

TEST REPORT FOR CERTIFICATION
On Behalf of
Bed's and Mo(o)re GmbH u.co.KG
R-F Massage Plug System (Transmitter Unit)
Model No. : BM11
FCC ID : VXEBM1101

Prepared for : Bed's and Mo(o)re GmbH u.co.KG
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TEST REPORT CERTIFICATION

Applicant : Bed's and Mo(o)re GmbH u.co.KG
 Manufacturer : Bed's and Mo(o)re GmbH u.co.KG
 EUT Description : R-F Massage Plug System
 FCC ID : VXEBM1101
 (A) MODEL NO. : BM11
 (B) SERIAL NO. : N/A
 (C) POWER SUPPLY : DC 6V (Battery)
 (D) TEST VOLTAGE : DC 6V (Via four AAA Batteries)

Measurement Procedure Used:

FCC RULES AND REGULATIONS PART 15 SUBPART C, Sep. 2007
AND ANSI C63.4/2003

(FCC CFR 47 Part 15C, §15.207, §15.209 and §15.231)

The device described above was tested by AUDIX Technology Corporation to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 subpart C limits both radiated and conducted emissions.

The measurement results are contained in this test report and AUDIX Technology Corporation is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC official limits.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX Technology Corporation.

Date of Test : Feb. 19, 2008

Prepared by : Tina Huang Feb. 27, 2008
 (Tina Huang/Assistant)

Test Engineer : Henning Chang Feb. 27, 2008
 (Henning Chang/Supervisor)

Approved & Authorized Signer : Ben Cheng Feb. 27, 2008
 (Ben Cheng/Vice Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	R-F Massage Plug System (Transmitter Unit)
Model Number	:	BM11
FCC ID	:	VXEBM1101
Applicant	:	Bed's and Mo(o)re GmbH u.co.KG Jahnstr 12, 32049 Herford Germany
Manufacturer	:	Bed's and Mo(o)re GmbH u.co.KG Jahnstr 12, 32049 Herford Germany
Fundamental Frequency	:	315MHz
Power Supply	:	DC 6V (Battery)
Date of Receipt of Sample	:	Feb. 19, 2008
Date of Test	:	Feb. 19, 2008

* R-F Massage Plug System – Receiver Unit
 Model No.: BM11 FCC by DoC
 Test report number: EM-F970113

Remark:

Antenna requirement: This EUT's transmitter antenna is designed to be soldered on a printed circuit board, comply with §15.203 and inform to user that any change and modify is prohibited.

1.2. Description of Test Facility

Name of Firm : **AUDIX Technology Corporation**
EMC Department
 No. 53-11, Tin-Fu Tsun, Lin-Kou Hsiang,
 Taipei Hsien, Taiwan.

Test Location & Facility : **Semi-Anechoic Chamber**
 (AC) No. 53-11, Tin-Fu Tsun, Lin-Kou Hsiang,
 Taipei Hsien, Taiwan.

May 16, 2006 Re-File on
 Federal Communication Commission
 Registration Number: 90993

NVLAP Lab. Code : 200077-0
 (NVLAP is a NATA accredited body under Mutual Recognition Agreement)

DAR-Registration No. : DAT-P-145/03-01

1.3. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
Radiation Test (Distance: 3m)	30MHz~300MHz	± 2.91dB
	300MHz~1000MHz	± 2.94dB

Remark : Uncertainty = $ku_c(y)$

2. CONDUCTED EMISSION MEASUREMENT

【The EUT only employs battery power for operation, no conductive emission limits are required according to FCC Part 15 Section §15.207】

3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

The following test equipment was used during the radiated emission tests :

3.1.1. For Frequency Range 30MHz~1000MHz (Semi-Anechoic Chamber)

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E7405A	MY42000134	Jun. 27, 07'	Jun. 26, 08'
2.	Test Receiver	R&S	ESCS30	100265	Sep. 04, 07'	Sep. 03, 08'
3.	Pre-Amplifier	HP	8447D	2944A06305	Mar. 03, 07'	Mar. 02, 08'
4.	Biconical Antenna	CHASE	VBA6106A	1264	Apr. 11, 07'	Apr. 10, 08'
5.	Log Periodic Antenna	Schwarzbeck	UHALP9108-A	0139	Apr. 11, 07'	Apr. 10, 08'

3.1.2. For Frequency Range Above 1GHz (Semi-Anechoic Chamber)

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E7405A	MY42000134	Jun. 27, 07'	Jun. 26, 08'
2.	Amplifier	HP	8449B	3008A01284	Jun. 22, 07'	Jun. 21, 08'
3.	Horn Antenna	EMCO	3115	9112-3775	May 23, 07'	May 22, 08'

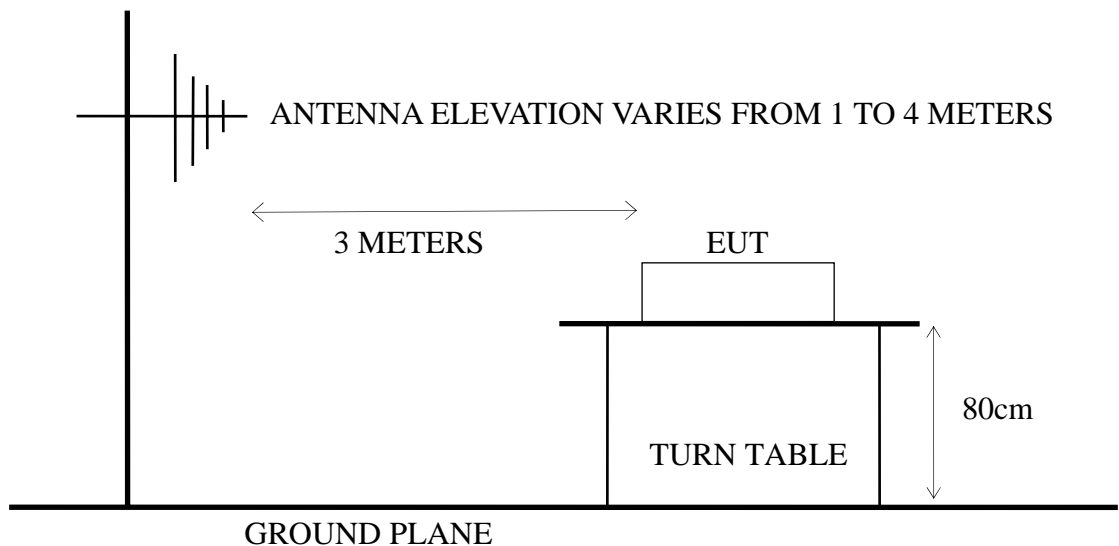
3.2. Test Setup

3.2.1. Block Diagram of connection between EUT and simulators

**R-F MESSAGE PLUG SYSTEM-TRANSMITTER UNIT
(EUT)**

3.2.2. Semi-Anechoic Chamber (3m) Setup Diagram

ANTENNA TOWER



3.3. Radiation Emission Limits (§15.209 & 15.231)

3.3.1. Spurious Emission Limit (§15.209)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMITS	
		$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
30 - 88	3	100	40.00
88 - 216	3	150	43.50
216 - 960	3	200	46.00
Above 960	3	500	54.00
1000-4000	3	500	54.00 (Average)
1000-4000			74.00(Peak)

Remarks : (1) Emission level ($\text{dB}\mu\text{V/m}$) = $20 \log$ Emission level ($\mu\text{V/m}$)
 (2) The tighter limit applies at the edge between two frequency bands.
 (3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3.3.2. Fundamental & Harmonic Frequency Emission Limit (§15.231(b))

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMITS	
		$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
Fundamental Frequency	3	6049.177	75.62 (Average)
		60394.863	95.62 (Peak)
Harmonic	3	603.947	55.62 (Average)
		6039.486	75.62 (Peak)

Remarks : (1) Emission level ($\text{dB}\mu\text{V/m}$) = $20 \log$ Emission level ($\mu\text{V/m}$)
 (2) The tighter limit applies at the edge between two frequency bands.
 (3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
 (4) Where limit of Fundamental Freq. is calculated by:
 $41.6667 \times 315.18 - 7083.3333 = 6049.177 \mu\text{V/m} = 75.62 \text{dB}\mu\text{V/m}$
 (5) The relaxation limits in this table are based on CFR 47 Part 15.231(b)-(2).
 Relaxation limits is calculated by:
 The average value of fundamental frequency is: Average=Peak value+PDCF
 PDCF (Pulse desensitization correction factor) = $20 \log(\text{Duty cycle}) = -5.97$
 Duty cycle = $\text{Ton time}/100\text{ms} = (1 \times 10.9\text{ms} + 21 \times 0.6333\text{ms} + 16 \times 1.633\text{ms})/100\text{ms} = 50.3273/100 = 0.503273$ (Reference FCC public notice DA 00-705)

3.4. EUT's Configuration during Compliance Measurement

The following equipment was installed on radiated measurement to meet the commission requirement and operating in a manner which tended to maximize its emission characteristics in a normal application.

3.4.1. R-F Massage Plug System (EUT)

Model Number : BM11
 Serial Number : N/A
 FCC ID : VXEBM1101
 Manufacturer : Bed's and Mo(o)re GmbH u.co.KG
 Fundamental Frequency : 315MHz

3.5. Operating Condition of EUT

- 3.5.1. Set up the EUT and simulator as shown on 3.2.
- 3.5.2. Turn on the power of all equipment.
- 3.5.3. The EUT (R-F Massage Plug System) emitted the fundamental frequency with data code at the stand, side and lying conditions. (worst mode is lying condition)
- 3.5.4. The EUT was at working on maximum transmitting status during all testing.

3.6. Test Procedure

The EUT and was placed on a turn table which was 0.8 meter above the ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set to 3 meters away from the receiving antenna which was mounted on an antenna tower. The antenna moved up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna such as calibrated biconical and log- periodical antenna or horn antenna were used as a receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to FCC ANSI C63.4-2003 regulation.

The bandwidth of test receiver was set at 120kHz for frequencies below 1GHz and resolution bandwidth of spectrum analyzer was set at 1MHz for frequencies above 1GHz.

The frequency range from 30MHz to 1000MHz was measured with Quasi-Peak detector.

The frequency range from 1GHz to 4.0GHz was pre-scanned with Peak detector.

EUT with worst positions (Lying) was tested during radiated measurement and all the test results are listed in section 3.7.

3.7. Radiated Emission Measurement Results

3.7.1. Frequency Range 30MHz to 1GHz Measurement Results: **PASSED.**

All the emissions not reported below are too low against the FCC part 15 Subpart C limit.

Date of Test :	Feb. 19, 2008	Temperature :	26°C
EUT :	R-F Massage Plug System (Transmitter Unit)	Humidity :	58%
Test Position :	EUT on Lying		

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Horizontal dBμV	Emission Level Horizontal dBμV/m	Limits dBμV/m	Margin dB
Fundamental Frequency (Peak Value)						
315.180	14.71	4.01	58.35	77.07	95.62	18.55
Harmonic Freq.. (Peak Value)						
630.430	20.96	6.40	28.22	55.58	75.62	20.04
945.680	25.68	7.50	9.59	42.77	75.62	32.85
Spurious Freq. (Quasi-Peak Value)						
138.640	20.06	2.50	-5.47	17.09	43.50	26.41
480.080	18.68	6.05	-0.68	24.05	46.00	21.95
853.530	25.78	7.10	-5.67	27.21	46.00	18.79

Fundamental Freq. (Average Value)

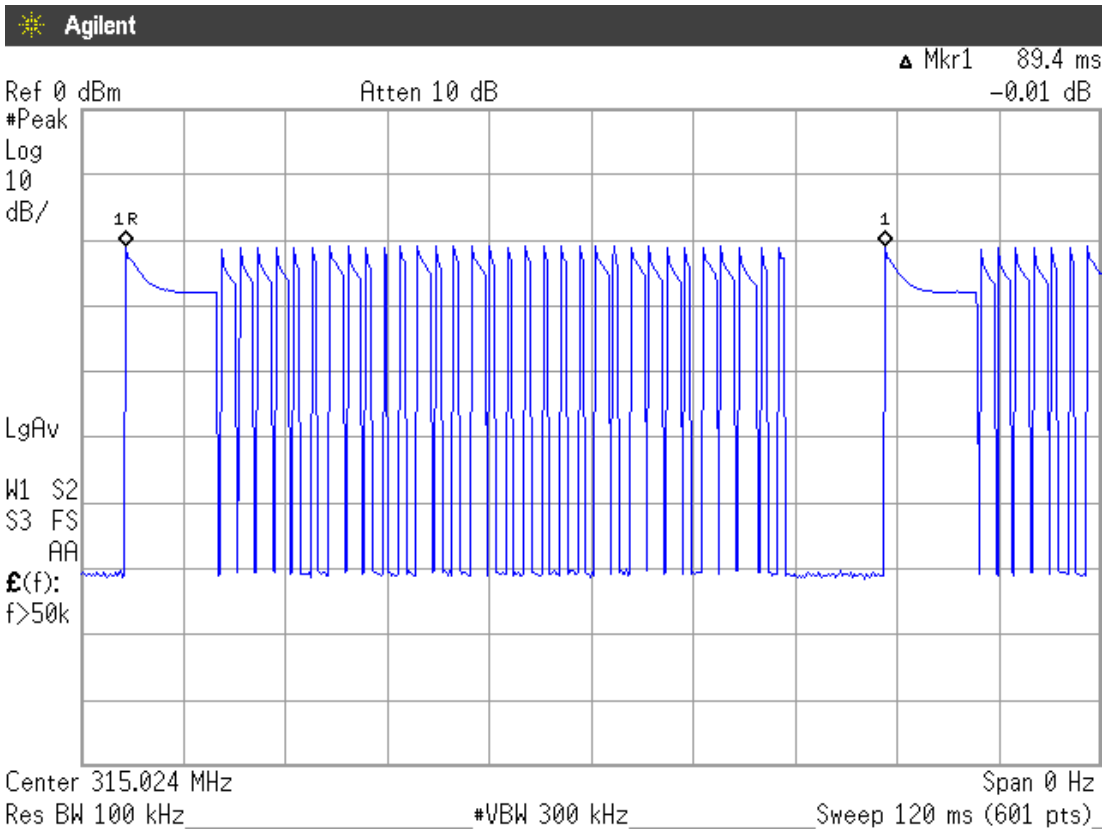
Freq (MHz)	Peak value (dBμv/m)	PDCF	Average value (dBμv/m)	Average Limit (dBμv/m)	Margin (dBm)
315.180	77.07	-5.97	71.10	75.62	4.52

Harmonic Freq.. (Average Value)

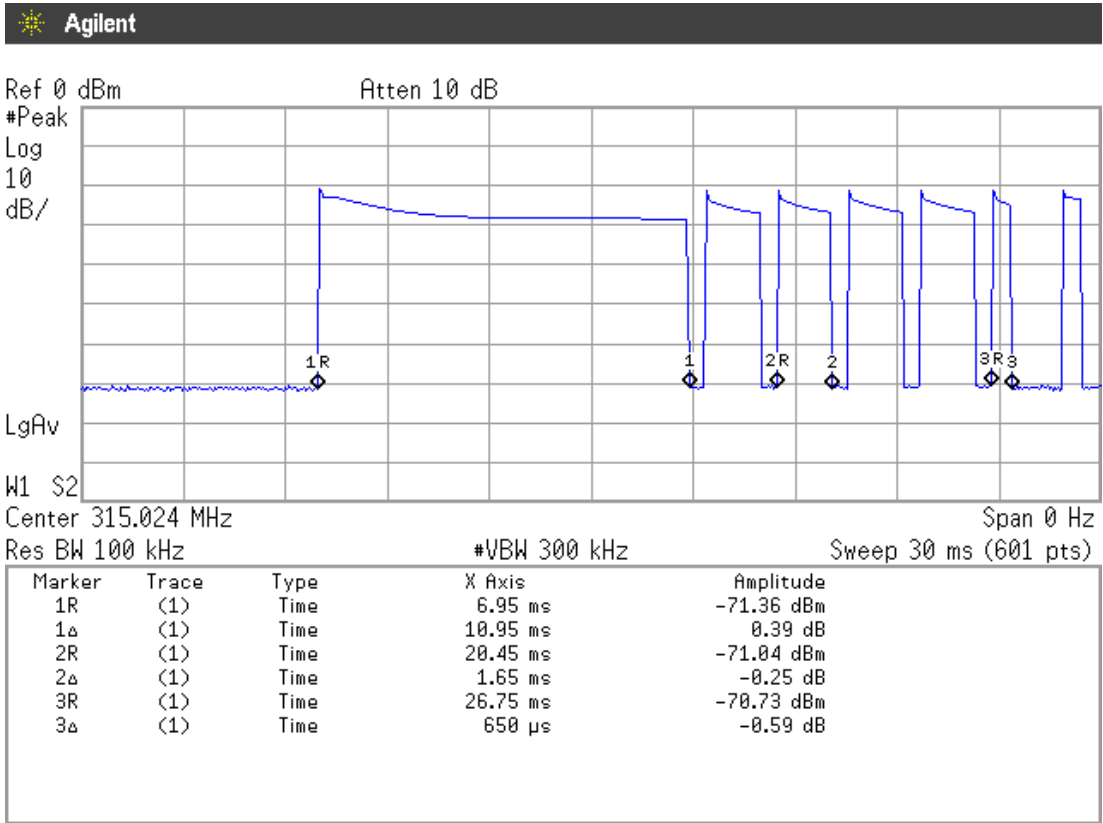
Freq (MHz)	Peak value (dBμv/m)	PDCF	Average value (dBμv/m)	Average Limit (dBμv/m)	Margin (dBm)
630.430	55.58	-5.97	49.61	55.62	6.01
945.680	42.77	-5.97	36.80	55.62	18.82

- Remarks :
1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
 2. Measurement was up to 10th harmonics (~4.0GHz), but the emission levels were too low against the official limit and not report.

Duration time:



Ton time:



Date of Test : Feb. 19, 2008 Temperature : 26°C

EUT : R-F Massage Plug System Humidity : 58%
(Transmitter Unit)

Test Position : EUT on Lying

Emission Frequency MHz	Antenna Factor dB/m	Cable Loss dB	Meter Reading Vertical dBμV	Emission Level Vertical dBμV/m	Limits dBμV/m	Margin dB
Fundamental Freq. (Peak Value)						
315.180	14.71	4.01	48.97	67.69	95.62	27.93
Harmonic Freq.. (Peak Value)						
630.430	20.96	6.40	11.04	38.40	75.62	37.22
945.680	25.68	7.50	5.92	39.10	75.62	36.52
Spurious Freq. (Quasi-Peak Value)						
140.580	20.22	2.50	-7.99	14.73	43.50	28.77
* 264.740	24.62	3.70	-11.23	17.09	46.00	28.91
906.880	24.90	7.40	-5.27	27.03	46.00	18.97

Fundamental Freq. (Average Value)

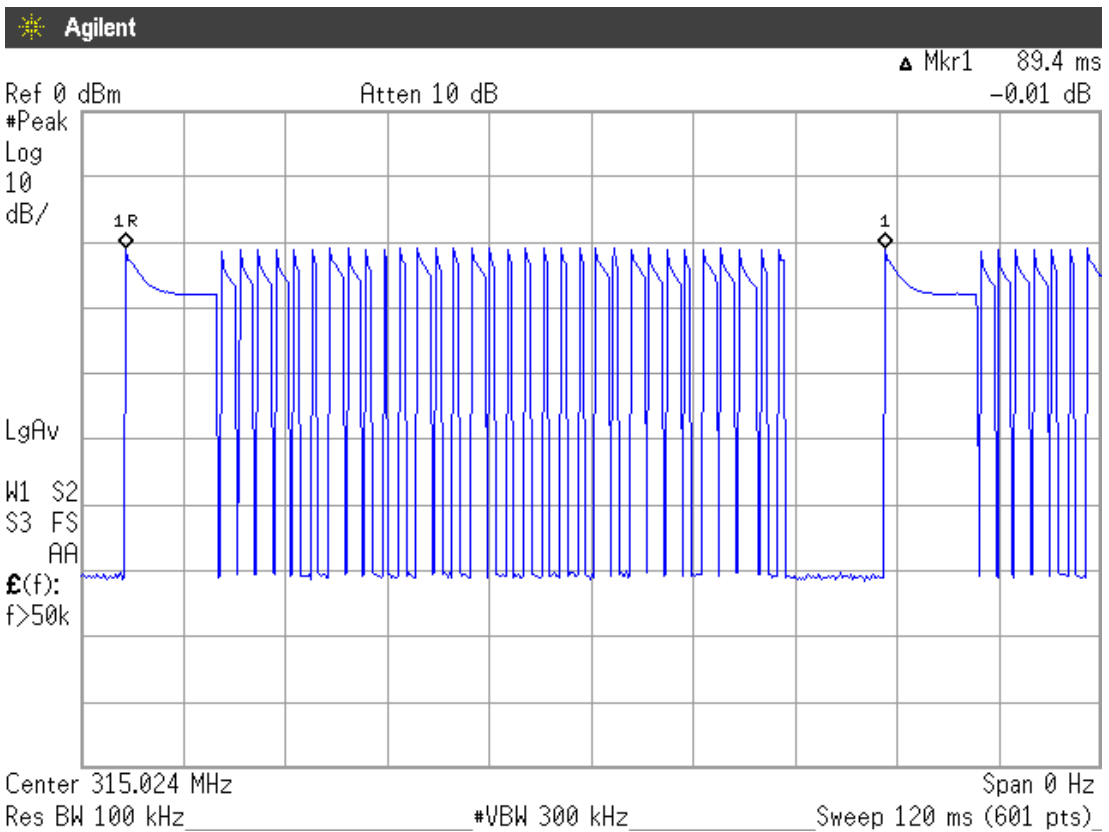
Freq (MHz)	Peak value (dBuv/m)	PDCF	Average value (dBuv/m)	Average Limit (dBuv/m)	Margin (dBm)
315.18	67.69	-5.97	61.72	75.62	13.90

Harmonic Freq.. (Average Value)

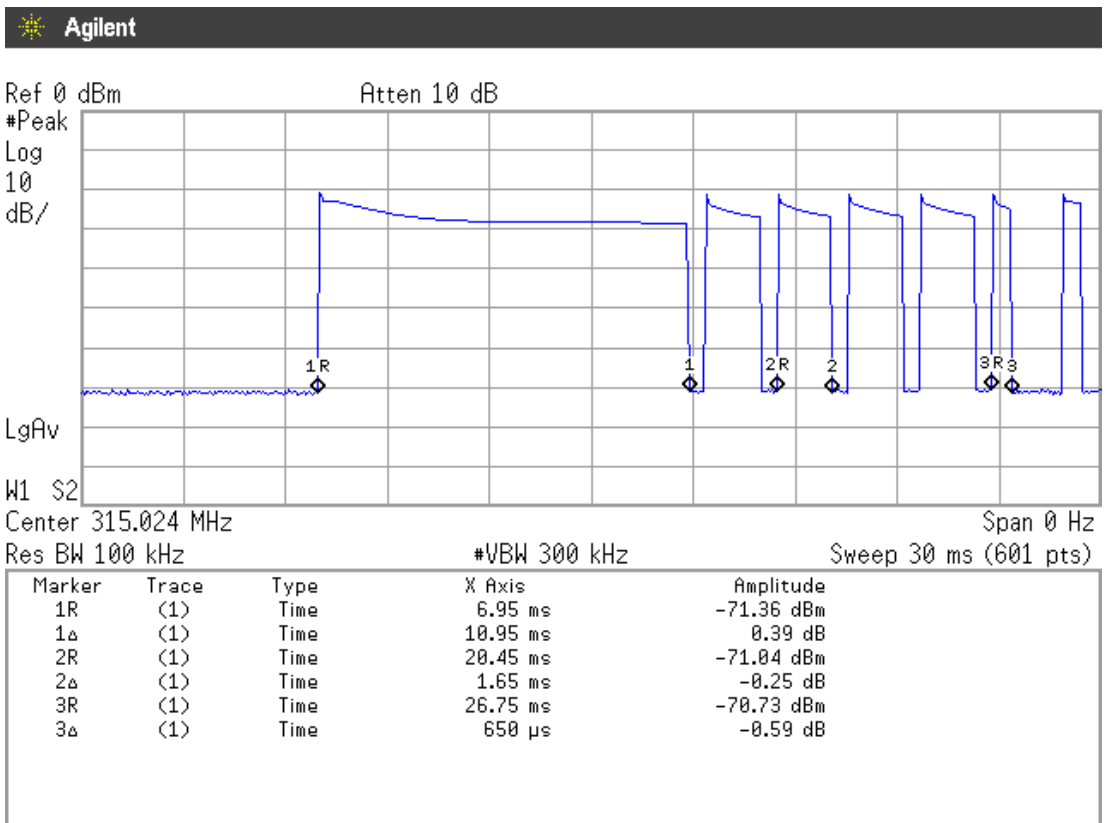
Freq (MHz)	Peak value (dBuv/m)	PDCF	Average value (dBuv/m)	Average Limit (dBuv/m)	Margin (dBm)
630.43	38.40	-5.97	32.43	55.62	23.19
945.68	39.10	-5.97	33.13	55.62	22.49

- Remarks :
1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
 2. Measurement was up to 10th harmonics (~4.0GHz), but the emission levels were too low against the official limit and not report.
 3. "*" The field strength of emission appearing within Part 15.205(a) shall not exceed the limits shown in section 15.209.

Duration time:



Ton time:



3.7.2. Frequency Range 1GHz to 4.0GHz Measurement Results: **PASSED.**

All the emissions not reported below are too low against the FCC part 15 Subpart C limit.

Date of Test : Feb. 19, 2008 Temperature : 26°C

EUT : R-F Massage Plug System Humidity : 58%
(Transmitter Unit)

Test Position : EUT on Lying

	Emission Frequency MHz	Antenna Factor dB/mdB	Cable Loss dB μ V	Meter Reading Horizontal dB μ V/m	Emission Level Horizontal dB μ V/m	Limits dB	Margin
Peak	1259.000	25.31	4.70	23.01	53.02	74.00	20.98
	1575.000	25.81	5.98	19.46	51.25	74.00	22.75
	1888.000	27.32	6.45	16.27	50.04	74.00	23.96
Average	1259.000	25.31	4.70	17.94	47.95	54.00	6.05
	1575.000	25.81	5.98	13.35	45.14	54.00	8.86
	1888.000	27.32	6.45	9.29	43.06	54.00	10.94

	Emission Frequency MHz	Antenna Factor dB/mdB	Cable Loss dB μ V	Meter Reading Vertical dB μ V/m	Emission Level Vertical dB μ V/m	Limits dB	Margin
Peak	1260.000	25.31	4.70	21.98	51.99	74.00	22.01
	1575.000	25.81	5.98	18.28	50.07	74.00	23.93
	1888.000	27.32	6.45	15.73	49.50	74.00	24.50
Average	1260.000	25.31	4.70	15.70	45.71	54.00	8.29
	1575.000	25.81	5.98	12.66	44.45	54.00	9.55
	1888.000	27.32	6.45	8.86	42.63	54.00	11.37

- Remark : 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading.
2. Measurement was up to 4GHz, but the emissions level were too low against the official limit and not report.

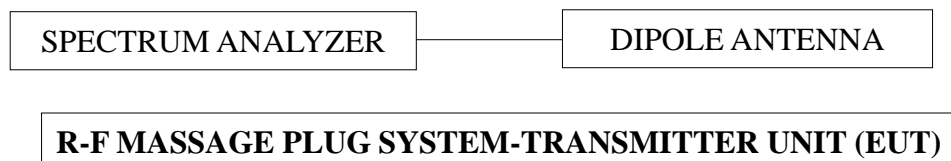
4. EMISSION BANDWIDTH MEASUREMENT

4.1. Test Equipment

The following test equipment was used during the Emission Bandwidth Test :

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 13, 07'	Aug. 12, 08'
2.	Dipole Antenna	N/A	N/A	N/A	N/A	N/A

4.2. Block Diagram of Test Setup



4.3. Specification Limits (§15.231-(c))

The bandwidth of emission shall be no wider than 0.25% of the center frequency for device operating above 70MHz and below 900MHz. Bandwidth is determined at the points 20dB down from the modulated carrier.

4.4. EUT's Configuration during Compliance Measurement

The configuration of EUT was same as section 3.4.

4.5. Emission Bandwidth Measurement Results

PASS. BW = 0.0225% tolerance (< 0.25% tolerance)

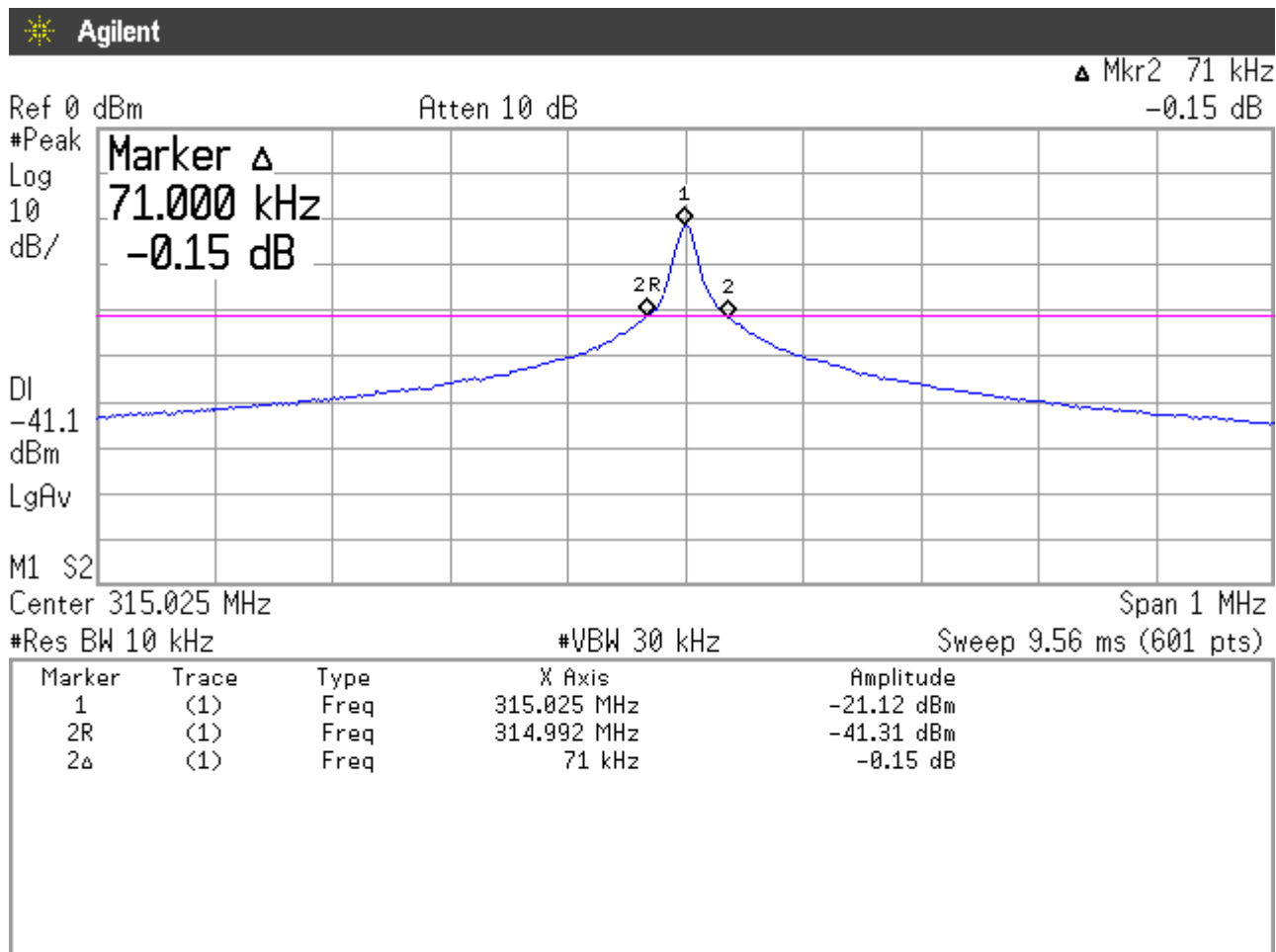
Fundamental Frequency: 315MHz

Test Date: Feb. 19, 2008 Temperature: 26°C Humidity: 58%

No.	Center Frequency	Bandwidth	Tolerance (%)
1.	315.025MHz	71kHz	0.0225%

The bandwidth of emission was measured at the point 20dB down from the center frequency of modulated carrier.

Graph of Bandwidth Measurement



Note: “◇” The line is 20dB from the modulated carrier.

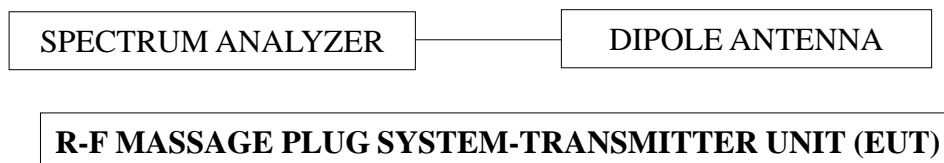
5. PERIODIC OPERATED MEASUREMENT

5.1. Test Equipment

The following test equipment was used during the periodic operated test :

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	Aug. 13, 07'	Aug. 12, 08'
2.	Dipole Antenna	N/A	N/A	N/A	N/A	N/A

5.2. Block Diagram of Test Setup



5.3. Specification Limits [§15.231-(a)-(1)]

The operation of this device is manually operated transmitter that is automatically deactivated the transmitter within not more than 5 seconds of being released,
Compliance with §15.231 (a)- (1).

5.4. EUT's Configuration during Compliance Measurement

The configuration of EUT was same as section 3.4.

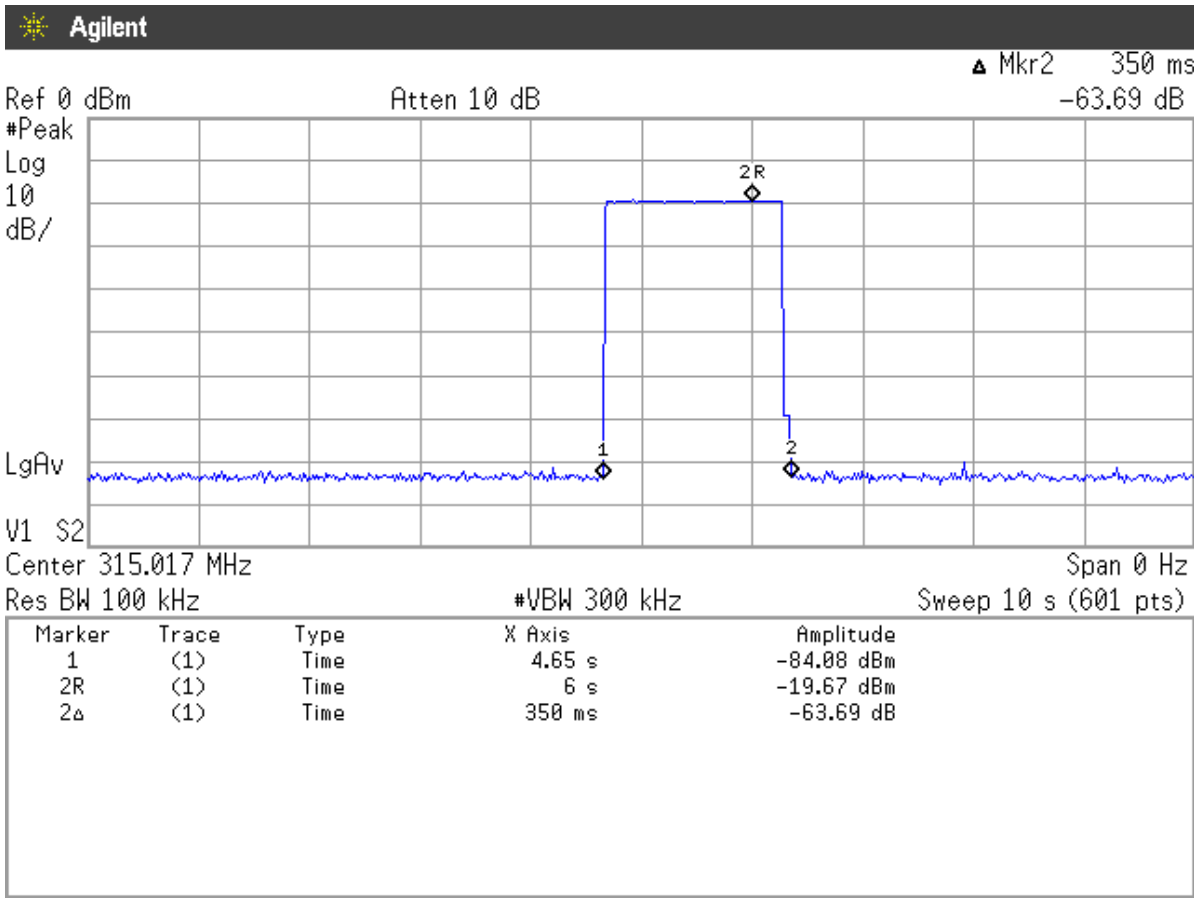
5.5. Periodic Operated Measurement Results

PASS. T = 350ms. (< 5sec.)

Test Date: Feb. 19, 2008 Temperature: 26°C Humidity: 58%

The graph of testing is attached in next page.

Graph of Periodic Operated Measurement



6. DEVIATION TO TEST SPECIFICATIONS

【NONE】