

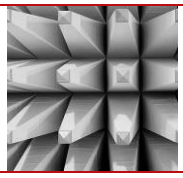

CETECOM™
CETECOM ICT Services
consulting - testing - certification

TEST REPORT

Deutscher Akkreditierungs Rat DAR

Test Report No.: 1-1954-27-02/10

Testing Laboratory

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Accredited Test Laboratory:
The test laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025
DAR registration number: DGA-PL-176/94-D1

Area of Testing: Radio Satellite Communications

Applicant

Sony Ericsson Mobile Communications AB
Nya Vattentornet
22188 Lund/Sweden
Phone: +46-46-19-3000
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Manufacturer

Sony Ericsson Mobile Communications AB
Nya Vattentornet
22188 Lund/Sweden

Test Standard/s

47 CFR Part 15	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	Spectrum Management and Telecommunications - Radio Standards Specification Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment

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

Test Item

Kind of test item:	**BT headset BT2.1 +EDR**
Model name:	**DDA-0002031**
FCC ID:	**PY7DDA-2031**
IC:	**4170B-DDA2031**
Frequency [MHz]:	**2400.00 MHz – 2483.50 MHz**
Power supply:	**3.70V DC by Li-Polymer Battery**
Temperature range:	**-20 °C to 55 °C**

Test performed:

2010-07-22 Jakob Reschke

Test Report authorised:

2010-07-22 Michael Berg

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2 General Information

2.1 Notes

The test results of this test report relate exclusively to the test item specified in this test report. 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 CETECOM ICT Services GmbH.

2.2 Application details

Date of receipt of order:	2010-04-26
Date of receipt of test item:	2010-07-05
Start of test:	2010-07-05
End of test:	2010-07-13
Person(s) present during the test:	-/-

3 Test standard/s

Test Standard	Version	Test Standard Description
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

4 Test Environment

Temperature:	T_{nom}	22	°C during room temperature tests
	T_{max}	55	°C during high temperature test
	T_{min}	-20	°C during low temperature test
Relative humidity content:		54 %	
Air pressure:		not relevant for this kind of testing	
Power supply:	V_{nom}	3.70 V	DC by Li-Polymer Battery
	V_{max}	4.40 V	
	V_{min}	3.30 V	

5 Test item

Kind of test item	:	**BT headset BT2.1 +EDR**
Type identification	:	**DDA-0002031**
S/N serial number	:	**Rad. #18282** **Cond. 000C55FE7C55 (BDA)**
HW hardware status	:	**SP2**
SW software status	:	**WK18-titan SP1.9**
Frequency Band [MHz]	:	**2480.00 MHz – 2483.50 MHz**
Type of Modulation	:	**GFSK, Pi/4 DQPSK, 8 DPSK**
Number of channels	:	**79**
Antenna	:	**Integrated antenna**
Power Supply	:	**3.70 V DC by Li-Polymer Battery**
Temperature Range	:	**-20°C to 55 °C**

6 Test Laboratories sub-contracted

None

7 Summary of measurement results

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

TC Identifier	Description	Verdict	Date	Remark
RF-Testing	CFR Part 15 RSS 210, Issue 7, Annex 8	Passed	2010-07-22	-/-

Test Specification Clause	Test Case	Temperature Conditions	Power Source Voltages	Mode	Pass	Fail	NA	NP	Results (max.)
§15.247(b)(4) RSS 210 / A8.4(2)	Antenna Gain	Nominal	Nominal	GFSK	☒	☐	☐	☐	complies
§15.247(e) RSS 210 / A8.2(b)	Power spectral density	Nominal	Nominal	GFSK Pi/4 DQPSK 8 DPSK	☐	☐	☒	☐	
§15.247(a)(1) RSS 210 / A8.1(b)	Carrier frequency separation	Nominal	Nominal	GFSK	☒	☐	☐	☐	complies
§15.247(a)(1) RSS 210 / A8.1(d)	Number of hopping channels	Nominal	Nominal	GFSK	☒	☐	☐	☐	complies
§15.247(a)(1) (iii) RSS 210 / A8.3(1)	Time of occupancy (dwell time)	Nominal	Nominal	GFSK Pi/4 DQPSK 8 DPSK	☒	☐	☐	☐	complies
§15.247(a)(1) RSS 210 / A8.2(a)	Spectrum bandwidth of a FHSS system 20dB bandwidth	Nominal	Nominal	GFSK Pi/4 DQPSK 8 DPSK	☒ ☒ ☒	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	
§15.247(b)(1) RSS-210 / A8.4(2)	Maximum output power	Nominal	Nominal	GFSK Pi/4 DQPSK 8 DPSK	☒ ☒ ☒	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	
§15.247(d) RSS-210 / A8.5	Band edge compliance conducted	Nominal	Nominal	GFSK Pi/4 DQPSK 8 DPSK	☒ ☒ ☒	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	complies
§15.205 RSS-210 / A8.5	Band edge compliance radiated	Nominal	Nominal	GFSK Pi/4 DQPSK 8 DPSK	☒ ☒ ☒	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	complies
§15.247(d) RSS-210 / A8.5	TX spurious emissions conducted	Nominal	Nominal	GFSK Pi/4 DQPSK 8 DPSK	☒ ☒ ☒	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	complies
§15.247(d) RSS-210 / A8.5	TX spurious emissions radiated	Nominal	Nominal	8 DPSK	☒	☐	☐	☐	complies
§15.109 RSS-Gen.	RX spurious emissions radiated	Nominal	Nominal	-/-	☒	☐	☐	☐	complies
§15.209(a) RSS-Gen	TX spurious emissions radiated < 30 MHz	Nominal	Nominal	8 DPSK	☒	☐	☐	☐	complies
§15.107(a)	Conducted emissions < 30 MHz	Nominal	Nominal	-/-	☒	☐	☐	☐	complies

Note: NA = Not Applicable; NP = Not Performed

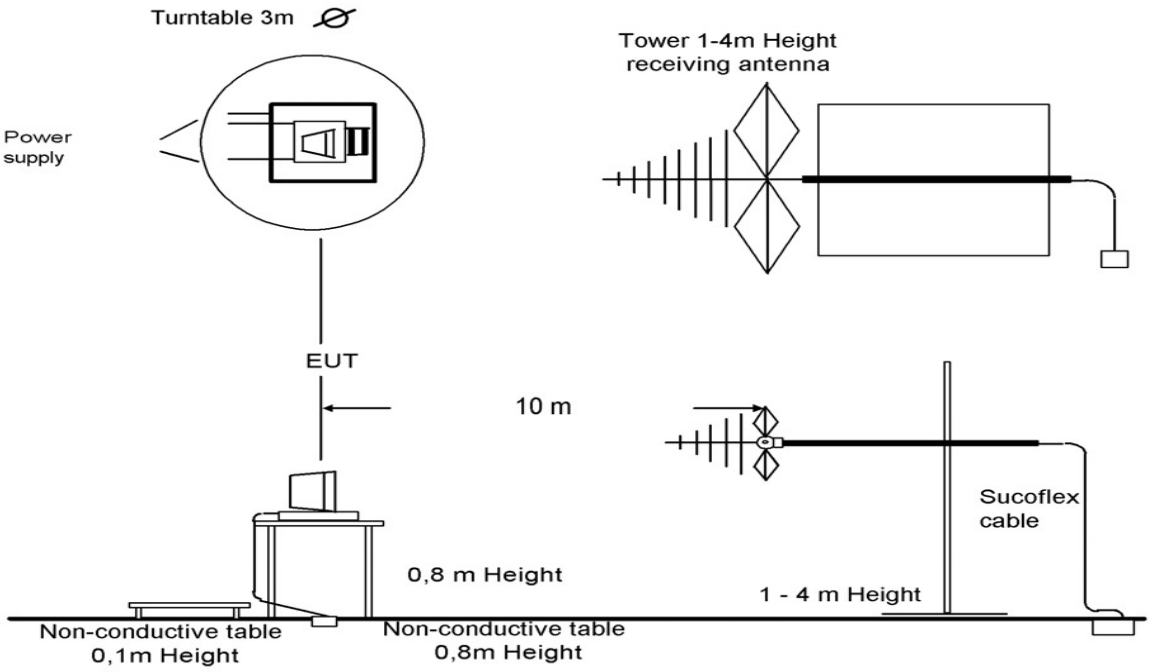
8 RF measurement testing

8.1 Description of test setup

8.1.1 Radiated measurements

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 25 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas are confirmed with specifications ANSI C63.2-1996 clause 15 and ANSI C63.4-2003 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.

Semi anechoic chamber



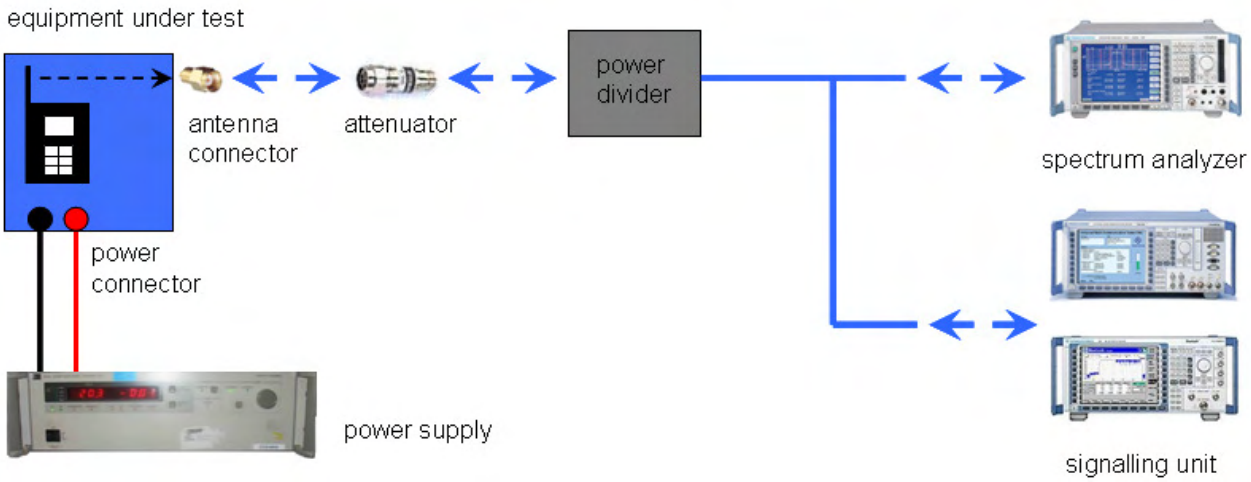
Picture 1: Diagram radiated measurements

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

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.

8.1.2 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.



Picture 2: Diagram conducted measurements

8.2 Additional comments

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

Reference documents: None

Special test descriptions: None

Configuration descriptions: None

8.3 RSP100 Test Report Cover Sheet / Performance Test Data

Test Report Number	:	**1-1954-27-02/10**
Equipment Model Number	:	**DDA-0002031**
Certification Number	:	**4170B-DDA2031**
Manufacturer (complete Address)	:	**Sony Ericsson Mobile Communications AB Nya Vattentornet 22188 Lund / Sweden**
Tested to radio standards specification no.	:	**RSS 210, Issue 7, Annex 8**
Open Area Test Site IC No.	:	**IC 3462C-1**
Frequency Range	:	**2400 – 2483.5 MHz-band (2402 – 2480 MHz)**
RF-power [W] (max.)	:	**Cond.: 1.61 mW (GFSK) EIRP: 2.88 mW (GFSK) Cond.: 2.44 mW (Pi/4-DQPSK) EIRP: 4.51 mW (Pi/4-DQPSK) Cond.: 2.64 mW (8DPSK) EIRP: 4.82 mW (8DPSK)**
Occupied bandwidth (99%-BW) [kHz]	:	**926 (GFSK) 1311 (Pi/4-DQPSK) 1281 (8DPSK)**
Type of modulation	:	**GFSK; Pi/4-DQPSK; 8DPSK**
Emission Designator (TRC-43)	:	**926 KFXD (GFSK) 1M31GXD (Pi/4-DQPSK) 1M28GXD (8DPSK)**
Antenna Information	:	**Integrated antenna**
Transmitter Spurious (worst case) [µV/m @ 3m]	:	**218 µV/m @ 3360 MHz**
Receiver Spurious (worst case) [µV/m @ 3m]	:	**316 µV/m (noise floor)**

ATTESTATION:
DECLARATION OF COMPLIANCE:

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

Laboratory Manager:

2010-07-22	Jakob Reschke	
Date	Name	Signature

9 Measurement Results

9.1 Antenna Gain

Measurement:

The antenna gain of the complete system is calculated by the difference of radiated power in EIRP and the conducted power of the module. For normal Bluetooth® devices, the GFSK modulation is used.

Measurement parameters:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	3 MHz
Resolution bandwidth:	3 MHz
Span:	5 MHz
Trace-Mode:	Max hold

Limits:

FCC	IC
CFR Part 15.247 (b)(4)	RSS 210, Issue 7, A 8.4(2)
Antenna Gain	
6 dBi	

Results:

T_{nom}	V_{nom}	lowest channel 2402 MHz	middle channel 2441 MHz	highest channel 2480 MHz
Conducted power [dBm] Measured with GFSK modulation		1.85	2.03	2.07
Radiated power [dBm] Measured with GFSK modulation		4.60	4.28	3.81
Gain [dBi] Calculated		2.75	2.25	1.74

Result: **The result of the measurement is passed.**

9.2 Power Spectral Density

Description:

Measurement of the power spectral density of a digital modulated system. This requirement is only valid for digitally modulated systems without hopping functionality.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	500 s
Video bandwidth:	10 kHz
Resolution bandwidth:	3 kHz
Span:	1.5 MHz
Trace-Mode:	Max Hold

Limits:

FCC	IC
CFR Part 15.247 (e)	RSS 210, Issue 7, A 8.2(b)
Power Spectral Density	
For digitally modulated systems the transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission or over 1.0 second if the transmission exceeds 1.0-second duration.	

Result:

Modulation	Power Spectral density [dBm/3kHz]		
Frequency	2412 MHz	2437 MHz	2462 MHz
GFSK	Not required for hopping systems !		
Pi/4 DQPSK			
8DPSK			
Measurement uncertainty	± 0.5 dB		

9.3 Carrier Frequency Separation

Description:

Measurement of the carrier frequency separation of a hopping system. The carrier frequency separation is constant for all modulation-modes. We use GFSK-modulation to show compliance. EUT in hopping mode.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	100 kHz
Resolution bandwidth:	100 kHz
Span:	4 MHz
Trace-Mode:	Max Hold

Limits:

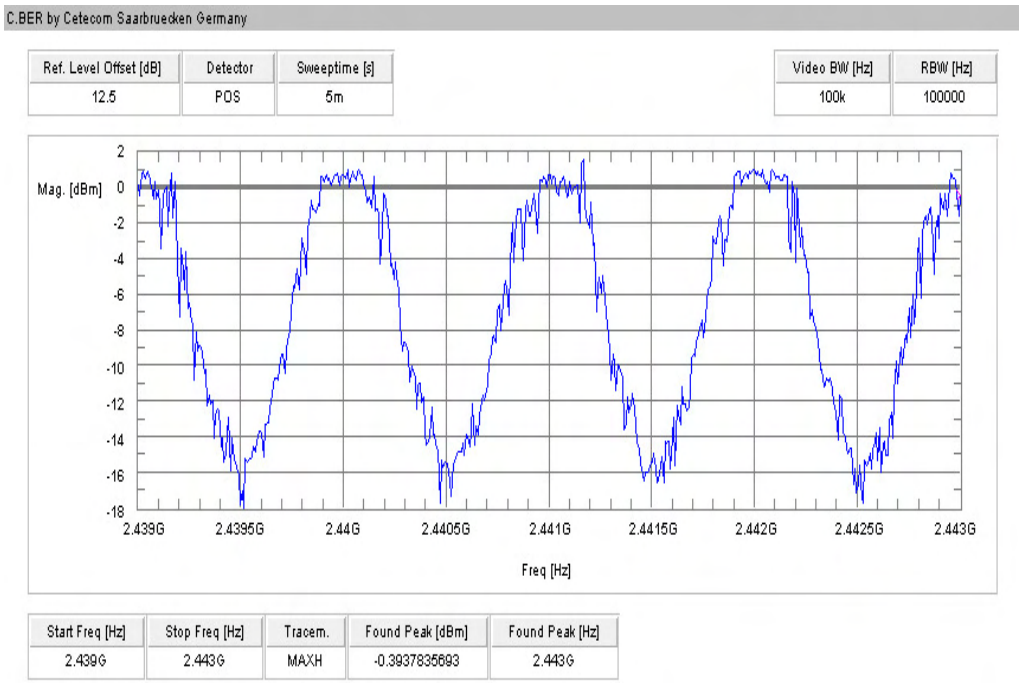
FCC	IC
CFR Part 15.247 (a)(1)	RSS 210, Issue 7, A 8.1(b)
Carrier Frequency Separation	
Minimum 25 kHz or two-thirds of the 20 dB bandwidth of the hopping system whichever is greater.	

Result:

Carrier Frequency Separation	~ 1 MHz

Result: The result of the measurement is passed.

Plot 1: Carrier Frequency Separation (GFSK)



9.4 Number of Hopping Channels

Description:

Measurement of the total number of used hopping channels. The number of hopping channels is constant for all modulation-modes. We use GFSK-modulation to show compliance. EUT in hopping mode.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	500 kHz
Resolution bandwidth:	500 kHz
Span:	Plot 1: 2400 – 2445 MHz Plot 2: 2445 – 2485 MHz
Trace-Mode:	Max Hold

Limits:

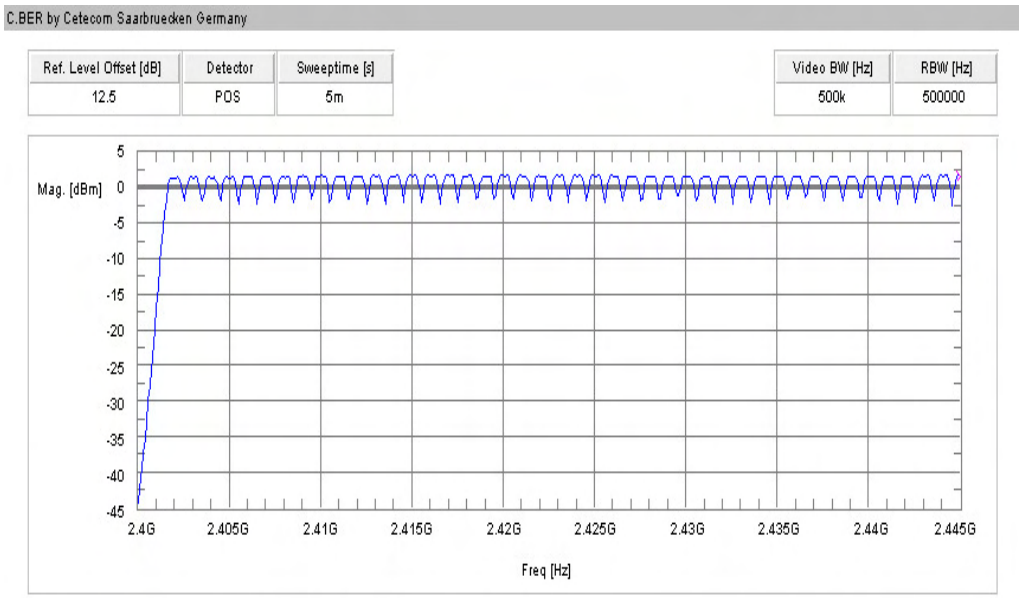
FCC	IC
CFR Part 15.247 (a)(1)	RSS 210, Issue 7, A 8.1(d)
Number of Hopping Channels	
At least 15 non overlapping hopping channels	

Result:

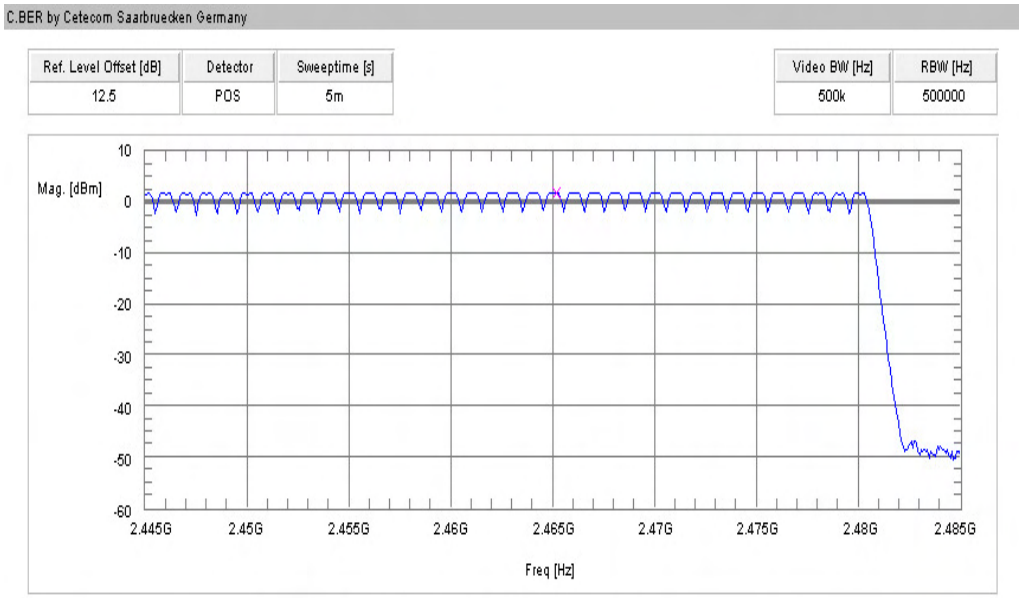
Number of Hopping Channels	79

Result: The result of the measurement is passed.

Plot 1: Number of Hopping Channels (GFSK)



Plot 2: Number of Hopping Channels (GFSK)



9.5 Time of Occupancy (Dwell Time)

Measurement:

For Bluetooth® devices no measurements mandatory depending on the fixed requirements according to the Bluetooth® Core Specifications!

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 a 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 µs * 1600 1/s / 79 * 31.6 s = 0.4 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 µs * 1600 * 1/5 *1/s / 79 * 31.6 s = 0.4 s (in a 31.6 s period)

This is according the Bluetooth® Core Specification V 2.0 & V 2.1 & V 3.0 & V4.0 (+ critical errata) for all Bluetooth® devices.
Therefore, all Bluetooth® devices comply with the FCC dwell time requirements 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)

Limits:

FCC	IC
CFR Part 15.247 (a)(1)(iii)	RSS 210, Issue 7, A 8.3(1)
Time of Occupancy (Dwell Time)	
The frequency hopping operation shall have an average time of occupancy on any frequency not exceeding 0.4 seconds within a duration in seconds equal to the number of hopping frequencies multiplied by 0.4.	

Result: The result of the measurement is passed.

9.6 Spectrum Bandwidth of a FHSS System – 20 dB Bandwidth

Description:

Measurement of the 20dB bandwidth of the modulated signal. The measurement is performed according to the "Measurement Guidelines" (DA 00-705, March 30, 2000). EUT in single channel mode.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	2 s
Video bandwidth:	30 kHz
Resolution bandwidth:	10 kHz
Span:	3 MHz
Trace-Mode:	Max Hold

Limits:

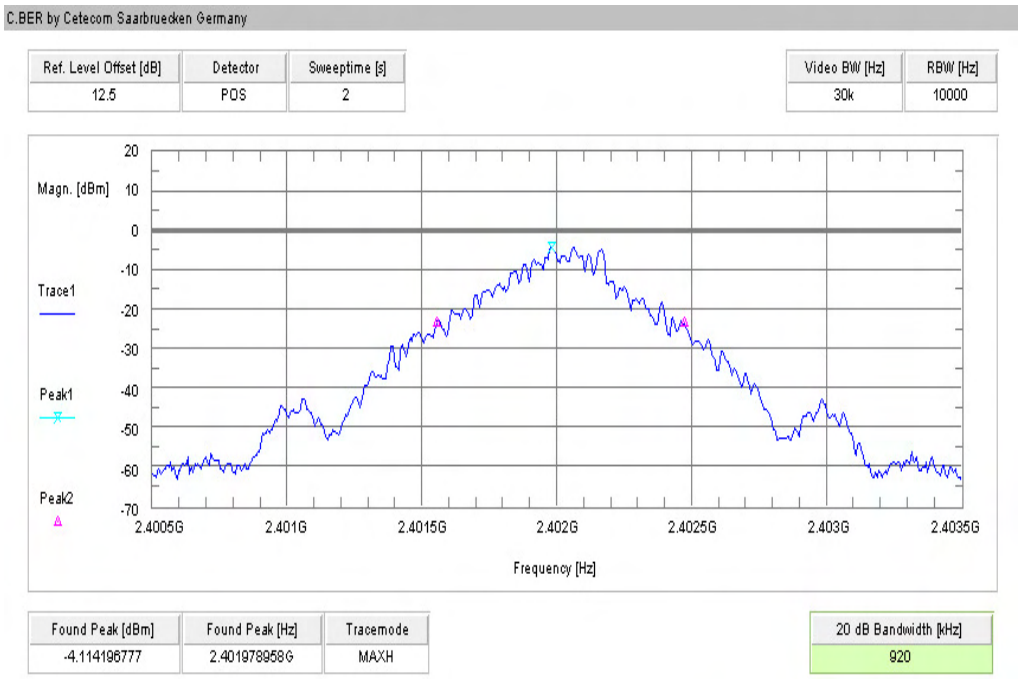
FCC	IC
CFR Part 15.247 (a)(1)	RSS 210, Issue 7, A 8.2(a)
Spectrum Bandwidth of a FHSS System – 20 dB Bandwidth	
GFSK < 1000 kHz Pi/4 DQPSK < 1500 kHz 8DPSK < 1500 kHz	

Result:

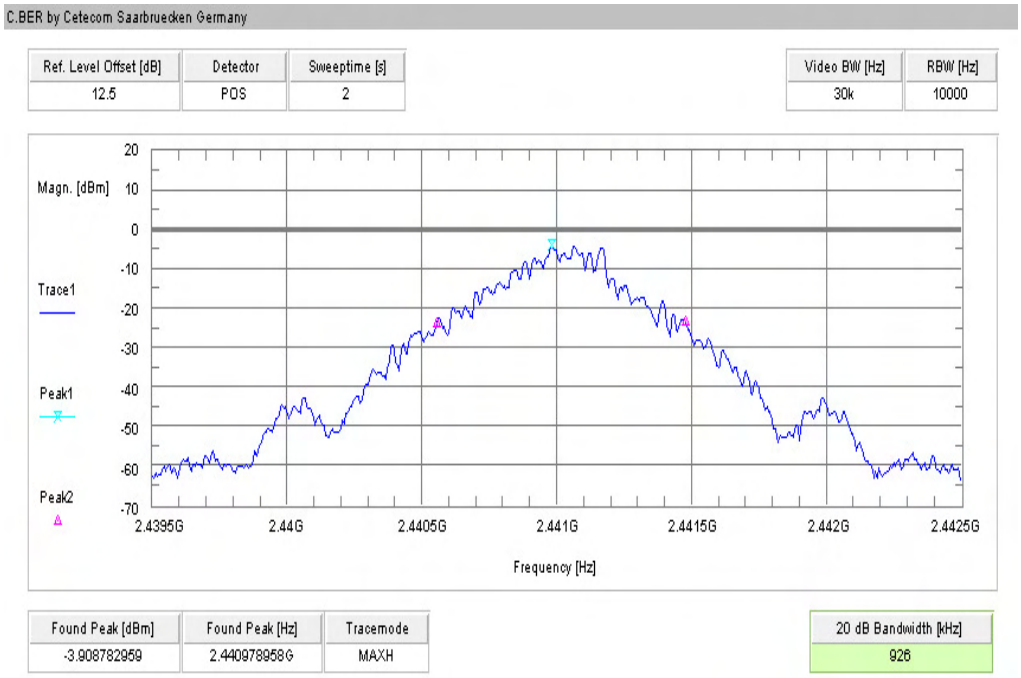
Modulation	20 dB BANDWIDTH [kHz]		
Frequency	2402 MHz	2441 MHz	2480 MHz
GFSK	920	926	920
Pi/4 DQPSK	1311	1311	1311
8DPSK	1281	1281	1269
Measurement uncertainty	± 10 kHz		

Result: The result of the measurement is passed.

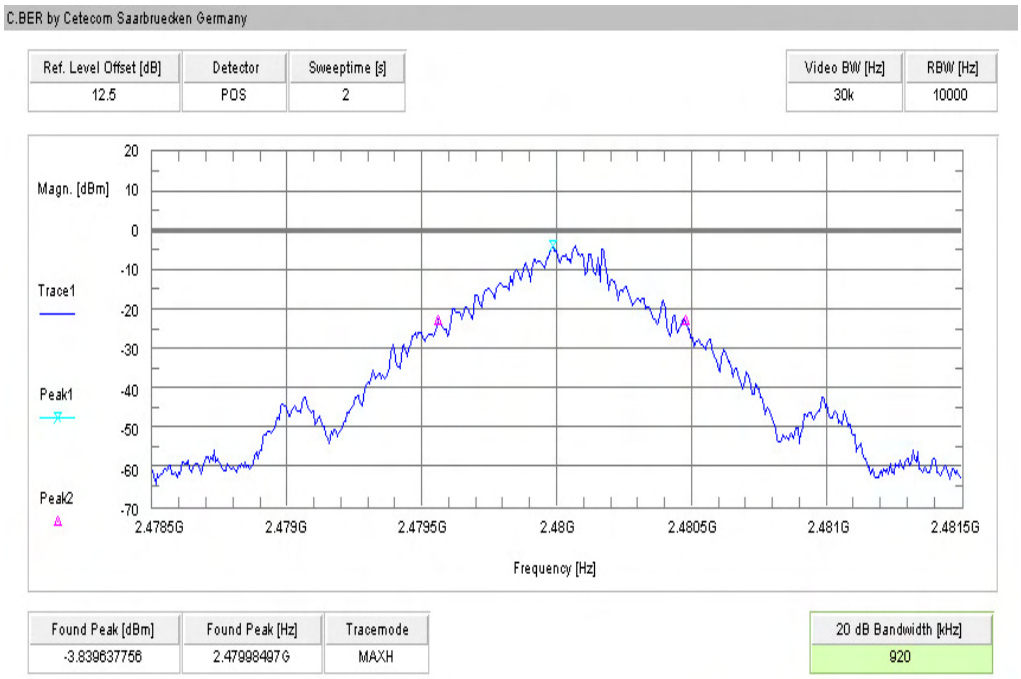
Plot 1: Channel 00 / GFSK



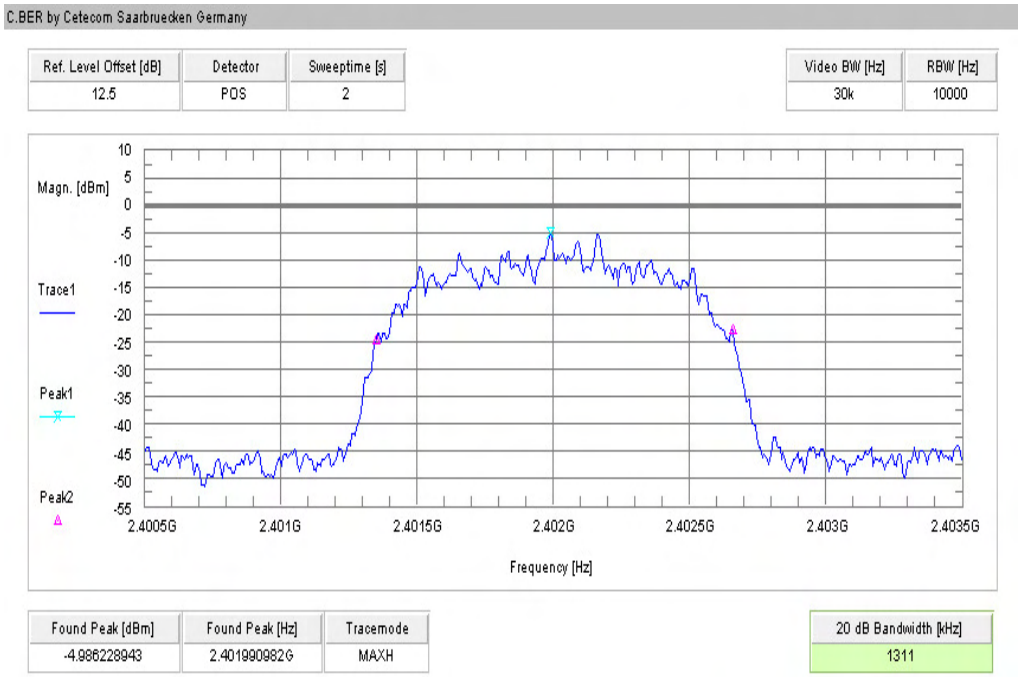
Plot 2: Channel 39 / GFSK



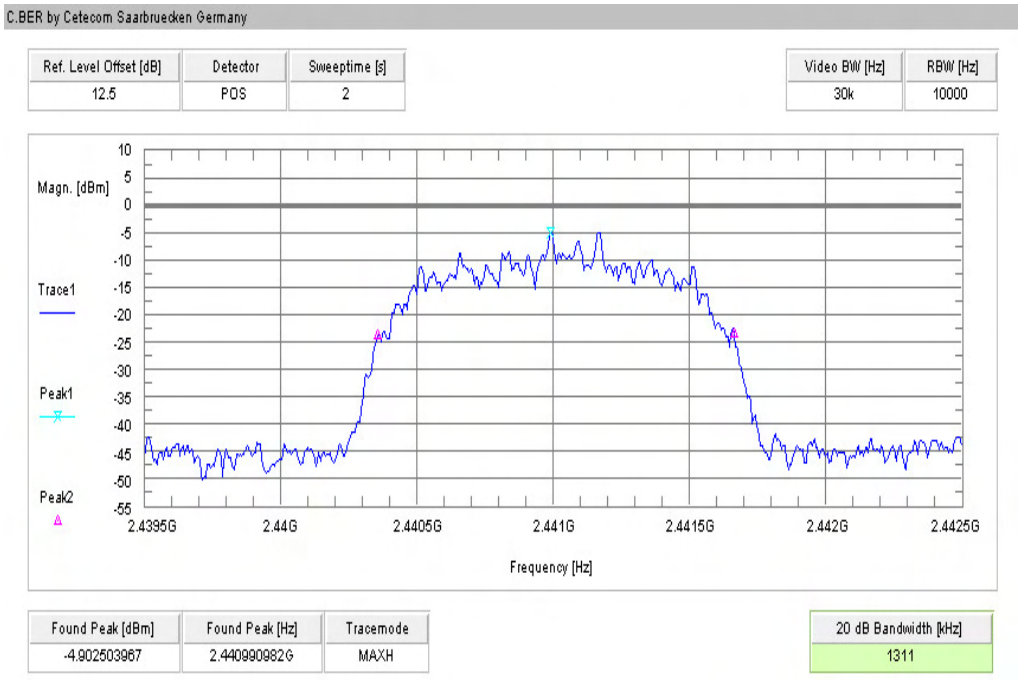
Plot 3: Channel 78 / GFSK



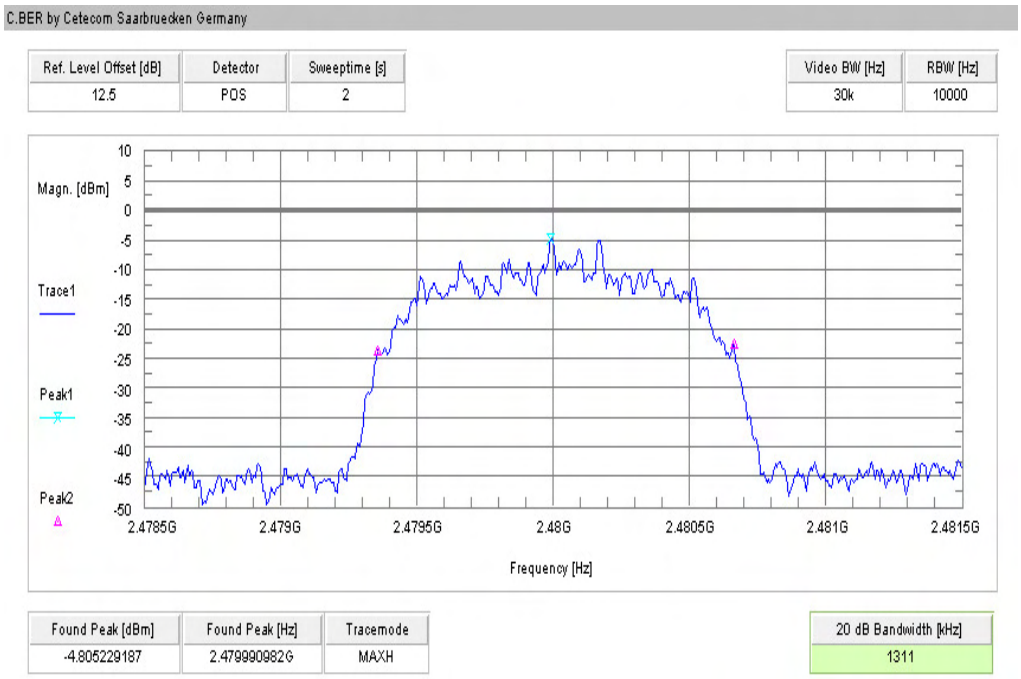
Plot 4: Channel 00 / Pi/4 DQPSK



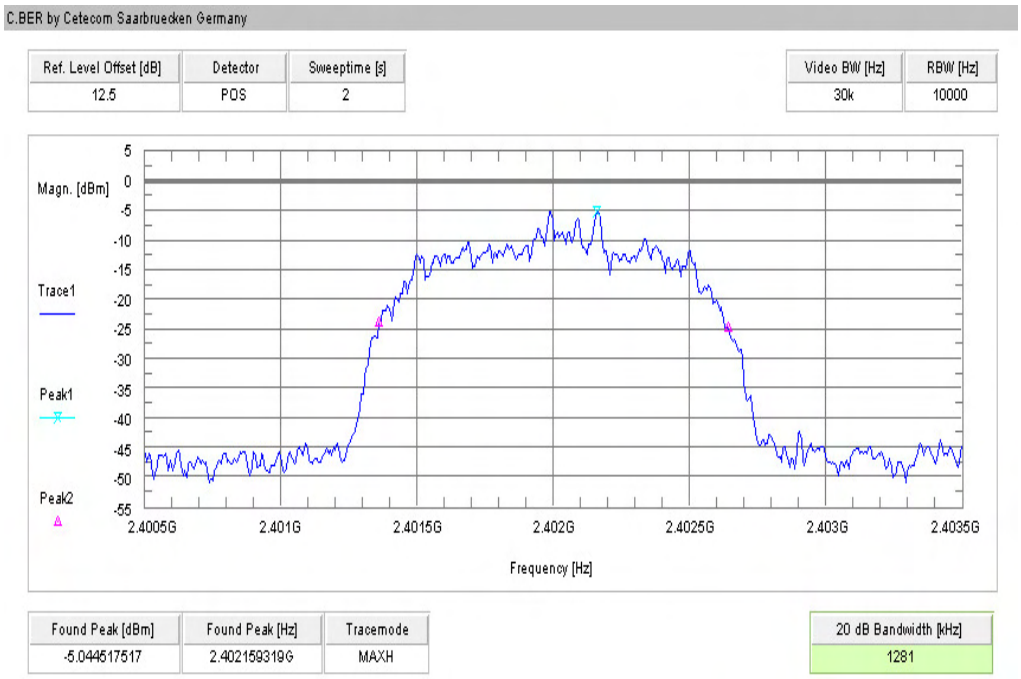
Plot 5: Channel 39 / Pi/4 DQPSK



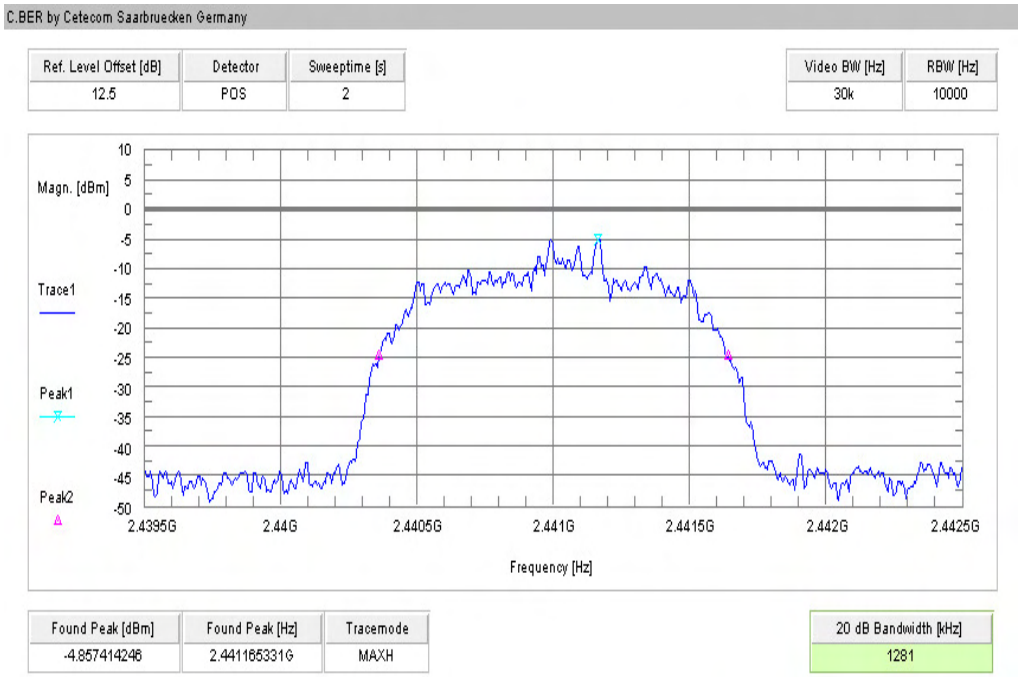
Plot 6: Channel 78 / Pi/4 DQPSK



Plot 7: Channel 00 / 8DPSK



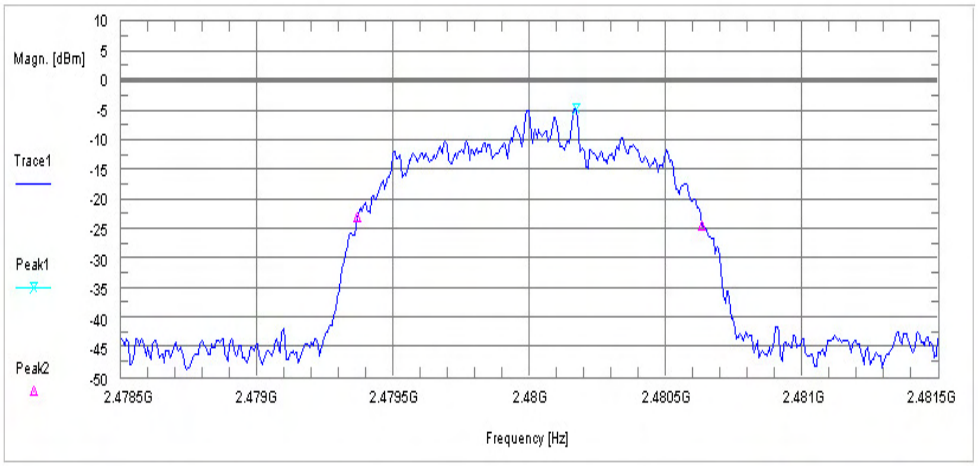
Plot 8: Channel 39 / 8DPSK



Plot 9: Channel 78 / 8DPSK

C.BER by Cetecom Saarbruecken Germany

Ref. Level Offset [dB]	Detector	Sweeptime [s]	Video BW [Hz]	RBW [Hz]
12.5	POS	2	30k	10000



Found Peak [dBm]	Found Peak [Hz]	Tracemode	20 dB Bandwidth [kHz]
-4.796401978	2.480171343G	MAXH	1269

9.7 Maximum Output Power

Description:

Measurement of the maximum output power conducted and radiated. EUT in single channel mode.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	3 MHz
Resolution bandwidth:	3 MHz
Span:	3 MHz
Trace-Mode:	Max Hold

Limits:

FCC	IC
CFR Part 15.247 (b)(1)	RSS 210, Issue 7, A 8.4(2)
Maximum Output Power	
[Conducted: 0.125 W – Antenna Gain max. 6 dBi] Systems using more than 75 hopping channels: Conducted: 1.0 W – Antenna Gain max. 6 dBi	

Result:

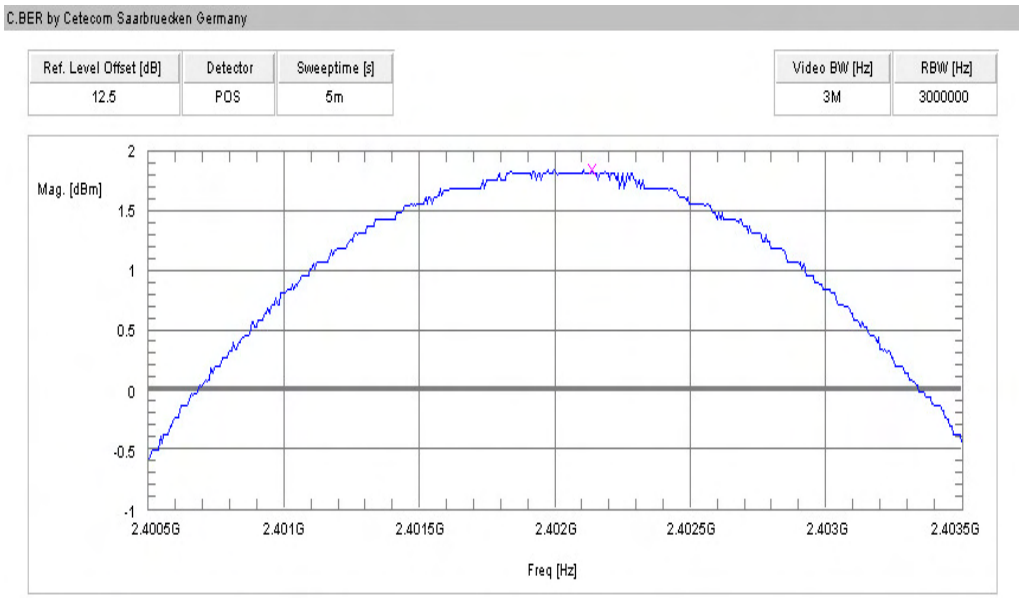
Modulation / Frequency	Maximum Output Power Conducted [dBm]		
	2402 MHz	2441 MHz	2480 MHz
GFSK	1.85	2.03	2.07
Pi/4 DQPSK	3.79	3.85	3.88
8DPSK	4.08	4.12	4.21
Measurement uncertainty	± 0.5 dB		

Modulation / Frequency	Maximum Output Power Radiated - EIRP [dBm]		
	2402 MHz	2441 MHz	2480 MHz
GFSK	4.60	4.28	3.81
Pi/4 DQPSK *)	6.54	6.10	5.55
8DPSK *)	6.83	6.37	5.95
Measurement uncertainty	± 2.0 dB		

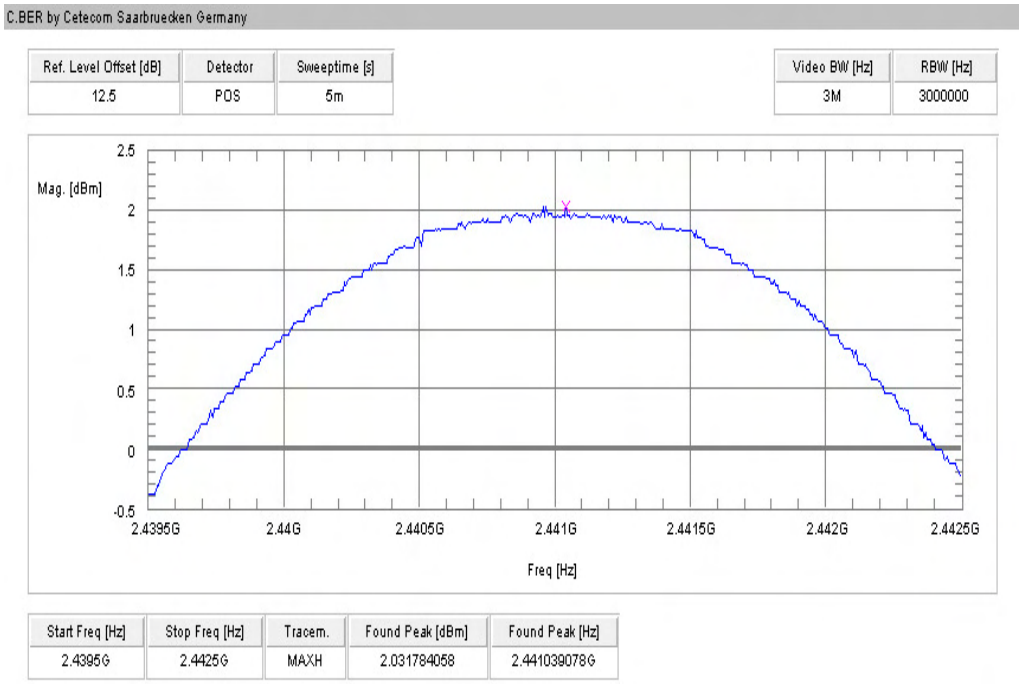
*) - Values calculated with antenna gain

Result: The result of the measurement is passed.

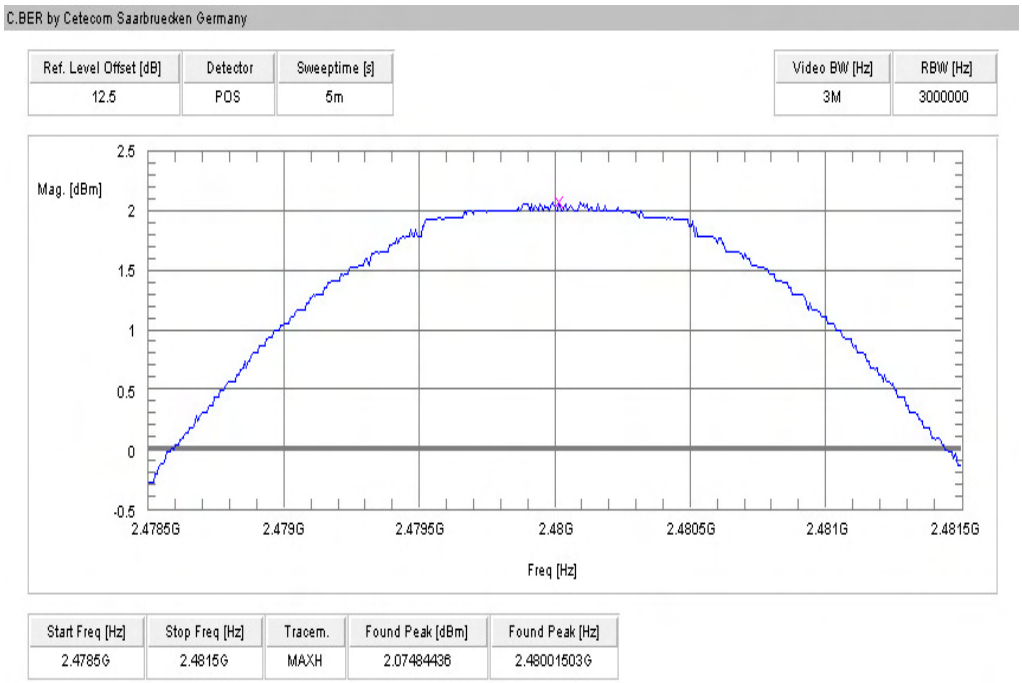
Plot 1: Channel 00 / GFSK (conducted)



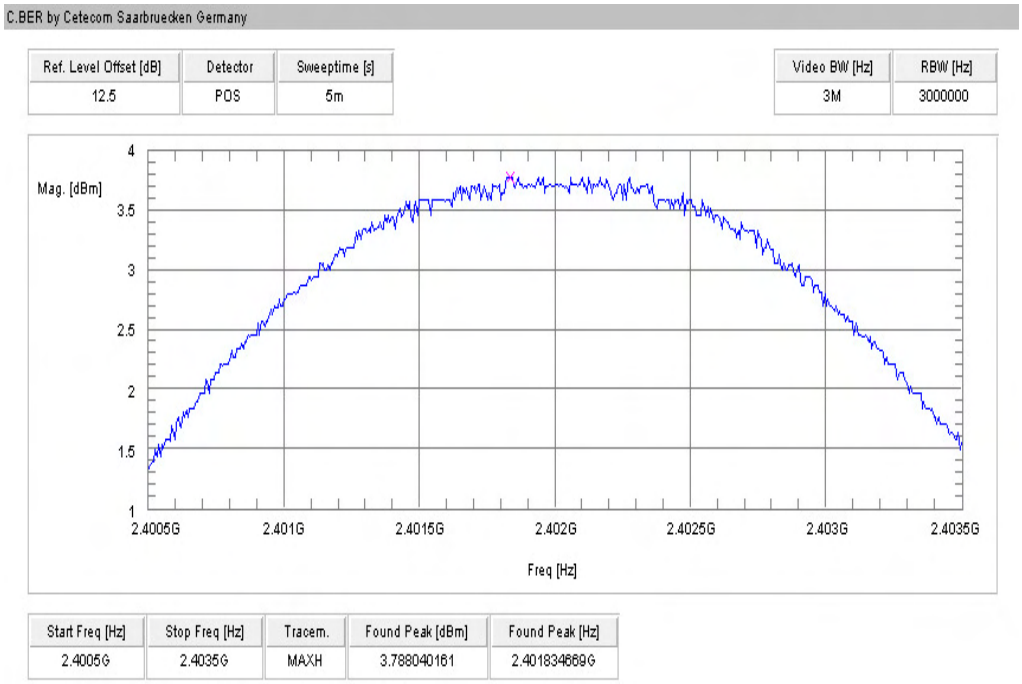
Plot 2: Channel 39 / GFSK (conducted)



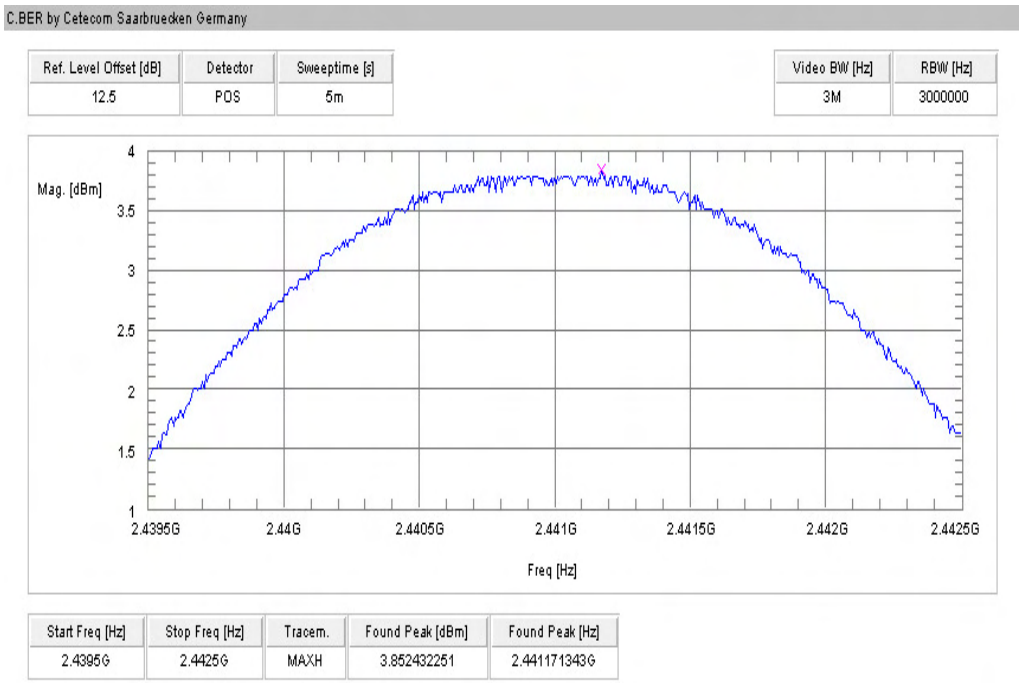
Plot 3: Channel 78 / GFSK (conducted)



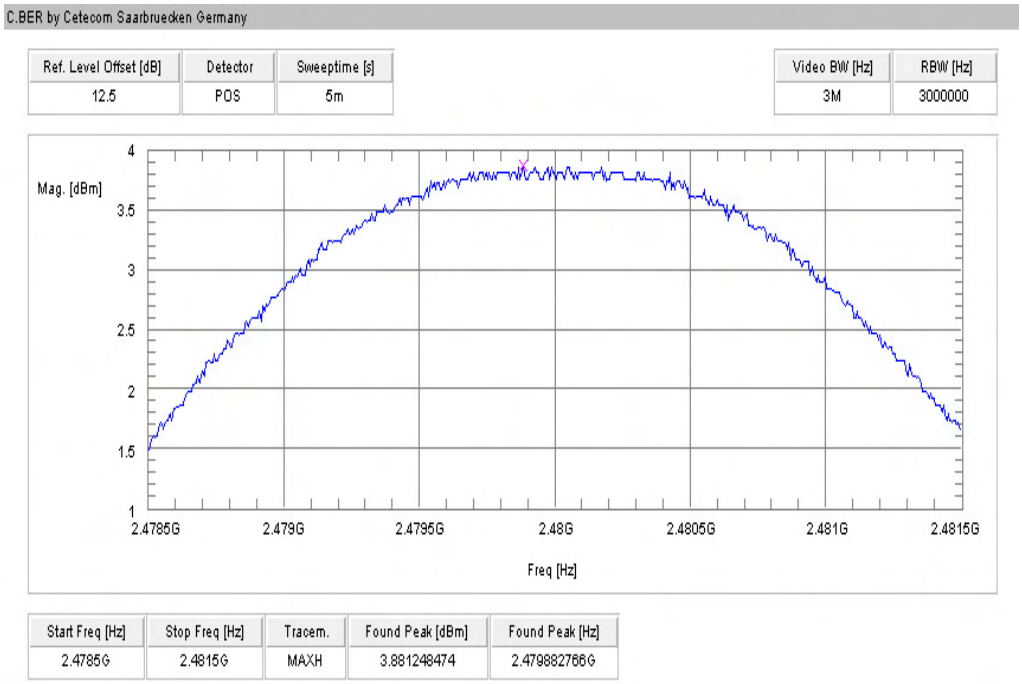
Plot 4: Channel 00 / Pi/4 DQPSK (conducted)



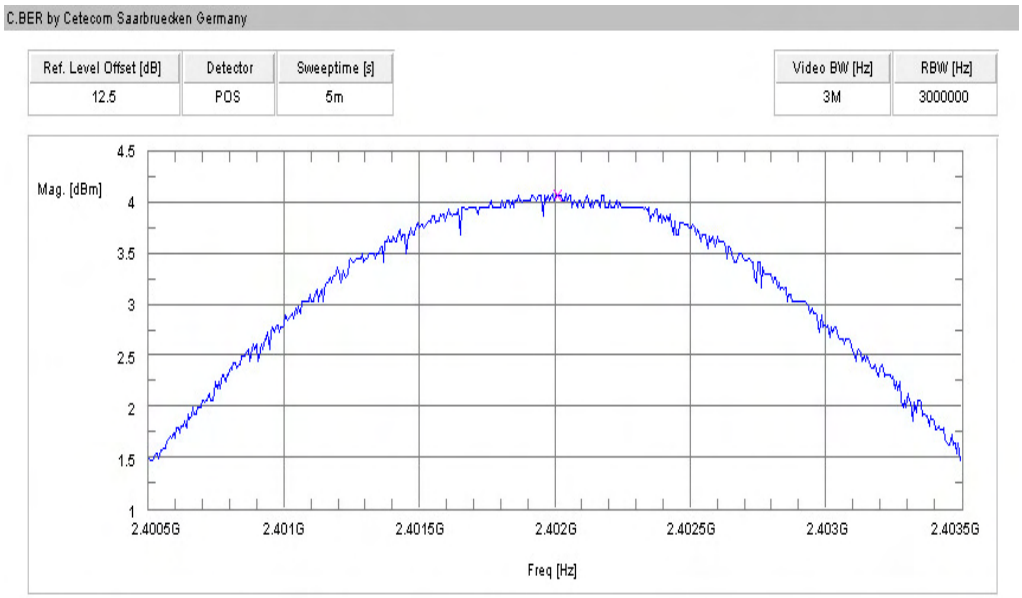
Plot 5: Channel 39 / Pi/4 DQPSK (conducted)



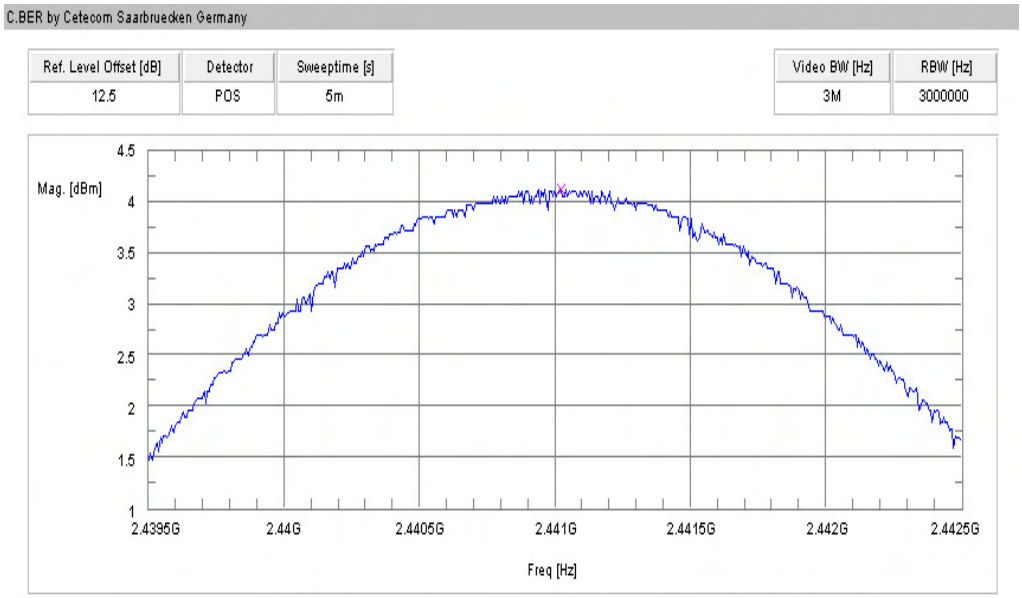
Plot 6: Channel 78 / Pi/4 DQPSK (conducted)



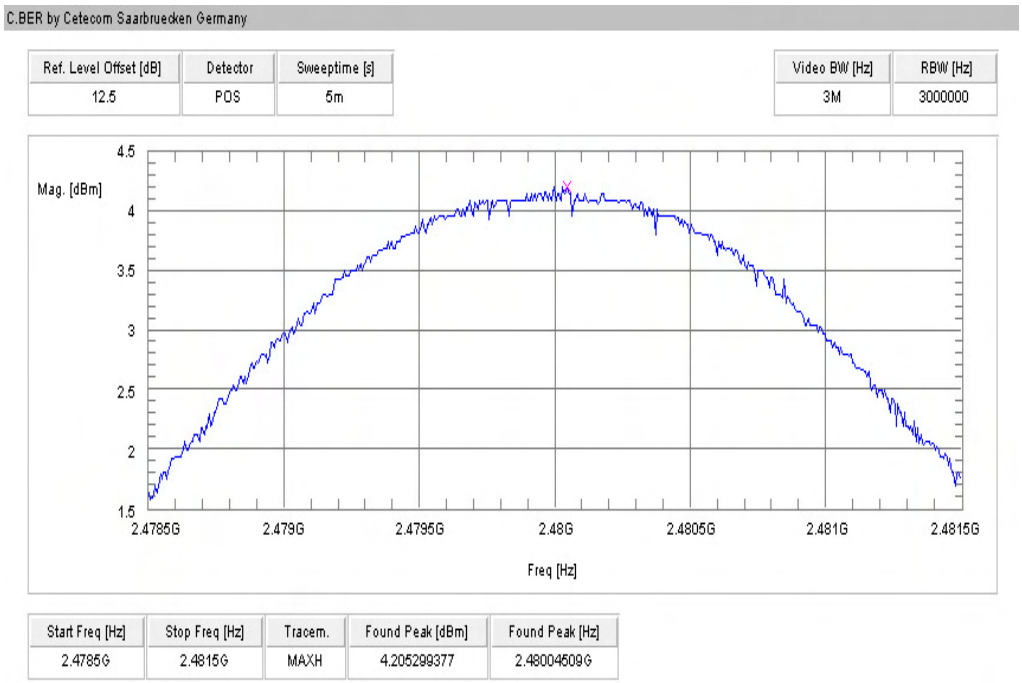
Plot 7: Channel 00 / 8DPSK (conducted)



Plot 8: Channel 39 / 8DPSK (conducted)



Plot 9: Channel 78 / 8DPSK (conducted)



9.8 Band Edge Compliance Conducted

Description:

Measurement of the conducted band edge compliance. EUT is measured at the lower and upper band edge in single channel and hopping mode. The measurement is repeated for all modulations.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	100 kHz
Resolution bandwidth:	100 kHz
Span:	Lower Band Edge: 2395 – 2405 MHz higher Band Edge: 2478 – 2489 MHz
Trace-Mode:	Max Hold

Limits:

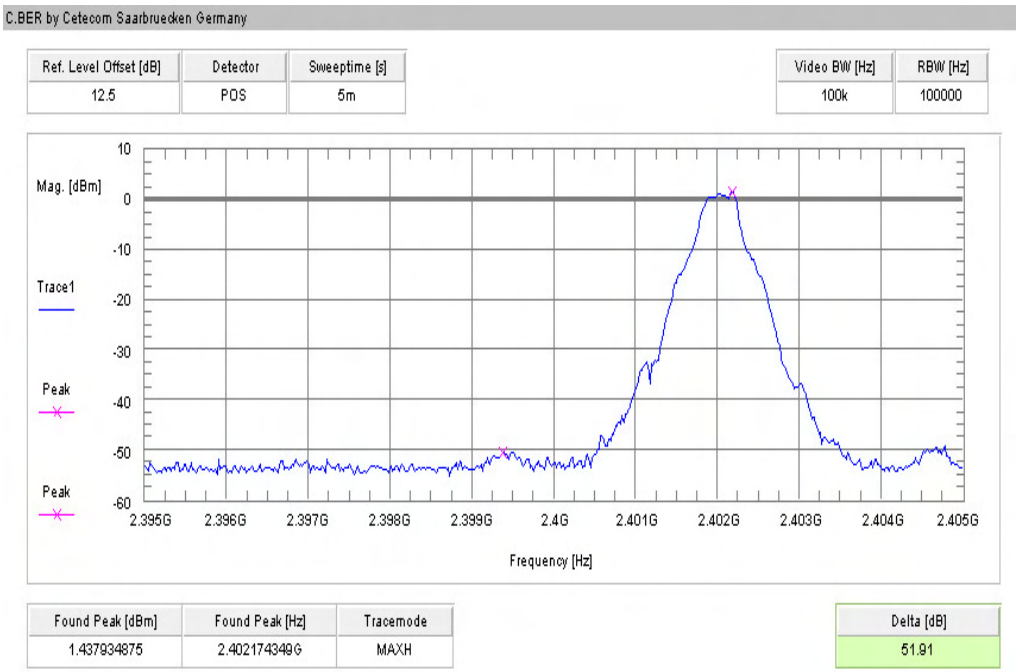
FCC	IC
CFR Part 15.247 (d)	RSS 210, Issue 7, A 8.5
Band Edge Compliance Conducted	
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be 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.	

Result: **Also see plots**

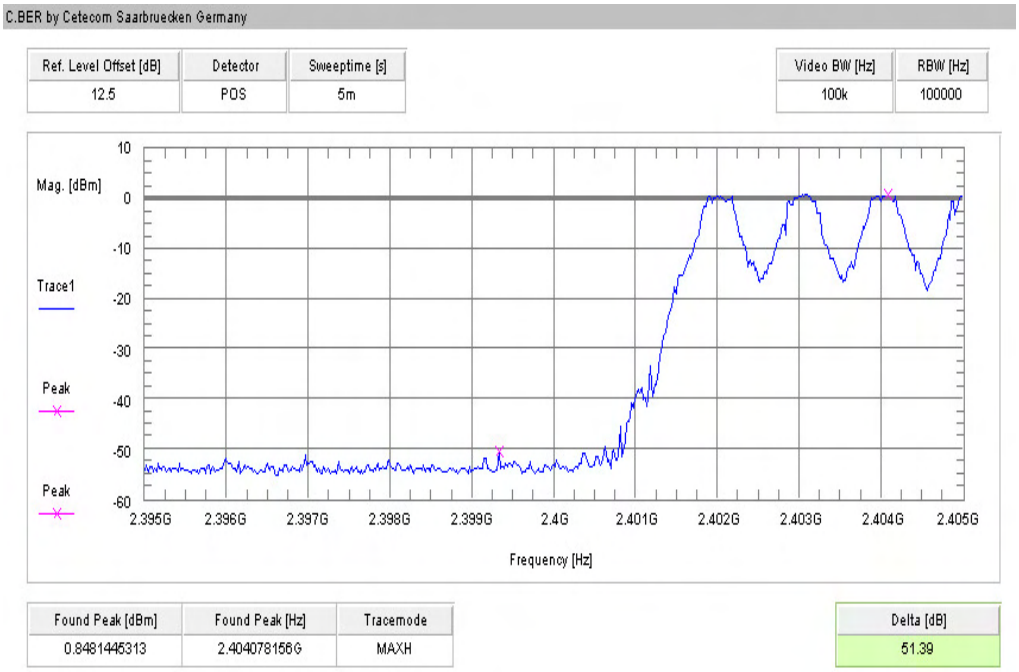
Szenario Modulation	Band Edge Compliance Conducted [dB]		
	GFSK	Pi/4 DQPSK	8DPSK
Lower Band Edge – Hopping Off	> 20 dB	> 20 dB	> 20 dB
Lower Band Edge – Hopping On	> 20 dB	> 20 dB	> 20 dB
Upper Band Edge – Hopping Off	> 20 dB	> 20 dB	> 20 dB
Upper Band Edge – Hopping On	> 20 dB	> 20 dB	> 20 dB
Measurement uncertainty	± 1.5 dB		

Result: **The result of the measurement is passed.**

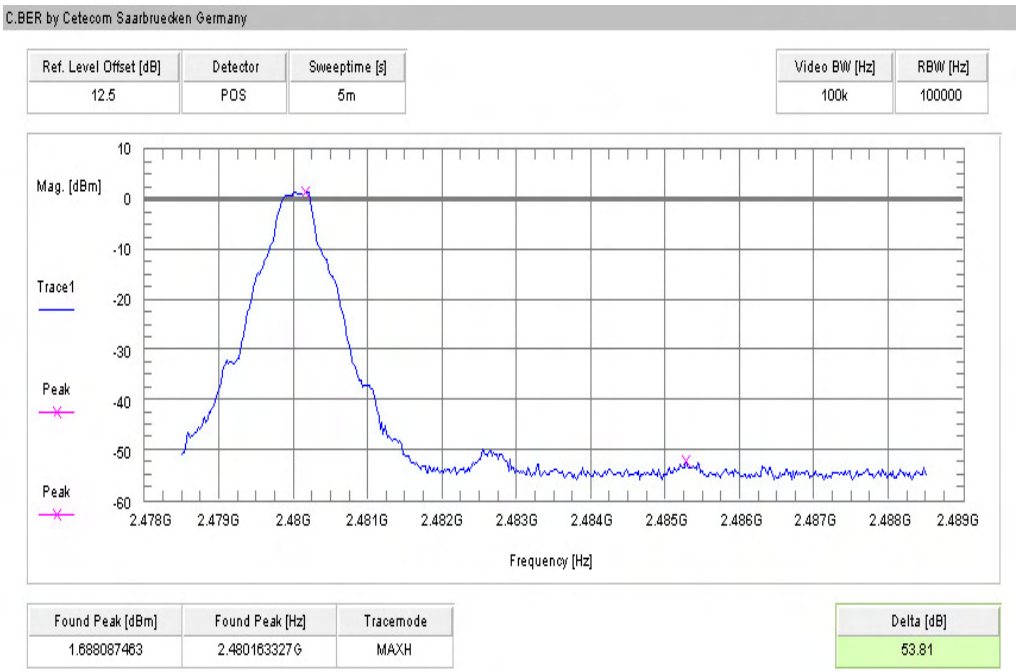
Plot 1: Lower Band Edge – Hopping Off / GFSK (conducted)



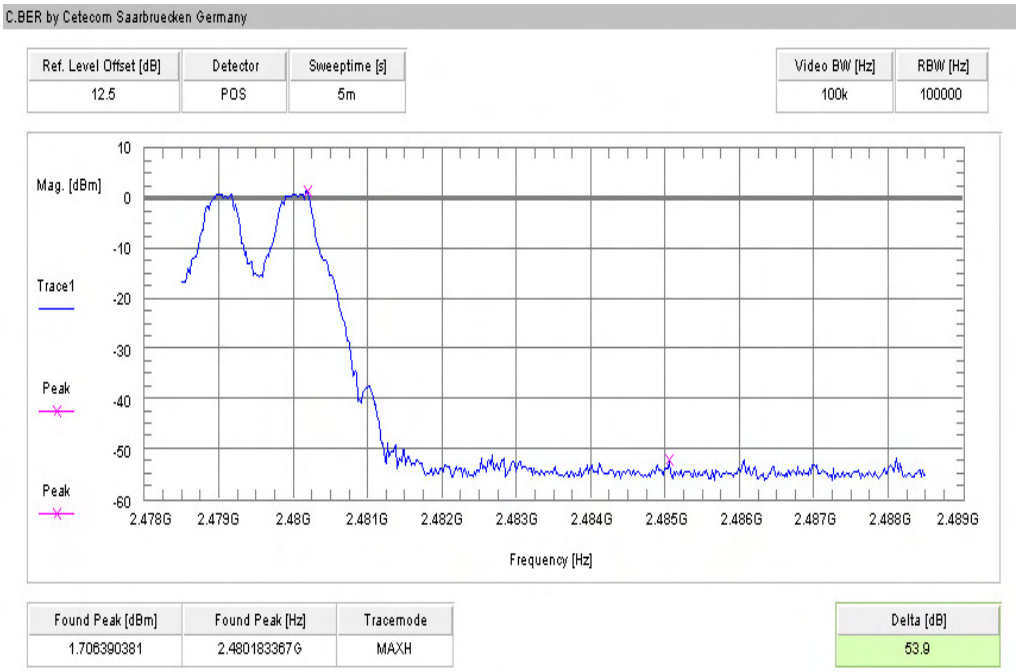
Plot 2: Lower Band Edge – Hopping On / GFSK (conducted)



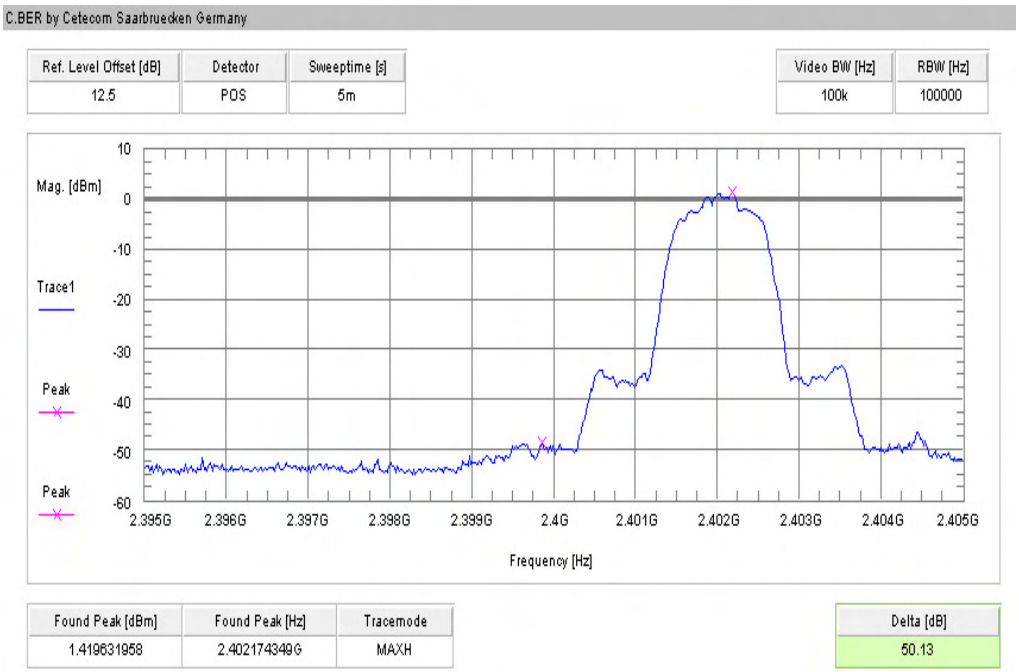
Plot 3: Upper Band Edge – Hopping Off / GFSK (conducted)



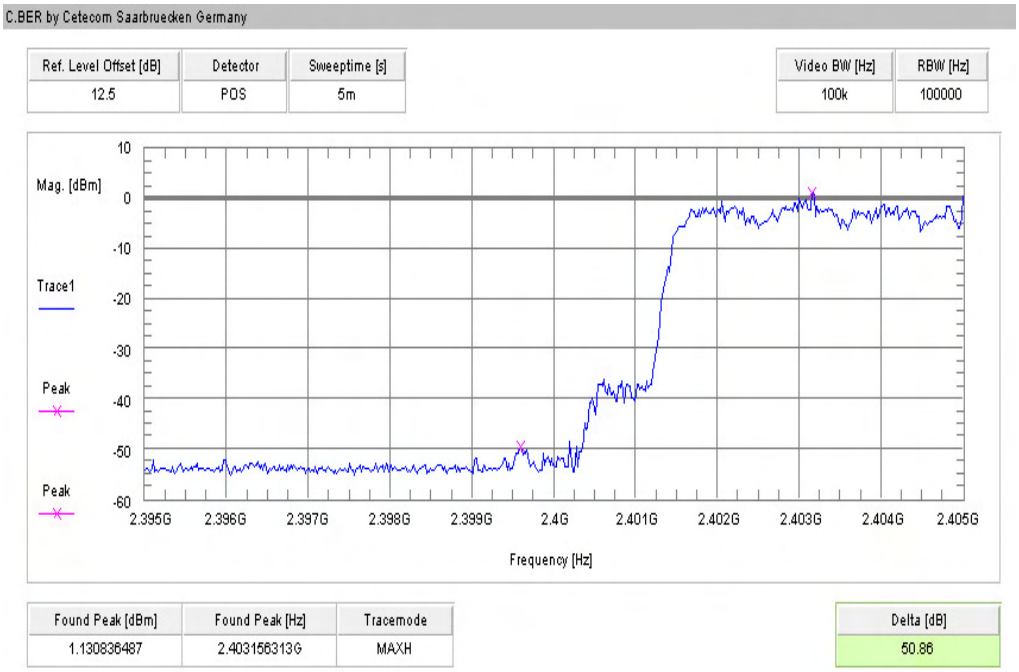
Plot 4: Upper Band Edge – Hopping On / GFSK (conducted)



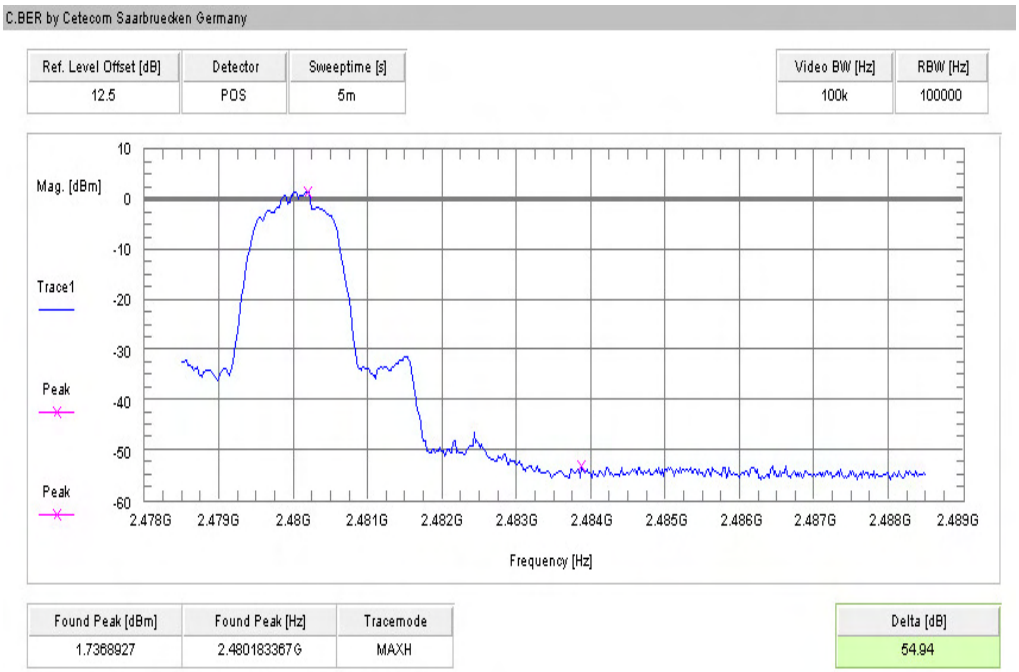
Plot 5: Lower Band Edge – Hopping Off / Pi/4 DQPSK (conducted)



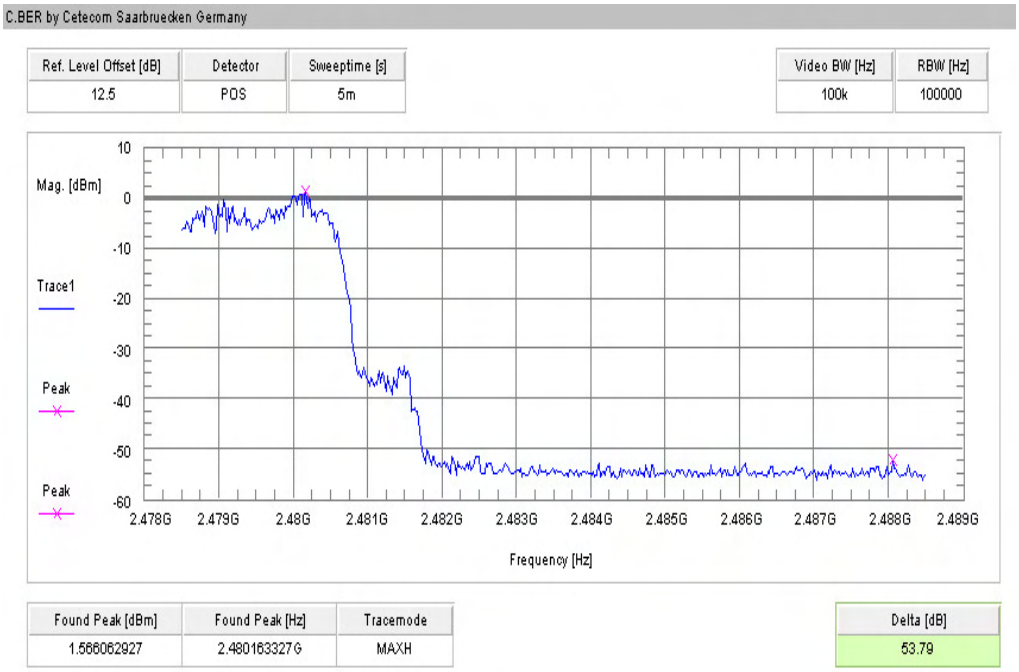
Plot 6: Lower Band Edge – Hopping On / Pi/4 DQPSK (conducted)



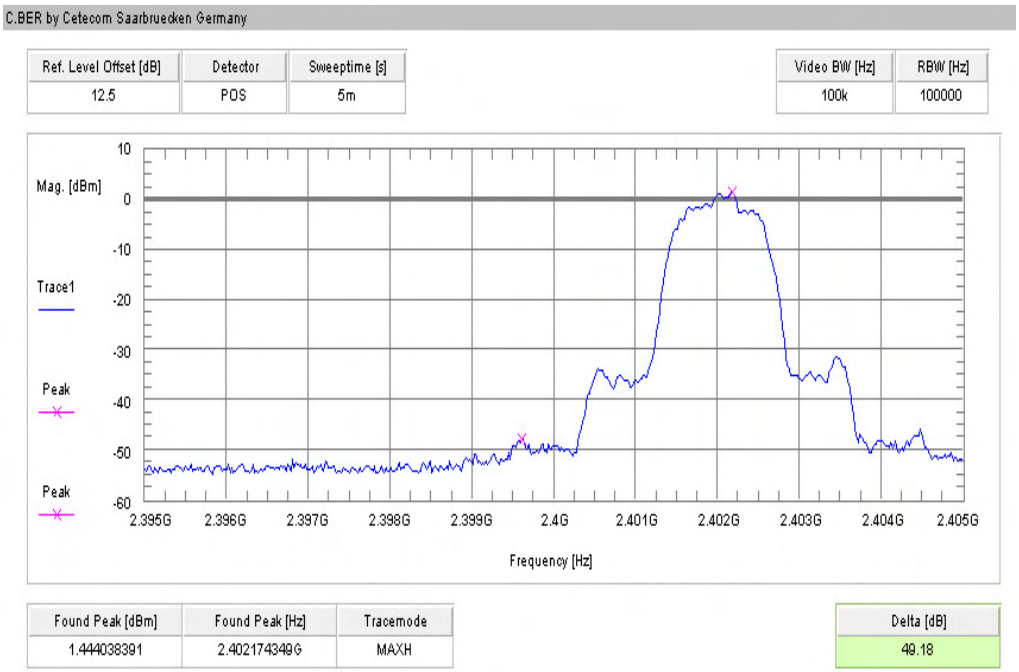
Plot 7: Upper Band Edge – Hopping Off / Pi/4 DQPSK (conducted)



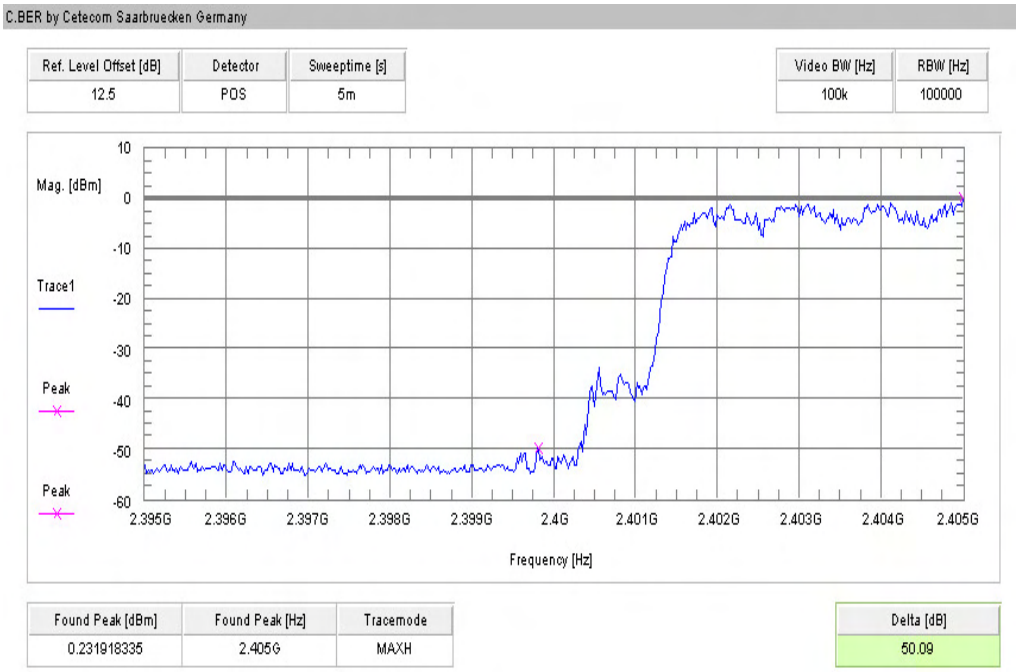
Plot 8: Upper Band Edge – Hopping On / Pi/4 DQPSK (conducted)



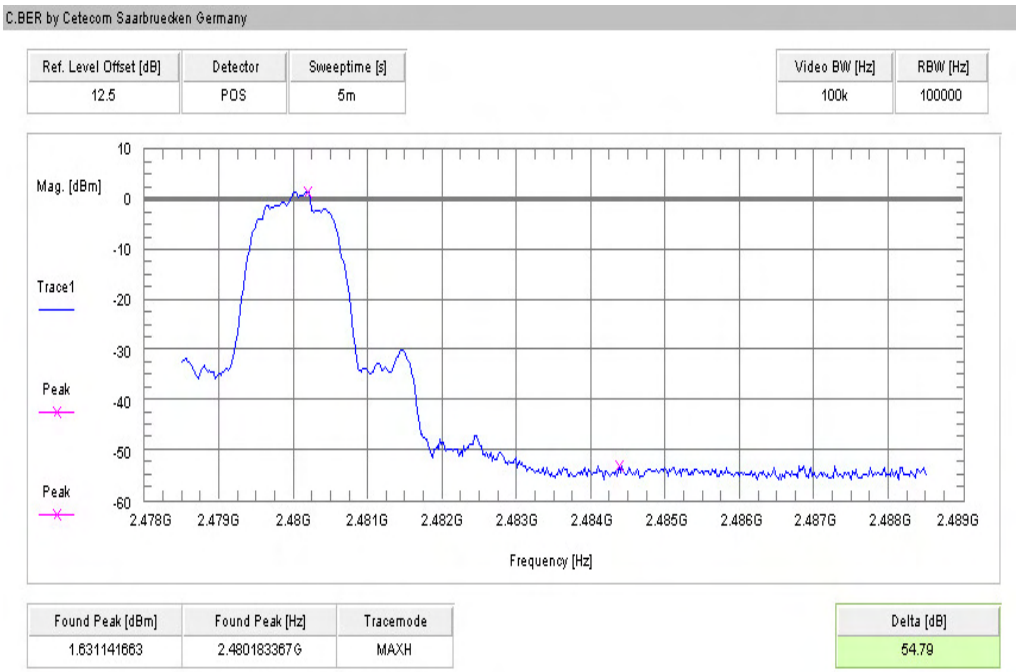
Plot 9: Lower Band Edge – Hopping Off / 8DPSK (conducted)



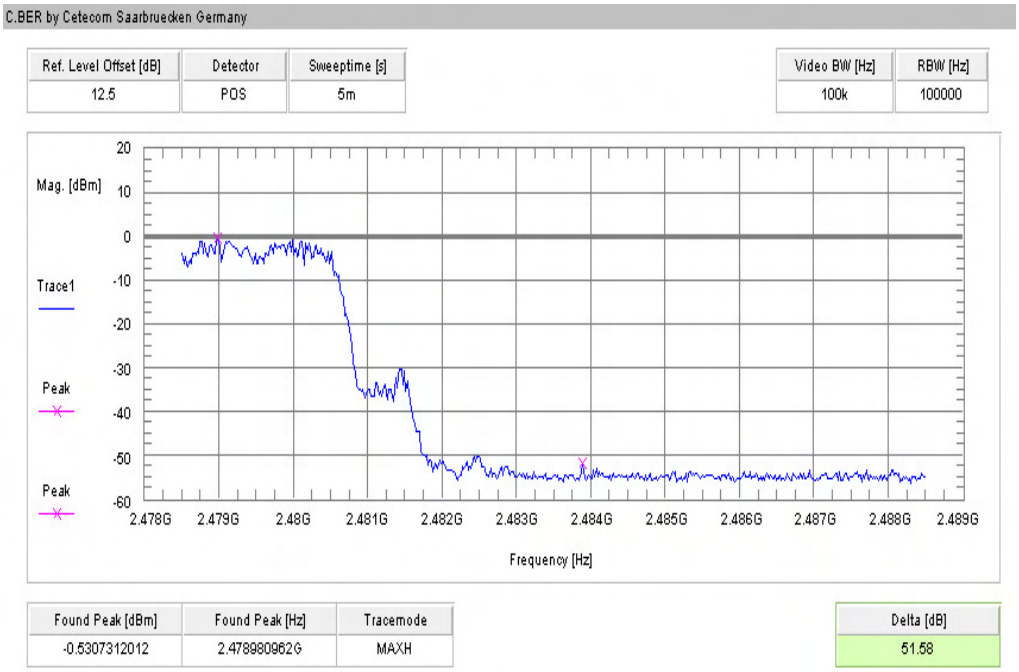
Plot 10: Lower Band Edge – Hopping On / 8DPSK (conducted)



Plot 11: Upper Band Edge – Hopping Off / 8DPSK (conducted)



Plot 12: Upper Band Edge – Hopping On / 8DPSK (conducted)



9.9 Band Edge Compliance Radiated

Description:

Measurement of the radiated band edge compliance. The EUT is turned in the position that results in the maximum level at the band edge. Then a sweep over the corresponding restricted band is performed. The EUT is set to single channel mode and the transmit channel is channel 00 for the lower restricted band and channel 78 for the upper restricted band. The measurement is repeated for all modulations. Measurement distance is 3m.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	10 Hz
Resolution bandwidth:	1 MHz
Span:	Lower Band: 2300 – 2400 MHz higher Band: 2480 – 2500 MHz
Trace-Mode:	Max Hold

Limits:

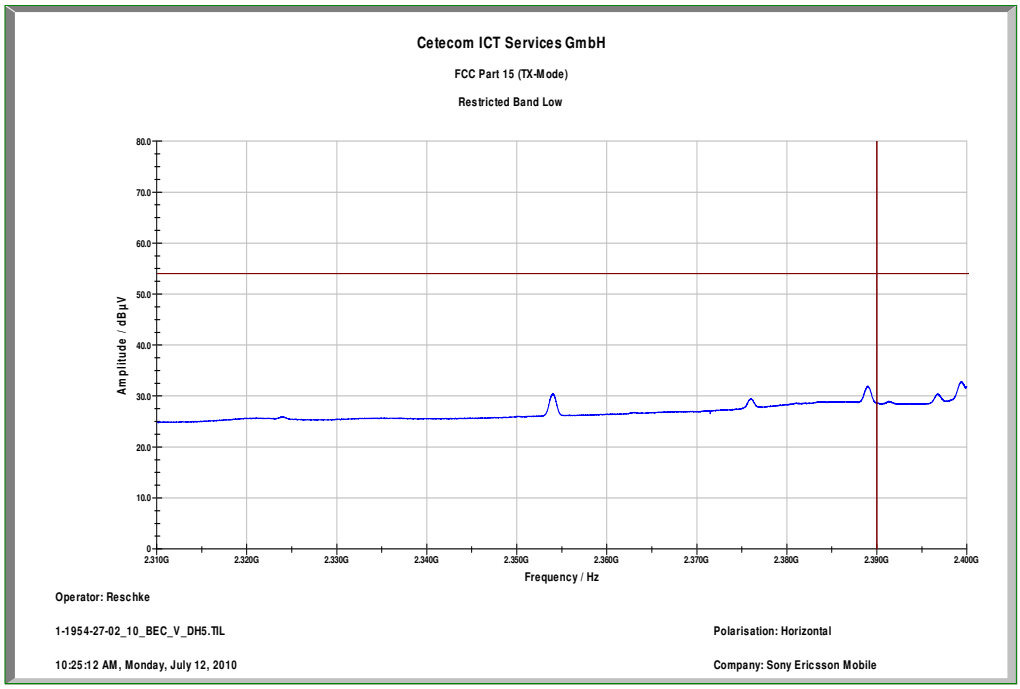
FCC	IC
CFR Part 15.205	RSS 210, Issue 7, A 8.5
Band Edge Compliance Radiated	
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 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)).	
54 dBµV/m AVG	

Result: **Also see plots**

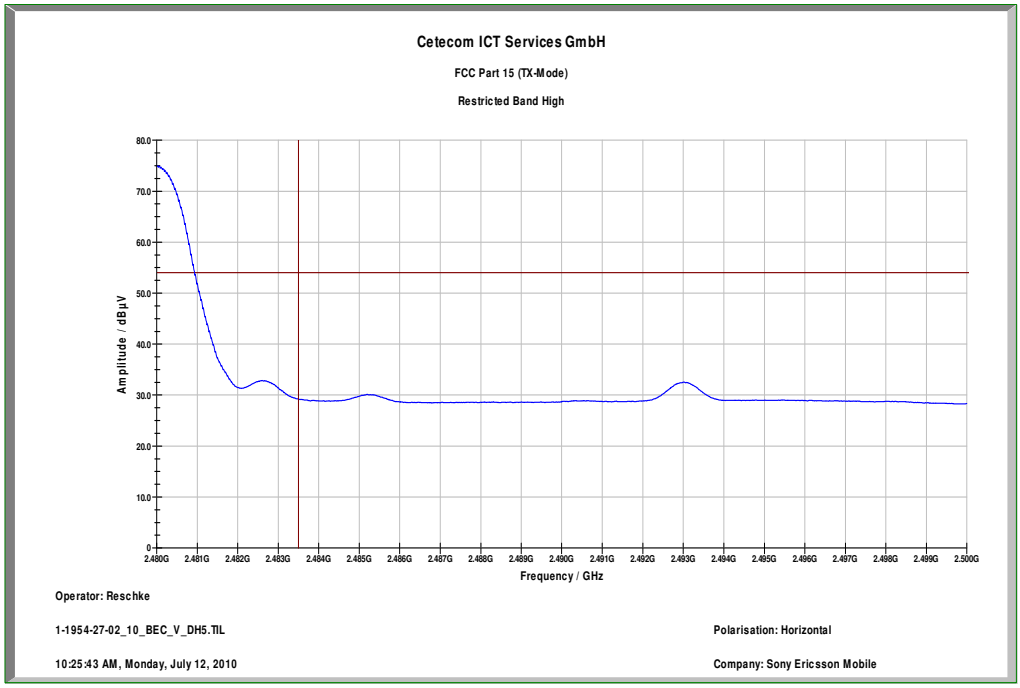
Szenario	Band Edge Compliance Radiated [dBµV/m]		
Modulation	GFSK	Pi/4 DQPSK	8DPSK
Lower Restricted Band	< 54 (see plot 1)	< 54 (see plot 3)	< 54 (see plot 5)
Upper Restricted Band	< 54 (see plot 2)	< 54 (see plot 4)	< 54 (see plot 6)
Measurement uncertainty	± 2 dB		

Result: **The result of the measurement is passed.**

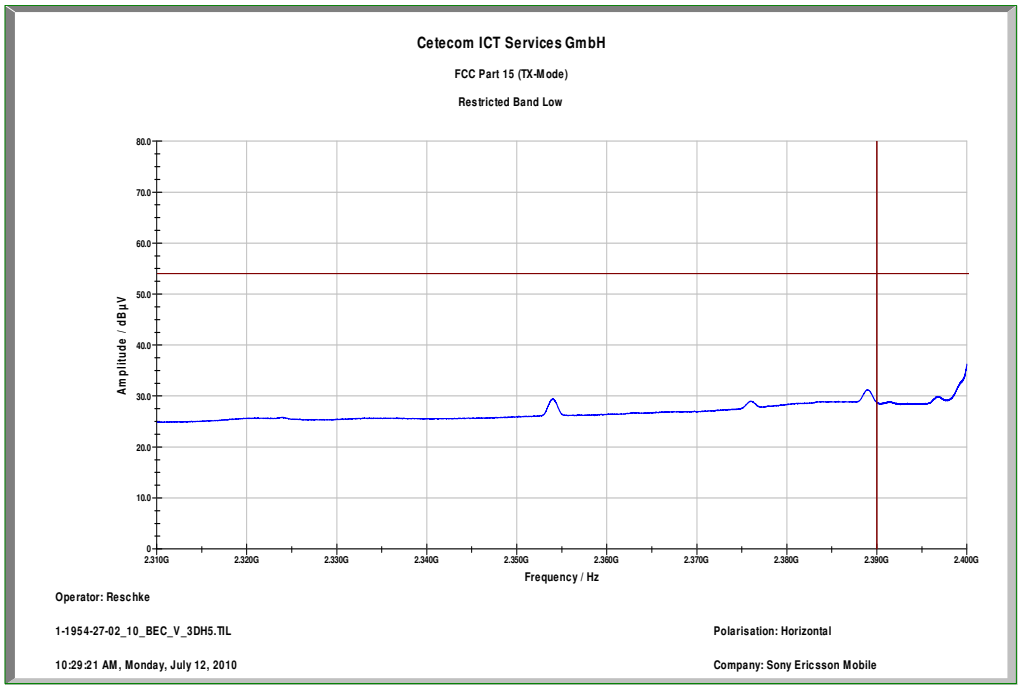
Plot 1: Lower Restricted Band / GFSK (radiated)



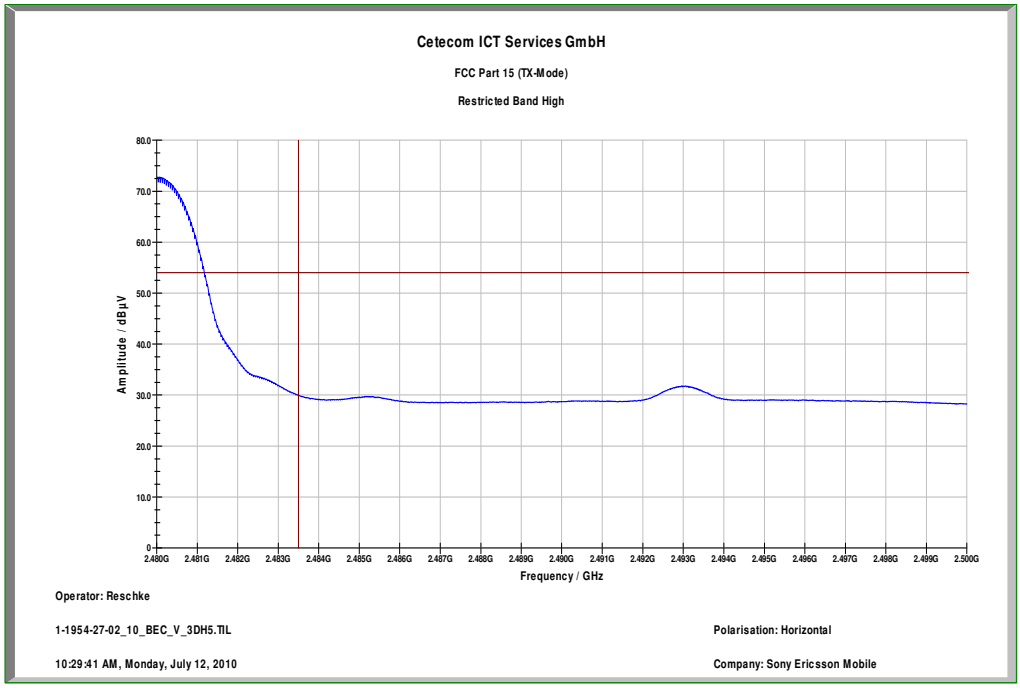
Plot 2: Upper Restricted Band / GFSK (radiated)



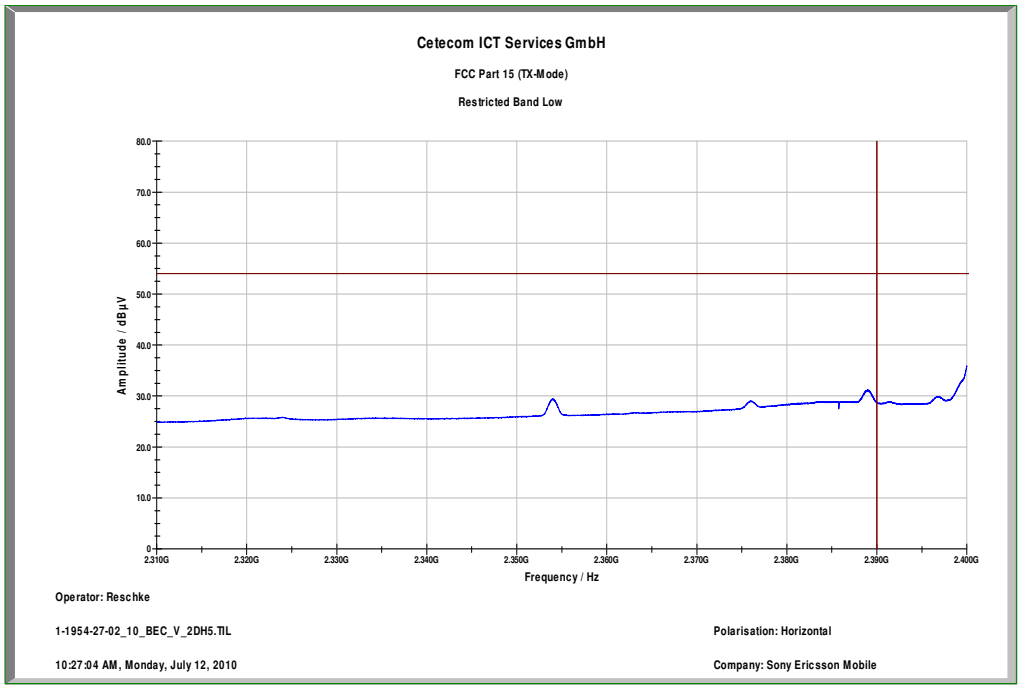
Plot 3: Lower Restricted Band / Pi/4 DQPSK (radiated)



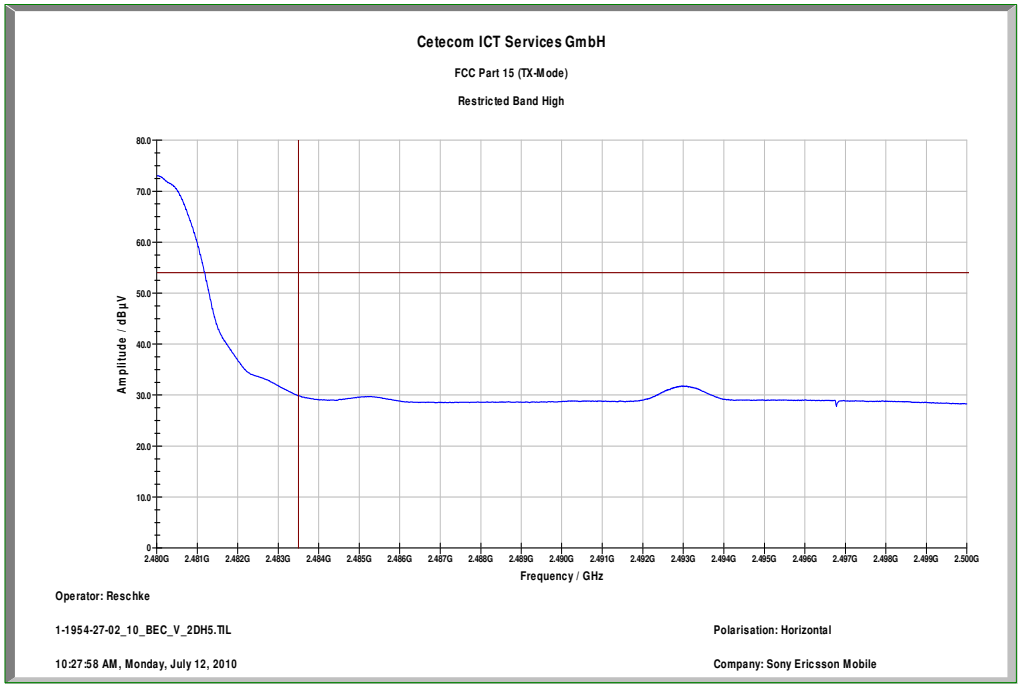
Plot 4: Upper Restricted Band / Pi/4 DQPSK (radiated)



Plot 5: Lower Restricted Band / 8DPSK (radiated)



Plot 6: Upper Restricted Band / 8DPSK (radiated)



9.10 TX Spurious Emissions Conducted

Description:

Measurement of the conducted spurious emissions in transmit mode. The EUT is set to single channel mode and the transmit channel is channel 00, channel 39 and channel 78. The measurement is repeated for all modulations.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Span:	9 kHz to 25 GHz
Trace-Mode:	Max Hold

Limits:

FCC	IC
CFR Part 15.247(d)	RSS 210, Issue 7, A 8.5
TX Spurious Emissions Conducted	
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	

Result: **Also see plots**

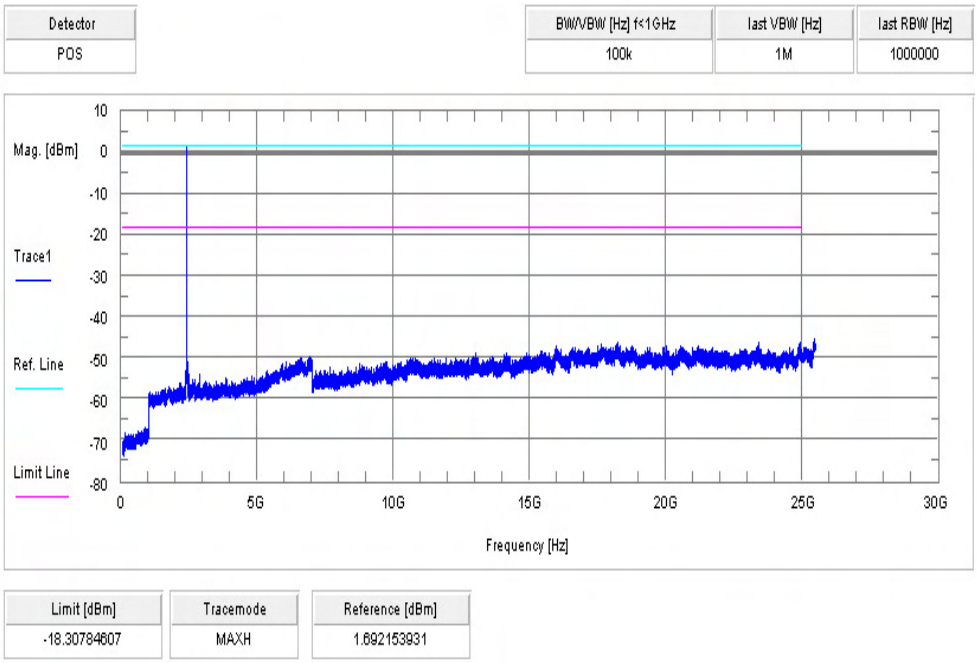
TX Spurious Emissions Conducted					
GFSK - mode					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2402			30 dBm		Operating frequency
No critical peaks found			-20 dBc		complies
2441			30 dBm		Operating frequency
No critical peaks found			-20 dBc		complies
2480			30 dBm		Operating frequency
No critical peaks found			-20 dBc		complies
Measurement uncertainty		± 3 dB			

TX Spurious Emissions Conducted					
Pi/4-DQPSK - mode					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2402			30 dBm		Operating frequency
No critical peaks found			-20 dBc		complies
2441			30 dBm		Operating frequency
No critical peaks found			-20 dBc		complies
2480			30 dBm		Operating frequency
No critical peaks found			-20 dBc		complies
Measurement uncertainty		± 3dB			

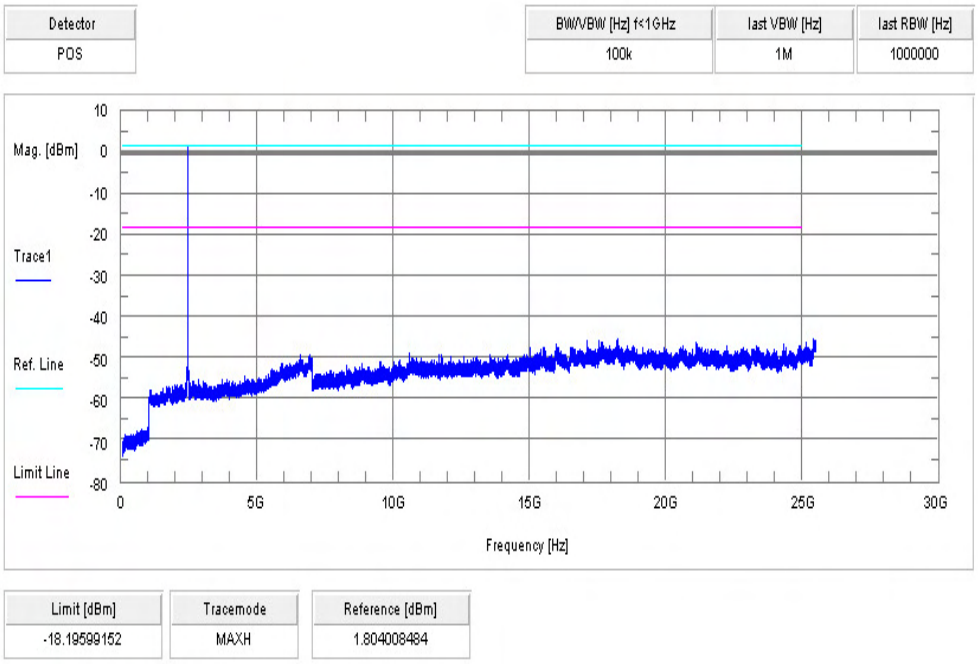
TX Spurious Emissions Conducted					
8DPSK - mode					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2402			30 dBm		Operating frequency
No critical peaks found			-20 dBc		complies
2441			30 dBm		Operating frequency
No critical peaks found			-20 dBc		complies
2480			30 dBm		Operating frequency
No critical peaks found			-20 dBc		complies
Measurement uncertainty		± 3dB			

Result: **The result of the measurement is passed.**

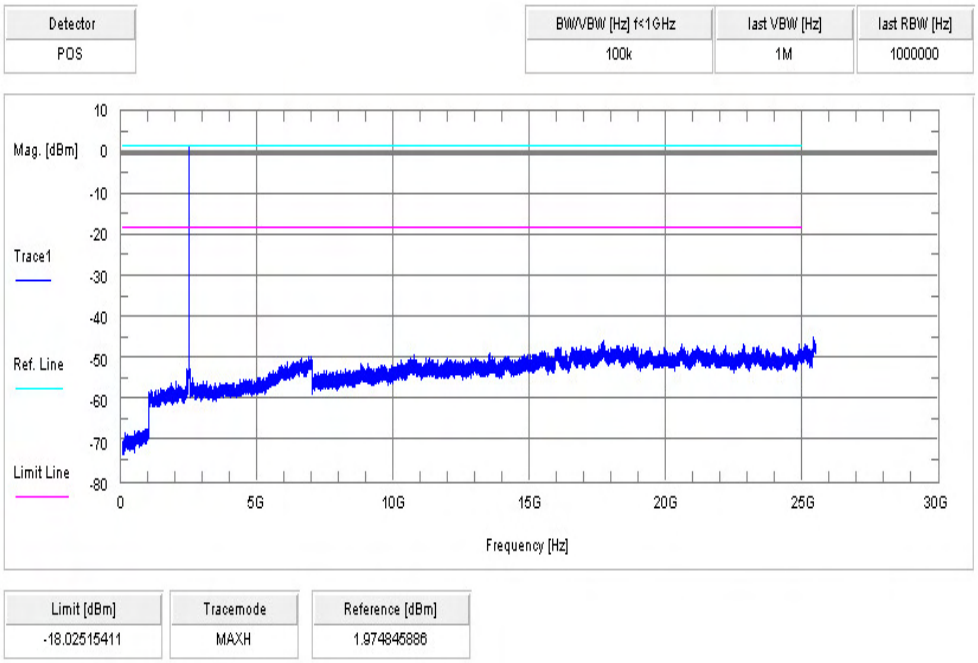
Plot 1: Channel 00 / GFSK



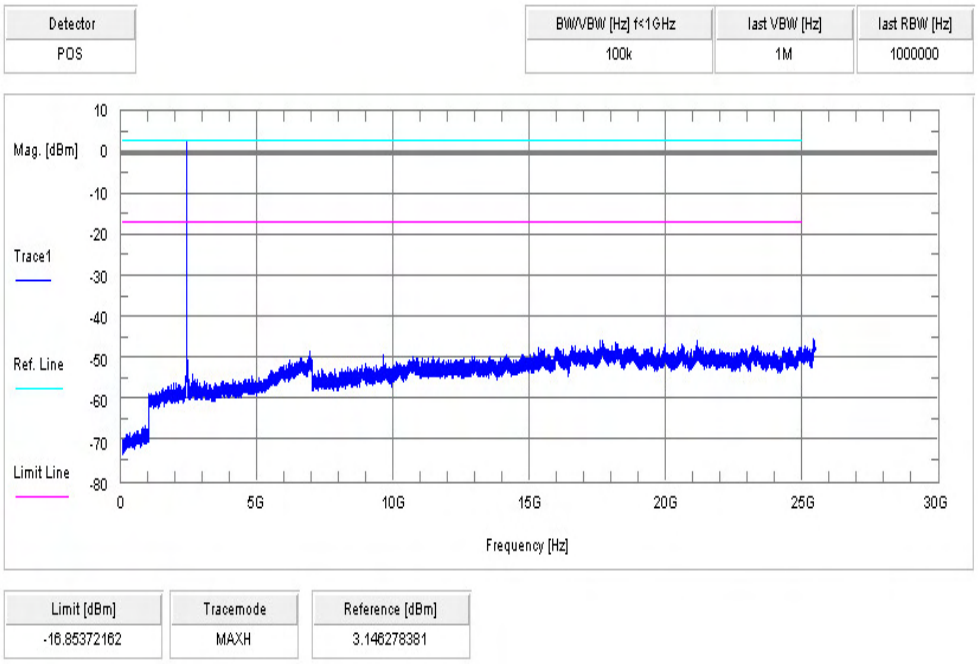
Plot 2: Channel 39 / GFSK



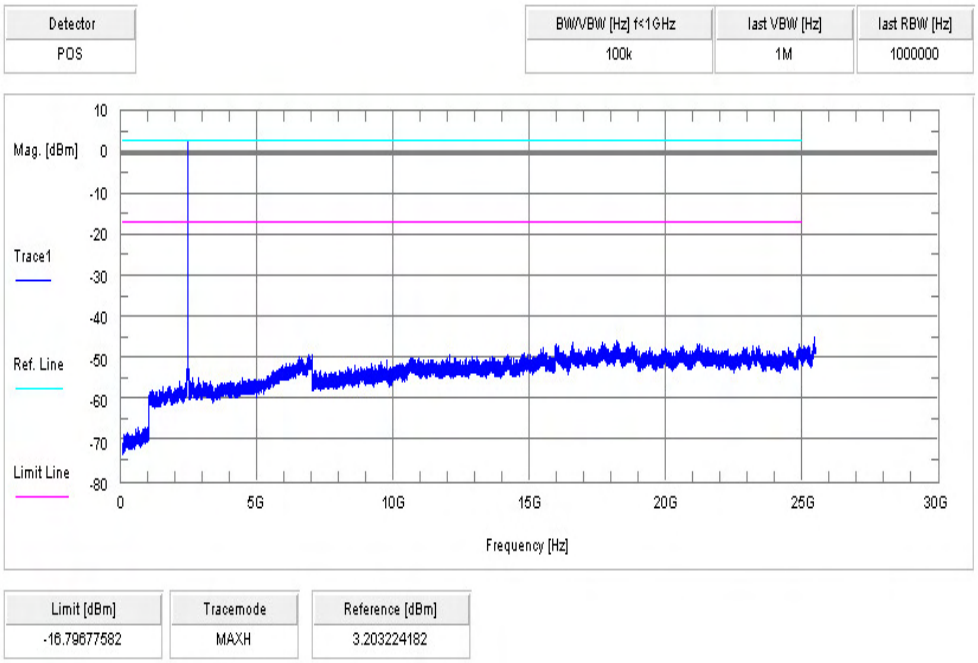
Plot 3: Channel 78 / GFSK



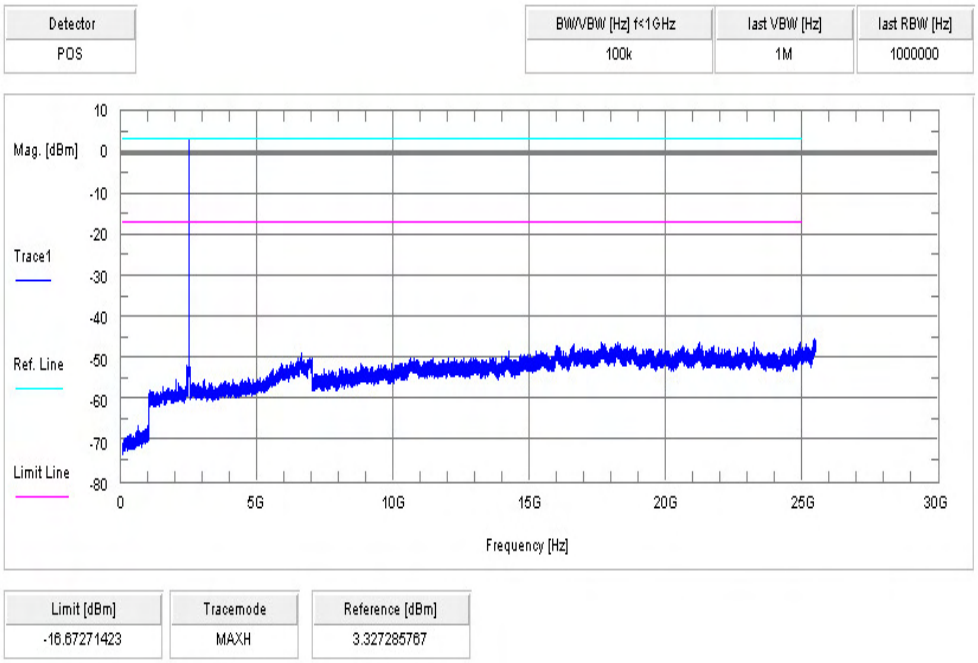
Plot 4: Channel 00 / Pi/4 DQPSK



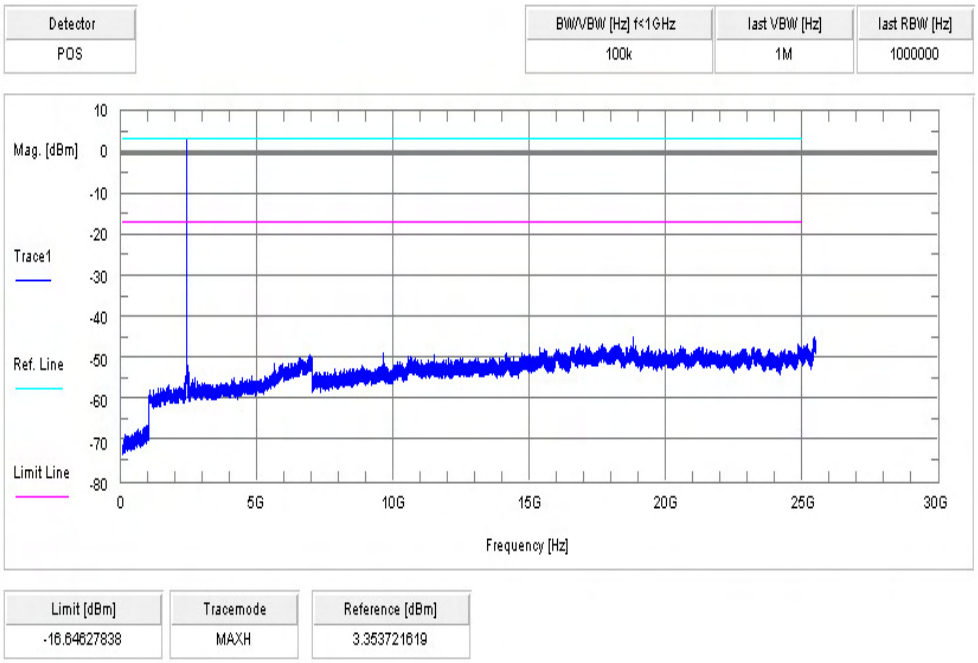
Plot 5: Channel 39 / Pi/4 DQPSK



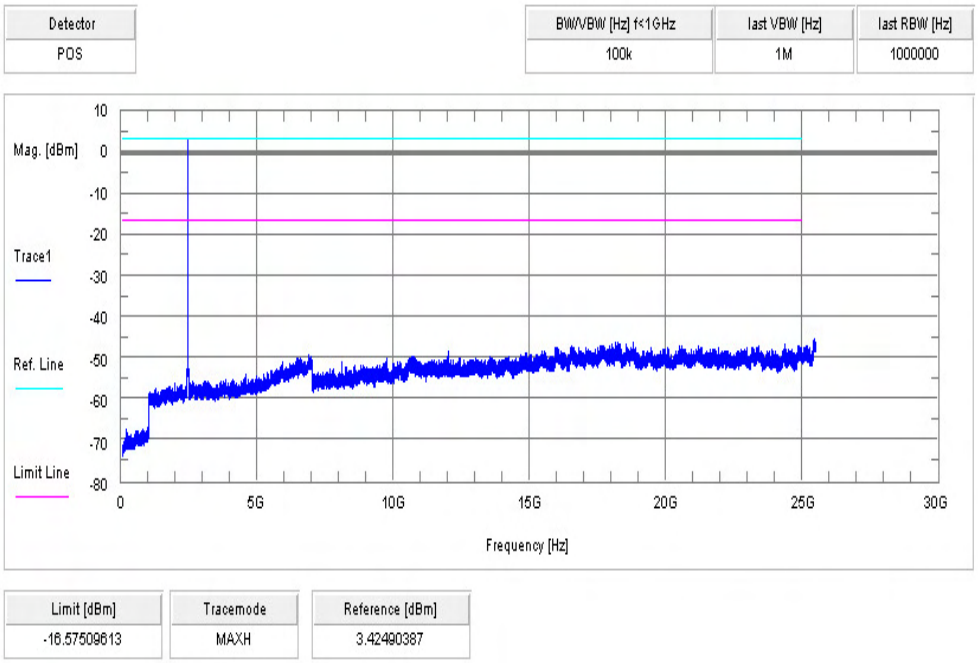
Plot 6: Channel 78 / Pi/4 DQPSK



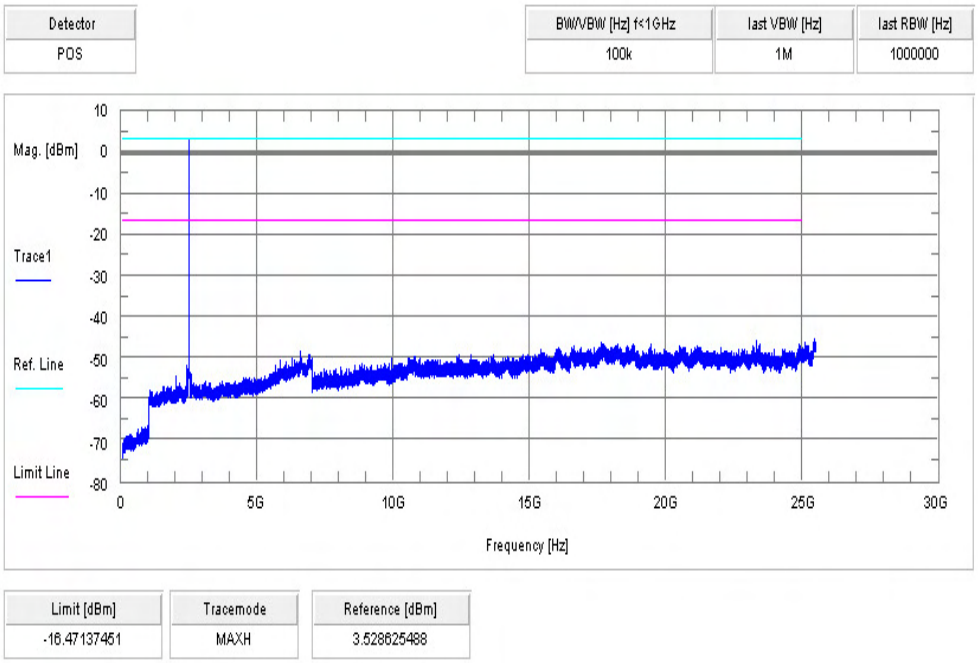
Plot 7: Channel 00 / 8DPSK



Plot 8: Channel 00 / 8DPSK



Plot 9: Channel 00 / 8DPSK



9.11 TX Spurious Emissions Radiated

Description:

Measurement of the radiated spurious emissions in transmit mode. The EUT is set to single channel mode and the transmit channel is channel 00, channel 39 and channel 78. The measurement is performed in the mode with the highest output power.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	Sweep: 100 kHz Remeasurement: 10 Hz
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Span:	30 MHz to 25 GHz
Trace-Mode:	Max Hold

Limits:

FCC		IC
CFR Part 15.247(d)		RSS 210, Issue 7, A 8.5
TX Spurious Emissions Radiated		
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 §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).		
§15.209		
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
30 - 88	30.0	10
88 – 216	33.5	10
216 – 960	36.0	10
Above 960	54.0	3

Result: **Also see plots**

TX Spurious Emissions Radiated [dBµV/m]								
2402 MHz			2441 MHz			2480 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
3202	Peak	48.02	3254	Peak	46.98	3360	Peak	46.80
Measurement uncertainty			± 3 dB					

Result: **The result of the measurement is passed.**

Plot 1: 30 MHz to 1 GHz / Channel 00 (horizontal/vertical)

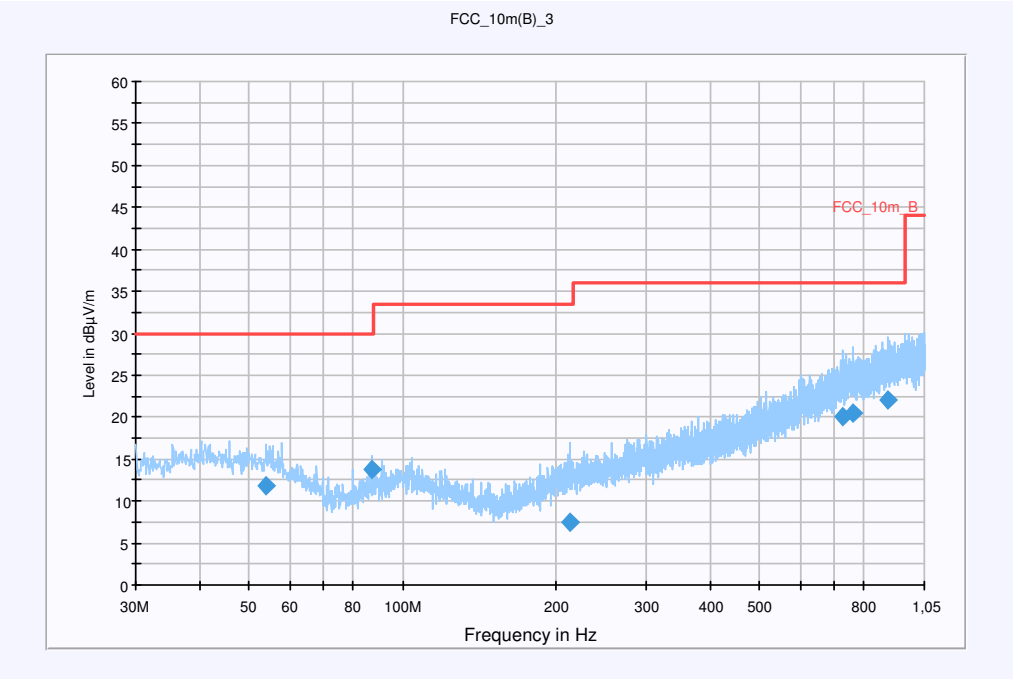
Common Information

EUT:	DDA-0002031
Serial Number:	#18282
Test Description:	FCC part 15C @ 10 m
Operating Conditions:	BT TX Ch 0
Operator Name:	Klos
Comment:	

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

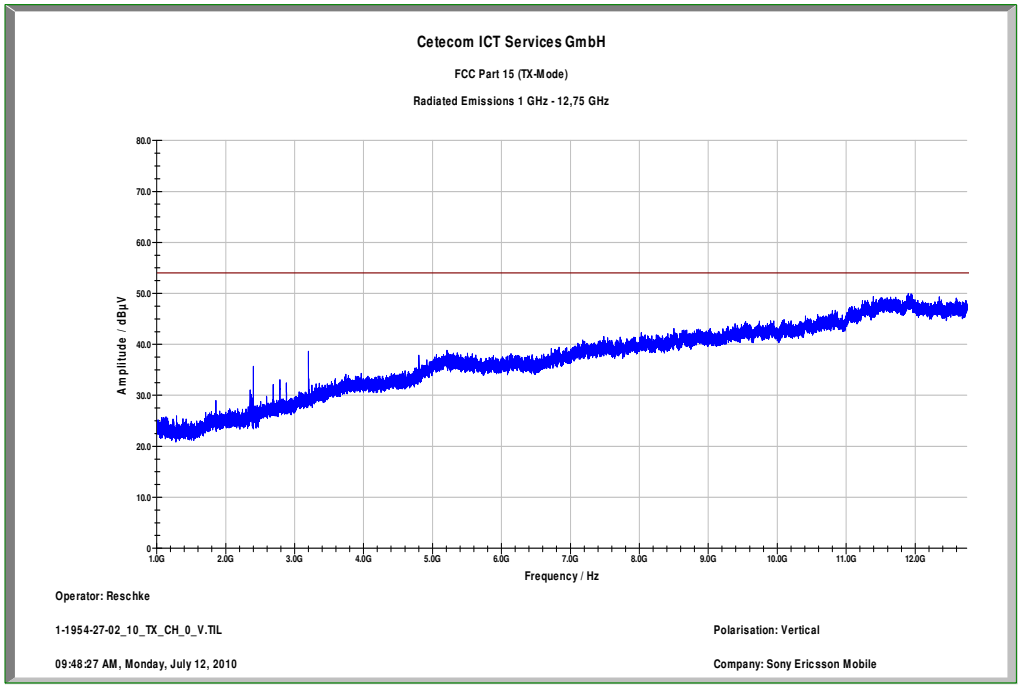
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
54.012450	11.8	15000.000	120.000	220.0	V	3.0	13.0	18.2	30.0	
86.994600	13.7	15000.000	120.000	220.0	V	190.0	10.1	16.3	30.0	
212.512800	7.4	15000.000	120.000	220.0	V	281.0	12.1	26.1	33.5	
728.080350	20.1	15000.000	120.000	213.0	V	94.0	23.2	15.9	36.0	
758.945250	20.4	15000.000	120.000	200.0	V	189.0	23.7	15.6	36.0	
888.368400	22.1	15000.000	120.000	124.0	V	257.0	25.1	13.9	36.0	

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

Subrange 1

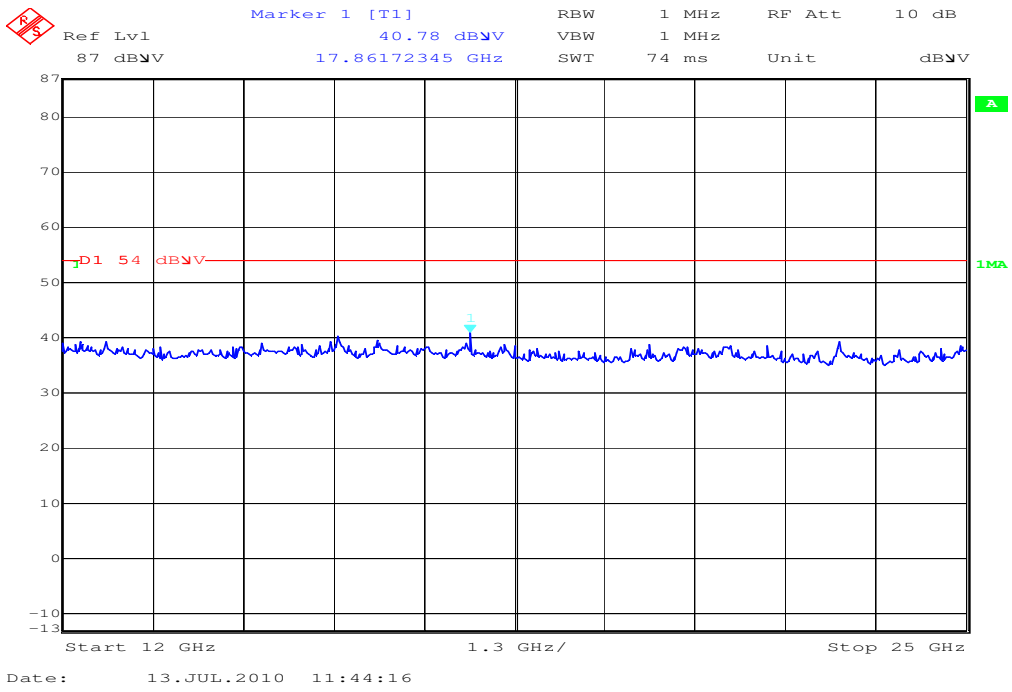
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.32
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cable_EN_1GHz (1005)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

Plot 2: 1 GHz to 12.75 GHz / Channel 00 (horizontal/vertical)



Carrier suppressed with a 2.4 GHz-band rejection filter.

Plot 3: 12 GHz to 25 GHz / Channel 00 (horizontal/vertical) – valid for all channels



Plot 4: 30 MHz to 1 GHz / Channel 39 (horizontal/vertical)

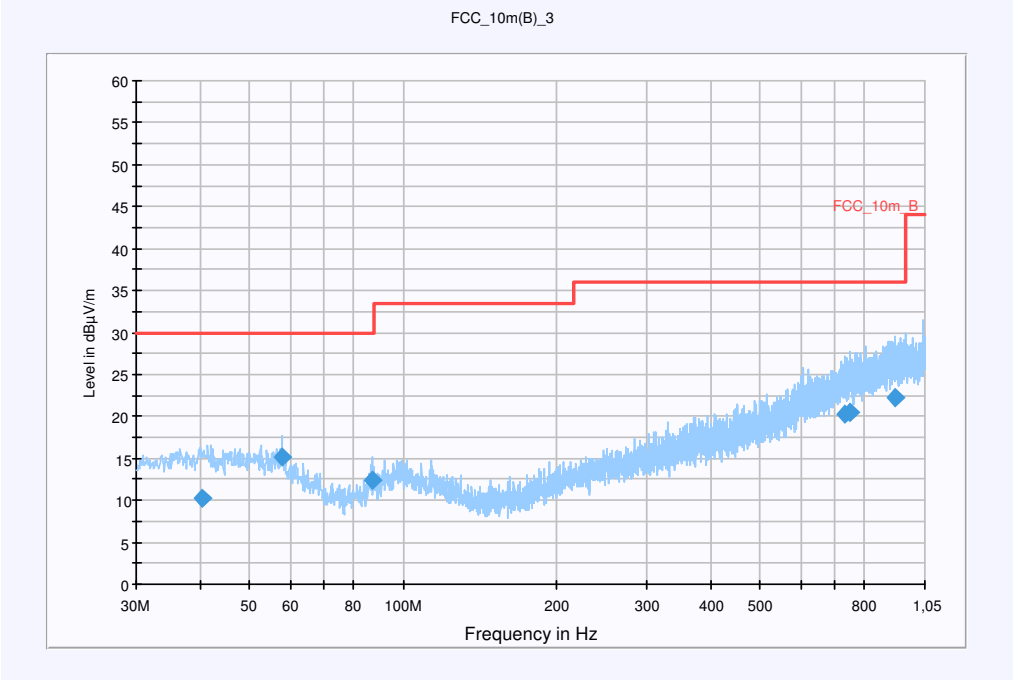
Common Information

EUT:	DDA-0002031
Serial Number:	#18282
Test Description:	FCC part 15C @ 10 m
Operating Conditions:	BT TX Ch 39
Operator Name:	Klos
Comment:	

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dBµVm

30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver



Final Result 1

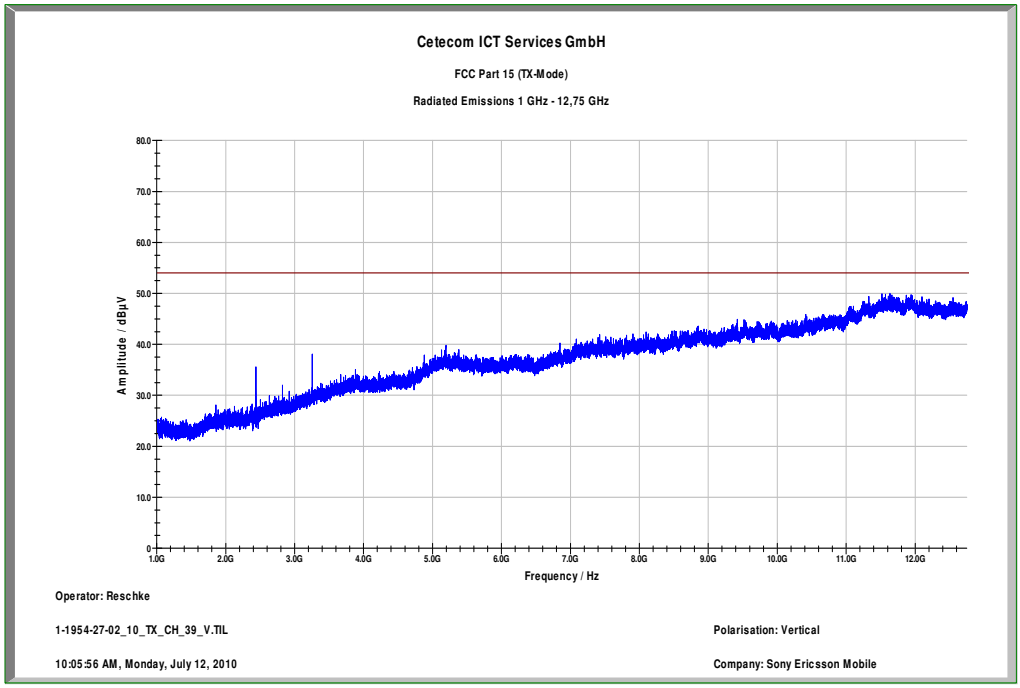
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
40.442250	10.3	15000.000	120.000	98.0	V	186.0	13.4	19.7	30.0	
57.999000	15.2	15000.000	120.000	153.0	V	-5.0	12.1	14.8	30.0	
86.956950	12.4	15000.000	120.000	224.0	V	110.0	10.1	17.6	30.0	
732.411000	20.2	15000.000	120.000	98.0	V	201.0	23.3	15.8	36.0	
752.724750	20.5	15000.000	120.000	224.0	V	13.0	23.7	15.5	36.0	
919.979100	22.3	15000.000	120.000	224.0	H	190.0	25.3	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 (1005)
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

Plot 5: 1 GHz to 12.75 GHz / Channel 39 (horizontal/vertical)



Carrier suppressed with a 2.4 GHz-band rejection filter.

Plot 6: 30 MHz to 1 GHz / Channel 78 (horizontal/vertical)

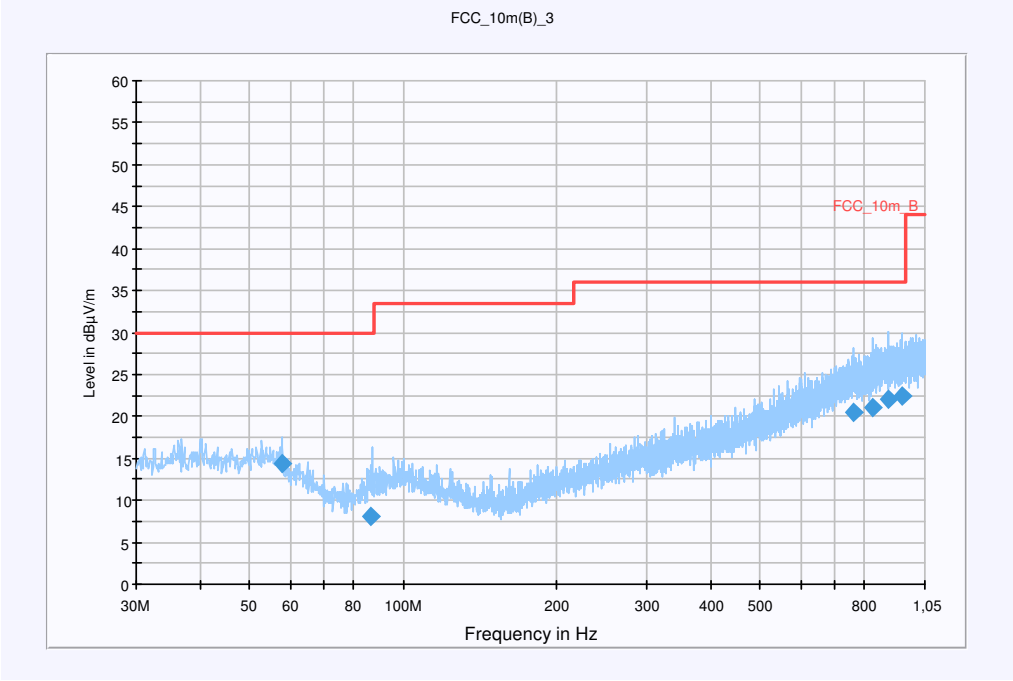
Common Information

EUT:	DDA-0002031
Serial Number:	#18282
Test Description:	FCC part 15C @ 10 m
Operating Conditions:	BT TX Ch 78
Operator Name:	Klos
Comment:	

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dBµVm

30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver



Final Result 1

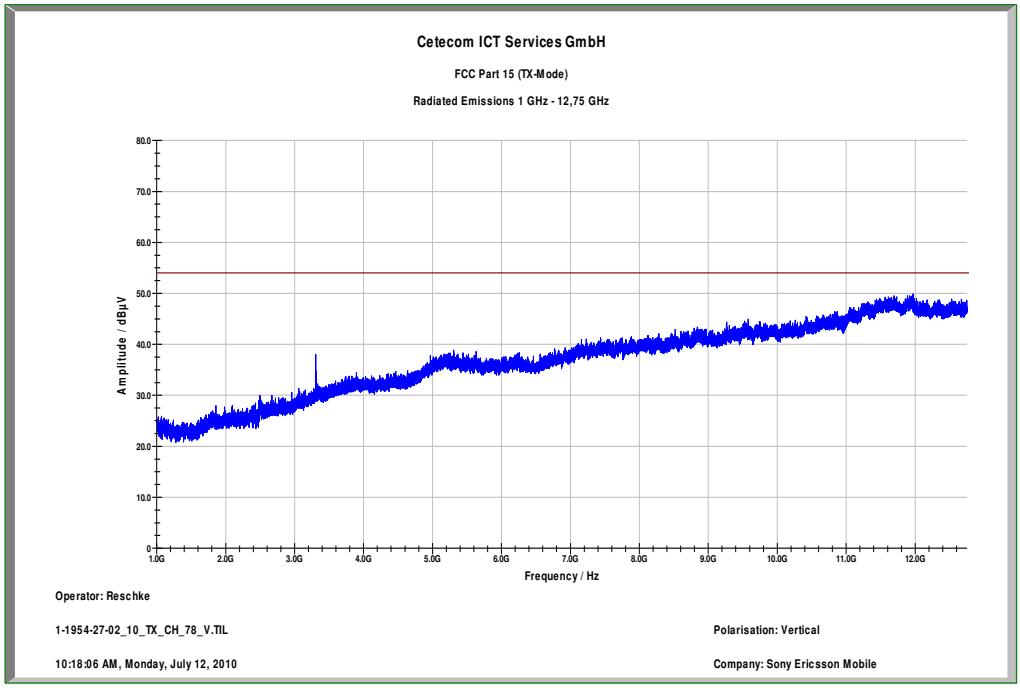
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
57.967500	14.3	15000.000	120.000	187.0	V	13.0	12.1	15.7	30.0	
86.424000	8.1	15000.000	120.000	220.0	V	77.0	10.0	21.9	30.0	
761.701650	20.5	15000.000	120.000	220.0	H	111.0	23.7	15.5	36.0	
829.718850	21.0	15000.000	120.000	220.0	V	176.0	24.3	15.0	36.0	
889.259100	22.0	15000.000	120.000	220.0	V	111.0	25.1	14.0	36.0	
947.009550	22.3	15000.000	120.000	127.0	V	4.0	25.3	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 (1005)
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

Plot 7: 1 GHz to 12.75 GHz / Channel 78 (horizontal/vertical)



Carrier suppressed with a 2.4 GHz-band rejection filter.

9.12 RX Spurious Emissions Radiated

Description:

Measurement of the radiated spurious emissions in idle/receive mode. The EUT is detached so all oszillators are active.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	Sweep: 100 kHz Remeasurement: 10 Hz
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Span:	30 MHz to 25 GHz
Trace-Mode:	Max Hold

Limits:

FCC		IC
CFR Part 15.109		RSS Gen, Issue 2, 4.10
RX Spurious Emissions Radiated		
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
30 - 88	30.0	10
88 – 216	33.5	10
216 – 960	36.0	10
Above 960	54.0	3

Result: **Also see plots**

RX Spurious Emissions Radiated [dBµV/m]		
F [MHz]	Detector	Level [dBµV/m]
No critical peaks found		
Measurement uncertainty	±3 dB	

Result: **The result of the measurement is passed.**

Plot 1: 30 MHz to 1 GHz / Idle-mode (horizontal/vertical)

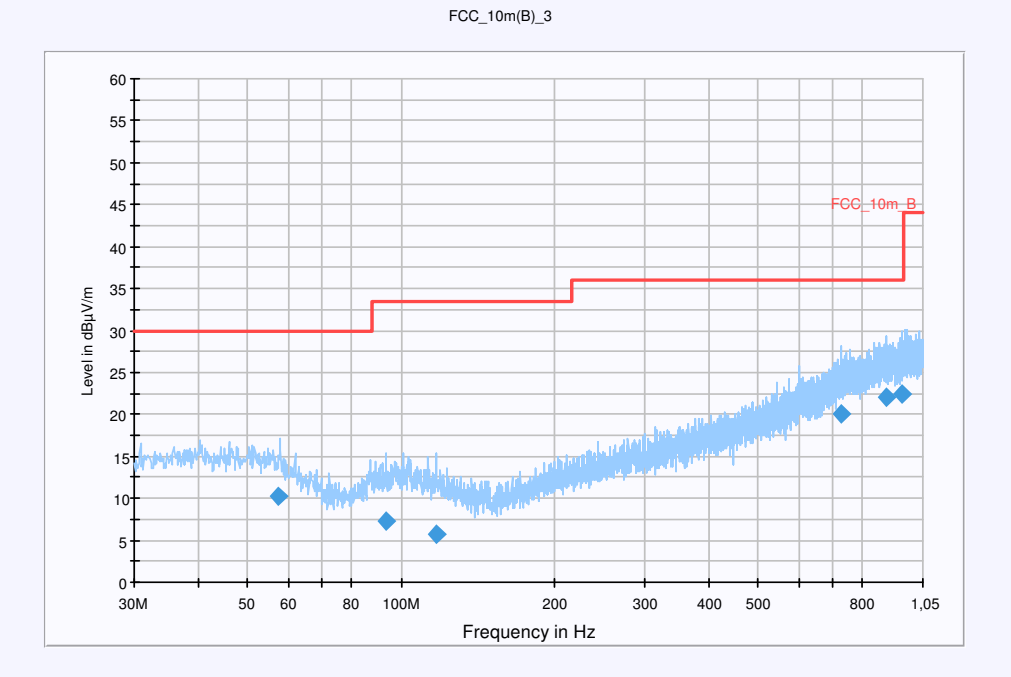
Common Information

EUT:	DDA-0002031
Serial Number:	#18282
Test Description:	FCC part 15C @ 10 m
Operating Conditions:	BT TX Ch 78
Operator Name:	Klos
Comment:	

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dBµVm

30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver



Final Result 1

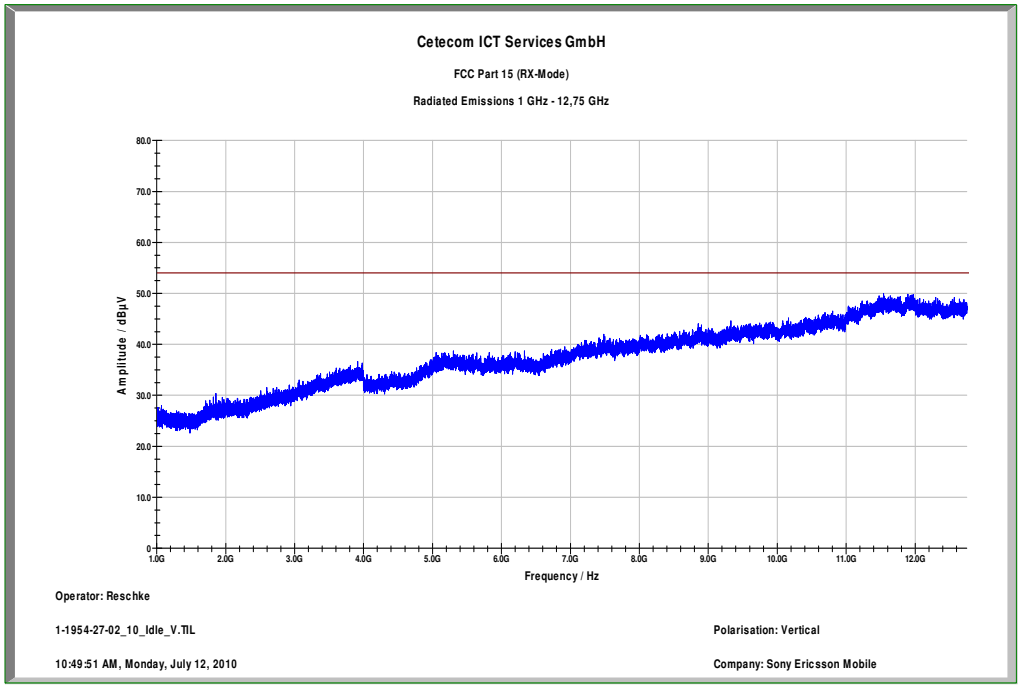
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
57.604950	10.3	15000.000	120.000	164.0	V	284.0	12.2	19.7	30.0	
93.249900	7.3	15000.000	120.000	141.0	V	180.0	11.0	26.2	33.5	
117.130050	5.7	15000.000	120.000	162.0	H	13.0	10.5	27.8	33.5	
729.093150	20.1	15000.000	120.000	105.0	V	276.0	23.2	15.9	36.0	
888.474600	22.0	15000.000	120.000	98.0	H	13.0	25.1	14.0	36.0	
958.650450	22.5	15000.000	120.000	220.0	V	76.0	25.4	13.5	36.0	

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

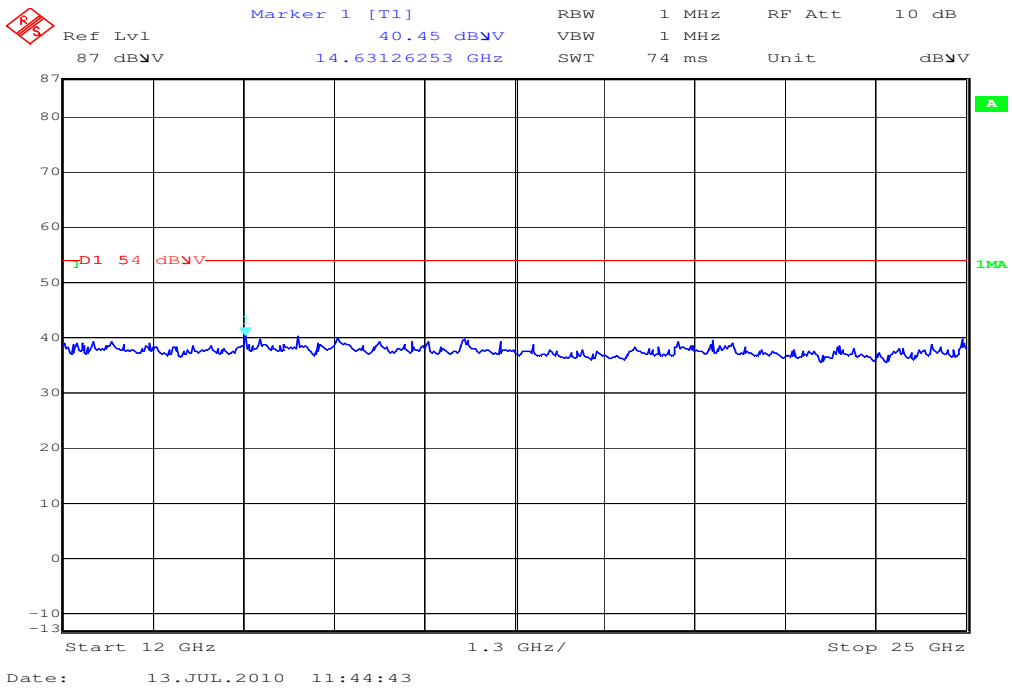
Subrange 1

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 (1005)
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

Plot 2: 1 GHz to 12.75 GHz / Idle-mode (horizontal/vertical)



Plot 3: 12 GHz to 25 GHz / Idle-mode (horizontal/vertical)



9.13 TX Spurious Emissions Radiated < 30 MHz

Description:

Measurement of the radiated spurious emissions in transmit mode below 30 MHz. The EUT is set to single channel mode and the transmit channel is channel 39. This measurement is representative for all channels and modes. If critical peaks are found channel 00 and channel 78 will be measured too. The measurement is performed in the mode with the highest output power. The limits are recalculated to a measurement distance of 3 m with 40 dB/decade according CFR Part 2.

Measurement:

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

Limits:

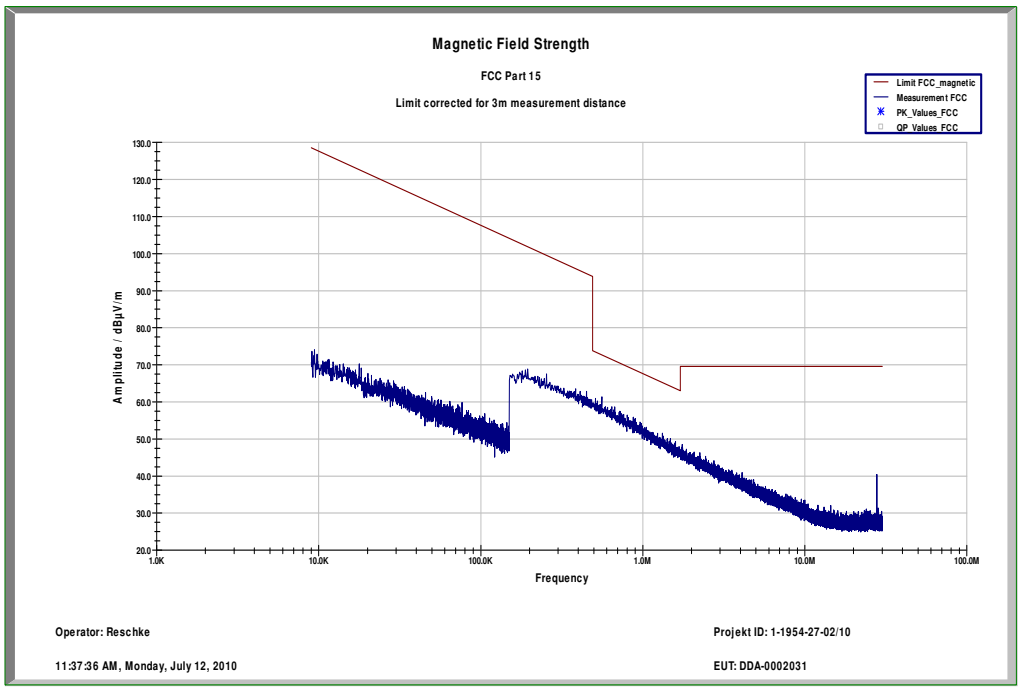
FCC		IC
CFR Part 15.209(a)		RSS 210, Issue 7, 2.2
TX Spurious Emissions Radiated < 30 MHz		
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

Result: **Also see plot**

TX Spurious Emissions Radiated < 30 MHz [dBµV/m]		
F [MHz]	Detector	Level [dBµV/m]
No critical peaks found		
Measurement uncertainty	± 3 dB	

Result: **The result of the measurement is passed.**

Plot 1: 9 kHz to 30 MHz / Channel 39 (valid for all channels and modes)



9.14 TX Spurious Emissions Conducted < 30 MHz

Description:

Measurement of the conducted spurious emissions in transmit mode below 30 MHz. The EUT is set to single channel mode and the transmit channel is channel 39. This measurement is representative for all channels and modes. If critical peaks are found channel 00 and channel 78 will be measured too. The measurement is performed in the mode with the highest output power. Both power lines, phase and neutral line, are measured. Found peaks are remeasured with average and quasi peak detection to show compliance to the limits.

Additional Description:

The EUT can not transmit during charging. So the measurement was done in idle mode.

Measurement:

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

Limits:

FCC		IC
CFR Part 15.107(a)		ICES-003, Issue 4
TX Spurious Emissions Conducted < 30 MHz		
Frequency (MHz)	Quasi-Peak (dBµV/m)	Average (dBµV/m)
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30.0	60	50

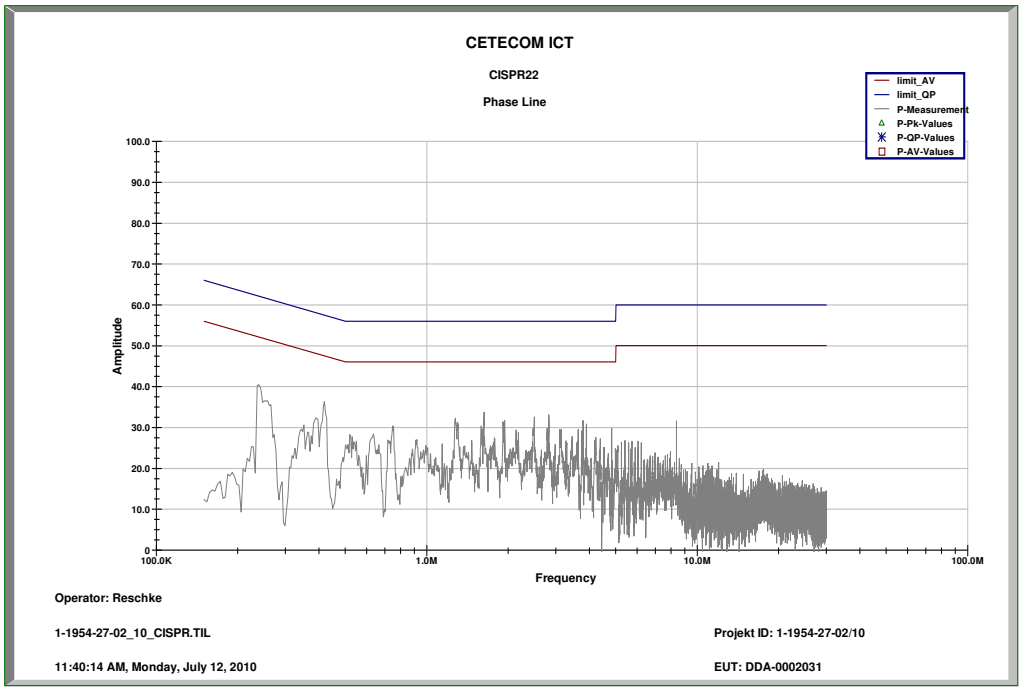
*Decreases with the logarithm of the frequency

Result: **Also see plots**

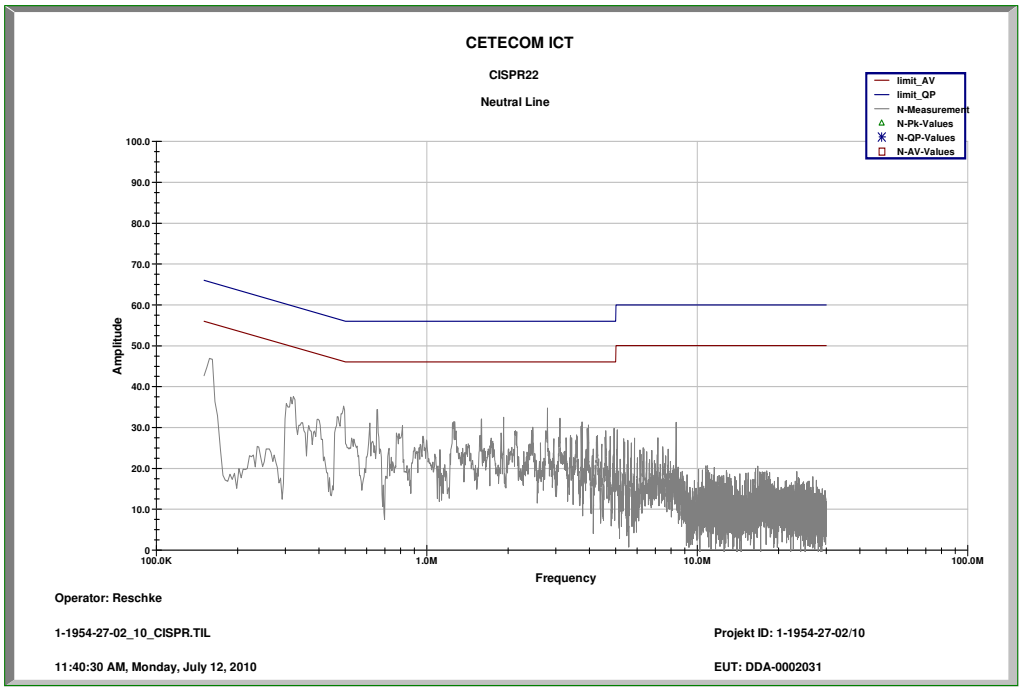
TX Spurious Emissions Conducted < 30 MHz [dBµV/m]		
F [MHz]	Detector	Level [dBµV/m]
No critical peaks found		
Measurement uncertainty	± 3 dB	

Result: **The result of the measurement is passed.**

Plot 1: 9 kHz to 30 MHz / Phase Line



Plot 2: 9 kHz to 30 MHz / Neutral Line



10 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.	Labor / 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.	Power Supply DC	NGPE 40/40	R&S	388	400000078	vlKl!	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	300002681-0010	k	26.08.2008	26.08.2010
4	n. a.	Hygro-Thermometer	-/-, 5-45°C, 20-100%rF	Thies Clima	-/-	400000080	k	04.05.2010	04.05.2011
5	n. a.	Vector Signal Generator, 300 kHz to 2.2 GHz	SMIQ03B	R&S	835541/055	300002681-0001	k	25.08.2008	25.08.2011
6	n. a.	Vector Signal Generator, 300 kHz to 2.2 GHz	SMIQ03B	R&S	835541/056	300002681-0002	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	300002681-0003	k	26.08.2008	26.08.2011
8	n. a.	Dual Channel Power Meter	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.	Precision Step Attenuator 50 Ohms, 0 - 2700MHz	RSP	R&S	834500/010	300002681-0007	k	26.08.2008	26.08.2010
11	n. a.	Frequency Standard (Rubidium Frequency Standard)	MFS (Rubidium)	R&S (Datum)	002	300002681-0009	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	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.	Temperature Test Chamber	VT 4002	Heraeus Voetsch	58566046820010	300003019	Ve	28.05.2009	28.05.2011
17	n. a.	CBT (Bluetooth Tester + EDR Signalling)	CBT 1153.9000K35	R&S	100185	300003416	vlKl!	27.08.2008	27.08.2010
18	n. a.	Spectrum Analyzer 9kHz to 30GHz - 140..+30dBm	FSP30	R&S	100886	300003575	k	25.08.2008	25.08.2010
19	n. a.	CBT-K57 Software-Option for CBT/CBT32	CBT-K57	R&S	101051	300003910	ne		
20	n. a.	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2818A03450	300001040	Ve	08.01.2009	08.01.2012
21	n. a.	PowerAttenuator	8325	Byrd	1530	300001595			
22	n. a.	Double-Ridged Waveguide Horn	3115	EMCO	8812-3088	300001032	vlKl!	05.03.2009	05.03.2011

		Antenna 1-18.0GHz							
23	n. a.	Active Loop Antenna	6502	EMCO	2210	300001015	ne		
24	n. a.	Anechoic chamber		MWB	87400/02	300000996			
25	Spec.A. 2_2e	System rack for EMI measurement solution	85900	HP I.V.	*	300000222	ne		
26	9	Artificial Mains 9 kHz to 30 MHz, 4 x 25 Ampere	ESH3-Z5	R&S	828576/020	300001210	Ve	06.01.2010	06.01.2012
27	n. a.	Relais Matrix	3488A	HP Meßtechnik	2719A15013	300001156	ne		
28	n. a.	Relais Matrix	PSU	R&S	890167/024	300001168	ne		
29	n. a.	Isolating Transformer	RT5A	Grundig	9242	300001263	ne		
30	n. a.	Three-Way Power Splitter, 50 Ohm	11850C	HP Meßtechnik		300000997	ne		
31	n. a.	Switch / Control Unit	3488A	HP	2605e08770	300001443	ne		
32	n. a.	Band Reject filter	WRCG1855/1910-1835/1925-40/8SS	Wainwright	7	300003350	ev		
33	n. a.	Band Reject filter	WRCG2400/2483-2375/2505-50/10SS	Wainwright	11	300003351	ev		
34	n. a.	TILE-Software Emission	Quantum Change, Modell TILE-ICS/FULL	EMCO	none	300003451	ne		
35	n. a.	Highpass Filter	WHKX2.9/18G-12SS	Wainwright	1	300003492	ev		
36	n. a.	Highpass Filter	WHK1.1/15G-10SS	Wainwright	3	300003255	ev		
37	n. a.	Highpass Filter	WHKX7.0/18G-8SS	Wainwright	18	300003789	ne		
38	n. a.	PSA Spectrum Analyzer 3 Hz - 26.5 GHz	E4440A	Agilent Technologies	MY48250080	300003812	k	05.08.2008	05.08.2010
39	n. a.	MXG Microwave Analog Signal Generator	N5183A	Agilent Technologies	MY47420220	300003813	k	06.08.2008	06.08.2010
40	n. a.	RF Filter Section 9kHz - 1GHz	N9039A	Agilent Technologies	MY48260003	300003825	vlKl!	19.08.2008	19.08.2010
41	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	371	300003854	vlKl!	17.12.2008	17.12.2010

Annex D Document history

Version	Applied changes	Date of release
1.0	Initial release	2010-07-14

Annex E Further information

Glossary

DUT	-	Device under Test
EMC	-	Electromagnetic Compatibility
EUT	-	Equipment under Test
FCC	-	Federal Communication Commission
FCC ID	-	Company Identifier at FCC
HW	-	Hardware
IC	-	Industry Canada
Inv. No.	-	Inventory number
N/A	-	not applicable
S/N	-	Serial Number
SW	-	Software