

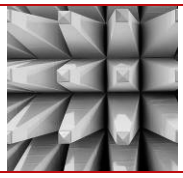

CETECOM™
CETECOM ICT Services
consulting - testing - certification

TEST REPORT

Test report no.: 1-3818/11-01-06

Testing laboratory

CETECOM ICT Services GmbH
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Accredited Testing Laboratory:
The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2005) by the Deutsche Akkreditierungsstelle GmbH (DAkkS)
The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number: D-PL-12076-01-01
Area of Testing: Radio/Satellite Communications

Applicant

AKG Acoustics GmbH
Lemböckgasse 21-25
1230 Wien / AUSTRIA
Phone: +43 18 66 54-0
Fax: +43 18 66 54-1292
Contact: Erich Gärtner
e-mail: erich.gaertner@harman.com
Phone: +43 18 66 54-1357

Manufacturer

AKG Acoustics GmbH
Lemböckgasse 21-25
1230 Wien / AUSTRIA

Test standard/s

47 CFR Part 74	Title 47 of the Code of Federal Regulations; Chapter I Part 74 - Experimental radio, auxiliary, special broadcast and other program distribution services
RSS-123 Issue 2	Spectrum Management and Telecommunications Radio Standards Specification Licensed Low-Power Radio Apparatus

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

Test Item

Kind of test item:	**Wireless In-Ear Monitoring System**
Model name:	**IVM4500 (Transmitter SST4500)**
FCC ID:	**V3TSST4500**
IC:	**-**
Frequency [MHz]:	500.1MHz – 530.5MHz (Band VII) 570.1MHz – 600.5MHz (Band VIII) 600.1MHz – 607.9MHz (Band IX) 614.1MHz – 630.5MHz (Band IX) 650.1MHz – 680.5MHz (Band I)
Technology tested:	FM-transmitter
Antenna:	Transmitter: Dedicated rod antenna
Power Supply:	12.0 V DC by AC/DC converter
Temperature Range:	-20°C to +55 °C

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

Test report authorised:

cn=Marco Bertolino, o=CETECOM ICT Services GmbH, ou=BTL-100826, email=marco.bertolino@cetecom.com, c=DE
2012.01.12 07:08:46 +01'00'

Marco Bertolino
Testing Manager

Test performed:

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Stefan Bös
Senior Testing Manager

1 Table of contents

2 General information

2.1 Notes and disclaimer

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2.2 Application details

Date of receipt of order:	2011-09-30
Date of receipt of test item:	2011-09-23
Start of test:	2011-09-23
End of test:	2012-01-06
Person(s) present during the test:	-/-

3 Test standard/s

Test standard	Date	Test standard description
47 CFR Part 74	2010-10	Title 47 of the Code of Federal Regulations; Chapter I Part 74 - Experimental radio, auxiliary, special broadcast and other program distribution services
RSS-123 Issue 2	2011-02	Spectrum Management and Telecommunication Radio Standards Specification Licensed Low-Power Radio Apparatus

4 Test environment

Temperature:	T_{nom}	+22 °C during room temperature tests
	T_{max}	+55 °C during high temperature tests
	T_{min}	-20 °C during low temperature tests
Relative humidity content:		55 %
Barometric pressure:		not relevant for this kind of testing
Power supply:	V_{nom}	12.0 V DC by AC/DC converter
	V_{max}	14.0 V
	V_{min}	10.0 V

5 Test item

Kind of test item	**:**	**Wireless In-Ear Monitoring System**
Type identification	**:**	**IVM4500 (Transmitter SST4500)**
S/N serial number	**:**	**Band I: 3095H00010** **Band VII: 3095H00290** **Band VIII: 3095H00310** **Band IX: 3095H00320**
HW hardware status	**:**	**Display: V5.7** **Mainprint: V2.0** **RF-Print: V7.5**
SW software status	**:**	**F5.0.1**
Frequency band [MHz]	**:**	**500.1MHz – 530.5MHz (Band VII)** **570.1MHz – 600.5MHz (Band VIII)** **600.1MHz – 607.9MHz (Band IX)** **614.1MHz – 630.5MHz (Band IX)** **650.1MHz – 680.5MHz (Band I)**
Type of radio transmission **Use of frequency spectrum**	**:** **:**	**Analog carrier**
Type of modulation	**:**	**FM (F8E)**
Number of channels	**:**	**No information provided!**
Antenna	**:**	**Transmitter: Dedicated rod antenna**
Power supply	**:**	**12.0 V DC by AC/DC converter**
Temperature range	**:**	**-20°C to +55 °C**

6 Test laboratories sub-contracted

None

7 Summary of measurement results

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

☐ There were deviations from the technical specifications ascertained

TC Identifier	Description	Verdict	Date	Remark
RF-Testing	FCC 47 CFR § 74.861 RSS-123 Issue 2	Passed	2012-01-12	-/-

Test Specification Clause	Test Case	Temperature Conditions	Power Source Voltages	Pass	Fail	NA	NP	Results (max.)
FCC 47 CFR § 74.861 (e)(1)(ii) RSS-123 §6.2 Issue 2	Output power (radiated)	Nominal	Nominal	☒	☐	☐	☐	complies
FCC 47 CFR § 74.861 RSS-123 §7 Issue 2	Frequency stability	Nominal	Extreme	☒	☐	☐	☐	complies
		Extreme	Nominal	☒	☐	☐	☐	
FCC 47 CFR § 2.1049 § 74.861	Modulation characteristics	Nominal	Nominal	☒	☐	☐	☐	complies
FCC 47 CFR § 2.1049 § 74.861 RSS-123 §6 Issue 2	Occupied bandwidth	Nominal	Nominal	☒	☐	☐	☐	complies
FCC 47 CFR § 74.861	Unwanted radiation (spectrum mask)	Nominal	Nominal	☒	☐	☐	☐	complies
FCC 47 CFR § 74.861 RSS-123 Issue 2	Field strength of spurious radiation Transmitter unwanted emissions	Nominal	Nominal	☒	☐	☐	☐	complies
FCC 47 CFR § 15.209 RSS-123 Issue 2	Receiver spurious emissions (radiated)	Nominal	Nominal	☒	☐	☐	☐	complies

Note: NA = Not Applicable; NP = Not Performed

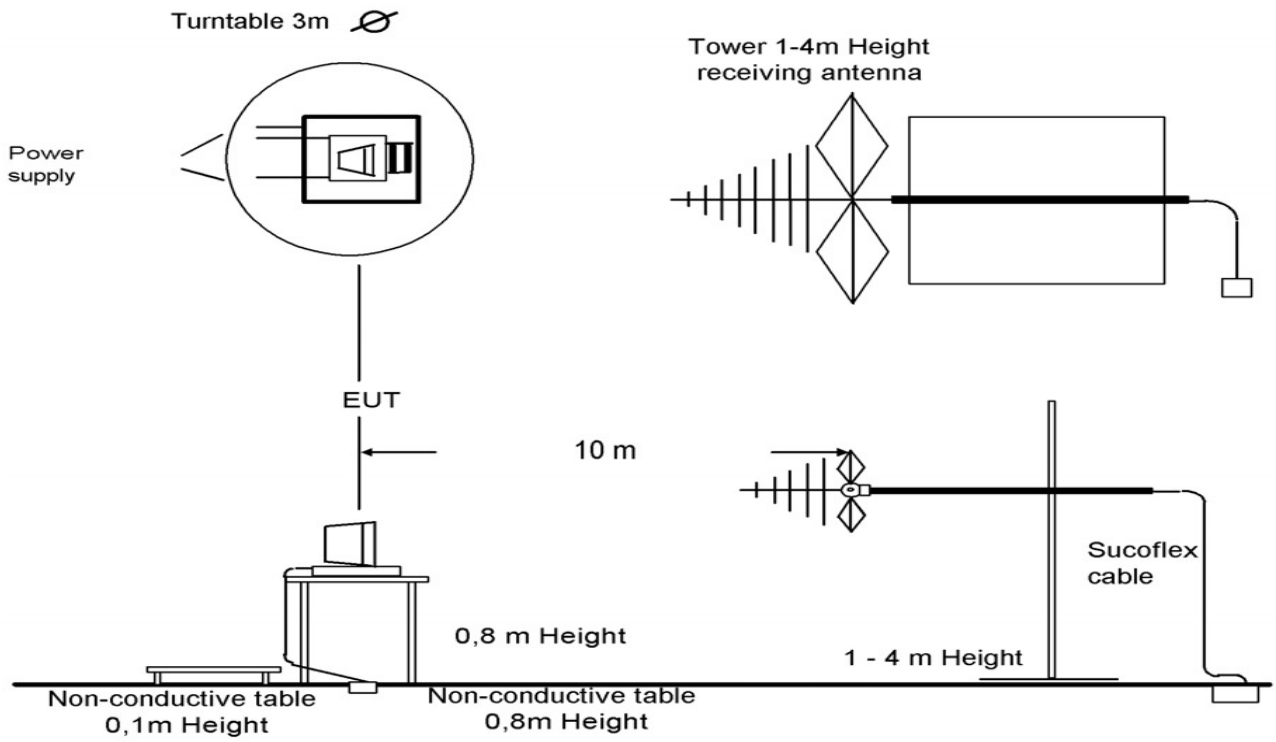
8 RF measurements

8.1 Description of test setup

8.1.1 Radiated measurements

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 25 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas are confirmed with specifications ANSI C63.2-1996 clause 15 and ANSI C63.4-2009 clause 4.1.5. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test setups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received. The wanted and unwanted emissions are received by spectrum analysers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63-4-2009 clause 4.2.
Antennas are confirmed with ANSI C63.2-1996 item 15.

Semi anechoic chamber



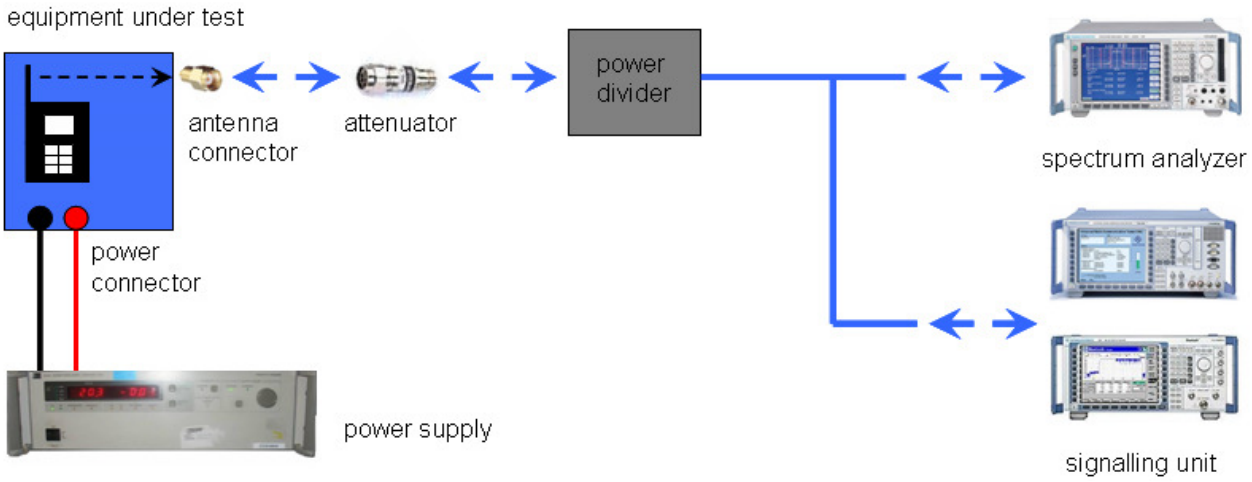
Picture 1: Diagram radiated measurements

9 kHz - 30 MHz:	active loop antenna
30 MHz – 1 GHz:	tri-log antenna
> 1 GHz:	horn antenna

The EUT is powered by an external power supply with nominal voltage.

8.1.2 Conducted measurements

The EUT's RF signal is coupled out by the antenna connector which is supplied by the manufacturer. The signal is first 10dB attenuated before it is power divided (~6dB loss per branch). One of the signal paths is connected to the communication base Station (CMU200 or other), the other one is connected to the spectrum analyzer. The specific losses for both signal paths are first checked within a calibration. The measurement readings on the signalling unit/spectrum analyzer are corrected by the specific test set-up loss. The attenuator, power divider, signalling unit and the spectrum analyzer are impedance matched on 50 Ohm.



Picture 2: Diagram conducted measurements

8.2 Additional comments

Reference documents: None

Special test descriptions: All tests performed in power mode "100 mW".

Configuration descriptions: Customer provided set-up.

Professional installation!

9 Measurement results

9.1 Output power (radiated)

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	1MHz
Video bandwidth:	1MHz
Span:	1MHz
Trace-Mode:	Max. hold

Limits:

FCC	IC
47 CFR § 74.861 (e)(1)(ii)	RSS-123 §6.2 Issue 2
Maximum transmitter power	
470-608 and 614-698MHz bands - 250mW (23.98dBm)	

All tests were performed in power mode "100 mW".

Result:

500.1MHz – 530.5MHz (Band VII)

Frequency	Radiated output power
500.1MHz	18.6 dBm
515.3MHz	18.3 dBm
530.5MHz	20.0 dBm

570.1MHz – 600.5MHz (Band VIII)

Frequency	Radiated output power
570.1MHz	19.3 dBm
585.3MHz	18.6 dBm
600.5MHz	19.4 dBm

600.1MHz – 607.9MHz and
614.1MHz – 630.5MHz (Band IX)

Frequency	Radiated output power
600.1MHz	17.2 dBm
615.3MHz	16.5 dBm
630.5MHz	18.6 dBm

650.1MHz – 680.5MHz (Band I)

Frequency	Radiated output power
650.1MHz	15.5 dBm
665.2MHz	14.7 dBm
680.5MHz	16.9 dBm

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

9.2 Frequency stability

9.2.1 Frequency error vs. temperature

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	100 Hz
Video bandwidth:	100 Hz
Span:	1 kHz
Trace-Mode:	Max. hold
Voltage (nominal):	12.0 V

Limits:

FCC	IC
47 CFR § 74.861	RSS-123 §7 Issue 2
The frequency tolerance of the transmitter shall be 0.005 percent (50ppm)	

Results:

500.1MHz – 530.5MHz (Band VII)

Temperature	Frequency (MHz)	Deviation (kHz / ppm)
-30 °C	515.3	-0.18 / -0.4
-20 °C	515.3	+1.48 / +2.9
-10 °C	515.3	+1.07 / +2.1
0 °C	515.3	+0.93 / +1.8
10 °C	515.3	+0.72 / +1.4
20 °C	515.3	+0.40 / +0.8
30 °C	515.3	-0.32 / -0.6
40 °C	515.3	-0.73 / -1.4
55 °C	515.3	-0.44 / -1.2

570.1MHz – 600.5MHz (Band VIII)

Temperature	Frequency (MHz)	Deviation (kHz / ppm)
-30 °C	585.3	+5.59 / +9.6
-20 °C	585.3	+4.23 / +7.2
-10 °C	585.3	+4.10 / +7.0
0 °C	585.3	+4.07 / +7.0
10 °C	585.3	+4.00 / +6.8
20 °C	585.3	+3.96 / +6.8
30 °C	585.3	+3.19 / +5.5
40 °C	585.3	+2.68 / +4.6
55 °C	585.3	+2.73 / +4.7

600.1MHz – 607.9MHz and
614.1MHz – 630.5MHz (Band IX)

Temperature	Frequency (MHz)	Deviation (kHz / ppm)
-30 °C	622.25	-2.49 / -4.0
-20 °C	622.25	-2.98 / -4.8
-10 °C	622.25	-3.47 / -5.6
0 °C	622.25	-4.19 / -6.7
10 °C	622.25	-5.59 / -9.0
20 °C	622.25	-6.25 / -10.0
30 °C	622.25	-7.19 / -11.6
40 °C	622.25	-8.34 / -13.4
55 °C	622.25	-8.64 / -13.9

650.1MHz – 680.5MHz (Band I)

Temperature	Frequency (MHz)	Deviation (kHz / ppm)
-30 °C	665.2	+5.44 / +8.2
-20 °C	665.2	+5.27 / +7.9
-10 °C	665.2	+5.10 / +7.7
0 °C	665.2	+4.92 / +7.4
10 °C	665.2	+4.82 / +7.2
20 °C	665.2	+4.80 / +7.2
30 °C	665.2	+4.22 / +6.3
40 °C	665.2	+3.73 / +5.6
55 °C	665.2	+3.67 / +5.5

Result: The result of the measurement is passed.

9.2.2 Frequency error vs. voltage

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	100 Hz
Video bandwidth:	100 Hz
Span:	1 kHz
Trace-Mode:	Max. hold
Temperature:	23°C

Limits:

FCC	IC
47 CFR § 74.861	RSS-123 §7 Issue 2
The frequency tolerance of the transmitter shall be 0.005 percent (50ppm)	

Results:

500.1MHz – 530.5MHz (Band VII)

Voltage	Frequency (MHz)	Deviation (kHz / ppm)
10.0 V	515.3	+0.44 / +0.9
10.5 V	515.3	+0.44 / +0.9
11.0 V	515.3	+0.40 / +0.8
11.5 V	515.3	+0.40 / +0.8
12.0 V	515.3	+0.40 / +0.8
12.5 V	515.3	+0.40 / +0.8
13.0 V	515.3	+0.34 / +0.7
13.5 V	515.3	+0.34 / +0.7
14.0 V	515.3	+0.34 / +0.7

570.1MHz – 600.5MHz (Band VIII)

Voltage	Frequency (MHz)	Deviation (kHz / ppm)
10.0 V	585.3	+3.96 / +6.8
10.5 V	585.3	+3.96 / +6.8
11.0 V	585.3	+3.96 / +6.8
11.5 V	585.3	+3.96 / +6.8
12.0 V	585.3	+3.96 / +6.8
12.5 V	585.3	+3.96 / +6.8
13.0 V	585.3	+3.86 / +6.6
13.5 V	585.3	+3.86 / +6.6
14.0 V	585.3	+3.86 / +6.6

600.1MHz – 607.9MHz and
614.1MHz – 630.5MHz (Band IX)

Voltage	Frequency (MHz)	Deviation (kHz / ppm)
10.0 V	622.25	-6.25 / -10.0
10.5 V	622.25	-6.25 / -10.0
11.0 V	622.25	-6.25 / -10.0
11.5 V	622.25	-6.25 / -10.0
12.0 V	622.25	-6.25 / -10.0
12.5 V	622.25	-6.35 / -10.2
13.0 V	622.25	-6.35 / -10.2
13.5 V	622.25	-6.35 / -10.2
14.0 V	622.25	-6.35 / -10.2

650.1MHz – 680.5MHz (Band I)

Voltage	Frequency (MHz)	Deviation (kHz / ppm)
10.0 V	665.2	+4.75 / +7.1
10.5 V	665.2	+4.75 / +7.1
11.0 V	665.2	+4.75 / +7.1
11.5 V	665.2	+4.80 / +7.2
12.0 V	665.2	+4.80 / +7.2
12.5 V	665.2	+4.80 / +7.2
13.0 V	665.2	+4.80 / +7.2
13.5 V	665.2	+4.80 / +7.2
14.0 V	665.2	+4.80 / +7.2

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

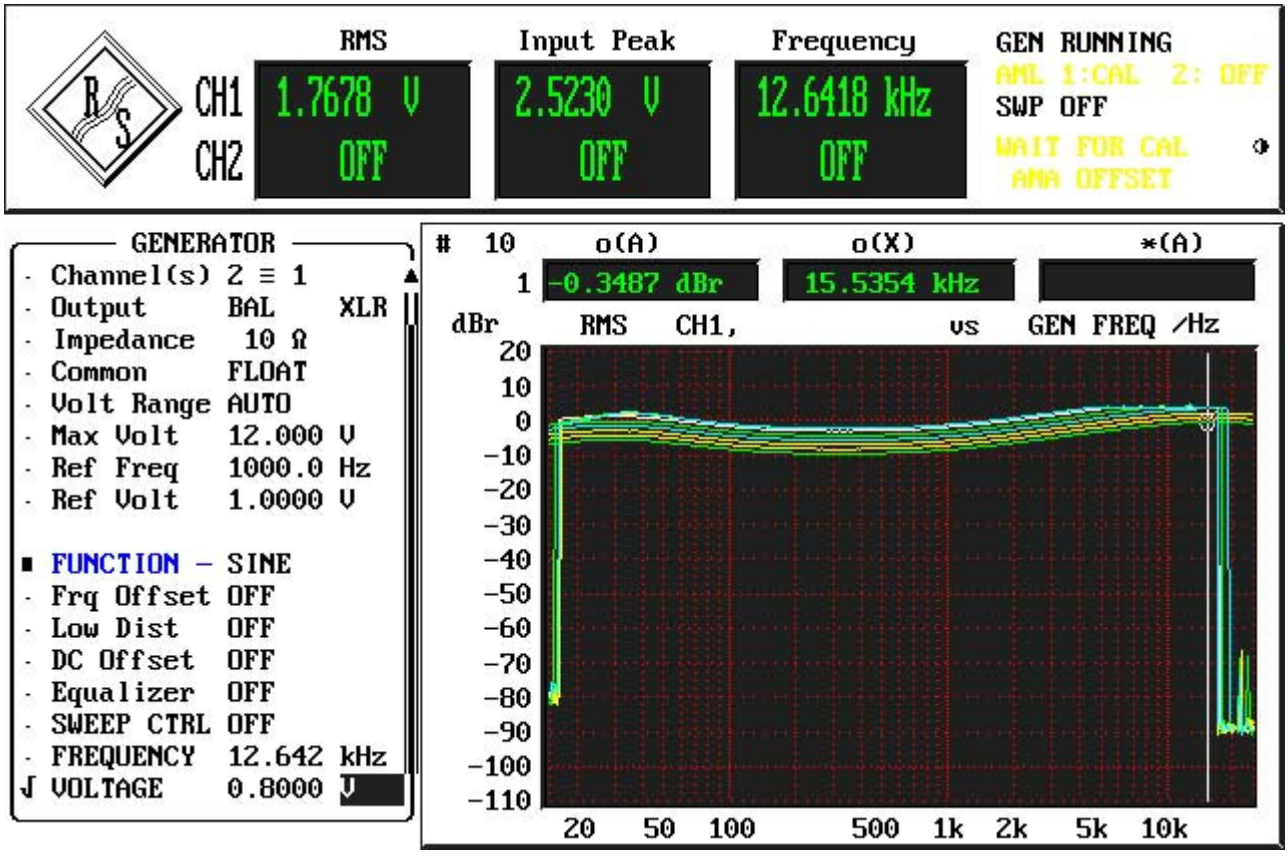
9.3 Modulation characteristics

Measurement:

FCC	IC
47 CFR § 2.1047 47 CFR § 74.861	-/-

Method of measurement:

The audio frequency responds was measured in accordance with EIA/TIA 603. The plots shows 10 curves with different modulation levels, the frequency is varied from 15 Hz to 20 kHz.



Max. deviation: 51 kHz

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

9.4 Occupied bandwidth

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	3kHz
Video bandwidth:	3kHz
Span:	1MHz
Trace-Mode:	Max. hold

Limits:

FCC	IC
47 CFR § 74.861	RSS-123 §6 Issue 2
Occupied bandwidth 99%. Other than single sideband or independent sideband transmitters - when modulated by a 2500 Hz tone at an input level 16 dB greater than that necessary to produce 50 percent modulation. The input level shall be established at the frequency of maximum response of the audio modulating circuit.	
The operating bandwidth shall not exceed 200 kHz	

The measurement was performed using the frequency generating the maximum deviation: 12.6 kHz

Result:

500.1MHz – 530.5MHz (Band VII)

Frequency	20dB bandwidth
500.1 MHz	152 kHz
515.3 MHz	156 kHz
530.5 MHz	152 kHz

570.1MHz – 600.5MHz (Band VIII)

Frequency	20dB bandwidth
570.1 MHz	156 kHz
585.3 MHz	152 kHz
600.5 MHz	156 kHz

600.1MHz – 607.9MHz
614.1MHz – 630.5MHz (Band IX)

Frequency	20dB bandwidth
600.1 MHz	136 kHz
607.9 MHz	152 kHz
614.1 MHz	136 kHz
622.25 MHz	158 kHz
630.5 MHz	158 kHz

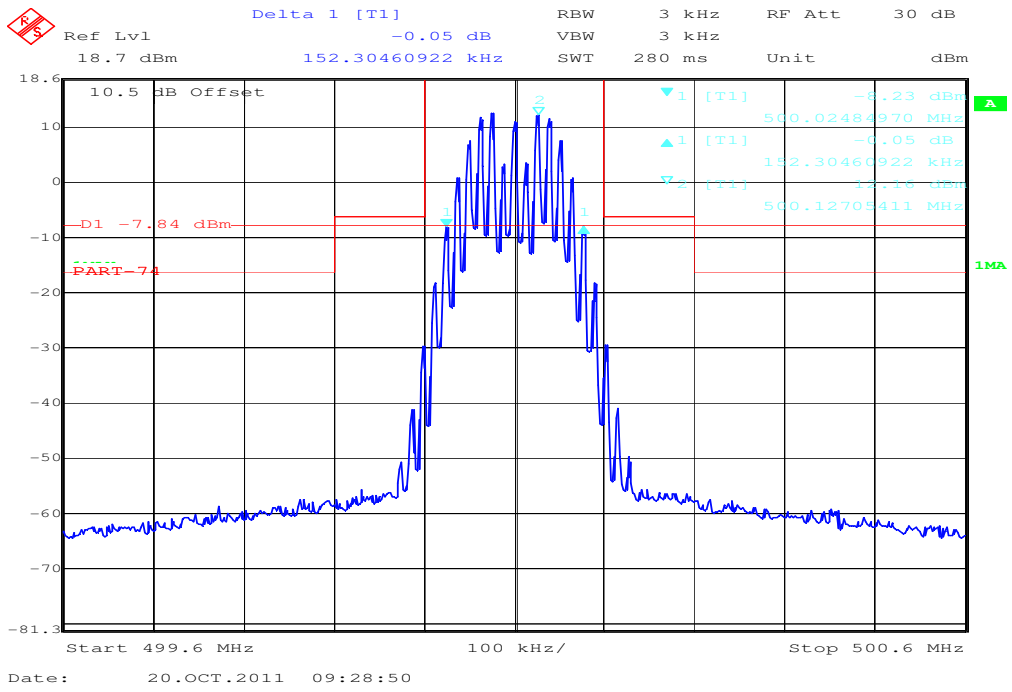
650.1MHz – 680.5MHz (Band I)

Frequency	20dB bandwidth
650.1 MHz	154 kHz
665.2 MHz	154 kHz
680.5 MHz	156 kHz

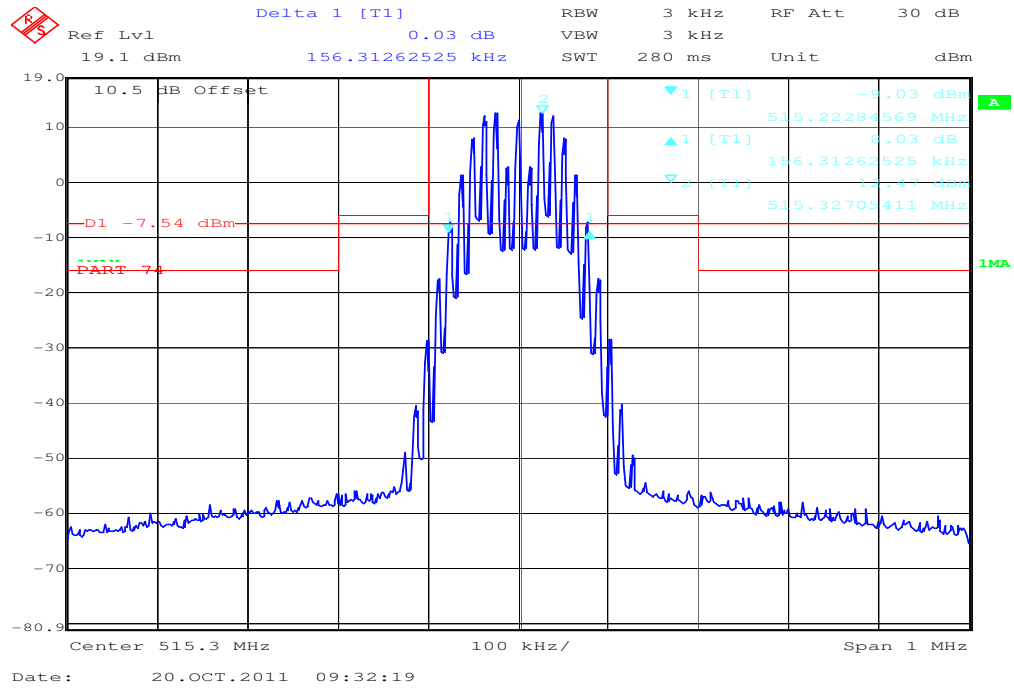
Result: **The result of the measurement is passed.**

Plots of the measurements:

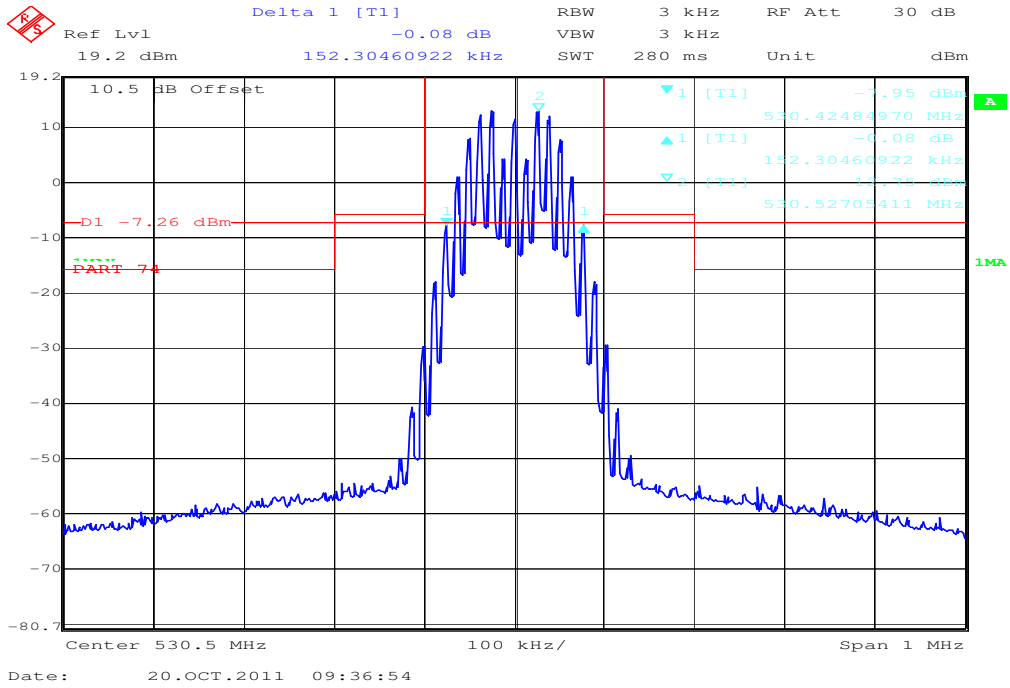
Plot 1: 500.1 MHz (Band VII)



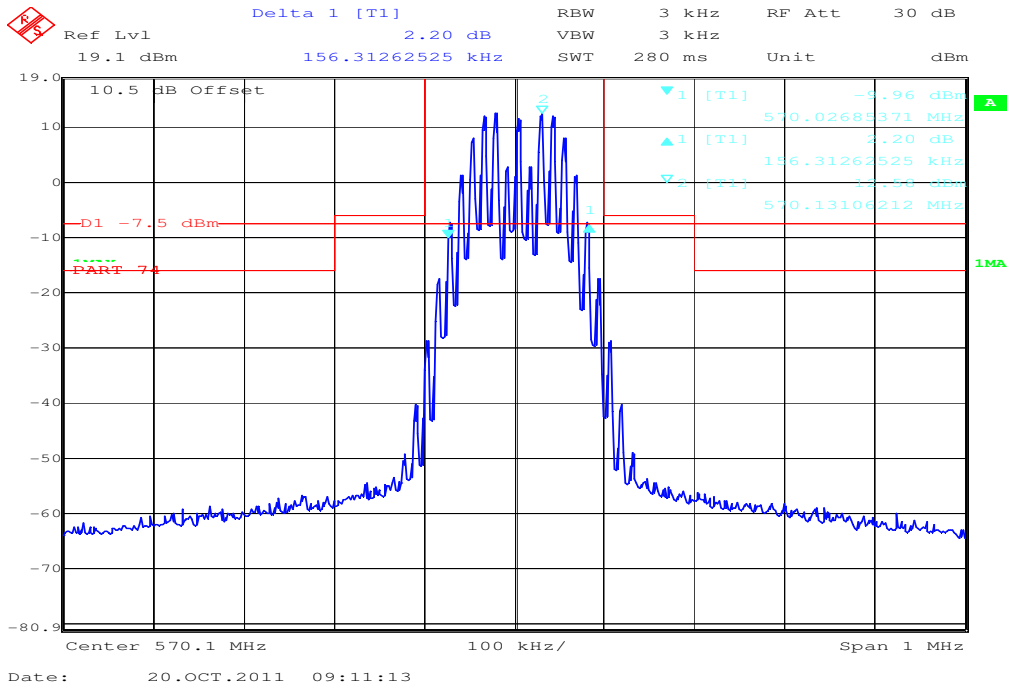
Plot 2: 515.3 MHz (Band VII)



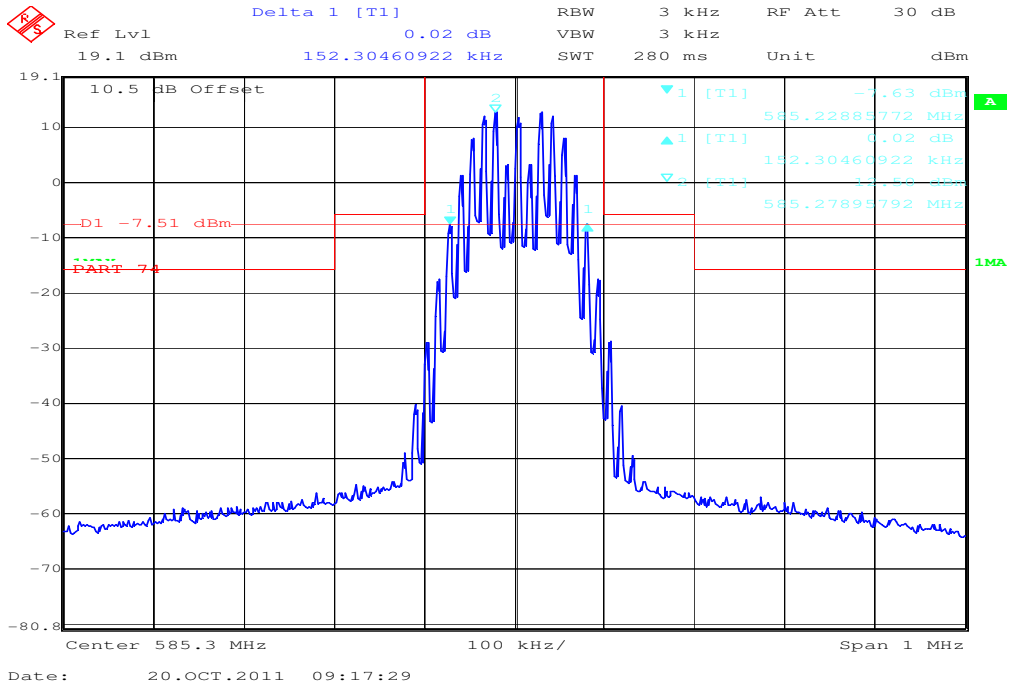
Plot 3: 530.5 MHz (Band VII)



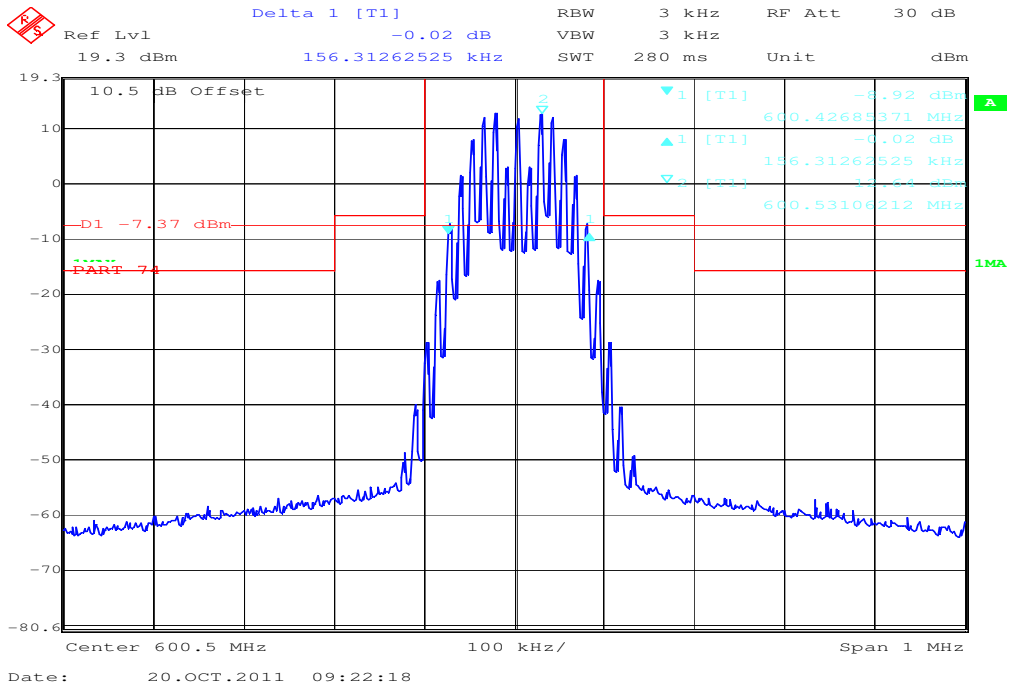
Plot 4: 570.1 MHz (Band VIII)



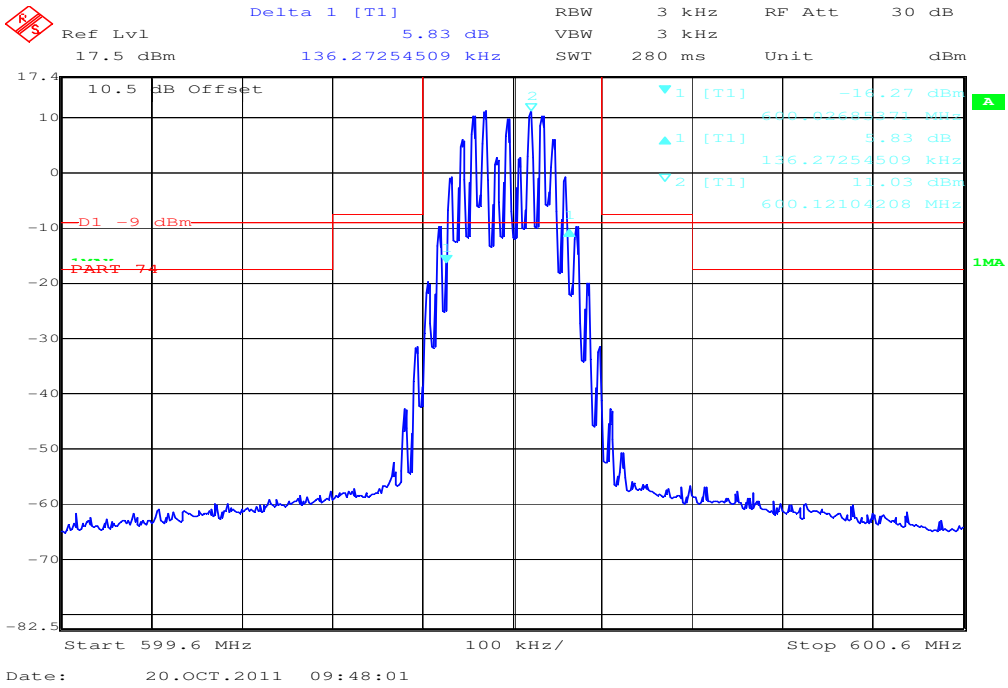
Plot 5: 585.3 MHz (Band VIII)



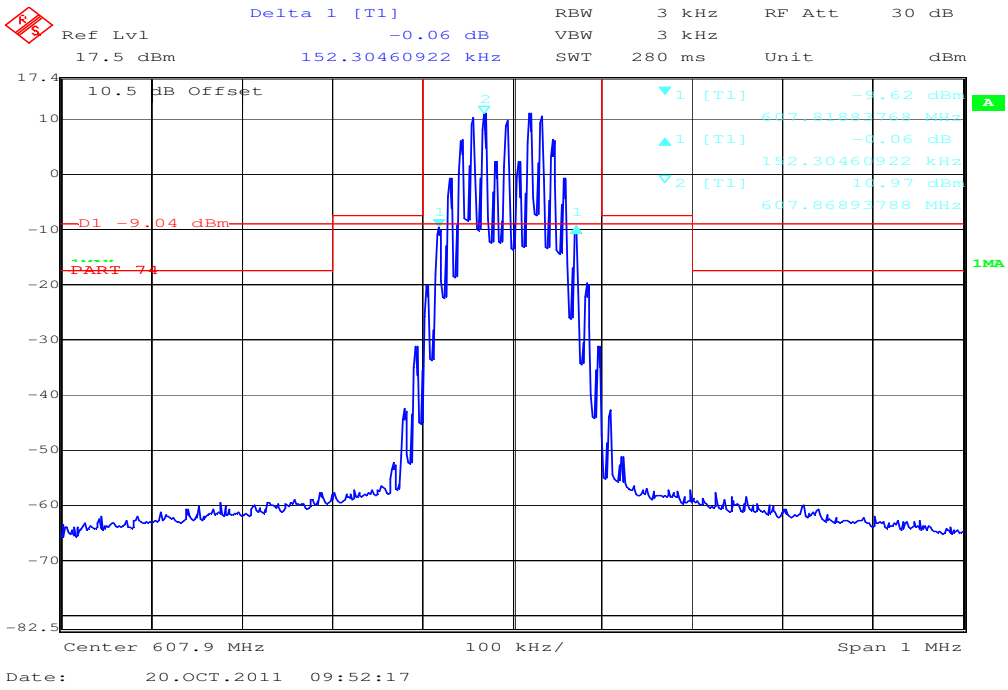
Plot 6: 600.5 MHz (Band VIII)



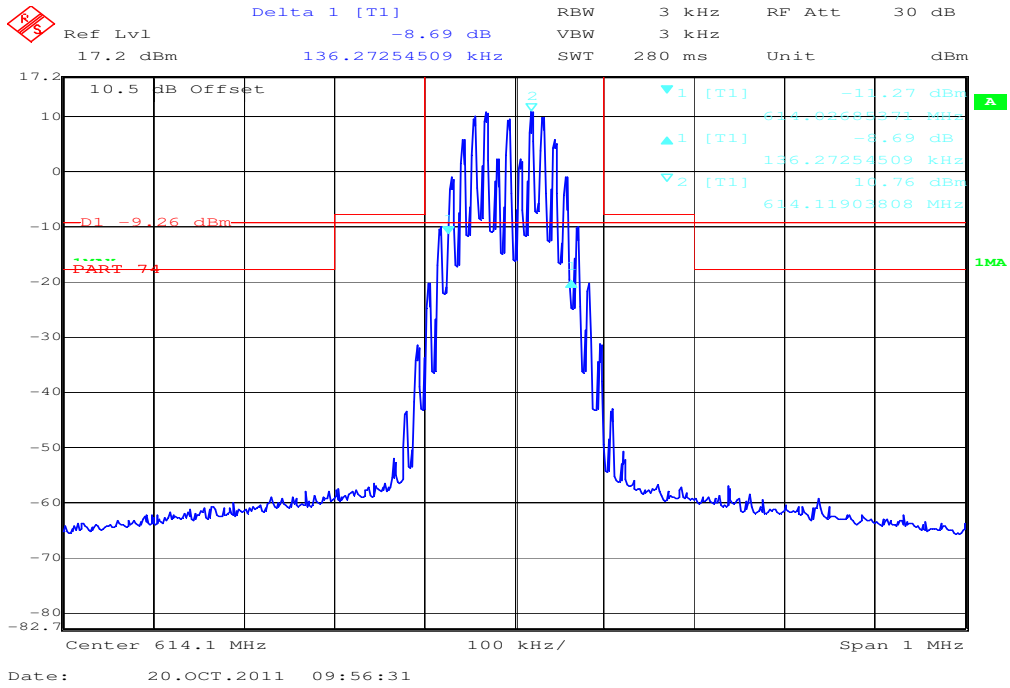
Plot 7: 600.1 MHz (Band IX)



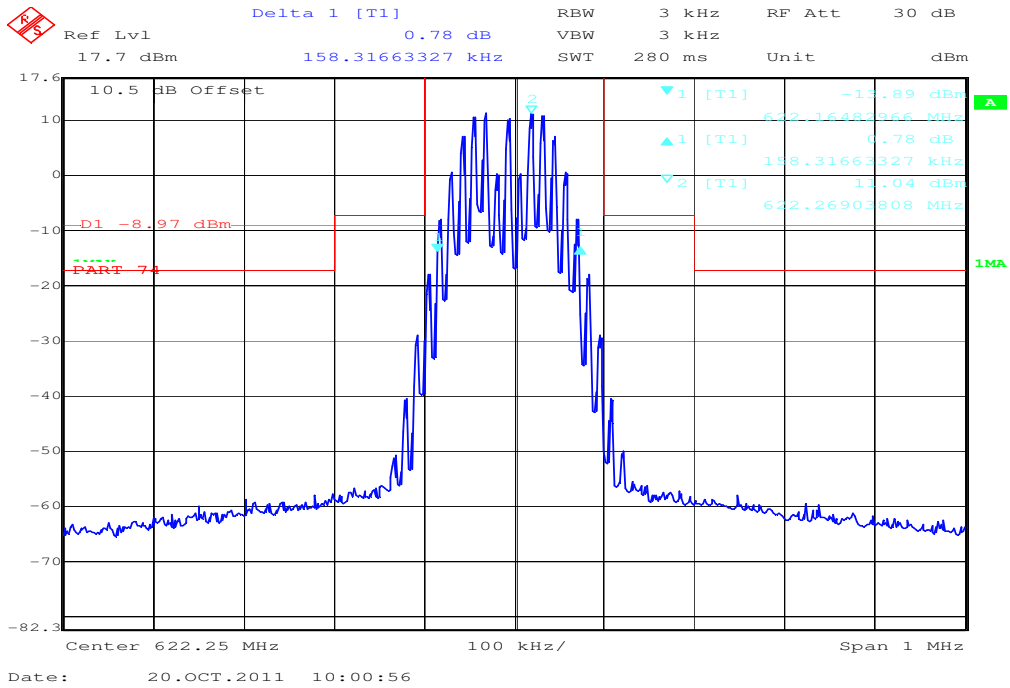
Plot 8: 607.9 MHz (Band IX)



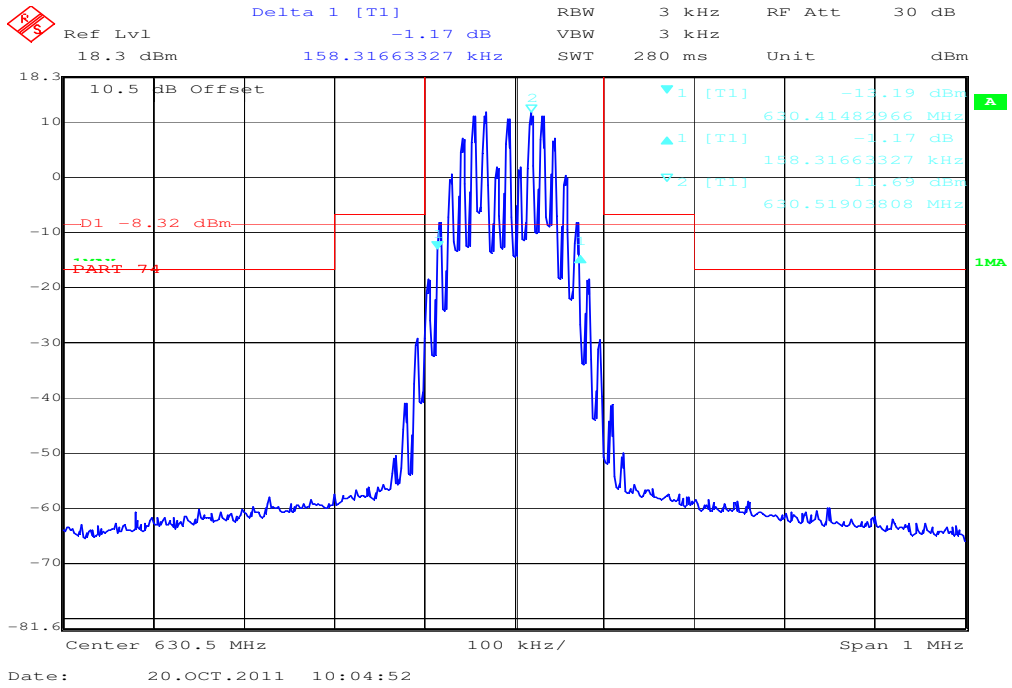
Plot 9: 614.1 MHz (Band IX)



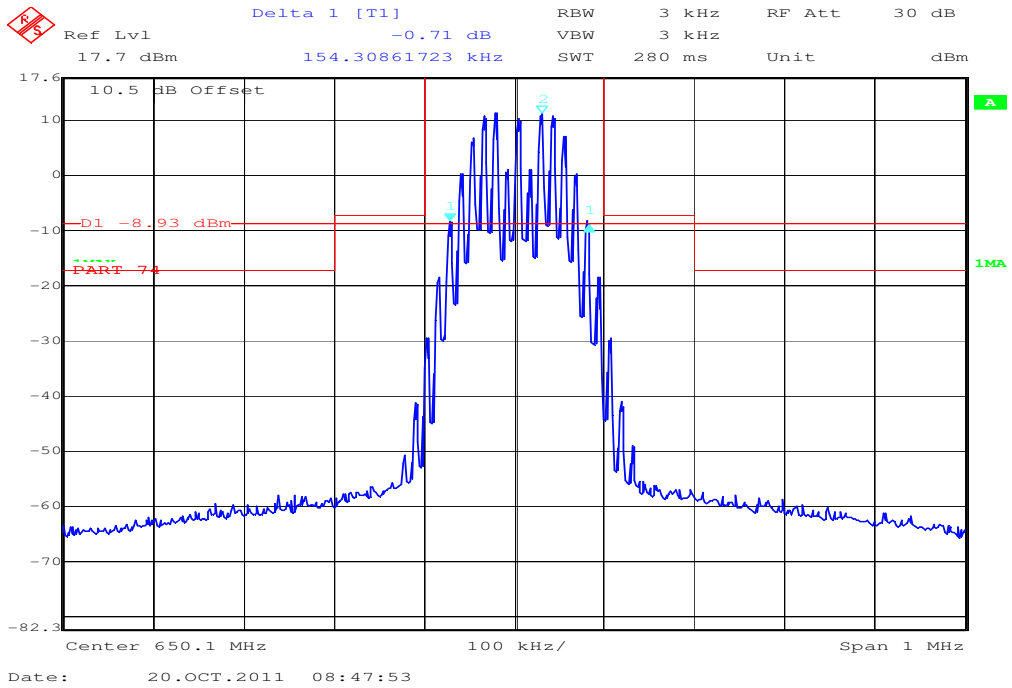
Plot 10: 622.25 MHz (Band IX)



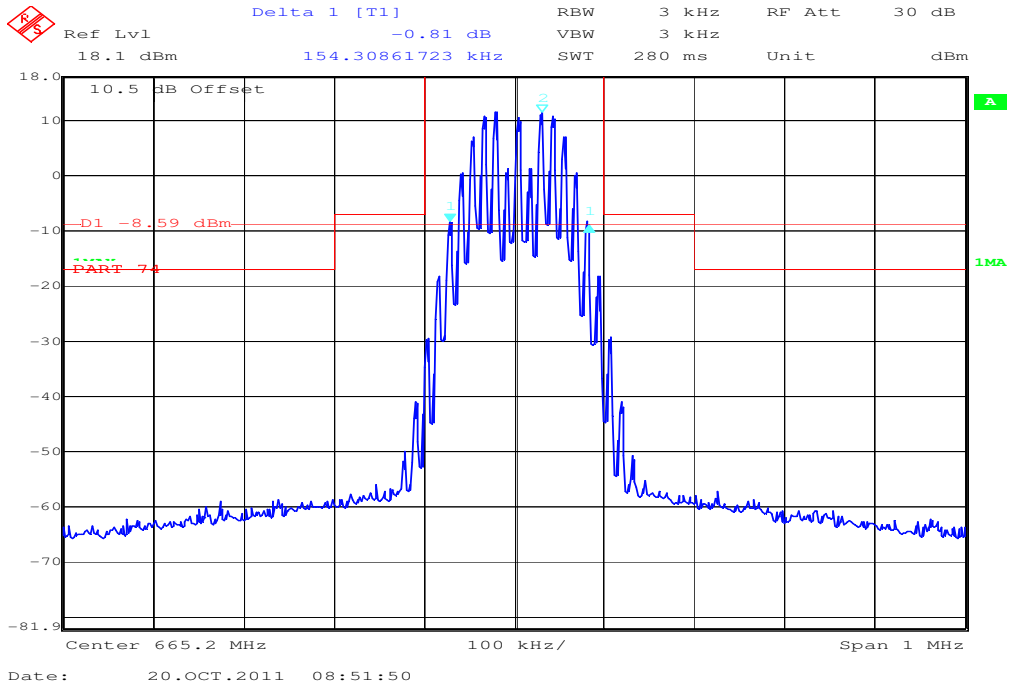
Plot 11: 630.5 MHz (Band IX)



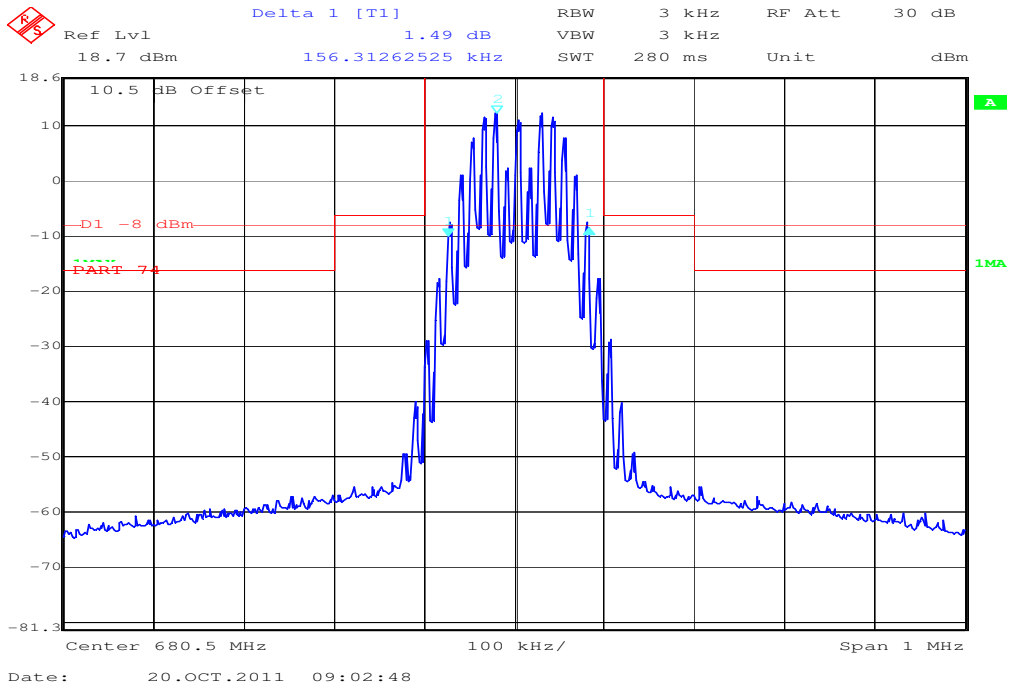
Plot 12: 650.1 MHz (Band I)



Plot 13: 665.2 MHz (Band I)



Plot 14: 680.5 MHz (Band I)



9.5 Unwanted radiation (spectrum mask)

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	1kHz
Video bandwidth:	1kHz
Span:	50kHz
Trace-Mode:	Max. hold

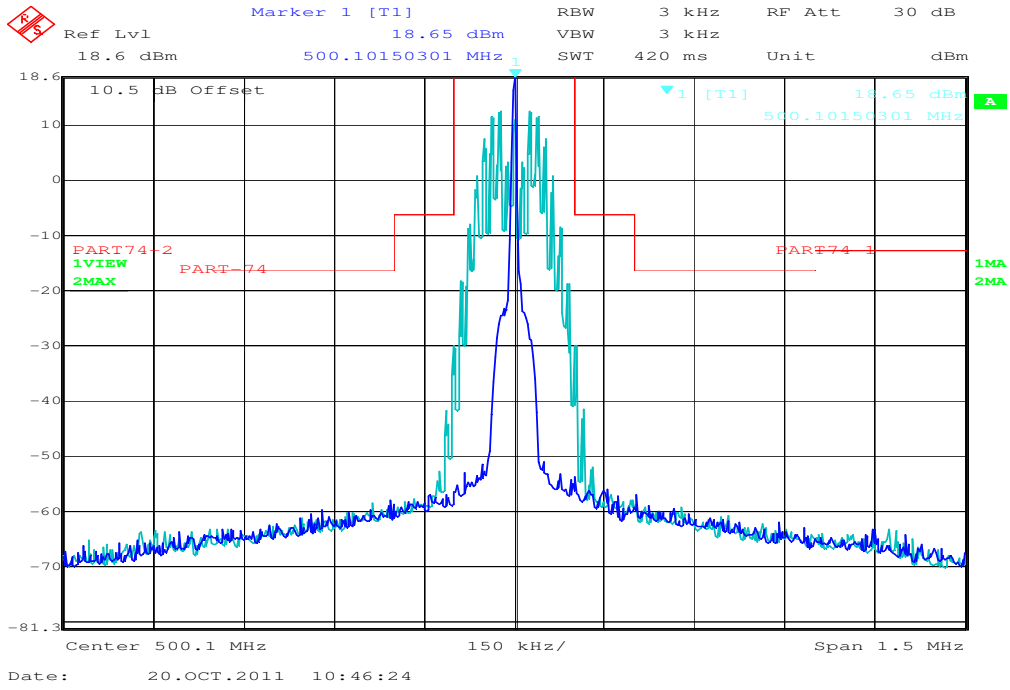
Limits:

FCC	IC
47 CFR § 74.861	RSS-123 §5.5 Issue 2
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule: (i) On any frequency removed from the operating frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: at least 25 dB; (ii) On any frequency removed from the operating frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: at least 35 dB; (iii) On any frequency removed from the operating frequency by more than 250 percent of the authorized bandwidth: at least 43+10log10 (mean output power in watts) dB.	

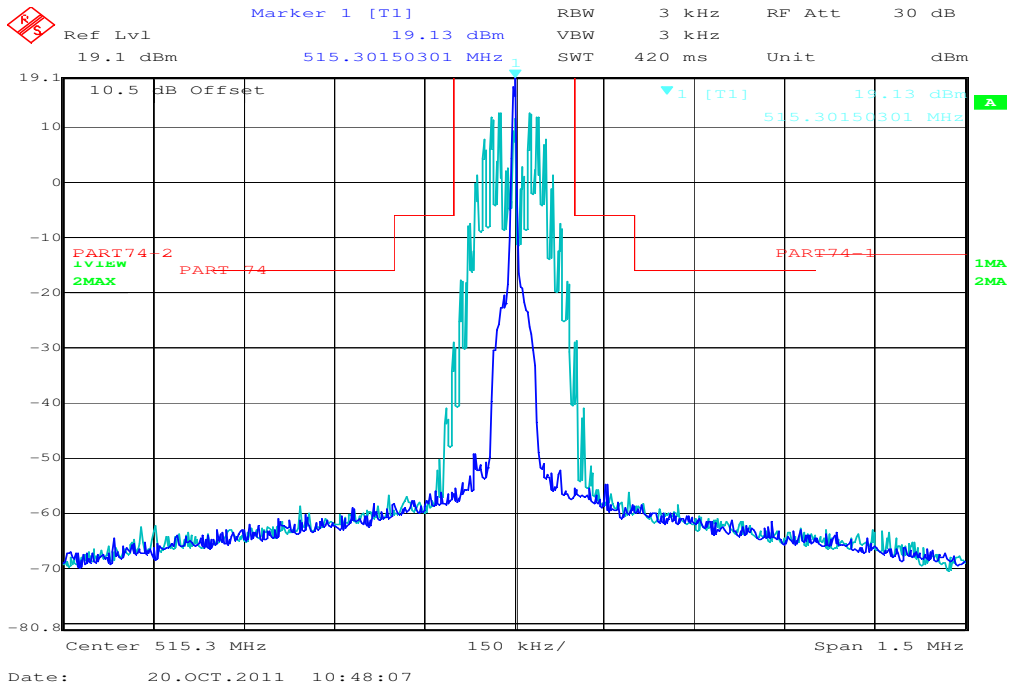
Result: **The result of the measurement is passed.**

Plots of the measurements:

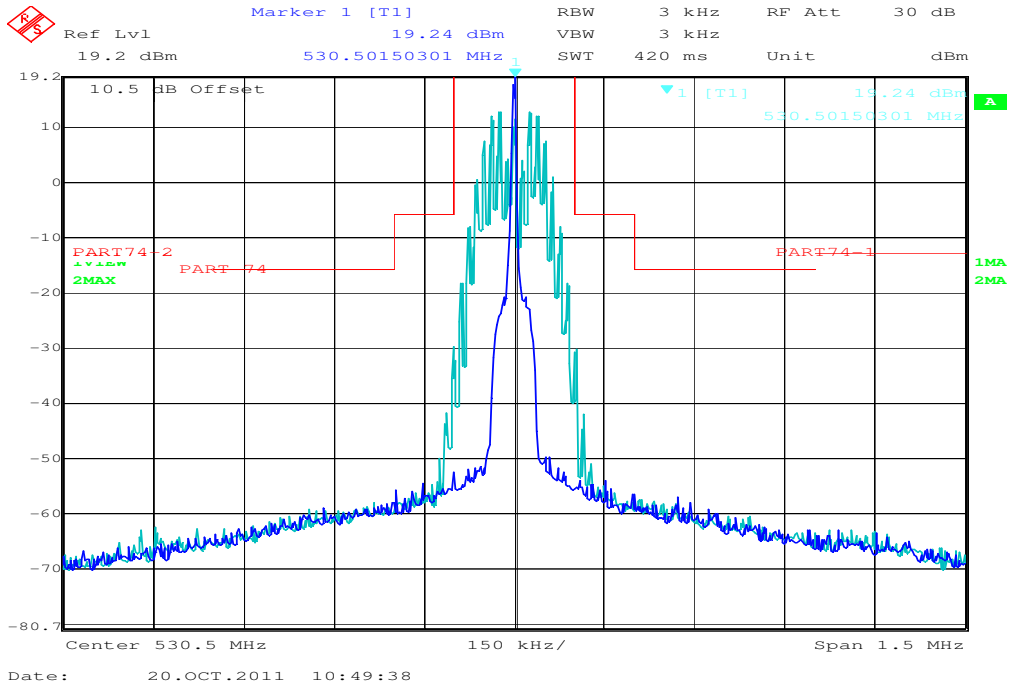
Plot 1: 500.1MHz (Band VII)



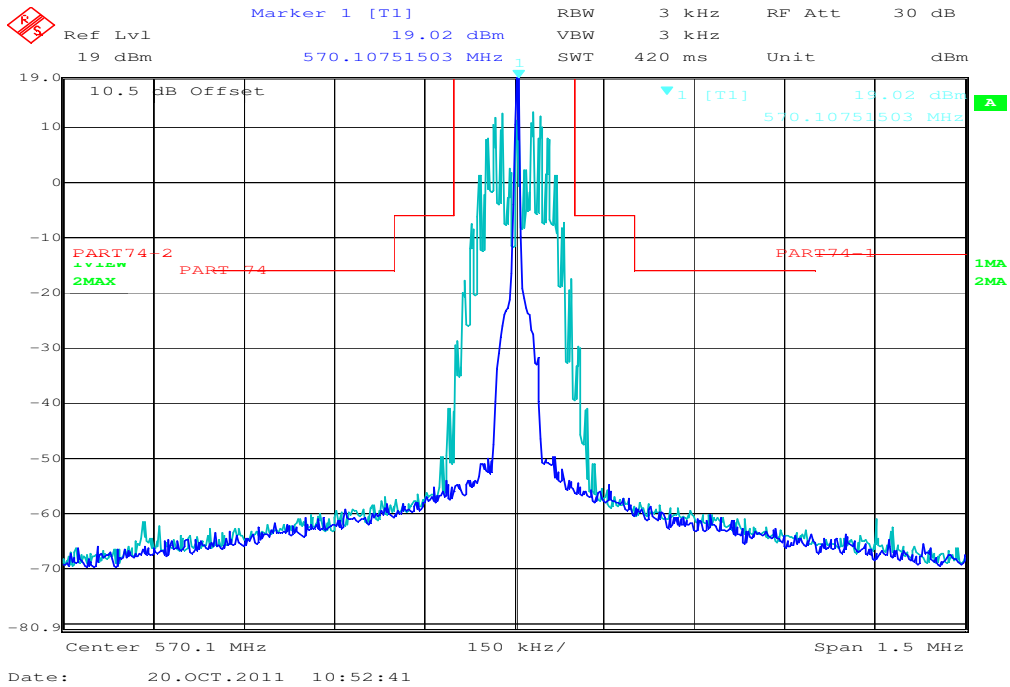
Plot 2: 515.3MHz (Band VII)



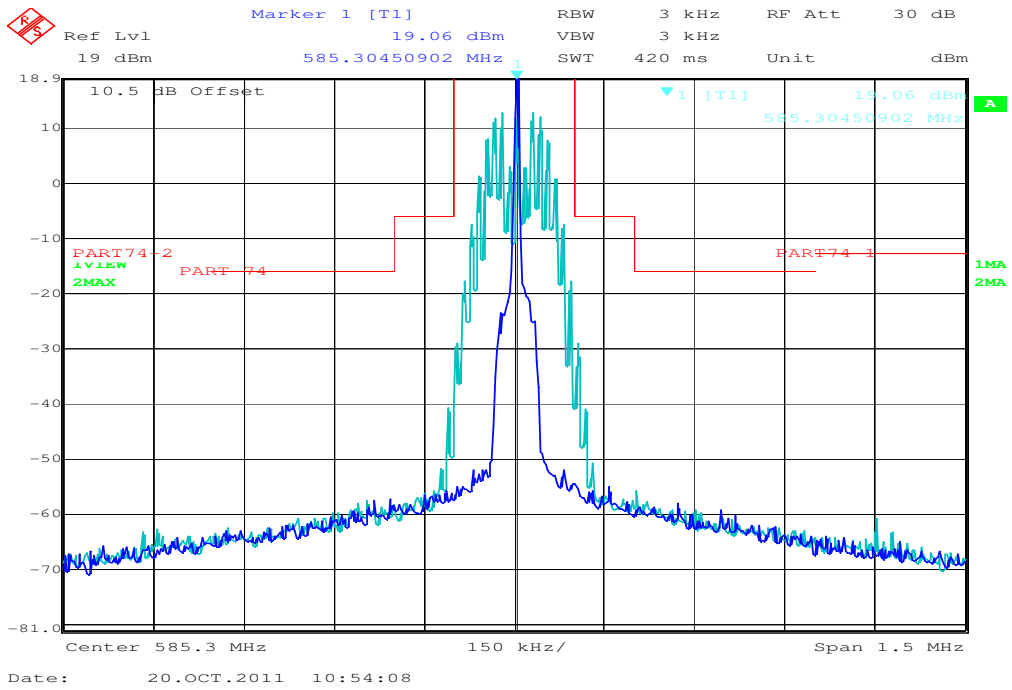
Plot 3: 530.5MHz (Band VII)



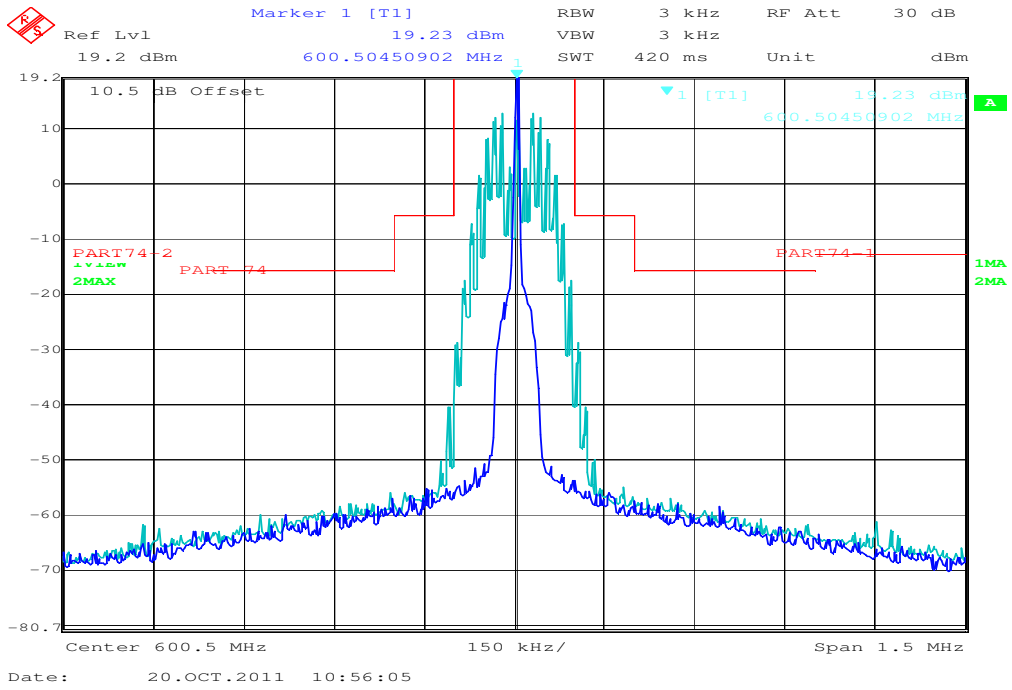
Plot 4: 570.1MHz (Band VIII)



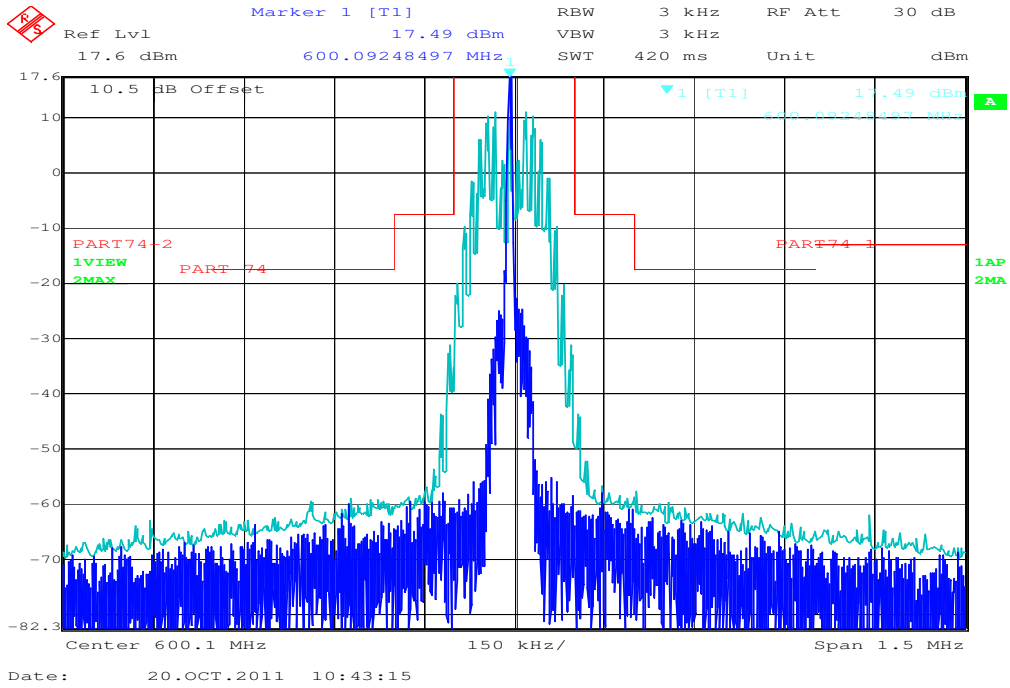
Plot 5: 585.3MHz (Band VIII)



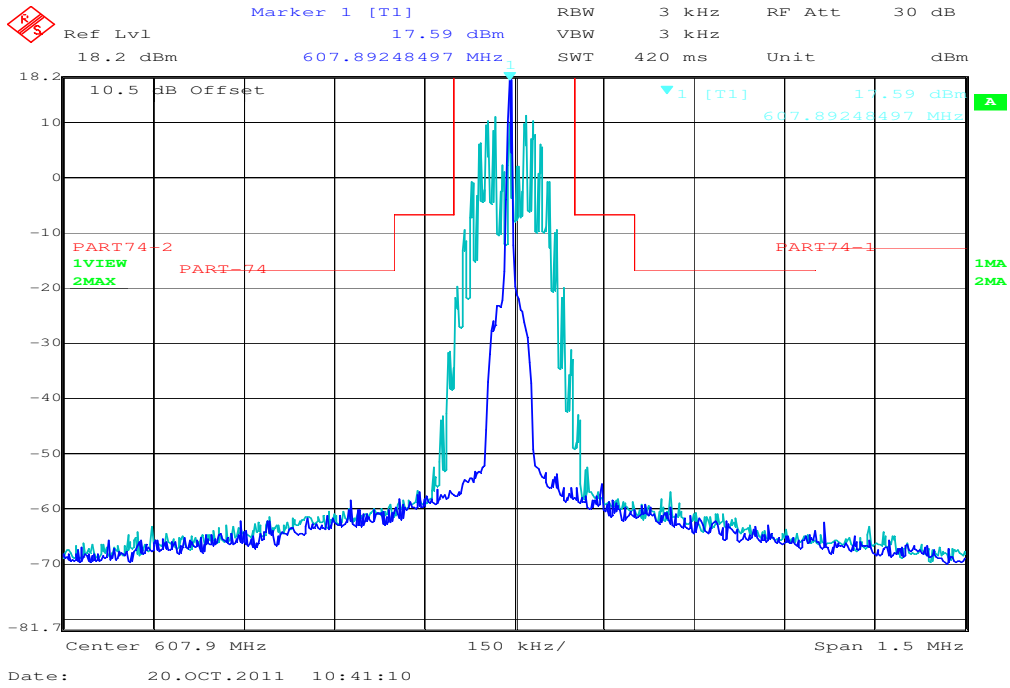
Plot 6: 600.5MHz (Band VIII)



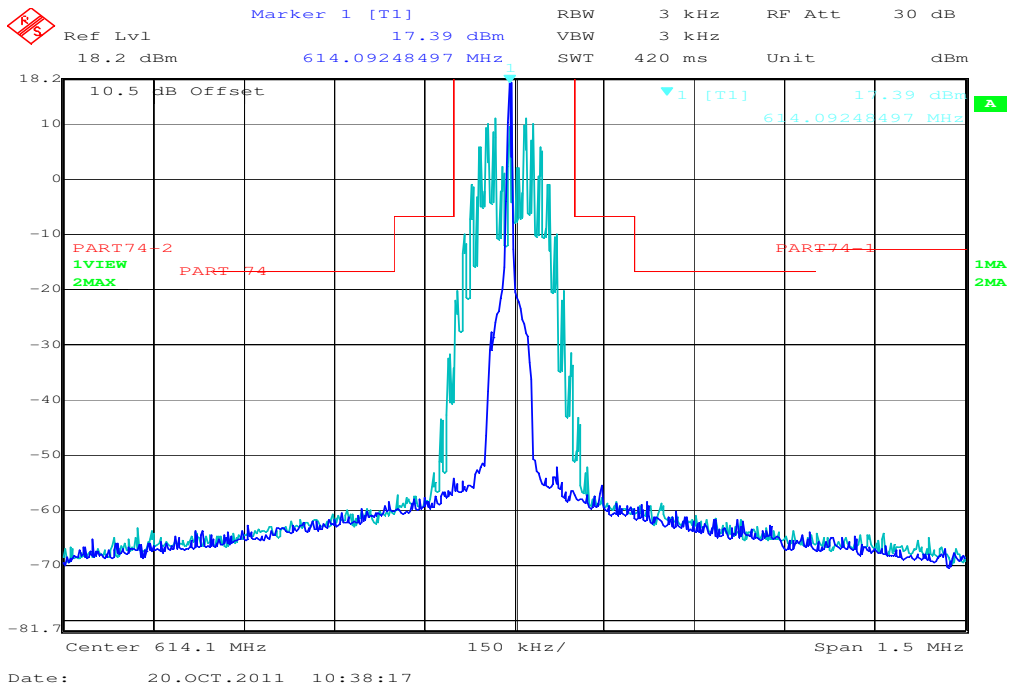
Plot 7: 600.1MHz (Band IX)



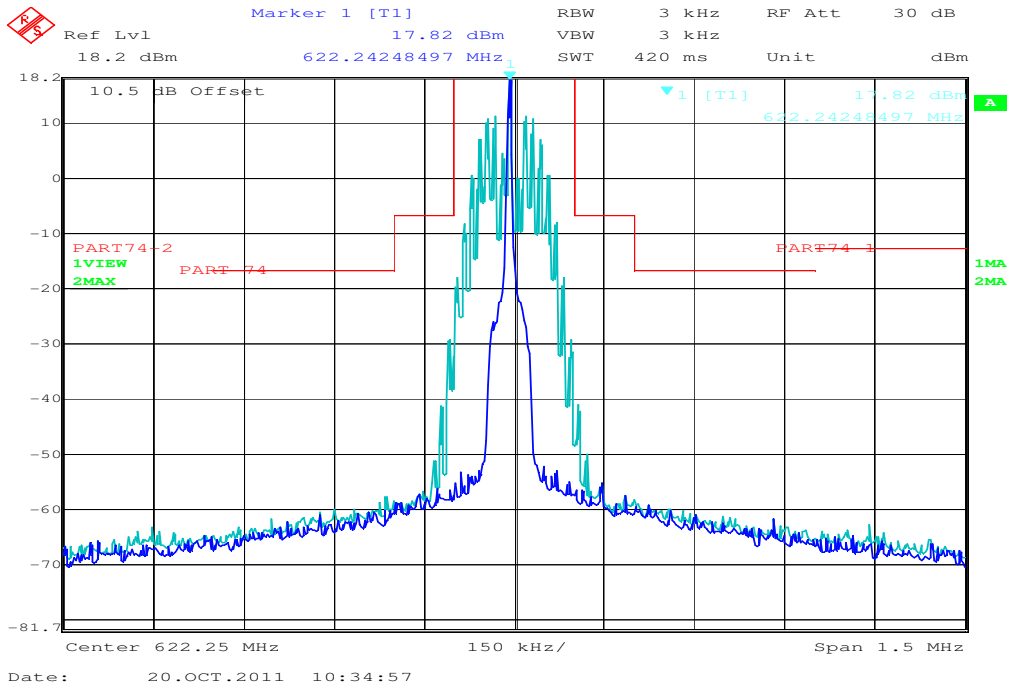
Plot 8: 607.9MHz (Band IX)



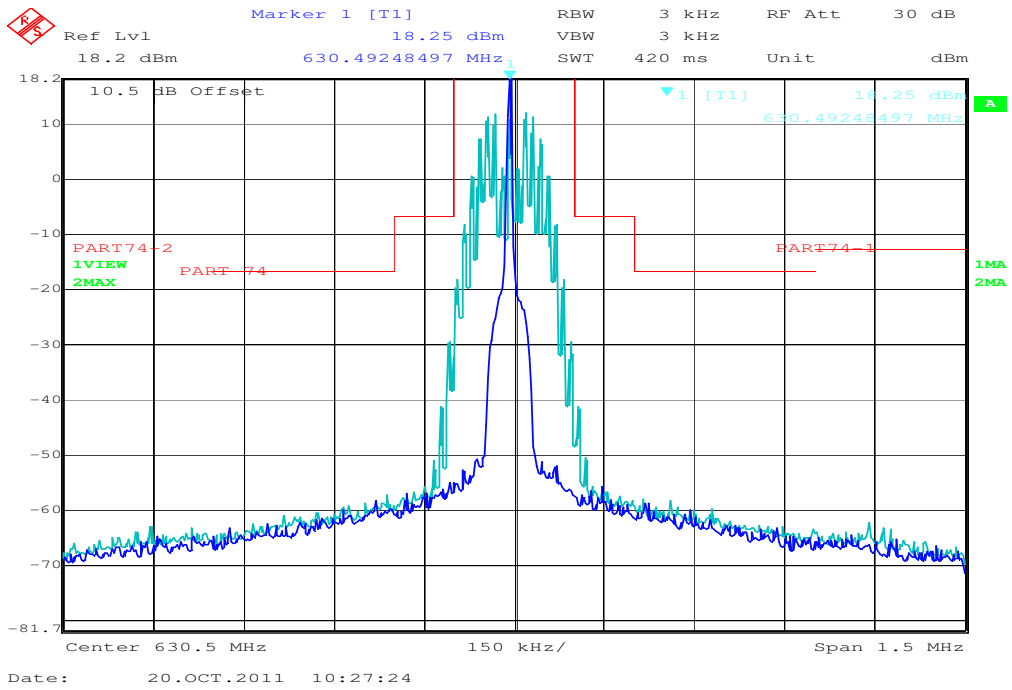
Plot 9: 614.1MHz (Band IX)



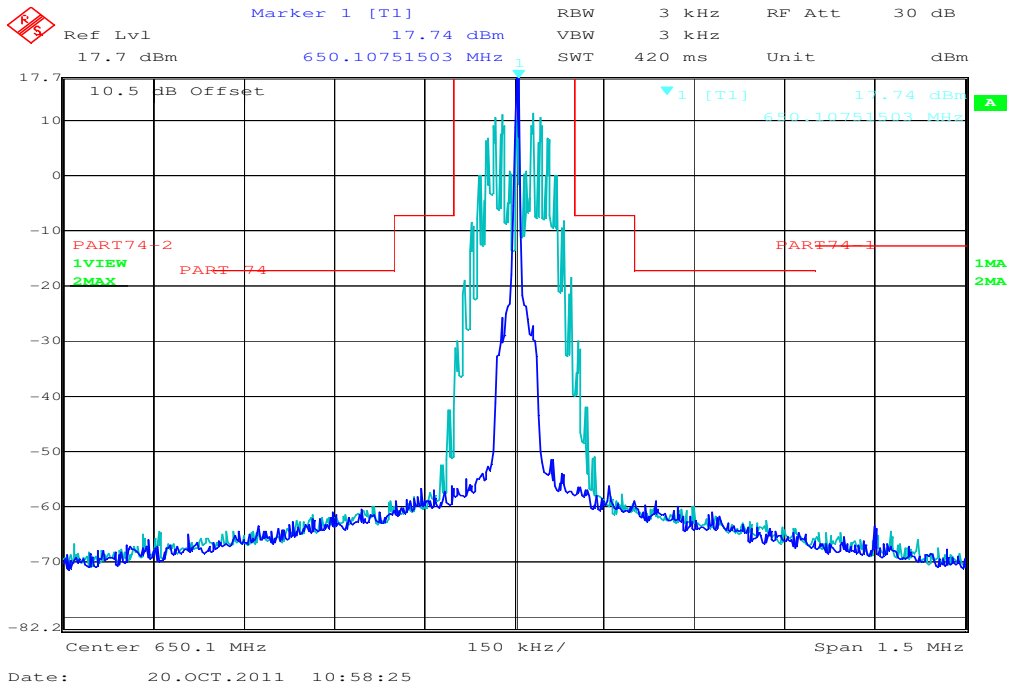
Plot 10: 622.25MHz (Band IX)



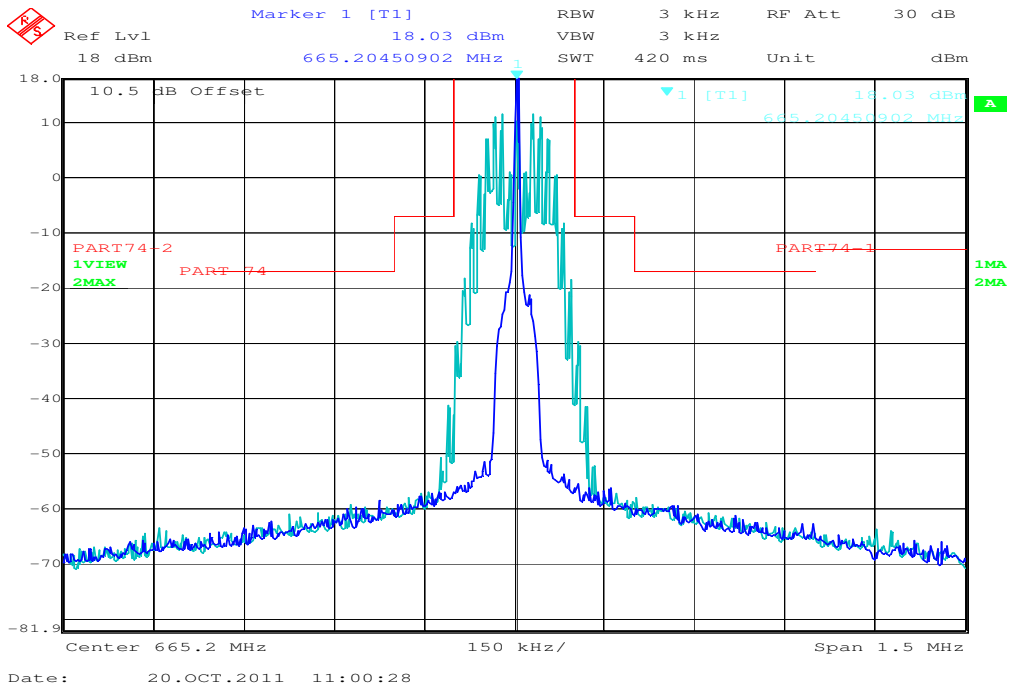
Plot 11: 630.5MHz (Band IX)



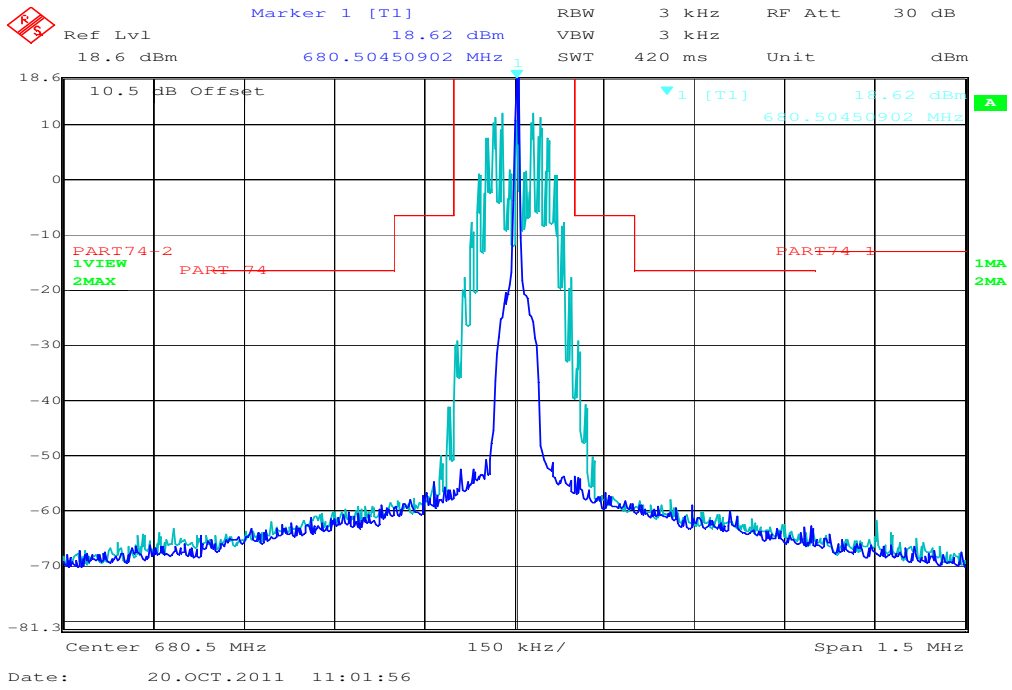
Plot 12: 650.1MHz (Band I)



Plot 13: 665.2MHz (Band I)



Plot 14: 680.5MHz (Band I)



9.6 Field strength of spurious radiation.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	f < 1 GHz : 100 kHz f ≥ 1GHz : 1 MHz
Video bandwidth:	f < 1 GHz : 100 kHz f ≥ 1GHz : 1 MHz
Span:	-/-
Trace-Mode:	Max. hold

Limits:

FCC	IC
FCC 47 CFR § 74.861	RSS-123 Issue 2
Emissions for LPRS transmitters operating on standard band channels (25 kHz) shall be attenuated below the unmodulated carrier in accordance with the following: Emissions 12.5 kHz to 22.5 kHz away from the channel center frequency: at least 30 dB; and emissions more than 22.5 kHz away from the channel center frequency: **FCC:** at least 43 + 10log(carrier power in watts) dB **IC:** at least 55 + 10 log (carrier power in watts) dB.	

Results:

500.1MHz – 530.5MHz (Band VII)

SPURIOUS EMISSIONS LEVEL (dBm)								
500.1MHz			515.3MHz			530.5MHz		
Frequency	Detector	Level	Frequency	Detector	Level	Frequency	Detector	Level
1000	PP	-39.1	1031	PP	-41.1	1061	PP	-40.0
1500	PP	-53.2						
Measurement uncertainty ± 3 dB								

570.1MHz – 600.5MHz (Band VIII)

SPURIOUS EMISSIONS LEVEL (dBm)								
570.1MHz			585.3MHz			600.5MHz		
Frequency	Detector	Level	Frequency	Detector	Level	Frequency	Detector	Level
1140	PP	-41.0	1171	PP	-40.8	1201	PP	-39.1
Measurement uncertainty ± 3 dB								

600.1MHz – 607.9MHz and
614.1MHz – 630.5MHz (Band IX)

SPURIOUS EMISSIONS LEVEL (dBm)								
600.1MHz			615.3MHz			630.5MHz		
Frequency	Detector	Level	Frequency	Detector	Level	Frequency	Detector	Level
1200	PP	-40.2	1231	PP	-42.6	1261	PP	-40.4
1800	PP	-43.5	2461	PP	-41.9	1891	PP	-38.2
2400	PP	-45.3	4307	PP	-42.5	2522	PP	40.4
Measurement uncertainty ± 3 dB								

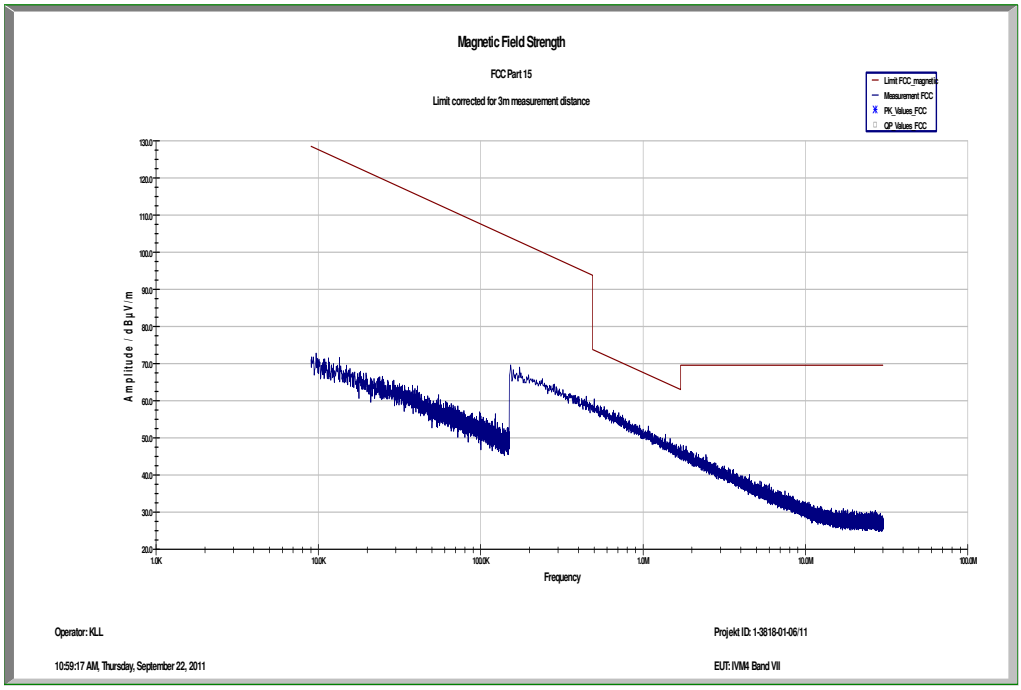
650.1MHz – 680.5MHz (Band I)

SPURIOUS EMISSIONS LEVEL (dBm)								
650.1MHz			665.2MHz			680.5MHz		
Frequency	Detector	Level	Frequency	Detector	Level	Frequency	Detector	Level
1300	PP	-42.0	1330	PP	-42.2	1361	PP	-39.2
2600	PP	-29.0	2661	PP	-37.4	2724	PP	-45.8
3901	PP	-40.4	3991	PP	-34.2	4083	PP	-47.7
Measurement uncertainty ± 3 dB								

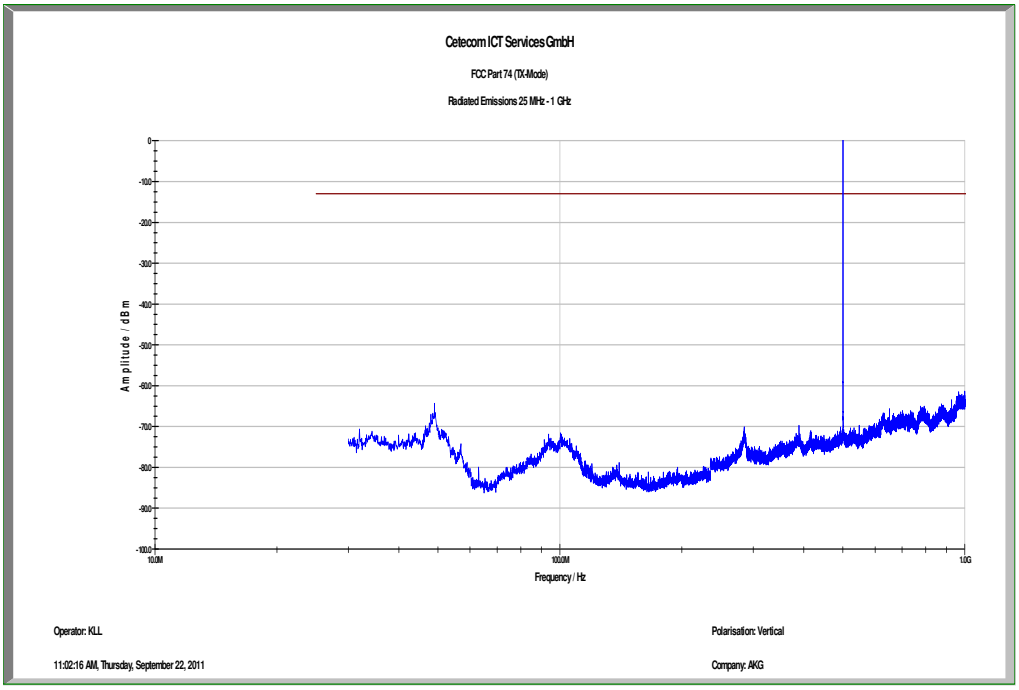
Result: **The result of the measurement is passed.**

Plots of the measurements:

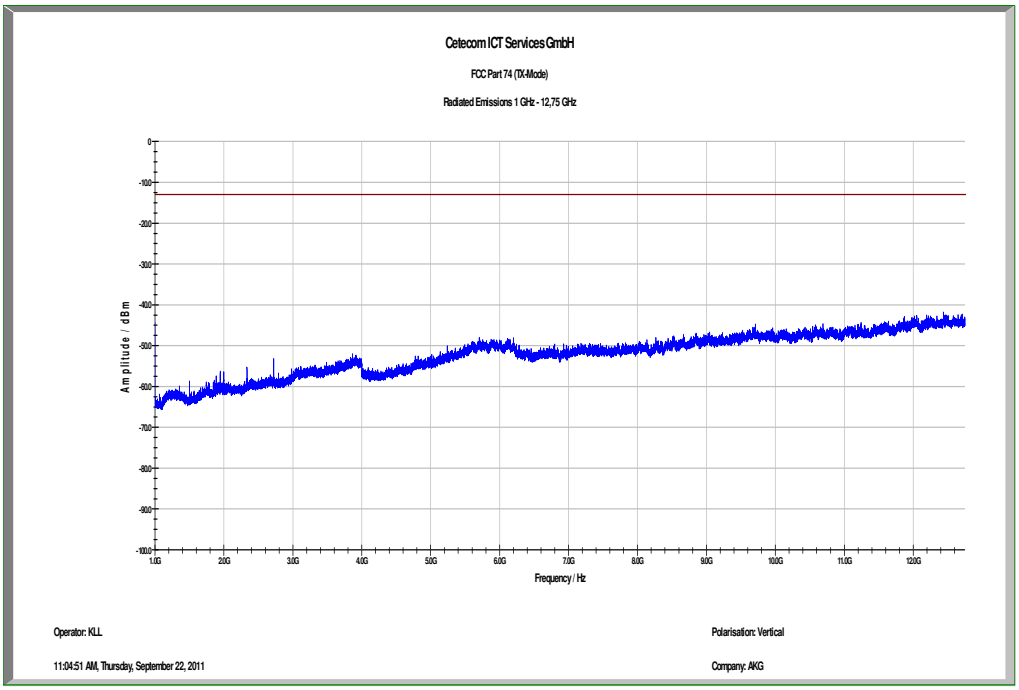
Plot 1: 500.1MHz – 530.5MHz (Band VII), <30 MHz, lowest frequency



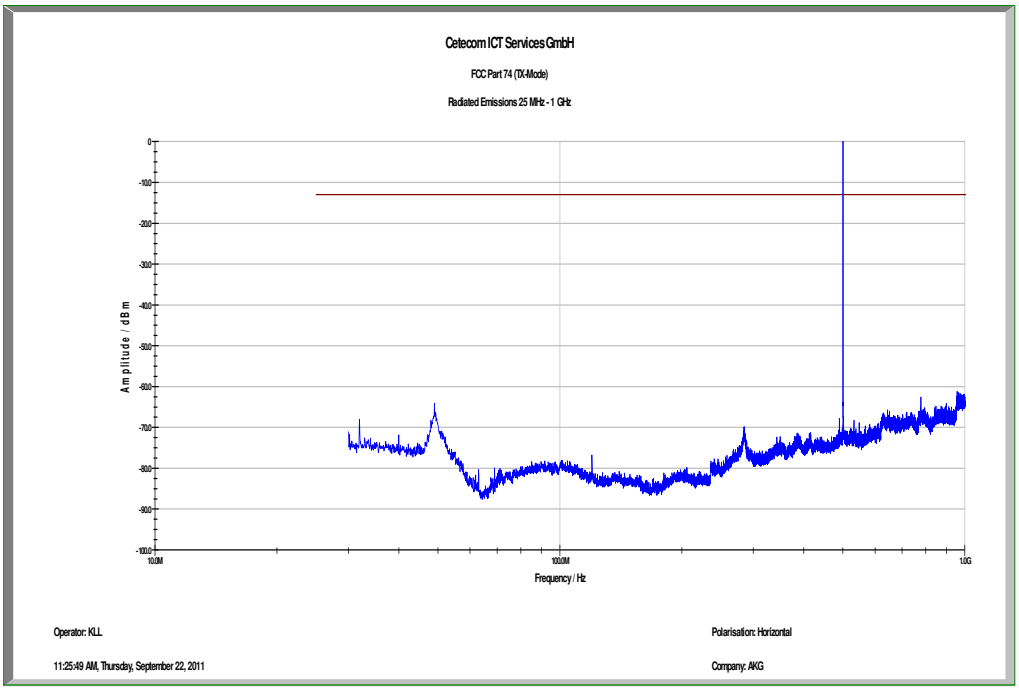
Plot 2: 500.1MHz – 530.5MHz (Band VII), 30 MHz to 1 GHz, lowest frequency, vertical polarization



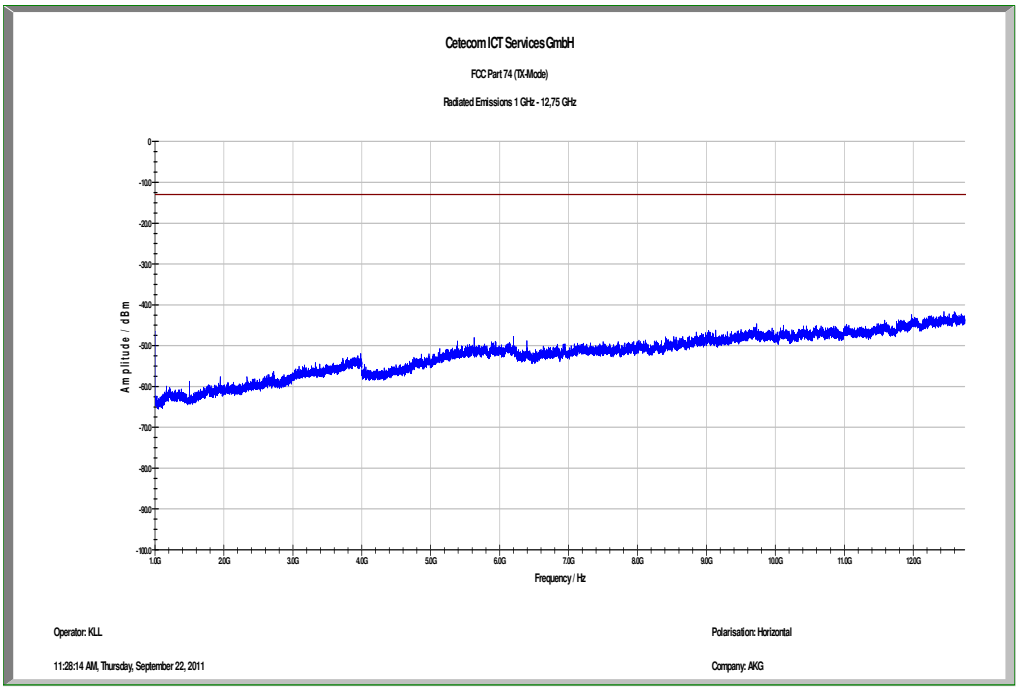
Plot 3: 500.1MHz – 530.5MHz (Band VII), 1 GHz to 12.75 GHz, lowest frequency, vertical polarization



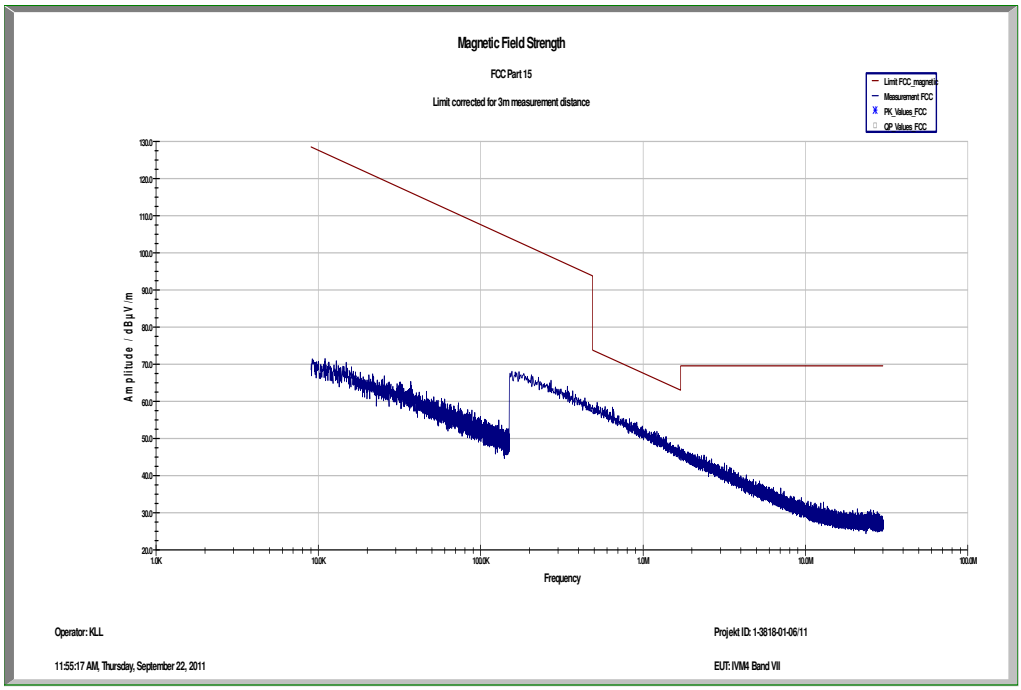
Plot 4: 500.1MHz – 530.5MHz (Band VII), 30 MHz to 1 GHz, lowest frequency, horizontal polarization



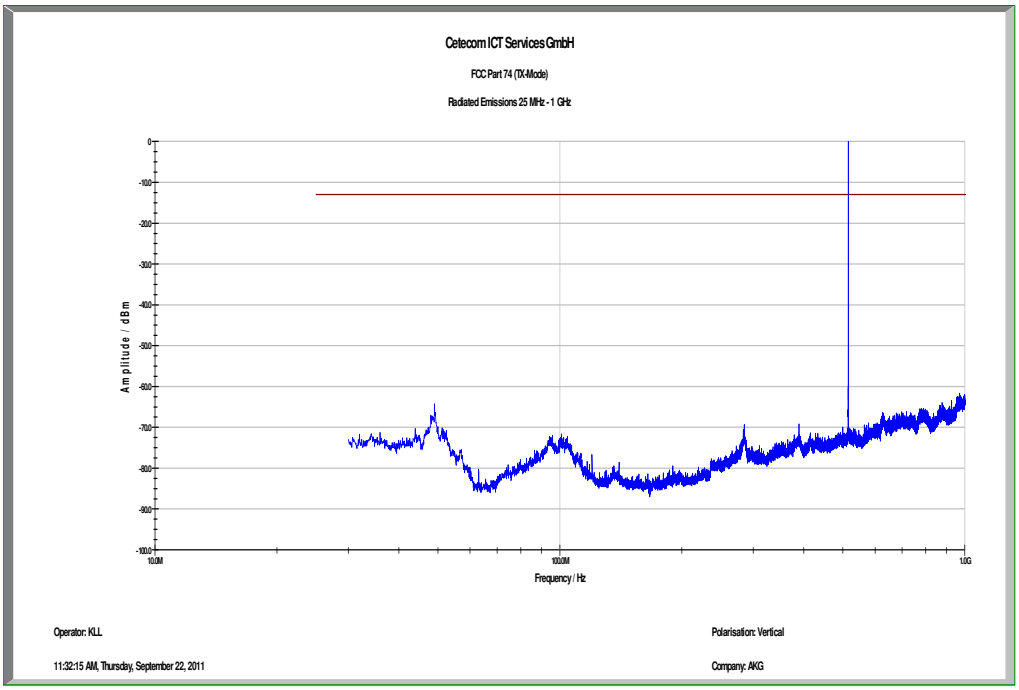
Plot 5: 500.1MHz – 530.5MHz (Band VII), 1 GHz to 12.75 GHz, lowest frequency, horizontal polarization



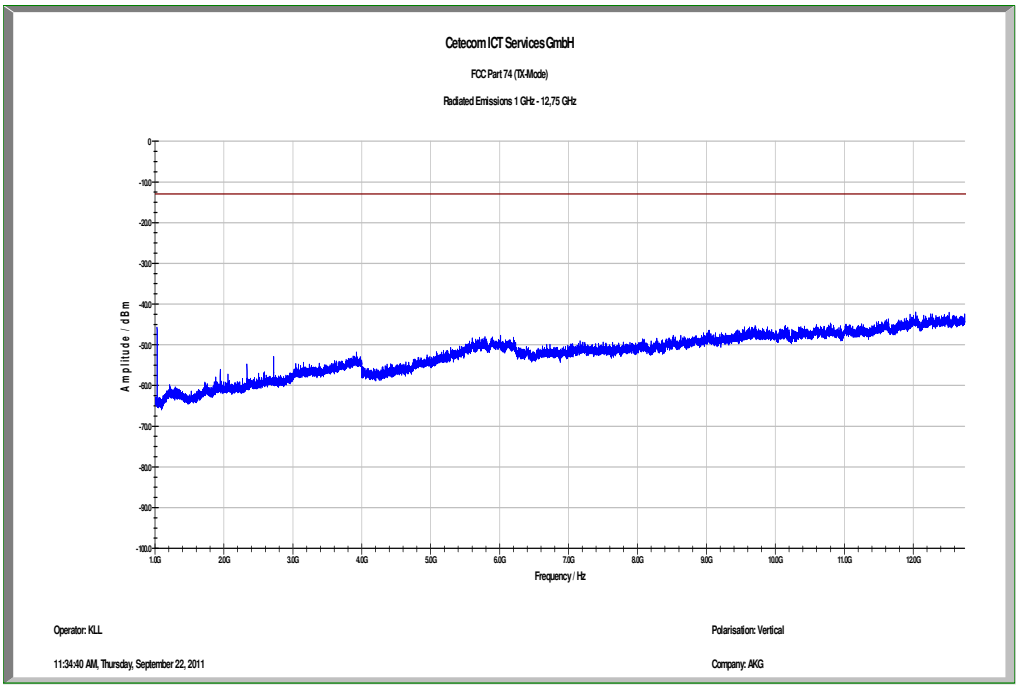
Plot 6: 500.1MHz – 530.5MHz (Band VII), <30 MHz, middle frequency



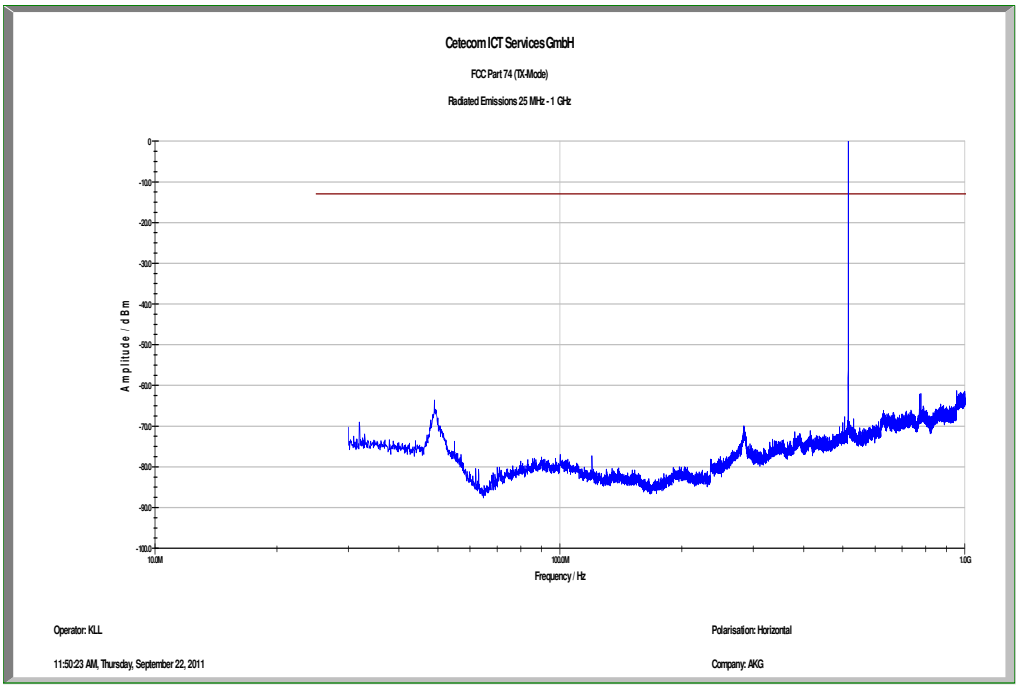
Plot 7: 500.1MHz – 530.5MHz (Band VII), 30 MHz to 1 GHz, middle frequency, vertical polarization



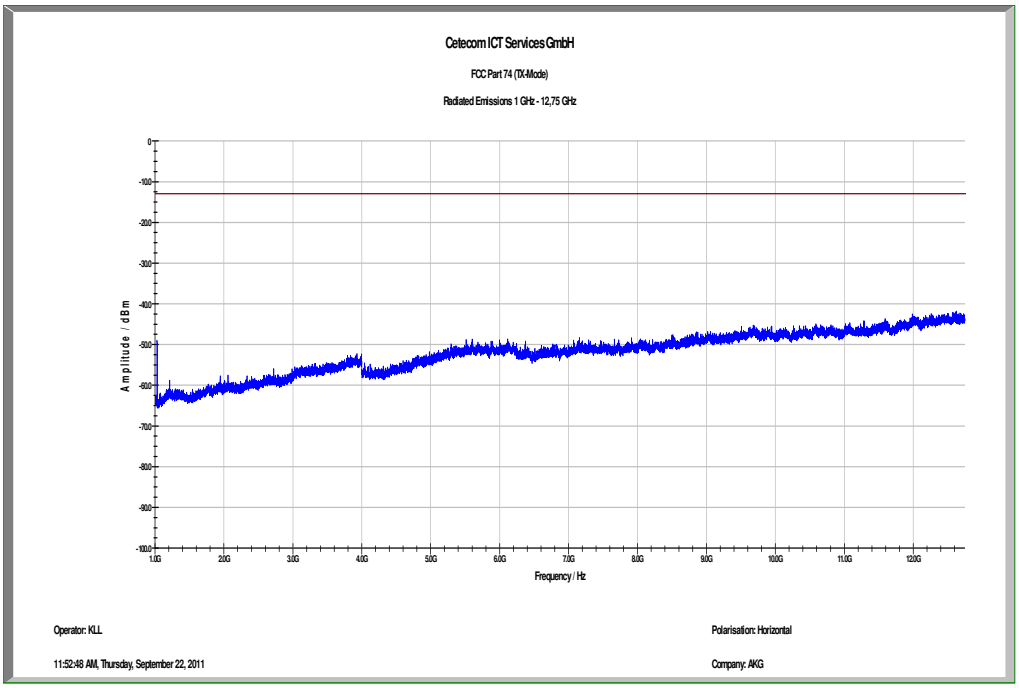
Plot 8: 500.1MHz – 530.5MHz (Band VII), 1 GHz to 12.75 GHz, middle frequency, vertical polarization



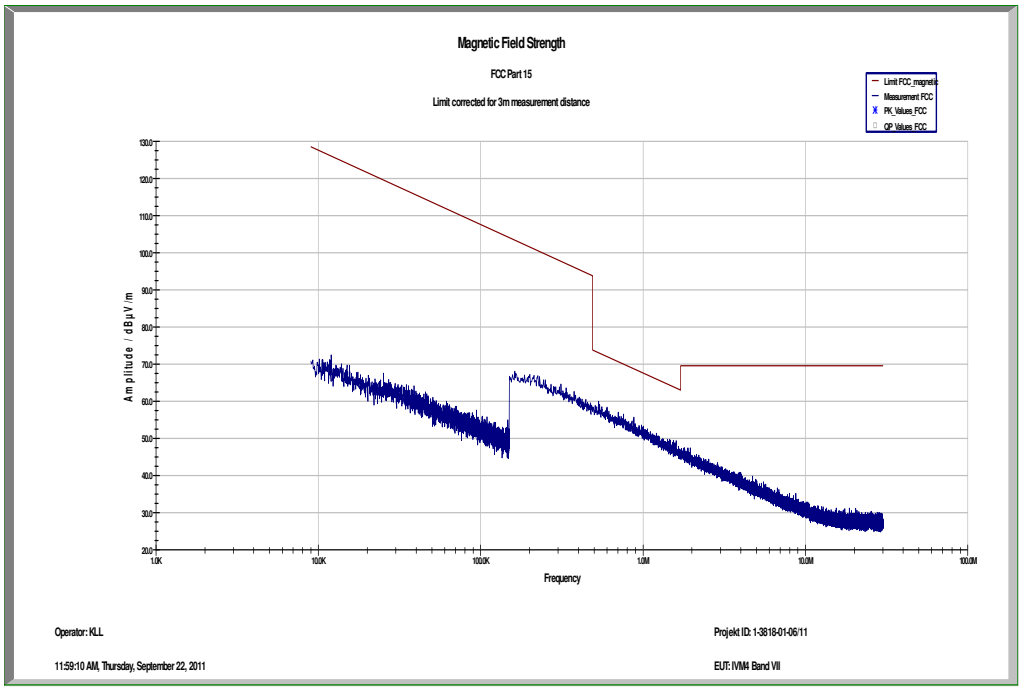
Plot 9: 500.1MHz – 530.5MHz (Band VII), 30 MHz to 1 GHz, middle frequency, horizontal polarization



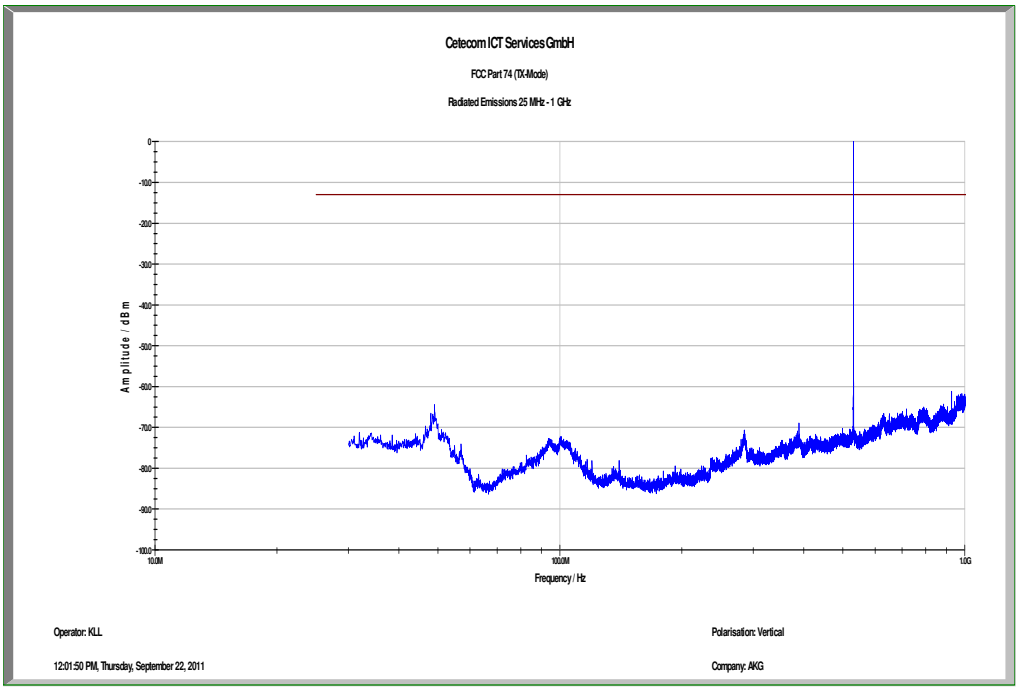
Plot 10: 500.1MHz – 530.5MHz (Band VII), 1 GHz to 12.75 GHz, middle frequency, horizontal polarization



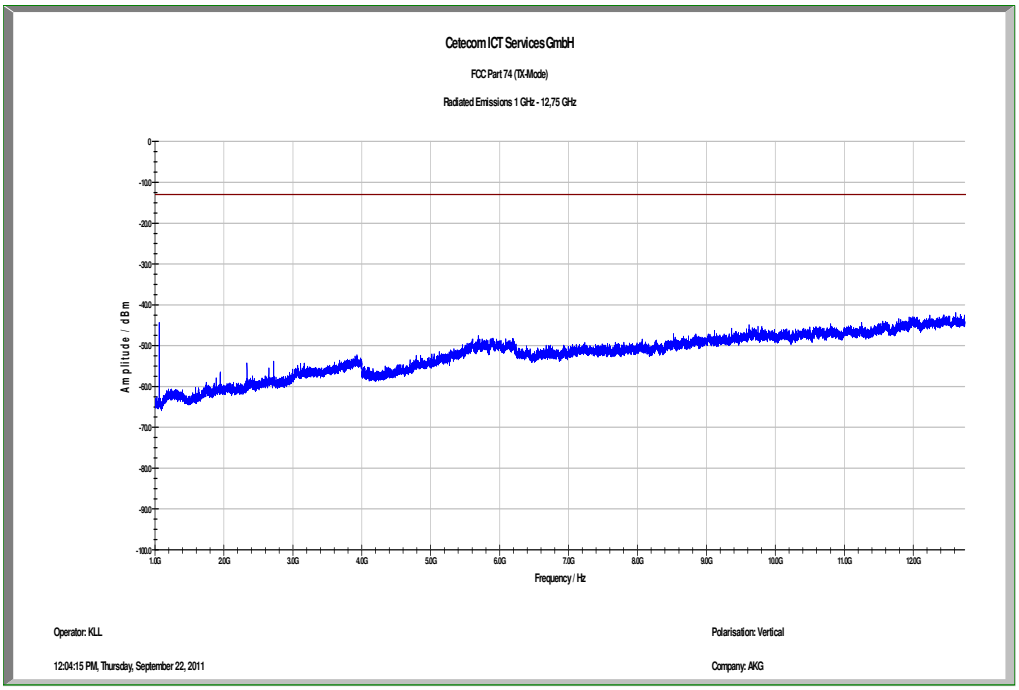
Plot 11: 500.1MHz – 530.5MHz (Band VII), <30 MHz, highest frequency



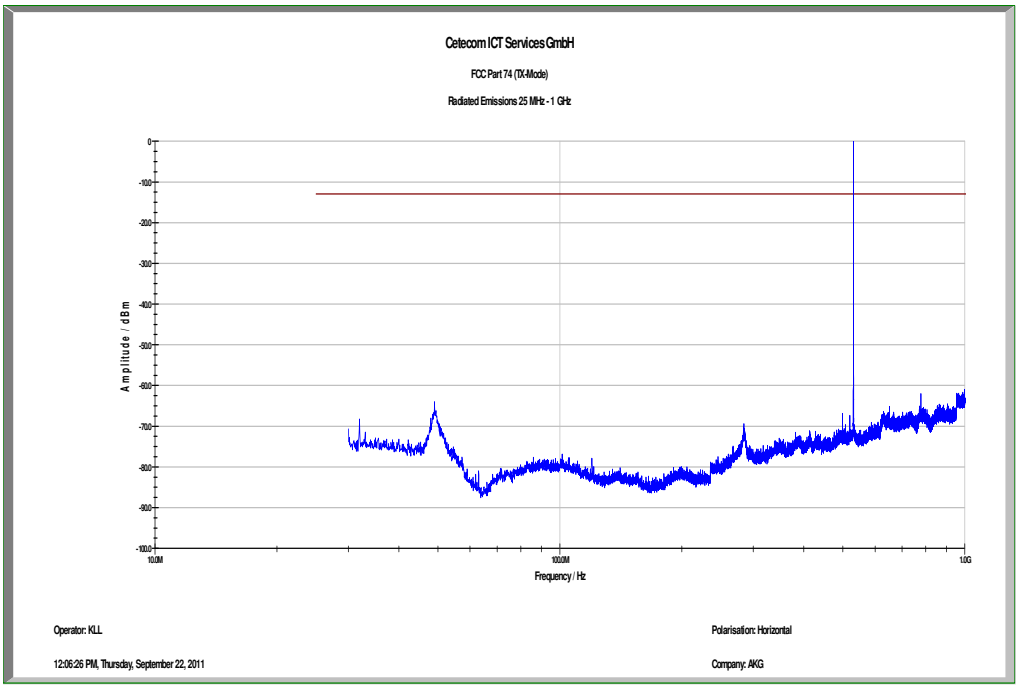
Plot 12: 500.1MHz – 530.5MHz (Band VII), 30 MHz to 1 GHz, highest frequency, vertical polarization



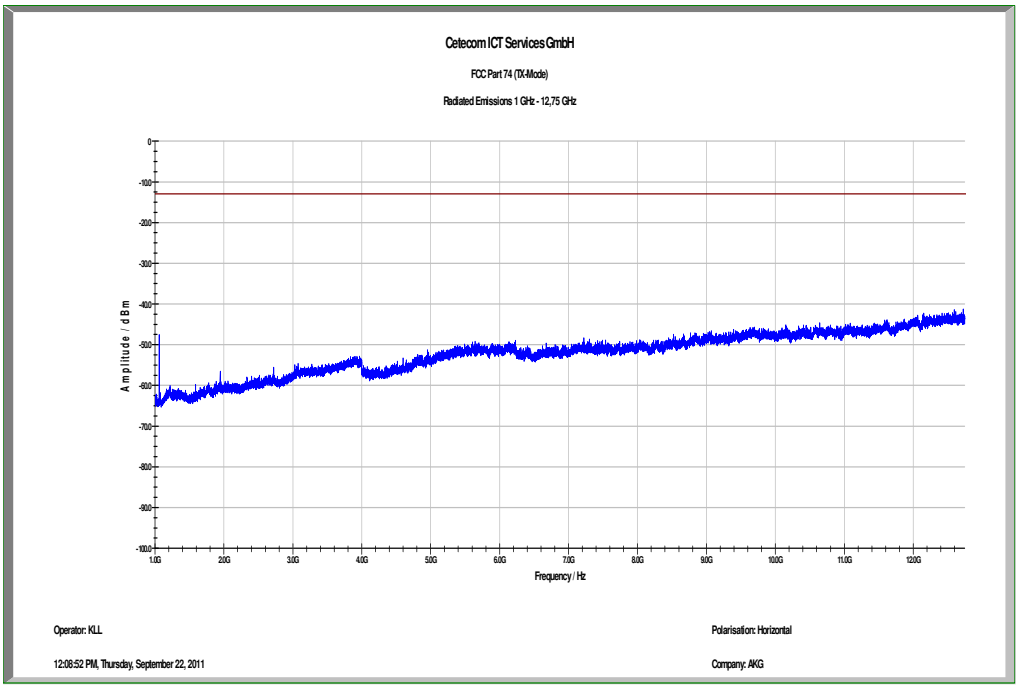
Plot 13: 500.1MHz – 530.5MHz (Band VII), 1 GHz to 12.75 GHz, highest frequency, vertical polarization



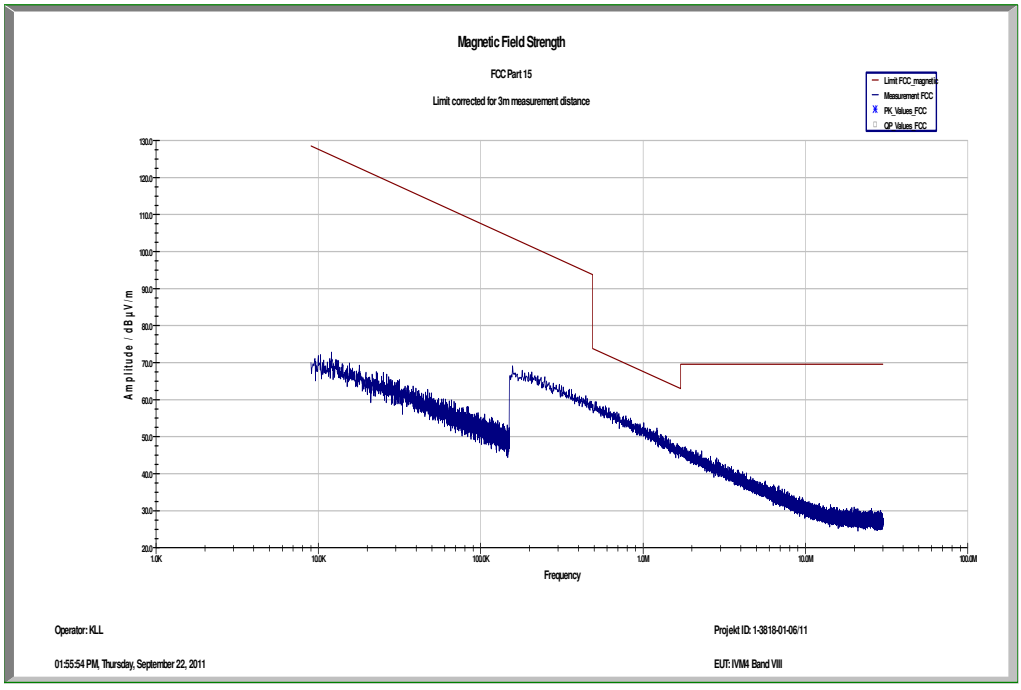
Plot 14: 500.1MHz – 530.5MHz (Band VII), 30 MHz to 1 GHz, highest frequency, horizontal polarization



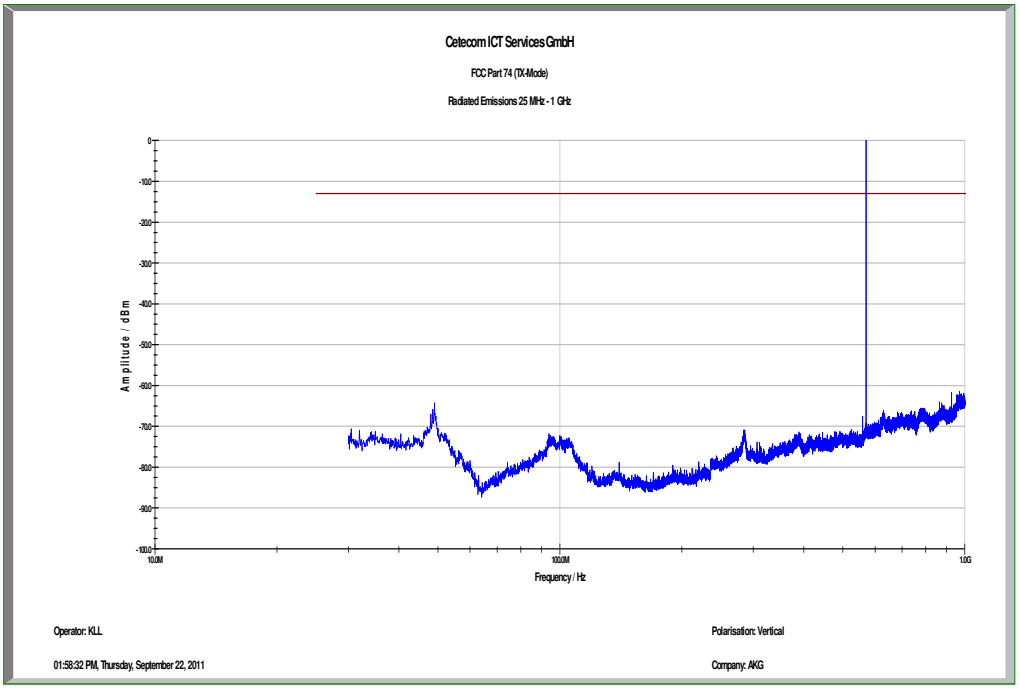
Plot 15: 500.1MHz – 530.5MHz (Band VII), 1 GHz to 12.75 GHz, highest frequency, horizontal polarization



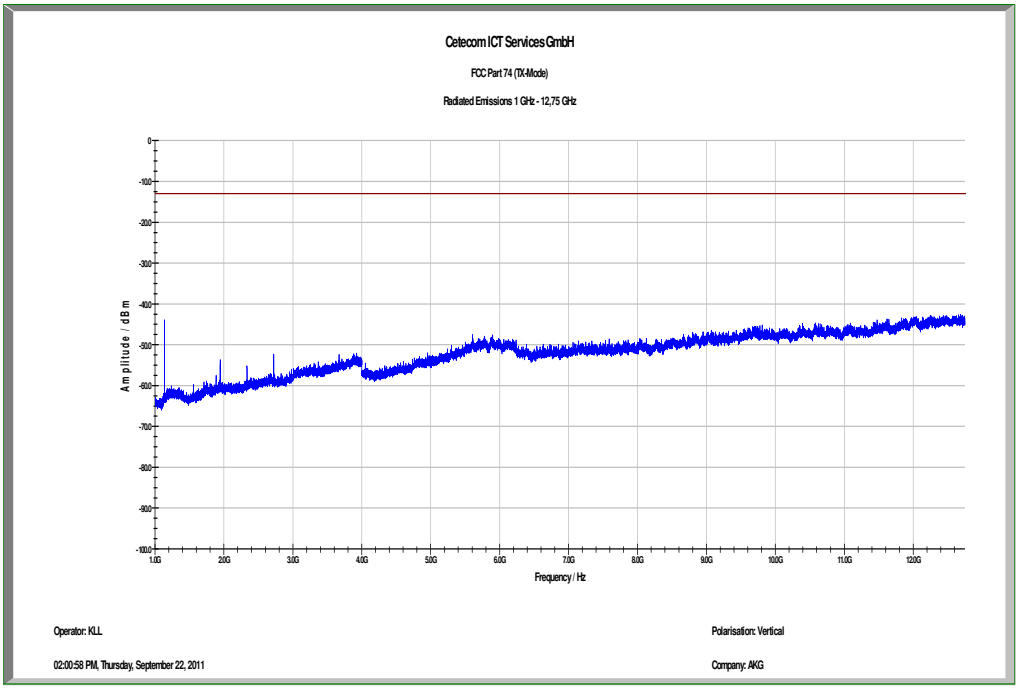
Plot 16: 570.1MHz – 600.5MHz (Band VIII), <30 MHz, lowest frequency



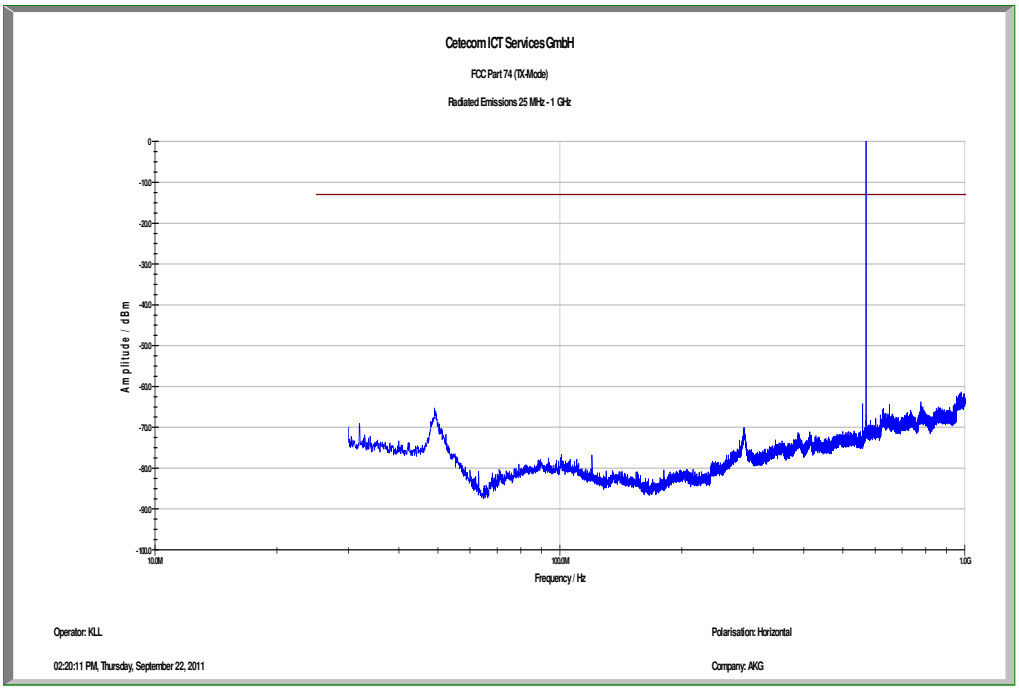
Plot 17: 570.1MHz – 600.5MHz (Band VIII), 30 MHz to 1 GHz, lowest frequency, vertical polarization



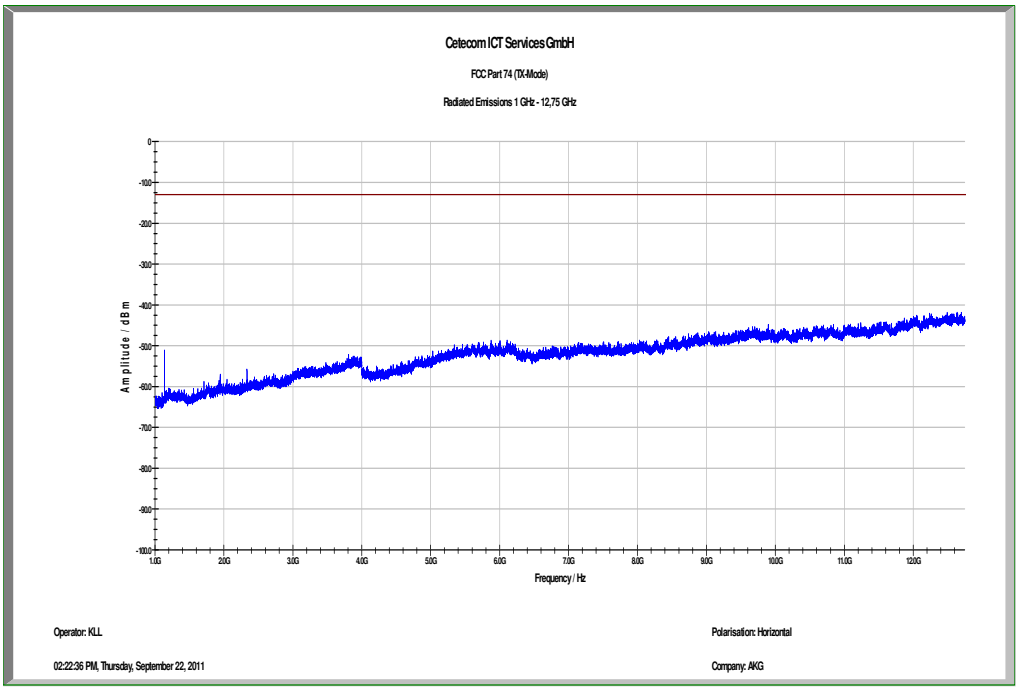
Plot 18: 570.1MHz – 600.5MHz (Band VIII), 1 GHz to 12.75 GHz, lowest frequency, vertical polarization



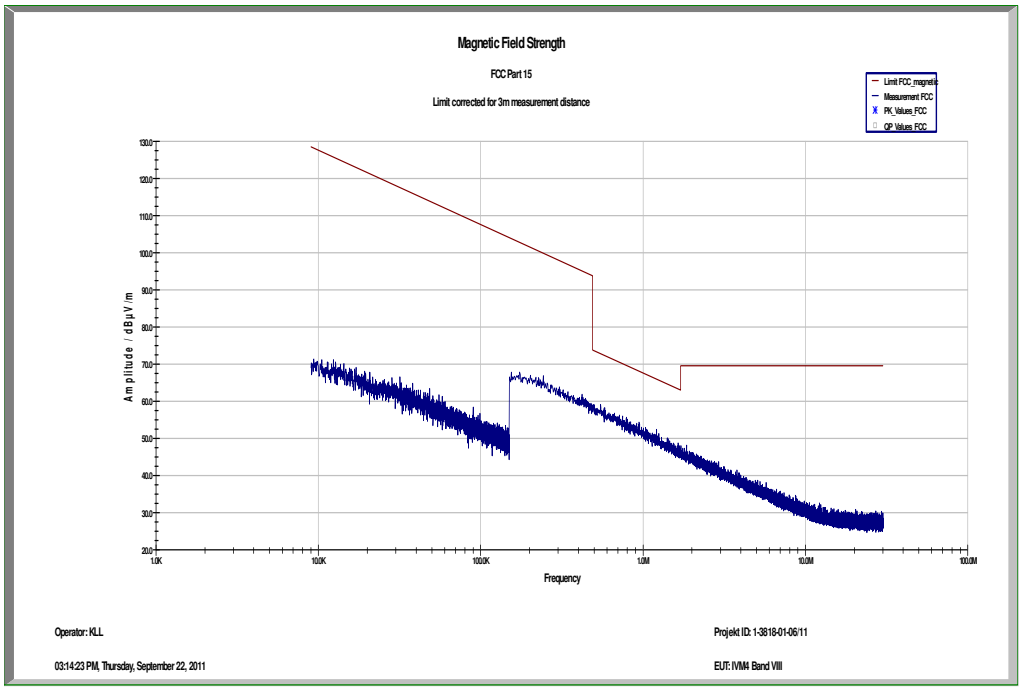
Plot 19: 570.1MHz – 600.5MHz (Band VIII), 30 MHz to 1 GHz, lowest frequency, horizontal polarization



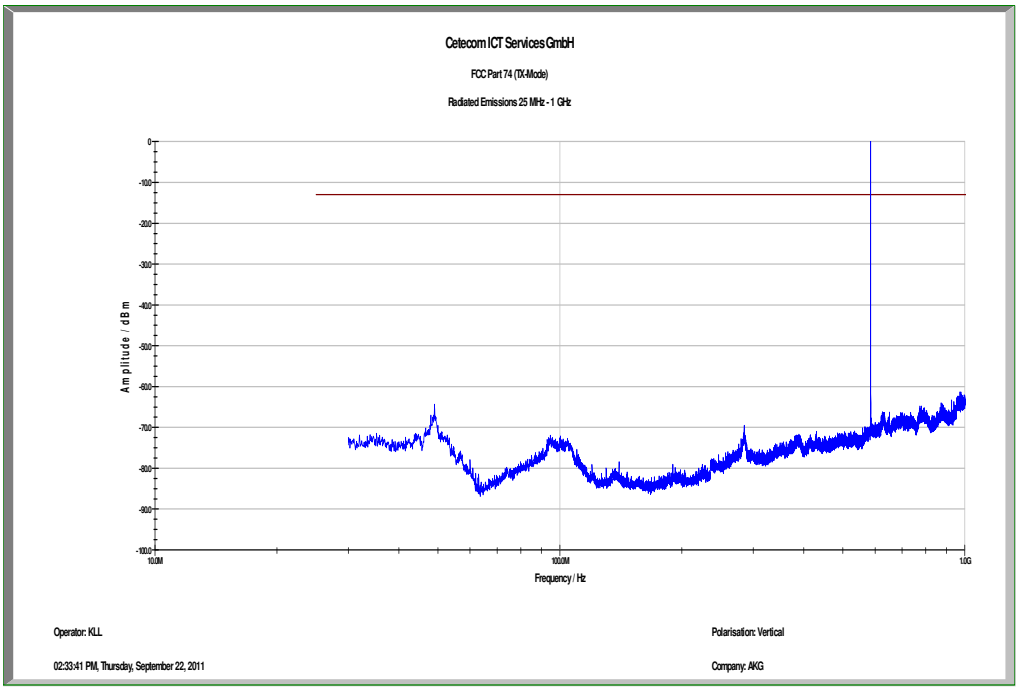
Plot 20: 570.1MHz – 600.5MHz (Band VIII), 1 GHz to 12.75 GHz, lowest frequency, horizontal polarization



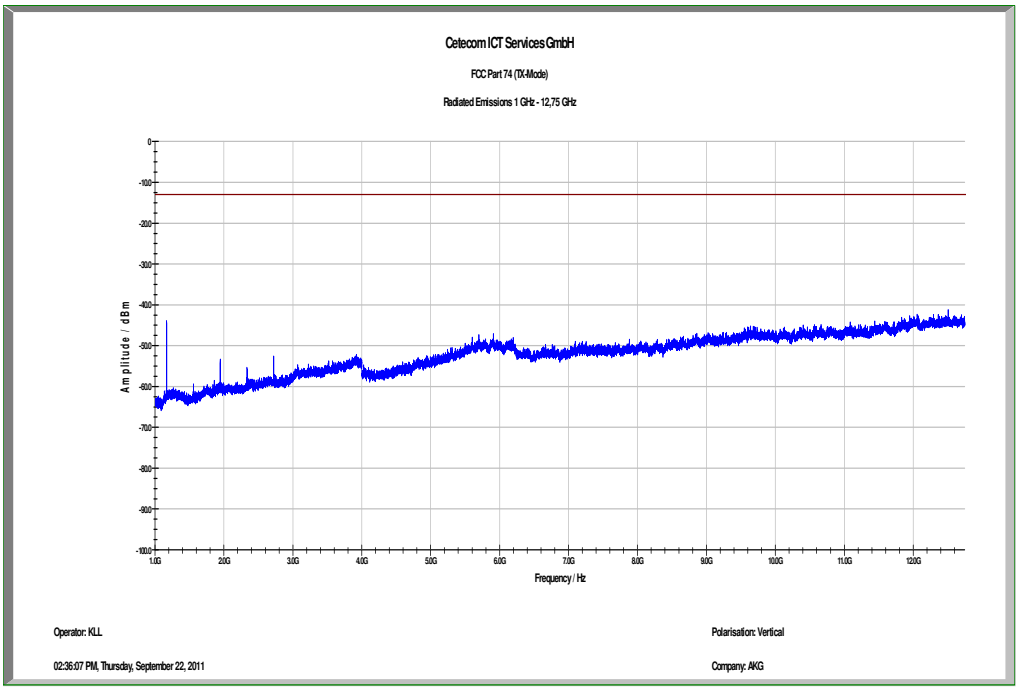
Plot 21: 570.1MHz – 600.5MHz (Band VIII), <30 MHz, middle frequency



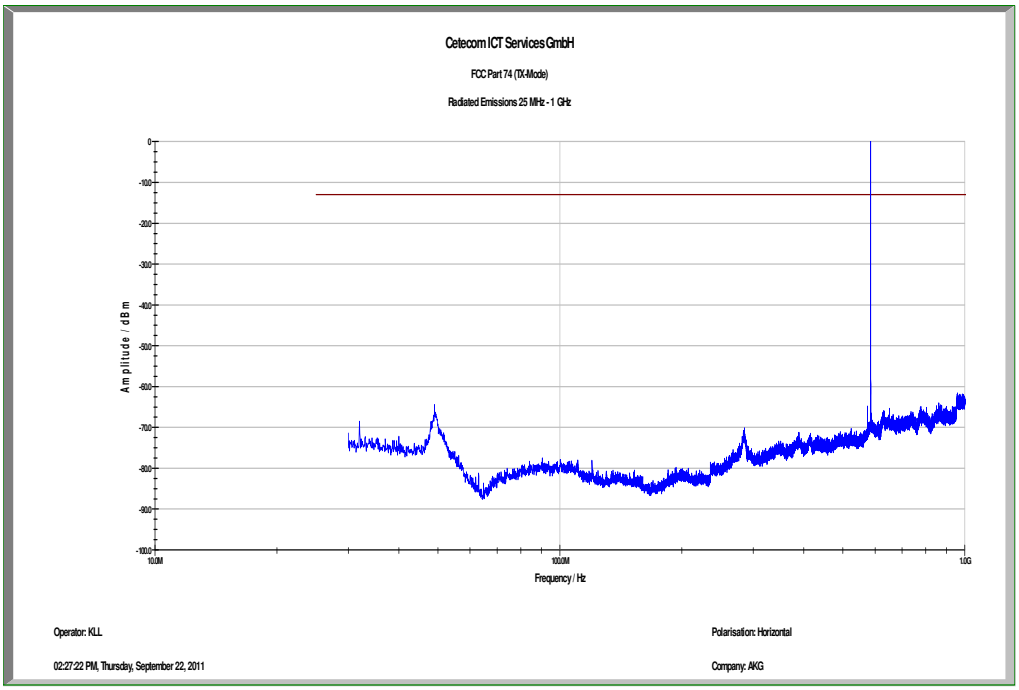
Plot 22: 570.1MHz – 600.5MHz (Band VIII), 30 MHz to 1 GHz, middle frequency, vertical polarization



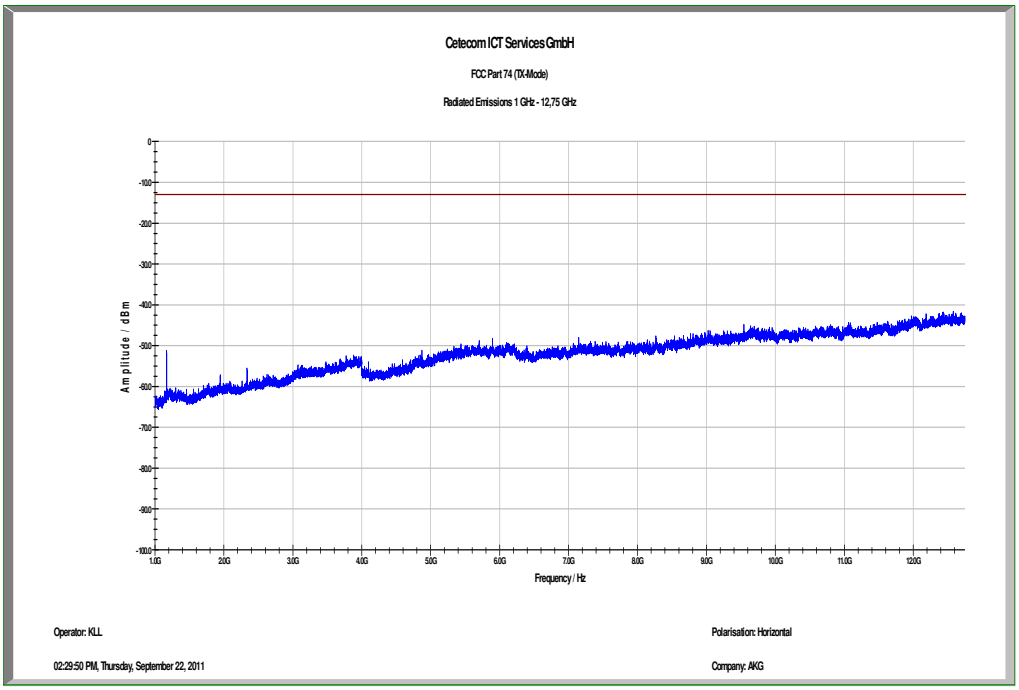
Plot 23: 570.1MHz – 600.5MHz (Band VIII), 1 GHz to 12.75 GHz, middle frequency, vertical polarization



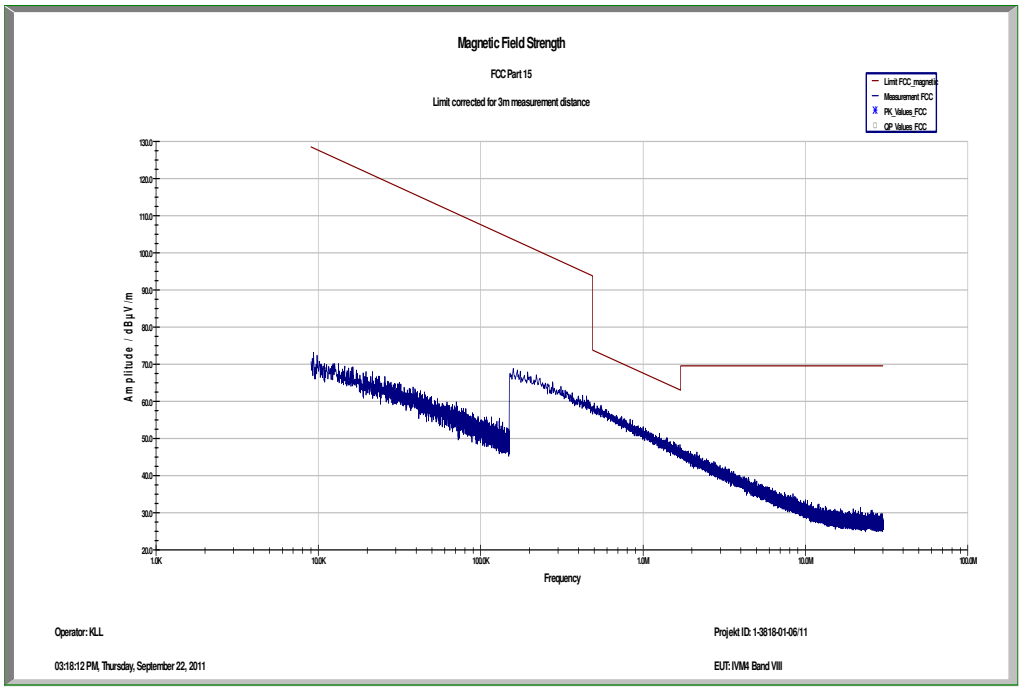
Plot 24: 570.1MHz – 600.5MHz (Band VIII), 30 MHz to 1 GHz, middle frequency, horizontal polarization



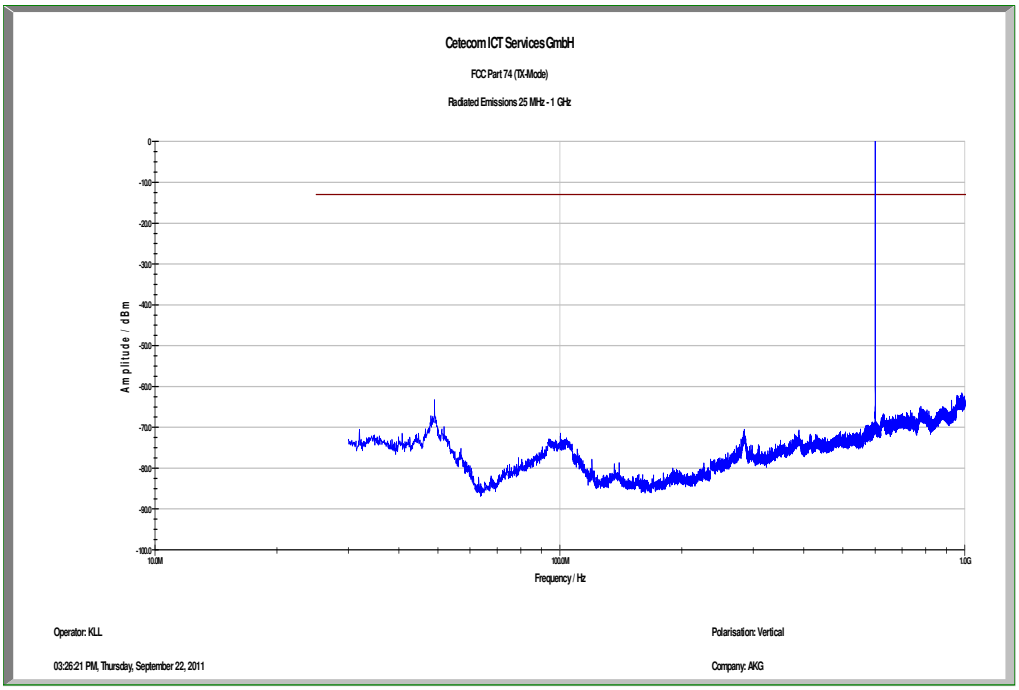
Plot 25: 570.1MHz – 600.5MHz (Band VIII), 1 GHz to 12.75 GHz, middle frequency, horizontal polarization



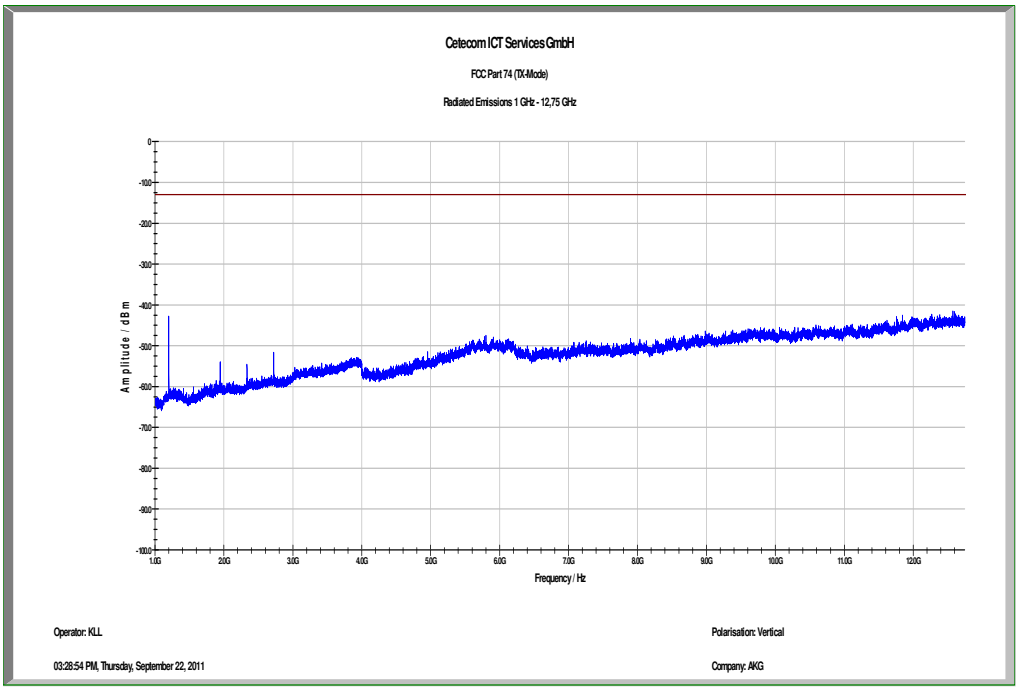
Plot 26: 570.1MHz – 600.5MHz (Band VIII), <30 MHz, highest frequency



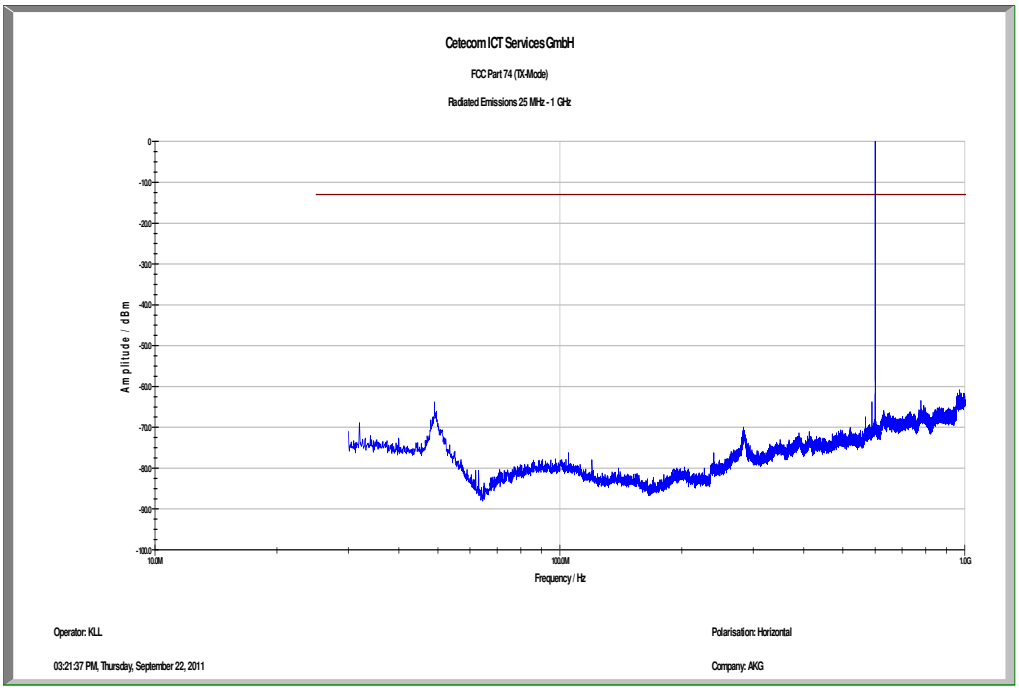
Plot 27: 570.1MHz – 600.5MHz (Band VIII), 30 MHz to 1 GHz, highest frequency, vertical polarization



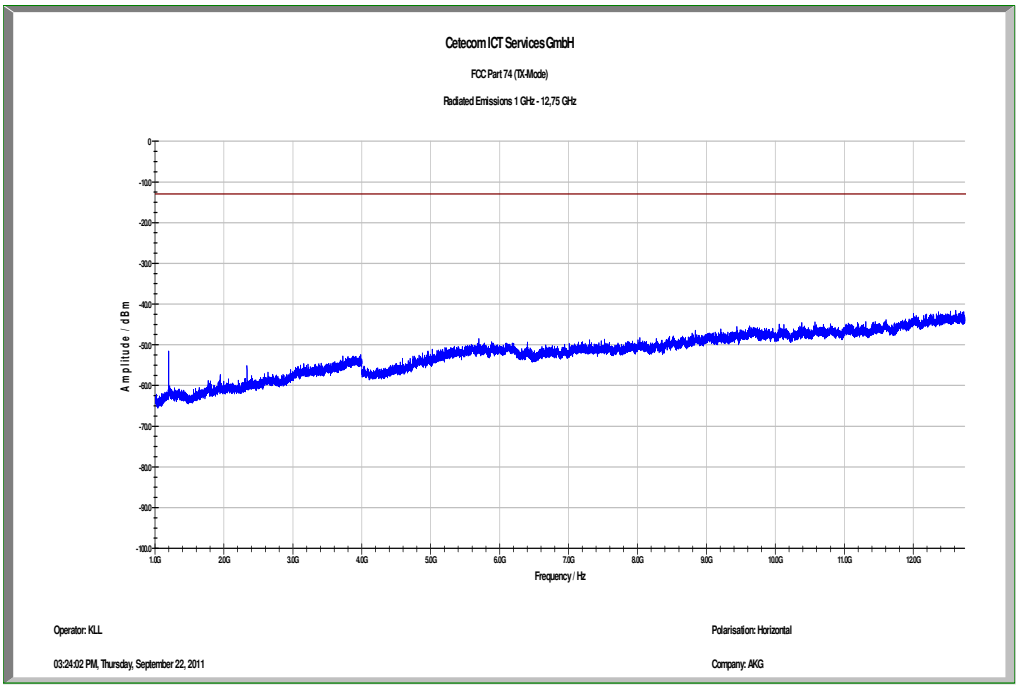
Plot 28: 500.1MHz – 530.5MHz (Band VII), 1 GHz to 12.75 GHz, highest frequency, vertical polarization



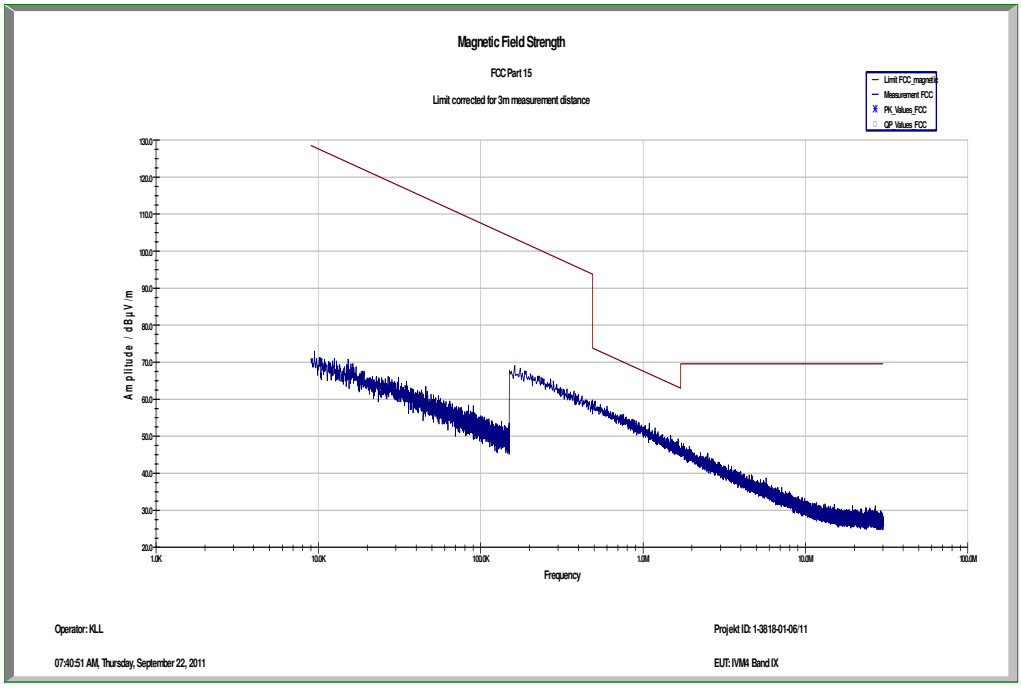
Plot 29: 570.1MHz – 600.5MHz (Band VIII), 30 MHz to 1 GHz, highest frequency, horizontal polarization



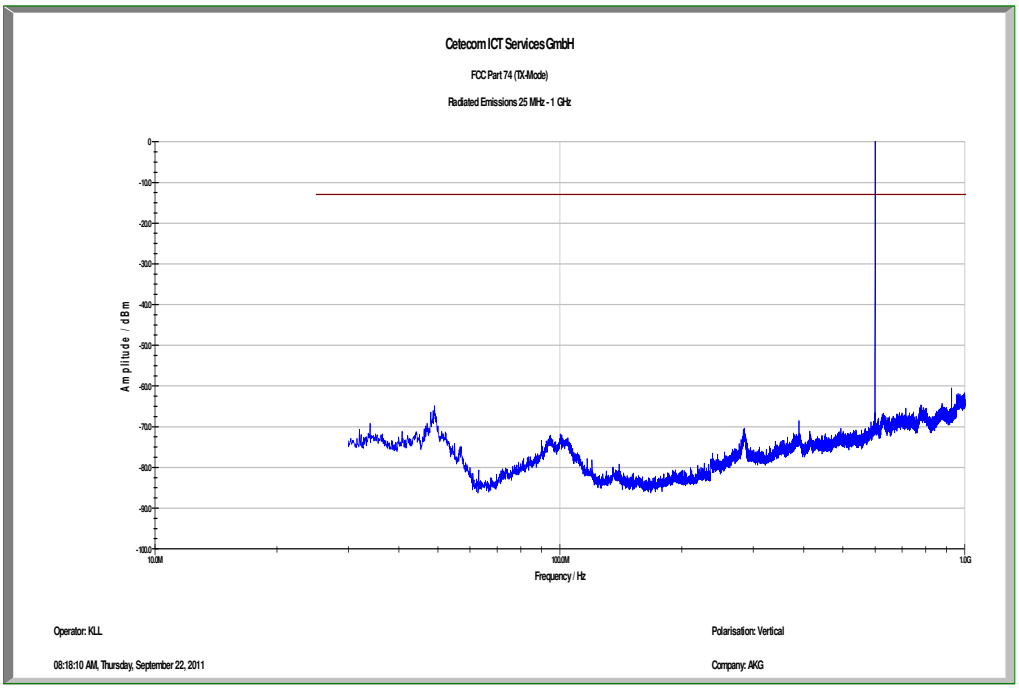
Plot 30: 570.1MHz – 600.5MHz (Band VIII), 1 GHz to 12.75 GHz, highest frequency, horizontal polarization



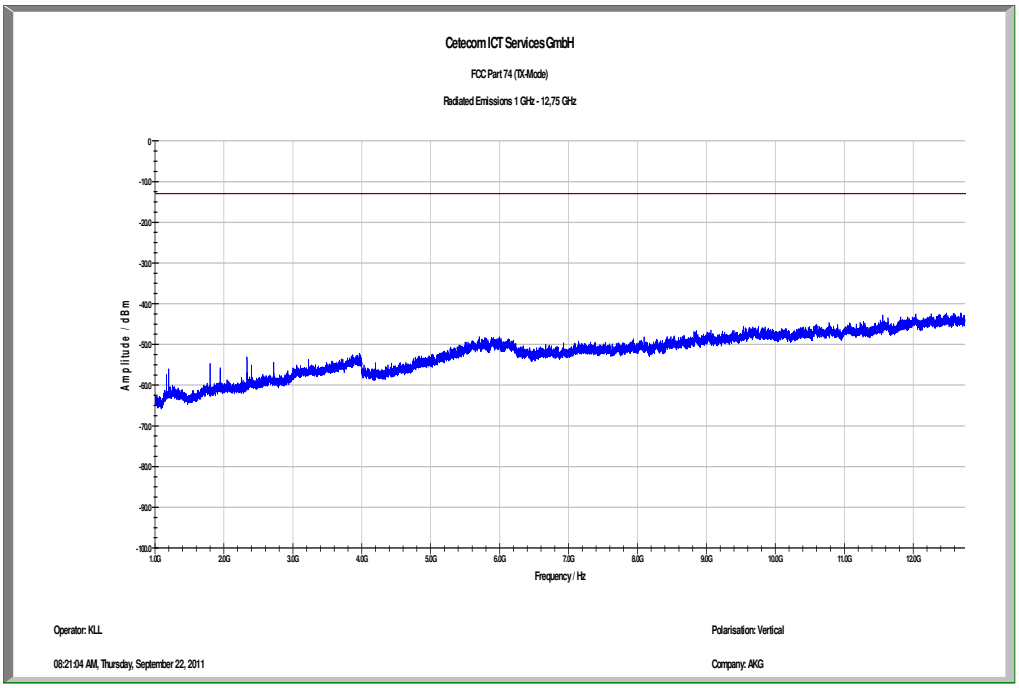
Plot 31: 600.1MHz – 607.9MHz / 614.1MHz – 630.5MHz (Band IX), <30 MHz, lowest frequency



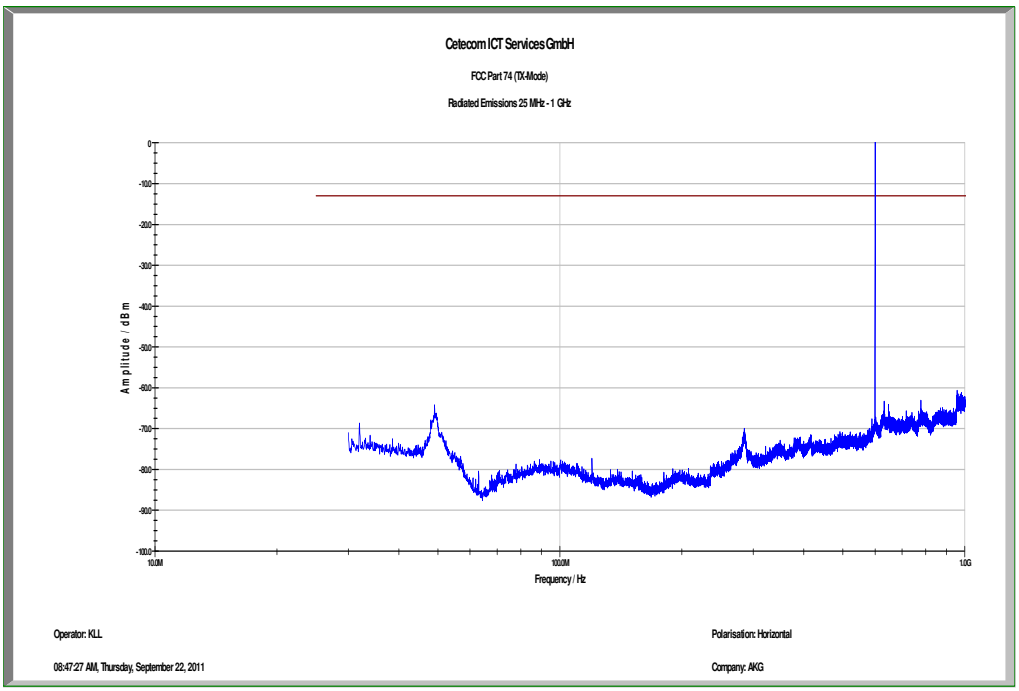
Plot 32: 600.1MHz – 607.9MHz / 614.1MHz – 630.5MHz (Band IX), 30 MHz to 1 GHz, lowest frequency, vertical polarization



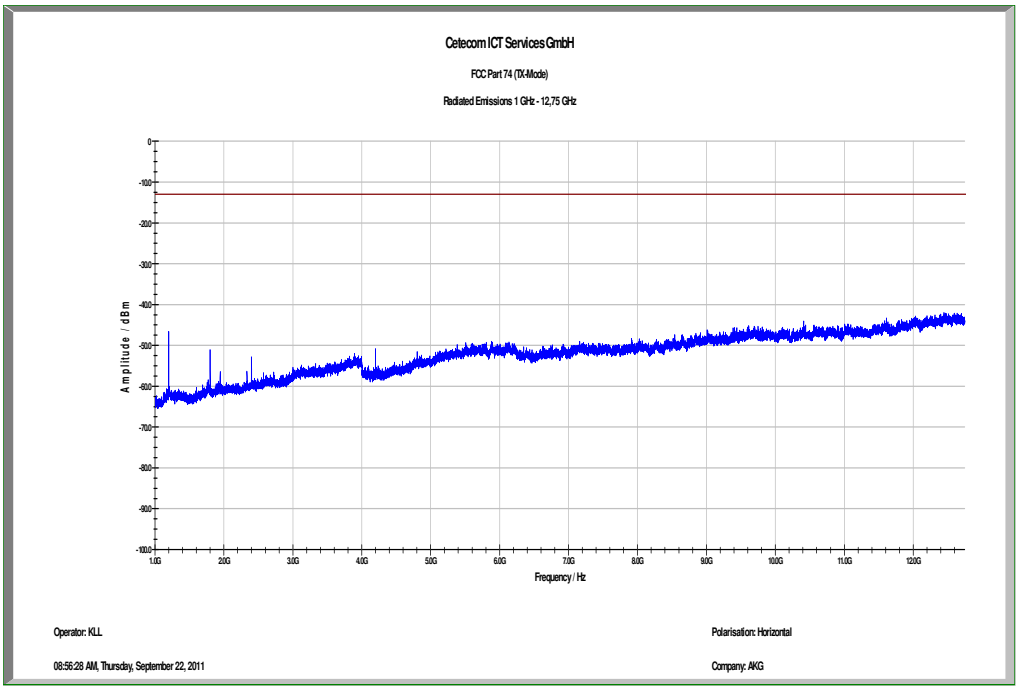
Plot 33: 600.1MHz – 607.9MHz / 614.1MHz – 630.5MHz (Band IX), 1 GHz to 12.75 GHz, lowest frequency, vertical polarization



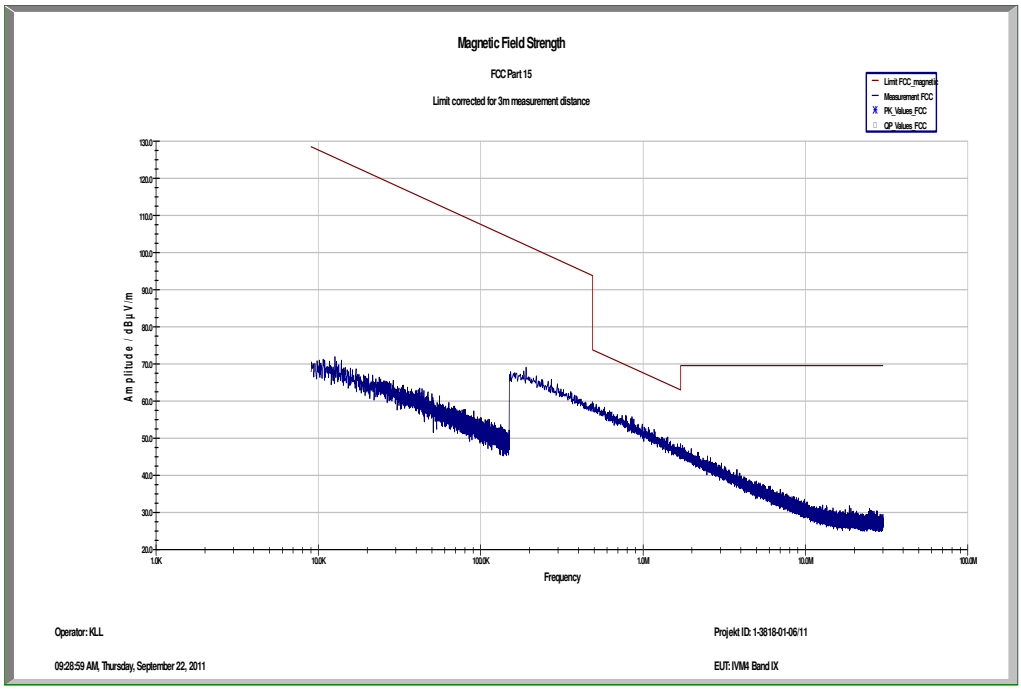
Plot 34: 600.1MHz – 607.9MHz / 614.1MHz – 630.5MHz (Band IX), 30 MHz to 1 GHz, lowest frequency, horizontal polarization



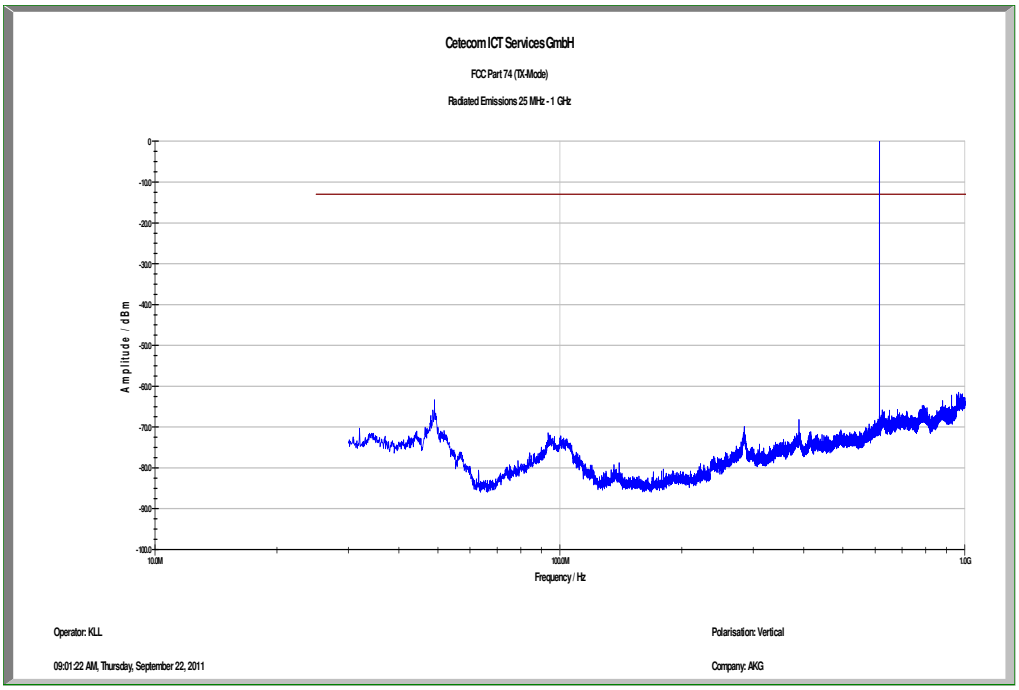
Plot 35: 600.1MHz – 607.9MHz / 614.1MHz – 630.5MHz (Band IX), 1 GHz to 12.75 GHz, lowest frequency, horizontal polarization



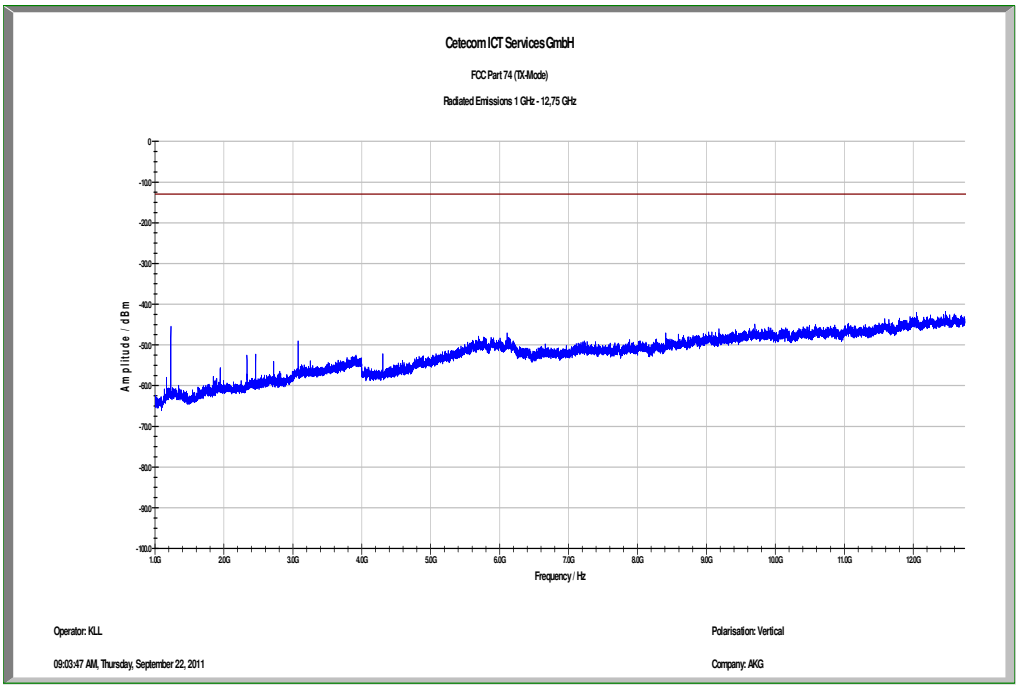
Plot 36: 600.1MHz – 607.9MHz / 614.1MHz – 630.5MHz (Band IX), <30 MHz, middle frequency



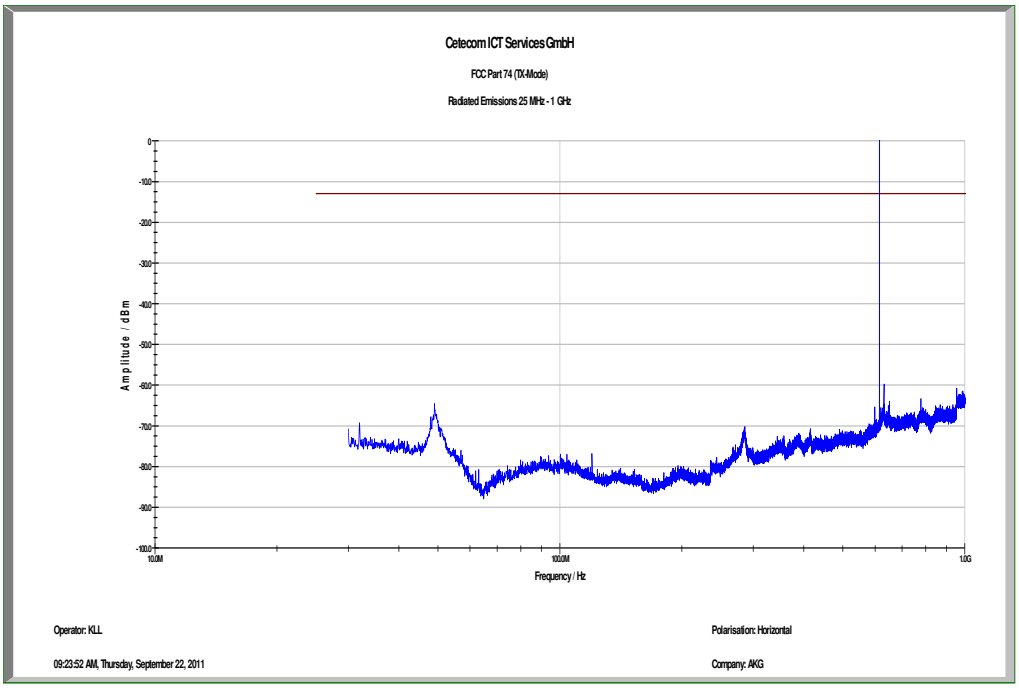
Plot 37: 600.1MHz – 607.9MHz / 614.1MHz – 630.5MHz (Band IX), 30 MHz to 1 GHz, middle frequency, vertical polarization



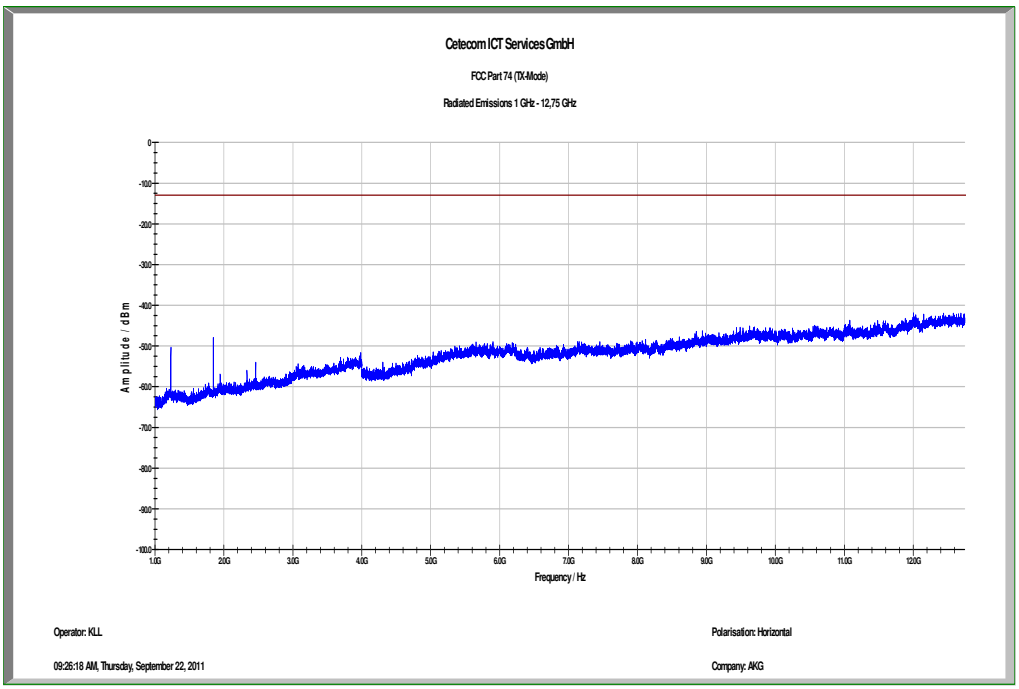
Plot 38: 600.1MHz – 607.9MHz / 614.1MHz – 630.5MHz (Band IX), 1 GHz to 12.75 GHz, middle frequency, vertical polarization



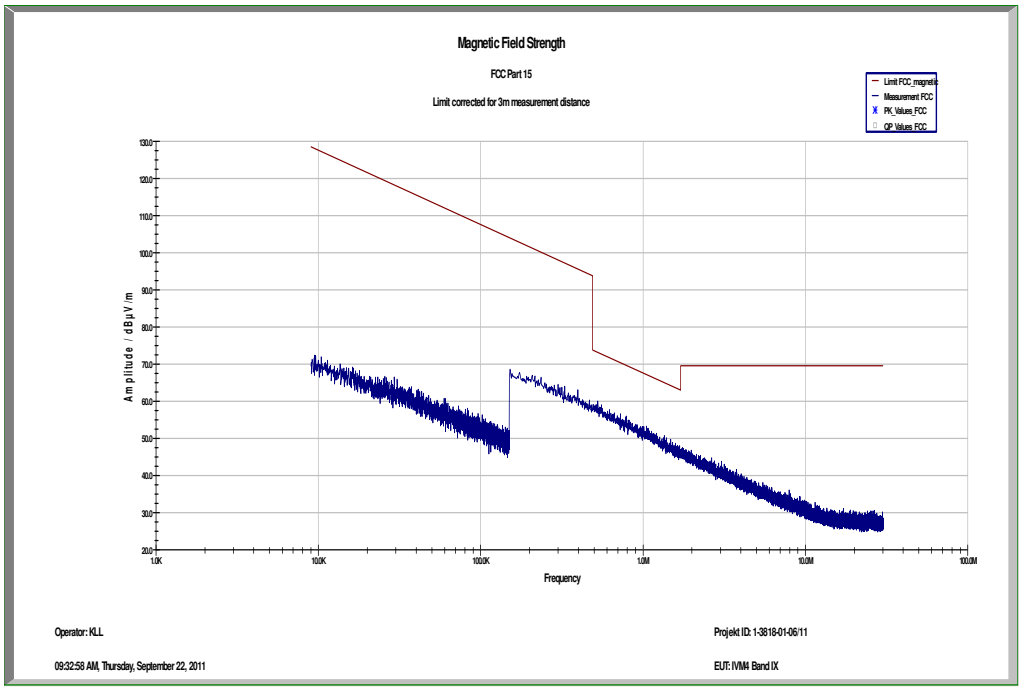
Plot 39: 600.1MHz – 607.9MHz / 614.1MHz – 630.5MHz (Band IX), 30 MHz to 1 GHz, middle frequency, horizontal polarization



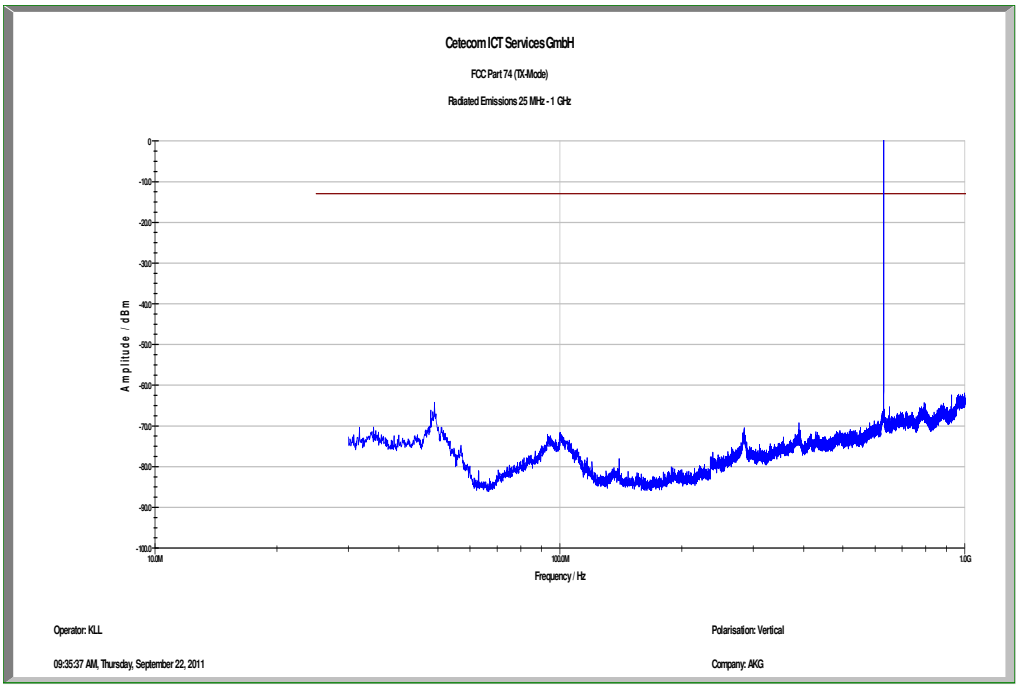
Plot 40: 600.1MHz – 607.9MHz / 614.1MHz – 630.5MHz (Band IX), 1 GHz to 12.75 GHz, middle frequency, horizontal polarization



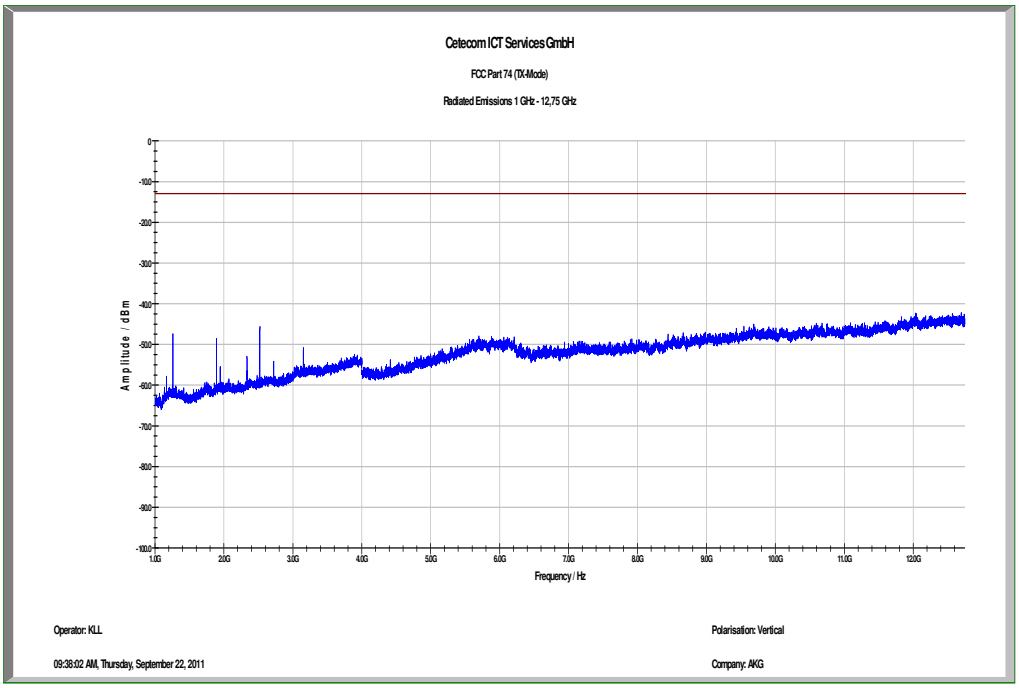
Plot 41: 600.1MHz – 607.9MHz / 614.1MHz – 630.5MHz (Band IX), <30 MHz, highest frequency



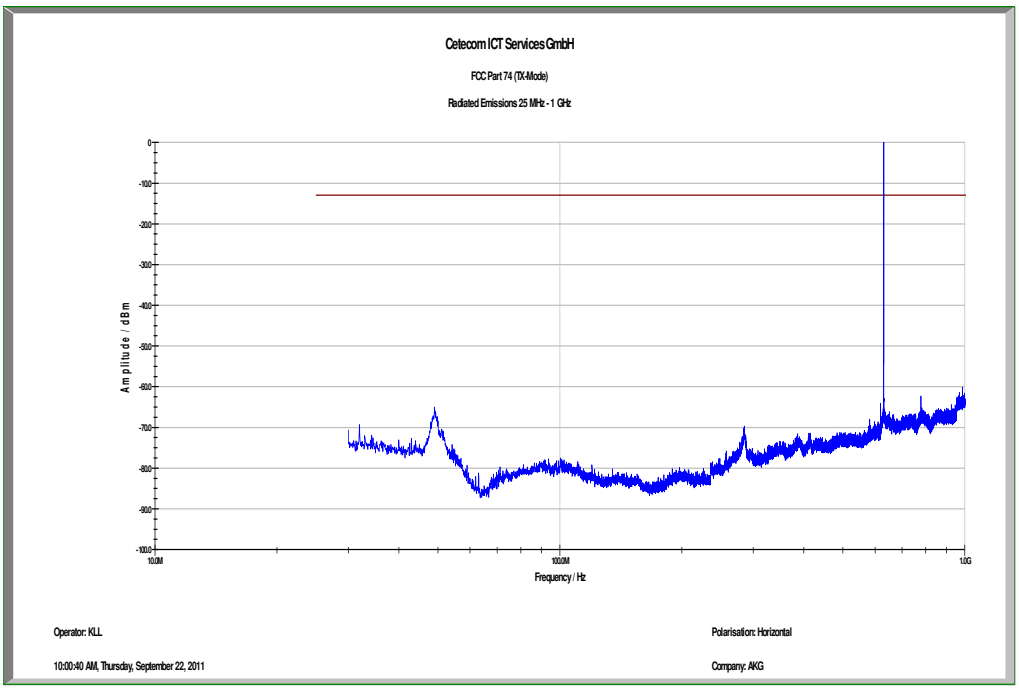
Plot 42: 600.1MHz – 607.9MHz / 614.1MHz – 630.5MHz (Band IX), 30 MHz to 1 GHz, highest frequency, vertical polarization



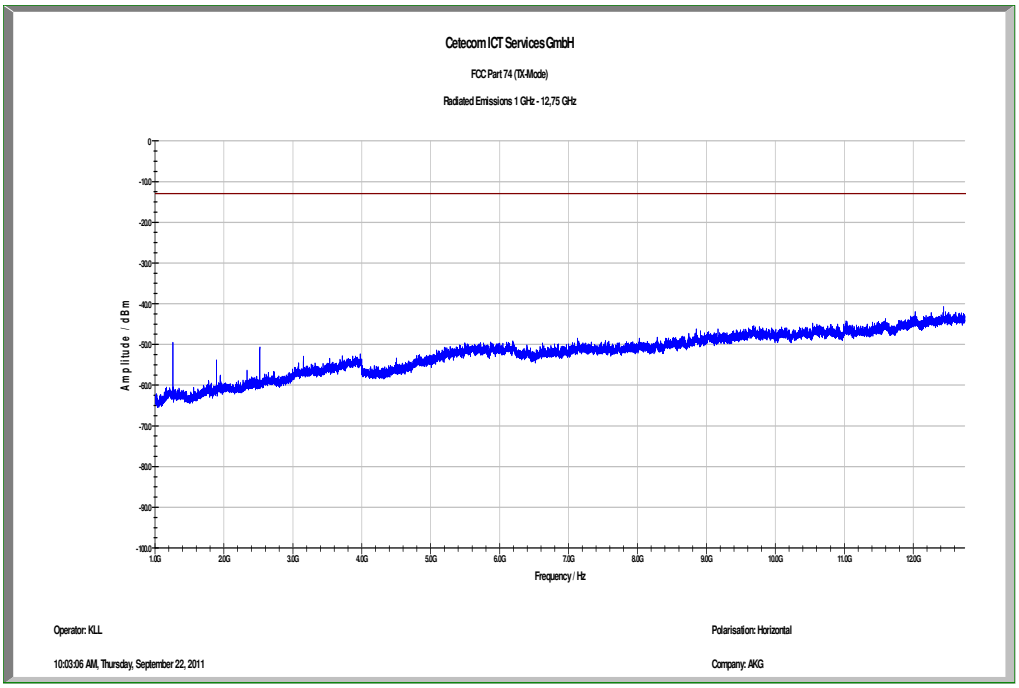
Plot 43: 600.1MHz – 607.9MHz / 614.1MHz – 630.5MHz (Band IX), 1 GHz to 12.75 GHz, highest frequency, vertical polarization



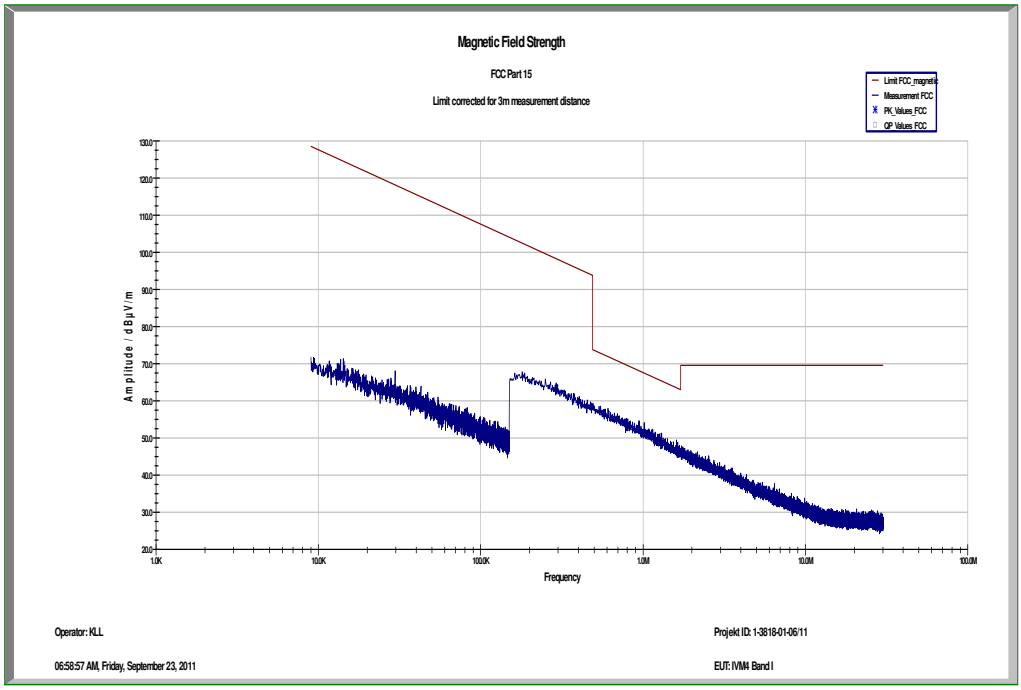
Plot 44: 600.1MHz – 607.9MHz / 614.1MHz – 630.5MHz (Band IX), 30 MHz to 1 GHz, highest frequency, horizontal polarization



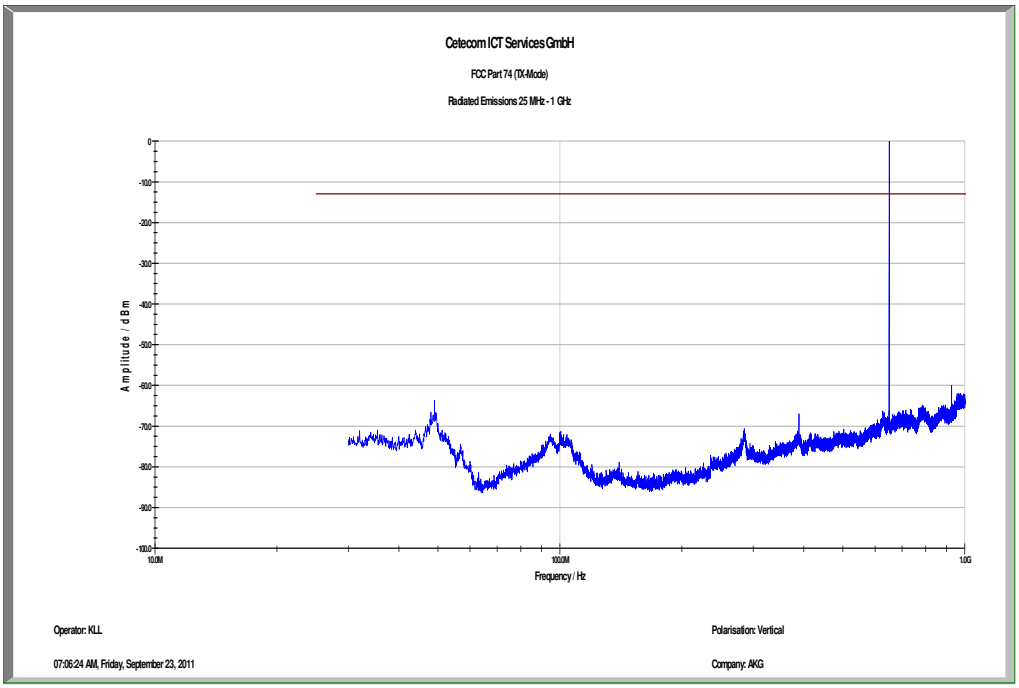
Plot 45: 600.1MHz – 607.9MHz / 614.1MHz – 630.5MHz (Band IX), 1 GHz to 12.75 GHz, highest frequency, horizontal polarization



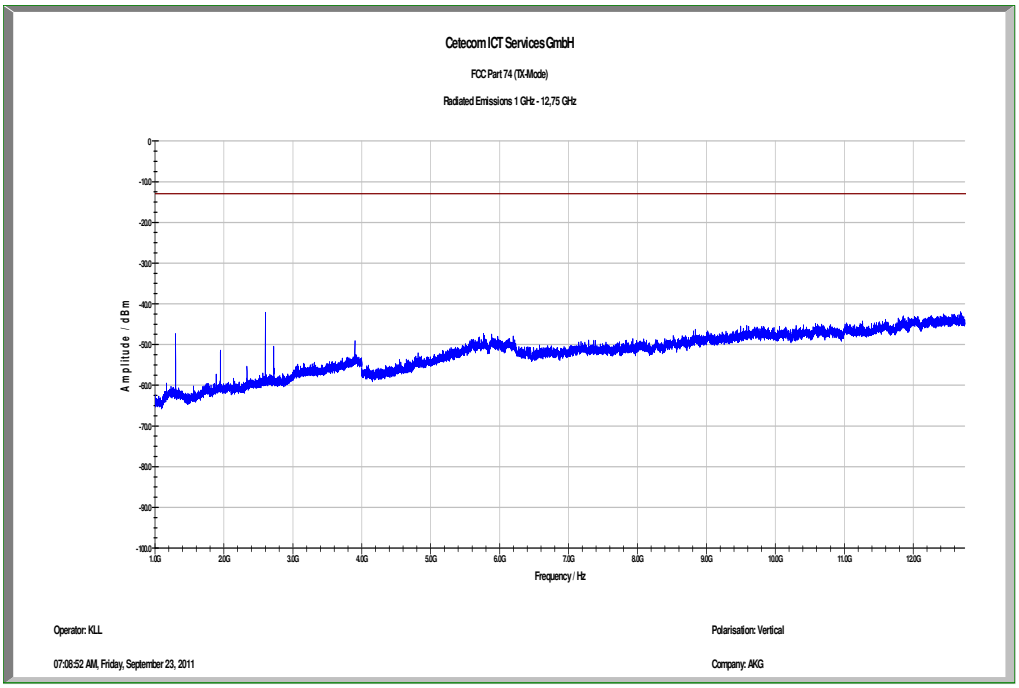
Plot 46: 650.1MHz – 680.5MHz (Band I), <30 MHz, lowest frequency



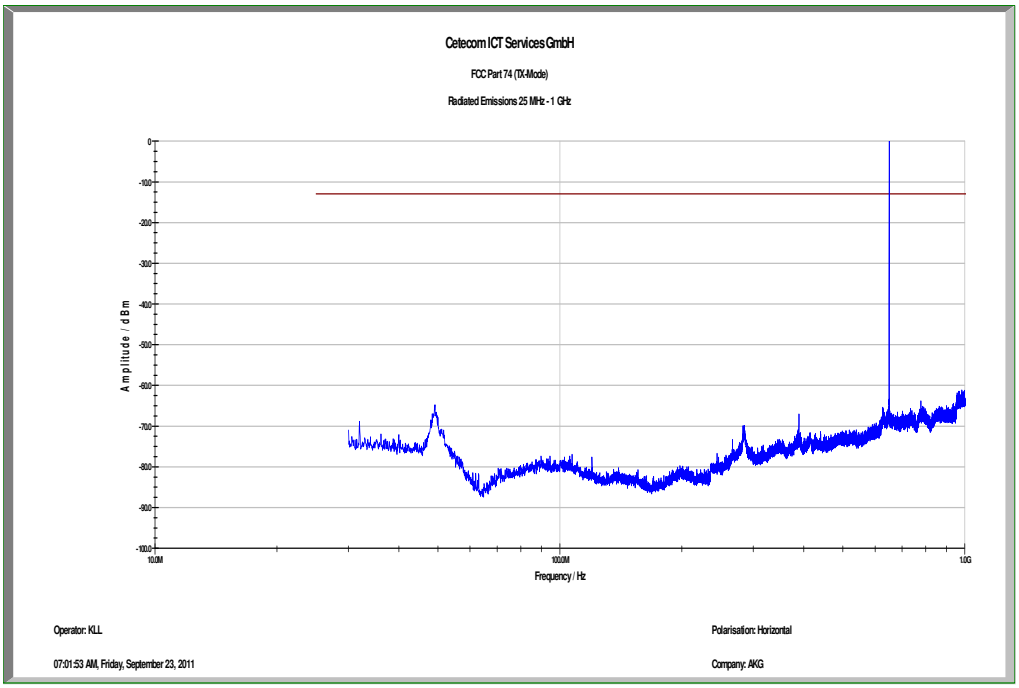
Plot 47: 650.1MHz – 680.5MHz (Band I), 30 MHz to 1 GHz, lowest frequency, vertical polarization



Plot 48: 650.1MHz – 680.5MHz (Band I), 1 GHz to 12.75 GHz, lowest frequency, vertical polarization



Plot 49: 650.1MHz – 680.5MHz (Band I), 30 MHz to 1 GHz, lowest frequency, horizontal polarization



Plot 50: 650.1MHz – 680.5MHz (Band I), 1 GHz to 12.75 GHz, lowest frequency, horizontal polarization