



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)

*The Bluetooth word mark and logos are owned by the Bluetooth SIG,
Inc. and any use of such marks by Cetecom ICT is under license*

Test report no. : 1-1954-12-02/10
Type identification : DDA-0002026
Applicant : Sony Ericsson Mobile Communications AB
FCC ID : PY7DDA2026
IC Certification No : 4170B-DDA2026
Test standards : 47 CFR Part 15
RSS - 210 Issue 7

Table of contents

1	General information.....	3
1.1	Notes	3
1.2	Testing laboratory	4
1.3	Details of applicant	4
1.4	Application details	4
2	Test standard/s	5
3	Technical tests	6
3.1	Details of manufacturer.....	6
3.1.1	Test item.....	6
3.1.2	Additional EUT information For IC Canada (appendix 2).....	7
3.1.3	Extreme conditions testing values	8
4	Summary of Measurement Results and list of all performed test cases	9
5	RF measurement testing	10
5.1	Description of test set-up.....	10
5.1.1	Radiated measurements.....	10
5.1.2	Conducted measurements.....	10
5.2	Referenced documents	11
5.3	Additional comments	11
5.4	Antenna gain	11
5.5	Carrier frequency separation §15.247(a)(1)	12
5.6	Number of hopping channels §15.247(a)(1)	13
5.7	Time of occupancy (dwell time) §15.247(a)(1)(iii).....	14
5.8	Power Spectral density (Hybrid system in Inquiry mode/Page scan) §15.247(e)	15
5.9	Spectrum Bandwidth of a FHSS System / 20dB Bandwidth §15.247(a)(1).....	16
5.10	Maximum output power (conducted) § 15.247 (b)(1).....	21
5.11	Max. peak output power (radiated) § 15.247 (b)(1)	25
5.12	Band-edge compliance of conducted emissions §15.247 (d)	25
5.13	Band-edge compliance of radiated emissions §15.205	25
5.14	Spurious Emissions - conducted (Transmitter) § 15.247 (c)(1)	25
5.15	Spurious Emissions > 30 MHz- radiated (Transmitter) § 15.247 (c)(1).....	25
5.16	Spurious Emissions - radiated (Receiver) § 15.109	25
5.17	Spurious Emissions < 30 MHz - Transmitter radiated § 15.209	25
5.18	Conducted Emissions < 30 MHz § 15.107/207.....	25
6	Test equipment and ancillaries used for tests	25
7	Photographs of the Test Set-up.....	25
8	Photographs of the EUT	25

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.

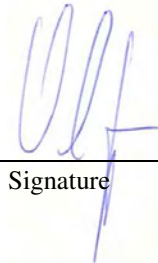
Test laboratory manager:

2010-03-11 Joerg Warken

Date

Name

Signature

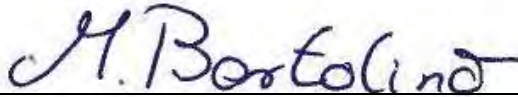


2010-03-11 Marco Bertolino

Date

Name

Signature



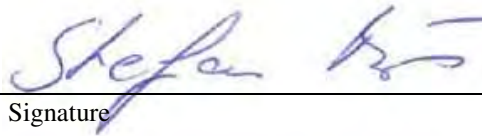
Technical responsibility for area of testing:

2010-03-11 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: 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:	2010-03-04
Date of start test:	2010-03-04
Date of end test:	2010-03-11
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:	Nya Vattentorget
Town:	22188 Lund
Country:	Sweden

3.1.1 Test item

Kind of test item	:	Bluetooth Headset
Type identification	:	DDA-0002026
S/N serial number	:	Radiated: 10050C1C00015C 100602C6C0001C0 Conducted: 000DFD90103B 000DFD901022
HW hardware status	:	AP1
SW software status	:	1234-8732_010G09
Frequency Band [MHz]	:	ISM band 2.400 - 2.483,5 (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	:	3.8 V DC by battery + charger / power supply
Temperature Range	:	-20 °C to +55 °C

Max. power radiated: 6.09 dBm

Max. power conducted: 5.58 dBm

FCC ID: PY7DDA2026

IC: 4170B-DDA2026

3.1.2 Additional EUT information For IC Canada (appendix 2)

IC Registration Number:	4170B-DDA2026
Model Name:	DDA-0002026
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: 4.06 mW Conducted : 3.61 mW <u>Pi/4 DQPSK modulation:</u> Rad. EIRP: 2.62 mW Conducted : 2.32 mW <u>8 DPSK:</u> Rad. EIRP: 2.75 mW Conducted : 2.43 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: 1305 8 DPSK: 1263
Type of Modulation:	GFSK, Pi/4 DQPSK, 8 DPSK
Emission Designator (TRC-43):	GFSK modulation: 920KFXD Pi/4 DQPSK modulation: 1M31GXD 8 DPSK: 1M26GXD
Transmitter Spurious (worst case) [dBμV/m in 3m]:	50.39
Receiver Spurious (worst case) [dBμV/m in 3m]:	49.65

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: 2010-03-11

3.1.3 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	3.8

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

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	2010-03-11	-/-

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	Yes			
§ 15.247 (d)	Spurious Emission - radiated (Transmitter) >30 MHz	GFSK	Yes			
§ 15.109	Spurious Emissions - radiated (Receiver)	-/-	Yes			
§ 15.209	Spurious Emissions - radiated (Transmitter) <30 MHz	GFSK	Yes			
§ 15.107/207	Conducted Emissions <30 MHz	GFSK	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.

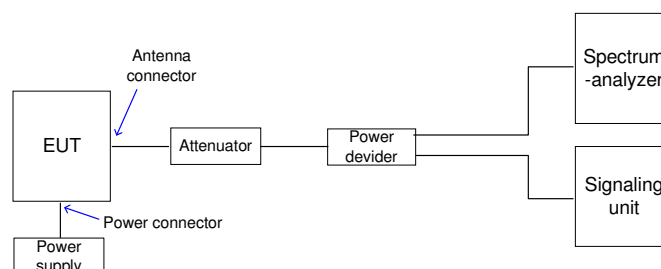
9 kHz - 150 kHz: Quasi Peak measurement, 200 Hz Bandwidth, passive loop antenna.
150 kHz - 30 MHz: Quasi Peak measurement, 9 kHz Bandwidth, passive loop antenna.
30 MHz - 200 MHz: Quasi Peak measurement, 120 kHz Bandwidth, bi-conical antenna
200MHz - 1GHz: Quasi Peak measurement, 120 kHz Bandwidth, log 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.

Results:

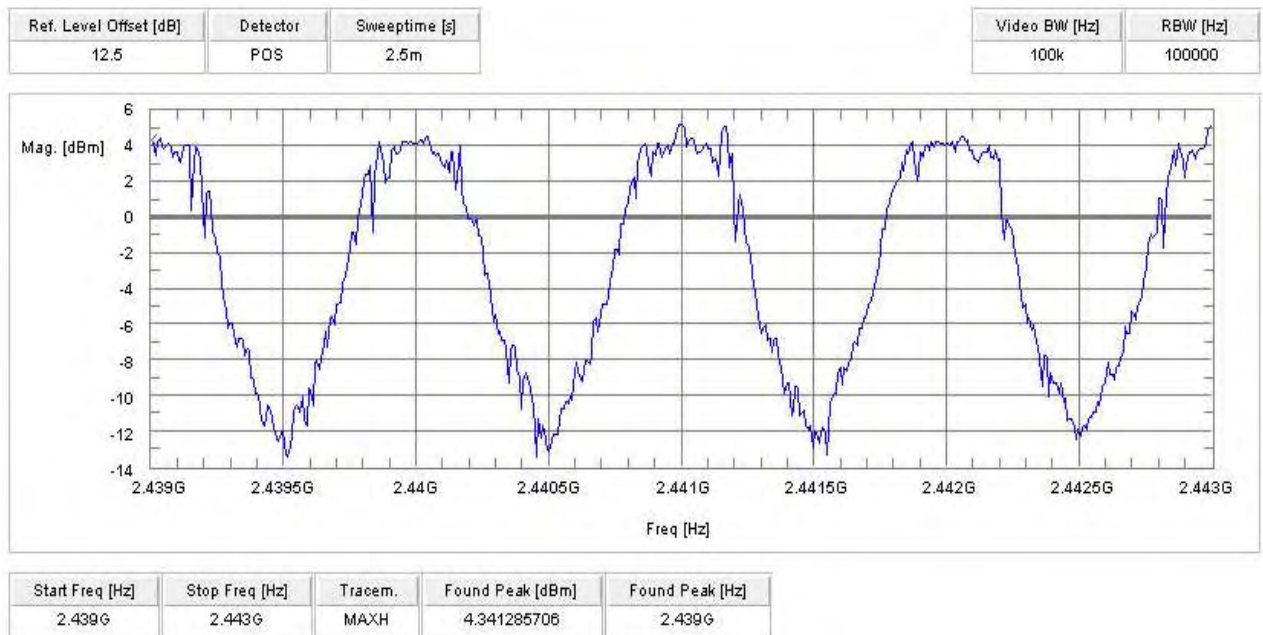
	low channel 2402 MHz	mid channel 2441 MHz	high channel 2480 MHz
Conducted power [dBm] Measured, GFSK modulation	5.58	5.56	5.06
Radiated power [dBm] Measured, GFSK modulation	5.98	6.09	5.78
Gain [dBi] Calculated	0.40	0.53	0.72

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

Modulation: GFSK

Plot 1 of 1:

C.BER by Cetecom Saarbruecken Germany



Result: Channel separation is: ~ 1 MHz

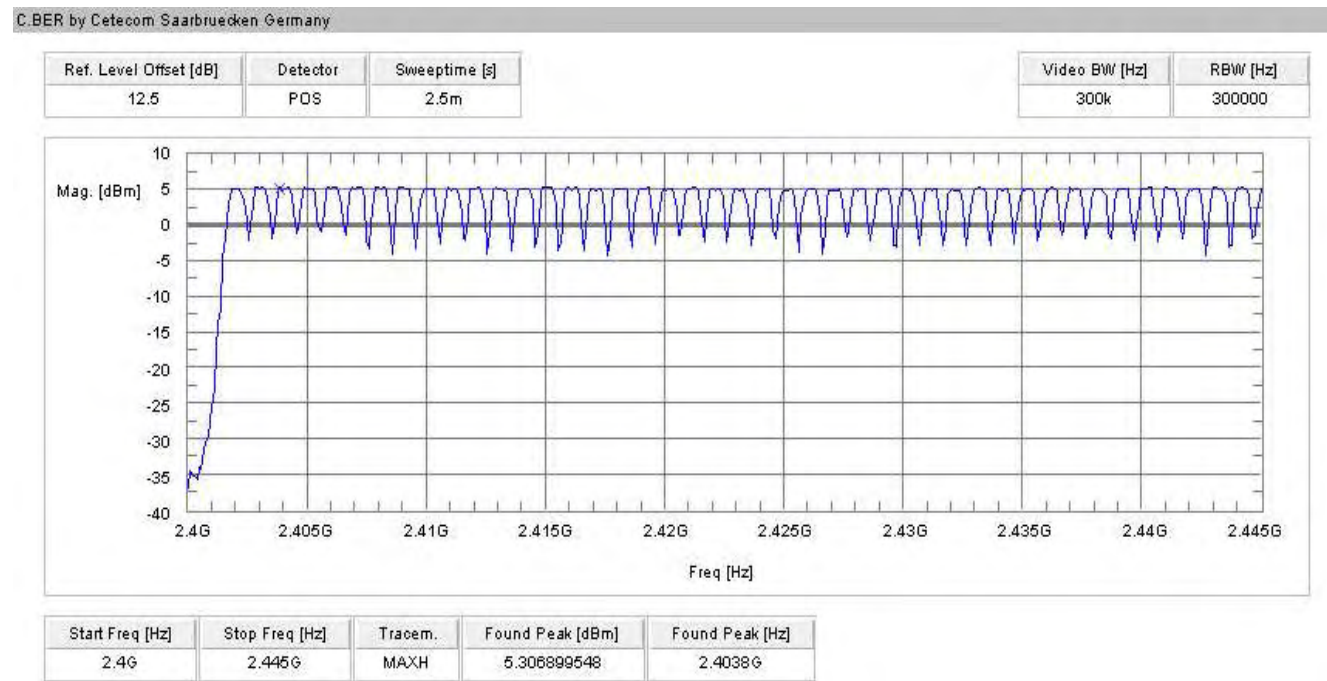
Limits:

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

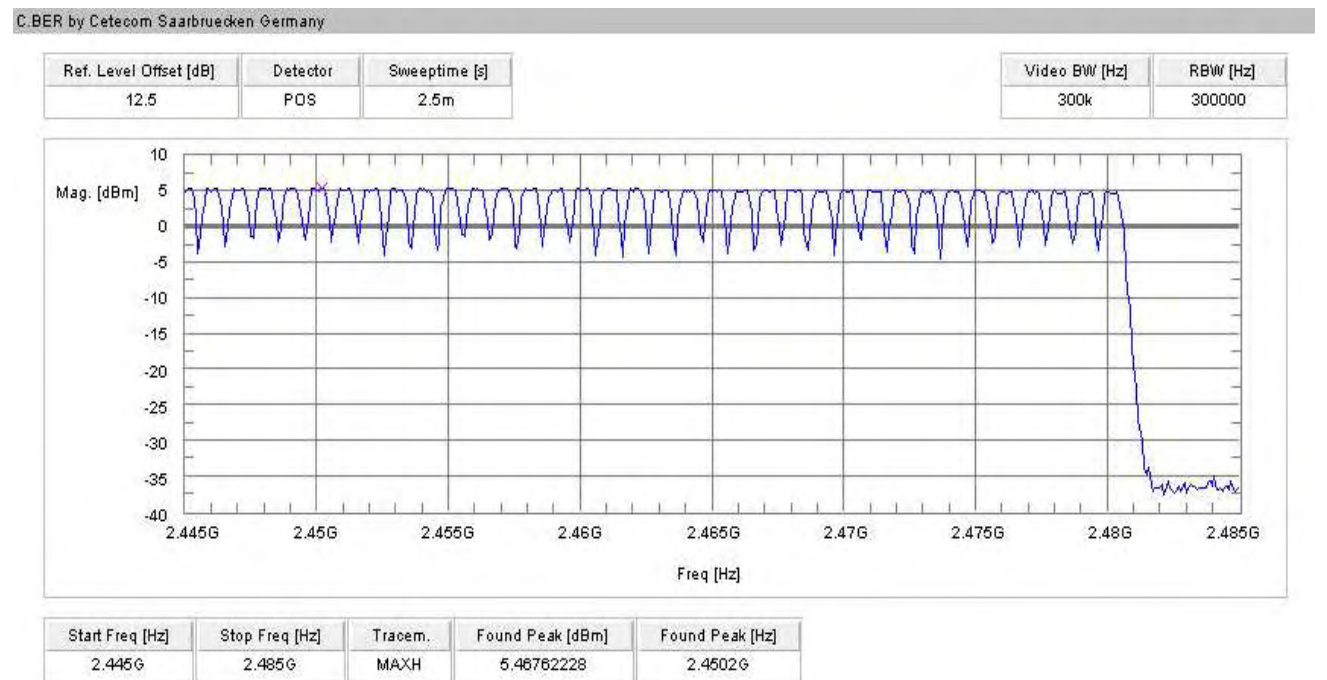
5.6 Number of hopping channels §15.247(a)(1)

Modulation: GFSK

Plot 1 of 2:



Plot 2 of 2:



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!

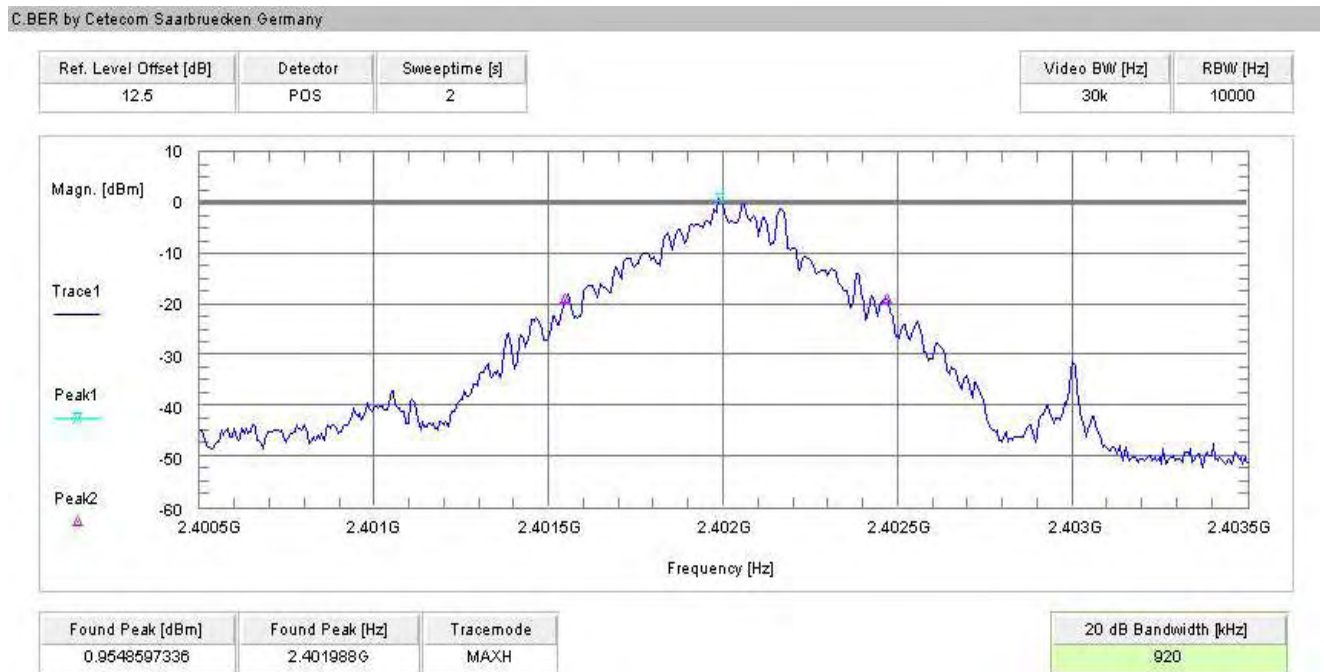
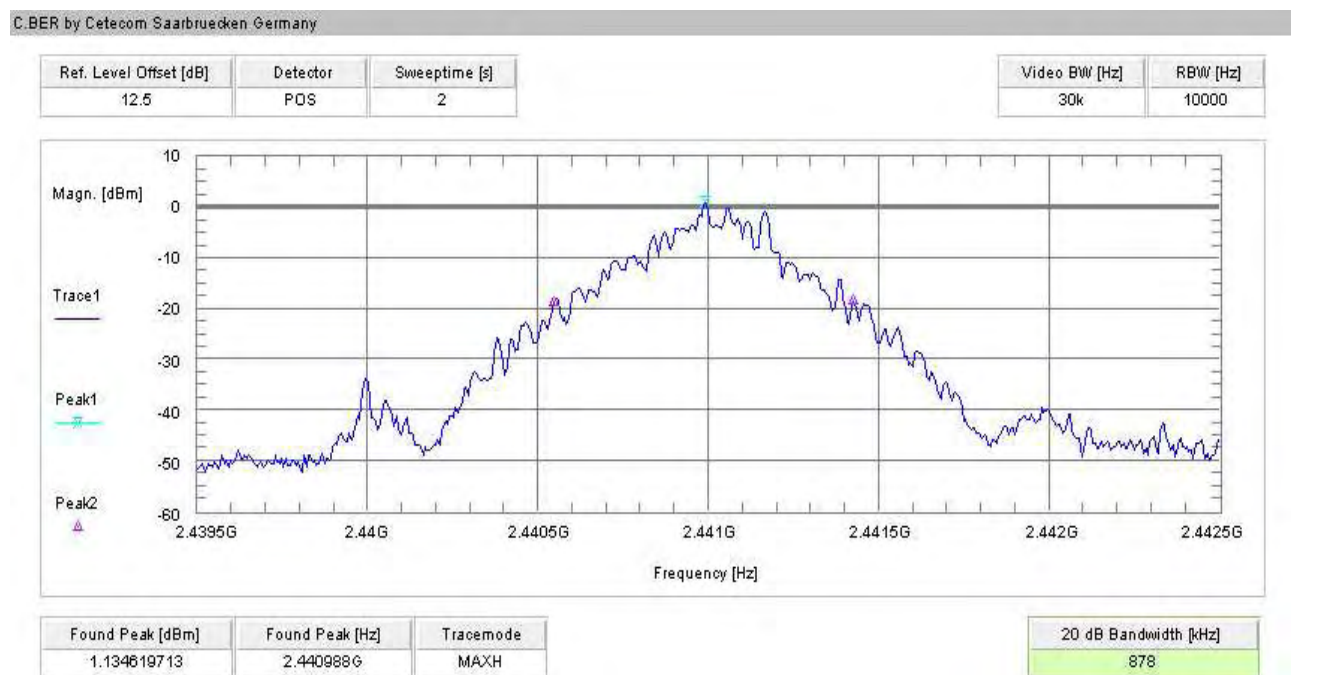
For FHSS systems only!

Plot 1 of 1:

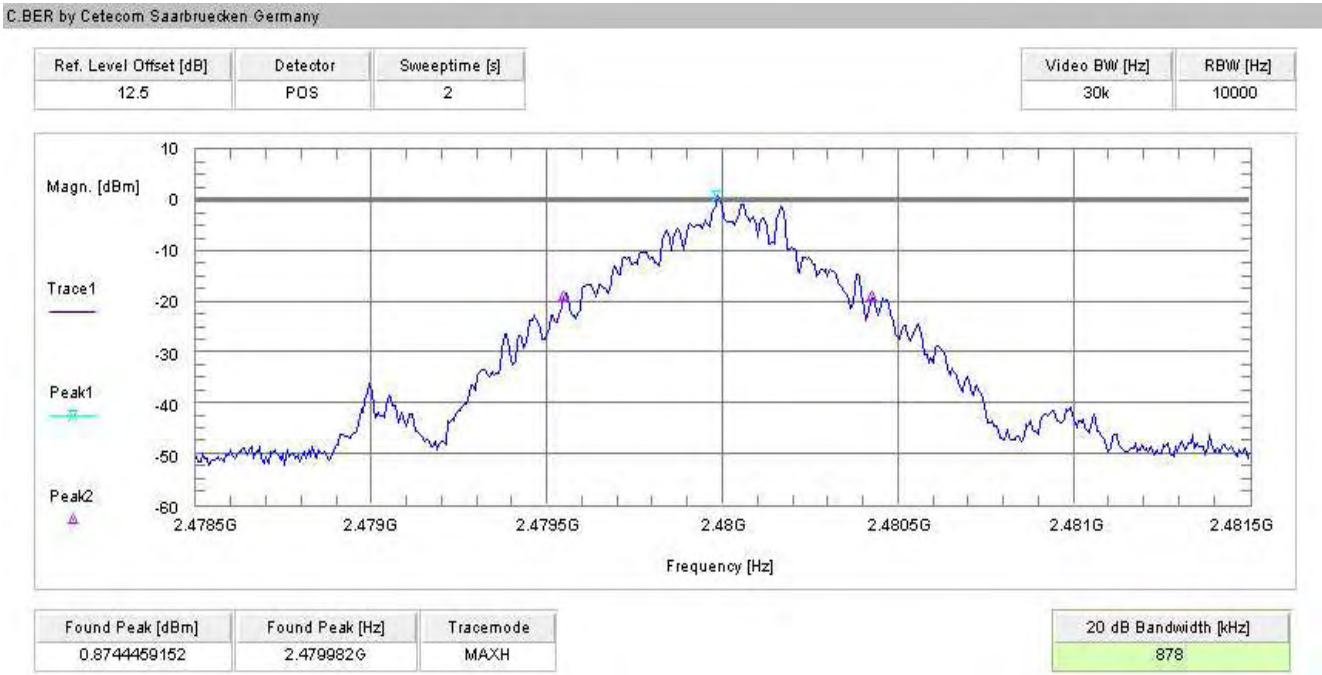
Result: Power density: - dBm/Hz = - dBm / 3 kHz
Correction factor from dBm/Hz to dBm / 3 kHz is +34.8 dB

Limits:

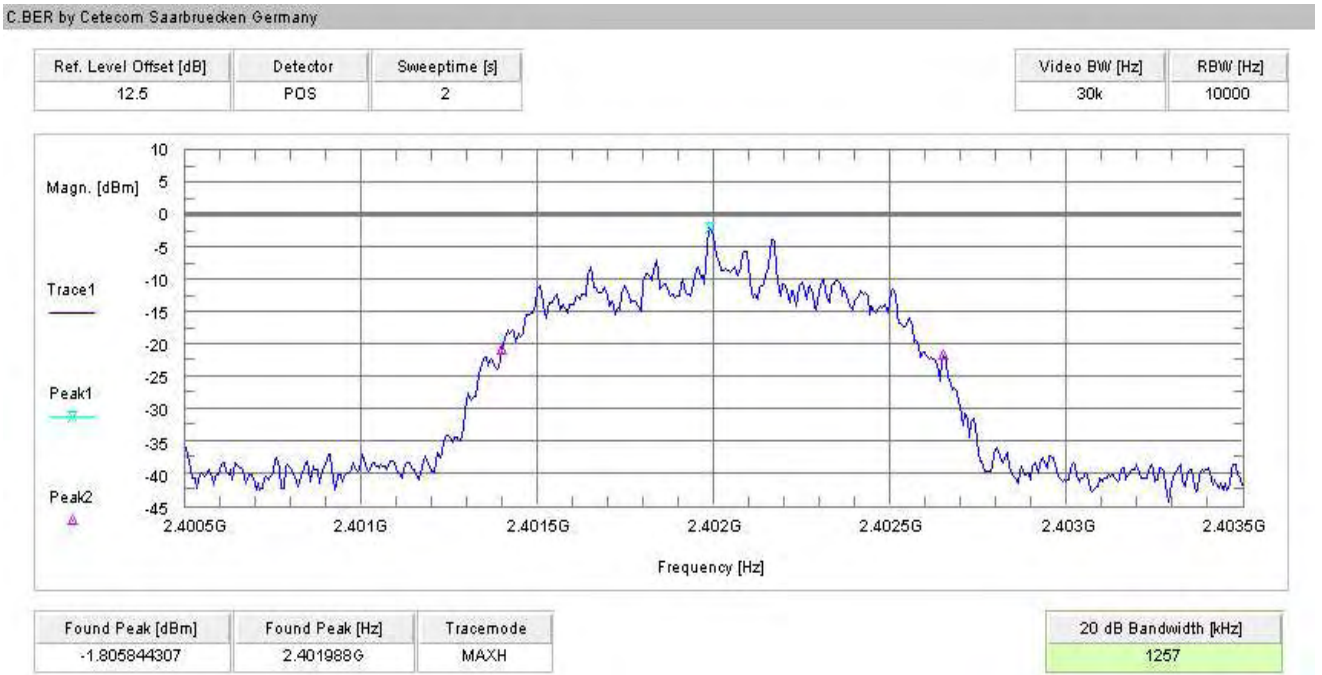
Under normal test conditions only	For digitally modulated systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission
-----------------------------------	---

5.9 Spectrum Bandwidth of a FHSS System / 20dB Bandwidth §15.247(a)(1)**Plot 1: GFSK, channel 00 – 2402 MHz****Plot 2: GFSK, channel 39 – 2441 MHz**

Plot 3: GFSK, channel 78 – 2480 MHz

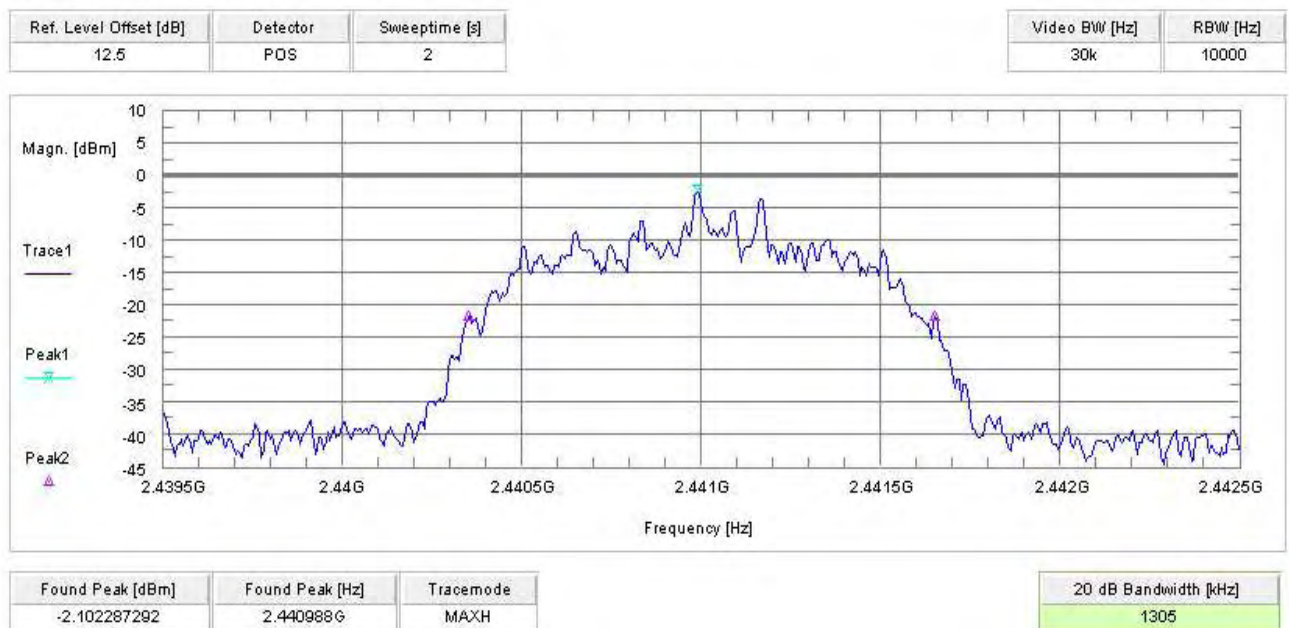


Plot 4: Pi/4 DQPSK, channel 00 – 2402 MHz



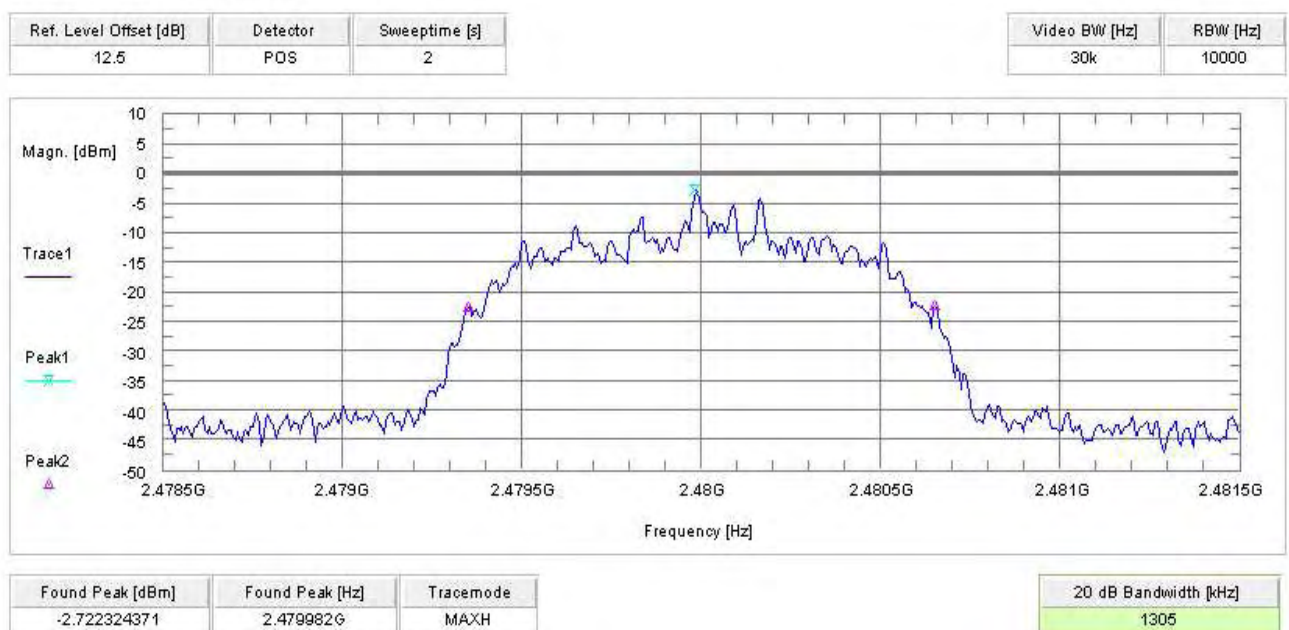
Plot 5: Pi/4 DQPSK, channel 39 – 2441 MHz

C.BER by Cetecom Saarbruecken Germany

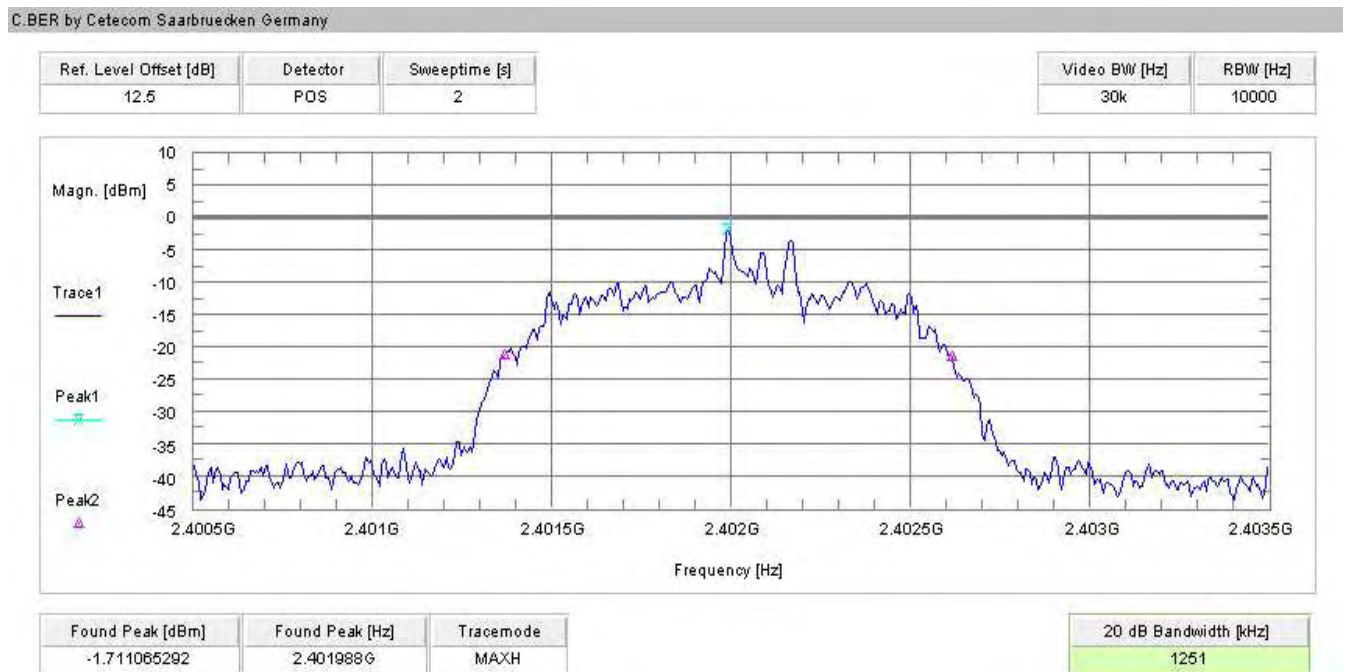


Plot 6: Pi/4 DQPSK, channel 78 – 2480 MHz

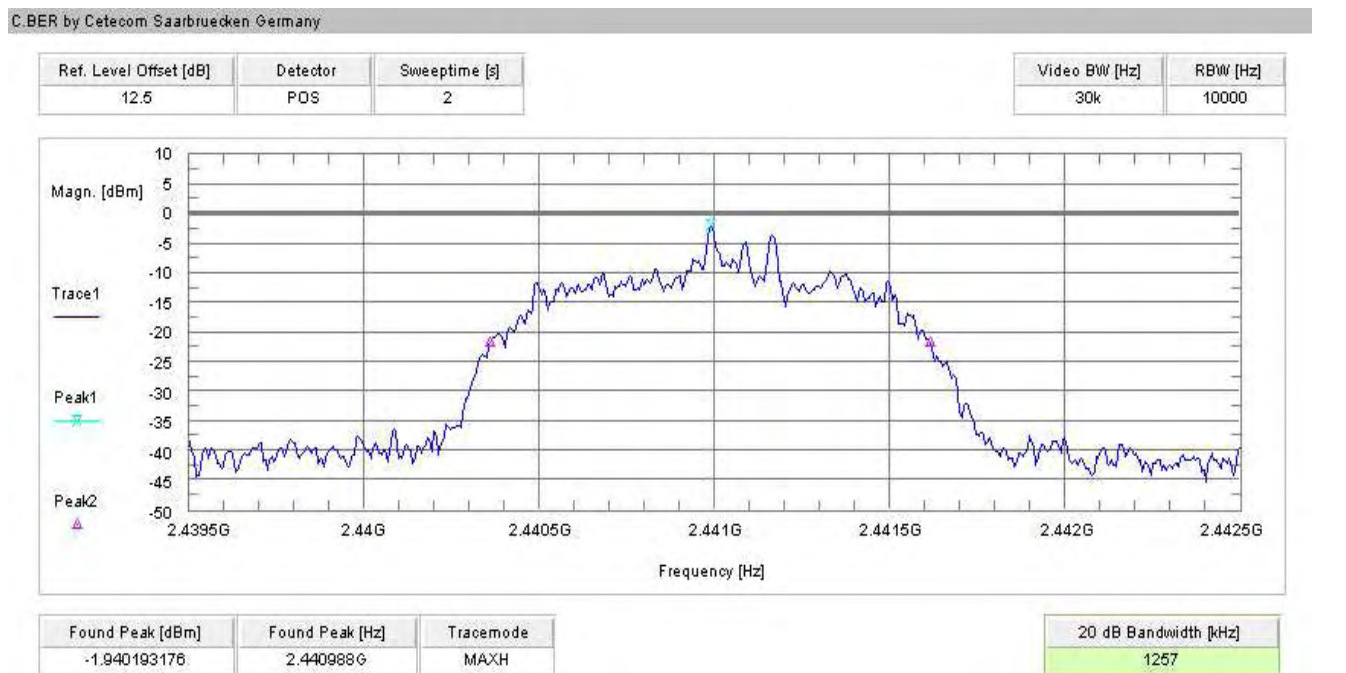
C.BER by Cetecom Saarbruecken Germany



Plot 7: 8DPSK, channel 00 – 2402 MHz

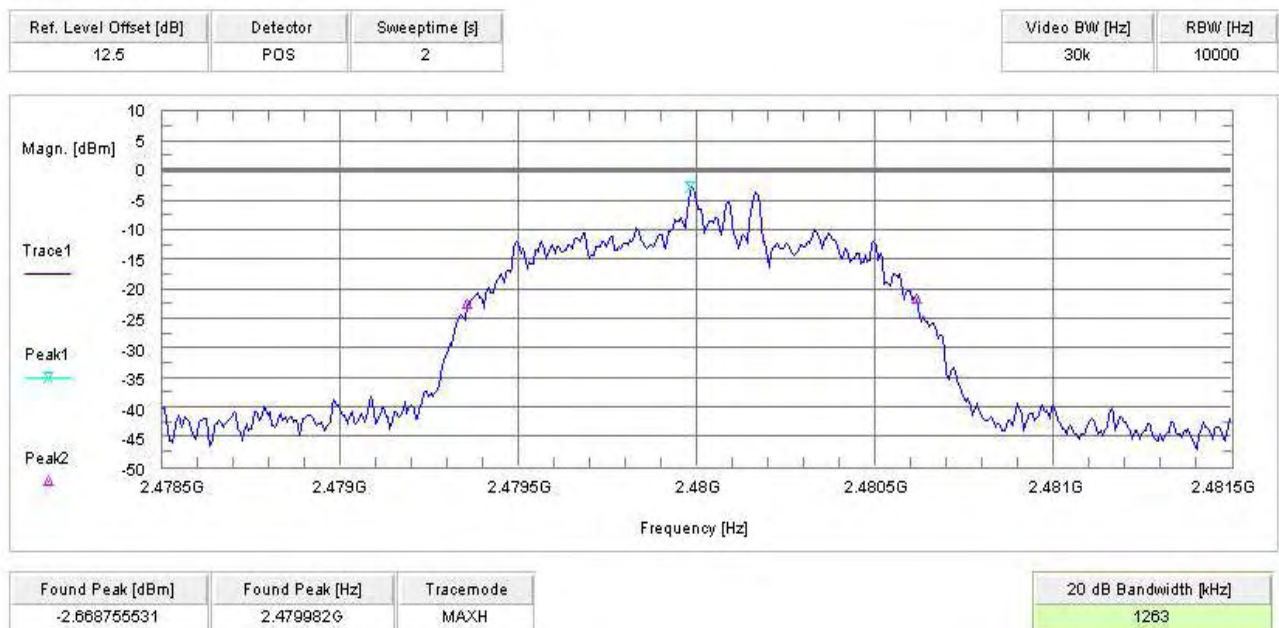


Plot 8: 8DPSK, channel 39 – 2441 MHz



Plot 9: 8DPSK, channel 78 – 2480 MHz

C.BER by Cetecom Saarbruecken Germany



Results:

Modulation Frequency [MHz]	20 dB BANDWIDTH [kHz]		
	2402	2441	2480
GFSK	920	878	878
Pi/4 DQPSK	1257	1305	1305
8DPSK	1251	1257	1263
Measurement uncertainty	±1kHz		

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

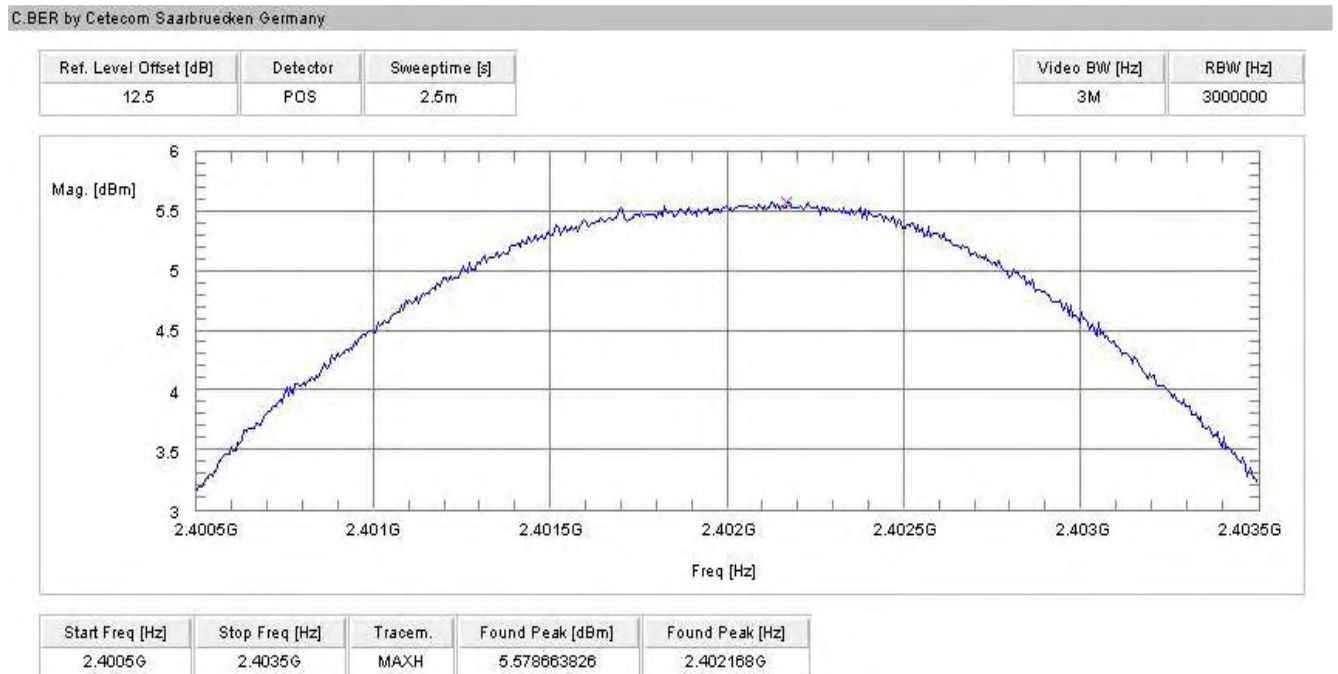
RBW: 10 kHz / VBW 10 kHz

Limits:

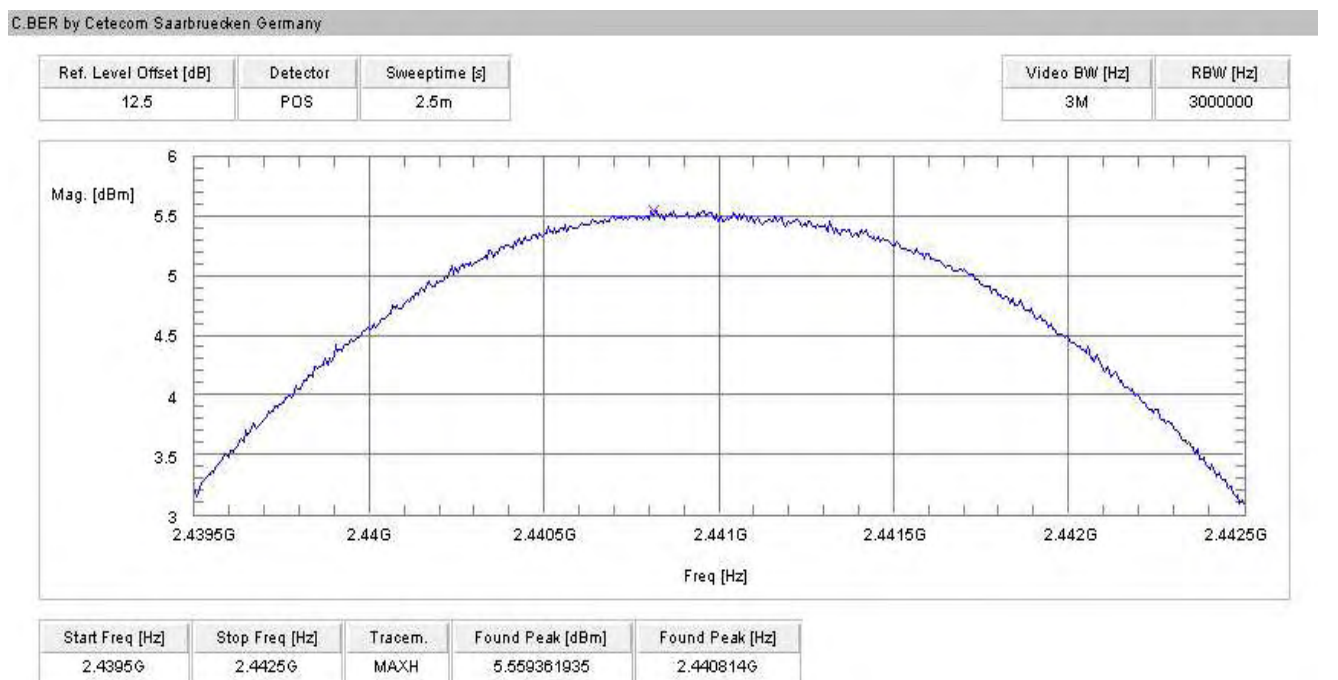
Under normal test conditions only	GFSK < 1000 kHz Pi/4 DQPSK < 1500 8DPSK < 1500
-----------------------------------	--

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

Plot 1: GFSK, channel 00 – 2402 MHz

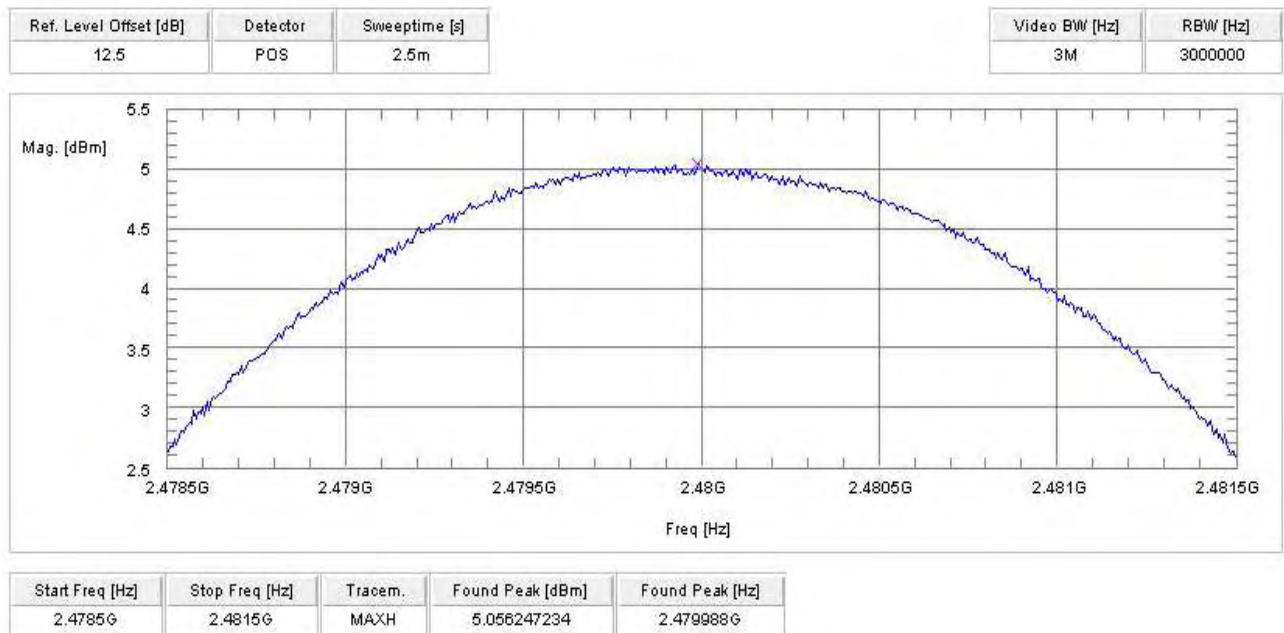


Plot 2: GFSK, channel 39 – 2441 MHz



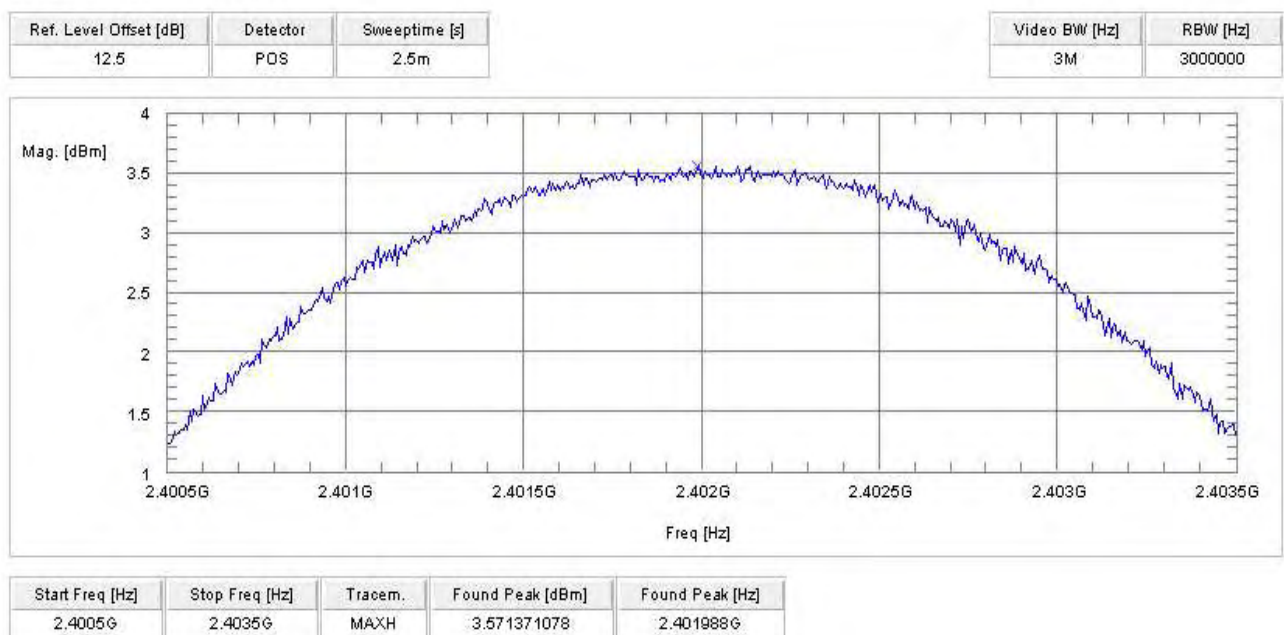
Plot 3: GFSK, channel 78 – 2480 MHz

C.BER by Cetecom Saarbruecken Germany



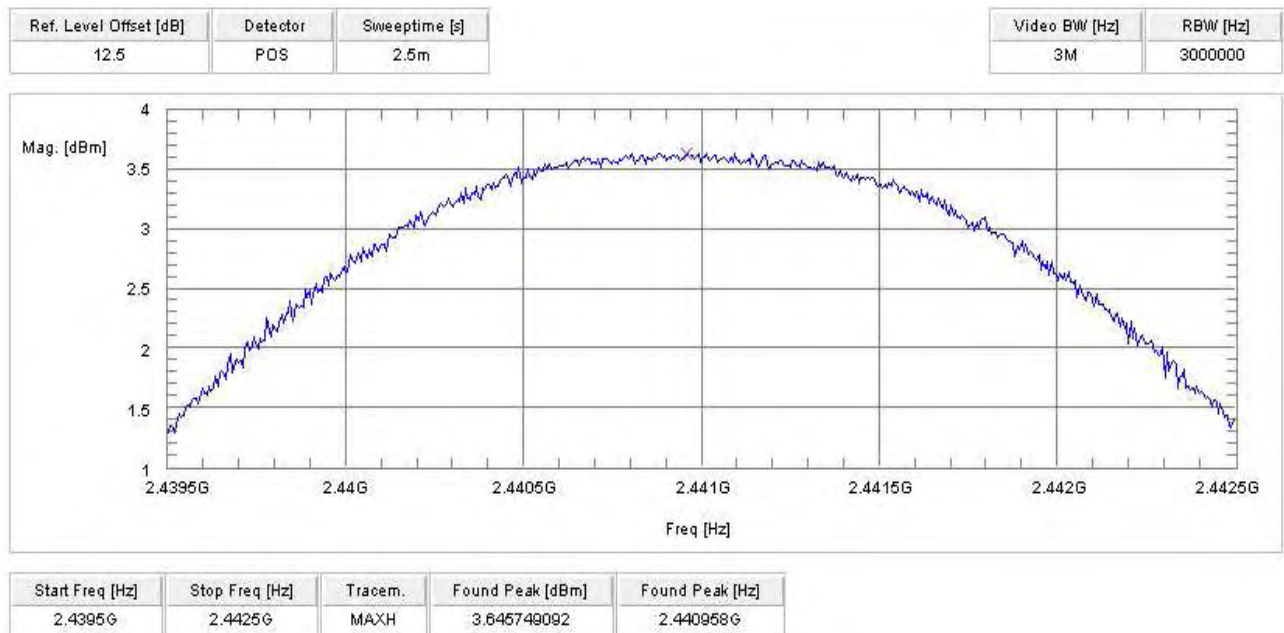
Plot 4: Pi/4 DQPSK, channel 00 – 2402 MHz

C.BER by Cetecom Saarbruecken Germany



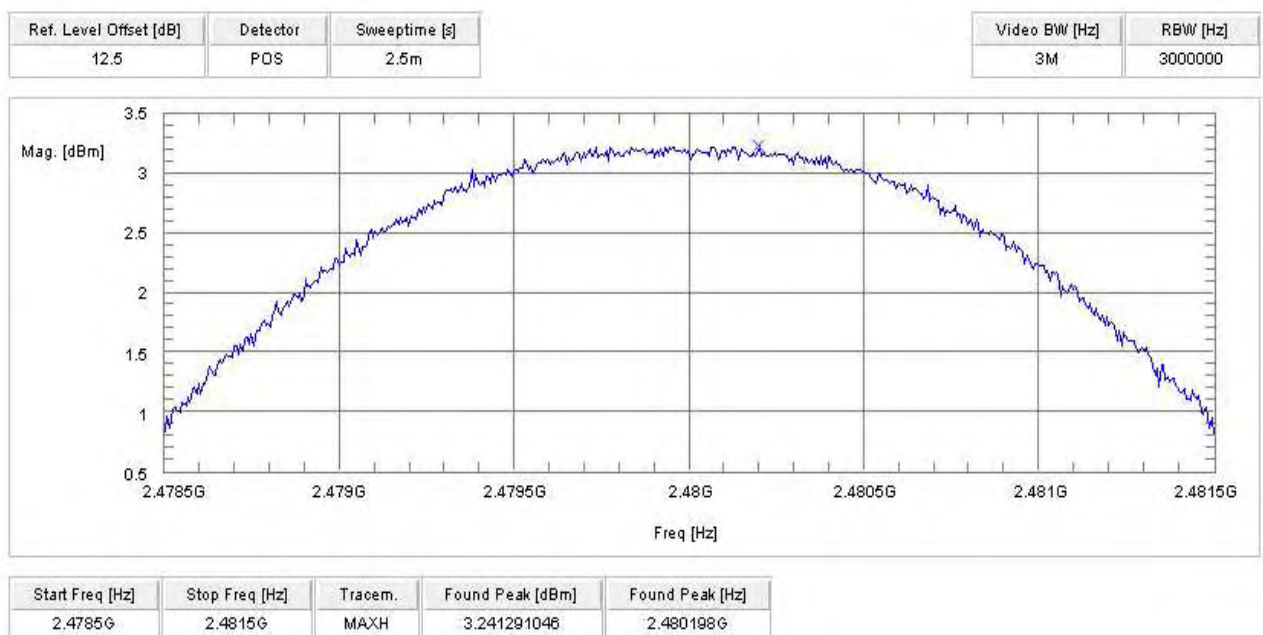
Plot 5: Pi/4 DQPSK, channel 39 – 2441 MHz

C.BER by Cetecom Saarbruecken Germany



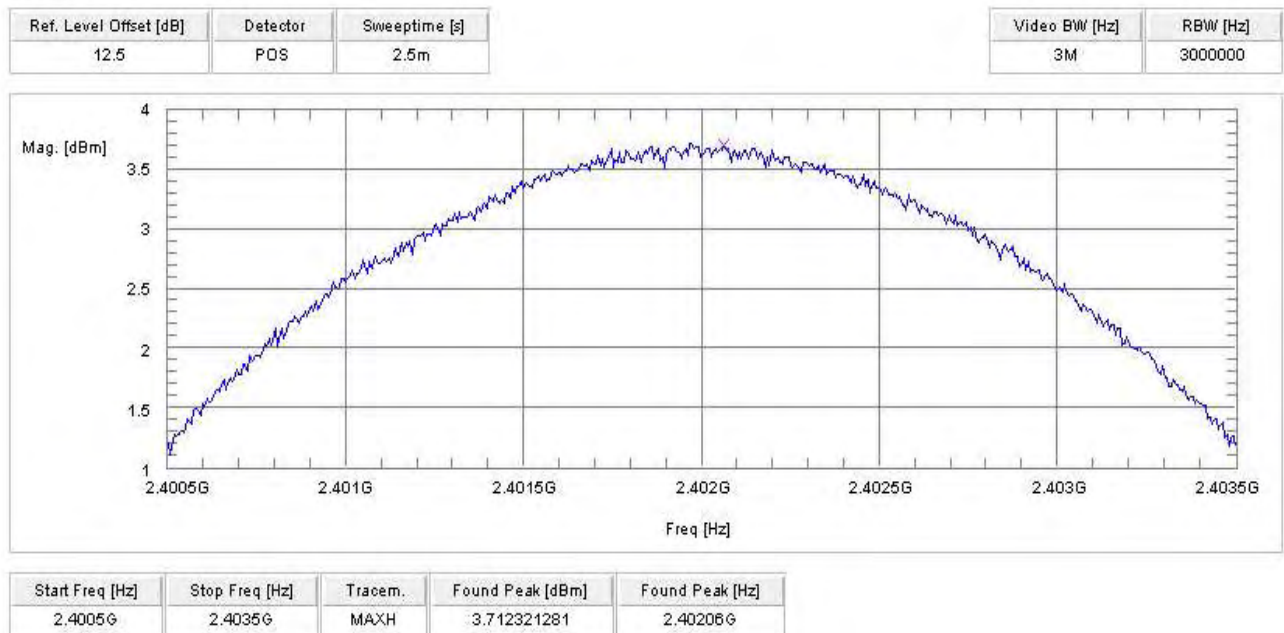
Plot 6: Pi/4 DQPSK, channel 78 – 2480 MHz

C.BER by Cetecom Saarbruecken Germany



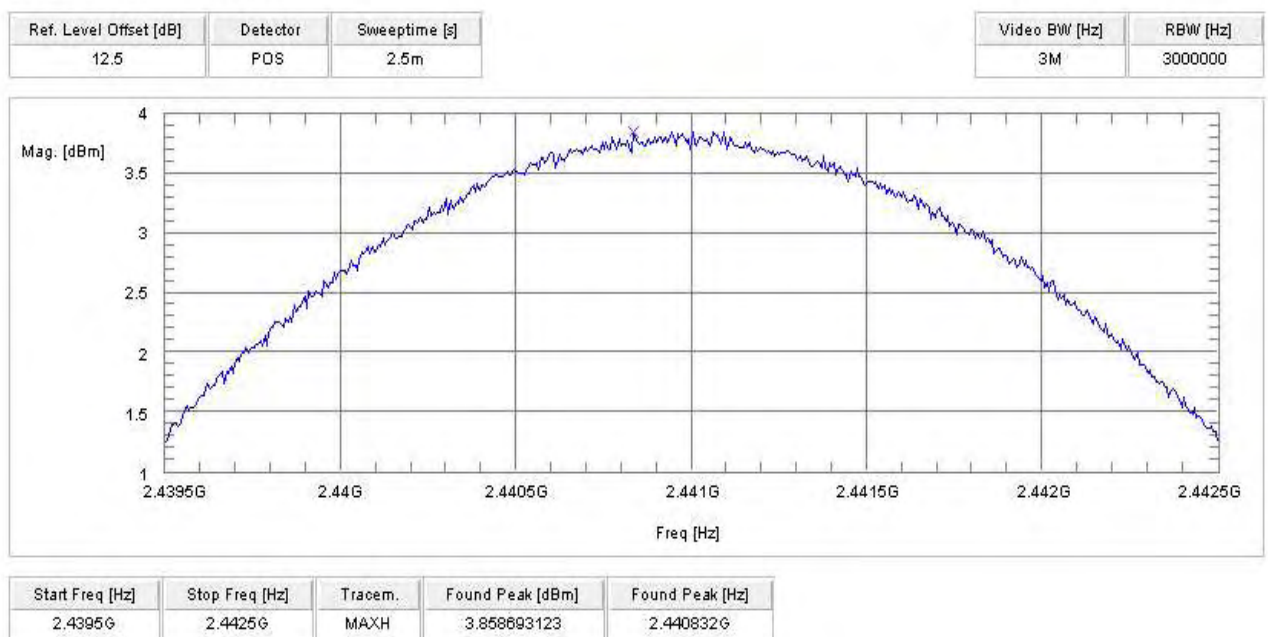
Plot 7: 8DPSK, channel 00 – 2402 MHz

C.BER by Cetecom Saarbruecken Germany

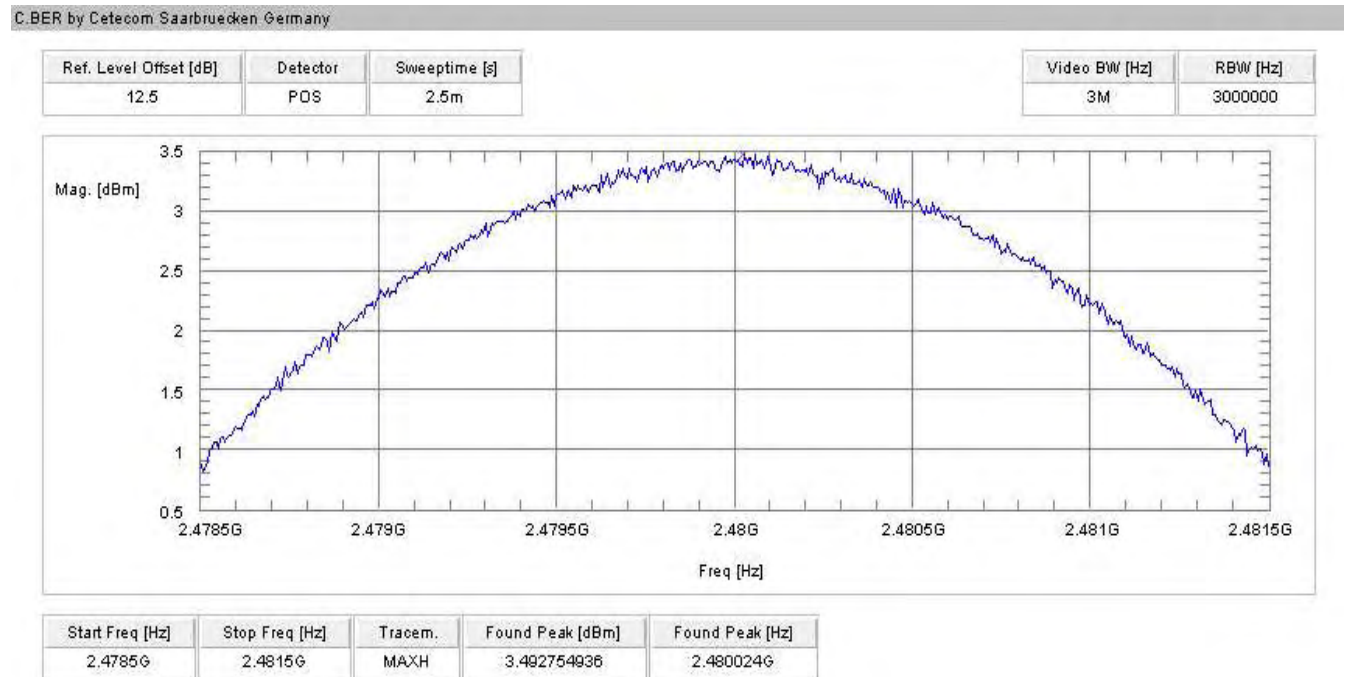


Plot 8: 8DPSK, channel 39 – 2441 MHz

C.BER by Cetecom Saarbruecken Germany



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
GFSK	5.58	5.56	5.06
Pi/4 DQPSK	3.57	3.65	3.24
8DPSK	3.71	3.86	3.49
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
GFSK	1.84	2.01	1.55
Pi/4 DQPSK	-1.22	-1.35	-1.91
8DPSK	-1.21	-1.35	-1.91
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}	5.98	6.09	5.78
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}	3.97	4.18	3.96
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}	4.11	4.39	4.21
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: GFSKResults: average power (calculated with the antenna gain)

Test conditions		Max. peak output power EIRP [dBm]		
Frequency [MHz]		2402	2442	2480
T _{nom}	V _{nom}	2.24	2.54	2.27
Measurement uncertainty		±3dB		

Modulation: Pi/4 DQPSKResults: average power (calculated with the antenna gain)

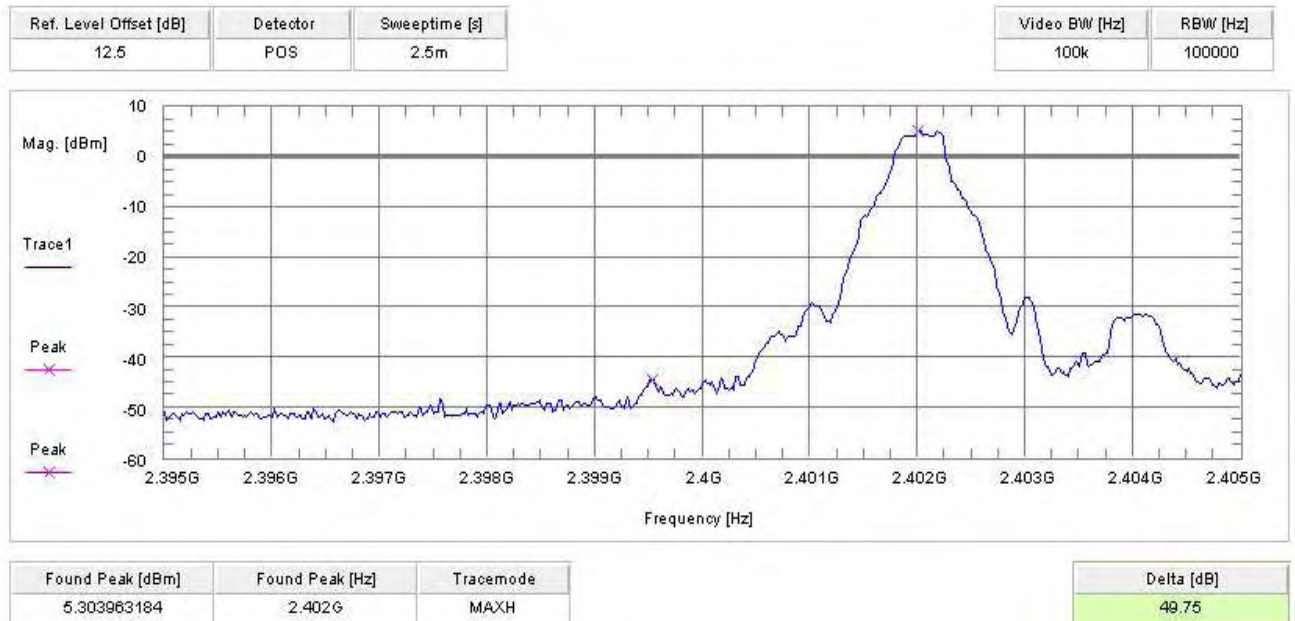
Test conditions		Max. peak output power EIRP [dBm]		
Frequency [MHz]		2402	2442	2480
T _{nom}	V _{nom}	-0.82	-0.82	-1.19
Measurement uncertainty		±3dB		

Modulation: 8 DPSKResults: average power (calculated with the antenna gain)

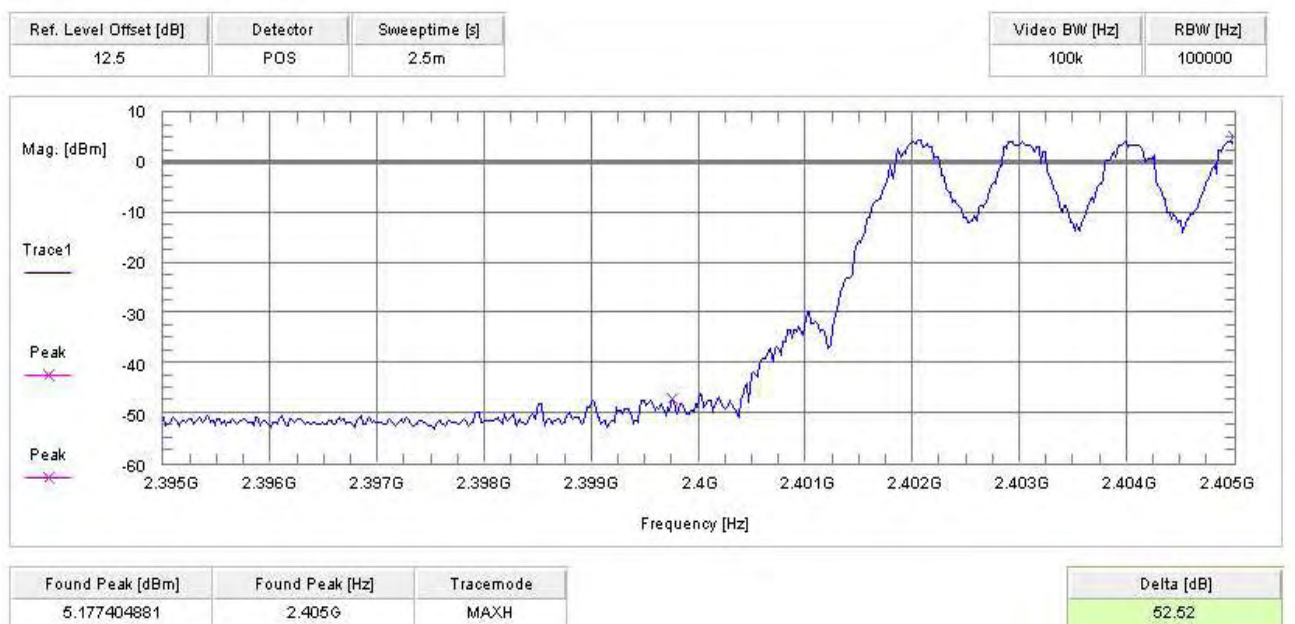
Test conditions		Max. peak output power EIRP [dBm]		
Frequency [MHz]		2402	2442	2480
T _{nom}	V _{nom}	-0.81	-0.82	-1.19
Measurement uncertainty		±3dB		

5.12 Band-edge compliance of conducted emissions §15.247 (d)Modulation: GFSK**Plot 1 of 4** (hopping off, lowest frequency):

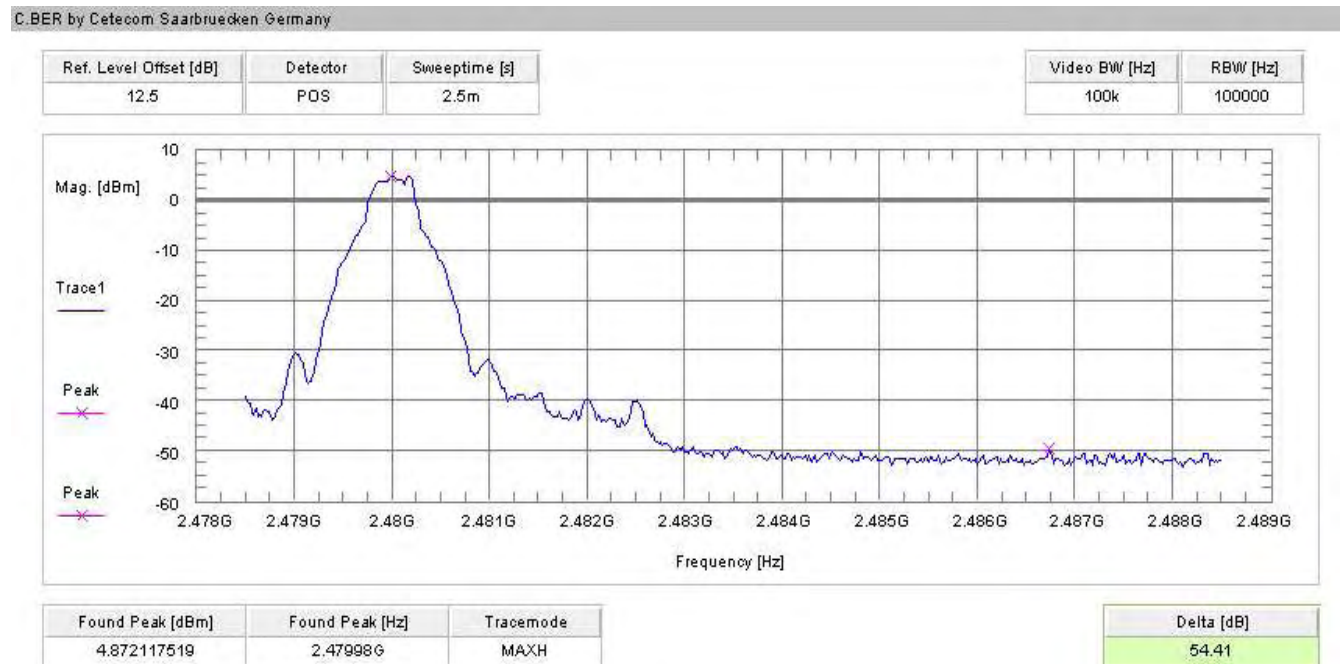
C.BER by Cetecom Saarbruecken Germany

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

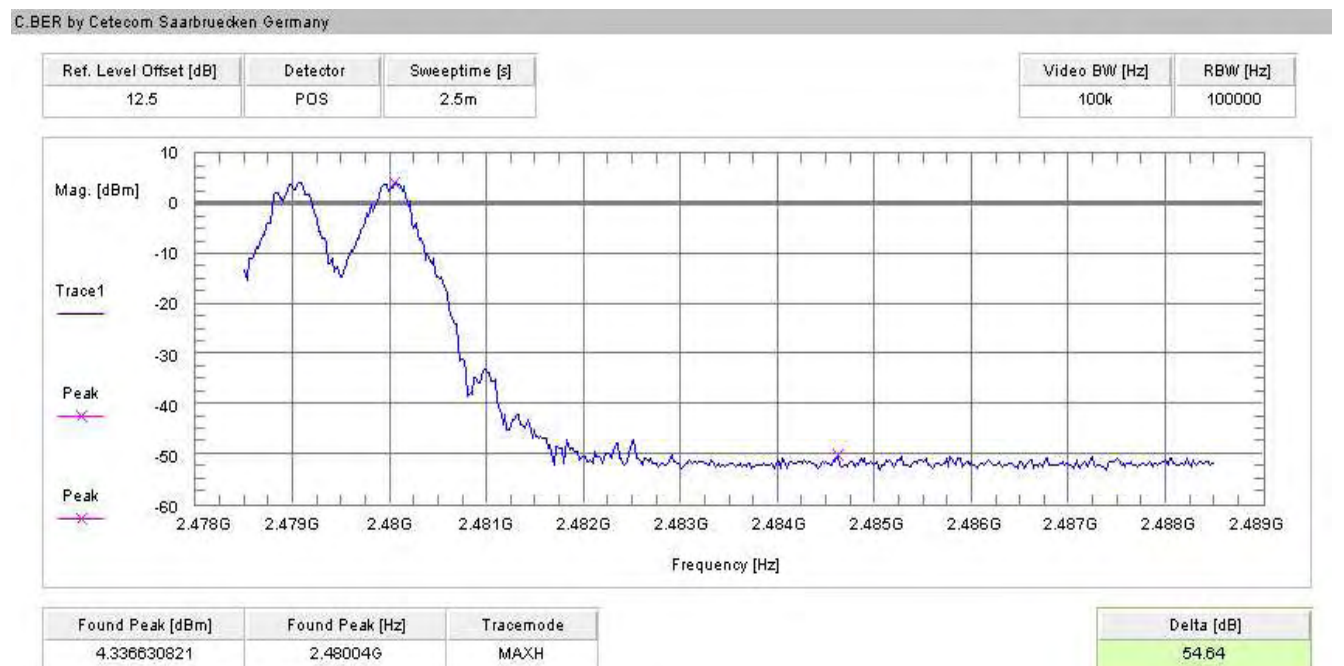
C.BER by Cetecom Saarbruecken Germany



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



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

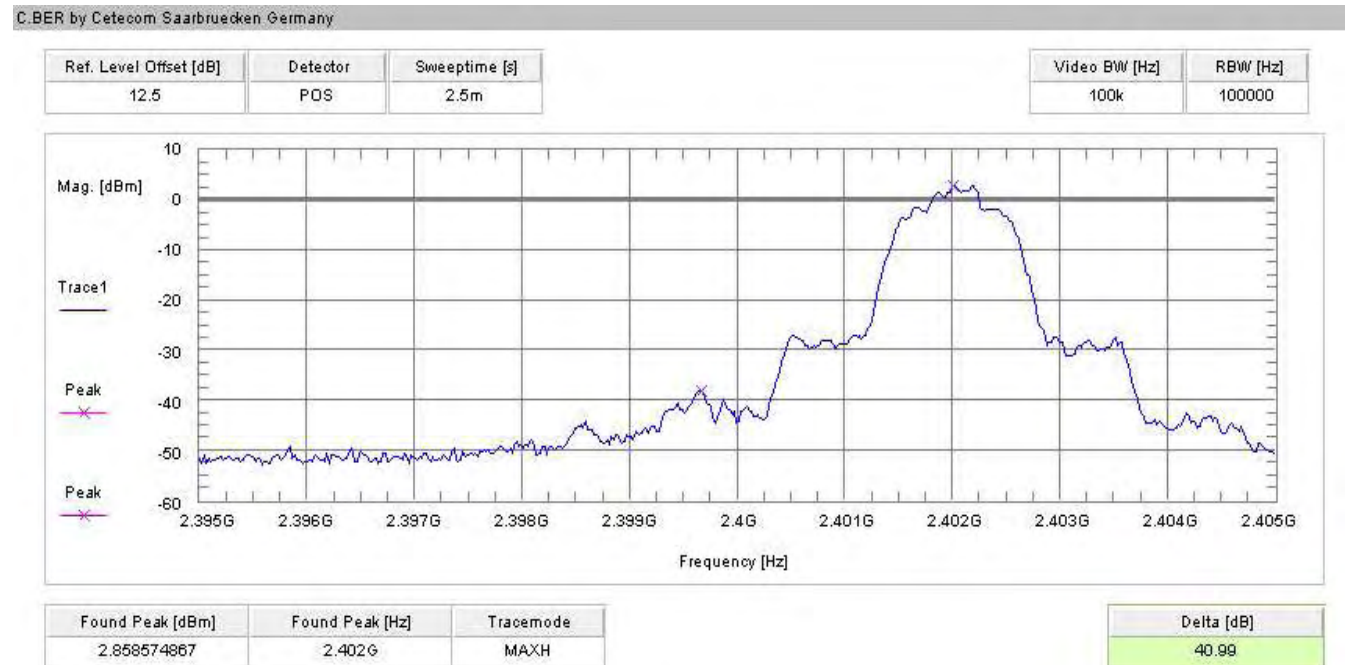


Results:

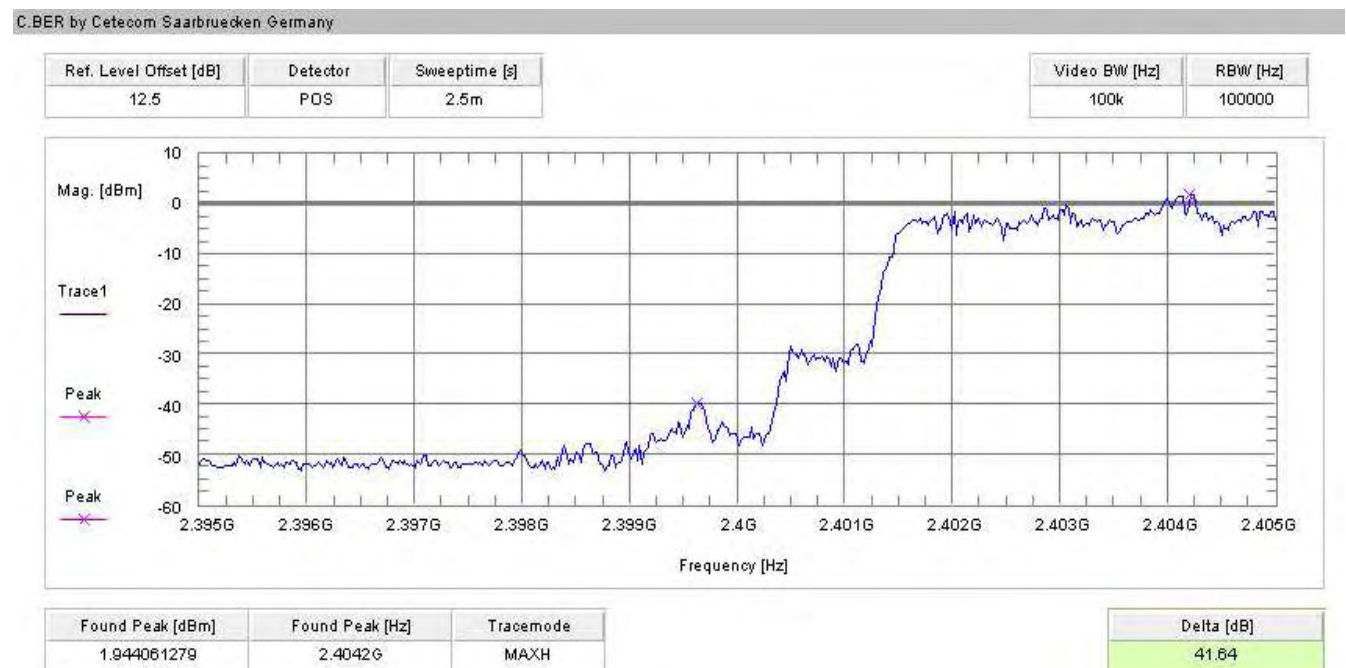
SZENARIO	DELTA VALUE [DB]
hopping off, lowest frequency	> 20 dB
hopping on, lowest frequency	> 20 dB
hopping off, highest frequency	> 20 dB
hopping on, highest frequency	> 20 dB
Measurement uncertainty	±1,5dB

Modulation: Pi/4 DQPSK

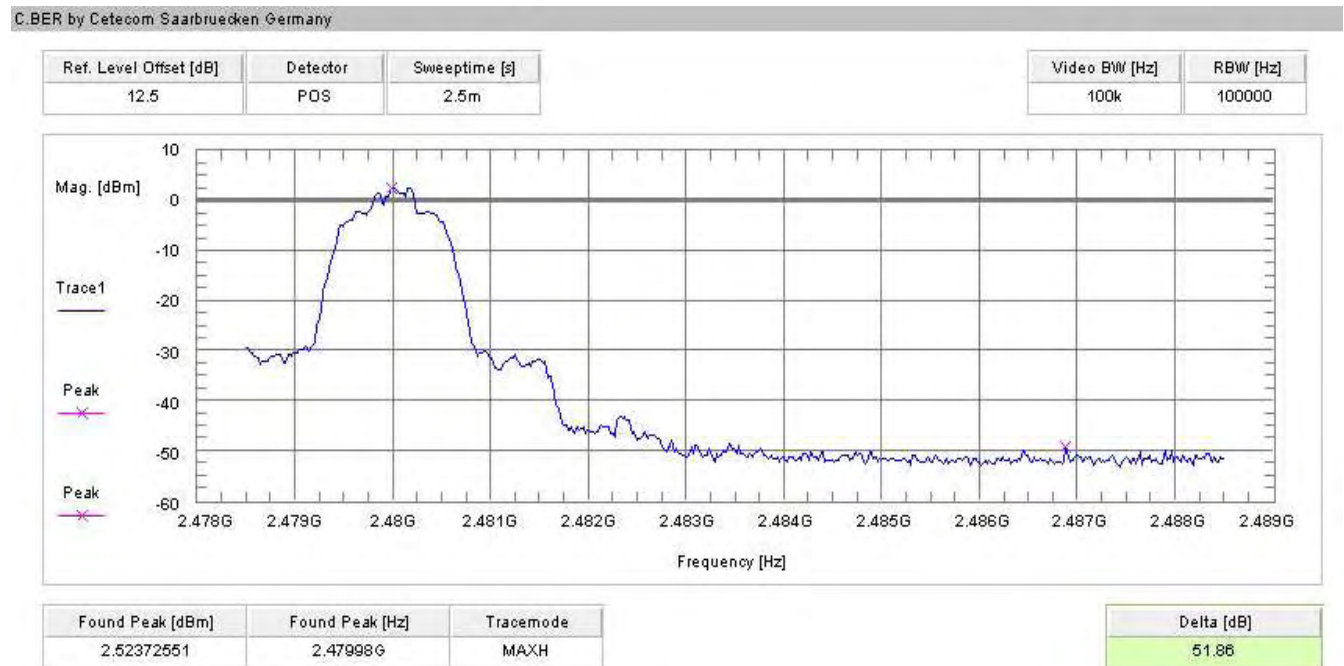
Plot 1 of 4 (hopping off, lowest frequency):



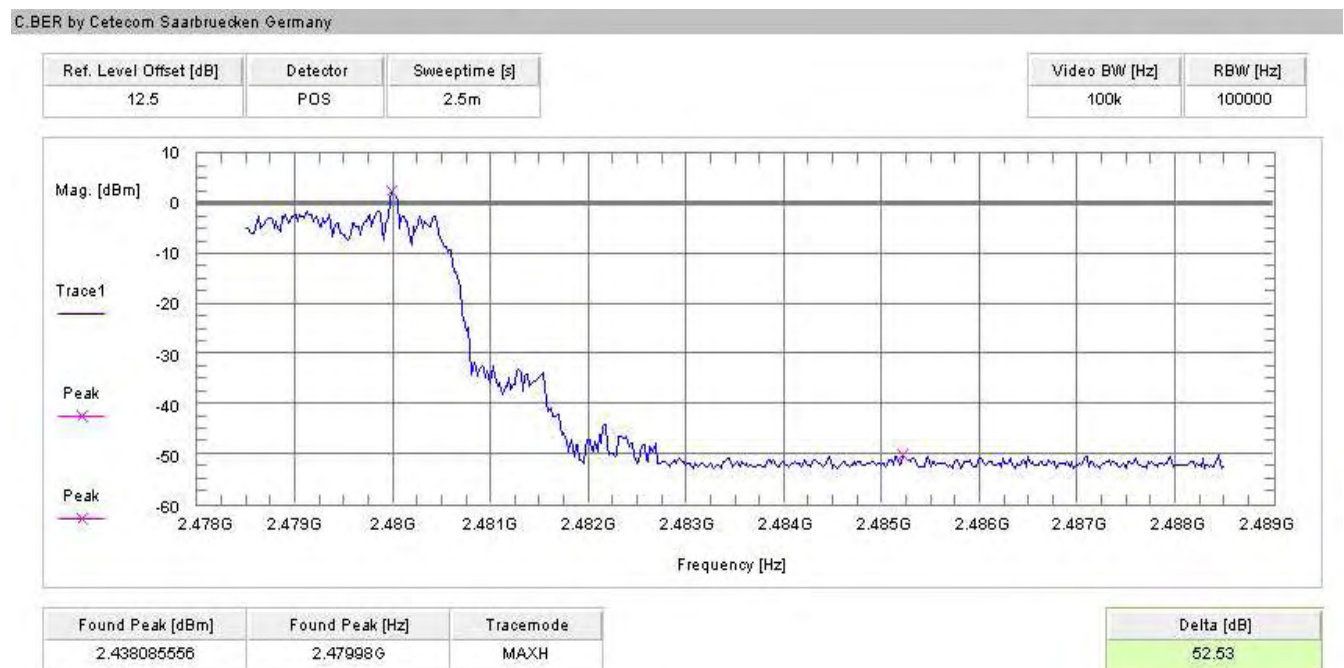
Plot 2 of 4 (hopping on, lowest frequency):



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



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



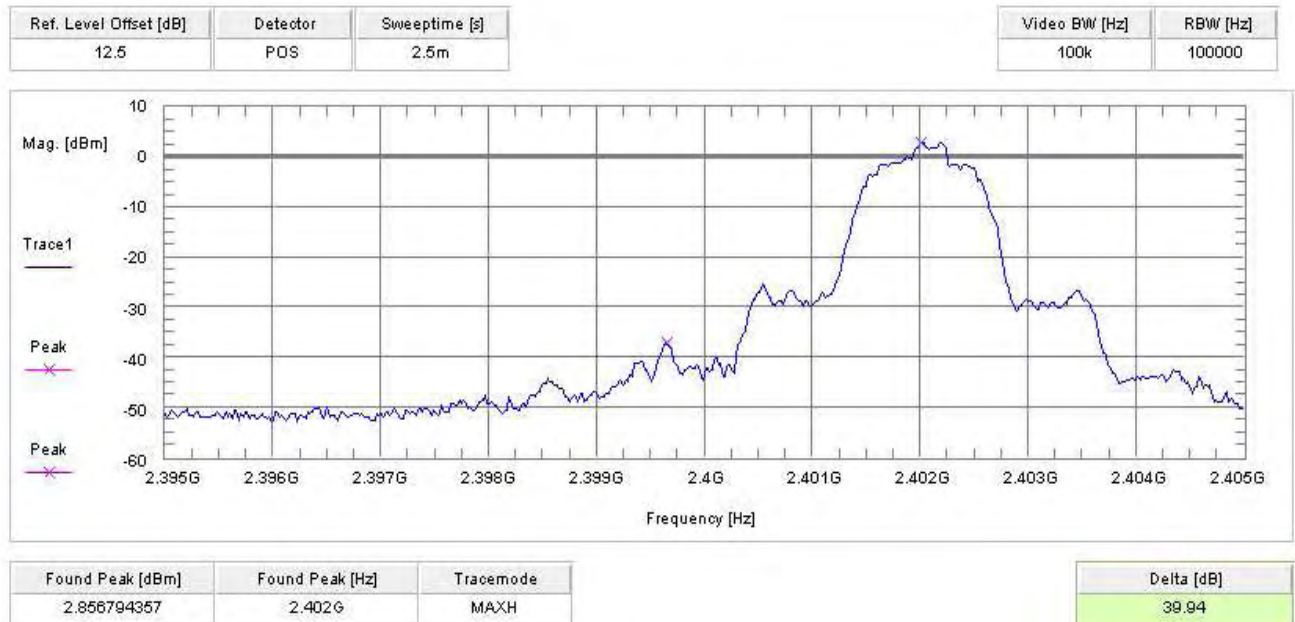
Results:

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

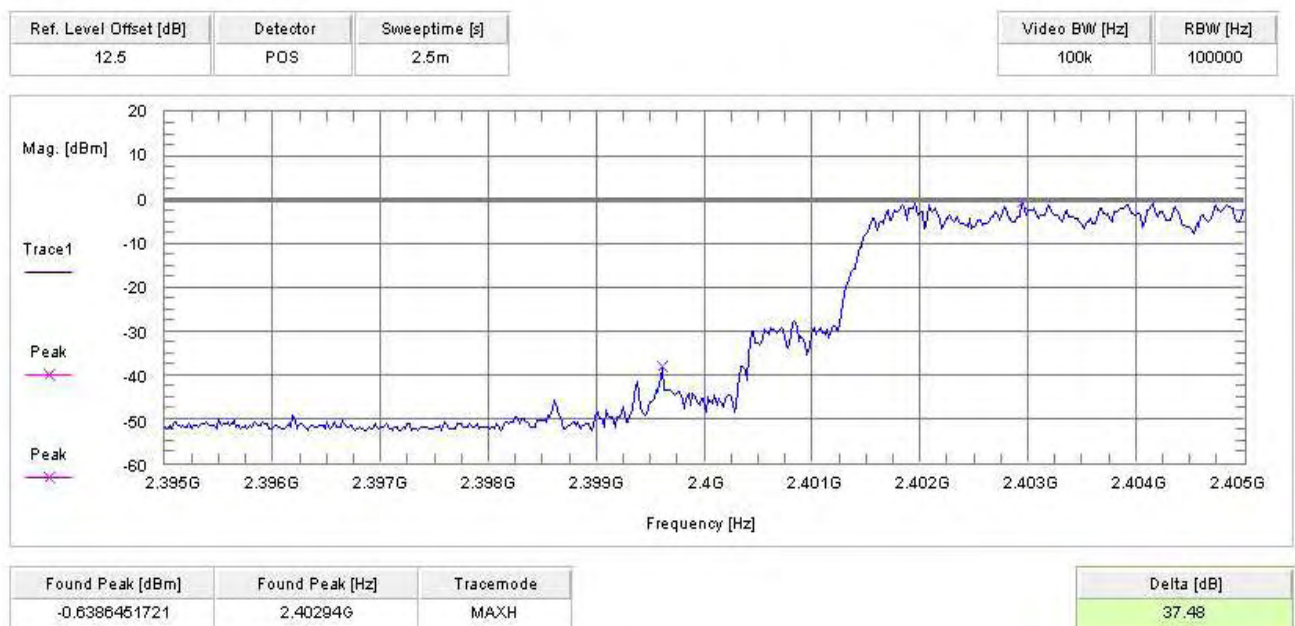
Plot 1 of 4 (hopping off, lowest frequency):

C.BER by Cetecom Saarbruecken Germany

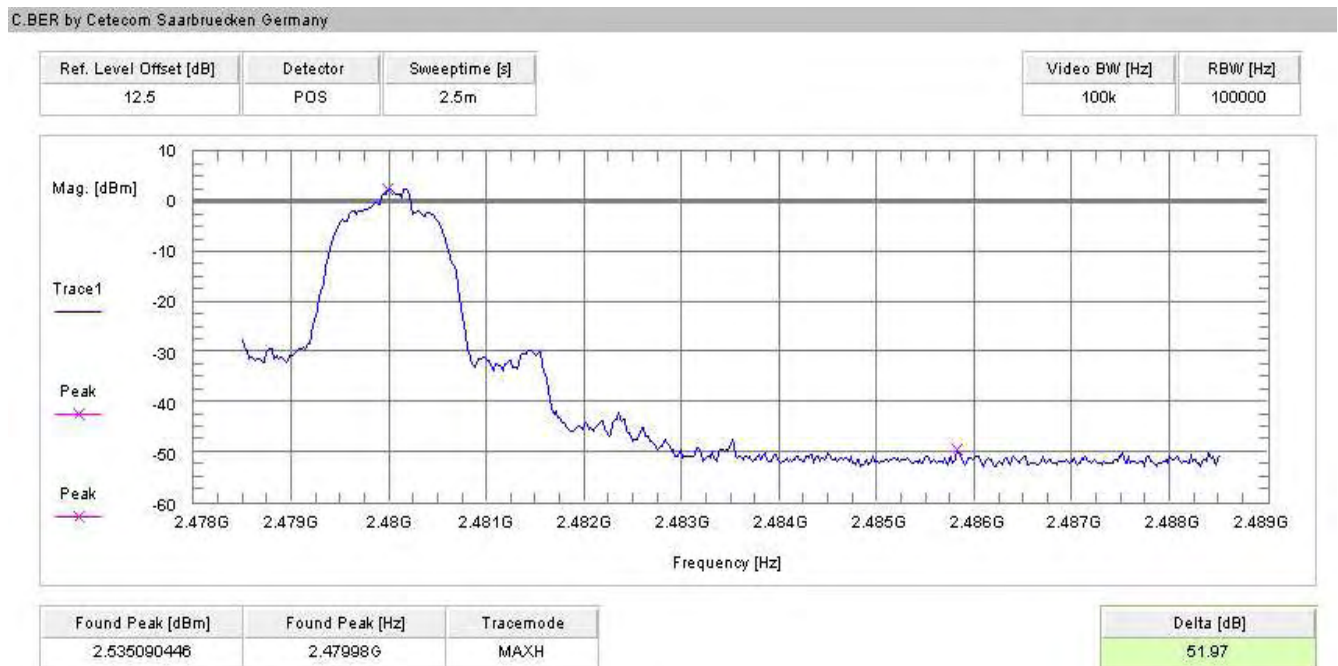


Plot 2 of 4 (hopping on, lowest frequency):

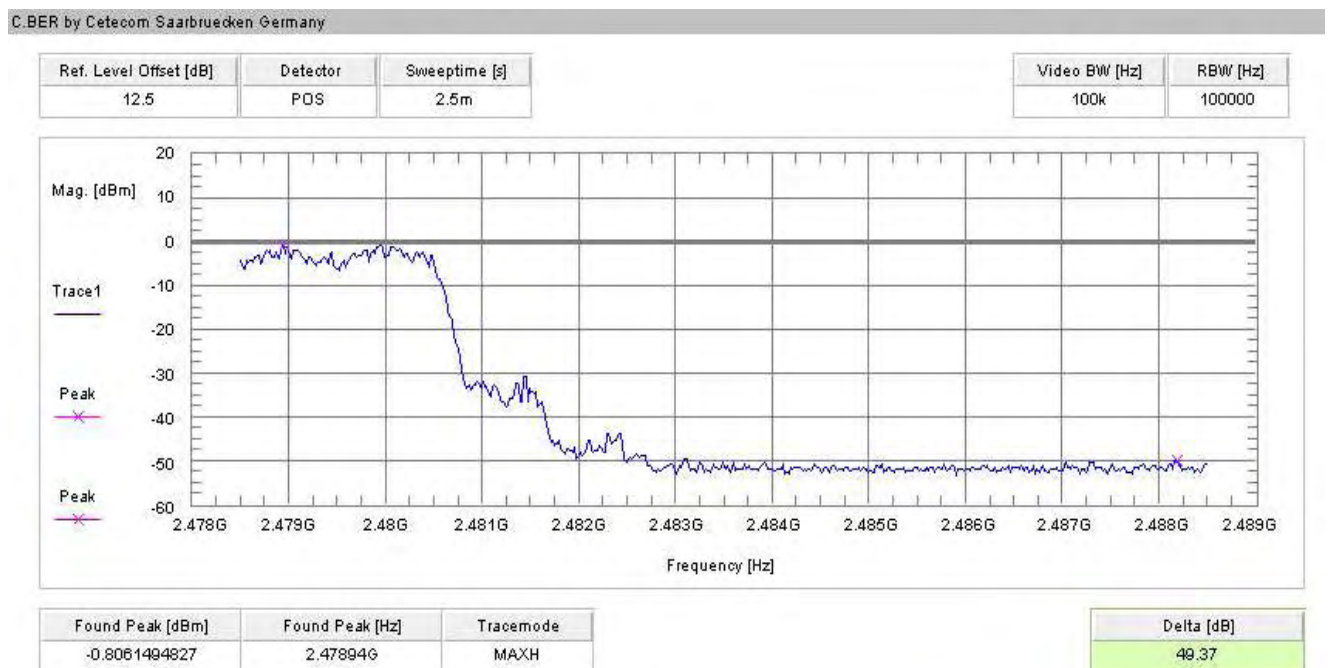
C.BER by Cetecom Saarbruecken Germany



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

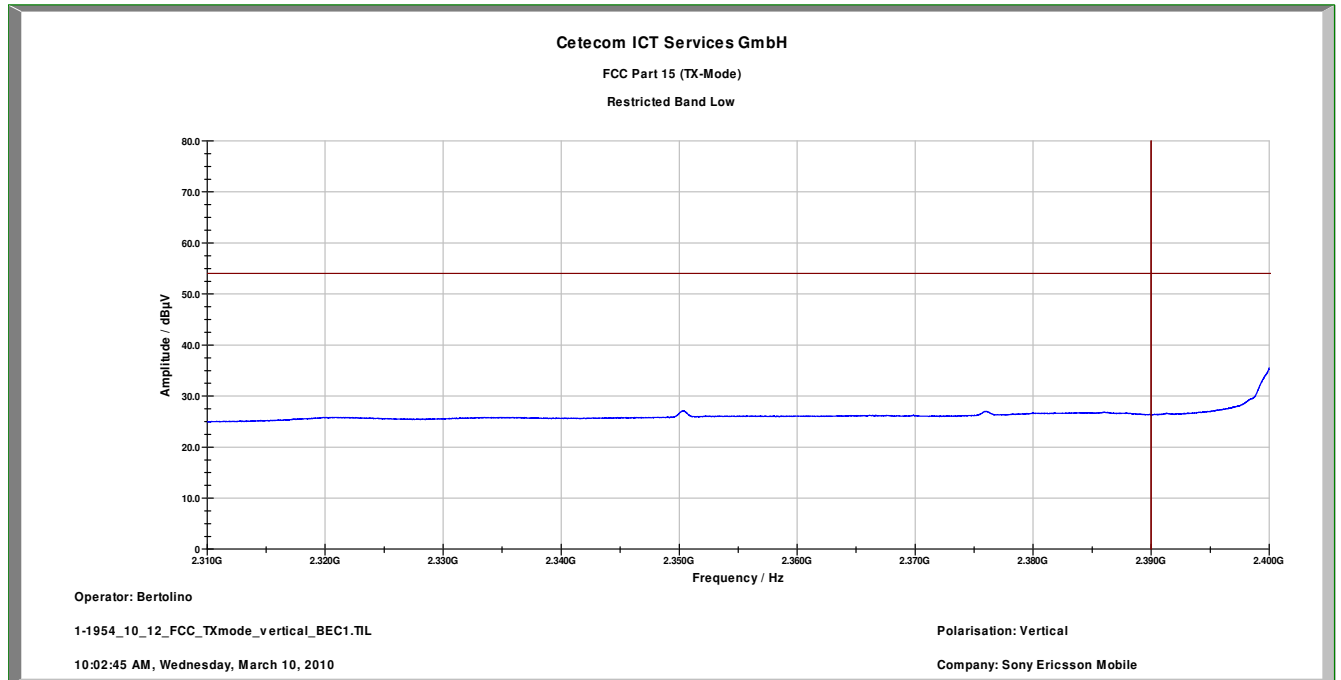
Limits:

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)).
-----------------------------------	--

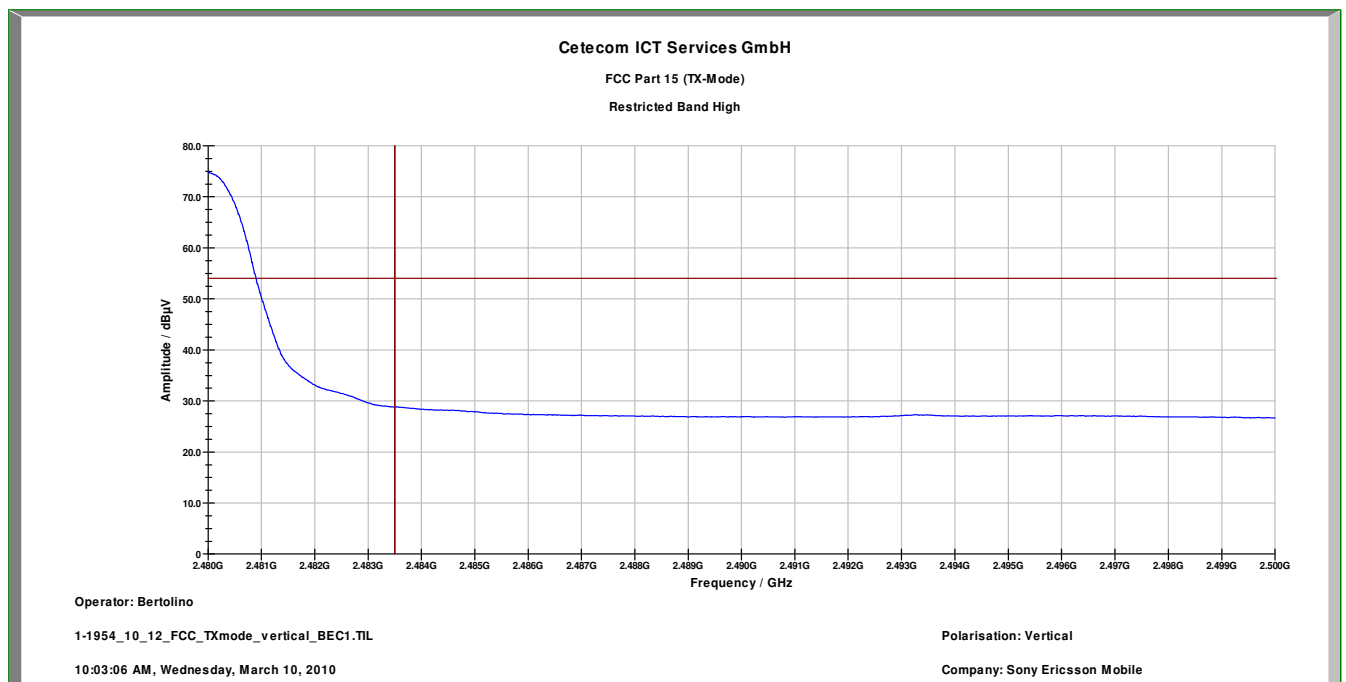
5.13 Band-edge compliance of radiated emissions §15.205

Modulation: GFSK

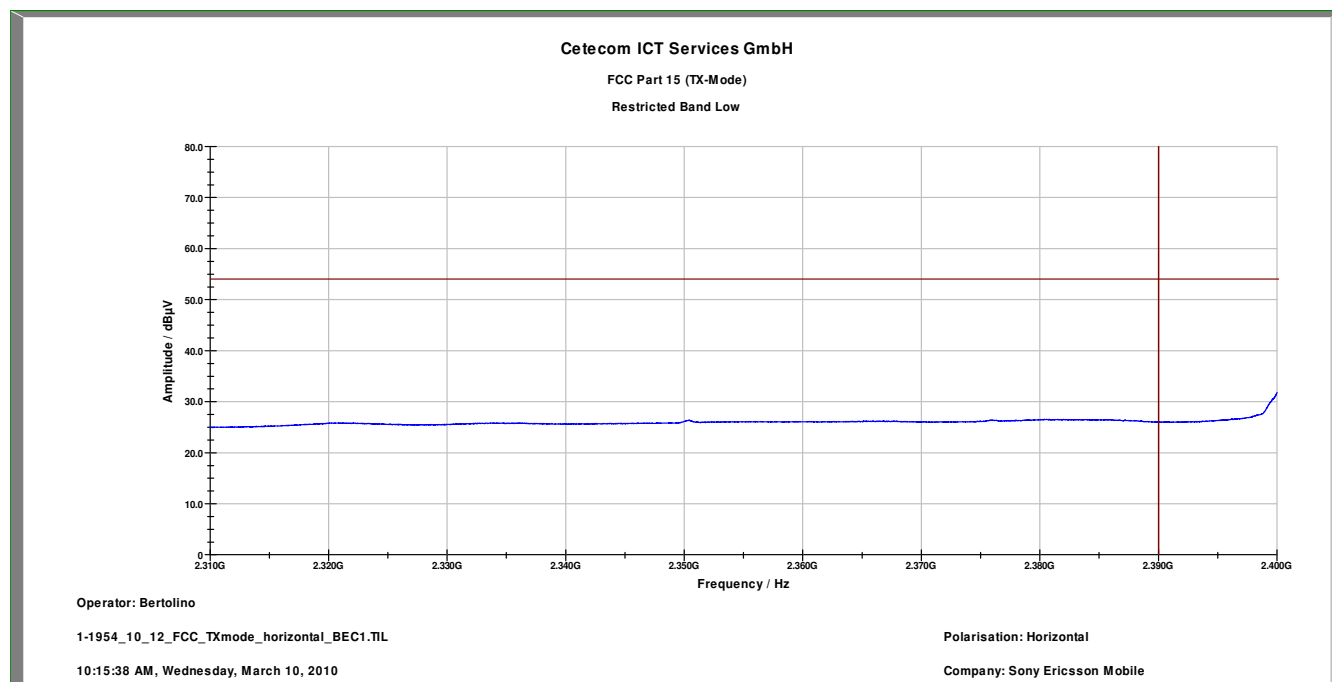
Plot 1: Restricted bands low, vertical polarization



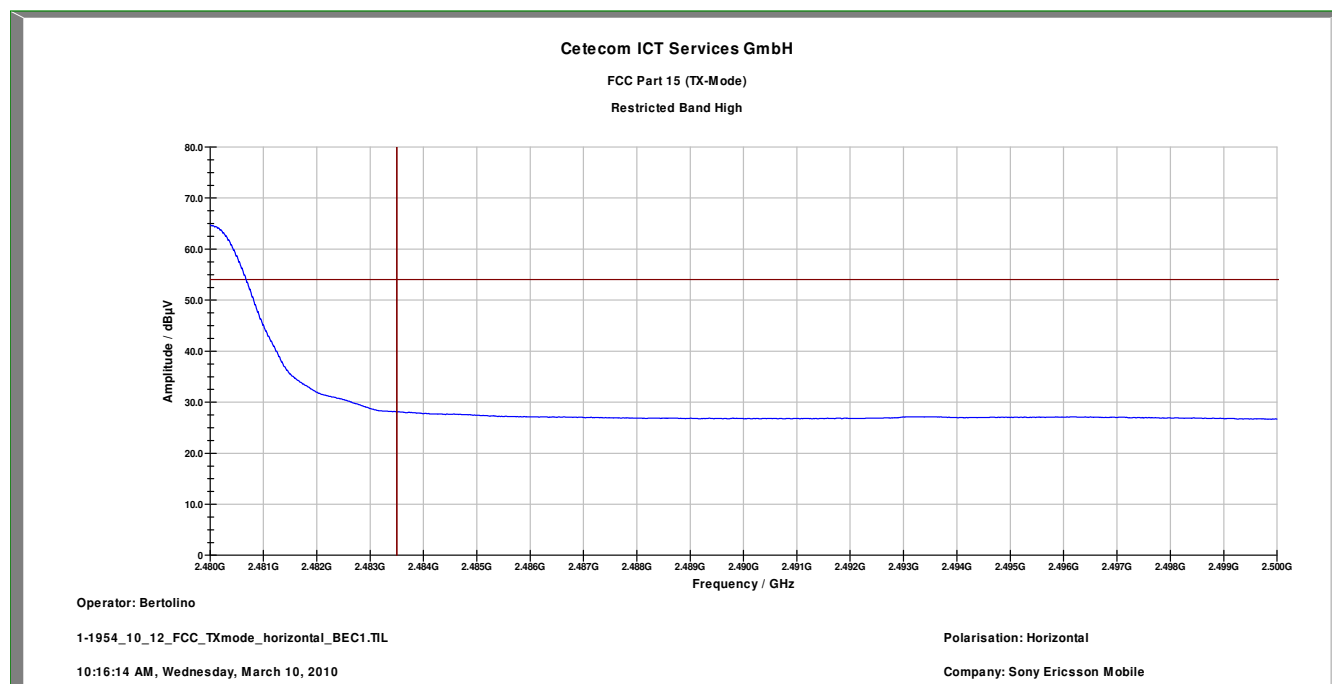
Plot 2: Restricted bands high, vertical polarization



Plot 3: Restricted bands low, horizontal polarization

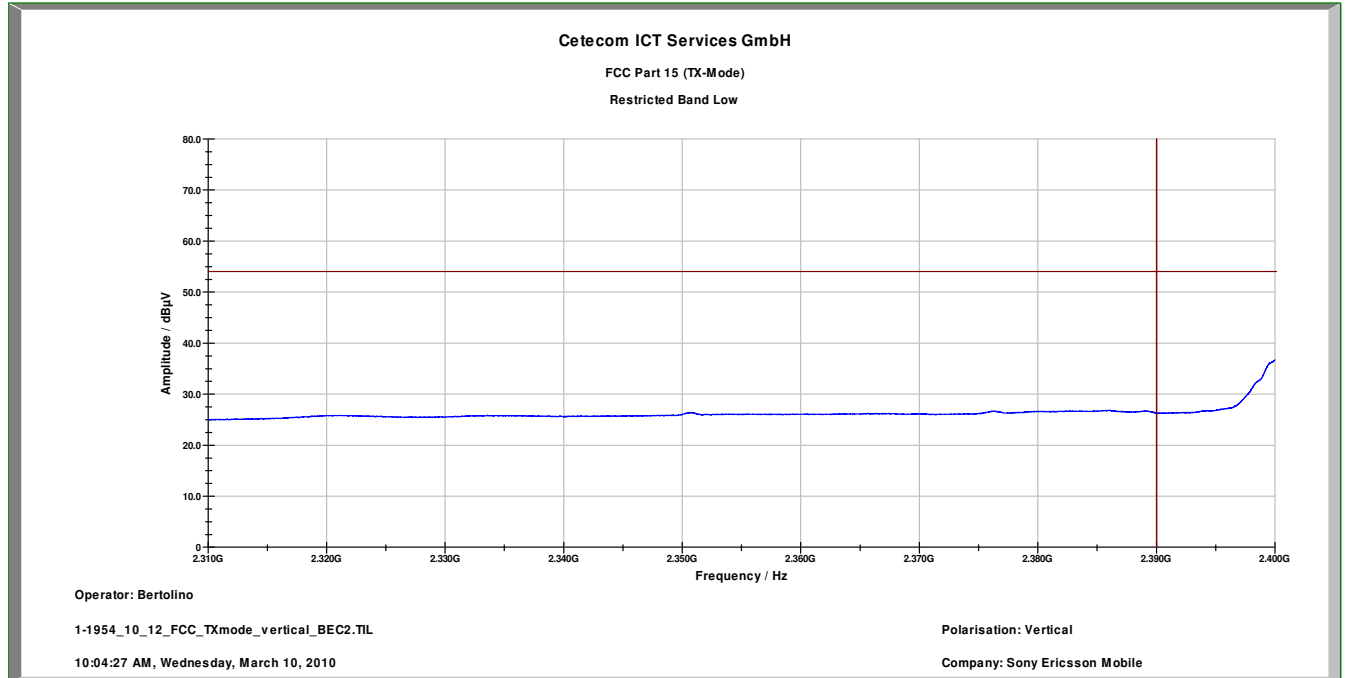


Plot 4: Restricted bands high, horizontal polarization

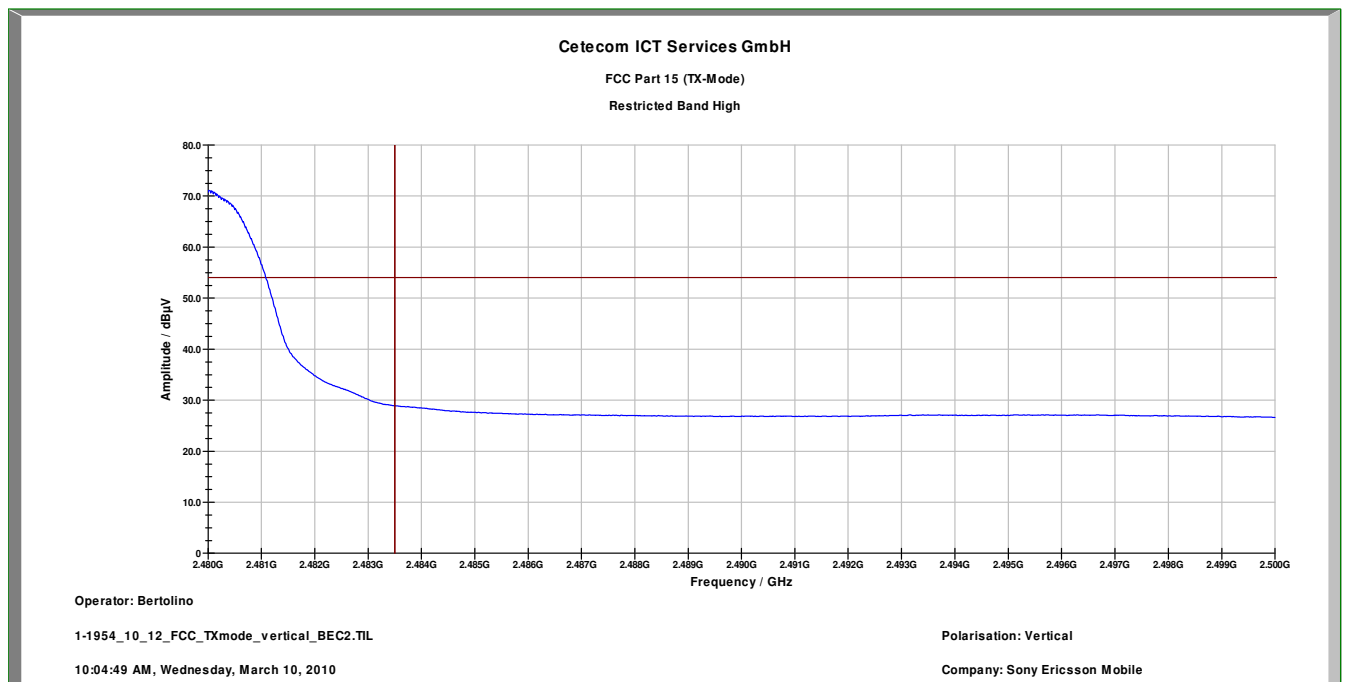


Modulation: Pi/4 DQPSK

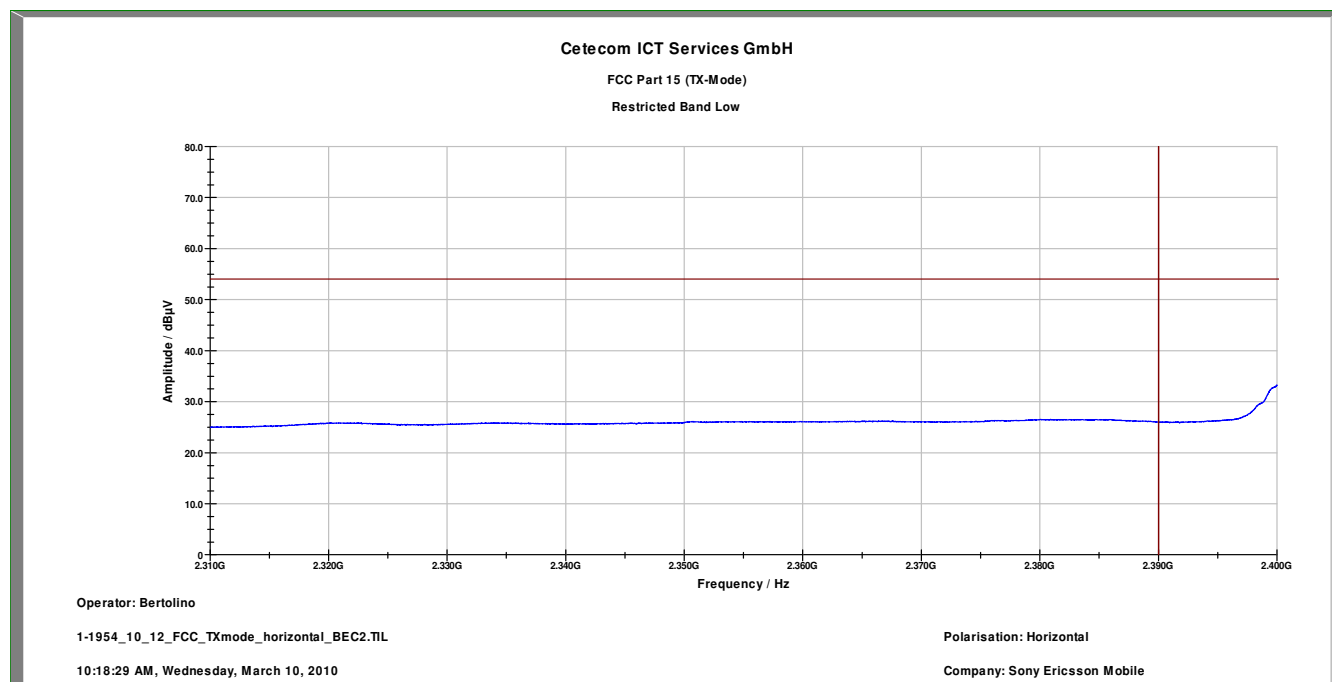
Plot 1: Restricted bands low, vertical polarization



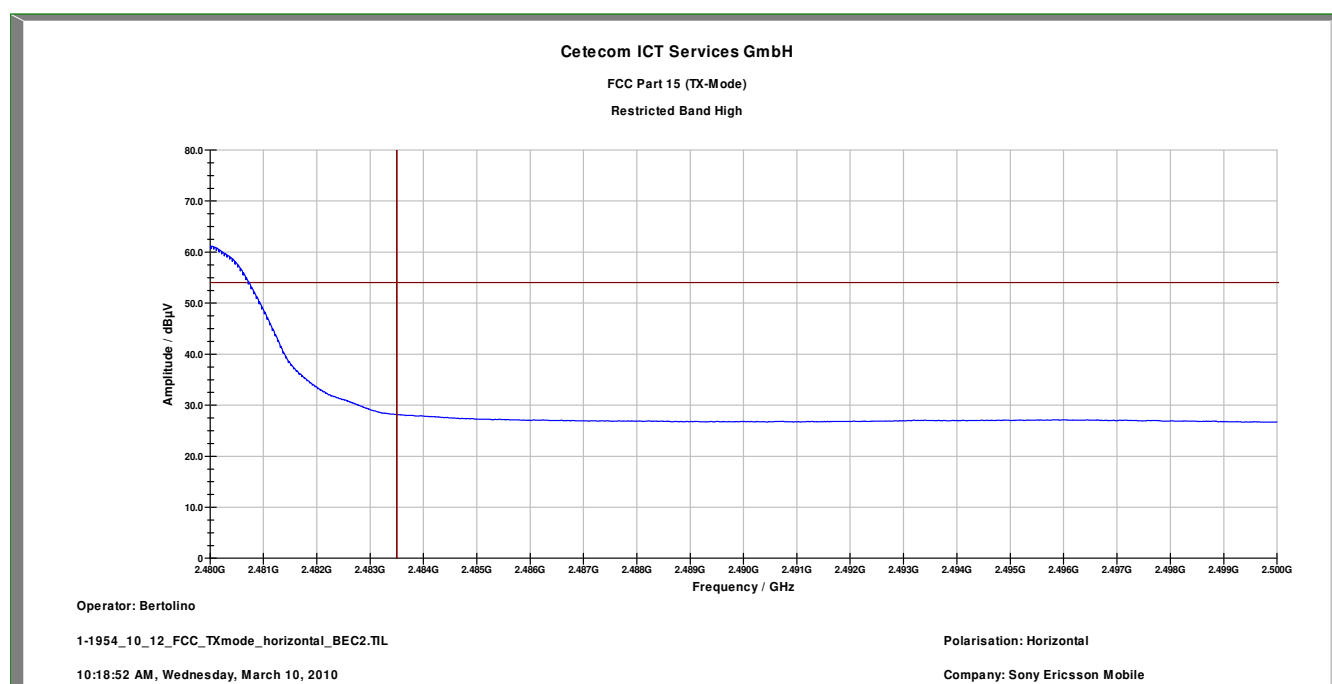
Plot 2: Restricted bands high, vertical polarization



Plot 3: Restricted bands low, horizontal polarization

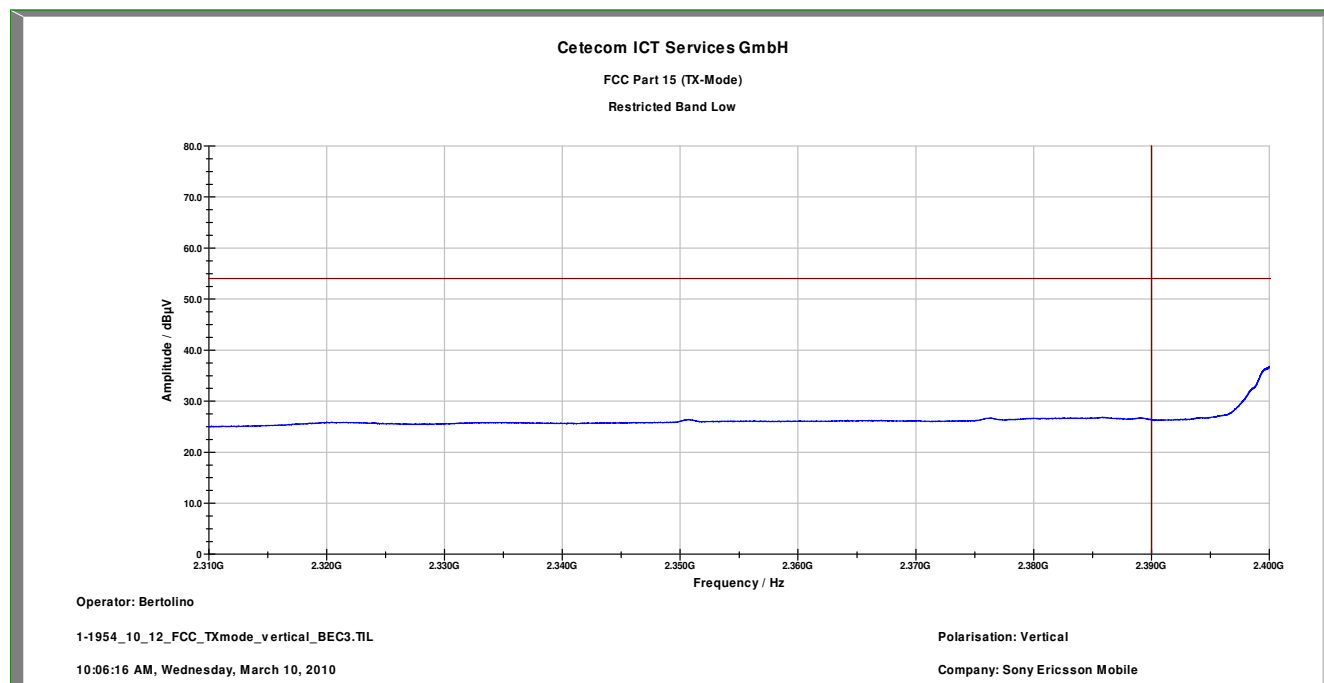


Plot 4: Restricted bands high, horizontal polarization

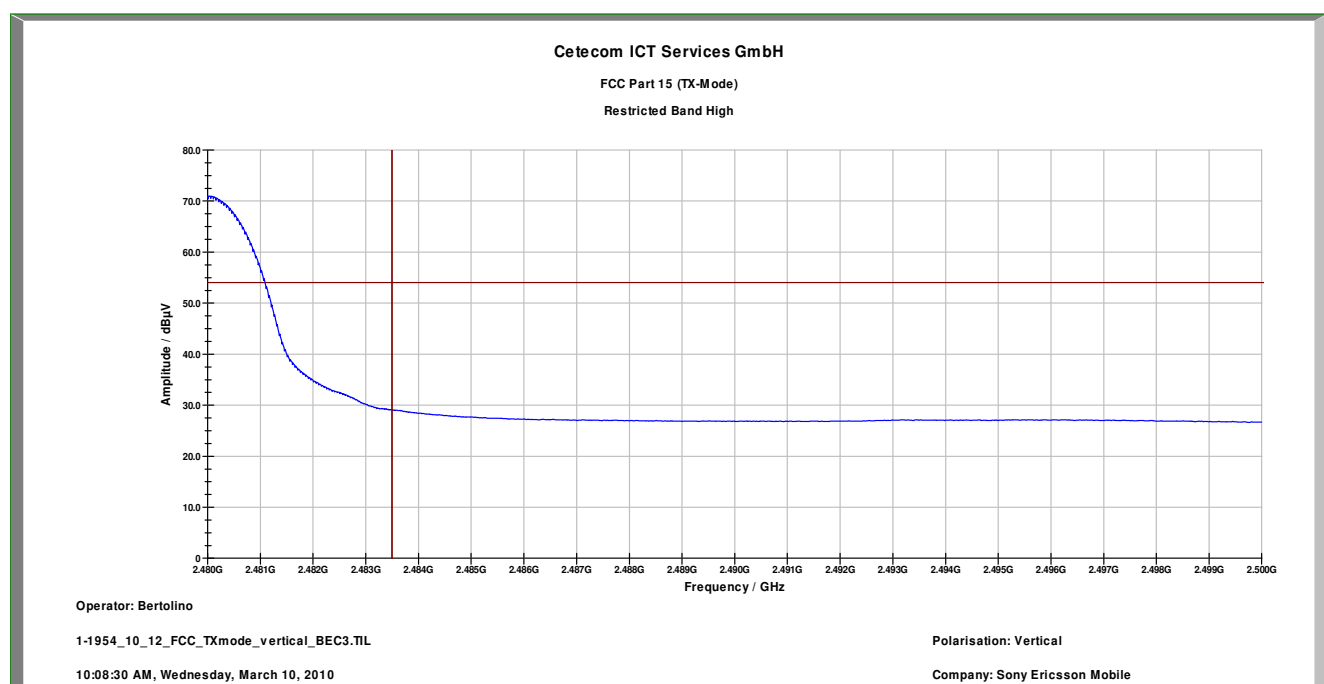


Modulation: 8 DPSK

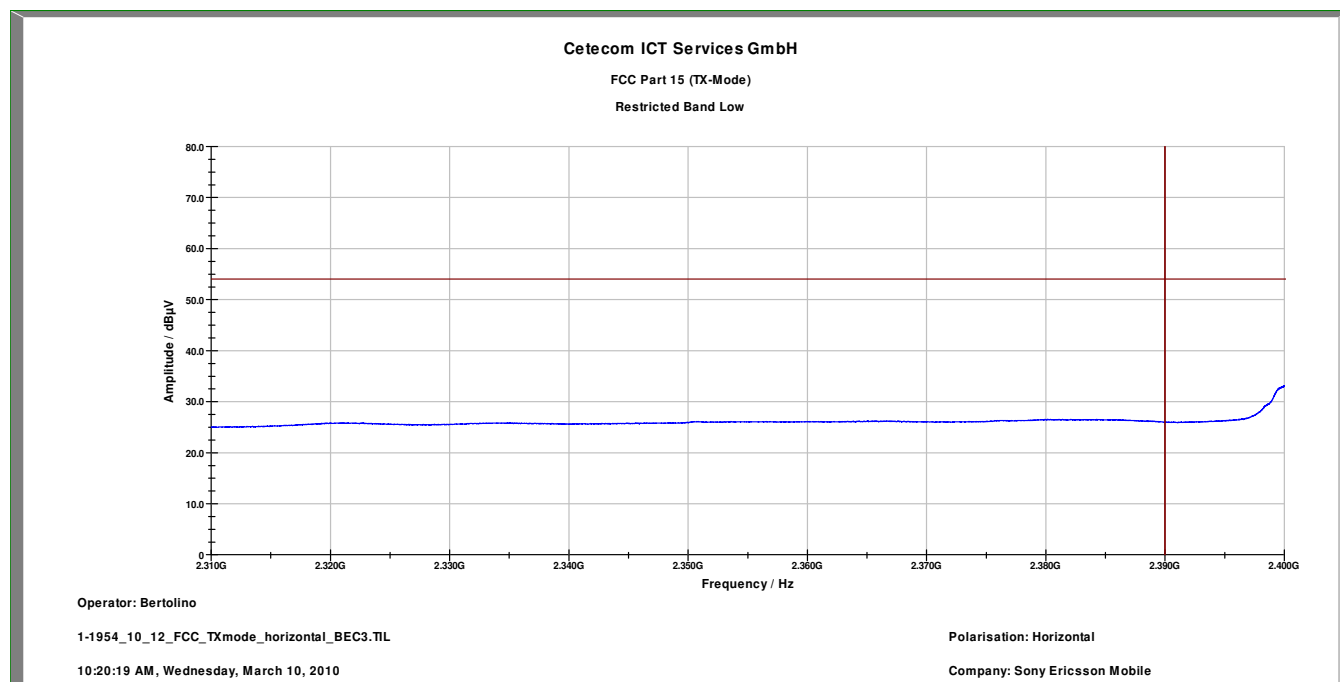
Plot 1: Restricted bands low, vertical polarization



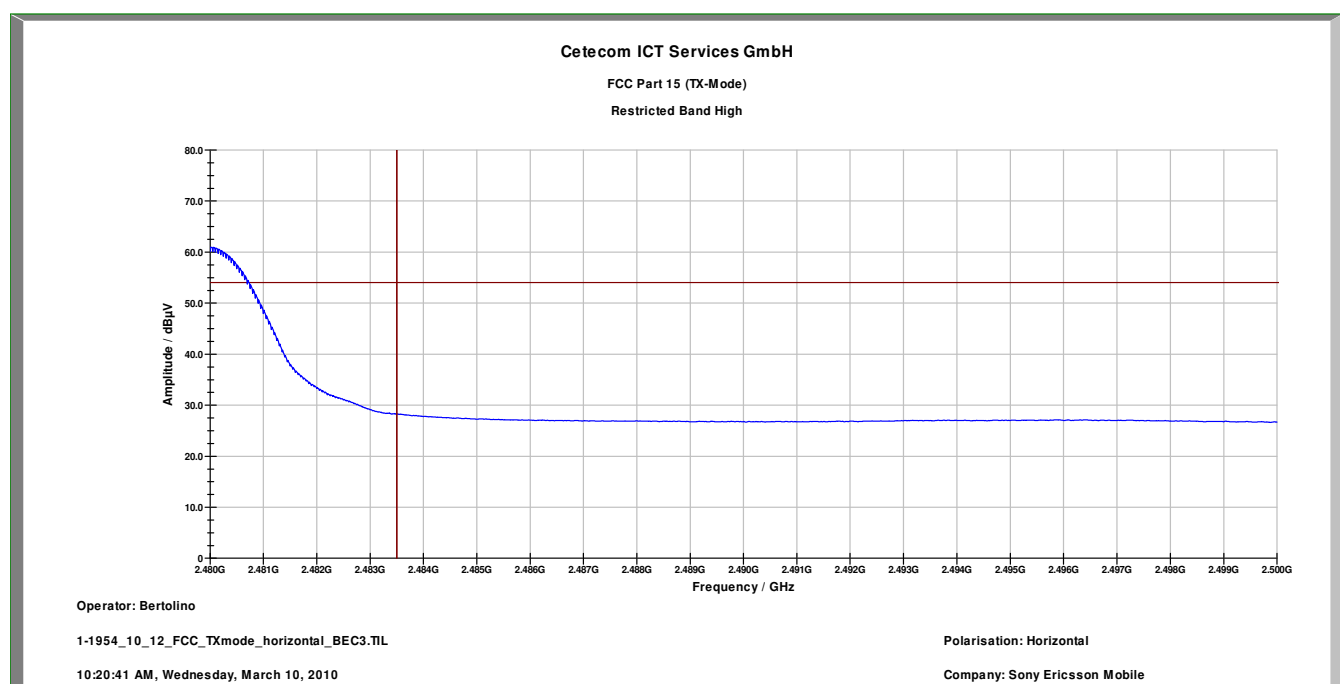
Plot 2: Restricted bands high, vertical polarization

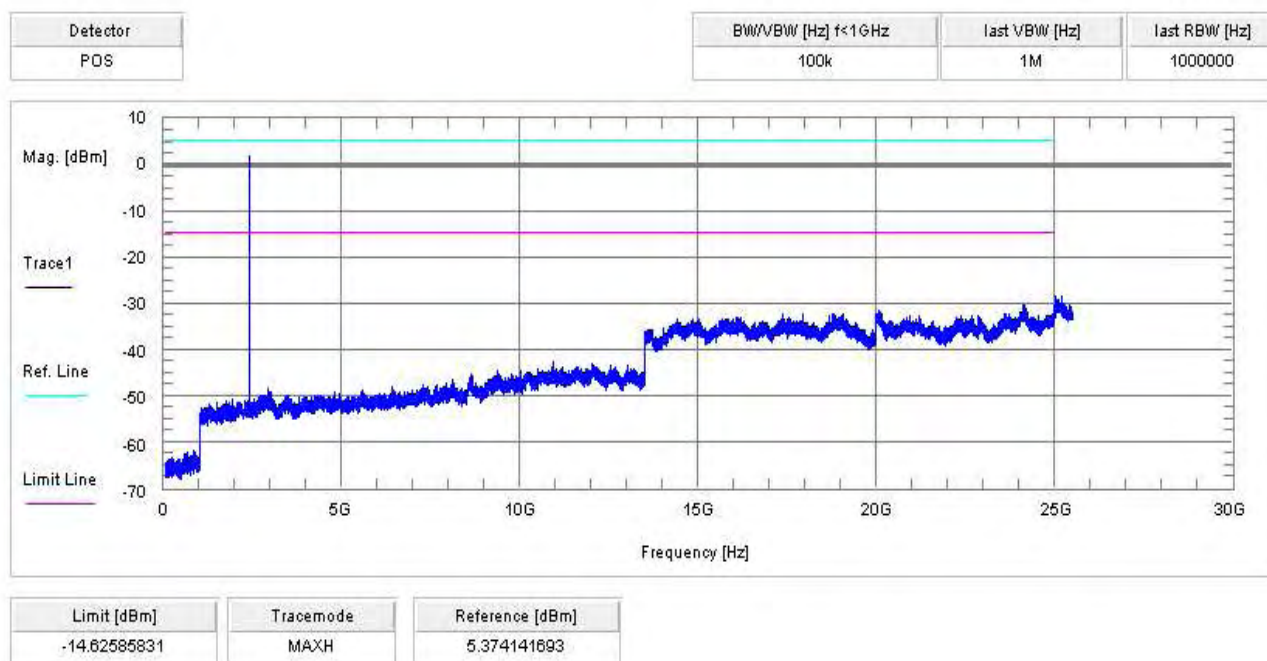
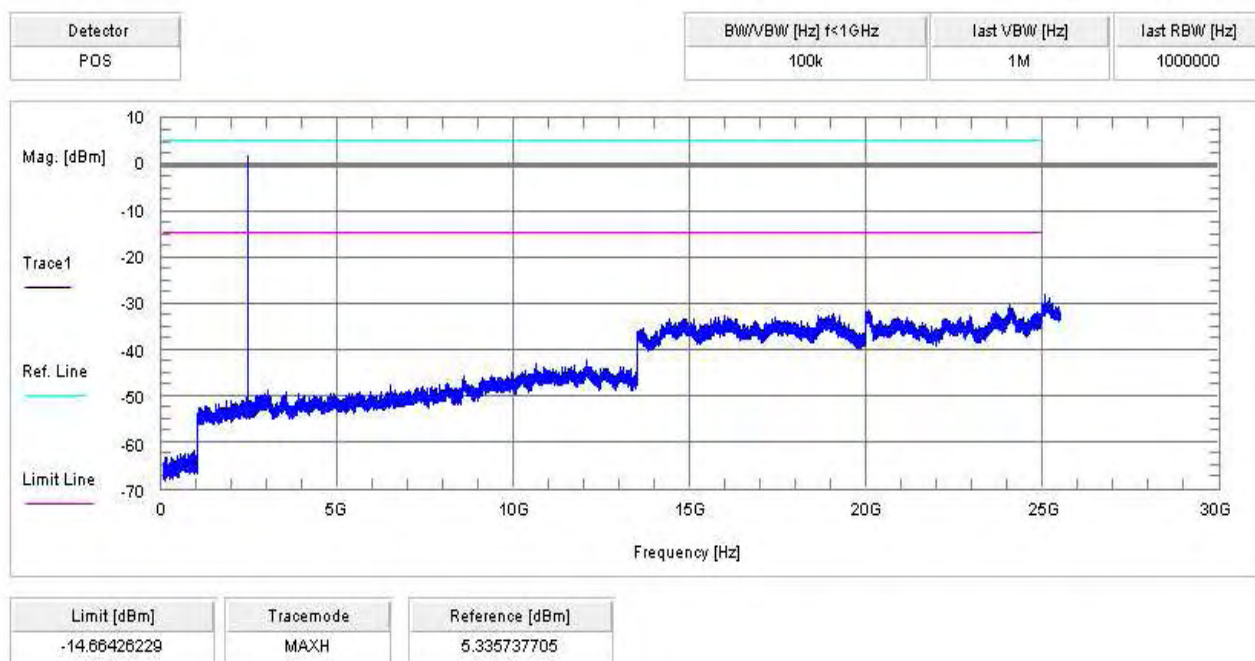


Plot 3: Restricted bands low, horizontal polarization

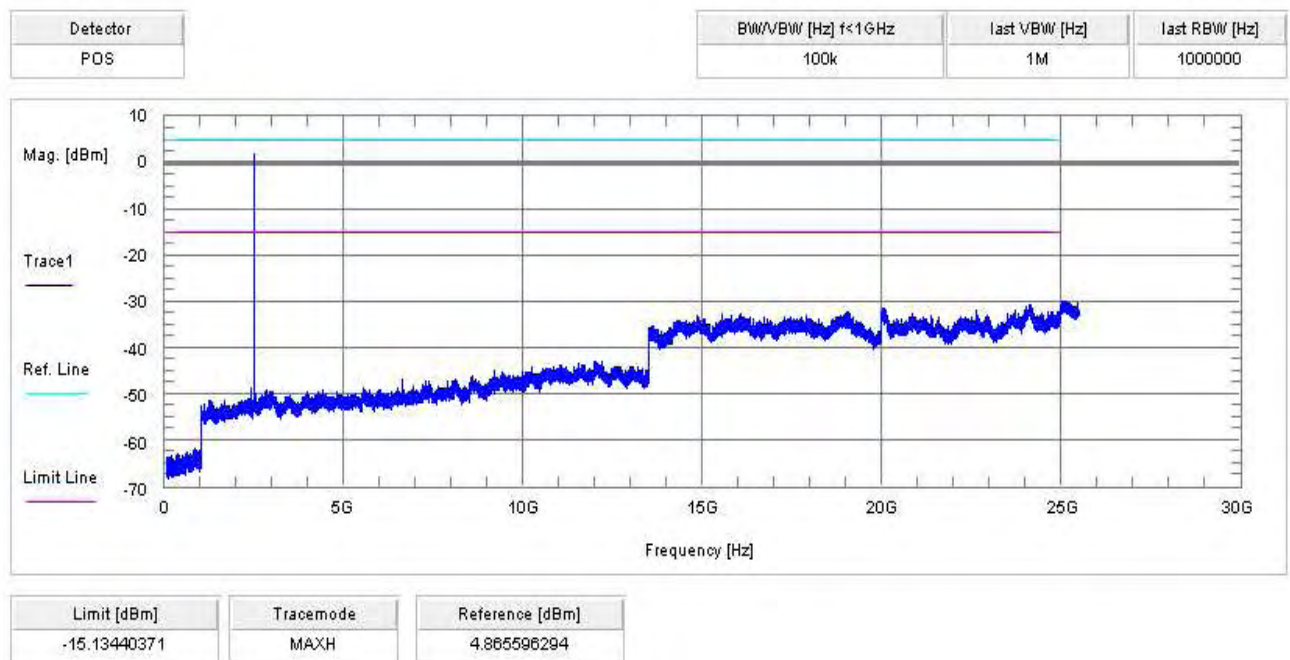


Plot 4: Restricted bands high, horizontal polarization



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



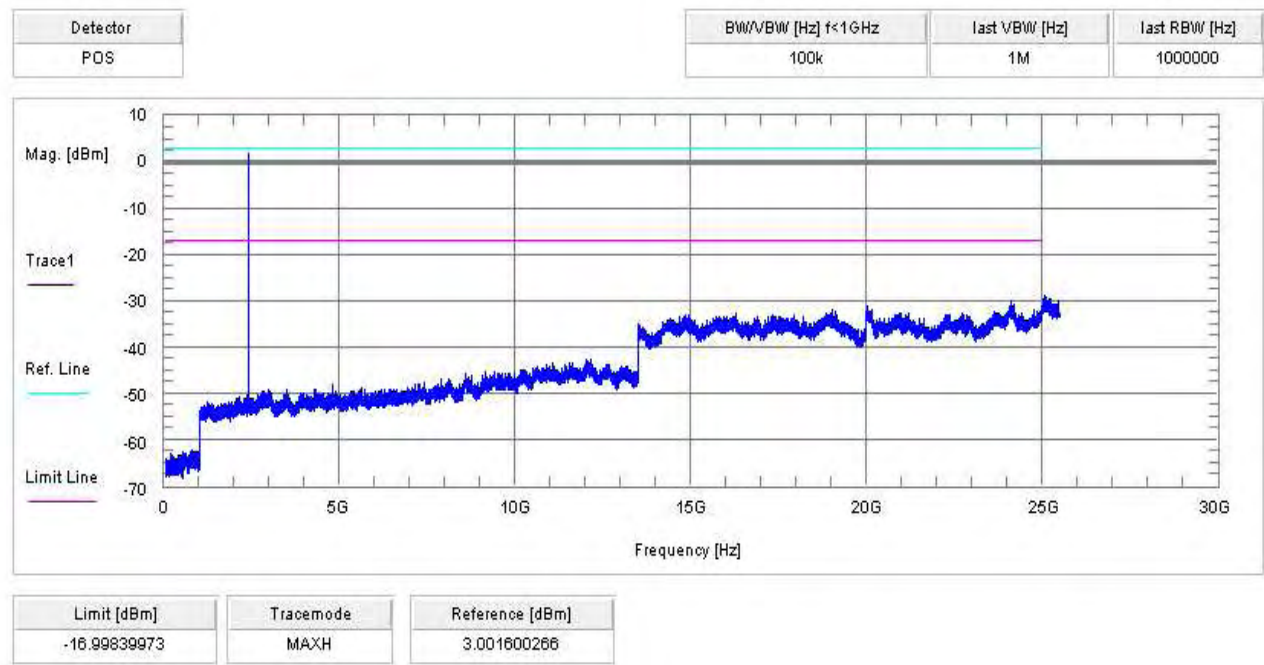
Result & Limits:

Emission Limitation					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2402		5.37	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		complies
2441		5.34	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		complies
2480		4.87	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		complies
Measurement uncertainty		± 3dB			

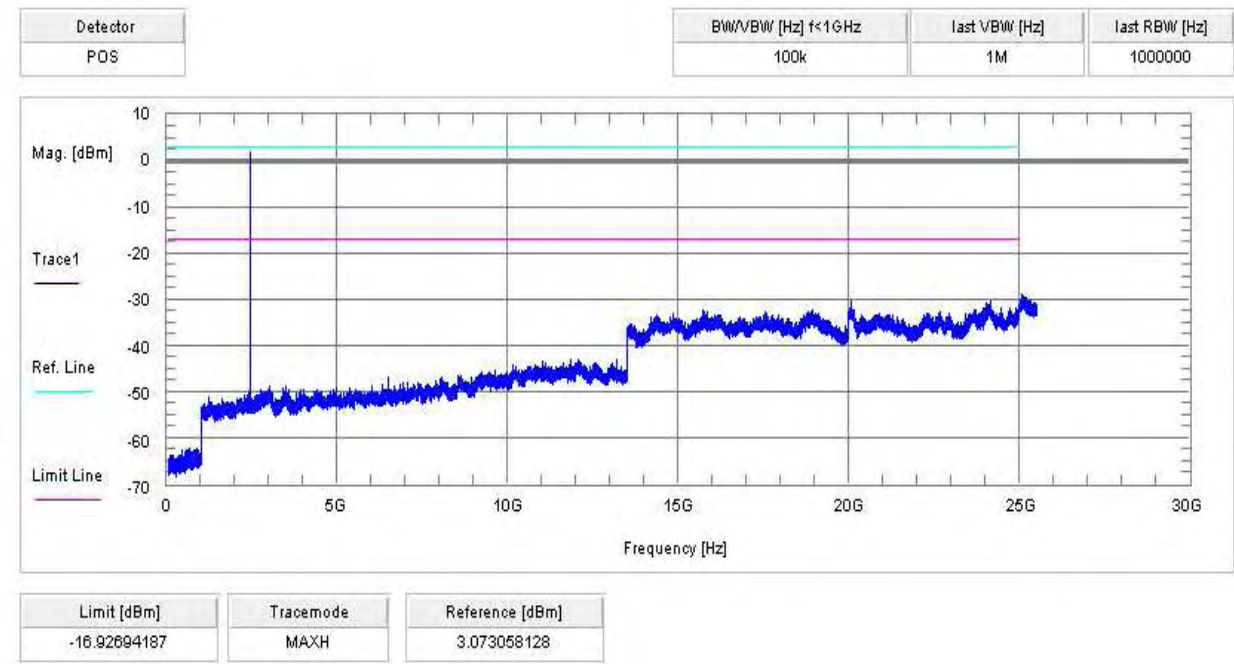
F < 1 GHz: RBW: 100 kHz VBW: 100 kHz
F > 1 GHz: RBW: 1 MHz VBW: 1 MHz

Modulation: Pi/4 DQPSK

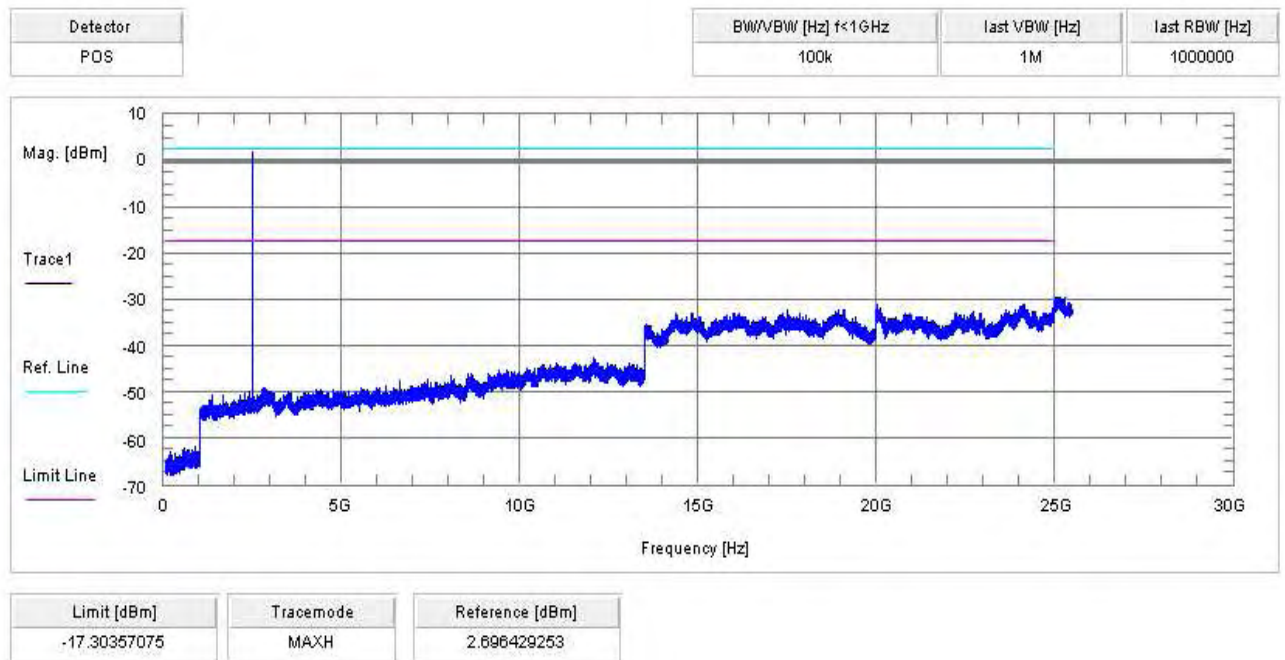
Plot 1 of 3: lowest channel



Plot 2 of 3: middle channel



Plot 3 of 3: highest channel



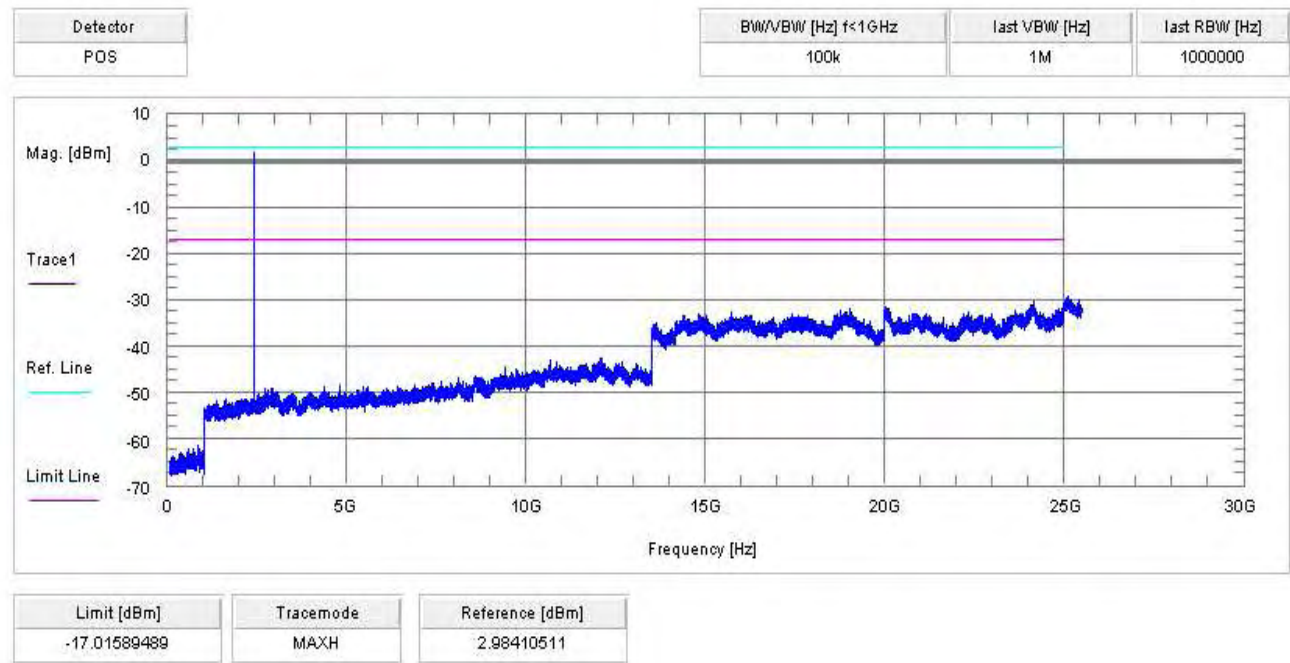
Result & Limits:

Emission Limitation					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2402		3.00	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		complies
2441		3.07	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		complies
2480		2.70	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		complies
Measurement uncertainty		± 3dB			

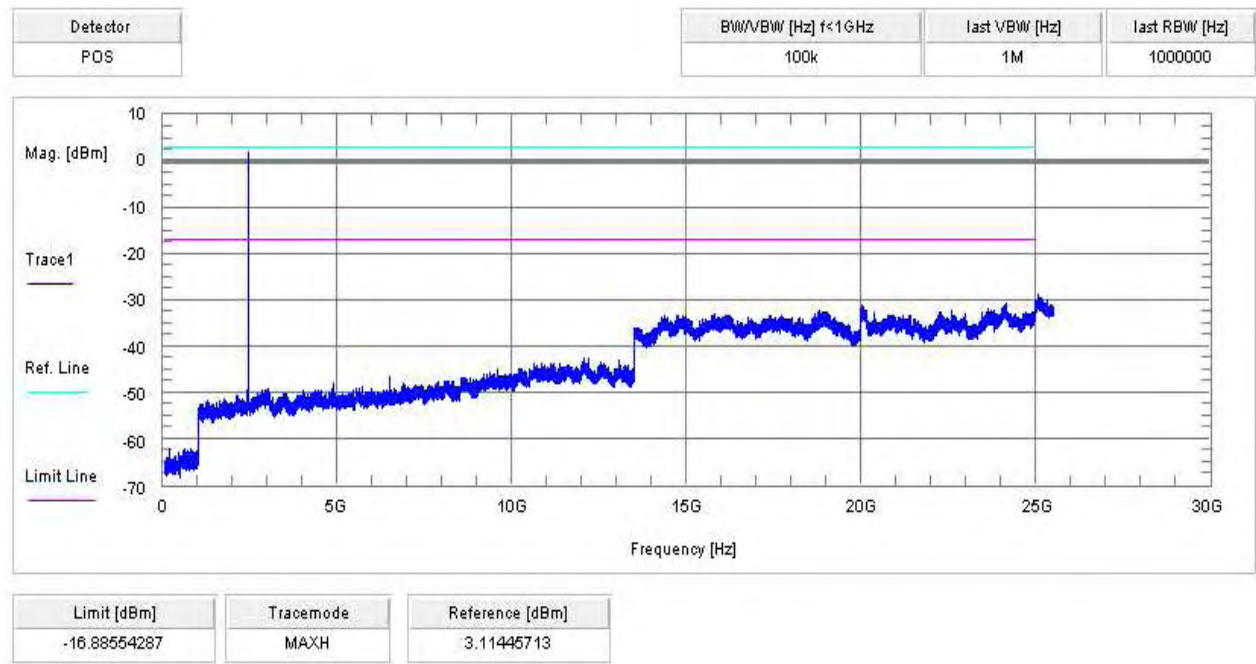
F < 1 GHz: RBW: 100 kHz VBW: 100 kHz
F > 1 GHz: RBW: 1 MHz VBW: 1 MHz

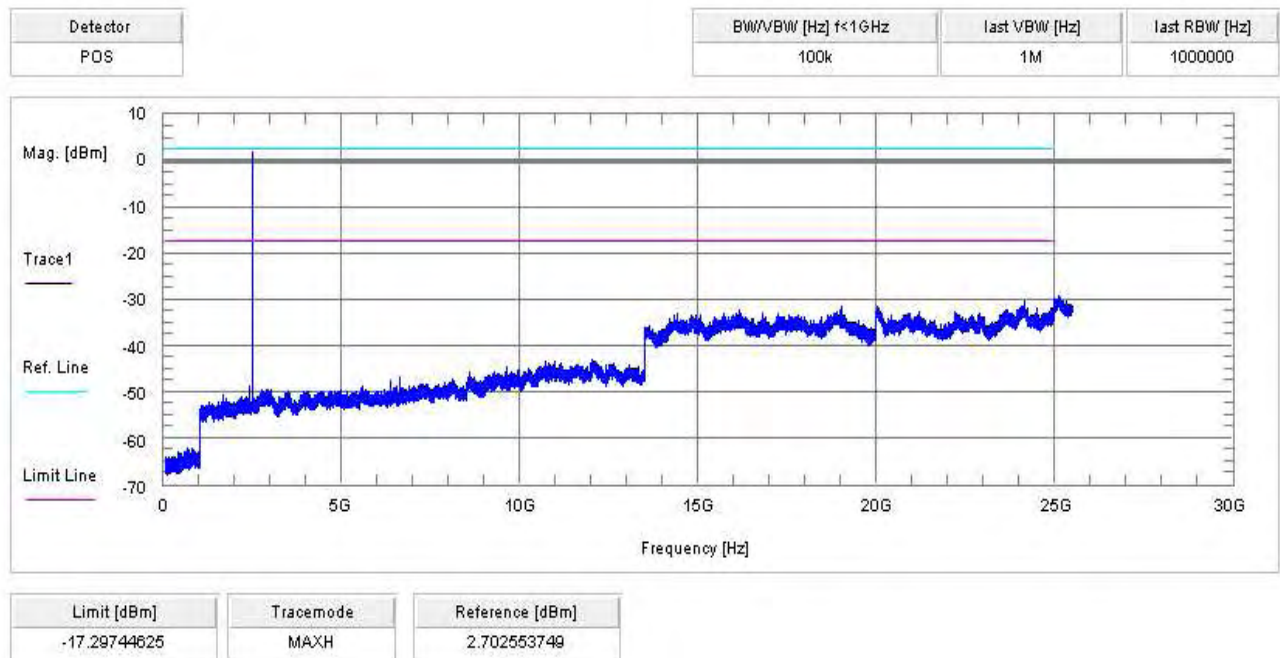
Modulation: 8 DPSK

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		2.98	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		complies
2441		3.11	30 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc		complies
2480		2.7040.05	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)).
-----------------------------------	--

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: GFSK

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

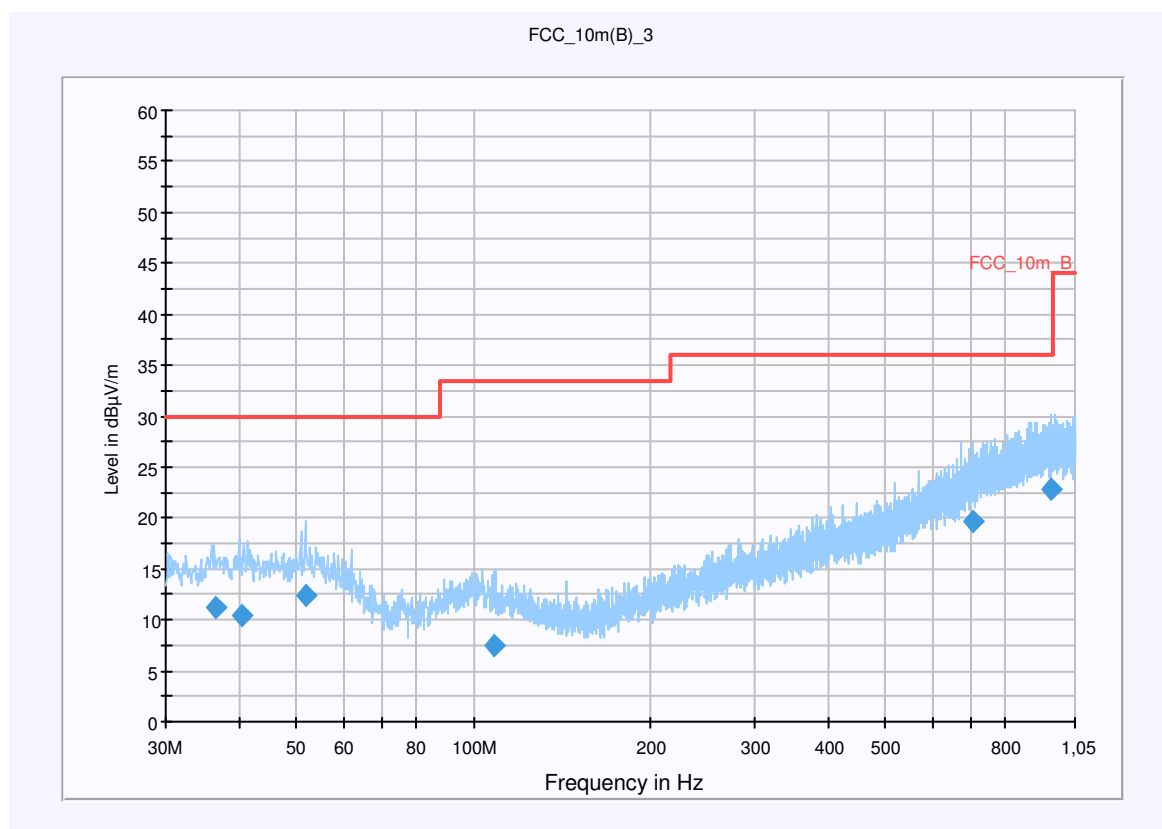
Common Information

EUT: DDA-0002026 + CAA-0003005-BV
 Serial Number: N/A + SN: 5908W49308170
 Test Description: FCC Part 15 C @ 10 m
 Operating Conditions: BT TX Ch 0
 Operator Name: ZAK
 Comment: Powered by 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

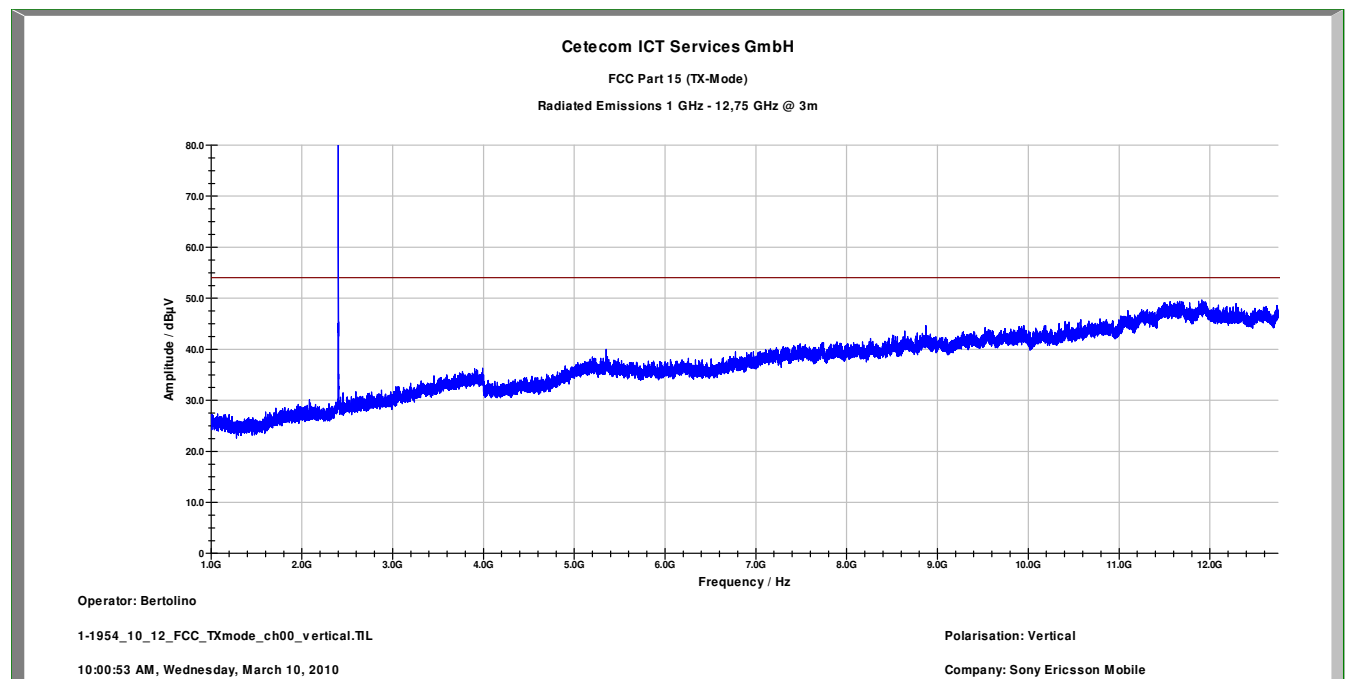
Frequency (MHz)	QuasiPeak (dBμV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBμV/m)	Comment
36.377250	11.2	15000.000	120.000	105.0	V	323.0	13.1	18.8	30.0	
40.362000	10.5	15000.000	120.000	119.0	V	150.0	13.4	19.5	30.0	
51.953700	12.3	15000.000	120.000	219.0	V	51.0	13.2	17.7	30.0	
108.206700	7.4	15000.000	120.000	219.0	H	164.0	11.2	26.1	33.5	
701.976900	19.7	15000.000	120.000	219.0	V	65.0	22.4	16.3	36.0	
959.242350	22.8	15000.000	120.000	184.0	V	24.0	25.4	13.2	36.0	

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

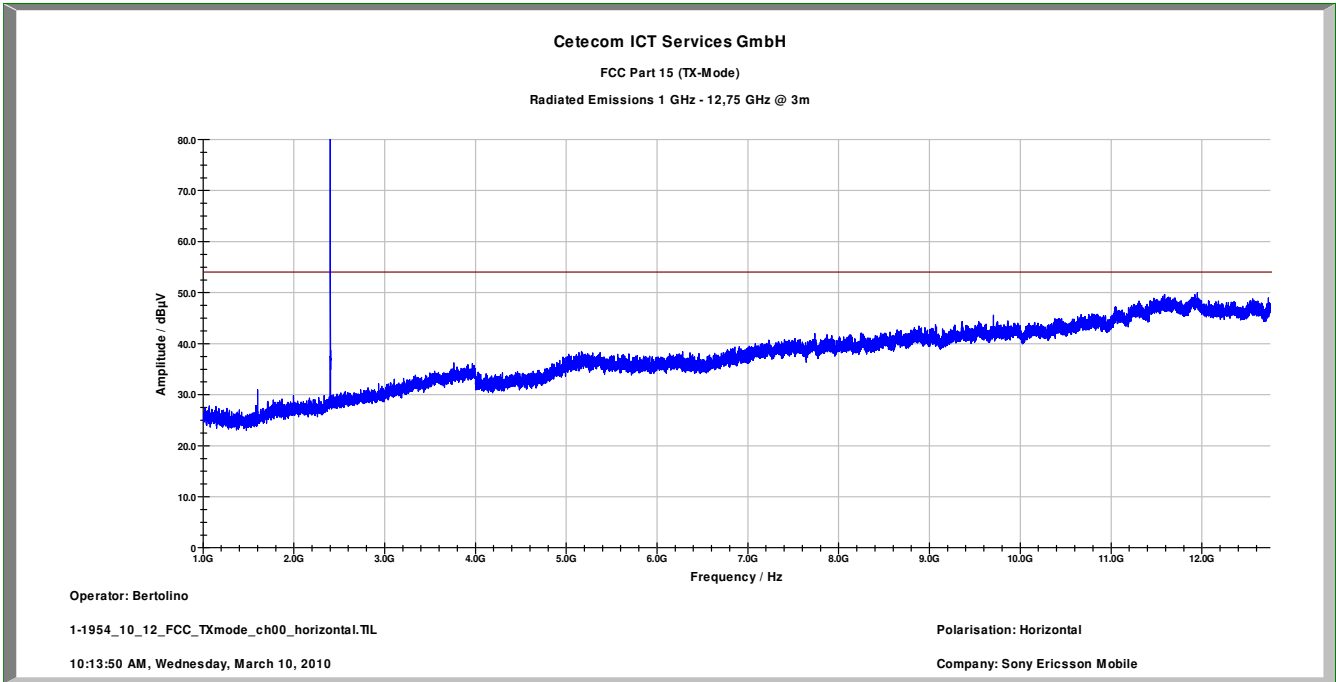
Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0909)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

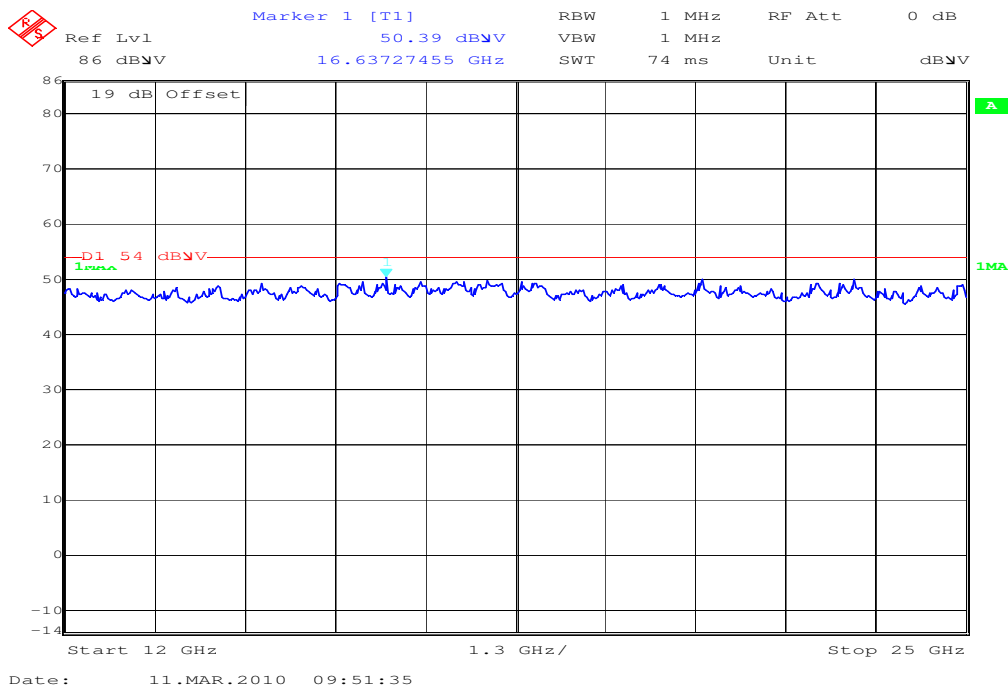
Plot 2: 1 – 12.75 GHz vertical polarization (lowest channel)



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



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



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

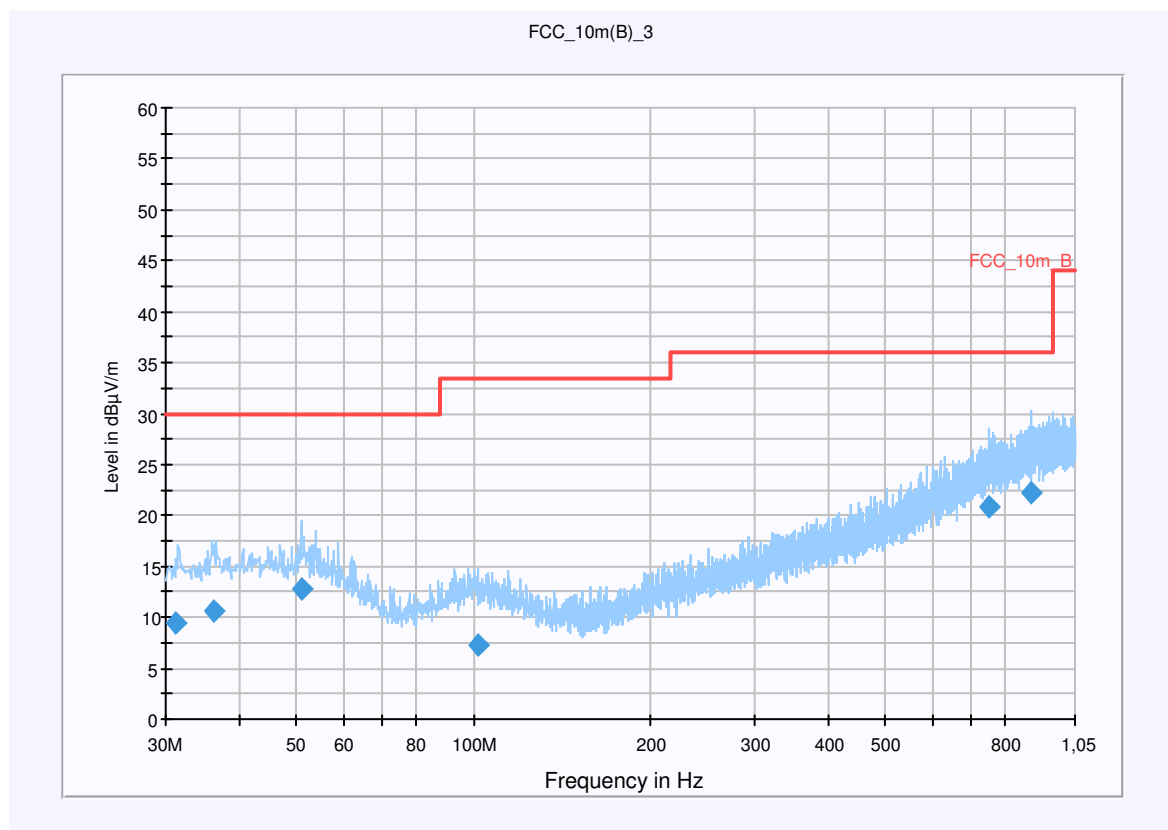
Common Information

EUT: DDA-0002026 + CAA-0003005-BV
 Serial Number: N/A + SN: 5908W49308170
 Test Description: FCC Part 15 C @ 10 m
 Operating Conditions: BT TX Ch 39
 Operator Name: ZAK
 Comment: Powered by 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

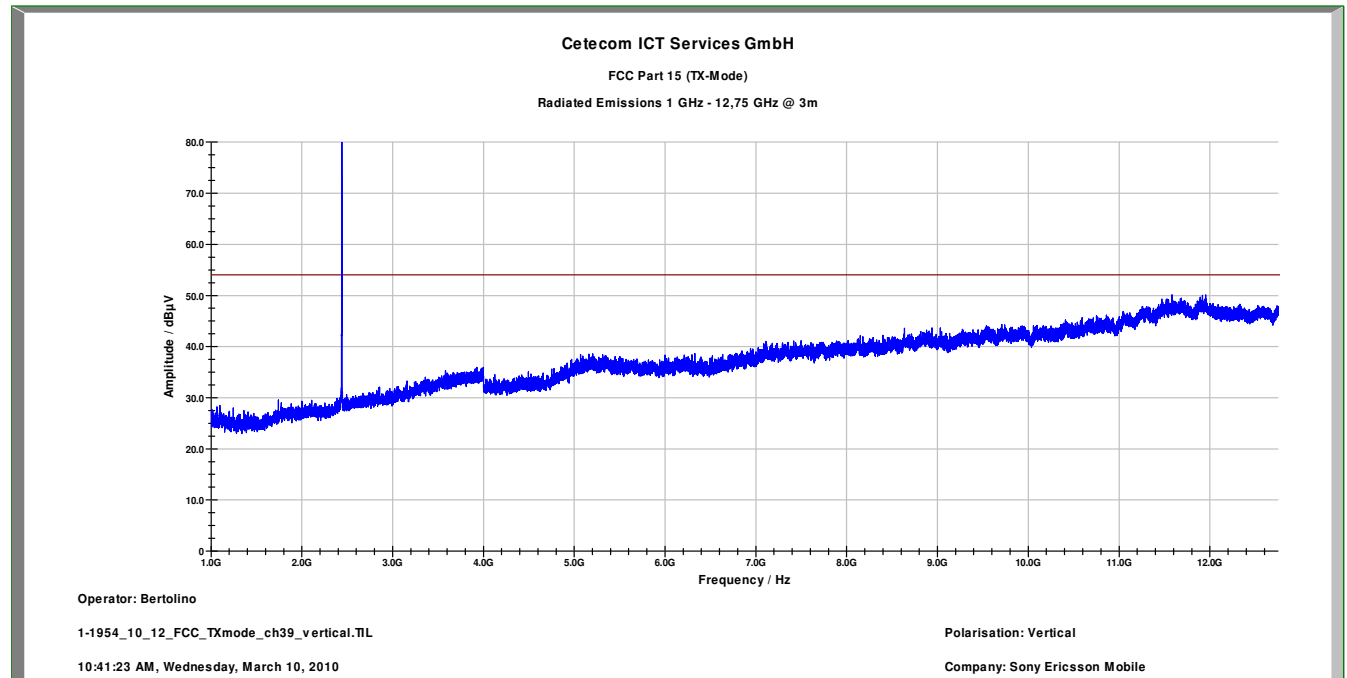
Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)	Comment
31.297200	9.5	15000.000	120.000	198.0	H	50.0	12.6	20.5	30.0	
36.138000	10.5	15000.000	120.000	222.0	V	234.0	13.1	19.5	30.0	
51.051900	12.8	15000.000	120.000	222.0	V	50.0	13.3	17.2	30.0	
101.465100	7.3	15000.000	120.000	222.0	H	278.0	11.8	26.2	33.5	
751.136250	20.9	15000.000	120.000	222.0	H	236.0	23.6	15.1	36.0	
884.740950	22.3	15000.000	120.000	222.0	H	84.0	25.0	13.7	36.0	

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

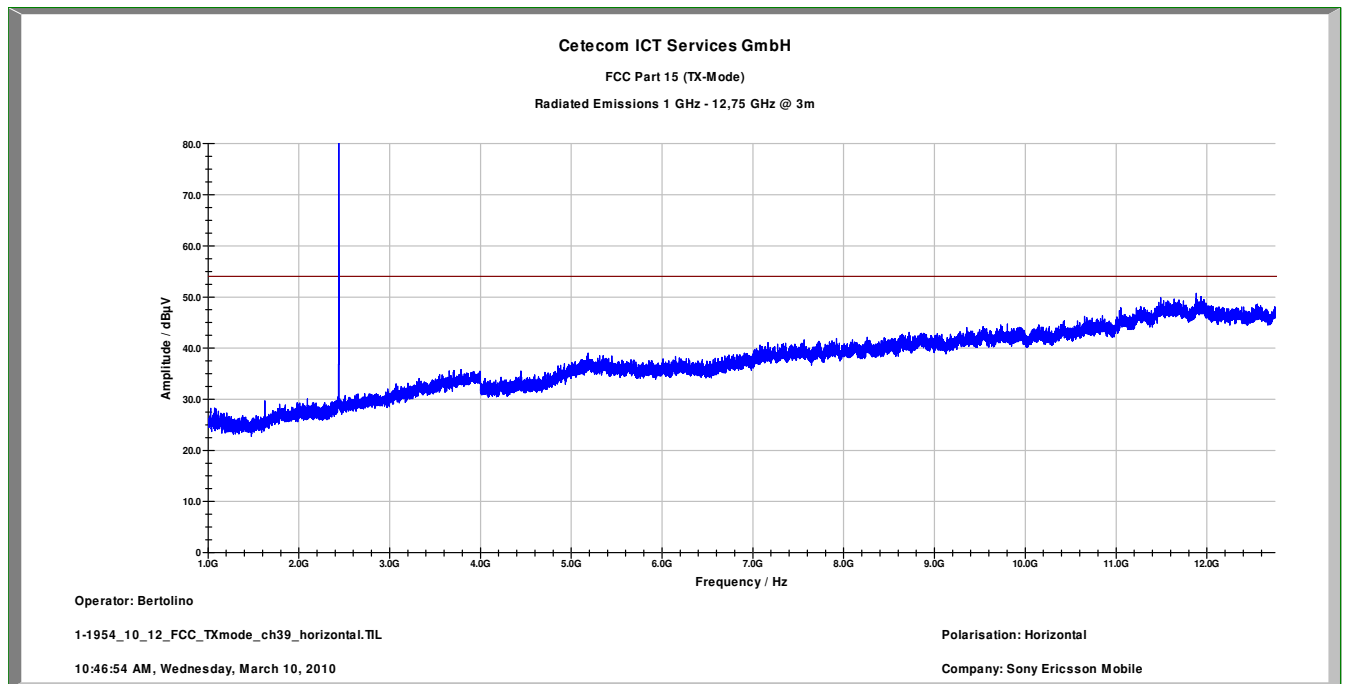
Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0909)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



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

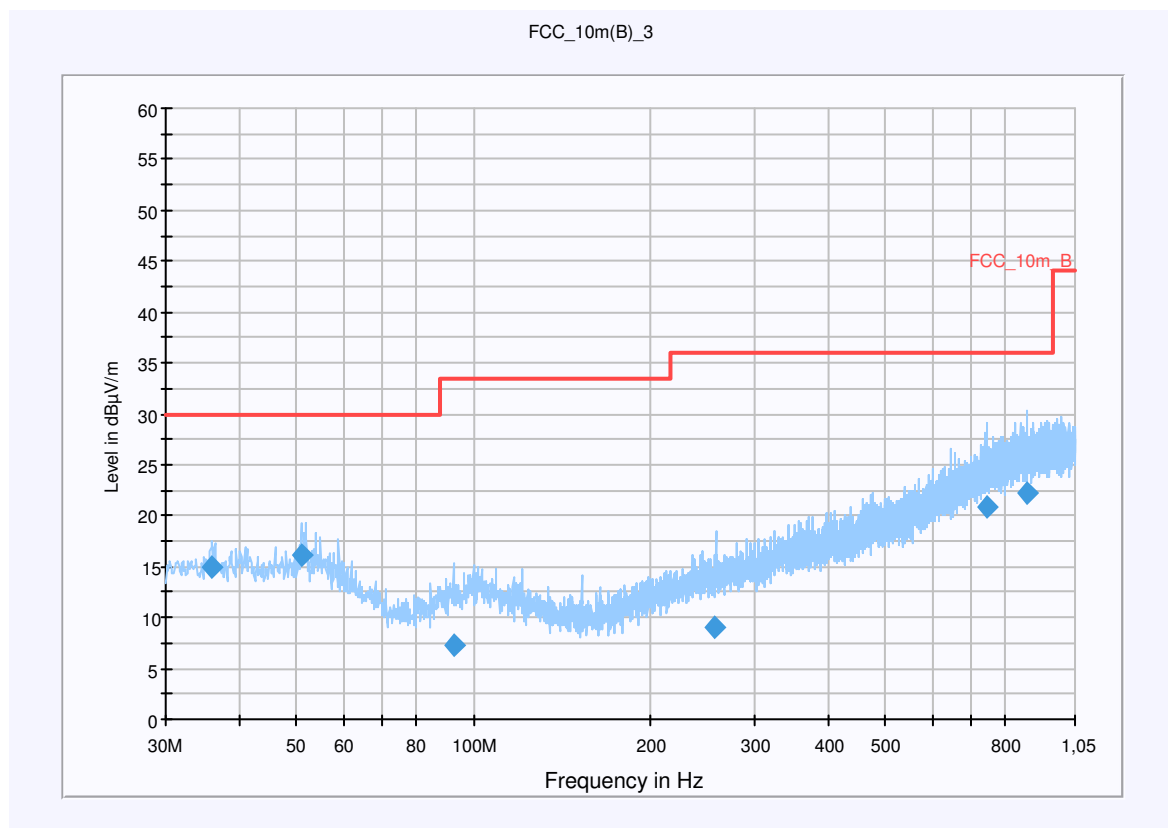


Plot 8: 0.03 - 1 GHz vertical & horizontal polarization (highest channel)**Common Information**

EUT: DDA-0002026 + CAA-0003005-BV
 Serial Number: N/A + SN: 5908W49308170
 Test Description: FCC Part 15 C @ 10 m
 Operating Conditions: BT TX Ch 78
 Operator Name: ZAK
 Comment: Powered by 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**

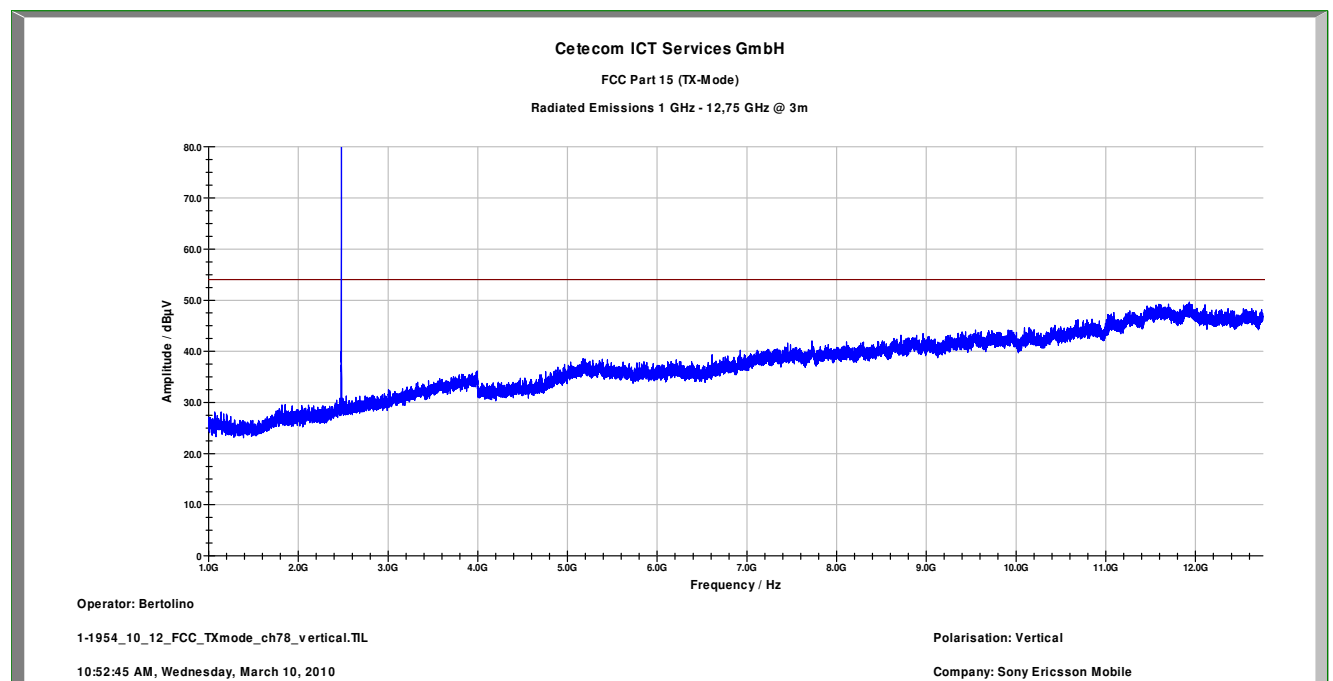
Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)	Comment
35.980050	14.9	15000.000	120.000	98.0	V	241.0	13.1	15.1	30.0	
51.020250	16.2	15000.000	120.000	98.0	V	141.0	13.3	13.8	30.0	
92.871300	7.2	15000.000	120.000	161.0	H	141.0	10.9	26.3	33.5	
257.121600	9.1	15000.000	120.000	221.0	V	141.0	13.4	26.9	36.0	
742.634100	20.8	15000.000	120.000	118.0	H	94.0	23.4	15.2	36.0	
872.703450	22.3	15000.000	120.000	118.0	H	43.0	24.9	13.7	36.0	

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

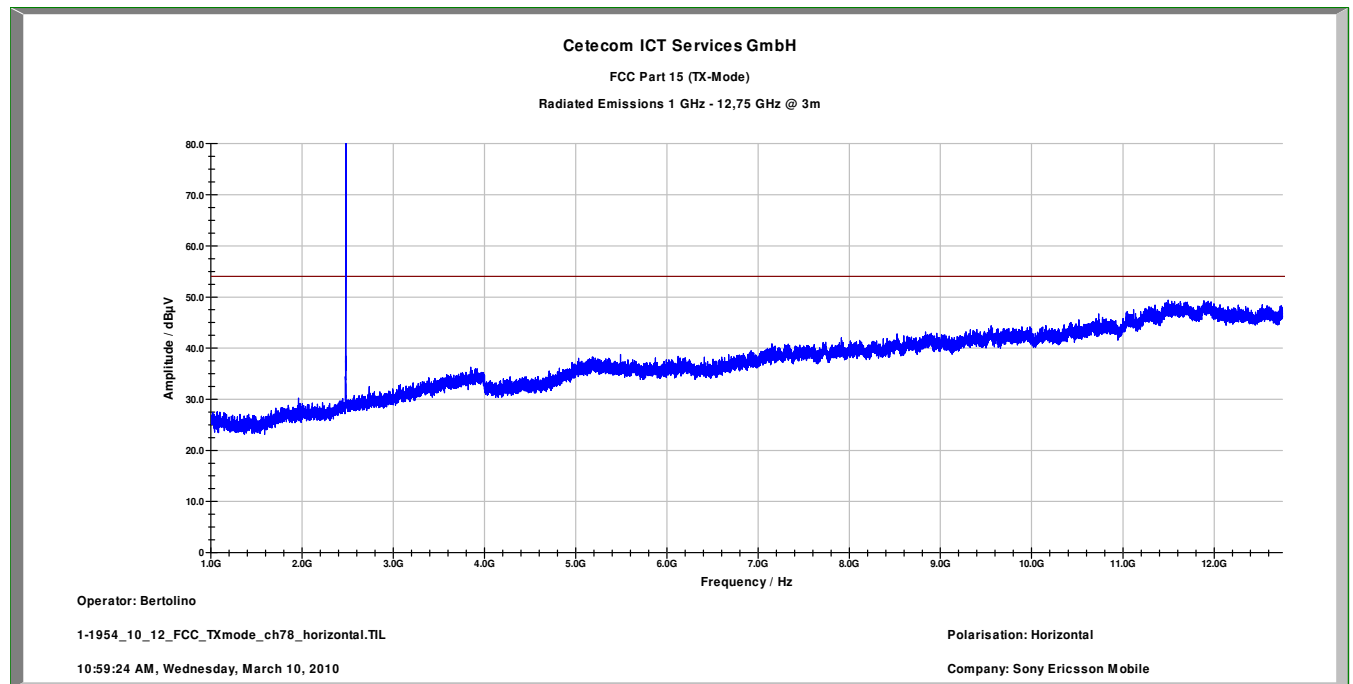
Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0909)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



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



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

$f \geq 1$ GHz : 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)

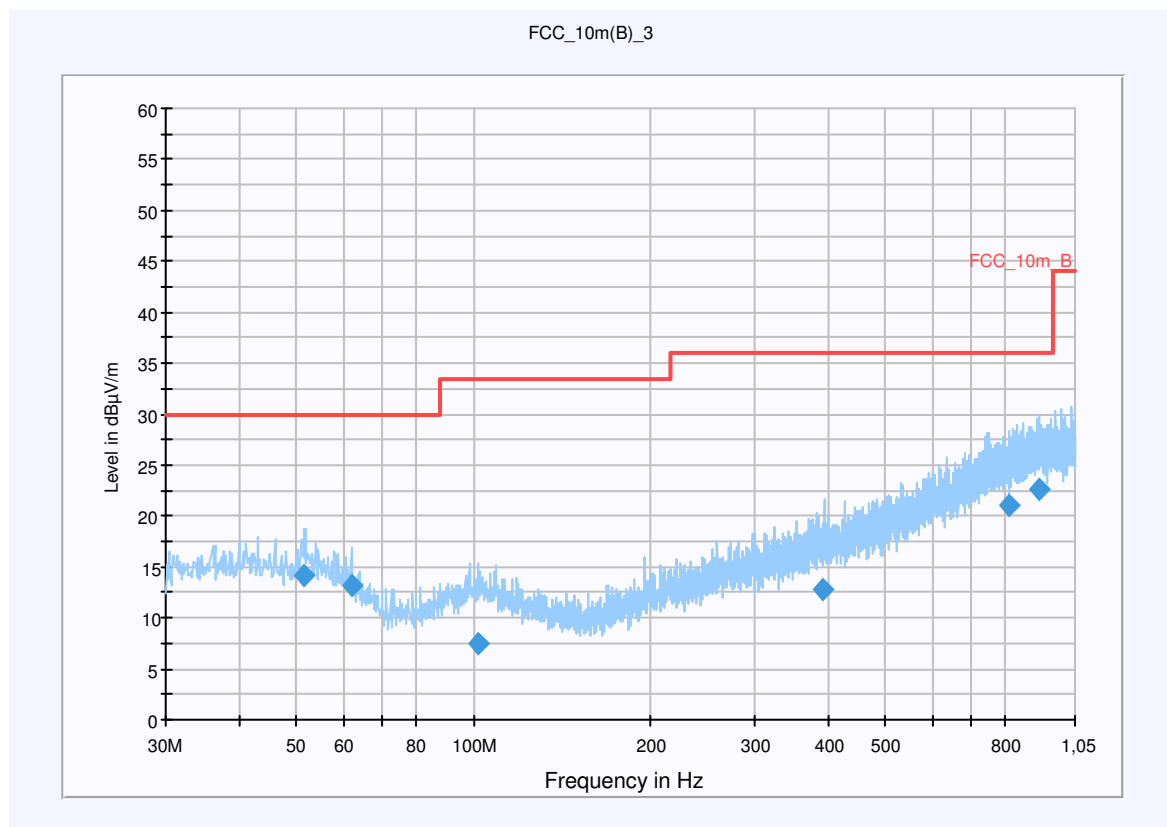
Common Information

EUT: DDA-0002026 + CAA-0003005-BV
 Serial Number: N/A + SN: 5908W49308170
 Test Description: FCC Part 15 C @ 10 m
 Operating Conditions: BT TX Mode
 Operator Name: ZAK
 Comment: Powered by 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

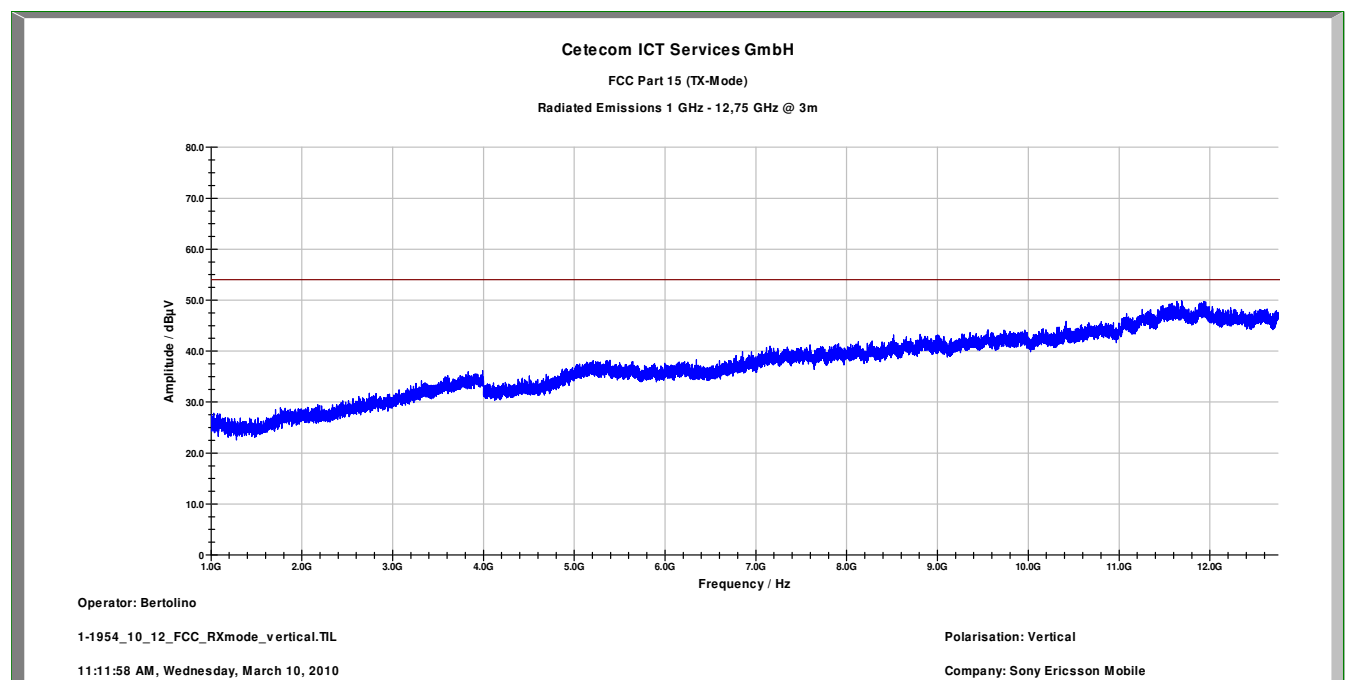
Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)	Comment
51.643050	14.2	15000.000	120.000	149.0	V	76.0	13.2	15.8	30.0	
62.005350	13.2	15000.000	120.000	169.0	V	22.0	11.1	16.8	30.0	
101.869950	7.5	15000.000	120.000	221.0	H	85.0	11.7	26.0	33.5	
392.445300	12.8	15000.000	120.000	214.0	H	31.0	16.8	23.2	36.0	
808.266450	21.1	15000.000	120.000	221.0	H	42.0	23.9	14.9	36.0	
911.214750	22.6	15000.000	120.000	178.0	H	281.0	25.2	13.4	36.0	

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

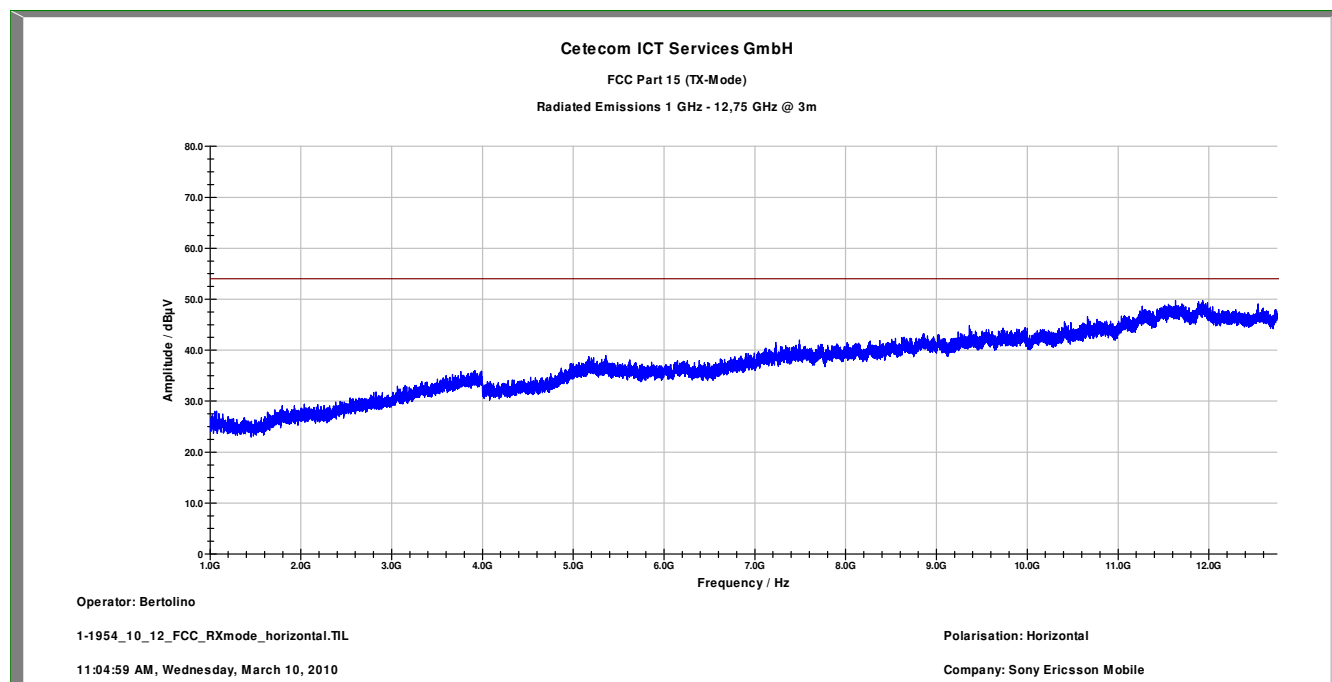
Subrange 1	
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (0909)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

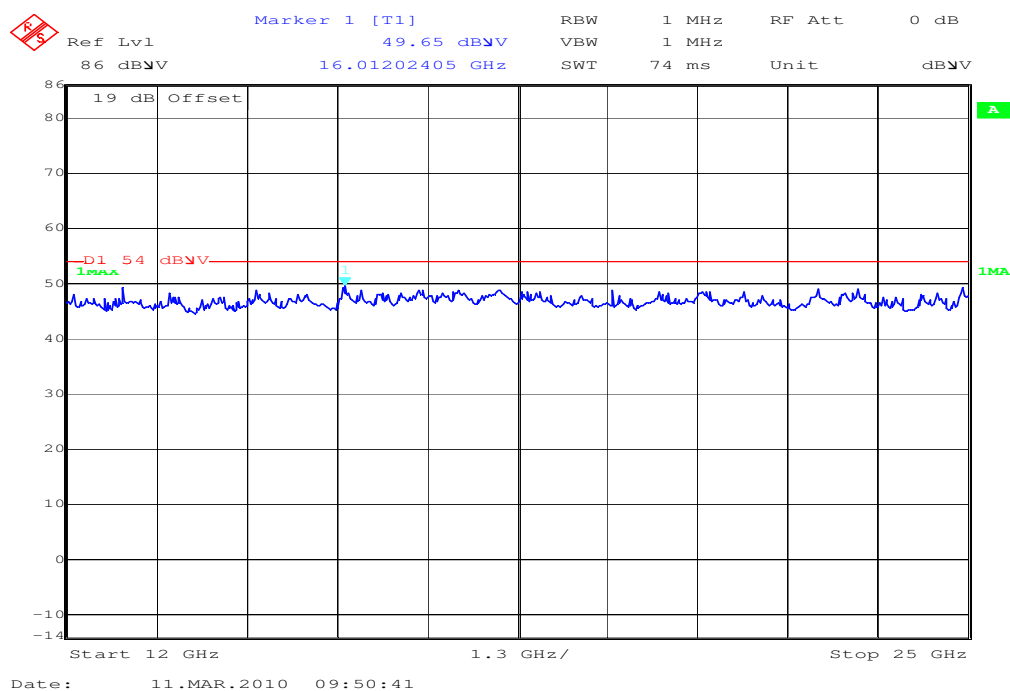
Plot 2: 1 – 12.75 GHz vertical polarization (receiver)



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



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



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 $\geq$ 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

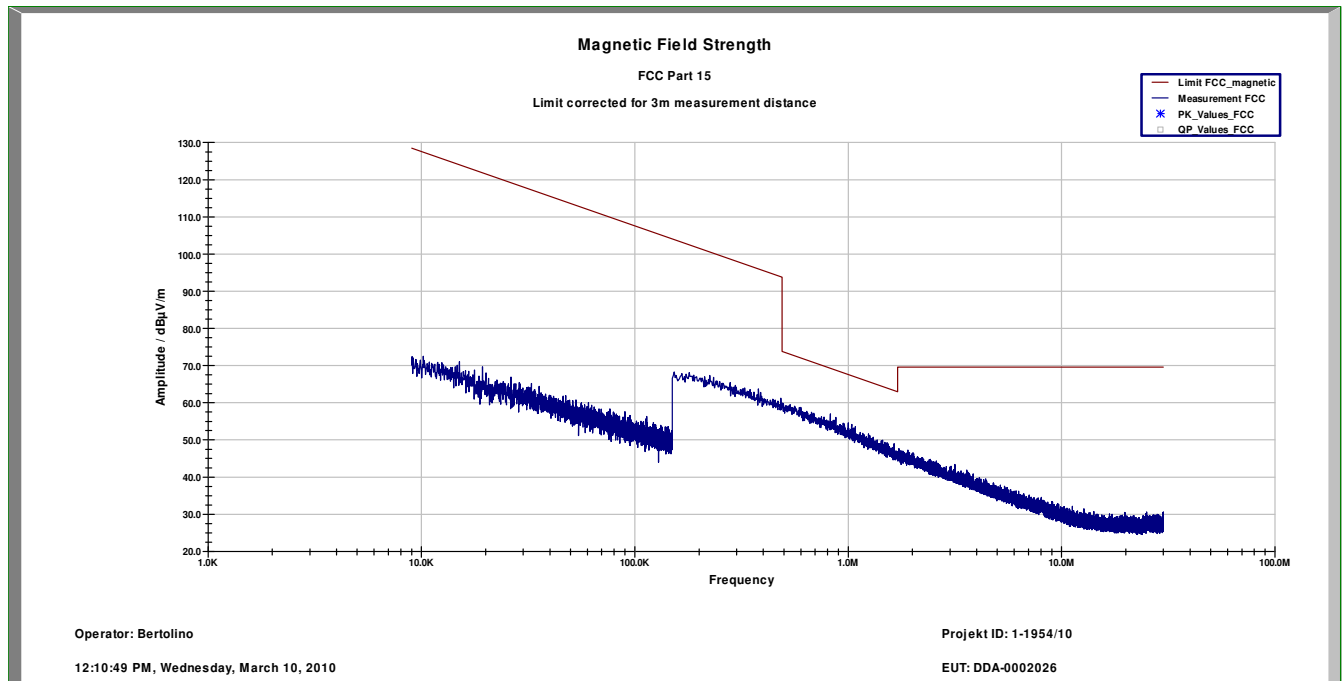
5.17 Spurious Emissions < 30 MHz - Transmitter radiated § 15.209

Modulation: GFSK

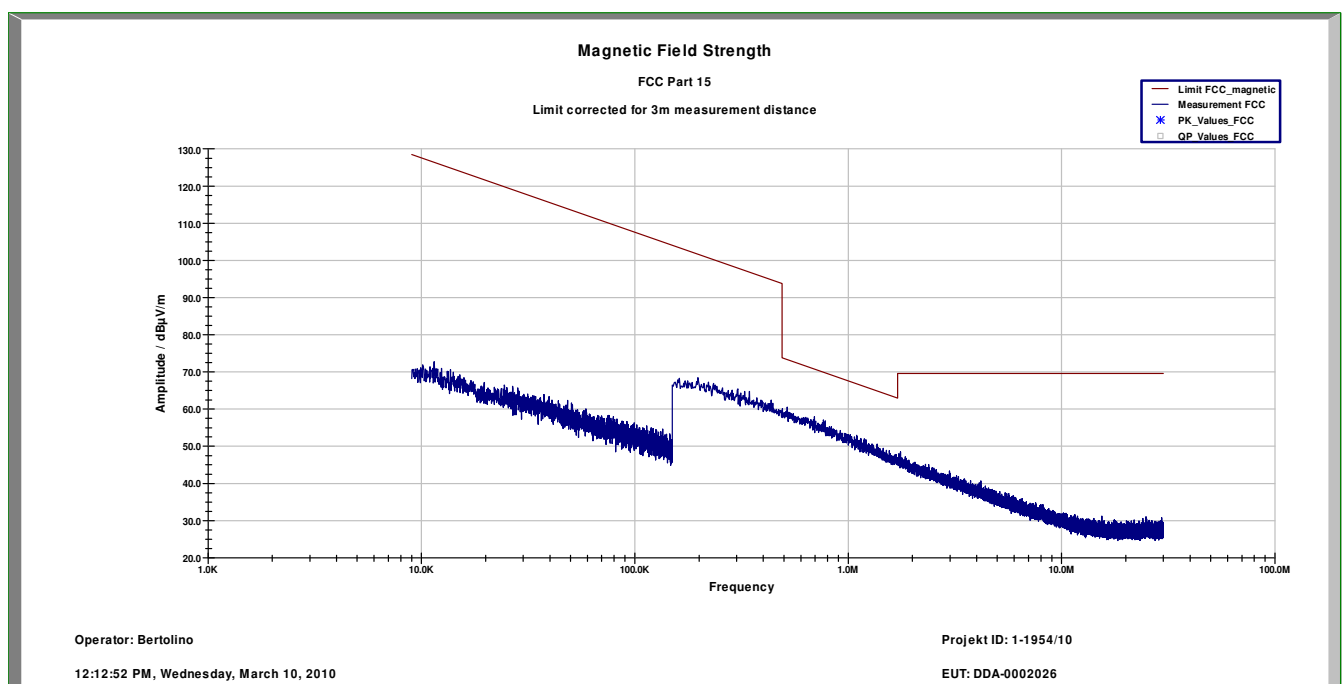
Measured at 10 m distance.

Values recalculated with 40 dB /decade according to FCC rules.

Plot 1: TX mode



Plot 2: RX mode



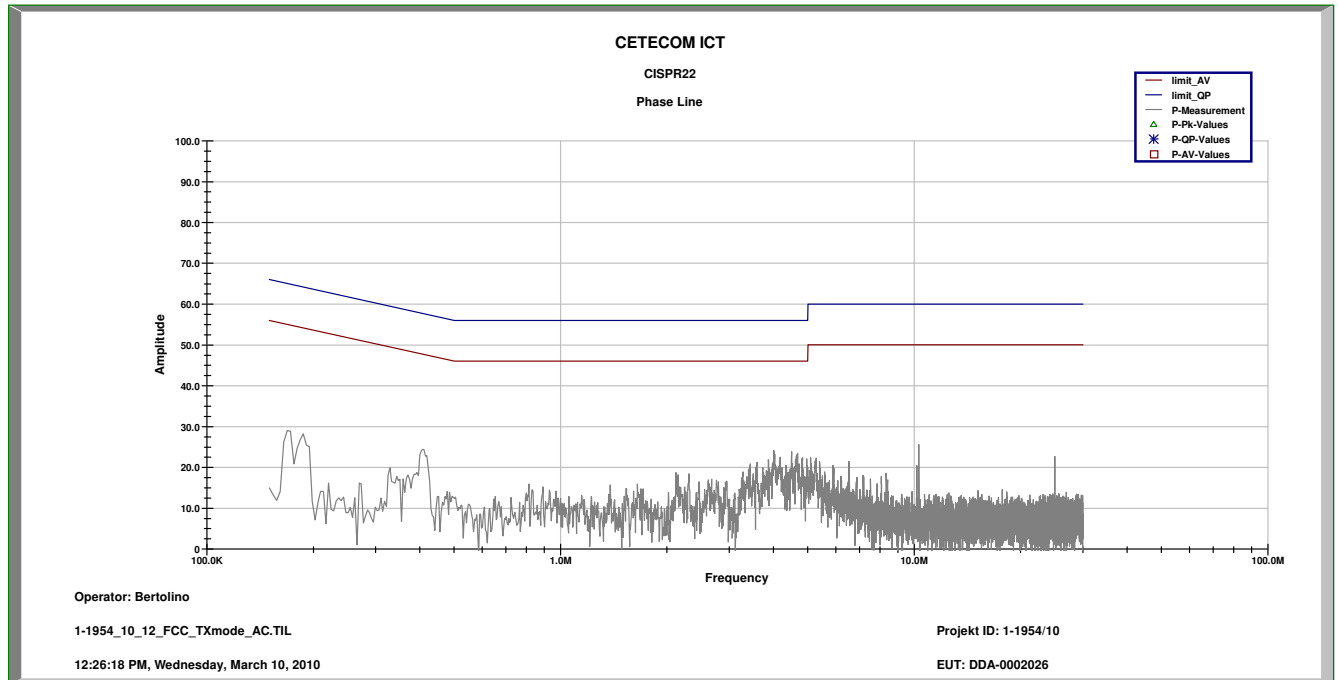
Limits:

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

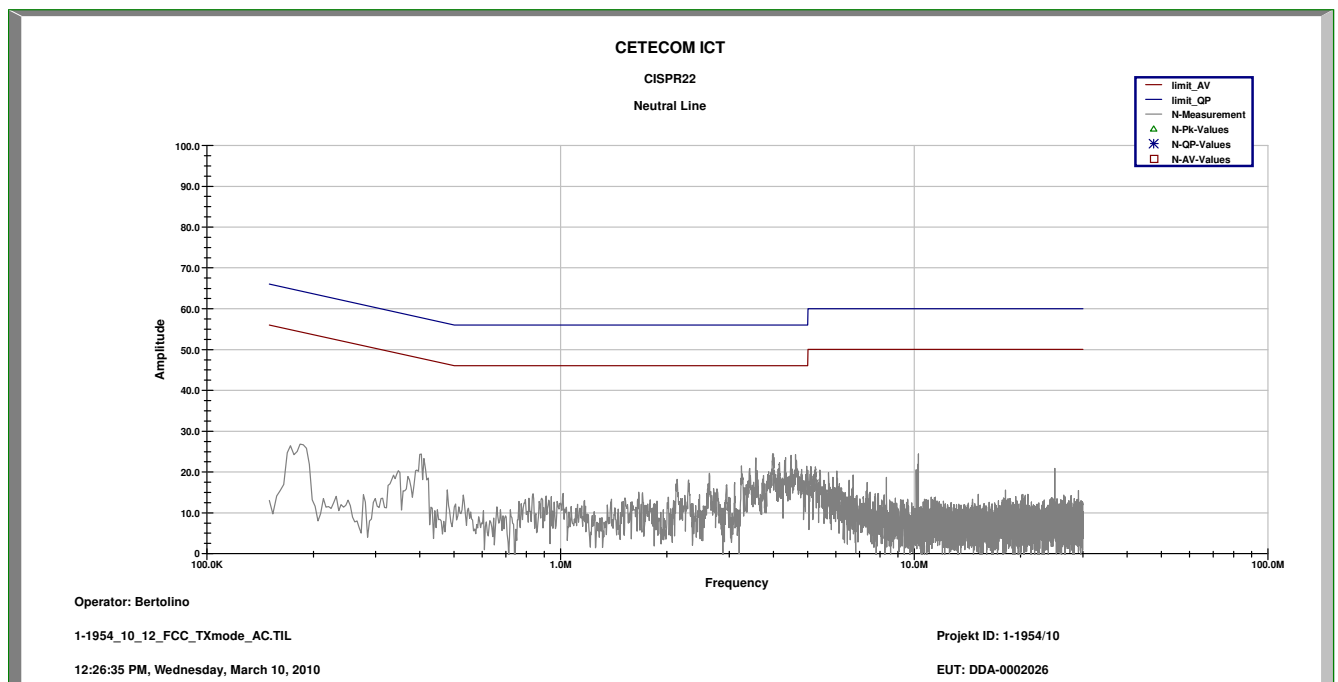
5.18 Conducted Emissions < 30 MHz § 15.107/207

Modulation: GFSK

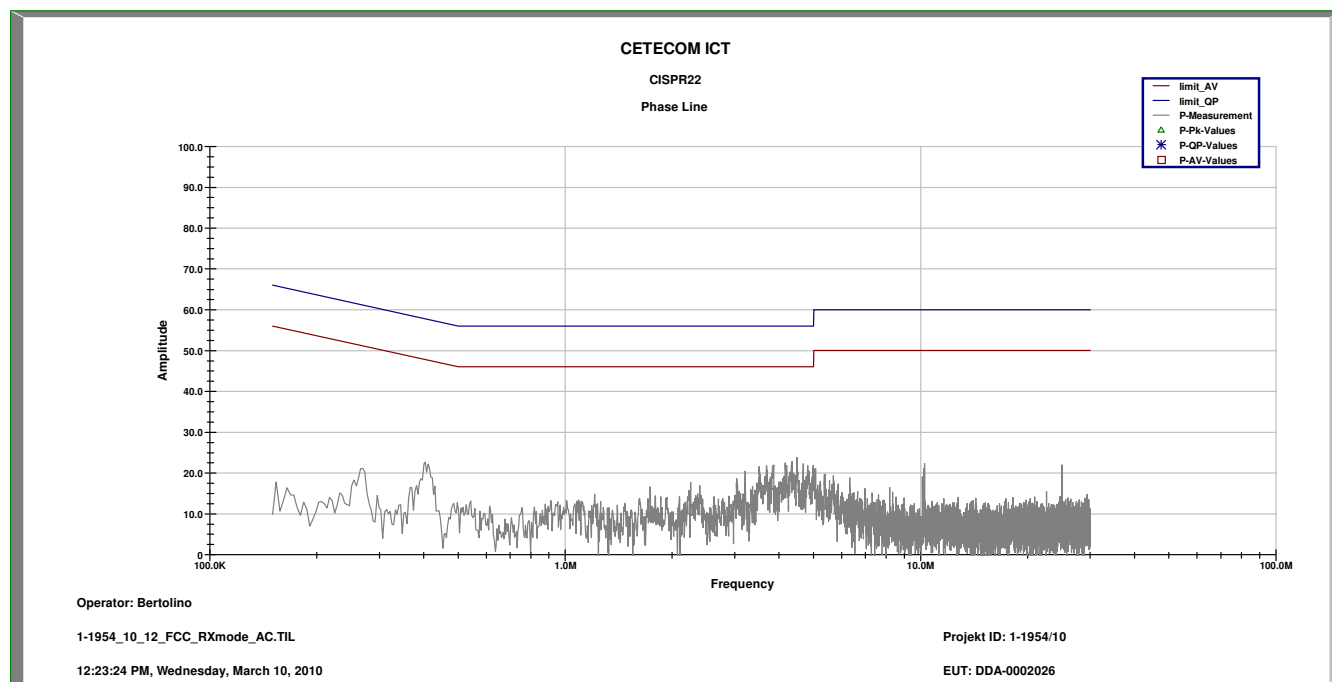
Plot 1: TX mode, phase line



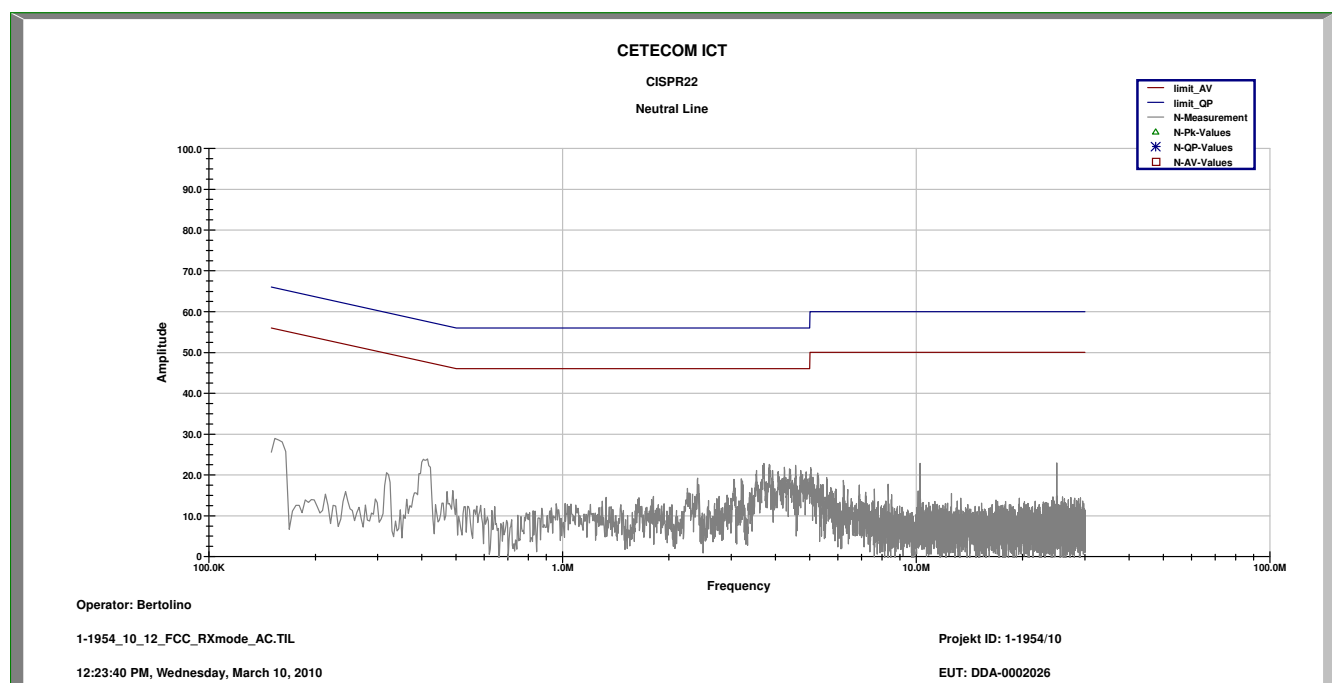
Plot 2: TX mode, neutral line



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

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		300001691	ne		
2	n. a.	Powersupply DC	NGPE 40/40	R&S	388	400000078	vl KI !	27.08 .2008	27.08. 2010
3	n. a.	Leistungsmeßkopf	NRV-Z1	R&S	833894/ 011	300002681- 0010	k	26.08 .2008	26.08. 2010
4	n. a.	Hygro- Thermometer	-/-, 5-45°C, 20- 100%rF	Thies Clima	-/-	400000080	k	08.04 .2009	08.04. 2010
5	n. a.	Signalgenerator	SMIQ03B	R&S	835541/ 055	300002681- 0001	k	25.08 .2008	25.08. 2011
6	n. a.	Signalgenerator	SMIQ03B	R&S	835541/ 056	300002681- 0002	k	26.08 .2008	26.08. 2011
7	n. a.	Signalgenerator	SMP02	R&S	835133/ 011	300002681- 0003	k	26.08 .2008	26.08. 2011
8	n. a.	Powermeter	NRVD	R&S	835430/ 044	300002681- 0004	k	26.08 .2008	26.08. 2010
9	n. a.	Switch / Control Unit	SSCU	R&S	338864/ 003	300002681- 0006	ne		
10	n. a.	Attenuator-Step	RSP	R&S	834500/ 010	300002681- 0007	k	26.08 .2008	26.08. 2010
11	n. a.	Frequenznormal (Rubidium Frequency Standard)	MFS (Rubidium)	R&S (Datum)	002	300002681- 0009	V e	27.08 .2008	27.08. 2010
12	n. a.	Leistungsmeßkopf	NRV-Z1	R&S	833894/ 012	300002681- 0013	k	26.08 .2008	26.08. 2010
13	n. a.	Directional Coupler	101020010	Krytar	70215	300002840	ev		
14	n. a.	DC-Blocker	8143	Inmet Corp.	none	300002842	ne		
15	n. a.	Powersplitter	6005-3	Inmet Corp.		300002841	ev		
16	n. a.	Klimaschrank	VT 4002	Heraeus Voetsch	585660 468200 10	300003019	V e	28.05 .2009	28.05. 2011
17	n. a.	CBT (Bluetooth EDR Signalisierung)	CBT 1153.9000K35	R&S	100185	300003416	vl KI !	27.08 .2008	27.08. 2010
18	n. a.	Spectrum- Analyzer CBT-K57	FSP30	R&S	100886	300003575	k	25.08 .2008	25.08. 2010
19	n. a.	Software-Option für CBT/CBT32	CBT-K57	R&S	101051	300003910	ne		

20	n. a.	Software Bluetooth-Protokoll Tester PTW 60	Software PTW 60	R&S		300002853-0002	ne		
21	n. a.	Signal Analyzer 20Hz-26,5GHz-150 to + 30 DBM	FSIQ26	R&S	835540/018	300002681-0005	k	07.01.2010	07.01.2012
22	n. a.	CBT (Bluetooth EDR Signalisierung)	CBT 1153.9000K35, CBT-B55, CBT-K55	R&S	100313	300003516	k	03.09.2008	03.09.2010
23	n. a.	Horn Antenne 1-26.5GHz	3115	EMCO	8812-3088	300001032	vl KI !	05.03.2009	05.03.2011
24	n. a.	Active Loop Antenne	6502	EMCO	2210	300001015	ne		
25	n. a.	Busisolator		Kontron		300001056	g		
26	n. a.	Absorberhalle		MWB	87400/02	300000996			
27	Spec .A. 2_2e	System-Rack	85900	HP I.V.	*	300000222	ne		
28	9	Netznachbildung Artificial Mains 9 kHz to 30 MHz	ESH3-Z5	R&S	828576/020	300001210	V e	06.01.2010	06.01.2012
29	n. a.	Relais Matrix	3488A	HP Meßtechnik	2719A15013	300001156	ne		
30	n. a.	Relais Matrix	PSU	R&S	890167/024	300001168	ne		
31	n. a.	Trenntrafo	RT5A	Grundig	9242	300001263	ne		
32	n. a.	Leitungsteiler	11850C	HP Meßtechnik		300000997	ne		
33	n. a.	Switch / Control Unit	3488A	HP	2605e08770	300001443	ne		
34	n. a.	Band Reject filter	WRCG1855/1910-1835/1925-40/8SS	Wainwright	7	300003350	ev		
35	n. a.	Band Reject filter	WRCG2400/2483-2375/2505-50/10SS	Wainwright	11	300003351	ev		
36	n. a.	TILE-Software Emission	Quantum Change, Modell TILE-ICS/FULL	EMCO	none	300003451	ne		
37	n. a.	Hochpassfilter	WHKX2.9/18G-12SS	Wainwright	1	300003492	ev		
38	n. a.	Hochpassfilter	WHK1.1/15G-10SS	Wainwright	3	300003255	ev		
39	n. a.	Hochpassfilter	WHKX7.0/18G-8SS	Wainwright	18	300003789	ne		
40	n. a.	PSA-Spektrumanalysator 3 Hz - 26,5 GHz	E4440A	Agilent Vertr. Bad Hom	MY48250080	300003812	k	05.08.2008	05.08.2010
41	n. a.	Microwave Analog Signal Generator	N5183A	Agilent Vertr. Bad Hom	MY47420220	300003813	k	06.08.2008	06.08.2010
42	n. a.	EMI Preselector 9kHz - 1 GHz	N9039A	Agilent Vertr. Bad Hom	MY48260003	300003825	vl KI !	19.08.2008	19.08.2010
43	n. a.	TRILOG Super	VULB9163	Schwarzbeck	371	300003854	vl	17.12	17.12.

Breitband Antenne							KI	.2008	2010
							!		
44	45	Switch-Unit	3488A	HP Meßtechnik	2719A1 4505	300000368	g		
45	50	Netzgerät	6032A	HP Meßtechnik	2920A0 4466	300000580	k	06.01 .2009	06.01. 2011
46	n. a.	software	SPS_PHE 1.4f	Spitzberger & Spieß	B5981; 5D1081 ;B5979	300000210	k	03.09 .2001	03.09. 2003
47	n. a.	EMI- Messempefänger Analysator-	ESCI 1166.5950.03	R&S	100083	300003312	k	08.01 .2010	08.01. 2012
48	n. a.	Referenz-System (Harmonics u. Flicker)	ARS 16/1	SPS	A3509 07/0 0205	300003314	k	06.06 .2007	06.06. 2009
49	n. a.	Amplifier	JS42-00502650- 28-5A	MITEQ	108453 2	300003379	ev		
50	n. a.	Antennenmast	Model 2175	ETS- LINDGREN	64762	300003745	iz w		
51	n. a.	Steuergerät	Model 2090	ETS- LINDGREN	64672	300003746	iz w		
52	n. a.	Interface-Box für Drehtisch	Model 105637	ETS- LINDGREN	44583	300003747	iz w		
53	n. a.	Breitbandantenne	VULB9163	Schwarzbeck	295	300003787	k	01.04 .2008	01.04. 2010
54	n. a.	Spectrum- Analyzer	FSU26	R&S	200809	300003874	k	08.01 .2010	08.01. 2012