

TEST REPORT

Report Number: 3144498ATL-014

March 14, 2008

Product Designation: Transdock Micro II (TDMII)

Standard: FCC Part 15, Subpart C, Intentional Radiators (15.239)
RSS-210, Issue 7 (Annex A2.8)

Tested by:

Intertek Testing Services NA Inc.
1950 Evergreen Blvd., Suite 100
Duluth, GA 30096

Client:

Netalog Inc
3871 South Alston Avenue
Forest Hills, NC 27713
Contact: Garey De Angelis
Phone: 815.577.7067
Fax: 928.447.4973

Tests performed by:



Shawn K. McGuinness
Senior Associate Engineer

Report reviewed by:



David J. Schramm
EMC Department Manager

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1.0 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 3.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested complies with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested.

2.0 Test Summary

Section	Test Full Name	Test Date	Result
4.0	System setup including cable interconnection details, support equipment and simplified block diagram. (System Setup)		
5.0	Transmitter Information for equipment operating under Parts 11, 15 and 18 of the rules (Transmitter Info - Unlicensed)		
6.0	Occupied Bandwidth - FCC (FCC 15C - 15.239 (a))	02/19/2008	PASS
7.0	Occupied Bandwidth (RSS-210 A2.8 OBW)	02/19/2008	PASS
8.0	§ 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b))	02/19/2008	PASS
9.0	Revision History (Revision History)		

3.0 Description of Equipment Under Test

Equipment Under Test			
Description	Manufacturer	Model Number	Serial Number
iPOD Cradle	Netalog, Inc.	Transdock Micro	None

EUT receive date:	February 21, 2008
EUT receive condition:	Good

Description of EUT provided by Client:

The TransDock micro broadcasts your iPod music to any FM radio frequency from 88.1 to 107.9 while charging your iPod. There's no installation required, so you're ready to go right out of the box – a great alternative to expensive custom installation. TransDock micro also features an Auxiliary Input Port, allowing it to broadcast the audio from any MP3 player or audio device like a laptop, Sony PSP gaming system, or travel DVD player. And with it's Auxiliary Line-Out Jack, you have the choice of connecting to your car stereo with a cassette adapter or mini-plug cable for superior sound transmission.

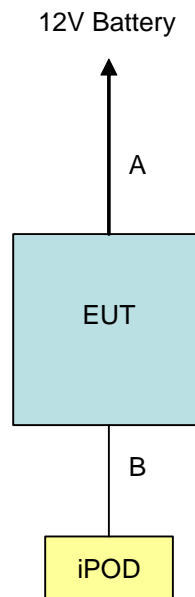
Description of EUT exercising:

The EUT was powered at 12VDC via a car battery. The iPOD connected to the Transdock Classic was playing a looped Bob Dylan tune maximum volume.

4.0 System setup including cable interconnection details, support equipment and simplified block diagram. (System Setup)

Method:

Record the details of EUT cabling, document the support equipment, and show the interconnections in a block diagram.

Drawing:

Block diagram of EUT

Data:

4.0 System setup including cable interconnection details, support equipment and simplified block diagram. (System Setup)

EUT Cabling						
ID	Description	Length	Shielding	Ferrites	Connection	
					From	To
A	DC Power	1M	No	Yes	EUT	12V DC Battery
B	Aux In	1.8M	Yes	No	EUT	iPOD

Support Equipment			
Description	Manufacturer	Model Number	Serial Number
iPOD	Apple	A1136	4J609USNTXK
12V DC Battery	Werker	WKA12-80C/FR	None

5.0 Transmitter Information for equipment operating under Parts 11, 15 and 18 of the rules (Transmitter Info - Unlicensed)

Method:

Data:

FCC Rule Part		
2.1033(b)(1)	Applicant	Company Name: Natalog, Inc.
		Address: 3871 South Alston Avenue Durham, NC
		Phone: (919) 405-7030
		Fax: (919) 405-7035
		Contact Name: Garey De Angelis
		Email: garey@dlo.com
	Manufacturer	Company Name: Natalog, Inc.
		Address: 3871 South Alston Avenue Durham, NC
		Phone: (919) 405-7030
		Fax: (919) 405-7035
		Contact Name: Garey De Angelis
		Email: garey@dlo.com
2.1033(b)(2)	Equipment	FCC ID:
		EUT Model Number: Transdock Micro
		EUT Serial Number: Prototype
2.1033(b)(3)	User Manual Attach as separate exhibit.	
2.1033(b)(4)	Brief description of circuit functions Attach as separate exhibit.	
2.1033(b)(5)	Block diagram showing frequency of oscillators Attach as separate exhibit.	
2.1033(b)(6)	Test report Incorporated with this document	
2.1033(b)(7)	Internal and external photographs Attach as separate exhibit.	
2.1033(b)(8)	Peripheral Equipment	Can be used? Yes
		Comercially available? Yes
2.1033(b)(9)	Transition rules apply? No	
2.1033(b)(10)	Scanning receiver? No	
2.1033(b)(11)	Transmitter in 59-64 GHz band? No	
2.1033(b)(12)	Software defined radio? No	

6.0 Occupied Bandwidth - FCC (FCC 15C - 15.239 (a))**Method:**

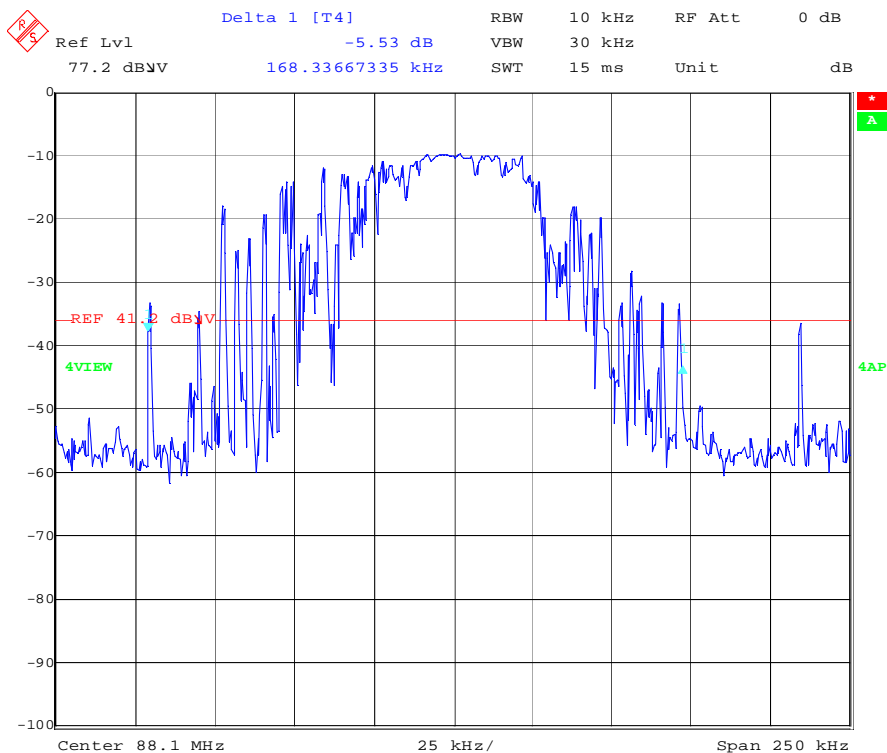
Test Requirement: Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the frequency range of 88-108 MHz.

Test Procedure: ANSI C63.4: 2003, Section 13.1.7 and Annex H.6

Test Equipment Used:

Description:	Manufacturer:	Model:	Asset Number:	Cal Date:	Cal Due:
Spectrum Analyzer, 20Hz-40GHz	Rohde & Schwarz	FSEK30	200062	03/12/2007	03/12/2008

Results: The sample tested was found to Comply.

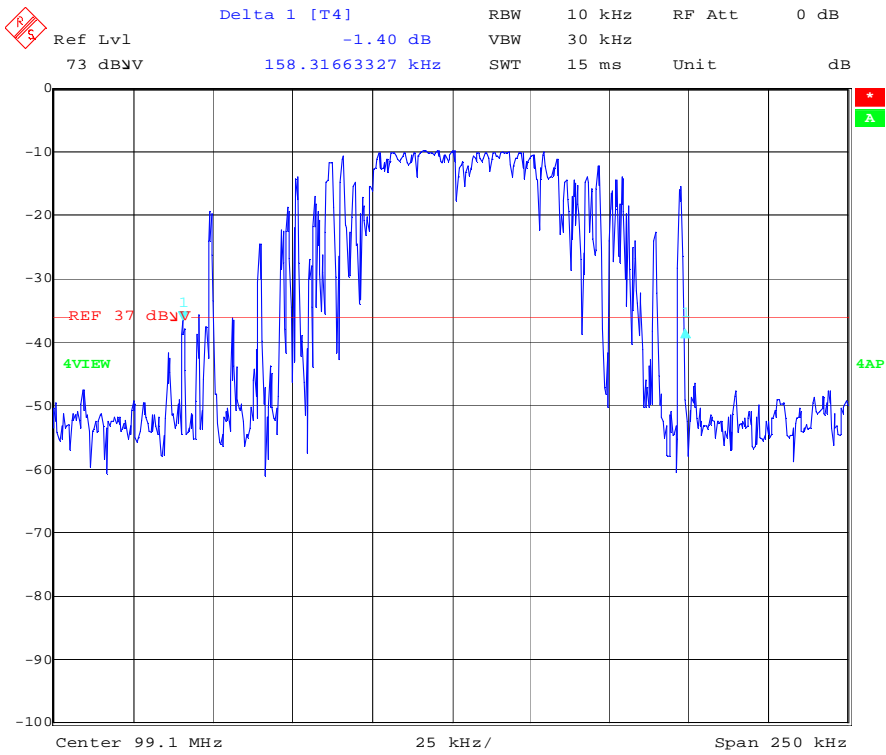
Plot:

Date: 28.FEB.2008 16:25:00

Occupied Bandwidth - Low Channel

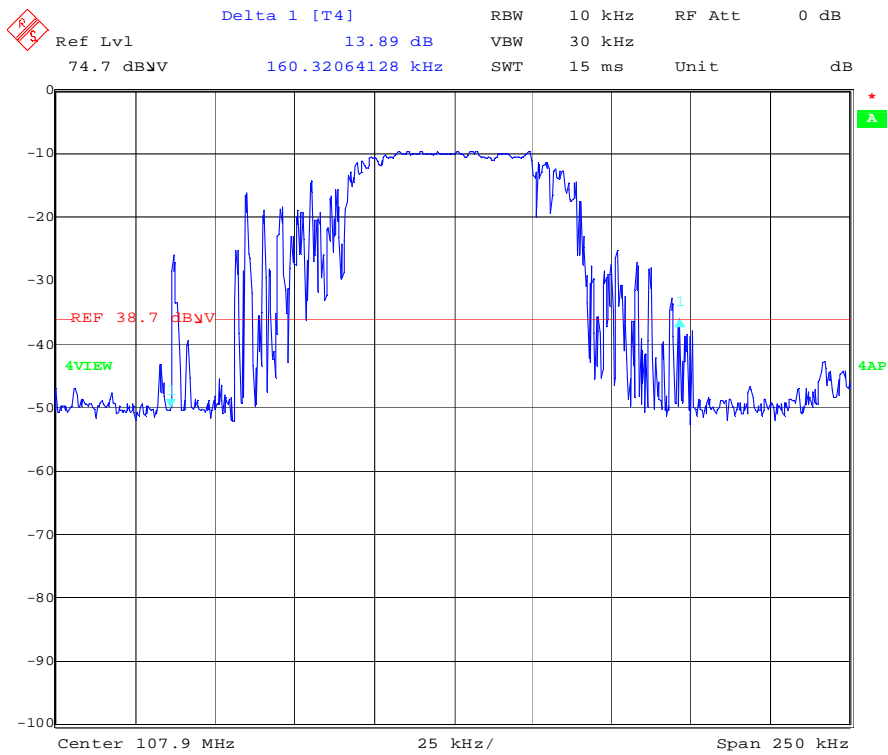
6.0 Occupied Bandwidth - FCC (FCC 15C - 15.239 (a))

Plot:



Date: 28.FEB.2008 16:19:01

Occupied Bandwidth - Middle Channel

6.0 Occupied Bandwidth - FCC (FCC 15C - 15.239 (a))**Plot:**

Date: 28.FEB.2008 16:28:51

Occupied Bandwidth - High Channel

7.0 Occupied Bandwidth (RSS-210 A2.8 OBW)**Method:****TEST REQUIREMENT**

The occupied bandwidth shall not exceed 200 kHz.

TEST PROCEDURE: RSS-GEN 4.06.1

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured.

The transmitter shall be operated at its maximum carrier power measured under normal test conditions.

The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual.

The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded.

The span between the two recorded frequencies is the occupied bandwidth.

TEST SITE

The test site is a 10 meter semi-anechoic chamber located at 1950 Evergreen Blvd, Suite 100, Duluth, GA 30096. This site is accredited by A2LA (see <http://www.a2la.org/scopepdf/1455-01.pdf>). The test site number for Industry Canada is 2077-1.

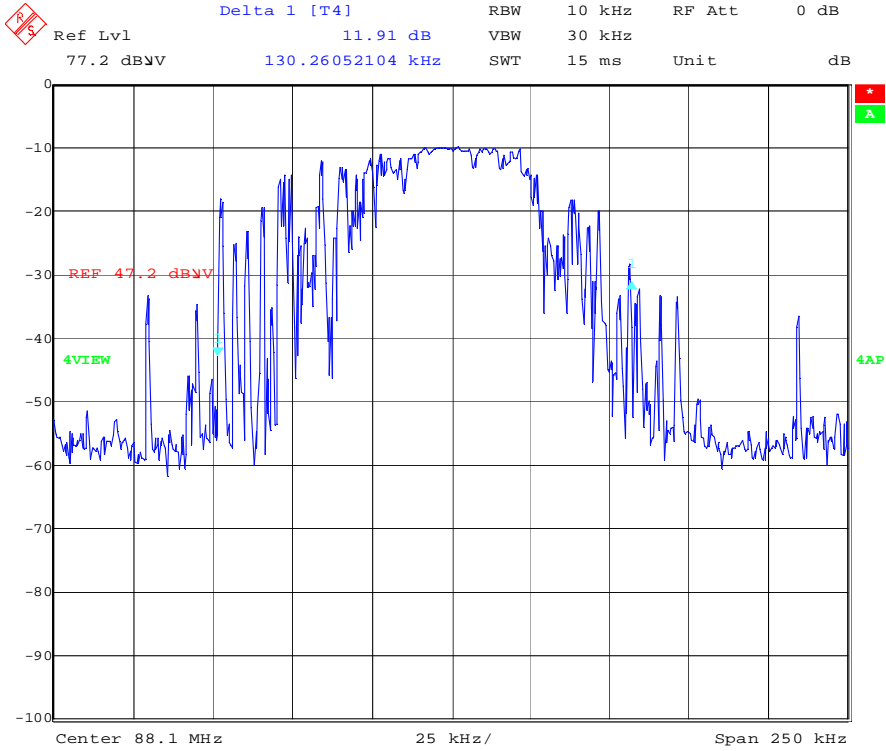
Test Equipment Used:

Description:	Manufacturer:	Model:	Asset Number:	Cal Date:	Cal Due:
Spectrum Analyzer, 20Hz-40GHz	Rohde & Schwarz	FSEK30	200062	03/12/2007	03/12/2008

Results: The sample tested was found to Comply.

Plot:

7.0 Occupied Bandwidth (RSS-210 A2.8 OBW)

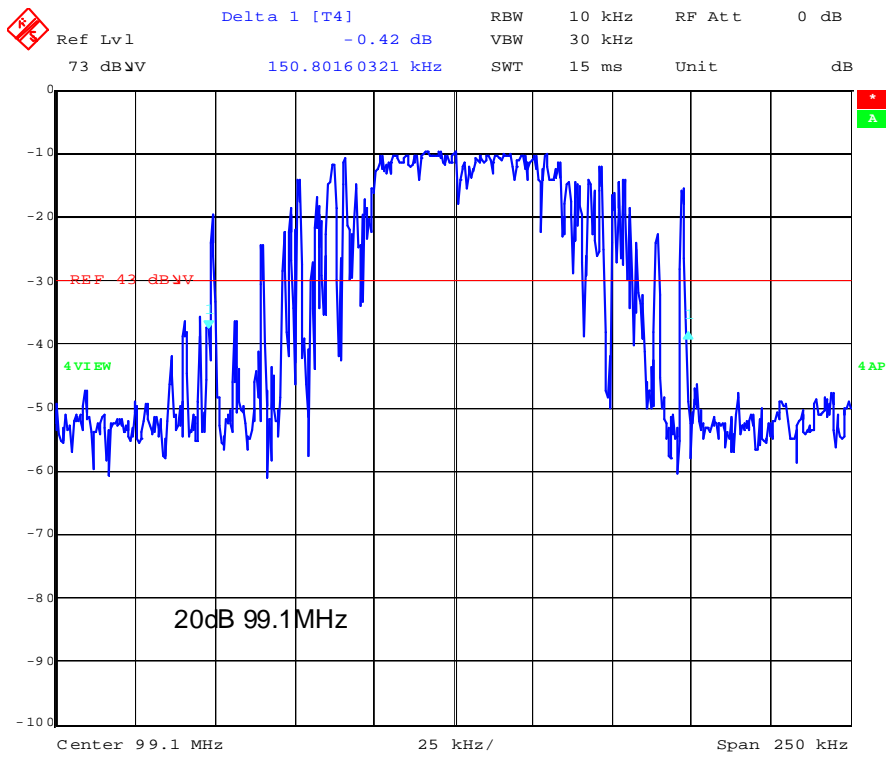


Date: 28.FEB.2008 16:26:22

Occupied Bandwidth - Low Channel

7.0 Occupied Bandwidth (RSS-210 A2.8 OBW)

Plot:

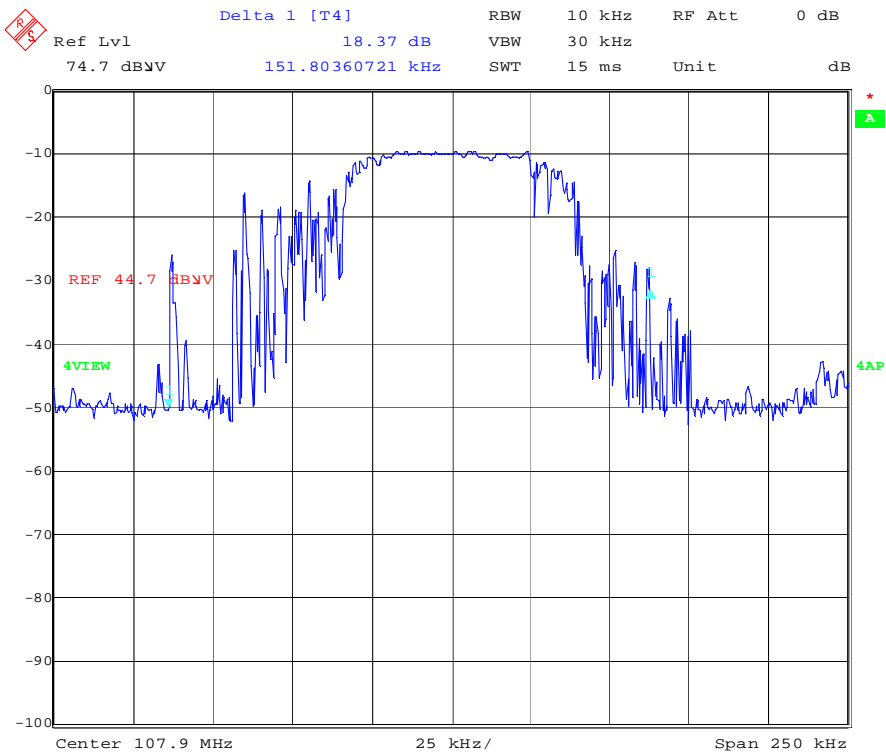


Date: 28.FEB.2008 16:20:38

Occupied Bandwidth - Middle Channel

7.0 Occupied Bandwidth (RSS-210 A2.8 OBW)

Plot:



Date: 28.FEB.2008 16:29:53

Occupied Bandwidth - High Channel

8.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b))**Method:****TEST REQUIREMENT**

The field strength of any emissions within the permitted 200 kHz band shall not exceed 250 microvolts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply.

The field strength of any emissions radiated on any frequency outside of the specified 200 kHz band shall not exceed the general radiated emission limits in §15.209.

TEST PROCEDURE: ANSI C63.4: 2003

Measurements in the frequency range of 30 MHz to 1000 MHz shall be performed with a quasi-peak detector instrument that meets the requirements of Section One of CISPR 16. Above 1000 MHz, a peak detector shall be used. Peak values converted to average by applying the duty cycle correction factor, when applicable. When an average detector is used, it shall meet the requirements of Section One of CISPR 16. The measuring antenna shall correlate to a balanced dipole.

Bandwidths: 30 MHz to 1000 MHz: 120 kHz RBW and 1 MHz VBW; Above 1000 MHz: 1 MHz RBW and 3 MHz VBW

Measurements of the radiated field are made with the antenna located at a distance of 3 or 10 meters from the EUT. The limit applied to the measurement shall be appropriate for the test distance. The test distance shall be indicated in the results section.

The EUT shall be arranged and connected with cables terminated in accordance with the product specification.

Exploratory tests should be carried out while varying the cable positions to determine the maximum or near-maximum emission level. During manipulation, cables shall not be placed under or on top of the system test components unless such placement is required by the inherent equipment design.

The antenna shall be adjusted between 1m and 4m in height above the ground plane for maximum meter reading at each test frequency.

The antenna-to-EUT azimuth shall be varied during the measurement to find the maximum field-strength readings.

The antenna-to-EUT polarization (horizontal and vertical) shall be varied during the measurements to find the maximum field-strength readings.

If the EUT is intended for tabletop use, it shall be placed on a table whose top is 0.8m above the ground plane. The table shall be constructed of non-conductive materials. Its dimensions are at least 1m by 1.5m, but may be extended for larger EUT.

If EUT is floor standing, the EUT was placed on a horizontal metal ground plane and isolated from the ground plane by up to 12 mm of insulating material.

TEST SITE

The test site is a 10 meter semi-anechoic chamber located at 1950 Evergreen Blvd, Suite 100, Duluth, GA 30096. This site is accredited by A2LA (see <http://www.a2la.org/scopepdf/1455-01.pdf>). The test site number for Industry Canada is 2077-1.

MEASUREMENT UNCERTAINTY

Compliance of the product is based on the measured value. However, the measurement uncertainty is included for informational purposes. The values given are the measurement uncertainty values with an expanded uncertainty of k=2.

30 MHz to 1000 MHz at 3 meters: +/- 3.9 dB
 30 MHz to 1000 MHz at 10 meters: +/- 3.6 dB
 1 GHz to 18 GHz at 3 meters: +/- 4.2 dB

Test Equipment Used:

Description:	Manufacturer:	Model:	Asset Number:	Cal Date:	Cal Due:
Antenna, BiLog, 20-2000MHz	Chase	CBL6112B	211386	09/07/2007	09/07/2008
Cable E01, <18GHz	Pasternack	RG214/U	E01	05/10/2007	05/10/2008
Cable E05, <18GHz	Huber-Suhner	Sucoflex 104PEA	E05	05/10/2007	05/10/2008
Cable E202, 18 GHz, N, 3m	Megaphase	TM18 NKNK 118	E201	01/16/2008	01/16/2009
Cable MP3, 18 GHz, N, 10m	Megaphase	G919-NKNK-394	MP3	05/10/2007	05/10/2008
EMI Receiver	Hewlett Packard	8546A	213109	09/10/2007	09/10/2008
EMI Receiver, Preselector section	Hewlett Packard	85460A	213108	09/10/2007	09/10/2008
Preamplifier, 10 MHz to 2000 MHz, 27 dB gain	Mini-Circuits	ZKL-2	200074	09/06/2007	09/06/2008

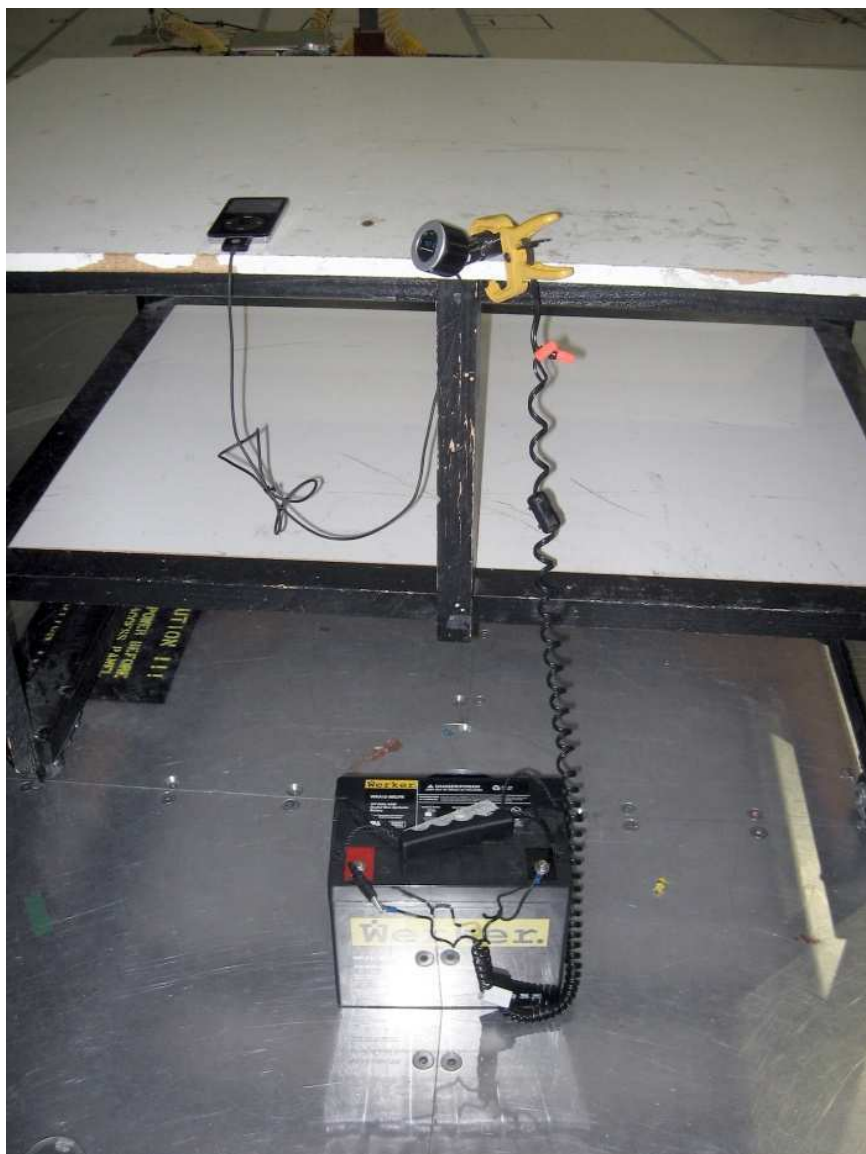
Results: The sample tested was found to Comply.

8.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b))

Photo:

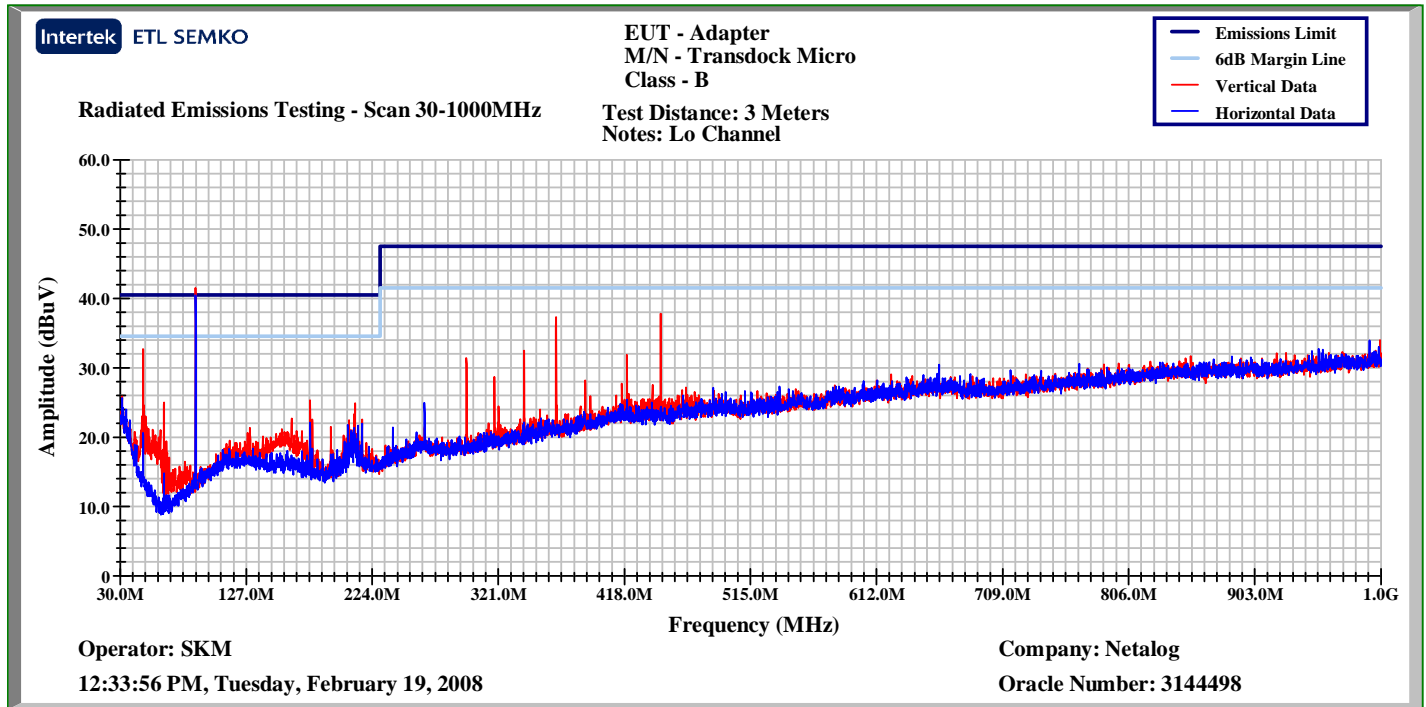


Test Setup

8.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b))**Photo:**

Test Setup

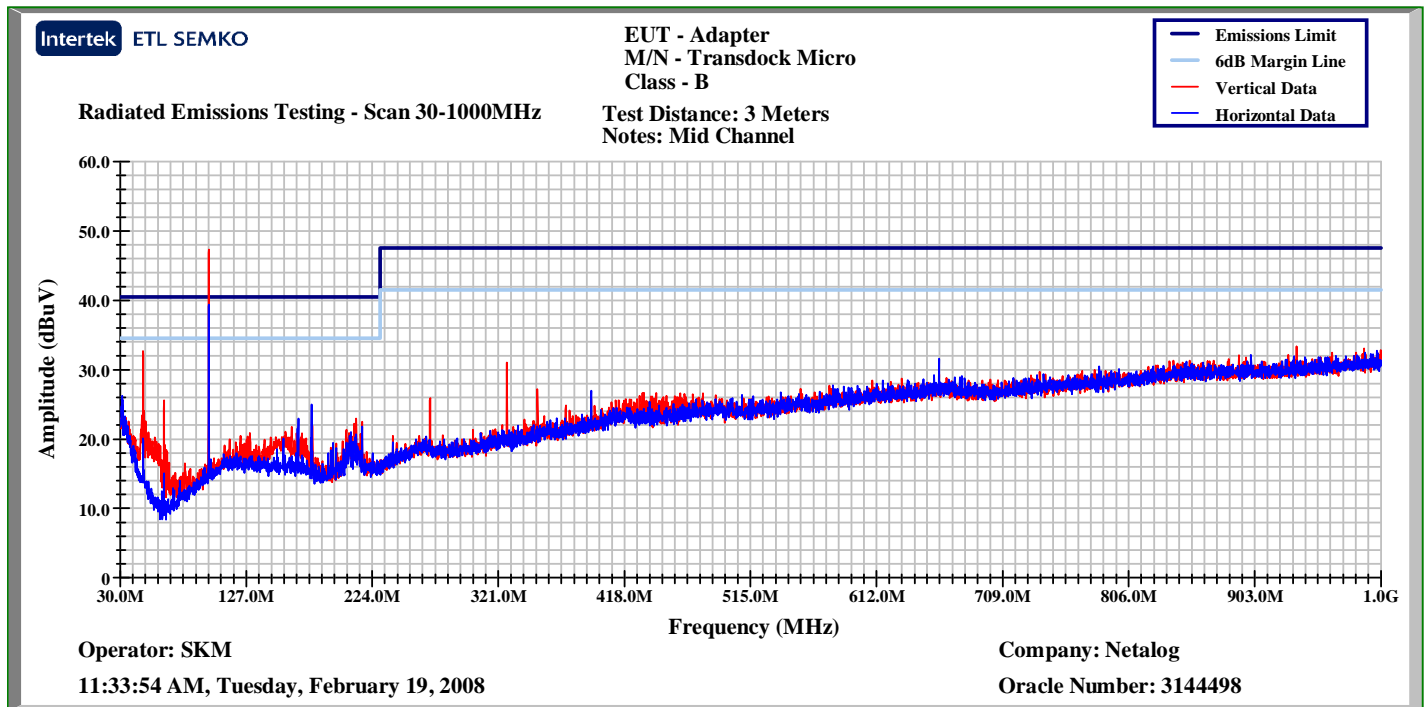
Plot:

8.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b))

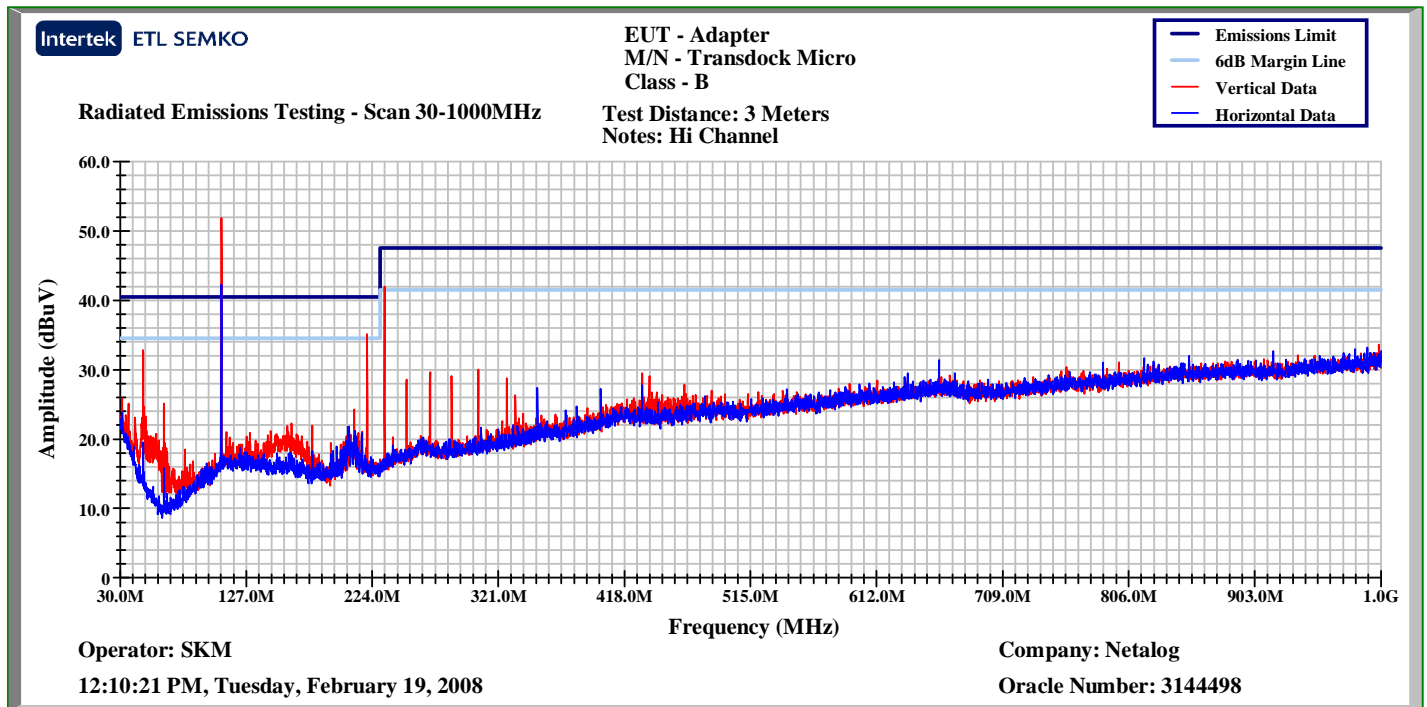
Emissions Plot - Low Channel

8.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b))

Plot:



Emissions Plot - Middle Channel

8.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b))**Plot:**

Emissions Plot - High Channel

Data:

8.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b))

Frequency Range (MHz): 88 to 108

Test Distance (m): 3

Input power: Battery

Limit: 15_239-3m

Modifications for compliance (y/n): N

A	B	C	D	E	F	G	H	I	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	3m Limit dB(uV/m)	Margin dB	Detectors / Bandwidths Det/RBW/VBW
Low Channel									
V	88.100	49.6	9.0	1.9	28.2	32.3	48.0	-15.7	Avg 10K/1.6K
V	88.100	61.2	9.0	1.9	28.2	43.9	68.0	-24.1	Pk 10K/30K
H	88.100	48.0	9.4	1.9	28.2	31.1	48.0	-16.9	Avg 10K/1.6K
H	88.100	59.4	9.4	1.9	28.2	42.5	68.0	-25.5	Pk 10K/30K
Mid Channel									
V	98.100	56.8	11.2	2.1	28.2	41.9	48.0	-6.1	Avg 10K/1.6K
V	98.100	66.3	11.2	2.1	28.2	51.4	68.0	-16.6	Pk 10K/30K
H	98.100	49.0	11.1	2.1	28.2	34.0	48.0	-14.0	Avg 10K/1.6K
H	98.100	58.9	11.1	2.1	28.2	43.9	68.0	-24.1	Pk 10K/30K
High Channel									
V	107.900	60.5	12.5	2.1	28.1	46.9	48.0	-1.1	Avg 10K/1.6K
V	107.900	69.5	12.5	2.1	28.1	55.9	68.0	-12.1	Pk 10K/30K
H	107.900	50.5	12.3	2.1	28.1	36.7	48.0	-11.3	Avg 10K/1.6K
H	107.900	59.5	12.3	2.1	28.1	45.7	68.0	-22.3	Pk 10K/30K
Calculations		G=C+D+E-F		I=G-H					

Emissions - Fundamental

8.0 § 15.239(b) / (c) Field strength requirements (FCC 15C - 15.239 (b))**Data:**

Frequency Range (MHz): 30 to 1000

Test Distance (m): 3

Input power: Battery

Limit: CISPR Class B-3m

Modifications for compliance (y/n): N

A	B	C	D	E	F	G	H	I	J
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Net dB(uV/m)	3m Limit dB(uV/m)	Margin dB	Detectors / Bandwidths Det/RBW/VBW
Low Channel									
V	47.825	48.9	9.4	1.7	28.2	31.8	40.5	-8.7	QP 120K/300K
V	365.400	45.5	15.6	3.5	27.9	36.6	47.5	-10.9	QP 120K/300K
V	445.860	45.0	16.9	4.1	27.9	38.2	47.5	-9.4	QP 120K/300K
Mid Channel									
V	47.840	49.4	9.4	1.7	28.2	32.3	40.5	-8.2	QP 120K/300K
V	327.240	44.5	14.2	3.5	27.9	34.2	47.5	-13.3	QP 120K/300K
High Channel									
V	47.825	49.4	9.4	1.7	28.2	32.3	40.5	-8.2	QP 120K/300K
V	220.000	48.4	10.9	2.9	28.0	34.2	40.5	-6.3	QP 120K/300K
V	233.500	54.2	11.6	2.9	28.0	40.7	47.5	-6.8	QP 120K/300K
Calculations		G=C+D+E-F			I=G-H				

Emissions - unintentional

9.0 Revision History (Revision History)**Method:**

Document the history of the report.

Data:

Revision Level	Date	Report Number	Notes
Original issue	February 29, 2008	3144498ATL-014	--
1	March 14, 2008	3144498ATL-014	Corrected description of EUT exercising. During all testing, a Bob Dylan tune was continuously streamed through the EUT.