



**TEST REPORT OF A 2.4 GHz WIRELESS BLUETOOTH
HEADSET FOR CLIP-ON; STAND-ALONE GSM
ACCESSORY WITH INTEGRATED RADIO,
BRAND SONY ERICSSON,
MODEL HBH-200,
TYPE DDA-0001001,
IN CONFORMITY WITH
47 CFR PART 15 (2003-03-13).**

FCC listed : 90828
Industry Canada : IC3501
VCCI registered : R-1518, C-1598

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Test specification(s): 47 CFR Part 15 (2002-03-13)
Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

MEASUREMENT/TECHNICAL REPORT

Sony Ericsson Mobile Communications

Model : HBH-200

Type: DDA-0001001

FCC ID: PY7DDA-1001

August 25, 2003

This report concerns:	Original grant/certification	Class 2 change	Verification
Equipment type:	Wireless Bluetooth headset for clip-on; stand-alone GSM accessory with integrated radio		
Deferred grant requested per 47 CFR 0.457(d)(1)(ii) ?	Yes	No	
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The data taken for this test and report herein was done in accordance with 47 CFR Part 15 and the measurement procedures of ANSI C63.4-1992. TNO Electronic Products & Services (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: August 25, 2003

Signature:

P. de Beer
TNO Electronic Products & Services (EPS) B.V.



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Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

Description of test item

Test item : Wireless Bluetooth Headset for clip-on
Manufacturer : Sony Ericsson Mobile Communications
Brand : Sony Ericsson
Model : HBH-200
Type : DDA-0001001
Serial numbers : -
Receipt number : 3
Receipt date : August 18, 2003

Applicant information

Applicant's representative : Mr. H. Sjöberg
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Test(s) performed

Location : Niekerk
Test(s) started : August 18, 2003
Test(s) completed : August 20, 2003
Purpose of test(s) : Type approval / certification
Test specification(s) : 47 CFR Part 15 (2003-03-13)

Test engineer : O.H. Hoekstra

Report written by : O.H. Hoekstra

Project leader : P.A.J.M. Robben, B.Sc.E.E.

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

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



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Table of contents

1	General information	5
1.1	Product description	5
1.2	Related submittal(s) and/or Grant(s)	5
1.3	Tested system details	5
1.4	Test methodology	6
1.5	Test facility	6
1.6	Product labeling	6
1.7	System test configuration	7
1.7.1	Justification	7
1.7.2	EUT exercise software	8
1.8	Special accessories	8
1.9	Equipment modifications	8
1.10	Configuration of the tested system	8
1.11	Block diagram(s) of the EUT	8
2	Radiated emission data	9
2.1	Test results with EUT operating in receive mode on channel 1	9
2.2	Test results with EUT operating in receive mode on channel 2	10
2.3	Test results with EUT operating in receive mode on channel 3	11
2.4	Test results with EUT operating in transmit mode on channel 1	12
2.5	Test results with EUT operating in transmit mode on channel 2	13
2.6	Test results with EUT operating in transmit mode on channel 3	14
3	Conducted emission data	15
3.1	AC mains with EUT operating in transmit and receive mode	15
4	Test results of measurements in conformity with 47 CFR Part 15.247	16
4.1	Emission in restricted bands nearest to the band 2400 - 2483.5 MHz	16
4.1.1	Hopping off mode (transmission on a single carrier of 2402 MHz or 2480 MHz)	16
4.1.2	Hopping mode (transmission while hopping on all 79 hopping frequencies)	17
4.2	Carrier frequency separation of a frequency hopping system	18
4.3	Number of hopping channels	19
4.4	Average time of occupancy on any frequency	20
4.5	Spectrum bandwidth of a frequency hopping system	21
4.6	Maximum peak output power	22
4.7	Conducted emission data outside restricted bands	23
4.7.1	Hopping off mode (transmission on a single carrier of 2402 MHz or 2480 MHz)	23
4.7.2	Hopping mode (transmission while hopping on all 79 hopping frequencies)	24
4.8	Peak power spectral density	25
4.8.1	Hopping mode (transmission while hopping on all 79 hopping frequencies)	25
4.8.2	Page/scan mode	26
5	Plots of measurement data	27
5.1	Emission in restricted bands nearest to the band 2400 - 2483.5 MHz	28
5.1.1	Hopping off mode (transmission on a single carrier)	28
5.1.2	Hopping mode (transmission while hopping on all 79 hopping frequencies)	32
5.2	Carrier frequency separation	36
5.3	Number of hopping channels	37
5.4	Spectrum bandwidth of a frequency hopping system	39
5.5	Maximum peak output power	42
5.6	Conducted emission data outside restricted bands	45
5.7	Peak power spectral density	50
5.7.1	Hopping mode (transmission while hopping on all 79 hopping frequencies)	50
5.7.2	Page scan mode	53
6	List of utilized test equipment	56



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Description of EUT: Wireless Bluetooth Headset for clip-on
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1 General information

1.1 Product description

The Wireless Bluetooth Headset for clip-on, brand Sony Ericsson, model HBH-200, type DDA-0001001 is designed to operate in the 2400 MHz to 2483.5 MHz frequency band , as specified by the Federal Communications Commission in the USA.

The Wireless Bluetooth Headset for clip-on, brand Sony Ericsson, model HBH-200, utilizes Frequency Hopping with 79 hopping frequencies and a channel separation of 1 MHz.

The Wireless Bluetooth Headset for clip-on, brand Sony Ericsson, model HBH-200, is a stand-alone GSM accessory with integrated radio and an integrated antenna.

All measurements are come in accordance with document DA 00-705 of March 30, 2000, Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems.

The product fullfills also the requirements for CANADA RS-210

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

Not applicable.

1.3 Tested system details

Details and an overview of the system and all its components, as it has been tested, can be found in table 1 below. FCC ID's are stated in this overview where applicable. The EUT is listed in the first row of this table 1.

Description	Model number	Type	FCC ID	Cable descriptions
Wireless Bluetooth Headset for clip-on	HBH-200	DDA-0001001	PY7DDA_1001	None.
AC/DC standard charger	CST-13	4020077-BV	n.a. (DoC)	-Unshielded DC power cord to Bluetooth Headset.
Earpiece	RFL50	-	n.a. (DoC)	-Unshielded cord to Bluetooth Headset.

Table 1 - Tested system details overview.



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1.4 Test methodology

The test methodology used is based on the requirements of 47 CFR Part 15 (2002-03-13), sections 15.107, 15.207, 15.109, 15.209, 15.205 and 15.247.

The test methods, which have been used, are based on ANSI C63.4: 1992.

Radiated emission tests above 30 MHz were performed at a measurement distance of 3 meters. Below 30 MHz the radiated emission tests were carried out at measurement distances of 3 and 10 meters. The test results regarding the radiated emission tests on frequencies below 30 MHz have been extrapolated in order to determine the field strength of the measured values at measurement distances of 30 and 300 meters (as required by 47 CFR Part 15).

The bandwidth of the receiver is switching automatically to the right bandwidth in accordance with CISPR 16. This is implemented in the receiver. The antenna factors are programmed in the test receiver. The receiver automatically calculates the appropriate correction factor for the utilized antenna and also the appropriate antenna factor for the cable loss. The total correction is automatically added to the measured value.

Radiated emission tests on frequencies above 1 GHz were performed with appropriate pre-amplifiers, antennas and a spectrum analyzer. At frequencies on which radiated emissions were found the level at the input of the pre-amplifier was reproduced by means of a RF signal generator. The output level of the signal generator was then increased with the antenna factor in order to obtain the actual field strength value for each individual frequency on which radiated emissions were found.

1.5 Test facility

The Federal Communications Commission has reviewed the technical characteristics of the test facilities at TNO Electronic Products & Services (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, per October 23, 2000.

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

The list of all public test facilities is available on the Internet at <http://www.fcc.gov>.

1.6 Product labeling

In accordance with 47 CFR Part 15.19 (a)(3) the following text shall be placed on a label, which is attached to the EUT:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

In accordance with 47 CFR Part 2.925 (a)(1), the FCC ID shall be placed on a label, which is attached to the EUT.

For further details about the labeling requirements (size, legibility, etc.) as set by the Federal Communications Commission see 47 CFR Part 15.19 (a)(3), 47 CFR Part 15.19 (b)(2), 47 CFR Part 15.19 (b)(4), 47 CFR Part 2.925 and 47 CFR Part 2.926.



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1.7 System test configuration

1.7.1 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: 1992.

Tests were performed at the lowest operating frequency (2402 MHz), the operating frequency in the middle of the specified frequency band (2441 MHz) and the highest operating frequency (2480 MHz). Further details may be found in table 2 below.

Channel	Operating frequencies (MHz)	Rated output power (dBm)	Test performed
1	2402	+4.9	yes
2	2441	+4.1	yes
3	2480	+3.3	yes

Table 2 - Specification of test channels and rated maximum output power.

The EUT was tested while mounted in a test fixture and using test software.



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1.7.2 EUT exercise software

The EUT could be enabled to transmit or receive by means of test software, which was supplied by the manufacturer of the EUT.

During the tests, the TXon time was 0.485 ms, the TXon+TX off time was 1.25 ms. The duty-cycle (TXon / (TXon + TXoff)) was 0.388.

1.8 Special accessories

No special accessories are used and/or needed to achieve compliance with the appropriate sections of 47 CFR Part 15.

1.9 Equipment modifications

No modifications have been made to the equipment in order to achieve compliance with the appropriate sections of 47 CFR Part 15.

1.10 Configuration of the tested system

Not applicable. See table 1 in section 1.3 of this test report.

1.11 Block diagram(s) of the EUT

The block diagram is available as part of the documentation which is to be submitted to the FCC/TCB.



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2 Radiated emission data

2.1 Test results with EUT operating in receive mode on channel 1

The results of the radiated emission tests, carried out in accordance with 47 CFR Part 15.109 and 47 CFR Part 15.209 with the EUT operating in receive mode on 2402 MHz, are depicted in table 3.

Frequency (MHz)	Test results quasi peak (dB μ V/m)		Test results average (dB μ V/m)		Test results peak (dB μ V/m)		Resolution bandwidth (kHz)	Quasi peak limits (dB μ V/m)	Average limits (dB μ V/m)	Peak limits (dB μ V/m)
	V	H	V	H	V	H				
80.9	19.0	<18	-	-	-	-	120	40.0	-	-
80.9-1000	<20	<20	-	-	-	-	120	40.0-54.0	-	-
1000-26500	-	-	<34.0	<34.0	<54.0	<54.0	1000	-	54.0	74.0

Table 3 - Test results with the EUT operating in receive mode on 2402 MHz.

Note: Field strength values of radiated emissions at frequencies not listed in table 3 are more than 20 dB below the applicable limit.

Test engineer

Signature

Name

: Onno H. Hoekstra

Date

August 25, 2003



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2.2 Test results with EUT operating in receive mode on channel 2

The results of the radiated emission tests, carried out in accordance with 47 CFR Part 15.109 and 47 CFR Part 15.209 with the EUT operating in receive mode on 2441 MHz, are depicted in table 4.

Frequency (MHz)	Test results quasi peak (dBµV/m)		Test results average (dBµV/m)		Test results peak (dBµV/m)		Resolution bandwidth (kHz)	Quasi peak limits (dBµV/m)	Average limits (dBµV/m)	Peak limits (dBµV/m)
	V	H	V	H	V	H				
80.9	19.0	<18	-	-	-	-	120	40.0	-	-
80.9-1000	<20	<20	-	-	-	-	120	40.0-54.0	-	-
1000-26500	-	-	<34.0	<34.0	<54.0	<54.0	1000	-	54.0	74.0

Table 4 - Test results with the EUT operating in receive mode on 2441 MHz.

Note: Field strength values of radiated emissions at frequencies not listed in table 4 are more than 20 dB below the applicable limit.

Test engineer

Signature

Name

: Onno H. Hoekstra

Date

: August 25, 2003



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 Type: DDA-0001001
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2.3 Test results with EUT operating in receive mode on channel 3

The results of the radiated emission tests, carried out in accordance with 47 CFR Part 15.109 and 47 CFR Part 15.209 with the EUT operating in receive mode on 2480 MHz, are depicted in table 5.

Frequency (MHz)	Test results quasi peak (dBµV/m)		Test results average (dBµV/m)		Test results peak (dBµV/m)		Resolution bandwidth (kHz)	Quasi peak limits (dBµV/m)	Average limits (dBµV/m)	Peak limits (dBµV/m)
	V	H	V	H	V	H				
80.9	19.0	<18	-	-	-	-	120	40.0	-	-
80.9-1000	<20	<20	-	-	-	-	120	40.0-54.0	-	-
1000-26500	-	-	<34.0	<34.0	<54.0	<54.0	1000	-	54.0	74.0

Table 5 - Test results with the EUT operating in receive mode on 2480 MHz.

Note: Field strength values of radiated emissions at frequencies not listed in table 5 are more than 20 dB below the applicable limit.

Test engineer

Signature

Name

: Onno H. Hoekstra

Date

: August 25, 2003



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2.4 Test results with EUT operating in transmit mode on channel 1.


The results of the radiated emission tests, carried out in accordance with 47 CFR Part 15.109, 47 CFR Part 15.209 and 47 CFR Part 15.205 (restricted bands of operation) with the EUT operating in transmit mode on 2402 MHz, are depicted in table 6.

Frequency (MHz)	Test results quasi peak (dBµV/m)		Test results average (dBµV/m)		Test results peak (dBµV/m)		Resolution bandwidth (kHz)	Quasi peak limits (dBµV/m)	Average limits (dBµV/m)	Peak limits (dBµV/m)
	V	H	V	H	V	H				
73.6	20.6	<18	-	-	-	-	120	40.0	-	-
122.1	21.3	<18	-	-	-	-	120	43.5	-	-
146.4	20.9	<18	-	-	-	-	120	43.5	-	-
454.8	35.0	31.8	-	-	-	-	120	46.0	-	-
533.1	38.2	30.8	-	-	-	-	120	46.0	-	-
1204	-	-	22.8	21.0	<54.0	<54.0	1000	-	54.0	74.0
4804	-	-	43.4	42.9	<54.0	<54.0	1000	-	54.0	74.0
7206	-	-	37.5	41.4	<54.0	<54.0	1000	-	54.0	74.0
9608	-	-	33.9	34.1	<54.0	<54.0	1000	-	54.0	74.0
9608-26500	-	-	<34.0	<34.0	<54.0	<54.0	1000	-	54.0	74.0

Table 6 - Test results with the EUT operating in transmit mode on 2402 MHz.

Note: Field strength values of radiated emissions at frequencies not listed in table 6 are more than 20 dB below the applicable limit.

Test engineer

Signature : 

Name : Onno H. Hoekstra

Date : August 25, 2003



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2.5 Test results with EUT operating in transmit mode on channel 2.

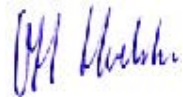
The results of the radiated emission tests, carried out in accordance with 47 CFR Part 15.109, 47 CFR Part 15.209 and 47 CFR Part 15.205 (restricted bands of operation) with the EUT operating in transmit mode on 2441 MHz, are depicted in table 7.

Frequency (MHz)	Test results quasi peak (dBµV/m)		Test results average (dBµV/m)		Test results peak (dBµV/m)		Resolution bandwidth (kHz)	Quasi peak limits (dBµV/m)	Average limits (dBµV/m)	Peak limits (dBµV/m)
	V	H	V	H	V	H				
73.6	20.6	<18	-	-	-	-	120	40.0	-	-
122.1	21.3	<18	-	-	-	-	120	43.5	-	-
146.4	20.9	<18	-	-	-	-	120	43.5	-	-
454.8	35.0	31.8	-	-	-	-	120	46.0	-	-
533.1	38.2	30.8	-	-	-	-	120	46.0	-	-
1204	-	-	22.8	21.0	<54.0	<54.0	1000	-	54.0	74.0
4882	-	-	43.7	41.8	<54.0	<54.0	1000	-	54.0	74.0
7323	-	-	37.9	42.0	<54.0	<54.0	1000	-	54.0	74.0
9764	-	-	<34.0	36.8	<54.0	<54.0	1000	-	54.0	74.0
9764-26500	-	-	<34.0	<34.0	<54.0	<54.0	1000	-	54.0	74.0

Table 7 - Test results with the EUT operating in transmit mode on 2441 MHz.

Note: Field strength values of radiated emissions at frequencies not listed in table 7 are more than 20 dB below the applicable limit.

Test engineer

Signature : 

Name : Onno H. Hoekstra

Date : August 25, 2003



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 FCC ID: PY7DDA-1001

2.6 Test results with EUT operating in transmit mode on channel 3.


The results of the radiated emission tests, carried out in accordance with 47 CFR Part 15.109, 47 CFR Part 15.209 and 47 CFR Part 15.205 (restricted bands of operation) with the EUT operating in transmit mode on 2480 MHz, are depicted in table 8.

Frequency (MHz)	Test results quasi peak (dBµV/m)		Test results average (dBµV/m)		Test results peak (dBµV/m)		Resolution bandwidth (kHz)	Quasi peak limits (dBµV/m)	Average limits (dBµV/m)	Peak limits (dBµV/m)
	V	H	V	H	V	H				
73.6	20.6	<18	-	-	-	-	120	40.0	-	-
122.1	21.3	<18	-	-	-	-	120	43.5	-	-
146.4	20.9	<18	-	-	-	-	120	43.5	-	-
454.8	35.0	31.8	-	-	-	-	120	46.0	-	-
533.1	38.2	30.8	-	-	-	-	120	46.0	-	-
1204	-	-	22.8	21.0	<54.0	<54.0	1000	-	54.0	74.0
4960	-	-	44.3	43.4	<54.0	<54.0	1000	-	54.0	74.0
7440	-	-	36.3	42.6	<54.0	<54.0	1000	-	54.0	74.0
7440-26500	-	-	<34.0	<34.0	<54.0	<54.0	1000	-	54.0	74.0

Table 8 - Test results with the EUT operating in transmit mode on 2480 MHz.

Note: Field strength values of radiated emissions at frequencies not listed in table 8 are more than 20 dB below the applicable limit.

Test engineer

Signature : 

Name : Onno H. Hoekstra

Date : August 25, 2003



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FCC ID: PY7DDA-1001

3 Conducted emission data

3.1 AC mains with EUT operating in transmit and receive mode


The (worst-case) results of the conducted emission tests at the 110 Volts AC mains connection terminals of the charger, model CST-13, type 4020077-BV, carried out in accordance with 47 CFR Part 15.107 and 47 CFR Part 15.207 with the EUT operating in normal mode and charging., are depicted in table 9.

Frequency (MHz)	Measurement results dB(μ V) Neutral		Measurement results dB(μ V) Line 1		Limits dB(μ V)		Margin (dB) Neutral		Margin (dB) Line 1		Result
	QP	AV	QP	AV	QP	AV	QP	AV	QP	AV	
0.21	45.7	38.8	44.1	39.6	63.1	53.1	-17.4	-14.3	-19.0	-13.5	PASS
0.32	38.4	33.5	35.9	32.3	59.8	49.8	-21.4	-16.3	-23.9	-17.5	PASS
0.42	43.3	38.2	41.0	38.6	57.4	47.4	-14.1	-9.2	-16.4	-8.8	PASS
0.53	35.1	26.4	32.7	29.9	56.0	46.0	-20.9	-19.6	-23.3	-16.1	PASS
1.07	45.9	34.1	42.7	35.5	56.0	46.0	-10.1	-11.9	-13.3	-10.5	PASS
1.28	38.0	27.0	34.9	23.5	56.0	46.0	-18.0	-19.0	-21.1	-22.5	PASS
1.49	42.8	29.7	39.5	30.8	56.0	46.0	-13.2	-16.3	-16.5	-15.2	PASS
1.81	37.3	26.4	33.0	<20.0	56.0	46.0	-18.7	-19.6	-23.0	<-26.0	PASS
2.29	38.1	<20.0	35.5	23.6	56.0	46.0	-17.9	<-26.0	-20.5	-22.4	PASS
3.08	37.0	23.7	35.4	<20.0	56.0	46.0	-19.0	-22.3	-20.6	<-26.0	PASS
5.37	24.8	<20.0	28.9	<20.0	60.0	50.0	-35.2	<-30.0	-31.1	<-30.0	PASS

Table 9 - Test results with the EUT operating in normal mode while charging.

Note: Disturbance voltage values of conducted emissions at frequencies not listed in table 9 are more than 20 dB below the applicable limit.

Test engineer

Signature : 
Name : Onno H. Hoekstra
Date : August 25, 2003



Test specification(s): 47 CFR Part 15 (2002-03-13)
Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

4 Test results of measurements in conformity with 47 CFR Part 15.247

4.1 Emission in restricted bands nearest to the band 2400 - 2483.5 MHz

4.1.1 Hopping off mode (transmission on a single carrier of 2402 MHz or 2480 MHz)

The results of the conducted emission tests, carried out in accordance with 47 CFR Part 15.205 (restricted bands of operation, with the emphasis on the emission in restricted bands nearest to the band 2400-2483.5 MHz) with the EUT operating in transmit mode, are depicted in table 10. The plots of the measurement results may be found in section 5.1.1 of this test report.


Frequency (MHz)	Test results quasi peak (dB μ V/m)	Test results average (dB μ V/m)	Test results peak (dB μ V/m)	Resolution bandwidth (kHz)	Quasi peak limits (dB μ V/m)	Average limits (dB μ V/m)	Peak limits (dB μ V/m)
2390.00	-	32.9	63.5	1000	-	54.0	74.0
2483.50	-	42.4	72.9	1000	-	54.0	74.0

Table 10 - Test results with the EUT operating in transmit mode.

Note: Conducted emission tests have been performed in transmit mode with a TXon time of 0.485 ms and a TXon+TX off time of 1.25 ms.

Note: Field strength values of conducted emissions at frequencies not listed in table 10 are more than 20 dB below the applicable limit.

Test engineer

Signature : 

Name : Onno H. Hoekstra

Date : August 25, 2003



Test specification(s): 47 CFR Part 15 (2002-03-13)
Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

4.1.2 Hopping mode (transmission while hopping on all 79 hopping frequencies)

The results of the conducted emission tests, carried out in accordance with 47 CFR Part 15.205 (restricted bands of operation, with the emphasis on the emission in restricted bands nearest to the band 2400-2483.5 MHz) with the EUT operating in transmit mode, are depicted in table 11. The plots of the measurement results may be found in section 5.1.2 of this test report.


Frequency (MHz)	Test results quasi peak (dB μ V/m)	Test results average (dB μ V/m)	Test results peak (dB μ V/m)	Resolution bandwidth (kHz)	Quasi peak limits (dB μ V/m)	Average limits (dB μ V/m)	Peak limits (dB μ V/m)
2390.00	-	33.0	63.2	1000	-	54.0	74.0
2483.50	-	35.9	72.5	1000	-	54.0	74.0

Table 11 - Test results with the EUT operating in transmit mode.

Note: Conducted emission tests have been performed in transmit mode with a TXon time of 0.485 ms and a TXon+TX off time of 1.25 ms.

Note: Field strength values of conducted emissions at frequencies not listed in table 11 are more than 20 dB below the applicable limit.

Test engineer

Signature : 

Name : Onno H. Hoekstra

Date : August 25, 2003



Test specification(s): 47 CFR Part 15 (2002-03-13)
Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

4.2 Carrier frequency separation of a frequency hopping system

The results of tests on the EUT, carried out in accordance with 47 CFR Part 15.247 (a)(1), are depicted in table 12.

The plots of the measurement results may be found in section 5.2 of this test report.

Transmission bitrate (Mbit/s)	Carrier Frequency separation (kHz)	Limit (kHz)
standard	1000	>25 or the 20 dB Bandwidth (698 kHz)

Table 12 – Carrier frequency separation.

Test engineer

Signature

: 

Name

: Onno H. Hoekstra

Date

: August 25, 2003



Test specification(s): 47 CFR Part 15 (2002-03-13)
Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

4.3 Number of hopping channels

The results of tests on the EUT, carried out in accordance with 47 CFR Part 15.247 (a)(1)(ii), are depicted in table 13.

The plots of the measurement results may be found in section 5.3 of this test report.

Transmission bitrate (Mbit/s)	Number of hopping channels	Limit
standard	79	>75

Table 13 – Number of hopping channels.

Test engineer

Signature

:

Name

: Onno H. Hoekstra

Date

: August 25, 2003




Test specification(s): 47 CFR Part 15 (2002-03-13)
Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

4.4 Average time of occupancy on any frequency

The average time of occupancy on any frequency in accordance with 47 CFR Part 15.247 (a)(1)(ii).

For a Bluetooth device, the average time of occupancy on any frequency of 0.3797 second within a 30 second period is independent from the packet type.
This is according the Bluetooth Core Specification V 1.0B. Therefore, all Bluetooth devices are compliant with the FCC requirement for average time of occupancy on any frequency of 0.4s within a 30 second period.
This is checked during the Bluetooth Qualification tests.

Test engineer

Signature : 

Name : Onno H. Hoekstra

Date : August 25, 2003



Test specification(s): 47 CFR Part 15 (2002-03-13)
Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

4.5 Spectrum bandwidth of a frequency hopping system

The results of tests on the EUT, carried out in accordance with 47 CFR Part 15.247 (a)(1)(ii), are depicted in table 14.

The plots of the measurement results may be found in section 5.4 of this test report.

Transmission bitrate (Mbit/s)	20 dB bandwidth (kHz)			Limit (kHz)
	Channel 1 (2402 MHz)	Channel 6 (2441 MHz)	Channel 11 (2480 MHz)	
standard	698	698	735	<1000

Table 14 - 20 dB bandwidth.

Test engineer

Signature

Name

: Onno H. Hoekstra

Date

: August 25, 2003



Test specification(s): 47 CFR Part 15 (2002-03-13)
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Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

4.6 Maximum peak output power

The results of tests on the EUT, carried out in accordance with 47 CFR Part 15.247 (b)(1), are depicted in table 15. The maximum peak output power (conducted) was measured directly at the antenna connector.


The plots of the measurement results may be found in section 5.5 of this test report.

Transmission bitrate (Mbit/s)	Maximum peak output power (conducted, dBm)			Limit (dBm) Antenna gain < 6 dBi
	Channel 1 (2402 MHz)	Channel 2 (2441 MHz)	Channel 3 (2480 MHz)	
standard	4.9	4.1	3.3	30.0

Table 15 - Maximum peak output power (conducted).

Note: During the measurements, the DC supply voltage of the EUT was varied between 85% and 115% of the nominal value. The maximum measured values are depicted in table 15. No differences in measurement results, due to the DC voltage variations between 85% and 115% from the original value, have been observed. The antenna gain is -2 dBi. As the antenna gain does not exceed 6 dBi, no reduction of the maximum peak output power is required.

Test engineer

Signature : 

Name : Onno H. Hoekstra

Date : August 25, 2003



Test specification(s): 47 CFR Part 15 (2002-03-13)
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Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

4.7 Conducted emission data outside restricted bands

4.7.1 Hopping off mode (transmission on a single carrier of 2402 MHz or 2480 MHz)

The results of tests on the EUT, carried out in accordance with 47 CFR Part 15.247 (c), are depicted in table 16.

Conducted emission data outside restricted bands in a 100 kHz bandwidth shall be at least 20 dB below the highest level in a 100 kHz bandwidth within the band.


The plots of the measurement results may be found in section 5.6 of this test report.

Frequency (MHz)	Level below working channel (dB)	Limit of level below working channel (dB)
2400.00	-37.3	< -20.0
other frequencies	< -40.0	< -20.0

Table 16 - Conducted emission data outside restricted bands.

Note: Worst case measurement values for transmissions on channel 1, 2 and 3.

Test engineer

Signature : 

Name : Onno H. Hoekstra

Date : August 25, 2003



Test specification(s): 47 CFR Part 15 (2002-03-13)
Description of EUT: Wireless Bluetooth Headset for clip-on
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Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

4.7.2 Hopping mode (transmission while hopping on all 79 hopping frequencies)

The results of tests on the EUT, carried out in accordance with 47 CFR Part 15.247 (c), are depicted in table 17.

Conducted emission data outside restricted bands in a 100 kHz bandwidth shall be at least 20 dB below the highest level in a 100 kHz bandwidth within the band.


The plots of the measurement results may be found in section 5.6 of this test report.

Frequency (MHz)	Level below working channel (dB)	Limit of level below working channel (dB)
2400.00	-35.2	< -20.0
other frequencies	< -40.0	< -20.0

Table 17 - Conducted emission data outside restricted bands.

Note: Worst case measurement values for transmissions on channel 1, 2 and 3.

Test engineer

Signature : 

Name : Onno H. Hoekstra

Date : August 25, 2003



Test specification(s): 47 CFR Part 15 (2002-03-13)
Description of EUT: Wireless Bluetooth Headset for clip-on
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Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

4.8 Peak power spectral density

4.8.1 Hopping mode (transmission while hopping on all 79 hopping frequencies)


The results of the tests on the EUT, carried out in accordance with 47 CFR Part 15.247 (d), are depicted in table 18.

The plots of the measurement results may be found in section 5.7.1 of this test report.

Transmission bitrate (Mbit/s)	Peak power spectral density (conducted) in any 3 kHz band (dBm)			Limit (dBm)
	Channel 1 (2402 MHz)	Channel 2 (2441 MHz)	Channel 3 (2480 MHz)	
standard	-5.4	-6.1	-7.1	<8.0

Table 18 - Peak power spectral density, hopping mode.

Test engineer

Signature : 

Name : Onno H. Hoekstra

Date : August 25, 2003



Test specification(s): 47 CFR Part 15 (2002-03-13)
Description of EUT: Wireless Bluetooth Headset for clip-on
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Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

4.8.2 Page/scan mode

The results of the tests on the EUT, carried out in accordance with 47 CFR Part 15.247 (d), are depicted in table 19.

The plots of the measurement results may be found in section 5.7.2 of this test report.

Transmission bitrate (Mbit/s)	Peak power spectral density (conducted) in any 3 kHz band (dBm)			Limit (dBm)
	Channel 1 (2402 MHz)	Channel 2 (2441 MHz)	Channel 3 (2480 MHz)	
standard	-3.0	-3.9	-6.3	<8.0

Table 19 - Peak power spectral density, page scan mode.

Test engineer

Signature

:

Name

: Onno H. Hoekstra

Date

: August 25, 2003



Test specification(s): 47 CFR Part 15 (2002-03-13)
Description of EUT: Wireless Bluetooth Headset for clip-on
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Type: DDA-0001001
FCC ID: PY7DDA-1001

5 Plots of measurement data

For reference purposes and visualization of spectrum analyzer settings during the measurements, a selection of plots of measurement data is included in this test report.

Test engineer

Signature

: 

Name

: Onno H. Hoekstra

Date

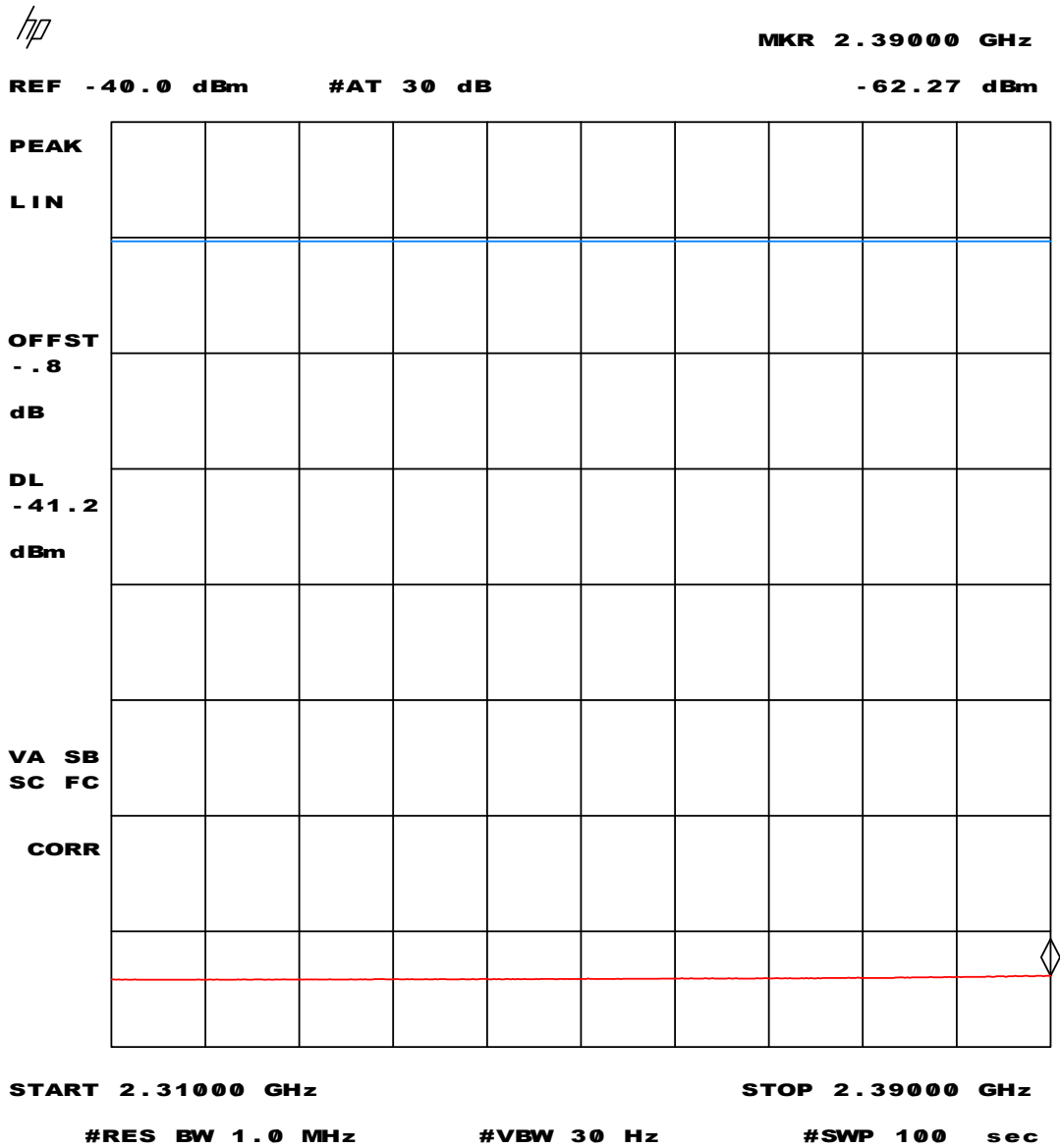
: August 25, 2003



Test specification(s): 47 CFR Part 15 (2002-03-13)
 Description of EUT: Wireless Bluetooth Headset for clip-on
 Manufacturer: Sony Ericsson Mobile Communications
 Brand mark: Sony Ericsson
 Model: HBH-200
 Type: DDA-0001001
 FCC ID: PY7DDA-1001

5.1 Emission in restricted bands nearest to the band 2400 - 2483.5 MHz

5.1.1 Hopping off mode (transmission on a single carrier)



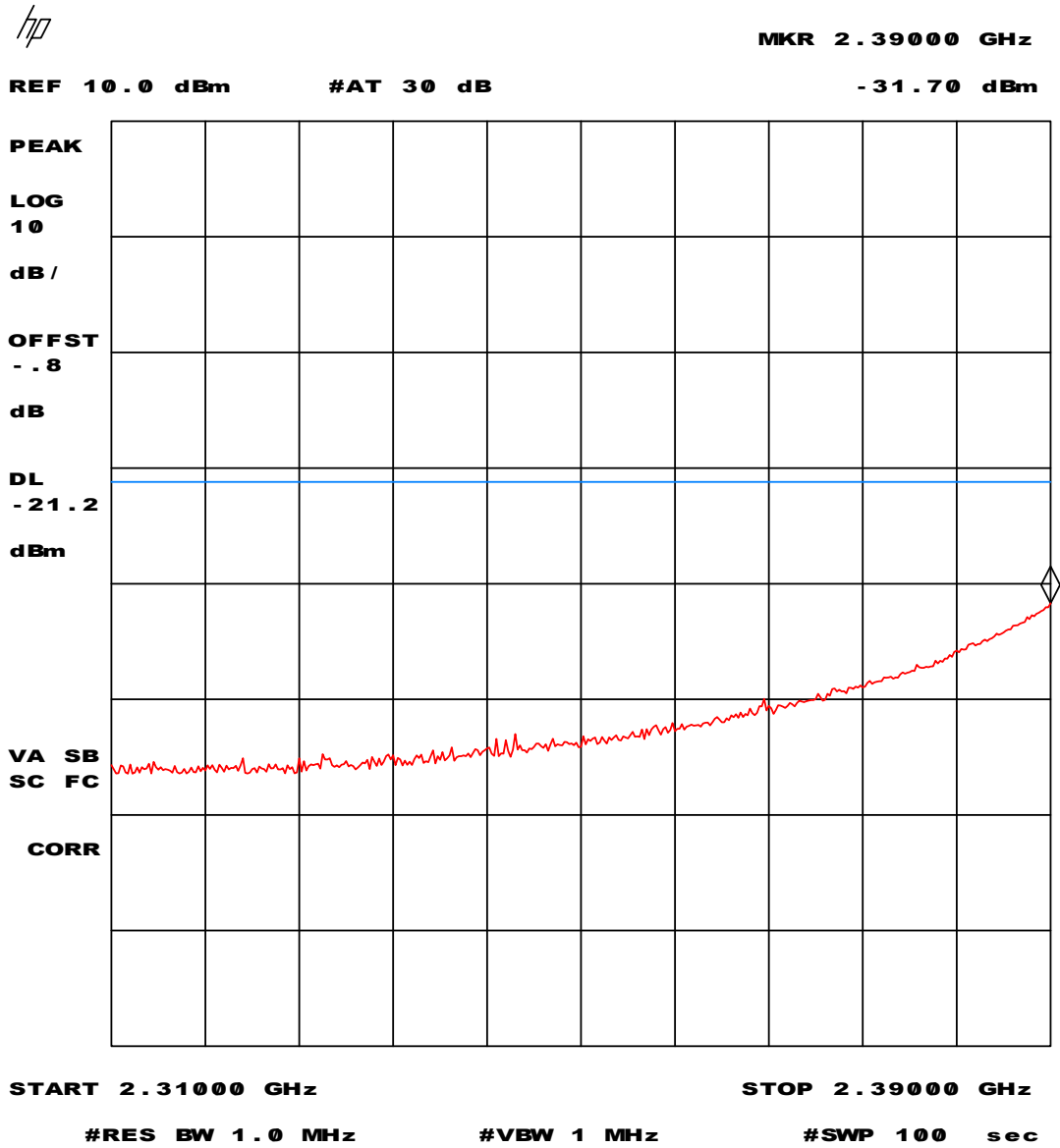
Plot 1 - Average measurement values in restricted band 2310 - 2390 MHz.

Average measurement values in restricted band, corrected for -2.0 dBi antenna gain (including antenna cable losses) and 1.2 dB cable losses (measurement cable)

Note: 54 dB μ V/m :: -41.2 dBm display line setting.



Test specification(s): 47 CFR Part 15 (2002-03-13)
 Description of EUT: Wireless Bluetooth Headset for clip-on
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 Brand mark: Sony Ericsson
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 Type: DDA-0001001
 FCC ID: PY7DDA-1001



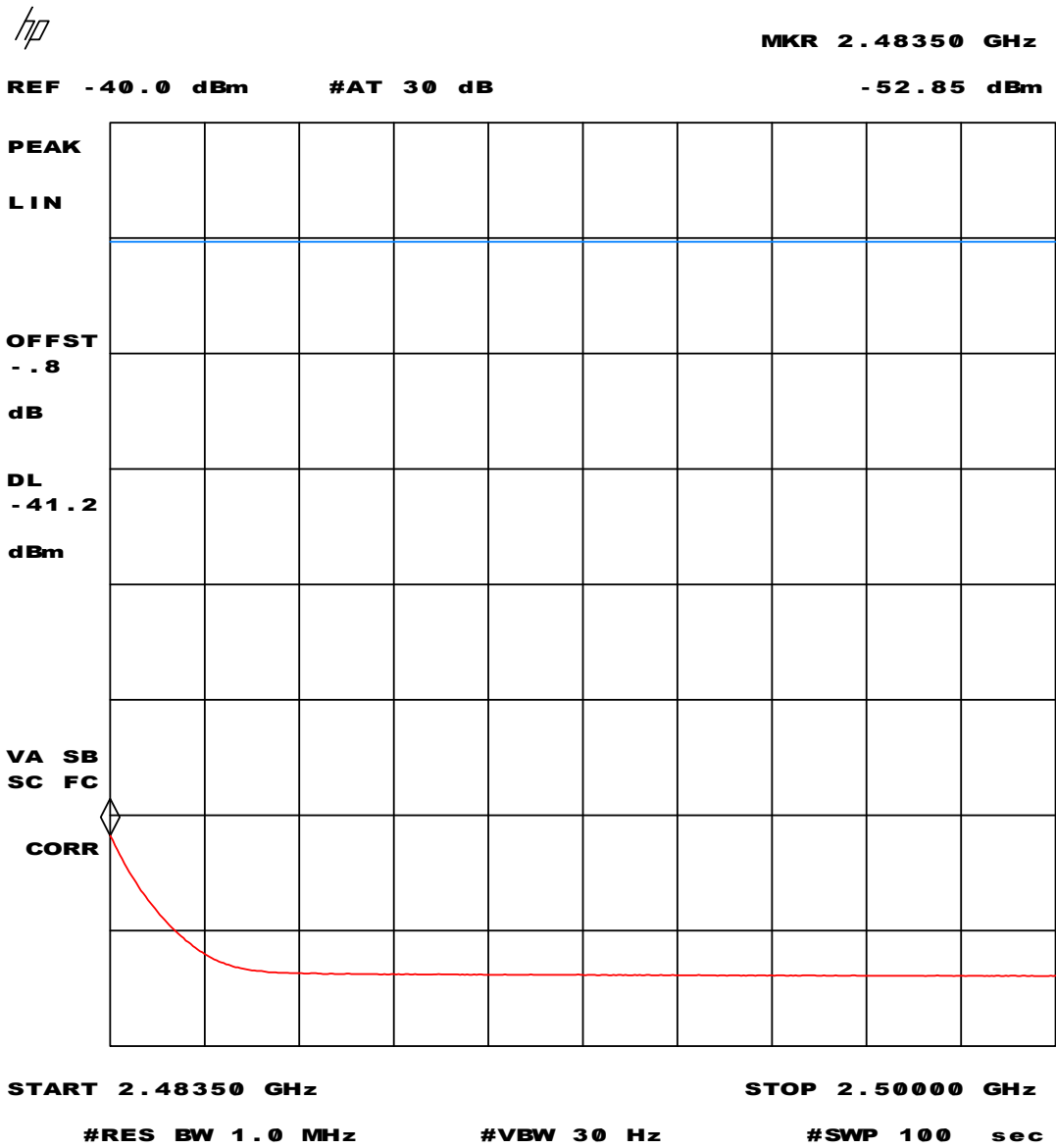
Plot 2 - Peak measurement values in restricted band 2310 - 2390 MHz.

Peak measurement values in restricted band, corrected for -2.0 dBi antenna gain (including antenna cable losses) and 1.2 dB cable losses (measurement cable)

Note: 74 dB μ V/m :: -21.2 dBm display line setting.



Test specification(s): 47 CFR Part 15 (2002-03-13)
 Description of EUT: Wireless Bluetooth Headset for clip-on
 Manufacturer: Sony Ericsson Mobile Communications
 Brand mark: Sony Ericsson
 Model: HBH-200
 Type: DDA-0001001
 FCC ID: PY7DDA-1001



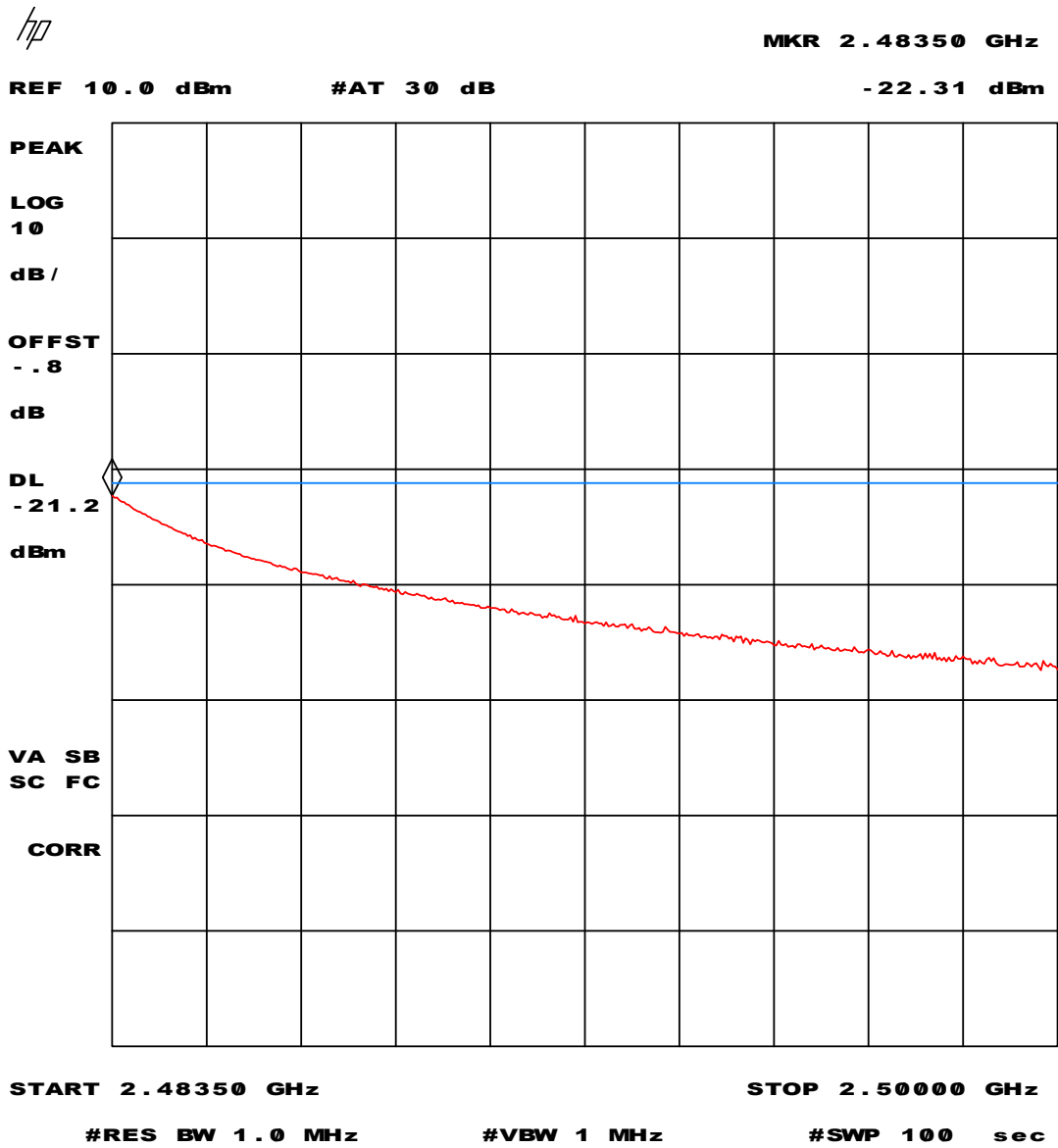
Plot 3 - Average measurement values in restricted band 2483.5 - 2500 MHz.

Average measurement values in restricted band, corrected for -2.0 dBi antenna gain (including antenna cable losses) and 1.2 dB cable losses (measurement cable)

Note: 54 dB μ V/m :: -41.2 dBm display line setting.



Test specification(s): 47 CFR Part 15 (2002-03-13)
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 Brand mark: Sony Ericsson
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 Type: DDA-0001001
 FCC ID: PY7DDA-1001



Plot 4 - Peak measurement values in restricted band 2483.5 - 2500 MHz.

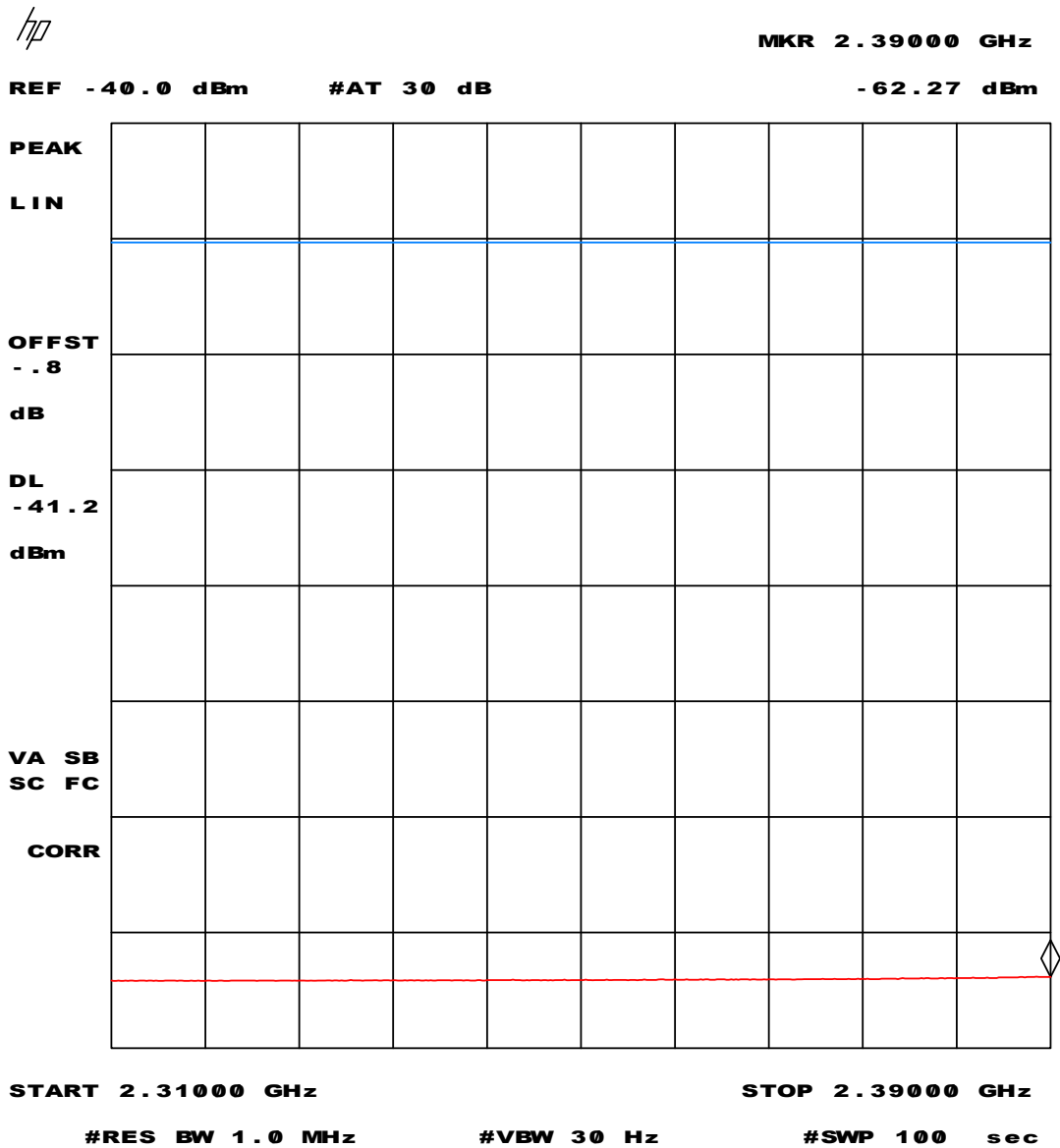
Peak measurement values in restricted band, corrected for -2.0 dBi antenna gain (including antenna cable losses) and 1.2 dB cable losses (measurement cable)

Note: 74 dB μ V/m :: -21.2 dBm display line setting.



Test specification(s): 47 CFR Part 15 (2002-03-13)
 Description of EUT: Wireless Bluetooth Headset for clip-on
 Manufacturer: Sony Ericsson Mobile Communications
 Brand mark: Sony Ericsson
 Model: HBH-200
 Type: DDA-0001001
 FCC ID: PY7DDA-1001

5.1.2 Hopping mode (transmission while hopping on all 79 hopping frequencies)



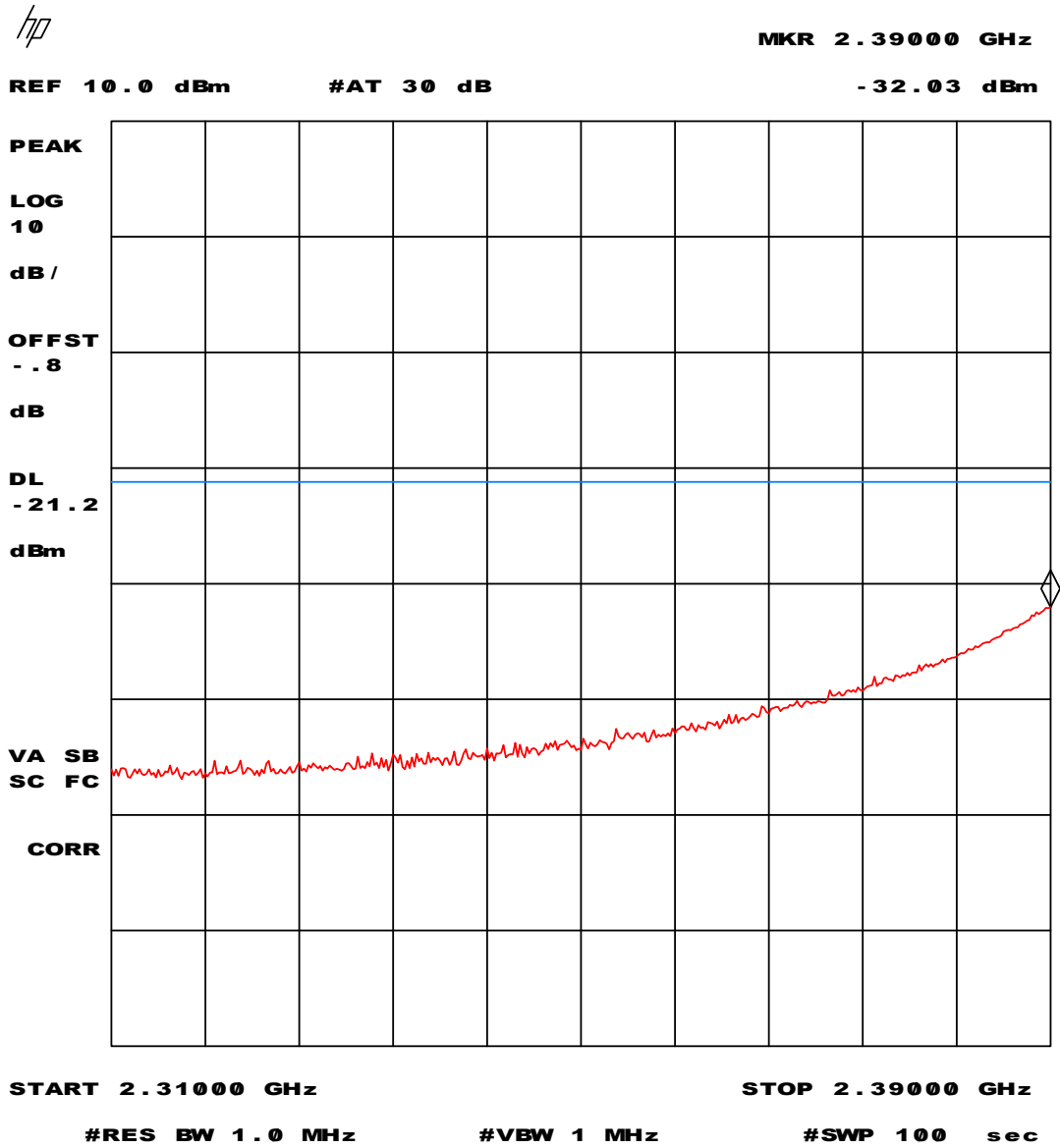
Plot 5 - Average measurement values in restricted band 2310 - 2390 MHz.

Average measurement values in restricted band, corrected for -2.0 dBi antenna gain (including antenna cable losses) and 1.2 dB cable losses (measurement cable)

Note: 54 dB μ V/m :: -41.2 dBm display line setting.



Test specification(s): 47 CFR Part 15 (2002-03-13)
 Description of EUT: Wireless Bluetooth Headset for clip-on
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 Brand mark: Sony Ericsson
 Model: HBH-200
 Type: DDA-0001001
 FCC ID: PY7DDA-1001



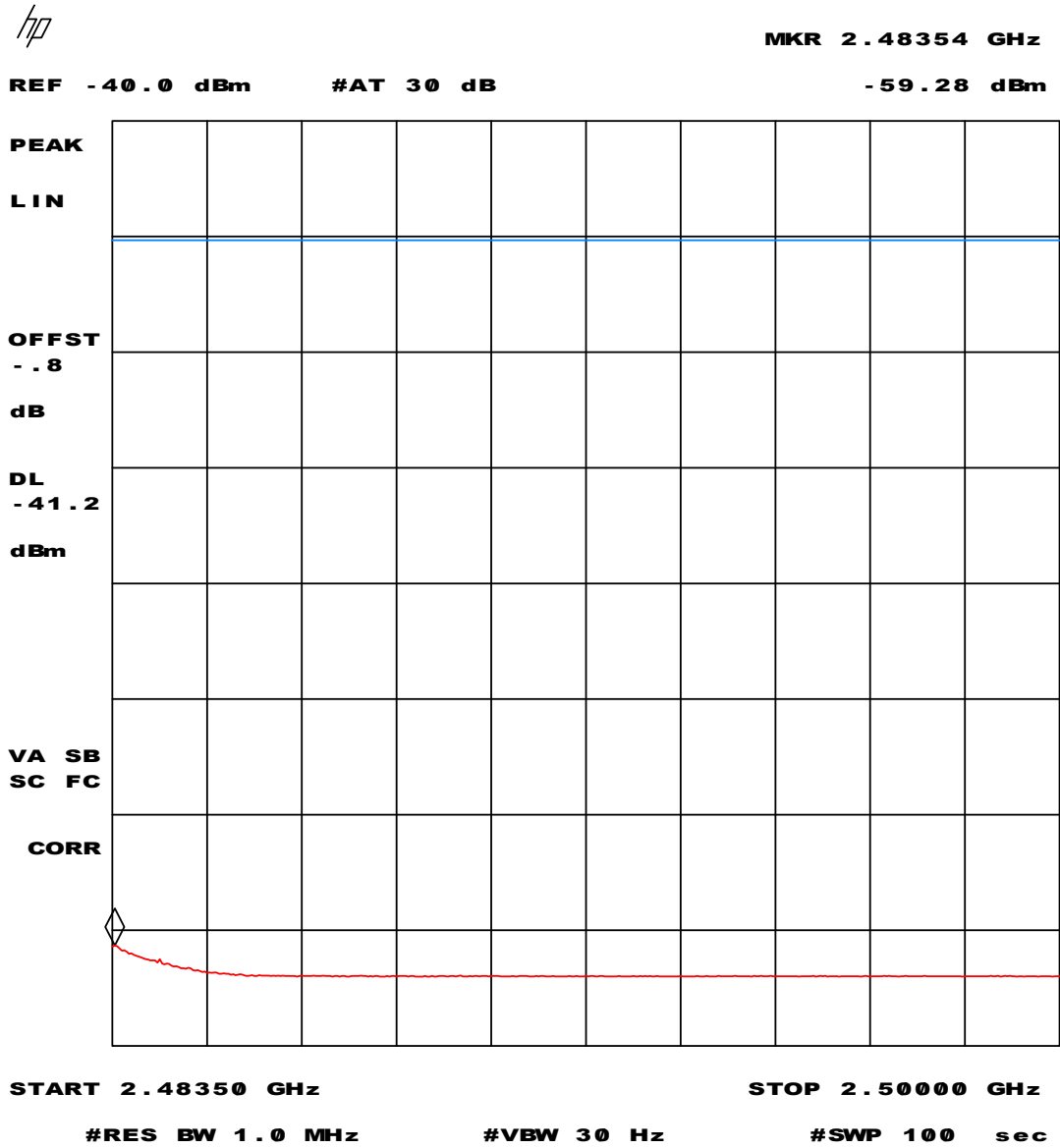
Plot 6 - Peak measurement values in restricted band 2310 - 2390 MHz.

Peak measurement values in restricted band, corrected for -2.0 dBi antenna gain (including antenna cable losses) and 1.2 dB cable losses (measurement cable)

Note: 74 dB μ V/m :: -21.2 dBm display line setting.



Test specification(s): 47 CFR Part 15 (2002-03-13)
 Description of EUT: Wireless Bluetooth Headset for clip-on
 Manufacturer: Sony Ericsson Mobile Communications
 Brand mark: Sony Ericsson
 Model: HBH-200
 Type: DDA-0001001
 FCC ID: PY7DDA-1001



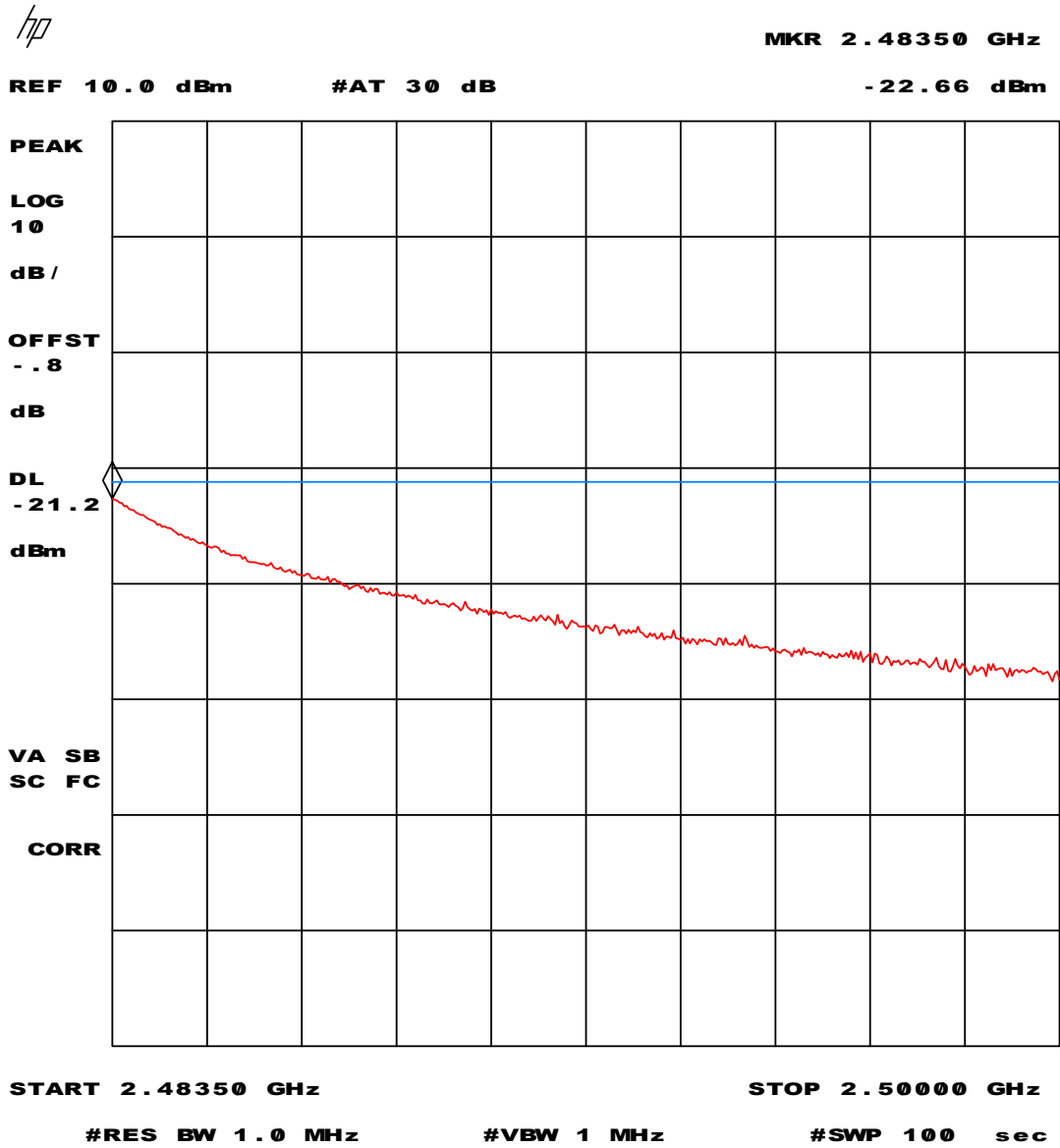
Plot 7 - Average measurement values in restricted band 2483.5 - 2500 MHz.

Average measurement values in restricted band, corrected for -2.0 dBi antenna gain (including antenna cable losses) and 1.2 dB cable losses (measurement cable)

Note: 54 dB μ V/m :: -41.2 dBm display line setting.



Test specification(s): 47 CFR Part 15 (2002-03-13)
Description of EUT: Wireless Bluetooth Headset for clip-on
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Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001



Plot 8 - Peak measurement values in restricted band 2483.5 - 2500 MHz.

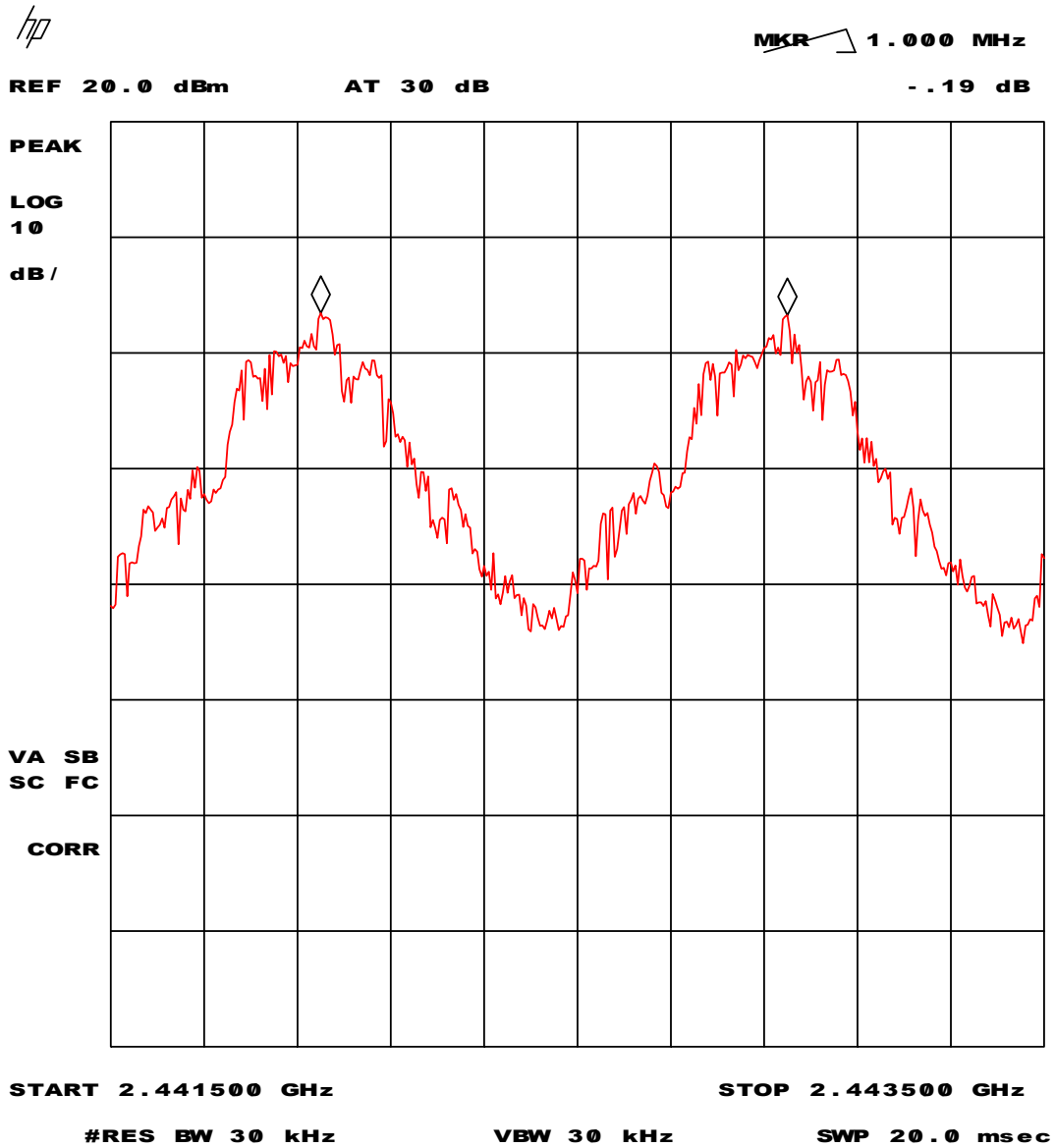
Peak measurement values in restricted band, corrected for -2.0 dBi antenna gain (including antenna cable losses) and 1.2 dB cable losses (measurement cable)

Note: 74 dB μ V/m :: -21.2 dBm display line setting.



Test specification(s): 47 CFR Part 15 (2002-03-13)
Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

5.2 Carrier frequency separation

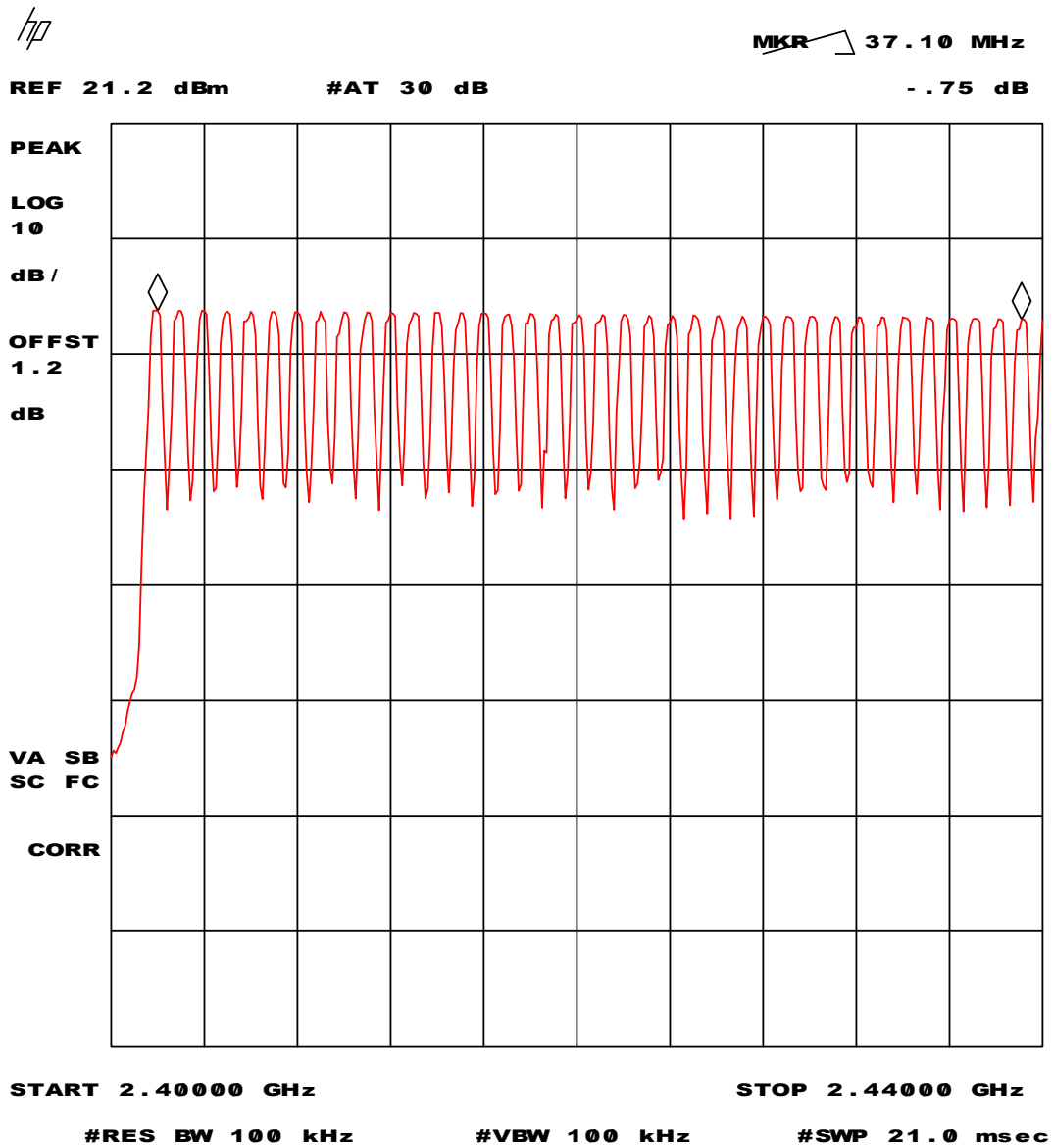


Plot 9 – Carrier frequency separation



Test specification(s): 47 CFR Part 15 (2002-03-13)
Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

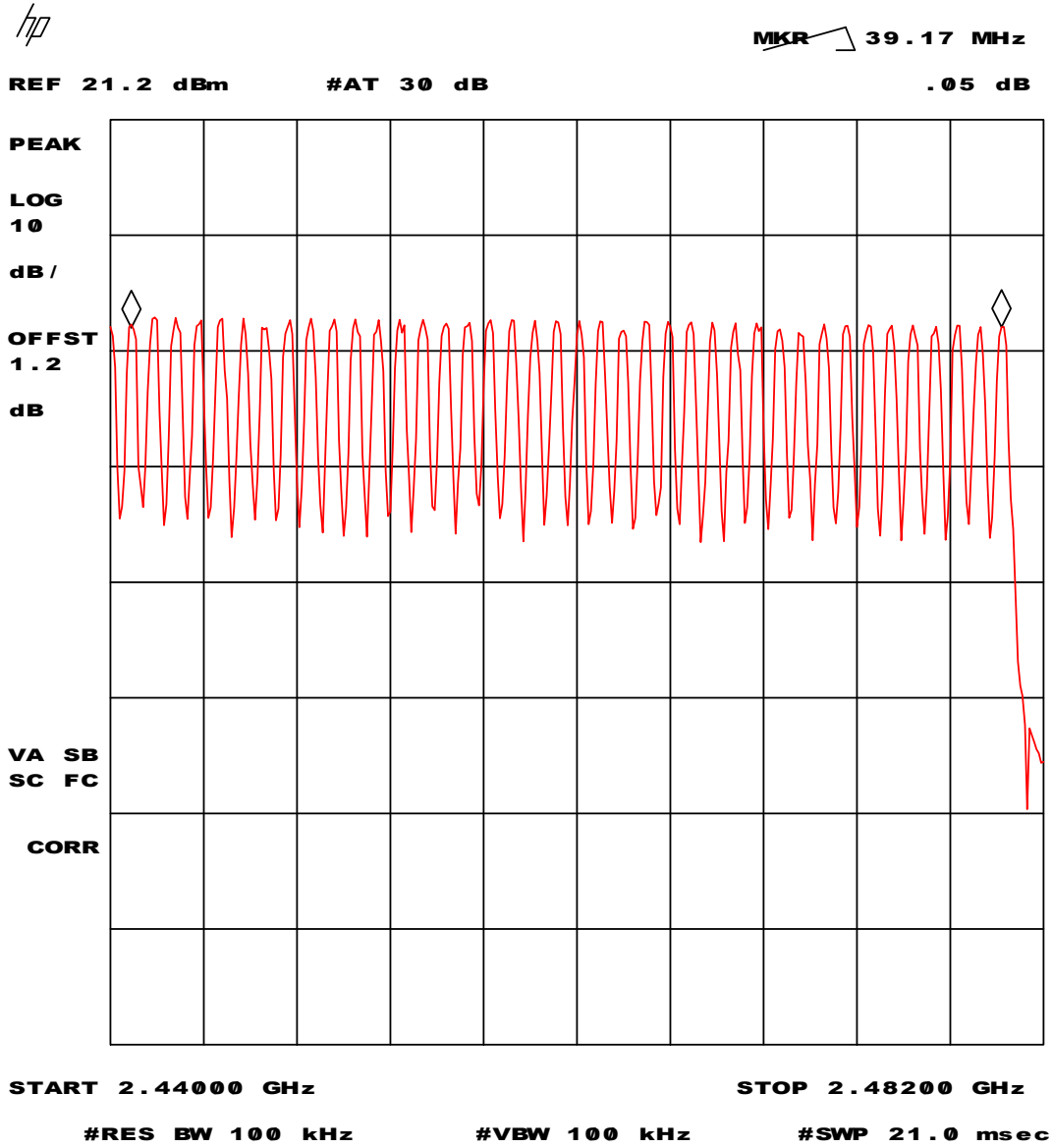
5.3 Number of hopping channels



Plot 10a – Number of hopping channels, plot 1



Test specification(s): 47 CFR Part 15 (2002-03-13)
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Manufacturer: Sony Ericsson Mobile Communications
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FCC ID: PY7DDA-1001

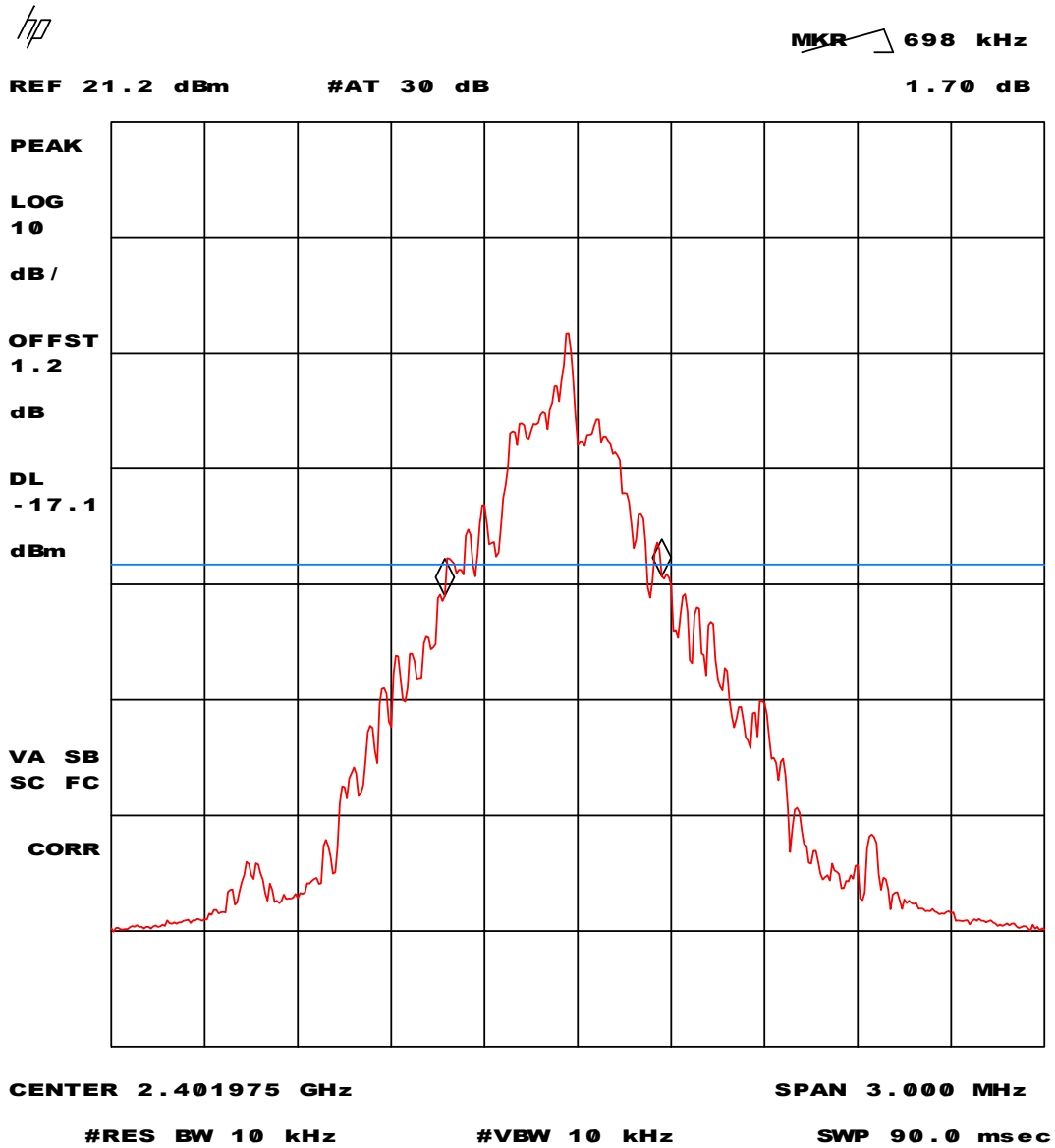


Plot 10b – Number of hopping channels, plot 2



Test specification(s): 47 CFR Part 15 (2002-03-13)
 Description of EUT: Wireless Bluetooth Headset for clip-on
 Manufacturer: Sony Ericsson Mobile Communications
 Brand mark: Sony Ericsson
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 FCC ID: PY7DDA-1001

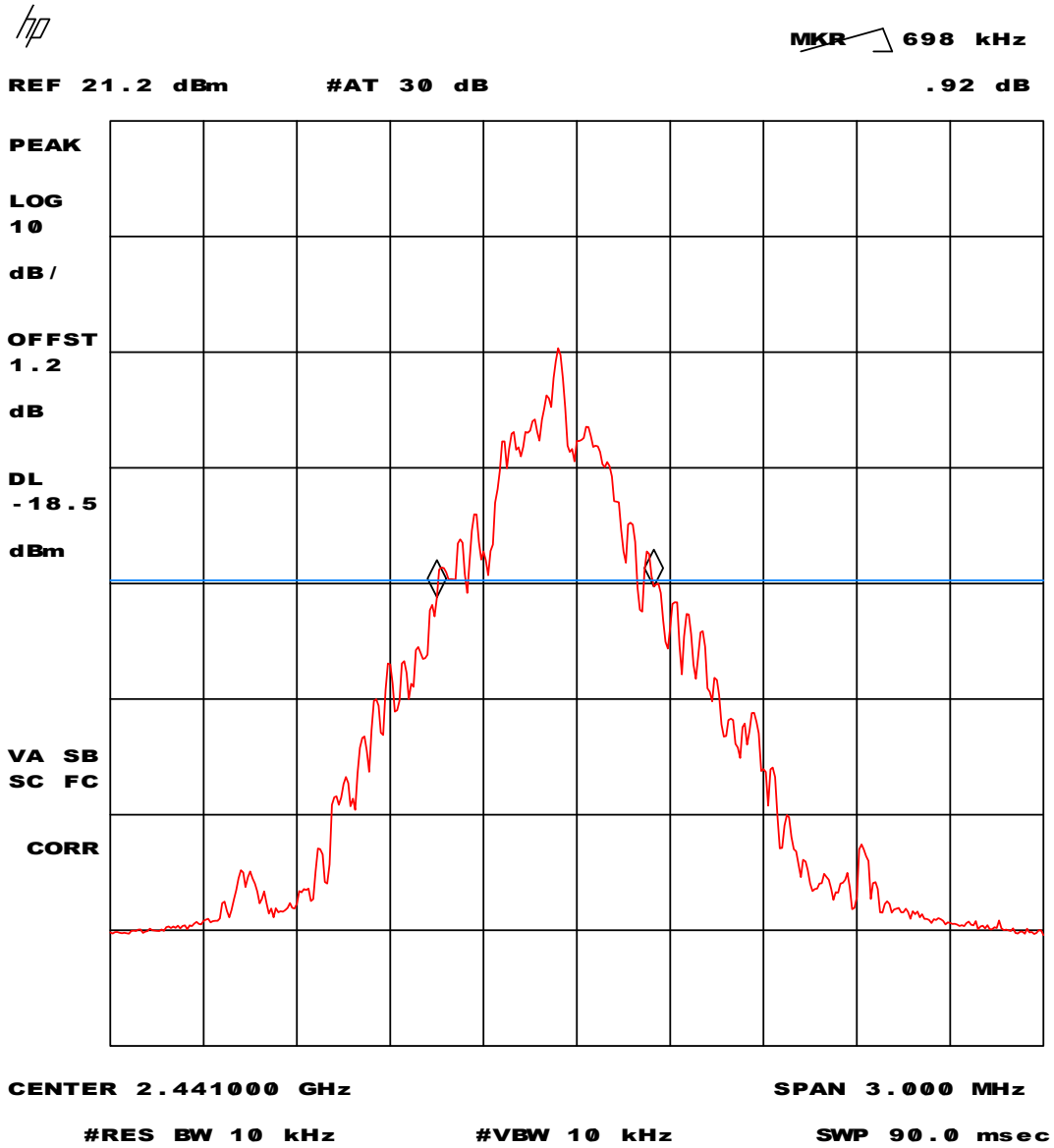
5.4 Spectrum bandwidth of a frequency hopping system



Plot 11 – Spectrum bandwidth of a transmission on channel 1 (2402 MHz).



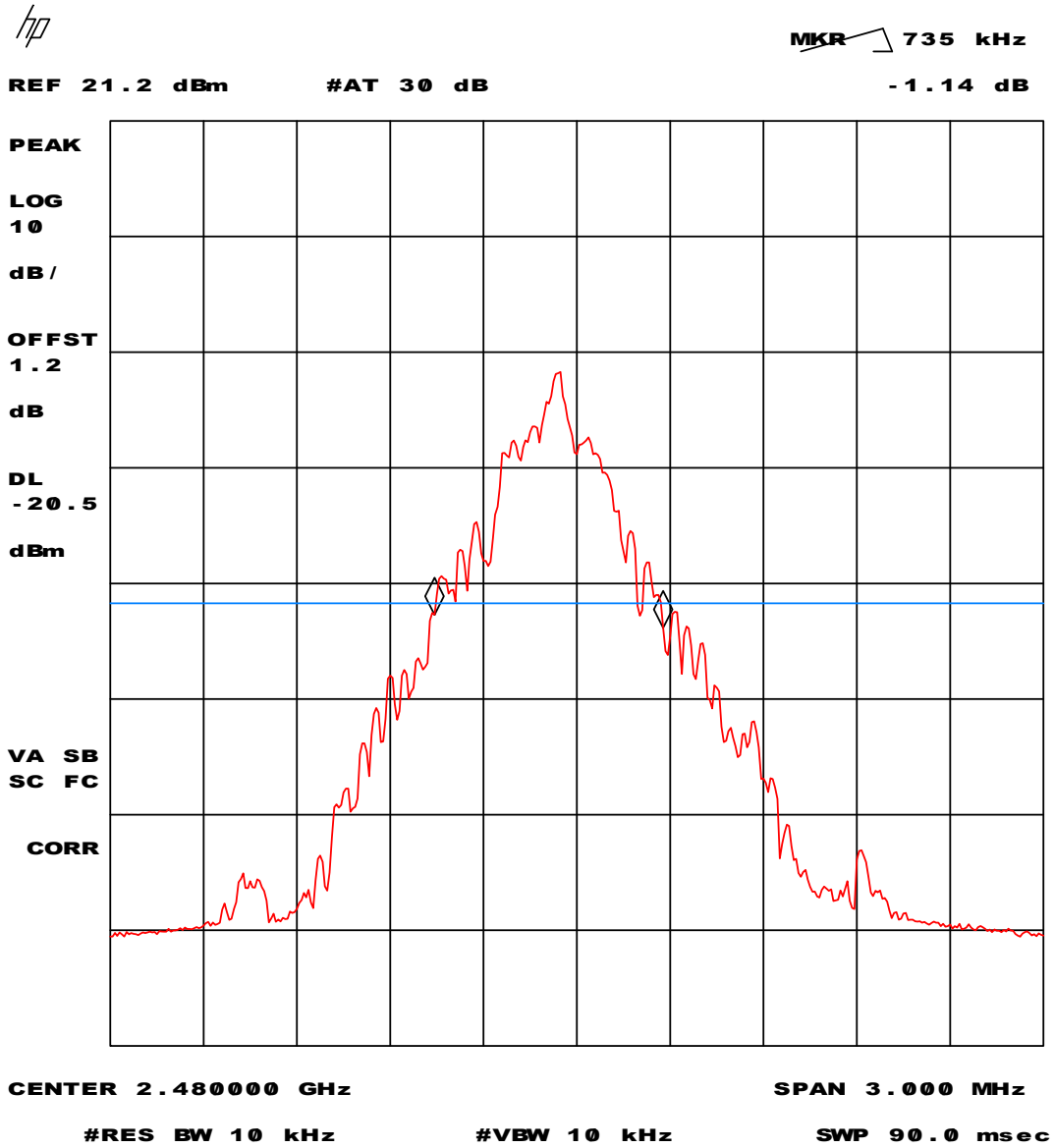
Test specification(s): 47 CFR Part 15 (2002-03-13)
Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
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Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001



Plot 12 – Spectrum bandwidth of a transmission on channel 2 (2441 MHz).



Test specification(s): 47 CFR Part 15 (2002-03-13)
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Type: DDA-0001001
FCC ID: PY7DDA-1001

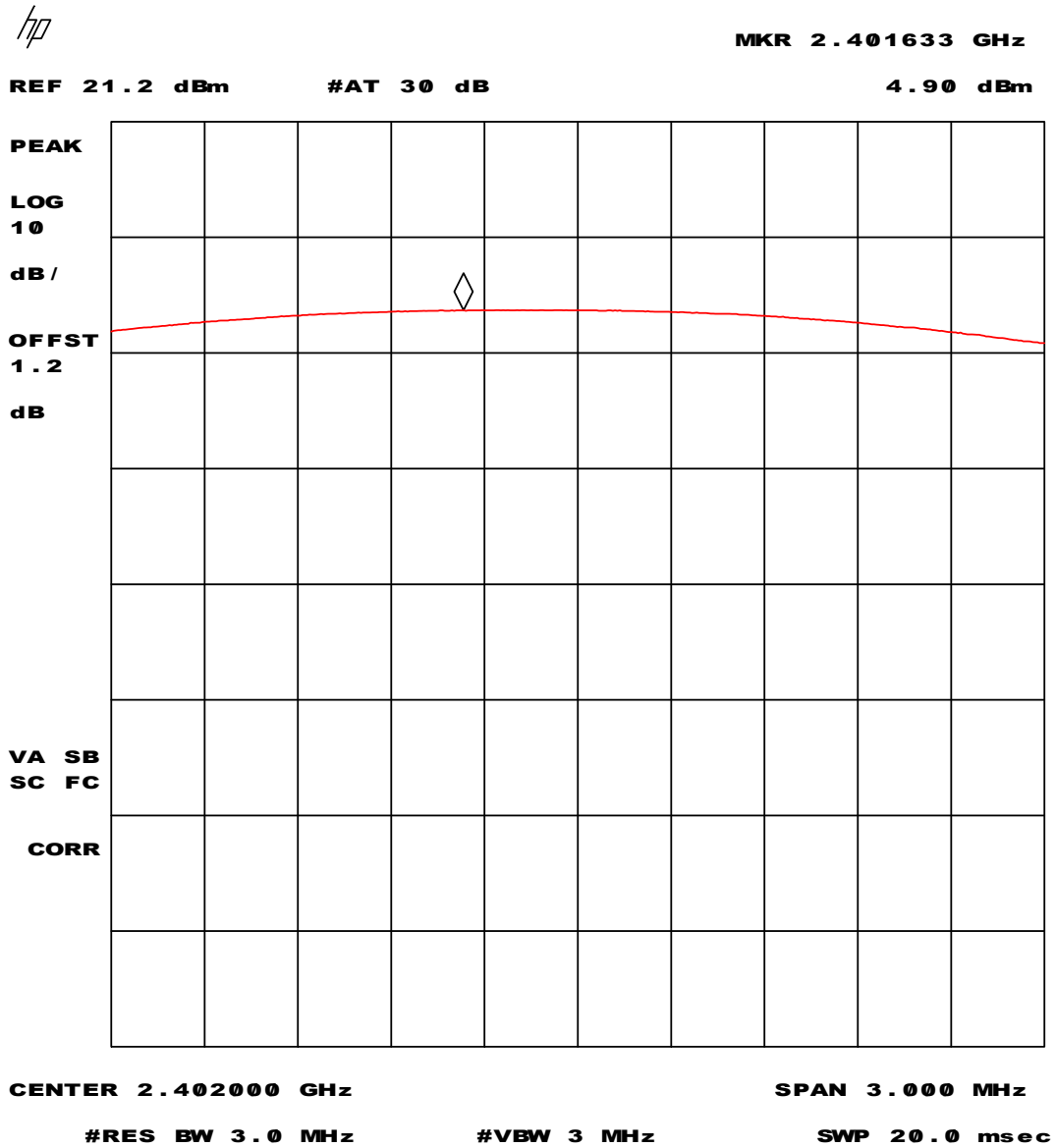


Plot 13 – Spectrum bandwidth of a transmission on channel 3 (2480 MHz).



Test specification(s): 47 CFR Part 15 (2002-03-13)
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 Manufacturer: Sony Ericsson Mobile Communications
 Brand mark: Sony Ericsson
 Model: HBH-200
 Type: DDA-0001001
 FCC ID: PY7DDA-1001

5.5 Maximum peak output power

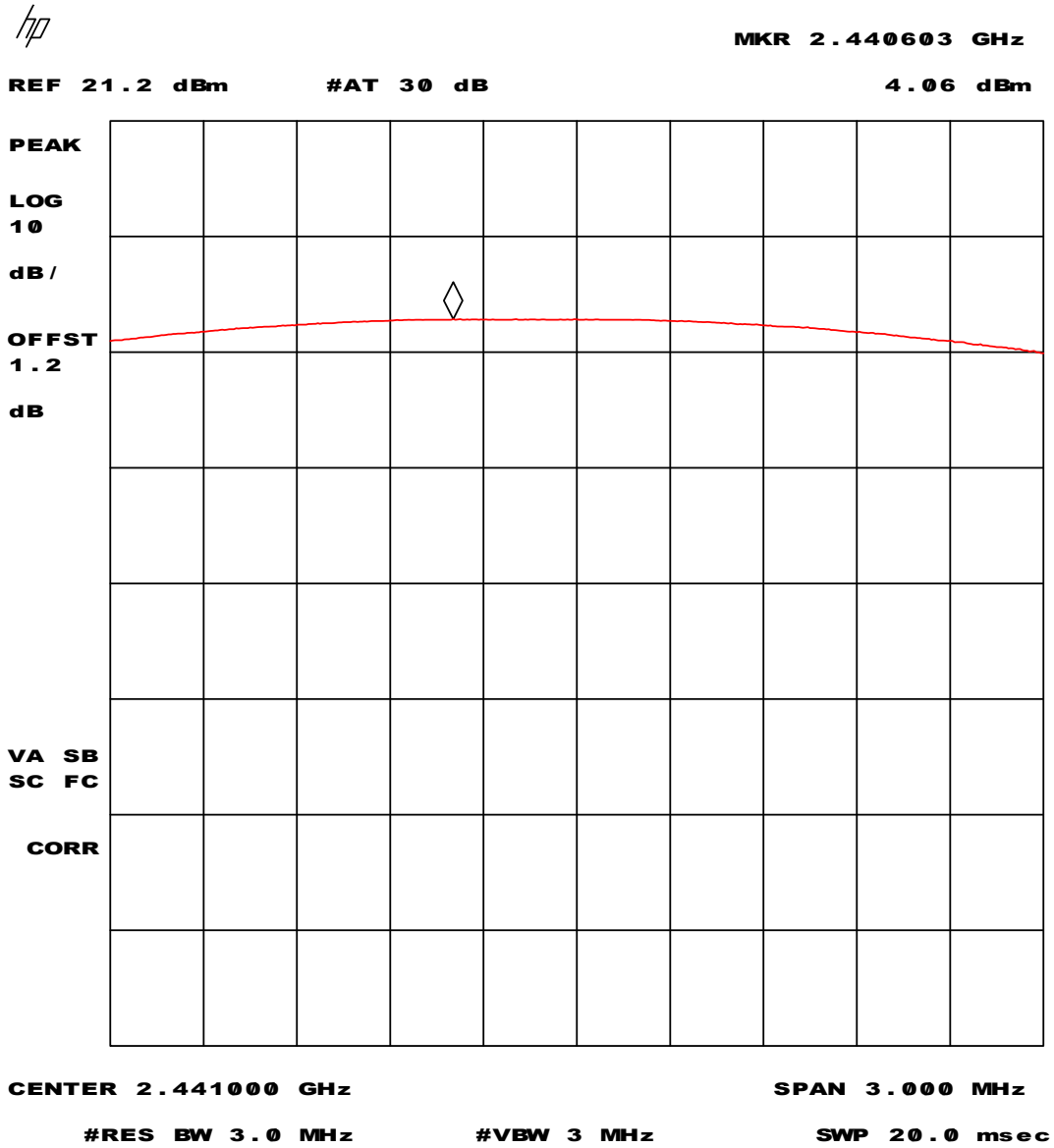


Plot 14 – Maximum conducted peak output power of a transmission on channel 1 (2402 MHz)

Maximum conducted peak output power, corrected (offset) for cable losses.



Test specification(s): 47 CFR Part 15 (2002-03-13)
 Description of EUT: Wireless Bluetooth Headset for clip-on
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 FCC ID: PY7DDA-1001

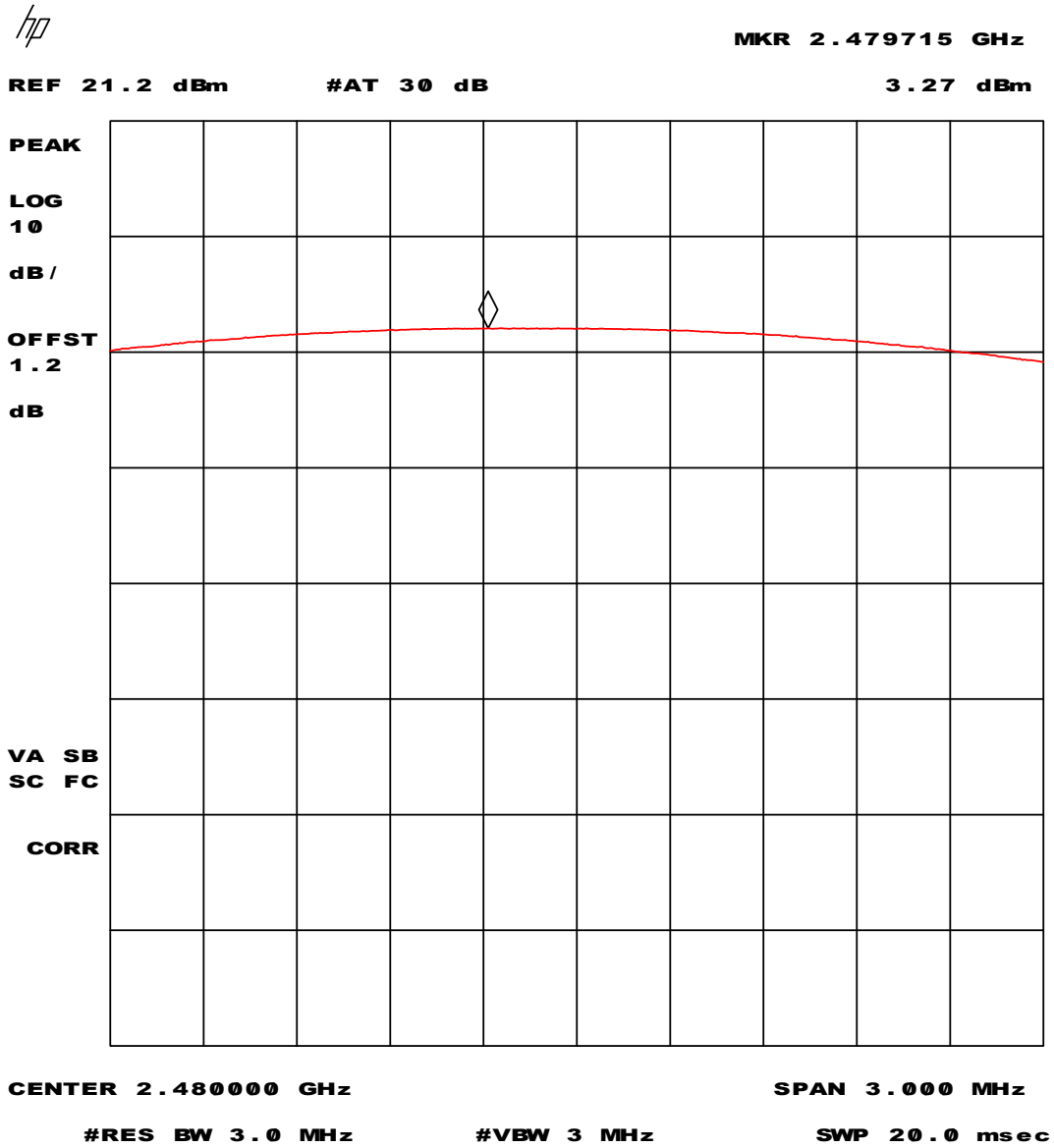


Plot 15 – Maximum conducted peak output power of a transmission on channel 2 (2441 MHz)

Maximum conducted peak output power, corrected (offset) for cable losses.



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Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001



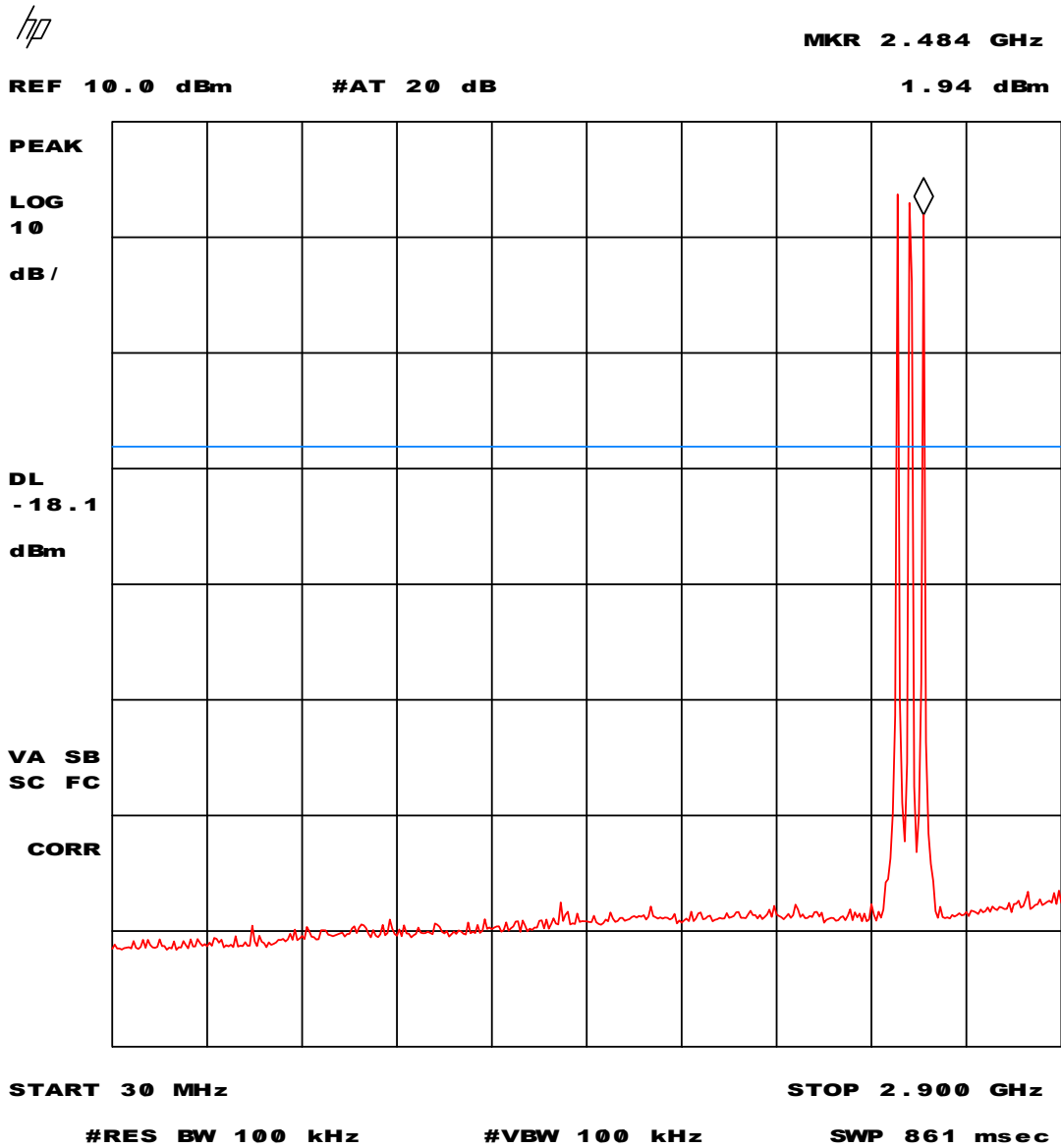
Plot 16 – Maximum conducted peak output power of a transmission on channel 3 (2480 MHz)

Maximum conducted peak output power, corrected (offset) for cable losses.



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Type: DDA-0001001
FCC ID: PY7DDA-1001

5.6 Conducted emission data outside restricted bands

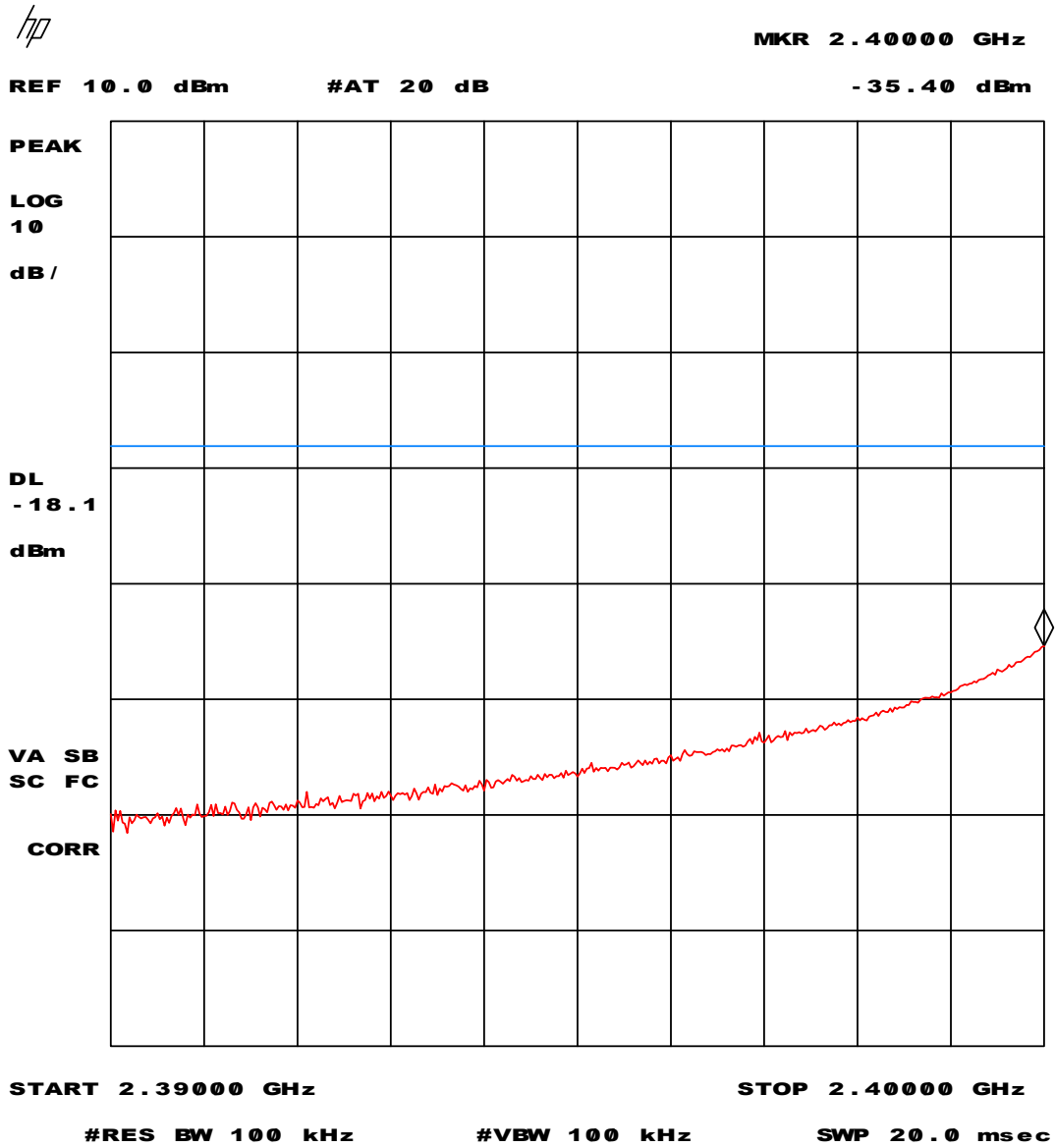


Plot 17 - Conducted emission outside restricted bands.

Conducted emission data outside restricted bands in a 100 kHz bandwidth shall be at least 20 dB below the highest level in a 100 kHz bandwidth within the band. Display line :: -20 dB limit line. Corrected (offset) for cable losses.



Test specification(s): 47 CFR Part 15 (2002-03-13)
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FCC ID: PY7DDA-1001

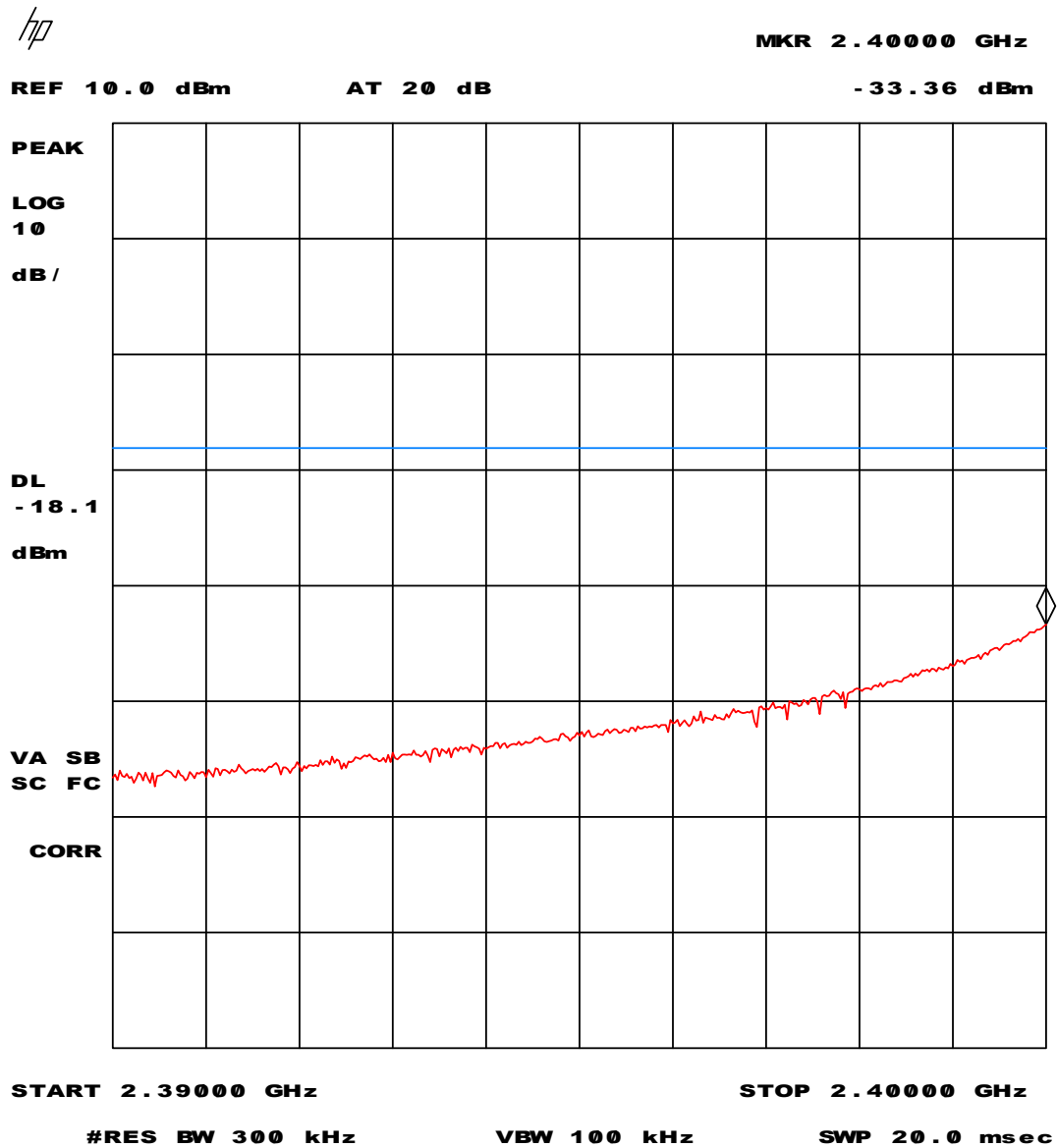


Plot 18 - Conducted emission outside restricted bands, hopping off.

Conducted emission data outside restricted bands in a 100 kHz bandwidth shall be at least 20 dB below the highest level in a 100 kHz bandwidth within the band. Display line :: -20 dB limit line. Corrected (offset) for cable losses.



Test specification(s): 47 CFR Part 15 (2002-03-13)
Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

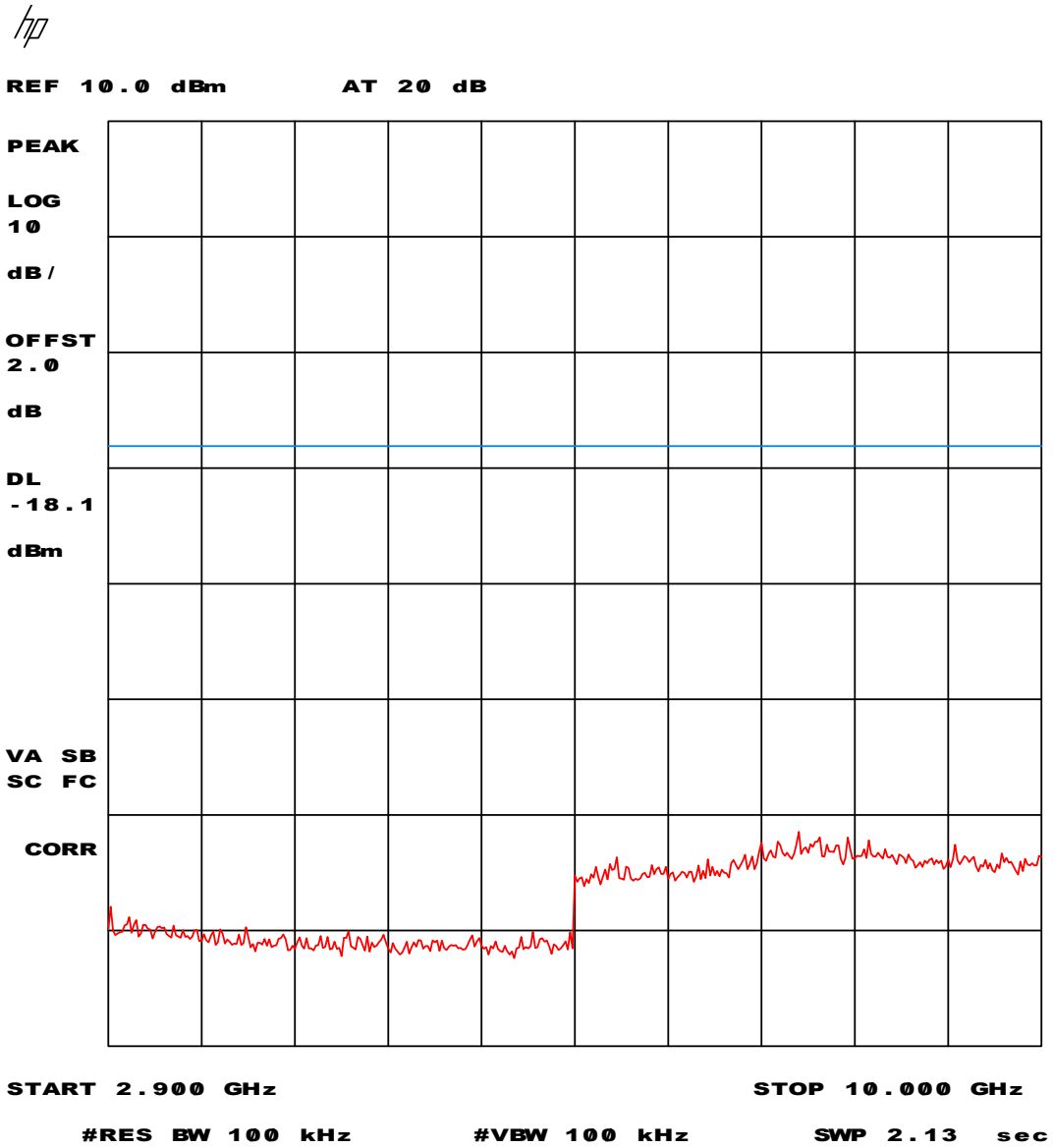


Plot 19 - Conducted emission outside restricted bands, hopping on.

Conducted emission data outside restricted bands in a 100 kHz bandwidth shall be at least 20 dB below the highest level in a 100 kHz bandwidth within the band. Display line :: -20 dB limit line. Corrected (offset) for cable losses.



Test specification(s): 47 CFR Part 15 (2002-03-13)
Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

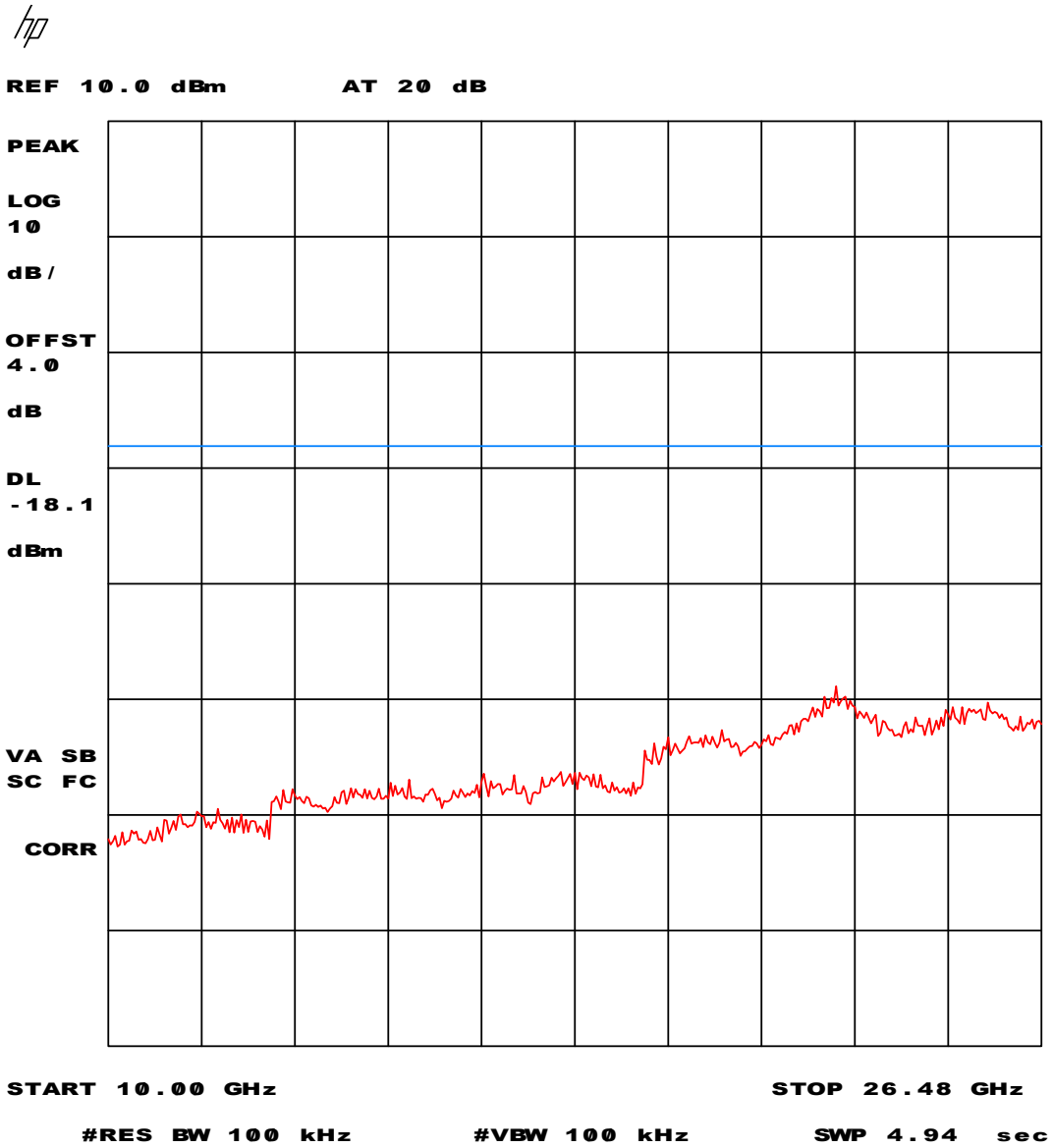


Plot 20 - Conducted emission outside restricted band.

Conducted emission data outside restricted bands in a 100 kHz bandwidth shall be at least 20 dB below the highest level in a 100 kHz bandwidth within the band. Display line :: -20 dB limit line. Corrected (offset) for cable losses.



Test specification(s): 47 CFR Part 15 (2002-03-13)
 Description of EUT: Wireless Bluetooth Headset for clip-on
 Manufacturer: Sony Ericsson Mobile Communications
 Brand mark: Sony Ericsson
 Model: HBH-200
 Type: DDA-0001001
 FCC ID: PY7DDA-1001



Plot 21 - Conducted emission outside restricted band.

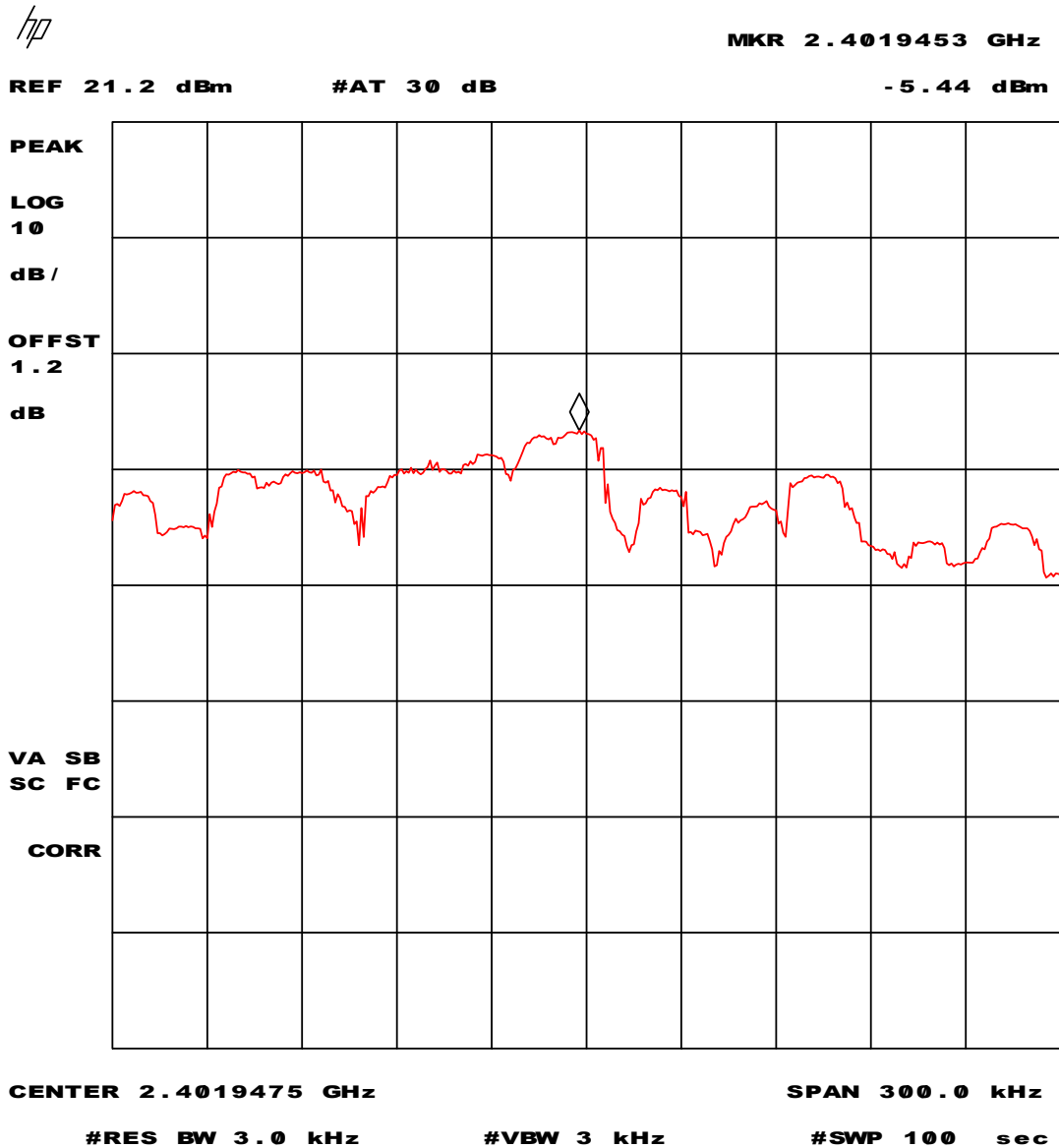
Conducted emission data outside restricted bands in a 100 kHz bandwidth shall be at least 20 dB below the highest level in a 100 kHz bandwidth within the band. Display line :: -20 dB limit line. Corrected (offset) for cable losses.



Test specification(s): 47 CFR Part 15 (2002-03-13)
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Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

5.7 Peak power spectral density

5.7.1 Hopping mode (transmission while hopping on all 79 hopping frequencies)

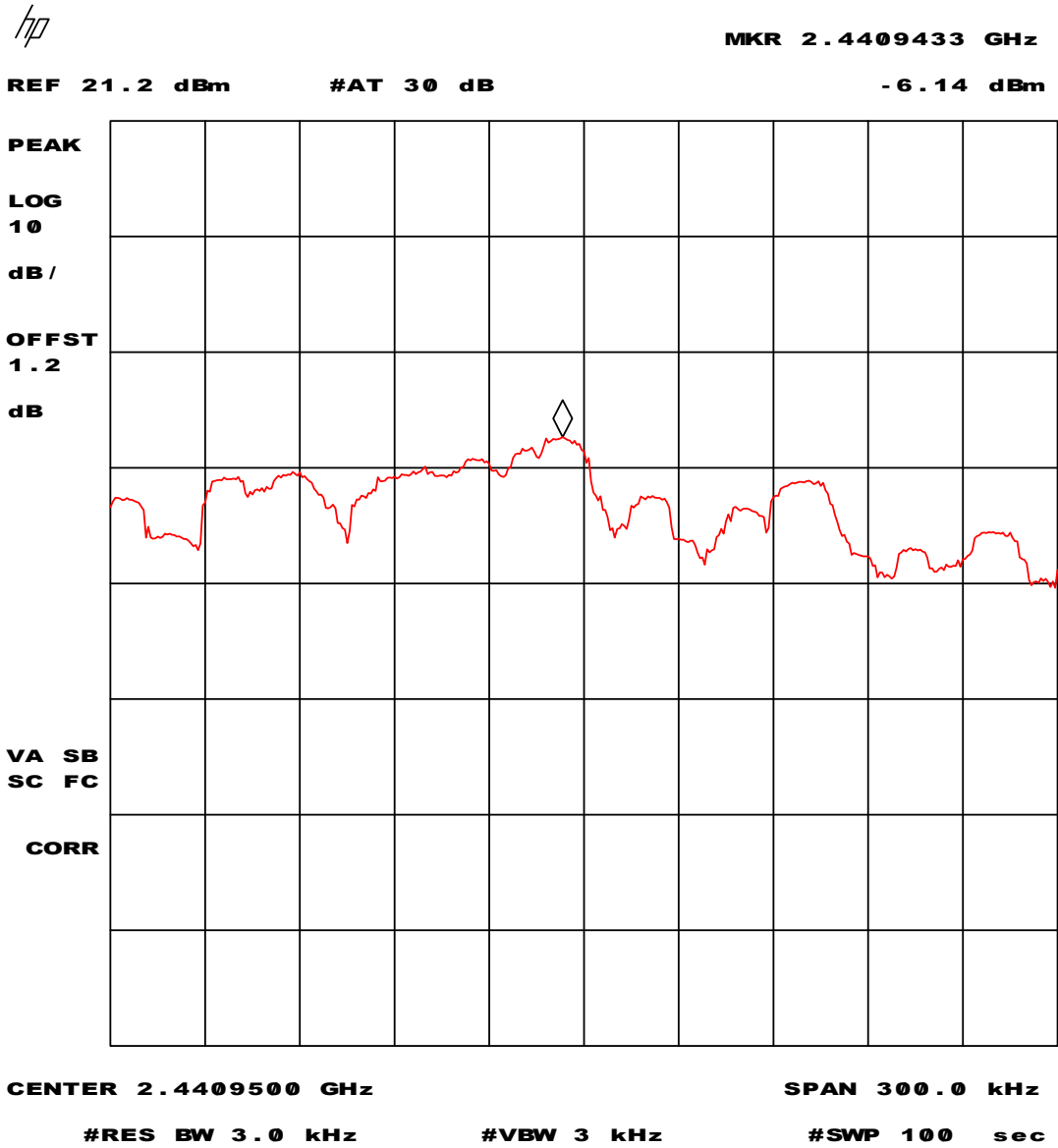


Plot 22 - Peak power spectral density (conducted) in any 3 kHz band while transmitting on channel 1, hopping mode.

Peak power spectral density (conducted) in a 3 kHz bandwidth, corrected (offset) for cable losses.



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 Brand mark: Sony Ericsson
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 FCC ID: PY7DDA-1001

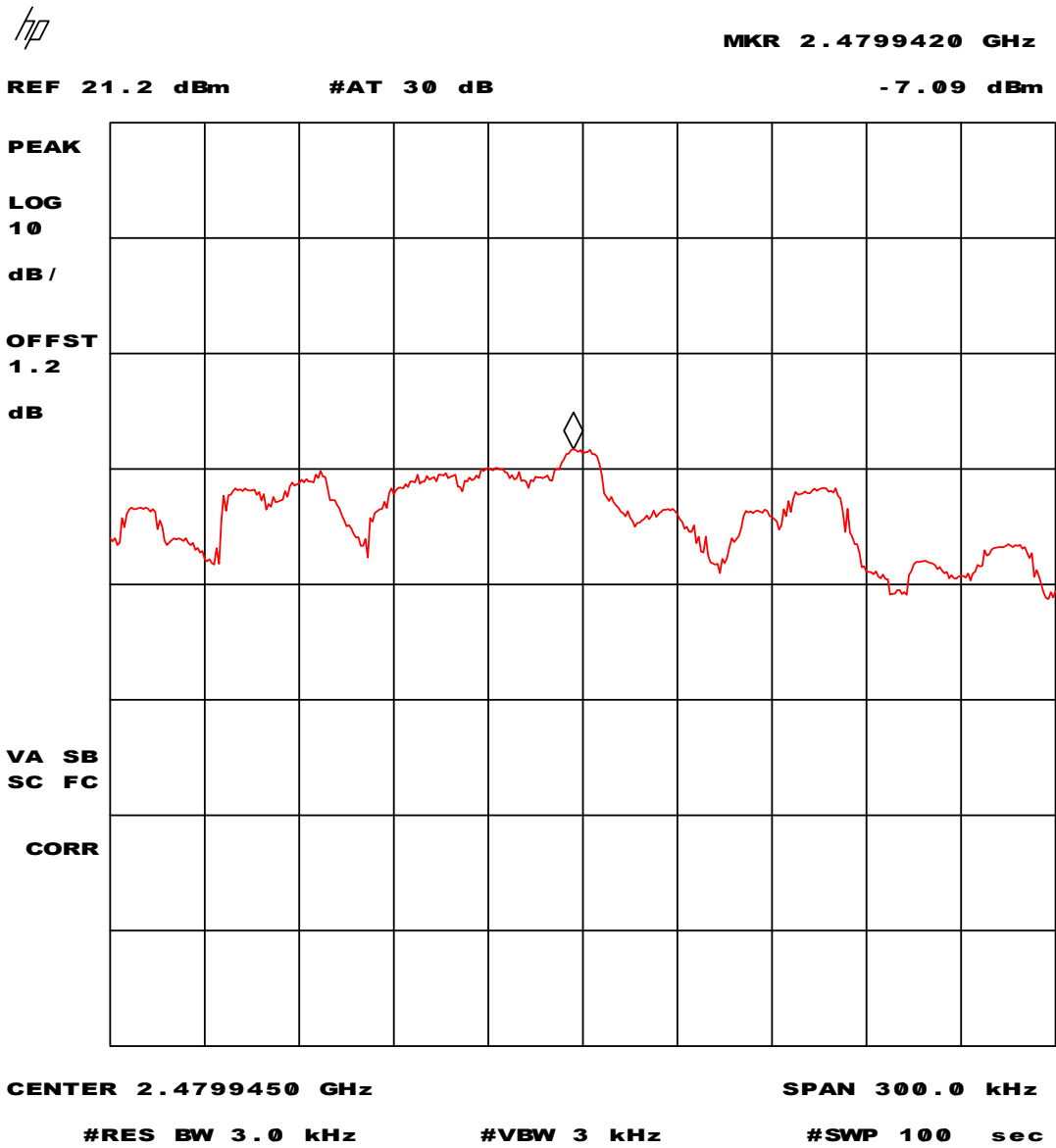


Plot 23 - Peak power spectral density (conducted) in any 3 kHz band while transmitting on channel 2, hopping mode.

Peak power spectral density (conducted) in a 3 kHz bandwidth, corrected (offset) for cable losses.



Test specification(s): 47 CFR Part 15 (2002-03-13)
 Description of EUT: Wireless Bluetooth Headset for clip-on
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 Brand mark: Sony Ericsson
 Model: HBH-200
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 FCC ID: PY7DDA-1001



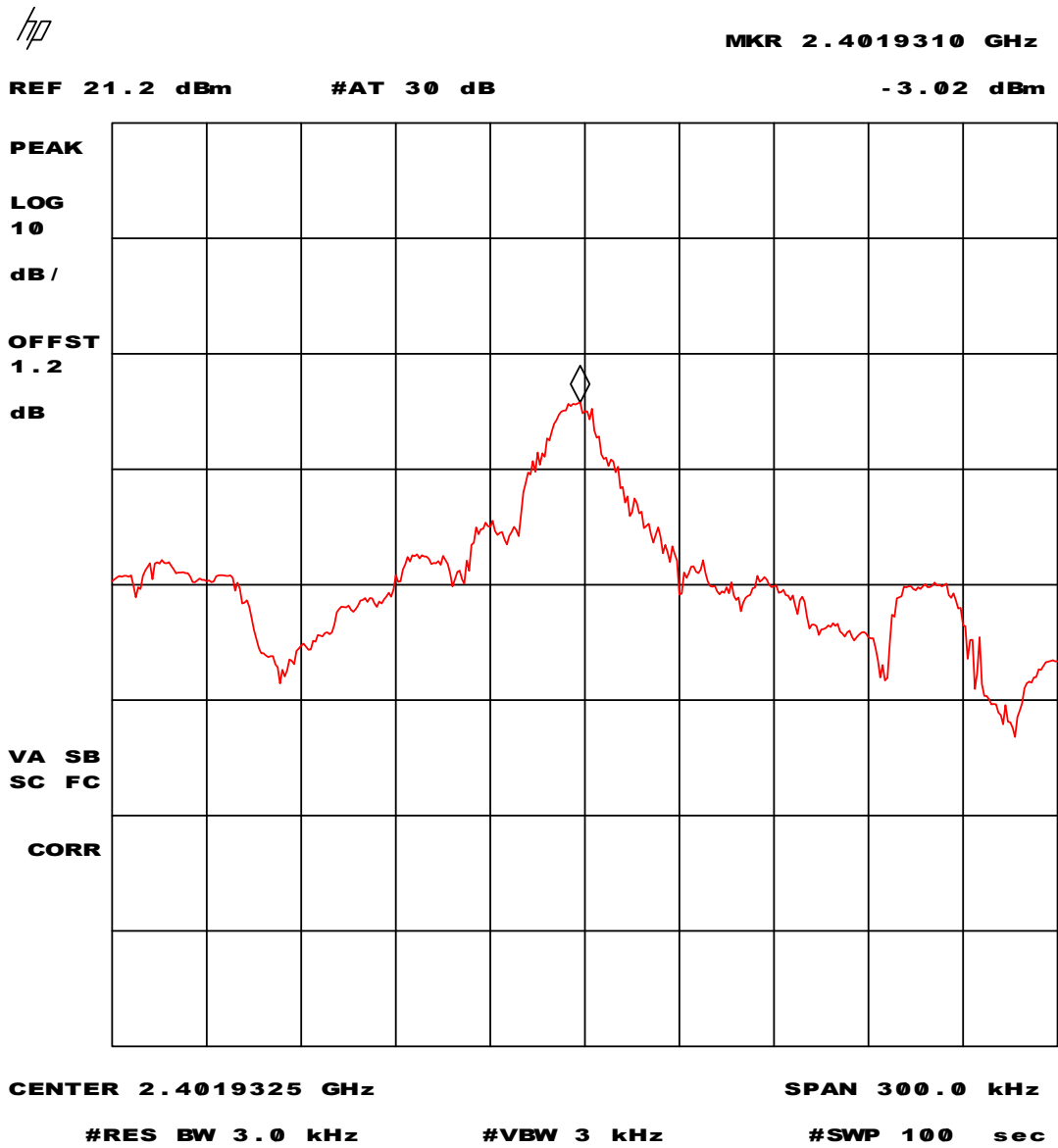
Plot 24 - Peak power spectral density (conducted) in any 3 kHz band while transmitting on channel 3, hopping mode.

Peak power spectral density (conducted) in a 3 kHz bandwidth, corrected (offset) for cable losses.



Test specification(s): 47 CFR Part 15 (2002-03-13)
 Description of EUT: Wireless Bluetooth Headset for clip-on
 Manufacturer: Sony Ericsson Mobile Communications
 Brand mark: Sony Ericsson
 Model: HBH-200
 Type: DDA-0001001
 FCC ID: PY7DDA-1001

5.7.2 Page scan mode

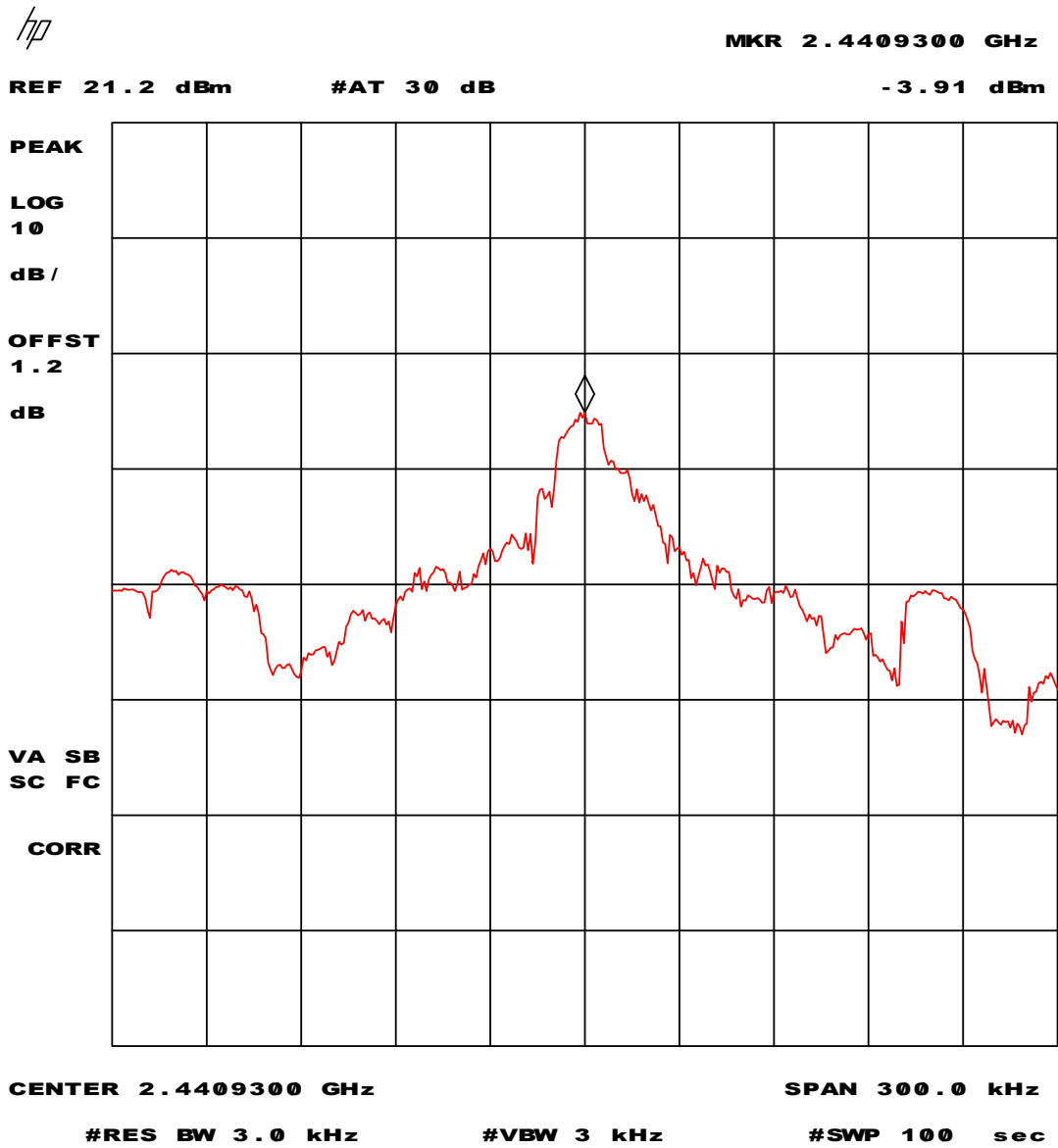


Plot 25 - Peak power spectral density (conducted) in any 3 kHz band while transmitting on channel 1, Page scan mode.

Peak power spectral density (conducted) in a 3 kHz bandwidth, corrected (offset) for cable losses.



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Brand mark: Sony Ericsson
Model: HBH-200
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FCC ID: PY7DDA-1001

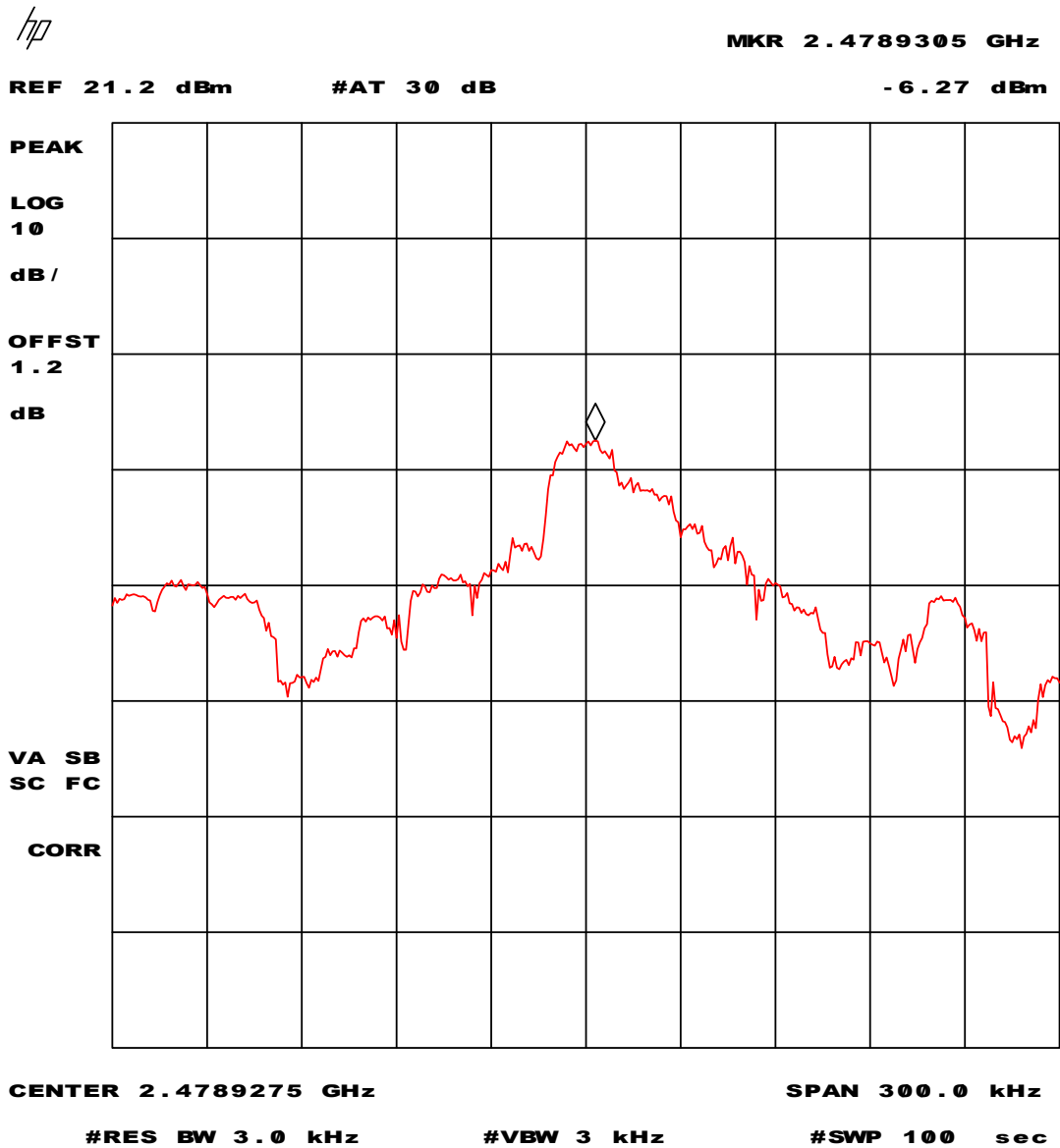


Plot 26 - Peak power spectral density (conducted) in any 3 kHz band while transmitting on channel 2, Page scan mode.

Peak power spectral density (conducted) in a 3 kHz bandwidth, corrected (offset) for cable losses.



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FCC ID: PY7DDA-1001



Plot 27 - Peak power spectral density (conducted) in any 3 kHz band while transmitting on channel 3, Page scan mode.

Peak power spectral density (conducted) in a 3 kHz bandwidth, corrected (offset) for cable losses.



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Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

6 List of utilized test equipment

Inventory number	Description	Brand	Model
12471	Biconical antenna 20MHz-200MHz	EATON	94455-1
12473	Log-per antenna 200-1000MHz	EATON	96005
12476	Antenna mast	EMCO	TR3
12477	Antenna mast 1-4 mtr	Poelstra	--
12482	Loop antenna	EMCO	6507
12483	Guidehorn	EMCO	3115
12484	Guidehorn	EMCO	3115
12488	Guidehorn 18 - 26.5 GHz	EMCO	RA42-K-F-4B-C
12533	Signalgenerator	MARCONI	2032
12559	Digital storage oscilloscope	Le Croy	9310M
12561	DC Power Supply 20A/70V	DELTA	SM7020D
12567	Plotter	HP	7440A
12605	Calibrated dipole 28MHz-1GHz	Emco	3121c
12608	HF milliwattmeter	Hewlett Packard	HP435a
12609	Power sensor 10MHz-18GHz	Hewlett Packard	HP8481A
12636	Polyester chamber	Polyforce	--
12640	Temperature chamber	Heraeus	VEM03/500
13664	Spectrum analyzer	HP	HP8593E
13078	Preamplifier 0.1 GHz - 12 GHz	Miteq	AMF-3D-001120-35-14p
13452	Digital multi meter	HP	34401A
13526	Signalgenerator 20 GHz	Hewlett & Packard	83620A
13594	Preamplifier 10 GHz - 25 GHz	Miteq	AMF-6D-100250-10p
13886	Open Area testsite	Comtest	--
14051	Anechoic room	Comtest	--
14450	2.4 GHz bandrejectfilter	BSC	XN-1783
15633	Biconilog Testantenna	Chase	CBL 6111B
15667	Measuring receiver	R&S	ESCS 30
99045	DC Power Supply 3A/30V	DELTA	E030/3
99055	Non-conducting support	NMi	--
99061	Non-conducting support 150cm	NMi	--
99068	Detector N-F/BNC-F	Radiall	R451576000
99069	Cable 5m RG214	NMi	--
99071	Cable 10m RG214	NMi	--
99076	Bandpassfilter 4 - 10 GHz	Reactel	7AS-7G-6G-511
99077	Regulating trafo	RFT	LTS006
99112	Tripod	Chase	--
99136	Bandpassfilter 10 - 26.5 GHz	Reactel	9HS-10G/26.5G-S11



**47 CFR PART 15 TEST SETUP PHOTOGRAPHS OF A
BLUETOOTH HEADSET FOR CLIP-ON; STAND-
ALONE GSM ACCESSORY WITH INTEGRATED
RADIO,
BRAND SONY ERICSSON,
MODEL HBH-200
TYPE DDA-0001001**

FCC listed : 90828
Industry Canada : IC3501
VCCI registered : R-1518, C-1598

**TNO Electronic Products & Services (EPS) B.V.
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Smidshornerweg 18
9822 TL Niekerk (NL)**

Telephone: +31 594 505005
Telefax: +31 594 504804

E-mail: info@eps.tno.nl
Web: www.eps.tno.nl



Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

Description of test item

Test item : Wireless Bluetooth Headset for clip-on
Manufacturer : Sony Ericsson Mobile Communications
Brand : Sony Ericsson
Model : HBH-200
Type : DDA-0001001
Serial numbers : -
Receipt number : 3
Receipt date : August 18, 2003

Applicant information

Applicant's representative : Mr. H. Sjöberg
Company : Sony Ericsson Mobile Communications
Dep. LD/SEM/GUG/NV
Address : Nya Vattentornet
City : 221 88 Lund
Country : Sweden
Telephone number : +46 46 193559
Telefax number : +46 46 193295

This report is in conformity with NEN-EN-ISO/IEC 17025: 2000.

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



Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

Table of contents

1	Radiated emission test setup.....	4
1.1	Radiated emission test setup (front).....	4
1.2	Radiated emission test setup (back).....	5
1.3	Radiated emission, detail of test setup.....	6
2	Conducted emission test setup.....	7
2.1	Conducted emission test setup (front).....	7
2.2	Conducted emission test setup (back).....	8



Description of EUT: Wireless Bluetooth Headset for clip-on
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Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001
FCC ID: PY7DDA-1001

1 Radiated emission test setup.

1.1 Radiated emission test setup (front).





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FCC ID: PY7DDA-1001

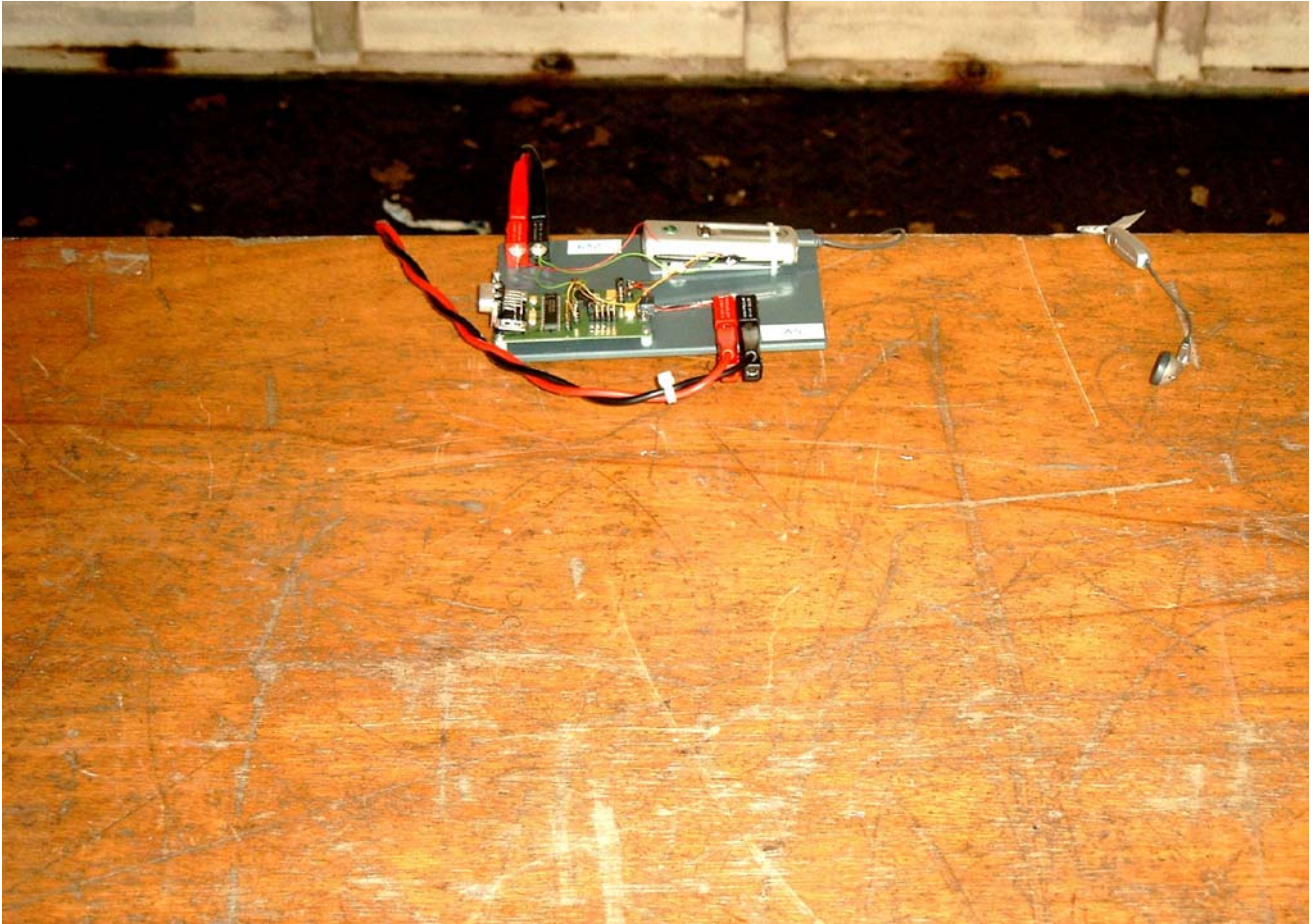
1.2 Radiated emission test setup (back).





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Type: DDA-0001001
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1.3 Radiated emission, detail of test setup.





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2 Conducted emission test setup.

2.1 Conducted emission test setup (front).





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Brand mark: Sony Ericsson
Model: HBH-200
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2.2 Conducted emission test setup (back).





**PHOTOGRAPHS OF A 2.4 GHz WIRELESS
BLUETOOTH HEADSET FOR CLIP-ON; STAND-
ALONE GSM ACCESSORY WITH INTEGRATED
RADIO,
BRAND SONY ERICSSON,
MODEL HBH-200
TYPE DDA-0001001**

FCC listed : 90828
Industry Canada : IC3501

TNO Electronic Products & Services (EPS) B.V.
P.O. Box 15
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9822 TL Niekerk (NL)

Telephone: +31 594 505005
Telefax: +31 594 504804

E-mail: info@eps.tno.nl



Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001

Description of test item

Test item : Wireless Bluetooth Headset for clip-on
Manufacturer : Sony Ericsson Mobile Communications
Brand : Sony Ericsson
Model : HBH-200
Type : DDA-0001001
Serial numbers : -
Receipt number : 3
Receipt date : August 18, 2003

Applicant information

Applicant's representative : Mr. H. Sjöberg
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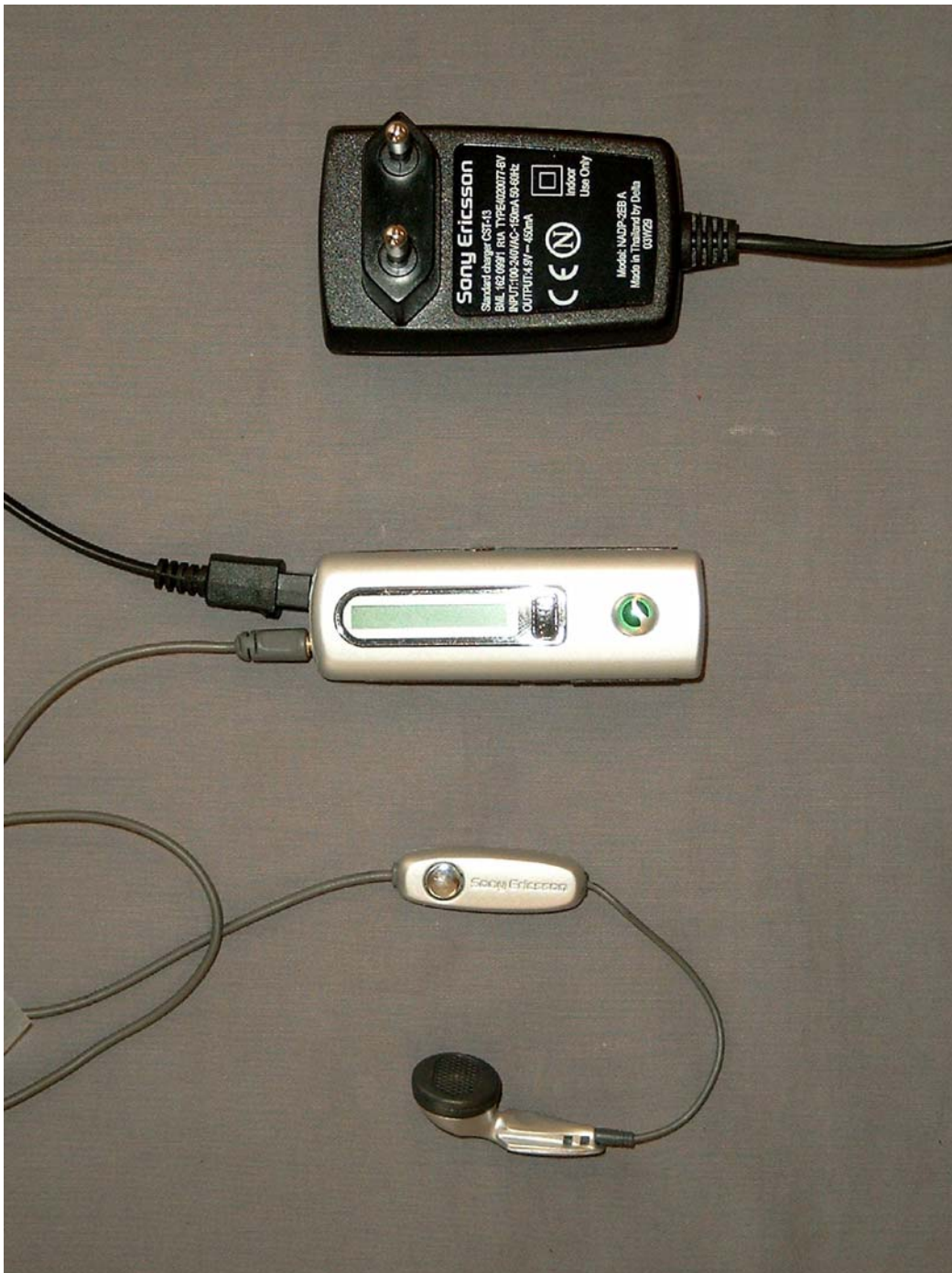
Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001

Table of contents

1	Photographs of the equipment.....	4
1.1	Front view.....	4
1.2	Rear view.....	5
1.3	Internal view 1.....	6
1.4	Internal view 2.....	7

1 Photographs of the equipment.

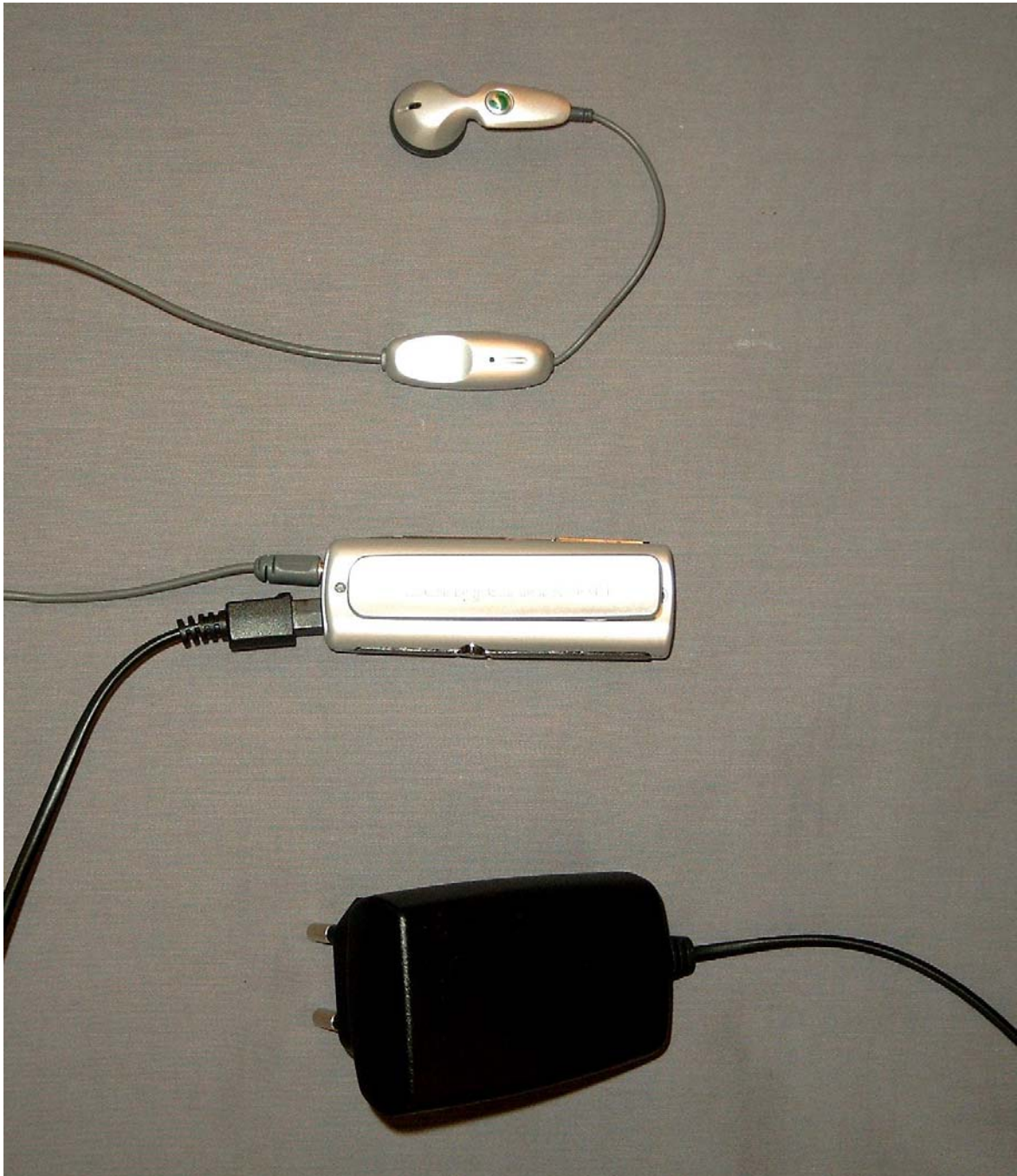
1.1 Front view.





Description of EUT: Wireless Bluetooth Headset for clip-on
Manufacturer: Sony Ericsson Mobile Communications
Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001

1.2 Rear view.





Description of EUT: Wireless Bluetooth Headset for clip-on
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Brand mark: Sony Ericsson
Model: HBH-200
Type: DDA-0001001

1.3 Internal view 1.





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Type: DDA-0001001

1.4 Internal view 2.

