This report concerns :	**Original grant** ☐	**Class II change** ☑
Equipment tested :	**Reading and Encoding RFID**	
Equipment FCC ID :	**RPMUSPICC**	
Designed by :	**SMARTWARE** **49, avenue Aristide Briand** **92160 ANTONY – France**	
Manufactured by :	**SMARTWARE** **49, avenue Aristide Briand** **92160 ANTONY – France**	

Deferred grant requested per 47 CFR 0.457 (d)(1)(ii)	**YES** ☐	**NO** ☑
if yes, defer until :		
Company Named agrees to notify the Commission by :		
of the intended date of announcement of the product so that the grant can be issued on the date		

Transition rules requested per 15.37?	**YES** ☐	**NO** ☑
If no, assumed Part 15, Subpart B for intentional or unintentional radiator The new 47 CFR [10-1-96 edition] provision		

Exhibit 3

Reading and Encoding RFID
FCC ID: RPMUSPICC

TEST REPORT

According to CFR 47 Part 15
Spurious and fundamental part 15.225

N°195104-CC-1-a

Technical control: O.ROY	**GYL technologies** Parc d'activités de Lanserre 21, rue de la Fuye 49610 Juigné sur Loire Tel. : (33)2.41.57.57.40 Fax : (33)2.41.45.25.77	Quality Control: F. NOURRY

Summary

1 GENERAL INFORMATION

1.1 Applicant:

SMARTWARE
49, avenue Aristide Briand
92160 ANTONY – France

1.2 Manufacturer:

SMARTWARE
49, avenue Aristide Briand
92160 ANTONY - France

1.3 Applicant representative:

Mr Nicolaas Van Klaveren

1.4 Test date:

August 9 and 10, 2007

1.5 Test site:

GYL Technologies
Parc d'activités de Lanserre
49610 Juigné sur Loire – France
FCC registration Number : 90469

2 INTRODUCTION

The following test report for a 13.56MHz radio frequency identifier (RFID) is written in accordance with Part 15 of the Federal Communications Commissions. The Equipment Under Test (EUT) was US-PICC board. The test results reported in this document relate only to the item that was tested.

The product is already granted under the same FCC ID RPMUSPICC. This test report is for a permissive change concerning a new antenna and minors' modifications on the PCB (see document "195104 Permissive Change description RPMUSPICC").

For these changes, radiated emissions are performed (spurious and fundamental including 15.225 emission mask) and also AC power line conducted emission.

All measurements contained in this Application were conducted in accordance with ANSI C63.4 Methods of Measurement of Radio Noise Emissions of 2003. The instrumentation utilized for the measurements conforms to the ANSI C63.4 standard for EMI and Field Strength Instrumentation. Some accessories are used to increase sensitivity and prevent overloading of the measuring instrument. These are explained in this report. Calibration checks are performed regularly on the instruments, and all accessories including the high pass filter, preamplifier and cables.

All radiated and conducted emissions measurements were performed manually at GYL TECHNOLOGIES. The radiated emissions measurements required by the rules were performed on the three to ten meters, open field, test site maintained by GYL Technologies Parc d'activités de Lanserre, 49610 Juigné sur Loire , France. Complete description and site attenuation measurement data have been placed on file with the Federal Communications Commission.

The power line conducted emission measurements were performed in a shielded enclosure also located at the Parc d'activités de Lanserre, 49610 Juigné sur Loire, France facility

3 MEASUREMENT EQUIPMENT LIST

PART TYPE	MANUFACTURER	MODEL	GYL TECHNOLOGIES NUMBER	CALIBRATION DATE
RECEIVERS				
Receiver	Rohde & Schwarz	ESI 7	M02020	May-07
Filter 150 KHz	Rohde & Schwarz	EZ25	M02040	July-07
Satellite synchronized frequency standard	Acquisis	GPS8	M06013	without
ARTIFICIAL MAINS NETWORKS				
LISN (50µH / 5/50Ω)	Rohde & Schwarz	ESH3-Z5	M02027	Jan-07
ANTENNAS				
Bilog (30-2000MHz)	CHASE	CBL-6112	M02031	June-07
Bilog (30-2000MHz)	CHASE	CBL-6112	M02032	June-07
Magnetic field antenna	Rohde & Schwarz	HFH2-Z2	M01128	June-07

4 TESTED SYSTEM DETAILS

The equipment tested is a radio frequency identifier (RFID) card intended for use in light industry area and providing reading and encoding features for programming smart cards.

5 EQUIPMENT DESCRIPTION

5.1 Product type:

Radio Frequency Identifier (RFID)

Designation	Manufacturer	S/N	Frequency	Modulation	COMMENTS
US-PICC board	SMARTWARE	UP#0620A E104083E	13.56 MHz	Amplitude	
Antenna	SMARTWARE	569938-101 Rev A			

5.2 Details

Equipment type	I (messages transmission).
Power class	2 (42dBµA/m at 10m)
Frequency band	13.553 to 13.567 MHz. Modulation : amplitude from 11 to 100%.
Emitter Class	1 (small inductive loop)
Adjustable power	automatic at system configuration.
Fix frequency	single channel.
Duty cycle	100% in a permanent working
Receiver Class	2 (in case of failure: no risks for persons but no way to do the function manually).
Critical components	Quartz 13.56 MHz
	Antenna: external inductive loop of less than 0,1 m².

5.3 Ancillary Equipment

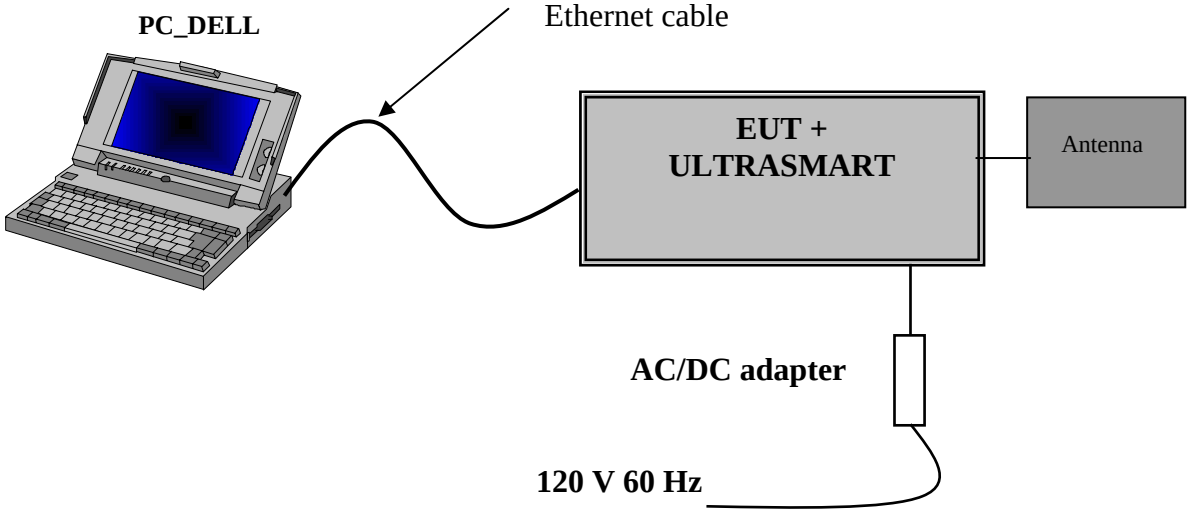
For the purposes of this test report, ancillary equipment is defined as equipment which is used in conjunction with the EUT to provide additional operational and control features to the EUT. It is necessary to configure the system in a typical fashion, as a customer would normally use it.:

Thus, as described in exhibit 3 the used ancillary equipment (named ULTRASMART) is a typical application providing feature to read and encode contact or contactless smartcards

Function	Manufacturer	REFERENCE	SERIAL NUMBER	COMMENTS
Backplane	SMARTWARE	US-DSC	None	
Motherboard	SMARTWARE	US-CORE	UC#624AB30509A7	
Power supply	MEAN WELL	PSU30A-3	P30A-3P2J	

- PC DELL Inspiron Model 8600

5.4 Configuration of tested systems



6 EXERCISING TEST CONDITIONS

The Ultrasmart application was set up to execute permanent reading and encoding smart card and verifying the functionality by means of the Personal computer as shown by the picture below .The used software was "Testgene.mll" MLOSV3 .All test are done with Type B card.

7 CONFORMANCE STATEMENT

7.1 Standard reference for this report

PART 2: 2004	Frequency allocations and Radio Treaty Matters General Rules and Regulations
PART 15: 2006	Radio frequency devices
ANSI C63.4-2003	Standard format measurements/technical report personal computer and peripherals

7.2 Justification

As mentioned in paragraph 5 of this report, the equipment is an information technology equipment providing features to read and encode smart cards and as it is an intentional radiator the following sections of the standard mentioned above are applicable:

- 15.31 Measurements standards
- Part 15.207 and 15.209 (subpart C) for respectively conducted and radiated emission.
- 15.201 Equipment authorization requirements
- 15.203 Antenna requirements
- 15.205 Restricted bands of operation.
- 15.225 Operation within the band 13.553 - 13.567 MHz

8 Test results summary:

TEST	Reference	Results
Field strength of fundamental	15. 225 (a)	complies
Radiated emission outside the band	15.225 (b)	complies
Frequency tolerance of the carrier	15.225 (c)	Not required
Line conducted emissions	15.207	complies
Radiated spurious emissions	15.209	complies
Antenna requirements	15.203	complies

9 TEST ACCORDING TO CFR 47 Part 15

Tests performed by Olivier MARET at GYL Technologies laboratories on August 9 and 10, 2007.

9.1 Reference documentation:

FCC part 15 (Subpart C) §15.207 and 15.209 and 15.225 of 08-2006

9.2 Conducted emissions measurements

The power line conducted emission measurements were performed in a semi anechoic chamber manufactured by SIDT. The EUT was assembled on a non conductive 10 centimeters high wooden pallet. Power was fed to the EUT through a 50 ohm / 50 micro-Henry Line Impedance Stabilization Network (EUT LISN). The EUT LISN was fed power through an A.C. filter box on the outside of the shielded enclosure. The filter box and EUT LISN housing are bonded to the ground plane of the shielded enclosure. The spectrum analyzer was connected to the A.C. line through an isolation transformer. The 50-ohm output of the EUT LISN was connected to the spectrum analyzer input through a Rohde and Schwartz 150 kHz high-pass filter. The filter is used to prevent overload of the spectrum analyzer from noise below 150 kHz. Conducted emission levels were measured on each current-carrying line with the receiver operating in the CISPR quasi-peak mode (or average mode if applicable

9.3 Results: (§ 15.207 class B)

The following table lists worst-case conducted emission date. Specifically: Emission Frequency, Test Detector, Analyzer Reading, Site Correction Factor, corrected Emission Level, Quasi Peak Limit and Margin, and the Average Limit and Margin.

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. If the conducted emissions exceed the limit with the instrument set to the quasi-peak mode, then measurements are made in the average mode.

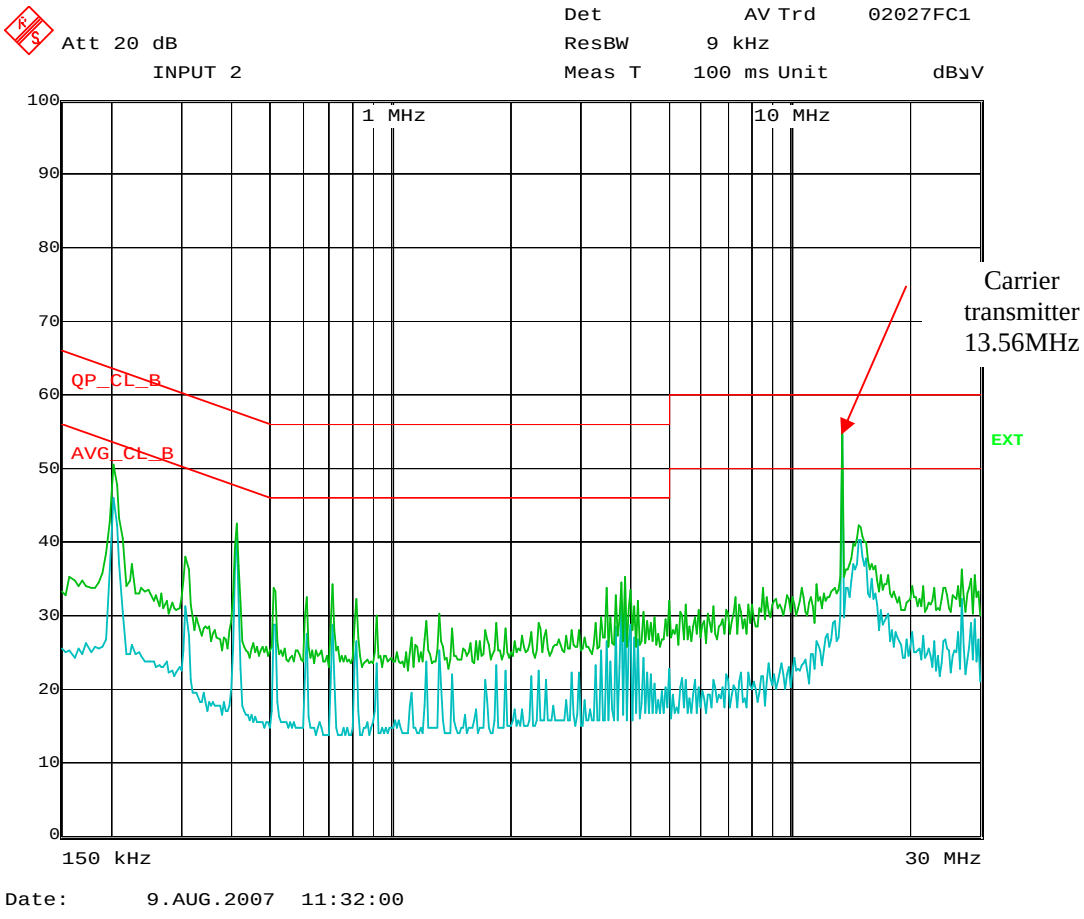
The conducted test was performed with the EUT exercise program loaded, and the emissions were scanned between 150 kHz to 30 MHz on the NEUTRAL SIDE and LIVE SIDE, herein referred to as Neutral, and Live respectively.

ESI 7 EMI TEST RECEIVER IN RECEIVER MODE	
Peak measurement time	5 ms
step size	4kHz
Preamplifier	OFF
Preselector	ON
Resolution, Band Width	9 kHz
Final Quasi Peak measurement time	1 s minimum
Final average measurement time	1 sec minimum

9.3.1 Neutral with antenna connected (EUT power supply)

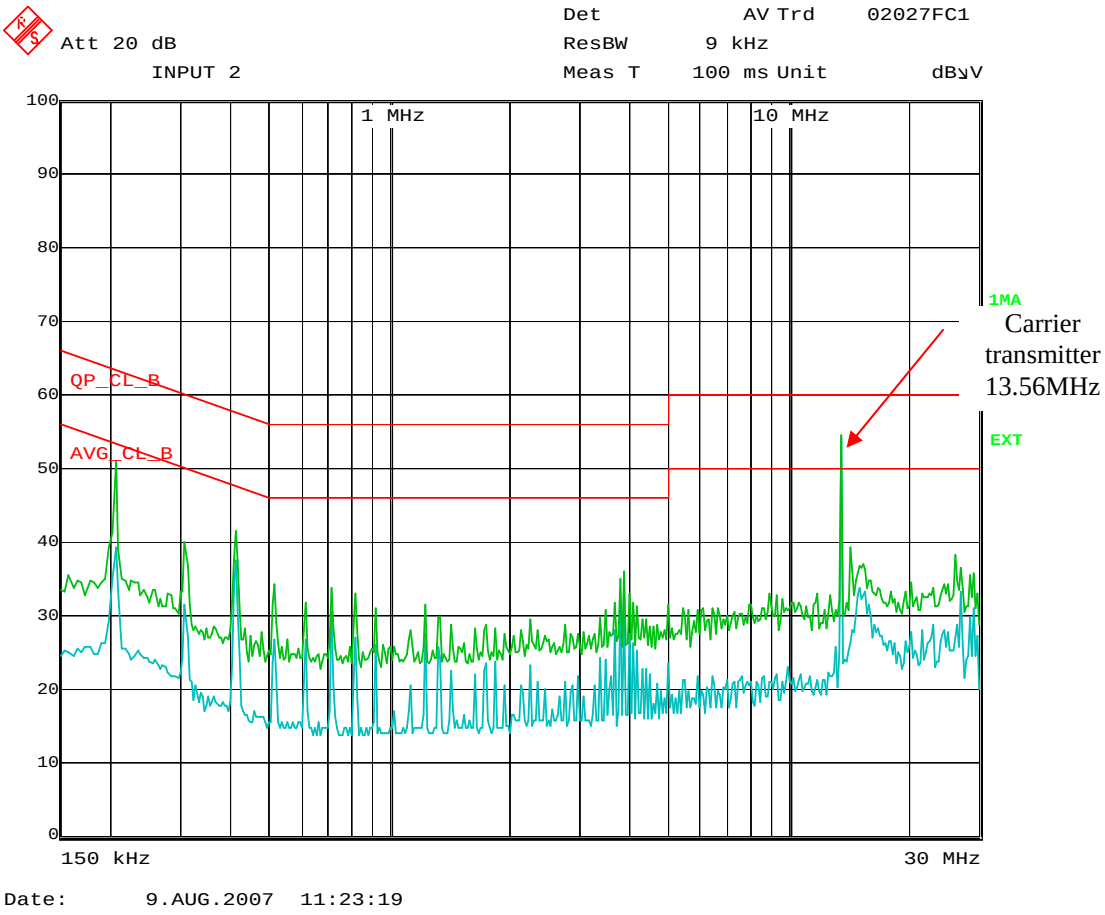
Frequency (MHz)	Average (dBµV)	Average margin (dB)	Comment
0,202	41,2	-12,4	
0,410	36,9	-10,8	
13,566	54,1	4,1	Transmitter fundamental
14,934	35,5	-14,5	
15,034	30,3	-19,7	
15,138	34,1	-15,9	
0,202	41,2	-12,4	

Legend: Blue curve represents average values
Green curve represents the peak values



9.3.2 Live with antenna connected (EUT power supply)

Frequency (MHz)	Average (dBµV)	Average margin (dB)	Comment
0,202	36,5	-17,0	
0,410	34,3	-13,3	
0,714	26,5	-19,5	
3,782	31,1	-14,9	
3,882	28,5	-17,5	
13,566	52,7	2,7	Transmitter fundamental
14,918	21,0	-29,0	
15,222	17,3	-32,7	

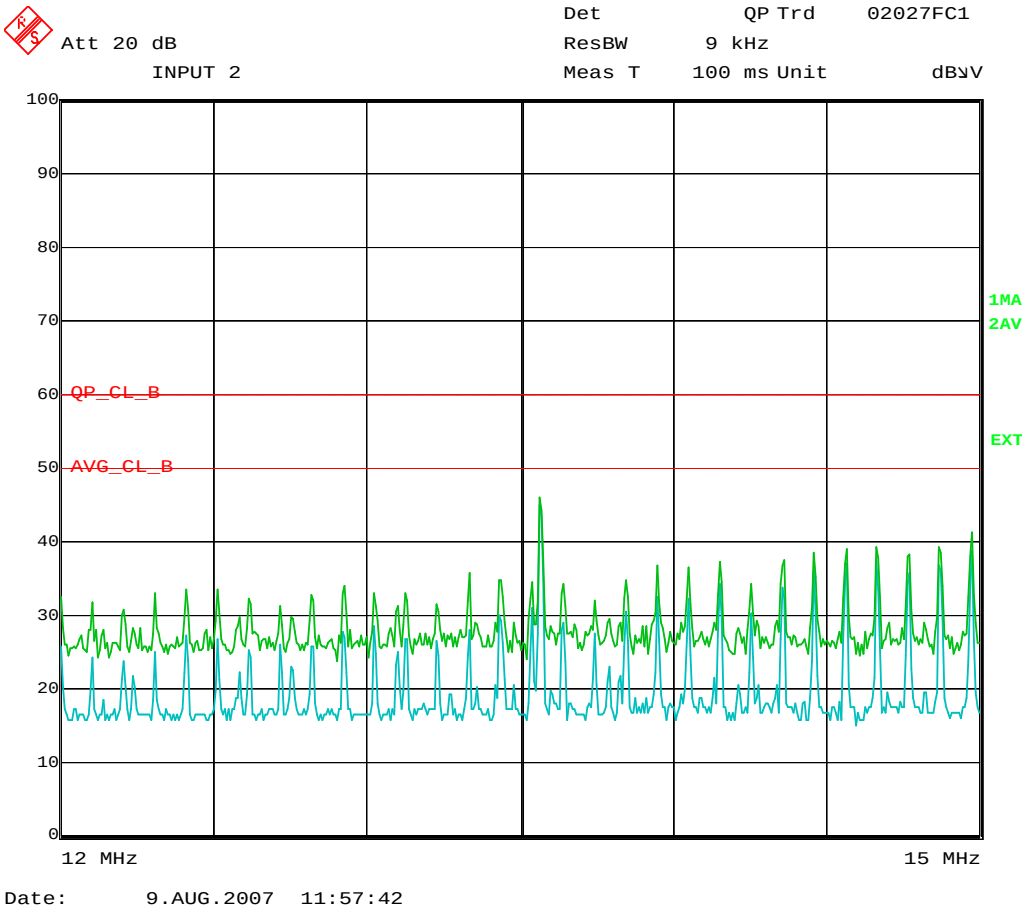


9.3.3 Neutral with R= 10 Ohms load antenna connected:

Frequency (MHz)	Quasi-peak (dBµV)	QP margin (dB)
13,564	45,0	-15,0
14,972	40,5	-19,5

Frequency (MHz)	Average (dBµV)	Average margin (dB)
13,564	44,7	-5,3
14,152	31,9	-18,1
14,356	31,9	-18,1
14,460	35,5	-14,5
14,564	36,3	-13,7
14,664	36,2	-13,8
14,768	36,2	-13,8
14,868	36,0	-14,0
14,972	39,4	-10,6

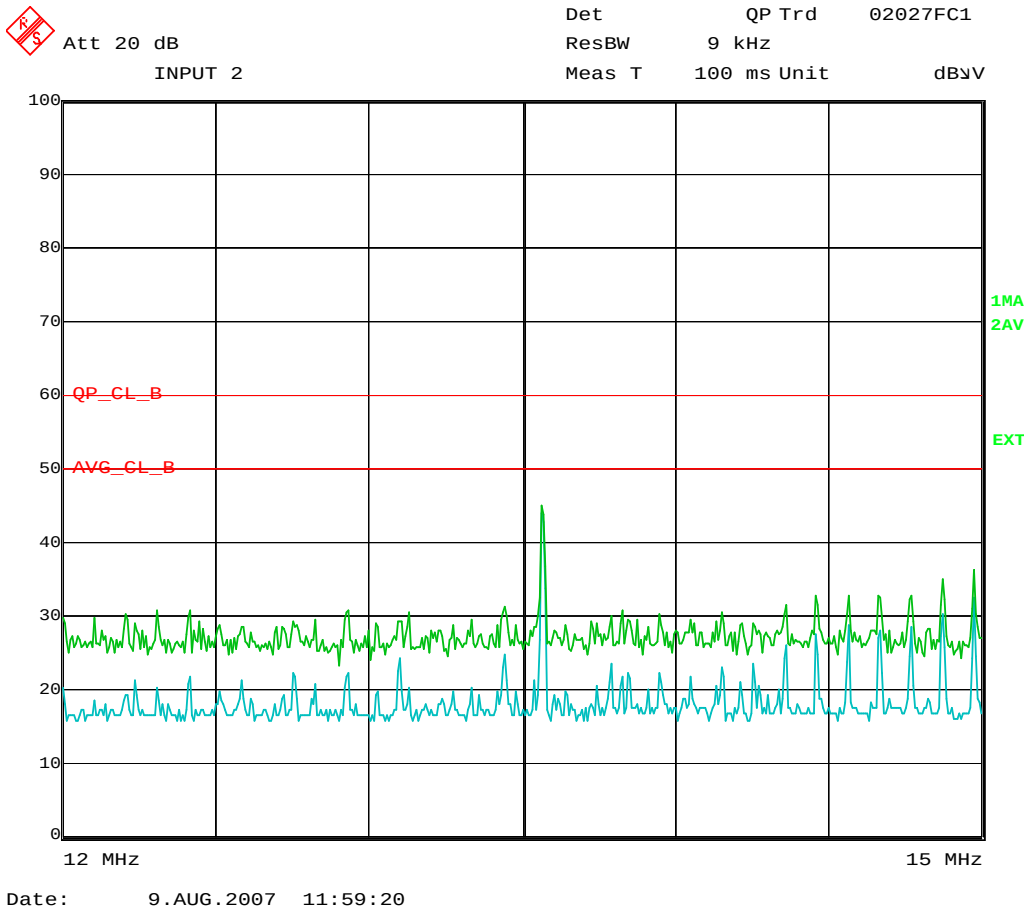
Legend: Blue curve represents average values
Green curve represents the peak values



9.3.4 LIVE with R= 10 Ohms load antenna connected:

Frequency (MHz)	Quasi-peak (dBµV)	QP margin (dB)
13,564	44,1	-15,9

Frequency (MHz)	Average (dBµV)	Average margin (dB)
13,564	43,7	-6,3
14,872	30,1	-19,9
14,976	31,0	-19,0



9.4 Interpretations an remarks:

The equipment complies with the §15.207 requirements, Class B

9.5 Radiated emissions measurements

Before final measurements of radiated emissions were made on the open-field three/ten meter range; the EUT was pre-scanned in the semi anechoic at one meter distance. This was done in order to determine its emissions spectrum signature. The physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. This process was repeated during final radiated emissions measurements on the open-field range, at each frequency, in order to insure that maximum emission amplitudes were attained.

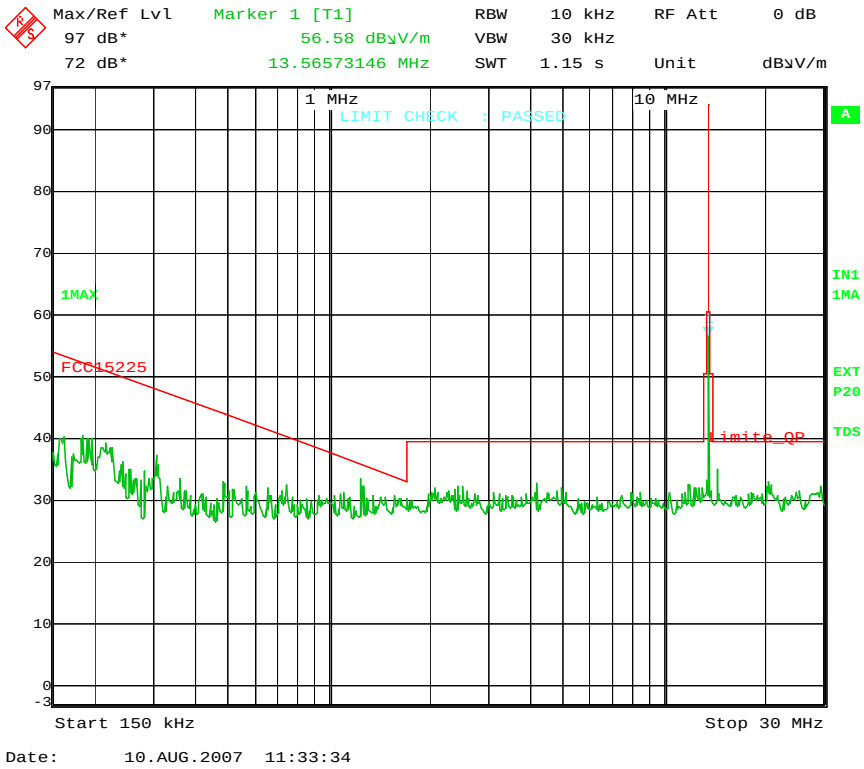
Final radiated emissions measurements were made on the three/ten-meter, open-field test site. The EUT was placed on a nonconductive turntable 0.8 meter above the ground plane. At each frequency, the EUT was rotated 360 degrees, and over 30MHz, the antenna was raised and lowered from one to four meters in order to determine the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarizations. The spectrum analyzer's 6 dB bandwidth was set to 120 kHz, and the analyzer was operated in the CISPR quasi-peak detection mode. No video filter less than the resolution bandwidth was used. For measurements below 30MHz, the prescan is done in spectrum analyzer mode with 10kHz RBW and 30kHz VBW. Then measurement on OATS is with antenna at 1m high and with a peak detector. The range of the frequency spectrum to be investigated is specified in FCC Part 15. The highest emission amplitudes relative to the appropriate limit were measured and recorded in this report.

Summary of settings over 30MHz

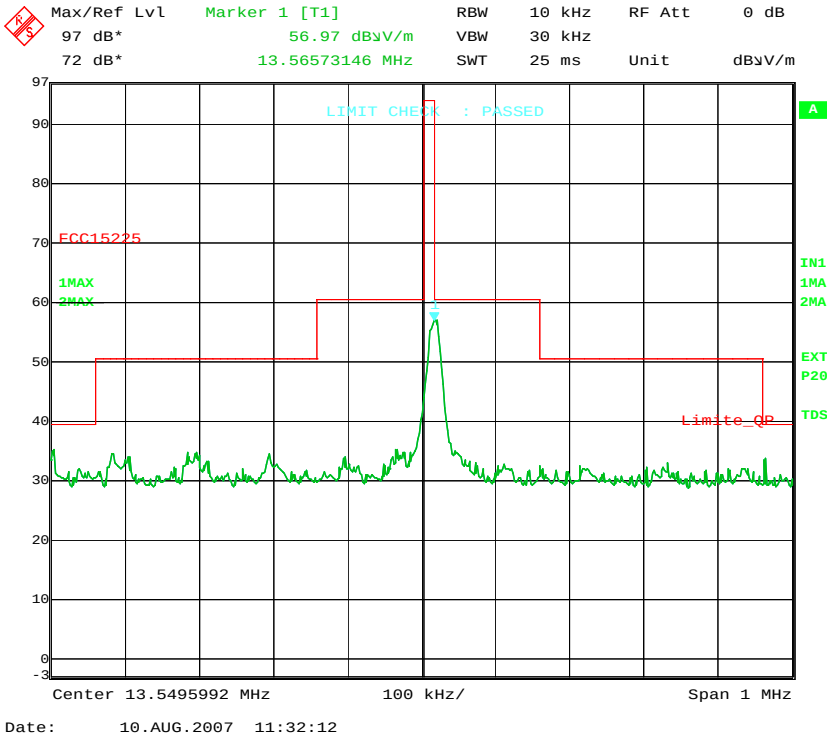
ESI 7 EMI TEST RECEIVER IN RECEIVER MODE	
Peak measurement time	5 ms
step size	40 kHz
Preamplifier	ON
Preselector	ON
Resolution, Band Width	120 kHz
Final Quasi Peak measurement time	1 s minimum
Final average measurement time	N/A

9.6 Results (§ 15.209 and §15.225):

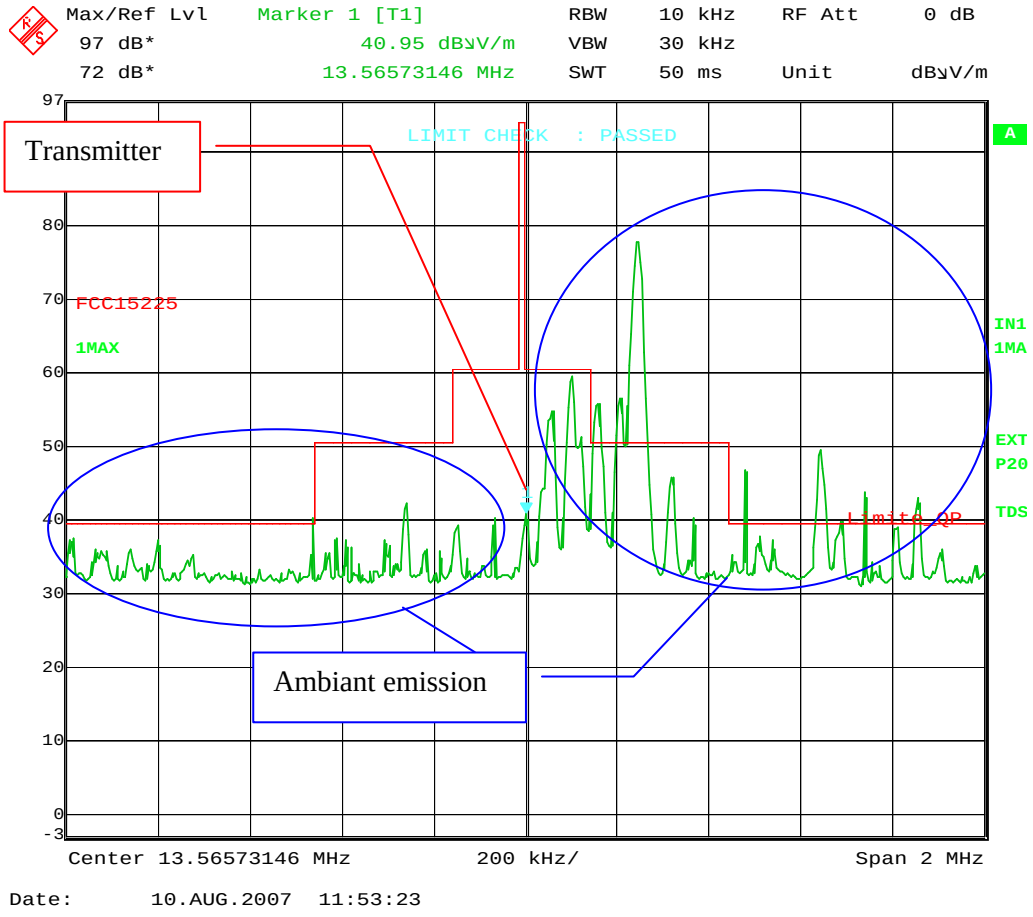
The green curve is the peak value (3m prescan with 15.225 10m limit)



10 m limit with 3 m measurement (prescan in shielded enclosure)



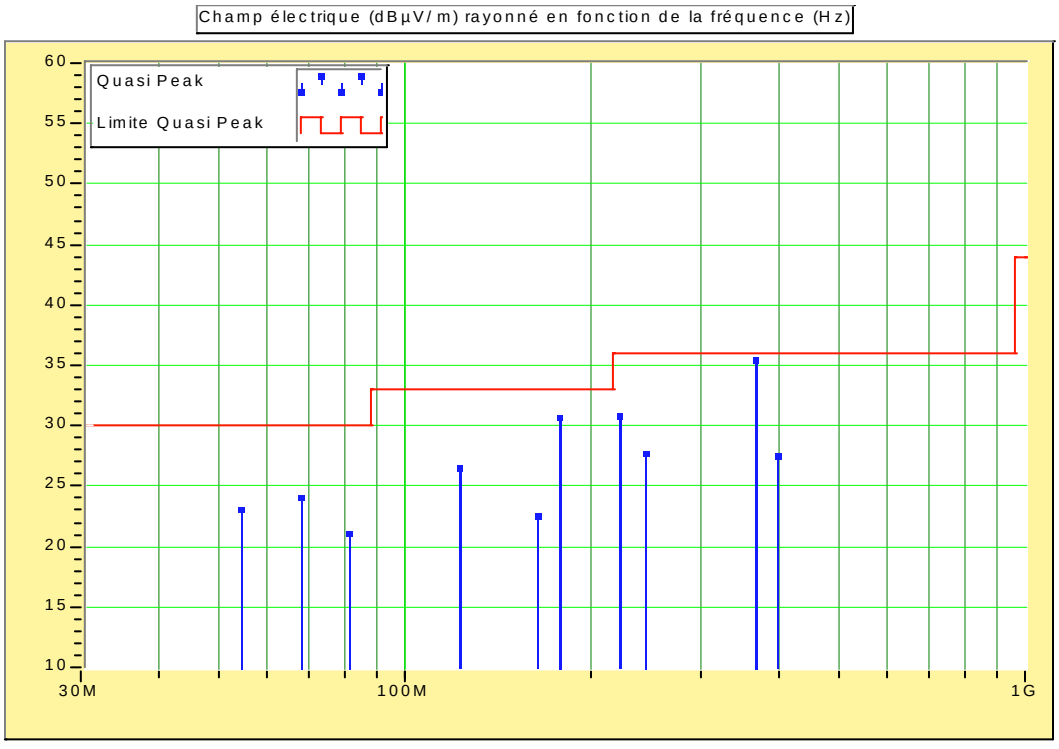
OATS 10m measurement (max hold, worst position)



Over 30MHz

The following data table lists the most significant emission frequencies, measured level, correction factor (includes cable and antenna corrections), corrected reading and the limit. The highest peaks are measured in quasi-peak detection mode at 10 meters distance.

Frequency (MHz)	Peak (dBµV/m)	Quasi peak (dBµV/m)	Margin (dB)	Polar.	Height (cm)	Angle (°)	Facteur Corr. (dB)	Comments
54,251	25,04	23,14	**-6,86**	V	191	1	9,40	
67,831	26,11	24,12	**-5,88**	V	252	328	8,08	
81,386	24,20	21,17	**-8,83**	V	168	190	9,71	
122,080	27,26	26,53	**-6,47**	V	235	288	14,26	
162,784	25,16	22,63	**-10,37**	V	102	164	13,75	
176,641	31,69	30,67	**-2,33**	V	126	277	13,06	
220,807	32,54	30,90	**-5,10**	V	111	263	15,25	
242,889	30,50	27,68	**-8,32**	H	364	90	16,47	
366,270	36,69	35,57	**-0,43**	H	364	179	20,46	
397,444	29,96	27,47	**-8,53**	V	105	39	21,60	



9.7 Harmonics radiated emissions

Measurements were performed on fundamental frequency h1 until the 10th harmonic. Preliminary spectrum signature was conducted at 3 meter from EUT, final measurement being conducted at 10 meters distance from EUT according to ANSIC63.4 measurement method.

Note : it wasn't possible to make the measurement of the fundamental with a RBW greater than the 20 dB bandwidth because of ambient near the fundamental.

Harm. number	Freq. (MHz)	Meas. at Dm dBµV/m	Dm (m)	Mode Peak, QP	Corrected Value for D dBµV/m	Limit at D dBµV/m	D(m)	Margin	Result
Fund.	13.566	40.95	10	Peak	30.95	84	30	-53.05	**Pass**
H2	27.132		10	Peak		40.5	30	NS	**Pass**
H3	40.698		10	QP		40	3	NS	**Pass**
H4	54.251	23.14	10	QP	33.14	40	3	-6,86	**Pass**
H5	67.831	24.12	10	QP	34.12	40	3	-5,88	**Pass**
H6	81.386	21.17	10	QP	31.17	40	3	-8,83	**Pass**
H7	94.948		10	QP		43	3	NS	**Pass**
H8	108.512		10	QP		43	3	NS	**Pass**
H9	122.080	26.53	10	QP	36.53	43	3	-6,47	**Pass**
H10	135.660		10	QP		43	3	NS	**Pass**

NS: Noise Floor

9.8 Interpretations and remarks:

The equipment complies with the §15.209 and 15.225 concerning radiating emission requirements.