RR051-13-105485-2-A Ed. 0

RADIO test report

According to the standard:
CFR 47, FCC Part 15

Equipment under test:
C Less V2 mifare

FCC ID: T2X-V2-CLESS-M

Company:
PARKEON

DISTRIBUTION: Mr BARRAUX (Company: PARKEON)

Number of pages: 39 with 7 appendixes

Ed.	Date	Modified pages	Written by Name / Visa	Technical Verification and Quality Approval Name / Visa
0	12-NOV-2013	Creation	T. LEDRESSEUR T.L	DUMESNIL M.

Duplication of this test report is only permitted for an integral photographic facsimile. It includes the number of pages referenced here above.
This document is the result of testing a specimen or a sample of the product submitted. It does not imply an assessment of the conformity of the whole manufactured products of the tested sample.

DESIGNATION OF PRODUCT:	C Less V2 mifare
Serial number (S/N):	S 020K 300135 B
Reference / model (P/N):	ELM1000017958
MANUFACTURER:	PARKEON
COMPANY SUBMITTING THE PRODUCT:	
Company:	PARKEON
Address:	PARC LAFAYETTE 6 RUE ISAAC NEWTON 25075 BESANCON CEDEX 9 FRANCE
Responsible:	Mr Barraux
Person present during the tests:	Mr Barraux
DATES OF TEST:	29-OCT-2013; 30-OCT-2013; 31-OCT-2013; 07-NOV-2013
TESTING LOCATION:	EMITECH ANGERS laboratory at JUIGNE SUR LOIRE (49) FRANCE EMITECH ANGERS open area test site in JUIGNE SUR LOIRE (49) FRANCE FCC 2.948 Listed Site Registration Number: 90469 21 rue de la Fuye 49610 Juigne sur Loire France
TESTED BY:	T. LEDRESSEUR

CONTENTS

1. INTRODUCTION

This report presents the results of radio test carried out on the following equipment: C Less V2 mifare, in accordance with normative reference.

2. PRODUCT DESCRIPTION

ITU Emission code:	681HD0D
Class:	B (residential environment)
Utilization:	reader
Antenna type:	4 antennas can be used: - IML5 antenna - IMS antenna - Depileur antenna - Target antenna
Operating frequency range:	band from 13.110 MHz to 14.010 MHz
Number of channels:	1
Channel spacing:	not concerned
Frequency generation:	Quartz
Modulation:	2 modulation are used (A and B)
Power source:	12 Vd.c.

Power level, frequency range and channels characteristics are not user adjustable.
The details pictures of the product and the circuit boards are joined with this file.

3. NORMATIVE REFERENCE

The standards and testing methods related throughout this report are those listed below.
They are applied on the whole test report even though the extensions (version, date and amendment) are not repeated.

CFR 47 FCC Part 15 (2013)	Radio Frequency Devices
ANSI C63.4 (2003)	Methods of Measurement of Radio-Noise Emissions from Low voltage Electrical and Electronics Equipment in the range of 9 kHz to 40 GHz.

4. TEST METHODOLOGY

Radio performance tests procedures given in CFR 47 part 15:

Subpart B –Unintentional Radiators
- Paragraph 109: Radiated emission limits
- Paragraph 111: Antenna power conduction limits for receivers

Subpart C – Intentional Radiators
- Paragraph 203: Antenna requirement
- Paragraph 205: Restricted bands of operation
- Paragraph 209: Radiated emission limits; general requirements
- Paragraph 212: Modular transmitter
- Paragraph 215: Additional provisions to the general radiated emission limitations
- Paragraph 225: Operation within the band 13.110-14.010 MHz

5. TEST EQUIPMENT CALIBRATION DATES

Equipment	Model	Type	Last verification	Next verification	Validity
1211	HP 8901B	Modulation analyzer	03/05/2013	03/05/2015	03/07/2015
2593	MPC B25250	Climatic chamber	07/08/2012	07/08/2014	07/10/2014
4088	R&S FSP40	Spectrum analyzer	22/08/2013	22/08/2015	22/10/2015
4195	HP E3610A	Power source	/	/	*
7001	R&S FSBS	Spectrum analyzer	04/12/2012	04/12/2014	04/02/2015
8511	HP 8447D	Low noise preamplifier	22/08/2013	22/08/2014	22/10/2014
8526	Schwarzbeck VHBB 9124	Biconical antenna	12/06/2012	12/06/2016	12/08/2016
8528	Schwarzbeck VHA 9103	Biconical antenna	24/09/2013	24/09/2017	24/11/2017
8533	R&S HFH2-Z2	Loop antenna	01/05/2012	01/05/2014	01/07/2014
8543	Schwarzbeck UHALP 9108A	Log periodic antenna	12/06/2012	12/06/2016	12/08/2016
8593	SIDT Cage 2	Full anechoic room	/	/	/
8675	AOIP MN5102B	Multimeter	15/01/2013	15/01/2015	15/03/2015
8707	R&S ESI7	Test receiver	03/10/2012	03/10/2014	03/12/2014
8732	Emitech	OATS	23/08/2013	23/08/2016	23/10/2016
8749	La Crosse Technology WS-9232	Meteo station	20/07/2012	20/07/2014	20/09/2014
8750	La Crosse Technology WS-9232	Meteo station	20/07/2012	20/07/2014	20/09/2014
8896	ACQUISYS GPS8	GPS receiver	/	/	/

** The equipment is not verified; instead, the output voltage is checked before each measurement with the calibrated multimeter.*

6. TESTS RESULTS SUMMARY

6.1 unintentional radiator (subpart B)

Test procedure	Description of test	Respected criteria?				Comment
		Yes	No	NAp	NAs	
FCC Part 15.107	CONDUCTED LIMITS			X		Dc Power supply
FCC Part 15.109	RADIATED EMISSION LIMITS	X				
FCC Part 15.111	ANTENNA POWER CONDUCTED LIMITS FOR RECEIVER			X		

NAp: Not Applicable NAs: Not Asked

6.2 intentional radiator (subpart C)

Test procedure	Description of test	Respected criteria?				Comment
		Yes	No	NAp	NAs	
FCC Part 15.203	ANTENNA REQUIREMENT	X				*Note 1*
FCC Part 15.205	RESTRICTED BANDS OF OPERATION	X				
FCC Part 15.207	CONDUCTED LIMITS			X		*DC Power supply*
FCC Part 15.209	RADIATED EMISSION LIMITS; general requirements	X				*Note 2*
FCC Part 15.212	MODULAR TRANSMITTERS	X				*Note 3*
FCC part 15.215	ADDITIONAL PROVISIONS TO THE GENERAL RADIATED EMISSION LIMITATIONS					
	(a) Alternative to general radiated emission limits	X				
	(b) Unwanted emissions outside of §15.225 frequency bands	X				*Note 4*
	(c) 20 dB bandwidth and band-edge compliance	X				
FCC Part 15.225	OPERATION WITHIN THE BAND 13.110-14.010 MHZ					
	(a) Field strength within the band 13.553-13.567 MHz	X				
	(b) Field strength within the bands 13.410-13.553 MHz and 13.567-13.710 MHz	X				
	(c) Field strength within the bands 13.110-13.410 MHz and 13.710-14.010 MHz	X				
	(d) Field strength outside the band 13.110-14.010 MHz	X				
	(e) Carrier frequency tolerance	X				
	(f) Powered tags			X		

NAp: Not Applicable NAs: Not Asked

Note 1: 4 dedicated antennas with SMB connector. Professionally installed equipment.

Note 2: See FCC part 15.225 (d).

Note 3: Single modular transmitter.
The host devices of the certified modules shall be properly labeled to identify the module(s) within.

Note 4: See FCC part 15.209. Unwanted emissions levels are all below the fundamental emission field strength level.

« To declare, or not, the compliance with the specifications, it was not explicitly taken into account of uncertainty associated with the result(s) »

Conclusion:

The sample C Less V2 mifare submitted to the tests complies with the technical regulations of the standard CFR 47 FCC Part 15 in accordance with the limits or criteria defined in this report.

7. *RADIATED EMISSION LIMITS*

Standard: FCC Part 15

Test procedure: paragraph 109

Limit class: Class B

Test set up:

The system is tested in an open area test site (OATS). The EUT is placed on a rotating table, 0.8m from a ground plane. Zero degree azimuths correspond to the front of the device under test.

See photos in appendix 2.

Frequency range: From 9 kHz to 1 GHz.

Detection mode: Quasi-Peak (F > 30 MHz)

Bandwidth: 200Hz (9 kHz < F < 150kHz)
9 kHz (150 kHz < F < 30MHz)
120 kHz (30 MHz < F < 1 GHz)

Distance of antenna: 10 meters for frequencies below 50 MHz, 3 meters for frequencies above 50 MHz.

Antenna height: 1 to 4 meters

Antenna polarization: vertical and horizontal (only the highest level is recorded)

Equipment under test operating condition:

The equipment is blocked in standby mode.

Results:

Ambient temperature (°C): 20.4
Relative humidity (%): 51

Power source: 12V d.c.by an external power source

Sample N° 1:

No significant spurious has been detected.

Applicable limits: for 30 MHz ≤ F ≤ 88 MHz : 40 dBµV/m at 3 meters
for 88 MHz < F ≤ 216 MHz : 43.5 dBµV/m at 3 meters
for 216 MHz < F ≤ 960 MHz : 46 dBµV/m at 3 meters
Above 960 MHz : 54 dBµV/m at 3 meters

Note: any spurious which has more than 20 dB of margin compared to the applicable limit is considered as not significant and therefore not necessarily reported.

Test conclusion:

RESPECTED STANDARD

8. ADDITIONAL PROVISIONS TO THE GENERAL RADIATED EMISSION LIMITATIONS

Standard: FCC Part 15

Test procedure: Paragraph 15.215

Test set up:

Test realized in near field. All field strength measurements are correlated with the radiated maximum peak output power

Test operating condition of the equipment:

The equipment under test is blocked in continuous modulated transmission mode, at the highest output power level at which the transmitter is intended to operate.
This test is realized with the most powerful antenna and the 2 modulations

Results:

Ambient temperature (°C): 20.5
Relative humidity (%): 48

Lower Band Edge: band from 13.090 MHz to 13.110 MHz
Upper Band Edge: band from 14.010 MHz to 14.030 MHz

Modulation A

Sample N°1: with IML5 antenna

Fundamental frequency (MHz)	Carrier field strength (dBµV/m)	Detector	Band-edge frequency (MHz)	Marker delta (dB)	Out-of-band level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
13.56	45.63	Peak	13.09	31.32	14.31	29.5	15.19
13.56	45.63	Peak	14.03	31.11	14.52	29.5	14.98

20 dB bandwidth curves are given in appendix 5; band-edge curves are given in appendix 6.

Modulation B

Sample N°1: with IML5 antenna

Fundamental frequency (MHz)	Carrier field strength (dBµV/m)	Detector	Band-edge frequency (MHz)	Marker delta (dB)	Out-of-band level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
13.56	46.4	Peak	13.09	42.89	3.51	29.5	25.99
13.56	46.4	Peak	14.03	42.05	4.35	29.5	25.15

20 dB bandwidth curves are given in appendix 5; band-edge curves are given in appendix 6.

Test conclusion:

RESPECTED STANDARD

9. OPERATION WITHIN THE BAND 13.110 – 14.010 MHZ

Standard: FCC Part 15

Test procedure: paragraph 15.225 (a), (b), (c), (e)

Test set up:

The system is tested in an open area test site (OATS). The EUT is placed on a rotating table, 0.8 m from a ground plane. Zero degree azimuth corresponds to the front of the equipment under test.

See photos in appendix 2

The frequency tolerance measure is realized in near-field.

Detection mode: Quasi-peak (F < 1 GHz)

Bandwidth: 9 kHz (150 kHz < F < 30MHz)

Distance of antenna: 10 meters

Antenna height: 1 meter

Antenna polarization: oriented in the vertical plane. The lowest point of the loop is 1m above ground level.

Equipment under test operating condition:

The equipment under test is blocked in continuous modulated transmission mode, at the highest output power level at which the transmitter is intended to operate.
The measure is realized with two modulations.
The extremes conditions and the mask are performed with only the most powerful antenna.

Results:

Carrier field strength

Ambient temperature (°C): 20
Relative humidity (%): 46

Power source: 12 Vdc by an external power source

Modulation A

Sample N°1: with IML5 antenna

	Field strength (1) (dBµV/m) at frequency: 13.56 MHz
Normal test conditions	45.63
Limits (dBµV/m)	84
Margin (dB)	38.37

Polarization of test antenna: perpendicular (height: 100 cm)
Position of equipment: see photo in appendix 2 (azimuth: 94 degrees)

Frequency stability

			Measured frequency difference (ppm)	Limits (ppm)
Normal test conditions	Temperature (°C): 20 Humidity (%): /	Minimal power source (V): 10.2	+ 76.70	±100
		Maximal power source (V): 13.8	+ 76.55	
Extreme test conditions	Minimal temperature (°C): -20	Nominal power source (V): 12Vdc	+ 87.46	
	Maximal temperature (°C): +50	Nominal power source (V): 12 Vdc	+ 76.70	

Field strength within the band 13.110-14.010 MHz

See spectrum mask in appendix 7

Sample N°1: with IMS antenna

	Field strength(1) (dBµV/m) at frequency: 13.56 MHz
Normal test conditions	44.85
Limits (dBµV/m)	84
Margin (dB)	39.15

Polarization of test antenna: perpendicular (height: 100 cm)
Position of equipment: see photo in appendix 2 (azimuth: 95 degrees)

Sample N°1: with depileur antenna

	Field strength(1) (dBµV/m) at frequency: 13.56 MHz
Normal test conditions	44.57
Limits (dBµV/m)	84
Margin (dB)	39.43

Polarization of test antenna: perpendicular (height: 100 cm)
Position of equipment: see photo in appendix 2 (azimuth: 100 degrees)

Sample N°1: with target antenna

	Field strength(1) (dBµV/m) at frequency: 13.56 MHz
Normal test conditions	45.63
Limits (dBµV/m)	84
Margin (dB)	38.37

Polarization of test antenna: perpendicular (height: 100 cm)
Position of equipment: see photo in appendix 2 (azimuth: 98 degrees)

(1)30m field strength value extrapolated from 10m field strength measure using extrapolation factor of 40dB/decade according to §15.31 of FCC rules.

Modulation B

Sample N°1: with IML5 antenna

	Field strength(1) (dBµV/m) at frequency: 13.56 MHz
Normal test conditions	46.4
Limits (dBµV/m)	84
Margin (dB)	37.6

Polarization of test antenna: perpendicular (height: 100 cm)
Position of equipment: see photo in appendix 2 (azimuth: 120 degrees)

Frequency stability

			Measured frequency difference (ppm)	Limits (ppm)
Normal test conditions	Temperature (°C): 20 Humidity (%): /	Minimal power source (V): 10.2	+ 76.70	±100
		Maximal power source (V): 13.8	+ 76.55	
Extreme test conditions	Minimal temperature (°C): -20	Nominal power source (V): 12Vdc	+ 87.46	
	Maximal temperature (°C): +50	Nominal power source (V): 12 Vdc	+ 76.70	

Field strength within the band 13.110-14.010 MHz

See spectrum mask in appendix 7

Sample N°1: with IMS antenna

	Field strength(1) (dBµV/m) at frequency: 13.56 MHz
Normal test conditions	46.4
Limits (dBµV/m)	84
Margin (dB)	37.6

Polarization of test antenna: perpendicular (height: 100 cm)
Position of equipment: see photo in appendix 2 (azimuth: 106 degrees)

Sample N°1: with depileur antenna

	Field strength(1) (dBµV/m) at frequency: 13.56 MHz
Normal test conditions	44.81
Limits (dBµV/m)	84
Margin (dB)	39.19

Polarization of test antenna: perpendicular (height: 100 cm)
Position of equipment: see photo in appendix 2 (azimuth 78 degrees)

Sample N°1: with target antenna

	Field strength(1) (dBµV/m) at frequency: 13.56 MHz
Normal test conditions	45.5
Limits (dBµV/m)	84
Margin (dB)	38.5

Polarization of test antenna: perpendicular (height: 100 cm)
Position of equipment: see photo in appendix 2 (azimuth: 97 degrees)

(1)30m field strength value extrapolated from 10m field strength measure using extrapolation factor of 40dB/decade according to §15.31 of FCC rules.

Test conclusion:

RESPECTED STANDARD

10. FIELD STRENGTH OUTSIDE THE BAND 13.110-14.010 MHZ

Standard: FCC Part 15

Test procedure: paragraph 209
paragraph 15.225 (d)

Test set up:

The system is tested in an open area test site (OATS). The EUT is placed on a rotating table, 0.8m from a ground plane. Zero degree azimuths correspond to the front of the device under test.

See photos in appendix 2.

Frequency range: From 9 kHz to 10th harmonic of the highest fundamental frequency (13.56MHz)

Detection mode: Quasi-peak

Bandwidth: 200Hz (9 kHz < F < 150kHz)
9 kHz (150 kHz < F < 30MHz)
120 kHz (30 MHz < F < 1 GHz)

Distance of antenna: 10 meters for frequencies below 50 MHz, 3 meters for frequencies above 50 MHz.

Antenna height: 1 to 4 meters

Antenna polarization: vertical and horizontal (only the highest level is recorded)

Equipment under test operating condition:

The equipment under test is blocked in continuous modulated transmission mode, at the highest output power level at which the transmitter is intended to operate.
The measure is realized with the most critical modulation.

Modulation B

Sample N°1: with target antenna, 1.80m cable and 3 ferrites

FREQUENCIES (MHz)	Detector P: Peak QP: Quasi-Peak	Polarization H: Horizontal V: Vertical	Field strength (dBµV/m)	Limits (dBµV/m)	Margin (dB)
81.35	QP	H	38.35	40	1.65
94.928	QP	H	30.17	43.5	13.33
122.05	QP	V	36.44	43.5	7.06

Sample N°1: with IMS antenna, 1.80m cable and 2 ferrites

FREQUENCIES (MHz)	Detector P: Peak QP: Quasi-Peak	Polarization H: Horizontal V: Vertical	Field strength (dBµV/m)	Limits (dBµV/m)	Margin (dB)
81.35	QP	H	32.35	40	7.65
122.05	QP	V	35.4	43.5	7.96

Sample N°1: with depileur antenna, 1.80m cable and 3 ferrites

FREQUENCIES (MHz)	Detector P: Peak QP: Quasi-Peak	Polarization H: Horizontal V: Vertical	Field strength (dBµV/m)	Limits (dBµV/m)	Margin (dB)
81.35	QP	V	25.25	40	14.75
108.48	QP	H	32.51	43.5	10.99
122.05	QP	H	29.74	43.5	13.76

Sample N°1: with depileur antenna, 80cm cable and 2 ferrites

FREQUENCIES (MHz)	Detector P: Peak QP: Quasi-Peak	Polarization H: Horizontal V: Vertical	Field strength (dBµV/m)	Limits (dBµV/m)	Margin (dB)
81.35	QP	V	18.25	40	21.75
94.928	QP	H	22.67	43.5	20.83
108.48	QP	H	31.61	43.5	11.89
122.05	QP	V	34.34	43.5	9.16

Sample N°1: with IML5 antenna, 80cm cable and 2 ferrites

FREQUENCIES (MHz)	Detector P: Peak QP: Quasi-Peak	Polarization H: Horizontal V: Vertical	Field strength (dBµV/m)	Limits (dBµV/m)	Margin (dB)
81.35	QP	V	15.95	40	24.05
108.48	QP	V	16.41	43.5	27.09
122.05	QP	H	28.34	43.5	15.16

Sample N°1: with IML5 antenna, 1.80m cable and 2 ferrites

FREQUENCIES (MHz)	Detector P: Peak QP: Quasi-Peak	Polarization H: Horizontal V: Vertical	Field strength (dBµV/m)	Limits (dBµV/m)	Margin (dB)
81.35	QP	H	38.85	40	1.15
94.928	QP	H	16.17	43.5	27.33
108.48	QP	H	27.51	43.5	15.99
122.05	QP	H	41.4	43.5	2.1

Note: any spurious which has more than 20 dB of margin compared to the applicable limit is not necessarily reported.

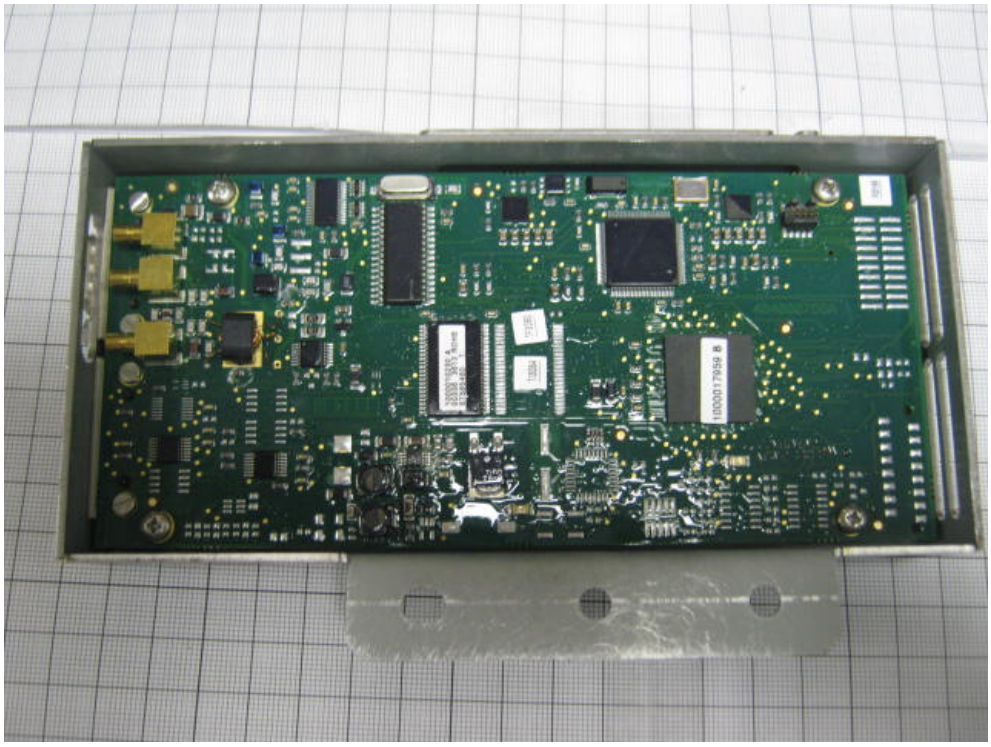
Test conclusion:

RESPECTED STANDARD

End of report, 7 appendixes to be forwarded

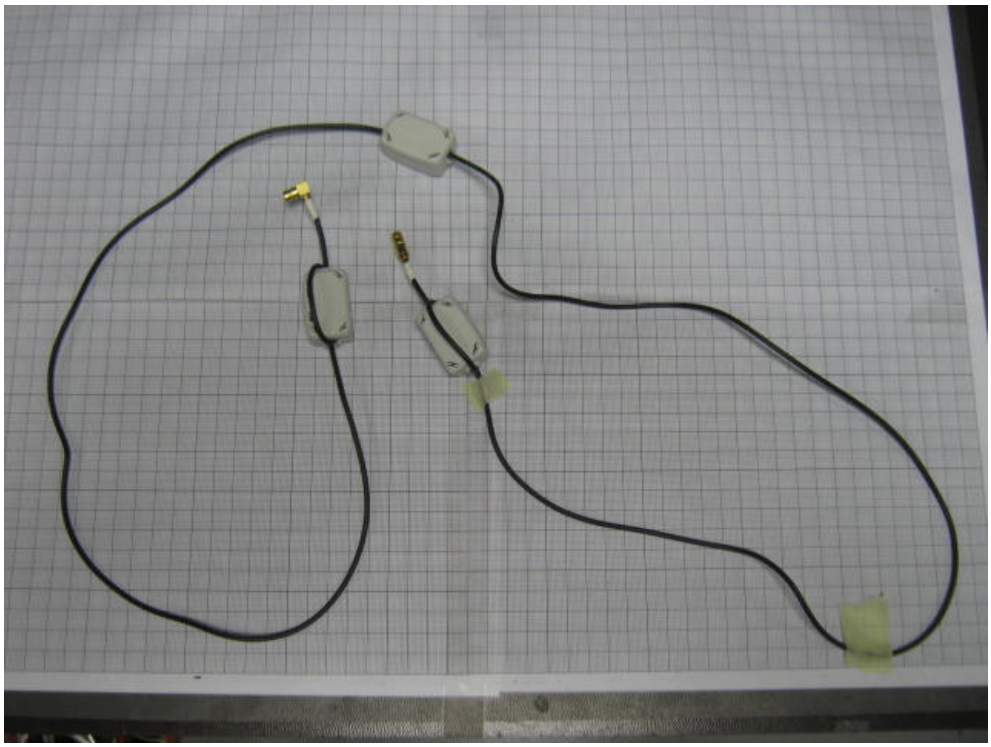
APPENDIX 1: Photos of the equipment under test

General view

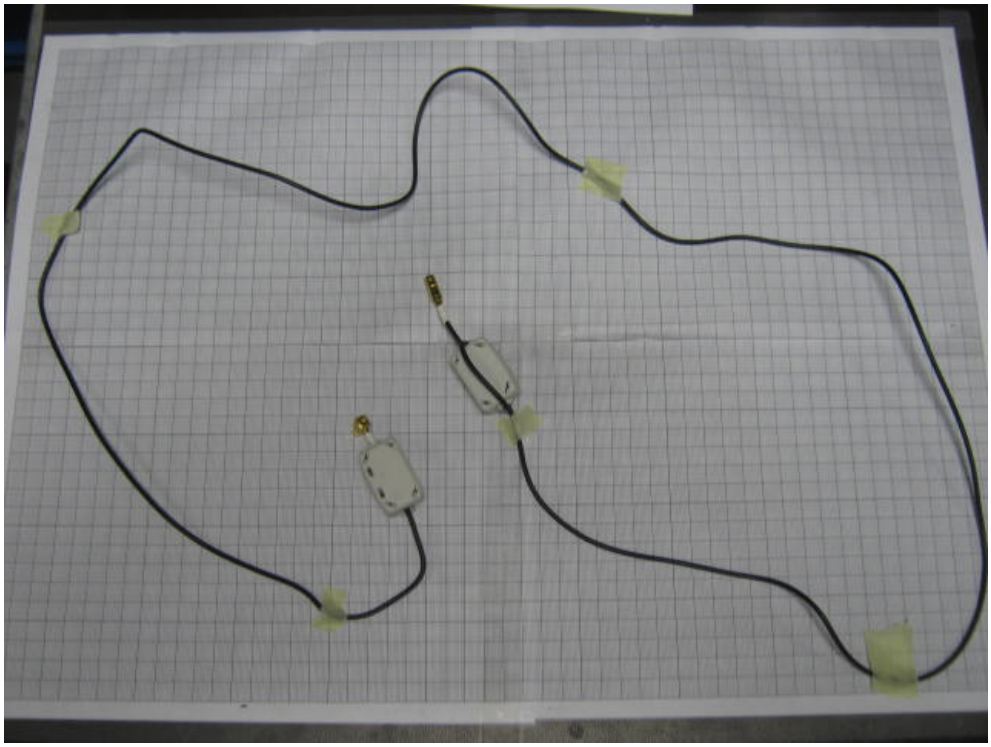


Cable and ferrite positions

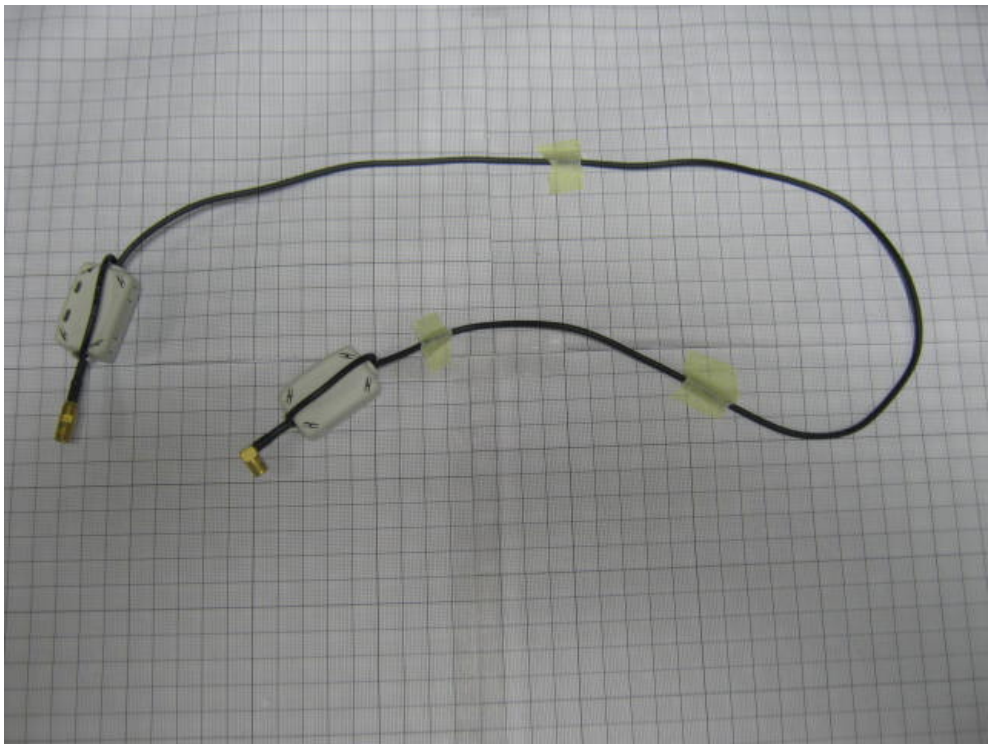
1.80m cable with 3 ferrite



1.80m cable with 2 ferrite

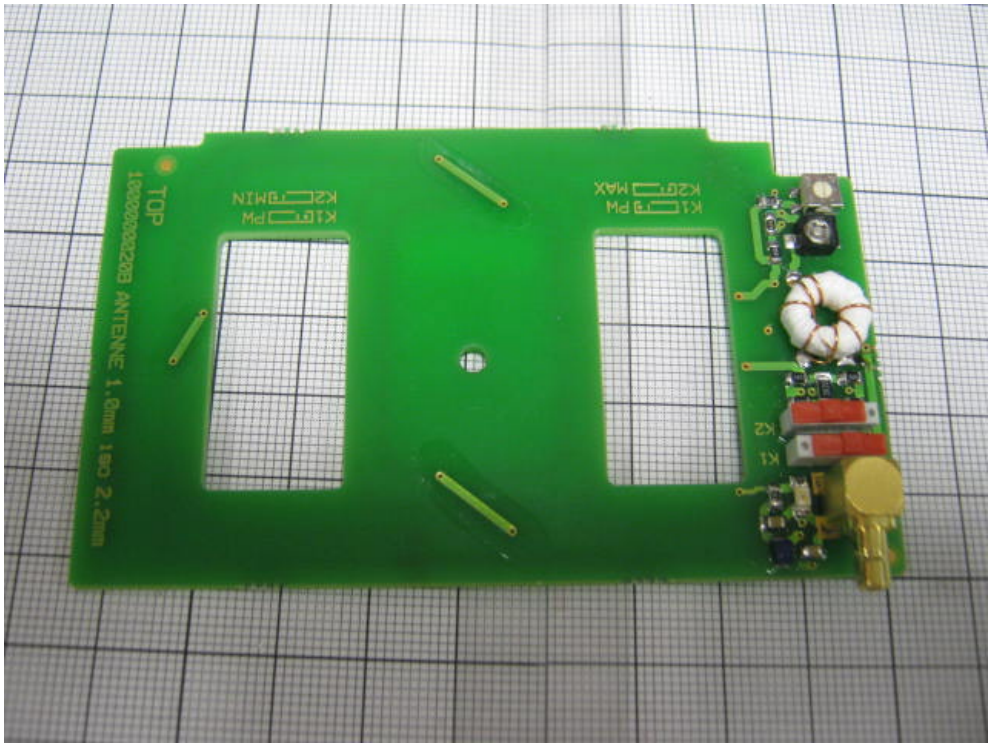


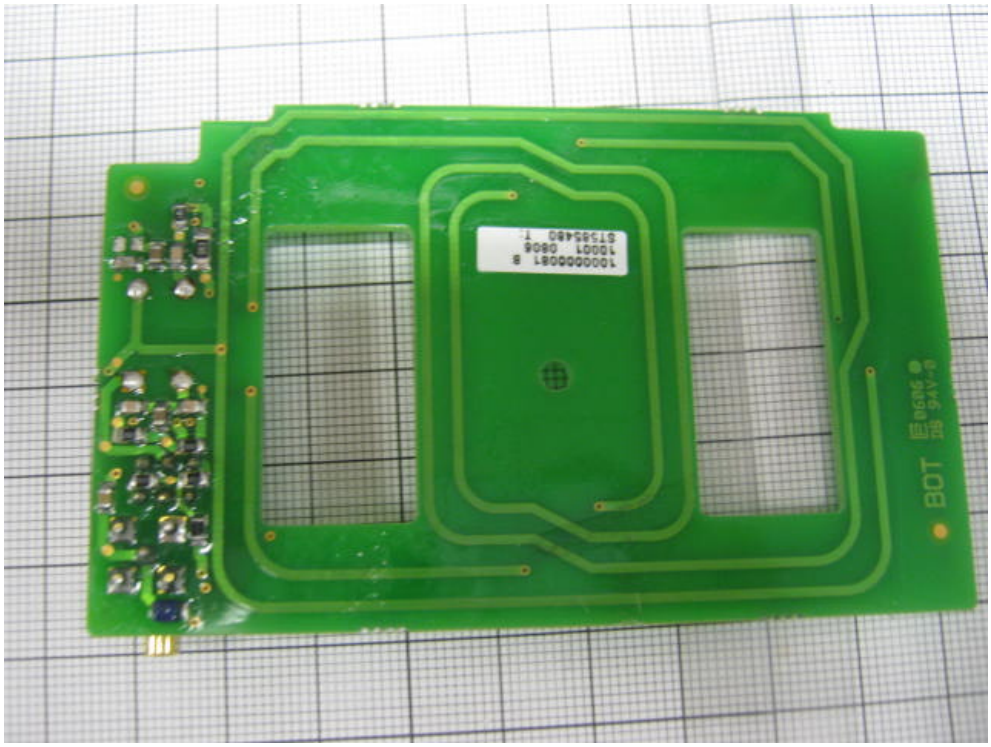
80cm cable with 2 ferrite



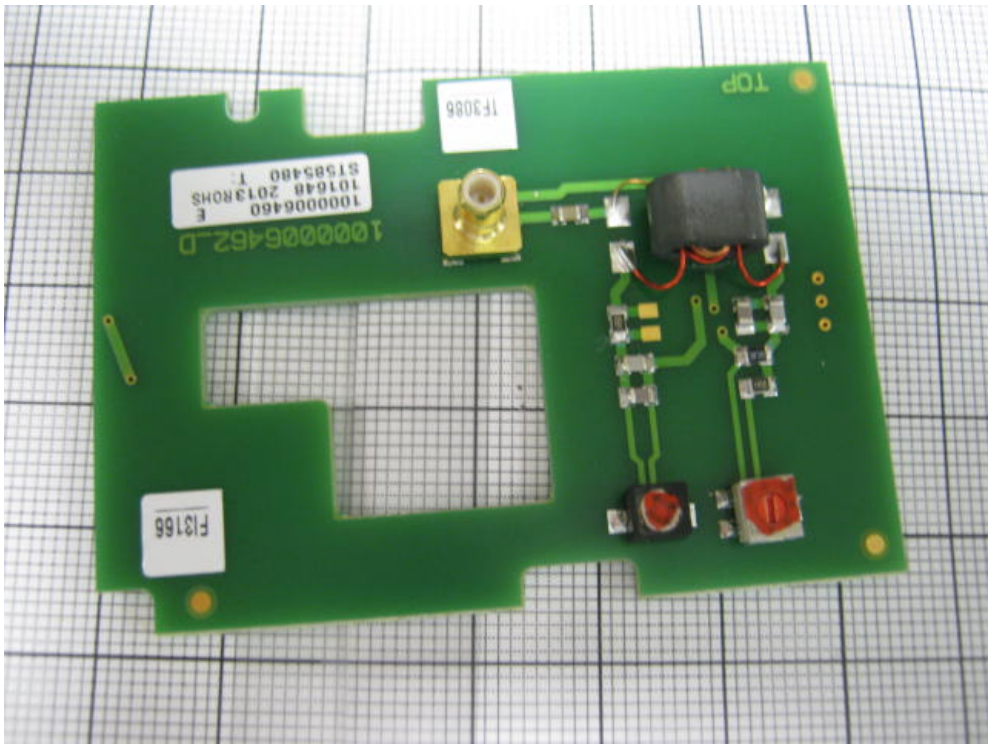
Ferrite

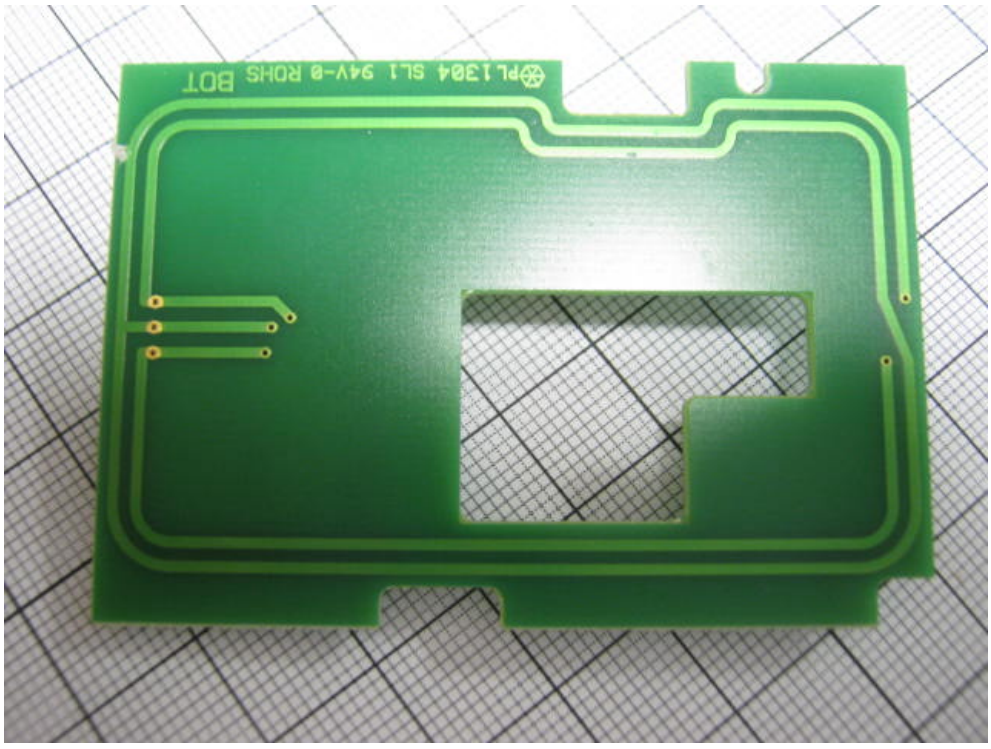
IML5 antenna



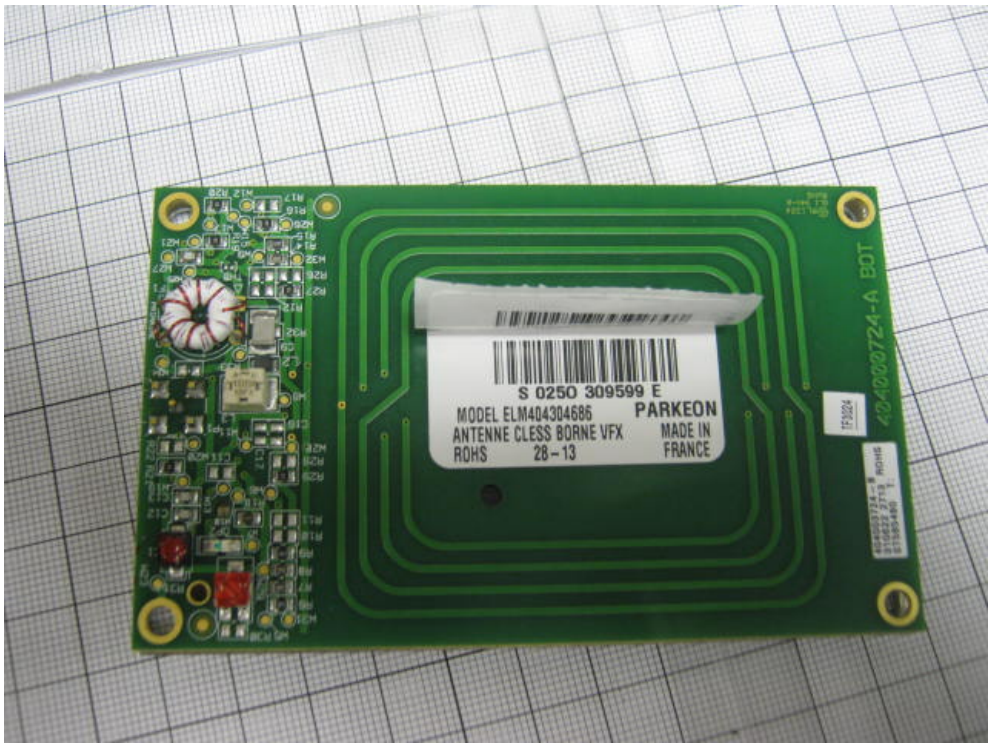


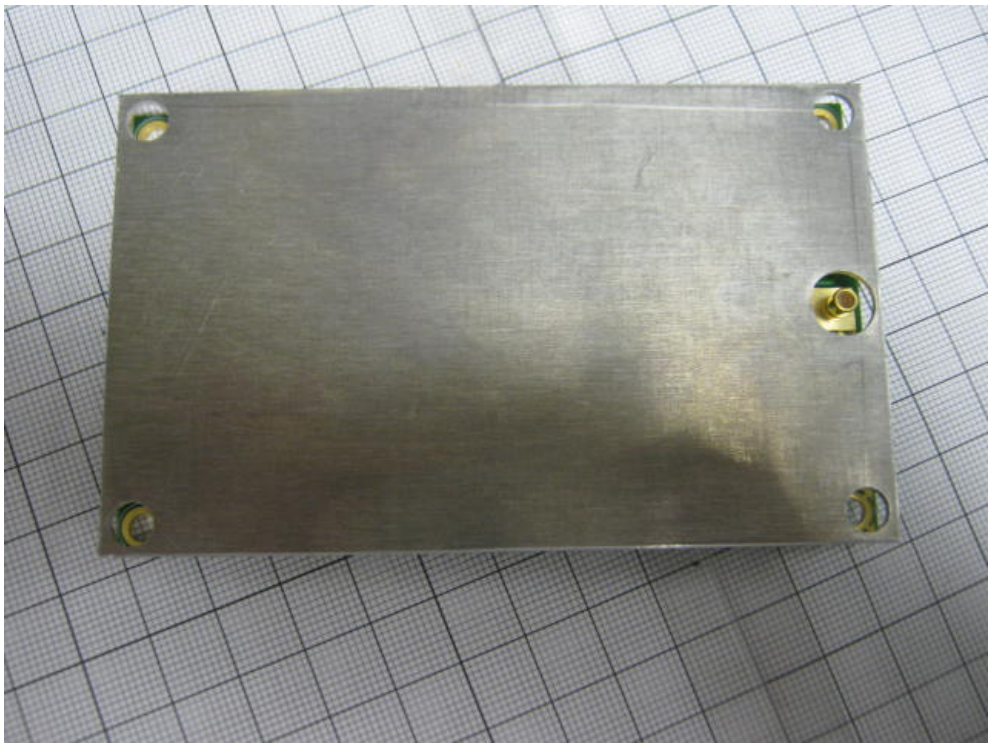
IMS antenna



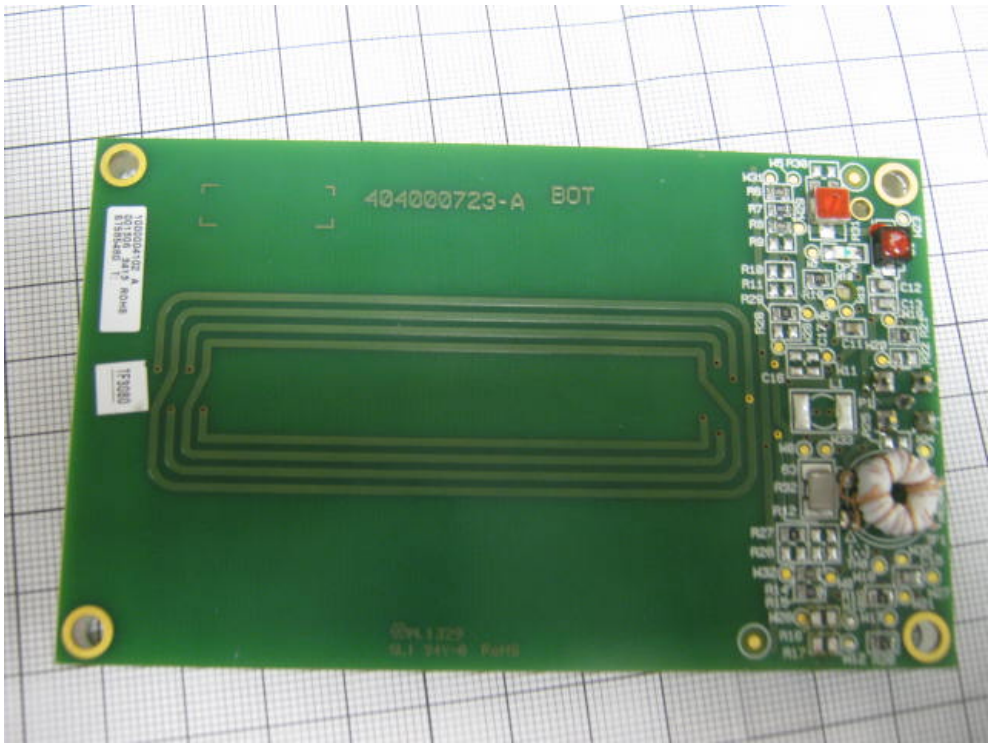


Target antenna





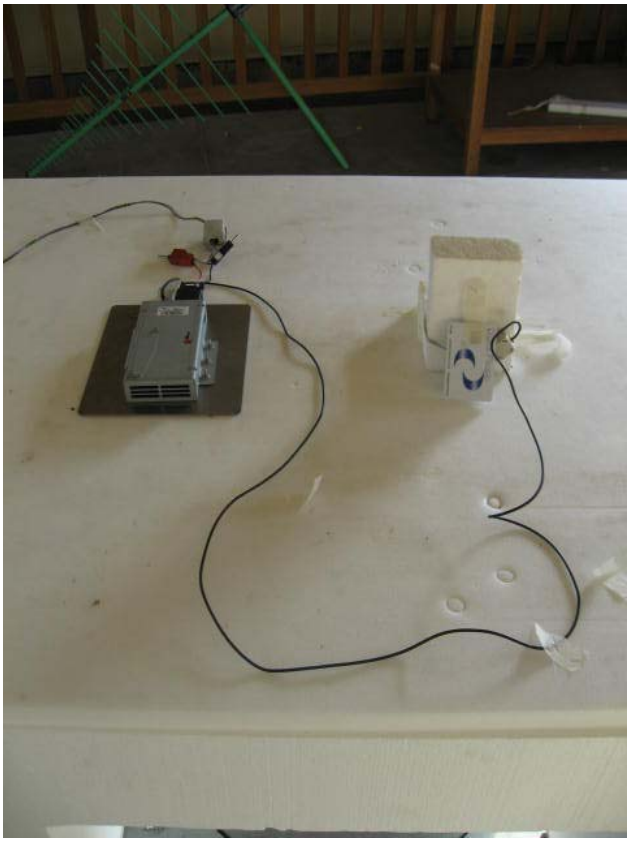
Depileur antenna



APPENDIX 2: Test set up

Anechoic room

Open area test site



APPENDIX 3: Test equipment list

RADIATED EMISSION LIMITS

TYPE	MANUFACTURER	EMITECH NUMBER
Open test site	EMITECH	8732
Anechoic Chamber	EMITECH	8593
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Test receiver ESI7	Rohde & Schwarz	8707
Spectrum analyzer FSP40	Rohde & Schwarz	4088
Active loop antenna HFH2-Z2	Rohde & Schwarz	8533
Biconical antenna VHBB 9124	Schwarzbeck	8526
Biconical antenna VHA 9103	Schwarzbeck	8528
Log periodic antenna UHALP 9108A	Schwarzbeck	8543
Préamplificateur 8447D	Hewlett Packard	8511
Power source E3610A	Hewlett Packard	4195
Multimeter MN5102B	AOIP	8675
Meteo station WS-9232	La Crosse Technology	8749
Meteo station WS-9232	La Crosse Technology	8750

ADITIONAL PROVISIONS TO THE GENERAL RADIATED EMISISON LIMITATIONS

TYPE	MANUFACTURER	EMITECH NUMBER
Modulation analyzer HP 8901B	Hewlett Packard	1211
Spectrum Analyzer FSBS	Rohde & Schwarz	7001
Power source E3610A	Hewlett Packard	4195
Multimeter MN5102B	AOIP	8675
Meteo station WS-9232	La Crosse Technology	8750

OPERATION WITHIN THE BAND 13.110 – 14.010 MHz

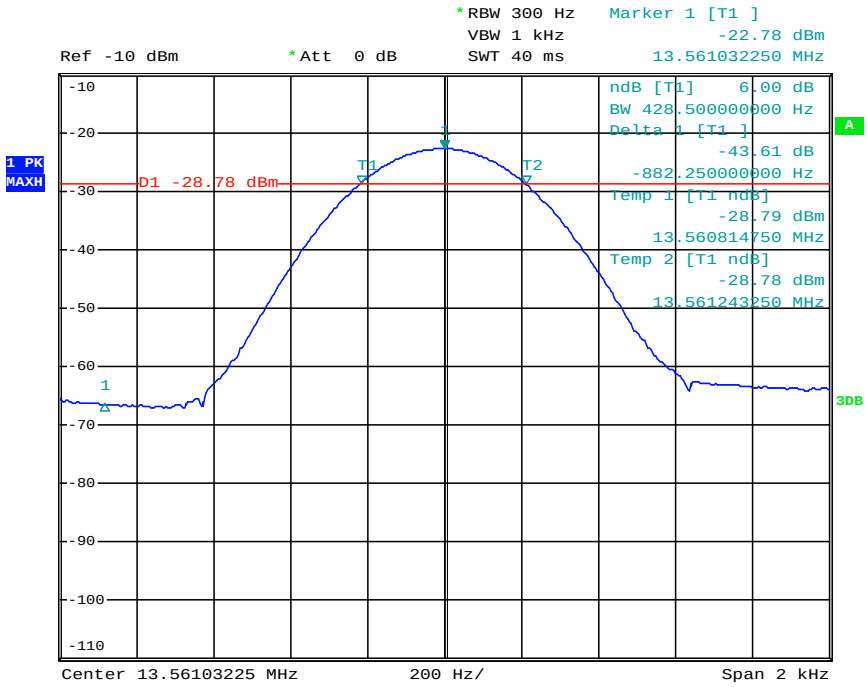
TYPE	MANUFACTURER	EMITECH NUMBER
Open test site	EMITECH	8732
Modulation analyzer HP 8901B	Hewlett Packard	1211
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Test receiver ESI7	Rohde & Schwarz	8707
Spectrum Analyzer FSBS	Rohde & Schwarz	7001
Active loop antenna HFH2-Z2	Rohde & Schwarz	8533
Climatic chamber	MPC	2593
Power source E3610A	Hewlett Packard	4195
Multimeter MN5102B	AOIP	8675
Meteo station WS-9232	La Crosse Technology	8749
Meteo station WS-9232	La Crosse Technology	8750

FIELD STRENGTH OUTSIDE THE BAND 13.110- 14.010 MHz

TYPE	MANUFACTURER	EMITECH NUMBER
Open test site	EMITECH	8732
Anechoic Chamber	EMITECH	8593
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Test receiver ESI7	Rohde & Schwarz	8707
Spectrum analyzer FSP40	Rohde & Schwarz	4088
Active loop antenna HFH2-Z2	Rohde & Schwarz	8533
Biconical antenna VHBB 9124	Schwarzbeck	8526
Biconical antenna VHA 9103	Schwarzbeck	8528
Log periodic antenna UHALP 9108A	Schwarzbeck	8543
Préamplificateur 8447D	Hewlett Packard	8511
Power source E3610A	Hewlett Packard	4195
Multimeter MN5102B	AOIP	8675
Meteo station WS-9232	La Crosse Technology	8749
Meteo station WS-9232	La Crosse Technology	8750

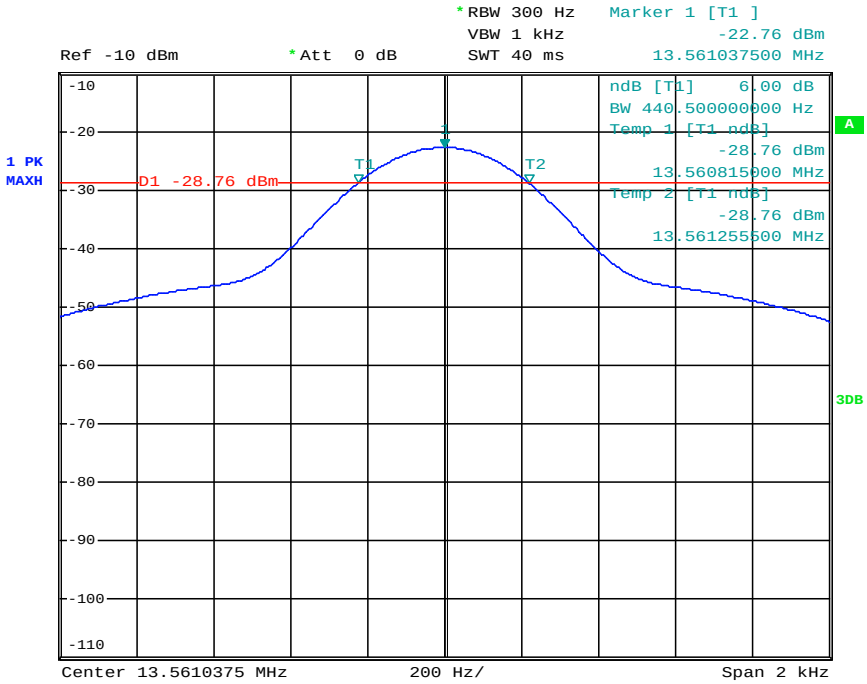
APPENDIX 4: 6 dB bandwidth

Modulation A



Date: 7.NOV.2013 13:11:27

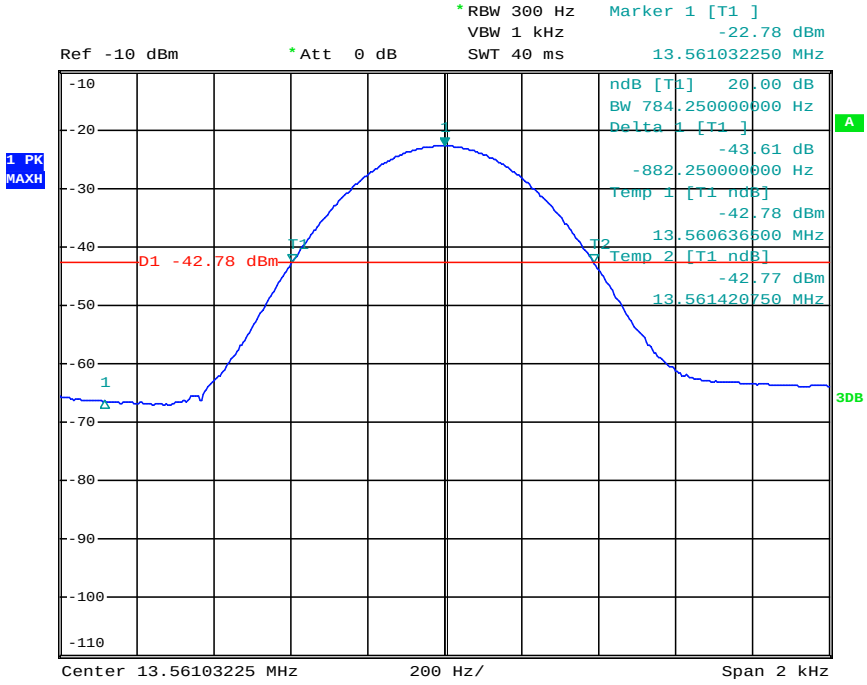
Modulation B



Date: 7.NOV.2013 12:55:19

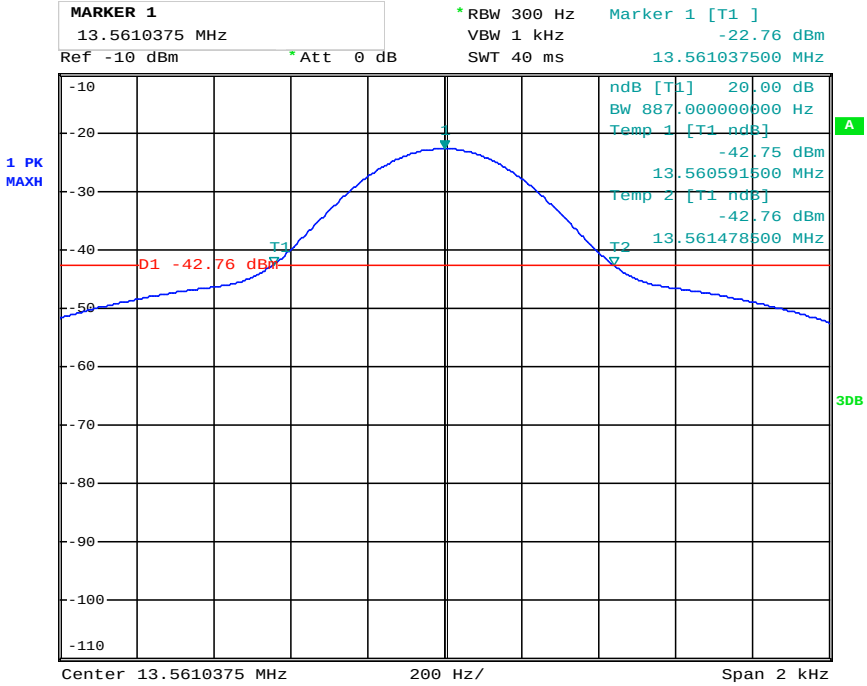
APPENDIX 5: 20 dB bandwidth

Modulation A



Date: 7.NOV.2013 13:11:47

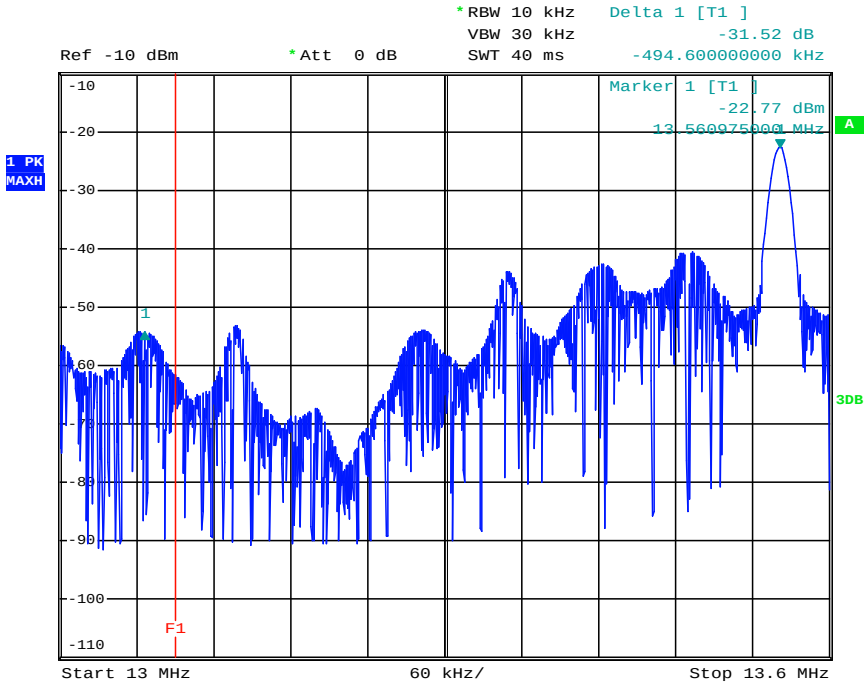
Modulation B



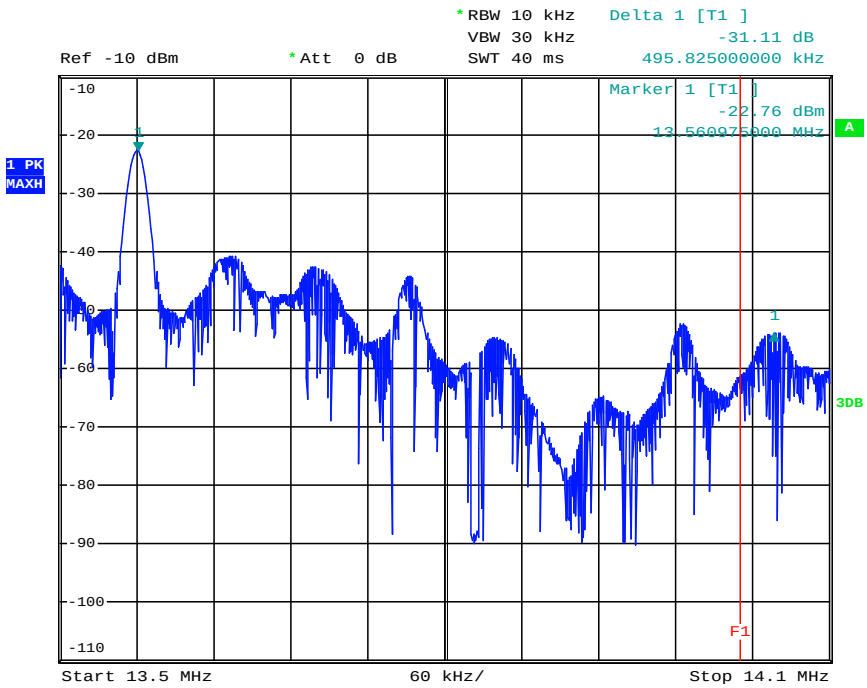
Date: 7.NOV.2013 12:54:46

APPENDIX 6: band edge

Modulation A

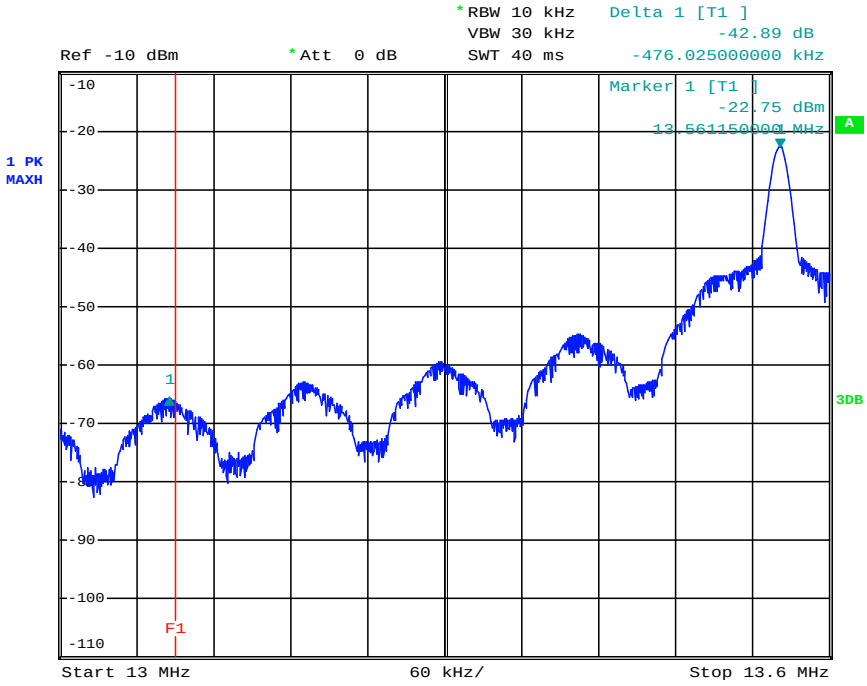


Date: 7.NOV.2013 13:10:38

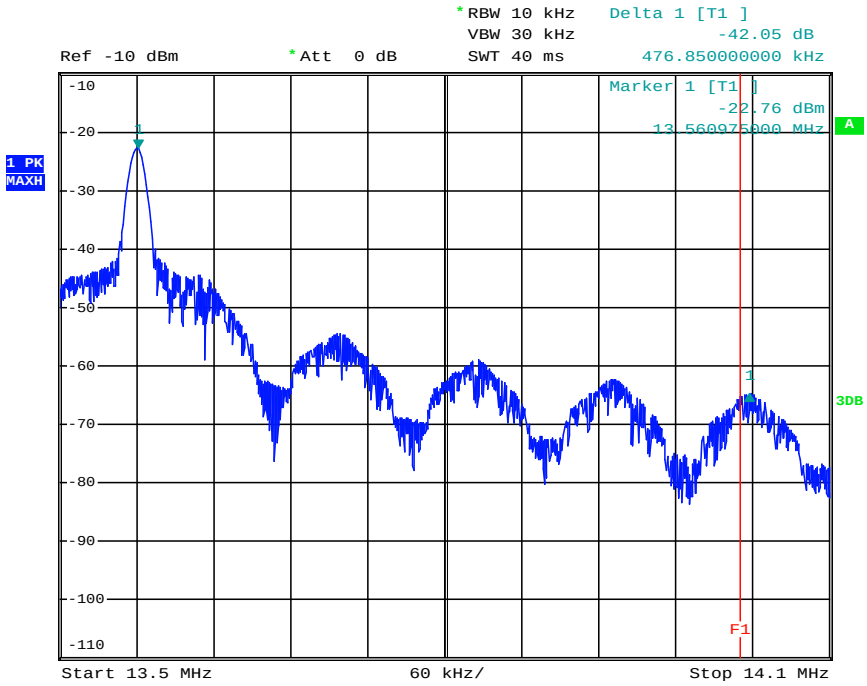


Date: 7.NOV.2013 13:08:55

Modulation B



Date: 7.NOV.2013 13:00:23

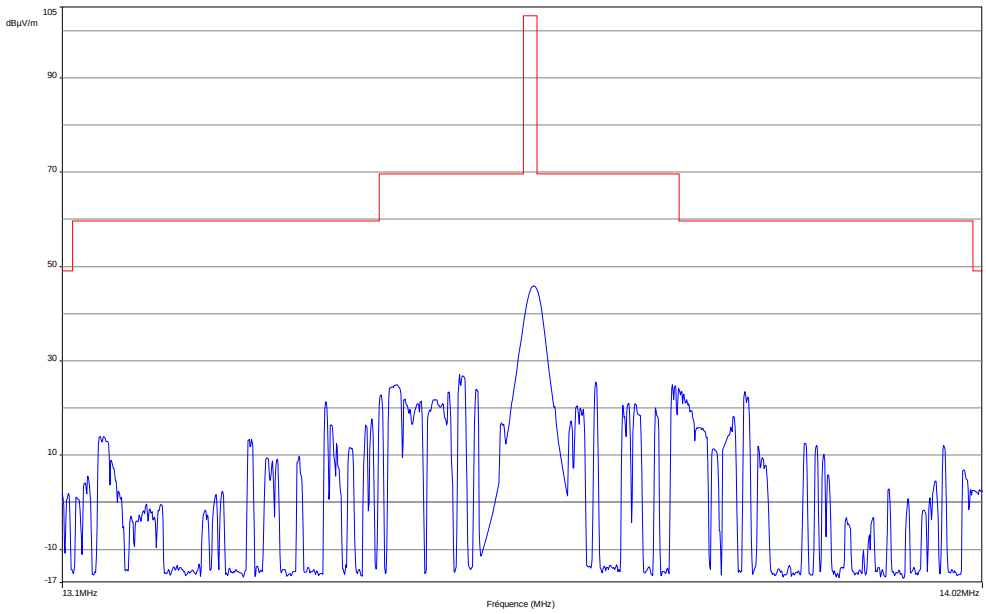


Date: 7.NOV.2013 13:05:26

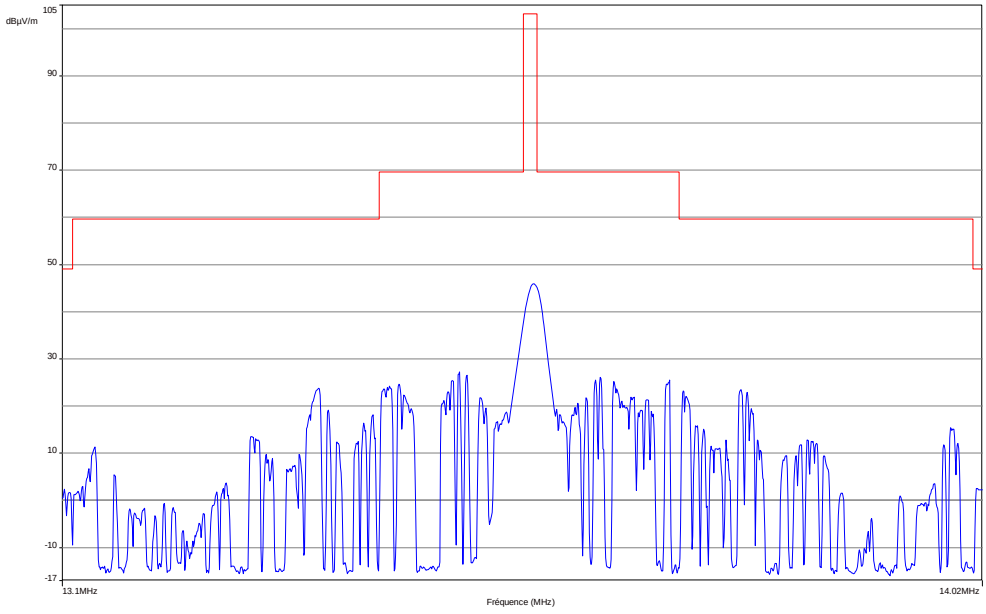
APPENDIX 7: spectrum mask

Modulation A

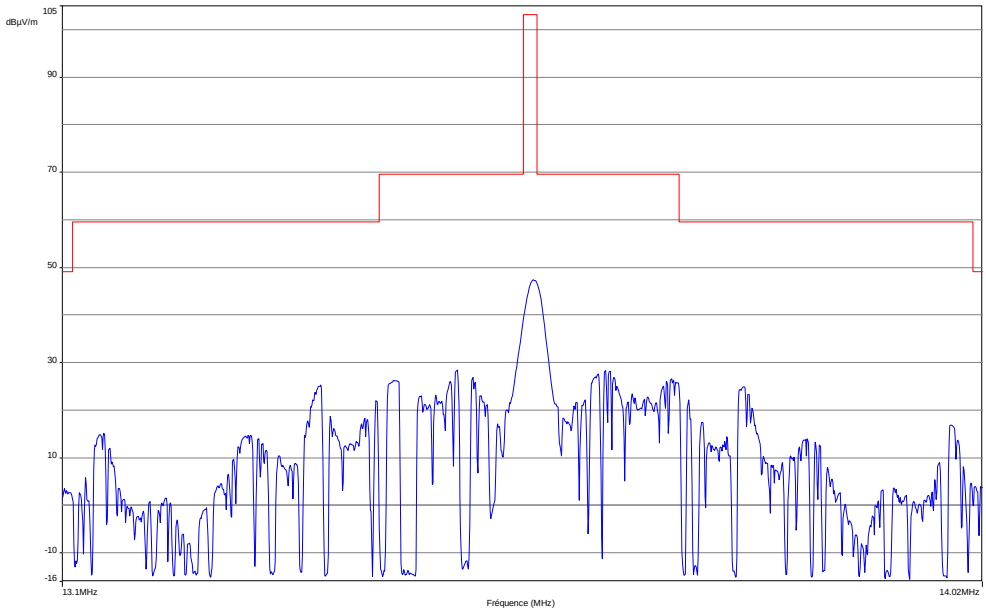
MASK +20°C, 10.2 Vdc



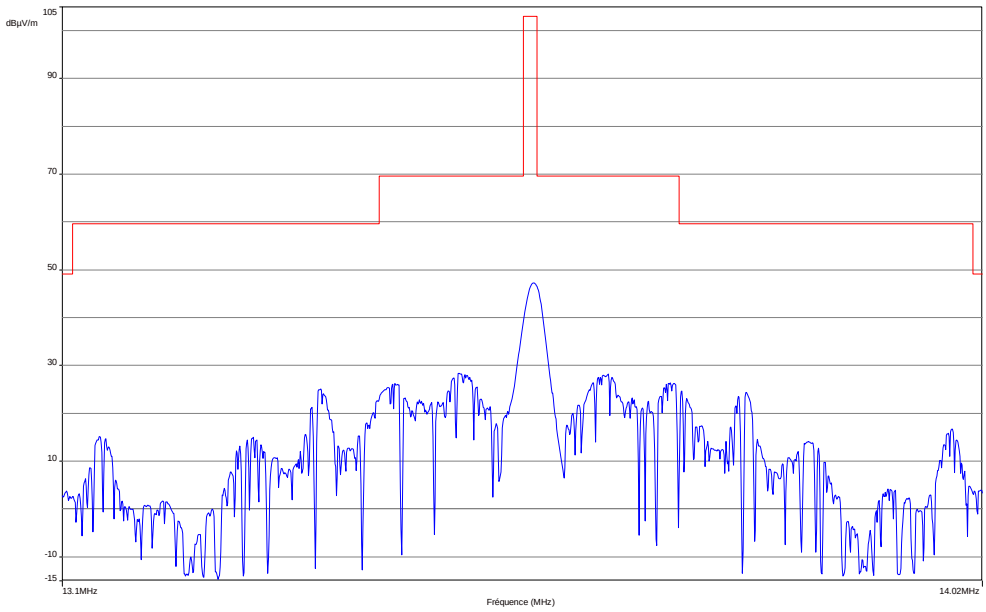
MASK +20°C, 13.8 Vdc



MASK -20°C, 12 Vdc

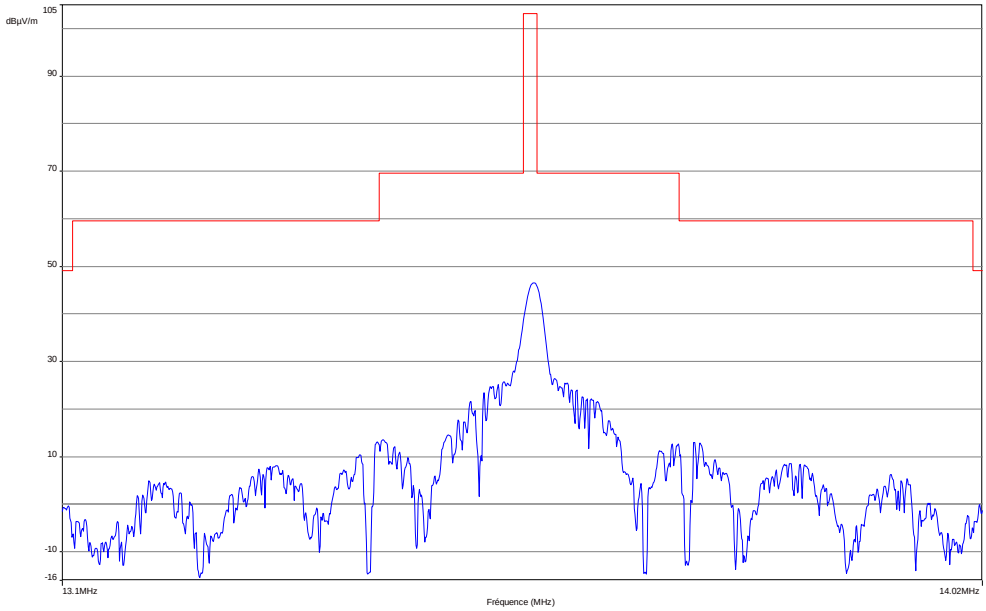


MASK +50°C, 12 Vdc

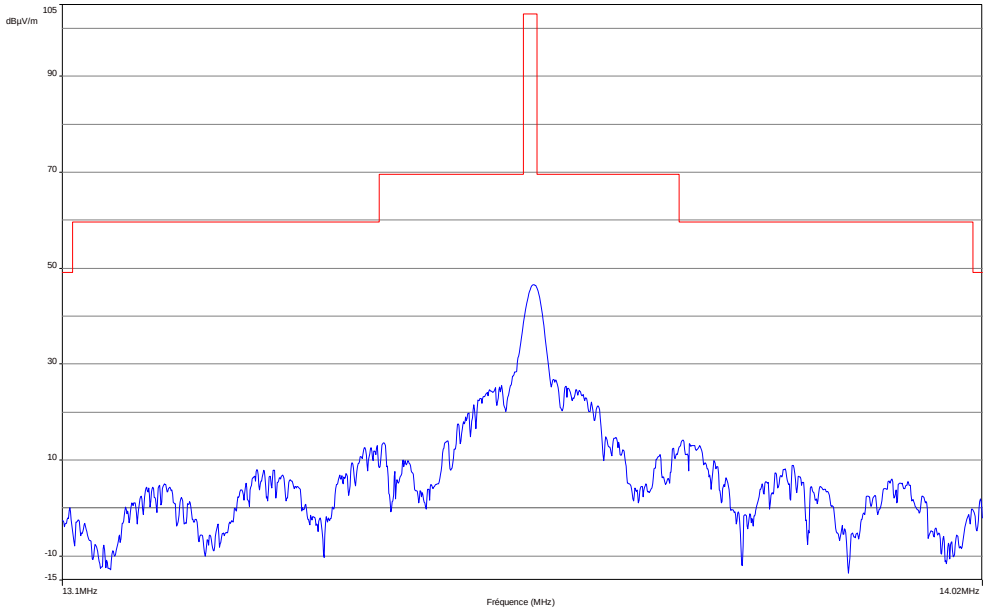


Modulation B

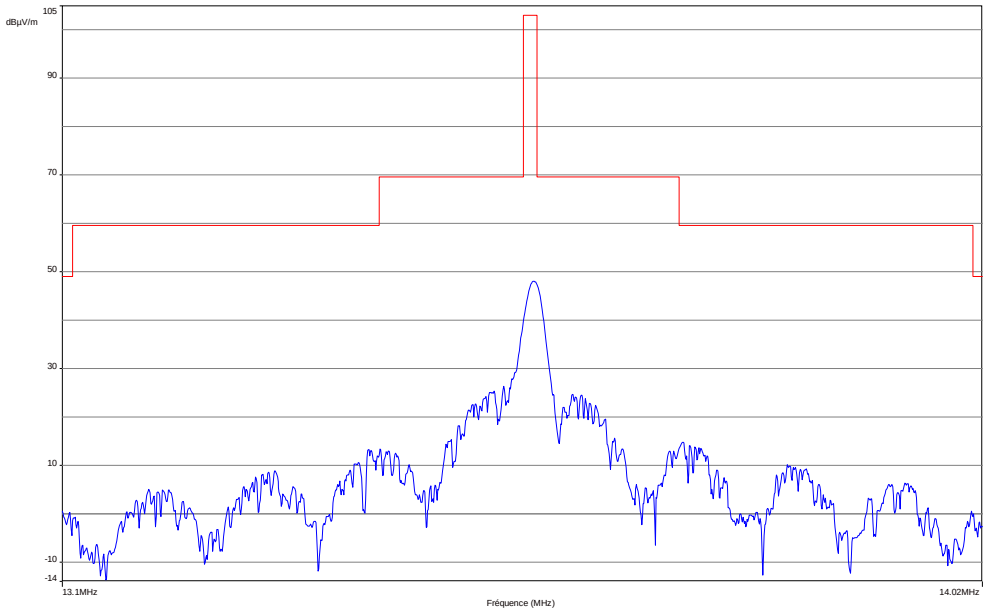
MASK +20°C, 10.2 Vdc



MASK +20°C, 13.8 Vdc



MASK -20°C, 12 Vdc



MASK +50°C, 12 Vdc