

FCC/CEM/EN

AUG 03 1998

Bull Electronics
Angers



**ELECTRO MAGNETIC COMPATIBILITY
LABORATORY**

TEST REPORT

**Report number :
961-215-02/e**

SUBJECT : EMI measurement about standard CFR 47 part 15 class B

CONTRACT :

ARCHOS SA

DATE of report :

May, 12 of 1998

CUSTOMER :

B.GONNET

EQUIPMENT :

PCMCIA connection interface

Flip ZIP peripheral device.

Written by : D. RAUD

Approval : J.L.CANDELON

*This document must be only reproduced by a whole photographic operation.
It contents 6 pages and 11 appendixes.*

This test report is attached to the equipment under test only.

SUMMARY

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1. INFORMATIONS FOR THE TEST

NAME OF EQUIPMENT UNDER TEST :

PCMCIA connection interface

Flip ZIP peripheral device.

ADDRESS OF THE CUSTOMER :

**ARCHOS SA
ZA les Godets, 37 rue des petits ruisseaux
VERRIERES
91370 (Essonne)
FRANCE**

NAME OF THE CUSTOMER :

B.GONNET

DATE OF THE TEST :

May, 5 and 6 of 1998

TEST FACILITY :

**EMC Test Site in ANGERS
331 avenue Patton
49004 (Angers cedex 01)
FRANCE
FCC recognition number I6U**

ASSISTANT DURING THE TEST :

B.GONNET

TEST DRIVEN BY :

D.RAUD

TEST MANAGER :

Jean Louis CANDELON

2. INTRODUCTION

The test is done to verify the compliance of system configuration described §4 versus the limits class B of USA standard regulation CFR 47 part 15 subpart B for conducted emissions limits (§15.107 class B device) and radiated emission limits (§15.109 class B device).

3. DOCUMENTS OF REFERENCE

CFR 47 part 0 to 19, date of 1997

ANSI C63.4, date of 1992

4. CONFIGURATION OF THE EQUIPMENT UNDER TEST

HARDWARE :

Equipment under test:

- * FLIP ZIP disk drive, without serial number, with PCMCIA board ref. ARC330 with flat cable length = 6cm; the flat cable is shielded with copper foil on lower side only; this foil is connected to ground at each extremity
- * Power cable (mini DIN/jack) of ZIP disk drive; unshielded cable; length= 70cm; shielded mini DIN male/female connector adapter

Associated equipment for the test, measured with EUT :

- * Portable PC IBM (with PCMCIA port) ; Model ThinkPad 755Cx; type 9545; S/N: 00-00023; FCC ID: ANO9545E with AC/DC Adapter IBM P/N 49G2192 without serial number
- * Additionnal visual Zenith Data Systems model ZCM-1426-Xt; S/N MYZE5018002086; FCC ID: CKLHCM-427
- * Microsoft mouse PS/2 compatible mouse; S/N 597891; FCC ID: C3K76FPS26C
- * Printer Hewlett Packard Deskjet Plus 2277A FCC-ID: B948JA2277X S/N: 2906A16132 with Power Module 1, model: ETT76J2A Input: 120V/60Hz A.C 0.5A Output: 20V A.C 40VA

Interconnections :

- * AC power cable for visual, unshielded, length = 2.50m
- * Printer parallel data cable; shielded; length 2m, ref. N085675000.01C with shielded connectors
- * On serial port: shielded data cable adapter 9/25 points; length 30cm; ref.: Logistel 9306 + shielded data cable; length 6m; ref.: Logistel 9017 + connector adaptor ref.: Logistel 9242

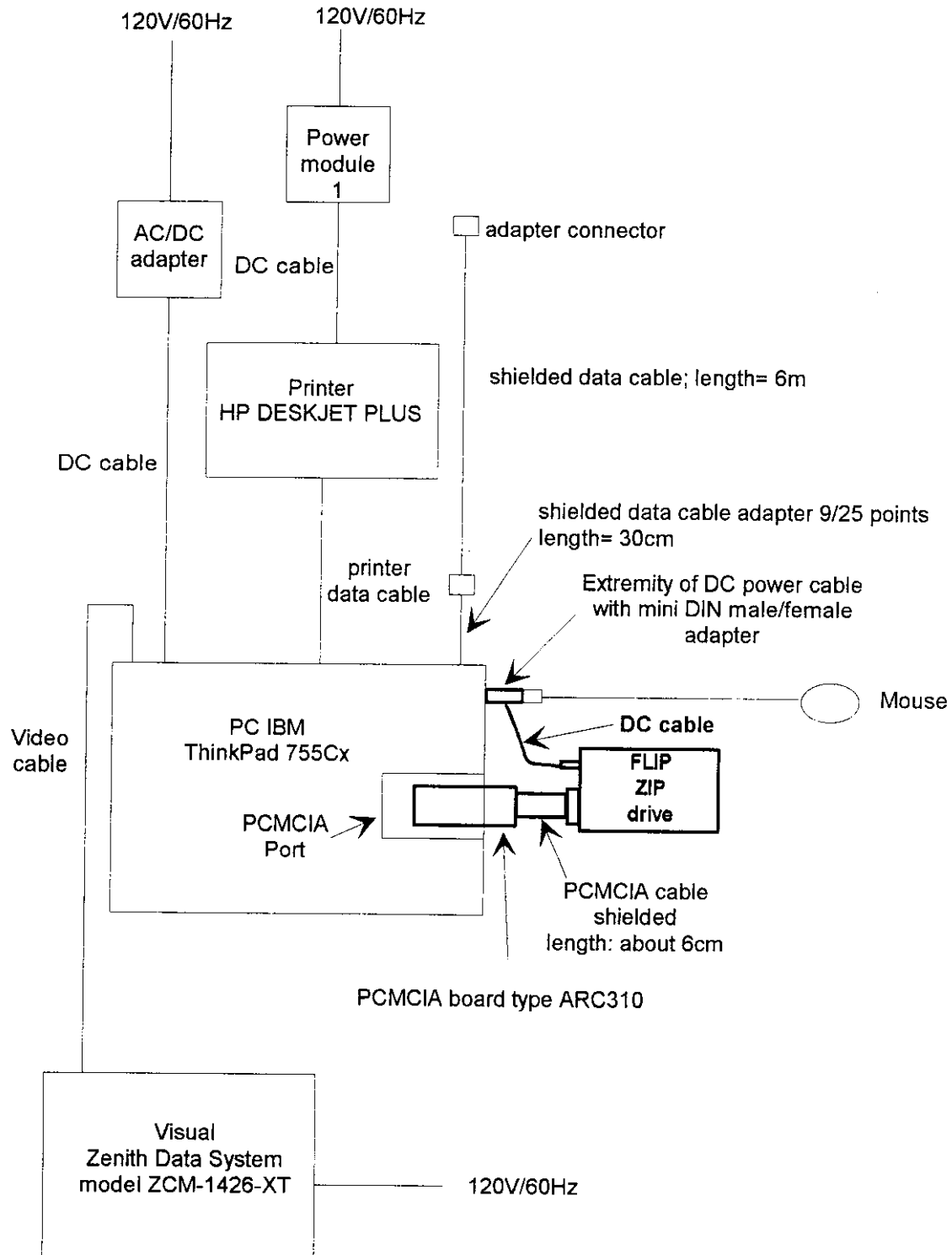
SOFTWARE : Activity during the test

Reads and writes data between ZIP disk and PC in loop mode

5. LIST OF MEASUREMENT APPARATUS

APPARATUS	MANUFACTURER	REFERENCE	SERIAL NUMBER	Date of vérification
*RECEIVERS				
Receptive chain :	Hewlett Packard	HP 8574 A	-	-
Q-P Adaptator	Hewlett Packard	HP 85650A	2811A01134	juin-97
Spectrum analyser	Hewlett Packard	HP 8568 B	2816A118603	juin-97
Preselector	Hewlett Packard	HP 685685A	287A00784	juin-97
EMI Software	Hewlett Packard	HP 85869A	-	
REMS Software for fieldstrength	Hewlett Packard	HP 85879A rev A.02.01	-	
*NETWORKS Adatpters				
LISN	Rohde & Schwarz	ESH2-Z5	861741/019	juin-97
LISN	Rohde & Schwarz	ESH2-Z5	872094/037	juin-97
LISN	Rohde & Schwarz	ESH2-Z5	871777/031	juil-97
*ANTENNAS				
Bicônic	Schwarzbeck	BBA 9106	42456050001	juin-97
Log.périod.	Schwarzbeck	UHALP 9107	42456080001	juin-97

TESTED CONFIGURATION



REPORT NUMBER : 961-215-02/e APPENDIX:1-1
 PRODUCT NAME : PC IBM MODEL THINKPAD 755 Cx +ZIP DISK DRIVE on PCMCIA port
 SERIAL NUMBER : PC: 00-00023
 STANDARD : FCC PART 15 / 1997 CLASS B
 MEASUREMENT : AC POWER LINE CONDUCTED PHASE
 (Limit line#1= Quasi-Peak limit)
 CONDITIONS : 120V/60Hz

MEASUREMENTS DONE BY : D.RAUD

5 May 1998 18:10:25

1. CONDUCTION SECTEUR

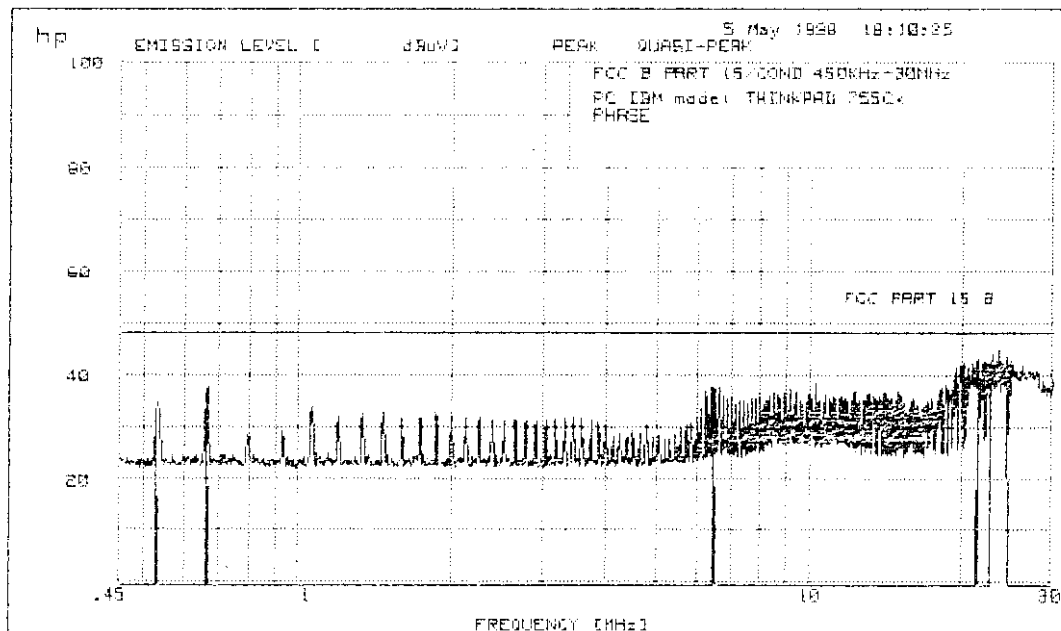
1.1 FCC B PART 15/COND 450KHz-30MHz

PC IBM model THINKPAD 755Cx

PHASE

Quasi-Peaks above -20 dB of Limit Line #1
 peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuV)	DELTA
1	.53	33.3	-14.7
2	.6648	37	-11.0
3	6.487	37.5	-10.5
4	21.45	36.5	-11.5
5	22.84	41.6	-6.4



REPORT NUMBER : 961-215-02/e APPENDIX:1-2
 PRODUCT NAME : PC IBM MODEL THINKPAD 755 Cx +ZIP DISK DRIVE on PCMCIA port
 SERIAL NUMBER : PC: 00-00023
 STANDARD : FCC PART 15 / 1997 CLASS B
 MEASUREMENT : AC POWER LINE CONDUCTED NEUTRAL
 (Limit line#1= Quasi-Peak limit)
 CONDITIONS : 120V/60Hz

MEASUREMENTS DONE BY : D.RAUD

=====
 5 May 1998 18:35:52
 =====

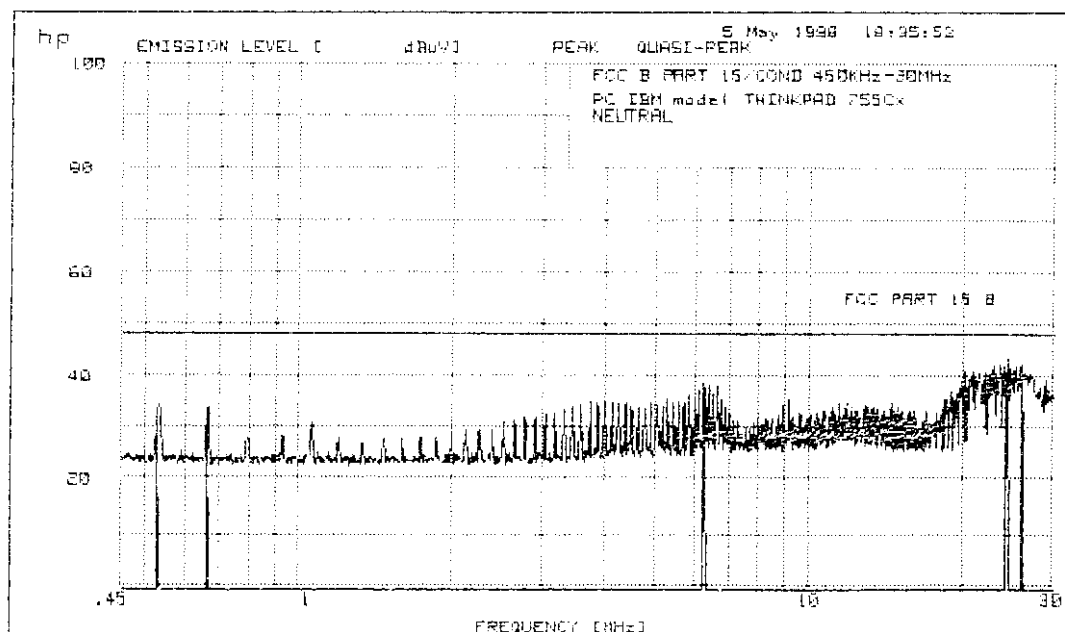
1. CONDUCTION SECTEUR

1.1 FCC B PART 15/COND 450KHz-30MHz

=====
 PC IBM model THINKPAD 755Cx
 NEUTRAL

Quasi-Peaks above -20 dB of Limit Line #1
 peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuV)	DELTA
1	.53	32.5	-15.5
2	.6948	32.4	-15.6
3	6.247	37.4	-10.5
4	24.22	39.7	-8.3
5	26.01	39.3	-8.7



REPORT NUMBER : 961-215-02/e
 PRODUCT NAME : VISUAL ZENITH DATA SYSTEM model ZCM-1426-XT
 SERIAL NUMBER : MYZE5018002086
 STANDARD : FCC PART 15 / 1997 CLASS B
 MEASUREMENT : AC POWER LINE CONDUCTED PHASE
 (Limit line#1= Quasi-Peak limit)
 CONDITIONS : 120V/60Hz

APPENDIX:1-3

MEASUREMENTS DONE BY : D.RAUD

6 May 1998 08:16:57

1. CONDUCTION SECTEUR

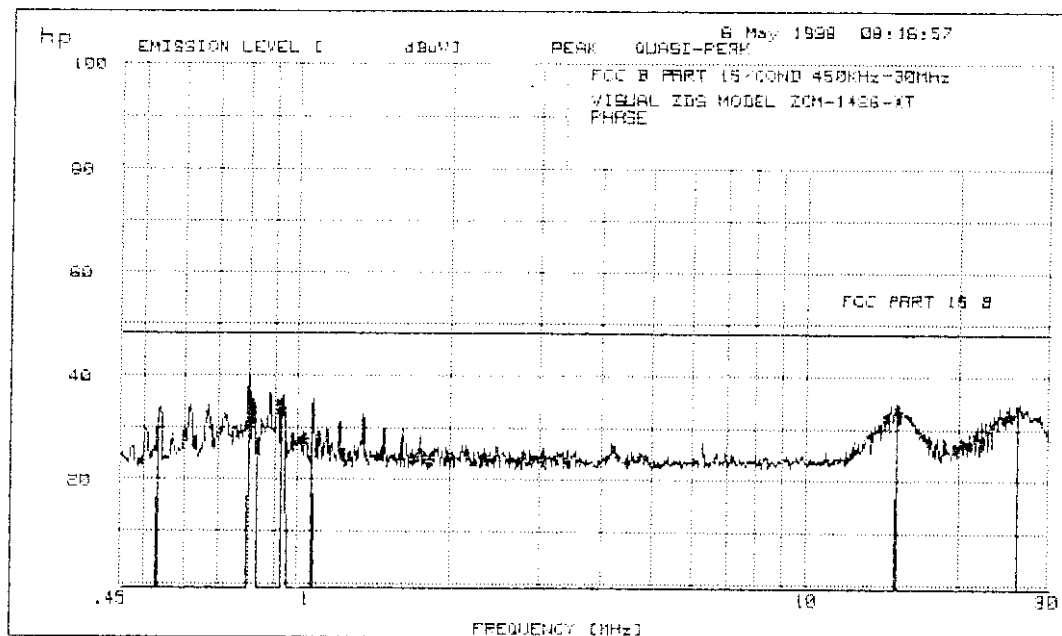
1.1 FCC B PART 15/COND 450KHz-30MHz

VISUAL ZDS MODEL ZCM-1426-XT

PHASE

Quasi-Peaks above -25 dB of Limit Line #1
 peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuV)	DELTA
1	.5322	32.7	-15.3
2	.8063	35.6	-11.4
3	.8199	34.1	-13.9
4	.9377	35.7	-12.3
5	1.068	34.3	-13.7
6	15.01	33.6	-14.4
7	25.01	33.7	-14.3



REPORT NUMBER : 961-215-02/e
PRODUCT NAME : VISUAL ZENITH DATA SYSTEM model ZCM-1426-XT
SERIAL NUMBER : MYZE5018002086
STANDARD : FCC PART 15 / 1997 CLASS B
MEASUREMENT : AC POWER LINE CONDUCTED NEUTRAL
(Limit line#1= Quasi-Peak limit)
CONDITIONS : 120V/60Hz

APPENDIX:1-4

MEASUREMENTS DONE BY : D.RAUD

6 May 1998 08:09:06

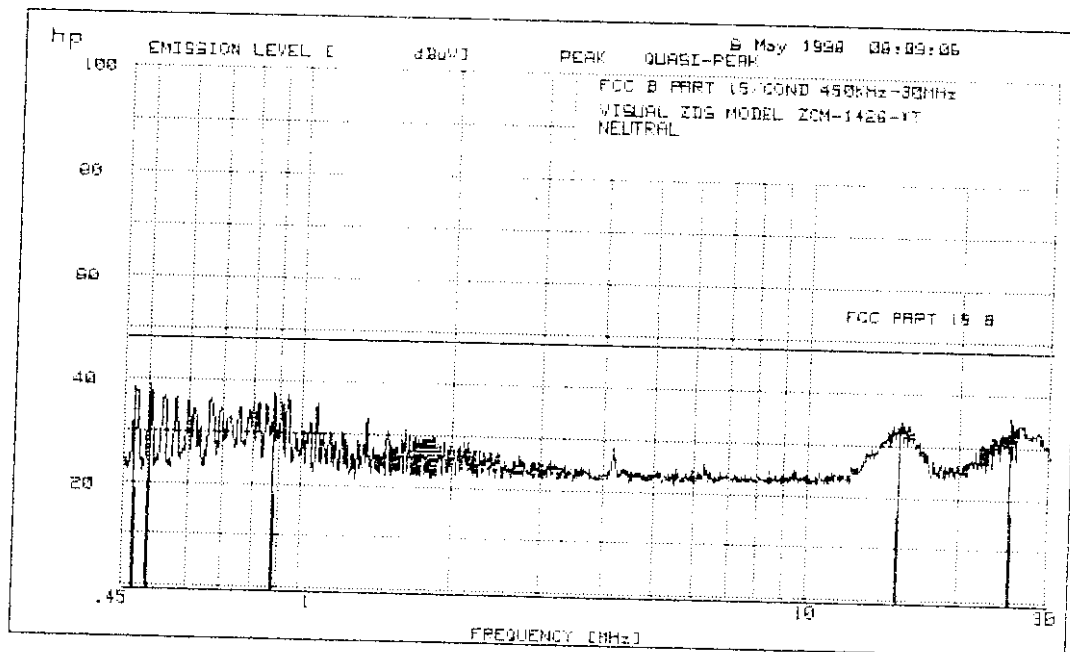
1. CONDUCTION SECTEUR

1.1 FCC B PART 15/COND 450KHz-30MHz

VISUAL ZDS MODEL ZCM-1426-XT
NEUTRAL

Quasi-Peaks above -25 dB of Limit Line #1
peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuV)	DELTA
1	.4713	38.3	-9.7
2	.504	38.6	-9.4
3	.8842	36.7	-11.3
4	15.14	33	-15.0
5	25.15	34.7	-13.3



REPORT NUMBER : 961-215-02/e
 PRODUCT NAME : PRINTER HP DESKJET PLUS
 SERIAL NUMBER : 2906A16132
 STANDARD : FCC PART 15 / 1997 CLASS B
 MEASUREMENT : AC POWER LINE CONDUCTED PHASE
 (Limit line#1= Quasi-Peak limit)
 CONDITIONS : 120V/60Hz

APPENDIX:1-5

MEASUREMENTS DONE BY : D.RAUD

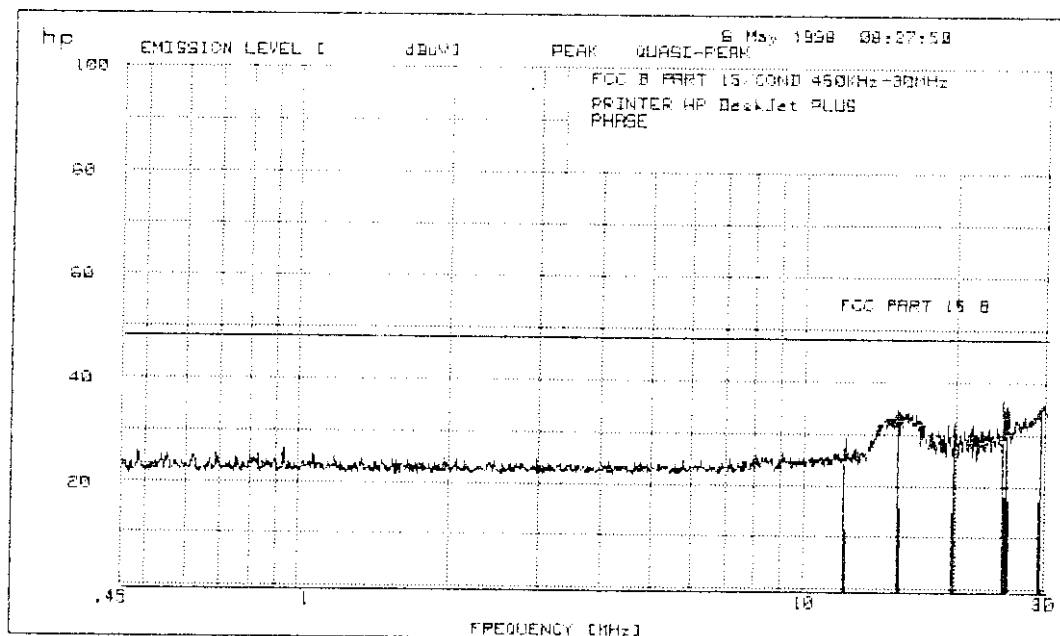
6 May 1998 08:27:50

1. CONDUCTION SECTEUR
 1.1 FCC B PART 15/COND 450KHz-30MHz

PRINTER HP DeskJet PLUS
 PHASE

Quasi-Peaks above -25 dB of Limit Line #1
 peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuV)	DELTA
1	12.02	23.9	-24.1
2	15.4	31.9	-16.1
3	19.72	30.7	-17.3
4	24.73	36.2	-11.8
5	25.15	35.4	-12.6
6	29.25	35.1	-12.9



REPORT NUMBER : 961-215-02/e
PRODUCT NAME : PRINTER HP DESKJET PLUS
SERIAL NUMBER : 2906A16132
STANDARD : FCC PART 15 / 1997 CLASS B
MEASUREMENT : AC POWER LINE CONDUCTED NEUTRAL
(Limit line#1= Quasi-Peak limit)
CONDITIONS : 120V/60Hz

APPENDIX:1-6

MEASUREMENTS DONE BY : D.RAUD

6 May 1998 08:36:46

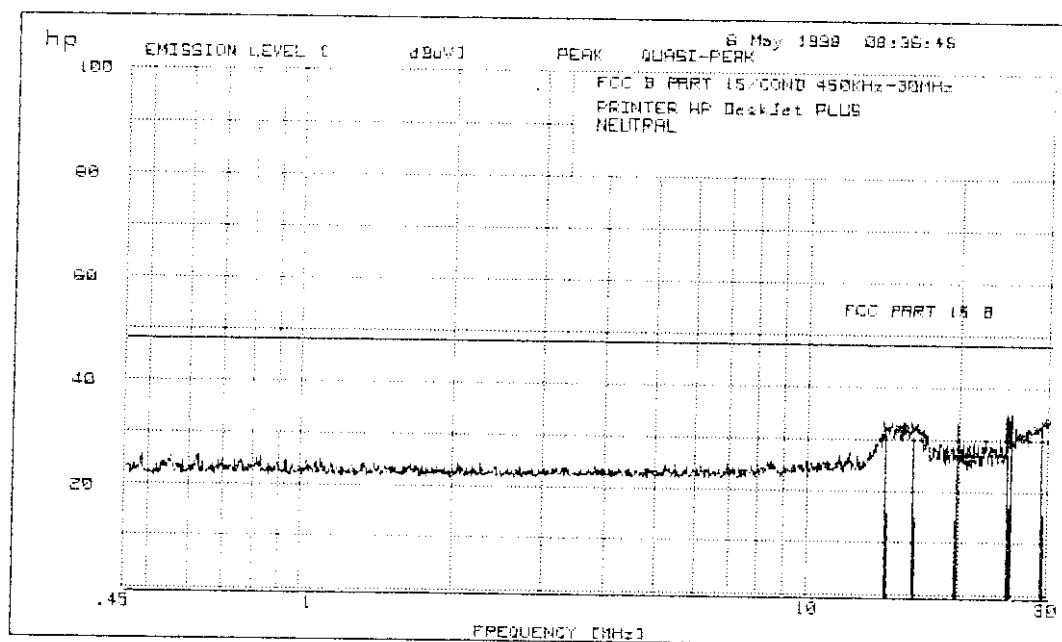
1. CONDUCTION SECTEUR

1.1 FCC B PART 15/COND 450KHz-30MHz

PRINTER HP DeskJet PLUS
NEUTRAL

Quasi-Peaks above -25 dB of Limit Line #1
peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuV)	DELTA
1	14.28	31.7	-16.3
2	16.26	30.3	-17.7
3	19.72	30	-18.0
4	24.94	34.5	-13.5
5	25.26	33.3	-14.7
6	29.13	31.6	-16.4



REPORT : 961-215-02/e APPENDIX 2-1
 PRODUCT NAME : PC IBM MODEL THINKPAD 7550x with ZIP DISK DRIVE on PCMCIA port
 SERIAL NUMBER : PC: 00-00023 CONFIGURATION ON APPENDIX A
 STANDARD : FCC PART15 DATE OF 1997 CLASS B D=3m
 MEASUREMENT : ELECTRIC FIELD 30-1000MHz
 CONDITIONS : 120V/60Hz
 DATE : 06 May 1998

MEASUREMENT DONE BY : D.RAUD

PRODUCT EMISSIONS

HP 85879A Rev. A.02.01

Data File: E FIELD D=3m

6 May 1998 10:26

No	EMISSION	SPEC	MEASUREMENTS			SITE		CORR	COMMENTS
	FREQUENCY MHz	LIMIT dBuV/m	ABS	dLIM dB	MODE	POL	HGT cm	FACTOR dB	
							AZM deg		
1	36.012	40.0	31.5	-8.5	QP	V	100 150	12.8	
2	61.772	40.0	26.3	-13.7	PK	V	120 285	6.3	
3	66.604	40.0	34.6	-5.4	QP	V	110 130	5.6	
4	78.159	40.0	30.8	-9.2	PK	V	110 0	5.9	
5	88.595	43.5	33.2	-10.3	QP	V	110 50	7.4	
6	120.026	43.5	31.8	-11.7	PK	V	110 70	12.	
7	126.307	43.5	33.9	-9.6	QP	H	110 185	12.7	
8	130.810	43.5	32.3	-11.2	PK	H	100 360	13.1	
9	138.023	43.5	35.9	-7.6	QP	H	100 360	13.7	
10	140.813	43.5	34.6	-8.9	QP	V	120 0	13.9	
11	143.834	43.5	34.6	-8.9	QP	V	120 0	14.1	
12	145.511	43.5	31.5	-12.0	QP	V	110 360	14.3	
13	150.008	43.5	39.6	-3.9	QP	V	100 0	14.7	
14	151.103	43.5	33.1	-10.4	QP	V	140 65	14.7	
15	152.000	43.5	32.7	-10.8	QP	H	130 300	14.8	
16	154.065	43.5	32.0	-11.5	QP	V	110 35	14.9	
17	156.117	43.5	33.9	-9.6	QP	V	110 0	15.	
18	159.975	43.5	29.5	-14.0	QP	H	130 355	15.2	
19	166.468	43.5	32.9	-10.6	QP	V	100 0	15.4	
20	192.011	43.5	39.7	-3.8	QP	H	140 345	16.5	
21	204.019	43.5	35.0	-8.5	QP	H	150 165	17.	
22	222.496	46.0	31.1	-14.9	QP	H	150 325	17.8	
23	224.025	46.0	38.6	-7.4	QP	H	140 335	17.9	
24	226.610	46.0	31.4	-14.6	PK	H	180 360	18.	
25	287.979	46.0	40.2	-5.8	QP	H	170 355	20.3	
26	320.025	46.0	37.2	-8.8	QP	H	100 0	18.1	
27	351.977	46.0	41.3	-4.7	QP	H	110 360	18.8	
28	384.014	46.0	36.5	-9.5	PK	H	120 360	19.5	
29	415.982	46.0	33.4	-12.6	PK	H	100 0	20.1	
30	544.013	46.0	34.9	-11.1	QP	H	140 330	21.8	

REPORT : 961-215-02/e APPENDIX 2-2
PRODUCT NAME : PC IBM MODEL THINKPAD 7550x with ZIP DISK DRIVE on PCMCIA port
SERIAL NUMBER : PC: 00-00023 CONFIGURATION ON APPENDIX A
STANDARD : FCC PART15 DATE OF 1997 CLASS B D=3m
MEASUREMENT : ELECTRIC FIELD 30-1000MHz
CONDITIONS : 120V/60Hz
DATE : 06 May 1998

MEASUREMENT DONE BY : D.RAUD

