CETECOM ICT Services GmbH
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RSC-Laboratory

Accredited testing-laboratory

DAR registration number: DAT-P-176 / 94-D1

Federal Motor Transport Authority (KBA)
DAR registration number: KBA-P 00070-97

Recognized by the Federal Communications Commission
Anechoic chamber registration no.: 90462 (FCC)
Anechoic chamber registration no.: 3462C-1 (IC)
Certification ID: DE 0001
Accreditation ID: DE 0002

Accredited Bluetooth® Test Facility (BQTF)

Test report no.	**:**	**2-4973-02-01/09**
Type identification	**:**	**MK2 X-MTR/PED 25kW**
Applicant	**:**	**Raytheon Anschütz GmbH**
FCC ID	**:**	**ASL9RAN-SUR-25U**
Test standards	**:**	**FCC CFR 47 Part 90**

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1 General information

1.1 Notes

The test results of this test report relate exclusively to the test item specified in 3.1.1. The CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalisations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM ICT Services GmbH.

Test laboratory manager:

2009-11-12	**Karsten Geraldy**	Geraldy Karsten
Date	Name	Signature

Technical responsibility for area of testing:

2009-11-12	**Nicolas Stamber**	N. Stamber
Date	Name	Signature

Cetecom ICT Services
Accredited Test Laboratory
Untertürkheimer Str. 6-10
D-66117 Saarbrücken

1.2 Testing laboratory

CETECOM ICT Services GmbH

Untertürkheimer Straße 6 - 10
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Phone: + 49 681 5 98 - 0
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Internet: http: / / www.cetecom-ict.de

State of accreditation: **The test laboratory (area of testing) is accredited according to DIN EN ISO / IEC 17025**
DAR registration number: DAT-P-176 / 94-D1

Accredited by: **Federal Motor Transport Authority (KBA)**
DAR registration number: KBA-P 00070-97

Testing location, if different from CETECOM ICT Services GmbH:

Name :
Street :
Town :
Country :
Phone :
Fax :

1.3 Details of applicant

Name:	**Raytheon Anschütz GmbH**
Street:	**Zeyestraße 16-24**
Town:	**24106 Kiel**
Country:	**Germany**
Telephone:	**+49 (0)431 3019 613**
Fax:	**+49 (0)431 3019 558**
Contact:	**Robert Zissen**
E-mail:	**Robert_Zissen@raykiel.com**
Telephone:	**+49 (0)431 3019 613**

1.4 Application details

Date of receipt of order:	**2009-10-23**
Date of receipt of test item:	**2009-08-11**
Date of start test:	**2009-10-23**
Date of end test	**2009-10-28**
Persons(s) who have been present during the test:	**-/-**

2 Technical tests

2.1 Details of manufacturer

Name:	**Raytheon Anschütz GmbH**
Street:	**Zeyestraße 16-24**
Town:	**24106 Kiel**
Country:	**Germany**

2.1.1 Test item

Kind of test item:	**X-Band Radar System**
Type identification:	**MK2 X-MTR/PED 25kW**
S/N:	**000659**
Frequency:	**9300 - 9500 MHz**
Nominal output power:	**25 kW peak**
Type of Modulation:	**single fixed frequency pulsed unmodulated carrier**
Emission Designator:	**P0N**
Antenna:	**8ft X-Band Antenna, Drg. No. LPR-A25, P/N 2808435**
Power Supply:	**115 Vac**
Temperature Range:	**-25 °C to +55 °C**

Nominal Pulse Characteristics:

Pulse type:	**Short Pulse**	**Medium 1 Pulse**	**Medium 2Pulse**	**Long Pulse**
Pulse length (tp):	**70 ns**	**250 ns**	**500 ns**	**1 µs**
PRF:	**3000 Hz**	**2000 Hz**	**1000 Hz**	**750 Hz**

FCC ID: ASL9RAN-SUR-25U

2.1.2 EUT operating modes

EUT operating mode(s)	Short Pulse	Medium 1 Pulse	Medium 2 Pulse	Long Pulse
Range	¼, ½, ¾, 1½ Nm	3 Nm	6, 12 Nm	24, 48, 96 Nm
Pulse Width	70 ns	250 ns	500 ns	1.0 µs
Pulse Repetition Frequency	3000 Hz	2000 Hz	1000 Hz	750 Hz

2.1.3 Nominal conditions for testing

Description	Shortcut	Unit	Value
Nominal Temperature	T_{nom}	°C	**23**
Nominal Humidity	H_{nom}	%	**45**
Nominal Power Source	V_{nom}	Vac	**115**

Type of power source: 115 Vac

Extreme conditions are reported in chapter 4.10.

3 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 CFR 47 Part 90	PASS	2009-11-12	-/-

Test Specification / Clause	Test Case	Pass	Fail	N/A	N/P	Results
§ 2.1046 / § 90.205	Measurements required: RF power output / Power and antenna height limits	X				short: 72.2 dBm med1: 73.0 dBm med2: 72.9 dBm long: 73.0 dBm
§ 2.1049	Measurements required: Occupied bandwidth	X				short: 69.5 MHz med1: 29.2 MHz med2: 20.2 MHz long: 13.3 MHz
§2.1051 / § 90.210	Measurements required: Spurious emissions at antenna terminals / Emission masks	X				complies
§ 2.1051 / § 90.210	Measurements required: Spurious emissions at antenna terminals / Spurious Emissions - conducted	X				complies
§ 2.1053 / § 90.210	Measurements required: Field strength of spurious radiation / Spurious Emissions - radiated	X				complies
§ 2.1055 / § 90.213	Measurements required: Frequency stability / Frequency stability	X				max. 1221 ppm

N/A: Not Applicable
N/P: Not Performed

4 RF measurement testing

4.1 Description of test set-up

4.1.1 Radiated measurements

EIRP Measurements

Measuring the EIRP using Substitution Method:
(a) The measurements were performed with full rf output power and modulation.
(b) Test was performed at listed 3m test site (listed with FCC, IC).
(c) The transmitter under test was placed at the specified height on a non-conducting turntable (80 cm height)
(d) The TRILOG antenna (20 MHz to 1 GHz) or HORN antenna (1 GHz to 18 GHz) was used for measuring.
(e) Load an appropriate correction factors file in EMI Receiver for correcting the field strength reading level
Total Correction Factor recorded in the EMI Receiver = Cable Loss + Antenna Factor
E (dBuV / m) = Reading (dBuV) + Total Correction Factor (dB / m)
(f) Set the EMI Receiver and #2 as follows:
Center Frequency: test frequency
Resolution BW: 100 kHz
Video BW: same
Detector Mode: positive
Average: off
Span: 3 x the signal bandwidth
(g) The test antenna was lowered or raised from 1 to 4 meters until the maximum signal level was detected.
(h) The transmitter was rotated through 360° about a vertical axis until a higher maximum signal was received.
(i) The test antenna was lowered or raised again from 1 to 4 meters until a maximum was obtained. This level was recorded.
(j) The recorded reading was corrected to the true field strength level by adding the antenna factor, cable loss and subtracting the pre-amplifier gain.
(k) The above steps were repeated with both transmitters' antenna and test receiving antenna placed in vertical and horizontal polarization. Both readings with the antennas placed in vertical and horizontal polarization shall be recorded.
(l) Repeat for all different test signal frequencies

Measuring the EIRP of Spurious / Harmonic Emissions using Substitution Method
(a) Set the EMI Receiver (for measuring E-Field) and Receiver #2 (for measuring EIRP) as follows:

Center Frequency	: equal to the signal source
Resolution BW	: 10 kHz
Video BW	: same
Detector Mode	: positive
Average	: off
Span	: 3 x the signal bandwidth

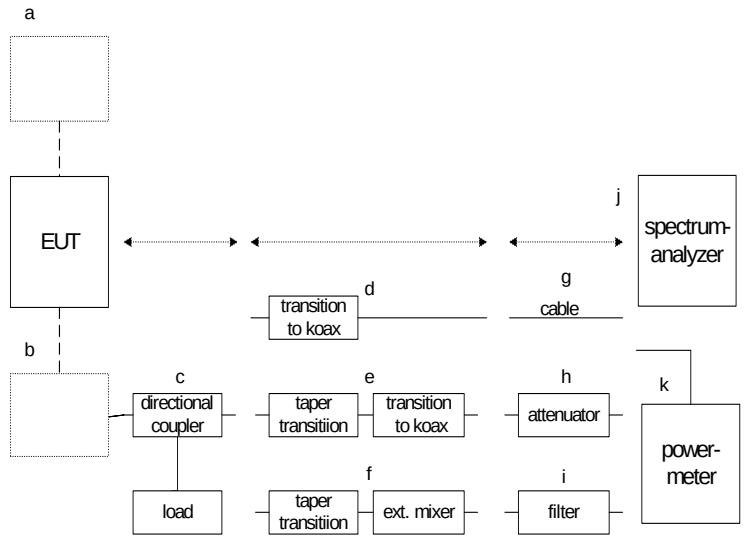
(b) Load an appropriate correction factors file in EMI Receiver for correcting the field strength reading level
Total Correction Factor recorded in the EMI Receiver = Cable Loss + Antenna Factor
E (dBuV / m) = Reading (dBuV) + Total Correction Factor (dB / m)
(c) Select the frequency and E-field levels for ERP / EIRP measurements.
(d) Substitute the EUT by a signal generator and one of the following transmitting antennas (substitution antenna): DIPOLE antenna for frequency from 30-1000 MHz or .HORN antenna for frequency above 1 GHz}.
(e) Mount the transmitting antenna at 1.5 meter high from the ground plane.
(f) Use one of the following antenna as a receiving antenna: .DIPOLE antenna for frequency from 30-1000 MHz or .HORN antenna for frequency above 1 GHz.
(g) If the DIPOLE antenna is used, tune its elements to the frequency as specified in the calibration manual.
(h) Adjust both transmitting and receiving antenna in a VERTICAL polarization.
(i) Tune the EMI Receivers to the test frequency.
(j) Lower or raise the test antenna from 1 to 4 meters until the maximum signal level was detected.
(k) The transmitter was rotated through 360° about a vertical axis until a higher maximum signal was received.
(l) Lower or raise the test antenna from 1 to 4 meters until the maximum signal level was detected.

(m) Adjust input signal to the substitution antenna until an equal or a known related level to that detected from the transmitter was obtained in the test receiver.
(n) Record the power level read from the Average Power Meter and calculate the ERP / EIRP as follows:
P = P1 - L1 = (P2 + L2) – L1 = P3 + A + L2 - L1
EIRP = P + G1 = P3 + L2 - L1 + A + G1
ERP = EIRP – 2.15 dB
Total Correction factor in EMI Receiver # 2 = L2 – L1 + G1
Where: P: Actual RF Power fed into the substitution antenna port after corrected.
P1: Power output from the signal generator
P2: Power measured at attenuator A input
P3: Power reading on the Average Power Meter
EIRP: EIRP after correction
ERP: ERP after correction
(o) Adjust both transmitting and receiving antenna in a HORIZONTAL polarization, then repeat step (k) to (o)
(p) Repeat step (d) to (o) for different test frequency
(q) Repeat steps (c) to (j) with the substitution antenna oriented in horizontal polarization.
(r) Actual gain of the EUT's antenna is the difference of the measured EIRP and measured RF power at the RF port. Correct the antenna gain if necessary.

4.1.2 Conducted measurements

The EUT's RF signal is coupled out via an WG-directional coupler. The signal is connected to the spectrum analyzer. The specific losses for signal path are first checked within a calibration. The measurement readings on the spectrum analyzer are corrected by the specific test set-up losses. The directional coupler, attenuator, power divider and the spectrum analyzer are impedance matched to 50 Ohm.

Exemplary test setup:



4.2 Referenced Documents

none

4.3 Additional comments

For testing, the EUT antenna was removed and replaced by a 20 dB / 40 dB waveguide directional coupler. This was done in order to get access to the magnetron output at the antenna port and to provide sufficient attenuation with respect to the high transmitter output power. Any losses incurred with the test fixtures were accounted for the final test results.

4.4 RF power output §2.1046 / § 90.205(r)

TEST CONDITIONS			PEAK OUTPUT POWER			
Frequency (MHz)			short pulse	med 1 pulse	med 2 pulse	long pulse
T_{nom} 23 °C	V_{nom} 115 Vac	Peak (cond)	72.2 dBm	73.0 dBm	72.9 dBm	73.0 dBm
		AVG (cond)	35.6 dBm	40.7 dBm	39.8 dBm	41.7 dBm
		Peak (rad.)	101.2 dBm	102 dBm	101.9 dBm	102 dBm
		AVG (rad.)	64.6 dBm	69.7 dBm	68.8 dBm	70.7 dBm
	Rise time	tr	12.4 ns	14.1 ns	15.05 ns	15.4 ns
	Pulse width	tp	72.7 ns	290.3 ns	487.0 ns	984.6 ns
	Pulse repetition frequency	PRF	3039 Hz	2016 Hz	1002 Hz	749 Hz
Measurement uncertainty			±1.2 dB			

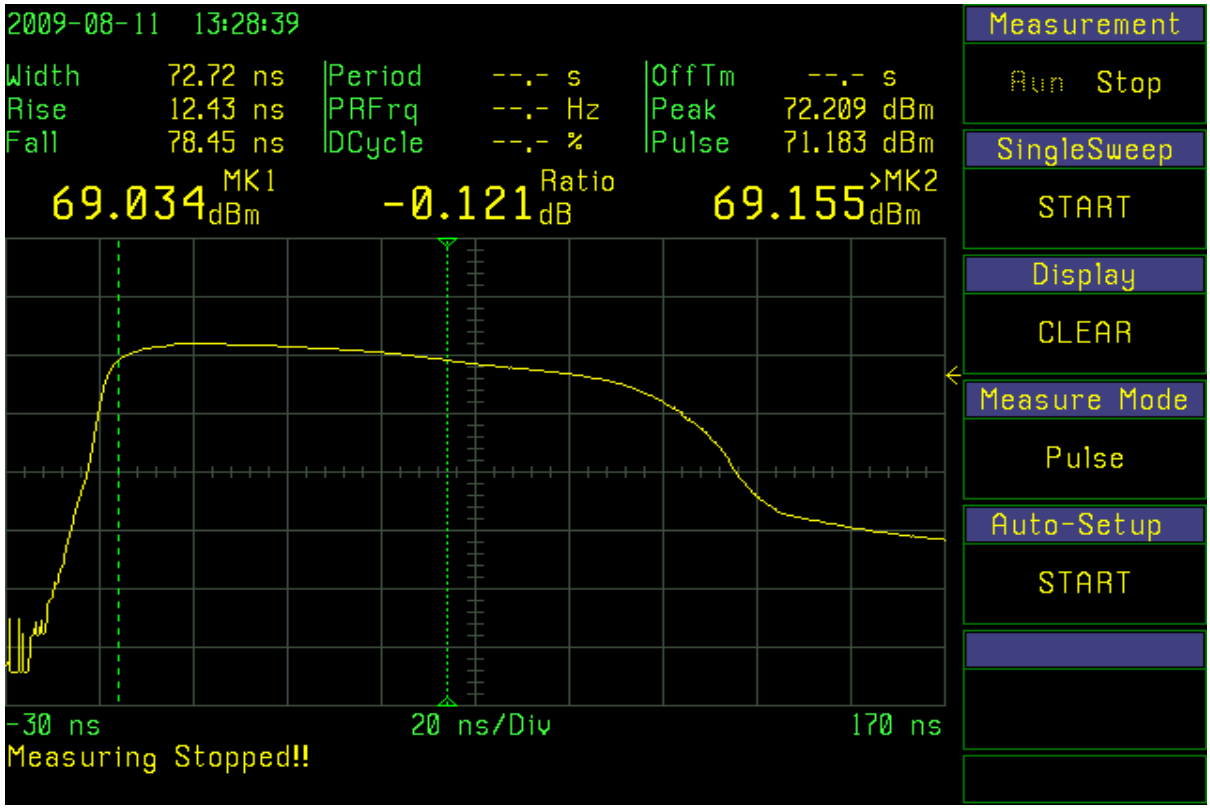
Remark:
The conducted RF output power was measured with a Boonton Peak Power Analyzer.
The radiated values (EIRP) are calculated based on the conducted measurement results plus an antenna gain of 29 dBi as specified by the manufacturer.

Limit according to §90.205(r):

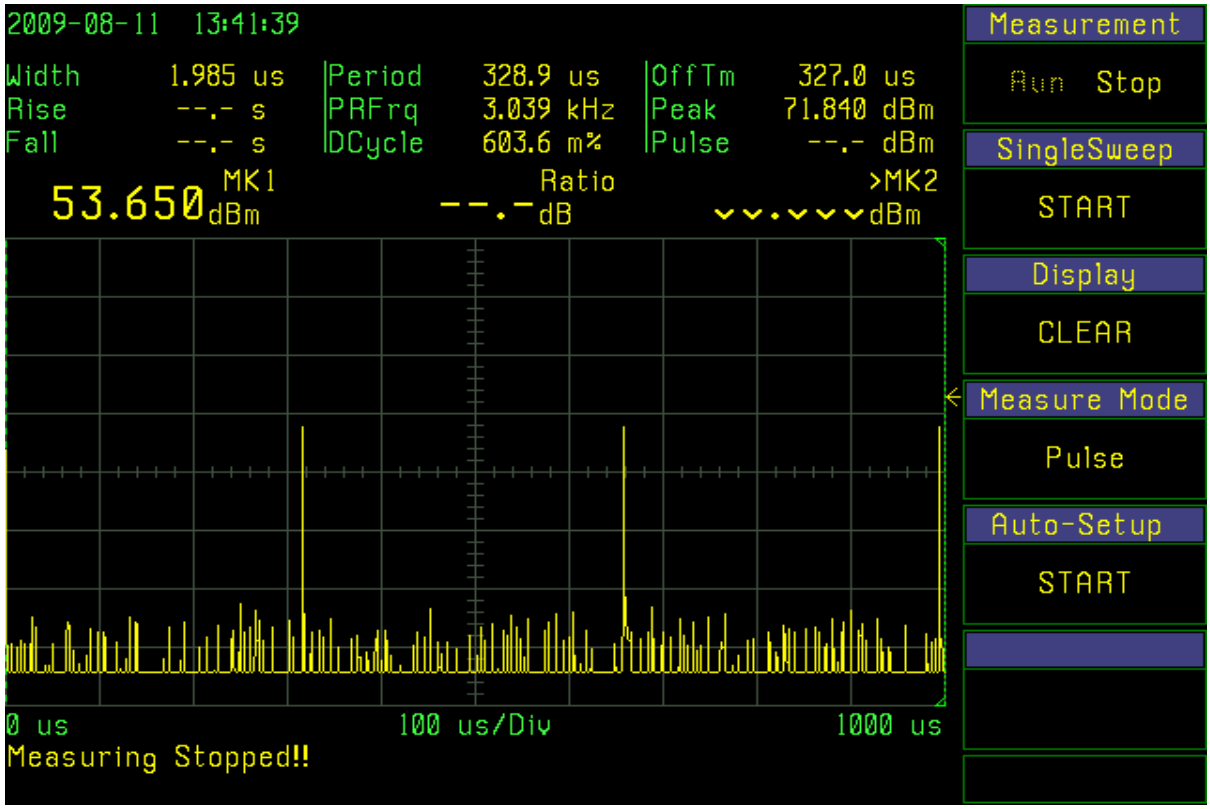
Under normal test conditions only	(r) *All other frequency bands.* Requested transmitter power will be considered and authorized on a case by case basis.

Test result: passed

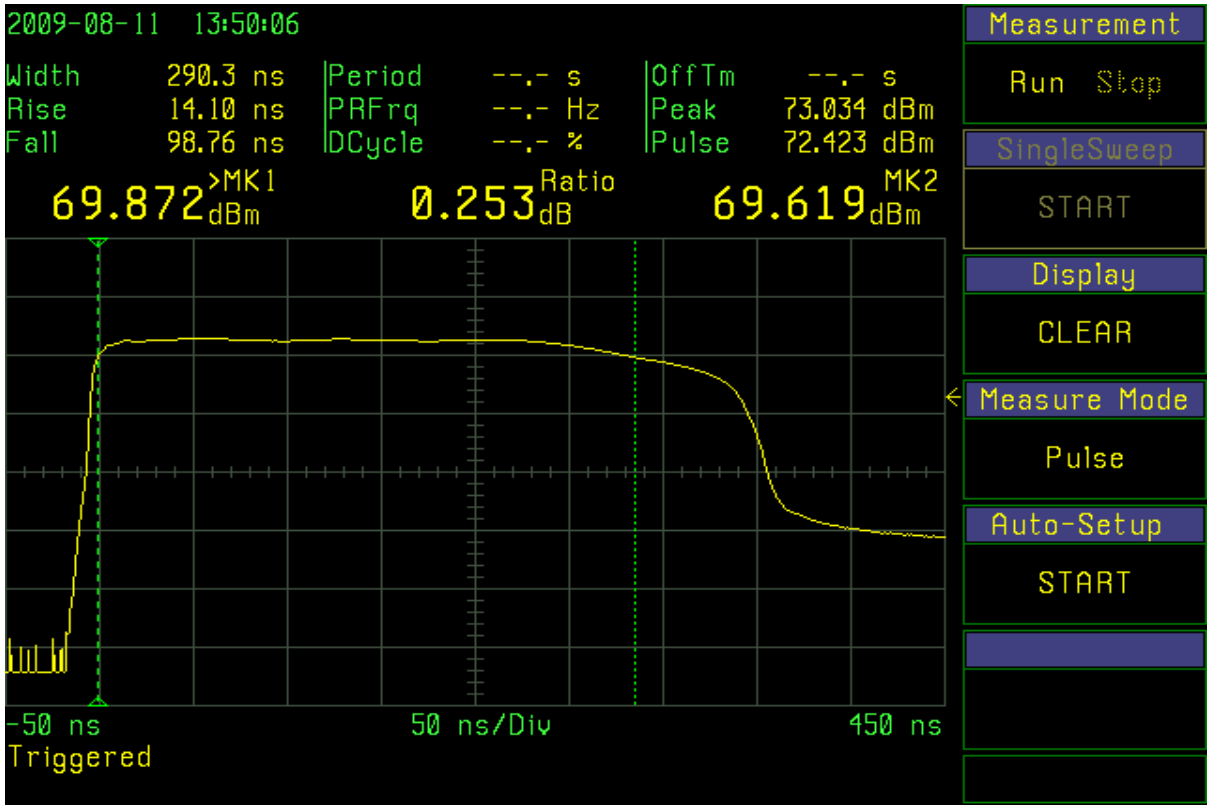
Plot No. 1: Short Pulse



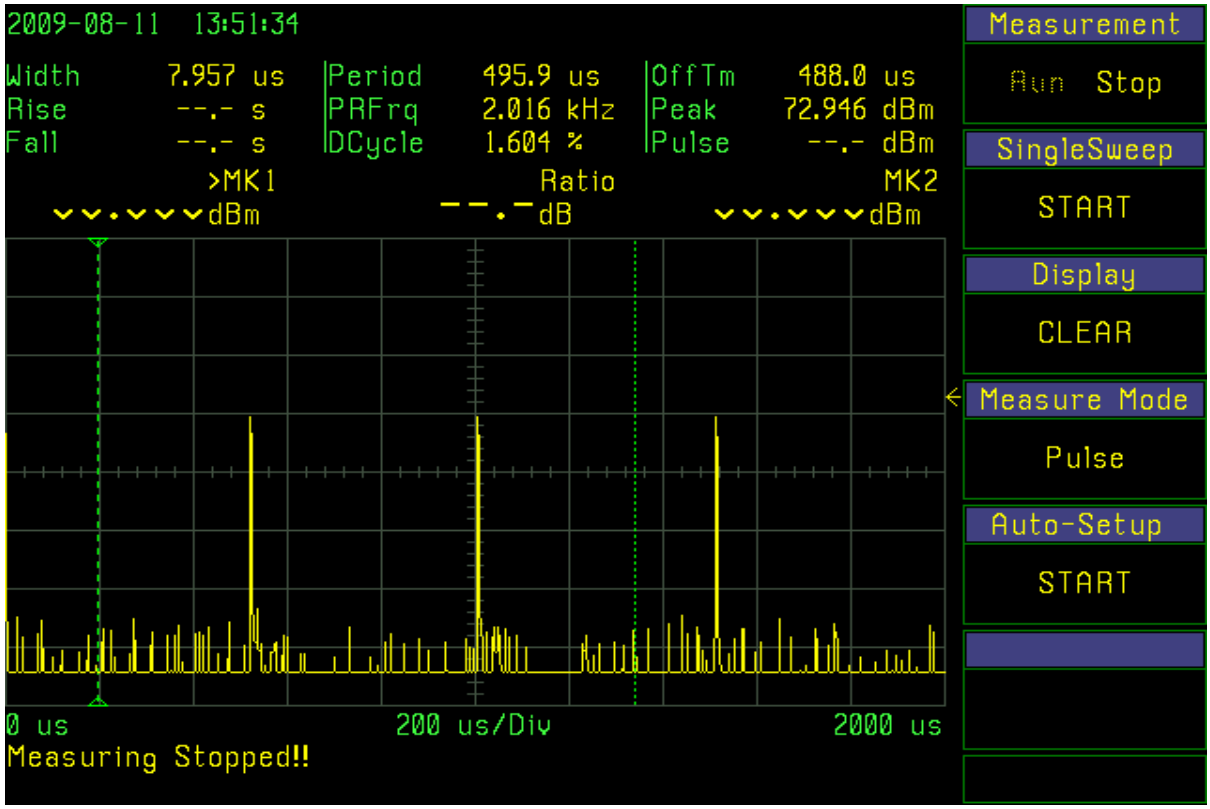
Plot No. 2: Short Pulse



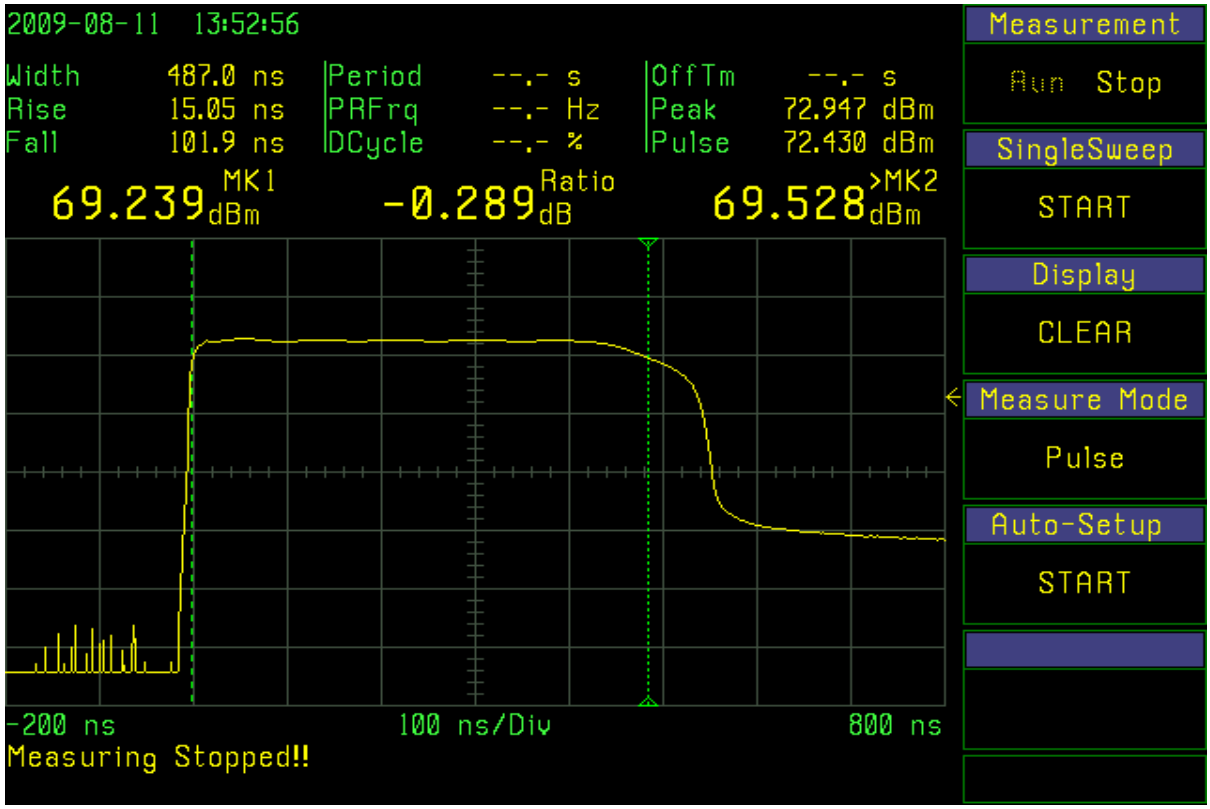
Plot No. 3: Medium 1 Pulse



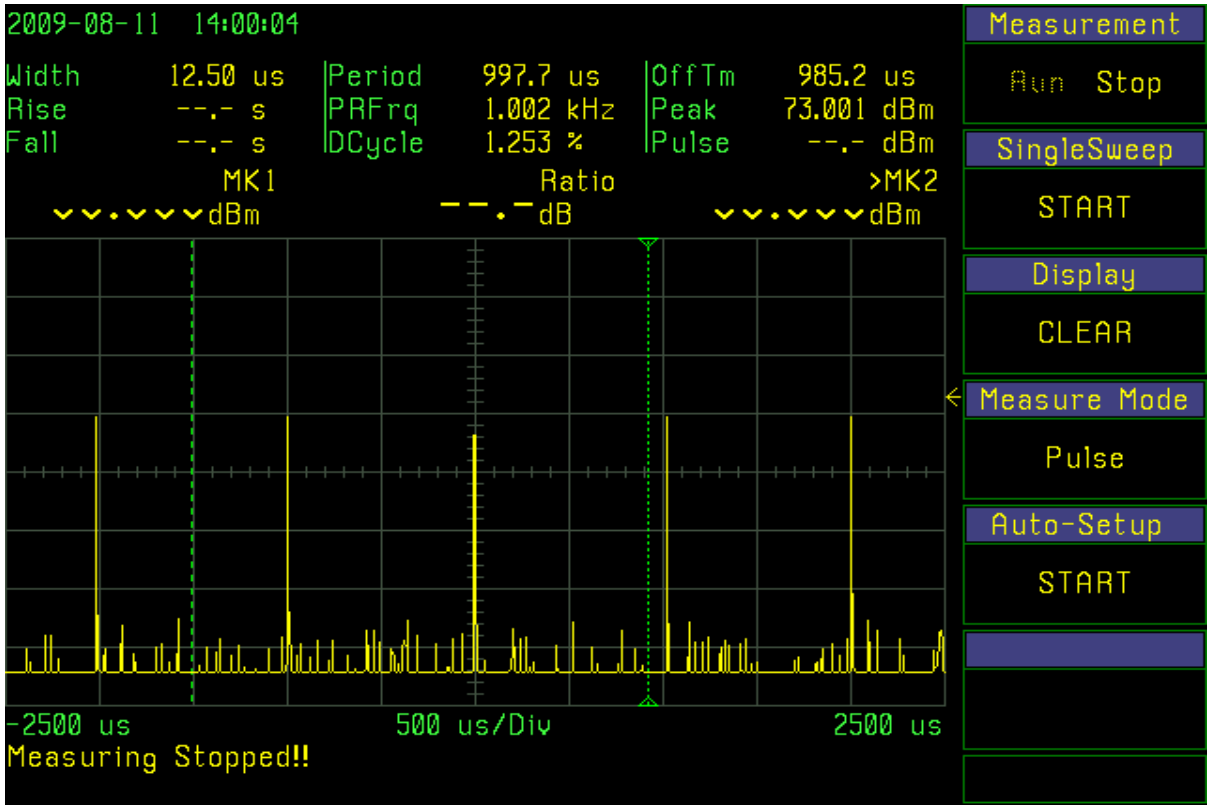
Plot No. 4: Medium 1 Pulse



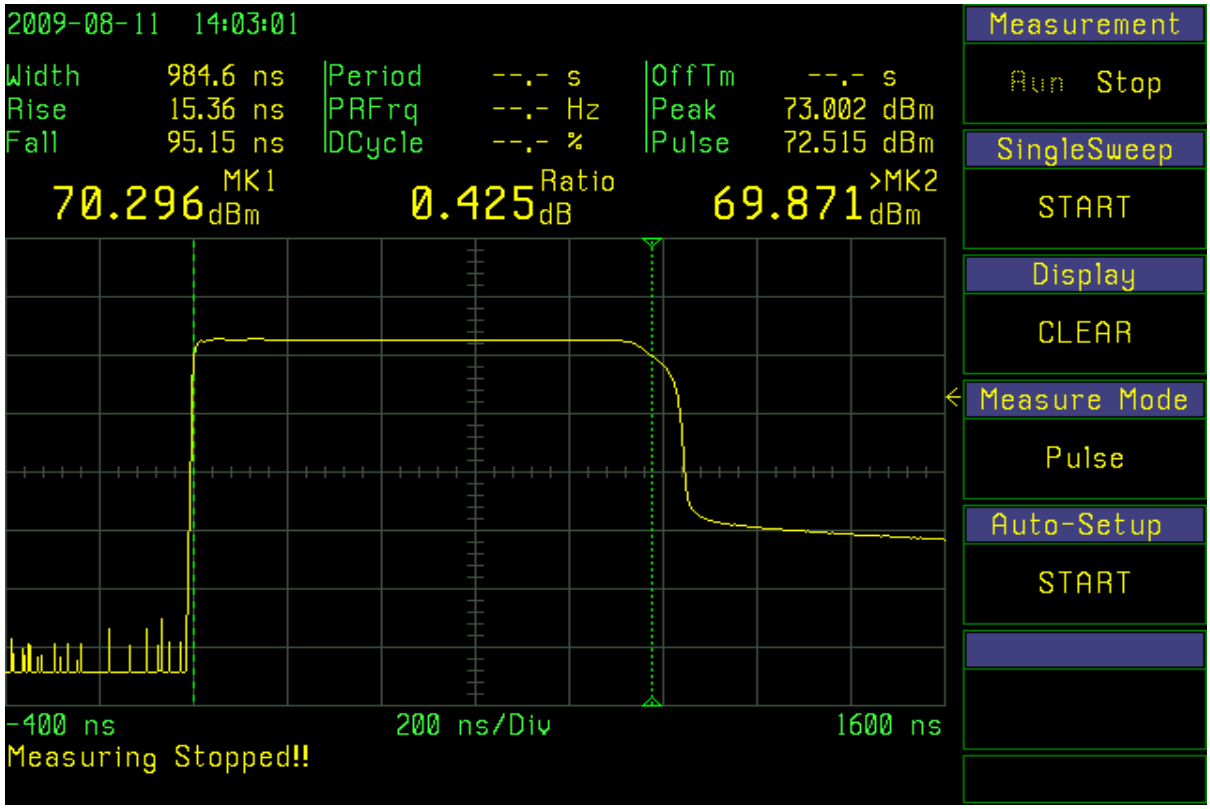
Plot No. 5: Medium 2 Pulse



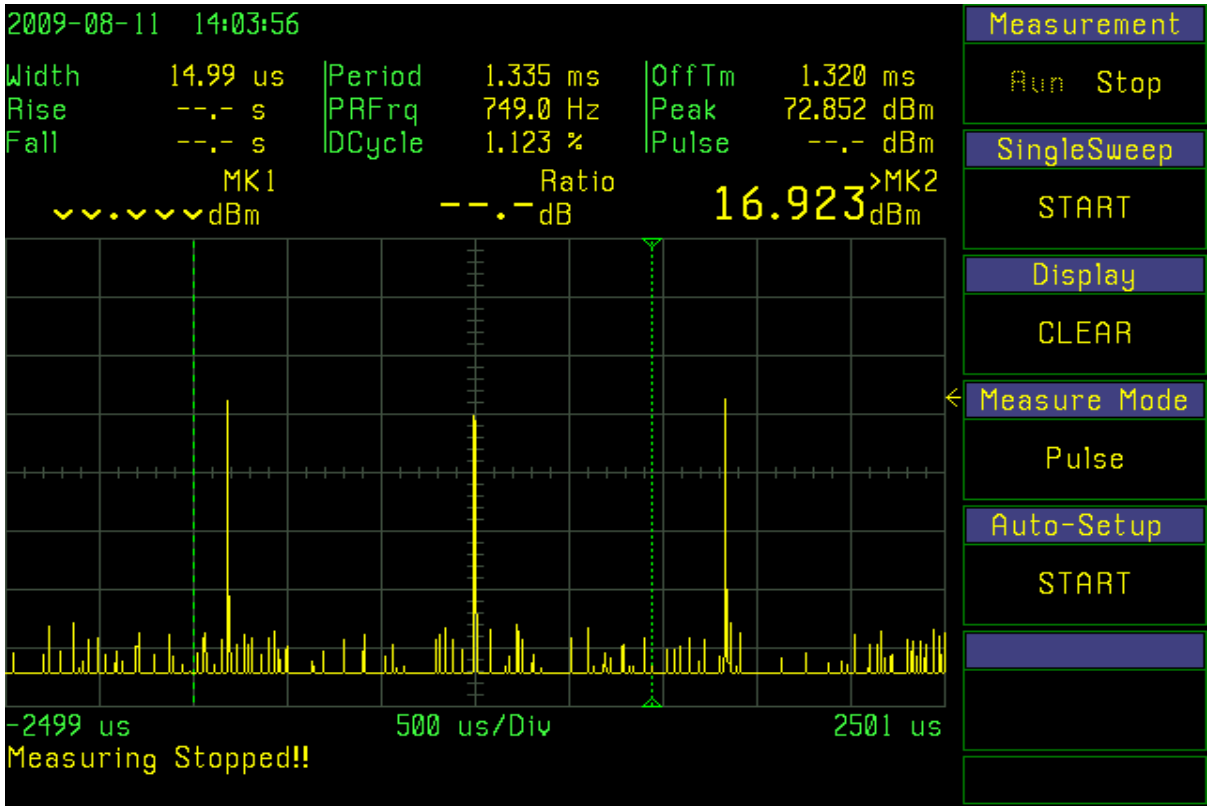
Plot No. 6: Medium 2 Pulse



Plot No. 7: Long Pulse



Plot No. 8: Long Pulse

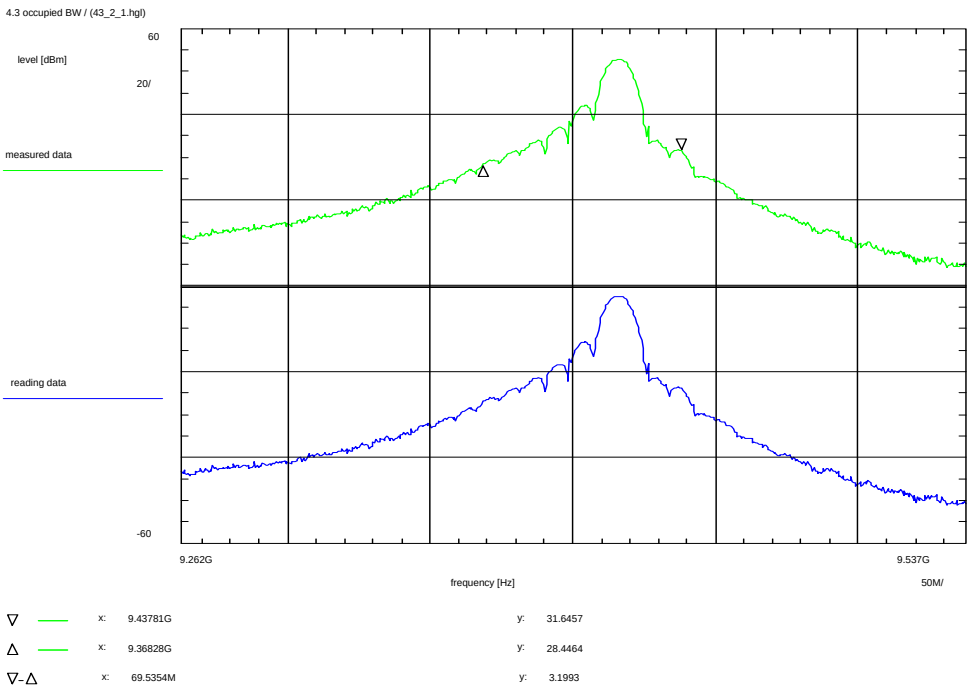


4.5 Occupied bandwidth §2.1049

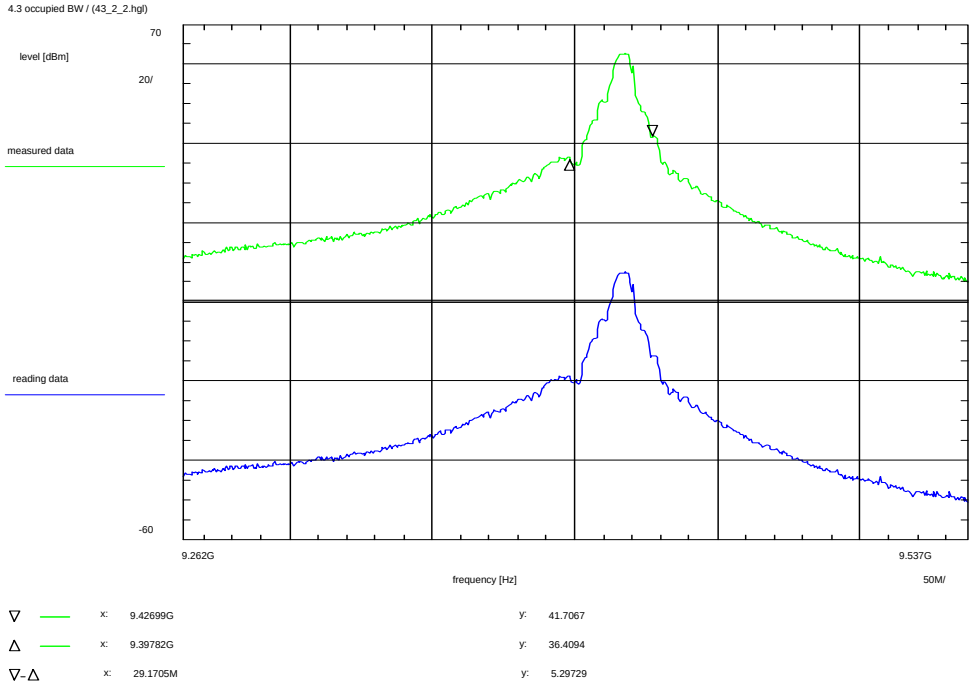
TEST CONDITIONS			OCCUPIED BANDWIDTH (MHz)			
Frequency (MHz)			short pulse	med 1 pulse	med 2 pulse	long pulse
T_{nom} 23 °C	V_{nom} 115 Vac	Peak	69.5 MHz	29.2 MHz	20.2 MHz	13.3 MHz
Measurement uncertainty			± 10 kHz			

Remark:
The internal function of the spectrum analyzer was used to determine the occupied bandwidth (99%).
Below plots show two traces. The blue one is the original spectrum analyzer data. These data corrected by directional coupler loss, attenuation, and cable loss result in the green trace.

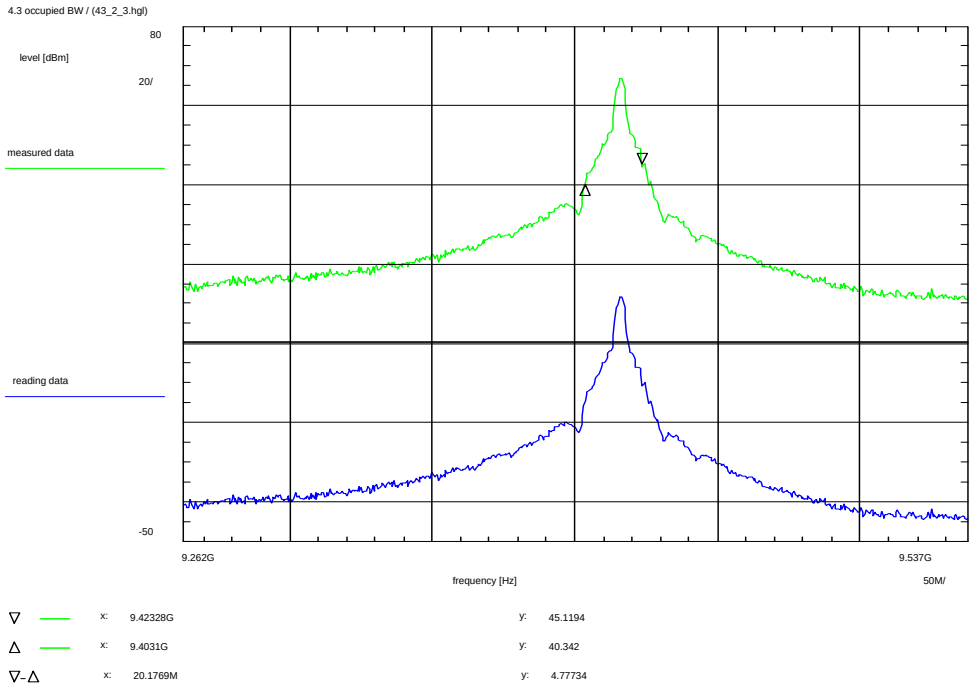
Plot No. 9: Short Pulse



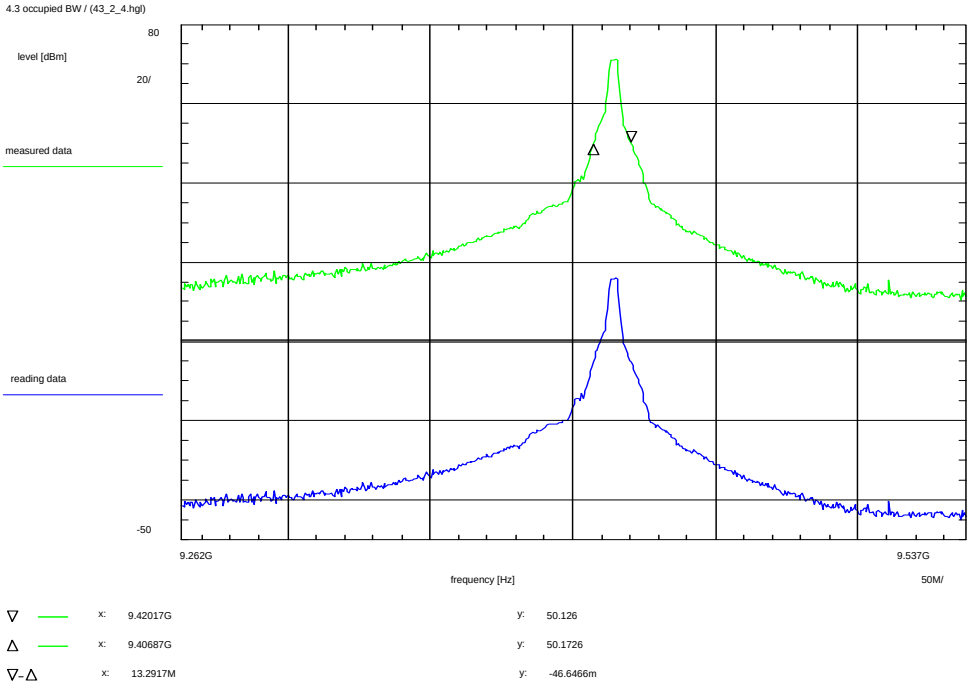
Plot No. 10: Medium 1 Pulse



Plot No. 11: Medium 2 Pulse

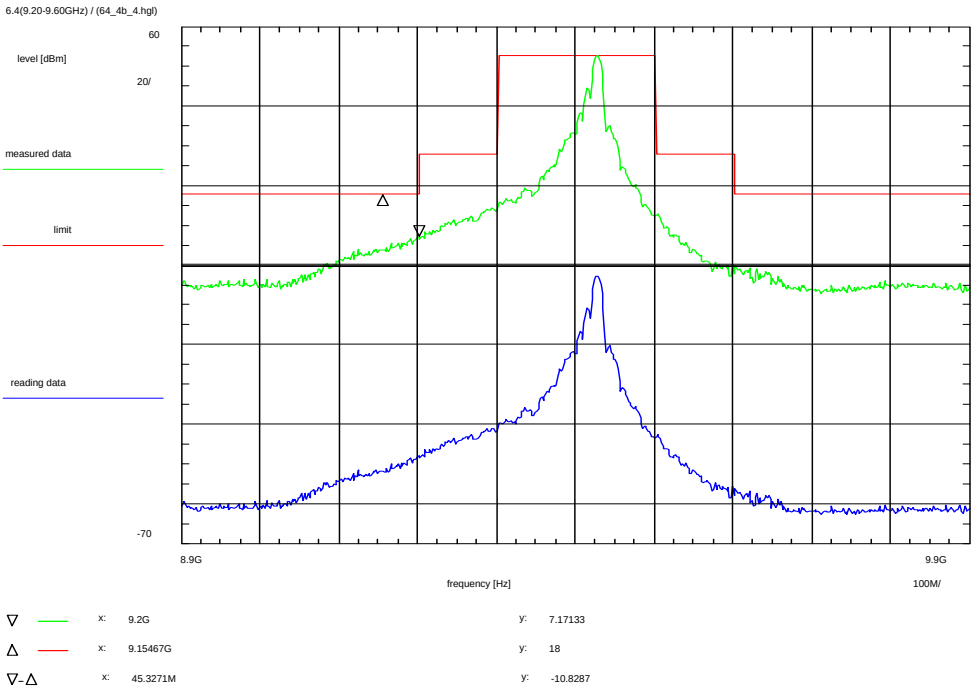


Plot No. 12: Long Pulse

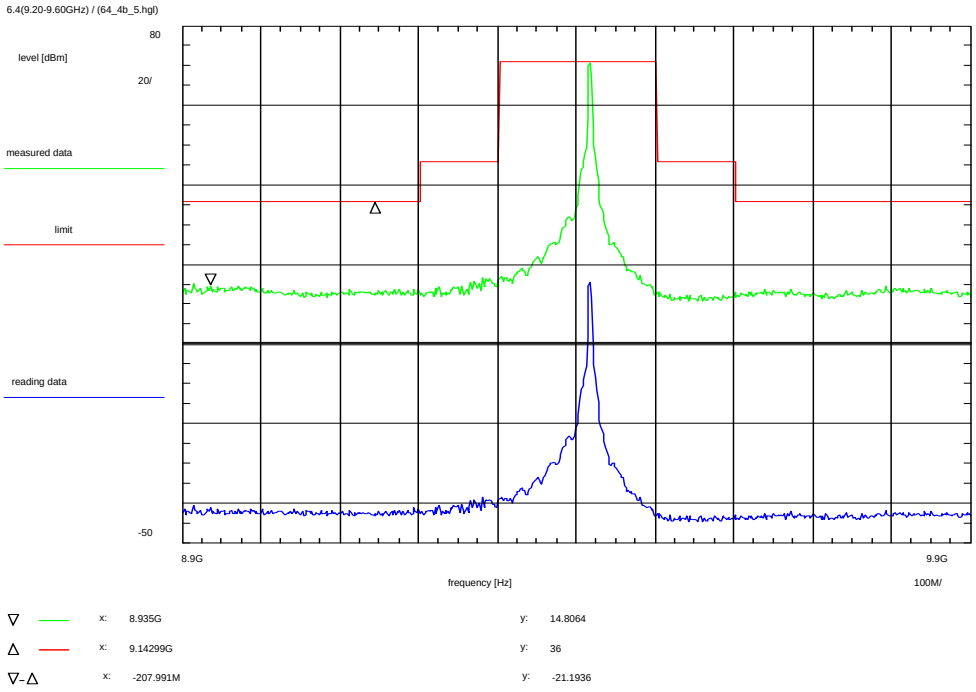


4.6 Emission masks §2.1051 / §90.210(b)(n)

Plot No. 13: Short Pulse



Plot No. 14: Long Pulse



Remark:
The emission mask were performed only on the short pulse and long pulse setting as these were found to have the worst case emissions during the pre-tests.

Previous plots show two traces. The blue one is the original spectrum analyzer data. These data corrected by directional coupler loss, attenuation, and cable loss result in the green trace.

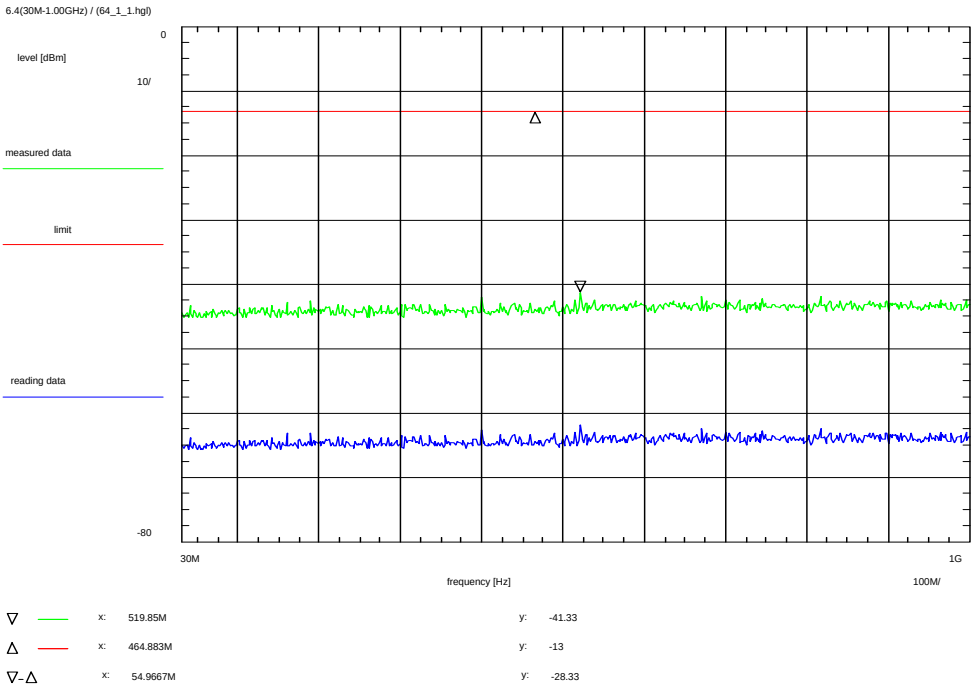
Limit according to §90.210(b):

Under normal test conditions only	(b) *Emission Mask B.* For transmitters that are equipped with an audio lowpass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows: (1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB. (2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB. (3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.

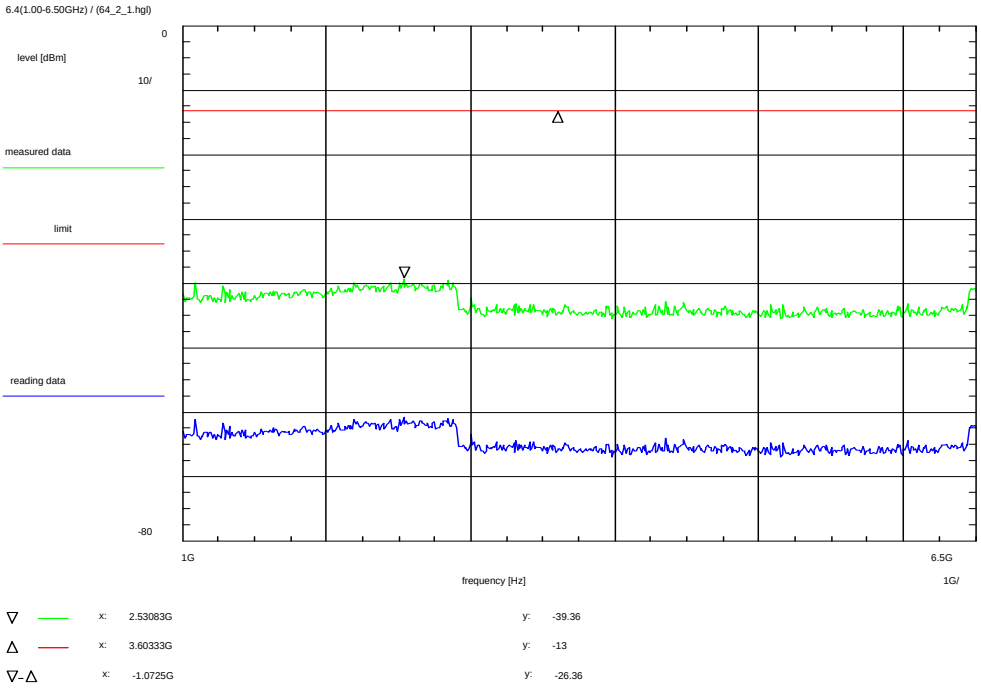
Test result: passed

4.7 Spurious Emissions at antenna terminals §2.1051 / §90.210(b)(n)

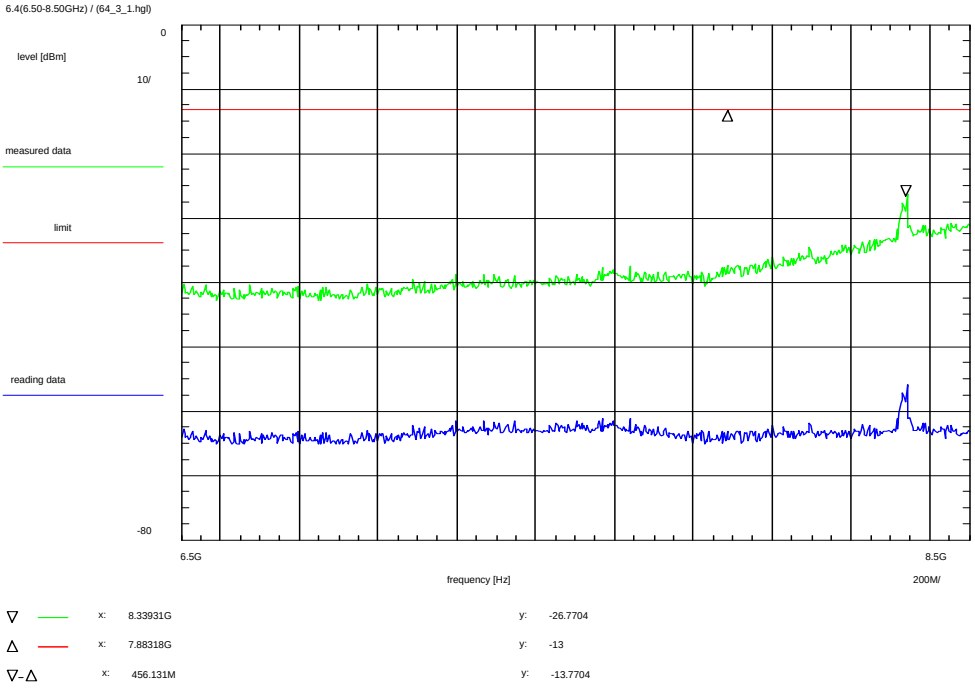
Plot No. 15: Short Pulse



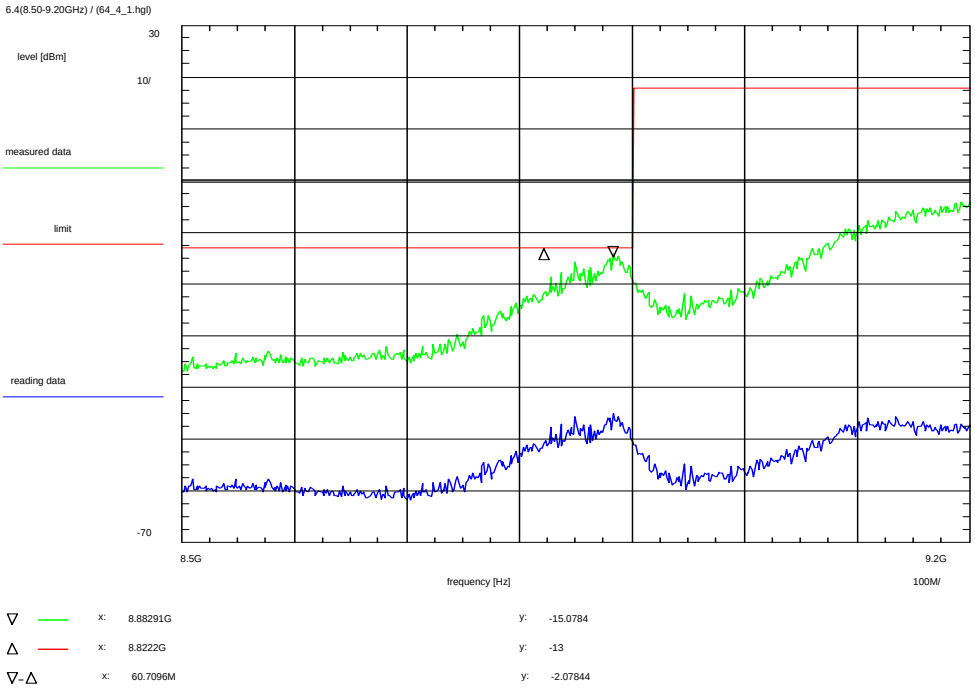
Plot No. 16: Short Pulse



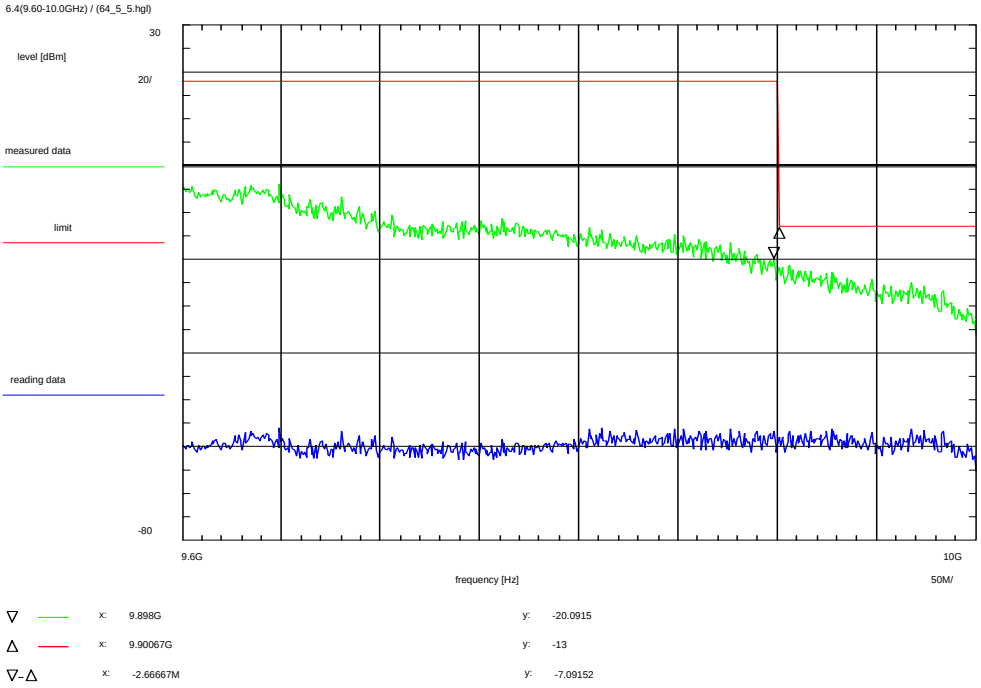
Plot No. 17: Short Pulse



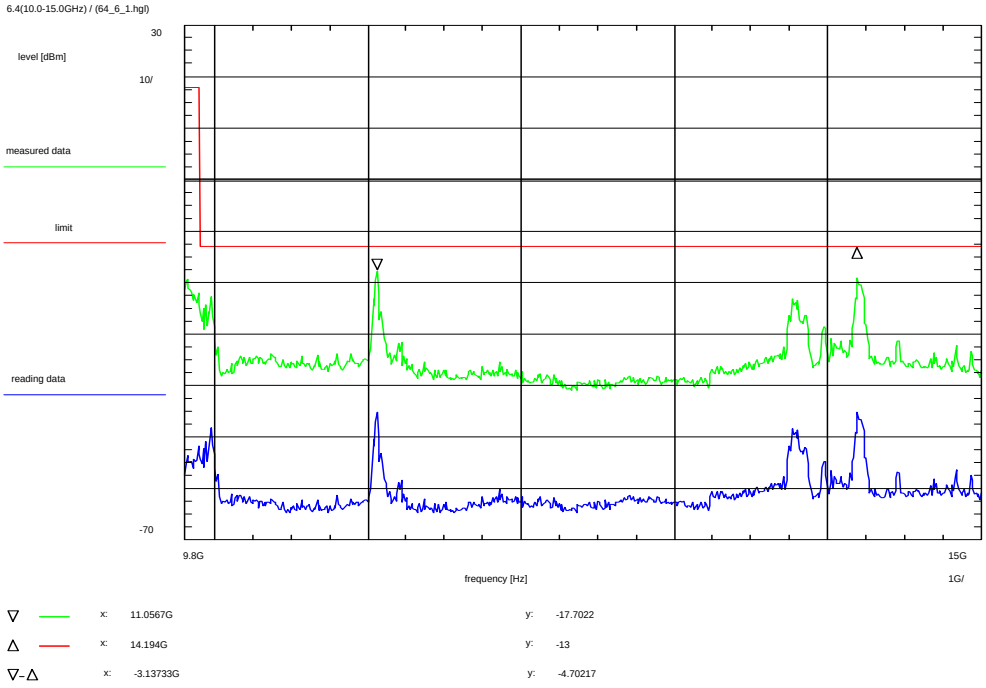
Plot No. 18: Short Pulse



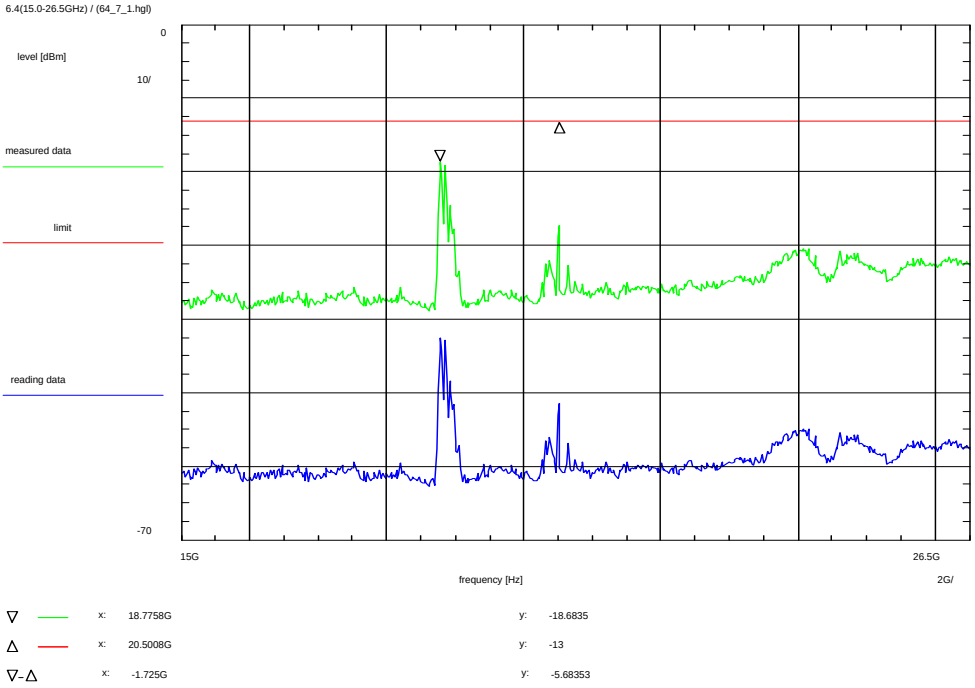
Plot No. 19: Short Pulse



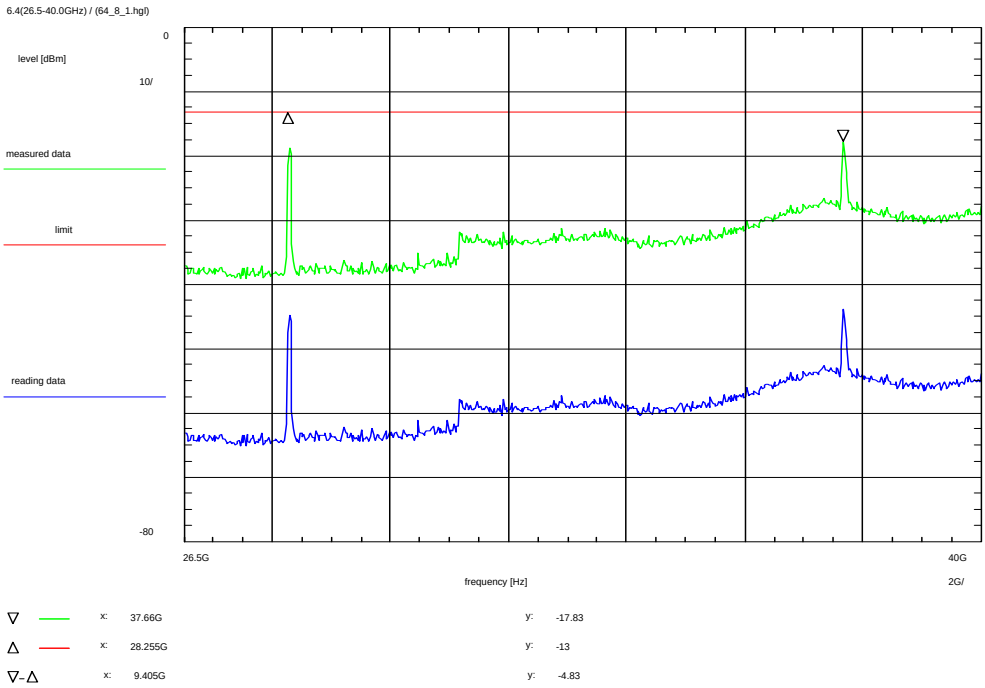
Plot No. 20: Short Pulse



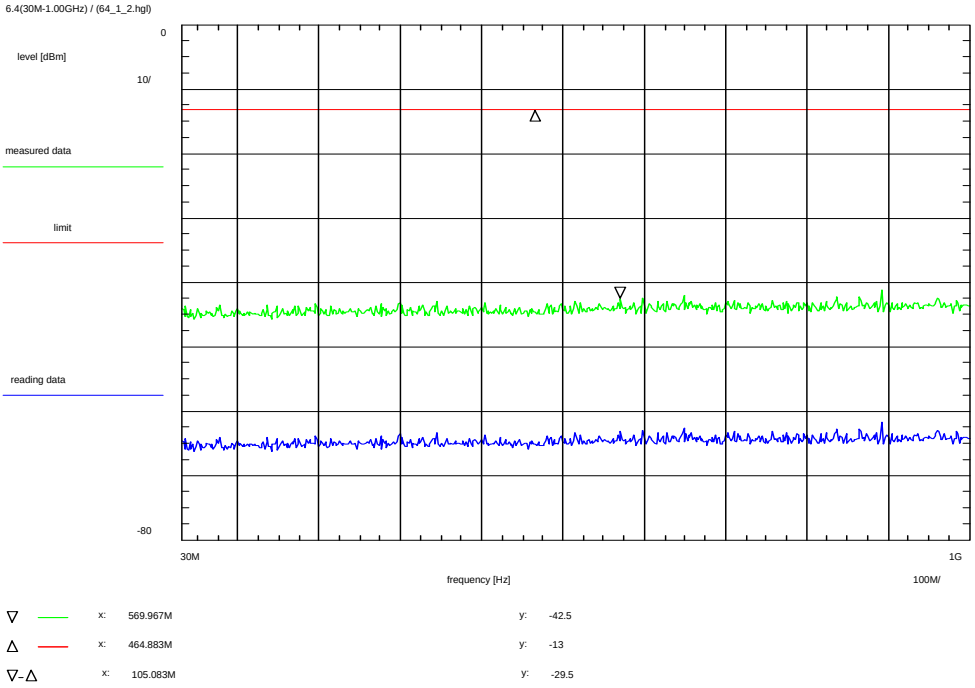
Plot No. 21: Short Pulse



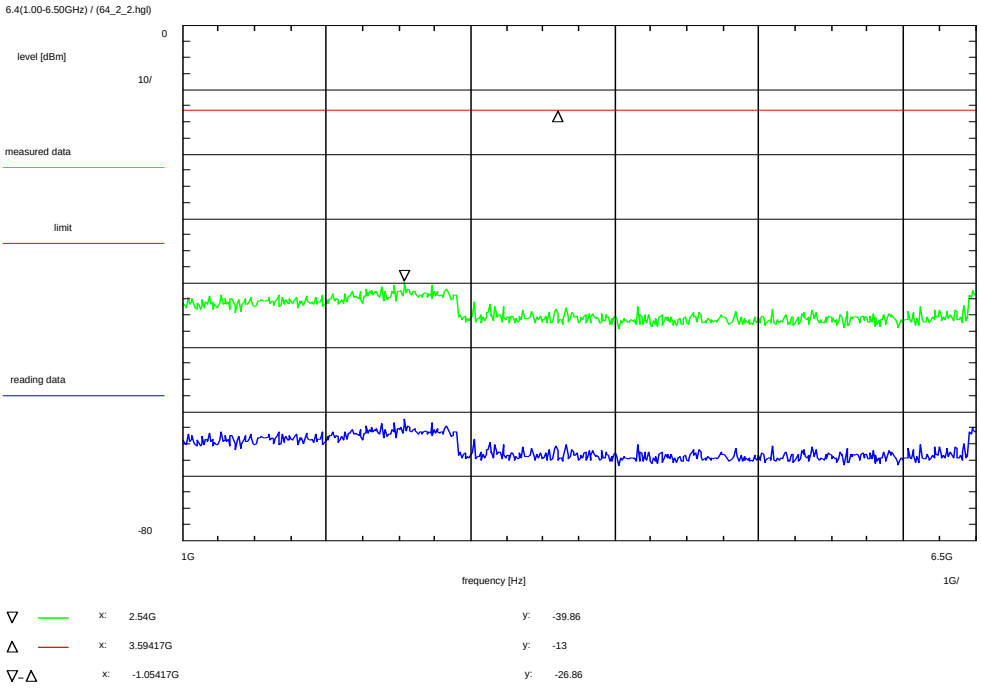
Plot No. 22: Short Pulse



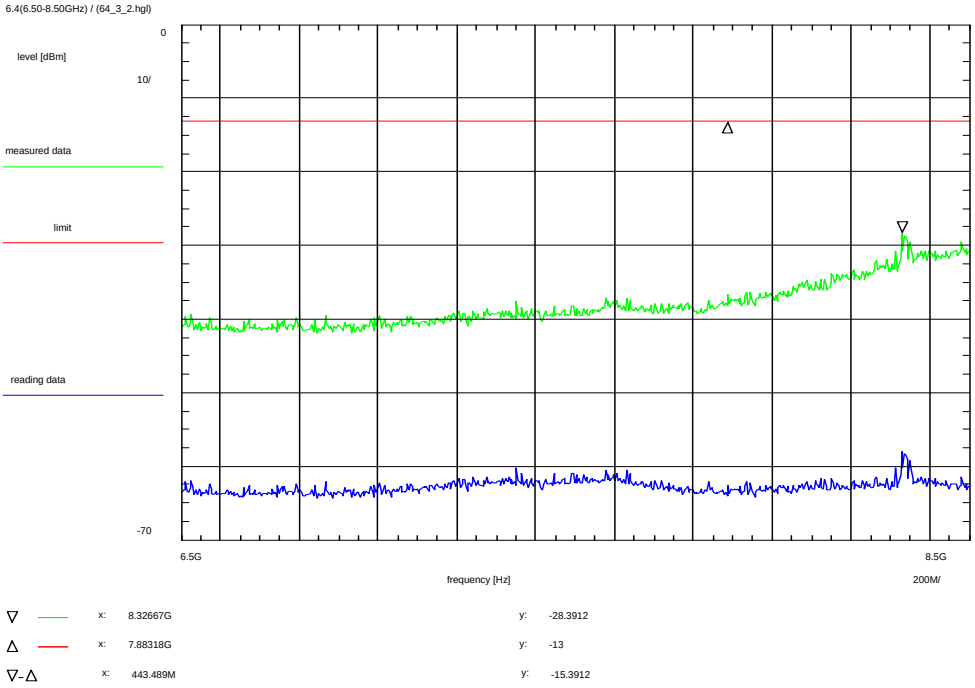
Plot No. 23: Long Pulse



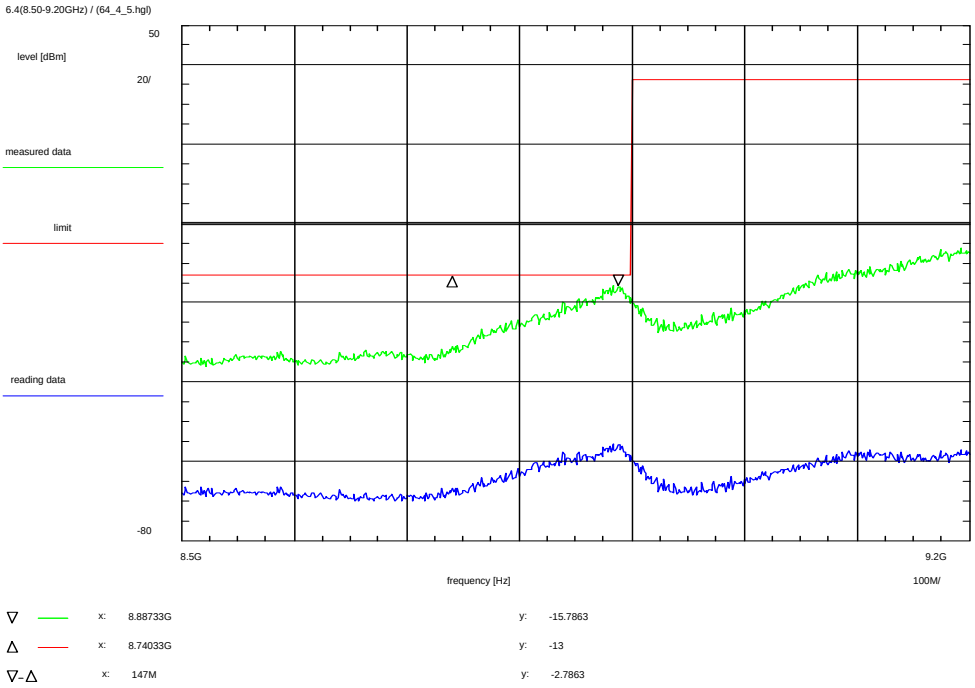
Plot No. 24: Long Pulse



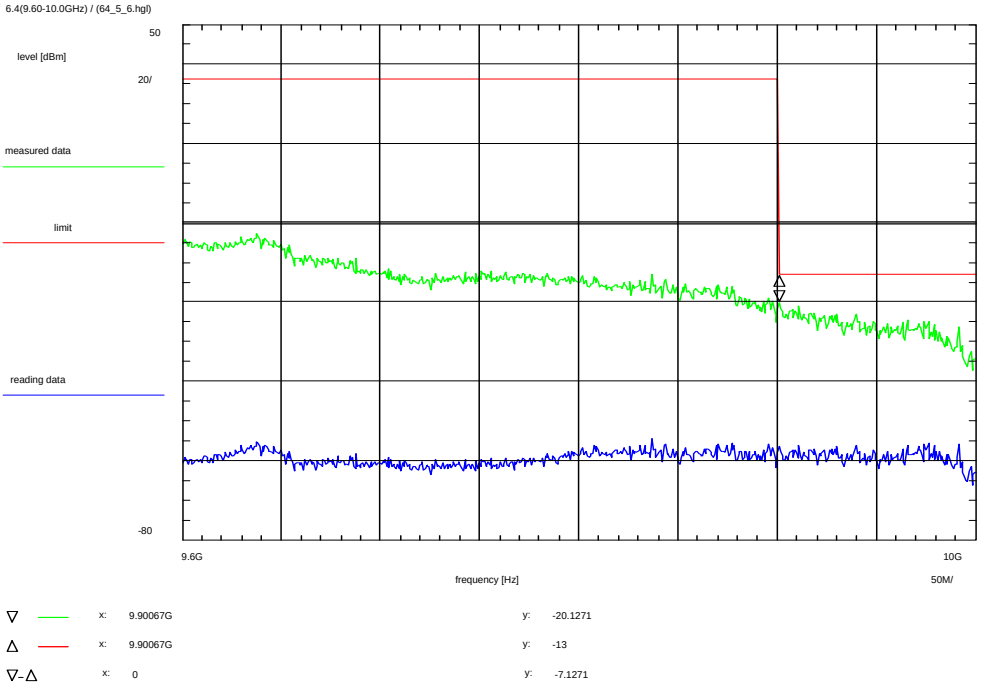
Plot No. 25: Long Pulse



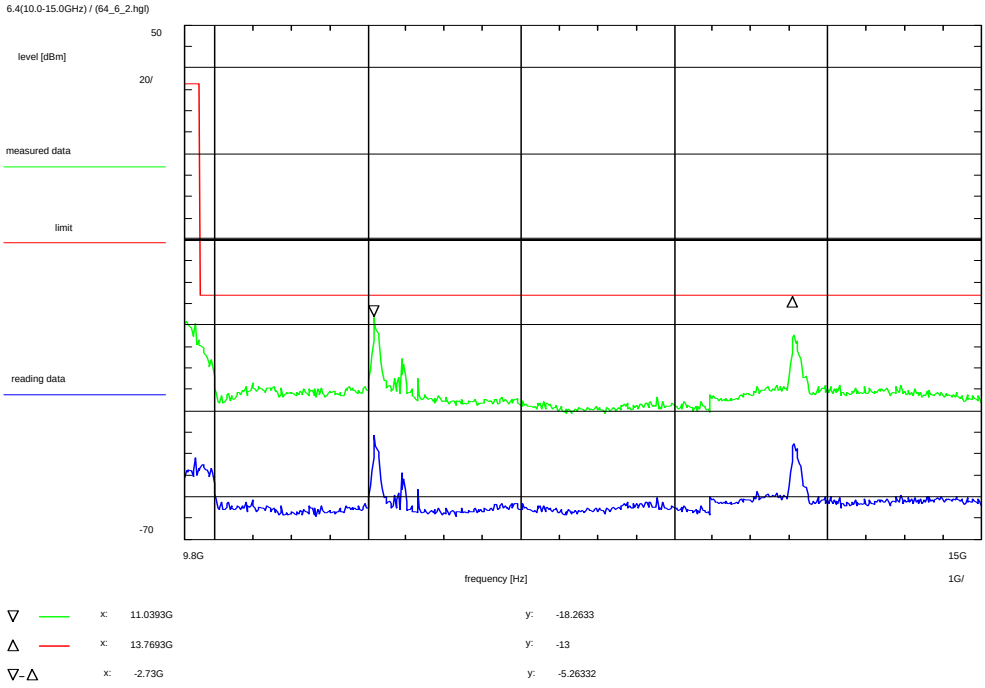
Plot No. 26: Long Pulse



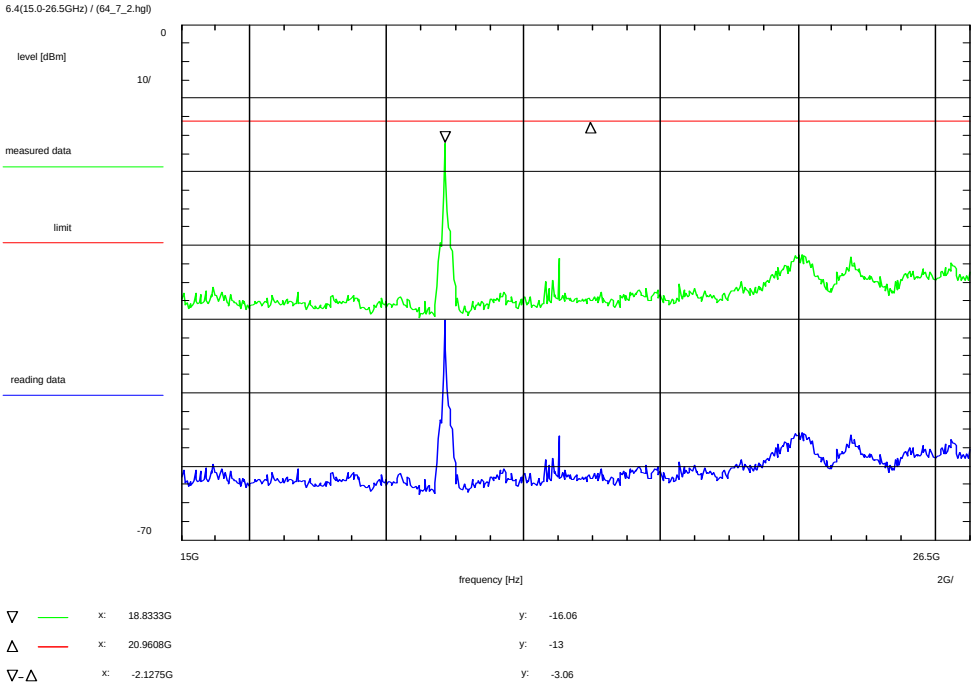
Plot No. 27: Long Pulse



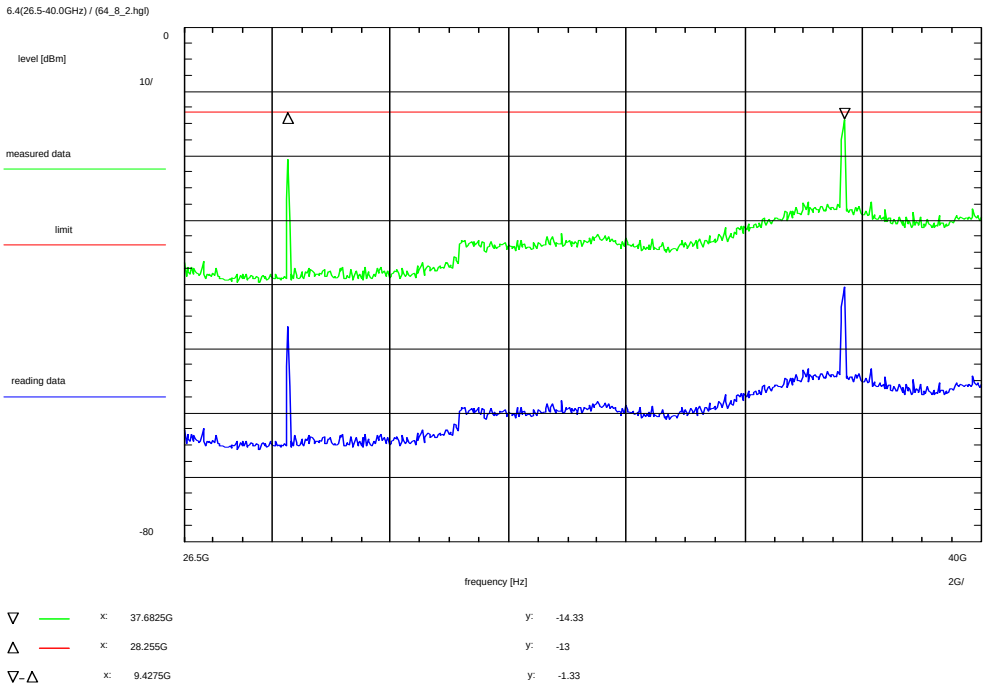
Plot No. 28: Long Pulse



Plot No. 29: Long Pulse



Plot No. 30: Long Pulse



Remark:
The spurious emissions were performed only on the short pulse and long pulse setting as these were found to have the worst case emissions during the pre-tests.

All measurements were done with 1 MHz resolution filter / 1 MHz video filter, positive peak detector and max-hold mode.

Previous plots show two traces. The blue one is the original spectrum analyzer data. These data corrected by directional coupler loss, attenuation, and cable loss result in the green trace.

SPURIOUS EMISSIONS LEVEL (dBm)								
Short Pulse			Long Pulse					
F [GHz]	Detector	Level [dBm]	F [GHz]	Detector	Level [dBm]	F [GHz]	Detector	Level [dBm]
8.339	pos-peak	-26.8	8.327	pos-peak	-28.4			
8.883	pos-peak	-15.1	8.887	pos-peak	-15.8			
11.057	pos-peak	-17.7	11.039	pos-peak	-18.3			
14.194	pos-peak	-19.1	13.778	pos-peak	-22.4			
18.776	pos-peak	-18.7	18.833	pos-peak	-16.1			
28.278	pos-peak	-18.7	28.255	pos-peak	-20.5			
37.660	pos-peak	-17.8	37.683	pos-peak	-14.3			
Measurement uncertainty			±3 dB					

RBW: 1MHz VBW: 1MHz Pos-Peak Detector / Max-Hold

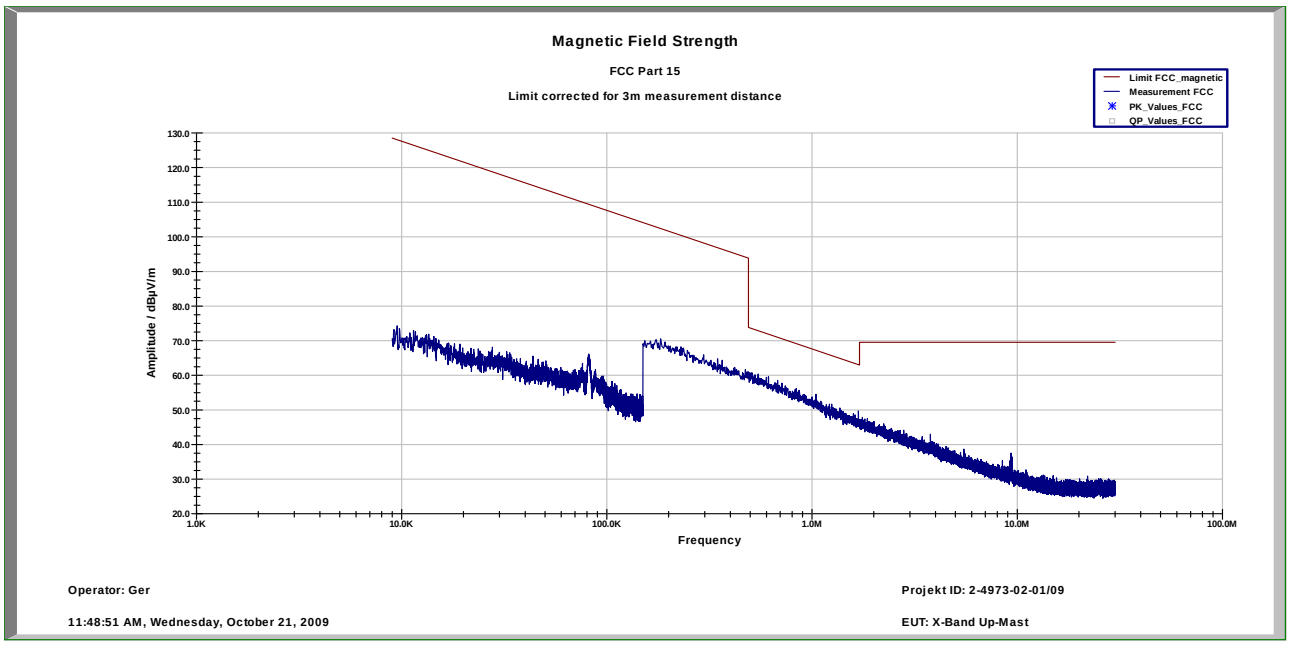
Limit according to §90.210(b):

Under normal test conditions only	(b) *Emission Mask B.* For transmitters that are equipped with an audio lowpass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows: (1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB. (2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB. (3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.

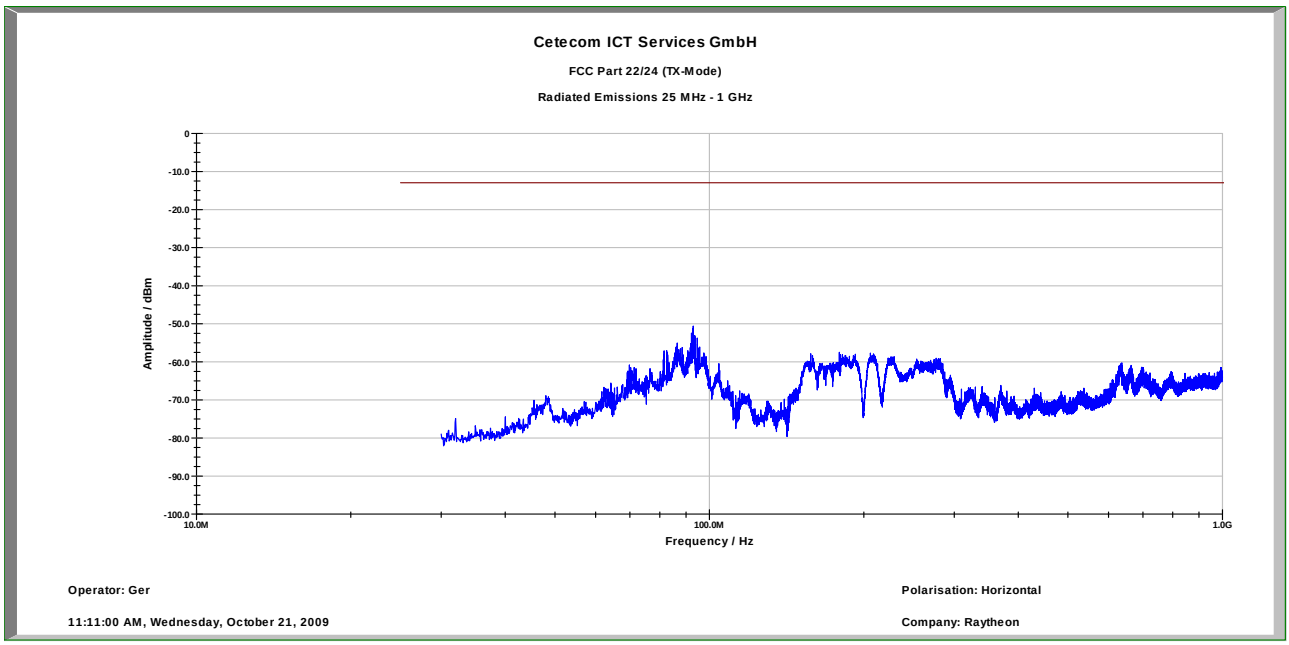
Test result: passed

4.8 Field strength of spurious radiation §2.1053 / §90.210(b)(n)

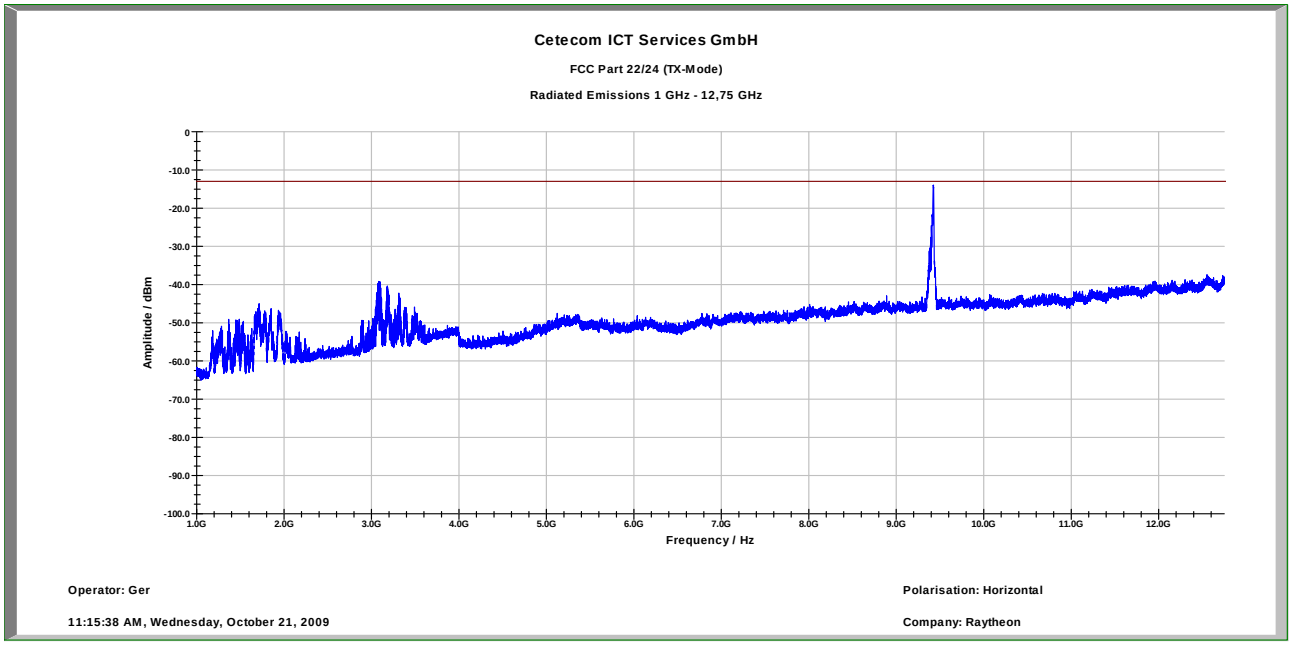
Plot No. 31: Short Pulse



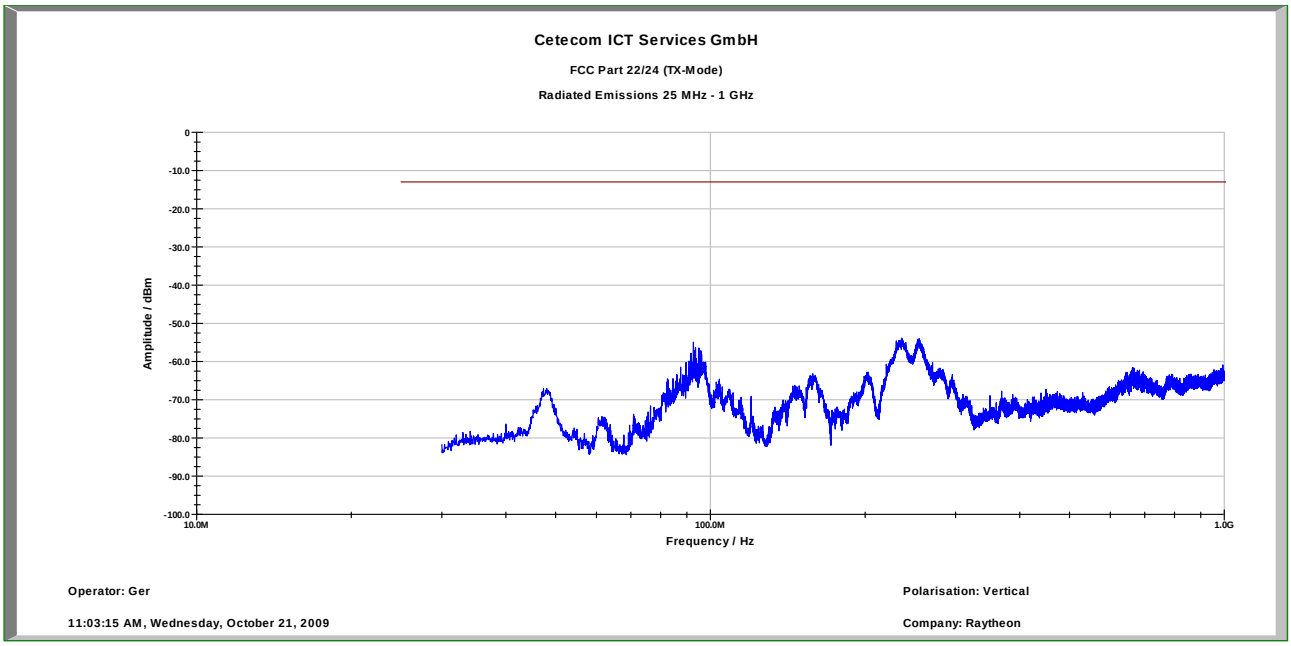
Plot No. 32: Short Pulse, horizontal polarization



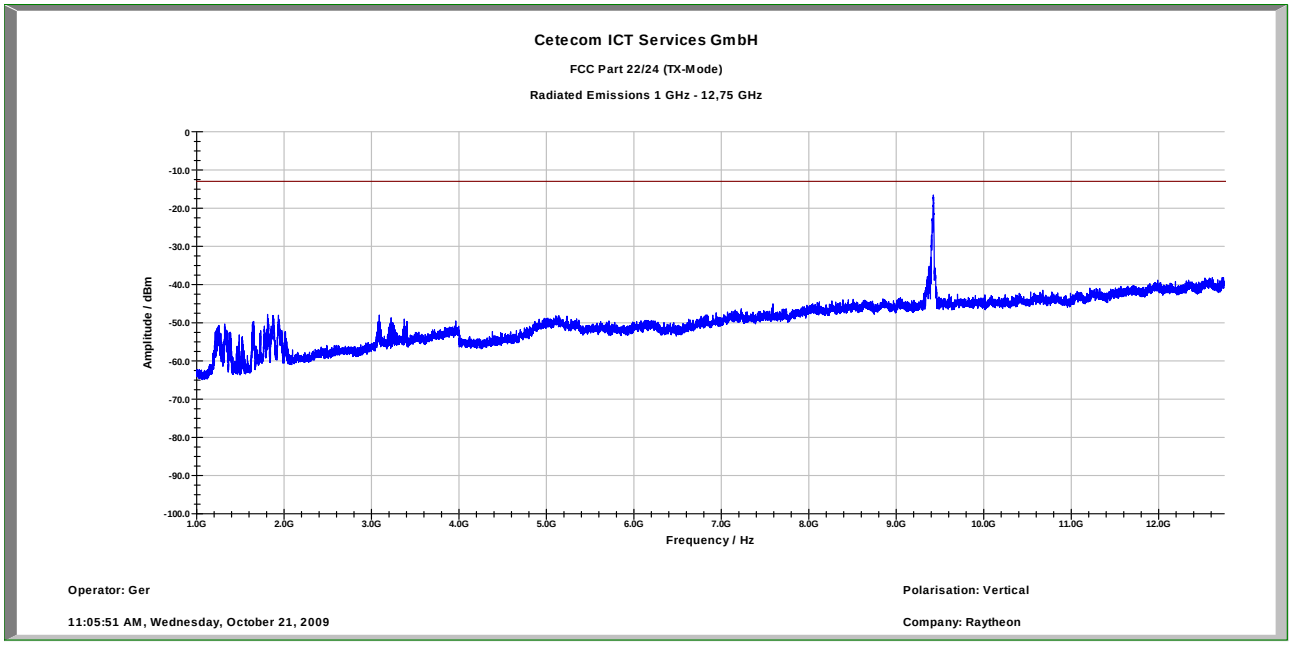
Plot No. 33: Short Pulse, horizontal polarization



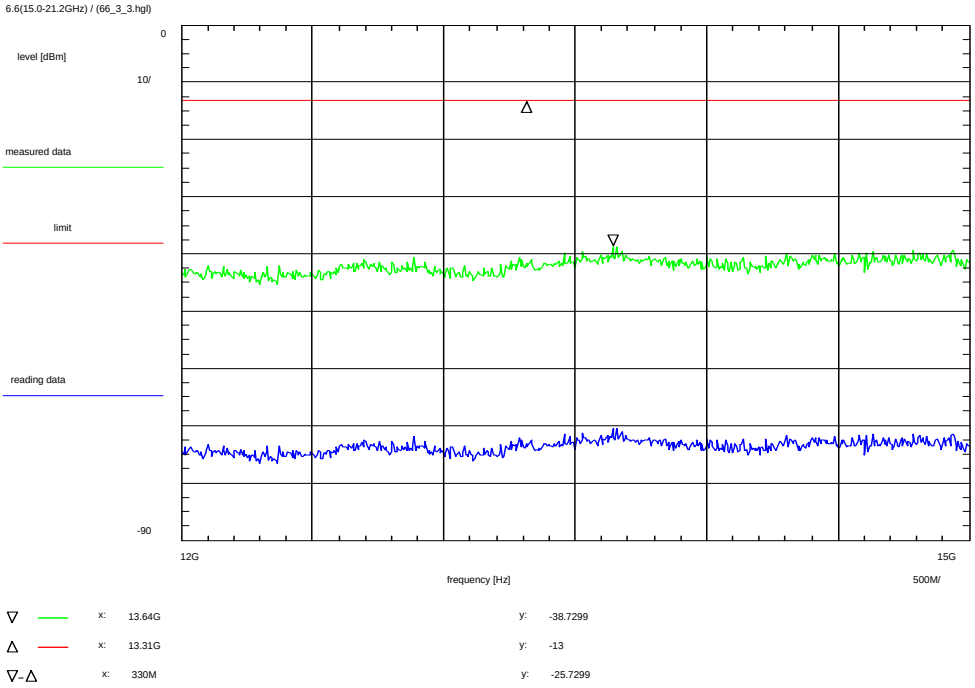
Plot No. 34: Short Pulse, vertical polarization



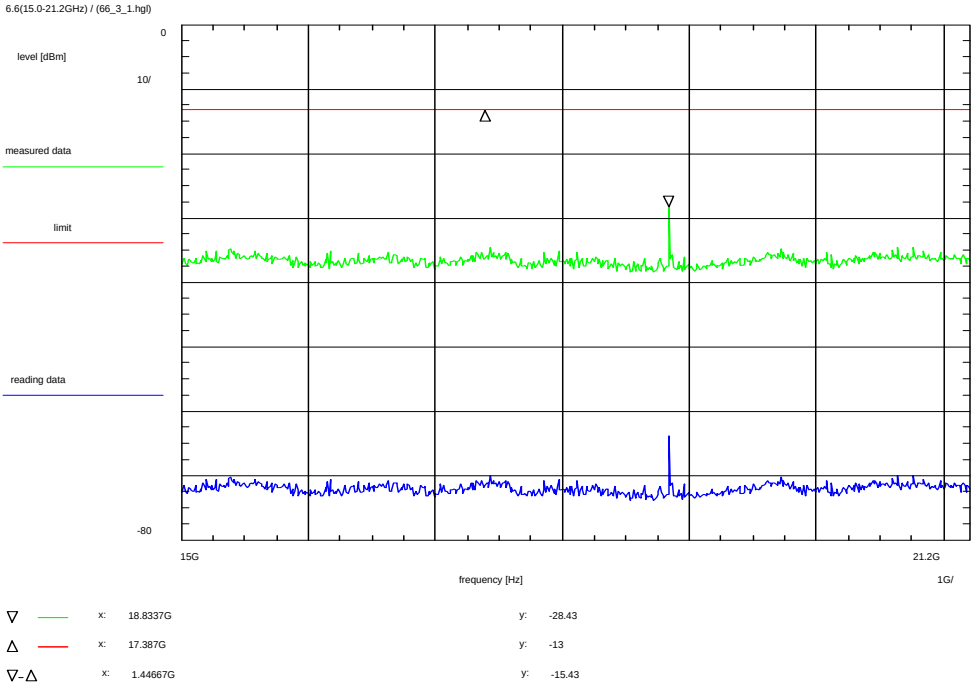
Plot No. 35: Short Pulse, vertical polarization



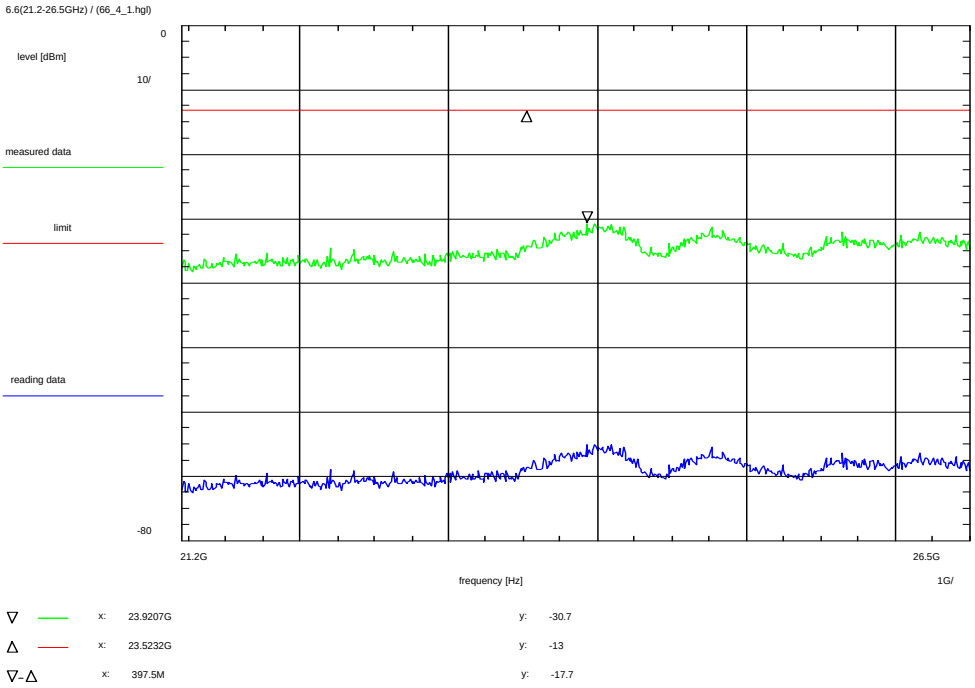
Plot No. 36: Short Pulse



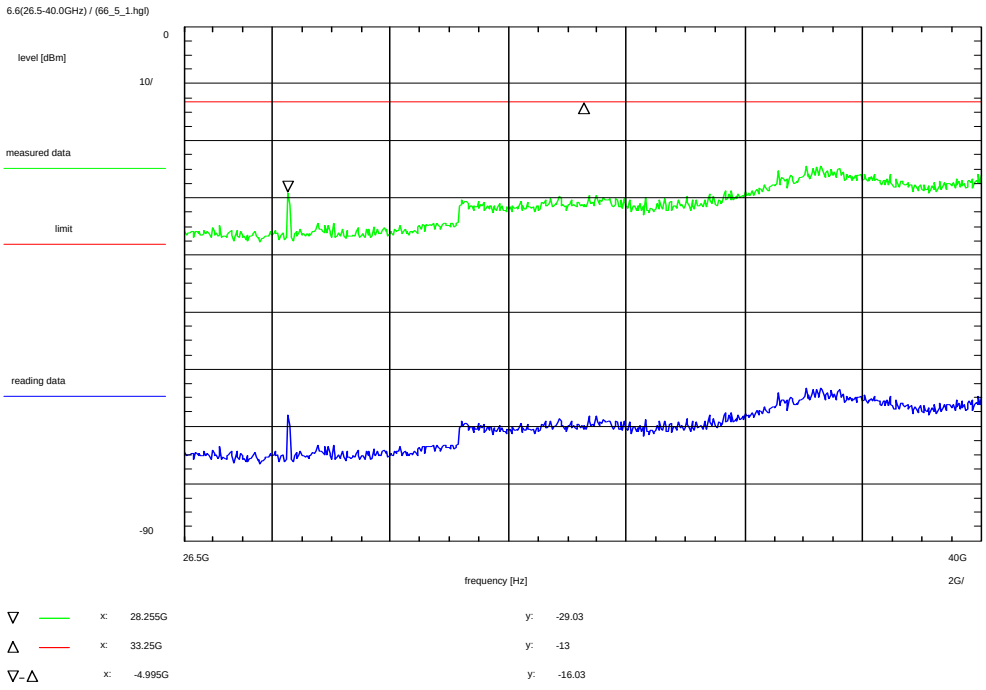
Plot No. 37: Short Pulse



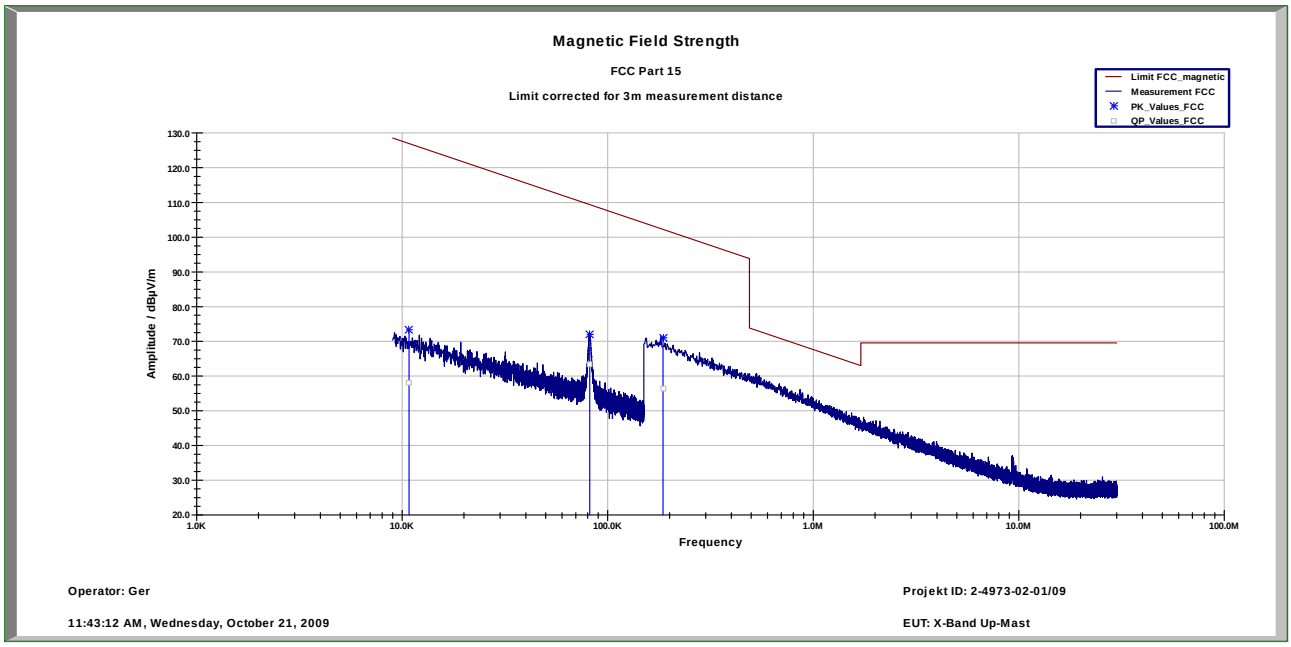
Plot No. 38: Short Pulse



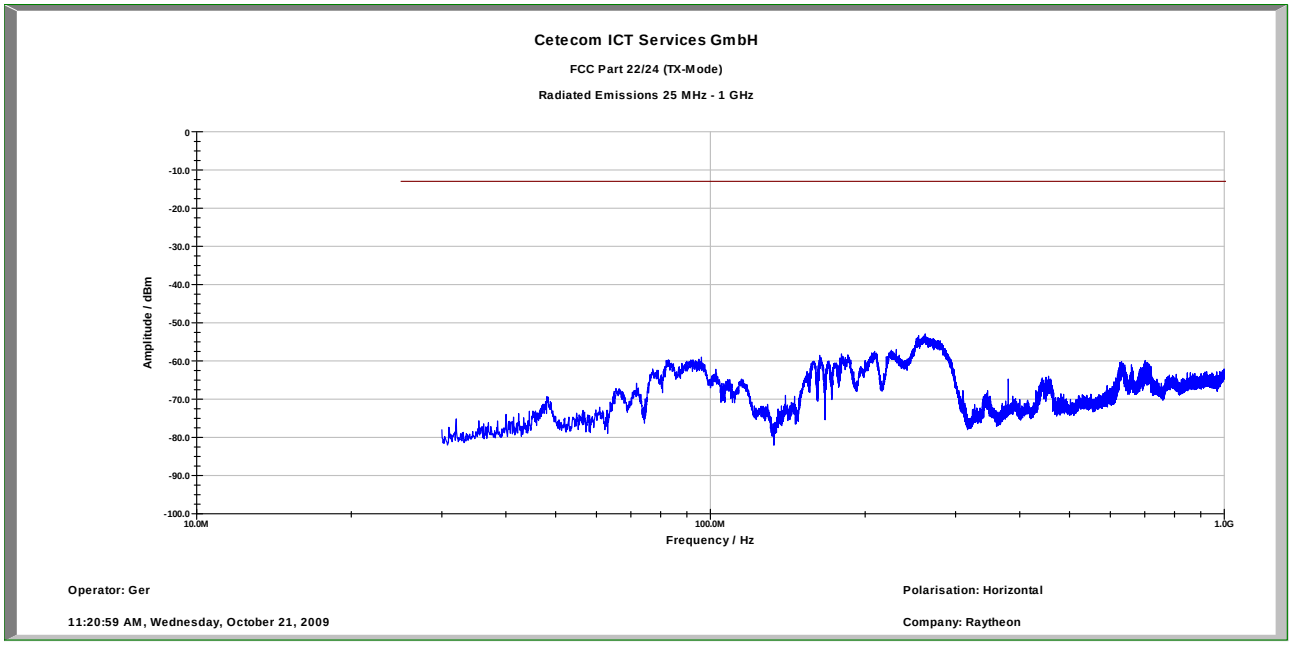
Plot No. 39: Short Pulse



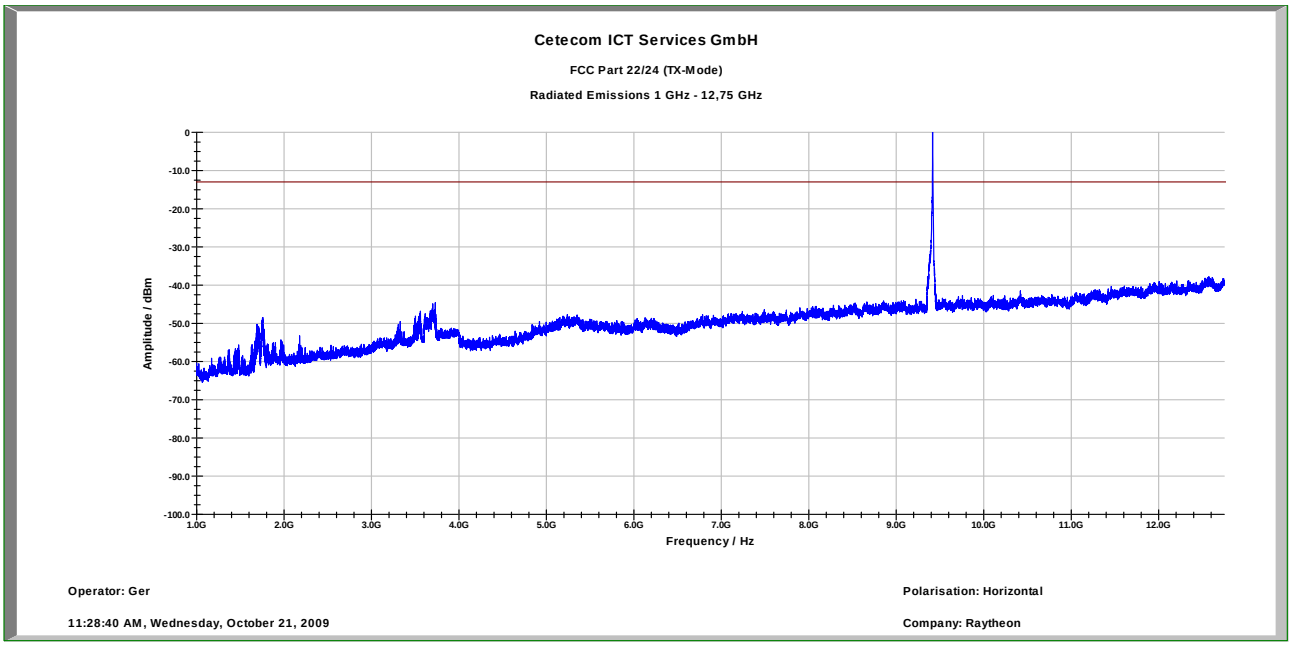
Plot No. 40: Long Pulse



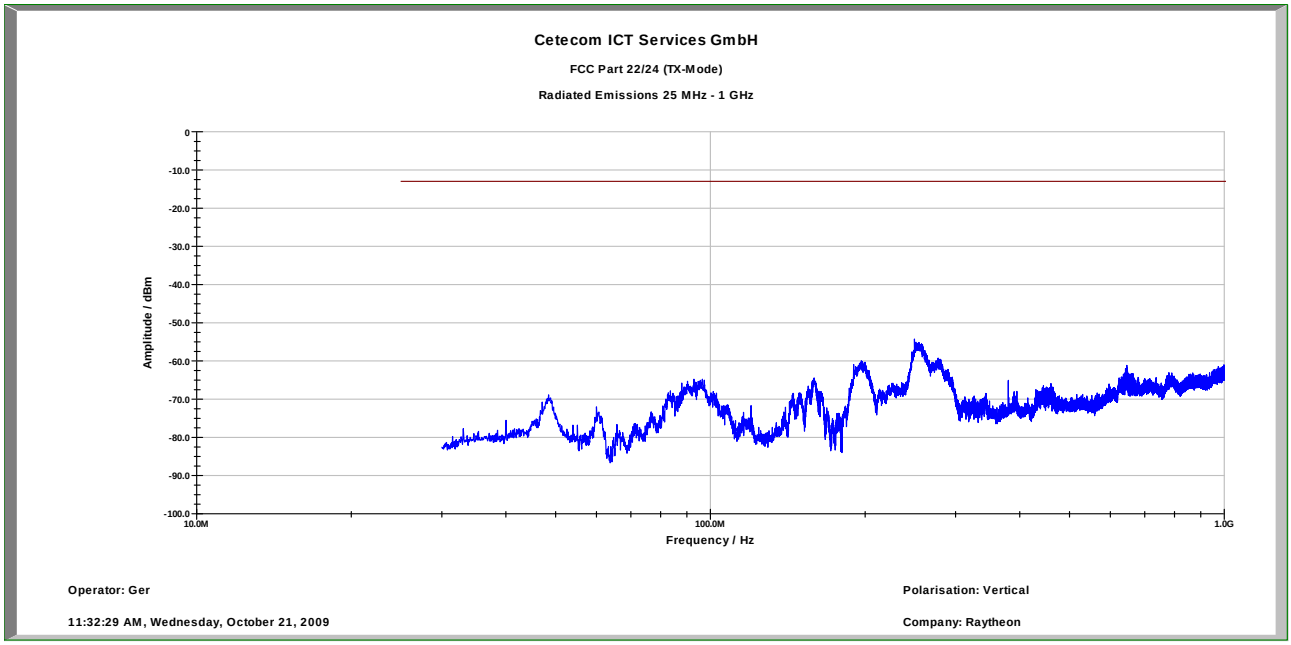
Plot No. 41: Long Pulse, horizontal polarization



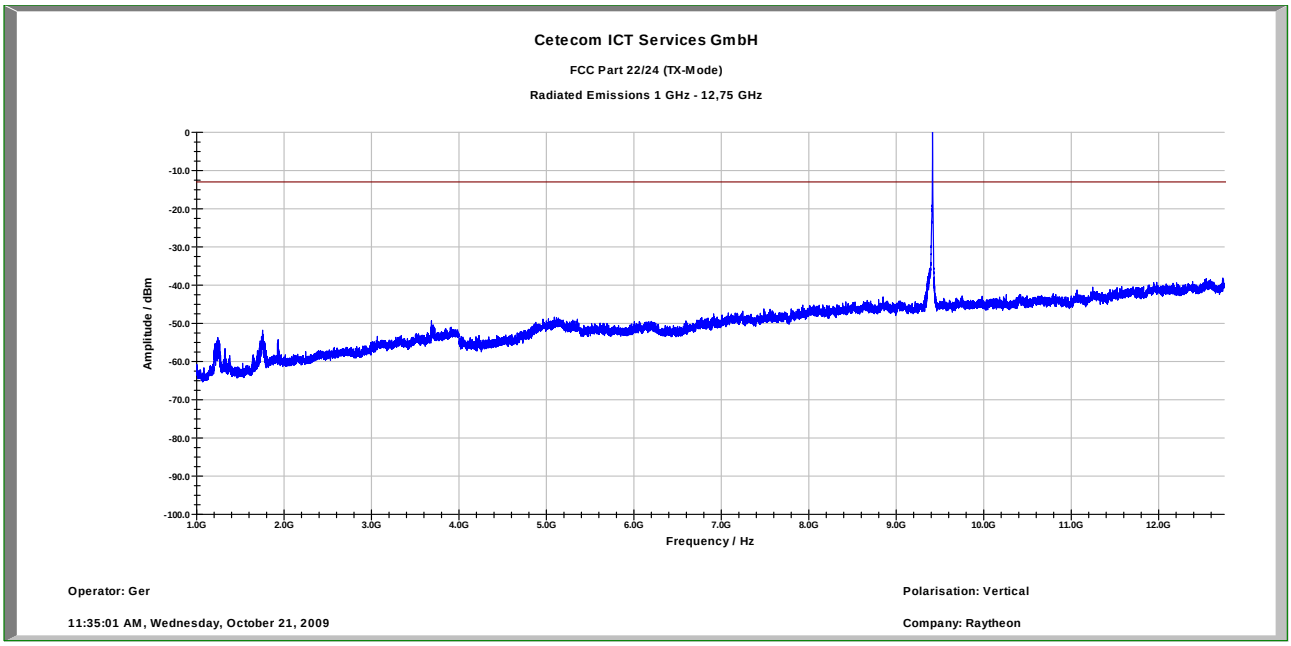
Plot No. 42: Long Pulse, horizontal polarization



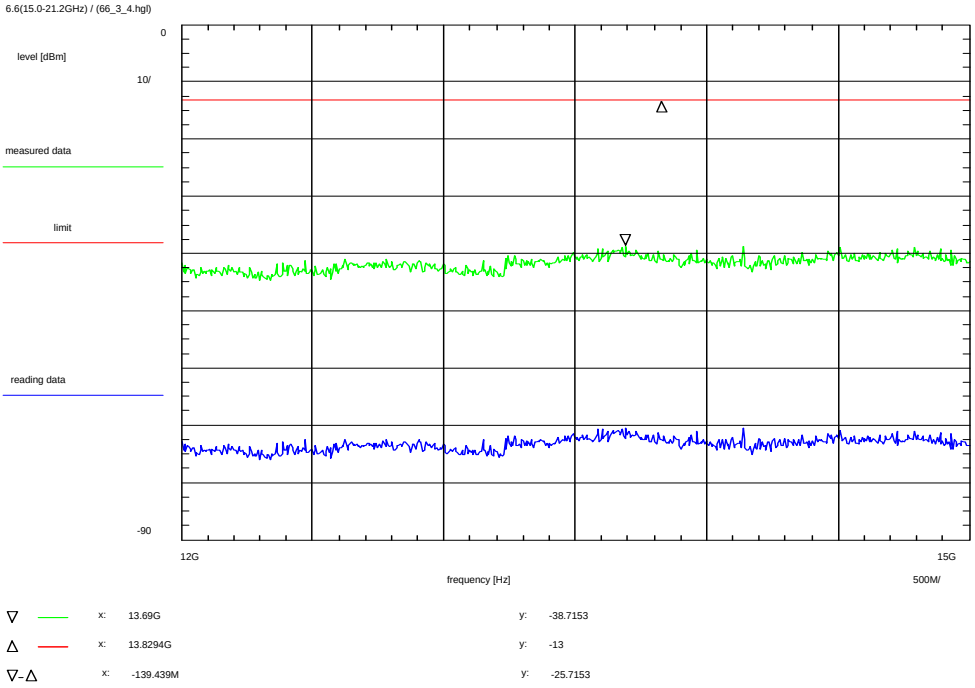
Plot No. 43: Long Pulse, vertical polarization



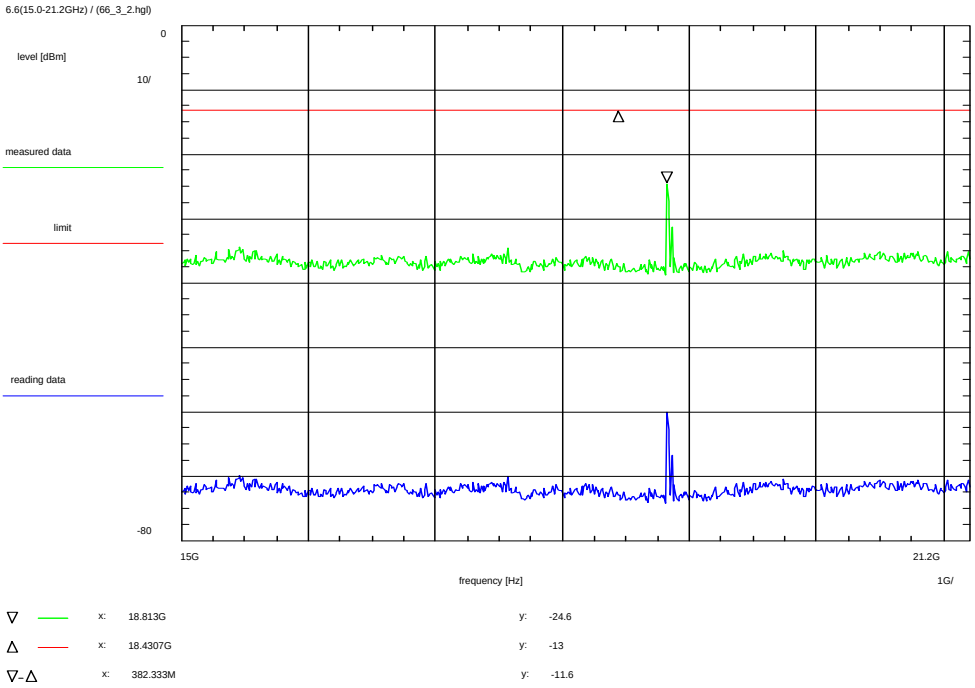
Plot No. 44: Long Pulse, vertical polarization



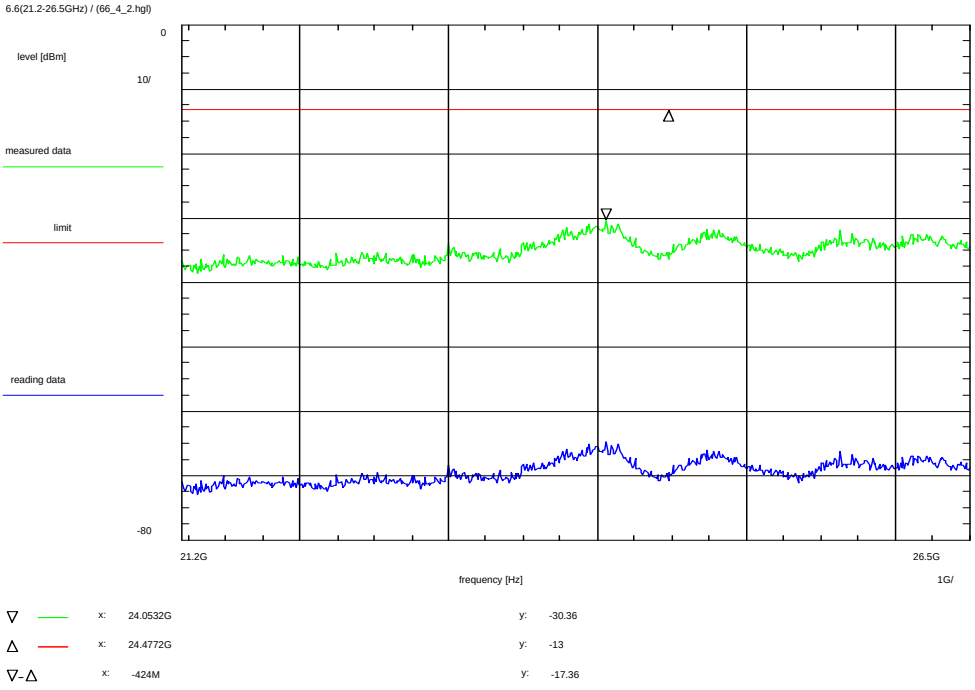
Plot No. 45: Long Pulse



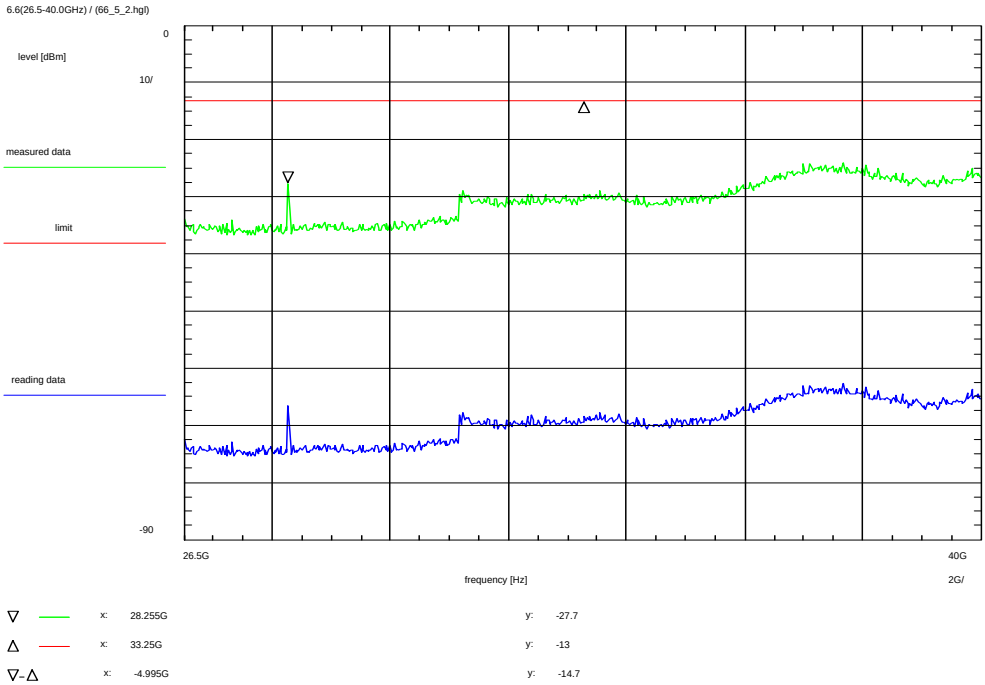
Plot No. 46: Long Pulse



Plot No. 47: Long Pulse



Plot No. 48: Long Pulse



SPURIOUS EMISSIONS LEVEL (dBm)								
Short Pulse			Long Pulse					
F [GHz]	Detector	Level [dBm]	F [GHz]	Detector	Level [dBm]	F [GHz]	Detector	Level [dBm]
18.834	pos-peak	-28.4	18.813	pos-peak	-24.6			
28.255	pos-peak	-29.0	28.255	pos-peak	-27.7			
Measurement uncertainty			±3 dB					

RBW: 100 kHz / 1MHz VBW: 100 kHz / 1MHz

Limit according to §90.210(b):

Under normal test conditions only	(b) *Emission Mask B.* For transmitters that are equipped with an audio lowpass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows: (1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB. (2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB. (3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.

Test result: passed

4.9 Frequency stability §2.1055 / §90.213

Short Pulse:

U_{AC} [V]	Temperature [°C]	Carrier frequency [MHz]	Measured frequency [MHz]	Difference [kHz]	Difference [ppm]
115	-30.0	9415	9426.5	11.5	1221
115	-20.0	9415	9425.8	10.8	1147
115	-10.0	9415	9424.5	9.5	1009
115	0.0	9415	9423.0	8.0	850
115	+10.0	9415	9420.8	5.8	616
98	+20.0	9415	9417.9	2.9	308
115	+20.0	9415	9417.7	2.7	287
132	+20.0	9415	9417.8	2.8	297
115	+30.0	9415	9414.7	-0.3	-32
115	+40.0	9415	9411.2	-3.8	-404
115	+50.0	9415	9408.1	-6.9	-733

Long Pulse:

U_{AC} [V]	Temperature [°C]	Carrier frequency [MHz]	Measured frequency [MHz]	Difference [kHz]	Difference [ppm]
115	-30.0	9415	9422.3	7.3	775
115	-20.0	9415	9420.9	5.9	627
115	-10.0	9415	9419.4	4.4	467
115	0.0	9415	9417.8	2.8	297
115	+10.0	9415	9416.4	1.4	149
98	+20.0	9415	9414.7	-0.3	-32
115	+20.0	9415	9414.6	-0.4	-42
132	+20.0	9415	9414.7	-0.3	-32
115	+30.0	9415	9412.5	-2.5	-266
115	+40.0	9415	9409.9	-5.1	-542
115	+50.0	9415	9407.2	-7.8	-828

Limit according to §90.213:

Note 10: Except for DSRCS equipment in the 5850–5925 MHz band, frequency stability is to be specified in the station authorization. Frequency stability for DSRCS equipment in the 5850–5925 MHz band is specified in subpart M of this part.

Test result: passed

5 Test equipment and ancillaries used for tests

To simplify the identification on each page of the test equipment used, on each page of the test report, each item of test equipment and ancillaries such as cables are identified (numbered) by the Test Laboratory, below.

All reported calibration intervals are calibrations according to the EN / ISO / IEC 17025 standard. These calibrations were performed from an accredited external calibration laboratory.
Additional to these calibrations the laboratory performed comparison measurements with other calibrated systems and performed a weekly chamber inspection.
All used devices are connected with a 10 MHz external reference.
According to the manufacturers' instruction is it possible to establish a calibration interval for the FSP unit of 24 month, if the device has an external 10 MHz reference.

Chamber C:

No	Equipment/Type	Manuf.	Serial No.	Cetecom ID	Last Calibration	Frequency (months)
1	Anechoic chamber	MWB	87400/02	300000996	monthly verification	
2	System-Rack 85900	HP I.V.	*	300000222	n.a.	
3	Measurement System 1					
4	PSA-Spektrumanalysator 3 Hz - 26.5 GHz (E4440A)	Agilent	MY48250080	300003812	05.08.2008	24
5	EMI Preselector 9 kHz - 1 GHz (N9039A)	Agilent	MY48260003	300003825	19.08.2008	24
6	Microwave Analog Signal Generator (N5183A)	Agilent	MY47420220	300003813	06.08.2008	24
7	PC	F+W			n.a.	
8	TILE	TILE			n.a.	
9	TRILOG Super Broadband Antenna (VULB9163)	Schwarzbeck	371	300003854	monthly verification (System cal.)	
10	Double Ridged Antenna 3115	EMCO	3088	300001032	monthly verification (System cal.)	
11	Active Loop Antenna 6502	EMCO	2210	300001015	monthly verification (System cal.)	
12	Switch / Control Unit 3488A	HP	2719A15013	300001156	n.a.	
13	Power Supply 6032A	HP	2818A03450	300001040	08.01.2009	36
14	Busisolator	Kontron		300001056	n.a.	
15	Leitungsteiler 11850C	HP		300000997	monthly verification (System cal.)	
16	Power attenuator 8325	Byrd	1530	300001595	monthly verification (System cal.)	
17	Band reject filter WRCG1855/1910	Wainwright	7	300003350	monthly verification (System cal.)	
18	Band reject filter WRCG2400/2483	Wainwright	11	300003351	monthly verification (System cal.)	
19	Hochpassfilter WHK1.1/15G-10SS	Wainwright	3	300003255	monthly verification (System cal.)	
20	Hochpassfilter WHKX2.9/18G-12SS	Wainwright	1	300003492	monthly verification (System cal.)	
21	Hochpassfilter WHKX7.0/18G-8SS	Wainwright	18	300003789	monthly verification (System cal.)	
22	Switch / Control Unit 3488A	HP	2605e08770	300001443	n.a.	
23	Trenntrafo RT5A	Grundig	9242	300001263	n.a.	
24	Relais Matrix PSU	R&S	890167/024	300001168	n.a.	
25	Netznachbildung ESH3-Z5	R&S	828576/020	300001210	n.a.	

Test laboratory 010:

Item No.	Measuring-equipment	Manufacturer	Type	Serial No.	Cetecom ID	Last Calibration	Frequency (months)
ECT2	Climatic box	Heraeus Vötsch	VUK 04 / 1500	31098	300001507	27.07.2009	24
A014	Standard gain horn 9.84-15.0 GHz	Flann	1724-20	89	300001957	cyclic verification	
A016	Standard gain horn 14.5-22.0 GHz	Flann	1924-20	33	300001963	cyclic verification	
A019	Standard gain horn 17.6-26.7 GHz	Flann	2024-20	156	300001968	cyclic verification	
A021	Standard gain horn 26.4-40.1 GHz	Flann	2224-20	233	300001973	cyclic verification	
C217	1.5 m 50 Ω / K	Insulated Wire Inc.	KPS-1533-590	101995	300002290	cyclic verification	
R001	Spectrum analyzer	Hewlett Packard	HP 8565E	3515A00283	300000916	28.11.2008	24
R031	Peak Power Analyzer	Boonton	4500B	12331	300003871	19.11.2008	24
R032	Peak Power Sensor .5-18GHz	Boonton	58318	6276		19.11.2008	24
U214	Attenuator 10dB, N-con.	Spinner	BN 745379	7/93	400000047	cyclic verification	
U231	Double Stub Tuner	MICROLAB/FXR	N300A	-/-	300002042	cyclic verification	
W022	Taper transitions	Flann	several	-/-	300001615	cyclic verification	
W053	Transition to koaxial	Flann	17093SF40	733	300000931	cyclic verification	
W063	Transition to koaxial	Flann	20094KF	85	300000839	cyclic verification	
W065	Transition to koaxial	Flann	22093KF20	551	300000931	cyclic verification	
W072	Transition to koaxial	CMT	RA62-K-F-UBR140-C	951753-001	300000791	cyclic verification	
W240	Coupler RPS90	Continental Microwave	90-2-N-F-40-SP-SP-C	900687-002	300001598	cyclic verification	
W241	Directional Coupler 20dB	Hewlett-Packard	HP X752D	1829A21784	300000484	cyclic verification	
W242	Dummy-Load	Narda	320B	-/-	300002371	cyclic verification	

6 Photographs of the Test Set-up

Photo No. 1

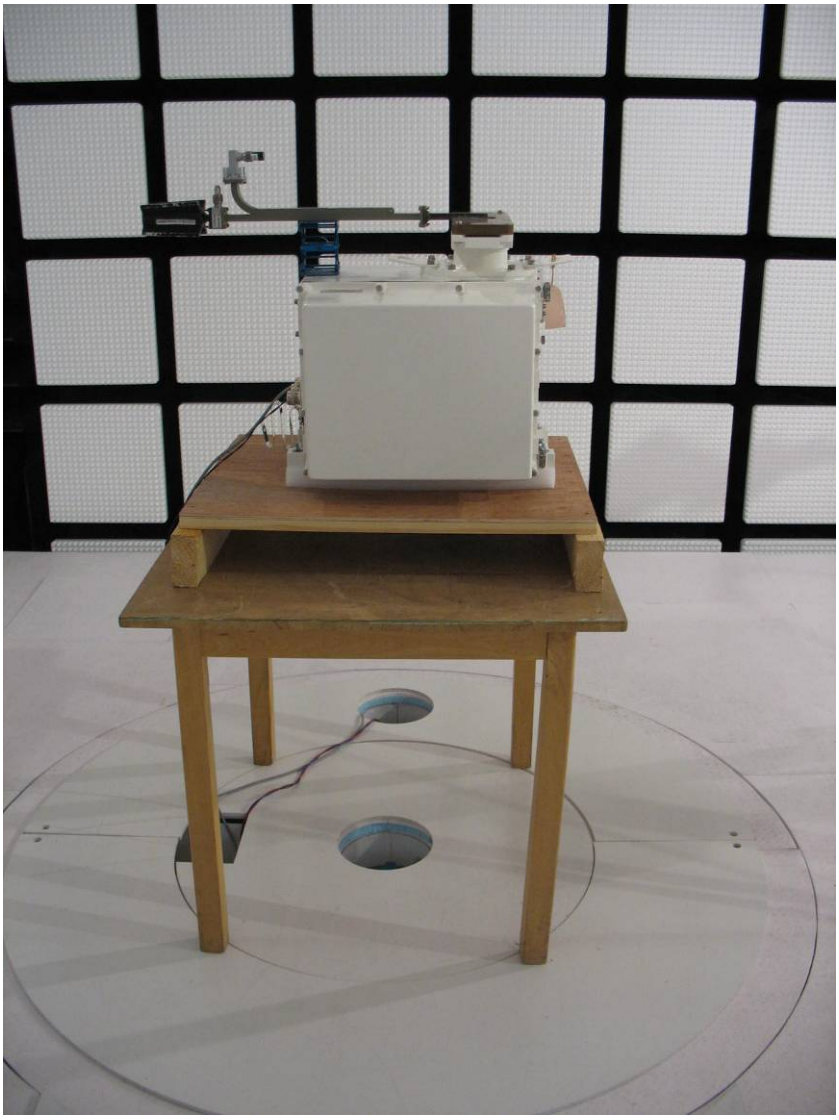


Photo No. 2

Photo No. 3

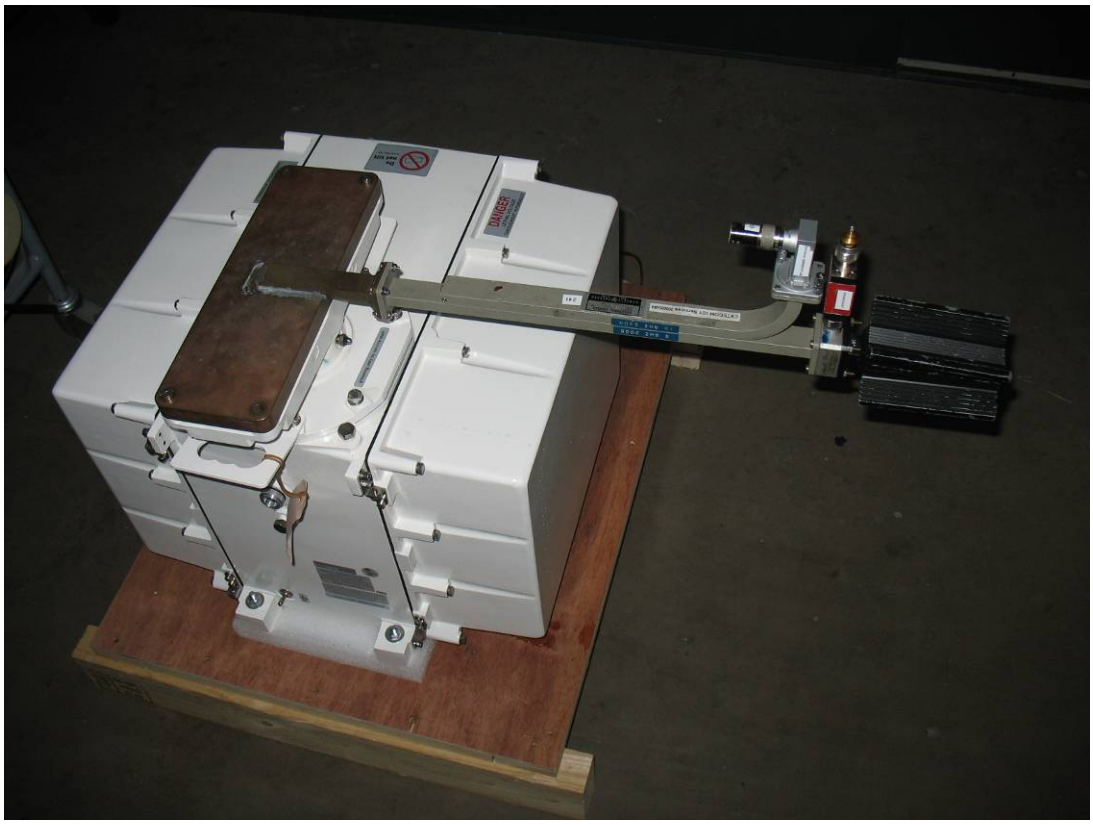


Photo No. 4

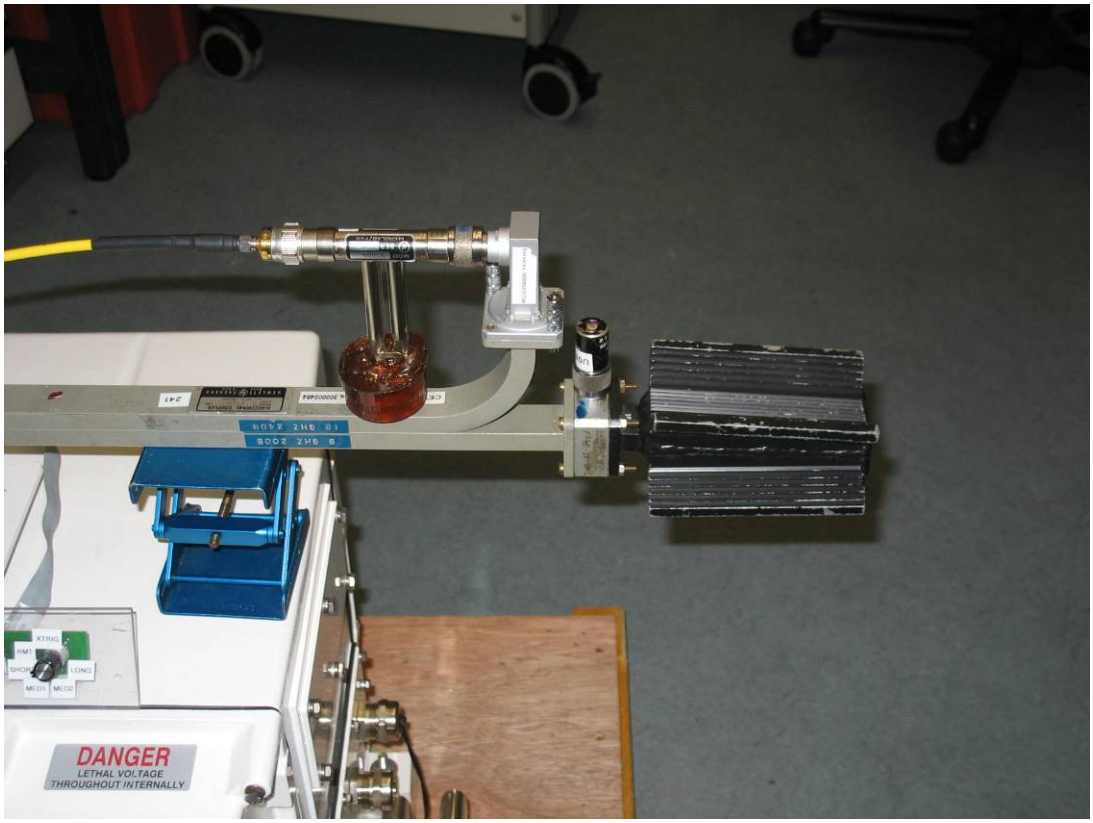


Photo No. 5

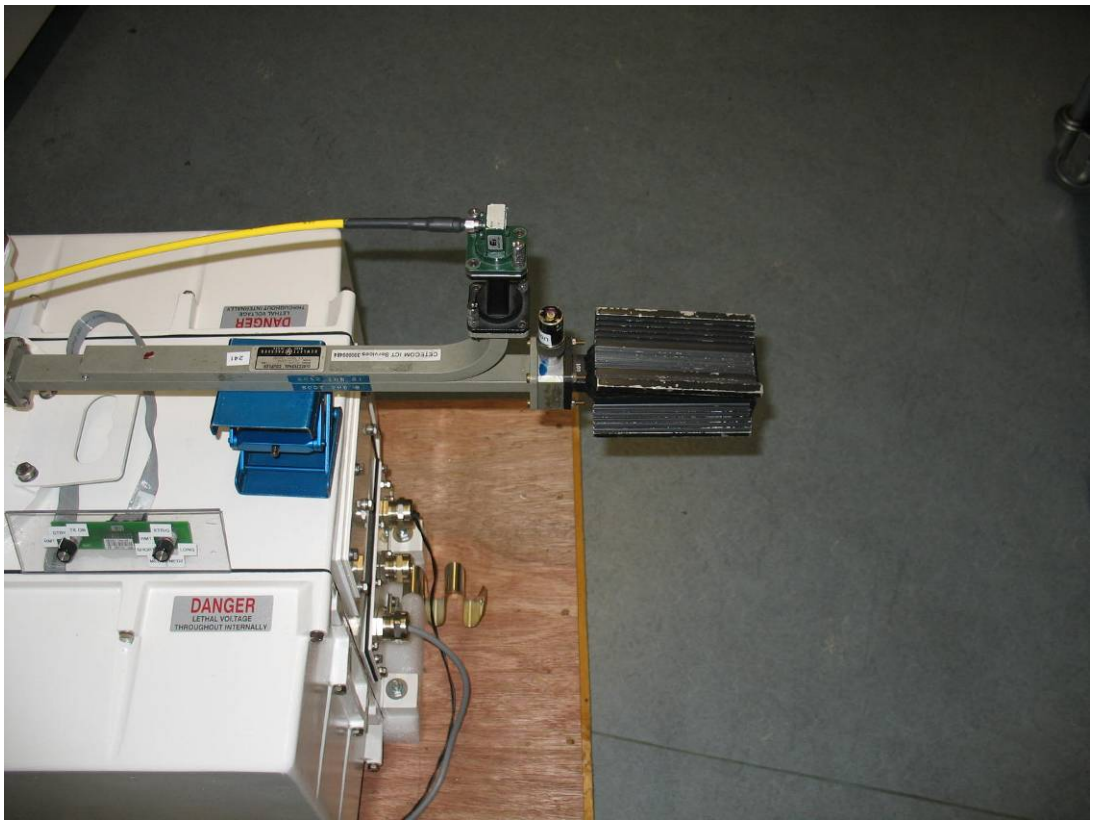


Photo No. 6

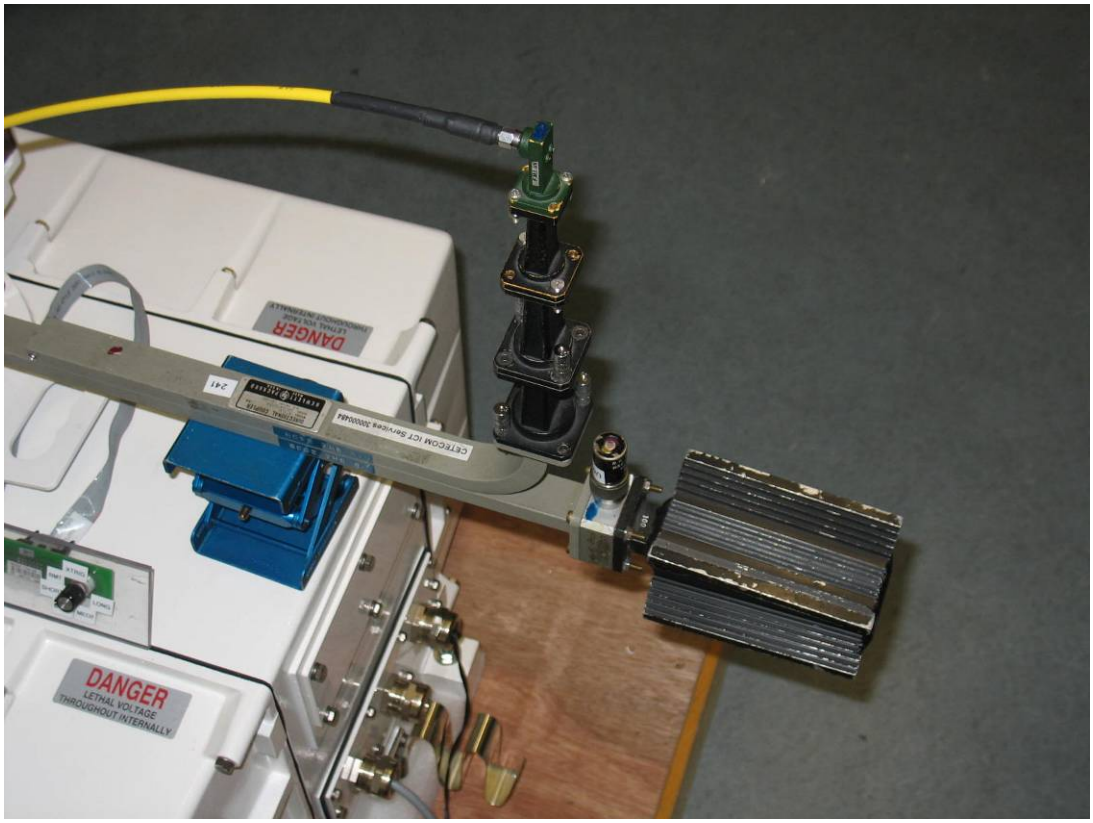


Photo No. 7

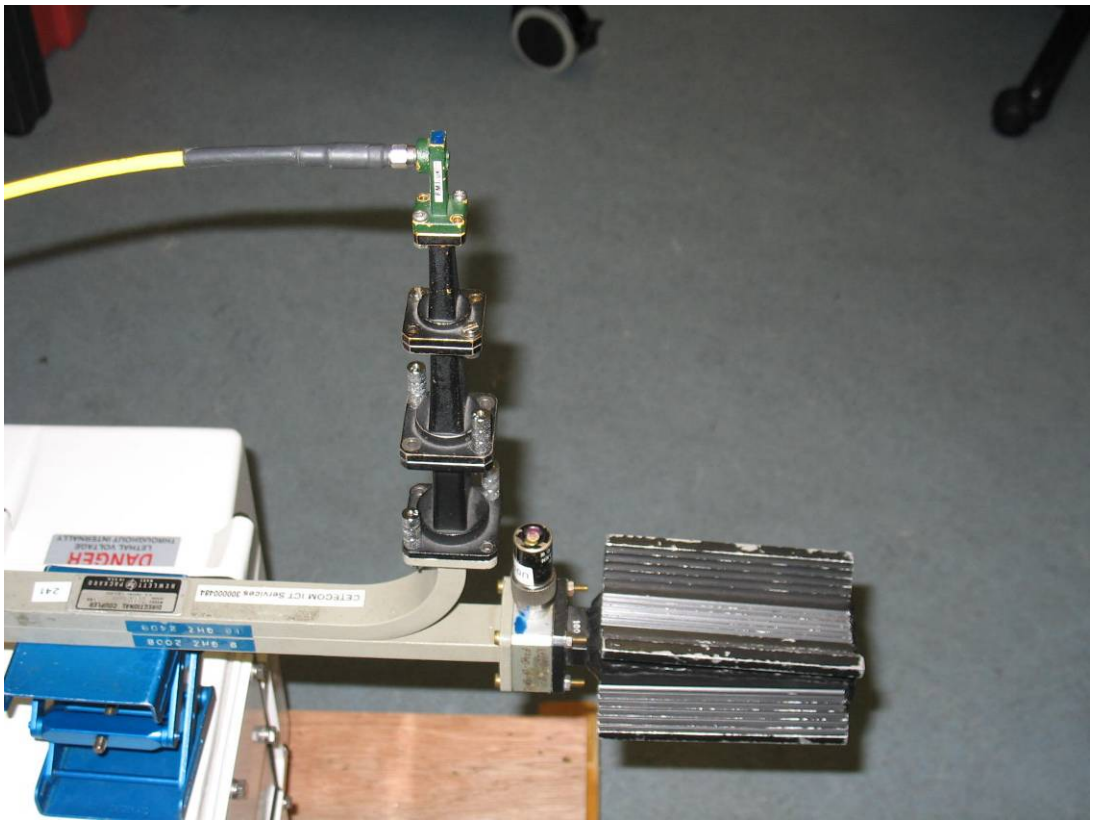
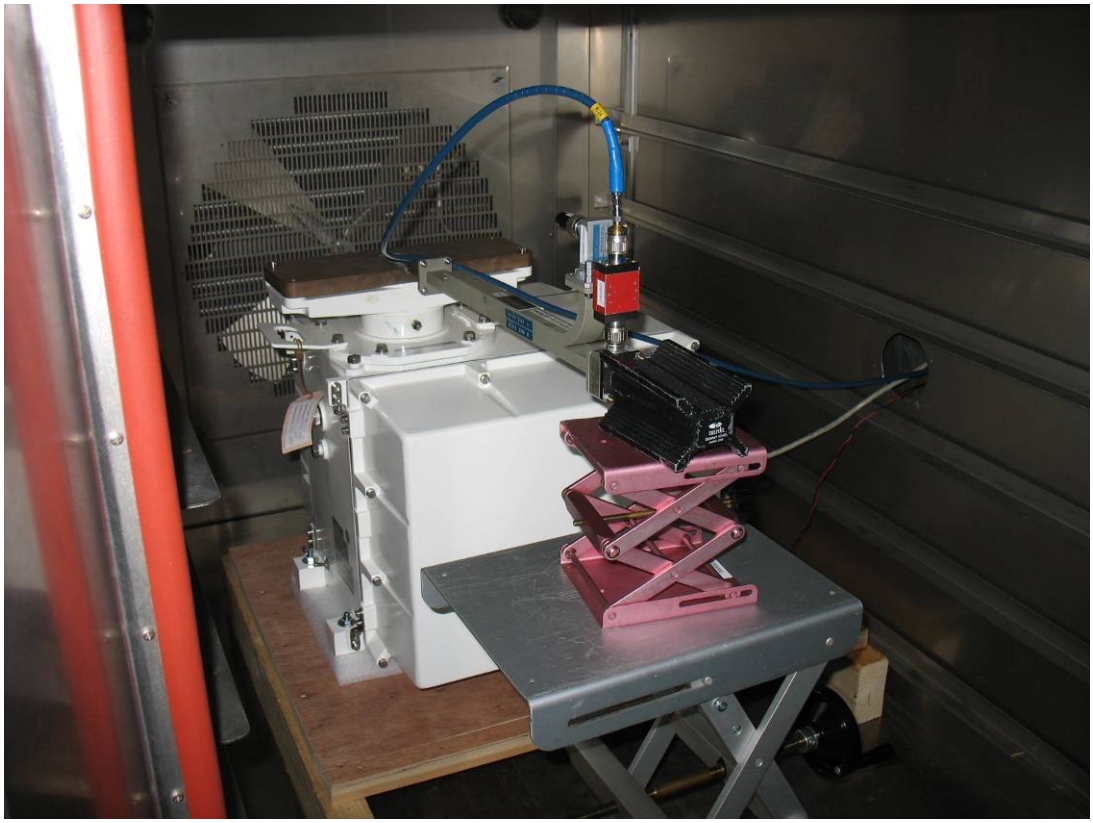


Photo No. 8



7 External photographs of the EUT

Photo No. 1

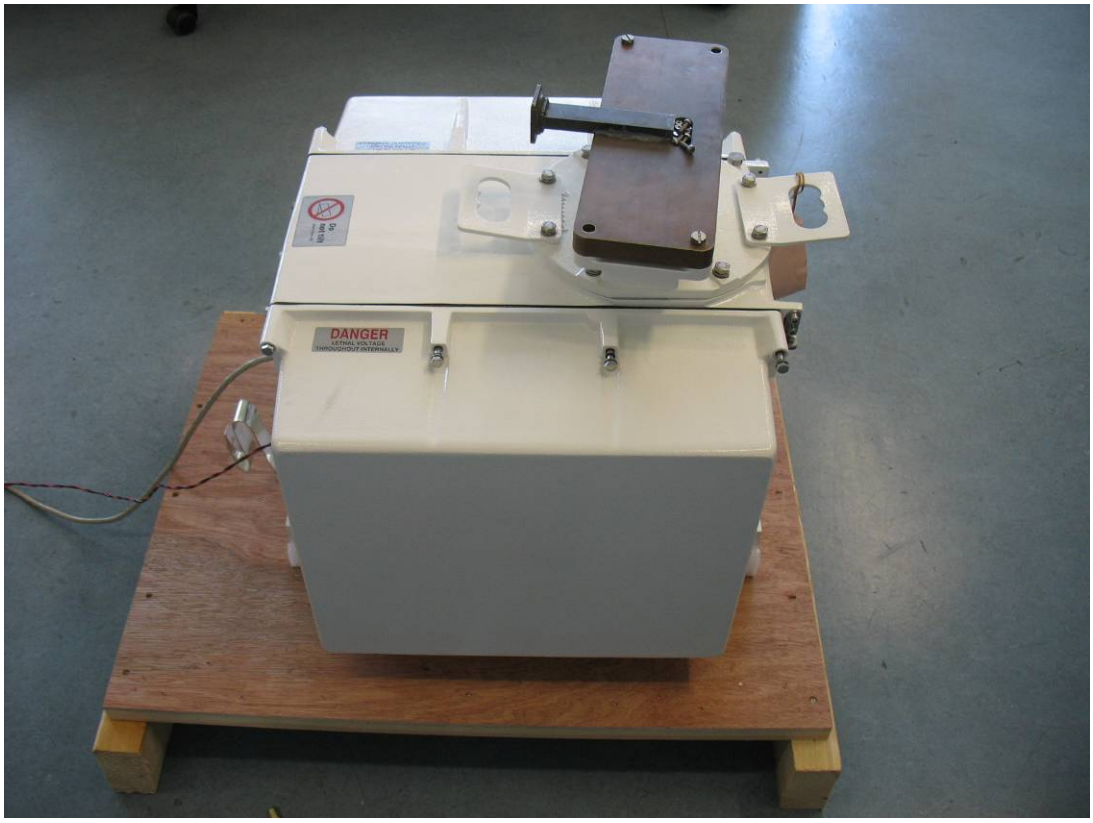


Photo No. 2

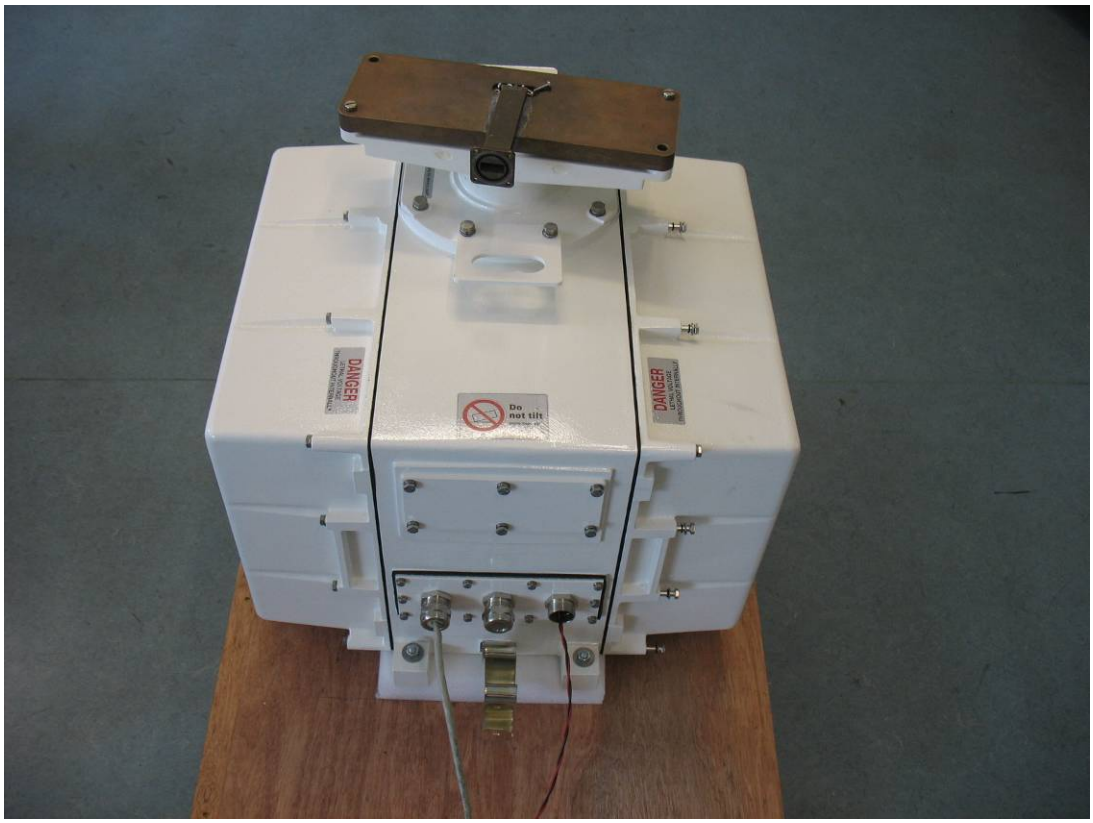


Photo No. 3

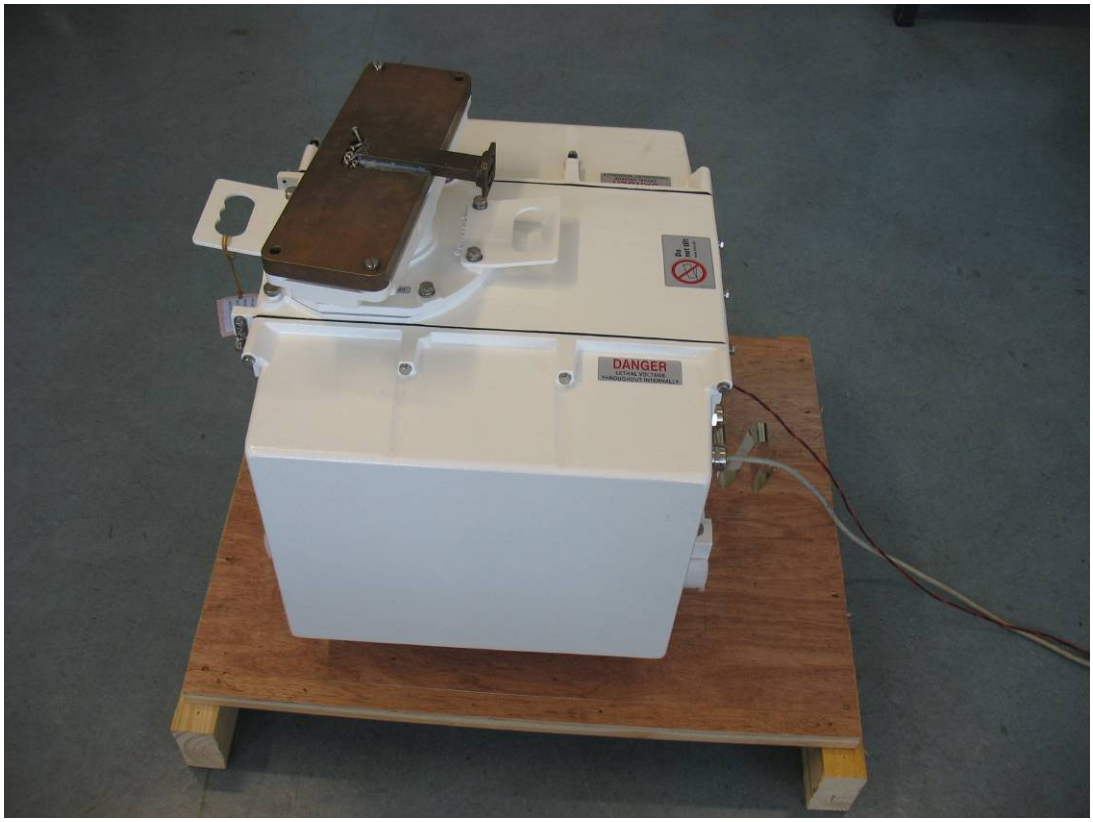


Photo No. 4

Photo No. 5

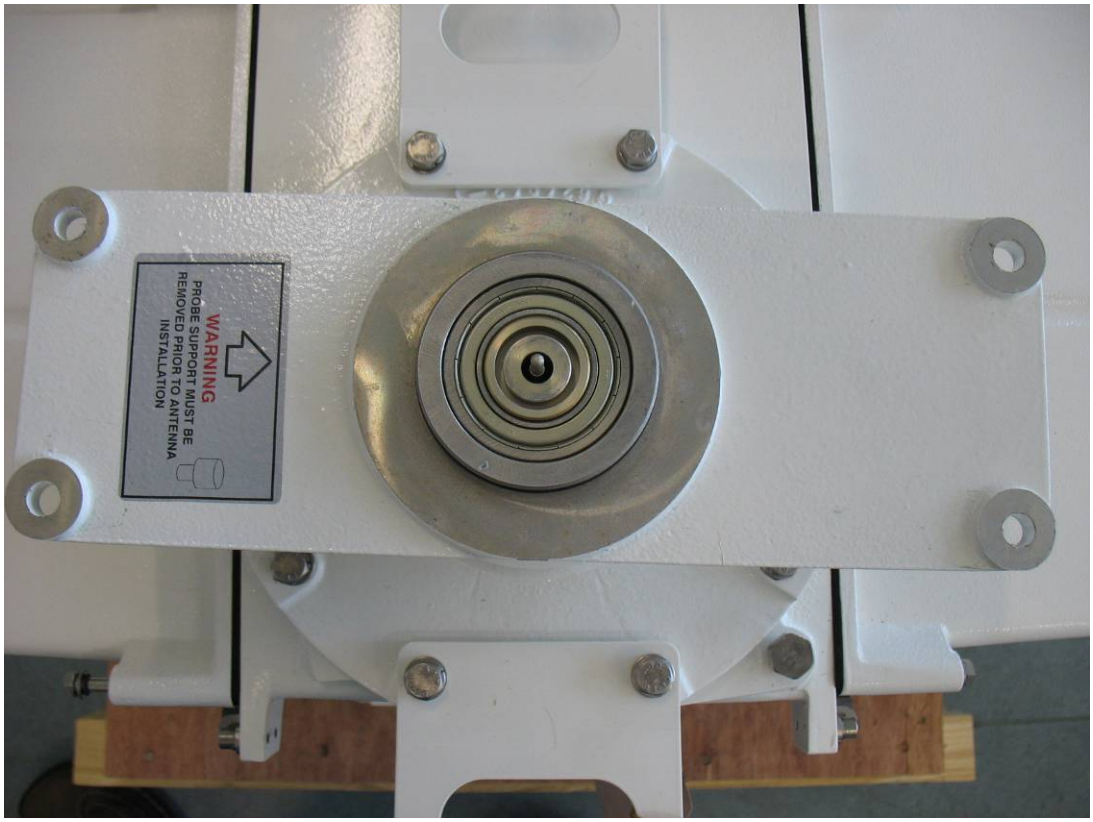


Photo No. 6

Photo No. 7

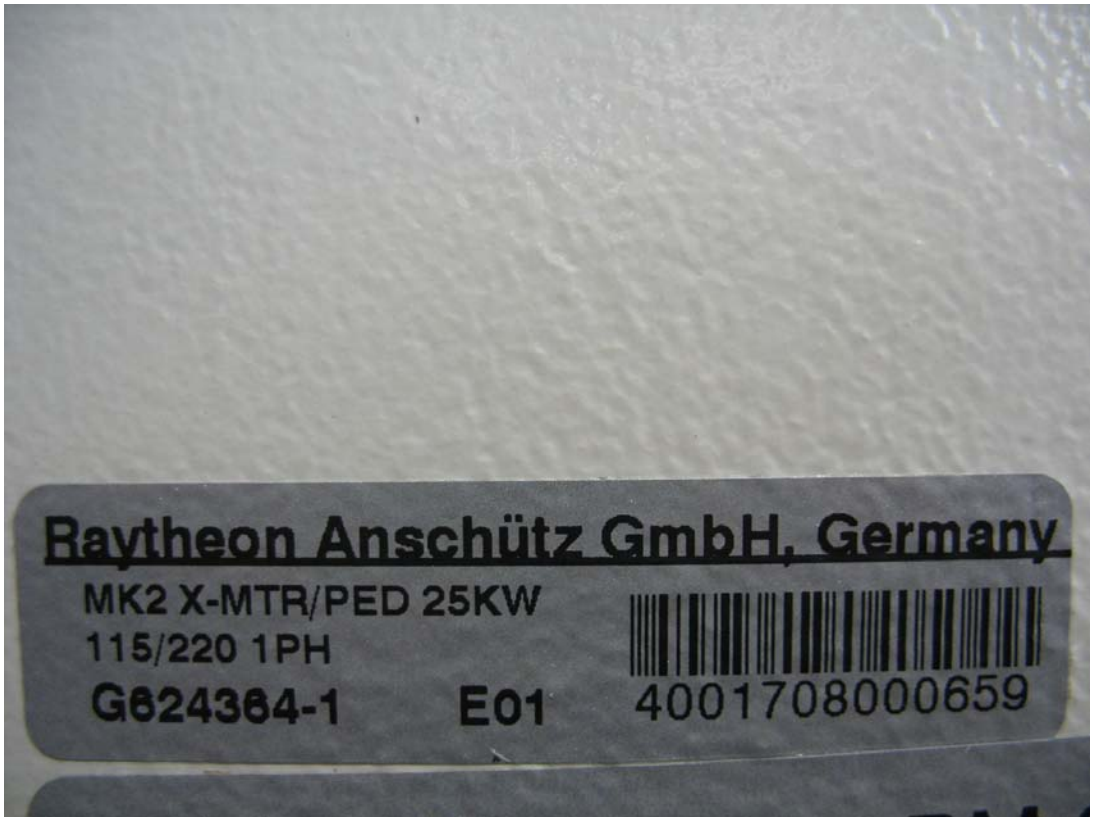


Photo No. 8

Photo No. 9

Photo No. 10

Photo No. 11

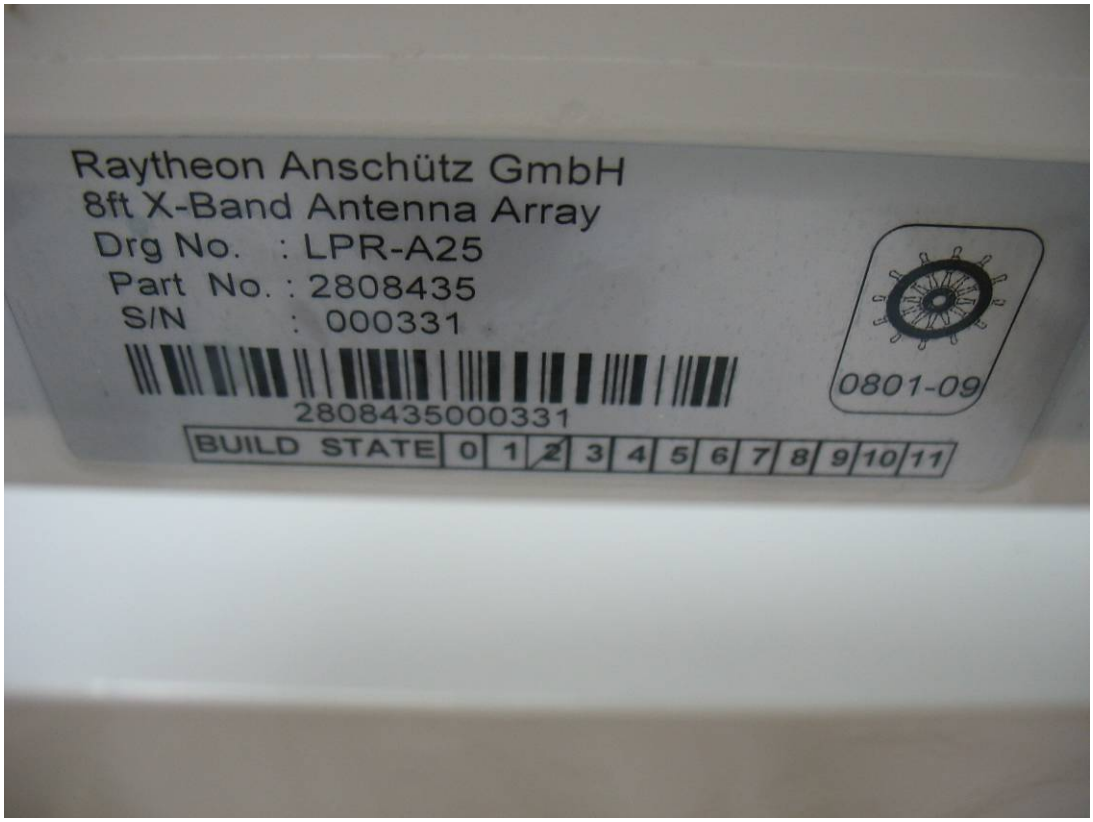


Photo No. 12

8 Internal photographs of the EUT

Photo No. 1: Modulator board

Photo No. 2: Modulator board

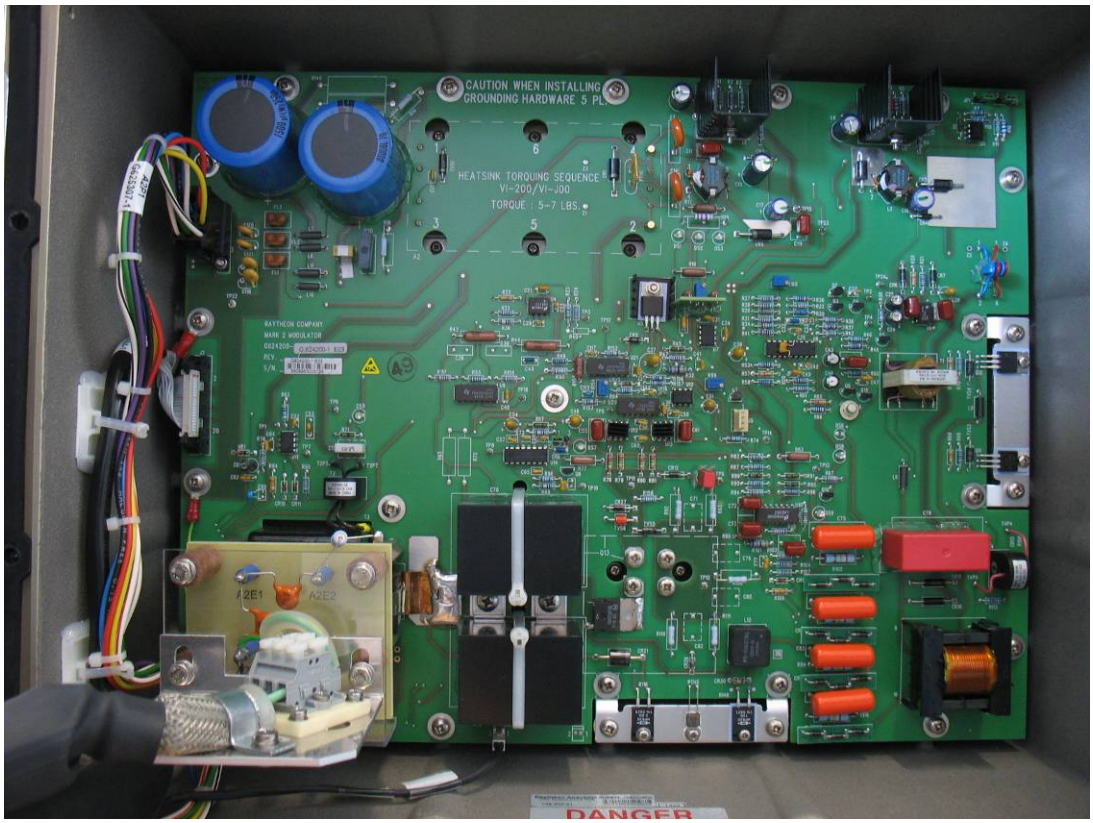


Photo No. 3: Modulator board

Photo No. 4: Motor, fan, magnetron

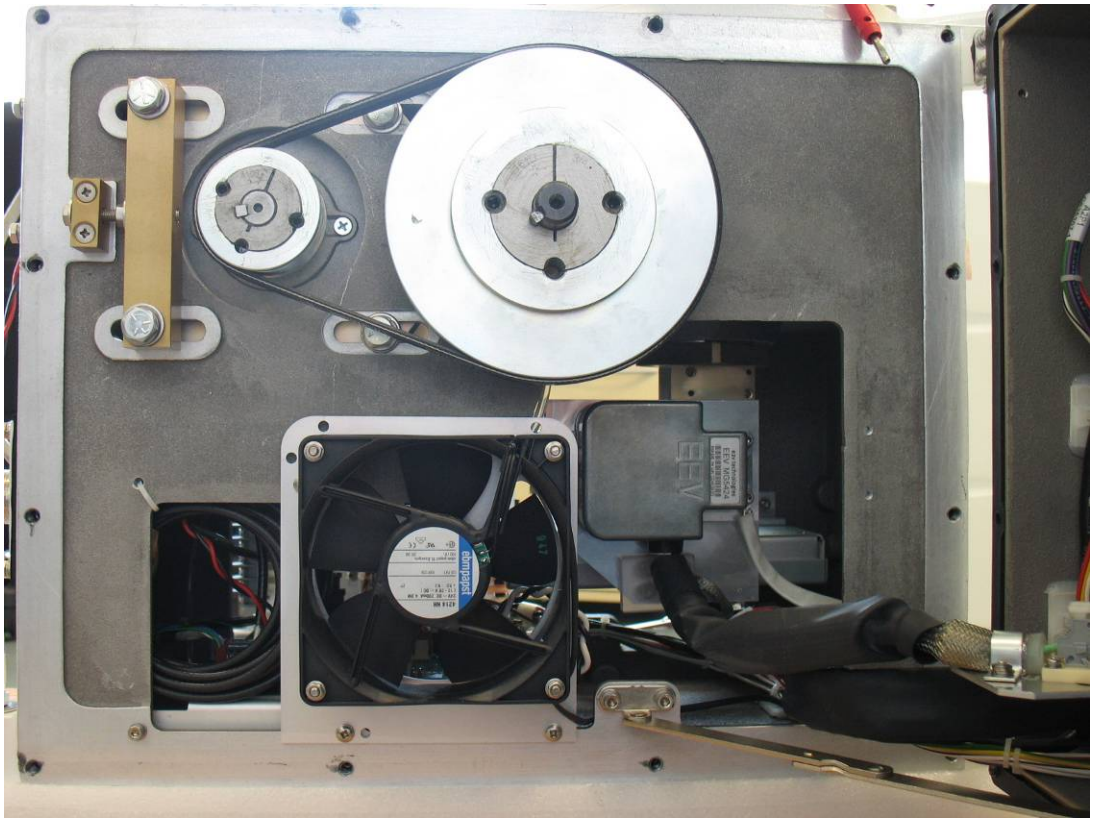


Photo No. 5: Magnetron

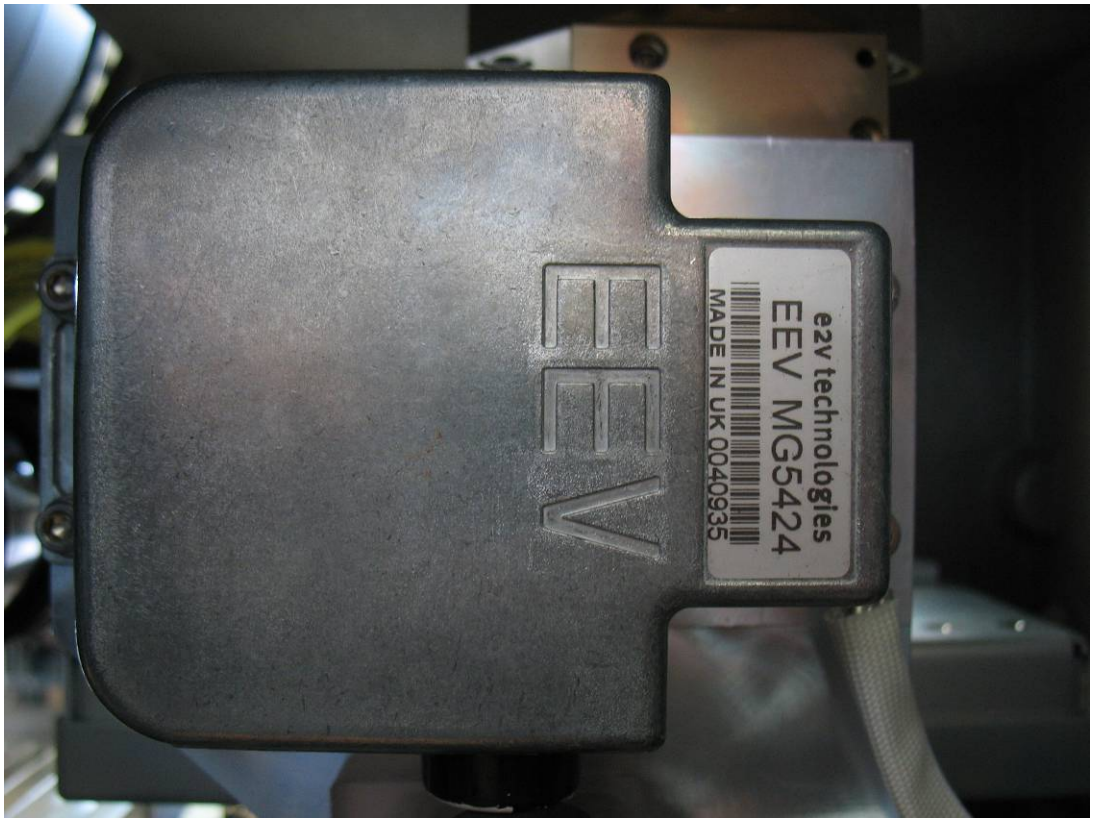


Photo No. 6: Magnetron

Photo No. 7: Controller board

Photo No. 8: Controller board

Photo No. 9: Receiver, motor, AC filter

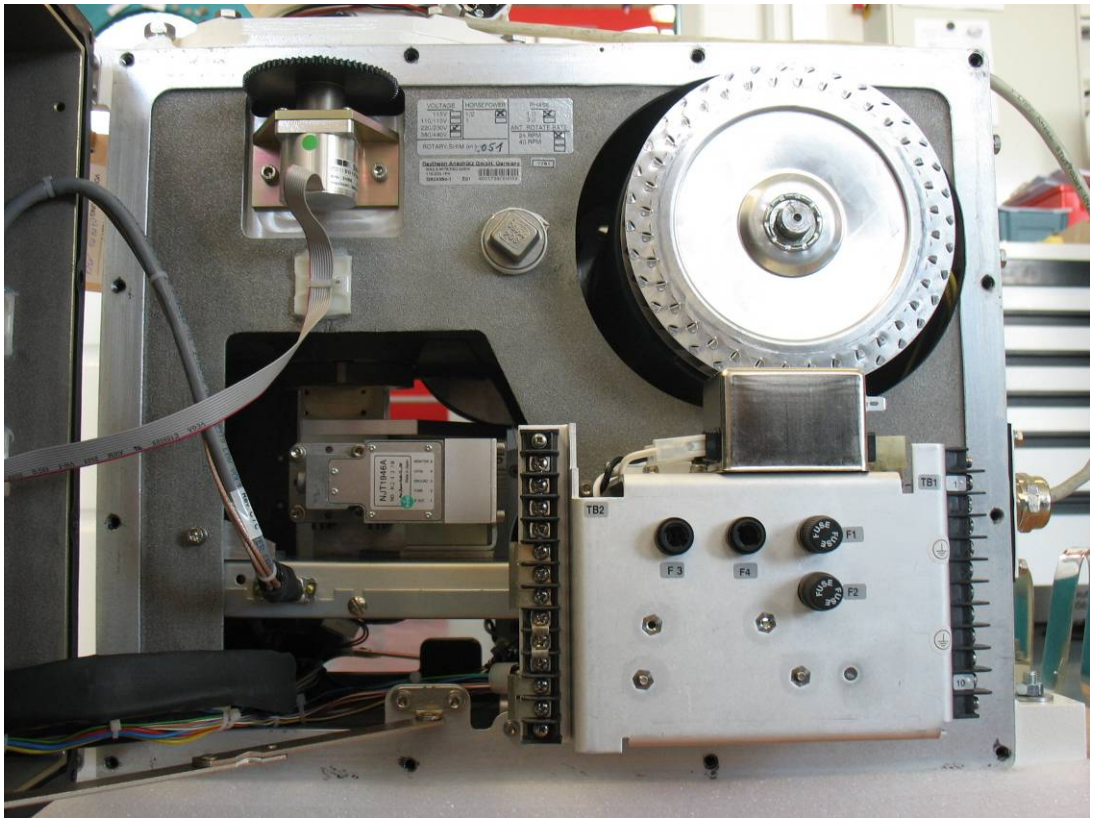


Photo No. 10

Photo No. 11: Receiver

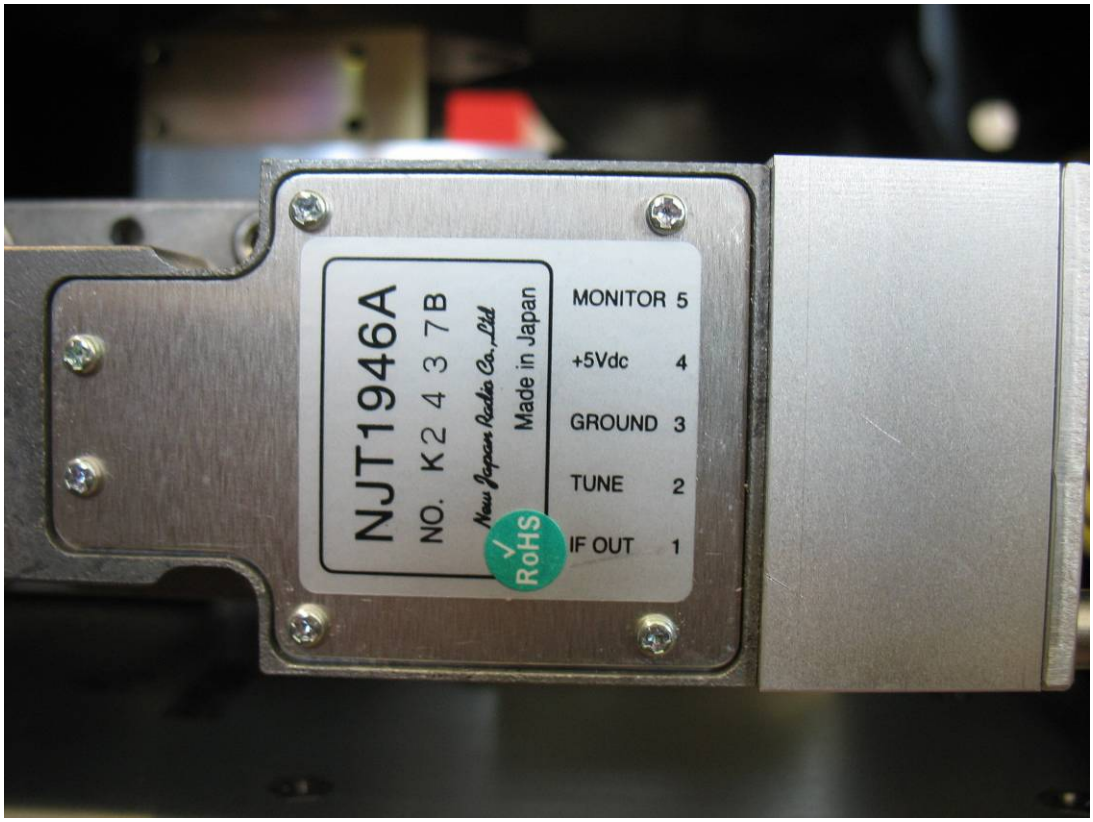


Photo No. 12: AC mains filter