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LCIE

Rapport d'essai / Test report

JDE : 60049609 N° 200608-3243C-R3-E

DELIVRE A / ISSUED TO : DIGIGRAM (M. ZANNI)
430, rue Aristide Bergès
38330 MONTBONNOT SAINT MARTIN - FRANCE

Objet / Subject : Essais de compatibilité électromagnétique conformément aux normes :
Electromagnetic compatibility tests according to the standards:
FCC CFR 47 Part 15, Subpart B.
ANSI C63.4 (2003)

Matériel testé / Apparatus under test :

- Produit / Product : Carte Réseau PCI EtherSound / *EtherSound Network PCI Card*
- Marque / Trade mark : DIGIGRAM
- Constructeur / Manufacturer : DIGIGRAM
- Type / Model : **LX6464ES**
- N° de série / serial number : Proto 2*

* : information donnée par le client / *information given by the customer*

Date des essais / Test date : 4 et 5 septembre 2006 / *September 4th and 5th, 2006*

Lieu d'essai / Test location : LCIE
ZI des Blanchisseries
38500 VOIRON - France

Test réalisé par / Test performed by : Laurent CHAPUS

Ce document comporte / Composition of document: 18 pages.

VOIRON, LE 8 JANVIER 2007 / *JANUARY 8th, 2007*

Ecrit par / *Written by*
Laurent CHAPUS

Approuvé par / *Approved by,*
Yannick SAVOIE

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**1. TEST PROGRAM**

Prescriptions for conducted and radiated emissions.

Standard: - FCC Part 15, Subpart B (Digital Devices)
- ANSI C63.4 (2003)

EMISSION TEST	LIMITS			RESULTS (Comments)
Limits for conducted disturbance at mains ports 150kHz-30MHz	Frequency	Quasi-peak value (dBµV)	Average value (dBµV)	COMPLY
	150-500kHz	66 to 56	56 to 46	
	0.5-5MHz	56	46	
	5-30MHz	60	50	
Radiated emissions Frequency band investigated: 30MHz to 2GHz	Measure at 3m 30MHz-88MHz : 40 dBµV/m 88MHz-216MHz : 43.5 dBµV/m 216MHz-960MHz : 46.0 dBµV/m Above 960MHz : 54.0 dBµV/m			COMPLY

NA: Not Applicable

NP: Not Performed



2. TEST SETUP

2.1. HARDWARE IDENTIFICATION

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

LX6464ES

Sn: Proto 2

- **Input/output:**

- 2x EtherSound links (IN and OUT), RJ45 connectors
- 1x Work Clock, BNC connector

- **Internal frequencies:**

- 25MHz, 28MHz, 50MHz, 66MHz, 100MHz, 125MHz

- **Auxiliaries:**

- | | | |
|---|--------------|-----------------|
| - Personal Computer DELL, Power Edge 1600SC | Model: SMM01 | Sn: CNBX11J |
| - Keyboard HP P/N: C4734/60201 | | Sn: MR80605455 |
| - Mouse HP P/N: C3751B | | Sn: LZA62831217 |
| - Parallel printer HP 895CXi | | Sn: HU9C51T11C |
| - Serial Calculator HP 48GX | | Sn: ID83802369 |
| - Audio Load Box (DIGIGRAM Tool) | | Sn: None |
| - Video Monitor HP D2846 | | Sn: JP 74001000 |
| - 2x ES8 → ES8 OUT XLR | | Sn: 1500000134 |
| → ES881 | | Sn: None |

- **I/O cables on EUT:**

- 2x Ethernet cables (cat 5e, 100MHz), shielded: 5m/10m
- 1x BNC cable, RG58: 1.5m (on Work Clock input)

2.2. RUNNING MODE

The PlayRec software (V06.40c.007) is playing a sound file in loop on all 64 available channels.

The PC is running under Windows XP Professional.

The EtherSound network (line IN and OUT) is loop back with two ES8 auxiliaries equipment (generation and reception of sound file).

2.3. EQUIPMENT MODIFICATIONS

None.

2.4. Special accessories

The Ethernet and Work Clock cables for compliance testing are shielded.

3. MEASUREMENT OF RADIATED EMISSION

3.1. CLIMATIC CONDITIONS

Date of test : September 4th and 5th, 2006
Test performed by : Laurent CHAPUS

3.2. SETUP FOR RADIATED EMISSIONS MEASUREMENT (30MHZ-2GHZ)

The installation of EUT is identical for pre-characterization measures in a 3 meters full anechoic chamber and for measures on the 10 meters Open site.

The EUT and auxiliaries are set on the non-conducting table of 80 cm height.

The EUT is powered by 230Vac/50Hz.

Pre-characterisation measurement:

A pre-scan of all the setup has been performed in a 3 meters full anechoic chamber. The distance between EUT and antenna is 3 meters. Test is performed in horizontal (H) and vertical (V) polarization with a log-periodic antenna Chase CBL6111A (30MHz to 1GHz). The pre-characterization graphs are obtained in PEAK detection.

For frequency band 1GHz to 2GHz, a manual search is performed in the anechoic chamber in order to determine frequencies radiated by the EUT.

Characterization on 10 meters open site from 30MHz to 2GHz:

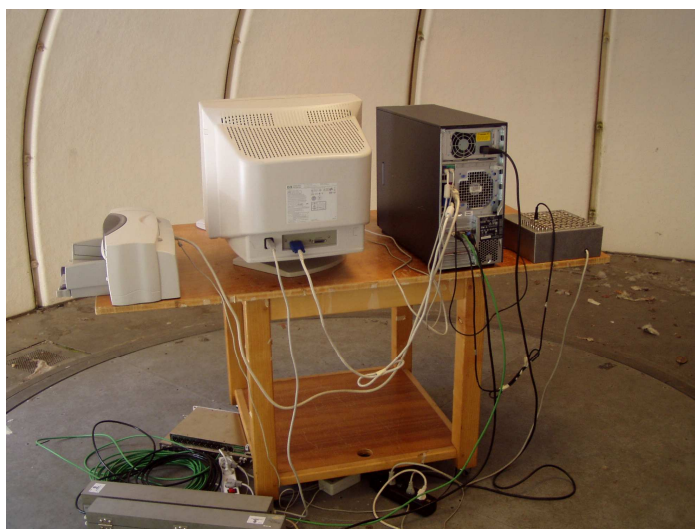
The product has been tested according to ANSI C63.4(2003), FCC part 15 subpart C. Radiated Emission were measured on an open area test site. A description of the facility is on file with the FCC.

The product has been tested at a distance of **10 meters** from the antenna (and corrected according to requirements of 15.209.e) and compared to the FCC part 15 subpart B §15.209 limits.

Measurement bandwidth was 120kHz from 30 MHz to 1GHz and 1MHz from 1GHz to 2GHz.

Antenna height search was performed from 1m to 4m for both horizontal and vertical polarization. Continuous linear turntable azimuth search was performed with 360 degrees range.

A summary of the worst case emissions found in all test configurations and modes is shown on clause 3.4 (Pre-characterization results).



**3.3. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION**

None.

3.4. MEASUREMENTS RESULTS

Pre-characterisation measurement: pre-scan measurement at 3m

Graph examples, PEAK detection for frequency band 30MHz to 1GHz.

Azimuth 180° Polarisation H: graph **Emr#1** (see annex 1)
Polarisation V: graph **Emr#2** (see annex 1)

QUALIFICATION: 10 meters measurement on the Open Area Test Site.

Frequency list has been created with anechoic chamber pre-scan results.

Frequency range 30MHz to 1GHz:

Measurements are performed using a QUASI-PEAK detection.

No	Frequency (MHz)	Limit Quasi-Peak (dBµV/m)	Measure Quasi-Peak (dBµV/m)	Margin (Mes-Lim) (dB)	Angle Table (deg)	Pol Ant.	Ht Ant. (cm)	Correc. factor (dB)	Comments
1	31.972	40.0	31.4	-8.6	35	V	100	12.2	
2	127.824	43.5	33.6	-9.9	20	V	120	14.6	
3	143.797	43.5	33.7	-9.8	35	V	100	14.3	
4	159.765	43.5	33	-10.5	15	V	100	16.8	
5	195.116	43.5	36.1	-7.4	345	V	120	18.6	
6	219.954	46.0	37.5	-8.5	120	V	120	15.1	
7	399.789	46.0	36.3	-9.7	145	V	330	18.6	
8	415.407	46.0	38.7	-7.3	100	H	170	19.0	
9	665.603	46.0	35.9	-10.1	75	H	280	24.5	

Note: Measures have been done at 10m distance and corrected according to requirements of 15.209.e)
(M@3m = M@10m+10.5dB)

Frequency range 1GHz to 2GHz:

Measurements are performed using a PEAK and Average detection.

No	Frequency (GHz)	Limit Average (dBµV/m)	Measure Average (dBµV/m)	Margin (Mes-Lim) (dB)	Angle Table (deg)	Pol Ant.	Ht Ant. (cm)	Correc. factor (dB)	Comments
1	1.19709	54.0	36.8	-17.2	45	H	100		
2	1.32829	54.0	40.2	-13.8	140	H	100		
3	1.59331	54.0	38.6	-15.4	80	H	100		

No	Frequency (GHz)	Limit PEAK (dBµV/m)	Measure PEAK (dBµV/m)	Margin (Mes-Lim) (dB)	Angle Table (deg)	Pol Ant.	Ht Ant. (cm)	Correc. factor (dB)	Comments
1	1.19709	74.0	57.1	-16.9	45	H	100		
2	1.32829	74.0	55.1	-18.9	140	H	100		
3	1.59331	74.0	55.9	-18.1	80	H	100		

Note: Measures have been done at 10m distance and corrected according to requirements of 15.209.e)
(M@3m = M@10m+10.5dB)



3.5. FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follow :

$$FS = RA + AF + CF - AG$$

Where FS = Field Strength
 RA = Receiver Amplitude
 AF = Antenna Factor
 CF = Cable Factor
 AG = Amplifier Gain

Assume a receiver reading of 52.5dBμV is obtained. The antenna factor of 7.4 and a cable factor of 1.1 is added. The amplifier gain of 29dB is subtracted, giving a field strength of 32 dBμV/m.

$$FS = 52.5 + 7.4 + 1.1 - 29 = 32 \text{ dB}\mu\text{V/m}$$

The 32 dBμV/m value can be mathematically converted to its corresponding level in μV/m.

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } [(32\text{dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m}.$$

3.6. CONCLUSION

The sample of the equipment LX6464ES Sn : Proto 2, tested in the configuration presented in this test report satisfies to requirements of class B limits of the standard FCC part 15B / ANSI C63.4 (2003), for radiated emissions.

4. MEASUREMENT OF CONDUCTED EMISSION

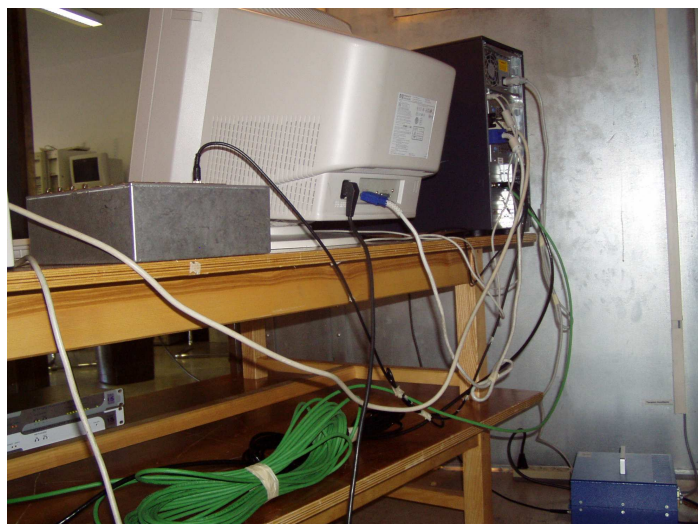
4.1. CLIMATIC CONDITIONS

Date of test : September 5th, 2006
Test performed by : Laurent CHAPUS

4.2. SETUP FOR CONDUCTED EMISSIONS MEASUREMENT (150KHZ-30MHZ)

Mains terminals:

The EUT (PC) with its auxiliaries are set on a non-conducting 80cm above the ground reference plane.
The distance between the EUT and the LISN is 80cm. The EUT is 40cm away for the vertical ground plane.
The EUT is powered through a LISN (measure). Auxiliaries are powered by another LISN.
Mains: 230Vac/50Hz and 110V/60Hz.



4.3. DIVERGENCE, ADDITION OR SUPPRESSION ON THE TEST SPECIFICATION

None

4.4. MEASUREMENTS RESULTS

4.4.1. Mains terminals:

Measurements are performed on the phase (L1) and neutral (N) of the power line of the personal computer.
Graphs are obtained with a peak detection.

Results: Power voltage 230V/50Hz

Measure on L1: graph **Emc#1** (see annex 1)
Measure on N : graph **Emc#2** (see annex 1)



Measurement receiver results (ESH3) on L1:

Frequency	Limit	Measure	Margin	Limit	Measure Average	Margin
(MHz)	Quasi-Peak (dBμV)	Quasi-Peak (dBμV)	Quasi-Peak (dB)	Average (dBμV)	Average (dBμV)	Average (dB)
0.1671	65.1	60.5	-4.6	55.1	46.5	-8.6
0.2310	62.4	59.2	-3.2	52.4	44.6	-7.8
0.3461	59.1	45.1	-14.0	49.1	32.4	-16.7
0.4615	56.7	49.1	-7.6	46.7	36.4	-10.3
0.5749	56	44.4	-11.6	46	29.4	-16.6
0.8056	56	40.9	-15.1	46	31.0	-15.0
0.9203	56	39.5	-16.5	46	27.3	-18.7

Measurement receiver results (ESH3) on N:

Frequency	Limit	Measure	Margin	Limit	Measure Average	Margin
(MHz)	Quasi-Peak (dBμV)	Quasi-Peak (dBμV)	Quasi-Peak (dB)	Average (dBμV)	Average (dBμV)	Average (dB)
0.1667	65.1	60.3	-4.8	55.1	46.4	-8.7
0.2310	62.4	59.5	-2.9	52.4	43.2	-9.2
0.3458	59.1	43.4	-15.7	49.1	31.5	-17.6
0.4615	56.7	48.8	-7.9	46.7	36.4	-10.3
0.5755	56	45.1	-10.9	46	34.8	-11.2
0.8056	56	40.7	-15.3	46	27.9	-18.1
0.9198	56	39.4	-16.6	46	27.1	-18.9

Results: Power voltage 110V/60Hz

Measure on L1: graph Emc#3

(see annex 1)

Measure on N : graph Emc#4

(see annex 1)

Measurement receiver results (ESH3) on L1:

Frequency	Limit	Measure	Margin	Limit	Measure Average	Margin
(MHz)	Quasi-Peak (dBμV)	Quasi-Peak (dBμV)	Quasi-Peak (dB)	Average (dBμV)	Average (dBμV)	Average (dB)
0.1671	65.1	56.9	-8.2	55.1	46.7	-8.4
0.2316	62.4	43.1	-19.3	52.4	43.1	-9.3
0.3460	59.1	31.4	-27.7	49.1	30.8	-18.3
0.4609	56.7	34.6	-22.1	46.7	34.6	-12.1
0.5751	56	27.9	-28.1	46	26.7	-19.3

Measurement receiver results (ESH3) on N:



Frequency	Limit	Measure	Margin	Limit	Measure Average	Margin
(MHz)	Quasi-Peak (dBµV)	Quasi-Peak (dBµV)	Quasi-Peak (dB)	Average (dBµV)	Average (dBµV)	Average (dB)
0.1668	65.1	56.8	-8.3	55.1	46.4	-8.7
0.2312	62.4	41.9	-20.5	52.4	40.3	-12.1
0.3460	59.1	30.5	-28.6	49.1	30.5	-18.6
0.4609	56.7	34.9	-21.8	46.7	34.9	-11.8
0.5751	56	33.3	-22.7	46	32.7	-13.3

4.5. CONCLUSION

The sample of the equipment LX6464ES Sn : Proto 2, tested in the configuration presented in this test report satisfies to requirements of class B limits of the standard FCC part 15B / ANSI C63.4 (2003), for conducted emissions.



5. LIST OF TEST EQUIPMENT

	N°LCIE	TYPE	COMPANY	MODEL	SN
Radiated emission measurement					
	A7102026VO	Amplifier 8-26GHz	ALDETEC	ALS01452	1
X	C4040009VO	Air Compressor	ATLAS COPCO	LX111	0615-038
X	A3169050VO	Radiated emission comb generator	Bardet		PR17B
X	C2040051VO	Bi-log antenna	Chase	CBL6111A	1628
	C2040052VO	Loop Antenna	Electro-metrics	EM-6879	690234
X	C2042027VO	Antenna horn	EMCO	3115	6382
X	C2040050VO	Antenna biconic	EMCO	3104C	9401-4636
X	C2040056VO	Antenna log-periodic	EMCO	3146	2178
X	F2000286VO	Controller table	EMCO	1060-10	1217
X	F2000287VO	Controller antenna mast	EMCO	1050	8811-1295
X	F2000288VO	Antenna mast	EMCO	1050	
X	F2000289VO	Turntable	EMCO	1060	
X	D3044009VO	Anechoic chamber	EUROSHIELD	RDF-F-60-060	1213
X	A7102024VO	Amplifier 8 GHz	HEROTEK	A1080304A	222033
X	A7102019VO	Amplifier 9 KHz – 1300 MHz	Hewlett Packard	8447F Opt 64	3113A06394
X	A4060016VO	Spectrum analyzer 9kHz –1.8GHz	Hewlett Packard	8591E	3536A00384
X	A4060018VO	Spectrum Analyzer 9KHz – 26.5GHz	Hewlett Packard	8593E	3409u00537
X	A4049060VO	Adapter quasi-peak	Hewlett Packard	HP85650A	2811A01134
X	A4060028VO	Spectrum analyzer display	Hewlett Packard	HP85662A	2816A16603
X	A4060029VO	Spectrum analyzer	Hewlett Packard	HP8568B	2732A04155
X	A4060030VO	Pre-selector RF	Hewlett Packard	HP85685A	2837A00784
X	A5329032VO	Absorption clamp	LUTHI	MDS21	2826
X	A5329044VO	Absorption clamp	Rhode et Schwarz	85024A	194.0100.50
	C2042028VO	Antenna horn 26GHz	Schwarzbeck	BBHA 9170	BBHA9170232
X	A5329045VO	Cable IMR&EMR (Anechoic chamber)	SMEE	KX13	
X	A5329048VO	Cable EMR OATS	SUCOFLEX	106G	553
	A5329038VO	Cable coaxial 3.5 m (Blue)	SUHNER	SUCOFLEX 106	26732/6
Conducted emission measurement					
X	A3169049VO	Conducted emission comb generator	Bardet		CGPR12
	A2320059VO	LISN 50Ω / 50μH	EMCO	3810/2SH	9511/1182
X	C2320068VO	LISN 50Ω / 50μH (Auxiliaries)	EMCO	3825/2	9309/2122
X	A4049061VO	Transient limiter	Hewlett Packard	11947A	3107A01596
X	A2120003VO	Programable PSU, HAR/FLK	Hewlett Packard	6842A	3531A00109
X	A4060016VO	Spectrum analyzer 9kHz –1.8GHz	Hewlett Packard	8591E	3536A00384
X	D3044010VO	Faraday Cage	RAY PROOF		4854
	C2320062VO	LISN tri-phase ESH2-Z5	Rhode et Schwarz	33852.19.53	841223/008
	C2320063VO	LISN tri-phase ESH2-Z5	Rhode et Schwarz	33852.19.53	841223/007
	C2320066VO	RSI 4 wires	Rhode et Schwarz	ENY41	838119/023
	C2320067VO	RSI 2 x 2 wires	Rhode et Schwarz	ENY22	836727/015
X	A2640011VO	Measurement receiver 9kHz–30MHz	Rohde et Schwarz	ESH3	972079/117
	A1290017VO	Current probe	Schaffner	CSP9160	1097
	A5329034VO	Current injection probe	Schaffner	CIP8213	52
	A4089117VO	Voltage probe	SMEE		
x	C2320061VO	LISN 50Ω / 50μH (Measure)	Telemeter Electronic	NNB-2/16Z	98010

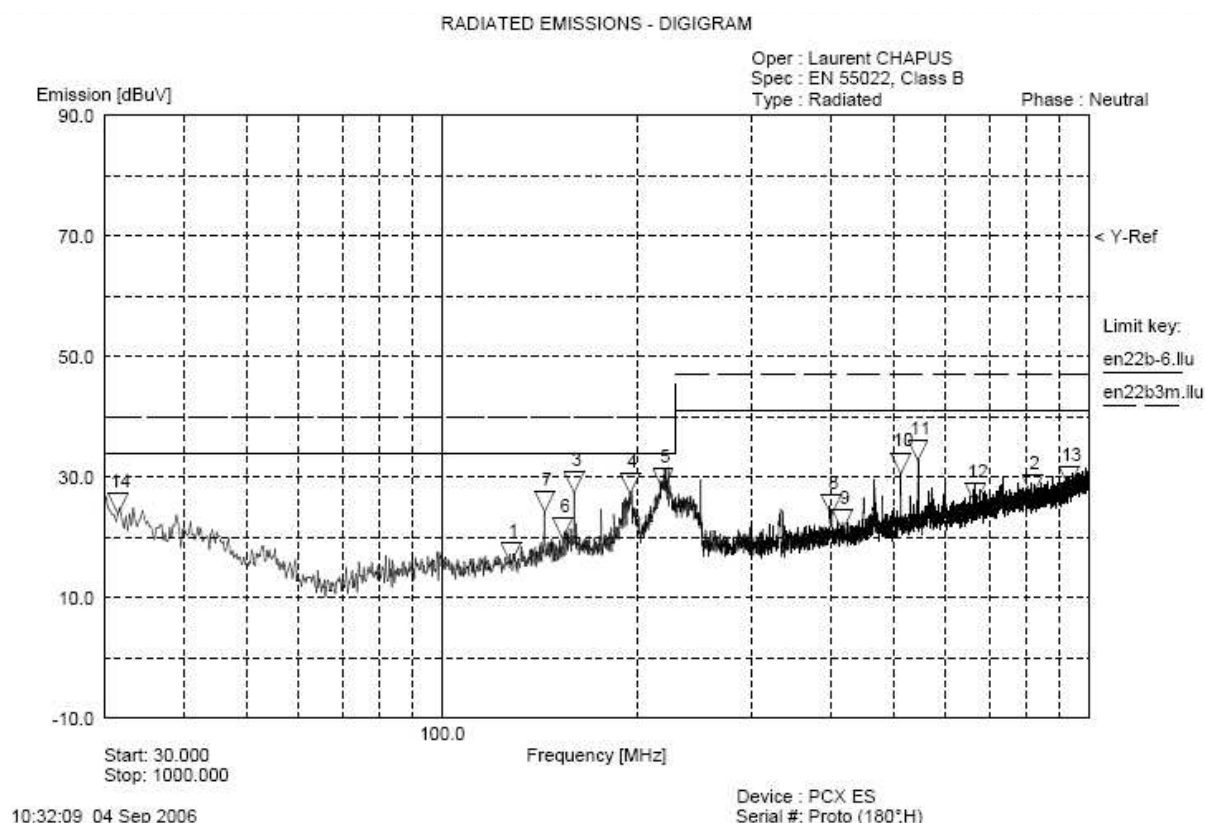
6. UNCERTAINTIES CHART

Type de mesure / Kind of measurement	Incertitude élargie laboratoire / Wide uncertainty laboratory (k=2) ± x	Incertitude limite du CISPR / CISPR uncertainty limit ± y
Mesure des perturbations conduites en tension sur le réseau d'énergie <i>Measurement of conducted disturbances in voltage on the power port</i>	3.57 dB	3.6 dB
Mesure des perturbations conduites en tension sur le réseau de télécommunication <i>Measurement of conducted disturbances in voltage on the telecommunication port.</i>	3.28 dB	A l'étude / Under consid.
Mesure des perturbations discontinues conduites en tension <i>Measurement of discontinuous conducted disturbances in voltage</i>	3.47 dB	3.6 dB
Mesure des perturbations conduites en courant <i>Measurement of conducted disturbances in current</i>	2.90 dB	A l'étude / Under consid.
Mesure du champ électrique rayonné sur le site en espace libre de Voiron <i>Measurement of radiated electric field on the Voiron open area test site</i>	5.07 dB	5.2 dB
Mesure du champ électrique rayonné IN SITU de 30 à 1000 MHz <i>IN SITU measurement of radiated electric field from 30 to 1000MHz</i>	A l'étude / Under consideration	5.2 dB
Mesure de la puissance perturbatrice / <i>Measurement of disturbance power</i>	3.37 dB	4.5 dB
Mesure des harmoniques de courant / <i>Measurement of current harmonics</i>	11.11%	/
Mesure du flicker / <i>Flicker measurement</i>	9.26%	/
Immunité aux perturbations conduites, induites par les champs électromagnétiques / <i>Immunity to conducted disturbance, induced by radio-frequency fields.</i>	2.36dB	/
Immunité aux champs électromagnétiques rayonnés aux fréquences radioélectriques / <i>Immunity to radiated, radio-frequency, electromagnetic field (26MHz-2.5GHz)</i>	2.64dB	/
Immunité aux ondes de choc / <i>Surge immunity</i>		
Tension crête / <i>Peak voltage</i>	<±10 %	/
Durée du front (circuit ouvert) / <i>Front time (open circuit)</i>	<±30 %	/
Durée jusqu'à la mi-valeur (circuit ouvert) / <i>Time to half-value (open circuit)</i>	<±20 %	/
Courant crête / <i>Peak current</i>	<±10 %	/
Durée du front (court-circuit) / <i>Front time (short-circuit)</i>	<±20 %	/
Durée jusqu'à la mi-valeur (court-circuit) / <i>Time to half-value (short-circuit)</i>	<±20 %	/
Immunité aux transitoires électriques rapides en salves / <i>Immunity to electrical fast transient/burst</i>		
Incertitude sous 50 ohms / <i>Uncertainty under 50ohms</i>		
Tension crête / <i>peak voltage</i>	<±10 %	/
Temps de montée t_r / <i>rise time t_r</i>	<±30 %	/
Durée t_d à 50% / <i>Duration t_d to 50%</i>	<±30 %	/
Durée de la salve / <i>Burst duration</i>	<±20 %	/
Période de la salve / <i>Burst periode</i>	<±20 %	/
Fréquence de répétition / <i>Repetition frequency</i>	<±20 %	/
Incertitude sous 1000 ohms / <i>Uncertainty under 1000ohms</i>		
Tension crête / <i>peak voltage</i>	<±10 % - 15 %	/
Temps de montée t_r / <i>rise time t_r</i>	<±30 %	/
Durée t_d à 50% / <i>Duration t_d to 50%</i>	+200 % -30 %	/
Durée de la salve / <i>Burst duration</i>	<±20 %	/
Période de la salve / <i>Burst periode</i>	<±20 %	/
Fréquence de répétition / <i>Repetition frequency</i>	<±20 %	/
Immunité aux décharges électrostatiques / <i>Immunity to electrostatic discharge immunity</i>		
Tension de sortie / <i>Output voltage</i>	<±5 %	/
Crête de courant / <i>Peak current</i>	<±10 %	/
Temps de montée t_r / <i>Rise time t_r</i>	0.7 – 1ns	/
Intensité à 30ns / <i>Current at 30ns</i>	<±30 %	/
Intensité à 60ns / <i>Current at 60ns</i>	<±30 %	/

Les valeurs d'incertitudes calculées du laboratoire étant inférieures aux valeurs d'incertitudes limites établies par le CISPR, la conformité de l'échantillon est établie directement par les niveaux limites applicables. / The uncertainty values calculated by the laboratory are lower than limit uncertainty values defined by the CISPR. The conformity of the sample is directly established by the applicable limits values.

7. ANNEXE 1 (EMISSION GRAPHS)

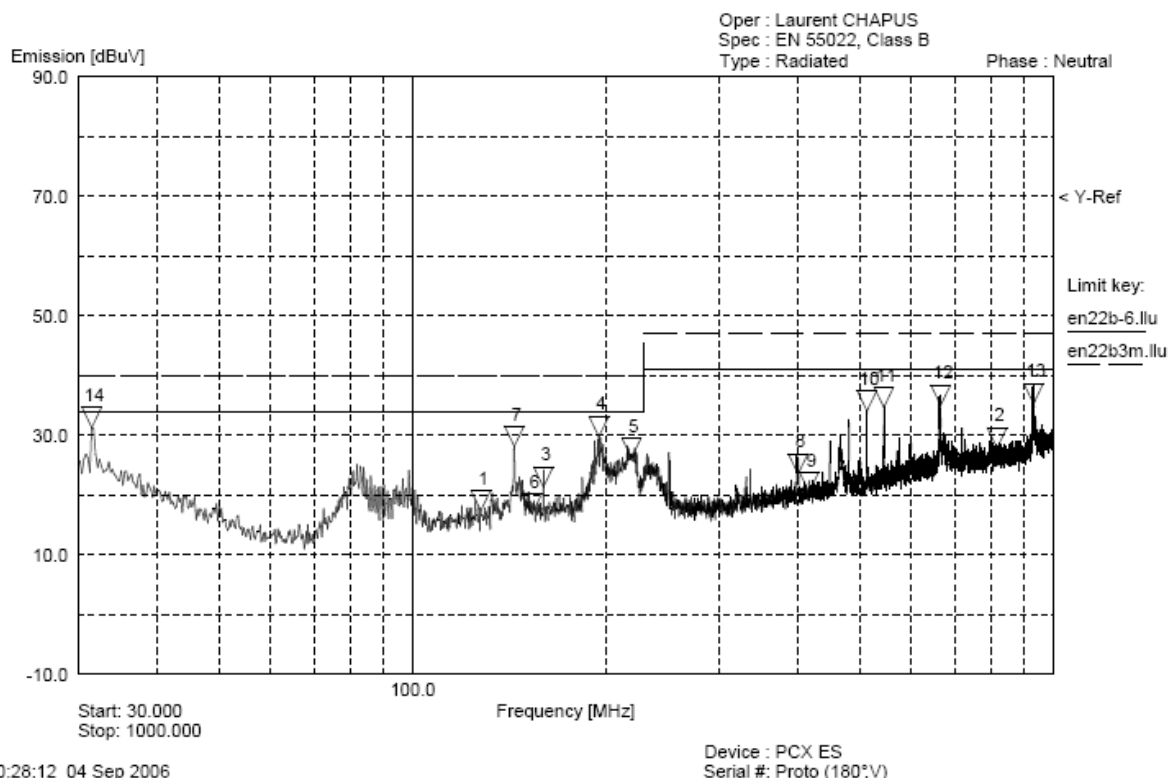
RADIATED EMISSIONS		Test configuration:
Graph name:	Emr#1	
Antenna polarisation	Horizontal	
Azimuth:	180°	
RBW / VBW :	120kHz / 300kHz	



Marker ▽	Frequency [MHz]	Peak [dBuV]	Q-Peak [dBuV]	Average [dBuV]	Limit [dBuV]
1	127.7	15.71	-	-	34.00
2	816.1	26.84	-	-	41.00
3	159.8	27.43	-	-	34.00
4	195.1	27.26	-	-	34.00
5	219.4	27.97	-	-	34.00
6	153.5	19.86	-	-	34.00
7	144.0	24.25	-	-	34.00
8	399.3	23.67	-	-	41.00
9	415.4	21.11	-	-	41.00
10	511.5	30.60	-	-	41.00
11	543.4	32.79	-	-	41.00
12	666.7	25.57	-	-	41.00
13	930.8	28.38	-	-	41.00
14	31.54	23.89	-	-	34.00

RADIATED EMISSIONS		Test configuration:
Graph name:	Emr#2	
Antenna polarisation	Vertical	
Azimuth:	0°	
RBW / VBW :	120kHz / 300kHz	

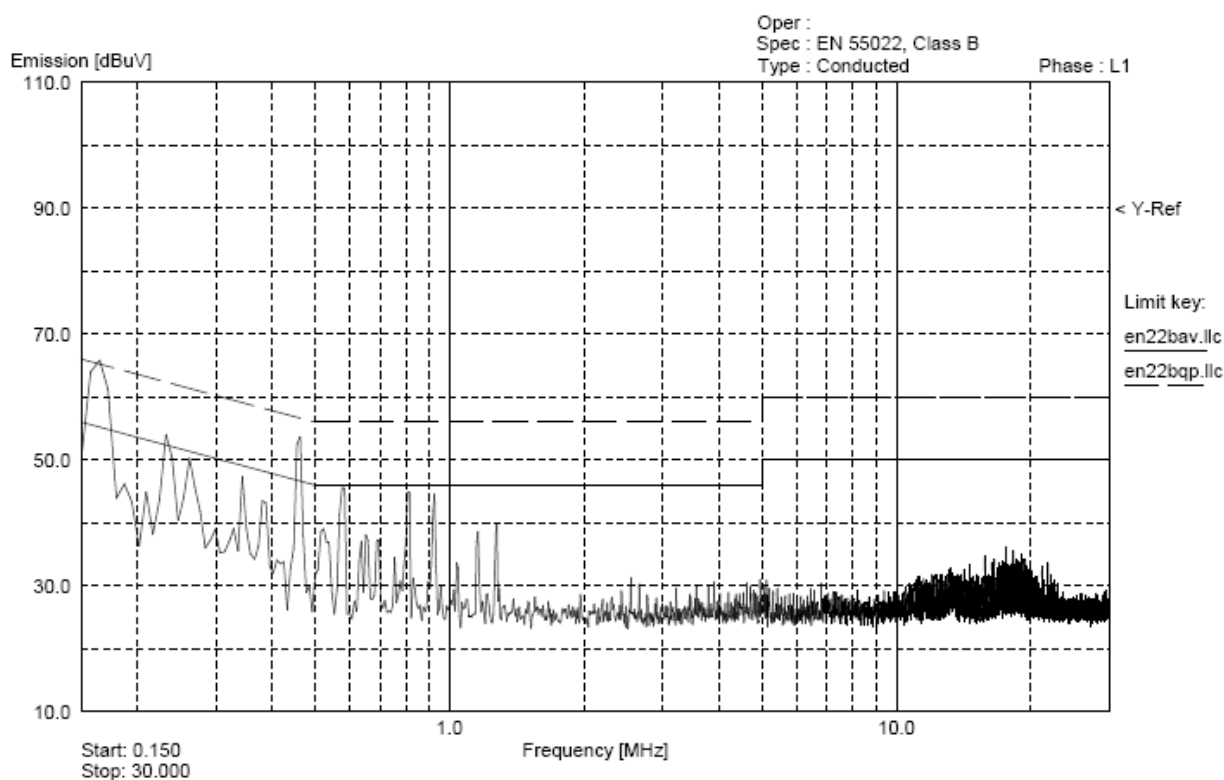
RADIATED EMISSIONS - DIGIGRAM



Marker ▽	Frequency [MHz]	Peak [dBuV]	Q-Peak [dBuV]	Average [dBuV]	Limit [dBuV]
1	127.7	17.38	-	-	34.00
2	816.1	27.90	-	-	41.00
3	159.8	21.31	-	-	34.00
4	195.1	29.78	-	-	34.00
5	219.4	26.18	-	-	34.00
6	153.5	16.82	-	-	34.00
7	144.0	28.16	-	-	34.00
8	399.3	23.51	-	-	41.00
9	415.4	20.47	-	-	41.00
10	511.5	34.11	-	-	41.00
11	543.4	34.67	-	-	41.00
12	666.7	35.01	-	-	41.00
13	930.8	35.28	-	-	41.00
14	31.54	31.30	-	-	34.00

CONDUCTED EMISSIONS		Test configuration:
Graph name:	Emc#1	
Voltage / Frequency	230Vac/50Hz	
Line/Port	Phase L1	
RBW / VBW :	9kHz / 30kHz	

CONDUCTED EMISSIONS - DIGIGRAMPCX ES

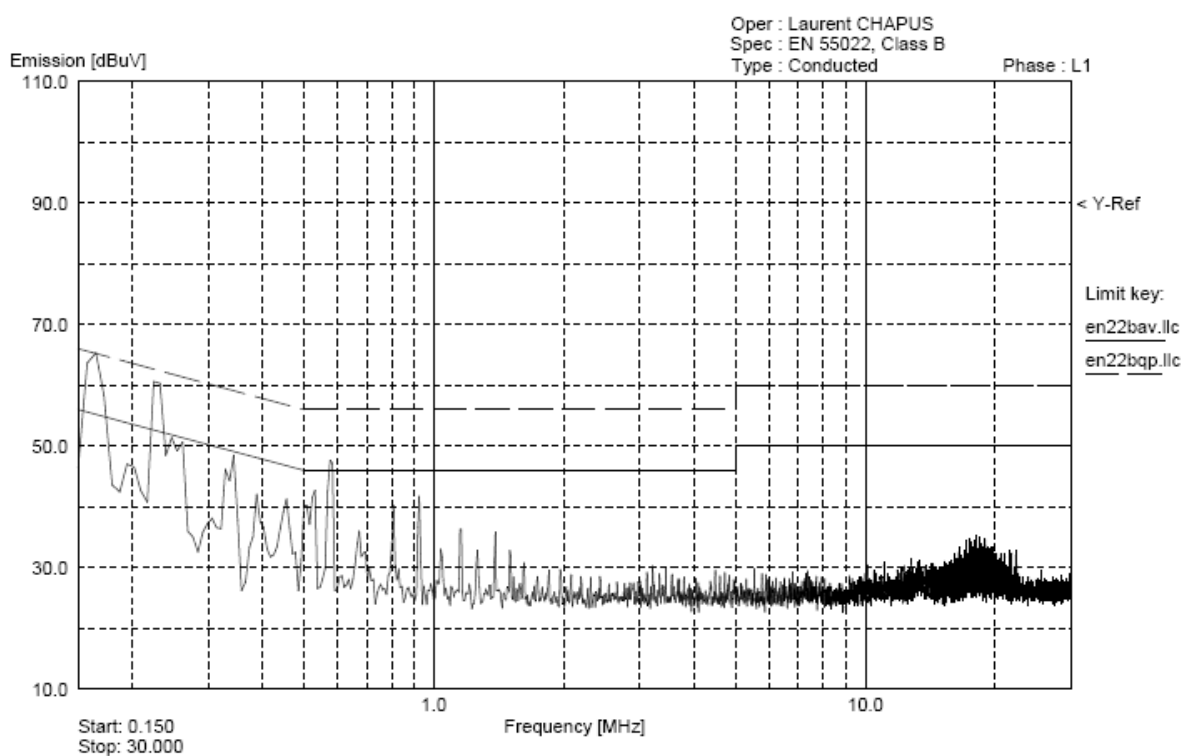


09:42:58 05 Sep 2006

Device :
Serial #: Proto (230Vac/50Hz)

CONDUCTED EMISSIONS		Test configuration:
Graph name:	Emc#2	
Voltage / Frequency	230Vac/50Hz	
Line/Port	Neutral (N)	
RBW / VBW :	9kHz / 30kHz	

CONDUCTED EMISSIONS - DIGIGRAMPCX ES

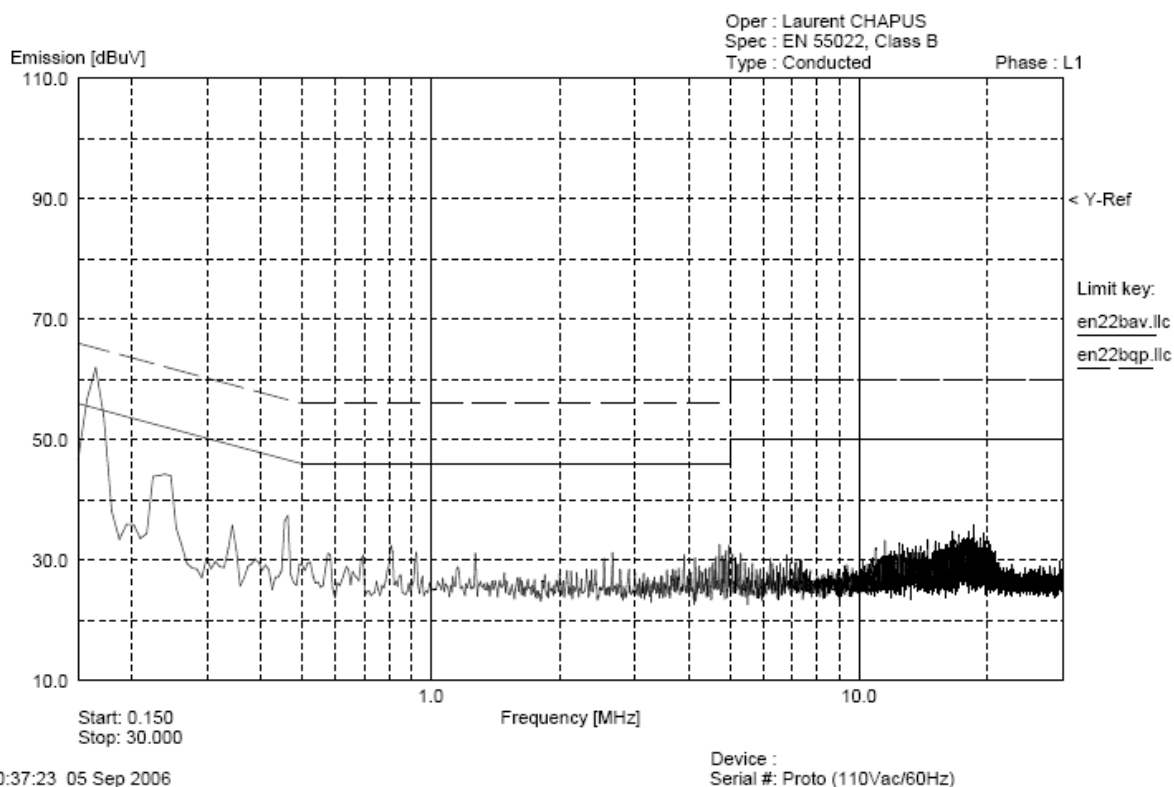


09:53:08 05 Sep 2006

Device :
Serial #: Proto (230Vac/50Hz)

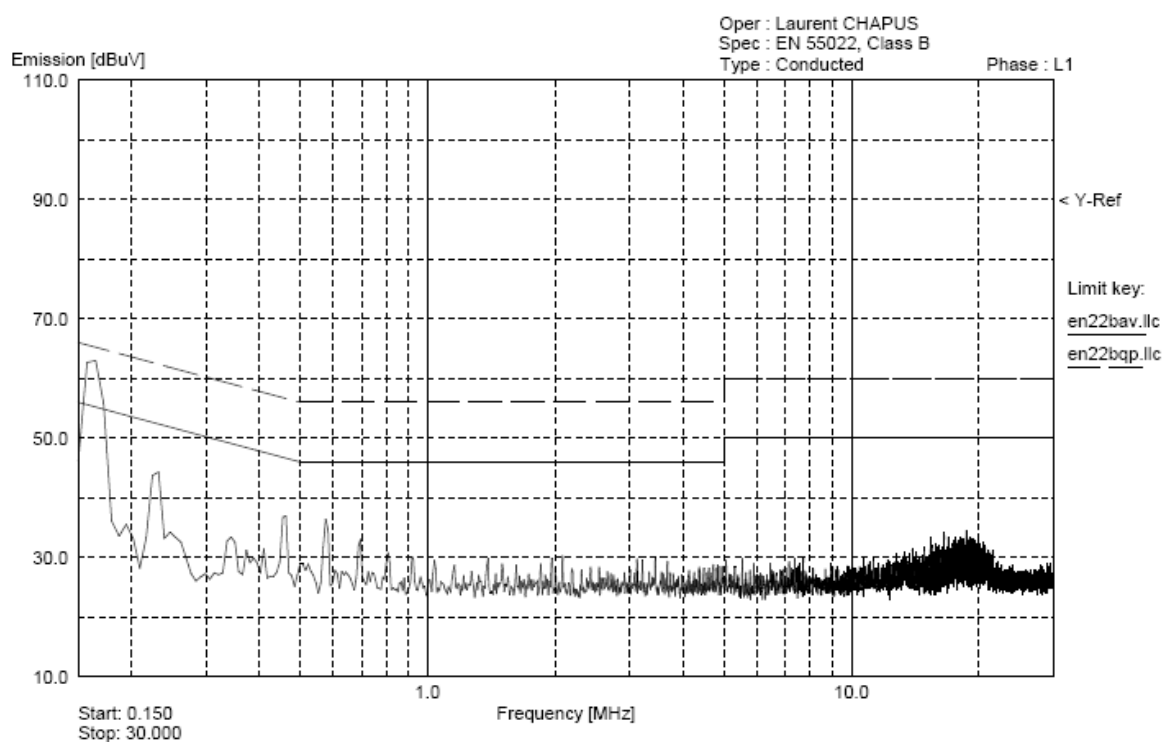
CONDUCTED EMISSIONS		Test configuration:
Graph name:	Emc#3	
Voltage / Frequency	110Vac/60Hz	
Line/Port	Phase L1	
RBW / VBW :	9kHz / 30kHz	

CONDUCTED EMISSIONS - DIGIGRAMPCX ES



CONDUCTED EMISSIONS		Test configuration:
Graph name:	Emc#4	
Voltage / Frequency	110Vac/60Hz	
Line/Port	Neutral (N)	
RBW / VBW :	9kHz / 30kHz	

CONDUCTED EMISSIONS - DIGIGRAMPCX ES



10:46:06 05 Sep 2006

Device : PCX ES
Serial #: Proto (110Vac/60Hz)