



**FCC Test Report**  
**FCC Part 15.247 for FHSS systems/  
CANADA RSS-210**

**FOR:**

**SONY Corporation**  
**Notebook PC**  
**Model Number: VAIO-VGN TZ**  
**FCC ID: AK8PCG4L3L**  
**IC-ID: 409B-PCG4L3L**

**TEST REPORT #: SONYE\_016\_07001\_15.247BT\_AK8PCG4L3L**  
**DATE: 4/25/2007**



**FCC listed#**  
101450  
**IC recognized #**  
3925

**CETECOM Inc.**

411 Dixon Landing Road • Milpitas, CA 95035 • U.S.A.

Phone: + 1 (408) 586 6200 • Fax: + 1 (408) 586 6299 • E-mail: [info@cetecomusa.com](mailto:info@cetecomusa.com) • <http://www.cetecom.com>

CETECOM Inc. is a Delaware Corporation with Corporation number: 2113686  
Board of Directors: Dr. Harald Ansoerge, Dr. Klaus Matkey, Hans Peter May



**TABLE OF CONTENTS**

**1 Assessment** \_\_\_\_\_ **4**

**Technical responsibility for area of testing:** \_\_\_\_\_ **4**

EMC & Radio \_\_\_\_\_ 4

**This report is prepared by:** \_\_\_\_\_ **4**

EMC & Radio \_\_\_\_\_ 4

**2 Administrative Data** \_\_\_\_\_ **5**

2.1 Identification of the Testing Laboratory Issuing the EMC Test Report \_\_\_\_\_ 5

2.2 Identification of the Client \_\_\_\_\_ 5

2.3 Identification of the Manufacturer \_\_\_\_\_ 5

**3 Equipment under Test (EUT)** \_\_\_\_\_ **6**

3.1 Specification of the Equipment under Test \_\_\_\_\_ 6

3.2 Identification of the Equipment Under Test (EUT) \_\_\_\_\_ 6

**4 Subject Of Investigation** \_\_\_\_\_ **7**

4.1 RESTRICTED BAND EDGE COMPLIANCE RADIATED §15.247/15.205 \_\_\_\_\_ **8**

4.1.1 LIMITS \_\_\_\_\_ 8

4.1.2 RESULTS: GFSK \_\_\_\_\_ 9

4.2 TRANSMITTER SPURIOUS EMISSIONS RADIATED § 15.247/15.205/15.209 \_\_\_\_\_ **13**

4.2.1 LIMITS \_\_\_\_\_ 13

4.2.2 RESULTS \_\_\_\_\_ 14

4.3 RECEIVER SPURIOUS RADIATION § 15.209/RSS210 \_\_\_\_\_ **19**

4.3.1 LIMITS \_\_\_\_\_ 19

4.3.2 RESULTS \_\_\_\_\_ 20

**5 Measurements (CONDUCTED)** \_\_\_\_\_ **23**

5.1 MAXIMUM PEAK OUTPUT POWER § 15.247 (CONDUCTED) \_\_\_\_\_ **23**

5.1.1 LIMIT SUB CLAUSE § 15.247 (b) (1) \_\_\_\_\_ 23

5.1.2 RESULTS: GFSK \_\_\_\_\_ 23

5.2 20dB BANDWIDTH \_\_\_\_\_ **24**

5.2.1 LIMIT SUB CLAUSE § 15.247 (a) (1) (i) (ii) (iii) \_\_\_\_\_ 24

5.2.2 RESULTS: GFSK \_\_\_\_\_ 24

5.3 CARRIER FREQUENCY SEPARATION \_\_\_\_\_ **25**

5.3.1 LIMIT SUB CLAUSE § 15.247 (a) (1) (i) (ii) (iii) \_\_\_\_\_ 25

5.3.2 RESULTS: \_\_\_\_\_ 25

5.4 NUMBER OF HOPPING CHANNELS \_\_\_\_\_ **25**

5.4.1 LIMIT SUB CLAUSE § 15.247 (a) (1) (iii) \_\_\_\_\_ 25

5.4.2 RESULTS: \_\_\_\_\_ 25

5.5 TIME OF OCCUPANCY (DWELL TIME) \_\_\_\_\_ **26**

5.5.1 LIMIT SUB CLAUSE § 15.247 (a) (1) (i) (ii) (iii) \_\_\_\_\_ 26

5.5.2 RESULTS: \_\_\_\_\_ 26

Test Report #: **SONYE\_016\_07001\_15.247BT\_**  
**AK8PCG4L3L**

Date of Report : 2007-04-25

Page 3 of 30



---

<b>5.6</b>	<b>CONDUCTED SPURIOUS EMISSION</b>	<b>27</b>
5.6.1	LIMIT SUB CLAUSE § 15.247 (d)	27
5.6.2	RESULTS: Tnom(23)°C VnomVDC	27
<b>6</b>	<b>TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS</b>	<b>28</b>
<b>7</b>	<b>BLOCK DIAGRAMS</b>	<b>29</b>

Test Report #: **SONYE\_016\_07001\_15.247BT\_**  
**AK8PCG4L3L**

Date of Report : 2007-04-25

Page 4 of 30



## 1 Assessment

The following is in compliance with the applicable criteria specified in FCC rules Part 15.247 of the Code of Federal Regulations and in compliance with the applicable criteria specified in Industry Canada rules RSS210.

Company	Description	Model #
<b>SONY Corporation</b>	Notebook PC	<b>PCG-4L3L</b>

Technical responsibility for area of testing:

**Lothar Schmidt**  
**2007-04-25 EMC & Radio (Test Lab Manager)**

---

**Date Section Name Signature**

This report is prepared by:

**Peter Mu**  
**2007-04-25 EMC & Radio (EMC Project Engineer)**

---

**Date Section Name Signature**

The test results of this test report relate exclusively to the test item specified in Identification of the Equipment under Test. The CETECOM Inc. USA does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM Inc USA.



## 2 Administrative Data

### 2.1 Identification of the Testing Laboratory Issuing the EMC Test Report

Company Name:	<b>CETECOM Inc.</b>
Department:	<b>EMC</b>
Address:	<b>411 Dixon Landing Road Milpitas, CA 95035 U.S.A.</b>
Telephone:	<b>+1 (408) 586 6200</b>
Fax:	<b>+1 (408) 586 6299</b>
Responsible Test Lab Manager:	<b>Lothar Schmidt</b>
Responsible Project Leader:	<b>Peter Mu</b>

### 2.2 Identification of the Client

<b>Applicant (Company Name)</b>	
<b>Street Address</b>	<b>1-7-1 Konan, Minato-ku,</b>
<b>City/Zip Code</b>	<b>Tokyo 108-0075</b>
<b>Country</b>	<b>Japan</b>
<b>Contact Person</b>	<b>Michio Kobayashi</b>
<b>Telephone</b>	<b>+81-263-72-5696</b>
<b>Fax</b>	<b>+81-263-72-9755</b>
<b>e-mail</b>	<b>Michio.Kobayashi@jp.sony.com</b>
<b>Applicant (Company Name)</b>	<b>SONY Corporation</b>

### 2.3 Identification of the Manufacturer

<b>MANUFACTURER</b>	
<b>Manufacturer</b>	<b>Sony EMCS Corporation</b>
<b>Street Address</b>	<b>5432 Toyoshima, Azumino-shi,</b>
<b>City/Zip Code</b>	<b>Nagano 399-8282,</b>
<b>Country</b>	<b>Japan</b>



### 3 Equipment under Test (EUT)

#### 3.1 Specification of the Equipment under Test

<b>EUT</b>	
<b>Marketing Name of EUT (if not same as Model No.)</b>	<b>VAIO-VGN TZ</b>
<b>Description</b>	<b>Notebook PC</b>
<b>Model No.</b>	<b>PCG-4L3L</b>
<b>Serial No.</b>	
<b>H/W &amp; S/W</b>	
<b>FCC-ID</b>	<b>AK8PCG4L3L</b>
<b>IC-ID (Industry Canada)</b>	<b>409B-PCG4L3L</b>

Frequency Range:	<b>2400-2483.5MHz</b>
Type(s) of Modulation:	<b>GFSK</b>
Number of Channels:	<b>79</b>
Antenna Type:	<b>PIFA (Film Antenna)</b>
Output Power (W):	

#### 3.2 Identification of the Equipment Under Test (EUT)

Marketing Name:	VAIO-VGN TZ
Model No:	PCG-4L3L
FCC-ID:	AK8PCG4L3L
IC-ID :	409B-PCG4L3L
Frequency Range:	5755 MHz to 5795 MHz
Type(s) of Modulation:	OFDM
Antenna Type:	PIFA
Output Power <sub>1</sub> :	17.12 dBm (0.052W) EIRP WLAN 802.11n

Test Report #: **SONYE\_016\_07001\_15.247BT\_**  
**AK8PCG4L3L**

Date of Report : 2007-04-25

Page 7 of 30

---



#### **4 Subject Of Investigation**

All testing was performed on the product referred to in Section 3 as EUT. This test report contains full radiated testing as per FCC15.247 on the EUT with the Bluetooth module.

During the testing process the EUT was tested on a single channel using PRBS9 payload using DH5 packets, all data in this report shows the worst case between horizontal and vertical polarization for above 1GHz.

The objective of the measurements done by Cetecom Inc. was to measure the performance of the EUT as specified by requirements listed in FCC rules Part 15.247 of Title 47 of the Code of Federal Regulations and Industry Canada rules RSS210. The maximization of portable equipment is conducted in accordance with ANSI C63.4.

**4.1 RESTRICTED BAND EDGE COMPLIANCE RADIATED §15.247/15.205**

**4.1.1 LIMITS**

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

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	( <sup>2</sup> )
13.36 - 13.41			

**\*PEAK LIMIT= 74dBuV/m**

**\*AVG. LIMIT= 54dBuV/m**



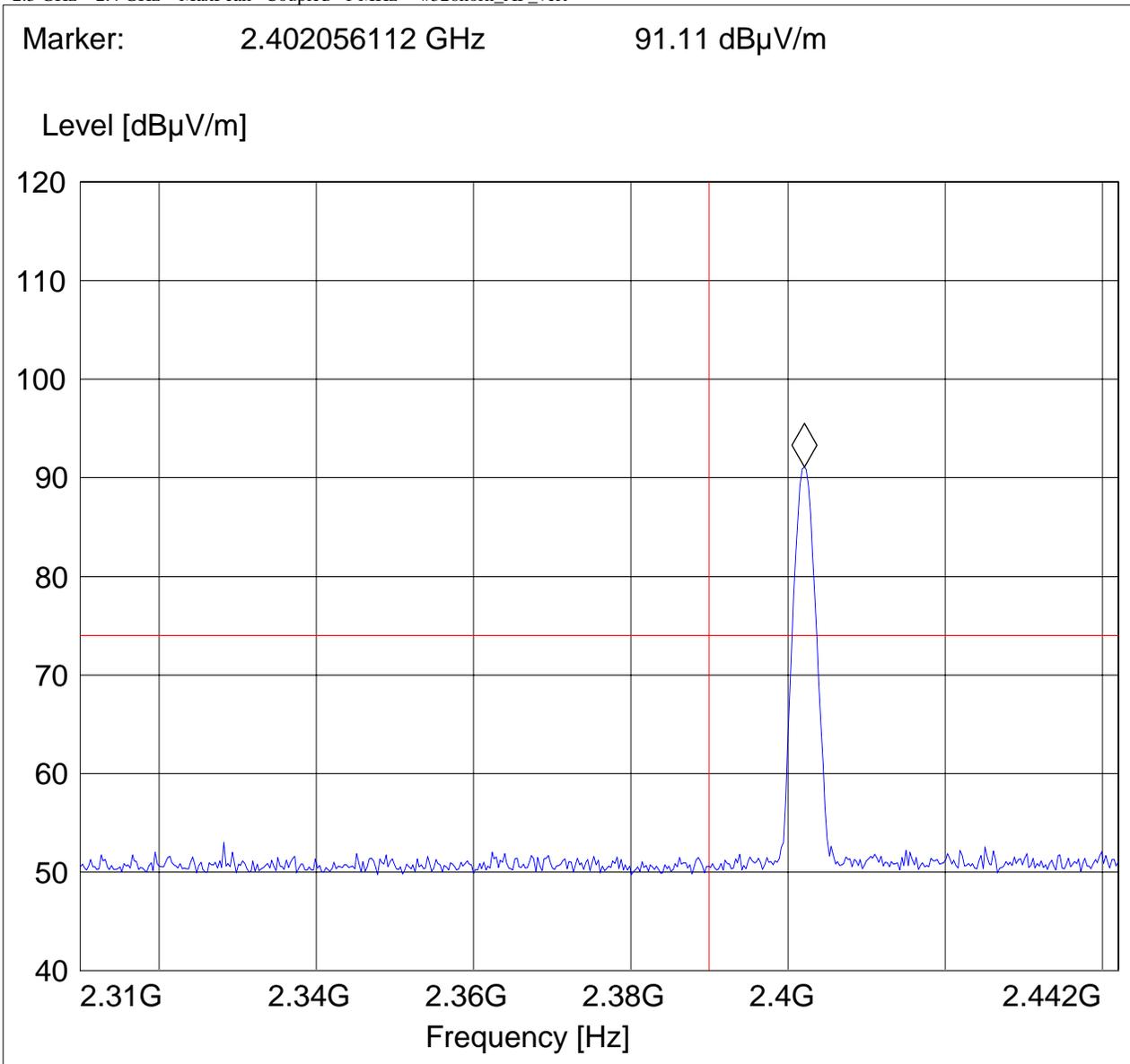
**4.1.2 RESULTS: GFSK**  
**(2402MHz) LOWER BAND EDGE PEAK -GFSK MODULATION**

CETECOM Inc., 411 Dixon Landing Road, Milpitas CA 95035, USA

EUT: ES725  
Customer: Sony  
Test Mode: BT, ch 0 (2402Mhz)  
ANT Orientation: H  
EUT Orientation: H  
Test Engineer: Ed  
Voltage: AC adapter  
Comments:

**SWEEP TABLE: "FCC15.247 LBE\_PK"**

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.3 GHz	2.4 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert



Test Report #: SONYE\_016\_07001\_15.247BT\_  
AK8PCG4L3L

Date of Report : 2007-04-25

Page 10 of 30



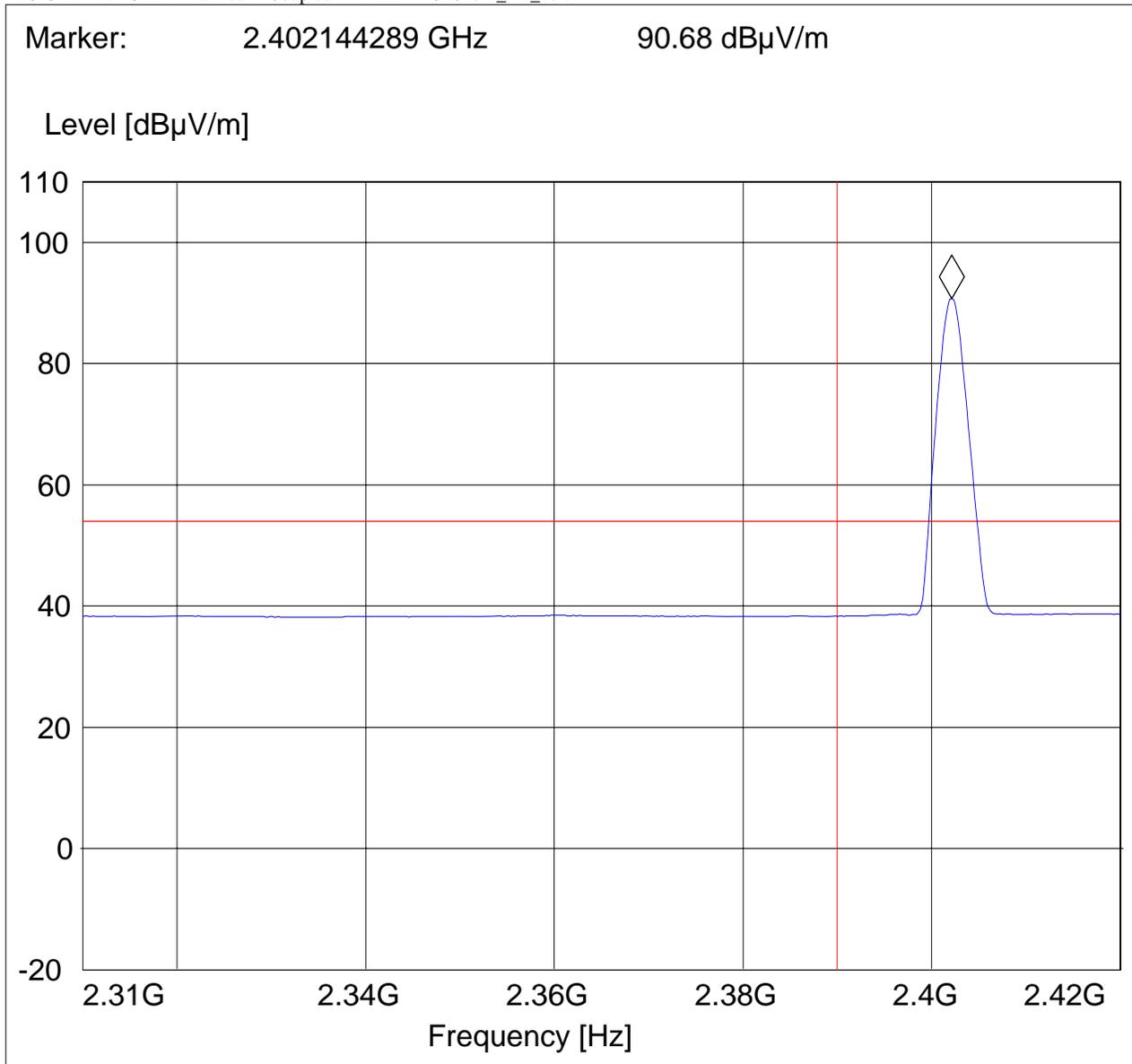
**(2402MHz) LOWER BAND EDGE AVERAGE -GFSK MODULATION**

CETECOM Inc., 411 Dixon Landing Road, Milpitas CA 95035, USA

EUT: ES725  
Customer: Sony  
Test Mode: BT, ch 0 (2402Mhz)  
ANT Orientation: H  
EUT Orientation: H  
Test Engineer: Ed  
Voltage: AC adapter  
Comments:

**SWEEP TABLE: "FCC15.247 LBE\_AVG"**

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.3 GHz	2.4 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert



Test Report #: **SONYE\_016\_07001\_15.247BT\_**  
**AK8PCG4L3L**



Date of Report : 2007-04-25 Page 11 of 30

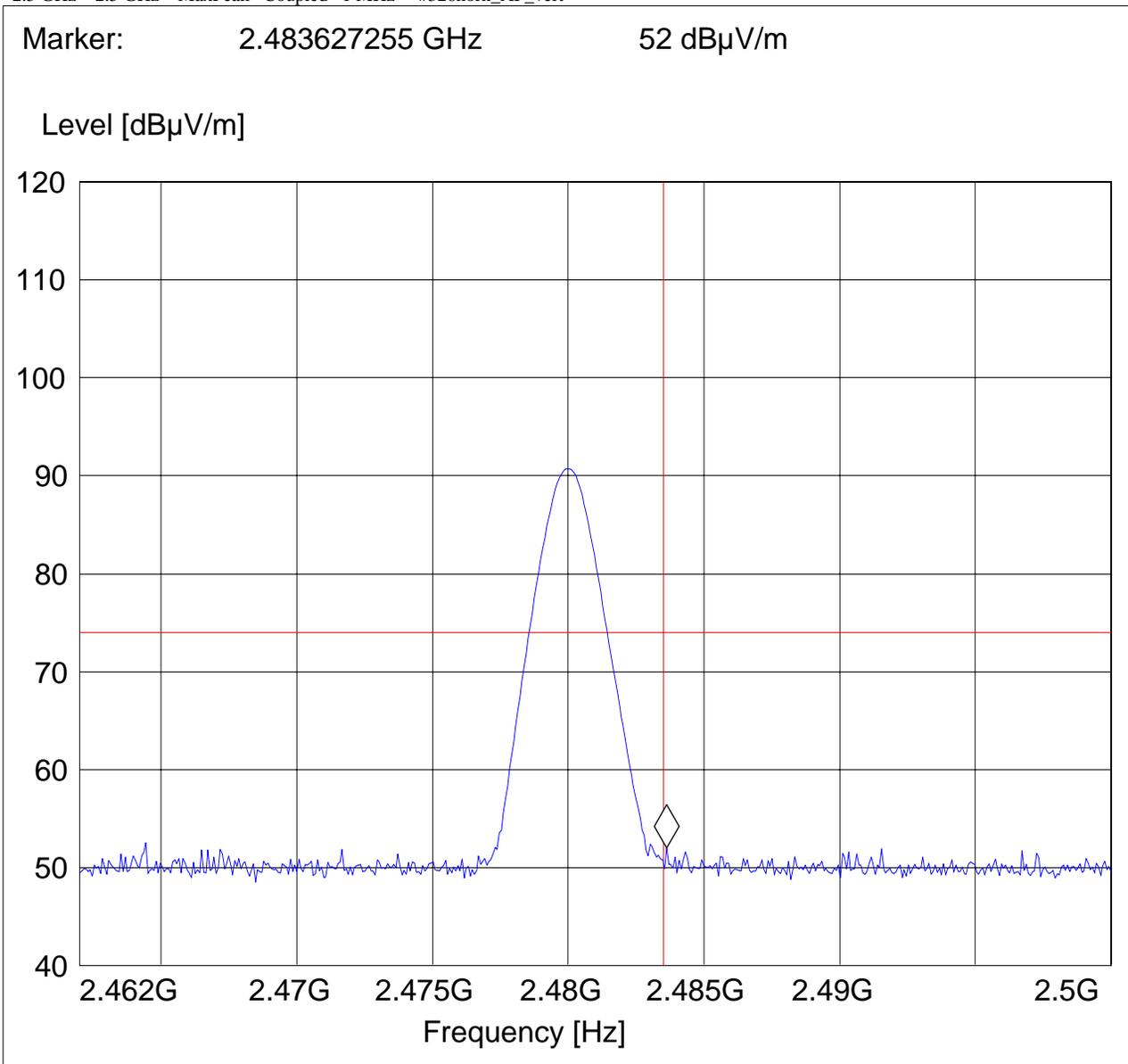
**(2480MHz) HIGHER BAND EDGE PEAK -GFSK MODULATION**

**CETECOM Inc., 411 Dixon Landing Road, Milpitas CA 95035, USA**

EUT: ES725  
Customer: Sony  
Test Mode: BT, ch 78 (2480Mhz)  
ANT Orientation: H  
EUT Orientation: H  
Test Engineer: Ed  
Voltage: AC adapter  
Comments:

***SWEEP TABLE: "FCC15.247 HBE\_PK"***

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.5 GHz	2.5 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert



Test Report #: SONYE\_016\_07001\_15.247BT\_  
AK8PCG4L3L



Date of Report : 2007-04-25 Page 12 of 30

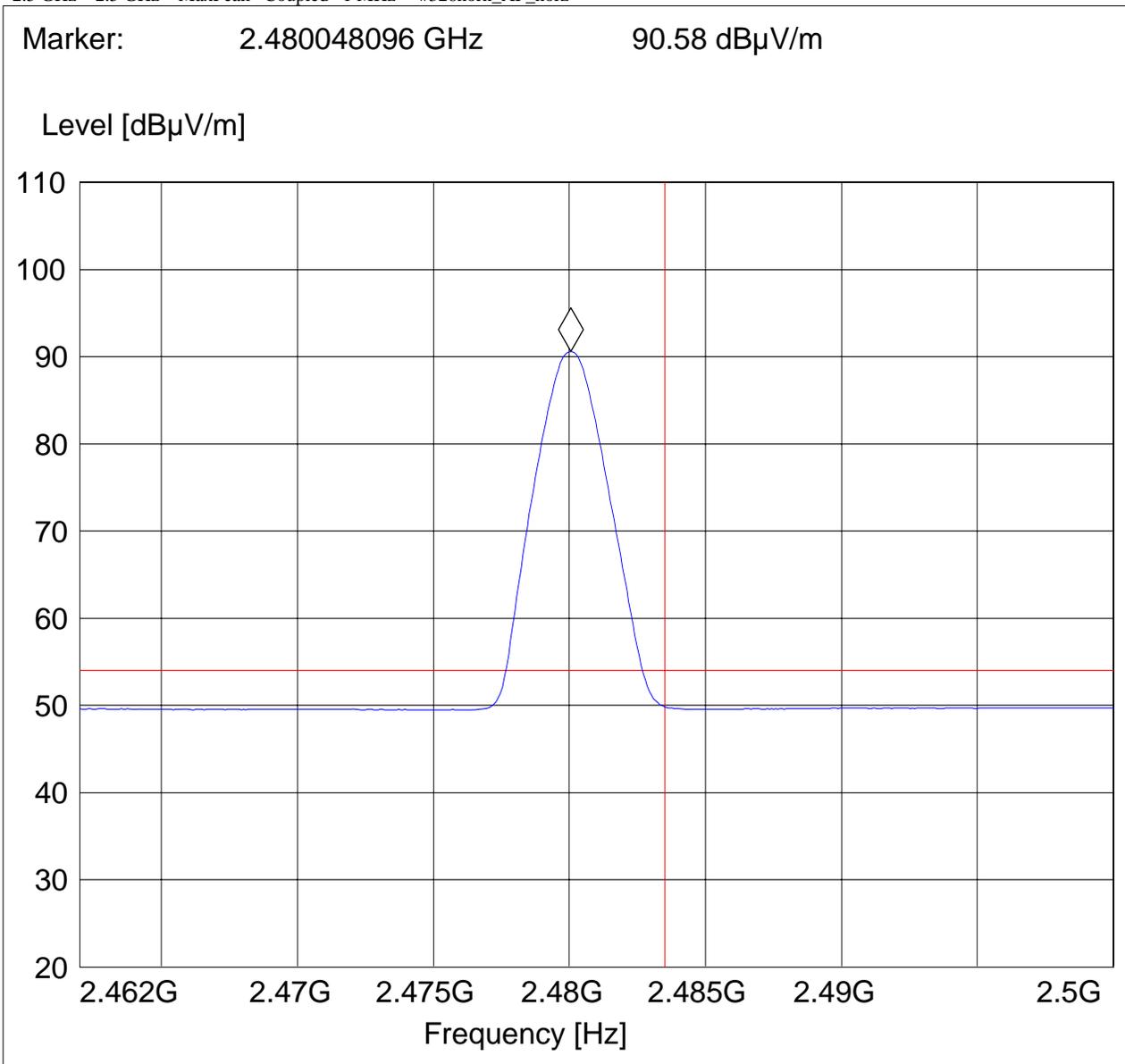
### HIGHER BAND EDGE AVERAGE-GFSK MODULATION

CETECOM Inc., 411 Dixon Landing Road, Milpitas CA 95035, USA

EUT: ES725  
Customer: Sony  
Test Mode: BT, ch 78 (2480Mhz)  
ANT Orientation: H  
EUT Orientation: H  
Test Engineer: Ed  
Voltage: AC adapter  
Comments:

#### SWEEP TABLE: "FCC15.247 HBE\_AVG"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
2.5 GHz	2.5 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_horz





**4.2 TRANSMITTER SPURIOUS EMISSIONS RADIATED § 15.247/15.205/15.209**

**4.2.1 LIMITS**

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

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	( <sup>2</sup> )
13.36 - 13.41			

**\*PEAK LIMIT= 74dBuV/m**

**\*AVG. LIMIT= 54dBuV/m**

**NOTE:**

1. The radiated emissions were done with different settings, using the relevant pre-amplifiers for the relevant frequency ranges. This is the reason that the graphs show different noise levels. In the range between 3 and 25 GHz very short cable connections to the antenna was used to minimize the noise level.

2. All measurements are done in peak mode using an average limit , unless specified with the plots.

**Results for the radiated measurements below 30MHz according § 15.33**

Frequency	Measured values	Remarks
9KHz – 30MHz	No emissions found, caused by the EUT	This is valid for all the tested channels



### 4.2.2 RESULTS

30MHz – 1GHz

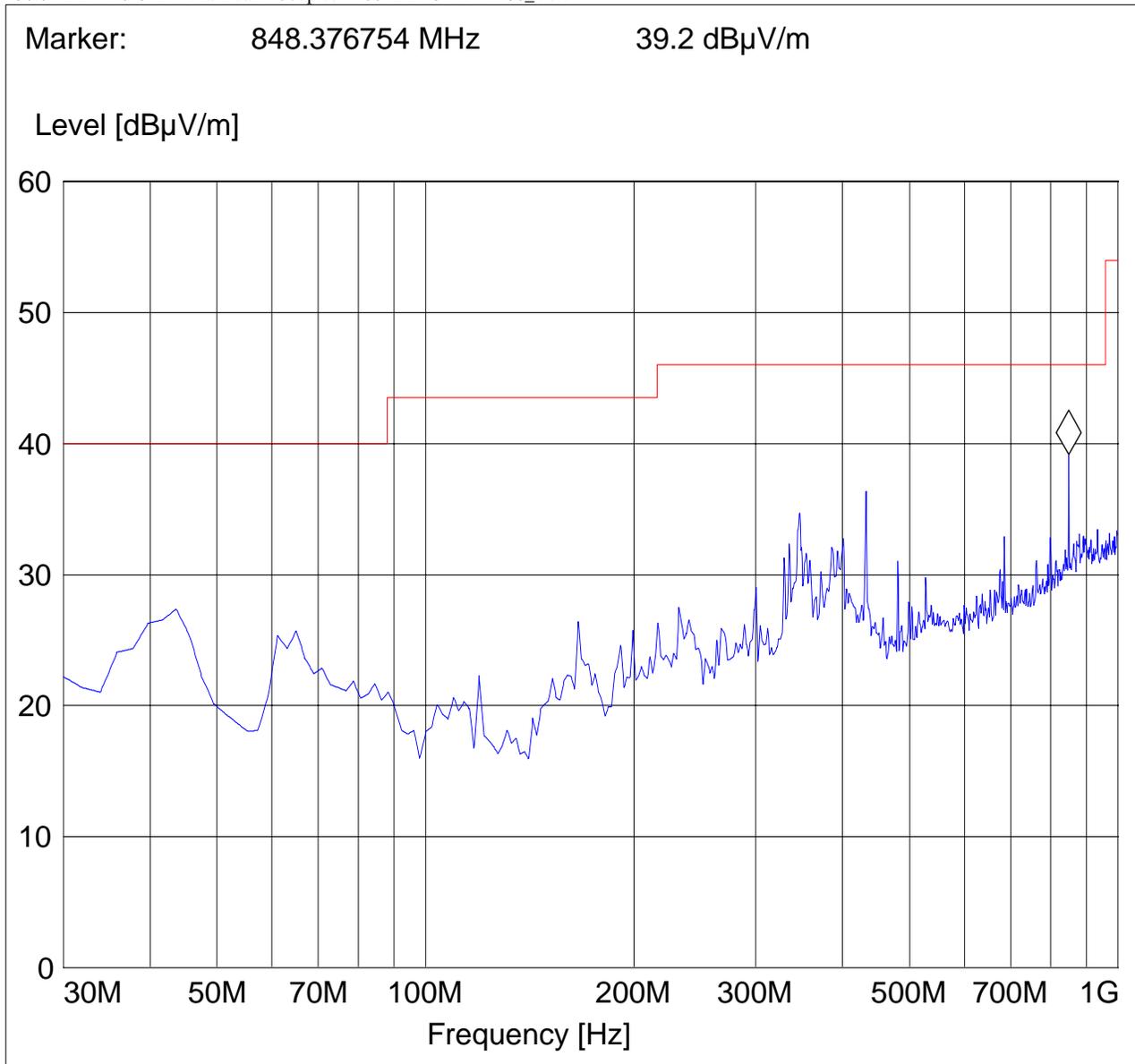
**Note: This plot is valid for low, mid, high channels (worst-case plot)**

*CETECOM Inc., 411 Dixon Landing Road, Milpitas CA 95035, USA*

EUT: ES725  
Customer: Sony  
Test Mode: BT, ch 39 (2441Mhz)  
ANT Orientation: H  
EUT Orientation: H  
Test Engineer: Ed  
Voltage: AC adapter  
Comments:

#### ***SWEEP TABLE: "FCC15.247\_30M-1G\_Ver"***

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	3141-#1186_Vert



Test Report #: SONYE\_016\_07001\_15.247BT\_  
AK8PCG4L3L

Date of Report : 2007-04-25

Page 15 of 30



**1-18GHz (2402MHz)**

**Note: The peak above the limit line is the carrier freq.**

**Note: Peak Reading vs. Average limit**

**CETECOM Inc., 411 Dixon Landing Road, Milpitas CA 95035, USA**

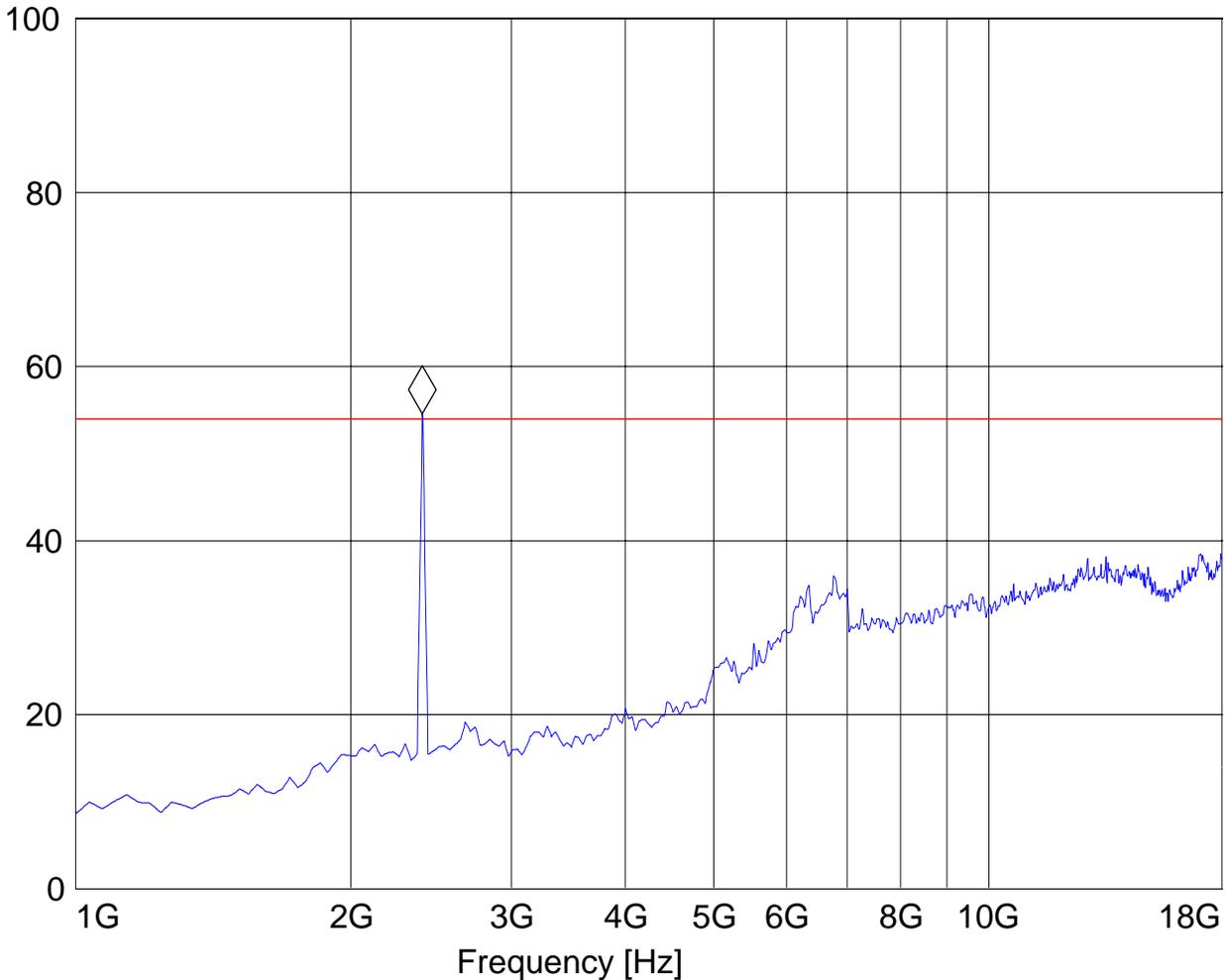
EUT / Description: ES725  
Manufacturer: Sony Electronics  
Test mode: BT, ch 0 (2402Mhz)  
EUT: H  
Antenna: H  
Test Engineer: Ed  
Voltage: AC adapter  
Comments: marker is on transmitter fundamental.

**SWEEP TABLE: "FCC15.247\_1-18G"**

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert

Marker: 2.396793587 GHz 54.59 dB $\mu$ V/m

Level [dB $\mu$ V/m]



Test Report #: SONYE\_016\_07001\_15.247BT\_ AK8PCG4L3L

Date of Report : 2007-04-25

Page 16 of 30



**1-18GHz (2441MHz)**

**Note: The peaks above the limit line is the carrier freq.**

**Note: Peak Reading vs. Average limit**

**CETECOM Inc., 411 Dixon Landing Road, Milpitas CA 95035, USA**

EUT / Description: ES725

Manufacturer: Sony Electronics

Test mode: BT, ch 39 (2441Mhz)

EUT: H

Antenna: H

Test Engineer: Ed

Voltage: AC adapter

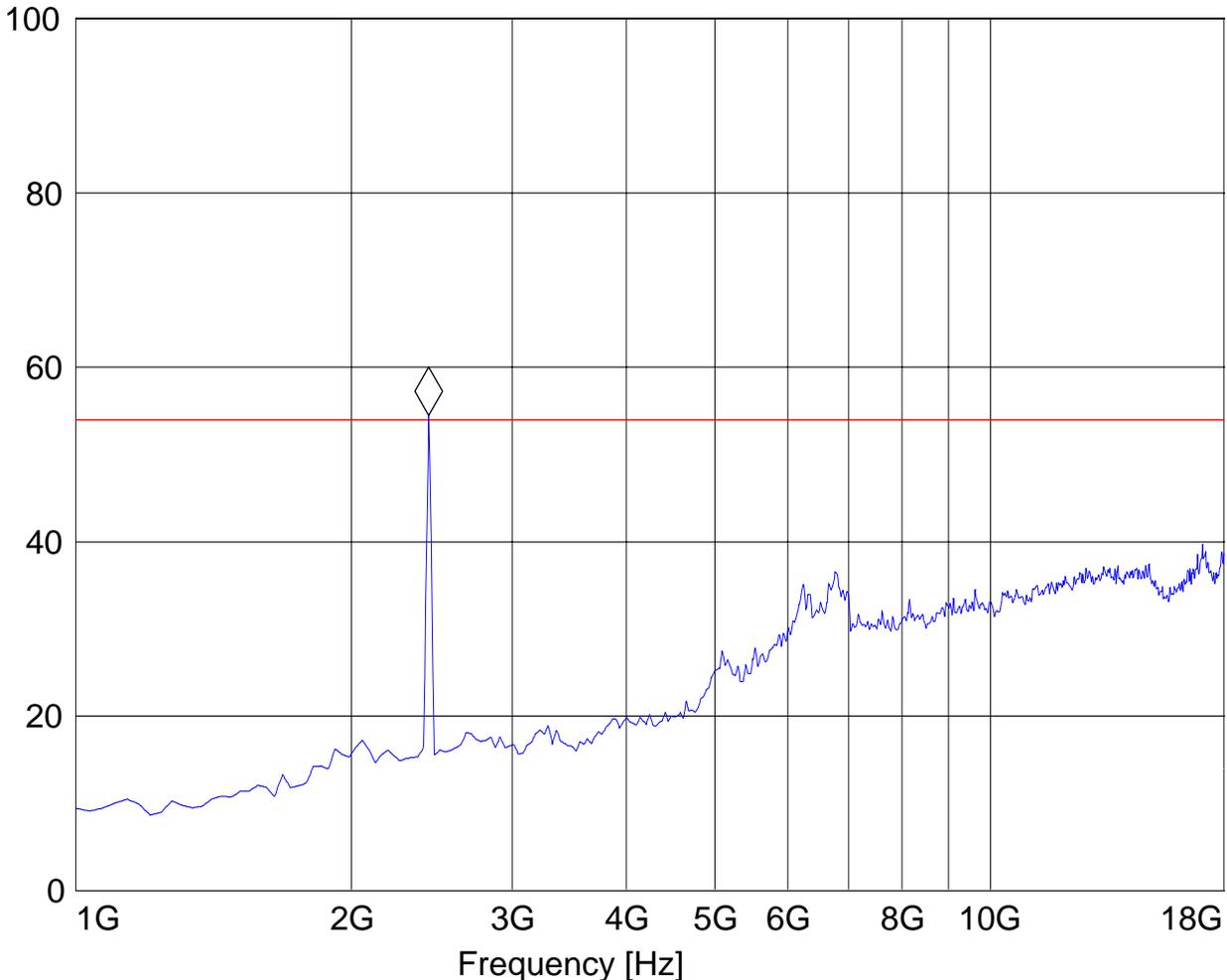
Comments: marker is on transmitter fundamental.

**SWEEP TABLE: "FCC15.247\_1-18G"**

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert

Marker: 2.430861723 GHz 54.5 dBμV/m

Level [dBμV/m]



Test Report #: SONYE\_016\_07001\_15.247BT\_ AK8PCG4L3L

Date of Report : 2007-04-25

Page 17 of 30



**1-18GHz (2480MHz)**

**Note: The peaks above the limit line is the carrier freq.**

**Note: Peak Reading vs. Average limit**

**CETECOM Inc., 411 Dixon Landing Road, Milpitas CA 95035, USA**

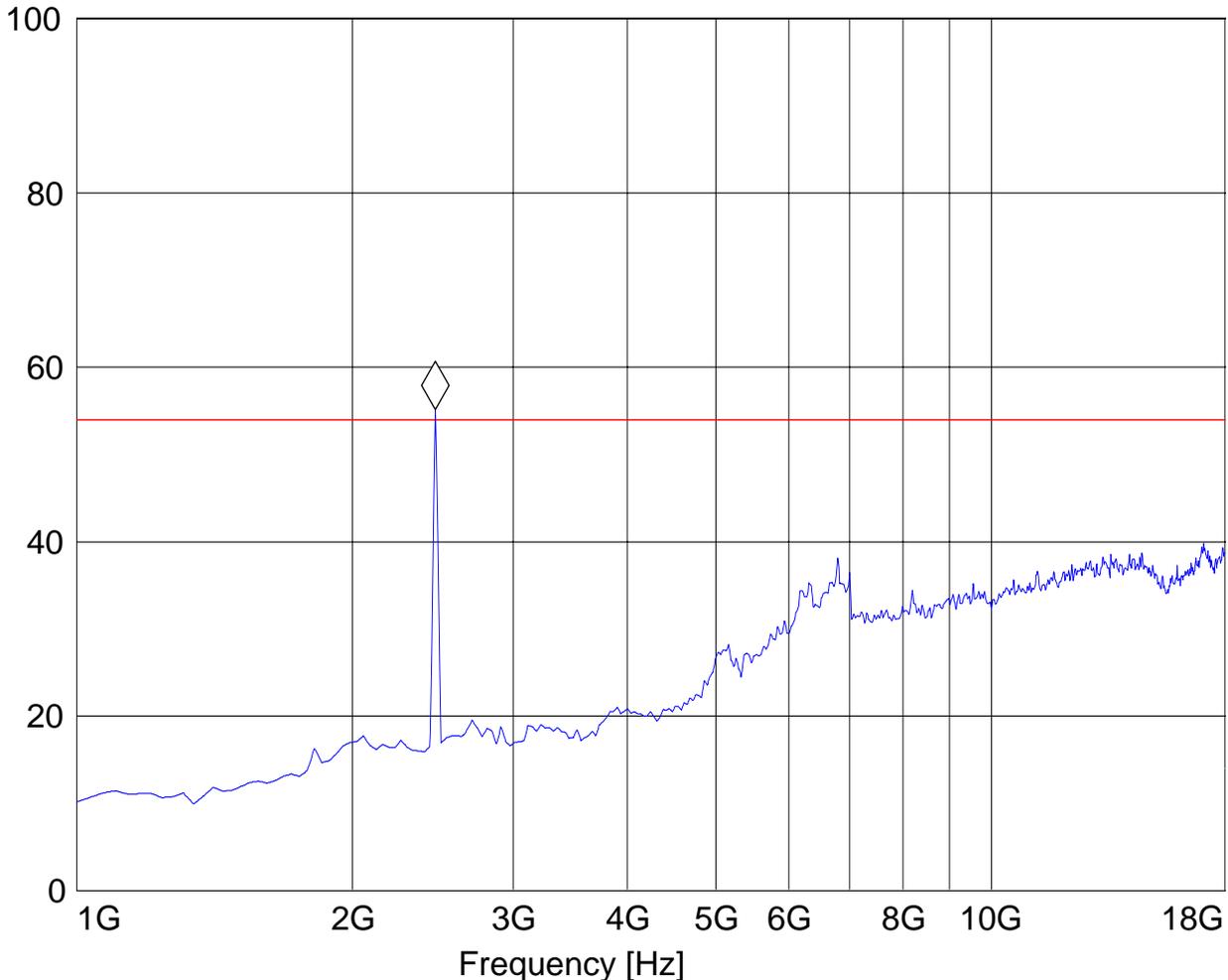
EUT / Description: ES725  
Manufacturer: Sony Electronics  
Test mode: BT, ch 78 (2480Mhz)  
EUT: H  
Antenna: H  
Test Engineer: Ed  
Voltage: AC adapter  
Comments: marker is on transmitter fundamental.

**SWEEP TABLE: "FCC15.247\_1-18G"**

Start Stop Detector Meas. IF Transducer  
Frequency Frequency Time Bandw.  
1.0 GHz 18.0 GHz MaxPeak Coupled 1 MHz #326horn\_AF\_vert

Marker: 2.46492986 GHz 55.17 dB $\mu$ V/m

Level [dB $\mu$ V/m]



Test Report #: SONYE\_016\_07001\_15.247BT\_  
AK8PCG4L3L

Date of Report : 2007-04-25

Page 18 of 30



### 18-25GHz

**Note: This plot is valid for low, mid, high channels (worst-case plot)**

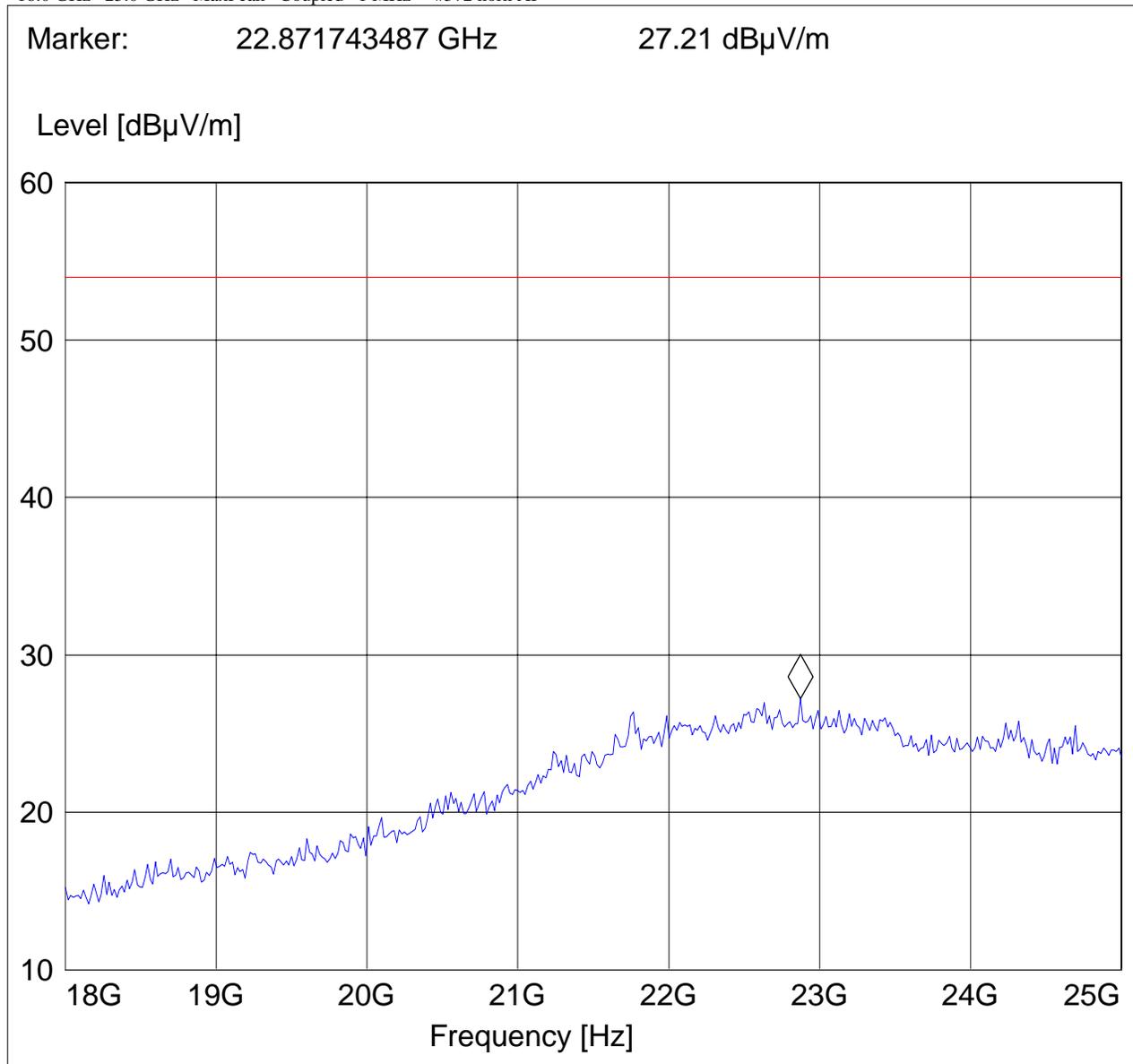
**Note: Peak Reading vs. Average limit**

*CETECOM Inc., 411 Dixon Landing Road, Milpitas CA 95035, USA*

EUT: ES725  
Customer: Sony  
Test Mode: BT, ch 0 (2402Mhz)  
ANT Orientation: H  
EUT Orientation: H  
Test Engineer: Ed  
Voltage: AC adapter  
Comments:

#### ***SWEEP TABLE: "FCC15.247\_18-26.5G"***

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
18.0 GHz	25.0 GHz	MaxPeak	Coupled	1 MHz	#572 horn AF





### 4.3 RECEIVER SPURIOUS RADIATION § 15.209/RSS210

#### 4.3.1 LIMITS

Frequency (MHz)	Field strength ( $\mu\text{V/m}$ )	Measurement distance (m)
0.009 - 0.490	2400/F (kHz)	300
0.490 - 1.705	2400/F (kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
above 960	500	3

**NOTE:**

1. The radiated emissions were done with different settings, using the relevant pre-amplifiers for the relevant frequency ranges. This is the reason that the graphs show different noise levels. In the range between 3 and 25 GHz very short cable connections to the antenna was used to minimize the noise level.

2. All measurements are done in peak mode using a quasi peak or average limit , unless specified with the plots.

### 4.3.2 RESULTS

30MHz – 1GHz

Note: This plot is valid for all polarizations and low, mid, high channels (worst-case plot)

Note: Peak Reading vs. Quasi-peak limit

**CETECOM Inc., 411 Dixon Landing Road, Milpitas CA 95035, USA**

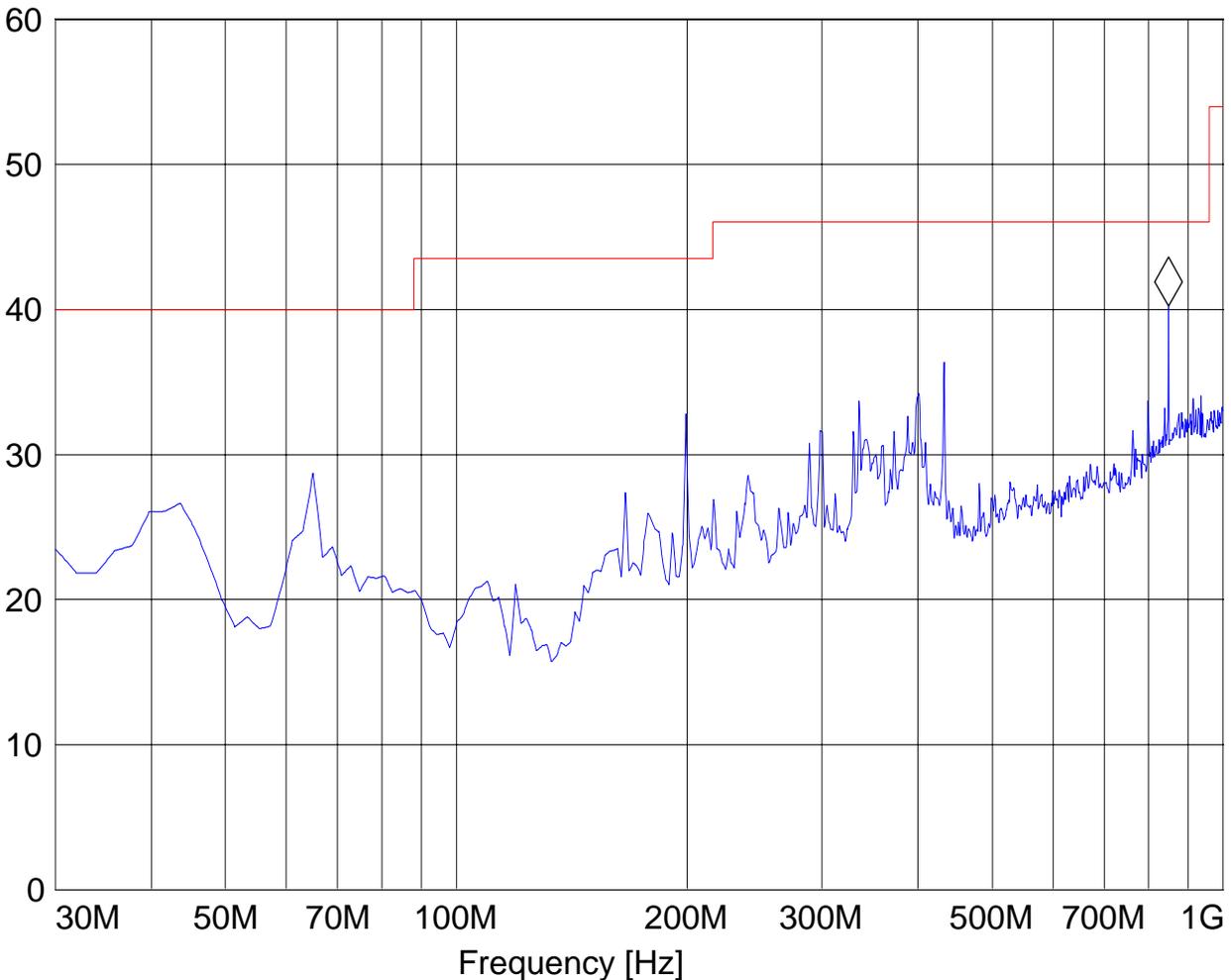
EUT: ES725  
Customer: Sony  
Test Mode: BT, Receive  
ANT Orientation: V  
EUT Orientation: H  
Test Engineer: Ed  
Voltage: AC adapter  
Comments:

**SWEEP TABLE: "CANADA RE\_30M-1G\_Hor"**

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	3141-#1186_Vert

Marker: 848.376754 MHz 40.24 dB $\mu$ V/m

Level [dB $\mu$ V/m]



Test Report #: SONYE\_016\_07001\_15.247BT\_

AK8PCG4L3L



Date of Report : 2007-04-25

Page 21 of 30

### 1-18GHz

**Note: Peak Reading vs. Average limit**

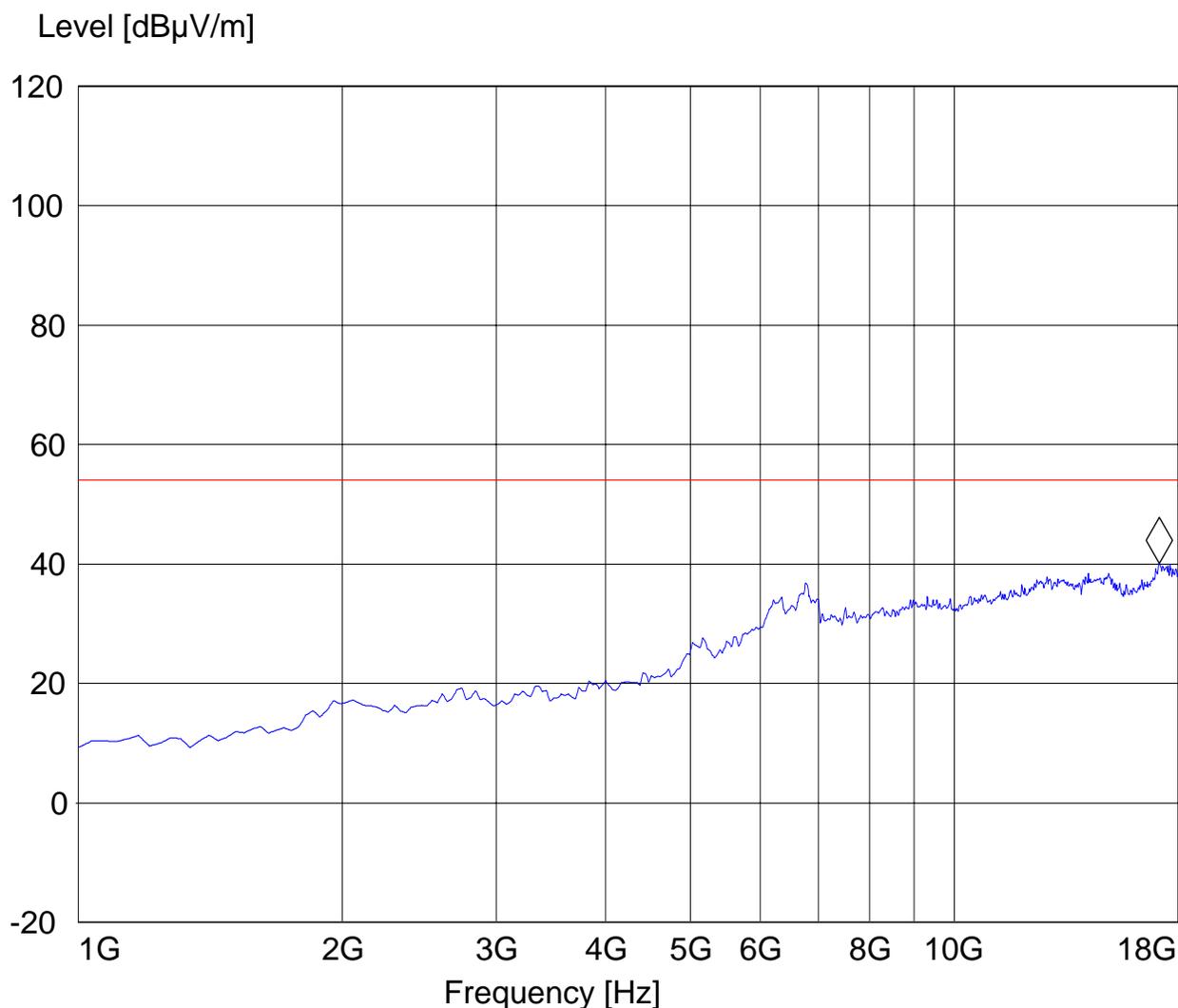
**CETECOM Inc., 411 Dixon Landing Road, Milpitas CA 95035, USA**

EUT / Description: ES725  
Manufacturer: Sony Electronics  
Test mode: BT, Receive  
EUT: H  
Antenna: H  
Test Engineer: Ed  
Voltage: AC adapter  
Comments: :

### SWEEP TABLE: "CANADA RE\_1-18G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert

Marker: 17.148296593 GHz 40.11 dB $\mu$ V/m



Test Report #: **SONYE\_016\_07001\_15.247BT\_**  
**AK8PCG4L3L**

Date of Report : 2007-04-25

Page 22 of 30



### 18-25GHz

**Note: Peak Reading vs. Average limit**

**CETECOM Inc., 411 Dixon Landing Road, Milpitas CA 95035, USA**

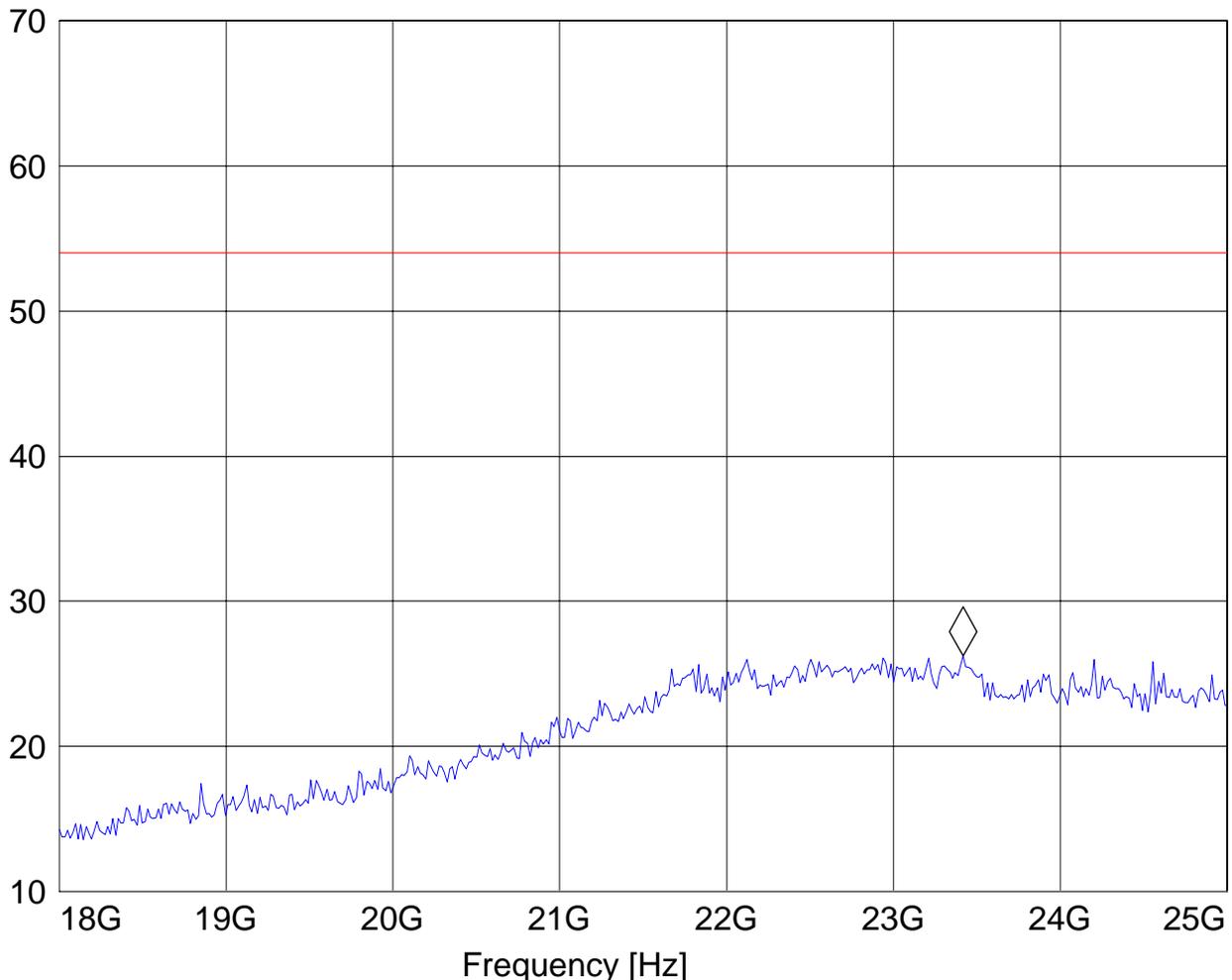
EUT: ES725  
Customer: Sony  
Test Mode: BT, Receive  
ANT Orientation: H  
EUT Orientation: H  
Test Engineer: Ed  
Voltage: AC adapter  
Comments:

**SWEEP TABLE: "CANADA RE\_18-26.5G"**

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
18.0 GHz	26.0 GHz	MaxPeak	Coupled	1 MHz	3160 Horn 18-26.5G

Marker: 23.418837675 GHz 26.24 dB $\mu$ V/m

Level [dB $\mu$ V/m]



Test Report #: **SONYE\_016\_07001\_15.247BT\_**  
**AK8PCG4L3L**

Date of Report : 2007-04-25

Page 23 of 30



**5 Measurements (CONDUCTED)**

**5.1 MAXIMUM PEAK OUTPUT POWER § 15.247 (CONDUCTED)**

**5.1.1 LIMIT SUB CLAUSE § 15.247 (b) (1)**

<b>Frequency range</b>	<b>RF power output</b>
<b>2400-2483.5 MHz</b>	<b>30dBm</b>

**\*limit is based upon antenna gain of less than or equal to 6dBi.**

**5.1.2 RESULTS: GFSK**

**Please refer to conducted test report.**

Test Report #: **SONYE\_016\_07001\_15.247BT\_**  
**AK8PCG4L3L**

Date of Report : 2007-04-25

Page 24 of 30

---



## **5.2 20dB BANDWIDTH**

### **5.2.1 LIMIT SUB CLAUSE § 15.247 (a) (1) (i) (ii) (iii)**

Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

### **5.2.2 RESULTS: GFSK**

**Please refer to conducted test report.**



### **5.3 CARRIER FREQUENCY SEPARATION**

#### **5.3.1 LIMIT SUB CLAUSE § 15.247 (a) (1) (i) (ii) (iii)**

<b>SEPARATION</b>
<b>&gt; 25 KHz or &gt; 20 dB BANDWIDTH</b>

#### **5.3.2 RESULTS:**

**Please refer to conducted test report.**

### **5.4 NUMBER OF HOPPING CHANNELS**

#### **5.4.1 LIMIT SUB CLAUSE § 15.247 (a) (1) (iii)**

<b>NUMBER OF CHANNELS</b>
<b>&gt; 15</b>

#### **5.4.2 RESULTS:**

**Please refer to conducted test report.**

Test Report #: **SONYE\_016\_07001\_15.247BT\_**  
**AK8PCG4L3L**

Date of Report : 2007-04-25

Page 26 of 30



**5.5 TIME OF OCCUPANCY (DWELL TIME)**

**5.5.1 LIMIT SUB CLAUSE § 15.247 (a) (1) (i) (ii) (iii)**

<b>FREQUENCY RANGE</b>	<b>AVERAGE TIME OF OCCUPANCY PER 31.6 SECONDS (LIMIT)</b>
<b>2400-2483.5</b>	<b>0.4 SECONDS</b>

**5.5.2 RESULTS:**

**Please refer to conducted test report.**

Test Report #: **SONYE\_016\_07001\_15.247BT\_**  
**AK8PCG4L3L**

Date of Report : 2007-04-25

Page 27 of 30



## **5.6 CONDUCTED SPURIOUS EMISSION**

### **5.6.1 LIMIT SUB CLAUSE § 15.247 (d)**

<b>FREQUENCY RANGE</b>	<b>limit</b>
<b>30M-25GHz</b>	<b>-20dBc</b>

### **5.6.2 RESULTS: Tnom(23)°C VnomVDC**

**Please refer to conducted test report.**

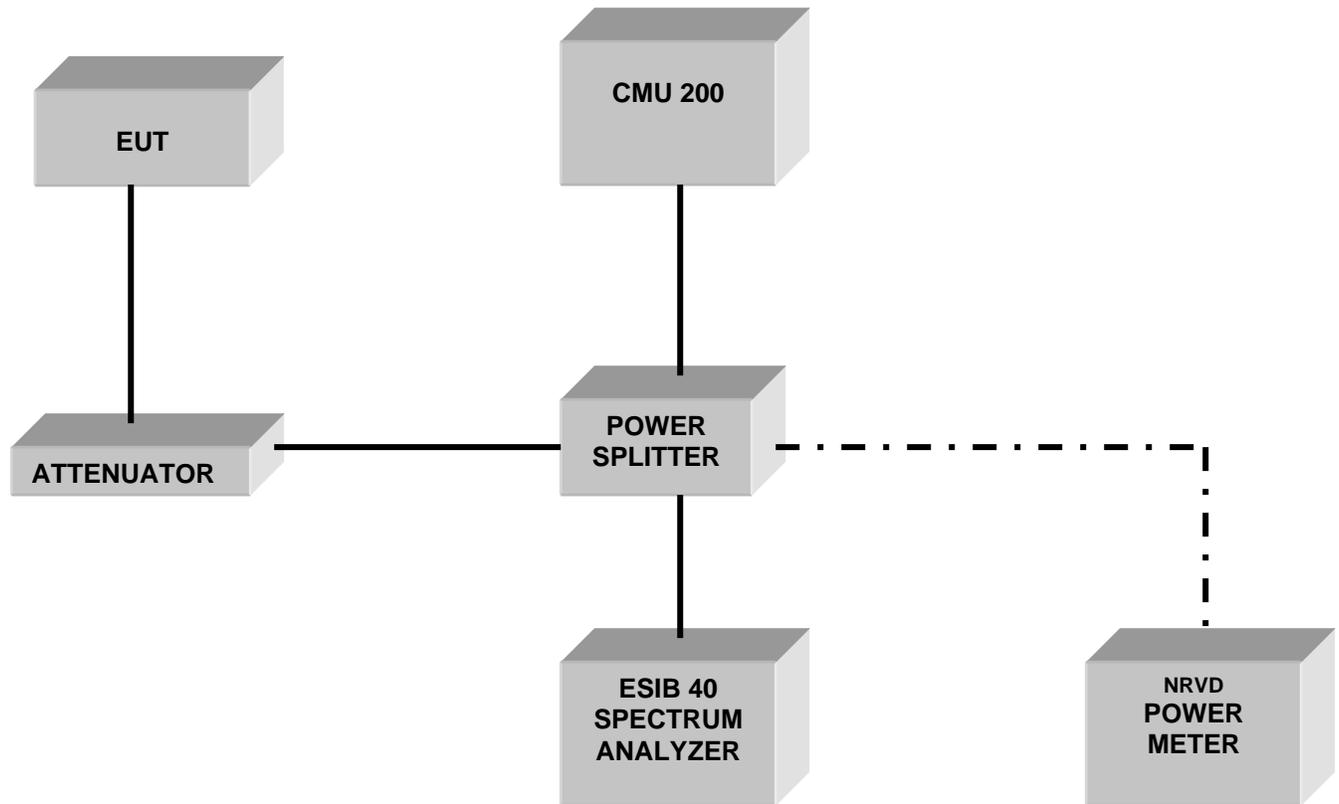


**6 TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS**

No	Instrument/Ancillary	Type	Manufacturer	Serial No.	Cal Due	Interval
01	Spectrum Analyzer	ESIB 40	Rohde & Schwarz	100107	May 2007	1 year
02	Spectrum Analyzer	FSEM 30	Rohde & Schwarz	100017	August 2007	1 year
03	Signal Generator	SMY02	Rohde & Schwarz	836878/011	May 2007	1 year
04	Power-Meter	NRVD	Rohde & Schwarz	0857.8008.02	May 2007	1 year
05	Biconilog Antenna	3141	EMCO	0005-1186	June 2007	1 year
06	Horn Antenna (1-18GHz)	SAS-200/571	AH Systems	325	June 2007	1 year
07	Horn Antenna (18-26.5GHz)	3160-09	EMCO	1240	June 2007	1 year
08	Power Splitter	11667B	Hewlett Packard	645348	n/a	n/a
09	Climatic Chamber	VT4004	Voltsch	G1115	May 2007	1 year
10	High Pass Filter	5HC2700	Trilithic Inc.	9926013	n/a	n/a
11	High Pass Filter	4HC1600	Trilithic Inc.	9922307	n/a	n/a
12	Pre-Amplifier	JS4-00102600	Miteq	00616	May 2007	1 year
13	Power Sensor	URV5-Z2	Rohde & Schwarz	DE30807	May 2007	1 year
14	Digital Radio Comm. Tester	CMD-55	Rohde & Schwarz	847958/008	May 2007	1 year
15	Universal Radio Comm. Tester	CMU 200	Rohde & Schwarz	832221/06	May 2007	1 year
16	LISN	ESH3-Z5	Rohde & Schwarz	836679/003	May 2007	1 year
17	Loop Antenna	6512	EMCO	00049838	July 2007	2 years

**7 BLOCK DIAGRAMS**

**Conducted Testing**



**Radiated Testing**

**ANECHOIC CHAMBER**

