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Federal Communications Commission and Industry Canada  
Anechoic chamber registration No.: 90462 (FCC)  
Anechoic chamber registration No.: 3463 (IC)  
TCB ID: DE0001



Accredited by the  
German Accreditation Council  
DAR–Registration Number  
DAT-P-176/94-D1



Independent ETSI  
compliance test house



Test report No. 2-4236-01-03/06

Applicant: Bircher Reglomat AG

Type: Merkur M / 31; Reflex

FCC ID: TBZ-RAD02

IC: 5904A-RAD02

Test standard: FCC Part 15 / IC, RSS-210, Issue 6, Annex 7

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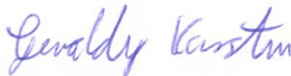
## 1 General information

### 1.1 Notes

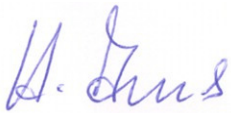
The test results of this test report relate exclusively to the test item specified in 1.5. CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item.

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*Tester:*

| Date       | Name              | Signature                                                                             |
|------------|-------------------|---------------------------------------------------------------------------------------|
| 2006-05-23 | Karsten Gerald    |   |
| 2006-11-10 | Manfred Paschwitz |  |

*Technical responsibility for area of testing:*

| Date       | Name       | Signature                                                                             |
|------------|------------|---------------------------------------------------------------------------------------|
| 2006-11-10 | Harro Ames |  |



## 1.2 Testing laboratory

CETECOM ICT Services GmbH  
Untertürkheimerstraße 6–10  
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Germany

CETECOM ICT Services GmbH  
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e-mail : [info@ict.cetecom.de](mailto:info@ict.cetecom.de)  
Internet : <http://www.cetecom-ict.de>

### Accredited testing laboratory

Accredited by : Regulierungsbehörde für Telekommunikation und Post (RegTP)  
Listed by : Federal Communications Commission (FCC)  
Industry Canada (IC)

| Authority | Identification/Registration No. |
|-----------|---------------------------------|
| RegTP     | DAT-P-176/94-D1                 |
| FCC       | 90462                           |
| IC        | 3463                            |

Testing location, if different from CETECOM ICT Services GmbH: (not applicable)

## 1.3 Details of applicant

Name : Bircher Reglomat AG  
Street : Hauptstrasse 22  
Town : 9042 Speicher  
Country : Switzerland  
Phone : +41-71-343-83 83  
Fax : +41-71-343-83 80

### Contact person

Name : Mr. François Cosandey  
Phone : +41-71-343-83 77  
Fax : +41-71-343-83 10  
E-Mail : [francois.cosandey@bircher.com](mailto:francois.cosandey@bircher.com)

## 1.4 Application details

Date of receipt of application : 2006-04-19  
Date of receipt of test item : 2006-05-09  
Date of test : 2006-05-16 and 22  
Person(s) who have been present during the tests : -/-

## 1.5 Test item (EUT)

Description : Field disturbance Sensor  
Type designation : Merkur M / 31; Reflex

### Manufacturer

Name : Bircher Reglomat AG  
Street : Hauptstrasse 22  
Town : 9042 Speicher  
Country : Switzerland

## 1.6 Technical data

Frequency range : 24.075 GHz ... 24.175 GHz  
Operational frequency : 24.125 GHz  
Field strength : 279 mV/m @ 3m  
Type of modulation : 148KN0N  
Microwave modules : Tx/Rx-Module with integral antenna (patch antenna)  
Power supply range (U nom) : 12 - 36 VDC / 12 - 28 VAC

## 1.7 Operation conditions

Operation : As soon as the equipment is powered on, Tx and Rx start operating  
Purpose of operation : Microwave Motion Detector for door openers

## 1.8 Equipment under test

Merkur M / 31, Serial Number 000001

Merkur M / 31 and Reflex ES are exactly the same microwave motion detectors. They differ in labels and user manual.

## 1.9 Test standards

Code of Federal Regulations (CFR 47)  
Federal Communications Commission (FCC)

FCC Part 15      Radio Frequency Devices (04/2006)

SECTION 15.209  
Radiation emission limits, general requirements

SECTION 15.245  
Operation within the band 24.075 GHz to 24.175 GHz

Industrie Canada      RSS-210, Issue 6, Annex 7

## Test Report Cover Sheet/Performance Test Data

TEST REPORT NUMBER: **2-4236-01-03/06**

EQUIPMENT MODEL NUMBER: **Merkur M / 31; Reflex**

CERTIFICATION NO:

MANUFACTURER : **Bircher Reglomat AG  
Hauptstrasse 22  
9042 Speicher  
Switzerland  
Mr. Francois Cosandey  
+41 71 343 8377  
Francois.cosandey@reglomat.com**

TESTED TO RADIO STANDARDS SPECIFICATION NO. : **RSS210 Issue 6**

OPEN AREA TEST SITE INDUSTRY CANADA NUMBER: **3463**

FREQUENCY RANGE (or fixed frequency): **24.125 GHz**

FIELD STRENGTH: **279 mV/m @ 3m**

OCCUPIED BANDWIDTH (99% BW): **148 kHz (CW carrier)  
depending on RBW, here 3 kHz**

TYPE OF MODULATION: **CW**

EMISSION DESIGNATOR (TRC-43): **148KN0N**

TRANSMITTER SPURIOUS (worst case): **16.0 mV/m @ 3m (1. Harmonics)**

RECEIVER SPURIOUS (worst case): **not applicable**

ANTENNA TYPE: **patch antenna**

### ATTESTATION:

**DECLARATION OF COMPLIANCE:** I declare that the testing was performed or supervised by me; that the test measurements were made in accordance with the above-mentioned Industry Canada standard(s); and that the equipment identified in this application has been subjected to all the applicable test conditions specified in the Industry Canada standards and all of the requirements of the standard have been met.

**Signature:**

**Date: 2006-11-10**

**Manfred Paschwitz**



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## 2 Technical test

### 2.1 Summary of test results

- ☒ No deviations from the technical specification (s) were ascertained in the course of the performed tests.
- ☐ The deviations as specified in 2.5 were ascertained in the course of the performed tests.

This test report:

- ☒ describes the first test
- ☐ describes an additional test
- ☐ is a verification of documents
- ☐ is only valid with the test report no.

### 2.2 Test environment

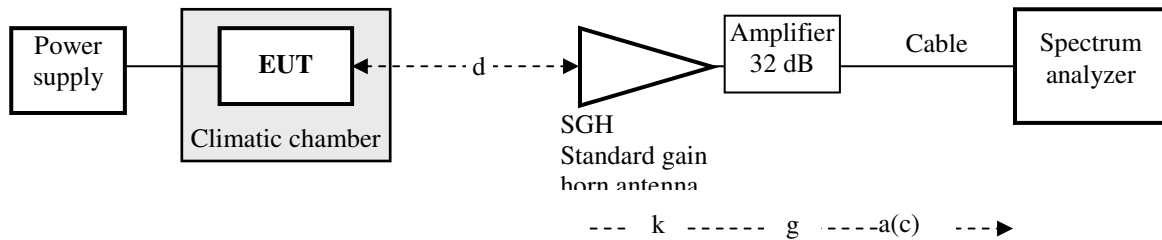
The environmental conditions are documented especially for each test.

### 2.3 Measurement and test set-up

The measurement and test set-up is defined in the technical specification.

## 2.4 Test equipment utilized and test set-up

### 2.4.1 Field strength measurement of fundamental and spurious in the frequency range 0.9 GHz to 33 GHz



| Frequency<br>f [GHz] | Distance<br>d [m] | Antenna factor<br>k [dB(1/m)] | Amp. gain<br>g [dB] | Cable loss<br>a(c) [dB] |
|----------------------|-------------------|-------------------------------|---------------------|-------------------------|
| 0.9 to 2.0           | 3.0               | 23.45                         | 32.0                | 0.5 ... 0.7             |
| 2.0 to 4.0           | 3.0               | 23.68                         | 32.0                | 0.7 ... 0.8             |
| 4.0 to 6.0           | 3.0               | 27.31                         | 32.0                | 0.8 ... 1.2             |
| 6.0 to 8.0           | 3.0               | 30.06                         | 32.0                | 1.2 ... 1.6             |
| 8.0 to 12.0          | 3.0               | 33.70                         | 32.0                | 1.6 ... 2.0             |
| 12.0 to 18.0         | 3.0               | 33.97                         | 32.0                | 2.0 ... 2.7             |
| 18.0 to 26.5         | 3.0               | 36.73                         | 32.0                | 2.7 ... 3.0             |
| 26.5 to 33.0         | 3.0               | 40.29                         | 32.0 to 28.0        | 3.0 ... 3.2             |

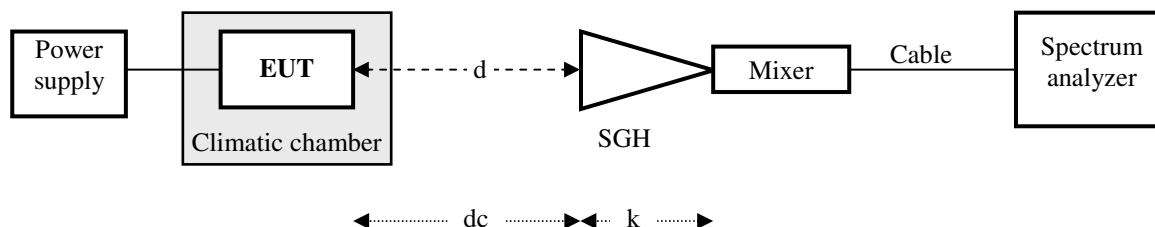
Calculation: Field strength = analyser reading + cable loss - amplifier gain + antenna factor  
 $e \text{ [dB}(\mu\text{V/m)}] = u \text{ [dB}(\mu\text{V)}] + a \text{ [dB]} - g \text{ [dB]} + k \text{ [dB(1/m)]}$

| Test equipment            | Manufacturer        | Type         | CETECOM reference |
|---------------------------|---------------------|--------------|-------------------|
| Spectrum Analyser         | HP                  | HP 8565E     | 300000916         |
| SGH 1.0 to 2.0 GHz        | flann               | 0624-10      | 300000225         |
| SGH 2.0 to 4.0 GHz        | narda               | 644          | 300000769         |
| SGH 4.0 to 6.0 GHz        | narda               | 643          | 300002447         |
| SGH 6.0 to 8.0 GHz        | narda               | 642          | 300000767         |
| SGH 8.0 to 12.5 GHz       | narda               | 640          | 300000784         |
| SGH 12.0 to 18.0 GHz      | narda               | 639          | 300000787         |
| SGH 18.0 to 26.5 GHz      | flann               | 2024-20      | 300001968         |
| SGH 26.5 to 40.0 GHz      | flann               | 2224-20      | 300001973         |
| Amplifier 0.1 to 26.5 GHz | HP                  | HP 83017A    | 300002267         |
| Climatic chamber          | Vötsch              | VUK 04/500   | 300000297         |
| DC Power supply           | HP                  | HP 6038A     | 300001174         |
| RF-cable                  | Insulated Wire Inc. | KPS-1533-590 | 300002290         |

### Measurement uncertainty

| Test parameter  | Measurement uncertainty |
|-----------------|-------------------------|
| DC Power supply | ±0.5 V                  |
| Temperature     | ±0.2 °C                 |
| Frequency       | ±0.01 ppm               |
| eirp            | ±1.5 dB                 |

## 2.4.2 Field strength and spurious radiation in the frequency range 33 GHz to 110 GHz



| Frequency range [GHz] | Distance d [m] | Distance correction dc (3 m/X m) [dB] | Antenna factor k [dB 1/m] |
|-----------------------|----------------|---------------------------------------|---------------------------|
| 33.0 ..... 50.0       | 0.250          | -21.60                                | 39.00                     |
| 50.0 ..... 75.0       | 0.125          | -27.60                                | 40.70                     |
| 75.0 ... 110.0        | 0.125          | -27.60                                | 45.10                     |

Calculation: Field strength = analyser reading + antenna factor - distance correction  
 $e \text{ [dB}(\mu\text{V/m)}] = u \text{ [dB}(\mu\text{V)}] + k \text{ [dB(1/m)}] - d \text{ [dB]}$

Remark: Cable loss is automatically taken into account if the S.A. is operating with external mixers.

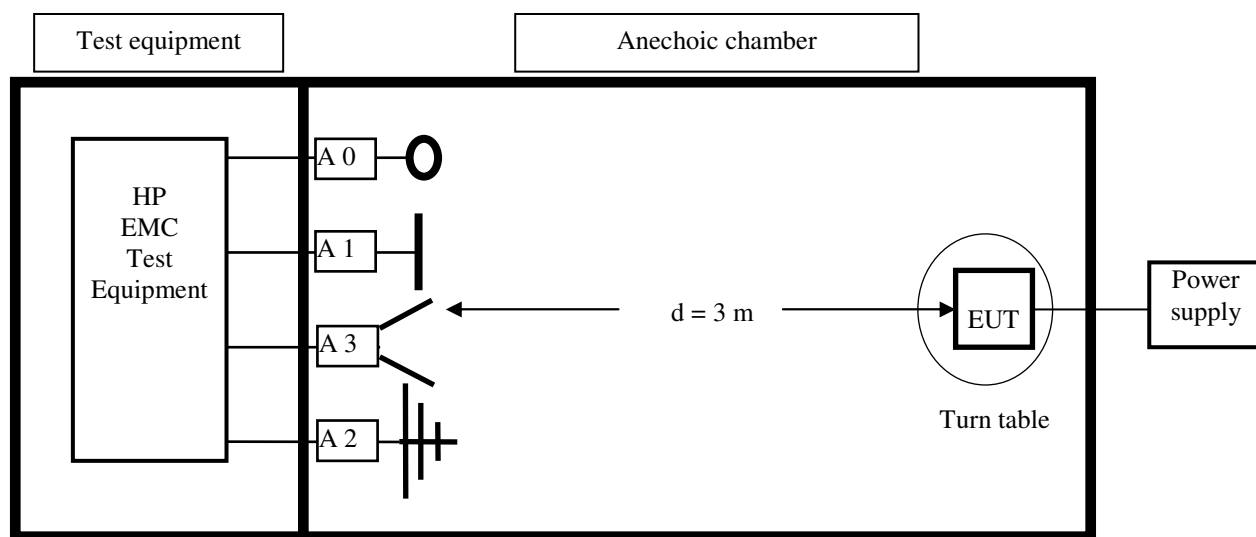
| Test equipment       | Manufacturer | Type       | CETECOM reference |
|----------------------|--------------|------------|-------------------|
| Spectrum Analyser    | HP           | HP 8565E   | 300000916         |
| Power supply         | HP           | HP 6038A   | 300001174         |
| SGH 33 ... 50 GHz    | Thomson      | COR 33_50  | 300000812         |
| Mixer 33 ... 50 GHz  | HP           | 11970Q     | 300000781j        |
| SGH 50 ... 75 GHz    | Thomson      | COR 50_75  | 300000789k        |
| Mixer 50 ... 75 GHz  | HP           | 11970V     | 300000871o        |
| SGH 75 ... 110 GHz   | Thomson      | COR 75_110 | 300000789m        |
| Mixer 75 ... 110 GHz | HP           | 11970W     | 300000871v        |

### Measurement uncertainty

| Test parameter         | Measurement uncertainty |
|------------------------|-------------------------|
| Power supply           | ±0.1 VDC                |
| Temperature            | ±0.2 °C                 |
| Frequency              | ±0.01 ppm               |
| Field strength <50 GHz | ±1.0 dB                 |
| Field strength >50 GHz | ±3.0 dB                 |

### 2.4.3 Field strength and spurious radiation in the frequency range 9 kHz to 12 GHz

#### Set-up for radiated measurements



| Test equipment             | Manufacturer  | Type      | Serial No.  |
|----------------------------|---------------|-----------|-------------|
| Spectrum analyser          | HP            | HP 85660B | 2478A05306  |
| Analyser display           | HP            | HP 85662A | 2816A16541  |
| Quasi peak adapter         | HP            | HP 85650A | 2811A01131  |
| RF-preselector             | HP            | HP 85685A | 2833A00768  |
| Loop Antenna A 0           | R&S           | HFH 2-Z2  | 881 058/42  |
| Biconical antenna A 1      | Emco          | 3104      | 3758        |
| Log.-per.-antenna A 2      | Emco          | 3146      | 2304        |
| Double ridge horn ant. A 3 | Emco          | 3115      | 3007        |
| Relay switch               | R&S           | RSU       | 375 339/002 |
| High pass filter           | FSY Microwave | HM 985955 | 001         |
| Amplifier                  | Tron-Tech     | P42-GA29  | B2302       |
| DC Power supply            | HP            | HP 6038A  | 300001174   |
| RF-cable                   | HP            | 5061-5359 | P36303      |

#### Measurement uncertainty

| Test parameter         | Measurement uncertainty |
|------------------------|-------------------------|
| Power supply           | ±0.5 V                  |
| Temperature            | ±0.2 °C                 |
| Frequency              | ±0.01 ppm               |
| RF-power               | ±1.5 dB                 |
| Field strength >50 GHz | ±3.0 dB                 |

## 2.5 Test results

### 2.5.1 Test results overview

This test was performed:

☐ in addition to the test report no.

Verification of EUT:

☒ EUT is in accordance with the technical description

☐ EUT is not in accordance with the technical description

☒ The equipment is compliant to FCC requirement

### 2.5.2 Remarks on methods of measurements

The EUT is positioned in a non-conductive test fixture and can be rotated and tilted in all angles and in all planes.

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 110 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas are conform with specifications ANSI C63.2-1987 clause 15 and ANSI C63.4-1992 clause 4.1.5. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test set-ups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received.

The wanted and unwanted emissions are received by spectrum analysers where the detector modes and resolution bandwidths (RBW) over various frequency ranges are set according to requirement ANSI C63-4-1992 clause 4.2.

#### 1. Measurements of ERP/EIRP at fundamental and spurious frequencies

Spurious frequencies are produced by transmitter and receiver when the EUT is active. According to FCC requirements 15.209, spurious emissions have to be investigated as maximum field strength values in the frequency range from 9 kHz to 960 MHz. Where possible, the measurement distance shall be 3 m. If other distances are used, the distance correction is added to the test result.

In the low frequency range (9 kHz to 30 MHz), the receiving antenna is an active loop antenna which is positioned at 3 m distance in a shielded, anechoic chamber (see page 8). In case of required measuring distances > 3 m, a distance correction factor is used to calculate the received field strength.

Spurious EIRP measurements in the frequency range 960 MHz to 4 GHz are carried out in a shielded semi-anechoic test chamber. The measurement distance is 3.0 m.

In the frequency range 4 GHz to 40 GHz, spurious EIRP measurements are performed in a shielded fully anechoic chamber with rectangular SGHs. The measurement distances are indicated underneath each plot, and a calculation for field strength is added, where all relevant factors like cable losses, antenna factors, etc are taken into account.

## 2.5.3 Test results in details

Equipment under test (EUT):      see page 5  
 Ambient temperature:      21 °C  
 Relative humidity:      45 %

TRANSMITTER PARAMETERS  
 Fundamental frequency and harmonics

SECTION 15.245

Microwave module:      MERKUR M / 31 operating in N0N

| Test condition<br>t = 21 °C                  | TRANSMITTER FIELD STRENGTH |                          |                                    |                  |
|----------------------------------------------|----------------------------|--------------------------|------------------------------------|------------------|
| EUT operating: TX / RX on<br>DC power supply | Frequency<br>f [GHz]       | S.A.<br>e [dBμV] @ 0.3 m | Field strength<br>e [dBμV/m] @ 3 m | See plot<br>no.: |
| U = 24.0 VDC (CW-mode)                       | 24.082                     | 88.9                     | 108.9                              | 1                |
|                                              | 48.158                     | 64.1                     | 84.1                               | 2                |
|                                              | 72.23                      | noise                    | noise                              | 3                |
|                                              | 96.25                      | noise                    | noise                              | 4                |

Note:

The values are recalculated from a test distance of 0.3 m to 3 m with 20 dB/decade according to the FCC requirements.

REFERENCE OF TEST EQUIPMENT USED:      see test set-up on page 8 / 9

LIMITS:      SECTION 15.245

| Frequency range<br>(MHz) | Measurement<br>distance [m] | Field strength<br>e [dBμV/m] @ 3 m | Field strength<br>E [mV/m] |
|--------------------------|-----------------------------|------------------------------------|----------------------------|
| 24,075 to 24,175         | 3                           | 128.0                              | 2,500                      |
| Harmonics                | 3                           | 88.0                               | 25                         |

Verdict:      Field strength limits are kept

Equipment under test (EUT):      see page 5  
 Ambient temperature:      21 °C  
 Relative humidity:      45 %

## TRANSMITTER PARAMETERS

### Spurious Frequencies

SECTION 15.245  
 SECTION 15.209

Microwave module:      MERKUR M / 31 operating in N0N

| Test condition<br>t = 21 °C                                | TRANSMITTER SPURIOUS FIELD STRENGTH |                  |             |                  |
|------------------------------------------------------------|-------------------------------------|------------------|-------------|------------------|
| Frequency range<br>[GHz]                                   | Spurious frequencies<br>[GHz]       | SA<br>u [dBμV/m] | E<br>[μV/m] | See plot<br>no.: |
| 0.009 to 30.0 MHz (h + v)<br>horizontal and vertical plane | noise                               | n.a.             | < limit     | 5                |
| 0.030 to 4.0 (h + v)                                       | noise                               | n.a.             | < limit     | 6                |
| 4.0 to 12.0 (h + v)                                        | noise                               | n.a.             | < limit     | 7                |
| 12.0 to 24.0 (h + v)                                       | noise                               | n.a.             | < limit     | 8                |
| > 24.0                                                     | fundamental and harmonics           |                  | < limit     | 1 - 4            |
| 25.0 to 50.0 (h + v)                                       | noise                               | n.a.             | < limit     | 9                |
| 50.0 to 75.0 (h + v)                                       | noise                               | n.a.             | < limit     | 10               |
| 75.0 to 110.0 (h + v)                                      | noise                               | n.a.             | < limit     | 11               |

Note:

9 kHz to 150 kHz : 200 Hz ResBw/VideoBw  
 150 kHz to 30 MHz : 9 kHz ResBw/VideoBw  
 30 MHz to 1 GHz : 100 kHz ResBw/VideoBw  
 above 1 GHz : 1 MHz ResBw/VideoBw

## LIMITS:

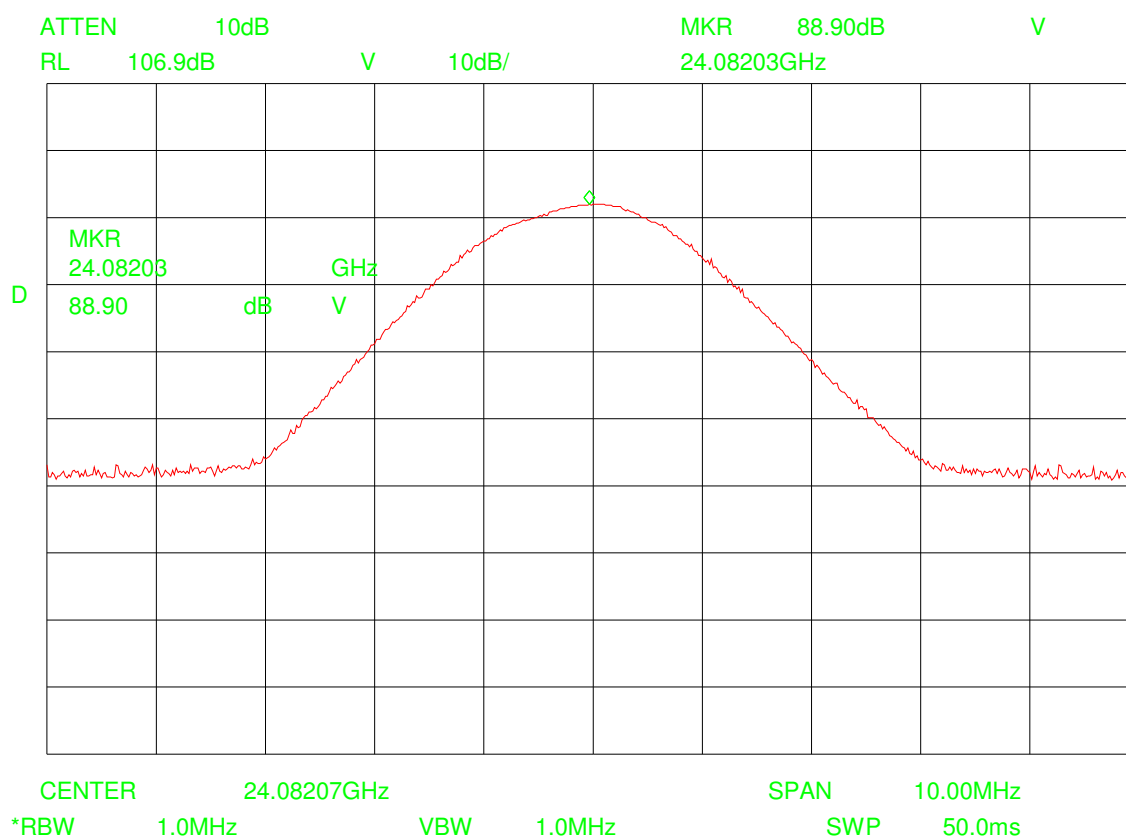
SECTION 15.209 / 15.245

| Frequency range<br>(MHz) | Measurement<br>distance [m] | Field strength<br>e [dBμV/m] @ 3 m | Field strength<br>E [μV/m] |
|--------------------------|-----------------------------|------------------------------------|----------------------------|
| 0.009 – 0.490            | 300                         | 88.5 ... 53.8                      | 2400/F(kHz)                |
| 0.490 – 1.705            | 30                          | 53.8 ... 43.0                      | 24000/F(kHz)               |
| 1.705 – 30.0             | 30                          | 49.5                               | 30                         |
| 30.0 – 88.0              | 3                           | 40.0                               | 100                        |
| 88.0 – 216.0             | 3                           | 43.5                               | 150                        |
| 216.0 – 960.0            | 3                           | 46.0                               | 200                        |
| > 960.0                  | 3                           | 54.0 (AV)                          | 500                        |
| > 960.0                  | 3                           | 74.0 (PK)                          | 5,000                      |
| 2nr/rd harmonic          | 3                           | 88.0                               | 25,000                     |

Verdict:      Field strength limits are kept.

### 3 Measurement results

Plot no. 1:



Note:

The values are recalculated from a test distance of 0.3 m to 3 m with 20 dB/decade according to the FCC requirements.

$P_{\text{Analyser}} = 88.9 \text{ dB}\mu\text{V}$  (The 20 dB/decade according is not calculated in the analyser reading)

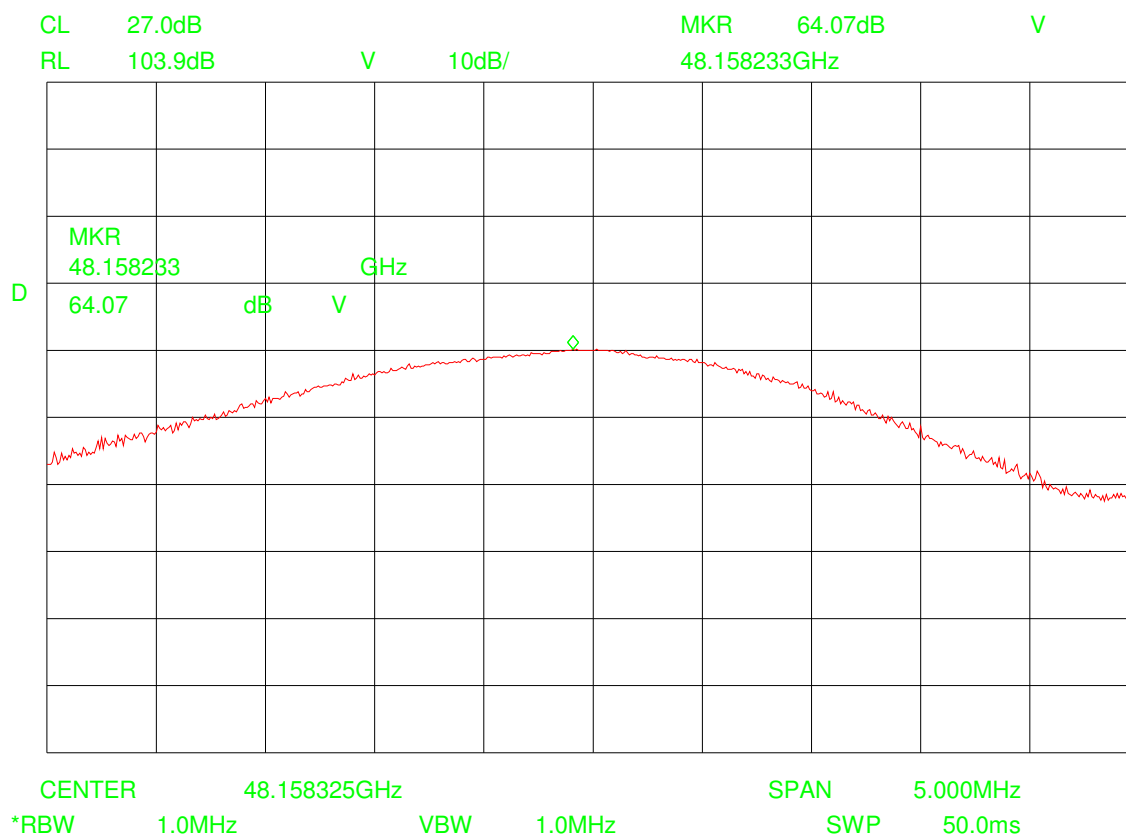
$P_{\text{Spurious Emission}} = 108.9 \text{ dB}\mu\text{V}$

LIMITS:

SECTION 15.209 / 15.245

| Frequency range (MHz) | Measurement distance [m] | Field strength $e$ [dB $\mu$ V/m] @ 3 m | Field strength $E$ [ $\mu$ V/m] |
|-----------------------|--------------------------|-----------------------------------------|---------------------------------|
| 0.009 – 0.490         | 300                      | 88.5 ... 53.8                           | 2400/F(kHz)                     |
| 0.490 – 1.705         | 30                       | 53.8 ... 43.0                           | 24000/F(kHz)                    |
| 1.705 – 30.0          | 30                       | 49.5                                    | 30                              |
| 30.0 – 88.0           | 3                        | 40.0                                    | 100                             |
| 88.0 – 216.0          | 3                        | 43.5                                    | 150                             |
| 216.0 – 960.0         | 3                        | 46.0                                    | 200                             |
| > 960.0               | 3                        | 54.0 (AV)                               | 500                             |
| > 960.0               | 3                        | 74.0 (PK)                               | 5,000                           |
| 2nr/rd harmonic       | 3                        | 88.0                                    | 25,000                          |

Plot no. 2:



Note:

The values are recalculated from a test distance of 0.3 m to 3 m with 20 dB/decade according to the FCC requirements.

$P_{\text{Analyser}} = 64.1 \text{ dB}\mu\text{V}$  (The 20 dB/decade according is not calculated in the analyser reading)

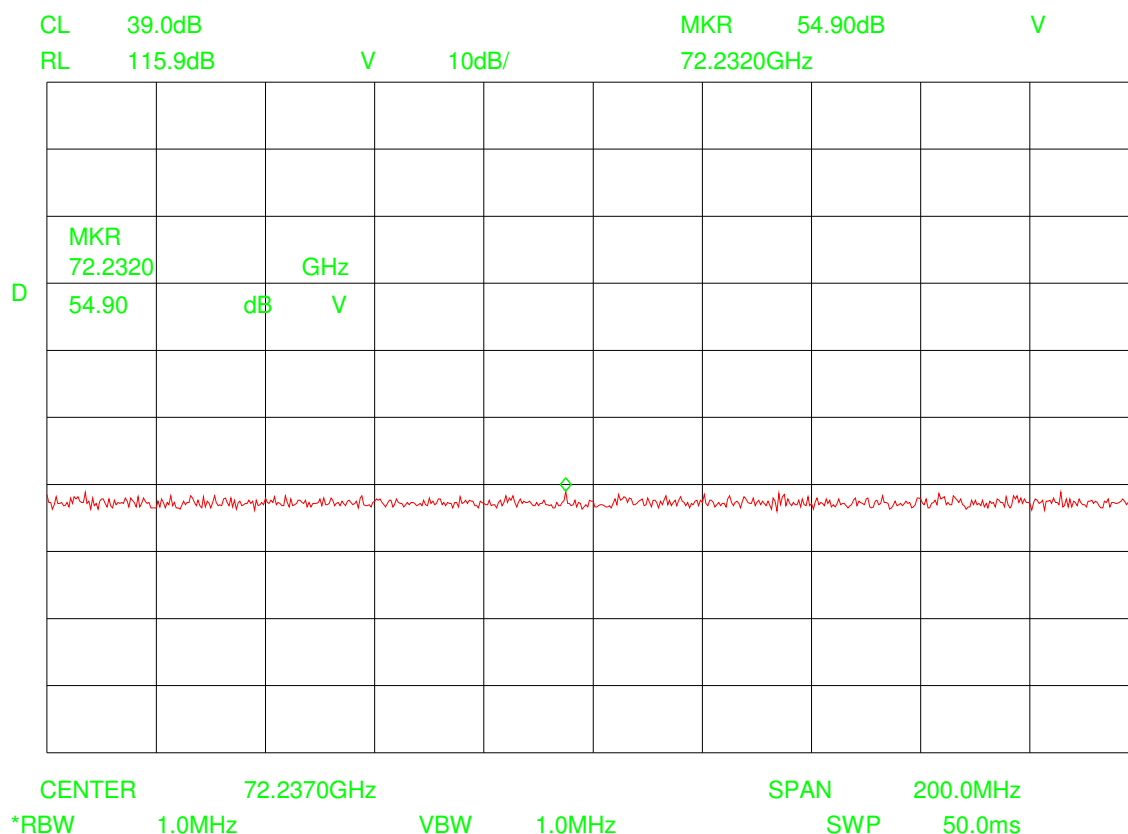
$P_{\text{Spurious Emission}} = 84.1 \text{ dB}\mu\text{V}$

LIMITS:

SECTION 15.209 / 15.245

| Frequency range (MHz) | Measurement distance [m] | Field strength $e$ [dB $\mu$ V/m] @ 3 m | Field strength $E$ [ $\mu$ V/m] |
|-----------------------|--------------------------|-----------------------------------------|---------------------------------|
| 0.009 – 0.490         | 300                      | 88.5 ... 53.8                           | 2400/F(kHz)                     |
| 0.490 – 1.705         | 30                       | 53.8 ... 43.0                           | 24000/F(kHz)                    |
| 1.705 – 30.0          | 30                       | 49.5                                    | 30                              |
| 30.0 – 88.0           | 3                        | 40.0                                    | 100                             |
| 88.0 – 216.0          | 3                        | 43.5                                    | 150                             |
| 216.0 – 960.0         | 3                        | 46.0                                    | 200                             |
| > 960.0               | 3                        | 54.0 (AV)                               | 500                             |
| > 960.0               | 3                        | 74.0 (PK)                               | 5,000                           |
| 2nr/rd harmonic       | 3                        | 88.0                                    | 25,000                          |

Plot no. 3:

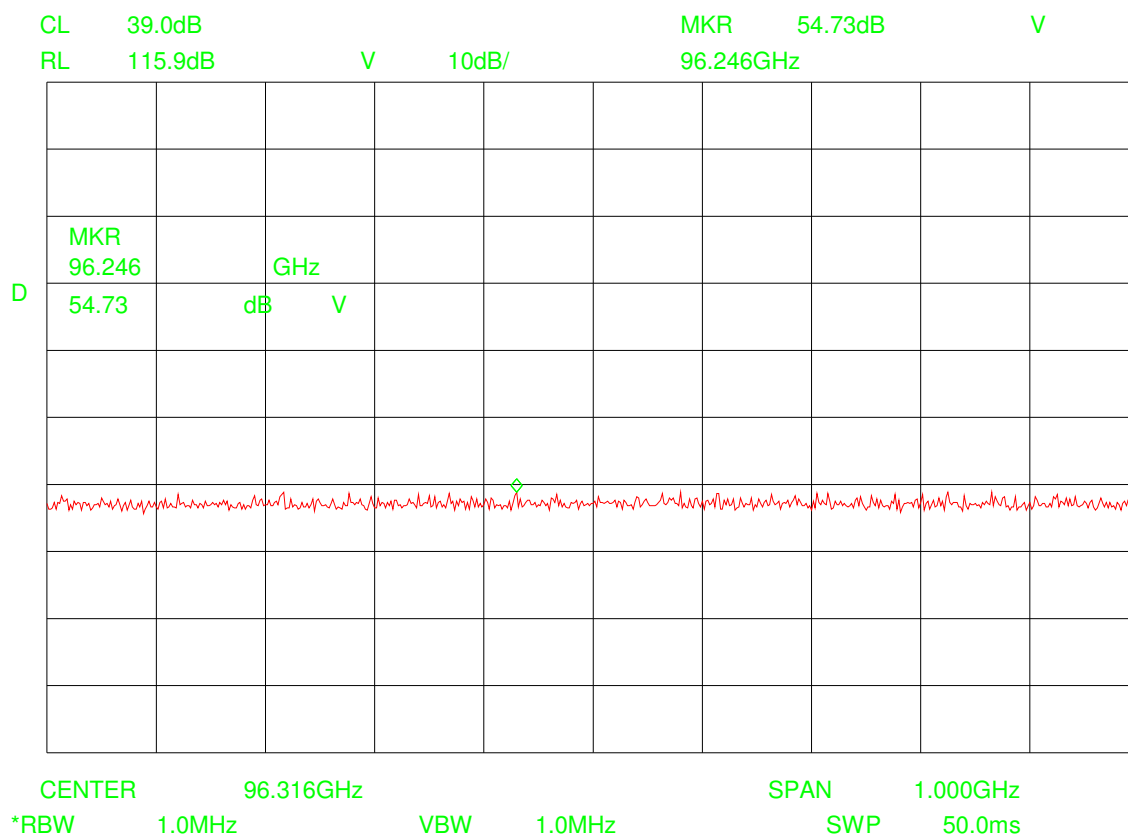


LIMITS:

SECTION 15.209 / 15.245

| Frequency range (MHz) | Measurement distance [m] | Field strength e [dBμV/m] @ 3 m | Field strength E [μV/m] |
|-----------------------|--------------------------|---------------------------------|-------------------------|
| 0.009 – 0.490         | 300                      | 88.5 ... 53.8                   | 2400/F(kHz)             |
| 0.490 – 1.705         | 30                       | 53.8 ... 43.0                   | 24000/F(kHz)            |
| 1.705 – 30.0          | 30                       | 49.5                            | 30                      |
| 30.0 – 88.0           | 3                        | 40.0                            | 100                     |
| 88.0 – 216.0          | 3                        | 43.5                            | 150                     |
| 216.0 – 960.0         | 3                        | 46.0                            | 200                     |
| > 960.0               | 3                        | 54.0 (AV)                       | 500                     |
| > 960.0               | 3                        | 74.0 (PK)                       | 5,000                   |
| 2nr/rd harmonic       | 3                        | 88.0                            | 25,000                  |

Plot no. 4:

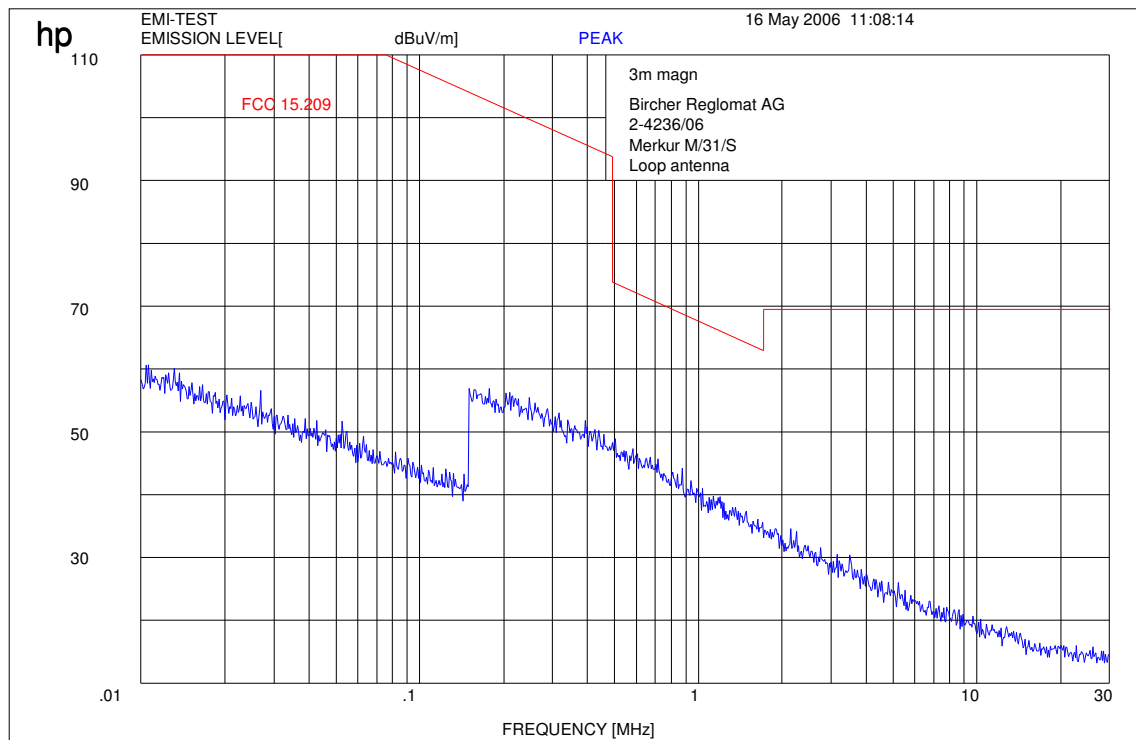


LIMITS:

SECTION 15.209 / 15.245

| Frequency range (MHz) | Measurement distance [m] | Field strength e [dBμV/m] @ 3 m | Field strength E [μV/m] |
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| 0.009 – 0.490         | 300                      | 88.5 ... 53.8                   | 2400/F(kHz)             |
| 0.490 – 1.705         | 30                       | 53.8 ... 43.0                   | 24000/F(kHz)            |
| 1.705 – 30.0          | 30                       | 49.5                            | 30                      |
| 30.0 – 88.0           | 3                        | 40.0                            | 100                     |
| 88.0 – 216.0          | 3                        | 43.5                            | 150                     |
| 216.0 – 960.0         | 3                        | 46.0                            | 200                     |
| > 960.0               | 3                        | 54.0 (AV)                       | 500                     |
| > 960.0               | 3                        | 74.0 (PK)                       | 5,000                   |
| 2nr/rd harmonic       | 3                        | 88.0                            | 25,000                  |

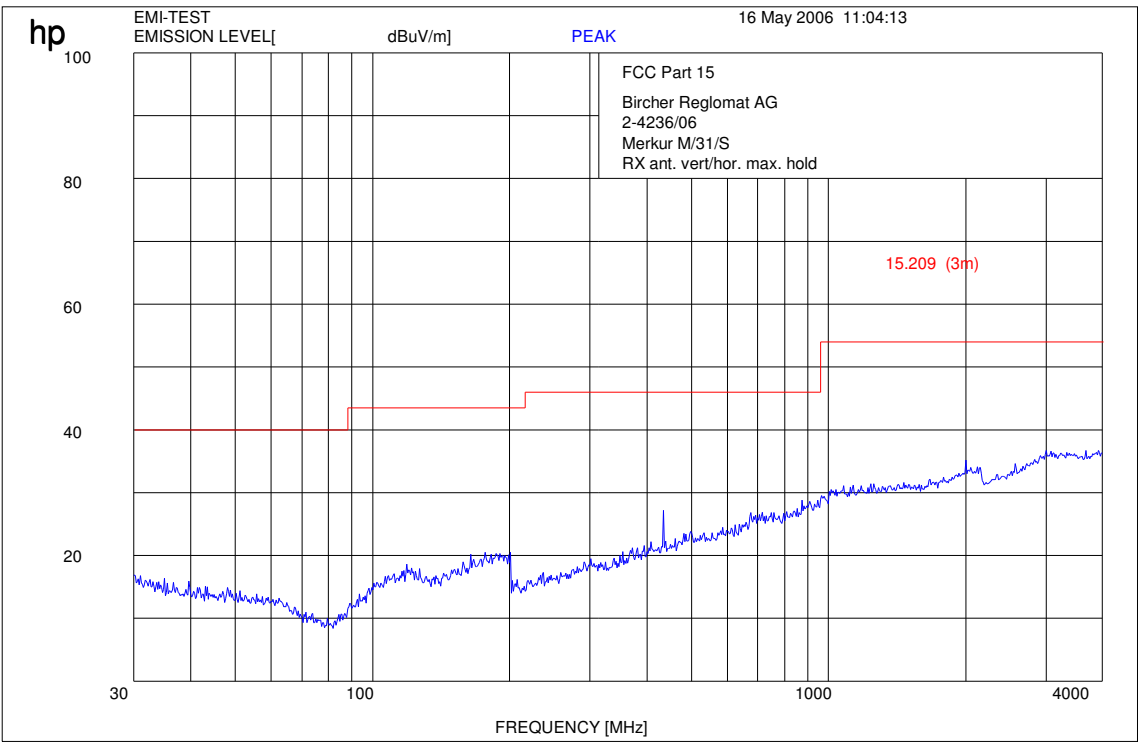
Plot no. 5:



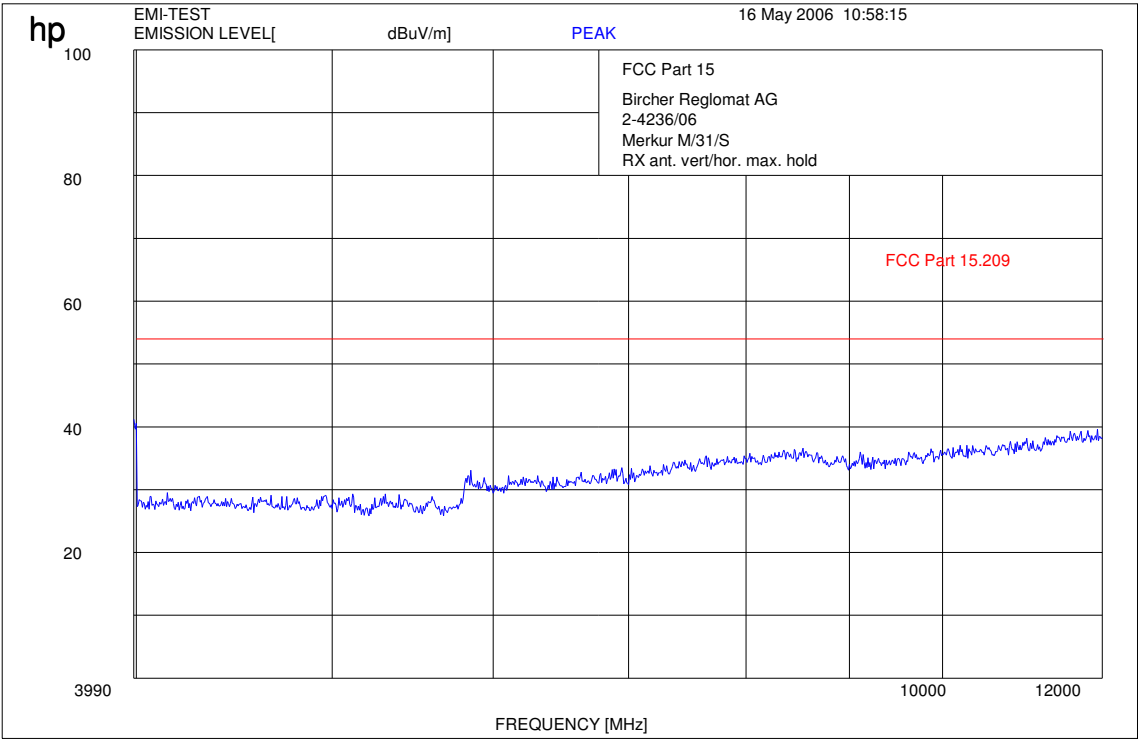
Note:

The limit lines were recalculated from a test distance of 300 m/30 m to 3 m with 40 dB/decade according to the FCC requirements.

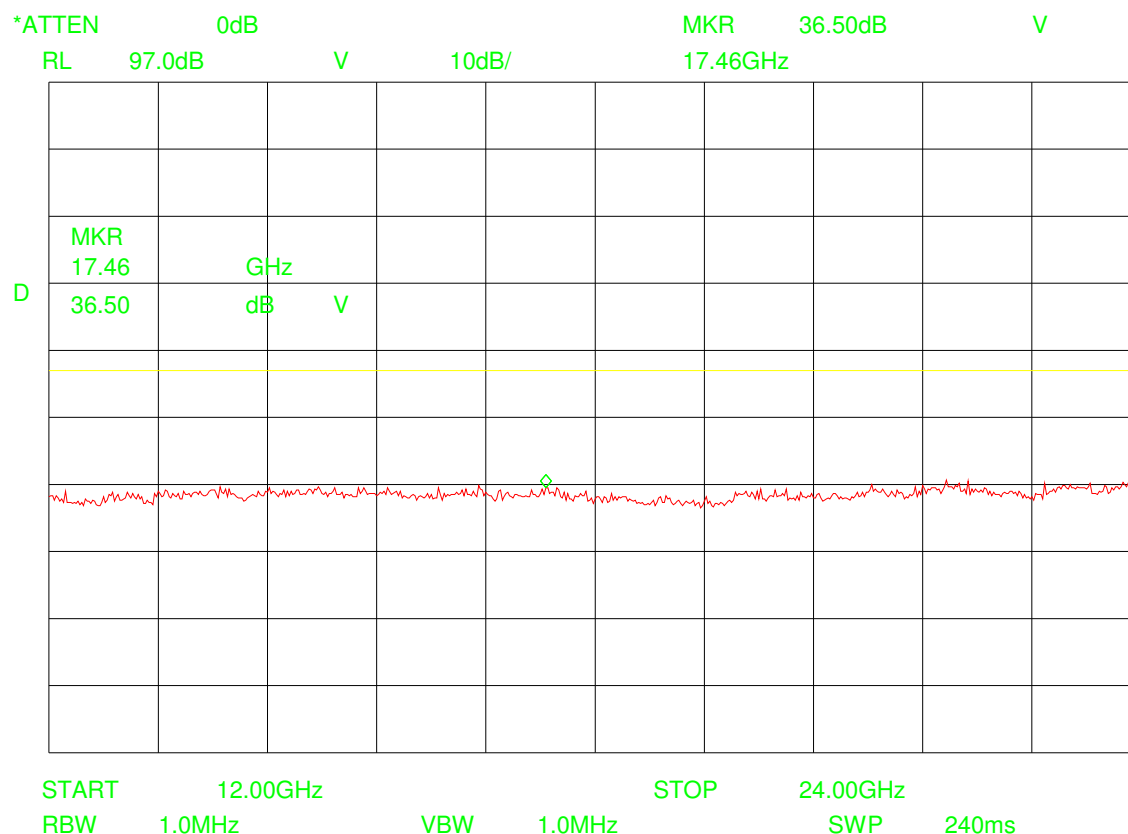
Plot no. 6:



Plot no. 7:



Plot no. 8:

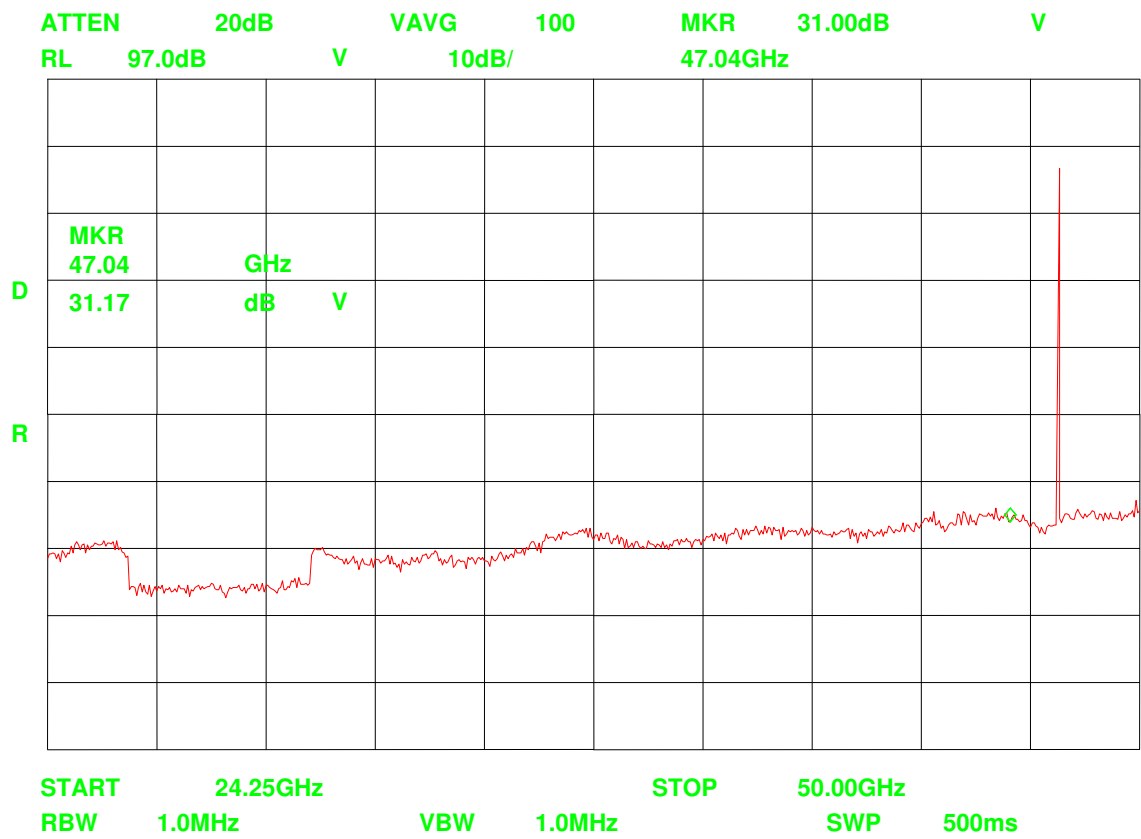


LIMITS:

SECTION 15.209 / 15.245

| Frequency range (MHz) | Measurement distance [m] | Field strength e [dBμV/m] @ 3 m | Field strength E [μV/m] |
|-----------------------|--------------------------|---------------------------------|-------------------------|
| 0.009 – 0.490         | 300                      | 88.5 ... 53.8                   | 2400/F(kHz)             |
| 0.490 – 1.705         | 30                       | 53.8 ... 43.0                   | 24000/F(kHz)            |
| 1.705 – 30.0          | 30                       | 49.5                            | 30                      |
| 30.0 – 88.0           | 3                        | 40.0                            | 100                     |
| 88.0 – 216.0          | 3                        | 43.5                            | 150                     |
| 216.0 – 960.0         | 3                        | 46.0                            | 200                     |
| > 960.0               | 3                        | 54.0 (AV)                       | 500                     |
| > 960.0               | 3                        | 74.0 (PK)                       | 5,000                   |
| 2nr/rd harmonic       | 3                        | 88.0                            | 25,000                  |

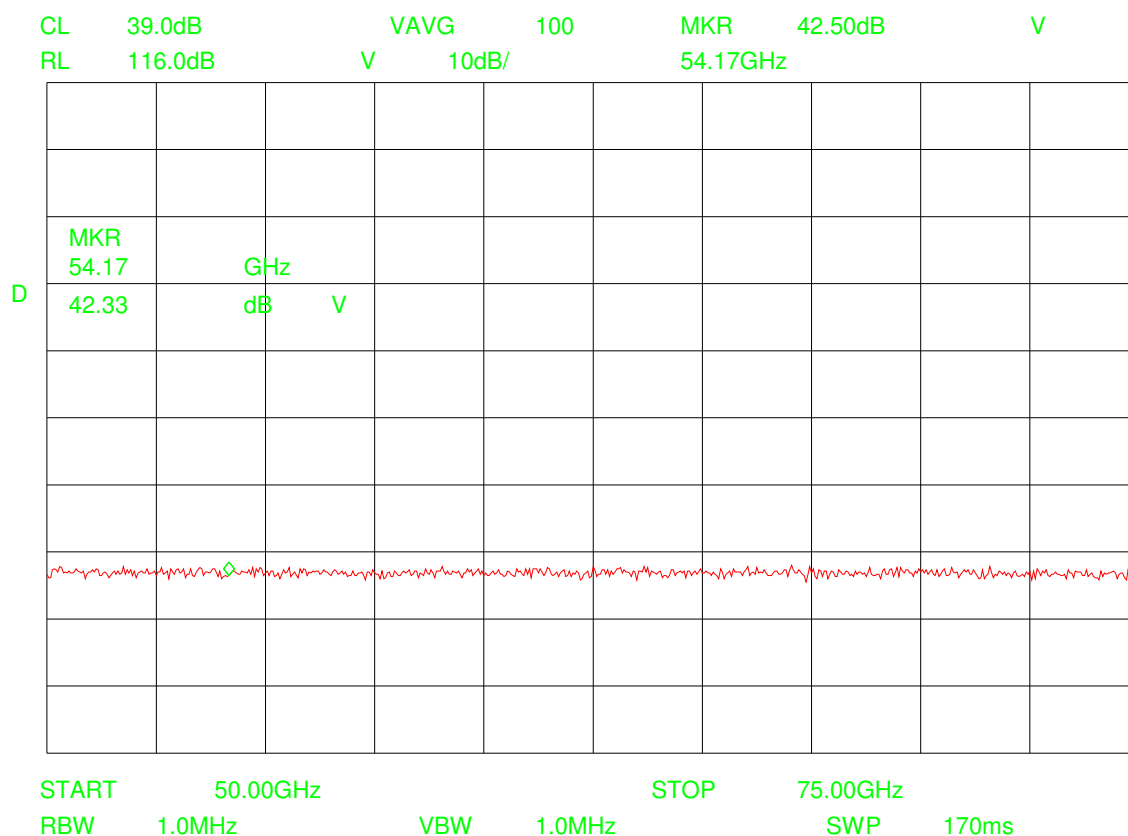
Plot no. 9:      25 to 50 GHz



Measured at 0.3 m

To recalculate to 3.0 m we add 20dB / decade according to FCC requirement.  
The maximum value is 51.2 dBμV/m at 3m.

Plot no. 10: 50 to 75 GHz



Tested with ext. Mixer

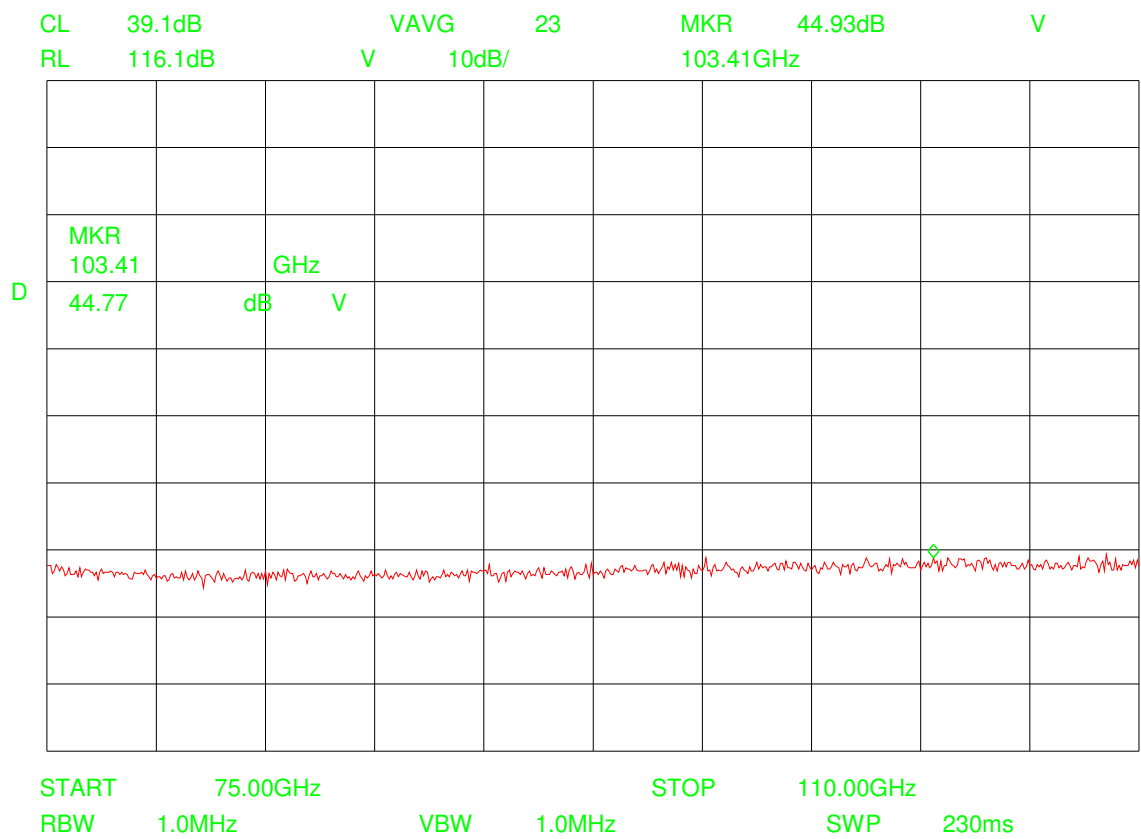
Measured at 0.3 m

Note:

The values are recalculated from a test distance of 0.3 m to 3 m with 20 dB/decade according to the FCC requirements.

$P_{\text{Analyser}} = 42.33 \text{ dB}\mu\text{V}$  (The 20 dB/decade according is calculated in the analyser reading)

Plot no. 11:    75 to 110 GHz



Tested with ext. Mixer

Measured at 0.3 m

Note:  
The values are recalculated from a test distance of 0.3 m to 3 m with 20 dB/decade according to the FCC requirements.

P<sub>Analyser</sub>                      =    44.77 dBμV    (The 20 dB/decade according is calculated in the analyser reading)

## **4 Photographs**

Photo no. 1



Photo no. 2

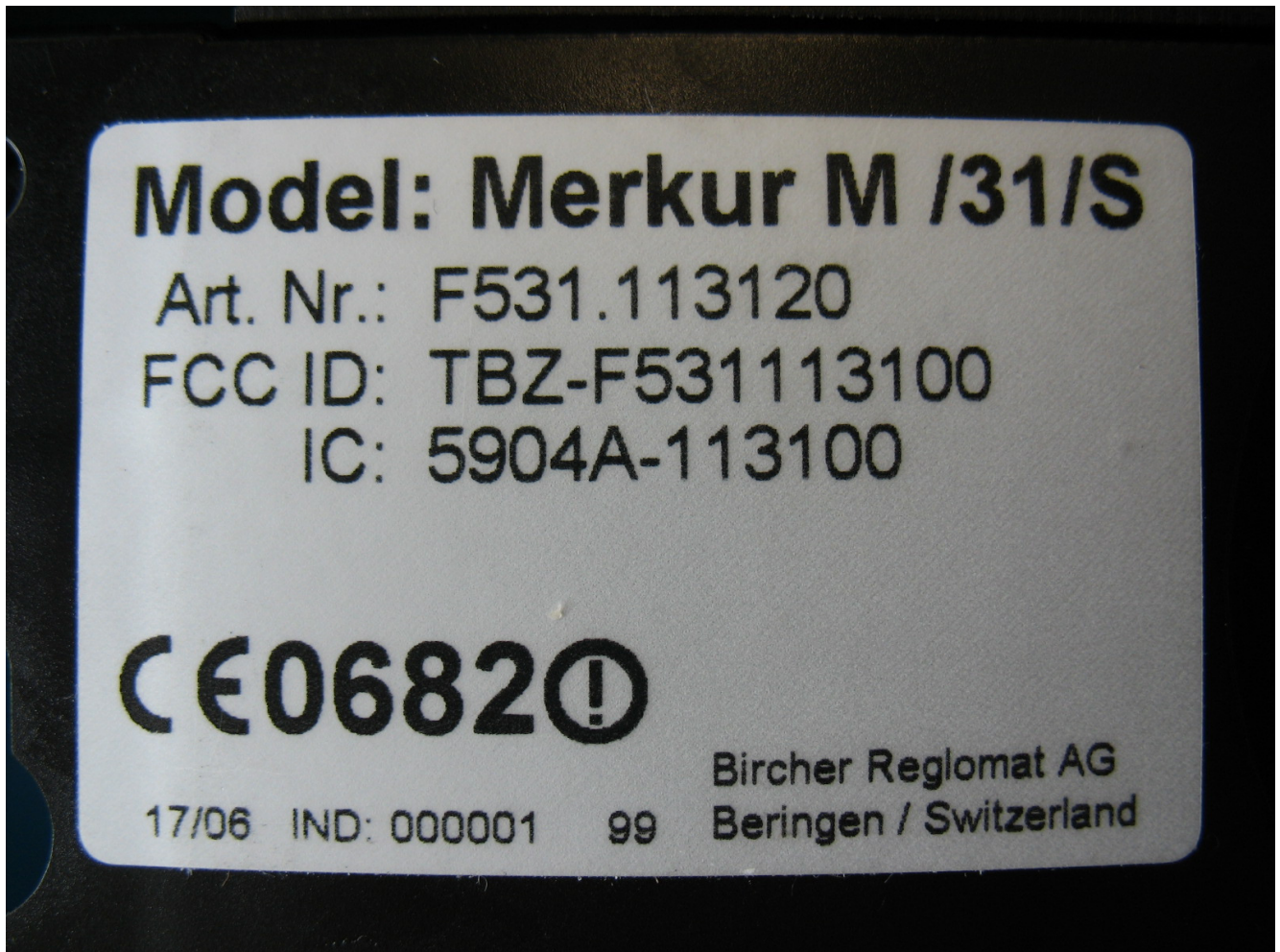


Photo no. 3

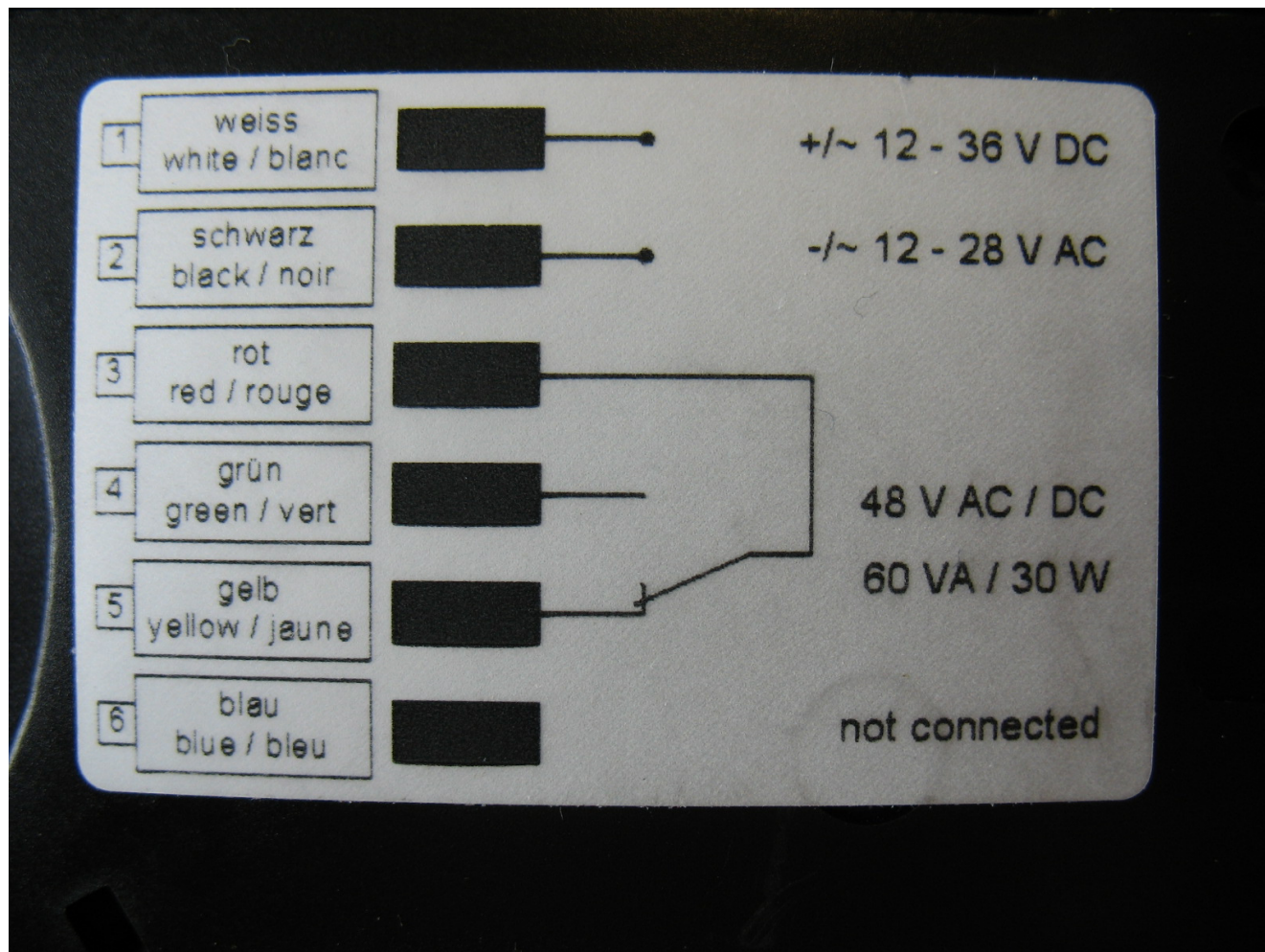


Photo no. 4

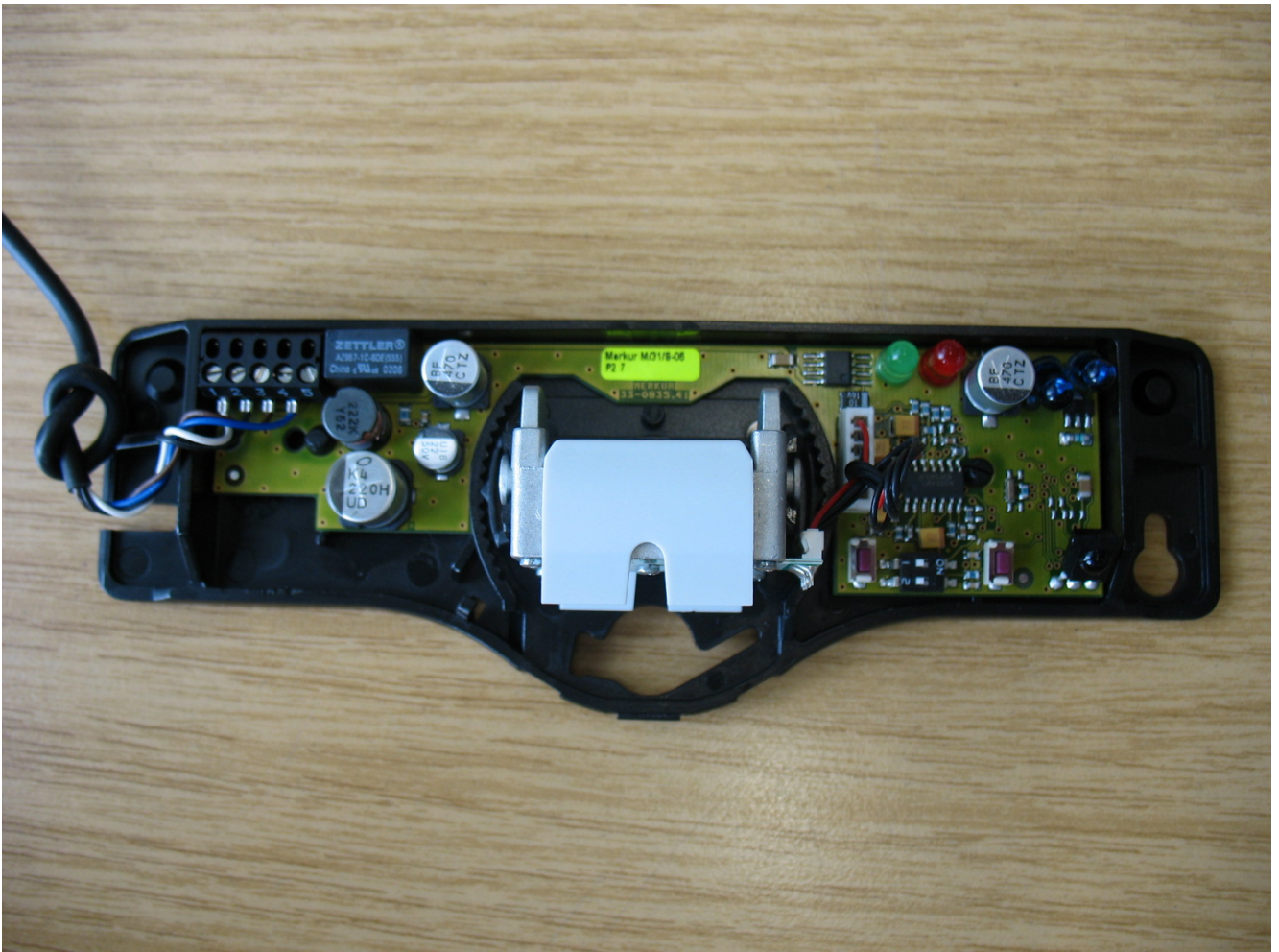


Photo no. 5



Photo no. 6



Photo no. 7

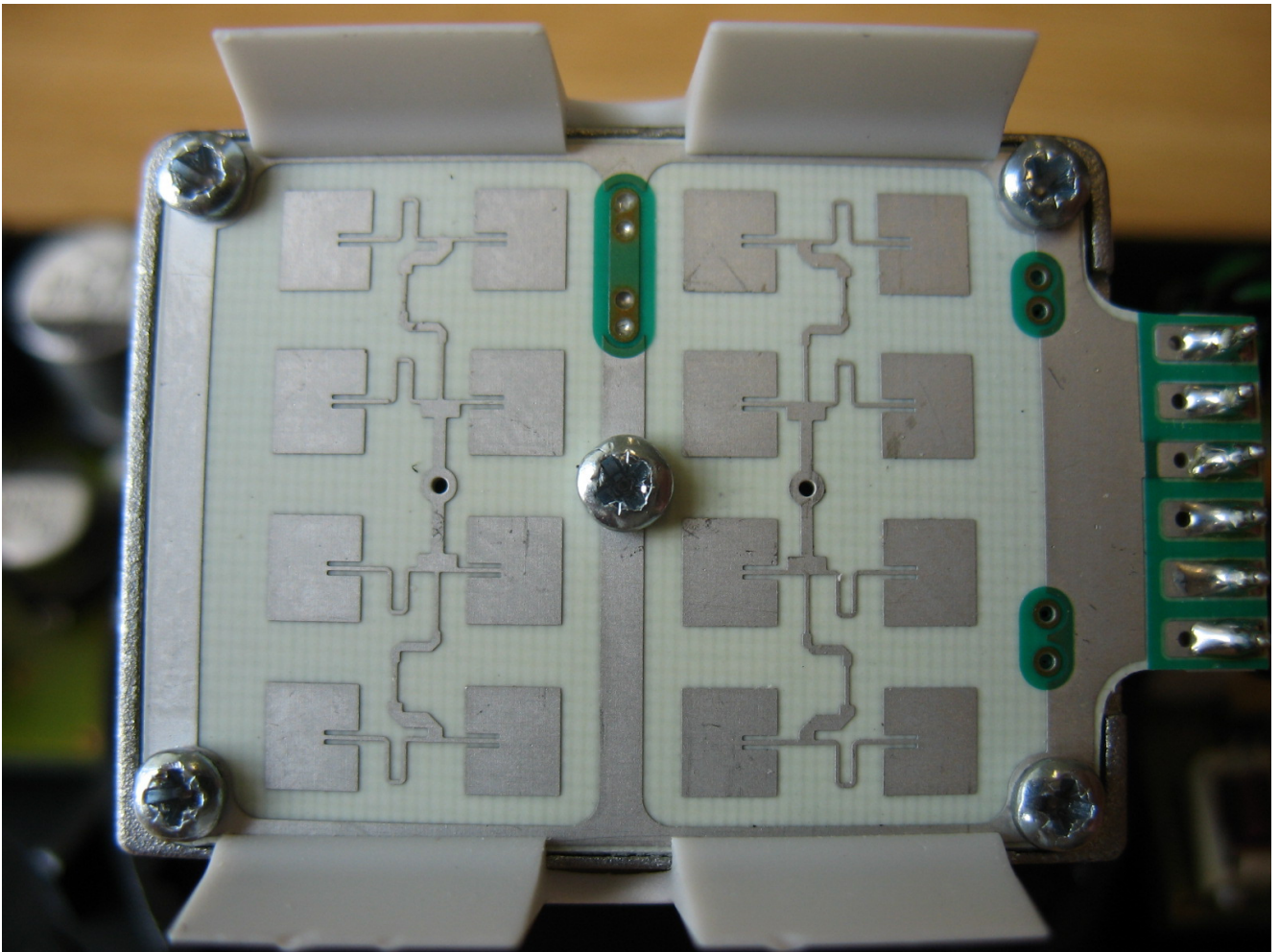


Photo no. 8

