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<http://www.digitalemc.com>

CERTIFICATE OF COMPLIANCE
FCC Part 15B Certification

Dates of Tests: November 29~30, 2004
Test Report S/N:DR50110412Q
Test Site : DIGITAL EMC CO., LTD.

FCC ID.

P7KDDR5100

APPLICANT

Diasonic Technology Co., Ltd.

FCC Classification	: Part 15 Class B Computing Device Peripheral
Device name	: Digital Voice Recorder
Manufacturer	: Diasonic Technology Co., Ltd. #321-43, Suksu-dong, Manan-ku, Anyang-city, Kyungki-do, Korea
Model name(Brand Name)	: DDR-5100(Voice Bank)
Test Device Serial number	: Identical prototype
FCC Rule Part(s)	: FCC Part 15 Subpart B; ANSI C-63.4-2001
Data of issue	: December 27, 2004

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.



NVLAP LAB CODE 200559-0

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1. General information's

This report contains the result of tests performed by:

DIGITAL EMC CO., LTD.

Address : 683-3, Yubang-Dong, Yongin-Si, Kyunggi-Do, Korea. 449-080

<http://www.digitalemc.com> E-mail : demc@unitel.co.kr

Tel: +82-31-321-2664 Fax: +82-31-321-1664

Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the "General requirements for the competents of calibration and testing laboratory".

This laboratory is accredited by NVLAP for NVLAP Lab. Code : 200559-0.

Test operator: engineer

December 29, 2004

Seung-Bum, Cho



Data

Name

Signature

Report Reviewed By: manager

December 29, 2004

Sang-Uk, Han



Data

Name

Signature

Ordering party:

Company name : Diasonic Technology Co., Ltd.
 Address : #321-43, Suksu-dong, Manan-ku,
 City/town : Anyang-city, Kyungki-do
 Country : Korea.
 Zip code : 430-040
 Date of order : November 20, 2004
 Att. : Mr. Jin-Geun, Moon

2. Information's about test item

P7KDDR5100

2.1 Equipment information

Kind of Equipment	Digital Voice Recorder
Model Number(Brand Name)	DDR-5100(Voice Bank)
Serial No.	None
Memory Size	64MB/128MB/256MB/512MB/1GB
Type of Sample Tested	Pre-Production
Rating Power Supply	-Adaptor(KSAFB0300030W1KO) Manufacture : SEORIM ELECTRONICS CO.,LTD. Input : 100-240VAC, 50/60Hz 0.15A Output : 3V,0.3A - Battery : AAA 3V
High Frequency	32.768KHz
Tested Power Supply	1 Phase 120Vac, 60Hz

2.2 Ancillary Equipment

Equipment	Model No.	Serial No.	Manufacturer
PC	Y8Y	311KI19443	LG
Monitor	CT-150	R20110001B	COMTEC
Printer	2225C	3245S12493	H.P
Keyboard	SEM-DT35	2209CPXAA	SAMSUNG
Mouse	SMOP5000WX	0401059135	SAMSUNG
Joystick	J-ZA10	YED21700090	LOGITECH

2.3 EMI Suppression Device(s)/Modifications

None

3. Test Report

3.1 Summary of tests

FCC Part Section(s)	Parameter	Status (note 1)
Transmitter requirements		
15.109	Radiated Emission	C
15.107	Conducted Emissions	C
Note 1: C= Complies NC=Not Complies NT=Not Tested NA=Not Applicable		

The sample was tested according to the following specification:

FCC Parts 15B; ANSI C-63.4-2001

3.2 Transmitter requirements

3.2.1 Radiated Emission

Procedure:

The EUT was placed on a 0.8m high wooden table inside a shielded enclosure. An antenna was placed near the EUT and measurements of frequencies and amplitudes of field strengths were recorded for reference during final measurements. For final radiated testing, measurements were performed in a OATS. Measurements were performed with the EUT oriented in 3 orthogonal axis and rotated 360 degrees to determine worst-case orientation for maximum emissions.

The spectrum analyzer is set to:

Frequency Range = 27 MHz ~ 10th harmonic.

RBW = 120 kHz (30MHz ~ 1 GHz)

= 1 MHz (1 GHz ~ 10th harmonic)

Trace = max hold

Sweep = auto

VBW $\geq$ RBW

Detector function = peak / Quasi-peak / average

Measurement Result: **Complies**

- Refer to the Next page

Minimum Standard: FCC Part 15.109

Frequency (MHz)	Limit (uV/m) @ 3m
30 ~ 88	100 **
88 ~ 216	150 **
216 ~ 960	200 **
Above 960	500

TEST EQUIPMENT USED: 02, 22, 30, 31, 33, 34, 39, 40, 41, 47, 49

Radiated Emissions**Measurement Data:**

Remark: the other emission is less than 30dB.

Test mode : Play Mode

DIGITAL EMC Co., Ltd.
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 Kyunggi-Do, Korea. 463-080
 Tel: +82-31- 321 - 2664 Fax: +82-31- 321 - 1664
 demc@unitel.co.kr , www.digitalemcc.com

Tested by Mr. 

Data#: 1677 File#: C:\Program Files\3\DEMC-CSB.emi

Date: 11-30-2004 Time: 14:43:36

Site : DIGITAL EMC Co., Ltd.
 Condition : FCC CLASS-B 3m DEMC NEW 3(2003)
 EUT : DDR-5100
 POWER :
 Memo : PLAY MODE

	Freq	Remark	Read Level	Probe Factor	Cable Loss	Preamp Factor	Factor	Level	Limit Line	Over Limit
	MHz		dBuV	dB	dB	dB	dB	dBuV/m	dBuV/m	dB
1	32.490	V	43.00	17.59	1.28	28.31	-9.44	33.56	40.00	-6.44
2	124.690	H	50.00	12.90	2.00	28.24	-13.34	36.66	43.50	-6.84
3	208.430	H	43.00	16.46	2.22	27.90	-9.22	33.78	43.50	-9.72
4	261.910	H	45.00	17.92	2.95	27.90	-7.03	37.97	46.00	-8.03
5	372.930	V	47.00	15.27	3.33	28.35	-9.75	37.25	46.00	-8.75
6	493.180	V	47.00	17.66	3.50	28.97	-7.81	39.19	46.00	-6.81
7	620.490	V	49.00	18.88	3.01	29.30	-7.41	41.59	46.00	-4.41
8	620.490	H	50.00	18.88	3.01	29.30	-7.41	42.59	46.00	-3.41
9	748.380	H	45.00	20.00	4.29	29.20	-4.91	40.09	46.00	-5.91
10	748.380	V	43.00	20.00	4.29	29.20	-4.91	38.09	46.00	-7.91
11	997.410	V	45.00	22.85	4.94	28.69	-0.90	44.10	54.00	-9.90
12	997.410	H	43.00	22.85	4.94	28.69	-0.90	42.10	54.00	-11.90

Radiated Emissions**Measurement Data:**

Remark: the other emission is less than 30dB.

Test mode : Download Mode

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demc@unitel.co.kr ,www.digitalemc.com

Tested by Mr. 

Data#: 1878

File#: C:\Program Files\3\DEMC-CSB.emi

Date: 11-30-2004 Time: 13:22:45

Site : DIGITAL EMC Co., Ltd.
Condition : FCC CLASS-B 3m DEMC NEW 3(2003)
EUT : DDR-5100
POWER :
Memo : DOWN MODE

	Freq	Remark	Read Level	Probe Factor	Cable Loss	Preamp Factor	Factor	Level	Limit Line	Over Limit
	MHz		dBuV	dB	dB	dB	dB	dBuV/m	dBuV/m	dB
1	116.610	V	44.00	11.86	2.00	28.29	-14.43	29.57	43.50	-13.93
2	153.420	V	47.00	14.88	2.00	28.09	-11.21	35.79	43.50	-7.71
3	161.210	H	44.01	15.22	2.00	28.06	-10.84	33.17	43.50	-10.33
4	301.450	V	46.00	13.72	2.54	27.91	-11.65	34.35	46.00	-11.65
5	383.530	V	49.00	15.50	3.50	28.41	-9.41	39.59	46.00	-6.41
6	383.530	H	46.00	15.50	3.50	28.41	-9.41	36.59	46.00	-9.41
7	448.270	H	51.01	16.79	3.21	28.76	-8.76	42.25	46.00	-3.75
8	463.580	V	48.50	17.09	3.50	28.83	-8.24	40.26	46.00	-5.74
9	576.490	V	43.99	18.45	4.00	29.23	-6.78	37.21	46.00	-8.79
10	748.380	H	45.00	20.00	4.29	29.20	-4.91	40.09	46.00	-5.91
11	899.000	H	42.00	22.27	5.00	28.21	-0.94	41.06	46.00	-4.94
12	899.000	V	43.00	22.27	5.00	28.21	-0.94	42.06	46.00	-3.94

3.2.2 Conducted Emission.

Procedure:

The conducted emissions are measured in the shielded room with a spectrum analyzer in peak hold. While the measurement, EUT had its receiving function. Emissions closest to the limit are measured in the quasi-peak mode (QP) with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation and Exerciser operation. The highest emissions relative to the limit are listed.

Measurement Data: **Complies**

- This EUT was not applied because During the charging mode, The EUT can't do the transmission.

Minimum Standard: FCC Part 15.107/EN 55022

Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15 ~ 0.5	66 to 56 *	56 to 46 *
0.5 ~ 5	56	46
5 ~ 30	60	50

* Decreases with the logarithm of the frequency

Measurement Setup

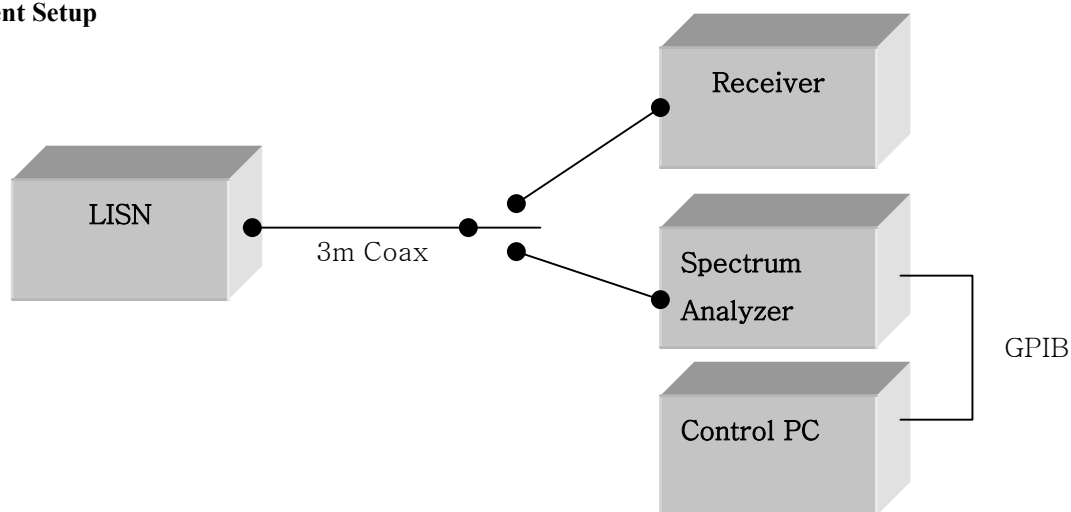
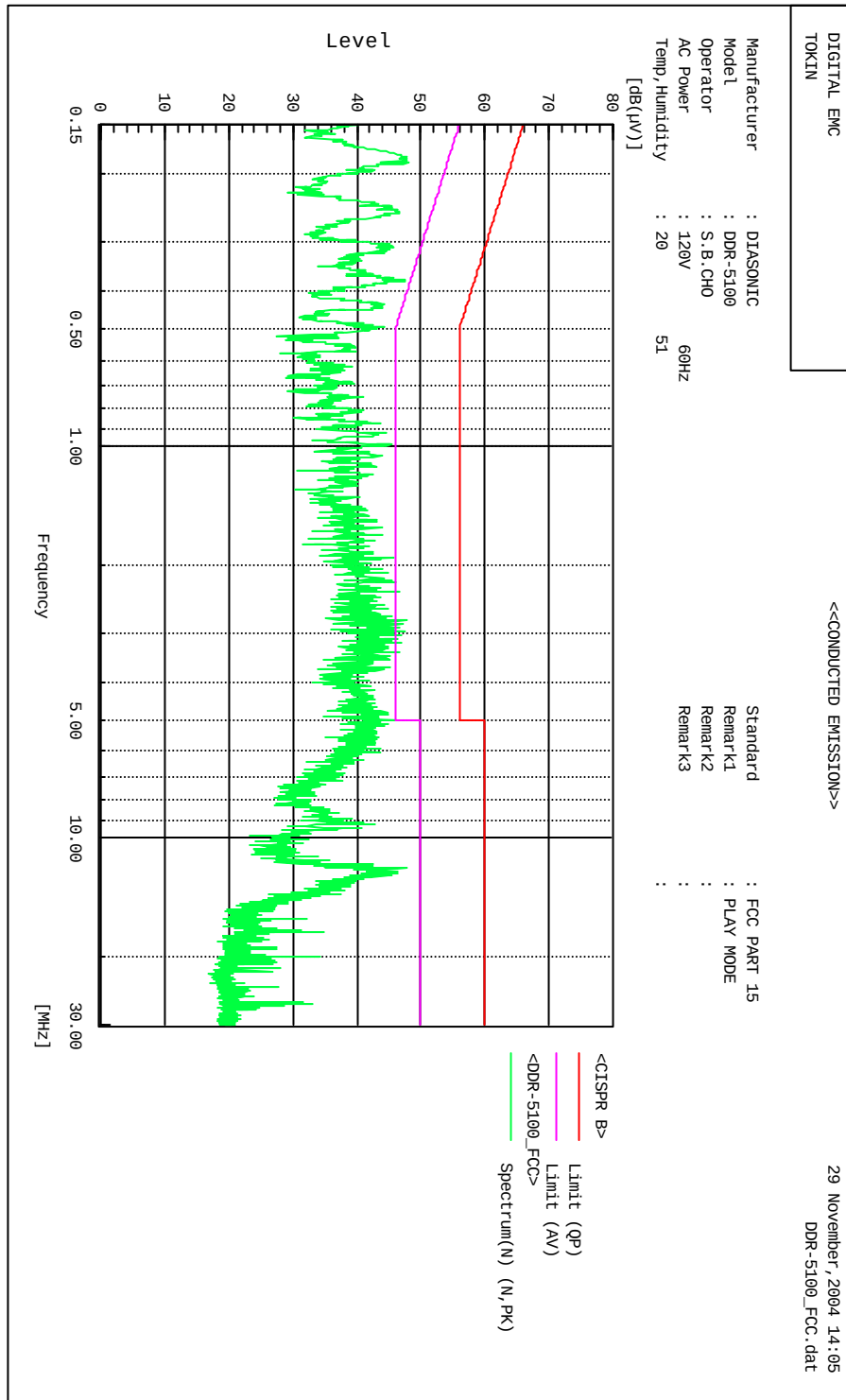


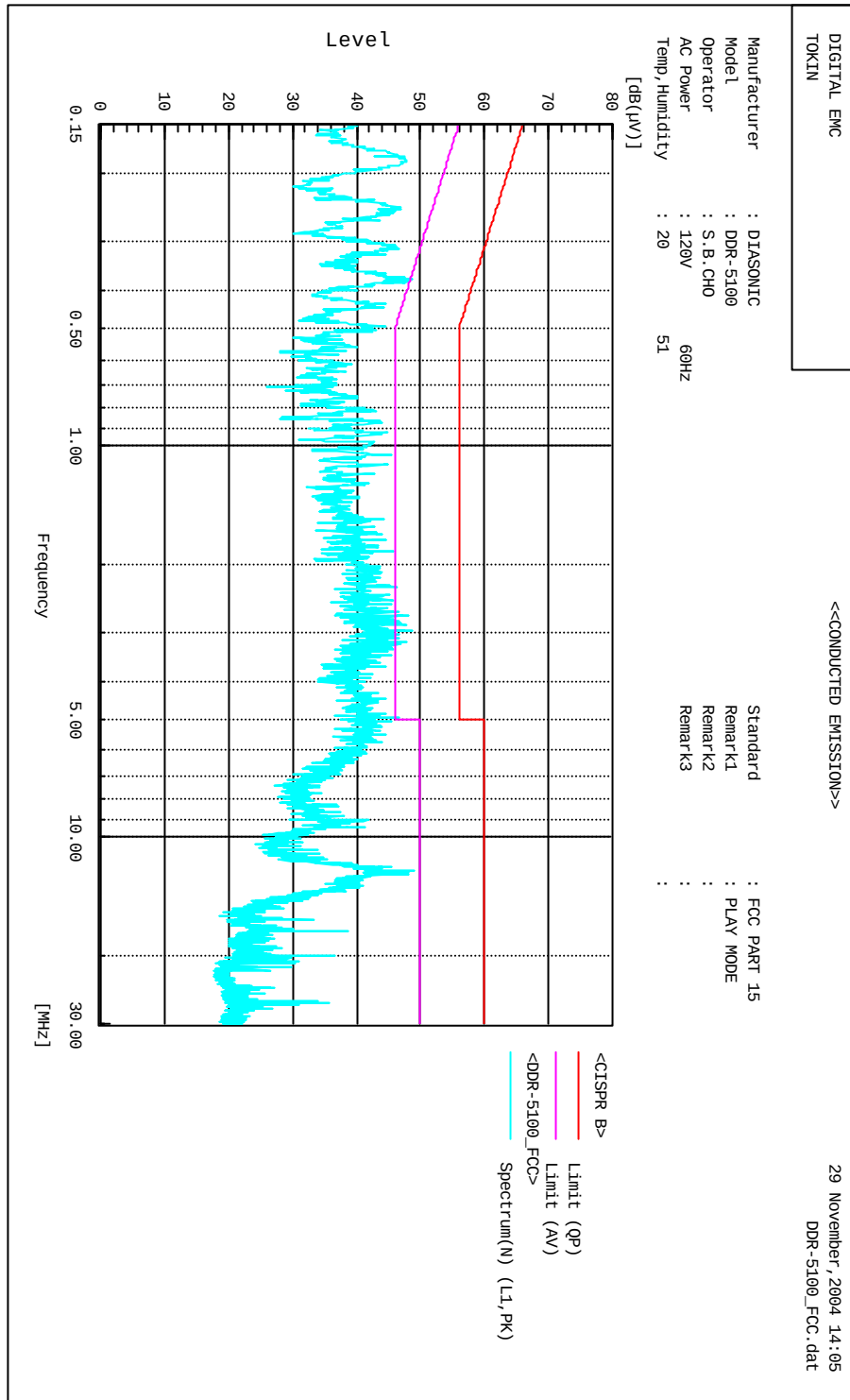
Figure 2: Measurement setup for AC Conducted Emission

TEST EQUIPMENT USED: 42, 43, 44, 45, 46, 48

Play Mode / Graph/ Neutral



Play Mode / Graph /Line



Play Mode/DATA

***** DIGITAL EMC *****
 <<CONDUCTED EMISSION>>

29 November, 2004 14:05
 DDR-5100_FCC.dat

Standard : FCC PART 15
 Manufacturer : DIASONIC
 Model : DDR-5100
 Operator : S.B.CHO
 AC Power : 120V 60Hz
 Temp, Humidity : 20 51
 Remark1 : PLAY MODE
 Remark2 :
 Remark3 :

Final Result

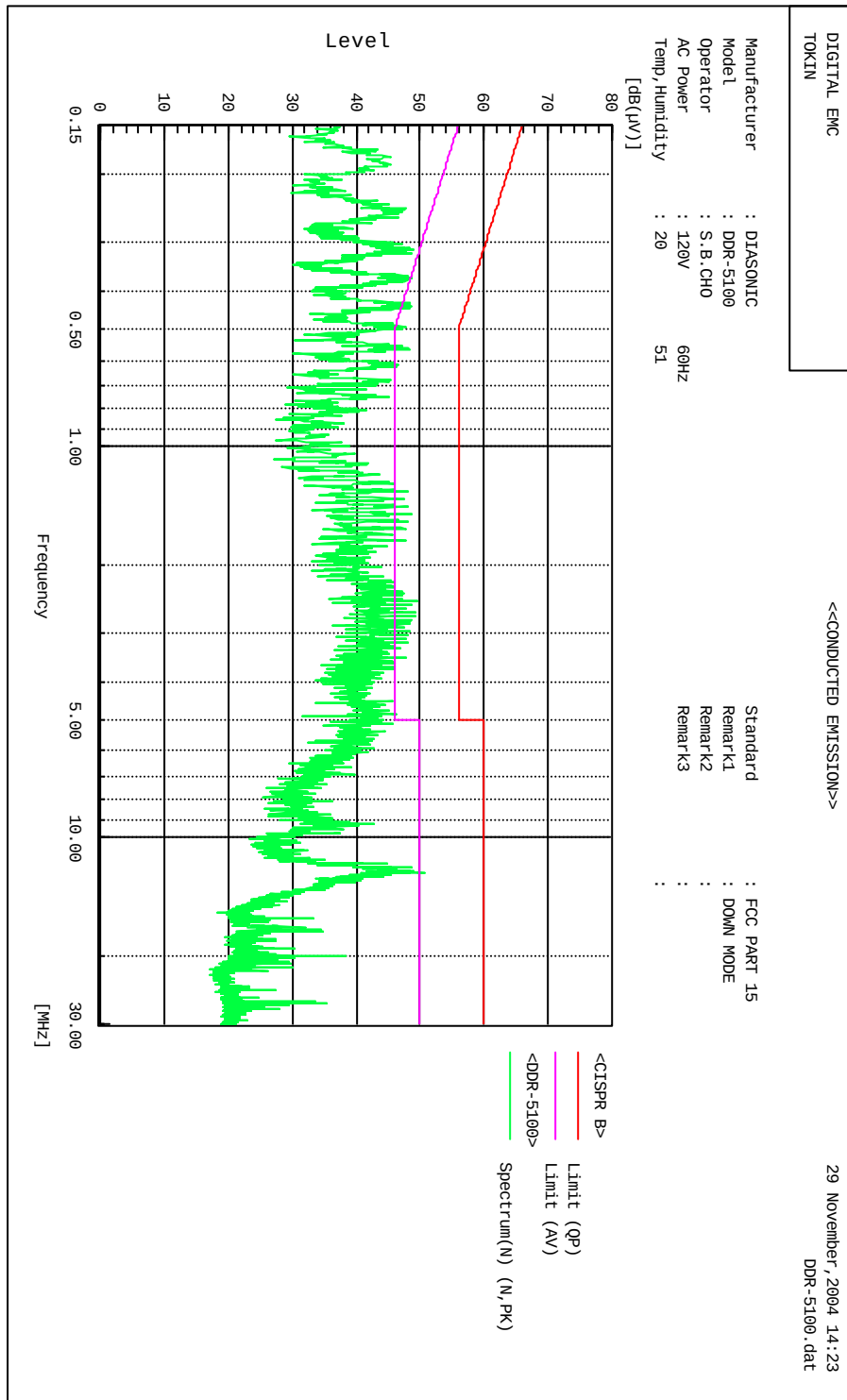
--- N Phase ---

No.	Frequency	Reading QP	Reading AV	c.f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV	Remark
		[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]	
1	0.374	40.2	31.4	0.4	40.6	31.8	58.4	48.4	17.8	16.6	
2	1.048	38.0	26.7	0.2	38.2	26.9	56.0	46.0	17.8	19.1	
3	2.283	36.5	21.4	0.3	36.8	21.7	56.0	46.0	19.2	24.3	
4	2.963	39.8	21.1	0.4	40.2	21.5	56.0	46.0	15.8	24.5	
5	4.923	35.7	17.4	0.5	36.2	17.9	56.0	46.0	19.8	28.1	
6	12.158	34.6	24.7	0.6	35.2	25.3	60.0	50.0	24.8	24.7	

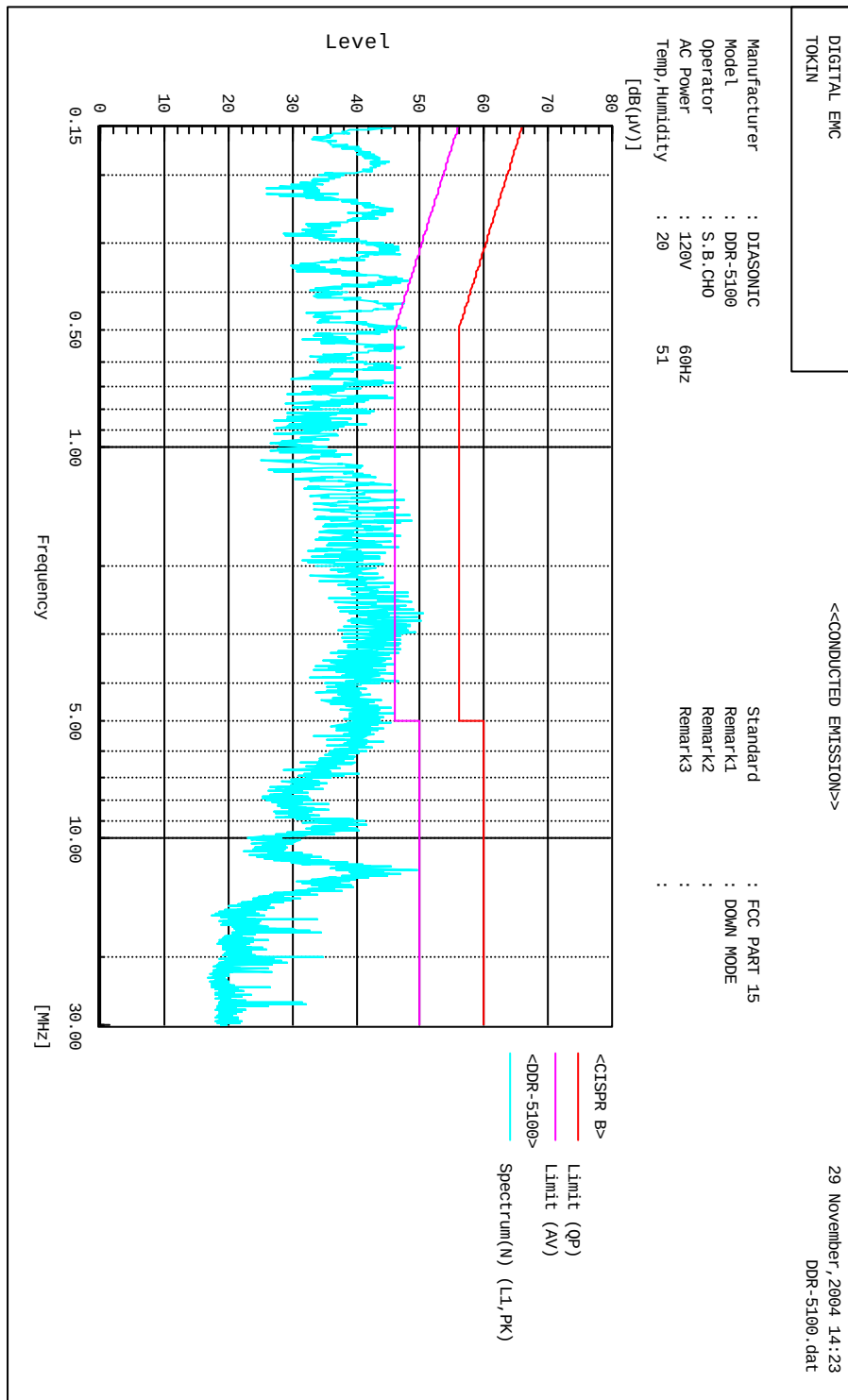
--- L1 Phase ---

No.	Frequency	Reading QP	Reading AV	c.f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV	Remark
		[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]	
1	2.963	39.0	20.2	0.5	39.5	20.7	56.0	46.0	16.5	25.3	
2	12.158	33.8	24.1	0.7	34.5	24.8	60.0	50.0	25.5	25.2	
3	4.923	36.2	17.8	0.5	36.7	18.3	56.0	46.0	19.3	27.7	
4	1.048	38.2	27.2	0.3	38.5	27.5	56.0	46.0	17.5	18.5	
5	0.374	41.1	32.8	0.6	41.7	33.4	58.4	48.4	16.7	15.0	
6	2.283	36.0	20.6	0.3	36.3	20.9	56.0	46.0	19.7	25.1	

Download Mode / Graph/ Neutral



Download Mode / Graph /Line



Download Mode/DATA

***** DIGITAL EMC *****
<<CONDUCTED EMISSION>>

29 November, 2004 14:23
DDR-5100.dat

Standard : FCC PART 15
Manufacturer : DIASONIC
Model : DDR-5100
Operator : S.B.CHO
AC Power : 120V 60Hz
Temp, Humidity : 20 51
Remark1 : DOWN MODE
Remark2 :
Remark3 :
:

Final Result

--- N Phase ---											
No.	Frequency	Reading QP	Reading AV	c.f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV	Remark
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]	
1	0.435	40.5	30.3	0.4	40.9	30.7	57.2	47.2	16.3	16.5	
2	0.493	39.5	14.6	0.3	39.8	14.9	56.1	46.1	16.3	31.2	
3	0.555	39.1	29.4	0.3	39.4	29.7	56.0	46.0	16.6	16.3	
4	0.620	39.0	29.1	0.3	39.3	29.4	56.0	46.0	16.7	16.6	
5	1.477	39.4	26.8	0.2	39.6	27.0	56.0	46.0	16.4	19.0	
6	2.650	38.6	16.2	0.3	38.9	16.5	56.0	46.0	17.1	29.5	
7	12.251	36.6	23.8	0.6	37.2	24.4	60.0	50.0	22.8	25.6	

--- L1 Phase ---											
No.	Frequency	Reading QP	Reading AV	c.f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV	Remark
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]	
1	0.494	39.6	18.7	0.3	39.9	19.0	56.1	46.1	16.2	27.1	
2	0.555	39.6	28.4	0.3	39.9	28.7	56.0	46.0	16.1	17.3	
3	0.615	39.6	30.2	0.3	39.9	30.5	56.0	46.0	16.1	15.5	
4	1.480	38.9	26.0	0.3	39.2	26.3	56.0	46.0	16.8	19.7	
5	2.461	40.2	24.3	0.3	40.5	24.6	56.0	46.0	15.5	21.4	
6	2.648	39.9	15.2	0.4	40.3	15.6	56.0	46.0	15.7	30.4	
7	11.974	37.4	20.5	0.7	38.1	21.2	60.0	50.0	21.9	28.8	

APPENDIX

TEST EQUIPMENT USED FOR TESTS

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment.

	Type	Manufacturer	Model	Cal.Due.Date (dd/mm/yy)	S/N
01	Spectrum Analyzer	Agilent	E4404B	22/11/05	US41061134
02	Spectrum Analyzer	H.P	8563E	25/09/05	3551A04634
03	Power Meter	H.P	EPM-442A	15/07/05	GB37170413
04	Power Sensor	H.P	8481A	15/07/05	3318A96332
05	Frequency Counter	H.P	5342A	26/09/05	2119A04450
06	Multifunction Synthesizer	H.P	8904A	15/10/05	3633A08404
07	Signal Generator	H.P	8673D	26/09/05	2844A00753
08	Signal Generator	H.P	E4421A	29/04/05	US37230529
09	Signal Generator	H.P	8657A	05/06/05	3430U02049
10	Audio Analyzer	H.P	8903B	18/04/05	3011A0944B
11	Modulation Analyzer	H.P	8901B	21/04/05	3028A03029
12	Sensor Module	H.P	11722A	21/04/05	3111A04665
13	Oscilloscope	LeCroy	9314A	27/08/05	93144390
14	CDMA Mobile Station Test Set	H.P	8924C	09/09/05	US35360688
15	Power Splitter	WEINSCHEL	1593	23/04/05	332
16	BAND Reject Filter	Microwave circuits INC.	NO308372	22/12/05	3125-01DC0312
17	BAND Reject Filter	Wainwright	WRCG1750	19/08/05	SN2
18	AC Power supply	DAEKWANG	5KVA	03/04/05	N/A
19	DC Power Supply	H.P	6622A	24/03/05	465487
20	Attenuator (30dB)	H.P	8498A	23/05/05	50101
21	Attenuator (10dB)	WEINSCHEL	23-10-34	15/10/05	BP4387
22	HORN ANT	EMCO	3115	04/04/05	6419
23	HORN ANT	EMCO	3115	10/01/05	21097
24	HORN ANT	A.H.Systems	SAS-574	27/11/05	154
25	HORN ANT	A.H.Systems	SAS-574	14/11/05	155
26	Dipole Antenna	Schwarzbeck	VHA9103	04/10/05	2116

	Type	Manufacturer	Model	Cal.Due.Date (dd/mm/yy)	S/N
27	Dipole Antenna	Schwarzbeck	VHA9103	04/10/05	2117
28	Dipole Antenna	Schwarzbeck	UHA9105	04/10/05	2261
29	Dipole Antenna	Schwarzbeck	UHA9105	04/10/05	2262
30	RFI/FIELD Intensity Meter	Kyorits	KNM-504D	07/07/05	SN-161-4
31	Frequency Converter	Kyorits	KCV-604C	07/07/05	4-230-3
32	TEMP & HUMIDITY Chamber	JISCO	J-RHC2	14/09/05	021031
33	Log Periodic Antenna	Schwarzbeck	UHALP9108A1	23/10/05	1098
34	Biconical Antenna	Schwarzbeck	VHA9103	23/10/05	VHA91031946
35	Digital Multimeter	H.P	34401A	07/04/05	3146A13475
36	Attenuator (10dB)	WEINSCHEL	23-10-34	15/10/05	BP4386
37	High-Pass Filter	ANRITSU	MP526	12/05/05	M27756
38	Attenuator (3dB)	Agilent	8491B	15/10/05	58177
39	Amplifier (25dB)	Agilent	8447D	21/06/05	2944A10144
40	Position Controller	TOKIN	5901T	N/A	14173
41	Driver	TOKIN	5902T2	N/A	14174
42	Spectrum Analyzer	H.P	8591E	23/05/05	3649A05889
43	RFI/FIELD Intensity Meter	Kyorits	KNW-2402	07/07/05	4N-170-3
44	LISN	Kyorits	KNW-407	29/08/05	8-317-8
45	LISN	Kyorits	KNW-242	22/08/05	8-654-15
46	CVCF	NF Electronic	4400	N/A	344536 4420064
47	Software	ToYo EMI	EP5/RE	N/A	Ver 2.0.800
48	Software	ToYo EMI	EP5/CE	N/A	Ver 2.0.801
49	Software	AUDIX	e3	N/A	Ver 3.0
50	Software	Agilent	Benchlink	N/A	A.01.09 021211