

RR051-13-105730-5-A Ed. 0

Certification test report

Limited modular Approval

 According to the standard:
 CFR47 FCC PART 15

 Equipment under test:
 RF module

Model: PS5005

 FCCID:
 OQMSA

 Company:
 JAY ELECTRONIQUE

DISTRIBUTION: Mr CANNAVO

(Company: JAY ELECTRONIQUE)

Number of pages: 48 with 7 annexes

Ed.	Date	Modified pages	Written by		Technical Verification and Quality Approval	
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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: RF module

Serial number (S/N): not communicated

Reference / model (P/N): PS5005

Software version: not communicated

MANUFACTURER: JAY ELECTRONIQUE

COMPANY SUBMITTING THE PRODUCT:

Company: JAY ELECTRONIQUE

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Responsible: Mr CANNAVO

Person(s) present(s) during the tests: -

DATE(S) OF TEST: 8, 9, 10, 16, 20 and 22 January 2014
11 and 14 April 2014

TESTING LOCATION: EMITECH ANGERS laboratory at JUIGNE SUR LOIRE (49) FRANCE
EMITECH ANGERS open area test site in JUIGNE SUR LOIRE (49)
FRANCE

FCC Accredited under US-EU MRA Designation Number: FR0009
Test Firm Registration Number: 873677
FCC 2.948 Listed Site Registration Number: 90469

EMITECH ANGERS open area test site in Beaucouzé (49) FRANCE
FCC 2.948 Listed Site Registration Number: 101696

TESTED BY: M. DUMESNIL

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1. INTRODUCTION

This document presents the result of Certification tests carried out on the following equipment: RF module PS5005, in accordance with normative reference.

2. PRODUCT DESCRIPTION

ITU Emission code:	34K0F7D
Class:	B (residential)
Utilization:	RF module
Antenna type and gain:	external antenna BNC male connector with cable UFL/BNC female connector; 0 dBi
Operating frequency range:	from 911.8 MHz to 918.2 MHz
Number of channels:	64
Channel spacing:	100 kHz
Frequency generation:	Integrated fractional synthesis rate in the radio chip
Modulation:	FSK
Power source:	12-24Vdc or 24-48Vac or 115-230Vac

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 (2014)	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 107: Conducted limits

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 207: Conducted limits

Paragraph 209: Radiated emission limits; general requirements

Paragraph 212: Modular transmitter

Paragraph 215: Additional provisions to the general radiated emission limitations

Paragraph 249: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5850 MHz and 24.0-24.25 GHz.

5. TEST EQUIPMENT CALIBRATION DATES

Equipment	Model	Type	Last verification	Next verification	Validity
0000	BAT-EMC	Software	/	/	/
0728	HP 11966C	Biconical antenna	03/09/2012	03/09/2016	03/11/2016
1219	R&S ESVS10	Test receiver	05/09/2013	05/09/2015	05/11/2015
1274	Emitech La Pouëze	OATS	05/03/2013	05/03/2016	05/05/2016
1539	Oregon Scientific AB888	Meteo station	09/11/2012	09/11/2014	09/01/2015
1922	Microwave DB C020180F-4B1	Low-noise amplifier 1 to 18 GHz	12/09/2013	12/09/2014	12/11/2014
1999	R&S HL223	Log periodic antenna	03/09/2012	03/09/2016	03/11/2016
4088	R&S FSP40	Spectrum Analyzer	22/08/2013	22/08/2015	22/10/2015
4393	Wainwright WLJS800-C11/60EE	Low pass filter	24/01/2012	24/01/2014	24/03/2014
6609	MICRO-TRONICS HPM11630	high-pass filter	24/01/2012	24/01/2014	24/03/2014
8507	Pacific 360-AMXT-UPC32	Power Source	29/08/2013	29/08/2014	29/10/2014
8508	California instruments 1251RP	Power source	29/08/2013	29/08/2014	29/10/2014
8511	Hewlett Packard 8447D	Low noise amplifier	22/08/2013	22/08/2014	22/10/2014
8524	HP 8591EM	Test receiver	30/07/2013	30/07/2015	30/09/2015
8526	Schwarzbeck VHBB 9124	Biconical antenna	12/06/2012	12/06/2016	12/08/2016
8533	R&S HFB2-Z2	Loop antenna	01/05/2013	01/05/2014	01/07/2014
8535	Emco 3115	Horn antenna	29/10/2012	29/10/2016	29/12/2016

Equipment	Model	Type	Last verification	Next verification	Validity
8543	Schwarzbeck UHALP 9108A	Log periodic antenna	12/06/2012	12/06/2016	12/08/2016
8572	GYL Technologies N-4m RG214	Cable	15/05/2012	15/05/2014	15/07/2014
8593	SIDT Cage 2	Full anechoic room	/	/	/
8641	SECRE ETP232	High-pass filter	12/03/2013	12/03/2015	12/05/2015
8675	AOIP MN5102B	Multimeter	15/01/2013	15/01/2015	15/03/2015
8676	IDM106N	Multimeter	24/04/2013	24/04/2015	24/06/2015
8677	IDM106N	Multimeter	24/04/2013	24/04/2015	24/06/2015
8707	R&S ESI7	Test receiver	03/10/2012	03/10/2014	03/12/2014
8720	R&S ESH3-Z5	LISN	22/08/2012	22/08/2014	22/10/2014
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
8775	Fontaine FTN 2515B	Power source	*	*	*
8893	Emitech	Outside room	/	/	/
8896	ACQUISYS GPS8	Satellite synchronized frequency standard	/	/	/
8972	K&L Microwave 500-1000MHz	Notch filter	/	/	/
10317	Multimeter 177	Fluke	12/06/2013	12/06/2015	12/08/2015
10651	Absorber sheath current	Emitech	17/10/2013	17/10/2015	17/12/2015

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

6. TESTS AND CONCLUSIONS

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				Note 1
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				
FCC Part 15.205	RESTRICTED BANDS OF OPERATION	X				
FCC Part 15.207	CONDUCTED LIMITS	X				Note 1
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 §15.249 frequency bands	X				Note 4
	(c) 20 dB bandwidth and band-edge compliance	X				
FCC Part 15.249	OPERATION WITHIN THE BANDS 902-928 MHz, 2400-2483.5 MHz, 5725-5850 MHz AND 24.0-24.25 GHz					
	(a) Fundamental and harmonics field strength	X				
	(b) Fixed point-to-point operation		X			
	(c) Measurement distance	X				
	(d) Out-of-band emissions	X				
	(e) Field strength limits above 1 GHz	X				

NAP: Not Applicable

NAs: Not Asked

Note 1: With ferrite Laird Technologies, reference 28B0686-200 with two turn. See photo in annex 4.

Note 2: See FCC part 15.249 (d).

Note 3: Limited single modular transmitter.

The host devices of the certified module shall be properly labeled to identify the module within.

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

RF EXPOSURE:

Maximum measured power = 86.74 dB μ V/m = 0.142 mW

($P = (E \times d)^2 / (30 \times G_p)$ with $d = 3$ m and $G_p = 1$)

$PSD = EIRP / 4 \times \pi \times R^2 = 0.217 / 4 \times \pi \times (20 \text{ cm})^2 = 28.17 \times 10^{-6} \text{ mW/cm}^2$ (limit= 0.612 mW/cm²).

The equipment fulfils the requirements on power density for general population/uncontrolled exposure and therefore fulfils the requirements of 47 CFR §1.1310.

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

7. MEASUREMENT OF THE CONDUCTED DISTURBANCES

Standard: FCC Part 15

Test procedure: Paragraph 15.107

Limits: Class B

Software used: BAT-EMC V3.6.0.32

Test set up:

The EUT is placed on a wooden table, 0.8 m over an horizontal reference plane and 0.4 m from a vertical reference plane. It is powered by an artificial main network placed on the ground reference plane. The equipment is powered with the AC power operating voltage of 120 V / 60 Hz.

See photos in appendix 2.

Frequency range: 150 kHz - 30 MHz

Detection mode: Peak

Bandwidth: 10 kHz

Equipment under test operating condition:

The equipment is blocked in standby / reception mode.

Results:

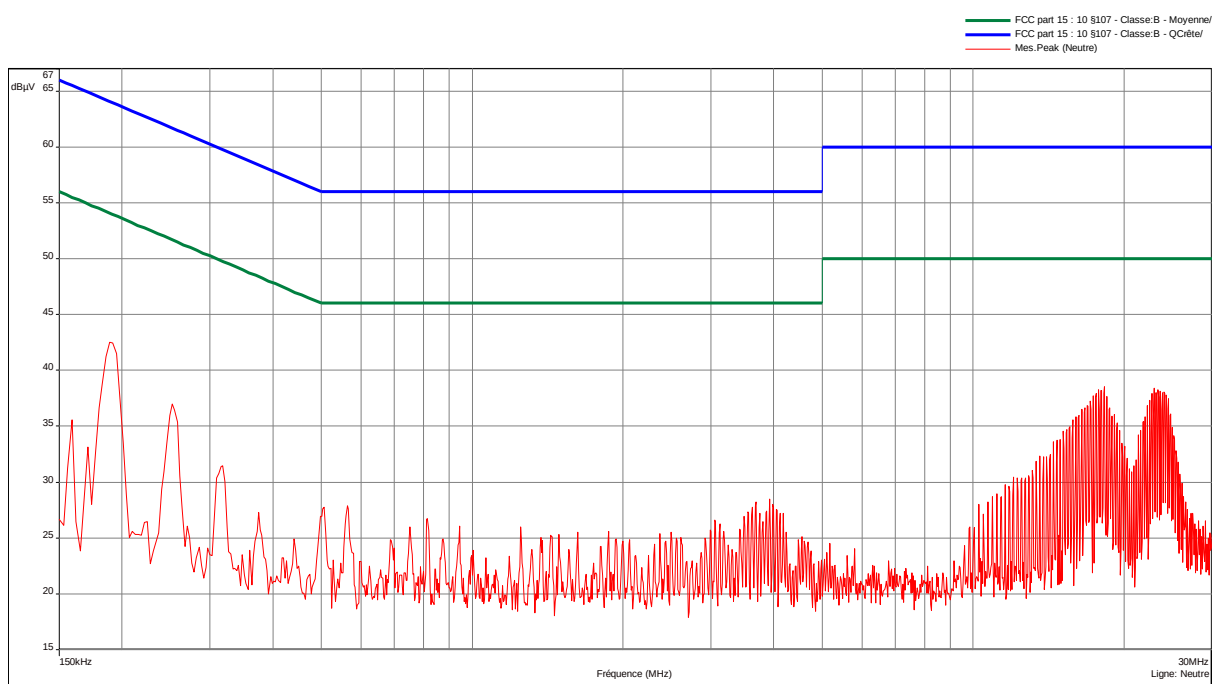
Ambient temperature (°C): 20.6
 Relative humidity (%): 44

Sample N° 1:

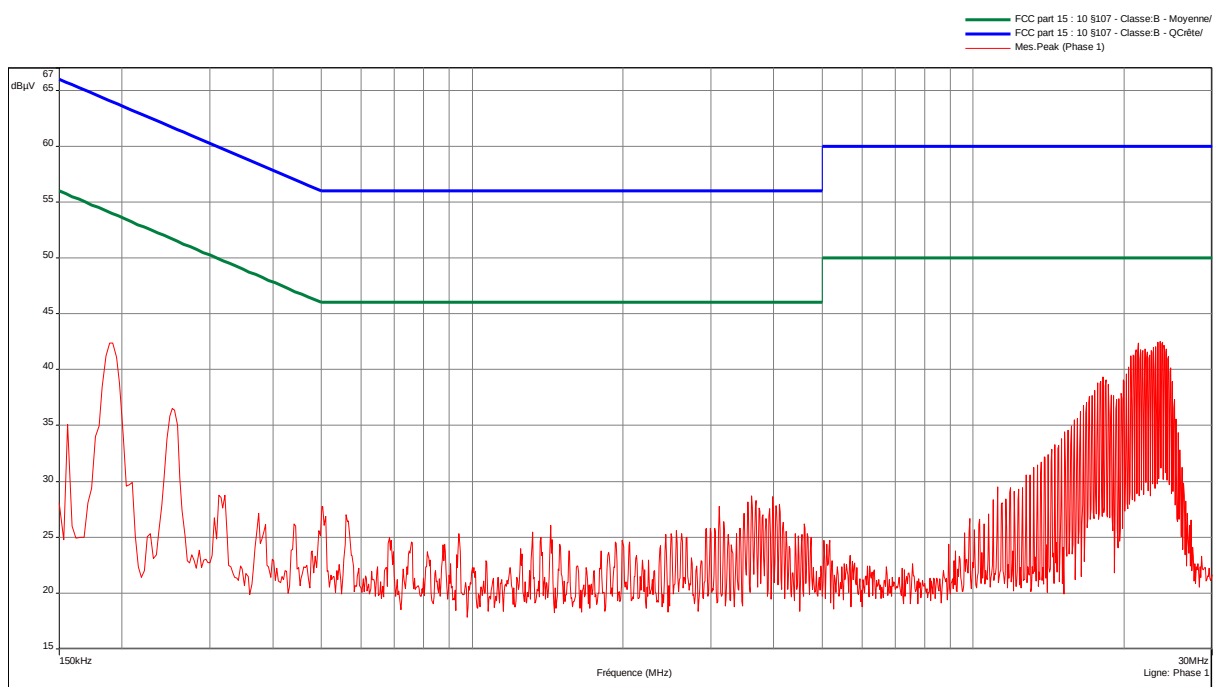
Measurement on the mains power supply:

The measurement is first realized with Peak detector.

Curve N° 1: measurement on the Neutral with peak detector



Curve N° 2: measurement on the Line with peak detector



The frequencies which are not 6 dB under the Average limit are then analyzed with Average detector.

Test conclusion:

RESPECTED STANDARD with ferrite Laird Technologies, reference 28B0686-200 with two turn. See photo in annex 4.

8. 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 30 MHz to 5th harmonic of the highest frequency used (918.2 MHz).

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

Bandwidth: 120 kHz ($F < 1$ GHz) 1 MHz ($F > 1$ GHz)

Distance of antenna: 3 meters

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 / reception mode.

Results:

Ambient temperature (°C): 15
Relative humidity (%): 75

Sample N° 1

Power source: 24Vdc by an external power source.

FREQUENCIES (MHz)	Detector P: Peak QP: Quasi- Peak	Antenna height (cm)	Azimuth (degree)	Polarization H: Horizontal V: Vertical	Field strength (dBμV/m)	Limits (dBμV/m)	Margin (dB)
30.61	QP	100	0	V	32.1	40	7.9
37.68	QP	100	130	V	34.6	40	5.4
41.76	QP	100	180	V	38.6	40	1.4
45.91	QP	100	180	V	35	40	5
57.69	QP	100	230	V	33.5	40	6.5
96.2	QP	330	103	H	36.8	43.5	6.7
110.1	QP	165	95	H	42.4	43.5	1.1

Sample N° 1

Power source: 48Vac / 60Hz by an external power source.

FREQUENCIES (MHz)	Detector P: Peak QP: Quasi- Peak	Antenna height (cm)	Azimuth (degree)	Polarization H: Horizontal V: Vertical	Field strength (dBμV/m)	Limits (dBμV/m)	Margin (dB)
42.1	QP	100	99	V	28.8	40	11.2
45.64	QP	100	115	V	25.6	40	14.4
71.71	QP	100	240	V	34.5	40	5.5
110.1	QP	100	207	V	42.4	43.5	1.1
118	QP	100	198	V	40.3	43.5	3.2

Sample N° 1

Power source: 120Vac / 60 Hz by an external power source.

FREQUENCIES (MHz)	Detector P: Peak QP: Quasi- Peak	Antenna height (cm)	Azimuth (degree)	Polarization H: Horizontal V: Vertical	Field strength (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)
41.79	QP	100	110	V	28	40	12
45.44	QP	100	73	V	22.6	40	17.4
45.88	QP	100	97	V	24	40	16
71.71	QP	100	224	V	34.6	40	5.4
110.15	QP	100	200	V	39.6	43.5	3.9

Applicable limits:

for 30 MHz $\leq$ F $\leq$ 88 MHz :	40 dB μ V/m at 3 meters
for 88 MHz < F $\leq$ 216 MHz :	43.5 dB μ V/m at 3 meters
for 216 MHz < F $\leq$ 960 MHz :	46 dB μ V/m at 3 meters
above 960 MHz :	54 dB μ V/m at 3 meters

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

Test conclusion:

RESPECTED STANDARD

9. MEASUREMENT OF THE CONDUCTED DISTURBANCES

Standard: FCC Part 15

Test procedure: Paragraph 15.207

Software used: BAT-EMC V3.6.0.32

Test set up:

The EUT is placed on a wooden table, 0.8 m over an horizontal reference plane and 0.4 m from a vertical reference plane. It is powered by an artificial main network placed on the ground reference plane. The equipment is powered with the AC power operating voltage of 120 V / 60 Hz.

See photos in appendix 2.

Frequency range: 150 kHz - 30 MHz

Detection mode: Peak

Bandwidth: 10 kHz

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.

Results:

Ambient temperature (°C): 20.6
 Relative humidity (%): 44

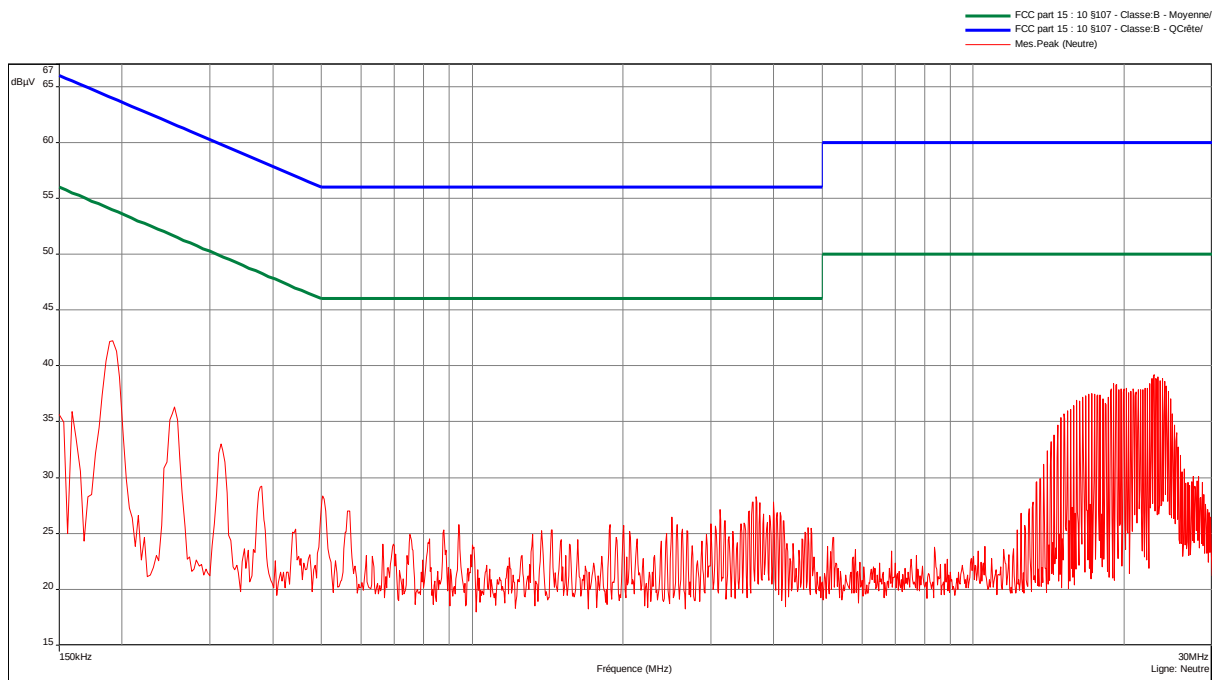
Sample N° 1:

Power order: 6

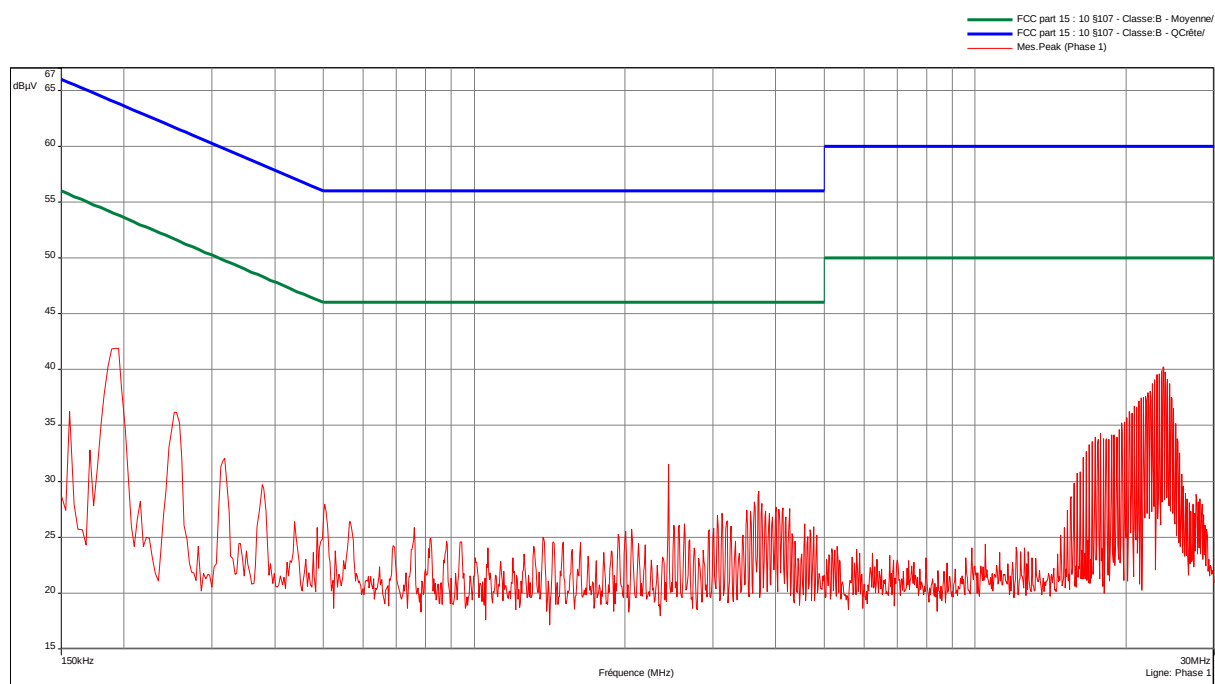
Measurement on the mains power supply:

The measurement is first realized with Peak detector.

Curve N° 3: measurement on the Neutral with peak detector



Curve N° 4: measurement on the Line with peak detector



Test conclusion:

RESPECTED STANDARD with ferrite Laird Technologies, reference 28B0686-200 with two turn. See photo in annex 4.

10. 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 transmission mode, modulated by internal data signal, at the highest output power level which the transmitter is intended to operate.

Results:

Ambient temperature (°C): 21.4
Relative humidity (%): 46

Lower Band Edge: band from 900 MHz to 902 MHz

Upper Band Edge: band from 928 MHz to 930 MHz

Power source: 120Vac / 60 Hz by an external power source.

Power order: 6

Sample N° 1:

FUNDAMENTAL FREQUENCY (MHZ)	FIELD STRENGTH LEVEL OF FUNDAMENTAL (DB μ V/M)	DETECTOR (PEAK OR AVERAGE)	FREQUENCY OF MAXIMUM BAND- EDGES EMISSION (MHZ)	DELTA MARKER (DB)*	CALCULATED MAX OUT-OF- BAND EMISSION LEVEL (DB μ V/M)	LIMIT (DB μ V/M)	MARGIN (DB)
911.8	86.74	Peak	901.560	-39.80	46.94**	74	27.06
918.2	86.51	Peak	929.256	-39.36	47.15**	74	26.85

* Marker-Delta method

** The peak level is lower than the average limit (54 dB μ V/m).

The 20 dB bandwidth curves are given in appendix 7 ; band-edge curves are given in appendix 5.

Test conclusion:

RESPECTED STANDARD

11. FUNDAMENTAL AND HARMONICS FIELD STRENGTH

Standard: FCC Part 15

Test procedure: paragraph 15.249 (a)

Test set up:

For the range 9 kHz to 1 GHz, 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 azimuth corresponds to the front of the device under test.

Above 1 GHz the system is tested in anechoic chamber. The EUT is placed on a rotating table, 1.5m from a ground plane. Zero degree azimuth corresponds to the front of the device under test.

Frequency range: From 9 kHz to 10th harmonic of the highest fundamental frequency (918.2 MHz).

Distance of antenna: 3 meters

Antenna height: 1 to 4 meters

Antenna polarization: vertical and horizontal

Equipment under test operating condition:

The equipment under test is blocked in continuous transmission mode, modulated by internal data signal, at the highest output power level which the transmitter is intended to operate.

Results:

Ambient temperature (°C): 21.2 22
Relative humidity (%): 41 40

Power source: 120Vac / 60 Hz by an external power source.

Power order: 6

Sample N° 1 Channel 1

FREQUENCIES (MHz)	Detector P: Peak QP: Quasi-Peak	Antenna height (cm)	Azimuth (degree)	Resolution bandwidth (kHz)	Polarization H: Horizontal V: Vertical	Field strength (dBμV/m)	Limits (dBμV/m)	Margin (dB)
911.8	QP	153	121	120	V	86.74*	94	7.26
1823.6	P	150	105	1000	V	41.40	54	12.60
3647.2	P	150	165	1000	V	44.80	54	9.20

* Fundamental emission

Sample N° 1 Channel 32

FREQUENCIES (MHz)	Detector P: Peak QP: Quasi-Peak	Antenna height (cm)	Azimuth (degree)	Resolution bandwidth (kHz)	Polarization H: Horizontal V: Vertical	Field strength (dBμV/m)	Limits (dBμV/m)	Margin (dB)
915	QP	151	130	120	V	86.36*	94	7.64
1830	P	150	95	1000	V	41.40	54	12.60
3660	P	150	160	1000	V	44.10	54	9.90

* Fundamental emission

Sample N° 1 Channel 64

FREQUENCIES (MHz)	Detector P: Peak QP: Quasi-Peak	Antenna height (cm)	Azimuth (degree)	Resolution bandwidth (kHz)	Polarization H: Horizontal V: Vertical	Field strength (dBμV/m)	Limits (dBμV/m)	Margin (dB)
918.2	QP	144	125	120	V	86.51*	94	7.49
1836.4	P	150	110	1000	V	41.60	54	12.40
3672.8	P	150	180	1000	V	44.60	54	9.40

* Fundamental emission

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

Test conclusion:

RESPECTED STANDARD

12. OUT OF BAND EMISSIONS

Standard: FCC Part 15

Test procedure: paragraph 15.205
paragraph 15.209
paragraph 15.249 (d)

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.

Frequency range: From 9 kHz to 10th harmonic of the highest fundamental frequency (918.2 MHz).

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

Bandwidth: 120 kHz ($F < 1$ GHz) 1 MHz ($F > 1$ GHz)

Distance of antenna: 3 meters

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 transmission mode, modulated by internal data signal, at the highest output power level which the transmitter is intended to operate.

Results:

Ambient temperature (°C): 20.6
Relative humidity (%): 44

Power source: 120Vac / 60 Hz by an external power source.

Power order: 6

Sample N° 1 Channel 1

Not any spurious has been detected.

Sample N° 1 Channel 32

Not any spurious has been detected.

Sample N° 1 Channel 64

Not any spurious has been detected.

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

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APPENDIX 2: Test set up

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APPENDIX 3: Test equipment list

Measurement of the conducted disturbances

TYPE	MANUFACTURER	EMITECH NUMBER
Outside room Hors cage	Emitech	8893
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Test receiver HP 8591EM	Hewlett Packard	8524
LISN ESH3-Z5	Rohde & Schwarz	8720
High-pass filter ETP232	SECRE	8641
Absorber sheath current	Emitech	10651
Cable N-4m RG214	GYL Technologies	8572
Power Source 360-AMXT-UPC32	Pacific	8507
Multimeter 177	Fluke	10317
Meteo station WS-9232	La Crosse Technology	8750
Software	BAT-EMC	0000

Radiated emission limits

TYPE	MANUFACTURER	EMITECH NUMBER
Open test site	EMITECH	1274
Anechoic Chamber	EMITECH	8593
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Test receiver ESVS10	Rohde & Schwarz	1219
Spectrum Analyzer FSP40	Rohde & Schwarz	4088
Biconical antenna VHBB 9124	Schwarzbeck	8526
Biconical antenna 11966C	Hewlett Packard	0728
Log periodic antenna UHALP 9108A	Schwarzbeck	8543
Log periodic antenna HL223	Rohde & Schwarz	1999
Antenna 3115	Electrometrics	8535
Low-noise amplifier 8447D	Hewlett Packard	8511
Low-noise amplifier C020180F-4B1	Microwave DB	1922
Power source 1251RP	California instruments	8508
Power source FTN 2515B	Fontaine	8775
Multimeter IDM106N	ISOTECH	8676
Multimeter IDM106N	ISOTECH	8677
Meteo station AB888	Oregon Scientific	1539
Meteo station WS-9232	La Crosse Technology	8750
Software	BAT-EMC	0000

Additional provisions to the general radiated emission limitations

TYPE	MANUFACTURER	EMITECH NUMBER
Anechoic Chamber	EMITECH	8593
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Spectrum Analyzer FSP40	Rohde & Schwarz	4088
Log periodic antenna UHALP 9108A	Schwarzbeck	8543
Power source 1251RP	California instruments	8508
Multimeter MN5102B	AOIP	8675
Meteo station WS-9232	La Crosse Technology	8750

Fundamental and harmonics field strength

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
Log periodic antenna UHALP 9108A	Schwarzbeck	8543
Antenna 3115	Electrometrics	8535
Low-noise amplifier C020180F-4B1	Microwave DB	1922
Notch filter 500-1000MHz	K&L Microwave	8972
Low pass filter WLJS800-C11/60EE	Wainwright	4393
High pass filter HPM11630	Hewlett Packard	6609
Power source 1251RP	California instruments	8508
Multimeter IDM106N	ISOTECH	8676
Meteo station WS-9232	La Crosse Technology	8749
Meteo station WS-9232	La Crosse Technology	8750
Software	BAT-EMC	0000

Out of band emissions

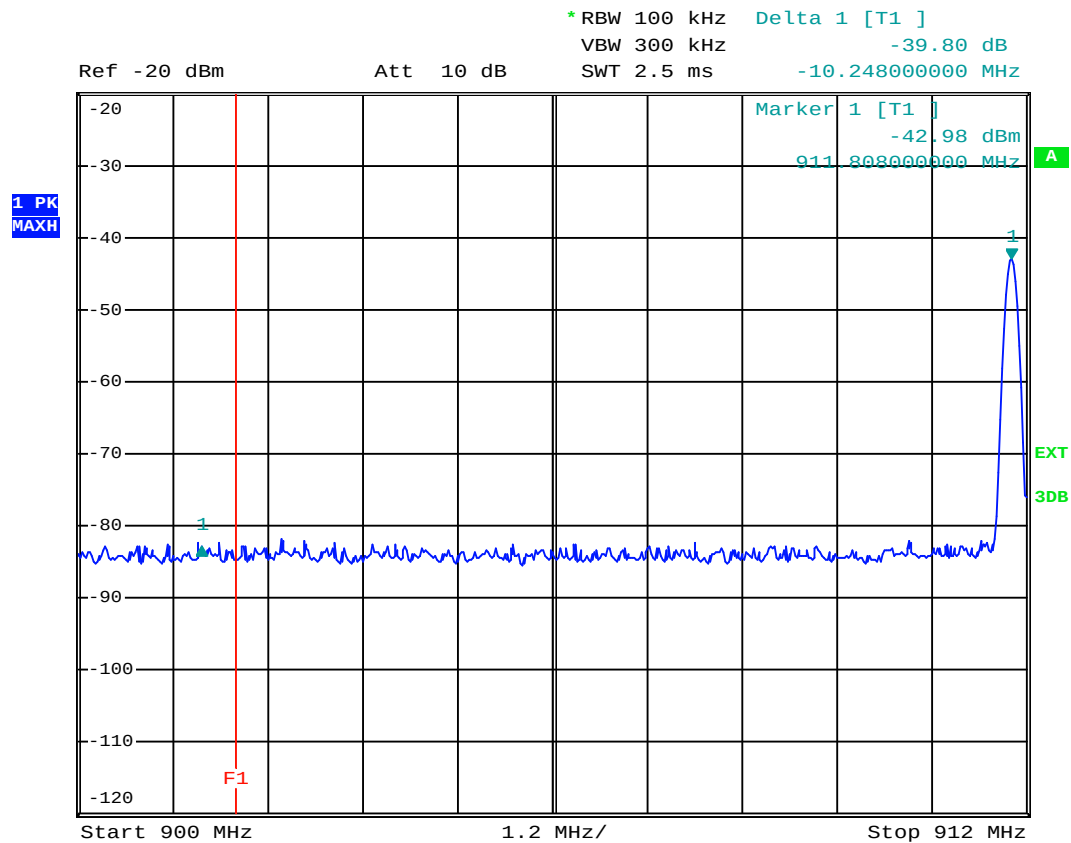
TYPE	MANUFACTURER	EMITECH NUMBER
Open test site	EMITECH	1274
Anechoic Chamber	EMITECH	8593
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Test receiver ESVS10	Rohde & Schwarz	1219
Spectrum Analyzer FSP40	Rohde & Schwarz	4088
Loop antenna HFH2-Z2	Rohde & Schwarz	8533
Biconical antenna VHBB 9124	Schwarzbeck	8526
Biconical antenna 11966C	Hewlett Packard	0728
Log periodic antenna UHALP 9108A	Schwarzbeck	8543
Log periodic antenna HL223	Rohde & Schwarz	1999
Antenna 3115	Electrometrics	8535
Low-noise amplifier 8447D	Hewlett Packard	8511
Low-noise amplifier C020180F-4B1	Microwave DB	1922
Notch filter 500-1000MHz	K&L Microwave	8972
Low pass filter WLJS800-C11/60EE	Wainwright	4393
High pass filter HPM11630	Hewlett Packard	6609
Power source 1251RP	California instruments	8508
Multimeter IDM106N	ISOTECH	8676
Multimeter IDM106N	ISOTECH	8677
Meteo station AB888	Oregon Scientific	1539
Meteo station WS-9232	La Crosse Technology	8750
Software	BAT-EMC	0000

APPENDIX 4: Modification for conducted measurement



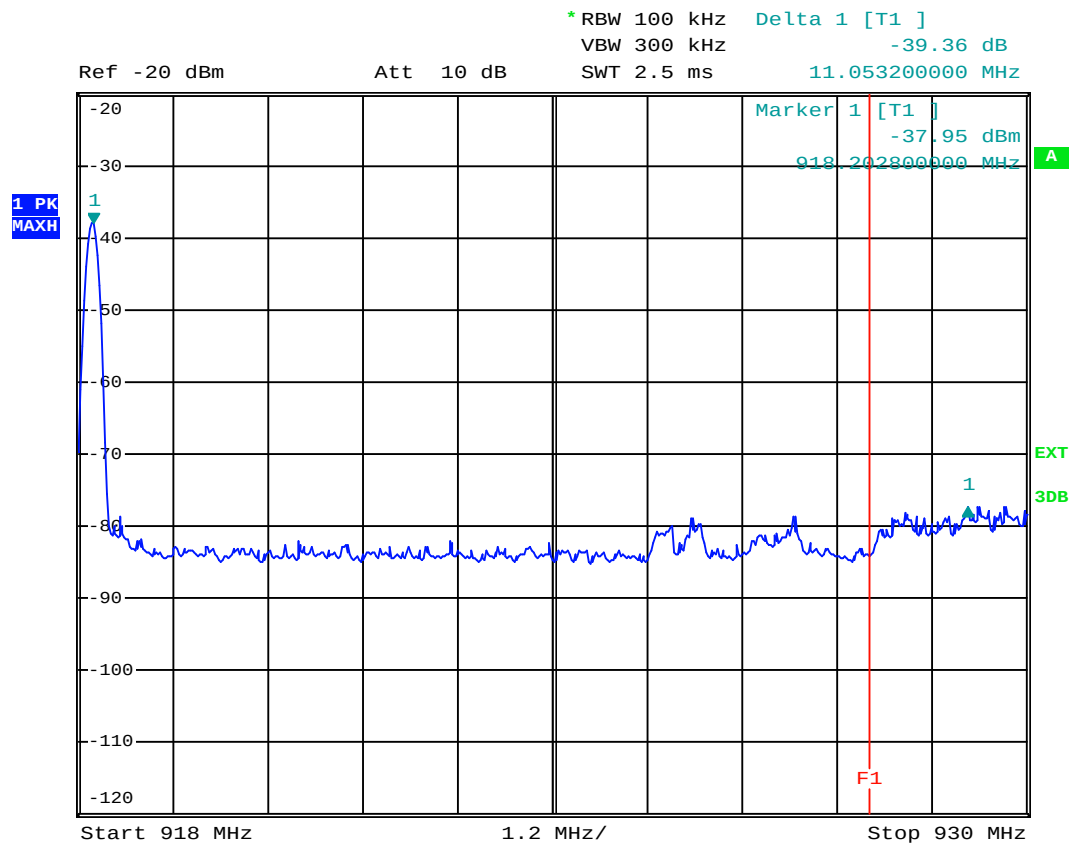
APPENDIX 5: Band edge

Lower band edge



Date: 10.JAN.2014 17:08:35

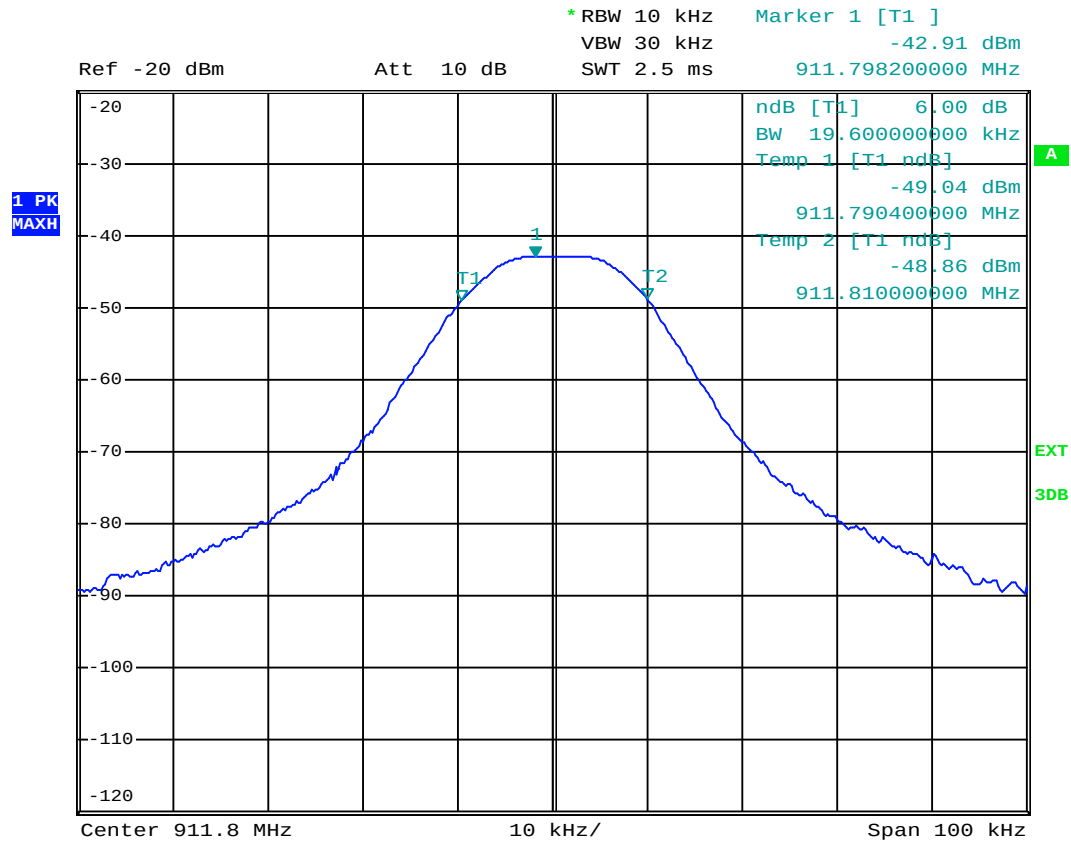
Upper band edge



Date: 10.JAN.2014 17:27:05

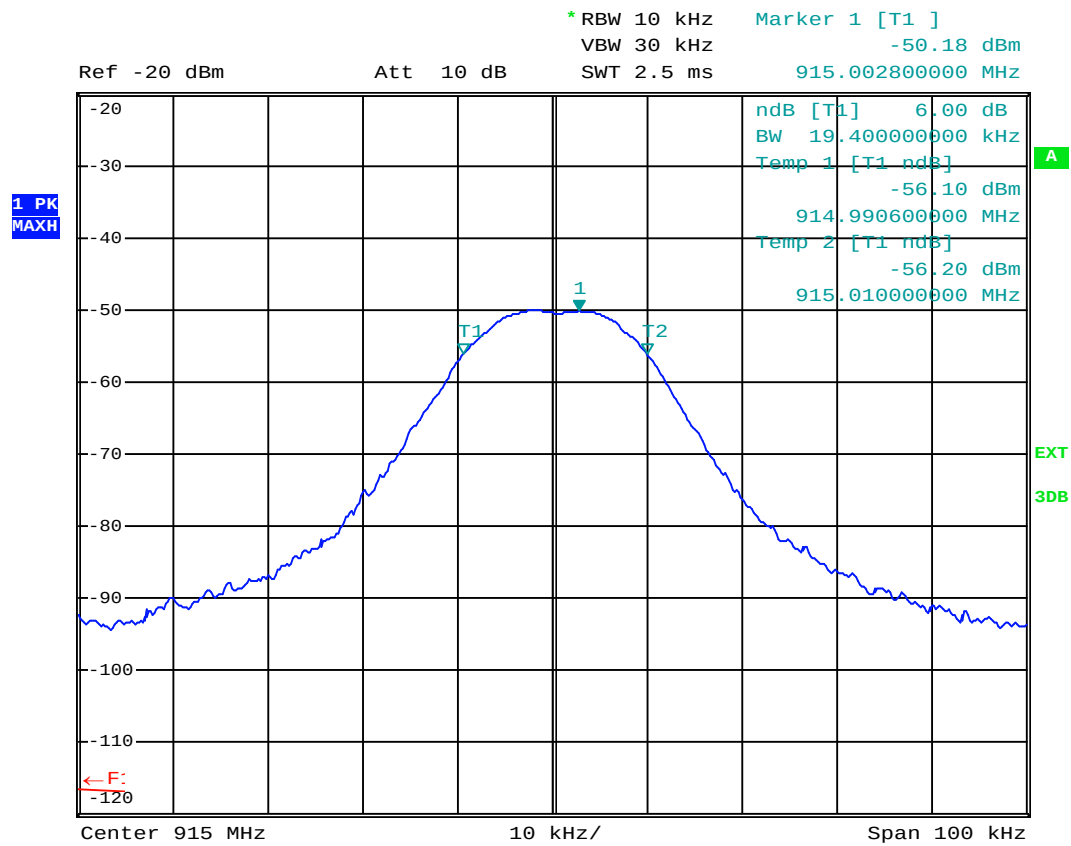
APPENDIX 6: 6 dB bandwidth

Channel 1



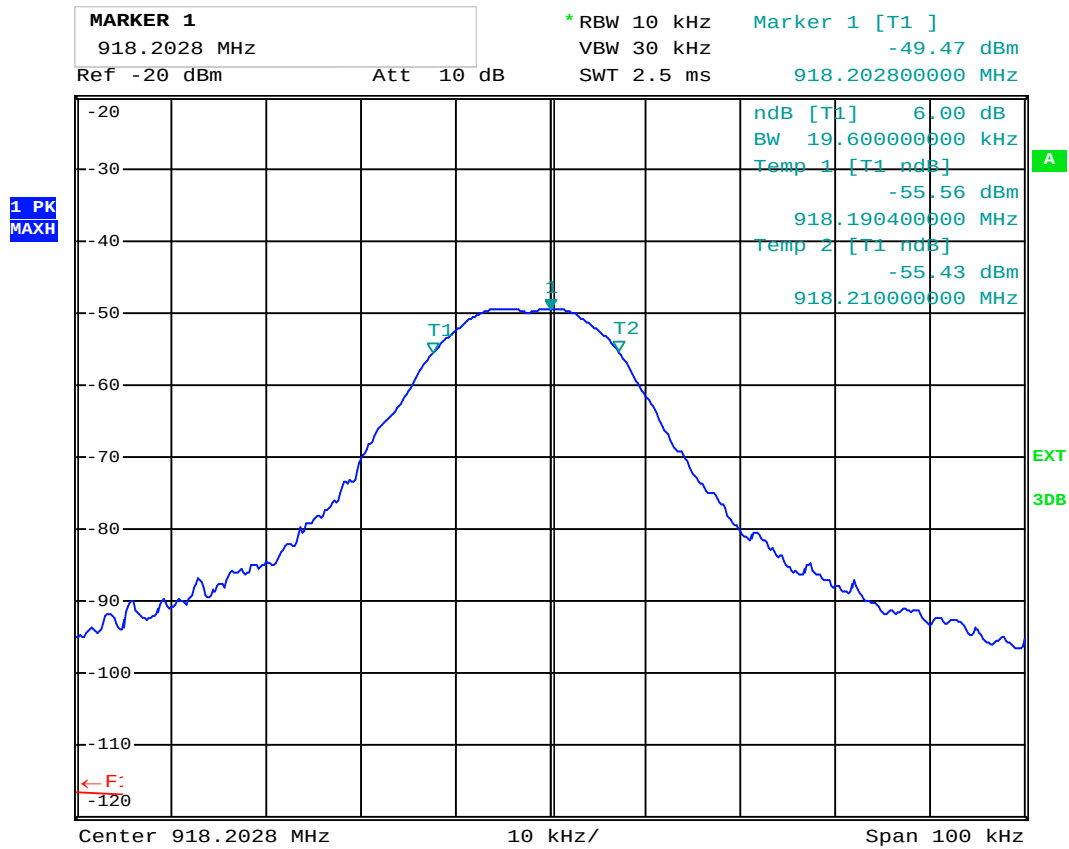
Date: 10.JAN.2014 17:03:25

Channel 32



Date: 10.JAN.2014 17:10:53

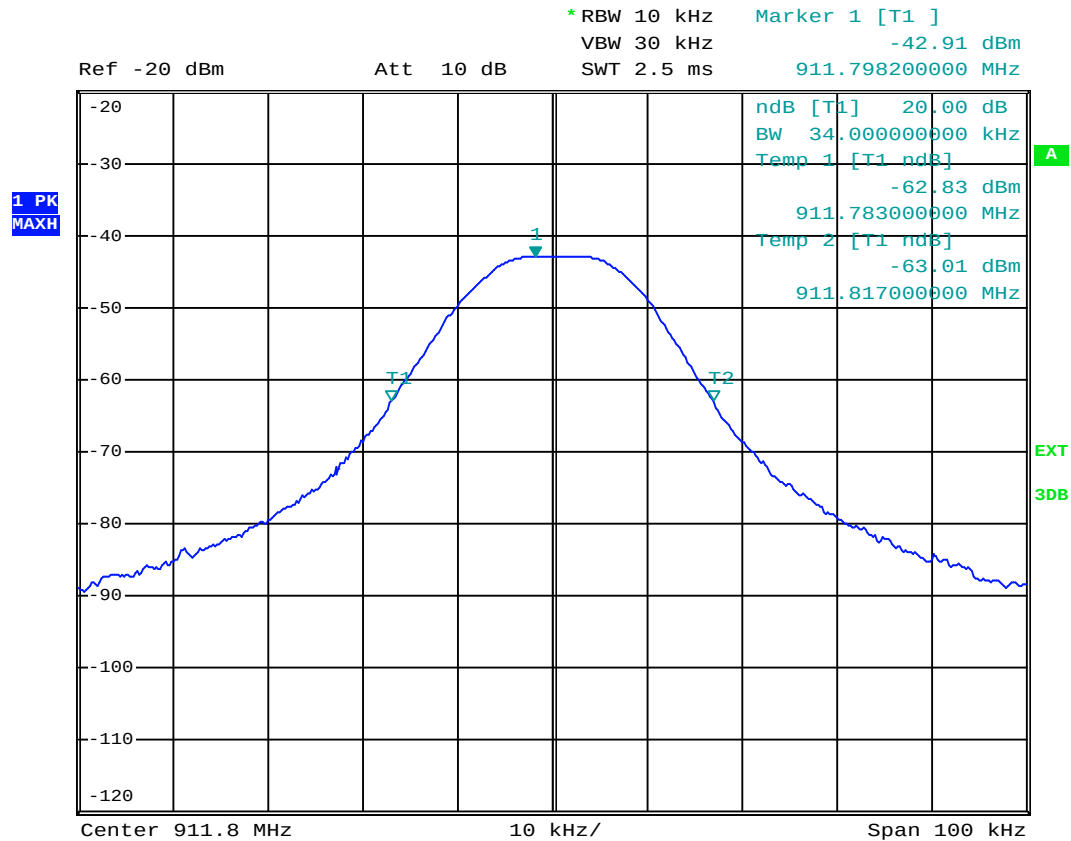
Channel 64



Date: 10.JAN.2014 17:12:57

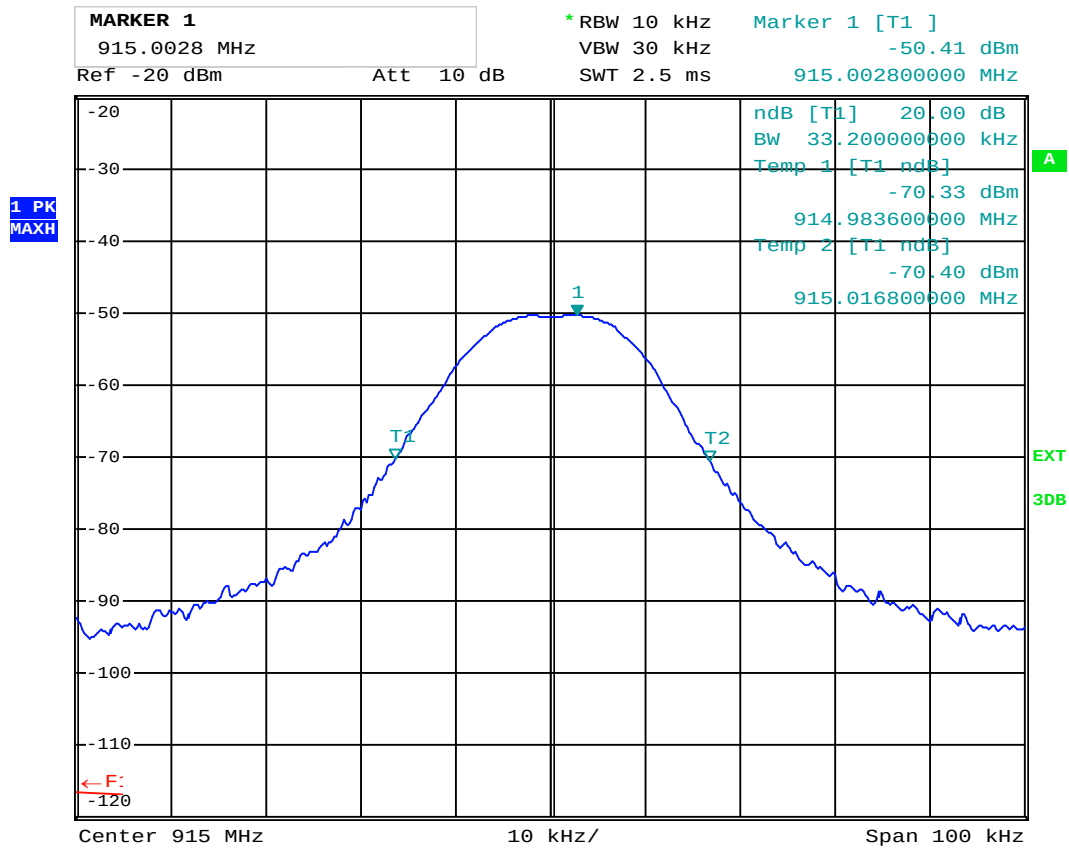
APPENDIX 7: 20 dB bandwidth

Channel 1



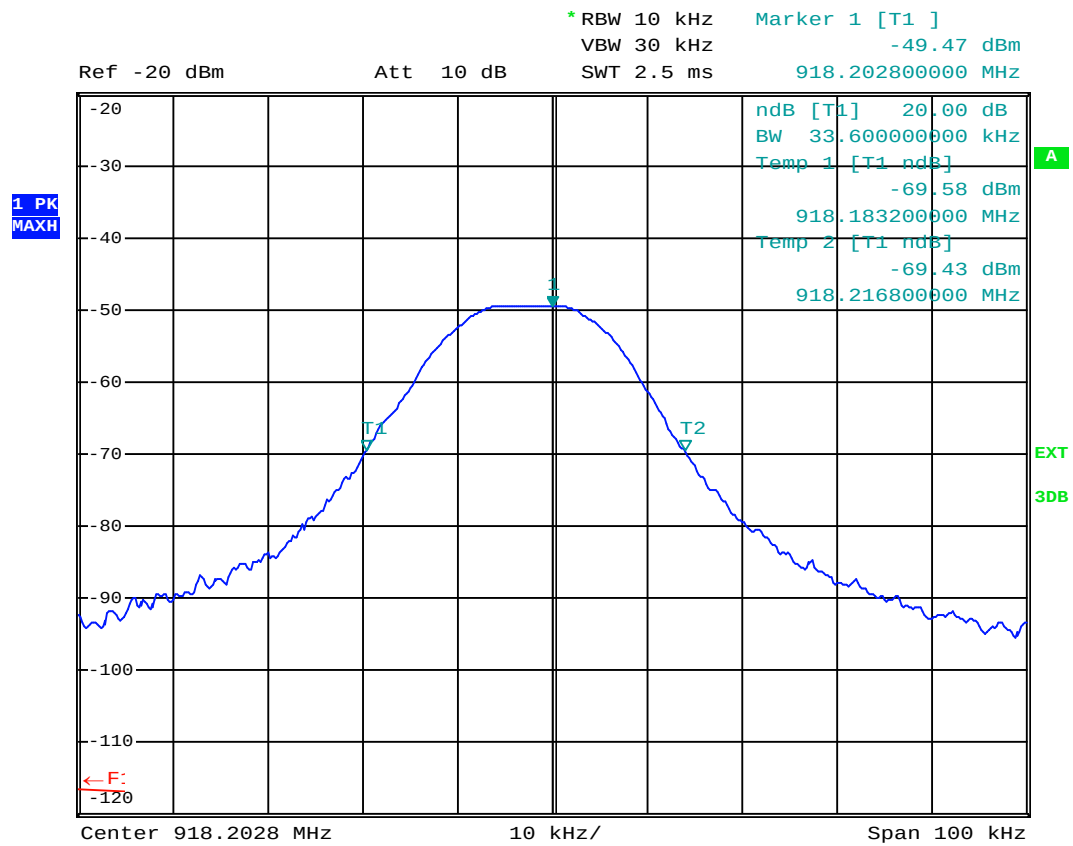
Date: 10.JAN.2014 17:04:15

Channel 32



Date: 10.JAN.2014 17:10:33

Channel 64



Date: 10.JAN.2014 17:13:10