

EMI TEST REPORT

Test report No. : EMC- FCC- 0076

Type of equipment : Net Disk

Model No. : NDU10-160

FCC ID. : Q7UNDU10160

Applicant : XIMETA TECHNOLOGY INC.

Test standards : FCC part 15 subpart B, Class B

Test Procedure and Items :

- AC Power Line Conducted Emissions Measurement: ANSI C63.4-1992
- Radiated Emissions Measurement : ANSI C63.4-1992

Test result : **Complied**

The above equipment was tested by EMC compliance Testing Laboratory for compliance with the requirements of FCC Rules and Regulations.

The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Date of test: 2003. 6. 2~6. 3 Issued date: 2003 . 6. 5

Tested by :

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1. Client information

Applicant : XIMETA TECHNOLOGY INC.
Address : 301 MYUNGHWHA BLDG. 3-11 NONHYUN-DONG,
GANGNAM-GU, SEOUL, KOREA
Telephone number : 82-2-549-3128
Facsimile number : 82-2-3445-2812
Contact person : CHA UKIE

Applicant : XIMETA TECHNOLOGY INC.
Address : 301 MYUNGHWHA BLDG. 3-11 NONHYUN-DONG,
GANGNAM-GU, SEOUL, KOREA
Telephone number : 82-2-549-3128
Facsimile number : 82-2-3445-2812

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3. Test system configuration

3.1 Operation Environment

	Temperature	Humidity	Pressure
OATS :	27 °C	58 %	1010 hPa
Shielded room :	24 °C	59 %	1009 hPa

Test site

These testing were performed following locations;

Shielded room: Conducted emission,
OATS (10m) : Radiated emission

3.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMI. The factors contributing to uncertainties are test receiver, Cable Loss, antenna factor calibration, Antenna directivity, antenna factor Variation with height, antenna phase center variation, antenna Frequency interpolation, measurement distance variation, Site imperfection, mismatching, and system repeatability.

Based on NIS 80, 81, the measurement uncertainty level with a 95% confidence level was applied.

3.3 Sample calculation

Conducted emission

The field strength is calculated by adding the LISN factor, cable loss to the measured reading.

The sample calculation is as follows :

$$FS = MR + LF + CL$$

MR = Meter Reading
LF = LISN Factor
CL = Cable Loss

If MR is 30dB, LISN Factor 1dB, CL 1dB

The result (MR) is

$$30 + 1 + 1 = 32\text{dBuV}$$

Radiated emission

The field strength is calculated adding the antenna Factor, cable loss and, Antenna pad adding, subtracting the amplifier gain from the measured reading.

The sample calculation is as follows :

$$FS = MR + AF + CL + AT - AG$$

MR = Meter Reading
AF = Antenna Factor
CL = Cable Loss
AP = Antenna Pad
AG=Amplifier Gain

If MR is 30dB, AF 12dB, CL 5dB, AP 10dB, AG 35dB

The result (MR) is

$$30 + 12 + 5 + 10 - 35 = 22\text{dBuV/m}$$

4. Description of EUT

4.1 Product Description

Manufactured by:	XIMETA TECHNOLOGY INC.
Address:	301 MYUNGHWHA BLDG. 3-11 NONHYUN-DONG, GANGNAM-GU, SEOUL, KOREA
Type of equipment:	Net Disk
Model:	NDU10-160
Serial number:	N/A
Power system rating:	100-240Vac, 50-60Hz, 1.2A

4.2 Peripherals

Description	Model / Part #	Serial number	Manufacture
PC	EVO	6F28JYFZ7096	COMPAQ
Monitor	PN17LT	P225HVCT413264	SEC
Printer	EPSON STYLUS C60	DR5K014977	EPSON
Keyboard	KB-9963	B28AC0NGANB1A1	COMPAQ
Mouse 1	M-S69	F466B0MN3NG1CH0	COMPAQ
Mouse 2	OK-720	N/A	A4 Tech
MIC	N/A	N/A	N/A
Head Phone	N/A	N/A	JENSEN

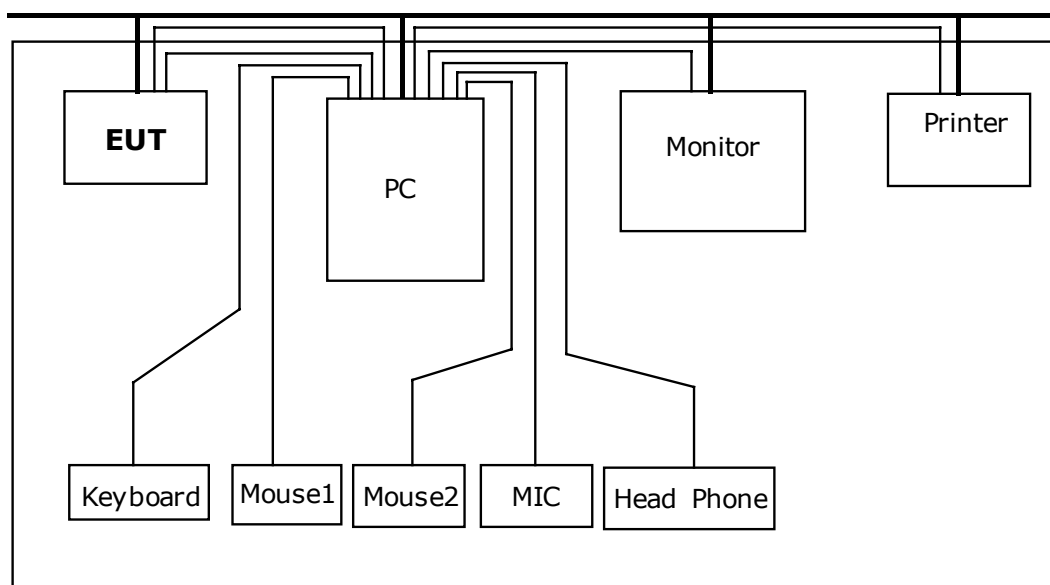
4.3 Used cables

EUT Port	Type	Shield (Y/N)	Length (m)	Connection Point 1	Connection Point 2
LAN	RJ-45	N	2.0	EUT	PC
USB	USB	Y	1.0		PC
VGA Out	D-sub	Y	1.8	PC	Monitor
Parallel	D-sub	Y	1.8		Printer
PS/2	PS/2	Y	1.5		Keyboard
PS/2	PS/2	Y	1.5		Mouse 1
Serial	D-sub	Y	1.5		Mouse 2
MIC	Jack	N	1.8		MIC
Speaker	Jack	N	1.9		Head Phone

4.4 Operating conditions

Operating : File upload / download mode.

4.5 EUT test configuration



5. Summary of test results

5.1 Modification to the E.U.T.

None

5.2 Standards & results

FCC Part 15 Subpart B (Class B)

ANSI C63.4 – 1992

Test items	Test methods	Result
Conducted emission	ANSI C63.4-1992	Pass
Radiated emission	ANSI C63.4-1992	Pass

6. Test results

6.1 Conducted emission

6.1.1 Measurement procedure

Mains

The measurements were performed in a shielded room.

EUT was placed on a non-metallic table height of 0.8m above the reference ground plane.

The rear of tabletop was located 0.4m to the vertical conducted plane. All other surfaces of tabletop were at least 0.8m away from any other grounded conducting surface.

Cables were folded back and forth forming a bundle 0.3m to 0.4m long and were hanged at a 0.4m height to the ground plane.

Each EUT power lead, except ground (safety) lead, was individually connected through a LISN to input power source.

Both lines of power cord, hot and neutral were measured.

6.1.2 Used equipments

Equipment	Model	Serial no.	Makers	Next Cal. date	Used
Test receiver	ESHS 10	843276/003	R&S	04.05.13	X
L.I.S.N.	L2-16A	0000J10705	PMM	04.04.03	X
	L3-32A	0120J20305	PMM	04.04.03	X
Test site	Shield room	-	-	-	X

6.1.3 Measurement uncertainty

Conducted emission measurement : ± 2.4 (K=2)

6.1.4 Test data

TEST MODE : USB

Frequency	Correction		Line	Quasi-peak			Average		
	Factor			Limit	Reading	Result	Limit	Reading	Result
	[MHz]	LISN		Cable	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]
0.174	1.5	0.2	N	64.77	46.80	48.50	54.77	40.18	41.88
0.279	1.1	0.1	N	60.85	43.24	44.44	50.85	41.14	42.34
0.312	1.1	0.1	N	59.92	42.77	43.97	49.92	40.55	41.75
0.348	1.1	0.1	N	59.01	42.23	43.43	49.01	40.19	41.39
0.765	0.5	0.2	N	56.00	39.06	39.76	46.00	35.69	36.39
0.975	0.1	0.3	N		39.44	39.84		37.13	37.53
1.428	0.1	0.3	N		39.46	39.86		34.43	34.83
4.940	0.2	0.5	N		38.59	39.29		33.14	33.84
8.950	0.2	0.5	N	60.00	35.69	36.39	50.00	30.78	31.48
9.070	0.2	0.5	H		32.58	33.28		28.05	28.75
20.000	0.3	0.4	H		36.45	37.15		34.66	35.36
21.100	0.3	0.5	H		35.70	36.50		33.34	34.14

• Note. QP = Quasi-Peak, AV= Average

• <5 : mean less than 5 dB

• Loss = LISN Loss + Cable Loss

• Measurement time : 1 s

6.1.5. Result

Complied

6.2 Radiated emission

6.2.1 Measurement procedure

A pretest was performed at 3m distance in a semi-anechoic chamber for searching correct frequency. The final test was done at a 10m open area test site with a quasi-peak detector.

EUT was placed on a non-metallic table height of 0.8m above the reference ground plane.

Cables were folded back and forth forming a bundle 0.3m to 0.4m long and were hanged at a 0.4m height to the ground plane.

Cables connected to EUT were fixed to cause maximum emission.

Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

6.2.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. date	Used
Test receiver	ESVS10	827864/006	R&S	04.05.13	X
Spectrum	SA-9270A	01080005	LG	03.07.30	X
TRILOG Broadband Ant.	VULB 9160	3138	SCHWARZBECK	04.03.26	X
Antenna Mast	A109	N/A	DEAIL	-	X
Turn Table	TS14	N/A	DEAIL	-	X
10m OATS	-	-	EMC Compliance	-	X

6.2.3 Measurement uncertainty

Radiated Emission measurement : (K=2)

30-300 MHz ; 3 m: ± 3.67 , 10 m: ± 4.4

300-1000 MHz ; 3 m: $+4.6/-2.92$, 10 m: $+2.94/-2.88$

6.2.4 Test data

TEST MODE : LAN

Frequency [MHz]	Reading [dBuV]	Pol.	Height [m]	angle	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
					Antenna	Cable			
46.26	8.2	H	3.2	119	11.65	1.70	30.0	21.55	8.45
86.03	15.3	H	1.8	219	7.74	2.10		25.14	4.86
105.36	15.1	V	2.1	201	9.60	2.30		27.00	3.01
374.16	8.1	H	3.6	18	14.84	4.60	37.0	27.54	9.46
401.26	8.7	H	3.0	332	15.53	4.80		29.03	7.97
476.31	5.4	V	2.4	146	17.17	5.50		28.07	8.93
499.30	7.8	V	1.0	46	17.45	5.60		30.85	6.15
625.03	5.3	V	3.1	337	19.81	6.40		31.51	5.49
750.04	3.6	V	2.9	328	22.06	7.30		32.96	4.04
850.04	3.2	H	2.7	199	22.85	7.70		33.75	3.25

TEST MODE : USB

Frequency [MHz]	Reading [dBuV]	Pol.	Height [m]	angle	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
					Antenna	Cable			
51.06	12.4	V	1.6	120	11.48	1.80	30.0	25.68	4.32
86.01	15.2	V	3.1	200	7.74	2.10		25.04	4.96
299.01	9.8	H	3.1	26	13.01	4.20	37.0	27.01	9.99
501.45	11.0	V	3.0	298	17.48	5.70		34.18	2.82
537.26	9.8	V	3.6	267	18.10	5.80		33.70	3.30
539.24	9.8	H	1.3	263	18.14	5.80		33.74	3.26
650.14	6.4	V	1.9	64	20.21	6.50		33.11	3.89

* Receiving Antenna Mode : Horizontal, Vertical

* 10 m OATS

* <5 : mean less than 5dB

* Note : Reading = Test Receiver meter,

* P= Polarization → POL H = Horizontal, POL V = Vertical

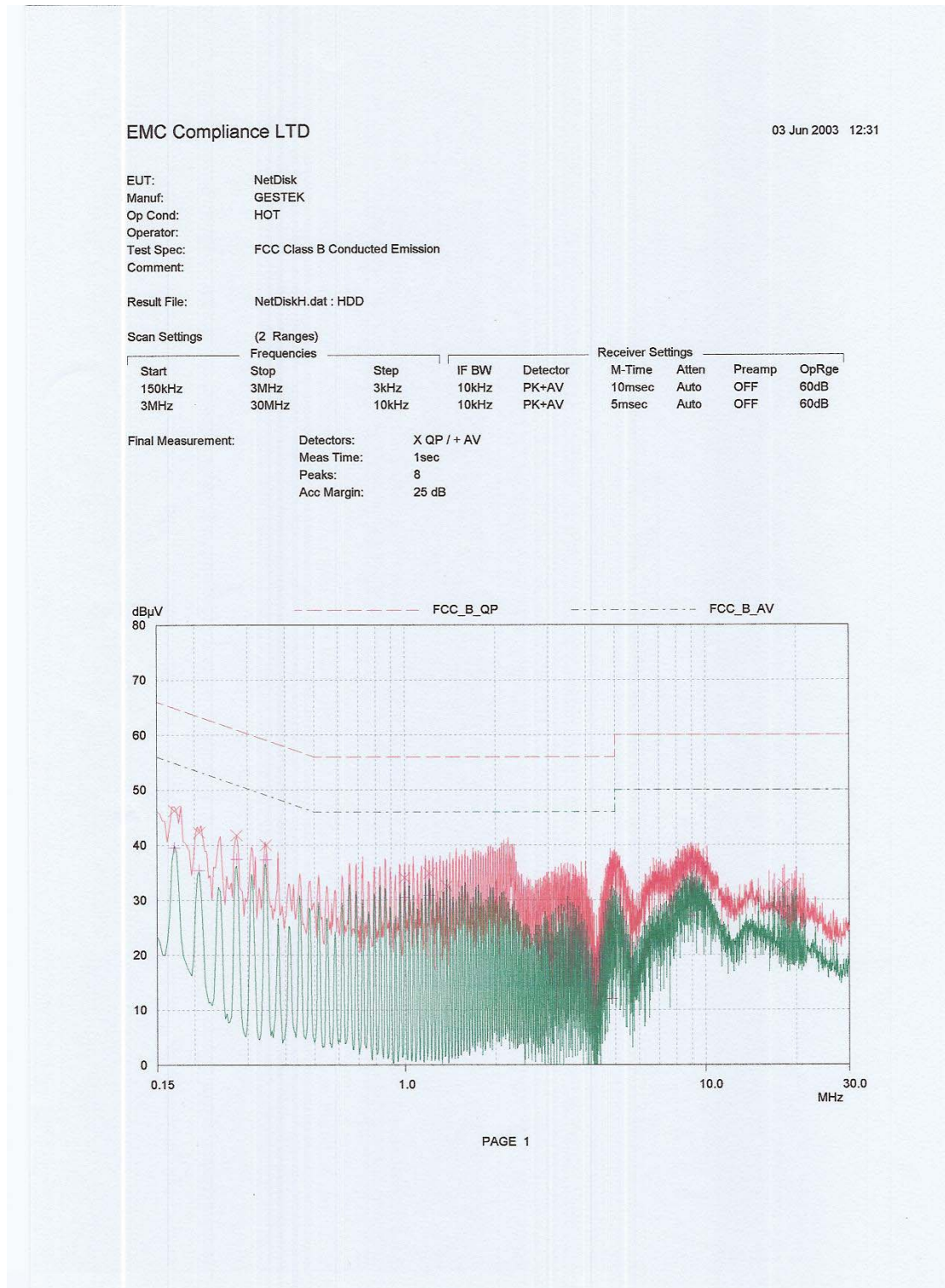
* Result = Field Strength (Antenna factor + Cable factor + Reading)

6.2.5. Result

Complied

7. Test Graph

Conducted Emission test graph



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03 Jun 2003 13:06

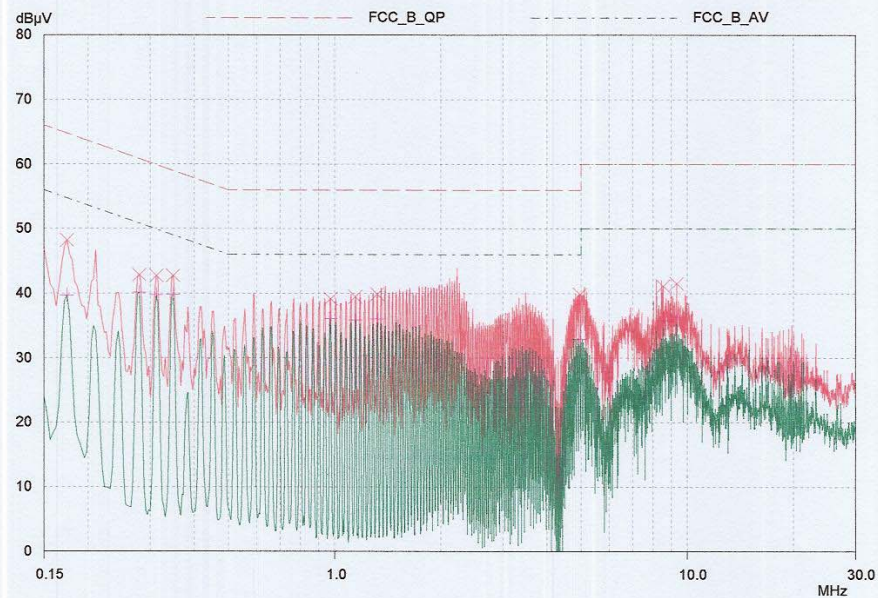
EUT: NetDisk
Manuf: DESTEK
Op Cond: NEUTRAL
Operator:
Test Spec: FCC Class B Conducted Emission
Comment:

Result File: NetDiskN.dat : NetDisk

Scan Settings (2 Ranges)

Frequencies						Receiver Settings			
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge	
150kHz	3MHz	3kHz	10kHz	PK+AV	10msec	Auto	OFF	60dB	
3MHz	30MHz	10kHz	10kHz	PK+AV	5msec	Auto	OFF	60dB	

Prescan Measurement: Detectors: X PK / + AV
Meas Time: see scan settings
Peaks: 8
Acc Margin: 25 dB



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