



Accredited testing-laboratory

DAR registration number: DAT-P-176/94-D1

**Federal Motor Transport Authority (KBA)
DAR registration number: KBA-P 00070-97**

Recognized by the Federal Communications Commission

Anechoic chamber registration no.: 90462 (FCC)

Anechoic chamber registration no.: 3462C-1 (IC)

Certification ID: DE 0001

Accreditation ID: DE 0002

Accredited Bluetooth® Test Facility (BQTF)

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Inc. and any use of such marks by Cetecom ICT is under license*

Test report no. : 1-1065-32-04/09
Type identification : AAD-3880039-BV
Applicant : Sony Ericsson Mobile Communications AB
FCC ID : PY7A3880039
IC Certification No : 4170B-A3880039
Test standards : 47 CFR Part 15
RSS - 210 Issue 7

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1 General information

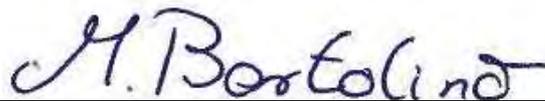
1.1 Notes

The test results of this test report relate exclusively to the test item specified in 3.1.1. The CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalisations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM ICT Services GmbH.

Test laboratory manager:

2009-06-08

Marco Bertolino



Date

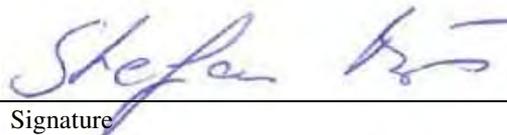
Name

Signature

Technical responsibility for area of testing:

2009-06-08

Stefan Bös



Date

Name

Signature

1.2 Testing laboratory

CETECOM ICT Services GmbH

Untertürkheimer Straße 6 - 10

66117 Saarbrücken

Germany

Phone: + 49 681 5 98 - 0

Fax: + 49 681 5 98 - 9075

e-mail: info@ICT.cetecom.de

Internet: http://www.cetecom-ict.de

State of accreditation: The test laboratory (area of testing) is accredited according to
DIN EN ISO/IEC 17025
DAR registration number: DAT-P-176/94-D1

Accredited by: Federal Motor Transport Authority (KBA)
DAR registration number: KBA-P 00070-97

Testing location, if different from CETECOM ICT Services GmbH:

Name :
Street :
Town :
Country :
Phone :
Fax :

1.3 Details of applicant

| | |
|-------------------|--|
| Name: | Sony Ericsson Mobile Communications AB |
| Street: | Mobilvägen 10 |
| Town: | 22188 Lund |
| Country: | Sweden |
| Telephone: | +46-46-19-3000 |
| Fax: | +46-10-800-2441 |
| Contact: | Peter Lindeborg |
| E-mail: | peter.lindeborg@sonyericsson.com |
| Telephone: | +46-10-802-43 68 |

1.4 Application details

| | |
|--|------------|
| Date of receipt of order: | 2009-06-02 |
| Date of receipt of test item: | 2009-06-04 |
| Date of start test: | 2009-06-04 |
| Date of end test: | 2009-06-08 |
| Persons(s) who have been present during the test: | -/- |

2 Test standard/s

| | | |
|--------------------------|----------------|---|
| 47 CFR Part 15 | 2008-07 | Title 47 of the Code of Federal Regulations; Chapter I- Federal Communications Commission subchapter A - general, Part 15-Radio frequency devices |
| RSS - 210 Issue 7 | 2007-06 | Spectrum Management and Telecommunications - Radio Standards Specification Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment |

3 Technical tests

3.1 Details of manufacturer

| | |
|----------|--|
| Name: | Sony Ericsson Mobile Communications AB |
| Street: | Mobilvägen 10 |
| Town: | 22188 Lund |
| Country: | Sweden |

3.1.1 Test item

| | | |
|----------------------|---|--|
| Kind of test item | : | Mobile Phone 850/900/1800/1900/UMTS /HSDPA/HSUPA/ |
| Type identification | : | AAD-3880039-BV |
| S/N serial number | : | BT radiated : BX900MF6DQ BX900MF680 EUT BT conducted: BX900MF6PF EUT BX900MJVEW |
| HW hardware status | : | AP2 |
| SW software status | : | R1FA009 ITP |
| Frequency Band [MHz] | : | ISM band 2.400 - 2.483,5 |
| Type of Modulation | : | FHSS |
| Number of channels | : | 79 |
| Antenna | : | Integrated PCB antenna (see sub clause 8 – Photos of the EUT) |
| Power Supply | : | 4 V DC by power supply / Lithium-Ion battery |
| Temperature Range | : | -20 °C to +55 °C |

Max. power radiated: 0.10 dBm 8 DPSK
 Max. power conducted: 4.14 dBm 8 DPSK

FCC ID: PY7A3880039
 IC: 4170B-A3880039

3.1.2 Additional EUT information For IC Canada (appendix 2)

| | |
|--|---|
| IC Registration Number: | 4170B-A3880039 |
| Model Name: | AAD-3880039-BV |
| Manufacturer (complete Address): | Sony Ericsson Mobile Communications AB Mobilvägen 10 22188 Lund Sweden |
| Tested to Radio Standards Specification (RSS) No.: | RSS-210 Issue 7 |
| Open Area Test Site Industry Canada Number: | IC 3462C-1 |
| Frequency Range (or fixed frequency) [MHz]: | ISM band 2400 – 2483.5 |
| RF: Power [W] (max): | <u>GFSK modulation:</u> Rad. EIRP: 1.01 mW Conducted : 2.56 mW <u>Pi/4 DQPSK modulation:</u> Rad. EIRP: 0.98 mW Conducted : 2.52 mW <u>8 DPSK modulation:</u> Rad. EIRP: 1.02 mW Conducted : 2.59 mW |
| Antenna Type: | Integrated PCB antenna (see sub clause 8 – Photos of the EUT) |
| Occupied Bandwidth (99% BW) [kHz]: | GFSK : 926 Pi/4 DQPSK : 1335 8 DPSK : 1269 |
| Type of Modulation: | GFSK, Pi/4 DQPSK, 8 DPSK |
| Emission Designator (TRC-43): | 926KFXD GFSK 1M34GXD Pi/4 DQPSK 1M27GXD 8 DPSK |
| Transmitter Spurious (worst case) [dBµV/m in 3m]: | 41.23 |
| Receiver Spurious (worst case) [dBµV/m in 3m]: | 40.89 |

ATTESTATION:

I attest that the testing was performed or supervised by me; that the test measurements were made in accordance with the above-mentioned departmental standard(s), and that the radio equipment identified in this application has been subject to all applicable test conditions specified in the departmental standards and all of the requirements of the standards have been met.

Signature:



Test engineer: Marco Bertolino Date: 2009-06-08

3.1.3 RF Technical Brief Cover Sheet acc. To RSS-102

All Fields must be completed with the requested information or the following codes: N/A for Not Applicable, N/P for Not Performed or N/V for Not Available. Where applicable, check appropriate box.

1. COMPANY NUMBER: **4170B**
2. MODEL NUMBER: **AAD-3880039-BV**
3. MANUFACTURER: **Sony Ericsson Mobile Communications AB**
4. TYPE OF EVALUATION: **(c) RF Evaluation**

- Evaluated against exposure limits: General Public Use Controlled Use
- Duty cycle used in evaluation: 100 %
- Standard used for evaluation: RSS-102 Issue 2 (2005-11)
- Measurement distance: 0.20 m
- RF value: 0.0020 V/m A/m W/m²

Measured Computed Calculated

Declaration of RF Exposure Compliance:

ATTESTATION:

I attest that the information provided in this test report are correct; that a Technical Brief was prepared and the information it contains is correct; that the device evaluation was performed or supervised by me; that applicable measurement methods and evaluation methodologies have been followed and that the device meets the SAR and/or RF exposure limits of RSS-102.

Name: Dipl.-Ing. (FH) Marco Bertolino
Title: Engineer
Company: Cetecom ICT Services GmbH

3.1.4 EUT operating modes

| EUT operating mode no. *) | Description of operating modes | Additional information |
|---------------------------|--------------------------------|--|
| Op. 0 | normal mode | normal temperature and power source conditions |
| Op. 1 | | low temperature, low power source conditions |
| Op. 2 | | low temperature, high power source conditions |
| Op. 3 | | high temperature, low power source conditions |
| Op. 4 | | high temperature, high power source conditions |

*) EUT operating mode no. is used to simplify the test plan

3.1.5 Extreme conditions testing values

| Description | Shortcut | Unit | Value |
|----------------------|------------------|------|-----------|
| Nominal Temperature | T _{nom} | °C | 20 |
| Nominal Humidity | H _{nom} | % | 42 |
| Nominal Power Source | V _{nom} | V | 4 |

Type of power source: **DC by power supply / Lithium-Ion battery**

Deviations from these values are reported in chapter 2

4 Summary of Measurement Results and list of all performed test cases

- No deviations from the technical specifications were ascertained
- There were deviations from the technical specifications ascertained

| TC identifier | Description | verdict | date | Remark |
|---------------|--------------------------------------|---------|------------|--------|
| RF-Testing | FCC Part 15 §15.247 - CANADA RSS-210 | Passed | 2009-06-08 | -/- |

| Test Specification Clause | Test Case | Modulation | Pass | Fail | N/A | Not performed |
|---------------------------|--|------------------------------|-------------------|------|-----|---------------|
| None | Antenna Gain | GFSK | Yes | | | |
| §15.247(a1) | Carrier frequency separation | GFSK Pi/4 DQPSK 8 DPSK | Yes Yes Yes | | | |
| §15.247(a1) | Number of hopping channels | GFSK Pi/4 DQPSK 8 DPSK | Yes Yes Yes | | | |
| §15.247(a)(1)(iii) | Time of occupancy (dwell time) | -- | Yes | | | |
| §15.247(e) | Power Spectral density (Hybrid system in Inquiry mode/Page scan) | -- | | | Yes | |
| §15.247(a)(1) | Spectrum Bandwidth of a FHSS System / 20dB Bandwith | GFSK Pi/4 DQPSK 8 DPSK | Yes Yes Yes | | | |
| § 15.247 (b)(1) | Maximum output power (conducted) | GFSK Pi/4 DQPSK 8 DPSK | Yes Yes Yes | | | |
| § 15.247 (b)(1) | Max. peak output power (radiated) | GFSK Pi/4 DQPSK 8 DPSK | Yes Yes Yes | | | |
| § 15.247 (d) | Band-edge compliance of conducted emissions | GFSK Pi/4 DQPSK 8 DPSK | Yes Yes Yes | | | |
| § 15.205 | Band-edge compliance of radiated emissions | GFSK Pi/4 DQPSK 8 DPSK | Yes Yes Yes | | | |
| § 15.247 (d) | Spurious Emission - conducted (Transmitter) | GFSK Pi/4 DQPSK 8 DPSK | Yes Yes Yes | | | |
| § 15.247 (d) | Spurious Emission - radiated (Transmitter) >30 MHz | 8 DPSK | Yes | | | |
| § 15.109 | Spurious Emissions - radiated (Receiver) | 8 DPSK | Yes | | | |
| § 15.209 | Spurious Emissions - radiated (Transmitter) <30 MHz | 8 DPSK | Yes | | | |
| § 15.107/207 | Conducted Emissions <30 MHz | 8 DPSK | Yes | | | |

5 RF measurement testing

5.1 Description of test set-up

5.1.1 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 C63.4-2003 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 analysers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63-4-2003 clause 4.2. Antennas are confirmed with ANSI C63.2-1996 item 15.

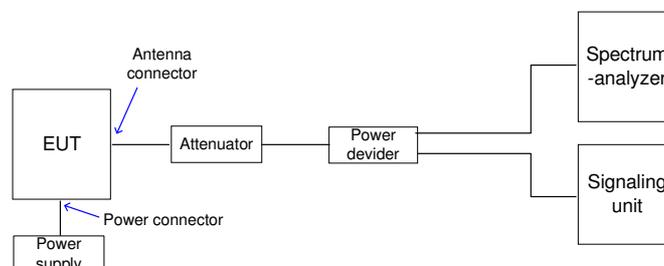
- 9 kHz - 150 kHz: Quasi Peak measurement, 200 Hz Bandwidth, passive loop antenna.
- 150 kHz - 30 MHz: Quasi Peak measurement, 9 kHz Bandwidth, passive loop antenna.
- 30 MHz - 200 MHz: Quasi Peak measurement, 120 kHz Bandwidth, bi-conical antenna
- 200MHz - 1GHz: Quasi Peak measurement, 120 kHz Bandwidth, log periodic antenna
- >1GHz: Average, RBW 1MHz, VBW 10 Hz, waveguide horn

All measurements are done in accordance with the Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems DA 00-705 and Appendix A “BLUETOOTH APPROVALS”

The EUT is powered by an external power supply with nominal voltage. The signalling is performed from outside the chamber with a signalling unit (CMU200 or other) by air link using signalling antenna.

5.1.2 Conducted measurements

The EUT’s RF signal is coupled out by the antenna connector which is supplied by the manufacturer. The signal is first 10dB attenuated before it is power divided (~6dB loss per branch). One of the signal paths is connected to the communication base Station (CMU200 or other), the other one is connected to the spectrum analyzer. The specific losses for both signal paths are first checked within a calibration. The measurement readings on the signalling unit/spectrum analyzer are corrected by the specific test set-up loss. The attenuator, power divider, signalling unit and the spectrum analyzer are impedance matched on 50 Ohm.



5.2 Referenced documents

None

5.3 Additional comments

None

5.4 Antenna gain

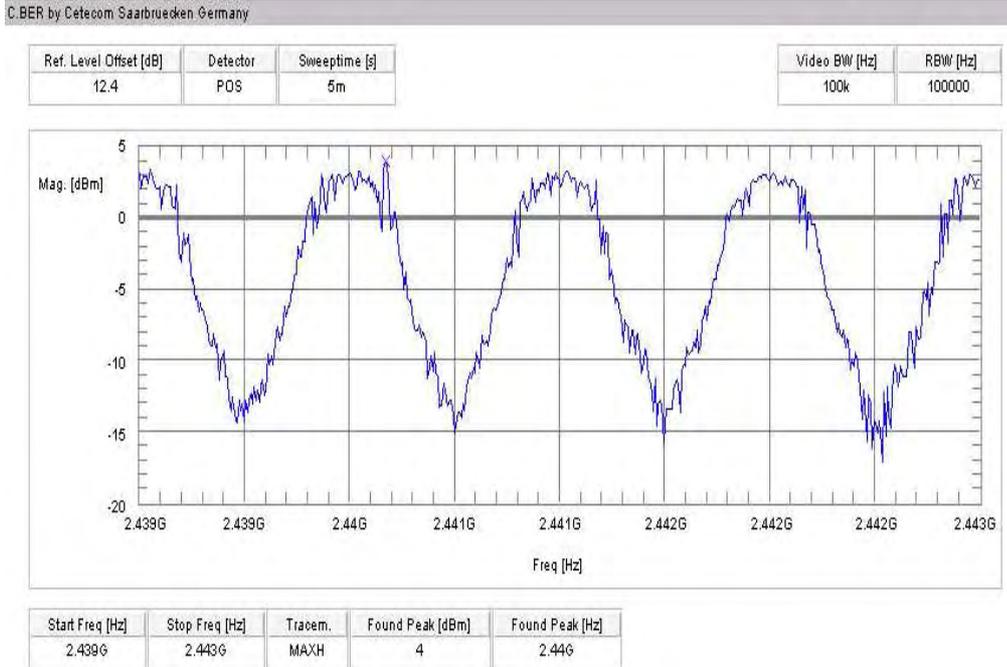
The antenna gain of the complete system is calculated by the difference of radiated power in EIRP and the conducted power of the module.

| Antenna Gain | low channel 2402 MHz | mid channel 2441 MHz | high channel 2480 MHz |
|--|-------------------------|-------------------------|--------------------------|
| Conducted power [dBm] Measured, GFSK modulation | 4.08 | 4.03 | 4.08 |
| Radiated power [dBm] Measured, GFSK modulation | 0.04 | -0.93 | -1.11 |
| Gain [dBi] Calculated | -4.04 | -4.96 | -5.19 |

5.5 Carrier frequency separation §15.247(a)(1)

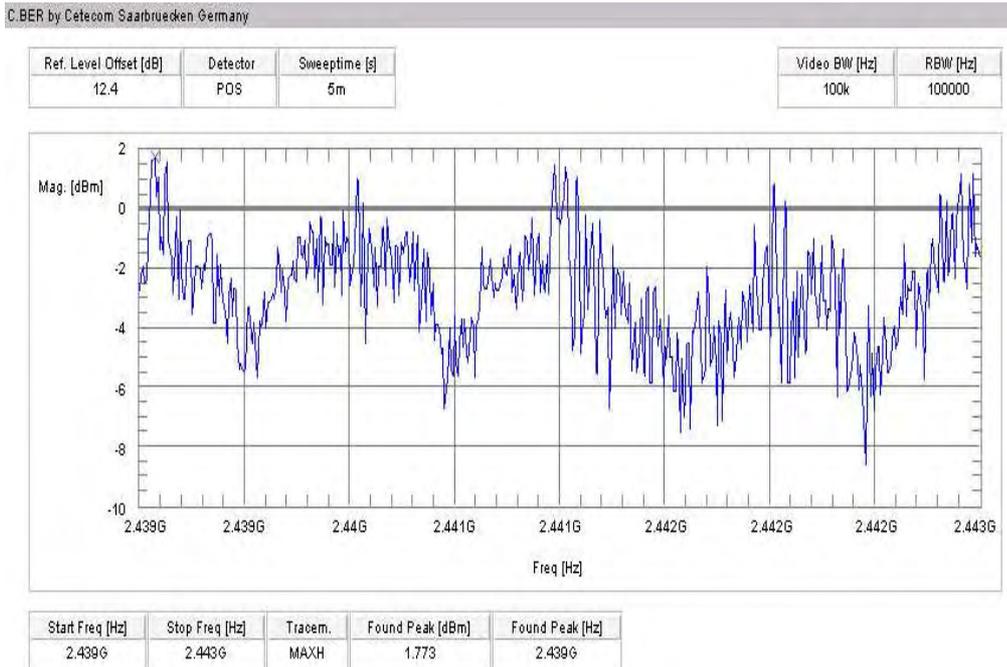
Modulation: GFSK

Plot 1 of 1:



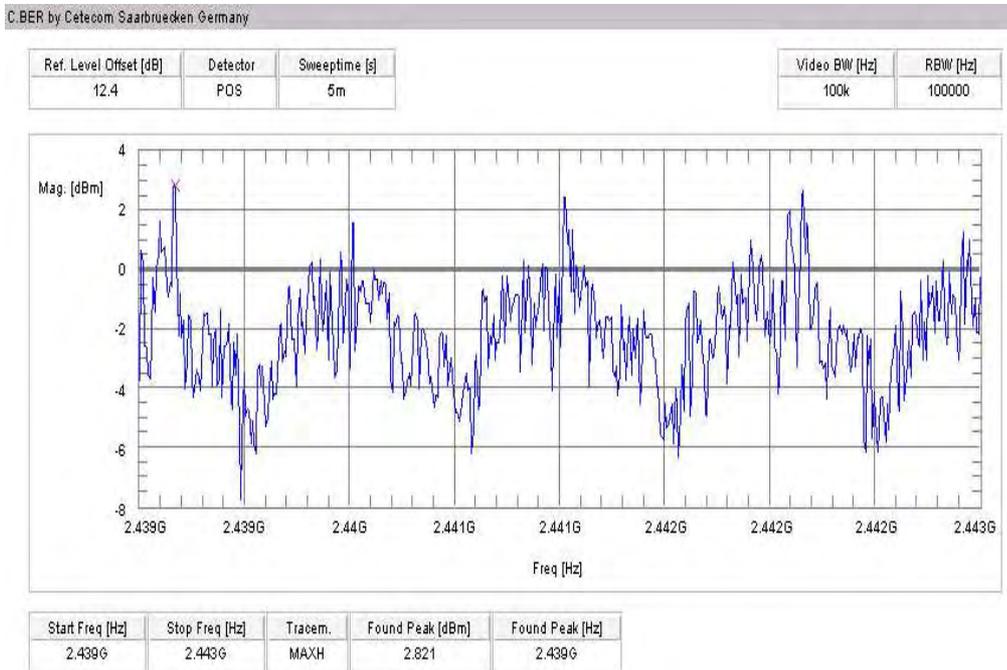
Modulation: Pi/4 DQPSK

Plot 1 of 1:



Modulation: 8 DPSK

Plot 1 of 1:



Result: Channel separation is: ~ 1 MHz

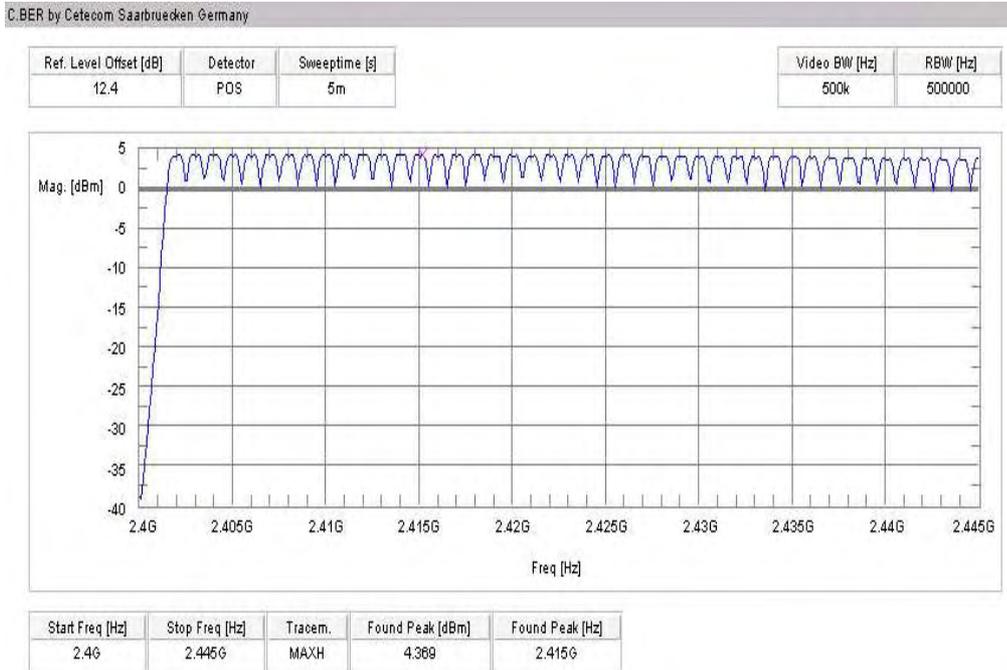
Limits:

| | |
|-----------------------------------|---|
| Under normal test conditions only | Minimum 25 kHz or 20 dB Bandwidth of the hopping system |
|-----------------------------------|---|

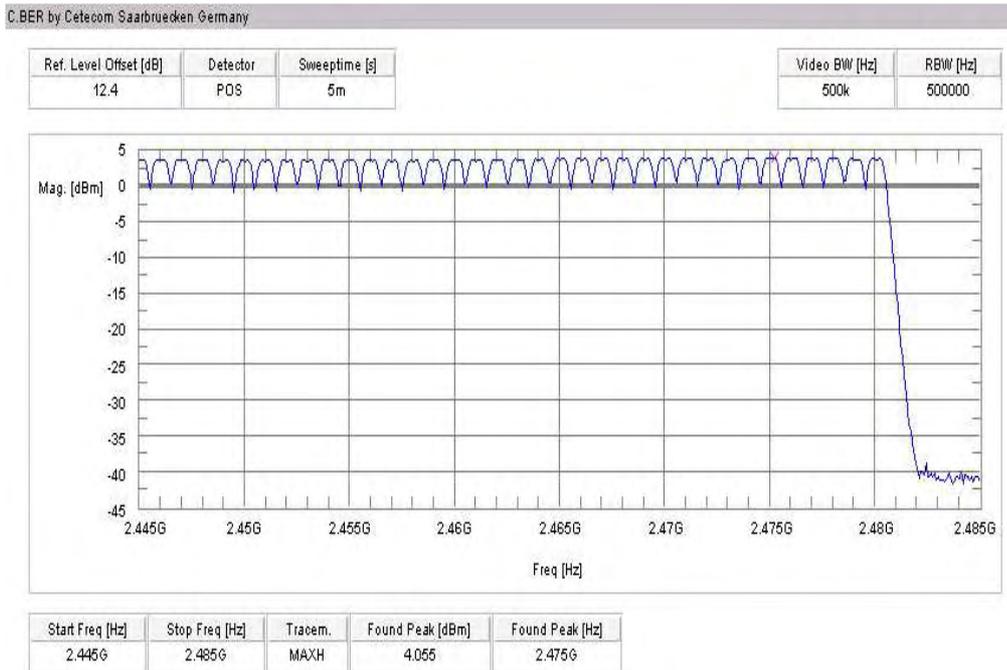
5.6 Number of hopping channels §15.247(a)(1)

Modulation: GFSK

Plot 1 of 2:

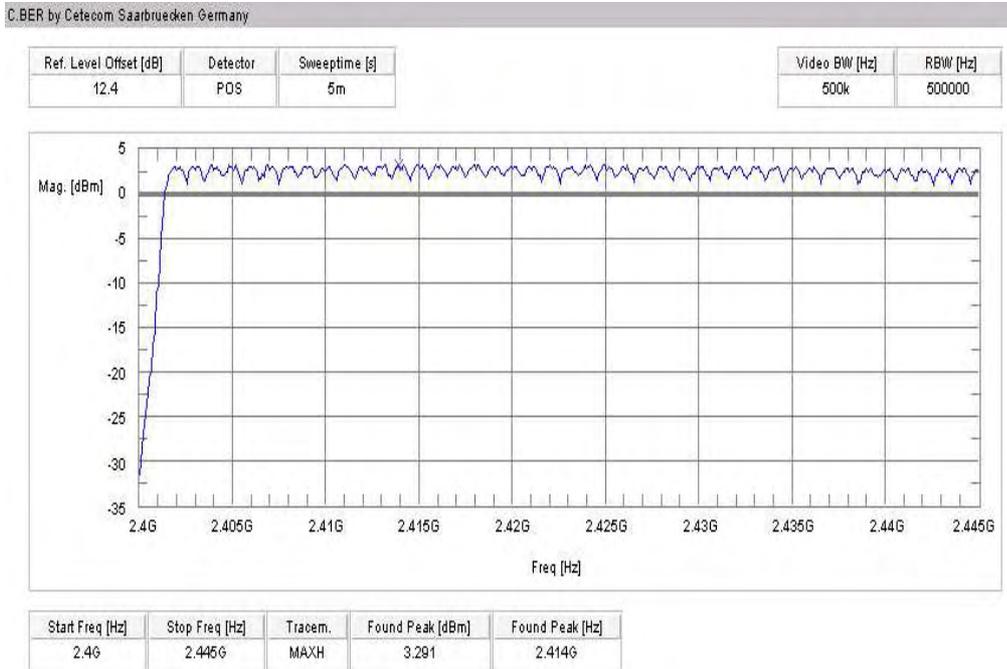


Plot 2 of 2:

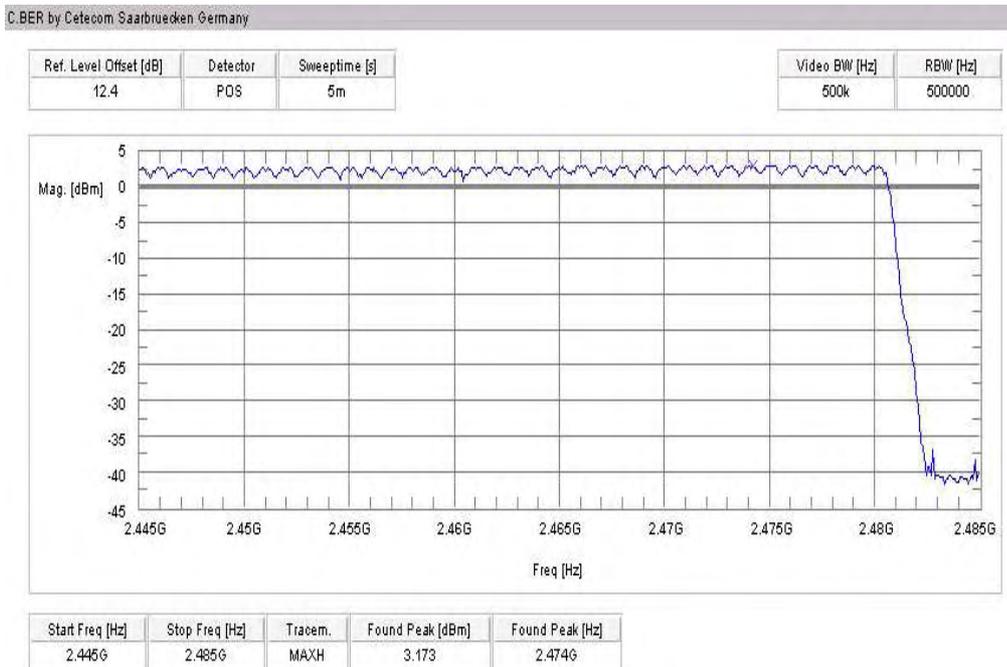


Modulation: Pi/4 DQPSK

Plot 1 of 2:

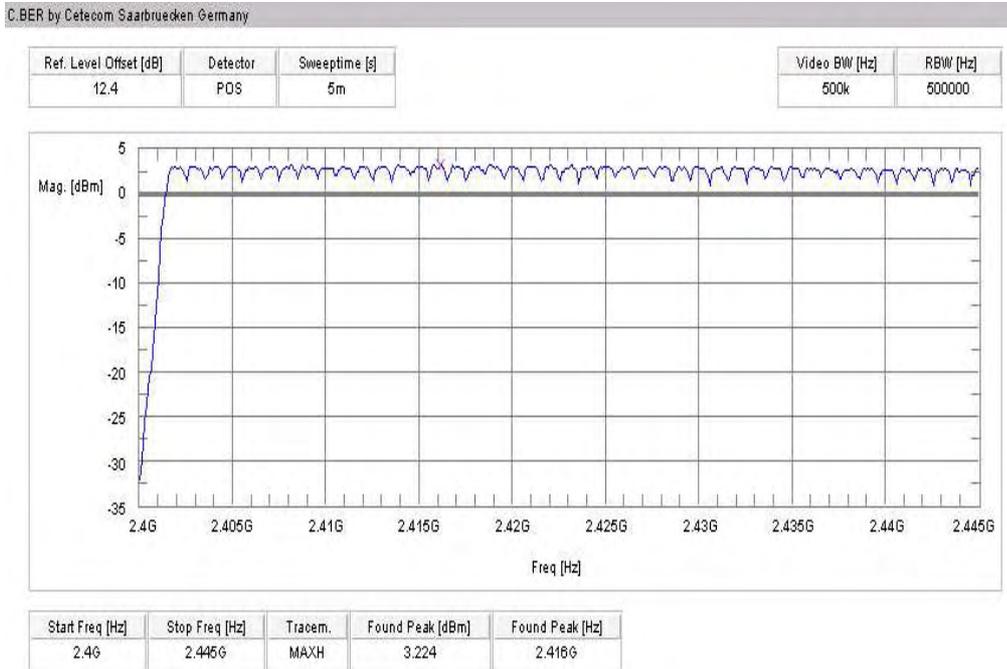


Plot 2 of 2:

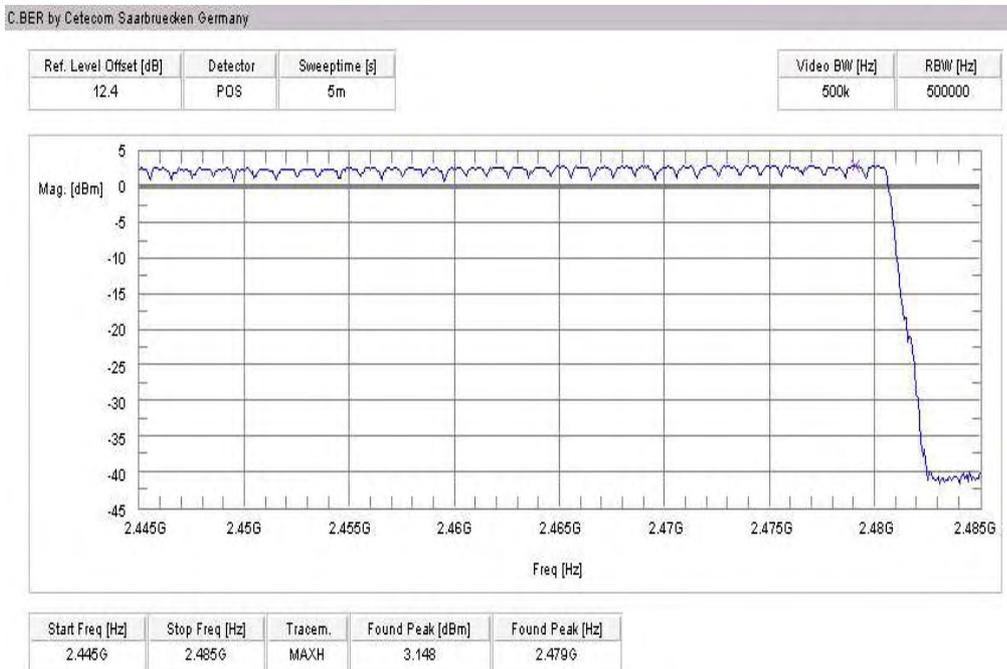


Modulation: 8 DPSK

Plot 1 of 2:



Plot 2 of 2:



Result: The number of hopping channels is: 79

Limits:

| | |
|-----------------------------------|--------------------------------------|
| Under normal test conditions only | at least 15 non-overlapping channels |
|-----------------------------------|--------------------------------------|

5.7 Time of occupancy (dwell time) §15.247(a)(1)(iii)

For Bluetooth devices:

The dwell time of 0.4 s within a 31.6 second period in data mode is independent from the packet type (packet length). The calculation for a 31.6 second period is as follows:

Dwell time = time slot length * hop rate / number of hopping channels * 31.6 s

Example for a DH1 packet (with a maximum length of one time slot)

Dwell time = $625 \mu\text{s} * 1600 \text{ 1/s} / 79 * 31.6 \text{ s} = 0.4 \text{ s}$ (in a 31.6 s period)

For multi-slot packet the hopping is reduced according to the length of the packet.

Example for a DH5 packet (with a maximum length of five time slots)

Dwell time = $5 * 625 \mu\text{s} * 1600 * 1/5 * 1/s / 79 * 31.6 \text{ s} = 0.4 \text{ s}$ (in a 31.6 s period)

This is according to the Bluetooth Core Specification V 1.1 & V 1.2 & V2.0 (+ critical errata) for all Bluetooth devices. Therefore, all Bluetooth devices comply with the FCC dwell time requirement in the data mode.

This was checked during the Bluetooth Qualification tests.

The Dwell time in hybrid mode is approximately 2.6 ms (in a 12.8s period)

**5.8 Power Spectral density (Hybrid system in Inquiry mode/Page scan)
§15.247(e)**

Not applicable!

Plot 1 of 1:

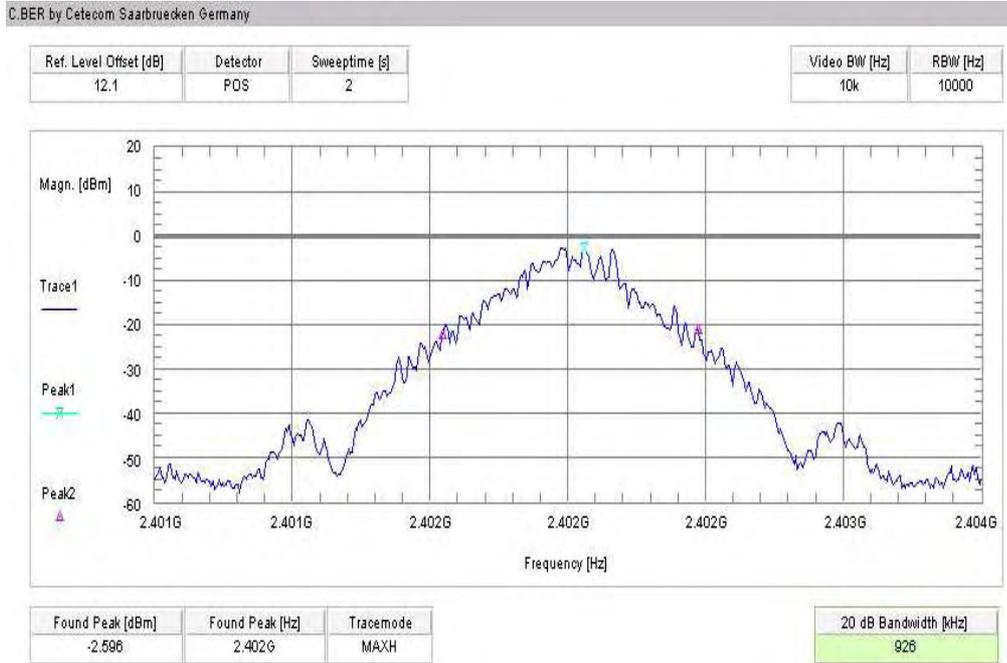
Result: Power density: - dBm/Hz = - dBm / 3 kHz
Correction factor from dBm/Hz to dBm / 3 kHz is +34.8 dB

Limits:

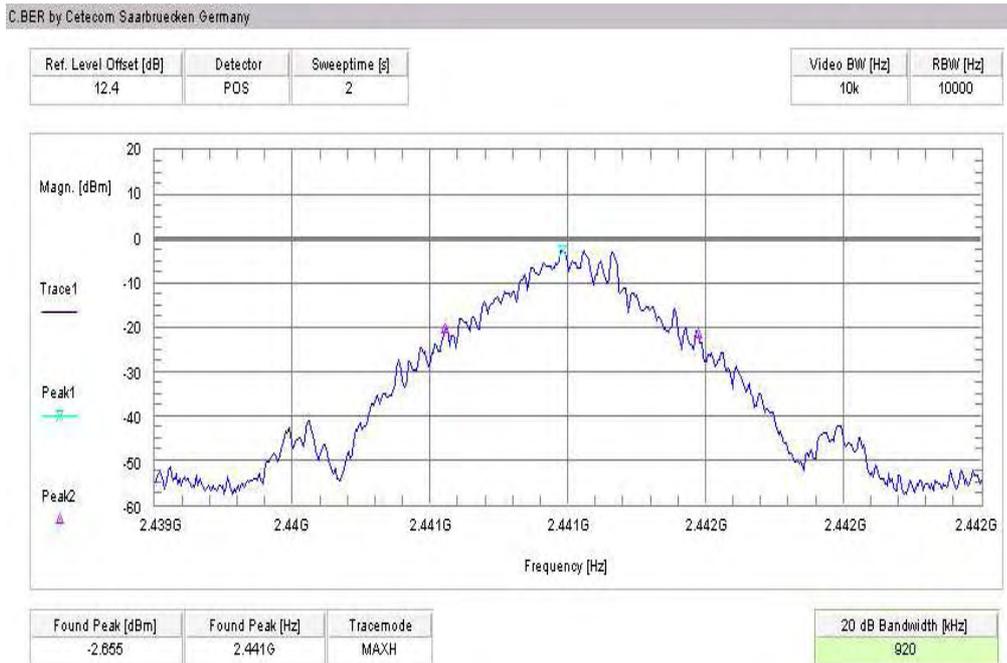
| | |
|-----------------------------------|---|
| Under normal test conditions only | For digitally modulated systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission |
|-----------------------------------|---|

5.9 Spectrum Bandwidth of a FHSS System / 20dB Bandwidth §15.247(a)(1)

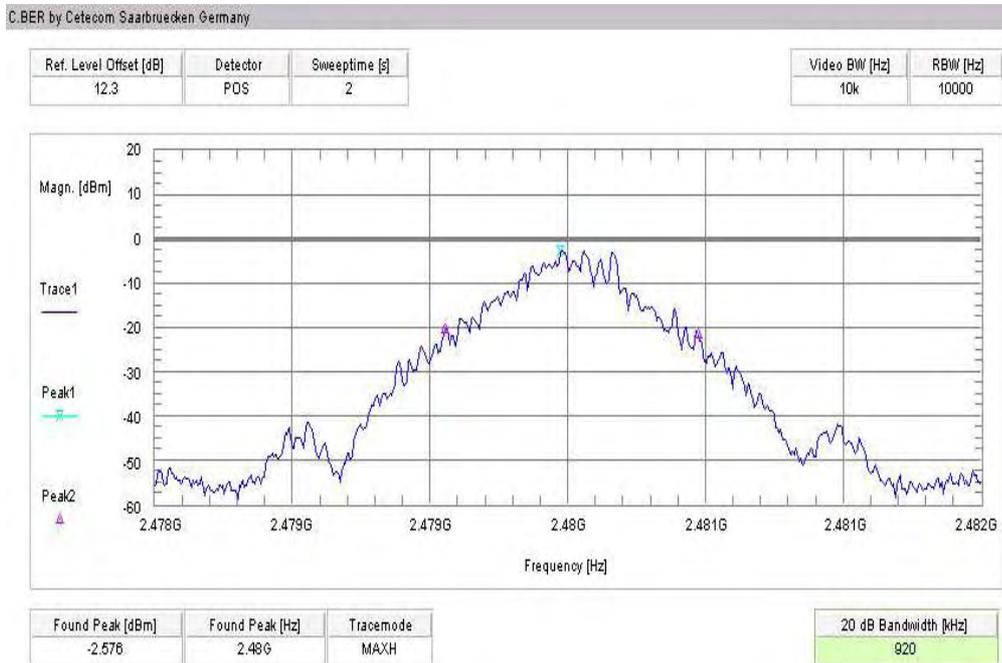
Plot 1: GFSK



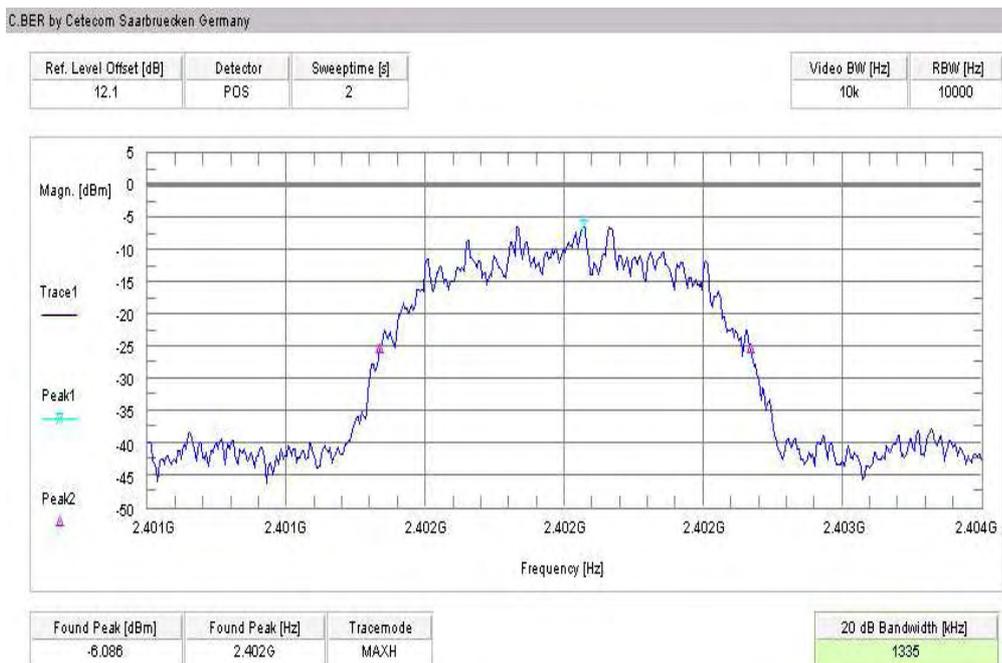
Plot 2: GFSK



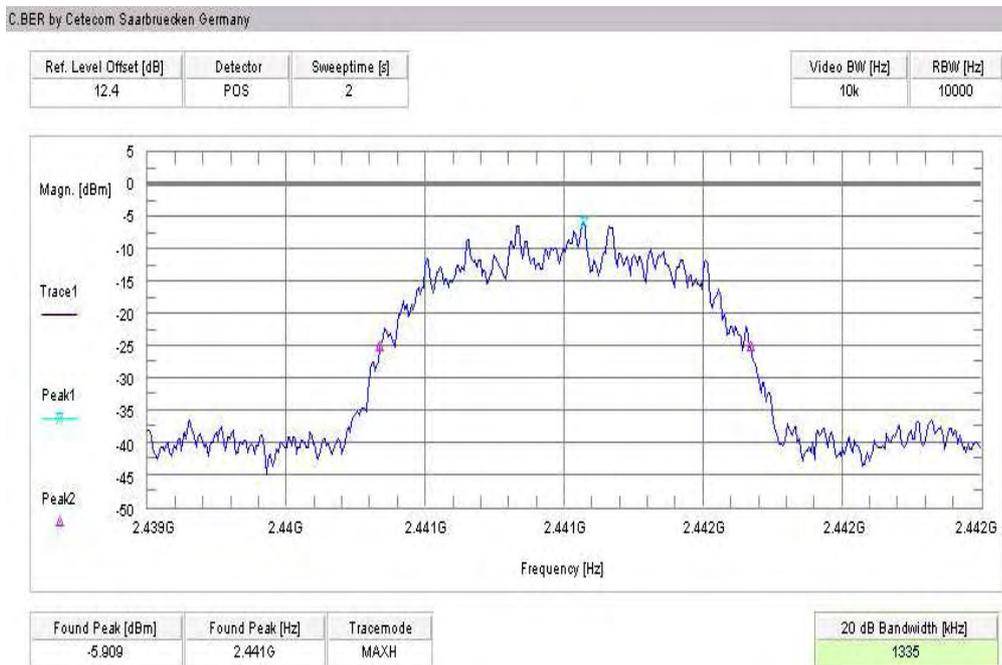
Plot 3: GFSK



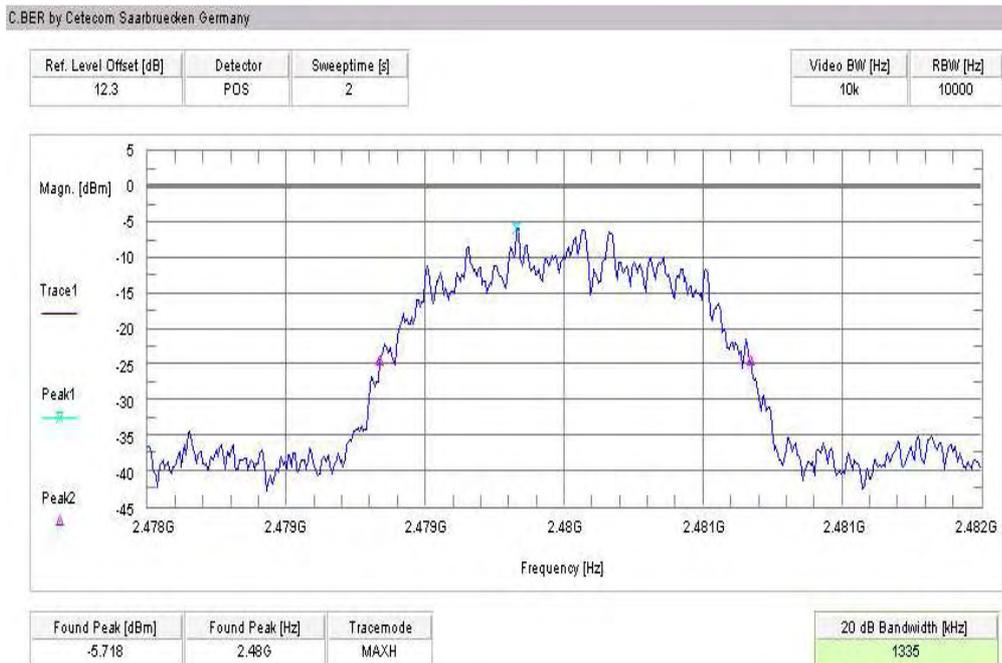
Plot 4: Pi/4 DQPSK



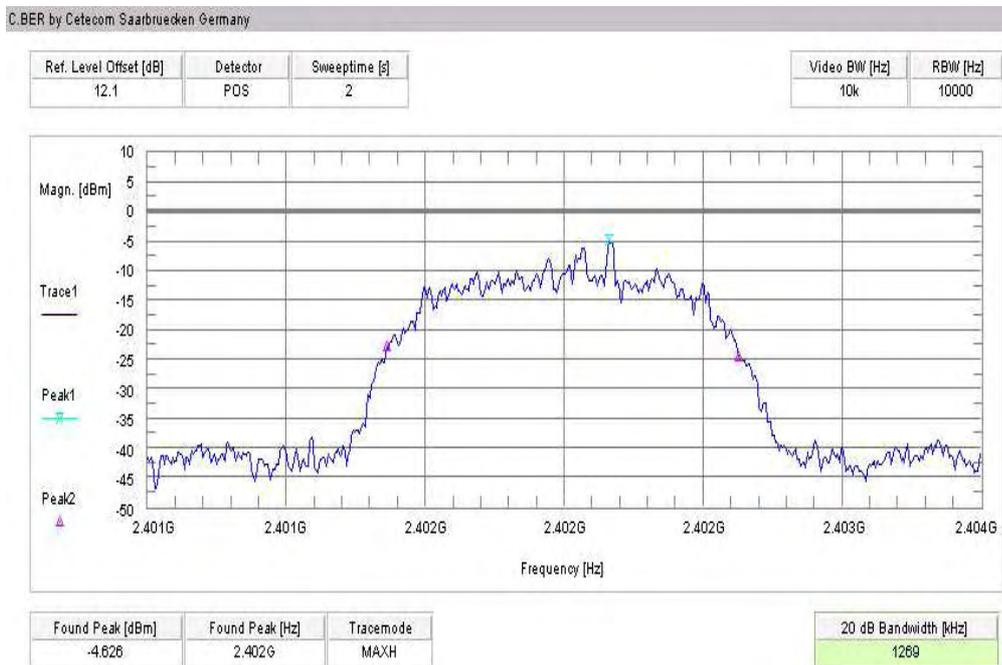
Plot 5: Pi/4 DQPSK



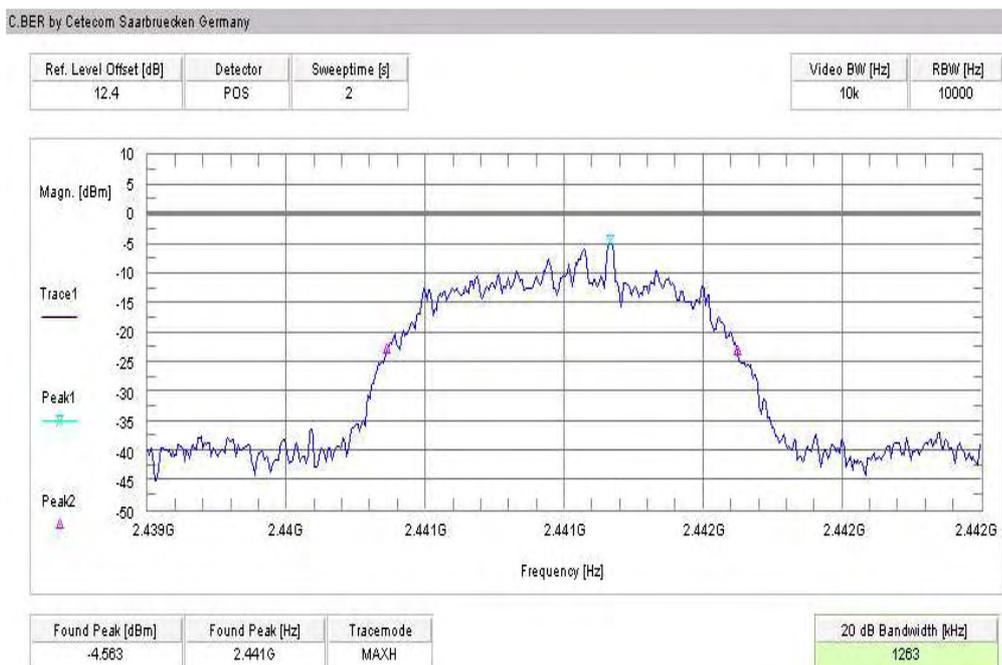
Plot 6: Pi/4 DQPSK



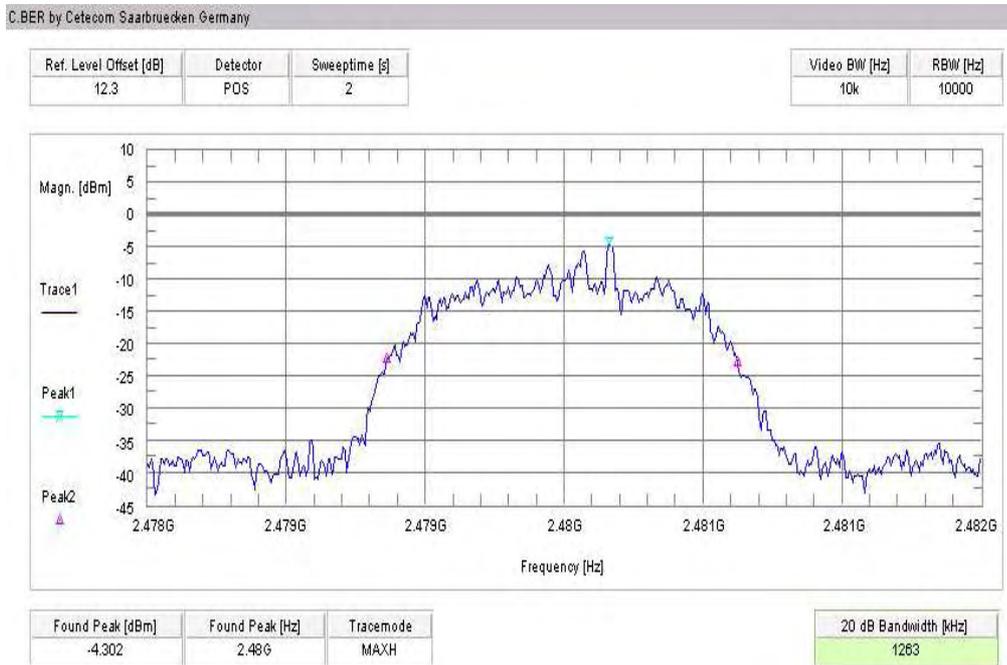
Plot 7: 8DPSK



Plot 8: 8DPSK



Plot 9: 8DPSK



Result:

| Modulation | 20 dB BANDWIDTH [kHz] | | |
|-------------------------|-----------------------|-------------|-------------|
| | 2402 | 2441 | 2480 |
| Frequency [MHz] | | | |
| <i>GFSK</i> | 926 | 920 | 920 |
| <i>Pi/4 DQPSK</i> | 1335 | 1335 | 1335 |
| <i>8DPSK</i> | 1269 | 1263 | 1263 |
| Measurement uncertainty | ±1kHz | | |

RBW / VBW as provided in the „Measurement Guidelines“ (DA 00-705, March 30, 2000)

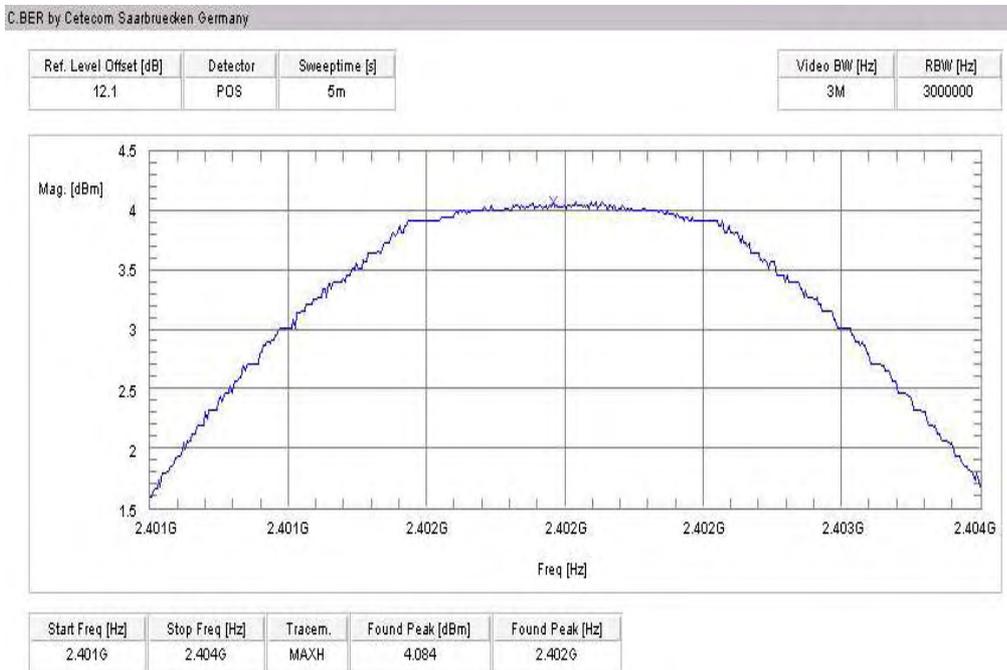
RBW: 10 kHz / VBW 10 kHz

Limits:

| | |
|-----------------------------------|--|
| Under normal test conditions only | <p>GFSK < 1000 kHz</p> <p>Pi/4 DQPSK < 1500</p> <p>8DPSK < 1500</p> |
|-----------------------------------|--|

5.10 Maximum output power (conducted) § 15.247 (b)(1)

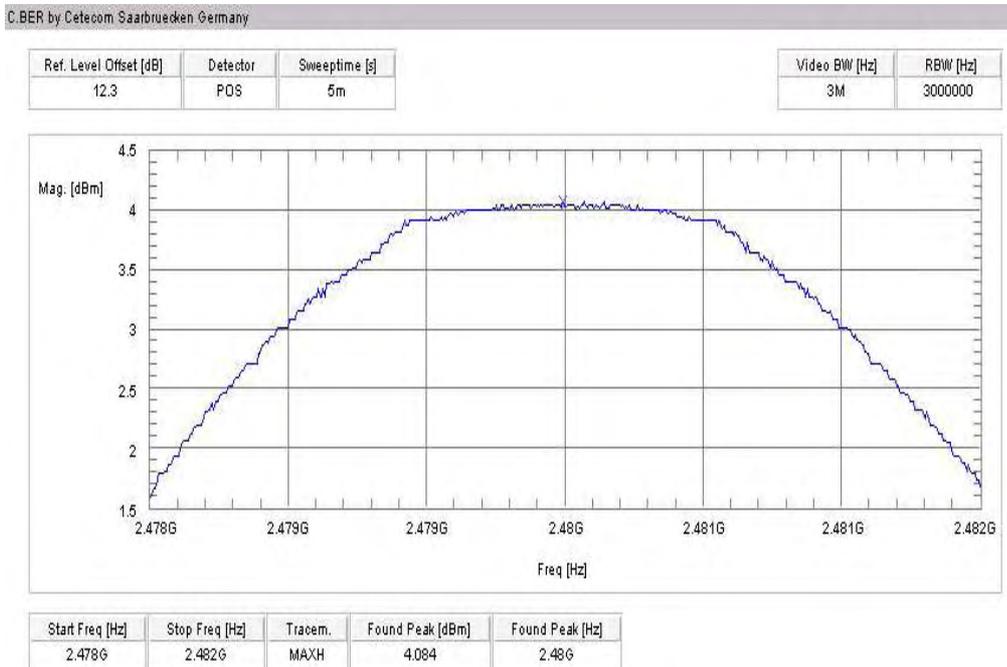
Plot 1: GFSK



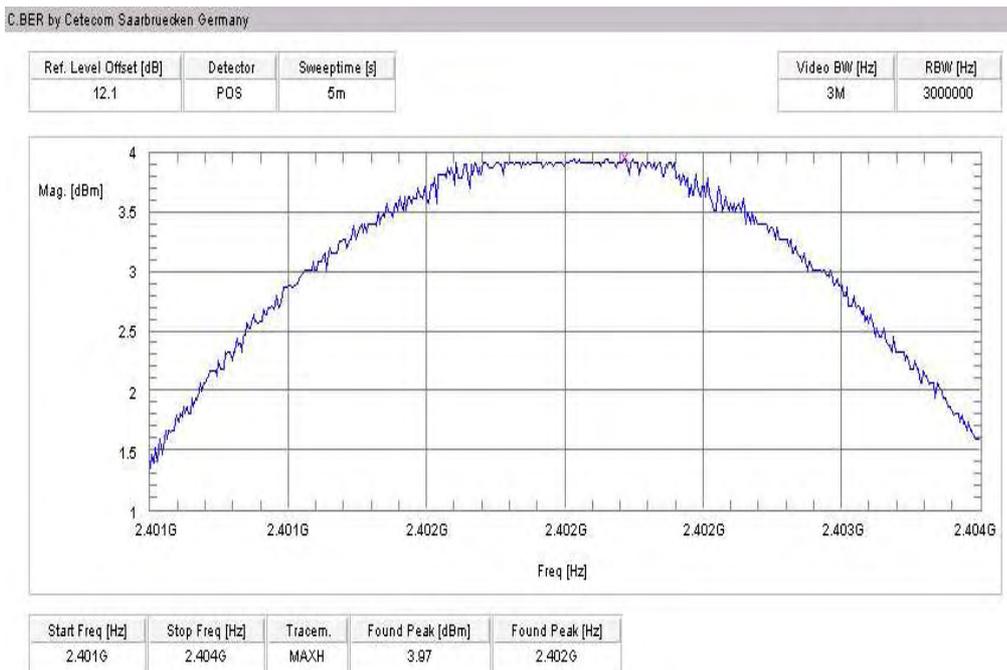
Plot 2: GFSK



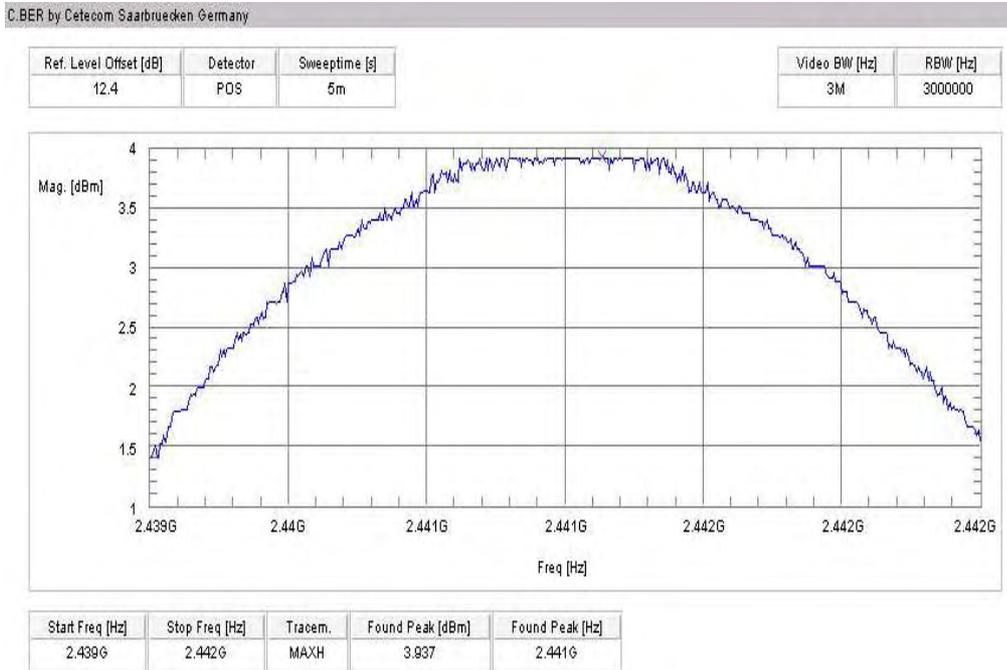
Plot 3: GFSK



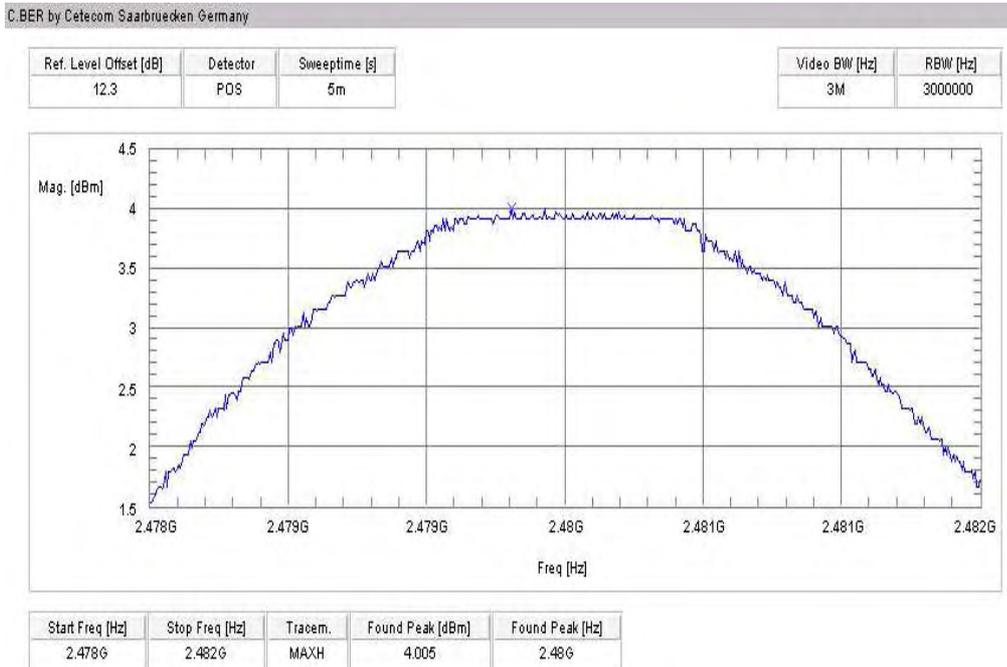
Plot 4: Pi/4 DQPSK



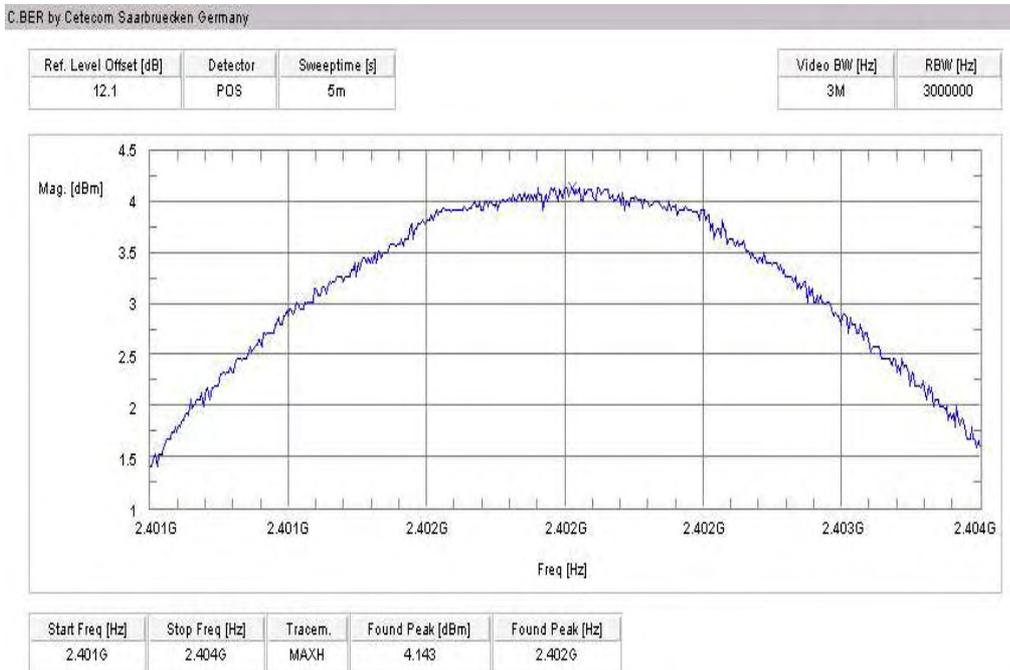
Plot 5: Pi/4 DQPSK



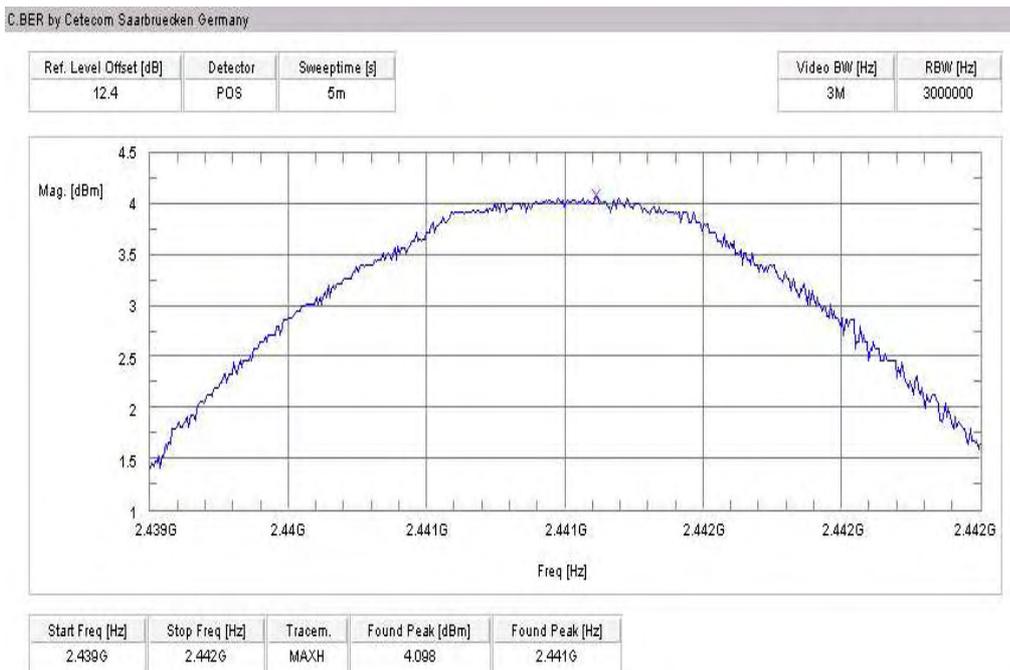
Plot 6: Pi/4 DQPSK



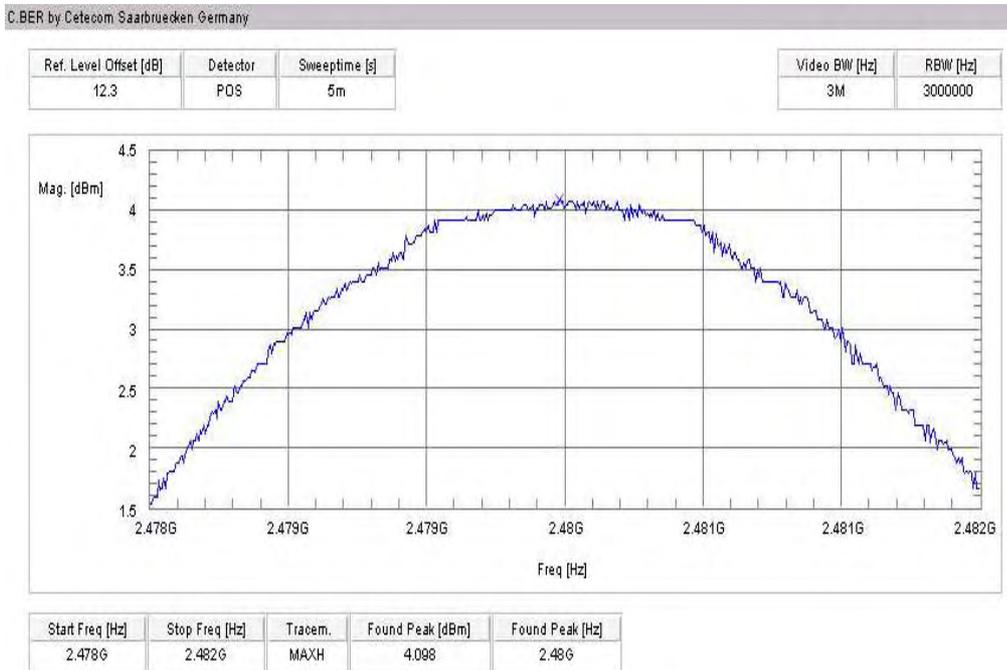
Plot 7: 8DPSK



Plot 8: 8DPSK



Plot 9: 8DPSK



Results:

| Modulation | Max. peak output power [dBm] | | |
|-------------------------|------------------------------|------|-------------|
| | 2402 | 2441 | 2480 |
| Frequency [MHz] | | | |
| <i>GFSK</i> | 4.08 | 4.03 | 4.08 |
| <i>Pi/4 DQPSK</i> | 3.97 | 3.94 | 4.01 |
| <i>8DPSK</i> | 4.14 | 4.10 | 4.10 |
| Measurement uncertainty | ±2dB | | |

RBW / VBW: 3 MHz

Limits:

| | |
|--|---------------|
| Under normal test conditions only, for frequency range 2400-2483.5 MHz | Max. 1.0 Watt |
|--|---------------|

5.11 Max. peak output power (radiated) § 15.247 (b)(1)

Modulation: GFSK

Results:

| Test conditions | | Max. peak output power EIRP [dBm] | | |
|-------------------------|------------------|-----------------------------------|-------|-------|
| Frequency [MHz] | | 2402 | 2442 | 2480 |
| T _{nom} | V _{nom} | 0.04 | -0.93 | -1.11 |
| Measurement uncertainty | | ±3dB | | |

Modulation: Pi/4 DQPSK*

Results:

| Test conditions | | Max. peak output power EIRP [dBm] | | |
|-------------------------|------------------|-----------------------------------|-------|-------|
| Frequency [MHz] | | 2402 | 2442 | 2480 |
| T _{nom} | V _{nom} | -0.07 | -1.02 | -1.18 |
| Measurement uncertainty | | ±3dB | | |

Modulation: 8 DPSK*

Results:

| Test conditions | | Max. peak output power EIRP [dBm] | | |
|-------------------------|------------------|-----------------------------------|-------|-------|
| Frequency [MHz] | | 2402 | 2442 | 2480 |
| T _{nom} | V _{nom} | 0.10 | -0.86 | -1.09 |
| Measurement uncertainty | | ±3dB | | |

RBW / VBW: 3 MHz

Measured at a distance of 3m

* Calculated value (measured with the antenna gain in GFSK modulation)

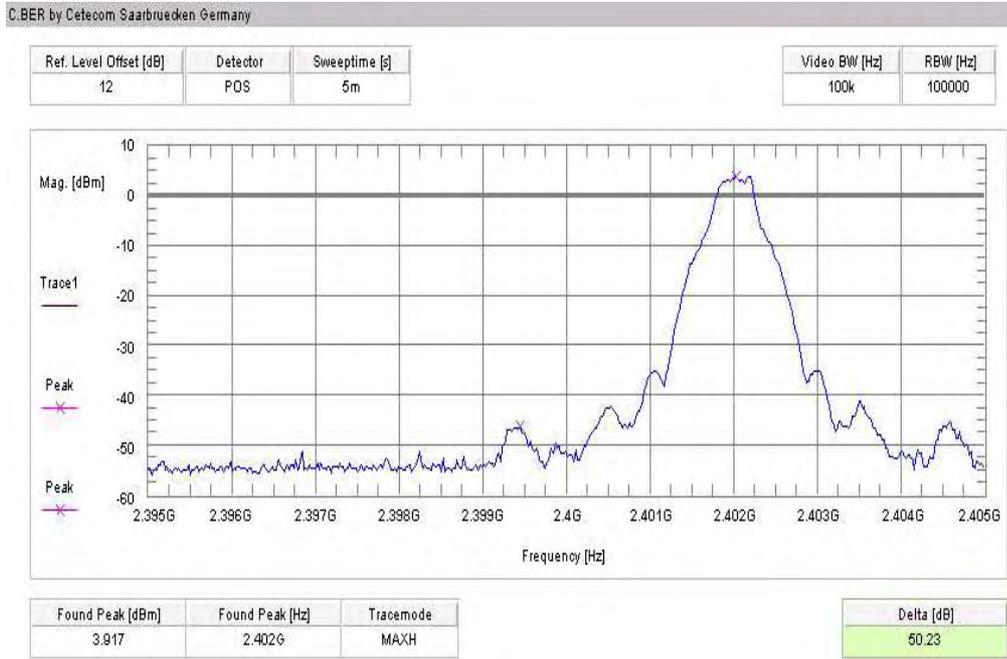
Limits:

| | |
|--|---------------|
| Under normal test conditions only, for frequency range 2400-2483.5 MHz | Max. 1.0 Watt |
|--|---------------|

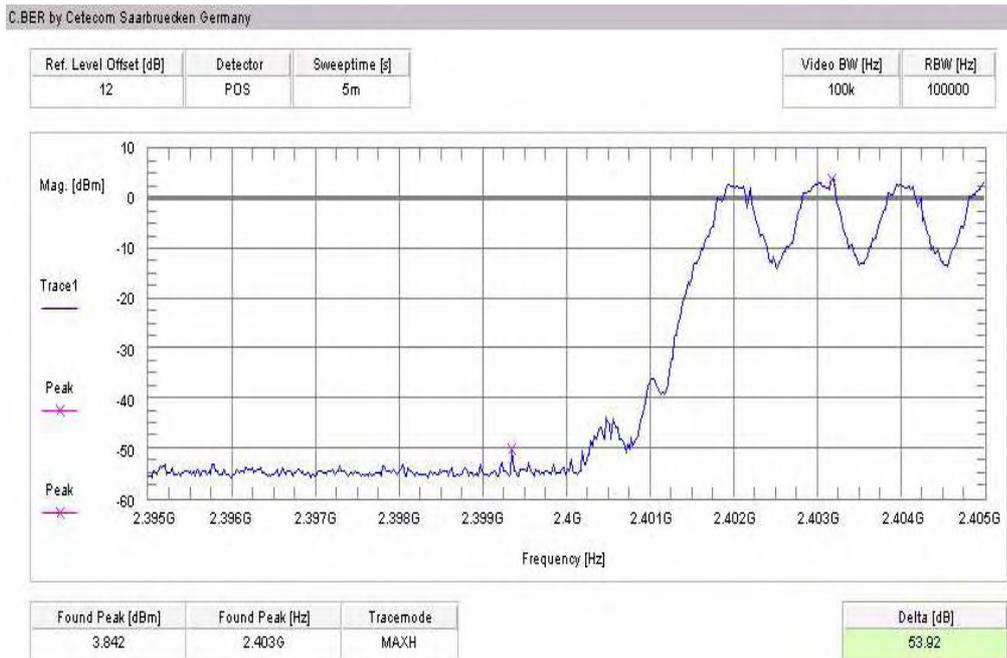
5.12 Band-edge compliance of conducted emissions §15.247 (d)

Modulation: GFSK

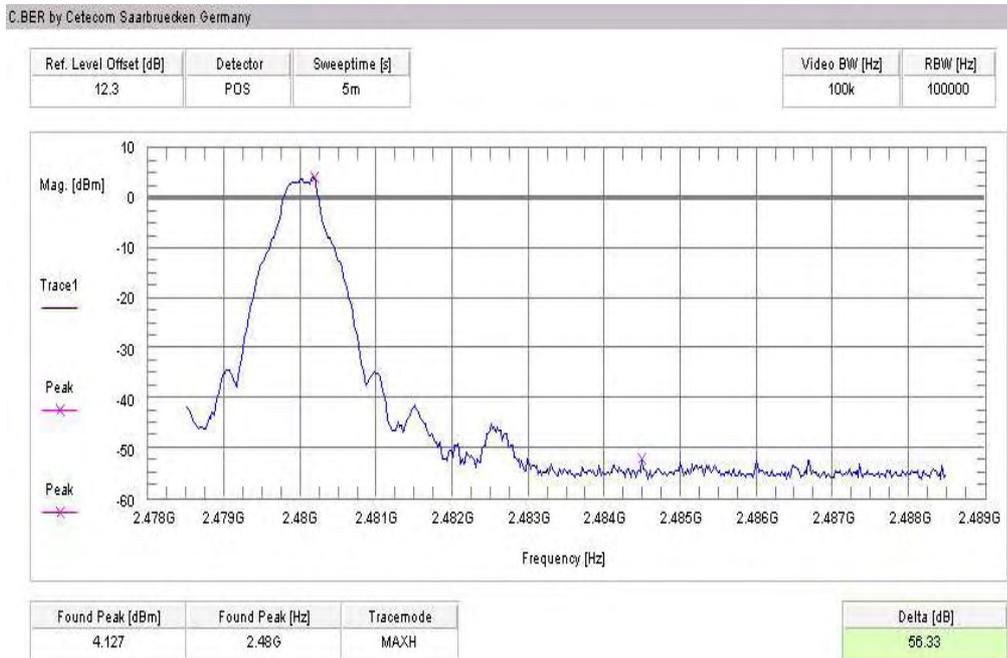
Plot 1 of 4 (hopping off, lowest frequency):



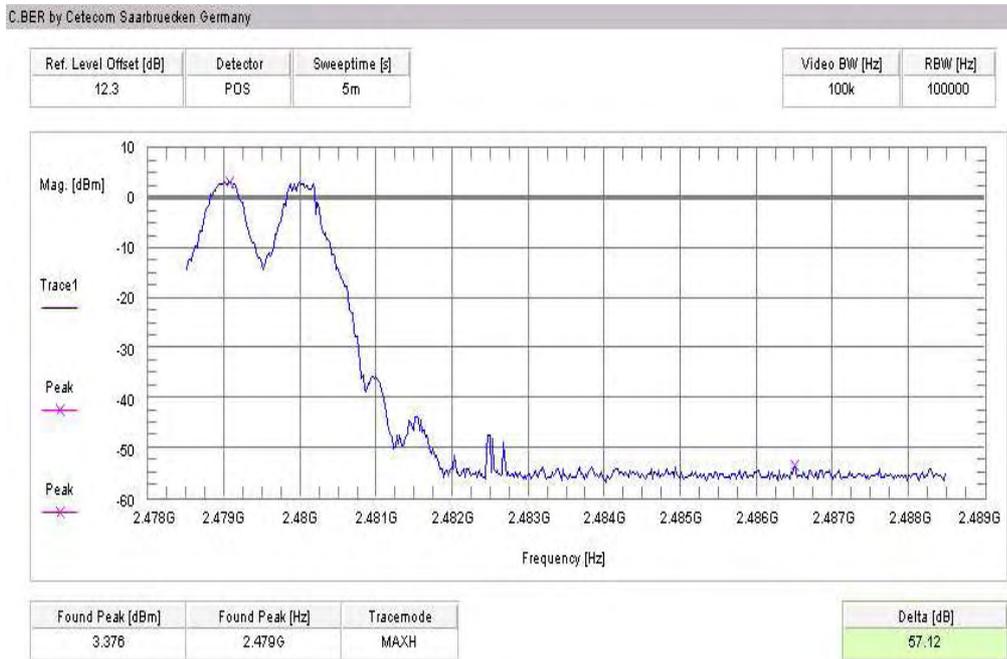
Plot 2 of 4 (hopping on, lowest frequency):



Plot 3 of 4 (hopping off, highest frequency):



Plot 4 of 4 (hopping on, highest frequency):

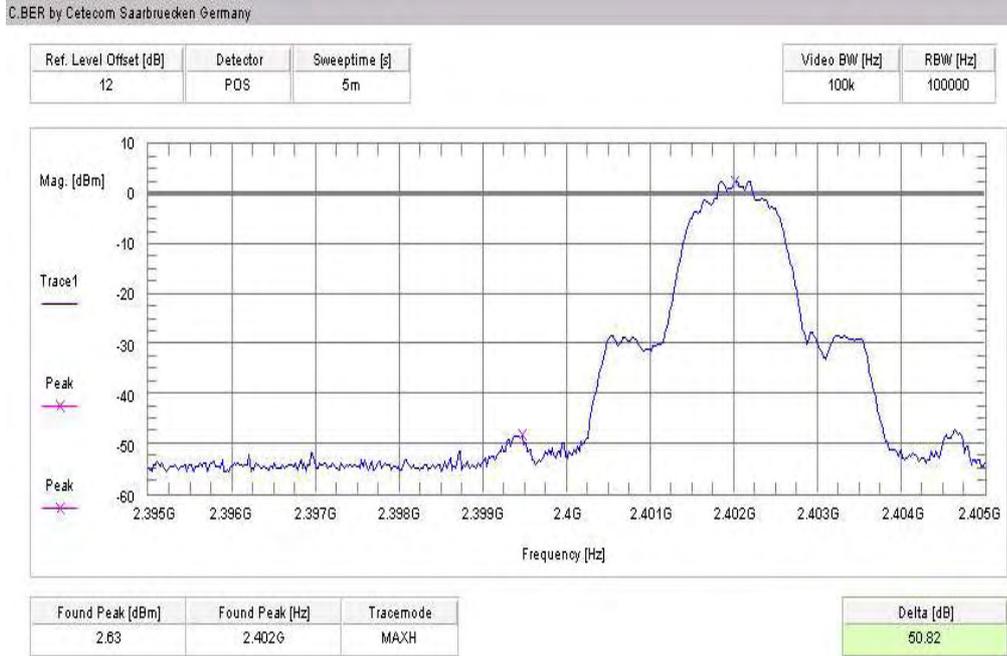


Results:

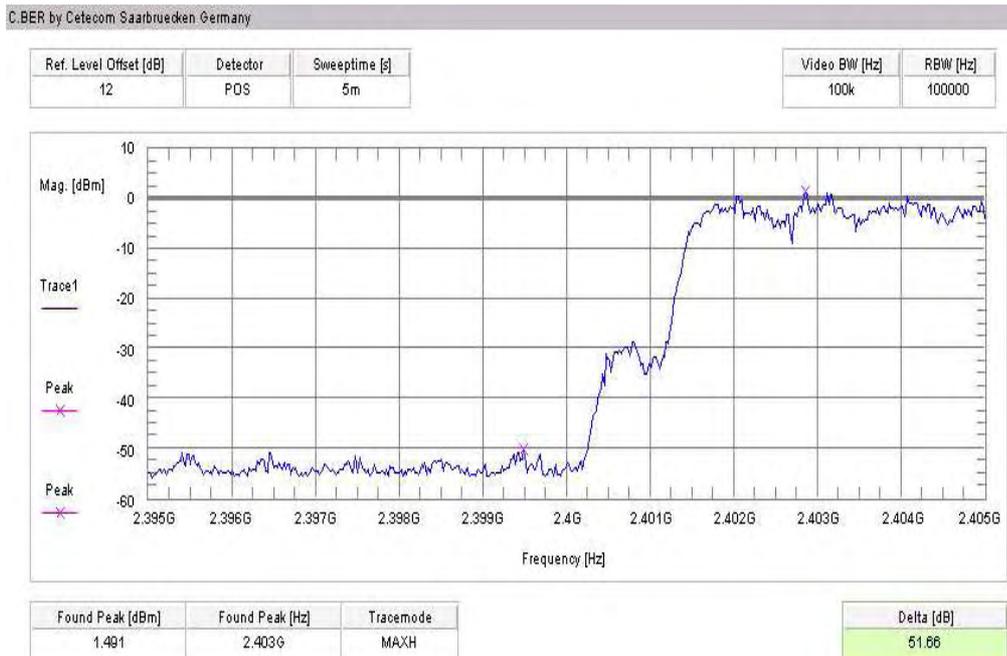
| SZENARIO | DELTA VALUE [DB] |
|--------------------------------|------------------|
| hopping off, lowest frequency | > 20 dB |
| hopping on, lowest frequency | > 20 dB |
| hopping off, highest frequency | > 20 dB |
| hopping on, highest frequency | > 20 dB |
| Measurement uncertainty | ±1,5dB |

Modulation: Pi/4 DQPSK

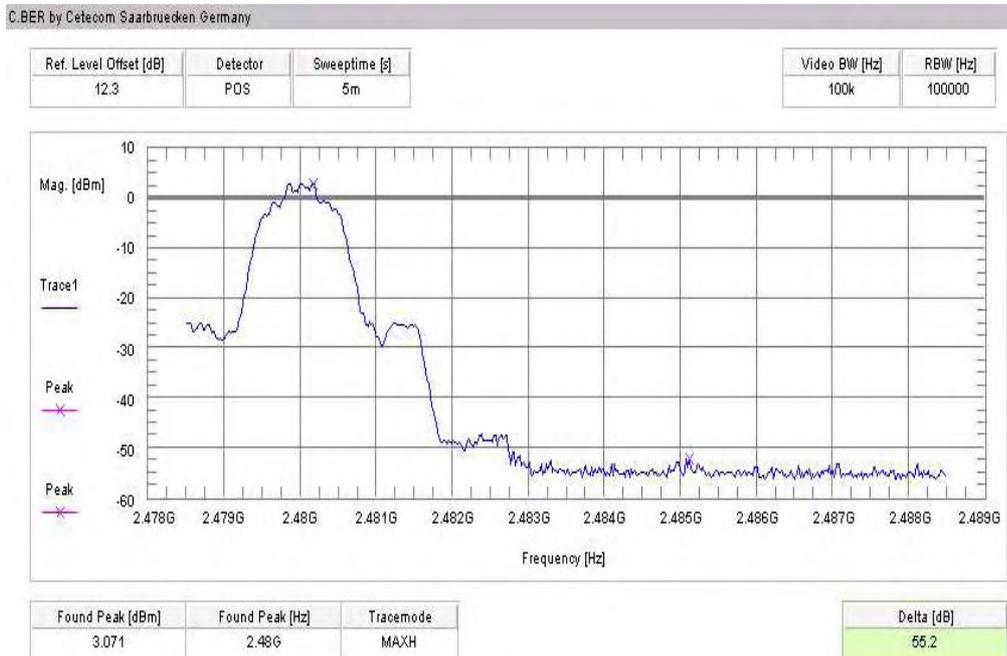
Plot 1 of 4 (hopping off, lowest frequency):



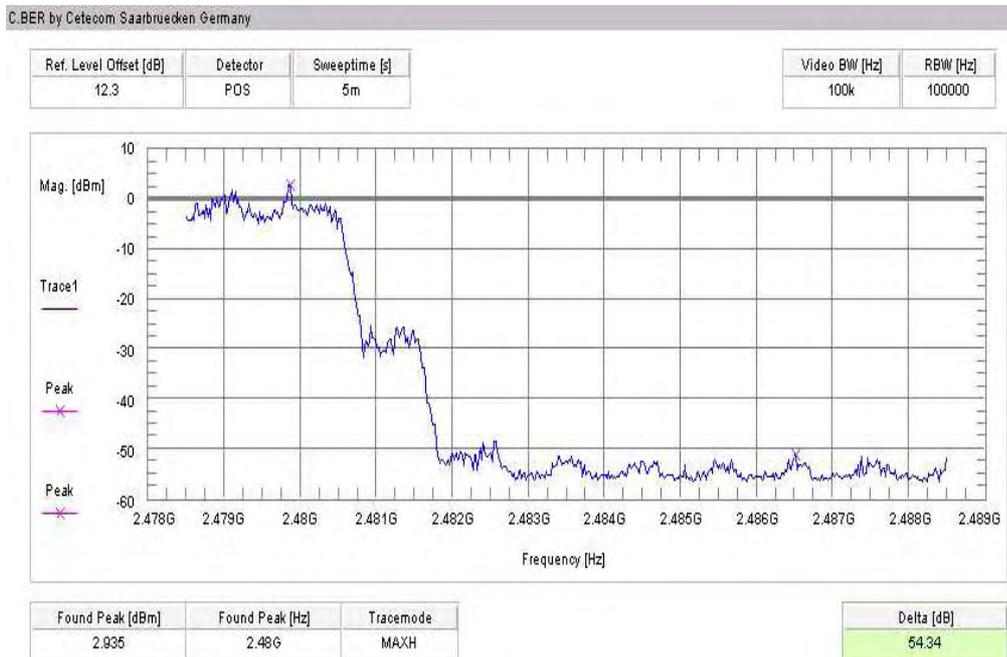
Plot 2 of 4 (hopping on, lowest frequency):



Plot 3 of 4 (hopping off, highest frequency):



Plot 4 of 4 (hopping on, highest frequency):

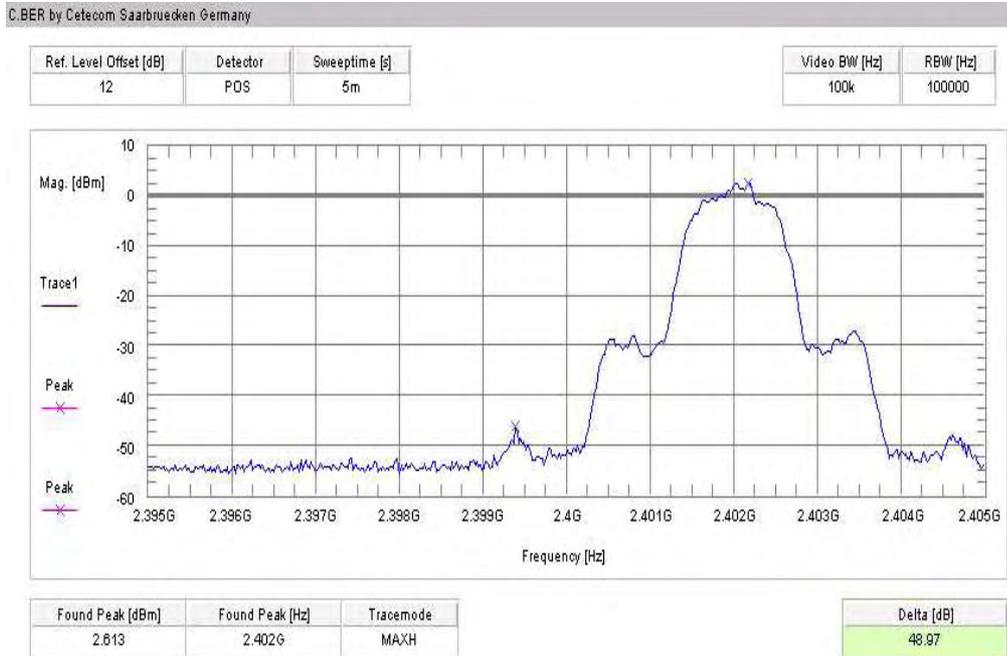


Results:

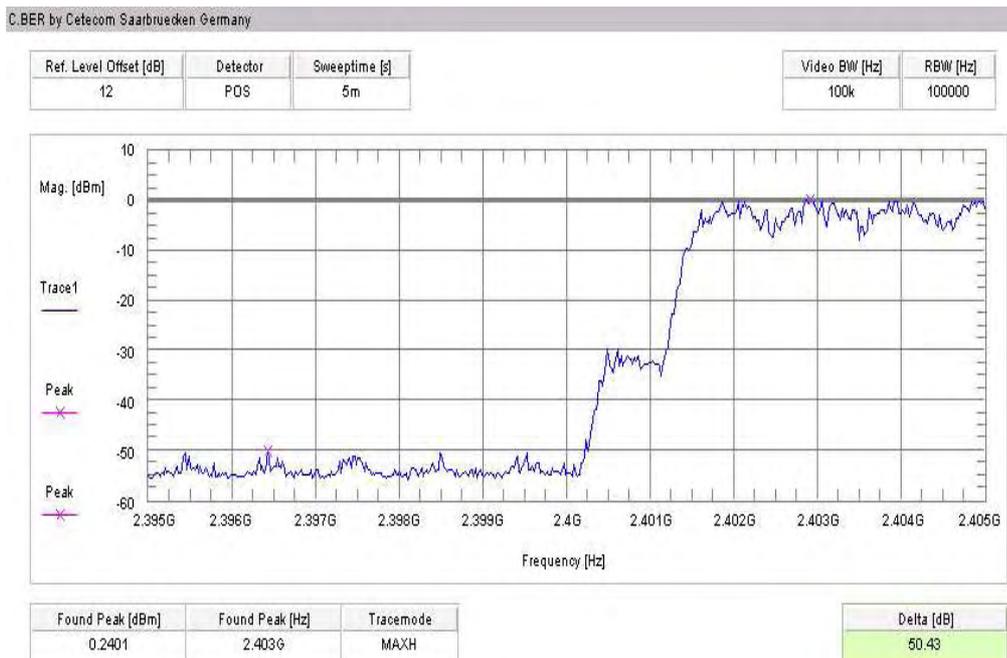
| SZENARIO | DELTA VALUE [DB] |
|--------------------------------|------------------|
| hopping off, lowest frequency | > 20 dB |
| hopping on, lowest frequency | > 20 dB |
| hopping off, highest frequency | > 20 dB |
| hopping on, highest frequency | > 20 dB |
| Measurement uncertainty | ±1,5dB |

Modulation: 8 DPSK

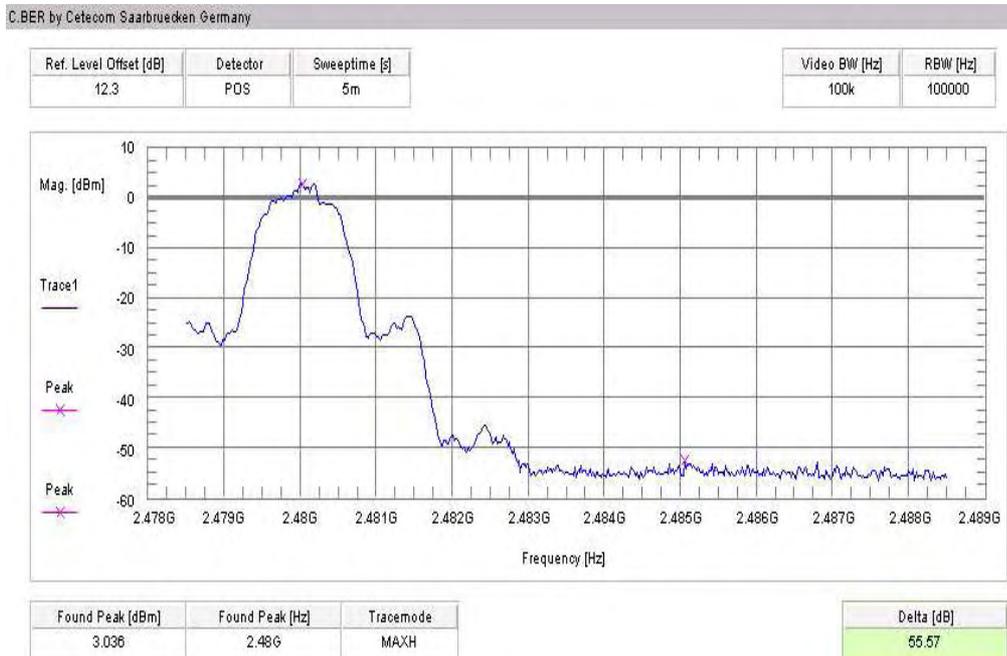
Plot 1 of 4 (hopping off, lowest frequency):



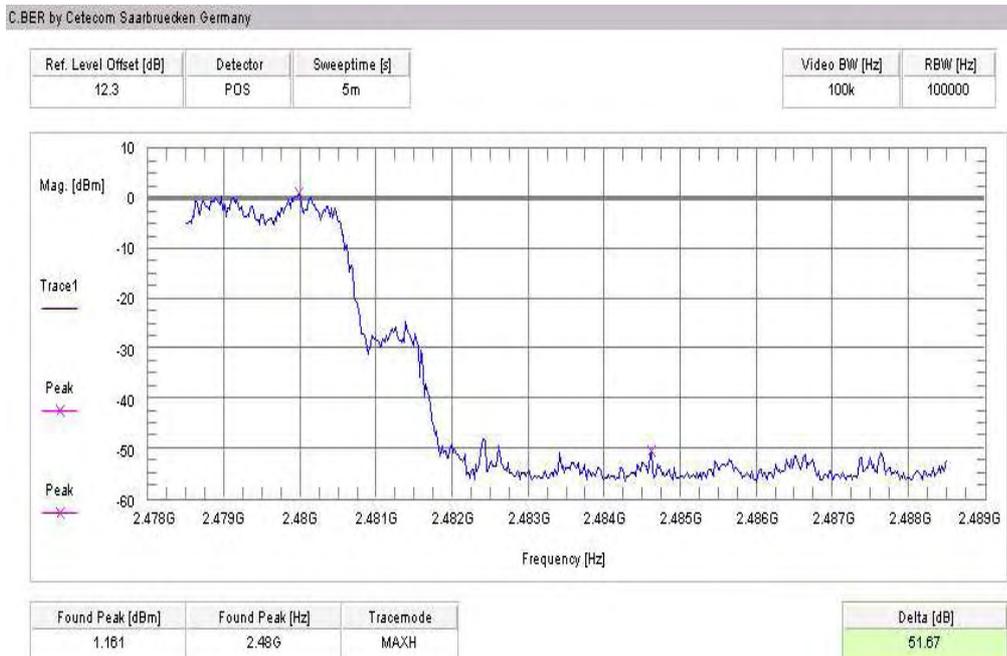
Plot 2 of 4 (hopping on, lowest frequency):



Plot 3 of 4 (hopping off, highest frequency):



Plot 4 of 4 (hopping on, highest frequency):



Results:

| SZENARIO | DELTA VALUE [DB] |
|--------------------------------|------------------|
| hopping off, lowest frequency | > 20 dB |
| hopping on, lowest frequency | > 20 dB |
| hopping off, highest frequency | > 20 dB |
| hopping on, highest frequency | > 20 dB |
| Measurement uncertainty | ±1,5dB |

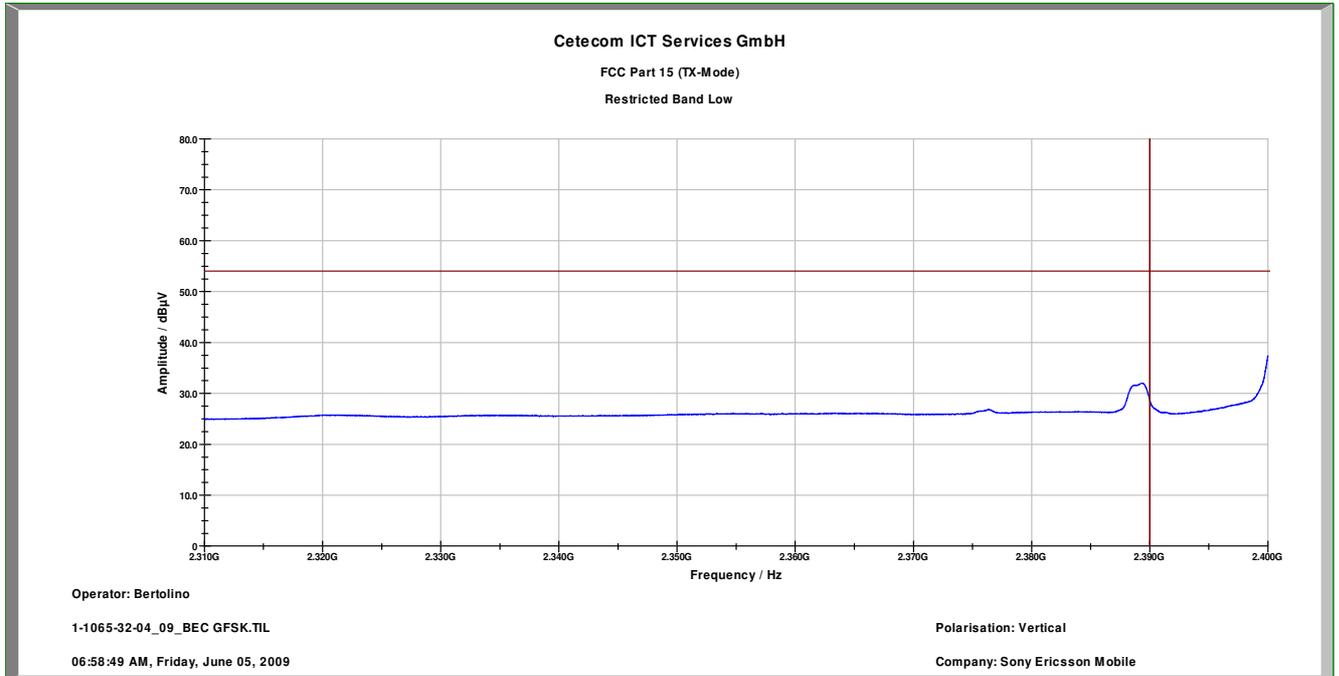
Limits:

| | |
|-----------------------------------|--|
| Under normal test conditions only | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 5.205(c)). |
|-----------------------------------|--|

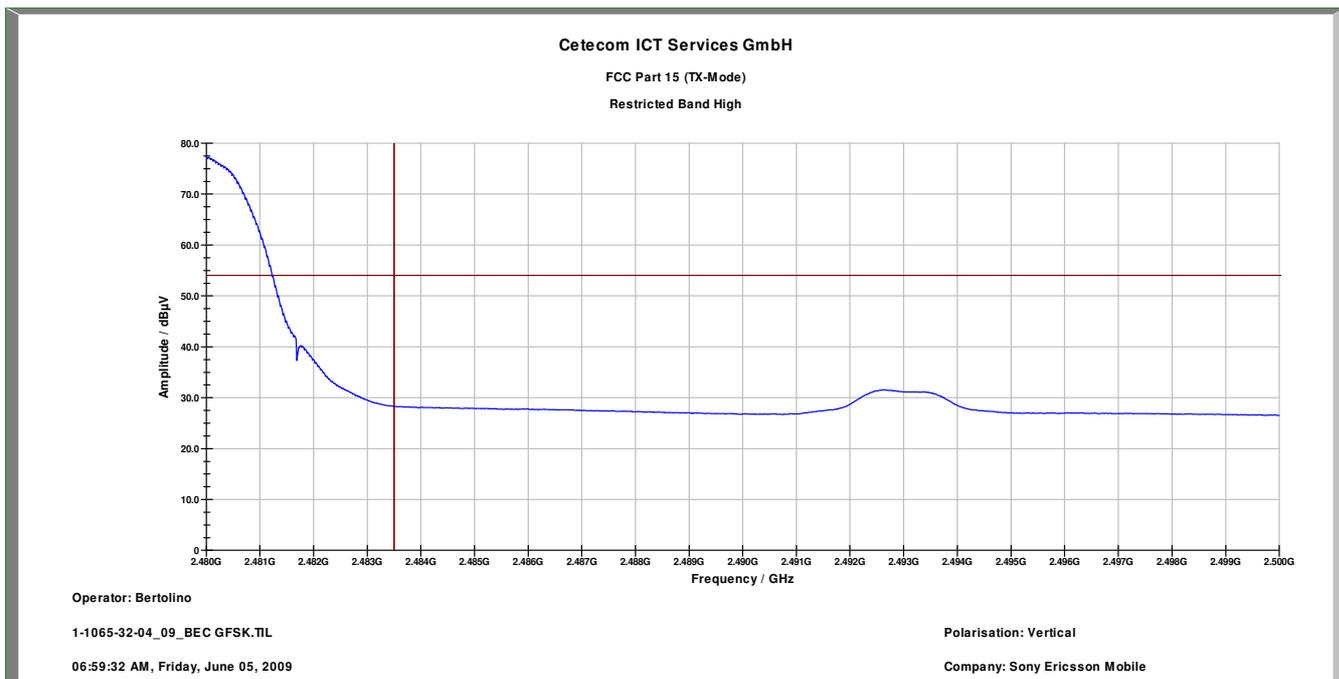
5.13 Band-edge compliance of radiated emissions §15.205

Modulation: GFSK

Plot 1: Restricted Bands low



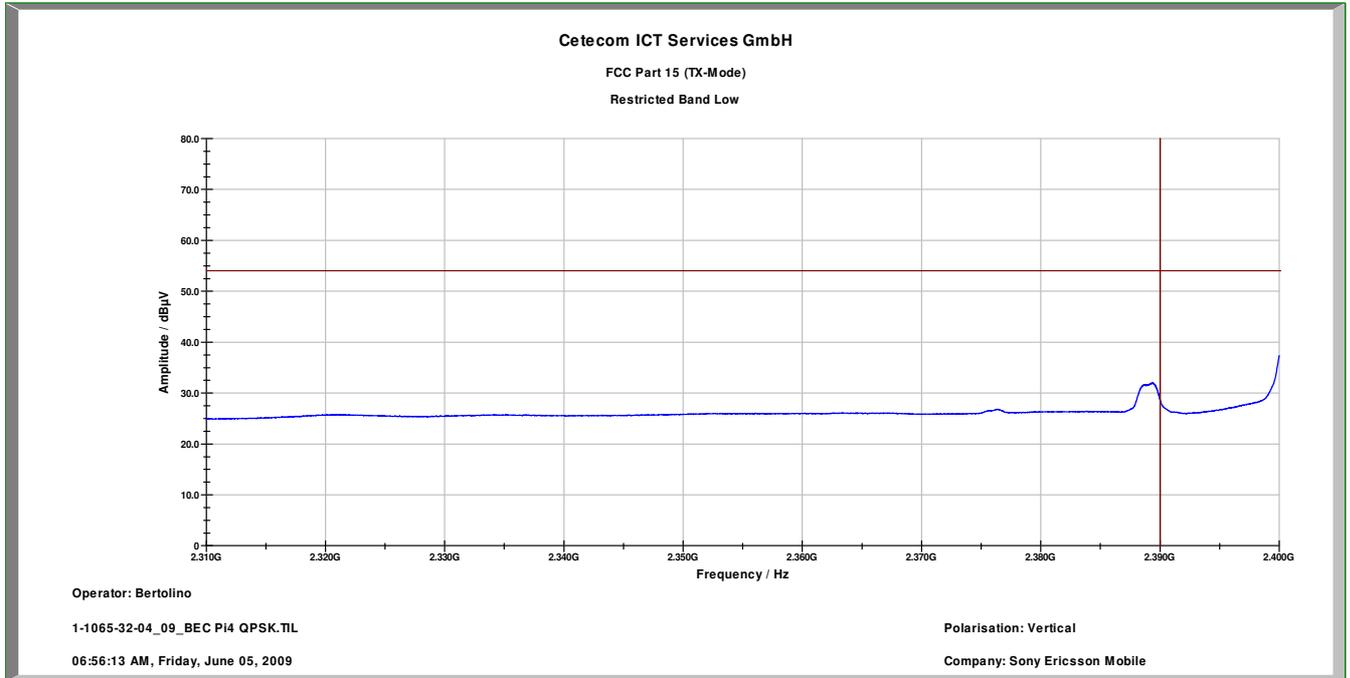
Plot 2: Restricted Bands high



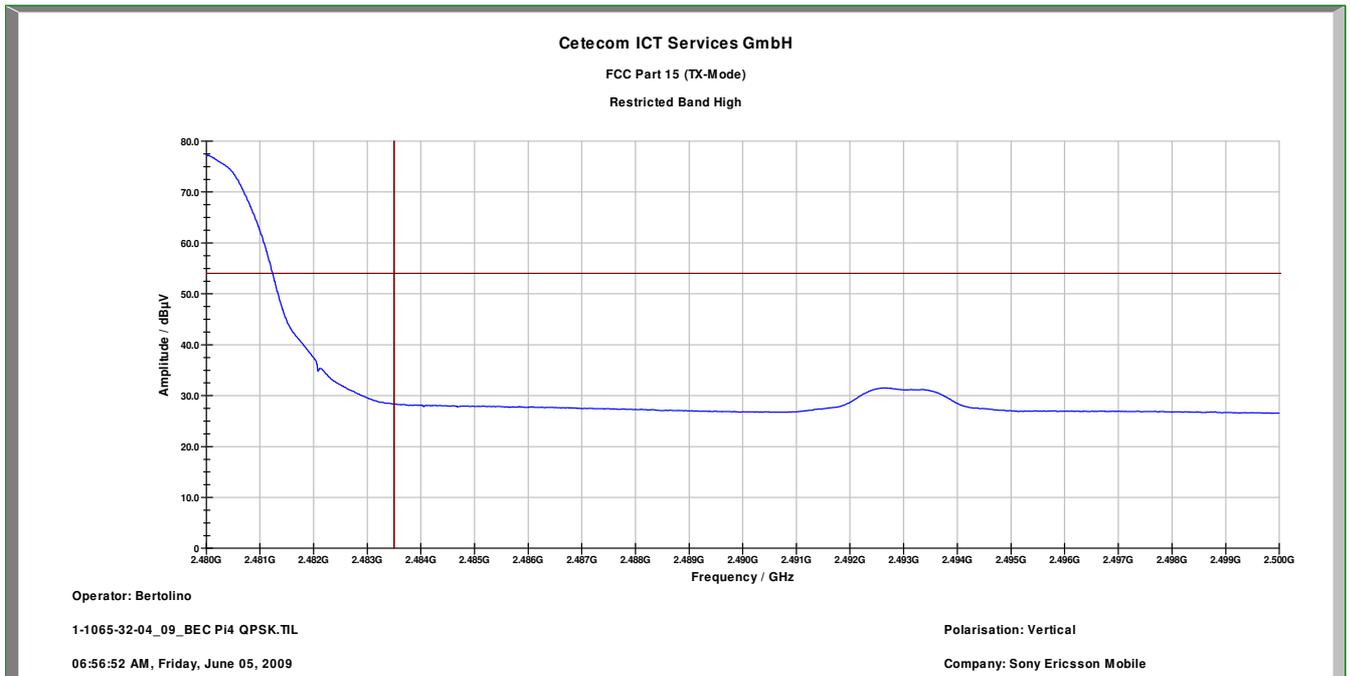
The result of the measurement is passed.

Modulation: Pi/4 DQPSK

Plot 1: Restricted Bands low



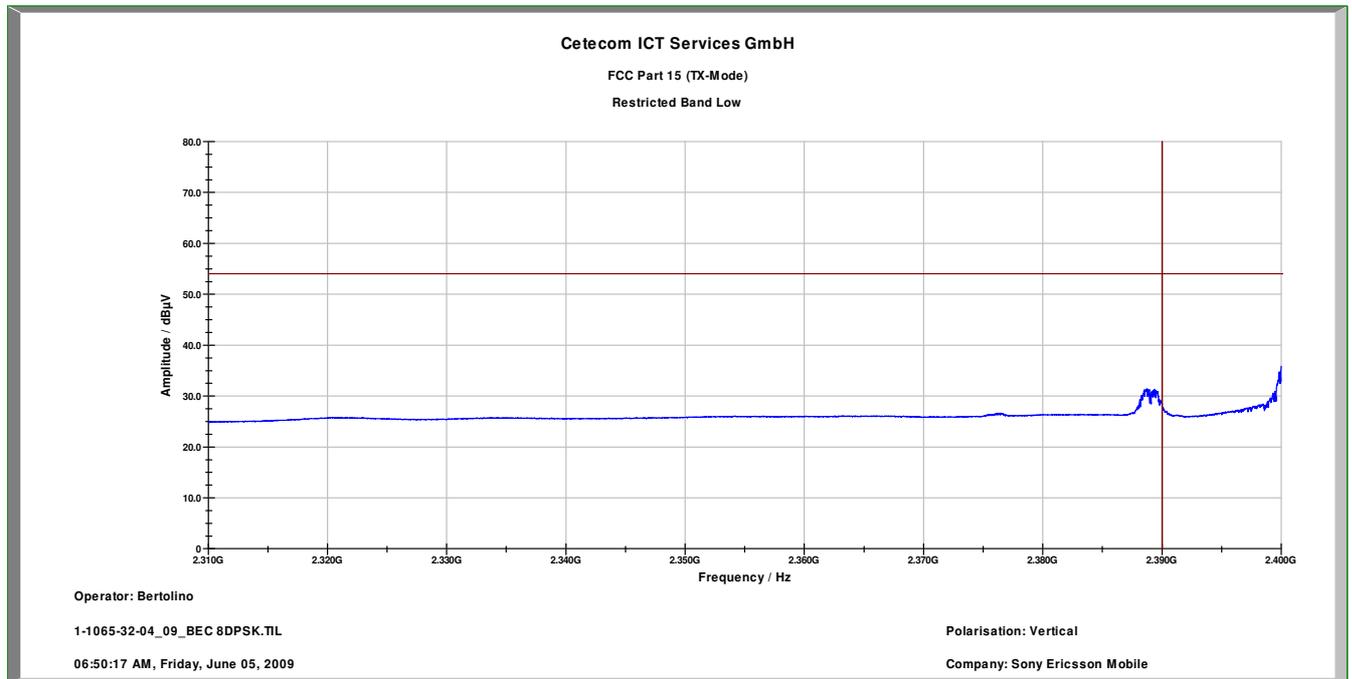
Plot 2: Restricted Bands high



The result of the measurement is passed.

Modulation: 8 DPSK

Plot 1: Restricted Bands low



Plot 2: Restricted Bands high

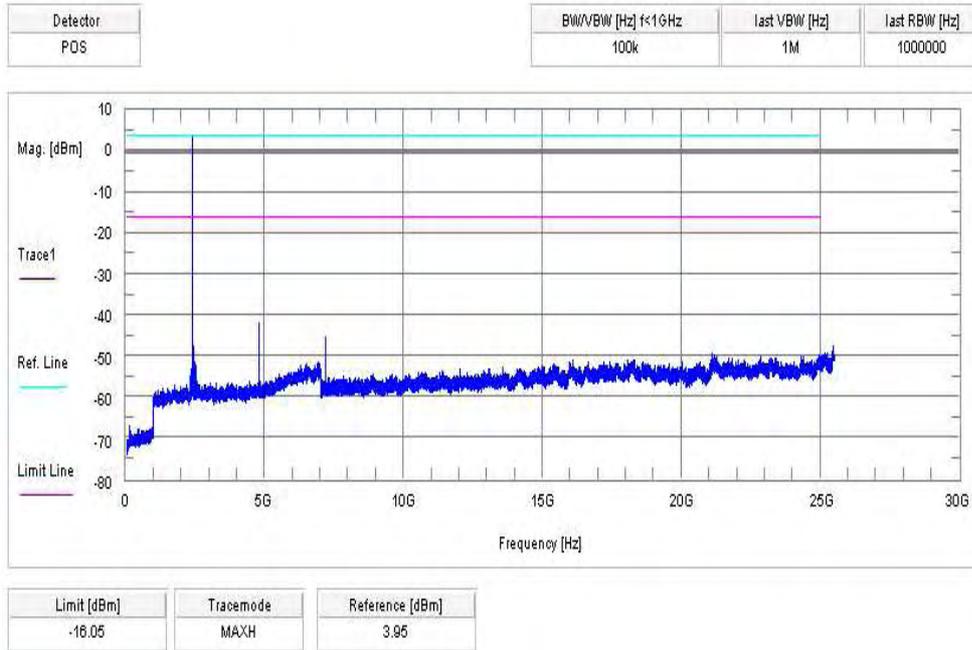


The result of the measurement is passed.

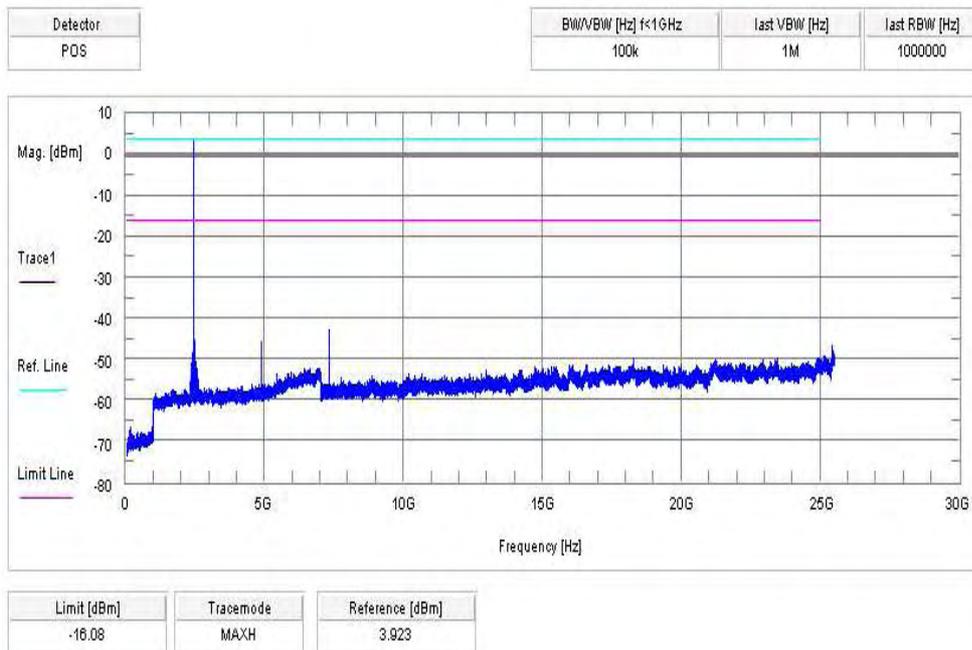
5.14 Spurious Emissions - conducted (Transmitter) § 15.247 (c)(1)

Modulation: GFSK

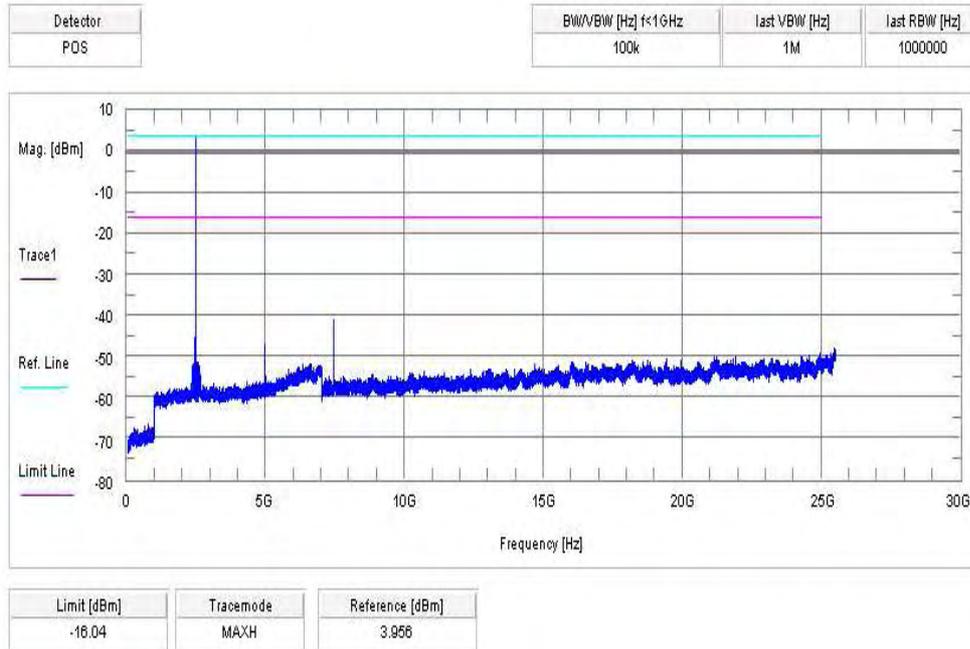
Plot 1 of 3: lowest channel



Plot 2 of 3: middle channel



Plot 3 of 3: highest channel



Result & Limits:

| Emission Limitation | | | | | |
|---|--|-----------------------------|-----------------------------------|--|---------------------|
| f [MHz] | | amplitude of emission [dBm] | limit max. allowed emission power | actual attenuation below frequency of operation [dB] | results |
| 2402 | | 3.95 | 30 dBm | | Operating frequency |
| No critical peaks detected. All spurious emissions are below the -20dBc criteria. | | | -20 dBc | | complies |
| 2441 | | 3.92 | 30 dBm | | Operating frequency |
| No critical peaks detected. All spurious emissions are below the -20dBc criteria. | | | -20 dBc | | complies |
| 2480 | | 3.96 | 30 dBm | | Operating frequency |
| No critical peaks detected. All spurious emissions are below the -20dBc criteria. | | | -20 dBc | | complies |
| Measurement uncertainty | | ± 3dB | | | |

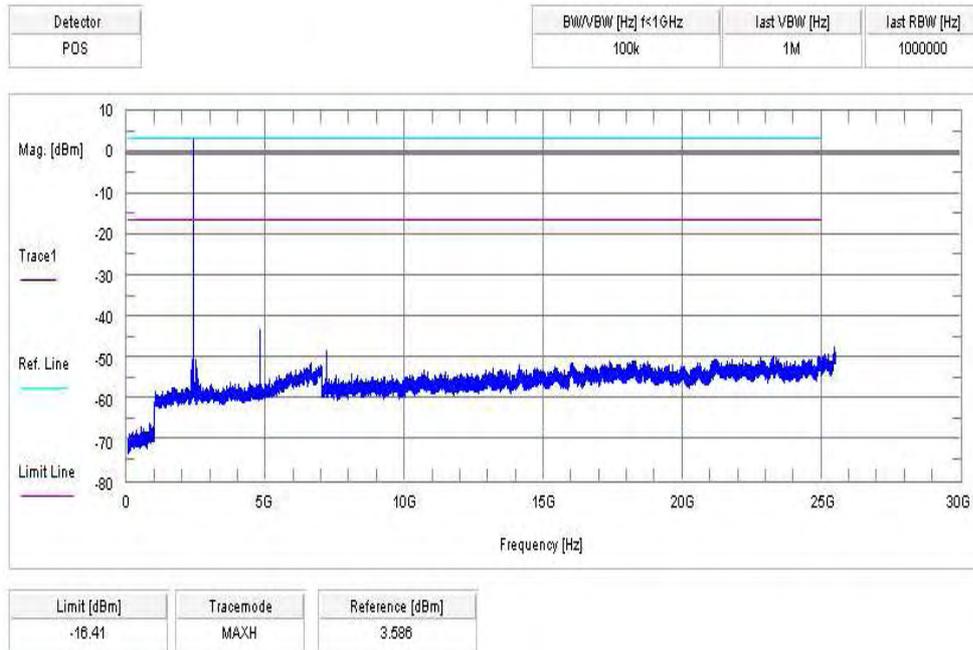
F < 1 GHz: RBW: 100 kHz VBW: 100 kHz
 F > 1 GHz: RBW: 1 MHz VBW: 1 MHz

| | |
|-----------------------------------|--|
| Under normal test conditions only | In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)). |
|-----------------------------------|--|

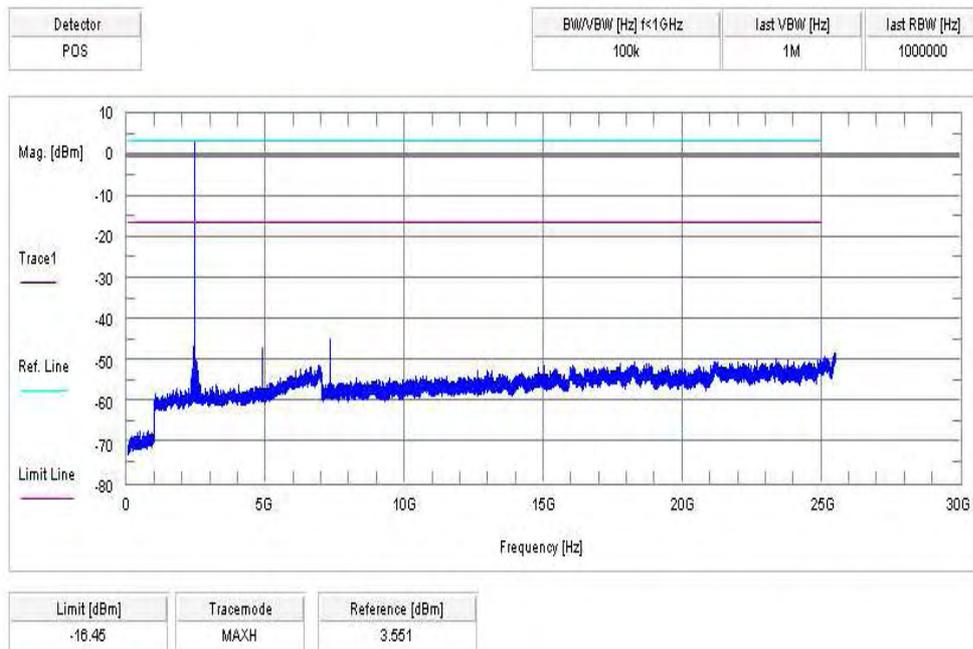
Note: For emissions that fall into restricted bands you find the radiated emissions later in the report.

Modulation: Pi/4 DQPSK

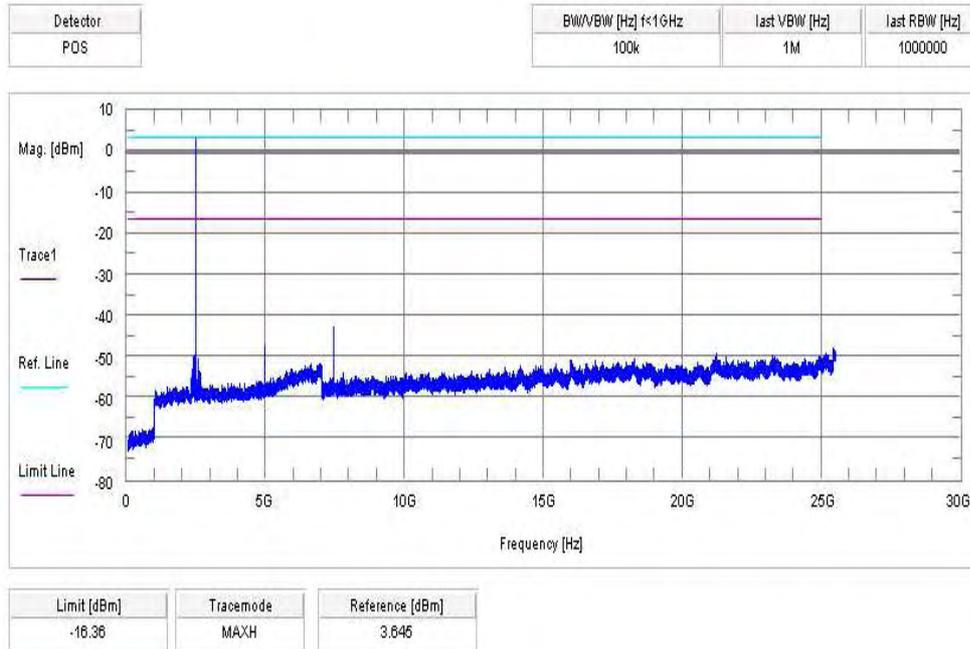
Plot 1 of 3: lowest channel



Plot 2 of 3: middle channel



Plot 3 of 3: highest channel



Result & Limits:

| Emission Limitation | | | | | |
|---|--|-----------------------------|-----------------------------------|--|---------------------|
| f [MHz] | | amplitude of emission [dBm] | limit max. allowed emission power | actual attenuation below frequency of operation [dB] | results |
| 2402 | | 3.59 | 30 dBm | | Operating frequency |
| No critical peaks detected. All spurious emissions are below the -20dBc criteria. | | | -20 dBc | | complies |
| 2441 | | 3.55 | 30 dBm | | Operating frequency |
| No critical peaks detected. All spurious emissions are below the -20dBc criteria. | | | -20 dBc | | complies |
| 2480 | | 3.65 | 30 dBm | | Operating frequency |
| No critical peaks detected. All spurious emissions are below the -20dBc criteria. | | | -20 dBc | | complies |
| Measurement uncertainty | | ± 3dB | | | |

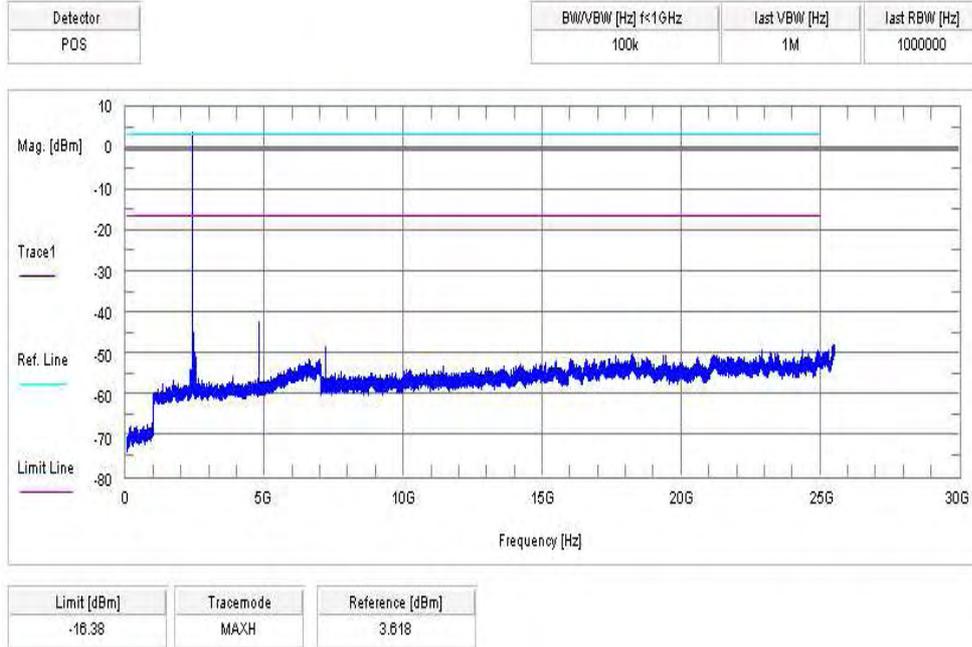
F < 1 GHz: RBW: 100 kHz VBW: 100 kHz
 F > 1 GHz: RBW: 1 MHz VBW: 1 MHz

| | |
|-----------------------------------|--|
| Under normal test conditions only | In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)). |
|-----------------------------------|--|

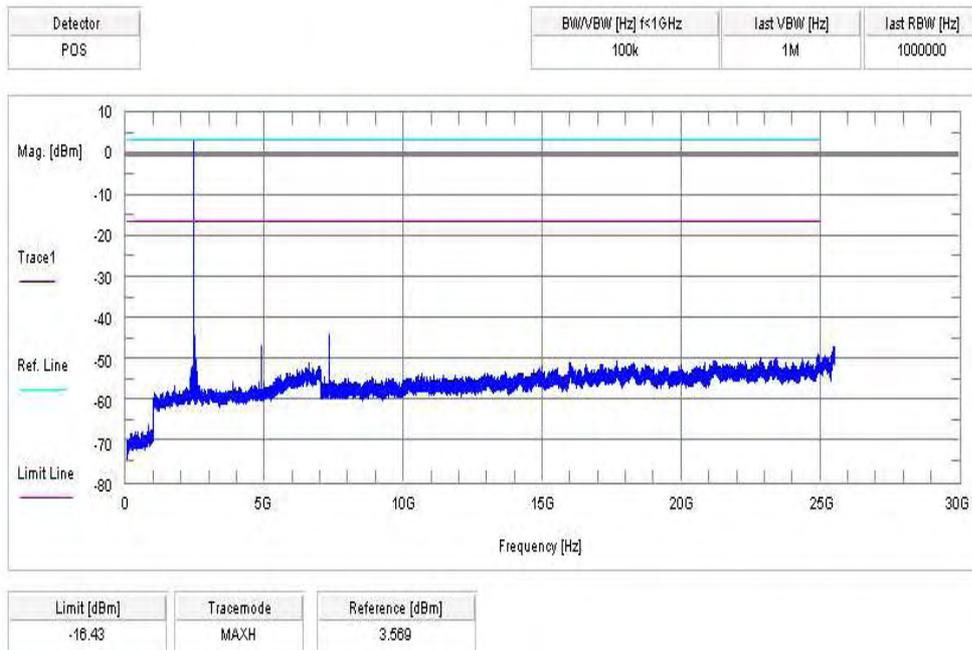
Note: For emissions that fall into restricted bands you find the radiated emissions later in the report.

Modulation: 8 DPSK

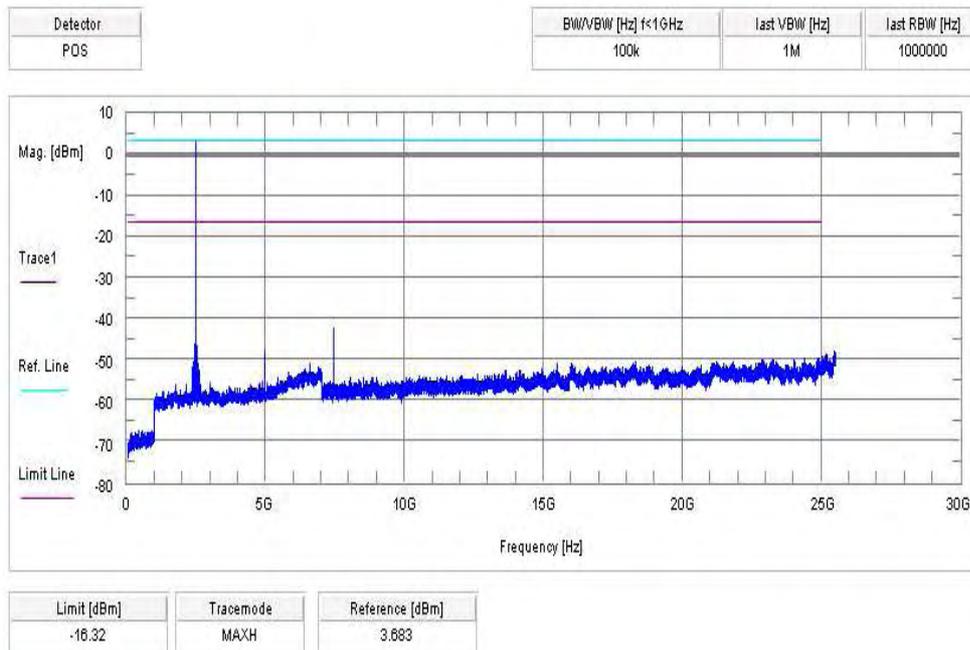
Plot 1 of 3: lowest channel



Plot 2 of 3: middle channel



Plot 3 of 3: highest channel



Result & Limits:

| Emission Limitation | | | | | |
|---|--|-----------------------------|-----------------------------------|--|---------------------|
| f [MHz] | | amplitude of emission [dBm] | limit max. allowed emission power | actual attenuation below frequency of operation [dB] | results |
| 2402 | | 3.62 | 30 dBm | | Operating frequency |
| No critical peaks detected. All spurious emissions are below the -20dBc criteria. | | | -20 dBc | | complies |
| 2441 | | 3.57 | 30 dBm | | Operating frequency |
| No critical peaks detected. All spurious emissions are below the -20dBc criteria. | | | -20 dBc | | complies |
| 2480 | | 3.68 | 30 dBm | | Operating frequency |
| No critical peaks detected. All spurious emissions are below the -20dBc criteria. | | | -20 dBc | | complies |
| Measurement uncertainty | | ± 3dB | | | |

F < 1 GHz: RBW: 100 kHz VBW: 100 kHz
 F > 1 GHz: RBW: 1 MHz VBW: 1 MHz

| | |
|-----------------------------------|--|
| Under normal test conditions only | In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)). |
|-----------------------------------|--|

Note: For emissions that fall into restricted bands you find the radiated emissions later in the report.

5.15 Spurious Emissions > 30 MHz- radiated (Transmitter) § 15.247 (c)(1)

Modulation: 8 DPSK

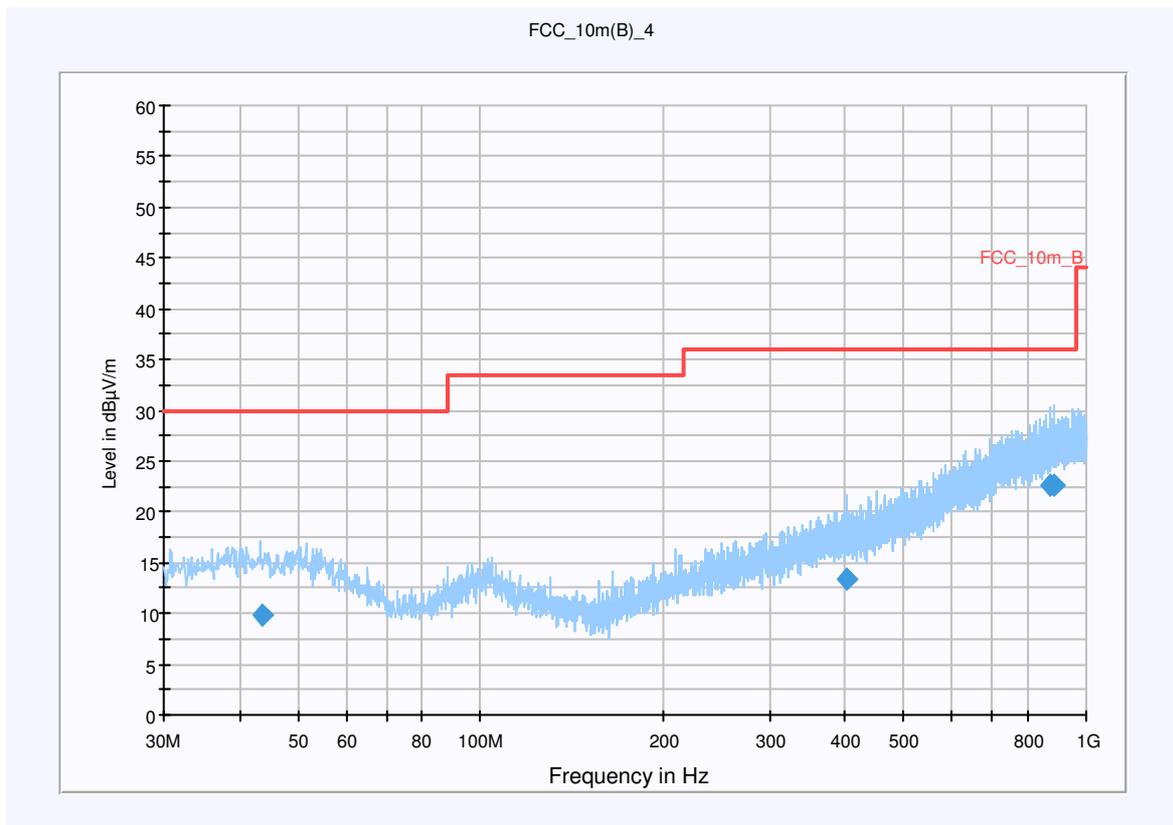
Plot 1: 0.03 - 1 GHz vertical/horizontal (lowest channel)

Common Information

EUT: AAD-3880039-BV + CAA-0002001-BV
 Serial Number: BX900MF6DQ (IMEI: 00440107-816330-6) + 758 B06 W06
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: BT TX CH 0 + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)
 Level Unit: dBµV/m
Subrange **Detectors** **IF Bandwidth** **Meas. Time** **Receiver**
 30 MHz - 1 GHz QuasiPeak 120 kHz 15 s Receiver



Final Result 1

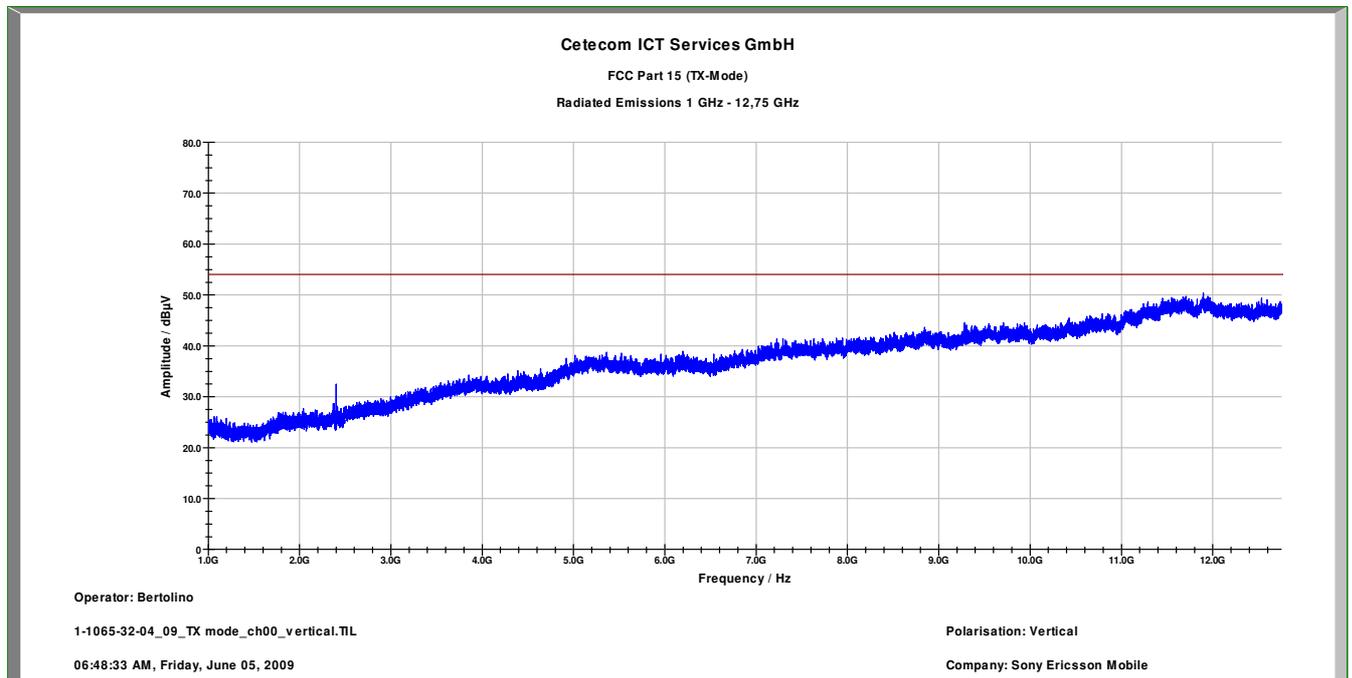
| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Antenna height (cm) | Polarity | Turntable position (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Comment |
|-----------------|--------------------|-----------------|-----------------|---------------------|----------|--------------------------|------------|-------------|----------------|---------|
| 43.505800 | 9.8 | 15000.000 | 120.000 | 98.0 | V | 226.0 | 13.5 | 20.2 | 30.0 | |
| 401.786800 | 13.4 | 15000.000 | 120.000 | 175.0 | H | 304.0 | 17.3 | 22.6 | 36.0 | |
| 872.742600 | 22.6 | 15000.000 | 120.000 | 171.0 | H | 107.0 | 25.4 | 13.4 | 36.0 | |
| 885.896150 | 22.7 | 15000.000 | 120.000 | 220.0 | H | 212.0 | 25.5 | 13.3 | 36.0 | |

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

| Subrange 1 | |
|------------------|--|
| Frequency Range: | 30 MHz - 2 GHz |
| Receiver: | Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32 |
| Signal Path: | without Notch FW 1.0 |
| Antenna: | VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0109) |
| Antenna Tower: | Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12 |
| Turntable: | Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12 |

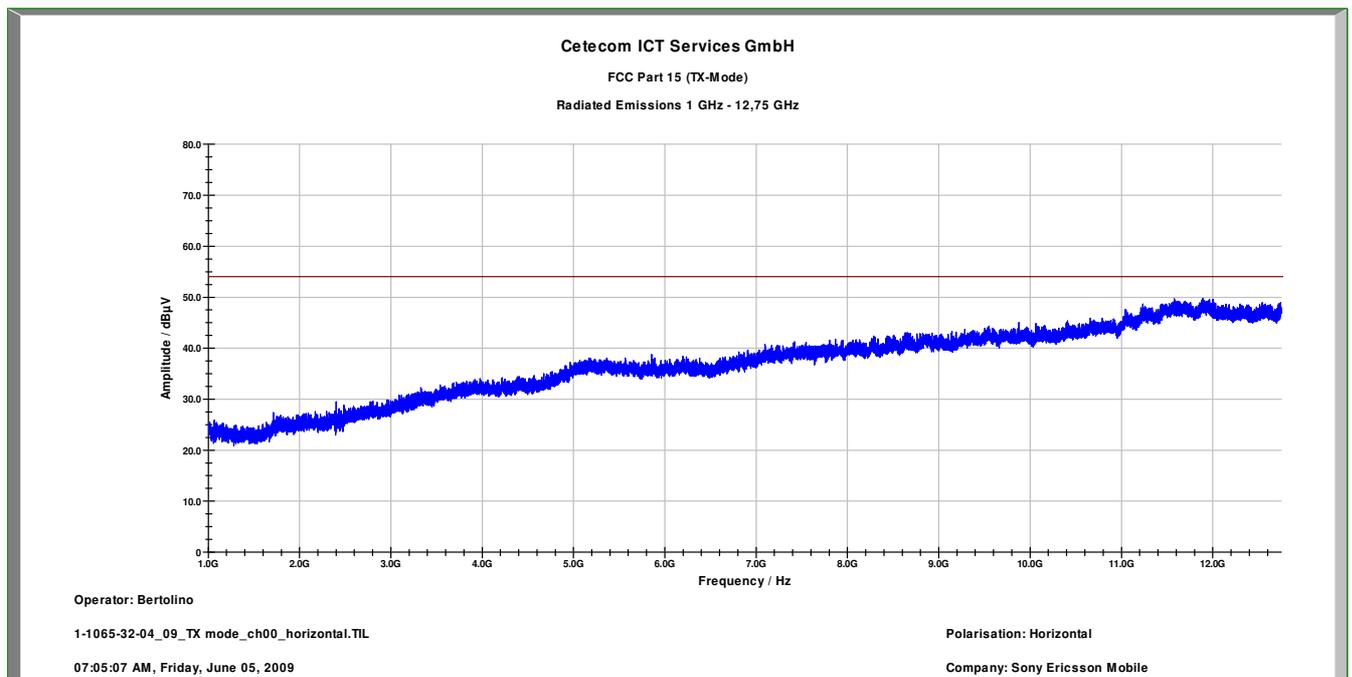
EMC 32 Version 8.10.00

Plot 2: 1 – 12.75 GHz vertical (lowest channel)



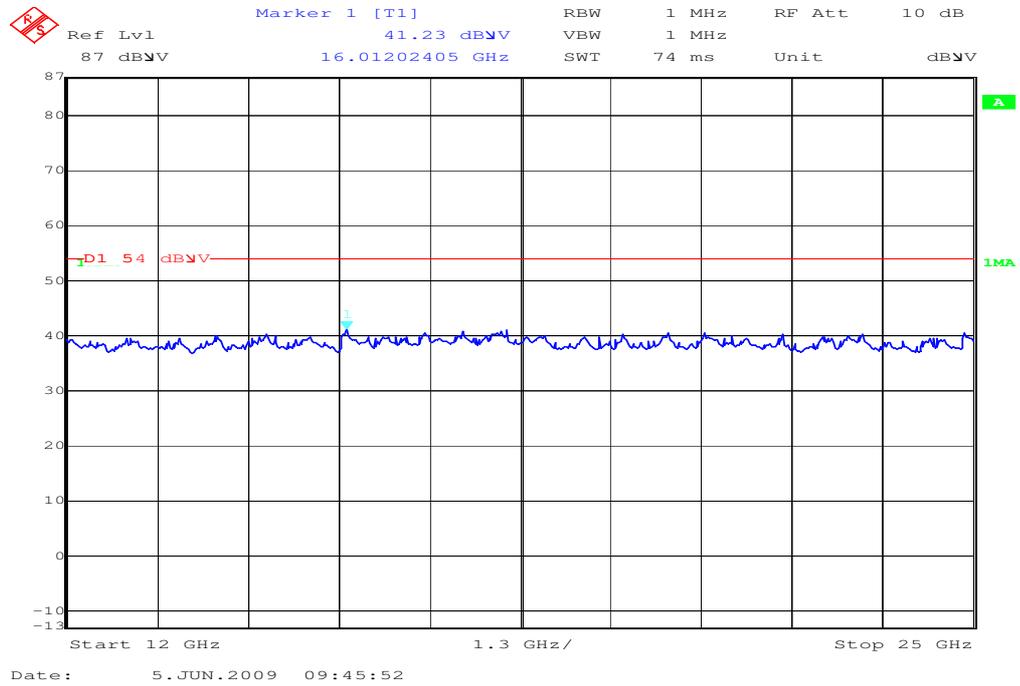
The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 3: 1 – 12.75 GHz horizontal (lowest channel)



The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 4: 12 - 25 GHz vertical/horizontal (valid for all channels)



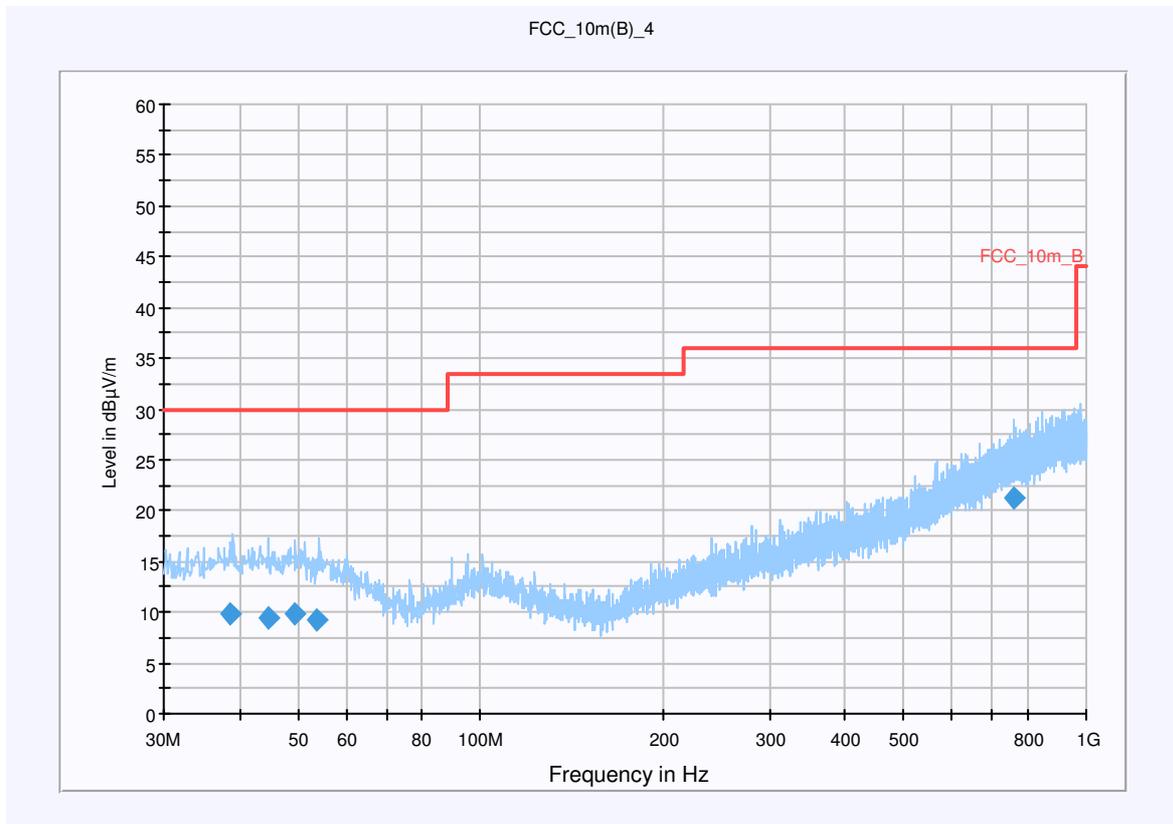
Plot 5: 0.03 - 1 GHz vertical/horizontal (middle channel)

Common Information

EUT: AAD-3880039-BV + CAA-0002001-BV
 Serial Number: BX900MF6DQ (IMEI: 00440107-816330-6) + 758 B06 W06
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: BT TX CH 39 + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)
 Level Unit: dBµV/m
Subrange **Detectors** **IF Bandwidth** **Meas. Time** **Receiver**
 30 MHz - 1 GHz QuasiPeak 120 kHz 15 s Receiver



Final Result 1

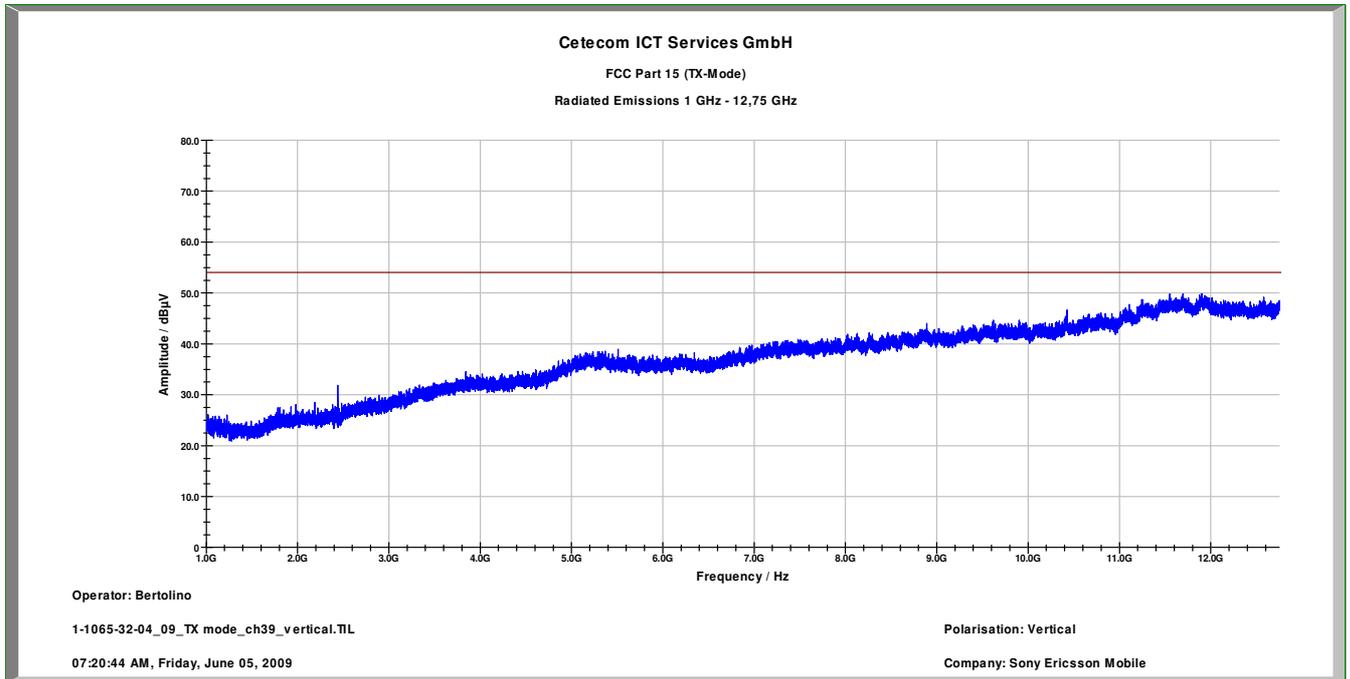
| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Antenna height (cm) | Polarity | Turntable position (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Comment |
|-----------------|--------------------|-----------------|-----------------|---------------------|----------|--------------------------|------------|-------------|----------------|---------|
| 38.646100 | 9.9 | 15000.000 | 120.000 | 183.0 | V | 285.0 | 13.5 | 20.1 | 30.0 | |
| 44.776550 | 9.4 | 15000.000 | 120.000 | 117.0 | V | 143.0 | 13.4 | 20.6 | 30.0 | |
| 49.334950 | 9.8 | 15000.000 | 120.000 | 154.0 | H | 249.0 | 13.5 | 20.2 | 30.0 | |
| 53.857300 | 9.3 | 15000.000 | 120.000 | 220.0 | H | 40.0 | 13.2 | 20.7 | 30.0 | |
| 759.733950 | 21.2 | 15000.000 | 120.000 | 220.0 | H | 246.0 | 24.2 | 14.8 | 36.0 | |

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

| Subrange 1 | |
|------------------|--|
| Frequency Range: | 30 MHz - 2 GHz |
| Receiver: | Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32 |
| Signal Path: | without Notch FW 1.0 |
| Antenna: | VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0109) |
| Antenna Tower: | Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12 |
| Turntable: | Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12 |

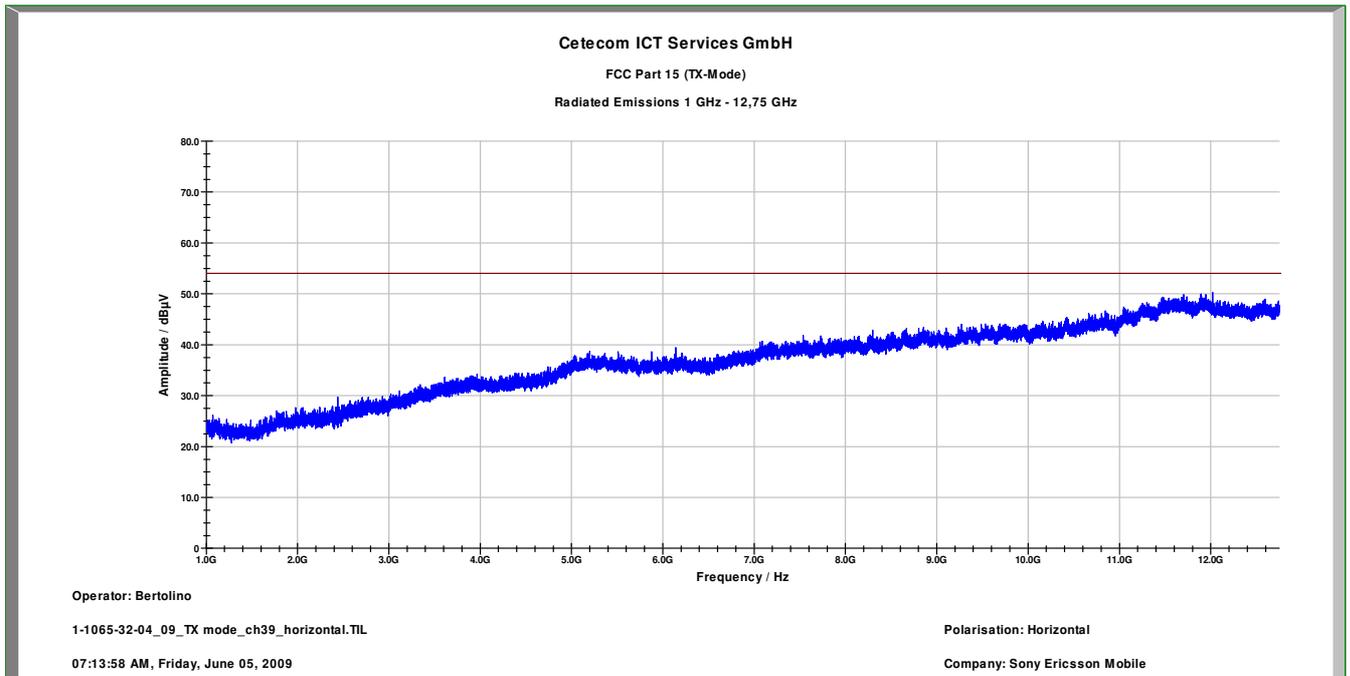
EMC 32 Version 8.10.00

Plot 6: 1 – 12.75 GHz vertical (middle channel)



The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 7: 1 – 12.75 GHz horizontal (middle channel)



The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 8: 0.03 - 1 GHz vertical/horizontal (highest channel)

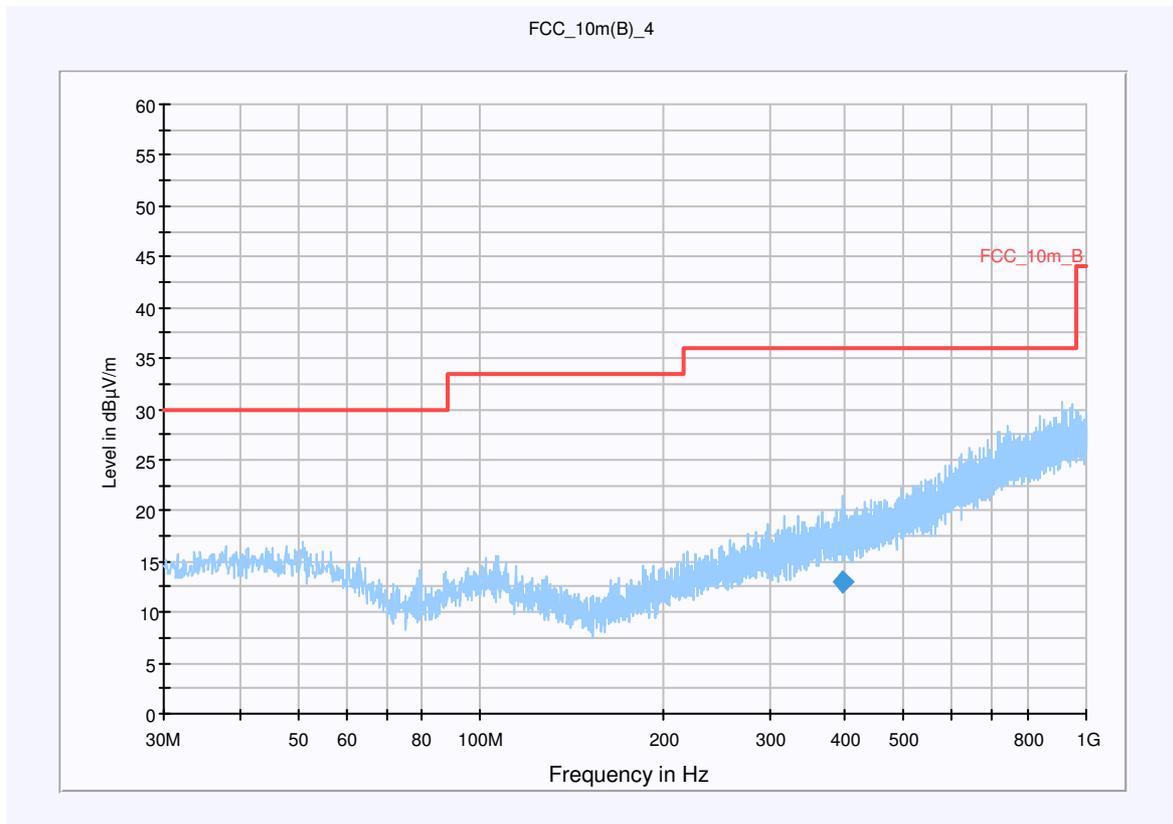
Common Information

EUT: AAD-3880039-BV + CAA-0002001-BV
 Serial Number: BX900MF6DQ (IMEI: 00440107-816330-6) + 758 B06 W06
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: BT TX CH 78 + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)
 Level Unit: dBµV/m

| Subrange | Detectors | IF Bandwidth | Meas. Time | Receiver |
|----------------|-----------|--------------|------------|----------|
| 30 MHz - 1 GHz | QuasiPeak | 120 kHz | 15 s | Receiver |



Final Result 1

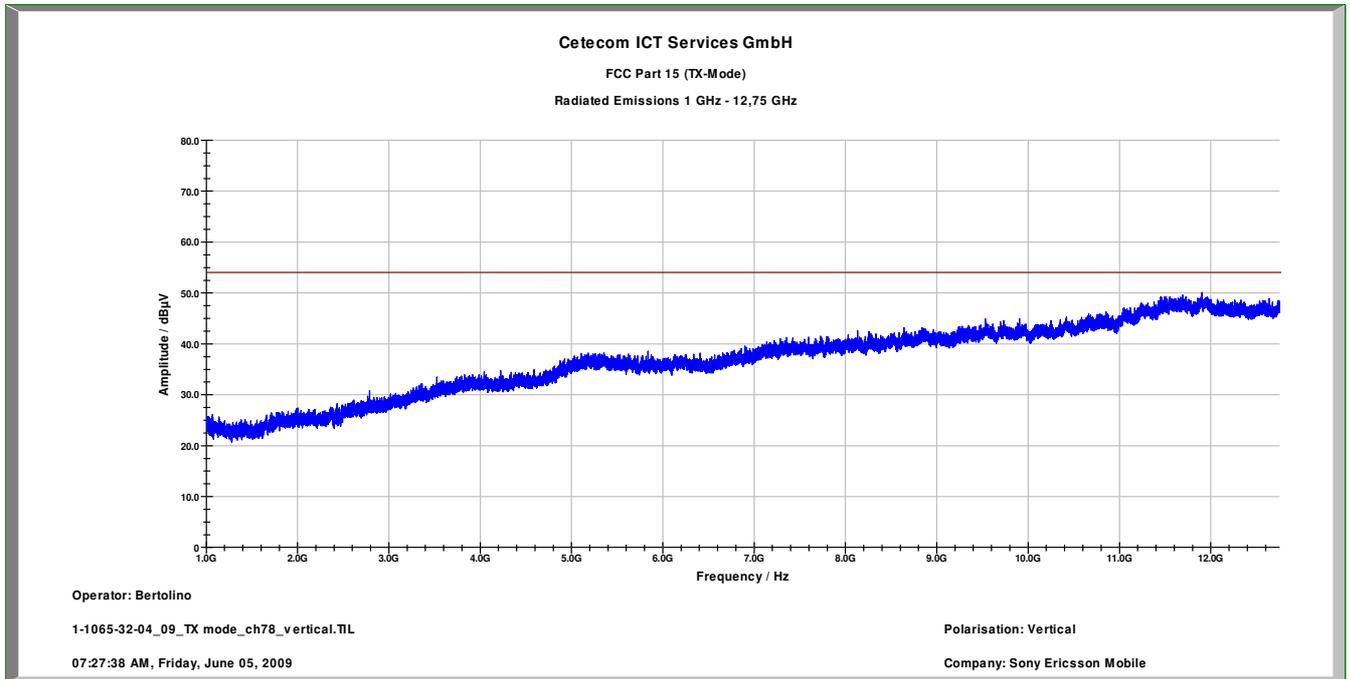
| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Antenna height (cm) | Polarity | Turntable position (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Comment |
|-----------------|--------------------|-----------------|-----------------|---------------------|----------|--------------------------|------------|-------------|----------------|---------|
| 395.165350 | 13.0 | 15000.000 | 120.000 | 98.0 | H | 84.0 | 17.2 | 23.0 | 36.0 | |

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

| Subrange 1 | |
|------------------|--|
| Frequency Range: | 30 MHz - 2 GHz |
| Receiver: | Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32 |
| Signal Path: | without Notch FW 1.0 |
| Antenna: | VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0109) |
| Antenna Tower: | Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12 |
| Turntable: | Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12 |

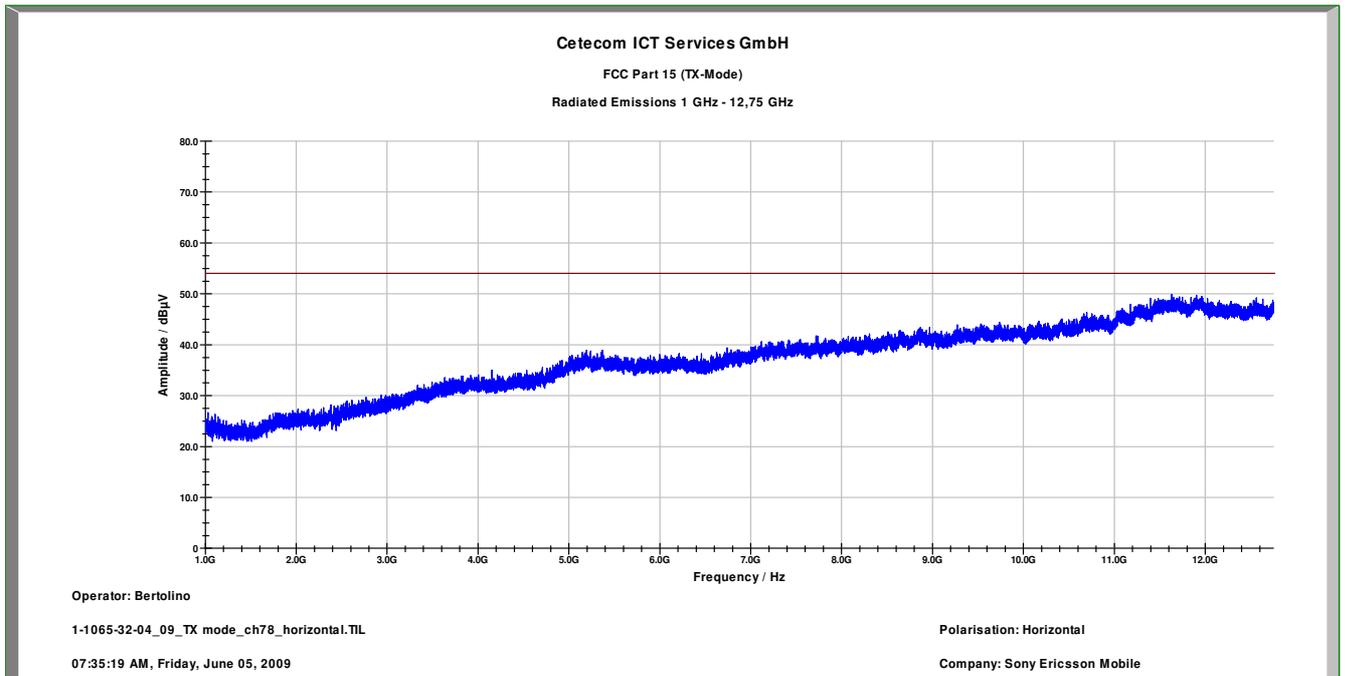
EMC 32 Version 8.10.00

Plot 9: 1 – 12.75 GHz vertical (highest channel)



The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 10: 1 – 12.75 GHz horizontal (highest channel)



The carrier signal is notched with a 2.4 GHz band rejection filter.

Results:

| SPURIOUS EMISSIONS LEVEL (dB μ V/m) | | | | | | | | |
|---|----------|----------------------|-----------------------------|----------|----------------------|-----------------------------|----------|----------------------|
| 2402 MHz | | | 2441 MHz | | | 2480 MHz | | |
| F [MHz] | Detector | Level [dB μ V/m] | F [MHz] | Detector | Level [dB μ V/m] | F [MHz] | Detector | Level [dB μ V/m] |
| No critical peaks detected. | | | No critical peaks detected. | | | No critical peaks detected. | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| Measurement uncertainty | | | ±3 dB | | | | | |

f < 1 GHz : RBW/VBW: 100 kHz

f ≥ 1GHz : RBW/VBW: 1 MHz

Limits: § 15.247 (c)

In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Limits: § 15.209

| Frequency [MHz] | Field strength [μ V/m] | Measurement distance (m) |
|-----------------|-----------------------------|--------------------------|
| 30 - 88 | 100 (40 dB μ V/m) | 3 |
| 88 - 216 | 150 (43.5 dB μ V/m) | 3 |
| 216 - 960 | 200 (46 dB μ V/m) | 3 |
| above 960 | 500 (54 dB μ V/m) | 3 |

5.16 Spurious Emissions - radiated (Receiver) § 15.109

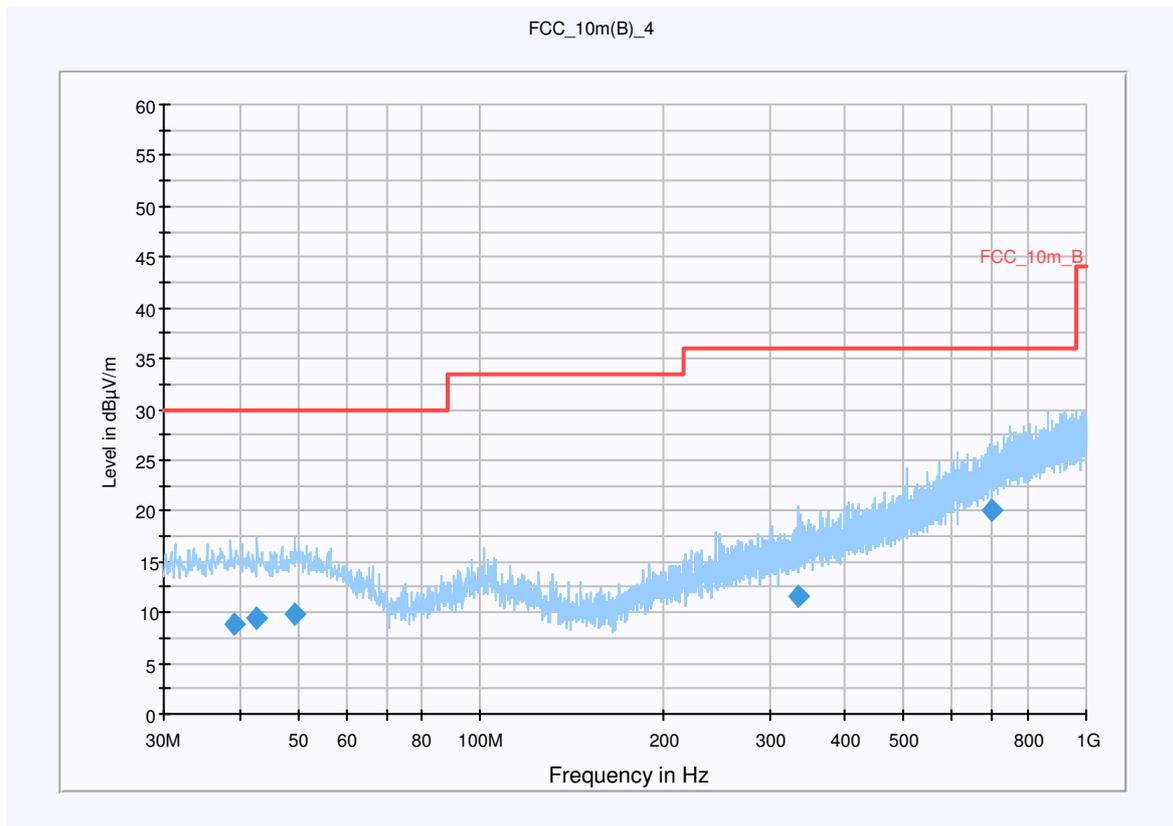
Plot 1: 0.03 - 1 GHz vertical/horizontal (receiver)

Common Information

EUT: AAD-3880039-BV + CAA-0002001-BV
 Serial Number: BX900MF6DQ (IMEI: 00440107-816330-6) + 758 B06 W06
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: BT RX + charging
 Operator Name: Hennemann
 Comment: AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)
 Level Unit: dBµV/m
Subrange **Detectors** **IF Bandwidth** **Meas. Time** **Receiver**
 30 MHz - 1 GHz QuasiPeak 120 kHz 15 s Receiver



Final Result 1

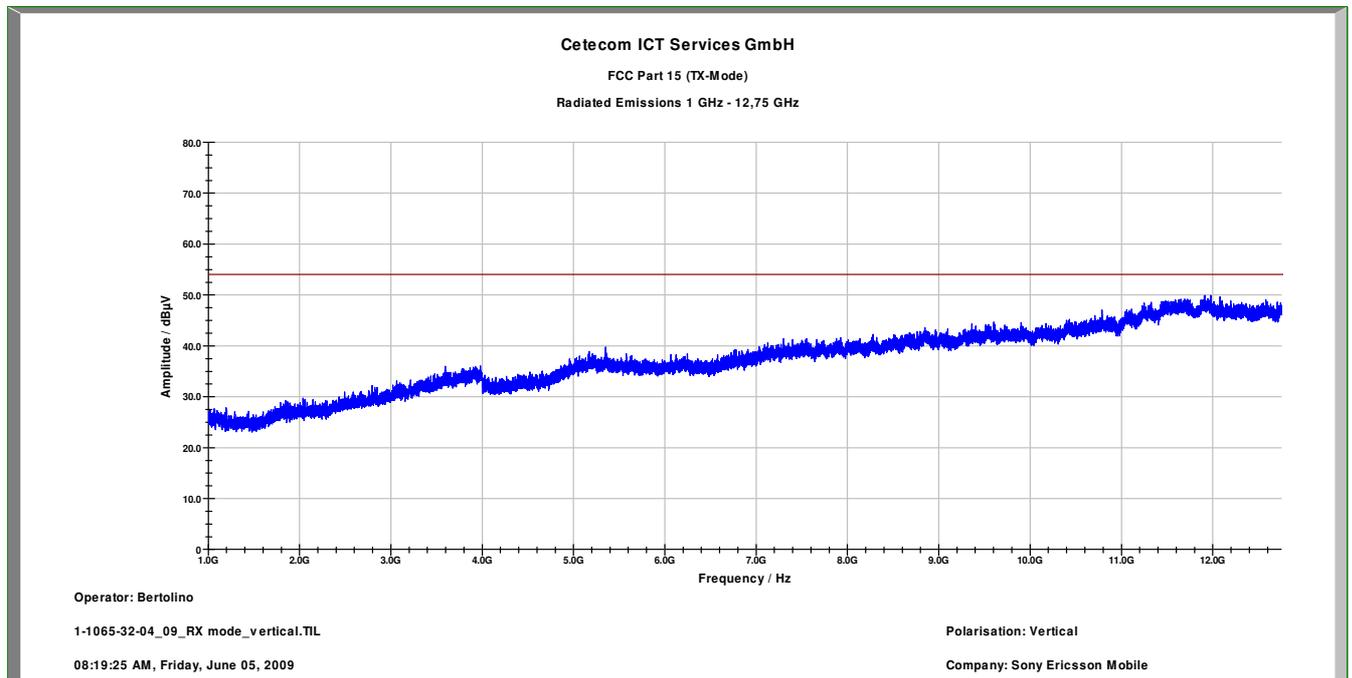
| Frequency (MHz) | QuasiPeak (dBµV/m) | Meas. Time (ms) | Bandwidth (kHz) | Antenna height (cm) | Polarity | Turntable position (deg) | Corr. (dB) | Margin (dB) | Limit (dBµV/m) | Comment |
|-----------------|--------------------|-----------------|-----------------|---------------------|----------|--------------------------|------------|-------------|----------------|---------|
| 39.072450 | 8.9 | 15000.000 | 120.000 | 141.0 | H | 45.0 | 13.5 | 21.1 | 30.0 | |
| 42.722400 | 9.5 | 15000.000 | 120.000 | 176.0 | V | 18.0 | 13.5 | 20.5 | 30.0 | |
| 49.245600 | 9.8 | 15000.000 | 120.000 | 98.0 | V | 121.0 | 13.5 | 20.2 | 30.0 | |
| 334.283000 | 11.6 | 15000.000 | 120.000 | 208.0 | V | 231.0 | 15.9 | 24.4 | 36.0 | |
| 699.353400 | 20.1 | 15000.000 | 120.000 | 149.0 | H | 235.0 | 23.0 | 15.9 | 36.0 | |

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

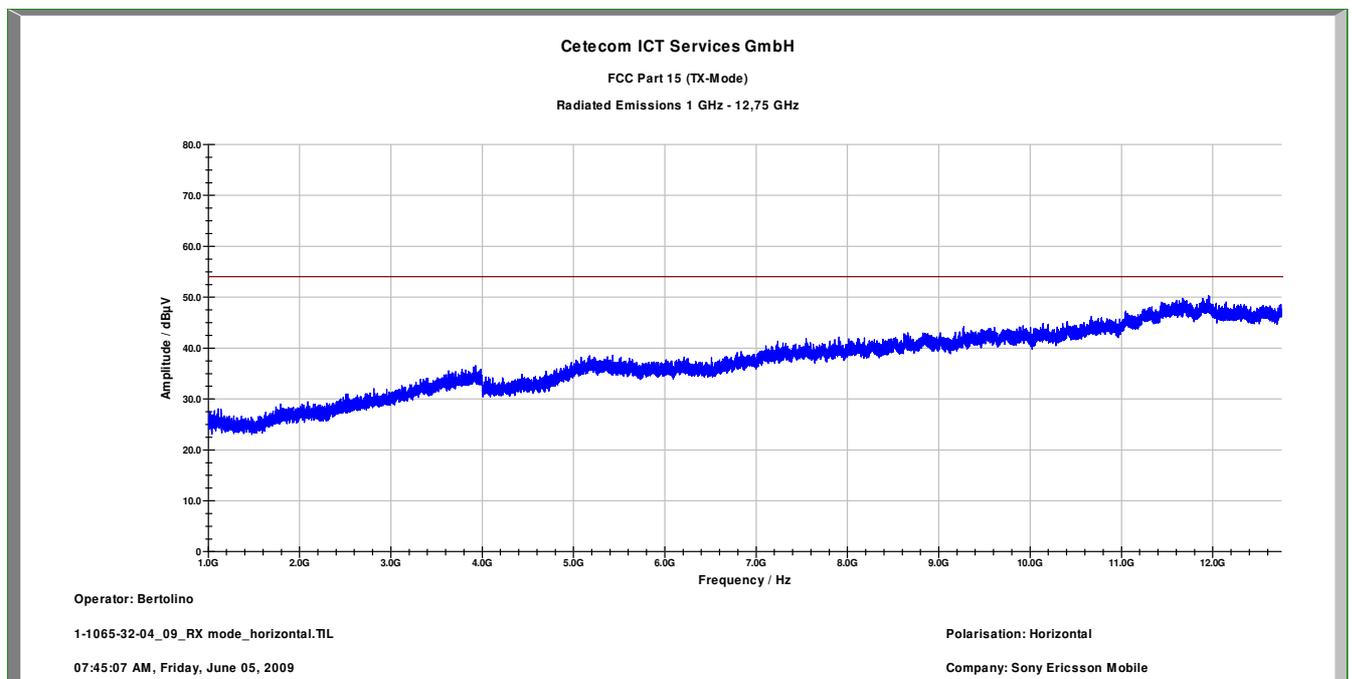
| Subrange 1 | |
|------------------|--|
| Frequency Range: | 30 MHz - 2 GHz |
| Receiver: | Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32 |
| Signal Path: | without Notch FW 1.0 |
| Antenna: | VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0109) |
| Antenna Tower: | Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12 |
| Turntable: | Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12 |

EMC 32 Version 8.10.00

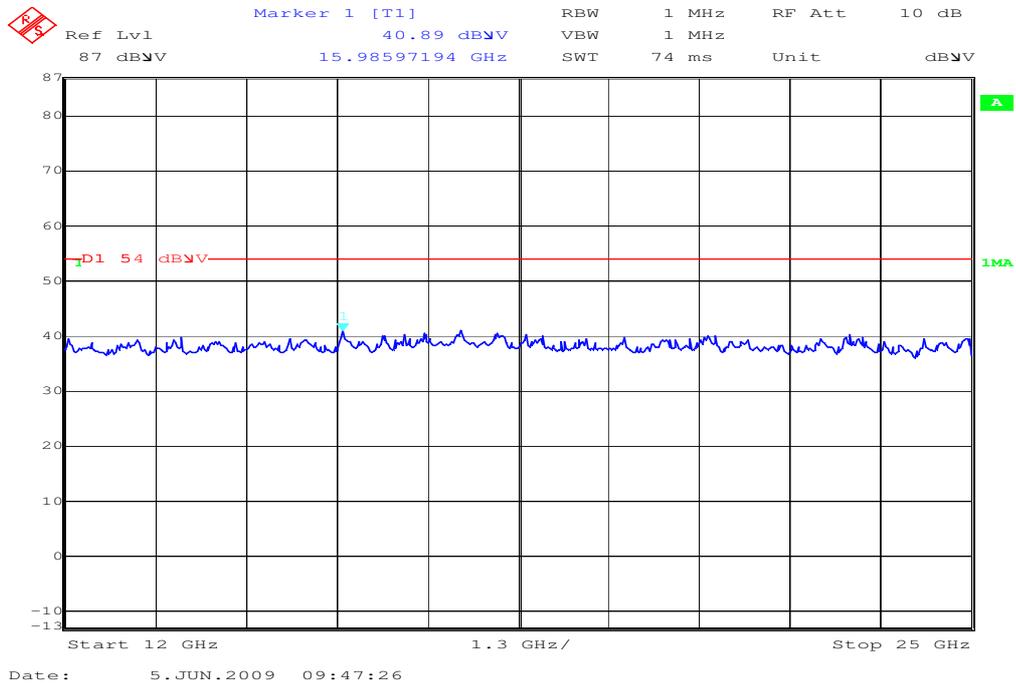
Plot 2: 1 – 12.75 GHz vertical (receiver)



Plot 3: 1 – 12.75 GHz horizontal (receiver)



Plot 4: 12 - 25 GHz vertical/horizontal (receiver)



Results:

| Spurious Emissions level [dBμV/m] | | |
|-----------------------------------|----------|----------------|
| f[MHz] | Detector | Level [dBμV/m] |
| No critical peaks detected. | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| Measurement uncertainty | | ±3 dB |

f < 1 GHz: RBW/VBW: 100 kHz f ≥ 1GHz : RBW/VBW: 1 MHz
 See above plots

Measurement distance see table

Limits: § 15.109

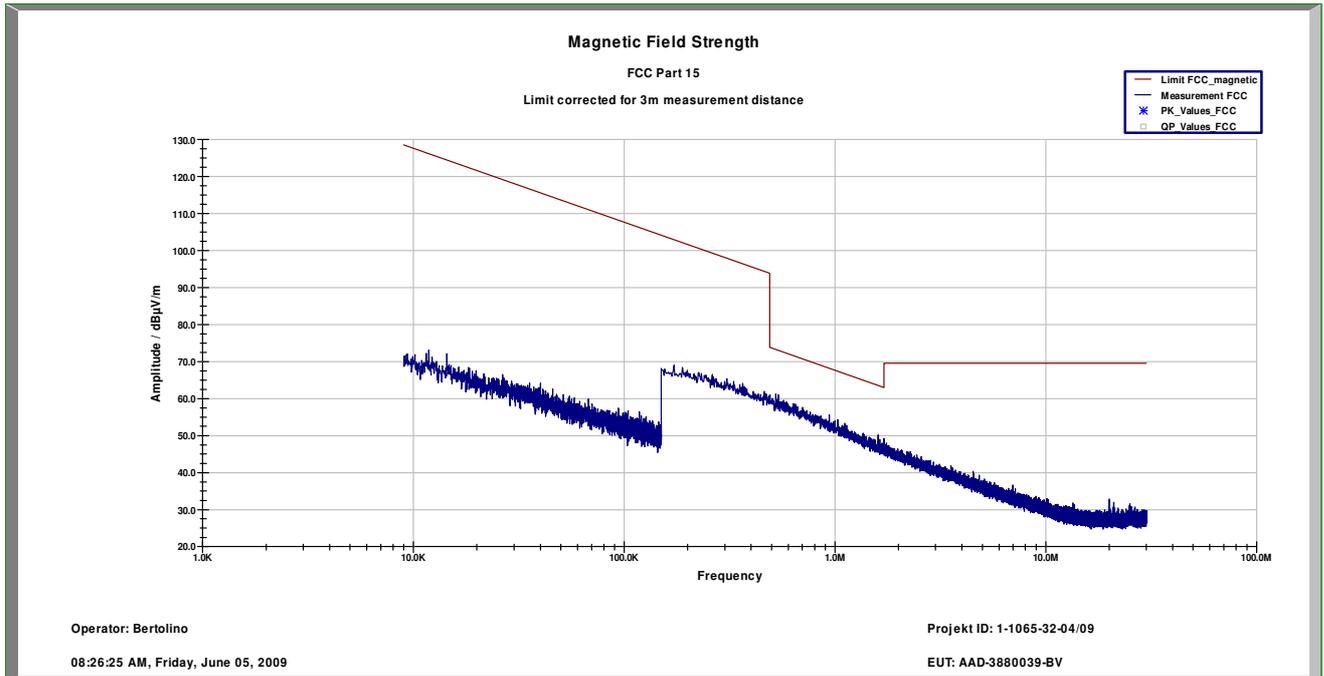
| Frequency (MHz) | Field strength (μV/m) | Measurement distance (m) |
|-----------------|-----------------------|--------------------------|
| 30 - 88 | 100 (40 dBμV/m) | 3 |
| 88 - 216 | 150 (43.5 dBμV/m) | 3 |
| 216 - 960 | 200 (46 dBμV/m) | 3 |
| above 960 | 500 (54 dBμV/m) | 3 |

5.17 Spurious Emissions < 30 MHz - Transmitter radiated § 15.209

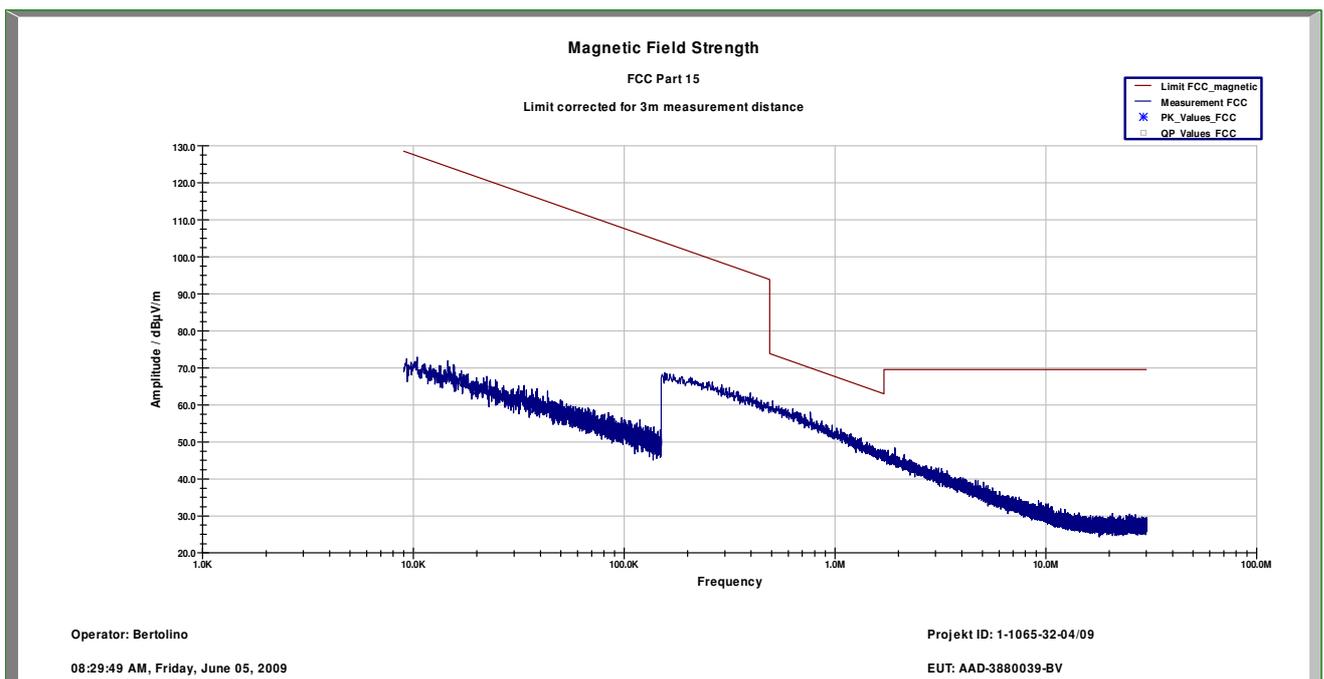
Modulation: 8 DPSK

Measured at 10 m distance.
Values recalculated with 40 dB/decade according to FCC rules.

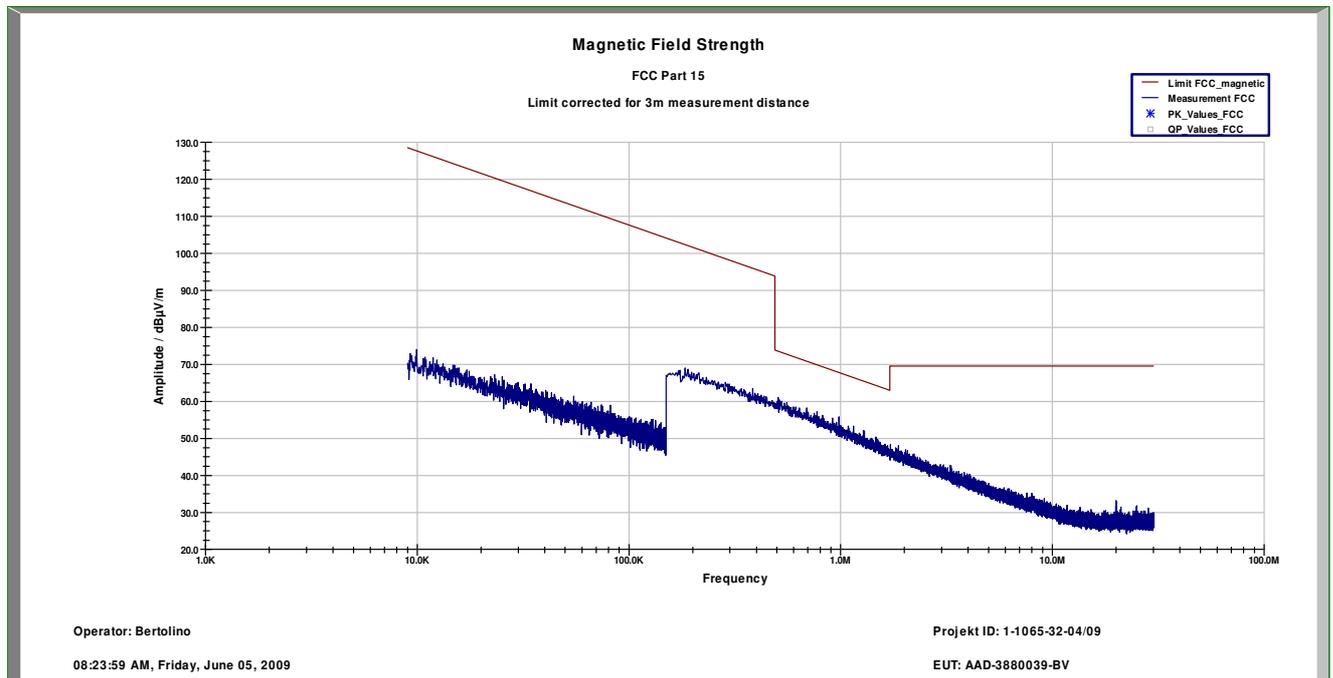
Plot 1: TX mode, Position 1



Plot 2: TX mode, Position 2



Plot 3: RX mode



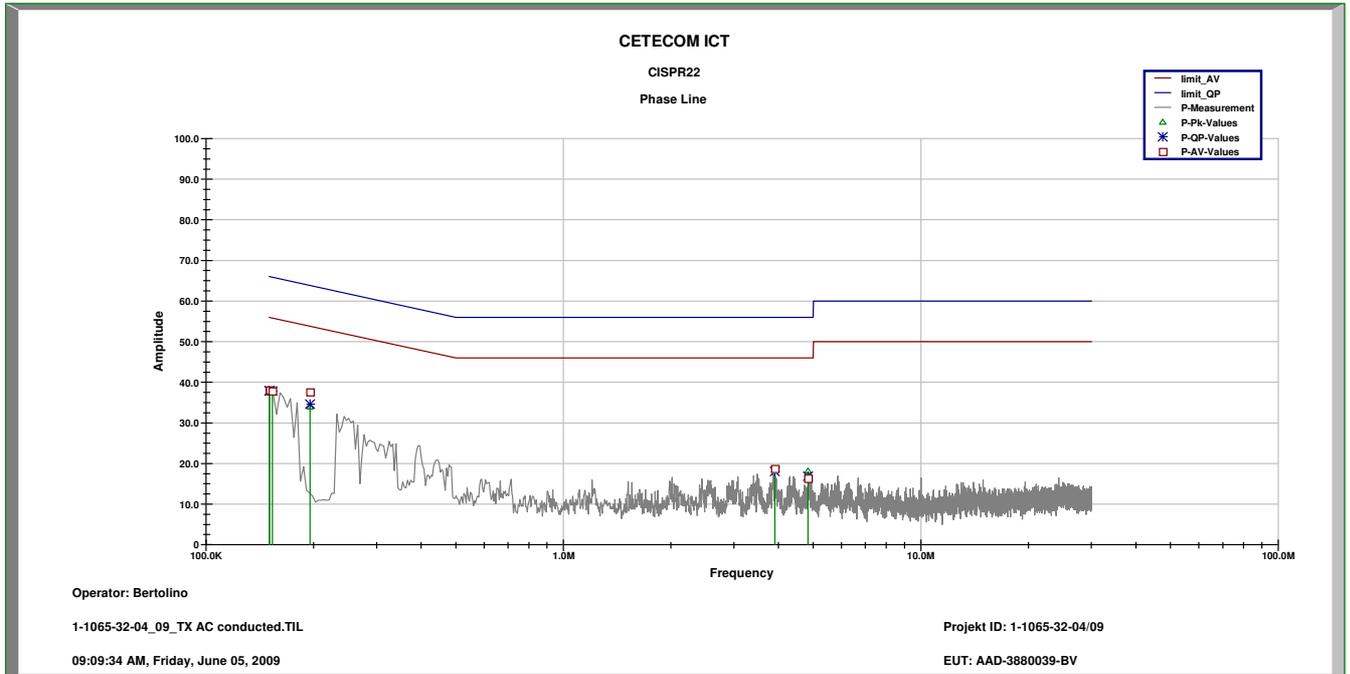
Limits:

| Frequency (MHz) | Field strength ($\mu\text{V/m}$) | Measurement distance (m) |
|-----------------|-------------------------------------|--------------------------|
| 0.009 – 0.490 | $2400/F(\text{kHz})$ | 300 |
| 0.490 – 1.705 | $24000/F(\text{kHz})$ | 30 |
| 1.705 – 30.0 | $30 / 29.5 \text{ dB}\mu\text{V/m}$ | 30 |

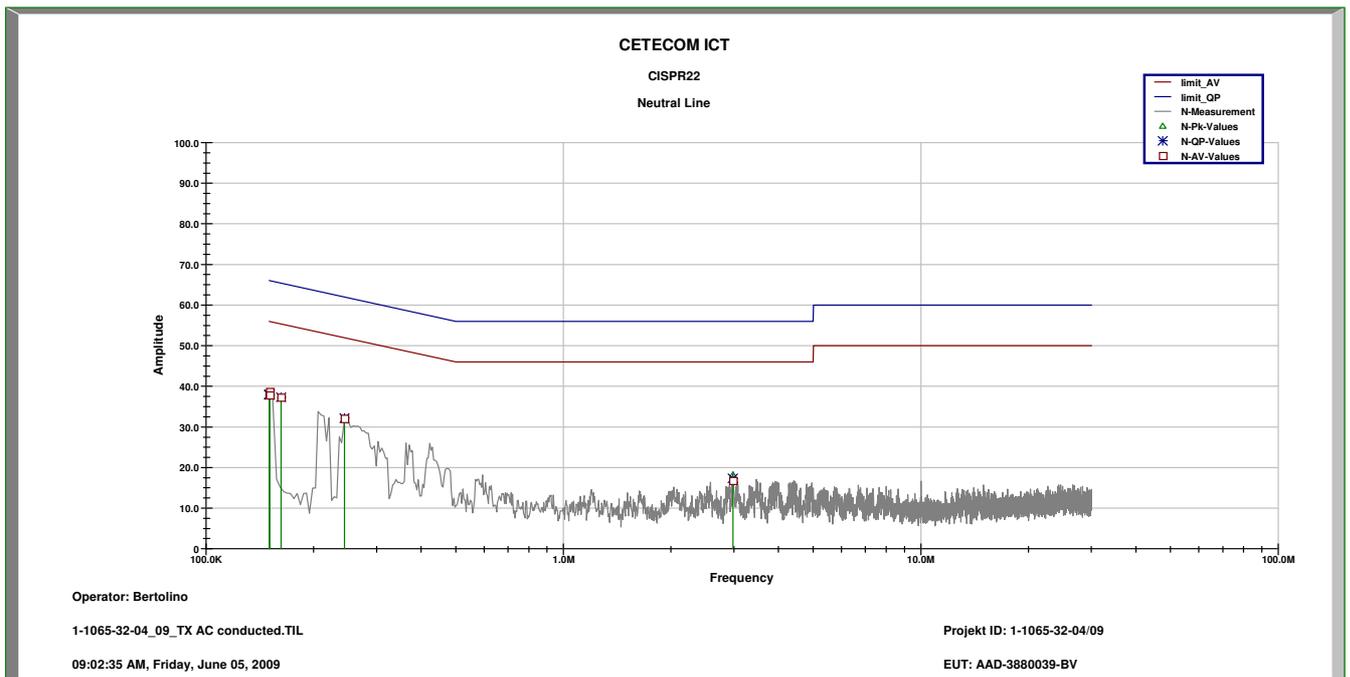
5.18 Conducted Emissions <30 MHz § 15.107/207

Modulation: 8 DPSK

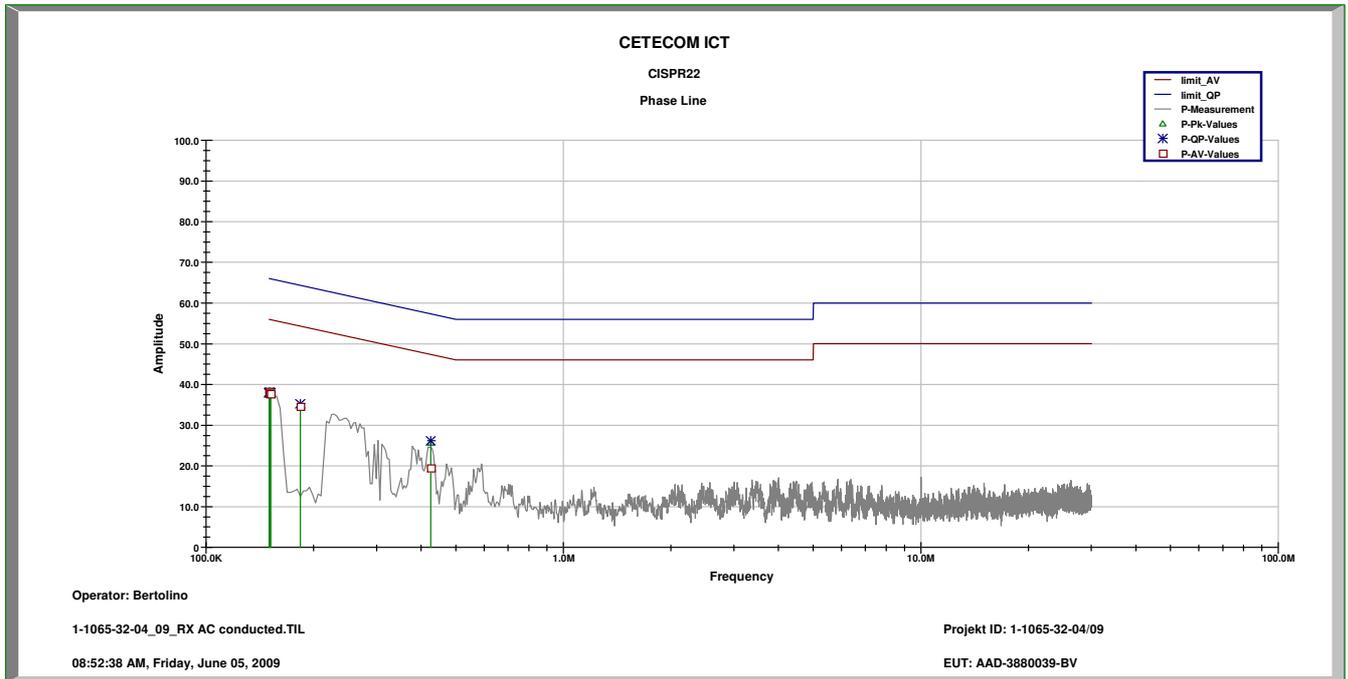
Plot 1: TX mode, phase line



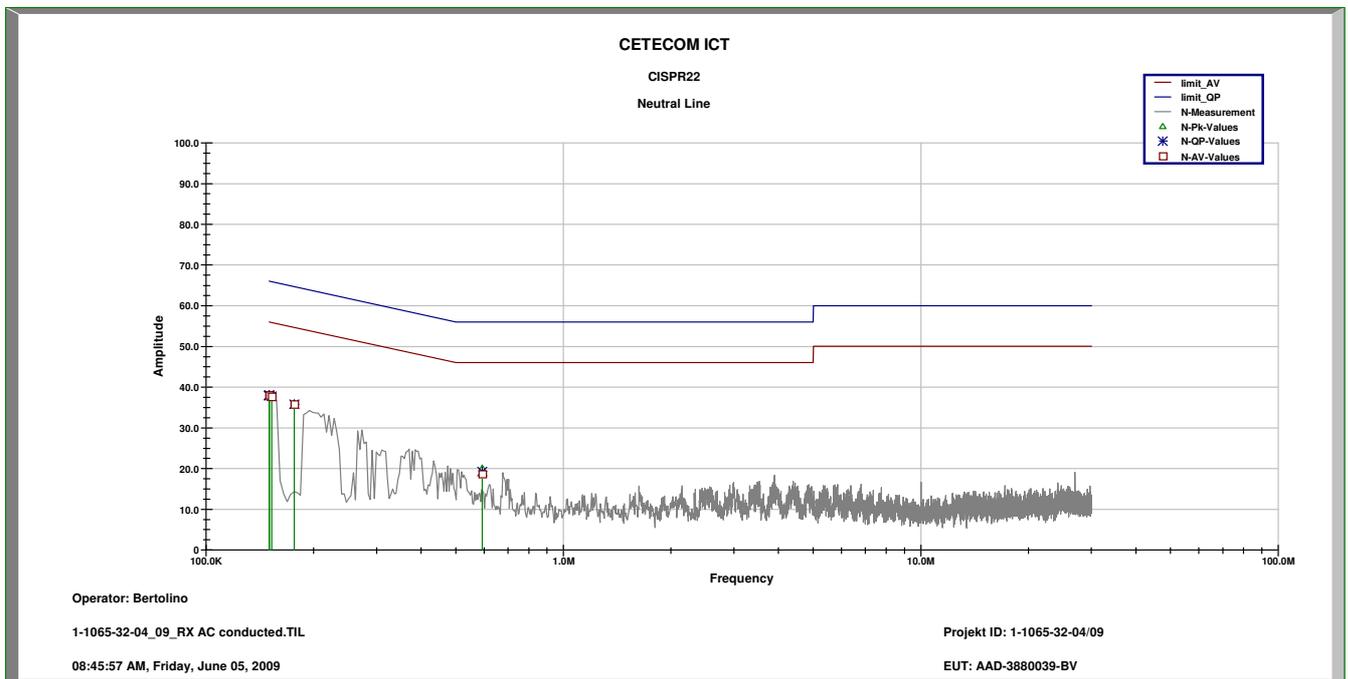
Plot 2: TX mode, neutral line



Plot 3: RX mode, phase line



Plot 4: RX mode, neutral line



Limits:

| | |
|-----------------------------------|-----------|
| Under normal test conditions only | See plots |
|-----------------------------------|-----------|

6 Test equipment and ancillaries used for tests

To simplify the identification on each page of the test equipment used, on each page of the test report, each item of test equipment and ancillaries such as cables are identified (numbered) by the Test Laboratory, below.

All reported calibration intervals are calibrations according to the EN/ISO/IEC 17025 standard. These calibrations were performed from an accredited external calibration laboratory.

Additional to these calibrations the laboratory performed comparison measurements with other calibrated systems and performed a weekly chamber inspection.

All used devices are connected with a 10 MHz external reference. According to the manufacturers' instruction is it possible to establish a calibration interval for the FSP unit of 24 month, if the device has an external 10 MHz reference.

Anechoic chamber C:

| No | Equipment/Type | Manuf. | Serial Nr. | Inv. No. Cetecom | Last Calibration | Frequency (months) | Next Calibration |
|----|---|-------------|------------|------------------|------------------------------------|--------------------|------------------|
| 1 | Anechoic chamber | MWB | 87400/02 | 300000996 | Monthly verification | | |
| 2 | System-Rack 85900 | HP I.V. | * | 300000222 | n.a. | | |
| 3 | Measurement System 1 | | | | | | |
| 4 | PSA-Spektrumanalysator 3 Hz - 26,5 GHz (E4440A) | Agilent | MY48250080 | 300003812 | 05.08.2008 | 24 | 05.08.2010 |
| 5 | EMI Preselector 9kHz - 1 GHz (N9039A) | Agilent | MY48260003 | 300003825 | 19.08.2008 | 24 | 19.08.2010 |
| 6 | Microwave Analog Signal Generator (N5183A) | Agilent | MY47420220 | 300003813 | 06.08.2008 | 24 | 06.08.2010 |
| 7 | PC | F+W | | | n.a. | | |
| 8 | TILE | TILE | | | n.a. | | |
| 9 | TRILOG Super Breitband Antenne (VULB9163) | Schwarzbeck | 371 | 300003854 | Monthly verification (System cal.) | | |
| 10 | Double Ridged Antenna 3115 | EMCO | 3088 | 300001032 | Monthly verification (System cal.) | | |
| 11 | Active Loop Antenna 6502 | EMCO | 2210 | 300001015 | Monthly verification (System cal.) | | |
| 12 | Switch / Control Unit 3488A | HP | 2719A15013 | 300001156 | n.a. | | |
| 13 | Power Supply 6032A | HP | 2818A03450 | 300001040 | 08.01.2009 | 36 | 08.01.2012 |
| 14 | Busisolator | Kontron | | 300001056 | n.a. | | |
| 15 | Leitungsteiler 11850C | HP | | 300000997 | Monthly verification (System cal.) | | |
| 16 | Power attenuator 8325 | Byrd | 1530 | 300001595 | Monthly verification (System cal.) | | |
| 17 | Band reject filter WRCG1855/1910 | Wainwright | 7 | 300003350 | Monthly verification (System cal.) | | |
| 18 | Band reject filter WRCG2400/2483 | Wainwright | 11 | 300003351 | Monthly verification (System cal.) | | |
| 19 | Hochpassfilter WHK1.1/15G-10SS | Wainwright | 3 | 300003255 | Monthly verification (System cal.) | | |
| 20 | Hochpassfilter WHKX2.9/18G-12SS | Wainwright | 1 | 300003492 | Monthly verification (System cal.) | | |
| 21 | Hochpassfilter WHKX7.0/18G-8SS | Wainwright | 18 | 300003789 | Monthly verification (System cal.) | | |
| 22 | Switch / Control Unit 3488A | HP | 2605e08770 | 300001443 | n.a. | | |
| 23 | Trenntrafo RT5A | Grundig | 9242 | 300001263 | n.a. | | |
| 24 | Relais Matrix PSU | R&S | 890167/024 | 300001168 | n.a. | | |
| 25 | Netznachbildung ESH3-Z5 | R&S | 828576/020 | 300001210 | n.a. | | |

System Rack Room 005 :

| No | Equipment/Type | Manuf. | Serial Nr. | Inv. No. Cetecom | Last Calibration | Frequency (months) | Next Calibration |
|----|------------------|--------|-------------|------------------|------------------|--------------------|------------------|
| 1 | FSP 30 | R&S | 100886 | 300003575 | 25.08.2008 | 24 | 25.08.2010 |
| 2 | CBT | R&S | 100313 | 300003516 | 03.09.2008 | 24 | 03.09.2010 |
| 3 | Switch Matrix | HP | | 300000929 | n.a. | | |
| 4 | Power Supply | HP | 3041A00544 | 300002270 | 13.05.2007 | 36 | 13.05.2010 |
| 5 | Signal Generator | R&S | 836206/0092 | 300002680 | 30.05.2007 | 36 | 30.05.2010 |

Signalling Units:

| No | Equipment/Type | Manuf. | Serial Nr. | Inv. No. Cetecom | Last Calibration | Frequency (months) | Next Calibration |
|----|----------------|--------|-------------|------------------|------------------|--------------------|------------------|
| 1 | CBT | R&S | 100313 | 300003516 | 03.09.2008 | 24 | 03.09.2010 |
| 2 | CBT | R&S | 100185 | 300003416 | 27.08.2008 | 24 | 27.08.2010 |
| 3 | CMU-200 | R&S | 103992 | 300003231 | 04.06.2008 | 12 | 04.06.2009 |
| 4 | CMU-200 | R&S | 106240 | 300003321 | 27.08.2008 | 24 | 27.08.2010 |
| 5 | CMU-200 | R&S | 832221/0055 | 300002862 | 20.03.2008 | 24 | 20.03.2010 |

Climatic Box:

| No | Equipment/Type | Manuf. | Serial Nr. | Inv. No. Cetecom | Last Calibration | Frequency (months) | Next Calibration |
|----|--------------------------|----------------|----------------|------------------|------------------|--------------------|------------------|
| 1 | Climatic box VT 4002 | Heraeus Vötsch | 58566046820010 | 300003019 | 11.05.2009 | 24 | 11.05.2011 |
| 2 | Climatic box CTS T-40/50 | CTS | 064023 | 300003540 | 03.01.2009 | 24 | 03.01.2011 |

SRD Laboratory Room 002:

| No | Equipment/Type | Manuf. | Serial Nr. | Inv. No. Cetecom | Last Calibration | Frequency (months) | Next Calibration |
|----|---|----------------|----------------|------------------|---------------------------------|--------------------|------------------|
| 1 | System Controller PSM 12 | R&S | 835259/007 | 300002681-00xx | n.a. | | |
| 2 | Memory Extension PSM-K10 | R&S | To 1 | 300002681 | n.a. | | |
| 3 | Operating Software PSM-B2 | R&S | To 1 | 300002681 | n.a. | | |
| 4 | 19" Monitor | | 22759020-ED | 300002681 | n.a. | | |
| 5 | Mouse | | LZE 0095/6639 | 300002681 | n.a. | | |
| 6 | Keyboard | | G00013834L461 | 300002681 | n.a. | | |
| 7 | Spectrum Analyser FSIQ 26 | R&S | 835540/018 | 300002681-0005 | 10.01.2008 | 24 | 10.01.2010 |
| 8 | Tracking Generator FSIQ-B10 | R&S | 835107/015 | 300002681 | s.No.7 | | |
| 10 | RF-Generator SMIQ03 (B1 Signal) | R&S | 835541/056 | 300002681-0002 | 26.08.2008 | 36 | 26.08.2011 |
| 11 | Modulation Coder SMIQ-B20 | R&S | To 10 | 300002681 | s.No.10 | | |
| 12 | Data Generator SMIQ-B11 | R&S | To 10 | 300002681 | s.No.10 | | |
| 13 | RF Rear Connection SMIQ-B19 | R&S | To 10 | 300002681 | s.No.10 | | |
| 14 | Broadband horn antenna (1-18 GHz) | EMCO | 9107-3696 | 300001604 | 16.04.2008 | 24 | 16.04.2010 |
| 15 | Broadband horn antenna (1-18 GHz) | EMCO | 9107-3697 | 300001605 | 21.08.2008 | 24 | 21.08.2010 |
| 16 | Std gain horn antenna (18-26.5 GHz) | Narda | Model no. 638 | 300000486 | n.a. | | |
| 17 | Std gain horn antenna (18-26.5 GHz) | Narda | Model no. 638 | 300000487 | n.a. | | |
| 18 | Sleeve dipole antenna Model 3126-880 | ETS-Lindgren | 00040887 | 3000000 | n.a. | | |
| 19 | Fast CPU SM-B50 | R&S | To 10 | 300002681 | s.No.10 | | |
| 20 | FM Modulator SM-B5 | R&S | 835676/033 | 300002681 | s.No.10 | | |
| 21 | RF-Generator SMIQ03 (B2 Signal) | R&S | 835541/055 | 300002681-0001 | 25.08.2008 | 36 | 25.08.2011 |
| 22 | Modulation Coder SMIQ-B20 | R&S | To 21 | 300002681 | s.No.21 | | |
| 23 | Data Generator SMIQ-B11 | R&S | To 21 | 300002681 | s.No.21 | | |
| 24 | RF Rear Connection SMIQ-B19 | R&S | To 21 | 300002681 | s.No.21 | | |
| 25 | Fast CPU SM-B50 | R&S | To 21 | 300002681 | s.No.21 | | |
| 26 | FM Modulator SM-B5 | R&S | 836061/022 | 300002681 | s.No.21 | | |
| 27 | RF-Generator SMP03 (B3 Signal) | R&S | 835133/011 | 300002681-0003 | 26.08.2008 | 36 | 26.08.2011 |
| 28 | Attenuator SMP-B15 | R&S | 835136/014 | 300002681 | S.No.27 | | |
| 29 | RF Rear Connection SMP-B19 | R&S | 834745/007 | 300002681 | S.No.27 | | |
| 30 | Power Meter NRVD | R&S | 835430/044 | 300002681-0004 | 26.08.2008 | 24 | 26.08.2010 |
| 31 | Power Sensor NRVD-Z1 | R&S | 833894/012 | 300002681-0013 | 26.08.2008 | 24 | 26.08.2010 |
| 32 | Power Sensor NRVD-Z1 | R&S | 833894/011 | 300002681-0010 | 26.08.2008 | 24 | 26.08.2010 |
| 33 | Rubidium Standard RUB | R&S | | 300002681-0009 | 27.08.2008 | 24 | 27.08.2010 |
| 34 | Switching and Signal Conditioning Unit SSCU | R&S | 338864/003 | 300002681-0006 | Verified with path compensation | | |
| 35 | Laser Printer HP Deskjet 2100 | HP | N/A | 300002681-0011 | n.a. | | |
| 36 | 19" Rack | R&S | 11138363000004 | 300002681 | n.a. | | |
| 37 | RF-cable set | R&S | N/A | 300002681 | n.a. | | |
| 39 | IEEE-cables | R&S | N/A | 300002681 | n.a. | | |
| 40 | Sampling System FSIQ-B70 | R&S | 835355/009 | 300002681 | s.No.7 | | |
| 41 | RSP programmable attenuator | R&S | 834500/010 | 300002681-0007 | 26.08.2008 | 24 | 26.08.2010 |
| 42 | Signalling Unit | R&S | 838312/011 | 300002681 | n.a. | | |
| 43 | NGPE programmable Power Supply for EUT | R&S | 192.033.41 | 300002681 | | | |
| 44 | Power Splitter 6005-3 | Inmet Corp. | none | 300002841 | n.a. | | |
| 45 | SMA Cables SPS-1151-985-SPS | Insulated Wire | different | different | n.a. | | |
| 46 | CBT32 with EDR Signaling Unit | R&S | | | | | |

| | | | | | | | |
|----|---------------------|-------|------------|-----------|------|--|--|
| 47 | Coupling unit | Narda | N/A | -- | n.a. | | |
| 48 | 2xSwitch Matrix PSU | R&S | 872584/021 | 300001329 | n.a. | | |
| 49 | RF-cable set | R&S | N/A | different | n.a. | | |
| 50 | IEEE-cables | R&S | N/A | -- | n.a. | | |

Note: 3000002681-00xx inventoried as a system

SRD Laboratory Room 005:

| No | Equipment/Type | Manuf. | Serial Nr. | Inv. No. Cetecom | Last Calibration | Frequency (months) | Next Calibration |
|----|----------------------------------|--------|------------|------------------|------------------|--------------------|------------------|
| 1 | Spektrum Analyzer 8566B | HP | 2747A05275 | 300000219 | 18.01.2008 | 24 | 18.01.2010 |
| 2 | Spektrum Analyzer Display 85662A | HP | 2816A16497 | 300001690 | 23.01.2008 | 24 | 23.01.2010 |
| 3 | Quasi-Peak-Adapter 85650A | HP | 2811A01135 | 300000216 | 23.01.2008 | 24 | 23.01.2010 |
| 4 | Power Supply | Heiden | 003202 | 300001187 | 12.05.2007 | 36 | 12.05.2010 |
| 5 | Power Supply | Heiden | 1701 | 300001392 | 12.05.2007 | 36 | 12.05.2010 |

SRD Laboratory Room 011:

| No | Equipment/Type | Manuf. | Serial Nr. | Inv. No. Cetecom | Last Calibration | Frequency (months) | Next Calibration |
|----|-----------------|--------|------------|------------------|------------------|--------------------|------------------|
| 1 | NRP Power Meter | R&S | 100212 | 300003780 | 27.02.2008 | 24 | 27.02.2010 |

Anechoic chamber F:

| No | Equipment/Type | Manuf. | Serial Nr. | Inv. No. Cetecom | Last Calibration | Frequency (months) | Next Calibration |
|----|---|--------------------------|------------|------------------|------------------|--------------------|------------------|
| 1 | Control Computer | F+W | FW0502032 | 300003303 | -/- | -/- | -/- |
| 2 | Trilog Antenna VULB 9163 | Schwarzbeck | 295 | 300003787 | 01.04.2008 | 24 | 01.04.2010 |
| 3 | Amplifier - 0518C-138 | Veritech Micro-wave Inc. | -/- | -/- | -/- | -/- | -/- |
| 4 | Switch - 3488A | HP | | 300000368 | -/- | -/- | -/- |
| 5 | EMI Test receiver - ESCI | R&S | 100083 | 300003312 | 31.01.2007 | 24 | 31.01.2009 |
| 6 | Turntable Controller - 1061 3M | EMCO | 1218 | 300000661 | -/- | -/- | -/- |
| 7 | Tower Controller 1051 Controller | EMCO | 1262 | 300000625 | -/- | -/- | -/- |
| 8 | Tower - 1051 | EMCO | 1262 | 300000625 | -/- | -/- | -/- |
| 10 | Ultra Notch-Filter Rejected band Ch. 62 | WRCD | 9 | -/- | -/- | -/- | -/- |

C.BER Bluetooth Rack Room AC2:

| No | Equipment/Type | Manuf. | Inv. No. Cetecom | Last Calibration | Frequency (months) | Next Calibration |
|----|--|-----------|------------------|---------------------------------|--------------------|------------------|
| 1 | System Controller with XP Prof. & C.BER Control Software | F&W | 300003580 | na | | |
| 2 | GPIO to USB Converter | Agilent | 300003426 | na | | |
| 3 | Spectrum Analyser FSIQ26 | R&S | 300002681-005 | 10.01.2008 | 24 | 10.01.2010 |
| | Sampling System FSIQ-B70 | R&S | 300002681-005 | s.No.3 | | |
| | Tracking Generator FSIQ-B10 for FSIQ26 | R&S | 300002681-005 | s.No.3 | | |
| 4 | RF-Generator SMIQ03 (Interferer Signal) | R&S | 300002681-001 | 25.08.2008 | 36 | 25.08.2011 |
| | Modulation Coder SMIQ-B20 | R&S | 300002681-001 | s.No.4 | | |
| | Data Generator SMIQ-B11 | R&S | 300002681-001 | s.No.4 | | |
| | RF Rear Connection SMIQ-B19 | R&S | 300002681-001 | s.No.4 | | |
| | Fast CPU SM-B50 | R&S | 300002681-001 | s.No.4 | | |
| | FM Modulator SM-B5 | R&S | 300002681-001 | s.No.4 | | |
| 5 | Rubidium Standard RUB | R&S | 300002681-009 | 27.08.2008 | 24 | 27.08.2010 |
| 6 | Switching Unit 3488A including 2 44476A cards | HP | 300000926 | Verified with path compensation | | |
| | 44472A VHF switch | HP | 300000926 | Verified with path compensation | | |
| 7 | Signalling Unit: CBT with EDR | R&S | 300003416 | 27.08.2008 | 24 | 27.08.2010 |
| 8 | RF-cable set | different | no | Verified with path compensation | | |
| 9 | IEEE-cables | R&S | no | na | | |
| 10 | NGPE programmable Power Supply for EUT | R&S | 400000078 | 27.08.2008 | 24 | 27.08.2010 |
| 11 | Coupling Unit 4324-2 | Narda | no | Verified with path compensation | | |
| 12 | Climatic Chamber VT4002 | Voetch | 300003019 | 11.05.2007 | 24 | 11.05.2009 |
| 13 | 6 dB Attenuator 1W | Narda | no | Verified with path compensation | | |
| 14 | DC Blocker 30 MHz to 12.75 GHz 1W | Narda | no | Verified with path compensation | | |

Test laboratory 011:

| No | Equipment/Type | Manuf. | Serial Nr. | Inv. No. Cetecom | Last Calibration | Frequency (months) | Next Calibration |
|----|--------------------------|----------------|------------|------------------|---------------------|--------------------|------------------|
| 1 | Climatic box VUK 04/500 | Heraeus Vötsch | 32678 | 300000297 | 29.07.2008 | 24 | 27.07.2010 |
| 2 | Spectrum Analyser 8565E | HP | 3738A00773 | 300001665 | 08.01.2010 | 24 | 08.01.2010 |
| 3 | Spectrum Analyser FSU 50 | R&S | 200012 | 300003443 | 05.06.2008 | 24 | 05.06.2010 |
| 4 | SGH 12 ... 18 GHz | narda | 01005 | 300000787 | cyclic verification | | |
| 5 | SGH 18 ... 27 GHz | narda | 01005 | 300000487 | cyclic verification | | |
| 6 | SGH 27 ... 40 GHz | narda | 82016 | 300000510 | cyclic verification | | |
| 7 | SGH 33 ...50 GHz | Thomson | | 300000812 | cyclic verification | | |
| 8 | Adapter WG/SMA | narda | 64088 | -/- | cyclic verification | | |
| 9 | Adapter WG/SMA | flann | 213 | -/- | cyclic verification | | |
| 10 | Adapter WG/SMA | HP | 00231 | -/- | cyclic verification | | |
| 11 | SGH 50 ... 75GHz | Thomson | -/- | 300000813 | cyclic verification | | |
| 12 | Mixer 50 ... 75 GHz | HP | -/- | 30000781m | 07.08.2007 | 24 | 07.08.2009 |
| 13 | SGH 75 ... 110 GHz | Thomson | -/- | 30000798b | cyclic verification | | |
| 14 | Mixer 75 ... 110 GHz | HP | -/- | 30000781c | 07.08.2007 | 24 | 07.08.2009 |
| 15 | SGH 110 ... 170 GHz | Flann | -/- | 300001999 | cyclic verification | | |
| 16 | Mixer 110 ... 170 GHz | Tektronix | B010186 | 300001685d | cyclic verification | | |
| 17 | SGH 170 ... 325 GHz | Flann | -/- | 300002000 | cyclic verification | | |
| 18 | Mixer 170 ... 325 GHz | Tektronix | B010241 | 300001685j | cyclic verification | | |