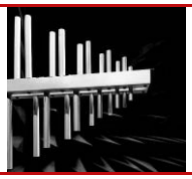
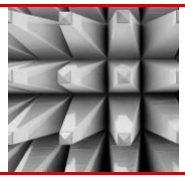




CETECOM™
CETECOM ICT Services
consulting - testing - certification

TEST REPORT

Deutscher Akkreditierungs Rat DAR

Test report no.: 1-2474-01-02/10-A

Testing laboratory

CETECOM ICT Services GmbH
Untertuerkheimer Straße 6 – 10
66117 Saarbruecken / Germany
Phone: + 49 681 5 98 - 0
Fax: + 49 681 5 98 - 9075
Internet: http://www.cetecom.com
e-mail: ict@cetecom.com

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 50 811 7857
Fax: + 43 50 811 2209
Contact: Herbert Diemling
e-mail: Herbert.diemling@kapsch.net
Phone: + 43 50 811 7857

Manufacturer

KAPSCH TrafficCom AG
Am Europlatz 2
1120 Wien / Austria

Test standard/s

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
ASTM E2213	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
IEEE 802.11p	Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications - High-speed Physical Layer in the 5 GHz Band

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

Test item

Kind of test item:	**OBU TS 3304**
Model name:	**TS 3304**
FCC ID:	**XZU3304**
Frequency [MHz]:	**5860 MHz – 5910 MHz**
Power supply:	**3.0V DC supplied by Lithium-battery**
Temperature range:	**-20 °C to +55 °C**

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.

Test performed:

cn=Stefan Boes, o=Cetecom ICT Services GmbH, ou=BOE-100817, email=Stefan.Boes@cetecom.com, c=DE
2010.11.11 07:26:27 +01'00'
Stefan Bös

Test report authorised:

cn=Marco Bertolino, o=CETECOM ICT Services GmbH, ou=BTL-100826, email=marco.bertolino@cetecom.com, c=DE
2010.11.11 07:24:29 +01'00'
Marco Bertolino

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:	2010-08-23
Date of receipt of test item:	2010-08-23
Start of test:	2010-08-23
End of test:	2010-09-29
Person(s) present during the test:	Mr. Johan Ahlström (2010-08-23 to 2010-08-25)

3 Test standard/s

Test standard	Version	Test standard description
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
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
IEEE 802.11p	1999/2000	Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) specifications High-speed Physical Layer in the 5 GHz Band

4 Test environment

Temperature:	T_{nom}	+20 °C	during room temperature tests
	T_{max}	+55 °C	during high temperature test
	T_{min}	-20 °C	during low temperature test
Relative humidity content:		54 %	
Air pressure:		not relevant for this kind of testing	
Power supply:	V_{nom}	3.0 V	DC supplied by Lithium-battery
	V_{max}	3.3 V	
	V_{min}	2.7 V	

5 Test item

Kind of test item	:	**OBU TS 3304**
Type identification	:	**TS 3304**
S/N serial number	:	**Rad. 3086 0600 0001 9013** **Cond. 3086 0600 0001 9070**
HW hardware status	:	**8633 002-746**
SW software status	:	**AR6001: 1.0.0** **STM8: 1.0.0**
Frequency band [MHz]	:	**5860 MHz – 5910 MHz**
Type of modulation	:	**OFDM → BPSK, QPSK, 16-QAM, 64-QAM**
Number of channels	:	**6**
Antenna	:	**Integrated PCB antenna – for more information, please take a look at sub clause 8 → Photos of the EUT**
Power supply	:	**3.0 V DC supplied by Lithium-battery**
Temperature range	:	**-20°C to +55 °C**

6 Test laboratories sub-contracted

None

7 Summary of measurement results and list of all performed test cases

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

TC identifier	Description	verdict	date	Remark
RF-Testing	FCC Part 2 & Part 95 L, 802.11 a, ASTM E2213	PASS	2010-01-28	Only delta tests

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

8 RF measurement testing

8.1 Measurements and results

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

8.2 Referenced documents

The origin tested unit, documented in test report 1-1827-01-03/09-A (2010-01-28), only supported a data rate of 6 MBit/s. The new unit supports all data rates specified in ASTM E2213, Table 3. Therefore delta measurements were performed to show compliance.

8.3 Additional comments

None

8.4 Antenna gain

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

Measured with 3 MBit/s	Channel 1 5860 MHz	Channel 2 5880 MHz	Channel 3 5910 MHz
Conducted power [dBm] *(measured)*	-7.49	**-7.25**	-7.43
Radiated power [dBm] *(measured)*	**-2.63**	-2.83	-3.55
Gain [dBi] *(calculated)*	**4.86**	4.42	3.88

8.5 Frequency tolerance according ASTM §8.9.4 / IEEE 802.11 p 17.3.9.4 / § 2.1055)

Not performed

Results:

Temperatur	5860 MHz F	5860 MHz kHz / PPM	5880 MHz F	5880 MHz kHz / PPM	5910 MHz F	5910 MHz kHz / PPM
85 C°	-	-	-	-	-	-
80 C°	-	-	-	-	-	-
70 C°	-	-	-	-	-	-
60 C°	-	-	-	-	-	-
50 C°	-	-	-	-	-	-
40 C°	-	-	-	-	-	-
30 C°	-	-	-	-	-	-
20 C°	-	-	-	-	-	-
10 C°	-	-	-	-	-	-
0 C°	-	-	-	-	-	-
-10 C°	-	-	-	-	-	-
-20 C°	-	-	-	-	-	-
-30 C°	-	-	-	-	-	-
-40 C°	-	-	-	-	-	-

Limits:

Under normal test conditions and extreme test condition (temperature & voltage)	The transmitted center frequency tolerance shall be ± 10 ppm maximum. (according ASTM 8.9.4)

Result: -/-

8.6 Modulation characteristics (ASTM table 3 / § 2.1047 / § 95.631)

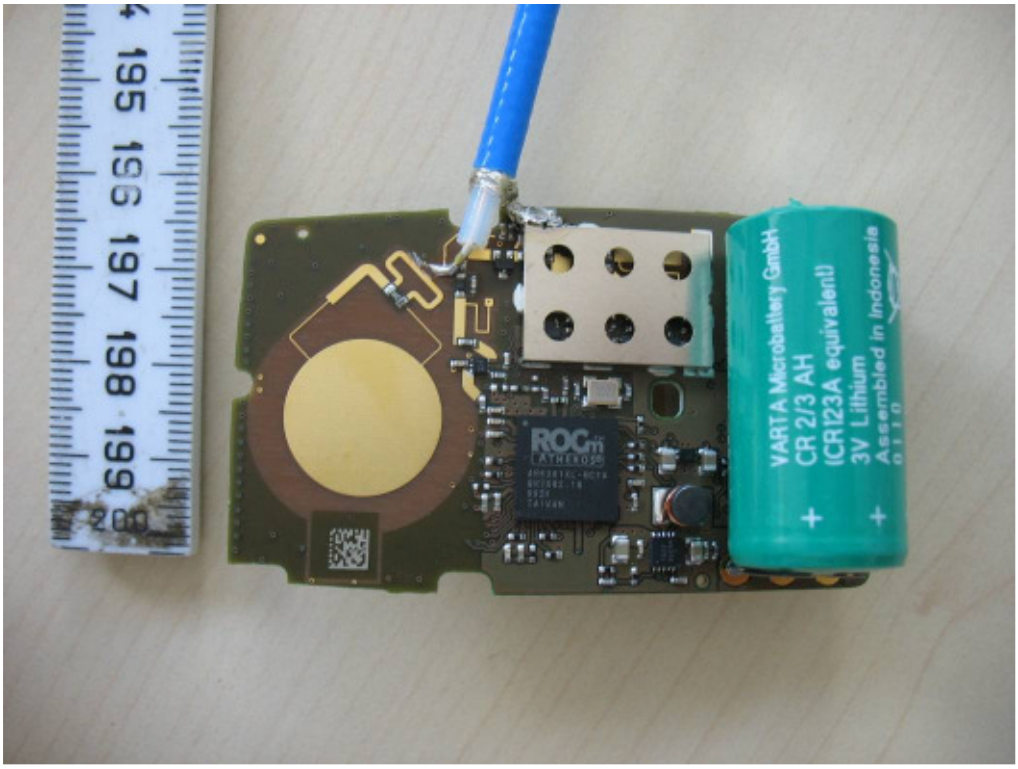
The EUT only supports the following data rates – sub-carrier modulations:

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: 8M31G7D

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

Photo 1: Conducted Sample



Results:

Test conditions		Max. output power [dBm]		
Frequency [MHz]		5860	5880	5910
3 MBit	BPSK	-7.49	-7.25	-7.43
4.5 MBit	**BPSK**	**-7.49**	**-6.67**	**-7.13**
6 MBit	**QPSK**	**-7.25**	**-6.58**	**-7.13**
9 MBit	QPSK	-7.46	-6.82	-7.28
12 MBit	16-QAM	-7.46	-6.91	-7.43
18 MBit	**16-QAM**	**-6.94**	**-6.64**	**-7.16**
24 MBit	64-QAM	-7.37	-7.01	-7.68
27 MBit	**64-QAM**	**-7.34**	**-6.88**	**-7.62**
Measurement uncertainty		± 3 dB		

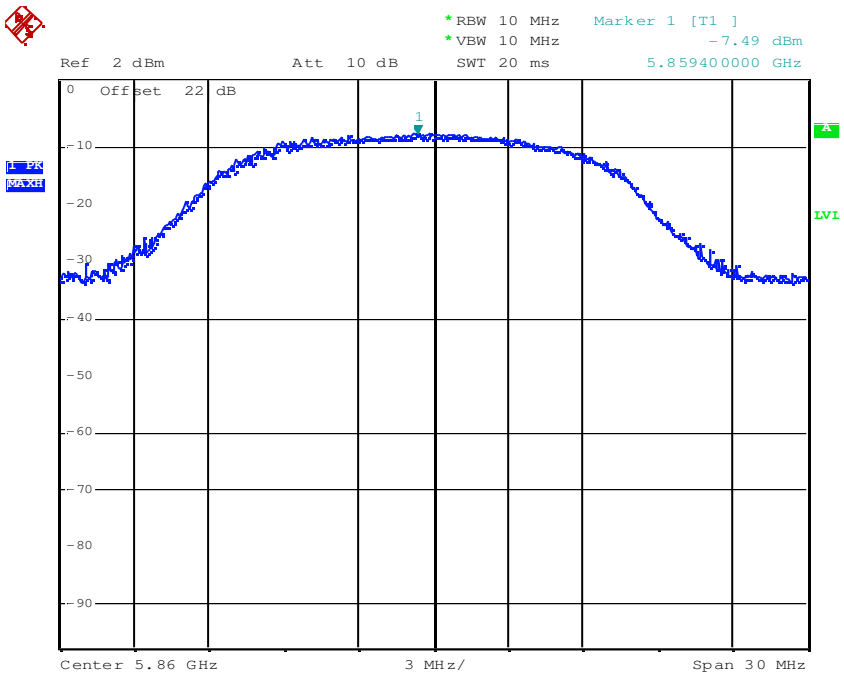
The bold marked modes were selected for the further measurements.

Limits:

Under normal test conditions only	Class A / 0 dBm

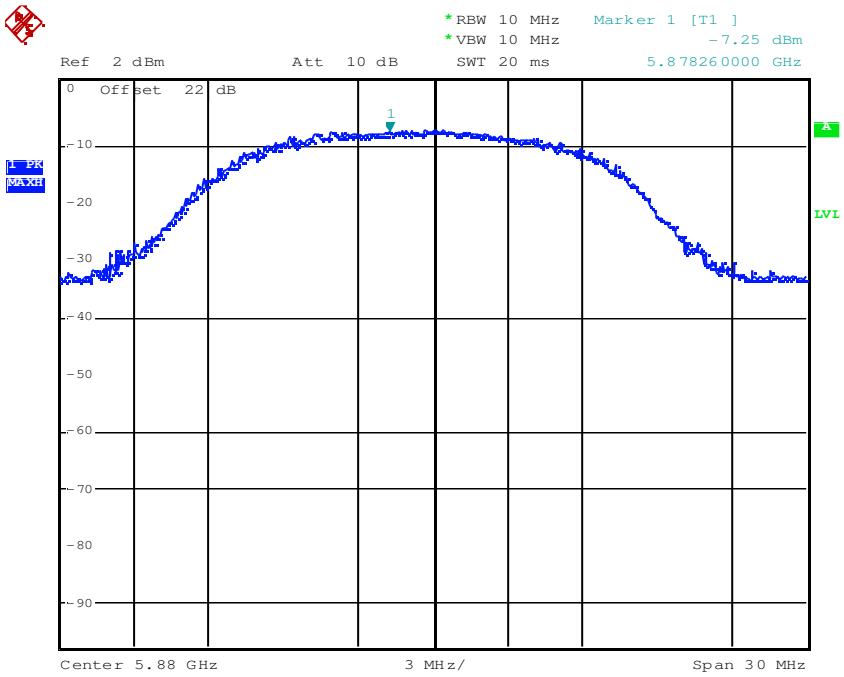
Result: **The result of the measurement is passed.**

Plot 1: Channel 1 (5860 MHz), data rate (3 MBit/s)



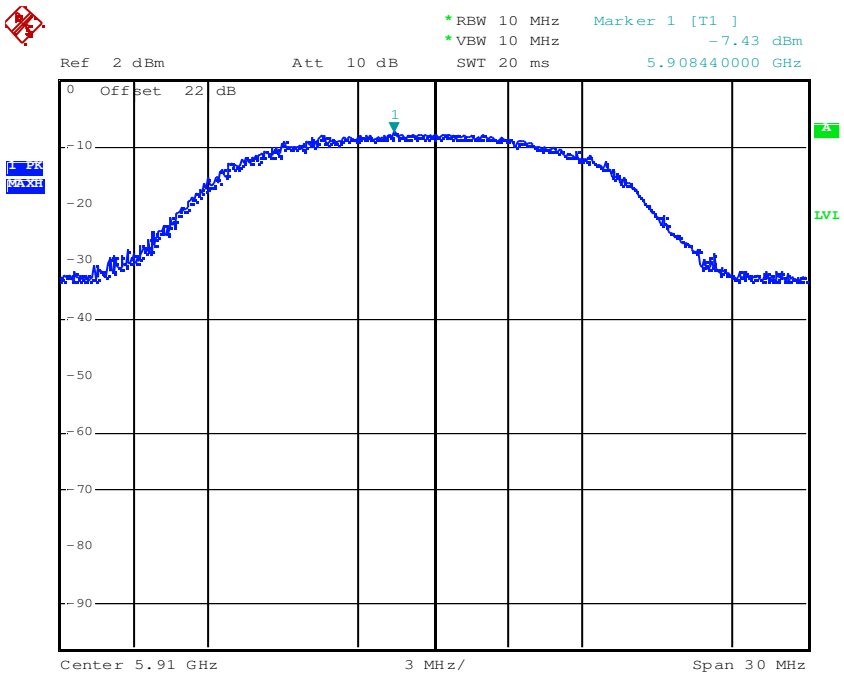
Date: 23.AUG.2010 09:55:06

Plot 2: Channel 2 (5880 MHz), data rate (3 MBit/s)



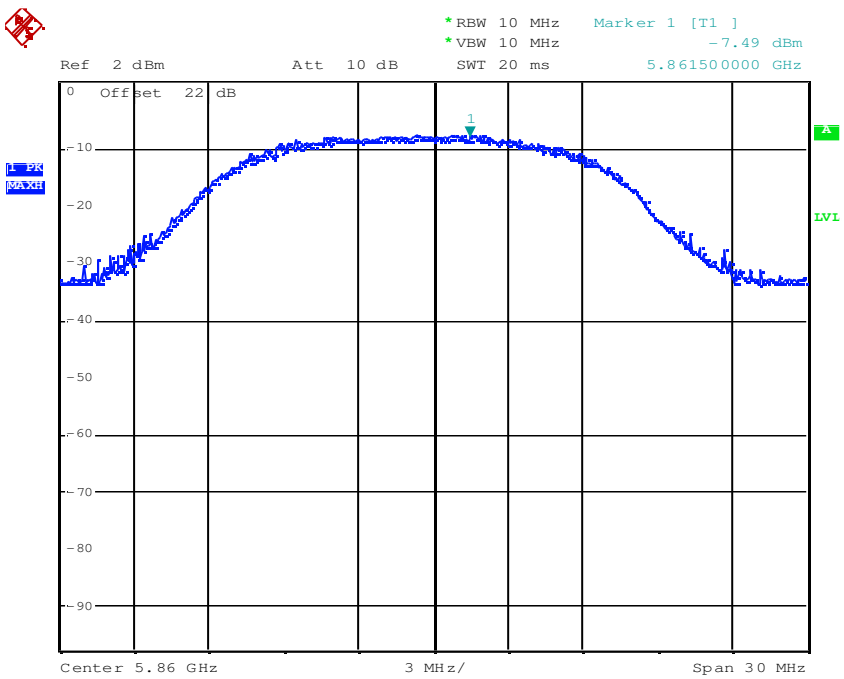
Date: 23.AUG.2010 09:56:19

Plot 3: Channel 3 (5910 MHz), data rate (3 MBit/s)



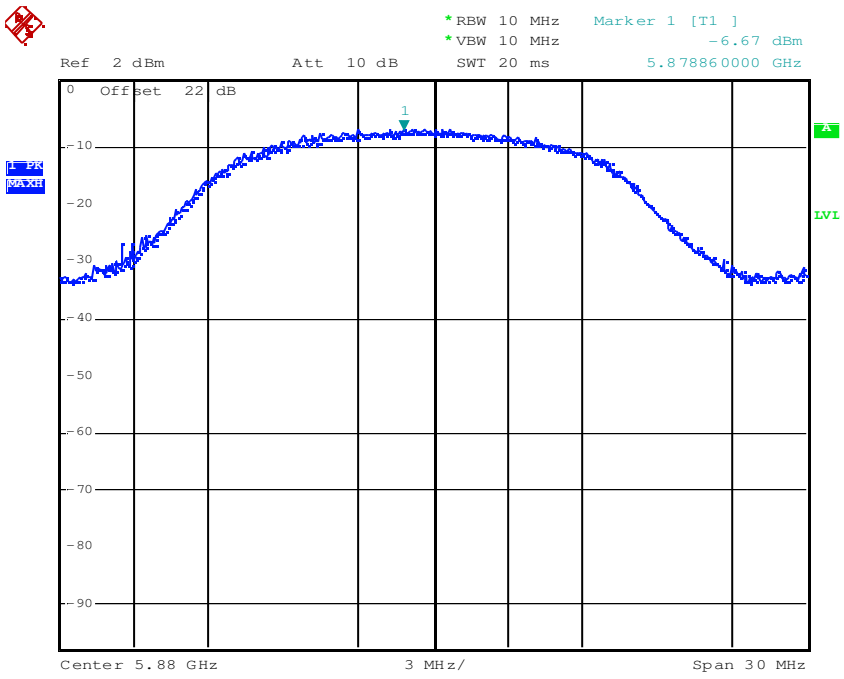
Date: 23.AUG.2010 09:57:03

Plot 4: Channel 1 (5860 MHz), data rate (4.5 MBit/s)



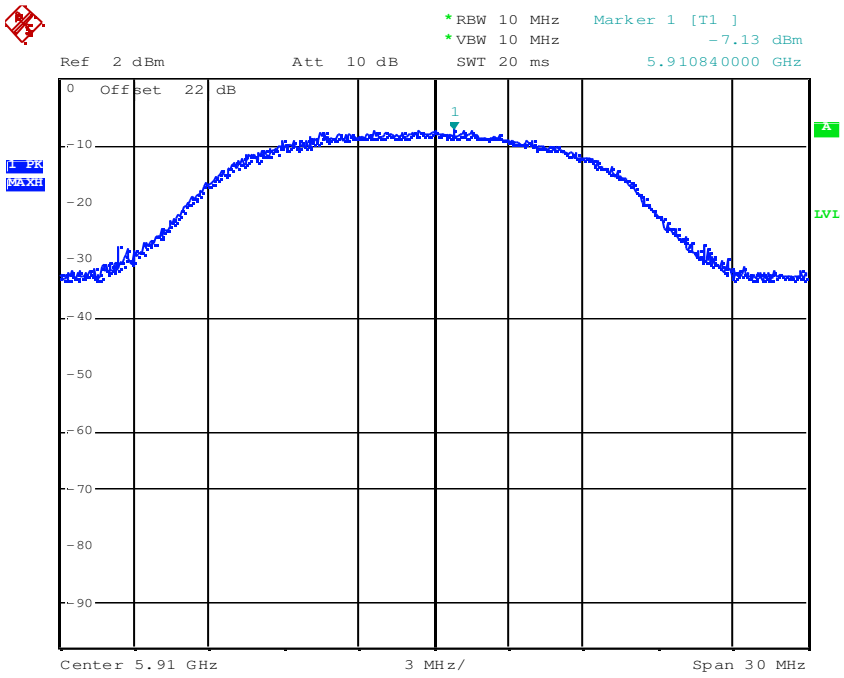
Date: 23.AUG.2010 09:59:35

Plot 5: Channel 2 (5880 MHz), data rate (4.5 MBit/s)



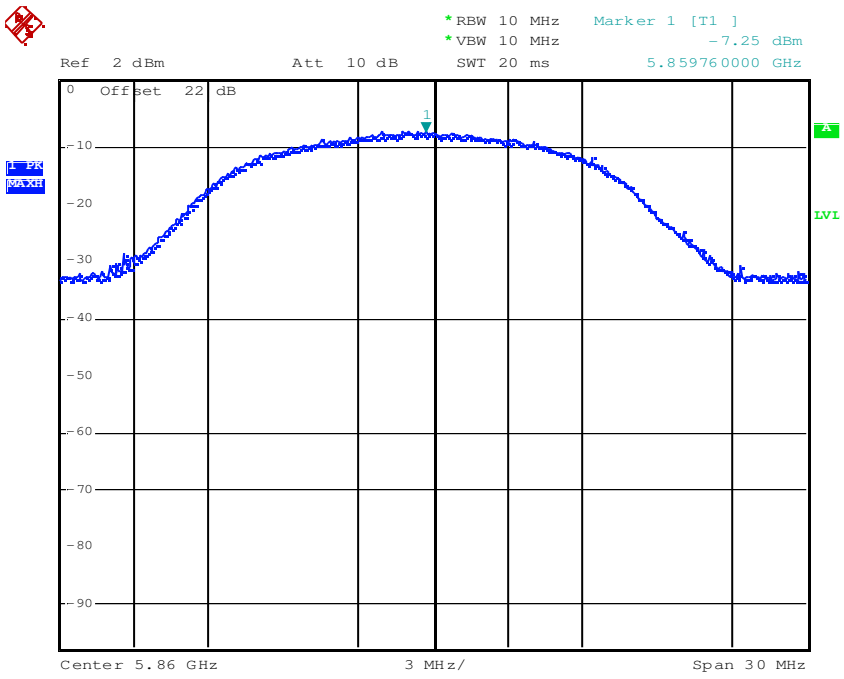
Date: 23.AUG.2010 09:58:58

Plot 6: Channel 3 (5910 MHz), data rate (4.5 MBit/s)



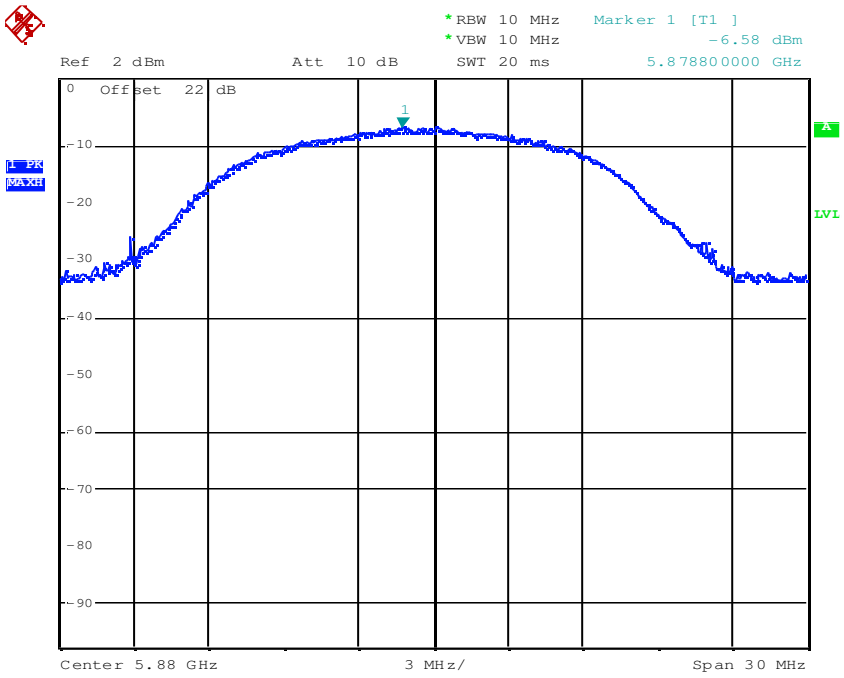
Date: 23.AUG.2010 09:58:20

Plot 7: Channel 1 (5860 MHz), data rate (6 MBit/s)



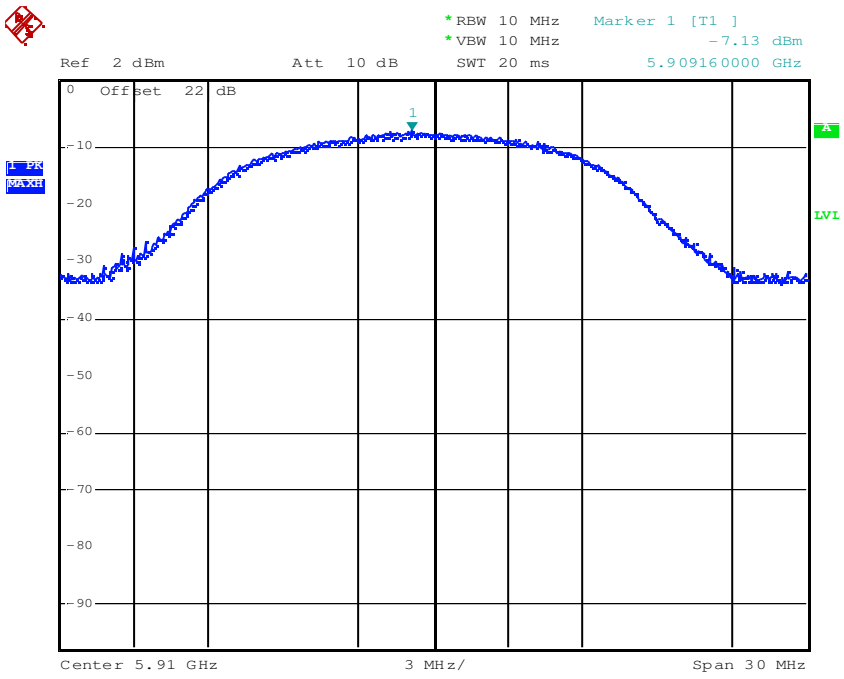
Date: 23.AUG.2010 10:00:58

Plot 8: Channel 2 (5880 MHz), data rate (6 MBit/s)



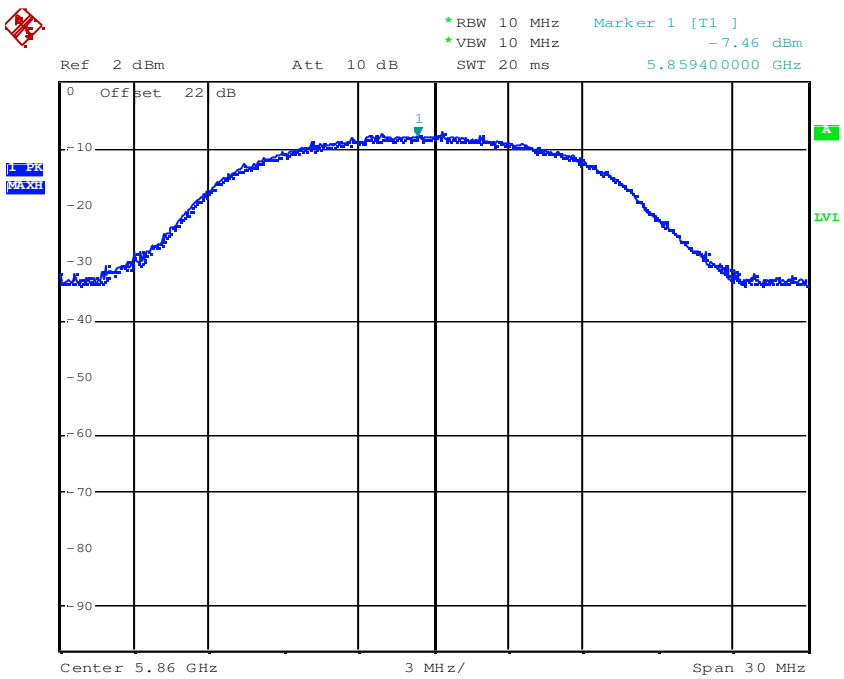
Date: 23.AUG.2010 10:01:33

Plot 9: Channel 3 (5910 MHz), data rate (6 MBit/s)



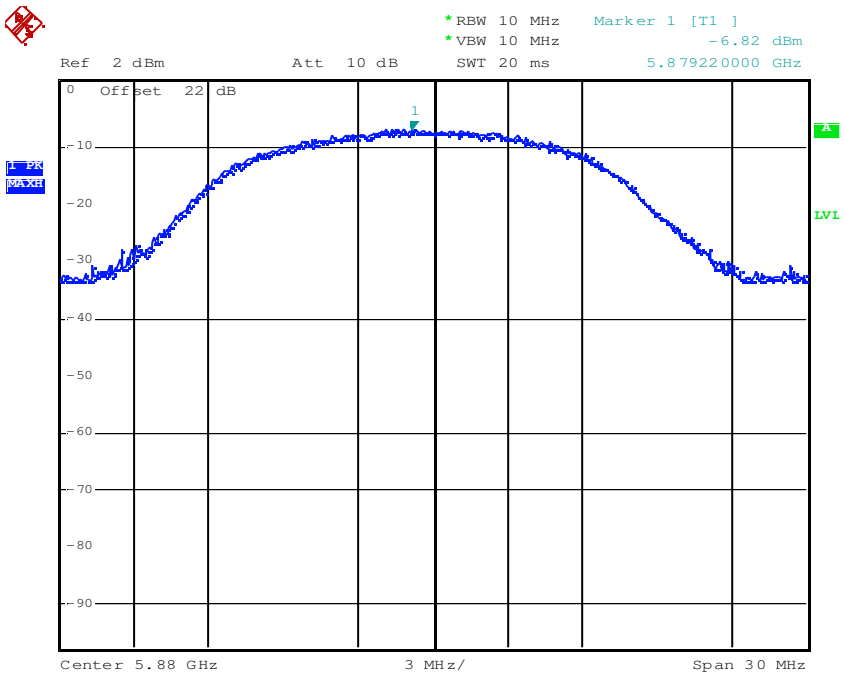
Date: 23.AUG.2010 10:02:06

Plot 10: Channel 1 (5860 MHz), data rate (9 MBit/s)



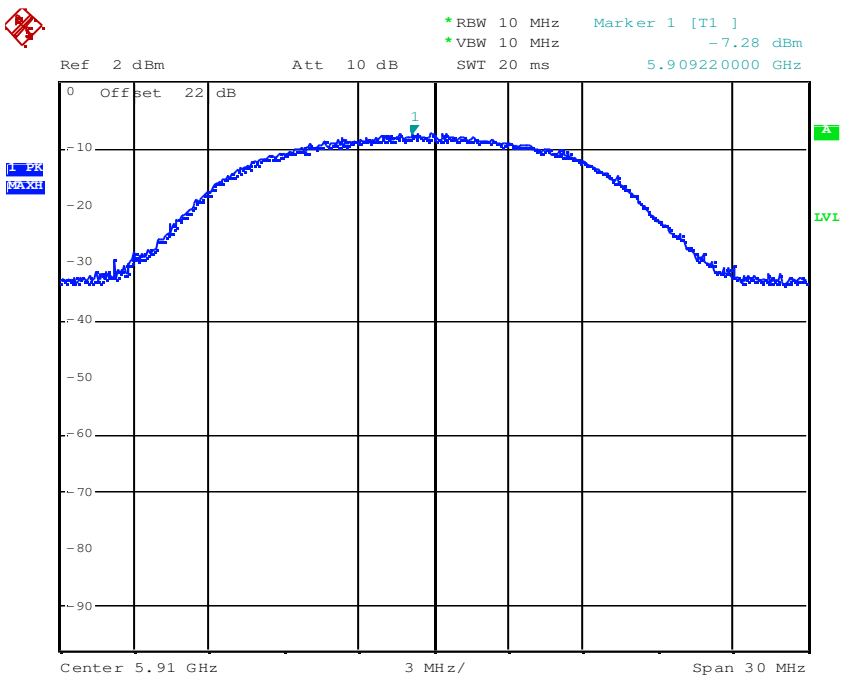
Date: 23.AUG.2010 10:06:29

Plot 11: Channel 2 (5880 MHz), data rate (9 MBit/s)



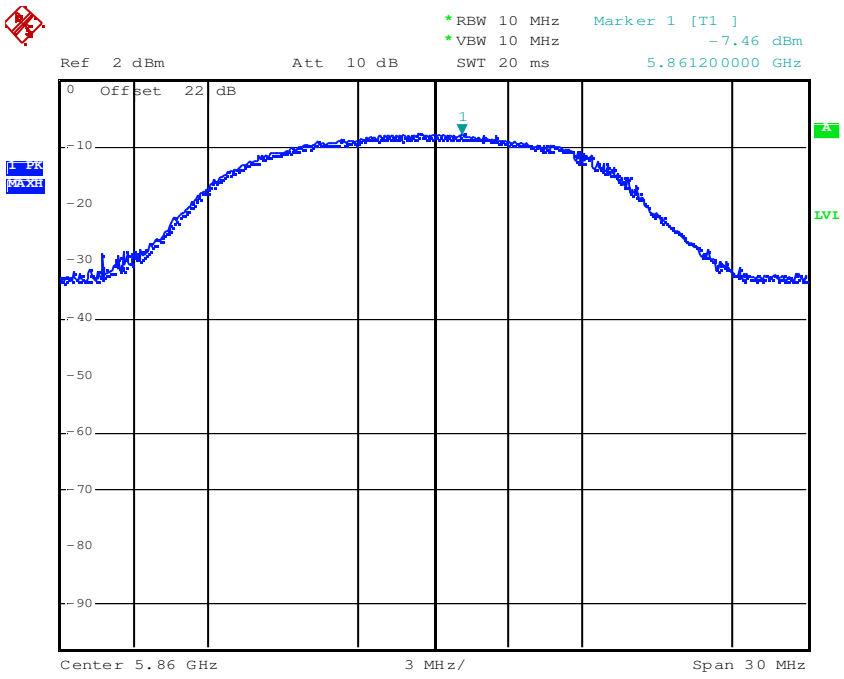
Date: 23.AUG.2010 10:05:57

Plot 12: Channel 3 (5910 MHz), data rate (9 MBit/s)



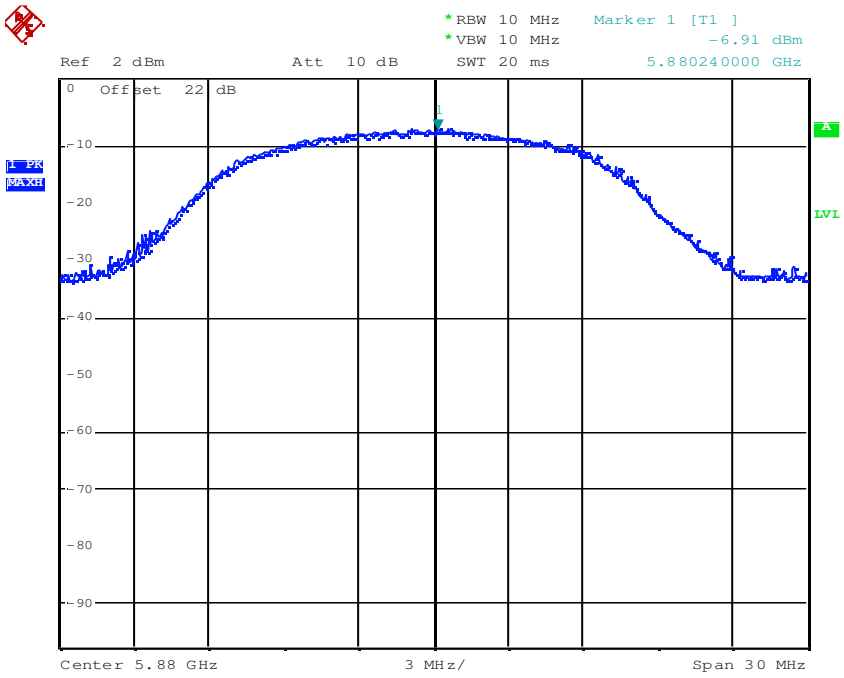
Date: 23.AUG.2010 10:05:25

Plot 13: Channel 1 (5860 MHz), data rate (12 MBit/s)



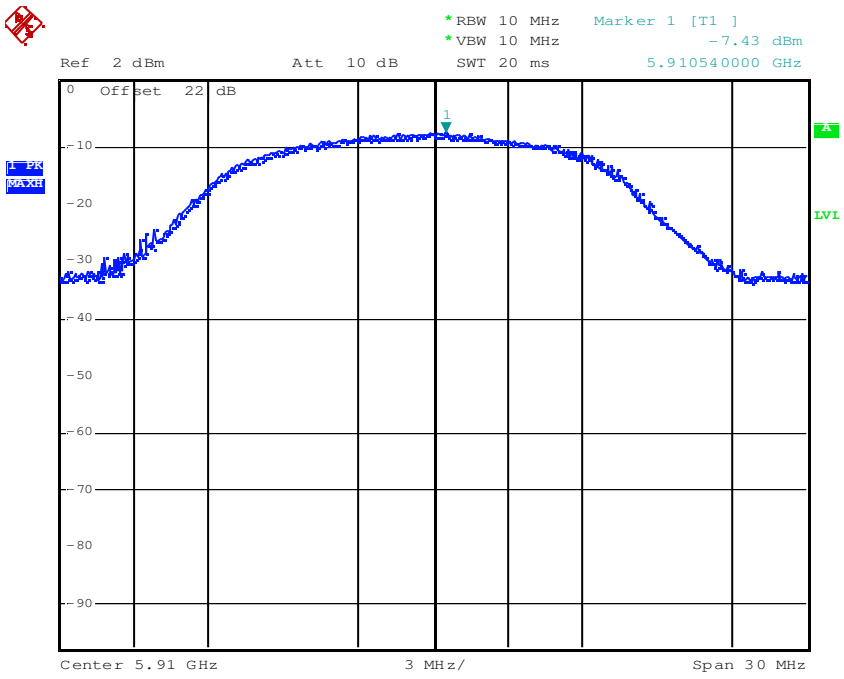
Date: 23.AUG.2010 10:07:21

Plot 14: Channel 2 (5880 MHz), data rate (12 MBit/s)



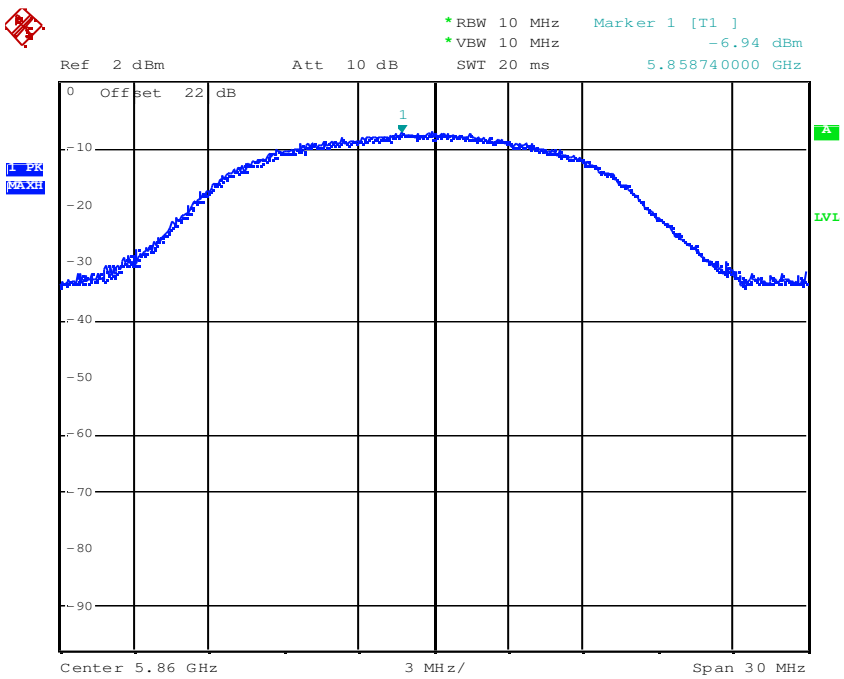
Date: 23.AUG.2010 10:08:00

Plot 15: Channel 3 (5910 MHz), data rate (12 MBit/s)



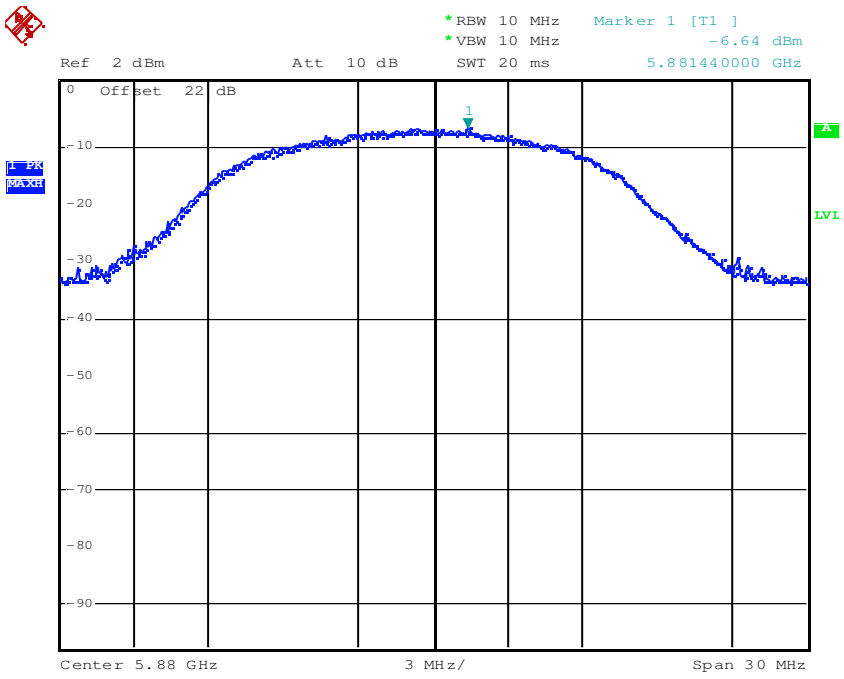
Date: 23.AUG.2010 10:08:34

Plot 16: Channel 1 (5860 MHz), data rate (18 MBit/s)



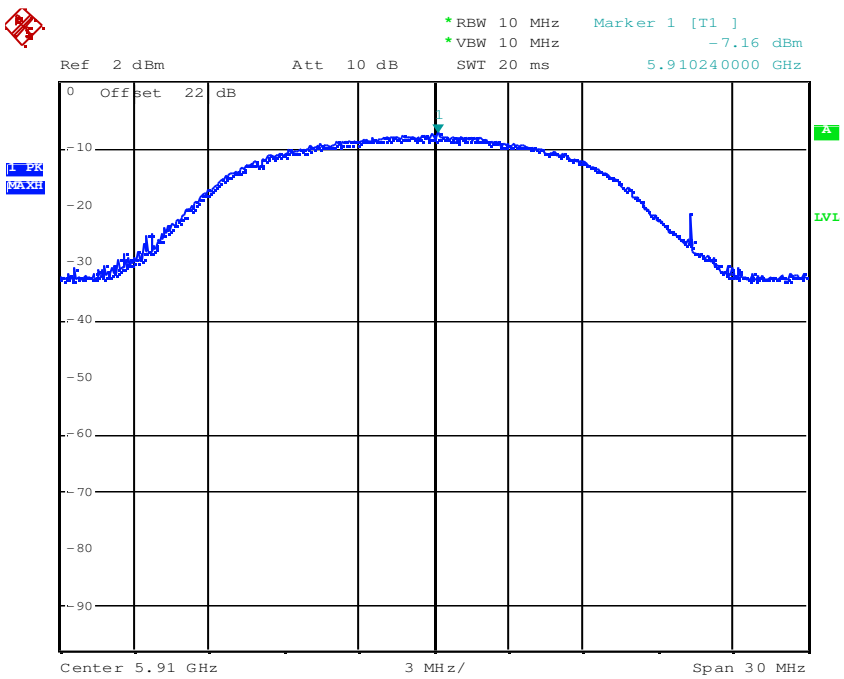
Date: 23.AUG.2010 10:10:56

Plot 17: Channel 2 (5880 MHz), data rate (18 MBit/s)



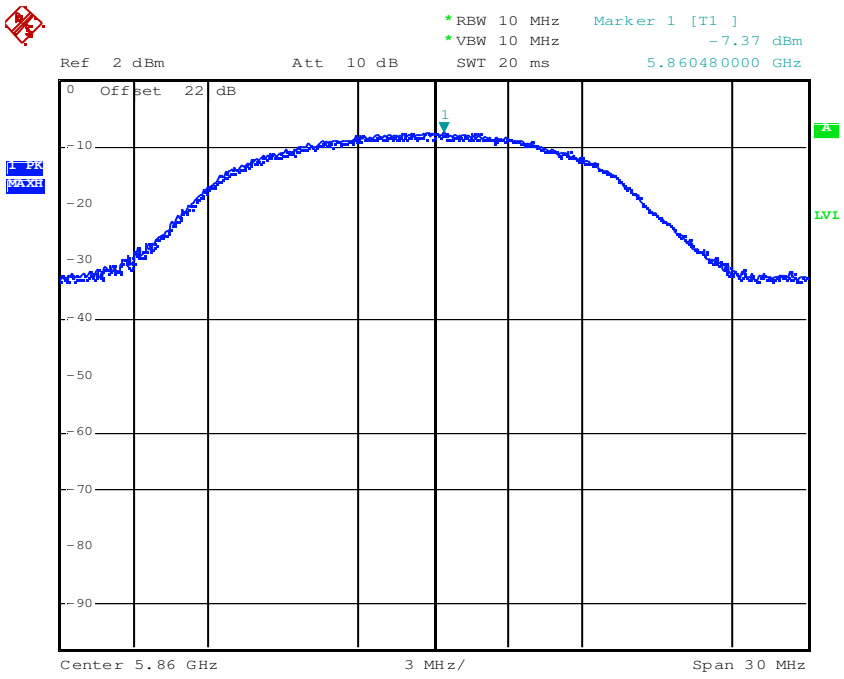
Date: 23.AUG.2010 10:10:27

Plot 18: Channel 3 (5910 MHz), data rate (18 MBit/s)



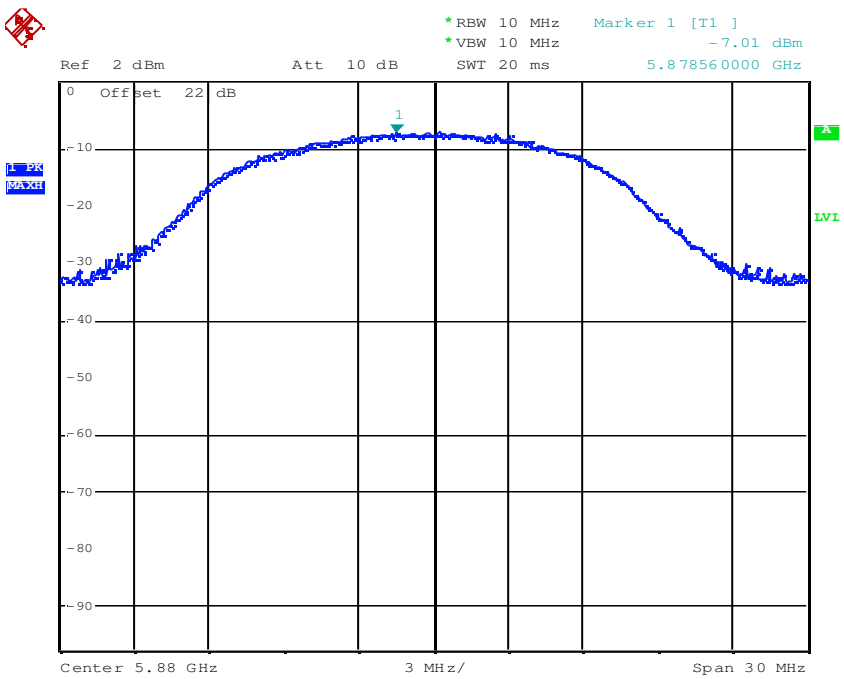
Date: 23.AUG.2010 10:10:00

Plot 19: Channel 1 (5860 MHz), data rate (24 MBit/s)



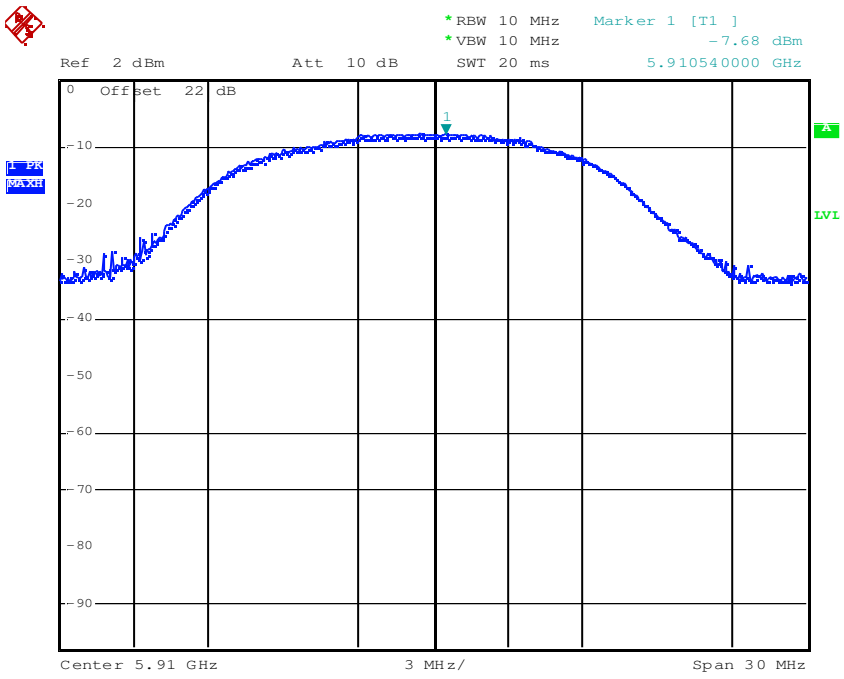
Date: 23.AUG.2010 10:12:08

Plot 20: Channel 2 (5880 MHz), data rate (24 MBit/s)



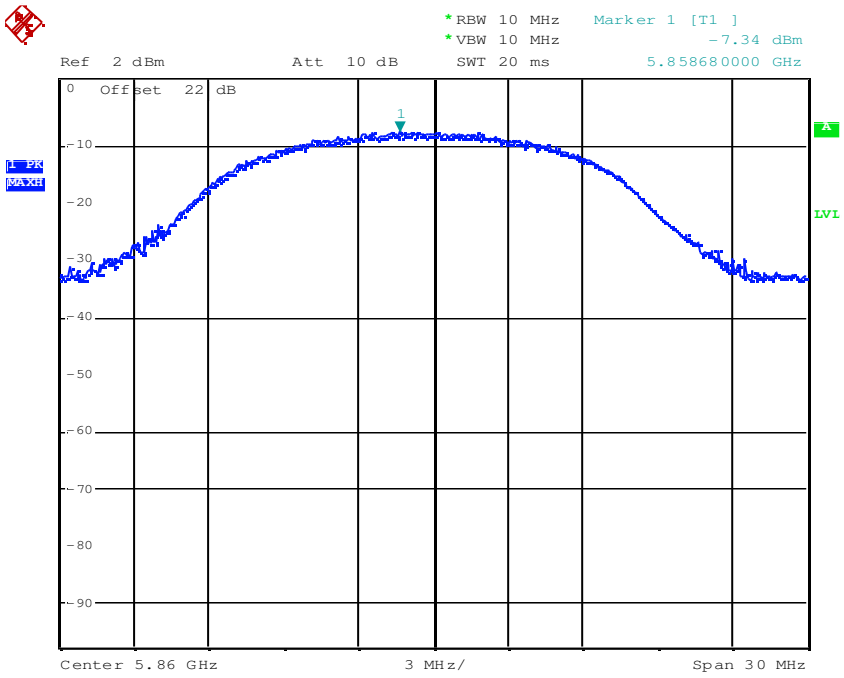
Date: 23.AUG.2010 10:12:51

Plot 21: Channel 3 (5910 MHz), data rate (24 MBit/s)



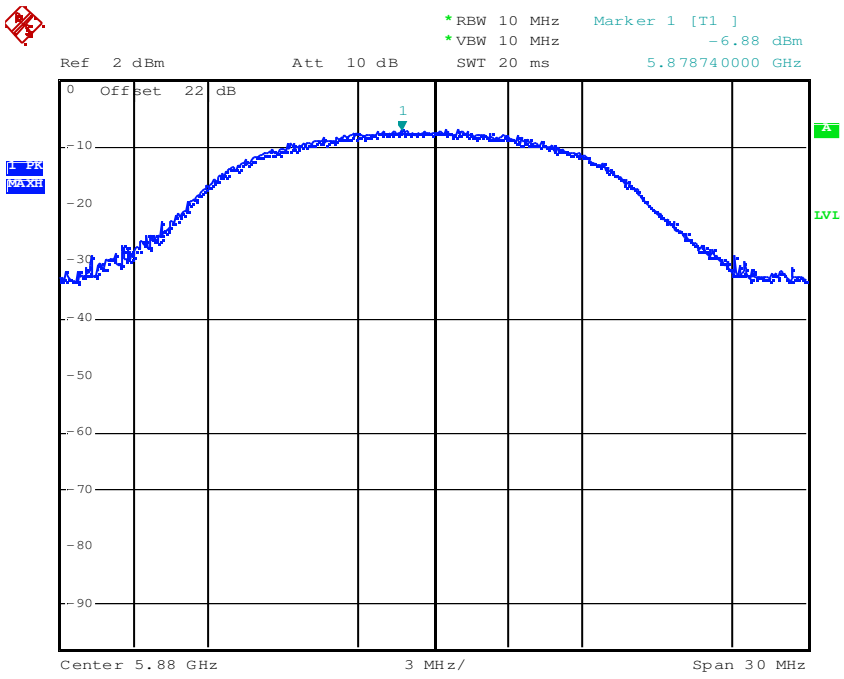
Date: 23.AUG.2010 10:13:32

Plot 22: Channel 1 (5860 MHz), data rate (27 MBit/s)



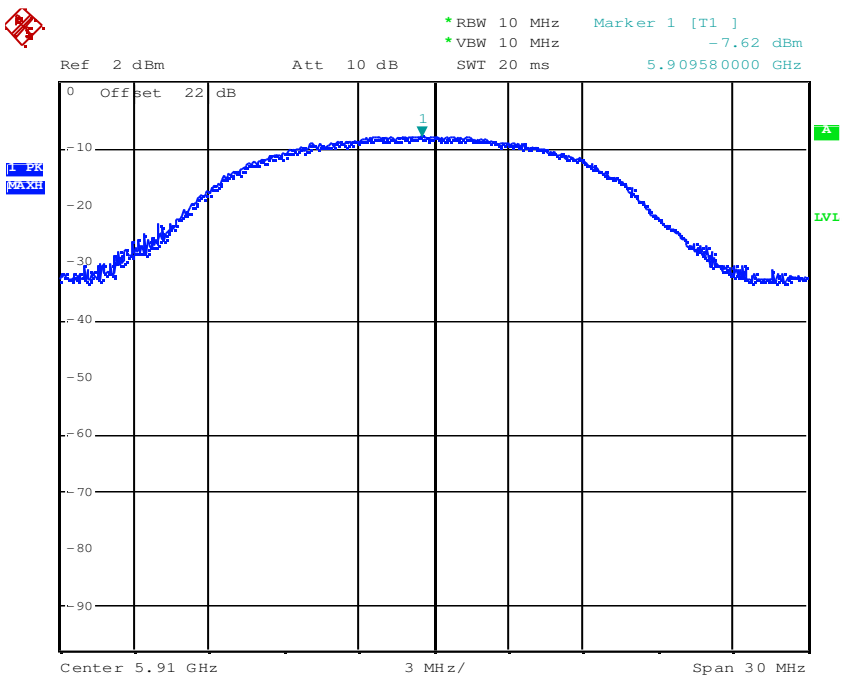
Date: 23.AUG.2010 10:16:07

Plot 23: Channel 2 (5880 MHz), data rate (27 MBit/s)



Date: 23.AUG.2010 10:15:23

Plot 24: Channel 3 (5910 MHz), data rate (27 MBit/s)



Date: 23.AUG.2010 10:14:44

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

Results:

Test conditions		Max. output power radiated [dBm]		
Frequency [MHz]		5860	5880	5910
3 MBit	BPSK	-2.63	-2.83	-3.55
4.5 MBit	BPSK	-2.63*	-2.25*	-3.25*
6 MBit	QPSK	-2.39*	-2.16*	-3.25*
9 MBit	QPSK	-2.60*	-2.40*	-3.40*
12 MBit	16-QAM	-2.60*	-2.49*	-3.55*
18 MBit	16-QAM	-1.63*	-2.22*	-3.28*
24 MBit	64-QAM	-2.51*	-2.59*	-3.80*
27 MBit	64-QAM	-2.48*	-2.46*	-3.74*
Measurement uncertainty		± 3 dB		

* calculated with antenna gain

Limits:

Under normal test conditions only	5860 MHz to 5890 MHz : 33 dBm 5890 MHz to 5910 MHz : 23 dBm 5920 MHz : 33 dBm ASTM: Class A – 0 dBm

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

8.9 Spectrum bandwidth of a OFDM system / 99% bandwidth (ASTM 8.9.2 / § 95.633 g / § 95.1509)

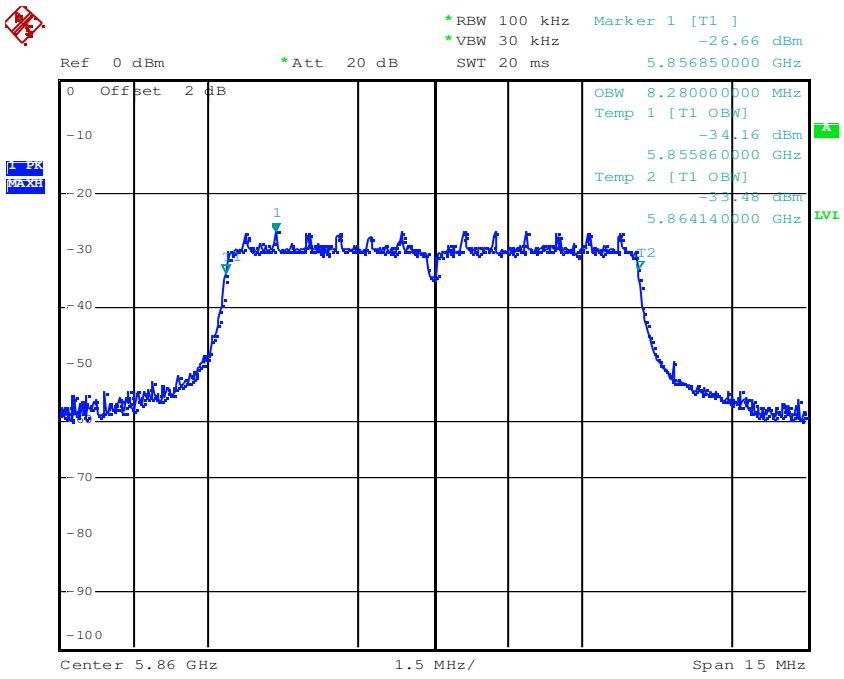
Results:

Test conditions	20 dB BANDWIDTH [MHz]		
Frequency [MHz]	5860	5880	5910
4.5 MBit/s - BPSK	8.28	8.25	8.28
6 MBit/s - QPSK	8.25	8.28	8.28
18 MBit/s – 16-QAM	8.28	8.31	8.28
27 MBit/s – 64-QAM	8.28	8.28	8.28
Measurement uncertainty	±100 kHz		

RBW: 100 kHz / VBW 30 kHz

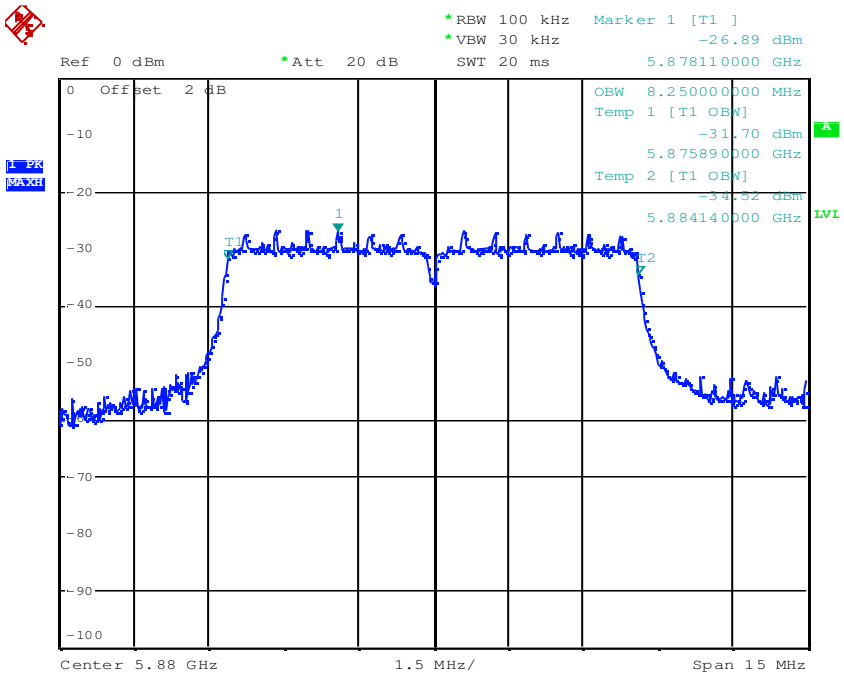
Result: The result of the measurement is passed.

Plot 1: Channel 1 (5860 MHz), data rate (4.5 MBit/s)



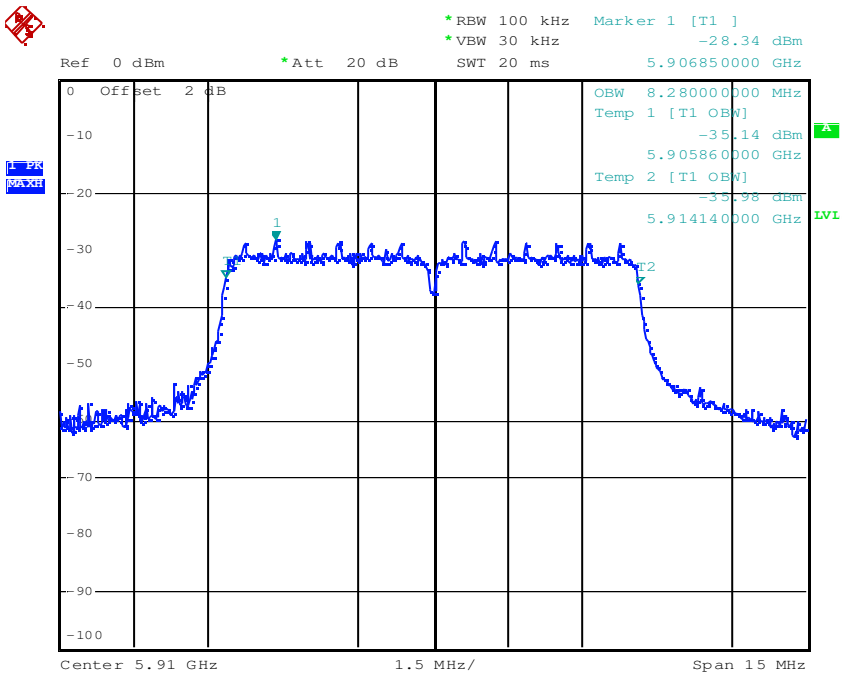
Date: 24.AUG.2010 09:17:44

Plot 2: Channel 2 (5880 MHz), data rate (4.5 MBit/s)



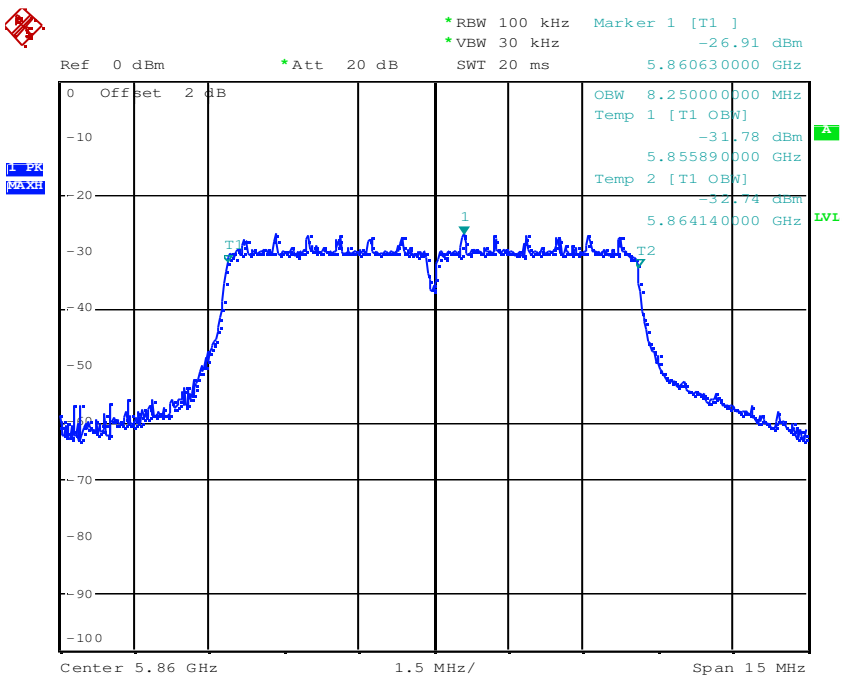
Date: 24.AUG.2010 09:18:49

Plot 3: Channel 3 (5910 MHz), data rate (4.5 MBit/s)



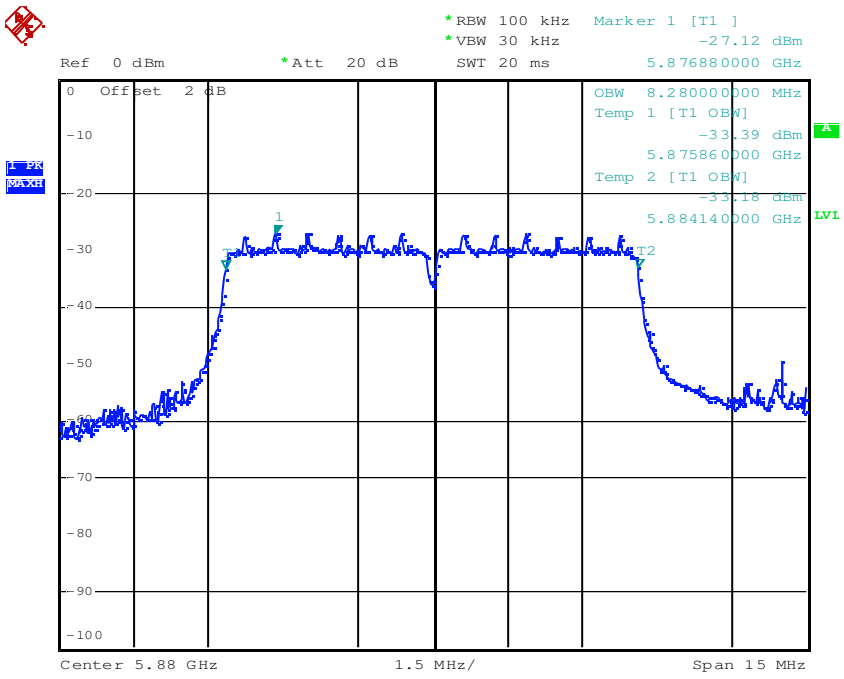
Date: 24.AUG.2010 09:19:38

Plot 4: Channel 1 (5860 MHz), data rate (6 MBit/s)



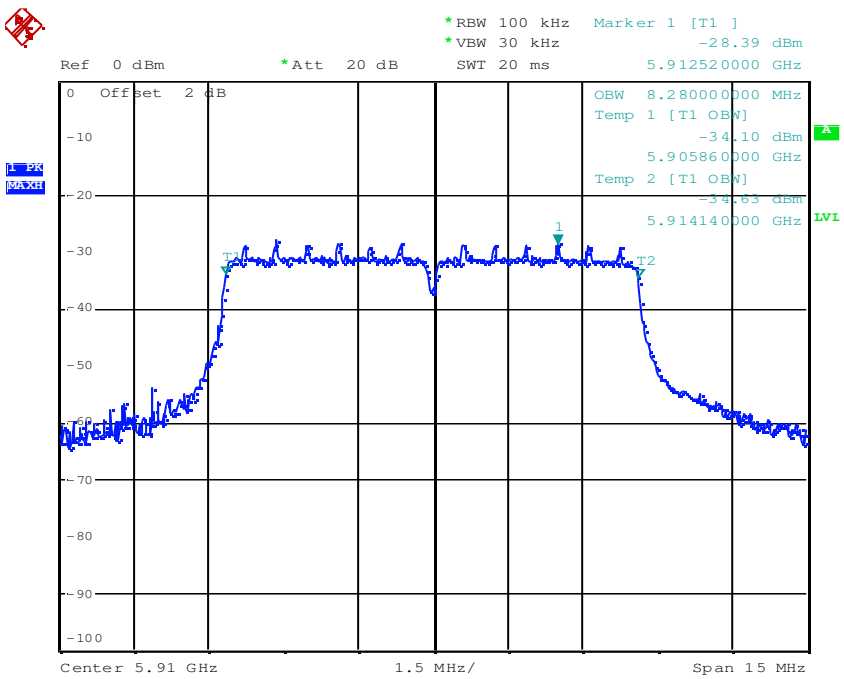
Date: 24.AUG.2010 09:21:10

Plot 5: Channel 2 (5880 MHz), data rate (6 MBit/s)



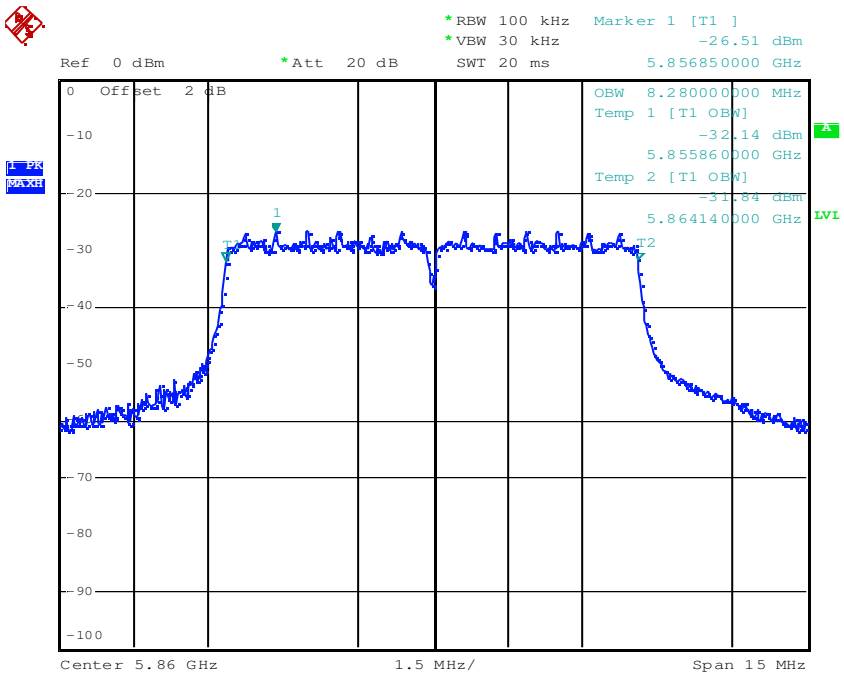
Date: 24.AUG.2010 09:21:45

Plot 6: Channel 3 (5910 MHz), data rate (6 MBit/s)



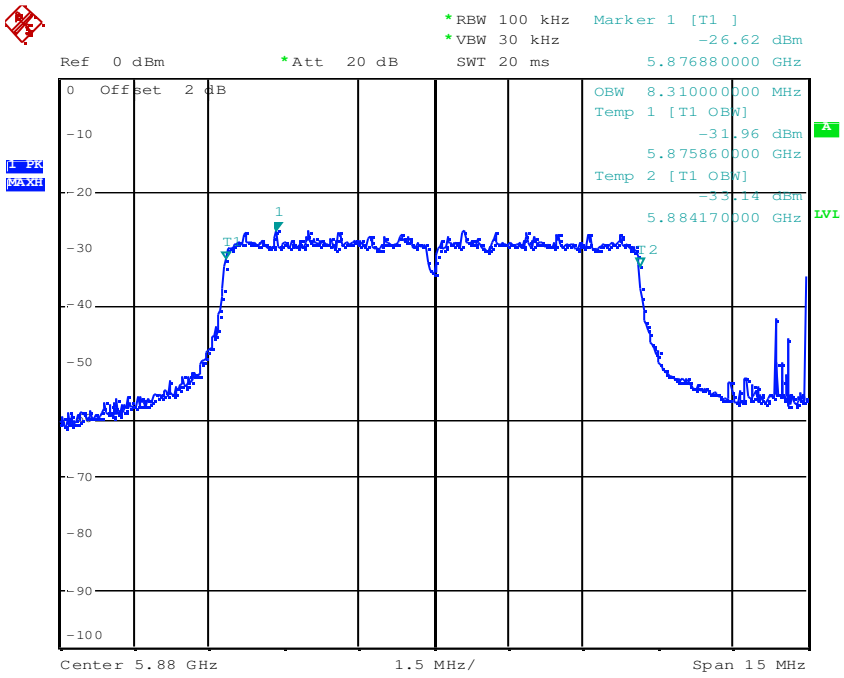
Date: 24.AUG.2010 09:22:29

Plot 7: Channel 1 (5860 MHz), data rate (18 MBit/s)



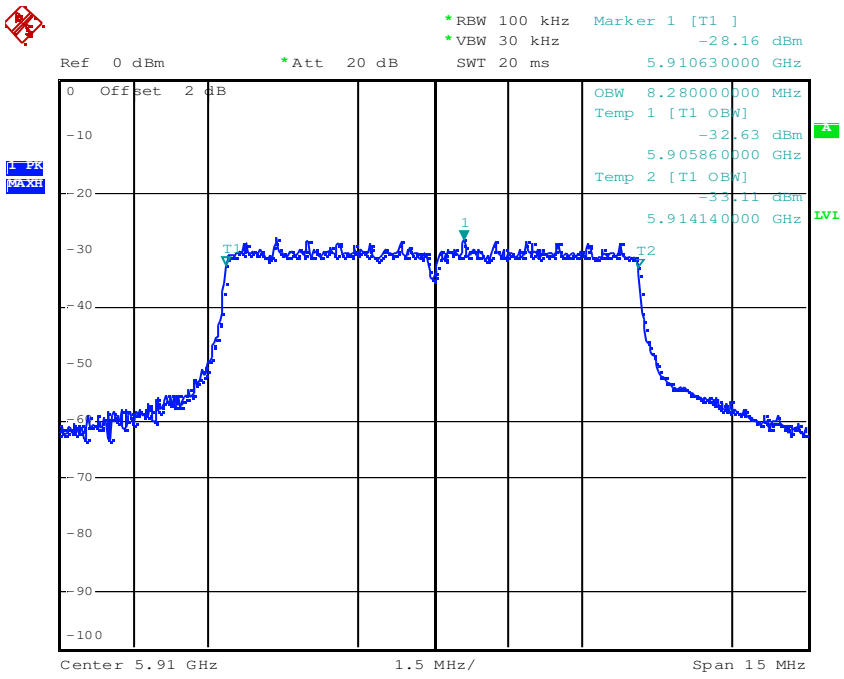
Date: 24.AUG.2010 09:23:34

Plot 8: Channel 2 (5880 MHz), data rate (18 MBit/s)



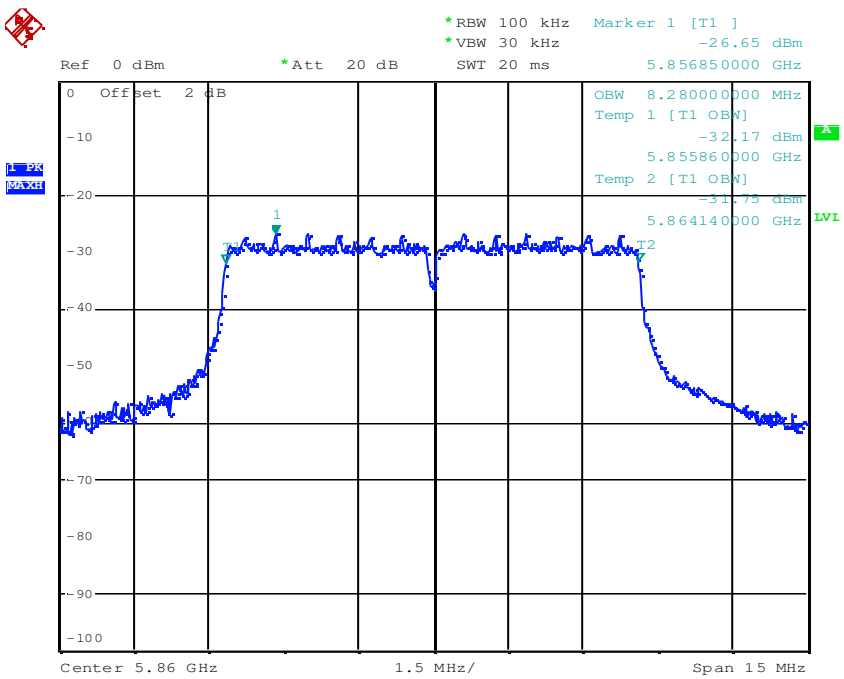
Date: 24.AUG.2010 09:24:45

Plot 9: Channel 3 (5910 MHz), data rate (18 MBit/s)



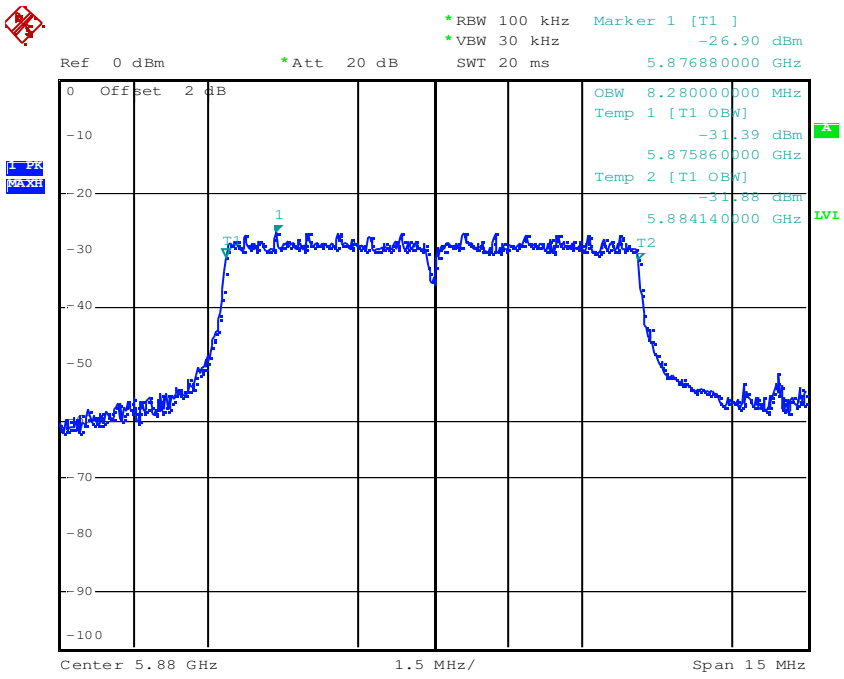
Date: 24.AUG.2010 09:25:21

Plot 10: Channel 1 (5860 MHz), data rate (27 MBit/s)



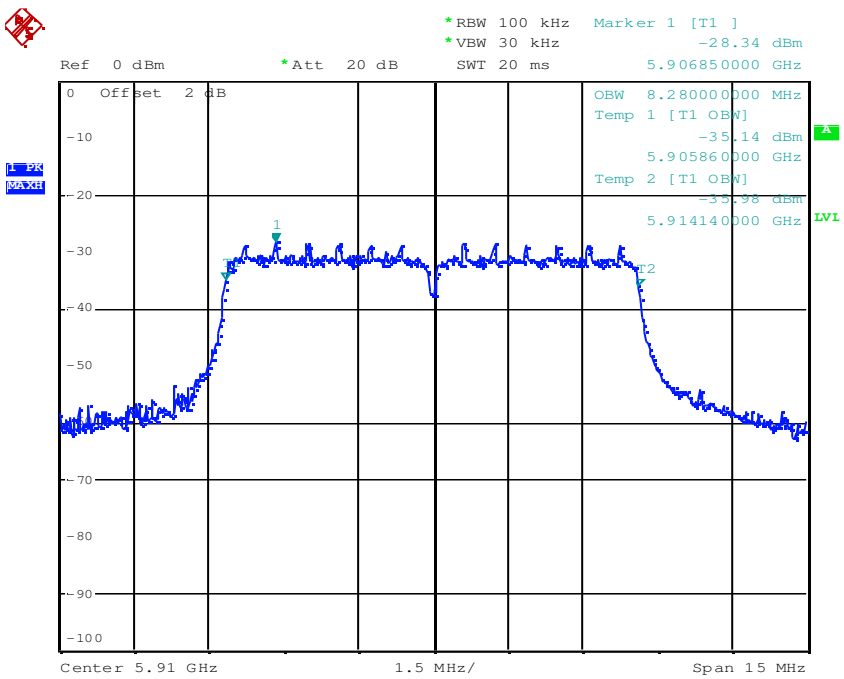
Date: 24.AUG.2010 09:26:11

Plot 11: Channel 2 (5880 MHz), data rate (27 MBit/s)



Date: 24.AUG.2010 09:26:45

Plot 12: Channel 3 (5910 MHz), data rate (27 MBit/s)



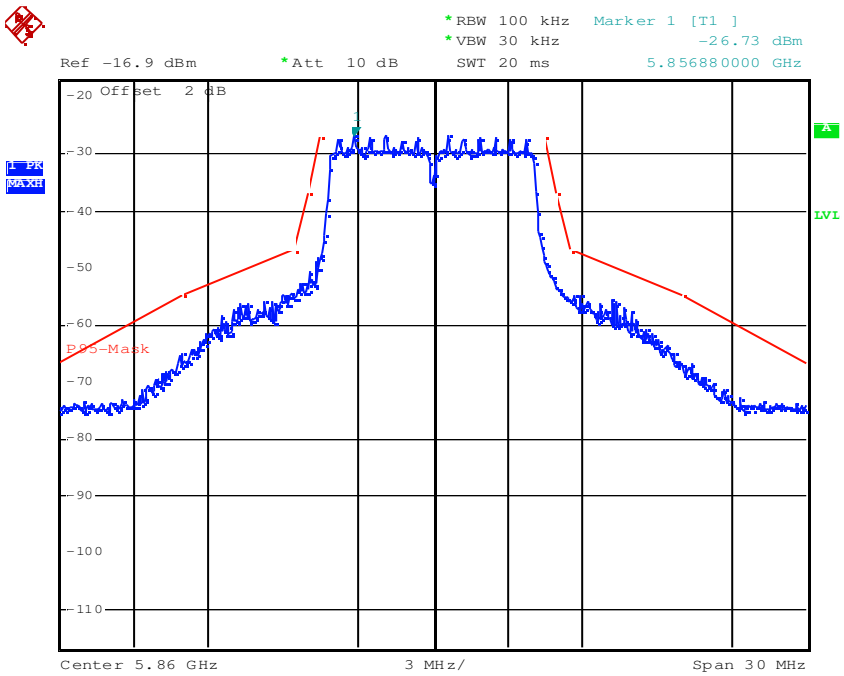
Date: 24.AUG.2010 09:19:38

8.10 Transmit spectrum mask (ASTM 8.9.2 / § 95.635 F / § 95.1509)

EUT is specified as Class A equipment.

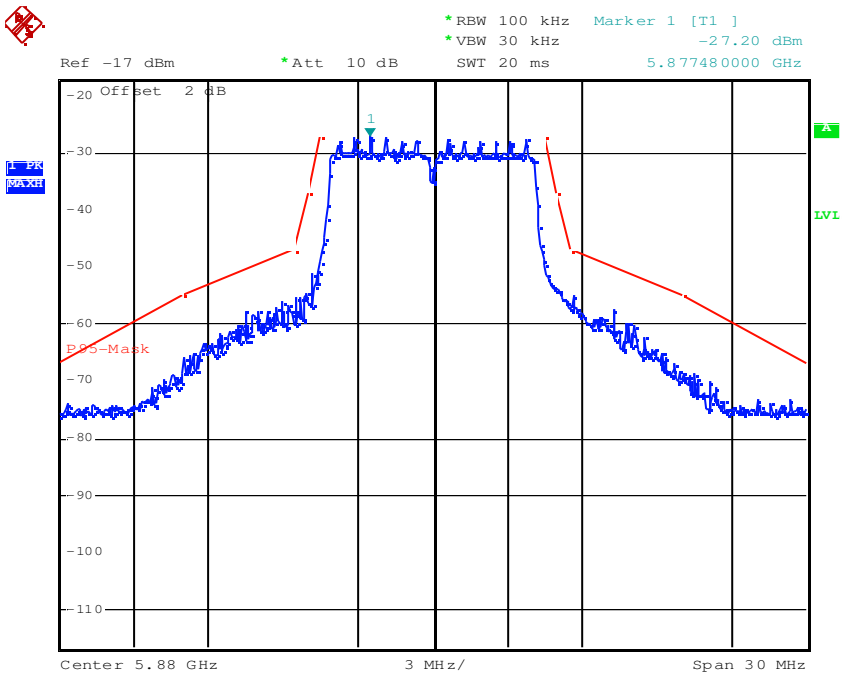
Result: **The result of the measurement is passed.**

Plot 1: Channel 1 (5860 MHz), data rate (4.5 MBit/s)



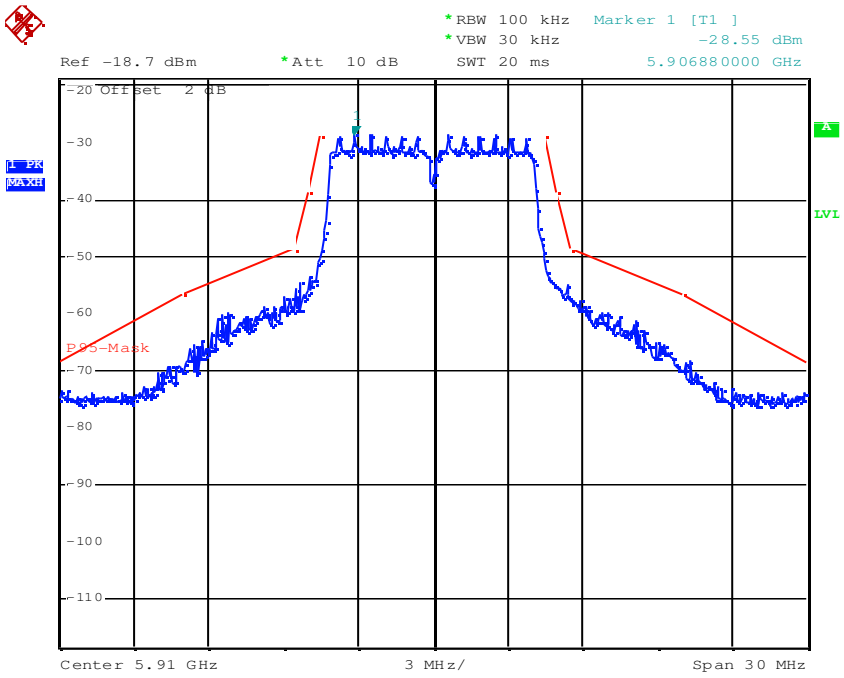
Date: 24.AUG.2010 09:46:22

Plot 2: Channel 2 (5880 MHz), data rate (4.5 MBit/s)



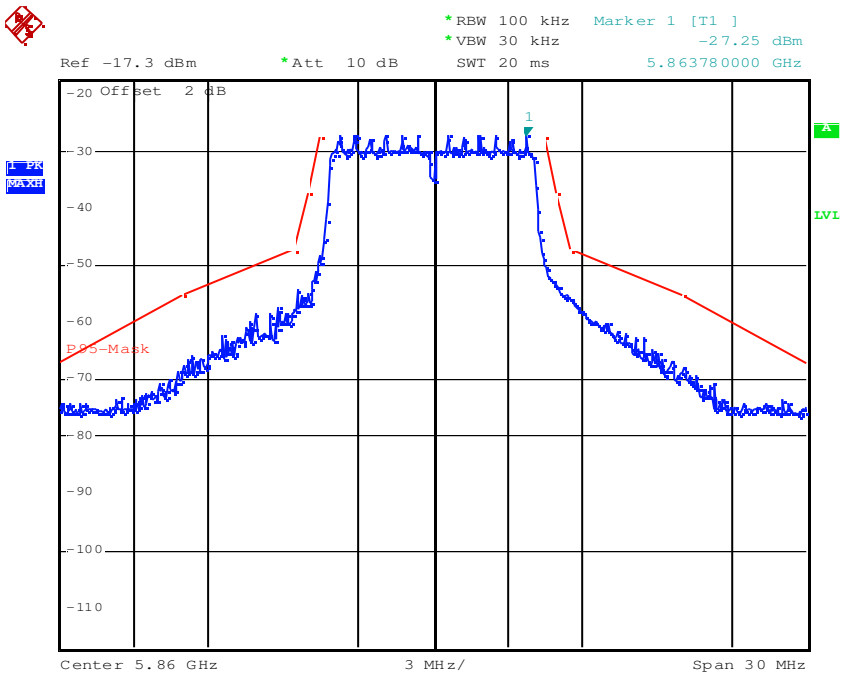
Date: 24.AUG.2010 09:51:58

Plot 3: Channel 3 (5910 MHz), data rate (4.5 MBit/s)



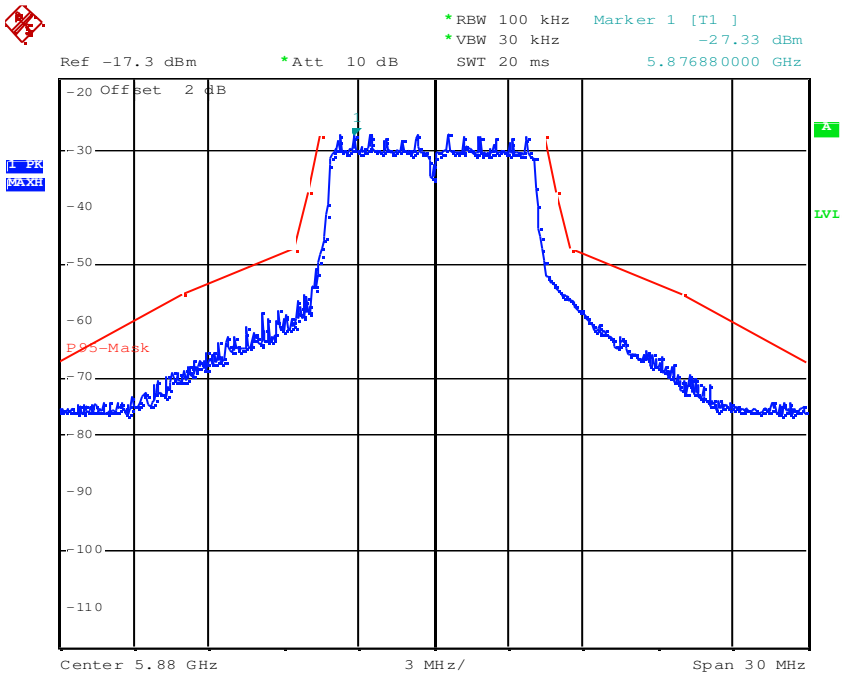
Date: 24.AUG.2010 09:52:59

Plot 4: Channel 1 (5860 MHz), data rate (6 MBit/s)



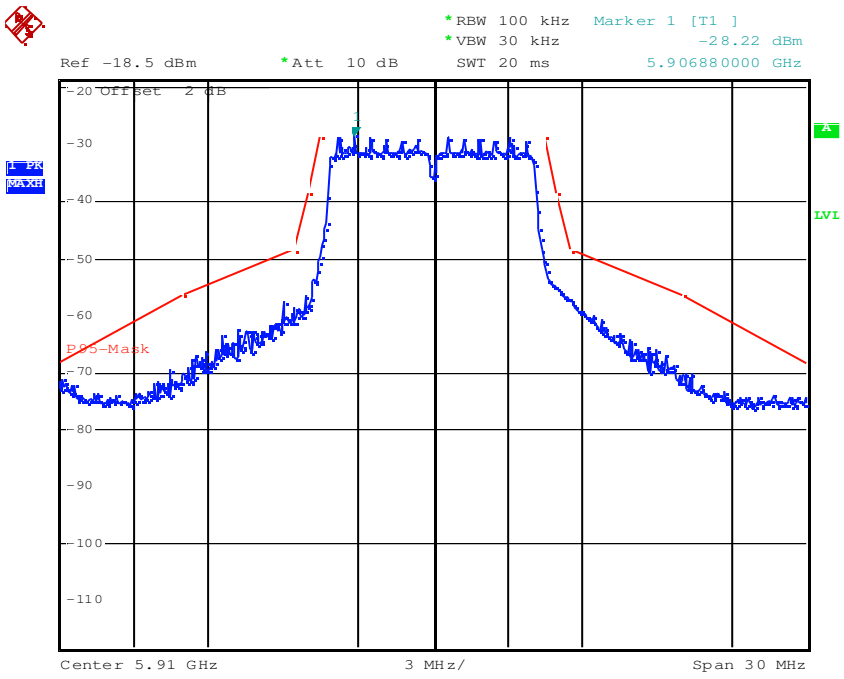
Date: 24.AUG.2010 09:54:26

Plot 5: Channel 2 (5880 MHz), data rate (6 MBit/s)



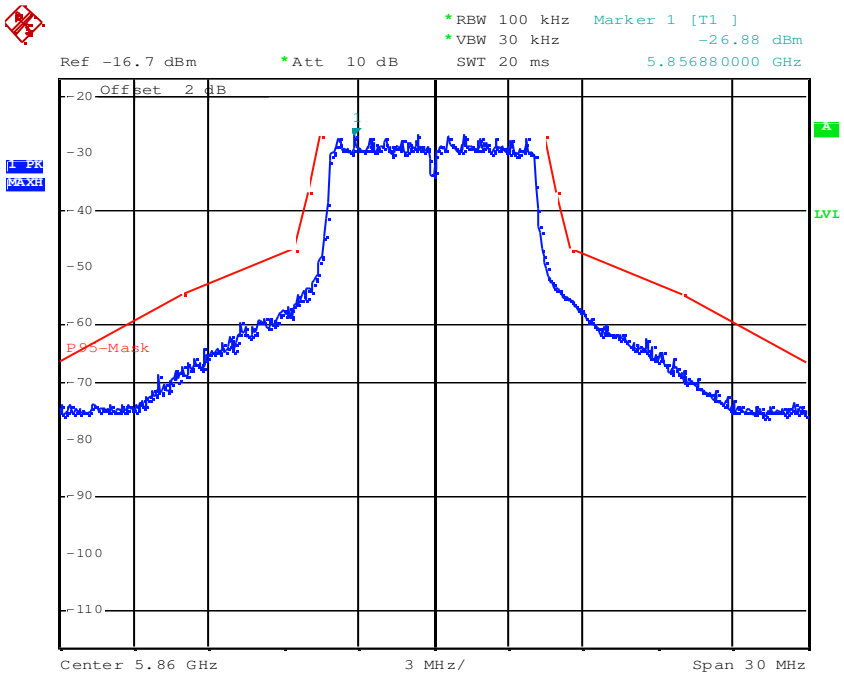
Date: 24.AUG.2010 09:56:36

Plot 6: Channel 3 (5910 MHz), data rate (6 MBit/s)



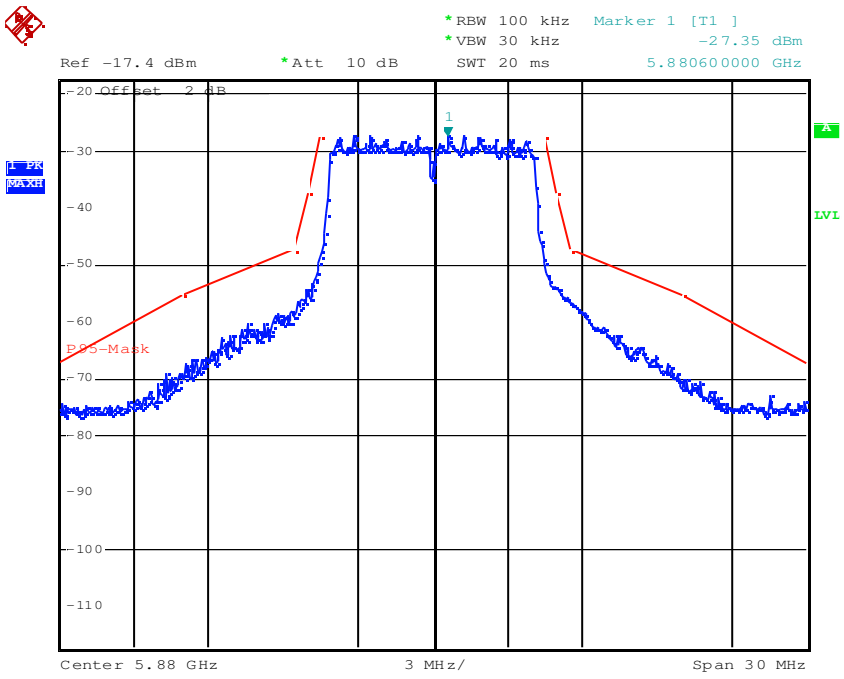
Date: 24.AUG.2010 09:57:21

Plot 7: Channel 1 (5860 MHz), data rate (18 MBit/s)



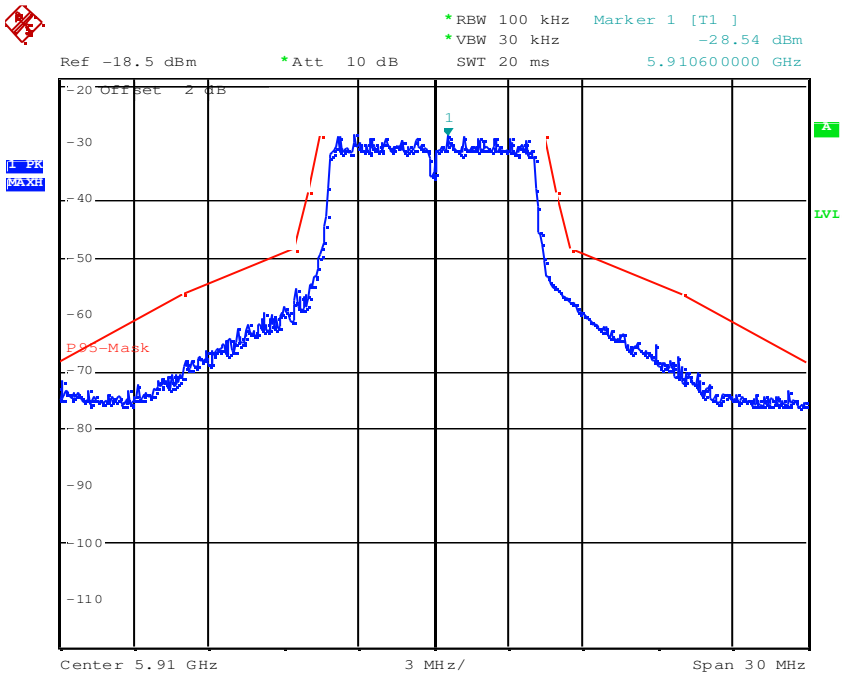
Date: 24.AUG.2010 09:59:01

Plot 8: Channel 2 (5880 MHz), data rate (18 MBit/s)



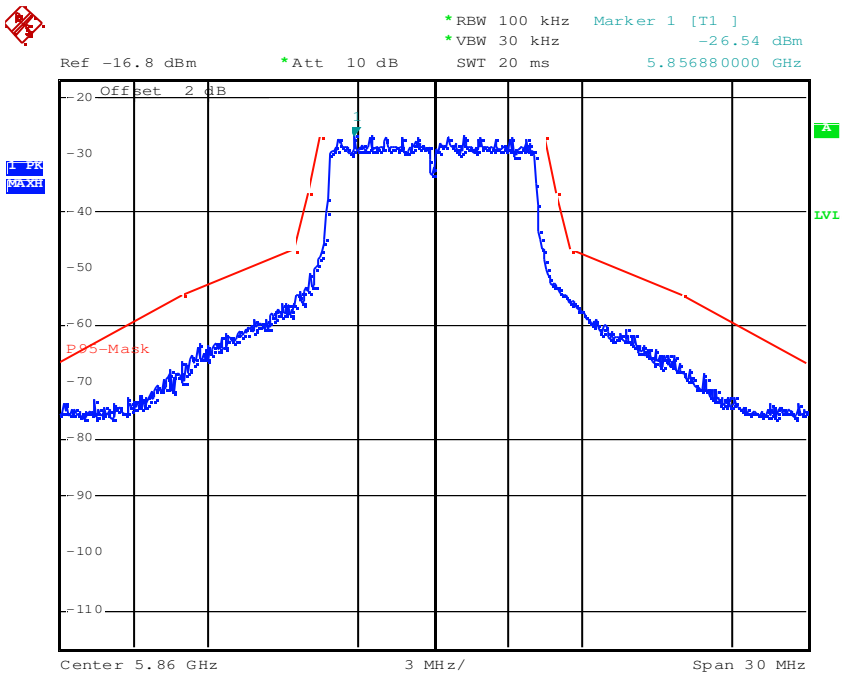
Date: 24.AUG.2010 09:59:46

Plot 9: Channel 3 (5910 MHz), data rate (18 MBit/s)



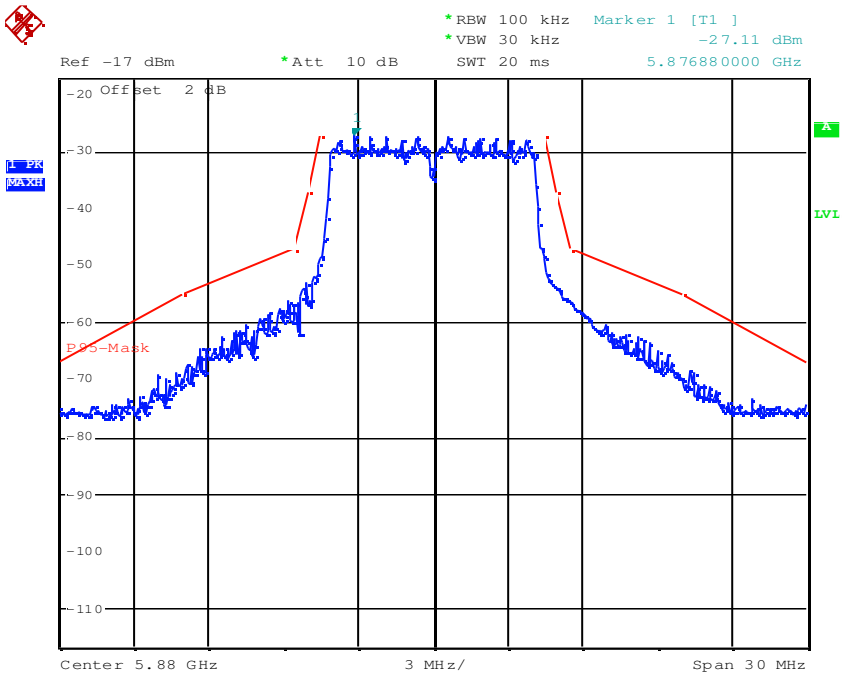
Date: 24.AUG.2010 10:00:22

Plot 10: Channel 1 (5860 MHz), data rate (27 MBit/s)



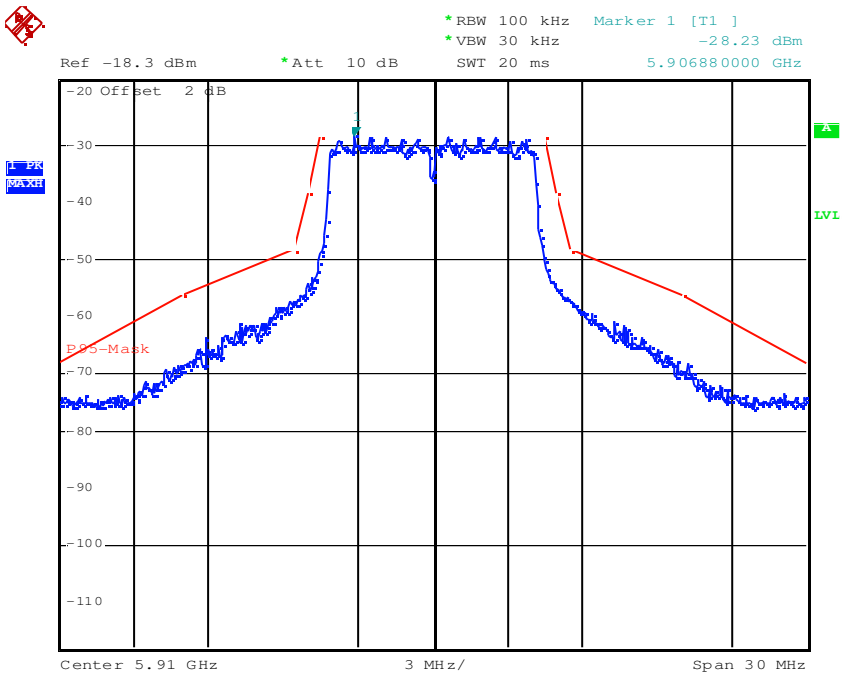
Date: 24.AUG.2010 10:01:22

Plot 11: Channel 2 (5880 MHz), data rate (27 MBit/s)



Date: 24.AUG.2010 10:02:05

Plot 12: Channel 3 (5910 MHz), data rate (27 MBit/s)



Date: 24.AUG.2010 10:02:56

8.11 Spurious emissions - conducted transmitter (§ 95.635 / § 95.1509 / § 2.1051)

Results:

Emission Limitations					
4.5 MBit/s					
f [MHz]	Det.	amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below limit [dB]	results
5860	Pk	-29.7	-25 dBm		Operating frequency
927.8	Pk	-56.0		31.0	Complies
1846.2	Pk	-54.5		29.5	Complies
3908.7	Pk	-55.8		30.8	Complies
7822.1	Pk	-46.7		21.7	Complies
5880	Pk	-29.2	-25 dBm		Operating frequency
927.9	Pk	-56.6		31.6	Complies
1846.2	Pk	-52.8		27.8	Complies
3908.7	Pk	-53.8		28.8	Complies
7839.7	Pk	-45.6		20.6	Complies
5910	Pk	-30.5	-25 dBm		Operating frequency
927.9	Pk	-55.8		30.8	Complies
1863.8	Pk	-54.7		29.7	Complies
3943.9	Pk	-55.3		30.3	Complies
7875.0	Pk	-45.2		20.2	Complies
Measurement uncertainty		± 3dB			

Emission Limitations					
6 MBit/s					
f [MHz]	Det.	amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below limit [dB]	results
5860	Pk	-29.0	-25 dBm		Operating frequency
927.9	Pk	-56.4		31.4	Complies
1846.2	Pk	-54.0		29.0	Complies
3908.7	Pk	-54.6		29.6	Complies
7822.1	Pk	-46.6		21.6	Complies
5880	Pk	-28.6	-25 dBm		Operating frequency
927.9	Pk	-56.6		31.6	Complies
1863.8	Pk	-53.8		28.8	Complies
3908.7	Pk	-53.9		28.9	Complies
7839.7	Pk	-45.8		20.8	Complies
5910	Pk	-28.7	-25 dBm		Operating frequency
927.9	Pk	-57.7		32.7	Complies
1863.8	Pk	-58.4		33.4	Complies
3943.9	Pk	-55.4		30.4	Complies
7875.0	Pk	-45.2		20.2	Complies
Measurement uncertainty			± 3dB		

Emission Limitations					
18 MBit/s					
f [MHz]	Det.	amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below limit [dB]	results
5860	Pk	-29.5	-25 dBm		Operating frequency
927.9	Pk	-55.5		30.5	Complies
1863.8	Pk	-52.3		27.3	Complies
3908.7	Pk	-55.2		30.2	Complies
7822.1	Pk	-46.8		21.8	Complies
5880	Pk	-27.6	-25 dBm		Operating frequency
927.9	Pk	-60.4		35.4	Complies
1846.2	Pk	-58.5		33.5	Complies
3908.7	Pk	-54.6		29.6	Complies
7839.7	Pk	-46.1		21.1	Complies
5910	Pk	-28.0	-25 dBm		Operating frequency
927.9	Pk	-57.7		32.7	Complies
2392.6	Pk	-57.6		32.6	Complies
3943.9	Pk	-55.1		30.1	Complies
7875.0	Pk	-45.4		20.4	Complies
Measurement uncertainty			± 3dB		

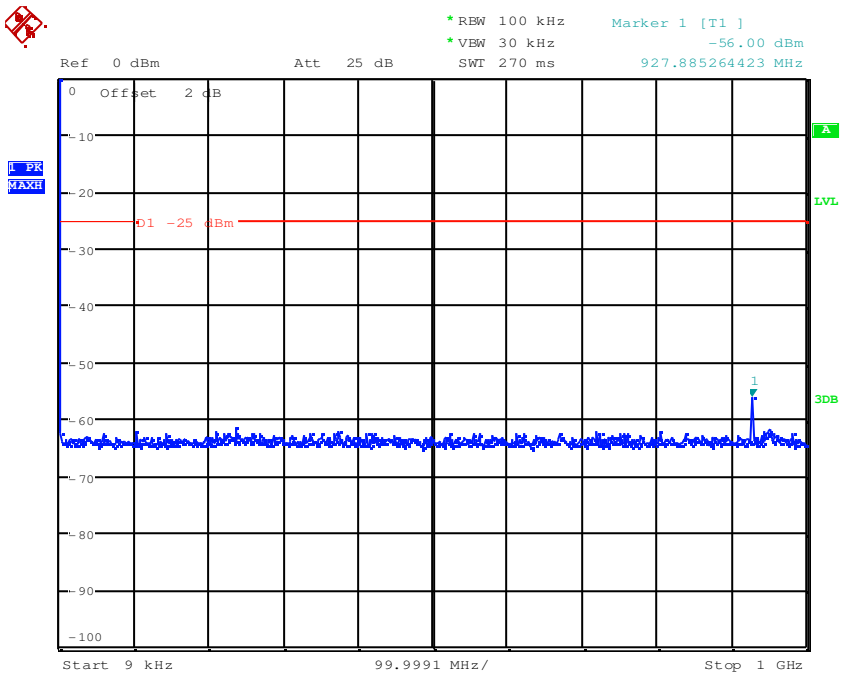
Emission Limitations					
27 MBit/s					
f [MHz]	Det.	amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below limit [dB]	results
5860	Pk	-29.9	-25 dBm		Operating frequency
927.9	Pk	-59.3		34.3	Complies
2445.5	Pk	-58.8		33.8	Complies
3908.7	Pk	-55.5		30.5	Complies
7822.1	Pk	-46.8		21.8	Complies
5880	Pk	-27.8	-25 dBm		Operating frequency
927.9	Pk	-55.8		30.8	Complies
1846.2	Pk	-58.3		33.3	Complies
3908.7	Pk	-53.9		28.9	Complies
7839.7	Pk	-45.8		20.8	Complies
5910	Pk	-28.8	-25 dBm		Operating frequency
927.9	Pk	-53.2		28.2	Complies
1863.8	Pk	-52.0		27.0	Complies
3943.9	Pk	-55.3		30.3	Complies
7875.0	Pk	-44.9		19.9	Complies
Measurement uncertainty			± 3dB		

Limits:

Under normal test conditions only	-25 dBm

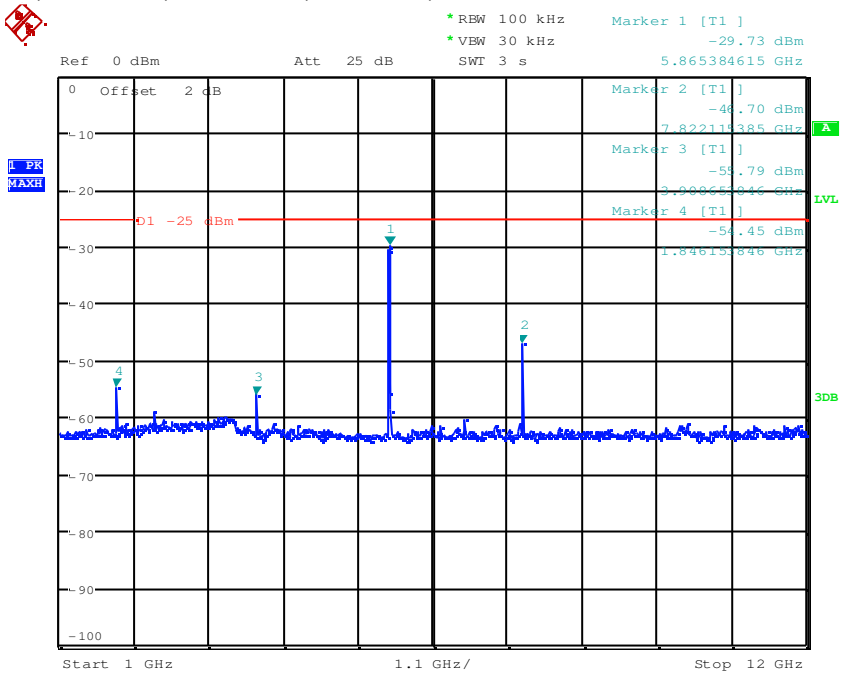
Result: The result of the measurement is passed.

Plot 1: Channel 1 (5860 MHz), data rate (4.5 MBit/s)



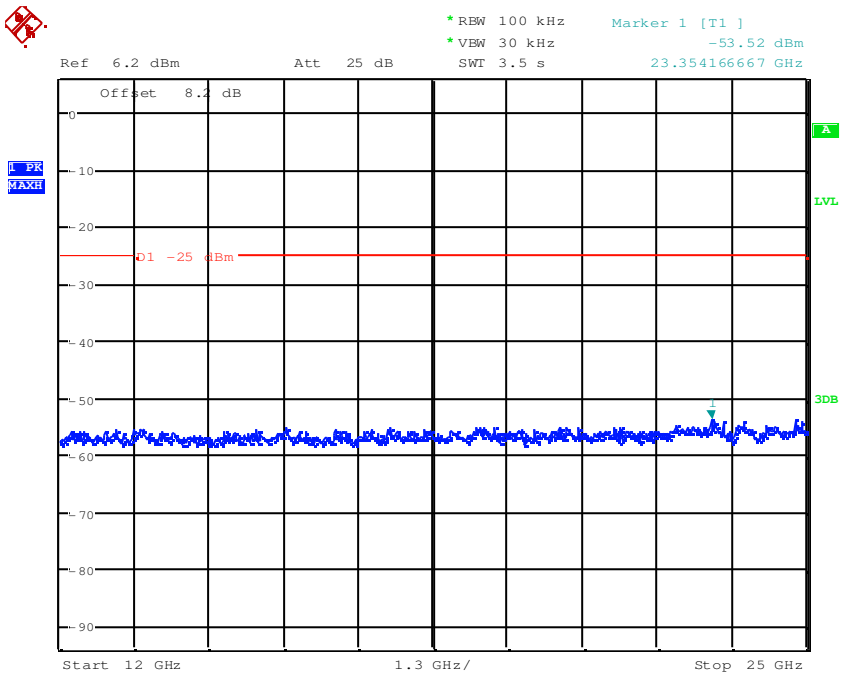
Date: 24.AUG.2010 09:56:08

Plot 2: Channel 1 (5860 MHz), data rate (4.5 MBit/s)



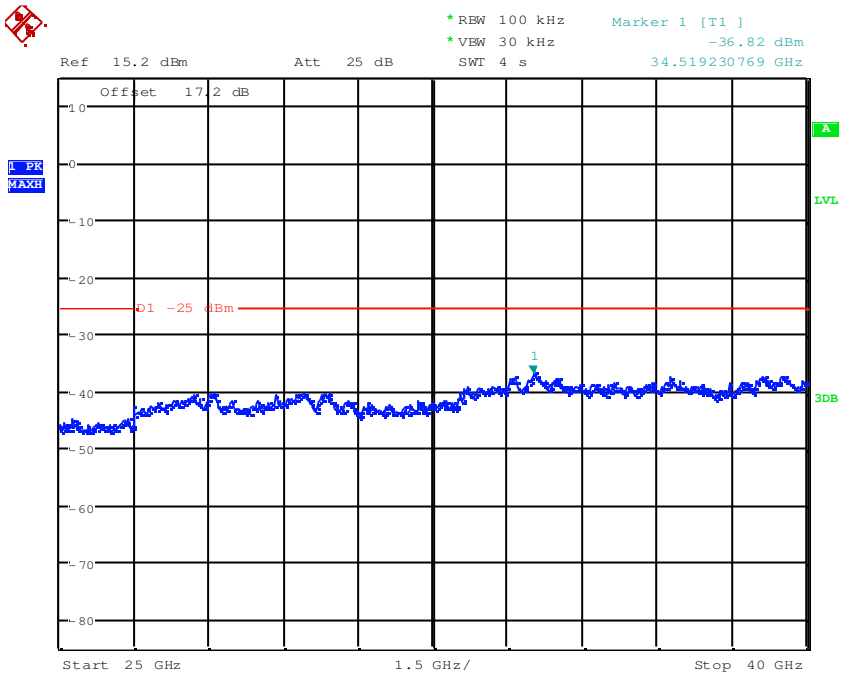
Date: 24.AUG.2010 09:55:04

Plot 3: Channel 1 (5860 MHz), data rate (4.5 MBit/s)



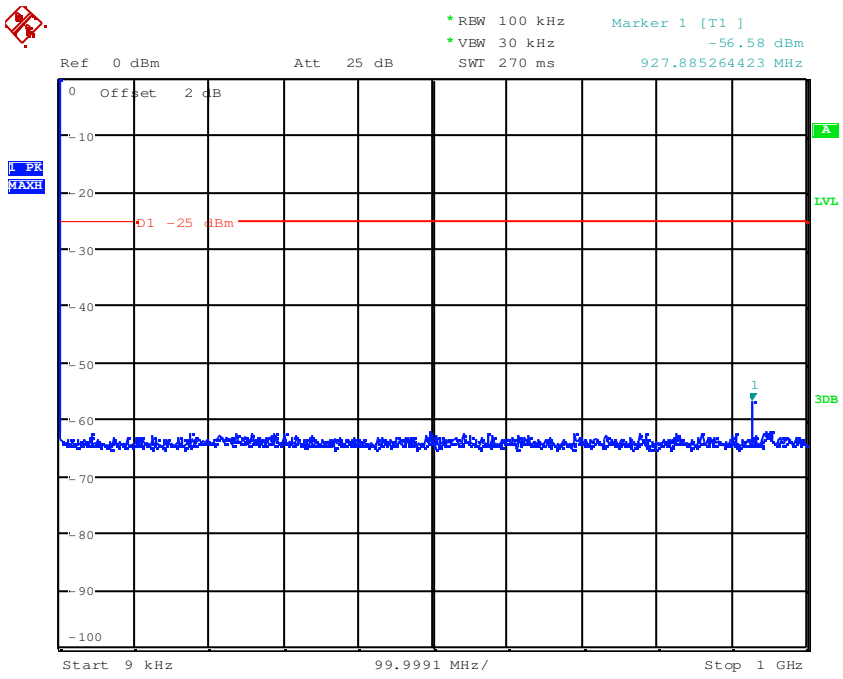
Date: 24.AUG.2010 10:12:11

Plot 4: Channel 1 (5860 MHz), data rate (4.5 MBit/s)



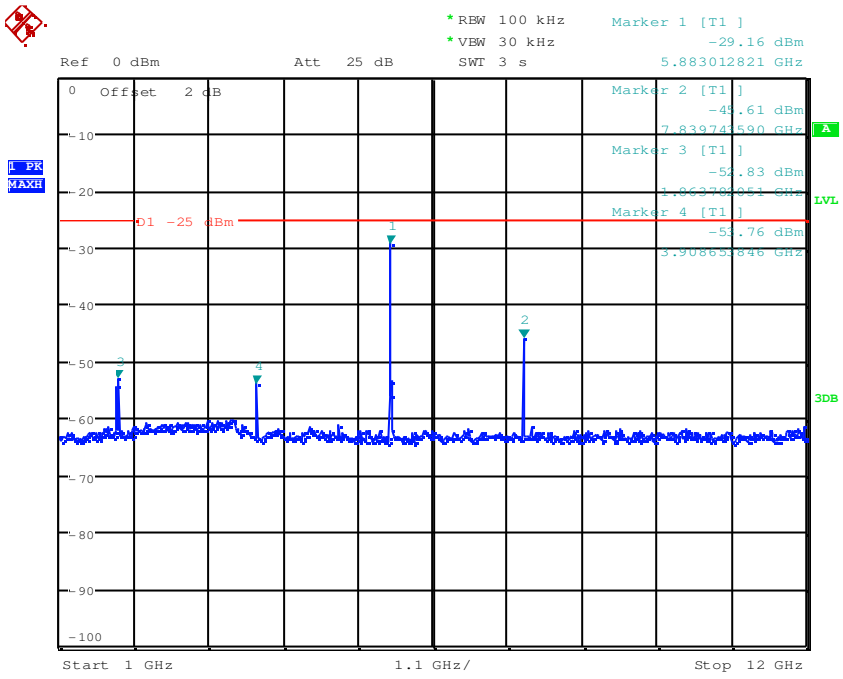
Date: 24.AUG.2010 10:09:15

Plot 5: Channel 2 (5880 MHz), data rate (4.5 MBit/s)



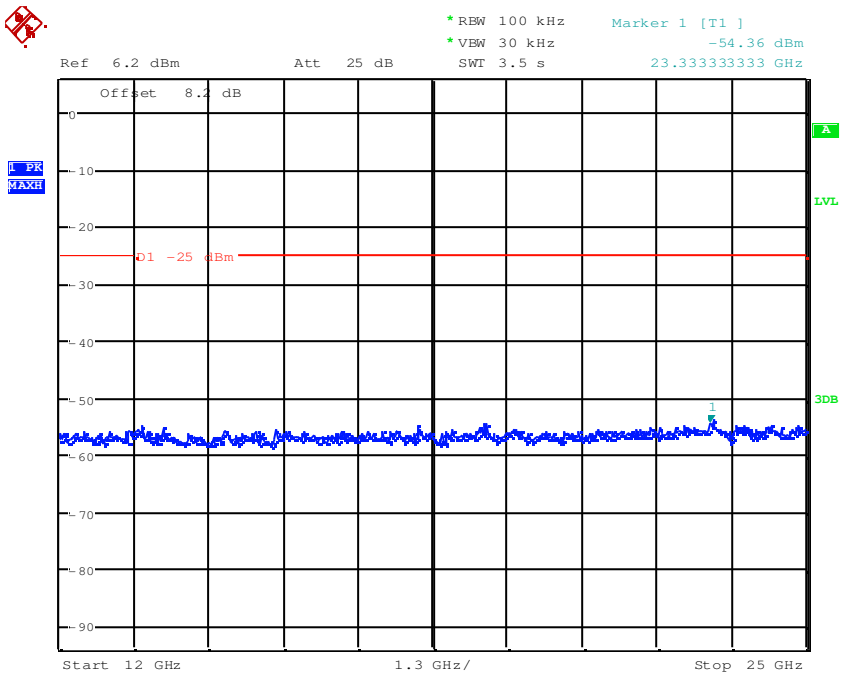
Date: 24.AUG.2010 10:02:13

Plot 6: Channel 2 (5880 MHz), data rate (4.5 MBit/s)



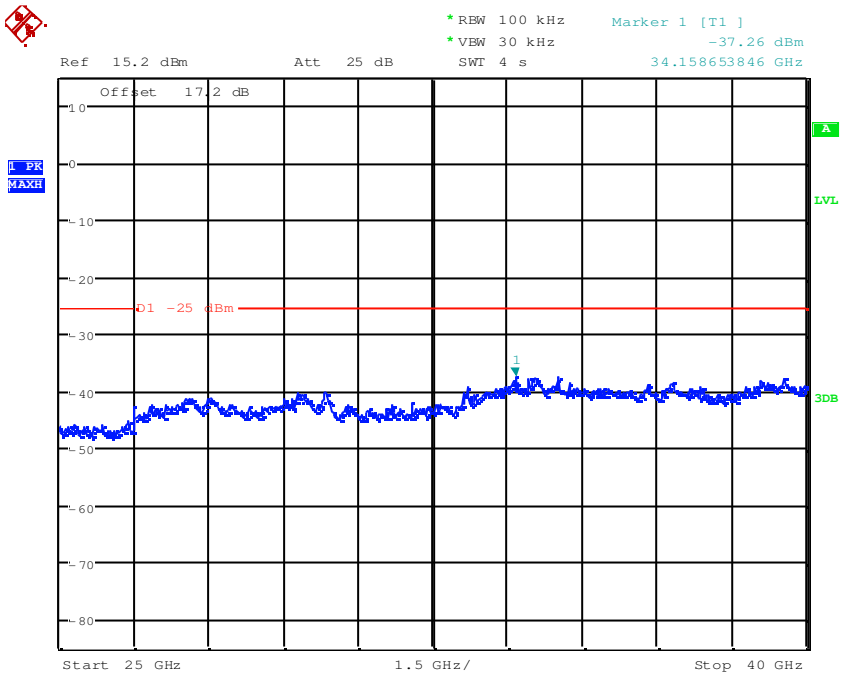
Date: 24.AUG.2010 10:01:31

Plot 7: Channel 2 (5880 MHz), data rate (4.5 MBit/s)



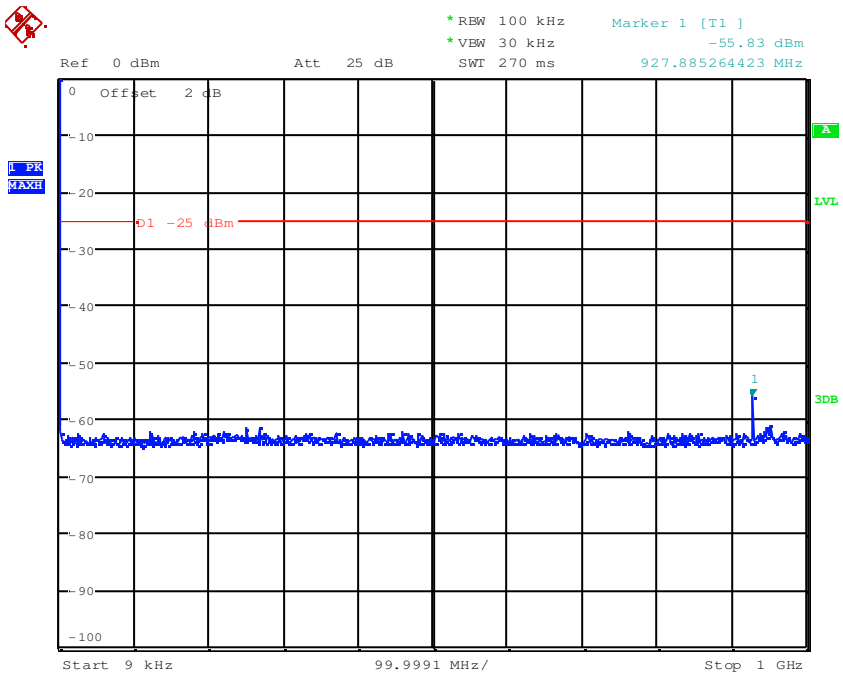
Date: 24.AUG.2010 10:11:39

Plot 8: Channel 2 (5880 MHz), data rate (4.5 MBit/s)



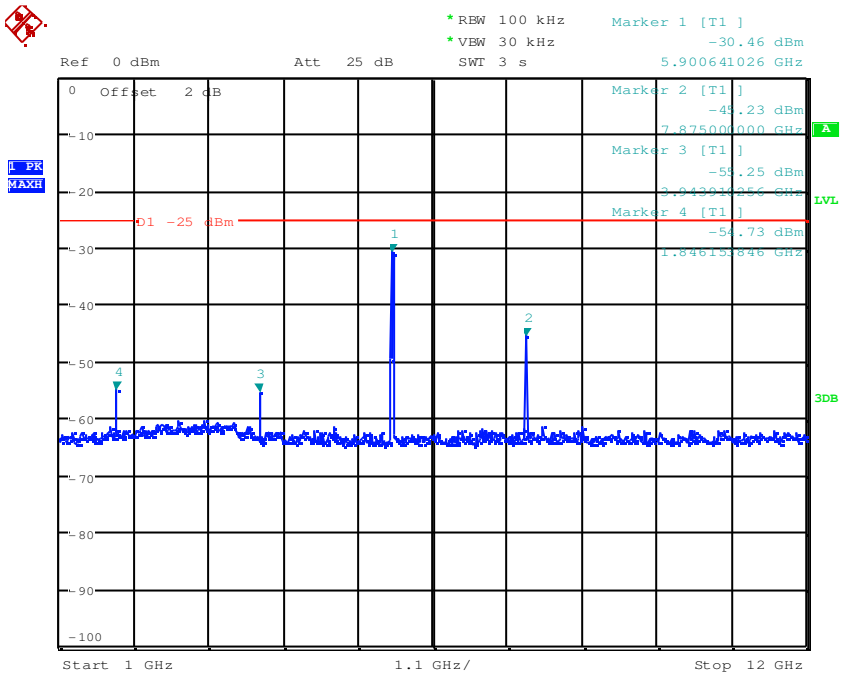
Date: 24.AUG.2010 10:09:45

Plot 9: Channel 3 (5910 MHz), data rate (4.5 MBit/s)



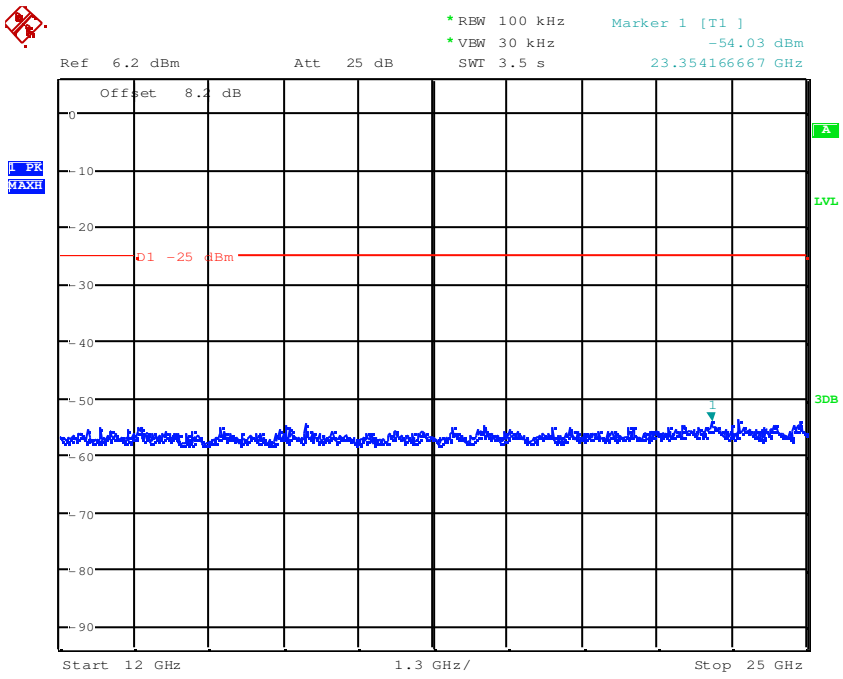
Date: 24.AUG.2010 10:03:47

Plot 10: Channel 3 (5910 MHz), data rate (4.5 MBit/s)



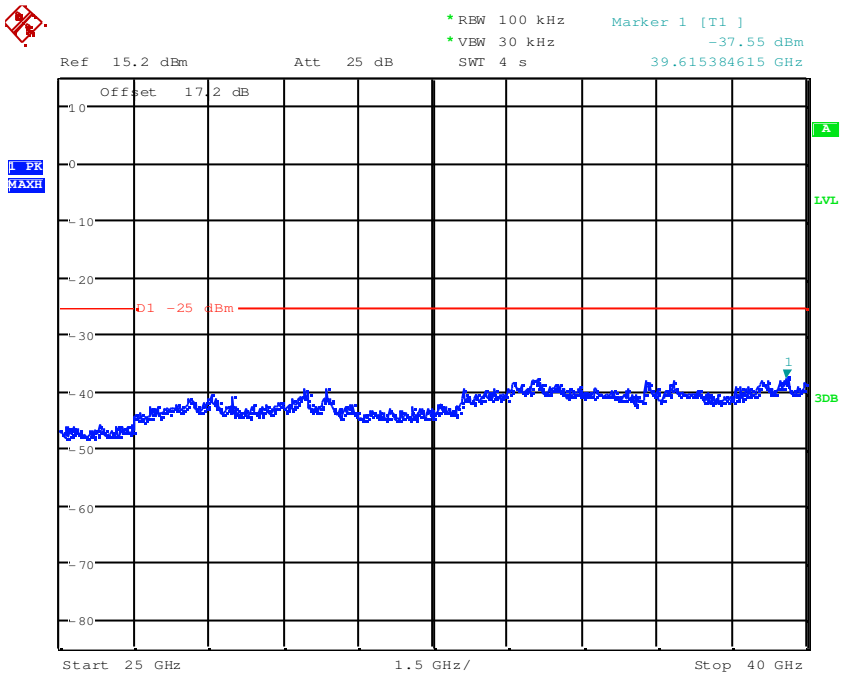
Date: 24.AUG.2010 10:04:31

Plot 11: Channel 3 (5910 MHz), data rate (4.5 MBit/s)



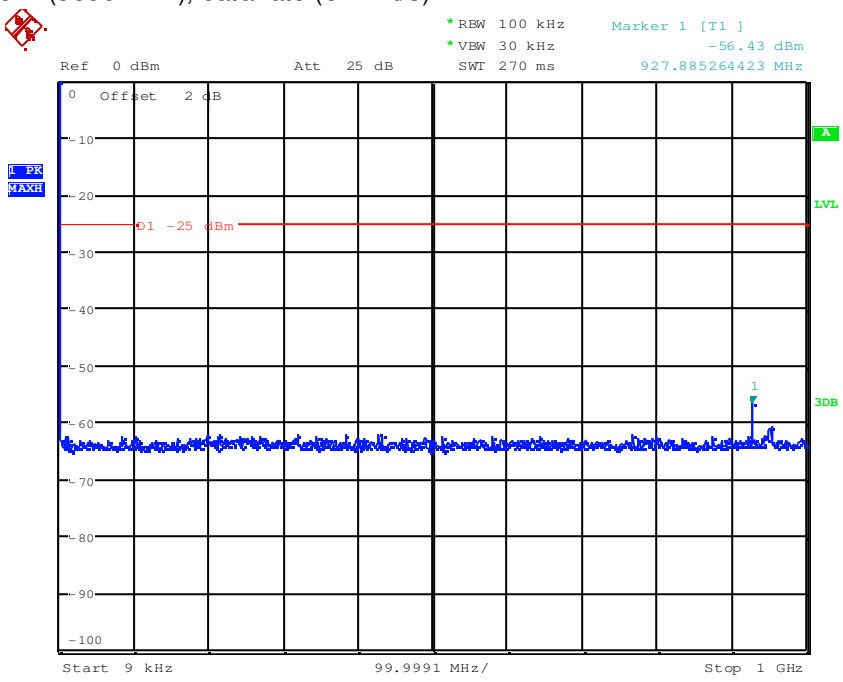
Date: 24.AUG.2010 10:11:02

Plot 12: Channel 3 (5910 MHz), data rate (4.5 MBit/s)



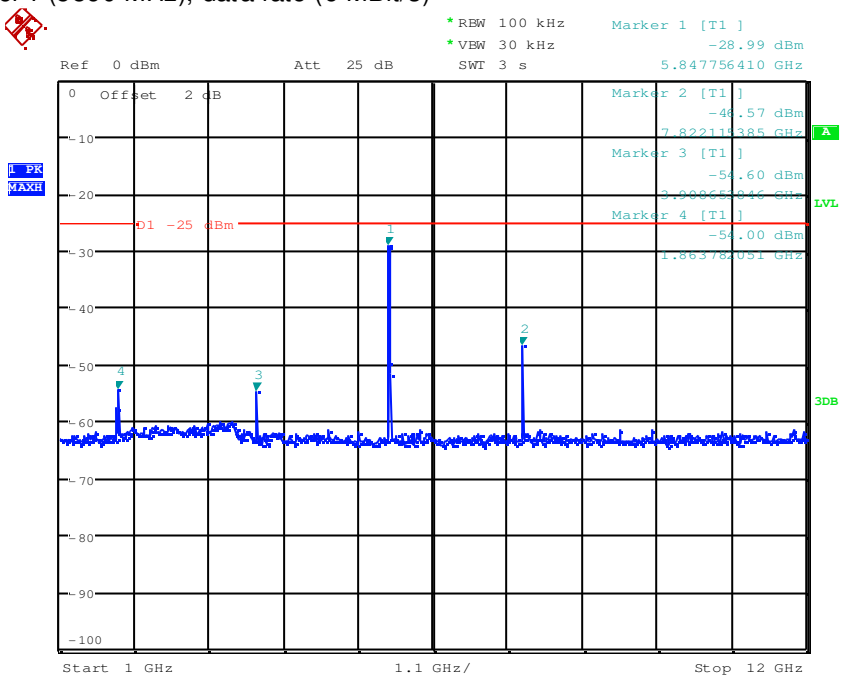
Date: 24.AUG.2010 10:10:08

Plot 13: Channel 1 (5860 MHz), data rate (6 MBit/s)



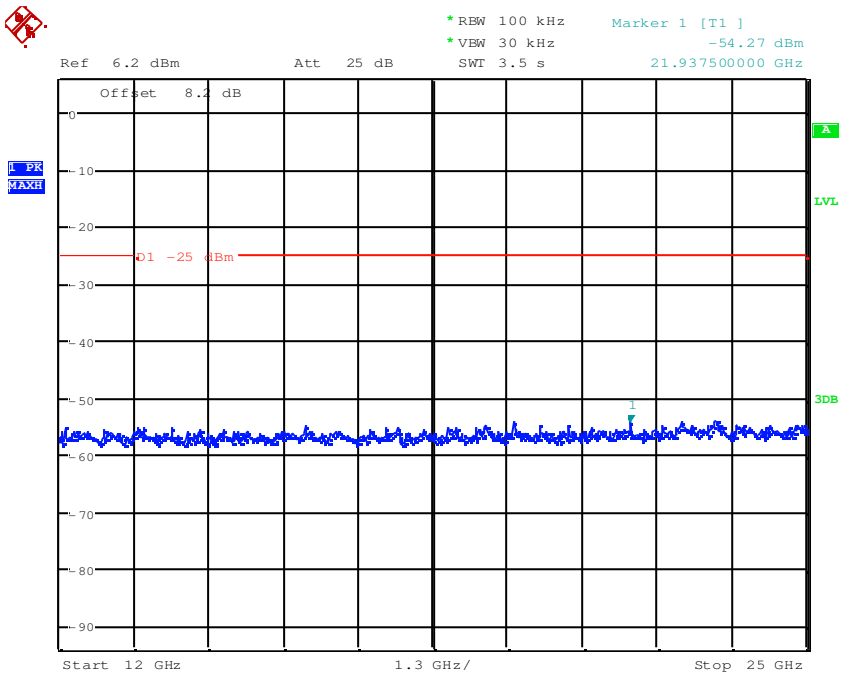
Date: 24.AUG.2010 10:17:05

Plot 14: Channel 1 (5860 MHz), data rate (6 MBit/s)



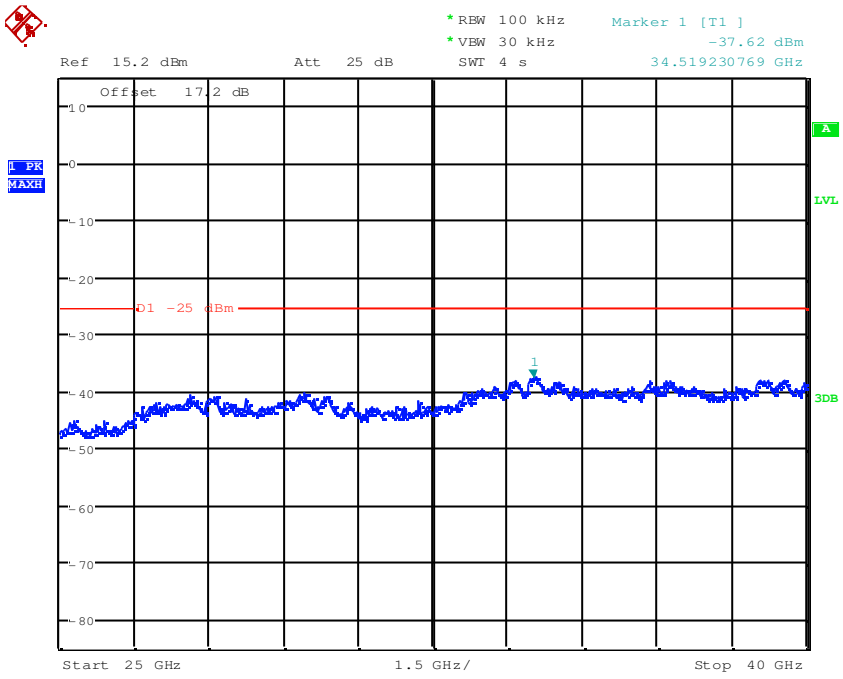
Date: 24.AUG.2010 10:16:21

Plot 15: Channel 1 (5860 MHz), data rate (6 MBit/s)



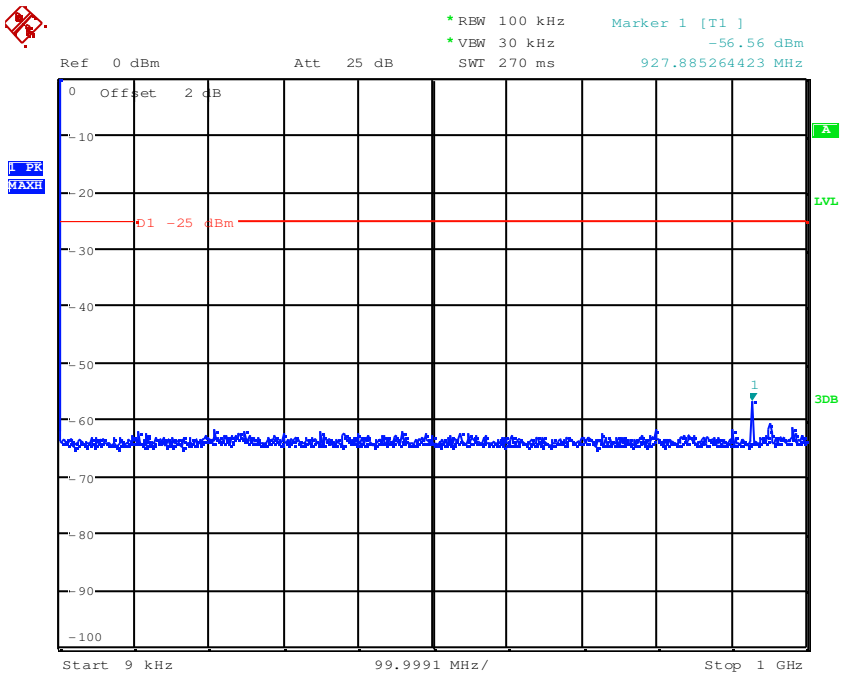
Date: 24.AUG.2010 10:13:47

Plot 16: Channel 1 (5860 MHz), data rate (6 MBit/s)



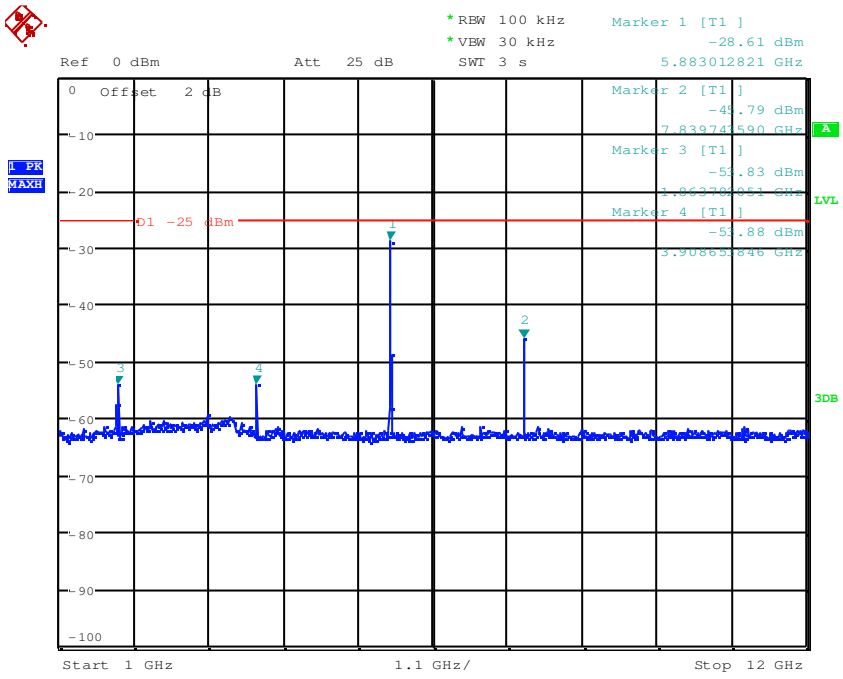
Date: 24.AUG.2010 10:14:46

Plot 17: Channel 2 (5880 MHz), data rate (6 MBit/s)



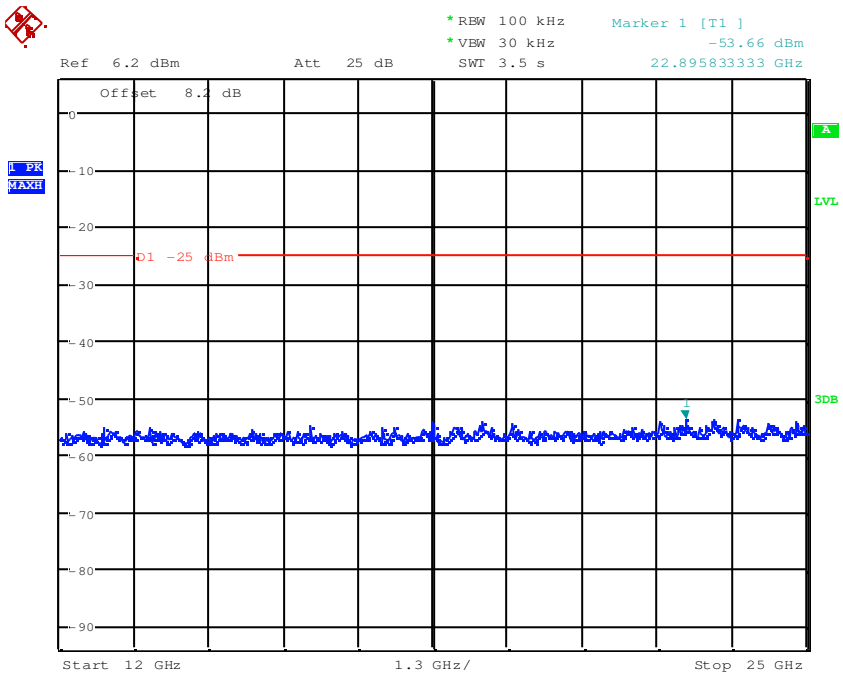
Date: 24.AUG.2010 10:18:13

Plot 18: Channel 2 (5880 MHz), data rate (6 MBit/s)



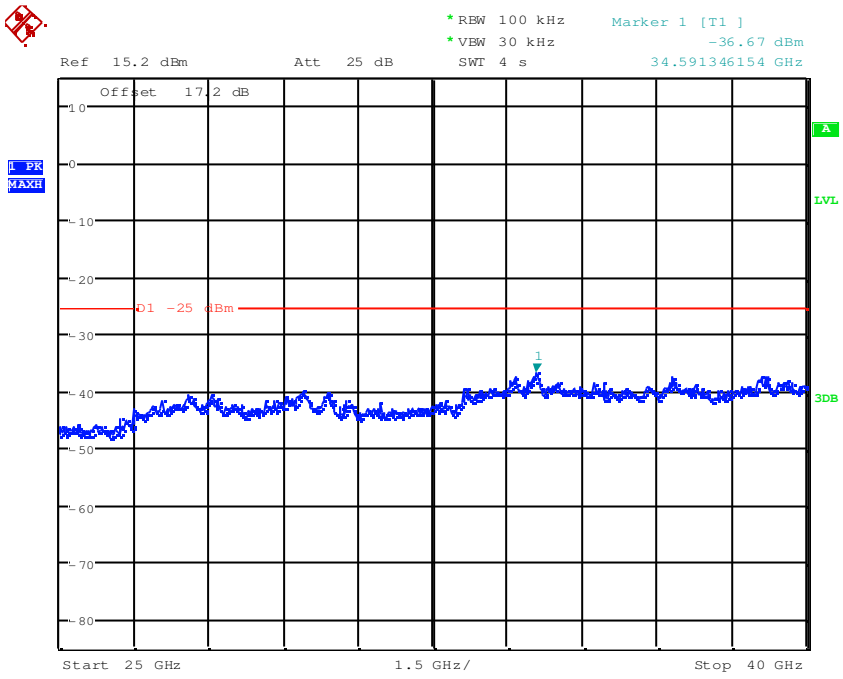
Date: 24.AUG.2010 10:21:14

Plot 19: Channel 2 (5880 MHz), data rate (6 MBit/s)



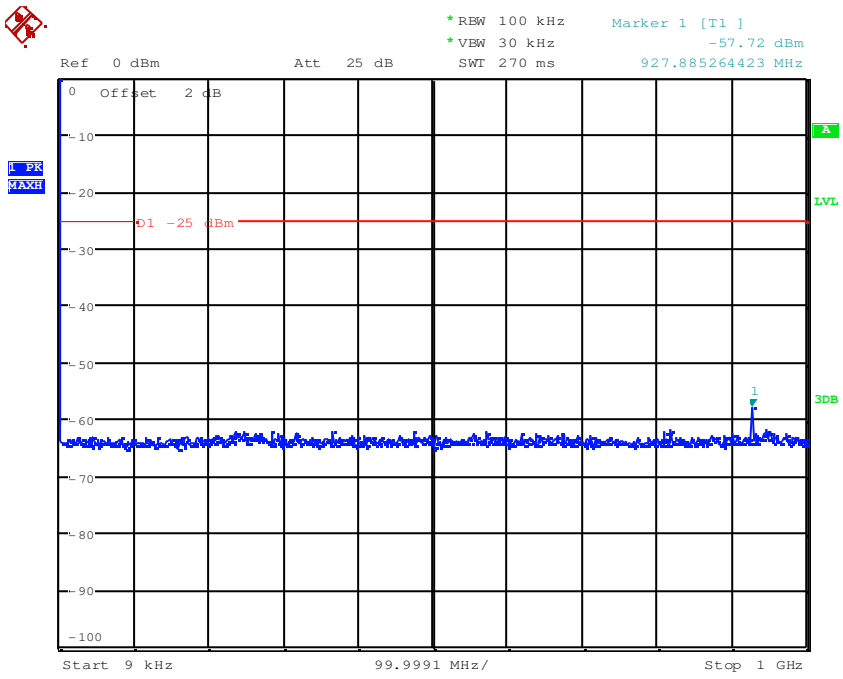
Date: 24.AUG.2010 10:22:10

Plot 20: Channel 2 (5880 MHz), data rate (6 MBit/s)



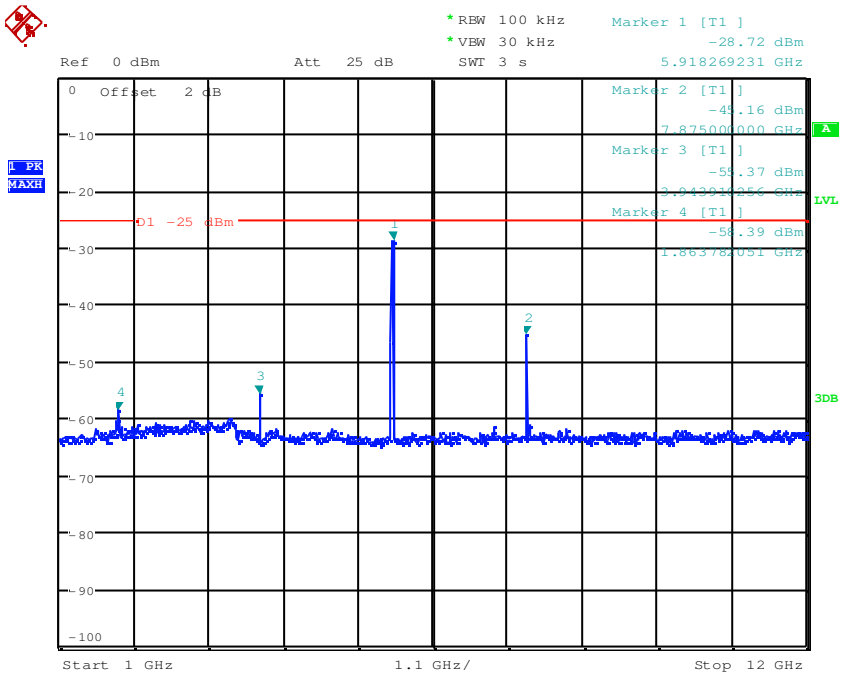
Date: 24.AUG.2010 10:23:11

Plot 21: Channel 3 (5910 MHz), data rate (6 MBit/s)



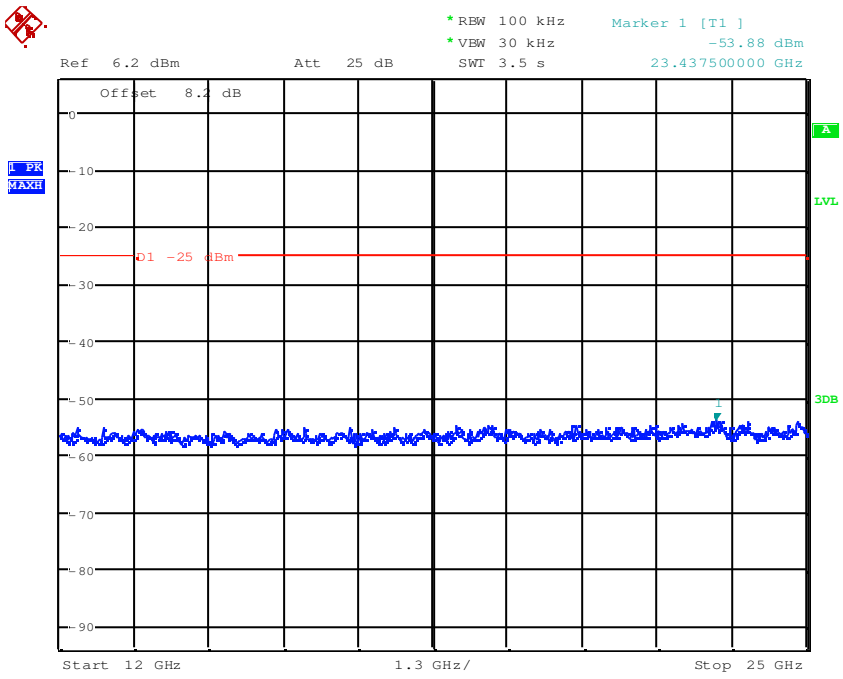
Date: 24.AUG.2010 10:27:35

Plot 22: Channel 3 (5910 MHz), data rate (6 MBit/s)



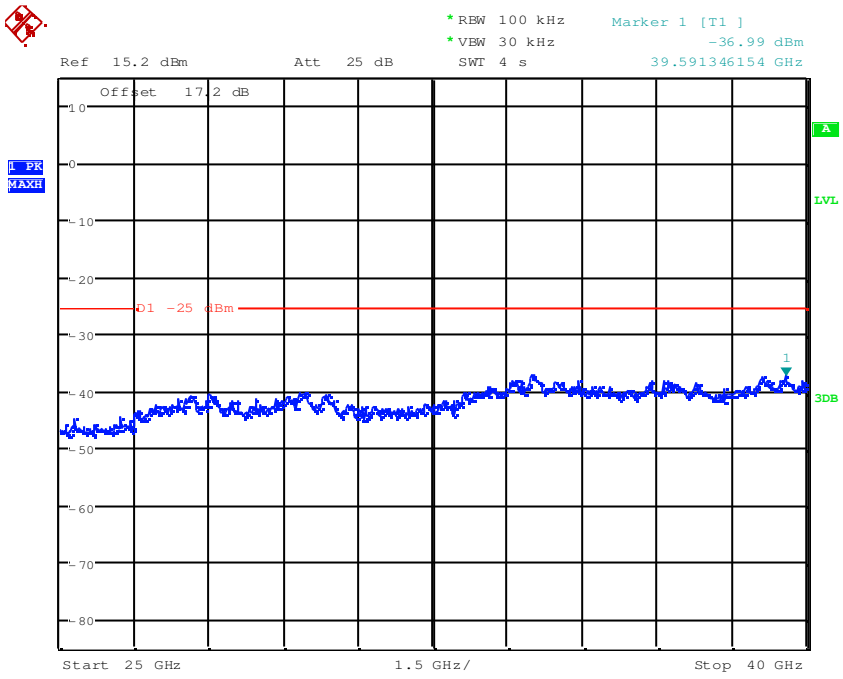
Date: 24.AUG.2010 10:26:42

Plot 23: Channel 3 (5910 MHz), data rate (6 MBit/s)



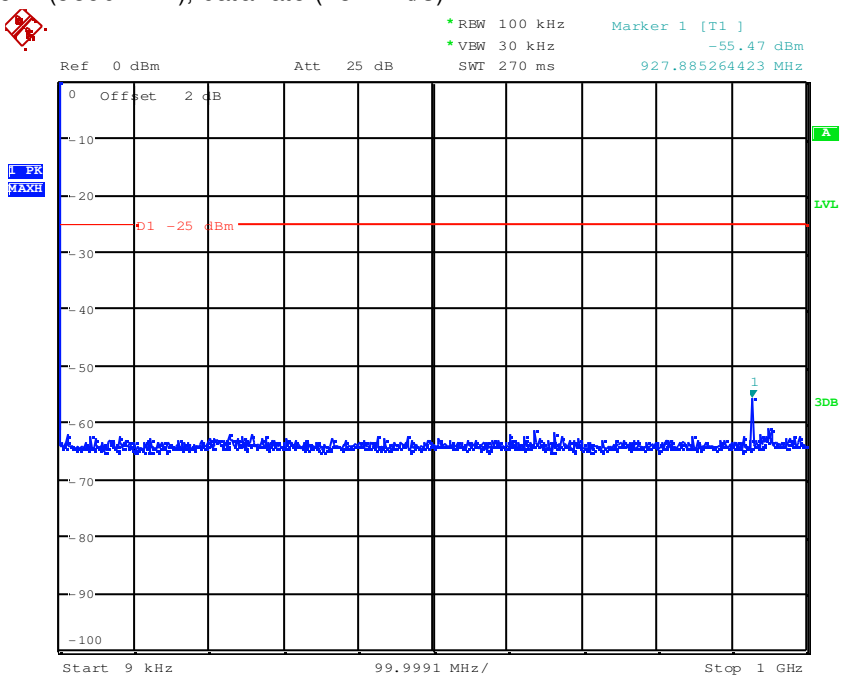
Date: 24.AUG.2010 10:25:26

Plot 24: Channel 3 (5910 MHz), data rate (6 MBit/s)



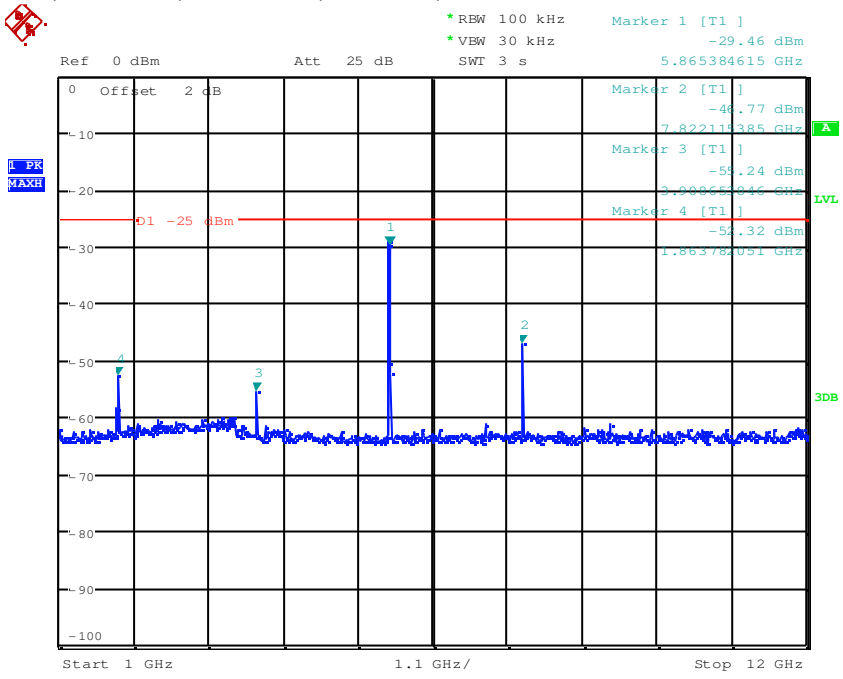
Date: 24.AUG.2010 10:24:37

Plot 25: Channel 1 (5860 MHz), data rate (18 MBit/s)



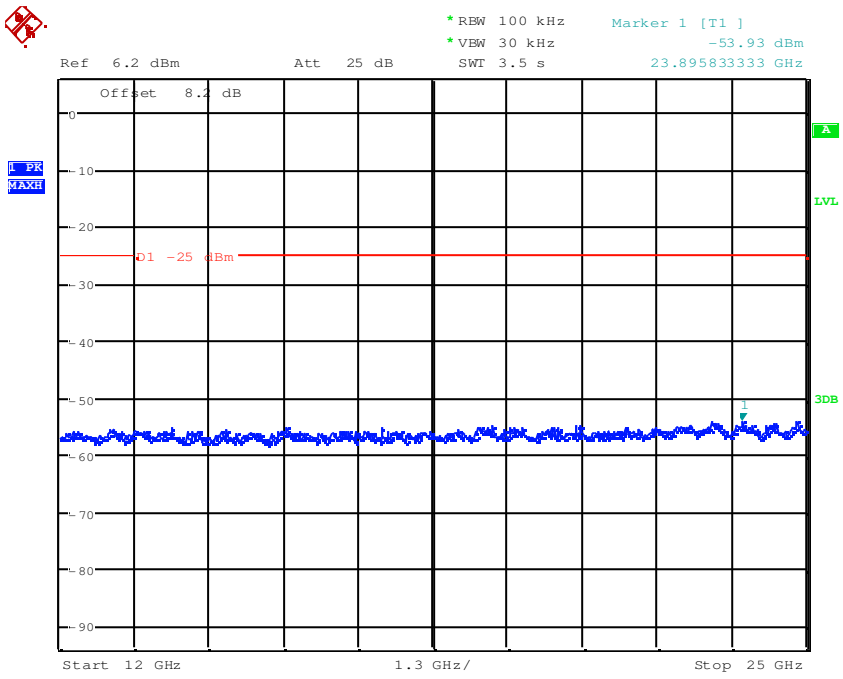
Date: 24.AUG.2010 10:29:09

Plot 26: Channel 1 (5860 MHz), data rate (18 MBit/s)



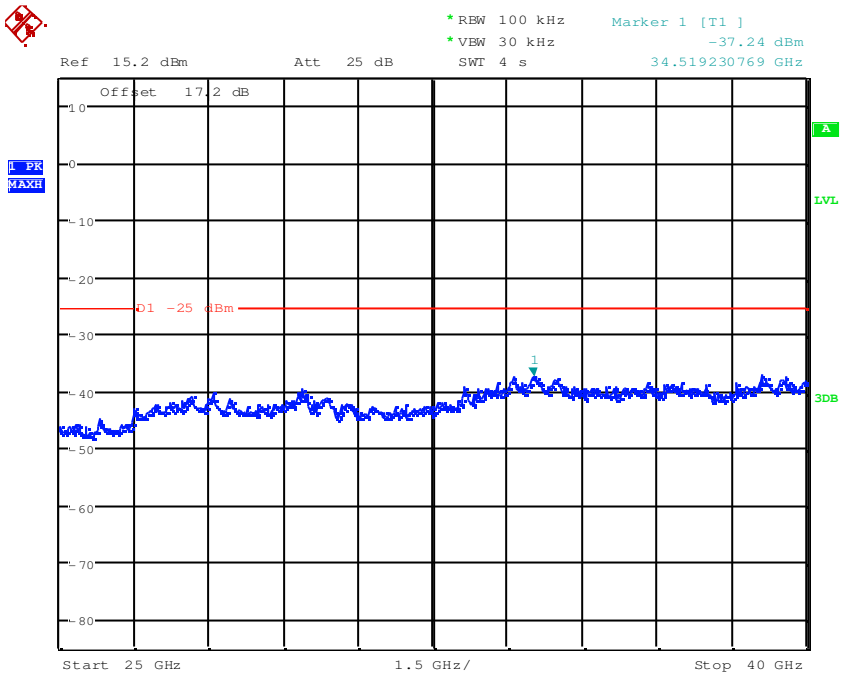
Date: 24.AUG.2010 10:30:03

Plot 27: Channel 1 (5860 MHz), data rate (18 MBit/s)



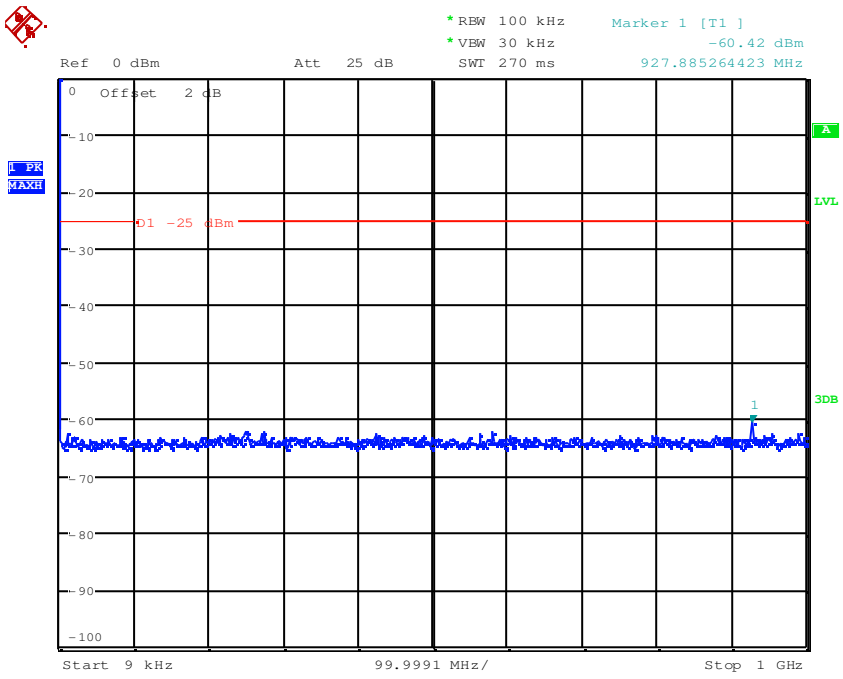
Date: 24.AUG.2010 10:31:05

Plot 28: Channel 1 (5860 MHz), data rate (18 MBit/s)



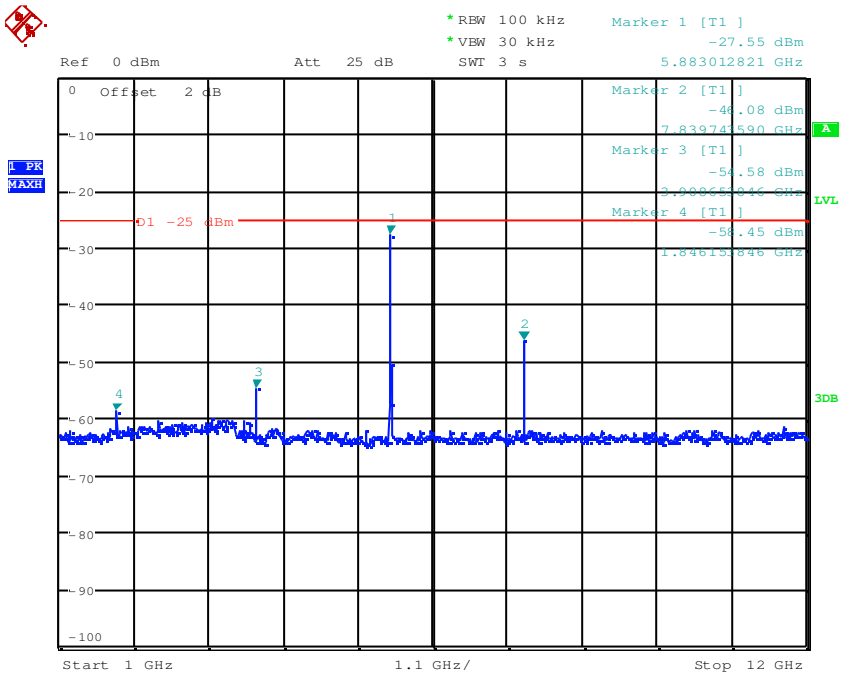
Date: 24.AUG.2010 10:32:26

Plot 29: Channel 2 (5880 MHz), data rate (18 MBit/s)



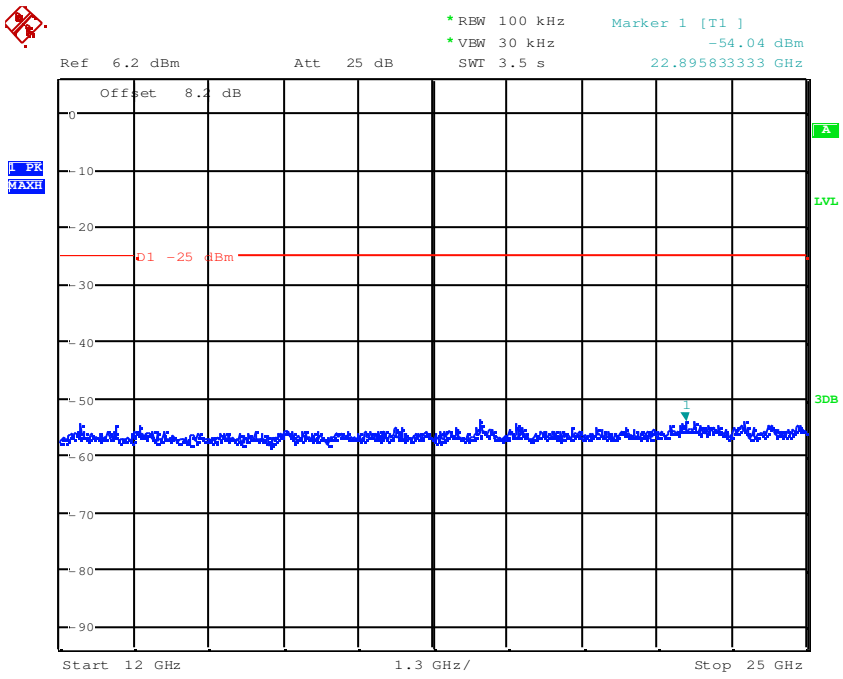
Date: 24.AUG.2010 10:38:40

Plot 30: Channel 2 (5880 MHz), data rate (18 MBit/s)



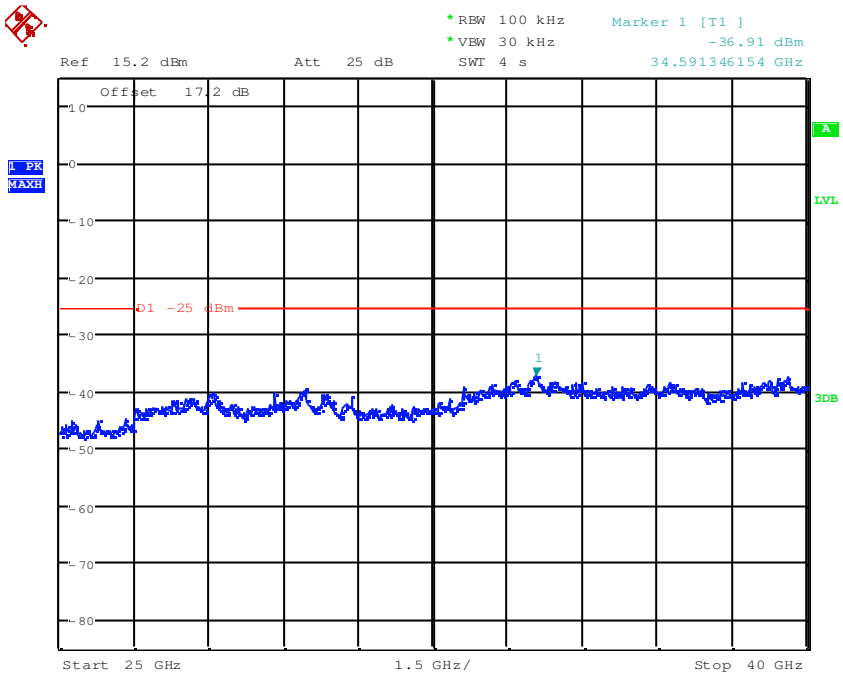
Date: 24.AUG.2010 10:38:07

Plot 31: Channel 2 (5880 MHz), data rate (18 MBit/s)



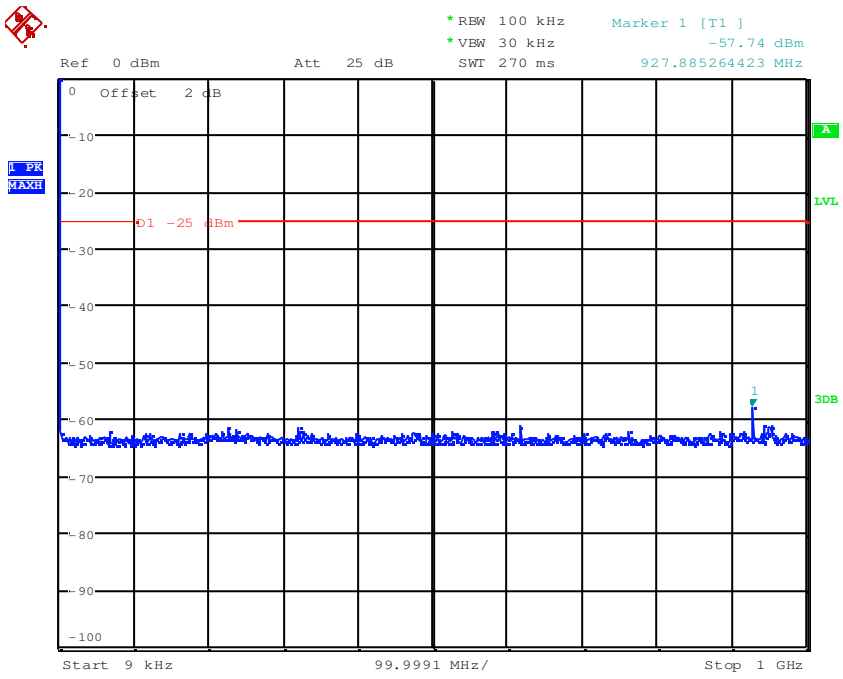
Date: 24.AUG.2010 10:37:00

Plot 32: Channel 2 (5880 MHz), data rate (18 MBit/s)



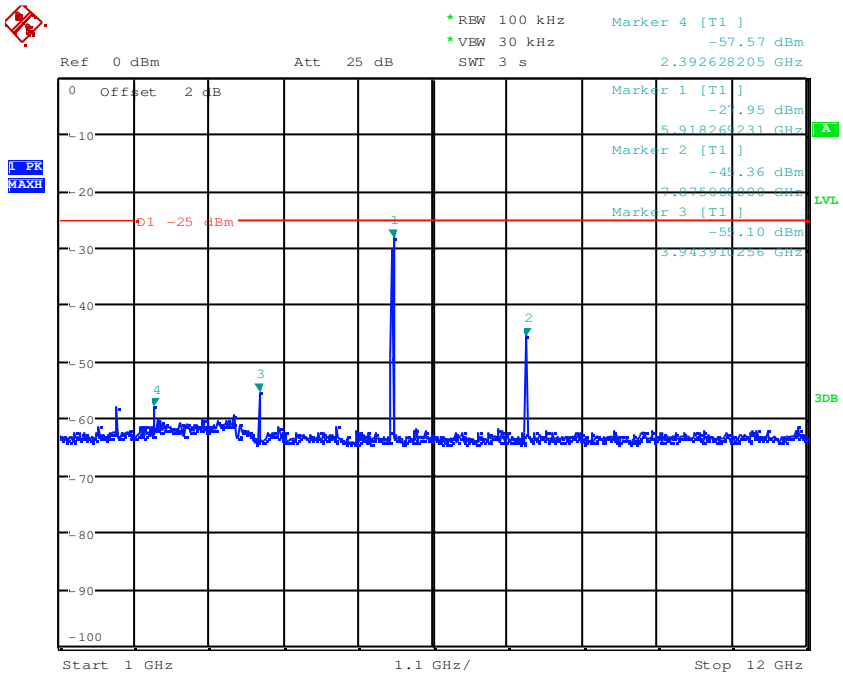
Date: 24.AUG.2010 10:36:05

Plot 33: Channel 3 (5910 MHz), data rate (18 MBit/s)



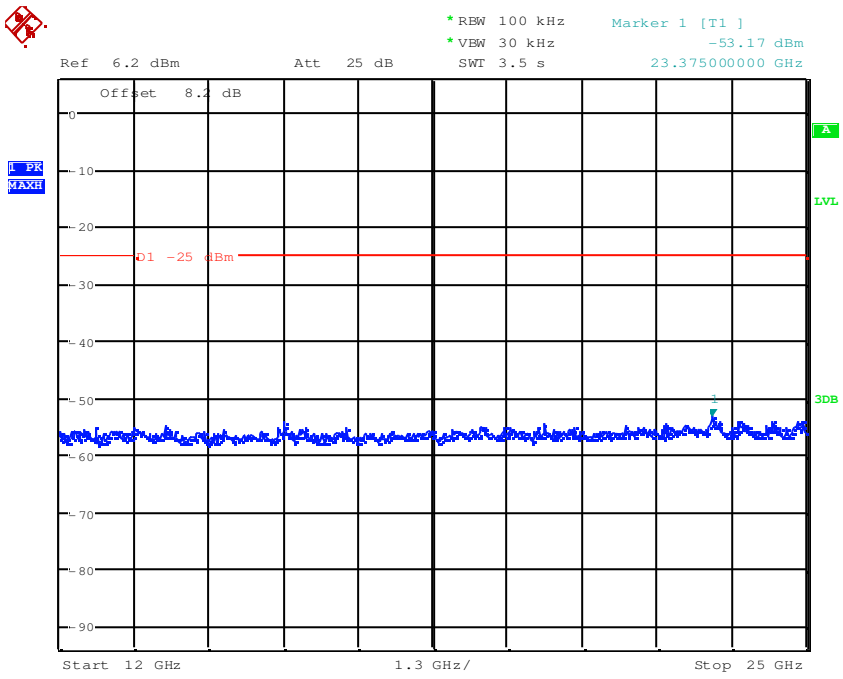
Date: 24.AUG.2010 10:40:41

Plot 34: Channel 3 (5910 MHz), data rate (18 MBit/s)



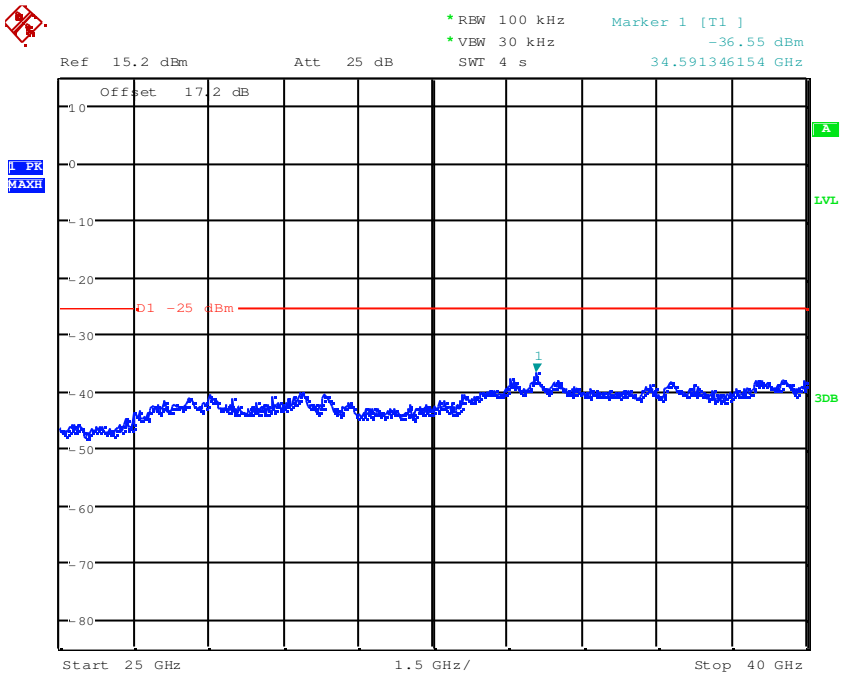
Date: 24.AUG.2010 10:41:59

Plot 35: Channel 3 (5910 MHz), data rate (18 MBit/s)



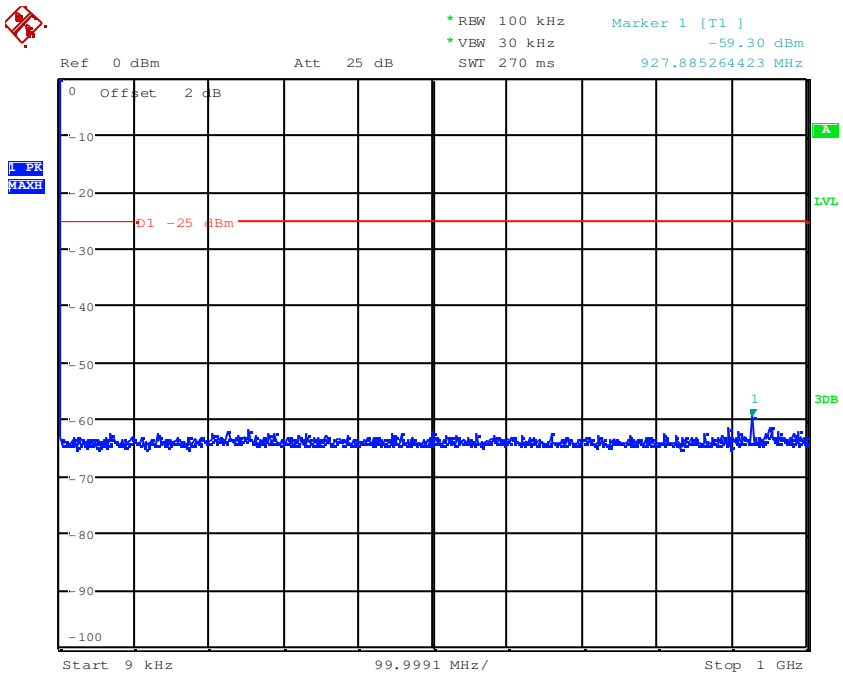
Date: 24.AUG.2010 10:42:57

Plot 36: Channel 3 (5910 MHz), data rate (18 MBit/s)



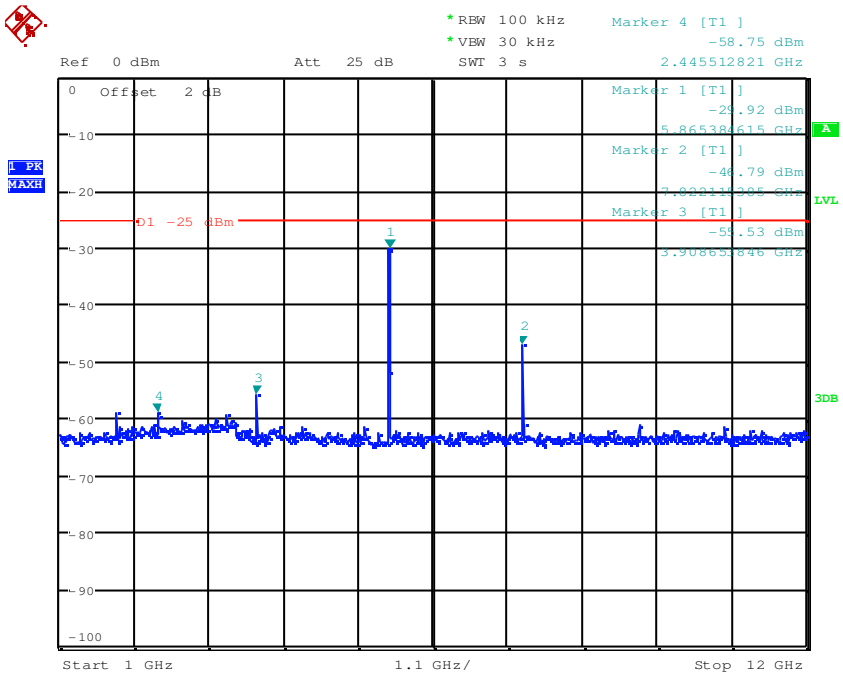
Date: 24.AUG.2010 10:43:55

Plot 37: Channel 1 (5860 MHz), data rate (27 MBit/s)



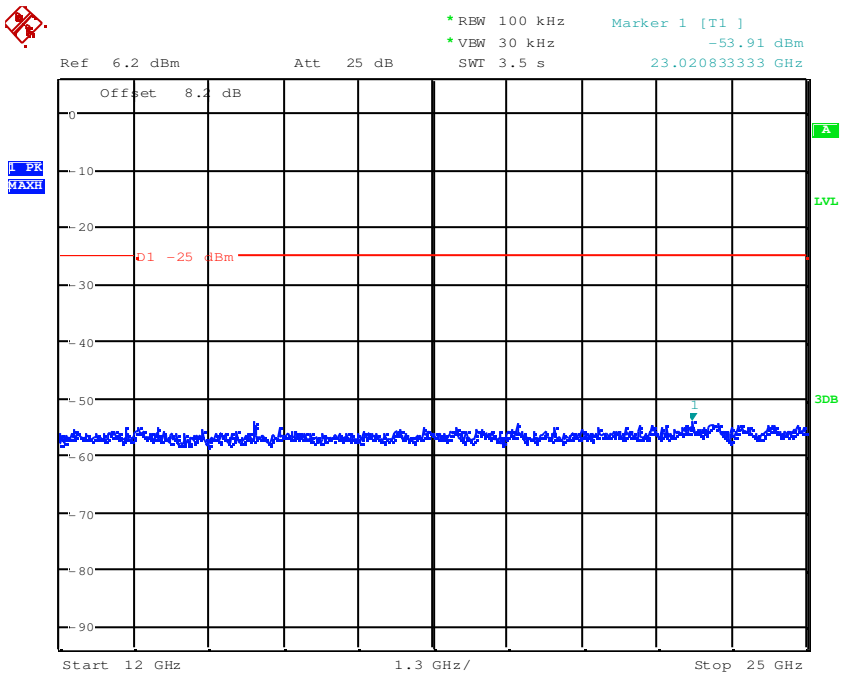
Date: 24.AUG.2010 10:47:48

Plot 38: Channel 1 (5860 MHz), data rate (27 MBit/s)



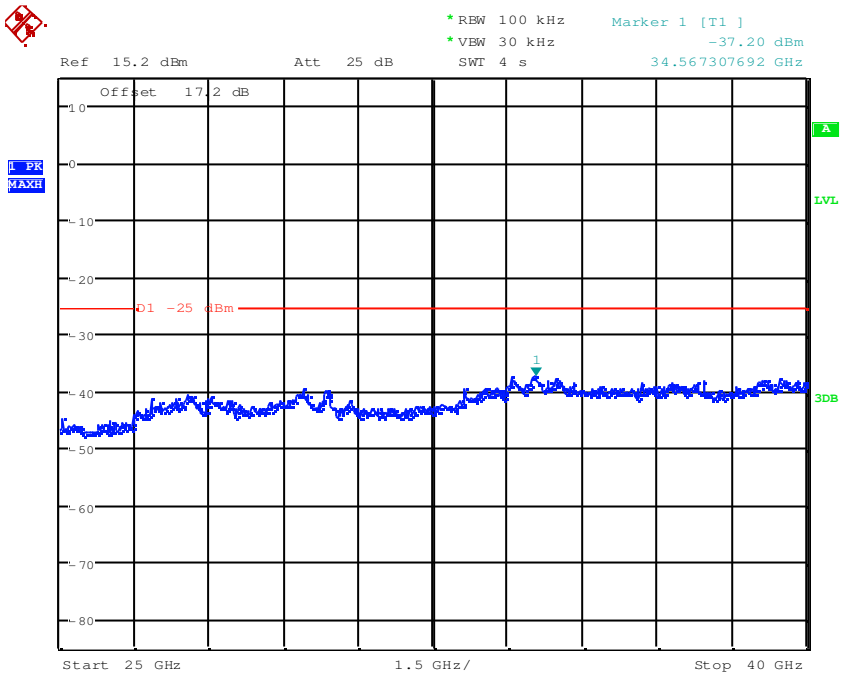
Date: 24.AUG.2010 10:47:02

Plot 39: Channel 1 (5860 MHz), data rate (27 MBit/s)



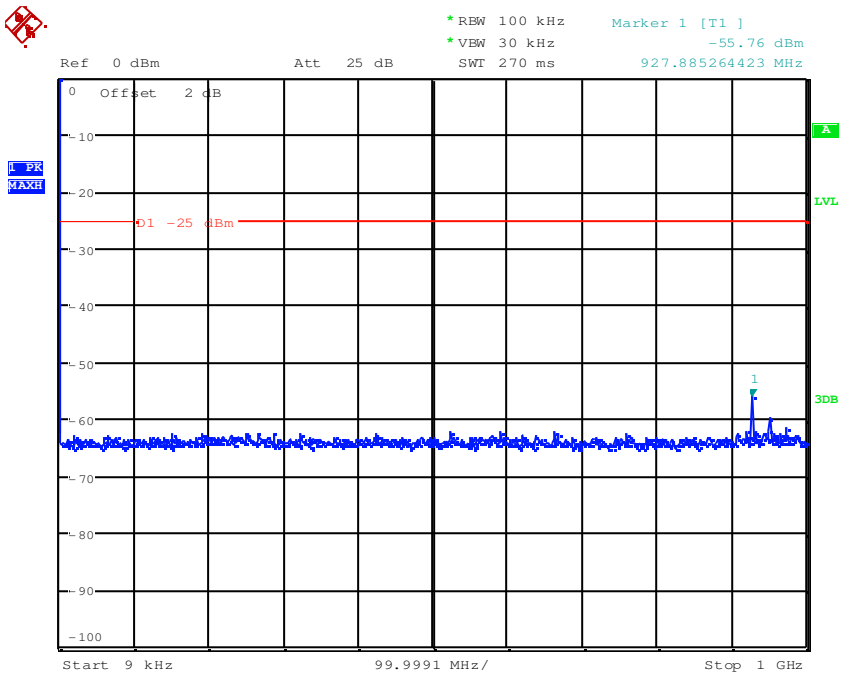
Date: 24.AUG.2010 10:46:10

Plot 40: Channel 1 (5860 MHz), data rate (27 MBit/s)



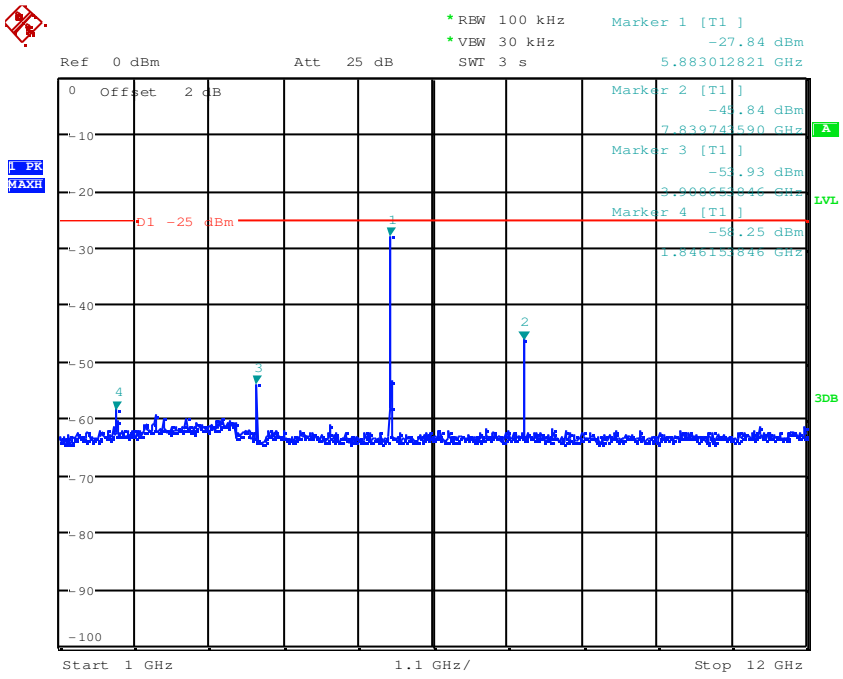
Date: 24.AUG.2010 10:45:21

Plot 41: Channel 2 (5880 MHz), data rate (27 MBit/s)



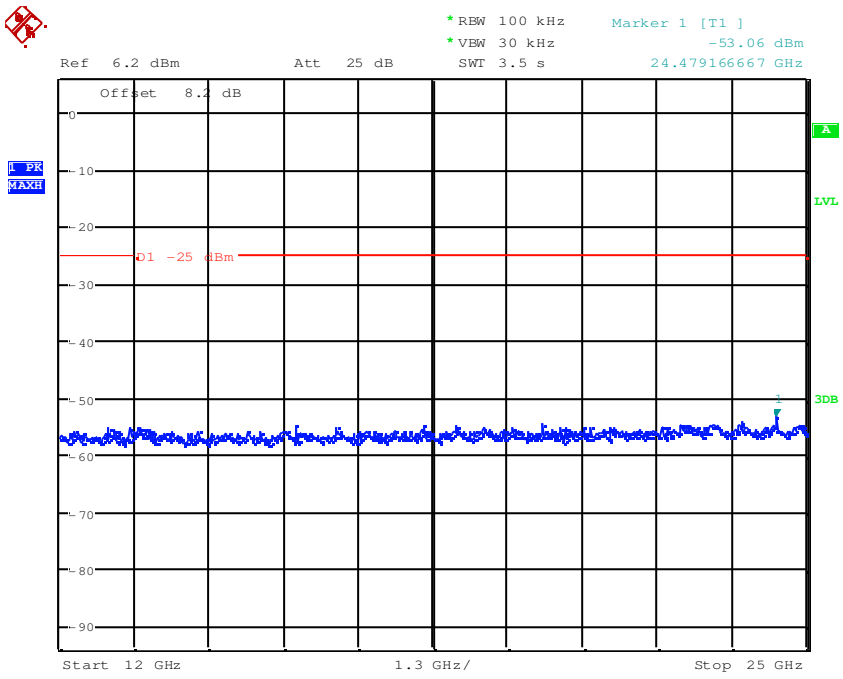
Date: 24.AUG.2010 10:48:41

Plot 42: Channel 2 (5880 MHz), data rate (27 MBit/s)



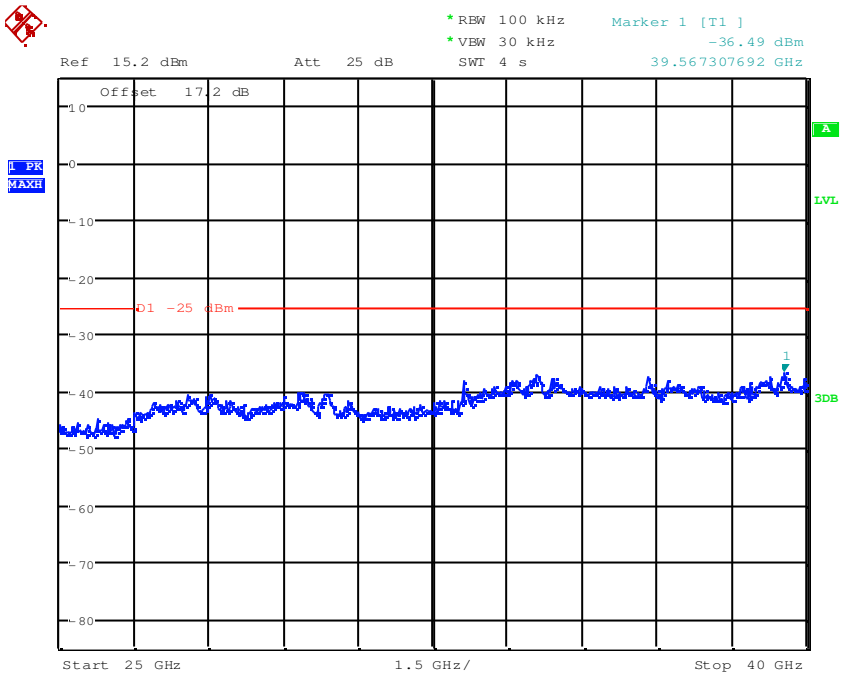
Date: 24.AUG.2010 10:49:43

Plot 43: Channel 2 (5880 MHz), data rate (27 MBit/s)



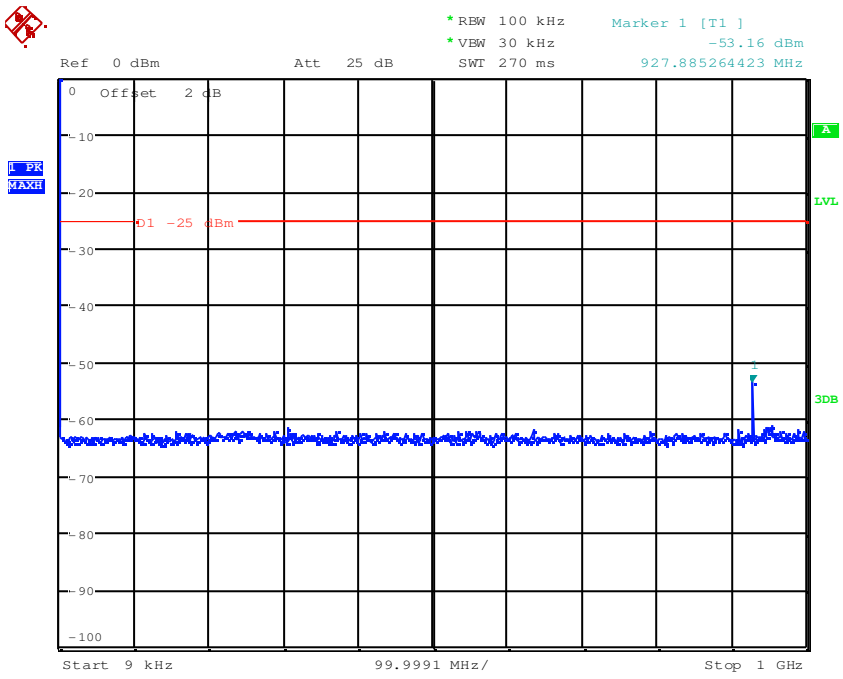
Date: 24.AUG.2010 10:50:30

Plot 44: Channel 2 (5880 MHz), data rate (27 MBit/s)



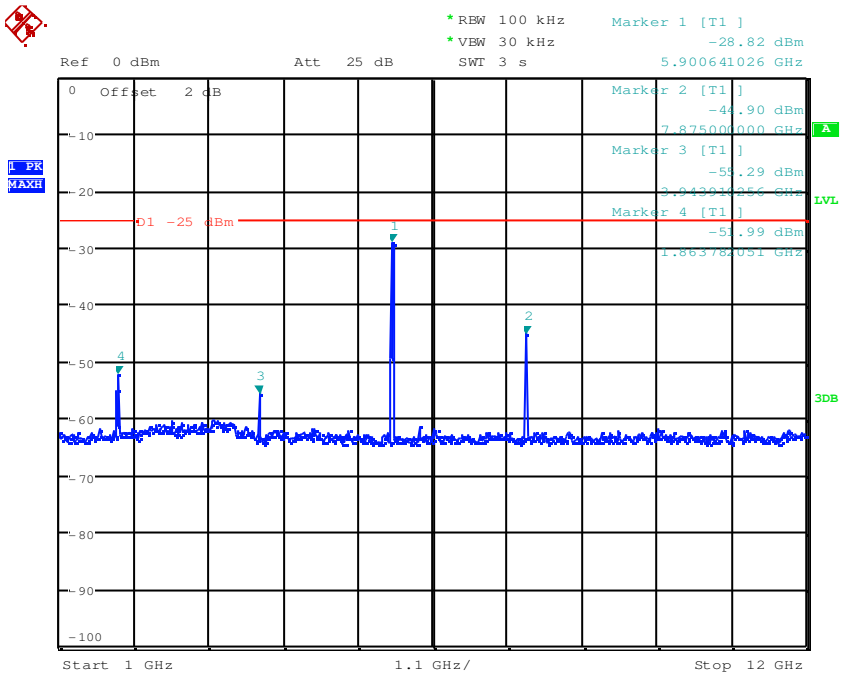
Date: 24.AUG.2010 10:51:30

Plot 45: Channel 3 (5910 MHz), data rate (27 MBit/s)



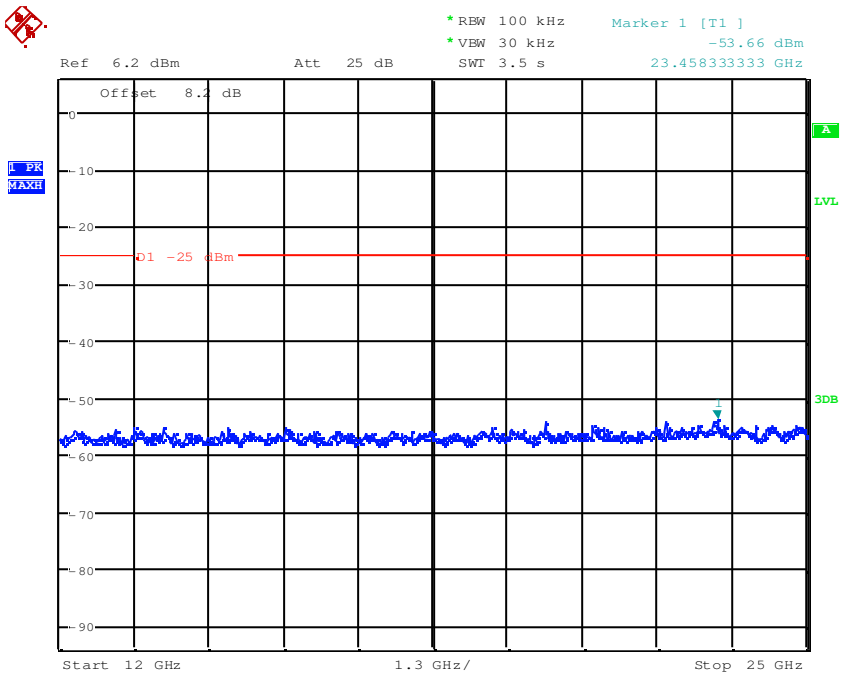
Date: 24.AUG.2010 10:56:52

Plot 46: Channel 3 (5910 MHz), data rate (27 MBit/s)



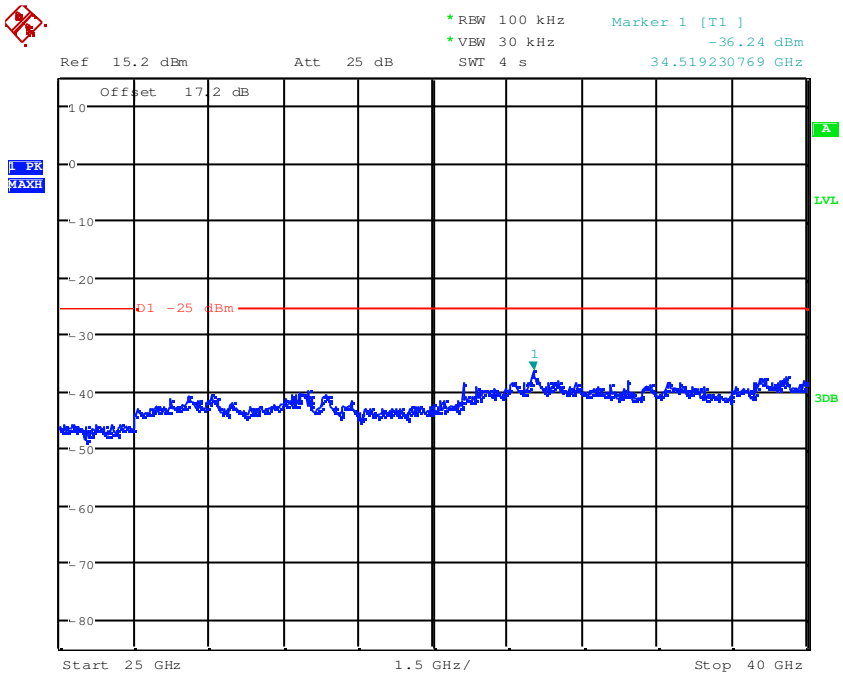
Date: 24.AUG.2010 10:54:43

Plot 47: Channel 3 (5910 MHz), data rate (27 MBit/s)



Date: 24.AUG.2010 10:53:21

Plot 48: Channel 3 (5910 MHz), data rate (27 MBit/s)



Date: 24.AUG.2010 10:52:38

8.12 Spurious emissions - radiated (transmitter) (§ 95.635 / § 95.1509 / § 2.1053)

Results:

SPURIOUS EMISSIONS LEVEL								
4.5 MBit/s - BPSK								
5860 MHz			5880 MHz			5910 MHz		
F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]
7813.3	PP	-40.8	7840.0	PP	-47.9	7880.0	PP	-43.1
15629.0	PP	-55.7	15681.9	PP	-55.8	15761.2	PP	-54.1
23448.7	PP	-57.4	23525.6	PP	-58.5	23641.0	PP	-56.3
Measurement uncertainty			±3 dB					

SPURIOUS EMISSIONS LEVEL								
6 MBit/s - QPSK								
5860 MHz			5880 MHz			5910 MHz		
F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]
7813.3	PP	-41.1	7840.0	PP	-46.8	7880.0	PP	-44.3
15629.0	PP	-55.0	15681.9	PP	-52.2	15761.2	PP	-53.5
23448.7	PP	-59.1	23525.6	PP	-59.5	23641.0	PP	-60.1
Measurement uncertainty			±3 dB					

SPURIOUS EMISSIONS LEVEL								
18 MBit/s – 16-QAM								
5860 MHz			5880 MHz			5910 MHz		
F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]
7813.3	PP	-41.7	7840.0	PP	-45.1	7880.0	PP	-42.7
15629.0	PP	-54.1	15681.9	PP	-51.8	15761.2	PP	-53.7
23448.7	PP	-57.2	23525.6	PP	-58.5	23641.0	PP	-60.7
Measurement uncertainty			±3 dB					

SPURIOUS EMISSIONS LEVEL								
27 MBit/s – 64-QAM								
5860 MHz			5880 MHz			5910 MHz		
F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]
7813.3	PP	-42.4	7840.0	PP	-47.2	7880.0	PP	-46.3
15629.0	PP	-52.9	15681.9	PP	-53.1	15761.2	PP	-55.2
23448.7	PP	-60.1	23525.6	PP	-59.1	23641.0	PP	-61.1
Measurement uncertainty			±3 dB					

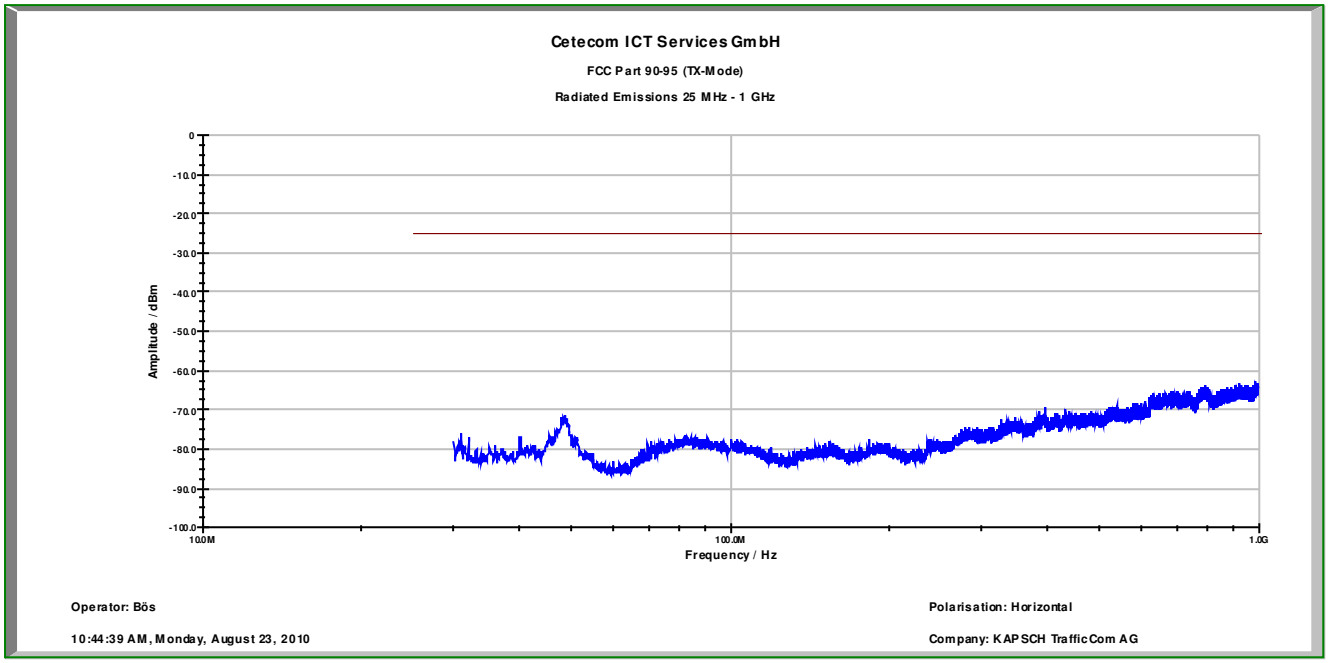
RBW = 100 kHz / VBW = 30 kHz

Limit:

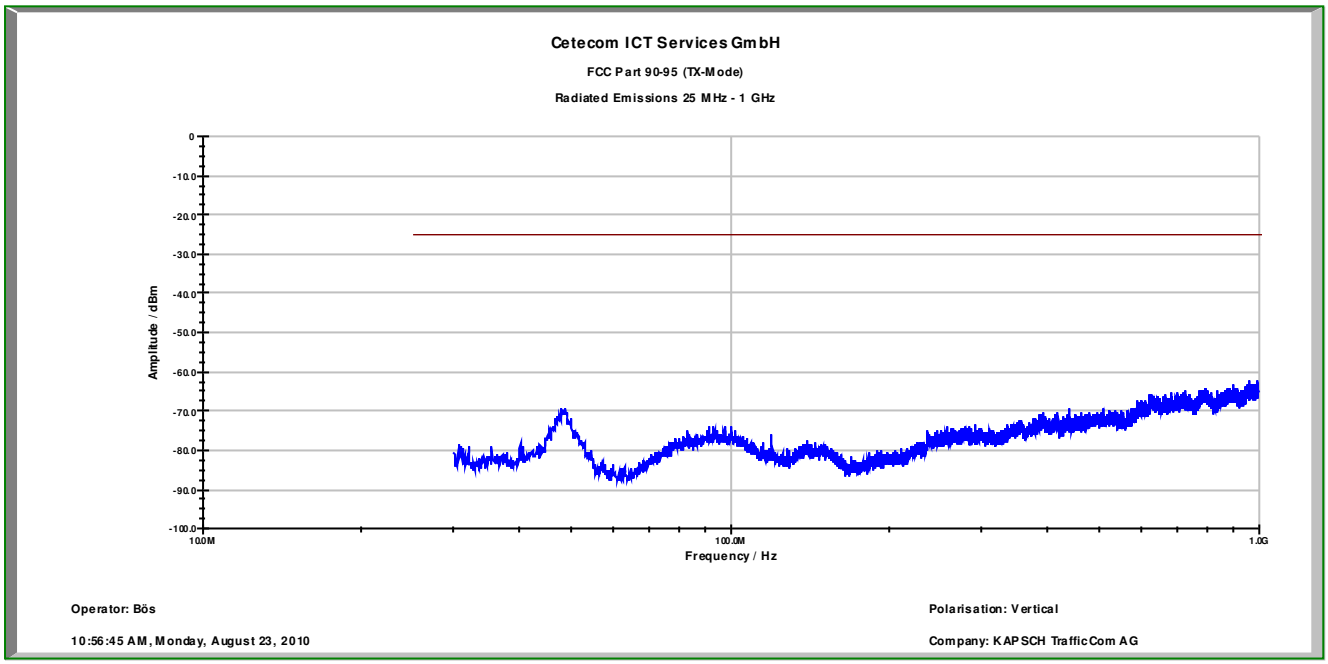
Under normal test conditions only	-25 dBm

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

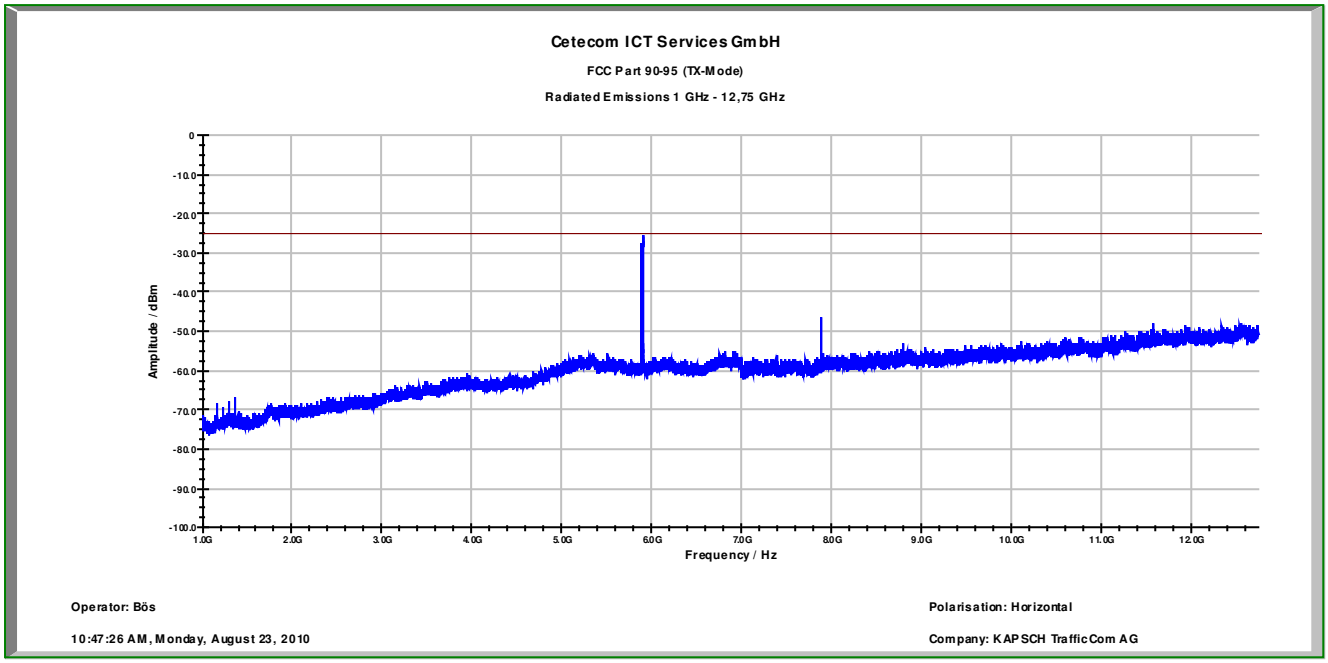
Plot 1: 5860 MHz, data rate 4.5 MBit/s, 30 MHz – 1 GHz, horizontal polarization



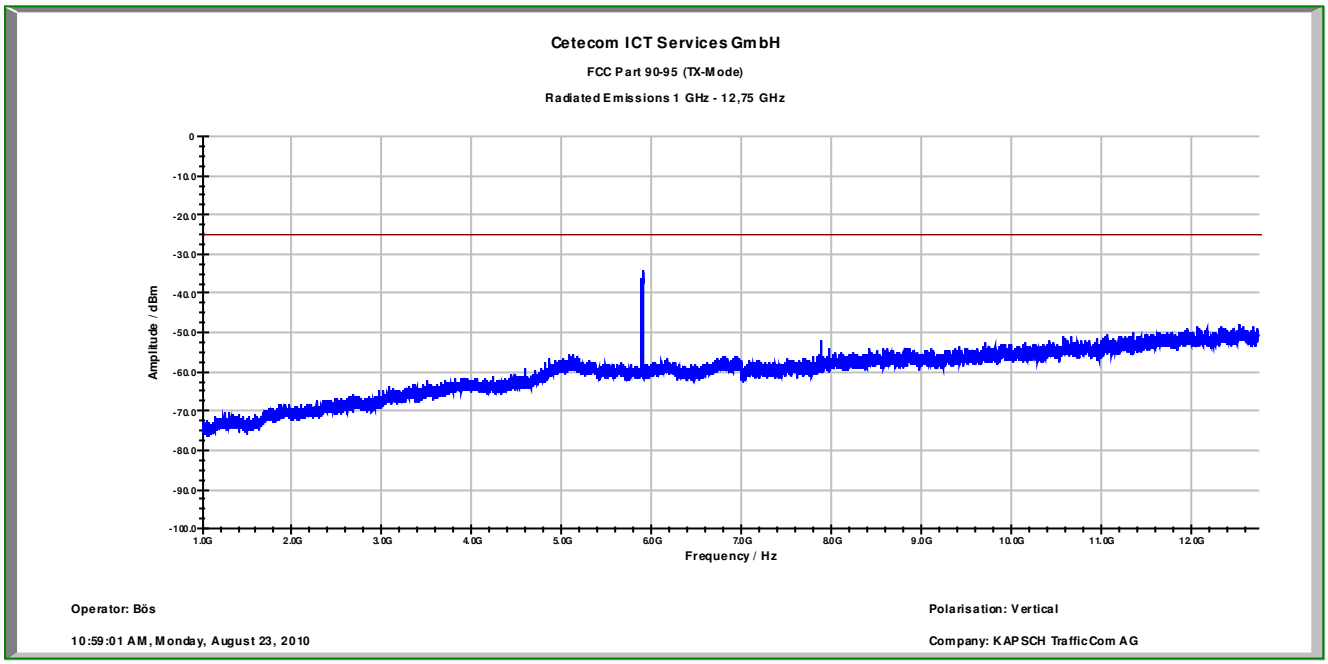
Plot 2: 5860 MHz, data rate 4.5 MBit/s, 30 MHz – 1 GHz, vertical polarization



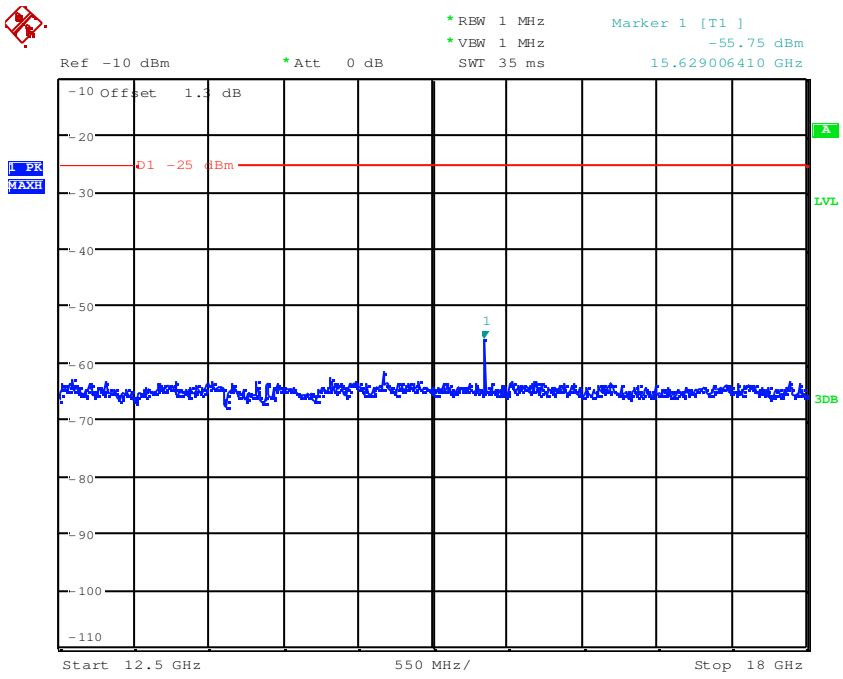
Plot 3: 5860 MHz, data rate 4.5 MBit/s, 1 GHz – 12.75 GHz, horizontal polarization



Plot 4: 5860 MHz, data rate 4.5 MBit/s, 1 GHz – 12.75 GHz, vertical polarization



Plot 5: 5860 MHz, data rate 4.5 MBit/s, 12 GHz – 18 GHz, Max. hor./vert. polarization



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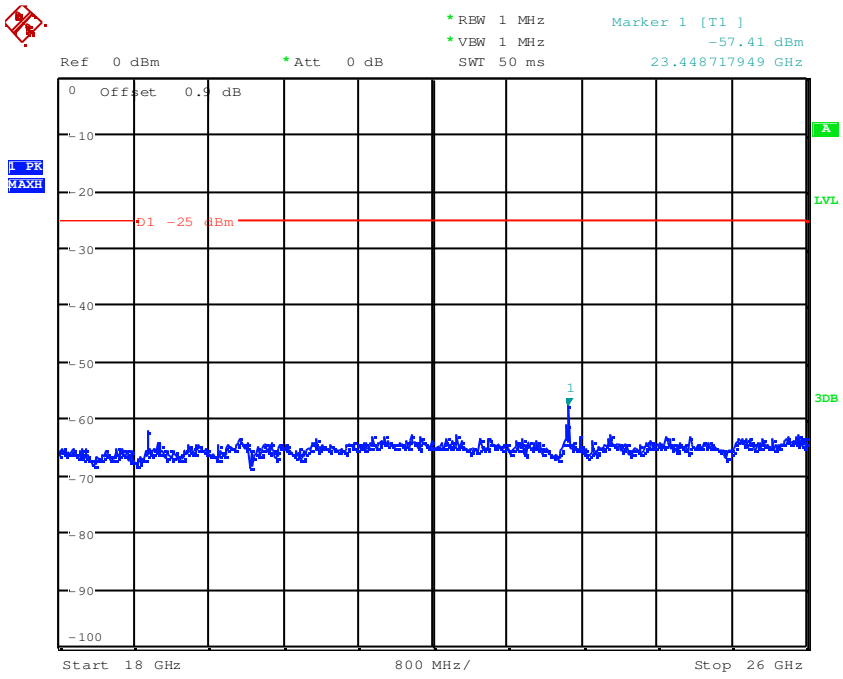
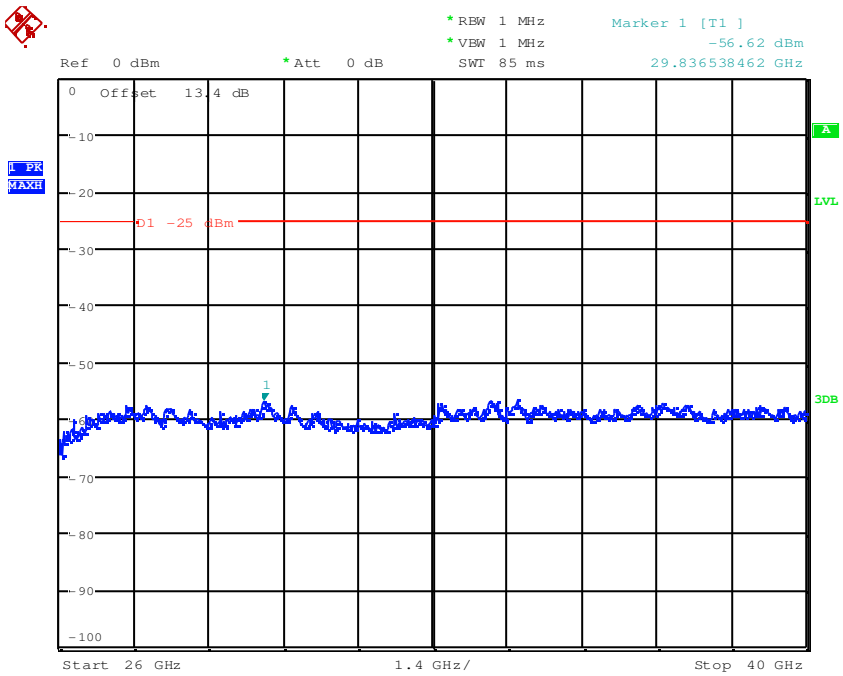
Plot 6: 5860 MHz, data rate 4.5 MBit/s, 18 GHz – 26 GHz, Max. hor./vert. polarization



Date: 24.AUG.2010 11:35:00

Plot 7: 5860 MHz, data rate 4.5 MBit/s, 26 GHz – 40 GHz, Max. hor./vert. polarization



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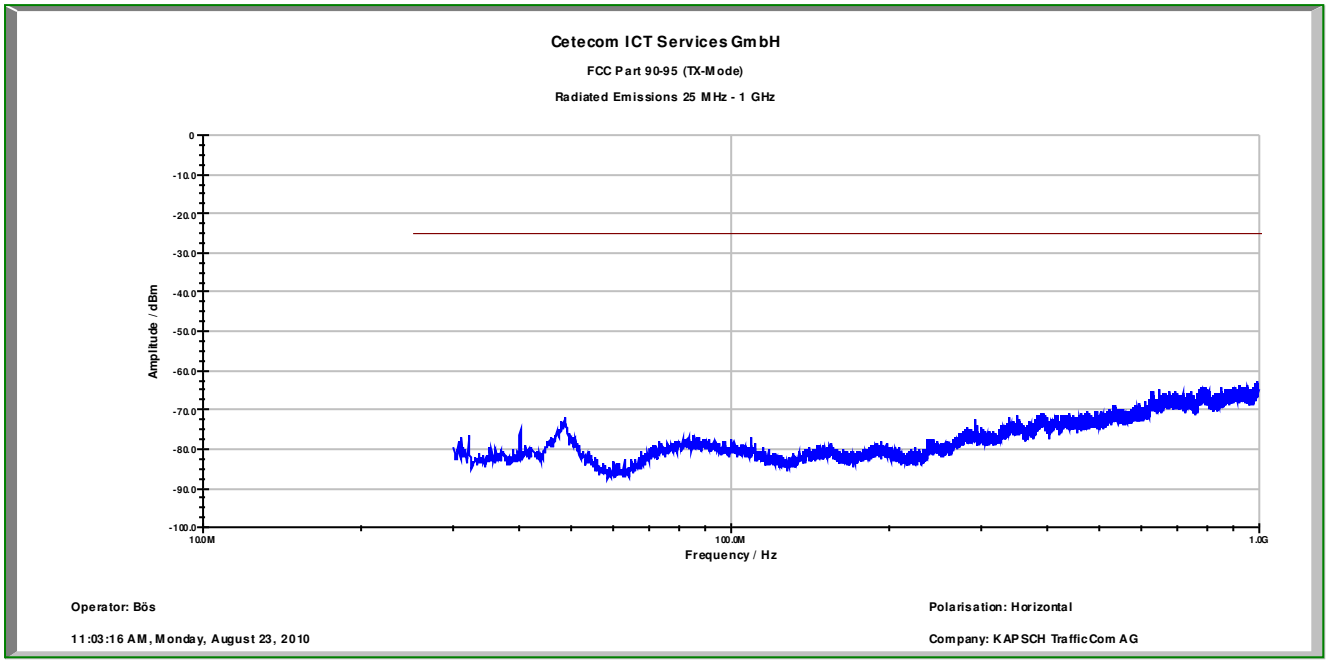
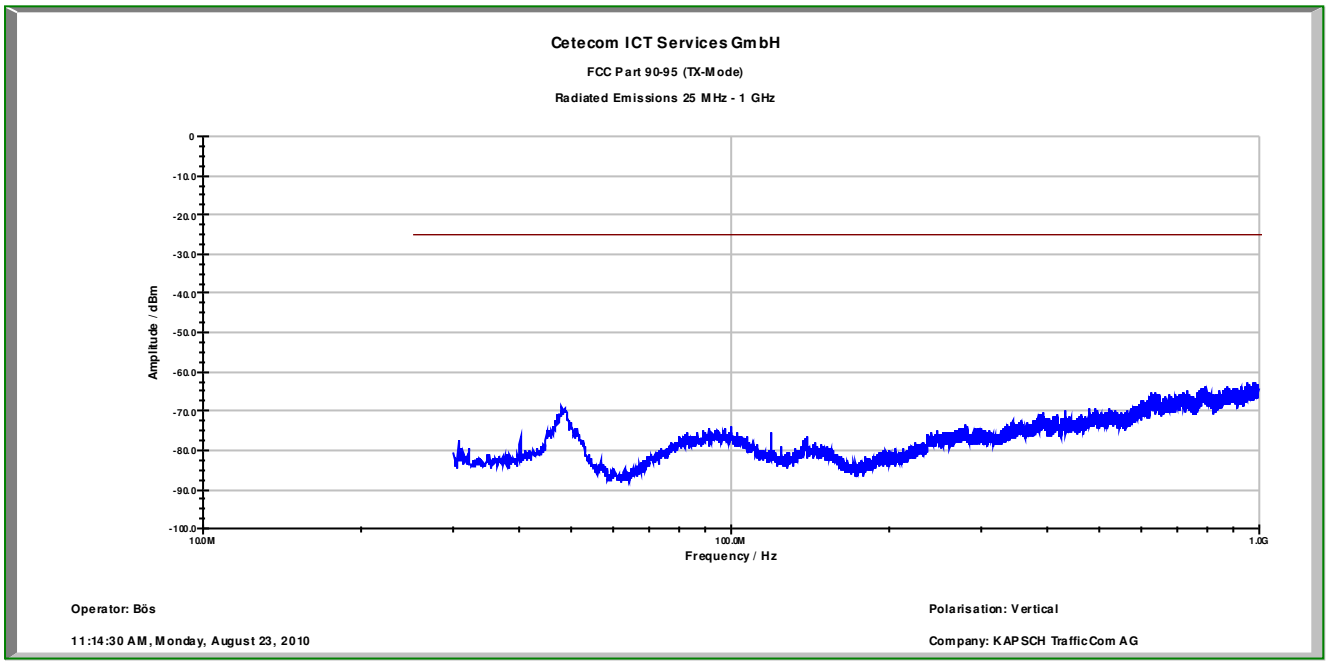
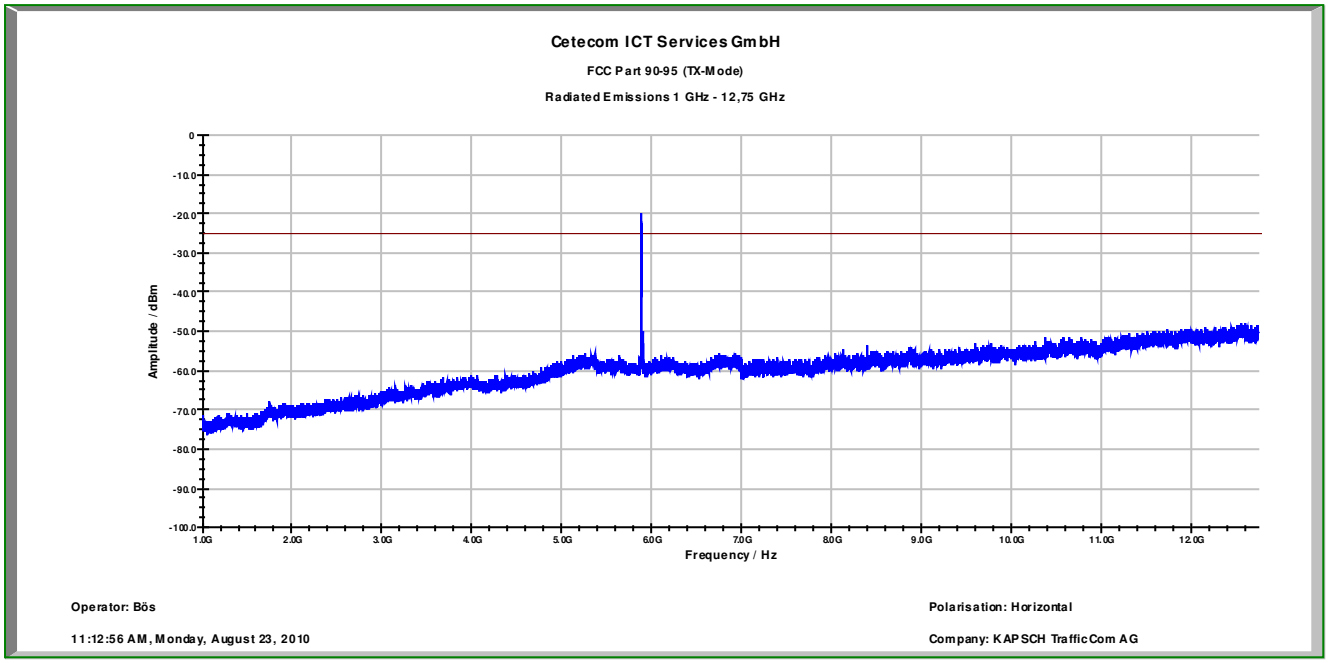
Plot 8: 5880 MHz, data rate 4.5 MBit/s, 30 MHz – 1 GHz, horizontal polarization



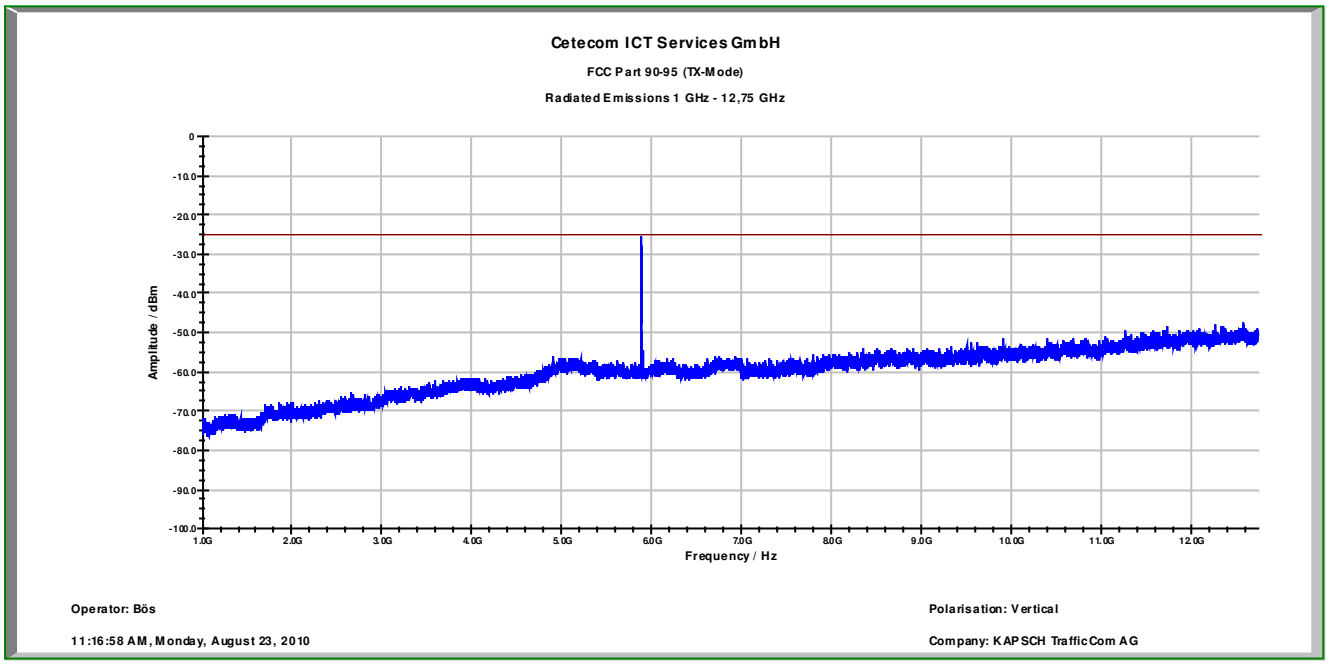
Plot 9: 5880 MHz, data rate 4.5 MBit/s, 30 MHz – 1 GHz, vertical polarization



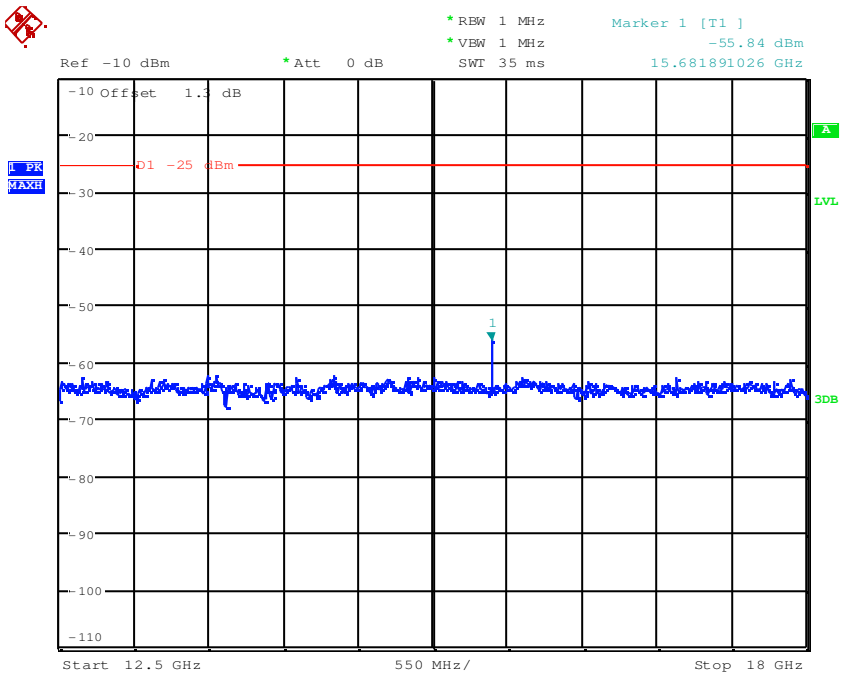
Plot 10: 5880 MHz, data rate 4.5 MBit/s, 1 GHz – 12.75 GHz, horizontal polarization



Plot 11: 5880 MHz, data rate 4.5 MBit/s, 1 GHz – 12.75 GHz, vertical polarization



Plot 12: 5880 MHz, data rate 4.5 MBit/s, 12 GHz – 18 GHz, Max. hor./vert. polarization



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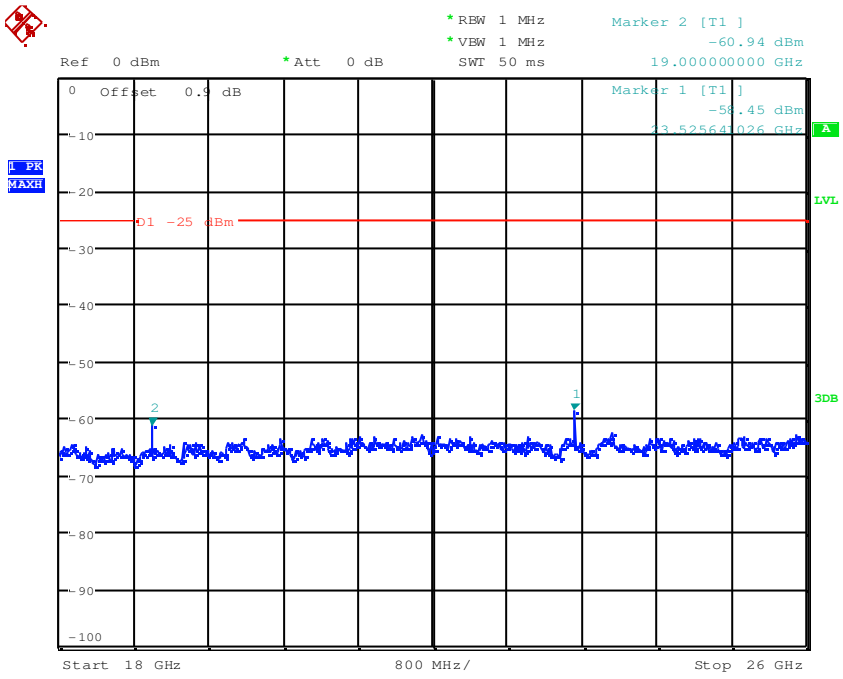
Plot 13: 5880 MHz, data rate 4.5 MBit/s, 18 GHz – 26 GHz, Max. hor./vert. polarization



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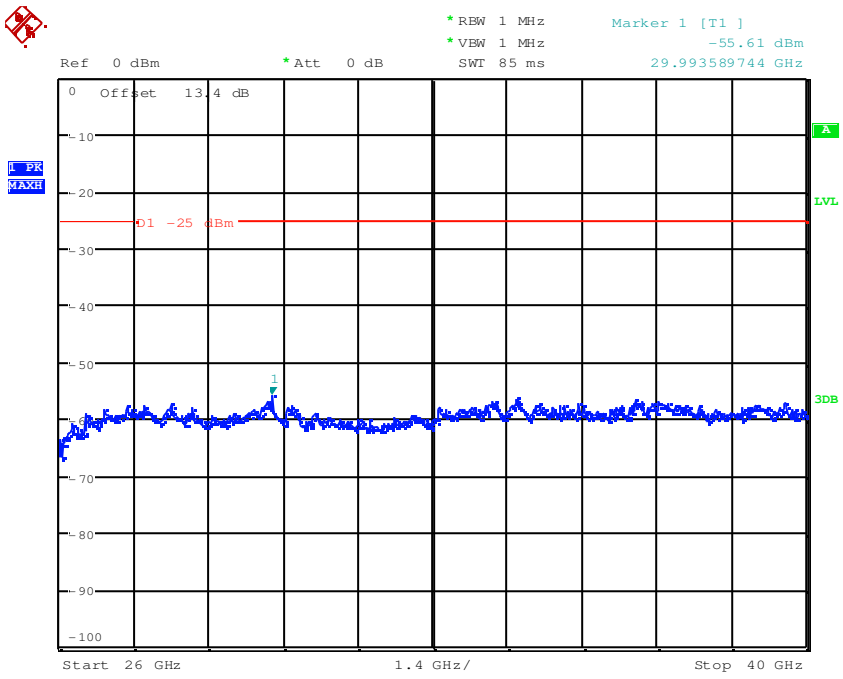
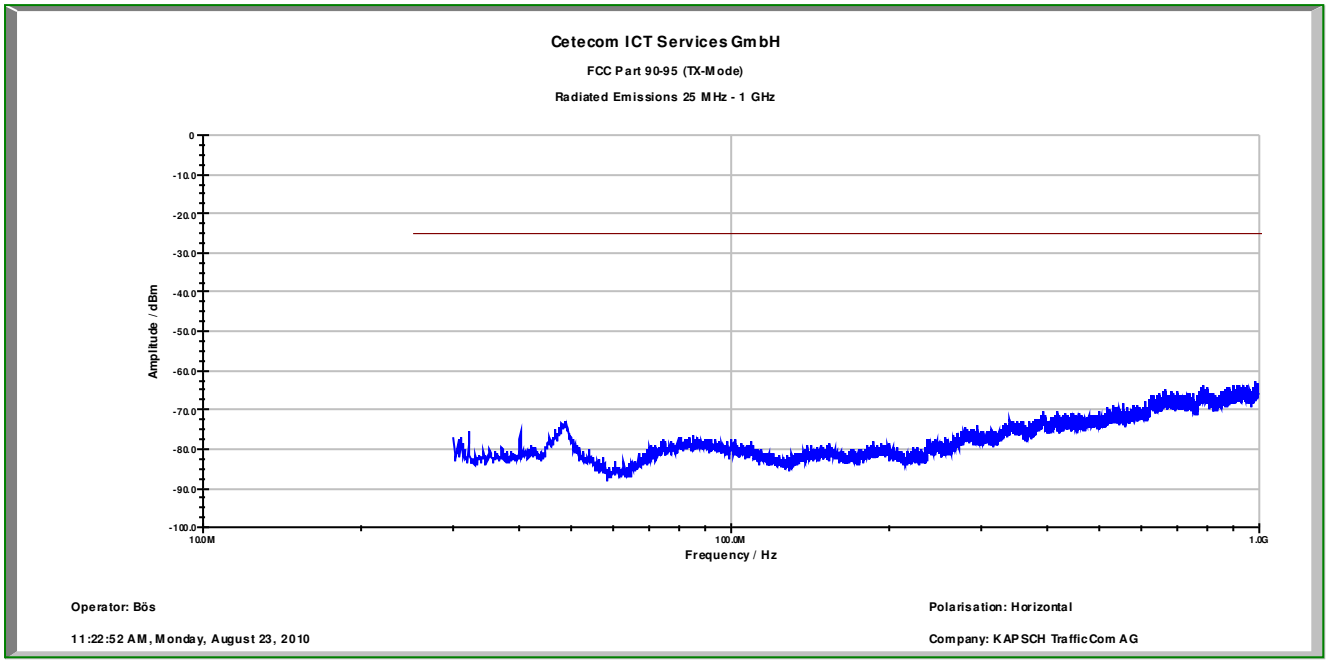
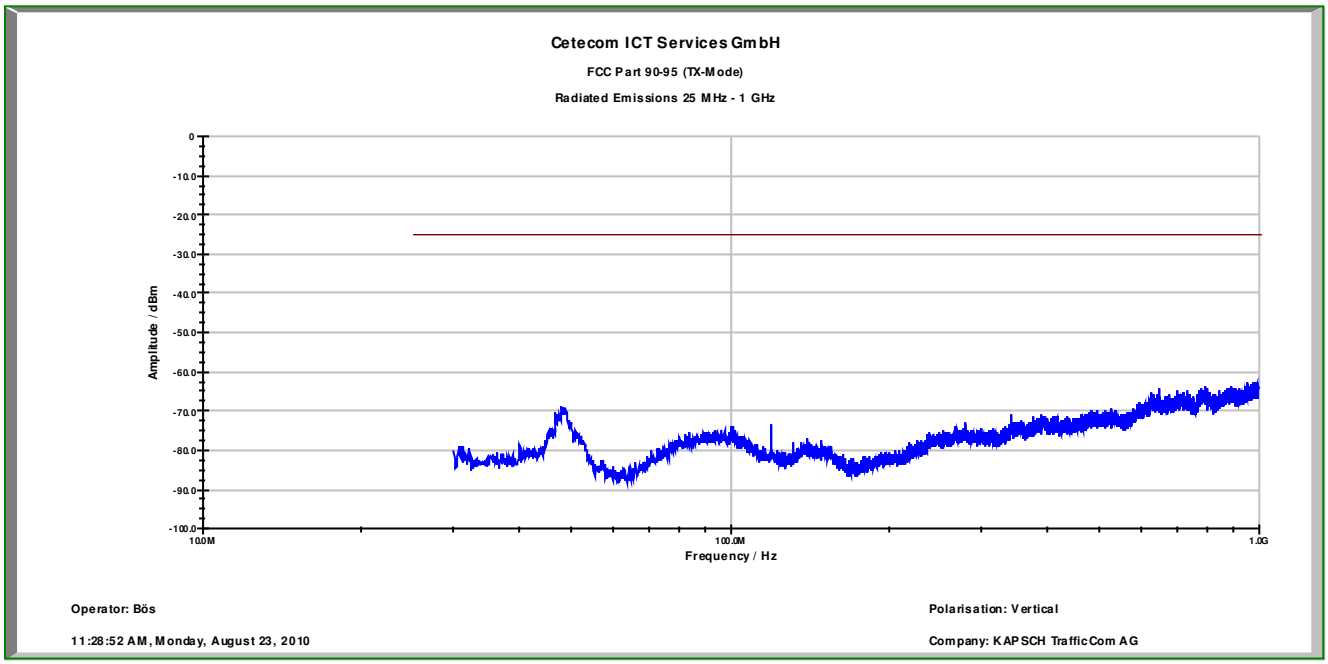
Plot 14: 5880 MHz, data rate 4.5 MBit/s, 26 GHz – 40 GHz, Max. hor./vert. polarization



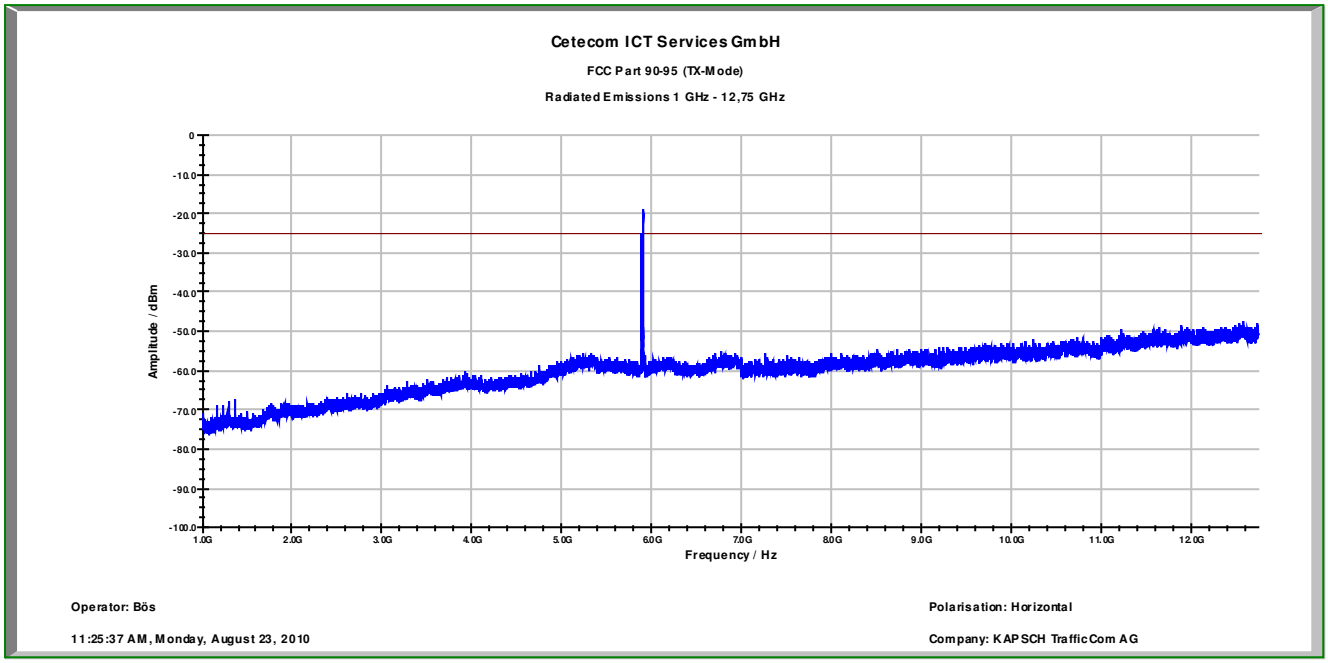
Plot 15: 5910 MHz, data rate 4.5 MBit/s, 30 MHz – 1 GHz, horizontal polarization



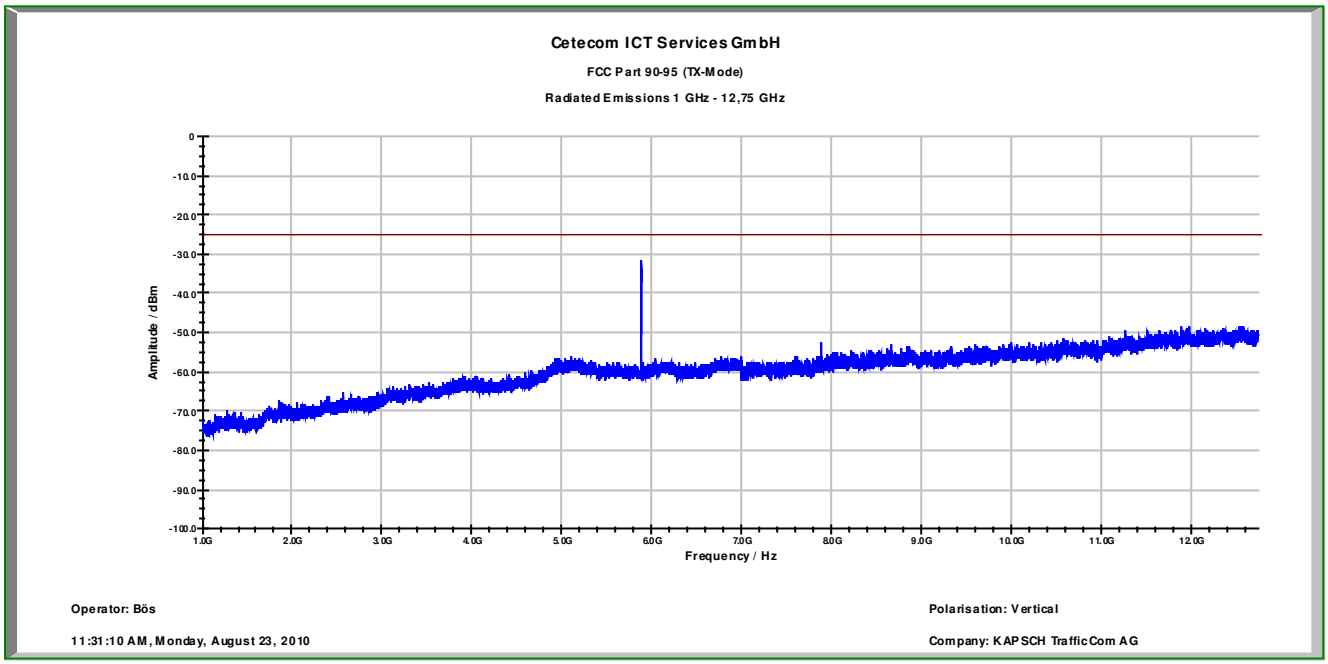
Plot 16: 5910 MHz, data rate 4.5 MBit/s, 30 MHz – 1 GHz, vertical polarization



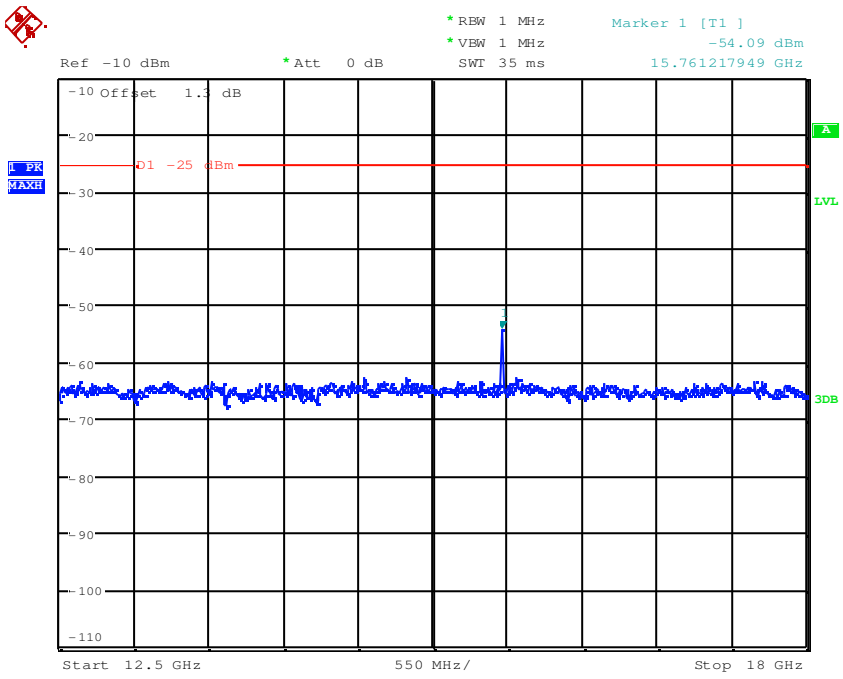
Plot 17: 5910 MHz, data rate 4.5 MBit/s, 1 GHz – 12.75 GHz, horizontal polarization



Plot 18: 5910 MHz, data rate 4.5 MBit/s, 1 GHz – 12.75 GHz, vertical polarization



Plot 19: 5910 MHz, data rate 4.5 MBit/s, 12 GHz – 18 GHz, Max. hor./vert. polarization



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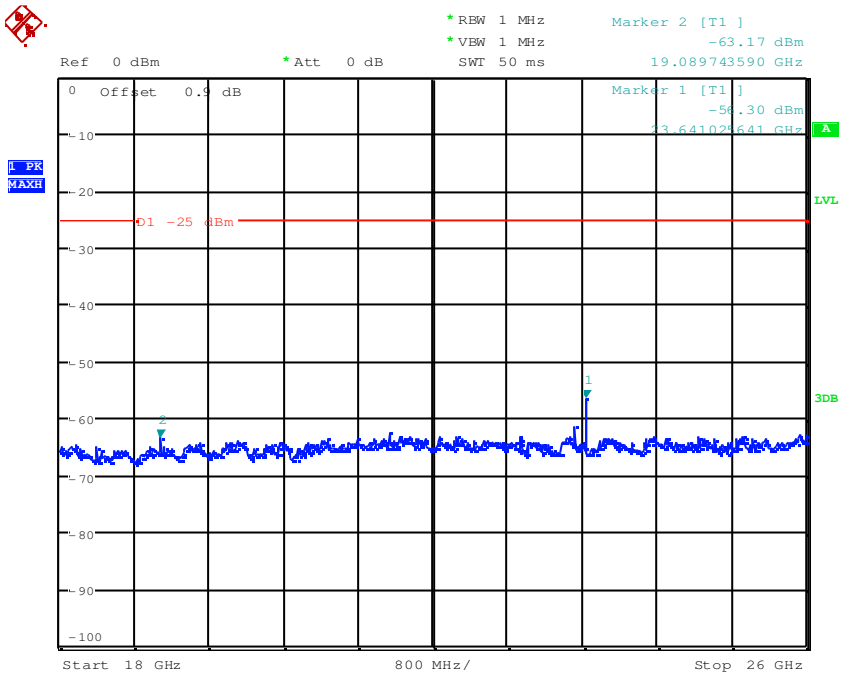
Plot 20: 5910 MHz, data rate 4.5 MBit/s, 18 GHz – 26 GHz, Max. hor./vert. polarization



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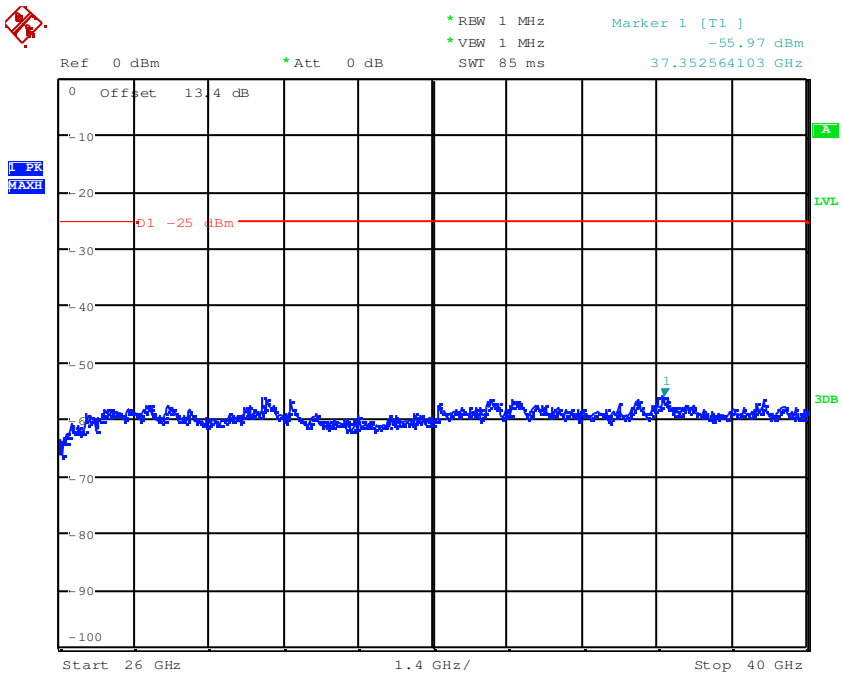
Plot 21: 5910 MHz, data rate 4.5 MBit/s, 26 GHz – 40 GHz, Max. hor./vert. polarization



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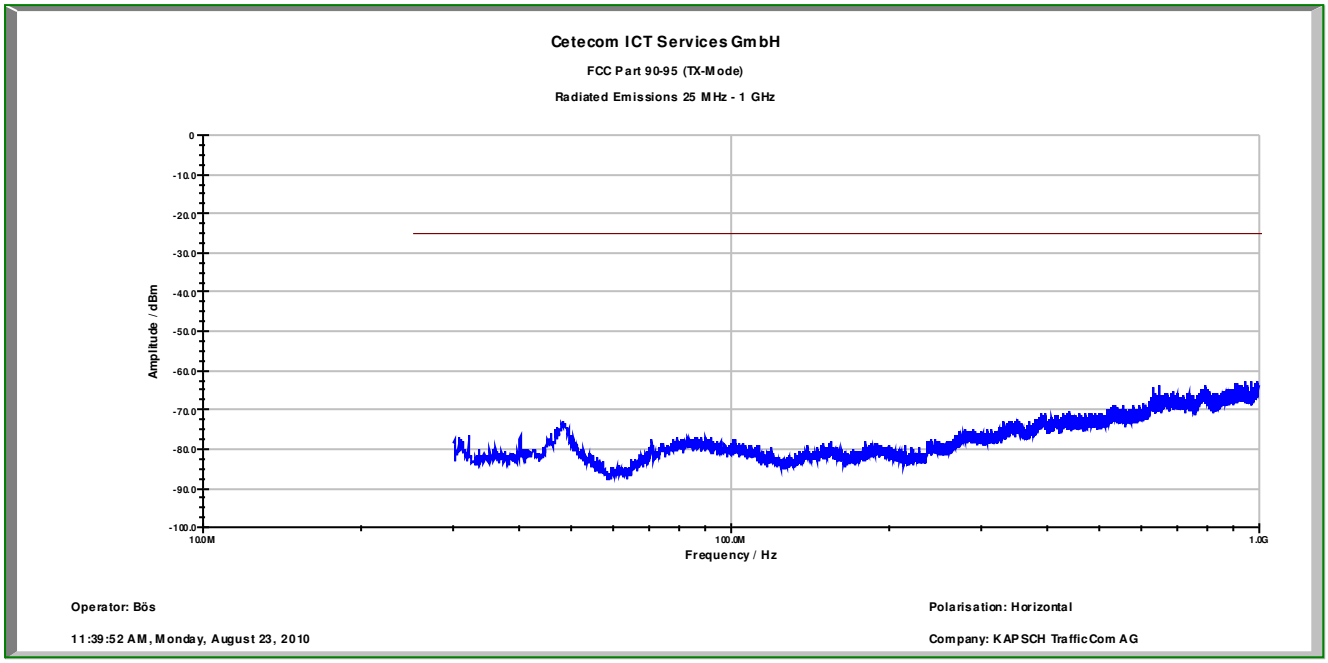
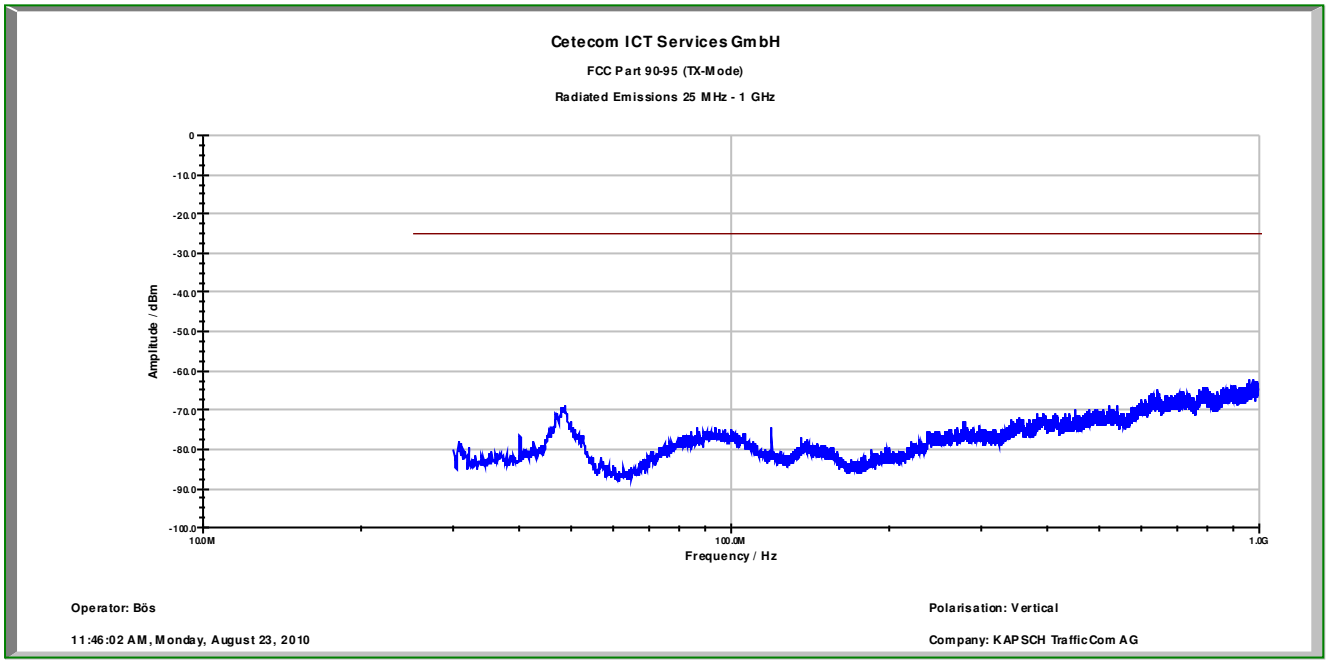
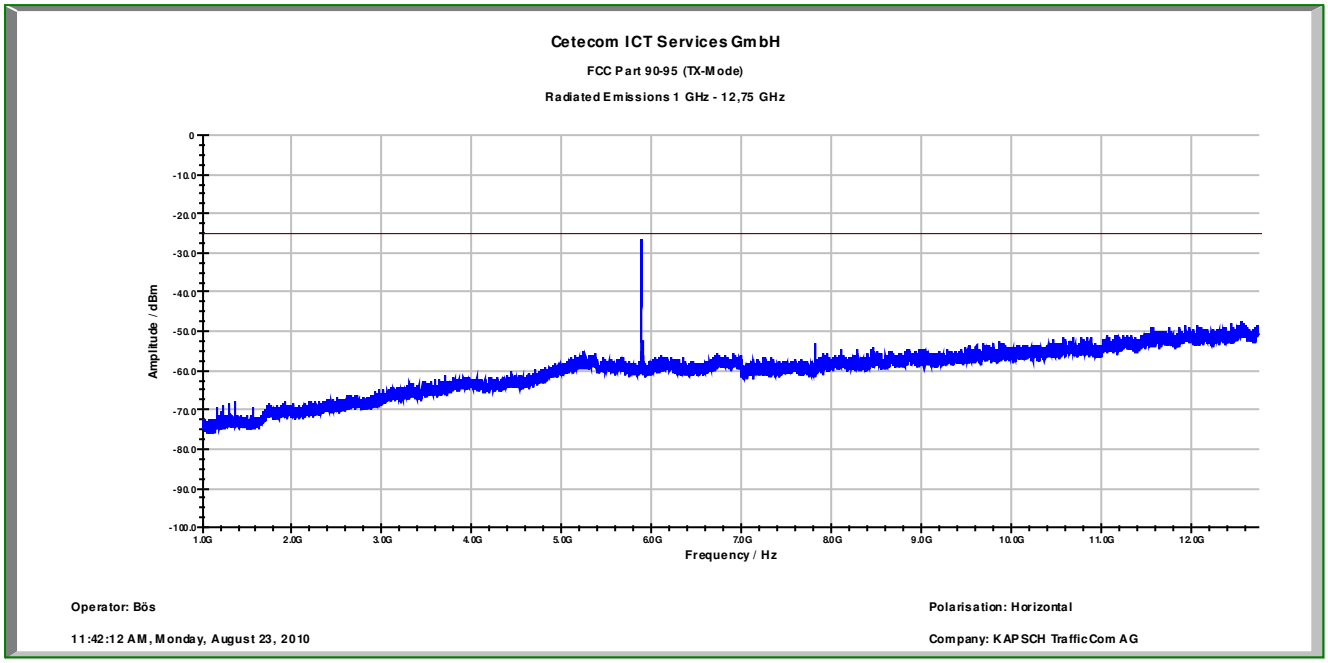
Plot 22: 5860 MHz, data rate 6 MBit/s, 30 MHz – 1 GHz, horizontal polarization



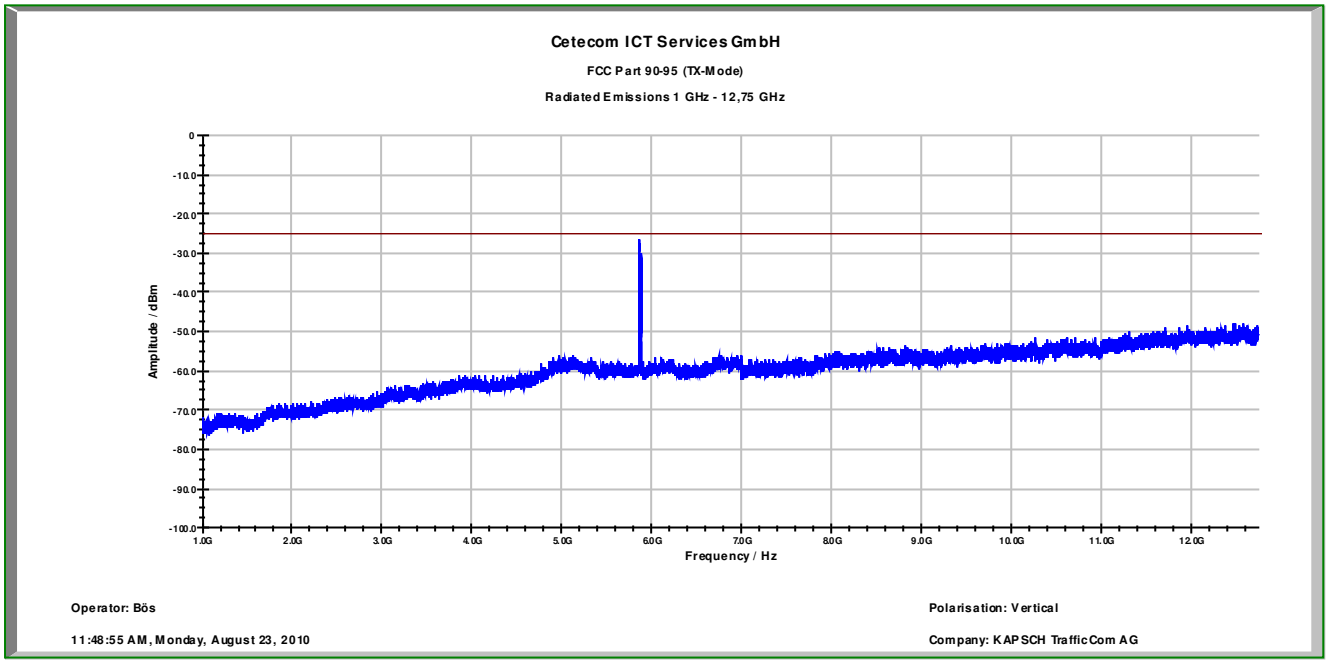
Plot 23: 5860 MHz, data rate 6 MBit/s, 30 MHz – 1 GHz, vertical polarization



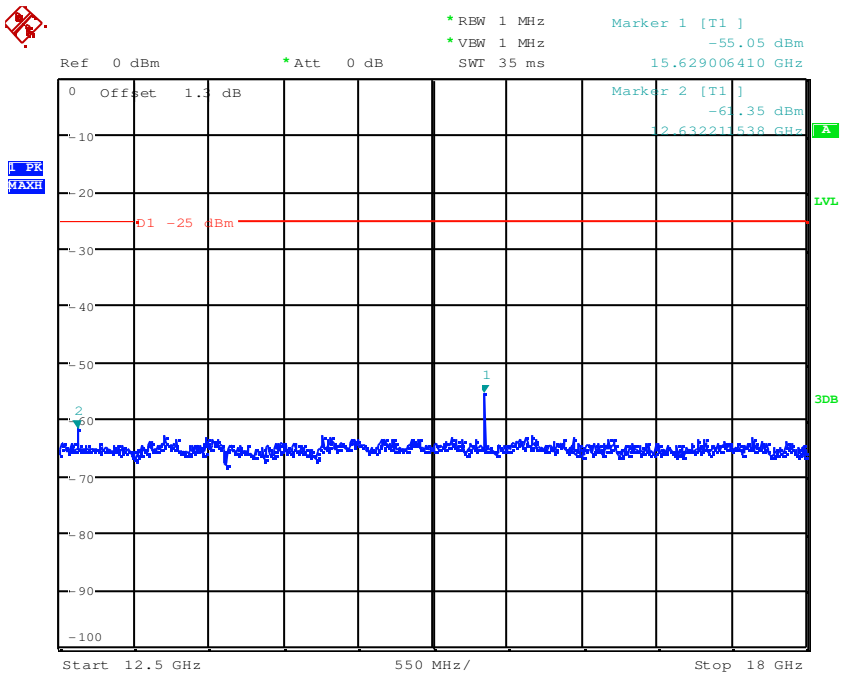
Plot 24: 5860 MHz, data rate 6 MBit/s, 1 GHz – 12.75 GHz, horizontal polarization



Plot 25: 5860 MHz, data rate 6 MBit/s, 1 GHz – 12.75 GHz, vertical polarization



Plot 26: 5860 MHz, data rate 6 MBit/s, 12 GHz – 18 GHz, Max. hor./vert. polarization



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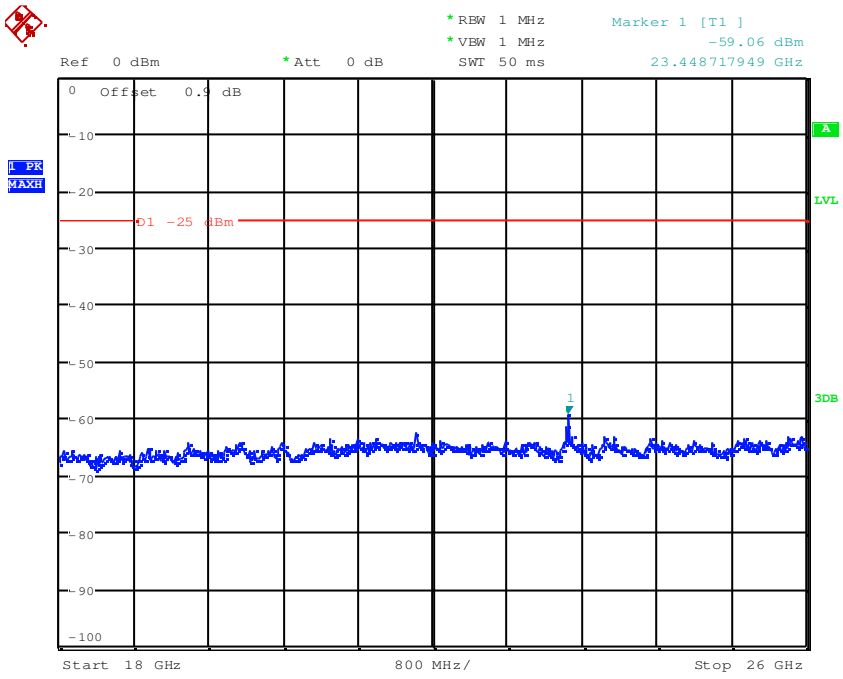
Plot 27: 5860 MHz, data rate 6 MBit/s, 18 GHz – 26 GHz, Max. hor./vert. polarization



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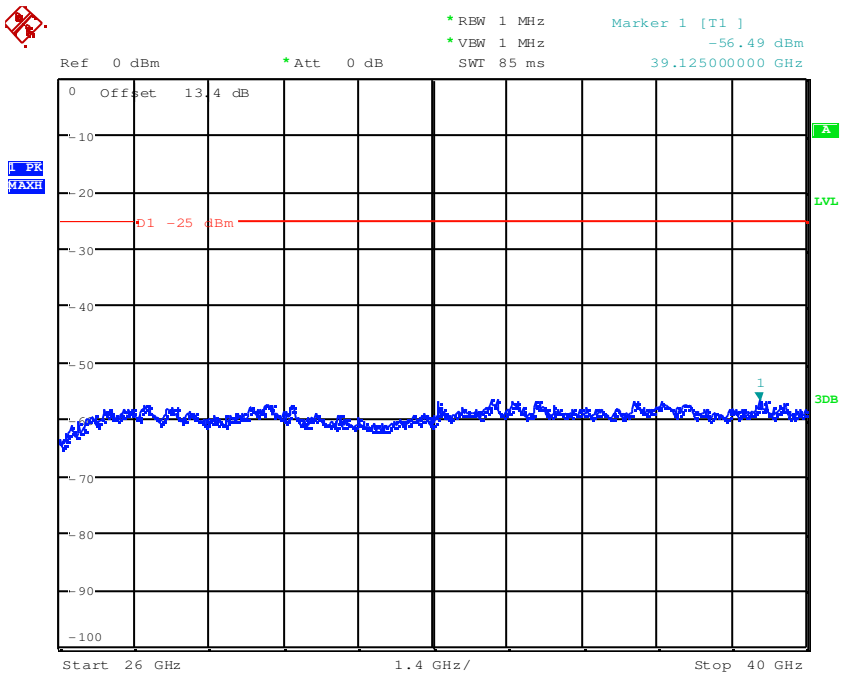
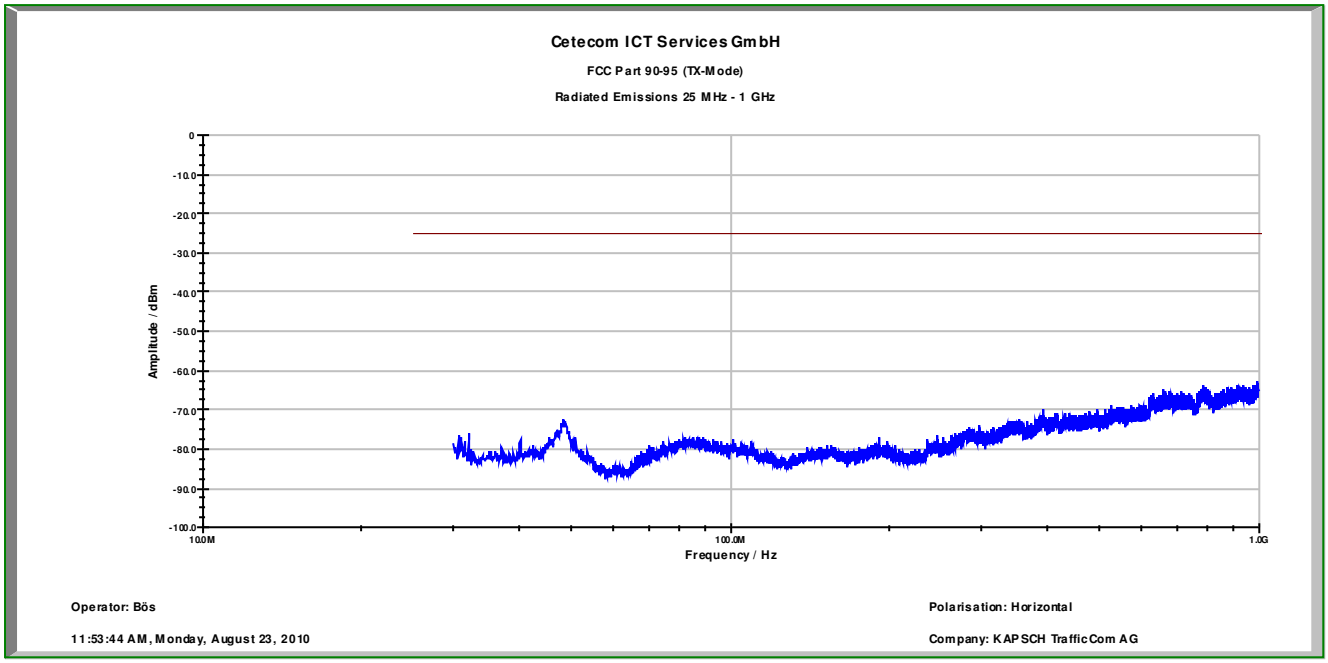
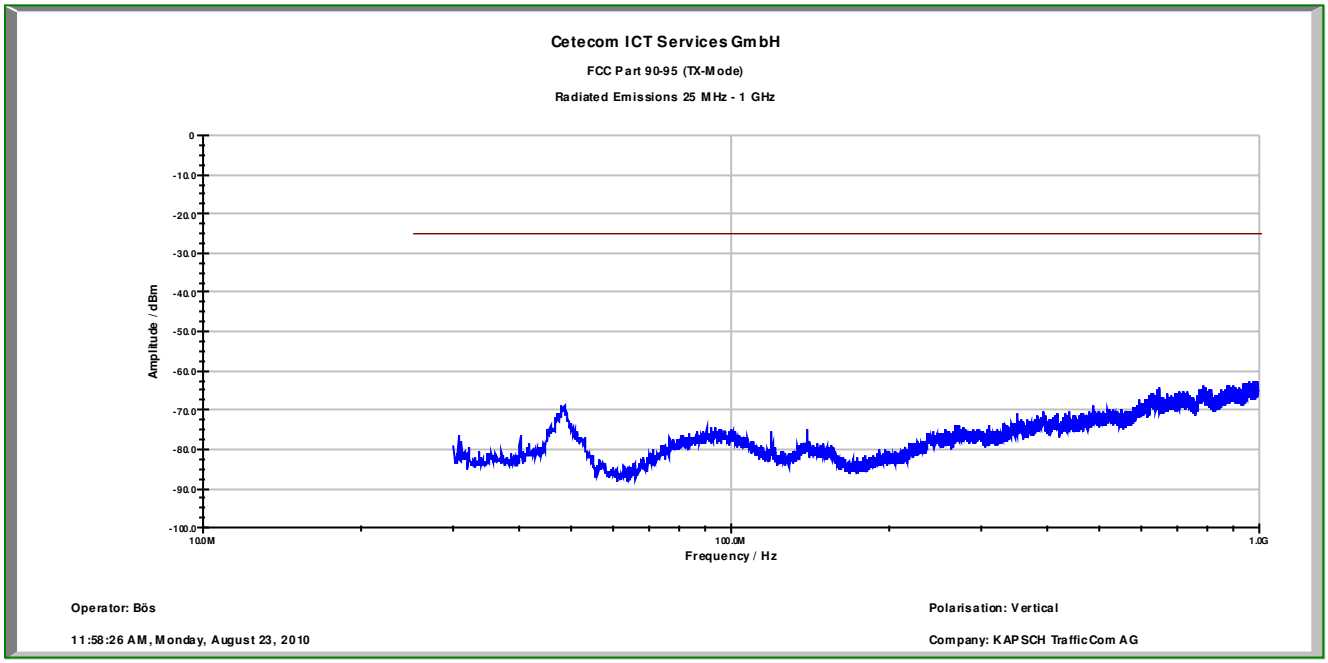
Plot 28: 5860 MHz, data rate 6 MBit/s, 26 GHz – 40 GHz, Max. hor./vert. polarization



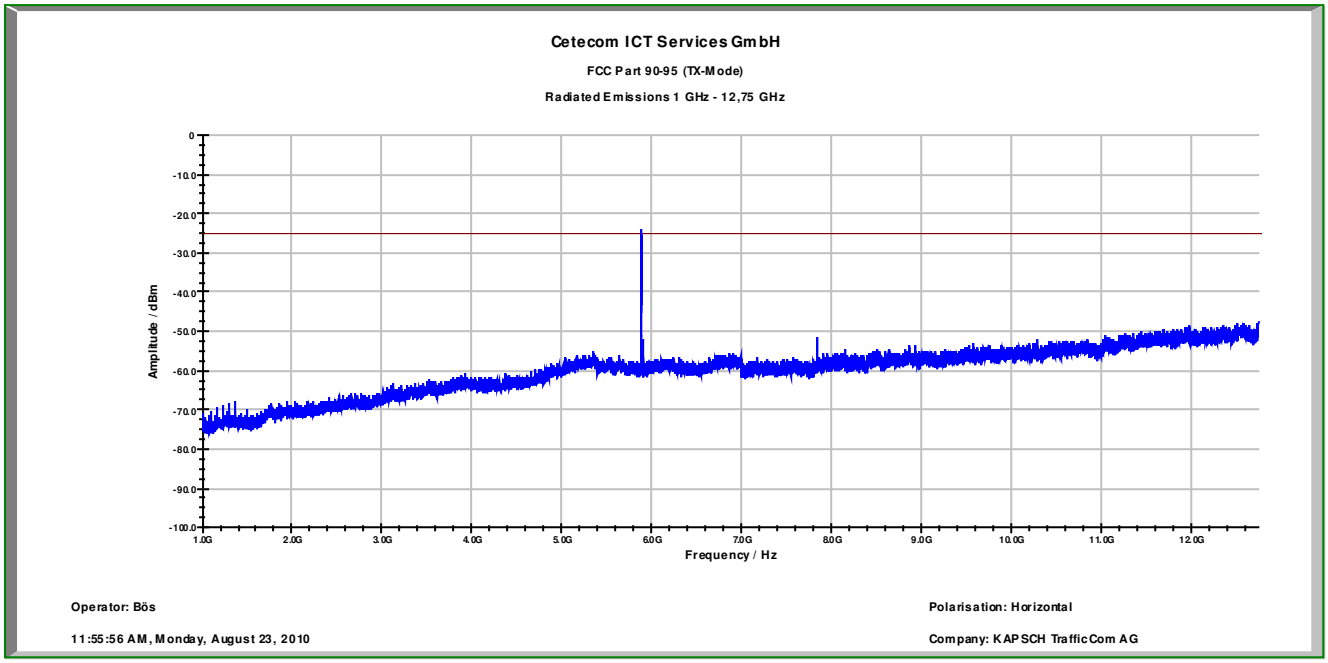
Plot 29: 5880 MHz, data rate 6 MBit/s, 30 MHz – 1 GHz, horizontal polarization



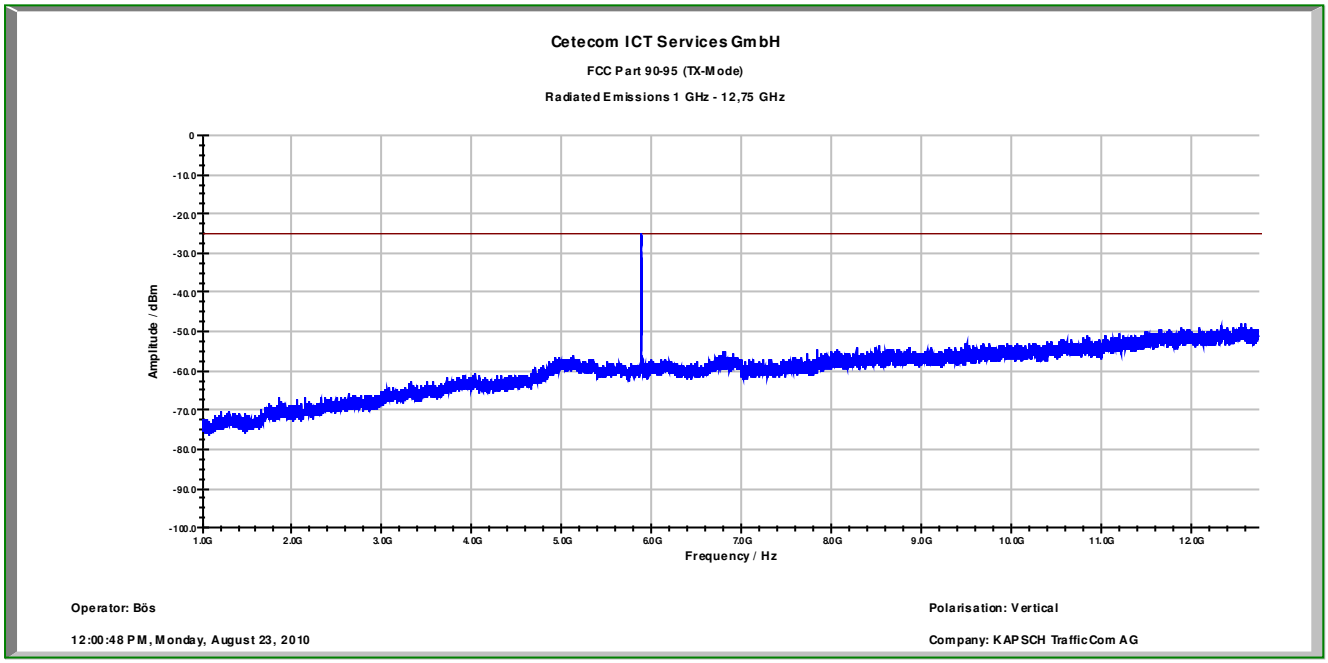
Plot 30: 5880 MHz, data rate 6 MBit/s, 30 MHz – 1 GHz, vertical polarization



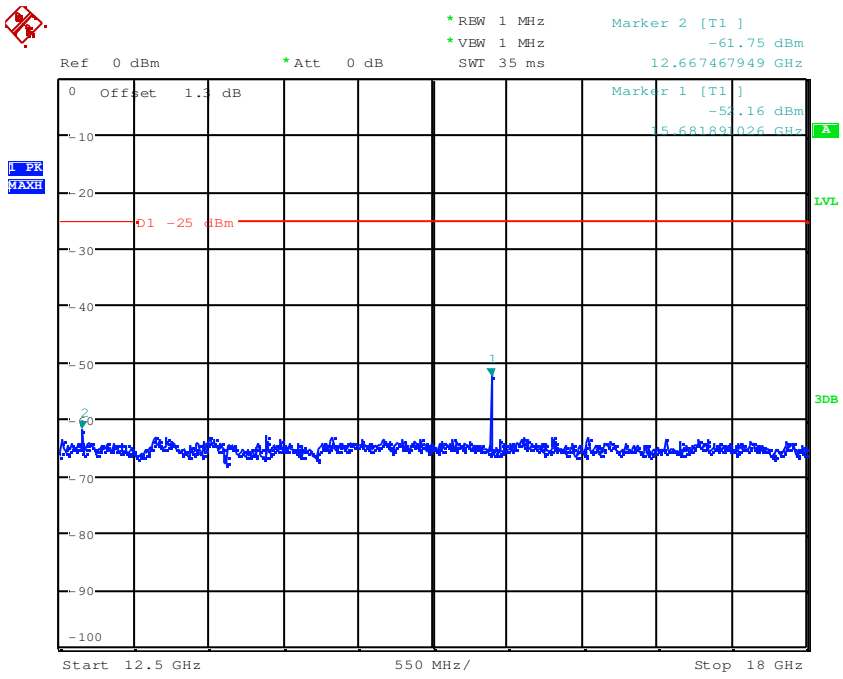
Plot 31: 5880 MHz, data rate 6 MBit/s, 1 GHz – 12.75 GHz, horizontal polarization



Plot 32: 5880 MHz, data rate 6 MBit/s, 1 GHz – 12.75 GHz, vertical polarization



Plot 33: 5880 MHz, data rate 6 MBit/s, 12 GHz – 18 GHz, Max. hor./vert. polarization



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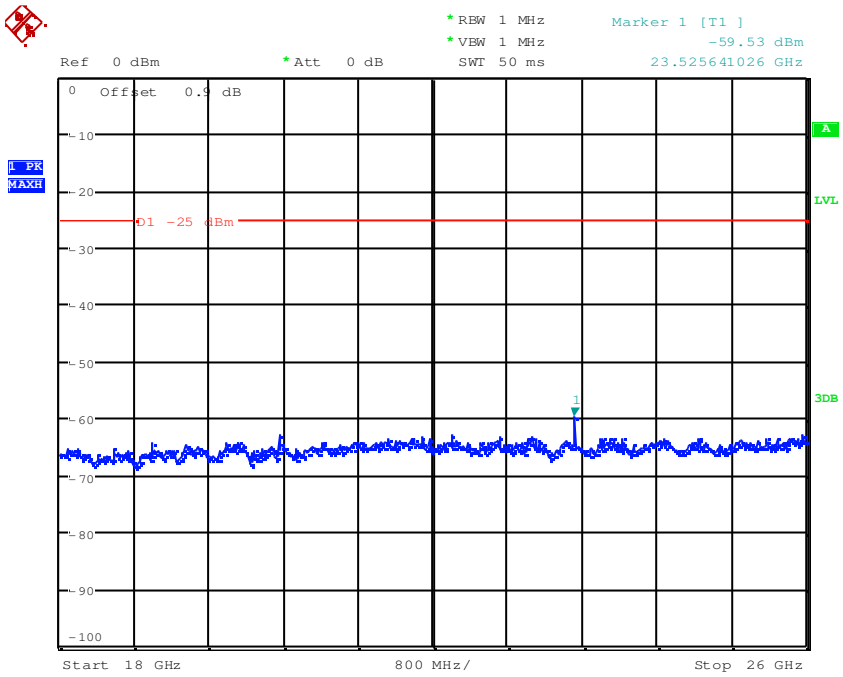
Plot 34: 5880 MHz, data rate 6 MBit/s, 18 GHz – 26 GHz, Max. hor./vert. polarization



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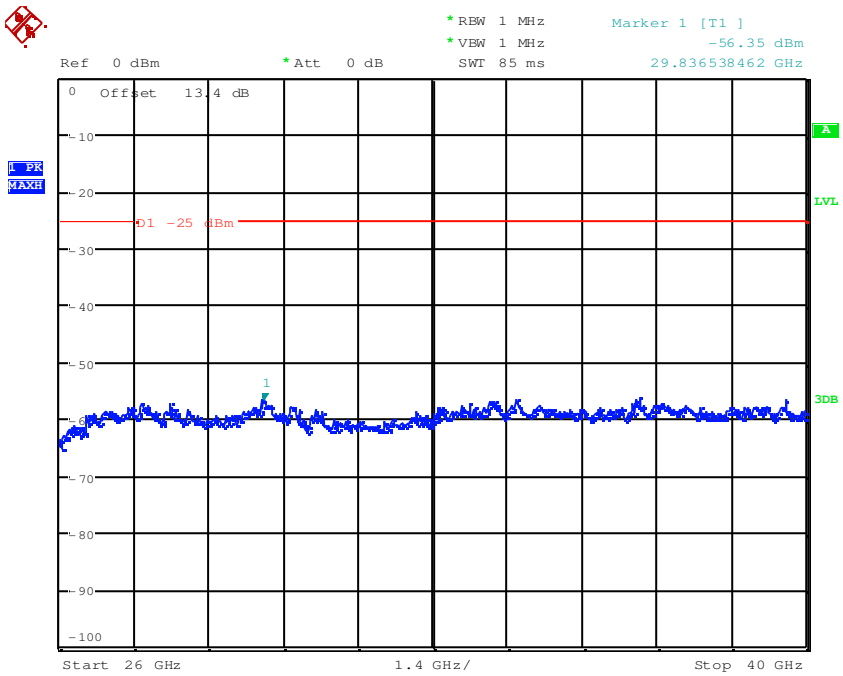
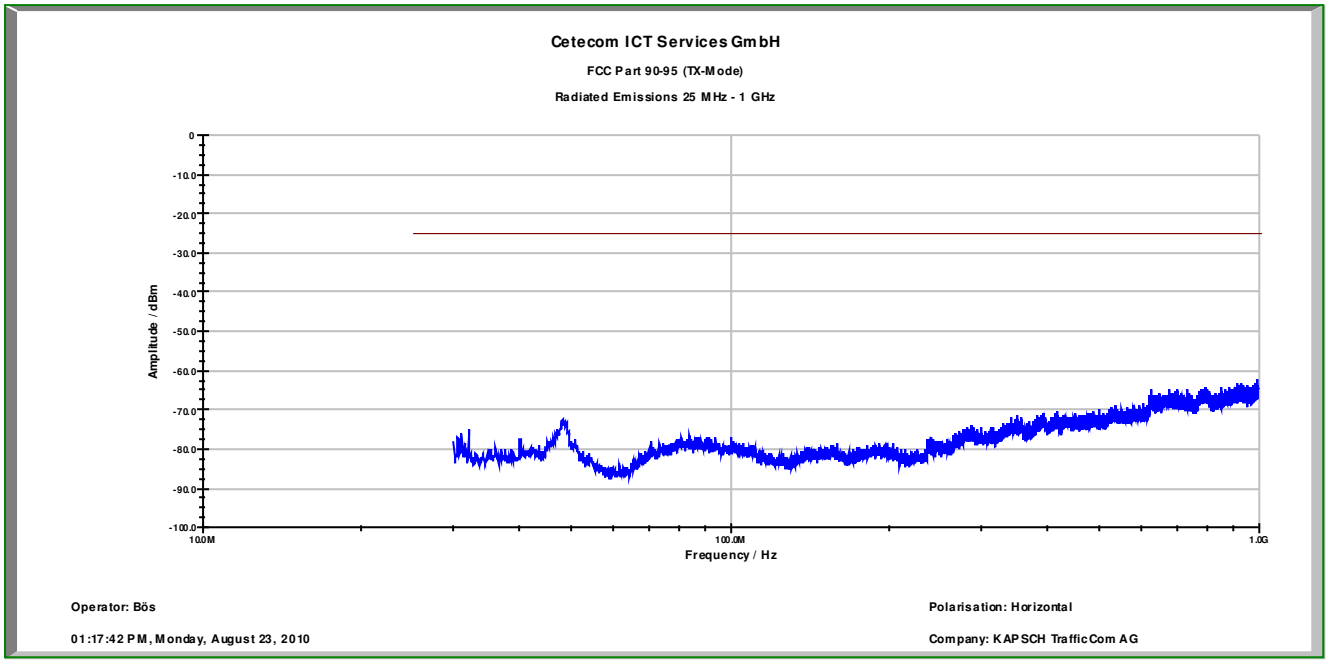
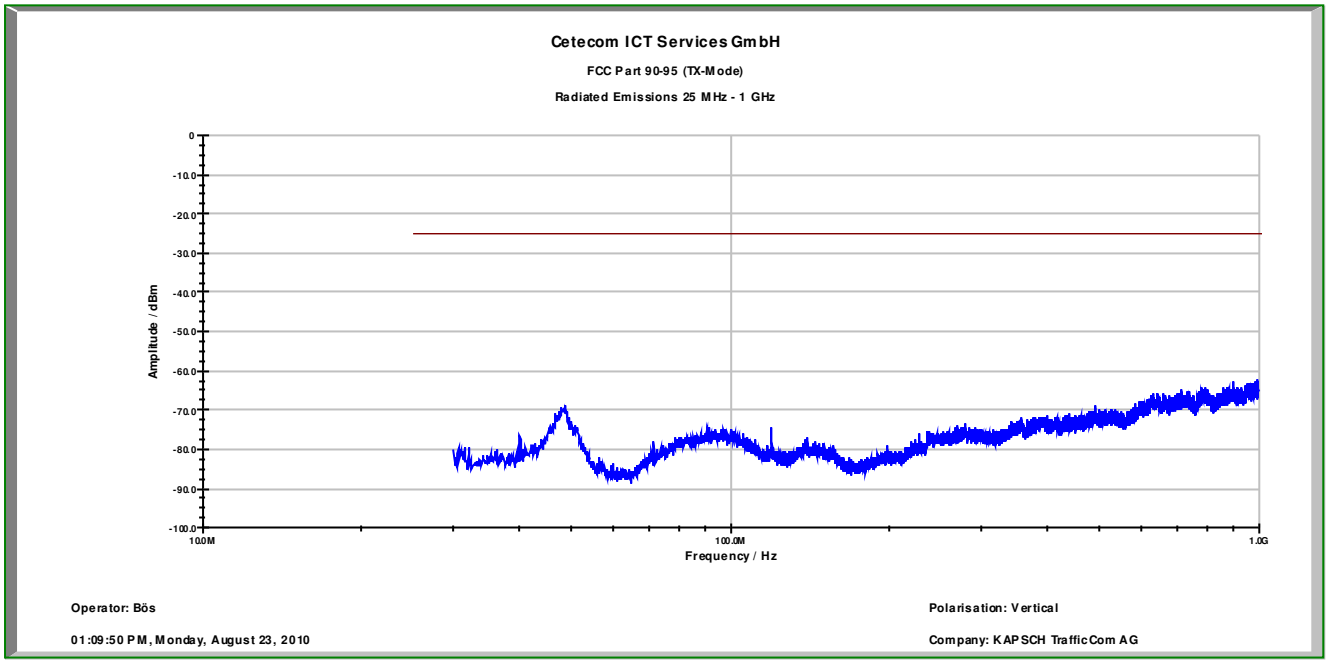
Plot 35: 5880 MHz, data rate 6 MBit/s, 26 GHz – 40 GHz, Max. hor./vert. polarization



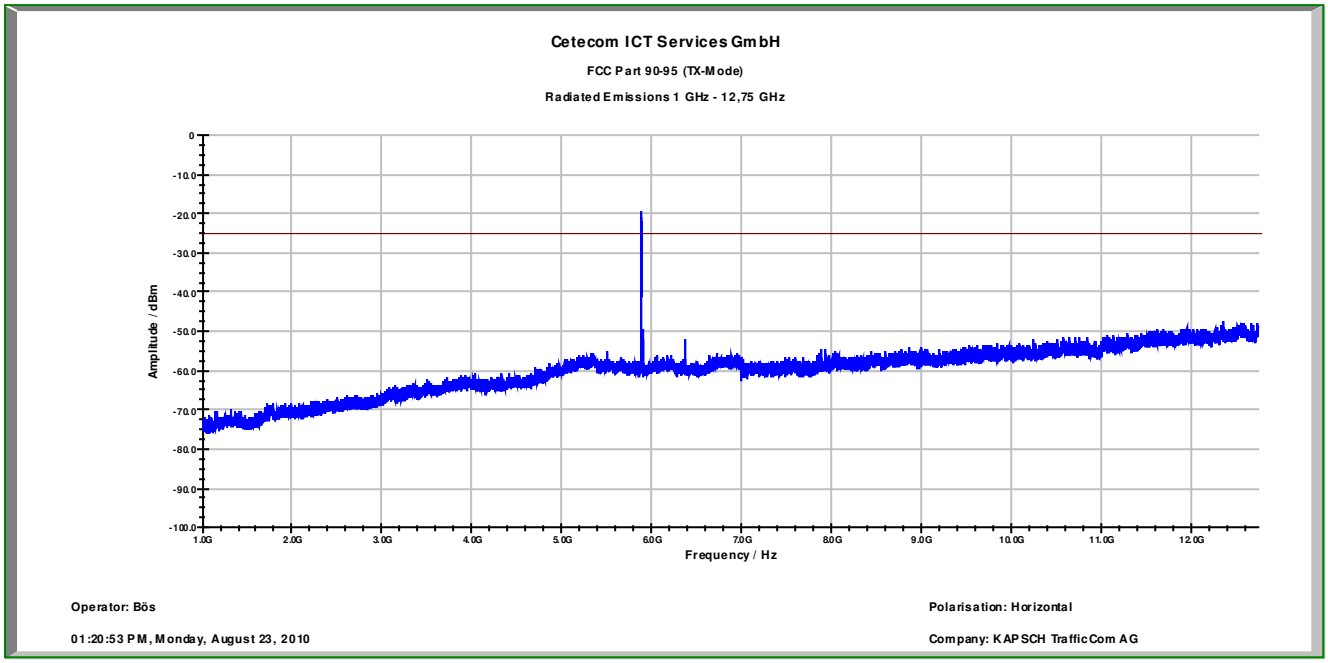
Plot 36: 5910 MHz, data rate 6 MBit/s, 30 MHz – 1 GHz, horizontal polarization



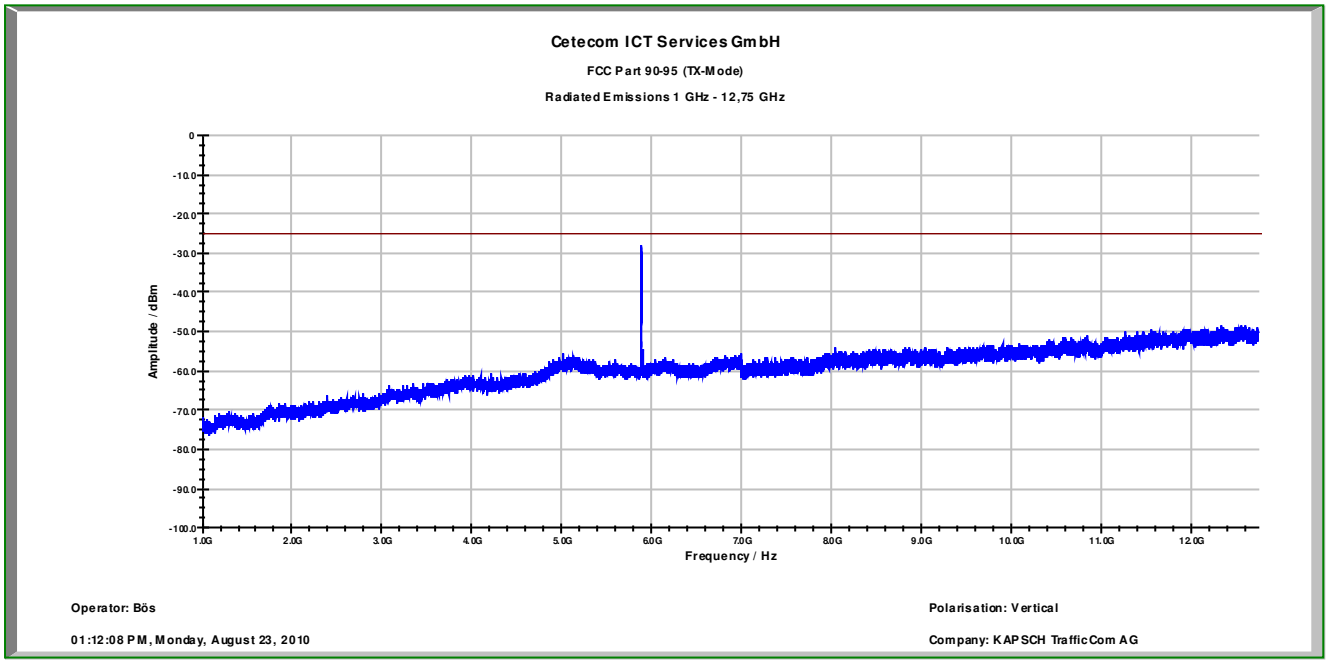
Plot 37: 5910 MHz, data rate 6 MBit/s, 30 MHz – 1 GHz, vertical polarization



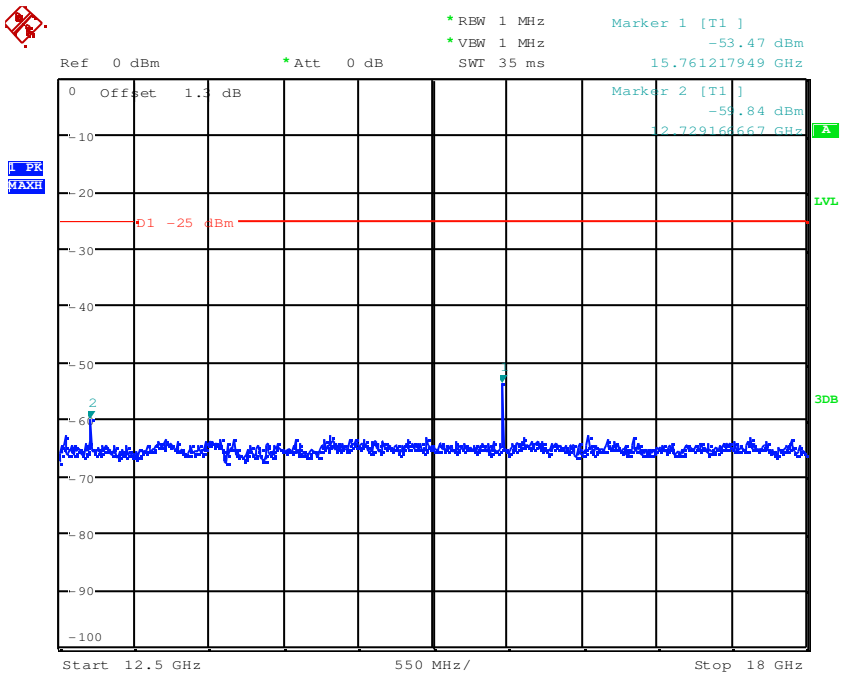
Plot 38: 5910 MHz, data rate 6 MBit/s, 1 GHz – 12.75 GHz, horizontal polarization



Plot 39: 5910 MHz, data rate 6 MBit/s, 1 GHz – 12.75 GHz, vertical polarization



Plot 40: 5910 MHz, data rate 6 MBit/s, 12 GHz – 18 GHz, Max. hor./vert. polarization



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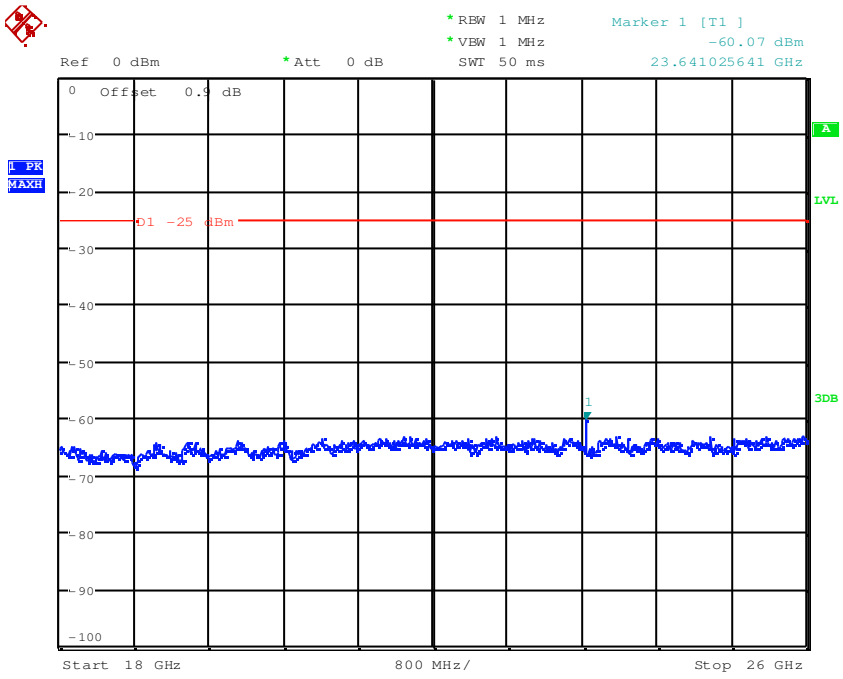
Plot 41: 5910 MHz, data rate 6 MBit/s, 18 GHz – 26 GHz, Max. hor./vert. polarization



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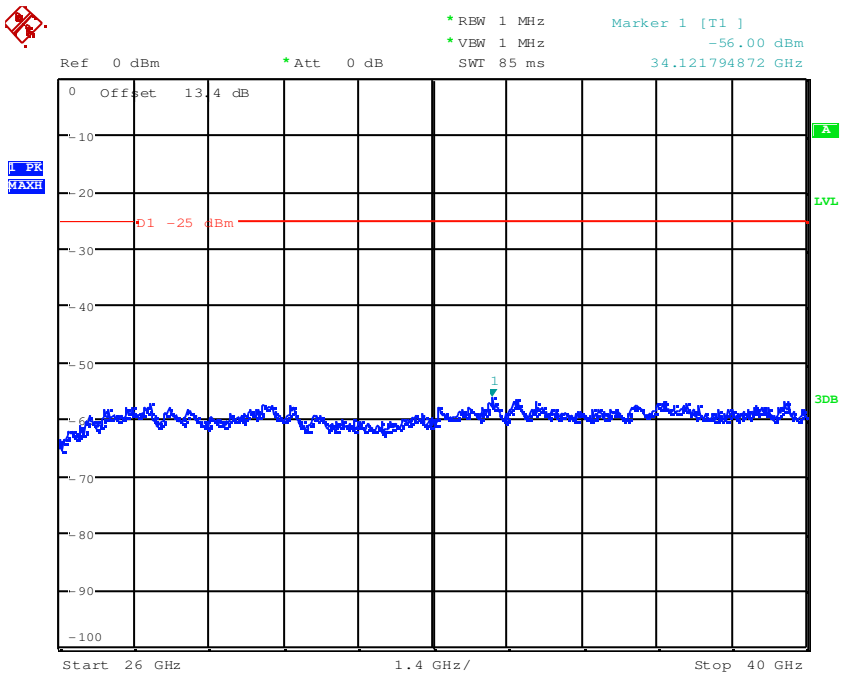
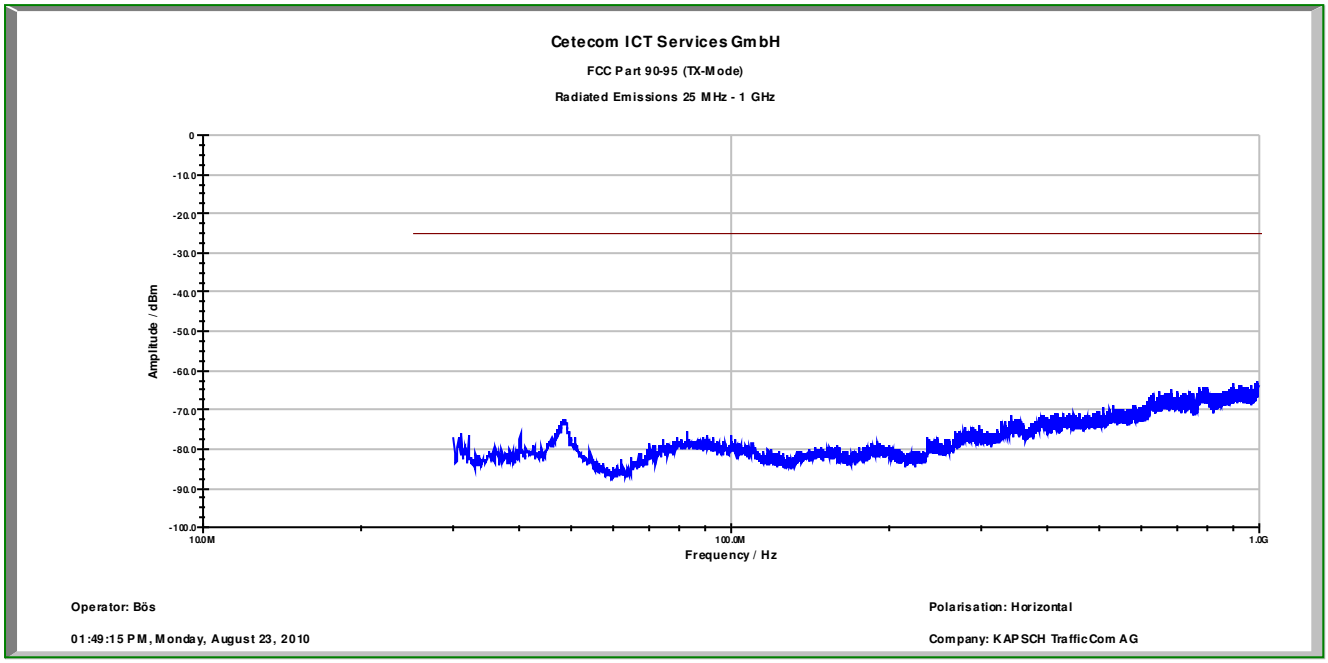
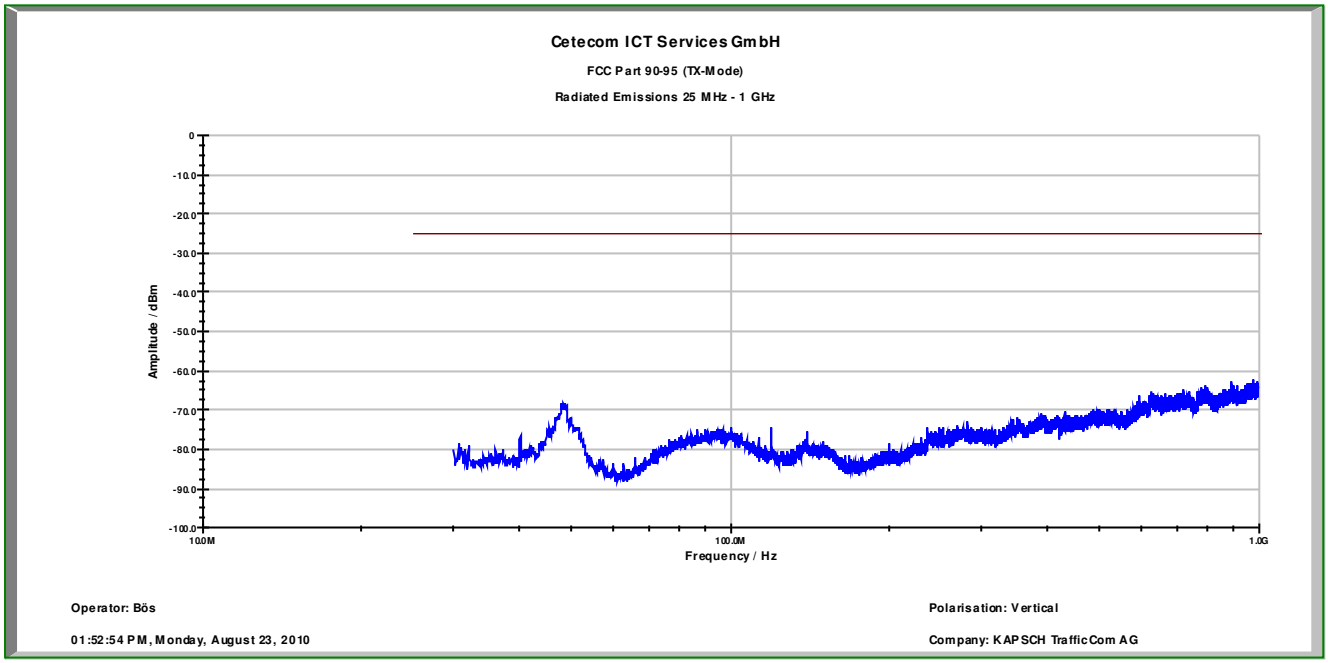
Plot 42: 5910 MHz, data rate 6 MBit/s, 26 GHz – 40 GHz, Max. hor./vert. polarization



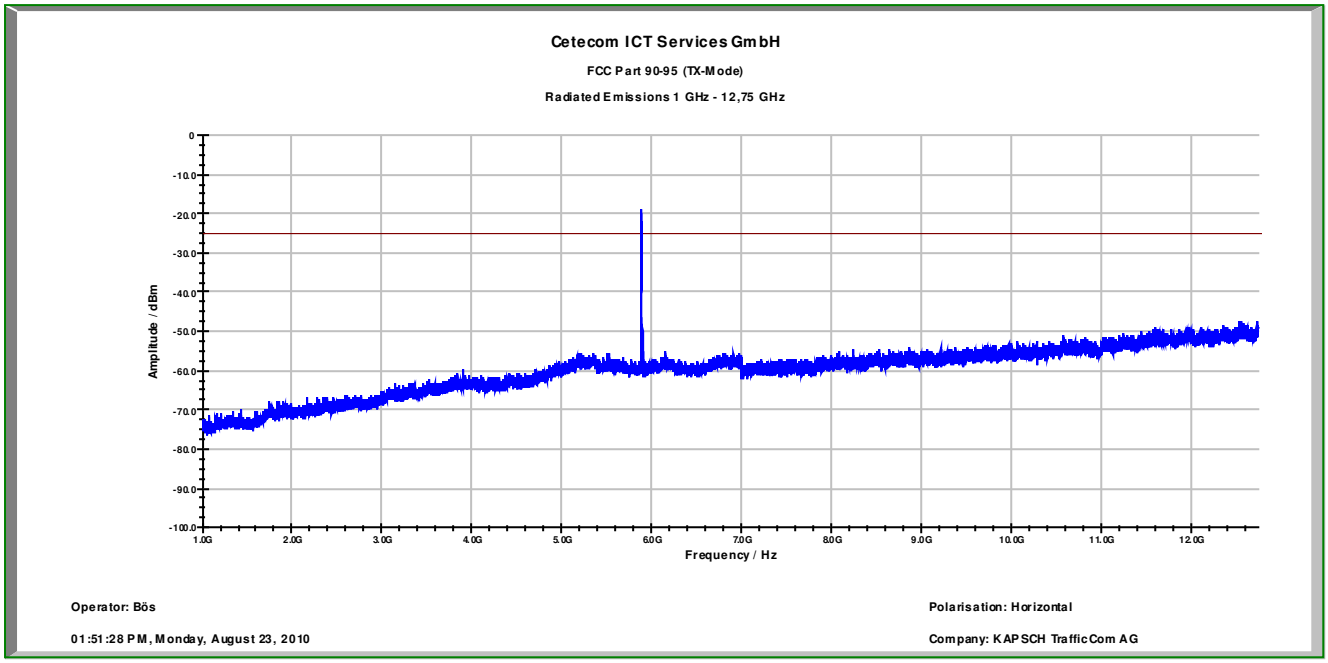
Plot 43: 5860 MHz, data rate 18 MBit/s, 30 MHz – 1 GHz, horizontal polarization



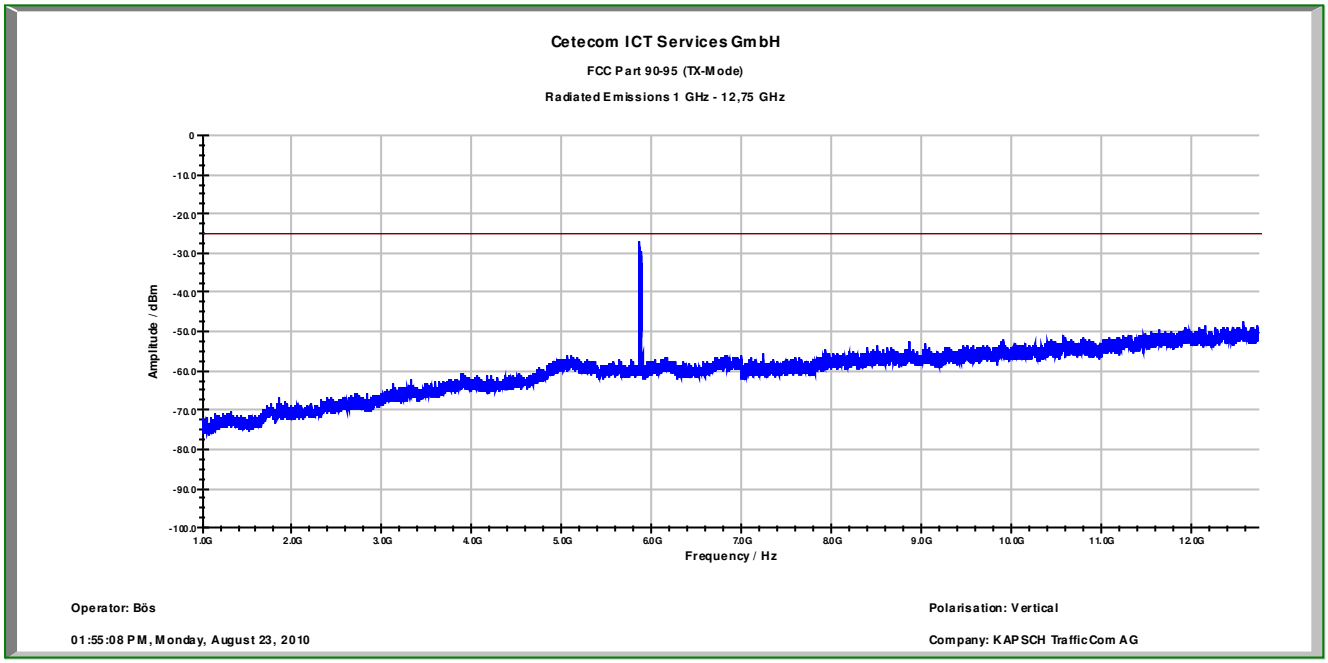
Plot 44: 5860 MHz, data rate 18 MBit/s, 30 MHz – 1 GHz, vertical polarization



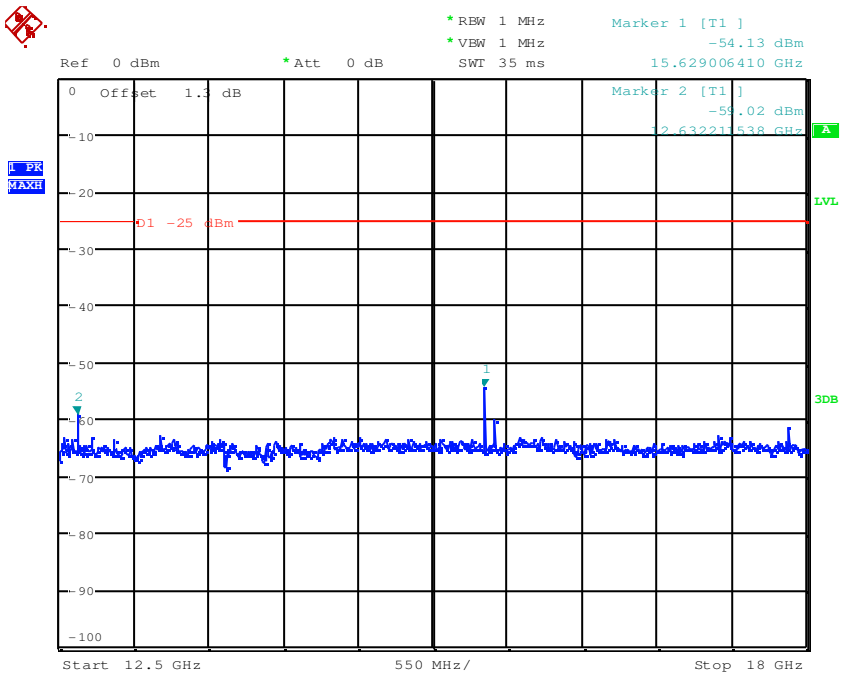
Plot 45: 5860 MHz, data rate 18 MBit/s, 1 GHz – 12.75 GHz, horizontal polarization



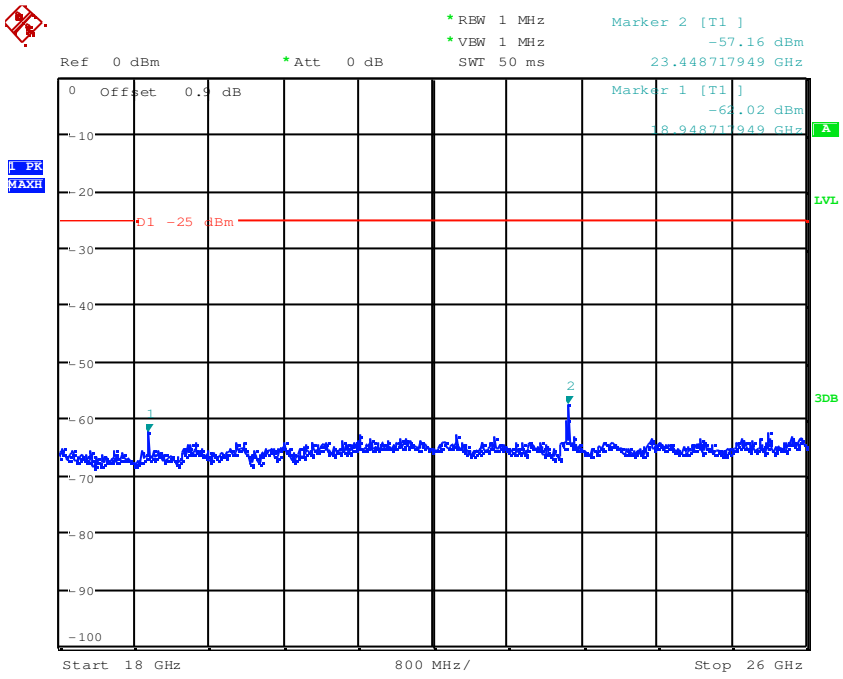
Plot 46: 5860 MHz, data rate 18 MBit/s, 1 GHz – 12.75 GHz, vertical polarization



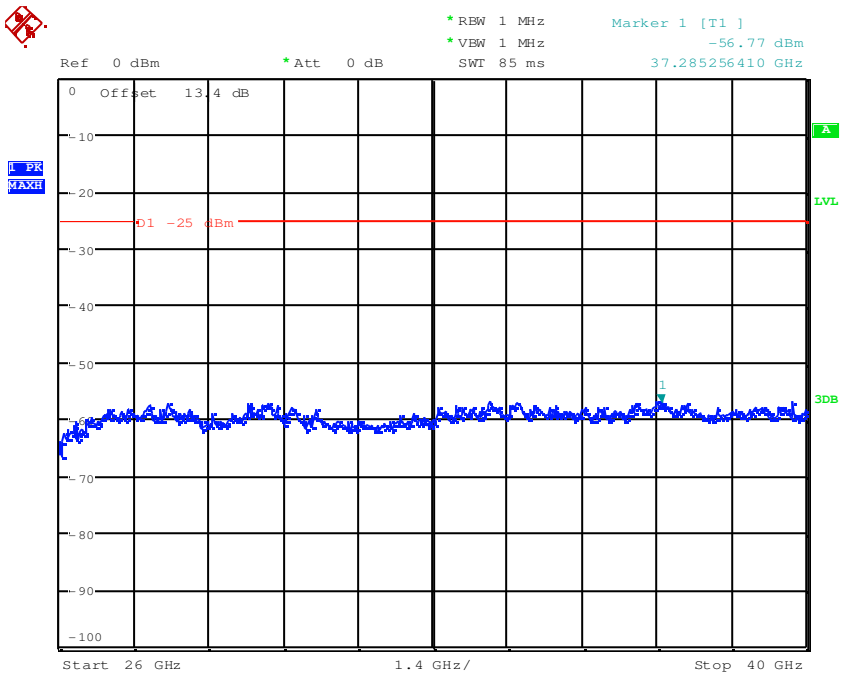
Plot 47: 5860 MHz, data rate 18 MBit/s, 12 GHz – 18 GHz, Max. hor./vert. polarization



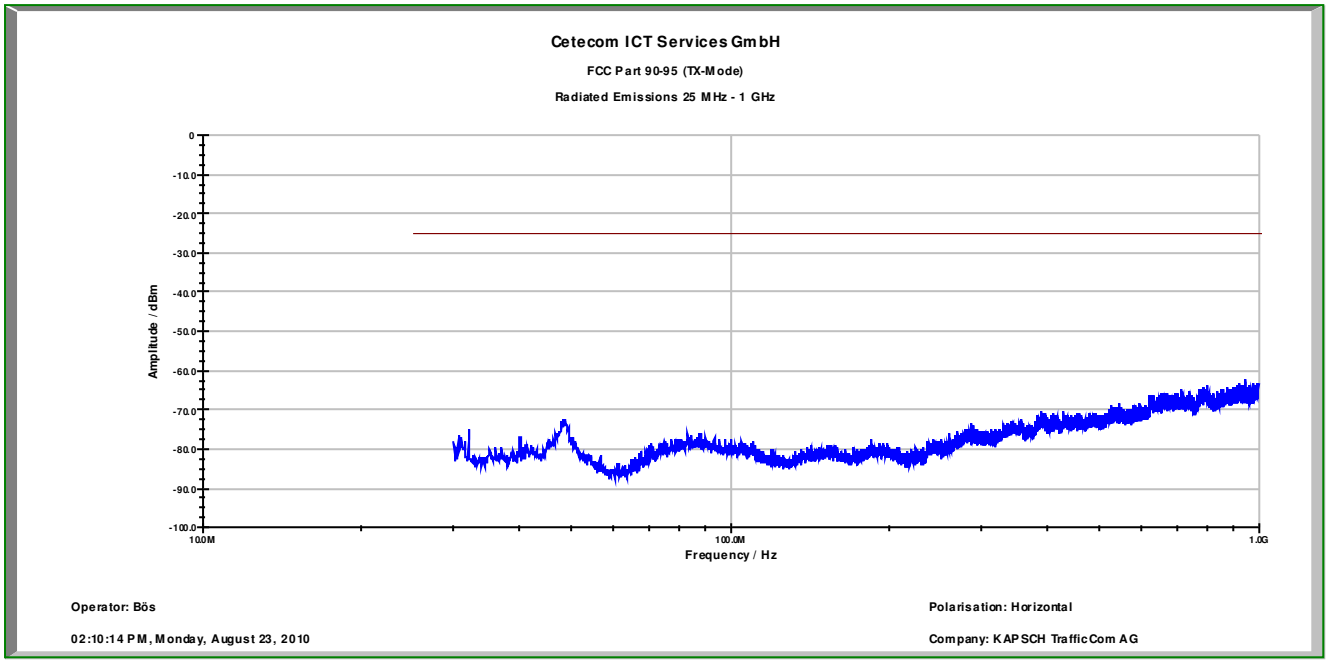
Plot 48: 5860 MHz, data rate 18 MBit/s, 18 GHz – 26 GHz, Max. hor./vert. polarization



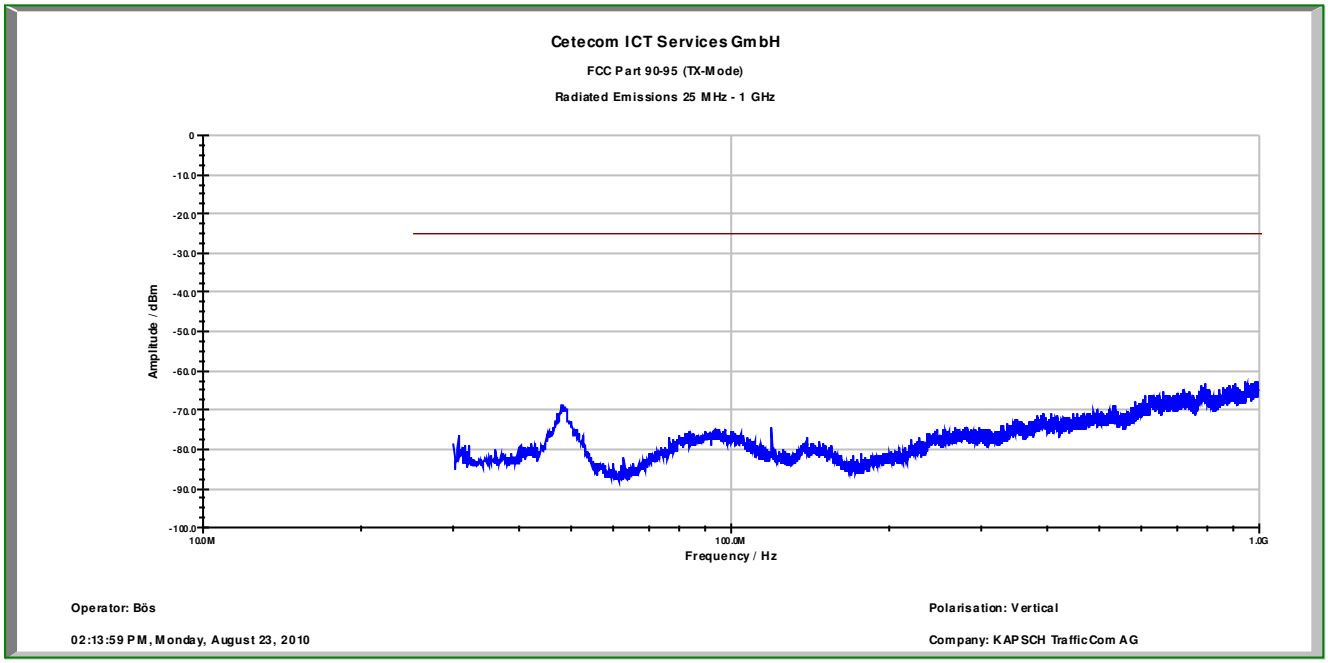
Plot 49: 5860 MHz, data rate 18 MBit/s, 26 GHz – 40 GHz, Max. hor./vert. polarization



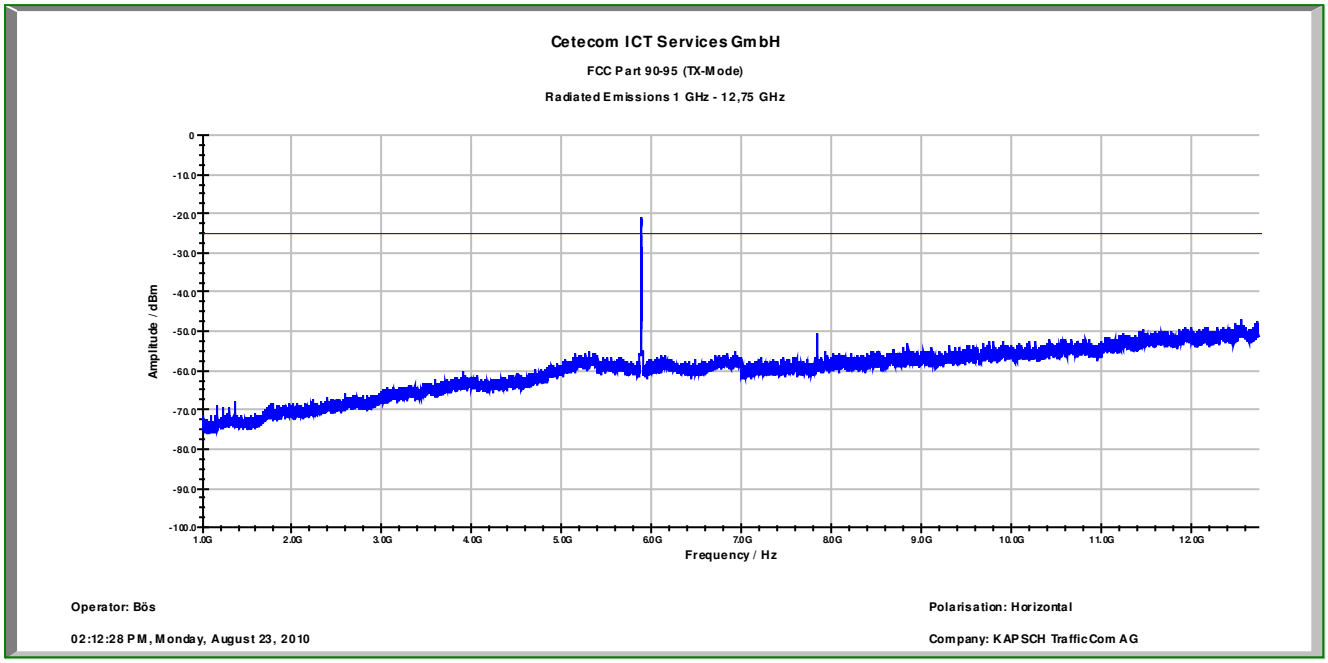
Plot 50: 5880 MHz, data rate 18 MBit/s, 30 MHz – 1 GHz, horizontal polarization



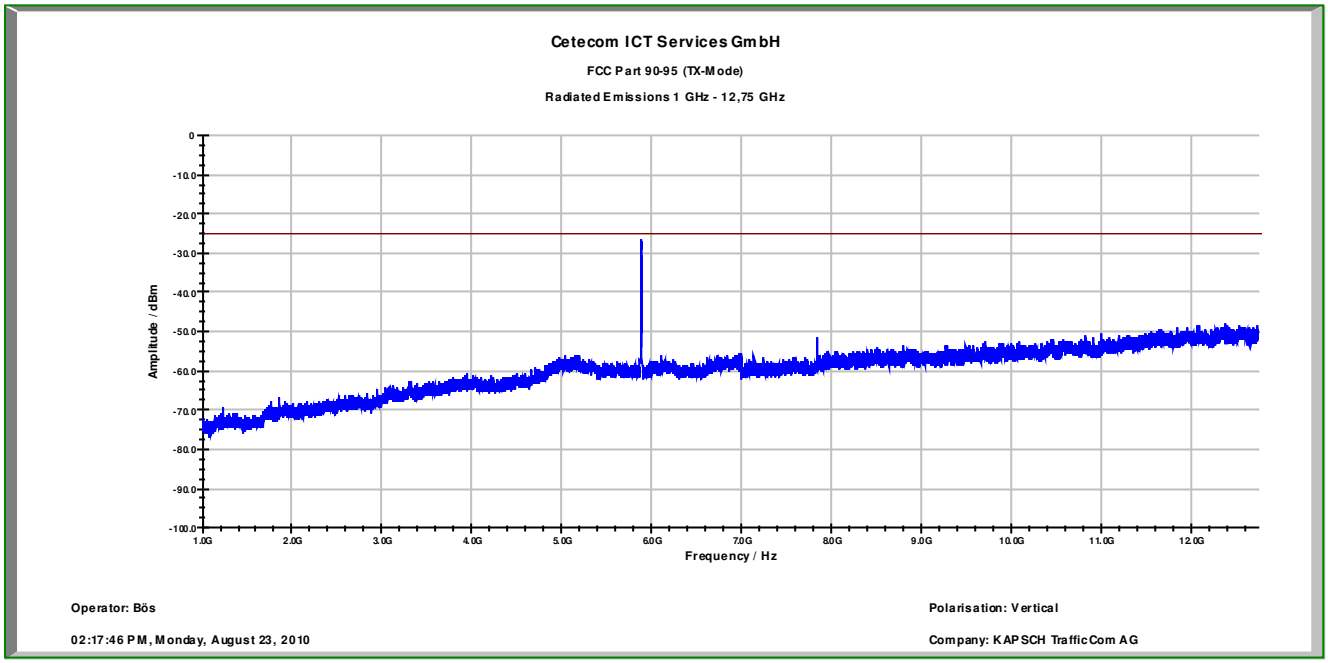
Plot 51: 5880 MHz, data rate 18 MBit/s, 30 MHz – 1 GHz, vertical polarization



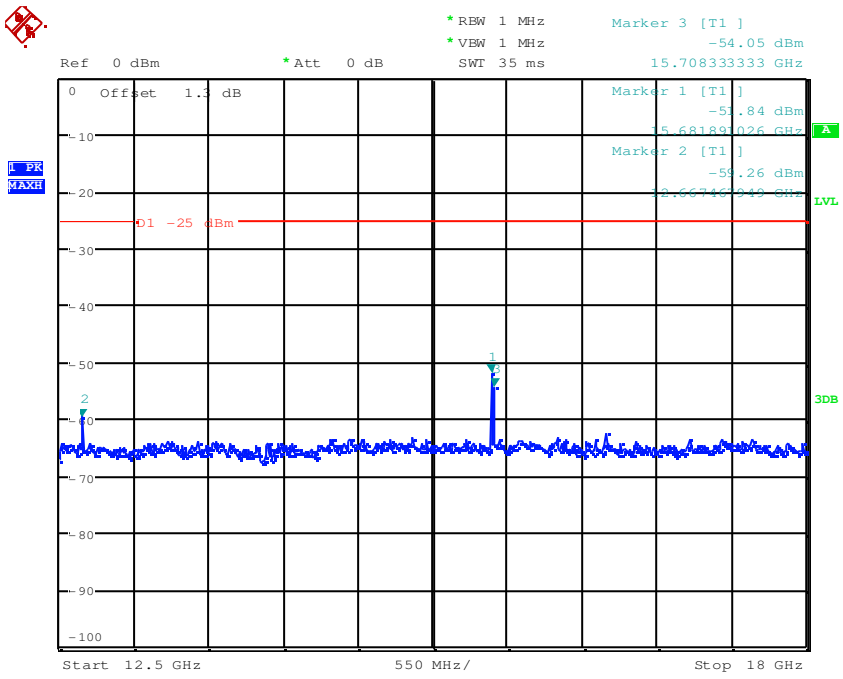
Plot 52: 5880 MHz, data rate 18 MBit/s, 1 GHz – 12.75 GHz, horizontal polarization



Plot 53: 5880 MHz, data rate 18 MBit/s, 1 GHz – 12.75 GHz, vertical polarization



Plot 54: 5880 MHz, data rate 18 MBit/s, 12 GHz – 18 GHz, Max. hor./vert. polarization



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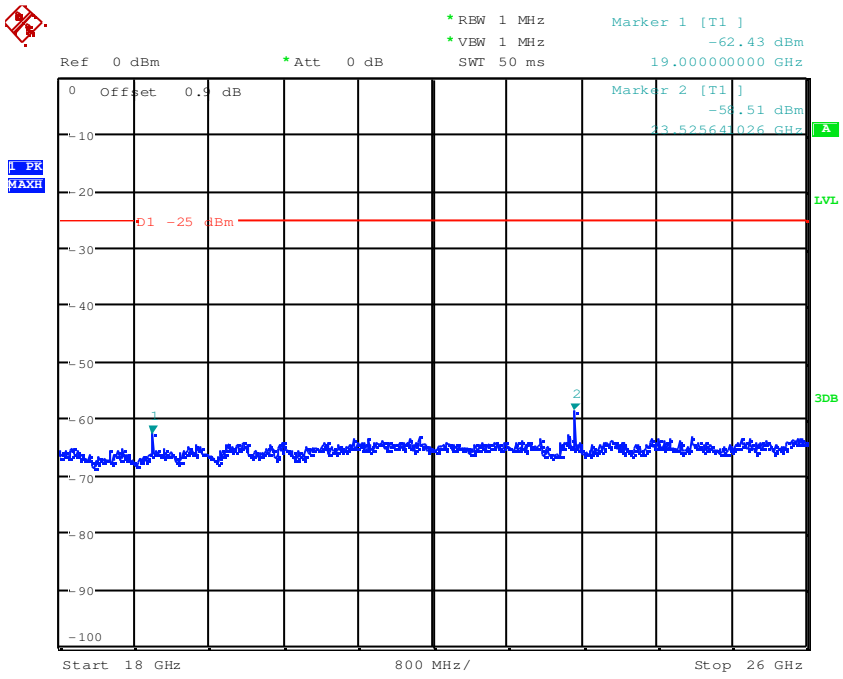
Plot 55: 5880 MHz, data rate 18 MBit/s, 18 GHz – 26 GHz, Max. hor./vert. polarization



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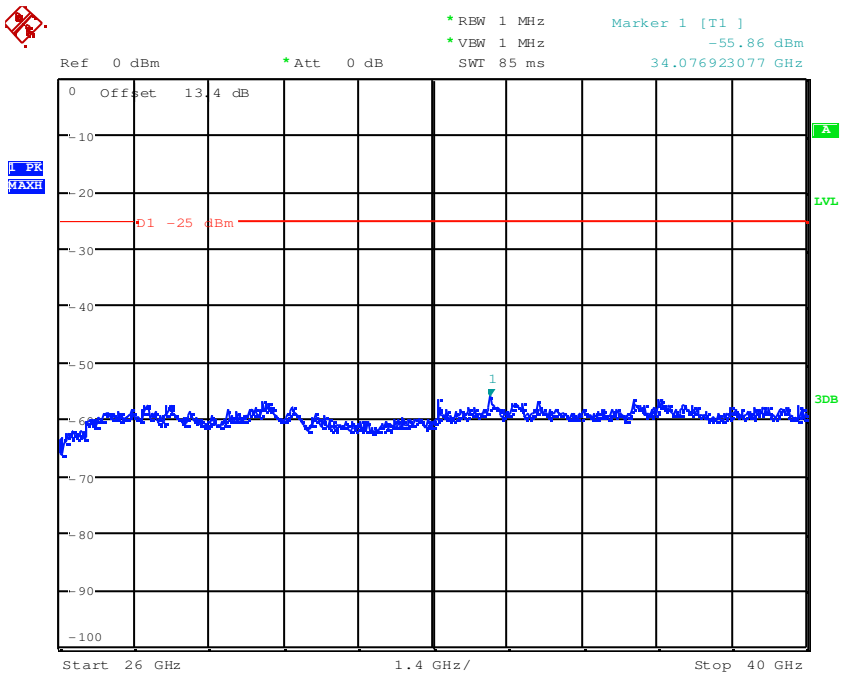
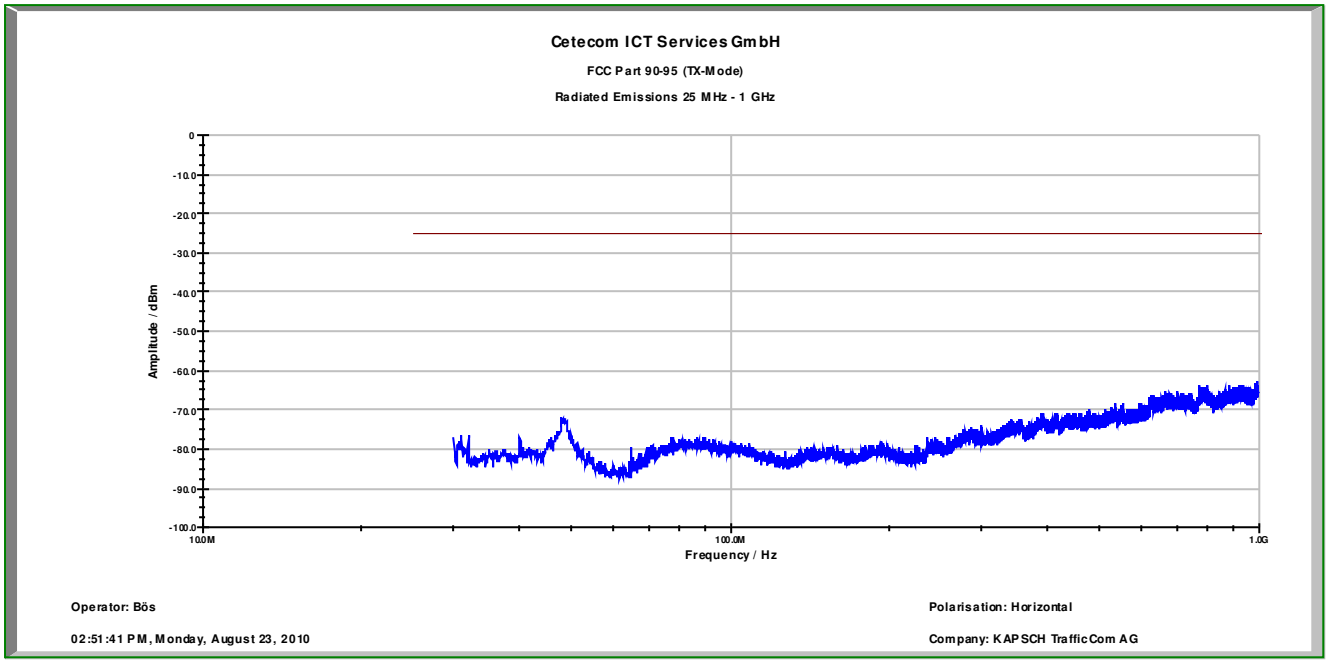
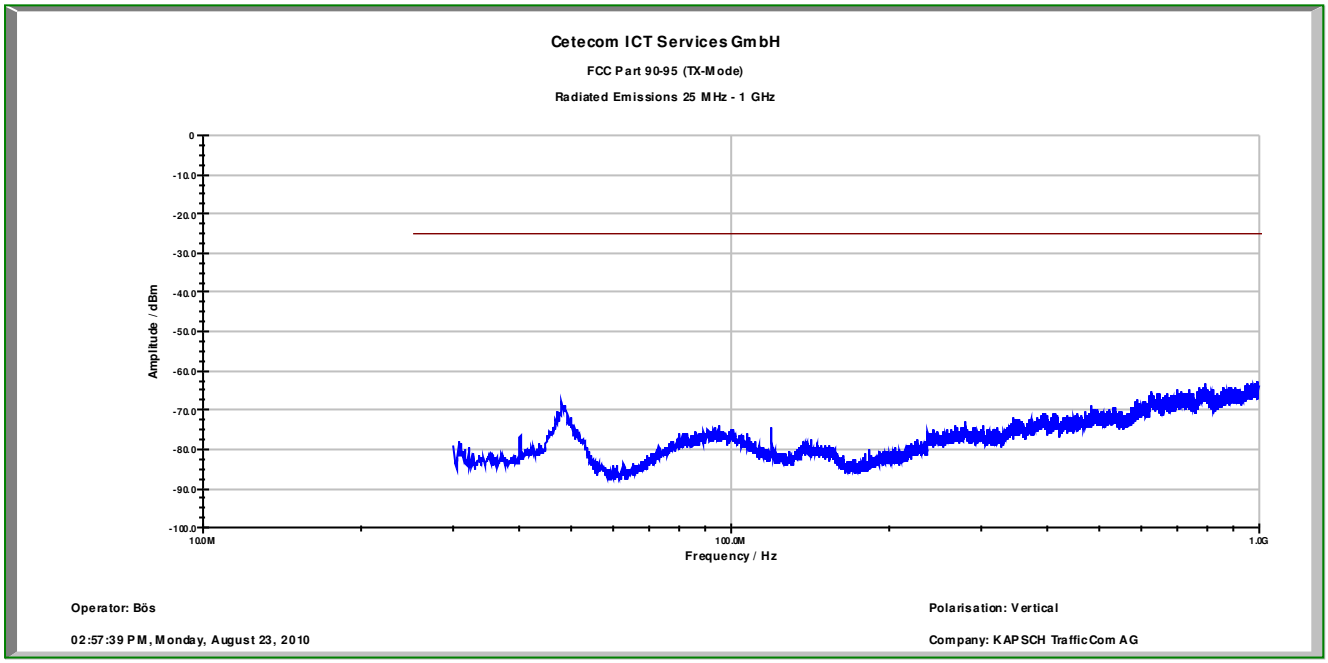
Plot 56: 5880 MHz, data rate 18 MBit/s, 26 GHz – 40 GHz, Max. hor./vert. polarization



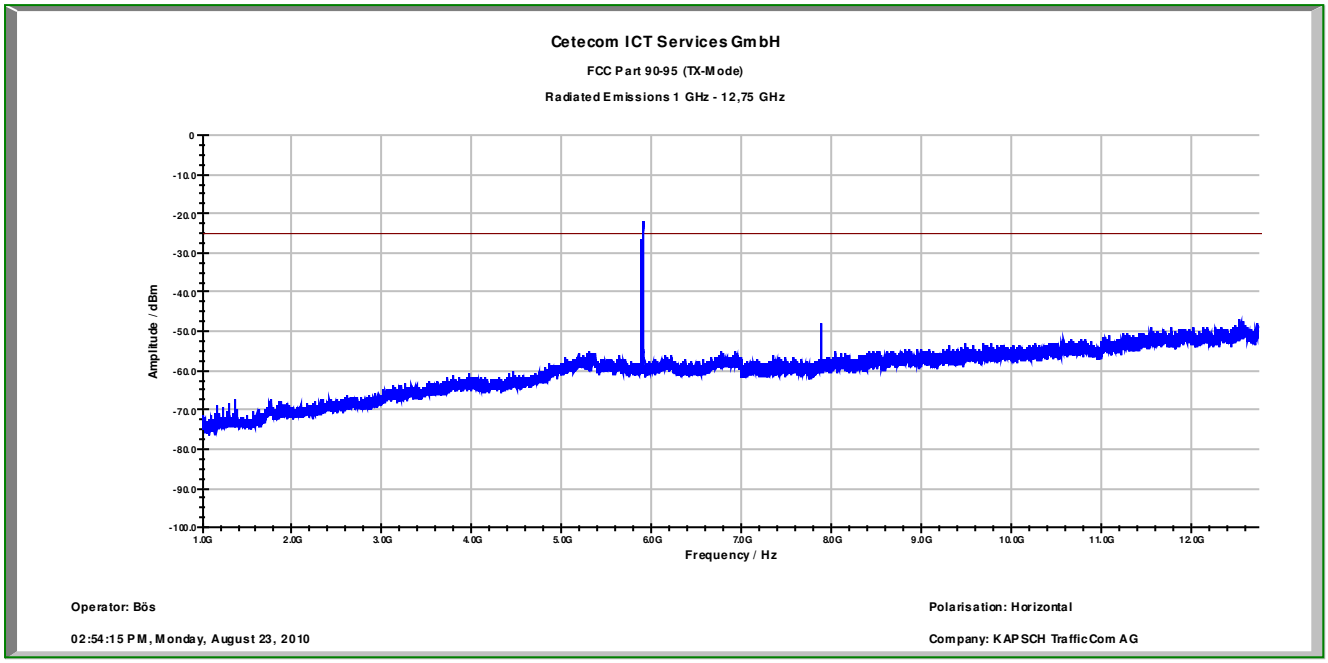
Plot 57: 5910 MHz, data rate 18 MBit/s, 30 MHz – 1 GHz, horizontal polarization



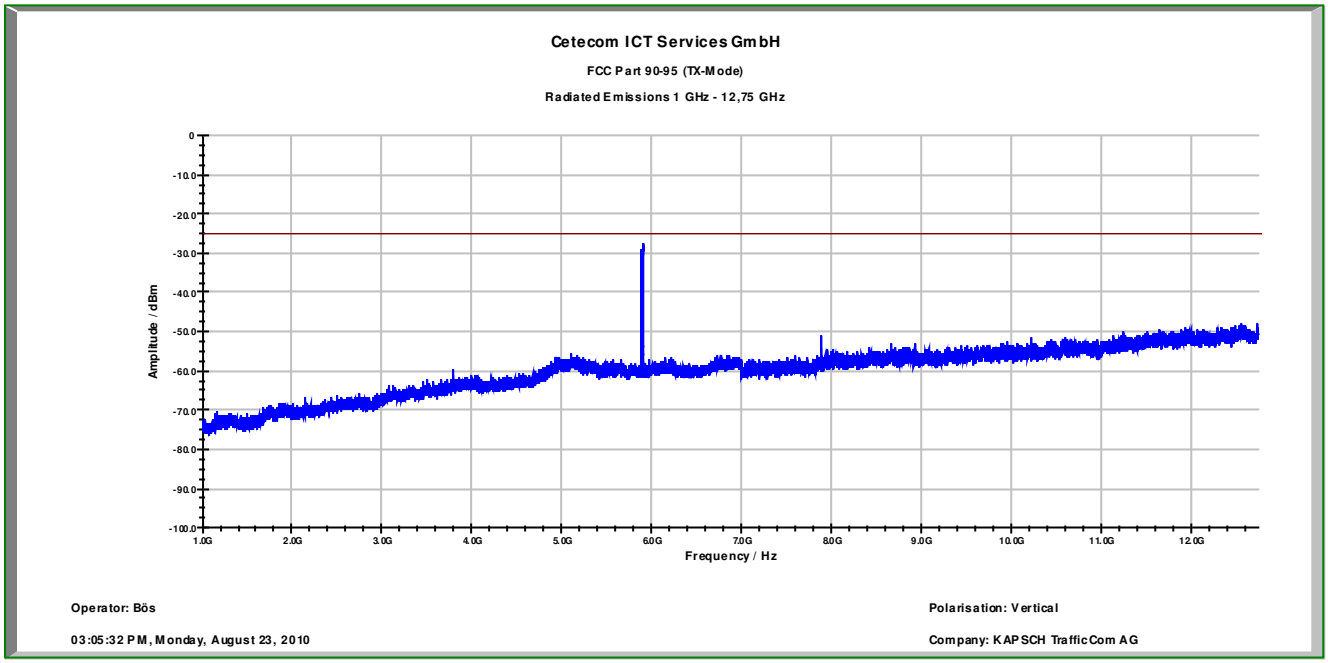
Plot 58: 5910 MHz, data rate 18 MBit/s, 30 MHz – 1 GHz, vertical polarization



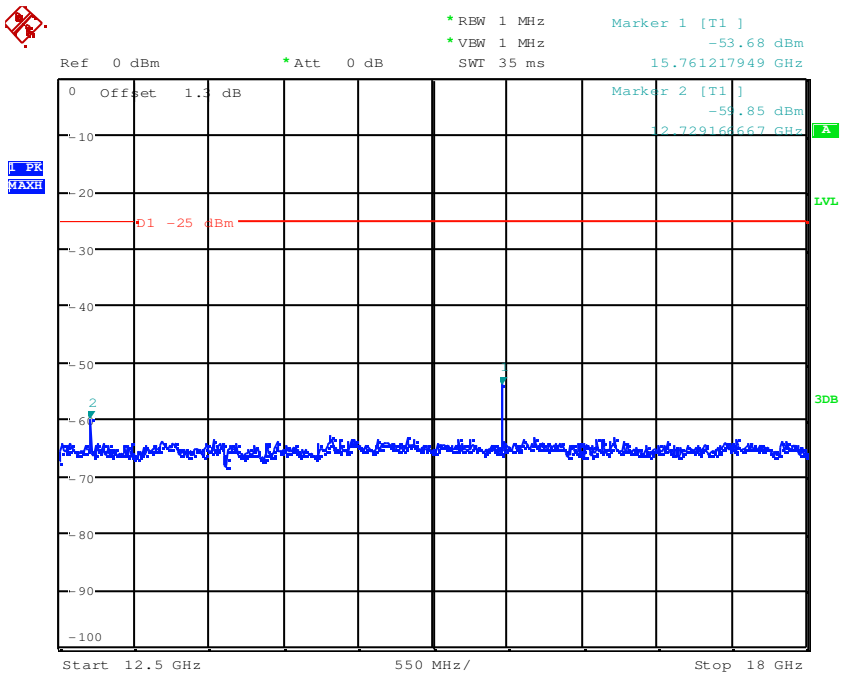
Plot 59: 5910 MHz, data rate 18 MBit/s, 1 GHz – 12.75 GHz, horizontal polarization



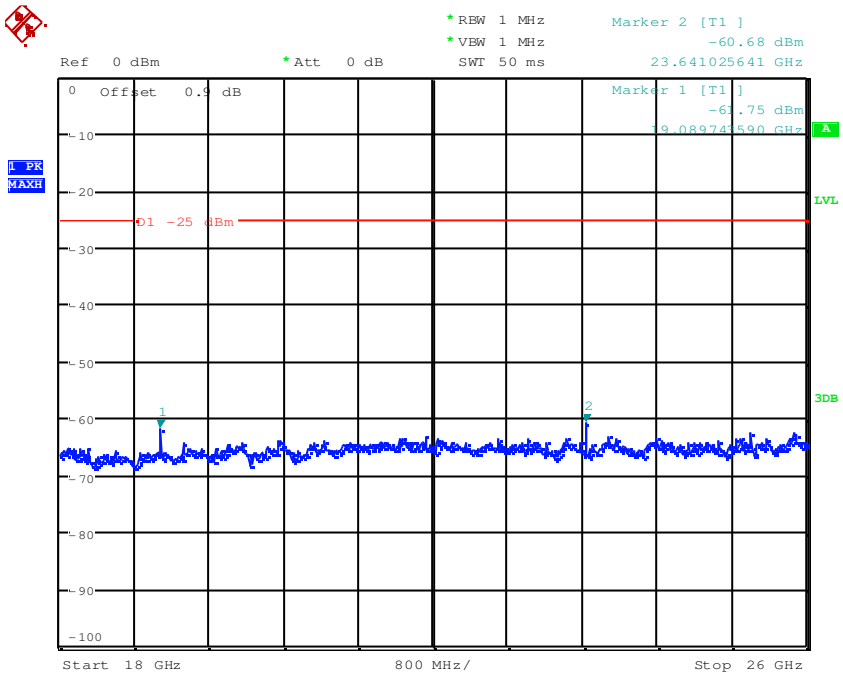
Plot 60: 5910 MHz, data rate 18 MBit/s, 1 GHz – 12.75 GHz, vertical polarization



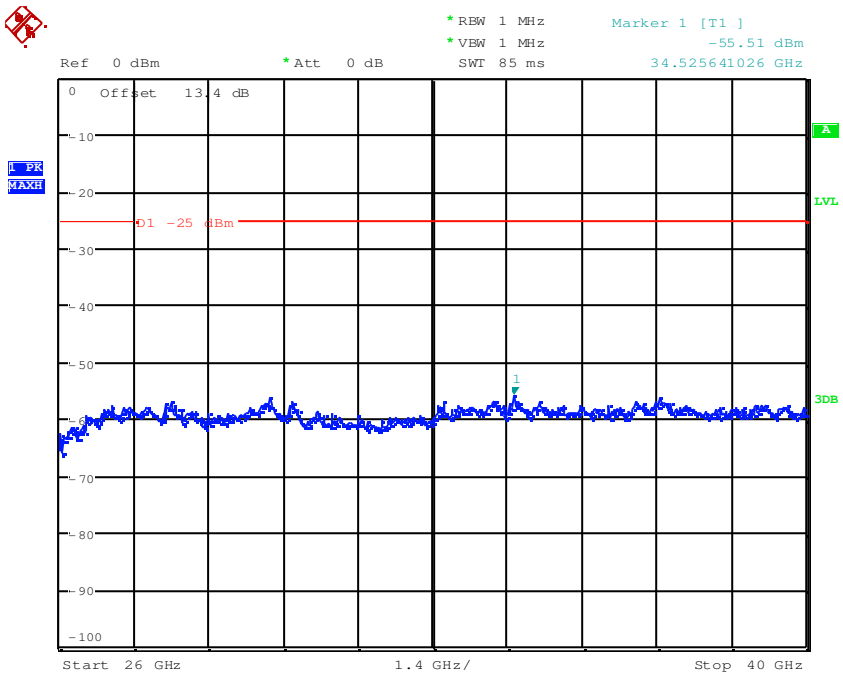
Plot 61: 5910 MHz, data rate 18 MBit/s, 12 GHz – 18 GHz, Max. hor./vert. polarization



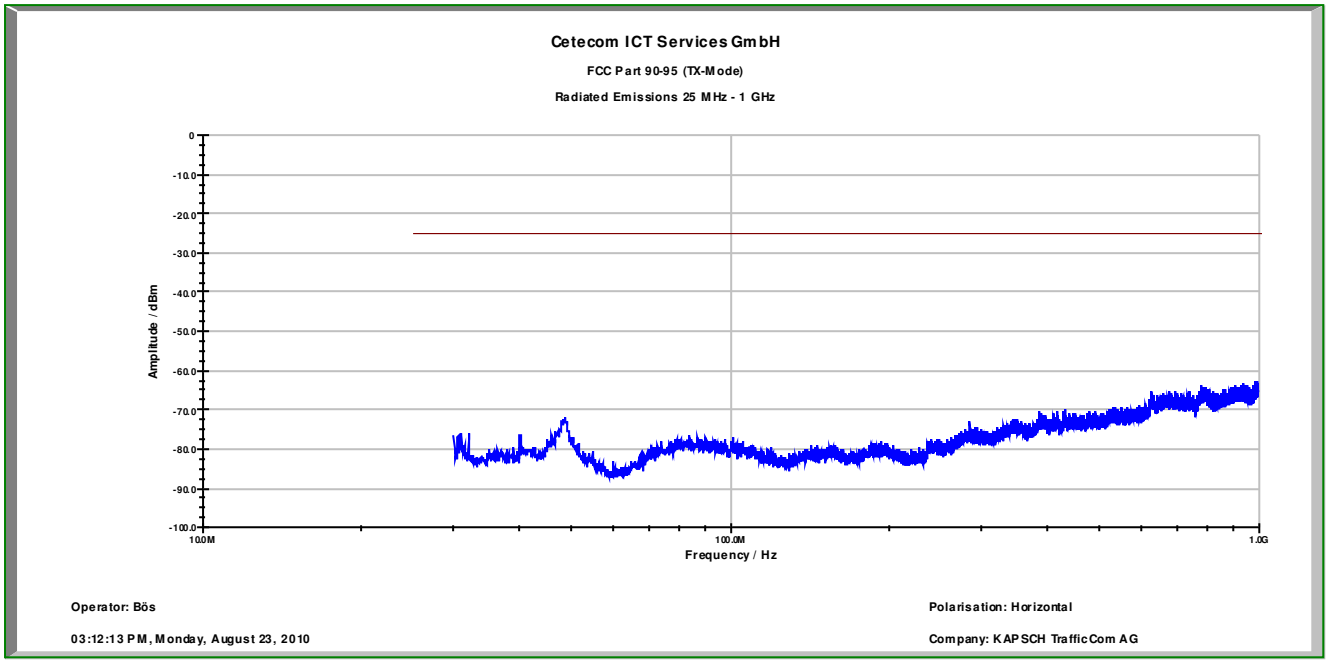
Plot 62: 5910 MHz, data rate 18 MBit/s, 18 GHz – 26 GHz, Max. hor./vert. polarization



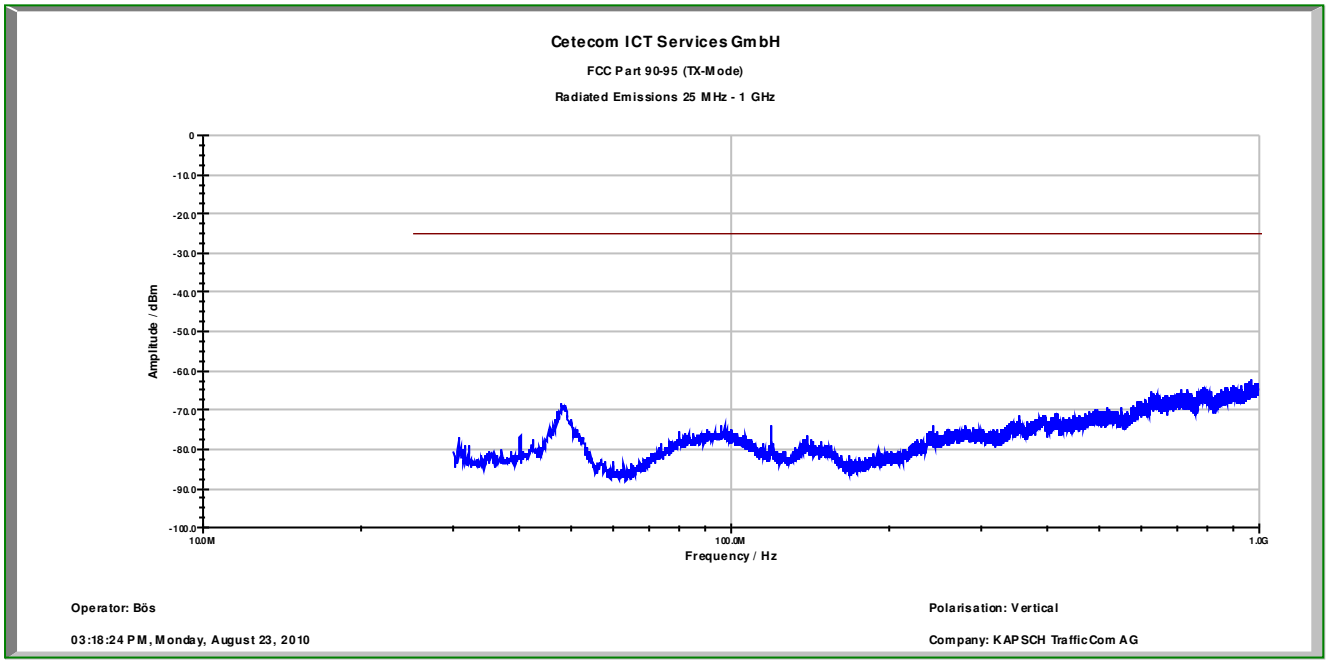
Plot 63: 5910 MHz, data rate 18 MBit/s, 26 GHz – 40 GHz, Max. hor./vert. polarization



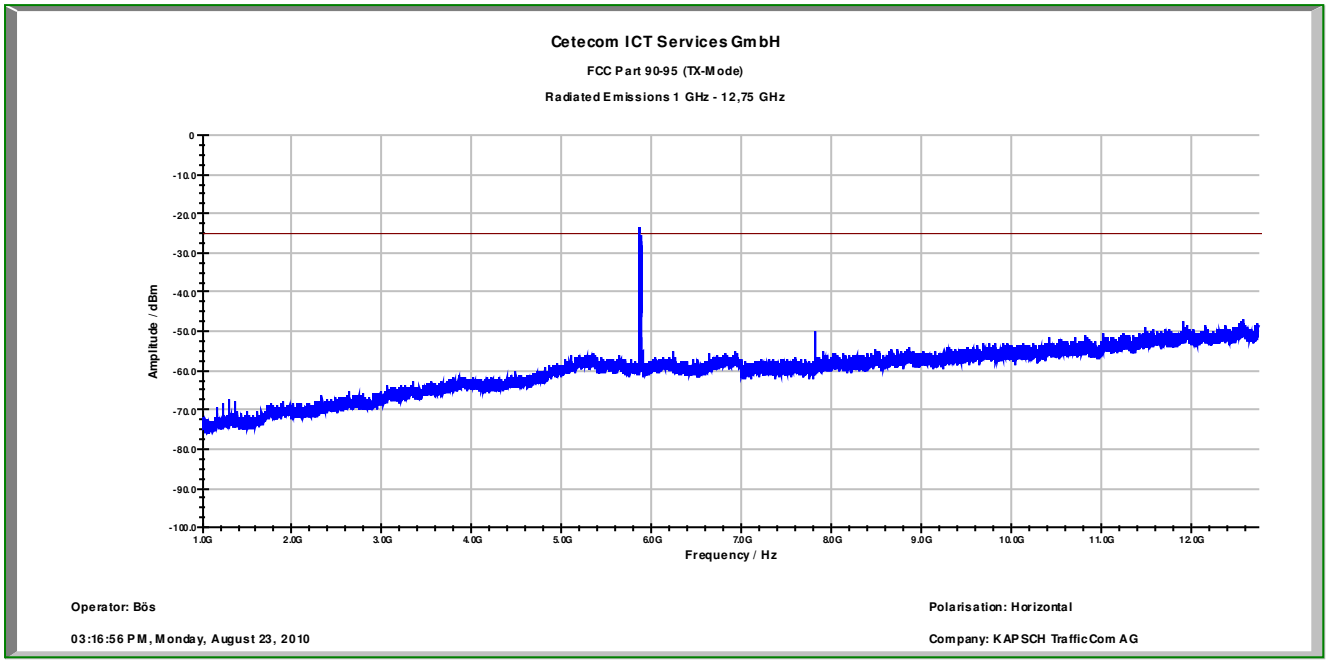
Plot 64: 5860 MHz, data rate 27 MBit/s, 30 MHz – 1 GHz, horizontal polarization



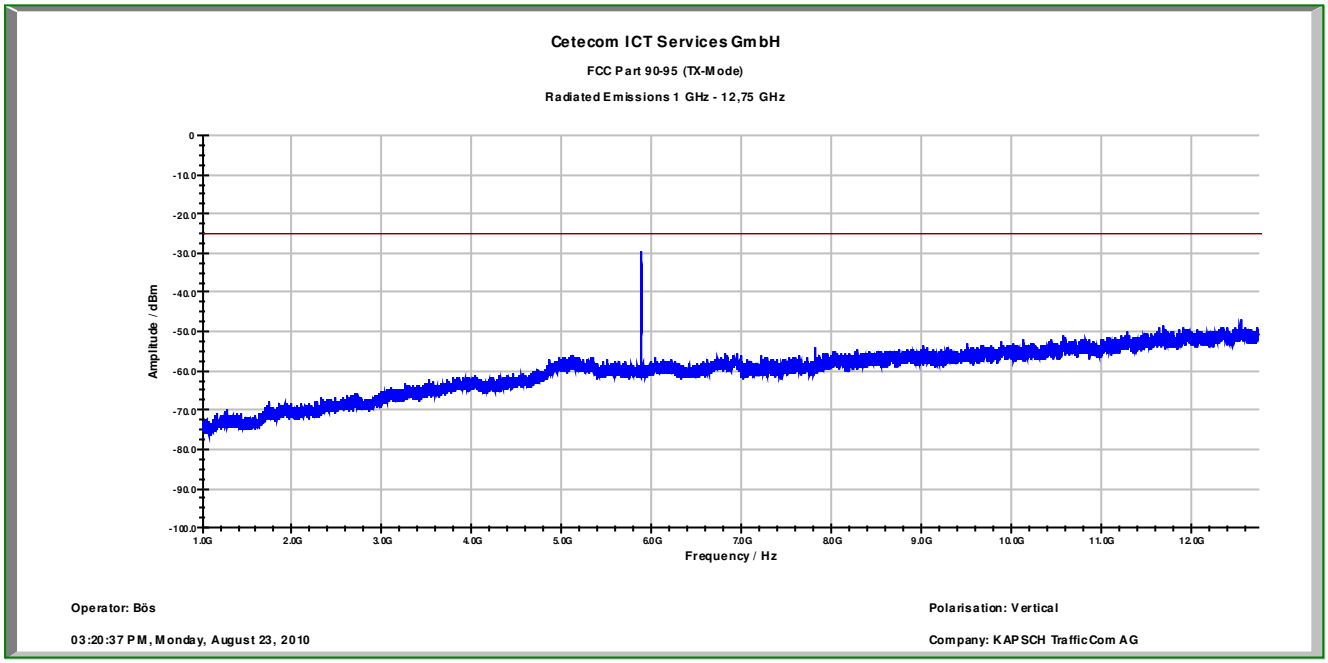
Plot 65: 5860 MHz, data rate 27 MBit/s, 30 MHz – 1 GHz, vertical polarization



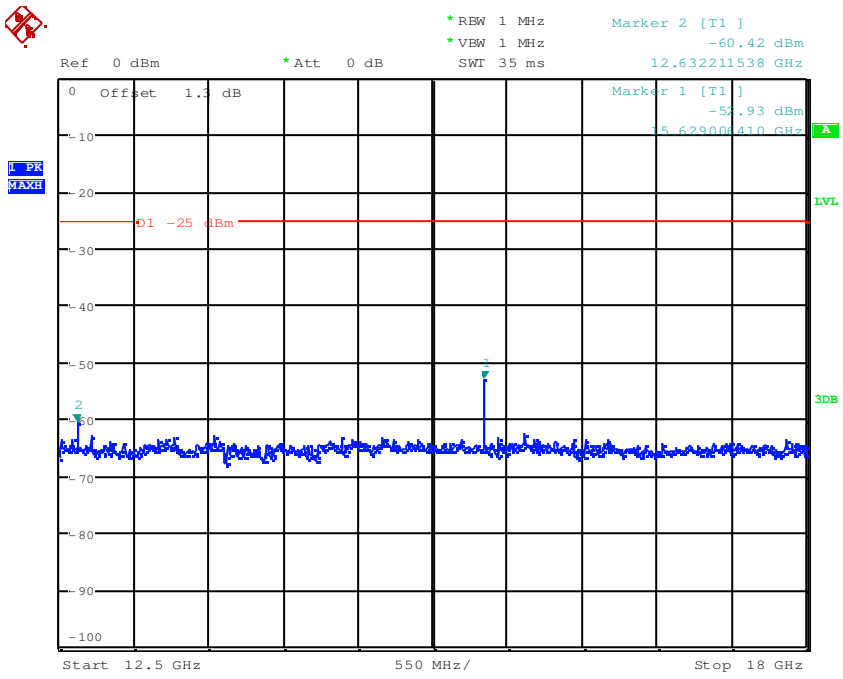
Plot 66: 5860 MHz, data rate 27 MBit/s, 1 GHz – 12.75 GHz, horizontal polarization



Plot 67: 5860 MHz, data rate 27 MBit/s, 1 GHz – 12.75 GHz, vertical polarization



Plot 68: 5860 MHz, data rate 27 MBit/s, 12 GHz – 18 GHz, Max. hor./vert. polarization



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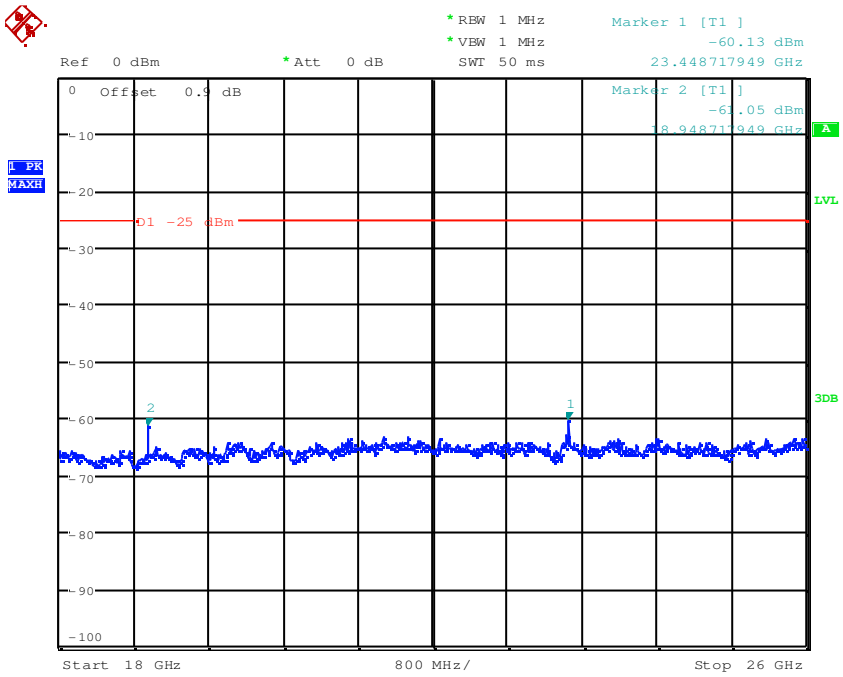
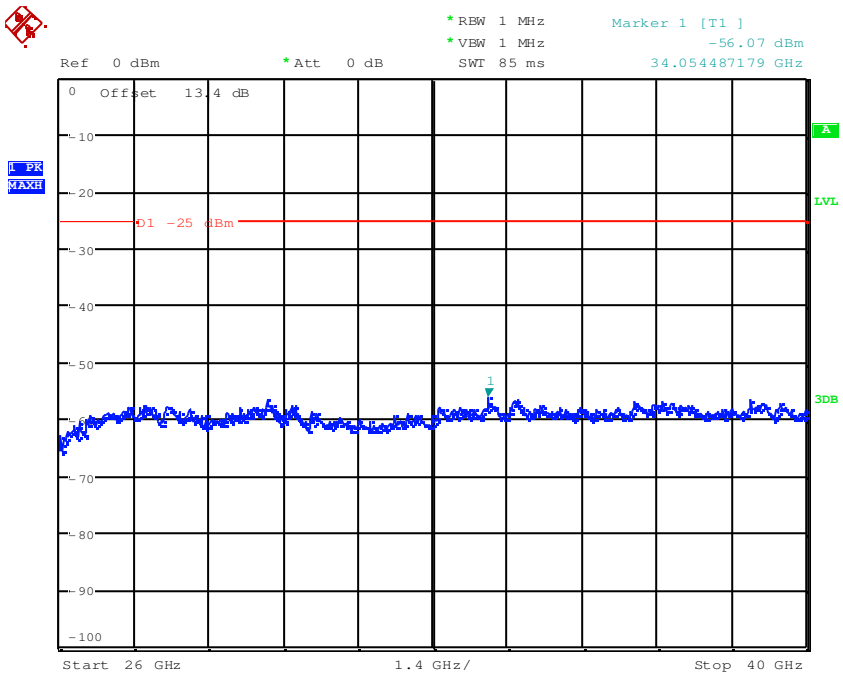
Plot 69: 5860 MHz, data rate 27 MBit/s, 18 GHz – 26 GHz, Max. hor./vert. polarization

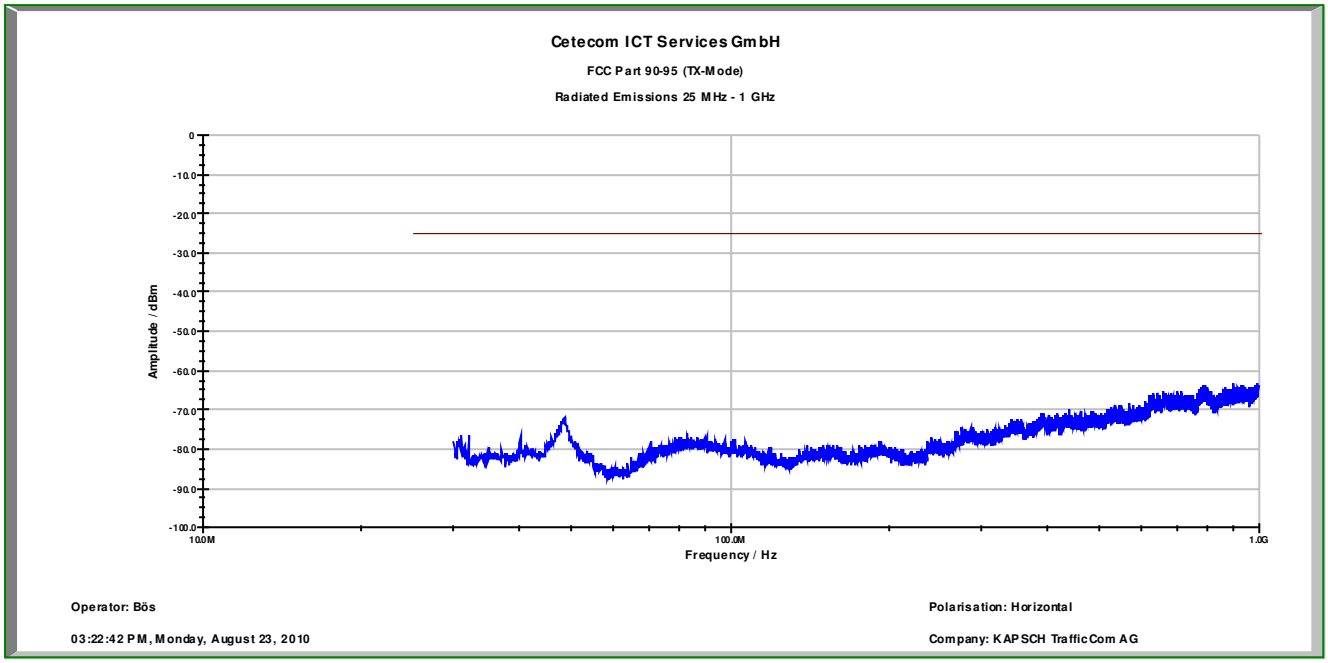


Date: 24.AUG.2010 12:10:32

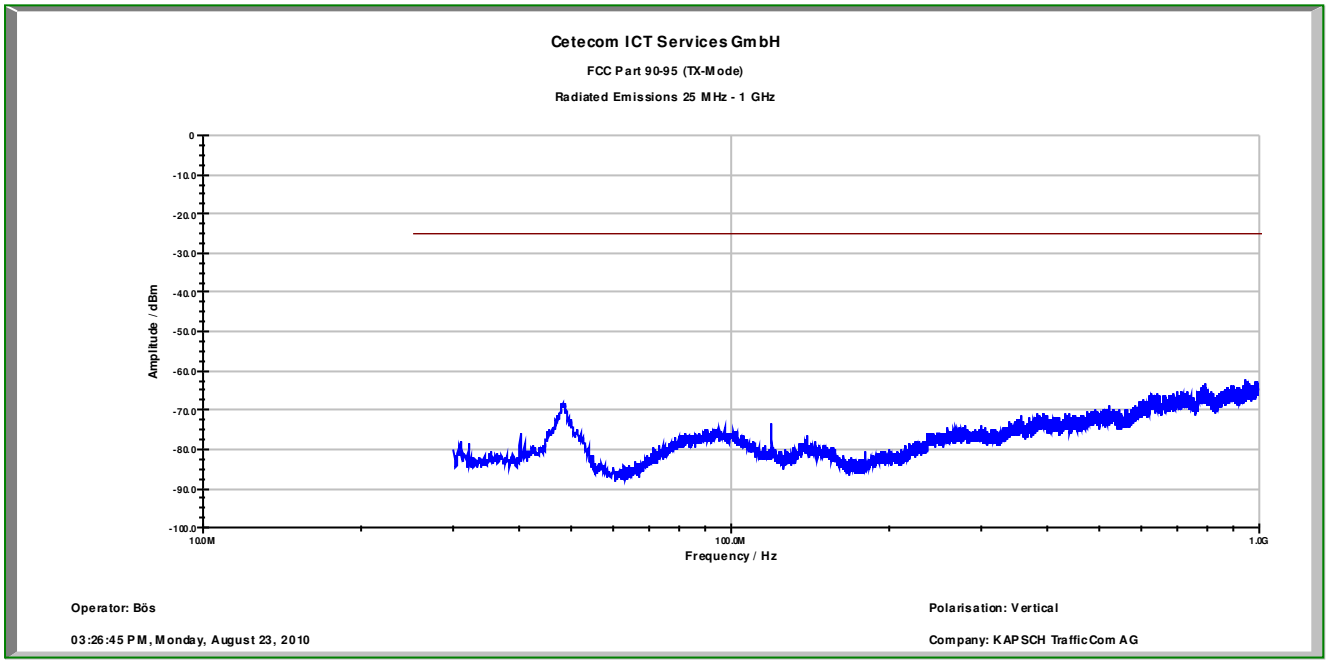
Plot 70: 5860 MHz, data rate 27 MBit/s, 26 GHz – 40 GHz, Max. hor./vert. polarization



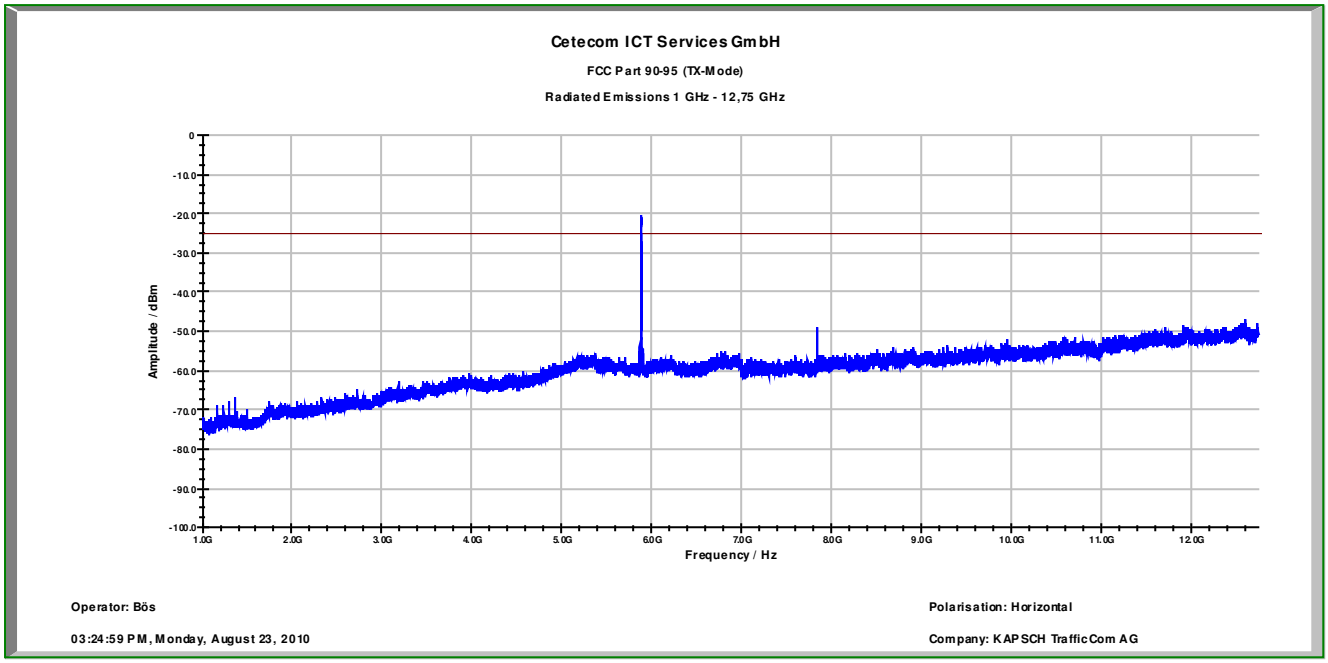
Plot 71: 5880 MHz, data rate 27 MBit/s, 30 MHz – 1 GHz, horizontal polarization



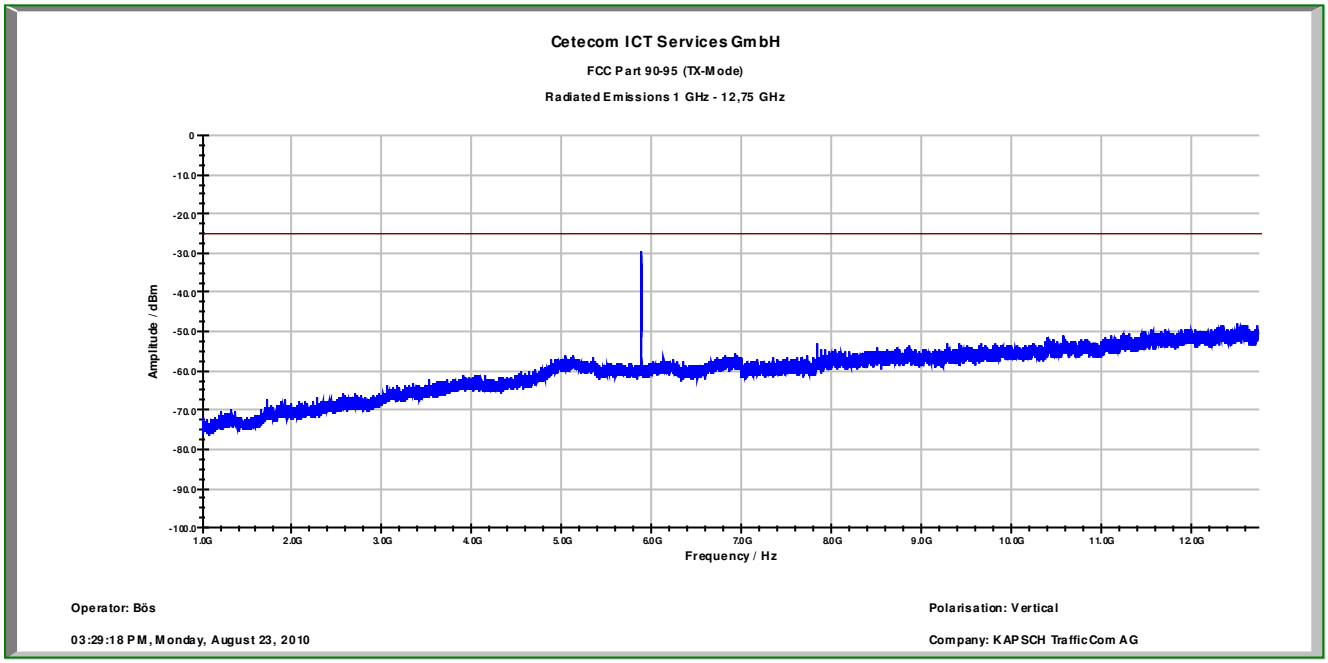
Plot 72: 5880 MHz, data rate 27 MBit/s, 30 MHz – 1 GHz, vertical polarization



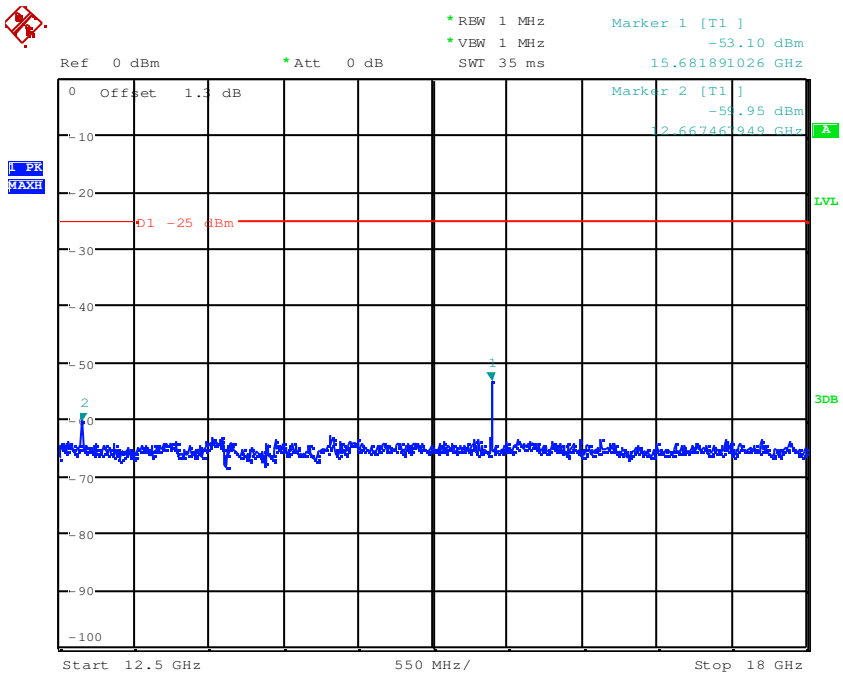
Plot 73: 5880 MHz, data rate 27 MBit/s, 1 GHz – 12.75 GHz, horizontal polarization



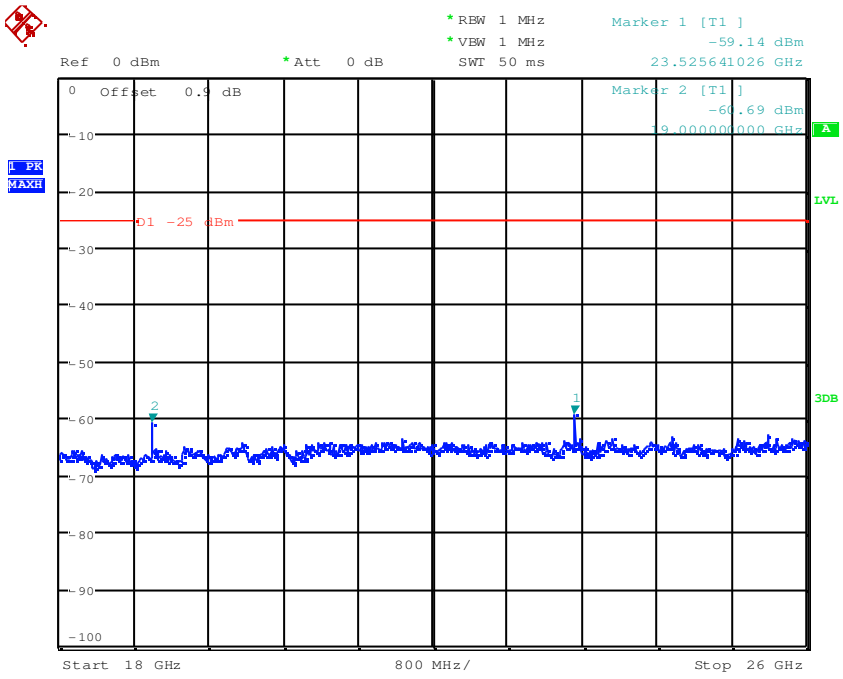
Plot 74: 5880 MHz, data rate 27 MBit/s, 1 GHz – 12.75 GHz, vertical polarization



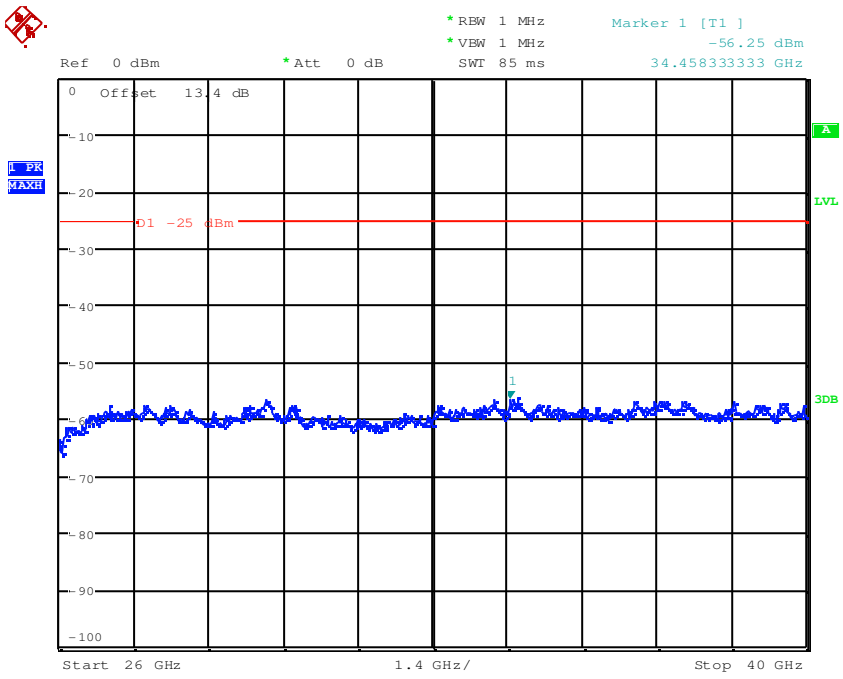
Plot 75: 5880 MHz, data rate 27 MBit/s, 12 GHz – 18 GHz, Max. hor./vert. polarization



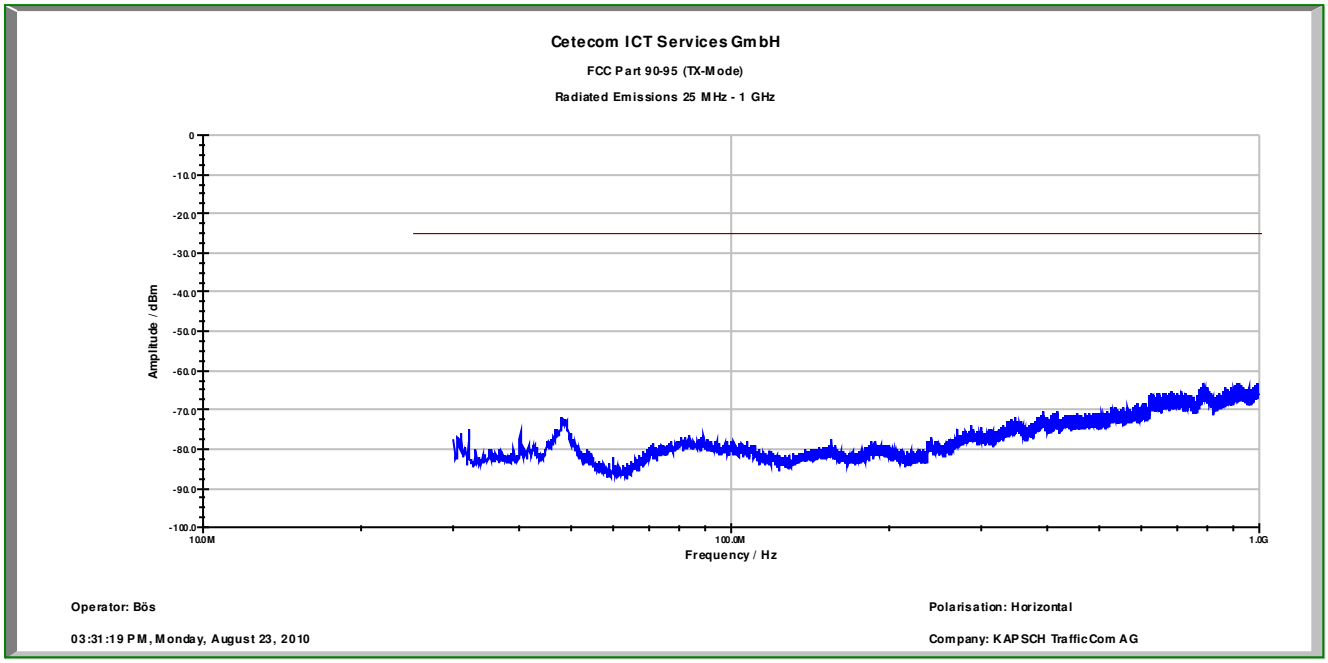
Plot 76: 5880 MHz, data rate 27 MBit/s, 18 GHz – 26 GHz, Max. hor./vert. polarization



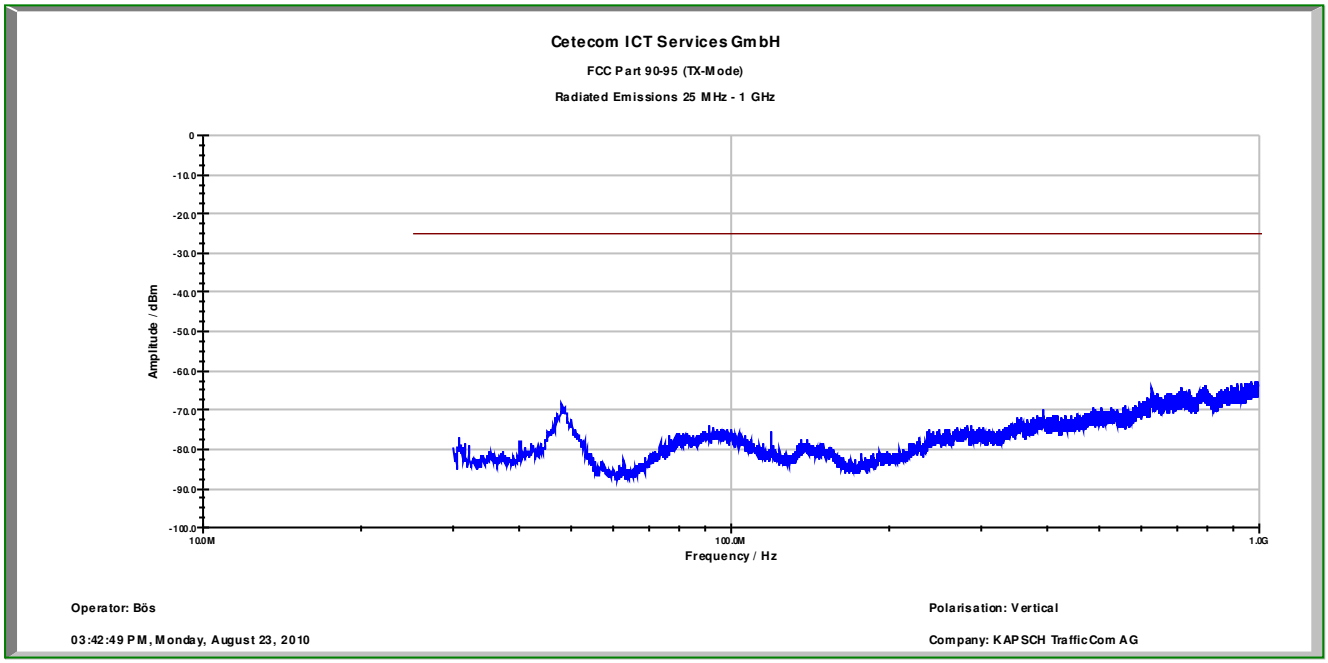
Plot 77: 5880 MHz, data rate 27 MBit/s, 26 GHz – 40 GHz, Max. hor./vert. polarization



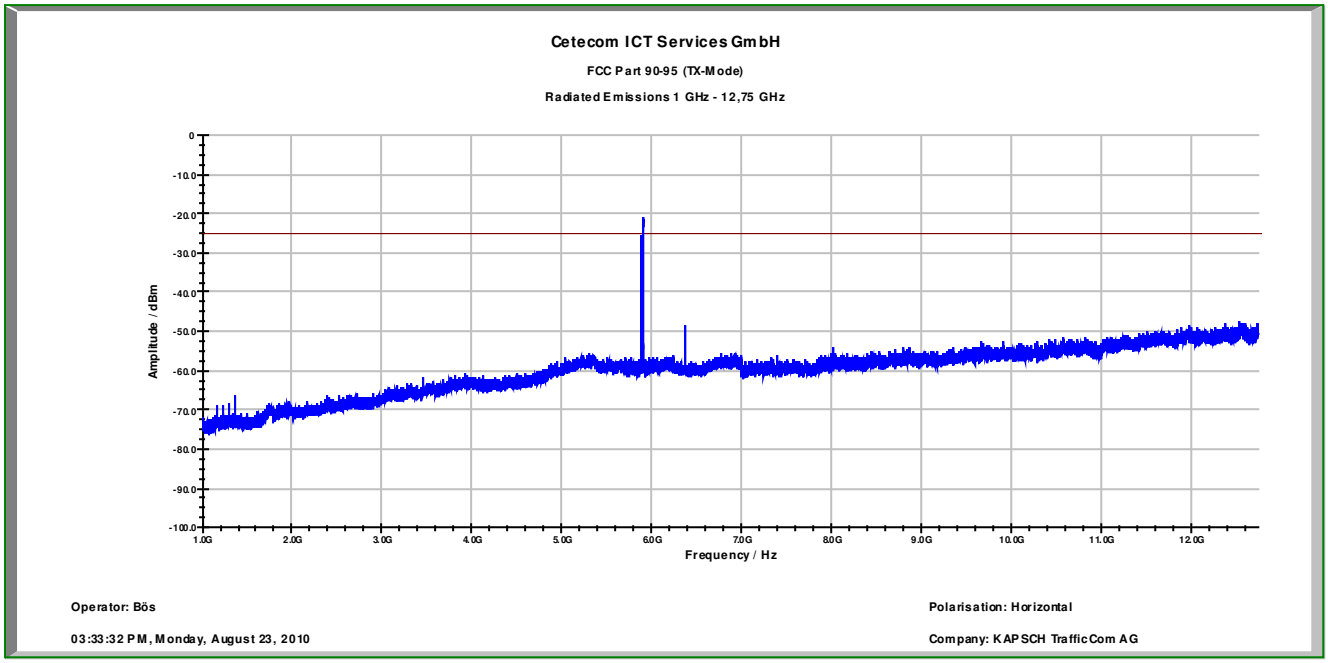
Plot 78: 5910 MHz, data rate 27 MBit/s, 30 MHz – 1 GHz, horizontal polarization



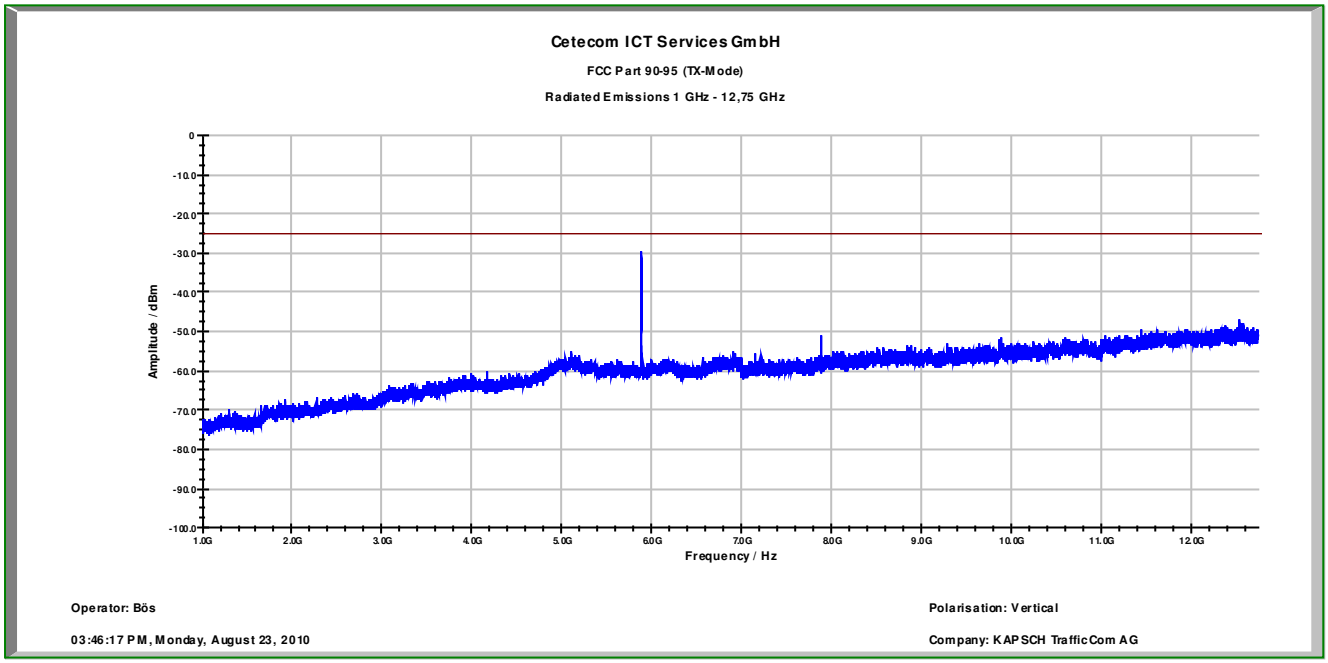
Plot 79: 5910 MHz, data rate 27MBit/s, 30 MHz – 1 GHz, vertical polarization



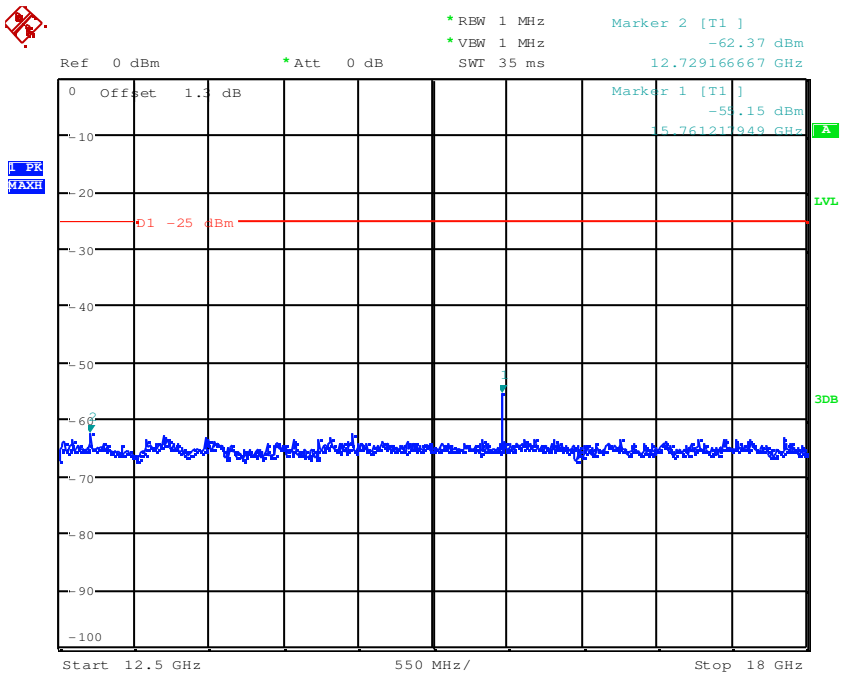
Plot 80: 5910 MHz, data rate 27 MBit/s, 1 GHz – 12.75 GHz, horizontal polarization



Plot 81: 5910 MHz, data rate 27 MBit/s, 1 GHz – 12.75 GHz, vertical polarization

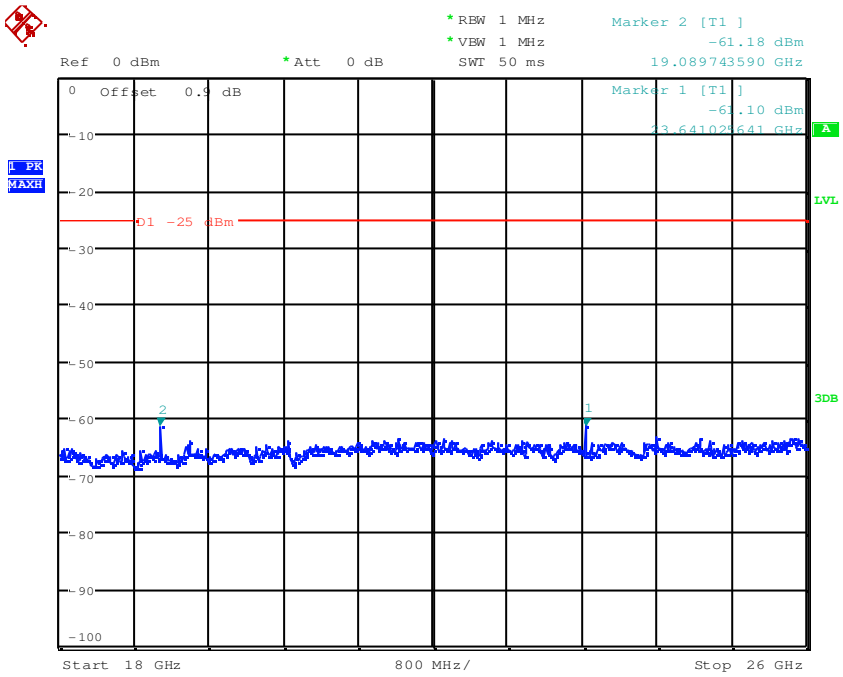


Plot 82: 5910 MHz, data rate 27 MBit/s, 12 GHz – 18 GHz, Max. hor./vert. polarization



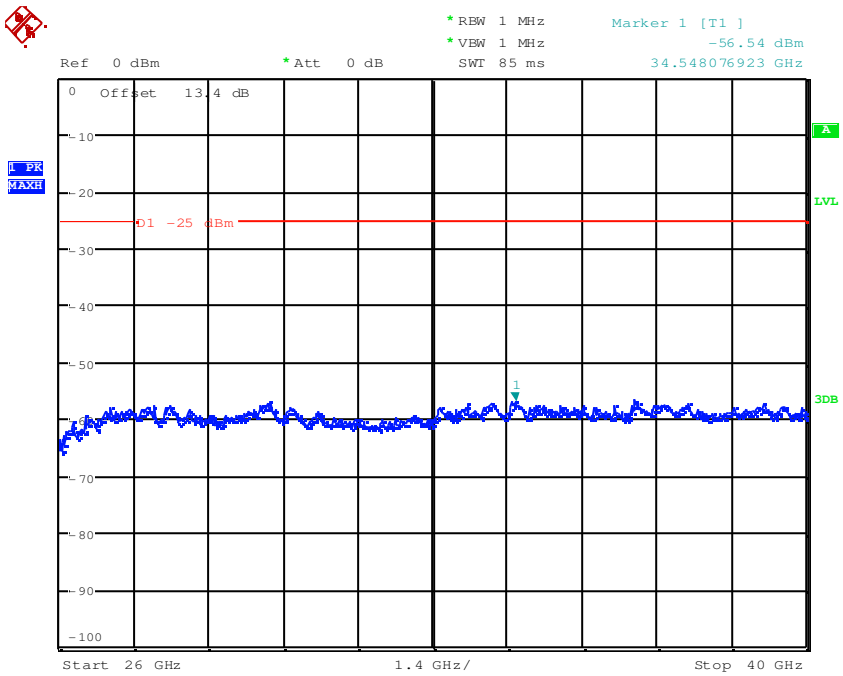
Date: 24.AUG.2010 12:13:04

Plot 83: 5910 MHz, data rate 27 MBit/s, 18 GHz – 26 GHz, Max. hor./vert. polarization



Date: 24.AUG.2010 12:09:06

Plot 84: 5910 MHz, data rate 27 MBit/s, 26 GHz – 40 GHz, Max. hor./vert. polarization



9 Test equipment and ancillaries used for tests

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

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

No.	Labor / Item	Equipment	Type	Manufact.	Serial No.	INV. No Cetecom	Kind of Calibration	Last Calibration	Next Calibration
1	n. a.	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2818A03450	300001040	Ve	08.01.2009	08.01.2012
2	n. a.	Power Attenuator	8325	Byrd	1530	300001595			
3	n. a.	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032	vIKI!	05.03.2009	05.03.2011
4	n. a.	Active Loop Antenna	6502	EMCO	2210	300001015	ne		
5	n. a.	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996		23.03.2009	
6	Spec.A. 2_2e	System rack for EMI measurement solution	85900	HP I.V.	*	300000222	ne		
7	9	Artificial Mains 9 kHz to 30 MHz	ESH3-Z5	R&S	828576/020	300001210	Ve	06.01.2010	06.01.2012
8	n. a.	Relais Matrix	3488A	HP Meßtechnik	2719A15013	300001156	ne		
9	n. a.	Relais Matrix	PSU	R&S	890167/024	300001168	ne		
10	n. a.	Isolating Transformer	RT5A	Grundig	9242	300001263	ne		
11	n. a.	Three-Way Power Splitter, 50 Ohm	11850C	HP Meßtechnik		300000997	ne		
12	n. a.	Switch / Control Unit	3488A	HP	2605e08770	300001443	ne		
13	n. a.	Band Reject filter	WRCG1855/1910-1835/1925-40/8SS	Wainwright	7	300003350	ev		
14	n. a.	Band Reject filter	WRCG2400/2483-2375/2505-50/10SS	Wainwright	11	300003351	ev		
15	n. a.	TILE-Software Emission	Quantum Change, Modell TILE-ICS/FULL	EMCO	none	300003451	ne		
16	n. a.	Highpass Filter	WHKX2.9/18G-12SS	Wainwright	1	300003492	ev		
17	n. a.	Highpass Filter	WHK1.1/15G-10SS	Wainwright	3	300003255	ev		
18	n. a.	Highpass Filter	WHKX7.0/18G-8SS	Wainwright	18	300003789	ne		
19	n. a.	PSA Spectrum Analyzer 3 Hz - 26.5 GHz	E4440A	Agilent Technologies	MY48250080	300003812	k	05.08.2008	
20	n. a.	MXG Microwave Analog Signal Generator	N5183A	Agilent Technologies	MY47420220	300003813	k	06.08.2008	
21	n. a.	RF Filter Section 9kHz - 1GHz	N9039A	Agilent Technologies	MY48260003	300003825	vIKI!	19.08.2008	
22	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	371	300003854	vIKI!	17.12.2008	17.12.2010
23	n. a.	Signal Analyzer 20Hz-26,5GHz-150 to + 30 DBM	FSiQ26	R&S	835111/0004	300002678	Ve	06.01.2009	06.01.2011

Agenda: Kind of Calibration

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

Annex A Photographs of the test setup

Photo 1: (radiated)

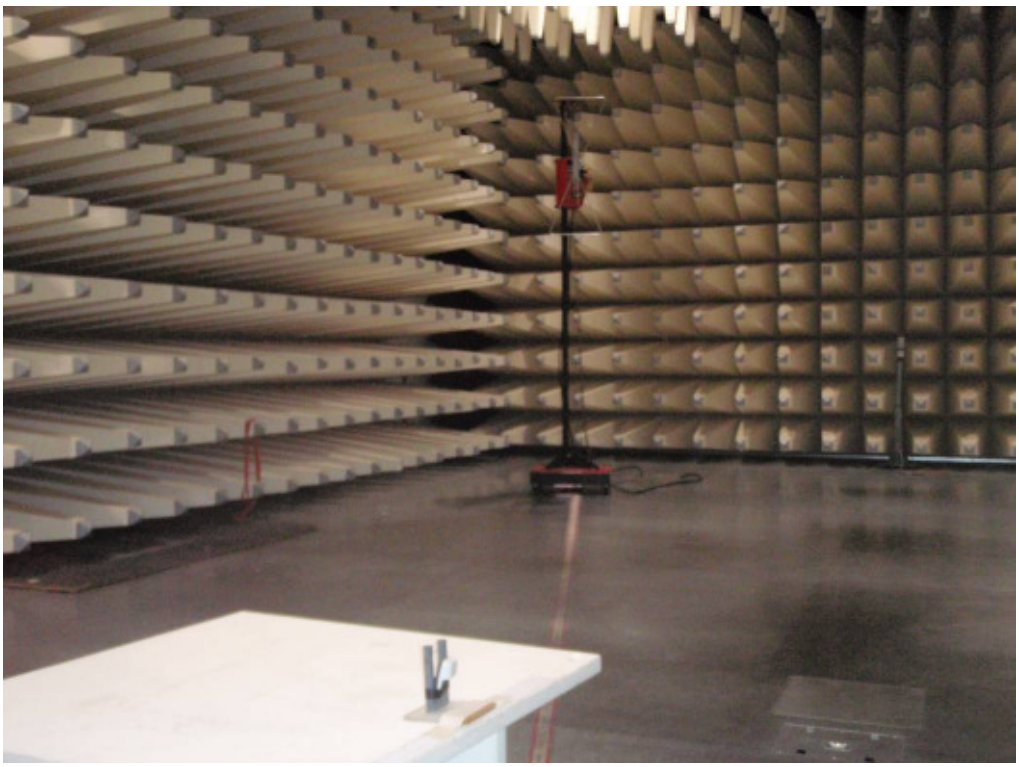


Photo 2: (conducted)

Annex B External photographs of the EUT

Photo 1:

Photo 2:

Photo 3:

Photo 4:

Photo 5:

Photo 6:

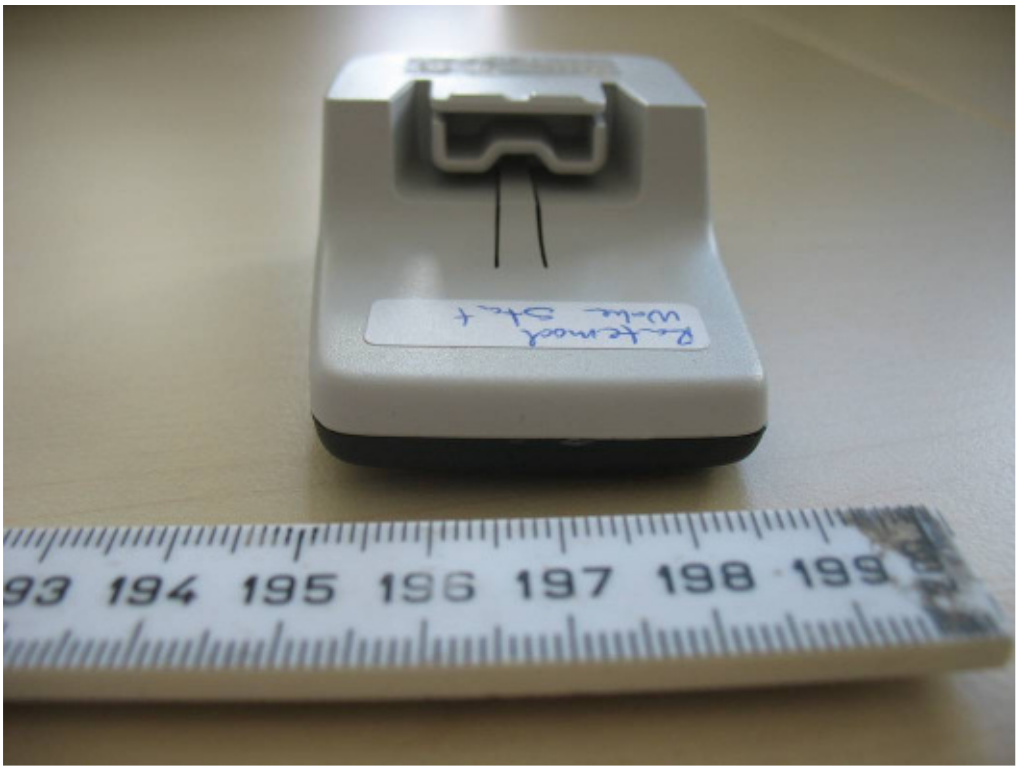


Photo 7:

Annex C Internal photographs of the EUT

Photo 1:

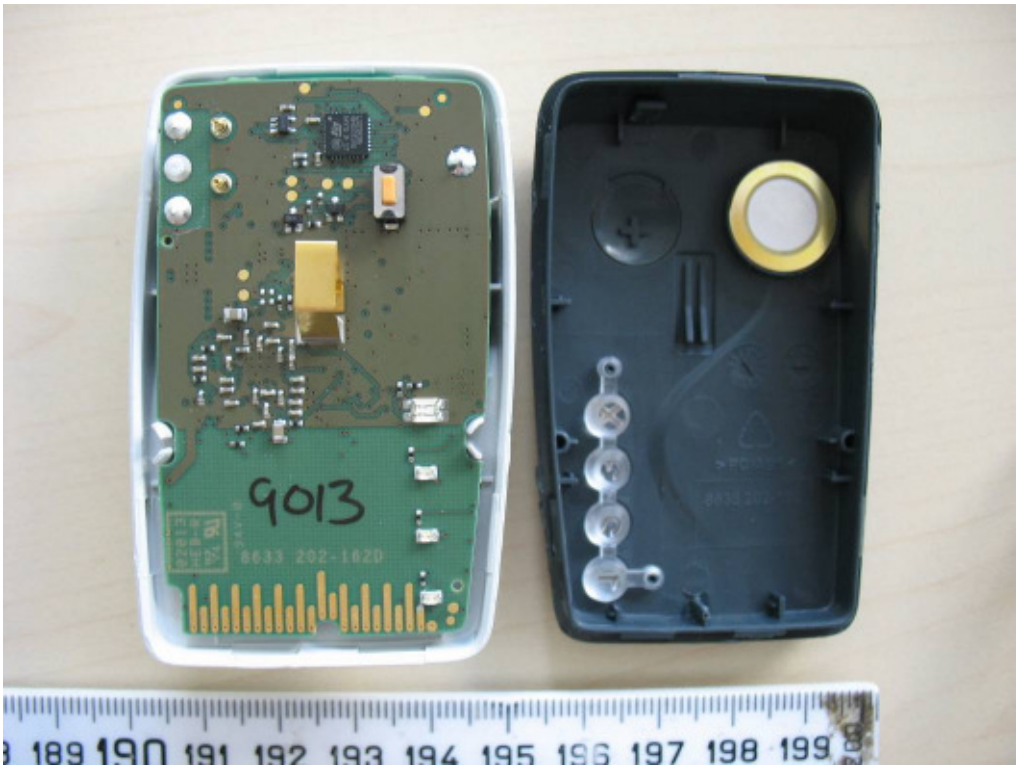


Photo 2:

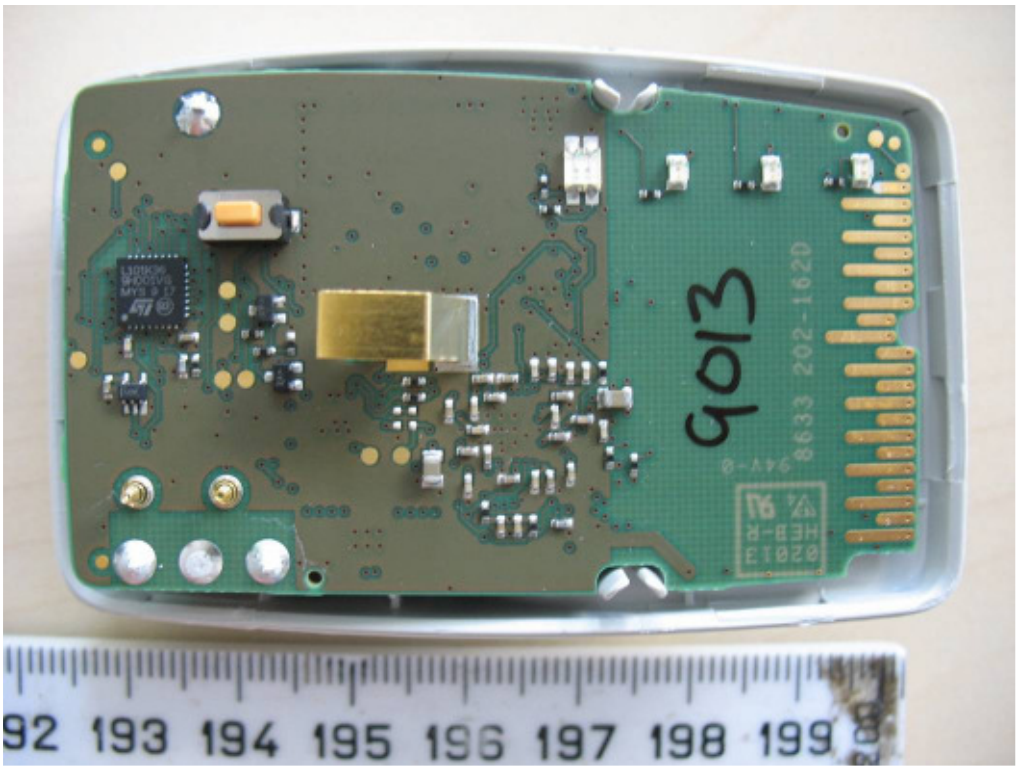


Photo 3:

Photo 4:

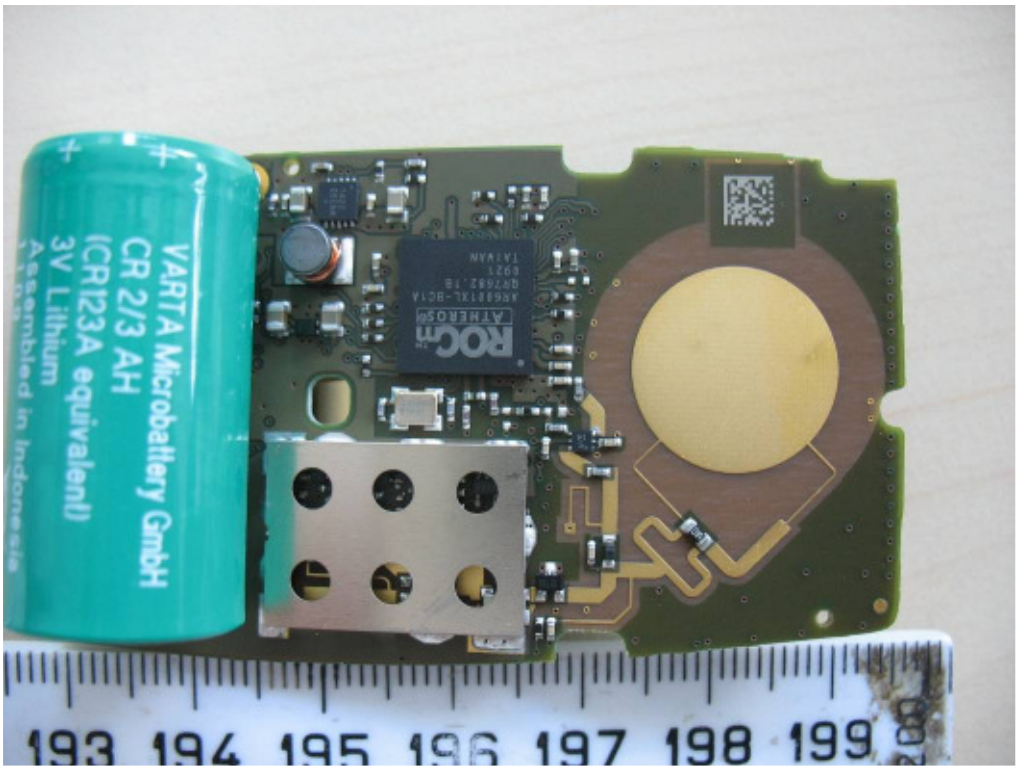


Photo 5:

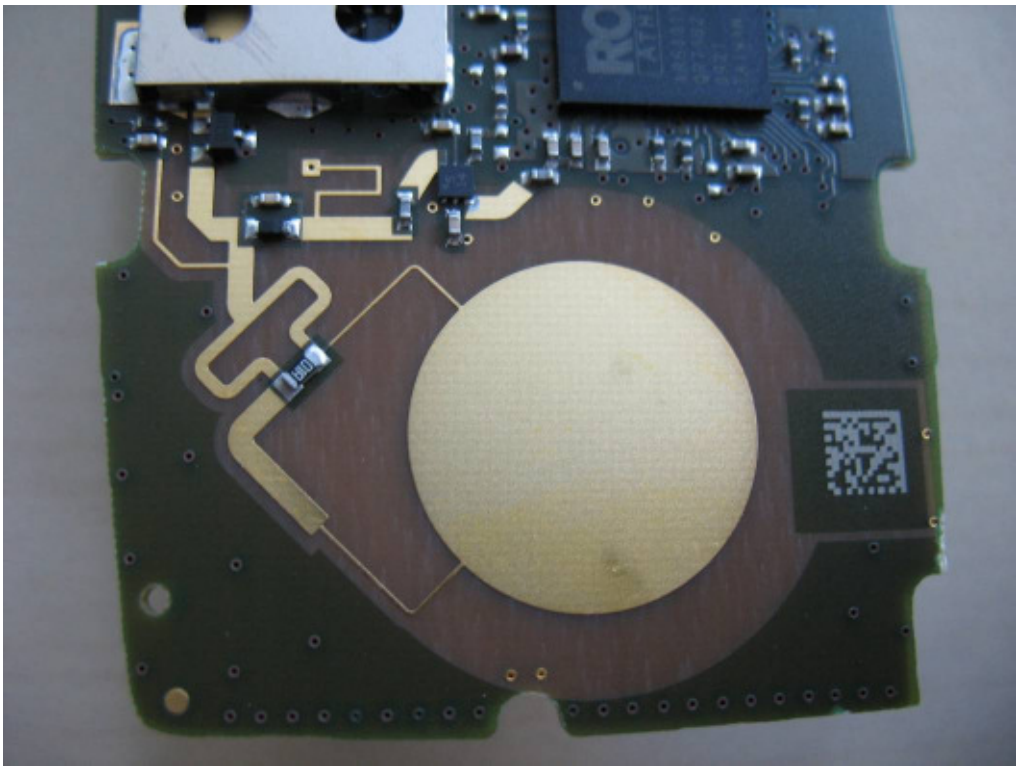


Photo 6:

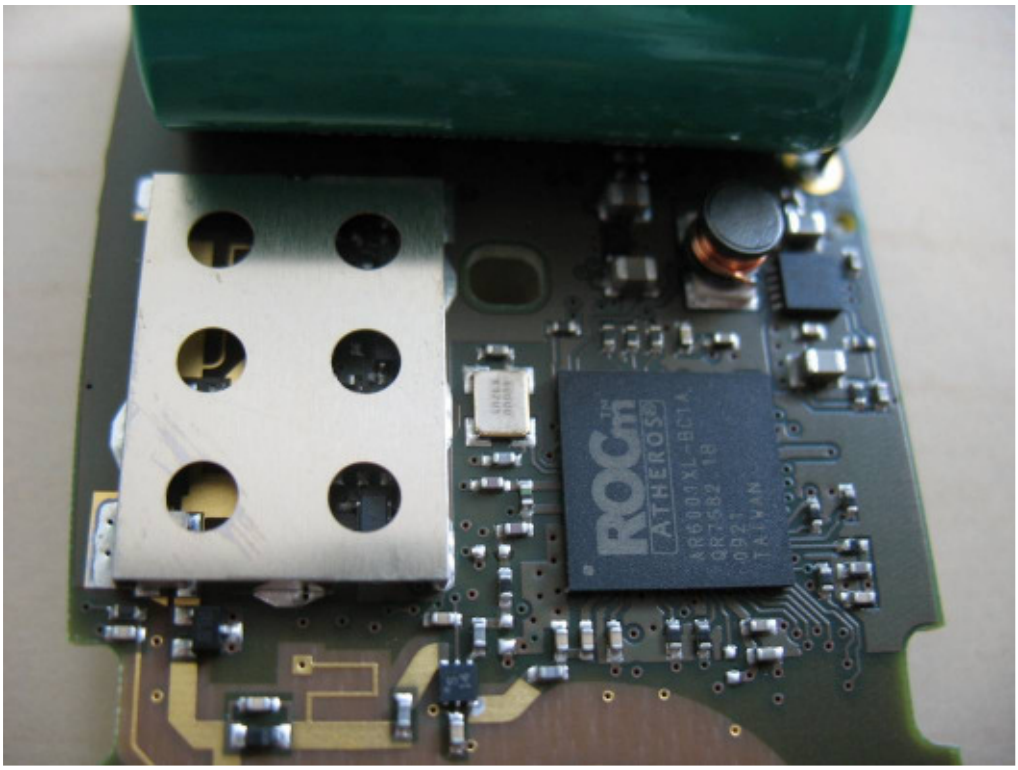


Photo 7:

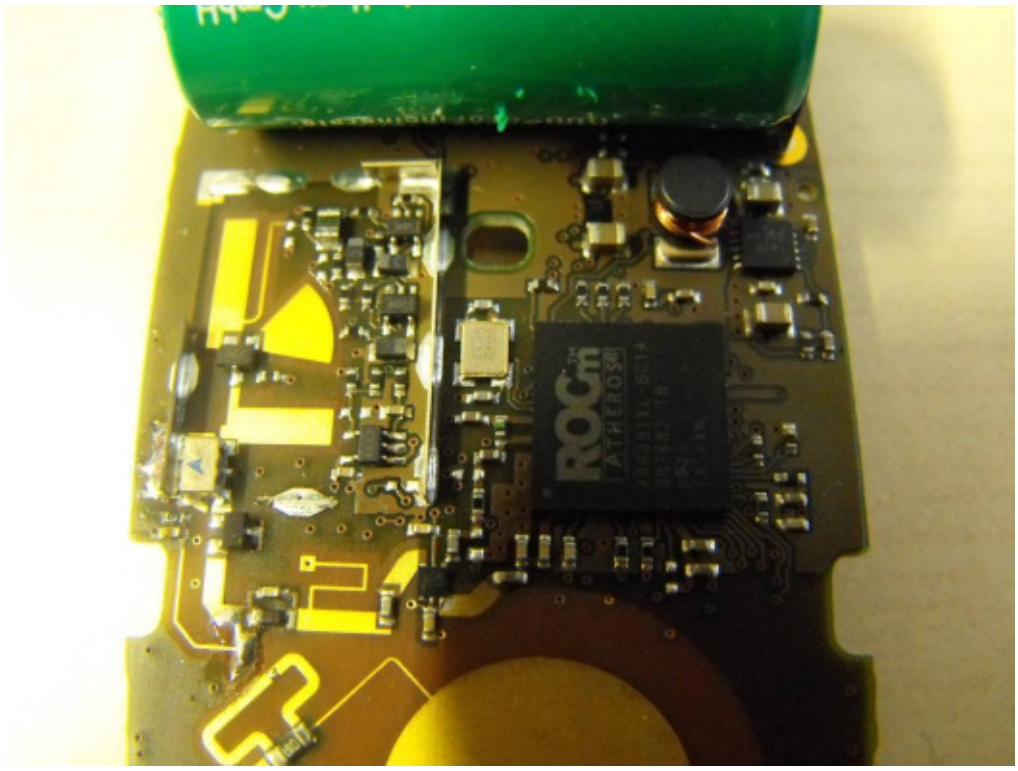


Photo 8:

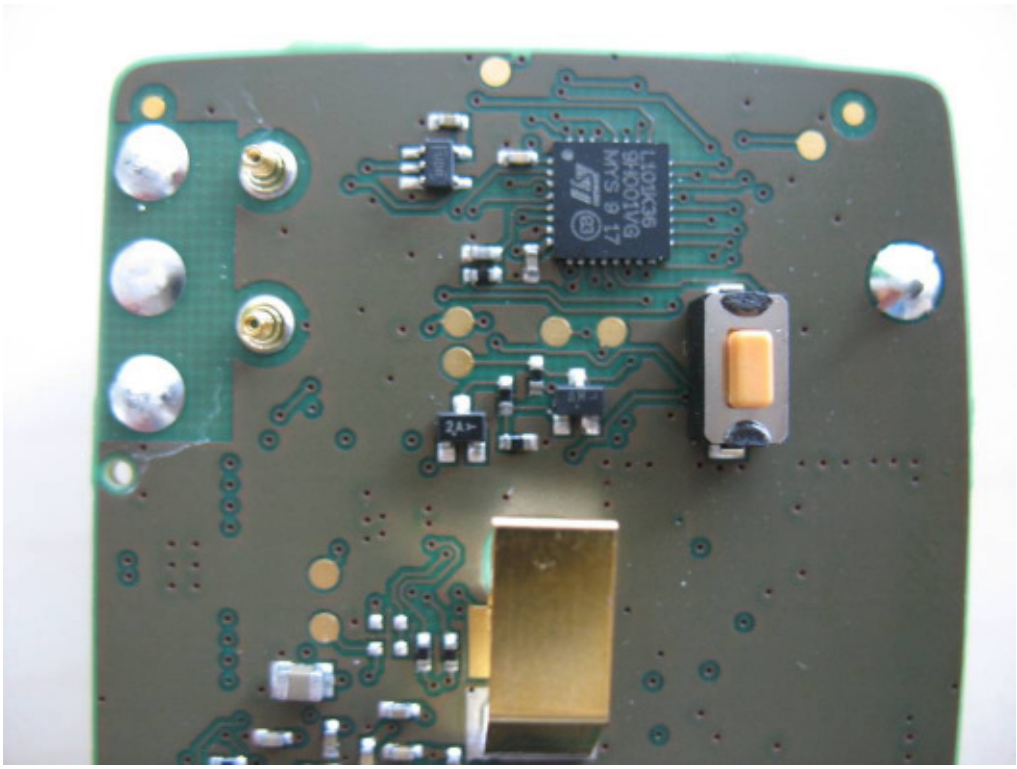


Photo 9:

Photo 10: (conducted sample)

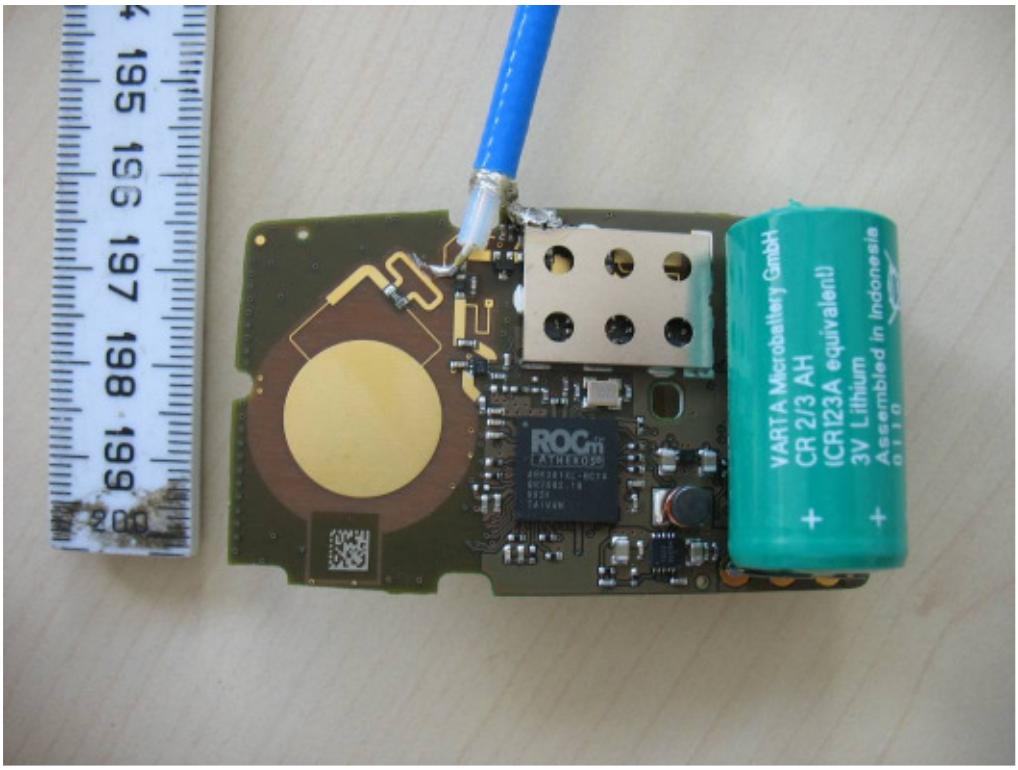
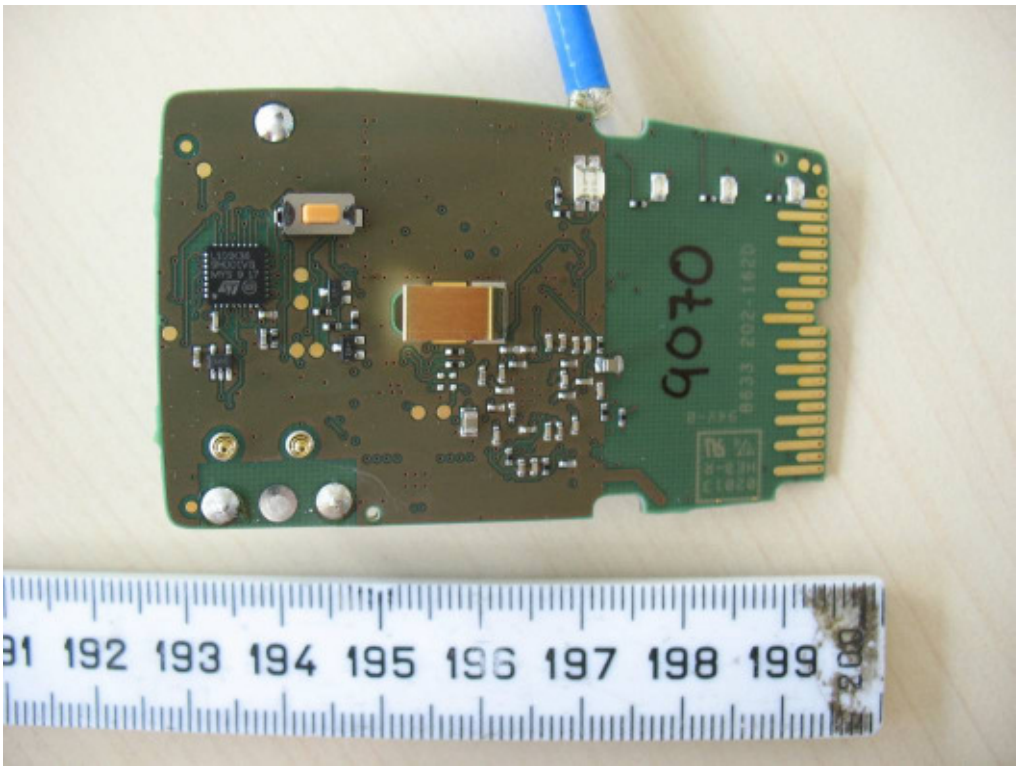


Photo 11: (conducted sample)



Annex D Document history

Version	Applied changes	Date of release
1.0	Initial release	2010-09-29
1.1	This test report 1-2474-01-02/10-A replaces the former version 1-2474-01-02/10 (dated 2010-09-29). Mode selection bold marked at page 10.	2010-09-30

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