CDD 3610/55 (Ajax)

9 July 1998

Radiation { FCC CE

EEN 611055

TÜV

PRODUCT SERVICE

EEN 611055

TÜV PRODUCT SERVICE

NVLAP

EMC EMISSION - TEST REPORT

Test Report No.	**B829601a**	Issue Date	31 July 1998

Model / Serial No.	CDD3610/55 / 000001
Product Type	CD RW Drive
Client	Philips Industrial Activities NV
Manufacturer	Philips Industrial Activities NV
License holder	Philips Industrial Activities NV
Address	Kempische Steenweg 293 3500 Hasselt, Belgium
Test Criteria Applied	EN55022 Class B — Limits and methods of measurement of radio disturbance characteristics of information technology equipment.
Test Result	■ PASS ☐ FAIL
Test Report Project No.	**B211829601**
Total Pages including Appendices	39

Reviewed By : Felix J. Chavez

Reviewed By : Jeffrey V. Doolittle

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TÜV PRODUCT SERVICE INC 40 Meadow Road Pinewood Springs, Lyons, CO 80540 Tel: 303 786 7999 Fax: 303 449 3004 Rev.No 1.0

DIRECTORY - EMISSIONS

STATEMENT OF MEASUREMENT UNCERTAINTY

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities that can account for a nominal measurement error of ±4 dB. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

EUT Received Date: 6 July 1998

Testing Start Date: 6 July 1998

Testing End Date: 6 July 1998

TÜV PRODUCT SERVICE INC 40 Meadow Road Pinewood Springs, Lyons, CO 80540 Tel: 303 786 7999 Fax: 303 449 3004 Rev.No 1.0

EMISSIONS TEST REGULATIONS :

The tests were performed according to following regulations :

■ - EMC - Directive 89/336/EEC		
■ - Federal Communication Commission part 15	☐ - Class A	■ - Class B
■ - EN 55022 / 1994	☐ - Class A	■ - Class B
■ - VCCI	☐ - Class A	■ - Class B
■ - CISPR 22 (1993)	☐ - Class A	■ - Class B

All tests performed according to ANSI C63.4

Emission Test Results:

Conducted emissions 150 kHz - 30 MHz

Test Result	■ - PASS	☐ - FAIL	☐ - Not Applicable	
Passing Margin	8.6 dB	at	0.53 MHz	
Failing Margin	_____ dB	at	_____ MHz	

Remarks: _____

Radiated emissions (electric field) 30 MHz - 1000 MHz

Test Result	■ - PASS	☐ - FAIL	☐ - Not Applicable	
Passing Margin	5.0 dB	at	730.91 MHz	
Failing Margin	_____ dB	at	_____ MHz	

Remarks: _____

GENERAL REMARKS:

Modifications required to pass: None

Test Specification Deviations: Additions to or Exclusions from: None

TÜV PRODUCT SERVICE INC 40 Meadow Road Pinewood Springs, Lyons, CO 80540 Tel: 303 786 7999 Fax: 303 449 3004 Rev.No 1.0

Appendix A

Test Data Sheets

and

Test Equipment Used

TÜV PRODUCT SERVICE INC 40 Meadow Road Pinewood Springs, Lyons, CO 80540 Tel: 303 786 7999 Fax: 303 449 3004 Rev.No 1.0

Form

TÜV PRODUCT SERVICE IQ

Conducted Emissions

TEST REPORT # B8296 REQUIREMENT CISPR 22B

DATE 6 JULY 98 LISN ESH2-25

PRODUCT ID: CUT THROAT II RECEIVER ESH 3

INTERNAL CD-RW, REVISION LI, S/N 000001 SHEET 1 OF ____

TEST FREQ (MHz)	Condition 1 (dBuV)		Condition 2 (dBuV)		Condition 3 (dBuV)		REMARKS
	Neutral	Line Side	Neutral	Line Side	Neutral	Line Side	
0.150	46.5	46.8	24.0	24.4			
0.1583	42.6	44.7	28.6	31.1			
0.3666	41.0	41.4	36.9	37.3			
0.5304	43.6	43.5	37.4	37.0			
0.6931	41.4	41.1	34.9	34.4			
0.7756	39.6	39.3	32.4	32.0			
13.6184	29.9	32.6	29.3	29.1			

Condition1 QP 230 VAC @ 50Hz

Condition2 AVE. 230 VAC @ 50Hz

Condition3 ____

Tested By Todd Ruwelma Results (Pass) Fail) JQL FSL

TÜV Product Service
1775 Old Hwy 8
New Brighton, MN 55112
Telephone: (612)-631-2487

AMADOR PRODUCT SERVICE

Figure ____

NARROWBAND CONDUCTED EMISSIONS
CUT THROAT II

Report: B8296 Run A
Date: 21-JUL-98 Page 1
Engineer Felipe.
Tech

Measurement Summary

Frequency (MHz)	Amplitude (dBuV)	DELTA CISPR QP CLASS B
0.1500	46.8	-19.2
0.1583	44.7	-20.9
0.367	41.4	-17.2
0.530	43.6	-12.4
0.693	41.4	-14.6
0.776	39.6	-16.4
13.62	32.6	-27.4

Minimum Passing Margin for CISPR QP CLASS B is 12 dB at .5303 MHz

File B8296 Run A

AMADOR PRODUCT SERVICE

Figure ____

NARROWBAND CONDUCTED EMISSIONS
CUT THROAT II

Report: B8296 Run A
Date: 21-JUL-98 Page 1
Engineer BL Joe.
Tech

Measurement Summary

Frequency (MHz)	Amplitude (dBuV)	DELTA CISPR AVE CLASS B
0.1500	24.4	-31.6
0.1583	31.1	-24.5
0.367	37.3	-11.3
0.530	37.4	-8.6
0.693	34.9	-11.1
0.776	32.4	-13.6
13.62	29.3	-20.7

Minimum Passing Margin for CISPR AVE CLASS B is 8 dB at .5303 MHz

File B8296 Run A

Form

TÜV PRODUCT SERVICE IQ

Conducted Emissions

TEST REPORT # B8296

DATE 6 JULY 98

PRODUCT ID: CUT THROAT II, INTERNAL CD-RW, REVISION C1, S/N 00000QI

REQUIREMENT CISPR 22B/FCC

LISN ESH2-25

RECEIVER ESH 3

SHEET 2 OF ____

TEST FREQ (MHz)	Condition 1 (dBuV)		Condition 2 (dBuV)		Condition 3 (dBuV)		REMARKS
	Neutral	Line Side	Neutral	Line Side	Neutral	Line Side	
0.150	49.0	49.1	12.0	12.3			
0.1583	44.8	45.1	27.1	31.0			
0.3666	35.0	34.3	32.8	32.1			
0.5304	34.8	34.5	33.8	33.6			
0.6931	31.8	31.5	30.2	31.0			
0.7756	28.4	28.6	25.9	26.7			
13.6184	39.2	38.7	33.5	33.7			

Condition1 QP 120 VAC @ 60Hz

Condition2 AVE 120 VAC @ 60Hz

Condition3 ____

Tested By Todd Rumelin Results (Pass) / Fail) 3dB FSL

TÜV Product Service
1775 Old Hwy 8
New Brighton, MN 55112
Telephone: (612)-631-2467

EMCOND.DOC
Author: D.S. Carlson
Released:
Page 1 of 1

AMADOR PRODUCT SERVICE

Figure ____

NARROWBAND CONDUCTED EMISSIONS
CUT THROAT II

Report: B8296 Run A
Date: 21-JUL-98 Page 1
Engineer FJC JR.
Tech

Measurement Summary

Frequency (MHz)	Amplitude (dBuV)	DELTA CISPR AVE CLASS B
0.1500	12.3	-43.7
0.1583	31.0	-24.6
0.367	32.8	-15.8
0.530	33.8	-12.2
0.693	31.0	-15.0
0.776	26.7	-19.3
13.62	33.7	-16.3

Minimum Passing Margin for CISPR AVE CLASS B is 12 dB at .5303 MHz

File B8296 Run A

AMADOR PRODUCT SERVICE

Figure ____

NARROWBAND CONDUCTED EMISSIONS
CUT THROAT II

Report: B8296 Run A
Date: 21-JUL-98 Page 1
Engineer FJC JQC.
Tech

Measurement Summary

Frequency (MHz)	Amplitude (dBuV)	DELTA CISPR QP CLASS B
0.1500	49.1	-16.9
0.1583	45.1	-20.5
0.367	35.0	-23.6
0.530	34.8	-21.2
0.693	31.8	-24.2
0.776	28.6	-27.4
13.62	39.2	-20.8

Minimum Passing Margin for CISPR QP CLASS B is 16 dB at .15 MHz

File B8296 Run A

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW1 Test Site
10 Meter Antenna Distance
Equipment Under Test:
HP-Cut Throat II
Internal CD-RW Drive,Rev. L1
Notes: S/N 000001

Report B8296 Run 1
Date 07/06/98 Page 1
Engineer FJ-Jr.
Tech: TMK
Requester

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height	Delta CISPR B	Delta
bicon antenna,vertical polarization,initial height 1 meter.								
0 degrees azimuth								
30.012	7.15	14.5	.9	22.5	--	--	-7.5	
30.168	9.1	14.5	.9	24.5	--	--	-5.5	
40.895	6.15	13.1	1	20.3	--	--	-9.7	
43.333	4.15	12.8	1	17.9	--	--	-12.1	
44.125	6.45	12.6	1	20.1	--	--	-9.9	
44.635	5.35	12.6	1	19	--	--	-11	
46.915	6.65	12.5	1.1	20.2	--	--	-9.8	
70.021	6.6	9.5	1.3	17.4	--	--	-12.6	
74.377	6.75	9.1	1.3	17.2	--	--	-12.8	
81.121	10.3	8.5	1.4	20.2	--	--	-9.8	
110.17	5.45	11	1.7	18.1	--	--	-11.9	
112.01	7	11.2	1.7	19.9	--	--	-10.1	
143.38	4.05	12.9	1.9	18.9	--	--	-11.1	
143.68	3.5	12.9	1.9	18.4	--	--	-11.6	
198.77	6.15	14.4	2.3	22.9	--	--	-7.1	
30	6.45	14.5	.9	21.8	--	--	-8.2	
90 degrees azimuth								
30	5.55	14.5	.9	21	--	--	-9	
30.108	7.65	14.5	.9	23	--	--	-7	
30.108	7.6	14.5	.9	23	--	--	-7	
30.224	5.2	14.5	.9	20.6	--	--	-9.4	
30.326	6.5	14.5	.9	21.9	--	--	-8.1	
44.029	6.5	12.6	1	20.2	--	--	-9.8	
44.653	5.9	12.6	1	19.5	--	--	-10.5	
46.915	6.45	12.5	1.1	20	--	--	-10	
62.839	6.7	10.6	1.2	18.5	--	--	-11.5	
66.021	7.2	10.1	1.3	18.6	--	--	-11.4	
108.46	4.85	10.8	1.7	17.4	--	--	-12.6	
108.62	6.9	10.9	1.7	19.4	--	--	-10.6	
109.77	5.35	11	1.7	18	--	--	-12	
110.82	6.5	11.1	1.7	19.3	--	--	-10.7	
111.97	5.15	11.2	1.7	18	--	--	-12	
113.11	3.8	11.3	1.7	16.8	--	--	-13.2	

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW1 Test Site
10 Meter Antenna Distance
Equipment Under Test:
HP-Cut Throat II
Internal CD-RW Drive,Rev. L1
Notes: S/N 000001

Report B8296 Run 1
Date 07/06/98 Page 2
Engineer
Tech: TMK
Requester

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height	Delta CISPR B	Delta
114.58	4.75	11.5	1.7	17.9	--	--	-12.1	
114.71	4.5	11.5	1.7	17.7	--	--	-12.3	
120.34	4	11.8	1.8	17.5	--	--	-12.5	
143.36	3.7	12.9	1.9	18.5	--	--	-11.5	
146.71	5.8	13	2	20.8	--	--	-9.2	
195.46	1.65	14.2	2.3	18.2	--	--	-11.8	
195.16	2.55	14.2	2.3	19.1	--	--	-10.9	
195.64	2.55	14.2	2.3	19.1	--	--	-10.9	
180 degrees azimuth								
30.06	7.05	14.5	.9	22.4	--	--	-7.6	
30.282	7.2	14.5	.9	22.6	--	--	-7.4	
66.021	7.55	10.1	1.3	18.9	--	--	-11.1	
70.021	7.1	9.5	1.3	17.9	--	--	-12.1	
108.46	5.15	10.8	1.7	17.7	--	--	-12.3	
109.77	5.85	11	1.7	18.5	--	--	-11.5	
110.82	7	11.1	1.7	19.8	--	--	-10.2	
47.806	3.9	12.5	1.1	17.5	--	--	-12.5	
48.861	4.7	12.5	1.1	18.3	--	--	-11.7	
66.463	7.6	10	1.3	18.9	--	--	-11.1	
79.867	4.8	8.5	1.4	14.7	--	--	-15.3	
85.543	6	8.5	1.5	16	--	--	-14	
270 degrees azimuth								
30.326	6.6	14.5	.9	22	--	--	-8	
48.861	6.3	12.5	1.1	19.9	--	--	-10.1	
66.021	7.6	10.1	1.3	19	--	--	-11	
70.021	8.15	9.5	1.3	18.9	--	--	-11.1	
108.46	7.9	10.8	1.7	20.4	--	--	-9.6	
108.62	8.15	10.9	1.7	20.7	--	--	-9.3	
109.77	6.4	11	1.7	19.1	--	--	-10.9	
110.17	5.85	11	1.7	18.5	--	--	-11.5	
110.82	7.65	11.1	1.7	20.4	--	--	-9.6	
50.305	6.9	12.5	1.1	20.5	--	--	-9.5	
81.122	12	8.5	1.4	21.9	--	--	-8.1	
131.08	1.55	12.3	1.8	15.7	--	--	-14.3	
195.57	2.65	14.2	2.3	19.2	--	--	-10.8	

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW1 Test Site
10 Meter Antenna Distance
Equipment Under Test:
HP-Cut Throat II
Internal CD-RW Drive,Rev. L1
Notes: S/N 000001

Report B8296 Run 1
Date 07/06/98 Page 3
Engineer
Tech: TMK
Requester

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height	Delta CISPR B	Delta
81.122	11.45	8.5	1.4	21.4	--	--	-8.6	

above frequency was maximized at 252 degrees azimuth,1 meter elevation.

bicon antenna,horizontal polarization,initial height 2.5 meters.

0 degrees azimuth

no higher emissions

90 degrees azimuth

62.831	4.75	10.6	1.2	16.6	--	--	-13.4	
70.031	7.65	9.5	1.3	18.4	--	--	-11.6	

180 degrees azimuth

no higher emissions

270 degrees azimuth

no higher emissions

70.021	8.05	9.5	1.3	18.8	--	--	-11.2	

above frequency was maximized at 98 degrees azimuth,3 meters elevation.

62.839	7.2	10.6	1.2	19	--	--	-11	

above frequency was maximized at 300 degrees azimuth,4 meters elevation.

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW1 Test Site
10 Meter Antenna Distance
Equipment Under Test:
HP-Cut Throat II
Internal CD-RW Drive,Rev. L1
Notes: S/N 000001

Figure____

Report B8296 Run 1
Date 07/06/98 Page 4
Engineer
Tech: TMK
Requester

Measurement Summary

Frequency MHz	Final dBuV/m	Final uV/m	Azimuth deg	Polar\ Height	Delta CISPR B	Delta
40.895	20.3	10.351	--	--	-9.7	
43.333	17.9	7.8523	--	--	-12.1	
44.029	20.2	10.232	--	--	-9.8	
44.653	19.5	9.4406	--	--	-10.5	
46.915	20.2	10.232	--	--	-9.8	
47.806	17.5	7.4989	--	--	-12.5	
48.861	19.9	9.8855	--	--	-10.1	
50.305	20.5	10.592	--	--	-9.5	
62.839	19	8.9125	--	--	-11	
66.021	19	8.9125	--	--	-11	
66.463	18.9	8.8104	--	--	-11.1	
70.021	18.9	8.8104	--	--	-11.1	
74.377	17.2	7.2443	--	--	-12.8	
79.867	14.7	5.4325	--	--	-15.3	
81.122	21.9	12.445	--	--	-8.1	
85.543	16	6.3095	--	--	-14	
108.46	20.4	10.471	--	--	-9.6	
108.62	20.7	10.839	--	--	-9.3	
109.77	19.1	9.0157	--	--	-10.9	
110.17	18.5	8.4139	--	--	-11.5	
110.82	20.4	10.471	--	--	-9.6	
112.01	19.9	9.8855	--	--	-10.1	
113.11	16.8	6.9183	--	--	-13.2	
114.58	17.9	7.8523	--	--	-12.1	
114.71	17.7	7.6736	--	--	-12.3	
120.34	17.5	7.4989	--	--	-12.5	
131.08	15.7	6.0953	--	--	-14.3	
143.38	18.9	8.8104	--	--	-11.1	
143.68	18.4	8.3176	--	--	-11.6	
146.71	20.8	10.964	--	--	-9.2	
195.16	19.1	9.0157	--	--	-10.9	
195.57	19.2	9.1201	--	--	-10.8	
195.64	19.1	9.0157	--	--	-10.9	

Minimum Passing Margin for CISPR B is 8.1 dB at 81.122 MHz

File B8296 Run 1

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW1 Test Site
10 Meter Antenna Distance
Equipment Under Test:
HP-Cut Throat II
Internal CD-RW Drive,Rev, L1
Notes: S/N 000001

Report B8296 Run 2
Date 07/06/98 Page 1
Engineer FJL & JNL
Tech: TMK
Requester

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height	Delta CISPR B	Delta
log antenna,horizontal polarization,initial height 2.5 meters.								
0 degrees azimuth								
205.27	5.4	12.9	2.4	20.7	--	--	-9.3	
327.89	3.65	15.1	3.2	21.9	--	--	-15.1	
351.86	6.35	15	3.3	24.7	--	--	-12.3	
367.87	4.25	15.1	3.4	22.7	--	--	-14.3	
384.13	5.9	15.6	3.4	25	--	--	-12	
431.91	5.3	16.3	3.6	25.3	--	--	-11.7	
432.11	4.05	16.3	3.6	24	--	--	-13	
730.91	3.8	20.7	4.8	29.4	--	--	-7.6	
90 degrees azimuth								
205.26	5.65	12.9	2.4	21	--	--	-9	
209.76	2.95	13.1	2.4	18.5	--	--	-11.5	
334.34	2.5	15.2	3.2	21	--	--	-16	
334.75	2.9	15.2	3.2	21.4	--	--	-15.6	
335.08	2.25	15.2	3.2	20.7	--	--	-16.3	
335.89	3.45	15.2	3.2	21.9	--	--	-15.1	
336.27	2.7	15.2	3.2	21.2	--	--	-15.8	
341.56	3.1	15.1	3.3	21.5	--	--	-15.5	
343.85	2	15.1	3.3	20.4	--	--	-16.6	
351.85	4.75	15	3.3	23.1	--	--	-13.9	
359.85	3.1	14.9	3.3	21.3	--	--	-15.7	
361.40	6.1	14.9	3.3	24.4	--	--	-12.6	
365.45	2.05	15	3.4	20.4	--	--	-16.6	
367.70	4.8	15.1	3.4	23.3	--	--	-13.7	
367.86	2.85	15.1	3.4	21.3	--	--	-15.7	
431.91	5.85	16.3	3.6	25.8	--	--	-11.2	
585.26	.9	19.7	4.2	24.9	--	--	-12.1	
598.03	.9	19.8	4.3	25	--	--	-12	
180 degrees azimuth								
311.10	4.1	14.2	3.1	21.5	--	--	-15.5	
327.88	4.95	15.1	3.2	23.2	--	--	-13.8	
331.39	-1	15.3	3.2	17.5	--	--	-19.5	
342.55	2.15	15.1	3.3	20.6	--	--	-16.4	

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW1 Test Site
10 Meter Antenna Distance
Equipment Under Test:
HP-Cut Throat II
Internal CD-RW Drive,Rev, L1
Notes: S/N 000001

Report B8296 Run 2
Date 07/06/98 Page 2
Engineer
Tech: TMK
Requester

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height	Delta CISPR B	Delta
343.85	2.6	15.1	3.3	21	--	--	-16	
400.11	.85	17.2	3.5	21.5	--	--	-15.5	
270 degrees azimuth								
359.85	3.1	14.9	3.3	21.3	--	--	-15.7	
384.13	5.85	15.6	3.4	24.9	--	--	-12.1	
730.91	6.45	20.7	4.8	32	--	--	-5	
above frequency was maximized at 11 degrees azimuth,1.25 meters elevation.								
205.26	9	12.9	2.4	24.3	--	--	-5.7	
above frequency was maximized at 289 degrees azimuth,4 meters elevation.								
log antenna,vertical polarization,initial height 1 meter.								
0 degrees azimuth								
209.76	2	13.1	2.4	17.5	--	--	-12.5	
311.88	2.75	14.2	3.1	20.1	--	--	-16.9	
335.88	3.6	15.2	3.2	22.1	--	--	-14.9	
342.20	3.2	15.1	3.3	21.6	--	--	-15.4	
341.75	2.45	15.1	3.3	20.9	--	--	-16.1	
90 degrees azimuth								
336.27	4.95	15.2	3.2	23.4	--	--	-13.6	
342.55	3.1	15.1	3.3	21.5	--	--	-15.5	
180 degrees azimuth								
299.03	2.3	14.3	3.1	19.6	--	--	-17.4	
328.39	2.1	15.1	3.2	20.4	--	--	-16.6	
334.79	2.75	15.2	3.2	21.2	--	--	-15.8	
336.11	2.45	15.2	3.2	20.9	--	--	-16.1	
342.18	4.15	15.1	3.3	22.6	--	--	-14.4	
450.14	1.75	16.4	3.7	21.9	--	--	-15.1	

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW1 Test Site
10 Meter Antenna Distance
Equipment Under Test:
HP-Cut Throat II
Internal CD-RW Drive,Rev, L1
Notes: S/N 000001

Report B8296 Run 2
Date 07/06/98 Page 3
Engineer
Tech: TMK
Requester

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height	Delta CISPR B	Delta
270 degrees azimuth								
270 degrees azimuth								
450.14	2.85	16.4	3.7	23	--	--	-14	
336.27	5.7	15.2	3.2	24.2	--	--	-12.8	

above frequency was maximized at 78 degrees azimuth,1 meter elevation.

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

Figure____

Report B8296 Run 2
Date 07/06/98 Page 4
Engineer FJK JR
Tech: TMK Todd Kuselma
Requester

PW1 Test Site
10 Meter Antenna Distance
Equipment Under Test:
HP-Cut Throat II
Internal CD-RW Drive,Rev, L1
Notes: S/N 000001

Measurement Summary

Frequency MHz	Final dBuV/m	Final uV/m	Azimuth deg	Polar\ Height	Delta CISPR B	Delta
209.76	18.5	8.4139	--	--	-11.5	
299.03	19.6	9.5499	--	--	-17.4	
311.10	21.5	11.885	--	--	-15.5	
311.88	20.1	10.115	--	--	-16.9	
327.88	23.2	14.454	--	--	-13.8	
328.39	20.4	10.471	--	--	-16.6	
331.39	17.5	7.4989	--	--	-19.5	
334.34	21	11.220	--	--	-16	
334.75	21.4	11.748	--	--	-15.6	
335.08	20.7	10.839	--	--	-16.3	
335.88	22.1	12.735	--	--	-14.9	
336.11	20.9	11.091	--	--	-16.1	
336.27	24.2	16.218	--	--	-12.8	
341.56	21.5	11.885	--	--	-15.5	
341.75	20.9	11.091	--	--	-16.1	
342.18	22.6	13.489	--	--	-14.4	
342.55	21.5	11.885	--	--	-15.5	
343.85	21	11.220	--	--	-16	
351.86	24.7	17.179	--	--	-12.3	
359.85	21.3	11.614	--	--	-15.7	
361.40	24.4	16.595	--	--	-12.6	
365.45	20.4	10.471	--	--	-16.6	
367.70	23.3	14.621	--	--	-13.7	
367.87	22.7	13.645	--	--	-14.3	
384.13	25	17.782	--	--	-12	
400.11	21.5	11.885	--	--	-15.5	
431.91	25.8	19.498	--	--	-11.2	
432.11	24	15.848	--	--	-13	
450.14	23	14.125	--	--	-14	
585.26	24.9	17.579	--	--	-12.1	
598.03	25	17.782	--	--	-12	
730.91	32	39.810	--	--	-5	

Minimum Passing Margin for CISPR B is 5 dB at 730.91 MHz

File B8296 Run 2

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW1 Test Site
3 Meter Antenna Distance
Equipment Under Test:
HP-Cut Throat II
Internal CD-RW Drive,Rev. L1
Notes: S/N 000001

Report B8296 Run 3
Date 07/06/98 Page 1
Engineer
Tech: TMK
Requester

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height	Delta FCC B	Delta
horn antenna,3 meters,vertical polarization,initial height 1 meter. 0 degrees azimuth								
1002.4	7	24.7	2.1	33.8	--	--	-20.2	
1002.6	4.75	24.7	2.1	31.6	--	--	-22.4	
1007.5	7.2	24.7	2.1	34	--	--	-20	
1011.0	5.95	24.8	2.1	32.8	--	--	-21.2	
1015.5	4.35	24.8	2.1	31.2	--	--	-22.8	
1019.8	5.95	24.8	2.1	32.9	--	--	-21.1	
1023.5	6.5	24.8	2.1	33.4	--	--	-20.6	
1028.3	5.55	24.8	2.1	32.5	--	--	-21.5	
1031.5	5.35	24.8	2.1	32.3	--	--	-21.7	
1037.1	1.8	24.9	2.1	28.8	--	--	-25.2	
1039.5	4	24.9	2.1	31	--	--	-23	
1045.6	5.9	24.9	2.1	32.9	--	--	-21.1	
1047.5	6.25	24.9	2.1	33.3	--	--	-20.7	
1049.8	1.05	24.9	2.1	28.1	--	--	-25.9	
1055.5	4.65	25	2.1	31.8	--	--	-22.2	
1059.7	4.8	25	2.1	31.9	--	--	-22.1	
1063.1	15.05	25	2.2	42.2	--	--	-11.8	
1071.5	4.95	25	2.2	32.1	--	--	-21.9	
1079.5	3.15	25.1	2.2	30.4	--	--	-23.6	
1087.5	2.5	25.1	2.2	29.8	--	--	-24.2	
1088.3	4.2	25.1	2.2	31.5	--	--	-22.5	
1096.3	7.65	25.1	2.2	35	--	--	-19	
1103.5	2.75	25.2	2.2	30.1	--	--	-23.9	
1114.7	2.95	25.2	2.2	30.4	--	--	-23.6	
1117.0	2.15	25.2	2.2	29.6	--	--	-24.4	
1129.5	16.35	25.3	2.2	43.8	--	--	-10.2	
1151.4	2.3	25.4	2.2	29.9	--	--	-24.1	
1162.8	2.9	25.4	2.2	30.6	--	--	-23.4	
1166.6	2.2	25.5	2.2	29.9	--	--	-24.1	
1176.0	7.3	25.5	2.2	35.1	--	--	-18.9	
1181.0	4.05	25.5	2.2	31.8	--	--	-22.2	
1183.9	1.25	25.5	2.2	29	--	--	-25	
1229.2	1.85	25.8	2.3	29.9	--	--	-24.1	
1249.7	6.15	25.8	2.3	34.3	--	--	-19.7	
1262.4	14.1	25.9	2.3	42.3	--	--	-11.7	
1328.9	4.5	26.2	2.4	33.1	--	--	-20.9	

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW1 Test Site
3 Meter Antenna Distance
Equipment Under Test:
HP-Cut Throat II
Internal CD-RW Drive,Rev. L1
Notes: S/N 000001

Report B8296 Run 3
Date 07/06/98 Page 2
Engineer
Tech: TMK
Requester

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height	Delta FCC B	Delta
1343.4	1.95	26.3	2.4	30.6	--	--	-23.4	
1356.7	1.7	26.3	2.4	30.4	--	--	-23.6	
1358.5	.65	26.3	2.4	29.4	--	--	-24.6	
1362.1	4.75	26.4	2.4	33.5	--	--	-20.5	
1375.3	1.9	26.4	2.4	30.7	--	--	-23.3	
1383.4	.7	26.5	2.4	29.6	--	--	-24.4	
1391.3	.5	26.5	2.4	29.4	--	--	-24.6	
1395.3	15.9	26.5	2.4	44.8	--	--	-9.2	
1400.4	2.4	26.5	2.4	31.4	--	--	-22.6	
1461.8	2.75	26.8	2.5	32	--	--	-22	
1495.0	3.15	27	2.5	32.6	--	--	-21.4	
1528.2	8.3	27.1	2.5	37.9	--	--	-16.1	
1594.7	1.4	27.4	2.6	31.4	--	--	-22.6	
1661.0	3.4	27.6	2.7	33.7	--	--	-20.3	
1666.1	11.45	27.7	2.7	41.8	--	--	-12.2	
1952.2	4	28.8	3	35.8	--	--	-18.2	
1952.8	3.25	28.8	3	35	--	--	-19	
1957.0	2.9	28.8	3	34.7	--	--	-19.3	
1958.4	1.45	28.8	3	33.2	--	--	-20.8	
1960.3	5.7	28.8	3	37.5	--	--	-16.5	
1960.8	3.15	28.8	3	35	--	--	-19	
1961.6	3.25	28.8	3	35.1	--	--	-18.9	
90 degrees azimuth								
1176.0	8.7	25.5	2.2	36.5	--	--	-17.5	
1181.0	6	25.5	2.2	33.8	--	--	-20.2	
1328.9	6.15	26.2	2.4	34.7	--	--	-19.3	
1528.2	12.25	27.1	2.5	41.9	--	--	-12.1	
1594.7	1.7	27.4	2.6	31.7	--	--	-22.3	
1954.6	1.7	28.8	3	33.5	--	--	-20.5	
1957.0	2.1	28.8	3	33.9	--	--	-20.1	
1957.2	3.5	28.8	3	35.3	--	--	-18.7	
1960.8	5.45	28.8	3	37.3	--	--	-16.7	
180 degrees azimuth								
1026.9	2.75	24.8	2.1	29.7	--	--	-24.3	
1196.0	5.85	25.6	2.3	33.7	--	--	-20.3	
1328.9	7.2	26.2	2.4	35.8	--	--	-18.2	

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW1 Test Site
3 Meter Antenna Distance
Equipment Under Test:
HP-Cut Throat II
Internal CD-RW Drive,Rev. L1
Notes: S/N 000001

Report B8296 Run 3
Date 07/06/98 Page 3
Engineer FJC JRC
Tech: TMK
Requester

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height	Delta FCC B	Delta
270 degrees azimuth								
1063.1	17.65	25	2.2	44.8	--	--	-9.2	
1129.5	16.4	25.3	2.2	43.9	--	--	-10.1	
1661.1	4.3	27.6	2.7	34.6	--	--	-19.4	
1954.5	2.2	28.8	3	34	--	--	-20	
1958.2	3.55	28.8	3	35.3	--	--	-18.7	
1959.2	3.25	28.8	3	35	--	--	-19	
1960.3	6.4	28.8	3	38.2	--	--	-15.8	
1993.3	5	29	3	37	--	--	-17	
1395.3	18.75	26.5	2.4	47.7	--	--	-6.3	
above frequency was maximized at 346 degrees azimuth,1 meter elevation.								
1063.1	17.7	25	2.2	44.8	--	--	-9.2	
above frequency was maximized at 272 degrees azimuth,1 meter elevation.								
horn antenna,horizontal polarization,initial height 2.5 meters.								
0 degrees azimuth								
1162.8	3.25	25.4	2.2	30.9	--	--	-23.1	
1196.0	8.7	25.6	2.3	36.6	--	--	-17.4	
1594.6	2.85	27.4	2.6	32.8	--	--	-21.2	
90 degrees azimuth								
no higher emissions								
180 degrees azimuth								
no higher emissions								
270 degrees azimuth								
1428.5	2.7	26.7	2.4	31.8	--	--	-22.2	
1495.0	5.15	27	2.5	34.6	--	--	-19.4	

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW1 Test Site
3 Meter Antenna Distance
Equipment Under Test:
HP-Cut Throat II
Internal CD-RW Drive,Rev. L1
Notes: S/N 000001

Report B8296 Run 3
Date 07/06/98 Page 4
Engineer
Tech: TMK
Requester

Frequency MHz	Level dBuV	Factor dB	Cable dB	Final dBuV/m	Az deg	Polar\ Height	Delta FCC B	Delta
1967.4	1.35	28.9	3	33.2	--	--	-20.8	
1196.0	10.5	25.6	2.3	38.4	--	--	-15.6	

above frequency was maximized at 62 degrees azimuth,2.6 meters elevation.

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW1 Test Site
3 Meter Antenna Distance
Equipment Under Test:
HP-Cut Throat II
Internal CD-RW Drive,Rev. L1
Notes: S/N 000001

Figure____

Report B8296 Run 3
Date 07/06/98 Page 5
Engineer
Tech: TMK
Requester

Measurement Summary

Frequency MHz	Final dBuV/m	Final uV/m	Azimuth deg	Polar\ Height	Delta FCC B	Delta
1002.4	33.8	48.977	--	--	-20.2	
1002.6	31.6	38.018	--	--	-22.4	
1007.5	34	50.118	--	--	-20	
1011.0	32.8	43.651	--	--	-21.2	
1015.5	31.2	36.307	--	--	-22.8	
1019.8	32.9	44.157	--	--	-21.1	
1023.5	33.4	46.773	--	--	-20.6	
1026.9	29.7	30.549	--	--	-24.3	
1028.3	32.5	42.169	--	--	-21.5	
1031.5	32.3	41.209	--	--	-21.7	
1037.1	28.8	27.542	--	--	-25.2	
1039.5	31	35.481	--	--	-23	
1045.6	32.9	44.157	--	--	-21.1	
1047.5	33.3	46.238	--	--	-20.7	
1049.8	28.1	25.409	--	--	-25.9	
1055.5	31.8	38.904	--	--	-22.2	
1059.7	31.9	39.355	--	--	-22.1	
1063.1	44.8	173.78	--	--	-9.2	
1071.5	32.1	40.271	--	--	-21.9	
1079.5	30.4	33.113	--	--	-23.6	
1087.5	29.8	30.902	--	--	-24.2	
1088.3	31.5	37.583	--	--	-22.5	
1096.3	35	56.234	--	--	-19	
1103.5	30.1	31.988	--	--	-23.9	
1114.7	30.4	33.113	--	--	-23.6	
1117.0	29.6	30.199	--	--	-24.4	
1129.5	43.9	156.67	--	--	-10.1	
1151.4	29.9	31.260	--	--	-24.1	
1162.8	30.9	35.075	--	--	-23.1	
1166.6	29.9	31.260	--	--	-24.1	
1176.0	36.5	66.834	--	--	-17.5	
1181.0	33.8	48.977	--	--	-20.2	
1183.9	29	28.183	--	--	-25	
1196.0	38.4	83.176	--	--	-15.6	
1229.2	29.9	31.260	--	--	-24.1	
1249.7	34.3	51.88	--	--	-19.7	
1262.4	42.3	130.31	--	--	-11.7	
1328.9	35.8	61.659	--	--	-18.2	

T U V P R O D U C T S E R V I C E

RADIATED EMISSIONS

PW1 Test Site
3 Meter Antenna Distance
Equipment Under Test:
HP-Cut Throat II
Internal CD-RW Drive,Rev. L1
Notes: S/N 000001

Figure____

Report B8296 Run 3
Date 07/06/98 Page 6
Engineer Eric Ye
Tech: TMK Todd Kinselow
Requester

Measurement Summary (Cont'd)

Frequency MHz	Final dBuV/m	Final uV/m	Azimuth deg	Polar\ Height	Delta FCC B	Delta
1343.4	30.6	33.884	--	--	-23.4	
1356.7	30.4	33.113	--	--	-23.6	
1358.5	29.4	29.512	--	--	-24.6	
1362.1	33.5	47.315	--	--	-20.5	
1375.3	30.7	34.276	--	--	-23.3	
1383.4	29.6	30.199	--	--	-24.4	
1391.3	29.4	29.512	--	--	-24.6	
1395.3	47.7	242.66	--	--	-6.3	
1400.4	31.4	37.153	--	--	-22.6	
1428.5	31.8	38.904	--	--	-22.2	
1461.8	32	39.810	--	--	-22	
1495.0	34.6	53.703	--	--	-19.4	
1528.2	41.9	124.45	--	--	-12.1	
1594.6	32.8	43.651	--	--	-21.2	
1661.1	34.6	53.703	--	--	-19.4	
1666.1	41.8	123.02	--	--	-12.2	
1952.2	35.8	61.659	--	--	-18.2	
1952.8	35	56.234	--	--	-19	
1954.5	34	50.118	--	--	-20	
1957.0	34.7	54.325	--	--	-19.3	
1957.2	35.3	58.210	--	--	-18.7	
1958.2	35.3	58.210	--	--	-18.7	
1958.4	33.2	45.708	--	--	-20.8	
1959.2	35	56.234	--	--	-19	
1960.3	38.2	81.283	--	--	-15.8	
1960.8	37.3	73.282	--	--	-16.7	
1961.6	35.1	56.885	--	--	-18.9	
1967.4	33.2	45.708	--	--	-20.8	
1993.3	37	70.794	--	--	-17	

Minimum Passing Margin for FCC B is 6.3 dB at 1395.3 MHz

File B8296 Run 3

Colorado Test Equipment

29-Jun-98

Report: B8296 Date: 6 JULY 98 Signature: Todd Kinseiman TODD KINSEIMAN

Temp: 20°C Rel. Humd.: 52% Atmo. Pressure: 810 kPa

Location	Tests	Manufacturer	Model Number	Serial Number	Description	Cal Date	Cal Due
PW	(R)	AH SYSTEMS	SAS 200/510	116	LOG ANTENNA		23-9-98
PW	R	AH Systems	SAS-200/512	104	Log Periodic Antenna (200-1500 MHz)	18-Jun-97	18-Jun-98
PW		AH Systems	SAS-200/542	256	Biconical Antenna	03-Feb-98	03-Feb-99
PW	R	AvAntek	AFT97-8434-10	1007	RF Pre-Amplifier (4-8 GHz)	18-Nov-97	18-Nov-98
PW	R	Avantek	AWT-18037	1002	RF Pre-Amplifier (8-18 GHz)	18-Nov-97	18-Nov-98
PW		bird	4022	1825	Sensor, 25 to 1000 MHz		
PW		bird	4024	1863	Sensor, 1.5 to 32 MHz		
PW		bird	4025	3702	Sensor, 100 to 2500kHz		
PW		Bird	4421-103	1254	Metering Unit		
PW	R C	California Instr.	850T-1	68458	Oscillator (45-5000 Hz)	08-Mar-98	08-Mar-99
PW	R C	California Instr.	9000TCA/3-1	50666+	Power Source 9KVA (45-5000 Hz, 0-280VAC)		
PW		Combinova	EFM 200	256	Electric Field Meter	04-Aug-97	04-Aug-98
PW		Combinova	MFG 250	179	Magnetic Field Generator	16-Jul-97	16-Jul-98
PW		Combinova	MFG1000	461	Magnetic Field Meter	03-Jul-97	03-Jul-98
PW		Combinova	MFM10	415	Magnetic Field Meter	03-Jul-97	03-Jul-98
PW	R C	Compaq	470A	23605277B504	Monitor - PW Testbed		
PW	R C	Compaq	DeskPro 575	g545HSY20483	Computer for PW Testbed		
PW	R	Compliance Desig	none	RD-1	Roberts Dipole Ant. Set (30-1000 MHz)	03-Mar-97	02-Mar-00
PW		EMC Test Systems	3109	3142	Biconical Antenna	27-Jan-98	27-Jan-99
PW		EMCO	1070-4	9206-1681	Antenna tower with manual polarization		
PW		EMCO	1080/1081	9206-1636	2 meter dia. wood turntable		
PW		EMCO	1090	1134	Multiple Device Controller		
PW		EMCO	3104C	3519	Biconical Antenna	18-Jun-97	18-Jun-98
PW	(R)	EMCO	3108	2149	Biconical Dipole Antenna (30-300 MHz)	06-Jun-97	06-Jun-98
PW	R	EMCO	3108	9203-2457	Biconical Dipole Antenna (30-300 MHz)	18-Jun-97	18-Jun-98
PW	(R)	EMCO	3115	3886	Dbl Ridged Horn Antenna (1-18 GHz)	20-Feb-98	20-Feb-99
PW	3, R	EMCO	3146	9203-3376	Log Periodic Antenna	18-Jun-98	18-Jun-99
PW	C	EMCO	3825/2	9202-1945	LISN	08-Jul-97	08-Jul-98
PW	C	EMCO	3825/2	9202-1946	LISN	08-Jul-97	08-Jul-98
PW	R	EMCO	4610	9205-1199	Royce field site source		
PW	C	EMCO	4620	9110-1015	Conducted noise source		
PW		EMCO	6502	2082	Magnetic Field Loop		
PW	R	EMCO	6502	9205-2738	Magnetic loop	30-Oct-97	29-Oct-00
PW		EMCO	7123	9205-1028	Field Strength Sensor		
PW		EMCO	7123	9205-1029	Field Strength Sensor	11-Dec-97	11-Dec-98
PW	R	EMCO	7405	9203-2175	Near field probe set		
PW	CISPR14	Fischer	F-201	141	Absorbing Clamp (30-300 MHz)	05-Mar-98	05-Mar-99
PW	C	Fischer	F-33-1	356	Current Probe (10 kHz - 250 MHz)	04-May-98	04-May-99
PW	3, C, R, 6	Fischer Custom Co	F-61	274	Current Probe	17-Jun-97	17-Jun-98
PW		Gishard	600-1040 mb	002	Altimeter		
PW	R	Hewlett Packard	11940A	2650A04527	Close field probe		
PW	R	Hewlett Packard	11940A	2650A04563	Close field probe		
PW	R	Hewlett Packard	11941A	2807A02957	Close field probe		
PW	C	Hewlett Packard	11947A	2820A00277	Transient Limiter	18-Nov-97	18-Nov-98
PW	C	Hewlett Packard	11947A	3107A01975	Transient Limiter	17-Jun-98	17-Jun-99
PW		Hewlett Packard	8444A	2325A07899	Tracking Generator (1-1200 MHz)	18-Nov-97	18-Nov-98
PW	R C	Hewlett Packard	8447D	2727A05399	Amplifier (30-1000 MHz)	18-Nov-97	18-Nov-98
PW	R, C	Hewlett Packard	8447F	3113A04923	Option H64 Dual Preamp	21-Nov-97	21-Nov-98
PW	R, C, RE101, CISP	Hewlett Packard	85650A	2043A00256	Quasi Peak Adapter (set 1)	17-Jun-98	17-Jun-99
PW	(R), C, RE101, CISP	Hewlett Packard	85650A	2811A01300	Quasi Peak Adapter	18-Nov-97	18-Nov-98
PW	R, C	Hewlett Packard	85662A	2112A02220	Display Section	11-Mar-98	11-Mar-99
PW	R, C, RE101, CISP	Hewlett Packard	85662A	2318A04983	Display Section (set 1)	17-Jun-98	17-Jun-99
PW	C, R	Hewlett Packard	85662A	2403A06707	Display Section (Loaner)	20-Nov-97	20-Nov-98

1

Location	Tests	Manufacturer	Model Number	Serial Number	Description	Cal Date	Cal Due
PW	R, C,	Hewlett Packard	85662A	2403A08749	Display Section	01-Apr-98	30-Sep-98
PW	R, C, RE101, CISP	Hewlett Packard-	8566B	2410A00154	Spectrum Analyzer (dc-22 GHz)	01-Apr-98	30-Sep-98
PW	R, C	Hewlett Packard	8566B	2410A00254	Spectrum Analyzer (Loaner)	20-Nov-97	20-Nov-98
PW	R, C, RE101, CISP	Hewlett Packard	8568B	2304A02508	Spectrum Analyzer (set 1) (dc-1.8 Ghz)	17-Jun-98	17-Jun-99
PW		Hewlett Packard	8590	2722A02036	Spectrum Analyzer		
PW	RE101, -8, -9, -11	Hewlett Packard	8594E	3223A00145	Spectrum Analyzer	21-Nov-97	21-Nov-98
PW	C	HP	11947A	3107A01984	Transient Limiter	09-Jun-97	09-Jun-98
PW		JFW	50FH-003-100N	9825	Attenuator	18-Jun-98	18-Jun-99
PW		JFW	50FHB-003-5	00363	Attenuator	18-Nov-97	18-Nov-98
PW	R	Mini-Circuits	ZHL-1042J	D020698-14	RF Pre-Amplifier (10-4200 MHZ)	13-Feb-98	13-Feb-99
PW	R	Mini-Circuits	ZHL-1042J	N032698	RF Pre-Amplifier (30-4000 MHz)	11-May-98	11-May-99
PW	C	Polarad Electronics	ESH3-Z2	357.881J.32	Transient Limiter		
PW		Radio Shack	63-867	005	Temperature / Humidity Indicator		
PW	C, R	Rhode & Schwartz	ESHS 30	842806/001	EMI Test Receiver	07-Oct-97	07-Oct-98
PW	C	Rhode & Schwarz	ESH2-Z5	830364/002	LISN 50 ohm/50uH 3 line (1kHz - 30 MHz)	23-Feb-98	23-Feb-99
PW	C	Rhode & Schwarz	ESH3	872318/036	Low Frequency Receiver (9 kHz - 30 MHz)	06-Aug-97	06-Aug-98
PW	R	Rhode & Schwarz	HFH2-Z2	880665/042	Loop Antenna (10 kHz - 30 MHz)	08-Feb-98	08-Feb-99
PW		Schwarzbeck	NNLK 8129	8129126	LISN	20-Oct-97	20-Oct-98
PW	C	Schwarzbeck	TK 9416	TUV-600	Conducted Line Probe (150 kHz - 30 MHz)	04-Apr-98	04-Apr-99
PW		Shaffner	NSG 431	1426	ESD Tester		
PW	C	Solar	8028-50-TS-24-	8305121	LISN	23-Feb-98	23-Feb-99
PW	C	Solar	8028-50-TS-24-	8305122	LISN (10 kHz - 30 MHz)	23-Feb-98	23-Feb-99
PW		Tensor	4105	2020	Ridged Guide Antenna	11-Jun-98	11-Jun-99
PW		Transjonic	T-100	147	Ion Meter		
PW		TUV PS	LPS-1	1	P/S for Loop Antenna		
PW		WaveTek	DM5XL	60206553	Hand Held Multimeter		
PW		Weinschel	2-3dB	BC5530	Attenuator	18-Nov-97	18-Nov-98
PW		Weinschel	2-3dB	BC5539	Attenuator	18-Nov-97	18-Nov-98
PW		Weinschel	2-6B	BC6492	Attenuator	18-Nov-97	18-Nov-98
PW		Weinschel	2-6dB	BC6487	Attenuator	18-Nov-97	18-Nov-98

Appendix B

Test Plan

and

Constructional Data Form

TÜV PRODUCT SERVICE INC 40 Meadow Road Pinewood Springs, Lyons, CO 80540 Tel: 303 786 7999 Fax: 303 449 3004 Rev.No 1.0

Test Plan
for Electromagnetic Compatibility Testing

TÜV PRODUCT SERVICE

General Information (if you need assistance completing this form contact your TÜV Product Service representative.)

Company:	Philips Industrial Activities NV Hasselt Belgium	Quote Number:	Not received
Contact:	Antoine Poelmans	Phone: (business hrs)	+32 11 305160
E-mail Address:	**Error! Bookmark not defined.**.nlzcl.umc.philips.nl	Phone: (after hrs)	+32 11 526411

Product Description

Description: Internal CD R/W Drive

Model Number: CDD3610/55 Serial Number: 000001

Test Objective

- X EMC Directive 89/336/EEC (EMC)
- ☐ Machinery Directive 89/392/EEC (EMC
- ☐ Medical Device Directive 93/42/EEC (EMC)
- X FCC B Part _____ (list)
- ☐ Vehicle Directive 72/245/EEC (EMC)
- ☐ FDA Reviewers Guidance for Premarket Notification Submissions (EMC)
- ☐ Other _____ (list)

Attendance

Test will be: X Attended by the customer ☐ Unattended by the customer

Failure

If a failure occurs, TUV Product Service should:

- X Call contact listed above, if not available then stop testing.
- ☐ Continue testing to complete test series.
- ☐ Continue testing to define corrective action.
- ☐ Stop testing.

Authorization

NOT AVAILABLE FOR SIGNATURE — 08 July 1998
Customer authorization to perform tests according to this test plan. — Date

Antoine Poelmans — 08 July 1998
Test Plan Prepared By (please print) — Date

J. C. — 08 July 1998
Reviewed by TÜV Product Service Associate — Date

Test Plan
for Electromagnetic Compatibility Testing

TÜV PRODUCT SERVICE

Equipment Under Test Transportation

X Transportation between sites by customer.
☐ Other (consult your TÜV Product Service representative)

Dimensions and Weight

Length 11 inches Width 7 inches

Height 2.5 inches Weight 2 lbs

Facilities

Power Requirements

X	230 VAC 50 Hz	Single Phase	2	Amps
☐	400 VAC 50 Hz	Three Phase		Amps per phase
X	120 VAC 60 Hz	Single Phase	5	Amps
☐	208 VAC 60 Hz	Three Phase		Amps per phase
☐		VDC		Amps
☐	Battery	VDC	Expected life	hours
☐	Other			

Regulations require testing to be performed at typical power ratings in the countries of intended use. (i.e., European power is typically 230 VAC 50 Hz or 400 VAC 50 Hz, single and three phase, respectively)

Other

☐ Air cfm psi ☐ Water gpm psi
☐ Other (describe)

Test Plan Attachments

Constructional *Data Form (CDF)*
☑ Applicable (attached) * The CDF is required for all test plans.

Immunity Test Plan Details
☐ Applicable (attached) ☐ N/A

Emissions Test Plan Details
☐ Applicable (attached) ☐ N/A

On Site Test Plan Details
☐ Applicable (attached) ☐ N/A

Constructional Data Form
for Electromagnetic Compatibility Testing

TÜV PRODUCT SERVICE

A completed form helps ensure that product testing will go smoothly. Add attachments as necessary for additional documentation. For additional help, please contact your TÜV Product Service Representative.

Applicant -- Enter company information pertaining to the location where the product is manufactured and for the manufacturer's contact soliciting the testing.

Company: Philips Industrial Activities NV

Address: Kempische Steenweg 293

3500 Hasselt, Belgium

Phone: +32 11 305224 Fax: +32 11 305928

Contact: Benny Poncelet Position: Safety & Approbation Officer

General Equipment Description -- Indicate which attachments you are providing with this document. It is recommended that you provide those listed.

Type of Equipment: CD RW Drive Model No.: CDD3610/55

Serial No.: 000001 FCC ID No.: N/A

General description: CD Rewritable Drive. Internal configuration.

Product Variant/Options:

Attachments: (only required for certification)

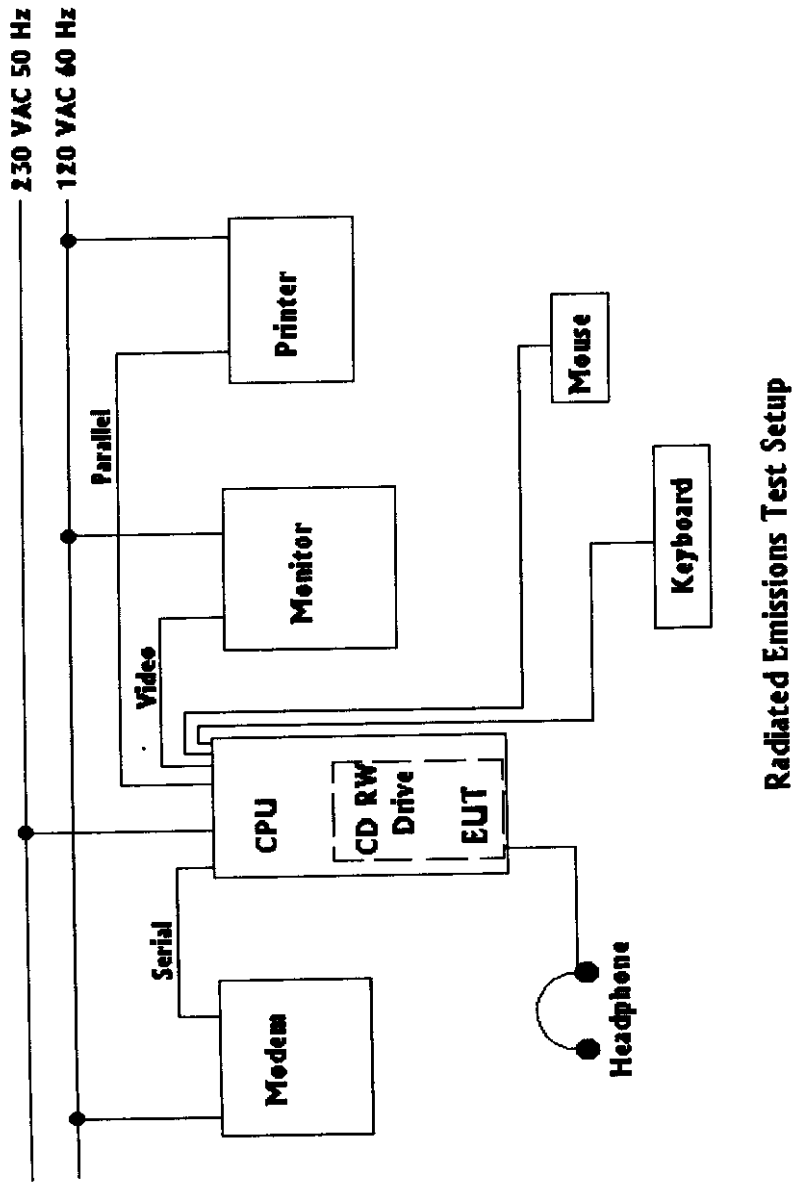
☐ External Photographs ☐ Product Literature ☐ High Level Bill of Materials

Date and sign each page of the CDF. Original signatures must be present on each page.

Date: 08 July 1998 **Signature of Applicant:**

Constructional Data Form
for Electromagnetic Compatibility Testing

System Configuration Block Diagram -- Provide a line drawing identifying the EUT, simulators, support equipment, I/O cables, power cables, and any other pertinent components to be used during testing. Use a dashed line to separate the equipment in the testing field versus equipment outside testing field.



Date and sign each page of the CDF. Original signatures must be present on each page.

Date: 08 July 1998 **Signature of Applicant:**

Constructional Data Form
for Electromagnetic Compatibility Testing

TÜV PRODUCT SERVICE

Installation and Environmental Conditions (describe) -- Describe the intended installation. Include details such as power connection and system grounding approaches. Describe the intended operating environment, include details such as humidity, cooling, heating and hazardous environments. Attaching a copy of an Installation manual is recommended for proper documentation of your system. Please indicate.

Headphone plugged into connector at front of drive.
Drive is intended for operation in a home or office environment.

☐ Installation manual/instructions (attached, only required for certification)

Power Requirements -- Indicate your system power requirements for the equipment to be tested.

Rated Voltage _____ Rated Input Power _____

Protection Class -- Indicate your product's protection class. Contact your TÜV Product Service representative and is only required for certification.

Type: _____ Class: _____

Date and sign each page of the CDF. Original signatures must be present on each page.

Date: **08 July 1998** **Signature of Applicant:**

Constructional Data Form
for Electromagnetic Compatibility Testing

TÜV PRODUCT SERVICE

I/O Ports and Cables

Indicate all interface cables which can be attached to the equipment even if they are not sold as part of your system. Describe the port (e.g., Parallel, Serial, SCSI), list its type (e.g., AC, DC, Signal, Control) and number of ports/cables of type. Indicate if the I/O port is to be exercised during testing. List the type of transmission and if the cable is an EUT assembly-to-assembly interconnection cable (PC to printer, to modem). Indicate whether the cable is shielded or not, type of shield (e.g. Braid, Foil) and how terminated (e.g. 360 degree to conductive shell, pigtail) at both ends of the cable. If a cable can have a typical length of ≥ 3.0 meters, then it is required to test with a cable of at least 3.0 meters.

I/O Ports and Cables

Description: Headphone

Type of Port: Audio # of ports/cables of type 1

Exercised during testing?	X Yes	☐ No
Assembly ↔ Assembly Interconnect	☐ Yes	X No
Cable shielded:	☐ Yes	X No
Shield Type (describe)		
Termination: (describe)		
Transmission Type:	X Analog	☐ Digital
Length of cable: 1 M Maximum:	Tested: 1 M	

I/O Ports and Cables

Description: IDE/ATAPI

Type of Port: Data # of ports/cables of type 1

Exercised during testing?	X Yes	☐ No
Assembly ↔ Assembly Interconnect	X Yes	☐ No
Cable shielded:	☐ Yes	X No
Shield Type (describe)	None	
Termination: (describe)	Motherboard to Drive- supplied by host PC	
Transmission Type:	☐ Analog	X Digital
Length of cable: Maximum:	Tested:	

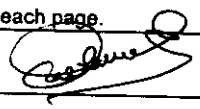
I/O Ports and Cables

Description: DC Power- Supplied by host

Type of Port: Power # of ports/cables of type 1

Exercised during testing?	X Yes	☐ No
Assembly ↔ Assembly Interconnect	☐ Yes	X No
Cable shielded:	☐ Yes	X No
Shield Type (describe)	None	
Termination: (describe)		
Transmission Type:	X Analog	☐ Digital
Length of cable: Maximum:	Tested:	

Date and sign each page of the CDF. Original signatures must be present on each page.

Date: 08 July 1998 **Signature of Applicant:** 

Constructional Data Form
for Electromagnetic Compatibility Testing

TÜV PRODUCT SERVICE

EUT configurations – Provide a technical description of all possible EUT configurations. Specify if more than one configuration is to be tested.

Internal configuration only.
With/without headphone.
Maximum configuration tested.

EUT Software and Operation Modes to be Tested – list the operating modes to be used during test. It is recommended the equipment be tested while operating in a typical operation mode. Consult with your TÜV Product Service Representative when typical operating modes are not practical. FCC testing of personal computers and/or peripherals requires that a simple program generate a complete line of upper case H's. This pattern must be sent to the parallel port device, serial port device, and must be write/read/verified to each storage device. Monitors must display the H pattern, typically in white letters on a black background. Provide a general description of all software, firmware, and PLD algorithms used in the equipment. List all code modules as described above, with the revision level used during testing.

General Description: (describe)	IBM Aptiva System running Direct CD under WIN95.
Software Revision Level: (list and describe)	Direct CD 2.0a under WIN95
Operating modes to be tested: (list and describe)	From a DOS window under WIN95 a file is copied (written), compared (read), and deleted (erased). H's are sent to the monitor, printer and modem.

☐ Operation manual/instructions (attached)

Date and sign each page of the CDF. Original signatures must be present on each page.

Date: 08 July 1998 **Signature of Applicant:**

Constructional Data Form
for Electromagnetic Compatibility Testing

TÜV PRODUCT SERVICE

System, Subsystem, Major Subassemblies or Internal Peripherals -- List and describe all system, subsystem, major subassemblies and all internal peripherals. This should include such things as an external monitor, parallel interface peripheral, serial interface peripheral, internal disk drives or internal circuit boards. It is recommended that circuit diagrams, assembly and subassembly drawings be attached. Please indicate.

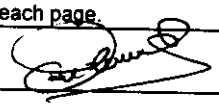
Description	*Model #*	*Serial #*	*FCC ID #*
CD RW Drive	**CDD3610/55**	**000001**	**N/A**

☐ **Technical Drawings attached**

Interfacing Equipment and/or Simulators (which are not part of the EUT) -- List and Describe all equipment or peripherals that will be connected to the EUT. For FCC testing a minimum configuration is required. If you have questions about this minimum configuration contact your TÜV Product Service representative.

Description	*Model #*	*Serial #*	*FCC ID #*
IBM Aptiva PC	C65(SL-A)	23DB682	ANO2176G
IBM Monitor	8503001	72-0216768	BJM9UBMM1232
Mouse	M-S34	23-013184	DZL210472
Keyboard	KB-8923	0107594	E8HKB-5923
Laserjet 5L Printer	C3941A	JPBJ029550	B94C3941A
Hayes Modem	231AA	A22231084095	BFJ9D9-19686-MD-E
Headphone	None listed on device	None listed on device	None

Date and sign each page of the CDF. Original signatures must be present on each page.

Date: **08 July 1998** **Signature of Applicant:** 

Constructional Data Form
for Electromagnetic Compatibility Testing

TÜV PRODUCT SERVICE

EMC System Details -- List all frequencies and sub-harmonics which are 10kHz or above for such things as oscillators, horizontal line rate of monitors, and clock rates of incorporated OEM assemblies. List all power supplies. Indicate switching frequencies. List power line filters and indicate the manufacturer, model and location on EUT. Indicate all components used for high frequency noise reduction. (e.g., ceramic capacitor, 0.01µF, 1 ea. at C12 - C20).

Oscillator Frequencies

Frequency	*Sub-harmonics*	*EUT Location*	*Description of Use*
16 MHz		On Main Drive Board	Servo Clock
16.9344 MHz		On Main Drive Board	Clock Generator
24 MHz		On Main Drive Board	Data Path Micro
32 MHz		On Main Drive Board	Motor Controller
33.8688 MHz		On Main Drive Board	EFM Controller
48 MHz		On Main Drive Board	OTI 975
400-450 MHz		OPU Board	Laser Modulating

Power Supply

Frequency	*Manufacturer*	*Model #*	*Serial #*	*Type (list frequency)*

Power Line Filters

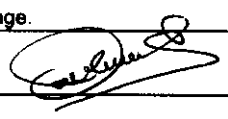
Manufacturer	*Model #*	*Qty*	*Location on EUT*

Critical EMI Components (Capacitors, ferrites, etc.)

Description	*Manufacturer*	*Part # or Value*	*Qty*	*Location on EUT*
Bypass caps	Multiple	Multiple	mult.	By IC power pins

Date and sign each page of the CDF. Original signatures must be present on each page.

Date: 08 July 1998 **Signature of Applicant:**



Constructional Data Form
for Electromagnetic Compatibility Testing

TÜV PRODUCT SERVICE

Other EMI Critical Construction Detail -- Indicate any other measures taken to reduce high frequency noise, (e.g., grounding the circuit board on the right rear corner with 0.25" braid, 3 inches long to the chassis).

Metal shield around drive.
Solid ground connection at headphone jack's ground pin.
Good board layout.

Description of Enclosure -- Describe the principle materials of the enclosure (e.g., plastic, plastic with shielding material, metal, metal with specific shielding contact points, metal with paint on all surfaces).

Metal case with plastic Bezel.

Date and sign each page of the CDF. Original signatures must be present on each page.

Date: 08 July 1998 **Signature of Applicant:**