
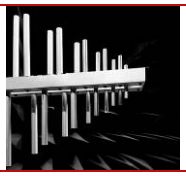
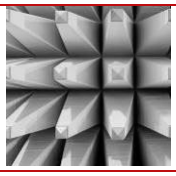

CETECOM™
CETECOM ICT Services
consulting - testing - certification

# TEST REPORT

**Test report no.: 1-6863/13-01-02**

ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-12076-01-01

## Testing laboratory


**CETECOM ICT Services GmbH**
Untertuerkheimer Strasse 6 – 10
66117 Saarbruecken / Germany
Phone: + 49 681 5 98 - 0
Fax: + 49 681 5 98 - 9075
Internet: http://www.cetecom.com
e-mail: ict@cetecom.com


**Accredited Testing Laboratory:**
The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2005) by the Deutsche Akkreditierungsstelle GmbH (DAkkS)
The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number: D-PL-12076-01-01
Area of Testing: Radio/Satellite Communications

## Applicant


**Honeywell Regelsysteme GmbH**
Honeywellstrasse 2-6
63477 Maintal / Germany
Phone:
Fax:
Contact: Marco Moschek
e-mail: Marco.Moschek@Honeywell.com
Phone: +49 6181 401 541


## Manufacturer

**same as applicant**

## Test standard/s

| | |
|---|---|
| 47 CFR Part 15 | Title 47 of the Code of Federal Regulations; Chapter I; Part 15 - Radio frequency devices |
| RSS - 210 Issue 8 | Spectrum Management and Telecommunications Radio Standards Specification; Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment |

For further applied test standards please refer to section 3 of this test report.

## Test Item

| | |
|---|---|
| **Kind of test item:** | **24 GHz Track Intrusion Detection System** |
| **Model name:** | **Platform Track Intrusion Detection System (TIS) Model YD190** |
| **FCC ID:** | **2AAVNYD190** |
| Frequency: | 24.075 GHz – 24.175 GHz |
| Antenna: | Integrated patch antenna |
| Power supply: | 48 V DC |
| Temperature range: | -33 °C to +60 °C |

This test report is electronically signed and valid without handwriting signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

## Test report authorised:

M. Walla

DN: cn=Meheza Walla, o=CETECOM ICT Services GmbH, ou=WAL-100930, email=Meheza.Walla@cetecom.com, c=DE
Datum: 2013.09.16 10:38:08 +02'00'

Meheza Walla
Expert

## Test performed:

Geraldy Karsten

DN: cn=Karsten Geraldy, o=Cetecom ICT Services GmbH, ou=GER-101125, email=karsten.geraldy@cetecom.com, c=DE
Datum: 2013.09.13 16:05:54 +02'00'

Karsten Geraldy
Senior Testing Manager

# 1 Table of contents

# 2 General information

## 2.1 Notes and disclaimer

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This test report is electronically signed and valid without handwritten signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

## 2.2 Application details

| | |
|---|---|
| Date of receipt of order: | 2013-08-27 |
| Date of receipt of test item: | 2013-08-27 |
| Start of test: | 2013-08-27 |
| End of test: | 2013-08-29 |
| Person(s) present during the test: | Mr. Moschek |

# 3 Test standard/s

| Test standard | Date | Test standard description |
|---|---|---|
| 47 CFR Part 15 | 01.10.2012 | Title 47 of the Code of Federal Regulations; Chapter I; Part 15 - Radio frequency devices |
| RSS - 210 Issue 8 | 01.12.2010 | Spectrum Management and Telecommunications Radio Standards Specification; Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment |

## 4 Test environment

| | | |
|---|---|---|
| Temperature: | $T_{nom}$ | +22 °C during room temperature tests |
| Relative humidity content: | | 45 % |
| Barometric pressure: | | not relevant for this kind of testing |
| Power supply: | $V_{nom}$ | 48 V DC |

## 5 Test item

| | | |
|---|---|---|
| Kind of test item | : | 24 GHz Track Intrusion Detection System |
| Type identification | : | Platform Track Intrusion Detection System (TIS) |
| Model no. | : | System: YD190 [1)]<br>GPC: HD193C1 [1)]<br>BGÜ Tx: AD191C1 [2)]<br>BGÜ Rx: AD192C1 [1)] |
| S/N serial number | : | GPC: 1316-1003 [1)]<br>BGÜ Tx: 1250-1145 [2)]<br>BGÜ Rx: 1250-1150 [1)] |
| HW hardware status | : | GPC: C1 [1)]<br>BGÜ Tx: C1 [1)]<br>BGÜ Rx: C1 [1)] |
| SW software status | : | GPC: CPD2093 [1)]<br>BGÜ Tx: CPD2091 [2)]<br>BGÜ Rx: CPD2092 [1)] |
| Frequency band | : | 24.075 GHz - 24.175 GHz |
| Type of modulation | : | unmodulated carrier |
| Number of channels | : | 1 |
| Antenna | : | integrated patch antenna |
| Power supply | : | 48 V DC |
| Temperature range | : | GPC: 0°C / +55°C [1)]<br>BGÜ Tx: -33 °C / +60°C [2)]<br>BGÜ Rx: -33 °C / +60°C [1)] |

Note: 1) additional equipment used for setting up operational mode and testing purpose
2) device under test (DUT)

## 6 Test laboratories sub-contracted

None

## 7 Summary of measurement results

| | |
|---|---|
| ☒ | **No deviations from the technical specifications were ascertained** |
| ☐ | There were deviations from the technical specifications ascertained |

| TC Identifier | Description | Verdict | Date | Remark |
|---|---|---|---|---|
| RF-Testing | 47 CFR Part 15<br>RSS 210, Issue 8, Annex 8 | Passed | 2013-09-13 | -/- |

| Test specification clause | Test case | Temperature conditions | Power source voltages | Pass | Fail | NA | NP | Results (max.) |
|---|---|---|---|---|---|---|---|---|
| §15.245(b)<br>RSS 210 / A7.1 | Field strength of emissions (wanted signal) | Nominal | Nominal | ☒ | ☐ | ☐ | ☐ | 111.8 dBµV |
| §2.1049 | Occupied bandwidth (99% bandwidth) | Nominal | Nominal | ☒ | ☐ | ☐ | ☐ | 222.4 kHz |
| §15.209(a) /<br>§15.245(b)(1)(2)(3)<br>RSS 210 / A7.1-4 | Field strength of emissions (spurious) | Nominal | Nominal | ☒ | ☐ | ☐ | ☐ | complies |
| §15.207(a)<br>ICES-003 | Conducted emissions < 30 MHz | Nominal | Nominal | ☒ | ☐ | ☐ | ☐ | complies |

**Note:** NA = Not Applicable; NP = Not Performed

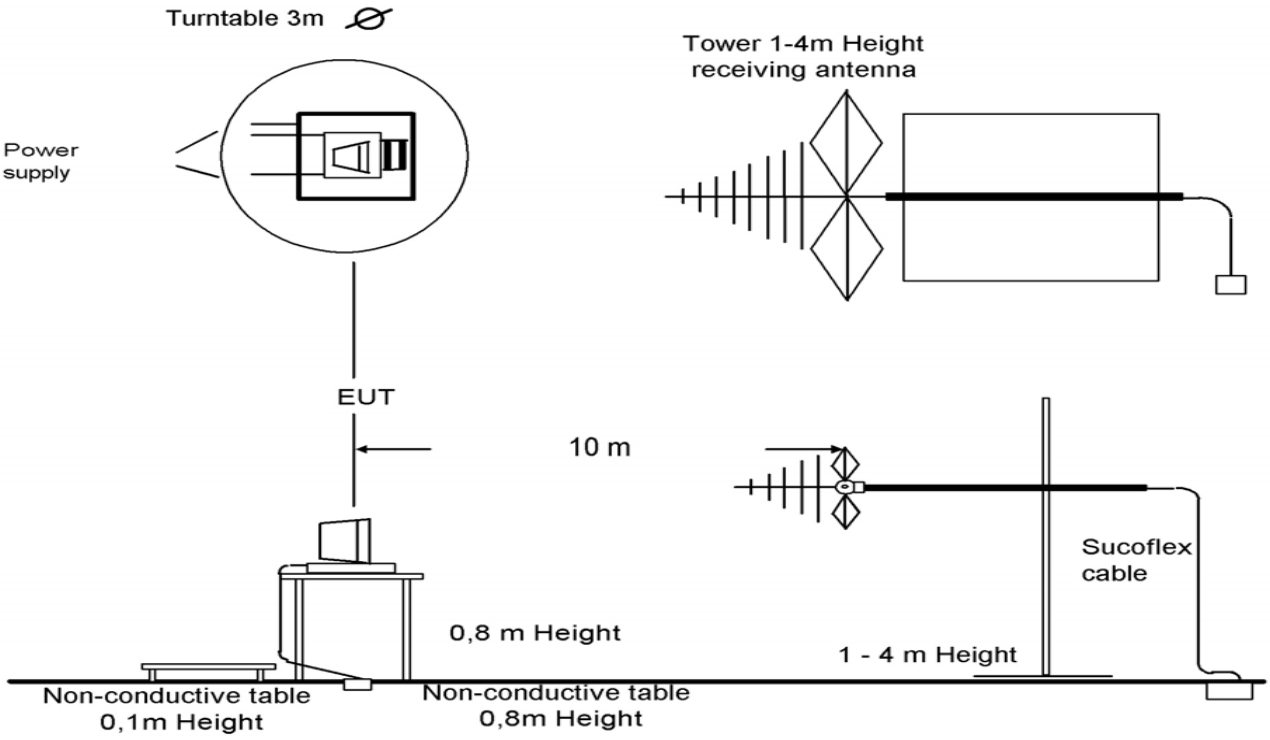
# 8 RF measurement testing

## 8.1 Description of test setup

### 8.1.1 Radiated measurements

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 25 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 confirmed with specifications ANSI C63.2-1996 clause 15 and ANSI C63.4-2009 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 setups 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 analyzers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63-4-2009 clause 4.2.
Antennas are confirmed with ANSI C63.2-1996 item 15.

Semi anechoic chamber




**Picture 1: Diagram radiated measurements**

| | |
|---|---|
| 9 kHz - 30 MHz: | active loop antenna |
| 30 MHz – 1 GHz: | tri-log antenna |
| > 1 GHz: | horn antenna |

The EUT is powered by an external power supply with nominal voltage

### 8.1.2 Additional comments

Reference documents: None

Special test descriptions: None

Configuration descriptions: None

Test mode: ☒ Normal operation, no special test mode available.

☐ Special software is used.

# 9 Measurement results

## 9.1 Field strength of emissions (wanted signal)

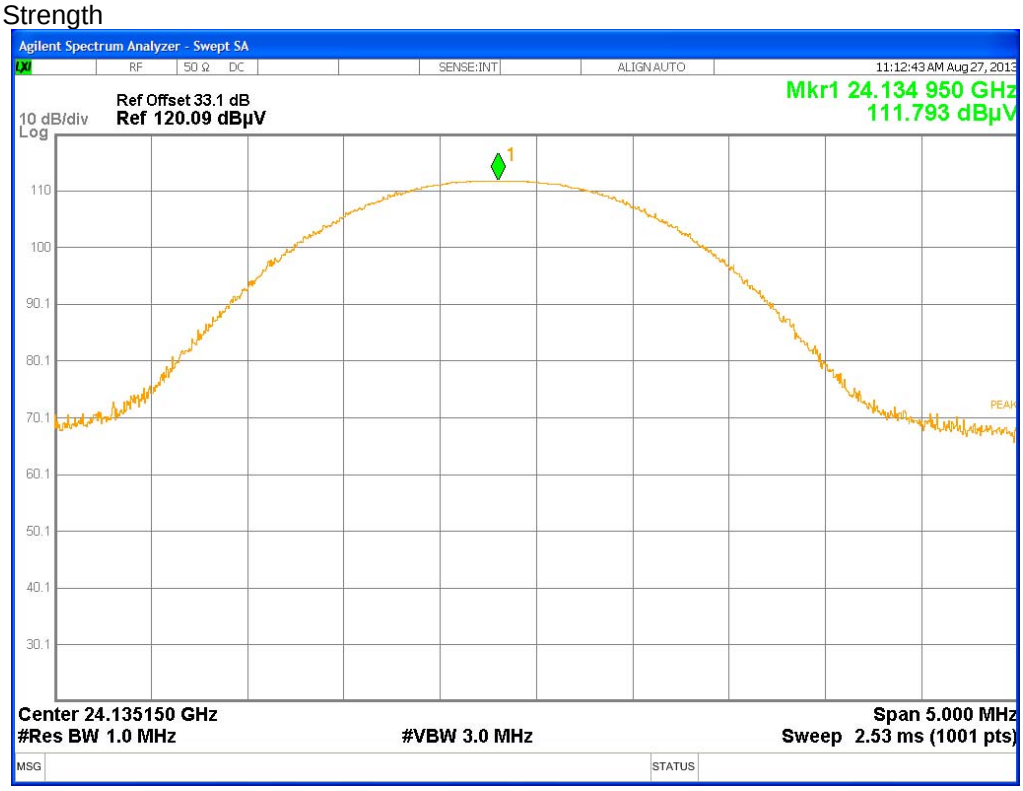
**Description:**

Measurement of the maximum radiated field strength of the wanted signal.

**Measurement:**

| Measurement parameter | |
|---|---|
| Detector: | Pos-Peak |
| Sweep time: | Auto |
| Video bandwidth: | 1 MHz |
| Resolution bandwidth: | 1 MHz |
| Span: | 5 MHz |
| Trace-Mode: | Max Hold |

Plot 1: Field Strength



**Result:**

| Test condition | Maximum field strength [dBµV/m @ 3 m] |
|---|---|
| $T_{nom}$ / $V_{nom}$ | 111.8 |
| Measurement uncertainty | ± 3 dB |

**Limits:**

| FCC | IC | |
|---|---|---|
| CFR Part 15.245(b) | RSS - 210, Annex 7 | |
| Field strength of emissions | | |
| The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following: | | |
| Frequency [ GHz ] | Field Strength [ dBµV/m ] | Measurement distance |
| 24.075 – 24.175 | 128 | 3 |

**Result:** **The measurement is passed.**

## 9.2 Occupied bandwidth (99% bandwidth)

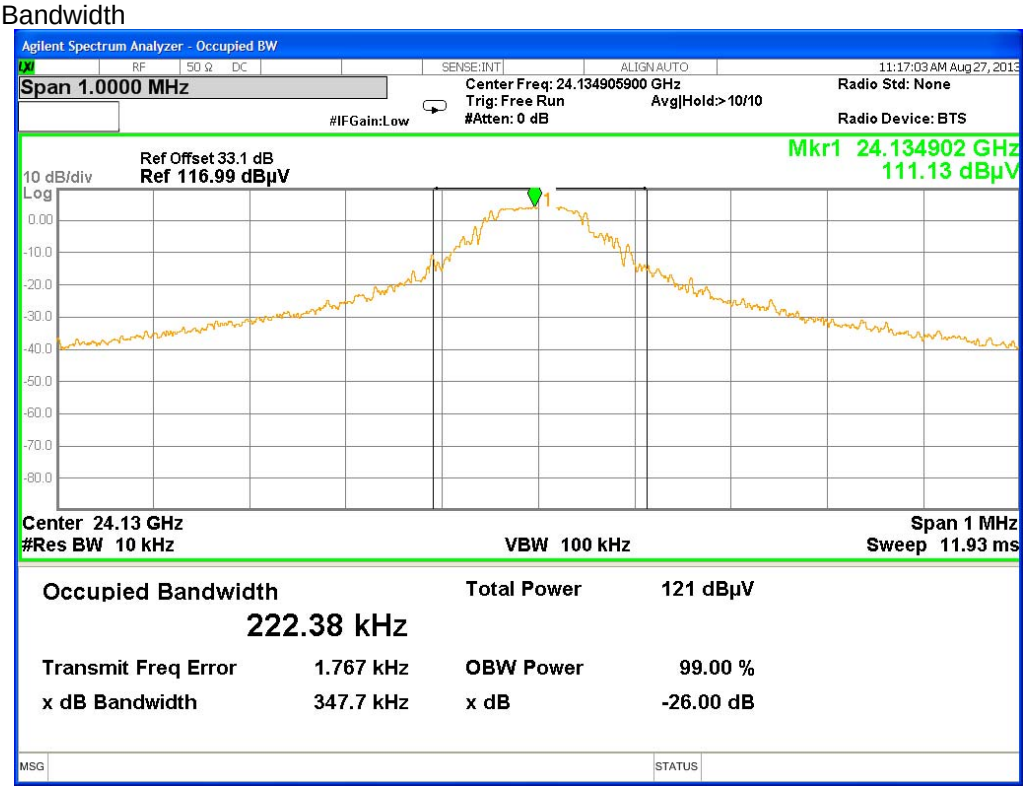
**Description:**

Measurement of the 99% bandwidth of the wanted signal.

**Measurement:**

| Measurement parameter | |
|---|---|
| Detector: | Peak |
| Sweep time: | Auto |
| Video bandwidth: | 10 kHz |
| Resolution bandwidth: | 10 kHz |
| Span: | 1 MHz |

Plot 2: 99% Bandwidth




**Result:**

| Test condition | 99 % Occupied Bandwidth [kHz] |
|---|---|
| $T_{nom}$ / $V_{nom}$ | 222.4 |
| Measurement uncertainty | ±span/1000 |

**Result:** **The measurement is passed.**

## 9.3 Field strength of emissions (radiated spurious)

**Description:**

Measurement of the radiated spurious emissions in transmit mode.

**Measurement:**

| Measurement parameter | |
|---|---|
| Detector: | Peak / Quasi Peak / Average |
| Sweep time: | Auto |
| Video bandwidth: | Auto |
| Resolution bandwidth: | F < 1 GHz: 100 kHz<br>F > 1 GHz: 1 MHz |
| Frequency range: | 30 MHz to 110 GHz |
| Trace-Mode: | Max Hold |

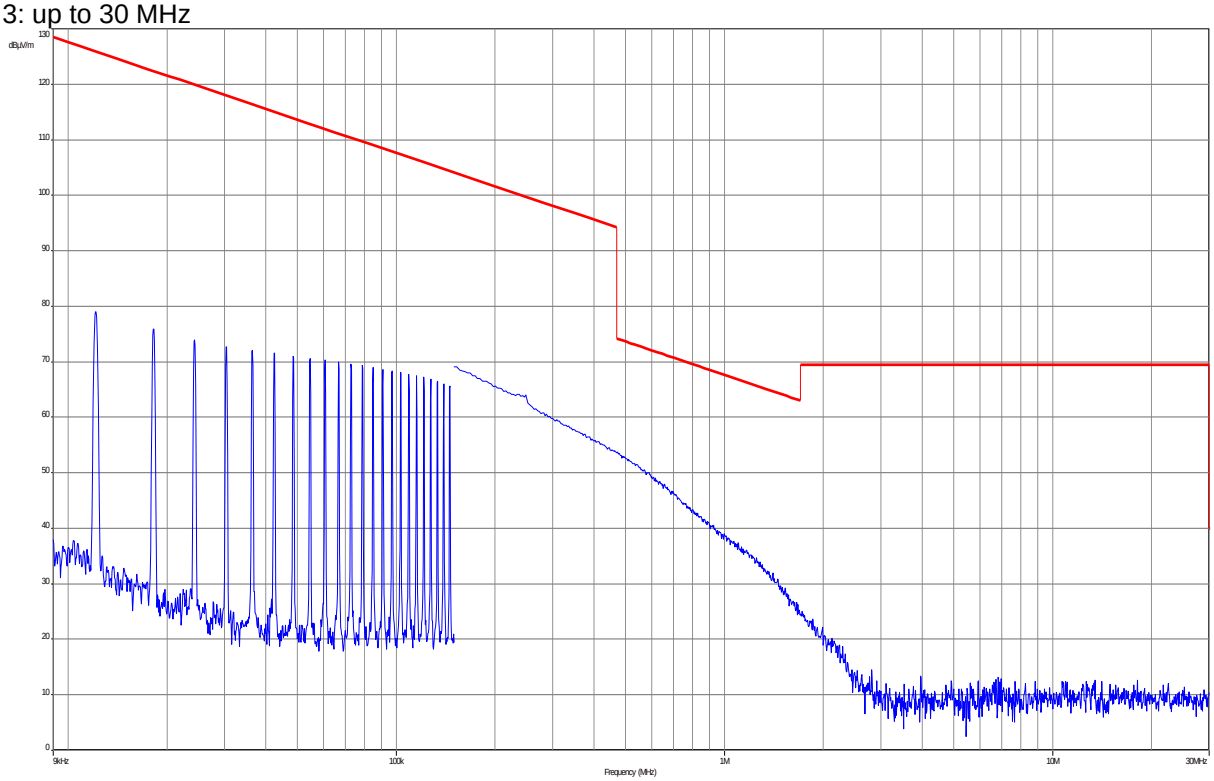
**Limits:**

| FCC | | IC |
|---|---|---|
| CFR Part 15.209(a) | | RSS - GEN |
| Radiated Spurious Emissions | | |
| Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation. | | |
| Frequency (MHz) | Field Strength (dBµV/m) | Measurement distance |
| 0.009 – 0.490 | 2400/F(kHz) | 300 |
| 0.490 – 1.705 | 24000/F(kHz) | 30 |
| 1.705 – 30.0 | 30 | 30 |
| 30  88 | 30.0 | 10 |
| 88 – 216 | 33.5 | 10 |
| 216 – 960 | 36.0 | 10 |
| Above 960 | 54.0 | 3 |

**Note:** Harmonics shall not exceed 25.0 millivolts/meter (88.0 dBµV/m)

**Result: The measurement is passed.**

Plot 3: up to 30 MHz



Plot 4: 30 MHz to 1 GHz, vertical / horizontal polarization

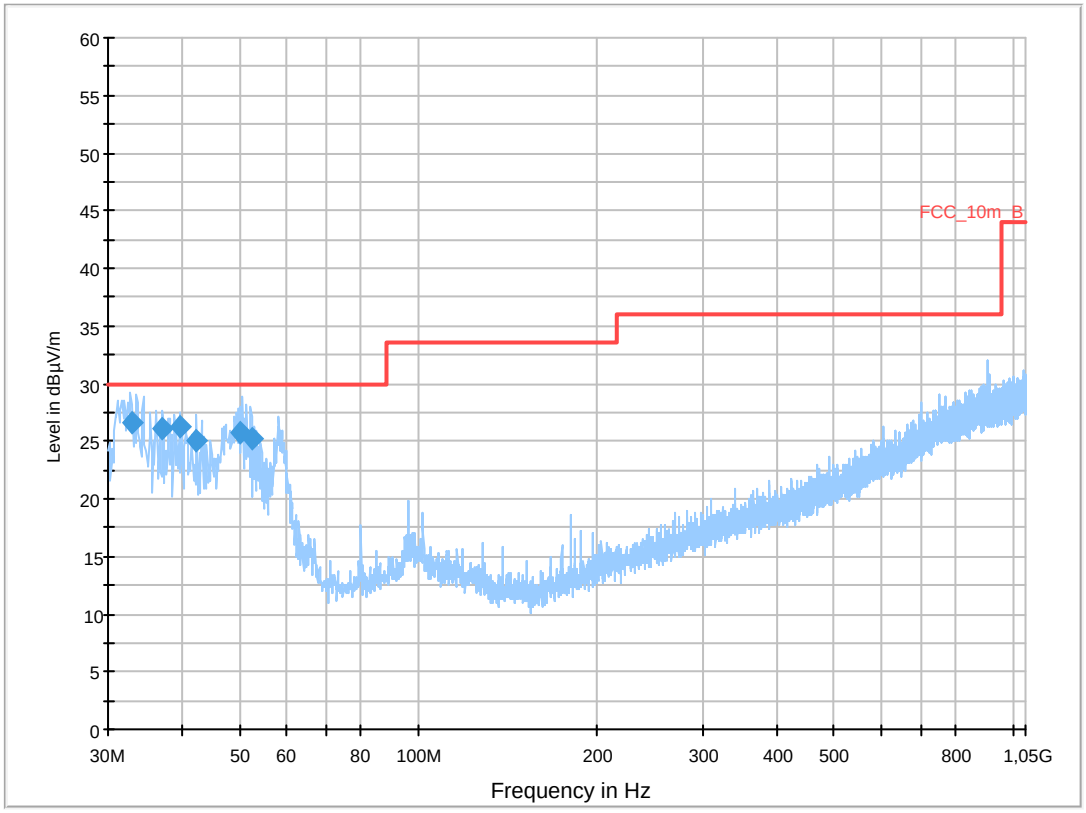
Common Information

| | |
|---|---|
| EUT: | TIS |
| Serial Number: | 1250-1145 |
| Test Description: | FCC part 15 class B |
| Operating Conditions: | normal use, TX Antenna |
| Operator Name: | Kraus |

Scan Setup: STAN_Fin [EMI radiated]

| | |
|---|---|
| Hardware Setup: | Electric Field (NOS) |
| Receiver: | [ESCI 3] |
| Level Unit: | dBµV/m |

| Subrange | Step Size | Detectors | IF BW | Meas. Time | Preamp |
|---|---|---|---|---|---|
| 30 MHz - 2 GHz | 60 kHz | QPK | 120 kHz | 1 s | 20 dB |



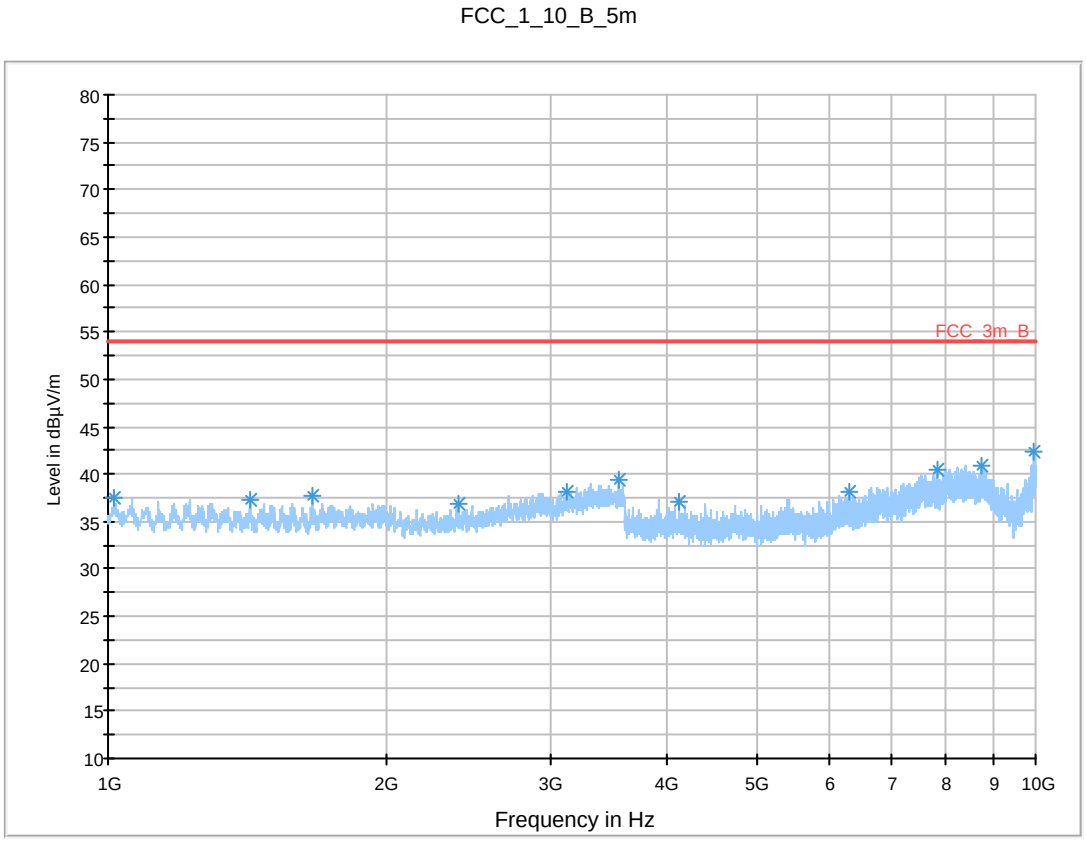

Final Result:

| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) |
|---|---|---|---|---|---|---|---|---|---|
| 32.902050 | 26.6 | 1000.0 | 120.000 | 189.0 | V | 135.0 | 12.8 | 3.4 | 30.0 |
| 37.088100 | 26.2 | 1000.0 | 120.000 | 100.0 | V | 194.0 | 13.2 | 3.9 | 30.0 |
| 39.700950 | 26.3 | 1000.0 | 120.000 | 100.0 | V | 308.0 | 13.4 | 3.7 | 30.0 |
| 42.377100 | 25.0 | 1000.0 | 120.000 | 100.0 | V | 179.0 | 13.4 | 5.0 | 30.0 |
| 50.199300 | 25.7 | 1000.0 | 120.000 | 100.0 | V | 219.0 | 13.4 | 4.3 | 30.0 |
| 52.273050 | 25.2 | 1000.0 | 120.000 | 100.0 | V | 249.0 | 13.1 | 4.8 | 30.0 |

Plot 5: 1 GHz to 10 GHz, vertical / horizontal polarization

Common Information

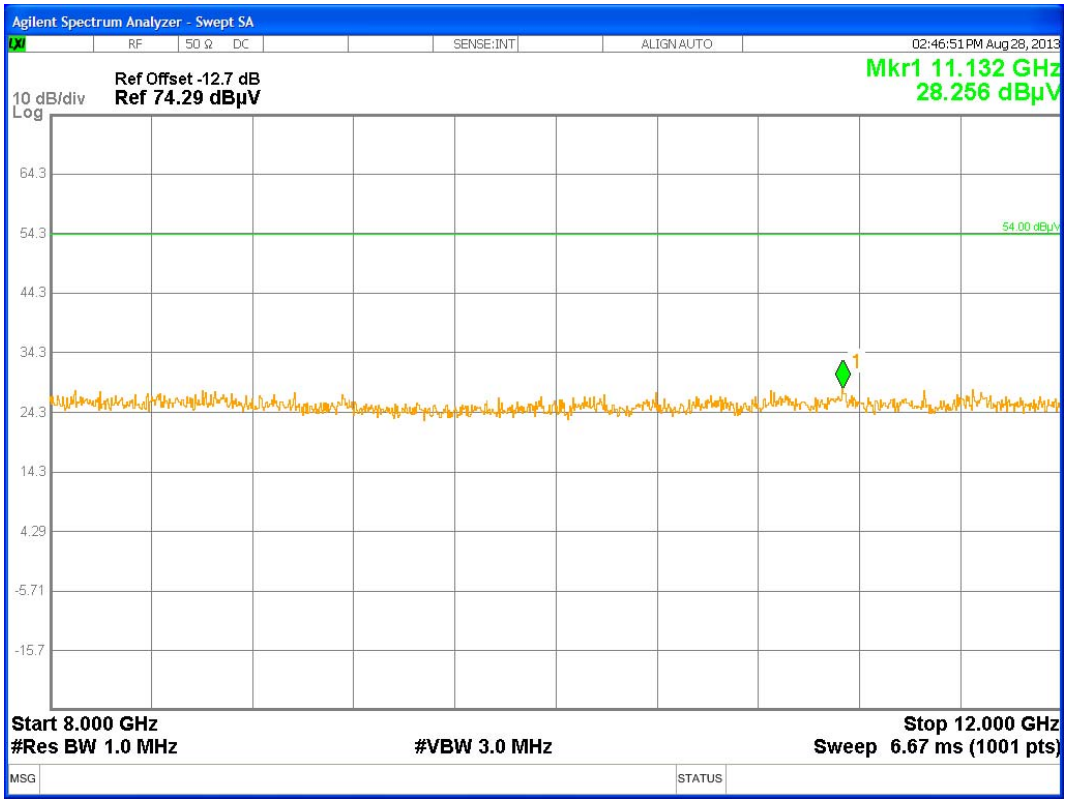
| | |
|---|---|
| EUT: | TIS |
| Serial Number: | 1250-1145 |
| Test Description: | FCC part 15 class B |
| Operating Conditions: | normal use, TX Antenna |
| Operator Name: | Kraus |



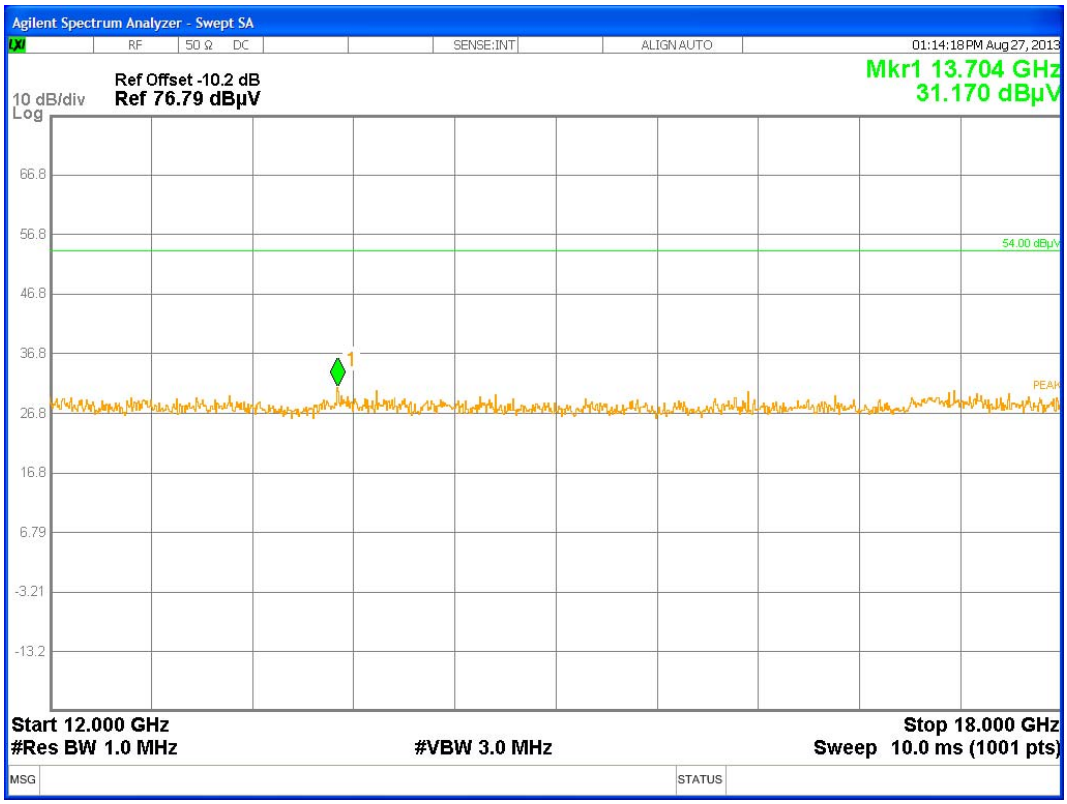

Data Reduction Result

| Frequency (MHz) | MaxPeak-MaxHold (dBµV/m) | Height (cm) | Polarization | Azimuth (deg) | Corr. (dB) | Comment |
|---|---|---|---|---|---|---|
| 1016.200000 | 37.5 | 100.0 | V | 55.0 | -4.6 | |
| 1422.100000 | 37.4 | 100.0 | V | 88.0 | -4.8 | |
| 1661.500000 | 37.6 | 100.0 | V | 211.0 | -4.6 | |
| 2388.700000 | 36.9 | 100.0 | V | 211.0 | -4.2 | |
| 3117.700000 | 38.2 | 100.0 | V | 82.0 | -2.6 | |
| 3553.300000 | 39.4 | 100.0 | H | 356.0 | -2.1 | |
| 4125.700000 | 37.1 | 100.0 | H | 330.0 | -2.1 | |
| 6306.400000 | 38.1 | 100.0 | V | 94.0 | 1.3 | |
| 7818.400000 | 40.4 | 100.0 | V | 301.0 | 3.7 | |
| 8750.800000 | 40.9 | 100.0 | H | 134.0 | 3.8 | |
| 9972.100000 | 42.4 | 100.0 | V | 249.0 | 4.7 | |

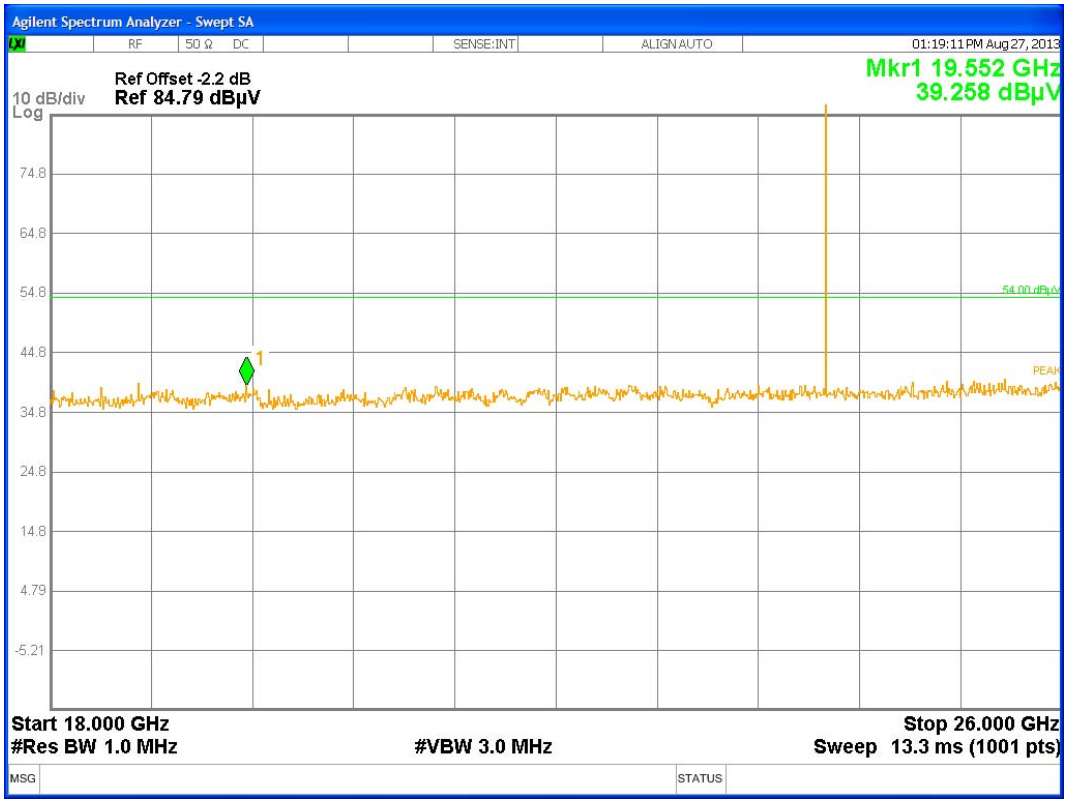
Plot 6: 8 GHz to 12 GHz, vertical / horizontal polarization




Plot 7: 12 GHz to 18 GHz, vertical / horizontal polarization

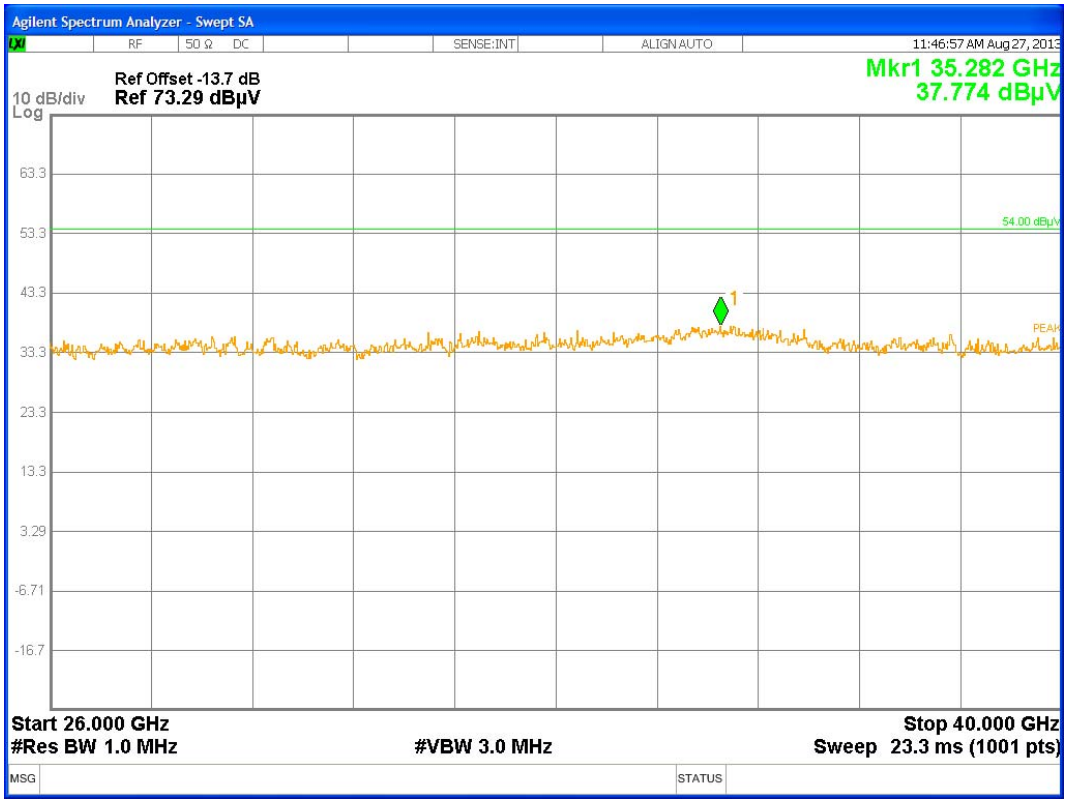


Plot 8: 18 GHz to 26 GHz, vertical / horizontal polarization

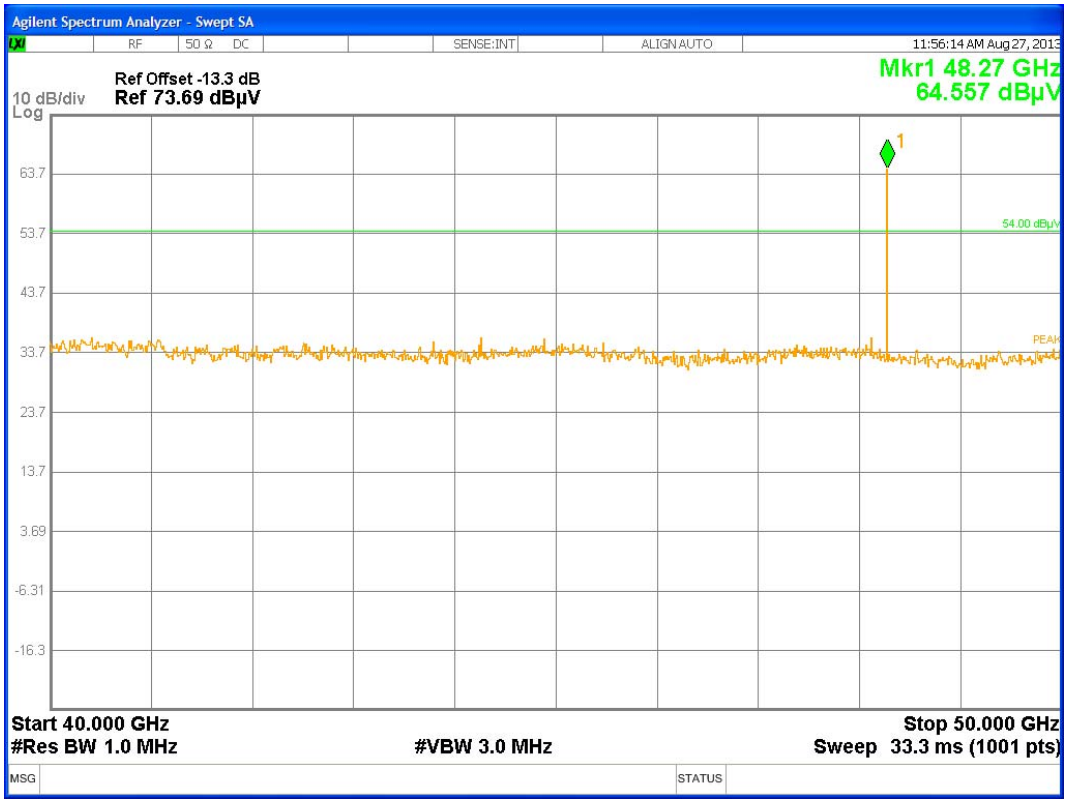



(Plot shows the carrier at 24 GHz)

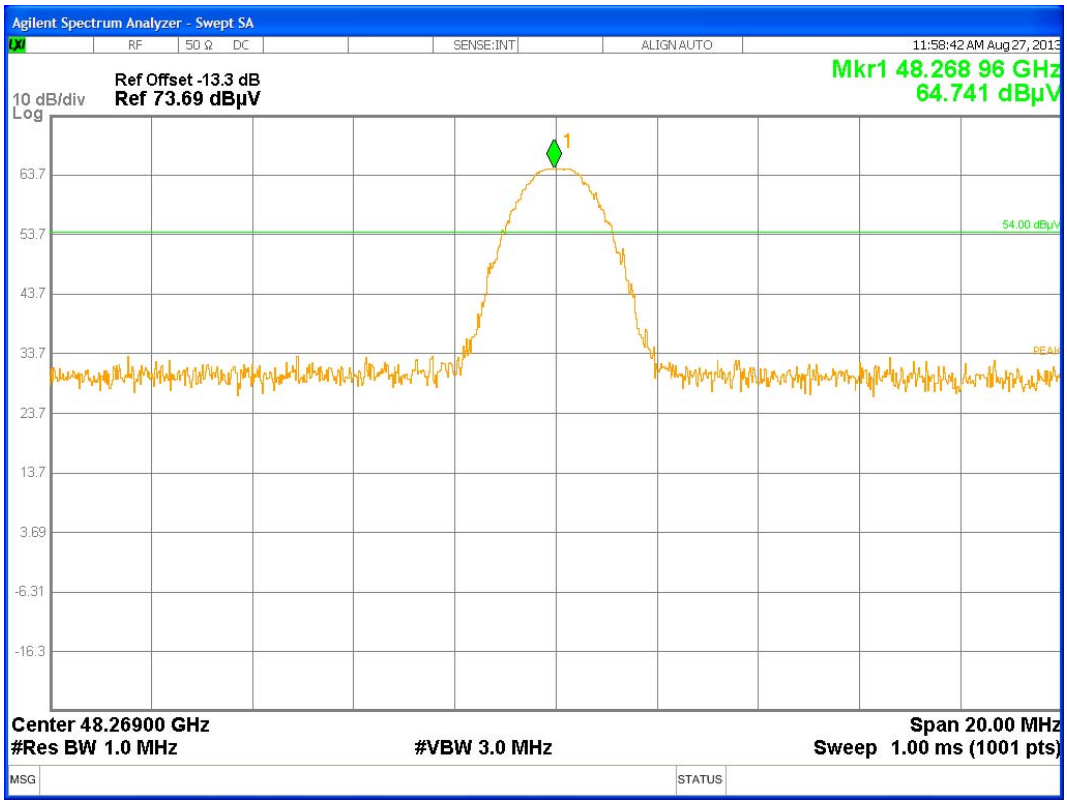
Plot 9: 26 GHz to 40 GHz, horizontal / vertical polarization



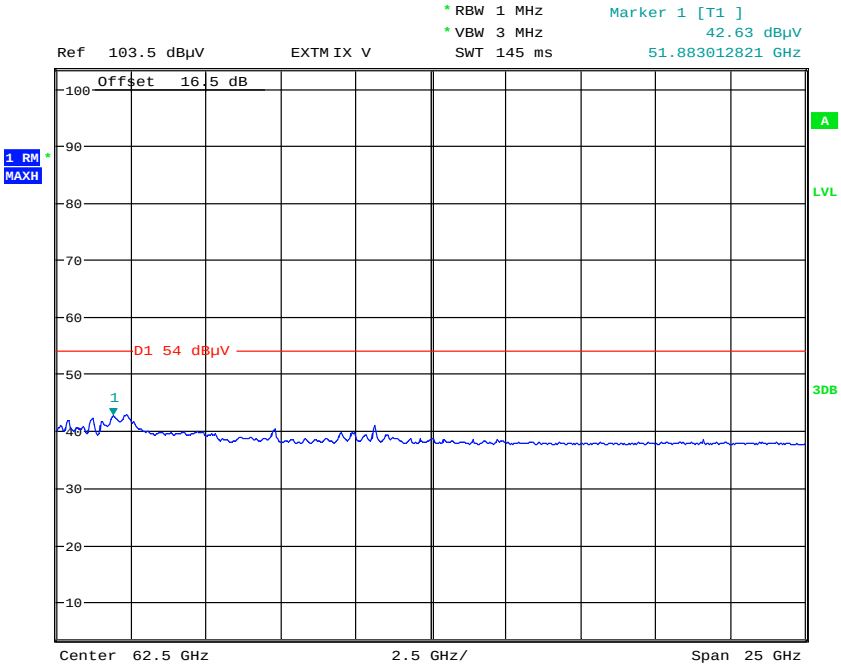
Plot 10: 40 GHz to 50 GHz, horizontal / vertical polarization




Plot 11: 48 GHz band / 2nd harmonic limit: 88 dBµV

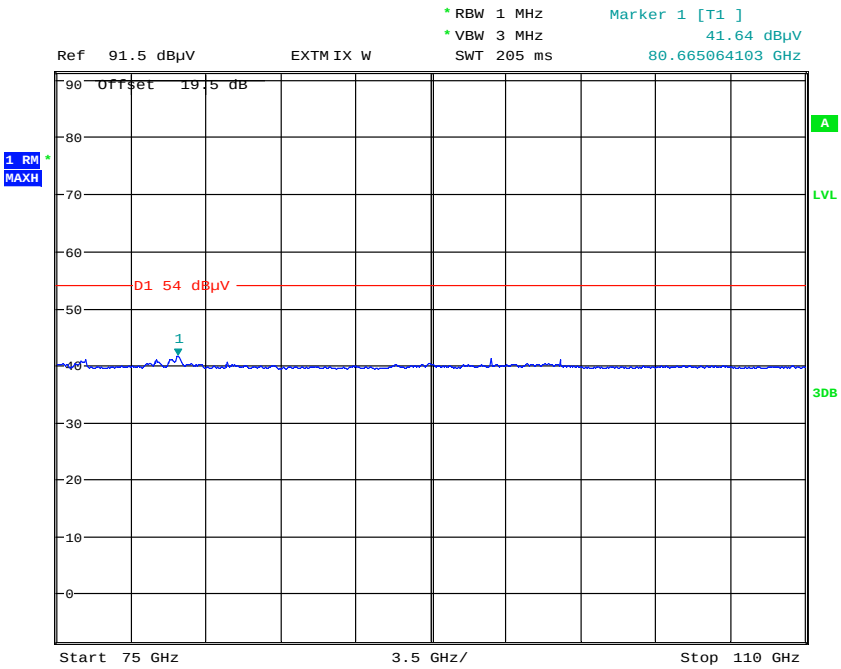


Plot 12: 50 GHz to 75 GHz, horizontal / vertical polarization




Date: 27.AUG.2013 14:47:25

Plot 13: 75 GHz to 110 GHz, horizontal / vertical polarization




Date: 27.AUG.2013 14:52:30

## 9.4 Conducted spurious emissions < 30 MHz

**Description:**

Measurement of the conducted spurious emissions in transmit mode below 30 MHz. Both power lines, phase and neutral line, are measured. Found peaks are re-measured with average and quasi peak detection to show compliance to the limits.

**Measurement:**

| Measurement parameter | |
|---|---|
| Detector: | Peak - Quasi Peak / Average |
| Sweep time: | Auto |
| Video bandwidth: | F < 150 kHz: 200 Hz<br>F > 150 kHz: 9 kHz |
| Resolution bandwidth: | F < 150 kHz: 1 kHz<br>F > 150 kHz: 100 kHz |
| Span: | 9 kHz to 30 MHz |
| Trace-Mode: | Max Hold |

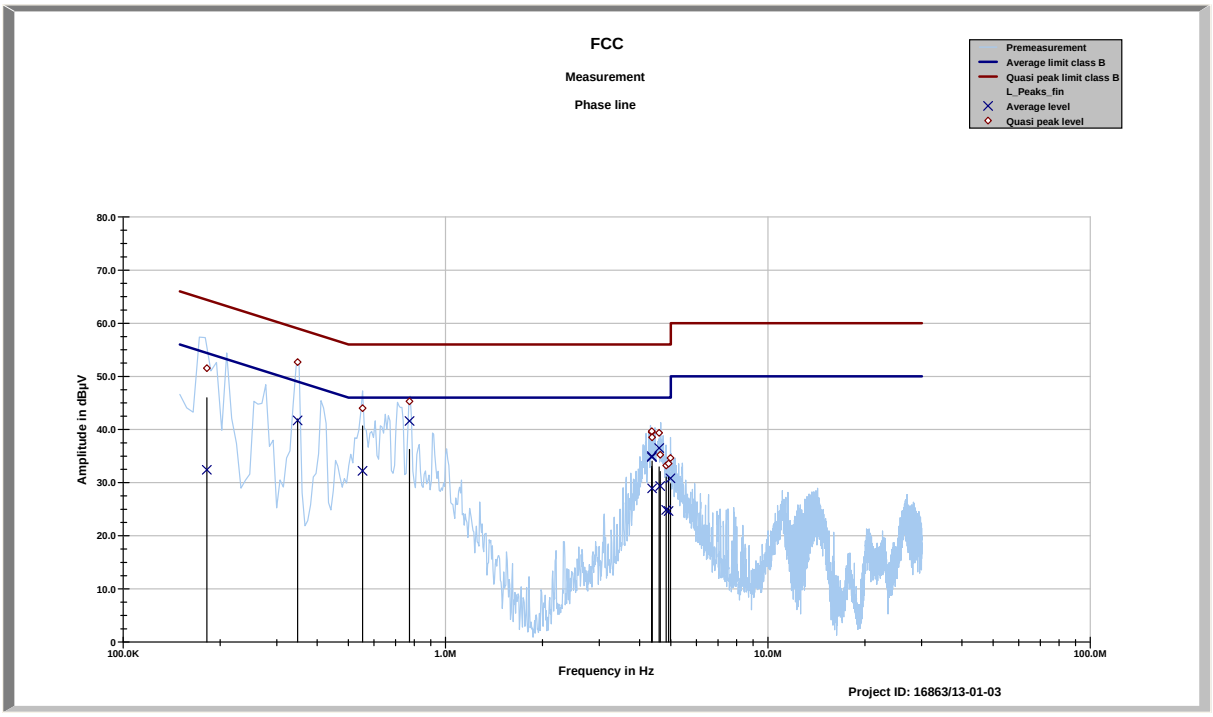
**Limits:**

| FCC | | IC |
|---|---|---|
| CFR Part 15.207(a) | | ICES-003, Issue 4 |
| Conducted Spurious Emissions < 30 MHz | | |
| Frequency (MHz) | Quasi-Peak (dBµV/m) | Average (dBµV/m) |
| 0.15 – 0.5 | 66 to 56* | 56 to 46* |
| 0.5 – 5 | 56 | 46 |
| 5 – 30.0 | 60 | 50 |

*Decreases with the logarithm of the frequency

**Result:** **The measurement is passed.**

Plot 14:



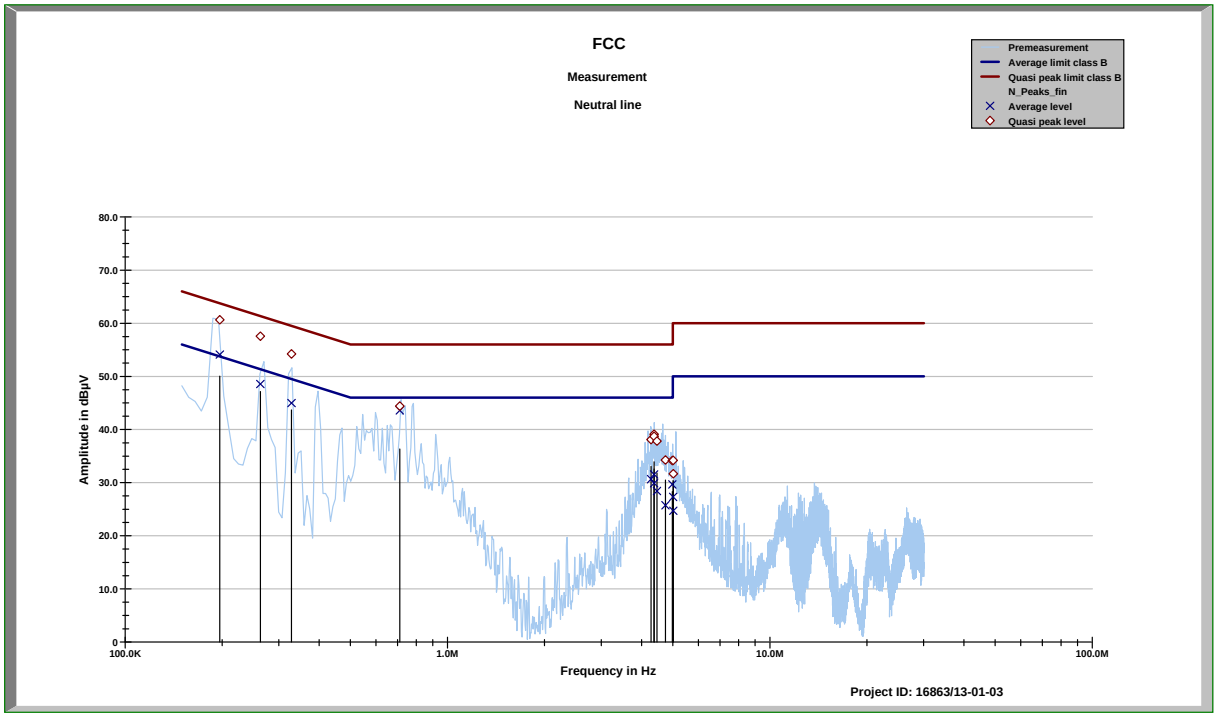

FCC
Phase line tbl

02:42:12 PM, Thursday, August 29, 2013

| Frequency | Quasi peak level | Margin quasi peak | Average level | Margin average |
|---|---|---|---|---|
| MHz | dBµV | dBµV | dBµV | dBµV |
| | | | | |
| 0.18185 | 51.55 | 12.86 | 32.41 | 22.68 |
| 0.34769 | 52.68 | 6.34 | 41.69 | 8.66 |
| 0.55308 | 43.99 | 12.01 | 32.21 | 13.79 |
| 0.77343 | 45.31 | 10.69 | 41.59 | 4.41 |
| 4.3613 | 39.50 | 16.50 | 34.97 | 11.03 |
| 4.3615 | 39.67 | 16.33 | 34.79 | 11.21 |
| 4.3717 | 38.53 | 17.47 | 28.92 | 17.08 |
| 4.5969 | 39.36 | 16.64 | 36.50 | 9.50 |
| 4.632 | 35.24 | 20.76 | 29.35 | 16.65 |
| 4.832 | 33.23 | 22.77 | 24.85 | 21.15 |
| 4.9171 | 33.58 | 22.42 | 24.65 | 21.35 |
| 4.9818 | 34.62 | 21.38 | 30.81 | 15.19 |

Operating mode - normal node

Plot 15:




FCC
Neutral line tbl

02:42:12 PM, Thursday, August 29, 2013

| Frequency | Quasi peak level | Margin quasi peak | Average level | Margin average |
|---|---|---|---|---|
| MHz | dBµV | dBµV | dBµV | dBµV |
| | | | | |
| 0.19675 | 60.65 | 3.10 | 54.09 | 0.57 |
| 0.26282 | 57.54 | 3.81 | 48.54 | 4.23 |
| 0.32818 | 54.22 | 5.27 | 44.97 | 5.94 |
| 0.71131 | 44.39 | 11.61 | 43.59 | 2.41 |
| 4.2774 | 38.09 | 17.91 | 30.65 | 15.35 |
| 4.3717 | 39.10 | 16.90 | 29.88 | 16.12 |
| 4.3727 | 38.71 | 17.29 | 31.53 | 14.47 |
| 4.4612 | 37.81 | 18.19 | 28.40 | 17.60 |
| 4.7408 | 34.25 | 21.75 | 25.74 | 20.26 |
| 4.9807 | 34.13 | 21.87 | 29.65 | 16.35 |
| 5.009 | 34.19 | 25.81 | 27.30 | 22.70 |
| 5.0138 | 31.66 | 28.34 | 24.70 | 25.30 |

Operating mode - normal node

## 10 Test equipment and ancillaries used for tests

Typically, the calibrations of the test apparatus are commissioned to and performed by an accredited calibration laboratory. The calibration intervals are determined in accordance with the DIN EN ISO/IEC 17025. In addition to the external calibrations, the laboratory executes comparison measurements with other calibrated test systems or effective verifications. Weekly chamber inspections and range calibrations are performed. Where possible, rf-generating and signalling equipment as well as measuring receivers and analyzers are connected to an external high-precision 10 MHz reference (GPS-based or rubidium frequency standard).

In order to simplify the identification of the equipment used at some special tests, some items of test equipment and ancillaries can be provided with an identifier or number in the equipment list below (Lab/Item).

| No. | Lab / Item | Equipment | Type | Manufact. | Serial No. | INV. No Cetecom | Kind of Calibration | Last Calibration | Next Calibration |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 45 | Switch-Unit | 3488A | HP Meßtechnik | 2719A14505 | 300000368 | g | | |
| 2 | 50 | DC power supply, 60Vdc, 50A, 1200 W | 6032A | HP Meßtechnik | 2920A04466 | 300000580 | ne | | |
| 3 | n. a. | software | SPS_PHE 1.4f | Spitzberger & Spieß | B5981; 5D1081;B5979 | 300000210 | ne | | |
| 4 | n. a. | EMI Test Receiver | ESCI 3 | R&S | 100083 | 300003312 | k | 09.01.2013 | 09.01.2014 |
| 5 | n. a. | Analyzer-Reference-System (Harmonics and Flicker) | ARS 16/1 | SPS | A3509 07/0 0205 | 300003314 | Ve | 14.07.2011 | 14.01.2014 |
| 6 | n. a. | Amplifier | JS42-00502650-28-5A | MITEQ | 1084532 | 300003379 | ev | | |
| 7 | n. a. | Antenna Tower | Model 2175 | ETS-LINDGREN | 64762 | 300003745 | izw | | |
| 8 | n. a. | Positioning Controller | Model 2090 | ETS-LINDGREN | 64672 | 300003746 | izw | | |
| 9 | n. a. | Turntable Interface-Box | Model 105637 | ETS-LINDGREN | 44583 | 300003747 | izw | | |
| 10 | n. a. | TRILOG Broadband Test-Antenna 30 MHz - 3 GHz | VULB9163 | Schwarzbeck | 295 | 300003787 | k | 12.04.2012 | 12.04.2014 |
| 11 | n. a. | Spectrum-Analyzer | FSU26 | R&S | 200809 | 300003874 | k | 16.01.2013 | 16.01.2014 |
| 12 | n. a. | Anechoic chamber | FAC 3/5m | MWB / TDK | 87400/02 | 300000996 | ev | | |
| 13 | 9 | Artificial Mains 9 kHz to 30 MHz | ESH3-Z5 | R&S | 828576/020 | 300001210 | Ve | 06.01.2012 | 06.01.2014 |
| 14 | 90 | Active Loop Antenna 10 kHz to 30 MHz | 6502 | Kontron Psychotech | 8905-2342 | 300000256 | k | 13.06.2013 | 13.06.2015 |
| 15 | n. a. | MXE EMI Receiver 20 Hz bis 26,5 GHz | N9038A | Agilent Technologies | MY51210197 | 300004405 | k | 21.02.2013 | 21.02.2014 |
| 16 | A026 | Std. Gain Horn Antenna 12.4 to 18.0 GHz | 639 | Narda | 8402 | 300000787 | k | | |
| 17 | A029 | Std. Gain Horn Antenna 18.0 to 26.5 GHz | 638 | Narda | | 300002442 | k | | |
| 18 | CR 79 | Std. Gain Horn Antenna 26.5-40.0 GHz | V637 | Narda | 7911 | 300001751 | ne | | |
| 19 | A023 | Std. Gain Horn Antenna 39.3-59.7 GHz | 2424-20 | Flann | 75 | 300001979 | ne | | |
| 20 | A025 | Std. Gain Horn Antenna 49.9-75.8 GHz | 2524-20 | Flann | * | 300001983 | Ve | | |
| 21 | A028 | Std. Gain Horn Antenna 73.8-112 GHz | 2724-20 | Flann | * | 300001991 | | | |
| 22 | | Spectrum Analyzer 20 Hz - 50 GHz | FSU50 | R&S | 200012 | 300003443 | | 09.10.2012 | 09.10.2014 |
| 23 | | Harmonic mixer 50 - 75 GHz | FS-Z75 | R&S | 100099 | 300003949 | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 24 | | Harmonic Mixer 2-Port, 75-110 GHz | SAM-110-7 | Radiometer Physics GmbH | 2 | 300004155 | | | |
| 25 | | Broadband Low Noise Amplifier 18-50 GHz | CBL18503070-XX | CERNEX | 19338 | 300004273 | | | |

**Agenda:** Kind of Calibration

| | | | |
|---|---|---|---|
| k | calibration / calibrated | EK | limited calibration |
| ne | not required (k, ev, izw, zw not required) | zw | cyclical maintenance (external cyclical maintenance) |
| ev | periodic self verification | izw | internal cyclical maintenance |
| Ve | long-term stability recognized | g | blocked for accredited testing |
| vlkl! | Attention: extended calibration interval | | |
| NK! | Attention: not calibrated | *) | next calibration ordered / currently in progress |

## 11 Observations

No observations exceeding those reported with the single test cases have been made.

## Annex A Document history

| Version | Applied changes | Date of release |
|---|---|---|
| 1.0 | Initial release | 2013-09-13 |

## Annex B Further information

**Glossary**

AVG - Average
DUT - Device under test
EMC - Electromagnetic Compatibility
EN - European Standard
EUT - Equipment under test
ETSI - European Telecommunications Standard Institute
FCC - Federal Communication Commission
FCC ID - Company Identifier at FCC
HW - Hardware
IC - Industry Canada
Inv. No. - Inventory number
N/A - Not applicable
PP - Positive peak
QP - Quasi peak
S/N - Serial number
SW - Software

# Annex C Accreditation Certificate

Front side of certificate

DAkkS Deutsche Akkreditierungsstelle

Deutsche Akkreditierungsstelle GmbH

**Beliehene gemäß § 8 Absatz 1 AkkStelleG i.V.m. § 1 Absatz 1 AkkStelleGBV**
Unterzeichnerin der Multilateralen Abkommen
von EA, ILAC und IAF zur gegenseitigen Anerkennung

## Akkreditierung

Die Deutsche Akkreditierungsstelle GmbH bestätigt hiermit, dass das Prüflaboratorium

**CETECOM ICT Services GmbH**
**Untertürkheimer Straße 6-10, 66117 Saarbrücken**

die Kompetenz nach DIN EN ISO/IEC 17025:2005 besitzt, Prüfungen in folgenden Bereichen durchzuführen:

**Drahtgebundene Kommunikation einschließlich xDSL**
**VoIP und DECT**
**Akustik**
**Funk einschließlich WLAN**
**Short Range Devices (SRD)**
**RFID**
**WiMax und Richtfunk**
**Mobilfunk (GSM / DCS, Over the Air (OTA) Performance)**
**Elektromagnetische Verträglichkeit (EMV) einschließlich Automotive**
**Produktsicherheit**
**SAR und Hearing Aid Compatibility (HAC)**
**Umweltsimulation**
**Smart Card Terminals**
**Bluetooth**
**Wi-Fi- Services**

Die Akkreditierungsurkunde gilt nur in Verbindung mit dem Bescheid vom 18.01.2013 mit der Akkreditierungsnummer D-PL-12076-01 und ist gültig 17.01.2018. Sie besteht aus diesem Deckblatt, der Rückseite des Deckblatts und der folgenden Anlage mit insgesamt 80 Seiten.

Registrierungsnummer der Urkunde: **D-PL-12076-01-01**

Frankfurt am Main, 18.01.2013

Im Auftrag
Dipl.-Ing. (FH) Ralf Egner
Abteilungsleiter

Siehe Hinweise auf der Rückseite

Back side of certificate

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Die auszugsweise Veröffentlichung der Akkreditierungsurkunde bedarf der vorherigen schriftlichen Zustimmung der Deutsche Akkreditierungsstelle GmbH (DAkkS). Ausgenommen davon ist die separate Weiterverbreitung des Deckblattes durch die umseitig genannte Konformitätsbewertungsstelle in unveränderter Form.

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Die Akkreditierung erfolgte gemäß des Gesetzes über die Akkreditierungsstelle (AkkStelleG) vom 31. Juli 2009 (BGBl. I S. 2625) sowie der Verordnung (EG) Nr. 765/2008 des Europäischen Parlaments und des Rates vom 9. Juli 2008 über die Vorschriften für die Akkreditierung und Marktüberwachung im Zusammenhang mit der Vermarktung von Produkten (Abl. L 218 vom 9. Juli 2008, S. 30).
Die DAkkS ist Unterzeichnerin der Multilateralen Abkommen zur gegenseitigen Anerkennung der European co-operation for Accreditation (EA), des International Accreditation Forum (IAF) und der International Laboratory Accreditation Cooperation (ILAC). Die Unterzeichner dieser Abkommen erkennen ihre Akkreditierungen gegenseitig an.

Der aktuelle Stand der Mitgliedschaft kann folgenden Webseiten entnommen werden:
EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu

**Note:**

**The current certificate including annex is published on our website (see link below) or may be received from CETECOM ICT Services on request.**

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