




**LABORATORIUM VOOR OMGEVINGSMETINGEN  
LABORATOIRE D'ESSAIS D'ENVIRONNEMENT  
ENVIRONMENTAL TEST LABORATORIA**

COMPETENT BODY UNDER CEC-DIRECTIVE 2004/108/CE NOTIFIED BODY UNDER CEC-DIRECTIVE 2006/95/CE	 041-T - ISO17025
ACCREDITED FOR NBN EN ISO 17025 BY BELAC 041-T - ISO17025	
RECOGNISED TESTING AUTHORITY FOR AUSTRALIA	
CONFORMITY ASSESSMENT BODY MRA US-EU SECTORAL ANNEX EMC (FCC)	

## EMC TESTREPORT

<b>Product</b>	Cirrus RFID reader
<b>Standard</b>	FCC part 15 subpart C
<b>Test Report</b>	ETC3170
<b>LDN Number</b>	LDN1959
<b>Date of issue</b>	2011-03-15
<b>Edition</b>	01



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**This Test Report contains 37 pages**

## SECTION 1: IDENTIFICATION OF THE TEST LABORATORIA

<b>LABORATORIA DE NAYER</b> <b>Product Certification Centre (PCC)</b>	
J.De Nayerlaan 9 B-2860 St.-Katelijne-Waver Belgium Tel: +32 (0) 15 30 54 00 Fax: +32 (0) 15 32 1212	Direct phone numbers and e-mail address: (Test engineer)  J. De Vos      +32(0)15 30 54 04 <a href="mailto:j.de.vos@labodenayer.be">j.de.vos@labodenayer.be</a>

TEST LABORATORY RESPONSIBILITIES			
Function	Name(s)	Date	Signature
Test Operator	Jan De Vos	2011-03-15	
Author Report	Jan De Vos	2011-03-15	
Technical Expert	dr.ir. Dirk Van Troyen	2011-04-13	



**041-T – ISO17025**

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The results refer to the described sample or equipment under test only.

Neither the accredited status of Laboratoria De Nayer v.z.w., nor this test report implies that the sample or equipment under test is approved by BELAC or any other establishment.

In case the customer wants to refer to his appeal to our accredited laboratories, he will use the following unequivocal sentence: "Tested by Laboratoria De Nayer, E.M.C.department, accredited by BELAC for EMC-immunity and EMC-emission under registration number 041-T".

## SECTION 2: CUSTOMER INFORMATION AND DATES

### CUSTOMER INFORMATION

Company name: Agfa HealthCare  
Address: Septestraat 27  
2640 Mortsel Belgium  
Contact person: Mr. Jan Vercammen  
Telephone nr: +32.3.444.62.33  
E-mail: jan.vercammen1@agfa.com

### DATES

Receipt of the EUT: 2011-02-28  
Start of tests: 2011-02-28  
End of tests: 2011-03-02

### SECTION 3: EQUIPMENT UNDER TEST (E.U.T.)

**The correctness of the description and identification of the equipment under test, its operating conditions, possible modifications and monitoring of its behaviour during and/ or after the test conditions generated by the De Nayer Environmental Test Laboratory are under the responsibility of the customer.**

#### IDENTIFICATION OF THE E.U.T.

Intended use:	Identification of X-ray cassettes
Manufacturer:	Agfa-HealthCare NV
Marketing name:	not applicable
Model / Type:	not applicable (internal reference A800626.X, where X is version number, current version is 0 (zero) and it is mass production version)
Software Version:	MifareReader_V01_00_06
Maximum internal frequency	27.12MHz
Serial Number:	1st prototype
FCC-ID number:	HPL5243

Illustrations: (Equipment under test)  
Photo 1 : EUT top

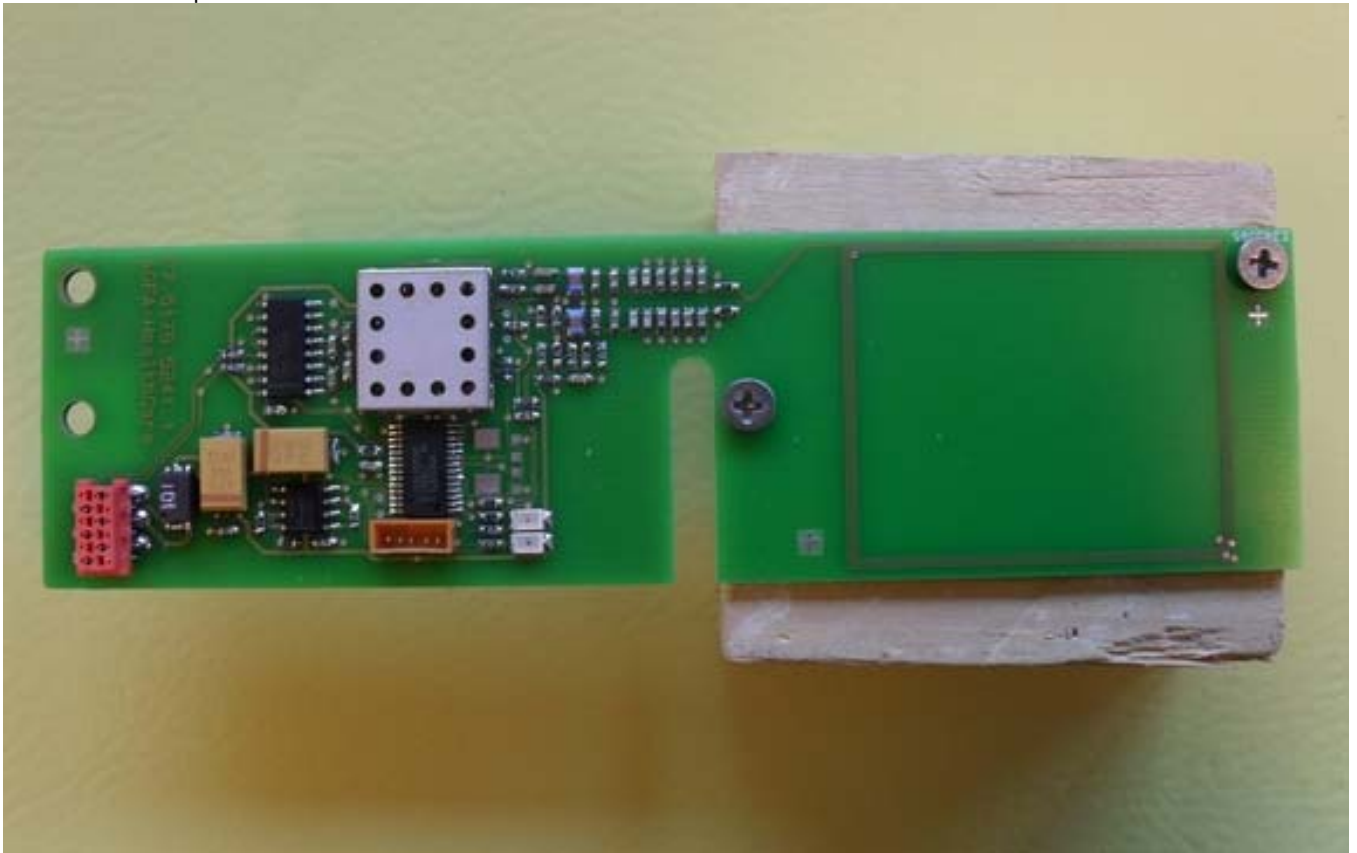
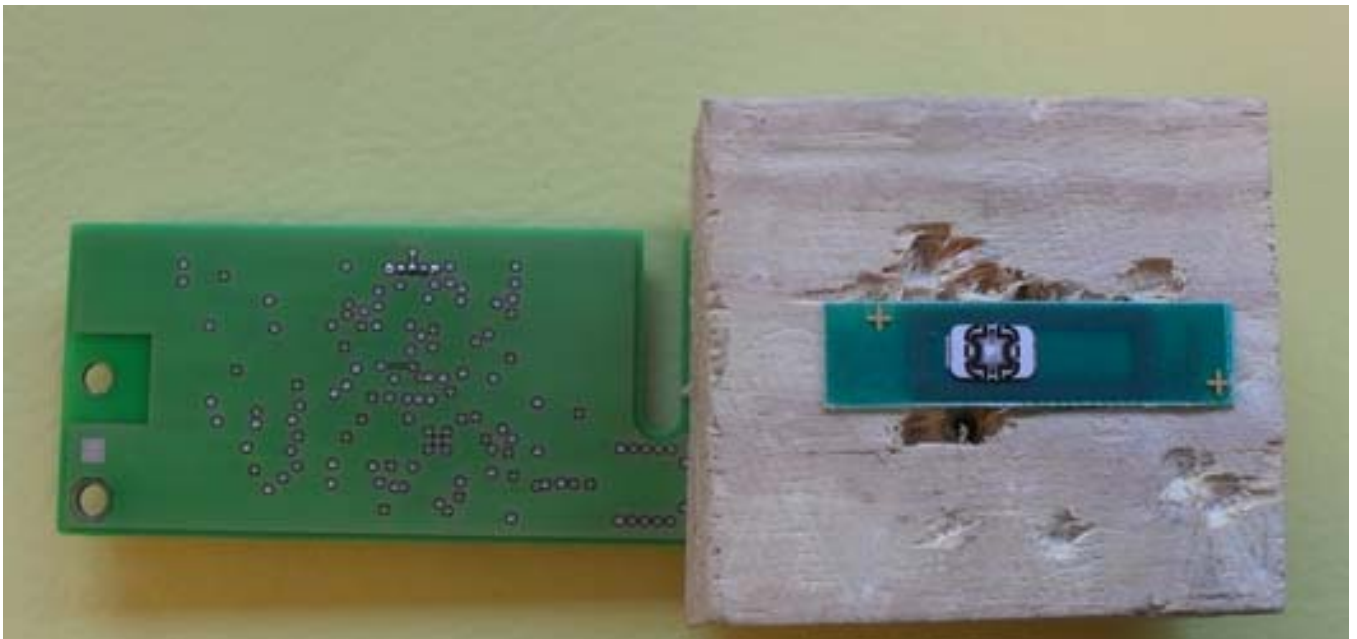



Photo 2 : rear



**SECTION 4: TEST SPECIFICATIONS AND TEST METHODS**

Applied Tests or Technical Standards	
Emission:	
Test or Technical Standard	Title
FCC CFR47 part 15	Code of Federal Regulations , part 15 , Subpart C , Intentional Radiators part 15.225 Operation within the band 13.110-14.010MHz



(\*) if the log  is mentioned, the measurement is under accreditation : 041-T – ISO17025

MRA : between E.C. and USA : CAB (EMC) [ designation number BE0002] date of validation 15.01.2002

Equipment Classifications

Class A digital device : A digital device that is marketed for use in a commercial , industrial or business environment , exclusive of a device which is marketed for use by the general public or is intended to be used in the home.

Class B digital device : A digital device that is marketed for use in a residential environment , notwithstanding use in commercial , industrial or business environments. Examples of such a devices include , but are not limited to , personal computer , calculators and similar electronic devices that are marketed for use by the general public.

Field Strength Calculation.

The field strength is calculated in the receiver , for conducted emission LISNEMCO is selected , for spurious radiated emission the HI562hp (30-1000MHz) and EMCOROD(0.009-30MHz) and fundamental the HFHZ2 is selected .

LISNEMCO is the Transducer Factor for the LISN (combination of the attenuation of the LISN and cable in the range 150kHz-30MHz)

EMCO is the Transducer factor for the rod antenna (combination of the AF of the EMCO active antenna and cables in the range 9kHz-30MHz ) .

HI562hp is the Transducer factor for the bilog antenna (combination of the AF of the R&S antenna , pre-amplifier and cables in the range 30MHz-1GHz ) .

HFHZ2 is the Transducer factor for the magnetic loop antenna (combination of the AF of the R&S loop antenna and cables in the range 9k-30MHz ) .

## **SECTION 5: OPERATION OF EUT DURING TESTING**

**The following performance criteria are described in the standard .**

### **Operating modes during emission testing**

Continuous read : modes Continuous Wave and modulation



**SECTION 6: SUMMARY OF TEST RESULTS**

6.1 Test results of the emission tests.

Emission measurement according to : FCC part 15		
Test	The EUT complies limits	remarks
conducted emissions (0.15 MHz – 30 MHz) 15.207	yes	
Spurious emissions (0.009-30 MHz) 15.209	yes	
Spurious emissions (30-1000 MHz) 15.209	yes	
radiated field strength of fundamental emissions 15.225	yes	

Section 15.19 Labelling requirements.

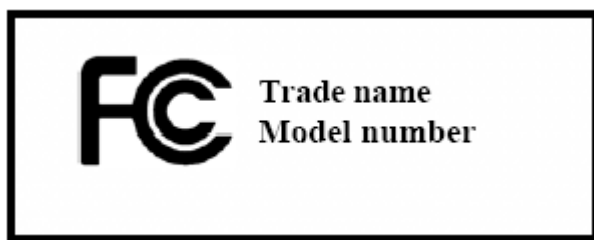
(3) All other devices shall bear the following statement in a conspicuous location on the device:

This device complies with Part 15 of the FCC Rules.  
 Operation is subject to the following two conditions:  
 9805.□. this device may not cause harmful interference,  
 and (2) this device must accept any interference received, including  
 interference that may cause undesired operation.

(b) Products subject to authorization under a Declaration of Conformity shall be labelled as follows:

9805.□. The label shall be located in a conspicuous location on the device and shall contain the unique identification described in Section 2.1074 of this chapter and the following logo:

(i) If the product is authorized based on testing of the product or system; or



## **SECTION 7: DETAILED TEST RESULTS**

### **7.1. EMISSION TEST**

The test has been performed according to the standard: CFR 47 part15 Subpart C.

Remark : EUT is Cirrus RFID reader = F83 in plots .

### 7.1.1 CONDUCTED EMISSION TEST : power

#### CONDITIONS

The equipment was placed at  $\pm 40$ cm above the floor.  
 The test has been performed in a shielded room.  
 The conducted emission level was measured with a LISN according to CISPR16/ANSI C36.4 (0.15 MHz – 30 MHz).  
 Test voltage : +5Vdc  
 Specification reference :C.F.R.47 part 15.207  
 The upper limit line is the quasi-peak limit line .  
 The lower limit line is the average limit line.  
 Test date : 2011-02-28

#### Conducted emission L1-PE : +5V to PE

**table1** (quasi peak + average detector)

Freq (MHz)	QP (dB $\mu$ V)	AV (dB $\mu$ V)
13.56 (*)	50.9	49.6

Final Measurement Results:

Frequency MHz	QP Level dB $\mu$ V	Delta Limit dB
0.17000	54.8	-10.1
0.21000	56.4	-6.7
0.25000	56.8	-4.9
0.32500	57.2	-2.3
0.40000	56.5	-1.2
0.51500	55.3	-0.6
0.63000	53.6	-2.3
0.67500	52.4	-3.5
0.82000	48.5	-7.5

Frequency MHz	AV Level dB $\mu$ V	Delta Limit dB
13.56000	49.6	-0.4

\* limit exceeded

**fig1 : plot results L1- PE, peak detector, normal mode.**

**Conducted emission L2-PE : 0V to PE**

**table2** (quasi peak + average detector)

Freq (MHz)	QP (dB $\mu$ V)	AV (dB $\mu$ V)
13.56 (*)	51.2	46.1

Final Measurement Results:

Frequency MHz	QP Level dB $\mu$ V	Delta Limit dB
0.17000	53.5	-11.5
0.21000	55.3	-7.9
0.25000	55.2	-6.5
0.32500	55.8	-3.8
0.40000	56.2	-1.6
0.44000	55.3	-1.7
0.55500	53.9	-2.0
0.67500	50.7	-5.2
0.86000	46.2	-9.7

Frequency MHz	AV Level dB $\mu$ V	Delta Limit dB
0.20500	43.5	-9.9
13.56000	46.1	-3.8

\* limit exceeded

**fig2: plot results L2- PE, peak detector, normal mode.**

(\*) : intentional radiator , disturbance in ISM band .

Test result	Pass Class B
-------------	--------------

fig1 Conducted emission L1-PE

Agfa H  
V+

28. Feb 11 11:05

EUT: F83  
-

```

Scan Settings (1 Range)
|----- Frequencies -----|----- Receiver Settings -----|
  Start      Stop      Step      IF BW  Detector  M-Time  Atten  Preamp
  150k       30M       5k       9k    PK+AV    20ms  AUTO  LD   OFF

Final Measurement: x QP / + AV      Transducer No.  Start      Stop      Name
                   Meas Time:    1 s          1          9k       30M      lisnemco
                   Subranges:    25
                   Acc Margin:   6dB
  
```

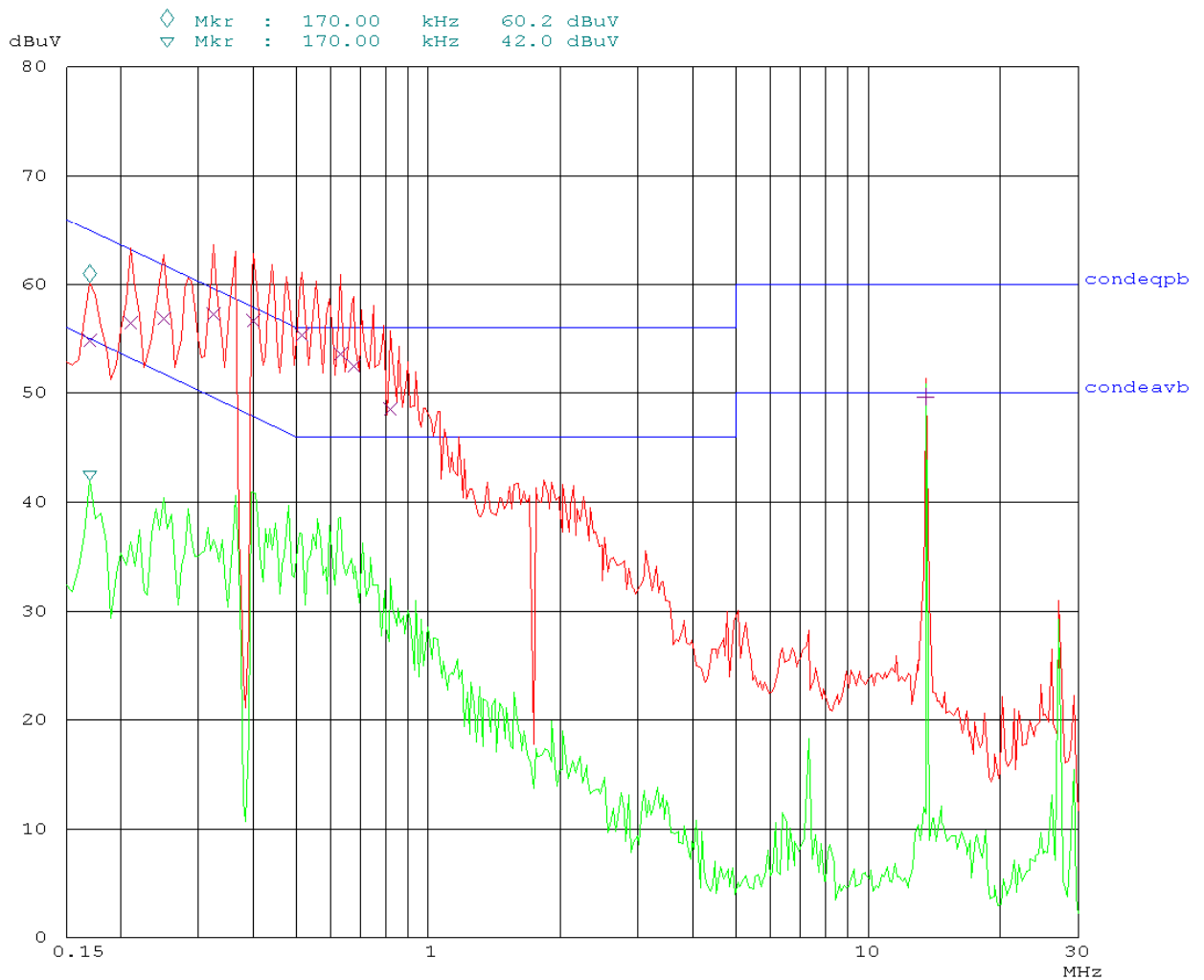


fig2 Conducted emission L2-PE

Agfa H  
V-

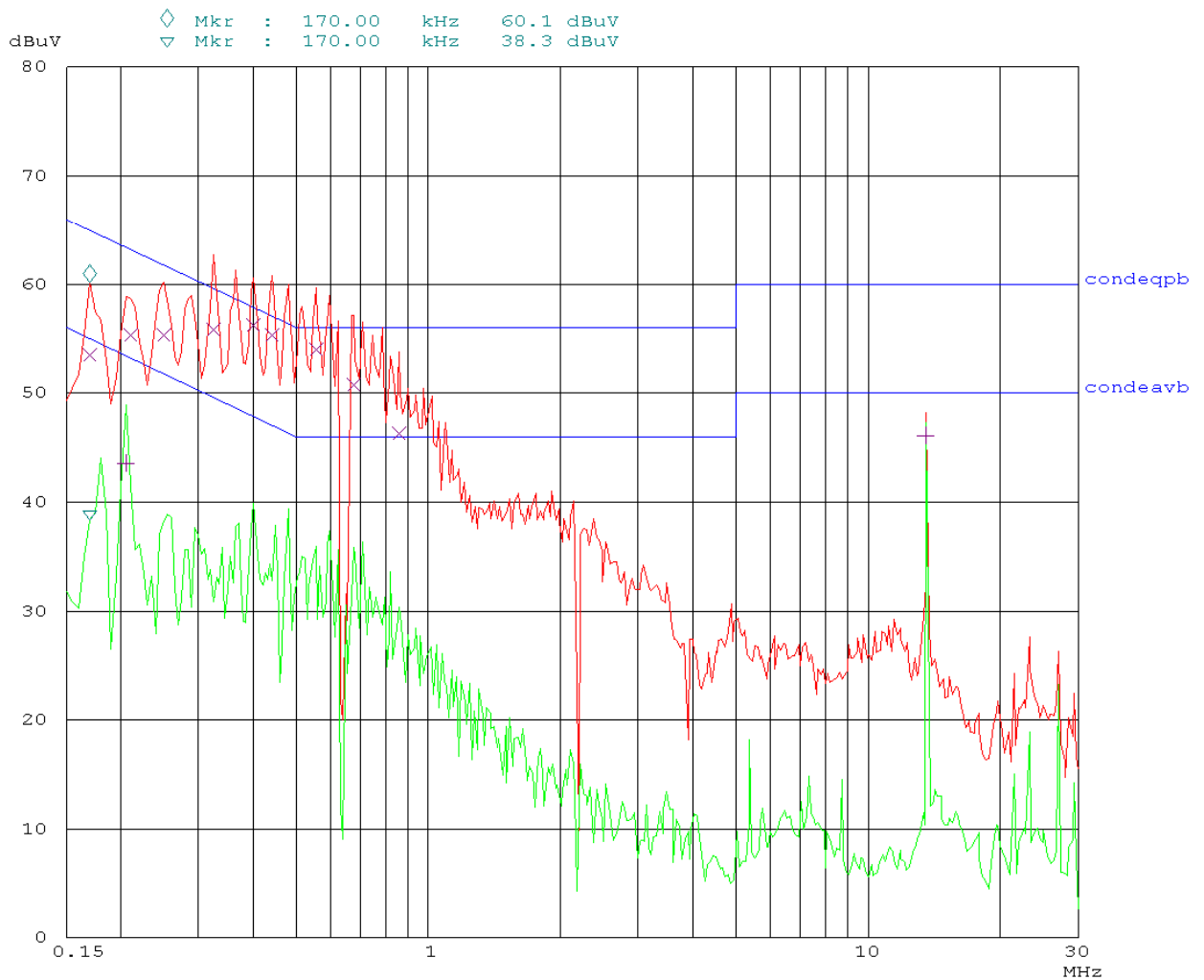
28. Feb 11 10:37

EUT: F83  
-

Scan Settings (1 Range)

----- Frequencies -----			----- Receiver Settings -----				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	30M	5k	9k	PK+AV	20ms	AUTO	LD OFF

Final Measurement:	x QP / + AV	Transducer No.	Start	Stop	Name
	Meas Time: 1 s	1	9k	30M	lisnemco
	Subranges: 25				
	Acc Margin: 6dB				



## 7.1.2 RADIATED EMISSION TEST

### CONDITIONS

The equipment was placed at  $\pm 80$  cm above the floor as table top equipment .  
 The chamber complies with the ANSI C63.4/5 and CISPR 16.  
 The radiated emission level was measured with a bilog antenna (30-1000MHz) .  
 Test voltage : +5Vdc  
 Specification reference :C.F.R.47 part 15.209  
 The limit line 1 is the quasi-peak limit line .  
 Remark : maximum radio part frequency : 27.12MHz , only measurement till 1GHz .  
 Test date : 2011-03-01

#### Measurement results Radiated emission : Horizontal polarization operation mode

**Table3:** (quasi-peak detector)

Freq (MHz)	QP (dB $\mu$ V/m)	height(m)	Angle °
160.75	35.2	1.25	90
161.81	34.0	1.25	90

The final measurements with the quasi-peak detector remain everywhere below the limits .  
 Fig5= 0-345°

#### Vertical polarization operation mode

**Table4** (quasi-peak detector)

Freq (MHz)	QP (dB $\mu$ V/m)	height(m)	Angle °
39.25	34.9	1	45
40.687	35.8	1	0

The final measurements with the quasi-peak detector remain everywhere below the limits .  
 Fig6= 0-345°

Test result	15.209 (c) and 15.209 (f) .
-------------	-----------------------------

Fig 3 : Radiated emission (30-1000MHz) hor pol

Agfa H  
 FCC hor

01. Mar 11 11:04

EUT: F83  
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Scan Settings (2 Ranges)
|----- Frequencies -----|----- Receiver Settings -----|
  Start   Stop      Step    IF BW  Detector  M-Time  Atten  Preamp
  30M     300M     62.5k  120k   PK        1ms    AUTO  LD   ON
  300M    1000M    62.5k  120k   PK        1ms    AUTO  LD   ON

                                Transducer No. Start   Stop   Name
                                           22    30M   1050M HL562hp
  
```

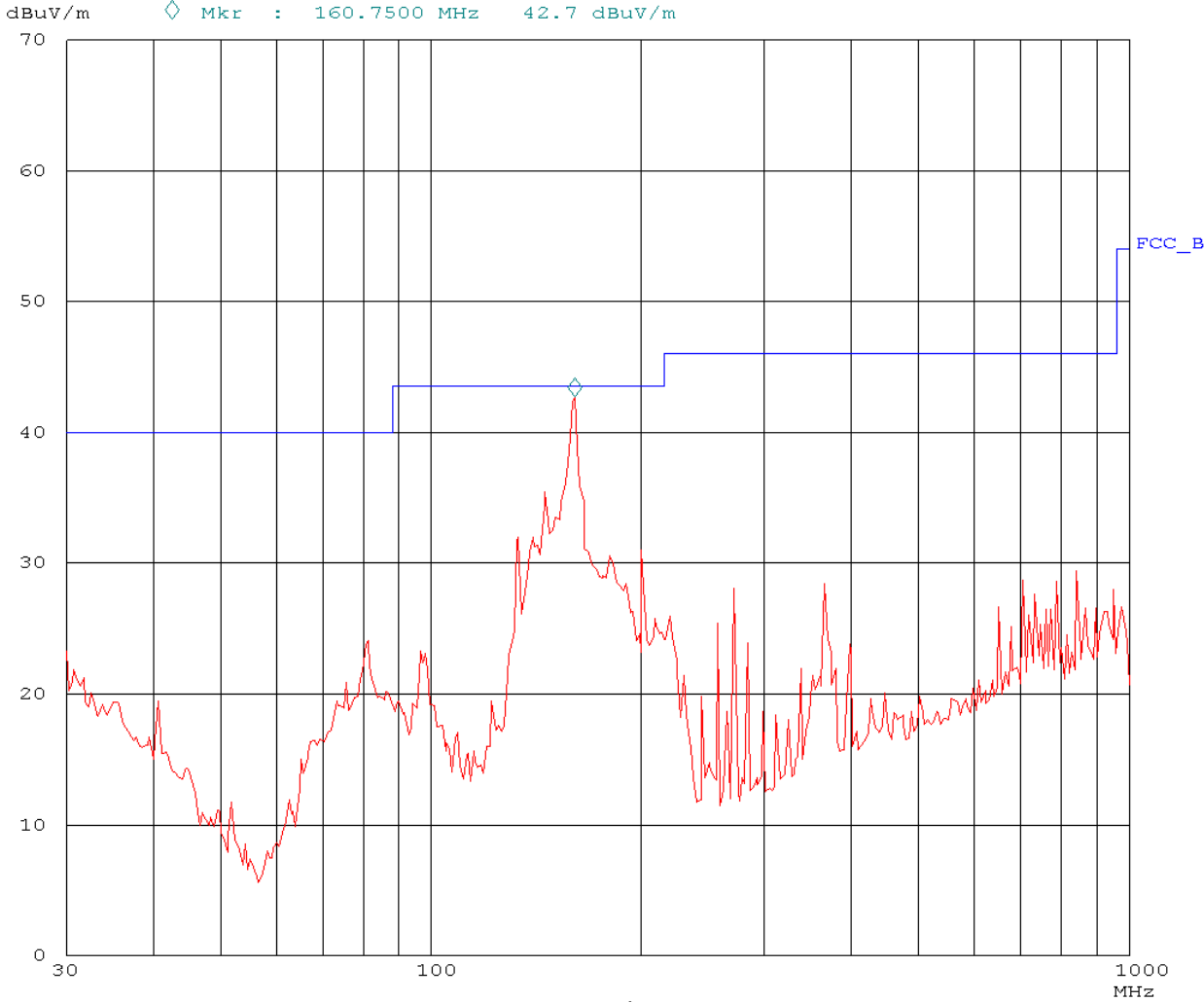




Fig 4 : Radiated emission (30-1000MHz) ver pol

Agfa H  
FCC ver

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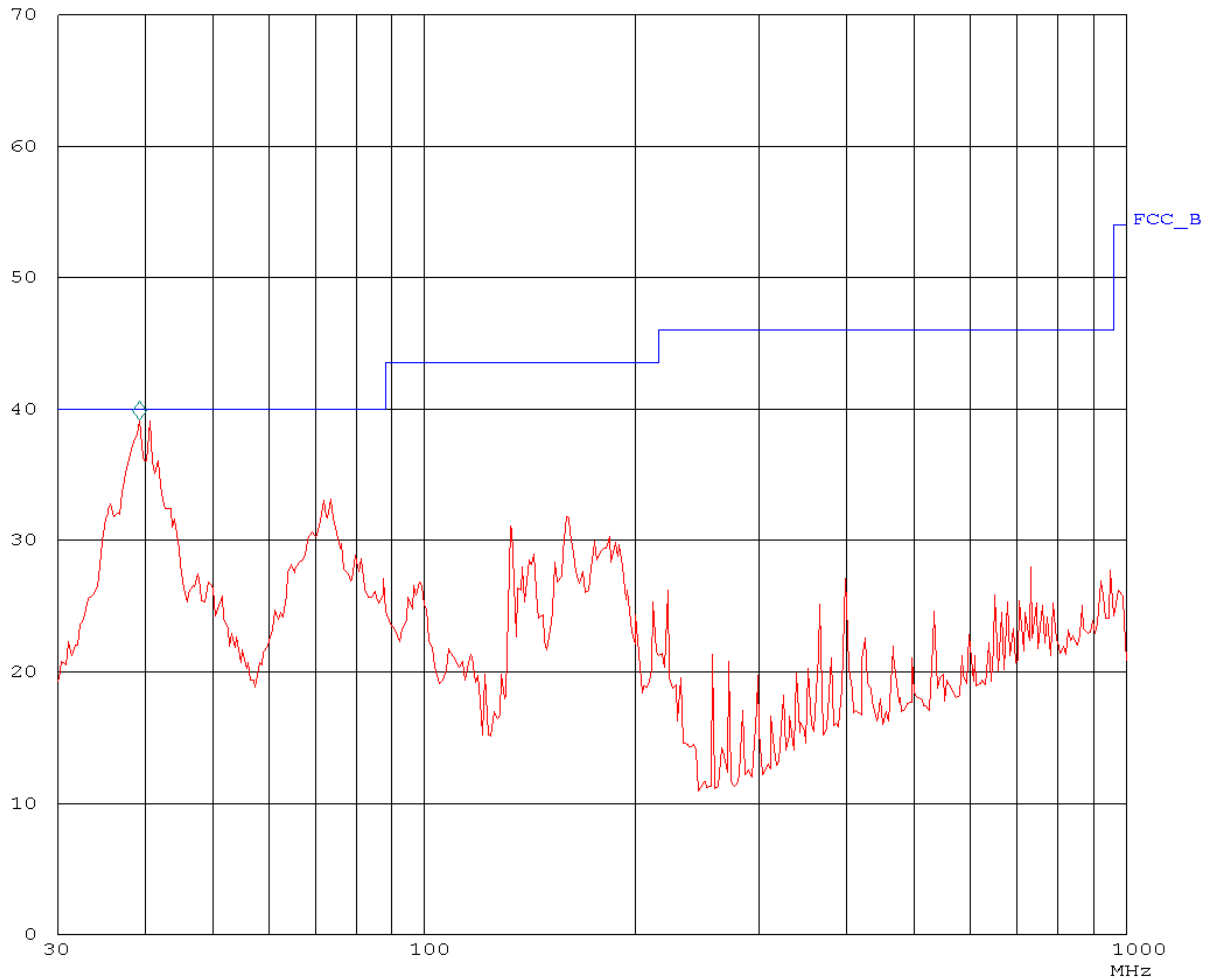
EUT: F83  
-

Scan Settings (2 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
30M	300M	62.5k	120k	PK	1ms	AUTO	LD ON
300M	1000M	62.5k	120k	PK	1ms	AUTO	LD ON

Transducer No.	Start	Stop	Name
22	30M	1050M	HL562hp

dBuV/m     ◇ Mkr : 39.2500 MHz     39.1 dBuV/m



### 7.1.3 RADIATED EMISSION TEST

#### CONDITIONS

The equipment was placed at  $\pm 80$  cm above the floor as table top equipment .  
 The chamber complies with the ANSI C63.4/5 and CISPR 16.  
 The radiated emission level was measured with a rod antenna (0.01-30MHz).  
 Test voltage : +5Vdc  
 Specification reference :C.F.R.47 part 15.209  
 The limit line 1 is the quasi-peak limit line .  
 Test date : 2011-02-28

#### Measurement results Radiated emission : vertical polarization operation mode

**Table5 :** (quasi-peak detector) modulation

Freq (kHz)	QP (dB $\mu$ V/m)	height(m)	Angle °
515	47.2	1	0
13560	60.7	1	0

The final measurements with the quasi-peak detector remain everywhere below the limits .  
 Fig9= 0-345°

**Table6 :** (quasi-peak detector) CW

Freq (kHz)	QP (dB $\mu$ V/m)	height(m)	Angle °
16560	60.6	1	0

The final measurements with the quasi-peak detector remain everywhere below the limits .  
 Fig10= 0-345

Test result	Pass
-------------	------

Fig 5 : Radiated emission (0.01-30MHz) modulation on

Agfa H  
15209 mod

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EUT: F83  
-

Scan Settings (2 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
9k	150k	100Hz	200Hz	PK	100ms	AUTO	LD OFF
150k	30M	5k	9k	PK	20ms	AUTO	LD OFF

Final Measurement: x QP      Transducer No.    Start      Stop      Name  
 Meas Time:            1 s                    21    9k      30M      EMCOROD  
 Subranges:            25  
 Acc Margin:           6dB

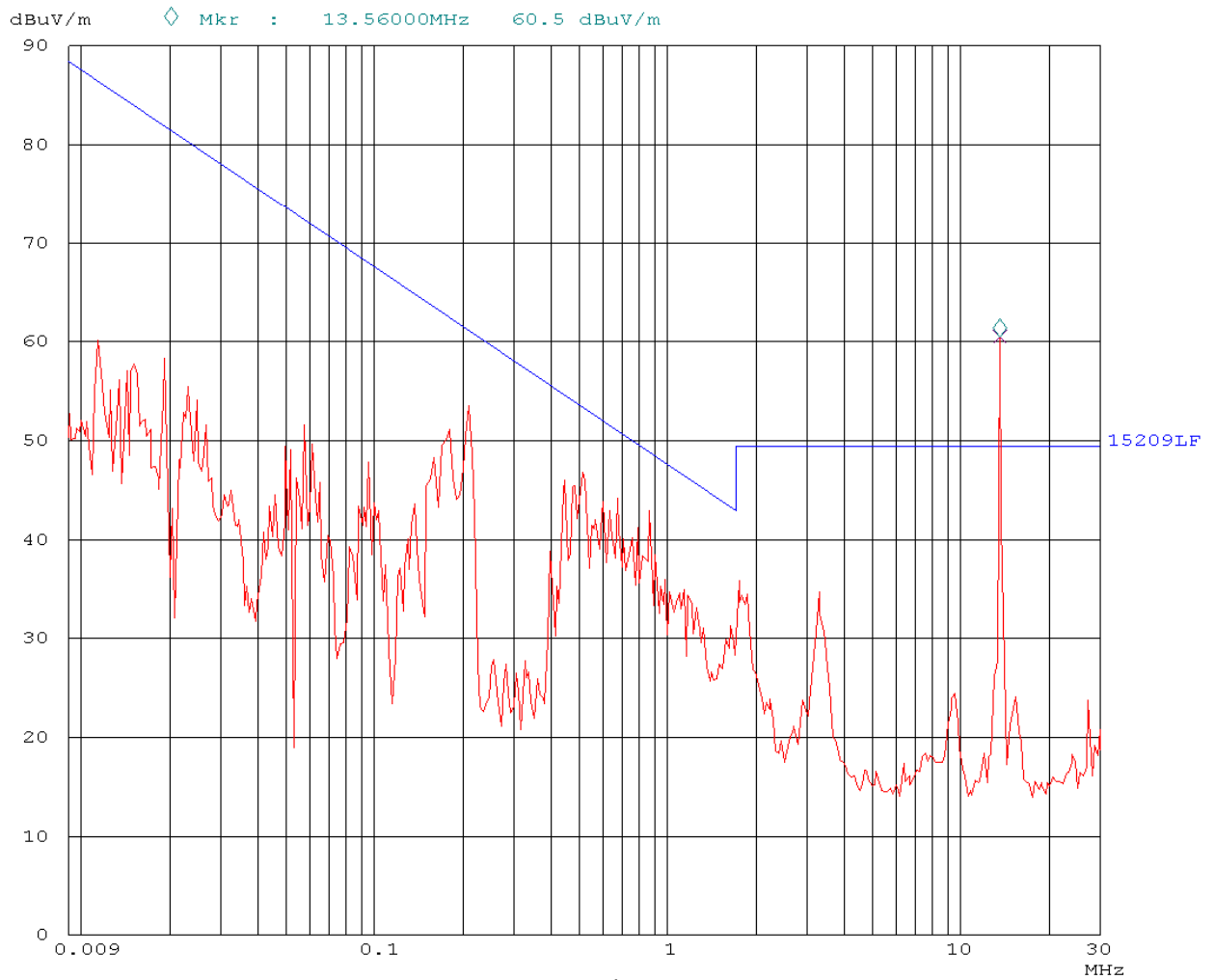


Fig 6 : Radiated emission (0.01-30MHz) CW

Agfa H  
15209 cw

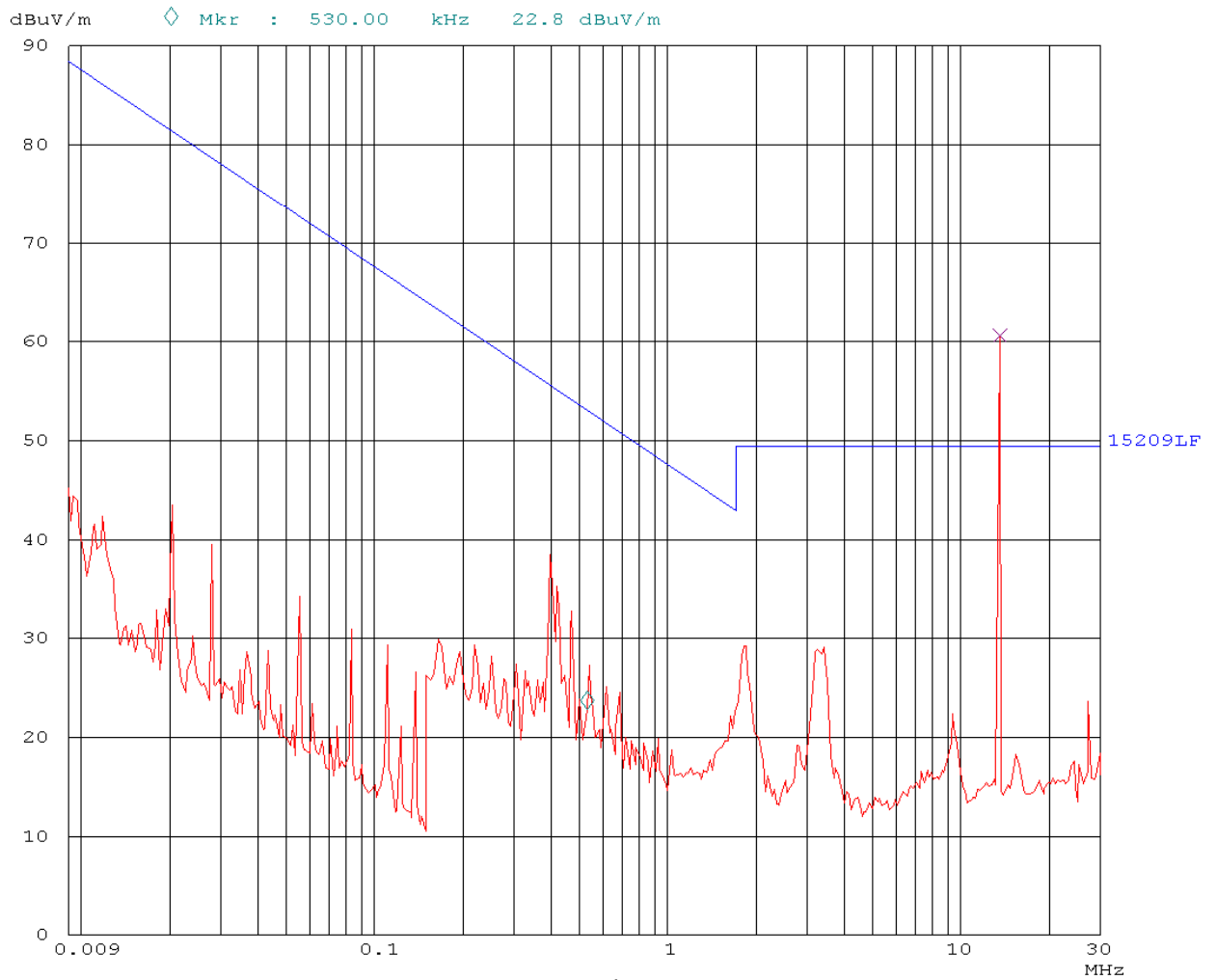
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Scan Settings (2 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
9k	150k	100Hz	200Hz	PK	100ms	AUTO	LD OFF
150k	30M	5k	9k	PK	20ms	AUTO	LD OFF

Final Measurement: x QP      Transducer No.    Start      Stop      Name  
 Meas Time:            1 s                    21    9k      30M      EMCOROD  
 Subranges:            25  
 Acc Margin:            6dB



### 7.1.4 . Fundamental Radiated emission

#### CONDITIONS

The equipment was placed at  $\pm 80$  cm above the floor as table top equipment .  
 The chamber complies with the ANSI C63.4/5 and CISPR 16.  
 The radiated emission level was measured with a magnetic loop antenna .  
 Test voltage : +5Vdc  
 Specification reference :C.F.R.47 part 15.225  
 The limit line 1 is the quasi-peak limit line .  
 Remark : The test was done at 1m distance , the limit was calculated using the square of an inverse linear distance extrapolation factor of 40dB/dec. (40 log 30/1). Section 15.31(f)(2)  
 Test date : 2011-02-28

#### Measurement results Radiated emission :

modulation

**Table11 :** (quasi-peak detector) : range 13.553-13.567MHz

Freq (MHz)	QP (dB $\mu$ V/m)	limit (dB $\mu$ V/m) @1m
13.5605	85.8	143

Fig11: RFID tag : peak value

**Table12 :** (quasi-peak detector) : 15.225 (b) range

QP (dB $\mu$ V/m)	limit (dB $\mu$ V/m) @1m	Range (MHz)
65.1	109.5	13.410-13.553
63.4	109.5	13.567-13.710

**Table13 :** (quasi-peak detector) : 15.225 (c) range

QP (dB $\mu$ V/m)	limit (dB $\mu$ V/m) @1m	range
58.3	99.5	13.110-13.410
57.2	99.5	13.710-14.010

CW

**Table14 :** (quasi-peak detector) : range 13.553-13.567MHz

Freq (MHz)	QP (dB $\mu$ V/m)	limit (dB $\mu$ V/m) @1m
13.5605	85.9	143

Fig12: RFID tag : peak value

**Table15 :** (quasi-peak detector) : 15.225 (b) range

QP (dB $\mu$ V/m)	limit (dB $\mu$ V/m) @1m	Range (MHz)
*	109.5	13.410-13.553
*	109.5	13.567-13.710

**Table16 :** (quasi-peak detector) : 15.225 (c) range

QP (dB $\mu$ V/m)	limit (dB $\mu$ V/m) @1m	range
*	99.5	13.110-13.410
*	99.5	13.710-14.010

\* : noise

Test result	Pass
-------------	------

Fig 7: Radiated emission 13.65 ISM band : modulation

Agfa H  
 carrier mod FCC

28. Feb 11 14:44

EUT: F83  
 -

Scan Settings (1 Range)

----- Frequencies -----			Receiver Settings -----				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
13.11M	14.01M	5k	9k	PK	200ms	AUTO LN	OFF

Final Measurement: x QP		Transducer No.	Start	Stop	Name
Meas Time:	1 s	11	150k	30M	HFHZ2
Subranges:	25				
Acc Margin:	6dB				

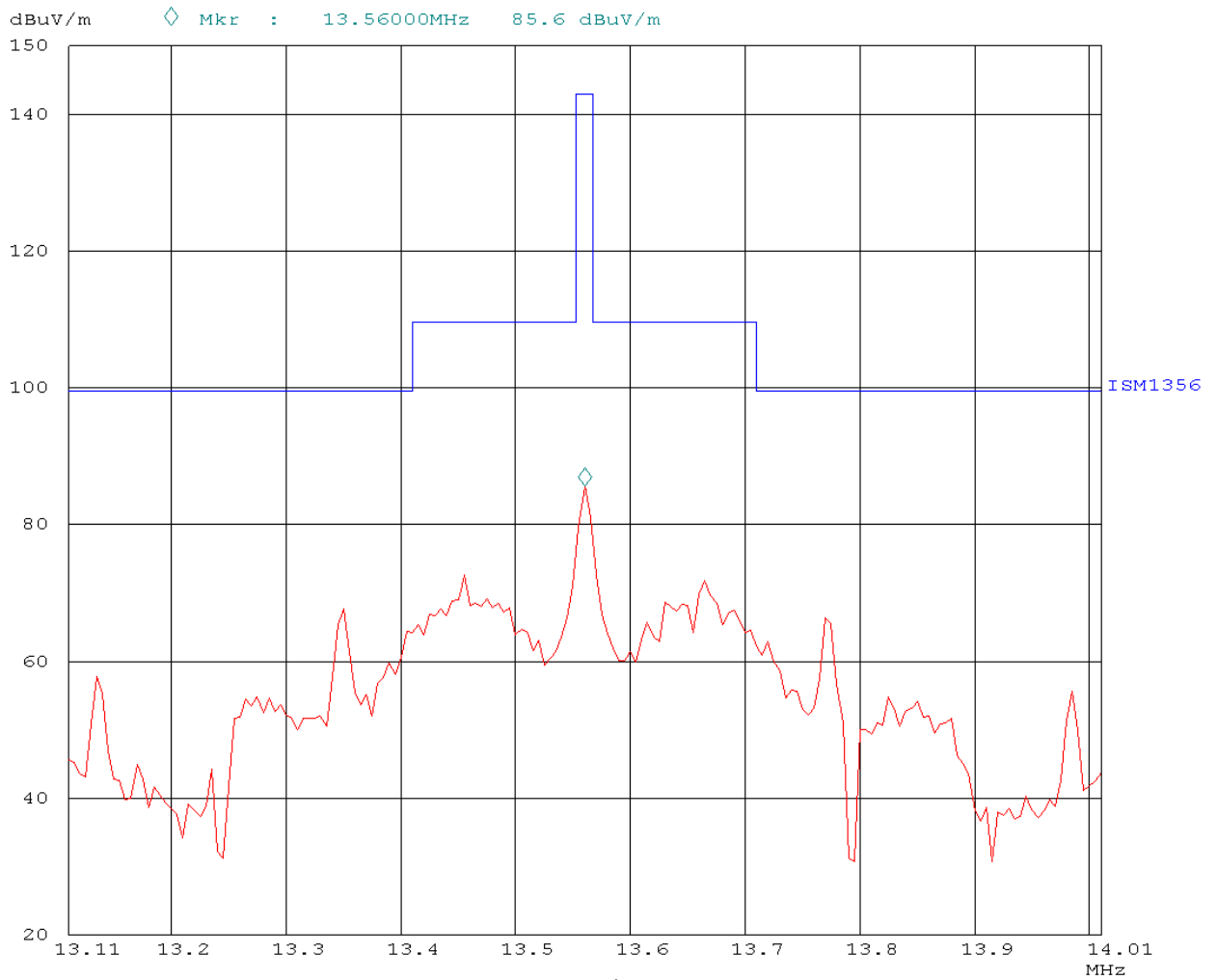


Fig8 : Radiated emission 13.65 ISM band : CW

Agfa H  
 carrier cw FCC

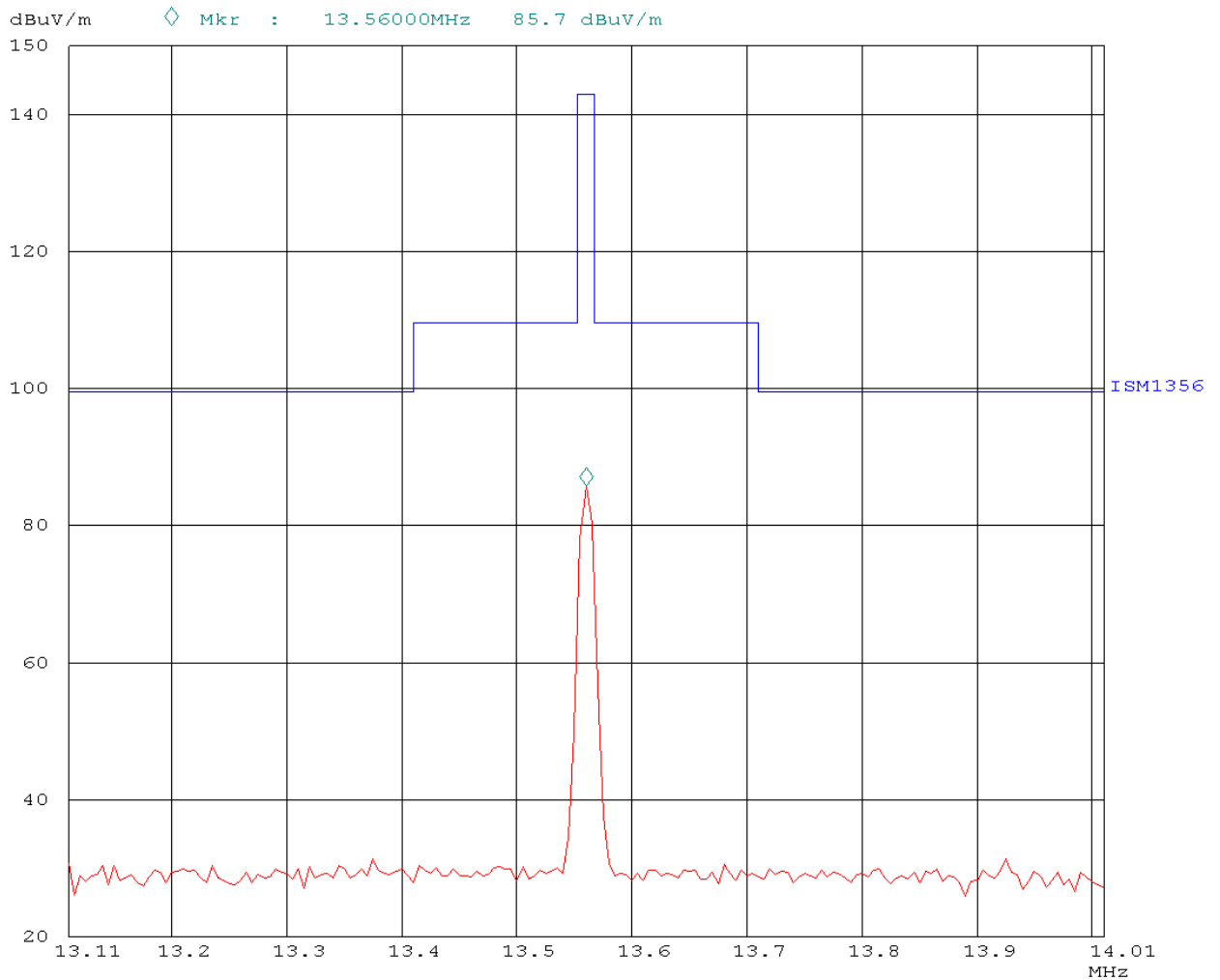
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Scan Settings (1 Range)

<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">-----</td> <td style="text-align: center;">Frequencies</td> <td style="text-align: center;">-----</td> <td style="text-align: center;">  </td> <td style="text-align: center;">-----</td> <td style="text-align: center;">Receiver Settings</td> <td style="text-align: center;">-----</td> </tr> <tr> <td style="text-align: center;">Start</td> <td style="text-align: center;">Stop</td> <td style="text-align: center;">Step</td> <td></td> <td style="text-align: center;">IF BW</td> <td style="text-align: center;">Detector</td> <td style="text-align: center;">M-Time</td> </tr> <tr> <td style="text-align: center;">13.11M</td> <td style="text-align: center;">14.01M</td> <td style="text-align: center;">5k</td> <td></td> <td style="text-align: center;">9k</td> <td style="text-align: center;">PK</td> <td style="text-align: center;">20ms</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">AUTO LN</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">OFF</td> </tr> </table>	-----	Frequencies	-----		-----	Receiver Settings	-----	Start	Stop	Step		IF BW	Detector	M-Time	13.11M	14.01M	5k		9k	PK	20ms							AUTO LN							OFF	
-----	Frequencies	-----		-----	Receiver Settings	-----																														
Start	Stop	Step		IF BW	Detector	M-Time																														
13.11M	14.01M	5k		9k	PK	20ms																														
						AUTO LN																														
						OFF																														

Final Measurement: x QP	Transducer No. 11	Start 150k	Stop 30M	Name HFHZ2
Meas Time: 1 s				
Subranges: 25				
Acc Margin: 6dB				



## 7.2. Frequency tolerance

### CONDITIONS

The equipment was placed in a climate chamber .  
 The frequency level was measured with frequency counter , CW .  
 Test voltage : +5Vdc  
 Temperature range -20° to +50°C  
 Specification reference :C.F.R.47 part 15.225  
 Test date : 2011-03-02

Table17 : frequency-temp

Maximum frequency (kHz) / temp °c	Minimum frequency (kHz) / temp °c	Δf (Hz)	Δ ppm
13560.454 / +20	13560.372 / -20	26	1.9

Maximum allowed frequency tolerance :  $\pm 0.01\%$  or 100ppm .

### CONDITIONS

The equipment was placed in a climate chamber .  
 The frequency level was measured with frequency counter , CW .  
 Test voltage range : +5Vdc +/-10% (4.50-5.25V)  
 Specification reference :C.F.R.47 part 15.225  
 Test date : 2011-03-01

Table18 : frequency-voltage

Maximum frequency (kHz) / voltage	Minimum frequency (kHz) / voltage	Δf (Hz)	Δ ppm
13560.449 / 5.00V	13560.446 / 5.50V	3	0.2

Maximum allowed frequency tolerance :  $\pm 0.01\%$  or 100ppm .



### 7.3. limits

Table : CE on mains (class B)

frequency (MHz)	QP (dB $\mu$ V)	AV (dB $\mu$ V)
0.15-0.50	66 to 56	56 to 46
0.50-5.0	56	46
5.0-30	60	50

Table : RE range 0.01-30MHz @ 3m

frequency (MHz)	QP (dB $\mu$ V)
0.009-0.490	88.5 to 53.8
0.49-1.705	53.8 to 43.0
1.705-30.0	49.5

Table : RE @ 3m range 30-1000MHz (class B)

frequency (MHz)	QP (dB $\mu$ V/m)
30-88	40.0
88-216	43.5
216-960	46.0
above 960	54.0

Table : RE @ 1m ISM band 13.56MHz

frequency (MHz)	QP (dB $\mu$ V/m)
13.110-13.410	99.5
13.410-13.553	109.5
13.553-13.567	143
13.567-13.710	109.5
13.710-14.010	99.5

#### 7.4. Test dates and Climate conditions .

<b>date</b>	2011-02-28 and 03-01 and 02
<b>ambient temperature</b>	22/22/22°C
<b>relative humidity</b>	50/47/47%
<b>atmospheric pressure</b>	1023/1034/1034

## SECTION 8: MEASUREMENT UNCERTAINTIES

measurement	uncertainty	remark
CE with LISN	$\pm 2.42\text{dB}$	
CE with ISN	$\pm 1.5\text{dB}$	
CE with current probe	$\pm 3.6\text{dB}$	
DPE with clamp (30-300M)	$\pm 3.9\text{dB}$	
RE 30-1000MHz	$\pm 3.9\text{dB}$	
Harmonic	1%	current
Flicker	5%	
ESD	$\pm 12\%$	current
RI 80-1000MHz GTEM	$\pm 0.656\text{V/m}$	3V/m
RI 80-1000MHz GTEM	$\pm 1.72\text{V/m}$	10V/m
RI 80-1000MHz AR	$\pm 0.85\text{V/m}$	3V/m
RI 80-1000MHz AR	$\pm 1.77\text{V/m}$	10V/m
RI 895-905MHz GTEM	$\pm 0.656\text{V/m}$	3V/m
RI 895-905MHz GTEM	$\pm 1.72\text{V/m}$	10V/m
RI 895-905MHz AR	$\pm 0.85\text{V/m}$	3V/m
RI 895-905MHz AR	$\pm 1.77\text{V/m}$	10V/m
EFT	$\pm 12\%$	
Surge	$\pm 12\%$	
CI CDN	$\pm 0.54\text{dB}$	
CI injection clamp	$\pm 3.5\text{dB}$	
Magnetic immunity	$\pm 0.12\text{A/m}$ $\pm 0.23\text{A/m}$	3A/m 30A/m
Voltage dips	$\pm 1.5\%$	
Temperature climate chamber	$\pm 2^\circ\text{C}$	

## SECTION 9: PHOTOGRAPHS OF EQUIPMENT AND TEST SET-UP

Photo 3 : conducted emission



Photo 4 : radiates emission (0.009-30.0MHz)

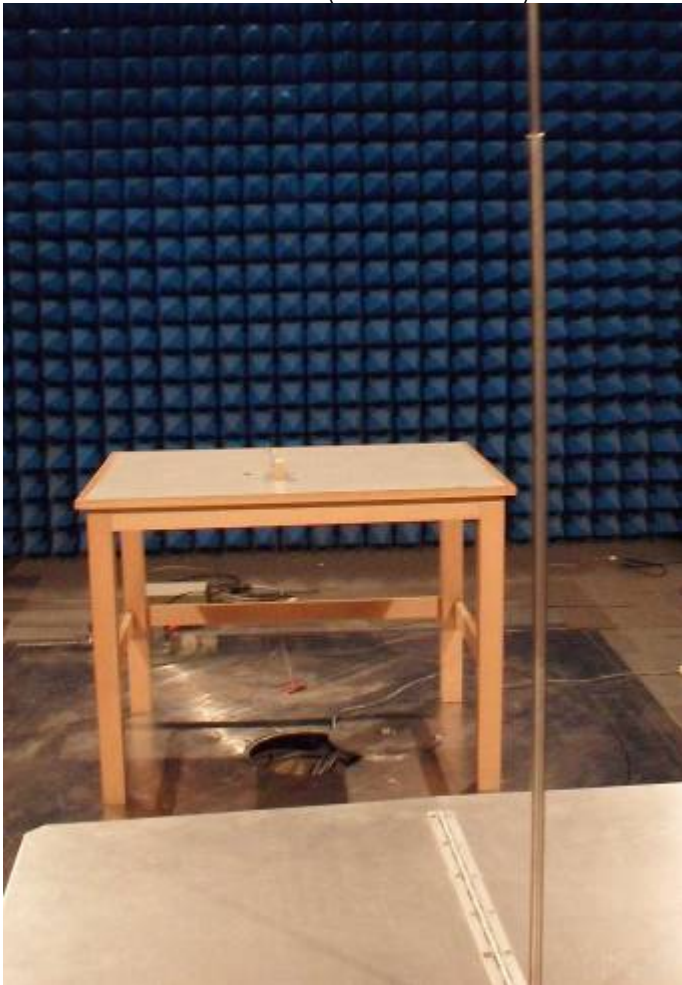


Photo 5 : radiates emission (30-1000MHz)



Photo 6 : fundamental radiated emission (ISM 13.65MHz)

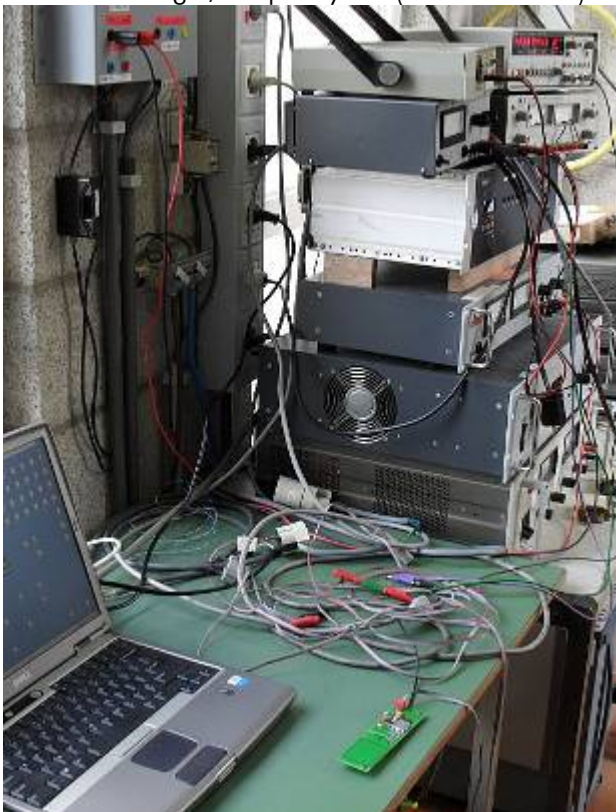




Photo 7 : temperature / frequency test (ISM 13.65MHz)



Photo 8 : voltage / frequency test (ISM 13.65MHz)



## SECTION 10: LIST OF MEASUREMENT EQUIPMENT USED DURING THE TEST

Item	model	serial number	
Rohde & Schwarz EMI receiver	ESCS30	826547/027	*
Chase Bilog antenna	CBL6112A	2182	
Chase bicon antenna	CBL6111B	1948	
R&S bilog antenna	HL562	361324/17	*
R&S horn antenna	HF906	100007	
R&S magnetic loop antenna	HFH2 Z2	879604/007	*
EMCO rod antenna	3301B	8908-2811	*
Antenne mast + controller	RSM 010 / RSC 02	/	*
Anechoic room	EAC52282	/	*
harm + flicker test system (Spitzenberger + Spies)	EMV E2000/Pas	A2780 00/0 0501	*
LISN single phase : EMCO	3816/2	9805-1086	*
HP spectrum Analyzer	HP8546A	3549A00300	
HP spectrum Analyzer	HP8568B	2517A09581	*
preamp : 9kHz-1GHz Chase	CPA9231	3078	
Preamp : 10kHz-50MHz HP	HP8447A	2349A07622	
Preamp : 10kHz-1.3GHz HP	HP8447F	2430A01601	*
Low noise preamp 0.1-8.0GHz	AFS4-00100800-25-10P-4	1581127	
Climate chamber Weiß	HC7015/S	45287	*
Delta power supply	E030-3	04251	*
Delta power supply	E030-3	03159	*
Fluke DVM	85III	396180	*
Frequency counter HP	5315A	2536A19877	*
Temperature reader + T-type sensor	Keithley 2700	2002334	*



## SECTION 11: ADDITIONAL INFORMATION GIVEN BY THE CUSTOMER

### Applicant's role during testing

Connecting and brings the EUT in operating mode.  
Witness testing

### EUT information given by the customer

#### Auxiliary equipment connected during testing

Dell Latitude laptop running mifare\_tester.py (version dated 28/2/2011)

#### Cables

The cable is a 4-wire flatcable (TX, RX, +5V and GND), the cable used at the EMC lab was 5m long.  
The 4-wire flatcable is broken out into a RS232 connector (TX, Rx and GND)  
and a USB connector (+5V and GND) using a 2nd connector pair.

## **SECTION 12: MODIFICATIONS OF EUT**

MODIFICATIONS OF EUT : none

## SECTION 13: HISTORY OF THE TEST REPORT

### HISTORY OF THE TEST REPORT (EDITION)

<b>Edition</b>	<b>Adjustment (reason for up-grade)</b>
ETC3170_ed.0	Draft
ETC3170_ed.1	Original

## SECTION 14: ACCREDITATION CERTIFICATE

	<p>Organismo belge d'Accréditation Belgische Accreditatieinstelling Belgische Akkreditierungsstelle Belgian Accreditation Body</p> <hr/> <p>Signatory to EA, ILAC and IAF Multilateral Agreements</p>	<h3>Accreditation Certificate No. 041-TEST</h3>
<p>In compliance with the provisions of the Royal Decree of 31 January 2006 setting up BELAC, the Accreditation Board hereby declares, that the test laboratory</p>		
<p><b>LABORATORIA DE NAYER VZW</b> <b>Jan De Nayerlaan, 3</b> <b>2860 SINT-KATELIJNE-WAVER - Belgium</b></p>		
<p>has the competence to perform the tests as described in the annex which is an integral part of the present certificate, in accordance with the requirements of the standard NBN EN ISO/IEC 17025:2005. The present accreditation is the subject of regular surveillance in order to confirm the compliance with the accreditation conditions.</p>		
<p>The Chair of the Accreditation Board BELAC,</p>		
<p>Issue date : <b>2009-05-12</b> Validity date : <b>2014-01-07</b> Original version of this certificate is in Dutch.</p>		
		<p>Nicole MEURÉE-VANLAETHEM</p>



FCC :

**FEDERAL COMMUNICATIONS COMMISSION**

**Laboratory Division  
7435 Oakland Mills Road  
Columbia, MD 21046**

November 29, 2004

Laboratoria DE NAYER  
Jan De Nayerlaan 3  
B-2860 Sint-Katelijne-Waver  
Belgium

Attention: Dirk Van Troyen

Re: Accreditation of Laboratoria DE NAYER

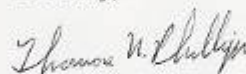
Dear Sir or Madam:

We have been notified by the European Commission that Laboratoria DE NAYER has been accredited as a Conformity Assessment Body (CAB).

At this time your organization is hereby designated to perform compliance testing on equipment subject to Declaration Of Conformity (DOC) and Certification under Parts 15 and 18 of the Commission's Rules.

This designation will expire upon expiration of the accreditation or notification of withdrawal of designation.

Sincerely,



Thomas W. Phillips  
Electronics Engineer