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EMC TEST REPORT

Report No. : EME-070793

Model No. : M01003-M

Issued Date : Aug. 14, 2007

Applicant : ACCO BRANDS, INC

333 Twin Dolphin Drive, Sixth Floor, Redwood Shores,

CA94065, USA

Test By : Intertek Testing Services Taiwan Ltd.

No. 11, Lane 275, Ko-Nan 1 Street, Chia-Tung Li, Shiang-Shan District, Hsinchu City, Taiwan

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Project Engineer

Jimmie Liu

Kevin Chen

Reviewed By



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Summary of Tests

₭ Kensington® SlimBladeTM Presenter Media Mouse -Model: M01003-M FCC ID: GV3M01003-M

Test	Reference	Results
Minimum 6dB Bandwidth test	15.247(a)(2)	Pass
Maximum Output Power test	15.247(b)	Pass
RF Antenna Conducted Spurious test	15.247(d)	Pass
Radiated Spurious Emission test	15.205, 15.209	Pass
Power Spectrum Density test	15.247(e)	Pass
Emission on the Band Edge test	15.247(d)	Pass



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1. General information

1.1 Identification of the EUT

Applicant : ACCO BRANDS, INC

Product : Kensington® SlimBladeTM Presenter Media Mouse

Model No. : M01003-M

FCC ID. : GV3M01003-M

Frequency Range : 2402MHz ~ 2474MHz

Channel Number : 13 channels

Frequency of Each Channel : 2402 + 6k MHz; k = 0-12

Type of Modulation : GFSK

Rated Power : DC 1.5V from Battery

Power Cord : N/A

Sample Received : Aug. 06, 2007

Test Date(s) : Aug. 06, 2007 ~ Aug. 09, 2007

A FCC DoC report has been generated for the client.

1.2 Additional information about the EUT

The EUT is a Kensington® SlimBladeTM Presenter Media Mouse and was defined as information technology equipment.

For more detail features, please refer to User's manual as file name "Installation guide.pdf"

1.3 Antenna description

The EUT uses a permanently connected antenna.

Antenna Gain : -1.15dBi max

Antenna Type : PCB Printed antenna

Connector Type: N/A



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2. Test specifications

2.1 Test standard

The EUT was performed according to the procedures in FCC Part 15 Subpart C Section § 15.205、§15.207、§15.209、§15.247 and ANSI C63.4/2003.

The test of radiated measurements according to FCC Part15 Section 15.33(a) had been conducted and the field strength of this frequency band were all meet limit requirement, thus we evaluate the EUT pass the specified test.

2.2 Operation mode

The EUT was supplied with 1.5Vdc from battery and it was running in operating mode.



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2.3 Test equipment

Equipment	Brand	Frequency range	Model No.	Intertek ID No.	Next Cal. Date
EMI Test Receiver	Rohde & Schwarz	9kHz~2.75GHz	ESCS 30	EC303	04/17/2008
Spectrum Analyzer	Rohde & Schwarz	9kHz~30GHz	FSP 30	EC353	08/06/2008
Spectrum Analyzer	Rohde & Schwarz	20Hz~40GHz	FSEK 30	EC365	11/12/2007
Horn Antenna	SCHWARZBECK	1GHz~18GHz	BBHA 9120 D	EC371	03/04/2008
Horn Antenna	SCHWARZBECK	14GHz~40GHz	BBHA 9170	EC351	08/08/2008
Bilog Antenna	SCHWARZBECK	25MHz~2GHz	VULB 9168	EC347	12/23/2007
Pre-Amplifier	MITEQ	100MHz~26.5GHz	919981	EC373	03/18/2009
Wideband Peak Power Meter/ Sensor	Anritsu	100MHz~18GHz	ML2497A/ MA2491A	EC396	11/12/2007
Controller	HDGmbH	N/A	CM 100	EP346	N/A
Antenna Tower	HDGmbH	N/A	MA 240	EP347	N/A
LISN	Rohde & Schwarz	9KHz~30MHz	ESH3-Z5	EC344	03/30/2008

Note: The above equipments are within the valid calibration period.



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3. Minimum 6dB Bandwidth test

3.1 Operating environment

Temperature: 25

Relative Humidity: 53 % Atmospheric Pressure: 1023 hPa

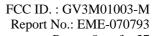
3.2 Test setup & procedure

The minimum 6dB bandwidth per FCC §15.247(a)(2) was measured using a 50 ohm spectrum analyzer with the resolutions bandwidth set at 100kHz, the video bandwidth set at 100kHz, and the SPAN>>RBW. The test was performed at 3 channels (lowest, middle and highest channel). The minimum 6-dB modulation bandwidth is in the following Table.

3.3 Measured data of Minimum 6dB Bandwidth test results

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit
0 (lowest)	2402	0.82164	> 500kHz
6 (middle)	2438	0.82164	> 500kHz
12 (highest)	2474	0.84168	> 500kHz

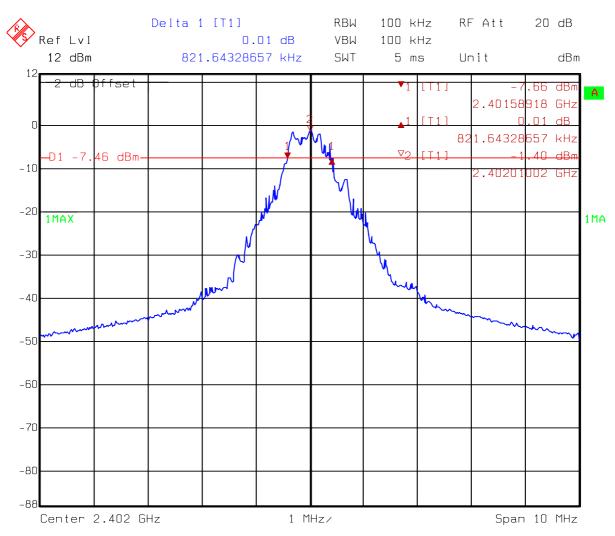
Please see the plot below.



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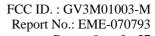
Intertek



Title: 6dB Band-Width

Comment A: CH O

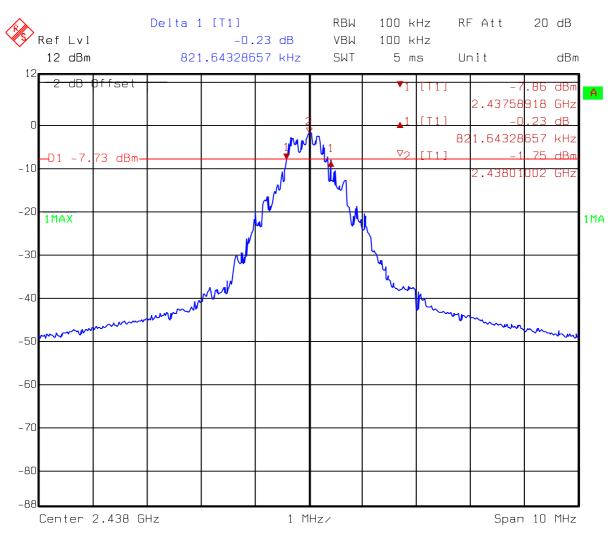
Date: 08.AUG.2007 14:53:27



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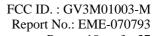
Intertek



Title: 6dB Band-Width

Comment A: CH 6

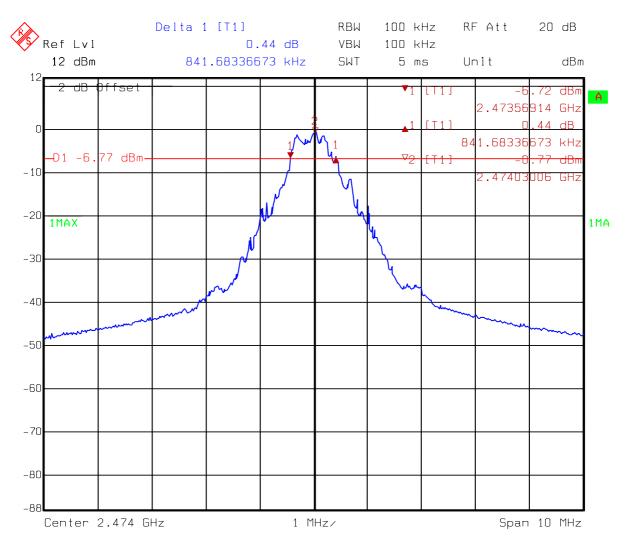
Date: 08.AUG.2007 15:08:56



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Test Mode: CH 12



Title: 6dB Band-Width

Comment A: CH 12

Date: 08.AUG.2007 14:43:22



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4. Maximum Output Power test

4.1 Operating environment

Temperature: 25

Relative Humidity: 55 % Atmospheric Pressure: 1023 hPa

4.2 Test setup & procedure

The power output per FCC §15.247(b) was measured on the EUT using a 50 ohm SMA cable connected to peak power meter via power sensor. Power was read directly and cable loss correction (2.0dB) was added to the reading to obtain power at the EUT antenna terminals. The test was performed at 3 channels (lowest, middle and highest channel).

4.3 Measured data of Maximum Output Power test results

Channel	Freq. C.L.		Reading		Peak Output wer	Limit
	(MHz)	(dB)	(dBm)	(dBm)	(mW)	(W)
0 (lowest)	2402	2	-3.29	-1.29	0.74	1
6 (middle)	2438	2	-3.43	-1.43	0.97	1
11 (highest)	2474	2	-2.52	-0.52	0.99	1

Remark:

Conducted Peak Output Power = Reading + C.L.



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5. RF Antenna Conducted Spurious test

5.1 Operating environment

Temperature: 25

Relative Humidity: 58 %

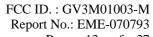
5.2 Test setup & procedure

The measurements were performed from 30MHz to 25GHz RF antenna conducted per FCC 15.247 (d) was measured from the EUT antenna port using a 50ohm spectrum analyzer with the resolution bandwidth set at 100 kHz, and the video bandwidth set at 100 kHz.

Harmonics and spurious noise must be at least 20dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. The table below is the results from the highest emission for each channel within the authorized band. This table was used to determine the spurious limits for each channel.

5.3 Measured data of the highest RF Antenna Conducted Spurious test result

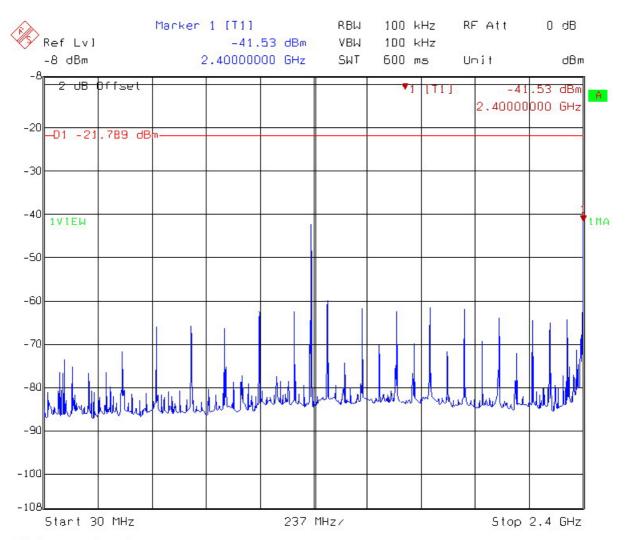
The test results please see the plot below.



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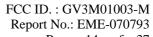


Test Mode: CH 0



Title: Spurious

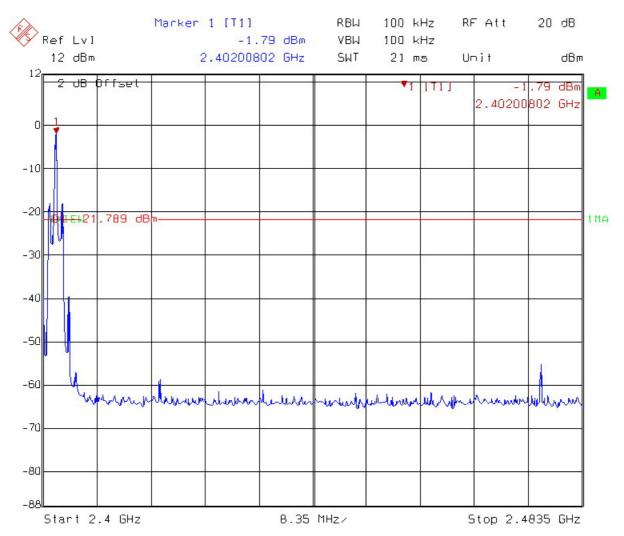
Comment A: CH O at 30MHz~2400MHz Date: 08.AUG.2D07 13:00:50



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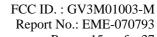


Test Mode: CH 0



Title: Spurious

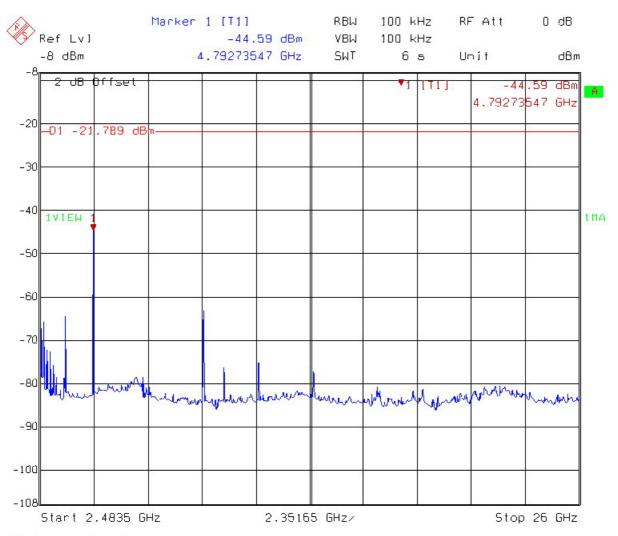
Comment A: CH O at 2400MHz~2483.5MHz Date: 08.AUG.2D07 13:00:28



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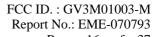


Intertek



Title: Spurious

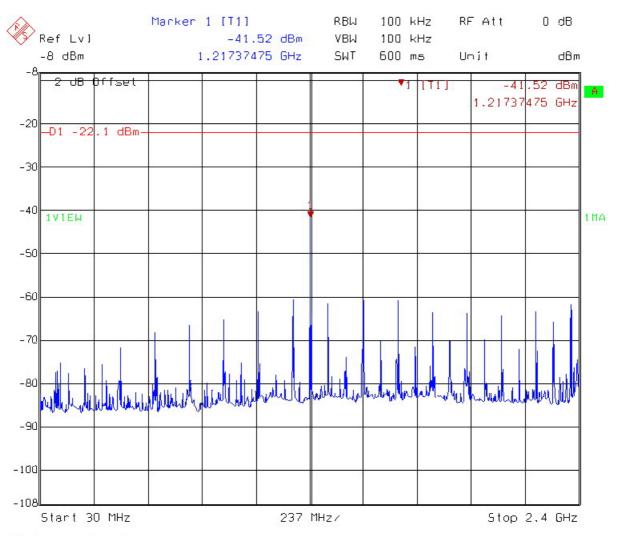
Comment A: CH O at 2483.5MHz~26000MHz Date: 08.AUG.2DD7 13:01:18



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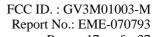


Intertek



Title: Spurious

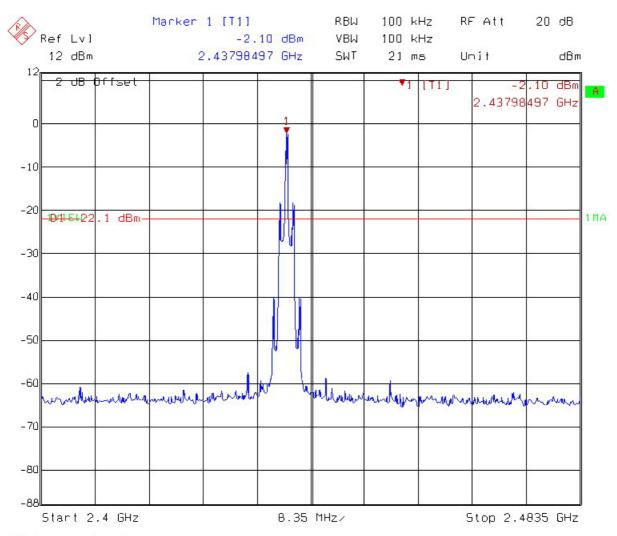
Comment A: CH 6 at 30MHz~2400MHz Date: 08.AUG.2DO7 13:05:25



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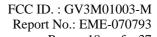


Intertek



Title: Spurious

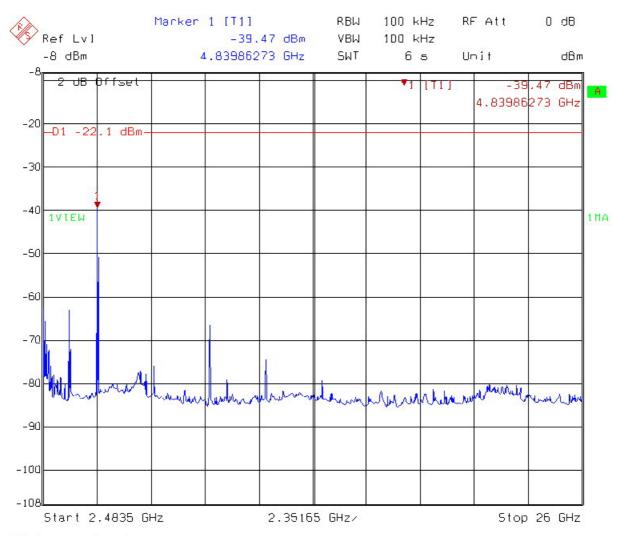
Comment A: CH 6 at 2400MHz~2483.5MHz Date: 08.AUG.2DO7 t3:05:D4



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Test Mode: CH 6



Title: Spurious

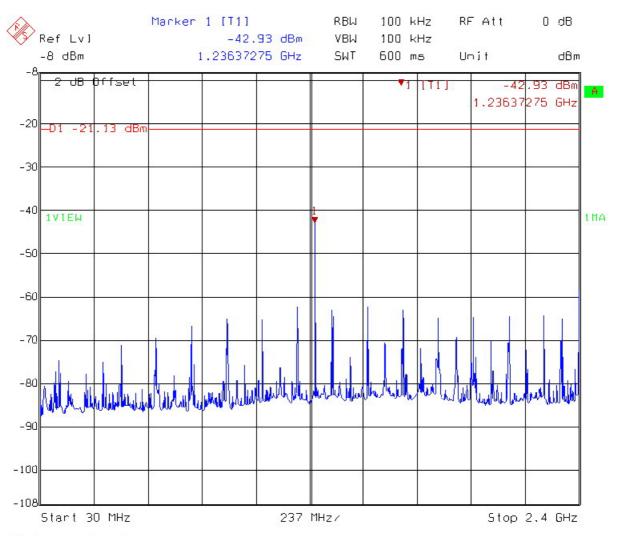
Comment A: CH 6 at 2483.5MHz~26000MHz Date: 08.AUG.2D07 13:05:54



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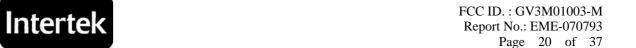


Intertek

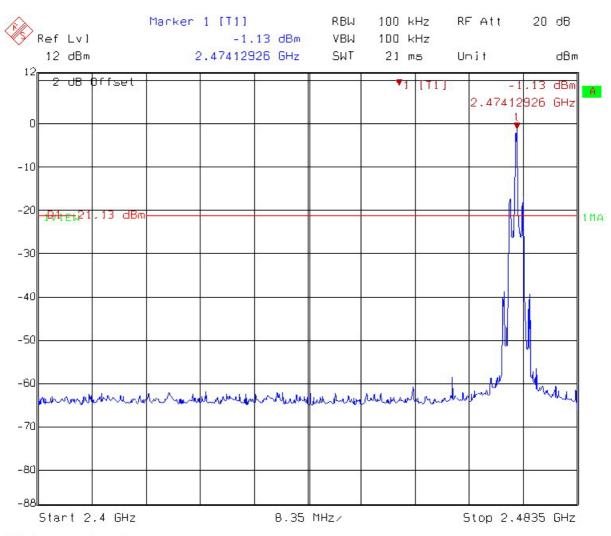


Title: Spurious

Comment A: CH 12 at 30MHz~2400MHz Date: 08.AUG.2DO7 13:07:42

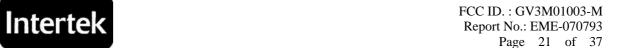


Test Mode: CH 12

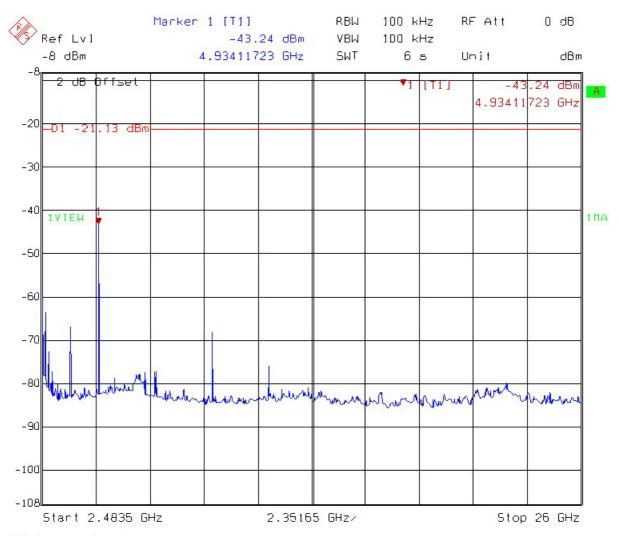


Title: Spurious

Comment A: CH 12 at 2400MHz~2483.5MHz Date: 08.AUG.2DO7 t3:07:20



Test Mode: CH 12



Title: Spurious

Comment A: CH 12 at 2483.5MHz~26000MHz Date: 08.AUG.2DB7 13:08:18



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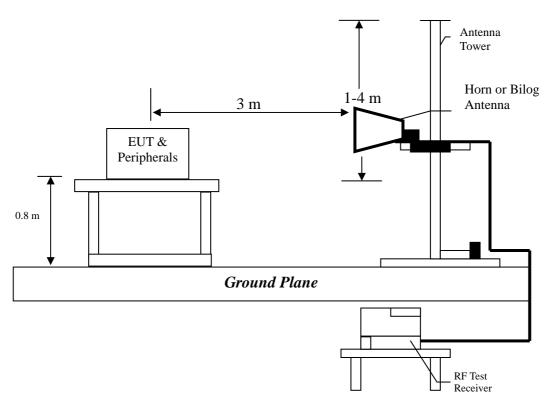
6. Radiated Emission test

6.1 Operating environment

Temperature: 25
Relative Humidity: 55 %
Atmospheric Pressure: 1023 hPa

6.2 Test setup & procedure

The Diagram below shows the test setup, which is utilized to make these measurements.



The frequency range from 30MHz to 1000MHz using Bilog Antenna. The frequency range over 1GHz using Horn Antenna.

Radiated emissions were invested cover the frequency range from 30MHz to 1000MHz using a receiver RBW of 120kHz record QP reading, and the frequency over 1GHz using a spectrum analyzer RBW of 1MHz and 10Hz VBW record Average reading. (15.209 paragraph), the Peak reading (1MHz RBW/VBW) recorded also on the report.

The EUT for testing is arranged on a wooden turntable. If some peripherals apply to the EUT, the peripherals will be connected to EUT and the whole system. During the test, all cables were arranged to produce worst-case emissions. The signal is maximized through rotation. The height of antenna and polarization is changing constantly for exploring for maximum signal level. The height of antenna can be up to 4 meters and down to 1 meter.



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The measurement for radiated emission will be done at the distance of three meters unless the signal level is too low to measure at that distance. In the case of the reading under noise floor, a pre-amplifier is used and/or the test is conducted at a closer distance. And then all readings are extrapolated back to the equivalent 3 meter reading using inverse scaling with distance.

The EUT configuration please refer to the "Spurious set-up photo.pdf".

6.3 Emission limits

The spurious Emission shall test through the 10th harmonic. 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).

Frequency	Limits
(MHz)	(dB \(\mu \) V/m@3m)
30-88	40
88-216	43.5
216-960	46
Above 960	54

Remark:

- 1. In the above table, the tighter limit applies at the band edges.
- 2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

Uncertainty was calculated in accordance with NAMAS NIS 81. Expanded uncertainty (k=2) of radiated emission measurement is ± 4.98 dB.



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6.4 Radiated spurious emission test data

6.4.1 Measurement results: frequencies equal to or less than 1 GHz

The test was performed on EUT under continuously transmitting mode. Channel 0, 6, 12 were verified. The worst case occurred at Tx channel 0.

EUT : M01003-M Worst Case : Tx at channel 0

Antenna	Freq.	Receiver	Corr.	Reading	Corrected	Limit	Margin
Polariz.			Factor		Level	@ 3 m	
(V/H)	(MHz)	Detector	(dB/m)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)
V	142.520	QP	14.27	5.98	20.25	43.50	-23.25
V	166.770	QP	15.70	4.71	20.41	43.50	-23.09
V	249.220	QP	12.22	7.61	19.83	46.00	-26.18
Н	42.610	QP	14.20	4.13	18.33	40.00	-21.67
Н	142.520	QP	13.24	6.63	19.87	43.50	-23.64
Н	395.690	QP	16.74	5.55	22.29	46.00	-23.71

Remark:

1. Corr. Factor = Antenna Factor + Cable Loss

2. Corrected Level = Reading + Corr. Factor



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6.4.2 Measurement results: frequency above 1GHz

EUT : M01003-M Test Condition : Tx at channel 0

Frequency	Spectrum	Antenna	Preamp.	Correction	Reading	Corrected	Limit	Margin
	Analyzer	Polariz.	Gain	Factor		Level	@ 3 m	
(MHz)	Detector	(H/V)	(dB)	(dB/m)	(dBuV)	(dBuV/m)	(dBuV/m)	(dB)
6630.00	PK	Н	36.58	42.96	42.13	48.51	54	-5.49

Remark:

- 1. Correction Factor = Antenna Factor + Cable Loss
- 2. Corrected Level = Reading + Correction Factor Preamp. Gain
- 3. The frequency measured ranges from 1GHz to 25GHz. The data value listed above which is higher than the noise floor, the others please refer to noise floor level.

Noise floor level is:

For PK:

1GHz-3GHz: 20dBuV 3GHz-14GHz: 27dBuV 14GHz-26.5GHz: 39dBuV

For AV:

1GHz-3GHz: 10dBuV 3GHz-14GHz: 16dBuV 14GHz-26.5GHz: 28dBuV



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EUT : M01003-M **Test Condition** : Tx at channel 6

Test Result:

No spurious emission was found above the spectrum analyzer's noise floor.

The noise floor are listed as below:

Noise floor level is:

For PK:

1GHz-3GHz: 20dBuV 3GHz-14GHz: 27dBuV 14GHz-26.5GHz: 39dBuV

For AV:

1GHz-3GHz: 10dBuV 3GHz-14GHz: 16dBuV 14GHz-26.5GHz: 28dBuV



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EUT : M01003-M

Test Condition : Tx at channel 12

Test Result:

No spurious emission was found above the spectrum analyzer's noise floor.

The noise floor are listed as below:

Noise floor level is:

For PK:

1GHz-3GHz: 20dBuV 3GHz-14GHz: 27dBuV 14GHz-26.5GHz: 39dBuV

For AV:

1GHz-3GHz: 10dBuV 3GHz-14GHz: 16dBuV 14GHz-26.5GHz: 28dBuV



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7. Power Spectrum Density test

7.1 Operating environment

Temperature: 25

Relative Humidity: 54 % Atmospheric Pressure 1023 hPa

7.2 Test setup & procedure

The power spectrum density per FCC §15.247(e) was measured from the antenna port of the EUT using a 50ohm spectrum analyzer with the resolution bandwidth set at 3kHz, the video bandwidth set at 10kHz, a span of 1.5MHz, and the sweep time set at 500 seconds. Power Density was read directly correction was added to the reading to obtain power at the EUT antenna terminals. The test was performed at 3 channels (lowest, middle and highest channel). The Power Spectral Density measured result is in the following table.

7.3 Measured data of Power Spectrum Density test results

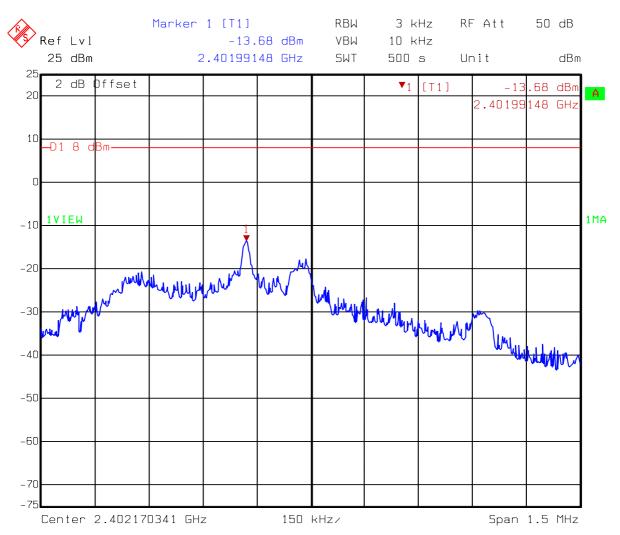
Channel	Frequency	Power spectrum density	Limit
Chamiei	(MHz)	(dBm)	(dBm)
0 (lowest)	2402	-13.68	8
6 (middle)	2438	-13.83	8
12 (highest)	2474	-13.19	8

Please see the plot below.



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Test Mode: CH 0

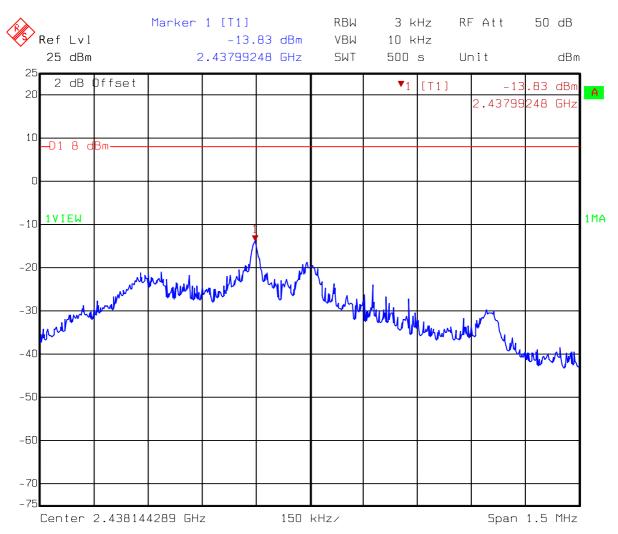


Power density Title: Comment A: CH 0 2402MHz

Date: 08.AUG.2007 13:37:03



Test Mode: CH 6

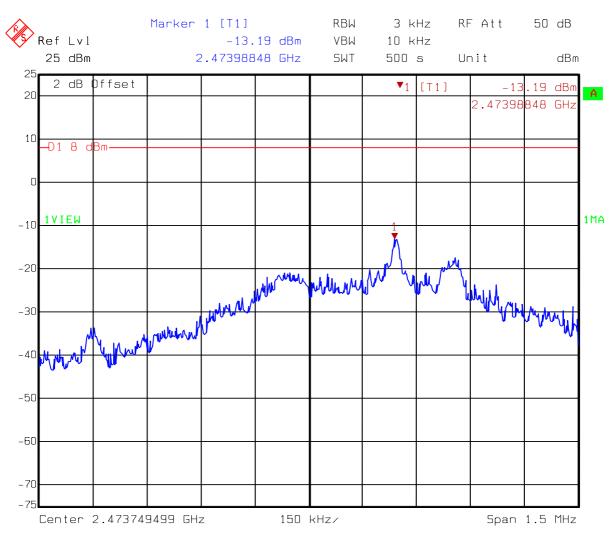


Title: Power density Comment A: CH 6 2438MHz

Date: 08.AUG.2007 13:52:04



Test Mode: CH 12



Title: Power density Comment A: CH 12 2474MHz

Date: 08.AUG.2007 13:25:17



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8. Emission on the band edge

In any 100kHz 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. Radiated emissions, which fall in the restricted band, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

8.1 Operating environment

Temperature: 25

Relative Humidity: 55 % Atmospheric Pressure 1023 hPa

8.2 Test setup & procedure

Please refer to the clause 6.2 of this report.



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8.3 Test Result

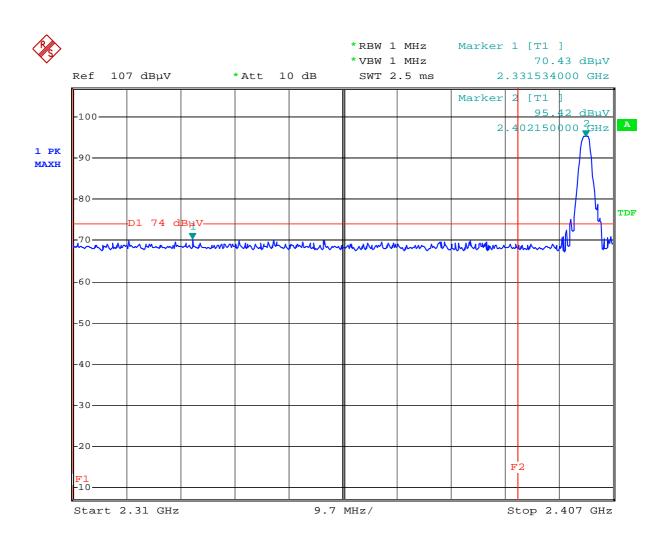
Channel	Measurement Freq.Band (MHz)	Detector	The Max. Field Strength in Restrict Band (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
0 (lowest) 2310-2390	2310 2300	PK	70.43	74	-3.57
	AV	47.56	54	-6.44	
12 (h; ah aat)	2483.5-2500	PK	70.29	74	-3.71
12 (highest)		AV	48.10	54	-5.90



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8.3.1 Radiated Method

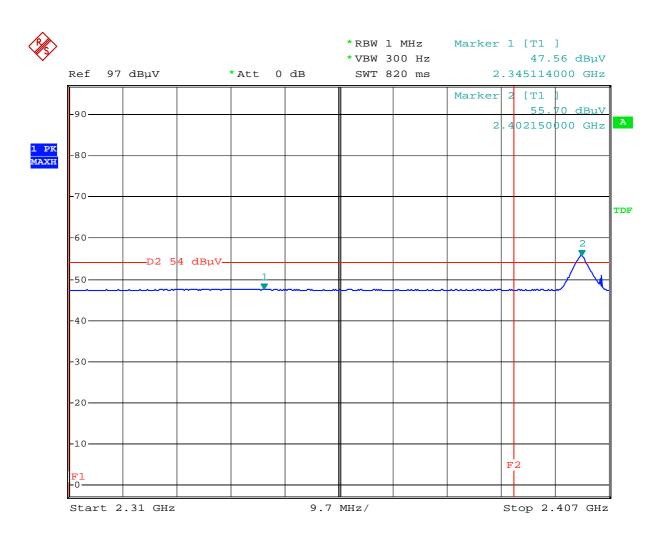
Test Mode: CH 0



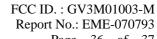
Comment: band edge 2402 PK
Date: 9.AUG.2007 10:23:36



Test Mode: CH 0



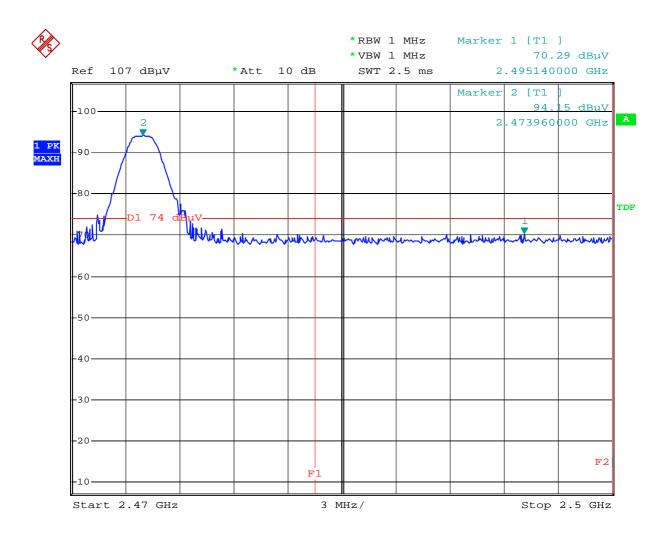
Comment: band edge 2402 AV Date: 9.AUG.2007 10:28:57



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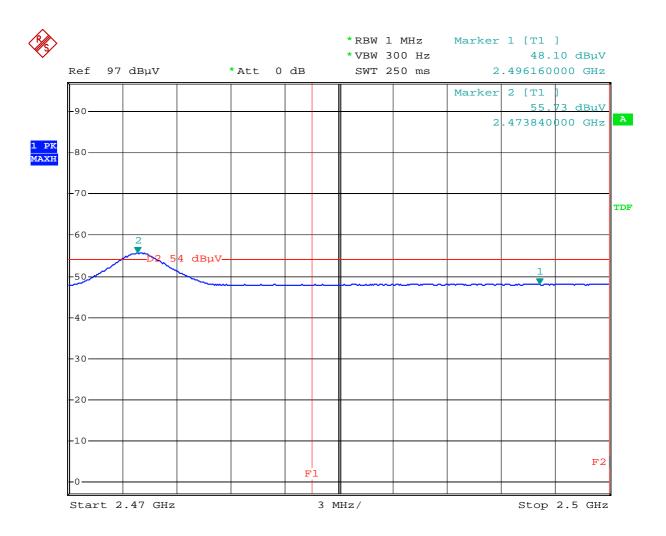
Intertek



Comment: band edge 2474 PK 9.AUG.2007 10:40:39



Test Mode: CH 12



Comment: band edge 2474 AV Date: 9.AUG.2007 10:36:39