TEST REPORT

RADIO

Number	122727-645985B
Composition of document	40 pages
FCC Registration Number	166175 (FAR) & 888863 (Ecuelles)
Industry Canada Number	6230B(FAR) & 6230B-1(Ecuelles)
Standards	47 CFR Part 15.225 RSS-210, Issue 8 RSS-Gen, Issue 3
Issued to	SAFRAN MORPHO 18, chaussée Jules CESAR F-95520 OSNY
Apparatus under test	Control Access Terminal
Trade mark	SAFRAN MORPHO
Manufacturer	SAFRAN MORPHO
Type	MorphoAccess® SIGMA iClass WR
Serial number	1331SMS0000158
IC	11472A-MASIGMA13M
FCC ID	ZBW-MASIGMA13M
Test date	2013/09/10 to 2013/09/17 & 2013/10/18
Tests performed by	Laurent DENEUX & Stéphane PHOUDIAH
Test site	Fontenay aux Roses & Ecuelles
Date of issue	2013/10/18

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SUMMARY

1. TEST PROGRAM

- **References**

Standards:
- 47 CFR Part 15C
- RSS-210
- RSS-Gen
- CISPR 16-4-2
- ANSI C63.4

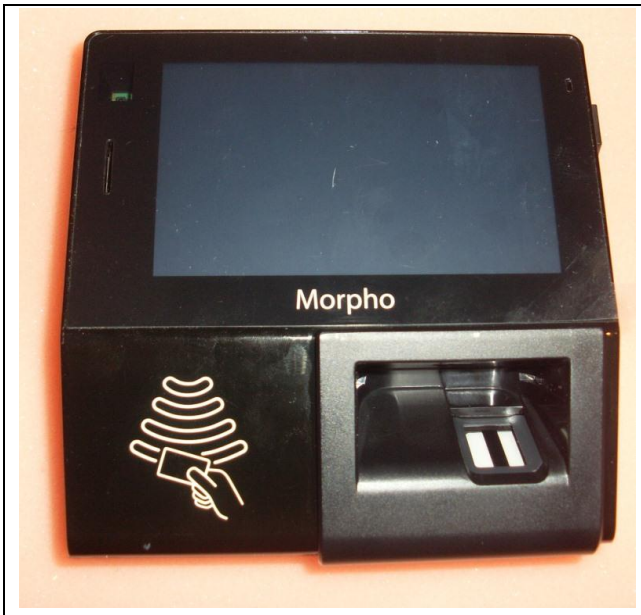
Standard Section	Test Description	TEST RESULT - Comments
CFR 47 § 15.203	Antenna Requirement	PASS (Internal Antenna)
CFR 47 § 15.205	Restricted Band Operation	PASS
RSS-Gen § 4.6.1	99% Occupied Bandwidth	PASS (No Limit applicable)
CFR 47 § 15.225 (e) RSS-210 § A2.6	Frequency tolerance	PASS
CFR 47 § 15.207 RSS-Gen § 7.2.4	AC Power Line Conducted Emissions	PASS
CFR 47 § 15.225 (a) (b) (c) RSS-210 § A2.6 (a) (b) (c)	Field strength within the band 13.110-14.010 MHz	PASS
CFR 47 § 15.209 (a) CFR 47 § 15.225 (d) RSS-210 § A2.6 (d)	Field strength outside of the bands 13.110-14.010 MHz	PASS
RSS-Gen § 4.10	Receiver Radiated emissions	NA (Transceiver equipment. Include in Field strength test)

PASS: EUT complies with standard's requirement
FAIL: EUT does not comply with standard's requirement
NA: Not Applicable
NP: Test Not Performed

2. EQUIPMENT DESCRIPTION

2.1. HARDWARE & SOFTWARE IDENTIFICATION

- **Equipment under test (EUT):**



Mode 1

Mode 2

Photograph of EUT

- **Auxiliary equipment (AE) used for testing:**

- Personal computer with Tftp
- Programmable Power Supply
- Shielded Ethernet cable
- RFID Card
- AC/DC Power Supply FW7362/12
- POE TP-LINK TL-POE150S

- **Input/output:**

- 1 Input Power 12-24Vdc
- 1 Input Power 48Vdc POE
- 1 Ethernet
- 2 Usb
- 4 blocks connectors

- **Equipment information:**

- External antenna connector: No
- Frequency band allocated: 13.553MHz to 13.567MHz
- Frequency band used: 13.56MHz
- Modulation: ASK 100%
- Number of channel: 1
- Antenna type: Integral
- Stand By mode: No
- Type of power source: External power supply (Power Source Equipment POE or Adapter AC/DC)

- Power supply (Mode 1):	Vmin: 10,8Vdc
	Vnom: 12Vdc
	Vmax: 13,2Vdc
- Power supply (Mode 2):	Vmin: 36Vdc
	Vnom: 48Vdc
	Vmax: 57Vdc
- Temperature range:	Tmin: -30°C (IC) -20°C (FCC)
	Tnom: 20°C
	Tmax: +50°C

- **Equipment of the same family:**

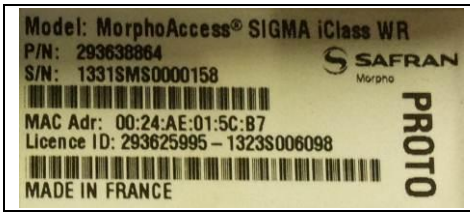
-Tests are performed on the most complete product “MorphoAccess® SIGMA IClass WR”. See Table below for difference between products. So, tests results are applicable for all products describe in the following table.

Designation	FCC ID & IC ID	Reference	Radio Frequency	iClass protocol	PCB architecture					Water Resistant*
					Motherboard Reference: 293 645 695	RFID board 13.56MHz Iclass Ref : 293648563	RFID board 13.56MHz Multi Ref : 293648584	Biometric sensor Ref: 293625995	POE module: Sivertel AG9712-2BR	
MorphoAccess® SIGMA iClass WR	FCC ID: ZBW-MASIGMA13M IC: 11472A-MASIGMA13M	293638864	13,56MHz	X	X	X		X	opt	Yes
MorphoAccess® SIGMA Multi WR	FCC ID: ZBW-MASIGMA13M IC: 11472A-MASIGMA13M	293638885	13,56MHz		X		X	X	opt	Yes
MorphoAccess® SIGMA iClass	FCC ID: ZBW-MASIGMA13M IC: 11472A-MASIGMA13M	293645525	13,56MHz	X	X	X		X	opt	No
MorphoAccess® SIGMA Multi	FCC ID: ZBW-MASIGMA13M IC: 11472A-MASIGMA13M	293645546	13,56MHz		X		X	X	opt	No

2.2. RUNNING MODE

The EUT is set in the following modes during tests:
-Mode 1: Communication with a tag & powered at 12Vdc
-Mode 2: Communication with a tag & powered at 48Vdc (POE)
-Mode 3: Communication with a tag & powered at 110V/60Hz with a representative AC/DC adapter for conducted emission test
-Mode 4: Communication with a tag & powered at 110V/60Hz with a representative Power Source Equipment POE for conducted emission test

2.3. EQUIPEMENT LABELLING



2.4. EQUIPMENT MODIFICATIONS

No equipment modification has been necessary during testing.

3. 99% OCCUPIED BANDWIDTH

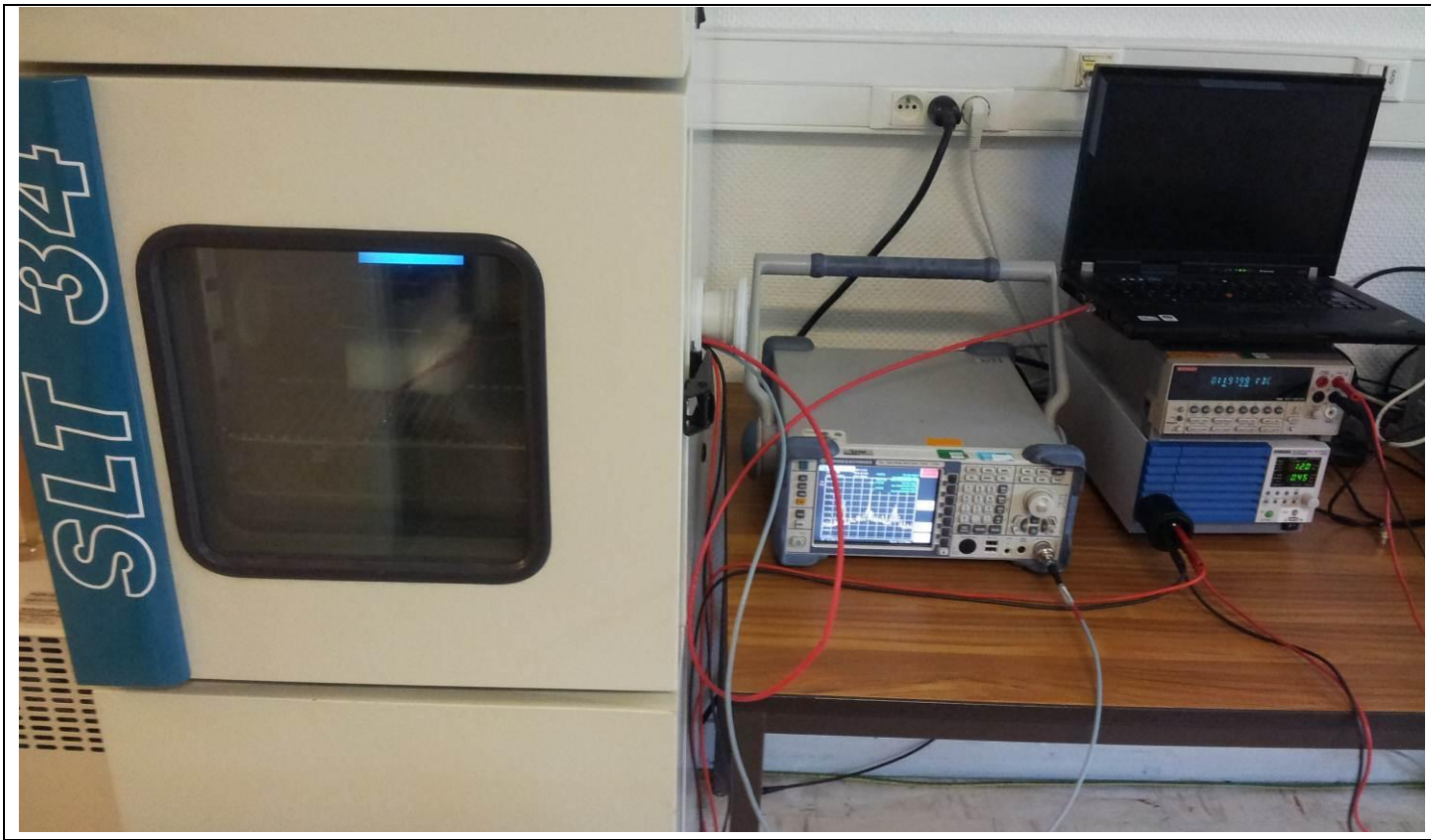
3.1. TEST CONDITIONS

Test performed by : Stéphane PHOUDIAH
Date of test : 2013/10/18
Ambient temperature : 22°C
Relative humidity : 60%

3.2. TEST SETUP

The Equipment Under Test is installed on a table and set in permanent emission with modulation. Measurement is performed with a spectrum analyzer on the EUT with a test fixture. The product has been tested according to the RSS-GEN § 4.6.1 reference method.

Spectrum Analyzer Setting:
Center frequency= 13.56MHz
Span= At least the emission spectrum
Amplitude= Sufficient to observe the signal amplitude
RBW= 1% of span
VBW= 3*RBW
Sweep= Auto
Trace= Max Hold
Detector= Peak
Occupied Bandwidth 99% activated



Photograph for 99% Occupied Bandwidth

3.3. RESULTS

Mode 1

Temperature	**Tnom**
Voltage	**Vnom**
Frequency	Fnom
99% Occupied Bandwidth (MHz)	1.68

Mode 2

Temperature	**Tnom**
Voltage	**Vnom**
Frequency	Fnom
99% Occupied Bandwidth (MHz)	1.68

See graphics in annex

Result: PASS
Limit: → None

4. FREQUENCY TOLERANCE

4.1. TEST CONDITIONS

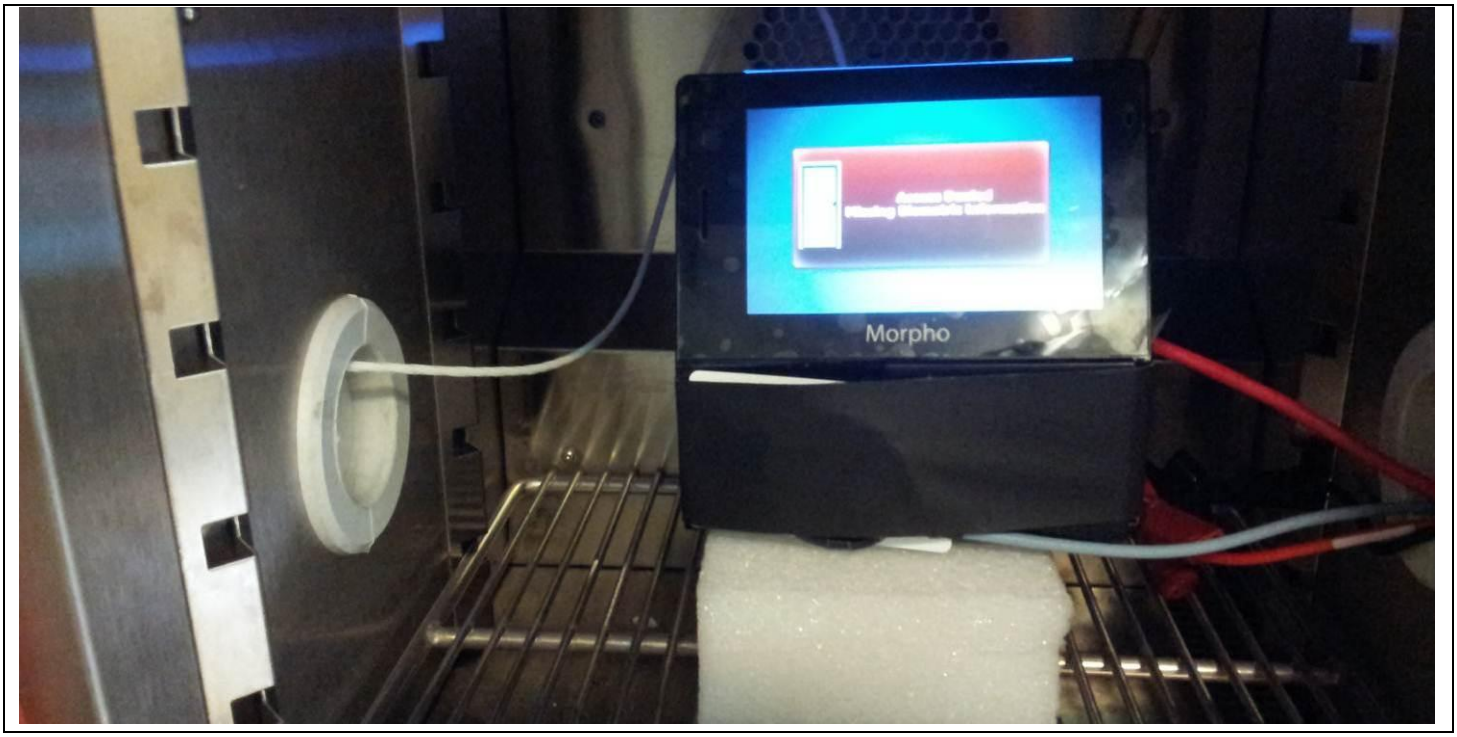
Test performed by : Stéphane PHOUDIAH
Date of test : 2013/09/13 & 2013/09/17
Ambient temperature : 22°C
Relative humidity : 43%

4.2. TEST SETUP

The Equipment Under Test is installed on a table and set in permanent emission with modulation. Measurement is performed with a spectrum analyzer on the EUT with a test fixture.

Spectrum Analyzer Setting:
Center frequency= 13.56MHz
Span= 100kHz
Amplitude= Sufficient to observe the signal amplitude
RBW= 1kHz
VBW= 3kHz
Sweep= Auto
Trace= Max Hold
Detector= Peak
Maker= Signal Counter

Photograph for Frequency tolerance



Photograph for Frequency tolerance

4.3. RESULTS

Mode 1

Temperature	Tmin (IC)	Tmin (FCC)	Tnom	Tmax
Voltage:	**Vmin**			
Frequency (MHz)	13.55996	13.55999	13.55995	13.55998
Frequency Drift (%)	-0,0003	-0,0001	-0,0004	-0,0001
Voltage:	**Vnom**			
Frequency (MHz)	13.55996	13.55999	13.55995	13.55998
Frequency Drift (%)	-0,0003	-0,0001	-0,0004	-0,0001
Voltage:	**Vmax**			
Frequency (MHz)	13.55996	13.55999	13.55995	13.55998
Frequency Drift (%)	-0,0003	-0,0001	-0,0004	-0,0001

Mode 2

Temperature	Tmin (IC)	Tmin (FCC)	Tnom	Tmax
Voltage:	**Vmin**			
Frequency (MHz)	13.55996	13.55999	13.55995	13.55998
Frequency Drift (%)	-0,0003	-0,0001	-0,0004	-0,0001
Voltage:	**Vnom**			
Frequency (MHz)	13.55996	13.55999	13.55995	13.55998
Frequency Drift (%)	-0,0003	-0,0001	-0,0004	-0,0001
Voltage:	**Vmax**			
Frequency (MHz)	13.55996	13.55999	13.55995	13.55998
Frequency Drift (%)	-0,0003	-0,0001	-0,0004	-0,0001

Result: PASS
Limit: → +/- 0.01%

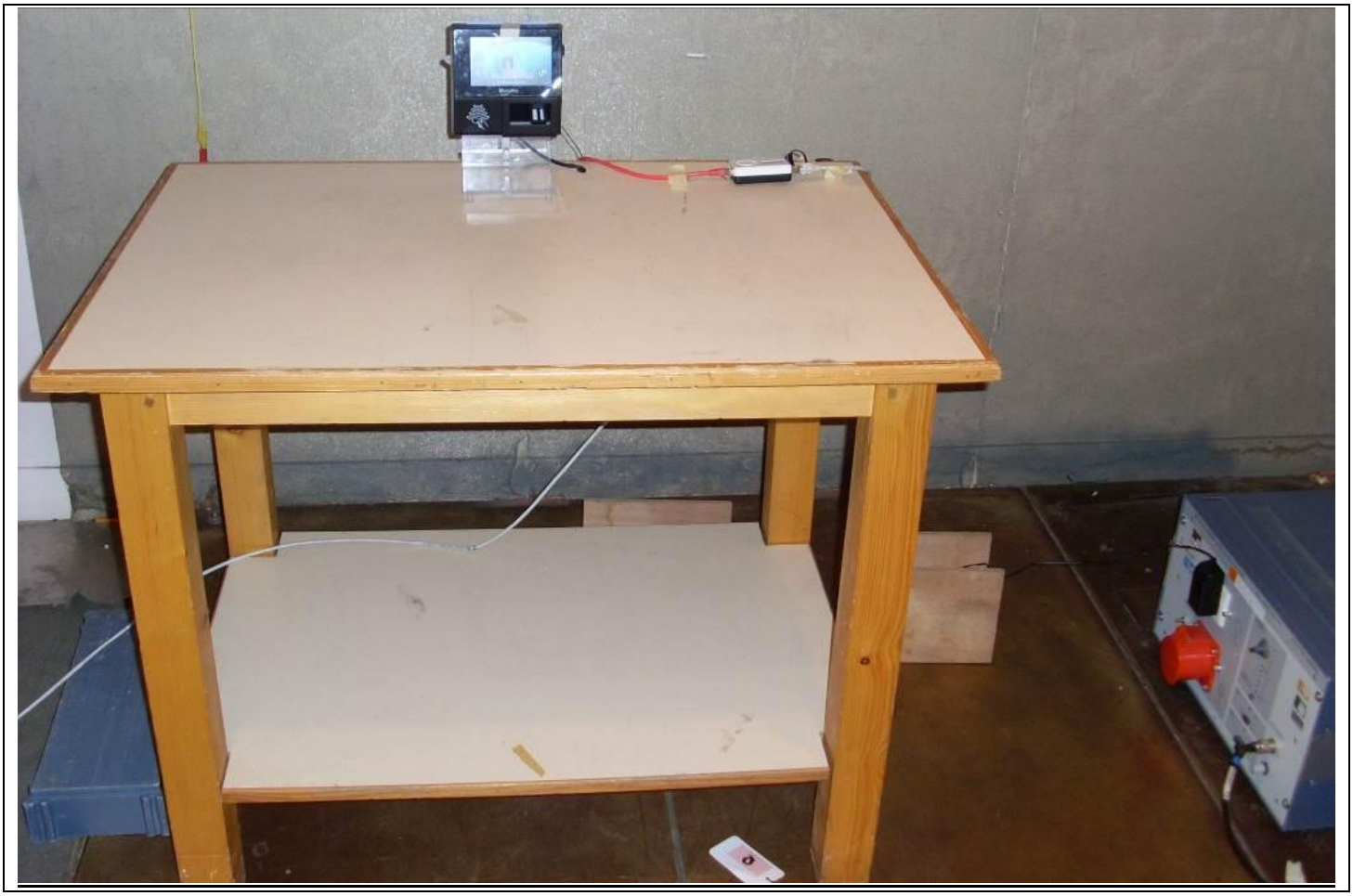
5. AC POWER LINE CONDUCTED EMISSIONS

5.1. TEST CONDITIONS

Test performed by : Laurent DENEUX
Date of test : 2013/09/09
Ambient temperature : 20 °C
Relative humidity :47%

5.2. TEST SETUP

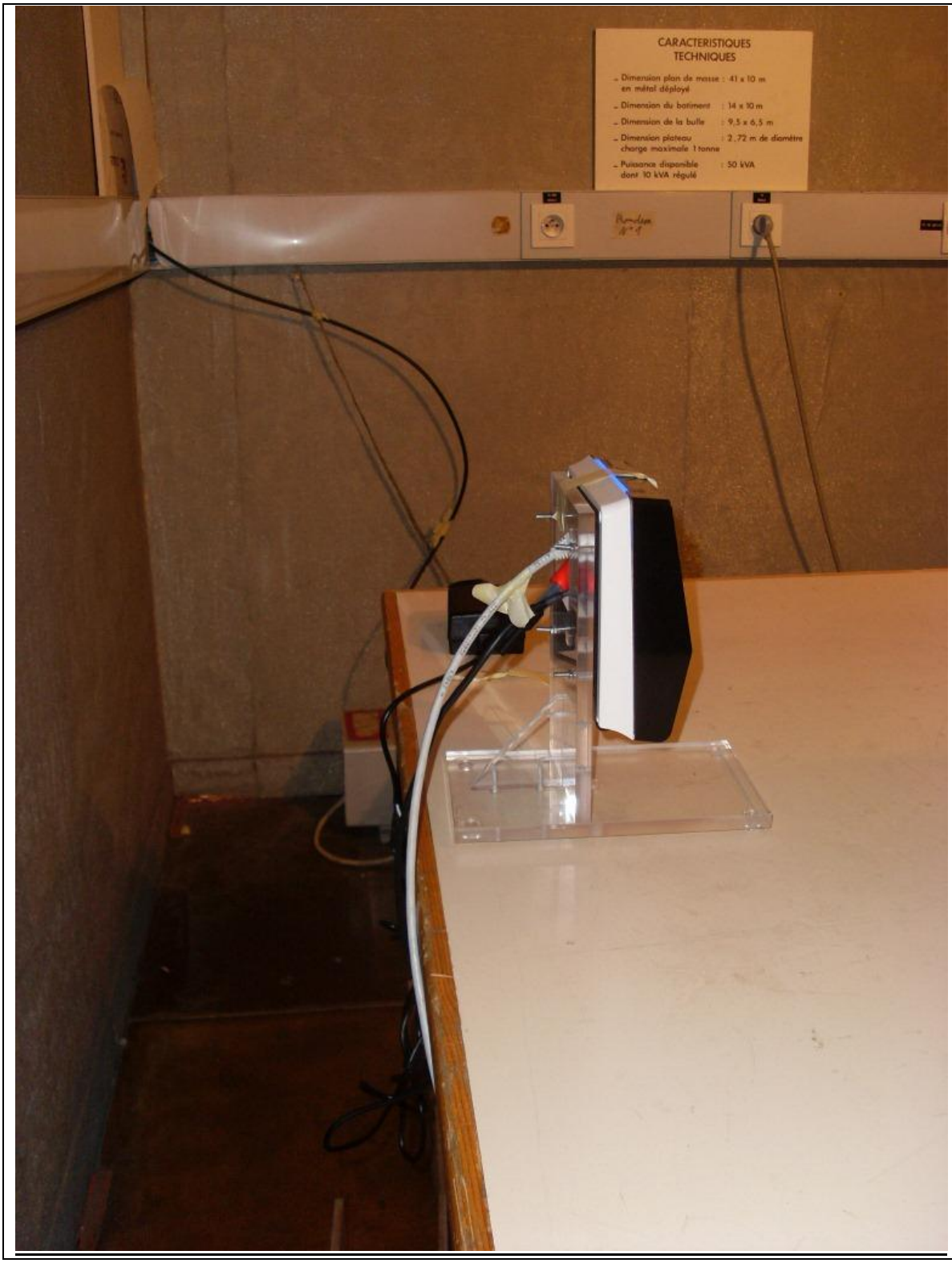
The product has been tested according to ANSI C63.4-(2003) method. The EUT is placed on the ground reference plane, at 80cm from the LISN. The distance between the EUT and the vertical ground plane is 40cm. Auxiliaries are powered by another LISN. The cable has been shorted to 1meter length. The EUT is powered through the LISN. Measurement is made with a receiver in peak mode. This was followed by a Quasi-Peak, i.e. CISPR measurement for any strong signal. If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary. The LISN (measure) is 50Ω / 50µH. Interconnecting cables and equipment's were moved to position that maximized emission.



Photograph for POE Power Source Line Conducted Emissions (Front view)

Photograph for POE Power Source Line Conducted Emissions (Rear view)

Photograph for AC Power Line Conducted Emissions (Front view)



Photograph for AC Power Line Conducted Emissions (Rear view)

5.3. RESULTS

Mode 3 without antenna

Phase Line

Frequency (MHz)	Peak Level (dBµV/m)	Quasi-Peak Level (dBµV/m)	Quasi-Peak Limit (dBµV/m)	Average Level (dBµV/m)	Average Limit (dBµV/m)
0.168	44.2	-	65	24.5	55
0.429	33.5	-	57.3	26	47.3
1.55	29.5	-	56	18	46
3.968	36.3	-	56	27	46
7.368	40	-	60	29	50

Neutral Line

Frequency (MHz)	Peak Level (dBµV/m)	Quasi-Peak Level (dBµV/m)	Quasi-Peak Limit (dBµV/m)	Average Level (dBµV/m)	Average Limit (dBµV/m)
0.163	45	-	65	28.5	55
0.412	34	-	57.5	25.8	47.5
0.776	29.5	-	56	18	46
5.218	38	-	60	28	50
8.100	40	-	60	31	50

Mode 4 without antenna

Phase Line

Frequency (MHz)	Peak Level (dBµV/m)	Quasi-Peak Level (dBµV/m)	Quasi-Peak Limit (dBµV/m)	Average Level (dBµV/m)	Average Limit (dBµV/m)
0.183	43.7	-	65.4	23	55.4
0.474	27	-	56.3	16	46.3
0.673	28.6	-	56	21	46
4.316	22.5	-	56	16	46
23.128	40	-	60	-	50

Neutral Line

Frequency (MHz)	Peak Level (dBµV/m)	Quasi-Peak Level (dBµV/m)	Quasi-Peak Limit (dBµV/m)	Average Level (dBµV/m)	Average Limit (dBµV/m)
0.177	41	-	64.6	24.5	54.6
0.267	35.3	-	61.2	23.4	51.2
0.645	27.6	-	56	20.3	46
1.44	23.6	-	56	17.5	46
23.13	38	-	60	-	50

Mode 3 with antenna

Phase Line

Frequency (MHz)	Peak Level (dBµV/m)	Quasi-Peak Level (dBµV/m)	Quasi-Peak Limit (dBµV/m)	Average Level (dBµV/m)	Average Limit (dBµV/m)
0.175	53.9	-	64.7	28.7	54.7
0.392	40.1	-	58	31.4	48
1.99	39.6	-	56	31.8	46
13.56	56	-	60	49.8	50
18.73	32.3	-	60	-	50

Neutral Line

Frequency (MHz)	Peak Level (dBµV/m)	Quasi-Peak Level (dBµV/m)	Quasi-Peak Limit (dBµV/m)	Average Level (dBµV/m)	Average Limit (dBµV/m)
0.179	47.2	-	64.5	28.3	54.5
0.389	40.6	-	58	31.2	48
1.91	37.6	-	56	28.2	46
13.56	50.3	-	60	49.2	50
26.48	23.8	-	60	-	50

Mode 4 with antenna

Phase Line

Frequency (MHz)	Peak Level (dBµV/m)	Quasi-Peak Level (dBµV/m)	Quasi-Peak Limit (dBµV/m)	Average Level (dBµV/m)	Average Limit (dBµV/m)
0.153	46.2	-	65.7	24.7	55.7
0.474	27.1	-	56.4	16	46.4
0.673	28.6	-	56	21.1	46
13.56	54.4	-	60	54.3	50
23.12	39.3	-	60	-	50

Neutral Line

Frequency (MHz)	Peak Level (dBµV/m)	Quasi-Peak Level (dBµV/m)	Quasi-Peak Limit (dBµV/m)	Average Level (dBµV/m)	Average Limit (dBµV/m)
0.153	44.3	-	65.7	25.5	55.7
0.472	27	-	56.5	23.2	46.5
0.645	27.8	-	56	20.3	46
13.56	44.3	-	60	44.2	50
23.13	38.3	-	60	-	50

See annex for graphics

Result: PASS

Limit: →

Quasi-Peak
0,15kHz to 0,5MHz: 66dBµV/m to 56dBµV/m*
0,5MHz to 5MHz: 56dBµV/m
5MHz to 30MHz: 60dBµV/m

Average
0,15kHz to 0,5MHz: 56dBµV/m to 46dBµV/m*
0,5MHz to 5MHz: 46dBµV/m
5MHz to 30MHz: 50dBµV/m

*Decreases with the logarithm of the frequency

6. FIELD STRENGTH WITHIN THE BAND 13.110-14.010MHZ

6.1. TEST CONDITIONS

Test performed by : Laurent DENEUX
Date of test : 2013/09/10
Ambient temperature : 20°C
Relative humidity : 47%

6.2. TEST SETUP

The product has been tested according to ANSI C63.4 (2003). The EUT is placed on an open area test site. Distance between measuring antenna and the EUT is 3m. Test is performed in parrallel and perpendicular axis with a loop antenna. Measurement bandwidth was 9kHz. The level has been maximised by the turntable rotation of 360 degrees range on the 3 axis of EUT. Antenna height was 1m.

Photograph for Field strength within the band 13.110-14.010MHz

Photograph for Field strength within the band 13.110-14.010MHz

6.3. RESULTS

- **Characterization on an open test site:**

Parallel Axis

Frequency (MHz)	QPeak Level (dBµV/m) (3m)	Limit (dBµV/m) (3m)
Below 13.110	<34	69.5
13.110 to 13.410	46.2	80.5
13.410 to 13.553	49.7	90.5
13.553 to 13.567	72	124
13.567 to 13.710	47	90.5
13.710 to 14.010	37	80.5
Above 14.010	<34	69.5

Perpendicular Axis

Frequency (MHz)	QPeak Level (dBµV/m) (3m)	Limit (dBµV/m) (3m)
Below 13.110	<32	69.5
13.110 to 13.410	35	80.5
13.410 to 13.553	38	90.5
13.553 to 13.567	63	124
13.567 to 13.710	39	90.5
13.710 to 14.010	33	80.5
Above 14.010	<32	69.5

Result: PASS

Limit: →

Below 13.110MHz:	69.5dBµV/m (3m) or 29.5dBµV/m (30m)
13.110MHz to 13.410MHz:	106µV/m (30m) or 80.5dBµV/m (3m)
13.410MHz to 13.553MHz:	334µV/m (30m) or 90.5dBµV/m (3m)
13.553MHz to 13.567MHz:	15848µV/m (30m) or 124dBµV/m (3m)
13.567MHz to 13.710MHz:	334µV/m (30m) or 90.5dBµV/m (3m)
13.710MHz to 14.010MHz:	106µV/m (30m) or 80.5dBµV/m (3m)
Above 14.010MHz:	69.5dBµV/m (3m) or 29.5dBµV/m (30m)

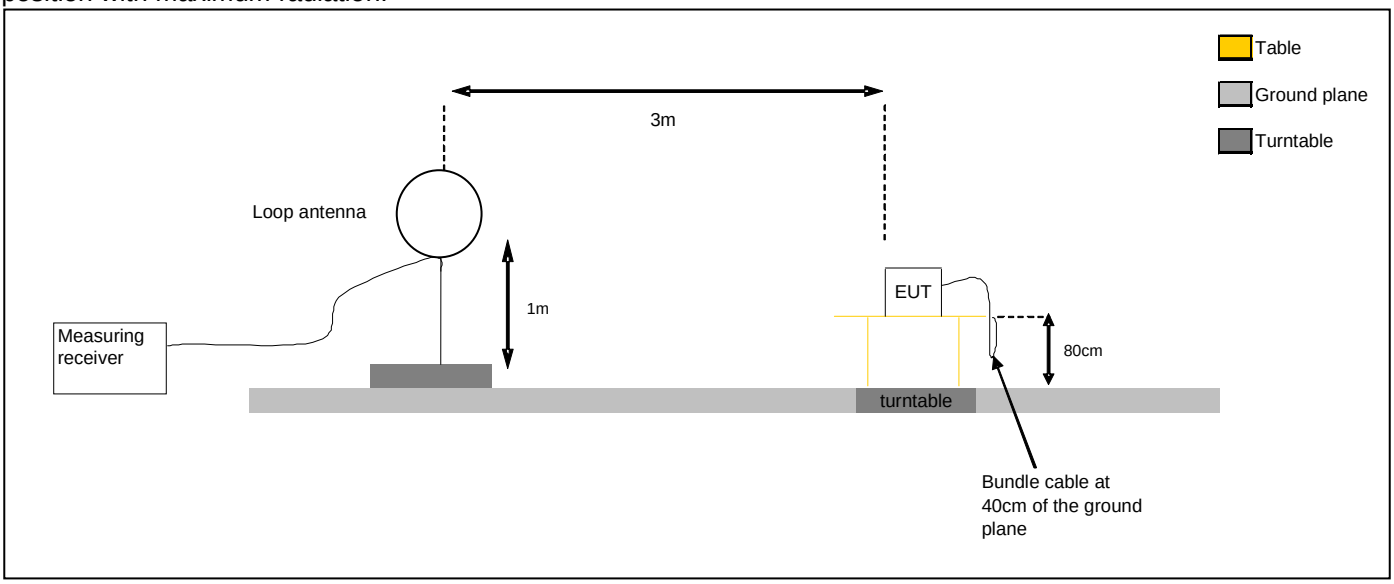
7. FIELD STRENGTH OUTSIDE OF THE BANDS 13.110-14.010 MHZ

7.1. TEST CONDITIONS

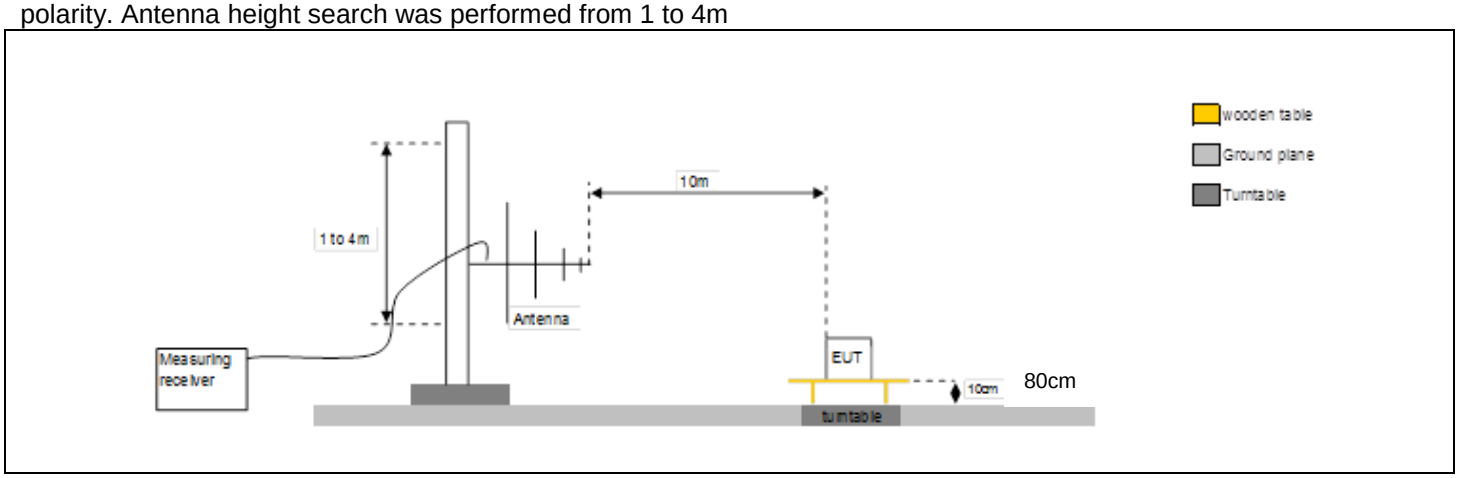
Test performed by : Laurent DENEUX
Date of test : 2013/09/10
Ambient temperature : 20 °C
Relative humidity : 47 %

7.2. TEST SETUP

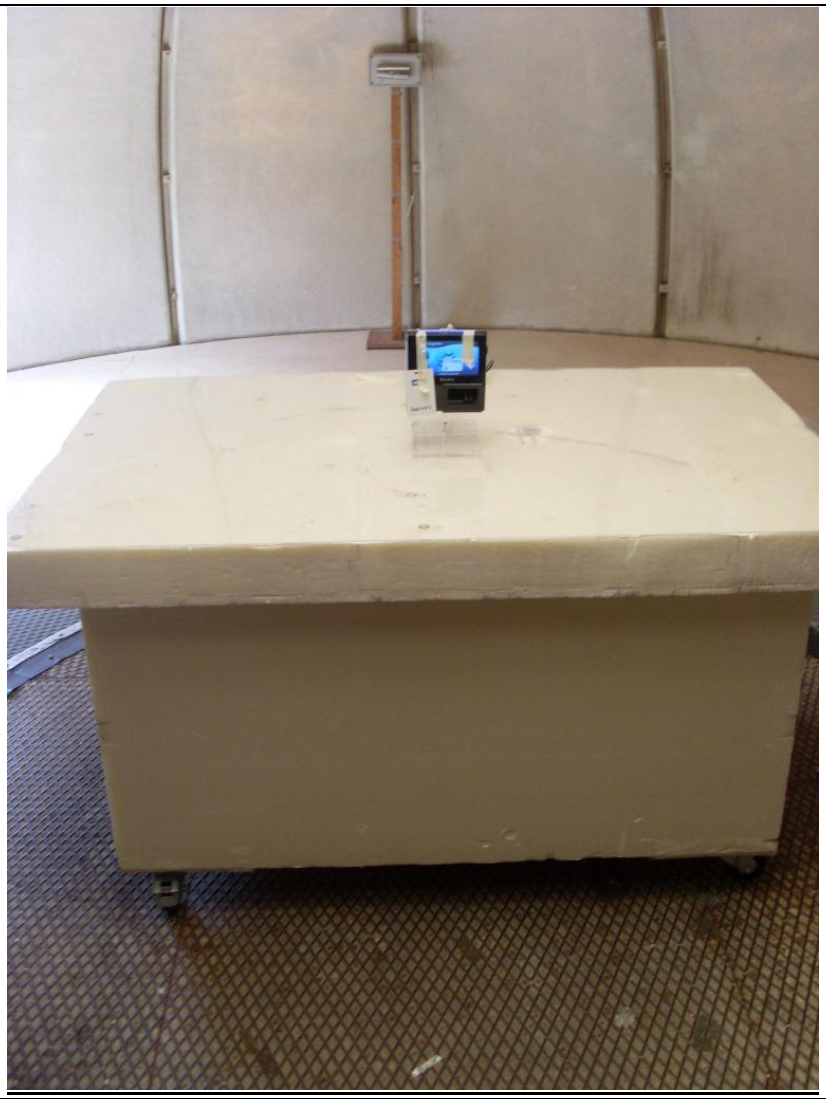
The EUT is placed at 3m distance of the loop antenna (0.009 to 30MHz) on a table 80cm height. The level has been maximised by turning the EUT with the rotating table and with the antenna at 0° and 90° around its vertical and horizontal axes. Antenna height was 1m. Pre scans were performed on the EUT put on its three axes to determine the position with maximum radiation.



The EUT is placed at 10m distance of the Bilog (30 to 1000MHz) or horn (above 1GHz) antenna on a table 80cm height. The level has been maximised by turning the EUT with the rotating table and with the antenna in horizontal and vertical polarity. Antenna height search was performed from 1 to 4m



Photograph for Field strength outside of the bands 13.110-14.010 MHz



Photograph for Field strength outside of the bands 13.110-14.010 MHz

7.3. *RESULTS*

- **Characterization on an open test site (9kHz to 30MHz):**

Mode 1

Perpendicular antenna
Below 30MHz

Frequency (MHz)	QPeak Level (dBµV/m)	Limit (3m) (dBµV/m)
1.96	44	69.5
9.65	41.5	69.5
11.85	40.2	69.5
17.7	38.9	69.5
20	37.8	69.5
21.5	38.5	69.5

Paralell antenna
Below 30MHz

Frequency (MHz)	QPeak Level (dBµV/m)	Limit (3m) (dBµV/m)
0.445	50.5	94.6
0.547	52.2	72.8
0.600	48.5	72.8
0.864	54.5	68.8
15.132	38.8	69.5

Mode 2

Perpendicular antenna
Below 30MHz

Frequency (MHz)	QPeak Level (dBµV/m)	Limit (3m) (dBµV/m)
0.200	67.5	101.5
0.248	61.5	99.7
0.272	60.5	98.9
0.370	59.5	96.2
0.780	49.7	69.7
0.970	48.5	67.8
3.6	40	69.5

Paralell antenna
Below 30MHz

Frequency (MHz)	QPeak Level (dBµV/m)	Limit (3m) (dBµV/m)
0.243	61.5	99.9
0.318	54.5	97.5
0.436	52.3	94.8
0.478	54	94
0.559	51.9	72.6
0.600	49.8	72

Result: PASS
Limit: → 9kHz to 0,490MHz: 2400/F(kHz)µV/m (300m) or (20log(2400/F(kHz))+80)dBµV/m (3m) QPeak
0,490MHz to 1.705MHz: 240000/F(kHz)µV/m (30m) or (20log(240000/F(kHz))+40)dBµV/m (3m) QPeak
1.705MHz to 30MHz: 30µV/m (30m) or 69.5dBµV/m (3m) QPeak

Characterization on an open test site (30MHz to 1000MHz)

Worst frequencies for mode 1		
Frequency MHz	Measured level dBµV/m	Limit level FCC Part.15 Class B
40.7	28.7	29.5
125	28.5	33
325	28.3	35.5
406.8	31	35.5
743	30.3	35.5
776.5	29.7	35.5

Worst frequencies for mode 2		
Frequency MHz	Measured level dBµV/m	Limit level FCC Part.15 Class B
31.3	25.8	29.5
40.7	28	29.5
125	28.5	33
291.6	27	35.5
776.5	29	35.5
810	29.5	35.5

See annex for graphics

Characterization on an open test site (1GHz to 18GHz)

No significant spurious has been observed

Result: PASS
Limit: →

30MHz to 88MHz:	29.5 dBµV/m (10m) QPeak
88MHz to 216MHz:	33 dBµV/m (10m) QPeak
216MHz to 960MHz:	35.5 dBµV/m (10m) QPeak
960MHz to 1000MHz:	43.5 dBµV/m (10m) QPeak
Above 1000MHz:	43.5 dBµV/m (10m) Peak
	63.5 dBµV/m (10m) Average

8. TEST EQUIPMENT LIST

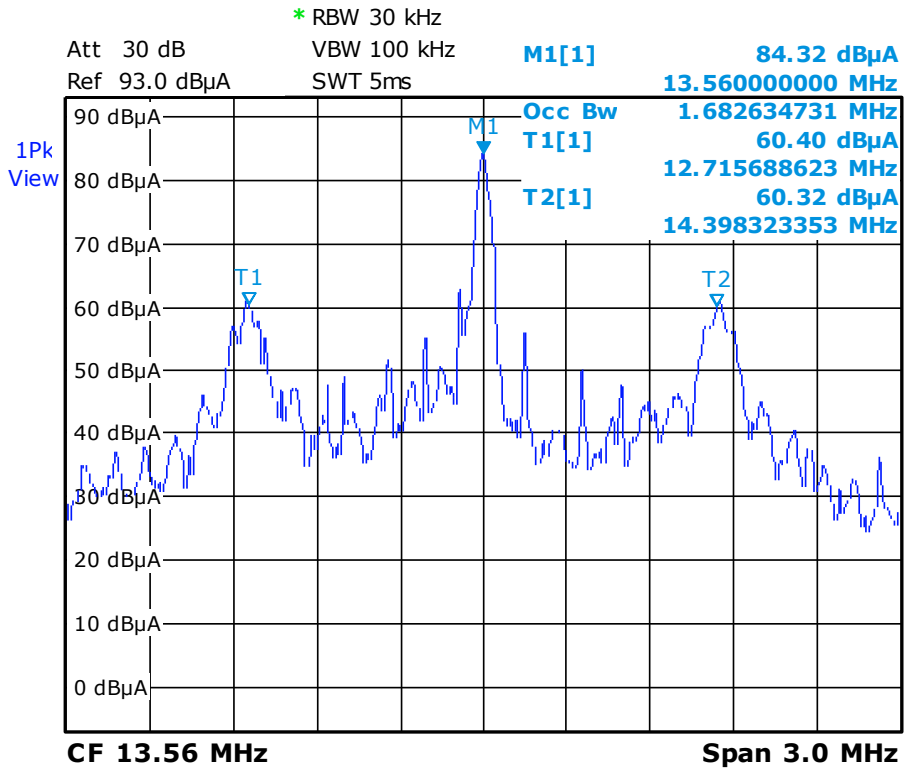
Frequency Tolerance & Occupied Bandwidth					
Apparatus	**Trade Mark**	**Type**	**Registration number**	**Calibration date**	**Calibration due**
Multimeter	KEITHLEY	2000 Multimeter	A1241084	2011/10	2013/10
Power Supply	KIKUSUI	PCR500M	A7040079	Verified with multimeter before use	Verified with multimeter before use
Spectrum Analyser	ROHDE & SCHWARZ	FSL	A4060032	2013/11	2014/11
Climatic chamber	SECASI Technologies	SLT34	D1024029	Verify with thermometer before test	Verify with thermometer before test
Thermometer	AOIP	TM 6630	B4041042	2013/07	2014/07
Field strength outside of the bands 13.110-14.010 MHz					
Apparatus	**Trade Mark**	**Type**	**Registration number**	**Calibration date**	**Calibration due**
Open test site	LCIE	-	F2000400	2013-04-11	2014-04
EMI Test Receiver	ROHDE & SCHWARZ	ESU	A2642018	2013-04-17	2014-04
Preamplifier	HEWLETT PACKARD	8449B	A4069002	2012-11-21	2013-11
Bilog antenna	CHASE	CBL 6112A	C2040040	2013-03-28	2014-03
Horn antenna	EMV	3115	C2040023	2013-04-13	2014-04
Loop Antenna	RHODE & SCHWARZ	HFH2-Z2	C2040007	2012-09-04	2013-09
Cable	-	-	A5329449	2013-09-06	2014-09
Cable	-	-	A5329365	2013-03-20	2014-03
cable	-	-	A5329444	2013-09-06	2014-09
Field strength within the band 13.110-14.010MHz					
Apparatus	**Trade Mark**	**Type**	**Registration number**	**Calibration date**	**Calibration due**
Open test site	LCIE	-	F2000400	2013-04-11	2014-04
EMI Test Receiver	ROHDE & SCHWARZ	ESU	A2642018	2013-04-17	2014-04
Loop Antenna	RHODE & SCHWARZ	HFH2-Z2	C2040007	2012-09-04	2013-09
AC Power Line Conducted Emissions					
Apparatus	**Trade Mark**	**Type**	**Registration number**	**Calibration date**	**Calibration due**
EMI Test Receiver	ROHDE & SCHWARZ	ESU	A2642018	2013-04-17	2014-04
V LISN	RHODE & SCHWARZ	ESH2-Z5	C2322001	2013-06-10	2014-06
Pulse limiter	RHODE & SCHWARZ	ESH3-Z2	A2649008	2013-02-28	2014-02
Cable	-	-	A5329417	2013-09-05	2014-09
Ground plan	LCIE	-	-	-	-

9. UNCERTAINTIES CHART

Kind of test	Measurement uncertainties (k=2) ±x(dB) / (Hz)	Limit for uncertainties ±y(dB)
TRANSMITTER REQUIREMENTS		
Radio frequency	$\pm 2.10^{-8}$ Hz	$\pm 1.10^{-7}$ Hz
RF Conducted power	±0.6 dB	±1.5 dB
Spurious emissions • Frequency < 1000 MHz • Frequency > 1000 MHz	 ±3.9 dB ±3.1 dB	±6 dB
Spurious in conduction	±1.6 dB	±3 dB
Temperature	±0.5°C	±1°C
Humidity	±2.5 %	±10 %

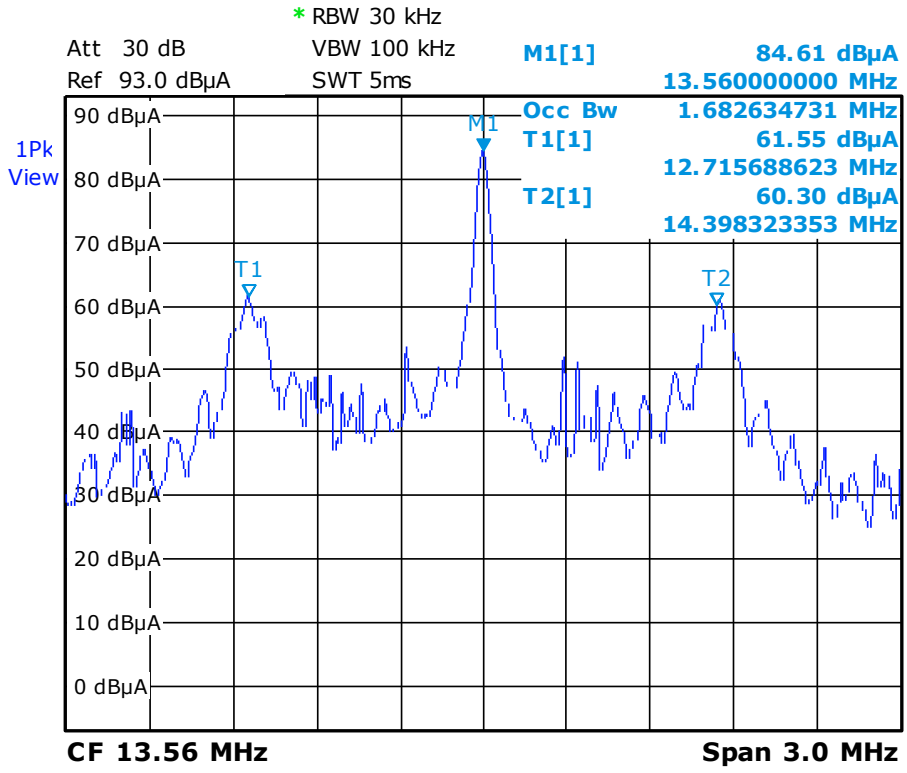
10. ANNEX (GRAPHS)

Mode 1
99% Occupied Bandwidth
Temperature: Tnom
Voltage: Vnom



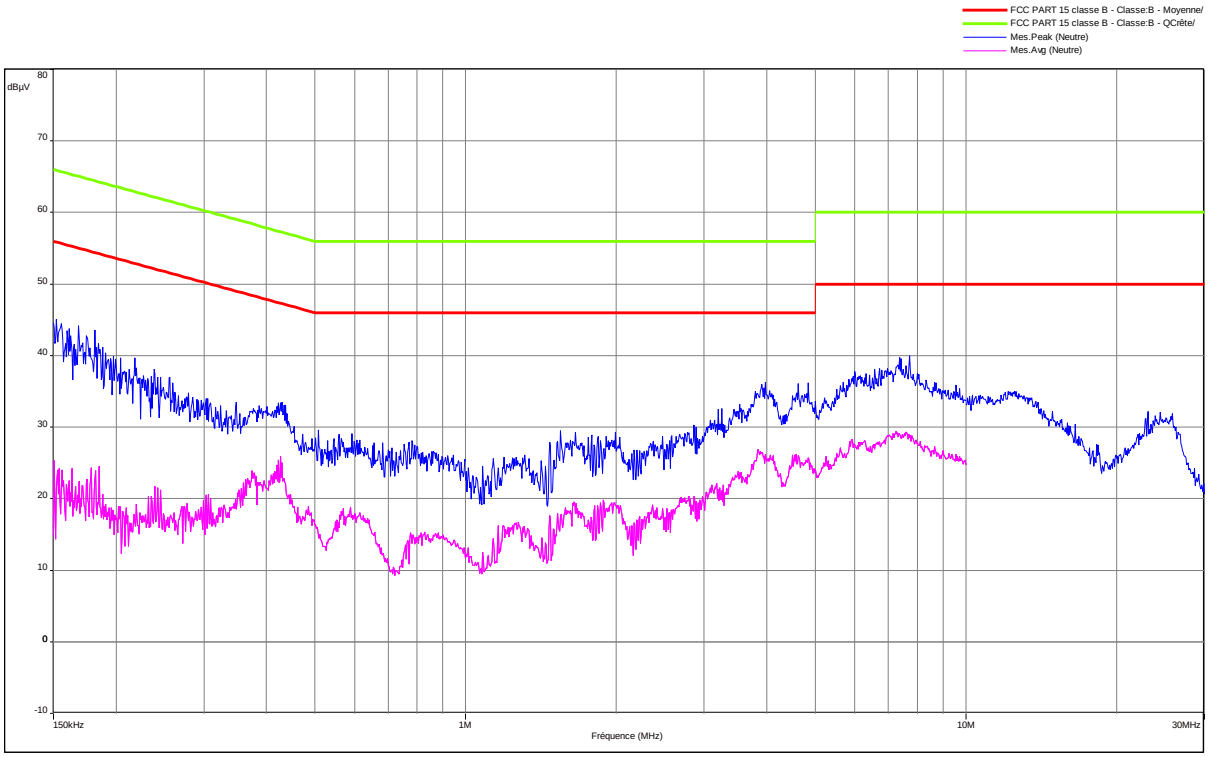
Date: 18.OCT.2013 10:37:50

Mode 2
99% Occupied Bandwidth
Temperature: Tnom
Voltage: Vnom

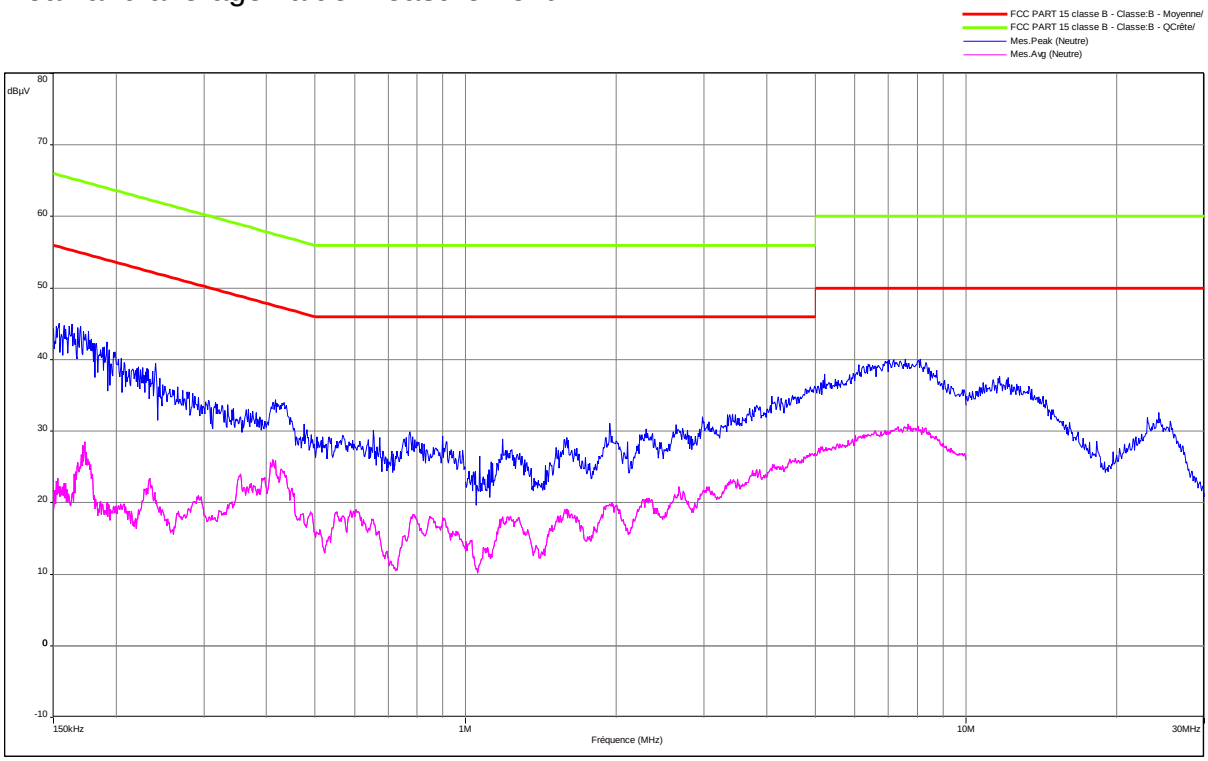


Date: 18.OCT.2013 10:20:45

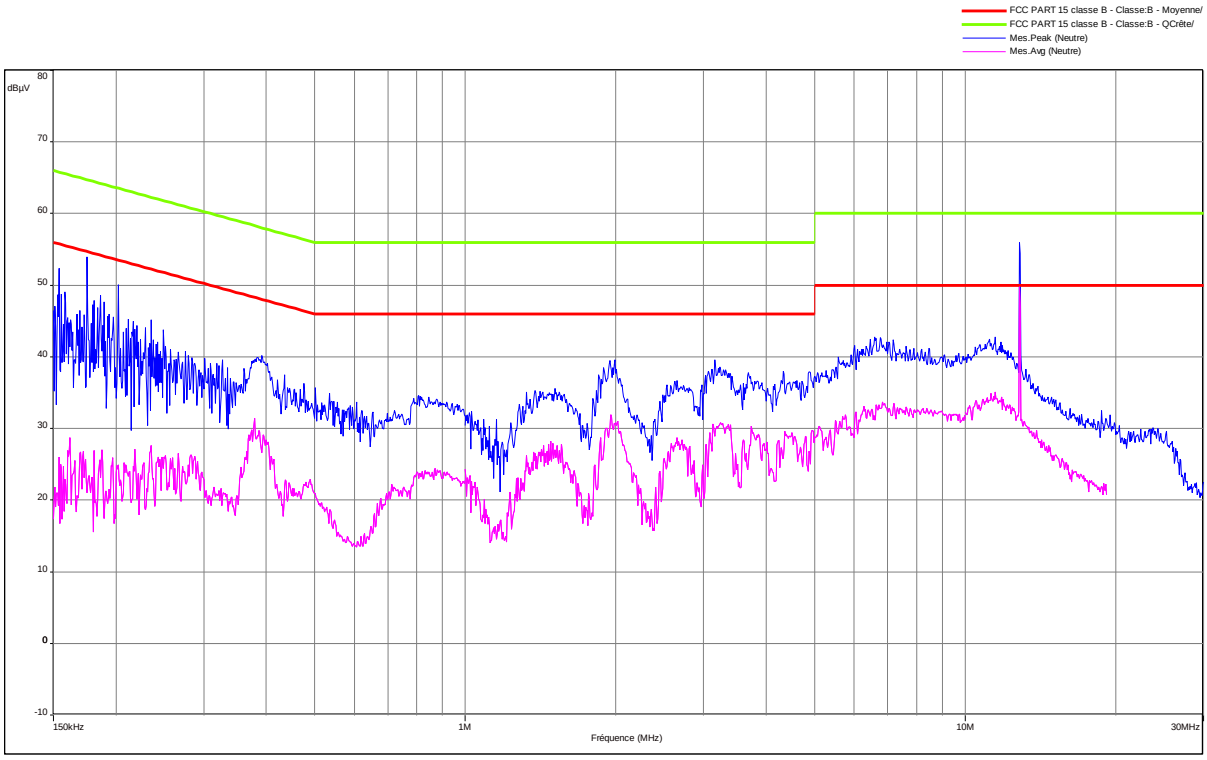
FCC Part.15 class B
Mode 3 without antenna
CONDUCTOR 1: 120V-60Hz
Peak and average value measurement



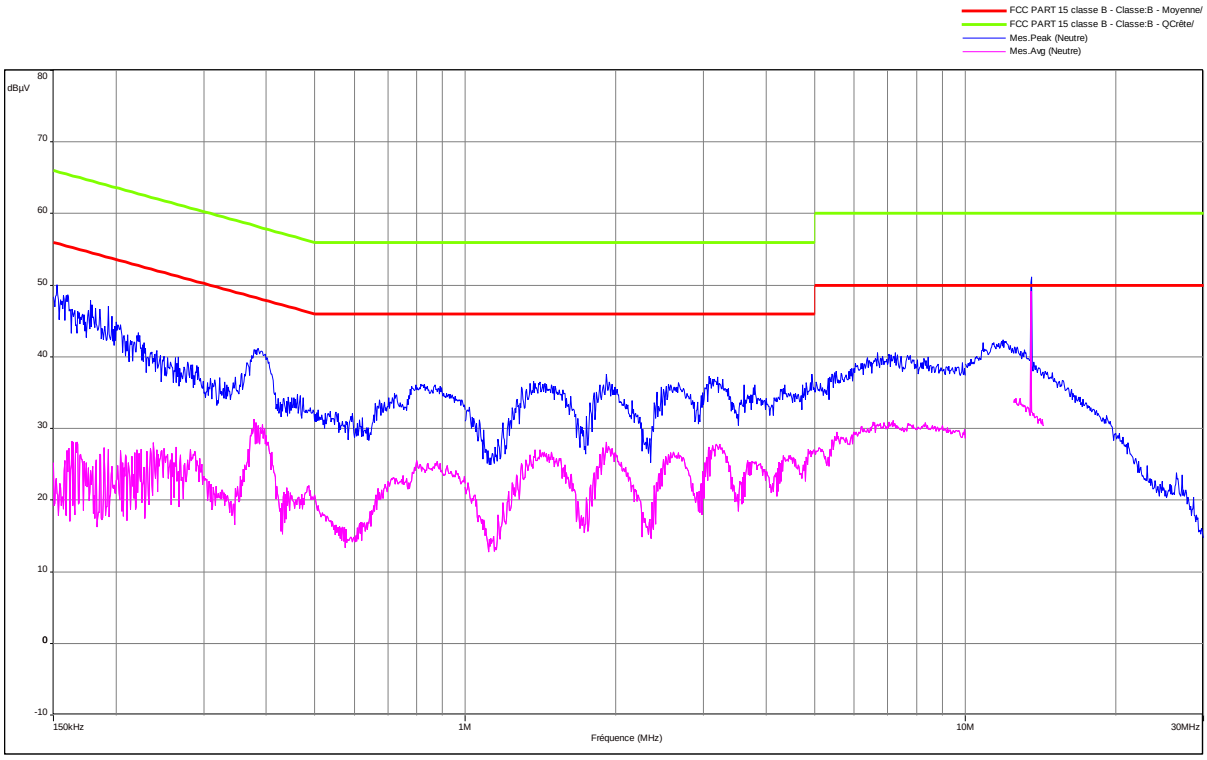
FCC Part.15 class B
Mode 3 without antenna
CONDUCTOR 2: 120V-60Hz
Peak and average value measurement



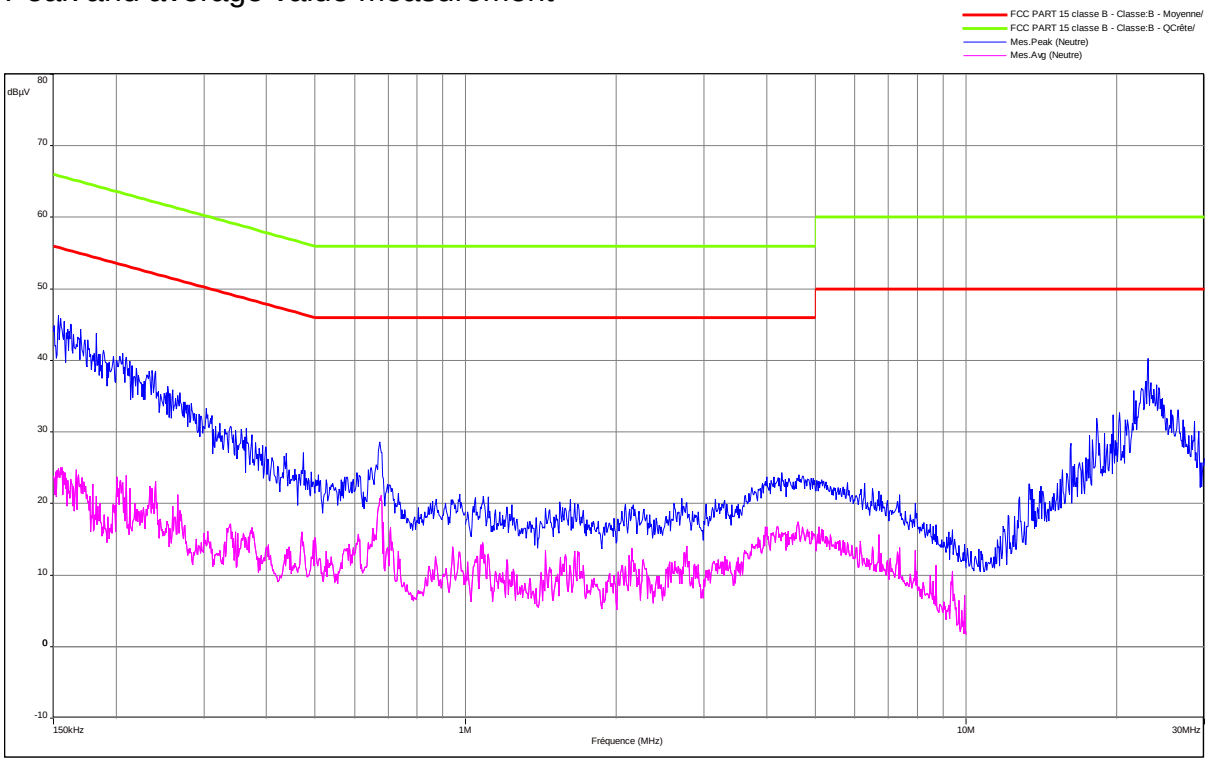
FCC Part.15 class B
Mode 3 with antenna
CONDUCTOR 1: 120V-60Hz
Peak and average value measurement



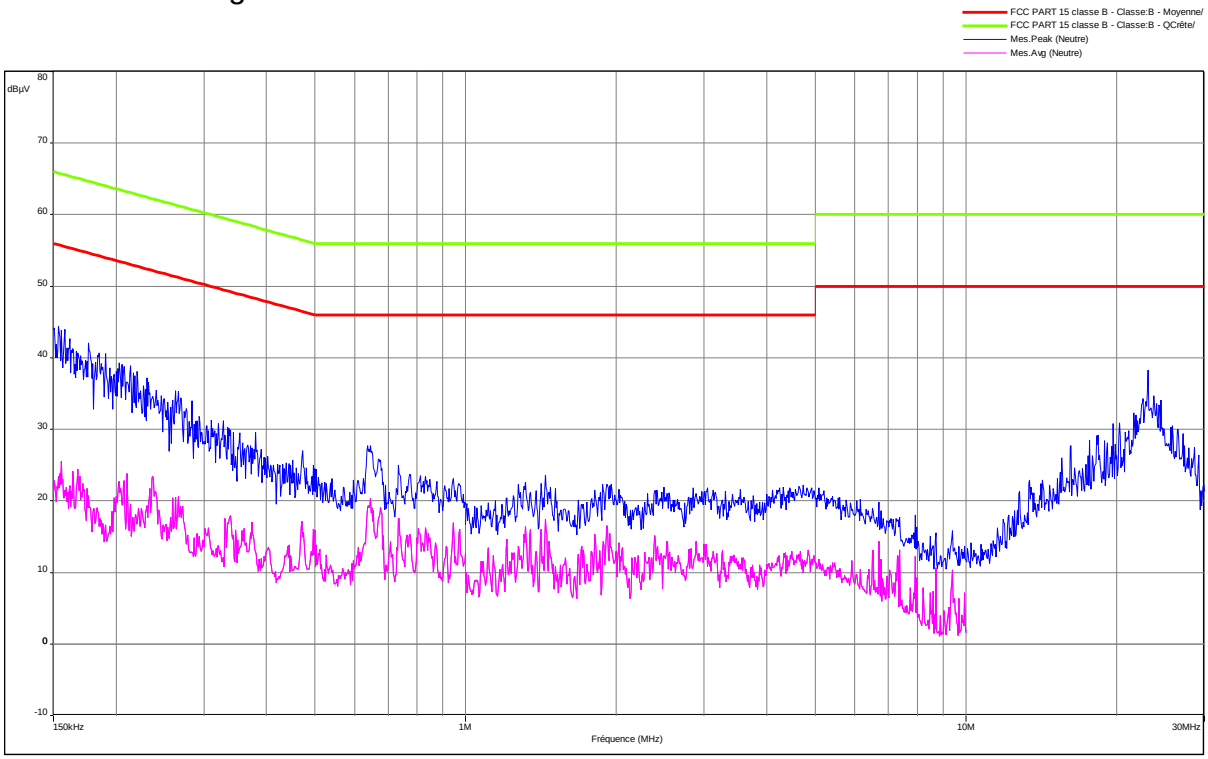
FCC Part.15 class B
Mode 3 with antenna
CONDUCTOR 2: 120V-60Hz
Peak and average value measurement



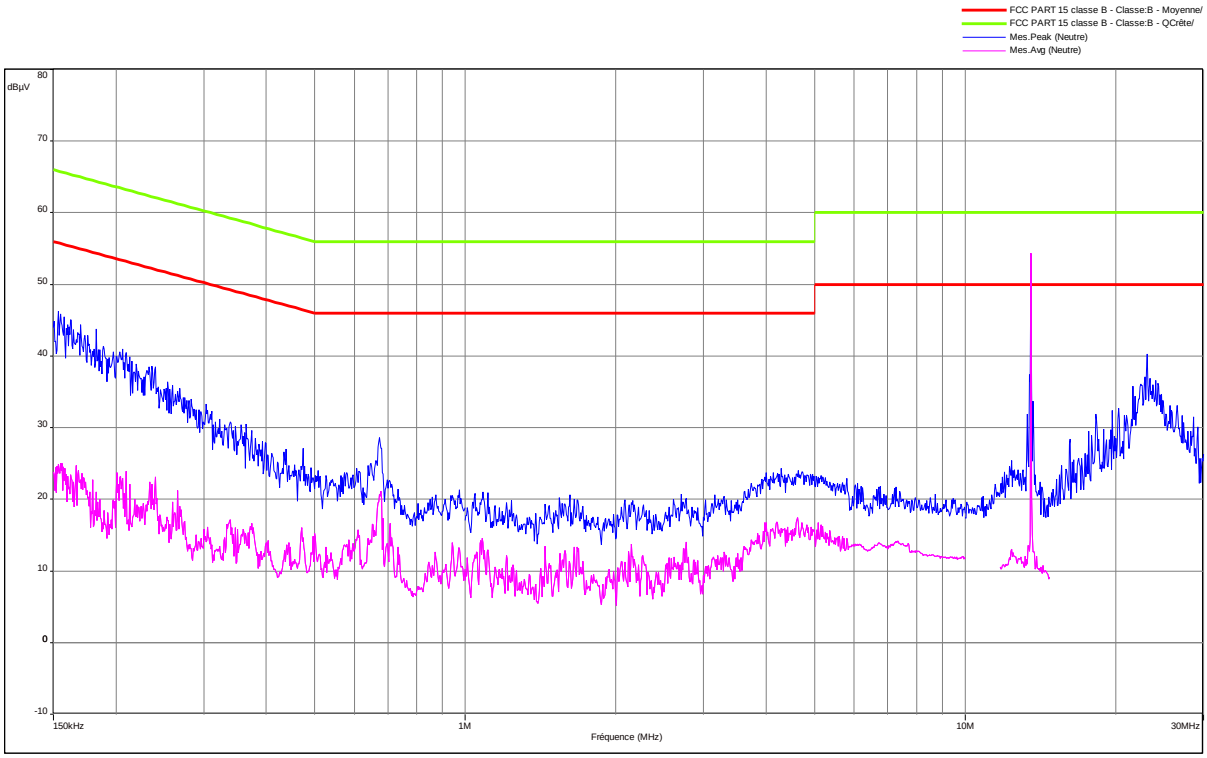
FCC Part.15 class B
Mode 4 without antenna
CONDUCTOR 1: 120V-60Hz
Peak and average value measurement



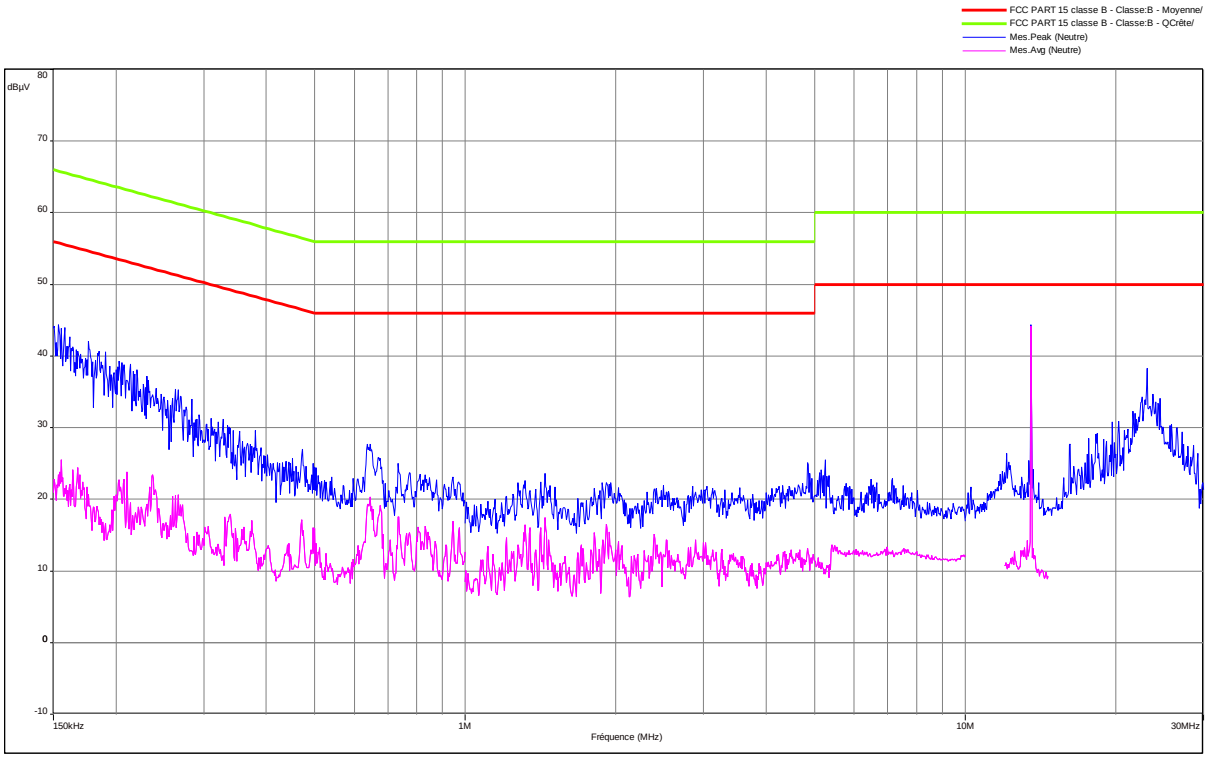
FCC Part.15 class B
Mode 4 without antenna
CONDUCTOR 2: 120V-60Hz
Peak and average value measurement



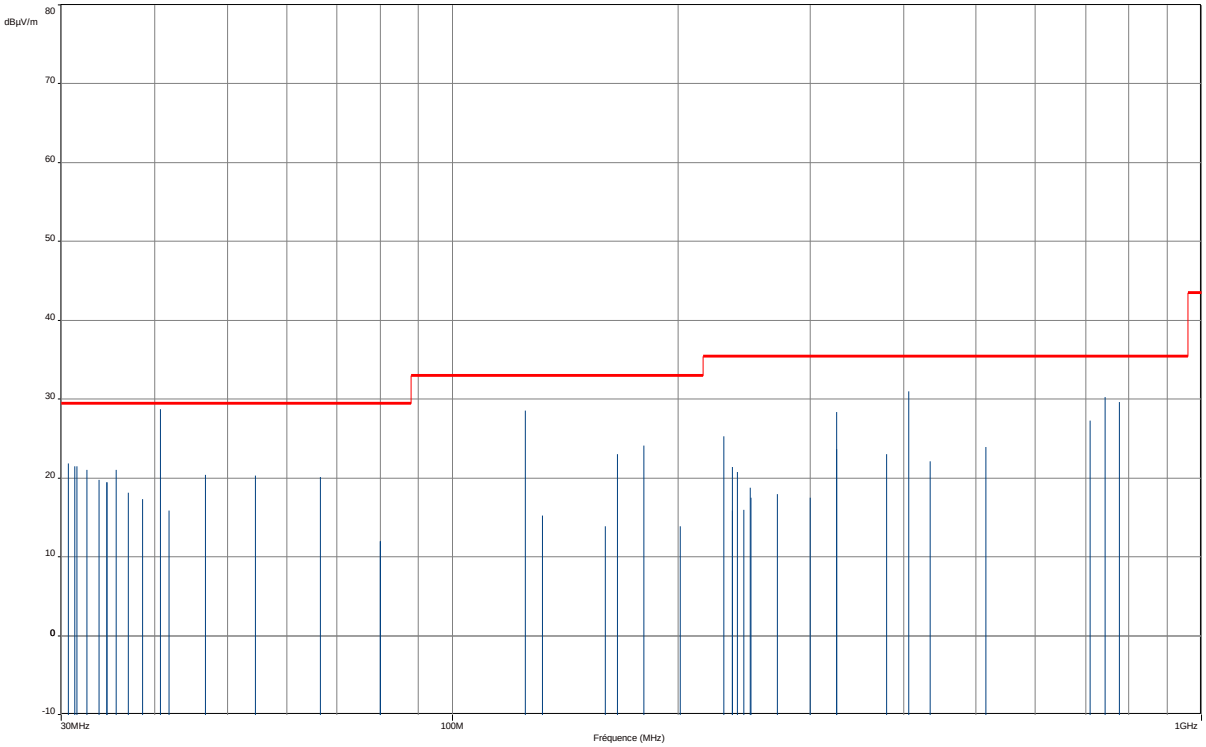
FCC Part.15 class B
Mode 4 with antenna
CONDUCTOR 1: 120V-60Hz
Peak and average value measurement



FCC Part.15 class B
Mode 4 with antenna
CONDUCTOR 2: 120V-60Hz
Peak and average value measurement



FCC Part.15 class B
Mode 1
Quasi peak measurement



FCC Part.15 class B
Mode 2
Quasi peak measurement