CETECOM ICT Services GmbH

Radio Satellite Communication
Untertuerkheimer Strasse 6–10, D-66117 Saarbruecken, Telephone +49 (0) 681 598 - 0 , Fax +49 (0) 681 598 – 9075

Recognized by the
Federal Communications Commission and Industry Canada
Anechoic chamber registration No.: 90462 (FCC)
Anechoic chamber registration No.: IC 3462C-1
TCB ID: DE0001

Accredited by the
German Accreditation Council
DAR–Registration Number
DGA-PL-176/94-D1

Test report No.: 1-2309-01-03/10
Applicant: JENOPTIK Robot GmbH
Type: RRS24F-ST3
FCC ID: QJJ-590112
IC Certification No: 8226A-590112
Test standard: FCC Part 15.245 / RSS 210

Table of contents

1 General information

1.1 Notes

The test results of this test report relate exclusively to the test item specified in 1.5. CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item.

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Tester:

Date	Name	Signature
2011-04-01	René Oelmann	

Technical responsibility for area of testing:

Date	Name	Signature
2011-04-01	Karsten Geraldy	

1.2 Testing laboratory

CETECOM ICT Services GmbH
Untertürkheimerstraße 6–10
D-66117 Saarbrücken
Germany

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e-mail : info@cetecom.com
Internet : http://www.cetecom.com

Accredited testing laboratory
Accredited by : DGA Deutsche Gesellschaft für Akkreditierung mbH
Listed by : Federal Communications Commission (FCC)
Industry Canada (IC)

Authority	Identification/Registration No.
DGA	DGA-PL-176/94-D1
FCC	90462
IC	IC 3462C-1

Testing location, if different from CETECOM ICT Services GmbH: (Not applicable)

1.3 Details of applicant

Name : JENOPTIK Robot GmbH
Street : Opladener Straße 202
Town : 40789 Monheim am Rhein
Country : Germany
Phone : +49-(0) 2173 3940-0

Contact person
Name : Mr. Kenneth Parkin
Phone : +49 2173 3940-175
Fax : +49 2173 3940-111
E–Mail : kenneth.parkin@jenoptik.com

1.4 Application details

Date of receipt of application : 2010-02-21
Date of receipt of test item : 2010-02-21
Date of test : 2010-02-21 to 2010-04-01
Person(s) who have been present during the test :

1.5 Test item (EUT)

Description	:	Radar Sensor System
Type designation	:	RRS24F-ST3
Manufacturer	:	JENOPTIK Robot GmbH
Street	:	Opladener Straße 202
Town	:	40789 Monheim am Rhein
Country	:	Germany

1.6 Technical data

Frequency range	:	24.075 GHz ... 24.175 GHz
Operational frequency	:	24.085 GHz; 24.125 GHz; 24.165 GHz
max. Field strength PEP	:	110.8 dBµV/m @ 3m distance
Type of modulation	:	FSK
Microwave modules	:	TX / RX – Module with patch antenna array
Normal power supply (U nom)	:	12 V DC
Extreme DC power supply	:	10.8 V to 13.2 V

1.6.1 Operation conditions

Operation:	:	The EUT is controlled via PC Software. As soon as it is initialized, TX and RX start operating
Purpose of operation	:	Motion Sensor (Speed detection)

1.6.2 Equipment under test

RRS24F-ST3

1.7 Test standards

	Code of Federal Regulations (CFR 47) Federal Communications Commission (FCC)
FCC Part 15	Radio Frequency Devices SECTION 15.245 Operation within the band 24.075 GHz to 24.175 GHz SECTION 15.205 Restricted bands of operation. SECTION 15.207 Conducted limits SECTION 15.209 Radiation emission limits, general requirements
RSS 210	Issue 8, Annex 7 - Field Disturbance Sensors Operating in the Bands 902-928 MHz, 2435-2465 MHz, 5785-5815 MHz, 10.5-10.55 GHz and 24.075-24.175 GHz
RSS-GEN	Issue 3 December 2010 SECTION 4.6.1 Occupied Bandwidth

1.8 Test Report Cover Sheet

Type of equipment	:	Field disturbance sensor
Model name	:	RRS24F-ST3
Manufacturer	:	JENOPTIK Robot GmbH
Address	:	Opladener Straße 202
City	:	40789 Monheim am Rhein
Country	:	Germany
Tested to Radio Standards Specification(RSS) No.	:	210 Issue 8
Open Area Test Site Industry Canada Number	:	IC 3462C-1
Frequency Range (or fixed frequency)	:	24.075 to 24.175 GHz
R F: Power in Watts	:	-/-
max. Field Strength (at what distance)	:	110.8 dBµV/m @ 3m distance
Occupied Bandwidth (99% BW)	:	10.385 MHz
Type of Modulation	:	FSK
Emission Designator	:	10M4F1N
Antenna Information	:	Integrated patch antenna array
Transmitter Spurious (worst case)	:	50.85 dBµV/m in 3m
Receiver Spurious (worst case)	:	50.85 dBµV/m in 3m (TX and RX operate simultaneously)
IC no.	:	8226A-590112
FCC ID	:	QJJ-590112

ATTESTATION:
DECLARATION OF COMPLIANCE:

I declare 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 :

2010-04-14	RSC	René Oelmann	
Date	Section	Name	Signature

2 Technical test

2.1 Summary of test results

[X] No deviations from the technical specification (s) were ascertained in the course of the performed tests.

[ ] The deviations as specified in 2.5 were ascertained in the course of the performed tests.

This test report :

[X] describes the first test

[ ] describes an additional test

[ ] is a verification of documents

[ ] is only valid with the test report no.

2.2 Test environment

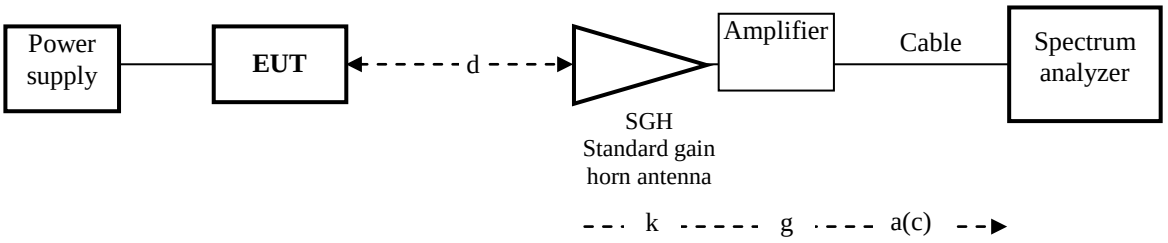
The environmental conditions are documented especially for each test.

2.3 Measurement and test set-up

The measurement and test set-up is defined in the technical specification.

2.4 Test equipment utilized and test set-up

2.4.1 Field strength measurement of fundamental and spurious radiation in the frequency range 12 GHz to 50 GHz



Frequency f [GHz]	Distance d [m]	Distance Correction dc (3 m/Xm) [dB]	Antenna factor k [dB(1/m)]	Amp.gain g [dB]	Cable loss a(c) [dB]
12.0 to 18.0	0.375	-18.0	33.97	33.4 … 35.9	2.7 … 2.8
18.0 to 26.0	0.375	-18.0	40.22	30.8 … 33.4	2.8 … 4.3
26.0 to 40.0	0.1875	-24.0	44.00	17.4 … 23.1	4.3 … 4.8
40.0 to 50.0	0.9375	-30.0	42.32	3.4 … 17.4	4.8 … 6.7

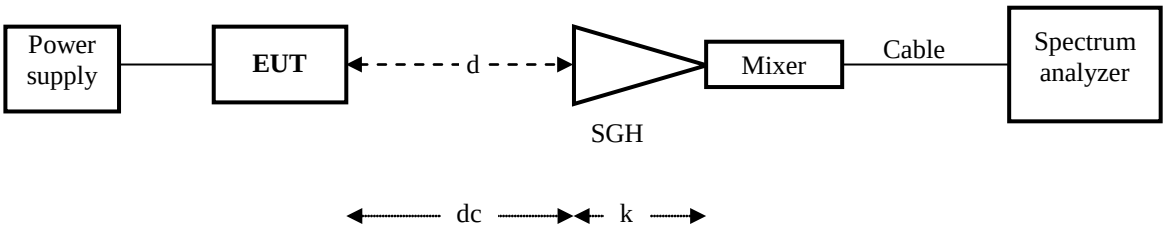
Calculation : Field strength = analyser reading + cable loss - amplifier gain + antenna factor
e [dB(µV/m)] = u [dB(µV)] + a [dB] - g [dB] + k [dB(1/m)]

Test equipment	Manufacturer	Type	CETECOM reference
Spectrum Analyser	HP	HP 8565E	300000916
SGH 12.0 to 18.0 GHz	narda	639	300000787
SGH 18.0 to 27.0 GHz	narda	638	300002442
SGH 27.0 to 40.0 GHz	narda	V637	300001751
SGH 40.0 to 50.0 GHz	Flann	2324-20	-/-
Amplifier 0.1 to 26.0 GHz	HP	HP 83017A	300002267
Amplifier 26.0 to 50.0 GHz	Farran Technology	-/-	-/-
DC Power supply	HP	HP 6038A	300001174
RF-cable	Huber & Suhner	div.	-/-

Measurement uncertainties

Test parameter	Measurement uncertainty
DC Power supply	±0.5 V
Temperature	±0.2 °C
Frequency	±0.01 ppm
eirp	±1.5 dB

2.4.3 Field strength and spurious radiation in the frequency range 50 GHz to 110 GHz



Frequency range [GHz]	Distance d [m]	Distance correction dc (3 m/Xm) [dB]	Antenna factor k [dB 1/m]
50.0 … 75.0	0.125	-27.60	40.7
75.0 … 110.0	0.125	-27.60	45.1

Calculation : Field strength = analyser reading + antenna factor - distance correction
e [dB(µV/m)] = u [dB(µV)] + k [dB(1/m)] - d [dB]

Remark: Cable loss is automatically taken into account if the S.A. is operating with external mixers

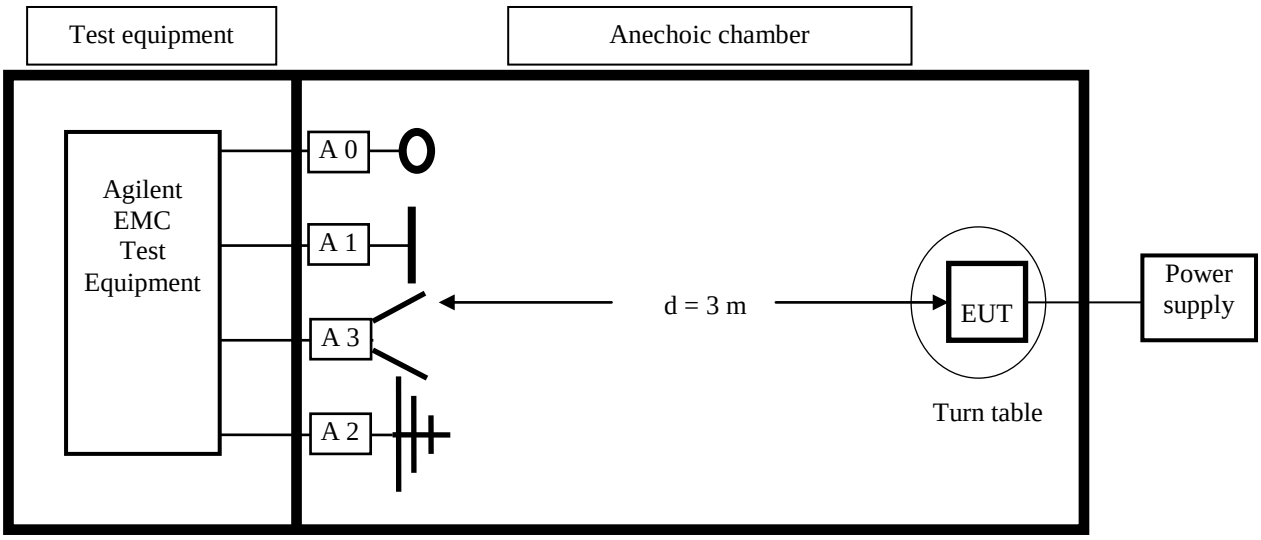
Test equipment	Manufacturer	Type	CETECOM reference
Spectrum Analyser	HP	HP 8565E	300000916
Power supply	HP	HP 6038A	300001174
SGH 50 ... 75 GHz	Thomson	COR 50_75	300000813
Mixer 50 ... 75 GHz	HP	11970V	300000781n
SGH 75 ... 110 GHz	Thomson	COR 75_110	300000798b
Mixer 75 ... 110 GHz	HP	11970W	300000781c

Measurement uncertainty

Test parameter	Measurement uncertainty
Power supply	±0.1 VDC
Temperature	±0.2 °C
Frequency	±0.01 ppm
Field strength <50 GHz	±1.0 dB
Field strength >50 GHz	±3.0 dB

2.4.2 Field strength and spurious radiation in the frequency range 9 kHz to 12 GHz

Set-up for radiated measurements



Test Equipment used for tests:

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

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

No.	Lab / Item	Equipment	Type	Manufact.	Serial No.	INV. No Cetecom	Kind of Calibration	Last Calibration	Next Calibration
1	n. a.	HF-Cable 1.5 m	Coax/Coax	Suhner		300001612	ne		
2	11b	Microwave System Amplifier, 0.5-26.5 GHz; 25 dB gain	83017A	HP Meßtechnik	00419	300002268	ev	10.03.2011	
3	A023	Std. Gain Horn Antenna 39.3-59.7 GHz	2424-20	Flann	75	300001979	ne		
4	A025	Std. Gain Horn Antenna 12.4 to 18.0 GHz	639	Narda		300000786	ne		
5	A027	Std. Gain Horn Antenna 18.0 to 26.5 GHz	638	Narda		300000486	ne		
6	A031	Std. Gain Horn Antenna 26.5 to 40.0 GHz	637	Narda		300000510	ne		
7	n. a.	Amplifier	FLNA-28B	Farran	FTL 1067B	300002843	ne		
8	n. a.	Spectrum Analyzer 20 Hz - 50 GHz	FSU50	R&S	200012	300003443	ve	01.07.2010	01.07.2012
9	n. a.	Temperature Test Chamber	T-40/50	CTS GmbH	064023	300003540	vIKI!	04.06.2009	04.06.2011
10	n. a.	Harmonic mixer 50 - 75 GHz for spectrum analyzers	FS-Z75	R&S	100099	300003949	k	19.01.2011	19.07.2012

11	n. a.	Spectrum Analyzer Mixer 2-Port	SAM-110-7	Radiometer Physics GmbH	002	300004155	k	01.02.2011	01.08.2012
12	n. a.	Isolating Transformer	RT5A	Grundig	8041	300001626	g		
13	n. a.	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2818A03450	300001040	Ve	08.01.2009	08.01.2012
14	n. a.	Coaxial Attenuator 30dB/500W	8325	Bird	1530	300001595	ev		
15	n. a.	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032	vlKl!	05.03.2009	05.09.2011
16	n. a.	Active Loop Antenna	6502	EMCO	2210	300001015	ne		
17	n. a.	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996		23.03.2009	
18	Spec.A. 2_2e	System rack for EMI measurement solution	85900	HP I.V.	*	300000222	ne		
19	9	Artificial Mains 9 kHz to 30 MHz	ESH3-Z5	R&S	828576/020	300001210	Ve	06.01.2010	06.01.2012
20	n. a.	Relais Matrix	3488A	HP Meßtechnik	2719A15013	300001156	ne		
21	n. a.	Relais Matrix	PSU	R&S	890167/024	300001168	ne		
22	n. a.	Isolating Transformer	RT5A	Grundig	9242	300001263	ne		
23	n. a.	Three-Way Power Splitter, 50 Ohm	11850C	HP Meßtechnik		300000997	ne		
24	n. a.	Switch / Control Unit	3488A	HP	2605e08770	300001443	ne		
25	n. a.	Amplifier	js42-00502650-28-5a	Parzich GMBH	928979	300003143	ne		
26	n. a.	Band Reject filter	WRCG1855/1910-1835/1925-40/8SS	Wainwright	7	300003350	ev		
27	n. a.	Band Reject filter	WRCG2400/2483-2375/2505-50/10SS	Wainwright	11	300003351	ev		
28	n. a.	TILE-Software Emission	Quantum Change, Modell TILE-ICS/FULL	EMCO	none	300003451	ne		
29	n. a.	Highpass Filter	WHKX2.9/18G-12SS	Wainwright	1	300003492	ev		
30	n. a.	Highpass Filter	WHK1.1/15G-10SS	Wainwright	3	300003255	ev		
31	n. a.	Highpass Filter	WHKX7.0/18G-8SS	Wainwright	18	300003789	ne		
32	n. a.	PSA Spectrum Analyzer 3 Hz - 26.5 GHz	E4440A	Agilent Technologies	MY48250080	300003812	k	08.09.2010	08.09.2012
33	n. a.	MXG Microwave Analog Signal Generator	N5183A	Agilent Technologies	MY47420220	300003813	k	13.09.2010	13.09.2012
34	n. a.	RF Filter Section 9kHz - 1GHz	N9039A	Agilent Technologies	MY48260003	300003825	vlKl!	08.09.2010	08.09.2012
35	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	371	300003854	vlKl!	17.12.2008	17.12.2011

Agenda: Kind of Calibration

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

Measurement uncertainties:

Performance	Measurement uncertainty
Input power (DC)	±0.5 V
Temperature	±0.2 °C
Frequency	±0.01 ppm
RF-power	±1.5 dB

2.5 Test results

2.5.1 Test results overview

This test was performed :

☐ in addition to the test report no.

Verification of EUT :

☒ EUT is in accordance with the technical description

☐ EUT is not in accordance with the technical description

☒ The equipment is compliant to FCC requirement

2.5.2 Remarks on methods of measurements

The EUT is positioned in a non-conductive test fixture and can be rotated and tilted in all angles and in all planes.

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 110 GHz in semi-anechoic and fully-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 conform with specifications ANSI C63.2-1987 clause 15 and ANSI C63.4-1992 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 set–ups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received.

The wanted and unwanted emissions are received by spectrum analyzers where the detector modes and resolution bandwidths (RBW) over various frequency ranges are set according to requirement ANSI C63-4-1992 clause 4.2.

1. Measurements of ERP/EIRP at fundamental and spurious frequencies

Spurious frequencies are produced by transmitter and receiver when the EUT is active. According to FCC requirements 15.209, spurious emissions have to be investigated as maximum field strength values in the frequency range from 9 kHz to 110 GHz. Where possible, the measurement distance shall be 3 m. If other distances are used, the distance correction is added to the test result.

In the low frequency range (9 kHz to 30 MHz), the receiving antenna is an active loop antenna which is positioned at 3 m distance in a shielded, anechoic chamber (see page 8). In case of required measuring distances > 3 m, a distance correction factor is used to calculate the received field strength.

Spurious measurements in the frequency range 1000 MHz to 12 GHz are carried out in a shielded anechoic test chamber. The measurement distance is 3.0 m.

In the frequency range 12 GHz to 110 GHz, spurious measurements are performed in a shielded fully anechoic chamber with rectangular SGHs. The measurement distances are indicated underneath each plot, and a calculation for field strength is added, where all relevant factors like cable losses, antenna factors, etc are taken into account.

2.5.3 Test results in details

Equipment under test (EUT) : see page 5
Ambient temperature : 23 °C
Relative humidity : 55 %

TRANSMITTER PARAMETERS SECTION 15.245

Fundamental frequency

Microwave module:

Test condition t = 23.0 °C	TRANSMITTER FIELD STRENGTH			
EUT operating: TX on and RX on DC power supply	Frequency f [GHz]	Field strength e [dBµV/m] @ 3 m	Field strength E [V/m] @ 3 m	See plot no.:
U DC = 12 V	24.085	110.8	0.35	1
U DC = 12 V	24.125	110.4	0.33	2
U DC = 12 V	24.165	110.3	0.33	3

REFERENCE OF TEST EQUIPMENT USED : see test set-up on page 9 - 11

LIMITS: SECTION 15.245

Frequency range (MHz)	Measurement distance [m]	Field strength e [dBµV/m] @ 3 m	Field strength E [mV/m]
24,075 to 24,175	3	128.0	2 500
Harmonics	3	88.0	25
Spurious emissions	3	54.0 or -50dBc	0.5

Verdict :	Field strength limits are kept

Equipment under test (EUT) : see page 5
Ambient temperature : 23 °C
Relative humidity : 55 %

TRANSMITTER PARAMETERS SECTION 15.245
Spurious Frequencies SECTION 15.205 / 15.209

Microwave module :

Test condition t = 23.0 °C	TRANSMITTER SPURIOUS FIELD STRENGTH			
Frequency range [GHz]	Spurious frequencies [GHz]	S A u [dBµV/m]	E [µV/m]	See plot no.:
0.009 to 30.0 MHz (h + v) horizontal and vertical plane	noise	n.a.	< Limit	4 - 6
0.030 to 1.0 (h + v)	noise	n.a.	< Limit	7 - 9
1.0 to 12.0 (h + v)	noise	n.a.	< Limit	10 - 15
12.0 to 18.0 (h + v)	noise	< 33.1	< Limit	16 - 18
18.0 to 26.0 (h + v)	24.423 + carrier	44.1	< Limit	19 - 21
26.0 to 40.0 (h + v)	noise	< 49.9	< Limit	22 - 24
40.0 to 50.0 (h + v)	noise	< 47.9	< Limit	25 - 27
50.0 to 75.0 (h + v)	52.444	< 48.4	< Limit	28 - 30
75.0 to 110.0 (h + v)	95.473	< 51.1	< Limit	31 - 33

LIMITS: SECTION 15.205 / 15.209 / 15.245

Frequency range (MHz)	Measurement distance [m]	Field strength e [dBµV/m] @ 3 m	Field strength E [µV/m]
0.009 – 0.490	300	88.5 ... 53.8	2400/F(kHz)
0.490 – 1.705	30	53.8 ... 43.0	24000/F(kHz)
1.705 – 30.0	30	49.5	30
30.0 – 88.0	3	40.0	100
88.0 – 216.0	3	43.5	150
216.0 – 960.0	3	46.0	200
> 960.0	3	54.0 (AV) (or -50 dBc)	500
> 960.0	3	74.0 (PK)	5000
Harmonics	3	88.0	25000

Verdict : Field strength limits are kept

Equipment under test (EUT) : see page 5
Ambient temperature : 23 °C
Relative humidity : 55 %

TRANSMITTER PARAMETERS SECTION RSS-GEN 4.6.1

Emission Bandwidth

Microwave module:

Test condition t = 23.0 °C	TRANSMITTER FIELD STRENGTH		
EUT operating: TX on and RX on DC power supply	Frequency f [GHz]	Emission Bandwidth [MHz]	See plot no.:
U DC = 12 V	24.085	10.385	34
U DC = 12 V	24.125	10.385	35
U DC = 12 V	24.165	10.385	36

REFERENCE OF TEST EQUIPMENT USED : see test set-up on page 9 - 11

LIMITS: SECTION RSS-GEN 4.6.1

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured.
The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual.
The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded.
The span between the two recorded frequencies is the occupied bandwidth.

Verdict :	Bandwidth limits are kept

Equipment under test (EUT) : see page 5
Ambient temperature : 23 °C
Relative humidity : 55 %

TRANSMITTER PARAMETERS SECTION 15.207

Emission Bandwidth

Microwave module :

Test condition t = 23.0 °C	TRANSMITTER FIELD STRENGTH		
EUT operating: TX on and RX on, DC power supply	Frequency f [GHz]	Line	See plot no.:
U DC = 12 V	24.125	Neutral	37
U DC = 12 V	24.125	Phase	38

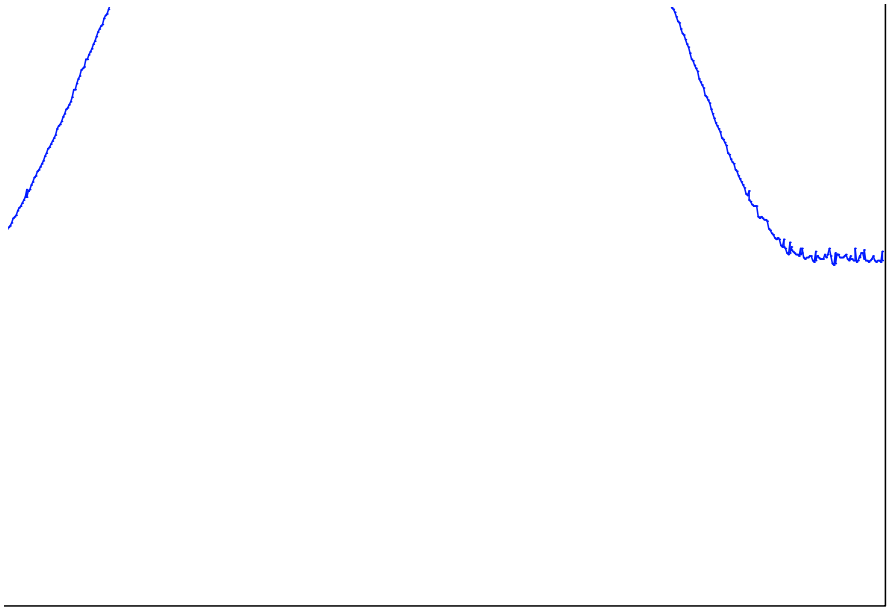
REFERENCE OF TEST EQUIPMENT USED : see test set-up on page 9 - 11

Limits: § 15.207

Frequency (MHz)	**Conducted Emission (dBµV) Quasi-Peak**	**Conducted Emission (dBµV) Average**
0.15 -0.5	66 to 56	56 to 46
0.5 - 5	56	46
5 - 30	60	50

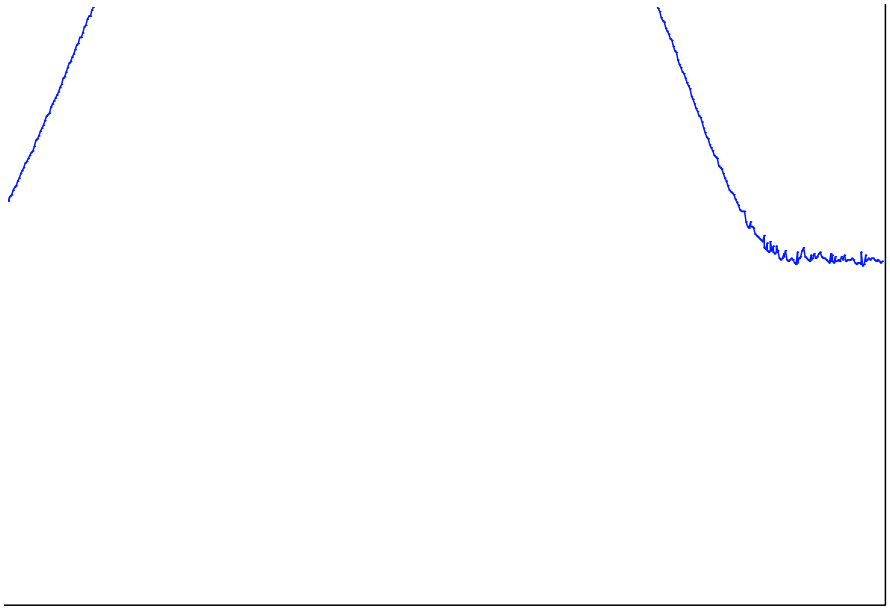
3 Plots

Plot 1: Field strength, low channel



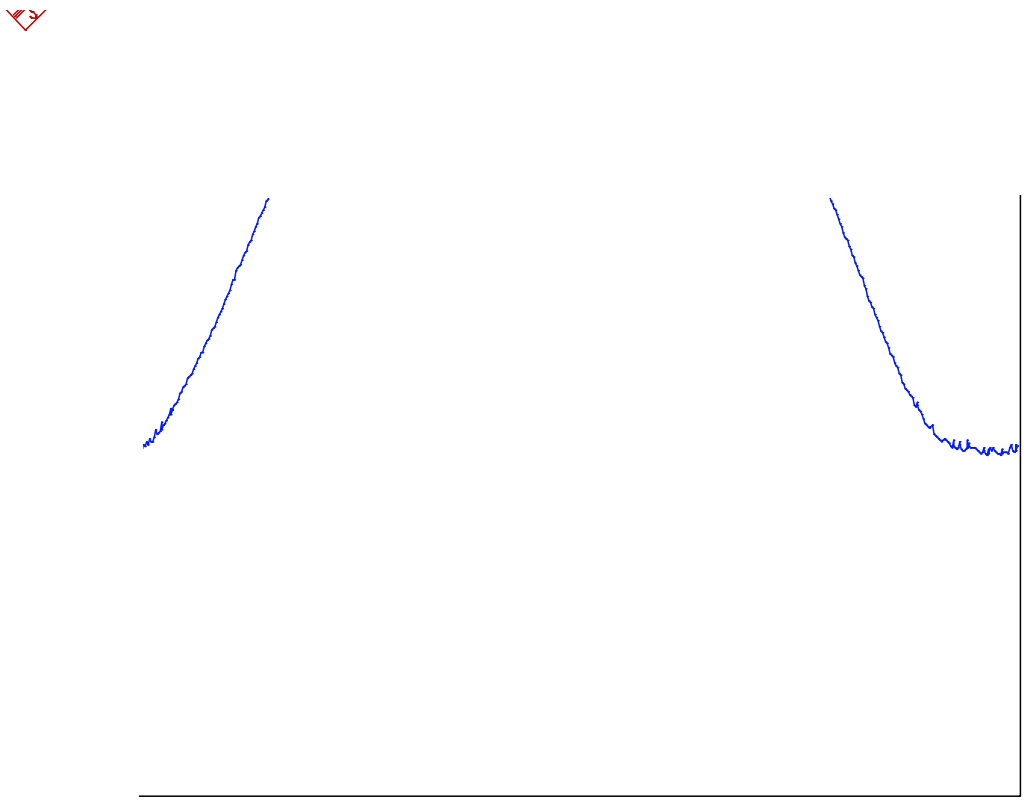
Date: 23.MAR.2011 09:00:14

Plot 2: Field strength, mid channel



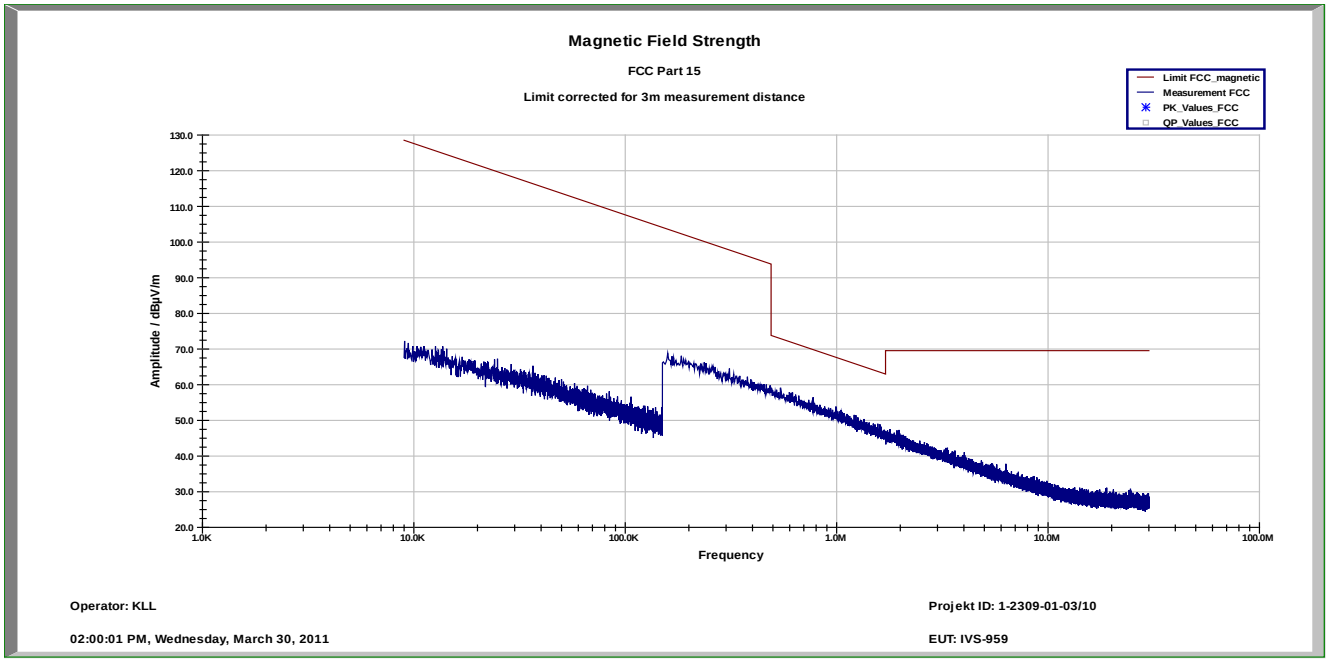
Date: 23.MAR.2011 09:01:59

Plot 3: Field strength, high channel

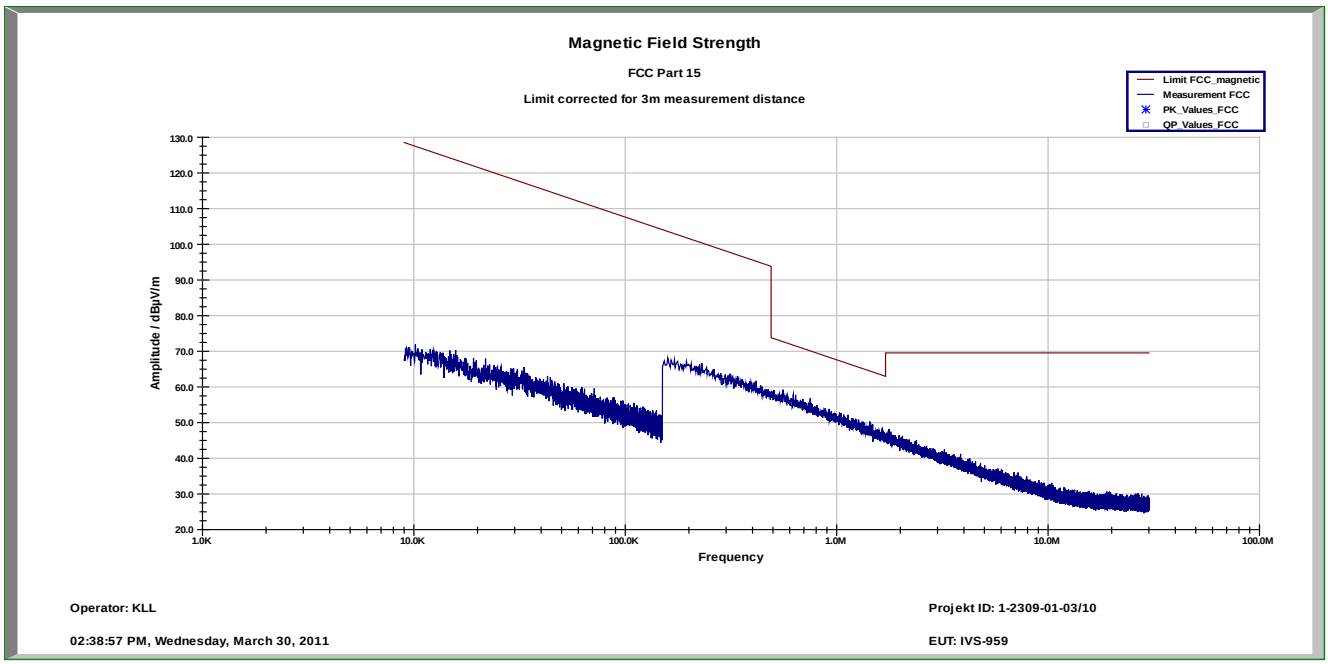


Date: 23.MAR.2011 09:07:56

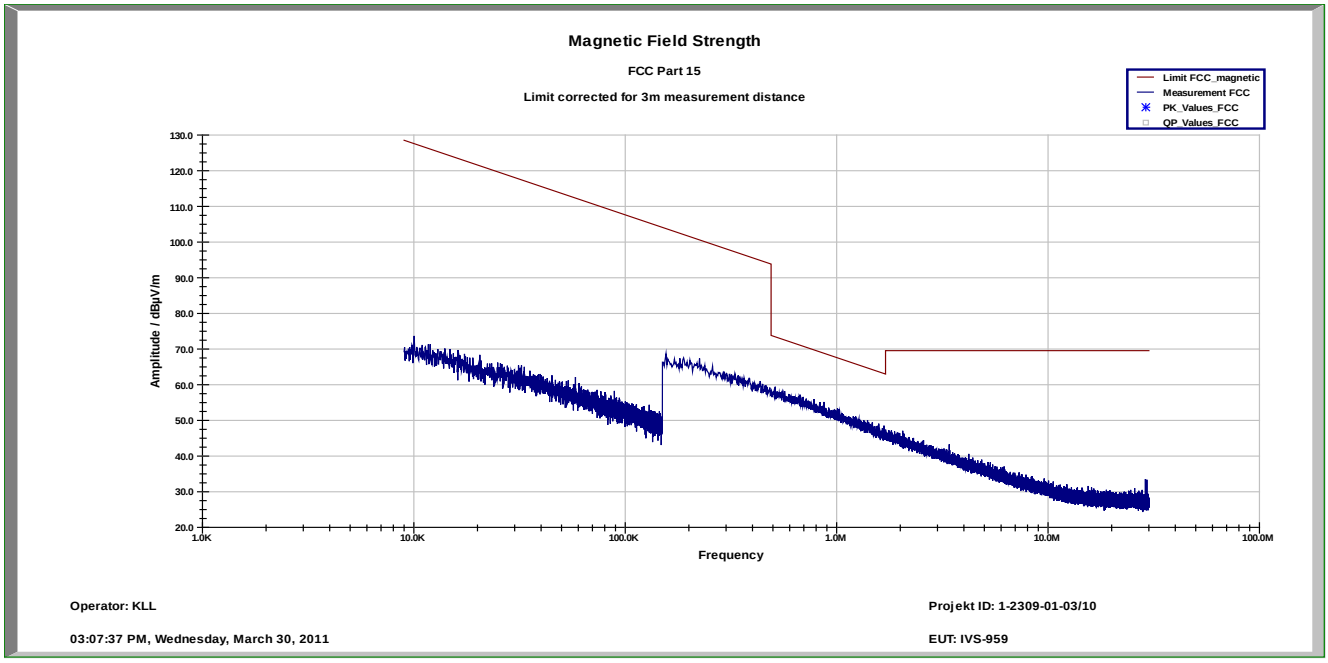
Plot 4: Transmitter Spurious Field Strength 9 kHz to 30 MHz, low channel



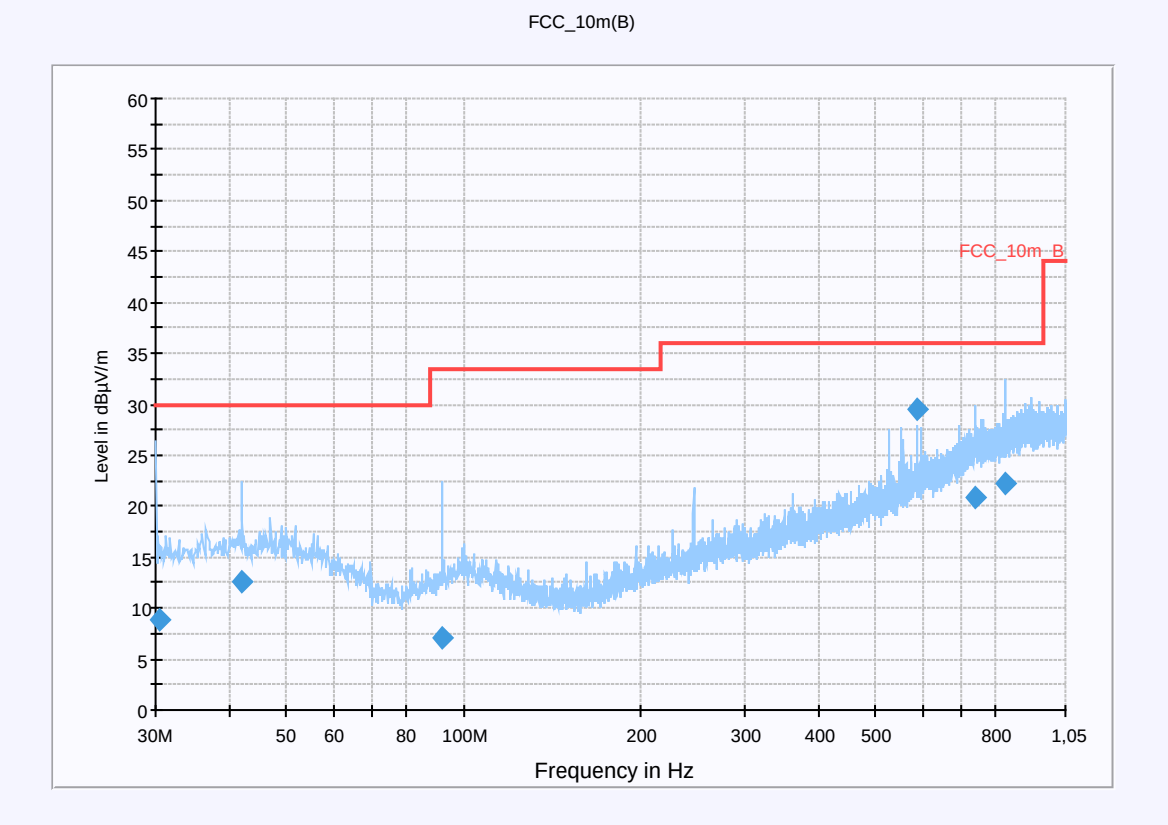
Plot 5: Transmitter Spurious Field Strength 9 kHz to 30 MHz, mid channel



Plot 6: Transmitter Spurious Field Strength 9 kHz to 30 MHz, high channel



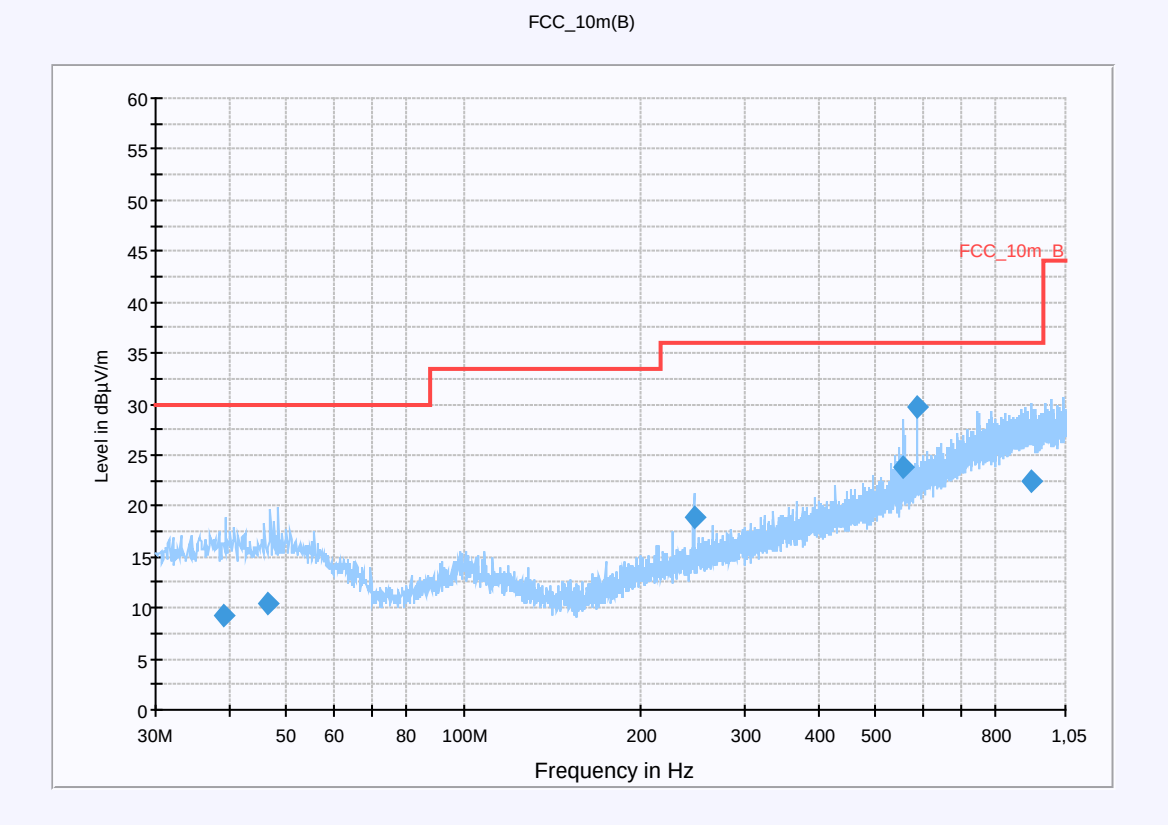
Plot 7: Transmitter Spurious Field Strength 30 MHz to 1 GHz, low channel



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
30.521400	8.9	15000.000	120.000	319.0	V	94.0	12.6	21.1	30.0	
41.974800	12.6	15000.000	120.000	129.0	V	283.0	13.4	17.4	30.0	
92.052600	7.1	15000.000	120.000	392.0	V	40.0	10.8	26.4	33.5	
589.809300	29.5	15000.000	120.000	156.0	H	355.0	20.5	6.5	36.0	
739.220700	20.9	15000.000	120.000	200.0	H	224.0	23.4	15.1	36.0	
829.336650	22.1	15000.000	120.000	100.0	H	317.0	24.2	13.9	36.0	

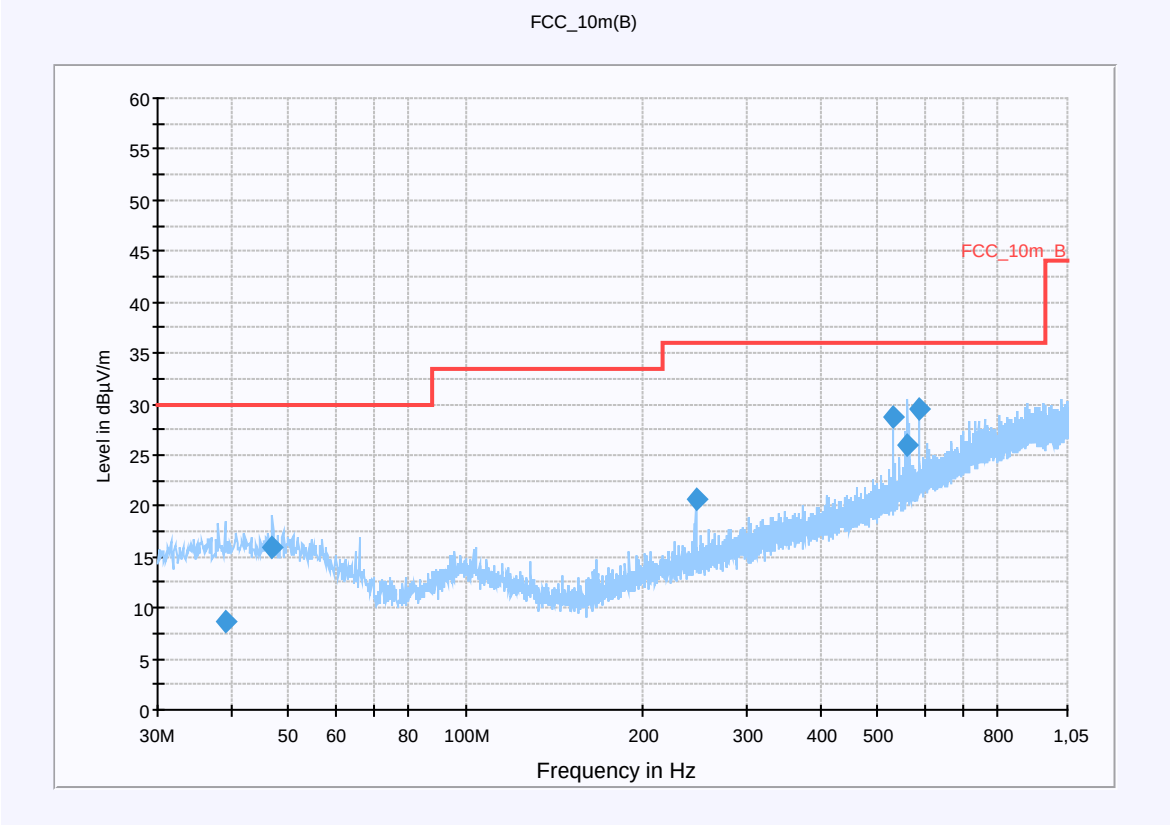
Plot 8: Transmitter Spurious Field Strength 30 MHz to 1 GHz, mid channel



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
39.111000	9.2	15000.000	120.000	141.0	V	271.0	13.4	20.8	30.0	
46.542900	10.5	15000.000	120.000	166.0	V	146.0	13.3	19.5	30.0	
245.778150	18.9	15000.000	120.000	400.0	H	323.0	13.2	17.1	36.0	
555.118800	23.9	15000.000	120.000	191.0	H	355.0	19.5	12.1	36.0	
589.791750	29.7	15000.000	120.000	152.0	H	-5.0	20.5	6.3	36.0	
919.480350	22.4	15000.000	120.000	380.0	H	336.0	25.3	13.6	36.0	

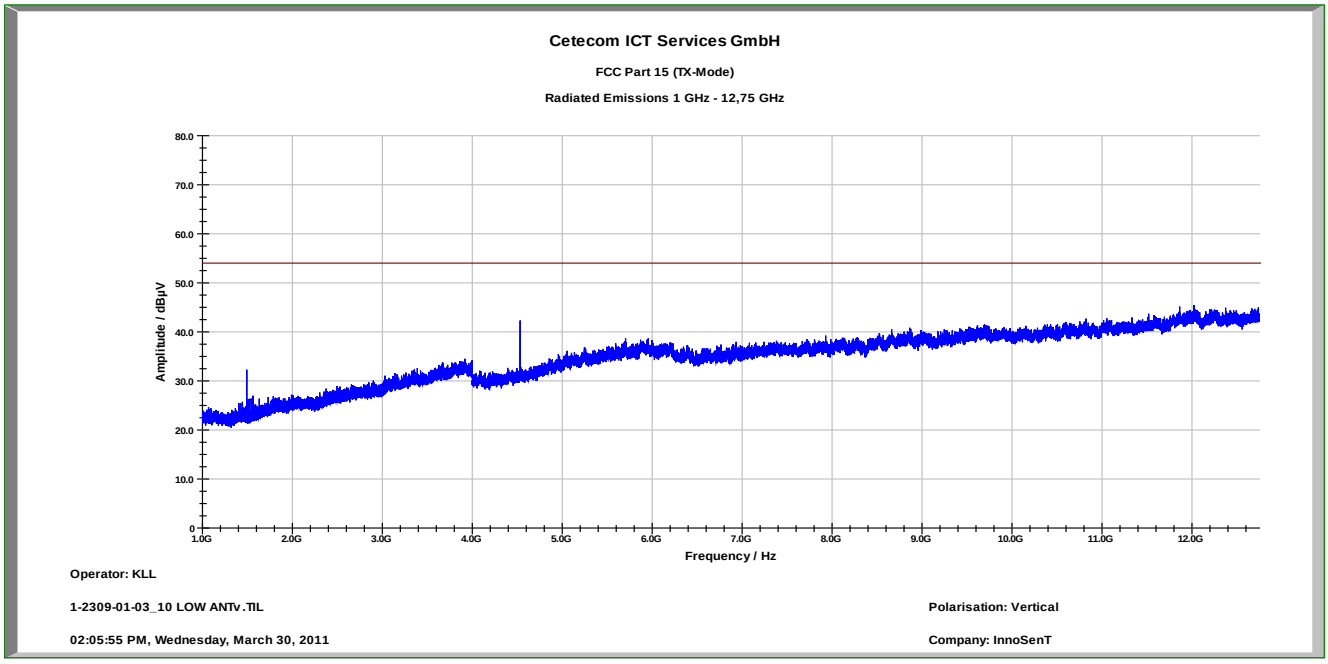
Plot 9: Transmitter Spurious Field Strength 30 MHz to 1 GHz, high channel



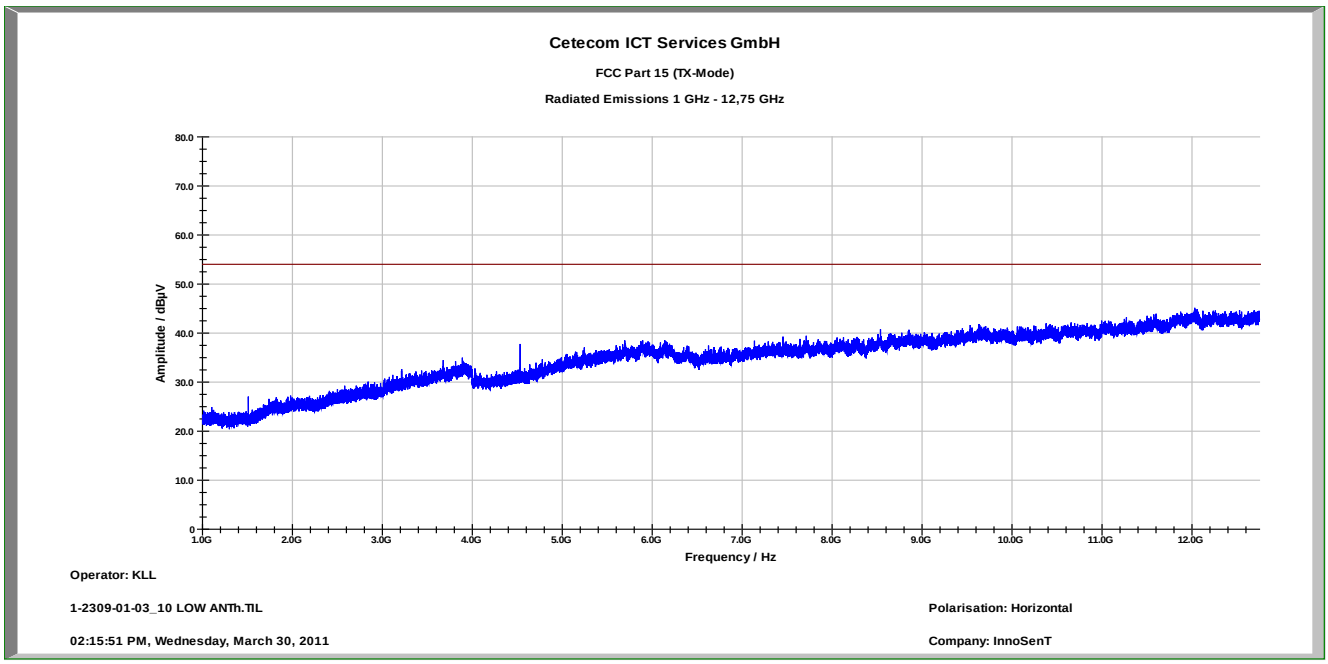
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
39.036450	8.7	15000.000	120.000	107.0	H	240.0	13.4	21.3	30.0	
46.992450	16.0	15000.000	120.000	119.0	V	138.0	13.3	14.0	30.0	
245.745900	20.6	15000.000	120.000	364.0	H	296.0	13.2	15.4	36.0	
531.516750	28.8	15000.000	120.000	200.0	H	217.0	19.1	7.2	36.0	
563.247150	26.0	15000.000	120.000	194.0	H	355.0	19.7	10.0	36.0	
589.792200	29.4	15000.000	120.000	163.0	H	-6.0	20.5	6.6	36.0	

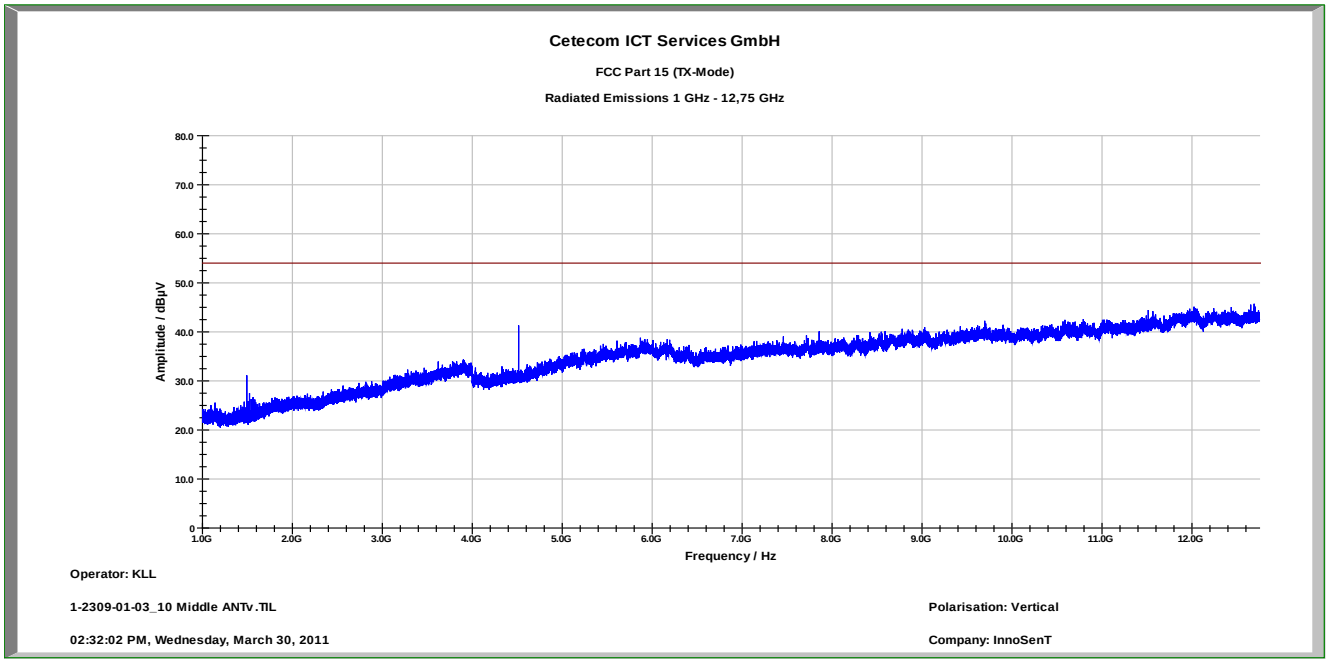
Plot 10: Transmitter Spurious Field Strength 1 GHz to 12 GHz, low channel, vertical polarisation



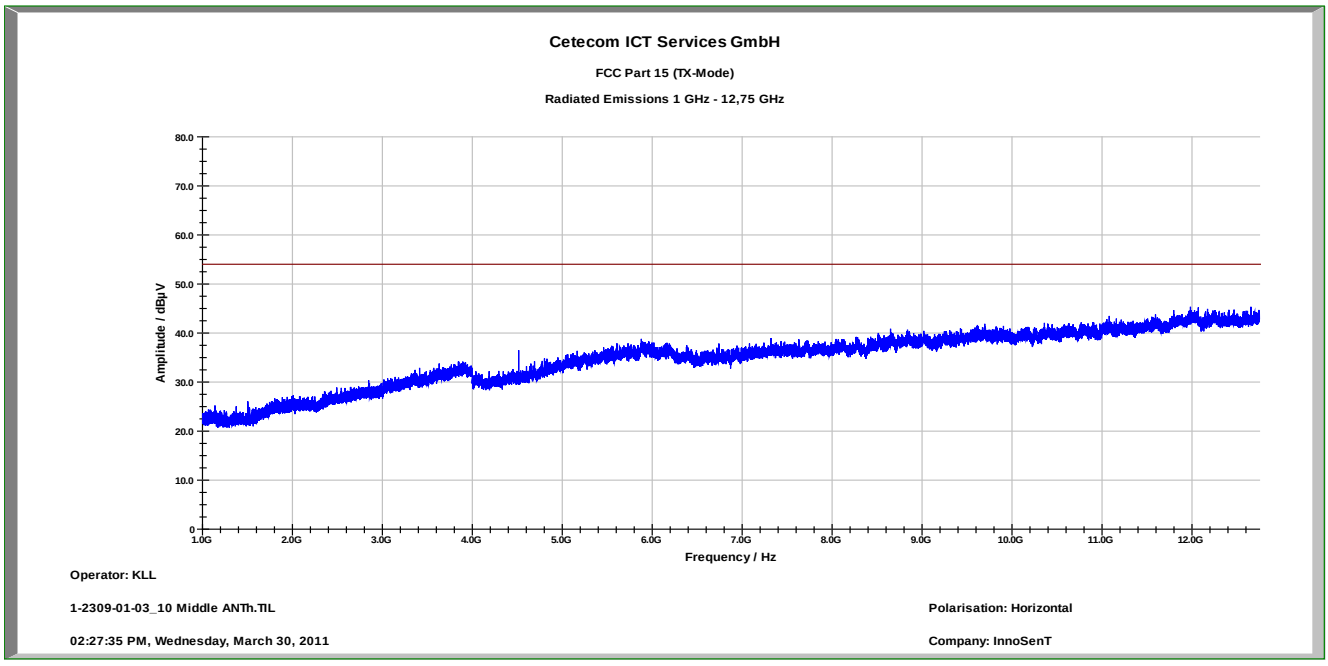
Plot 11: Transmitter Spurious Field Strength 1 GHz to 12 GHz, low channel, horizontal polarisation



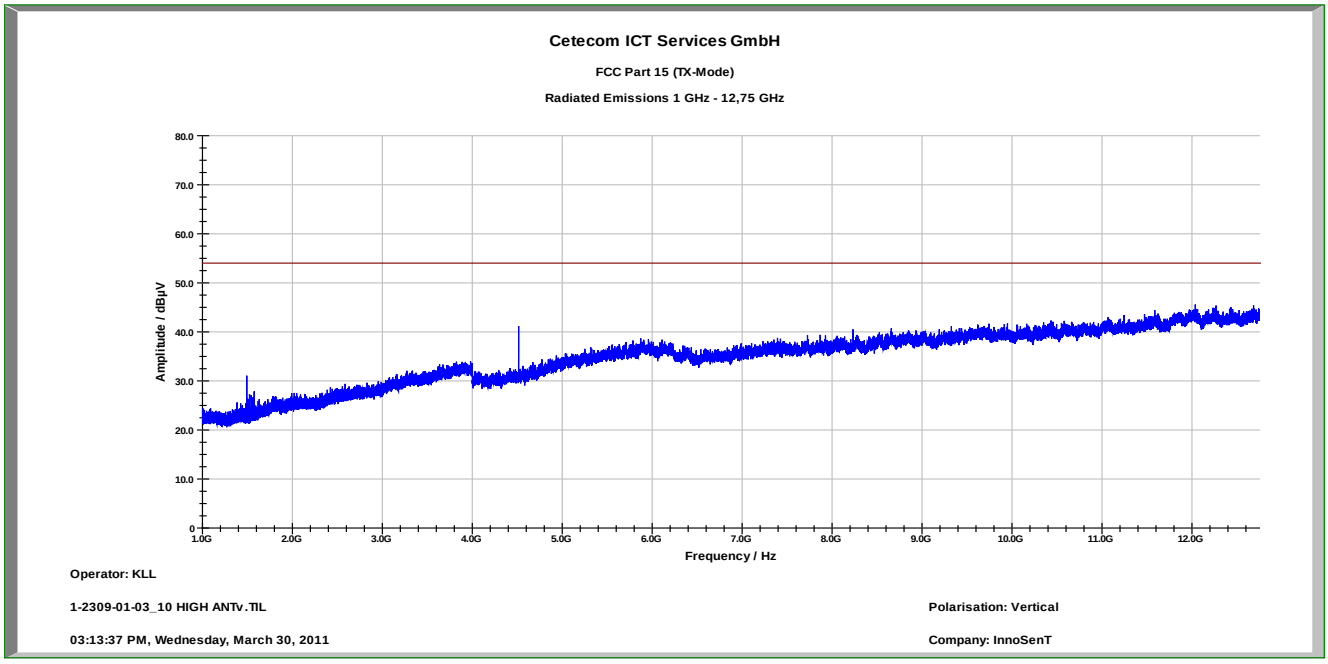
Plot 12: Transmitter Spurious Field Strength 1 GHz to 12 GHz, mid channel, vertical polarisation



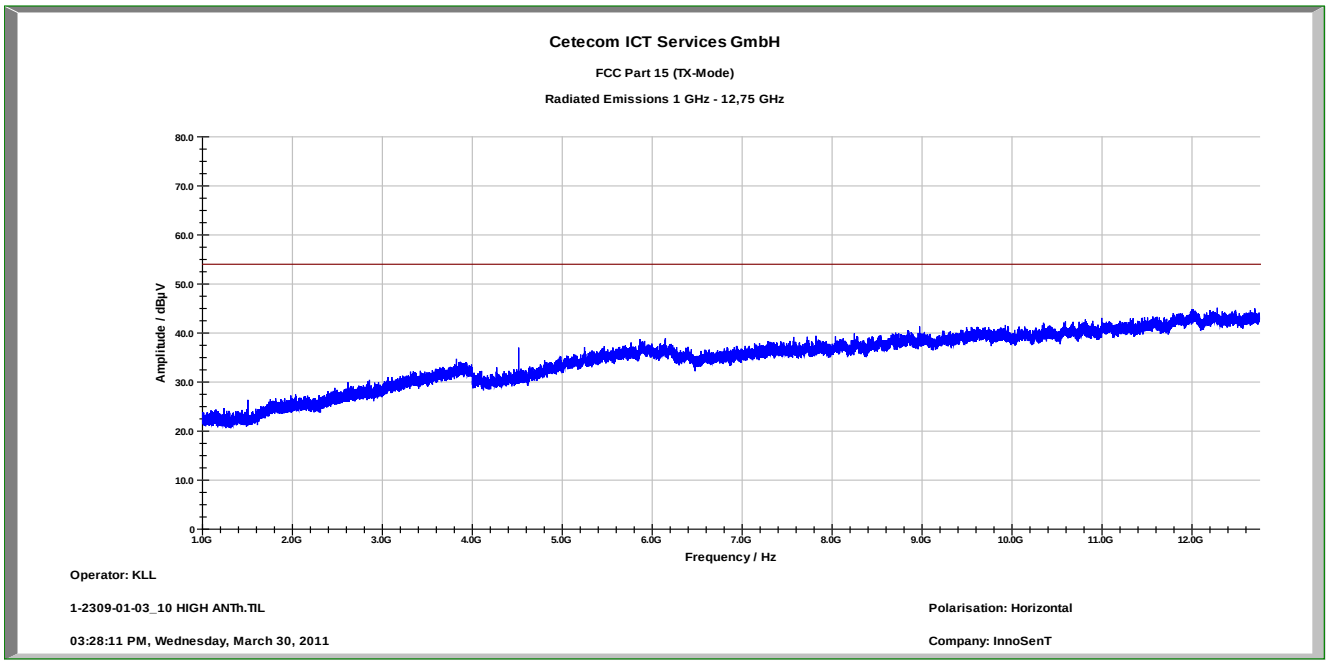
Plot 13: Transmitter Spurious Field Strength 1 GHz to 12 GHz, mid channel, horizontal polarisation



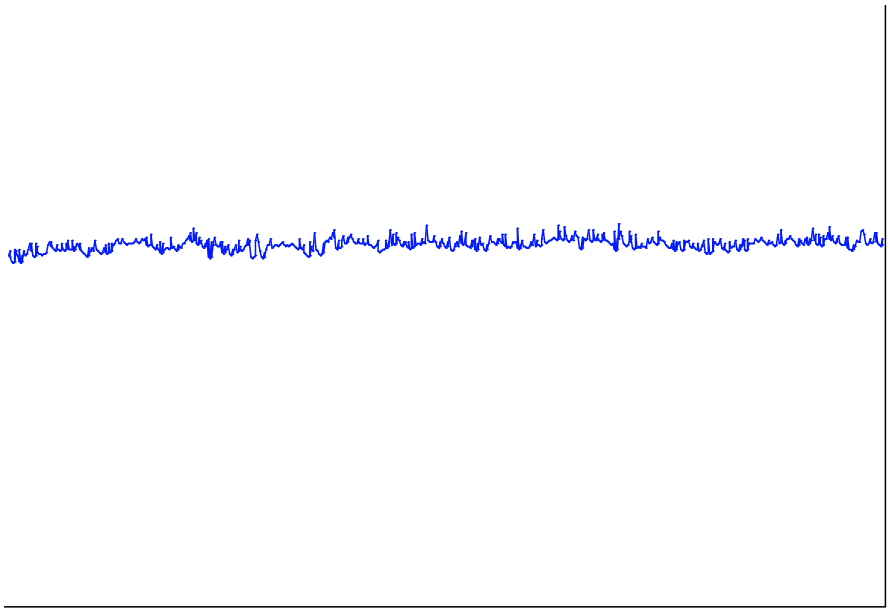
Plot 14: Transmitter Spurious Field Strength 1 GHz to 12 GHz, high channel, vertical polarisation



Plot 15: Transmitter Spurious Field Strength 1 GHz to 12 GHz, high channel, horizontal polarisation

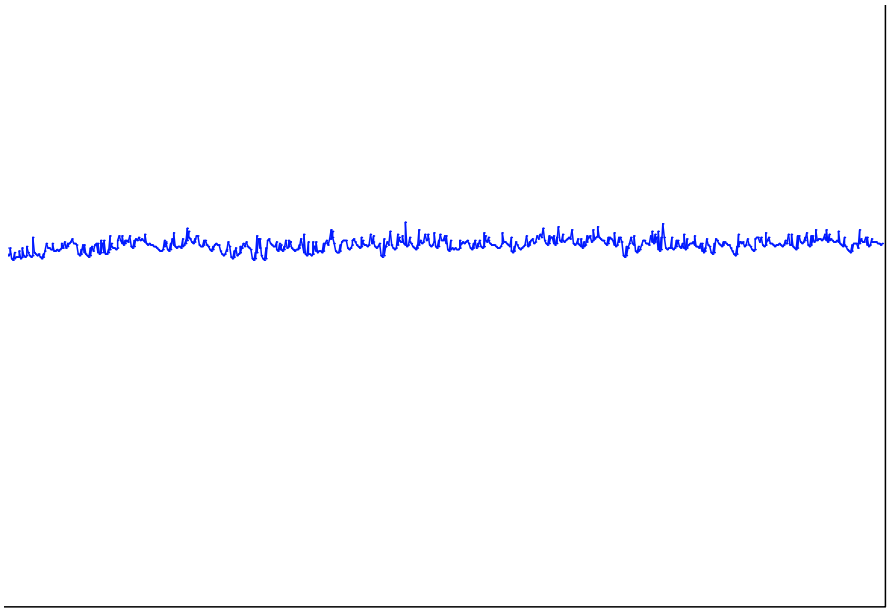


Plot 16: Transmitter Spurious Field Strength 12 GHz to 18 GHz, low channel



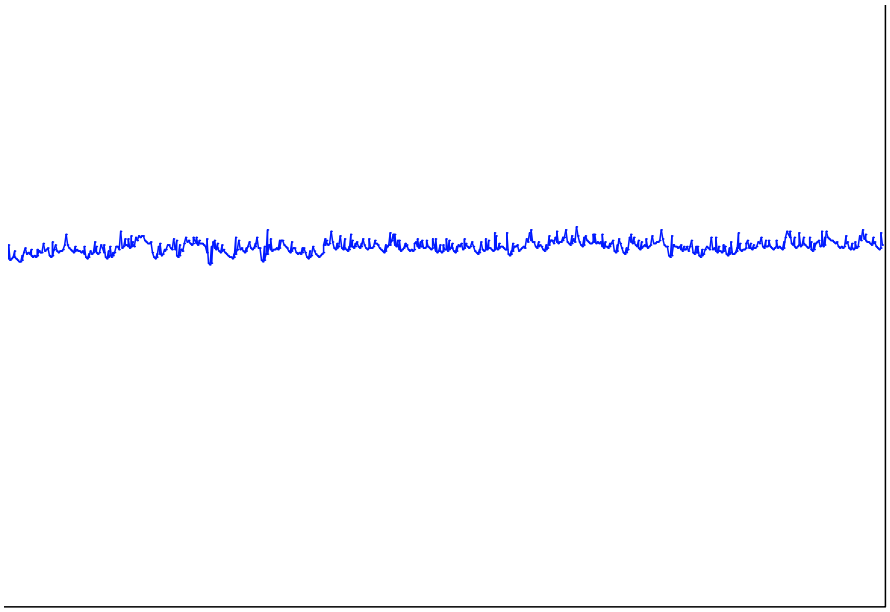
Date: 23.MAR.2011 09:55:04

Plot 17: Transmitter Spurious Field Strength 12 GHz to 18 GHz, mid channel



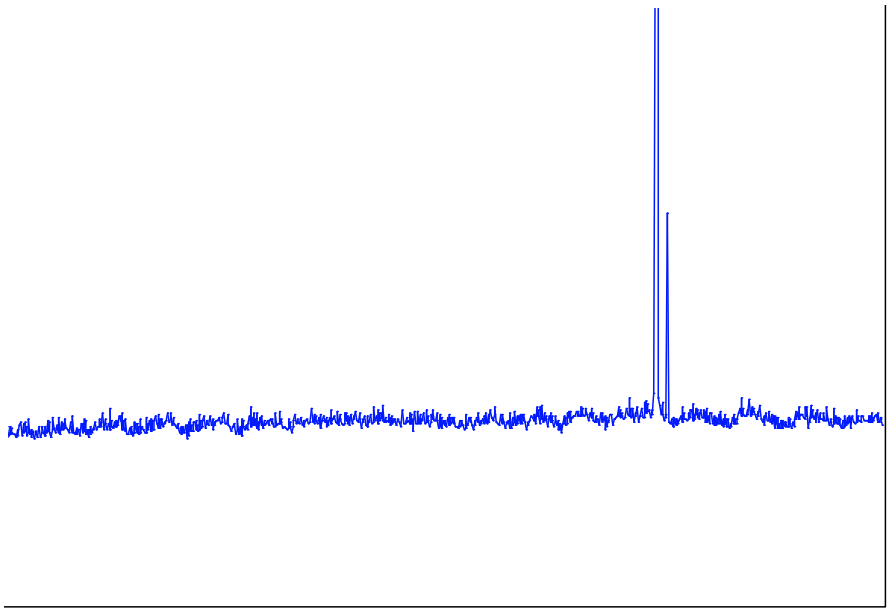
Date: 23.MAR.2011 10:09:29

Plot 18: Transmitter Spurious Field Strength 12 GHz to 18 GHz, high channel



Date: 23.MAR.2011 10:11:00

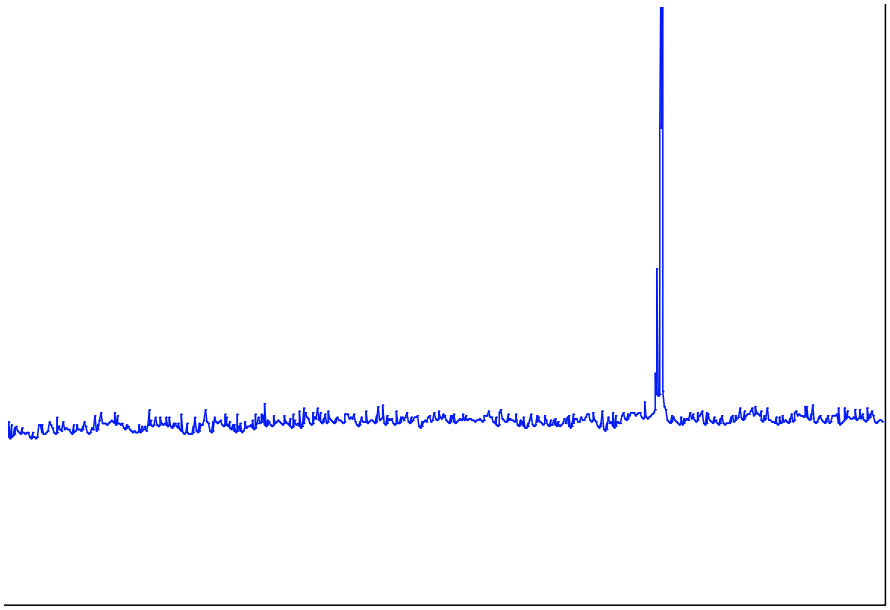
Plot 19: Transmitter Spurious Field Strength 18 GHz to 26 GHz, low channel



Date: 30.MAR.2011 12:48:53

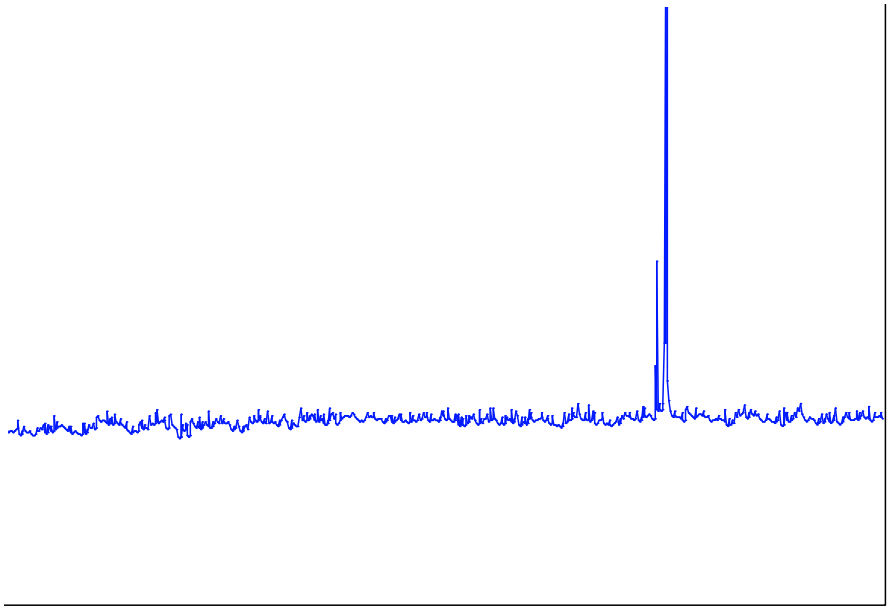
The peak at 24.090 GHz shows the carrier, the peak at 24.179 shows a internal clock, inside of the band.

Plot 20: Transmitter Spurious Field Strength 18 GHz to 26 GHz, mid channel



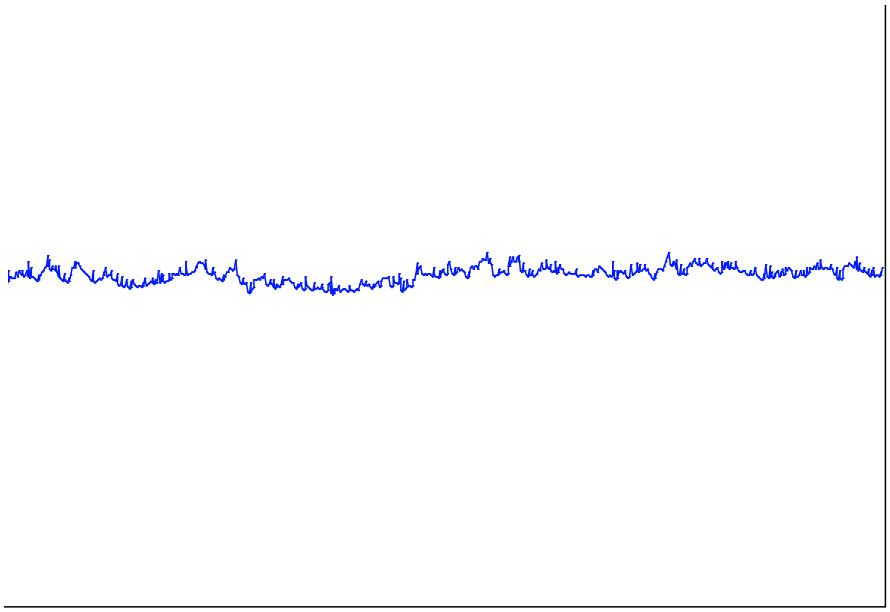
Date: 23.MAR.2011 09:40:37

Plot 21: Transmitter Spurious Field Strength 18 GHz to 26 GHz, high channel



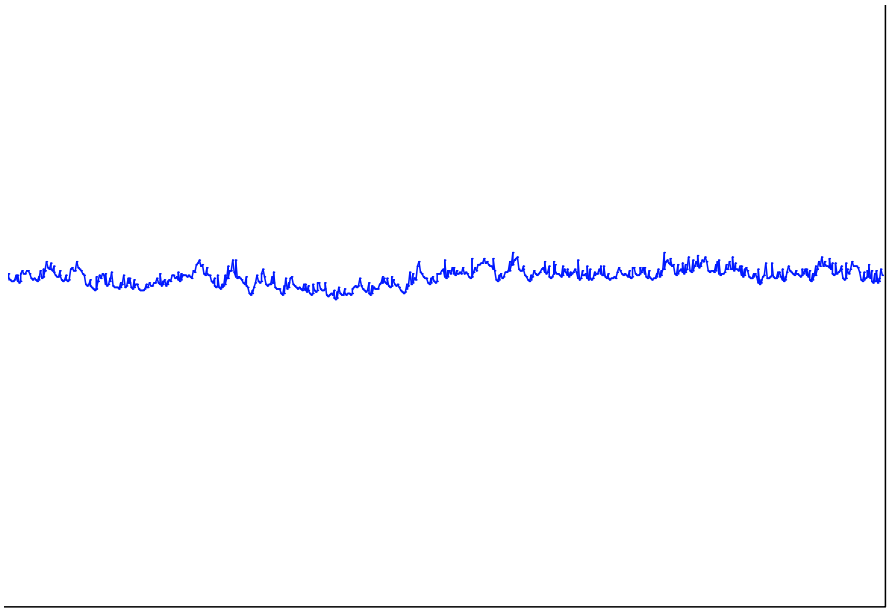
Date: 23.MAR.2011 09:30:18

Plot 22: Transmitter Spurious Field Strength 26 GHz to 40 GHz, low channel



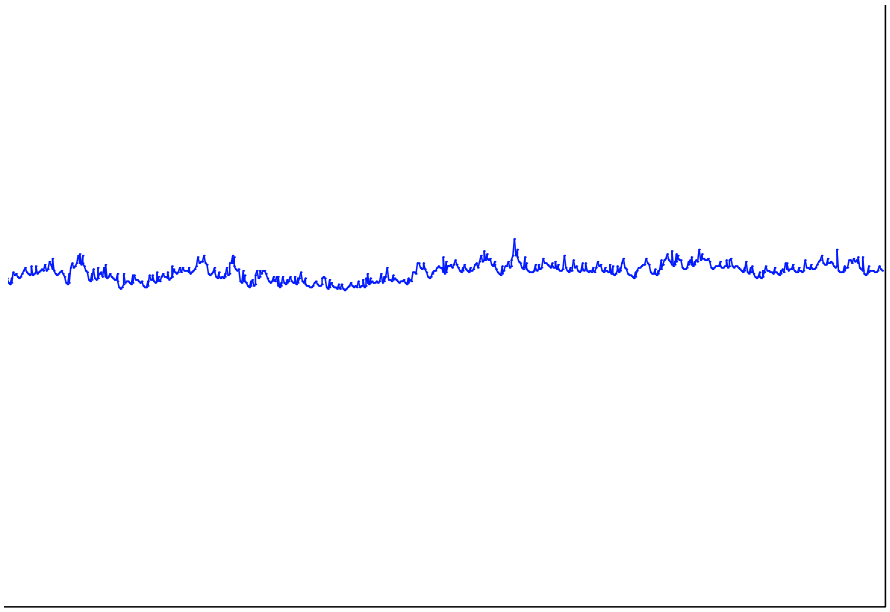
Date: 23.MAR.2011 10:18:42

Plot 23: Transmitter Spurious Field Strength 26 GHz to 40 GHz, mid channel



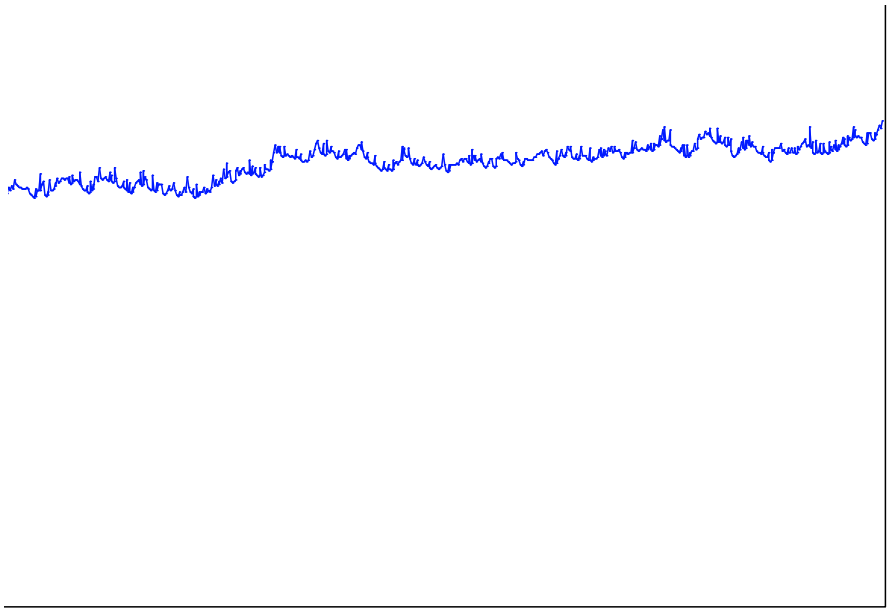
Date: 23.MAR.2011 10:17:51

Plot 24: Transmitter Spurious Field Strength 26 GHz to 40 GHz, high channel



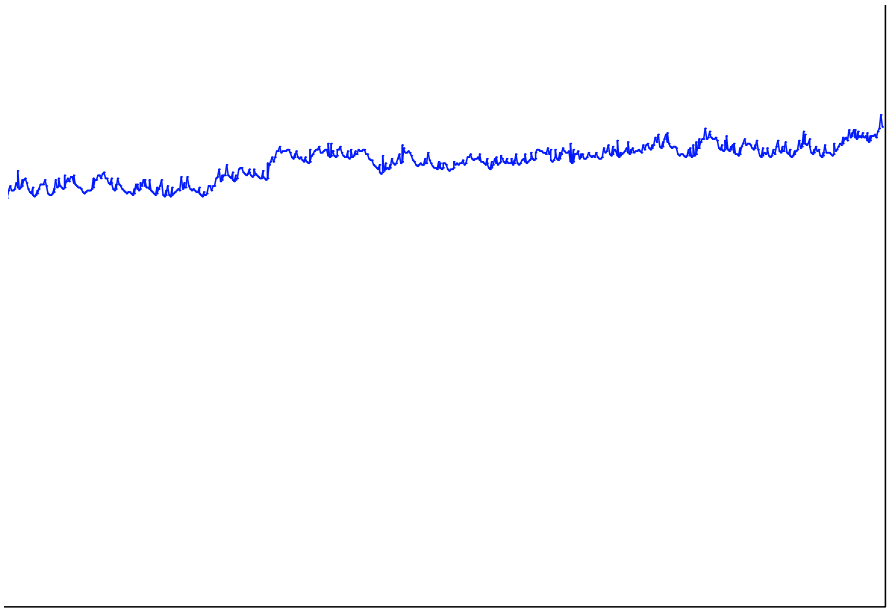
Date: 23.MAR.2011 10:17:04

Plot 25: Transmitter Spurious Field Strength 40 GHz to 50 GHz, low channel



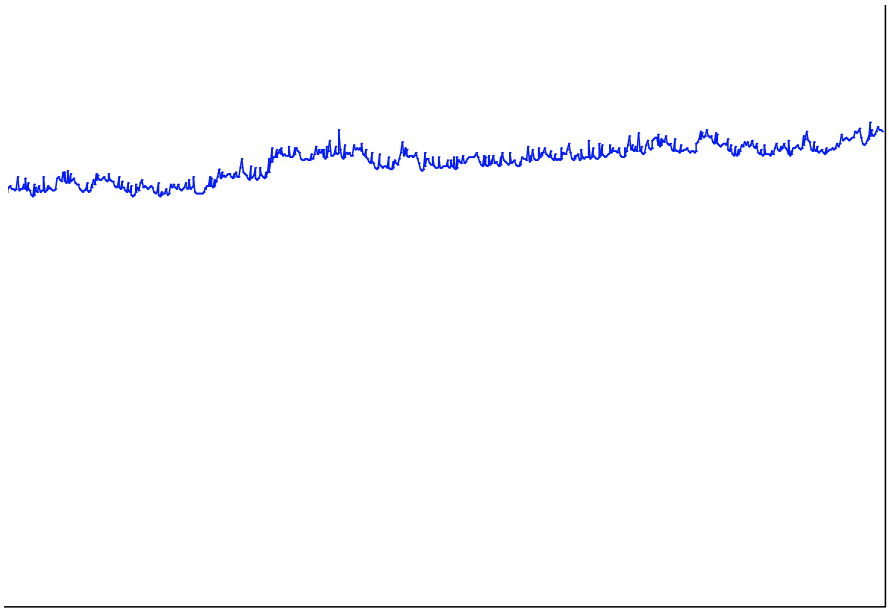
Date: 23.MAR.2011 10:29:04

Plot 26: Transmitter Spurious Field Strength 40 GHz to 50 GHz, mid channel



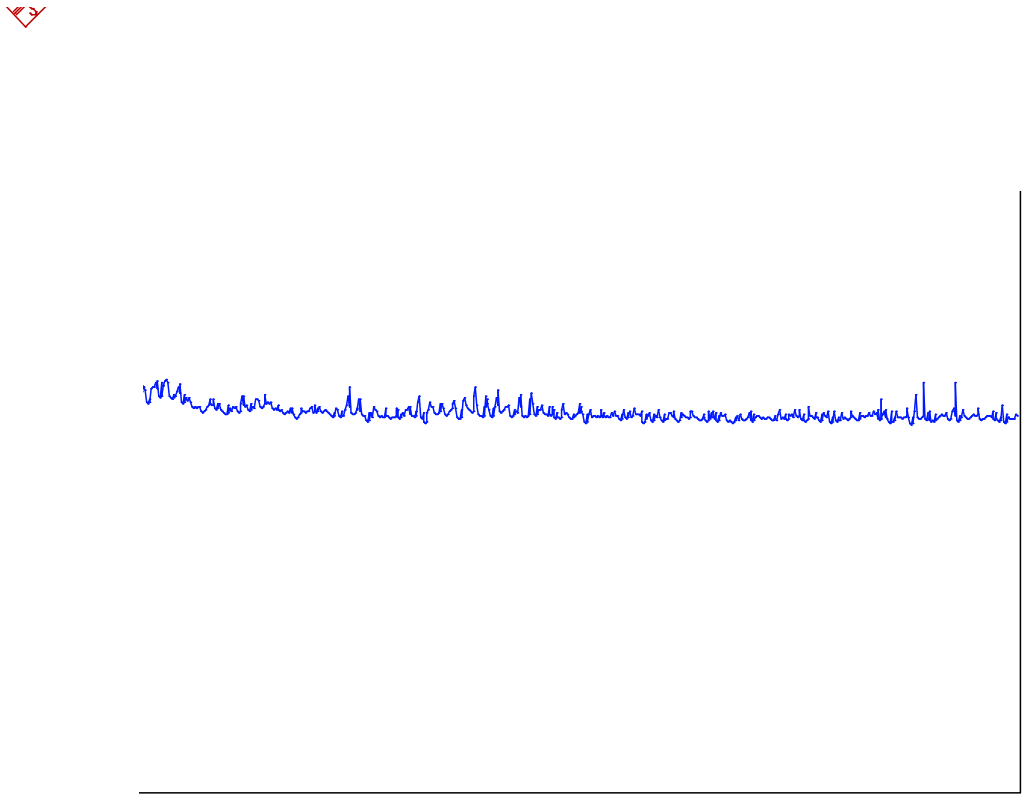
Date: 23.MAR.2011 10:27:20

Plot 27: Transmitter Spurious Field Strength 40 GHz to 50 GHz, high channel



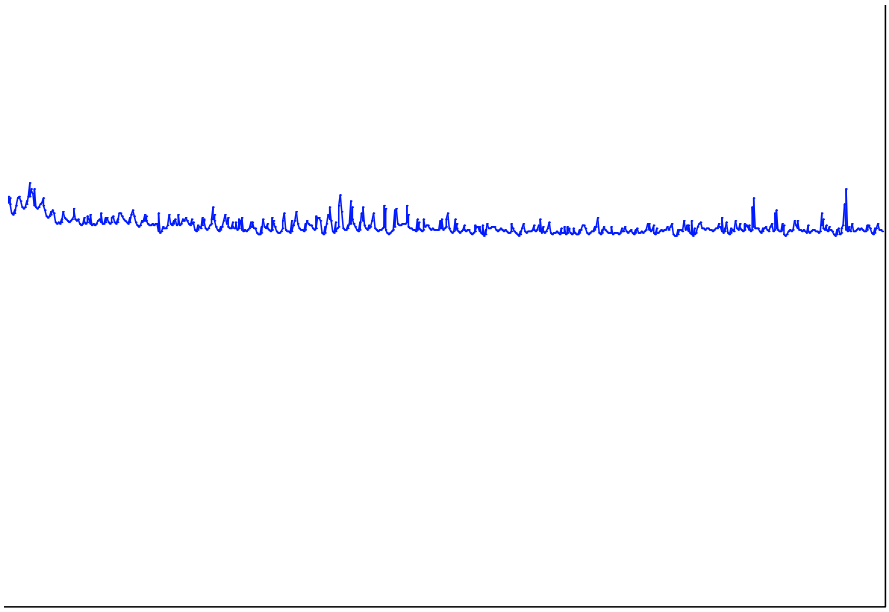
Date: 23.MAR.2011 10:28:04

Plot 28: Transmitter Spurious Field Strength 50 GHz to 75 GHz, low channel



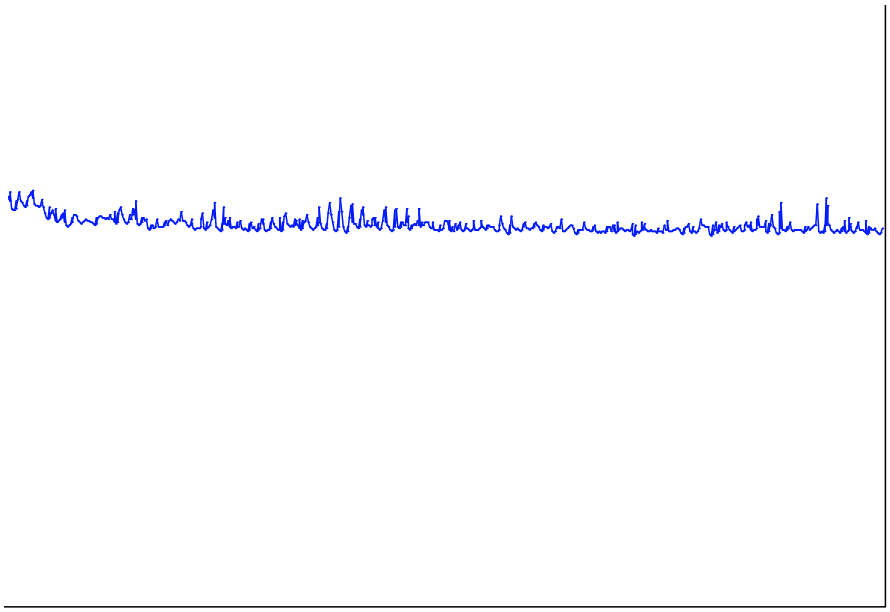
Date: 23.MAR.2011 11:28:51

Plot 29: Transmitter Spurious Field Strength 50 GHz to 75 GHz, mid channel



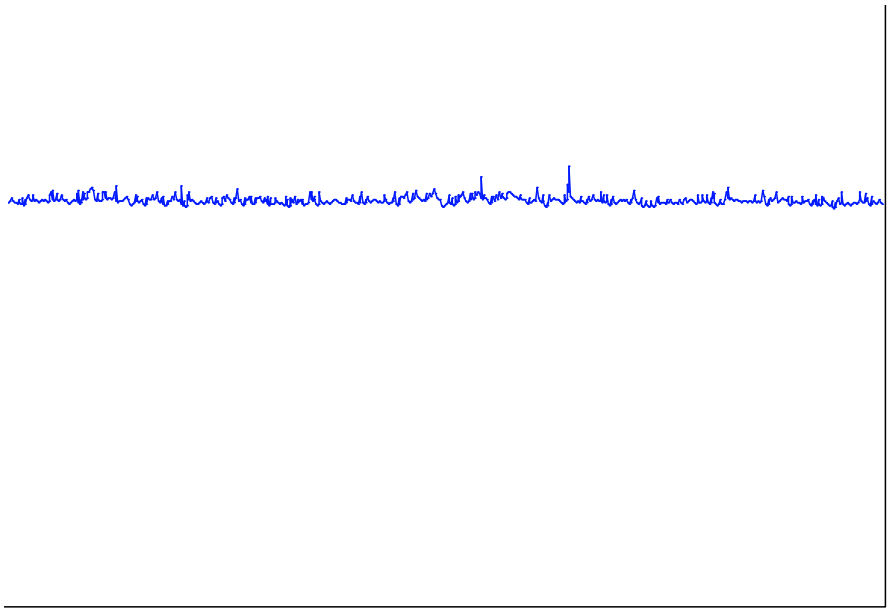
Date: 23.MAR.2011 11:33:18

Plot 30: Transmitter Spurious Field Strength 50 GHz to 75 GHz, high channel



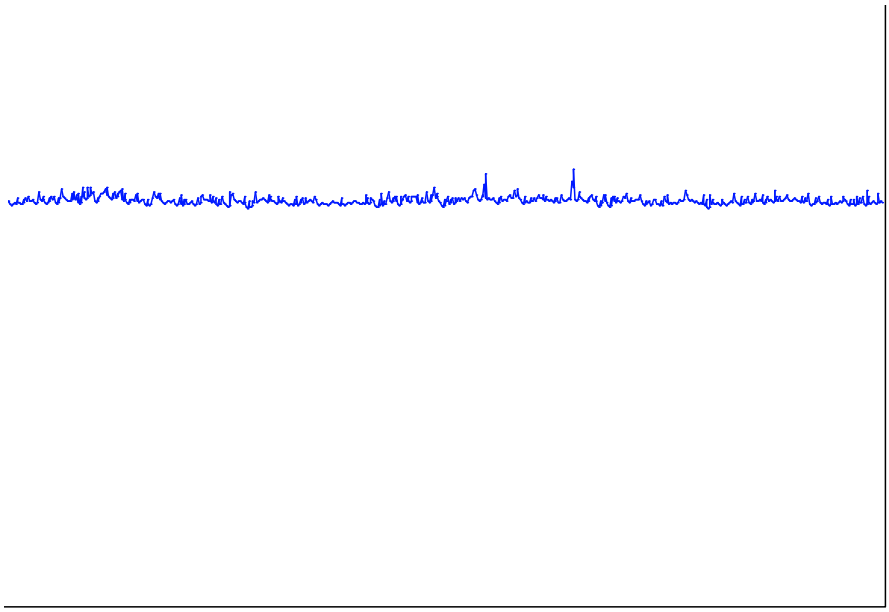
Date: 23.MAR.2011 11:35:34

Plot 31: Transmitter Spurious Field Strength 75 GHz to 110 GHz, low channel



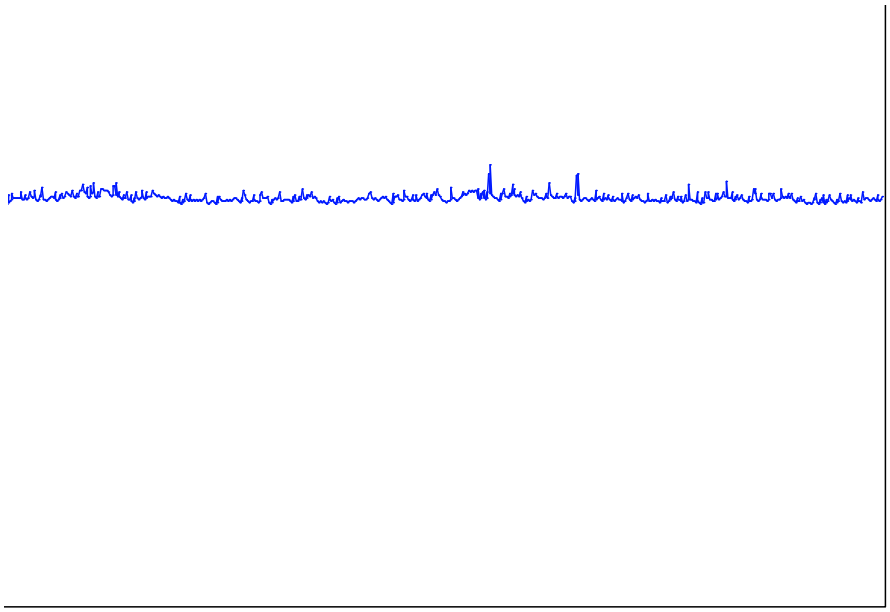
Date: 23.MAR.2011 12:51:45

Plot 32: Transmitter Spurious Field Strength 75 GHz to 110 GHz, mid channel



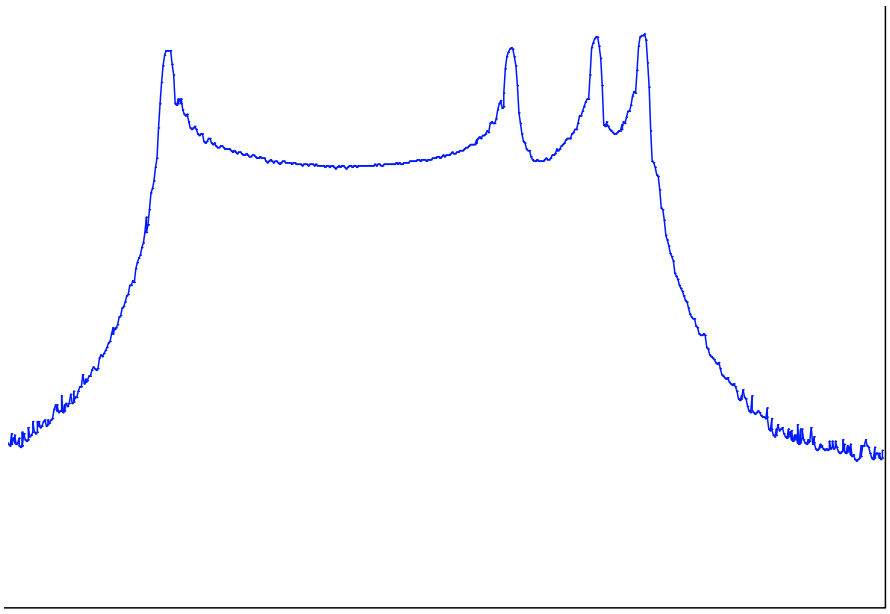
Date: 23.MAR.2011 12:50:38

Plot 33: Transmitter Spurious Field Strength 75 GHz to 110 GHz, high channel



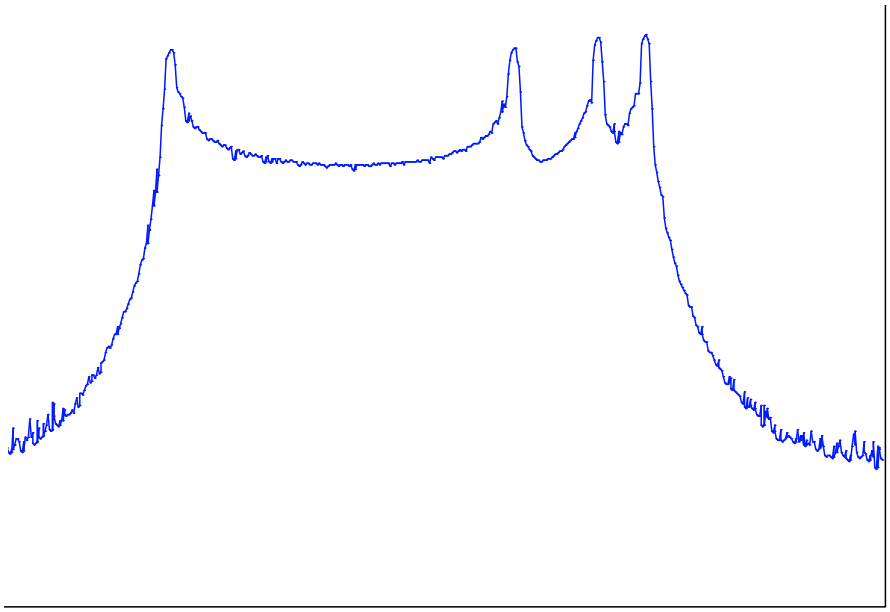
Date: 23.MAR.2011 12:56:36

Plot 34: Emission Bandwidth, low channel



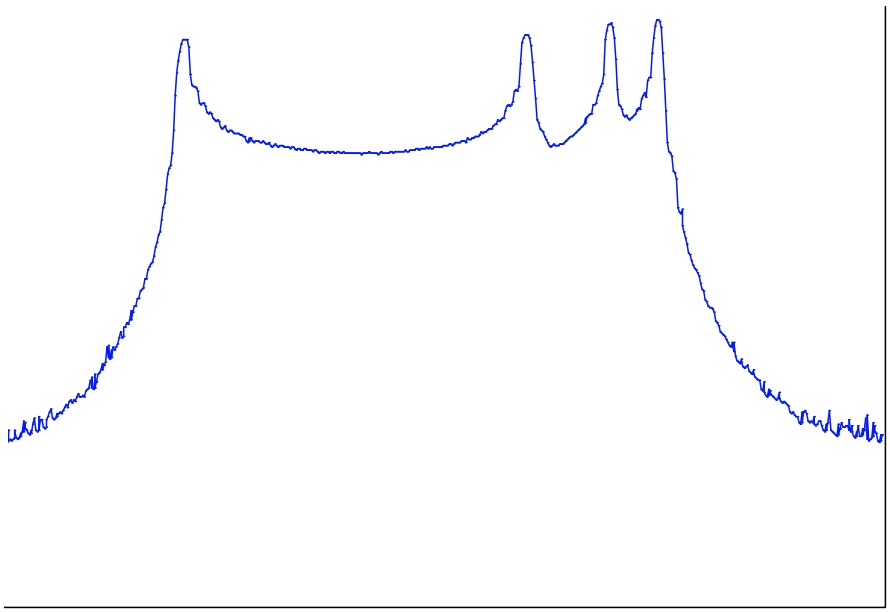
Date: 23.MAR.2011 13:15:19

Plot 35: Emission Bandwidth, mid channel



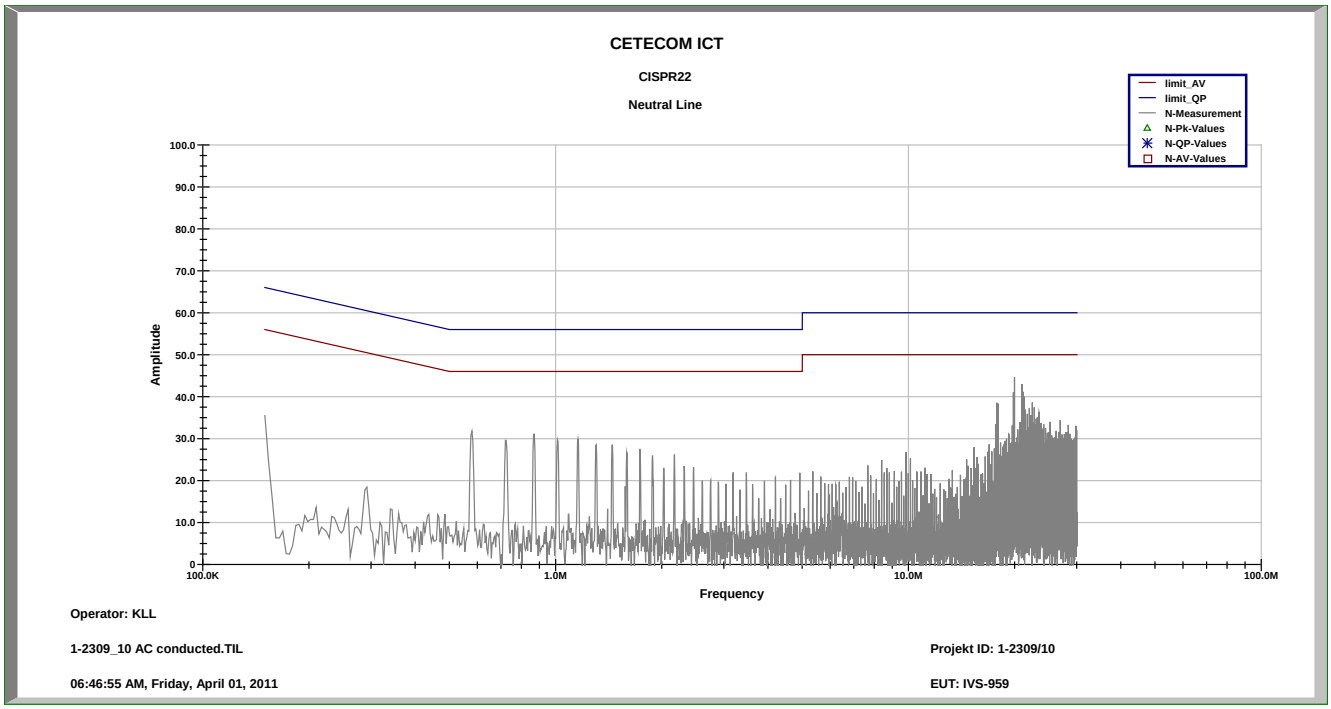
Date: 23.MAR.2011 13:28:33

Plot 36: Emission Bandwidth, high channel



Date: 23.MAR.2011 13:05:57

Plot 37: AC conducted neutral line



Plot 38: AC conducted phase line