

Straubing, February 25, 1999

TEST - REPORT

No. 56502-90128-1

for

Sesam 503

Variant covered by this report:

Sesam 501

Remote control transmitter (433.92 MHz)

Applicant: Akerströms Björbo AB

Purpose of testing: To show compliance with

FCC Code of Federal Regulations,
Part 15 Subpart C, Section §15.231

Industry Canada Radio Standards
Specification RSS-210 Issue 2,
Section 6.1 (Category I Equipment)

Note:

The test data of this report relate only to the individual item which has been tested.
This report shall not be reproduced except in full extent without the written approval
of the testing laboratory.

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1. Administrative Data

Equipment Under Test (EUT): Sesam 503
Serial number: 92 1863-000
Type of equipment: Remote control transmitter (433.92 MHz)
Parts/accessories: ---
FCC-ID: OG4S500ST

Applicant: Akerströms Björbo AB
(full address) S-780 45 Björbo
Sweden
Contract identification: ---
Contact person: Mr. Bernt Eriksson
Manufacturer: Akerströms Björbo AB

Receipt of EUT: February 15, 1999
Date of test: February 16 to February 18, 1999
Note:

Test Laboratory: Senton GmbH EMI/EMC Test Center
(full address): Aeussere Fruehlingstrasse 45
D-94315 Straubing
Germany
Contact person: Mr. Johann Roidt
FCC file number: 31040/SIT 1300F2
Industry Canada file number: IC 3050

Responsible for testing: Thomas Eberl
Responsible for test report: Thomas Eberl

2. Summary of Test Results

The tested sample complies with the requirements set forth in the

Code of Regulations Part 15 Subpart C, Section §15.231 (intentional radiators) of the Federal Communication Commission (FCC)

and the

Radio Standards Specification RSS-210 Issue 2, Section 6.1 for Low Power Licence-Exempt Radiocommunication Devices of Industry Canada.

Johann Roidt
Technical Manager

Thomas Eberl
Test Engineer

3. Operation Mode of EUT

EUT is transmitting continuously with modulation, supplied by battery (9 V DC)

4. Configuration of EUT and Peripheral Devices

Configuration of EUT

EUT is configured as stand-alone device

Configuration of cables of EUT

Not applicable

Configuration of peripheral devices connected to EUT

Not applicable

5. Measuring Methods

5.1. Bandwidth of Emission(FCC §15.231.c / RSS-210 Section 6.1.1.c)

The Bandwidth of Emission is measured with a spectrum analyzer connected to measuring antenna (radiated measurement) or test fixture while EUT is operating in transmit mode with modulation at the appropriate center frequency. To increase received signal level distance to EUT is reduced (appropriate level offset is included).

The spectrum analyzer was set to:

RBW = 10 kHz, VBW = 10 kHz, span = 1 MHz, sweep = 40 ms

See figure 1 for the measurement setup.

Test equipment used (see equipment list for details):

02, 55, 67

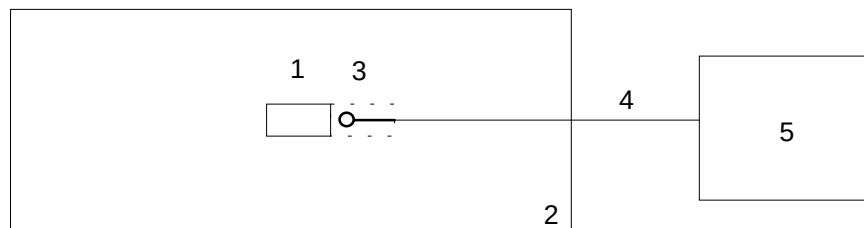


Figure 1: Measurement setup for bandwidth of emission test

1 Transmitter (EUT)

2 Wooden table

3 Test fixture

4 Test cable

5 Spectrum analyzer

**5.2. Radiated Emission 30 MHz - 1 GHz (FCC
§15.205.a,b, §15.209, §15.231.b / RSS-210 Sections 6.1.1.b, 6.3)**

Radiated emissions are measured over the frequency range from 30 MHz to 1 GHz. The bandwidth of the EMI-receiver is set to 120 kHz and the detector-function is set to CISPR quasi-peak.

The test setup is made in accordance with ANSI C63.4-1992.

Measurements are made in both the horizontal and vertical planes of polarization. Preliminary scans are taken in a semi-anechoic room using a spectrum analyzer with the detector function set to peak. Hand-held or body-worn devices are rotated through three orthogonal axes to determine which attitude and configuration produces the highest emission relative to the limit and therefore shall be used for final testing.

All tests are performed at a test-distance of 3 meters.

For final testing an open-area test-site is used. During the tests the EUT is rotated all around and the receiving-antenna is raised and lowered from 1 meter to 4 meters to find the maximum levels of emissions. The cables and equipment is placed and moved within the range of position likely to find their maximum emissions.

See figure 2 for the measurement setup.

Test equipment used (see equipment list for details):

01, 02, 05, 12, 38, 39, 40, 41, 58, 61, 64, 66

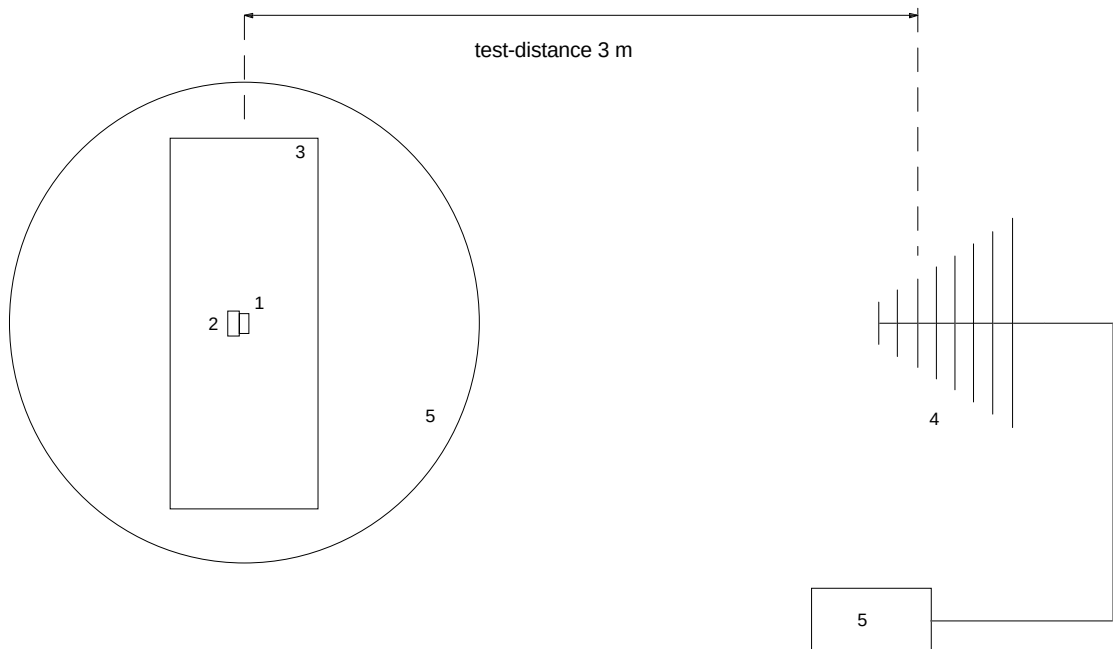


Figure 2: Measurement setup for radiated emission test below 1 GHz

- | | |
|---|------------------------------|
| 1 Transmitter (EUT) | 4 Measurement antenna |
| 2 Wooden pedestal (if necessary) | 5 Test receiver |
| 3 Wooden table | 6 Turn table |

5.3. Radiated Emission 1 GHz - 5 GHz (FCC §15.205.a,b, §15.209, §15.231.b / RSS-210 Sections 6.1.1.b, 6.3)

Radiated emissions are measured in the frequency range 1 GHz to 5 GHz. Resolution and video bandwidth of the spectrum analyzer are set to 1 MHz. Hand-held or body-worn devices are rotated through three orthogonal axes to determine which attitude and configuration produces the highest emission relative to the limit and therefore shall be used for final testing.

Additional measurements are performed at critical frequencies with reduced span. EUT is rotated all around and receiving antenna is raised and lowered to find the maximum levels of emission. The cables and equipment are placed and moved within the range of position likely to find their maximum emissions.

All tests are performed in a semi-anechoic chamber with a test-distance of 3 meters.

If possible preamplifiers are used for the whole frequency range. Special care is taken to avoid overload in transmit mode (using appropriate attenuators if necessary).

See figure 3 for the measurement setup.

Test equipment used (see equipment list for details):

02, 13, 14, 16, ,42, 44, 45, 57, 64

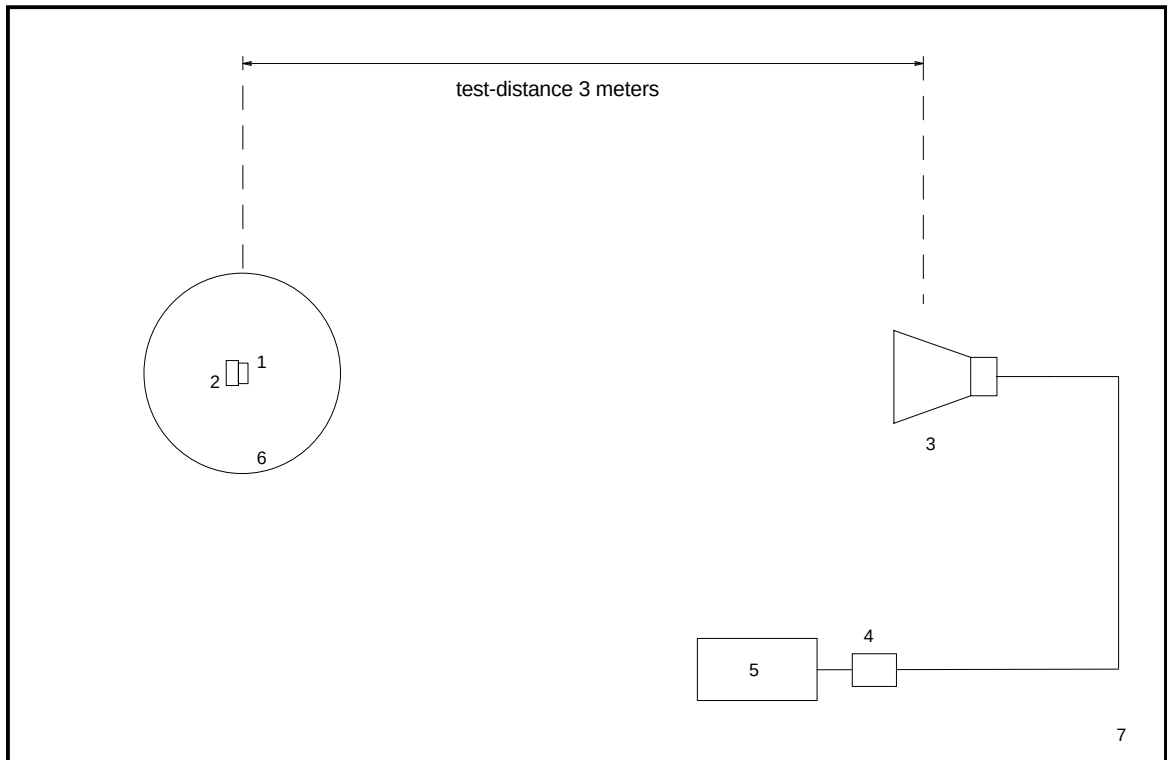


Figure 3: Measurement setup for radiated emission test above 1 GHz

- | | |
|---|---------------------------------------|
| 1 Transmitter (EUT) | 3 Measurement antenna |
| 2 Wooden pedestal (if necessary) | 4 Preamplifier (if applicable) |
| | 5 Spectrum analyzer |
| | 6 Turn table |
| | 7 Semi anechoic room |

6. Equipment List

To facilitate reference to test equipment used for related tests, each item of test equipment and ancillaries such as cables are identified (numbered) by the Test Laboratory.

No.	Type	Model	Serial Number	Manufacturer
01	Spectrum Analyzer	R 3271	05050023	Advantest
02	EMI Test Receiver	ESMI	839379/013 839587/006	Rohde & Schwarz
03	Test Receiver	ESH 3	880112/032	Rohde & Schwarz
04	Test Receiver	ESHS 10	860043/016	Rohde & Schwarz
05	Test Receiver	ESV	881414/009	Rohde & Schwarz
06	Test Receiver	ESVP	881120/024	Rohde & Schwarz
07	Audio Analyzer	UPA	862954	Rohde & Schwarz
08	Power Meter	NRVS	836856/015	Rohde & Schwarz
09	Power Sensor	NRV-Z52	837901/030	Rohde & Schwarz
10	Power Sensor	NRV-Z4	863828/015	Rohde & Schwarz
11	Preamplifier	ESV-Z3	860907/004	Rohde & Schwarz
12	Preamplifier	R14601		Advantest
13	Preamplifier	ACX/080-3030	32640	CTT
14	Preamplifier	ACO/180-3530	32641	CTT
15	Signal Generator	SMS	872166/039	Rohde & Schwarz
16	Signal Generator	HP 8673 D	2930A00966	Hewlett Packard
17	Waveform Generator	HP 33120 A	US34005375	Hewlett Packard
18	Attenuator 20 dB	4776-20	9503	Narda
19	Attenuator 10 dB	4776-10	9412	Narda
20	Pulse Limiter	ESH 3-Z2	1144	Rohde & Schwarz
21	Pulse Limiter	11947 A	3107A00566	Hewlett Packard
22	V-Network	ESH 3-Z5	862770/018	Rohde & Schwarz
23	V-Network	ESH 3-Z5	894785/005	Rohde & Schwarz
24	V-Network	ESH 3-Z5	830952/025	Rohde & Schwarz
25	V-Network	ESH 3-Z6	830722/010	Rohde & Schwarz
26	V-Network	NSLK 8127	8127152	Schwarzbeck
27	V-Network	NNLA 8119	8119148	Schwarzbeck
28	V-Network	SE 01	01	Senton
29	T-Network	ESH 3-Z4	890602/011	Rohde & Schwarz
30	T-Network	ESH 3-Z4	890602/012	Rohde & Schwarz
31	High Impedance Probe	TK 9416	01	Schwarzbeck
32	High Impedance Probe	TK 9416	02	Schwarzbeck
33	Current Probe	ESH 2-Z1	863366/18	Rohde & Schwarz
34	Current Probe	ESV-Z1	862553/3	Rohde & Schwarz

No.	Type	Model	Serial Number	Manufacturer
35	Absorbing Clamp	MDS 21	80911	Lüthi
36	Absorbing Clamp	MDS 21	79690	Lüthi
37	Loop Antenna	HFH2-Z2	882964/1	Rohde & Schwarz
38	Biconical Antenna	HK 116	842204/001	Rohde & Schwarz
39	Biconical Antenna	HK 116	836239/02	Rohde & Schwarz
40	Log. Periodic Antenna	HL 223	841516/023	Rohde & Schwarz
41	Log. Periodic Antenna	HL 223	834408/12	Rohde & Schwarz
42	Horn Antenna	3115	9508-4553	Emco
43	Horn Antenna	3160-03	9112-1003	Emco
44	Horn Antenna	3160-04	9112-1001	Emco
45	Horn Antenna	3160-05	9112-1001	Emco
46	Horn Antenna	3160-06	9112-1001	Emco
47	Horn Antenna	3160-07	9112-1008	Emco
48	Horn Antenna	3160-08	9112-1002	Emco
49	Horn Antenna	3160-09	9403-1025	Emco
50	Digital multimeter	199	463386	Keithley
51	DC Power Supply	NGSM 32/10	203	Rohde & Schwarz
52	DC Power Supply	NGB	2455	Rohde & Schwarz
53	DC Power Supply	NGA	386	Rohde & Schwarz
54	Temperature Test Chamber	HT4010	07065550	Heraeus
55	Cable	RG214	1309	Senton
56	Cable	200CM_001	1357	Rosenberger
57	Cable	150CM_001	1479	Rosenberger
58	Cable Set EG1	RG214	1189 - 1191	Senton
59	Cable Set Cabine 1	RG214		Senton
60	Cable Set Cabine 2	RG214		Senton
61	Cable Set Cabine 3	RG214		Senton
62	Shielded Room	No. 1	1451	Senton
63	Shielded Room	No. 2	1452	Senton
64	Semi-anechoic Chamber	No. 3	1453	Siemens
65	Shielded Room	No. 4	1454	Euroshield
66	Open Area Test Site	EG 1		Senton
67	Test fixture			Senton

7. Photographs Taken During Testing

Photos No. 7.1

**Test setup for radiated emission pre-test 30 MHz - 1 GHz
(semi anechoic room)**



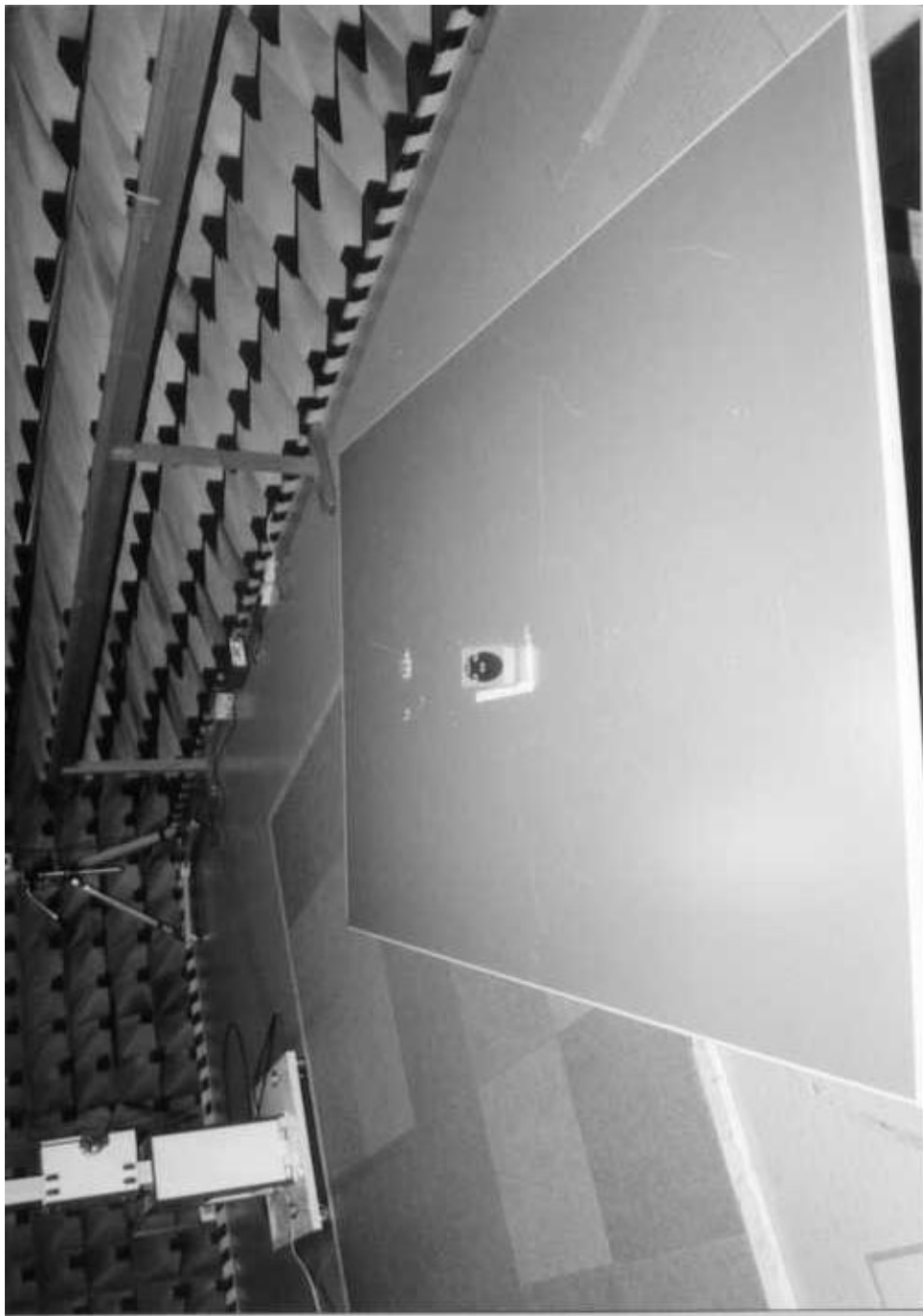
Photos No. 7.2

**Test setup for radiated emission pre-test 30 MHz - 1 GHz
(semi anechoic room)**



Photos No. 7.3

**Test setup for radiated emission pre-test 30 MHz - 1 GHz
(semi anechoic room) - continued**



Photos No. 7.4

**Test setup for radiated emission final test 30 MHz - 1 GHz
(open area test site)**



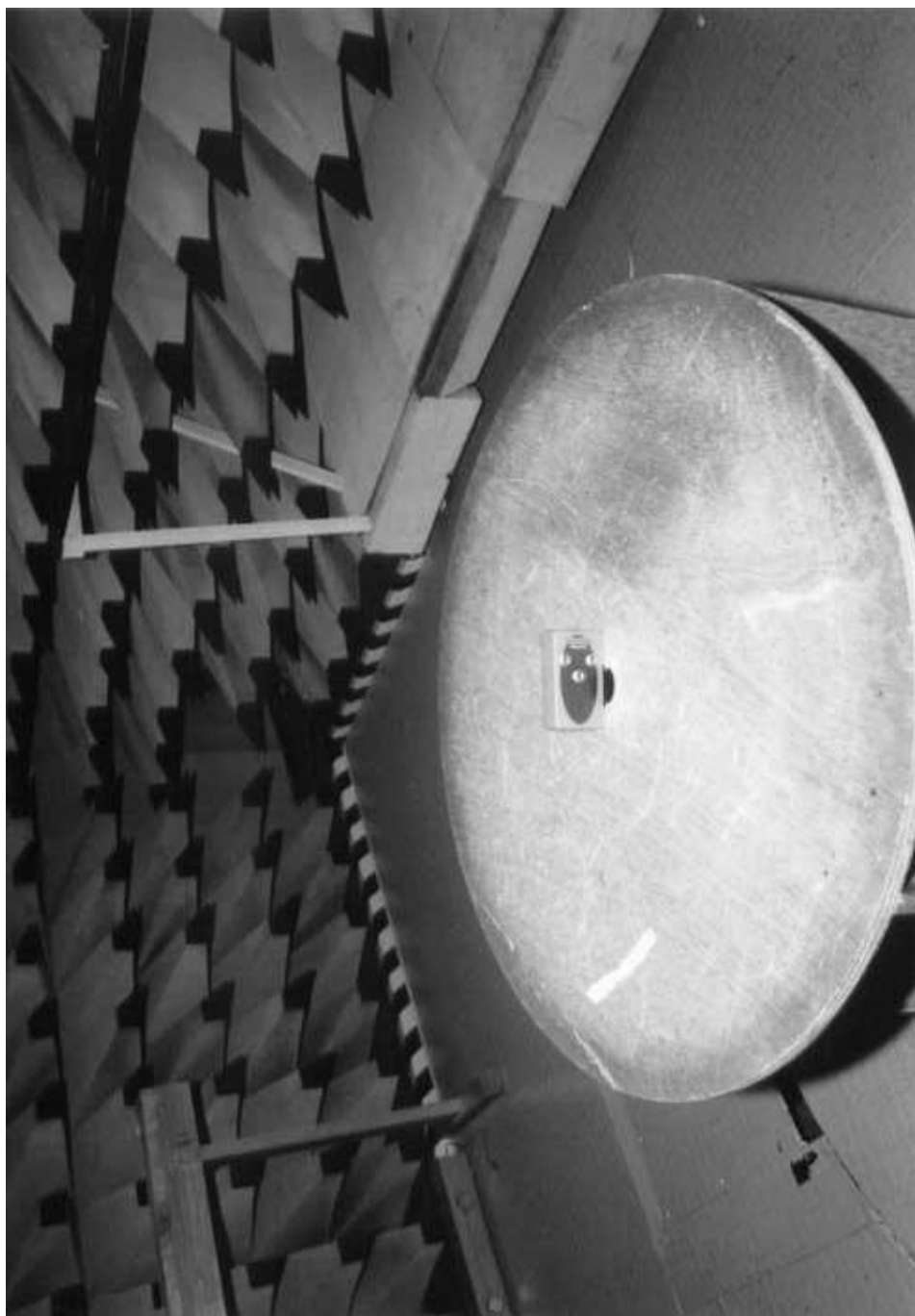
Photos No. 7.5

Test setup for radiated emission test above 1 GHz



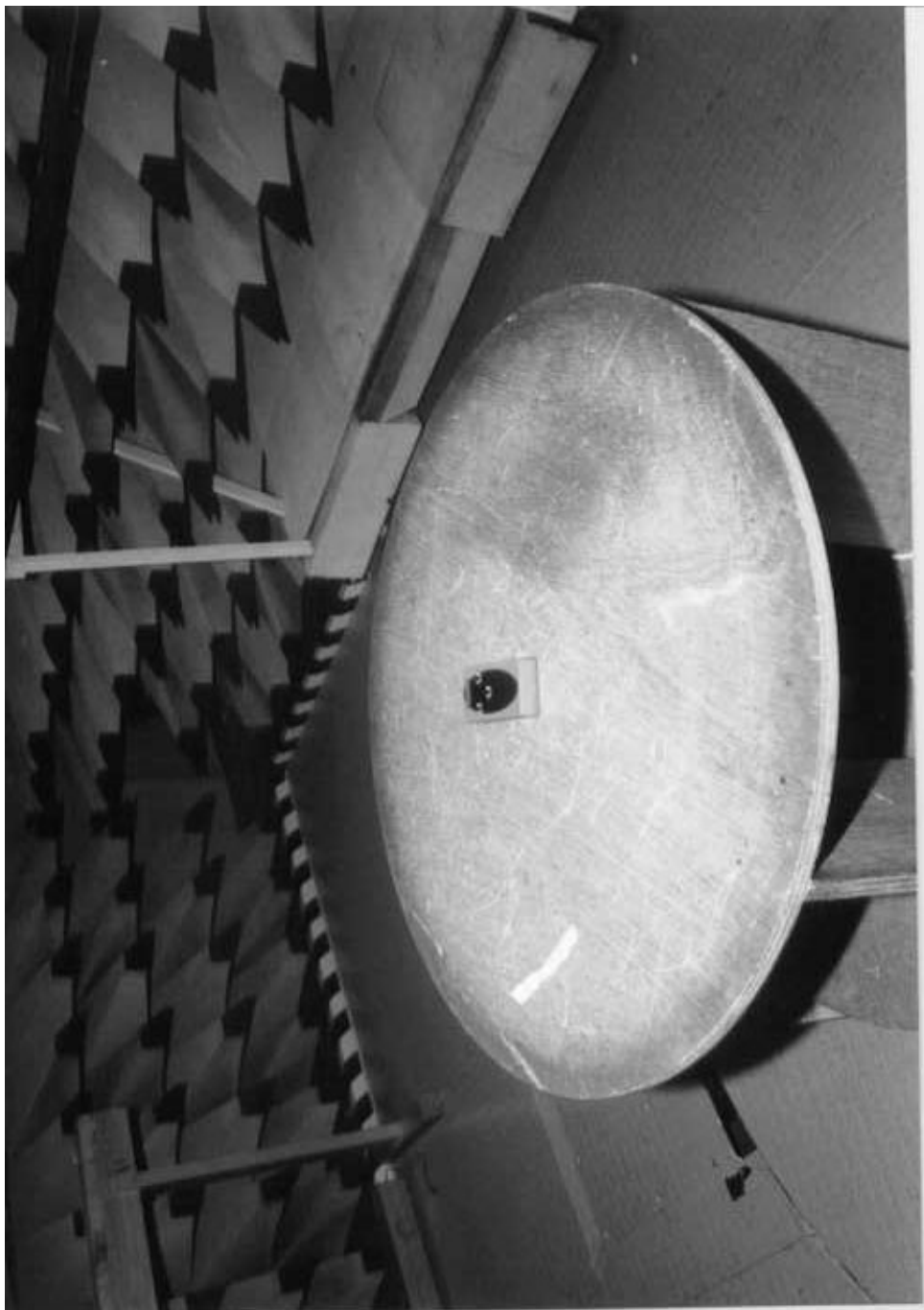
Photos No. 7.6

Test setup for radiated emission test above 1 GHz



Photos No. 7.7

Test setup for radiated emission test above 1 GHz - continued



8. List of Measurements

8.1. List of Measurements According To FCC Part 15 Subpart C

FCC Part 15 Subpart C			
Section(s):	Test	Page(s)	Result
§15.231.c	Bandwidth of emission	27 - 28	passed
§15.207	Conducted emission test 450 kHz - 30 MHz		not applicable (battery supply)
§15.231.b §15.209 §15.205.a,b	Radiated emission test 9 kHz - 30 MHz		not applicable (acc. to §15.33)
§15.231.b §15.209 §15.205.a,b	Radiated emission test 30 MHz - 1 GHz	29 - 42	passed
§15.231.b §15.209 §15.205.a,b	Radiated emission test 1 GHz - 5 GHz	43 - 51	passed

**8.2. List of Measurements According To
Industry Canada RSS-210**

Industry Canada RSS-210 Issue 2			
Section(s):	Test	Page(s)	Result
6.1.1.c	Bandwidth	27 - 28	passed
6.6	Conducted emission test 450 kHz - 30 MHz	---	not applicable (battery supply)
6.1.1.b 6.3	Radiated emission test 9 kHz - 30 MHz	---	not applicable (acc. to 6.3.e)
6.1.1.b 6.3	Radiated emission test 30 MHz - 1 GHz	29 - 42	passed
6.1.1.b 6.3	Radiated emission test 1 GHz - 5 GHz	43 -51	passed

9. Referenced Regulations

All tests were performed with reference to the following regulations and standards:

☒	FCC Part 15 Subpart A	Code of Regulations Part 15 (Radio Frequency Devices), Subpart A (General) of the Federal Communication Commission (FCC)	October 20, 1997
☐	FCC Part 15 Subpart B	Code of Regulations Part 15 (Radio Frequency Devices), Subpart B (Unintentional Radiators) of the Federal Communication Commission (FCC)	October 20, 1997
☒	FCC Part 15 Subpart C	Code of Regulations Part 15 (Radio Frequency Devices), Subpart C (Intentional Radiators) of the Federal Communication Commission (FCC)	October 20, 1997
☒	ANSI C63.4	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz - 40 GHz	October, 1992
☒	RSS-210	Radio Standards Specification RSS-210 Issue 2 for Low Power Licence-Exempt Radiocommunication Devices of Industry Canada	February 24, 1996

10. Test Results

Bandwidht of emission acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
--

Applicant:
Akerströms Björbo AB

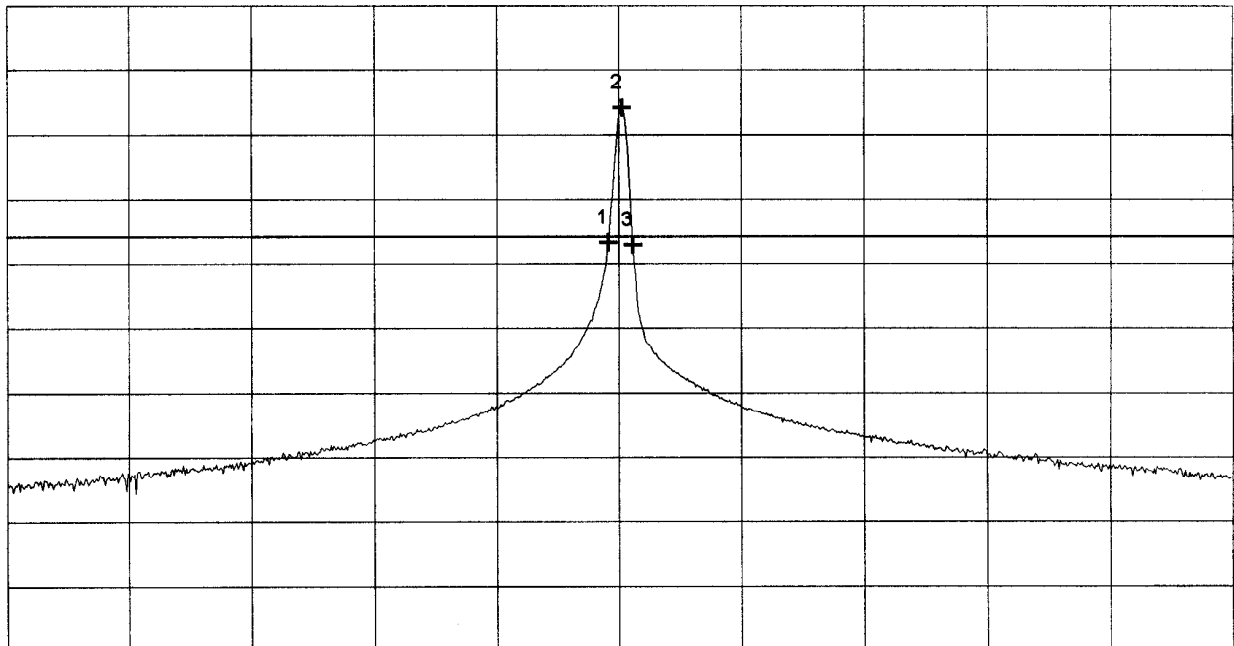
Mode:

- TX mode
- with modulation
- Unom.: 9.0 V DC battery

Ref.Level 90 dB μ V
10 dB dB/Div.

ATT 0 dB

Ref. Offset -2 dB



Start 432.920 MHz
RBW 10 kHz

VBW 10 kHz

Stop 434.920 MHz
SWP 60 ms

**** Multi Marker ****

Nr.1	433.902222 MHz	53.31 dB μ V
Nr.2	433.924444 MHz	74.16 dB μ V
Nr.3	433.942222 MHz	52.93 dB μ V
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by:
Thomas Eberl

Date:
02/18/1999

Project-No.:
56502-90128-1

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Bandwidht of emission acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
--

Applicant:
Akerströms Björbo AB

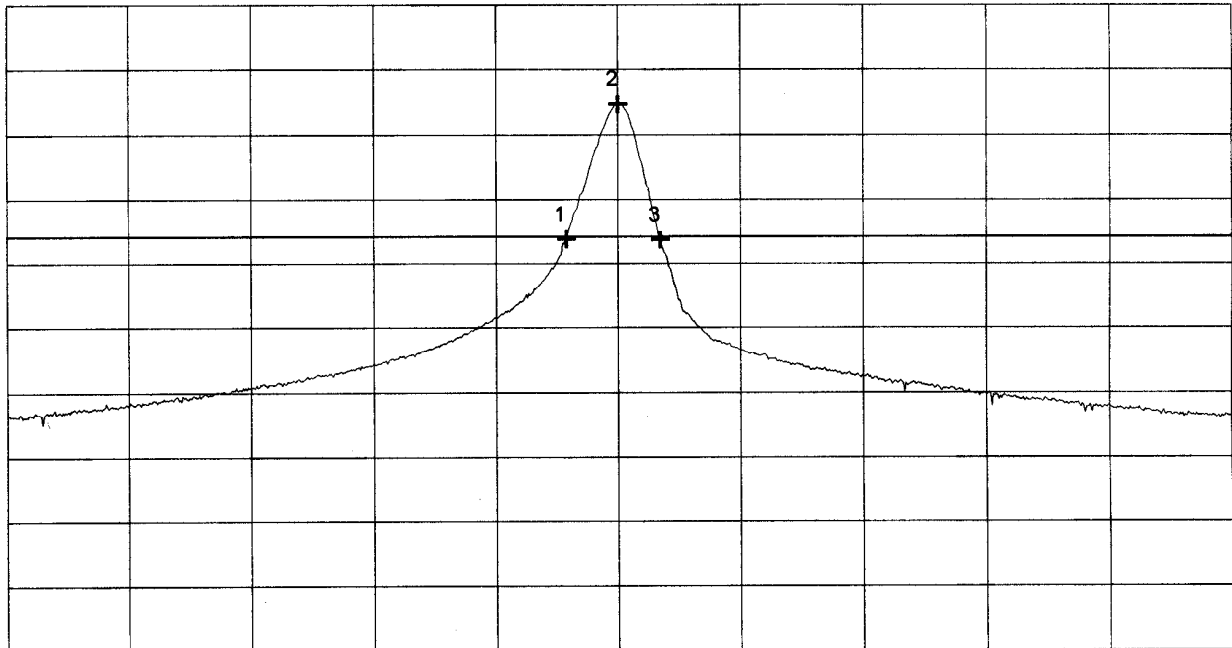
Mode:

- TX mode
- with modulation
- Unom.: 9.0 V DC battery

Ref.Level 90 dB μ V
10 dB dB/Div.

ATT 0 dB

Ref. Offset -2 dB



Start 433.673888 MHz
RBW 10 kHz

VBW 10 kHz

Stop 434.173888 MHz
SWP 20 ms

**** Multi Marker ****

Nr.1	433.902777 MHz	53.79 dB μ V
Nr.2	433.923888 MHz	74.64 dB μ V
Nr.3	433.941110 MHz	53.67 dB μ V
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by:
Thomas Eberl

Date:
02/18/1999

Project-No.:
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Radiated emission 30 MHz - 1 GHz acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
#1

Applicant:
Akerströms Björbo AB

Mode:
- transmitting continuously

- with battery supply 9.0 V

- EUT in horizontal position - rear to table

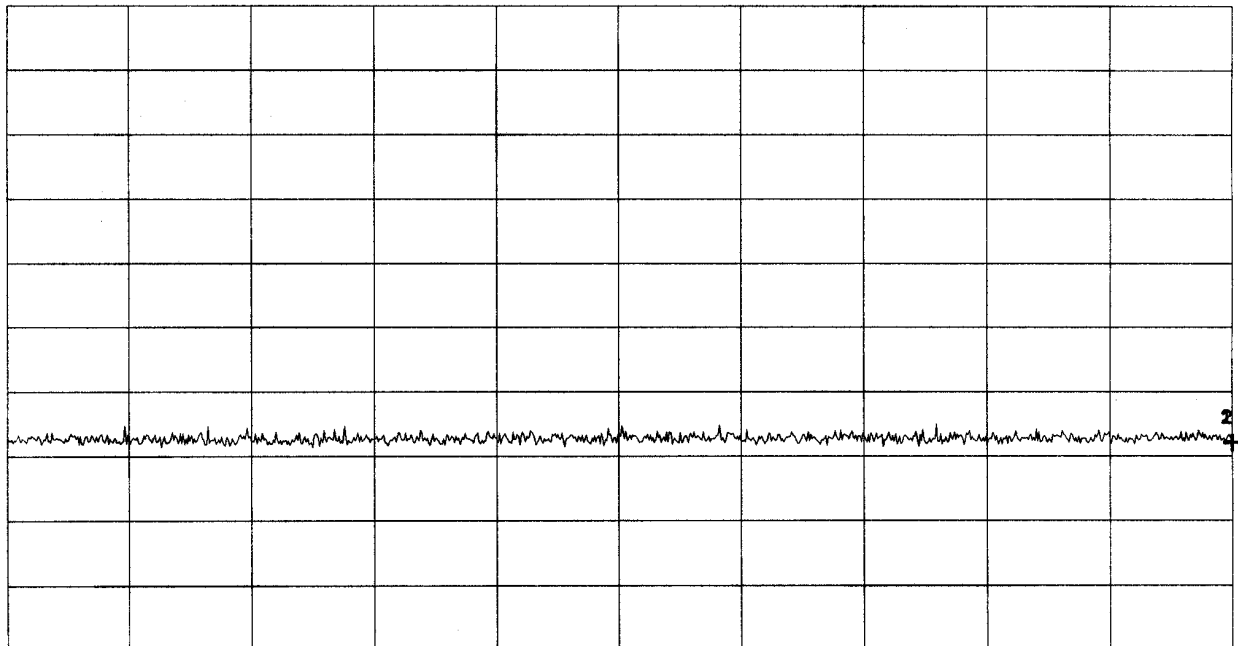
- Test distance : 3m

- Antenna polarization : vertical

PRESCAN WITHOUT CORRECTIONS !!

Ref.Level 80 dBµV
10 dB dB/Div.

ATT 0 dB



Start 30.000 MHz
RBW 100 kHz

VBW 100 kHz

Stop 300.000 MHz
SWP 100 ms

**** Multi Marker ****

Nr.1	300.000000 MHz	12.03 dBµV
Nr.2	300.000000 MHz	12.03 dBµV
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by:
Thomas Eberl

Date:
02/18/1999

Project-No.:
56502-90128-1

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Radiated emission 30 MHz - 1 GHz acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
#1

Applicant:
Akerströms Björbo AB

Mode:
- transmitting continuously

- with battery supply 9.0 V

- EUT in horizontal position - rear to table

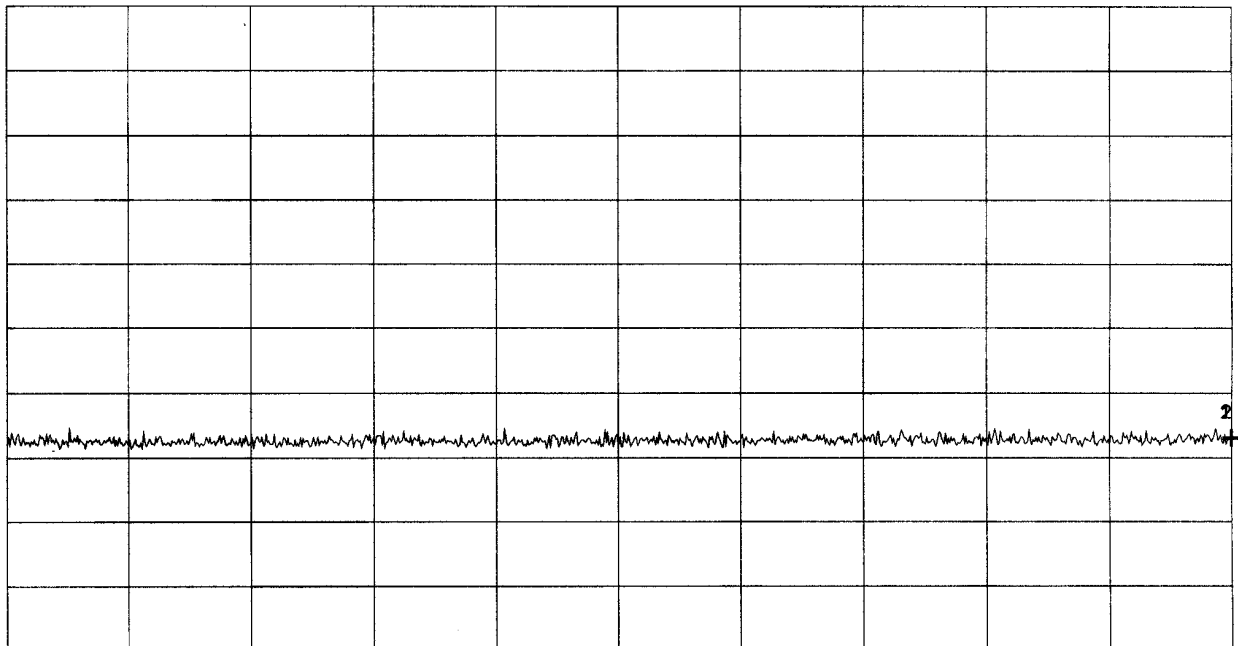
- Test distance : 3m

- Antenna polarization : horizontal

PRESCAN WITHOUT CORRECTIONS !!

Ref.Level 80 dBµV
10 dB dB/Div.

ATT 0 dB



Start 30.000 MHz
RBW 100 kHz

VBW 100 kHz

Stop 300.000 MHz
SWP 100 ms

**** Multi Marker ****

Nr.1	300.000000 MHz	13.04 dBµV
Nr.2	300.000000 MHz	13.04 dBµV
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by:
Thomas Eberl

Date:
02/18/1999

Project-No.:
56502-90128-1

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Radiated emission 30 MHz - 1 GHz acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
#1

Applicant:
Akerströms Björbo AB

Mode:

- transmitting continuously

- with battery supply 9.0 V

- EUT in horizontal position - rear to table

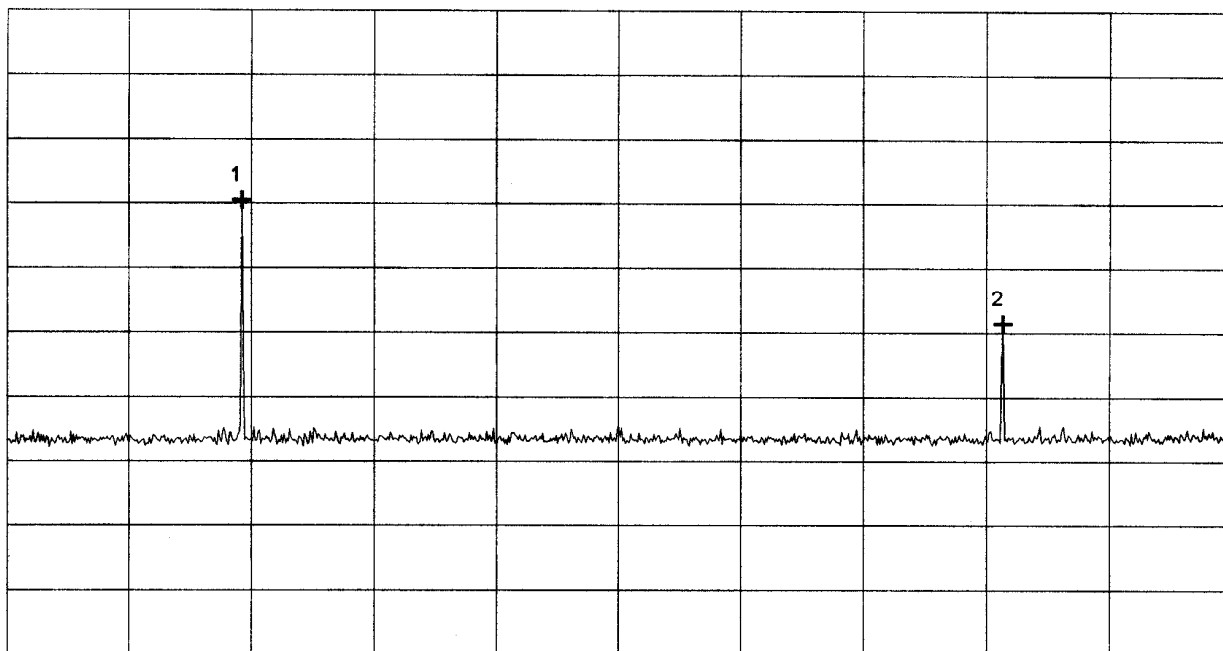
- Test distance : 3m

- Antenna polarization : horizontal

PRESCAN WITHOUT CORRECTIONS !!

Ref.Level 80 dB μ V
10 dB dB/Div.

ATT 0 dB



Start 300.000 MHz
RBW 100 kHz

VBW 100 kHz

Stop 1.000 GHz
SWP 220 ms

**** Multi Marker ****

Nr.	Frequency (MHz)	Level (dB μ V)
Nr.1	434.555556 MHz	50.45 dB μ V
Nr.2	869.333333 MHz	31.38 dB μ V
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by:
Thomas Eberl

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02/18/1999

Project-No.:
56502-90128-1

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Radiated emission 30 MHz - 1 GHz acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
#1

Applicant:
Akerströms Björbo AB

Mode:

- transmitting continuously

- with battery supply 9.0 V

- EUT in horizontal position - rear to table

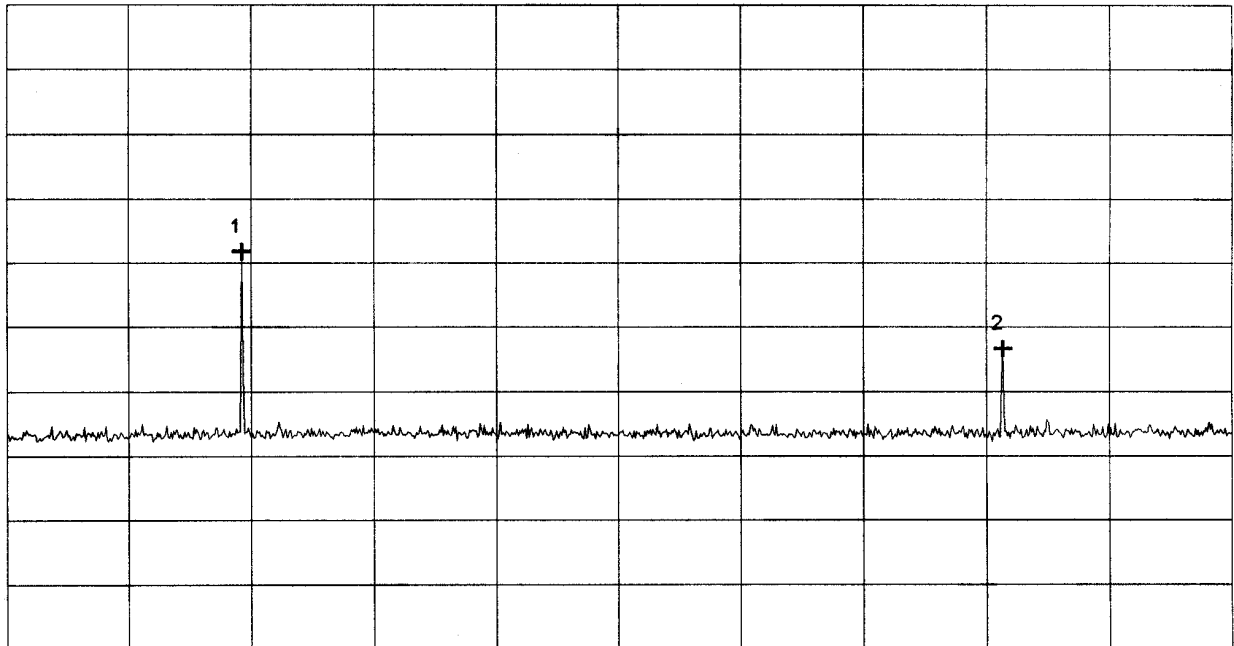
- Test distance : 3m

- Antenna polarization : vertical

PRESCAN WITHOUT CORRECTIONS !!

Ref.Level 80 dB μ V
10 dB dB/Div.

ATT 0 dB



Start 300.000 MHz
RBW 100 kHz

VBW 100 kHz

Stop 1.000 GHz
SWP 220 ms

**** Multi Marker ****

Nr.	Frequency (MHz)	Level (dB μ V)
Nr.1	434.555556 MHz	41.74 dB μ V
Nr.2	869.333333 MHz	26.60 dB μ V
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by:
Thomas Eberl

Project-No.:
56502-90128-1

Date:
02/18/1999

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Radiated emission 30 MHz - 1 GHz acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
#1

Applicant:
Akerströms Björbo AB

Mode:

- transmitting continuously

- with battery supply 9.0 V

- EUT in horizontal position - right side to table

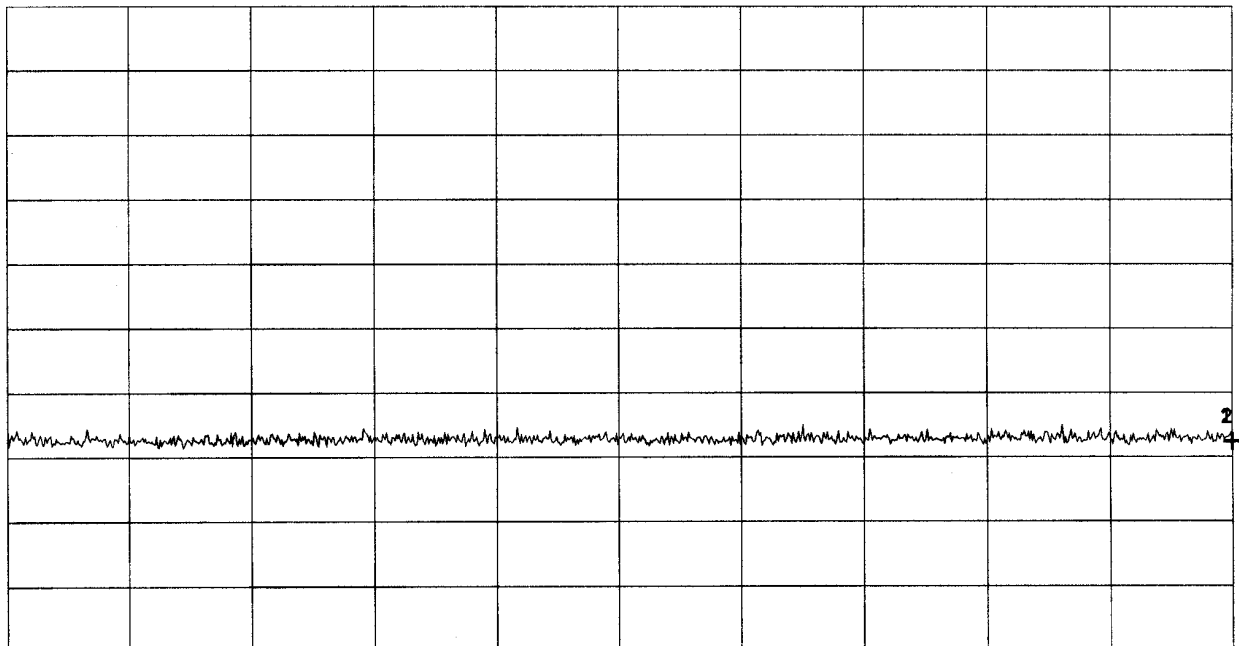
- Test distance : 3m

- Antenna polarization : horizontal

PRESCAN WITHOUT CORRECTIONS !!

Ref.Level 80 dB μ V
10 dB dB/Div.

ATT 0 dB



Start 30.000 MHz
RBW 100 kHz

VBW 100 kHz

Stop 300.000 MHz
SWP 100 ms

**** Multi Marker ****

Nr.1	300.000000 MHz	12.31 dB μ V
Nr.2	300.000000 MHz	12.31 dB μ V
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by:
Thomas Eberl

Date:
02/18/1999

Project-No.:
56502-90128-1

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Radiated emission 30 MHz - 1 GHz acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
#1

Applicant:
Akerströms Björbo AB

Mode:

- transmitting continuously

- with battery supply 9.0 V

- EUT in horizontal position - right side to table

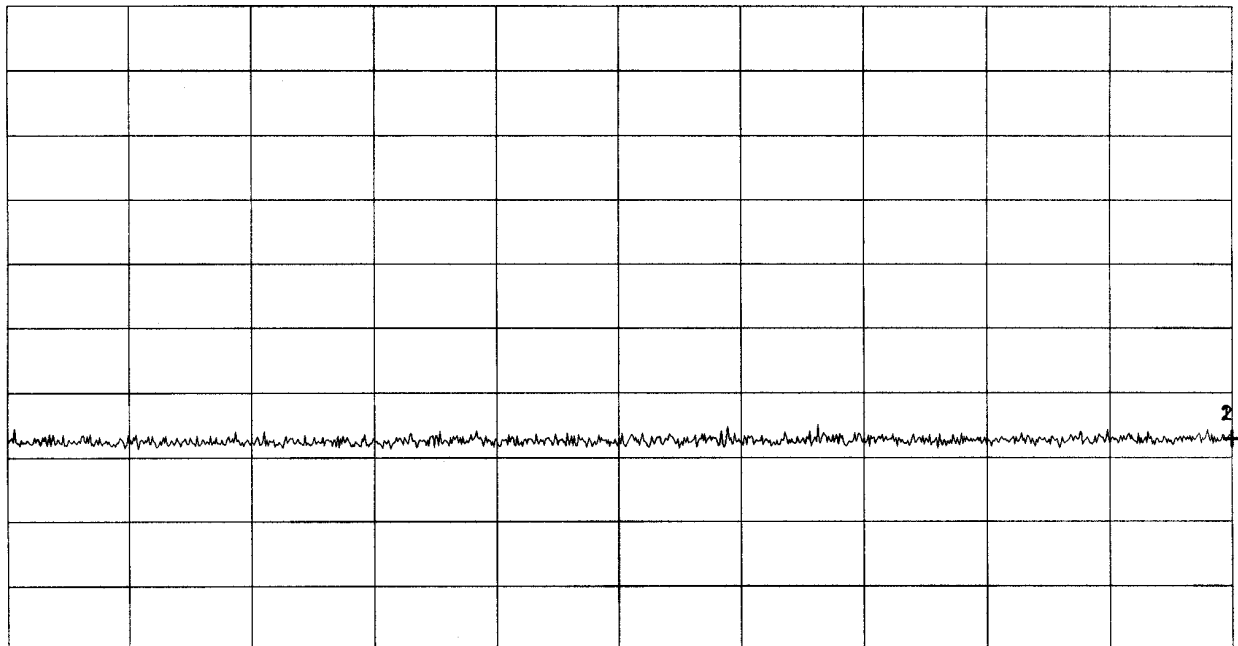
- Test distance : 3m

- Antenna polarization : vertical

PRESCAN WITHOUT CORRECTIONS !!

Ref.Level 80 dB μ V
10 dB dB/Div.

ATT 0 dB



Start 30.000 MHz
RBW 100 kHz

VBW 100 kHz

Stop 300.000 MHz
SWP 100 ms

**** Multi Marker ****

Nr.1	300.000000 MHz	12.86 dB μ V
Nr.2	300.000000 MHz	12.86 dB μ V
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by:
Thomas Eberl

Date:
02/18/1999

Project-No.:
56502-90128-1

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Radiated emission 30 MHz - 1 GHz acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
#1

Applicant:
Akerströms Björbo AB

Mode:

- transmitting continuously

- with battery supply 9.0 V

- EUT in horizontal position - right side to table

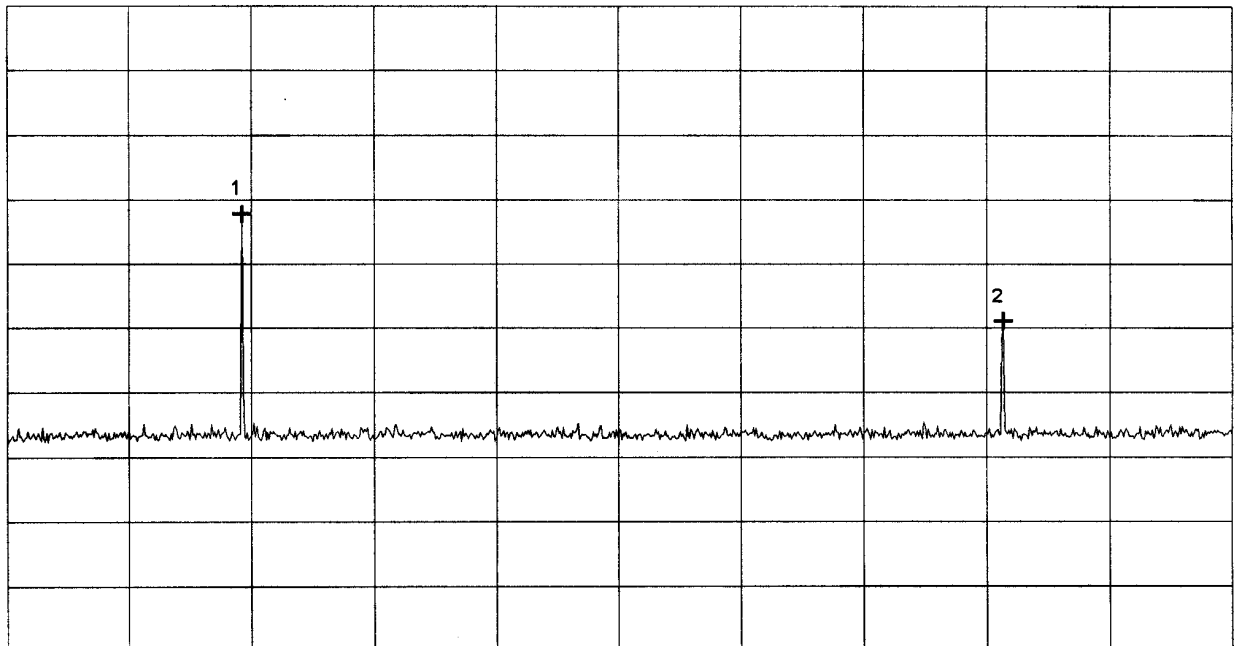
- Test distance : 3m

- Antenna polarization : horizontal

PRESCAN WITHOUT CORRECTIONS !!

Ref.Level 80 dB μ V
10 dB dB/Div.

ATT 0 dB



Start 300.000 MHz
RBW 100 kHz

VBW 100 kHz

Stop 1.000 GHz
SWP 220 ms

**** Multi Marker ****

Nr.	Frequency (MHz)	Level (dB μ V)
Nr.1	434.55556	47.83
Nr.2	869.33333	31.00
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by:
Thomas Eberl

Date:
02/18/1999

Project-No.:
56502-90128-1

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Radiated emission 30 MHz - 1 GHz acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
#1

Applicant:
Akerströms Björbo AB

Mode:

- transmitting continuously

- with battery supply 9.0 V

- EUT in horizontal position - right side to table

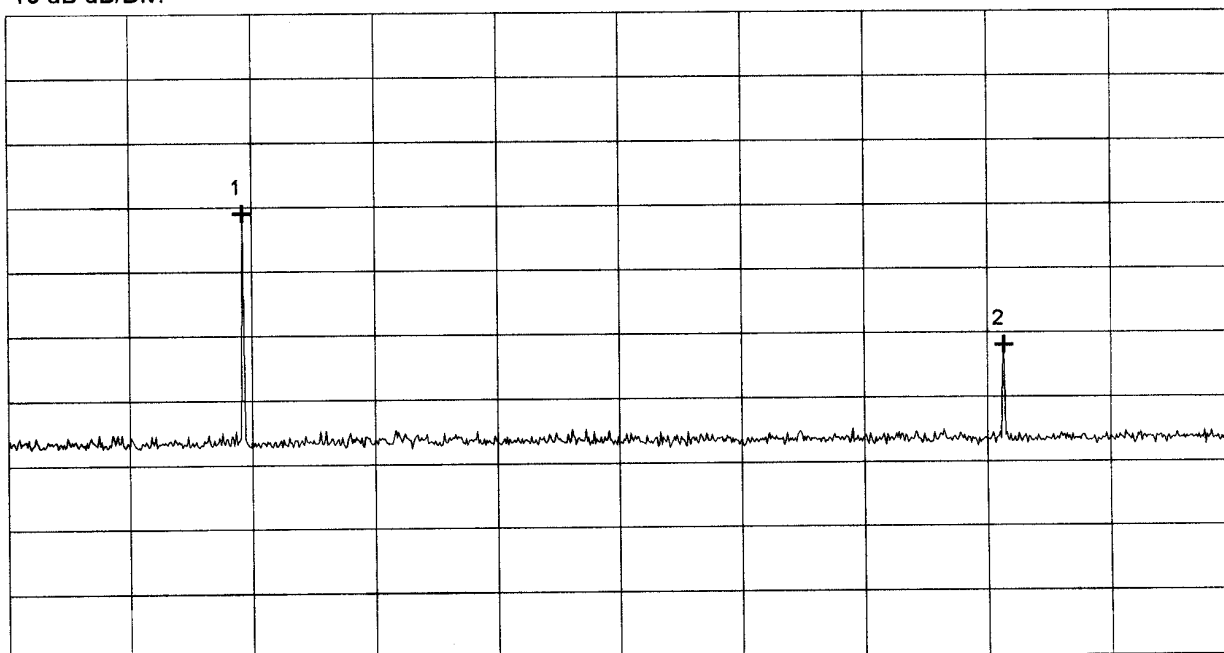
- Test distance : 3m

- Antenna polarization : vertical

PRESCAN WITHOUT CORRECTIONS !!

Ref.Level 80 dB μ V
10 dB dB/Div.

ATT 0 dB



Start 300.000 MHz
RBW 100 kHz

VBW 100 kHz

Stop 1.000 GHz
SWP 220 ms

**** Multi Marker ****

Nr.	Frequency (MHz)	Level (dB μ V)
Nr.1	434.55556 MHz	49.08 dB μ V
Nr.2	869.33333 MHz	28.10 dB μ V
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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02/18/1999

Project-No.:
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Radiated emission 30 MHz - 1 GHz acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
#1

Applicant:
Akerströms Björbo AB

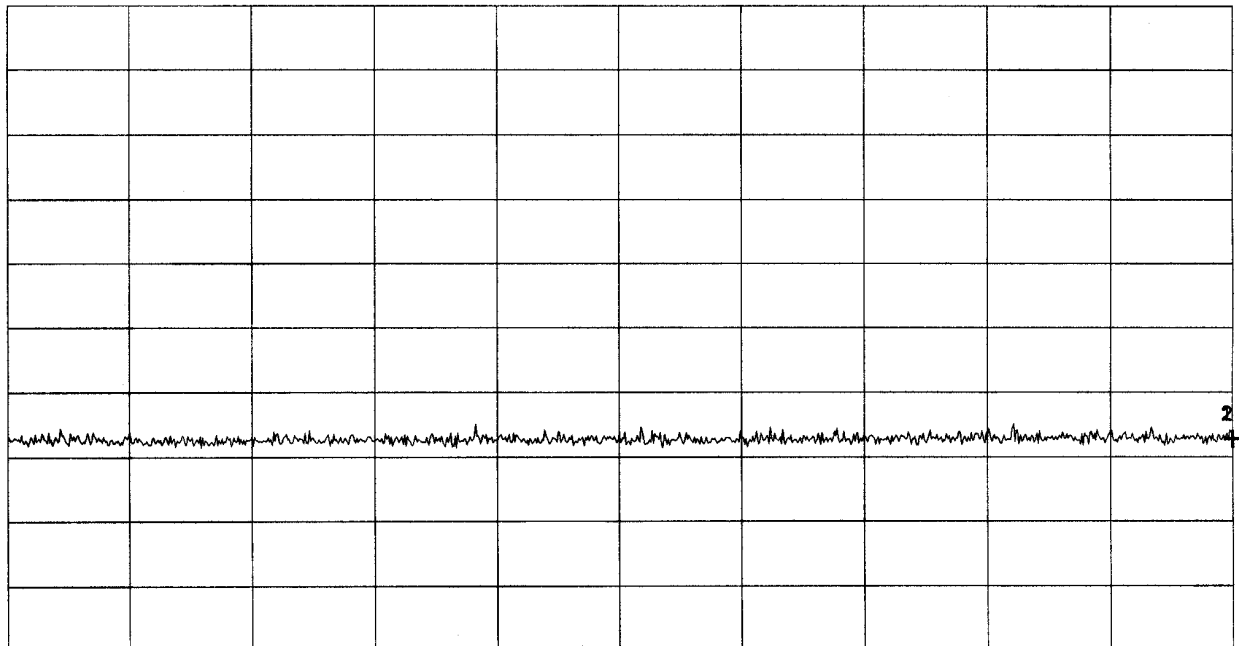
Mode:

- transmitting continuously
- with battery supply 9.0 V
- EUT in vertical position - antenna to the top
- Test distance : 3m
- Antenna polarization : vertical

PRESCAN WITHOUT CORRECTIONS !!

Ref.Level 80 dBµV
10 dB dB/Div.

ATT 0 dB



Start 30.000 MHz
RBW 100 kHz

VBW 100 kHz

Stop 300.000 MHz
SWP 100 ms

**** Multi Marker ****

Nr.1	300.000000 MHz	12.71 dBµV
Nr.2	300.000000 MHz	12.71 dBµV
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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02/18/1999

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Radiated emission 30 MHz - 1 GHz acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
#1

Applicant:
Akerströms Björbo AB

Mode:
- transmitting continuously

- with battery supply 9.0 V

- EUT in vertical position - antenna to the top

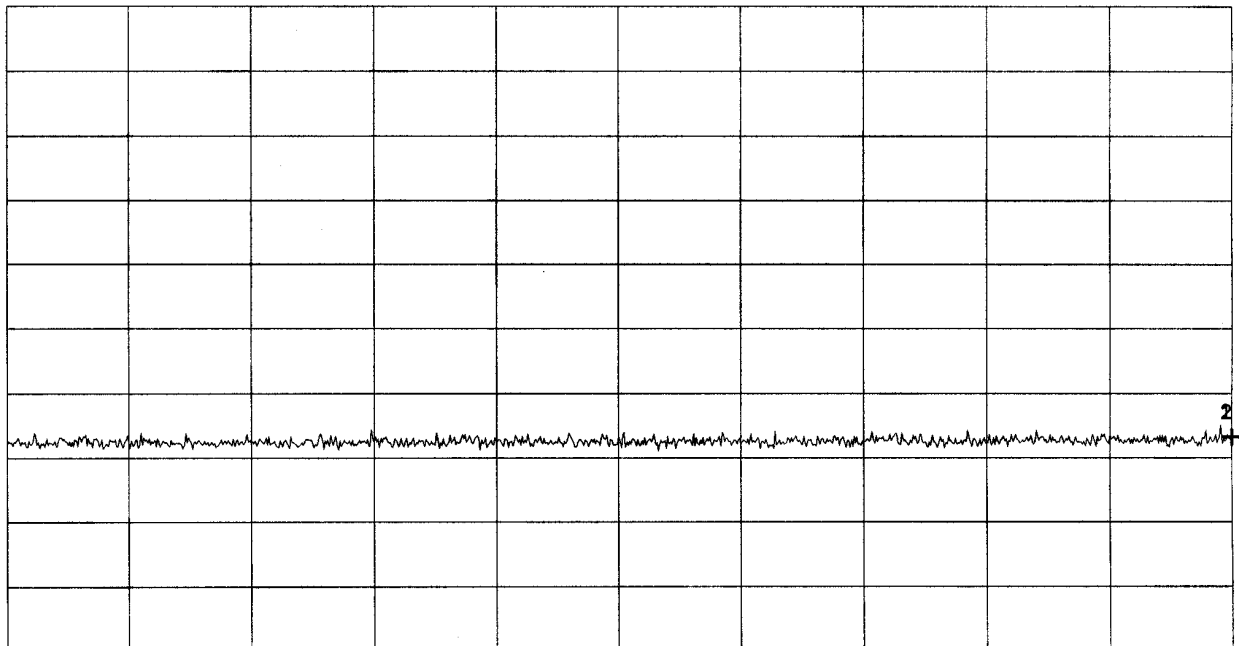
- Test distance : 3m

- Antenna polarization : horizontal

PRESCAN WITHOUT CORRECTIONS !!

Ref.Level 80 dB μ V
10 dB dB/Div.

ATT 0 dB



Start 30.000 MHz
RBW 100 kHz

VBW 100 kHz

Stop 300.000 MHz
SWP 100 ms

**** Multi Marker ****

Nr.1	300.000000 MHz	13.19 dB μ V
Nr.2	300.000000 MHz	13.19 dB μ V
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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Radiated emission 30 MHz - 1 GHz acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
#1

Applicant:
Akerströms Björbo AB

Mode:
- transmitting continuously

- with battery supply 9.0 V

- EUT in vertical position - antenna to the top

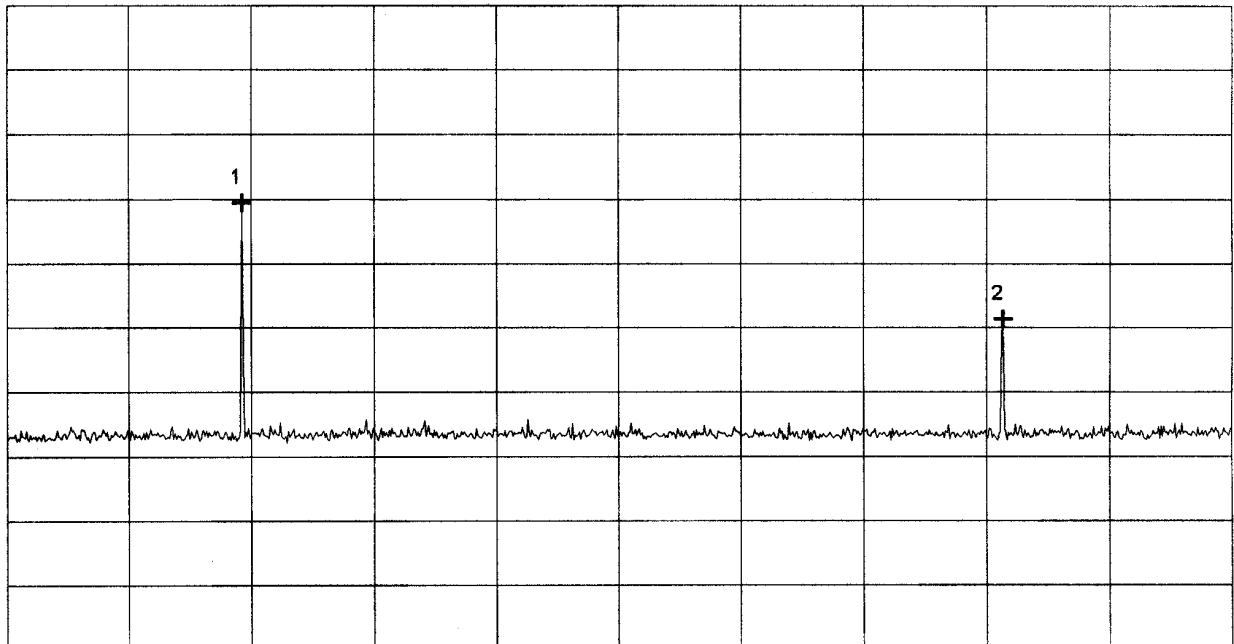
- Test distance : 3m

- Antenna polarization : vertical

PRESCAN WITHOUT CORRECTIONS !!

Ref.Level 80 dB μ V
10 dB dB/Div.

ATT 0 dB



Start 300.000 MHz
RBW 100 kHz

VBW 100 kHz

Stop 1.000 GHz
SWP 220 ms

**** Multi Marker ****

Nr.	Frequency (MHz)	Level (dB μ V)
Nr.1	434.555556 MHz	49.51 dB μ V
Nr.2	869.333333 MHz	31.35 dB μ V
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by:
Thomas Eberl

Date:
02/18/1999

Project-No.:
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Radiated emission 30 MHz - 1 GHz acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
#1

Applicant:
Akerströms Björbo AB

Mode:

- transmitting continuously

- with battery supply 9.0 V

- EUT in vertical position - antenna to the top

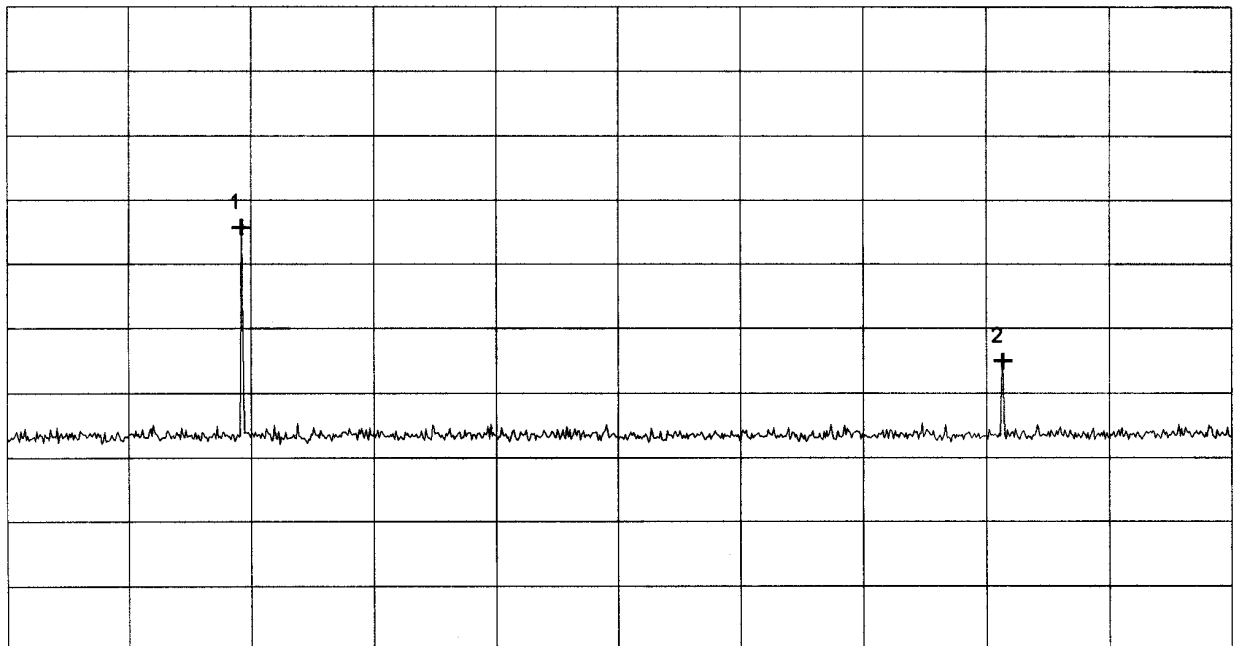
- Test distance : 3m

- Antenna polarization : horizontal

PRESCAN WITHOUT CORRECTIONS !!

Ref.Level 80 dB μ V
10 dB dB/Div.

ATT 0 dB



Start 300.000 MHz
RBW 100 kHz

VBW 100 kHz

Stop 1.000 GHz
SWP 220 ms

**** Multi Marker ****

Nr.	Frequency (MHz)	Power (dB μ V)
Nr.1	434.555556 MHz	45.72 dB μ V
Nr.2	869.333333 MHz	24.88 dB μ V
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by:
Thomas Eberl

Project-No.:
56502-90128-1

Date:
02/18/1999

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Radiated Emission 30 MHz - 1 GHz (Final Test)
according to FCC Part 15 Subpart C, §15.231.b

Model: Sesam 503
Type: Remote control transmitter
Serial No.: 92 1863-000
Applicant: Akerströms Björbo AB
Test-site: Open area test-site I
Test distance: 3 meters
Date of test: 02/18/1999
Operator: T. Eberl
Mode: - transmitting continuously
- with battery supply 9 V

EUT in horizontal position - rear to table

Detector: Peak

Polarization: horizontal

Frequency [MHz]	Receiver reading [dB μ V]	Correction factor [dB]	Fieldstrength Peak [dB μ V/m]	Limit Peak [dB μ V/m]	Duty cycle correction [dB]	Fieldstrength Average [dB μ V/m]	Limit Average [dB μ V/m]	Limit exceeded
433.92	52.8	21.3	74.1	100.8			80.8	
867.86	28.1	29.9	58.0	80.8			60.8	

Note : No additional average testing, because peak fieldstrength is below average limit

Result: The limits are kept.

Radiated Emission 30 MHz - 1 GHz (Final Test) according to FCC Part 15 Subpart C, §15.231.b

Model: Sesam 503
Type: Remote control transmitter
Serial No.: 92 1863-000
Applicant: Akerströms Björbo AB
Test-site: Open area test-site I
Test distance: 3 meters
Date of test: 02/18/1999
Operator: T. Eberl
Mode: - transmitting continuously
- with battery supply 9 V

EUT in horizontal position - rear to table

Detector: Peak

Polarization: vertical

Frequency [MHz]	Receiver reading [dB μ V]	Correction factor [dB]	Fieldstrength Peak [dB μ V/m]	Limit Peak [dB μ V/m]	Duty cycle correction [dB]	Fieldstrength Average [dB μ V/m]	Limit Average [dB μ V/m]	Limit exceeded
433.92	39.5	21.3	60.8	100.8			80.8	
867.86	19.5	29.9	49.4	80.8			60.8	

Note : No additional average testing, because peak fieldstrength is below average limit

Result: The limits are kept.

Radiated emission 1GHz - 4.5 GHz acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
--

Applicant:
Akerstöms Björbo AB

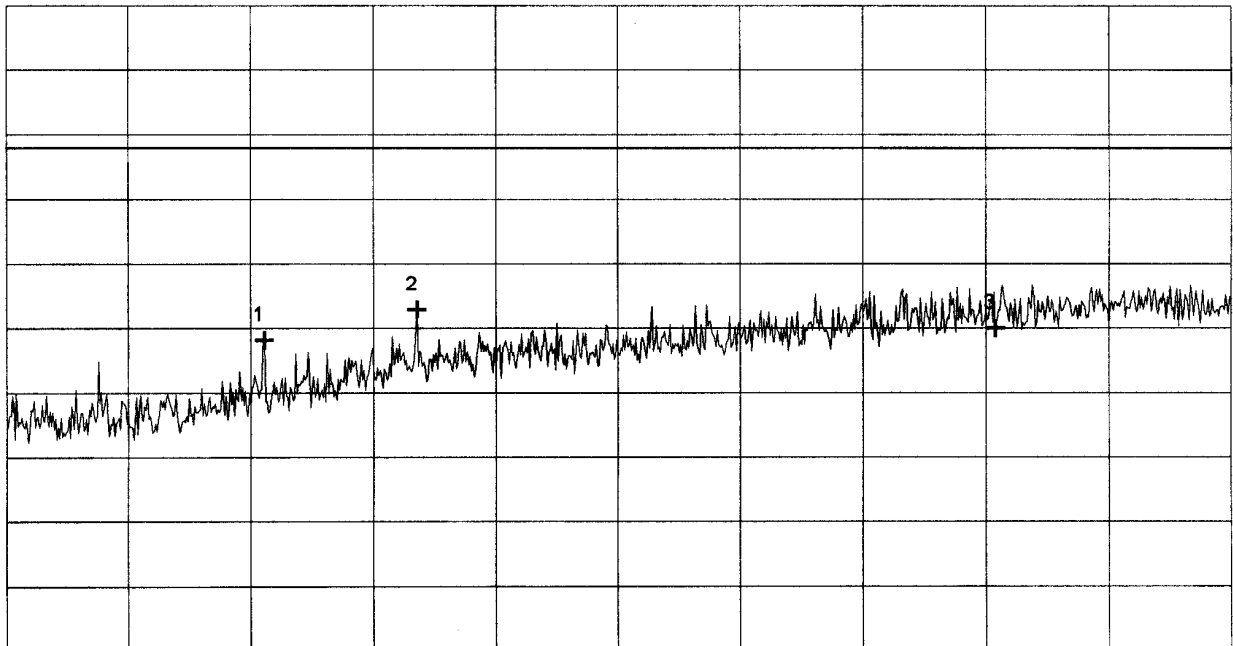
Mode:

- transmitting continuously
- with battery supply 9.0 V
- EUT in horizontal position - right side to table
- Test distance : 3m
- Antenna polarization : horizontal

Ref.Level 65 dB μ V/m
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 1.000 GHz
RBW 1 MHz

VBW 1 MHz

Stop 4.500 GHz
SWP 20 ms

**** Multi Marker ****

Nr.1	1.738889 GHz	39.08 dB μ V/m
Nr.2	2.174444 GHz	41.44 dB μ V/m
Nr.3	3.827222 GHz	39.97 dB μ V/m
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by:
Thomas Eberl

Date:
02/18/1999

Project-No.:
56502-90128-1

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Radiated emission 1GHz - 4.5 GHz acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
—

Applicant:
Akerstöms Björbo AB

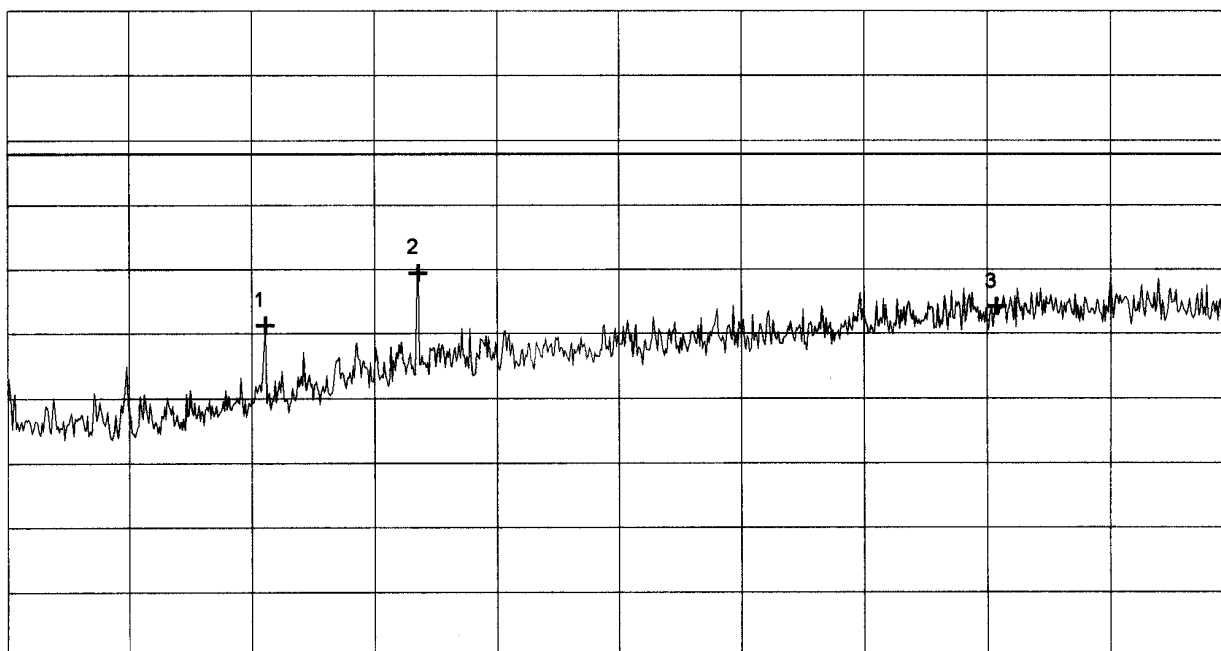
Mode:

- transmitting continuously
- with battery supply 9.0 V
- EUT in horizontal position - right side to table
- Test distance : 3m
- Antenna polarization : vertical

Ref.Level 65 dB μ V/m
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 1.000 GHz
RBW 1 MHz

VBW 1 MHz

Stop 4.500 GHz
SWP 20 ms

**** Multi Marker ****

Nr.1	1.738889 GHz	40.60 dB μ V/m
Nr.2	2.174444 GHz	44.72 dB μ V/m
Nr.3	3.827222 GHz	42.05 dB μ V/m
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by:
Thomas Eberl

Date:
02/18/1999

Project-No.:
56502-90128-1

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Radiated emission 1GHz - 4.5 GHz acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
--

Applicant:
Akerstöms Björbo AB

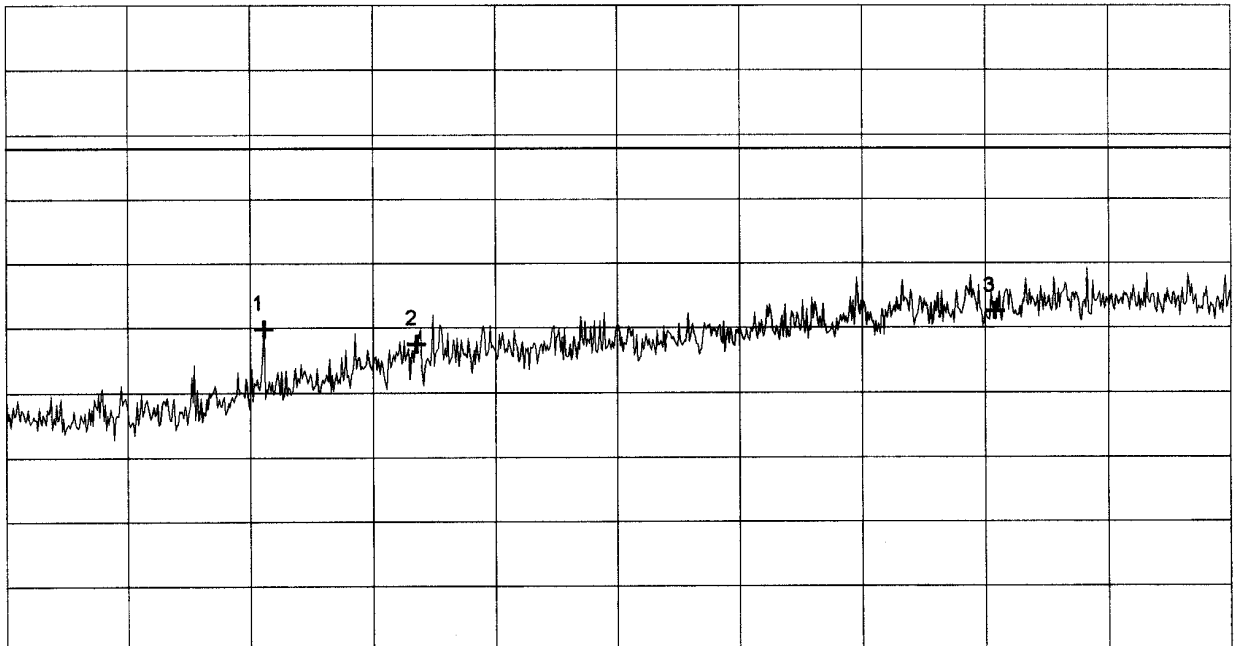
Mode:

- transmitting continuously
- with battery supply 9.0 V
- EUT in vertical position -antenna to the top
- Test distance : 3m
- Antenna polarization : horizontal

Ref.Level 65 dB μ V/m
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 1.000 GHz
RBW 1 MHz

VBW 1 MHz

Stop 4.500 GHz
SWP 20 ms

**** Multi Marker ****

Nr.1	1.738889 GHz	39.89 dB μ V/m
Nr.2	2.174444 GHz	38.75 dB μ V/m
Nr.3	3.827222 GHz	41.24 dB μ V/m
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by:
Thomas Eberl

Date:
02/18/1999

Project-No.:
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Radiated emission 1GHz - 4.5 GHz acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
--

Applicant:
Akerstöms Björbo AB

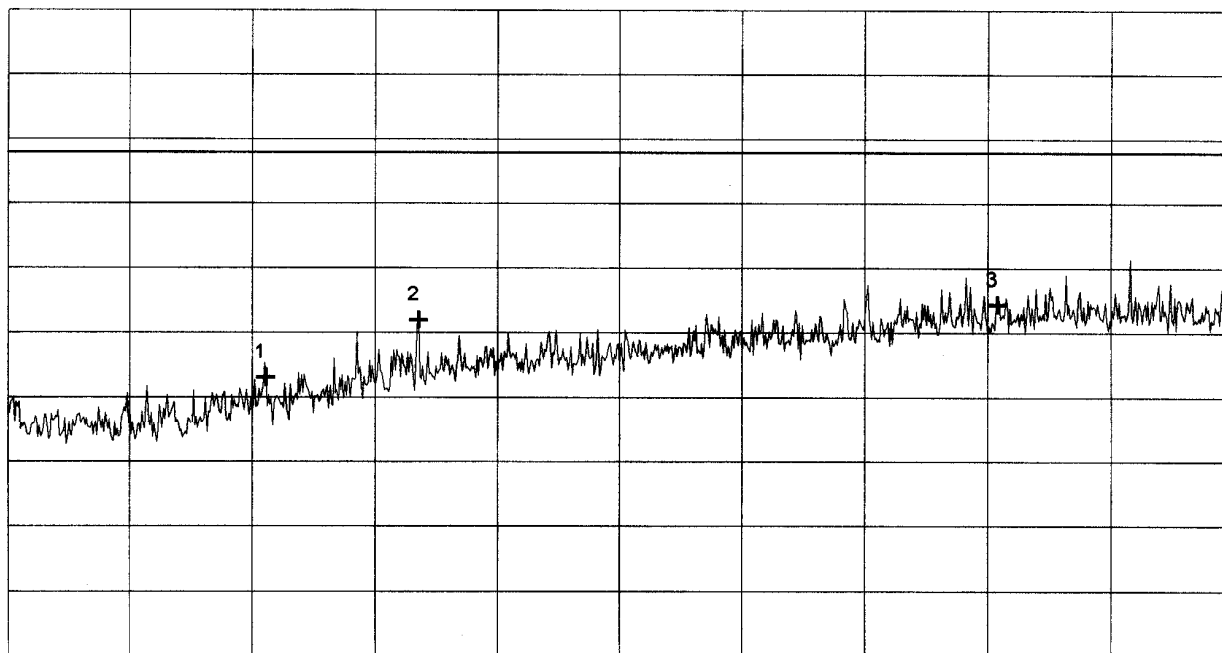
Mode:

- transmitting continuously
- with battery supply 9.0 V
- EUT in vertical position -antenna to the top
- Test distance : 3m
- Antenna polarization : vertical

Ref.Level 65 dB μ V/m
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 1.000 GHz
RBW 1 MHz

VBW 1 MHz

Stop 4.500 GHz
SWP 20 ms

**** Multi Marker ****

Nr.1	1.738889 GHz	36.51 dB μ V/m
Nr.2	2.174444 GHz	40.96 dB μ V/m
Nr.3	3.827222 GHz	42.15 dB μ V/m
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by:
Thomas Eberl

Date:
02/18/1999

Project-No.:
56502-90128-1

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Radiated emission 1GHz - 4.5 GHz acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
--

Applicant:
Akerstoms Björbo AB

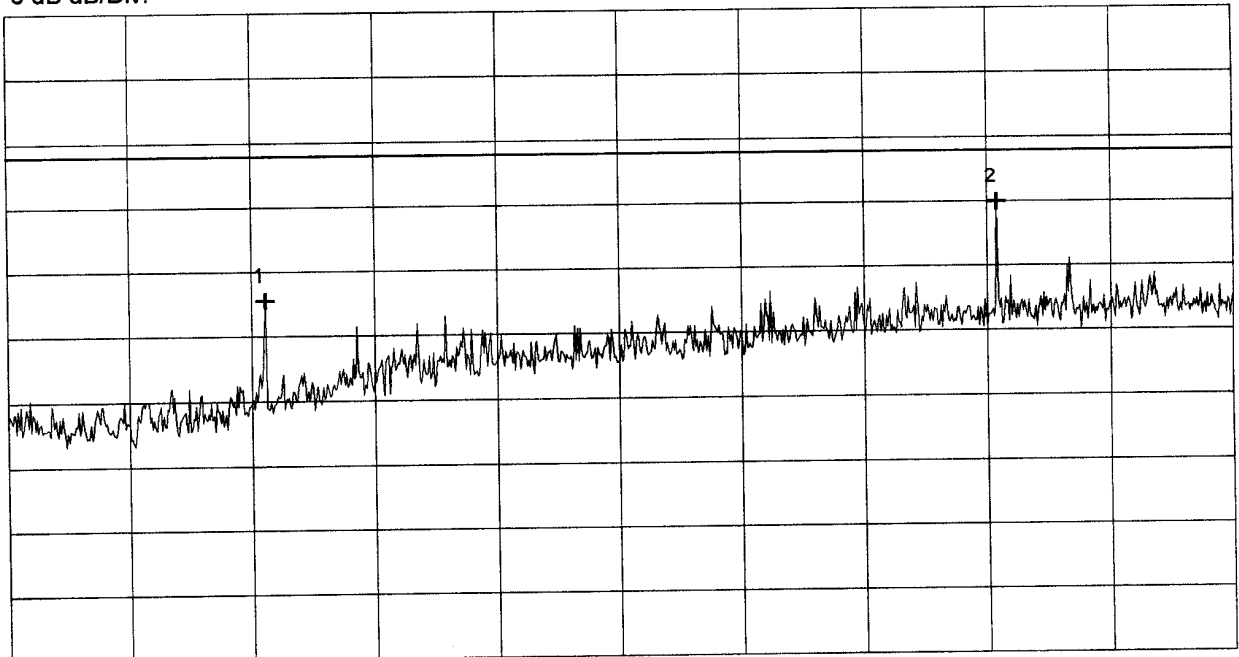
Mode:

- transmitting continuously
- with battery supply 9.0 V
- EUT in horizontal position - rear to table
- Test distance : 3m
- Antenna polarization : horizontal

Ref.Level 65 dB μ V/m
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 1.000 GHz
RBW 1 MHz

VBW 1 MHz

Stop 4.500 GHz
SWP 20 ms

**** Multi Marker ****

Nr.	Frequency (GHz)	Amplitude (dB μ V/m)
Nr.1	1.738889 GHz	42.73 dB μ V/m
Nr.2	3.827222 GHz	49.97 dB μ V/m
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by:
Thomas Eberl

Date:
02/18/1999

Project-No.:
56502-90128-1

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Radiated emission 1GHz - 4.5 GHz acc. FCC Part 15 Subpart C

Model:
SESAM 503

Serial No.:
--

Applicant:
Akerstöms Björbo AB

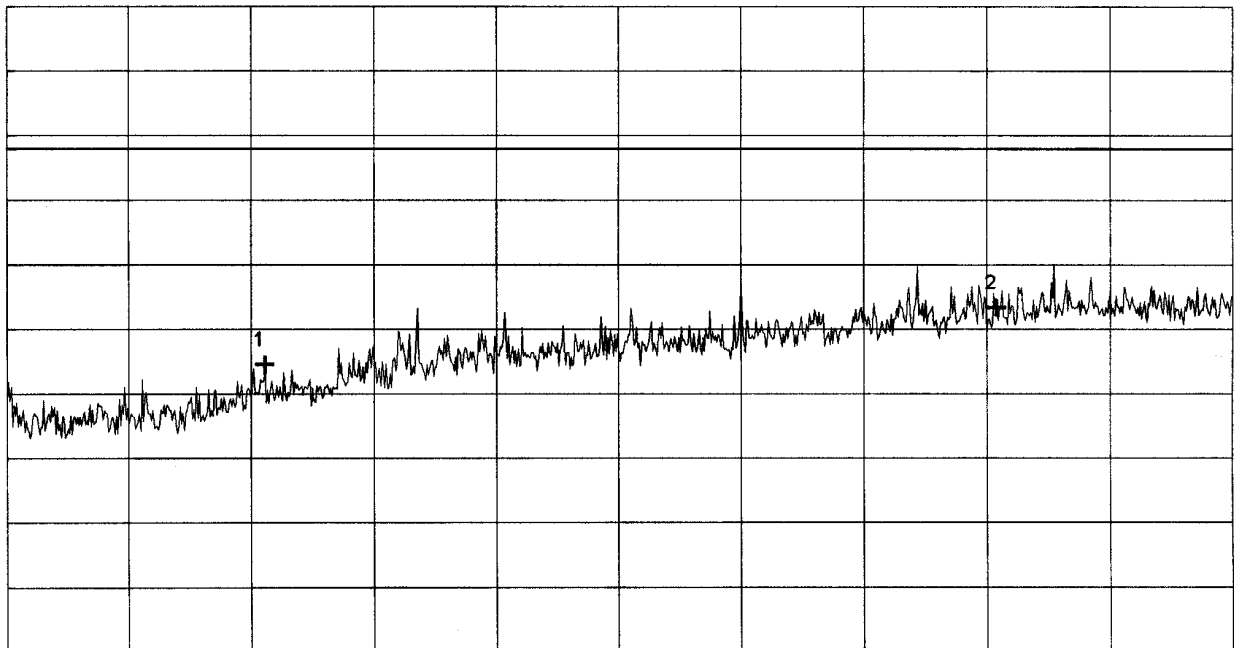
Mode:

- transmitting continuously
- with battery supply 9.0 V
- EUT in horizontal position - rear to table
- Test distance : 3m
- Antenna polarization : vertical

Ref.Level 65 dB μ V/m
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 1.000 GHz
RBW 1 MHz

VBW 1 MHz

Stop 4.500 GHz
SWP 20 ms

**** Multi Marker ****

Nr.1	1.738889 GHz	37.20 dB μ V/m
Nr.2	3.827222 GHz	41.64 dB μ V/m
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by:
Thomas Eberl

Date:
02/18/1999

Project-No.:
56502-90128-1

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Radiated Emission 1 GHz - 5 GHz according to FCC Part 15 Subpart C, §15.231.b

Model: Sesam 503
Type: Remote control transmitter
Serial No.: 92 1863-000
Applicant: Akerströms Björbo AB
Test-site: Semi anechoic room
Test distance: 3 meters
Date of test: 02/18/1999
Operator: T. Eberl
Mode:

- transmitting continuously
- with battery supply 9V DC
- EUT in horizontal position with rear on table

Detector: Peak

Frequency [GHz]	Polarization	Analyzer- reading [dB μ V]	Antenna- correction [dB]	Cable- correction [dB]	Fieldstrength Peak [dB μ V/m]	Limit Peak [dB μ V/m]	Duty cycle correction [dB]	Fieldstrength Average [dB μ V/m]	Limit Average [dB μ V/m]	Limit exceeded
1.7388	horizontal	14.3	27.9	0.5	42.7	74.0			54.0	
3.8272	horizontal	15.1	34.0	0.8	49.9	80.8			60.8	

Note 1: Frequency error of markers is depending on span of analyzer. Therefore exact frequency values are calculated as harmonics of fundamental frequency.

Note 2: No additional average testing, because peak fieldstrength is below average limit

Result: The limits are kept.

Radiated Emission 1 GHz - 5 GHz according to FCC Part 15 Subpart C, §15.231.b

Model: Sesam 503
Type: Remote control transmitter
Serial No.: 92 1863-000
Applicant: Akerströms Björbo AB
Test-site: Semi anechoic room
Test distance: 3 meters
Date of test: 02/18/1999
Operator: T. Eberl
Mode:

- transmitting continuously
- with battery supply 9 V DC
- EUT in horizontal position with right hand side on table

Detector: Peak

Frequency [GHz]	Polarization	Analyzer- reading [dB μ V]	Antenna- correction [dB]	Cable- correction [dB]	Fieldstrength Peak [dB μ V/m]	Limit Peak [dB μ V/m]	Duty cycle correction [dB]	Fieldstrength Average [dB μ V/m]	Limit Average [dB μ V/m]	Limit exceeded
1.7388	vertical	12.2	27.9	0.5	40.6	74.0			54.0	
2.1744	vertical	14.5	29.6	0.6	44.7	80.8			60.8	

Note 1: Frequency error of markers is depending on span of analyzer. Therefore exact frequency values are calculated as harmonics of fundamental frequency.

Note 2: No additional average testing, because peak fieldstrength is below average limit

Result: The limits are kept.

Radiated Emission 1 GHz - 5 GHz
according to FCC Part 15 Subpart C, §15.231.b

Model: Sesam 503
 Type: Remote control transmitter
 Serial No.: 92 1863-000
 Applicant: Akerströms Björbo AB
 Test-site: Semi anechoic room
 Test distance: 3 meters
 Date of test: 02/18/1999
 Operator: T. Eberl
 Mode:
 - transmitting continuously
 - with battery supply 9 V DC
 - EUT in vertical position with antenna to the top

Detector: Peak

Frequency [GHz]	Polarization	Analyzer- reading [dB μ V]	Antenna- correction [dB]	Cable- correction [dB]	Fieldstrength Peak [dB μ V/m]	Limit Peak [dB μ V/m]	Duty cycle correction [dB]	Fieldstrength Average [dB μ V/m]	Limit Average [dB μ V/m]	Limit exceeded
1.7388	horizontal	11.4	27.9	0.5	39.8	74.0			54.0	
2.1744	vertical	10.7	29.6	0.6	40.9	80.8			60.8	

■ EMV-Prüfzentrum ■ EMI/EMC-Testcenter ■

Note: Frequency error of markers is depending on span of analyzer. Therefore exact frequency values are calculated as harmonics of fundamental frequency.

Note 2: No additional average testing, because peak fieldstrength is below average limit

Result: The limits are kept.