



PEP Testing Laboratory

RFI / EMI TEST REPORT

APPLICANT : LARGAN DIGITAL CO., LTD.
E. U. T. : DIGITAL CAMERA
TRADE NAME : N/A
FCC ID : N3DLARGAND601A
REGULATION : CFR 47 , Part 15 Subpart B , Class B
TEST SITE : PEP Testing Laboratory
TEST ENGINEER : *[Signature]*
TEST DATE : *8 / 18 / 1998*
ISSUED DATE : AUG. / 18 / 1998
REPORT No. : 980358



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VERIFICATION

WE HEREBY VERIFY THAT:

The E. U. T. listed below has completed RFI testing by PEP Testing Laboratory and the interference emissions can pass **FCC Class B** limitations.

The tested configurations and the facility complies with the radiated and AC line conducted test site criteria in ANSI C63.4 - 1992.

Any data in this RFI report is " **reference** " only.

APPLICANT : LARGAN DIGITAL CO., LTD.*

PRODUCT : DIGITAL CAMERA *

FCC ID : N3DLARGAND601A *

MODEL : F1 *

M. Y. TSUI

Manager

PEP Testing Laboratory

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1. GENERAL

1.1 GENERAL INFORMATION:

APPLICANT : LARGAN DIGITAL CO., LTD.

#123, 22F-2, TAICHUNG HARBOR ROAD,
SEC. 3, TAICHUNG, TAIWAN, R. O. C.

MANUFACTURER : LARGAN DIGITAL CO., LTD.

#88, ALLEY 3, TONG-YENG LANE, TAICHUNG
HARBOR ROAD, LONG-CHING, TAICHUNG
TAIWAN, R. O. C.

MEASUREMENT PROCEDURE : ANSI C63 , 4 - 1992

TESTED FOR COMPLIANCE WITH : Title 47 of CFR
Part 15 , Subpart B , Class B

1.2 PLACE OF MEASUREMENT PEP Testing Laboratory



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3.2 TEST PROCEDURES

Radiated emissions test was carried out by **PEP Testing Laboratory** at the open field test site authorized by FCC .

The EUT and supporting equipments were setup with the EMI diagnostic software .

- a. setting up the EUT under normally position , and scanning it from 30 MHz to 1000 MHz , then recording those narrow band noises which cannot be 6 dBuV below lower bound . Both horizontal and vertical antenna are measured from 1 meter height to 4.0 meter height , and turntable rotate 360 degrees .
- b. fixing the EUT rear face to antenna and antenna 1.0 meter height .
We adjusted I/O cables to find the highest coupling noise and moved the height of antenna from 1 to 4 meters , then rotated the turntable simultaneously .
- c. checking following step b. all points which were recorded in step a.
- d. changing the peripherals position , and routine steps a. b. c.

The highest emissions were recorded in the RFI test report .



4. DESCRIPTION FOR EUT TESTING CONFIGURATION

**** TEST PROCEDURE - - - -**

- (A) The EUT was digital camera , FCC ID: N3DLARGAND601A , which may be sold with AC adapter either model No. A40312 or model No. SA10-0312V in the market , for more detail information about the EUT , please refer user's manual .
- (B) Because the EUT might be controlled by RS232 port ,we connected the camera to COM.2 on the PC . The camera took shoot all the time during the test and the rest of peripheral devices were under idle condition . Both AC adapters were tested with the EUT and the testing datas were provided in the RFI report .
- (C) After the EUT was set up , we did the conducted emission test in the shielded room and the worst case placement finding as the ANSI C63.4 requirement ; similarly , the radiated emission test was done at the open field site .
- (D) If the peak value of the noise can't under Non-consumer equipment limit 3 dBuV more , we'll change Biconical antenna or Log-periodic antenna for Dipole antenna and record its Quasi-Peak value , making sure it can under 6 dBuV at least .
- (E) In the RFI test report , we provided the worst conducted emission testing data in page C-1.*
For the radiated emission test , the worst data recorded in the page R-1.*

**** I / O DATA CABLES INFORMATIONS - - -**

Please refer the page 9 .



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5. SUPPORTING DEVICES TO TEST

SUPPORT UNIT 1. ---- PERSONAL COMPUTER

Manufacturer : ACER Inc.
Model Number : P2L97
Power Supply Type : Switching
Power Cord : Shielded, Detachable, 1.2m
Data Cable : Shielded, Detachable, 1.2m
FCC ID : N/A

SUPPORT UNIT 2. ---- MONITOR

Manufacturer : Acer Peripherals Inc.
Model Number : 7134T
Power Supply Type : Switching
Power Cord : Shielded, Detachable, 1.2m
Data Cable : Shielded, Undetachable, 1m
FCC ID : JVP7134T

SUPPORT UNIT 3. ---- PRINTER

Manufacturer : Hewlett-Packard Singapore Pte Ltd.
Model Number : IIP 2225C
Power Supply Type : Linear
Power Cord : Non-Shielded, Detachable, 1.2m
Data Cable : Shielded, Detachable, 1m. 2464
FCC ID : DSI6XU2225



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SUPPORT UNIT 4. ---- MODEM

Manufacturer : ACEEX
Model Number : 1414
Power Supply Type : Linear
Power Cord : Non-Shielded, Detachable, 1.2m
Data Cable : Shielded, Detachable, 1m
FCC ID : IFAXDM1414

SUPPORT UNIT 5. ---- MOUSE

Manufacturer : ACER
Model Number : M-S34
Power Supply Type : N/A
Power Cord : N/A
Data Cable : Shielded, Undetachable, 1m
FCC ID : DZL211029

SUPPORT UNIT 6. ---- KEYBOARD

Manufacturer : Acer Peripherals Inc.
Model Number : 6311-KW
Power Supply Type : N/A
Power Cord : N/A
Data Cable : Shielded, Undetachable, 1.2m
FCC ID : JVPKBS-WIN



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SUPPORT UNIT 7. ---- ADAPTER

Manufacturer : SINO-AMERICAN
Model Number : A40312
Power Supply Type : INPUT: 120V / 250 mA
Output : 3V / 1200 mA
Power Cord : Non-Shielded, 2m

SUPPORT UNIT 8. ---- ADAPTER

Manufacturer : SINO-AMERICAN
Model Number : SA10-0312V
Power Supply Type : Input : 100-240V / 250 mA
Output : 3V / 1200mA
Power Cord : Non-Shielded, 2m

EQUIPMENT UNDER TEST ---- DIGITAL CAMERA

Manufacturer : LARGAN DIGITAL CO., LTD.
Model Number : F1
Data Cable : N/A
FCC ID : N3DLARGAND601A



6. TEST CONFIGURATION

Radiated emission detector function :

(1) 30MHZ~1GHZ : Quasi-Peak Value

Resolution BW : 120KHZ Video BW : 300KHZ

(2) above 1GHZ : Quasi-Peak value and Average Value

Resolution BW : 1MHZ Video BW : 1MHZ

*** either Q. P. or average value will be recorded
in the report**

Conducted emission detector function :

(1) 450KHZ~30MHZ : Quasi-Peak Value

Resolution BW : 9KHZ Video BW : 30KHZ

The else descriptions : AC adapter model No. A40312 (input rating 120Vac) ,
Model No. SA10-0312V (input rating 100 – 240Vac) .

Conducted Emission Test Photo. : Page C-1

Test Data : Hot C-1.1

Neutral C-1.2

Radiated Emission Test Photo. : Page R-1

Test Data : Horizontal R-1.1

Vertical R-1.2



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CONDUCTED EMISSIONS TEST DATA

Note : HOT LINE TEST

(120V)

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
0.627	34.78	-13.22	48.00	31.98	1.05	1.75	0.00
3.198	35.68	-12.32	48.00	32.00	1.88	1.80	0.00
5.178	32.67	-15.33	48.00	29.01	1.81	1.85	0.00
8.458	38.06	- 9.94	48.00	34.32	1.88	1.86	0.00
8.842	38.56	- 9.44	48.00	34.80	1.88	1.87	0.00
10.763	26.48	-21.52	48.00	22.74	1.92	1.82	0.00
13.393	26.87	-21.13	48.00	23.04	1.97	1.86	0.00
15.048	26.80	-21.20	48.00	22.92	1.99	1.90	0.00
18.446	31.90	-16.10	48.00	28.30	1.64	1.96	0.00
29.173	26.66	-21.34	48.00	22.10	2.32	2.24	0.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line



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CONDUCTED EMISSIONS TEST DATA

Note : NEUTRAL LINE TEST

(120V)

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
0.745	34.58	-13.42	48.00	31.70	1.12	1.76	0.00
2.016	33.60	-14.40	48.00	29.87	1.95	1.78	0.00
2.873	31.71	-16.29	48.00	28.02	1.89	1.80	0.00
3.789	28.24	-19.76	48.00	24.59	1.85	1.80	0.00
6.921	25.93	-22.07	48.00	22.23	1.85	1.85	0.00
8.429	26.37	-21.63	48.00	22.64	1.87	1.86	0.00
13.363	26.57	-21.43	48.00	22.74	1.97	1.86	0.00
15.491	25.82	-22.18	48.00	21.98	1.94	1.90	0.00
19.628	25.51	-22.49	48.00	21.98	1.53	2.00	0.00
27.754	25.67	-22.33	48.00	21.32	2.14	2.21	0.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line



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CONDUCTED EMISSIONS TEST DATA

Note : HOT LINE TEST

(100V-240V)

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
0.805	31.82	-16.18	48.00	29.67	0.40	1.75	0.00
1.898	36.36	-11.64	48.00	33.62	0.96	1.78	0.00
5.296	27.18	-20.82	48.00	24.50	0.83	1.85	0.00
18.476	47.92	- 0.08	48.00	44.59	1.37	1.96	0.00
19.628	35.44	-12.56	48.00	32.04	1.39	2.00	0.00
20.367	37.50	-10.50	48.00	34.09	1.38	2.03	0.00
22.081	36.09	-11.91	48.00	32.71	1.31	2.07	0.00
23.115	38.96	- 9.04	48.00	35.61	1.27	2.08	0.00
24.947	33.01	-14.99	48.00	29.66	1.20	2.15	0.00
27.754	44.16	- 3.84	48.00	40.61	1.34	2.21	0.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line



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CONDUCTED EMISSIONS TEST DATA

Note : NEUTRAL LINE TEST

(100V-240V)

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
0.864	33.03	-14.97	48.00	30.87	0.42	1.75	0.00
2.282	37.56	-10.44	48.00	34.74	1.03	1.79	0.00
3.819	28.94	-19.06	48.00	26.21	0.94	1.80	0.00
4.646	27.89	-20.11	48.00	25.22	0.84	1.83	0.00
17.707	29.66	-18.34	48.00	26.36	1.36	1.94	0.00
18.446	47.98	- 0.02	48.00	44.64	1.37	1.96	0.00
21.933	33.23	-14.77	48.00	29.85	1.32	2.07	0.00
24.445	33.24	-14.76	48.00	29.89	1.22	2.13	0.00
26.690	26.27	-21.73	48.00	22.80	1.29	2.19	0.00
27.754	44.00	- 4.00	48.00	40.45	1.34	2.21	0.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line



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RADIATED EMISSIONS TEST DATA

Antenna polarization : HORIZONTAL ; Test distance : 3 m ;

(120V)

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
129.033	18.03	-25.47	43.50	24.62	12.15	1.25	20.00
161.706	18.34	-25.16	43.50	23.72	13.12	1.51	20.00
221.184	24.21	-21.79	46.00	25.44	16.79	1.98	20.00
223.312	20.84	-25.16	46.00	21.88	16.97	1.99	20.00
239.616	22.65	-23.35	46.00	22.27	18.26	2.12	20.00
258.048	25.81	-20.19	46.00	24.42	19.11	2.28	20.00
331.775	23.50	-22.50	46.00	26.55	14.21	2.73	20.00
368.639	28.35	-17.65	46.00	29.67	15.90	2.77	20.00
405.504	24.17	-21.83	46.00	24.37	16.98	2.83	20.00
489.420	23.61	-22.39	46.00	22.83	17.61	3.16	20.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line



PEP Testing Laboratory

RADIATED EMISSIONS TEST DATA

Antenna polarization : VERTICAL ; Test distance : 3 m ;

(120V)

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
129.024	20.99	-22.51	43.50	27.58	12.15	1.25	20.00
147.456	26.12	-17.38	43.50	31.90	12.82	1.40	20.00
239.616	23.63	-22.37	46.00	23.25	18.26	2.12	20.00
258.049	29.33	-16.67	46.00	27.94	19.11	2.28	20.00
331.775	23.62	-22.38	46.00	26.67	14.21	2.73	20.00
368.639	28.25	-17.75	46.00	29.57	15.90	2.77	20.00
405.504	25.49	-20.51	46.00	25.69	16.98	2.83	20.00
442.369	24.26	-21.74	46.00	23.88	17.39	2.98	20.00
460.800	23.29	-22.71	46.00	22.85	17.38	3.05	20.00
517.565	28.89	-17.11	46.00	27.64	17.97	3.27	20.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line



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RADIATED EMISSIONS TEST DATA

Antenna polarization : HORIZONTAL ; Test distance : 3 m ;

(100V-240V)

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
66.890	25.63	-14.37	40.00	47.24	-2.98	1.37	20.00
120.440	24.30	-19.20	43.50	40.70	1.65	1.95	20.00
129.280	27.00	-16.50	43.50	44.00	0.94	2.06	20.00
176.030	24.46	-19.04	43.50	38.36	3.70	2.40	20.00
184.530	27.73	-15.77	43.50	40.96	4.30	2.47	20.00
213.600	27.08	-16.42	43.50	41.80	2.47	2.82	20.00
241.600	25.35	-20.65	46.00	40.43	1.89	3.04	20.00
297.600	26.43	-19.57	46.00	39.95	2.90	3.58	20.00
371.200	29.59	-16.41	46.00	41.80	3.97	3.82	20.00
467.200	31.91	-14.09	46.00	41.62	5.98	4.32	20.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line



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RADIATED EMISSIONS TEST DATA

Antenna polarization : VERTICAL ; Test distance : 3 m ;

(100V-240V)

Freq. (MHz)	Level (dB)	Over Limit (dB)	Limit Line (dB)	Read Level (dB)	Probe Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)
55.840	26.77	-13.23	40.00	46.35	-0.80	1.22	20.00
64.680	26.20	-13.80	40.00	47.14	-2.29	1.35	20.00
147.980	26.36	-17.14	43.50	42.77	1.31	2.28	20.00
176.370	27.08	-16.42	43.50	40.93	3.75	2.40	20.00
184.530	26.89	-16.61	43.50	40.12	4.30	2.47	20.00
223.200	27.34	-18.66	46.00	40.34	4.12	2.89	20.00
297.600	27.18	-18.82	46.00	37.80	5.81	3.58	20.00
371.200	31.50	-14.50	46.00	40.71	6.97	3.82	20.00
407.200	27.56	-18.44	46.00	35.47	8.14	3.95	20.00
467.200	30.02	-15.98	46.00	36.73	8.98	4.32	20.00

Note :

1. Level = Read Level + Probe Factor + Cable Loss – Preamp Factor
2. Over Limit = Level – Limit Line



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Masuring Instruments Listing :

Instrument	Manufacturer & Model	Serial Number	Band Width	Cal. Date	Cal. Interval
Receiver	ROHDE & SCHWARZ ESVS 30	8633421012	20 MHz to 1 GHz	Nov. 2 1998	1 year
Receiver	ROHDE & SCHWARZ ESBI	844348/020	20 Hz to 5 GHz	Mar. 20 1999	1 year
Spectrum * Analyzer	Advantest 3261A	91720076	9 MHz to 2.6 GHz	Feb. 18 1999	1 year
Spectrum * Analyzer	HP 8591A	3225A03039	9 MHz to 1.8 GHz	May 20 1999	1 year
Bi-Log Antenna	CHASE Electr. CBL 6111B	1968	20 MHz to 1 GHz	Aug. 23 1998	1 year
Horn Antenna	COM-Power AH-118	10056	1 GHz to 18 GHz	Jun. 16 1999	1 year
LISN	EMCO 3825/2	93112150	9 KHz to 100 MHz	Nov. 6 1998	1 year
LISN	Kokuyo KNW-242	8-837-7	9 KHz to 30 MHz	Sep. 20 1998	1 year

- * The Model 3261A has build-in the detector function of the average and additional Q.P. adapter inside the spectrum analyzer.
- * The Model 8591A has build-in the detector function of the Q.P. adapter.