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Recognized by the
Federal Communications Commission
Anechoic chamber registration no.: 90462 (FCC)
Anechoic chamber registration no.: IC 3463A-1
TCB ID: DE 0001

Accredited by the
German Accreditation Council
DAR–Registration Number
DAT-P-176/94-D1

Accredited Bluetooth® Test Facility (BQTF)

Test report no.	**:**	**2-4850-01-05/07 A**
Applicant	**:**	**Sennheiser electronic GmbH & Co. KG**
Type	**:**	**SR350IEM_G2**
Test Standard	**:**	**FCC Part 74.861** **RSS-123 Issue 1, Rev. 2**
FCC ID	**:**	**DMOSR350**
Certification No. IC	**:**	**2099A-SR350**

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1 General information

1.1. Administrative data of the test facility

1.1.1 Identification of the testing laboratory

Company name:	Cetecom ICT Services GmbH
Address:	Untertürkheimerstr. 6-10 D-66117 Saarbruecken Germany
Laboratory accreditation:	DAR-Registration No. DAT-P-176/94-D1 Bluetooth Qualification Test Facility (BQTF) Federal Communications Commission (FCC) Identification/Registration No : 90462
Responsible for testing laboratory:	Michael Berg Phone: +49 681 598 0 Fax: +49 681 598 9075 email: info@ict.cetecom.de

1.2. Notes

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

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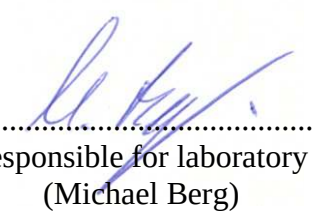
Responsible for testing
(Jakob Reschke)



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Responsible for laboratory
(Michael Berg)

1.3 Details of Applicant

Name	:	Sennheiser electronic GmbH & Co. KG
Address	:	Am Labor 1
City	:	D-30900 Wedemark
Country	:	Germany
Phone	:	+49 (0) 5130 6 00 -0
Fax	:	+49 (0) 5130 6 00-3 24
Contact	:	Volker Bartsch
Phone	:	+49 (0) 5130 600 465
Fax	:	+49 (0) 5130 600 330
e-mail	:	bartschv@sennheiser.com

1.4 Application Details

Date of receipt of application	:	2007-11-23
Date of receipt of test item	:	2007-11-27
Date(s) of test	:	2007-11-27 to 2007-12-11
Date of report	:	2007-12-11

1.5 Test Item

Type of equipment	:	Audio Transmitter (2 Transmitter in each EUT)
Type name	:	SR350IEM_G2
Serial number	:	-/-
Manufacturer	:	Sennheiser electronic GmbH & Co. KG
Address	:	Am Labor 1
City	:	D-30900 Wedemark
Country	:	Germany
Frequency Range	:	494.00 – 608.00 MHz Equipment 1: (518.00 – 554.00 MHz) 614.00 – 806.00 MHz Equipment 2: (626.00 – 662.00 MHz) Equipment 3: (786.00 – 806.00 MHz)
Measured Channels	:	
Channel 1	:	518 MHz
Channel 2	:	554 MHz
Channel 3	:	626 MHz
Channel 4	:	740 MHz
Channel 5	:	806 MHz
Type of modulation	:	FM
Number of channels	:	3680
Antenna Type	:	Socket BNC with Standard Telescopic antenna
Power supply (normal)	:	115V AC
Output power	:	Max. 53.89 mW
Occupied bandwidth	:	169 kHz
Emission Designator	:	169kF8E
Transmitter spurious	:	-33.32 dBm (noise floor)
Receiver spurious	:	Not applicable
Temperature range	:	-30°C to +50°C
FCC ID	:	DMOSR350
Certification No. IC	:	2099A-SR350
Open Area Test Site IC No.	:	IC 3463A-1
IC Standards	:	RSS123, Issue 1, Rev.2

ATTESTATION:
DECLARATION OF COMPLIANCE:

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

Laboratory Manager :

2007-12-11	Jakob Reschke	
Date	Name	Signature

1.6 RF Technical Brief Cover Sheet acc. To RSS-102

All Fields must be completed with the requested information or the following codes: N/A for Not Applicable, N/P for Not Performed or N/V for Not Available. Where applicable, check appropriate box.

1. COMPANY NUMBER: 2099A

2. MODEL NUMBER: SR350IEM_G2

3. MANUFACTURER: Sennheiser electronic GmbH & Co. KG

4. TYPE OF EVALUATION:

(c) RF Evaluation
- Evaluated against exposure limits: General Public Use ☒ Controlled Use ☐
- Duty cycle used in evaluation: 99 %
- Standard used for evaluation: RSS-102 Issue 2 (2005-11)
- Measurement distance: 0.20 m
- RF value: 0.10 V/m □ A/m □ W/m^2 ☒

Measured ☐ Computed ☐ Calculated ☒

Declaration of RF Exposure Compliance

ATTESTATION: I attest that the information provided in this testreport is correct; that a Technical Brief was prepared and the information it contains is correct; that the device evaluation was performed or supervised by me; that applicable measurement methods and evaluation methodologies have been followed and that the device meets the SAR and/or RF exposure limits of RSS-102.

Name: Jakob Reschke
Title: Engineer
Company: Cetecom ICT Services GmbH

1.6 Test Standards

FCC:	FCC Part 74 Subpart H (October 2006) EXPERIMENTAL RADIO, AUXILIARY, SPECIAL BROADCAST AND OTHER PROGRAM DISTRIBUTIONAL SERVICES
IC:	CANADA RSS-123 Issue 1, Rev. 2 (November 6, 1999) Low Power Licensed Radiocommunication Devices

2 Statement of Compliance

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

2.1 Summary of Measurement Results

Section in this Report	Test Name	Verdict
3.1	RF Power Output	pass
3.2	Frequency Stability (Voltage)	pass
3.3	Frequency Stability (Temperature)	pass
3.4	Characteristics of the Audio Modulation Circuirty	pass
3.5	Occupied Bandwidth	pass
3.6	Emission Mask	pass
3.7	Radiated Emissions	pass
3.8	FCC Part 15 Subpart B	pass
3.9	Spurious Receiver Radiated	Not applicable
3.10	Spurious Conducted	pass
3.11	Conducted emissions	pass

2.2 Test Procedure

All tests were done in accordance with the EIA/TIA 603.

The substitution method (TIA/EIA 603) was used.

This products fulfills also the requirements for CANADA RSS-123
No deviations from the technical specification(s) were ascertained in the course of the tests performed.

Final verdict : PASS

3 Measurements and results

3.1 Output Power (radiated) FCC Rule Part 74.861 (e)(1)(ii)

Method of measurement:

Measuring the EIRP of Spurious/Harmonic Emissions using Substitution Method
(a) The measurements was 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 BICONILOG 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 o 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 antenna (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 it's 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 o 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.:

Results:

All measurements were performed with the Standard Telescoic antenna which has the length of λ/4 for each frequency.

TEST CONDITIONS		TRANSMITTER ERP (mW)					
Frequency (MHz)		518	554	626	740	806	
T_{nom}(+23)°C	V_{nom} 115 V	36.44	43.26	44.97	33.28	53.89	
antenna gain [dB]		-4.2	-3.3	-4.6	-2.6	-1.7	
Maximum deviation from output power under extreme test conditions (dBc)		±0.2 dB					
Measurement uncertainty		±0.5dB					

Sample calculation:

Freg	SA Reading	SG Setting	Ant. gain	Dipol gain	Cable loss	ERP Result	ERP Result		
MHz	dBµV	dBm	dBi	dBd	dB	dBm	mW		
758.0	108.5	13.9	-	0.0	2.9	11.0	12.6		

ERP = SG (dBm) - Cable Loss (dB) + Ant. gain (dBd)

Limits **FCC Rule Part 74.861**

Frequency range MHz	Power level conducted mW
54-72, 76-88, 174-216	50
470-608, 614-806	250

3.2 AFC Frequency Error vs. Voltage FCC Rule Part 74.861

Method of measurement:
The EUT was fixed in test fixture to a resistive coaxial attenuator of normal load impedance, and the un-modulated carrier was measured by means of a spectrum analyzer .
The input voltage was varied in an range from 100 V to 125 V and the maximum change in frequency was noted within one minute.
The temperature tests were performed for each frequency range on one channel

518 MHz

Voltage (V)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)
100	-1900	-0.00036	-3.66
108	-1900	-0.00036	-3.66
115	-1900	-0.00036	-3.66
117	-1900	-0.00036	-3.66
122	-1900	-0.00036	-3.66
125	-1900	-0.00036	-3.66

554 MHz

Voltage (V)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)
100	-1700	-0.00030	-3.06
108	-1700	-0.00030	-3.06
115	-1700	-0.00030	-3.06
117	-1700	-0.00030	-3.06
122	-1700	-0.00030	-3.06
125	-1700	-0.00030	-3.06

626 MHz

Voltage (V)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)
100	-500	-0.000079	-0.79
108	-500	-0.000079	-0.79
115	-500	-0.000079	-0.79
117	-500	-0.000079	-0.79
122	-500	-0.000079	-0.79
125	-500	-0.000079	-0.79

740 MHz

Voltage (V)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)
100	-1000	-0.00013	-1.35
108	-1000	-0.00013	-1.35
115	-1000	-0.00013	-1.35
117	-1000	-0.00013	-1.35
122	-1000	-0.00013	-1.35
125	-1000	-0.00013	-1.35

806 MHz

Voltage (V)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)
100	+600	+0.000074	+0.74
108	+600	+0.000074	+0.74
115	+600	+0.000074	+0.74
117	+600	+0.000074	+0.74
122	+600	+0.000074	+0.74
125	+600	+0.000074	+0.74

Limits **FCC Rule Part 74.861(4)**

The frequency tolerance of the transmitter shall be 0.005 percent

3.3 AFC Fequency Error vs. Temperature

Method of measurement:
The EUT was connected to a resistive coaxial attenuator of normal load impedance, and the un-modulated carrier was measured by means of a spectrum analyzer . With all power removed, the temperature was decreased to –30°C and permitted to stabilize for three hours . Power was applied and the maximum change in frequency was noted within one minute. With power OFF , the temperature was raised in 10°C steps. The sample was permitted to stabilize at each step for at least one-half hour. Power was applied and the maximum frequency error was noted within one minute . The temperature tests were performed for each frequency range on one channel

518 MHz

TEMPERATURE (°C)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)
-30	-2300	-0.00044	-4.44
-20	-2200	-0.00042	-4.24
-10	-2100	-0.00040	-4.05
±0.0	-1900	-0.00036	-3.66
+10	-2000	-0.00038	-3.86
+20	-1900	-0.00036	-3.66
+30	-1900	-0.00036	-3.66
+40	-2200	-0.00042	-4.24
+50	-2100	-0.00040	-4.05

554 MHz

TEMPERATURE (°C)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)
-30	-2200	-0.00039	-3.97
-20	-1900	-0.00034	-3.42
-10	-2100	-0.00037	-3.79
±0,0	-2000	-0.00036	-3.61
+10	-1900	-0.00034	-3.42
+20	-1700	-0.00030	-3.06
+30	-1700	-0.00030	-3.06
+40	-1800	-0.00032	-3.24
+50	-1900	-0.00034	-3.42

626 MHz

TEMPERATURE (°C)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)
-30	-1000	-0.00015	-1.59
-20	-1100	-0.00017	-1.75
-10	-900	-0.00014	-1.43
±0,0	-800	-0.00012	-1.27
+10	-600	-0,000095	-0,95
+20	-500	-0.000079	-0.79
+30	-700	-0.00011	-1.11
+40	-800	-0.00012	-1.27
+50	-700	-0.00011	-1.11

740 MHz

TEMPERATURE (°C)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)
-30	-1400	-0.00018	-1.89
-20	-1300	-0.00017	-1.75
-10	-1100	-0.00014	-1.48
±0.0	-1000	-0.00013	-1.35
+10	-1300	-0.00017	-1.75
+20	-1000	-0.00013	-1.35
+30	-900	-0.00012	-1.21
+40	-1100	-0.00014	-1.48
+50	-1300	-0.00017	-1.75

806 MHz

TEMPERATURE (°C)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)
-30	+1000	+0.00012	+1.24
-20	+900	+0.00011	+1.11
-10	+600	+0.000074	+0.74
±0.0	+700	+0.000086	+0.86
+10	+600	+0.0000074	+0.74
+20	+600	+0.000074	+0.74
+30	+700	+0.000086	+0.86
+40	+600	+0.0000074	+0.74
+50	+900	+0.00011	+1.11

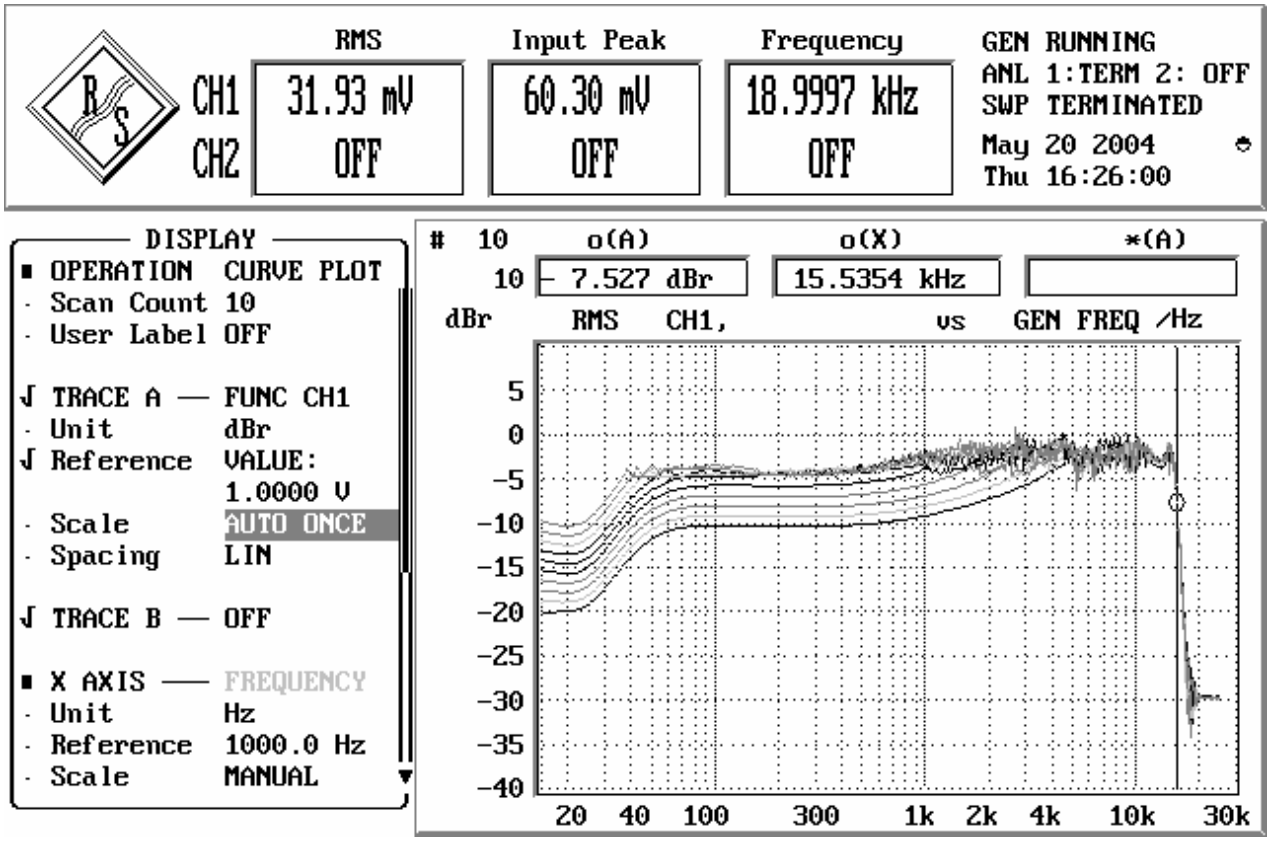
Limits **FCC Rule Part 74.861**

The frequency tolerance of the transmitter shall be 0.005 percent

3.4 Characteristics of the Audio Modulation Circuirty FCC Rule Part 74 .861(e3)

Method of measurement :

The audio frequency responds was measured in accordance with EIA/TIA 603.
The plots shows 10 curves with different modulation levels, starting from 400 mV to 4000 mV, the frequency is varied from 10 Hz to 25 kHz .



max. measured frequency deviation : 69.4 kHz

this measurement is valid for all channels

Limit: max Deviation ±75kHz

3.5 Occupied Bandwidth FCC Rule Part 74.861(e)(3), (5)/ Sec. 2.1049

Test method :
The audio frequency responds was measured in accordance with EIA/TIA 603.

Data in the plots show that all sidebands between 50 & 100% for the authorized bandwidth are attenuated by at least 25dB. From 100 to 250% of the authorize3d bandwidth they are attenuated by at least 35dB and beyond 250% 43 log(Po) dB. The plot shows the transmitter modulated with 15000 Hz (the highest modulation frequency), adjusted for 50% modulation plus 16 dB. The spectrum analyzer was set with the un-modulated carrier at the top of the screen. The test procedure diagram and occupied bandwidth plots follow.

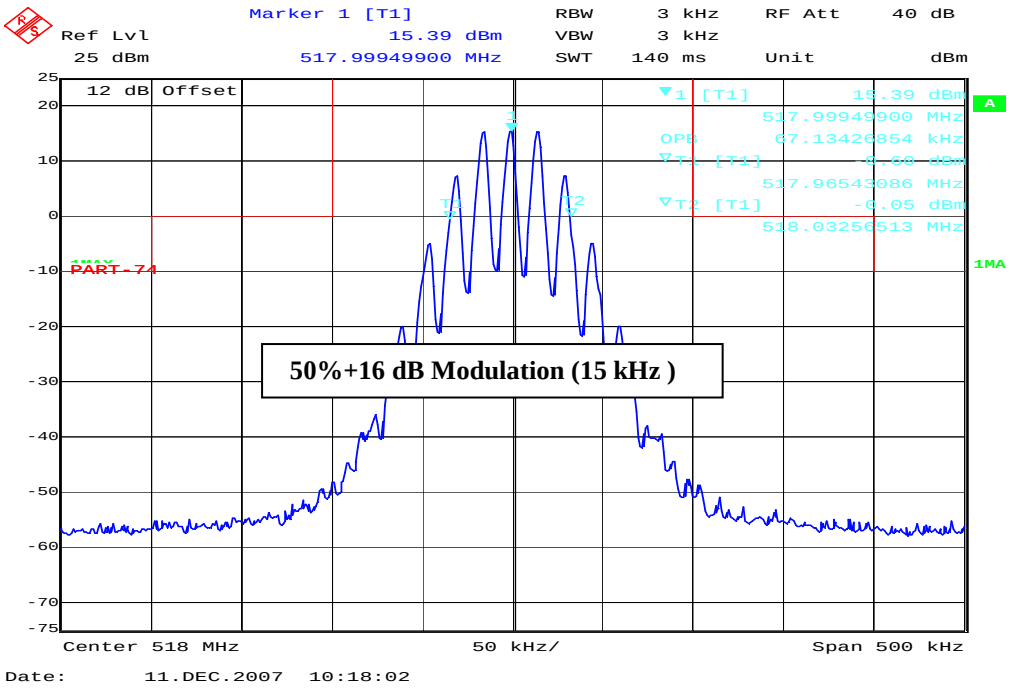
TEST CONDITIONS		OCCUPIED BANDWIDTH (kHz)					
Frequency (MHz)		518	554	626	740	806	
T_{nom}(+23)°C	V_{nom} 115 V	67.13	66.13	76.15	66.13	64.12	
Measurement uncertainty		±0.5%					

Limits **FCC Rule Part 74.861(e)(5)**

The operating bandwidth shall not exceed 200 kHz

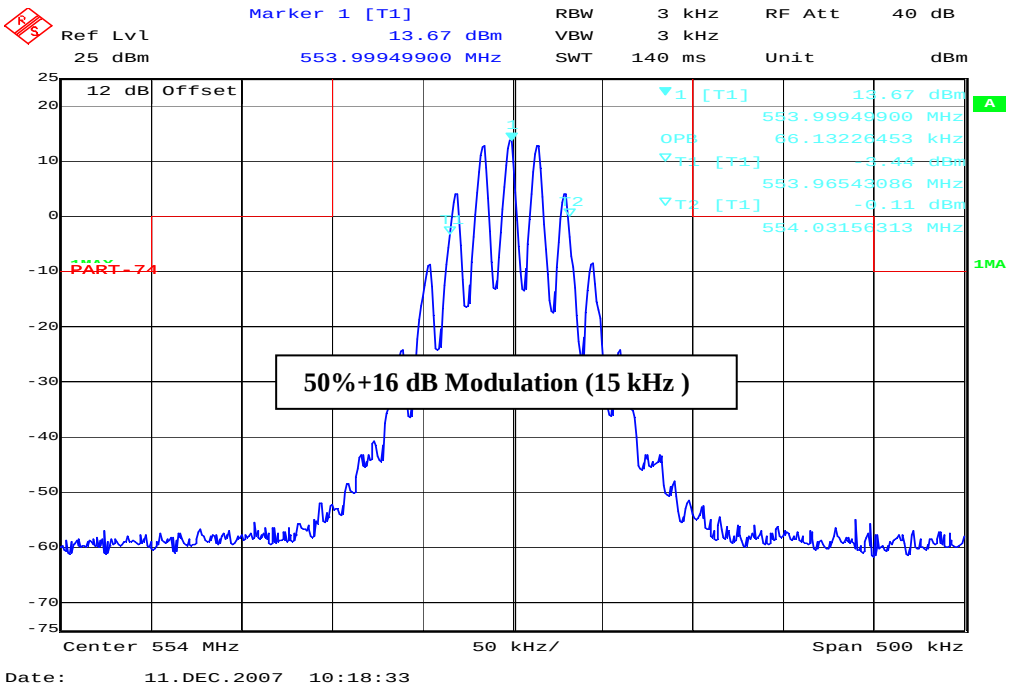
OCCUPIED BANDWIDTH **FCC Rule Part 74.861(e)(3), (5)/ Sec. 2.989**

Frequency: 518 MHz / max. deviation : ± 69.4 kHz (Limit ± 75 kHz)



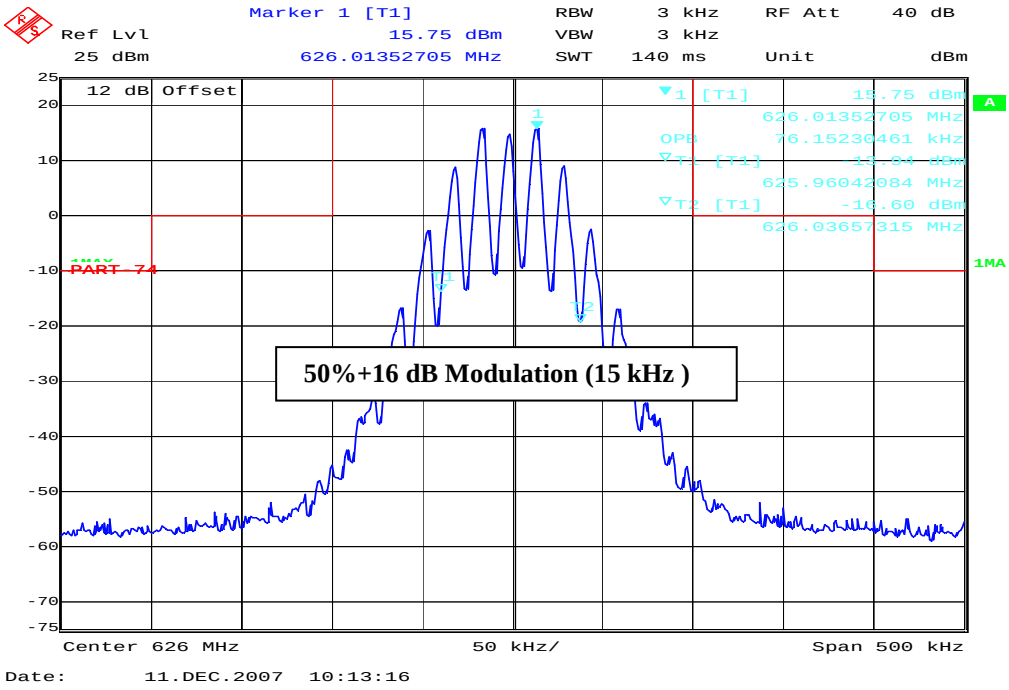
OCCUPIED BANDWIDTH **FCC Rule Part 74.861(e)(3), (5)/ Sec. 2.1049**

Frequency: 554 MHz / max. deviation : ± 69.4 kHz (Limit ± 75 kHz)



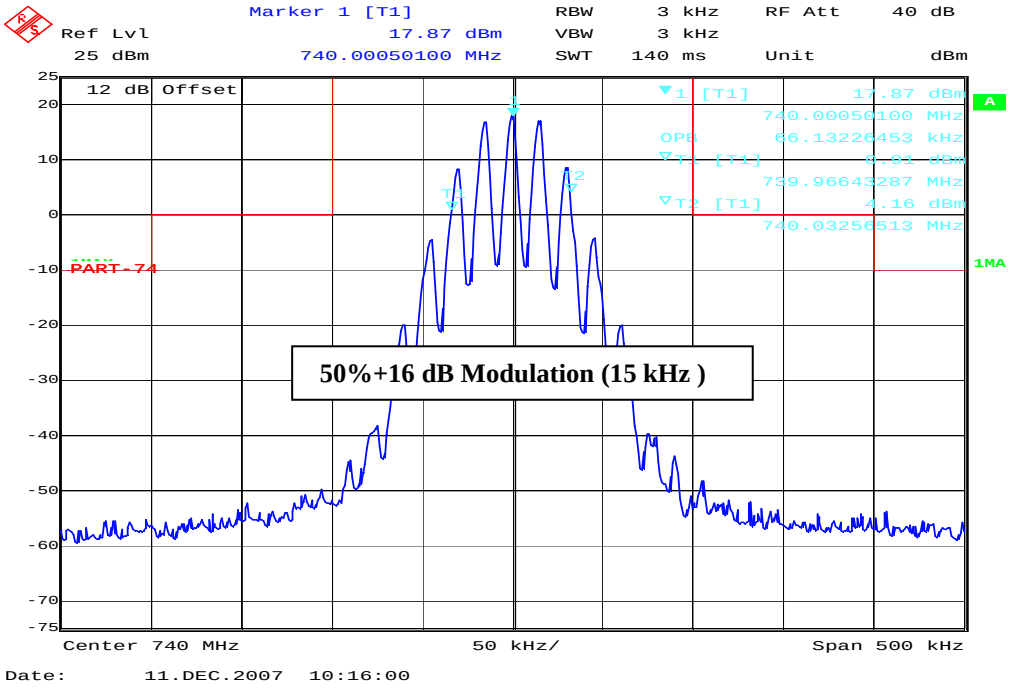
OCCUPIED BANDWIDTH **FCC Rule Part 74.861(e)(3), (5)/ Sec. 2.1049**

Frequency: 626 MHz / max. deviation : ± 69.4 kHz (Limit ± 75 kHz)



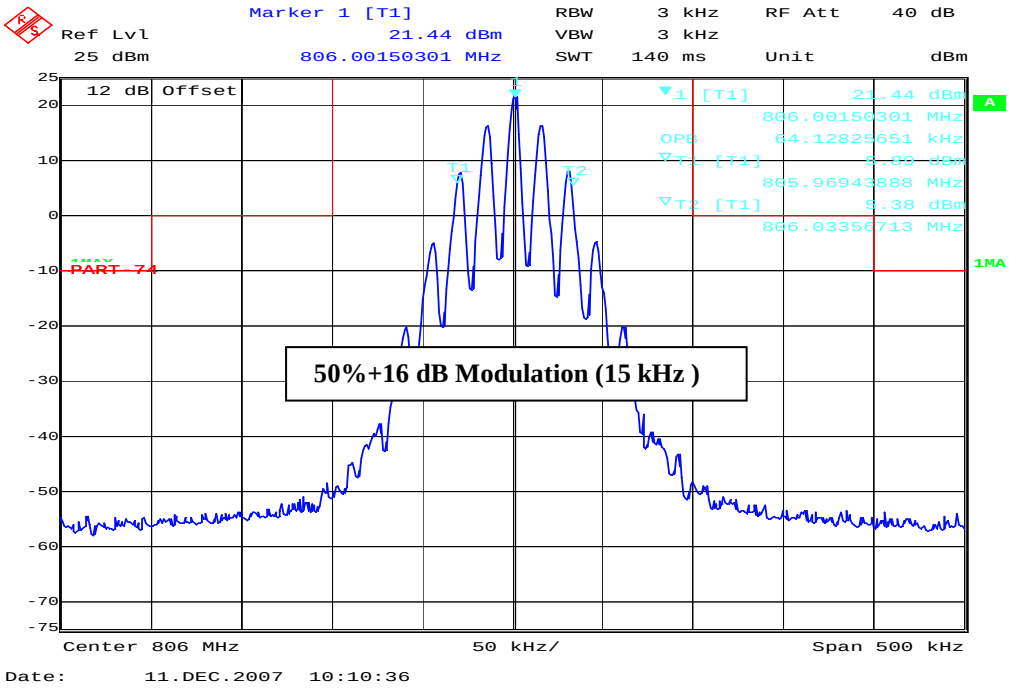
OCCUPIED BANDWIDTH **FCC Rule Part 74.861(e)(3), (5)/ Sec. 2.989**

Frequency: 740 MHz / max. deviation : ± 69.4 kHz (Limit ± 75 kHz)



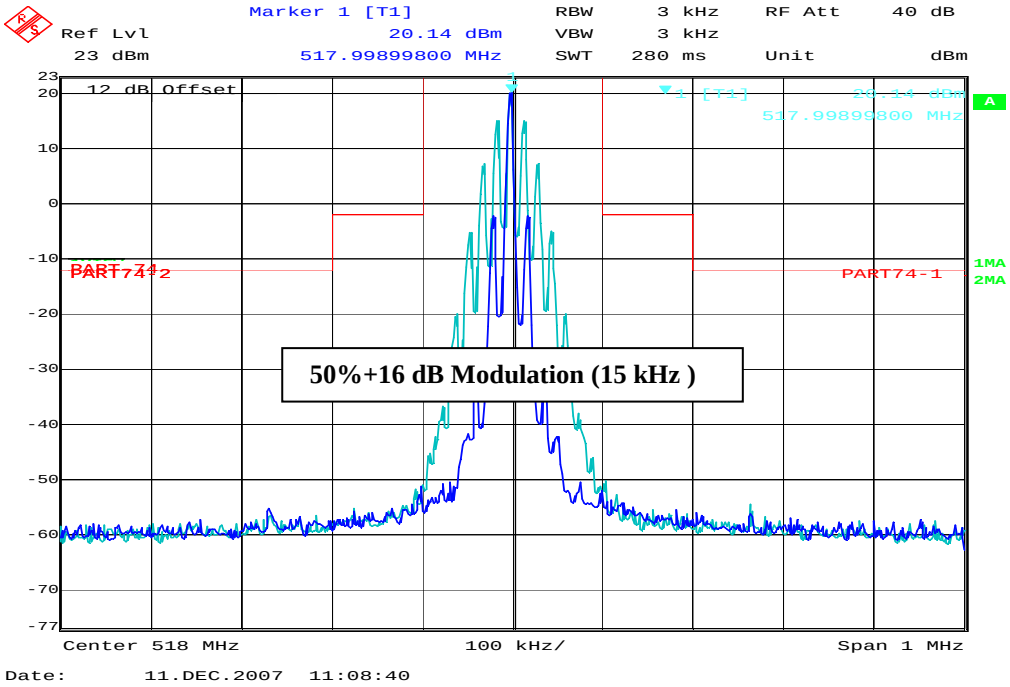
OCCUPIED BANDWIDTH **FCC Rule Part 74.861(e)(3), (5)/ Sec. 2.1049**

Frequency: 806 MHz / max. deviation : ± 69.4 kHz (Limit ± 75 kHz)



3.6 Emission Mask FCC 74 861(e)(6)

518 MHz

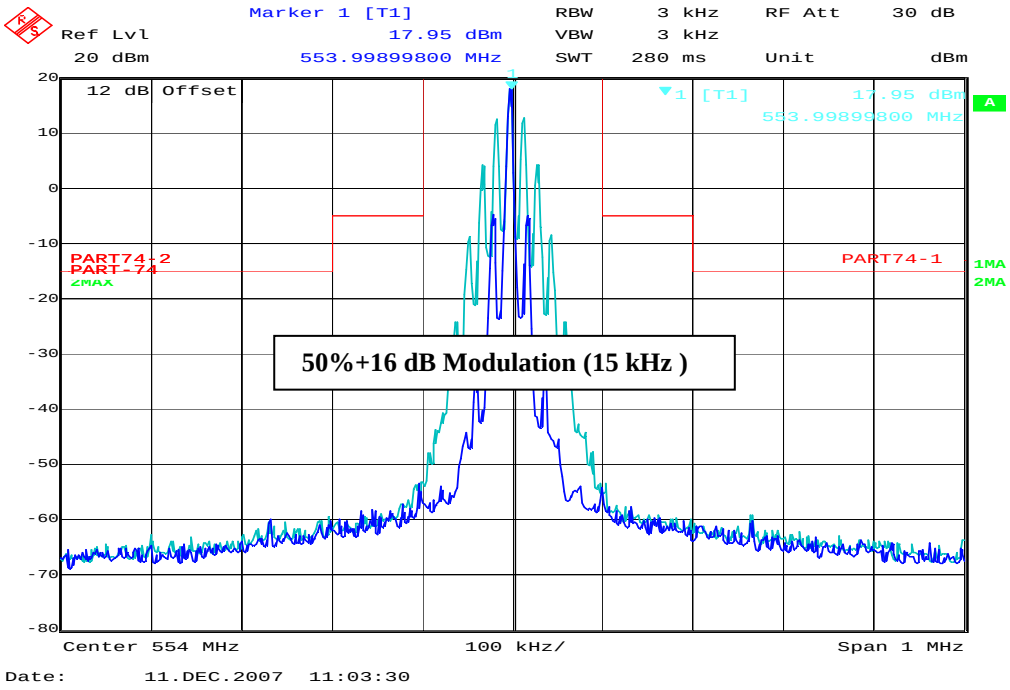


Limits **FCC Rule Part 74.861(e)(6)**

f ± 100 kHz to f ± 200 kHz	f ± 200 kHz to f ± 500 kHz	f ± 500 kHz
25 dBc	35 dBc	-43 +10 $\log_{10}$(mean output power in watts) dB below the mean output power

Emission mask **FCC 74 861(e)(6)**

554 MHz

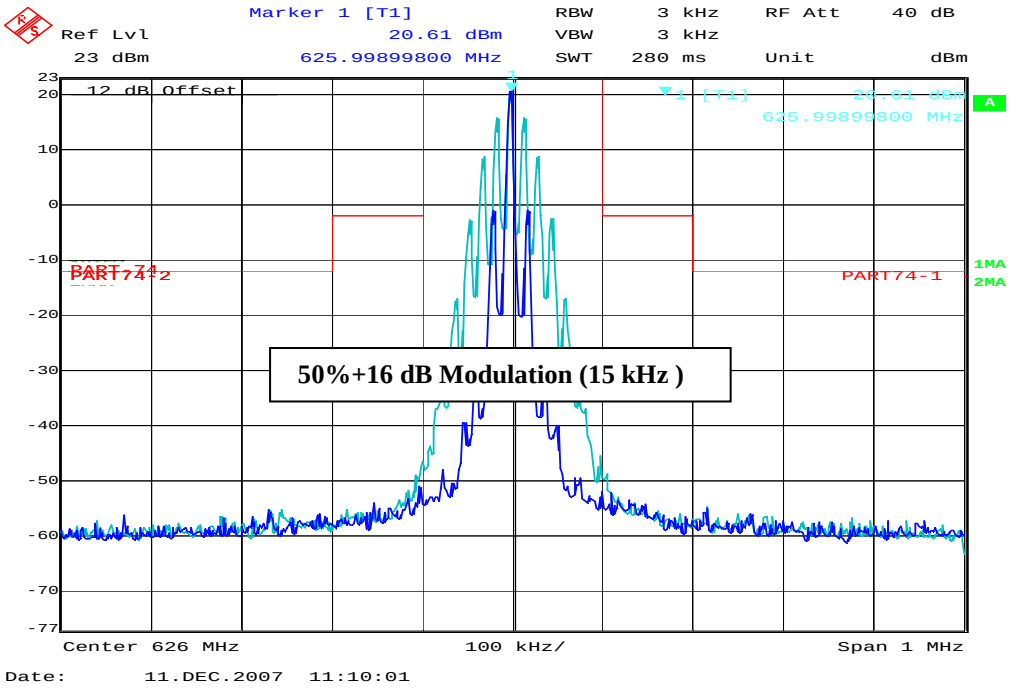


Limits **FCC Rule Part 74.861(e)(6)**

f ± 100 kHz to f ± 200 kHz	f ± 200 kHz to f ± 500 kHz	f ± 500 kHz
25 dBc	35 dBc	-43 +10 $\log_{10}$(mean output power in watts) dB below the mean output power

Emission mask **FCC 74 861(e)(6)**

626 MHz

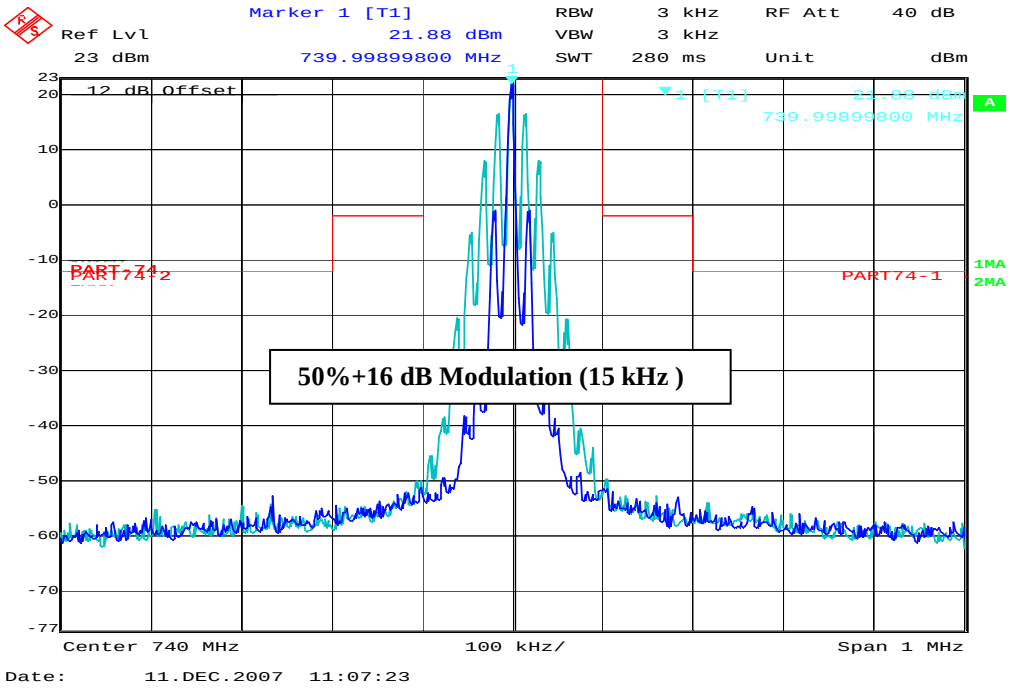


Limits **FCC Rule Part 74.861(e)(6)**

f ± 100 kHz to f ± 200 kHz	f ± 200 kHz to f ± 500 kHz	f ± 500 kHz
25 dBc	35 dBc	-43 +10 $\log_{10}$(mean output power in watts) dB below the mean output power

Emission mask **FCC 74 861(e)(6)**

740 MHz

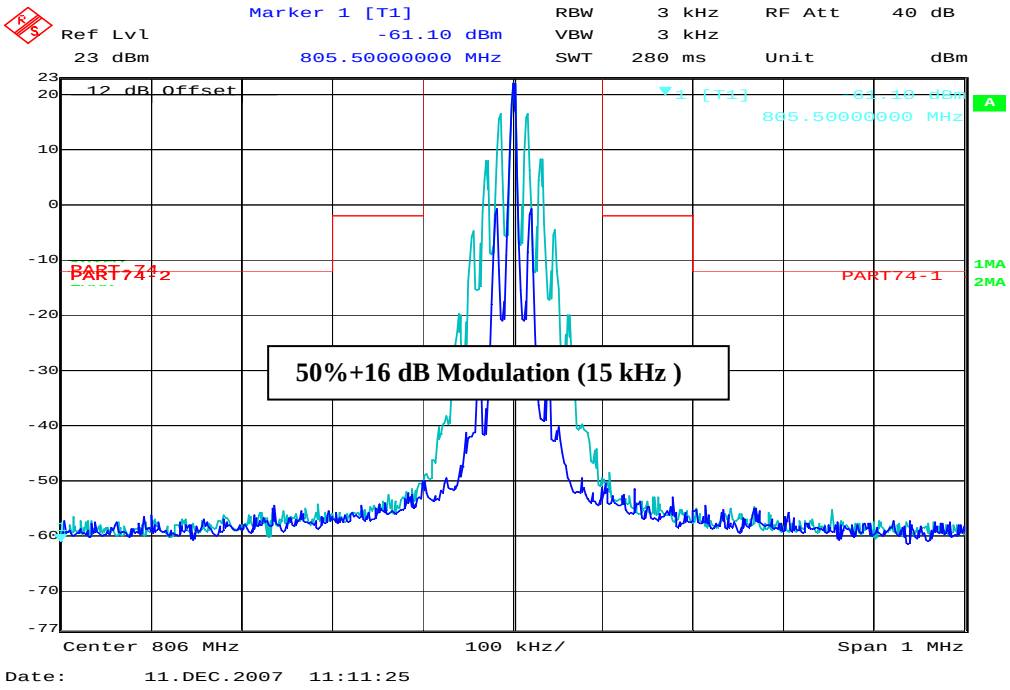


Limits **FCC Rule Part 74.861(e)(6)**

f ± 100 kHz to f ± 200 kHz	f ± 200 kHz to f ± 500 kHz	f ± 500 kHz
25 dBc	35 dBc	-43 +10 $\log_{10}$(mean output power in watts) dB below the mean output power

Emission mask **FCC 74 861(e)(6)**

806 MHz



Limits **FCC Rule Part 74.861(e)(6)**

f ± 100 kHz to f ± 200 kHz	f ± 200 kHz to f ± 500 kHz	f ± 500 kHz
25 dBc	35 dBc	-43 +10 $\log_{10}$(mean output power in watts) dB below the mean output power

3.7 Radiated Emissions FCC Rule Part 74 subpart H

Test procedure

1). On a test site, the EUT shall be placed on a turntable, and in the position closest to the normal use as declared by the user.
2). The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the frequency of the transmitter.
3). The output of the test antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
4). The transmitter shall be switched on, if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
5). The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
6). The transmitter shall than be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
7). The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
8). The maximum signal level detected by the measuring receiver shall be noted.
9). The transmitter shall be replaced by a substitution antenna (tuned dipole for f less than 1GHz and horn for frequency higher than 1GHz).
10). The substitution antenna shall be oriented for vertical polarization and the length (if a dipole antenna is used) of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
11). The substitution antenna shall be connected to a calibrated signal generator.
12). If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
13). The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
14). The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.
15). The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
16). The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.
17). The measure of the effective radiated power is the larger of the two levels recorded, at the input to the substitution antenna, corrected for the gain of the substitution antenna if necessary.
18). Repeat above substitution measurement procedure for fundamental and all harmonica emissions.

Freg	SA Reading	SG Setting	Ant. gain	Dipole gain	Cable loss	ERP Result	Limit	Margin	Pol
MHz	dBµV	dBm	dBi	dBd	dB	dBm	dBm	dBm	H/V
No critical peaks found									
no traceable peak found									

Freg	SA Reading	SG Setting	Ant. gain	Dipole gain	Cable loss	ERP Result	Limit	Margin Limit	Pol
MHz	dBµV	dBm	dBi	dBd	dB	dBm	dBm	dB	H/V
No critical peaks found									

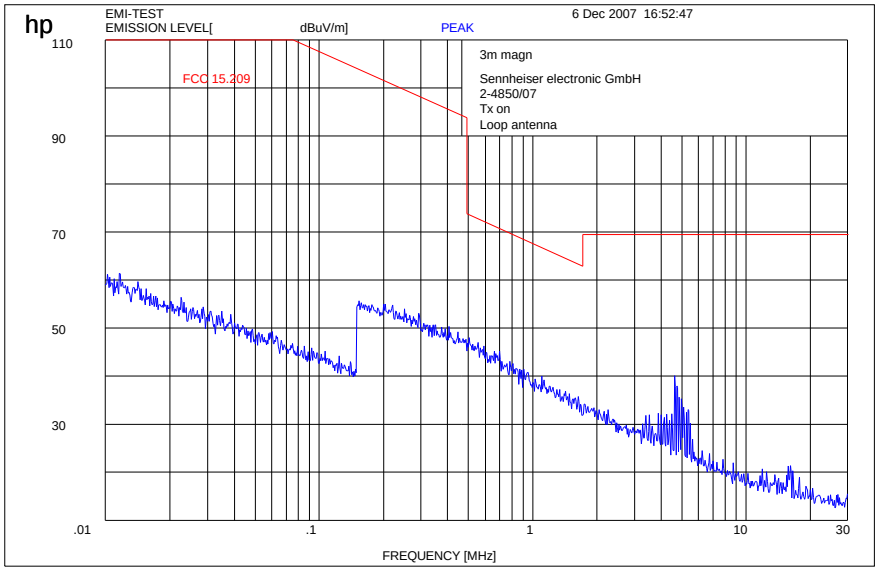
all results worst case

Limits **FCC Rule Part 74.861(e)(6)**

f ± 100 kHz to f ± 200 kHz	f ± 200 kHz to f ± 500 kHz	f ± 500 kHz
25 dBc	35 dBc	-43 +10 $\log_{10}$(mean output power in watts) dB below the mean output power

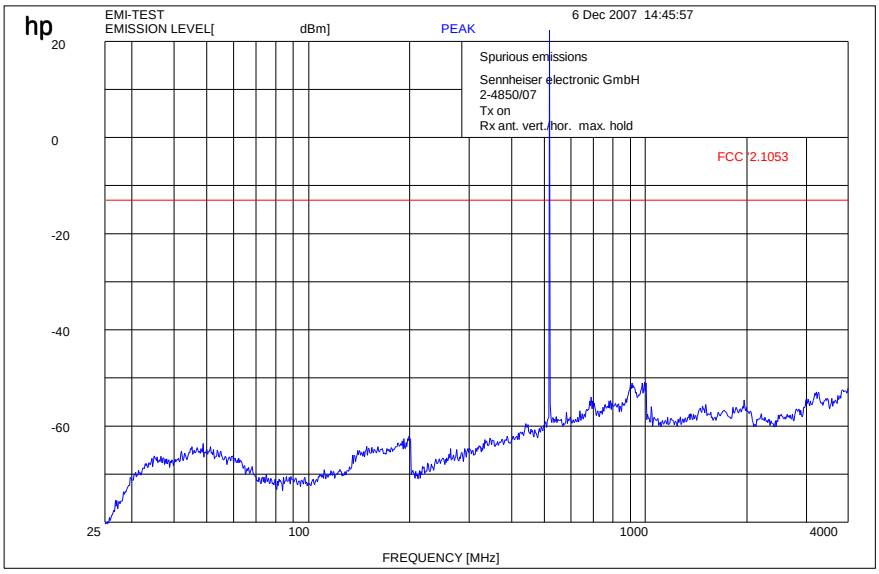
RADIATED EMISSIONS FCC Rule Part 74 subpart H

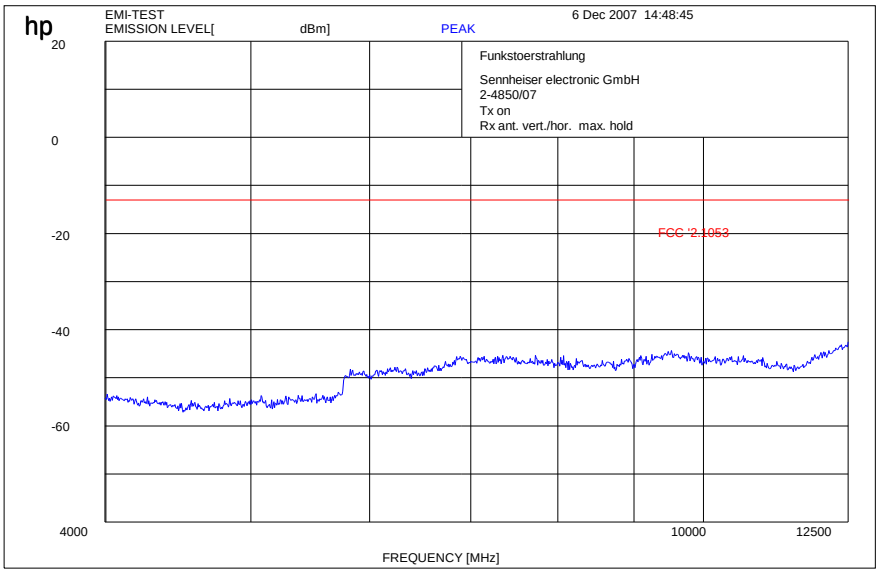
(this plot is valid for all channels)
Part 15.209 Magnetics



RADIATED EMISSIONS FCC Rule Part 74 subpart H

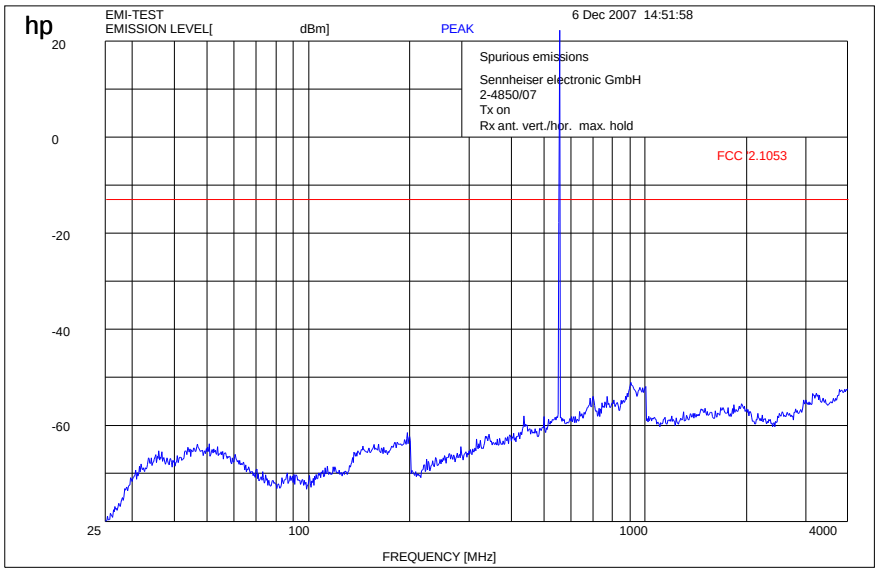
518 MHz

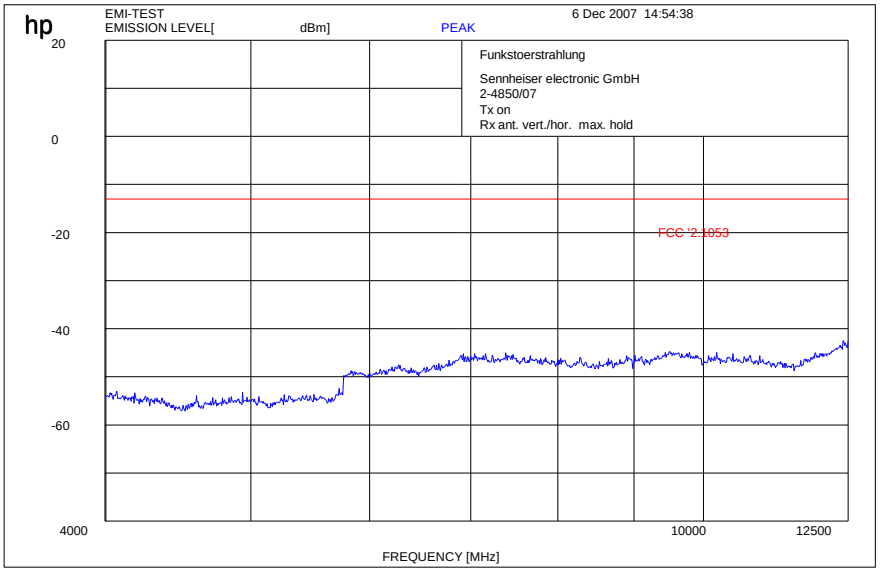




RADIATED EMISSIONS FCC Rule Part 74 subpart H

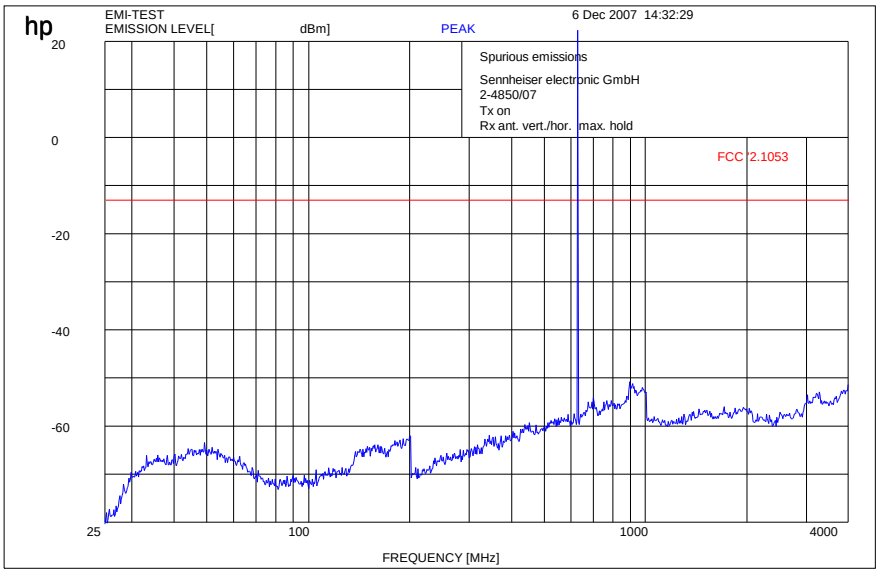
554 MHz

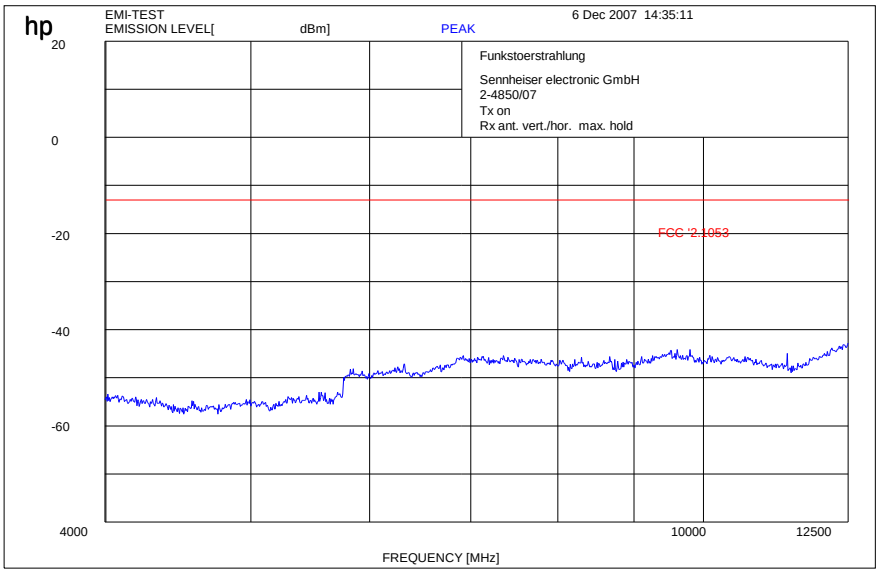




RADIATED EMISSIONS **FCC Rule Part 74 subpart H**

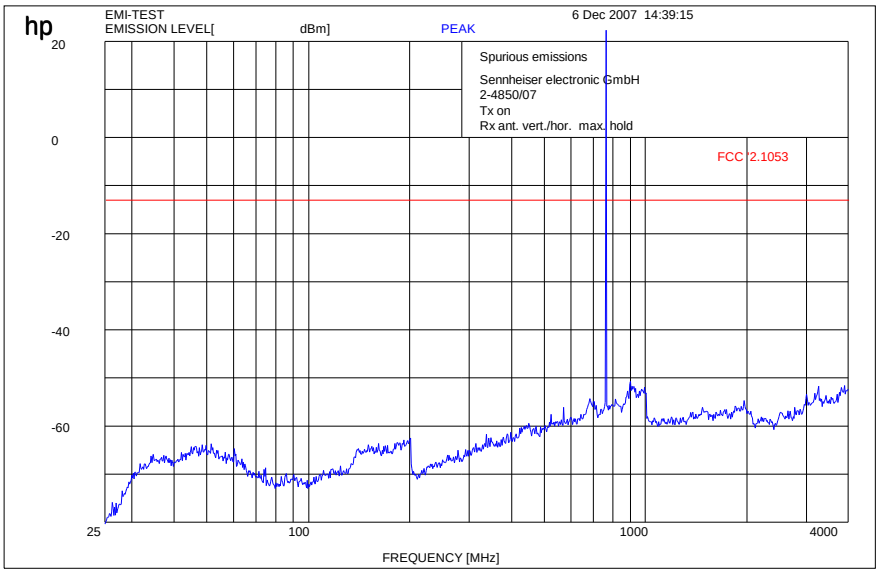
626 MHz

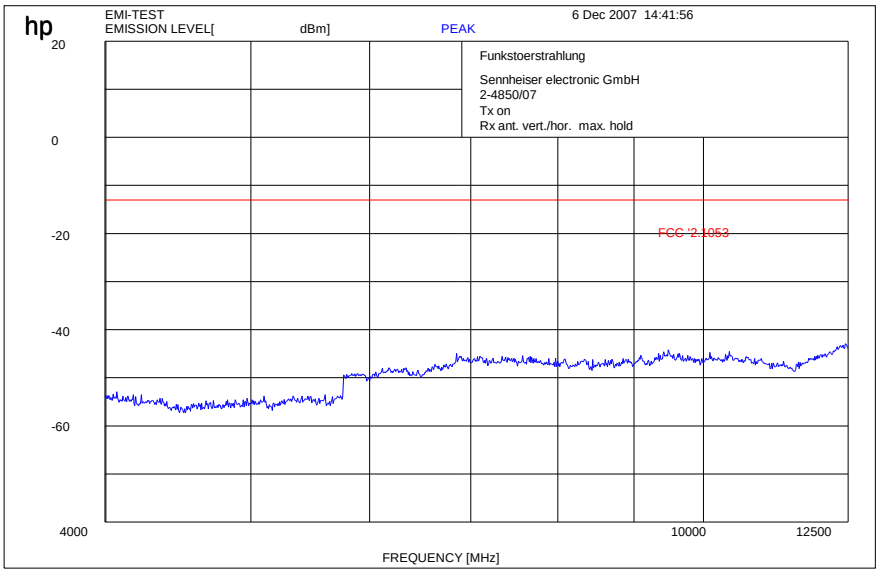




RADIATED EMISSIONS FCC Rule Part 74 subpart H

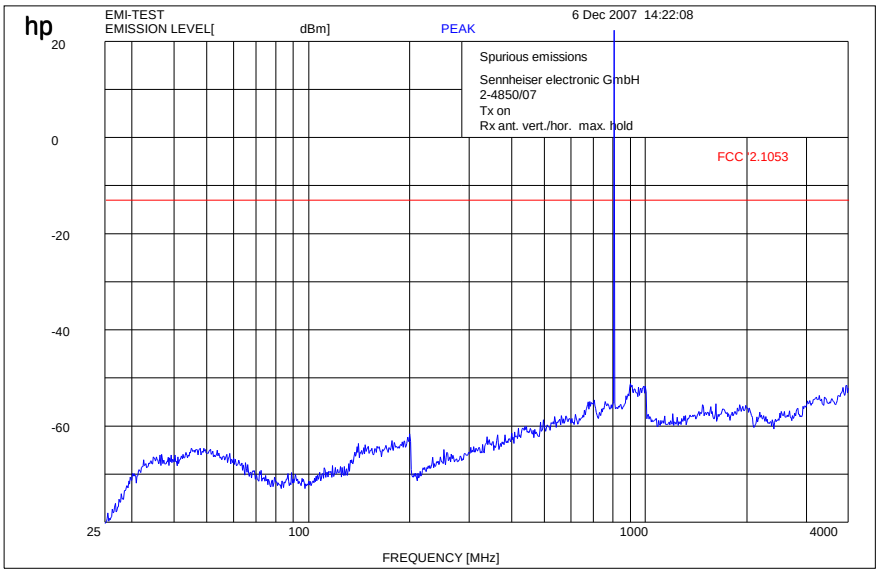
740 MHz

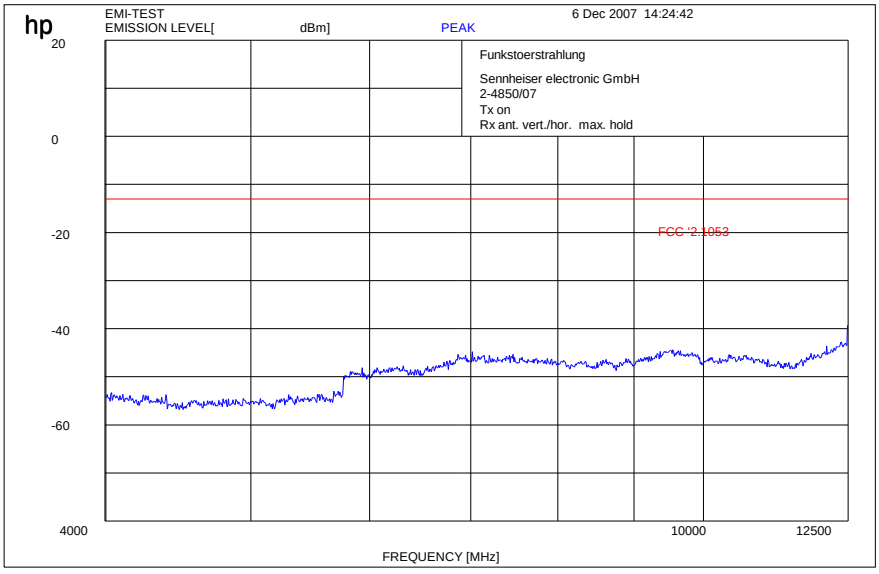




RADIATED EMISSIONS **FCC Rule Part 74 subpart H**

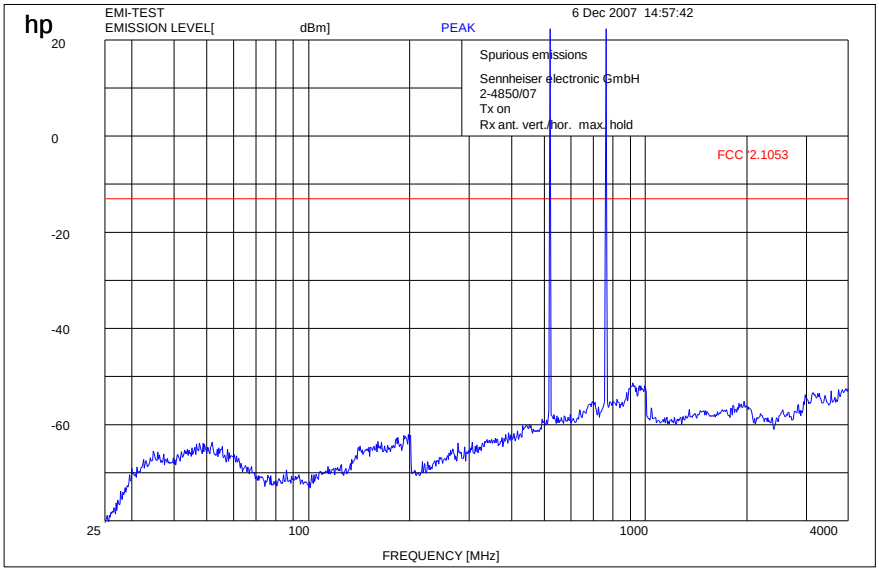
806 MHz

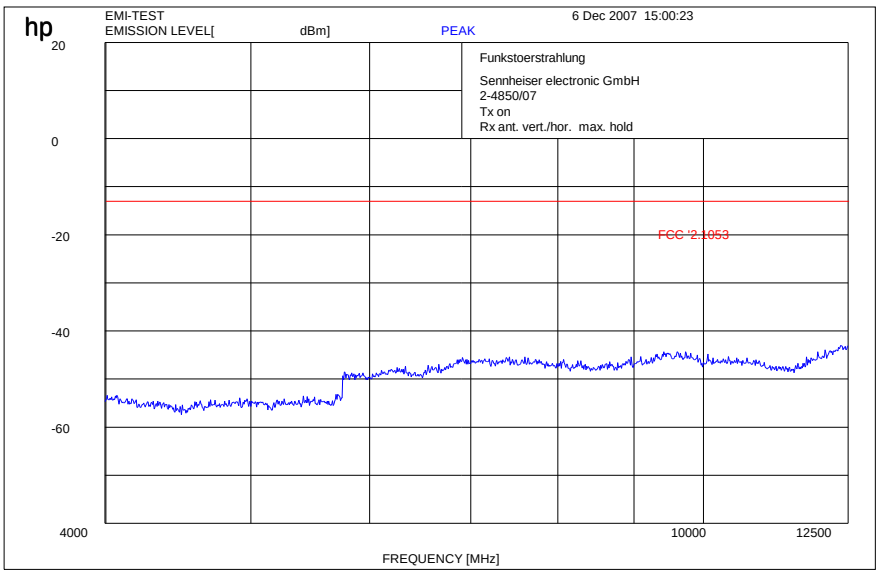




RADIATED EMISSIONS **FCC Rule Part 74 subpart H**

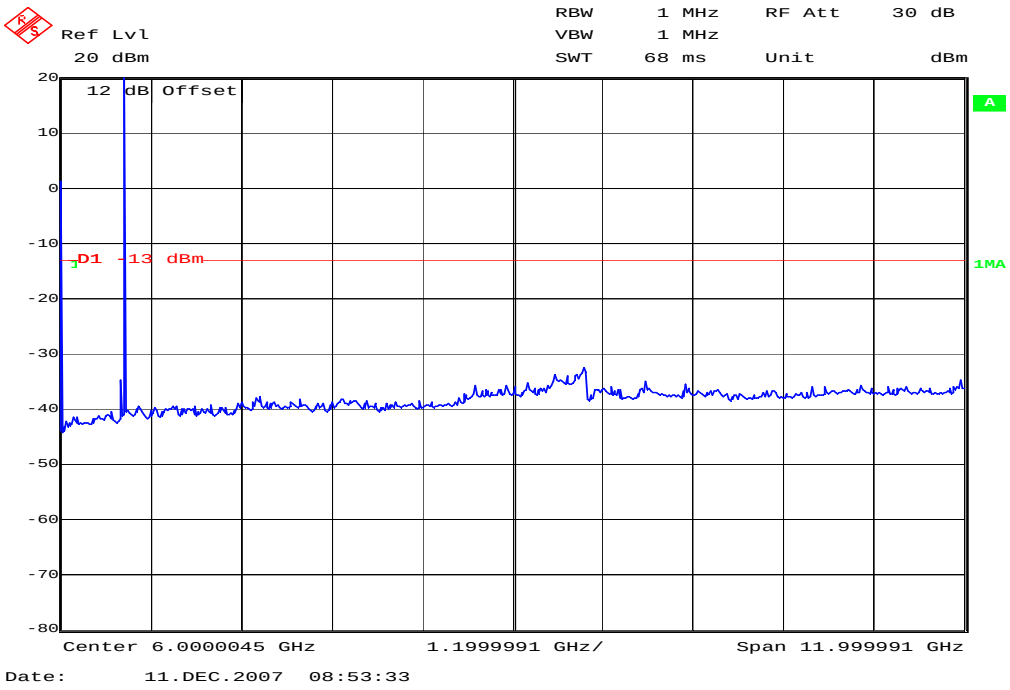
518 & 740 MHz





3.10 Spurious Conducted § 15.111

Plot 1: (valid for all channels)



SPURIOUS EMISSIONS LEVEL (nW)								
Tx on								
f (MHz)	Detector	Level (nW)	f (MHz)	Detector	Level (nW)	f (MHz)	Detector	Level (nW)
No critical peaks found								
Measurement uncertainty			±3 dB					

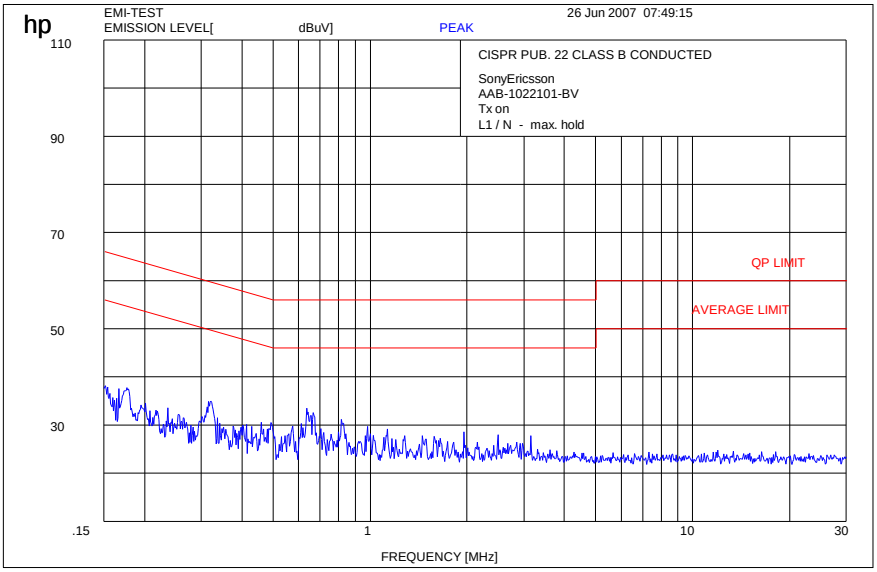
RBW/VBW: 100 kHz

Limits **SUBCLAUSE § 15.111**

Frequency (MHz)	Power
0.009 – 5000	2 nW

3.11 Conducted emissions § 15.107/207

CISPR 22
(valid for all channels)



Limits **§ 15.107 / 15.207**

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

* Decreases with the logarithm of the frequency

MPE calculation

These equations are generally accurate in the far field of an antenna but will over predict power density in the near field, where they could be used for making a “worst case” prediction.

$$S = PG/4\pi R^2$$

where S = power density (in appropriate units, e.g. mW/cm^2)
P = power input to the antenna (in appropriate units e.g. mW)
G = power gain of the antenna in the direction of interest relative to the isotropic radiator
R = distance to the centre of radiation of the antenna (appropriate units e.g. cm)

Or

$$S = EIRP/4\pi R^2$$

where EIRP = equivalent isotropically radiated power

Calculation:

(Calculated for max. EIRP)

EIRP: 17.31 dBm (53.89 mW)

calculated at distance of 20 cm:

power density = $53.89/4\pi 20^2$ = 0.01 mW/cm^2

Limit:

1mW/cm^2 is the reference level for general public exposure according to the OET Bulletin 65, Edition 97-01 Table 1.

4 Used Testequipment

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.

Anechoic chamber C:

No	Equipment/Type	Manuf.	Serial Nr.	Inv. No. Cetecom	Last Calibration	Frequency (months)	Next Calibration
1	Anechoic chamber	MWB	87400/02	300000996	Monthly verification		
2	System-Rack 85900	HP I.V.	*	300000222	n.a.		
3	Measurement System 1						
4	Spektrum Analyzer 8566B	HP	2747A05306	300001000	05.10.2006	24	05.10.2008
5	Spektrum Analyzer Display 85662A	HP	2816A16541	300002297	05.10.2006	24	05.10.2008
6	Quasi-Peak-Adapter 85650A	HP	2811A01131	300000999	05.10.2006	24	05.10.2008
7	RF-Preselector 85685A	HP	2837A00779	300000218	08.11.2006	24	08.11.2008
8	PC Vectra VL	HP		300001688	n.a.		
9	Software EMI	HP		300000983	n.a.		
10	Measurement System 2						
11	FSP 30	R&S	100623	ICT 300003464	05.10.2007	24	15.10.2009
12	PC	F+W			n.a.		
13	TILE	TILE			n.a.		
14	Biconical antenna	EMCO	S/N: 860 942/003		Monthly verification (System cal.)		
15	Log. Period. Antenna 3146	EMCO	2130	300001603	Monthly verification (System cal.)		
16	Double Ridged Antenna HP 3115P	EMCO	3088	300001032	Monthly verification (System cal.)		
17	Active Loop Antenna 6502	EMCO	2210	300001015	Monthly verification (System cal.)		
18	Power Supply 6032A	HP	2818A03450	300001040	12.05.2007	36	12.05.2010
19	Busisolator	Kontron		300001056	n.a.		
20	Leitungsteiler 11850C	HP		300000997	Monthly verification (System cal.)		
21	Power attenuator 8325	Byrd	1530	300001595	Monthly verification (System cal.)		
22	Band reject filter WRCG1855/1910	Wainwright	7	300003350	Monthly verification (System cal.)		
23	Band reject filter WRCG2400/2483	Wainwright	11	300003351	Monthly verification (System cal.)		

SRD Laboratory Room 002:

No	Equipment/Type	Manuf.	Serial Nr.	Inv. No. Cetecom	Last Calibration	Frequency (months)	Next Calibration
1	System Controller PSM 12	R&S	835259/007	3000002681-00xx	n.a.		
2	Memory Extension PSM-K10	R&S	To 1	3000002681	n.a.		
3	Operating Software PSM-B2	R&S	To 1	3000002681	n.a.		
4	19'' Monitor		22759020-ED	3000002681	n.a.		
5	Mouse		LZE 0095/6639	3000002681	n.a.		
6	Keyboard		G00013834L461	3000002681	n.a.		
7	Spectrum Analyser FSIQ 26	R&S	835540/018	3000002681-0005	01.08.2006	24	01.08.2008
8	Tracking Generator FSIQ-B10	R&S	835107/015	3000002681	s.No.7		

10	RF-Generator SMIQ03 (B1 Signal)	R&S	835541/056	3000002681-0002	01.08.2006	36	01.08.2009
11	Modulation Coder SMIQ-B20	R&S	To 10	3000002681	s.No.10		
12	Data Generator SMIQ-B11	R&S	To 10	3000002681	s.No.10		
13	RF Rear Connection SMIQ-B19	R&S	To 10	3000002681	s.No.10		
14	Fast CPU SM-B50	R&S	To 10	3000002681	s.No.10		
15	FM Modulator SM-B5	R&S	835676/033	3000002681	s.No.10		
16	RF-Generator SMIQ03 (B2 Signal)	R&S	835541/055	3000002681-0001	01.08.2006	36	01.08.2009
17	Modulation Coder SMIQ-B20	R&S	To 16	3000002681	s.No.16		
18	Data Generator SMIQ-B11	R&S	To 16	3000002681	s.No.16		
19	RF Rear Connection SMIQ-B19	R&S	To 16	3000002681	s.No.16		
20	Fast CPU SM-B50	R&S	To 16	3000002681	s.No.16		
21	FM Modulator SM-B5	R&S	836061/022	3000002681	s.No.16		
22	RF-Generator SMP03 (B3 Signal)	R&S	835133/011	3000002681-0003	01.08.2006	36	01.08.2009
23	Attenuator SMP-B15	R&S	835136/014	3000002681	S.No.22		
24	RF Rear Connection SMP-B19	R&S	834745/007	3000002681	S.No.22		
25	Power Meter NRVD	R&S	835430/044	3000002681-0004	01.08.2006	24	01.08.2008
26	Power Sensor NRVD-Z1	R&S	833894/012	3000002681-0013	01.08.2006	24	01.08.2008
27	Power Sensor NRVD-Z1	R&S	833894/011	3000002681-0010	01.08.2006	24	01.08.2008
28	Rubidium Standard RUB	R&S		3000002681-0009	01.08.2006	24	01.08.2008
29	Switching and Signal Conditioning Unit SSCU	R&S	338864/003	3000002681-0006	01.08.2006	24	01.08.2008
30	Laser Printer HP Deskjet 2100	HP	N/A	3000002681-0011	n.a.		
31	19'' Rack	R&S	11138363000004	3000002681	n.a.		
32	RF-cable set	R&S	N/A	3000002681	n.a.		
33	IEEE-cables	R&S	N/A	3000002681	n.a.		
34	Sampling System FSIQ-B70	R&S	835355/009	3000002681	s.No.7		
35	RSP programmable attenuator	R&S	834500/010	3000002681-0007	01.08.2006	24	01.08.2008
36	Signalling Unit	R&S	838312/011	3000002681	n.a.		
37	NGPE programmable Power Supply for EUT	R&S	192.033.41	3000002681			
38	Climatic box VT 4002	Heraeus Vötsch	58566046820010	300003019	11.05.2007	24	11.05.2009
39	Signaling Unit CMU200	R&S	832221/0055	300002862	12.01.2006	24	12.01.2008
40	Power Splitter 6005-3	Inmet Corp.	none	300002841	23.12.2006	24	23.12.2008
41	SMA Cables SPS-1151-985-SPS	Insulated Wire	different	different	n.a.		
42	CBT32 with EDR Signaling Unit	R&S					
43	Coupling unit	Narda	N/A	--	n.a.		
44	2xSwitch Matrix PSU	R&S	872584/021	300001329	n.a.		
45	RF-cable set	R&S	N/A	different	n.a.		
46	IEEE-cables	R&S	N/A	--	n.a.		

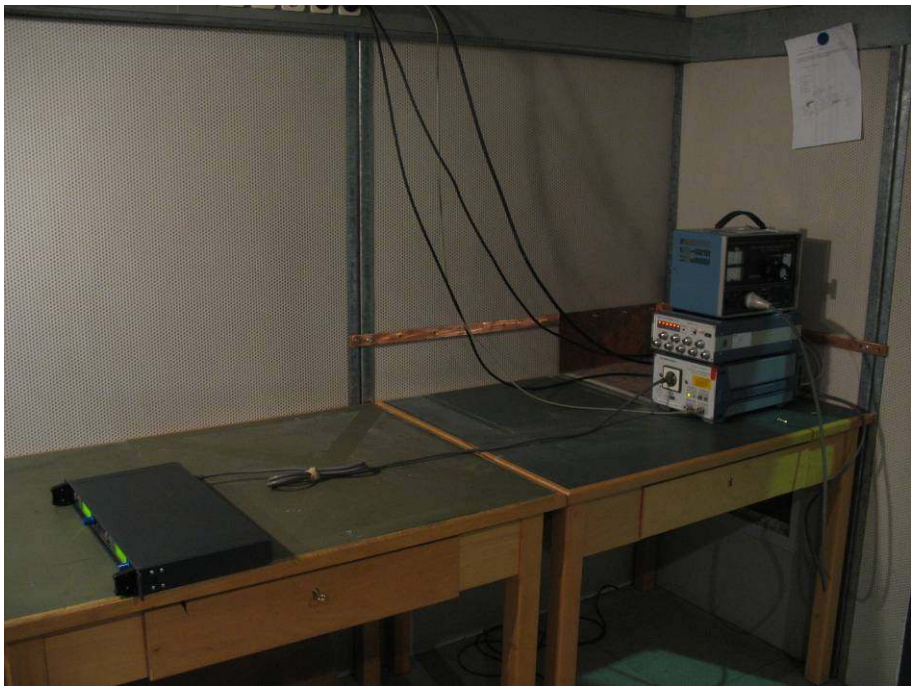
Anmerkung: 3000002681-00xx als Systeme inventarisiert

5 Photographs of Test Setup

Photo 1: (Radiated Emission)

Photo 2: (Radiated Emission)

Photo 3: (Conducted Emission)



6 Photographs of Test Equipment

Photo 1:

Photo 2:

Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo 7:

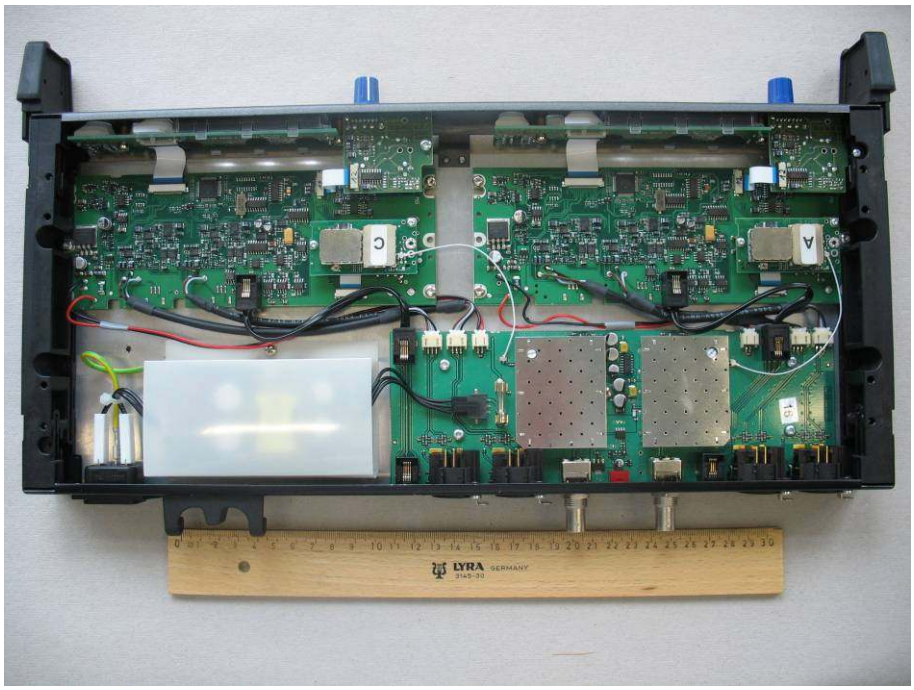


Photo 8:

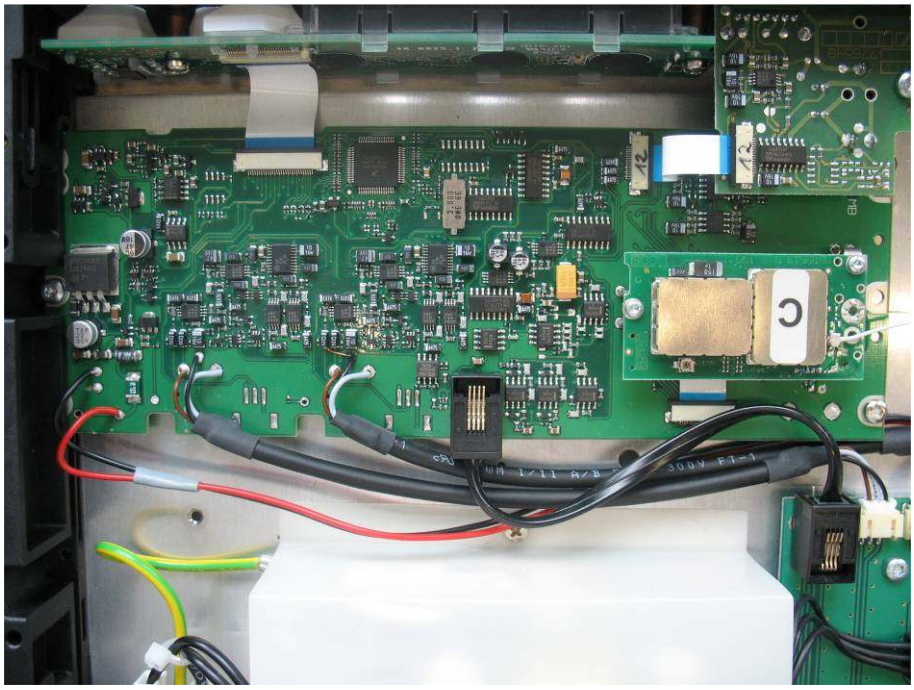


Photo 9:

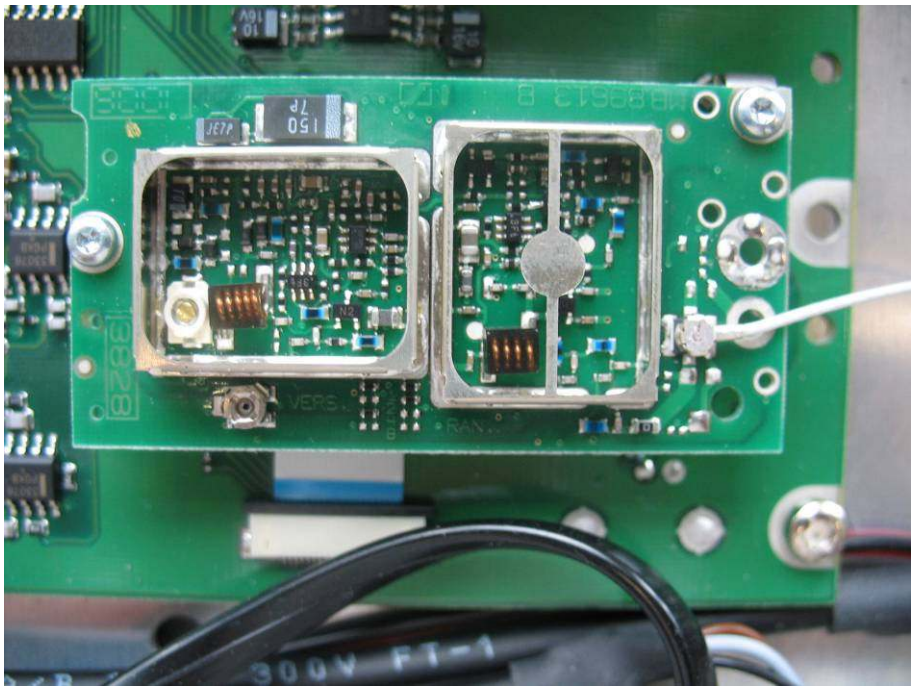


Photo 10:

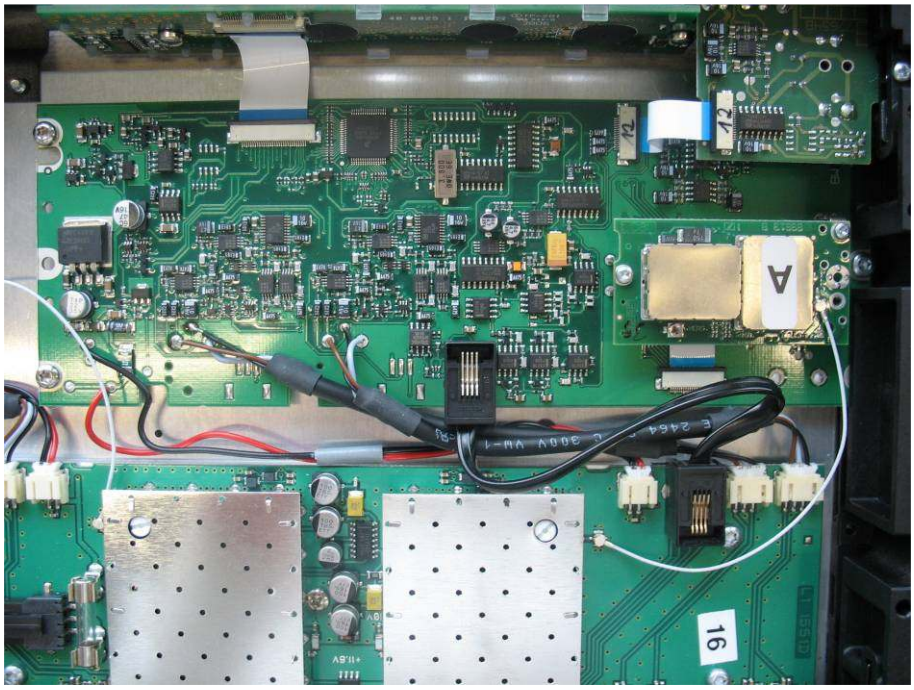


Photo 11:

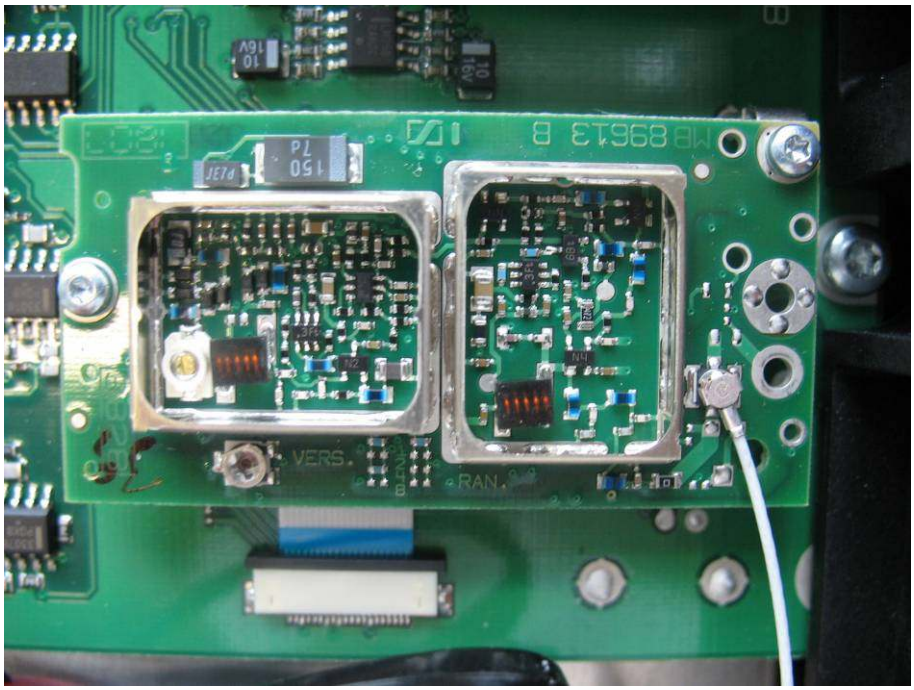


Photo 12:

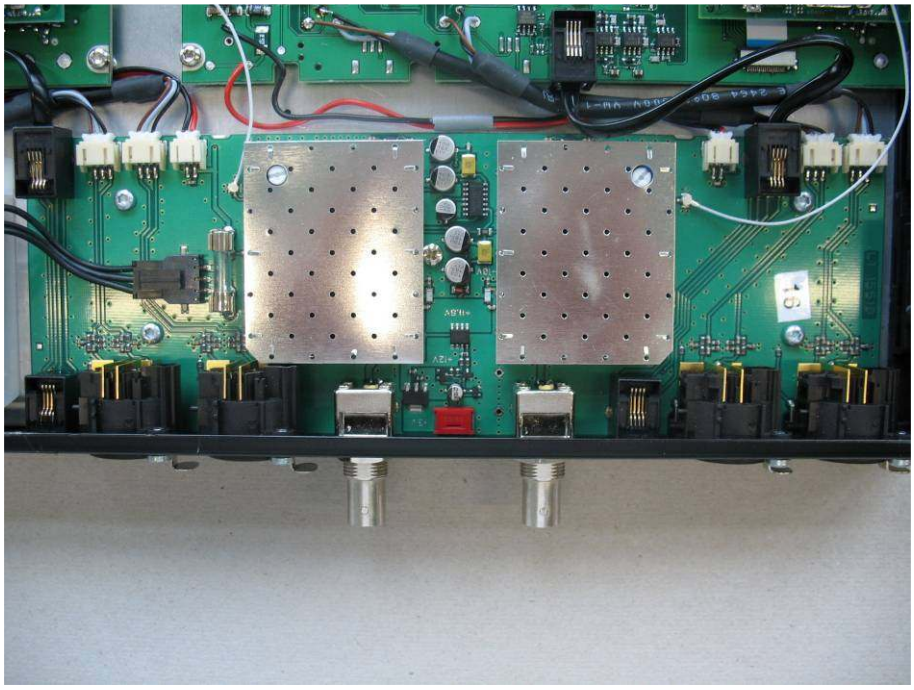


Photo 13:

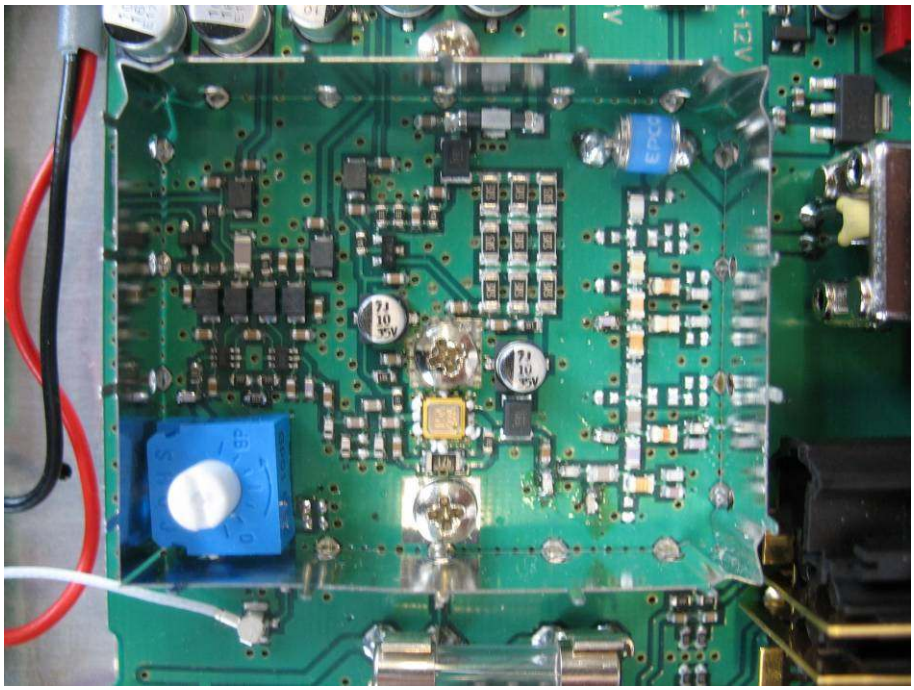


Photo 14: