



TEST REPORT

**According to FCC, CFR 47 Part 15
And Industry Canada ICES 003
And RSS 210 Issue 7**

POST-L-0H-10

N°134114-CC-1-a

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GYL technologies
Parc d'activités de Lanserre
21 rue de la Fuye
49610 JUIGNE SUR LOIRE
FRANCE
Tel. : +33 (0) 2.41.57.57.40
Fax : +33 (0) 2.41.45.25.77

	FCC CERTIFICATION TEST REPORT EQUIPMENT FCC ID : V33POSTL0H10 Canada IC : 7489D-POSTL0H10 The 18 pages of this report are not sharable	2 Identification : 134114-CC-1-a FCC registration # 90469 IC registration IC4452
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OTHER ASSOCIATED FILES:

134114 Exhibit 1 ID label V33POSTL0H10
134114 Exhibit 3 External Photographs V33POSTL0H10
134114 Exhibit 4 RFID Block diagram V33POSTL0H10
134114 Exhibit 4a Computer Block diagram V33POSTL0H10
134114 Exhibit 5a RFID Schematics V33POSTL0H10
134114 Exhibit 5b RFID Schematics V33POSTL0H10
134114 Exhibit 5c Computer Schematics V33POSTL0H10
134114 Exhibit 5d Computer Schematics V33POSTL0H10
134114 Exhibit 7 Test Setup Photos V33POSTL0H10
134114 Exhibit 8 User's Manual V33POSTL0H10
134114 Exhibit 9 Internal Photos V33POSTL0H10
134114 Exhibit 12 operational descriptions V33POSTL0H10

1 Reference and record of revisions of the test report:

Test report number :	Revision :	Number of pages	Modification reasons :
134114-CC-1-a	a	18	Creation
Redactor : JL JAMET & O.ROY			Date of writing : June 18, 2010
Technical control: O. ROY 			Quality Control: M. CABALLERO 

2 Interpretation and remarks:

2.1 RESULTS:

This equipment complies with the rules of the FCC part 15.225 and related sections for RFID function. This equipment complies with the rules of the FCC section 15.107, 15.109 class A and related sections concerning its non intentional radiator functions (ITE), test not included in this report

This equipment complies with the rules of the IC RSS-210 and related sections for RFID function. This equipment complies with the rules of the ICES 003 class A and related sections concerning its non intentional radiator functions (ITE), test not included in this report.

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3 GENERAL INFORMATION:

3.1 APPLICANT:

Thales Security Solutions & Services SAS
Centre du Bois des Bordes
91229 BRETIGNY SUR ORGE
France

3.2 TEST DATE:

December 16, 2009 & February 10, 2010

3.3 TEST SITE:

GYL Technologies
Parc d'activités de Lanserre
49610 Juigné sur Loire – France
FCC registration Number: 90469
IC registration IC 4452

4 INTRODUCTION:

The following test report for Point Of Sales Terminal is written in accordance with Part 15 of the Federal Communications Commissions and RSS-210 and ICES-003 of the Industry Canada. The Equipment under Test (EUT) was a Point Of Sales Terminal. The test results reported in this document relate only to the item that was tested POST-L-0H-10.

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.

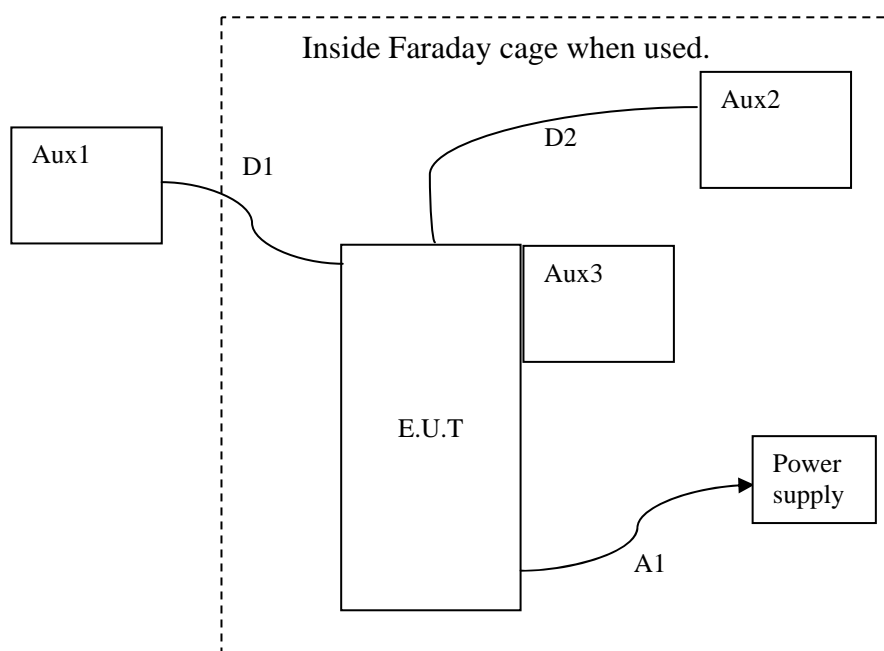
All conducted and radiated emissions measurements were performed manually at GYL TECHNOLOGIES. The radiated emissions measurements required by the rules were performed on the three to ten meters, open field, test site maintained by GYL Technologies Parc d'activités de Lanserre, 49610 Juigné sur Loire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

5 MEASUREMENT EQUIPMENT LIST:

PART TYPE	MANUFACTURER	MODEL	GYL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
RECEIVERS					
Receiver	Rohde & Schwarz	ESI 7	M02020	Mai-09	Mai-10
Spectrum analyzer	Rohde & Schwarz	FSEM 30	M02021	Mai-09	Mai-10
Filter 150 KHz	Rohde & Schwarz	EZ25	M02040	March-09	March-10
Satellite synchronized frequency standard	Acquisis	GPS8	M06013	without	without
ARTIFICIAL MAINS NETWORKS					
LISN (50μH / 5/50Ω)	Rohde & Schwarz	ESH3-Z5	M02027	Sept-09	Sept-10
ANTENNAS					
Bilog (30-2000MHz)	CHASE	CBL-6112	M02031	June-09	June-10
Bilog (30-2000MHz)	CHASE	CBL-6112	M02032	June-09	June-10
Active loop antenna	Rohde & Schwarz	HFH2-Z2	M01128		
Horn antenna	EMCO	3115	M02045	Feb-09	Feb-10

All equipments where within their calibration period when used.

CONFIGURATION OF TESTED SYSTEM:



E.U.T.: Equipment under Test

5.1 Auxiliary equipment:

Aux1: PC

Model: ICP electronics

Ref: PAC700IP-7SA

Serial number: ICP00D048443

Aux2: USB mouse

Aux3: RFID Card

5.2 List of cables:

	AC power input Name	Nb phase	N Y/N	PE Y/N	I _{max}	P _{max}	test voltage1	
A1	power input	1	Y	Y			120	

	Data I/O Name	Shielded Y/N	Max length (m)	outside Y/N	local network Y/N	connected to AC power Y/N	Analog telecom line Y/N	Length for test
D1	Ethernet	Y	100	N	Y	N	N	10m
D2	USB mouse	Y	2	N	N	N	N	1.5m

6 EXERCISING TEST CONDITIONS:

We launch both software “Burning Test” and “LPOS qualification tool” to check the different functions notably the RFID part.

7 CONFORMANCE STATEMENT:

7.1 STANDARDS REFERENCED FOR THIS REPORT:

PART 2: 2004	Frequency allocations and Radio Treaty Matters General Rules and Regulations
PART 15: 2008	Radio frequency devices
ANSI C63.4-2003	Standard format measurements/technical report personal computer and peripherals
RSS210 Issue 7 : June 2007	Low-power License-exempt Radio communication Devices (All Frequency Bands): Category II Equipment
RSS-GEN Issue 2 : 2007	General Requirements and Information for the Certification of Radio communication Equipment

7.2 JUSTIFICATION:

As mentioned in paragraph 4 of this report, the equipment is a Point Of Sales Terminal. It can be installed in residential commercial or light industry areas the following sub clause of the standard mentioned above are:

- Part 15.207 and 15.209 (subpart C) for respectively conducted and radiated emission for intentional radiator.
- Part 15.225 for Operation within the band 13.110 – 14.010 MHz.
- RSS-210 Issue 7 §A2.6 for intentional radiator within the band 13.110 – 14.010 MHz.

8 TEST ACCORDING TO CFR 47 Part 15

Tests performed by O ROY and JL JAMET at GYL Technologies laboratories on December 16, 2009 & February 10, 2010.

8.1 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 80 centimeters high wooden table. 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).

8.1.1 RESULTS:

The conducted emissions initial measurement consists of a pre-scan, in order to determine the maximum quasi peak and average values.

- If the conducted emissions have limits showing a margin lower than 20dB, data collection measurement is performed on the six (6) highest frequencies to determine the compliance of the EUT.
- If the conducted emissions have limits showing a margin greater than 20dB, data collection measurement is not performed and the curves are given as evidence of compliance.

The following tables lists worst-case conducted emission data. Specifically: emission frequency, measurement level (including cable loss and transducer factors) in quasi-peak and average mode and margin.

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	
Pre-selector	ON
Resolution, Band With	9 kHz
Final Quasi Peak measurement time	1 s minimum
Final average measurement time	1 sec minimum



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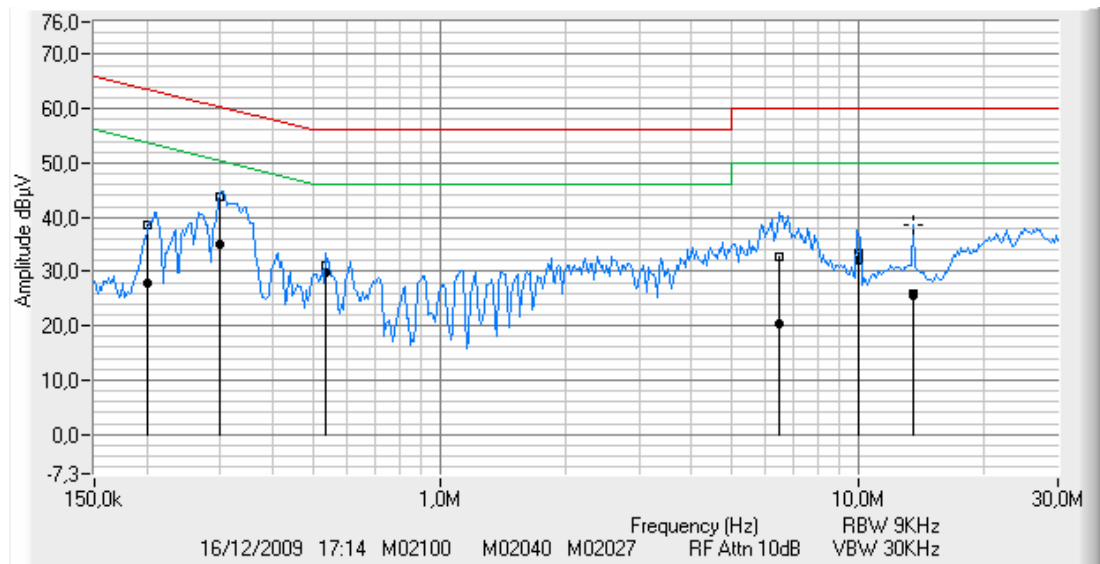
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Measurement with Class B limits.

Neutral:

Frequency (MHz)	Quasi-peak (dBμV)	QP Limit (dBμV)	QP margin (dB)	Frequency (MHz)	Average (dBμV)	Average Limit (dBμV)	Average margin (dB)
0,201	38,59	63,57	24,98	0,201	27,85	53,57	25,72
0,299	43,66	60,27	16,61	0,299	34,99	50,27	15,28
0,535	31,11	56	24,89	0,535	29,94	46	16,06
6,495	32,65	60	27,35	6,495	20,39	50	29,61
10,002	33,31	60	26,69	10,002	32,14	50	17,86
13,551	26,04	60	33,96	13,551	25,72	50	24,28

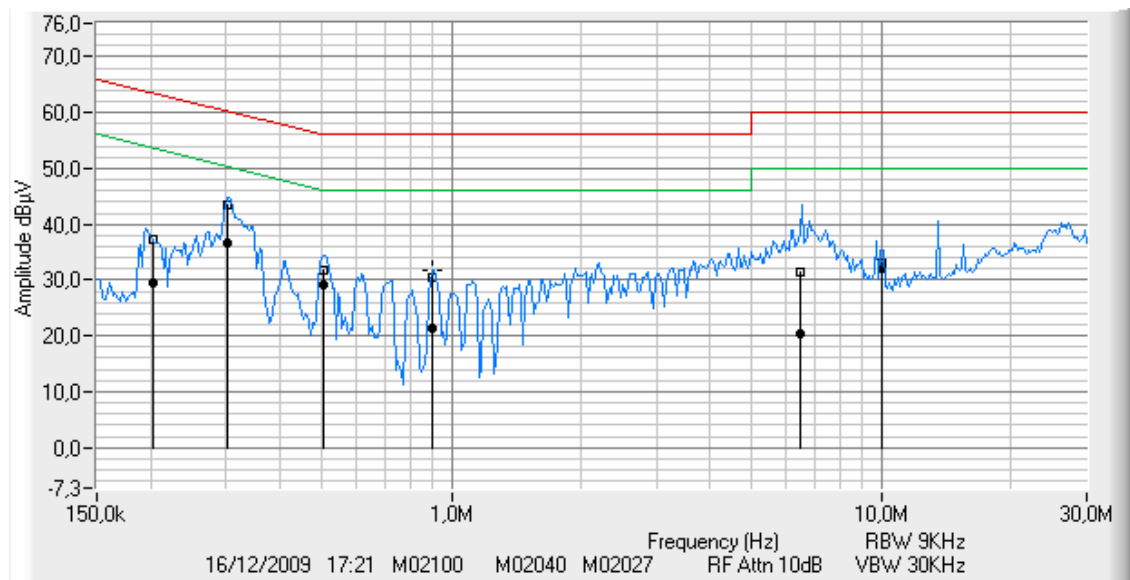
Legend: Blue curve represents the peak values





Live:

Frequency (MHz)	Quasi-peak (dBμV)	QP Limit (dBμV)	QP margin (dB)	Frequency (MHz)	Average (dBμV)	Average Limit (dBμV)	Average margin (dB)
0,202	37,18	63,53	26,35	0,202	29,61	53,53	23,92
0,302	43,62	60,19	16,57	0,302	36,66	50,19	13,53
0,506	31,62	56	24,38	0,506	29,24	46	16,76
0,903	30,41	56	25,59	0,903	21,45	46	24,55
6,457	31,52	60	28,48	6,457	20,29	50	29,71
10,002	33,08	60	26,92	10,002	31,99	50	18,01



8.1.2 INTERPRETATION AND REMARKS:

The equipment complies with the §15.207 requirements,

The equipment complies with the RSS-GEN requirements.

8.2 INTENTIONAL RADIATOR OPERATION RSS-210 A2.6 AND FCC PART 15.225:

8.2.1 Field strength for the emitter

According to the §15.31 f (2) the distance extrapolation factor (40dB/decade) is used.

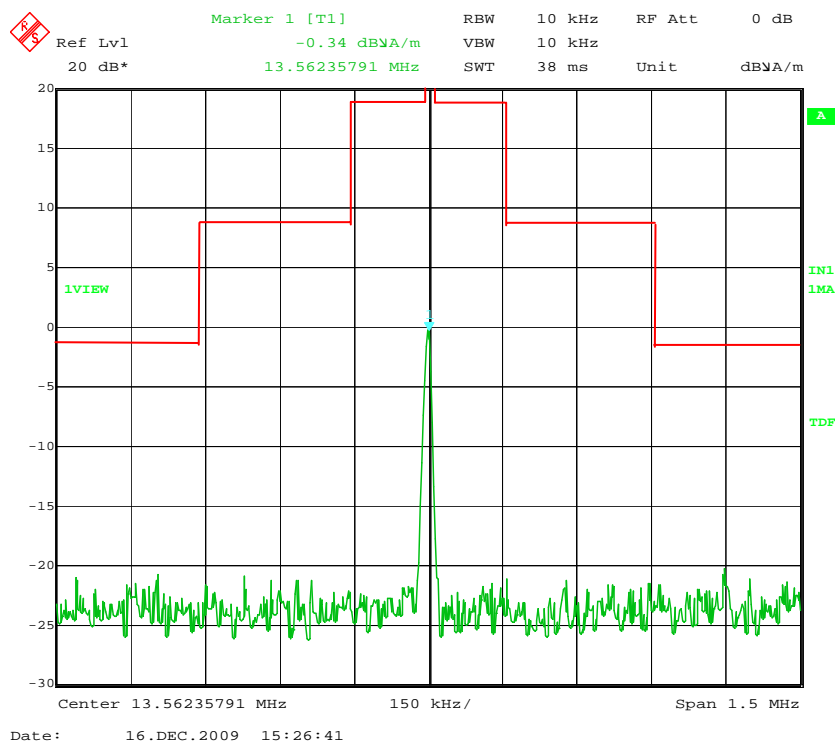
Frequency MHz	3m measurement dB(μA/m)	30 m (computed) dB(μA/m)
13.56	-0.03	-40.03

Frequency MHz	3m measurement dB(μV/m)	30 m (computed) dB(μV/m)	30 m limit dB(μV/m)	Margin dB
13.56	51.49	11.49	84	72.51

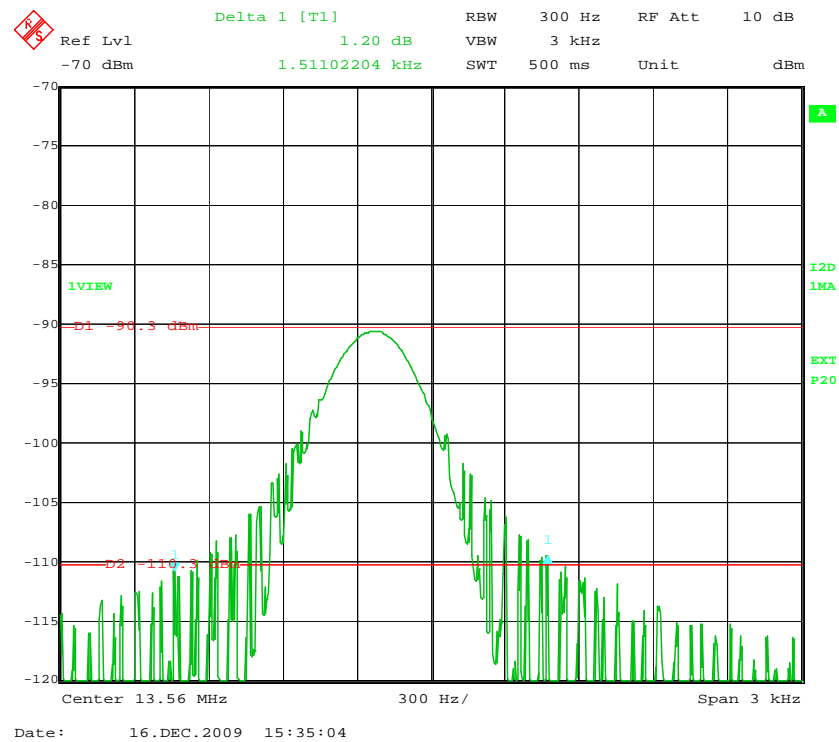
With $G = 1$ (worst case) that gives a radiated power of 42nW.

Computed from 3 m measurement: 51.49 dBμV/m – 95.2 gives -43.73 dBm (equ 42nW).

8.2.2 Field strength around the emitter



20dB bandwidth or 99% bandwidth (relative measurement with close loop antenna)



20 dB bandwidth or 99% bandwidth is 1.51 kHz.

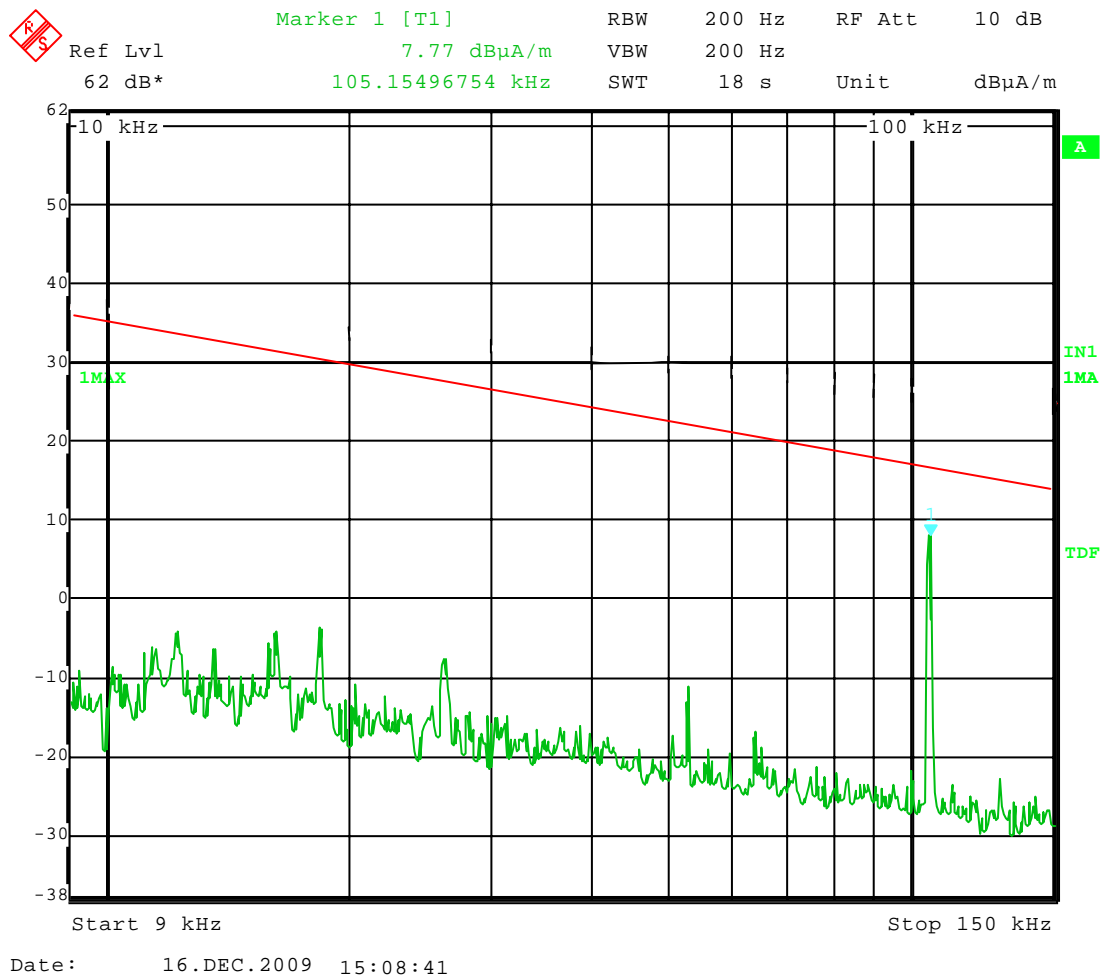
8.3 SPURIOUS EMISSIONS (15.209)

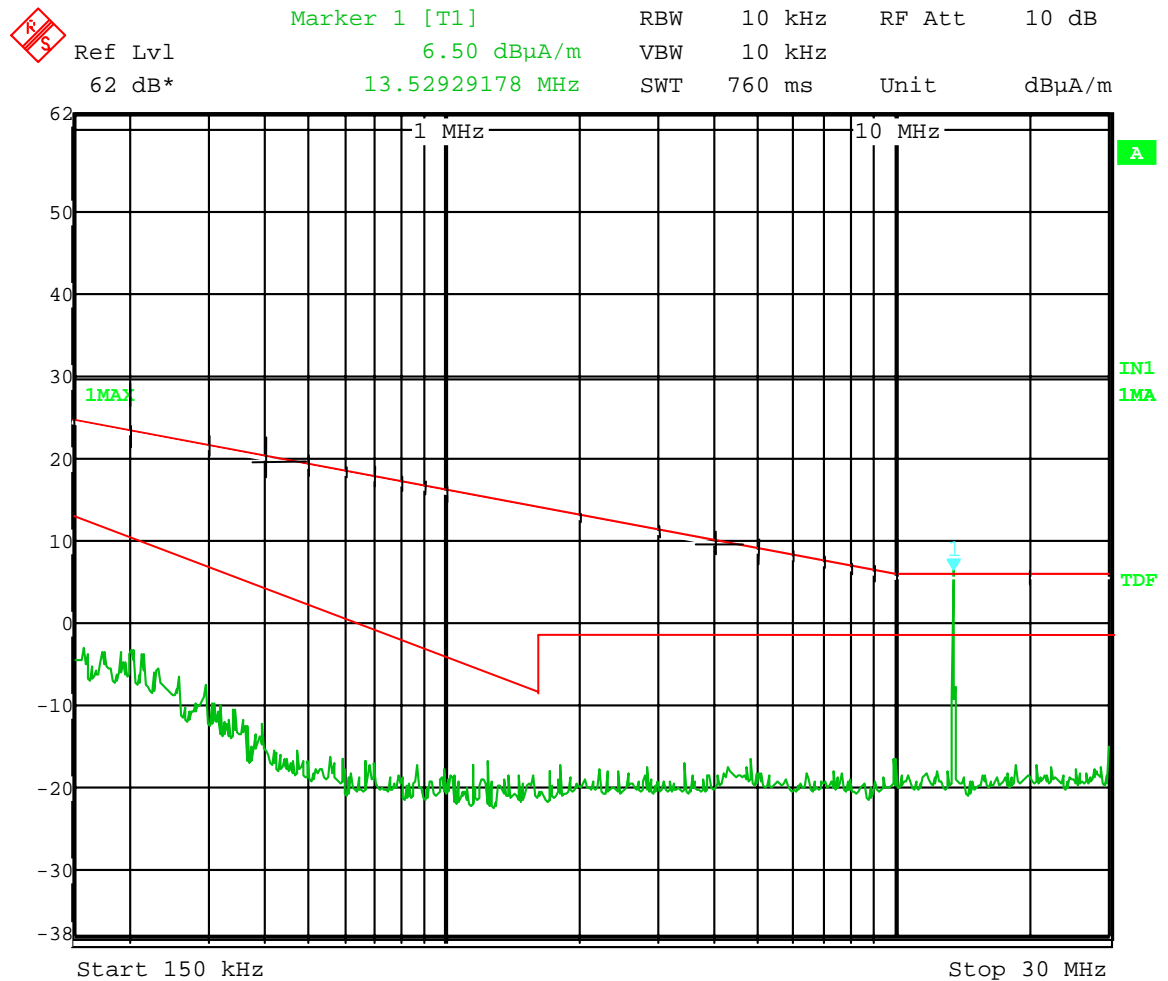
Measurements are performed from 9 kHz to 1000 MHz (intentional radiator at 13.56 MHz)
With receiver and transmitter active.

8.3.1 Measurement from 9 kHz to 30MHz

The prescan has been done in shielded enclosure. No emission needs to be maximized in open area test site excepted for the 13.56MHz voluntary emission.

Measurement are presented with dBμA/m, add 51.5 dB to read dBμV/m





Date: 16.DEC.2009 15:12:09

8.3.2 Measurement from from 30MHz to 1GHz

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 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 ten-meter, open-field test site. The EUT was placed on a conductive turntable on isolated support, table, 0.8 meter above the ground plane. At each frequency, the EUT was rotated 360 degrees, and 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 100 kHz for peak measurement and 120 kHz for quasi-peak, and the analyzer was operated in the CISPR quasi-peak detection mode when needed. No video filter less than 10 times the resolution bandwidth was used. 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 for measurements in restricted bands below 1GHz

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

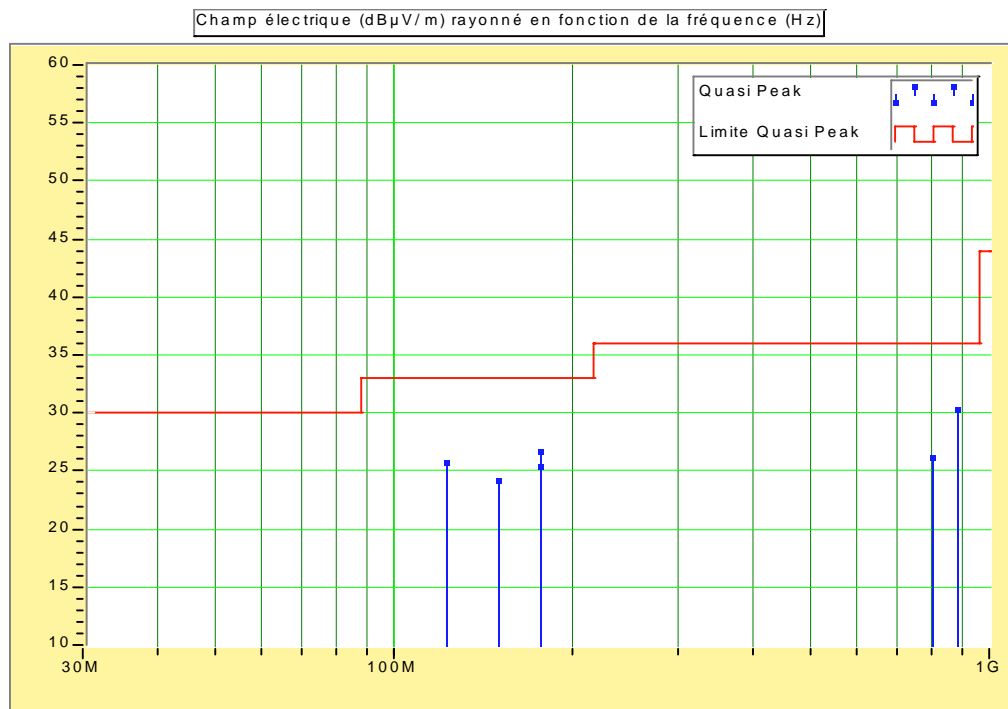
8.3.2.1 Spurious RESULTS:

The following data table lists the most significant emission frequencies, measured level, correction factor (includes cable and antenna corrections), corrected reading and the limit.

Measurement according to the FCC 15.209 concerning only the RFID function, highest lines table with transmitter and receiver active:

Measurement at 10 m distance.

Frequency in MHz	Peak Value in dBμV/m	Quasi-Peak Value in dBμV/m	Quasi-Peak Limit in dBμV/m	Margin in dB	Pol	Height in cm	Angles en °	Correction Factors in dB
122,036	21,3	25,8	33,0	7,2	V	106	360	13,9
149,135	21,1	24,3	33,0	8,8	V	103	360	12,7
176,280	30,5	25,4	33,0	7,6	V	146	360	11,5
176,282	31,3	26,7	33,0	6,3	H	300	360	11,5
800,001	29,5	26,3	36,0	9,8	V	223	360	24,3
881,378	33,5	30,4	36,0	5,7	H	102	360	24,5



8.4 Exposition of public to radio frequency energy

This kind of mobile device is not subject to routine evaluation according to bulletin 65 and FCC part 2.1091 and 2.1093

8.5 Antenna requirements

Not applicable because the antenna is located inside the equipment and is not replaceable without modifying the product.

8.6 Measurement of frequency stability

The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

Measurements were conducted according to the operating temperature range given in the standard.

120 V is the rated voltage for US and Canada. +/-15% gives 102 to 138V.

Frequencies (MHz)

Temperature	20°C		-20°C		50°C	
Power Supply	102	138	102	138	102	138
13.56	13,559842	13,559842	13,559811	13,559821	13,559802	13,559802

Neither voltage nor temperature variations affect the frequency stability that is better than ± 10 ppm.