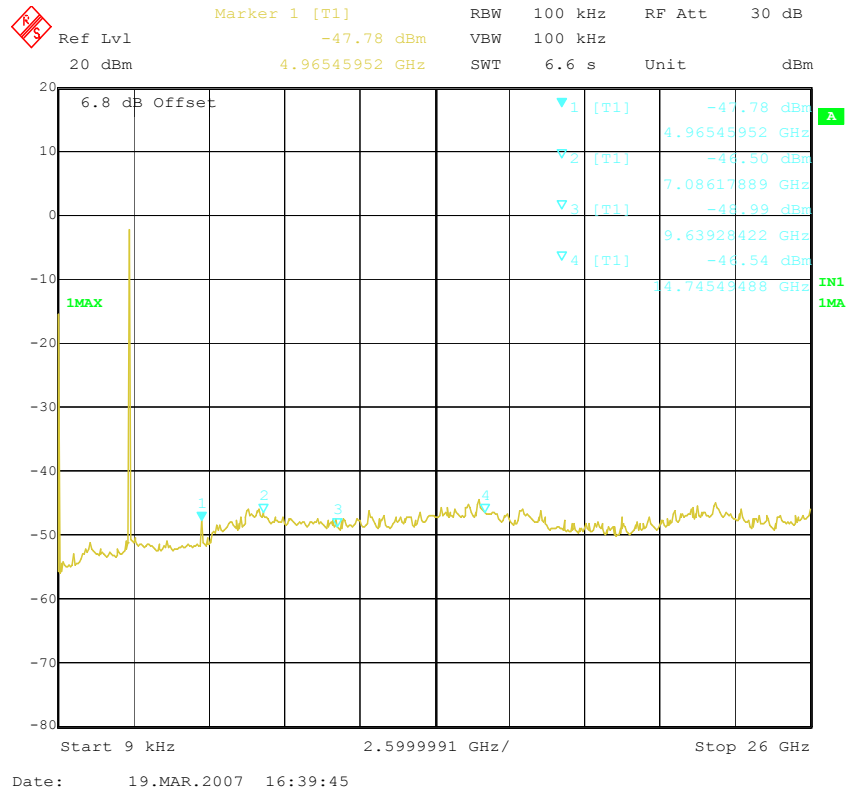
## Test Plot CH Low



## CH Mid



## CH High



## 7.7.2 Radiated Emissions

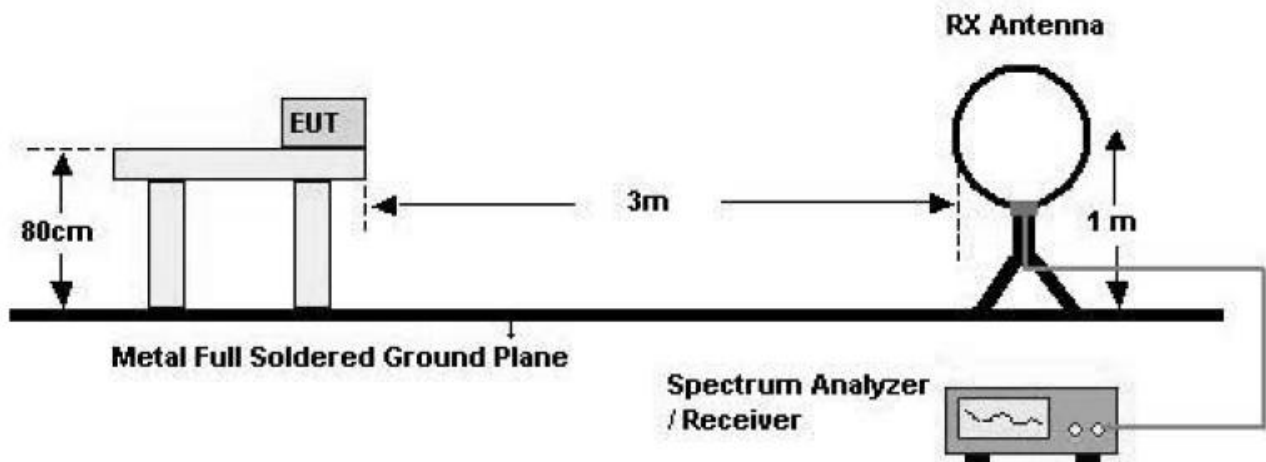
### LIMIT

1. 20 dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed

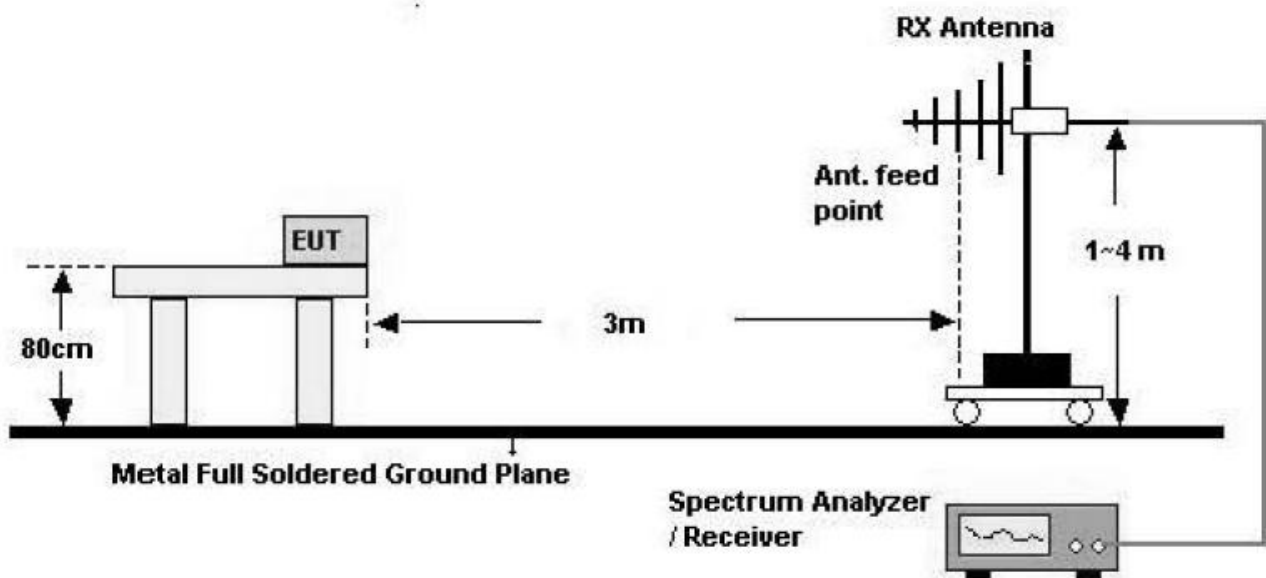
Frequency (MHz)	Field Strength (mV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(KHz)	300
0.490 – 1.705	24000/F(KHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

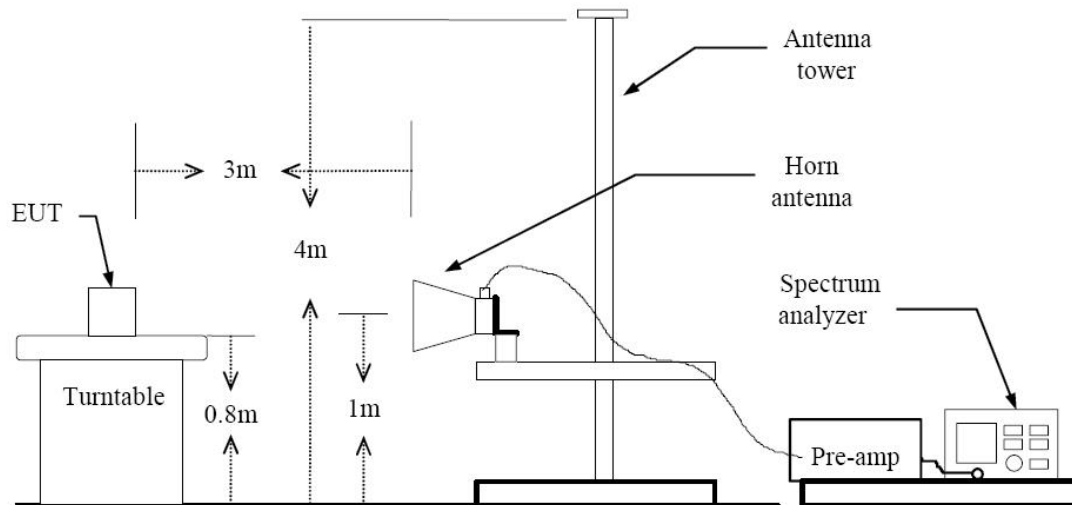
## Test Configuration

### Below 30 MHz



### 30 MHz - 1 GHz



**Above 1 GHz****TEST PROCEDURE**

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

**TEST RESULTS****9 kHz – 30MHz****Operation Mode:** Normal Link

Frequency MHz	Reading dBuV	Ant. Factor dB	Cable Loss dB	Total dBuV/m	Limit dBuV/m	Margin dB	Remark dB
---	---	---	---	---	---	---	See Note
---	---	---	---	---	---	---	See Note
---	---	---	---	---	---	---	See Note
---	---	---	---	---	---	---	See Note

**Notes:**

1. Measuring frequencies from 9 kHz to the 30 MHz.
2. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
3. Distance extrapolation factor =  $40 \log (\text{specific distance} / \text{test distance})$  (dB)
4. Limit line = specific Limits (dBuV) + Distance extrapolation factor

**TEST RESULTS****Below 1 GHz****Operation Mode:** Normal Link

Frequency MHz	Reading dBuV	Ant. Factor dB	Cable Loss dB	ANT POL (H/V)	Total dBuV/m	Limit dBuV/m	Margin dB
156.30	15.7	15.3	2.8	V	33.8	43.5	-9.7
97.00	23.2	9.7	2.2	V	35.1	43.5	-8.4
481.60	13.9	18.8	5.0	V	37.8	46	-8.2
503.60	14.3	19.2	5.1	V	38.6	46	-7.4
568.00	9.6	20.5	5.4	V	35.6	46	-10.4
636.80	9.0	22.3	5.8	V	37.1	46	-8.9
144.20	17.2	14.7	2.6	H	34.5	43.5	-9.0
243.70	17.6	17.3	3.5	H	38.4	46	-7.6
302.60	20.2	16.3	4.0	H	40.5	46	-5.5
338.90	15.1	16.4	4.2	H	35.7	46	-10.3
370.40	13.8	16.6	4.4	H	34.9	46	-11.1
636.80	7.1	22.3	5.8	H	35.2	46	-10.8

**Notes:**

1. Measuring frequencies from 30 MHz to the 1GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode.
3. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
4. The IF bandwidth of SPA between 30 MHz to 1 GHz was 100 kHz.

**Above 1 GHz****Operation Mode: CH Low**

Frequency [MHz]	Level [dBuV]	AN. CL. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]
4804.00	2.2	36.7	V	38.9	54	-15.1
4804.00	4.0	36.7	H	40.7	54	-13.3
7206.00	-2.4	40.5	V	38.1	54	-15.9
7206.00	-0.9	40.5	H	39.6	54	-14.4
N/A						

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz, Sweep time = 200 ms.
  - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz, Sweep time = 200 ms.



**Operation Mode:** CH Mid

Frequency [MHz]	Level [dBuV]	AN. CL. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]
4882.00	1.4	36.9	V	38.3	54	-15.7
4882.00	3.3	36.9	H	40.2	54	-13.8
7323.00	-2.1	40.7	V	38.6	54	-15.4
7323.00	-0.1	40.7	H	40.6	54	-13.4
N/A						

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz, Sweep time = 200 ms.
  - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz, Sweep time = 200 ms.

**Operation Mode: CH High**

Frequency [MHz]	Level [dBuV]	AN. CL. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]
4960.00	0.8	37.1	V	37.9	54	-16.1
4960.00	3.7	37.1	H	40.8	54	-13.2
7440.00	-2.7	41.0	V	38.3	54	-15.7
7440.00	-0.1	41.0	H	40.9	54	-13.1
N/A						

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
  - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz, Sweep time = 200 ms.
  - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz, Sweep time = 200 ms.

## 7.8 POWERLINE CONDUCTED EMISSIONS

### LIMIT

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

### Test Configuration

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

### TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

**TEST RESULTS**

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Power Line Conducted Emissions				FCC Class B	
Frequency (MHz)	Amplitude (dBuV)	Conductor	Result	Limit (dBuv)	Margin (dB)
1.525	47.4	HOT	Quasi-Peak	57	- 9.3
1.415	31.5	HOT	Average	46	- 14.5
1.360	50.1	NEUTRAL	Quasi-Peak	56	- 5.6
1.360	34.2	NEUTRAL	Average	46	- 11.8

Line Conducted Emissions Tabulated Data

## Test Plot

### Conducted emissions (Line 1)

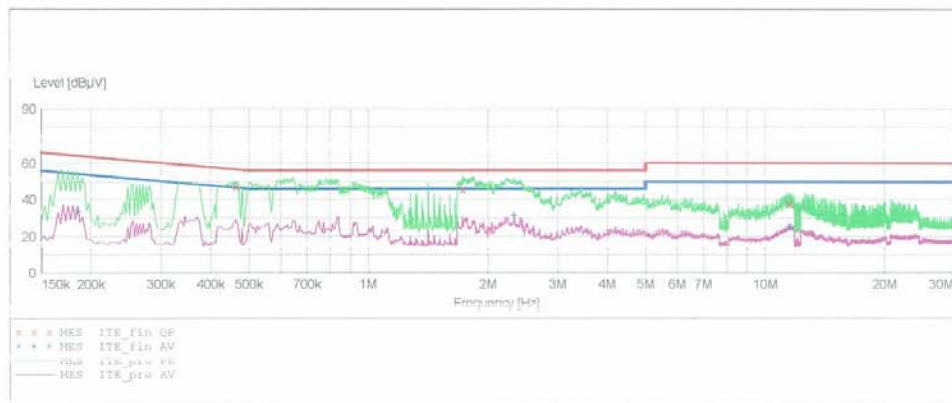
HCT

EMC TEST LAB.

EUT: NEON7  
 Manufacturer: EGI  
 Operating Condition: NORMAL  
 Test Site: SHIELD ROOM  
 Operator: YK-KIM  
 Test Specification: CISPR 22 CLASS B  
 Comment: H

#### SCAN TABLE: "CISPR 22 Voltage"

Short Description:			CISPR 22 Voltage				
Start	Stop	Step	Detector	Meas. Time	IF Bandwidth	Transducer	
150.1 kHz	500.0 kHz	2.5 kHz	MaxPeak	10.0 ms	9 kHz	None	
			Average				
500.0 kHz	5.0 MHz	5.0 kHz	MaxPeak	10.0 ms	9 kHz	None	
			Average				
5.0 MHz	30.0 MHz	5.0 kHz	MaxPeak	10.0 ms	9 kHz	None	
			Average				



#### MEASUREMENT RESULT: "ITE\_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	FE
MHz	dBuV	dB	dBuV	dB		
0.462600	47.40	10.1	57	9.3	---	---
1.725000	45.60	10.3	56	10.1	---	---
11.560000	37.70	11.4	60	22.3	---	---

#### MEASUREMENT RESULT: "ITE\_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	FE
MHz	dBuV	dB	dBuV	dB		
0.185100	33.60	10.0	54	20.6	---	---
2.330000	31.50	10.3	46	14.5	---	---
11.560000	25.30	11.4	50	24.7	---	---

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## Conducted emissions (Line 2)

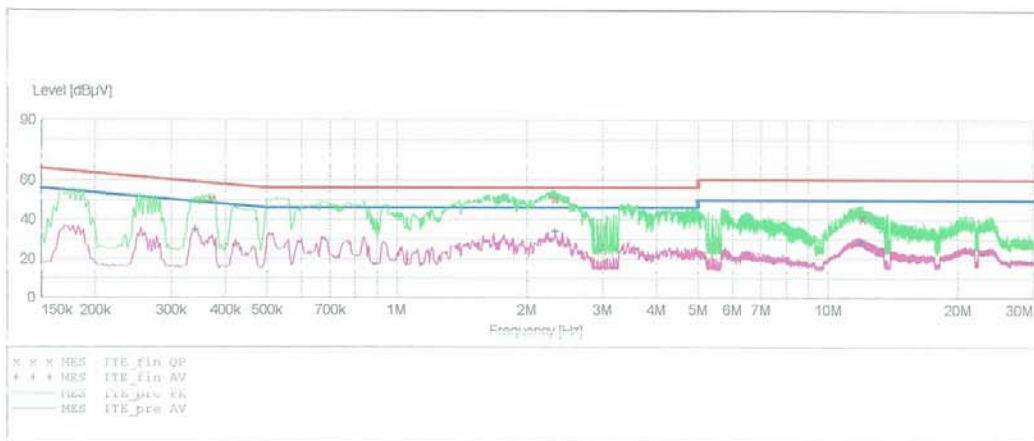
HCT

EMC TEST LAB.

EUT: NEON7  
Manufacturer: EGI  
Operating Condition: NORMAL  
Test Site: SHIELD ROOM  
Operator: YK-KIM  
Test Specification: CISPR 22 CLASS B  
Comment: N

### SCAN TABLE: "CISPR 22 Voltage"

Short Description:			CISPR 22 Voltage			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
150.1 kHz	500.0 kHz	2.5 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
500.0 kHz	5.0 MHz	5.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
5.0 MHz	30.0 MHz	5.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			



### MEASUREMENT RESULT: "ITE\_fin QP"

3/21/2007 9:08AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	FE
0.372600	50.10	10.0	58	8.3	---	---
2.328000	50.10	10.3	50	5.8	---	---
12.060000	40.70	11.4	60	19.3	---	---

### MEASUREMENT RESULT: "ITE\_fin AV"

3/21/2007 9:08AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	FE
0.340100	35.40	10.0	49	13.8	---	---
2.330000	34.20	10.3	40	11.8	---	---
11.850000	28.60	11.4	50	21.4	---	---

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## 8. LIST OF TEST EQUIPMENT

Manufacturer	Model / Equipment	Calibration Date	Cal Interval	Calibration Due	Serial No.
Rohde & Schwarz	ESI40/ EMI Test Receiver	11/06/2006	Annual	11/06/2007	831564103
Rohde & Schwarz	ESCI/ EMI Test Receiver	08/24/ 2006	Annual	08/24/ 2007	100033
Rohde & Schwarz	ESH2-Z5/ LISN	04/26/2006	Annual	04/26/2007	861741/013
EMCO	703125/ LISN	04/26/2006	Annual	04/26/2007	1357
Schwarzbeck	VULB 9160/ TRILOG Antenna	04/17/2006	Annual	04/17/2007	9160-3150
HD	MA240/ Antenna Position Tower	N/A	N/A	N/A	556
EMCO	1050/ Turn Table	N/A	N/A	N/A	114
Voltech	PM 3300/ Power Analyzer	03/22/2006	Annual	03/22/2007	AK06/8896
Voltech	IEC555/ReferenceNetwork Impedance	N/A	N/A	N/A	IC0618898
PACIFIC	Magnetic Module/ AC Power Source	N/A	N/A	N/A	212
PACIFIC	360-AMX/ AC Power Source	12/28/2006	Annual	12/28/2007	212
HD GmbH	HD 100/ Controller	N/A	N/A	N/A	13
HD GmbH	KMS 560/ SlideBar	N/A	N/A	N/A	12
Rohde & Schwarz	ESH3-Z2/ PULSE LIMITER	10/30/2006	Annual	10/30/2007	375.8810.352
MITEQ	AMF-6D-001180-35-209/ AMP	04/26/2006	Annual	04/26/2007	567624
Schwarzbeck	BBHA 9120D/ Horn Antenna	03/30/2006	Annual	03/30/2007	147
Rohde & Schwarz	HFH2-Z2/Loop Antenna	01/10/2007	Annual	01/10/2008	881056/070
ADVANTEST	R3273/Spectrum Analyzer	06/15/2006	Annual	06/15/2007	J004821
Agilent	E4416A /Power Meter	01/22/2007	Annual	01/22/2008	GB41291412
Weinschel	2/Attenuator	01/24/2007	Annual	01/24/2008	BR0554
Wainwright Instrument	WHF3.3/18G-10EF / High Pass Filter	06/28/2006	Annual	06/28/2007	1

## APPENDIX 1 PHOTOGRPHS OF TEST SETUP

### Conducted Radiated Emission





## Radiated Emission

