



**TEST REPORT CONCERNING THE COMPLIANCE OF A
WIRELESS HEADWORN TRANSMITTER,
BRAND ANSR AUDIO, MODEL EVO
WITH 47 CFR PART 2 (10-1-08 EDITION) AND
PART 74 SUBPART H (10-1-08 EDITION).**

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March 25, 2010**

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Industry Canada : 2932G-1
VCCI Registered : R-1518, C-1598
R&TTE, LVD, EMC Notified Body : 1856

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MEASUREMENT/TECHNICAL REPORT

Wireless Value B.V.
Model : Evo

FCC ID: QM9-SPEVOFIT

March 25, 2010

This report concerns: Original grant/certification Class 2 change Verification			
Equipment type: Wireless Headworn Transmitter			
Deferred grant requested per 47 CFR 0.457(d)(1)(ii) ? Yes No n.a.			
Report prepared by:	Name	: Richard van der Meer	
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The data taken for this test and report herein was done in accordance with 47 CFR Part 2 and Part 74 Subpart H (10-1-08 Edition) and the measurement procedures of ANSI C63.4-2003. TÜV Rheinland EPS B.V. at Niekerk, The Netherlands, certifies that the data is accurate and contains a true representation of the emission profile of the Equipment Under Test (EUT) on the date of the test as noted in the test report. I have reviewed the test report and find it to be an accurate description of the test(s) performed and the EUT so tested.

Date: March 25, 2010

Signature:



O. Hoekstra
Senior Engineer Telecom TÜV Rheinland EPS B.V.

Description of test item

Test item : Wireless Headworn Transmitter
Manufacturer : Ansr Audio
Brand : Ansr Audio
Model(s) : Evo (short for Evo True Wireless Fitness Transmitter)
Serial number(s) : --
Revision : --

Applicant information

Applicant's representative : Mr. J. Miedema
Company : Wireless Value B.V.
Address : Waanderweg 30a
Postal code : 7812 HZ
City : Emmen
Country : The Netherlands
Telephone number : +31 591 633200
Telefax number : +31 591 631197

Test(s) performed

Location : Niekerk
Test(s) started : December 2, 2009
Test(s) completed : March 15, 2010
Purpose of test(s) : [Equipment Authorization (Original grant/certification)]
Test specification(s) : 47 CFR Part 2 (10-1-08 Edition) and Part 74 Subpart H (10-1-08 Edition)

Test engineer(s) : O.H. Hoekstra



Report written by : R. van der Meer



Report date : March 25, 2010

This report is in conformity with NEN-EN-ISO/IEC 17025: 2005

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The test results relate only to the item(s) tested.

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1 General information.

1.1 Product description.

1.1.1 Introduction.

The Evo True Wireless Fitness Transmitter (abbreviated to Evo) is a Wireless Headworn Transmitter for speech. It is PLL synthesized and operates in an FCC approved UHF band frequency with 16 selectable channels.

The content of this report and measurement results have not been changed other than the way of presenting the data.

1.2 Related submittal(s) and/or Grant(s).

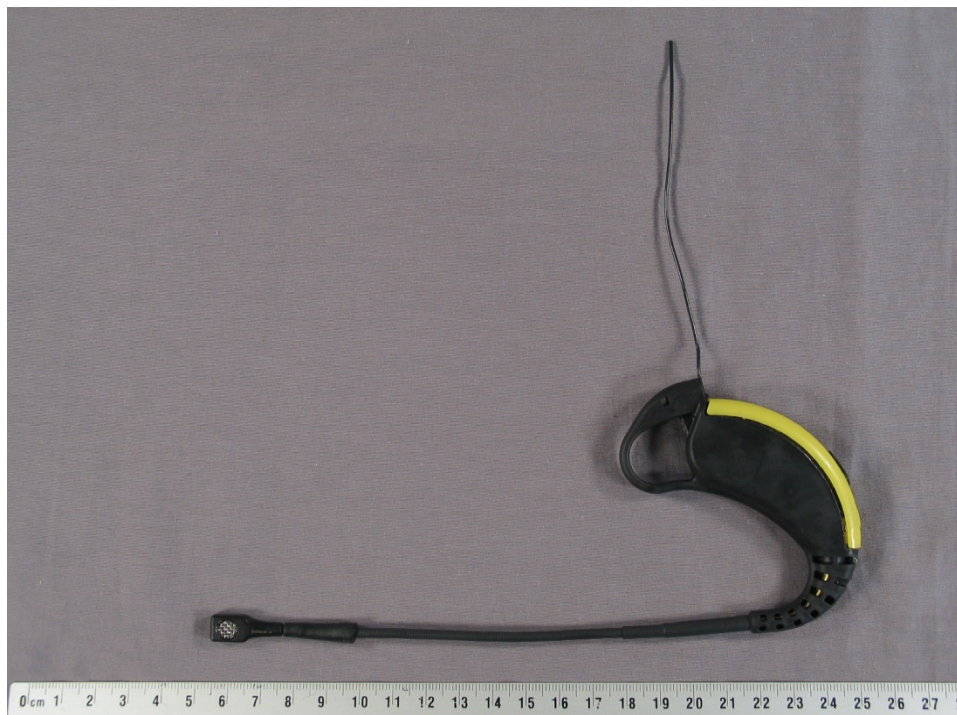
1.2.1 General.

This test report supports the original grant/certification in equipment authorization files under FCC ID: **QM9-SPEVOFIT**.

1.3 Tested system details.

Details and an overview of the system and all of its components, as it has been tested, may be found below.

EUT1	:	Evo True Wireless Fitness Transmitter
Manufacturer	:	Wireless Value B.V.
Brand	:	Wireless Value
Model	:	Evo
Serial number	:	-
Voltage input rating	:	3.7Vdc (internal accu)
Voltage output rating	:	n.a.
Current input rating	:	not provided
Antenna	:	Fixed wire antenna
Remarks	:	--



1.3.1 Description of input and output ports.

Number	Terminal	From	To	Remarks
1	Charger contacts	Charger	EUT	--

1.3.2 Frequency channels.

Channel	Frequency (MHz)
1	682.375
2	683.250
3	683.875
4	684.875
5	685.750
6	686.625
7	687.500
8	688.750
9	690.125
10	690.750
11	691.500
12	692.500
13	693.625
14	694.750
15	695.625
16	697.125

1.4 Test methodology.

The test methodology used is based on the requirements of 47 CFR Part 2 (10-1-08 Edition), sections 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.10552.1057 and 47 CFR Part 74 (10-1-08 Edition), Subpart H, sections 74.861 .

The test methods, which have been used, are based on ANSI C63.4: [2003].

Radiated emission tests above 30 MHz were performed at a measurement distance of 3 meters.

Radiated emission tests below 30 MHz were performed at a measurement distance of 3 meters.

To calculate the field strength level from these results to the appropriate distance at which the limit is specified, the appropriate extrapolation factor is used.

1.5 Test facility.

The Federal Communications Commission and Industry Canada has reviewed the technical characteristics of the test facilities at TÜV Rheinland EPS B.V., located in Niekerk, 9822 TL Smidshornerweg 18, The Netherlands, and has found these test facilities to be in compliance with the requirements of 47 CFR Part 15, section 2.948(10-1-06 edition).

The description of the test facilities has been filed at the Office of the Federal Communications Commission under registration number 90828. The facility has been added to the list of laboratories performing these test services for the public on a fee basis.

The description of the test facilities has been filed to Industry Canada under registration number 2932G-1. The facility has been added to the list of laboratories performing these test services for the public on a fee basis.

1.6 Test conditions.

1.6.1 Normal test conditions.

Temperature (*)	: +21°C
Relative humidity(*)	: 20 % to 75 %
Supply voltage	: 3.7 Vdc
Air pressure	: 950 – 1050 hPa

When it was impracticable to carry out the tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests are stated separately.

1.6.2 Extreme test conditions.

Temperature	: -30°C (min) to +50°C (max)
Supply voltage	: 2.7 Vdc (min) to 3.7 Vdc (max)

1.6.3 Test frequencies.

Lowest	: 682.375 MHz
Middle	: 690.125 MHz
Highest	: 697.125 MHz

2 System test configuration.

2.1 Justification.

The system was configured for testing in a typical fashion (as a customer would normally use it).

The justification and manipulation of cables and equipment in order to simulate a worst-case behavior of the test setup has been carried out as prescribed in ANSI C63.4: 2003.

2.2 EUT mode of operation.

The EUT has been tested in transmit mode. The tests have been performed with a complete functioning EUT and interconnections.

2.3 Special accessories.

No special accessories are used and/or needed to achieve compliance.

2.4 Equipment modifications.

No modifications have been made to the equipment in order to achieve compliance.

2.5 Product Labelling

The product labeling information is available in the technical documentation package.

2.6 Block diagram of the EUT.

The block diagram is available in the technical documentation package.

2.7 Schematics of the EUT.

The schematics are available in the technical documentation package.

2.8 Part list of the EUT.

The part list is available in the technical documentation package.

3 Measurement data.

3.1 RF power output (FCC 47 CFR Part 2.1046 and Part 74.861)

3.1.1 Radiated RF power

Effective radiated power (dBm)		
Test frequency	Level (dBm)	Level (mW)
Lowest	11.3	13.5
Middle	10.3	10.7
Highest	9.2	8.3
Measurement uncertainty	-2.4 dB / +1.6 dB	

The results of the effective radiated power tests, carried out in accordance with 47 CFR Part 2 section 2.1046.

Notes:

1. The EUT was tested in horizontal and vertical orientations, the maximum value is noted down.

3.1.2 Test equipment used (for reference see test equipment listing).

12605	15633	99107	99580	99608	99609	99733
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Test engineer

Signature :



Name : R. van der Meer

Date : March 15, 2010

3.1.3 Conducted RF power

Effective conducted power (dBm)		
Test frequency	Level (dBm)	Level (mW)
Lowest	14.4	27.5
Middle	14.3	26.9
Highest	14.3	26.9
Measurement uncertainty	-2.4 dB / +1.6 dB	

Notes:

1. The antenna has been replaced by a temporary antenna connector for this measurement
2. The EUT was unmodulated.

3.1.4 Test equipment used (for reference see test equipment listing).

99045	99318	99733				
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Test engineer

Signature :



Name : R. van der Meer

Date : March 15, 2010

3.2 Modulation characteristics (FCC 47 CFR Part 2.1047 and Part 74.861)

3.2.1 Modulation limiting

Frequency deviation (kHz) at various input levels			
Modulation frequency (kHz)	500 mV input level	+10 dB (1581 mV)	+20 dB (5000 mV)
0.02	-8.26 / +8.50	-9.15 / +9.25	-26.2 / +31.1
0.05	-10.9 / +11.0	-19.2 / +18.8	-46.9 / +43.8
0.10	-25.8 / +25.6	-51.6 / +51.1	-57.2 / +55.6
0.20	-30.3 / +30.4	-54.6 / +53.8	-70.1 / +71.1
0.30	-25.1 / +25.2	-56.0 / +53.1	-58.0 / +58.5
0.50	-23.2 / +23.3	-51.7 / +51.7	-52.1 / +52.9
1.0	-24.0 / +24.0	-49.2 / +49.5	-49.3 / +49.3
2.0	-28.5 / +28.5	-48.1 / +48.3	-49.3 / +46.8
2.5	-30.9 / +31.0	-48.1 / +47.0	-49.8 / +45.1
5.0	-45.1 / +45.6	-49.8 / +41.7	-50.6 / +42.6
10.0	-32.5 / +34.4	-37.0 / +34.5	-37.7 / +36.8
15.0	-22.6 / +22.3	-24.5 / +24.2	-25.1 / +24.8
20.0	-15.7 / +15.3	-16.6 / +16.6	-16.8 / +16.7
30.0	-10.2 / +10.3	-10.4 / +10.4	-10.4 / +10.5
Measurement uncertainty	± 4.94%		

3.2.2 Test equipment used (for reference see test equipment listing).

12553						
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Test engineer

Signature

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Name

: Onno Hoekstra

Date

: December 16, 2009

3.2.3 Maximum frequency deviation

Maximum Frequency deviation (kHz) at various channels	
Test frequency	1577 mV input level
Lowest	-47.4 / +46.3
Middle	-48.1 / +47.0
Highest	-48.9 / +47.8
Measurement uncertainty	± 4.94%

Notes:

1. The modulation frequency was 2500 Hz.
2. The level was calculated as follows: $500 \text{ mV} / 2 + 16 \text{ dB} = 1577 \text{ mV}$.

3.2.4 Test equipment used (for reference see test equipment listing).

12553						
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Test engineer

Signature :



Name : Onno Hoekstra

Date : December 16, 2009

3.2.5 Occupied Bandwidth

Occupied Bandwidth	
Test frequency	Occupied Bandwidth (kHz)
Lowest	136.04
Middle	137.48
Highest	138.93
Measurement uncertainty	± 4.8 kHz

Notes:

1. The modulation frequency was 2500 Hz.
2. The level was calculated as follows: $500 \text{ mV} / 2 + 16 \text{ dB} = 1577 \text{ mV}$.
3. See plots on pages 14 and 15.



Occupied bandwidth lowest channel, measured value= 136.03 kHz



Occupied bandwidth middle channel, measured value= 137.48 kHz



Occupied bandwidth highest channel, measured value= 138.93 kHz

3.2.6 Test equipment used (for reference see test equipment listing).

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Test engineer

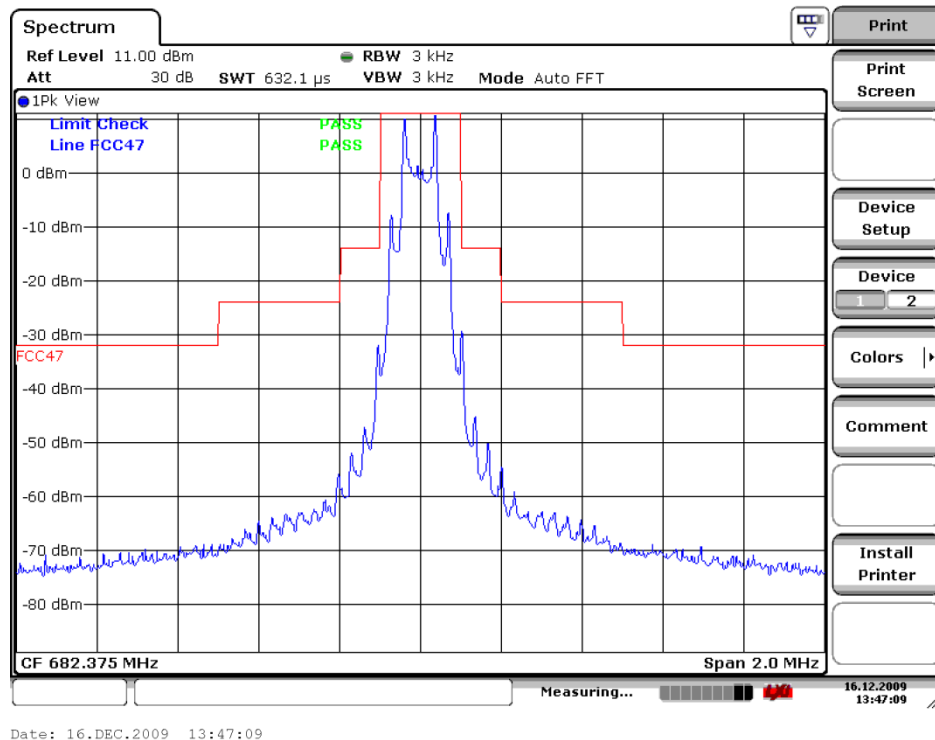
Signature :

[Handwritten Signature]

Name : Onno Hoekstra
Date : December 16, 2009

3.3 Spurious emissions at antenna terminals (FCC 47 CFR Part 2.1051 and Part 74.861)

3.3.1 Spurious emissions at antenna terminals, lowest transmit channel



Mask lowest channel

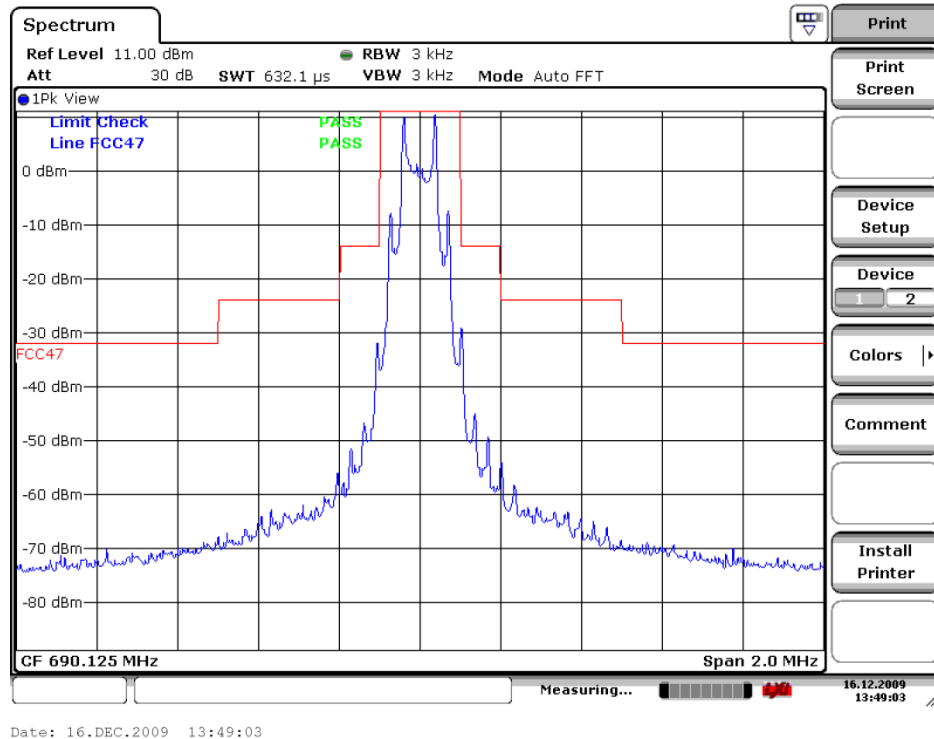
Spurious emissions level (dBm)			
Frequency (MHz)	Bandwidth (kHz) **	Level (dBc)	Margin (dB)
1364.750	1000	73.3	-45.9
2047.125	1000	71.7	-44.3
Measurement uncertainty	-2.4 dB / +1.6 dB		

** Bandwidth = bandwidth of the measuring receiver

Notes:

1. The Conducted Power is 0.0275 W.
2. The limit is $43 + 10 \log(0.0275) = 27.4 \text{ dBc}$.
3. The EUT was unmodulated.

3.3.2 Spurious emissions at antenna terminals, middle transmit channel



Mask middle channel

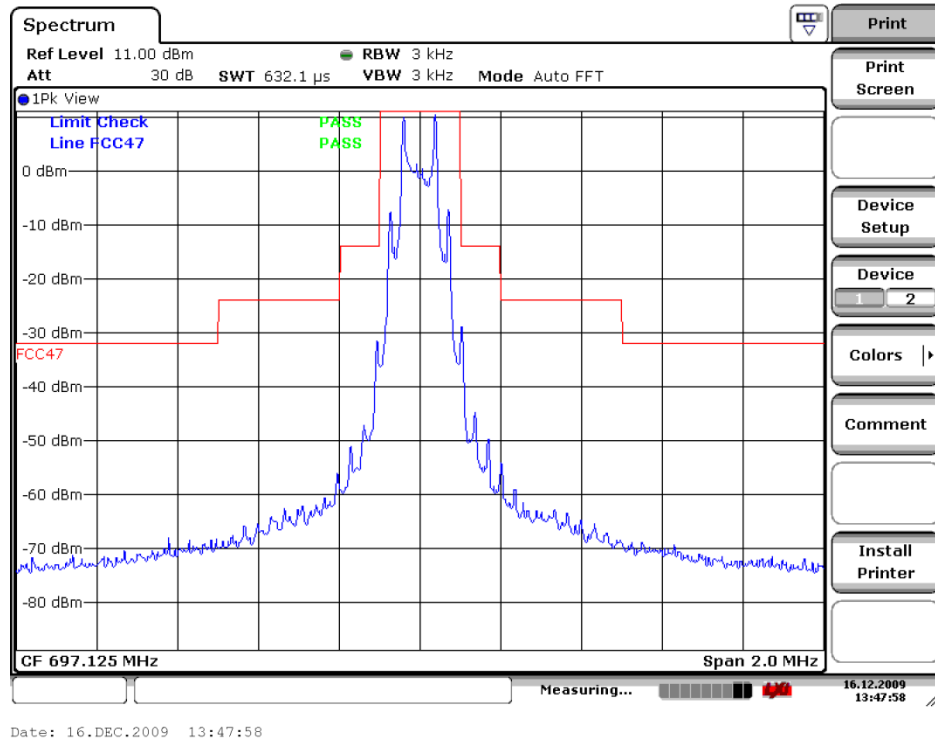
Spurious emissions level (dBm)			
Frequency (MHz)	Bandwidth (kHz) **	Level (dBc)	Margin (dB)
1380.250	1000	74.6	-47.3
2070.375	1000	73.9	-46.6
Measurement uncertainty	-2.4 dB / +1.6 dB		

** Bandwidth = bandwidth of the measuring receiver

Notes:

1. The Conducted Power is 0.0269 W.
2. The limit is $43+10\log(0.0269)=27.3$ dBc.
3. The EUT was unmodulated.

3.3.3 Spurious emissions at antenna terminals, highest transmit channel



Mask highest channel

Spurious emissions level (dBm)			
Frequency (MHz)	Bandwidth (kHz) **	Level (dBc)	Margin (dB)
1394.250	1000	74.3	-47.0
2091.375	1000	73.4	-46.1
Measurement uncertainty		-2.4 dB / +1.6 dB	

** Bandwidth = bandwidth of the measuring receiver

Notes:

1. The Conducted Power is 0.026.9 W.
2. The limit is $43+10\log(0.0269)=27.3$ dBc.
3. The EUT was unmodulated.

3.3.4 Test equipment used (for reference see test equipment listing).

99733						
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Test engineer

Signature

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Name

: Onno Hoekstra

Date

: December 17, 2009

3.4 Radiated Spurious emissions (FCC 47 CFR Part 2.1053 and Part 74.861)

3.4.1 Radiated Spurious emissions, lowest transmit channel

Spurious emissions level (dBm)			
Frequency (MHz)	Bandwidth (kHz) **	Level (dBc)	Margin (dB)
<1000.0	100	>72.0	-47.7
1364.7	1000	44.3	-20.0
2047.1	1000	38.9	-14.6
2729.5	1000	37.0	-12.7
3411.9	1000	43.9	-19.6
4094.2	1000	47.6	-23.3
4776.6	1000	69.6	-45.3
5459.0	1000	58.0	-33.7
6141.4	1000	54.4	-30.1
6823.7	1000	44.3	-20.0
7506.1	1000	60.2	-35.9
8188.5	1000	54.7	-30.4
8870.8	1000	55.0	-30.7
8870 - 10000	1000	>62.0	-37.7
Measurement uncertainty	-2.4 dB / +1.6 dB		

** Bandwidth = bandwidth of the measuring receiver

Notes:

4. The ERP is 0.0135 W.
5. The limit is $43 + 10 \log(0.0135) = 24.3 \text{ dBc}$.
6. The EUT was unmodulated.
7. The EUT was tested in horizontal and vertical orientations, the maximum value is noted down.

3.4.2 Radiated Spurious emissions, middle transmit channel

Spurious emissions level (dBm)			
Frequency (MHz)	Bandwidth (kHz) **	Level (dBc)	Margin (dB)
<1000.0	100	>72.0	-48.7
1380.2	1000	41.7	-18.4
2070.3	1000	38.9	-15.6
2760.5	1000	35.9	-12.6
3450.6	1000	43.0	-19.7
4140.7	1000	46.1	-22.8
5521.0	1000	46.2	-22.9
6211.1	1000	51.1	-27.8
6901.2	1000	41.9	-18.6
8971.6	1000	53.1	-29.8
8971.6 - 10000	1000	>62.0	-38.7
Measurement uncertainty	-2.4 dB / +1.6 dB		

** Bandwidth = bandwidth of the measuring receiver

Notes:

1. The ERP is 0.0107 W.
2. The limit is $43+10\log(0.0107)=23.3\text{dBc}$.
3. The EUT was unmodulated.
4. The EUT was tested in horizontal and vertical orientations, the maximum value is noted down.

3.4.3 Radiated Spurious emissions, highest transmit channel

Spurious emissions level (dBm)			
Frequency (MHz)	Bandwidth (kHz) **	Level (dBc)	Margin (dB)
<1000.0	100	>70.0	-47.8
1394.2	1000	37.4	-15.2
2091.3	1000	40.5	-18.3
2788.5	1000	33.4	-11.2
3485.6	1000	41.8	-19.6
4182.7	1000	47.0	-24.8
4879.8	1000	53.1	-30.9
5577.0	1000	53.6	-31.4
6274.1	1000	61.3	-39.1
6971.2	1000	42.6	-20.4
7668.3	1000	51.4	-29.2
8365.5	1000	50.7	-28.5
9062.6	1000	51.9	-29.7
9062.6 - 10000	1000	>60.0	-37.8
Measurement uncertainty	-2.4 dB / +1.6 dB		

** Bandwidth = bandwidth of the measuring receiver

Notes:

1. The ERP is 0.0083 W.
2. The limit is $43+10\log(0.0083)=22.2\text{dBc}$.
3. The EUT was unmodulated.
4. The EUT was tested in horizontal and vertical orientations, the maximum value is noted down.

3.4.4 Test equipment used (for reference see test equipment listing).

12605	15633	99107	99580	99608	99609	99733
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Test engineer

Signature :



Name : Onno Hoekstra

Date : December 17, 2009

3.5 Frequency stability (FCC 47 CFR Part 2.1055 and Part 74.861)

Test conditions		Frequency error (kHz)	Frequency error (%)
T = -30 °C	V _{min} = +2.7 Vdc	-6.514	0.00094
	V _{min} = +3.7 Vdc	-3.517	0.00051
T = -20 °C	V _{min} = +2.7 Vdc	-2.781	0.00040
	V _{min} = +3.7 Vdc	-0.783	0.00011
T = -10 °C	V _{min} = +2.7 Vdc	-0.219	0.00003
	V _{min} = +3.7 Vdc	+1.334	+0.00019
T = 0 °C	V _{min} = +2.7 Vdc	+0.043	<+0.00001
	V _{min} = +3.7 Vdc	+1.405	0.00020
T = +10 °C	V _{min} = +2.7 Vdc	-0.428	0.00006
	V _{min} = +3.7 Vdc	+0.611	0.00009
T = +20 °C	V _{min} = +2.7 Vdc	-1.382	0.00020
	V _{min} = +3.7 Vdc	-0.386	0.00006
T = +30 °C	V _{min} = +2.7 Vdc	-2.642	0.00038
	V _{min} = +3.7 Vdc	-1.659	0.00024
T = +40 °C	V _{min} = +2.7 Vdc	-3.653	0.00053
	V _{min} = +3.7 Vdc	-2.694	0.00039
T = +50 °C	V _{min} = +2.7 Vdc	-4.708	0.00068
	V _{min} = +3.7 Vdc	-3.558	0.00052
Maximum error		-6.514	0.00094
Measurement uncertainty		better than 1e-7	

Notes:

1. The test frequency was the middle transmit channel of 690.125 MHz
2. The limit is ± 0.005 %.

3.5.1 Test equipment used (for reference see test equipment listing).

99733						
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Test engineer

Signature :



Name : Onno Hoekstra

Date : December 4, 2009

4 List of utilized test equipment.

Inventory number	Description	Brand	Model	Last cal.	Next cal.
12483	Guidehorn	EMCO	3115	04/2009	04/2010
12484	Guidehorn	EMCO	3115	04/2009	04/2010
12553	Communication analyzer	R&S	CMTA84	06/2009	06/2010
12605	Calibrated dipole	EMCO	3121c	10/2007	10/2012
12640	Temperature chamber	Heraeus	VEM03/500	10/2009	10/2010
15633	Biconilog Testantenna	Chase	CBL 6111B	02/2009	02/2010
99045	DC Power Supply 3A/30V	DELTA	E030/3	04/2009	04/2010
99107	Controller OATS	Heinrich Deisel	4630-100	NA	NA
99318	Digital multimeter	Hewlett Packard	34401A	10/2009	10/2010
99547	Temperature-Humiditymeter	Europe supplies	WS-7082	10/2009	10/2010
99580	OATS	Comtest	FCC listed: 90828	05/2008	05/2011
99608	Controller (OATS)	EMCS	DOC202	NA	NA
99609	Antenna mast	EMCS	AP-4702C	NA	NA
99699	Measuring receiver	R&S	ESCI	11/2009	11/2010
99733	Spectrum analyzer	R&S	FSV30	05/2009	05/2010

NA= Not Applicable