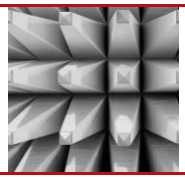




CETECOM™
CETECOM ICT Services
consulting - testing - certification

TEST REPORT

Test Report No.: 1-2353-01-05/10

Deutscher Akkreditierungs Rat DAR

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

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

KAPSCH TrafficCom AG
Am Europlatz 2
1120 Wien/AUSTRIA
Phone: +43-50 8111-2570
Fax: +43 50 8111-2209
Contact: Herbert Diemling
e-mail: herbert.diemling@kapsch.net
Phone: +43 50811 7857

Manufacturer

KAPSCH TrafficCom AG
Am Europlatz 2
1120 Wien/AUSTRIA

Test Standard/s

47 CFR Part 2	Title 47 of the Code of Federal Regulations; Chapter I-Federal Communications Commission Frequency allocations and radio treaty matters; general rules and regulations
47 CFR Part 95 L	Title 47 of the Code of Federal Regulations; Chapter I-Federal Communications Commission subchapter D - safety and special radio services; Part 95-Personal radio services

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

Test Item

Kind of test item:	Transceiver OPS9955
Model name:	OPS- 9955
FCC ID:	XZU9955
IC:	-/-
Frequency [MHz]:	Low channel 5860 MHz – high channel 5920 MHz
Power supply:	115 AC / 12 DC by mains adapter GFP241DA-1220B-1
Temperature range:	-20°C to +55 °C

Test performed:

cn=Marco Bertolino, o=CETECOM ICT Services GmbH, ou=BTL-100826, email=marco.bertolino@cetecom.com, c=DE
2010.11.23 07:27:41 +01'00'

2010-11-23 Marco Bertolino

Test Report authorised:

cn=Jakob Reschke, o=CETECOM ICT Services GmbH, ou=RES-101109, email=Jakob.Reschke@cetecom.com, c=DE
p.o. 2010.11.23 07:30:18 +01'00'

2010-11-23 Stefan Bös

1 Table of contents

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.
This test report is electronically signed and valid without handwriting signature. For verification of the electronical signatures, the public keys can be requested at the testing laboratory.

2.2 Application details

Date of receipt of order:	2010-06-29
Date of receipt of test item:	2008-09-29
Start of test:	2010-08-10
End of test:	2010-08-12
Person(s) present during the test:	-/-

3 Test standard/s

Test Standard	Version	Test Standard Description
47 CFR Part 2	2006-10	Title 47 of the Code of Federal Regulations; Chapter I-Federal Communications Commission Frequency allocations and radio treaty matters; general rules and regulations
47 CFR Part 95	2006-10	Title 47 of the Code of Federal Regulations; Chapter I-Federal Communications Commission subchapter D - safety and special radio services; Part 95-Personal radio services
IEEE 802.11 a	1999/2000	Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications High-speed Physical Layer in the 5 GHz Band
ASTM E2213	2003	Standard Specification for Telecommunications and Information Exchange between Roadside and Vehicle Systems - 5 GHz Band Dedicated Short Range Communications (DSRC) Medium Access Control (MAC) and Physical Layer (PHY) Specifications

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:		55 %	
Air pressure:		not relevant for this kind of testing	
Power supply:	V_{nom}	115.00 V	AC by mains adapter GFP241DA-1220B-1
	V_{max}	132.25 V	
	V_{min}	97.75 V	

5 Test item

Kind of test item	:	Transceiver
Type identification	:	OPS- 9955
S/N serial number	:	HMS00004 (radiated unit) HMS00005 (conducted unit)
HW hardware status	:	No information available!
SW software status	:	No information available!
Frequency Band [MHz]	:	Low channel 5860 MHz – high channel 5920 MHz
Type of Modulation	:	OFDM → BPSK / QPSK / 16 QAM / 64 QAM
Number of channels	:	9
Antenna	:	Integrated PCB antenna – for more information, please take a look at Annex C → Internal photos of the EUT
Power Supply	:	115 AC / 12 DC by mains adapter GFP241DA-1220B-1
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	FCC Part 95 L, 802.11 a, ASTM E2213	Passed	2010-11-23	Delta tests only!

Test Specification Clause	Test Case	Pass	Fail	Not applicable	Not performed
None	Antenna Gain				Yes
ASTM – 8.9.2 Part 95	Spectrum Bandwidth of a OFDM System / 20dB BW	Yes			
ASTM Table3 Part 95	Modulation characteristics	Yes			
ASTM – 8.9.2 Part 95	Transmit Spectrum Mask	Yes			
ASTM – 8.9.4 Part 95	Transmit Center Frequency Tolerance				Yes
ASTM – 8.9.1 Part 95	Maximum output power (conducted)	Yes			
ASTM – 8.9.1 Part 95	Max. peak output power (radiated)				Yes
ASTM – 8.9.2 Part 95	Spurious Emission - conducted (Transmitter)	Yes			
ASTM – 8.9.2 Part 95	Spurious Emission -radiated (Transmitter)	Yes			

Note: NA = Not Applicable; NP = Not Performed

Note: Delta test only! According to manufacture test plan!

→ Full test report: 1-1440-01-09/09
→ Part 15B report: 1-2353-01-04/10

8 RF measurement testing

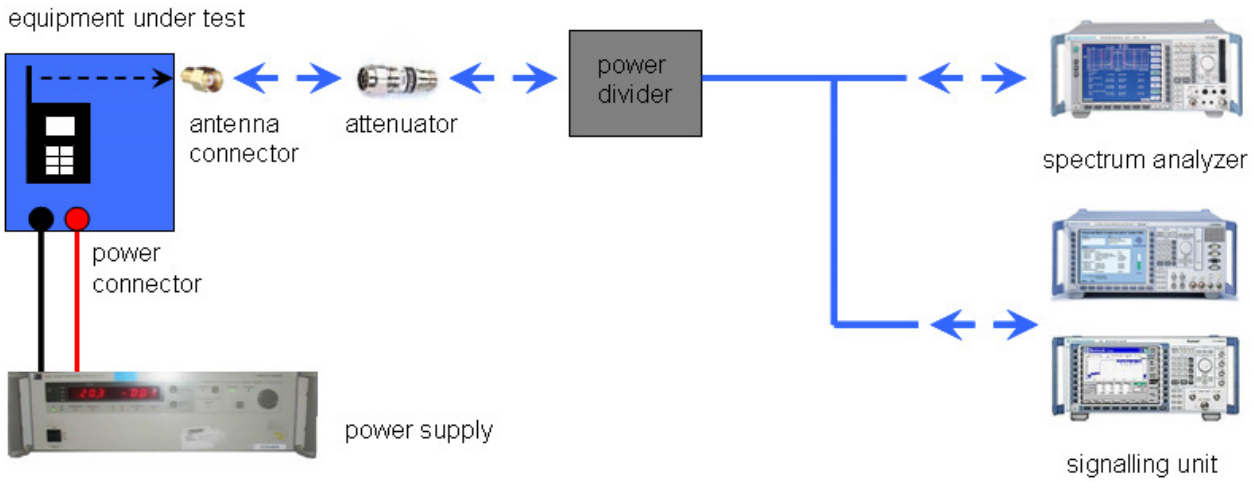
8.1 Description of test setup

8.1.1 Radiated measurements

For Part 2 / Part 95 we use the substitution method (TIA/EIA 603).

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 1: Diagram conducted measurements

8.2 Additional comments

Reference documents:	Delta test only! According to manufacturer test plan! → Full test report: 1-1440-01-09/09 → Part 15B report: 1-2353-01-04/10
Special test descriptions:	None
Configuration descriptions:	None
Test mode:	☐ No test mode available. Iperf was used to ping an other device with the largest support packet size
	☒ Special software is used. EUT is transmitting pseudo random data by itself

8.3 RSP100 Test Report Cover Sheet / Performance Test Data

Test Report Number	:	1-2353-01-05/10
Equipment Model Number	:	OPS- 9955
Certification Number	:	-/-
Manufacturer (complete Address)	:	KAPSCH TrafficCom AG Am Europlatz 2 1120 Wien / AUSTRIA
Tested to radio standards specification no.	:	RSS 210, Issue 7, Annex 8
Open Area Test Site IC No.	:	IC 3462C-1
Frequency Range	:	Low channel 5860 MHz – high channel 5920 MHz
RF-power [W] (max.)	:	cond.: 9.64 mW (OFDM) EIRP: Not performed!
Occupied bandwidth (99%-BW) [kHz]	:	OFDM: 8.44 MHz
Type of modulation	:	OFDM → BPSK / QPSK / 16 QAM / 64 QAM
Emission Designator (TRC-43)	:	8M44G7D (OFDM)
Antenna Information	:	Integrated PCB antenna – for more information, please take a look at Annex C → Internal photos of the EUT
Transmitter Spurious (worst case) [dBm]	:	-41.82 dBm @ 36.06 GHz
Receiver Spurious (worst case) [µV/m @ 3m]	:	Delta test only! See Part 15B report: 1-2353-01-04/10

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:

2010-11-23	Marco Bertolino	M. Bertolino
Date	Name	Signature

9 Measurement Results

9.1 Antenna gain

Not performed! Delta tests only!

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 5860 MHz	mid channel 5890 MHz	mid channel 5900 MHz	high channel 5920 MHz
Conducted power [dBm] *(measured)*	-/-	-/-	-/-	-/-
Radiated power [dBm] *(measured)*	-/-	-/-	-/-	-/-
Gain [dBi] *(calculated)*	-/-	-/-	-/-	-/-

9.2 Frequency Tolerance (according ASTM §8.9.4 / IEEE 802.11 a 17.3.9.4 / § 2.1055)

Not performed! Delta tests only!

Results:

Temperatur	5860 MHz F	5860 MHz kHz / PPM	5890 MHz F	5890 MHz kHz / PPM	5900 MHz F	5900 MHz kHz / PPM
55 C°	-/-	-/-	-/-	-/-	-/-	-/-
40 C°	-/-	-/-	-/-	-/-	-/-	-/-
30 C°	-/-	-/-	-/-	-/-	-/-	-/-
20 C°	-/-	-/-	-/-	-/-	-/-	-/-
20 C° V low	-/-	-/-	-/-	-/-	-/-	-/-
20 C° V high	-/-	-/-	-/-	-/-	-/-	-/-
10 C°	-/-	-/-	-/-	-/-	-/-	-/-
0 C°	-/-	-/-	-/-	-/-	-/-	-/-
-10 C°	-/-	-/-	-/-	-/-	-/-	-/-
-20 C°	-/-	-/-	-/-	-/-	-/-	-/-

Temperatur	5920 MHz F	5920 MHz kHz / PPM	-/-	-/-	-/-	-/-
55 C°	-/-	-/-				
40 C°	-/-	-/-				
30 C°	-/-	-/-				
20 C°	-/-	-/-				
20 C° V low	-/-	-/-				
20 C° V high	-/-	-/-				
10 C°	-/-	-/-				
0 C°	-/-	-/-				
-10 C°	-/-	-/-				
-20 C°	-/-	-/-				

Limits:

Under normal test conditions and extreme test condition (temperature & voltage)	The transmitted center frequency tolerance shall be ± 20 ppm maximum. (according IEEE 802.11 a 17.3.9.4)

9.3 Modulation characteristics (ASTM Table 3 / § 2.1047 / § 95.631)

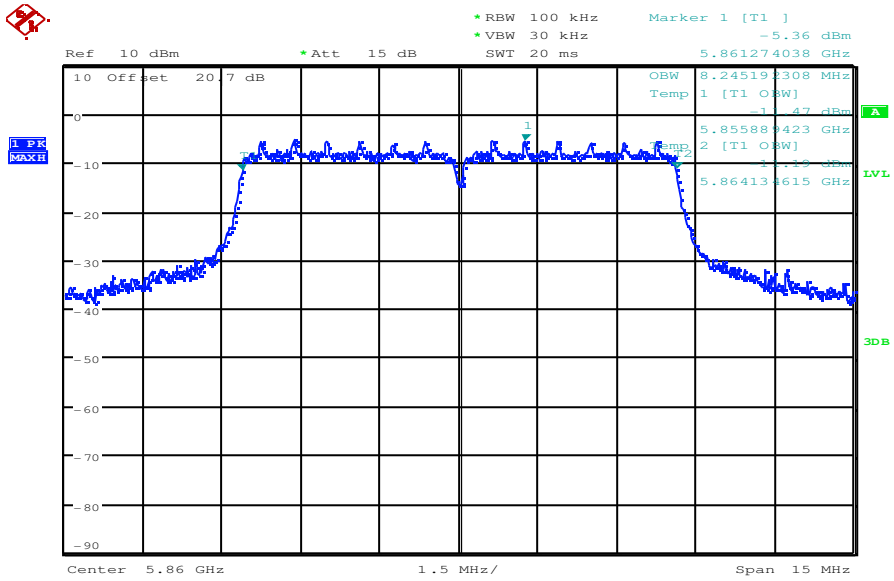
The EUT used for different data rates – different sub-carrier modulations!

3 Mbit/s data rate	BPSK modulation
4.5 Mbit/s data rate	BPSK modulation
6 Mbit/s data rate	QPSK modulation
9 Mbit/s data rate	QPSK modulation
12 Mbit/s data rate	16-QAM modulation
18 Mbit/s data rate	16-QAM modulation
24 Mbit/s data rate	64-QAM modulation
27 Mbit/s data rate	64-QAM modulation

Emission designator: 8M44G7D

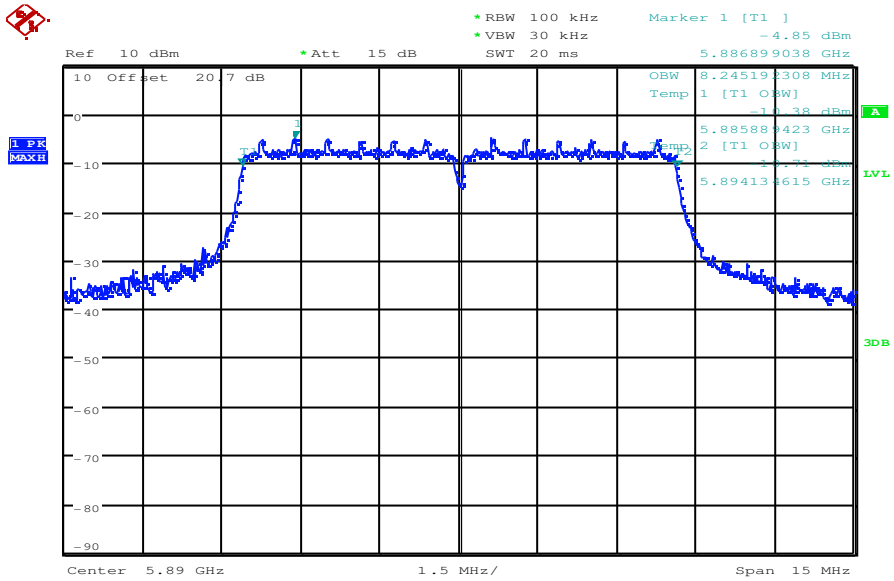
9.4 Spectrum Bandwidth of a OFDM System / 99% Bandwidth (ASTM 8.9.2 / § 95.633 g / § 95.1509)

Plot 1: low channel (5860 MHz), low data rate, antenna port A



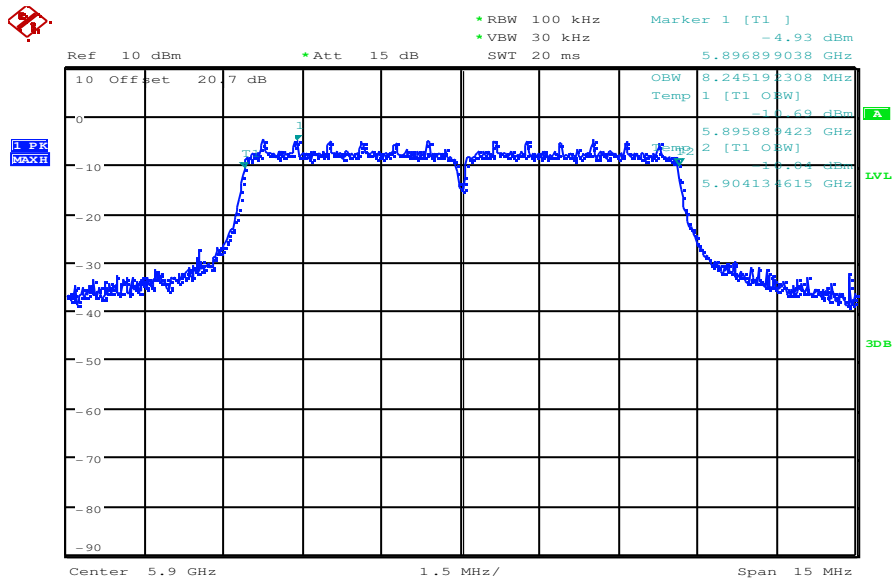
Date: 11.AUG.2010 08:05:12

Plot 2: mid channel (5890 MHz), low data rate, antenna port A



Date: 11.AUG.2010 08:13:40

Plot 3: mid channel (5900 MHz), low data rate, antenna port A



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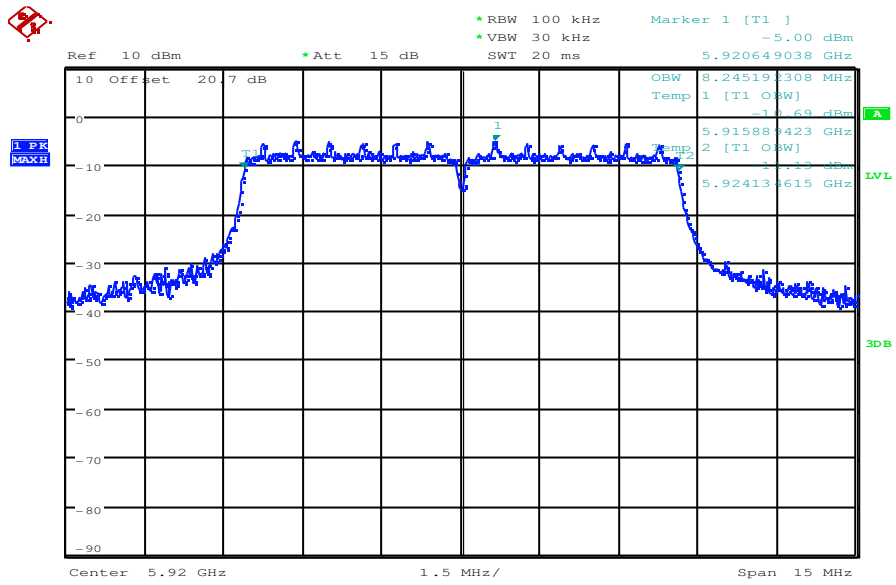
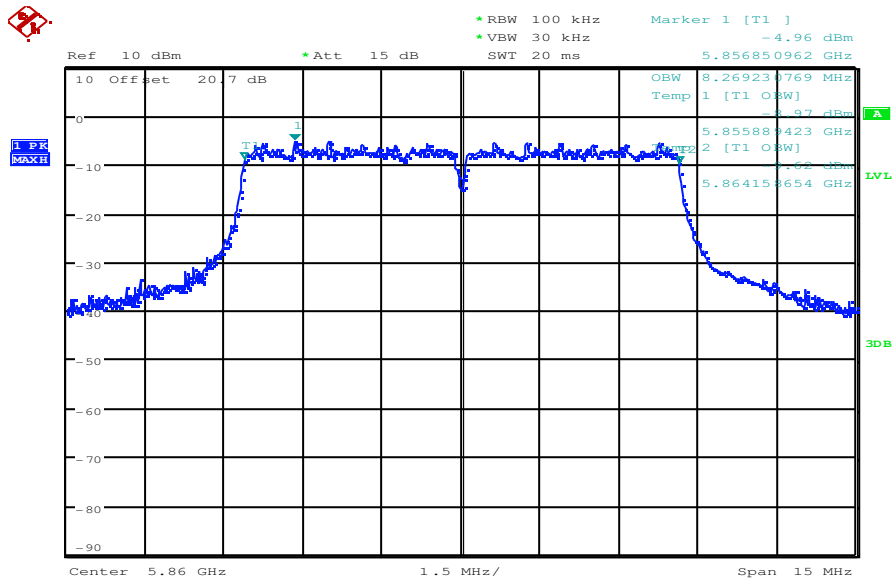
Plot 4: high channel (5920 MHz), low data rate, antenna port A



Date: 11.AUG.2010 08:21:11

Plot 5: low channel (5860 MHz), high data rate, antenna port A



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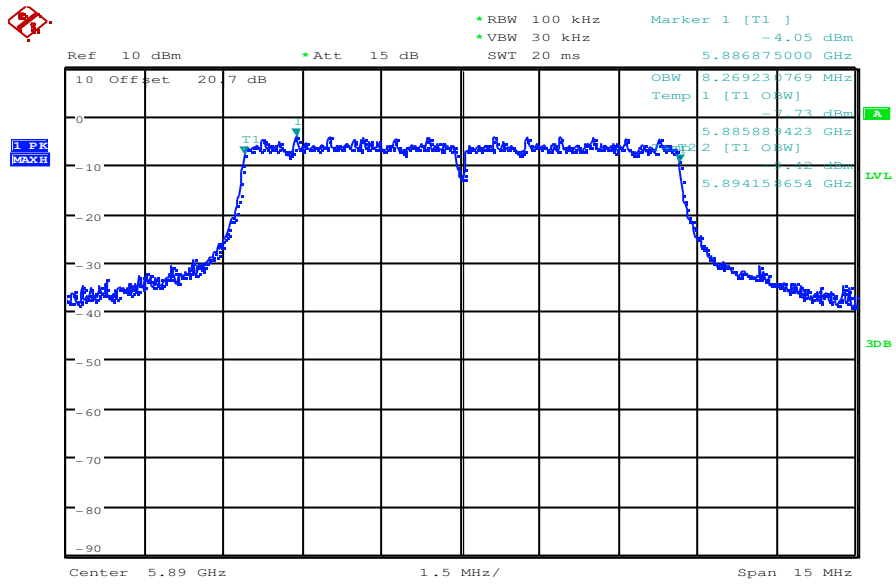
Plot 6: mid channel (5890 MHz), high data rate, antenna port A



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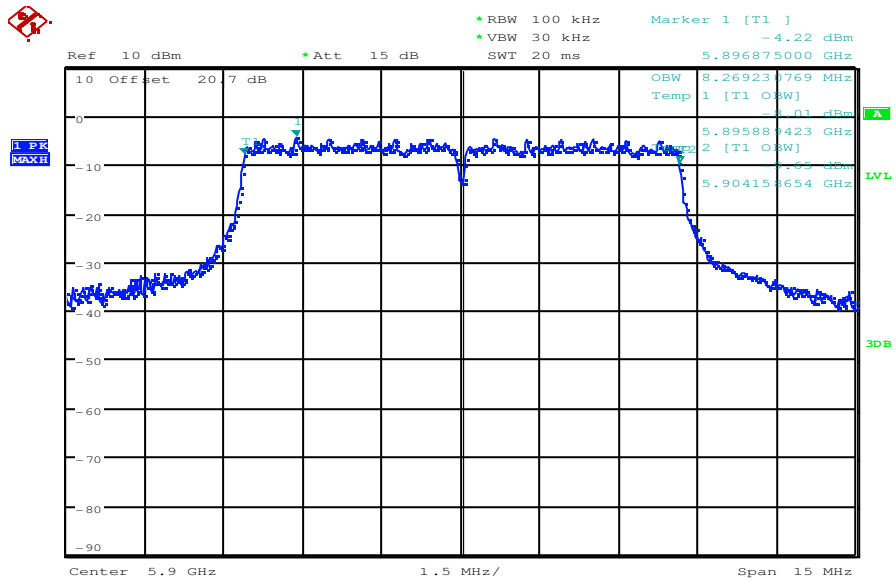
Plot 7: mid channel (5900 MHz), high data rate, antenna port A



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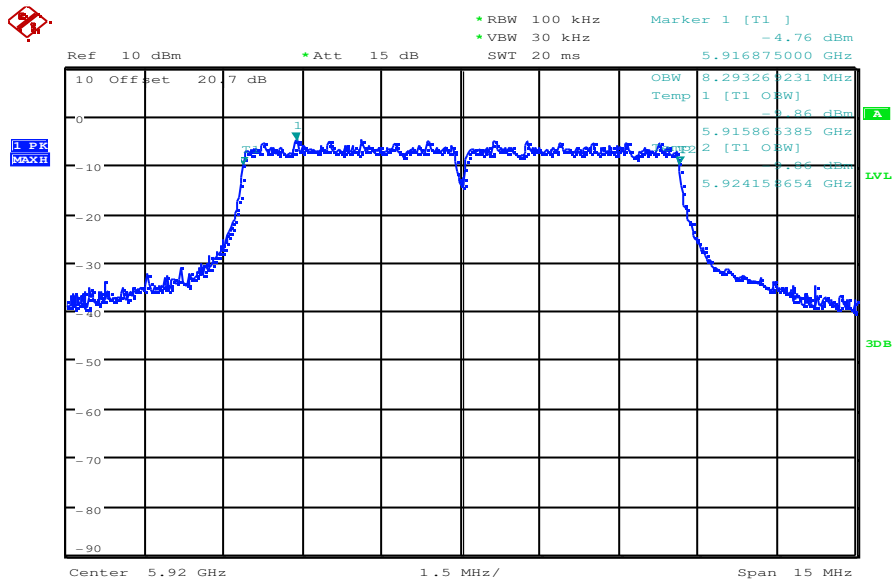
Plot 8: high channel (5920 MHz), high data rate, antenna port A



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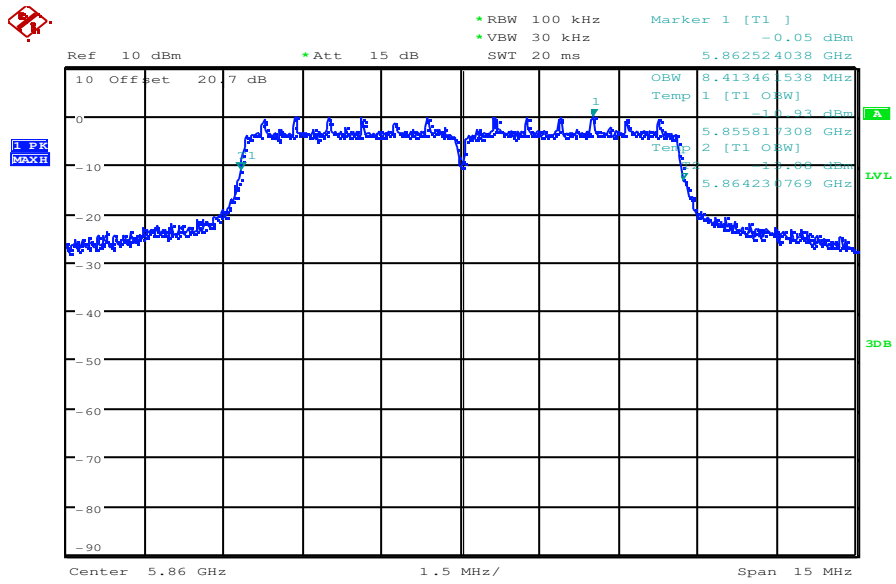
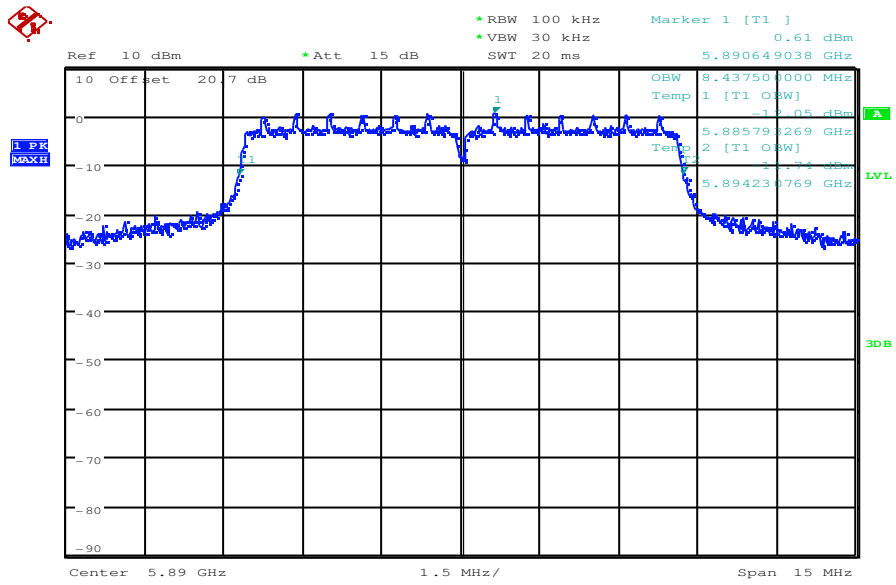
Plot 9: low channel (5860 MHz), low data rate, antenna port B



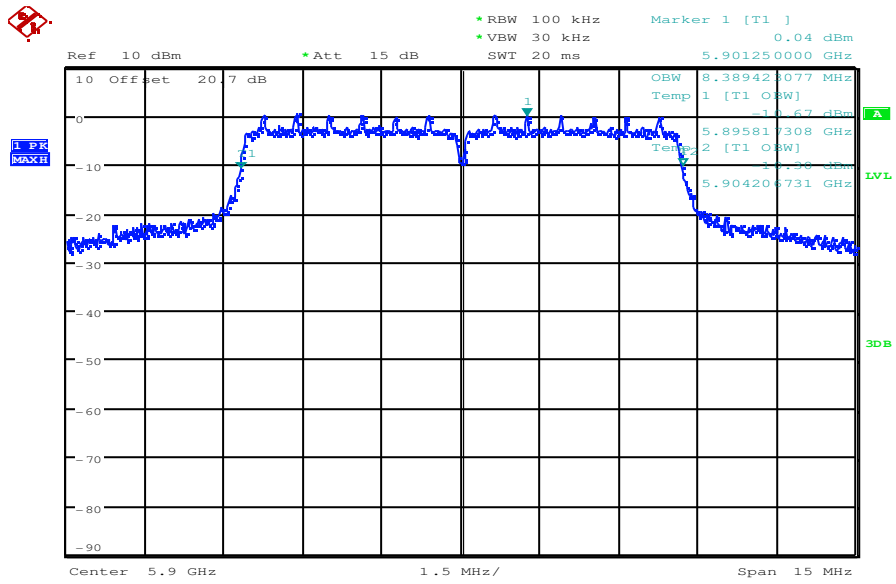
Date: 11.AUG.2010 08:07:49

Plot 10: mid channel (5890 MHz), low data rate, antenna port B



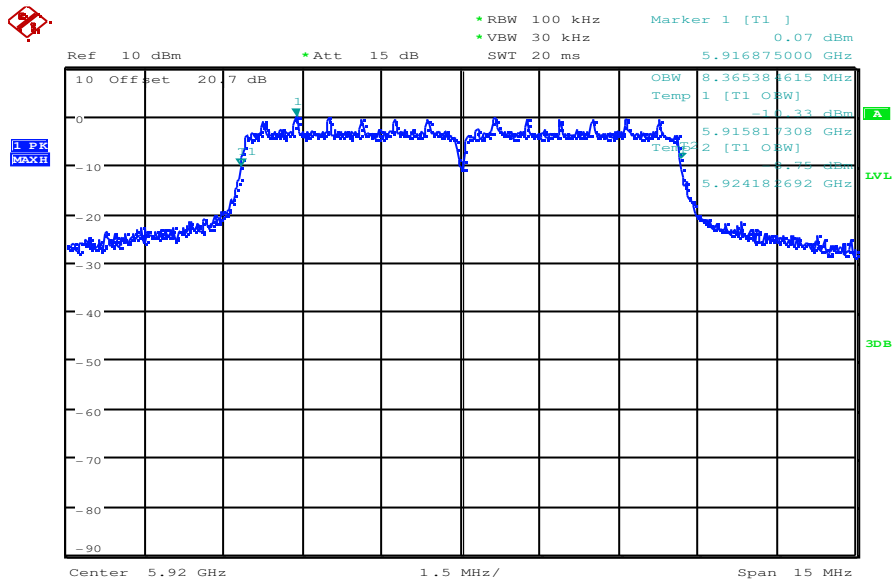
Date: 11.AUG.2010 08:09:08

Plot 11: mid channel (5900 MHz), low data rate, antenna port B



Date: 11.AUG.2010 08:17:37

Plot 12: high channel (5920 MHz), low data rate, antenna port B



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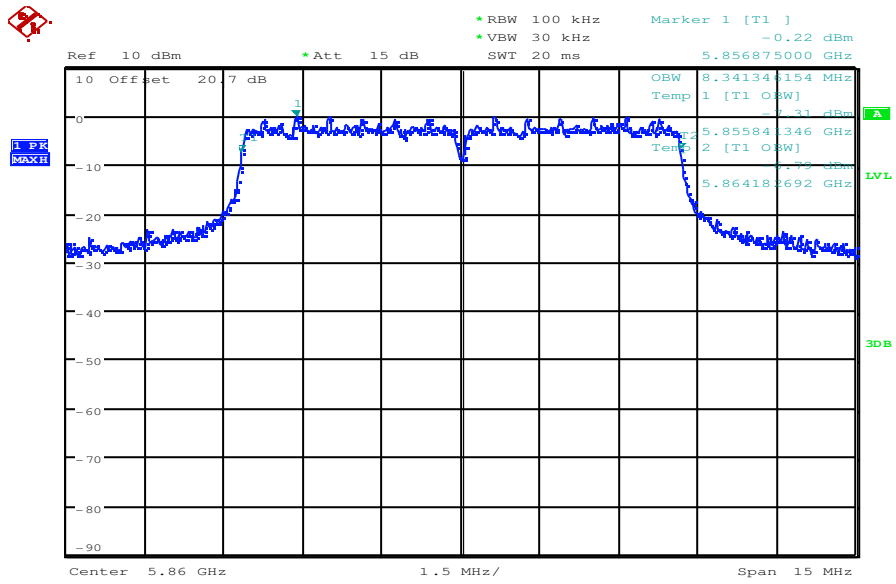
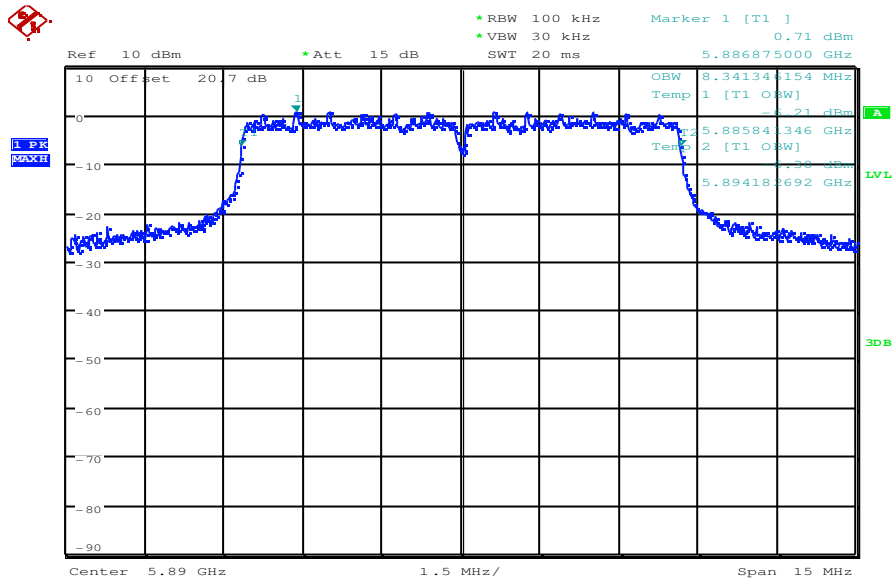
Plot 13: low channel (5860 MHz), high data rate, antenna port B



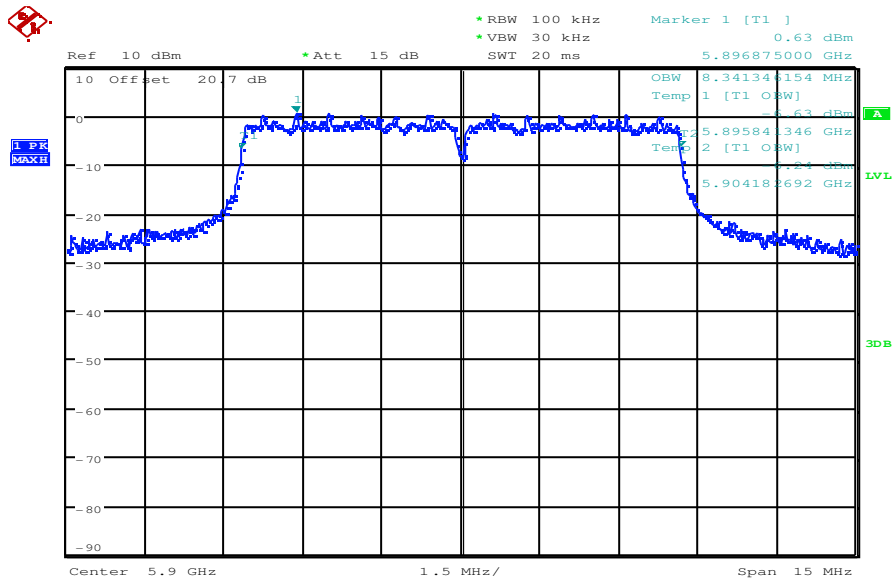
Date: 11.AUG.2010 08:07:00

Plot 14: mid channel (5890 MHz), high data rate, antenna port B



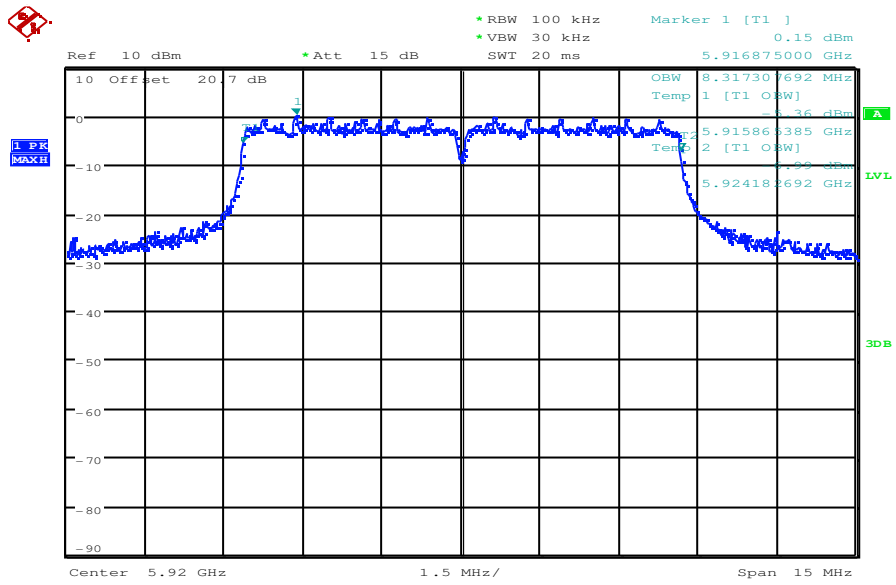
Date: 11.AUG.2010 08:09:59

Plot 15: mid channel (5900 MHz), high data rate, antenna port B



Date: 11.AUG.2010 08:17:01

Plot 16: high channel (5920 MHz), high data rate, antenna port B



Date: 11.AUG.2010 08:19:24

Results: low data rate, antenna port A

Test conditions		99 % BANDWIDTH [MHz]			
Frequency [MHz]		5860	5890	5900	5920
T_{nom}	V_{nom}	8.25	8.25	8.25	8.25
Measurement uncertainty		±100 kHz			

RBW: 100 kHz / VBW 30 kHz

Results: high data rate, antenna port A

Test conditions		99 % BANDWIDTH [MHz]			
Frequency [MHz]		5860	5890	5900	5920
T_{nom}	V_{nom}	8.27	8.27	8.27	8.29
Measurement uncertainty		±100 kHz			

RBW: 100 kHz / VBW 30 kHz

Results: low data rate, antenna port B

Test conditions		99 % BANDWIDTH [MHz]			
Frequency [MHz]		5860	5890	5900	5920
T_{nom}	V_{nom}	8.41	8.44	8.39	8.37
Measurement uncertainty		±100 kHz			

RBW: 100 kHz / VBW 30 kHz

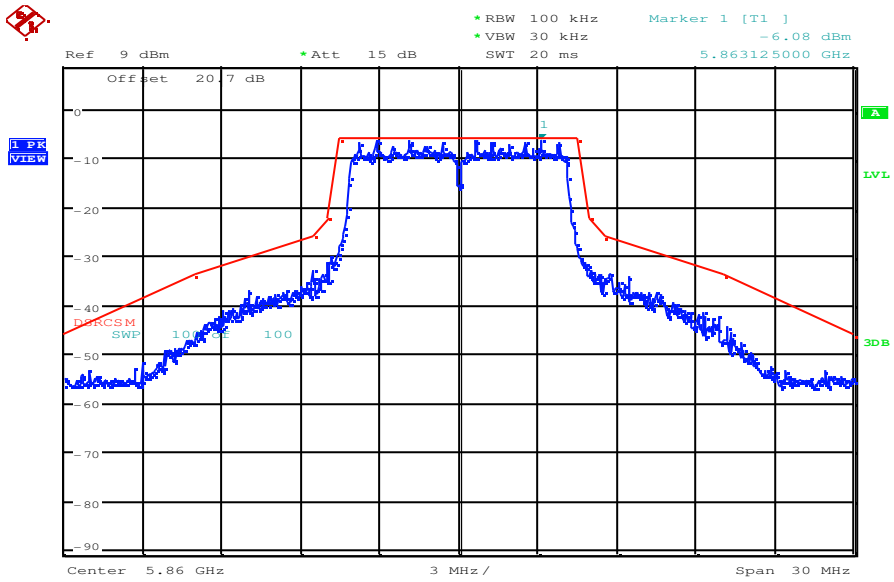
Results: high data rate, antenna port B

Test conditions		99 % BANDWIDTH [MHz]			
Frequency [MHz]		5860	5890	5900	5920
T_{nom}	V_{nom}	8.34	8.34	8.34	8.32
Measurement uncertainty		±100 kHz			

RBW: 100 kHz / VBW 30 kHz

9.5 Transmit Spectrum Mask (ASTM 8.9.2 / § 95.635 F / § 95.1509)

Plot 1: low channel (5860 MHz), low data rate, antenna port A



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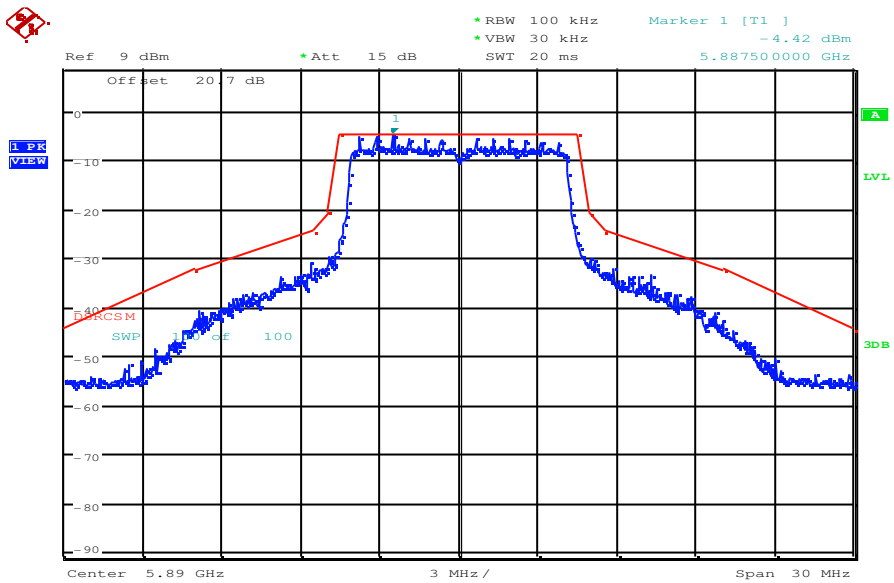
Plot 2: mid channel (5890 MHz), low data rate, antenna port A



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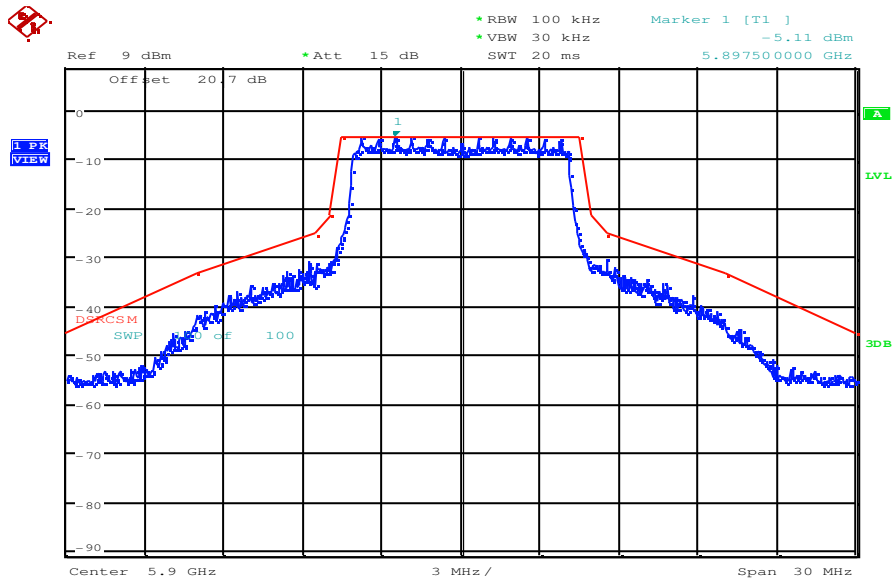
Plot 3: mid channel (5900 MHz), low data rate, antenna port A



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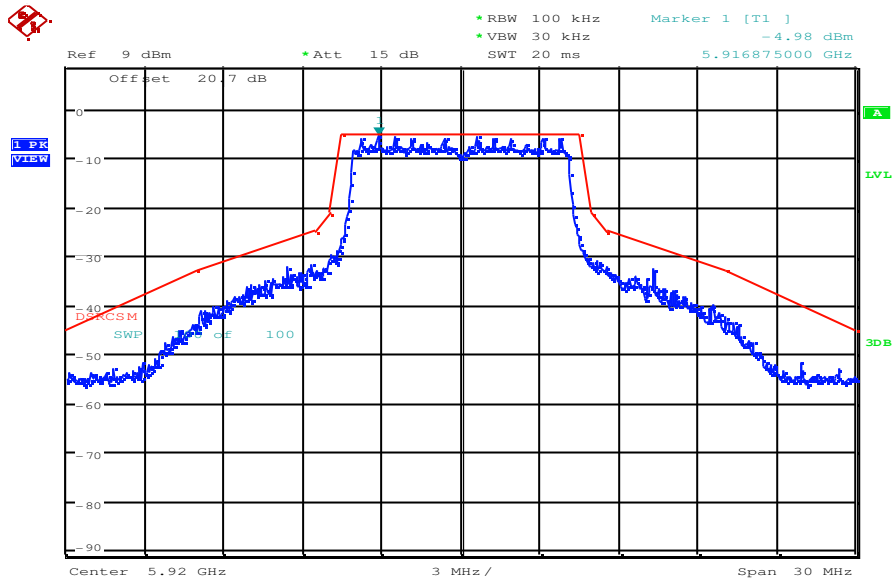
Plot 4: high channel (5920 MHz), low data rate, antenna port A



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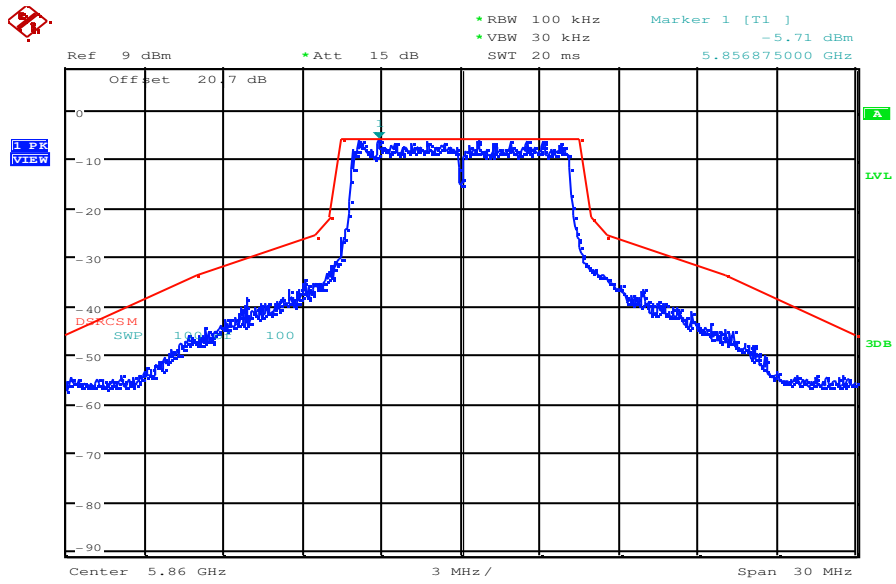
Plot 5: low channel (5860 MHz), high data rate, antenna port A



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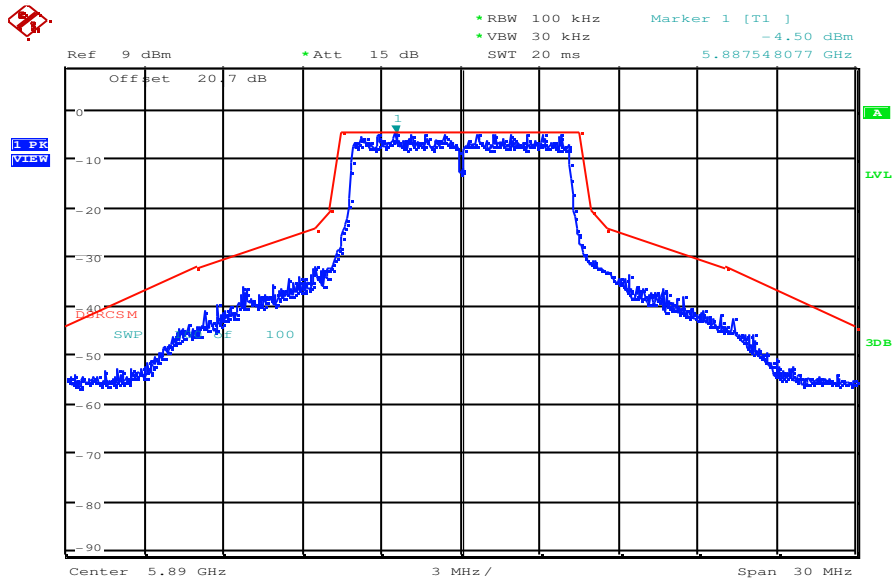
Plot 6: mid channel (5890 MHz), high data rate, antenna port A



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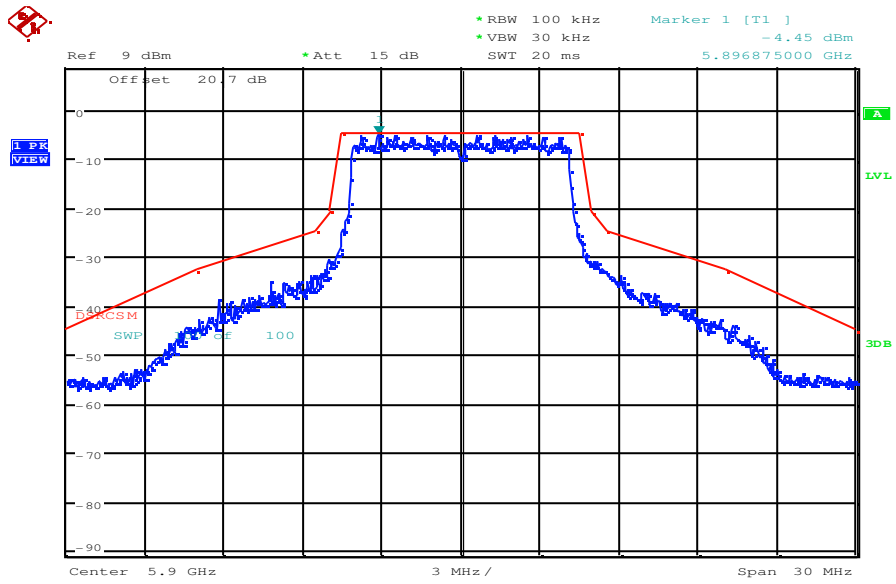
Plot 7: mid channel (5900 MHz), high data rate, antenna port A



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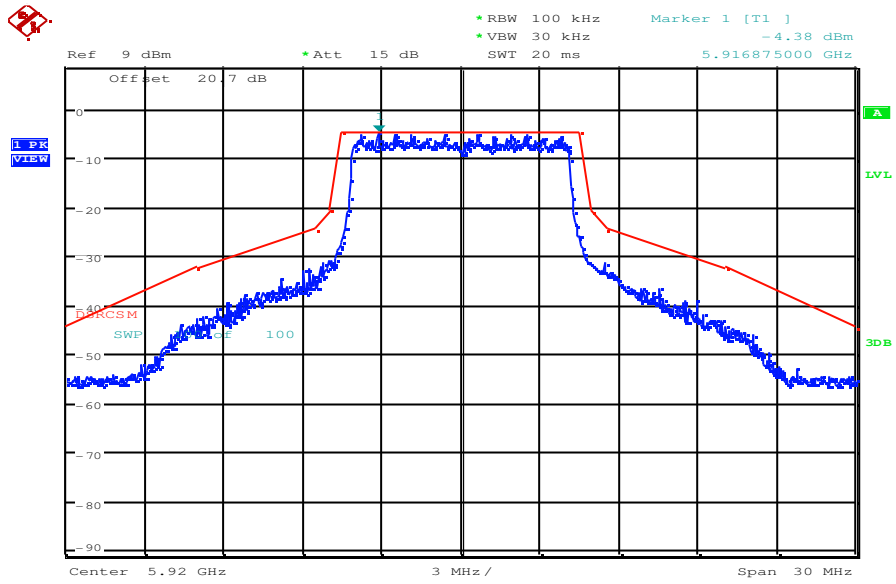
Plot 8: high channel (5920 MHz), high data rate, antenna port A



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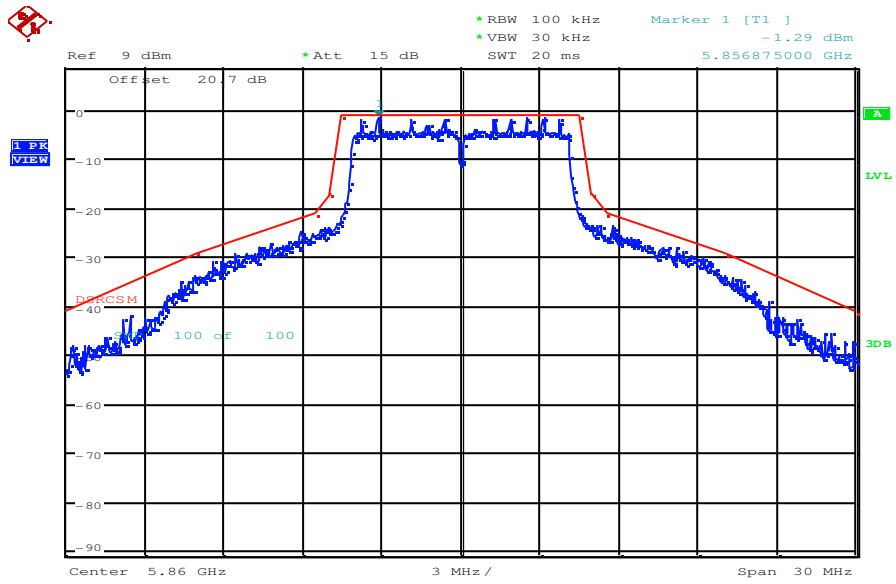
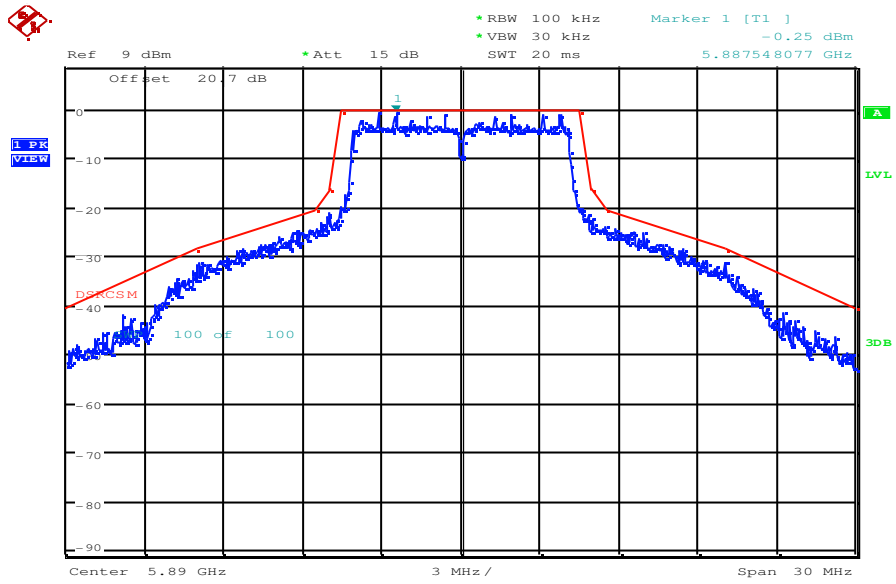
Plot 9: low channel (5860 MHz), low data rate, antenna port B



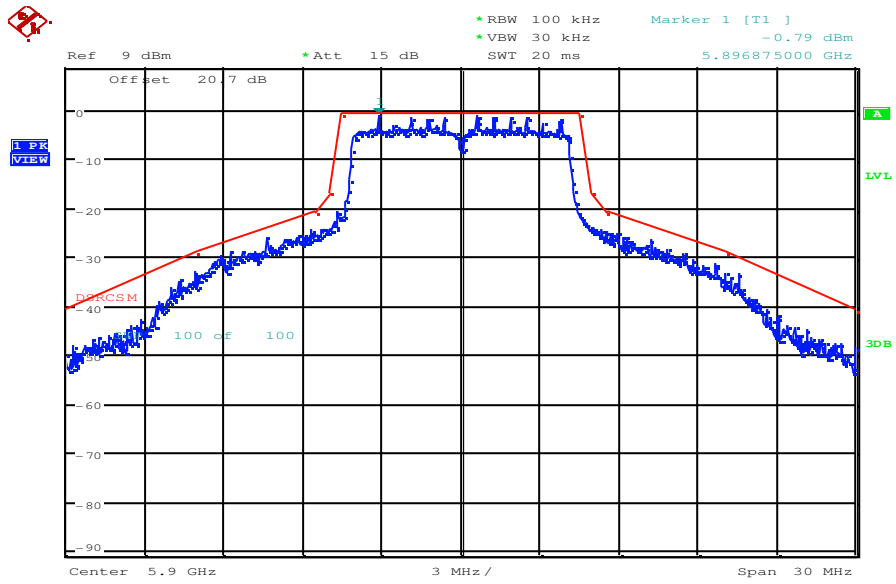
Date: 11.AUG.2010 08:49:58

Plot 10: mid channel (5890 MHz), low data rate, antenna port B



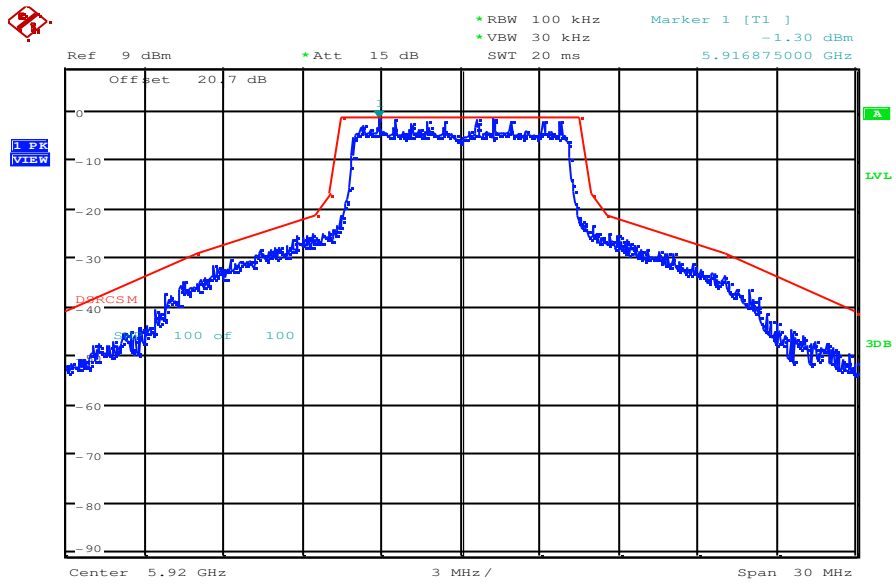
Date: 11.AUG.2010 08:51:32

Plot 11: mid channel (5900 MHz), low data rate, antenna port B



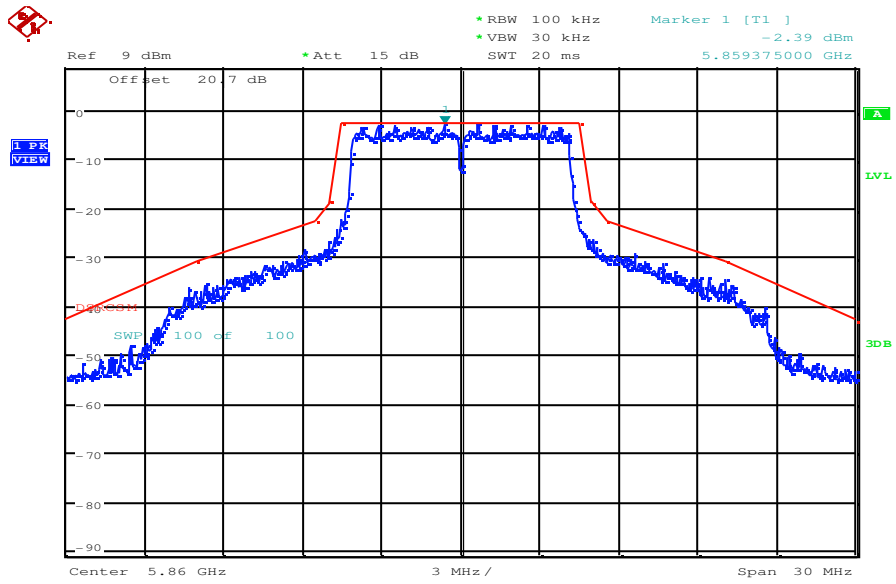
Date: 11.AUG.2010 09:15:30

Plot 12: high channel (5920 MHz), low data rate, antenna port B



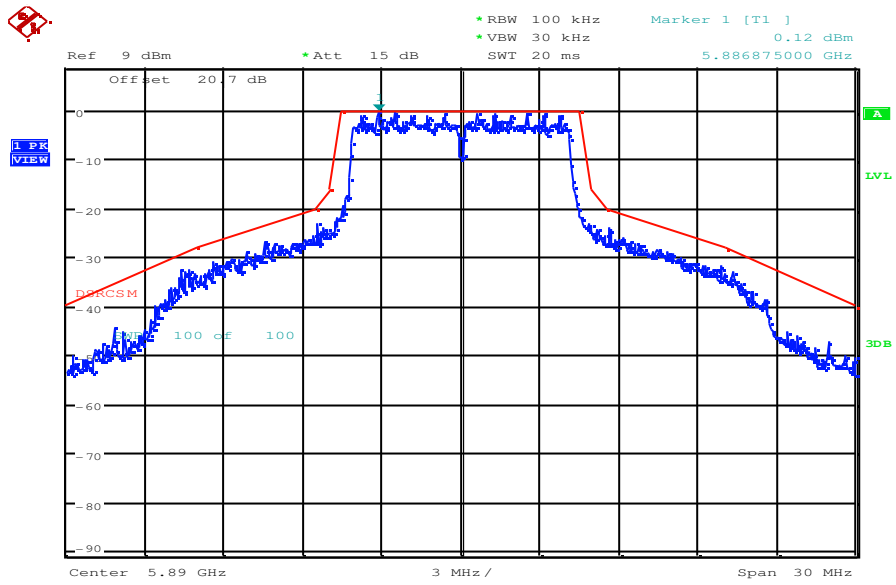
Date: 11.AUG.2010 09:18:00

Plot 13: low channel (5860 MHz), high data rate, antenna port B



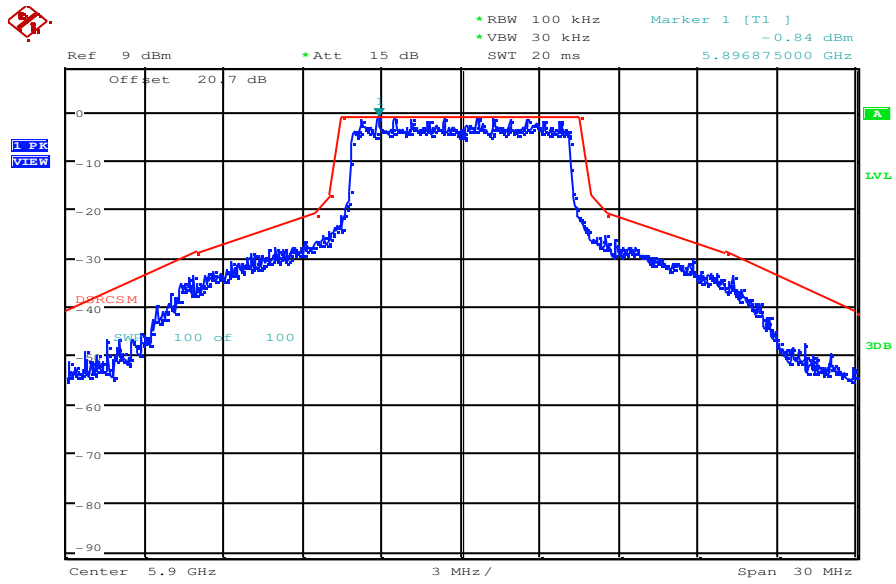
Date: 11.AUG.2010 08:47:37

Plot 14: mid channel (5890 MHz), high data rate, antenna port B



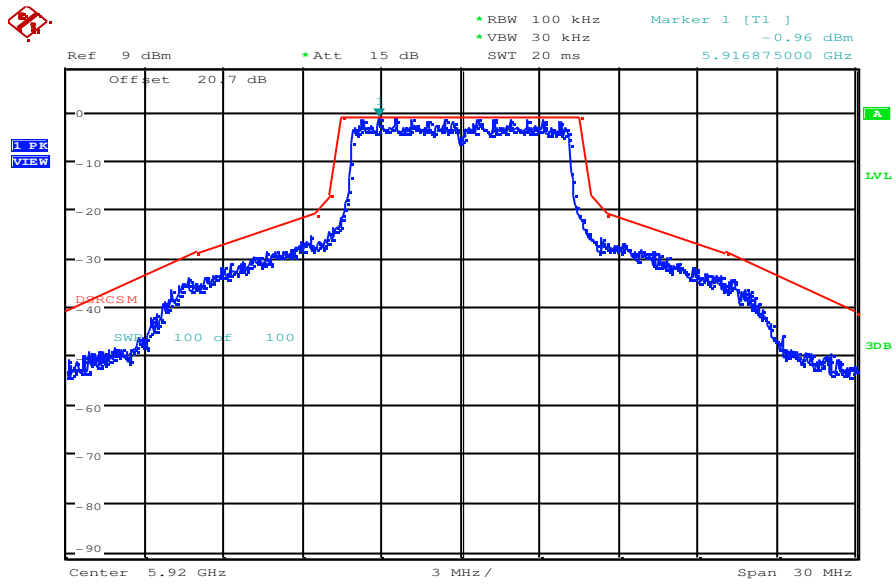
Date: 11.AUG.2010 08:53:07

Plot 15: mid channel (5900 MHz), high data rate, antenna port B



Date: 11.AUG.2010 09:13:25

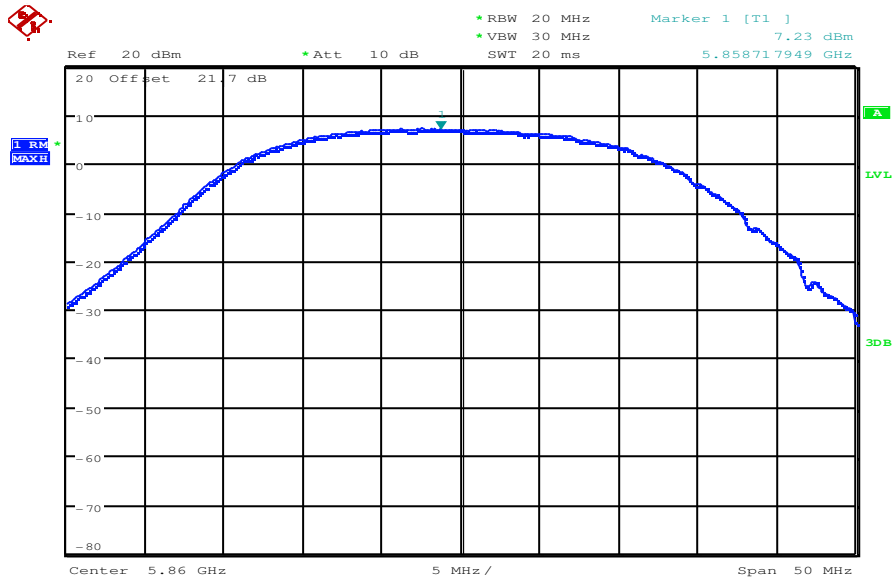
Plot 16: high channel (5920 MHz), high data rate, antenna port B



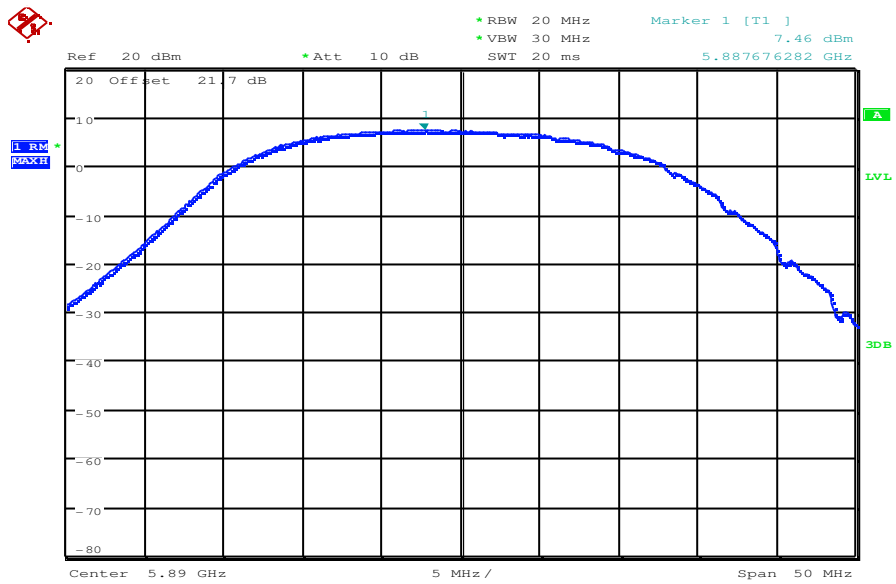
Date: 11.AUG.2010 09:19:14

9.6 Maximum output power (conducted) (ASTM 8.9.1 / § 2.1046 / § 95.639 / § 95.1509)

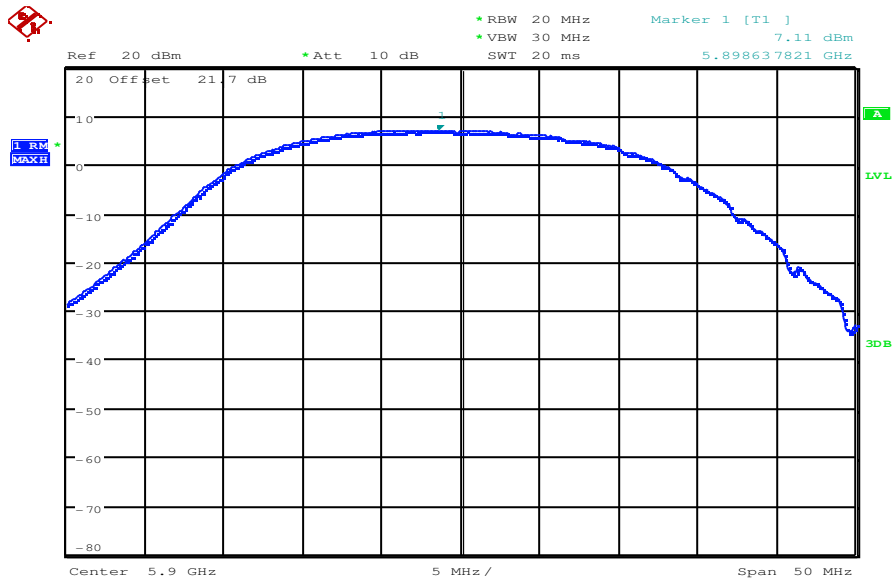
Plot 1: low channel (5860 MHz), low data rate, antenna port A



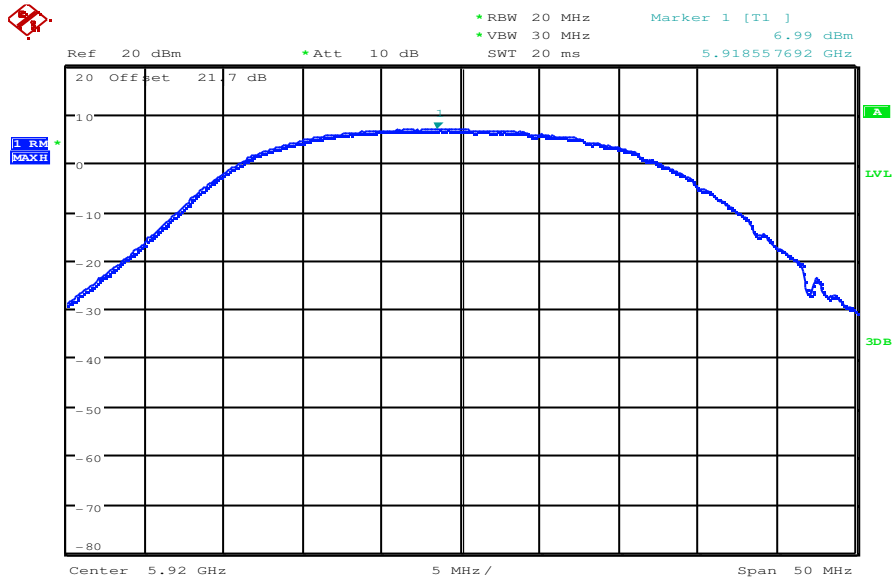
Plot 2: mid channel (5890 MHz), low data rate, antenna port A



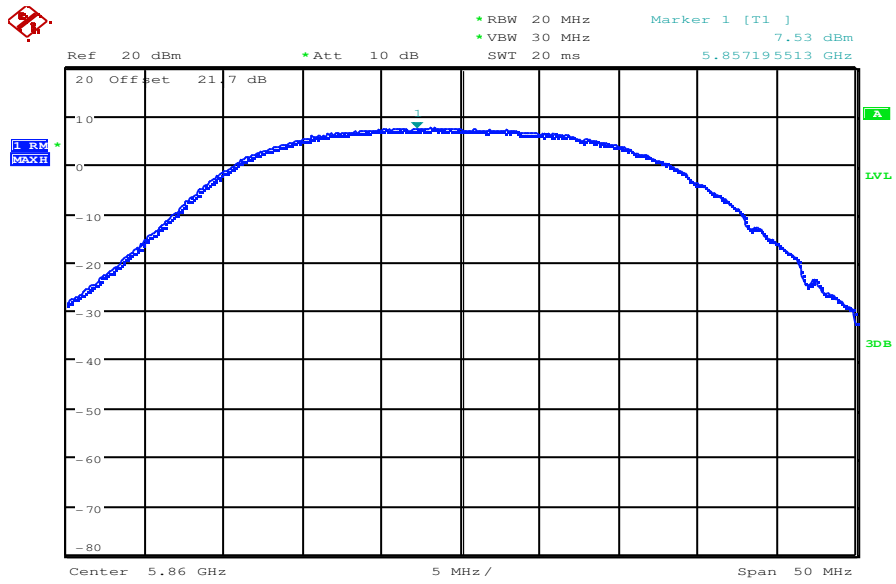
Plot 3: mid channel (5900 MHz), low data rate, antenna port A



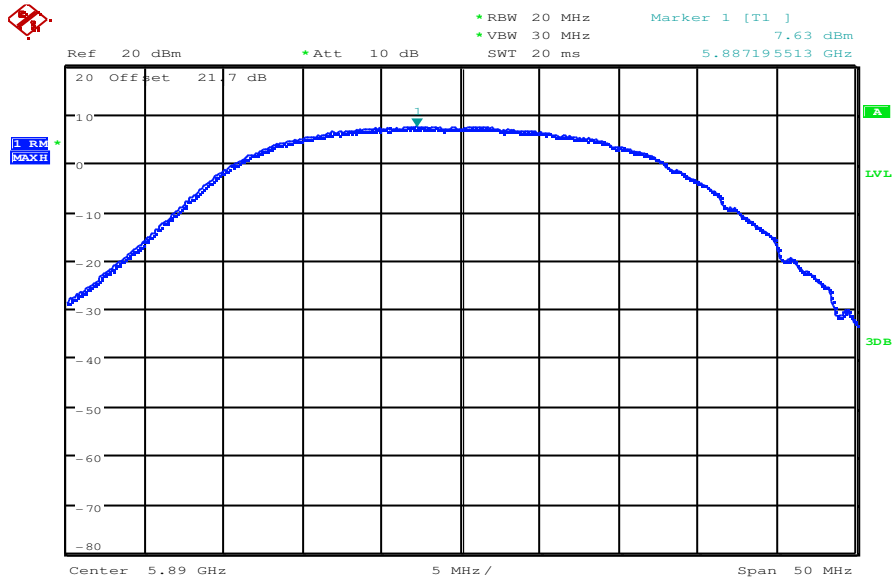
Plot 4: high channel (5920 MHz), low data rate, antenna port A



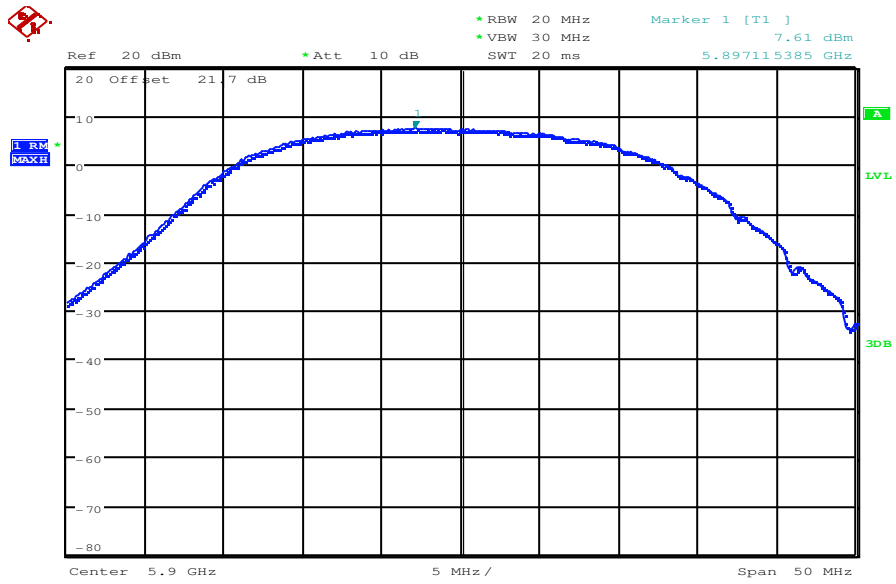
Plot 5: low channel (5860 MHz), high data rate, antenna port A



Plot 6: mid channel (5890 MHz), high data rate, antenna port A

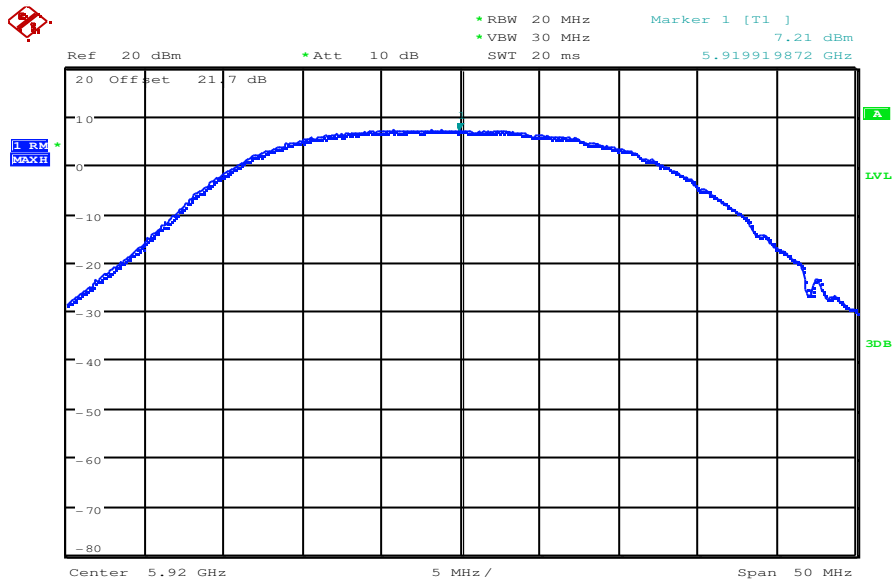


Plot 7: mid channel (5900 MHz), high data rate, antenna port A



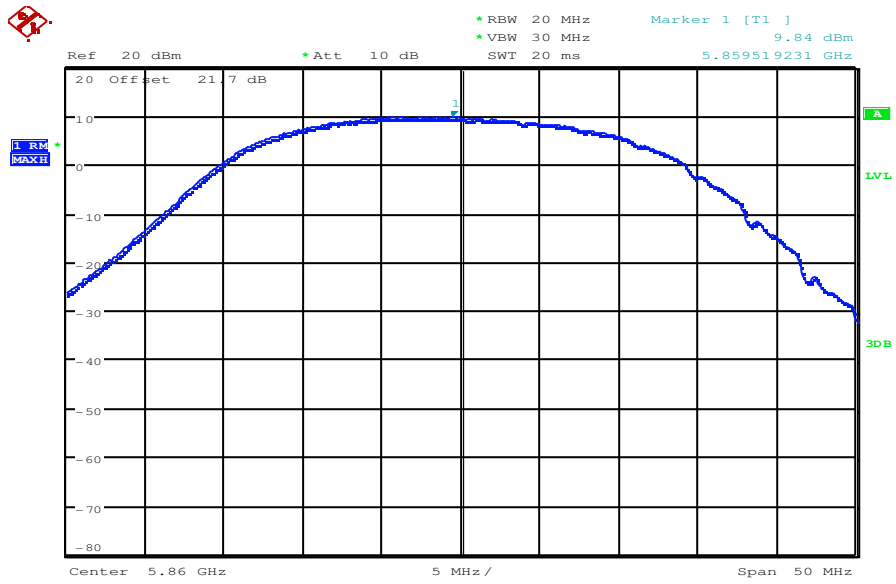
Date: 11.AUG.2010 09:51:35

Plot 8: high channel (5920 MHz), high data rate, antenna port A

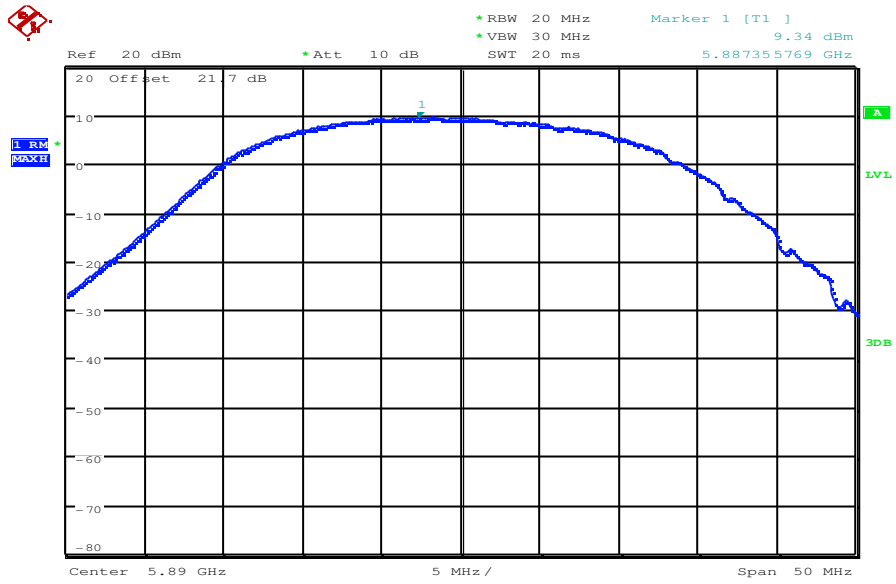


Date: 11.AUG.2010 09:49:09

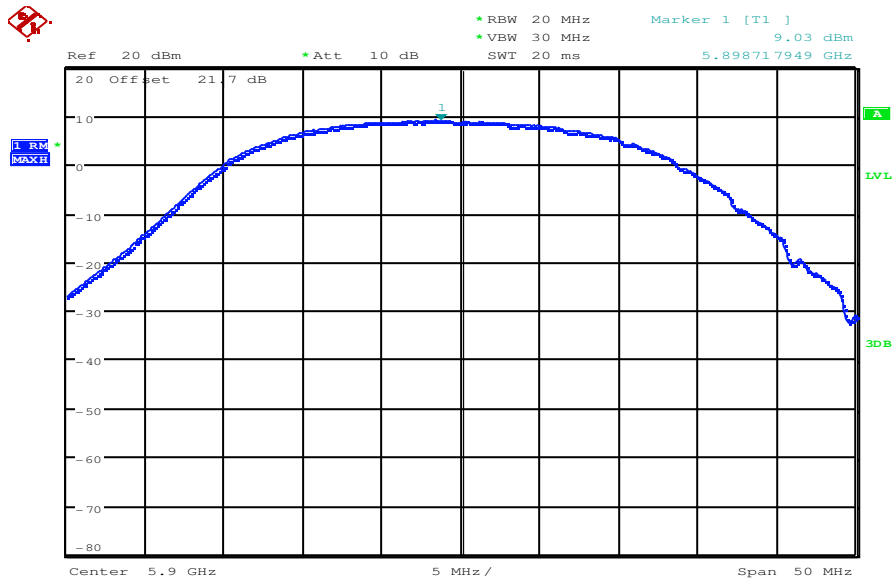
Plot 9: low channel (5860 MHz), low data rate, antenna port B



Plot 10: mid channel (5890 MHz), low data rate, antenna port B

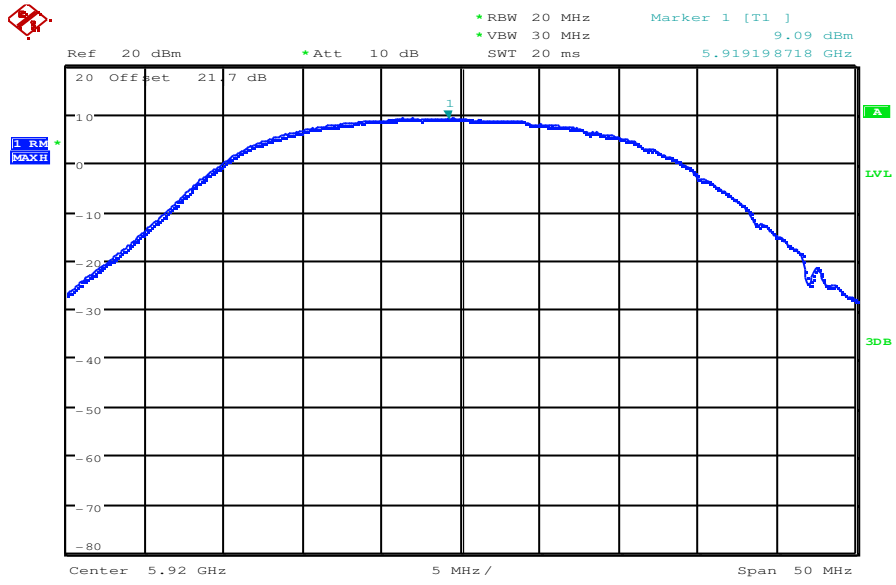


Plot 11: mid channel (5900 MHz), low data rate, antenna port B



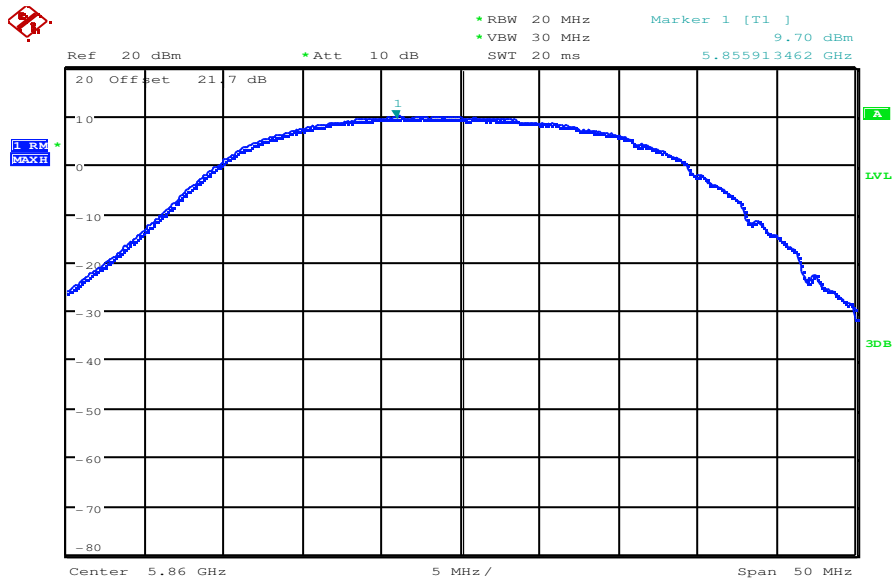
Date: 11.AUG.2010 09:43:05

Plot 12: high channel (5920 MHz), low data rate, antenna port B

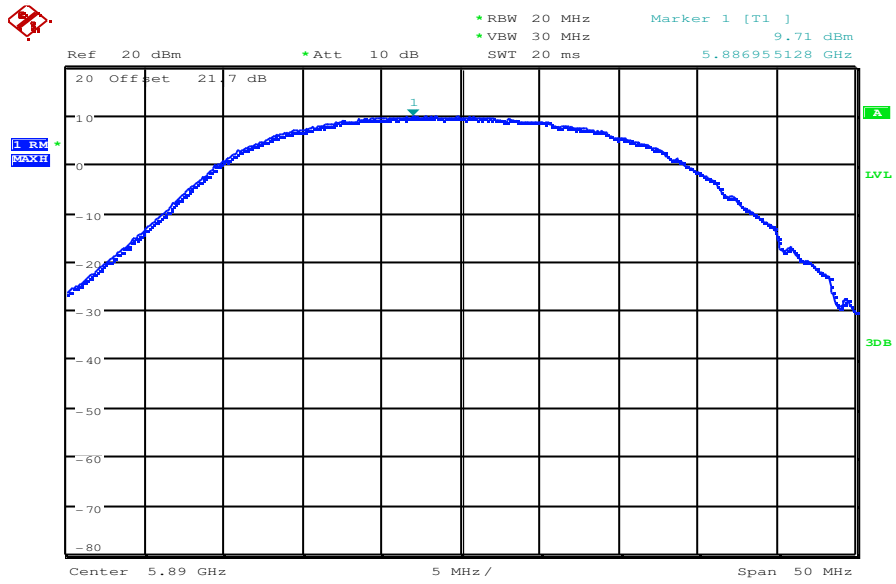


Date: 11.AUG.2010 09:44:47

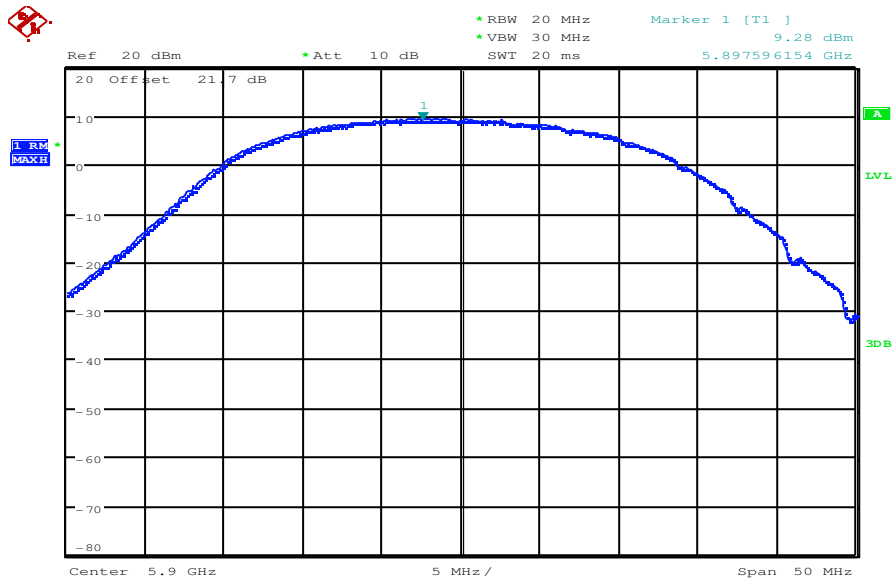
Plot 13: low channel (5860 MHz), high data rate, antenna port B



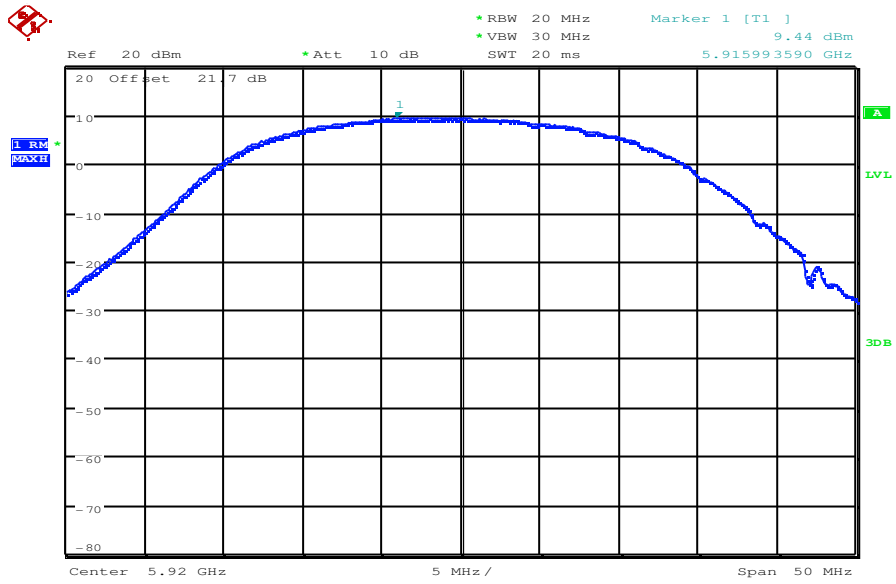
Plot 14: mid channel (5890 MHz), high data rate, antenna port B



Plot 15: mid channel (5900 MHz), high data rate, antenna port B



Plot 16: high channel (5920 MHz), high data rate, antenna port B



Results: low data rate, antenna port A

Test conditions		Max. output power [dBm]			
Frequency [MHz]		5860	5890	5900	5920
T_{nom}	V_{nom}	7.23	7.46	7.11	6.99
Measurement uncertainty		±3dB			

Results: high data rate, antenna port A

Test conditions		Max. output power [dBm]			
Frequency [MHz]		5860	5890	5900	5920
T_{nom}	V_{nom}	7.53	7.63	7.61	7.21
Measurement uncertainty		±3dB			

Results: low data rate, antenna port B

Test conditions		Max. output power [dBm]			
Frequency [MHz]		5860	5890	5900	5920
T_{nom}	V_{nom}	9.84	9.34	9.03	9.09
Measurement uncertainty		±3dB			

Results: high data rate, antenna port B

Test conditions		Max. output power [dBm]			
Frequency [MHz]		5860	5890	5900	5920
T_{nom}	V_{nom}	9.70	9.71	9.28	9.44
Measurement uncertainty		±3dB			

Limits:

Under normal test conditions only	Class B – 10 dBm

9.7 Max. peak output power (radiated) (ASTM 8.9.1 / § 2.1046 / § 95.639 / § 95.1509)

Not performed! Delta tests only!

Results: low data rate

Test conditions		Max. output power [dBm]			
Frequency [MHz]		5860	5890	5900	5920
T_{nom}	V_{nom}				
Measurement uncertainty		±3dB			

Results: high data rate

Test conditions		Max. output power [dBm]			
Frequency [MHz]		5860	5890	5900	5920
T_{nom}	V_{nom}				
Measurement uncertainty		±3dB			

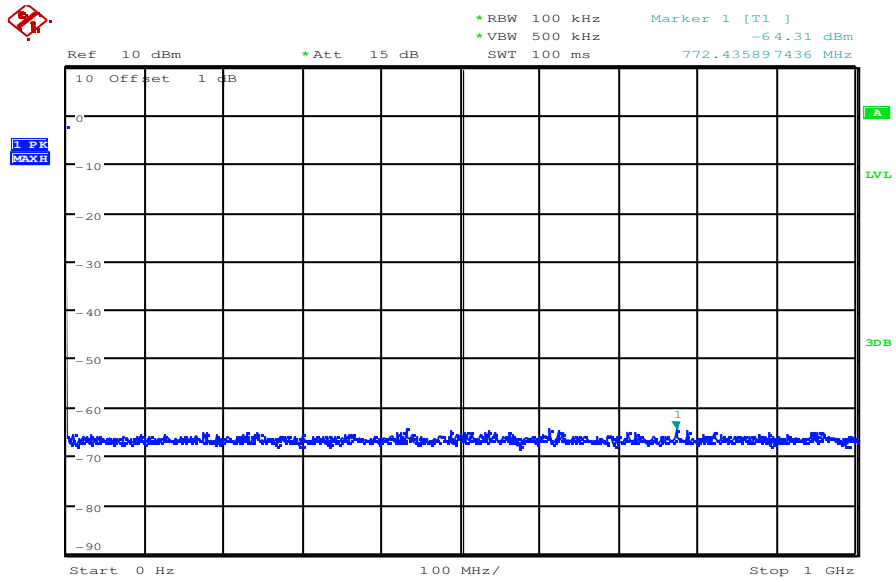
The radiated values are calculated with the antenna gain.

Limits:

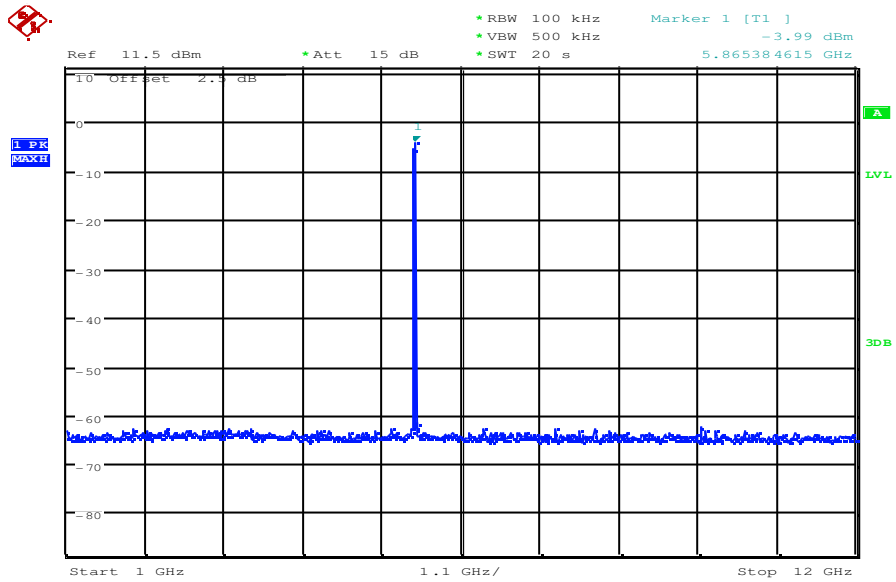
Under normal test conditions only	Max. 23 dBm

9.8 Spurious Emissions - conducted Transmitter (§ 95.635 / § 95.1509 / § 2.1051)

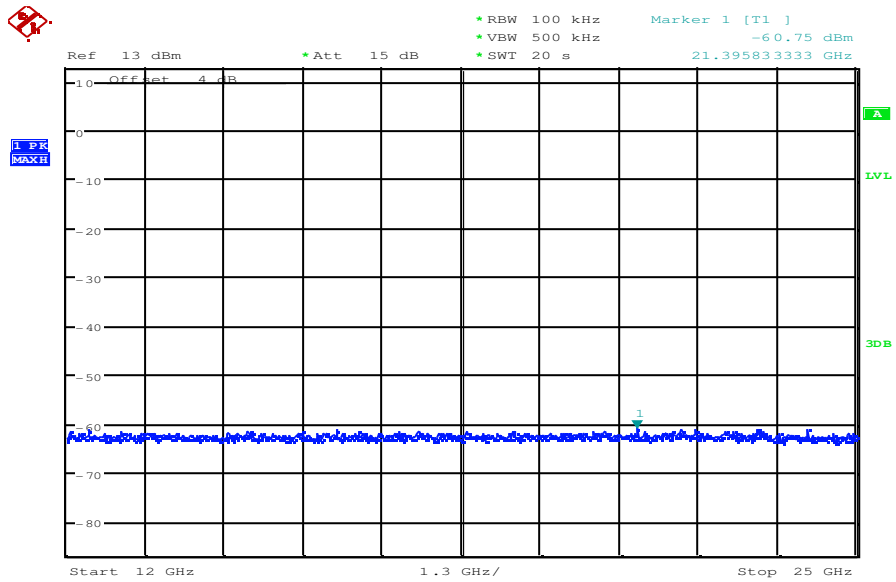
Plot 1: low channel (5860 MHz), low data rate, antenna port A



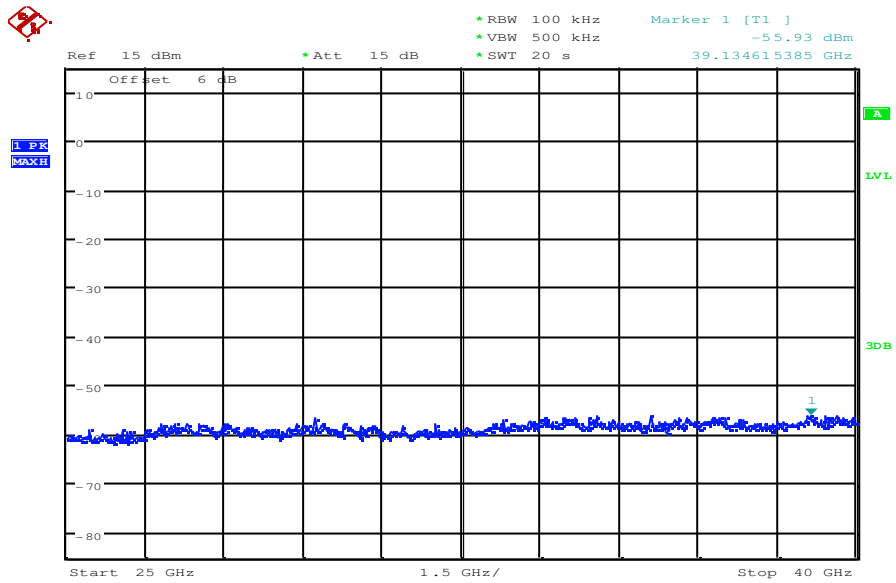
Plot 2: low channel (5860 MHz), low data rate, antenna port A



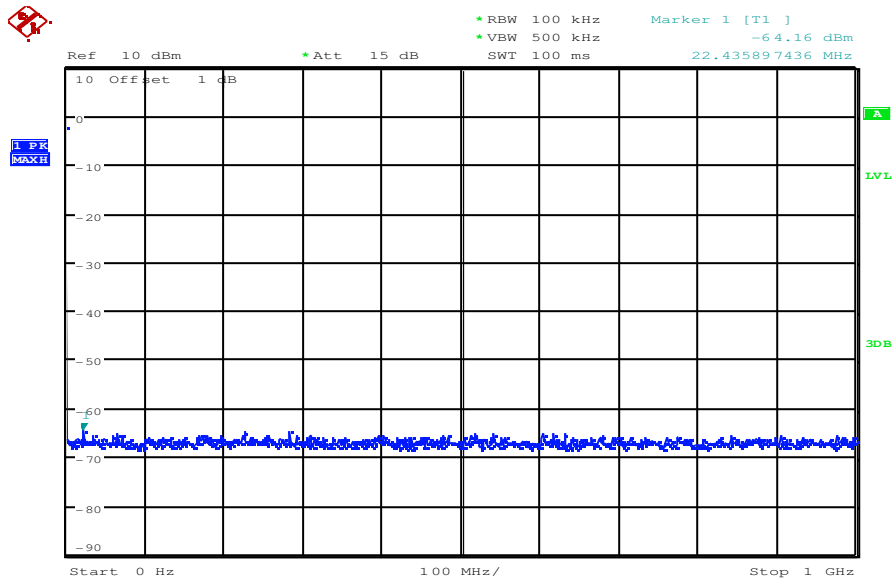
Plot 3: low channel (5860 MHz), low data rate, antenna port A



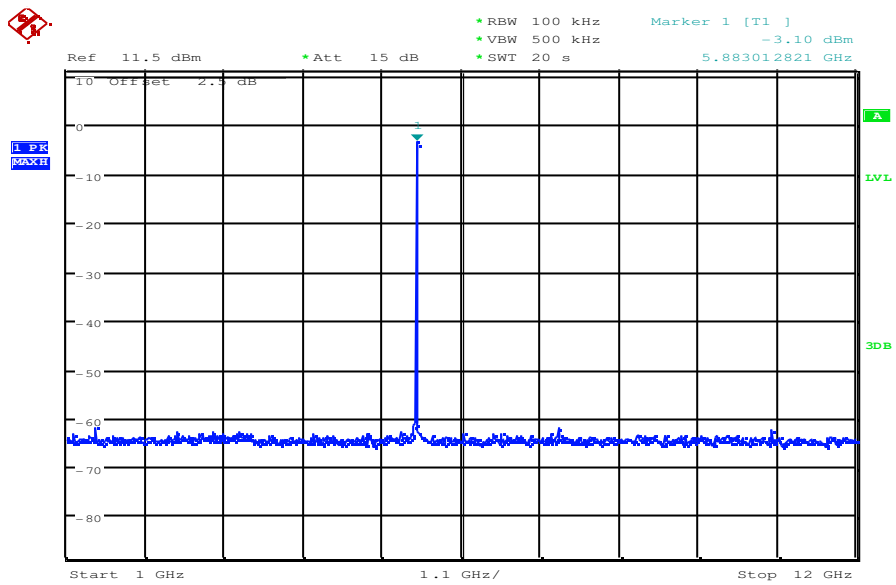
Plot 4: low channel (5860 MHz), low data rate, antenna port A



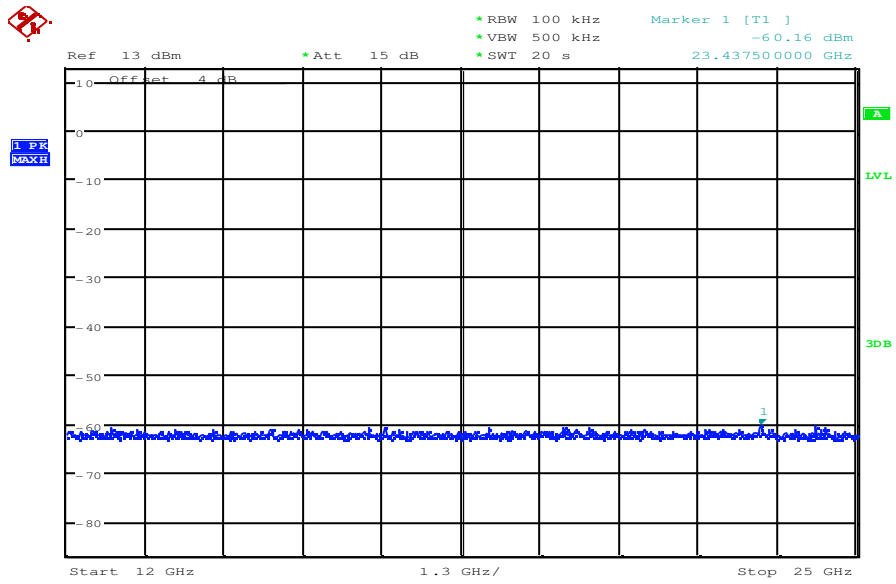
Plot 5: mid channel (5890 MHz), low data rate, antenna port A



Plot 6: mid channel (5890 MHz), low data rate, antenna port A

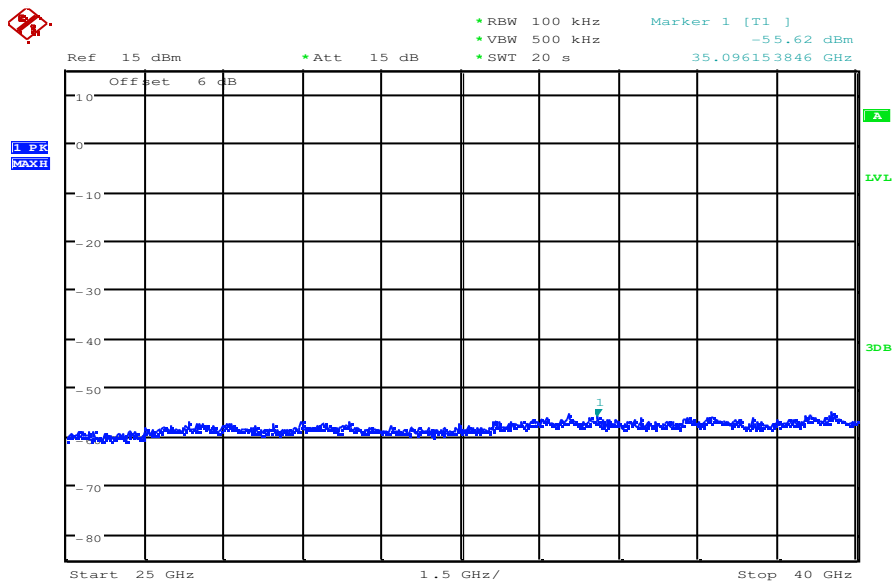


Plot 7: mid channel (5890 MHz), low data rate, antenna port A



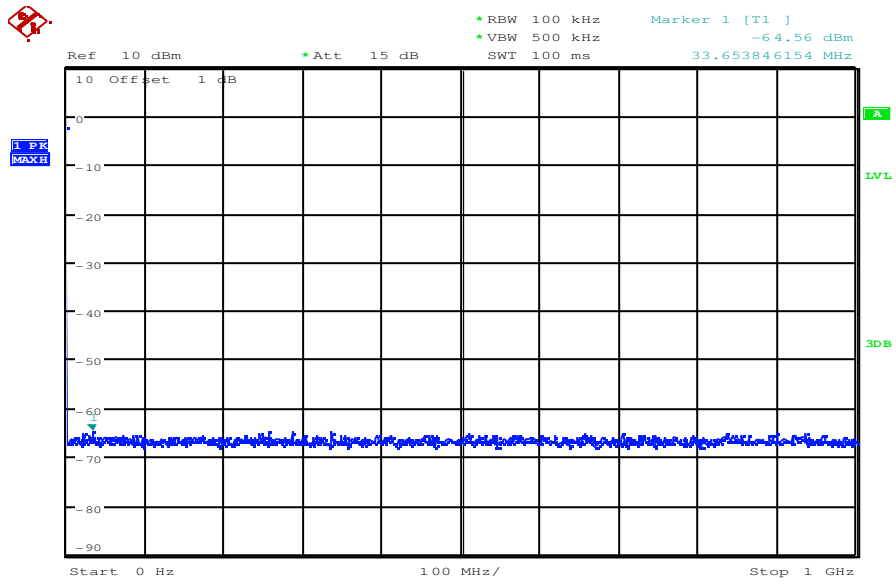
Date: 11.AUG.2010 13:39:38

Plot 8: mid channel (5890 MHz), low data rate, antenna port A

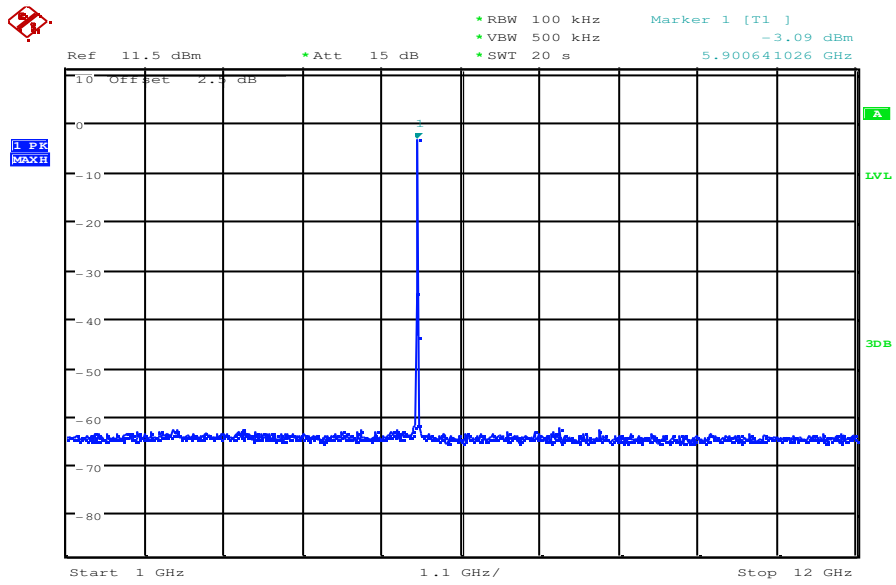


Date: 11.AUG.2010 14:45:28

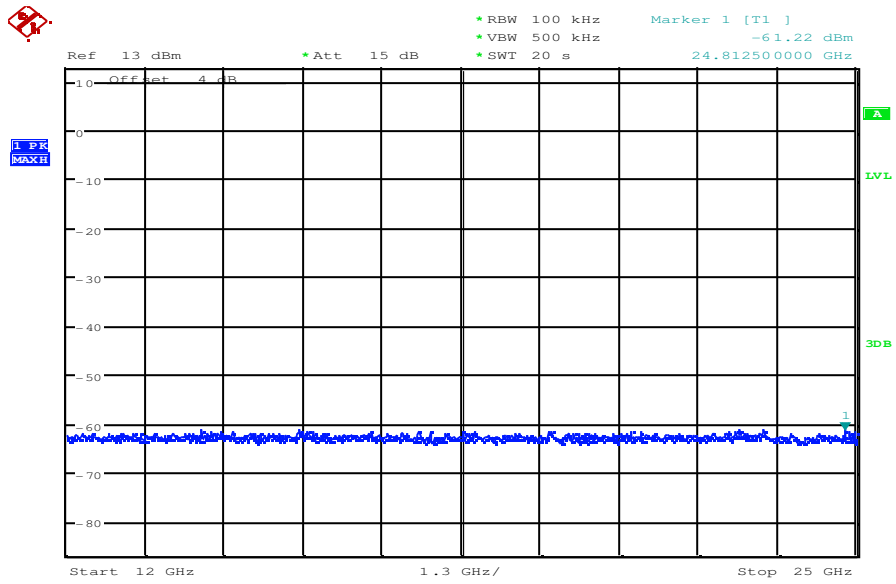
Plot 9: mid channel (5900 MHz), low data rate, antenna port A



Plot 10: mid channel (5900 MHz), low data rate, antenna port A

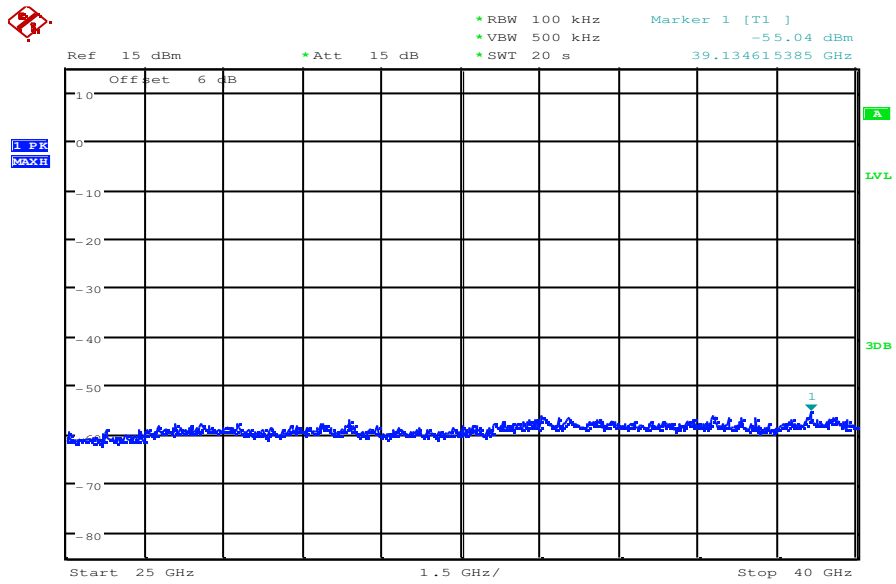


Plot 11: mid channel (5900 MHz), low data rate, antenna port A



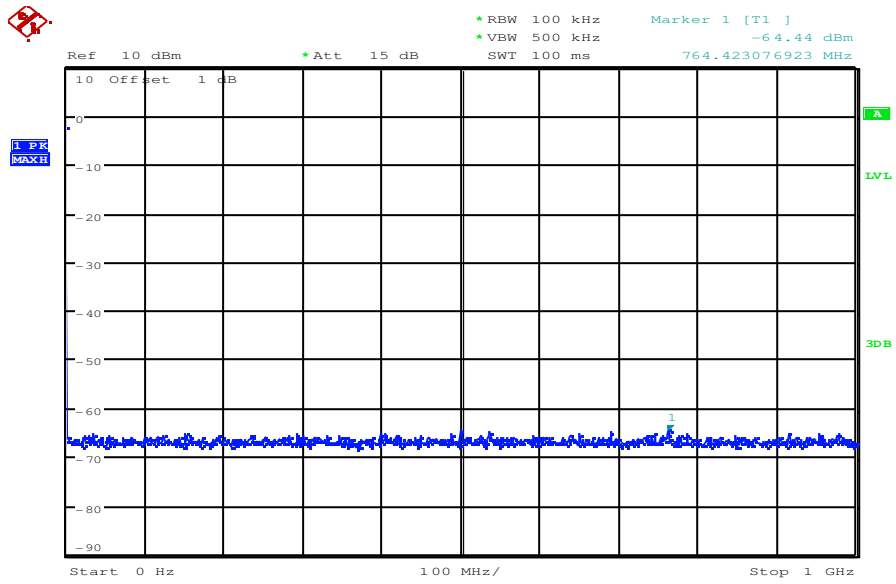
Date: 11.AUG.2010 13:43:11

Plot 12: mid channel (5900 MHz), low data rate, antenna port A

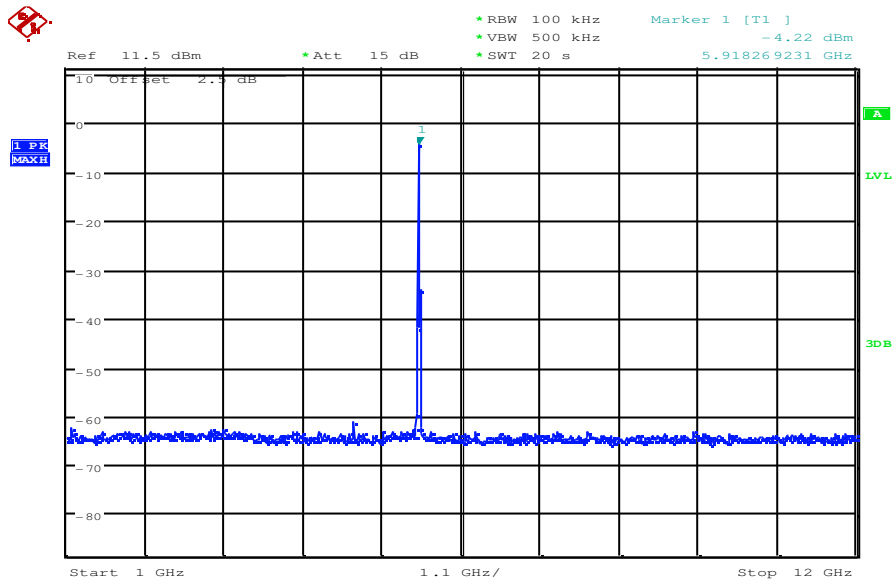


Date: 11.AUG.2010 14:46:23

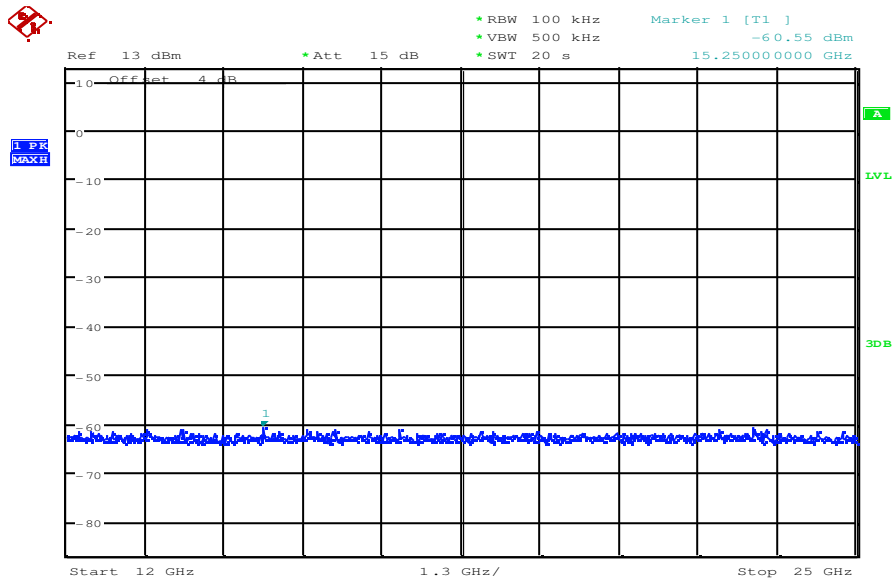
Plot 13: high channel (5920 MHz), low data rate, antenna port A



Plot 14: high channel (5920 MHz), low data rate, antenna port A

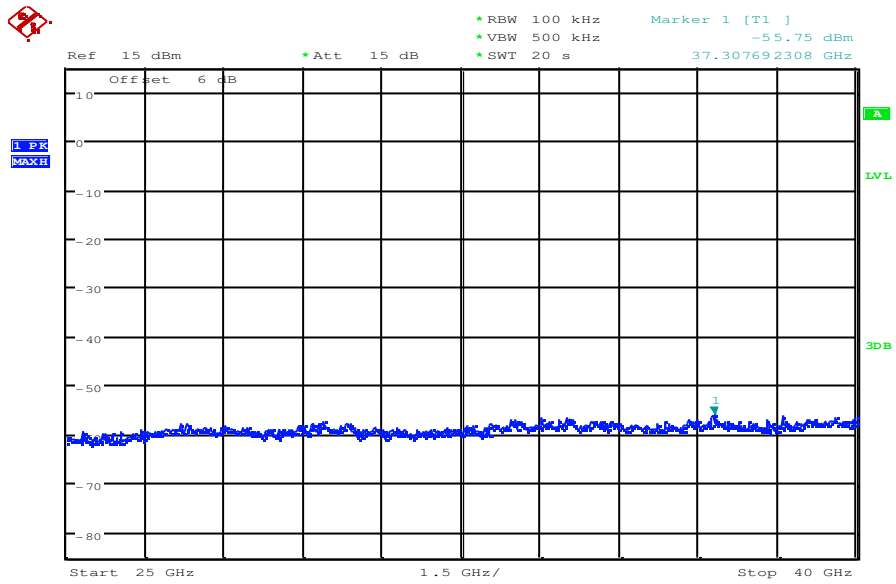


Plot 15: high channel (5920 MHz), low data rate, antenna port A



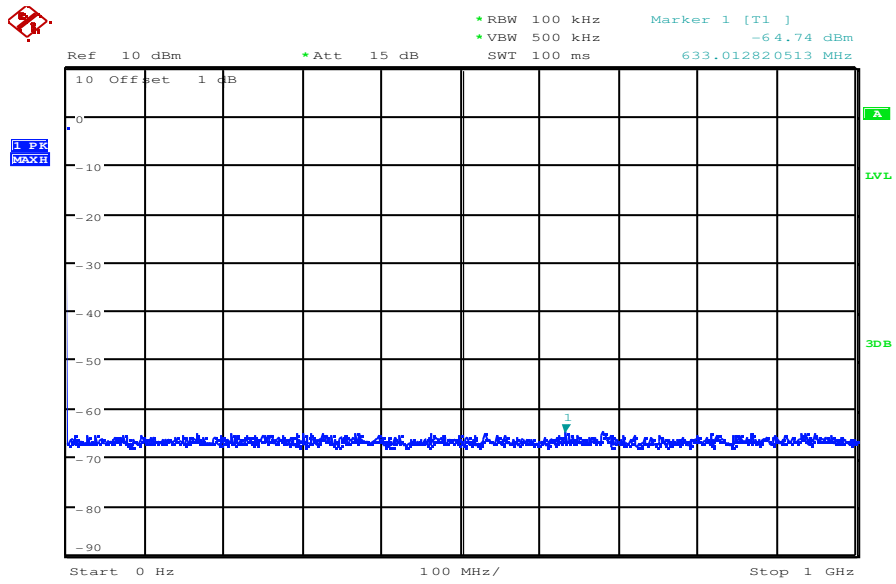
Date: 11.AUG.2010 13:44:03

Plot 16: high channel (5920 MHz), low data rate, antenna port A

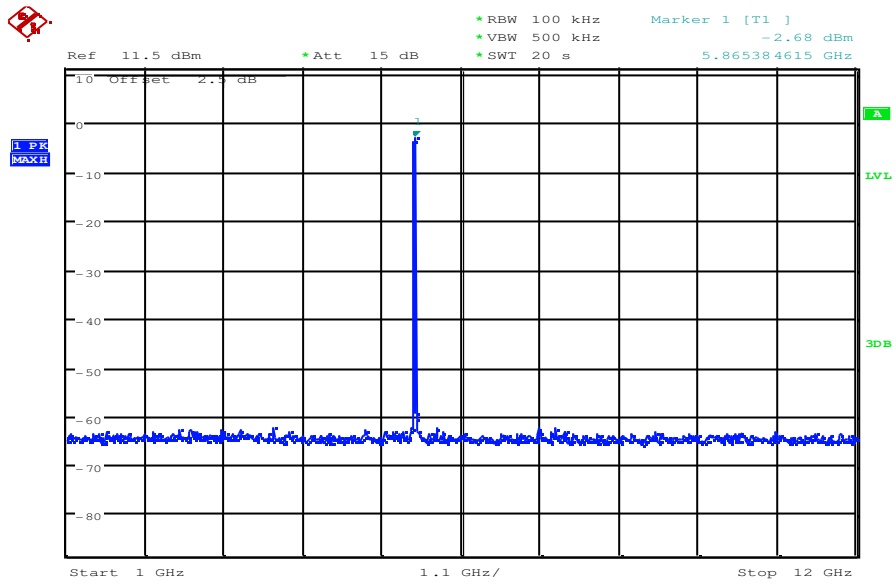


Date: 11.AUG.2010 14:48:31

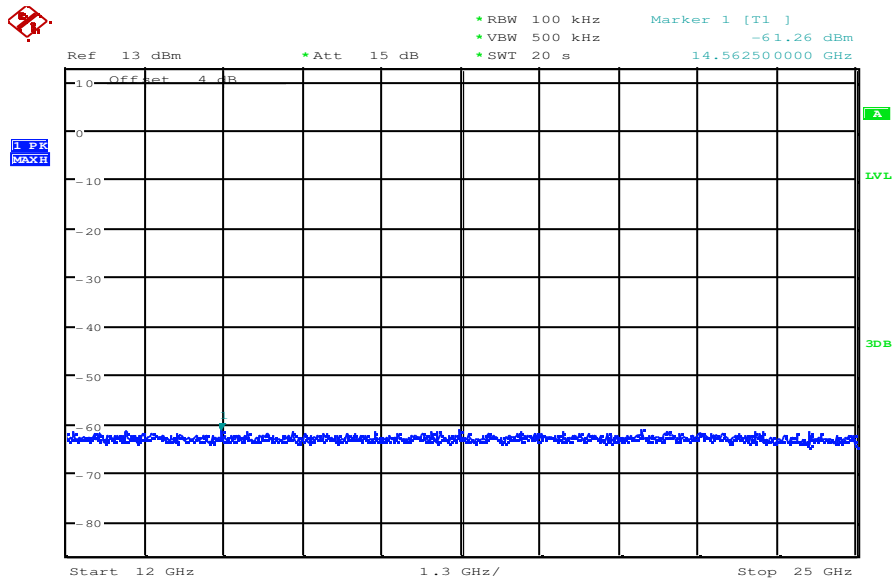
Plot 17: low channel (5860 MHz), high data rate, low data rate, antenna port A



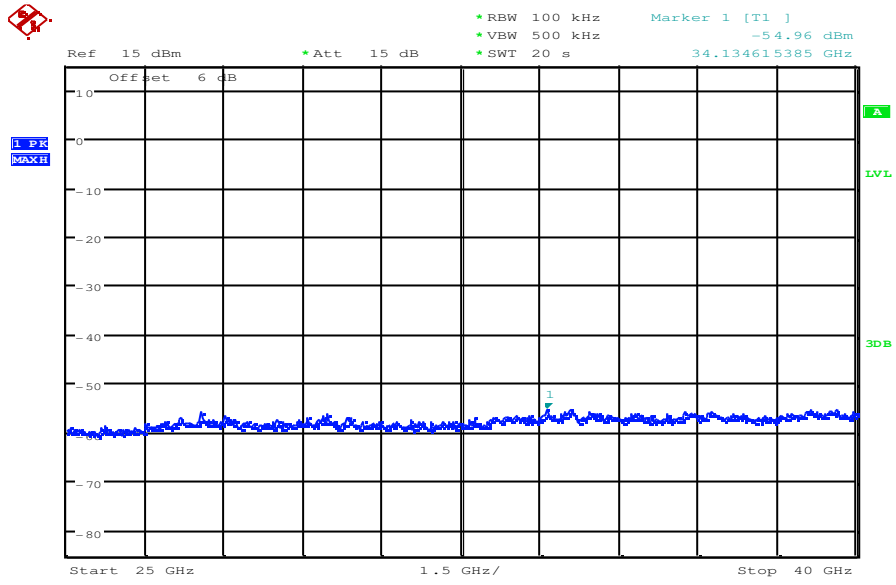
Plot 18: low channel (5860 MHz), high data rate, low data rate, antenna port A



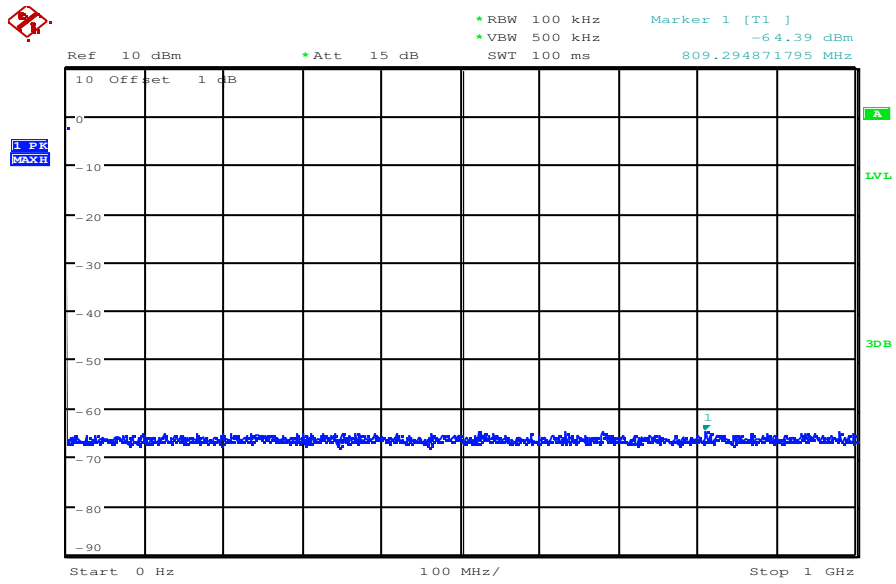
Plot 19: low channel (5860 MHz), high data rate, low data rate, antenna port A



Plot 20: low channel (5860 MHz), high data rate, low data rate, antenna port A

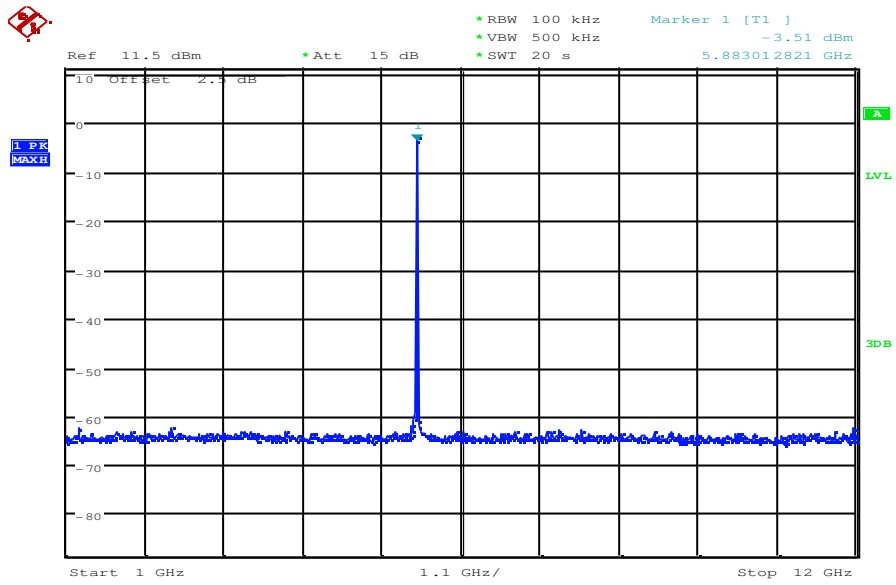


Plot 21: mid channel (5890 MHz), high data rate, low data rate, antenna port A



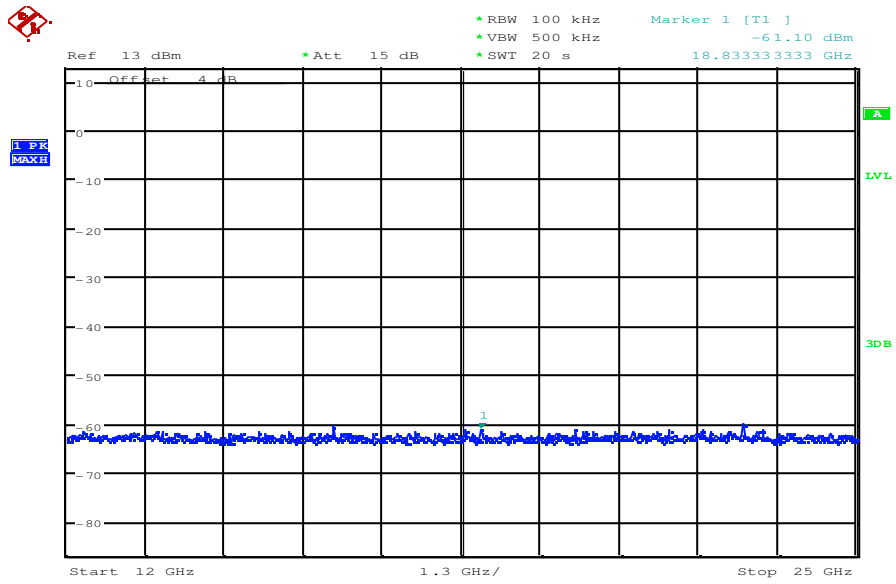
Date: 11.AUG.2010 12:55:23

Plot 22: mid channel (5890 MHz), high data rate, low data rate, antenna port A



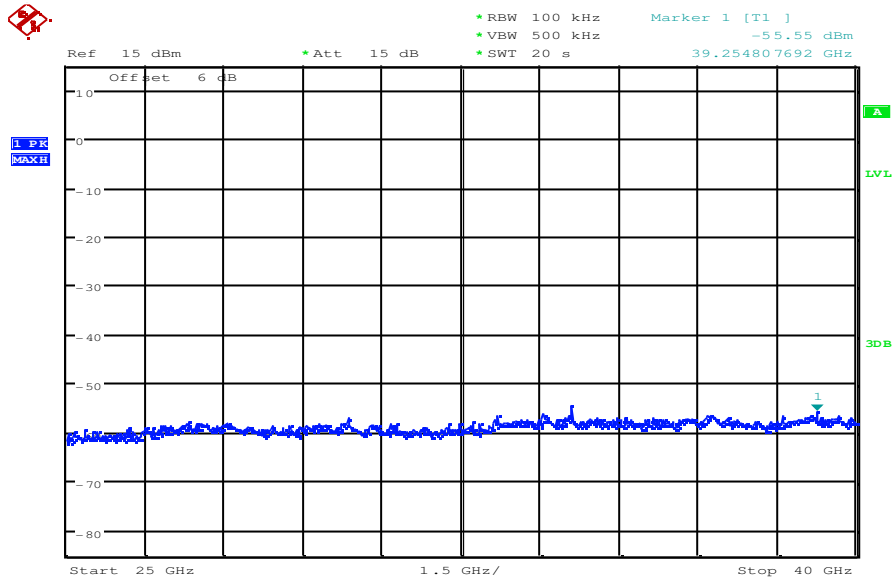
Date: 11.AUG.2010 13:15:04

Plot 23: mid channel (5890 MHz), high data rate, low data rate, antenna port A



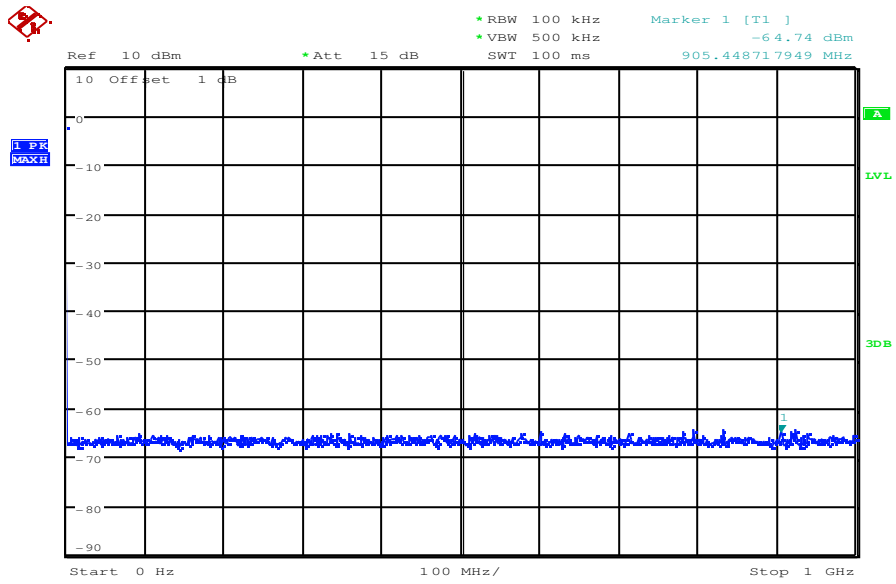
Date: 11.AUG.2010 13:35:59

Plot 24: mid channel (5890 MHz), high data rate, low data rate, antenna port A

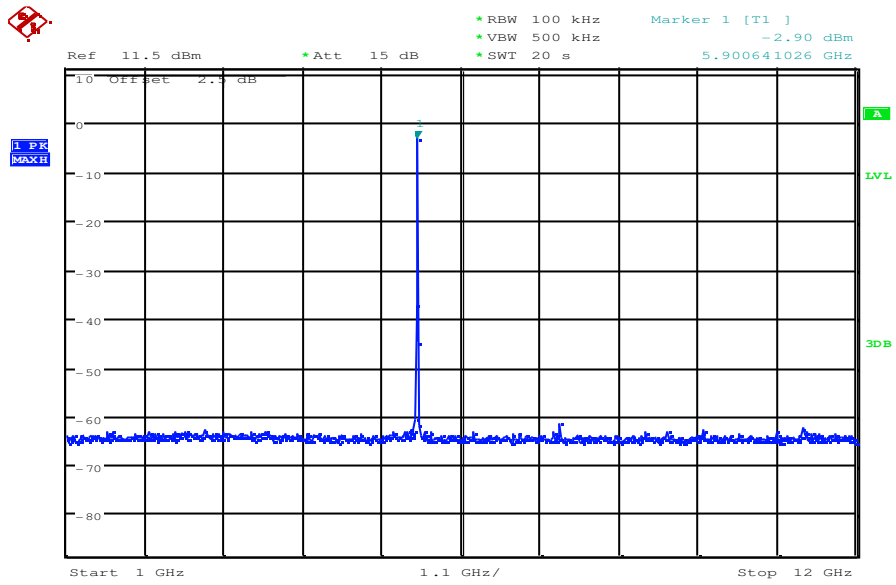


Date: 11.AUG.2010 14:41:06

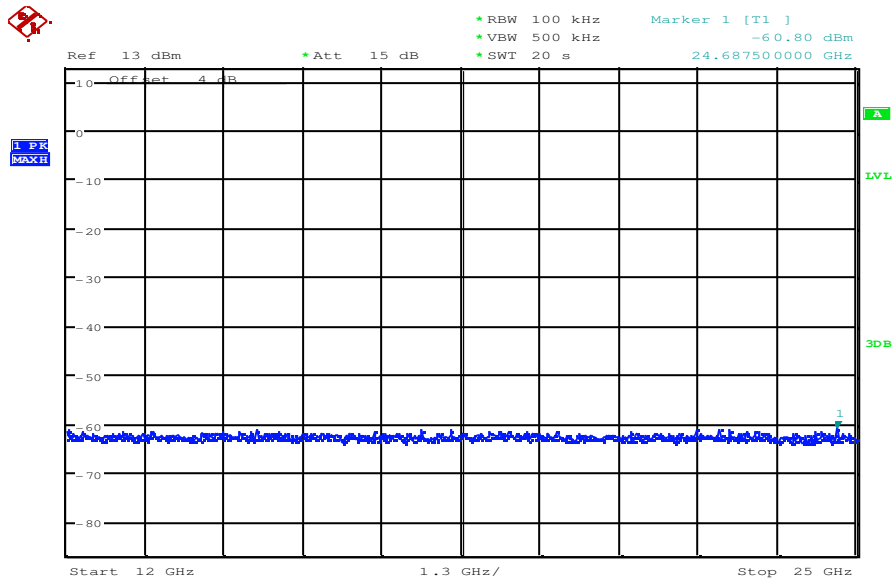
Plot 25: high channel (5900 MHz), high data rate, low data rate, antenna port A



Plot 26: high channel (5900 MHz), high data rate, low data rate, antenna port A



Plot 27: high channel (5900 MHz), high data rate, low data rate, antenna port A



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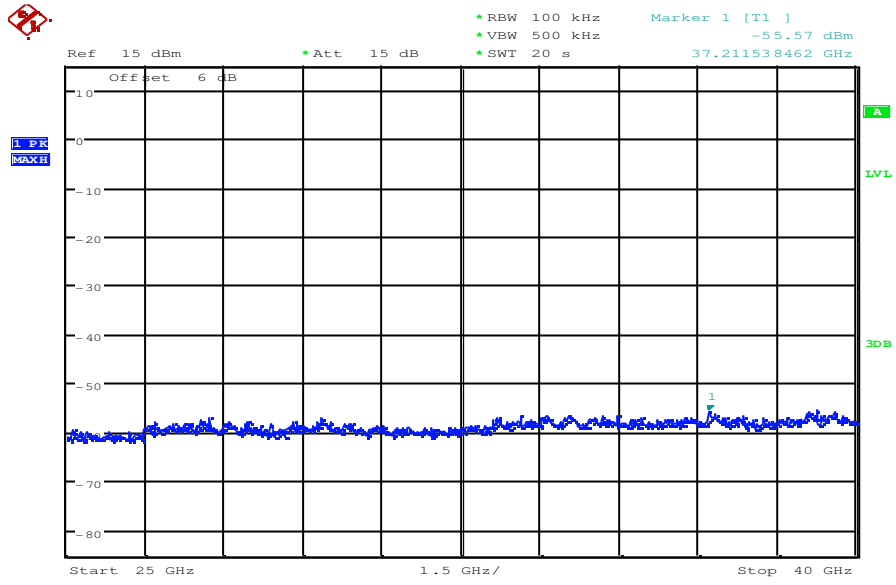
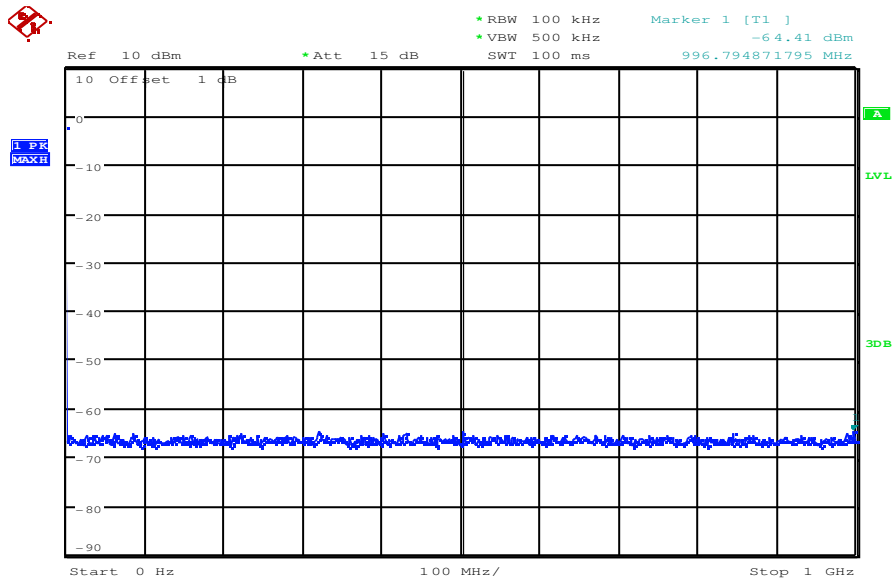
Plot 28: high channel (5900 MHz), high data rate, low data rate, antenna port A

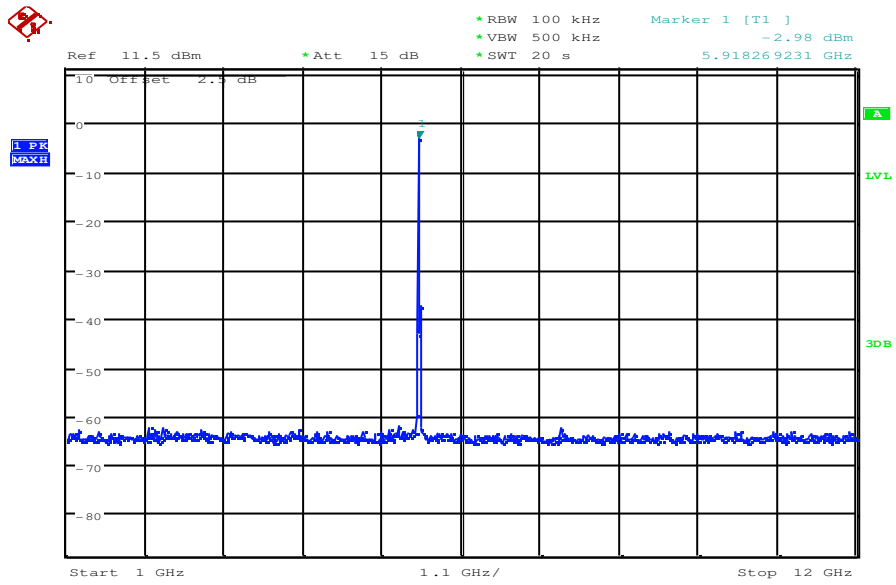


Date: 11.AUG.2010 14:47:08

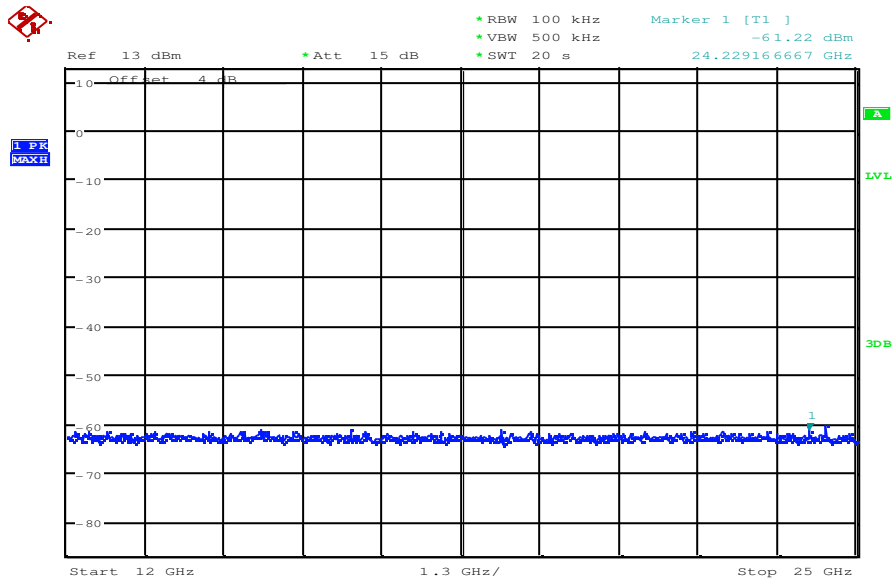
Plot 29: high channel (5920 MHz), high data rate, low data rate, antenna port A



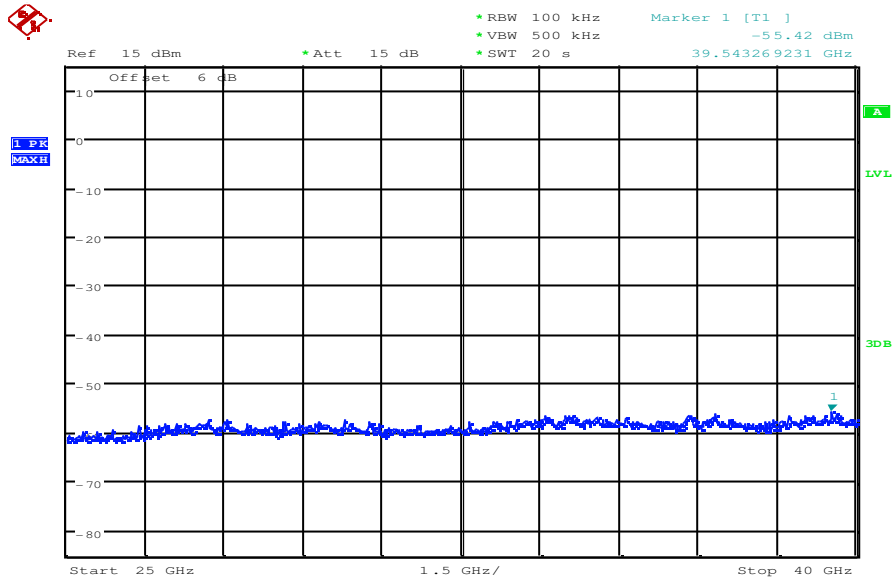
Plot 30: high channel (5920 MHz), high data rate, low data rate, antenna port A



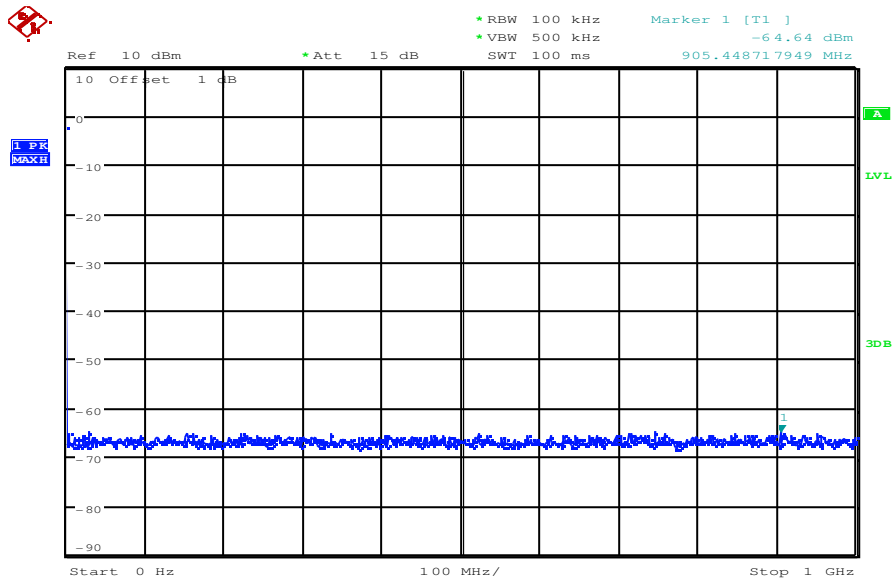
Plot 31: high channel (5920 MHz), high data rate, low data rate, antenna port A



Plot 32: high channel (5920 MHz), high data rate, low data rate, antenna port A

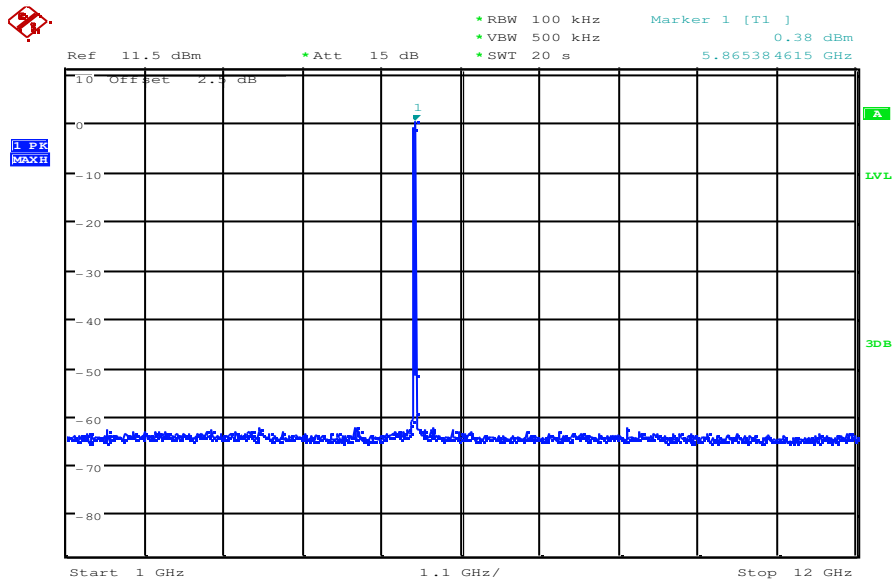


Plot 1: low channel (5860 MHz), low data rate, antenna port B



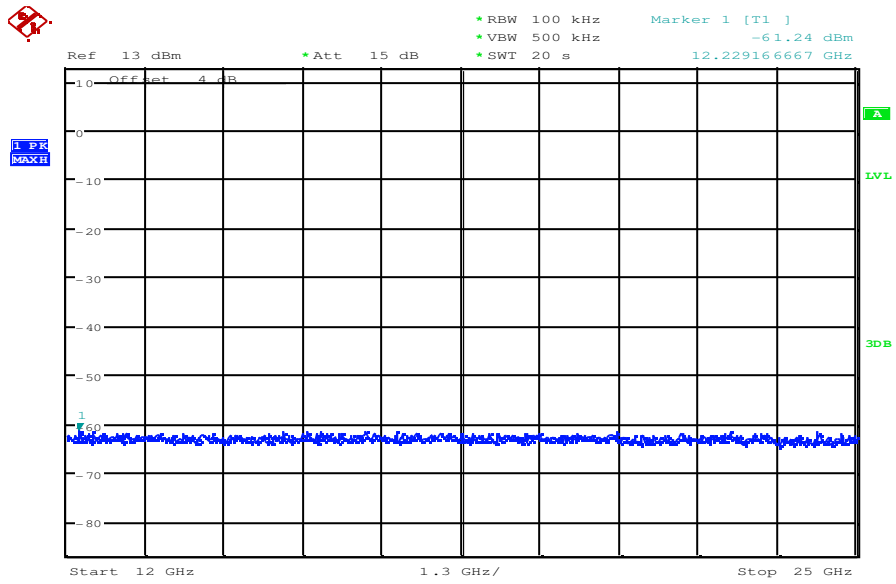
Date: 11.AUG.2010 12:59:07

Plot 2: low channel (5860 MHz), low data rate, antenna port B



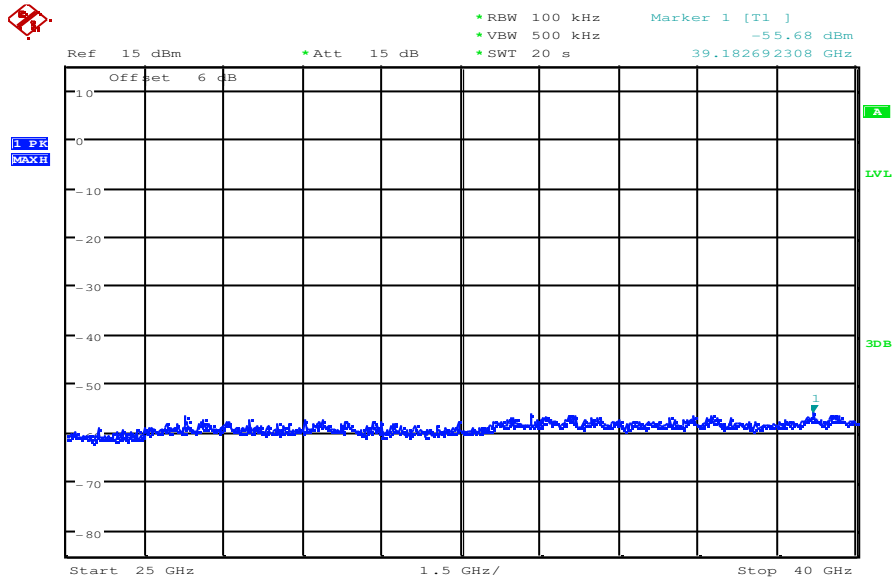
Date: 11.AUG.2010 13:12:00

Plot 3: low channel (5860 MHz), low data rate, antenna port B



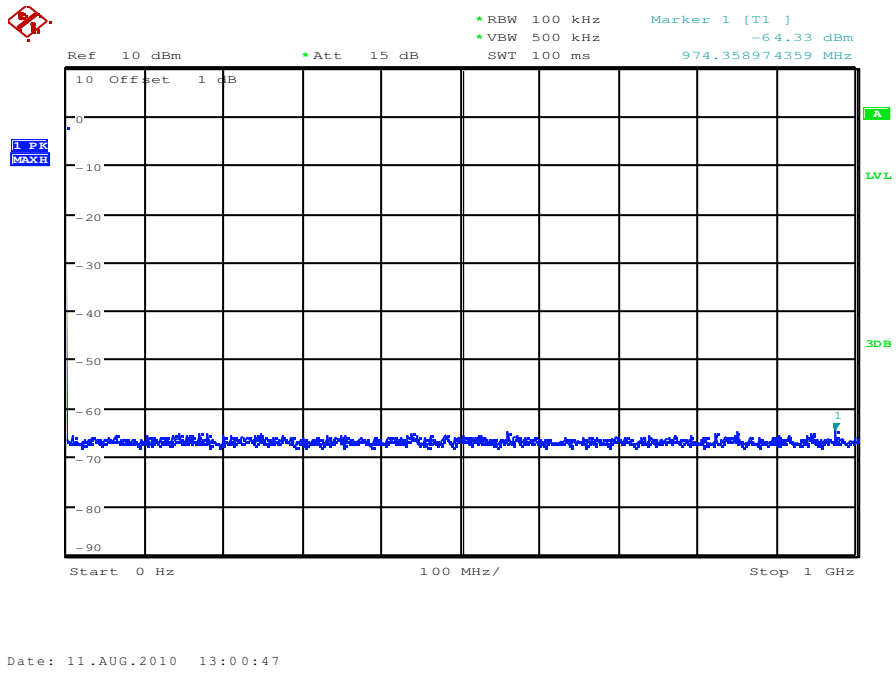
Date: 11.AUG.2010 13:50:50

Plot 4: low channel (5860 MHz), low data rate, antenna port B

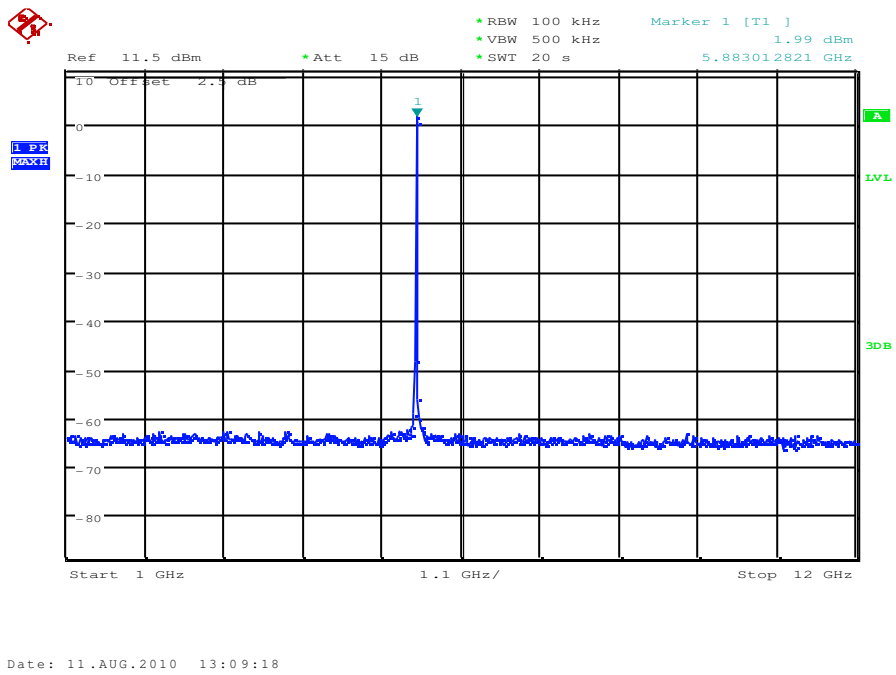


Date: 11.AUG.2010 14:53:43

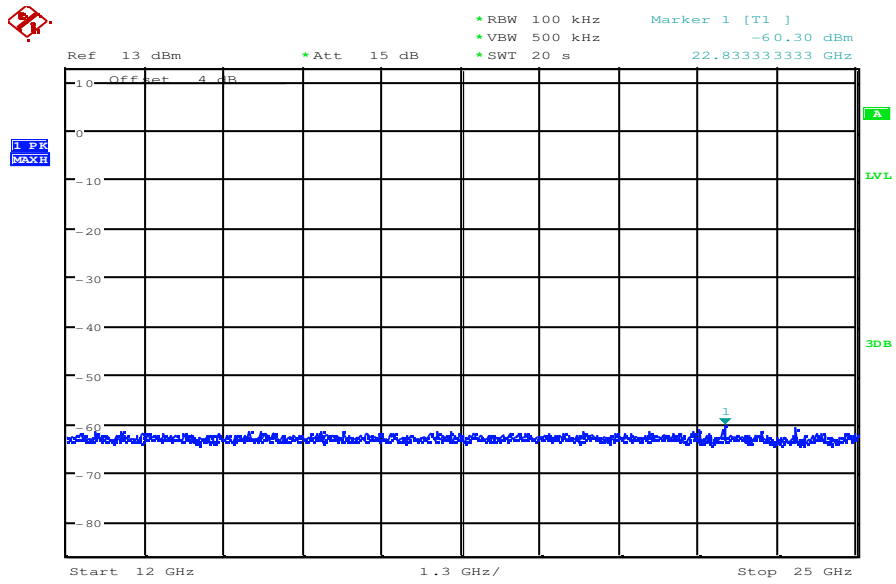
Plot 5: mid channel (5890 MHz), low data rate, antenna port B



Plot 6: mid channel (5890 MHz), low data rate, antenna port B

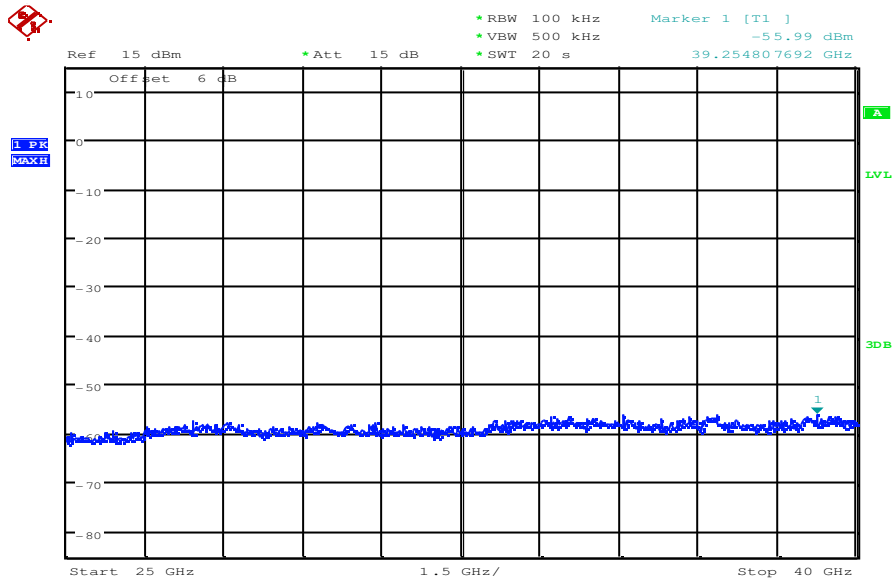


Plot 7: mid channel (5890 MHz), low data rate, antenna port B



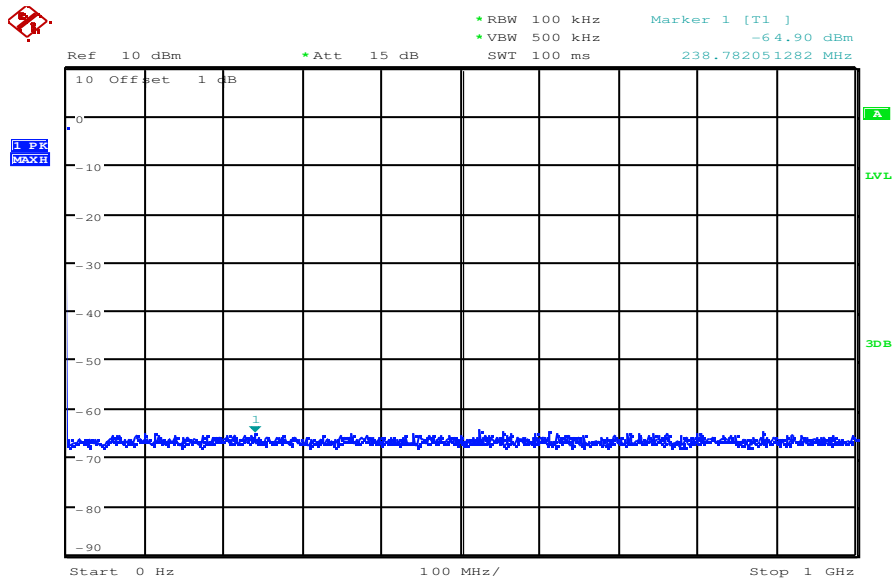
Date: 11.AUG.2010 13:49:55

Plot 8: mid channel (5890 MHz), low data rate, antenna port B

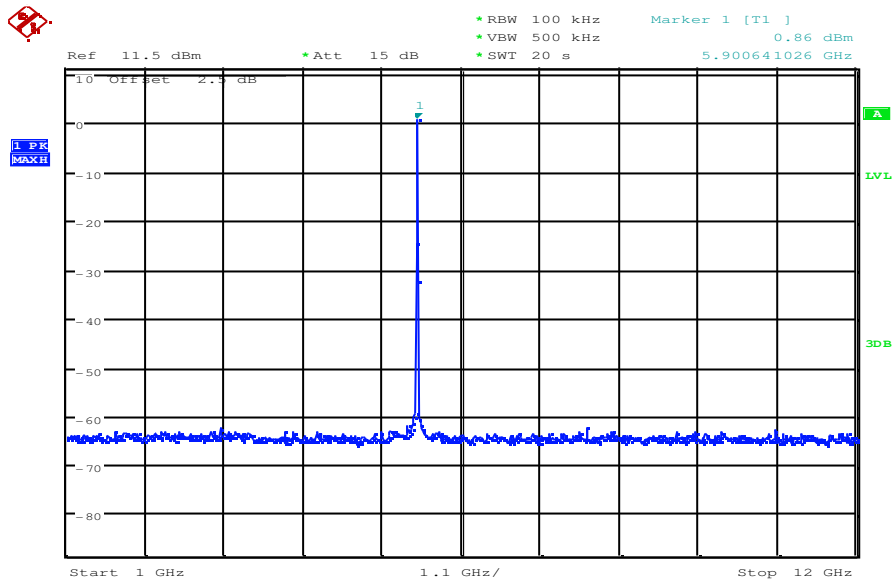


Date: 11.AUG.2010 14:51:44

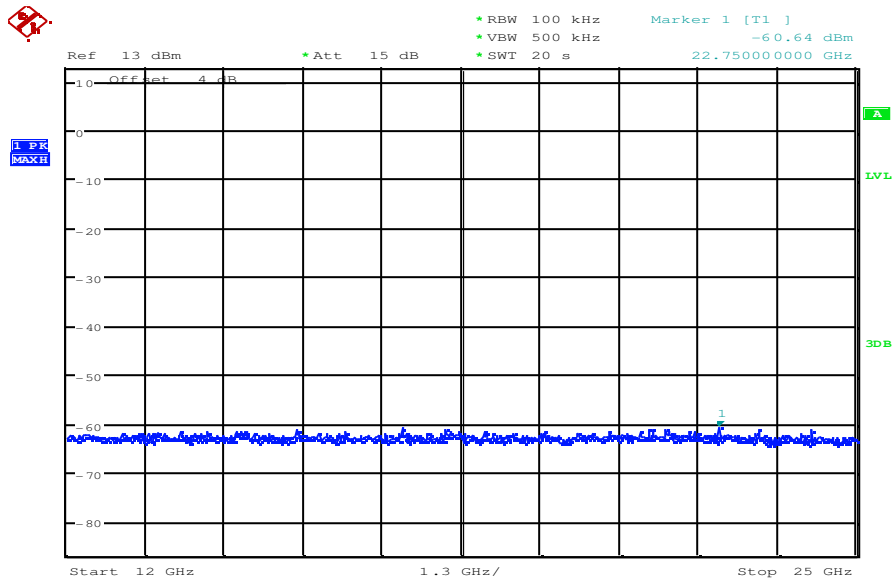
Plot 9: mid channel (5900 MHz), low data rate, antenna port B



Plot 10: mid channel (5900 MHz), low data rate, antenna port B

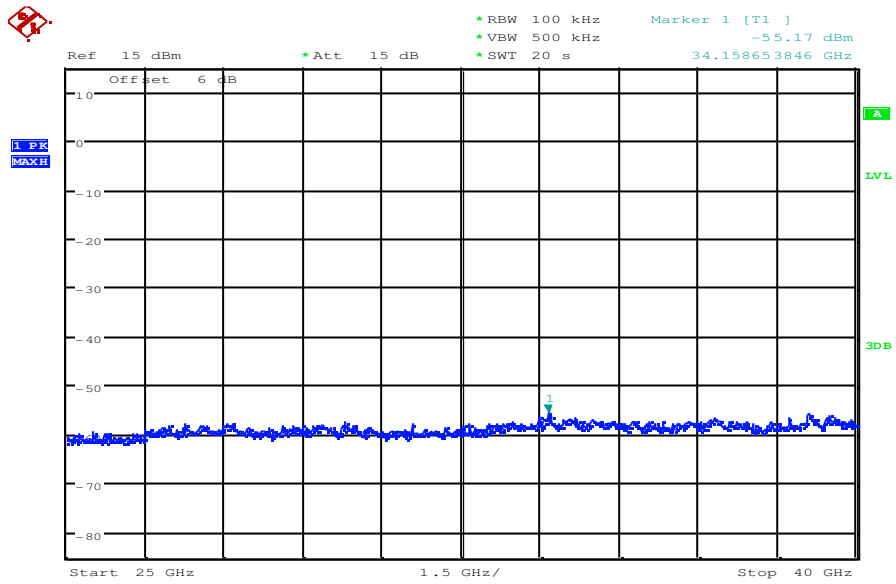


Plot 11: mid channel (5900 MHz), low data rate, antenna port B



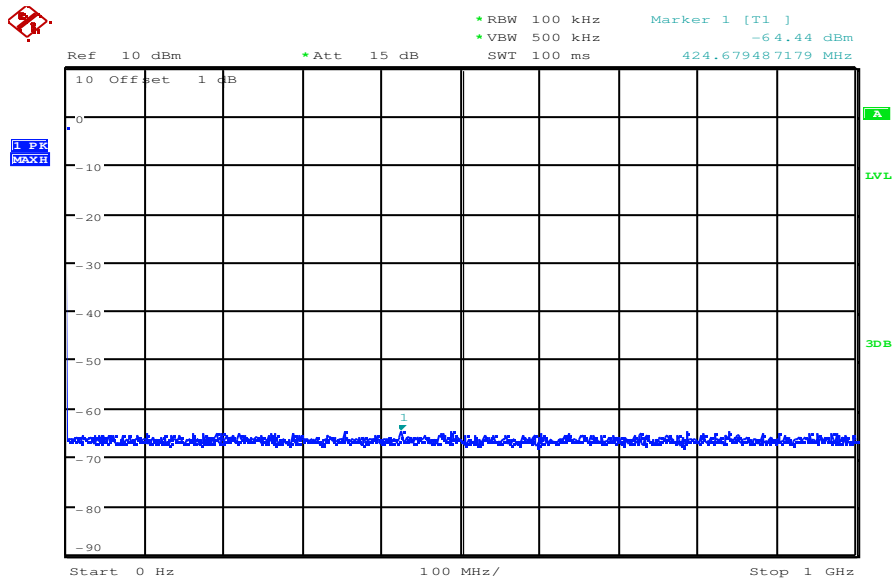
Date: 11.AUG.2010 13:47:38

Plot 12: mid channel (5900 MHz), low data rate, antenna port B



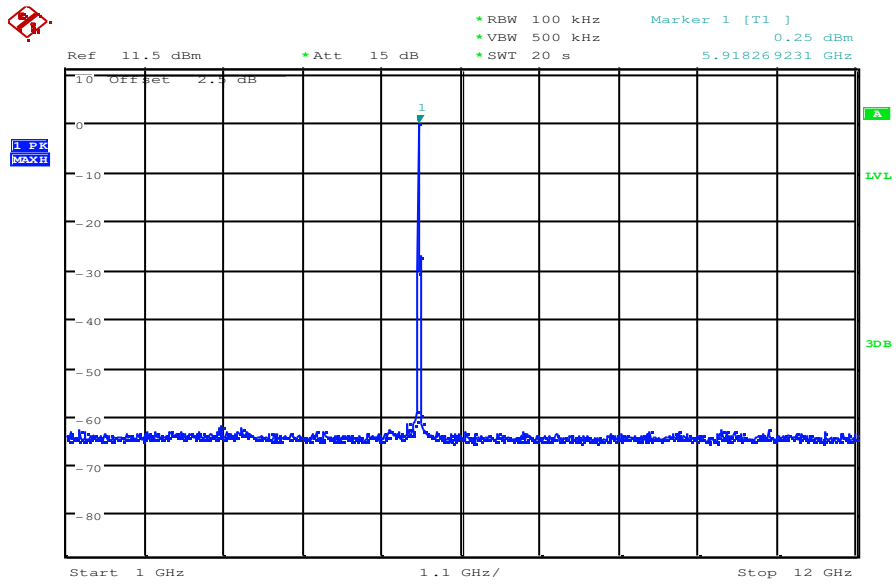
Date: 11.AUG.2010 14:50:59

Plot 13: high channel (5920 MHz), low data rate, antenna port B



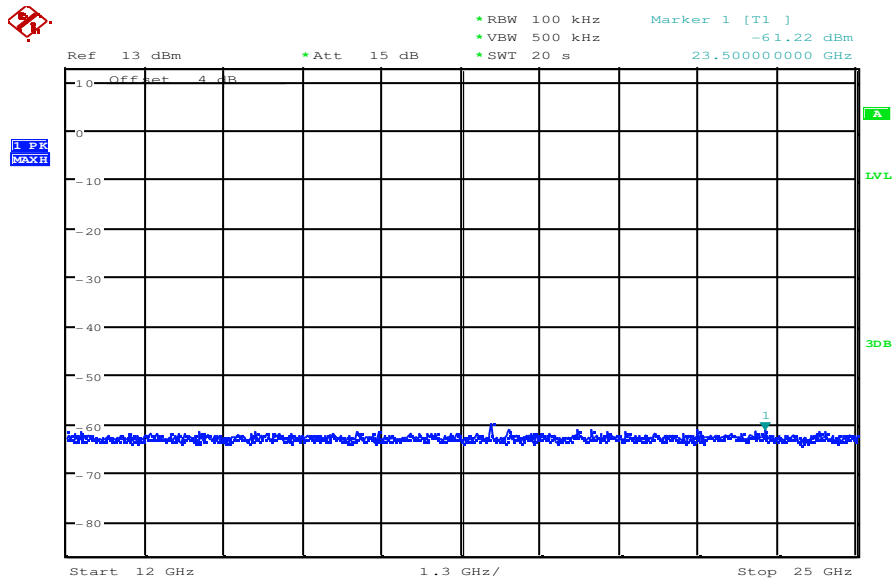
Date: 11.AUG.2010 13:02:52

Plot 14: high channel (5920 MHz), low data rate, antenna port B

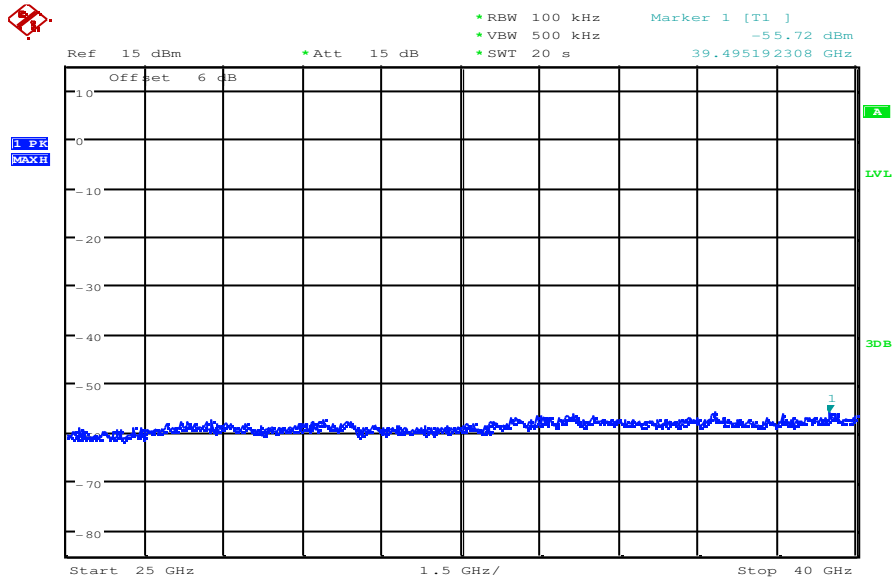


Date: 11.AUG.2010 13:05:01

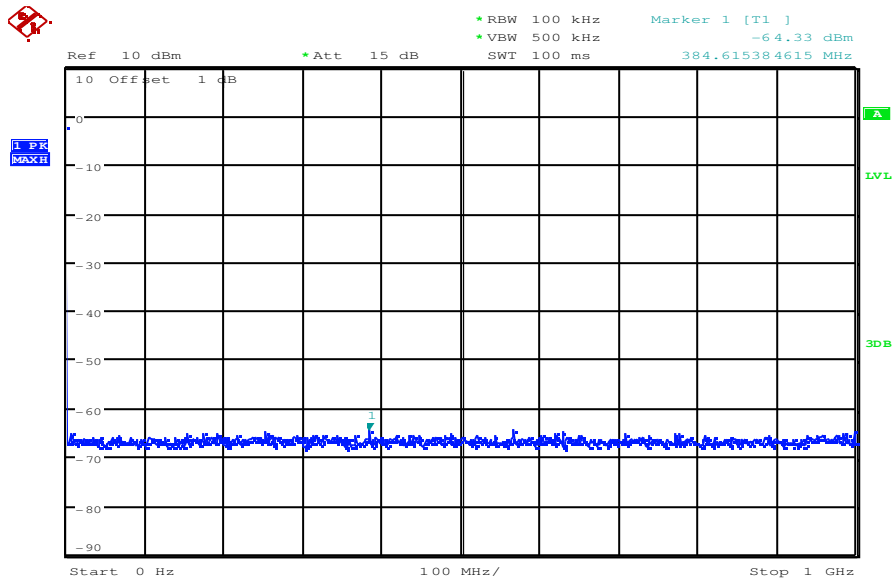
Plot 15: high channel (5920 MHz), low data rate, antenna port B



Plot 16: high channel (5920 MHz), low data rate, antenna port B

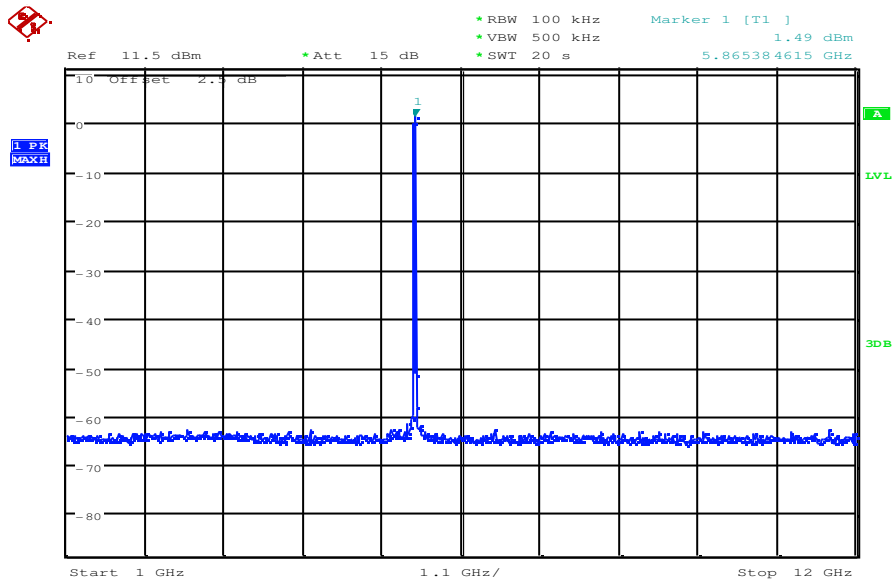


Plot 17: low channel (5860 MHz), high data rate, antenna port B



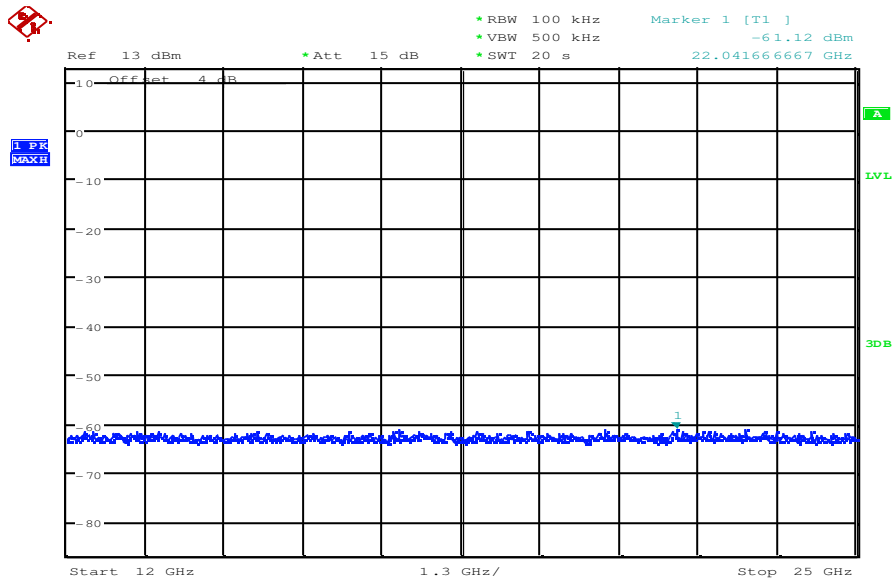
Date: 11.AUG.2010 12:59:37

Plot 18: low channel (5860 MHz), high data rate, antenna port B



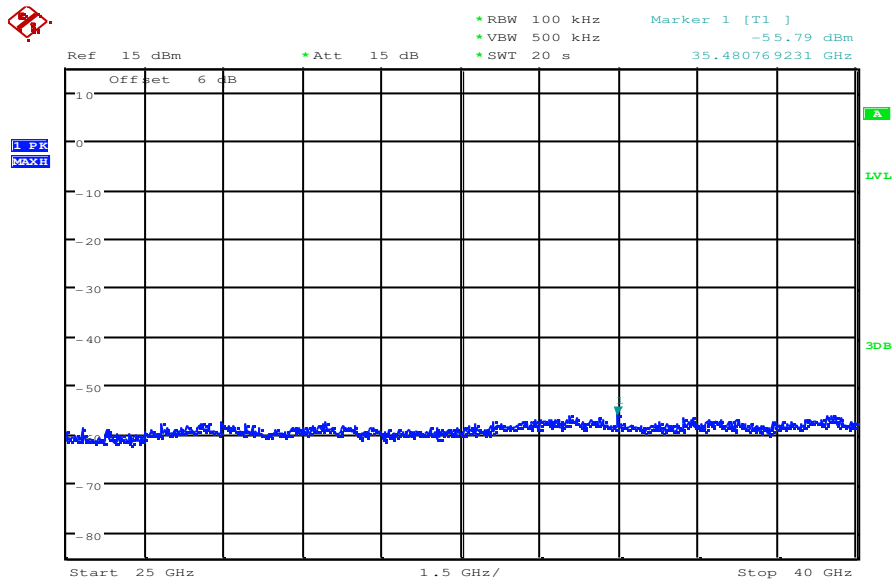
Date: 11.AUG.2010 13:10:59

Plot 19: low channel (5860 MHz), high data rate, antenna port B



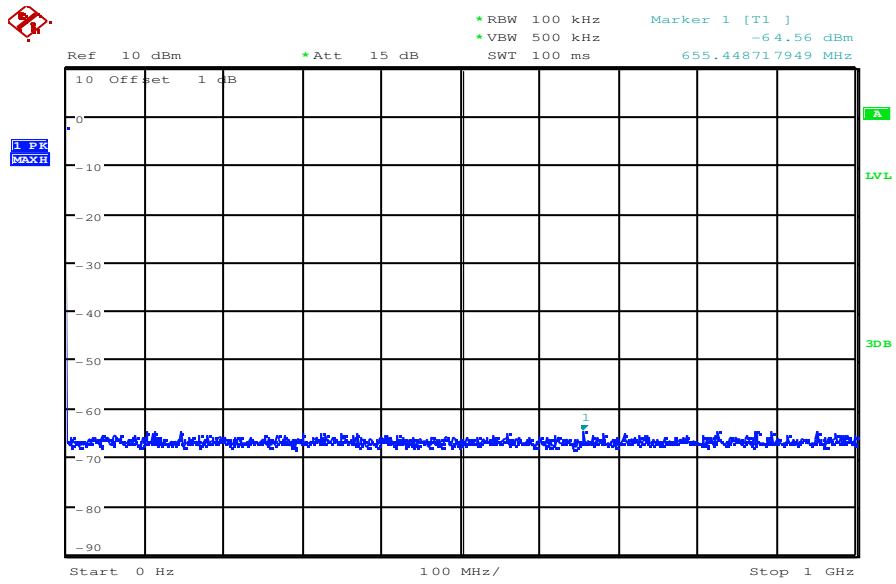
Date: 11.AUG.2010 13:51:39

Plot 20: low channel (5860 MHz), high data rate, antenna port B



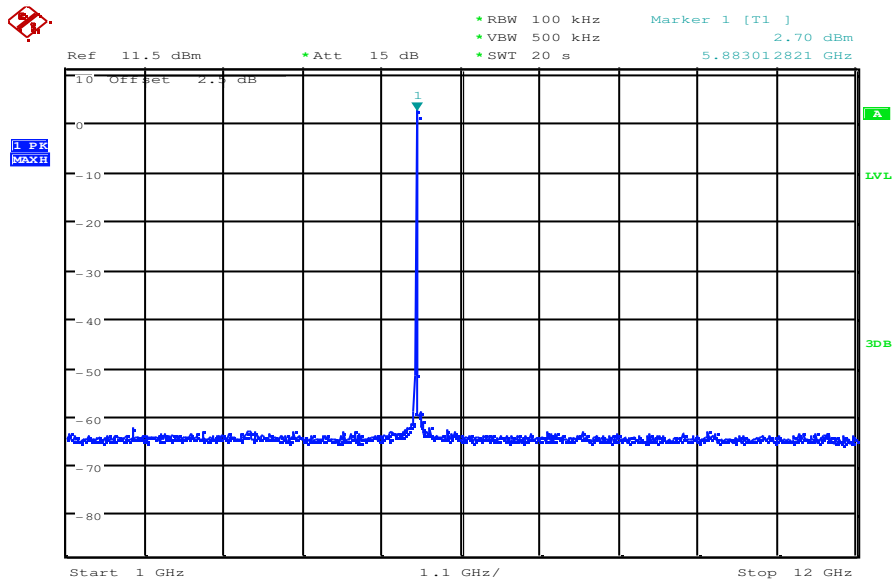
Date: 11.AUG.2010 14:53:04

Plot 21: mid channel (5890 MHz), high data rate, antenna port B



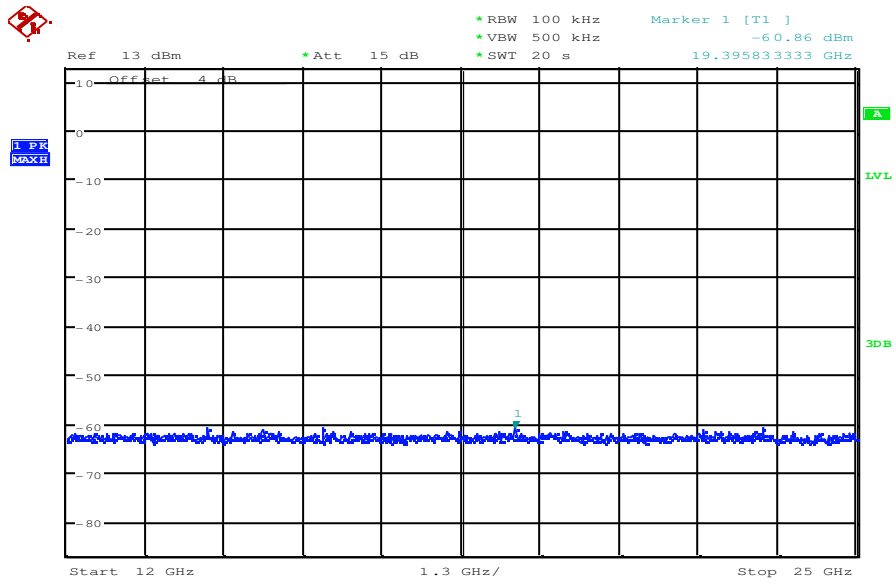
Date: 11.AUG.2010 13:00:14

Plot 22: mid channel (5890 MHz), high data rate, antenna port B



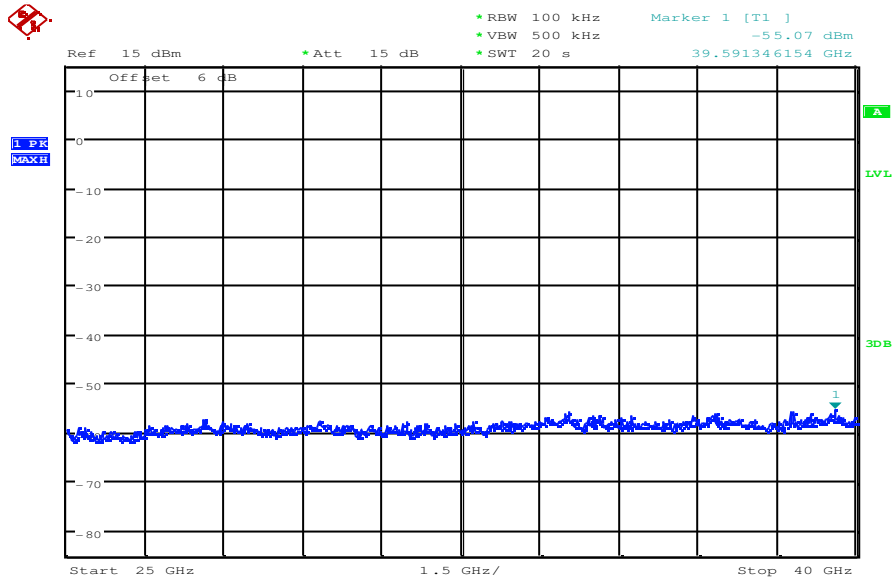
Date: 11.AUG.2010 13:10:04

Plot 23: mid channel (5890 MHz), high data rate, antenna port B



Date: 11.AUG.2010 13:49:11

Plot 24: mid channel (5890 MHz), high data rate, antenna port B



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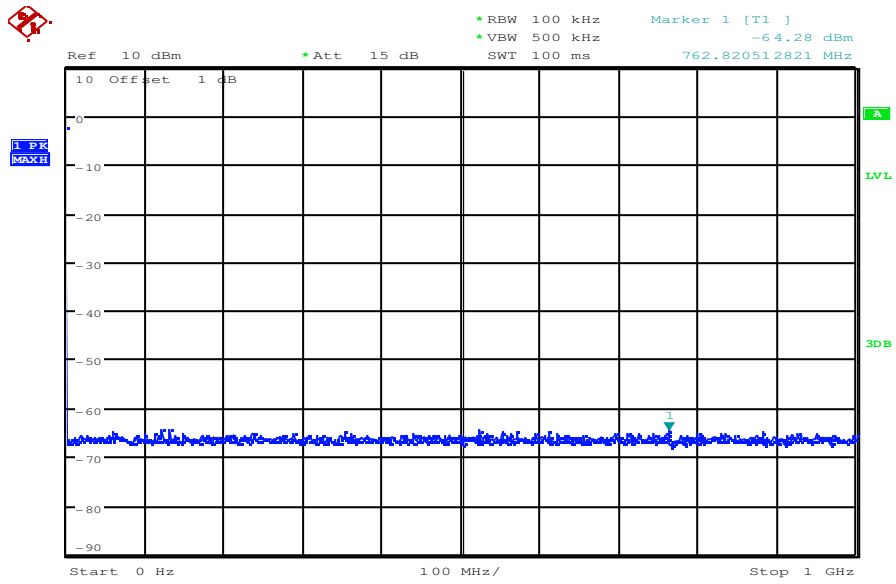
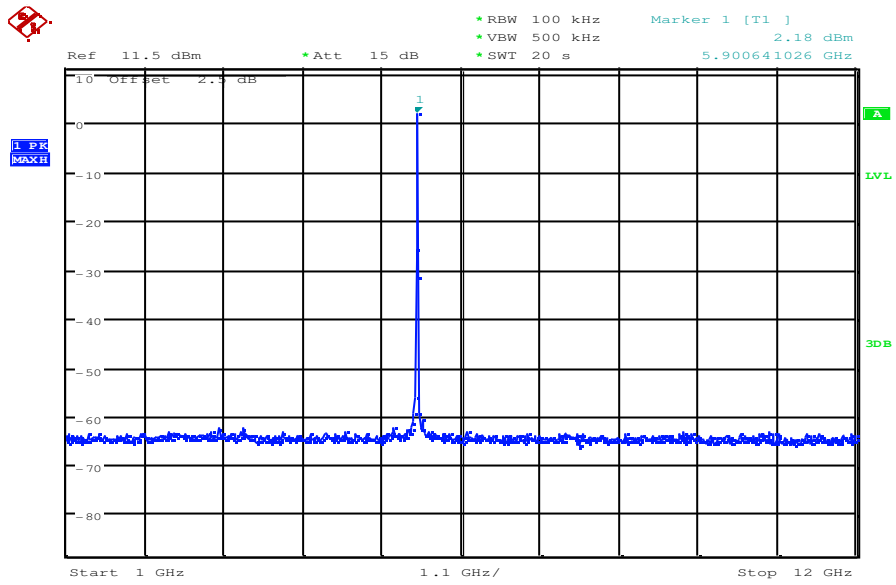
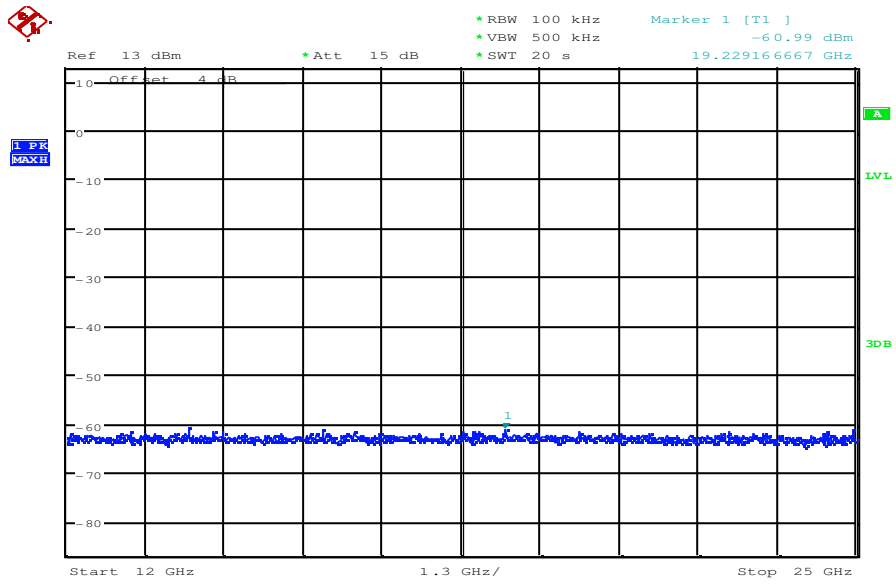
Plot 25: high channel (5900 MHz), high data rate, antenna port B



Plot 26: high channel (5900 MHz), high data rate, antenna port B

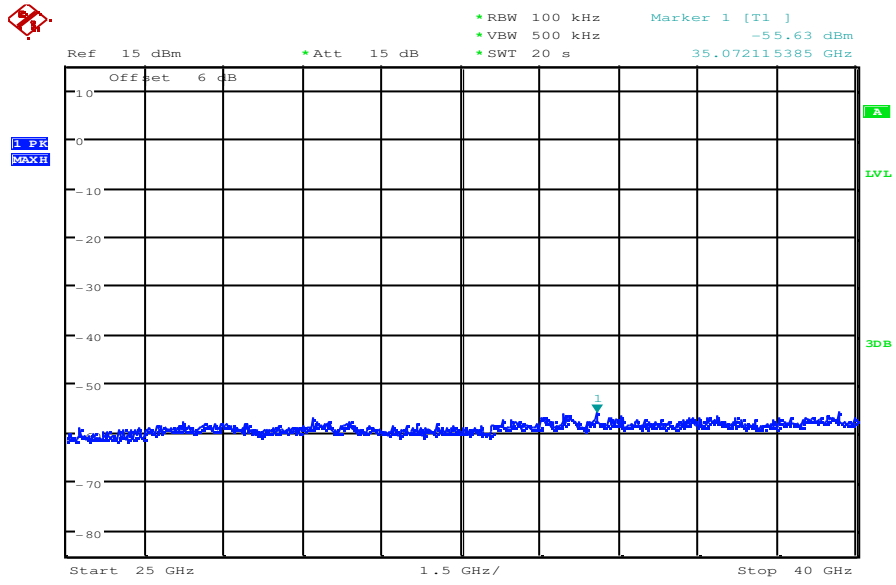


Plot 27: high channel (5900 MHz), high data rate, antenna port B



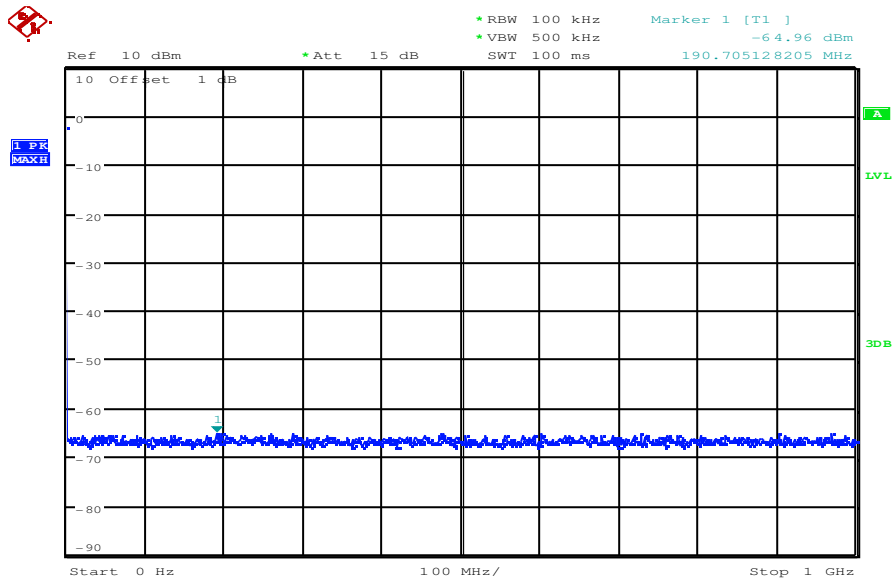
Date: 11.AUG.2010 13:48:17

Plot 28: high channel (5900 MHz), high data rate, antenna port B



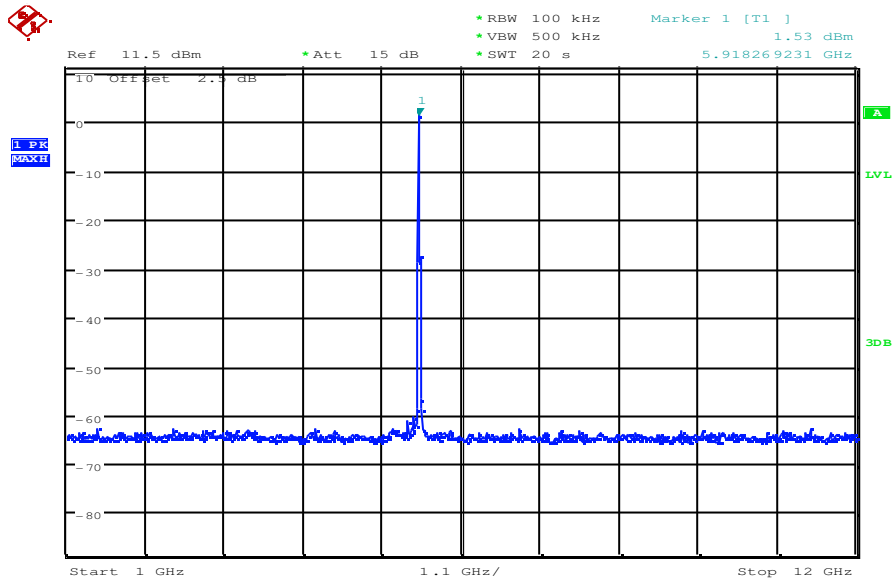
Date: 11.AUG.2010 14:50:18

Plot 29: high channel (5920 MHz), high data rate, antenna port B



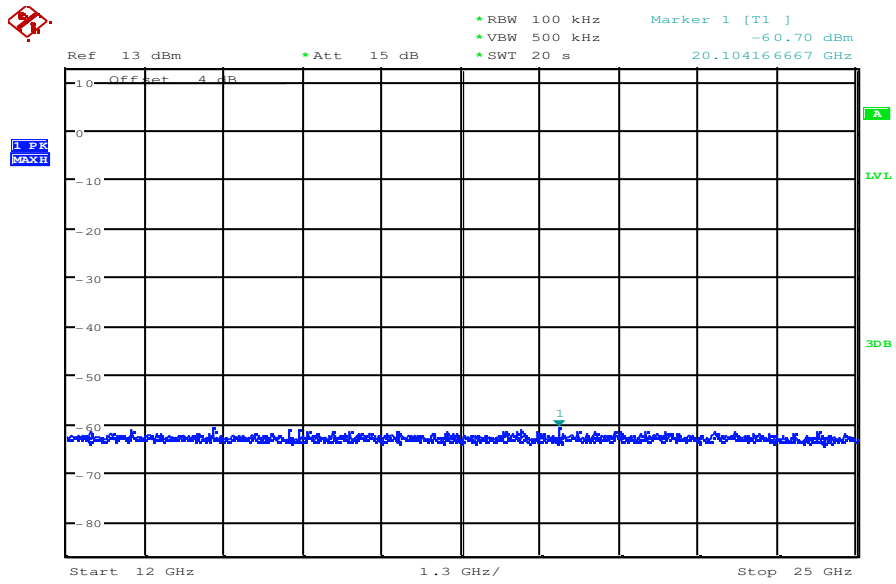
Date: 11.AUG.2010 13:02:32

Plot 30: high channel (5920 MHz), high data rate, antenna port B



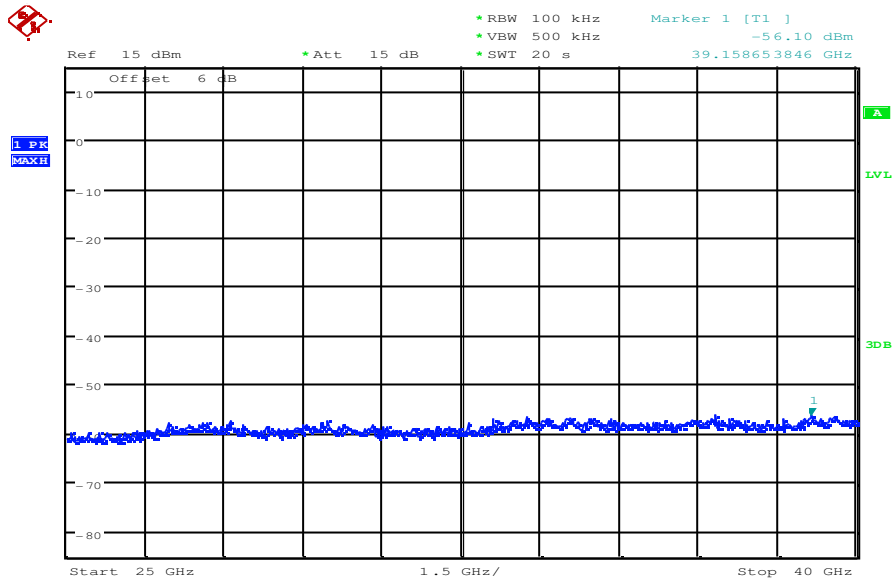
Date: 11.AUG.2010 13:05:50

Plot 31: high channel (5920 MHz), high data rate, antenna port B



Date: 11.AUG.2010 13:46:04

Plot 32: high channel (5920 MHz), high data rate, antenna port B



Date: 11.AUG.2010 14:49:34

Result & Limits: Port A low & high data rate

Emission Limitations					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
5860			-25 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -25 dBm criteria.(according to ASTM E2213)					Complies
5890			-25 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -25 dBm criteria.(according to ASTM E2213)					Complies
5900			-25 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -25 dBm criteria.(according to ASTM E2213)					Complies
5920					Operating frequency
No critical peaks detected. All detected emissions are below the -25 dBm criteria.(according to ASTM E2213)			-25 dBm		Complies
Measurement uncertainty			± 3dB		

Limit:

Under normal test conditions only	-25 dBm

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

Result & Limits: Port B low & high data rate

Emission Limitations					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
5860			-25 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -25 dBm criteria.(according to ASTM E2213)					Complies
5890			-25 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -25 dBm criteria.(according to ASTM E2213)					Complies
5900			-25 dBm		Operating frequency
No critical peaks detected. All detected emissions are below the -25 dBm criteria.(according to ASTM E2213)					Complies
5920					Operating frequency
No critical peaks detected. All detected emissions are below the -25 dBm criteria.(according to ASTM E2213)			-25 dBm		Complies
Measurement uncertainty			± 3dB		

Limit:

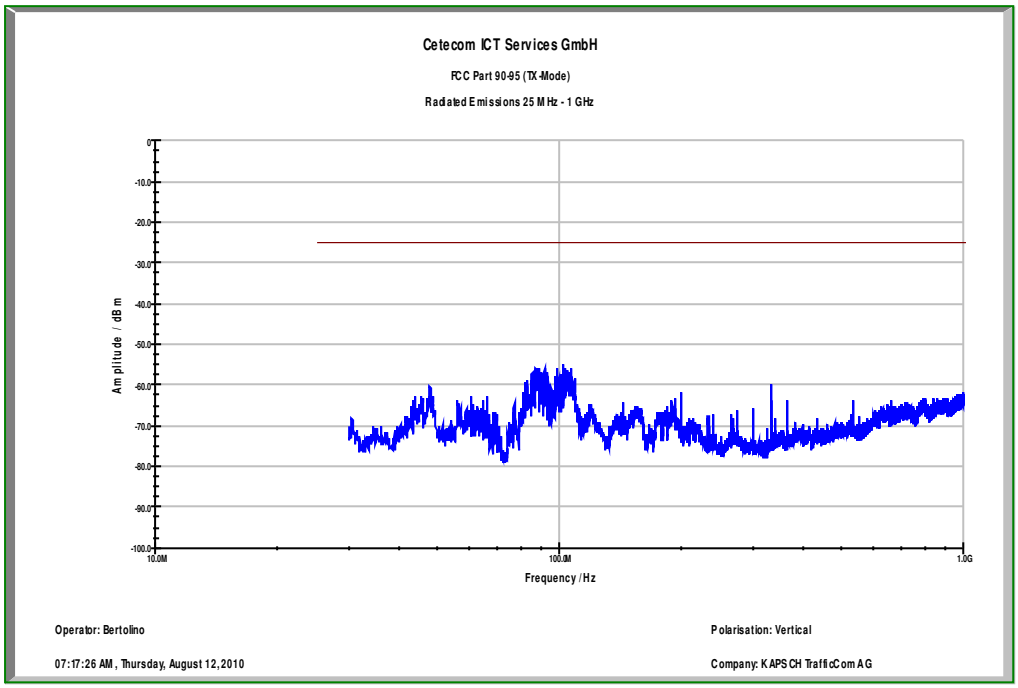
Under normal test conditions only	-25 dBm

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

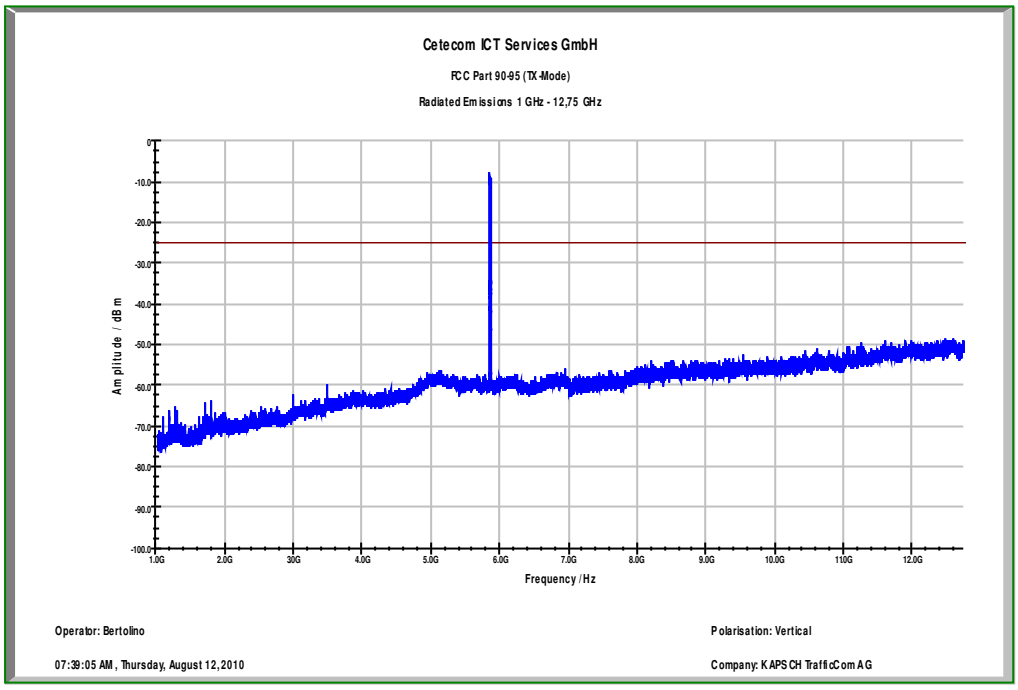
9.9 Spurious Emissions - radiated (Transmitter) (§ 95.635 / § 95.1509 / § 2.1053)

Port A: low data rate

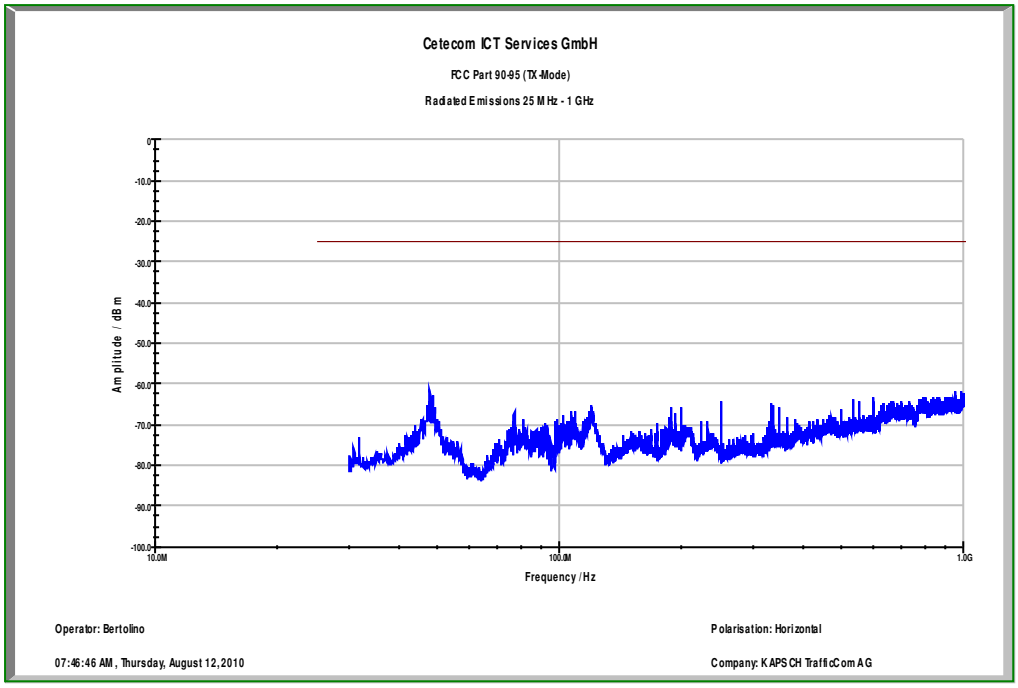
Plot 1: 5860 MHz, low data rate, 30 MHz – 1 GHz, vertical polarization



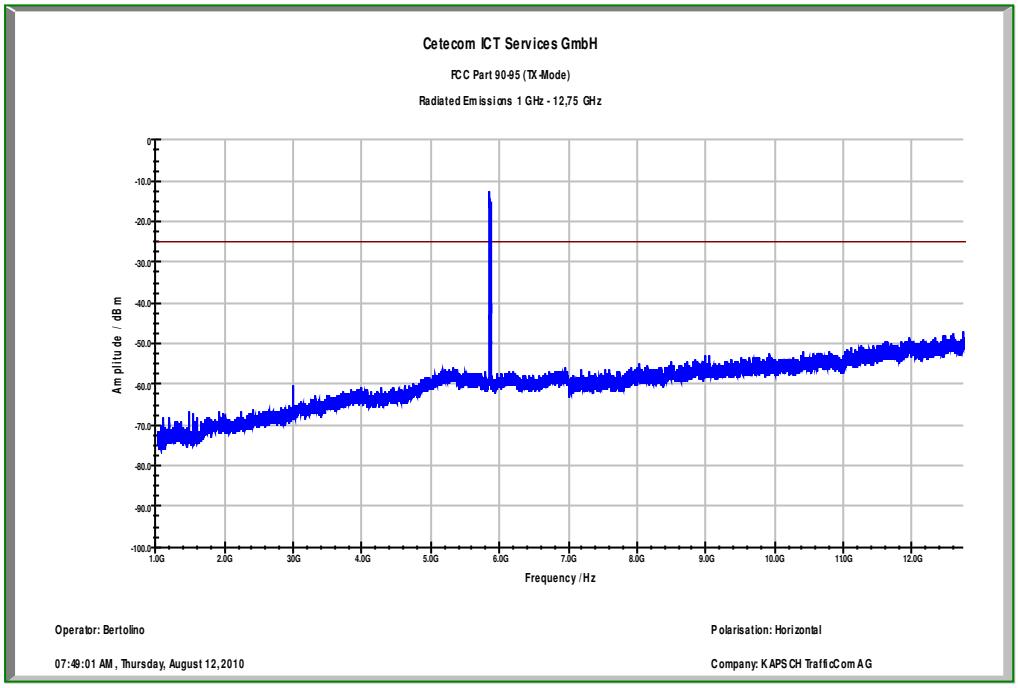
Plot 2: 5860 MHz, low data rate, 1 GHz – 12.75 GHz, vertical polarization



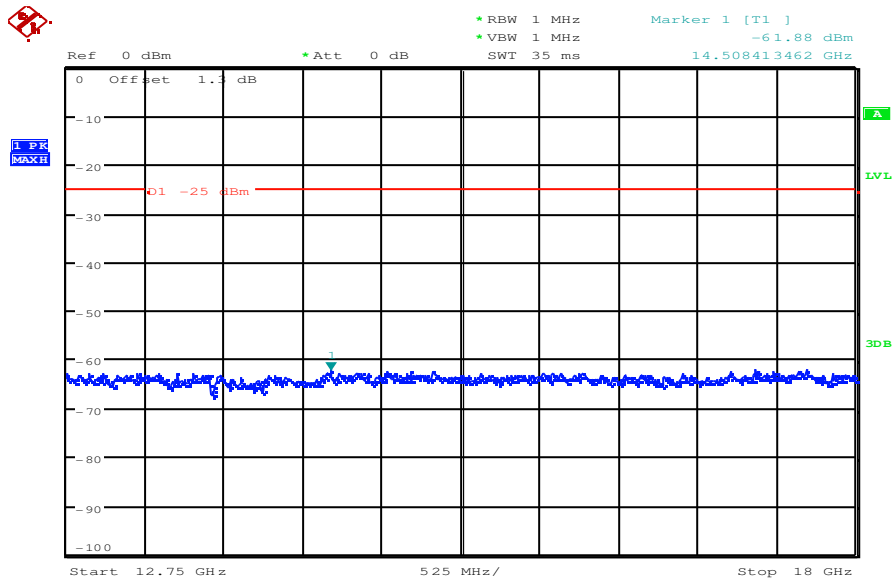
Plot 3: 5860 MHz, low data rate, 30 MHz – 1 GHz, horizontal polarization



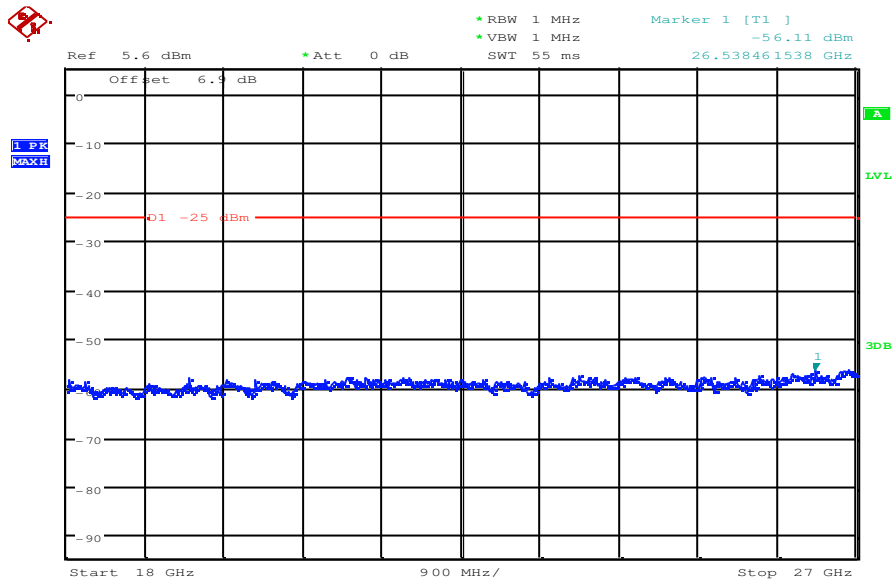
Plot 4: 5860 MHz, low data rate, 1 GHz – 12.75 GHz, horizontal polarization



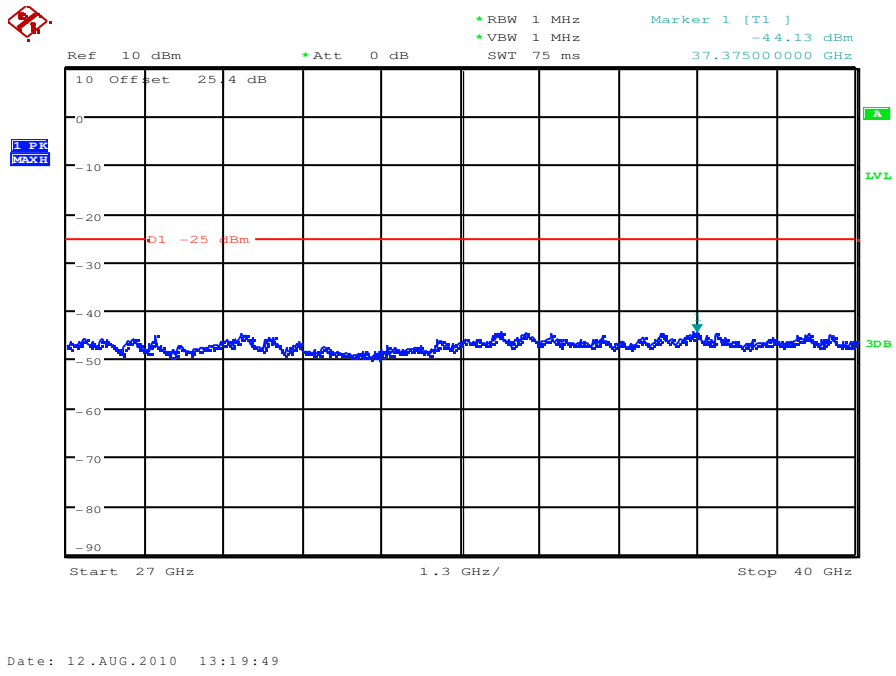
Plot 5: 5860 MHz, low data rate, 12 GHz – 18 GHz, vertical & horizontal polarization (valid for all channels)



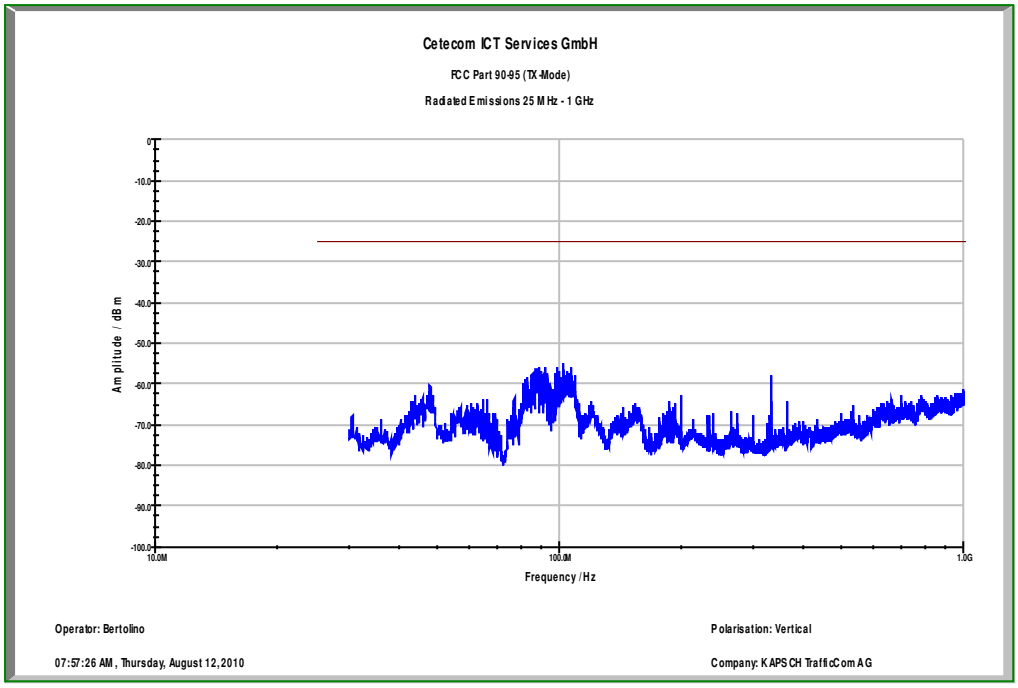
Plot 7: 5860 MHz, low data rate, 18 GHz – 26 GHz, vertical & horizontal polarization (valid for all channels)



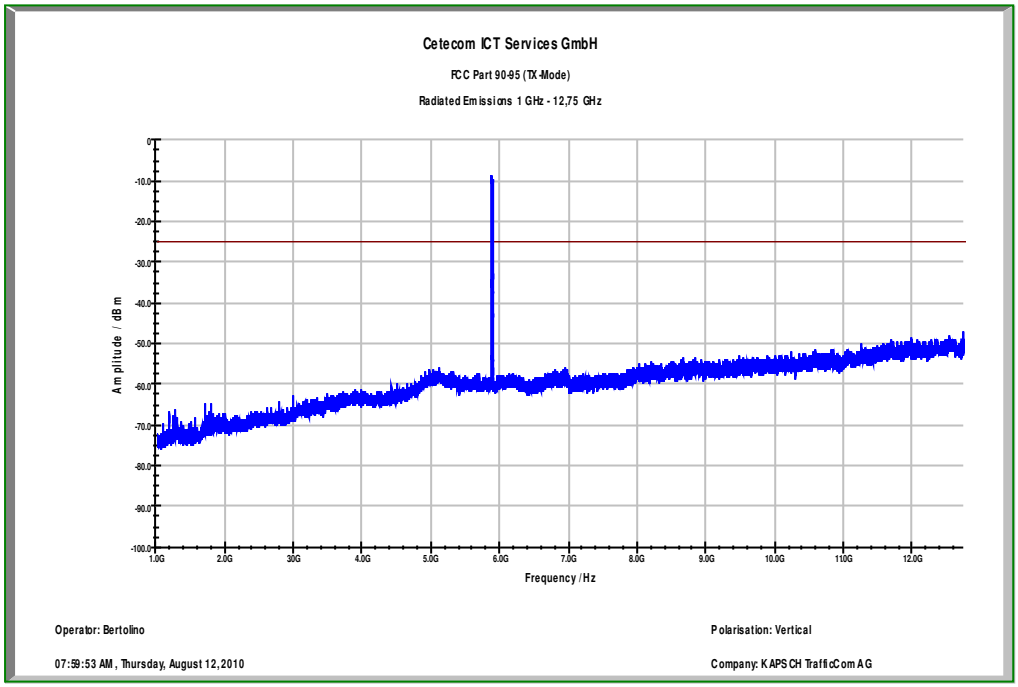
Plot 8: 5860 MHz, low data rate, 26 GHz – 40 GHz, vertical & horizontal polarization (valid for all channels)



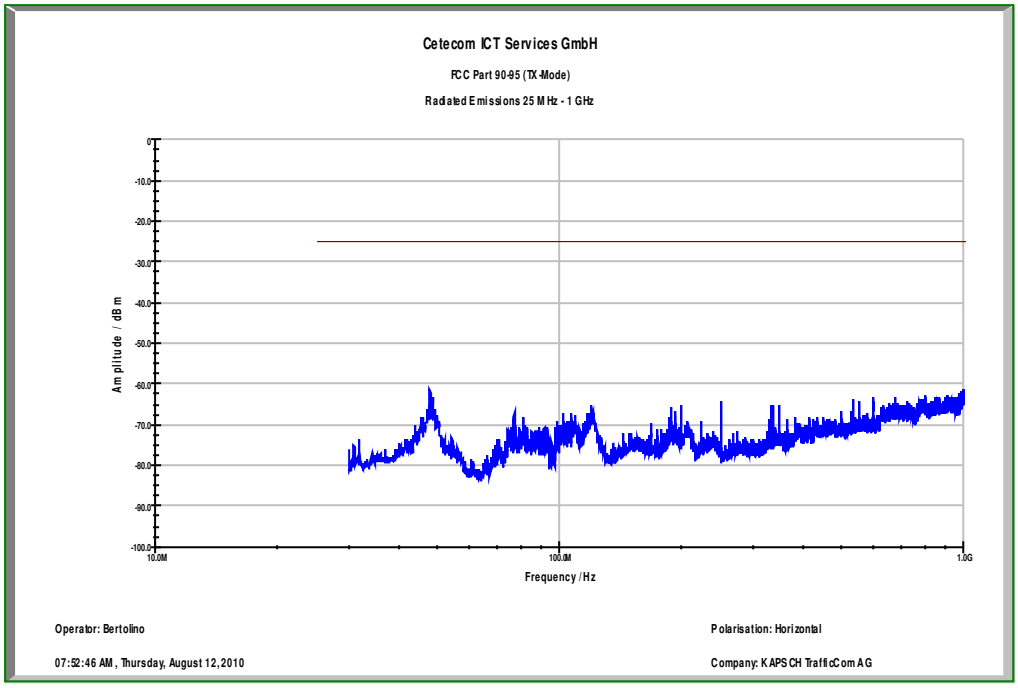
Plot 9: 5890 MHz, low data rate, 30 MHz – 1 GHz, vertical polarization



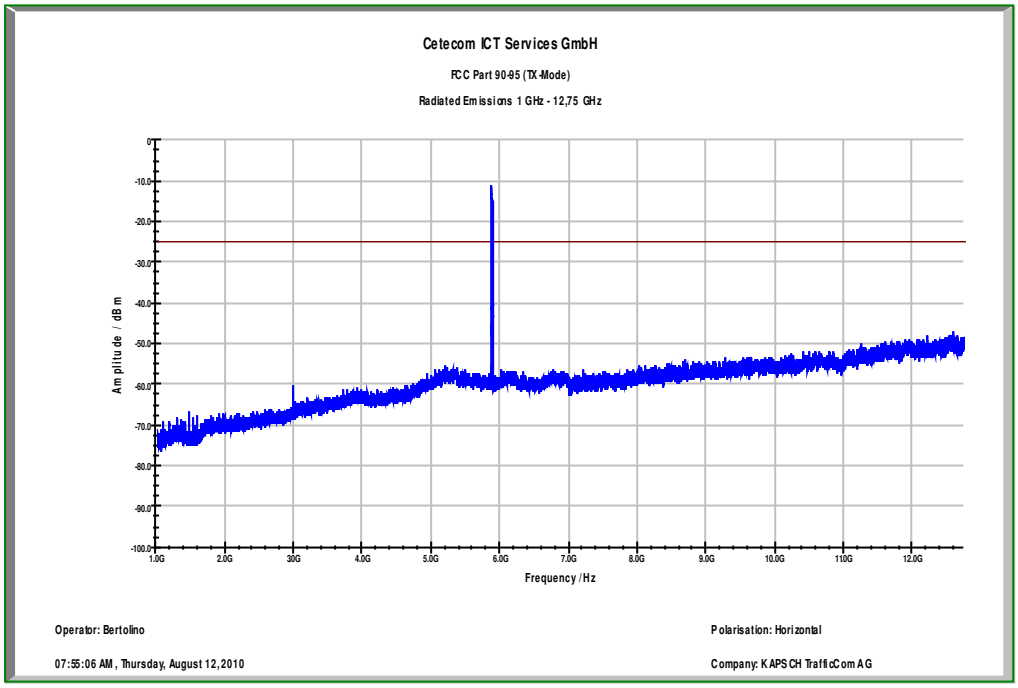
Plot 10: 5890 MHz, low data rate, 1 GHz – 12.75 GHz, vertical polarization



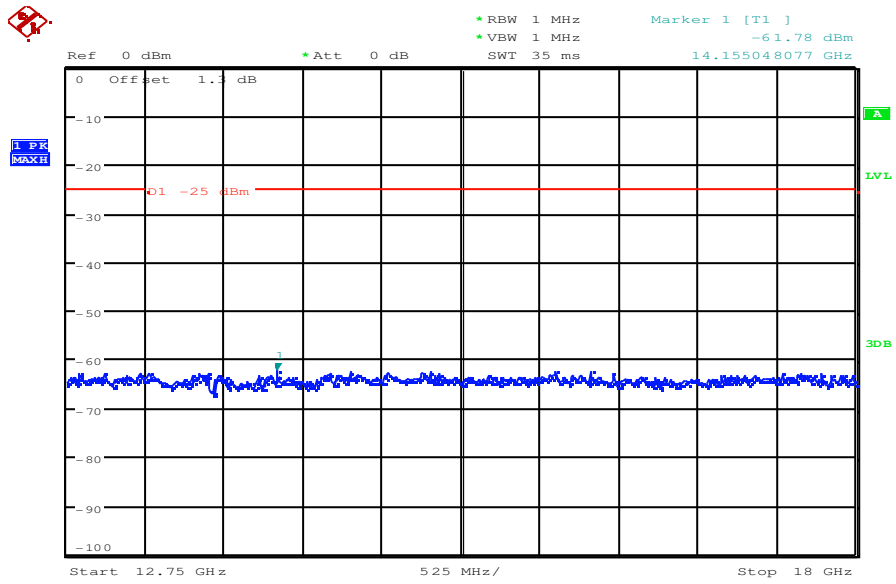
Plot 11: 5890 MHz, low data rate, 30 MHz – 1 GHz, horizontal polarization



Plot 12: 5890 MHz, low data rate, 1 GHz – 12.75 GHz, horizontal polarization

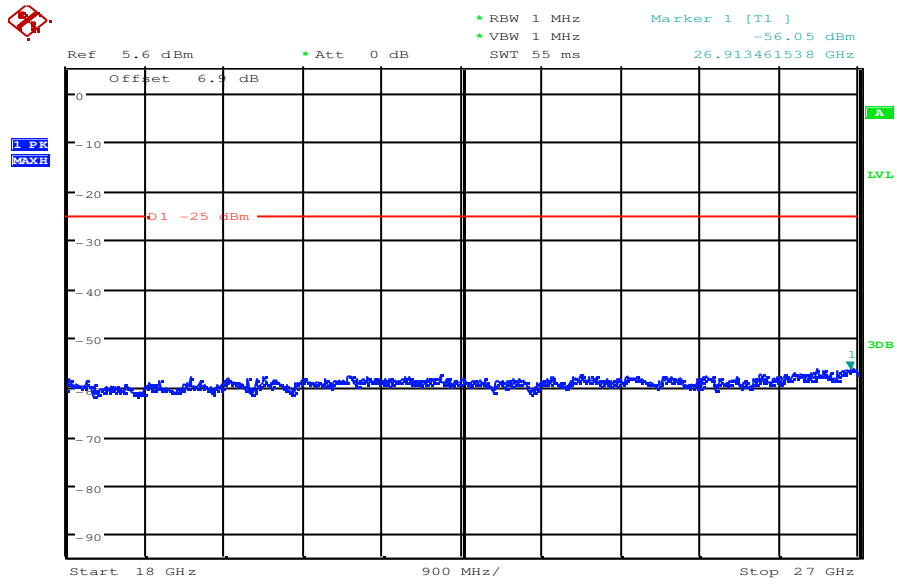


Plot 13: 5890 MHz, low data rate, 12 GHz – 18 GHz, vertical & horizontal polarization (valid for all channels)



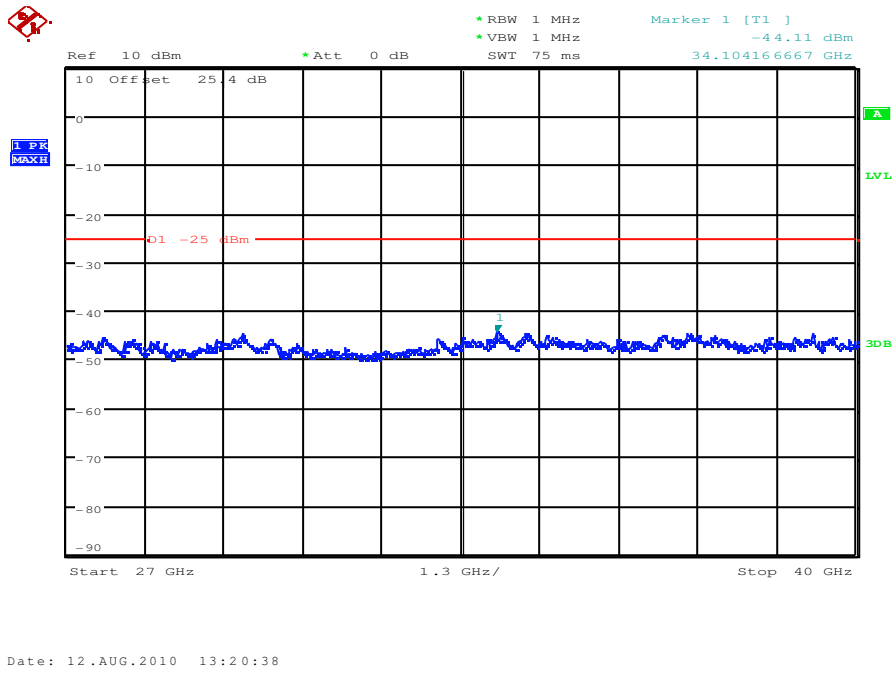
Date: 12.AUG.2010 11:20:47

Plot 14: 5890 MHz, low data rate, 18 GHz – 26 GHz, vertical & horizontal polarization (valid for all channels)

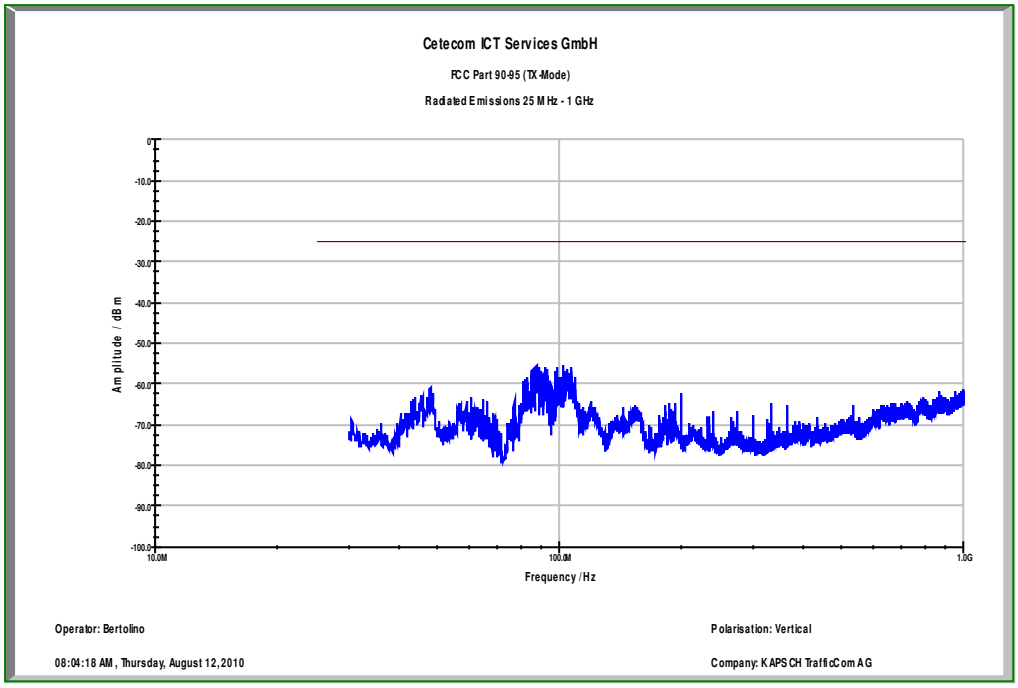


Date: 12.AUG.2010 12:57:45

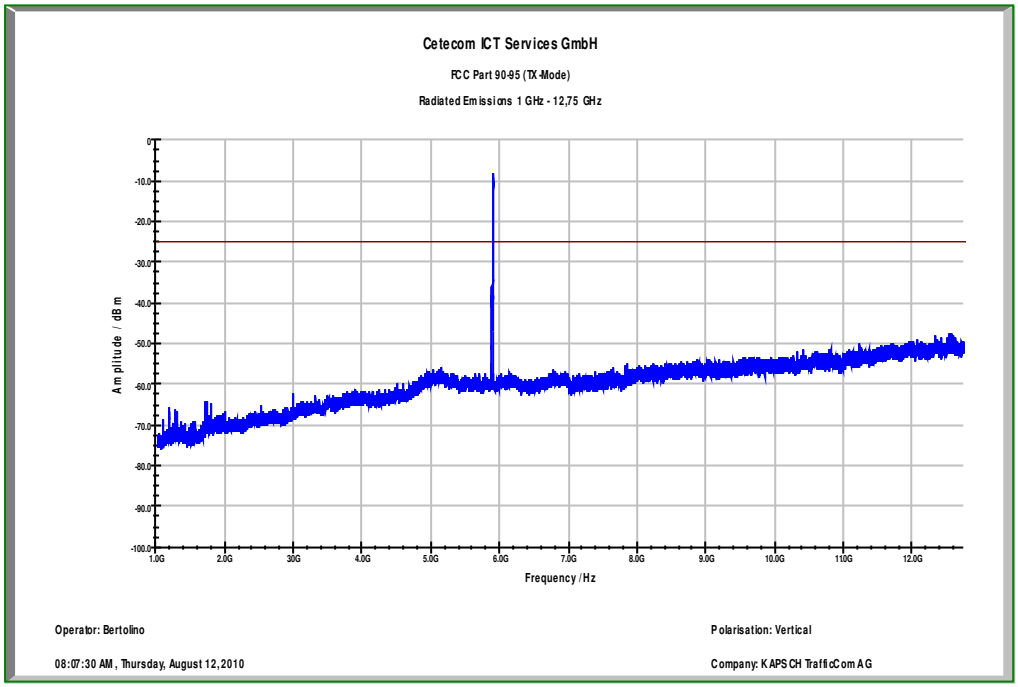
Plot 15: 5890 MHz, low data rate, 26 GHz – 40 GHz, vertical & horizontal polarization (valid for all channels)



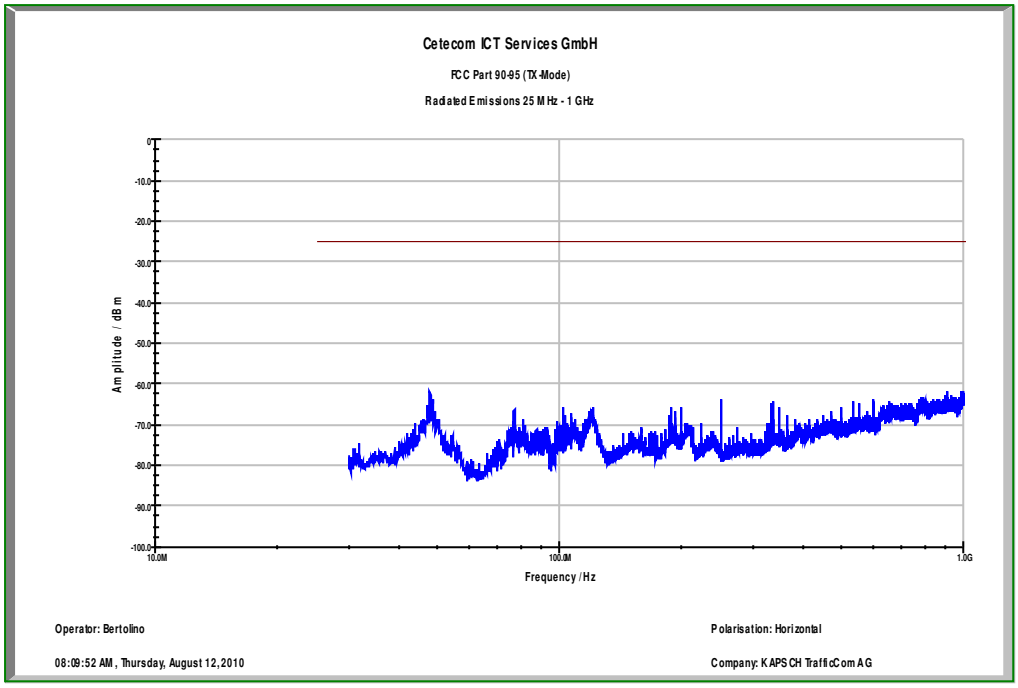
Plot 16: 5900 MHz, low data rate, 30 MHz – 1 GHz, vertical polarization



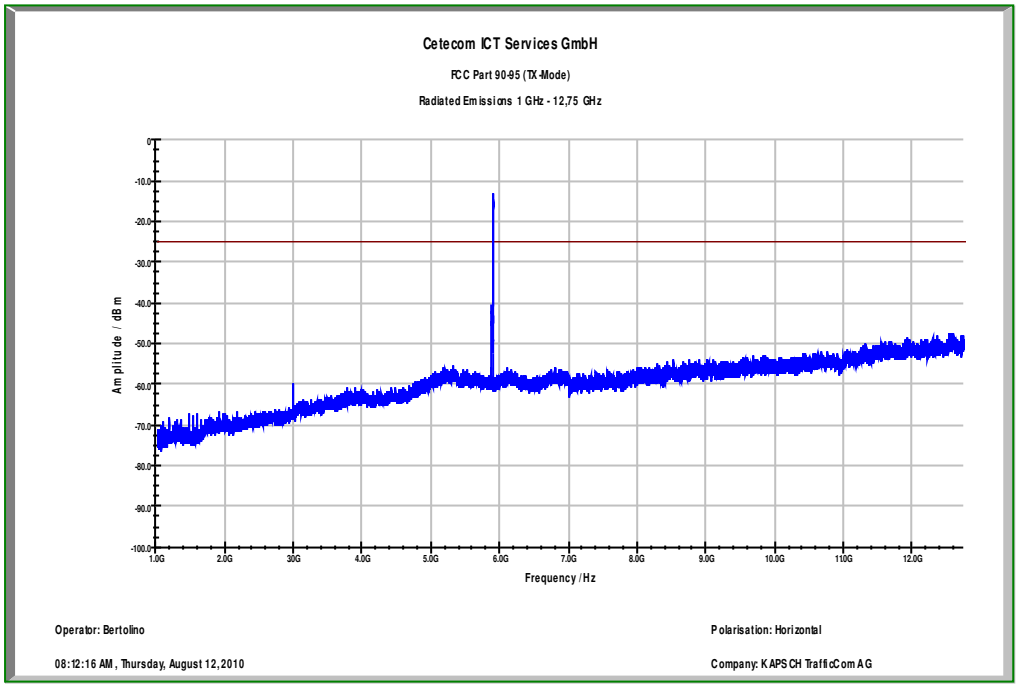
Plot 17: 5900 MHz, low data rate, 1 GHz – 12.75 GHz, vertical polarization



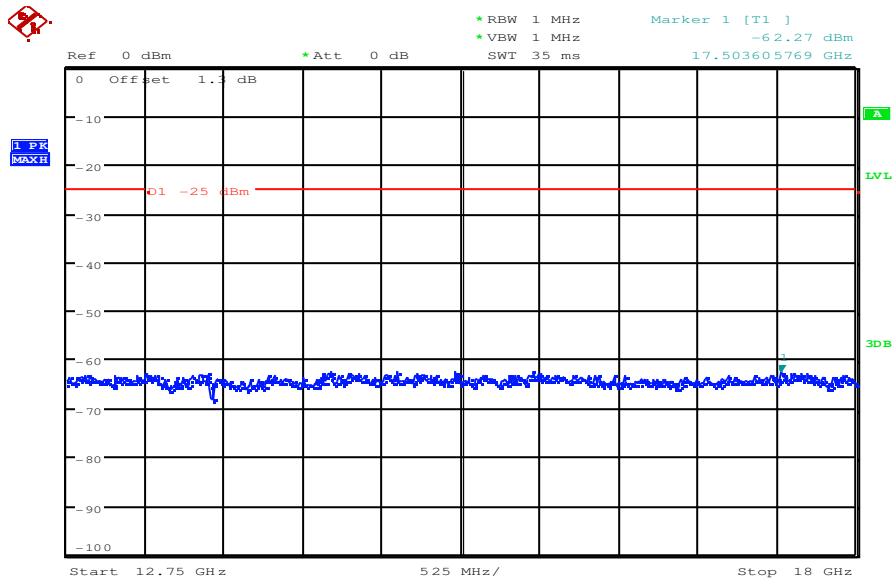
Plot 18: 5900 MHz, low data rate, 30 MHz – 1 GHz, horizontal polarization



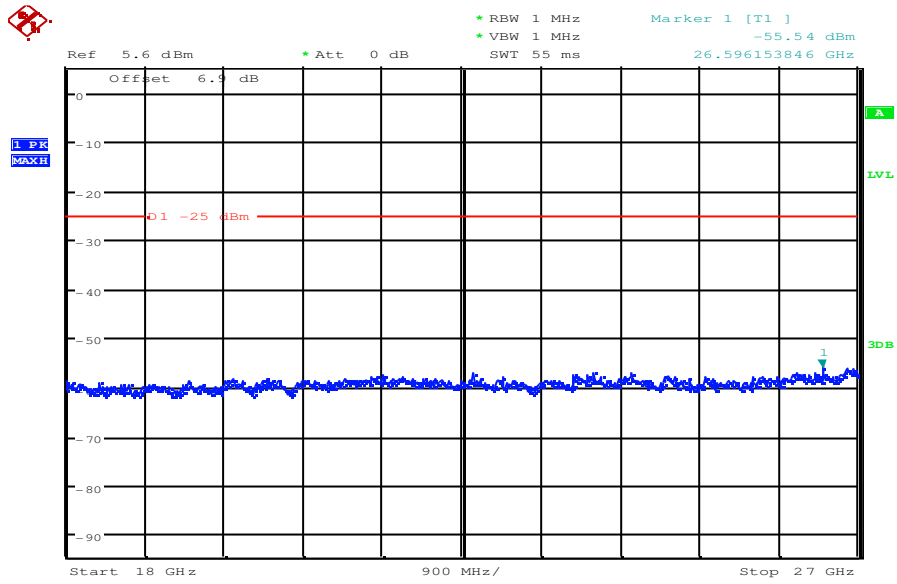
Plot 19: 5900 MHz, low data rate, 1 GHz – 12.75 GHz, horizontal polarization



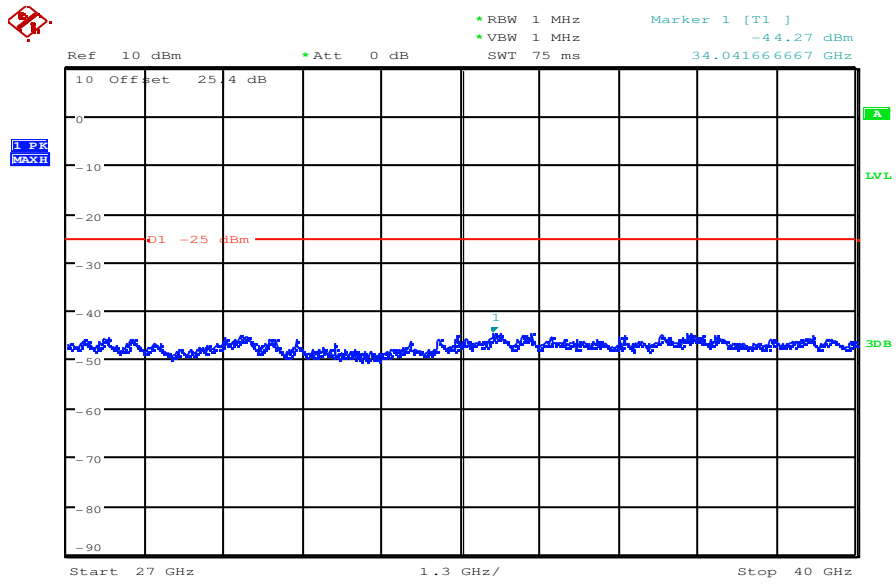
Plot 20: 5900 MHz, low data rate, 12 GHz – 18 GHz, vertical & horizontal polarization (valid for all channels)



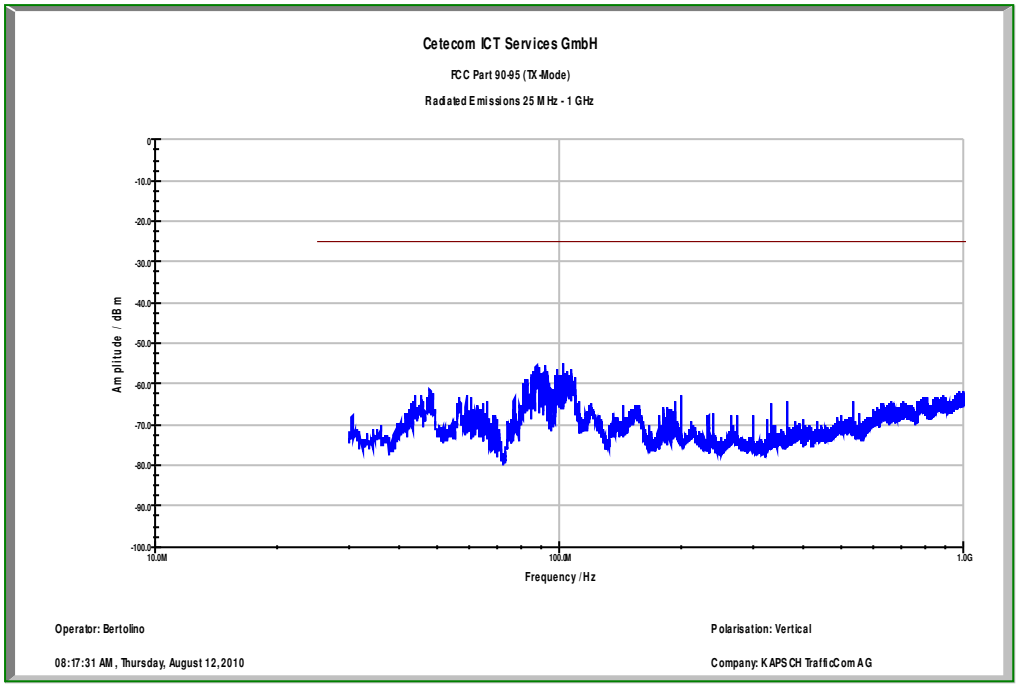
Plot 21: 5900 MHz, low data rate, 18 GHz – 26 GHz, vertical & horizontal polarization (valid for all channels)



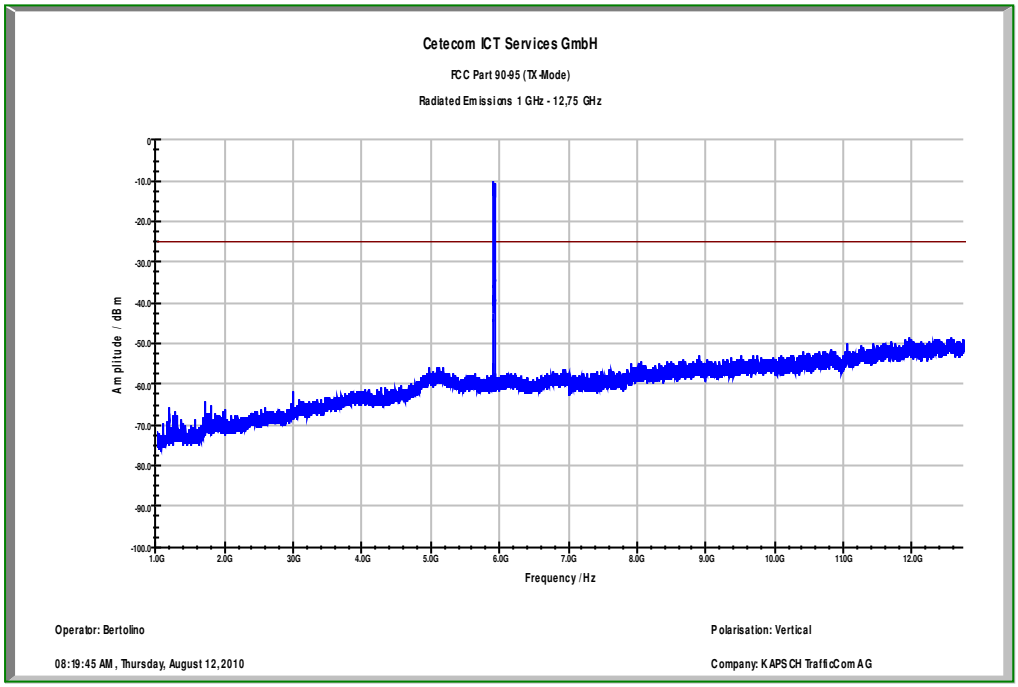
Plot 22: 5900 MHz, low data rate, 26 GHz – 40 GHz, vertical & horizontal polarization (valid for all channels)



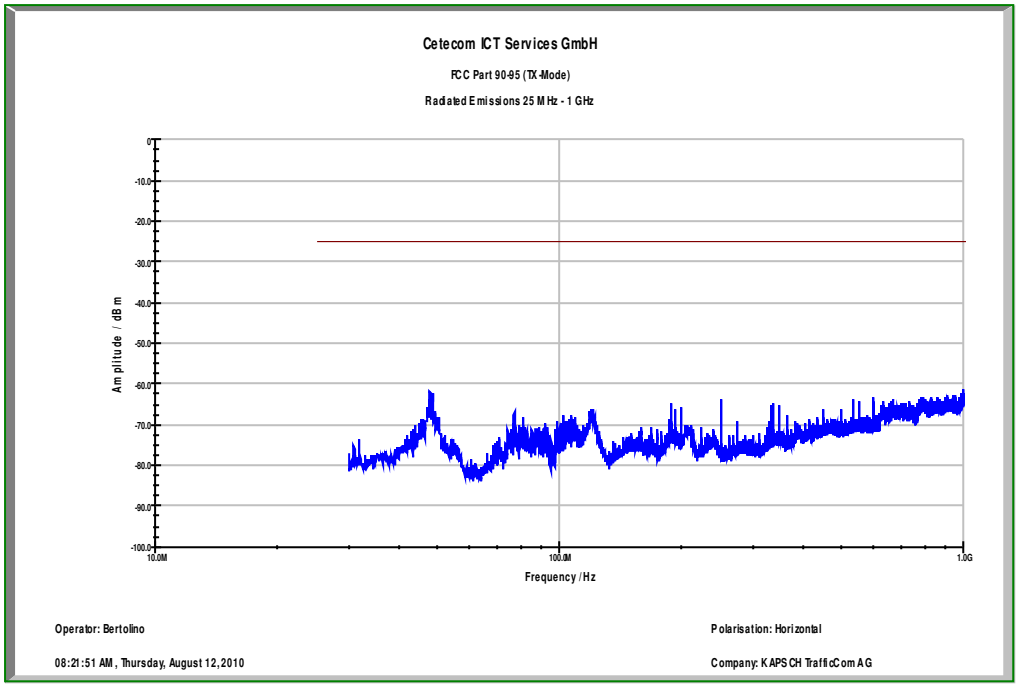
Plot 23: 5920 MHz, low data rate, 30 MHz – 1 GHz, vertical polarization



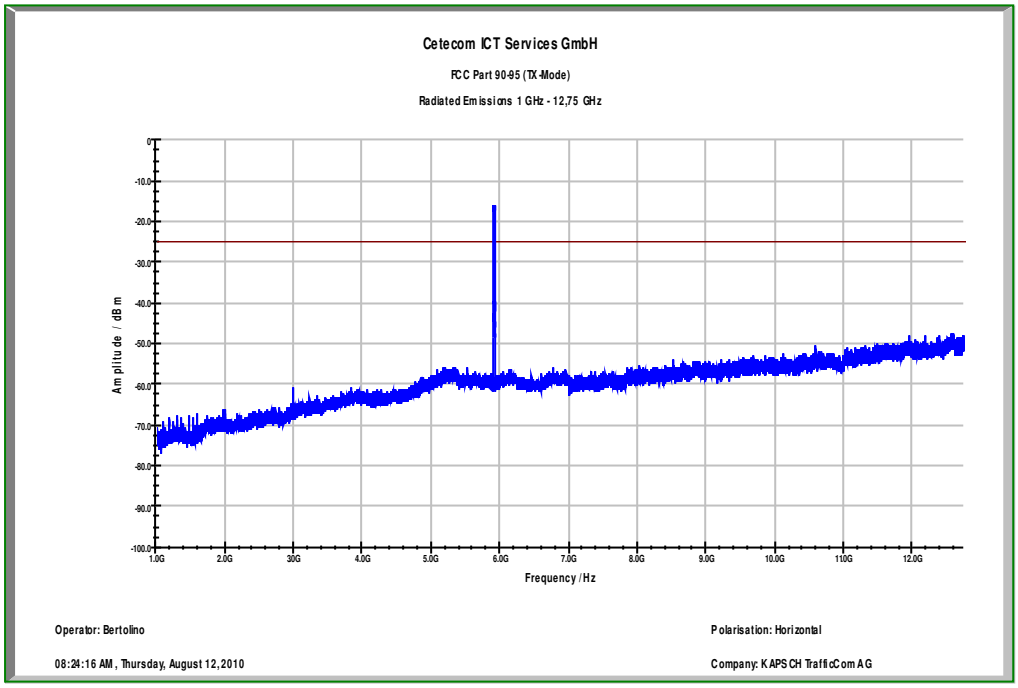
Plot 24: 5920 MHz, low data rate, 1 GHz – 12.75 GHz, vertical polarization



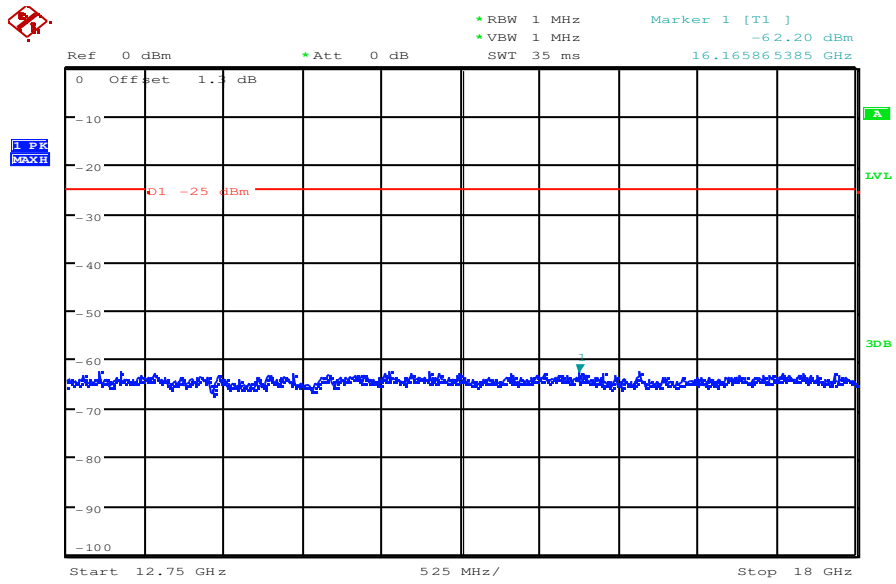
Plot 25: 5920 MHz, low data rate, 30 MHz – 1 GHz, horizontal polarization



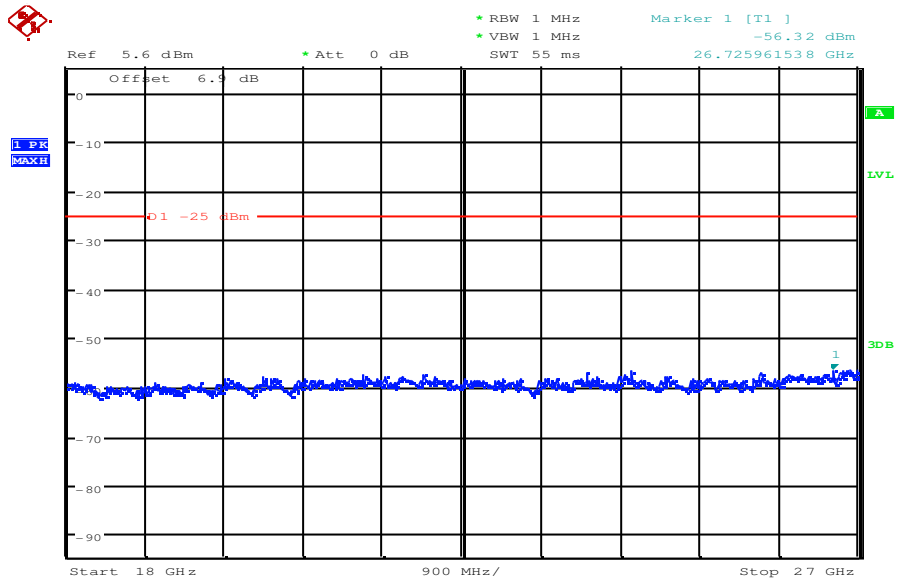
Plot 26: 5920 MHz, low data rate, 1 GHz – 12.75 GHz, horizontal polarization



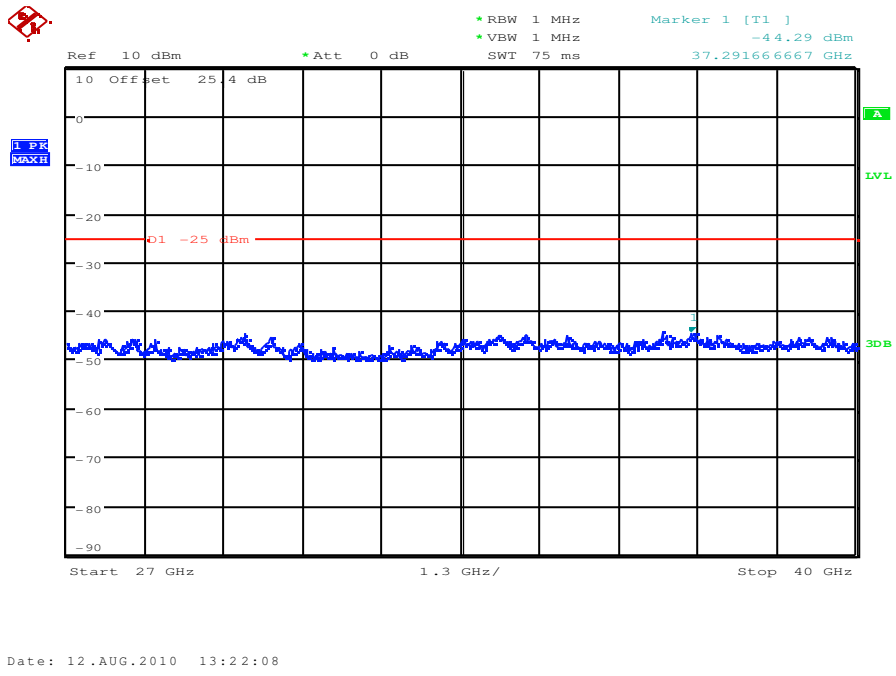
Plot 27: 5920 MHz, low data rate, 12 GHz – 18 GHz, vertical & horizontal polarization (valid for all channels)



Plot 28: 5920 MHz, low data rate, 18 GHz – 26 GHz, vertical & horizontal polarization (valid for all channels)

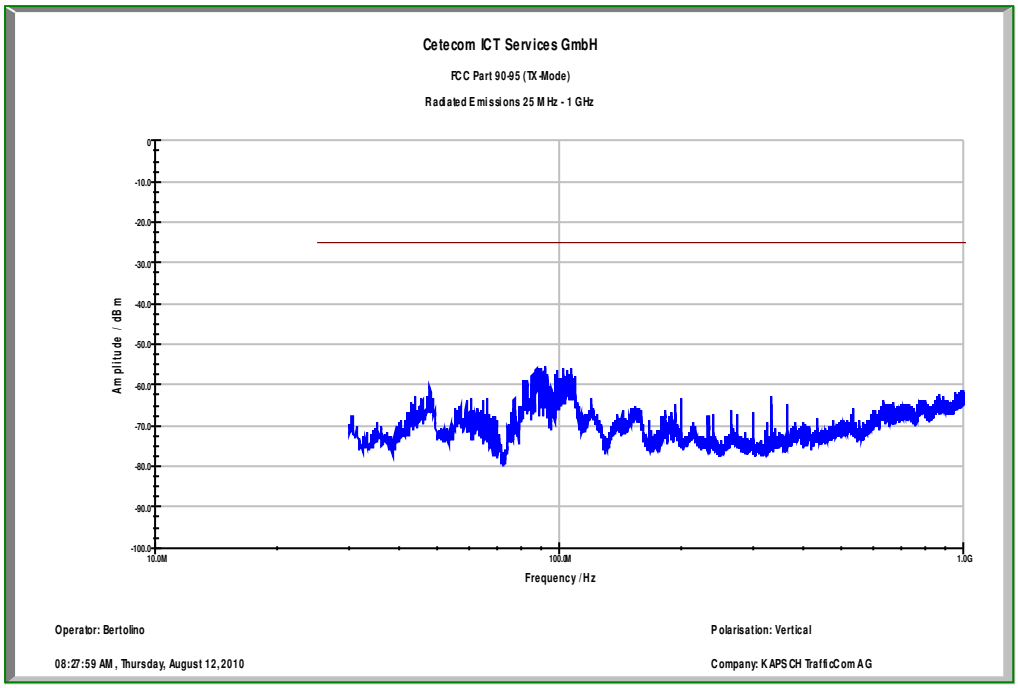


Plot 29: 5920 MHz, low data rate, 26 GHz – 40 GHz, vertical & horizontal polarization (valid for all channels)

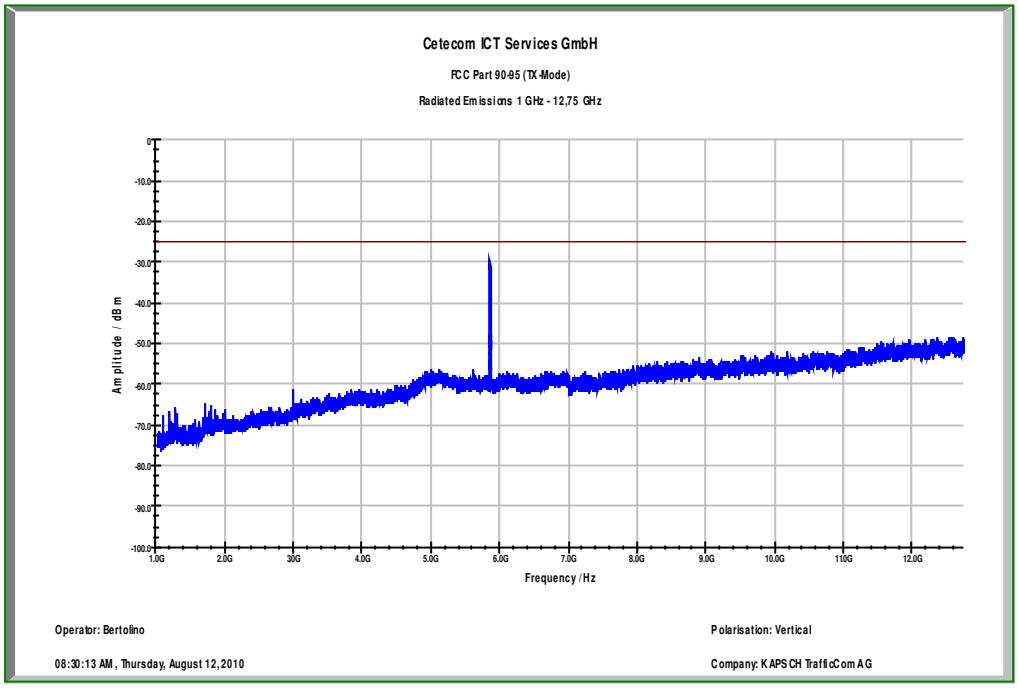


Port B: low data rate

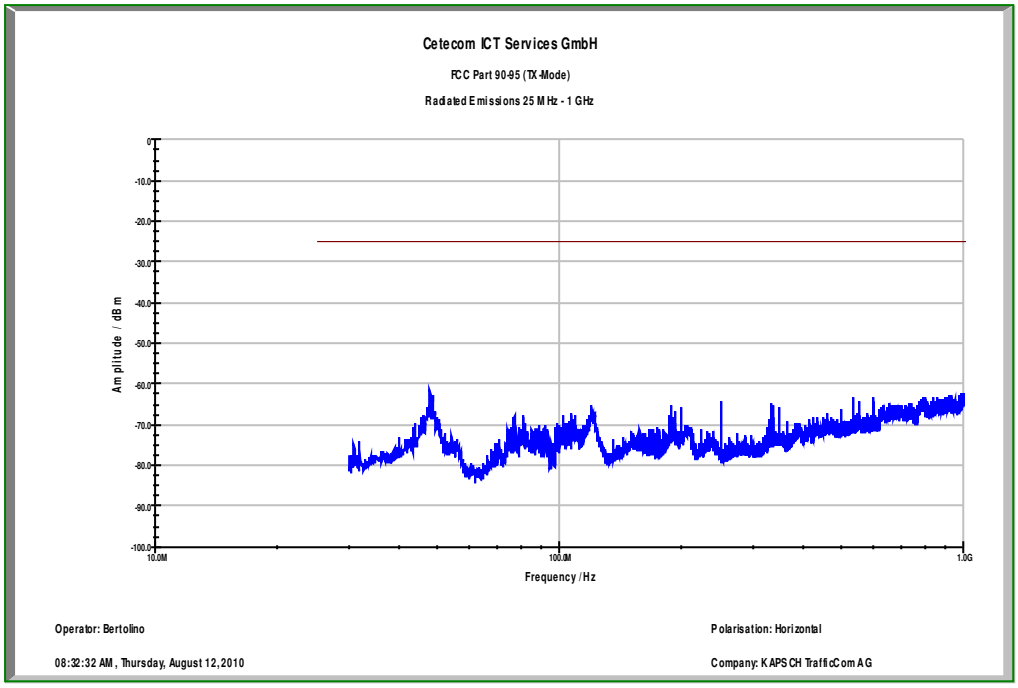
Plot 1: 5860 MHz, low data rate, 30 MHz – 1 GHz, vertical polarization



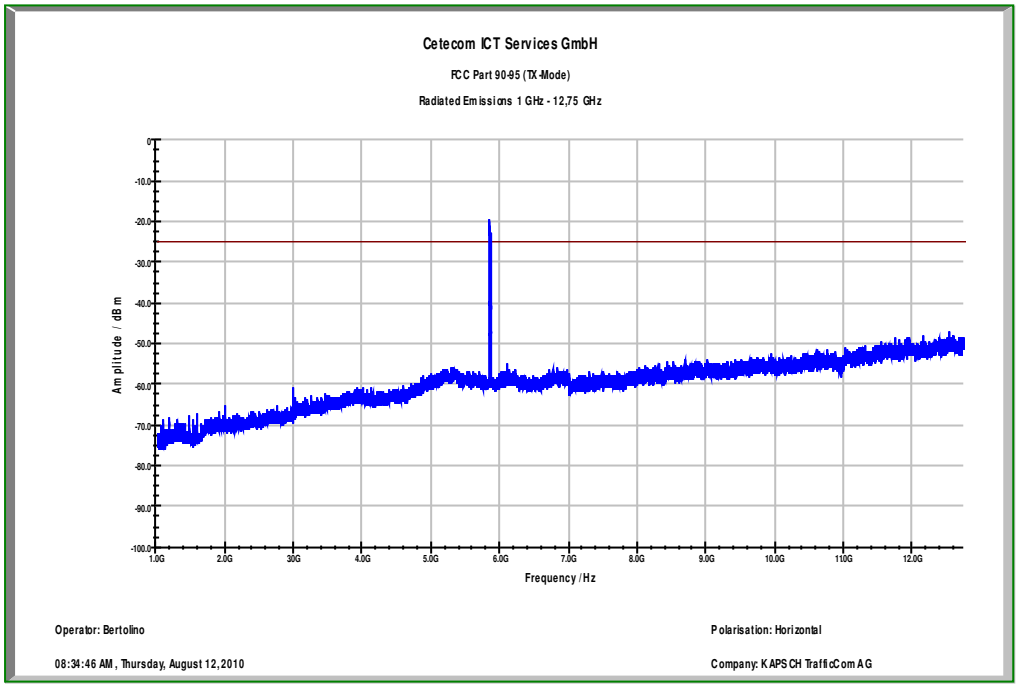
Plot 2: 5860 MHz, low data rate, 1 GHz – 12.75 GHz, vertical polarization



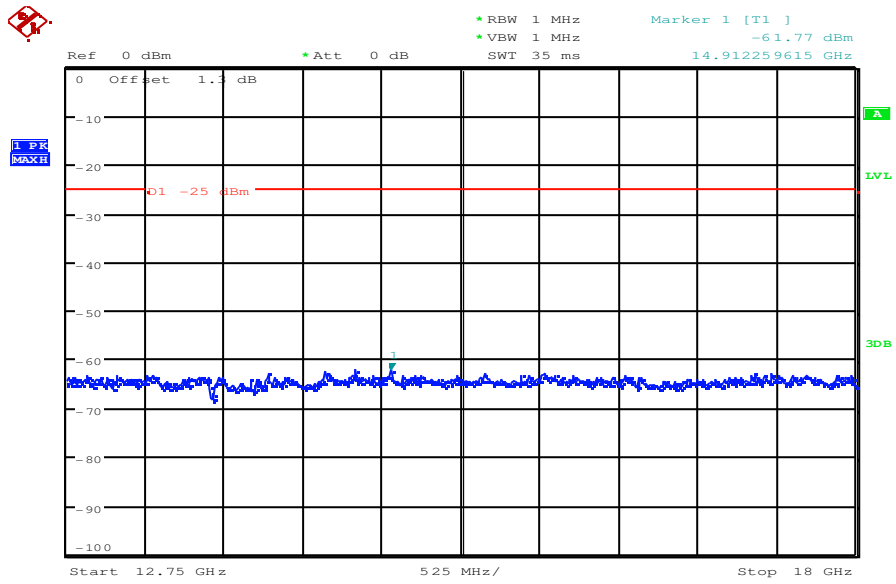
Plot 3: 5860 MHz, low data rate, 30 MHz – 1 GHz, horizontal polarization



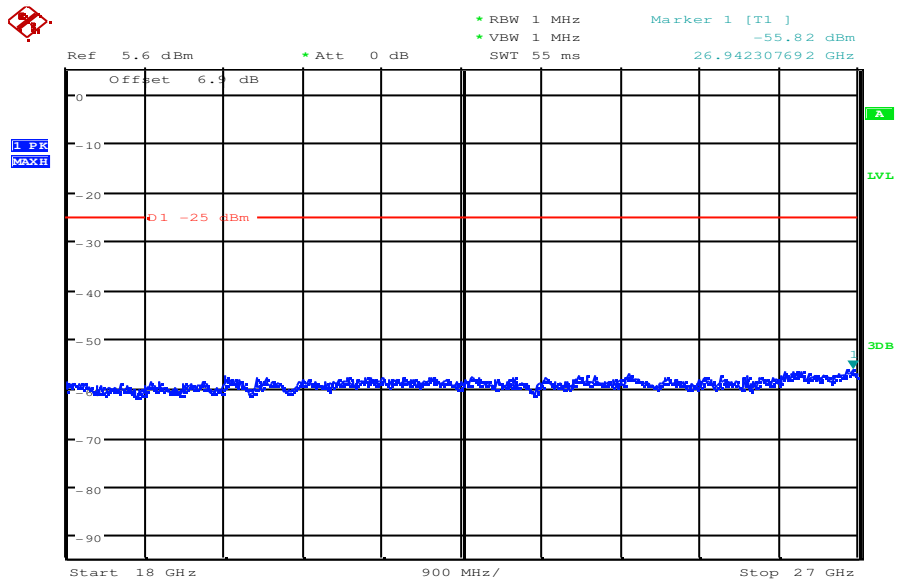
Plot 4: 5860 MHz, low data rate, 1 GHz – 12.75 GHz, horizontal polarization



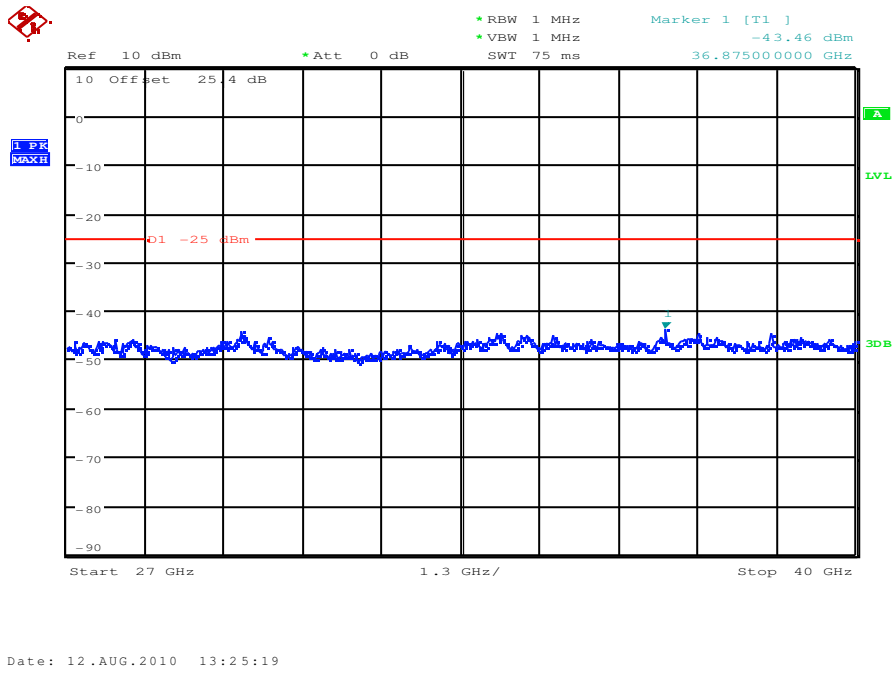
Plot 5: 5860 MHz, low data rate, 12 GHz – 18 GHz, vertical & horizontal polarization (valid for all channels)



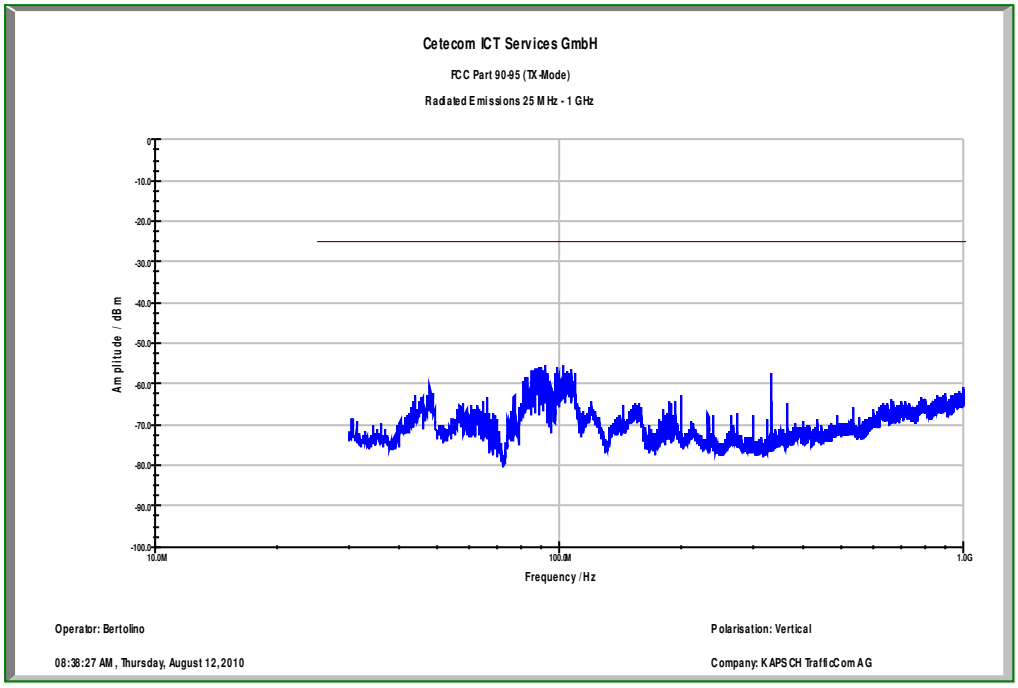
Plot 7: 5860 MHz, low data rate, 18 GHz – 26 GHz, vertical & horizontal polarization (valid for all channels)



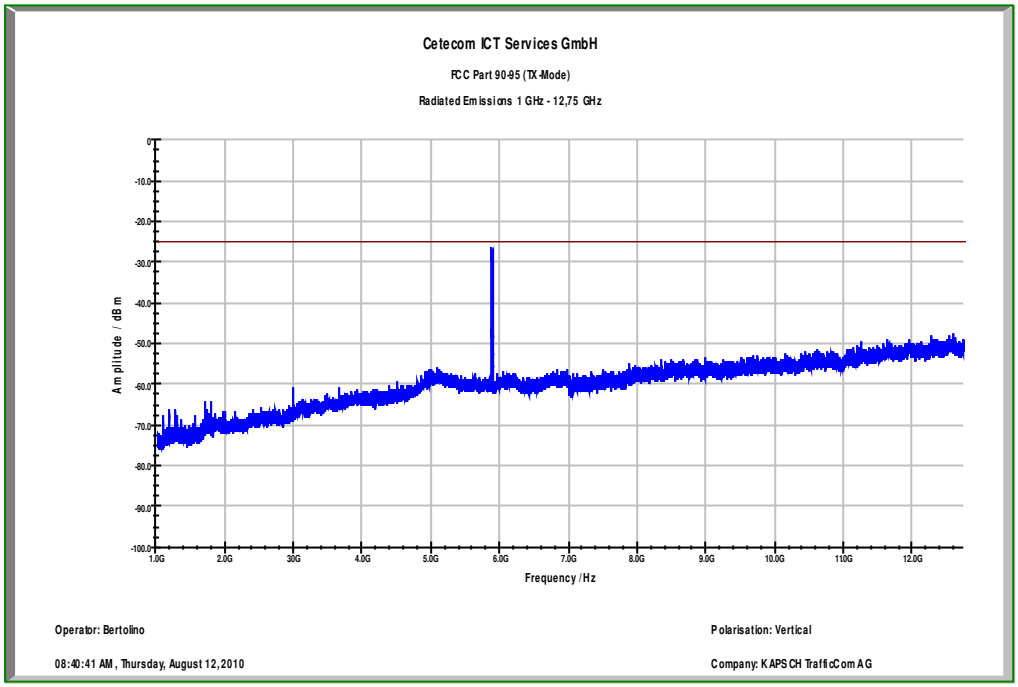
Plot 8: 5860 MHz, low data rate, 26 GHz – 40 GHz, vertical & horizontal polarization (valid for all channels)



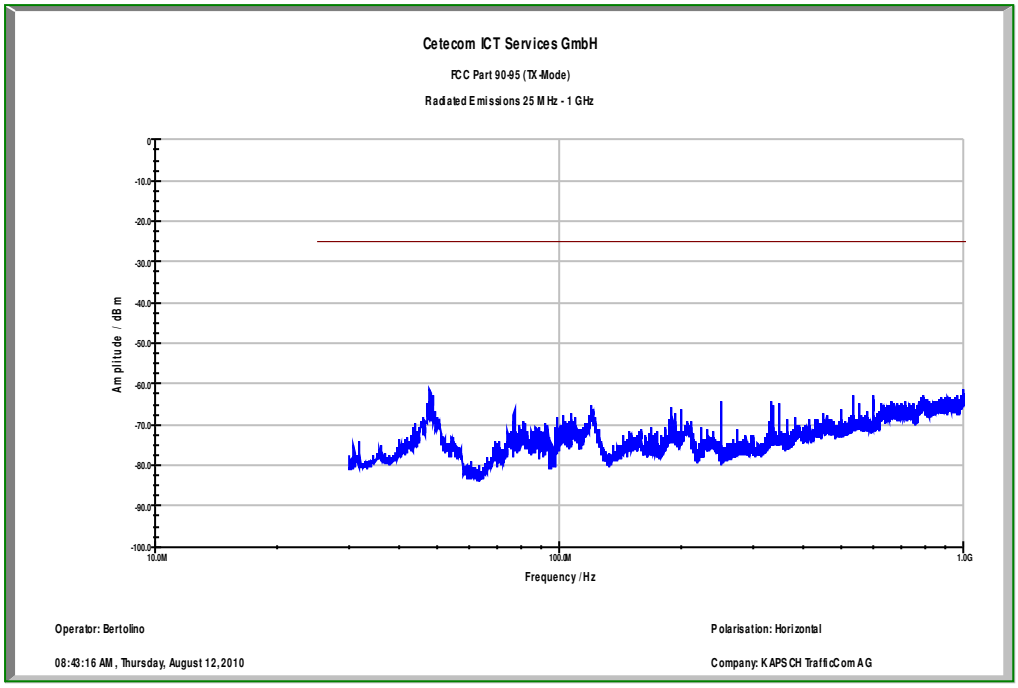
Plot 9: 5890 MHz, low data rate, 30 MHz – 1 GHz, vertical polarization



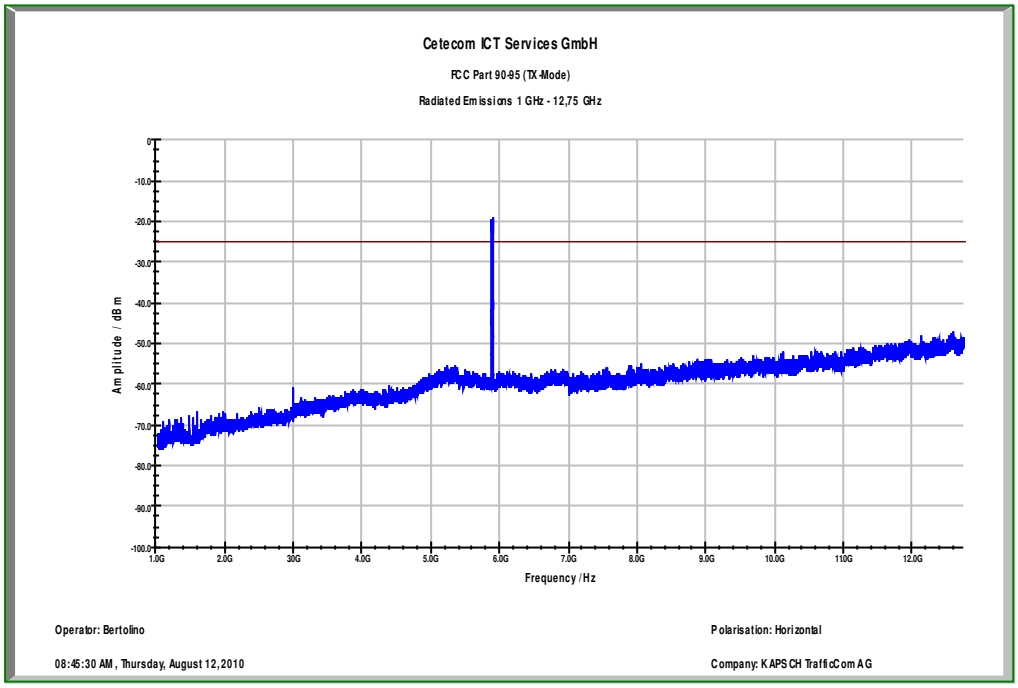
Plot 10: 5890 MHz, low data rate, 1 GHz – 12.75 GHz, vertical polarization



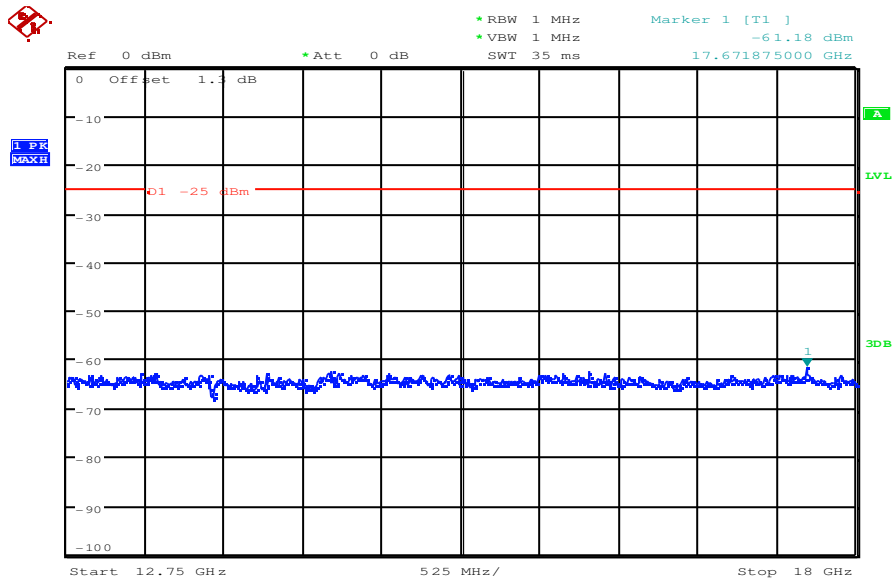
Plot 11: 5890 MHz, low data rate, 30 MHz – 1 GHz, horizontal polarization



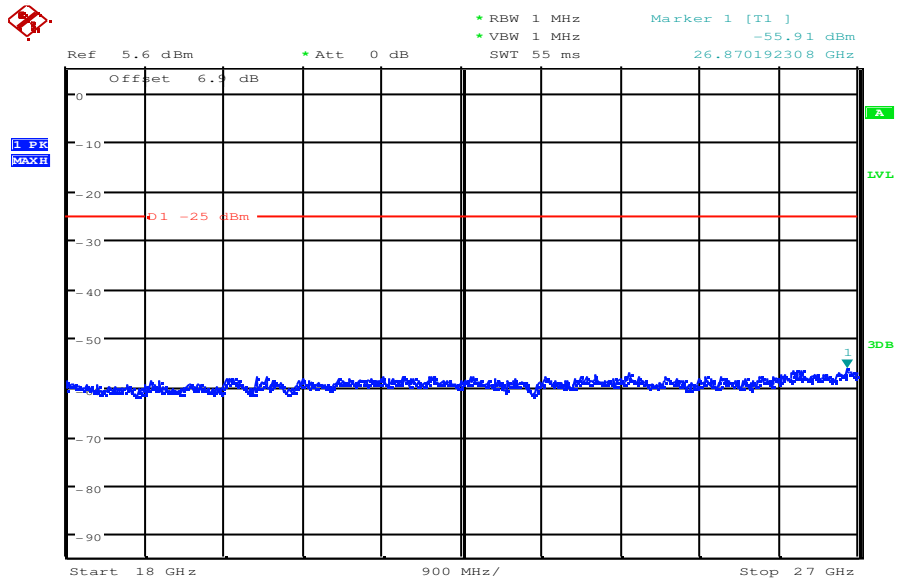
Plot 12: 5890 MHz, low data rate, 1 GHz – 12.75 GHz, horizontal polarization



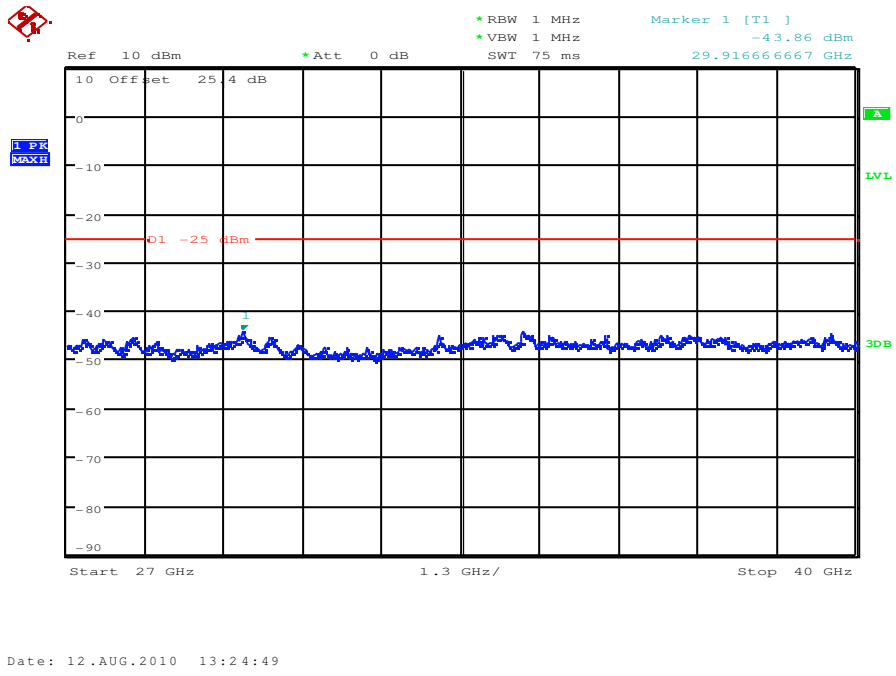
Plot 13: 5890 MHz, low data rate, 12 GHz – 18 GHz, vertical & horizontal polarization (valid for all channels)



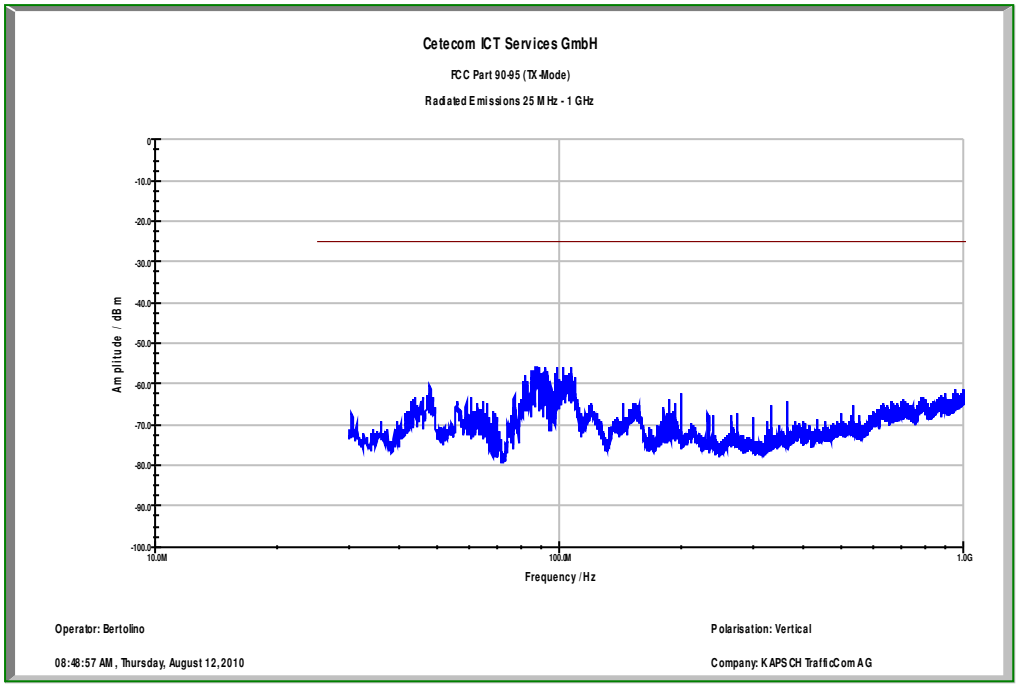
Plot 14: 5890 MHz, low data rate, 18 GHz – 26 GHz, vertical & horizontal polarization (valid for all channels)



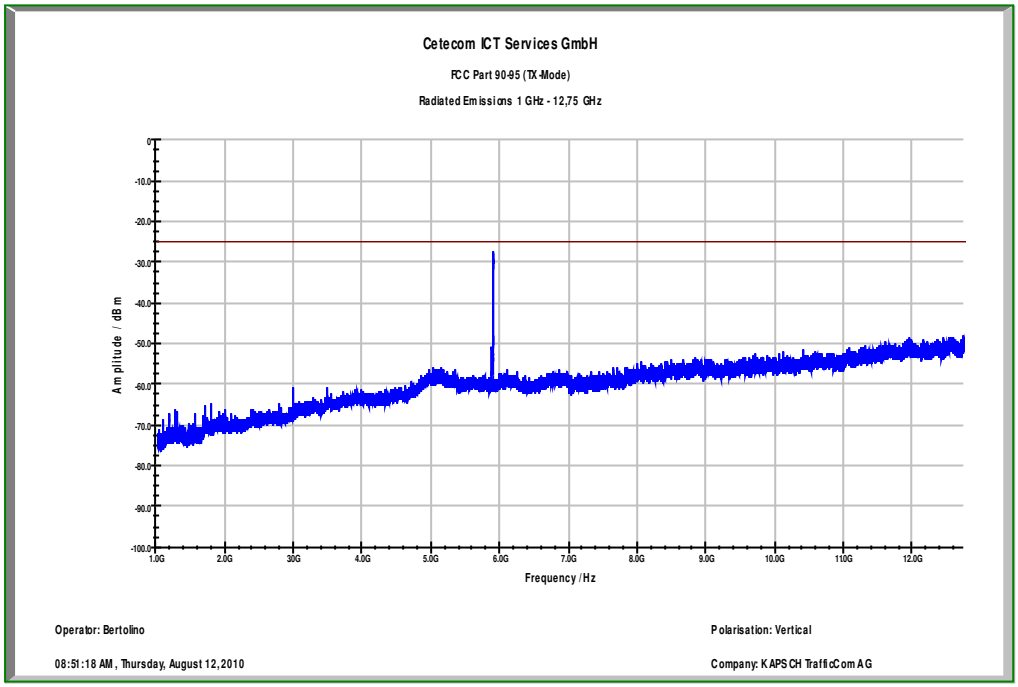
Plot 15: 5890 MHz, low data rate, 26 GHz – 40 GHz, vertical & horizontal polarization (valid for all channels)



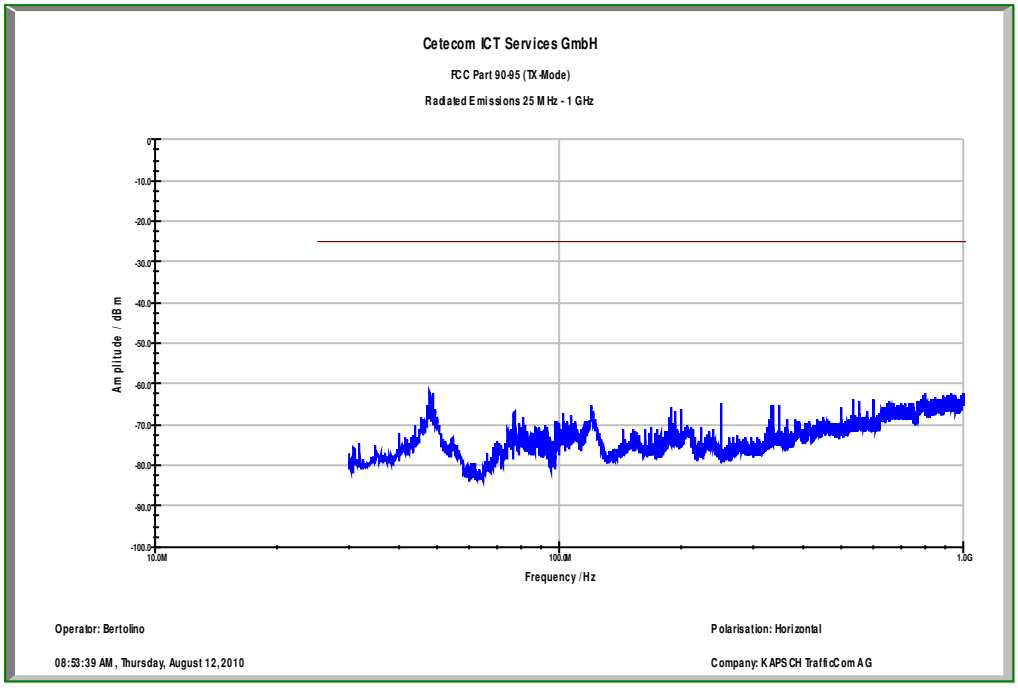
Plot 16: 5900 MHz, low data rate, 30 MHz – 1 GHz, vertical polarization



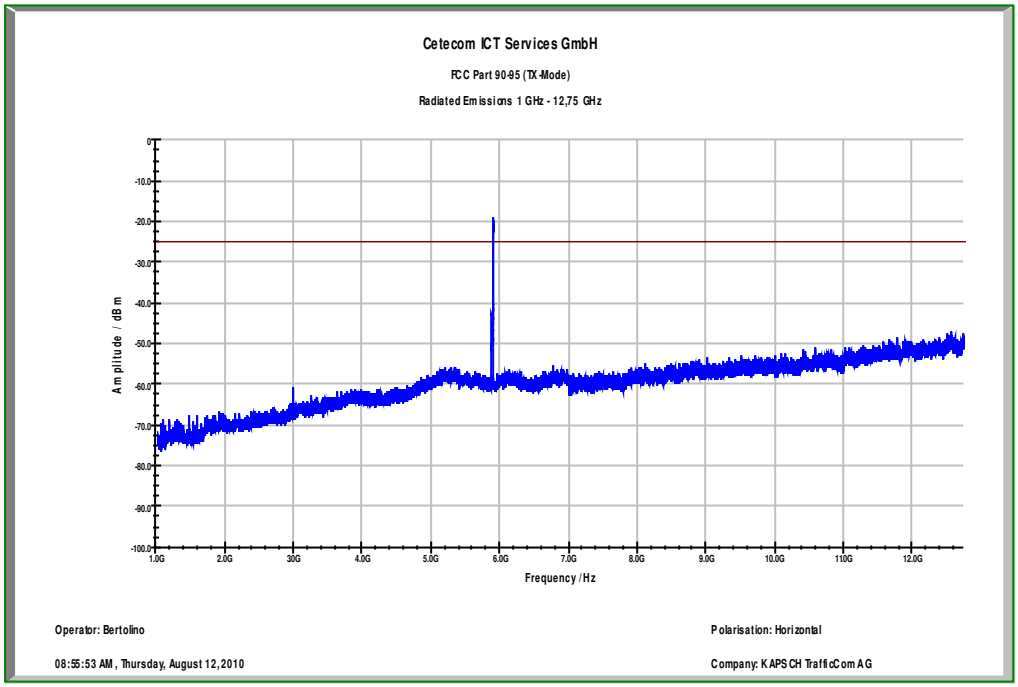
Plot 17: 5900 MHz, low data rate, 1 GHz – 12.75 GHz, vertical polarization



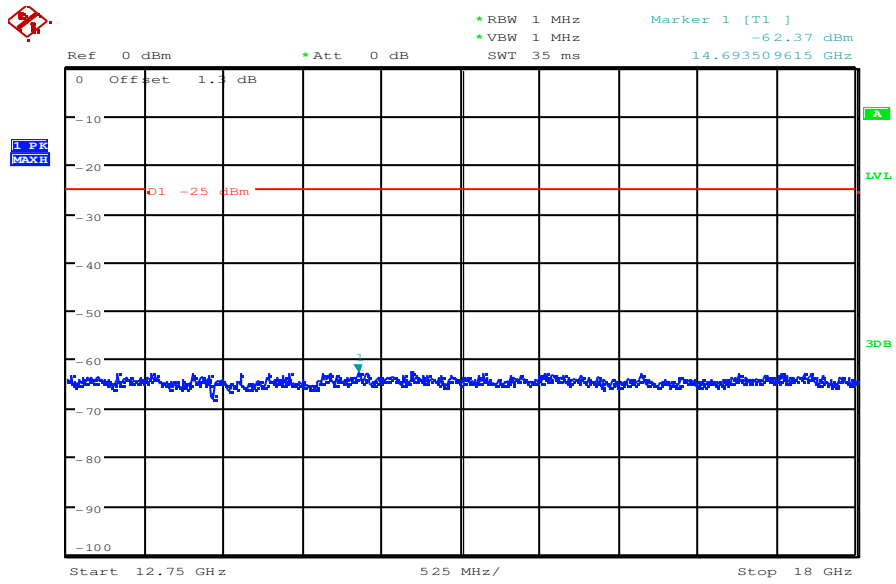
Plot 18: 5900 MHz, low data rate, 30 MHz – 1 GHz, horizontal polarization



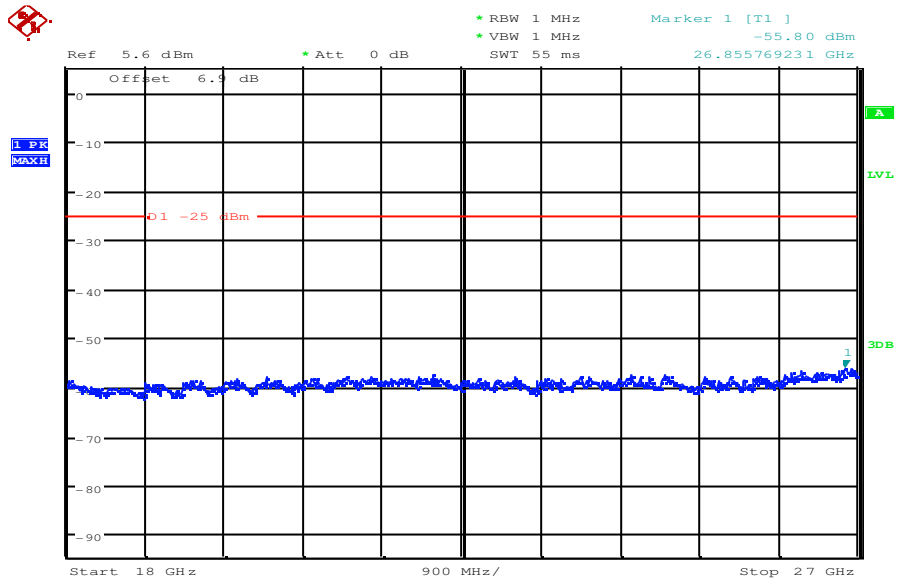
Plot 19: 5900 MHz, low data rate, 1 GHz – 12.75 GHz, horizontal polarization



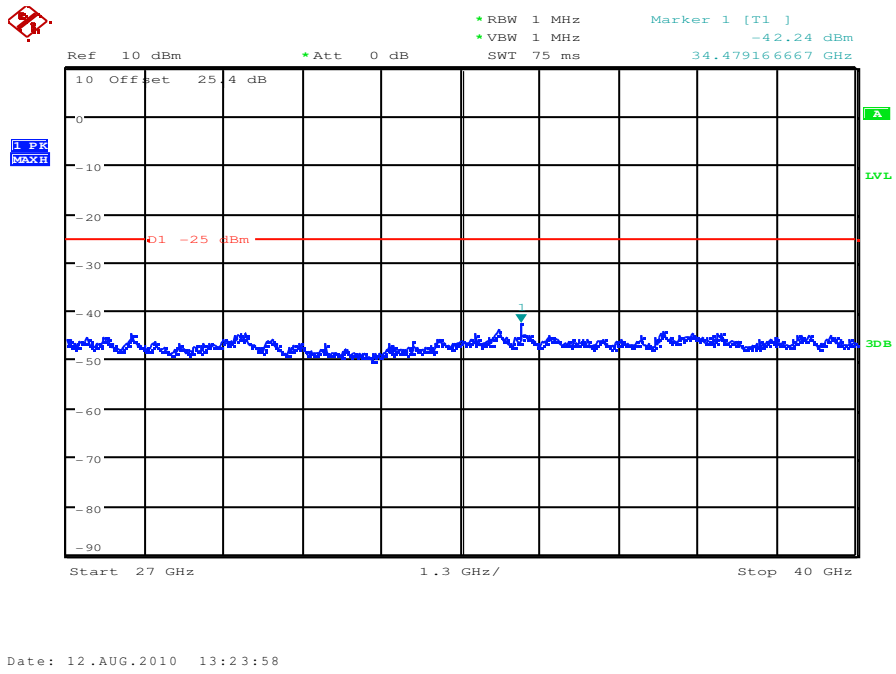
Plot 20: 5900 MHz, low data rate, 12 GHz – 18 GHz, vertical & horizontal polarization (valid for all channels)



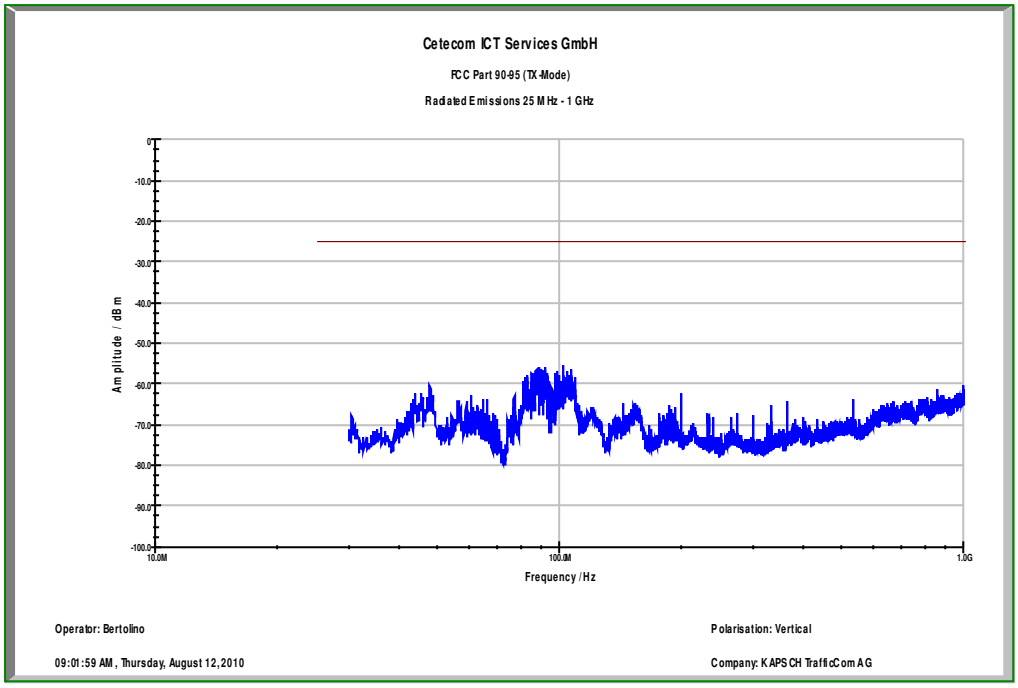
Plot 21: 5900 MHz, low data rate, 18 GHz – 26 GHz, vertical & horizontal polarization (valid for all channels)



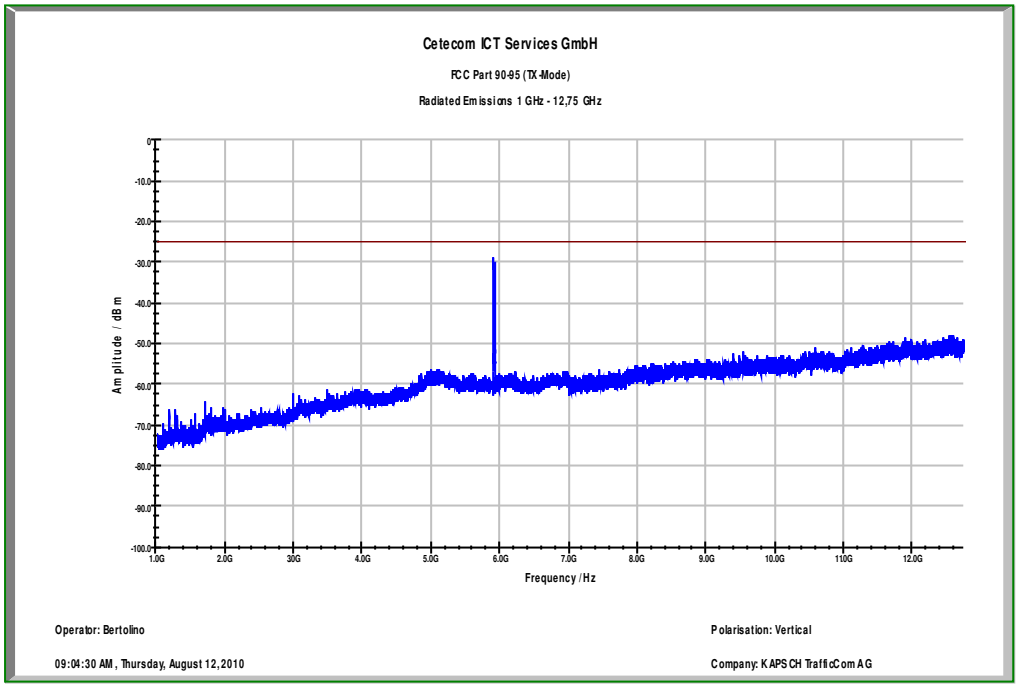
Plot 22: 5900 MHz, low data rate, 26 GHz – 40 GHz, vertical & horizontal polarization (valid for all channels)



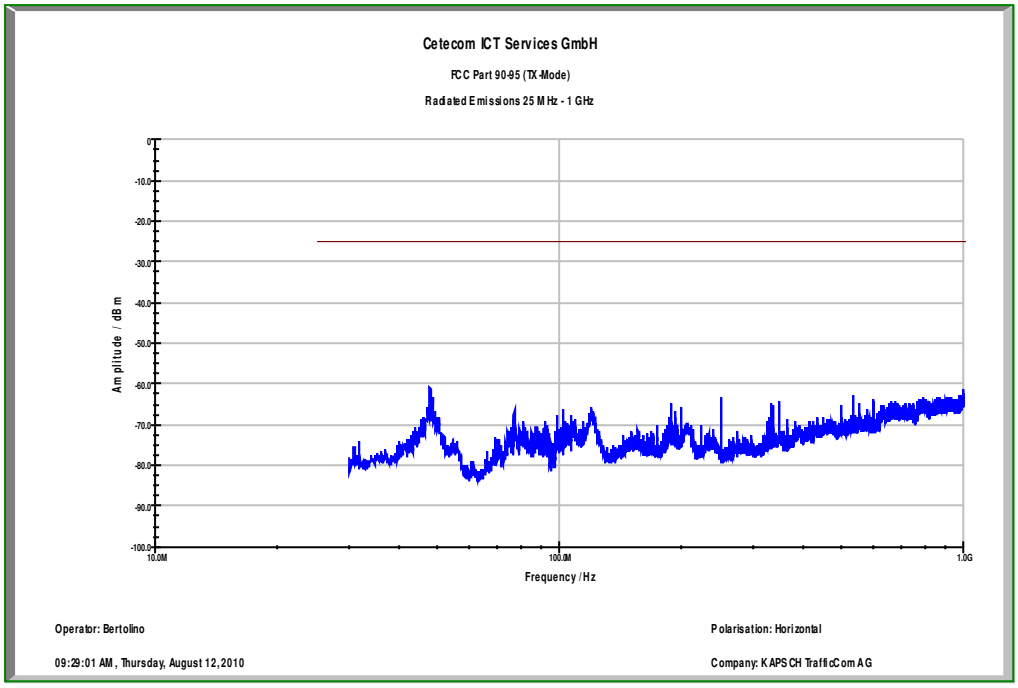
Plot 23: 5920 MHz, low data rate, 30 MHz – 1 GHz, vertical polarization



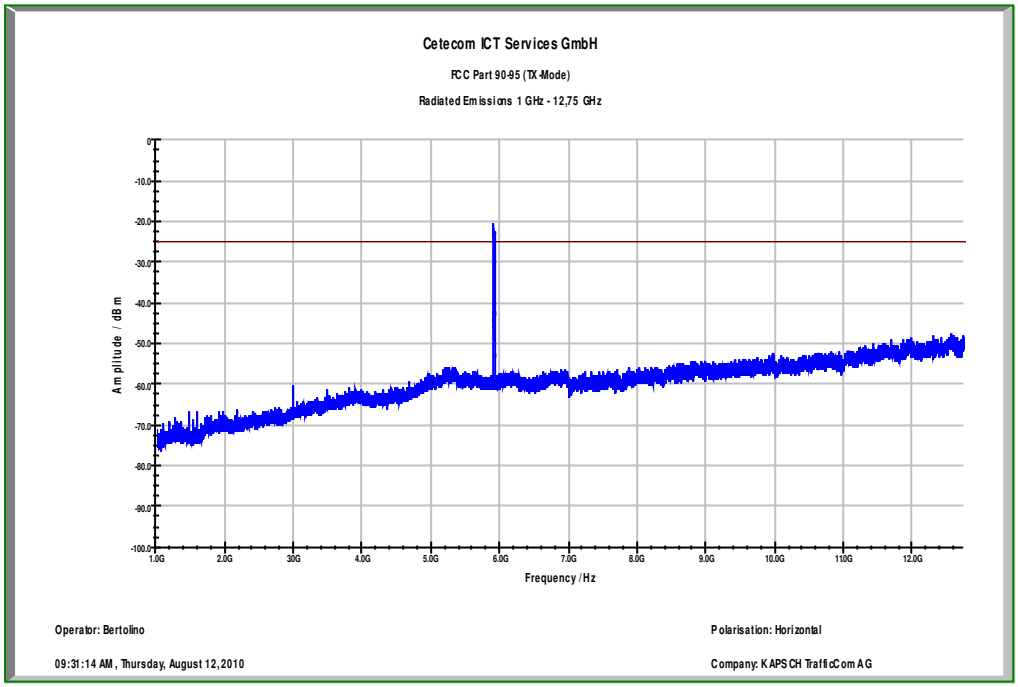
Plot 24: 5920 MHz, low data rate, 1 GHz – 12.75 GHz, vertical polarization



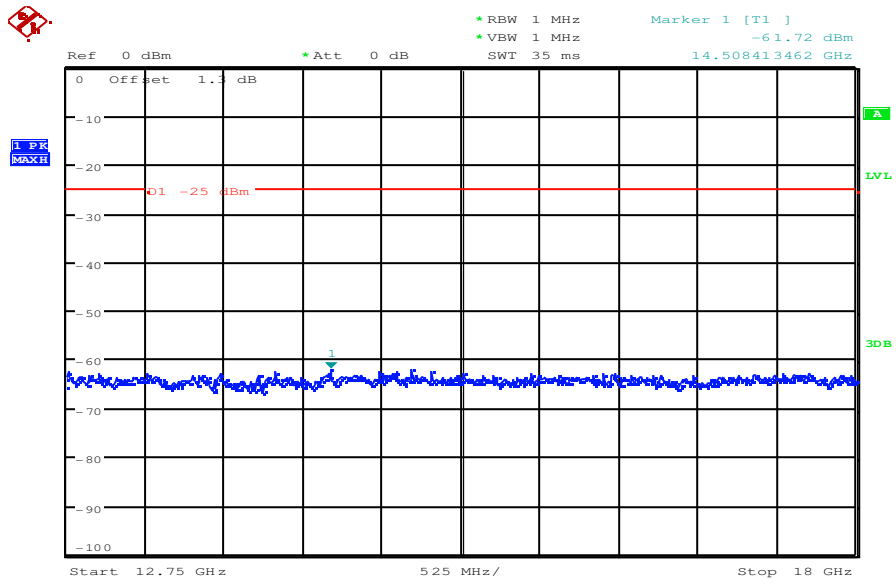
Plot 25: 5920 MHz, low data rate, 30 MHz – 1 GHz, horizontal polarization



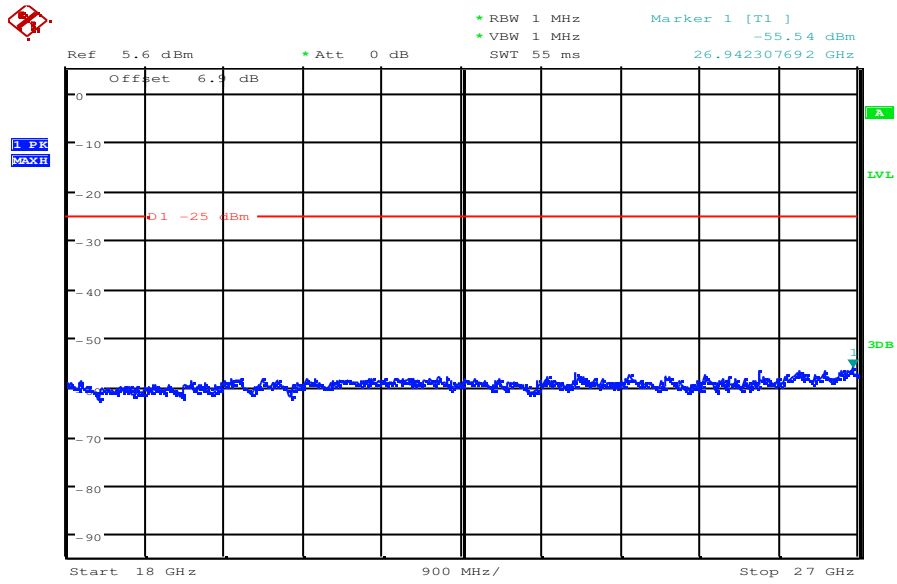
Plot 26: 5920 MHz, low data rate, 1 GHz – 12.75 GHz, horizontal polarization



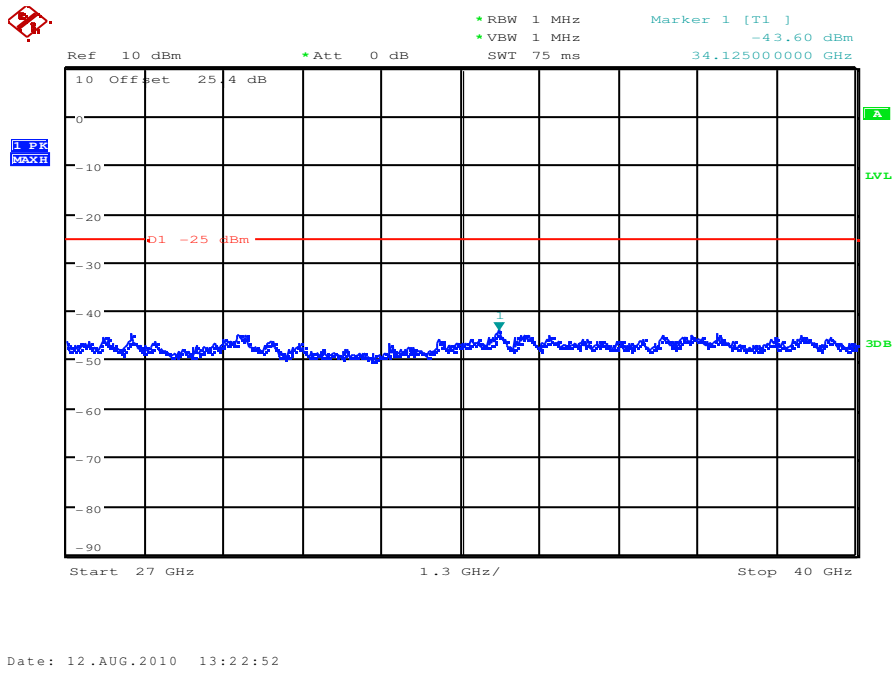
Plot 27: 5920 MHz, low data rate, 12 GHz – 18 GHz, vertical & horizontal polarization (valid for all channels)



Plot 28: 5920 MHz, low data rate, 18 GHz – 26 GHz, vertical & horizontal polarization (valid for all channels)

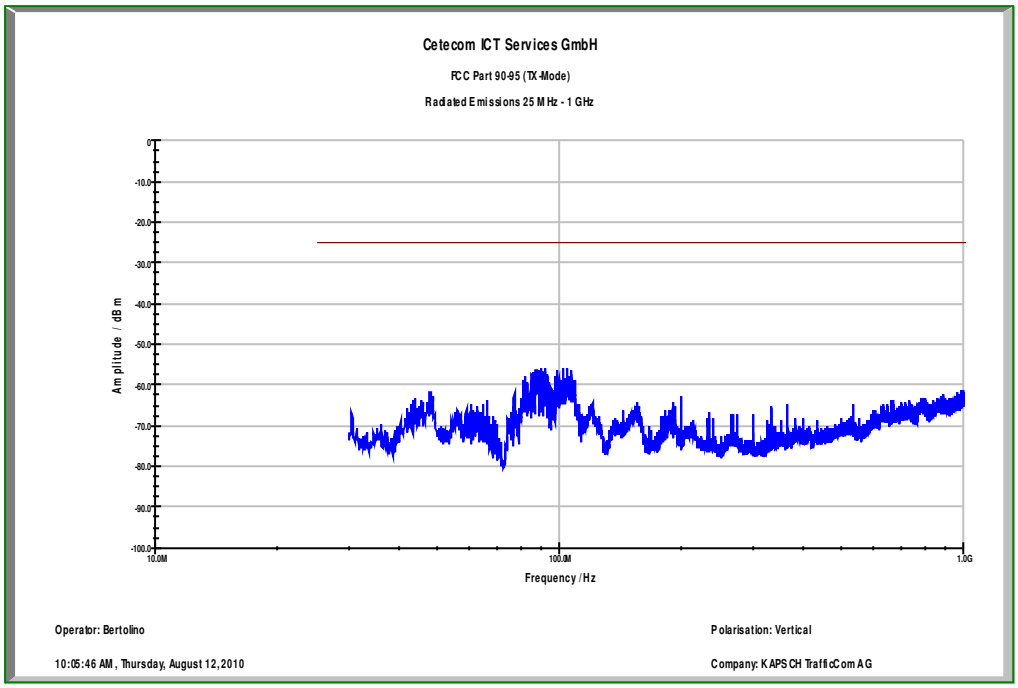


Plot 29: 5920 MHz, low data rate, 26 GHz – 40 GHz, vertical & horizontal polarization (valid for all channels)

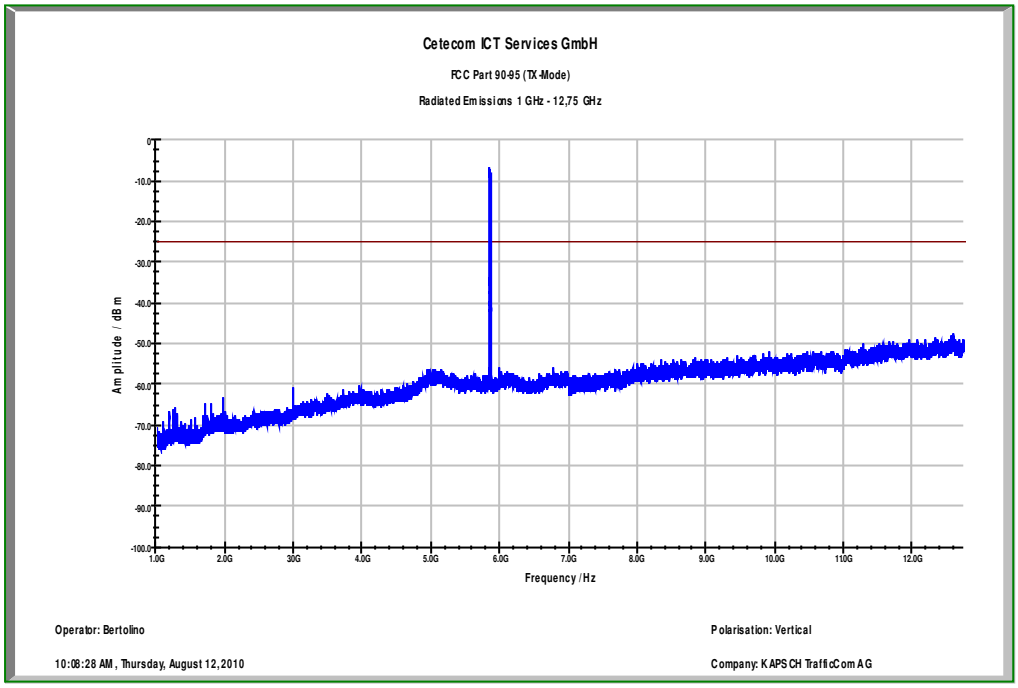


Port A: high data rate

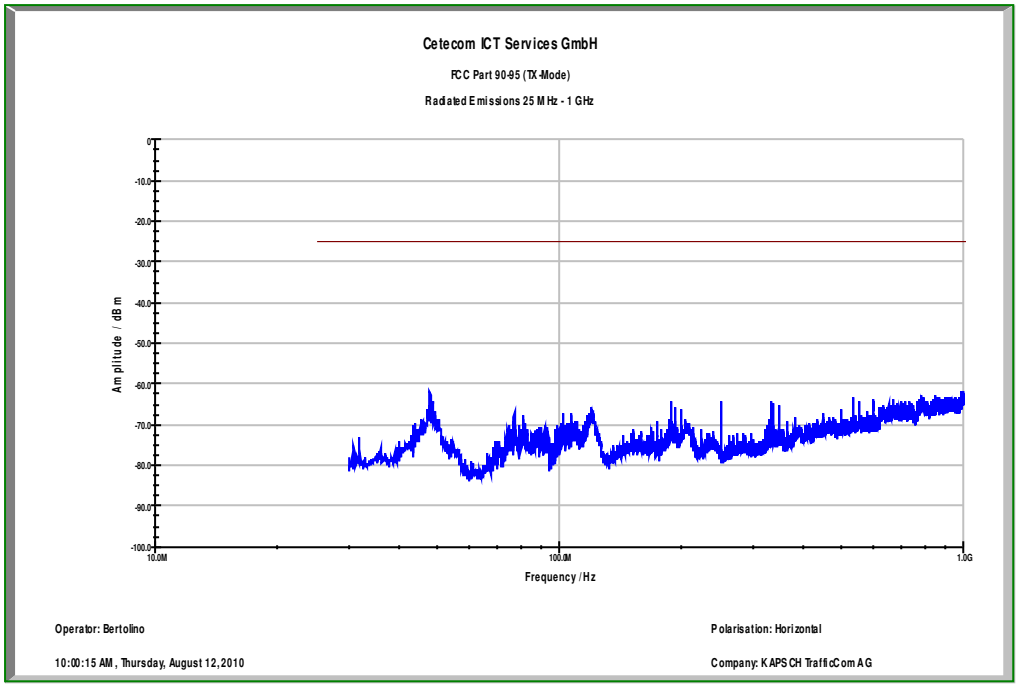
Plot 1: 5860 MHz, low data rate, 30 MHz – 1 GHz, vertical polarization



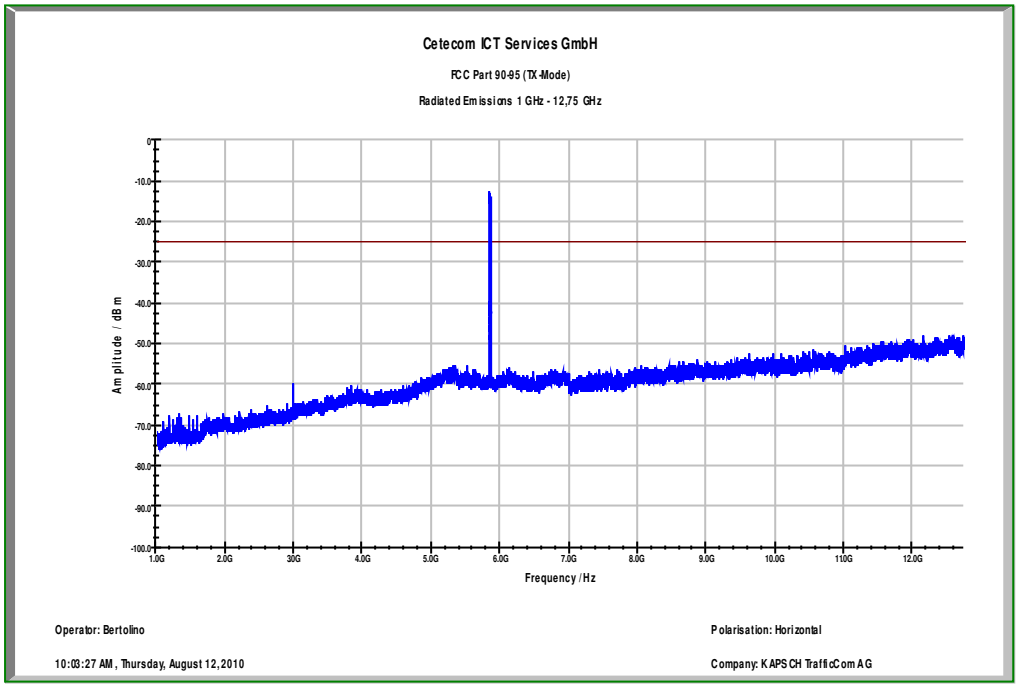
Plot 2: 5860 MHz, low data rate, 1 GHz – 12.75 GHz, vertical polarization



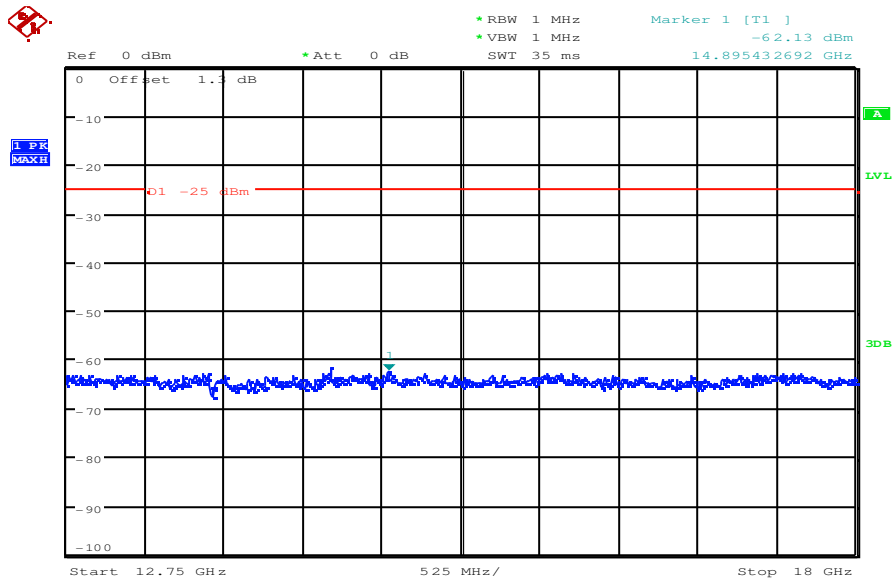
Plot 3: 5860 MHz, low data rate, 30 MHz – 1 GHz, horizontal polarization



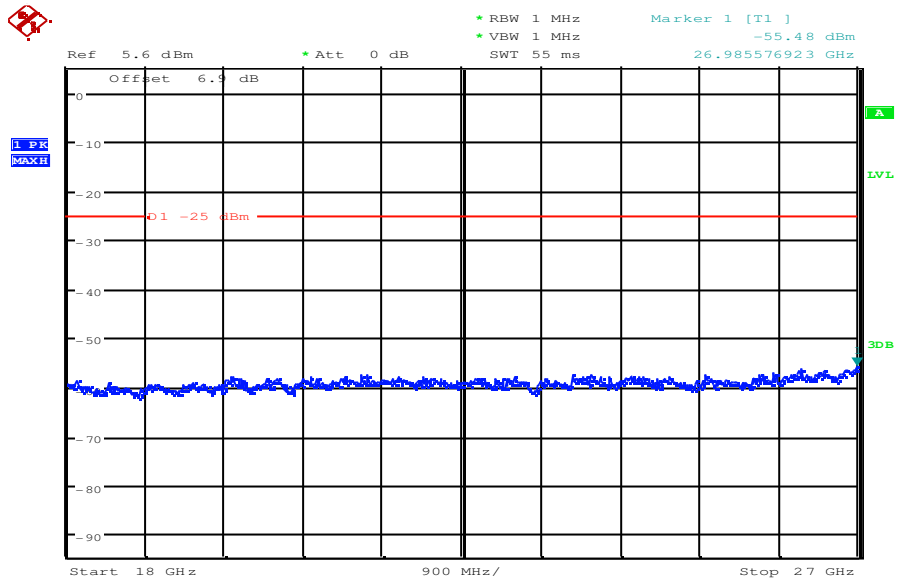
Plot 4: 5860 MHz, low data rate, 1 GHz – 12.75 GHz, horizontal polarization



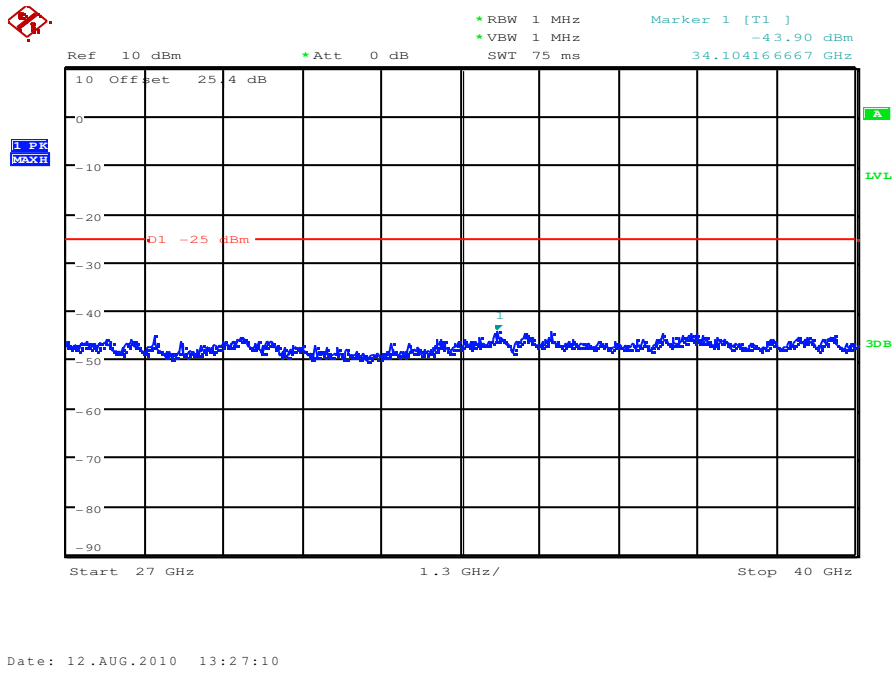
Plot 5: 5860 MHz, low data rate, 12 GHz – 18 GHz, vertical & horizontal polarization (valid for all channels)



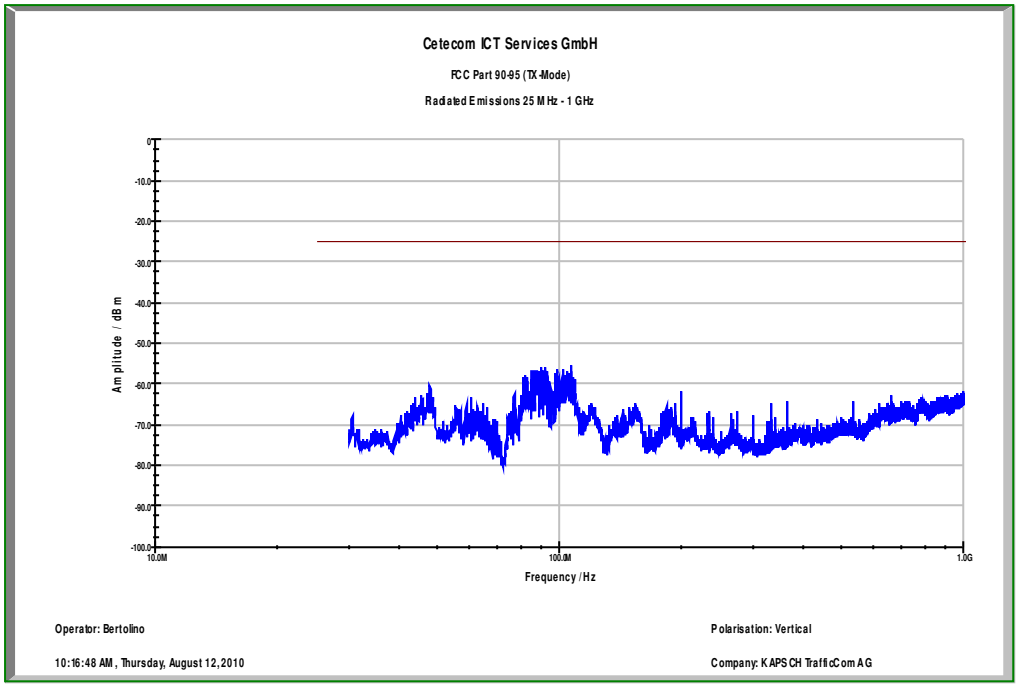
Plot 7: 5860 MHz, low data rate, 18 GHz – 26 GHz, vertical & horizontal polarization (valid for all channels)



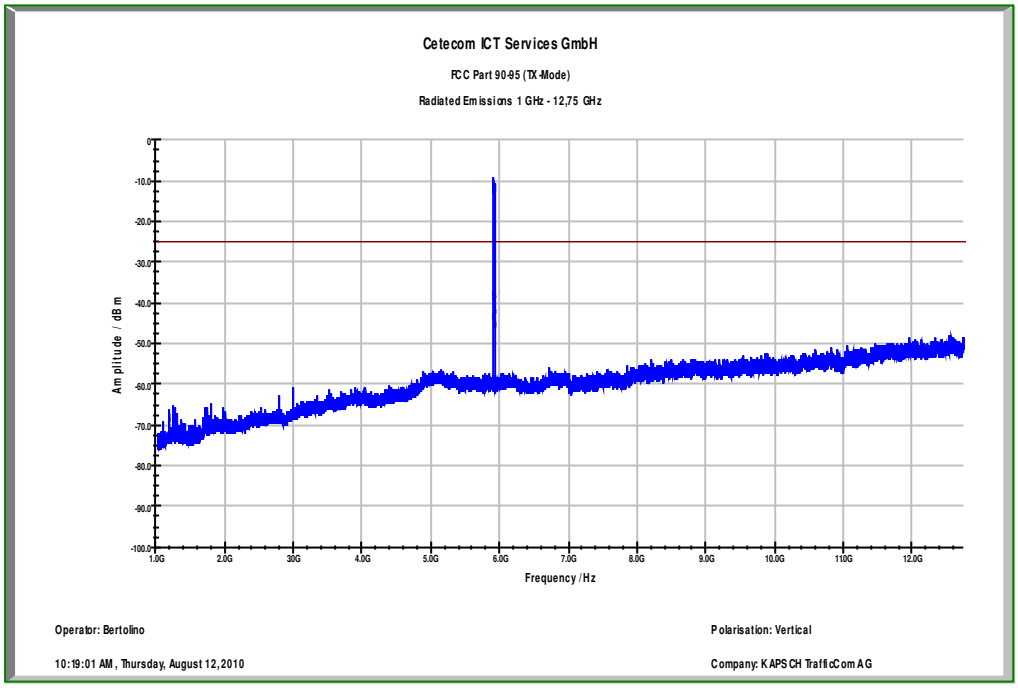
Plot 8: 5860 MHz, low data rate, 26 GHz – 40 GHz, vertical & horizontal polarization (valid for all channels)



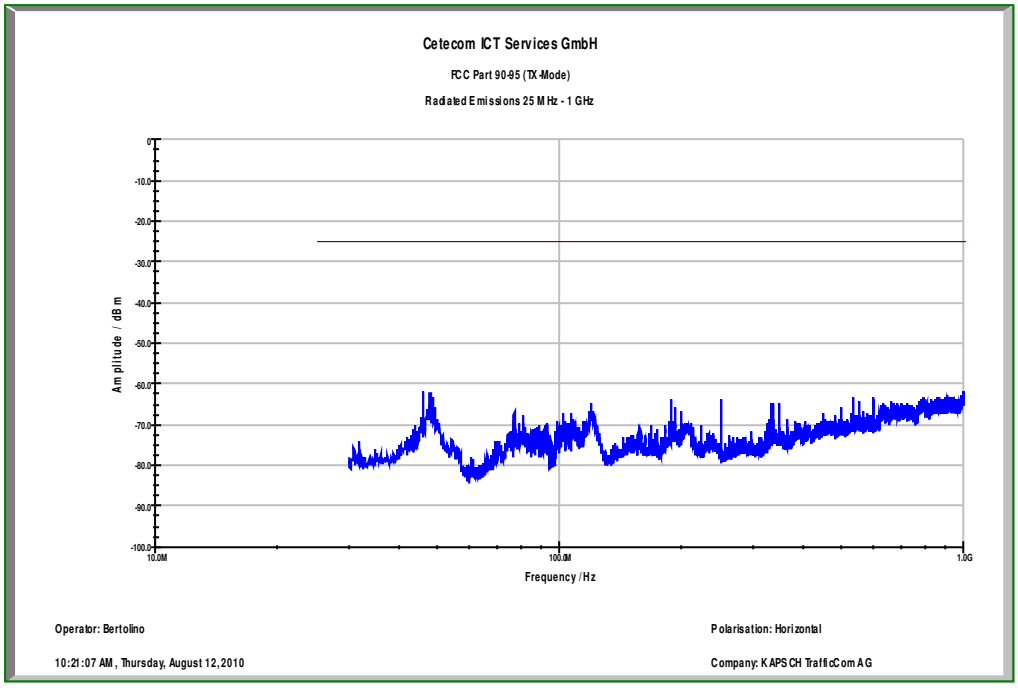
Plot 23: 5920 MHz, low data rate, 30 MHz – 1 GHz, vertical polarization



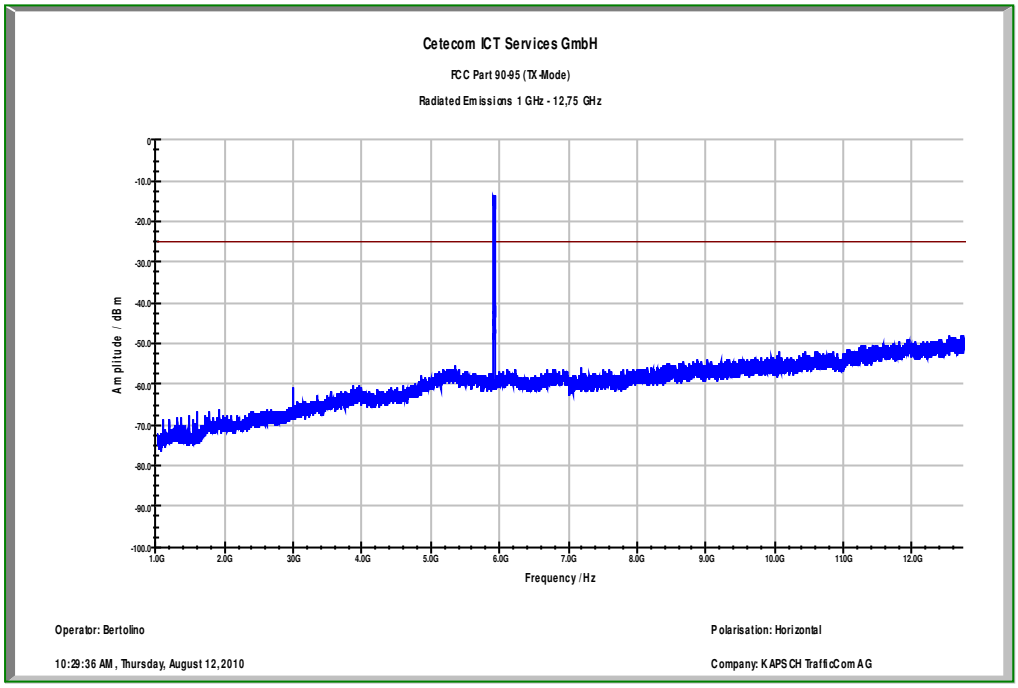
Plot 24: 5920 MHz, low data rate, 1 GHz – 12.75 GHz, vertical polarization



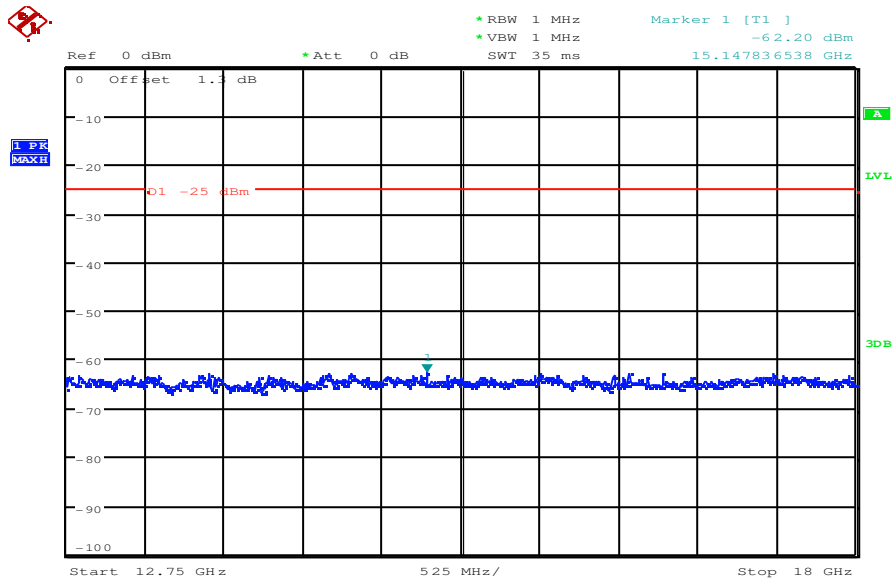
Plot 25: 5920 MHz, low data rate, 30 MHz – 1 GHz, horizontal polarization



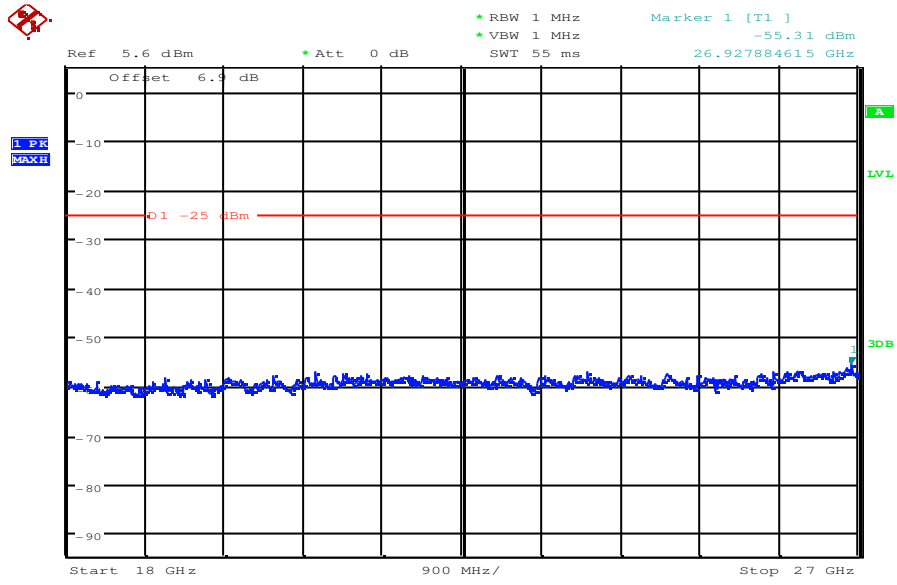
Plot 26: 5920 MHz, low data rate, 1 GHz – 12.75 GHz, horizontal polarization



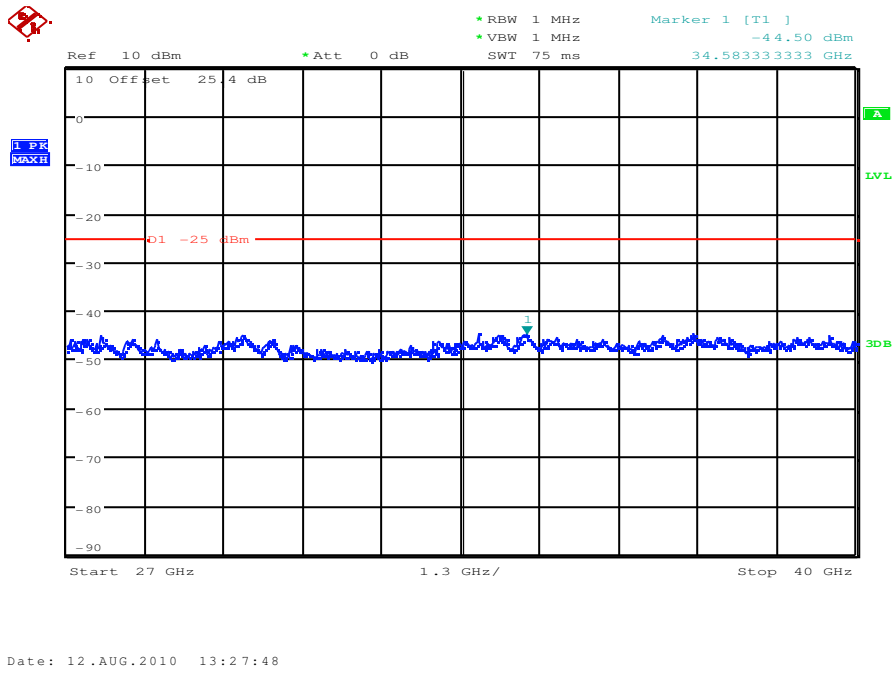
Plot 27: 5920 MHz, low data rate, 12 GHz – 18 GHz, vertical & horizontal polarization (valid for all channels)



Plot 28: 5920 MHz, low data rate, 18 GHz – 26 GHz, vertical & horizontal polarization (valid for all channels)

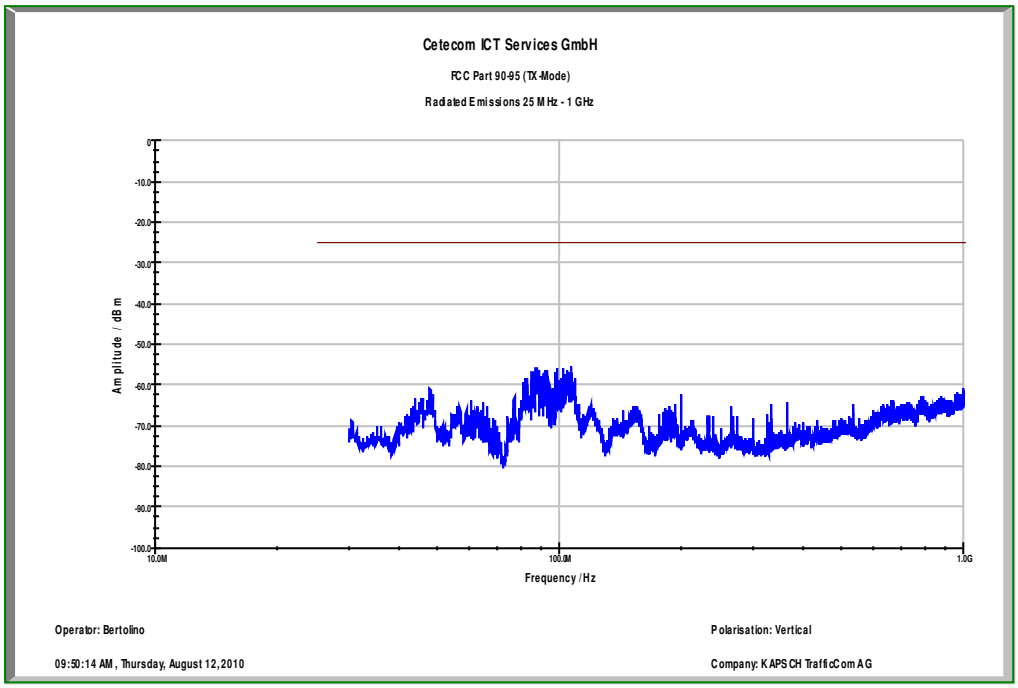


Plot 29: 5920 MHz, low data rate, 26 GHz – 40 GHz, vertical & horizontal polarization (valid for all channels)

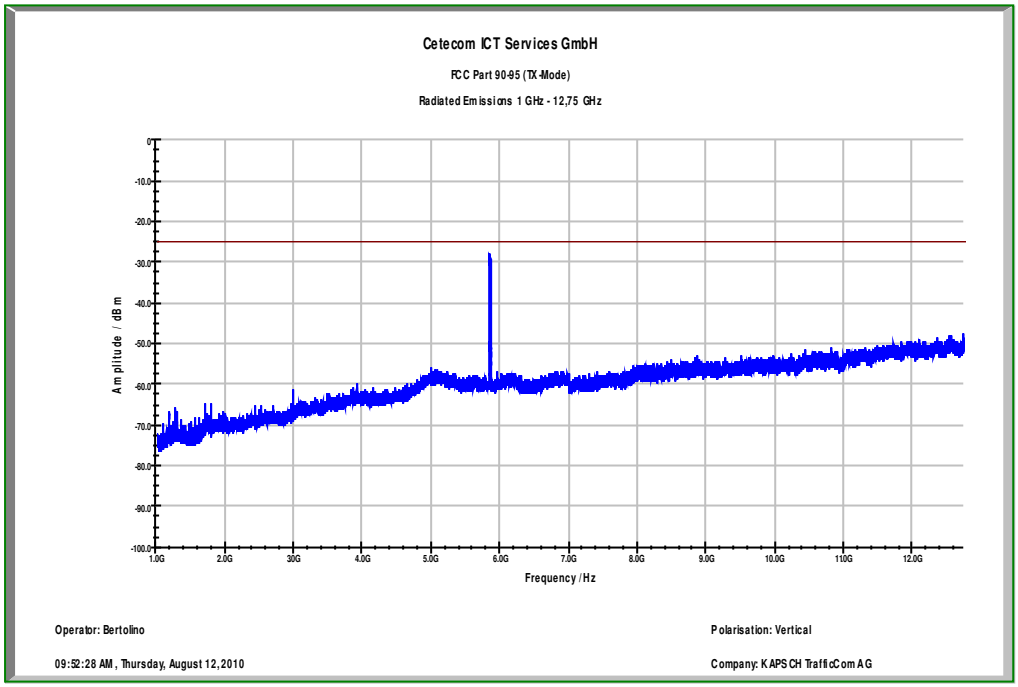


Port B: high data rate

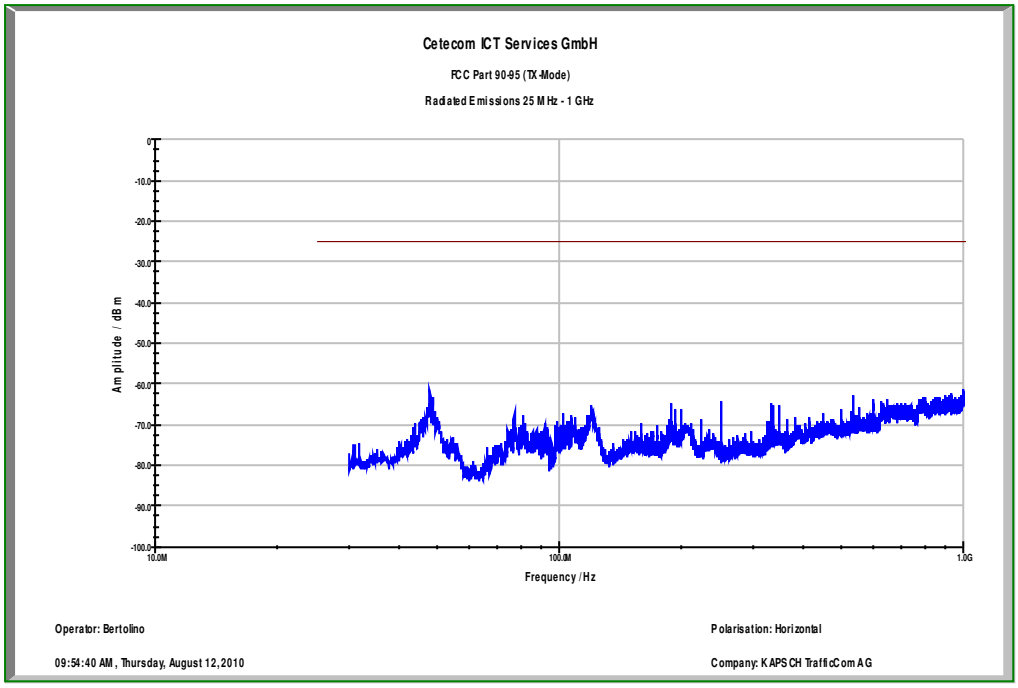
Plot 1: 5860 MHz, low data rate, 30 MHz – 1 GHz, vertical polarization



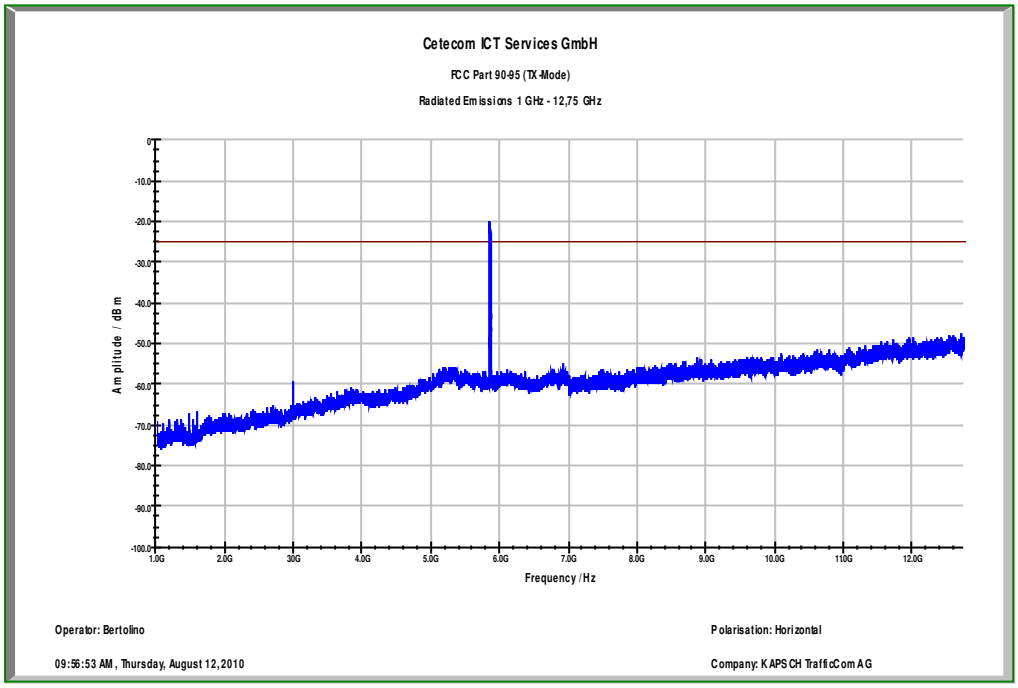
Plot 2: 5860 MHz, low data rate, 1 GHz – 12.75 GHz, vertical polarization



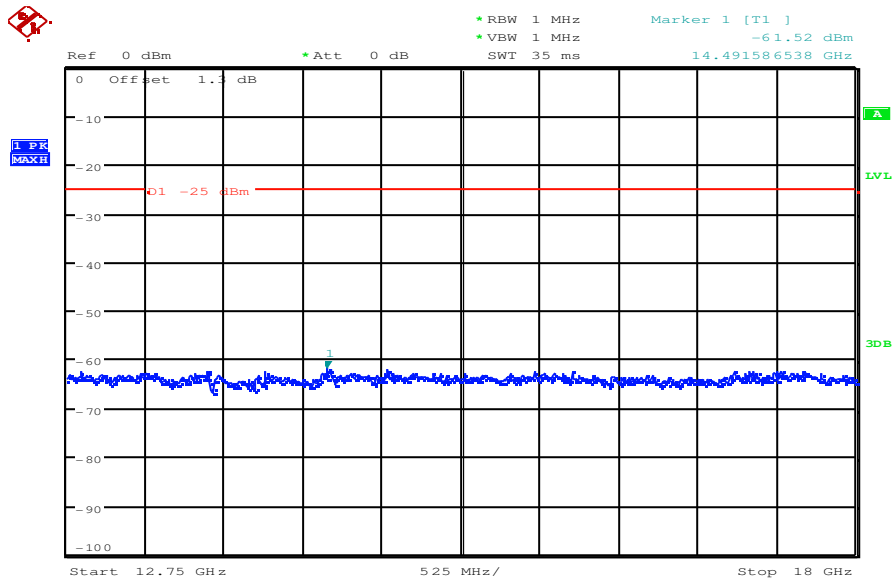
Plot 3: 5860 MHz, low data rate, 30 MHz – 1 GHz, horizontal polarization



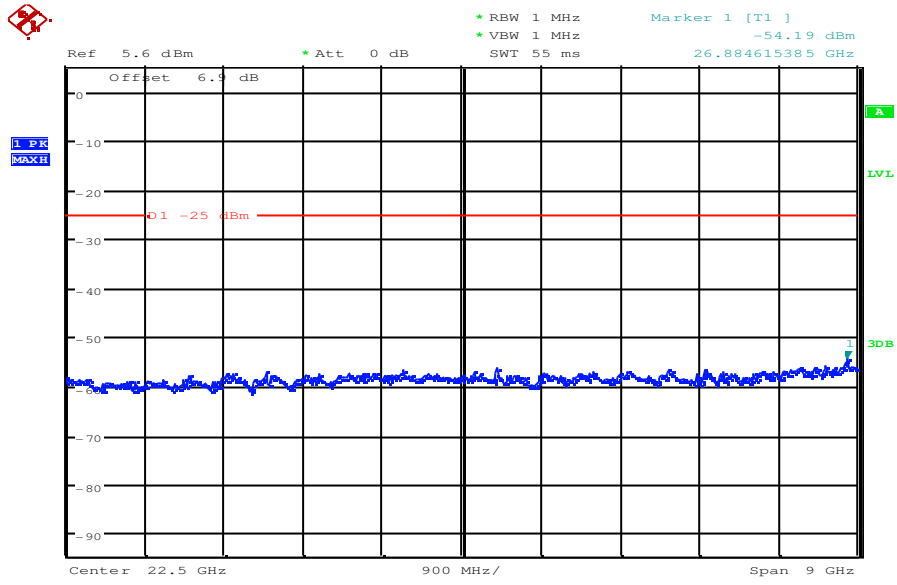
Plot 4: 5860 MHz, low data rate, 1 GHz – 12.75 GHz, horizontal polarization



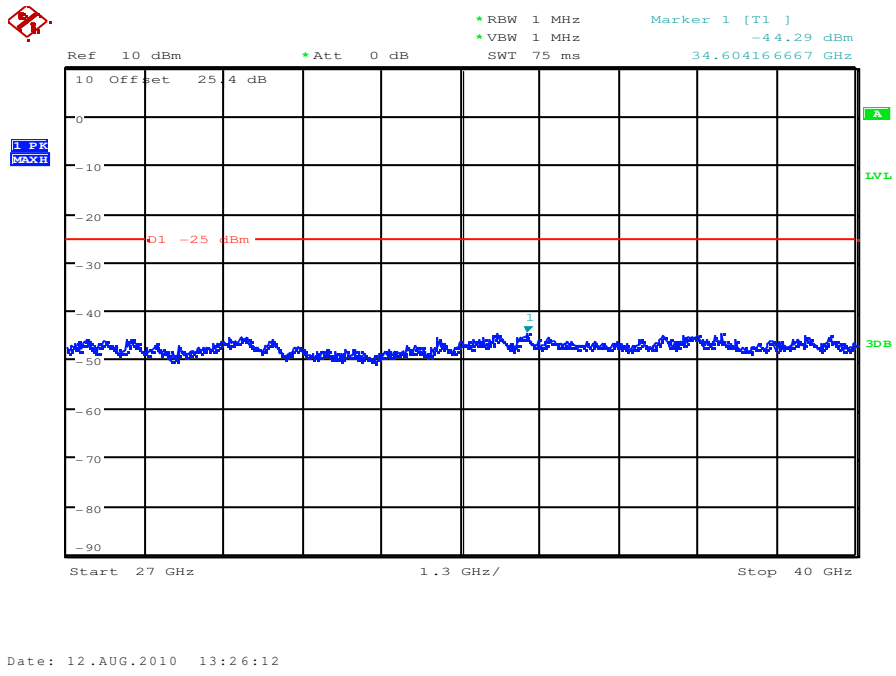
Plot 5: 5860 MHz, low data rate, 12 GHz – 18 GHz, vertical & horizontal polarization (valid for all channels)



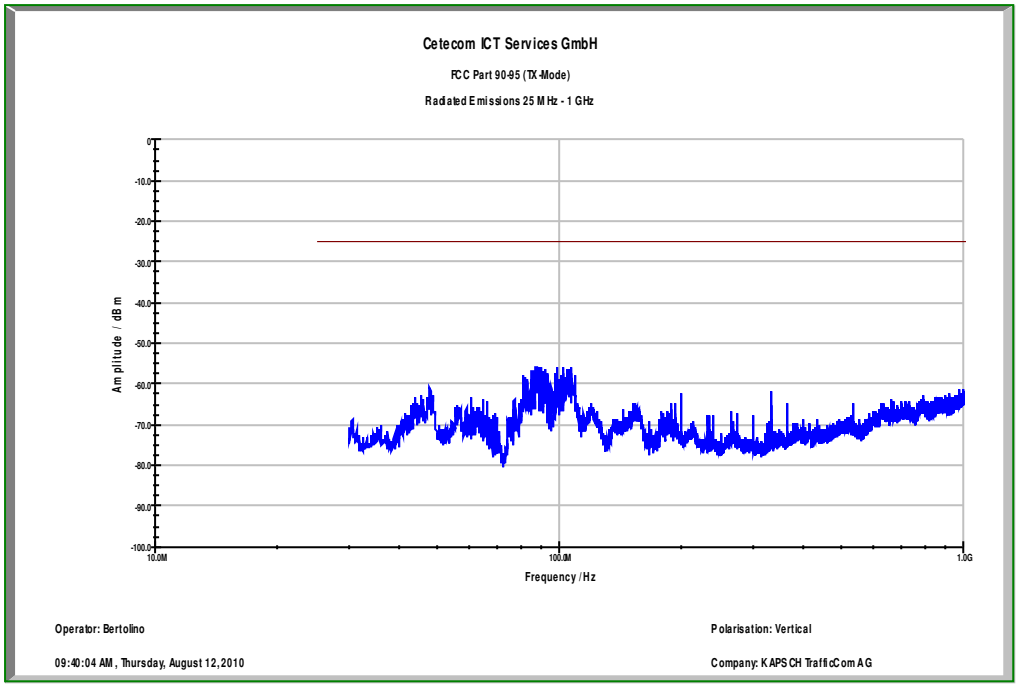
Plot 7: 5860 MHz, low data rate, 18 GHz – 26 GHz, vertical & horizontal polarization (valid for all channels)



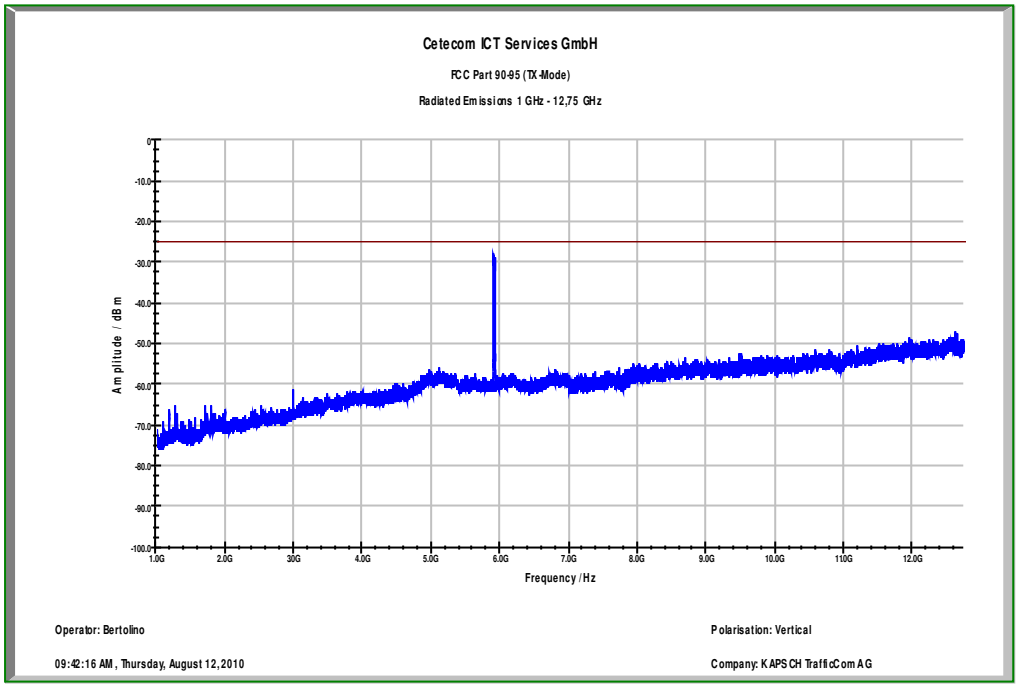
Plot 8: 5860 MHz, low data rate, 26 GHz – 40 GHz, vertical & horizontal polarization (valid for all channels)



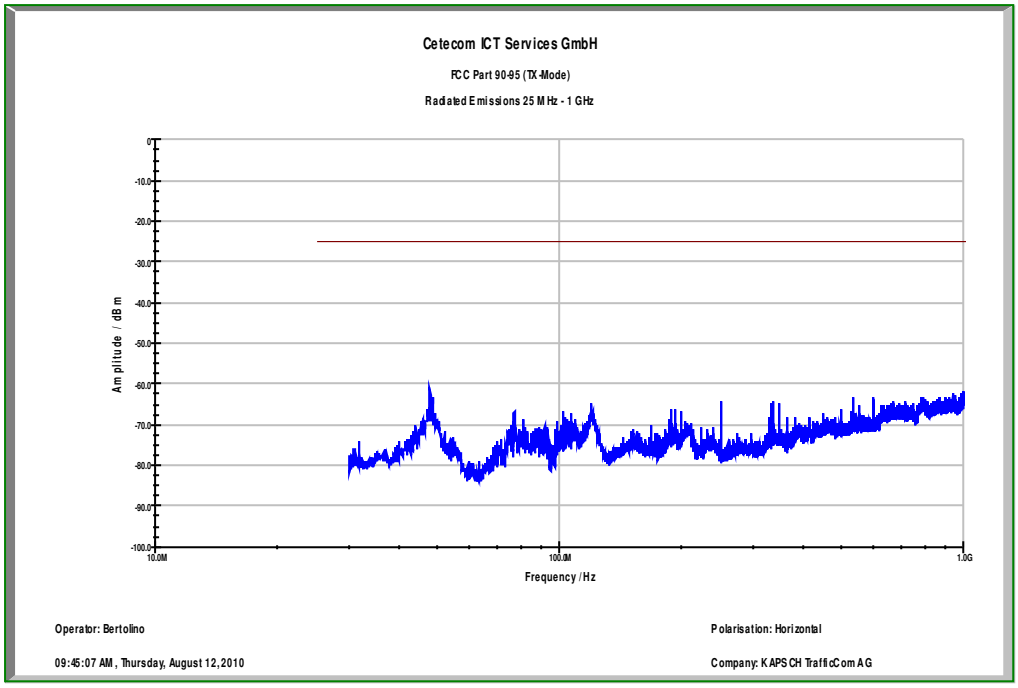
Plot 23: 5920 MHz, low data rate, 30 MHz – 1 GHz, vertical polarization



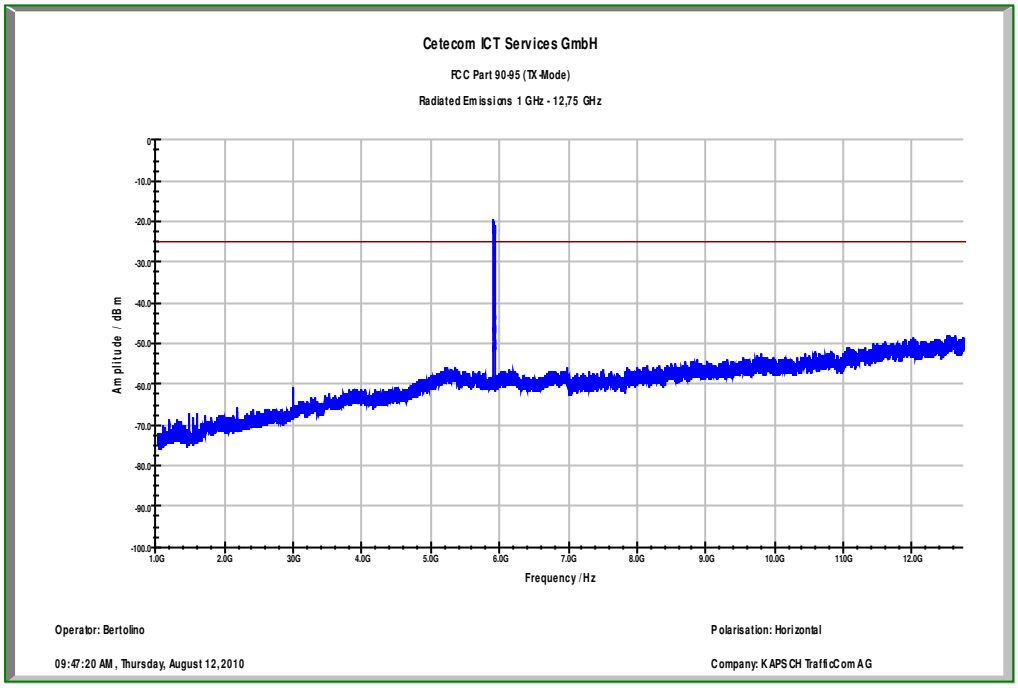
Plot 24: 5920 MHz, low data rate, 1 GHz – 12.75 GHz, vertical polarization



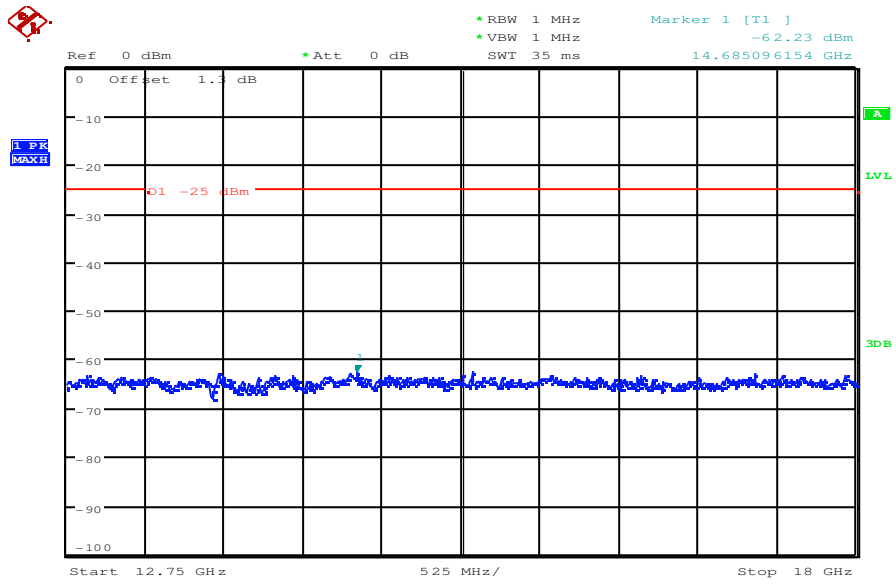
Plot 25: 5920 MHz, low data rate, 30 MHz – 1 GHz, horizontal polarization



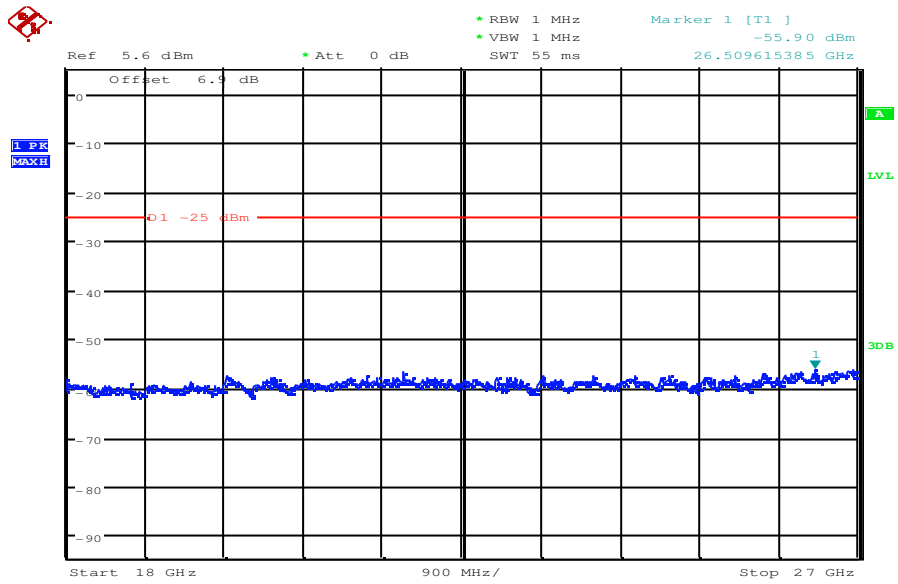
Plot 26: 5920 MHz, low data rate, 1 GHz – 12.75 GHz, horizontal polarization



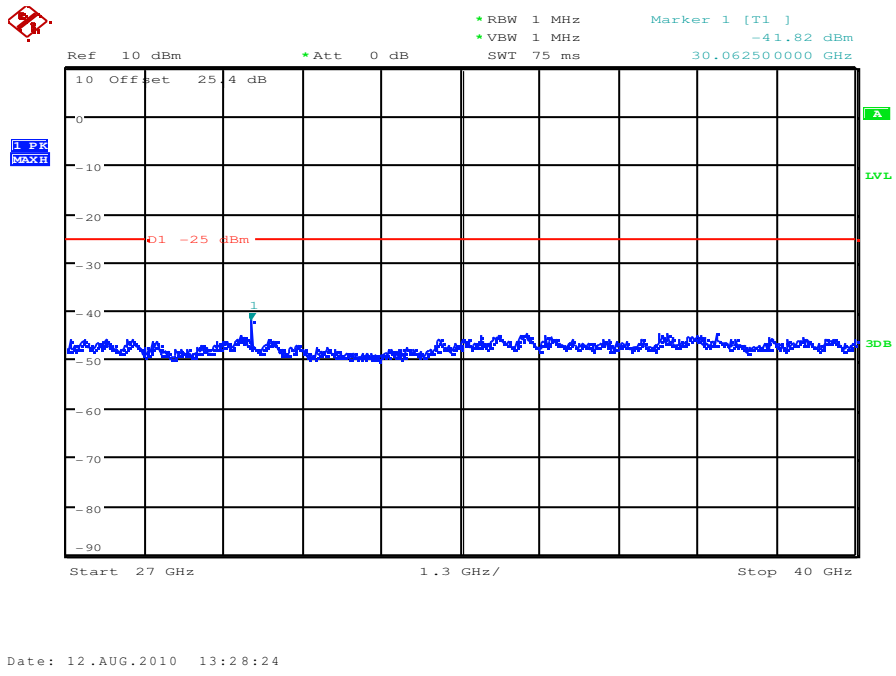
Plot 27: 5920 MHz, low data rate, 12 GHz – 18 GHz, vertical & horizontal polarization (valid for all channels)



Plot 28: 5920 MHz, low data rate, 18 GHz – 26 GHz, vertical & horizontal polarization (valid for all channels)



Plot 29: 5920 MHz, low data rate, 26 GHz – 40 GHz, vertical & horizontal polarization (valid for all channels)



Results: Port A

SPURIOUS EMISSIONS LEVEL								
5860 MHz Low data rate			5890 MHz Low data rate			5900 MHz Low data rate		
F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]
No critical peaks detected. All detected emissions are more than 10 dB below the limit!			No critical peaks detected. All detected emissions are more than 10 dB below the limit!			No critical peaks detected. All detected emissions are more than 10 dB below the limit!		
Measurement uncertainty			±3 dB					

SPURIOUS EMISSIONS LEVEL								
5920 MHz Low data rate			5860 MHz High data rate			5920 MHz High data rate		
F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]
No critical peaks detected. All detected emissions are more than 10 dB below the limit!			No critical peaks detected. All detected emissions are more than 10 dB below the limit!			No critical peaks detected. All detected emissions are more than 10 dB below the limit!		
Measurement uncertainty			±3 dB					

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

Limit:

Under normal test conditions only	-25 dBm

Results: Port B

SPURIOUS EMISSIONS LEVEL								
5860 MHz Low data rate			5890 MHz Low data rate			5900 MHz Low data rate		
F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]
No critical peaks detected. All detected emissions are more than 10 dB below the limit!			No critical peaks detected. All detected emissions are more than 10 dB below the limit!			No critical peaks detected. All detected emissions are more than 10 dB below the limit!		
Measurement uncertainty			±3 dB					

SPURIOUS EMISSIONS LEVEL								
5920 MHz Low data rate			5860 MHz High data rate			5920 MHz High data rate		
F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]
No critical peaks detected. All detected emissions are more than 10 dB below the limit!			No critical peaks detected. All detected emissions are more than 10 dB below the limit!			No critical peaks detected. All detected emissions are more than 10 dB below the limit!		
Measurement uncertainty			±3 dB					

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

Limit:

Under normal test conditions only	-25 dBm

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	45	Switch-Unit	3488A	HP Meßtechnik	2719A14505	300000368	g		
2	50	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2920A04466	300000580	k	06.01.2009	06.01.2011
3	n. a.	software	SPS_PHE 1.4f	Spitzberger & Spieß	B5981; 5D1081;B5979	300000210	ne		
4	n. a.	EMI Test Receiver	ESCI 1166.5950.03	R&S	100083	300003312	k	08.01.2010	08.01.2012
5	n. a.	Analyzer-Reference-System (Harmonics and Flicker)	ARS 16/1	SPS	A3509 07/0 0205	300003314	k	01.06.2009	01.06.2011
6	n. a.	Amplifier	JS42-00502650-28-5A	MITEQ	1084532	300003379	ev		
7	n. a.	Antenna Tower	Model 2175	ETS-LINDGREN	64762	300003745	izw		
8	n. a.	Positioning Controller	Model 2090	ETS-LINDGREN	64672	300003746	izw		
9	n. a.	Turntable Interface-Box TRILOG	Model 105637	ETS-LINDGREN	44583	300003747	izw		
10	n. a.	Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	295	300003787	k	01.04.2010	01.04.2012
11	n. a.	Spectrum-Analyzer	FSU26	R&S	200809	300003874	k	08.01.2010	08.01.2012
12	n. a.	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2818A03450	300001040	Ve	08.01.2009	08.01.2012
13	n. a.	Power Attenuator Double-Ridged	8325	Byrd	1530	300001595			
14	n. a.	Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032	vIKI!	05.03.2009	05.03.2011
15	n. a.	Active Loop Antenna	6502	EMCO	2210	300001015	ne		
16	n. a.	Anechoic chamber		MWB	87400/02	300000996			
17	Spec.A. 2_2e	System rack for EMI measurement solution	85900	HP I.V.	*	300000222	ne		
18	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
19	n. a.	Relais Matrix	3488A	HP Meßtechnik	2719A15013	300001156	ne		
20	n. a.	Relais Matrix	PSU	R&S	890167/024	300001168	ne		
21	n. a.	Isolating Transformer	RT5A	Grundig	9242	300001263	ne		
22	n. a.	Three-Way Power Splitter, 50 Ohm	11850C	HP Meßtechnik		300000997	ne		
23	n. a.	Switch / Control Unit	3488A	HP	2605e08770	300001443	ne		
24	n. a.	Band Reject filter	WRCG1855/1910-1835/1925-40/8SS	Wainwright	7	300003350	ev		
25	n. a.	Band Reject filter	WRCG2400/2483-2375/2505-50/10SS	Wainwright	11	300003351	ev		

26	n. a.	TILE-Software Emission	Quantum Change, Modell TILE-ICS/FULL	EMCO	none	300003451	ne		
27	n. a.	Highpass Filter	WHKX2.9/18G-12SS	Wainwright	1	300003492	ev		
28	n. a.	Highpass Filter	WHK1.1/15G-10SS	Wainwright	3	300003255	ev		
29	n. a.	Highpass Filter	WHKX7.0/18G-8SS	Wainwright	18	300003789	ne		
30	n. a.	PSA Spectrum Analyzer 3 Hz - 26.5 GHz	E4440A	Agilent Technologies	MY48250080	300003812	k		
31	n. a.	MXG Microwave Analog Signal Generator	N5183A	Agilent Technologies	MY47420220	300003813	k		
32	n. a.	RF Filter Section 9kHz - 1GHz	N9039A	Agilent Technologies	MY48260003	300003825	vIKl!		
33	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	371	300003854	vIKl!	17.12.2008	17.12.2010
34	CR 79	Std. Gain Horn Antenna 26.5-40.0 GHz	V637	Narda	7911	300001751	ne		
35	A026	Std. Gain Horn Antenna 12.4 to 18.0 GHz	639	Narda		300000787	ne		
36	A029	Std. Gain Horn Antenna 18.0 to 26.5 GHz	638	Narda		300002442	ne		
37	n. a.	Spectrum Analyzer 20 Hz - 50 GHz	FSU50	R&S	200012	300003443	ve	01.07.2010	01.07.2012

Annex A Photographs of the Test Set-up

Photo documentation:

Photo 1:

Photo 2:

Photo 3:

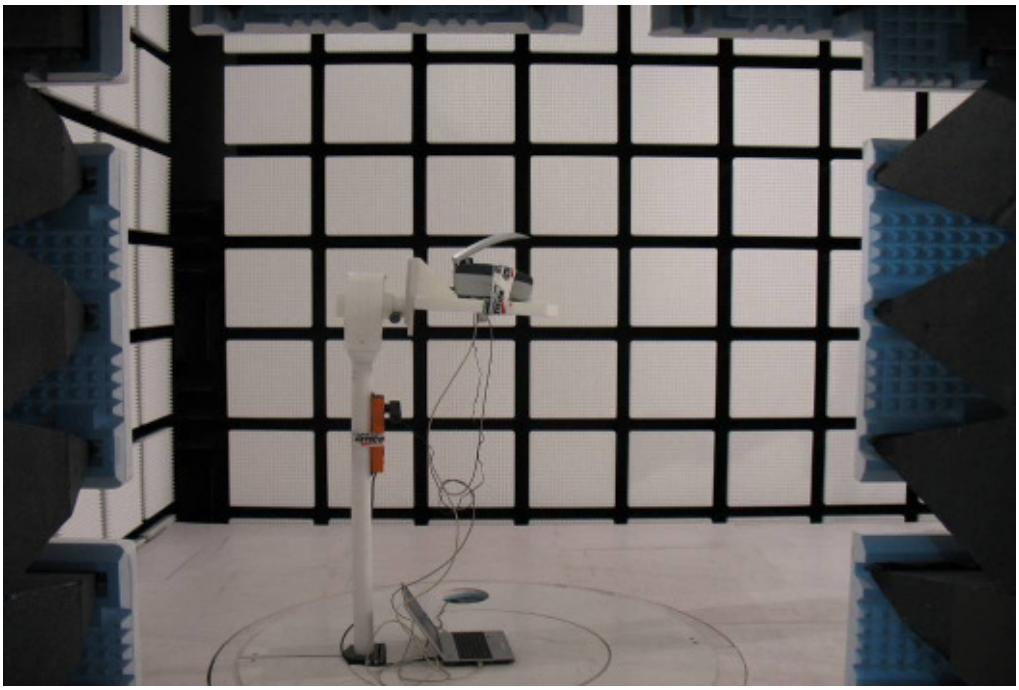


Photo 4:

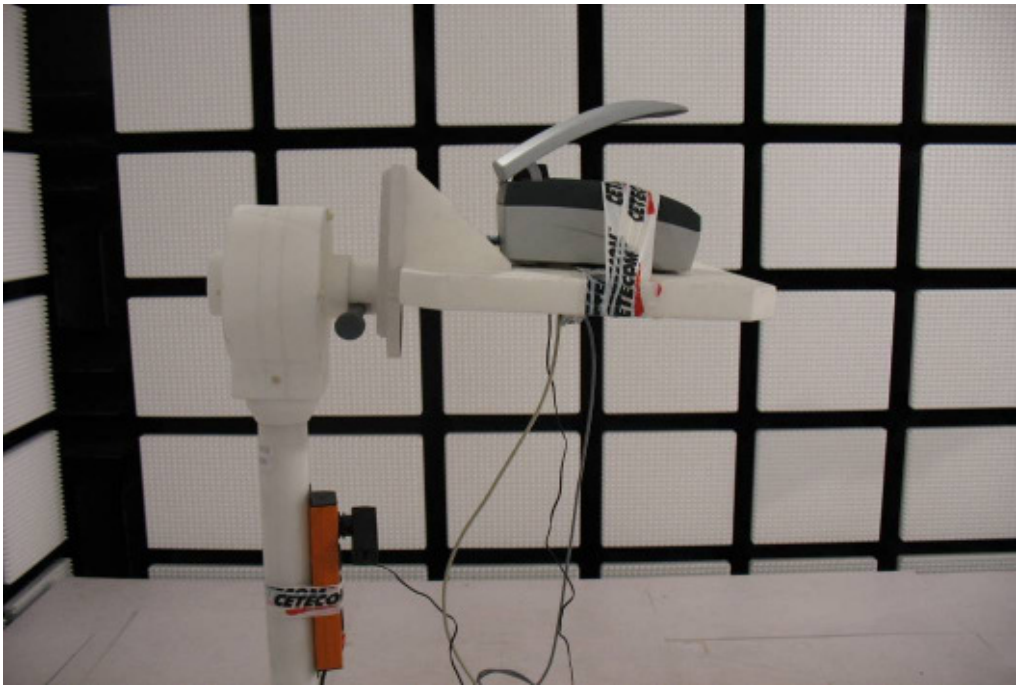


Photo 5:

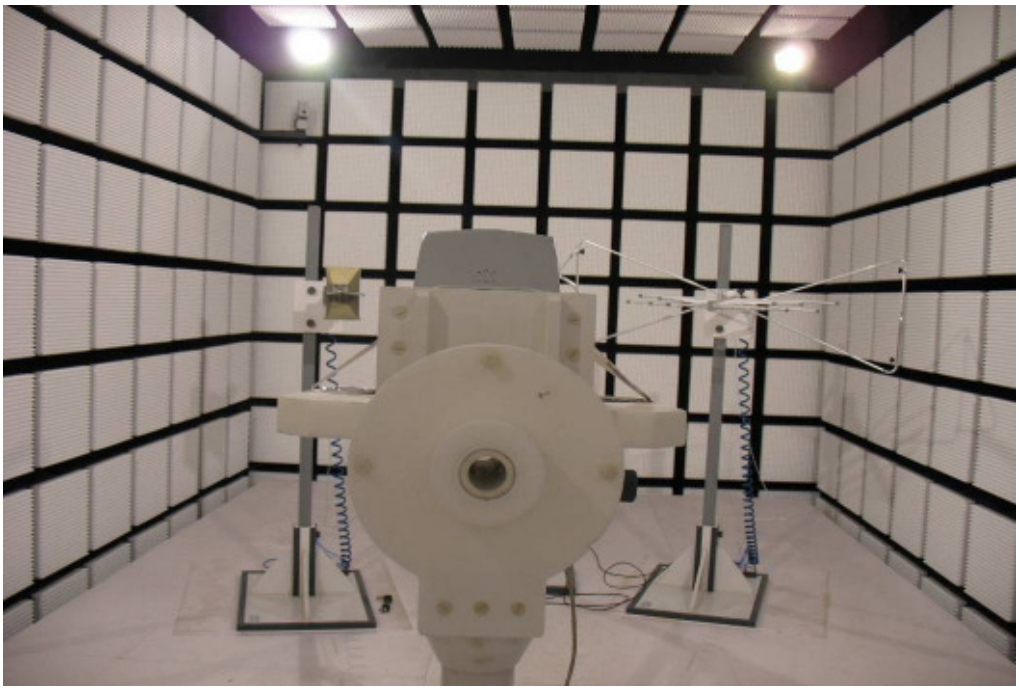
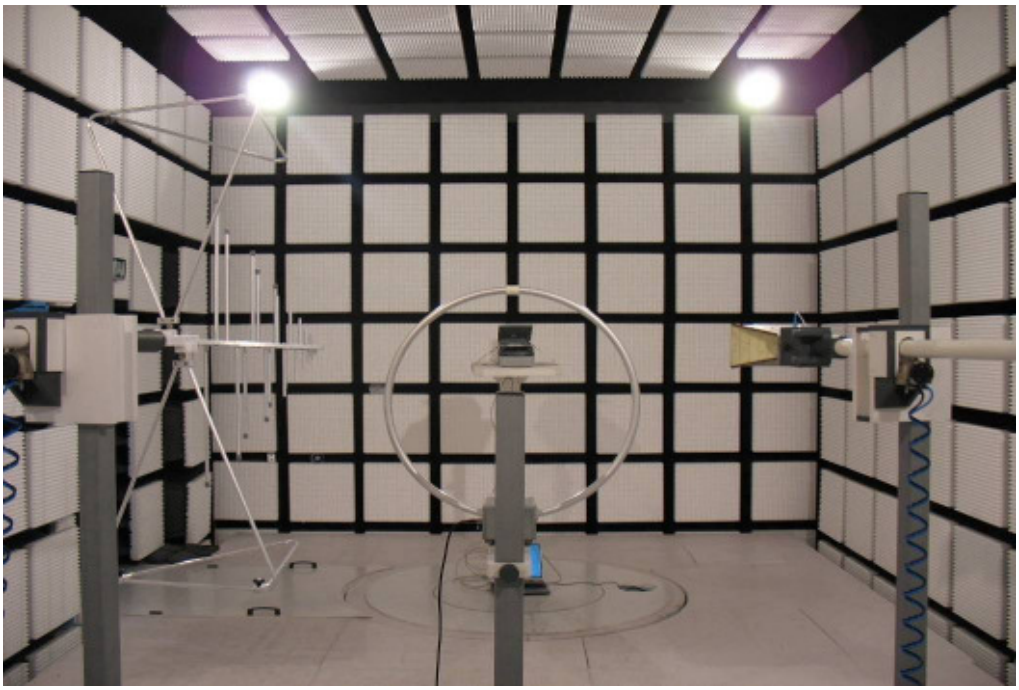


Photo 6:

Photo 7:



Annex B External Photographs of the EUT

Photo documentation:

Photo 1:

Photo 2:

Photo 3:

Photo 4:

Photo 5:

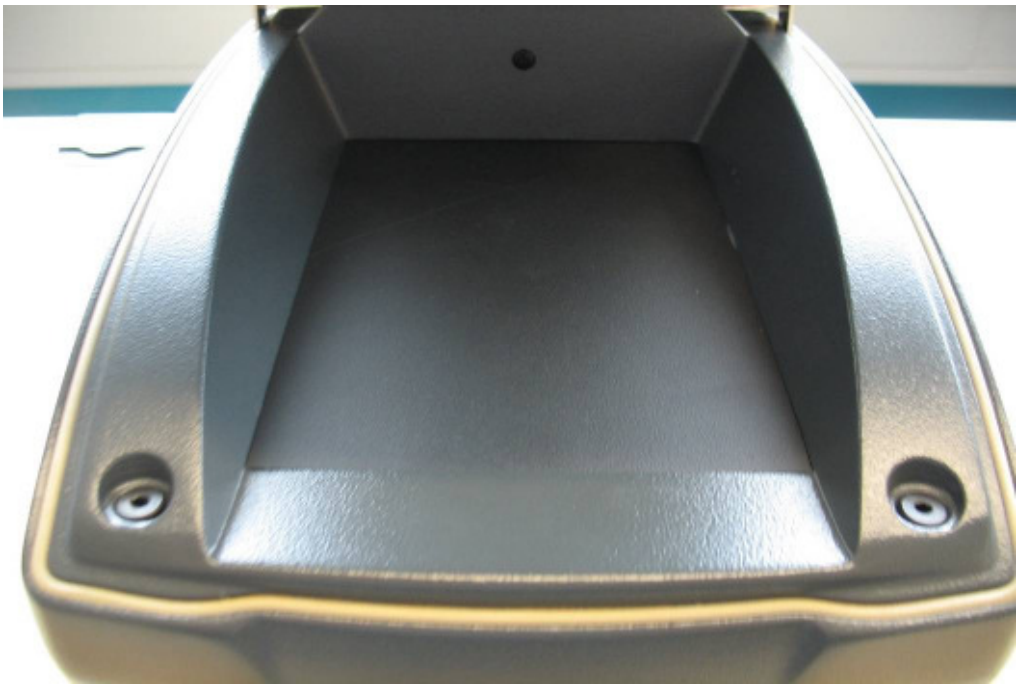


Photo 6:

Photo 7:

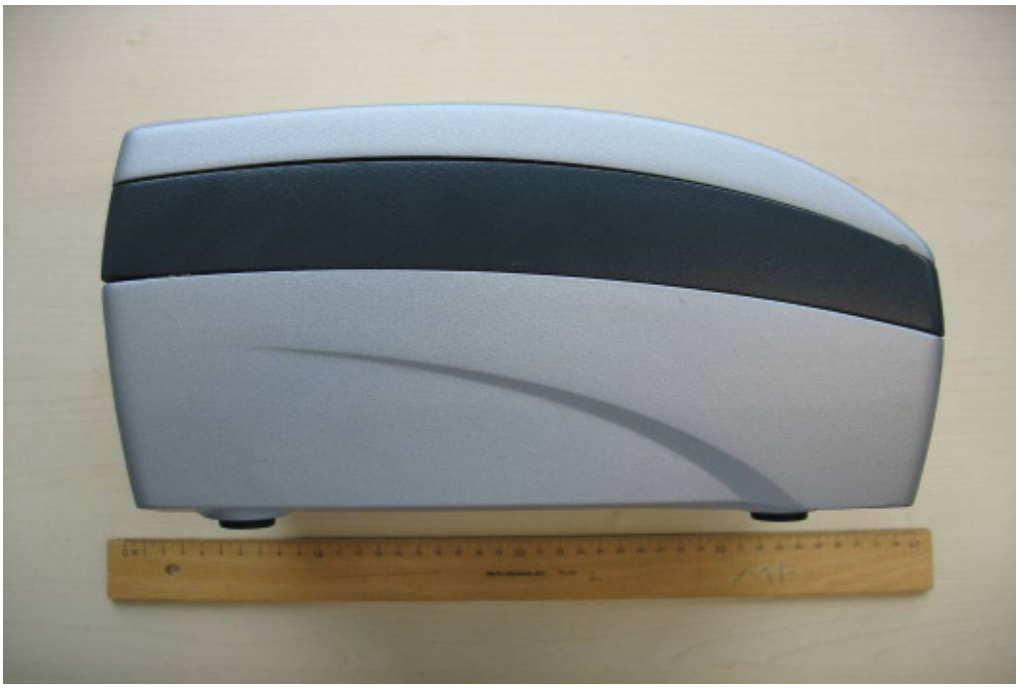


Photo 8:

Photo 9:

Photo 10:

Photo 11:


kapsch >>>
OPS-9955
HMS00004
OPS-9955
34026680000
GS: 01
12V DC - 24V DC max.:1,8A
FCC ID: XZU9955
c US
Kapsch TrafficCom AG

Annex C Internal Photographs of the EUT

Photo documentation:

Photo 1:

Photo 2:

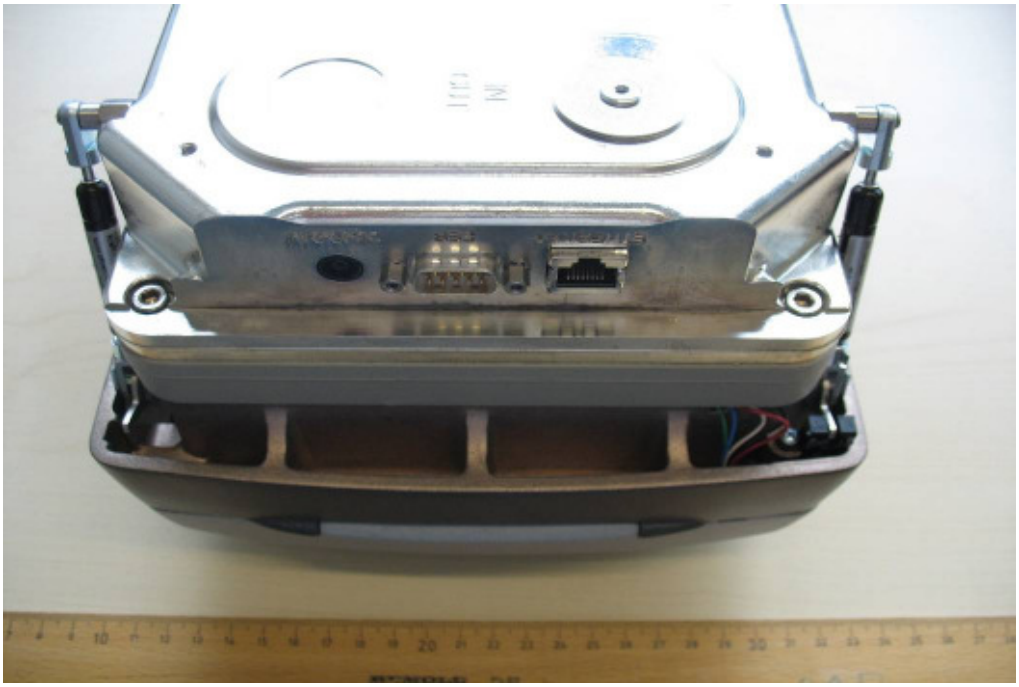


Photo 3:

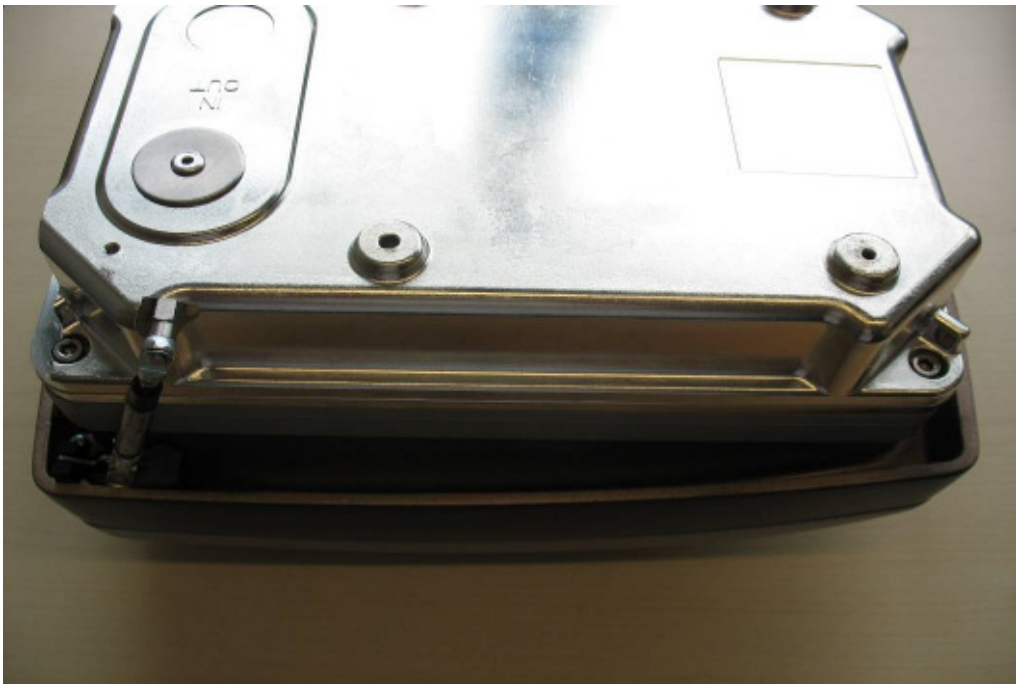


Photo 4:

Photo 5:

Photo 6:

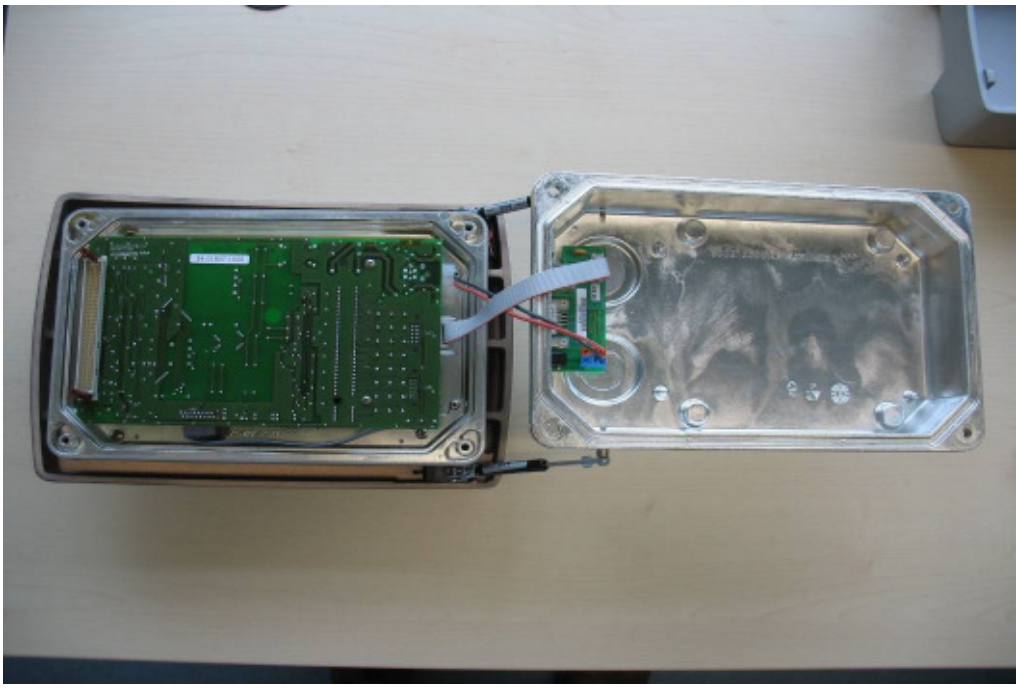


Photo 7:

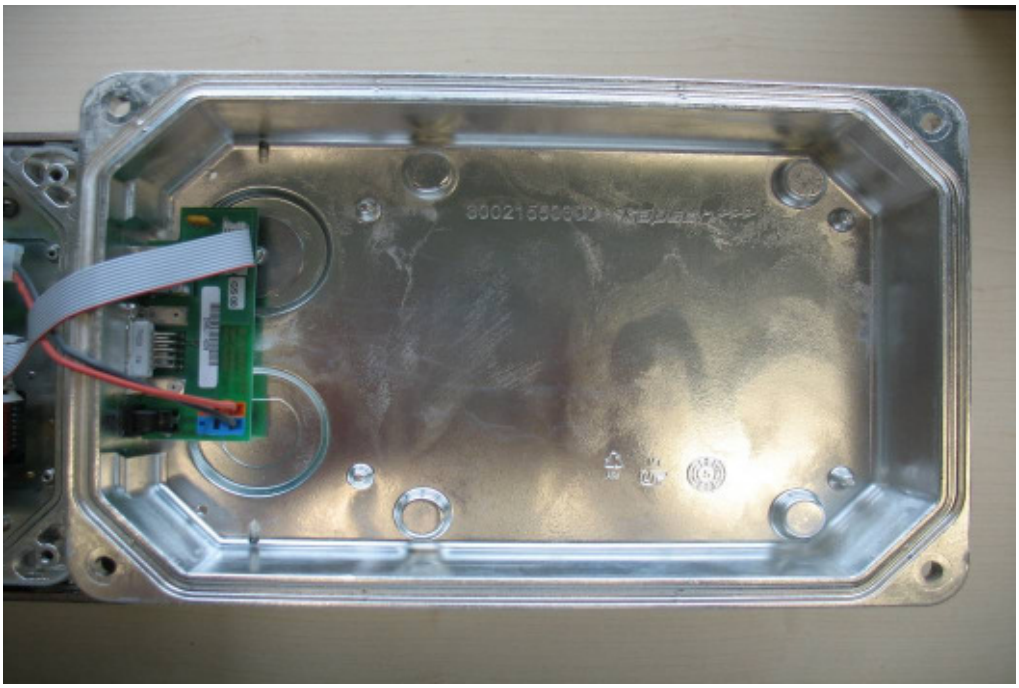


Photo 8:

Photo 9:

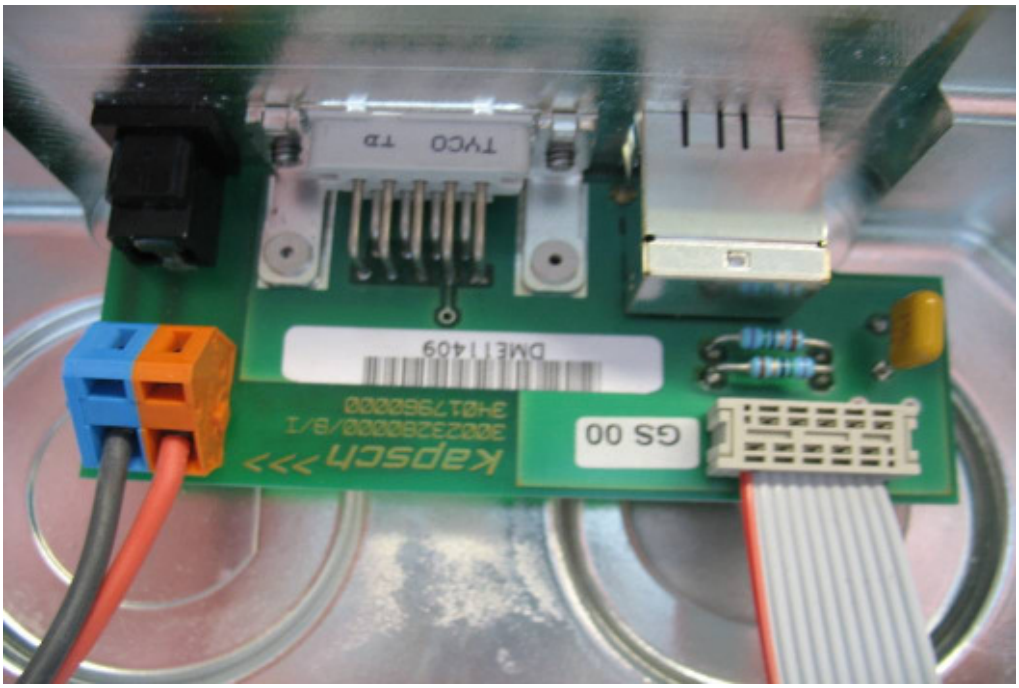


Photo 10:

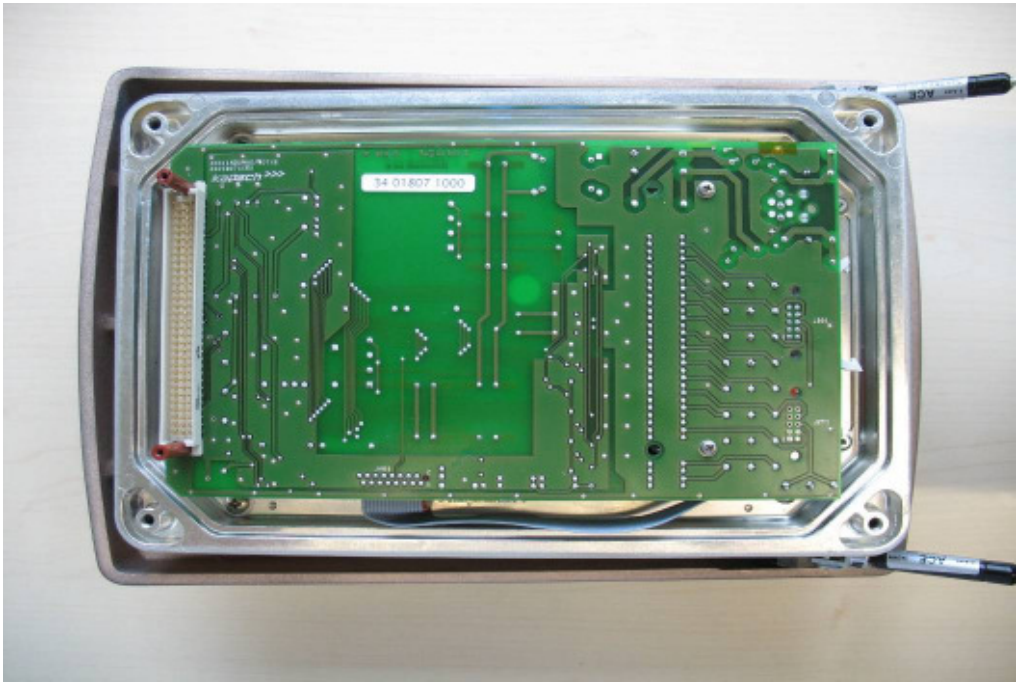


Photo 11:

Photo 12:

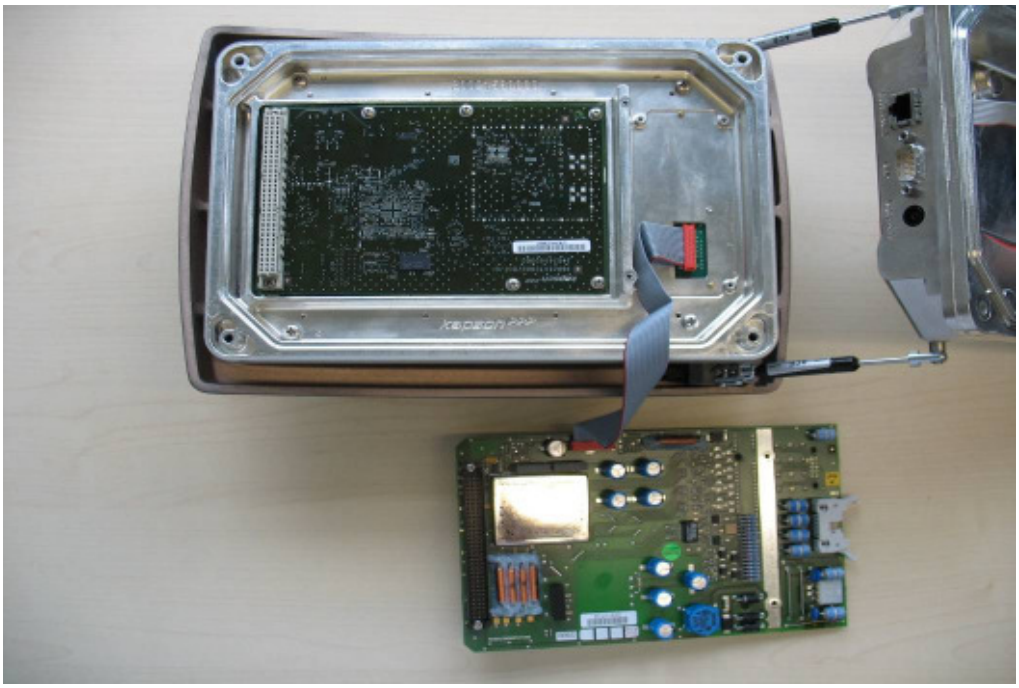


Photo 13:

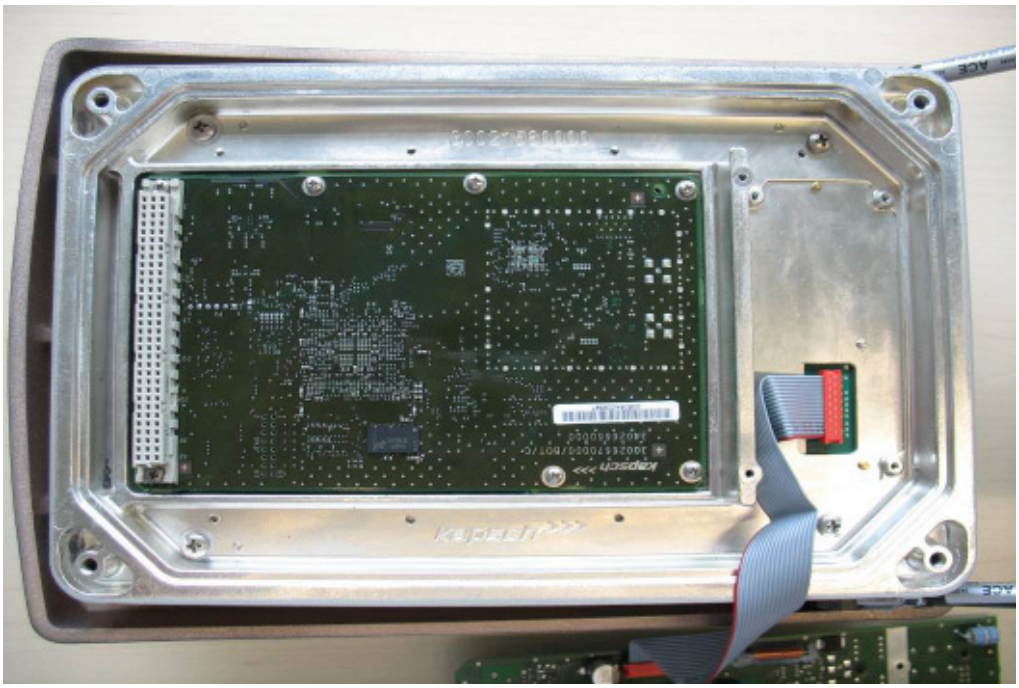


Photo 14:

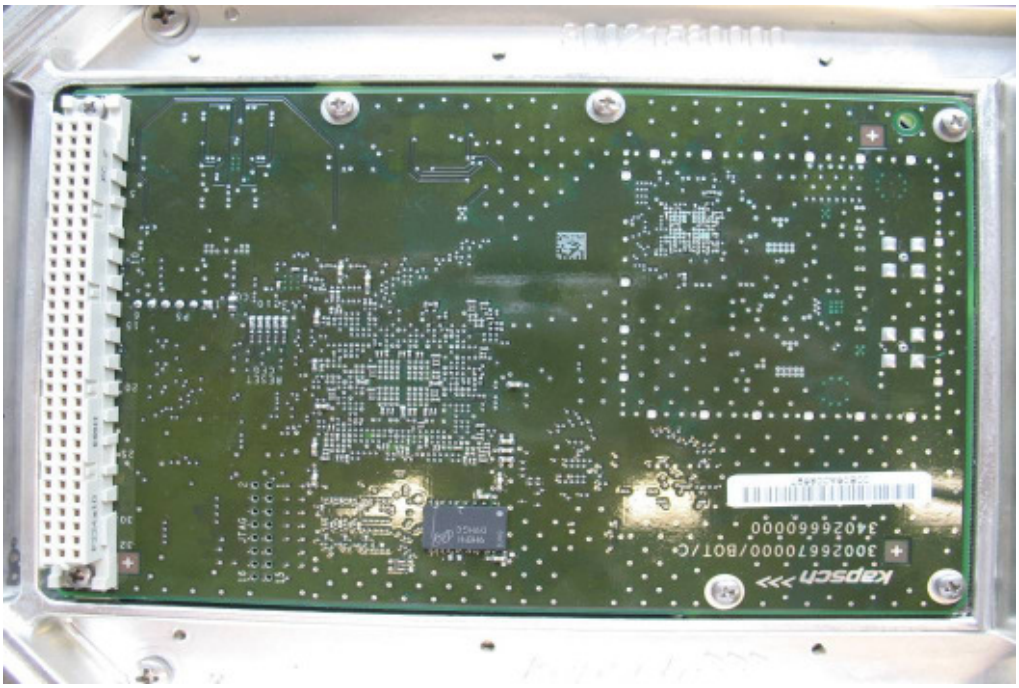


Photo 15:

Photo 16:

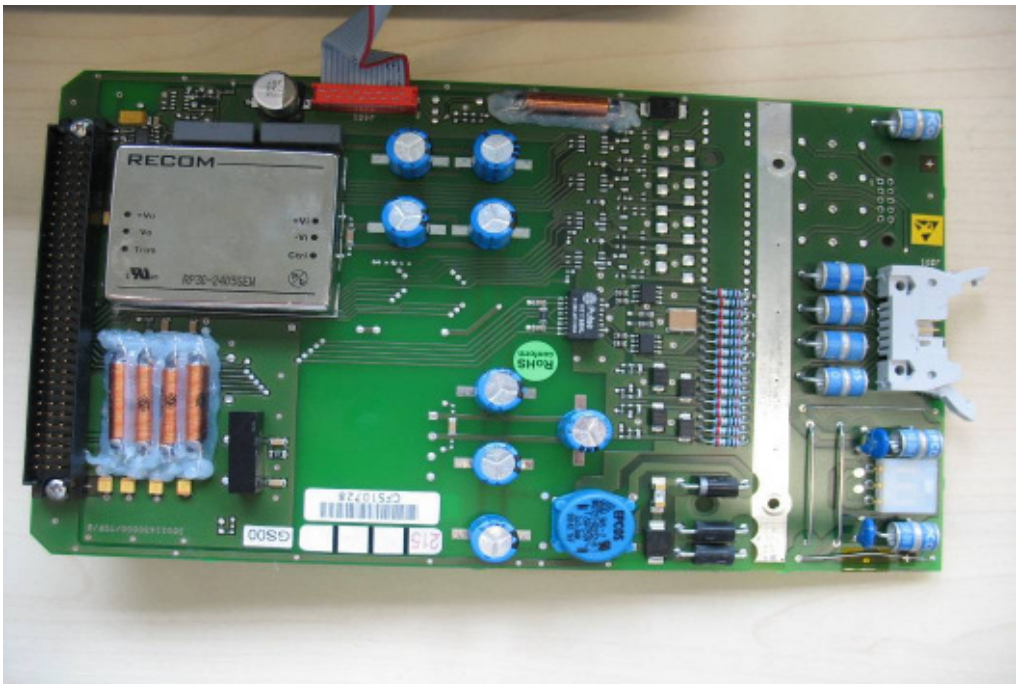


Photo 17:

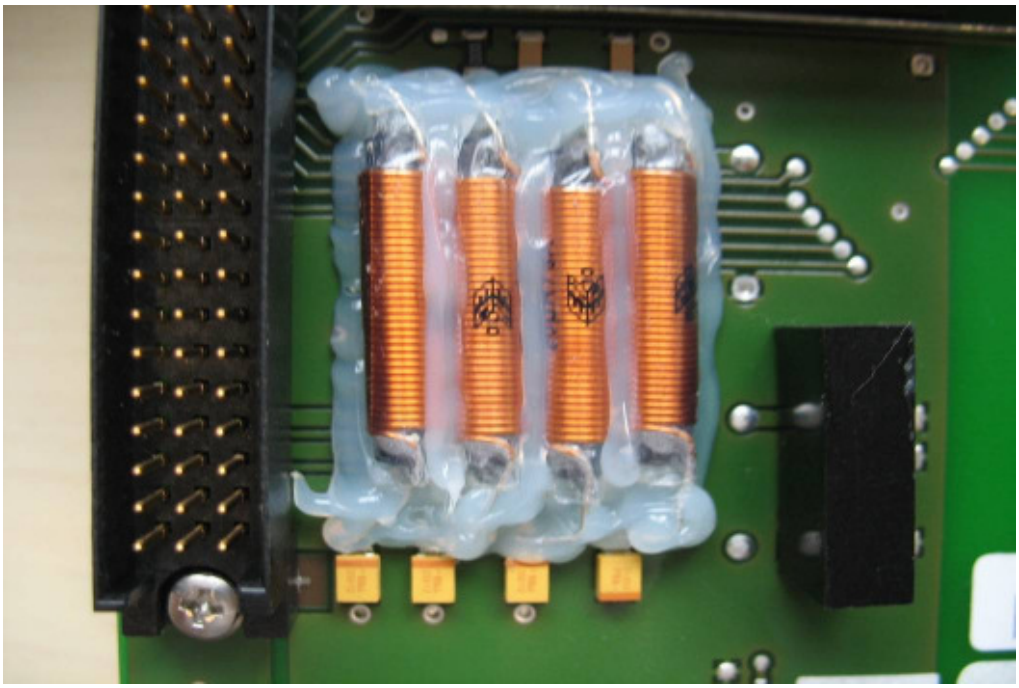
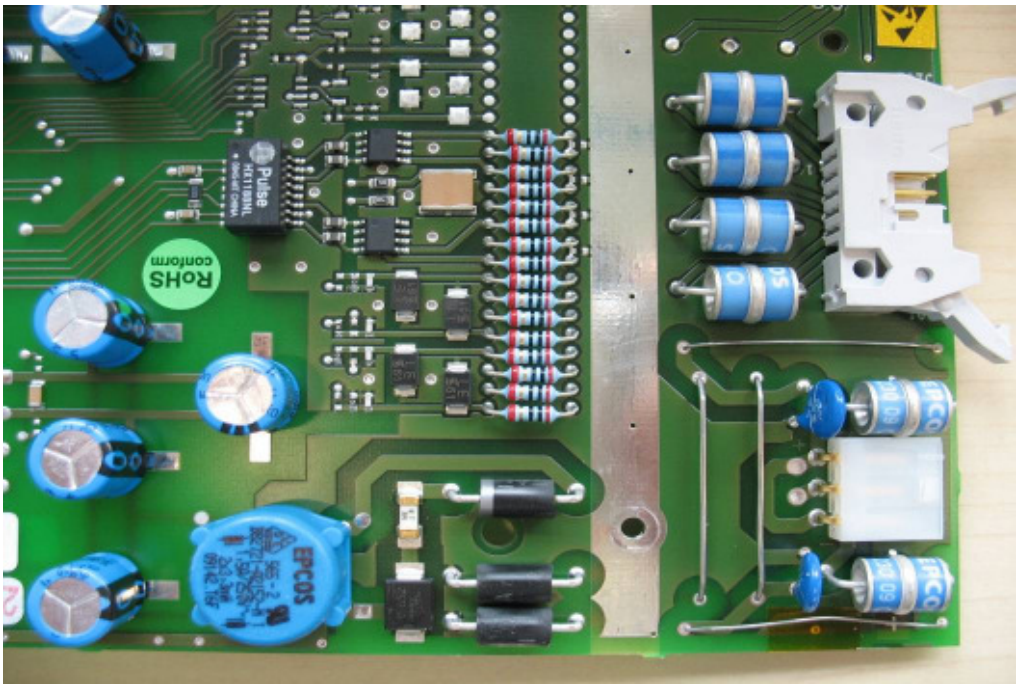


Photo 18:

Photo 19:



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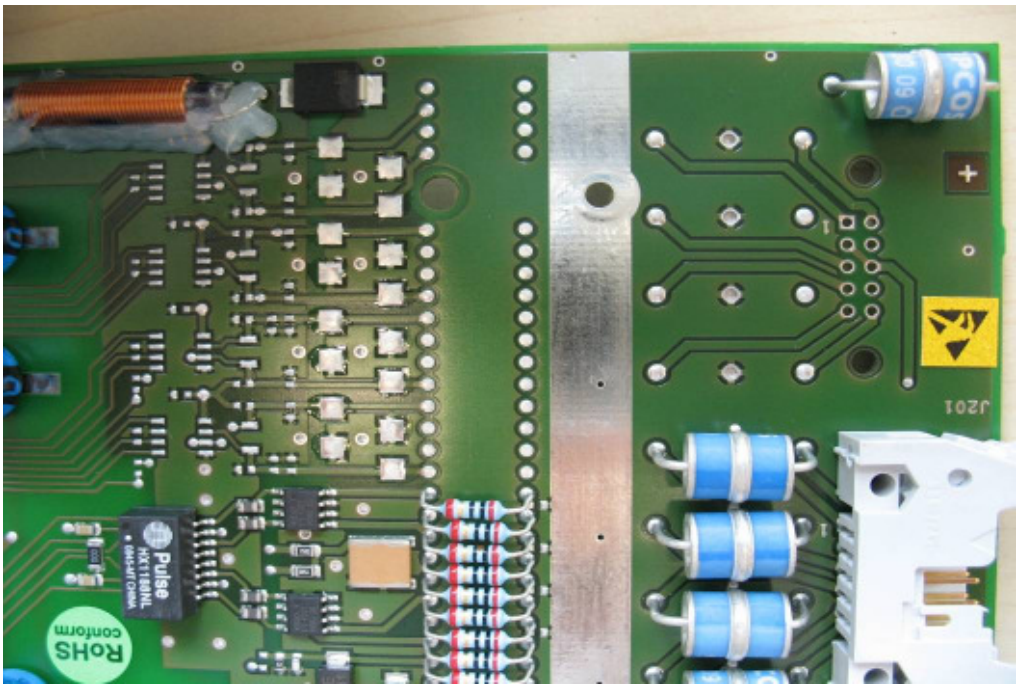

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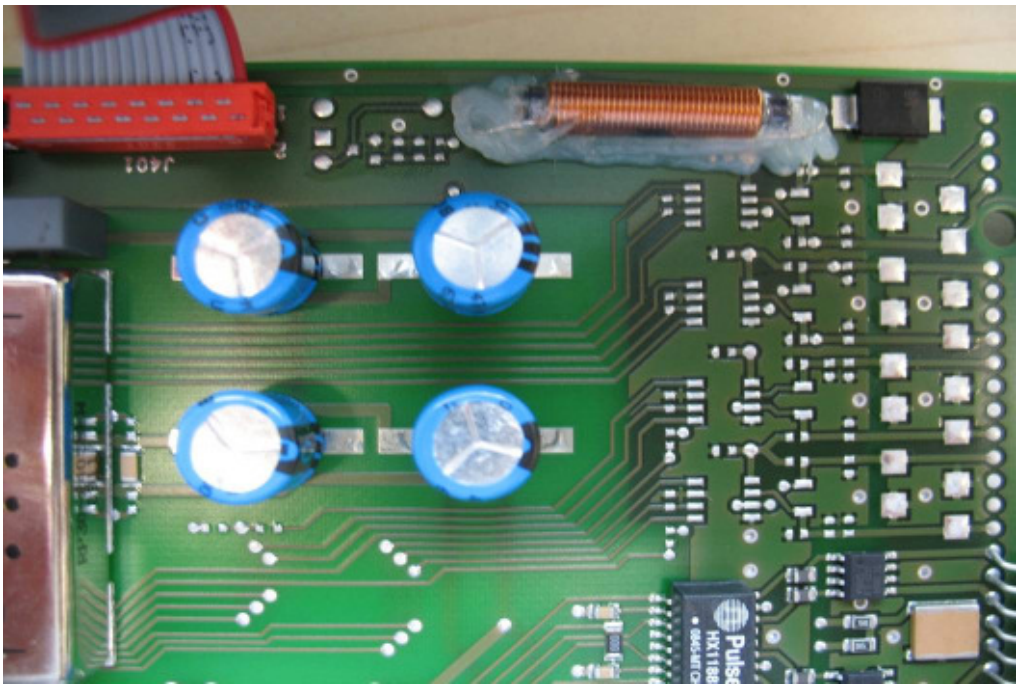

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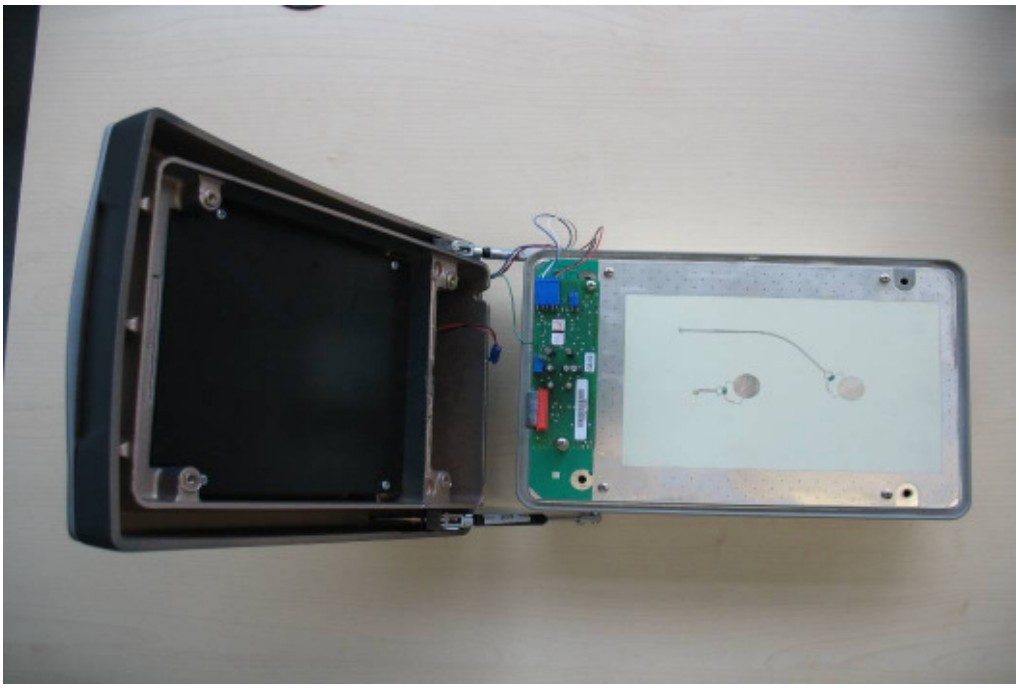

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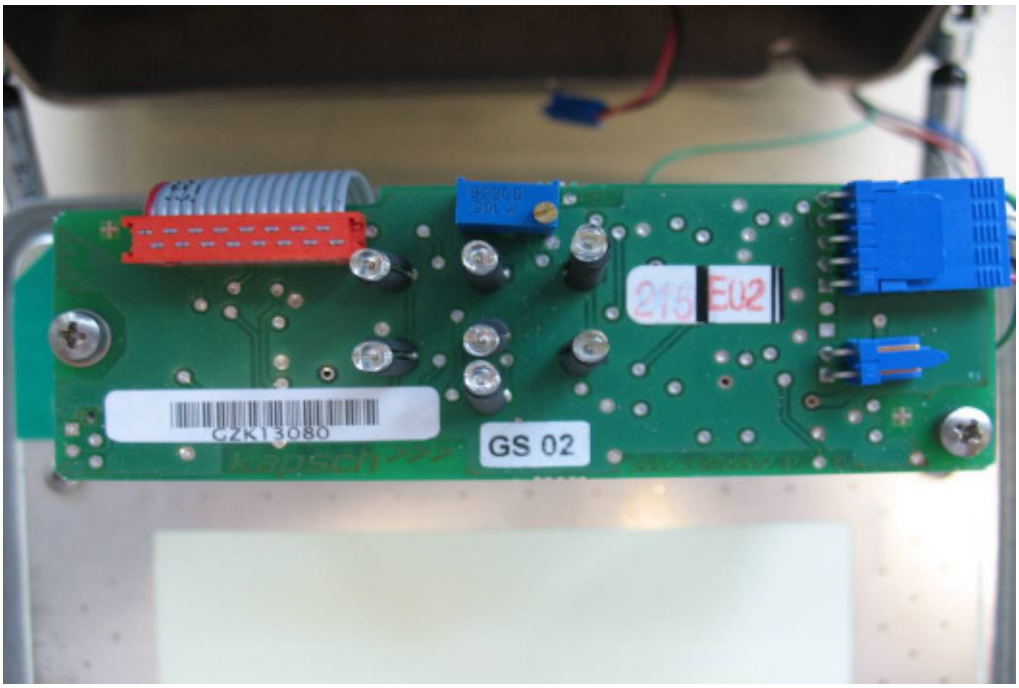

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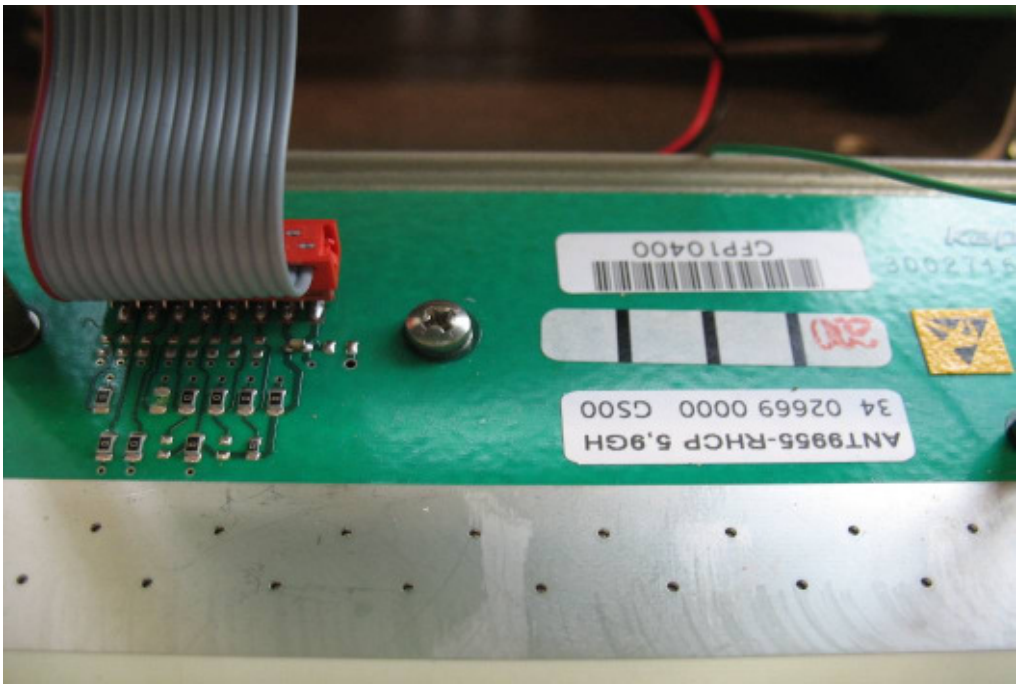

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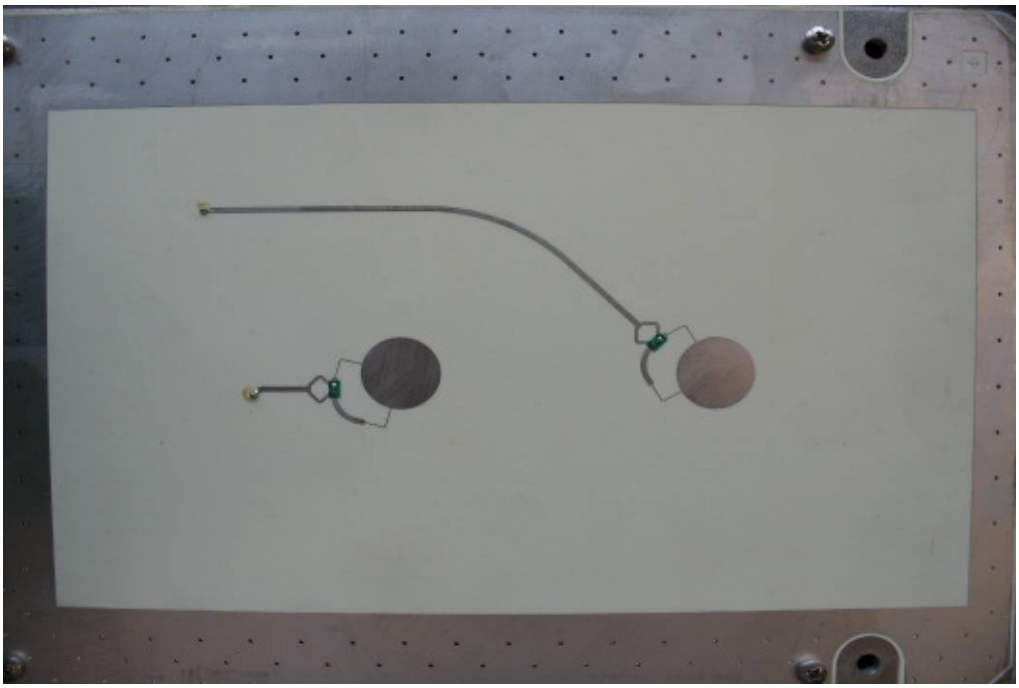

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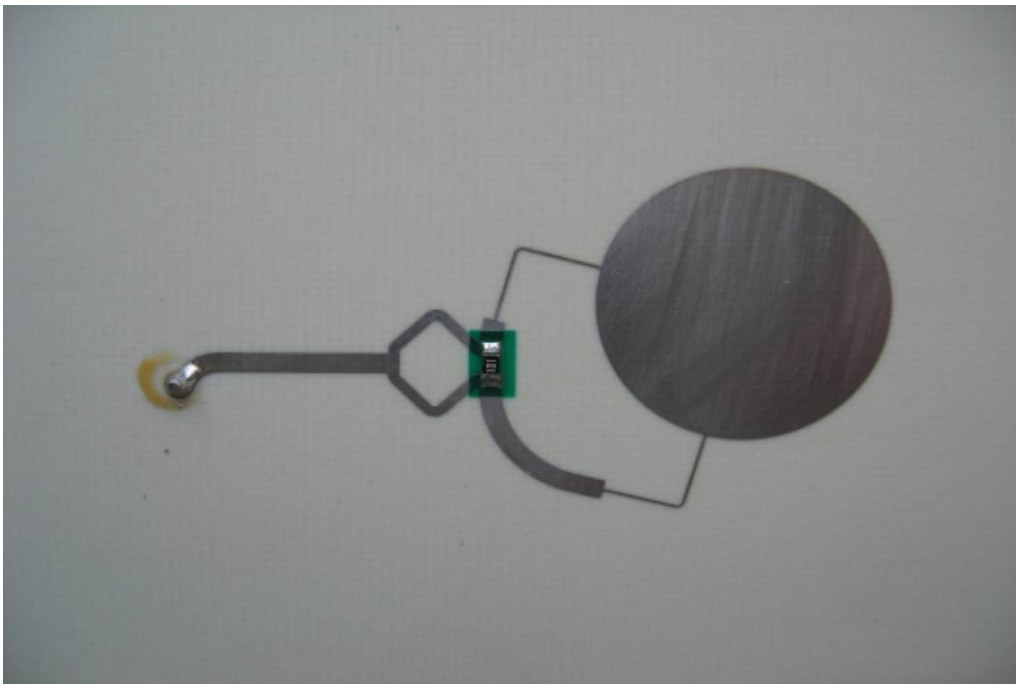

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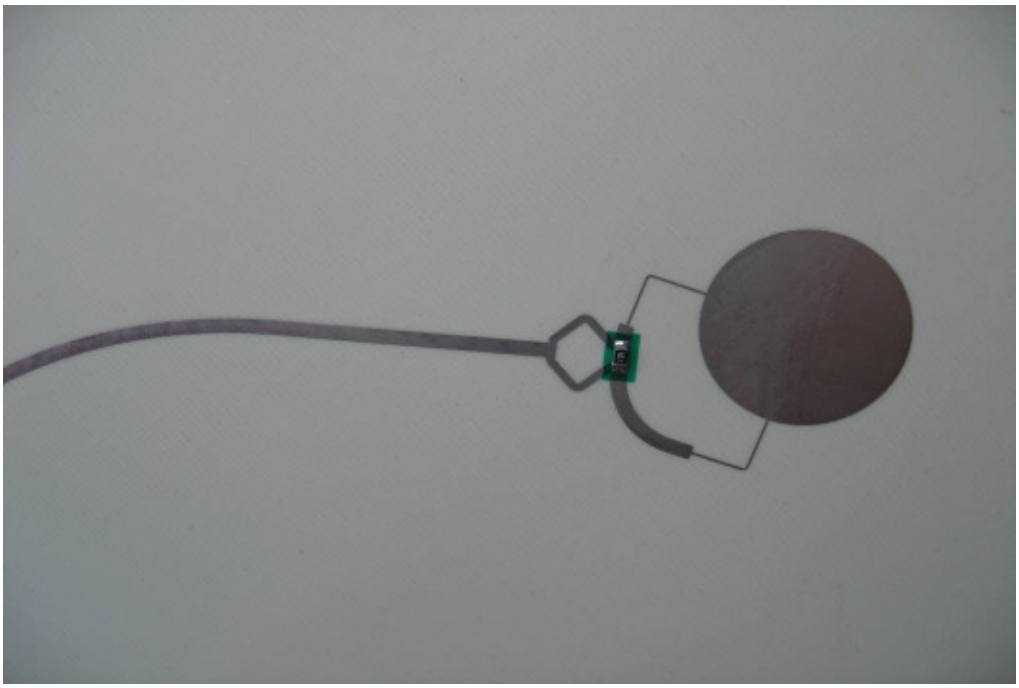

Annex D Document history

Version	Applied changes	Date of release
1.0	Initial release	2010-11-23

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