

Straubing, 8 May 2003

**TEST - REPORT**

**No. 50530-30221**

**for**

**FHS 20/21 Typ 2 ASK 315 MHz**

**Remote Control Transmitter**

Applicant: Eldat GmbH

Test Specification: FCC Code of Federal Regulations,  
Part 15 Subpart C, Section 15.231

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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

|                                     |                                                                                          |
|-------------------------------------|------------------------------------------------------------------------------------------|
| <b>Test item (EUT)</b>              |                                                                                          |
| Type designation                    | FHS 20/21 Typ 2 ASK 315 MHz                                                              |
| Serial number(s):                   | 001                                                                                      |
| Type of equipment:                  | Remote Control Transmitter                                                               |
| Parts/accessories:                  |                                                                                          |
| FCC-ID:                             |                                                                                          |
| <b>Technical data</b>               |                                                                                          |
| Frequency range                     | N/A                                                                                      |
| Operational frequency               | 315 MHz                                                                                  |
| Type of modulation                  | 10K0A1D                                                                                  |
| Pulse frequency                     | N/A                                                                                      |
| Pulse width                         | N/A                                                                                      |
| Antenna                             | Integrated                                                                               |
| Power supply                        | 3 V Lithium Battery                                                                      |
| <b>Applicant:</b><br>(full address) | ELDAT GmbH<br>Gesellschaft für Elektronik und Daten<br>Im Gewerbepark 14<br>15711 Zeesen |
| Contract identification:            | ---                                                                                      |
| Contact person:                     | Andreas Eidam                                                                            |
| Manufacturer:                       | Eldat GmbH                                                                               |
| <b>Application details</b>          |                                                                                          |
| Receipt of EUT:                     | 8 April 2003                                                                             |
| Date of test:                       | April 2003                                                                               |
| Note:                               |                                                                                          |
| Responsible for testing:            | Martin Steindl                                                                           |
| Responsible for test report:        | Martin Steindl                                                                           |

## 2. Identification of Test Laboratory

| DETAILS OF THE TEST LABORATORY            |                                                               |
|-------------------------------------------|---------------------------------------------------------------|
| COMPANY NAME:                             | Senton GmbH EMI/EMC Test Center                               |
| ADDRESS:                                  | Aeussere Fruehlingsstrasse 45<br>D-94315 Straubing<br>Germany |
| LABORATORY ACCREDITATION:                 | DAR-Registration No. TTI-P-G 062/94-01                        |
| FCC TEST SITE LISTING                     |                                                               |
| INDUSTRY CANADA TEST SITE<br>REGISTRATION | IC 3050                                                       |
| NAME FOR CONTACT PURPOSES:                | Mr. Johann Roidt                                              |
| TELEPHONE: (+49) (0)9421 5522-0           | FAX: (+49) (0)9421 5522-99                                    |

| PERSONNEL INVOLVED IN THIS TEST REPORT |                                                                                                          |
|----------------------------------------|----------------------------------------------------------------------------------------------------------|
| LABORATORY MANAGER:                    | <br>Mr. Johann Roidt |
| RESPONSIBLE FOR TESTING:               | Mr. Martin Steindl                                                                                       |
| RESPONSIBLE FOR TEST REPORT:           | Mr. Martin Steindl                                                                                       |

| SUMMARY OF TEST RESULTS                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| The tested sample complies with the requirements set forth in the<br><b>FCC Code of Federal Regulations</b><br><b>Part 15, Subpart C, Section 15.231</b> |

### 3. Operation Mode of EUT

While one button is pressed, the transmitter continuously sends the corresponding datagram. When the button is released, the transmitter stops working instantly.

#### 4. Configuration

| Configuration of the EUT |
|--------------------------|
| Not applicable           |

| Cables connected to the EUT |
|-----------------------------|
| Not applicable              |

| Peripheral devices connected to the EUT |
|-----------------------------------------|
| Not applicable                          |

## 5. Measuring Methods

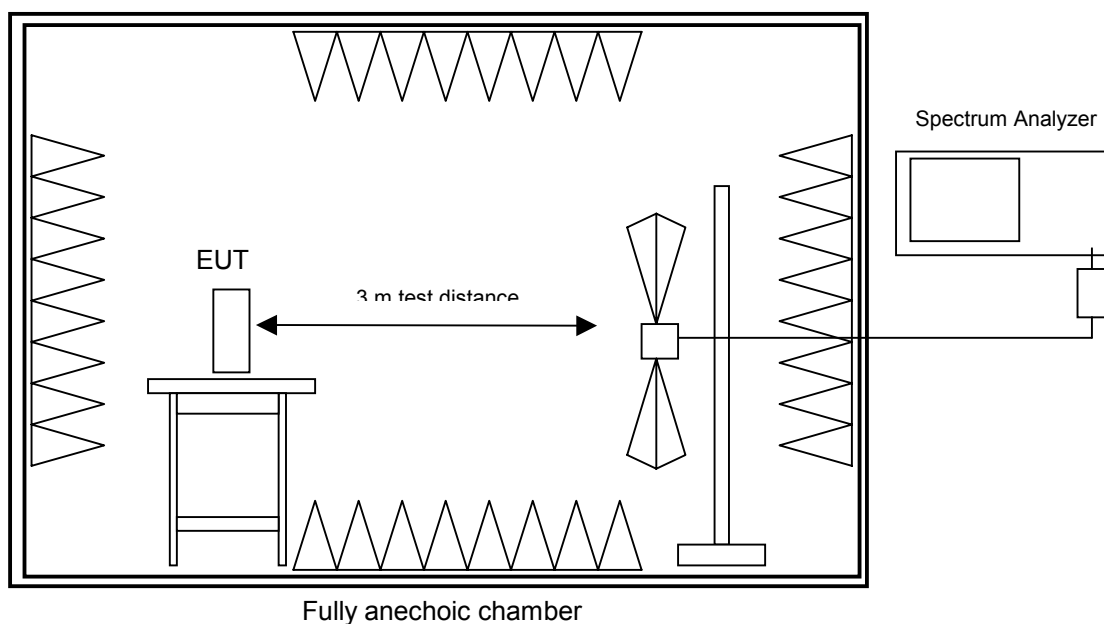
### 5.1. Field Strength of Emissions, Prescans in a fully-anechoic room (30 MHz – 1 GHz)

|                           |                          |
|---------------------------|--------------------------|
| Rules and Specifications: | Sections 15.109 & 15.231 |
| Guide:                    | ANSI C63.4 1997          |

#### Measurement Procedure:

Radiated emissions are measured over the frequency range from 30 MHz to 1 GHz.

Measurements were made in both the horizontal and vertical planes of polarization in a fully anechoic room using a spectrum analyzer with the detector function set to peak and resolution bandwidth set to 100 kHz. All tests were performed at a test-distance of 3 meters. 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.



#### Test instruments used:

| No. | Type                  | Model    | Serial Number | Manufacturer       |
|-----|-----------------------|----------|---------------|--------------------|
| 01  | Spectrum Analyzer     | FSP 30   | 100063        | Rohde & Schwarz    |
| 113 | Preamplifier          | CPA9231A | 3393          | Schaffner          |
| 141 | Biconical antenna     | HK 116   | 829708/006    | Rohde & Schwarz    |
| 143 | Log. periodic antenna | 3147     | 9112-1054     | EMCO               |
| 003 | Fully anechoic room   | No. 2    | 1452          | Albatross Projects |

## 5.2. Fieldstrength of Emissions, Measurement at Open Area Test Site (30 MHz – 1 GHz)

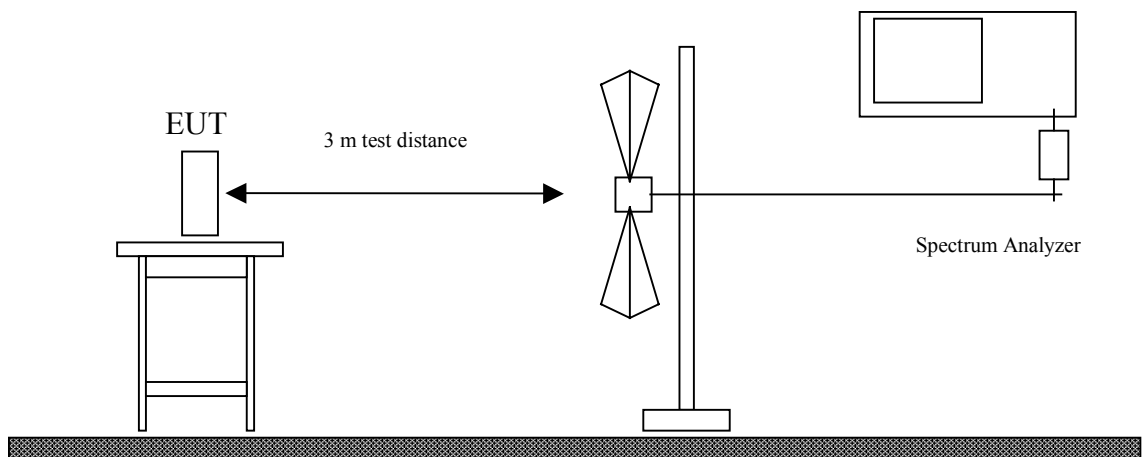
|                           |                          |
|---------------------------|--------------------------|
| Rules and Specifications: | Sections 15.109 & 15.231 |
| Guide:                    | ANSI C63.4 1997          |

### Measurement Procedure:

#### Measurement Procedure:

For final testing an open-area test-site was used. Radiated emissions are measured over the frequency range from 30 MHz to 1 GHz.

Measurements were made in both the horizontal and vertical planes of polarisation at a open area test site using a spectrum analyser with the detector function set to CISPR. All test were performed at a test distance of 3 meters. During the tests the EUT is rotated all around, and the receiving-antenna is rased and lowered from 1m to 4m to find the maximum levels of emissions. The cables and equipment were placed and moved within the range of position likely to find their maximum emissions.



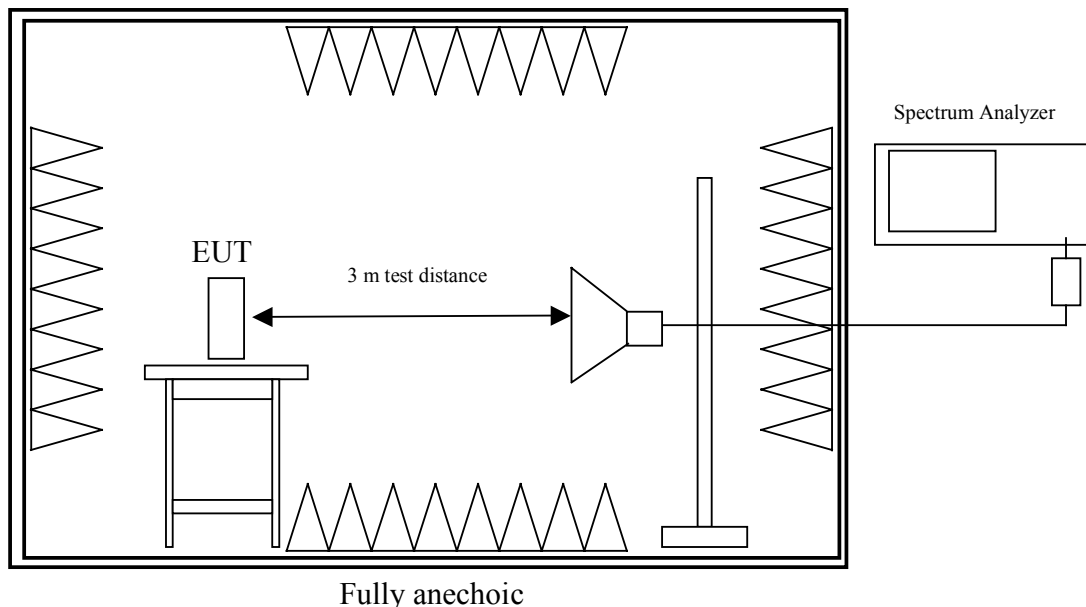
#### Test instruments used:

| No. | Type                  | Model  | Serial Number | Manufacturer    |
|-----|-----------------------|--------|---------------|-----------------|
| 01  | EMI Receiver          | ESVP   | 881414/009    | Rohde & Schwarz |
| 141 | Biconical antenna     | HK 116 | 829708/006    | Rohde & Schwarz |
| 143 | Log. periodic antenna | 3147   | 9112-1054     | EMCO            |
| 003 | Open Field Test Site  | No. 1  | N/A           | Senton          |

## 5.3. Fieldstrength of Emissions above 1 GHz

|                           |                          |
|---------------------------|--------------------------|
| Rules and Specifications: | Sections 15.109 & 15.209 |
| Guide:                    | ANSI C63.4 1997          |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measurement Procedure:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <p>Radiated emissions are measured in the frequency range 1 GHz to the 10<sup>th</sup> harmonic of the maximum frequency of the EUT.</p> <p>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.</p> <p>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.</p> <p>All tests are performed in a fully-anechoic chamber with a test-distance of 3 meters.</p> <p>If required preamplifiers are used for the whole frequency range. Special care is taken to avoid overload in transmit mode (using appropriate attenuators and filters if necessary).</p> |



Test instruments used:

| No. | Type                  | Model               | Serial Number | Manufacturer    |
|-----|-----------------------|---------------------|---------------|-----------------|
| 01  | Spectrum Analyzer     | FSP 30              | 100063        | Rohde & Schwarz |
| 143 | Log. periodic antenna | 3147                | 9112-1054     | EMCO            |
| 145 | Horn antenna          | 3115                | 9508-4553     | EMCO            |
| 146 | Horn antenna set      | 3160-03/-09         | 9112-1003     | EMCO            |
| 114 | Preamplifier 1-8 GHz  | AFS3-00100800-32-LN | 847743        | Miteq           |
| 115 | Preamplifier 8-18 GHz | ACO/180-3530        | 32641         | CTT             |

## 6. Photographs Taken During Testing

## Test setup for radiated emission measurement (fully anechoic room)



## Test setup for radiated emission measurement (open-area test-side)



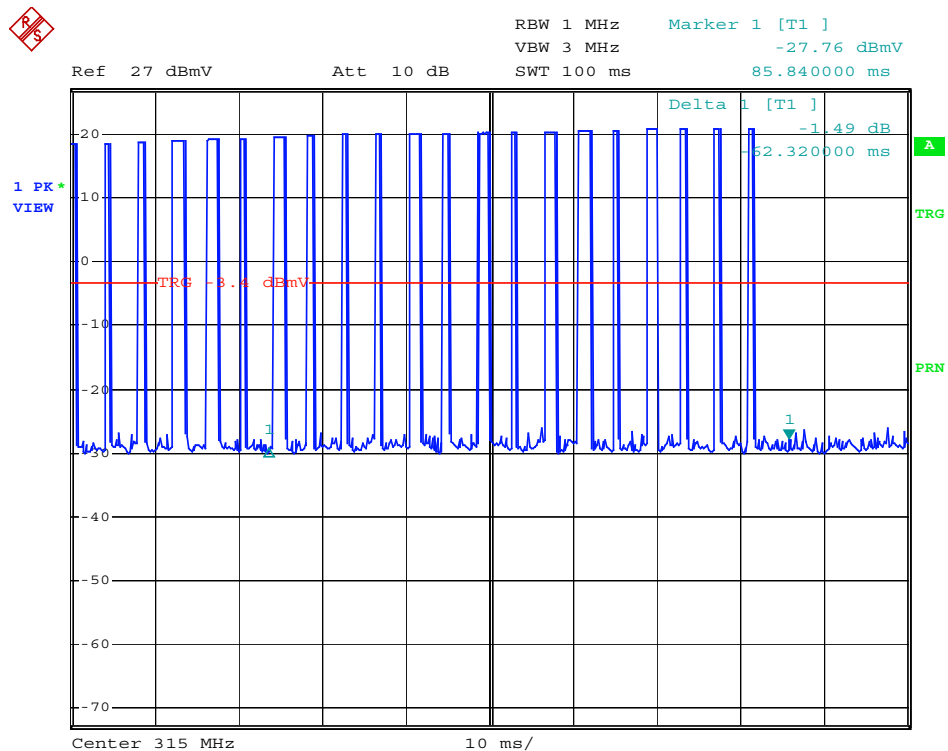
## 7. List of Measurements

| FCC Part 15    |                             |         |        |
|----------------|-----------------------------|---------|--------|
| Section(s):    | Test                        | Page(s) | Result |
| 15.205         | Restricted Bands            | ---     | Pass   |
|                | Periodic operation          | ---     | Pass   |
| 15.231 (a) (1) | Duty cycle correction       | 14 - 15 |        |
| 15.231 (b)     | Field strength of emissions | 16      | Pass   |
| 15.231 (c)     | Bandwidth of emissions      | 17      | Pass   |
|                |                             |         |        |

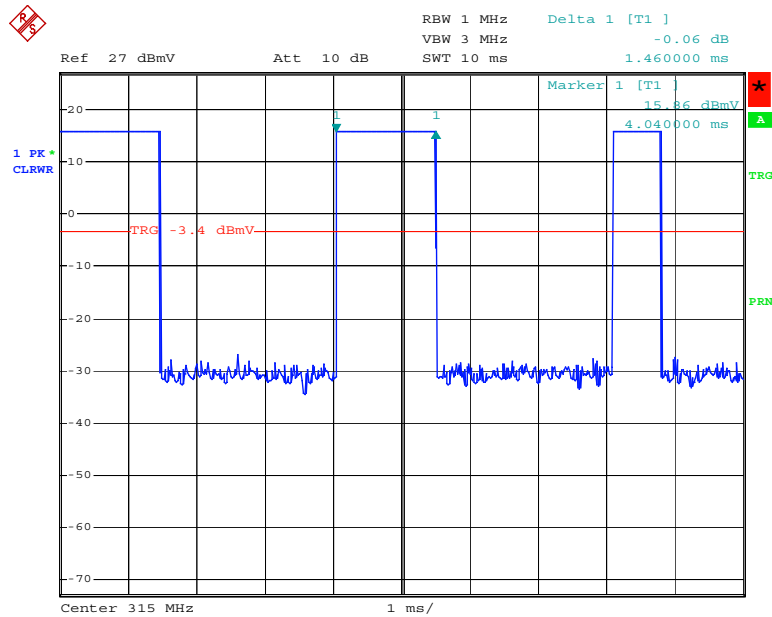
## Duty Cycle Correction

|                           |                                                                                                                                                                                                                                                                   |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rules and Specifications: | 15.231 (b) (2) Limits on the Field Strength of Emissions                                                                                                                                                                                                          |
| Guide:                    | ANSI C63.4                                                                                                                                                                                                                                                        |
| ANSI C63.4 4.2            | When average detector function limits are specified for a pulse modulated transmitter, the average level of emissions may be found by measuring the peak levels of the emissions and correcting them with the duty cycle according to ANSI C64.4, section I4 (10) |

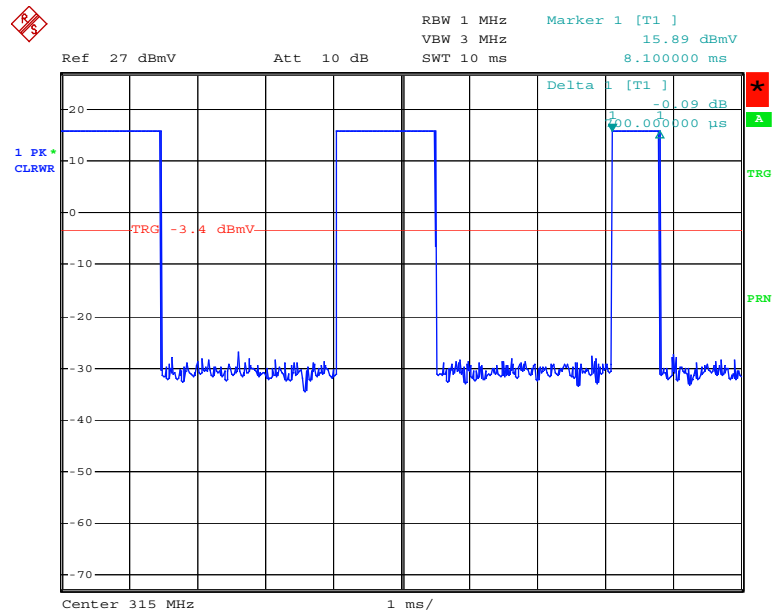
$$DutyCycleCorrection[dB] = 20 \cdot \log\left(\frac{13 \cdot 0,7ms + 8 \cdot 1.4ms}{100ms}\right) = -13.85 dB$$



Comment A: ELD30237 - Duty Cycle  
 Date: 9.MAY.2003 14:16:20



Comment A: ELD30237 - Duty Cycle  
Date: 9.MAY.2003 14:19:03



Comment A: ELD30237 - Duty Cycle  
Date: 9.MAY.2003 14:19:40

## Field strength of emissions

|                           |                                                                                                                                                                           |                                   |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Rules and Specifications: | 15.231 Radiated Emission Limits                                                                                                                                           |                                   |
| Guide:                    | ANSI C63.4                                                                                                                                                                |                                   |
| Limit:                    | In addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators operated under Section 15.231 shall not exceed the following: |                                   |
|                           | Frequency of Emission (MHz)                                                                                                                                               | Field Strength (microvolts/meter) |
|                           | 40.66 – 40.70                                                                                                                                                             | 225                               |
|                           | 70 – 130                                                                                                                                                                  | 125                               |
|                           | 130 - 174                                                                                                                                                                 | 125 to 375 **                     |
|                           | 174 - 260                                                                                                                                                                 | 375                               |
|                           | 260 – 470                                                                                                                                                                 | 375 to 1250 **                    |
|                           | above 470                                                                                                                                                                 | 1250                              |

\*\* linear interpolation

|            |                                                                 |
|------------|-----------------------------------------------------------------|
| Test Site: | Open Area Test Site (< 1 GHz), Fully anechoic chamber (> 1 GHz) |
| Distance:  | 3 Meter                                                         |

| Frequency (MHz) | Detector | Antenna Polarization | Analyzer Reading (dBμV) | Antenna Correction (dB/m) | Duty Cycle Correction (dB) | Field Strength (dBμV/m) | Limit (dBμV/m) | Margin (dB)  |
|-----------------|----------|----------------------|-------------------------|---------------------------|----------------------------|-------------------------|----------------|--------------|
| 315.00          | PK       | Hor                  | 64.2                    | 15.80                     | -13.85                     | 66.15                   | 75.62          | <b>-9.5</b>  |
| 630.00          | PK       | Ver                  | 25.90                   | 23.20                     | -13.85                     | 35.25                   | 55.62          | <b>-20.4</b> |
| 2206.00         | PK       | Ver                  | 14.61                   | 31.45                     | -13.85                     | 32.21                   | 55.62          | <b>-23.4</b> |
| 2524.00         | PK       | Ver                  | 15.39                   | 32.25                     | -13.85                     | 33.79                   | 55.62          | <b>-21.8</b> |
| 2836.00         | PK       | Hor                  | 11.95                   | 33.61                     | -13.85                     | 31.71                   | 55.62          | <b>-23.9</b> |

\*\*\* = All emissions showed more than 20 dB margin to the limit

A negative value for Margin indicates, that the limit is kept.

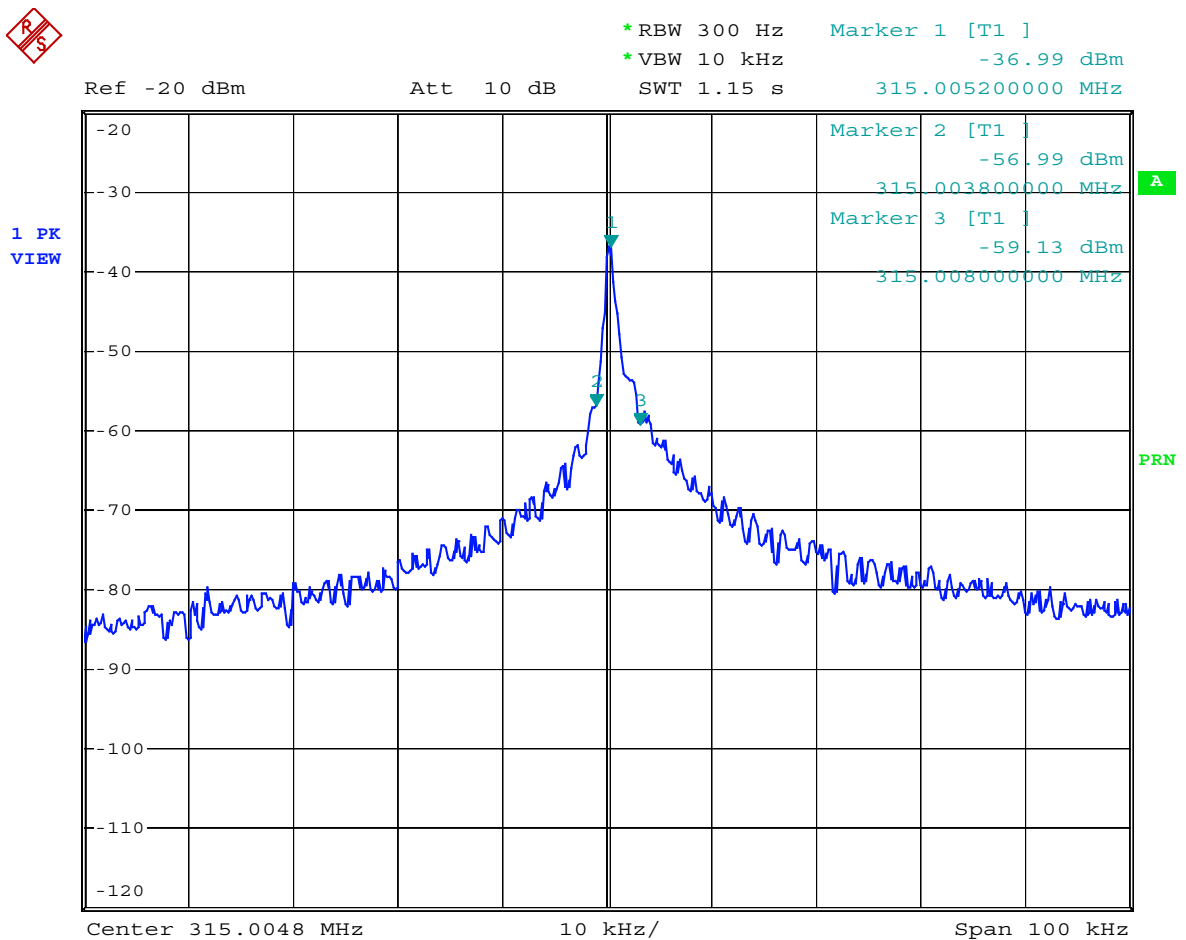
### Sample calculation of erp values:

$$\text{Field Strength (dBμV/m)} = \text{Analyzer Reading (dBμV)} + \text{Antenna Correction (dB/m)} + \text{Duty Cycle Correction (dB)}$$

|               |      |
|---------------|------|
| Test Results: | Pass |
|---------------|------|

## Bandwidth of Emission

|                           |                                                                                                                                                                                                                                                                                                                        |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rules and Specifications: | 15.231 ( c ) Bandwidth of Emissions                                                                                                                                                                                                                                                                                    |
| Guide:                    | ANSI C63.4                                                                                                                                                                                                                                                                                                             |
| Limit:                    | The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB from the modulated carrier |



Comment A: ELD30237 - Bandwidth of emission  
Date: 9.MAY.2003 15:11:32

Bandwidth of emission at -20 dB points is 4.2 kHz. Limit is 787.5 kHz

|               |      |
|---------------|------|
| Test Results: | Pass |
|---------------|------|

## 8. Referenced Regulations

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

|                                     |                          |                                                                                                                                                                             |                   |
|-------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| <input checked="" type="checkbox"/> | FCC Part 2               | Code of Federal Regulations Part 2<br>Frequency allocation and radio treaty matters;<br>General rules and regulations                                                       | October 01, 1999  |
| <input type="checkbox"/>            | FCC Part 15<br>Subpart A | Code of Regulations Part 15 (Radio Frequency<br>Devices), Subpart A (General) of the Federal<br>Communication Commission (FCC)                                              | May 30, 2002      |
| <input type="checkbox"/>            | FCC Part 15<br>Subpart B | Code of Regulations Part 15 (Radio Frequency<br>Devices), Subpart B (Unintentional Radiators) of<br>the Federal Communication Commission (FCC)                              | May 30, 2002      |
| <input checked="" type="checkbox"/> | FCC Part 15<br>Subpart C | Code of Regulations Part 15 (Radio Frequency<br>Devices), Subpart C (Intentional Radiators) of the<br>Federal Communication Commission (FCC)                                | May 30, 2002      |
| <input type="checkbox"/>            | FCC Part 74<br>Subpart H | Code of Regulations Part 15 (Radio Frequency<br>Devices), Subpart H (Low Power Auxiliary<br>Stations) of the Federal Communication<br>Commission (FCC)                      | October 20, 1997  |
| <input checked="" type="checkbox"/> | ANSI C63.4               | American National Standard for Methods of<br>Measurement of Radio-Noise Emissions from<br>Low-Voltage Electrical and Electronic Equipment<br>in the Range of 9 kHz - 40 GHz | October, 1992     |
| <input type="checkbox"/>            | RSS-210                  | Radio Standards Specification RSS-210 Issue 2<br>for Low Power Licence-Exempt<br>Radiocommunication Devices of Industry Canada                                              | February 24, 1996 |

## Charts taken during testing

## Restricted bands requirement acc. FCC 15 Part C

Model:  
FHS 20/21 Typ2 ASK 315 MHz

Serial No.:  
test sample

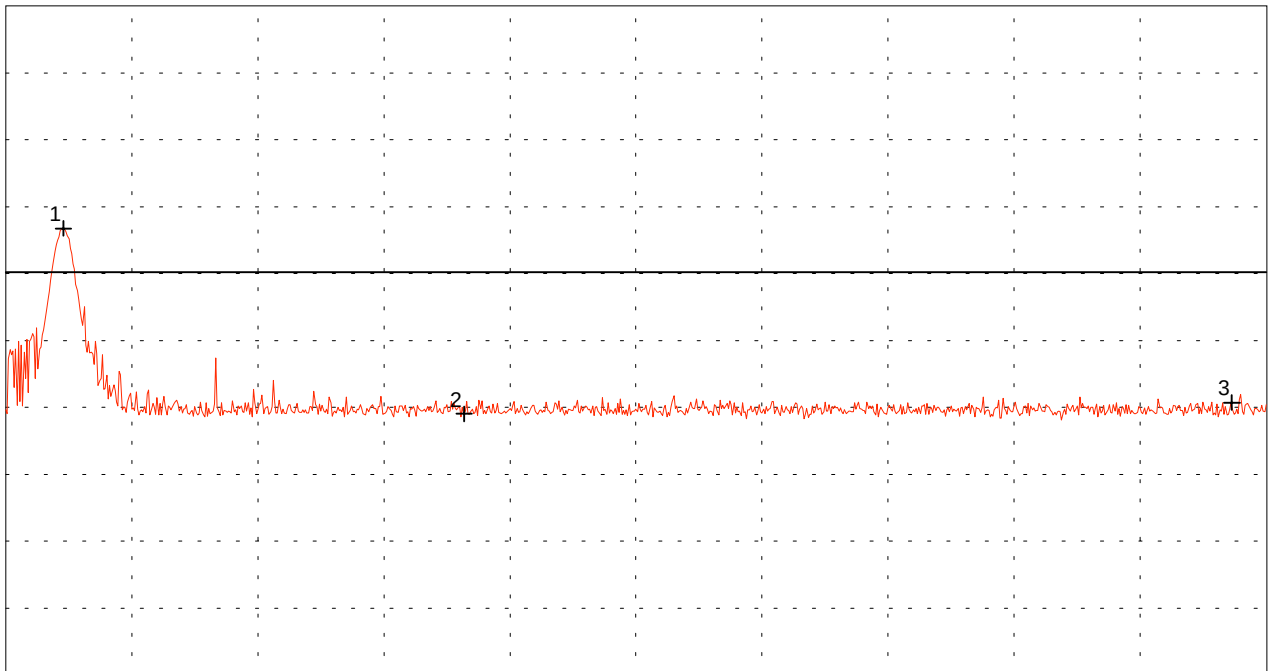
Applicant:  
Eldat GmbH

Mode:  
- DC 3 V lithium battery supply  
-  
- sending pulsed

Ref.Level 115.4 dB $\mu$ V/m  
10 dB/Div.

ATT 20 dB

Ref. Offset 18.4 dB



Start 314.000 MHz  
RBW 219 kHz

VBW 300 kHz

Stop 336.000 MHz  
SWP 20 ms

### Multi Marker List

|       |                |                    |
|-------|----------------|--------------------|
| No. 1 | 315.002222 MHz | 82.14 dB $\mu$ V/m |
| No. 2 | 322.000000 MHz | 54.43 dB $\mu$ V/m |
| No. 3 | 335.400000 MHz | 56.11 dB $\mu$ V/m |

Tested by:  
M. Steindl

Date:  
04/25/2003

Project-No.:  
50530-30221

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# Radiated Emission Test 30 MHz - 200 MHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:  
FHS 20/21 Typ 2 ASK 315 MHz

Serial no.:  
test sample 1

Applicant:  
Eldat GmbH

Test site:  
Fully anechoic room, cabin no. 2

Tested on:  
Test distance 3 metres  
Horizontal Polarization

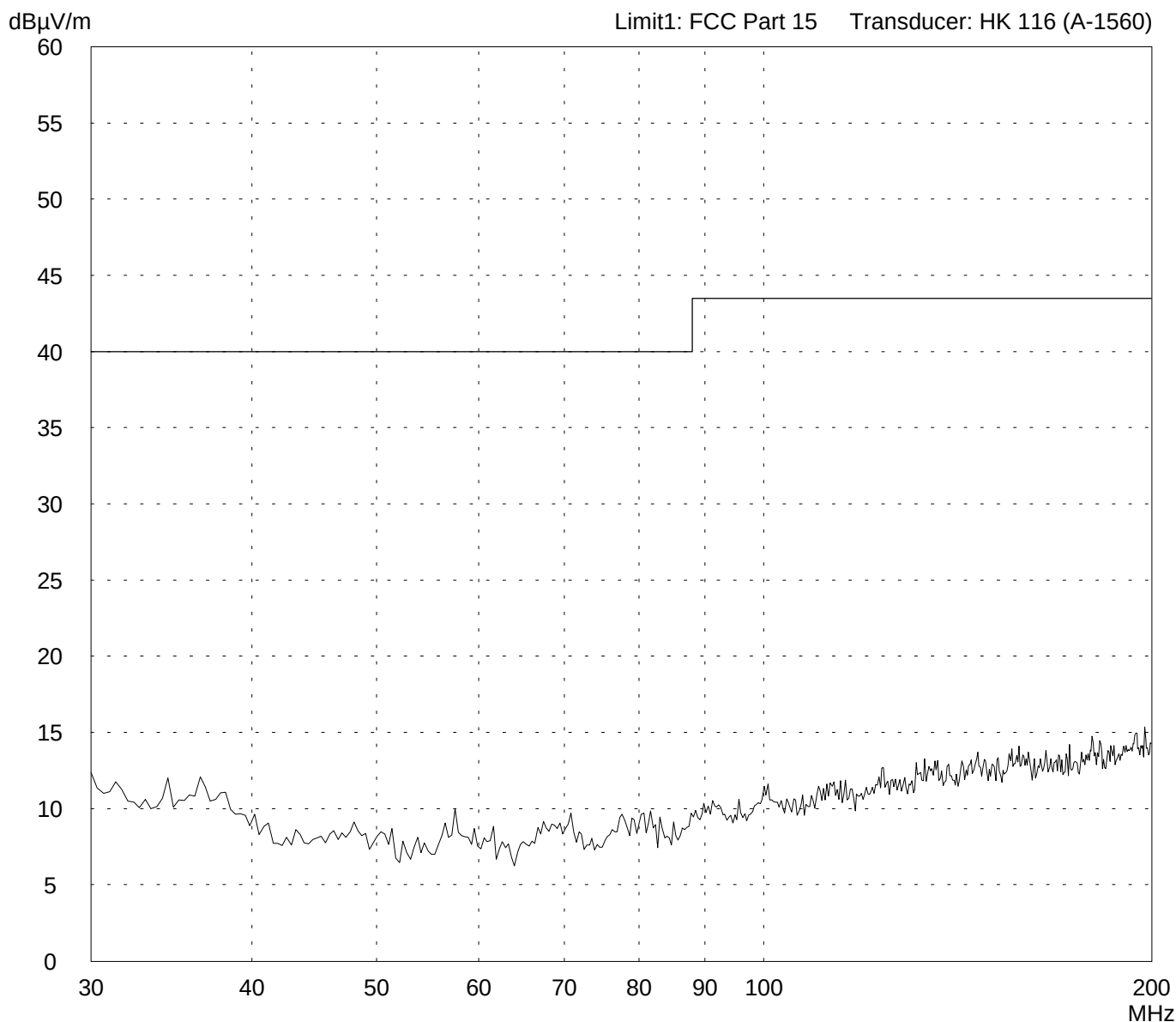
Date of test: 04/24/2003      Operator: M. Steindl

Test performed: automatically      File name: default.emi

Comment:  
- DC 3 V lithium battery supply  
- EUT mouted in test fixture (rotating z-axis)  
- sending pulsed

Detector:  
Peak

List of values:  
10 dB Margin      50 Subranges



Result:  
Prescan

Project file:  
50530-30221

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# Radiated Emission Test 30 MHz - 200 MHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:

FHS 20/21 Typ 2 ASK 315 MHz

Serial no.:

test sample 1

Applicant:

Eldat GmbH

Test site:

Fully anechoic room, cabin no. 2

Tested on:

Test distance 3 metres  
Vertical Polarization

Date of test:

04/24/2003

Operator:

M. Steindl

Test performed:

automatically

File name:

default.emi

Comment:

- DC 3 V lithium battery supply
- EUT mouted in test fixture (rotating y-axis)
- sending pulsed

Detector:

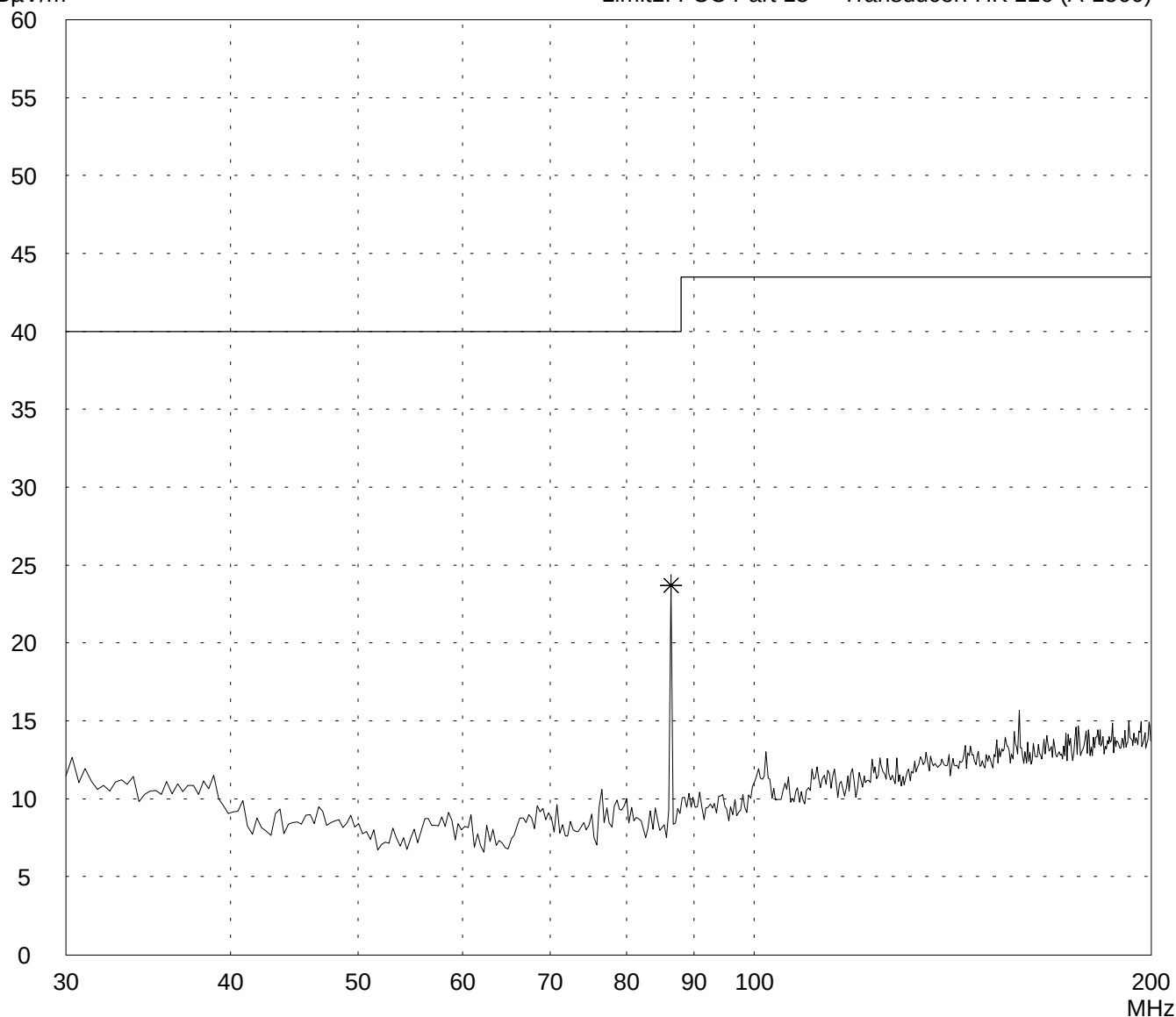
Peak

List of values:

Selected by hand

dB $\mu$ V/m

Limit1: FCC Part 15    Transducer: HK 116 (A-1560)



Result:

Prescan

Project file:

50530-30221

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# Radiated Emission Test 200 MHz - 1 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:

FHS 20/21 Typ 2 ASK 315 MHz

Serial no.:

test sample 1

Applicant:

Eldat GmbH

Test site:

Fully anechoic room, cabin no. 2

Tested on:

Test distance 3 metres  
Horizontal Polarization

Date of test:

04/24/2003

Operator:

M. Steindl

Test performed:

automatically

File name:

default.emi

Comment:

- DC 3 V lithium battery supply
- EUT mouted in test fixture (rotating y-axis)
- sending pulsed

Detector:

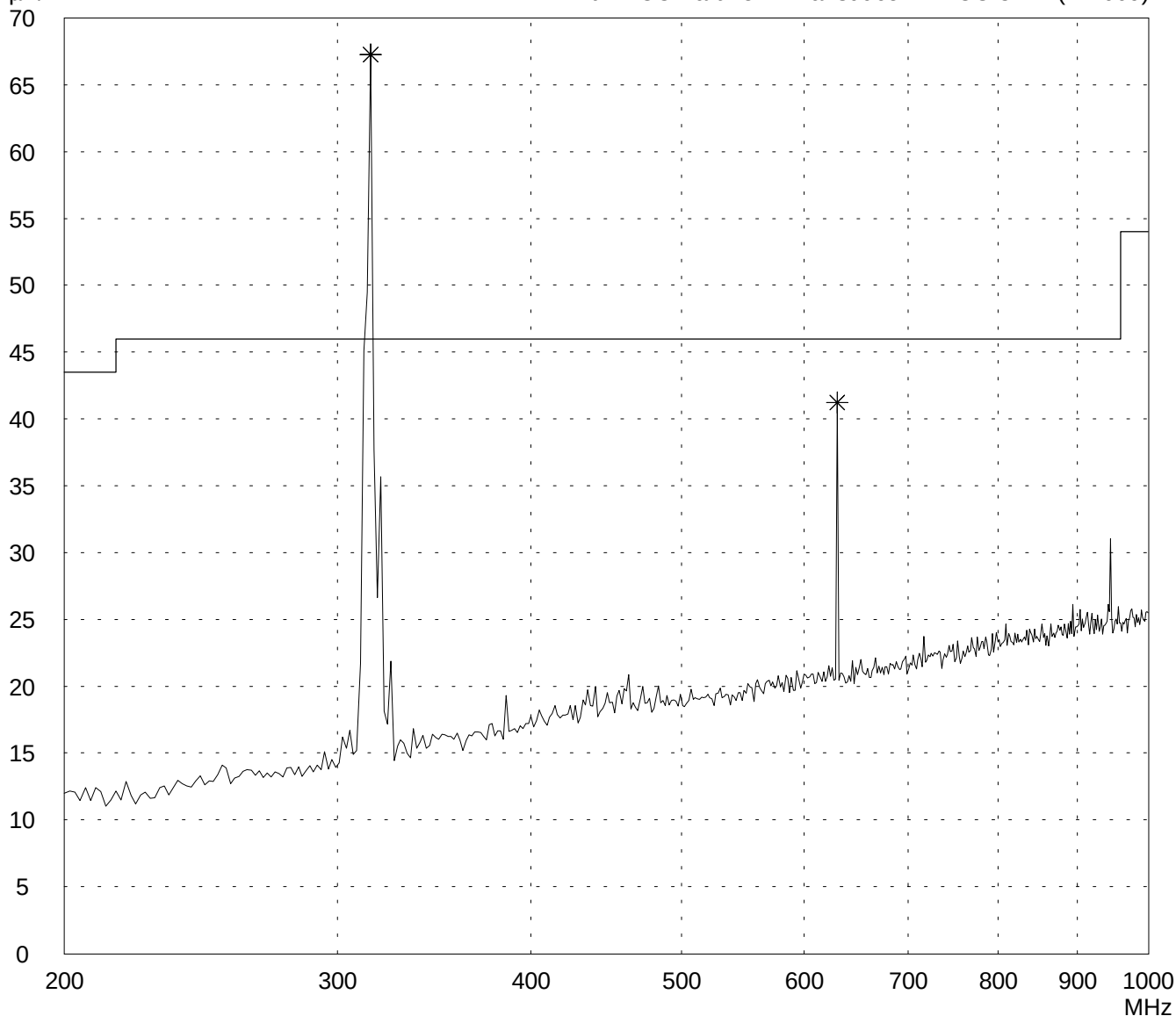
Peak

List of values:

Selected by hand

dBμV/m

Limit1: FCC Part 15 Transducer: EMCO 3147 (A-1009)



Result:

Prescan

Project file:

50530-30221

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# Radiated Emission Test 200 MHz - 1 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:  
FHS 20/21 Typ 2 ASK 315 MHz

Serial no.:  
test sample 1

Applicant:  
Eldat GmbH

Test site:  
Fully anechoic room, cabin no. 2

Tested on:  
Test distance 3 metres  
Vertical Polarization

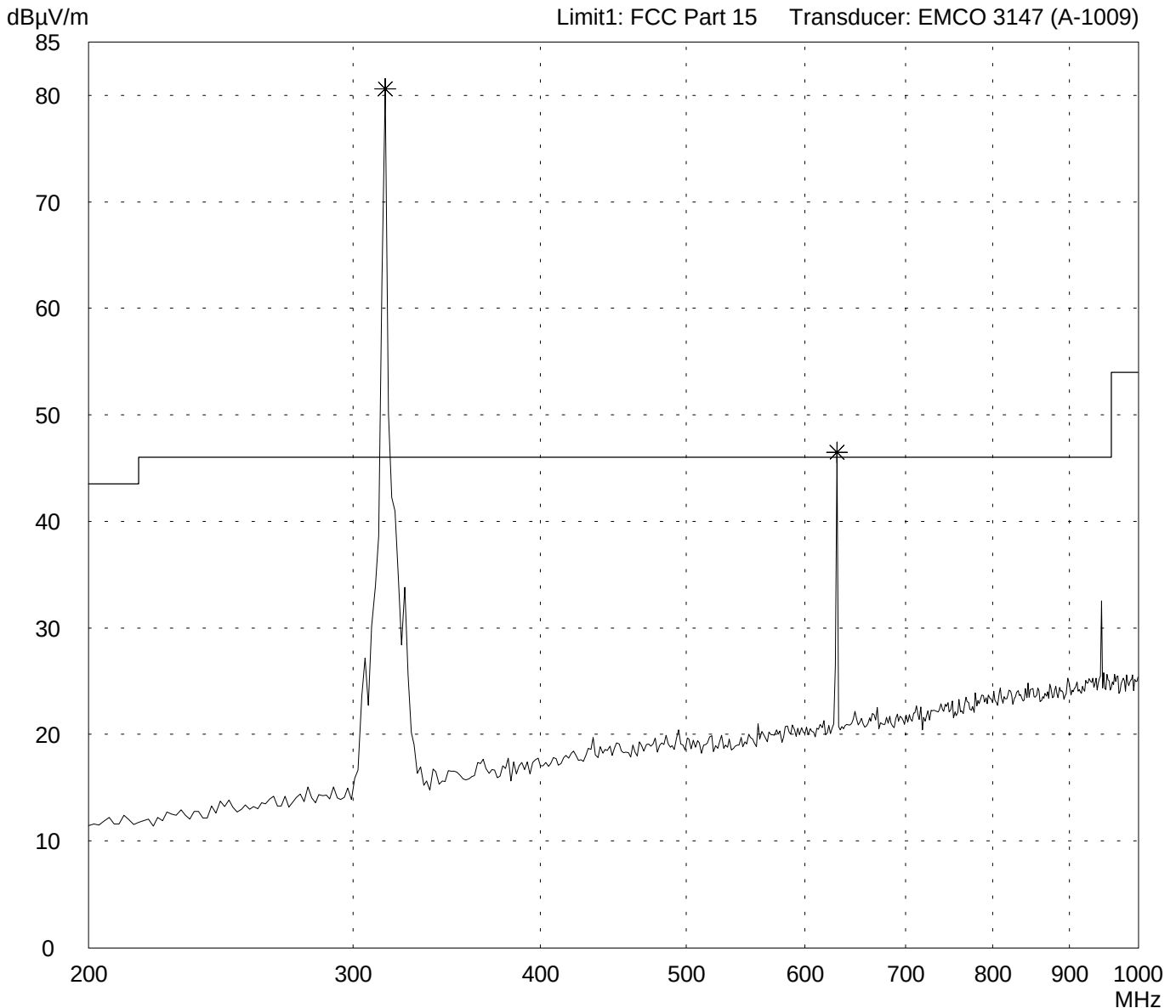
Date of test: 04/24/2003      Operator: M. Steindl

Test performed: automatically      File name: default.emi

Comment:  
- DC 3 V lithium battery supply  
- EUT mouted in test fixture (rotating y-axis)  
- sending pulsed

Detector:  
Peak

List of values:  
Selected by hand



Result:  
Prescan

Project file:  
50530-30221

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# Radiated Emission Test 1 GHz - 4 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:  
FHS 20/21 Typ 2 ASK 315 MHz

Serial no.:  
test sample 1

Applicant:  
Eldat GmbH

Test site:  
Fully anechoic room, cabin no. 2

Tested on:  
Test distance 3 metres  
Horizontal Polarization

Date of test:  
04/24/2003

Operator:  
M. Steindl

Test performed:  
automatically

File name:  
default.emi

Comment:

- DC 3 V lithium battery supply
- EUT mouted in test fixture (rotating y-axis)
- sending pulsed
  
- with WHKS1000-10SS high pass filter

Detector:  
Peak

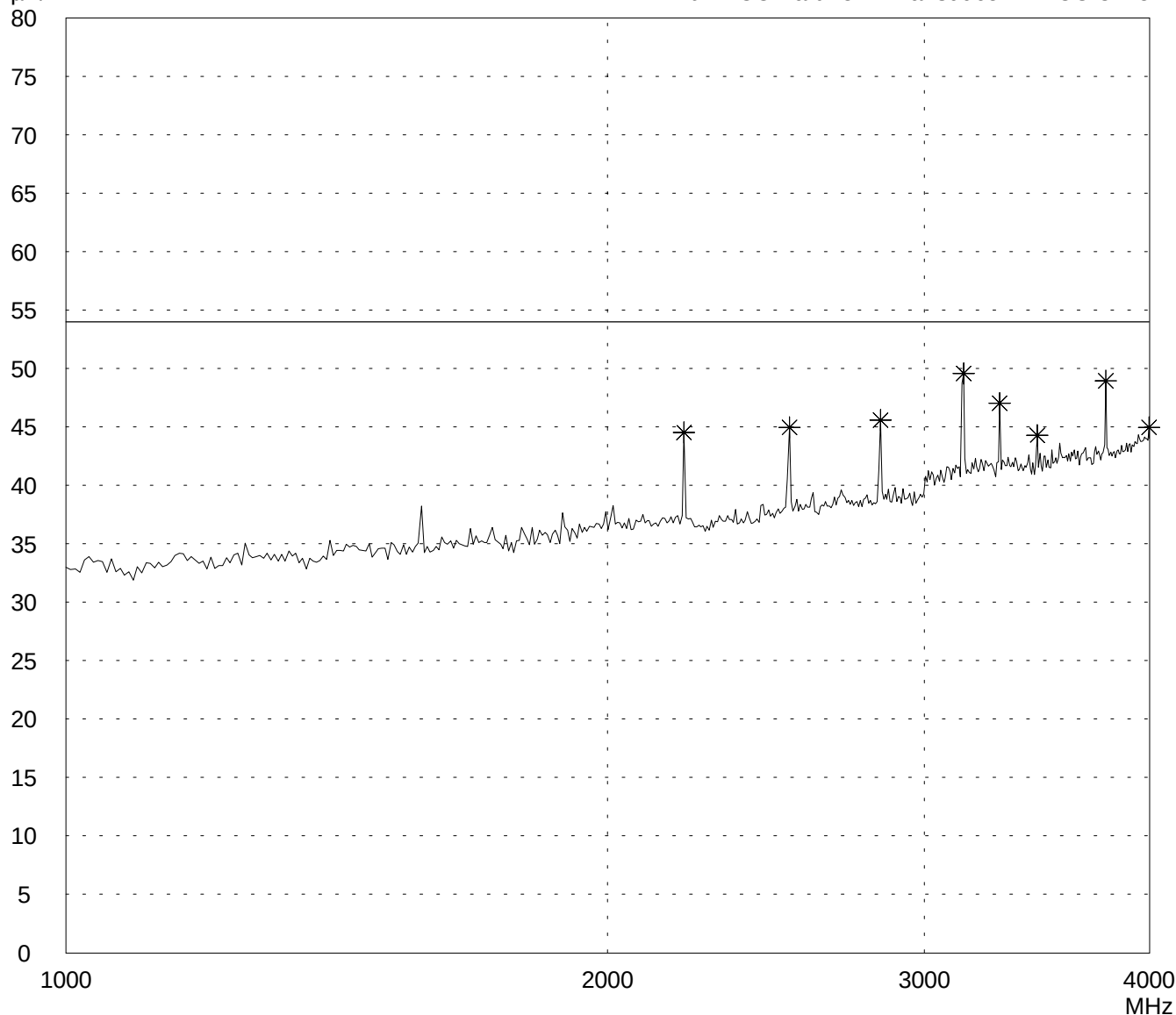
List of values:

10 dB Margin

50 Subranges

$\text{dB}\mu\text{V/m}$

Limit1: FCC Part 15    Transducer: EMCO 3115



Result:  
Limit kept

Project file:  
50530-30221

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# Radiated Emission Test 1 GHz - 4 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:  
FHS 20/21 Typ 2 ASK 315 MHz

Serial no.:  
test sample 1

Applicant:  
Eldat GmbH

Test site:  
Fully anechoic room, cabin no. 2

Tested on:  
Test distance 3 metres  
Vertical Polarization

Date of test:  
04/24/2003

Operator:  
M. Steindl

Test performed:  
automatically

File name:  
default.emi

Comment:

- DC 3 V lithium battery supply
- EUT mouted in test fixture (rotating y-axis)
- sending pulsed
- with WHKS1000-10SS high pass filter

Detector:  
Peak

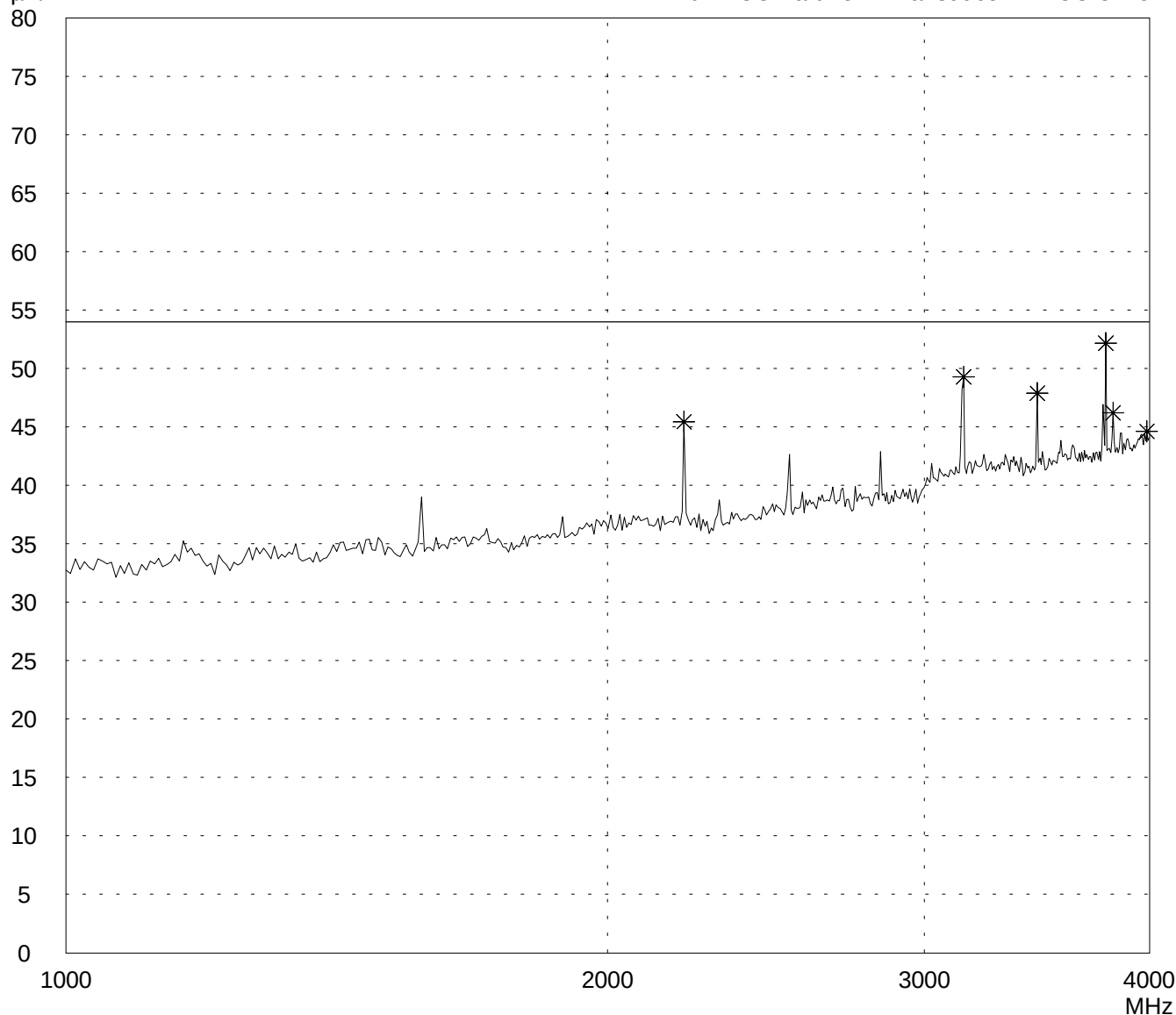
List of values:

10 dB Margin

50 Subranges

dB $\mu$ V/m

Limit1: FCC Part 15    Transducer: EMCO 3115



Result:  
Limit kept

Project file:  
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# Radiated Emission Test 30 MHz - 200 MHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:

FHS 20/21 Typ 2 ASK 315 MHz

Serial no.:

test sample 1

Applicant:

Eldat GmbH

Test site:

Fully anechoic room, cabin no. 2

Tested on:

Test distance 3 metres  
Horizontal Polarization

Date of test:

04/24/2003

Operator:

M. Steindl

Test performed:

automatically

File name:

default.emi

Comment:

- DC 3 V lithium battery supply
- EUT mouted in test fixture (rotating y-axis)
- sending pulsed

Detector:

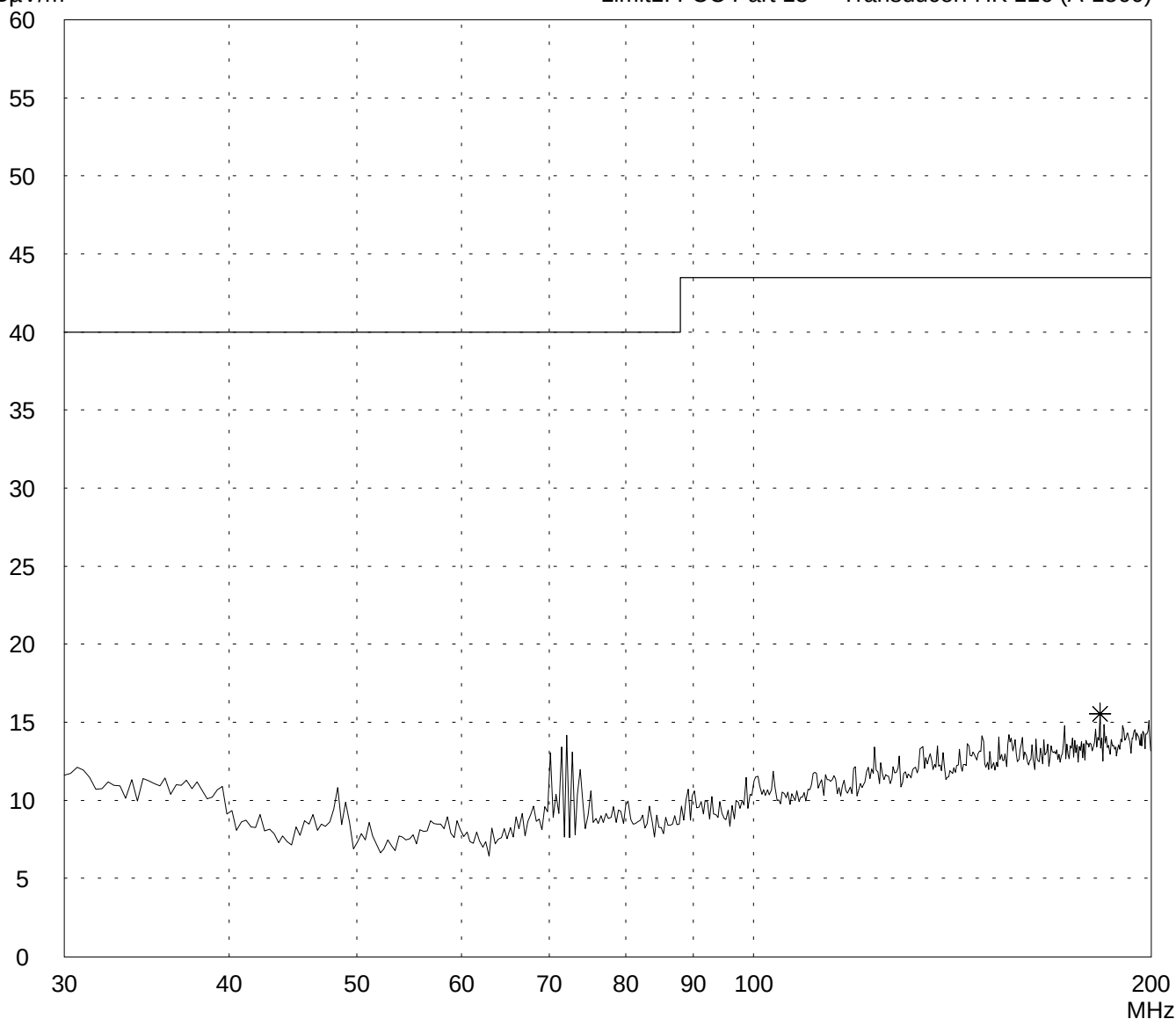
Peak

List of values:

Selected by hand

dB $\mu$ V/m

Limit1: FCC Part 15    Transducer: HK 116 (A-1560)



Result:

Prescan

Project file:

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# Radiated Emission Test 30 MHz - 200 MHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:  
FHS 20/21 Typ 2 ASK 315 MHz

Serial no.:  
test sample 1

Applicant:  
Eldat GmbH

Test site:  
Fully anechoic room, cabin no. 2

Tested on:  
Test distance 3 metres  
Vertical Polarization

Date of test: 04/24/2003      Operator: M. Steindl

Test performed: automatically      File name: default.emi

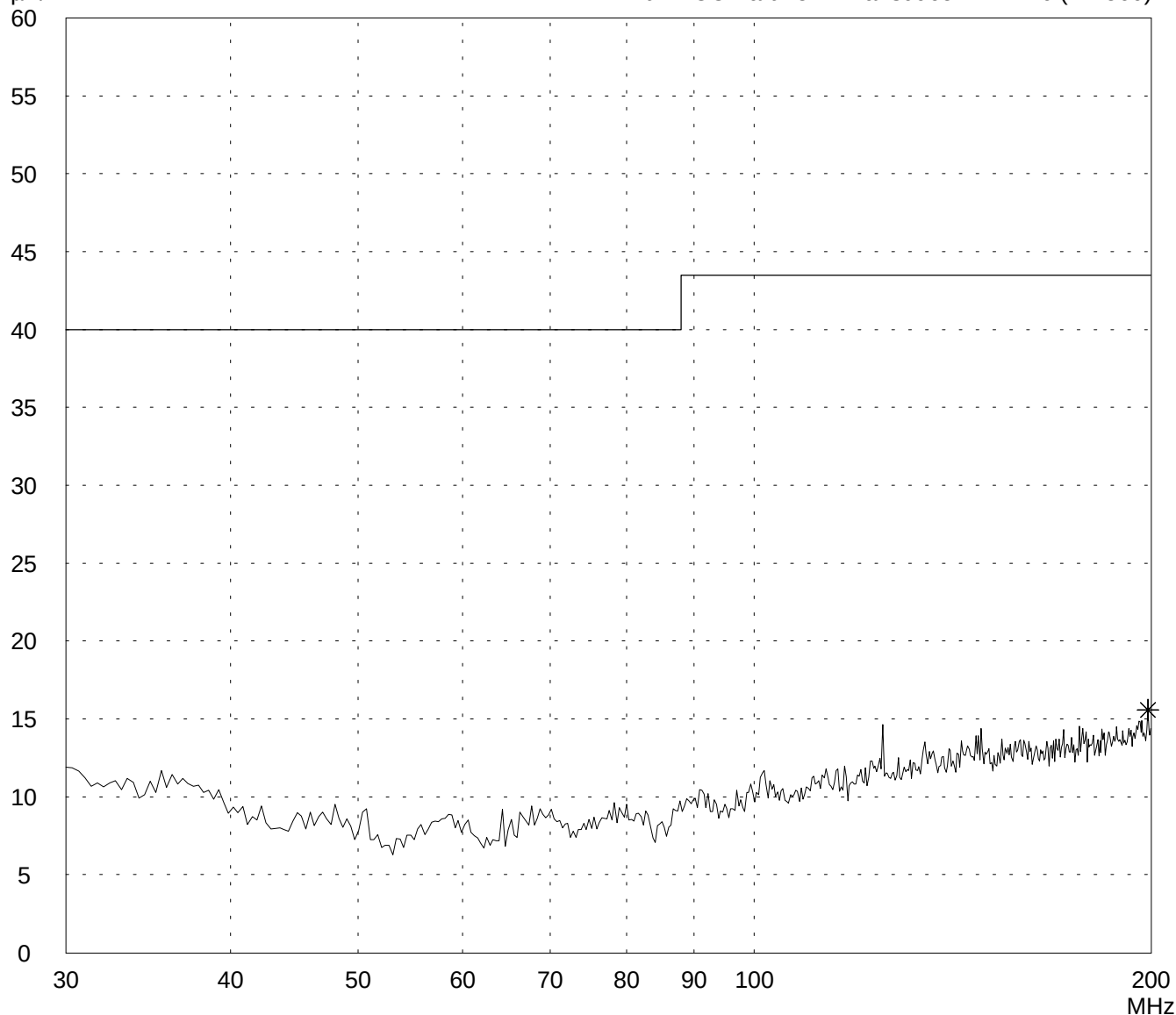
Comment:  
- DC 3 V lithium battery supply  
- EUT mouted in test fixture (rotating z-axis)  
- sending pulsed

Detector:  
Peak

List of values:  
Selected by hand

dB $\mu$ V/m

Limit1: FCC Part 15      Transducer: HK 116 (A-1560)



Result:  
Prescan

Project file:  
50530-30221

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# Radiated Emission Test 200 MHz - 1 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:  
FHS 20/21 Typ 2 ASK 315 MHz

Serial no.:  
test sample 1

Applicant:  
Eldat GmbH

Test site:  
Fully anechoic room, cabin no. 2

Tested on:  
Test distance 3 metres  
Horizontal Polarization

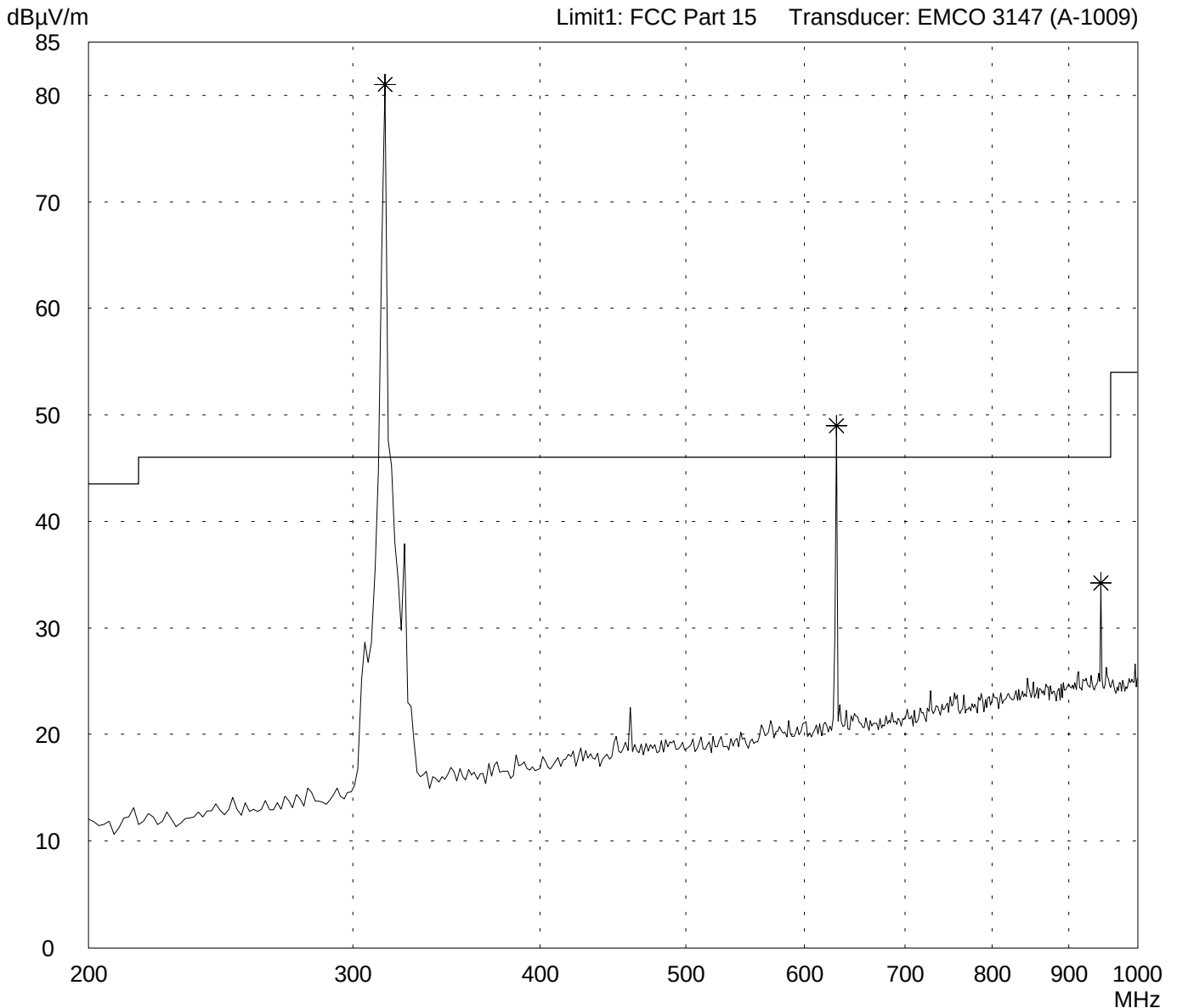
Date of test: 04/24/2003      Operator: M. Steindl

Test performed: automatically      File name: default.emi

Comment:  
- DC 3 V lithium battery supply  
- EUT mouted in test fixture (rotating z-axis)  
- sending pulsed

Detector:  
Peak

List of values:  
Selected by hand



Result:  
Prescan

Project file:  
50530-30221

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# Radiated Emission Test 200 MHz - 1 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:  
FHS 20/21 Typ 2 ASK 315 MHz

Serial no.:  
test sample 1

Applicant:  
Eldat GmbH

Test site:  
Fully anechoic room, cabin no. 2

Tested on:  
Test distance 3 metres  
Vertical Polarization

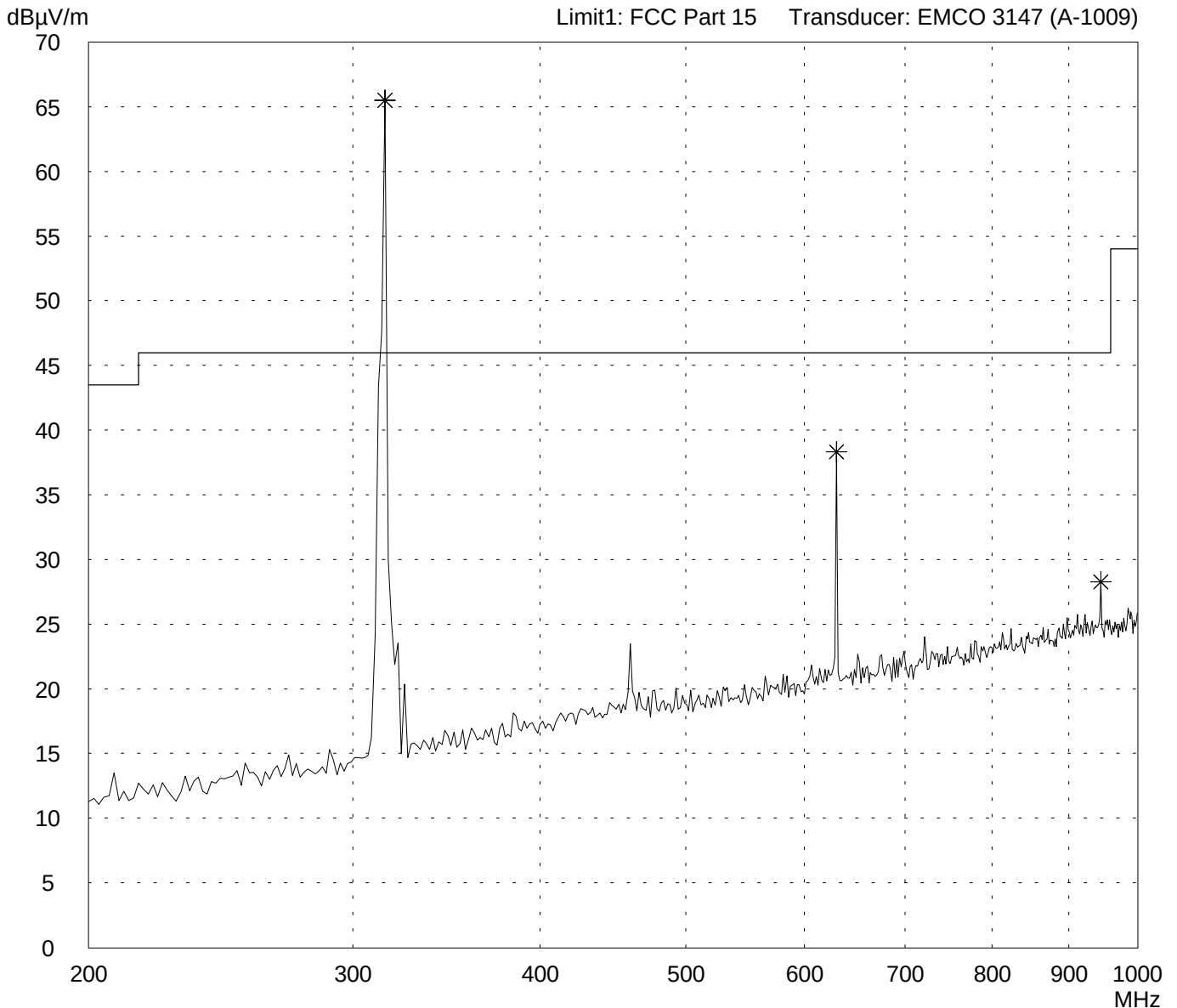
Date of test: 04/24/2003      Operator: M. Steindl

Test performed: automatically      File name: default.emi

Comment:  
- DC 3 V lithium battery supply  
- EUT mouted in test fixture (rotating z-axis)  
- sending pulsed

Detector:  
Peak

List of values:  
Selected by hand



Result:  
Prescan

Project file:  
50530-30221

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# Radiated Emission Test 1 GHz - 4 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:  
FHS 20/21 Typ 2 ASK 315 MHz

Serial no.:  
test sample 1

Applicant:  
Eldat GmbH

Test site:  
Fully anechoic room, cabin no. 2

Tested on:  
Test distance 3 metres  
Horizontal Polarization

Date of test:  
04/24/2003

Operator:  
M. Steindl

Test performed:  
automatically

File name:  
default.emi

Comment:

- DC 3 V lithium battery supply
- EUT mouted in test fixture (rotating z-axis)
- sending pulsed
  
- with WHKS1000-10SS high pass filter

Detector:  
Peak

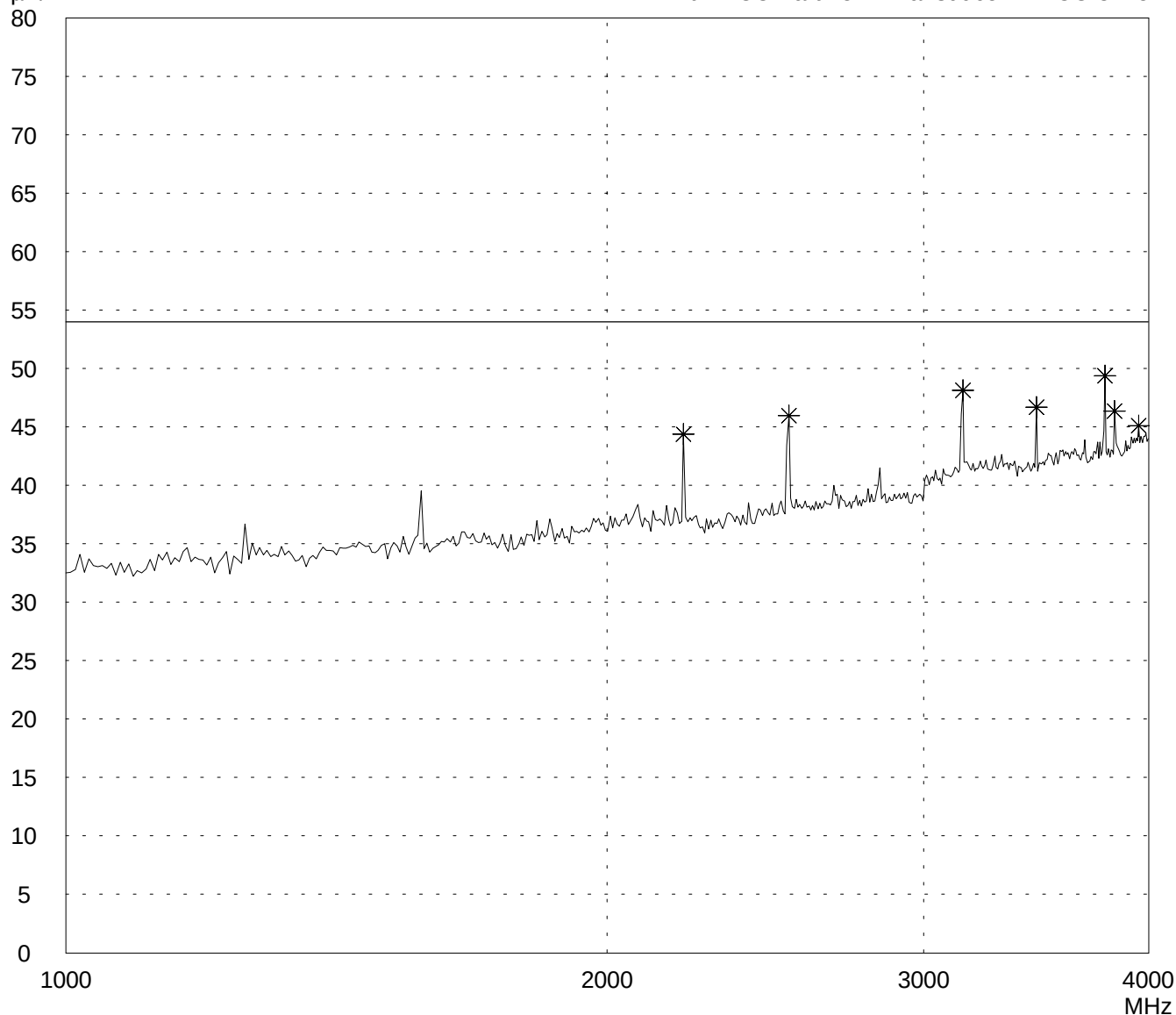
List of values:

10 dB Margin

50 Subranges

$\text{dB}\mu\text{V/m}$

Limit1: FCC Part 15    Transducer: EMCO 3115



Result:  
Limit kept

Project file:  
50530-30221

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# Radiated Emission Test 1 GHz - 4 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:  
FHS 20/21 Typ 2 ASK 315 MHz

Serial no.:  
test sample 1

Applicant:  
Eldat GmbH

Test site:  
Fully anechoic room, cabin no. 2

Tested on:  
Test distance 3 metres  
Vertical Polarization

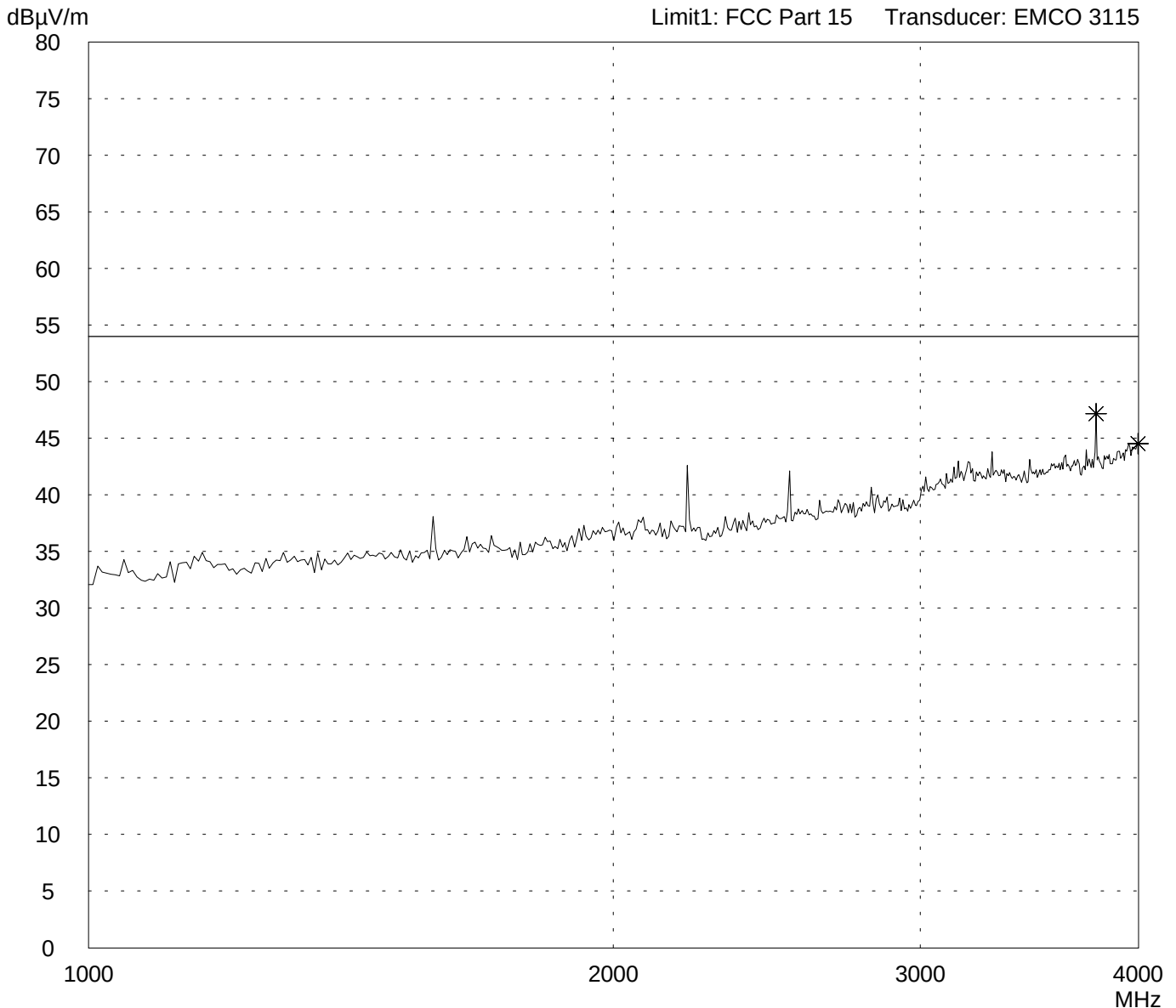
Date of test: 04/24/2003      Operator: M. Steindl

Test performed: automatically      File name: default.emi

Comment:  
- DC 3 V lithium battery supply  
- EUT mouted in test fixture (rotating z-axis)  
- sending pulsed  
  
- with WHKS1000-10SS high pass filter

Detector:  
Peak

List of values:  
10 dB Margin      50 Subranges



Result:  
Limit kept

Project file:  
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# Radiated Emission Test 30 MHz - 200 MHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:

FHS 20/21 Typ 2 ASK 315 MHz

Serial no.:

test sample 1

Applicant:

Eldat GmbH

Test site:

Fully anechoic room, cabin no. 2

Tested on:

Test distance 3 metres  
Horizontal Polarization

Date of test:

04/24/2003

Operator:

M. Steindl

Test performed:

automatically

File name:

default.emi

Comment:

- DC 3 V lithium battery supply
- EUT mouted in test fixture (rotating x-axis)
- sending pulsed

Detector:

Peak

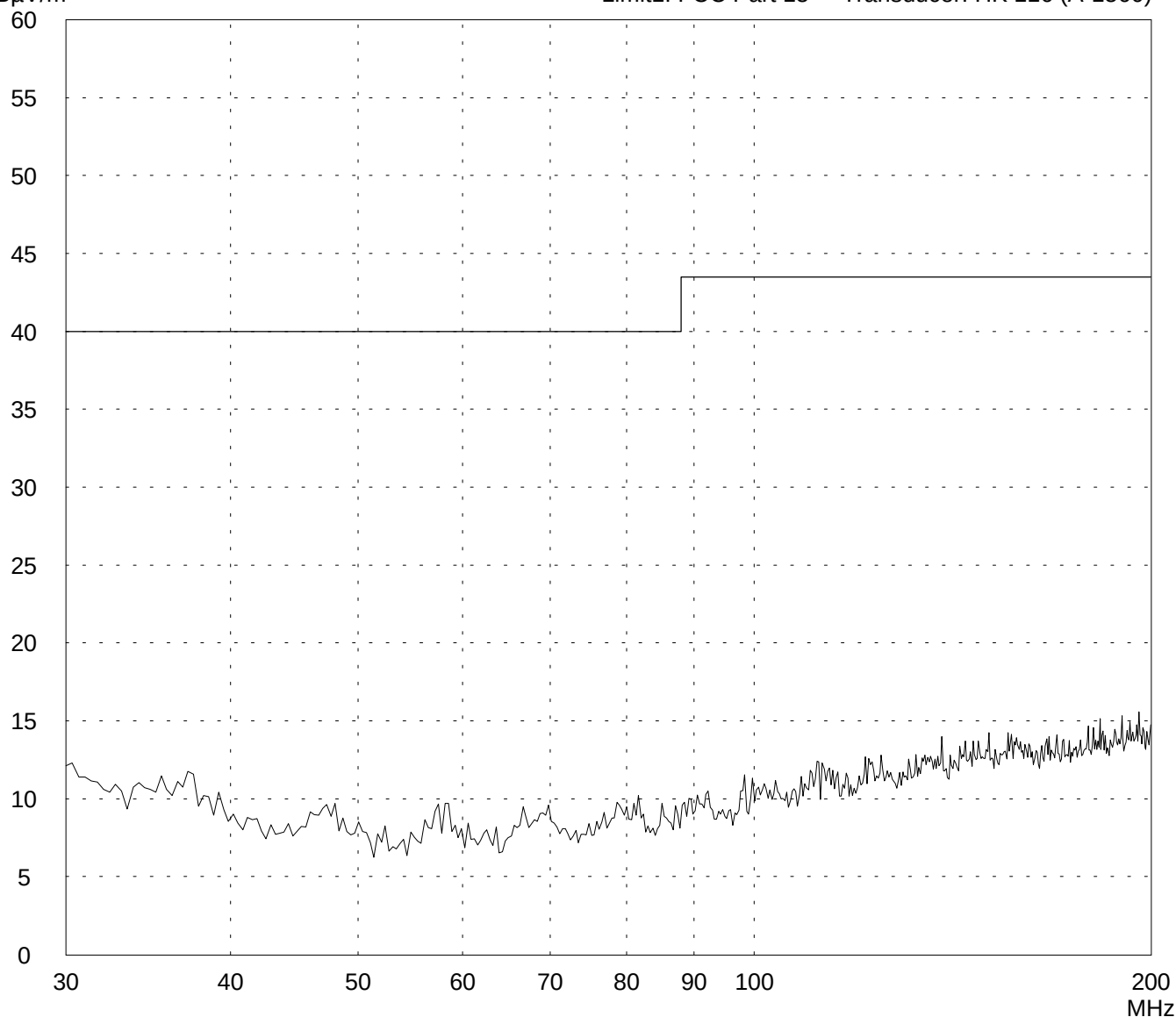
List of values:

10 dB Margin

50 Subranges

dBµV/m

Limit1: FCC Part 15    Transducer: HK 116 (A-1560)



Result:

Prescan

Project file:

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# Radiated Emission Test 30 MHz - 200 MHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:

FHS 20/21 Typ 2 ASK 315 MHz

Serial no.:

test sample 1

Applicant:

Eldat GmbH

Test site:

Fully anechoic room, cabin no. 2

Tested on:

Test distance 3 metres  
Vertical Polarization

Date of test:

04/24/2003

Operator:

M. Steindl

Test performed:

automatically

File name:

default.emi

Comment:

- DC 3 V lithium battery supply
- EUT mouted in test fixture (rotating x-axis)
- sending pulsed

Detector:

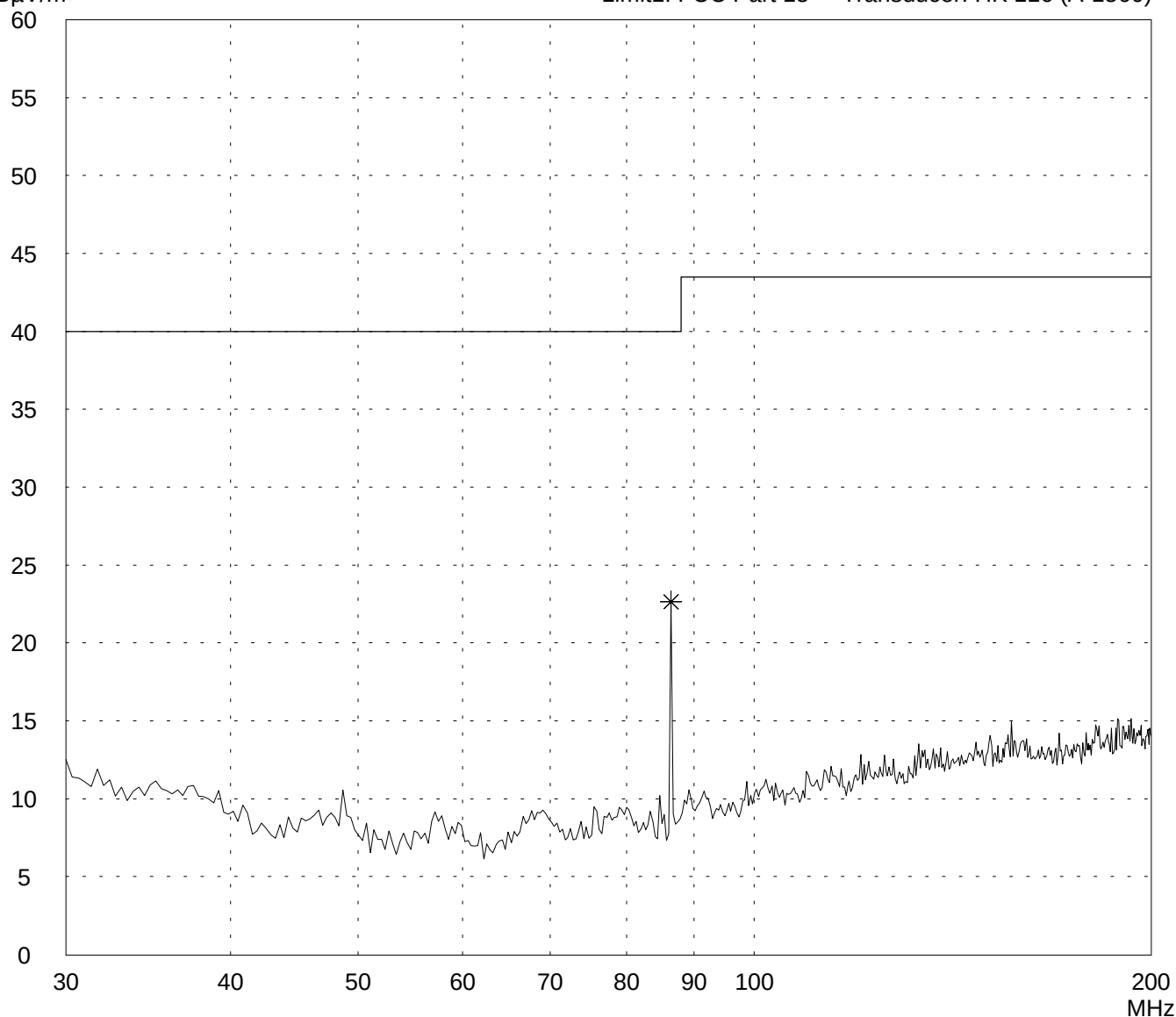
Peak

List of values:

Selected by hand

dB $\mu$ V/m

Limit1: FCC Part 15    Transducer: HK 116 (A-1560)



Result:

Prescan

Project file:

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# Radiated Emission Test 200 MHz - 1 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:  
FHS 20/21 Typ 2 ASK 315 MHz

Serial no.:  
test sample 1

Applicant:  
Eldat GmbH

Test site:  
Fully anechoic room, cabin no. 2

Tested on:  
Test distance 3 metres  
Horizontal Polarization

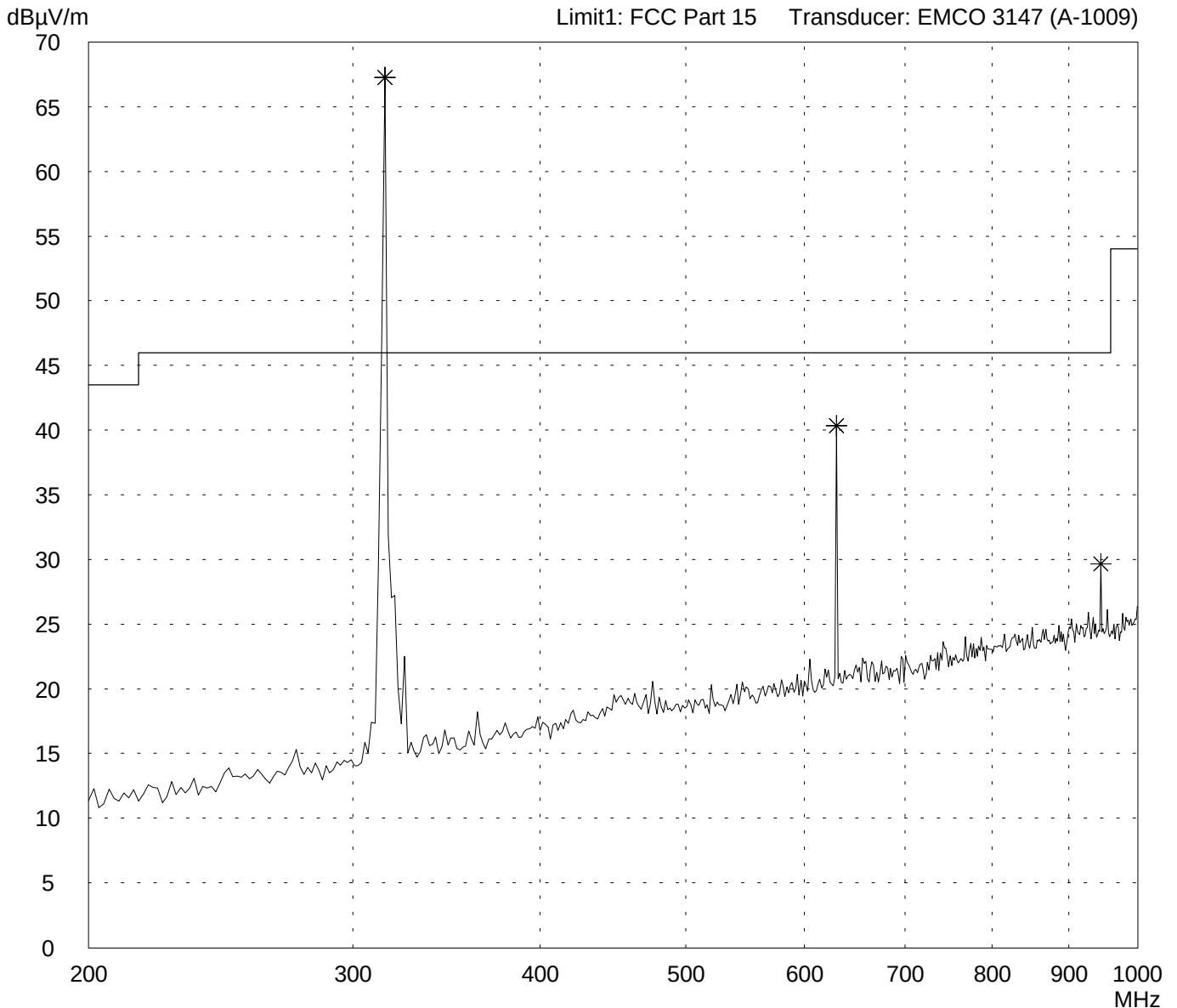
Date of test: 04/24/2003      Operator: M. Steindl

Test performed: automatically      File name: default.emi

Comment:  
- DC 3 V lithium battery supply  
- EUT mouted in test fixture (rotating x-axis)  
- sending pulsed

Detector:  
Peak

List of values:  
Selected by hand



Result:  
Prescan

Project file:  
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# Radiated Emission Test 200 MHz - 1 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:  
FHS 20/21 Typ 2 ASK 315 MHz

Serial no.:  
test sample 1

Applicant:  
Eldat GmbH

Test site:  
Fully anechoic room, cabin no. 2

Tested on:  
Test distance 3 metres  
Vertical Polarization

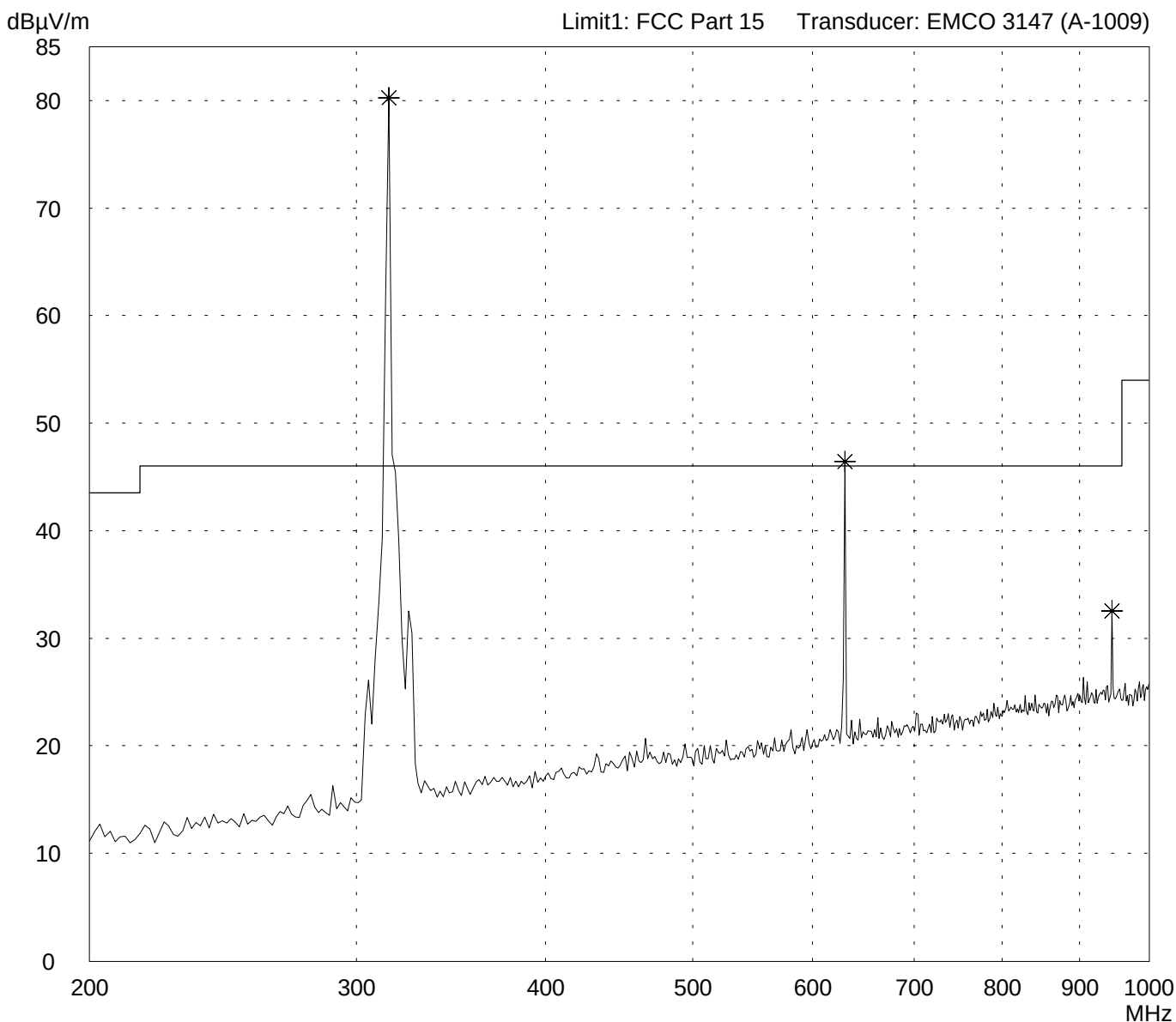
Date of test: 04/24/2003      Operator: M. Steindl

Test performed: automatically      File name: default.emi

Comment:  
- DC 3 V lithium battery supply  
- EUT mounted in test fixture (rotating x-axis)  
- sending pulsed

Detector:  
Peak

List of values:  
Selected by hand



Result:  
Prescan

Project file:  
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# Radiated Emission Test 1 GHz - 4 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:

FHS 20/21 Typ 2 ASK 315 MHz

Serial no.:

test sample 1

Applicant:

Eldat GmbH

Test site:

Fully anechoic room, cabin no. 2

Tested on:

Test distance 3 metres  
Horizontal Polarization

Date of test:

04/24/2003

Operator:

M. Steindl

Test performed:

automatically

File name:

default.emi

Comment:

- DC 3 V lithium battery supply
- EUT mouted in test fixture (rotating x-axis)
- sending pulsed
- with WHKS1000-10SS high pass filter

Detector:

Peak

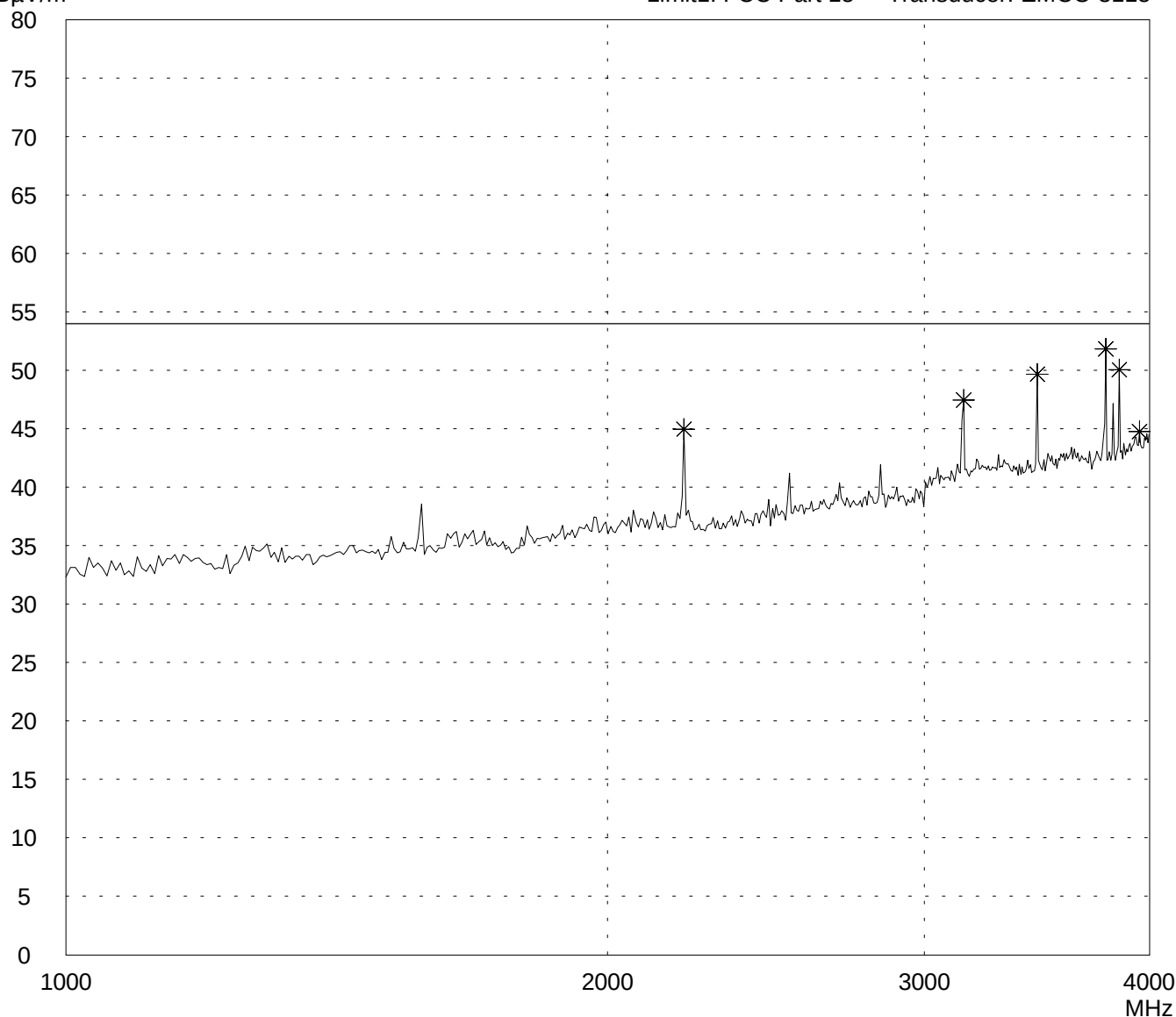
List of values:

10 dB Margin

50 Subranges

$\text{dB}\mu\text{V/m}$

Limit1: FCC Part 15    Transducer: EMCO 3115



Result:

Limit kept

Project file:

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# Radiated Emission Test 1 GHz - 4 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:  
FHS 20/21 Typ 2 ASK 315 MHz

Serial no.:  
test sample 1

Applicant:  
Eldat GmbH

Test site:  
Fully anechoic room, cabin no. 2

Tested on:  
Test distance 3 metres  
Vertical Polarization

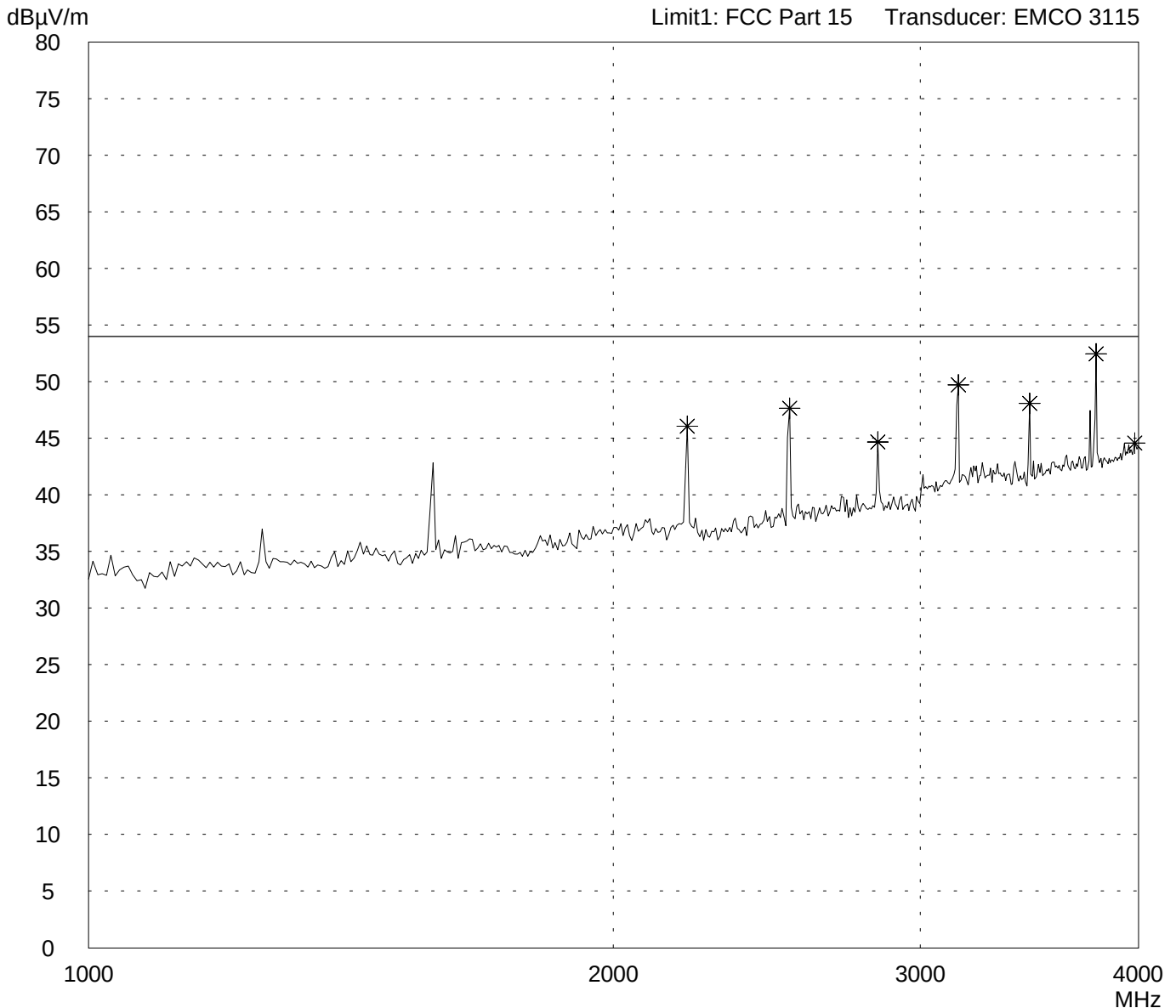
Date of test: 04/24/2003      Operator: M. Steindl

Test performed: automatically      File name: default.emi

Comment:  
- DC 3 V lithium battery supply  
- EUT mouted in test fixture (rotating x-axis)  
- sending pulsed  
  
- with WHKS1000-10SS high pass filter

Detector:  
Peak

List of values:  
10 dB Margin      50 Subranges



Result:  
Limit kept

Project file:  
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