



Accredited testing-laboratory

DAR registration number: DGA-PL-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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Test report no. : 1-1954-11-04/10
Type identification : AAD-3880077-BV
Applicant : Sony Ericsson Mobile Communications AB
FCC ID : PY7A3880077
IC Certification No : 4170B-A3880077
Test standards : 47 CFR Part 15
RSS - 210 Issue 7

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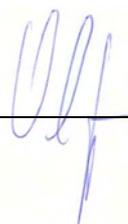
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1 General information

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:

2010-03-29	Joerg Warken	Signature	
Date	Name	Signature	

2010-03-29	Marco Bertolino	Signature	
Date	Name	Signature	

Technical responsibility for area of testing:

2010-03-29	Stefan Bös	Signature	
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: DGA-PL-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:	Nya Vattentornet
Town:	22188 Lund
Country:	Sweden
Telephone:	+46-46-19-3000
Fax:	+46 (0) 46 19 32 95
Contact:	Johan Wedin
E-mail:	johan.wedin@sonyericsson.com
Telephone:	+46 (0) 707 19 57 36

1.4 Application details

Date of receipt of order:	2010-03-02
Date of receipt of test item:	2010-03-15
Date of start test:	2010-03-15
Date of end test:	2010-03-26
Persons(s) who have been present during the test:	-/-

2 Test standard/s

47 CFR Part 15	2009-10	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:	Nya Vattentornet
Town:	22188 Lund
Country:	Sweden

3.1.1 Test item

Kind of test item :	Mobile Phone GSM 850/900/1800/1900, UMTS FDD1/FDD8 /HSDPA / HSUPA, BT2.0+EDR, GPS, FM-Rx, WLan
Type identification :	AAD-3880077-BV
S/N serial number :	Radiated: BX9019REQS BX9019REMH Conducted: BX9019NETJ BX9019LXNC
HW hardware status :	AP1
SW software status :	R2AA025V ATP
Frequency Band [MHz] :	ISM band 2.400 - 2.483,5 MHz (channel 00 – 2402 MHz; channel 78 - 2480 MHz)
Type of Modulation :	FHSS – GFSK; Pi/4 DQPSK; 8DPSK
Number of channels :	79
Antenna :	Integrated antenna → for more information, please take a look at sub clause 8 – photos of the EUT
Power Supply :	4.0 V DC by power supply / battery + charger
Temperature Range :	-20 °C to +55 °C

Max. power radiated: 6.38 dBm (8 DPSK modulation)

Max. power conducted: 8.08 dBm (8 DPSK modulation)

FCC ID: PY7A3880077

IC: 4170B-A3880077

3.1.2 Additional EUT information For IC Canada (appendix 2)

IC Registration Number:	4170B-A3880077
Model Name:	AAD-3880077-BV
Manufacturer (complete Address):	Sony Ericsson Mobile Communications AB Nya Vattentorget 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 2.400 - 2.483,5 (channel 00 – 2402 MHz; channel 78 – 2480 MHz)
RF: Power [W] (max):	<u>GFSK modulation:</u> Rad. EIRP: 3.75 mW Conducted : 5.74 mW <u>Pi/4 DQPSK modulation:</u> Rad. EIRP: 4.21 mW Conducted : 6.22 mW <u>8 DPSK:</u> Rad. EIRP: 4.35 mW Conducted : 6.43 mW
Antenna Type:	Integrated antenna → for more information, please take a look at sub clause 8 – photos of the EUT
Occupied Bandwidth (99% BW) [kHz]:	GFSK modulation: 920 Pi/4 DQPSK modulation: 1317 8 DPSK: 1269
Type of Modulation:	GFSK, Pi/4 DQPSK, 8 DPSK
Emission Designator (TRC-43):	GFSK modulation: 920KFXD Pi/4 DQPSK modulation: 1M32GXD 8 DPSK: 1M27GXD
Transmitter Spurious (worst case) [dBμV/m in 3m]:	48.28
Receiver Spurious (worst case) [dBμV/m in 3m]:	48.21

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: Joerg Warken

Date: 2010-03-29

3.1.3 Extreme conditions testing values

Description	Shortcut	Unit	Value
Nominal Temperature	T _{nom}	°C	20
Nominal Humidity	H _{nom}	%	40
Nominal Power Source	V _{nom}	V	4.0

Type of power source: **DC by power supply / battery + charger**

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	2010-03-29	-/-

Test Specification Clause	Test Case	Modulation	Pass	Fail	N/A	Not performed
None	Antenna Gain	GFSK	Yes			
§15.247(a1)	Carrier frequency separation	GFSK	Yes			
§15.247(a1)	Number of hopping channels	GFSK	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)	-/-	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.

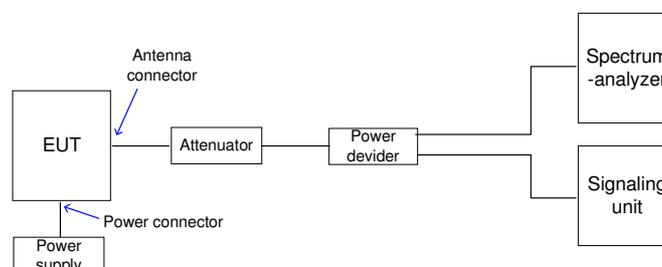
- 9 kHz - 150 kHz: Quasi Peak measurement, 200 Hz Bandwidth, active loop antenna.
- 150 kHz - 30 MHz: Quasi Peak measurement, 9 kHz Bandwidth, active loop antenna.
- 30 MHz - 1GHz: Quasi Peak measurement, 120 kHz Bandwidth, tri-log antenna
- >1GHz: Average, RBW 1MHz, VBW 10 Hz, waveguide horn

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

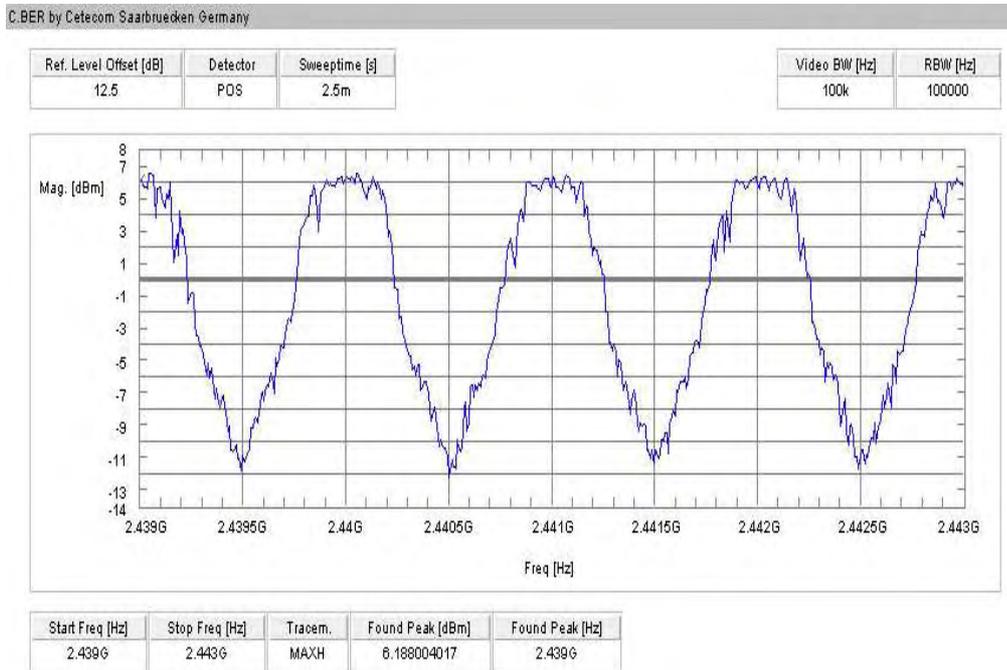
The antenna gain of the complete system is calculated by the difference of radiated power in EIRP and the conducted power of the module.

	low channel 2402 MHz	mid channel 2441 MHz	high channel 2480 MHz
Conducted power [dBm] Measured, GFSK modulation	6.96	7.59	7.11
Radiated power [dBm] Measured, GFSK modulation	5.23	5.89	5.40
Gain [dBi] Calculated	-1.73	-1.70	-1.65

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

Modulation: GFSK

Plot 1 of 1:



Result: Channel separation is: ~ 1 MHz

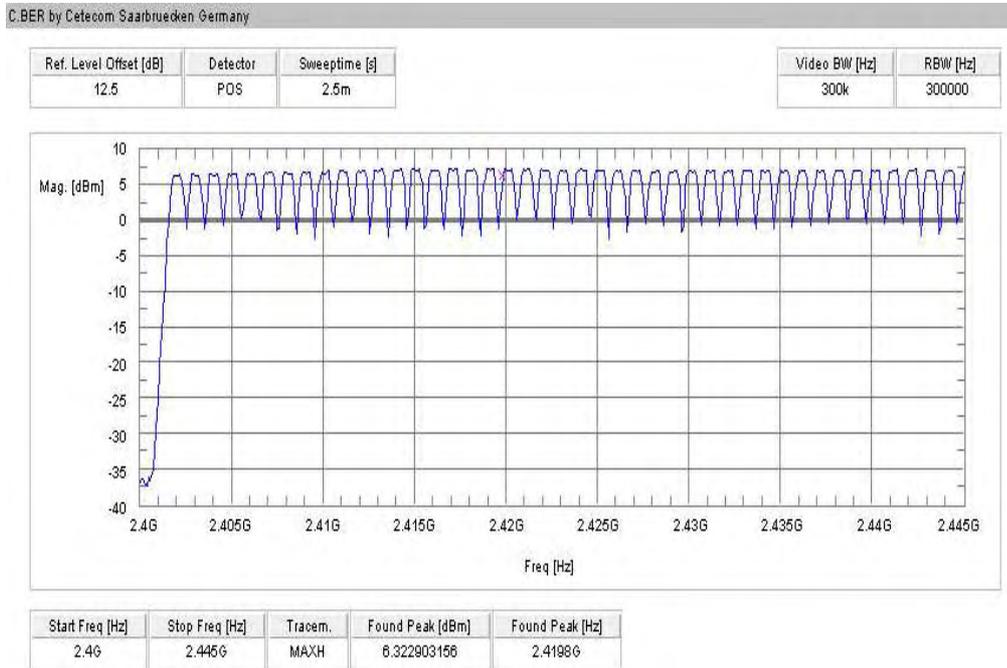
Limits:

Under normal test conditions only	Minimum 25 kHz or 20 dB Bandwidth of the hopping system
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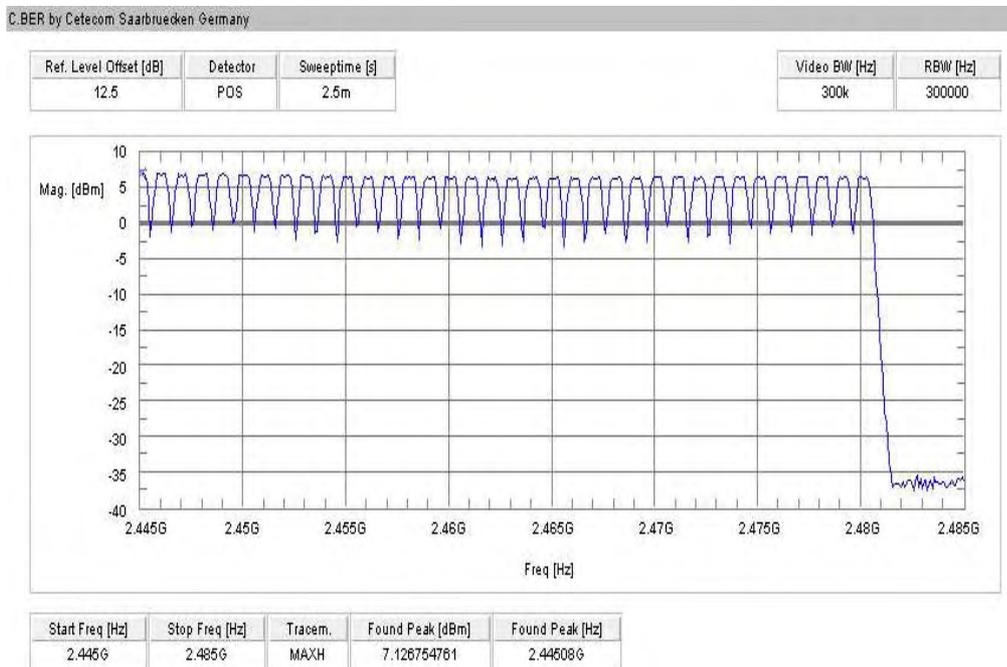
5.6 Number of hopping channels §15.247(a)(1)

Modulation: GFSK

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
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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:

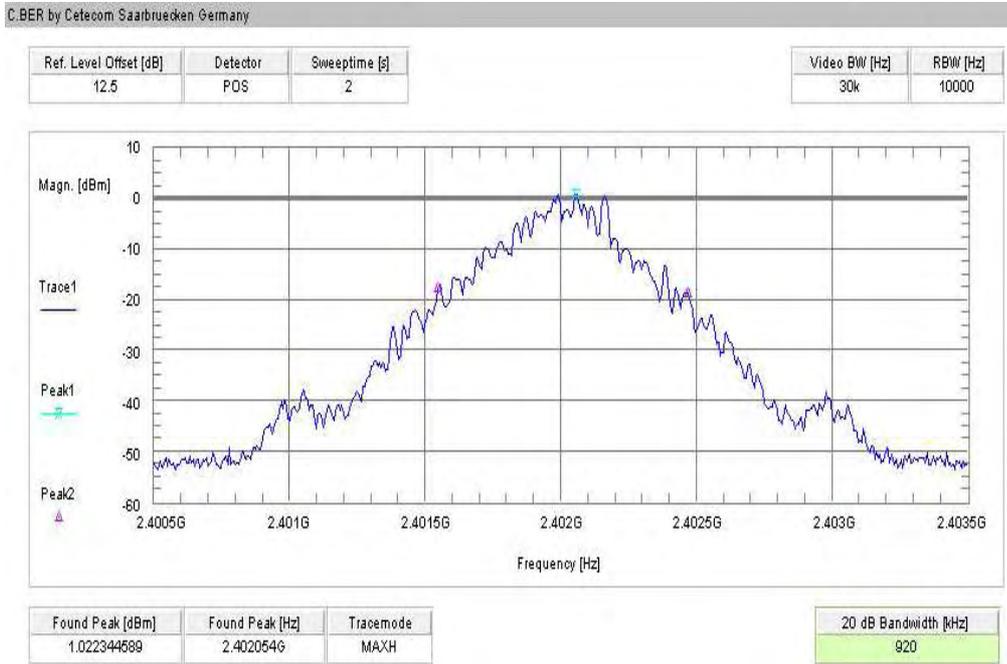
Result: Power density: - dBm/Hz = - dBm / 3 kHz
Correction factor from dBm/Hz to dBm / 3 kHz is +34.8 dB

Limits:

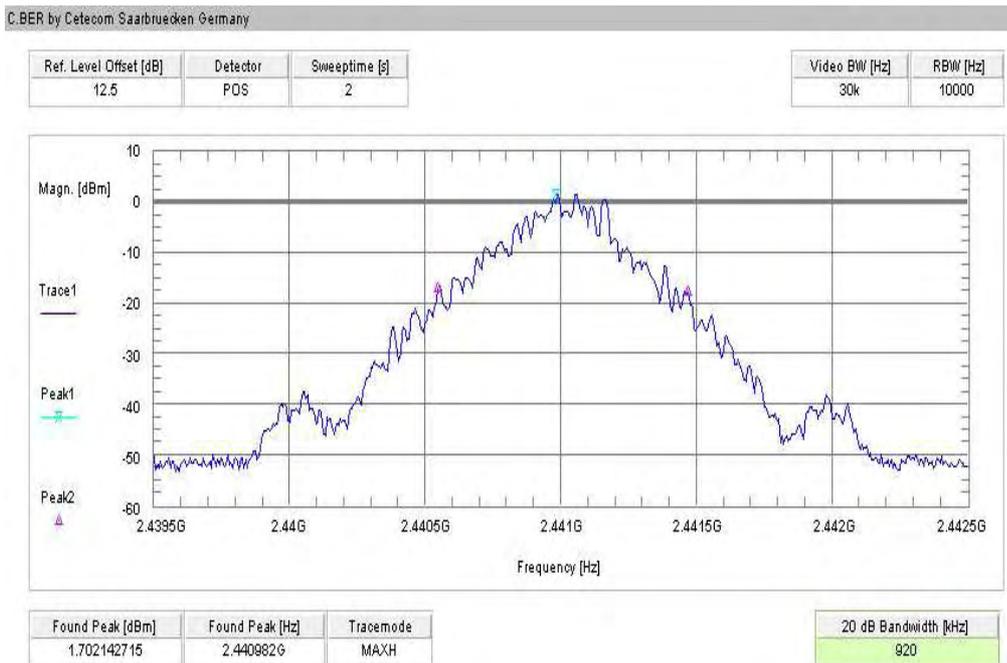
Under normal test conditions only	For digitally modulated systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission
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5.9 Spectrum Bandwidth of a FHSS System / 20dB Bandwidth §15.247(a)(1)

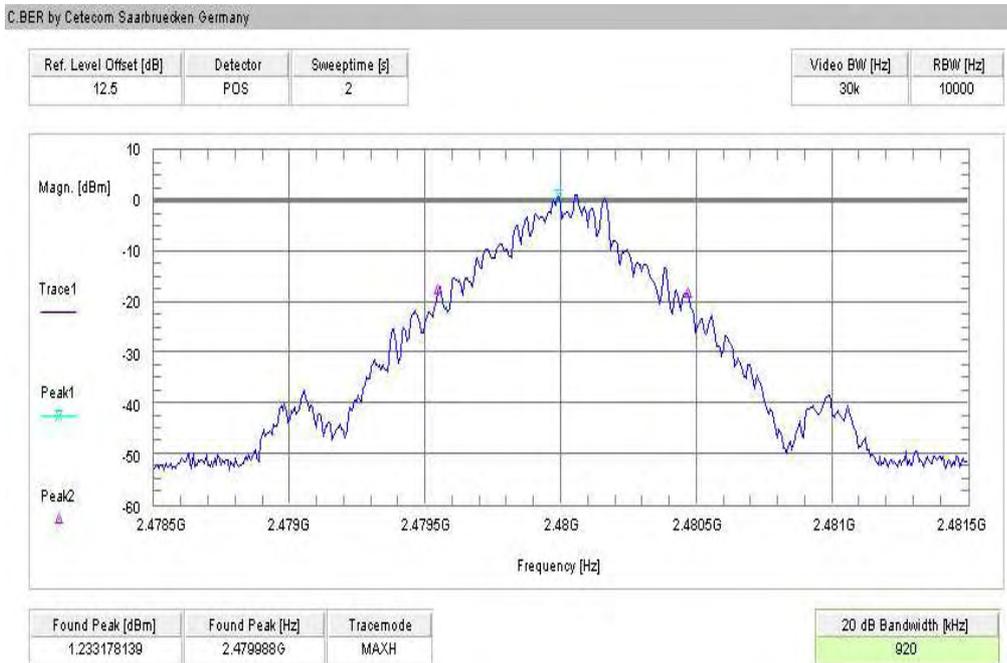
Plot 1: GFSK, channel 00 – 2402 MHz



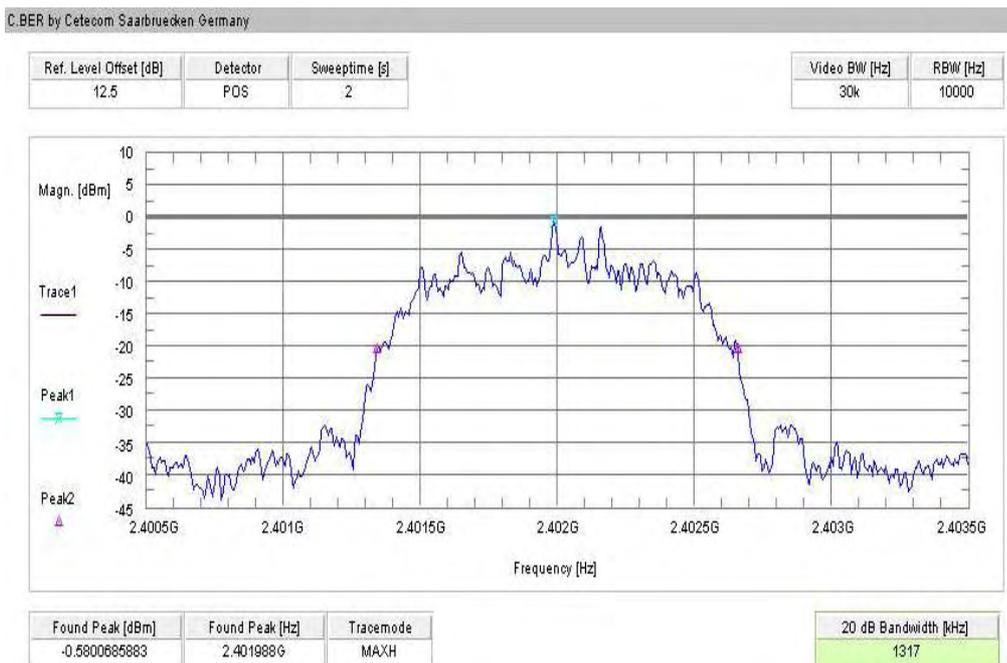
Plot 2: GFSK, channel 39 – 2441 MHz



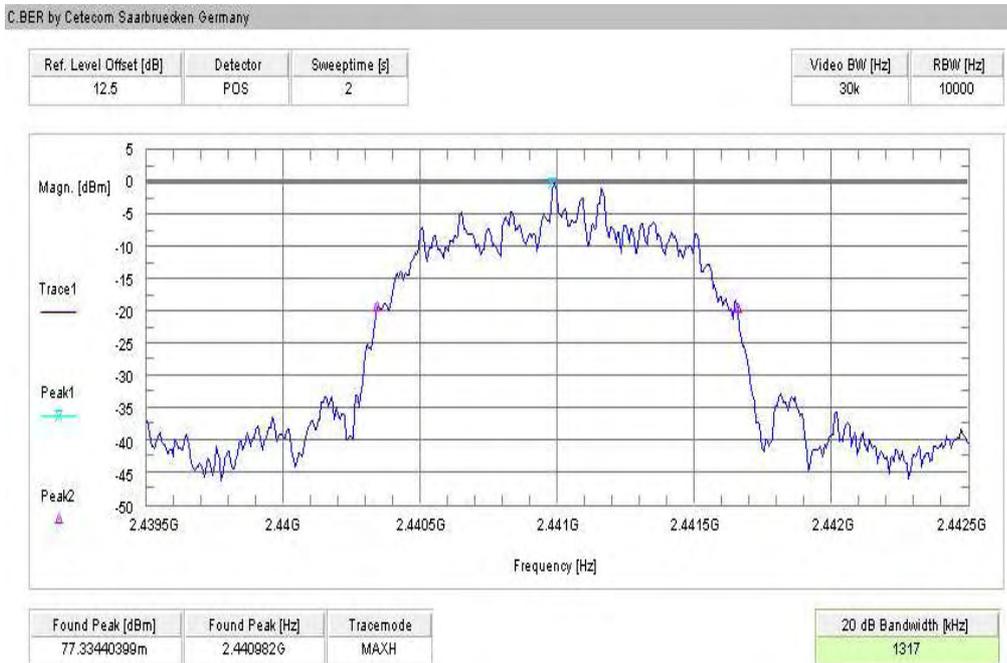
Plot 3: GFSK, channel 78 – 2480 MHz



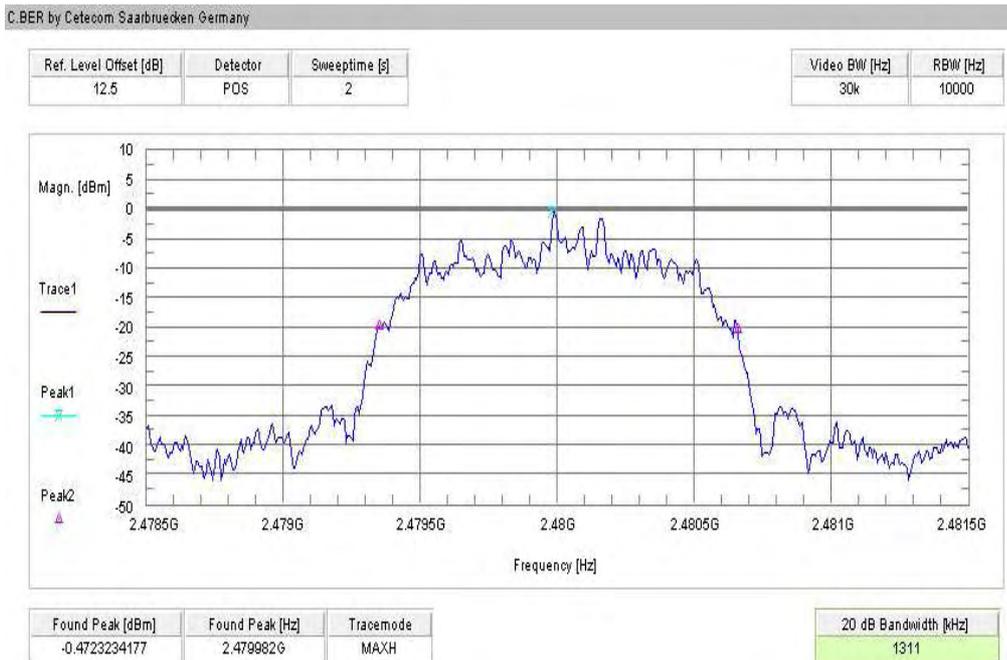
Plot 4: Pi/4 DQPSK, channel 00 – 2402 MHz



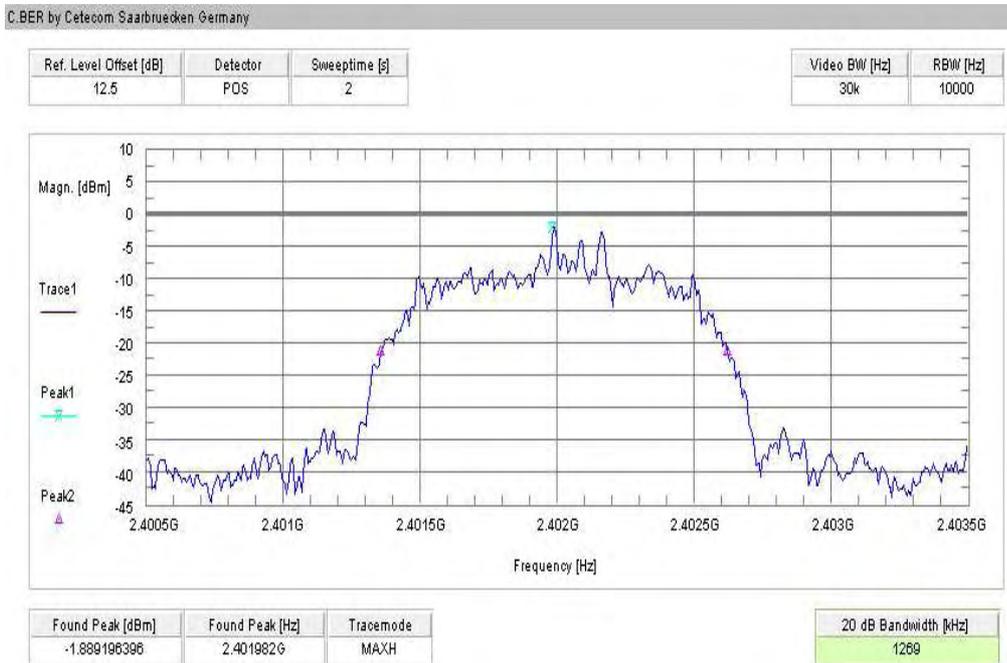
Plot 5: Pi/4 DQPSK, channel 39 – 2441 MHz



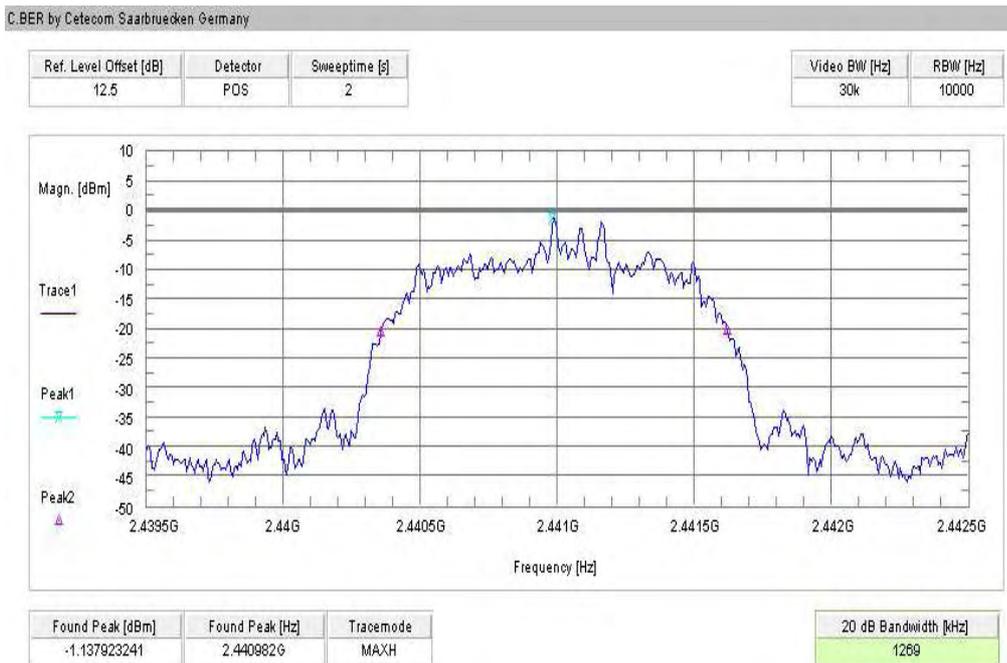
Plot 6: Pi/4 DQPSK, channel 78 – 2480 MHz



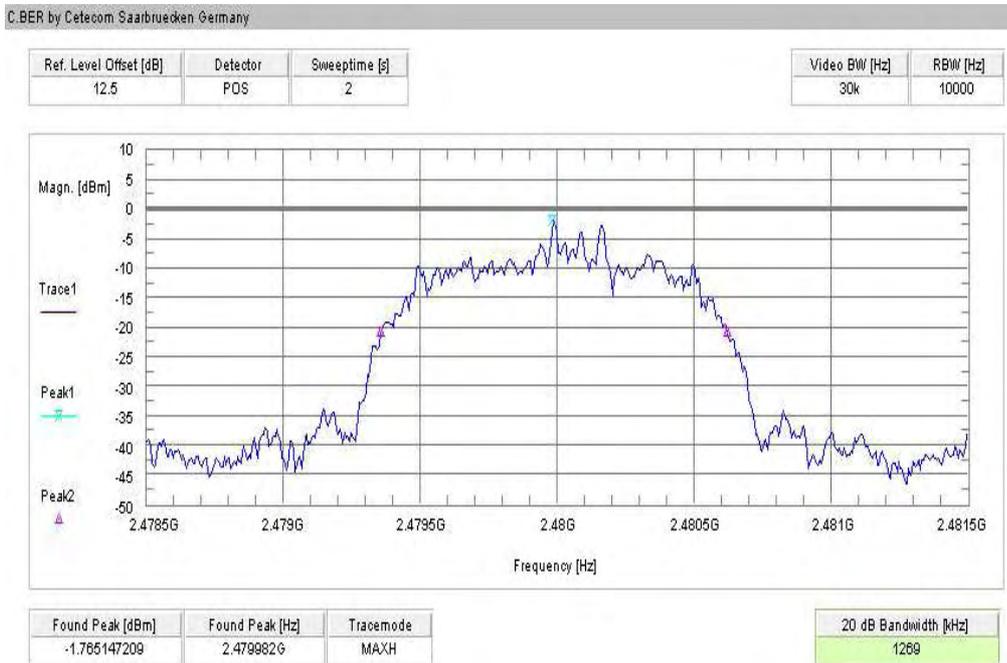
Plot 7: 8DPSK, channel 00 – 2402 MHz



Plot 8: 8DPSK, channel 39 – 2441 MHz



Plot 9: 8DPSK, channel 78 – 2480 MHz



Results:

Modulation	20 dB BANDWIDTH [kHz]		
	2402	2441	2480
Frequency [MHz]			
GFSK	920	920	920
Pi/4 DQPSK	1317	1317	1311
8DPSK	1269	1269	1269
Measurement uncertainty	±10kHz		

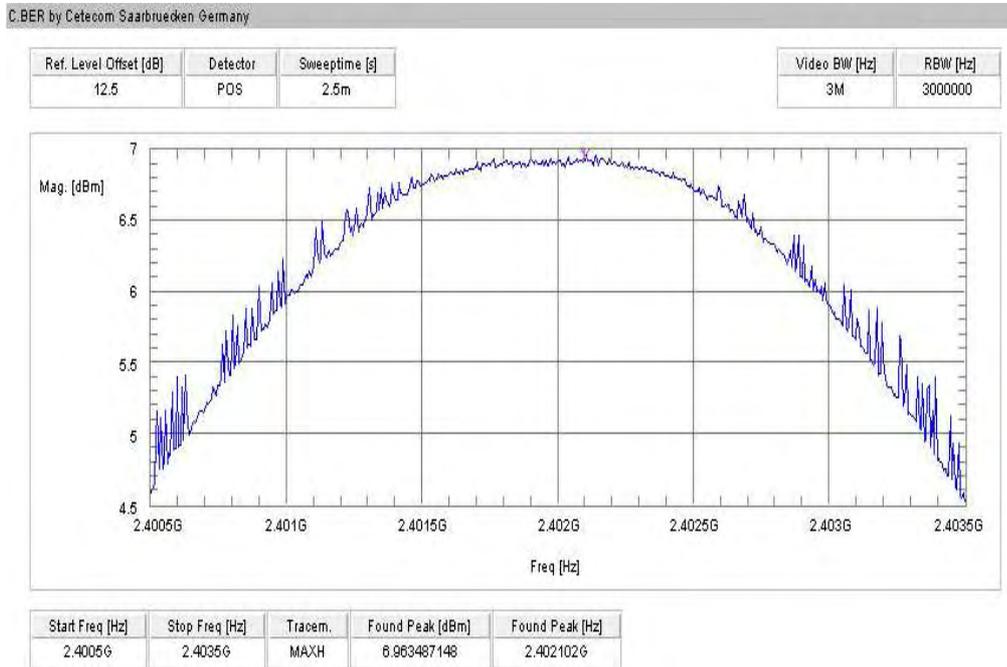
RBW / VBW as provided in the „Measurement Guidelines“ (DA 00-705, March 30, 2000)
 RBW: 10 kHz / VBW 10 kHz

Limits:

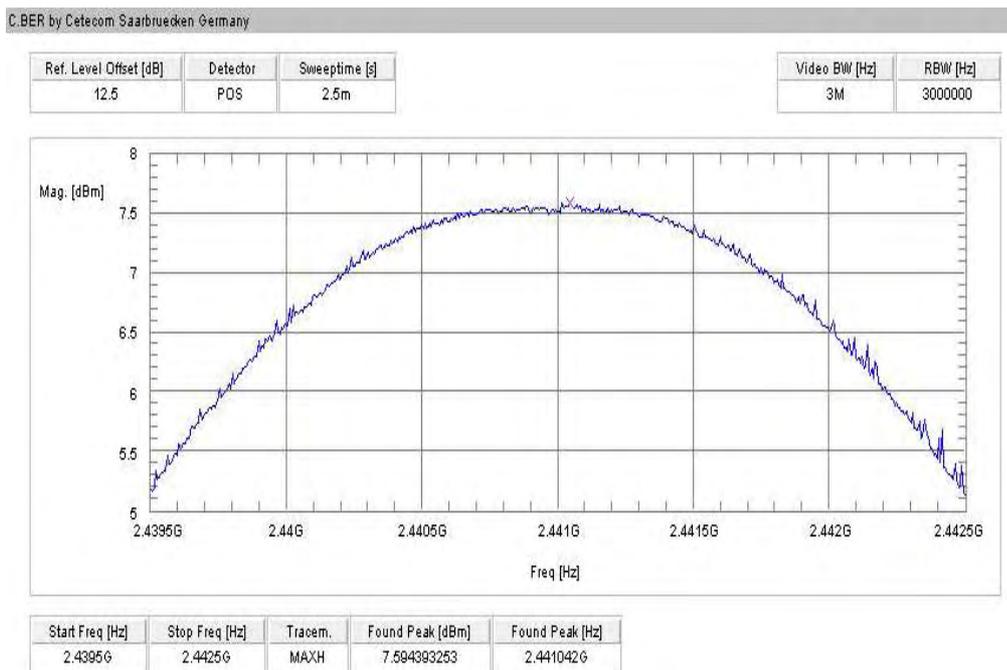
Under normal test conditions only	GFSK < 1000 kHz Pi/4 DQPSK < 1500 kHz 8DPSK < 1500 kHz
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5.10 Maximum output power (conducted) § 15.247 (b)(1)

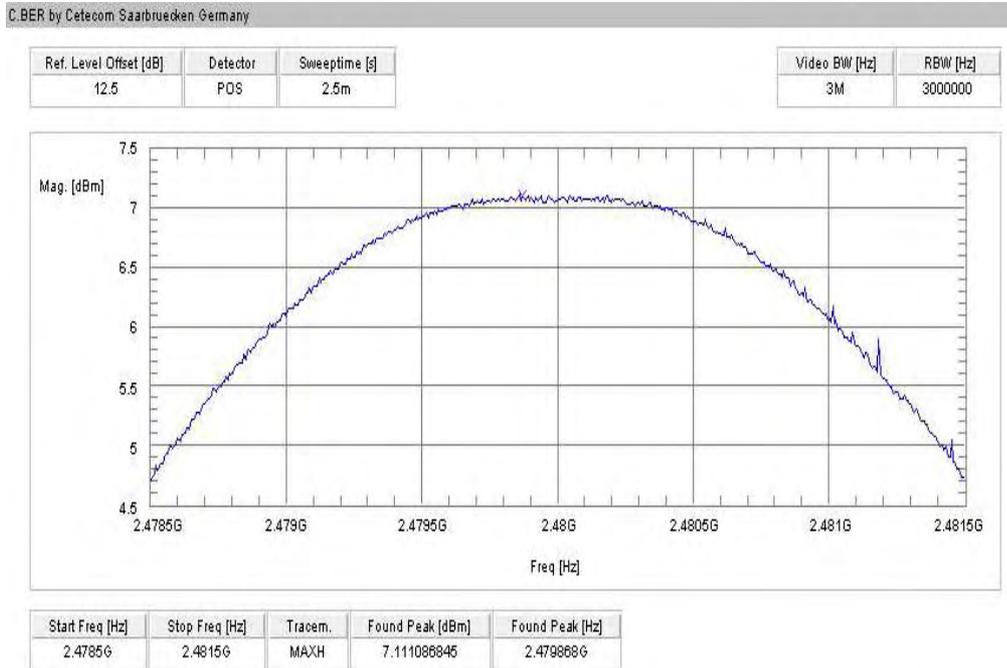
Plot 1: GFSK, channel 00 – 2402 MHz



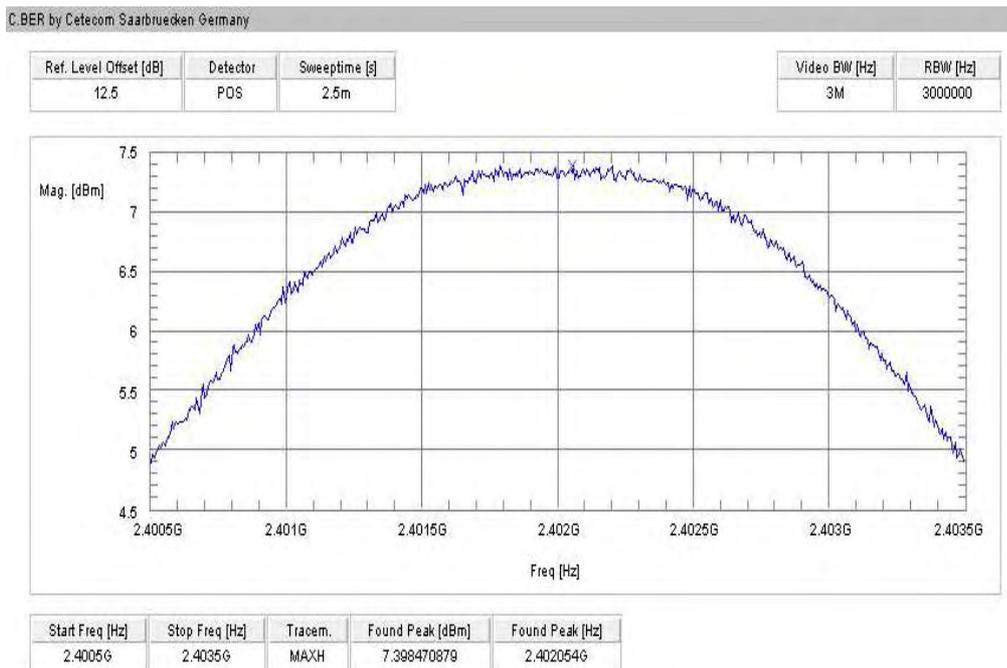
Plot 2: GFSK, channel 39 – 2441 MHz



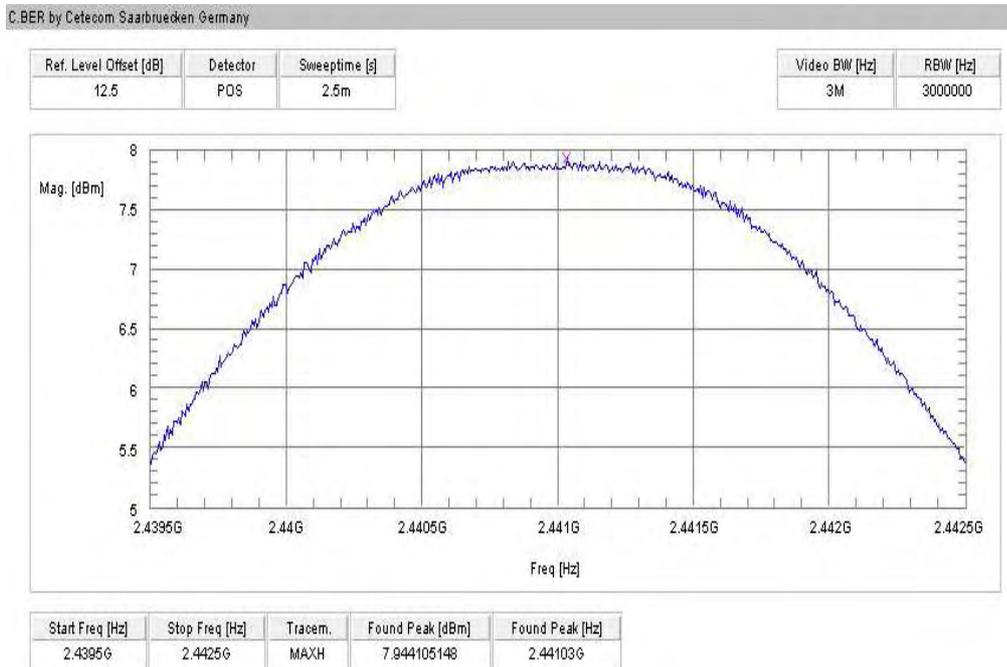
Plot 3: GFSK, channel 78 – 2480 MHz



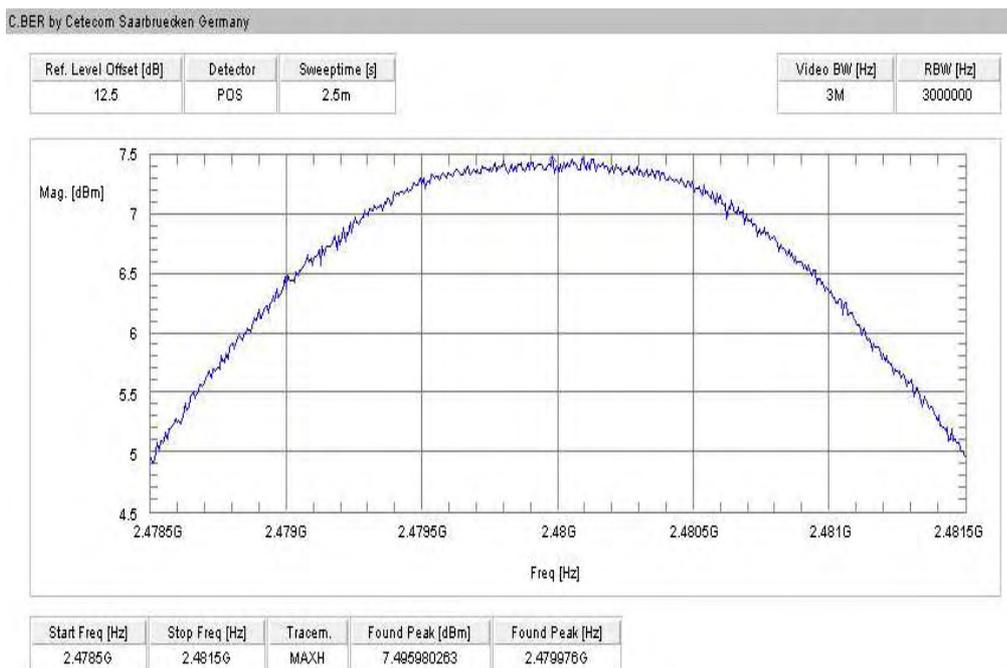
Plot 4: Pi/4 DQPSK, channel 00 – 2402 MHz



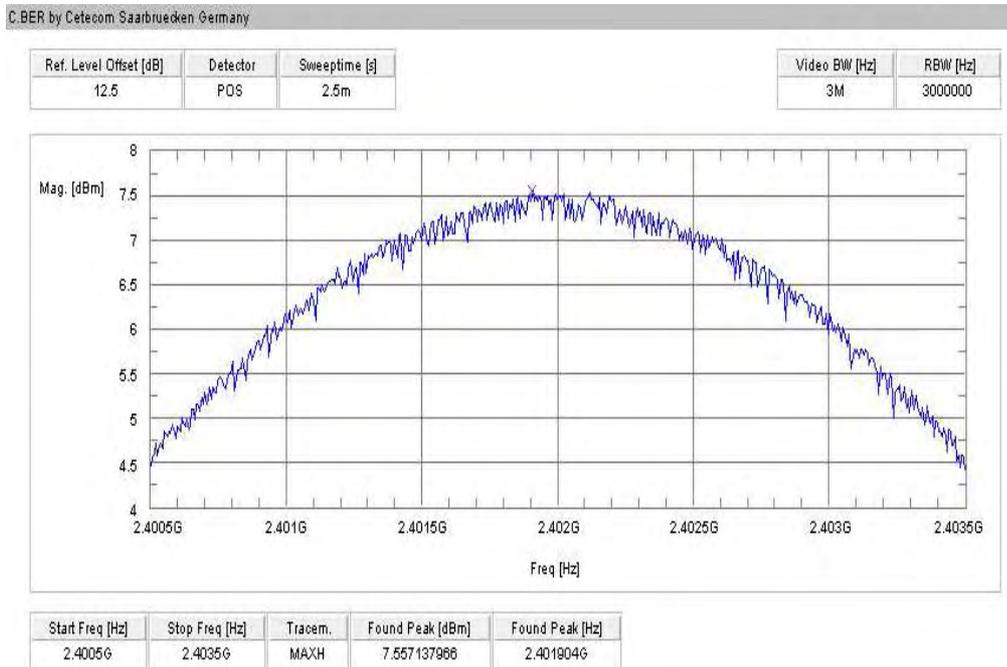
Plot 5: Pi/4 DQPSK, channel 39 – 2441 MHz



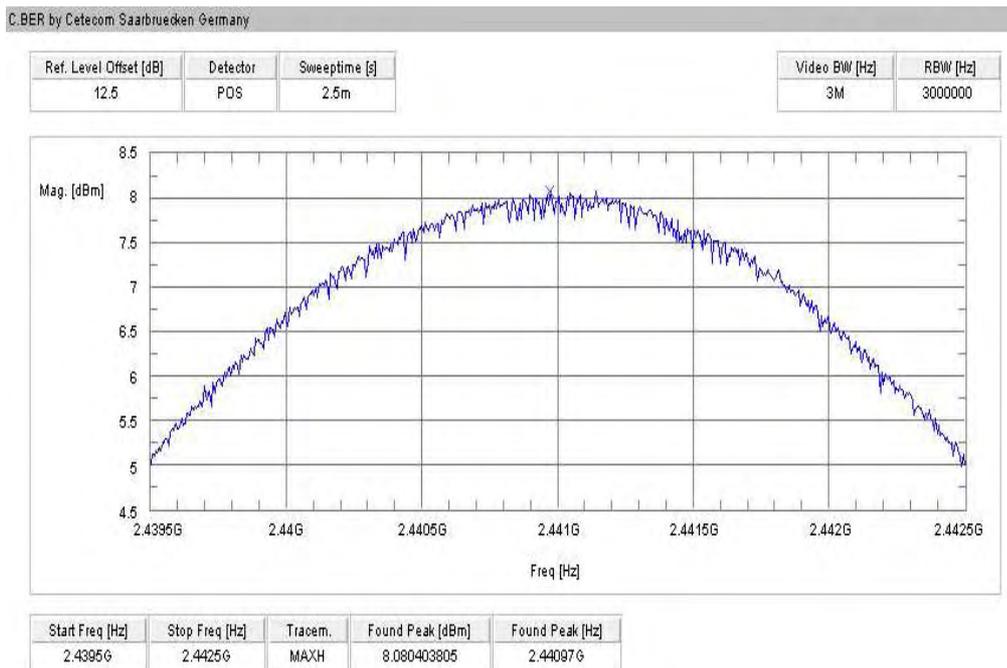
Plot 6: Pi/4 DQPSK, channel 78 – 2480 MHz



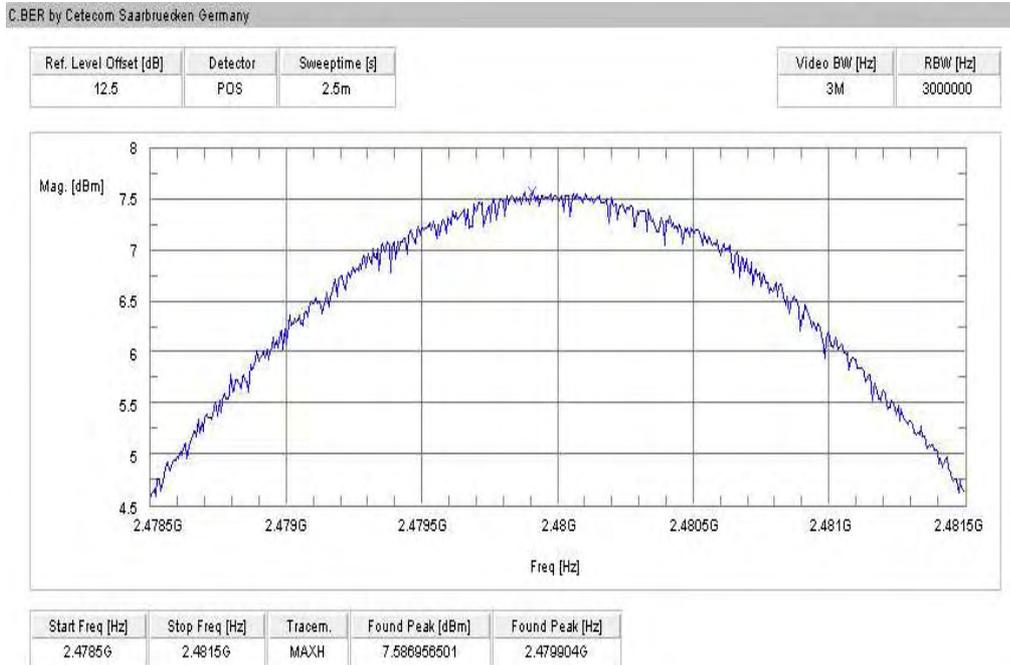
Plot 7: 8DPSK, channel 00 – 2402 MHz



Plot 8: 8DPSK, channel 39 – 2441 MHz



Plot 9: 8DPSK, channel 78 – 2480 MHz



Results: positive peak power (measured with R&S FSP30)

Modulation Frequency [MHz]	Max. peak output power [dBm]		
	2402	2441	2480
<i>GFSK</i>	6.96	7.59	7.11
<i>Pi/4 DQPSK</i>	7.40	7.94	7.50
<i>8DPSK</i>	7.56	8.08	7.59
Measurement uncertainty	±2dB		

RBW / VBW: 3 MHz

Results: average power (measured with R&S NRP power meter)

Modulation Frequency [MHz]	Max. peak output power [dBm]		
	2402	2441	2480
<i>GFSK</i>	3.9	4.0	3.8
<i>Pi/4 DQPSK</i>	1.9	1.8	1.7
<i>8DPSK</i>	0.7	0.9	0.6
Measurement uncertainty	±2dB		

(Test configuration: DH5; 2-DH5; 3-DH5; average mode auto)

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: positive peak power (measured with R&S FSP30)

Test conditions		Max. peak output power EIRP [dBm]		
Frequency [MHz]		2402	2442	2480
T _{nom}	V _{nom}	523	5.89	5.40
Measurement uncertainty		±3dB		

Modulation: Pi/4 DQPSK

Results: positive peak power (measured with R&S FSP30)

Test conditions		Max. peak output power EIRP [dBm]		
Frequency [MHz]		2402	2442	2480
T _{nom}	V _{nom}	5.67	6.24	5.85
Measurement uncertainty		±3dB		

Modulation: 8 DPSK

Results: positive peak power (measured with R&S FSP30)

Test conditions		Max. peak output power EIRP [dBm]		
Frequency [MHz]		2402	2442	2480
T _{nom}	V _{nom}	5.83	6.38	5.94
Measurement uncertainty		±3dB		

RBW / VBW: 3 MHz

Measured at a distance of 3m

Limits:

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

Modulation: GFSK

Results: average power (calculated with the antenna gain)

Test conditions		Max. peak output power EIRP [dBm]		
		2402	2442	2480
Frequency [MHz]				
T _{nom}	V _{nom}	2.17	2.30	2.15
Measurement uncertainty		±3dB		

Modulation: Pi/4 DQPSK

Results: average power (calculated with the antenna gain)

Test conditions		Max. peak output power EIRP [dBm]		
		2402	2442	2480
Frequency [MHz]				
T _{nom}	V _{nom}	0.17	0.10	0.05
Measurement uncertainty		±3dB		

Modulation: 8 DPSK

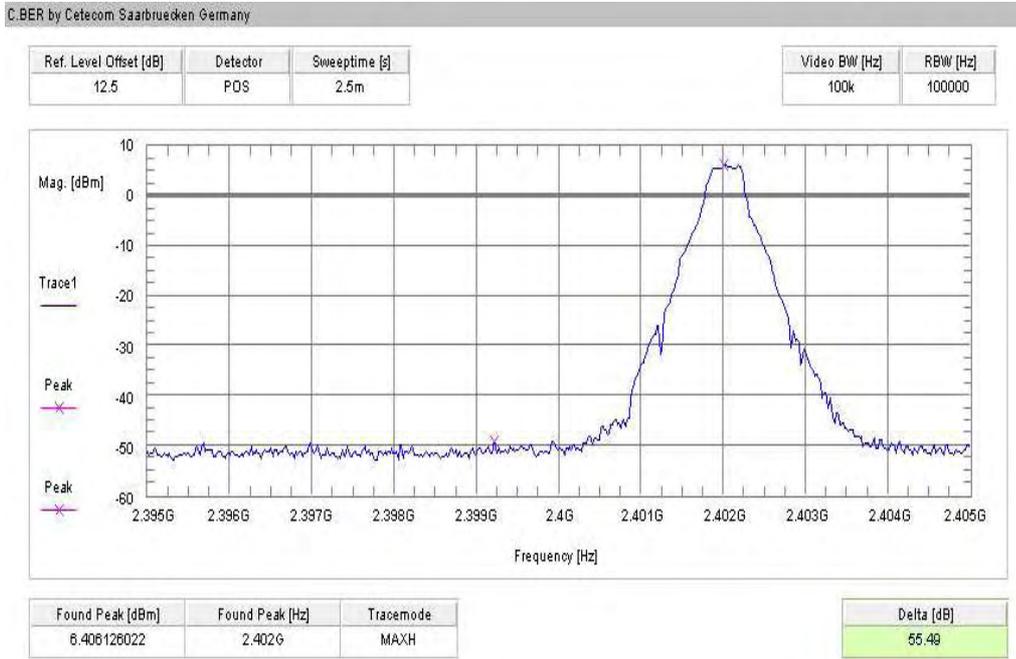
Results: average power (calculated with the antenna gain)

Test conditions		Max. peak output power EIRP [dBm]		
		2402	2442	2480
Frequency [MHz]				
T _{nom}	V _{nom}	-1.03	-0.80	-1.05
Measurement uncertainty		±3dB		

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

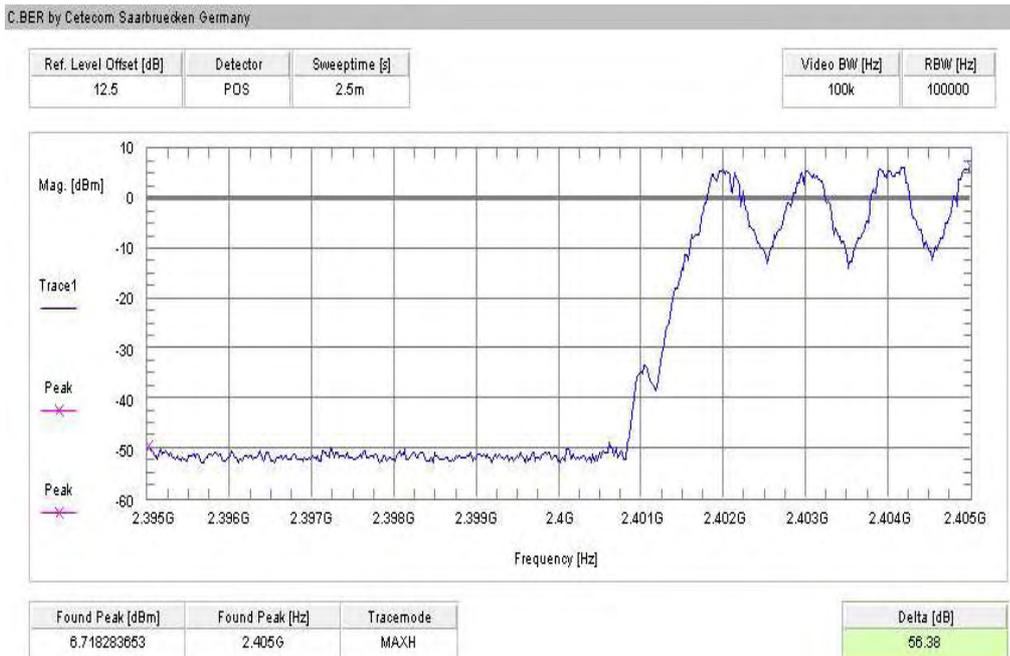
Modulation: GFSK

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

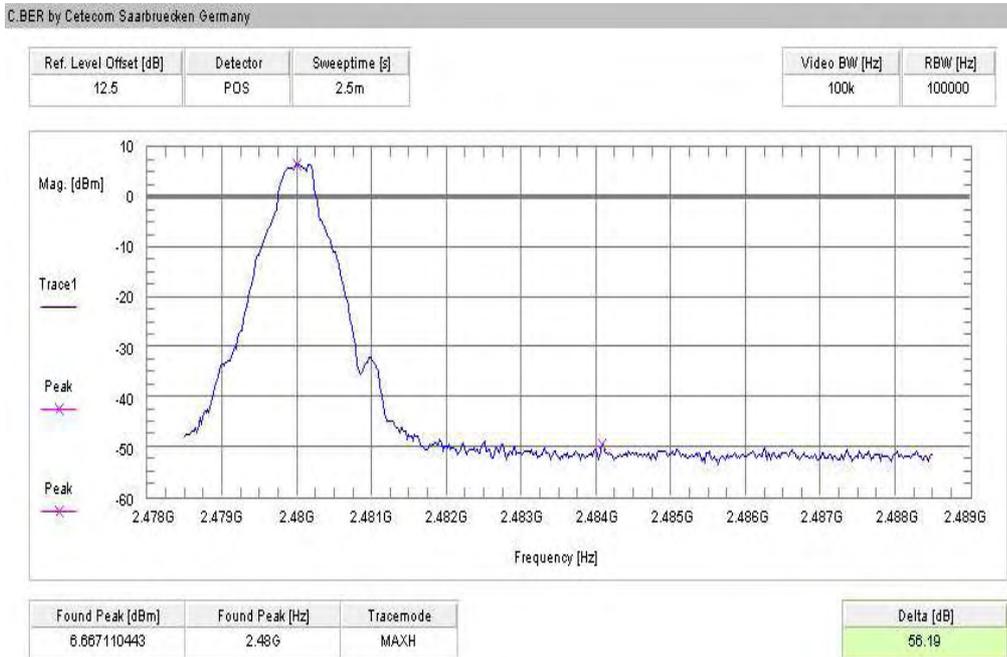


v

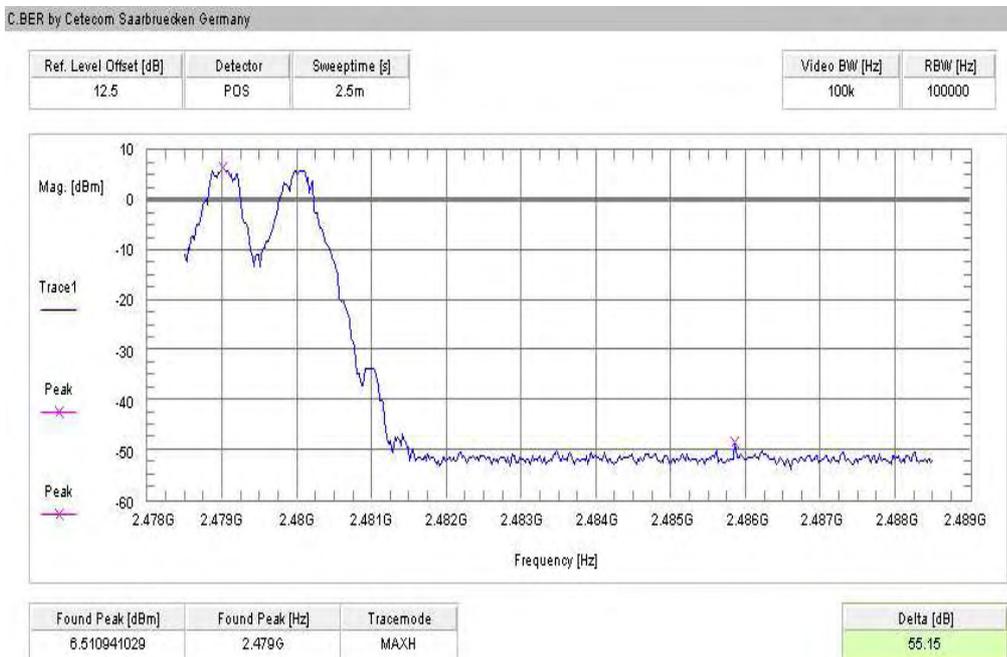
Plot 2 of 4 (hopping on, lowest frequency):



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



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

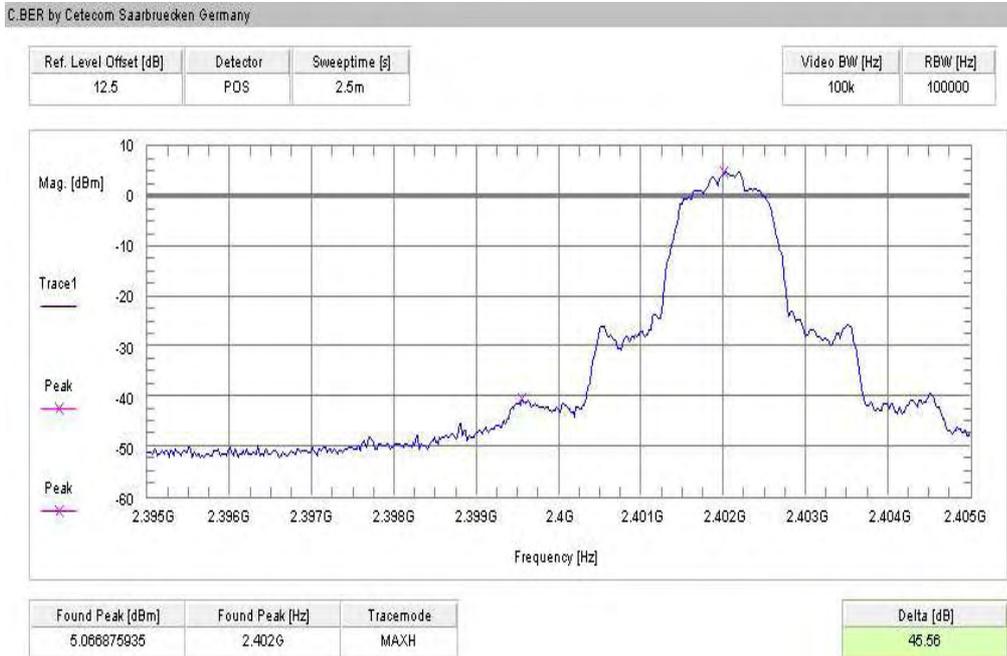


Results:

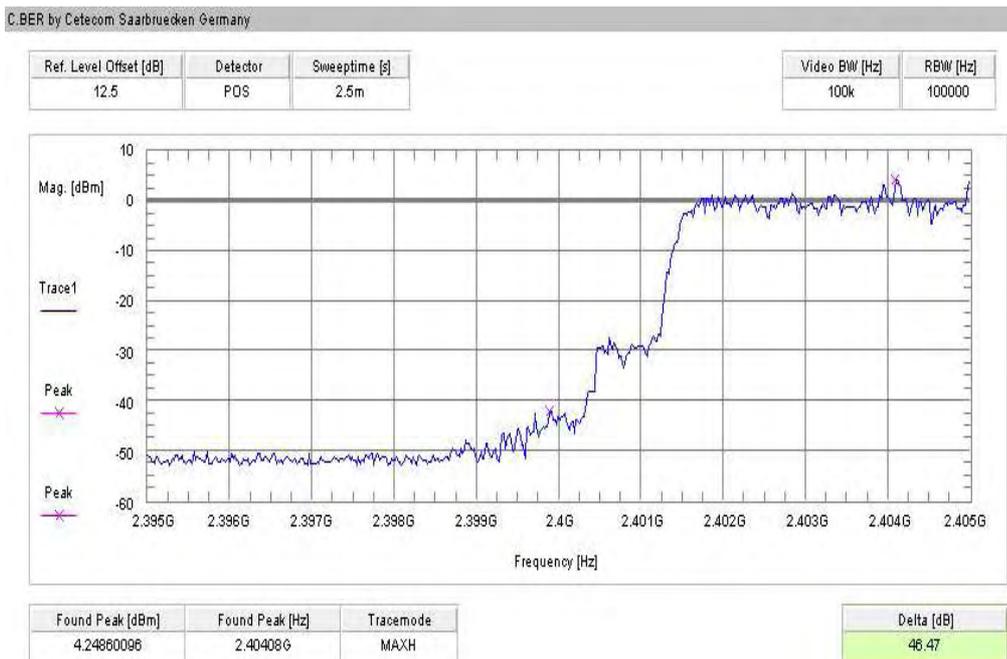
SZENARIO	DELTA VALUE [DB]
hopping off, lowest frequency	> 20 dB
hopping on, lowest frequency	> 20 dB
hopping off, highest frequency	> 20 dB
hopping on, highest frequency	> 20 dB
Measurement uncertainty	±1,5dB

Modulation: Pi/4 DQPSK

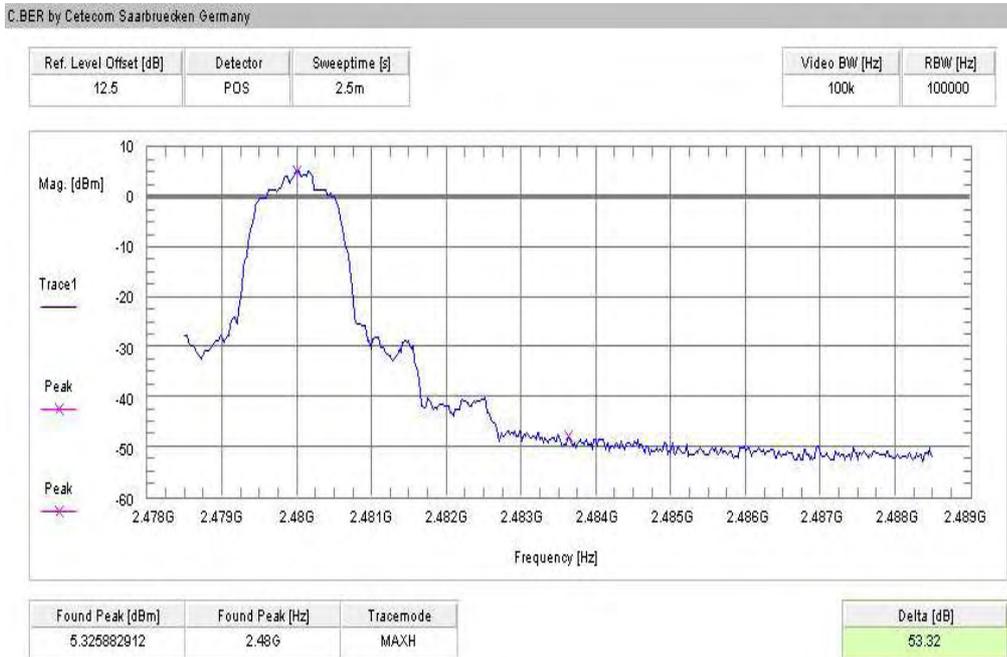
Plot 1 of 4 (hopping off, lowest frequency):



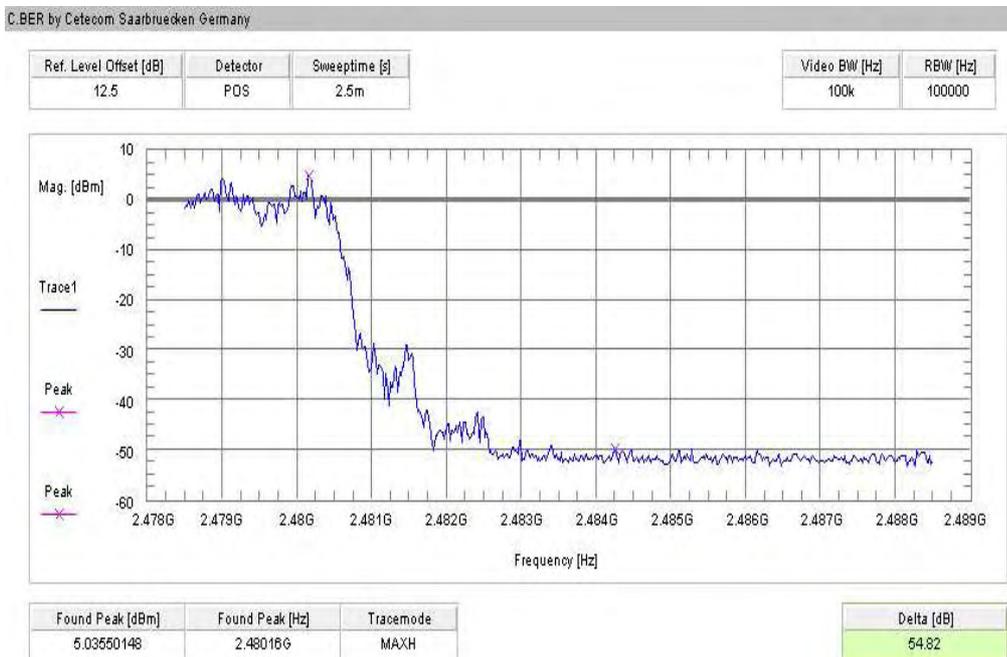
Plot 2 of 4 (hopping on, lowest frequency):



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



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

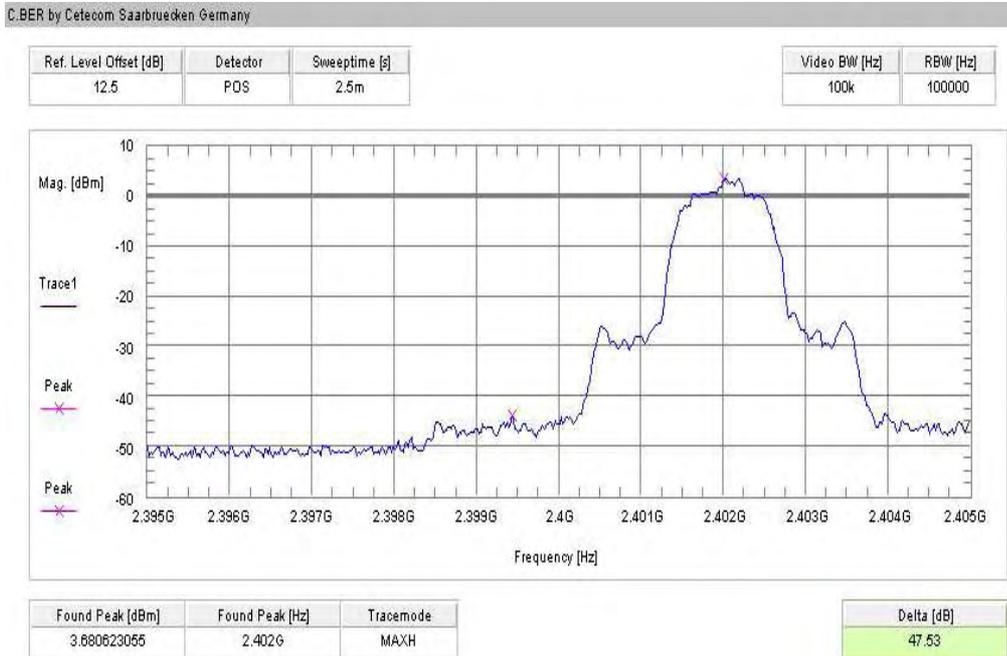


Results:

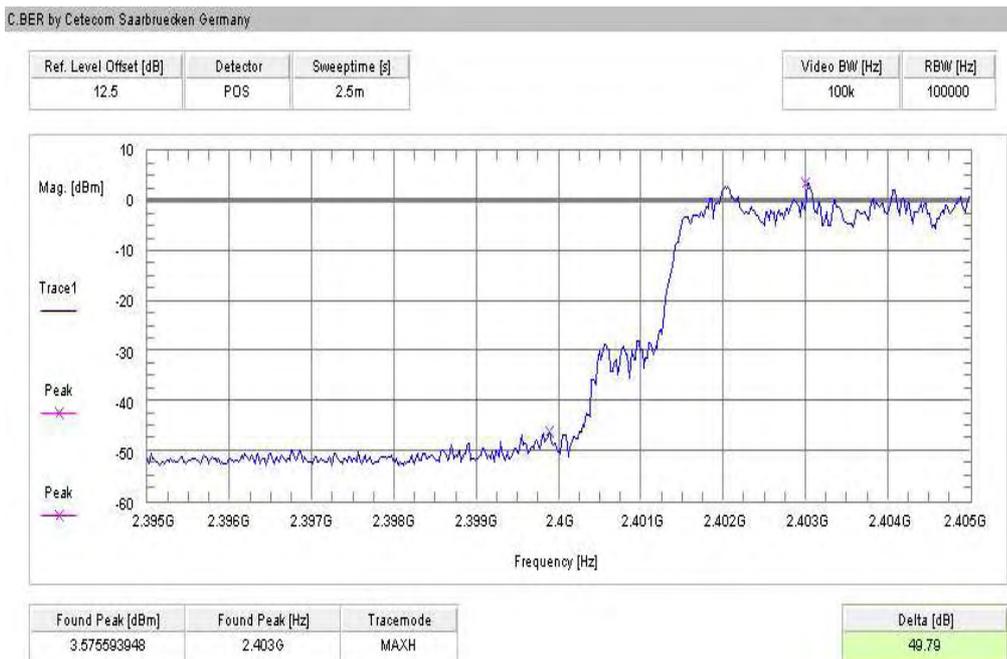
SZENARIO	DELTA VALUE [DB]
hopping off, lowest frequency	> 20 dB
hopping on, lowest frequency	> 20 dB
hopping off, highest frequency	> 20 dB
hopping on, highest frequency	> 20 dB
Measurement uncertainty	±1,5dB

Modulation: 8 DPSK

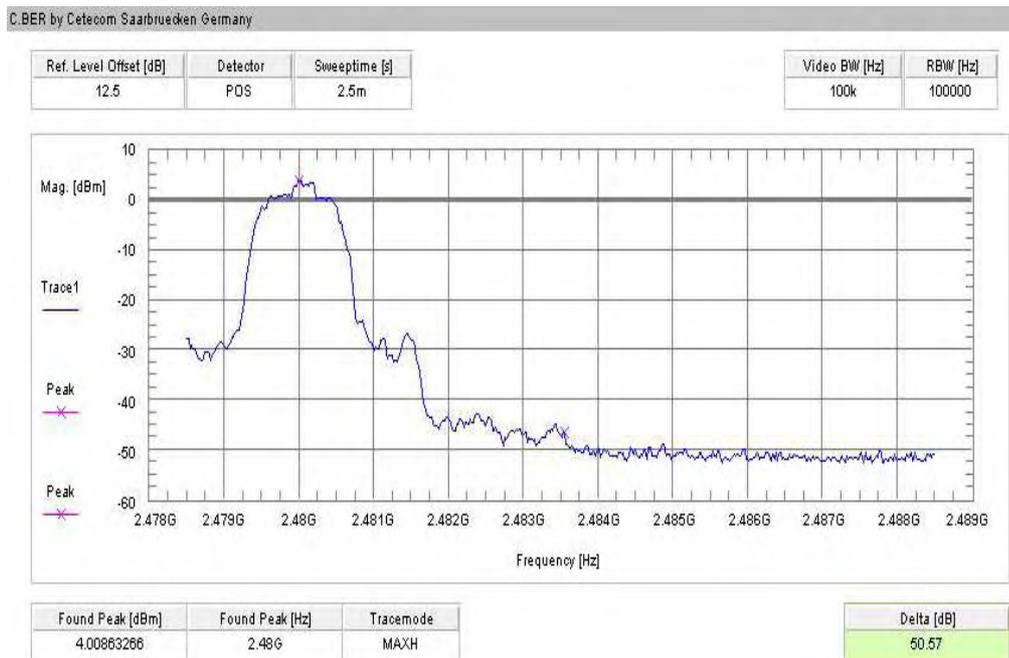
Plot 1 of 4 (hopping off, lowest frequency):



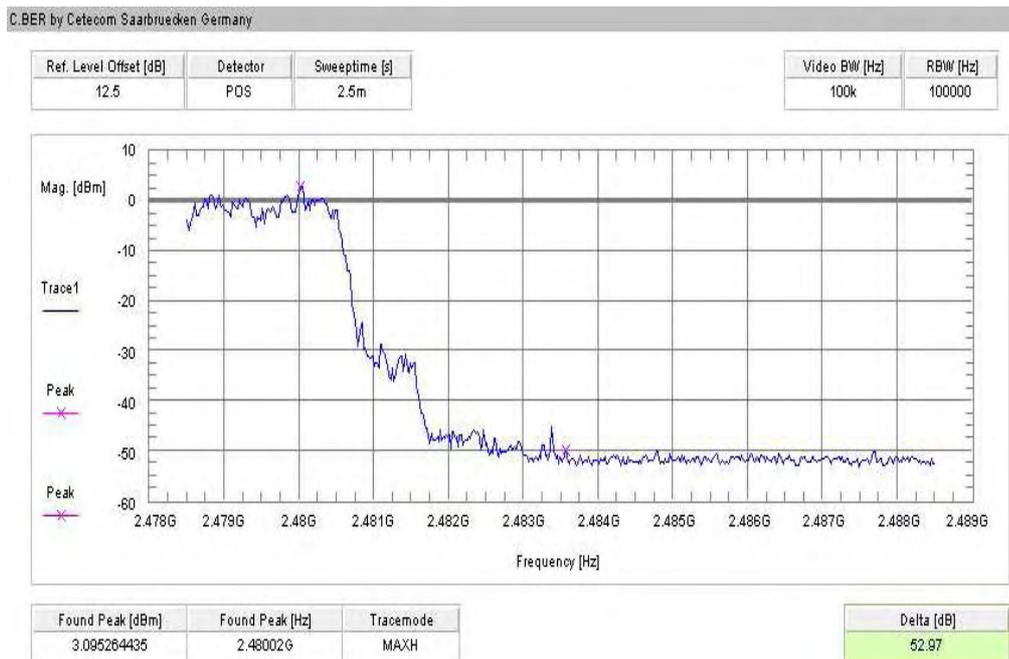
Plot 2 of 4 (hopping on, lowest frequency):



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

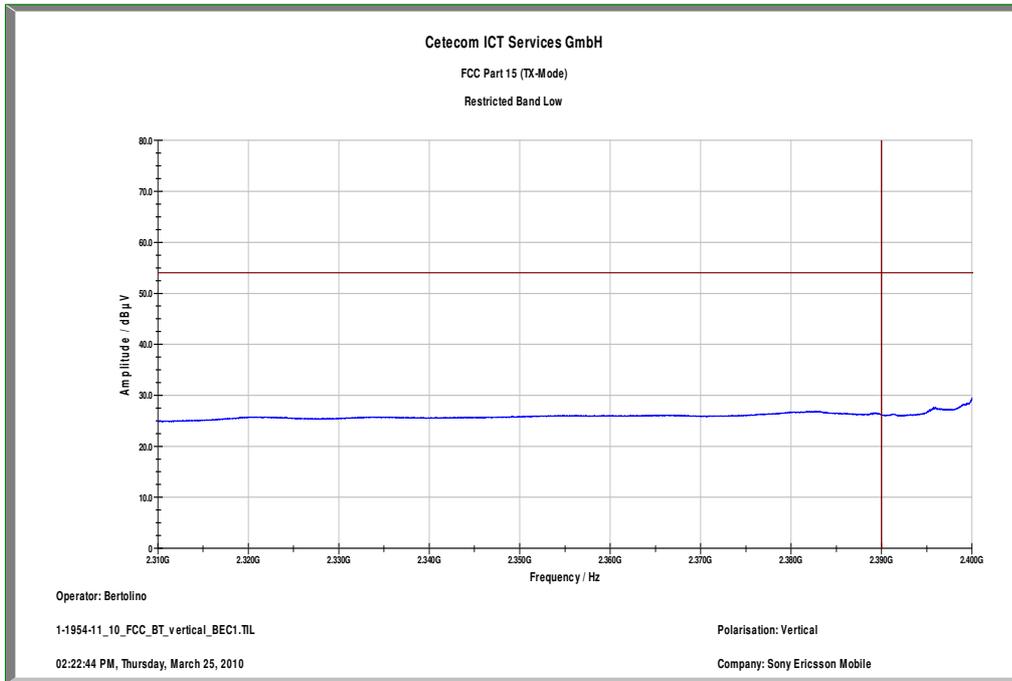
Limits:

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)).
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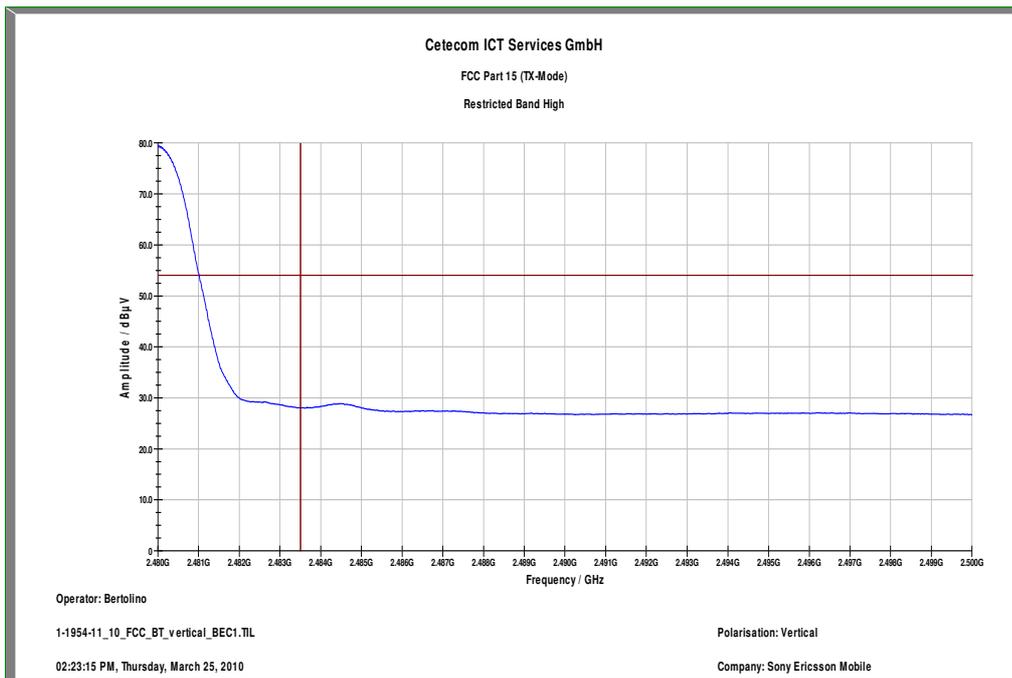
5.13 Band-edge compliance of radiated emissions §15.205

Modulation: GFSK

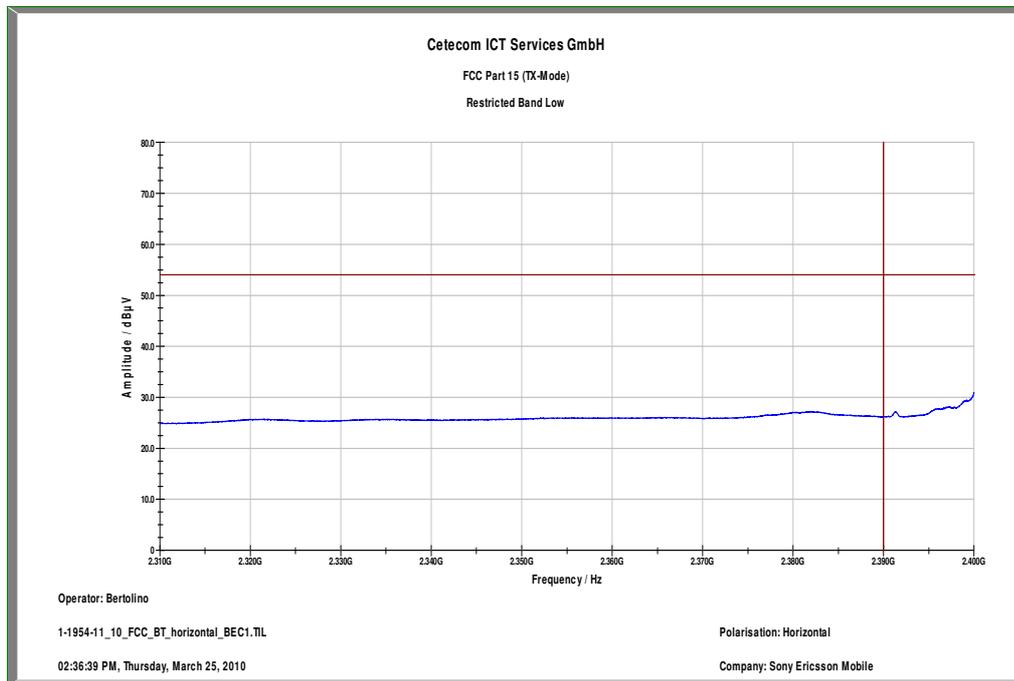
Plot 1: Restricted bands low, vertical polarization



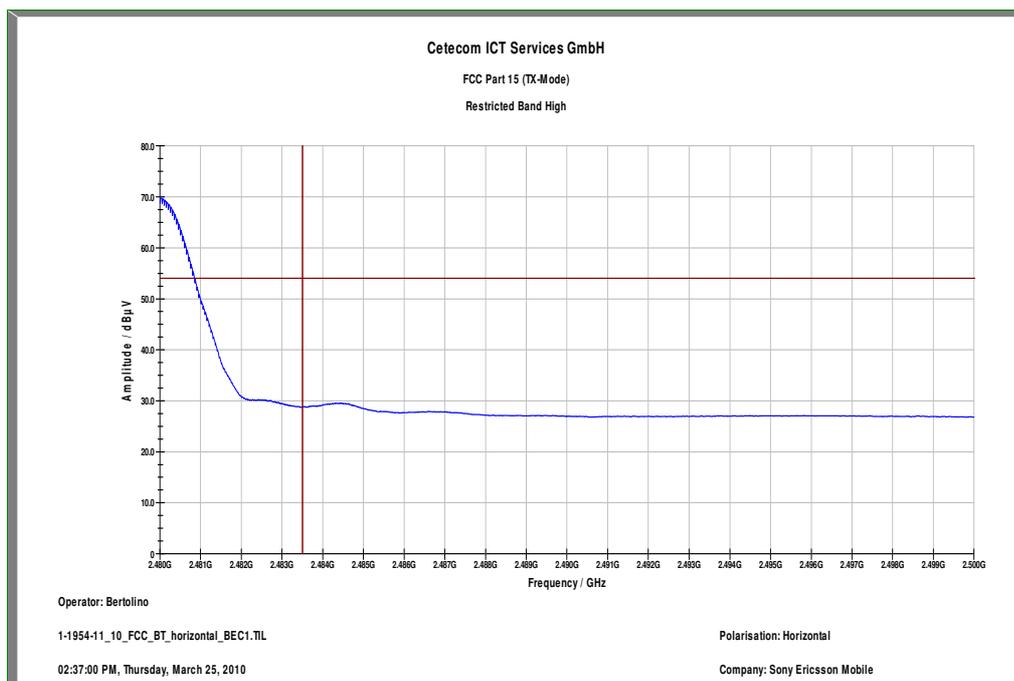
Plot 2: Restricted bands high, vertical polarization



Plot 3: Restricted bands low, horizontal polarization

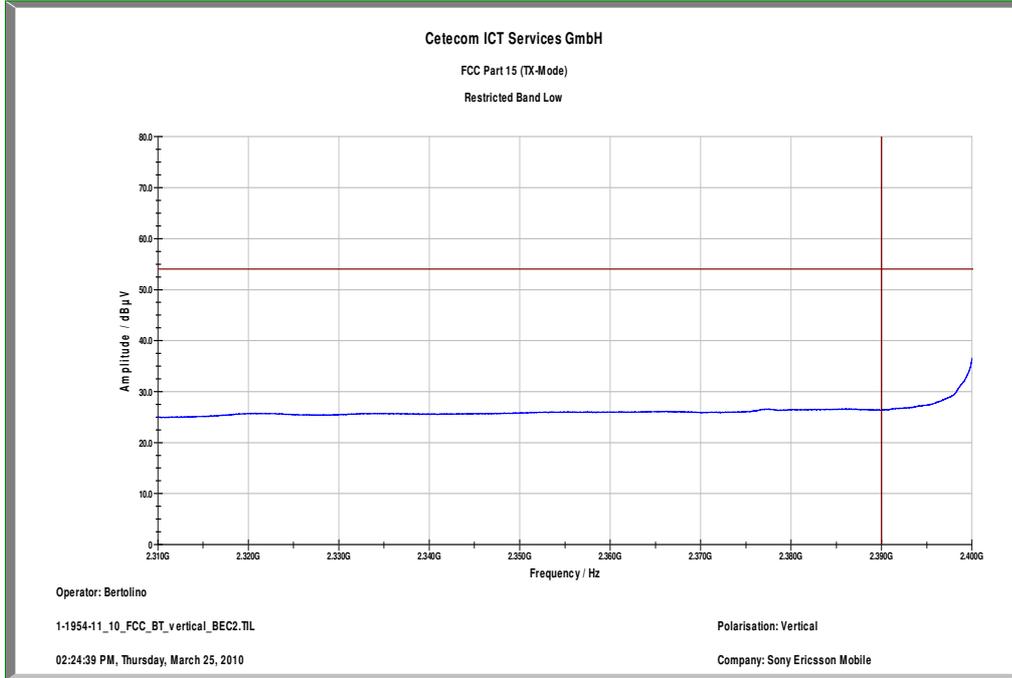


Plot 4: Restricted bands high, horizontal polarization

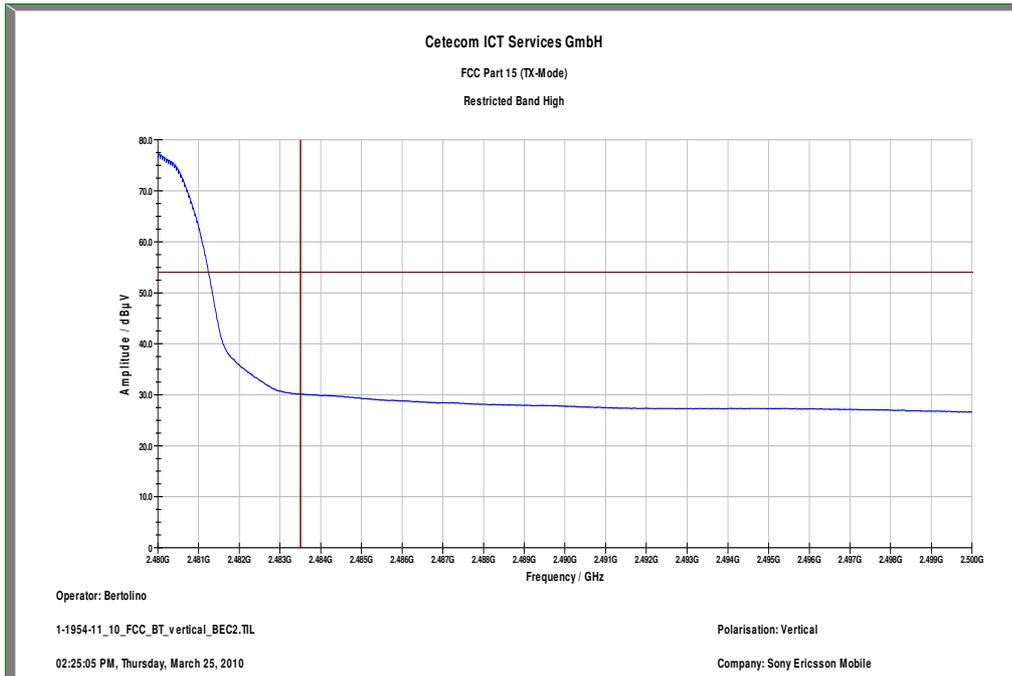


Modulation: Pi/4 DQPSK

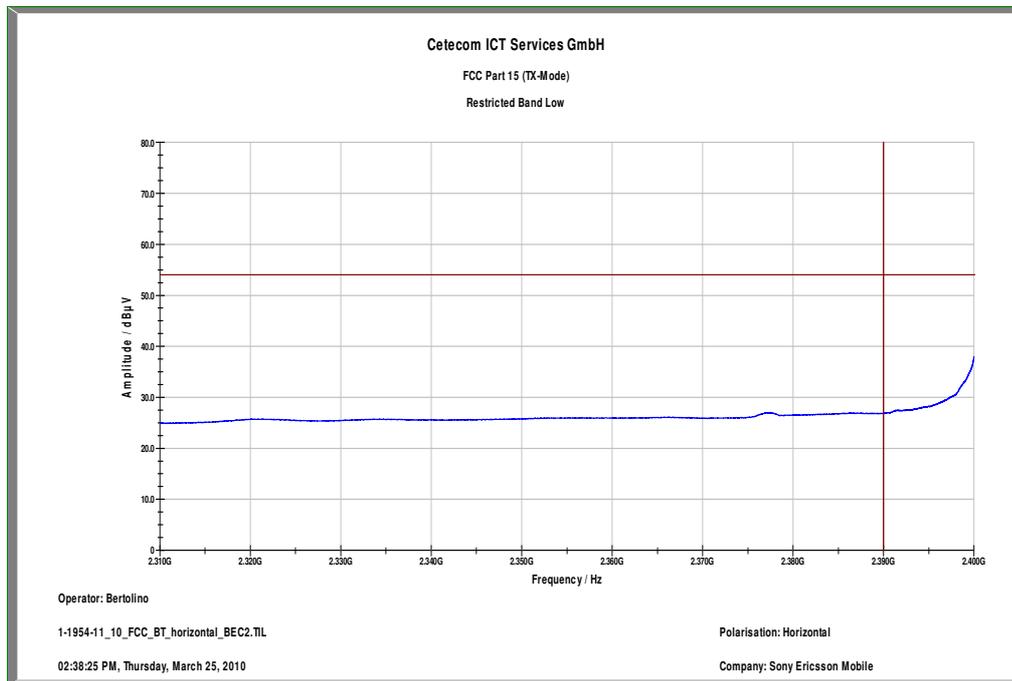
Plot 1: Restricted bands low, vertical polarization



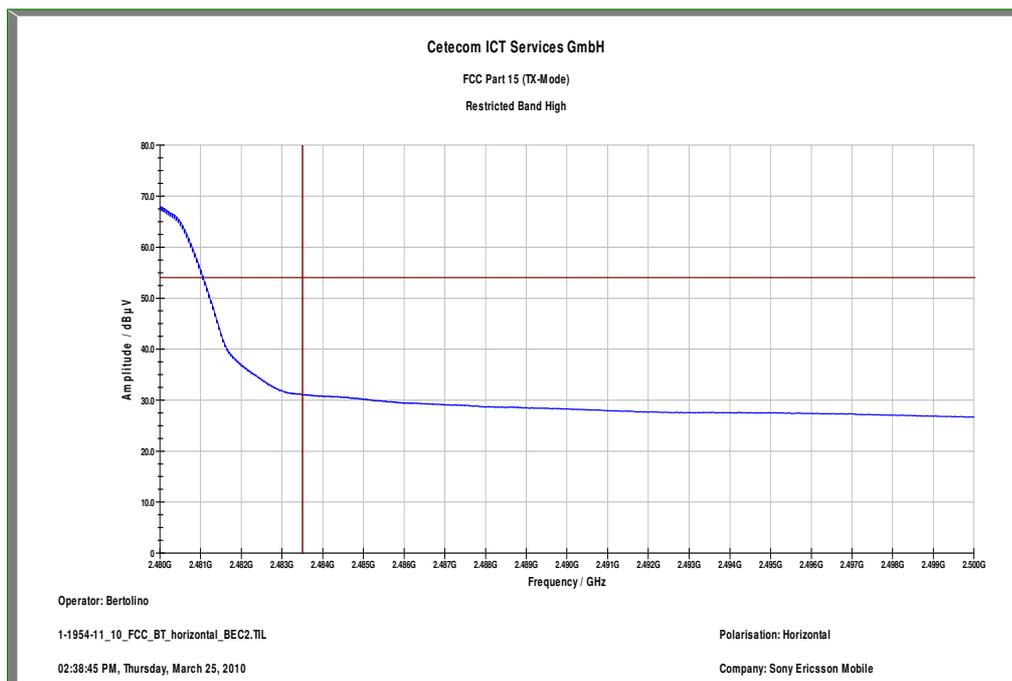
Plot 2: Restricted bands high, vertical polarization



Plot 3: Restricted bands low, horizontal polarization

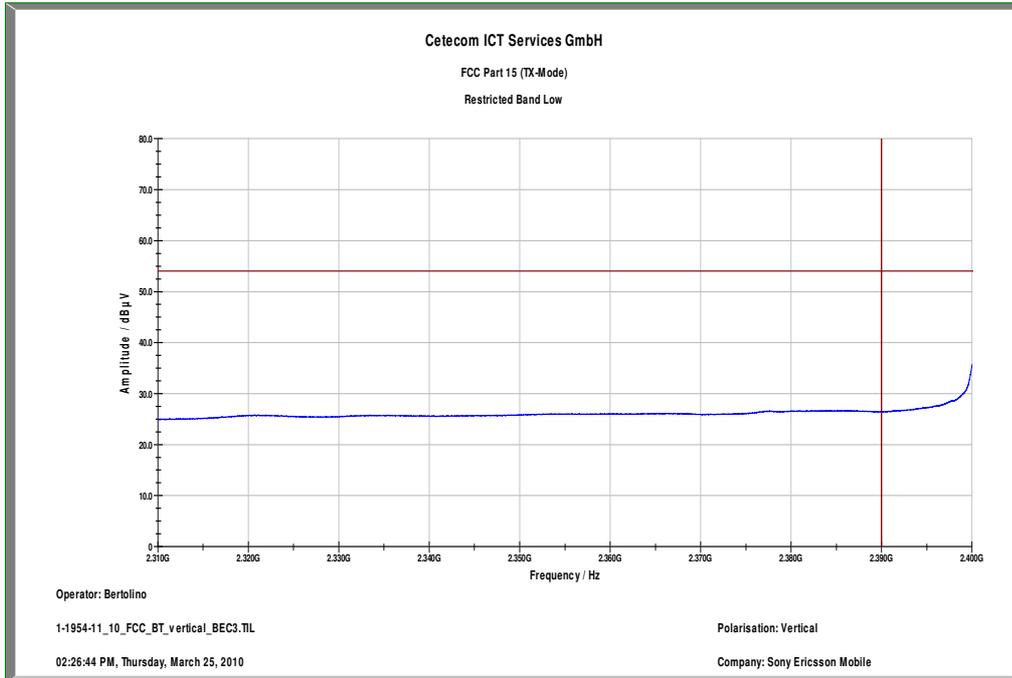


Plot 4: Restricted bands high, horizontal polarization

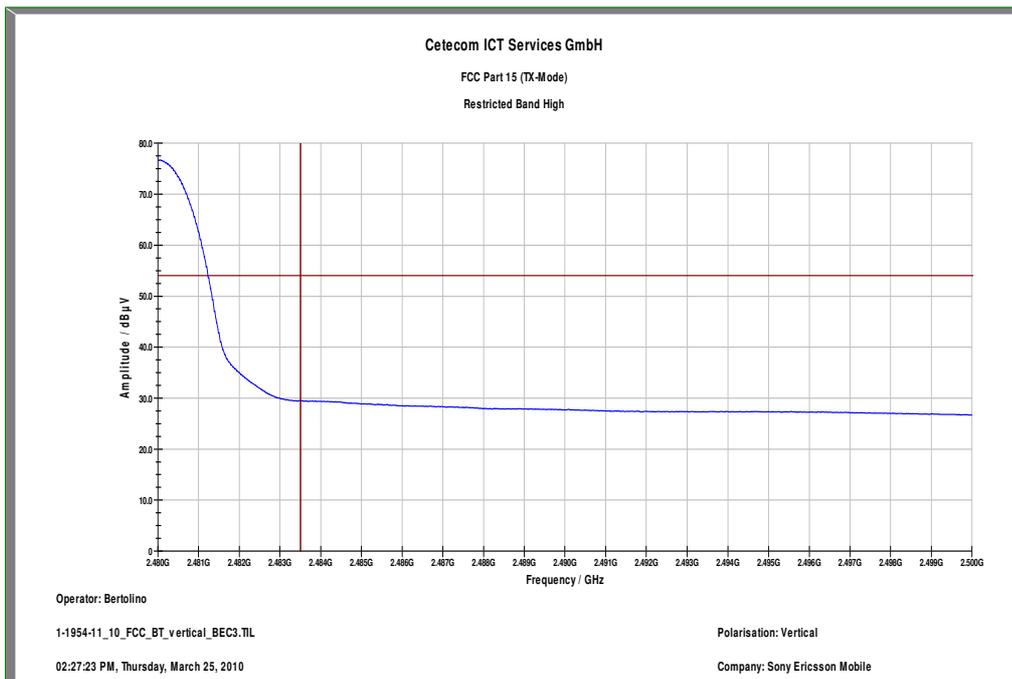


Modulation: 8 DPSK

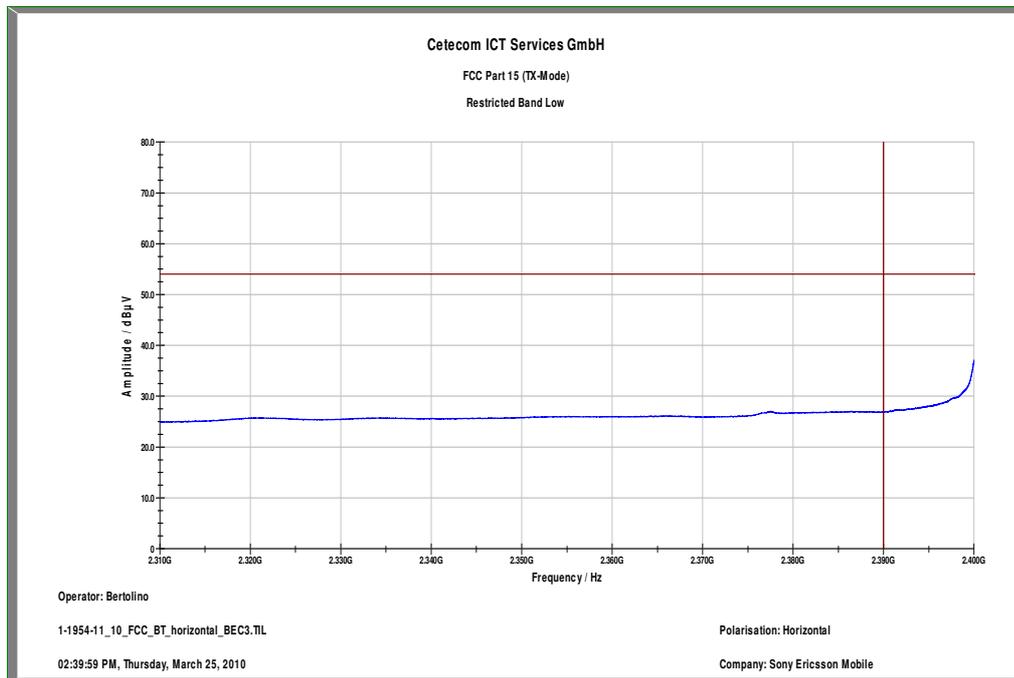
Plot 1: Restricted bands low, vertical polarization



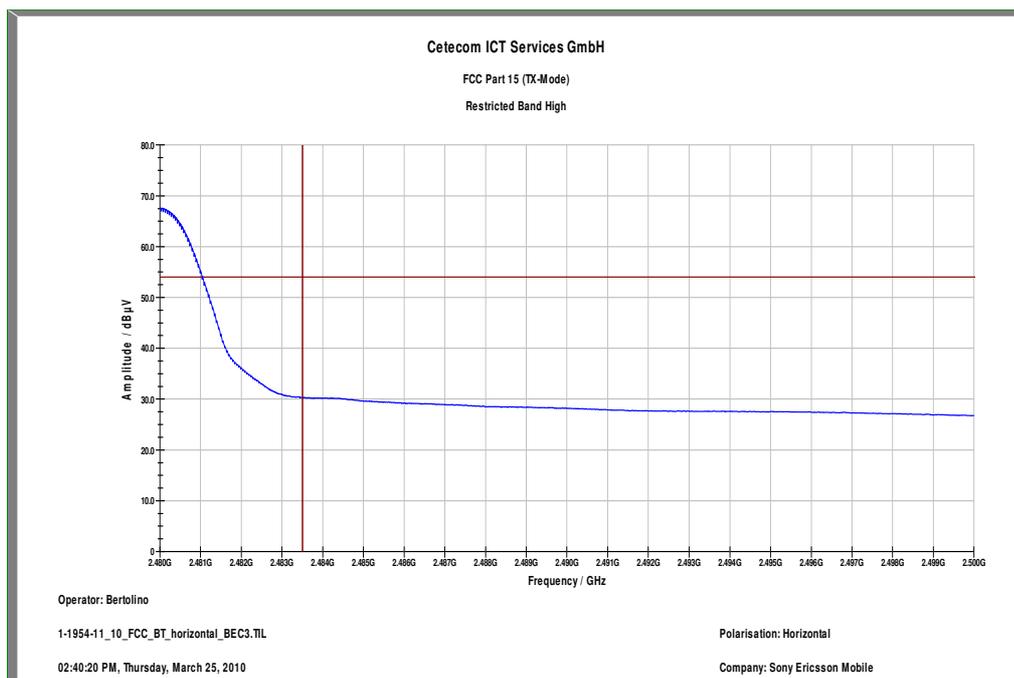
Plot 2: Restricted bands high, vertical polarization



Plot 3: Restricted bands low, horizontal polarization



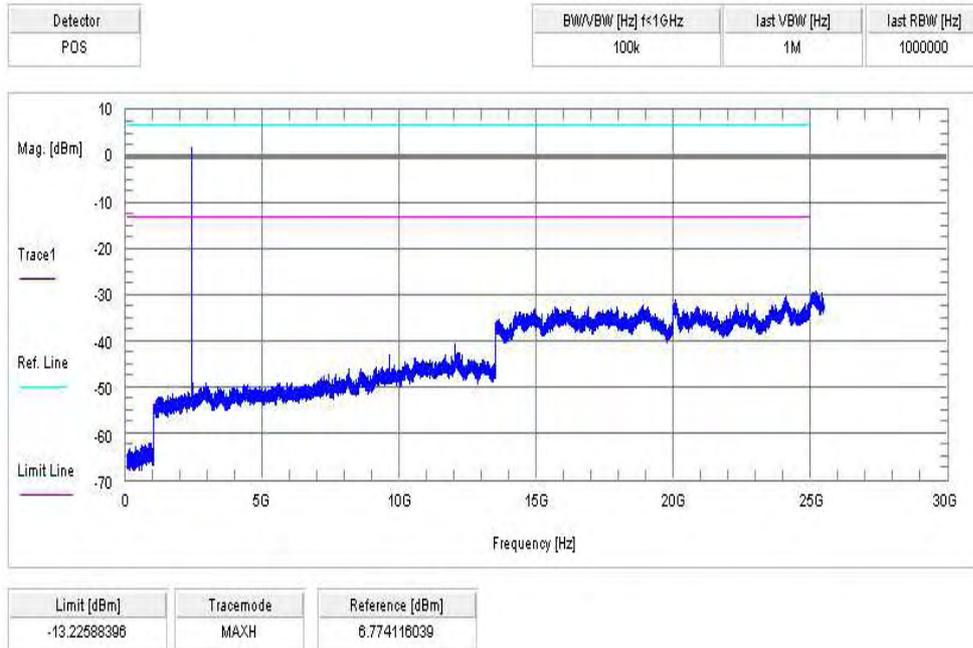
Plot 4: Restricted bands high, horizontal polarization



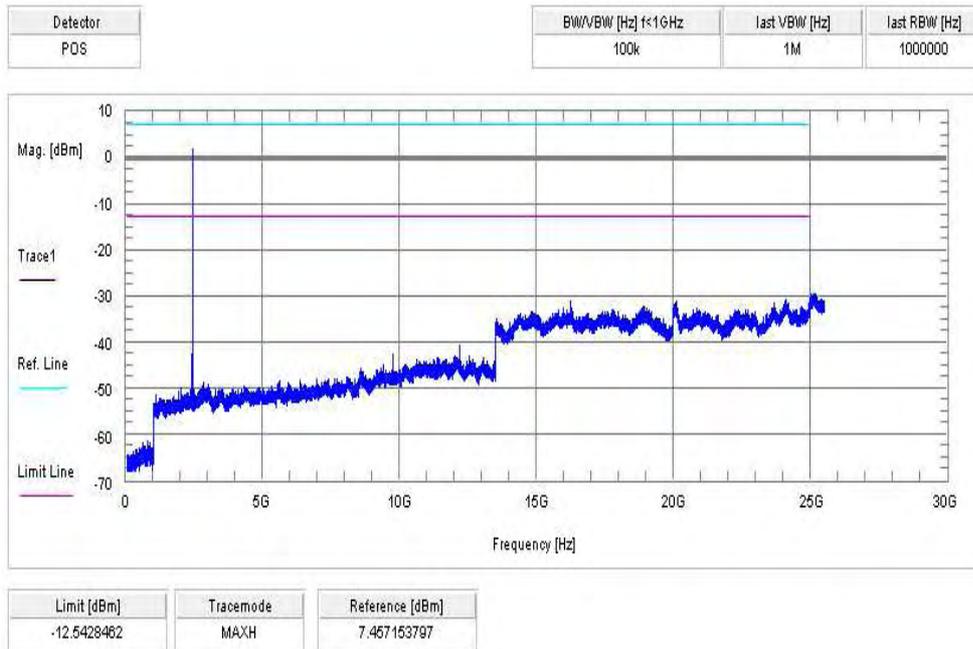
5.14 Spurious Emissions - conducted (Transmitter) § 15.247 (c)(1)

Modulation: GFSK

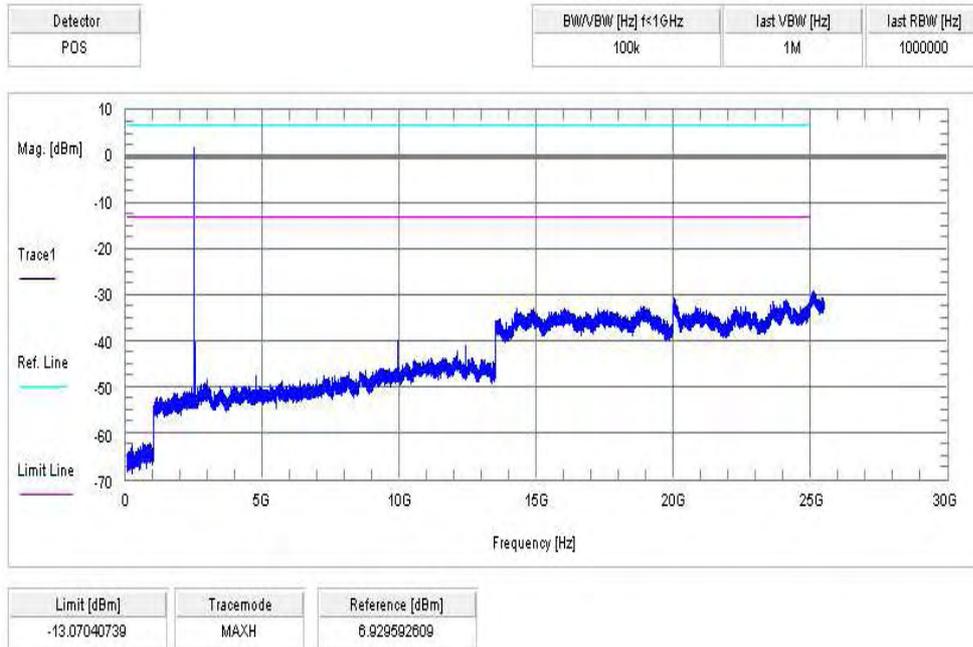
Plot 1 of 3: lowest channel



Plot 2 of 3: middle channel



Plot 3 of 3: highest channel



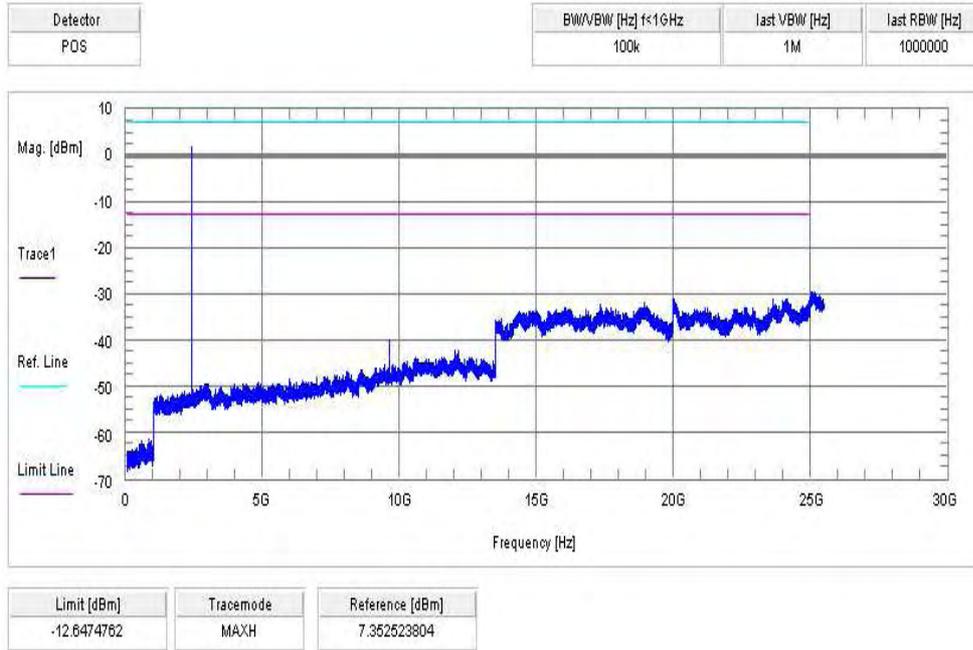
Result & Limits:

Emission Limitation					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2402		6.77	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		complies
2441		7.46	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		complies
2480		6.23	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		complies
Measurement uncertainty			± 3dB		

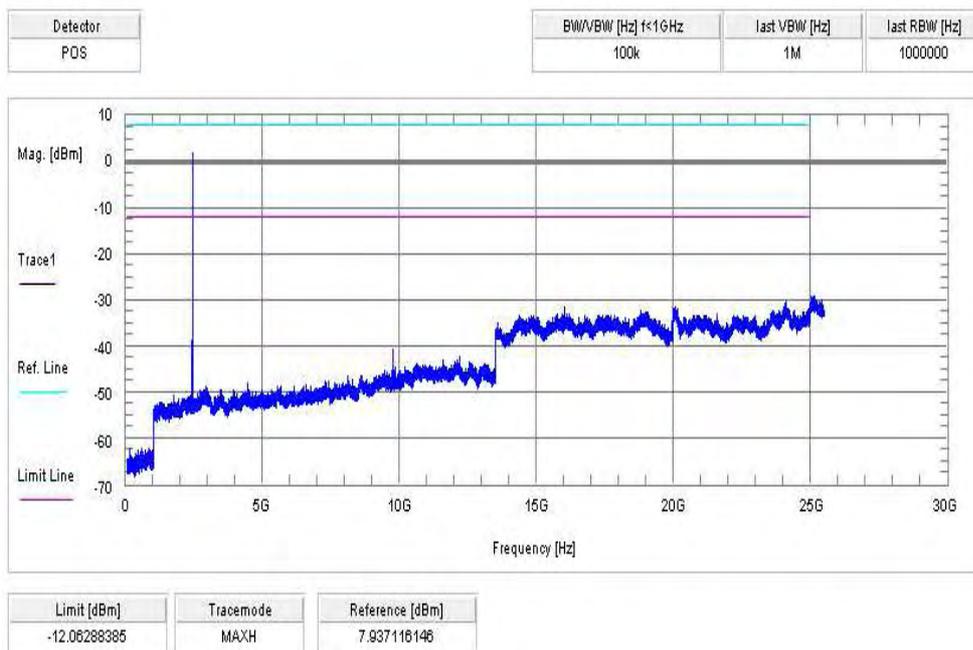
F < 1 GHz: RBW: 100 kHz VBW: 100 kHz
 F > 1 GHz: RBW: 1 MHz VBW: 1 MHz

Modulation: Pi/4 DQPSK

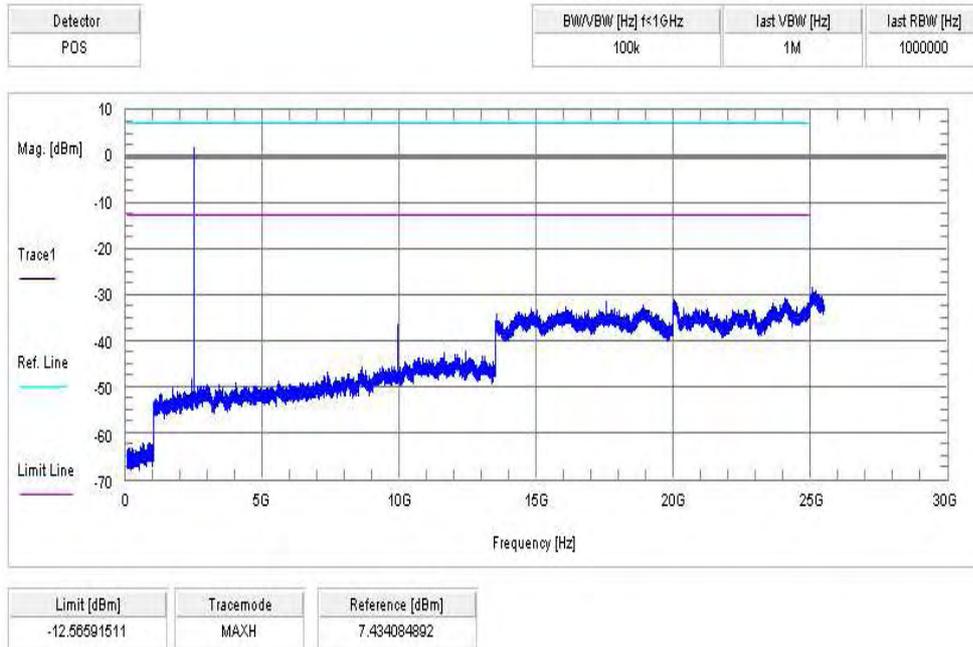
Plot 1 of 3: lowest channel



Plot 2 of 3: middle channel



Plot 3 of 3: highest channel



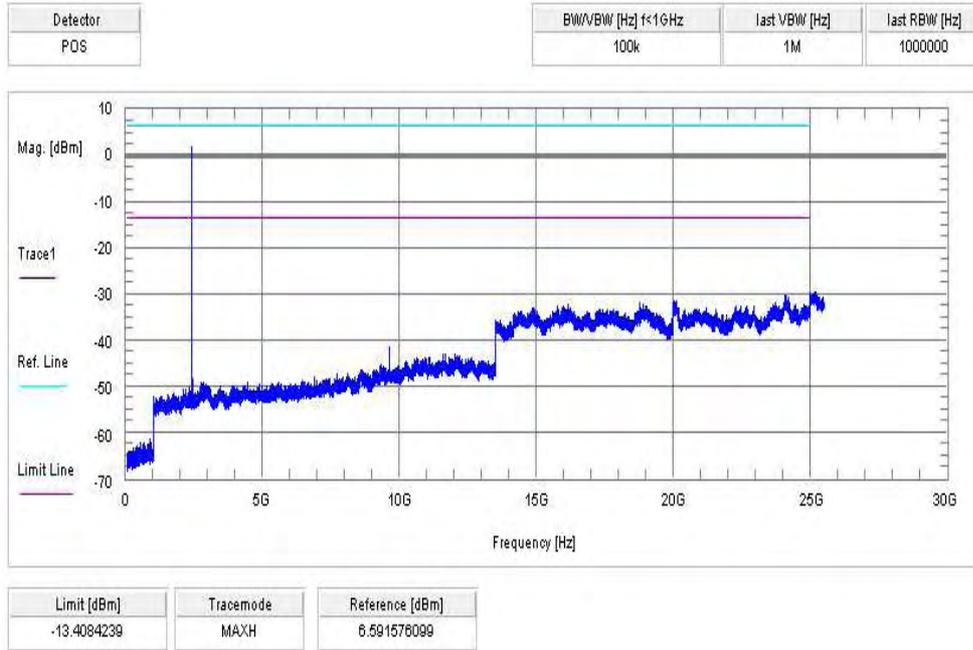
Result & Limits:

Emission Limitation					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2402		7.35	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		complies
2441		7.94	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		complies
2480		7.43	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		complies
Measurement uncertainty			± 3dB		

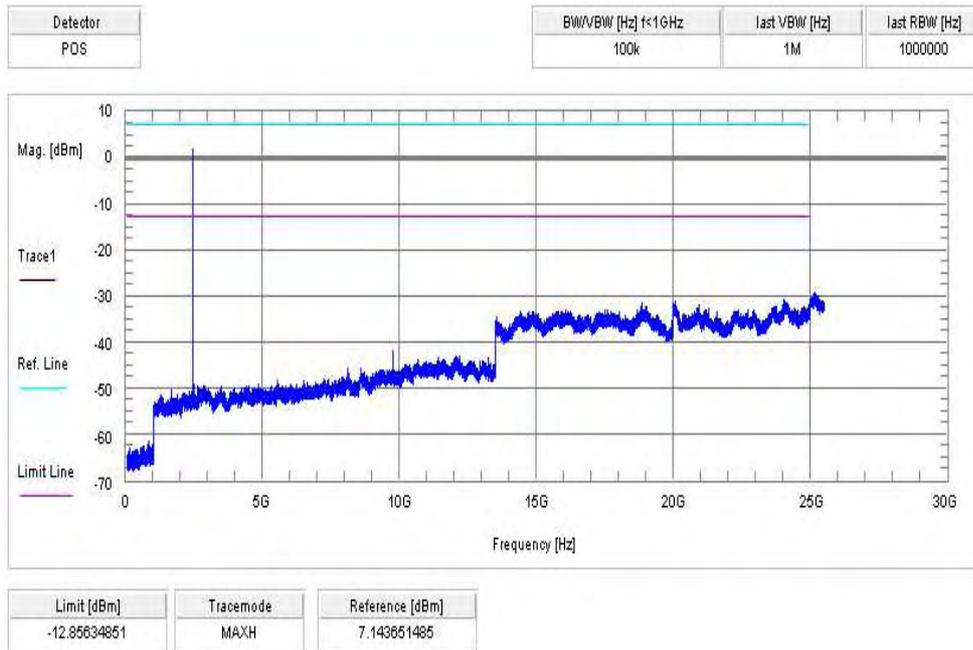
F < 1 GHz: RBW: 100 kHz VBW: 100 kHz
 F > 1 GHz: RBW: 1 MHz VBW: 1 MHz

Modulation: 8 DPSK

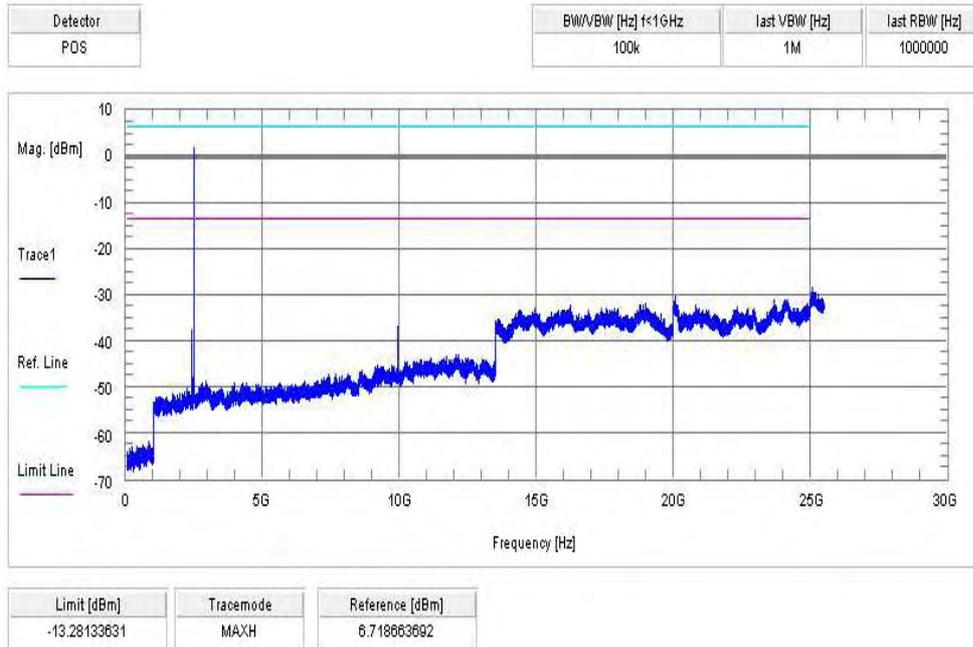
Plot 1 of 3: lowest channel



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		6.59	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		complies
2441		7.14	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		complies
2480		6.72	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc 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)).
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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 polarization (lowest channel)

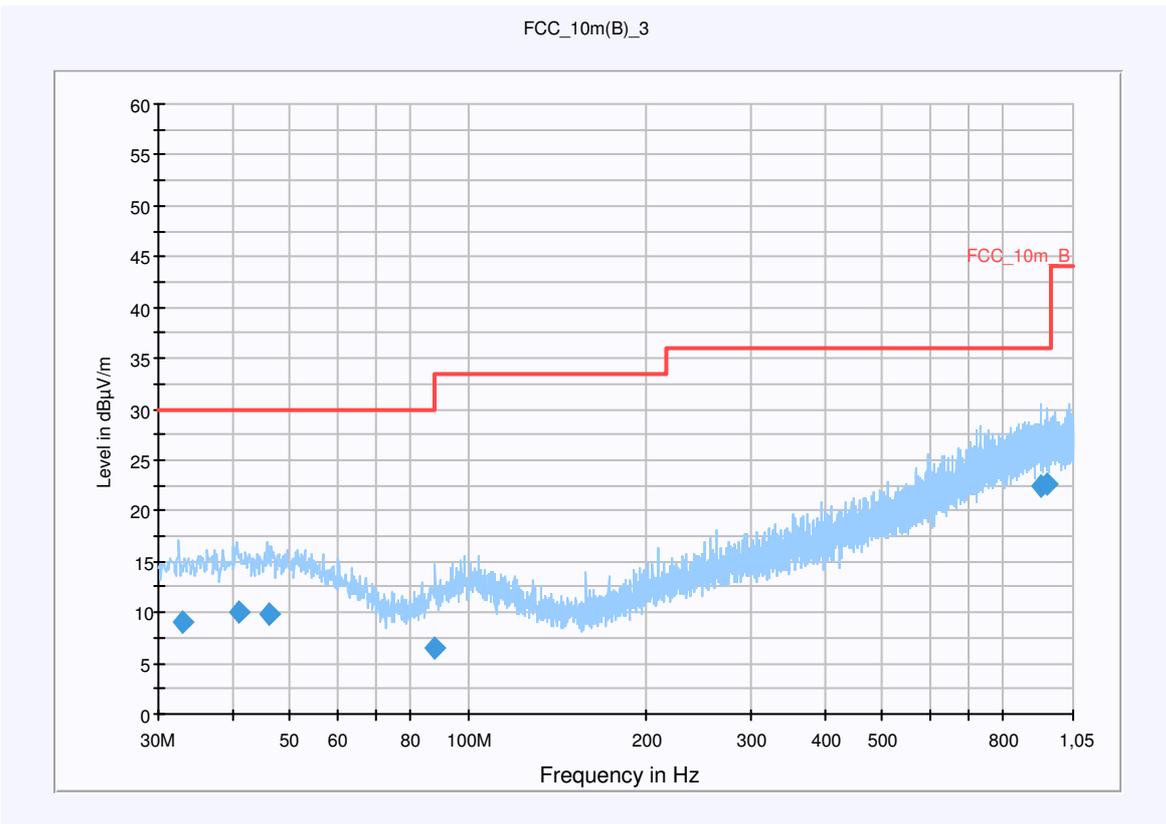
Common Information

EUT: AAD-3880077-BV + MOBY + CAA-0003005-BV
 Serial Number: BX9019REMH / IMEI: 00440214-013804-5 + 09220D210002494 + 59 08W4 9308170
 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 - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver



Final Result 1

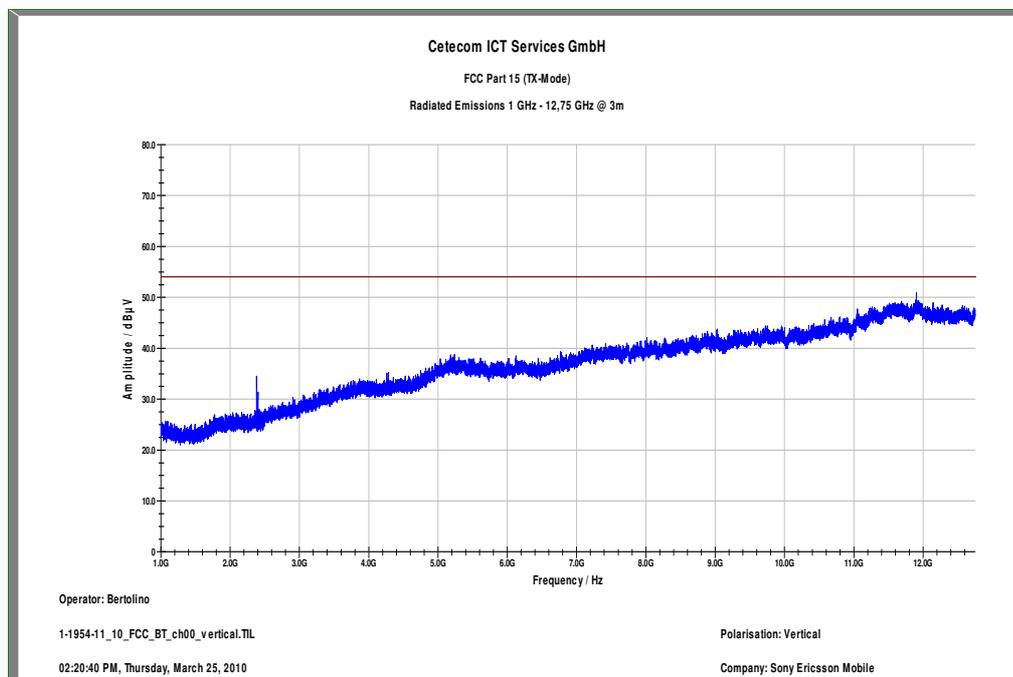
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
32.949900	9.1	15000.000	120.000	98.0	H	150.0	12.8	20.9	30.0	
40.884900	10.1	15000.000	120.000	220.0	H	51.0	13.4	19.9	30.0	
46.304250	9.8	15000.000	120.000	220.0	V	304.0	13.3	20.2	30.0	
87.542850	6.6	15000.000	120.000	220.0	H	221.0	10.2	23.4	30.0	
923.879850	22.5	15000.000	120.000	220.0	H	96.0	25.3	13.5	36.0	
951.133350	22.7	15000.000	120.000	206.0	V	141.0	25.4	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 (0909)
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

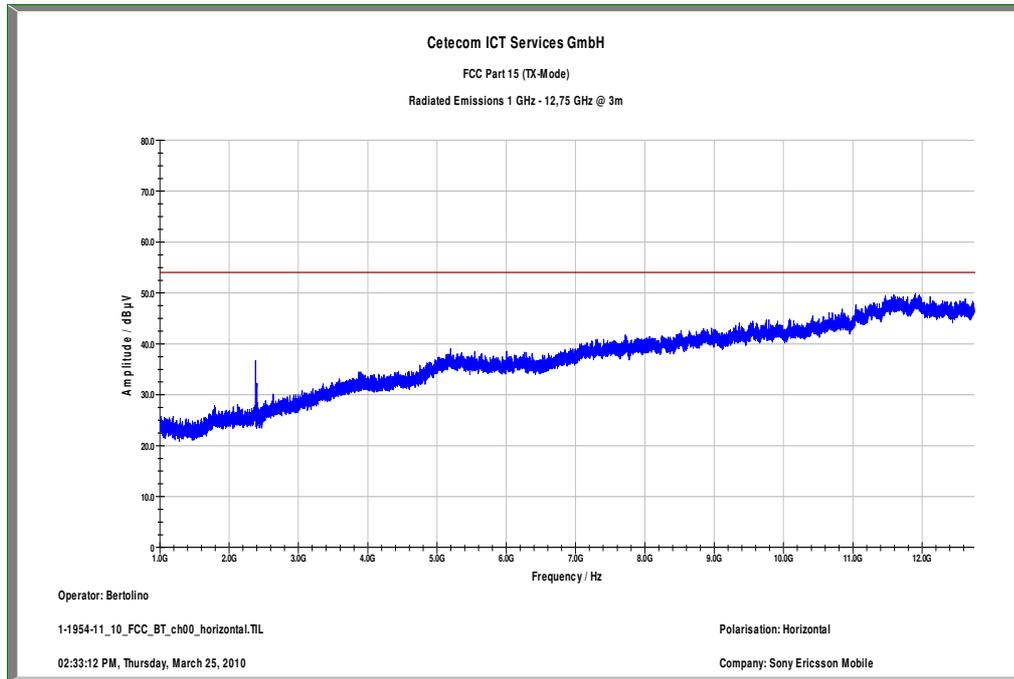
EMC 32 Version 8.10.00

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



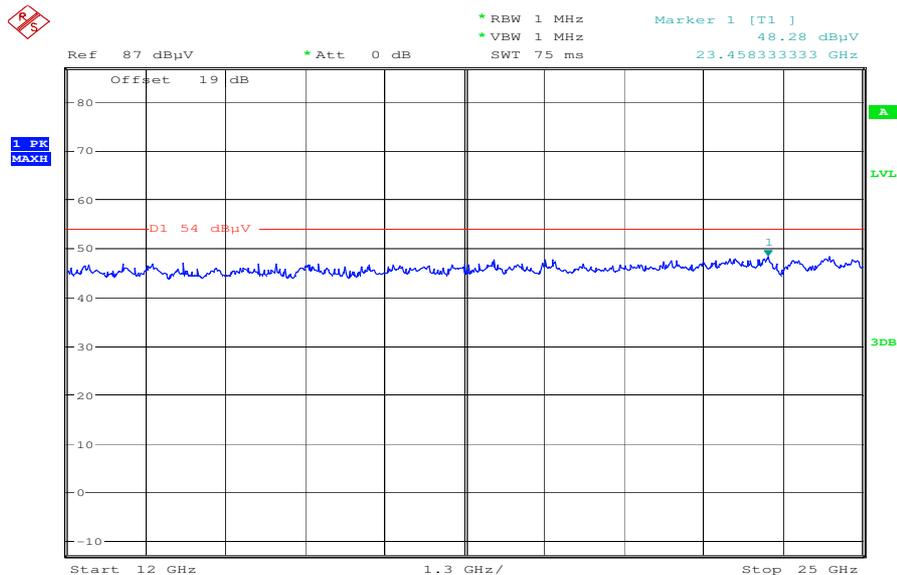
The carrier signal is notched with a 2.4 GHz band rejection filter.

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



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

Plot 4: 12 – 25 GHz vertical & horizontal polarization (valid for all channels)



Date: 26.MAR.2010 10:38:05

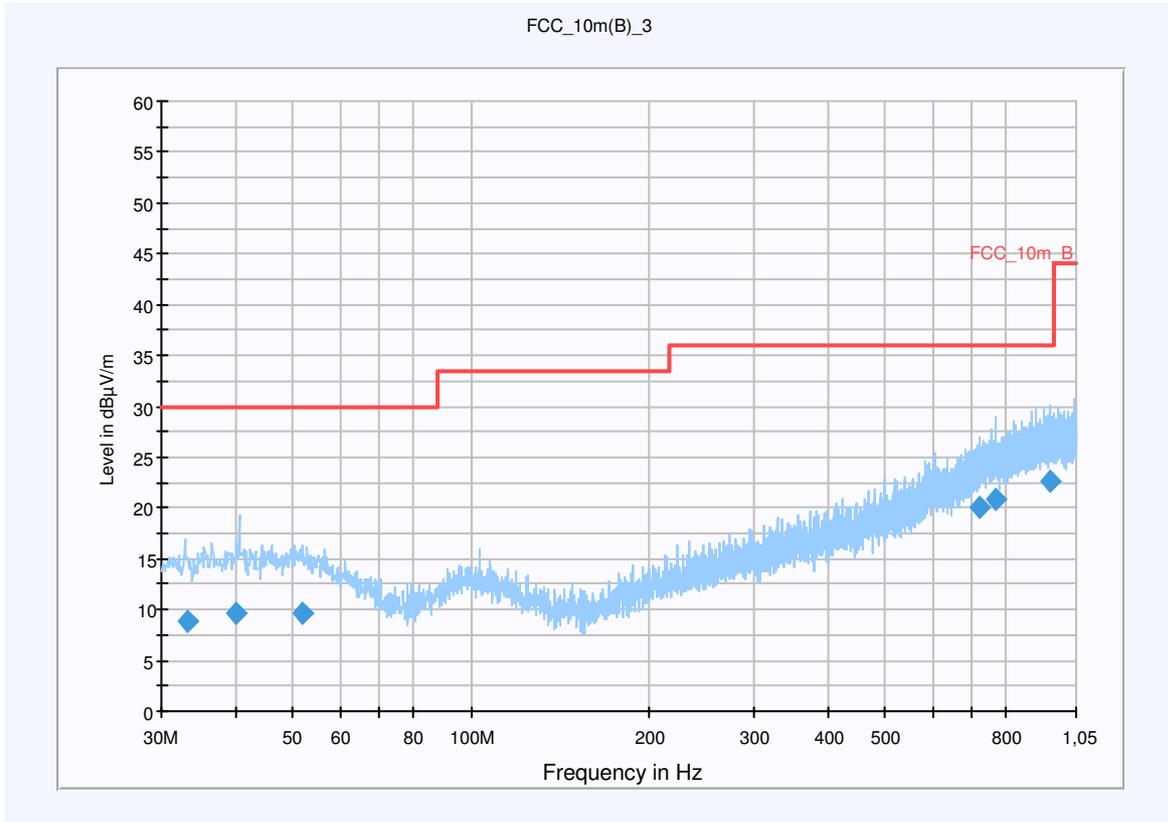
Plot 5: 0.03 - 1 GHz vertical & horizontal polarization (middle channel)

Common Information

EUT: AAD-3880077-BV + MOBY + CAA-0003005-BV
 Serial Number: BX9019REMH / IMEI: 00440214-013804-5 + 09220D210002494 + 59 08W4 9308170
 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: dB μ V/m
Subrange **Detectors** **IF Bandwidth** **Meas. Time** **Receiver**
 30 MHz - 1,05 GHz QuasiPeak 120 kHz 15 s Receiver



Final Result 1

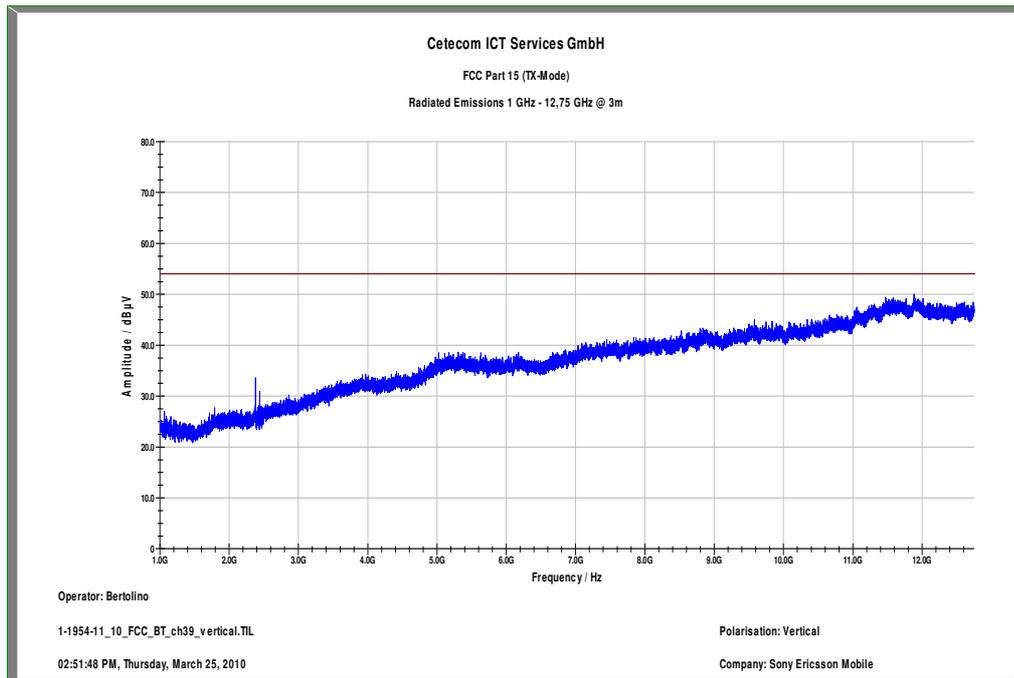
Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)	Comment
33.173250	8.9	15000.000	120.000	220.0	H	113.0	12.8	21.1	30.0	
40.137000	9.7	15000.000	120.000	170.0	V	10.0	13.4	20.3	30.0	
51.929250	9.7	15000.000	120.000	153.0	H	302.0	13.2	20.3	30.0	
719.530050	20.2	15000.000	120.000	220.0	H	82.0	22.9	15.8	36.0	
769.027200	20.8	15000.000	120.000	149.0	V	52.0	23.7	15.2	36.0	
945.273150	22.6	15000.000	120.000	220.0	H	41.0	25.3	13.4	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 (0909)
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

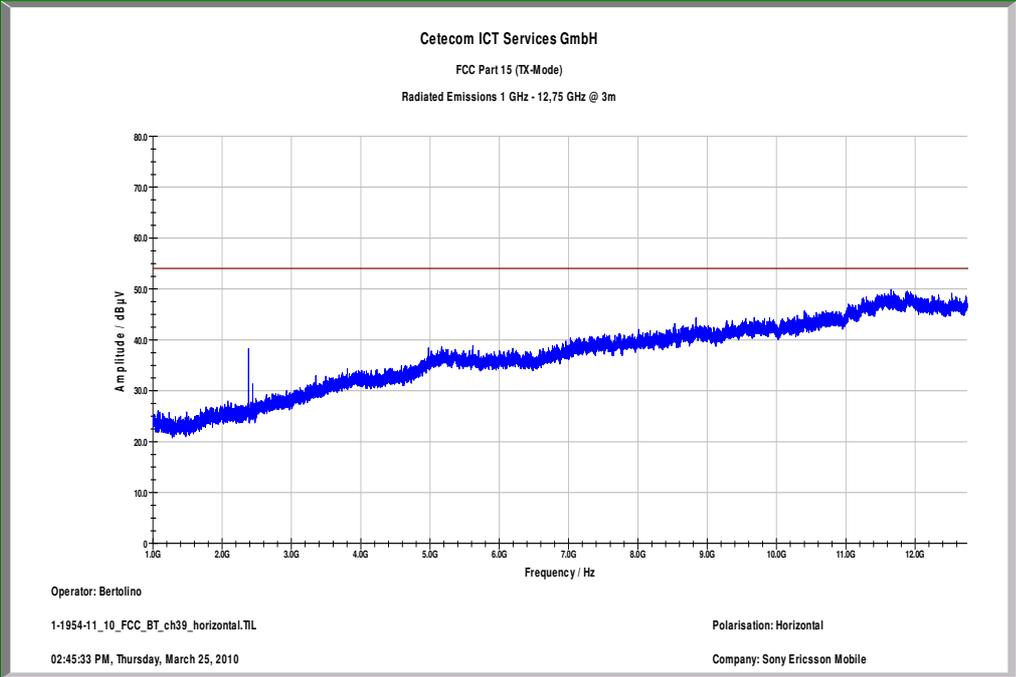
EMC 32 Version 8.10.00

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



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

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



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

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

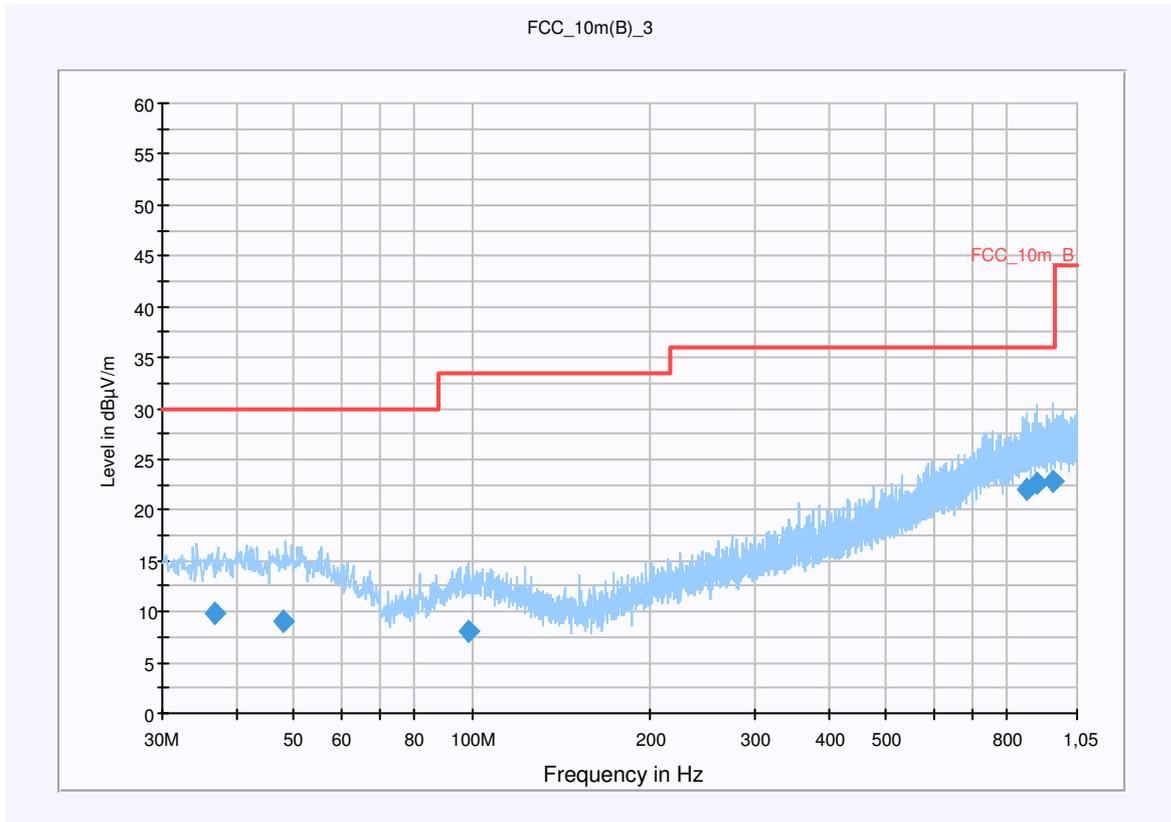
Common Information

EUT: AAD-3880077-BV + MOBY + CAA-0003005-BV
 Serial Number: BX9019REMH / IMEI: 00440214-013804-5 + 09220D210002494 + 59 08W4 9308170
 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 - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver



Final Result 1

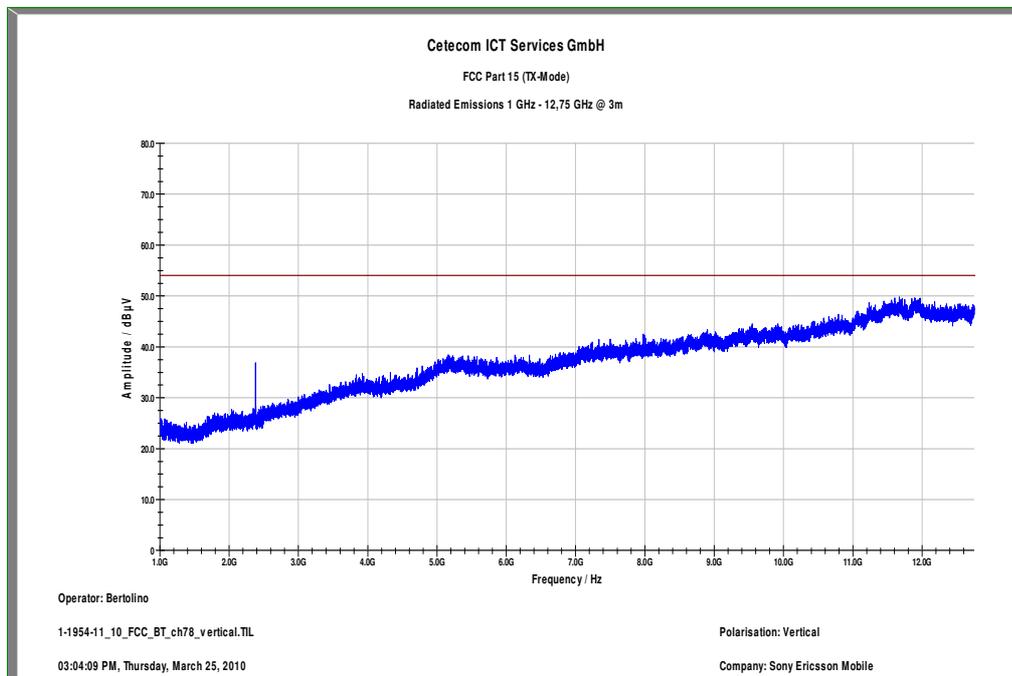
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
36.815550	9.8	15000.000	120.000	220.0	H	42.0	13.2	20.2	30.0	
48.006900	9.0	15000.000	120.000	220.0	V	96.0	13.3	21.0	30.0	
98.980050	8.0	15000.000	120.000	220.0	V	132.0	11.8	25.5	33.5	
863.572200	22.0	15000.000	120.000	208.0	V	33.0	24.7	14.0	36.0	
898.637700	22.6	15000.000	120.000	220.0	H	111.0	25.2	13.4	36.0	
955.557900	22.7	15000.000	120.000	172.0	H	11.0	25.4	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 (0909)
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

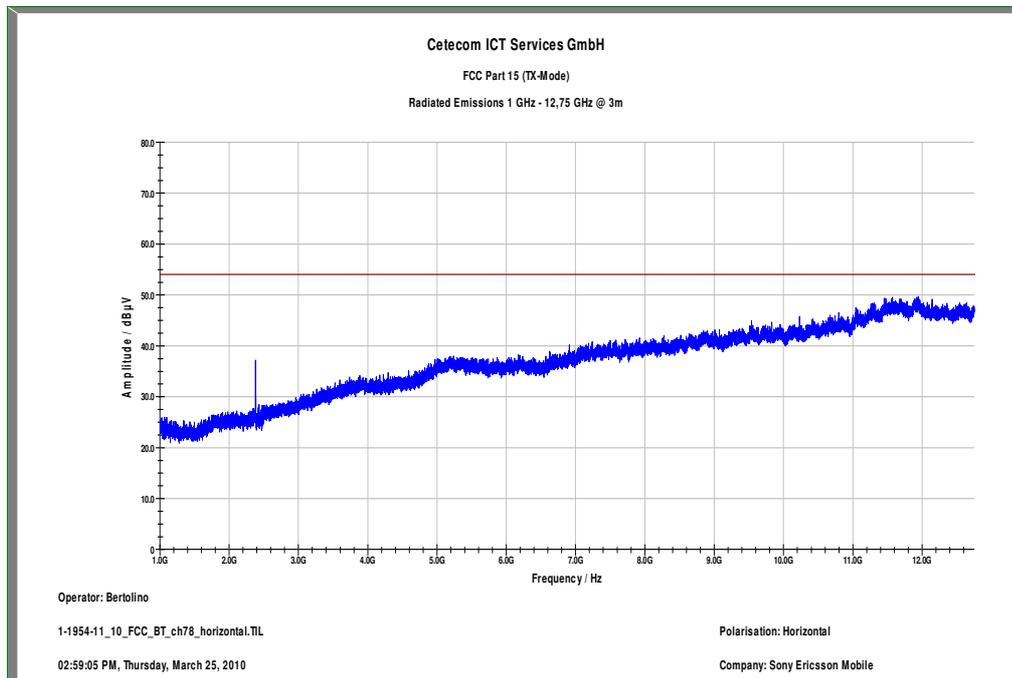
EMC 32 Version 8.10.00

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



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

Plot 10: 1 – 12.75 GHz horizontal polarization (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. All detected emissions are below the limit.			No critical peaks detected. All detected emissions are below the limit.			No critical peaks detected. All detected emissions are below the limit.		
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

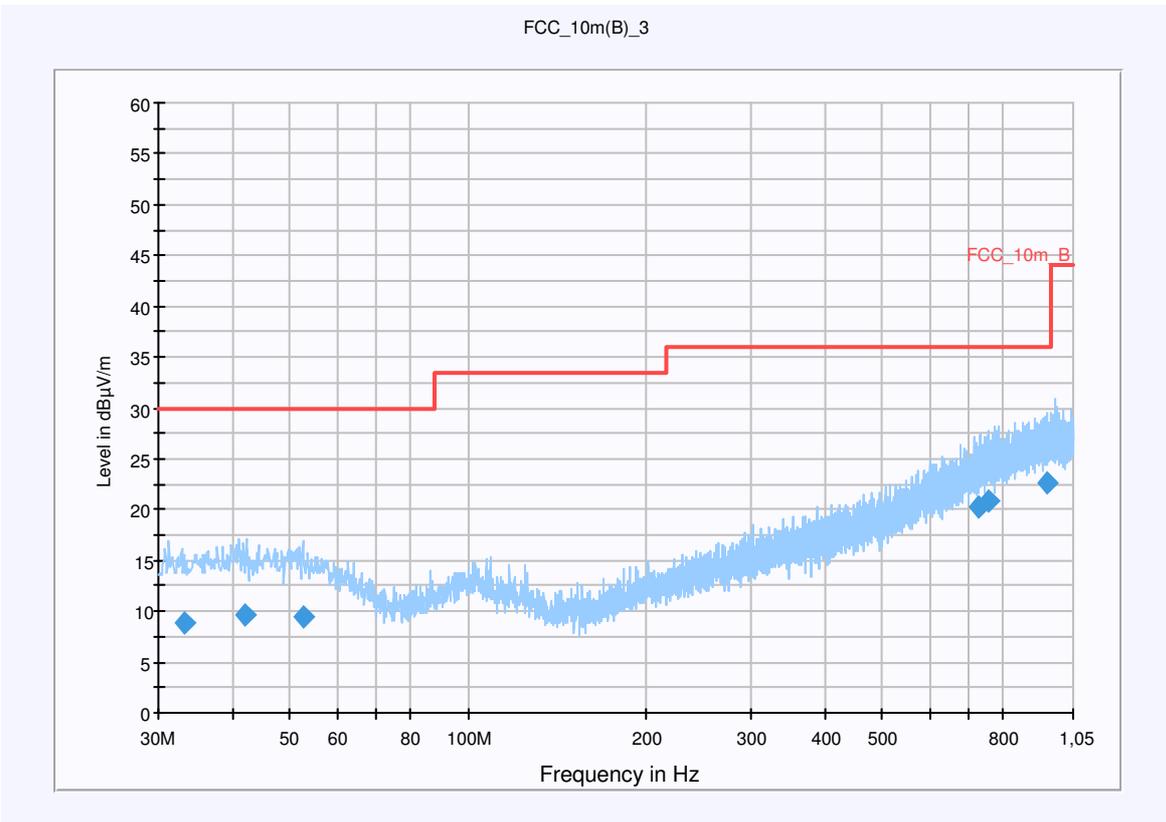
Plot 1: 0.03 - 1 GHz vertical & horizontal polarization (receiver)

Common Information

EUT: AAD-3880077-BV + MOBY + CAA-0003005-BV
 Serial Number: BX9019REMH / IMEI: 00440214-013804-5 + 09220D210002494 + 59 08W4 9308170
 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 - 1,05 GHz QuasiPeak 120 kHz 15 s Receiver



Final Result 1

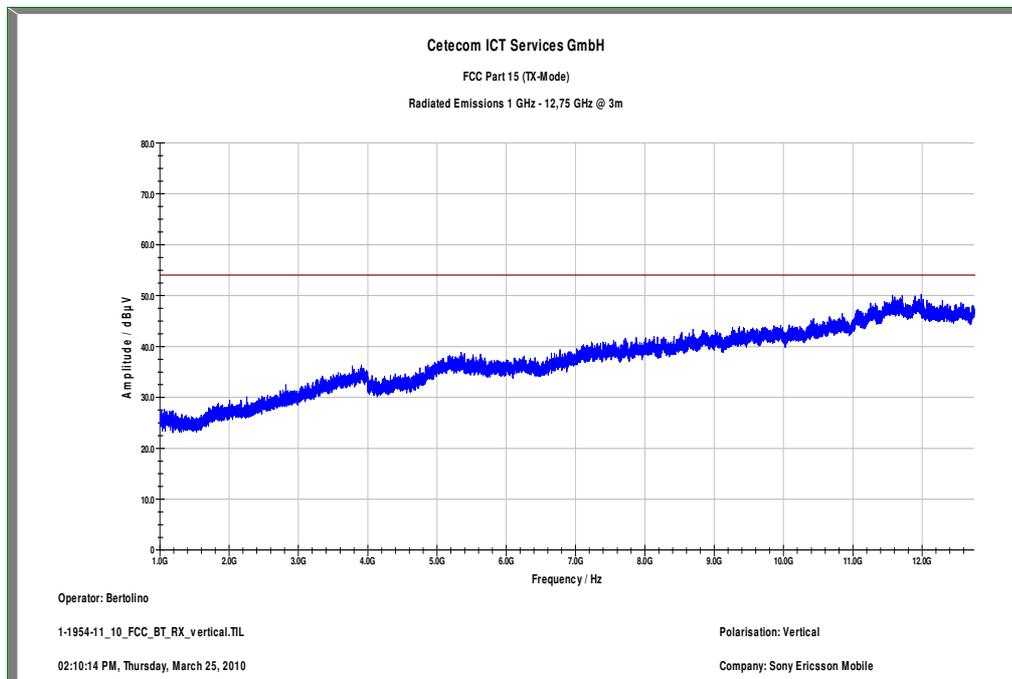
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
33.220650	8.9	15000.000	120.000	117.0	H	234.0	12.8	21.1	30.0	
42.133350	9.6	15000.000	120.000	113.0	V	202.0	13.4	20.4	30.0	
52.607550	9.4	15000.000	120.000	220.0	V	163.0	13.1	20.6	30.0	
729.314250	20.3	15000.000	120.000	143.0	H	66.0	23.1	15.7	36.0	
756.709800	20.8	15000.000	120.000	220.0	H	100.0	23.6	15.2	36.0	
945.294150	22.6	15000.000	120.000	220.0	V	177.0	25.3	13.4	36.0	

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

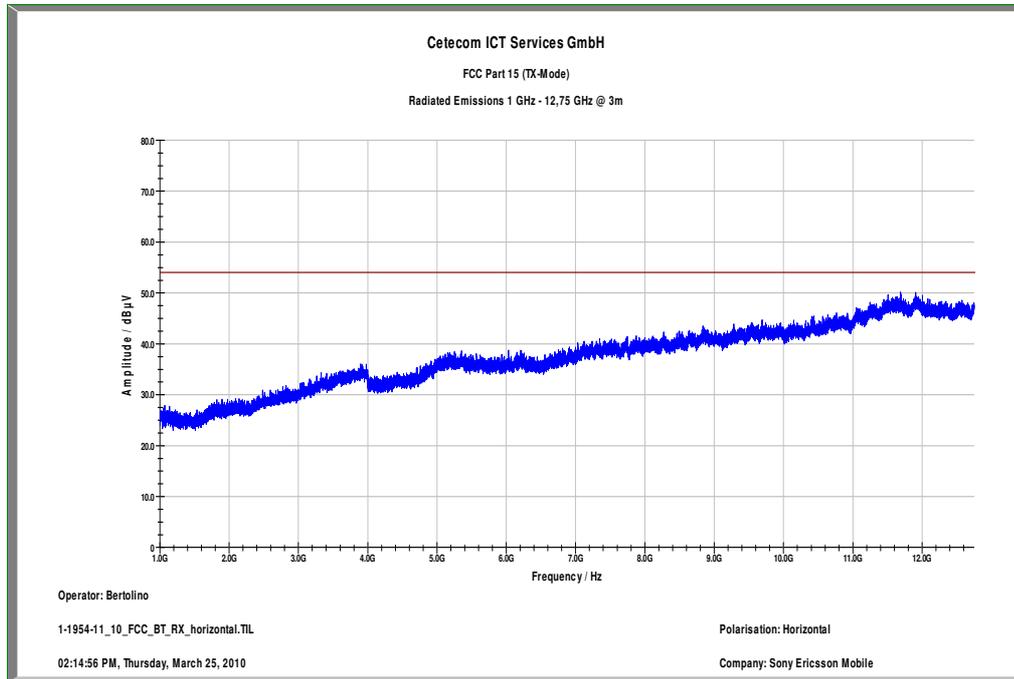
Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0909)
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

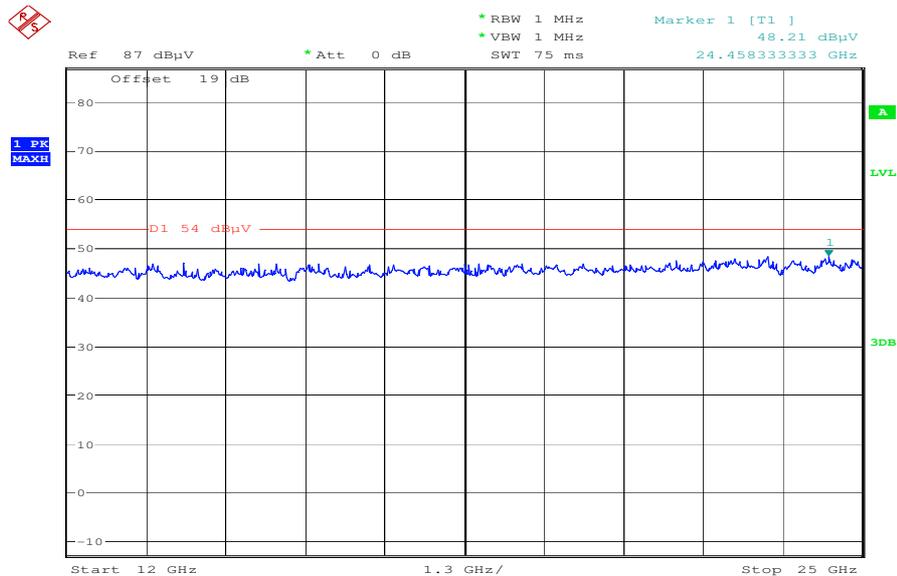
Plot 2: 1 – 12.75 GHz vertical polarization (receiver)



Plot 3: 1 – 12.75 GHz horizontal polarization (receiver)



Plot 4: 12 – 25 GHz vertical & horizontal polarization (valid for all channels)



Date: 26.MAR.2010 10:37:41

Results:

Spurious Emissions level [dB μ V/m]		
f[MHz]	Detector	Level [dB μ V/m]
No critical peaks detected. All detected emissions are below the limit.		
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

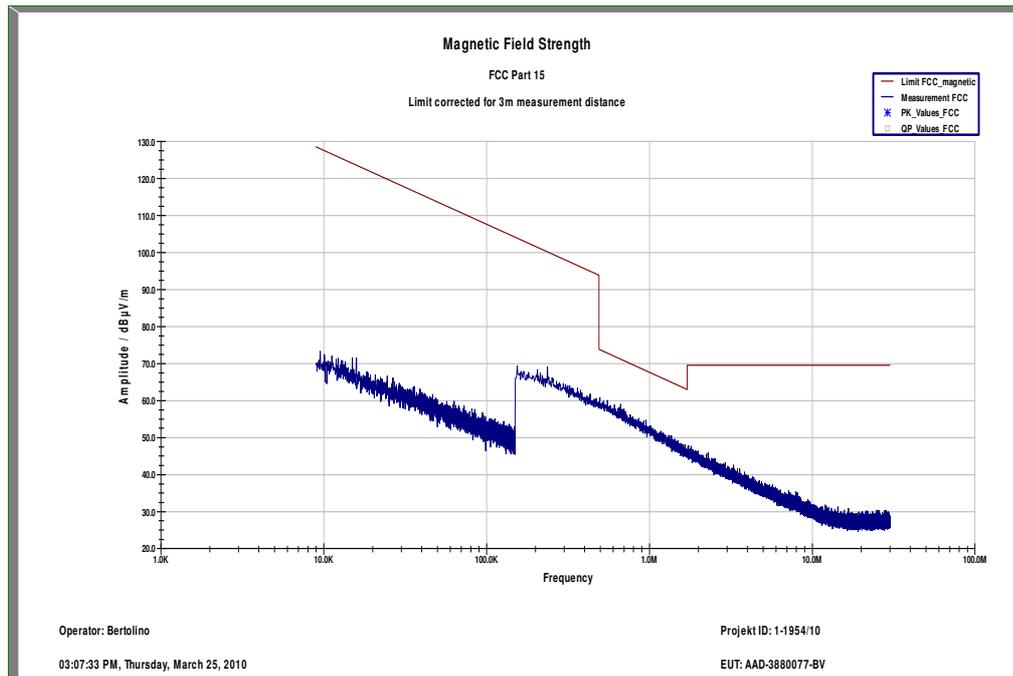
Frequency (MHz)	Field strength (μ V/m)	Measurement distance (m)
30 - 88	100 (40 dB μ V/m)	3
88 - 216	150 (43.5 dB μ V/m)	3
216 - 960	200 (46 dB μ V/m)	3
above 960	500 (54 dB μ V/m)	3

5.17 Spurious Emissions < 30 MHz - Transmitter radiated § 15.209

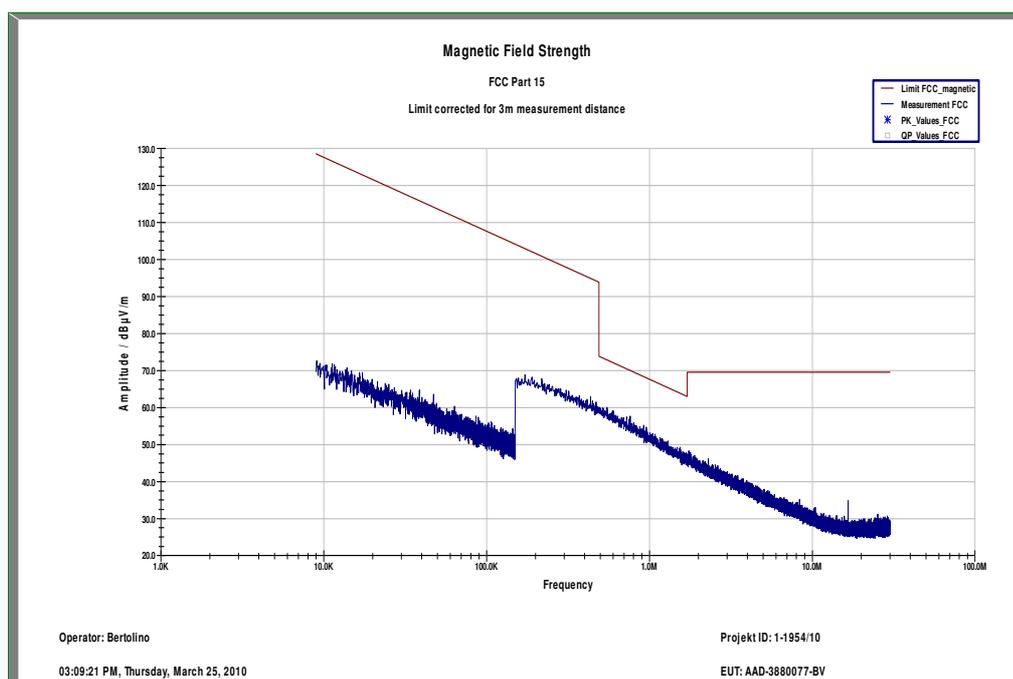
Modulation: 8 DPSK

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

Plot 1: TX mode



Plot 2: RX mode



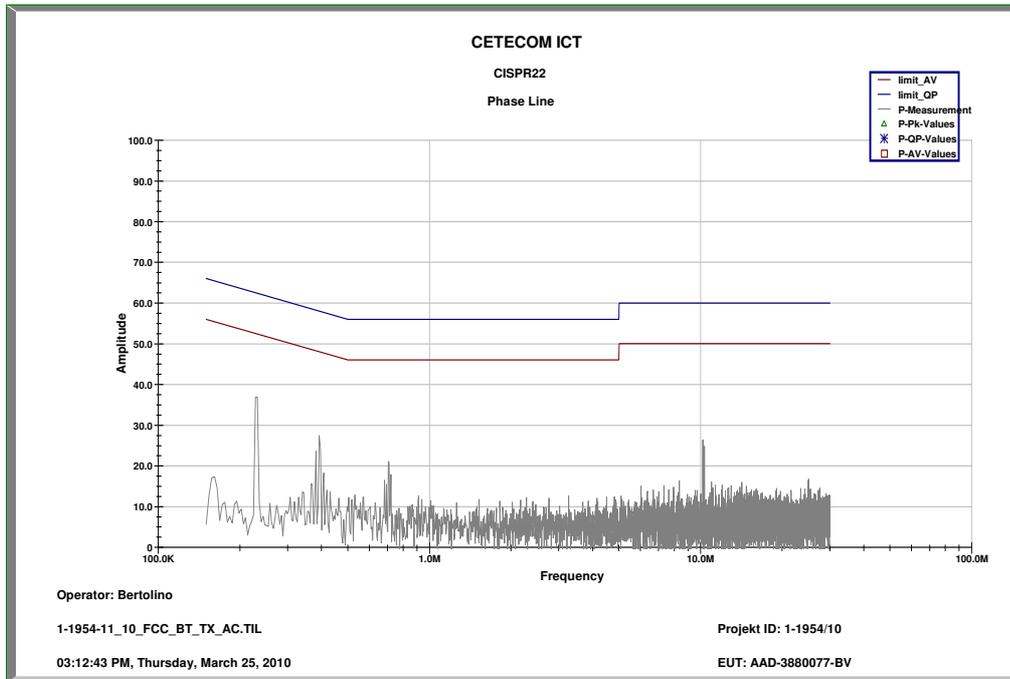
Limits:

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

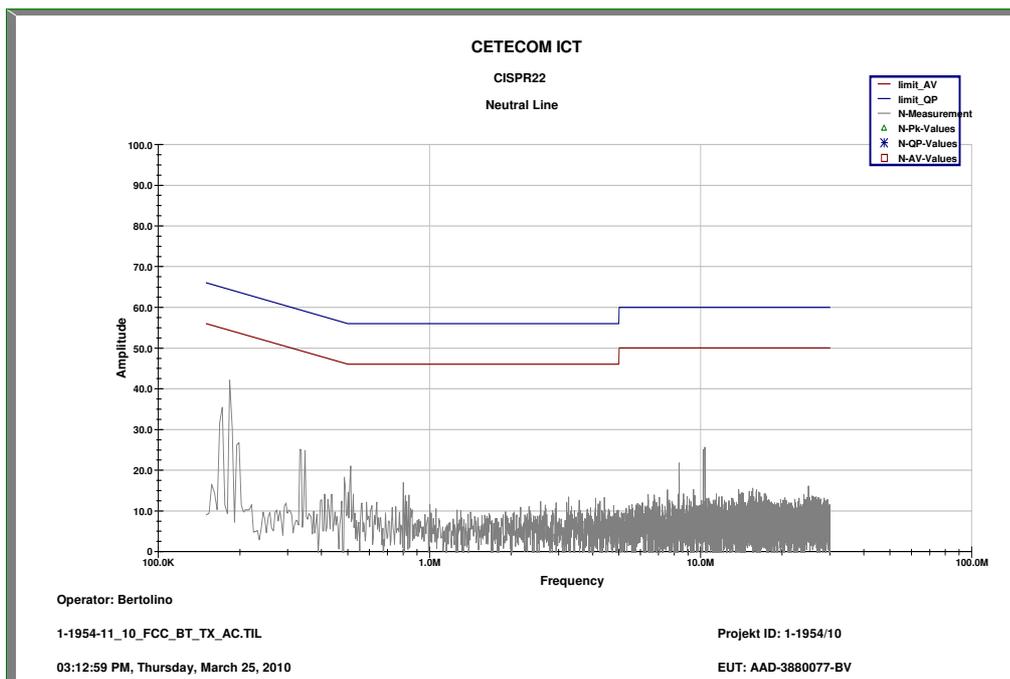
5.18 Conducted Emissions <30 MHz § 15.107/207

Modulation: 8 DPSK

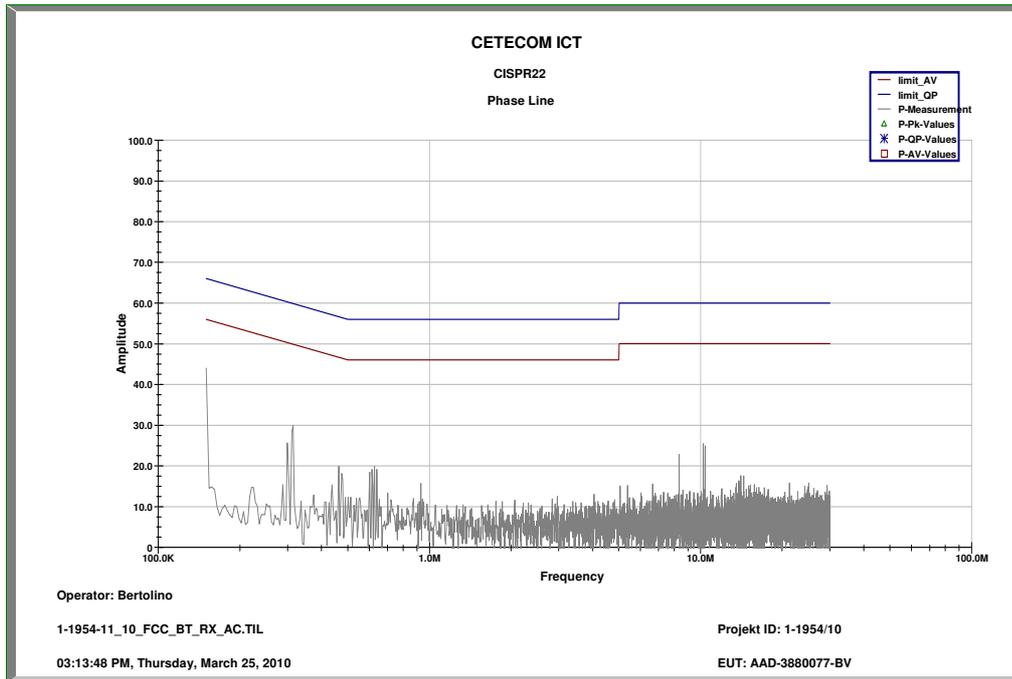
Plot 1: TX mode, phase line



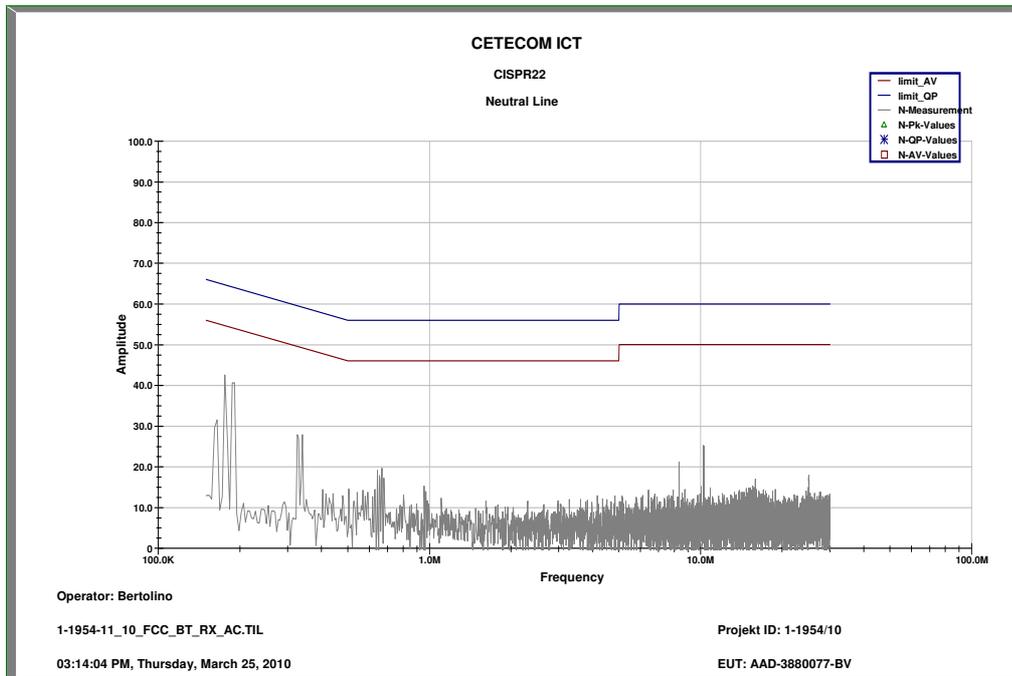
Plot 2: TX mode, neutral line



Plot 3: RX mode, phase line



Plot 4: RX mode, neutral line



Limits:

Under normal test conditions only	See plots
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6 Test equipment and ancillaries used for tests

In order to simplify the identification of the equipment used at each specific test, each item of test equipment and ancillaries are provided with an identifier or number in the equipment list below.

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).

No.	Lab Item	Equipment	Type	Manufact.	Serial No.	INV. No Cetecom	Kal. Art	Last Calibration	Next Calibration
1	n. a.	Switch / Control Unit	3488A	HP Meßtechnik		300001 691	ne		
2	n. a.	Power Supply DC	NGPE 40/40	R&S	388	400000 078	vl KI!	27.08. 2008	27.08. 2010
3	n. a.	Power Sensor 50 Ohms, 10 MHz - 18 GHz, 1 nW - 20 mW	NRV-Z1	R&S	833894 /011	300002 681- 0010	k	26.08. 2008	26.08. 2010
4	n. a.	Hygro-Thermometer	-/, 5-45°C, 20-100%rF	Thies Clima	-/-	400000 080	k	08.04. 2009	08.04. 2010
5	n. a.	Vector Signal Generator, 300 kHz to 2.2 GHz	SMIQ03B	R&S	835541 /055	300002 681- 0001	k	25.08. 2008	25.08. 2011
6	n. a.	Vector Signal Generator, 300 kHz to 2.2 GHz	SMIQ03B	R&S	835541 /056	300002 681- 0002	k	26.08. 2008	26.08. 2011
7	n. a.	Signal Generator 0.01/2 - 20 GHz, Frequ. Resol. 0.1Hz	SMP02	R&S	835133 /011	300002 681- 0003	k	26.08. 2008	26.08. 2011
8	n. a.	Dual Channel Power Meter	NRVD	R&S	835430 /044	300002 681- 0004	k	26.08. 2008	26.08. 2010
9	n. a.	Switch / Control Unit	SSCU	R&S	338864 /003	300002 681- 0006	ne		
10	n. a.	Precision Step Attenuator 50 Ohms, 0 - 2700MHz	RSP	R&S	834500 /010	300002 681- 0007	k	26.08. 2008	26.08. 2010
11	n. a.	Frequency Standard (Rubidium Frequency Standard)	MFS (Rubidium)	R&S (Datum)	002	300002 681- 0009	Ve	27.08. 2008	27.08. 2010
12	n. a.	Power Sensor 50 Ohms, 10 MHz - 18 GHz, 1 nW - 20 mW	NRV-Z1	R&S	833894 /012	300002 681- 0013	k	26.08. 2008	26.08. 2010
13	n. a.	Directional Coupler	101020010	Krytar	70215	300002 840	ev		
14	n. a.	DC-Blocker	8143	Inmet Corp.	none	300002 842	ne		
15	n. a.	Powersplitter	6005-3	Inmet Corp.		300002 841	ev		
16	n. a.	Temperature Test Chamber	VT 4002	Heraeus Voetsch	585660 468200 10	300003 019	Ve	28.05. 2009	28.05. 2011

17	n. a.	CBT (Bluetooth EDR Signalisierung)	CBT 1153.9000K3 5	R&S	100185	300003 416	vl KI!	27.08. 2008	27.08. 2010
18	n. a.	SPECTRUMANALY ZER 9kHz to 30GHz -140..+30dBm	FSP30	R&S	100886	300003 575	k	25.08. 2008	25.08. 2010
19	n. a.	CBT-K57 Software- Option for CBT/CBT32	CBT-K57	R&S	101051	300003 910	ne		
20	n. a.	Software Bluetooth- Protokoll Tester PTW 60	Software PTW 60	R&S		300002 853- 0002	ne		
21	45	Switch-Unit	3488A	HP Meßtechnik	2719A 14505	300000 368	g		
22	50	Netzgerät	6032A	HP Meßtechnik	2920A 04466	300000 580	k	06.01. 2009	06.01. 2011
23	n. a.	software	SPS_PHE 1.4f	Spitzberger & Spieß	5D108 1;B597 9	300000 210	k	03.09. 2001	03.09. 2003
24	n. a.	EMI-Messempfänger	ESCI 1166.5950.03	R&S	100083	300003 312	k	08.01. 2010	08.01. 2012
25	n. a.	Analysator-Referenz- System (Harmonics u. Flicker)	ARS 16/1	SPS	A3509 07/0 0205	300003 314	k	06.06. 2007	06.06. 2009
26	n. a.	Amplifier	JS42- 00502650-28- 5A	MITEQ	108453 2	300003 379	ev		
27	n. a.	Antennenmast	Model 2175	ETS- LINDGREN	64762	300003 745	izw		
28	n. a.	Steuergerät	Model 2090	ETS- LINDGREN	64672	300003 746	izw		
29	n. a.	Interface-Box für Drehtisch	Model 105637	ETS- LINDGREN	44583	300003 747	izw		
30	n. a.	Breitbandantenne	VULB9163	Schwarzbeck	295	300003 787	k	01.04. 2008	01.04. 2010
31	n. a.	Spectrum-Analyzer	FSU26	R&S	200809	300003 874	k	08.01. 2010	08.01. 2012
32	n. a.	System Autoranging DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2818A 03450	300001 040	Ve	08.01. 2009	08.01. 2012
33	n. a.	PowerAttenuator	8325	Byrd	1530	300001 595			
34	n. a.	Double-Ridged Waveguide Horn Antenna 1-26.5GHz	3115	EMCO	8812- 3088	300001 032	vl KI!	05.03. 2009	05.03. 2011
35	n. a.	Active Loop Antenna	6502	EMCO	2210	300001 015	ne		
36	n. a.	Anechoic chamber		MWB	87400/ 02	300000 996			
37	Spec .A. 2_2e	System-Rack	85900	HP I.V.	*	300000 222	ne		
38	9	Artificial Mains 9 kHz to 30 MHz, 4 x 25 Ampere	ESH3-Z5	R&S	828576 /020	300001 210	Ve	06.01. 2010	06.01. 2012
39	n. a.	Relais Matrix	3488A	HP Meßtechnik	2719A 15013	300001 156	ne		
40	n. a.	Relais Matrix	PSU	R&S	890167 /024	300001 168	ne		

41	n. a.	Isolating Transformer	RT5A	Grundig	9242	300001 263	ne		
42	n. a.	Three-Way Power Splitter, 50 Ohm	11850C	HP Meßtechnik		300000 997	ne		
43	n. a.	Switch / Control Unit	3488A	HP	2605e0 8770	300001 443	ne		
44	n. a.	Band Reject filter	WRCG1855/ 1910- 1835/1925- 40/8SS	Wainwright	7	300003 350	ev		
45	n. a.	Band Reject filter	WRCG2400/ 2483- 2375/2505- 50/10SS	Wainwright	11	300003 351	ev		
46	n. a.	TILE-Software Emission	Quantum Change, Modell TILE- ICS/FULL	EMCO	none	300003 451	ne		
47	n. a.	Highpass Filter	WHKX2.9/18 G-12SS	Wainwright	1	300003 492	ev		
48	n. a.	Highpass Filter	WHK1.1/15G -10SS	Wainwright	3	300003 255	ev		
49	n. a.	Highpass Filter	WHKX7.0/18 G-8SS	Wainwright	18	300003 789	ne		
50	n. a.	PSA Spectrum Analyzer 3 Hz - 26.5 GHz	E4440A	Agilent Vertr. Bad Hom	MY482 50080	300003 812	k	05.08. 2008	05.08. 2010
51	n. a.	MXG Microwave Analog Signal Generator	N5183A	Agilent Vertr. Bad Hom	MY474 20220	300003 813	k	06.08. 2008	06.08. 2010
52	n. a.	RF Filter Section 9kHz - 1GHz	N9039A	Agilent Vertr. Bad Hom	MY482 60003	300003 825	vl KI!	19.08. 2008	19.08. 2010
53	n. a.	TRILOG Super Breitband Antenne	VULB9163	Schwarzbeck	371	300003 854	vl KI!	17.12. 2008	17.12. 2010