

Date: 2001-10-16

TEST REPORT

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No.: HM106026

FCC PART 15 SUBPART B TEST REPORT

TEST REPORT No.: HM106026

Equipment Under Test [EUT]:

Model Number:

Applicant:

AGP VGA Card

RDN-119

Althon Micro Inc.

Date: 2001-10-16

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CONCLUSION

The submitted product was deemed to have COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.

Verify by

Patrick Wong
for Managing Director

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1.0 General Details

1.1 Test Laboratory

The Hong Kong Standards and Testing Centre Ltd.
EMC Laboratory
10 Dai Wang Street, Taipo Industrial Estate
New Territories, Hong Kong

Telephone: 852 2666 1888
Fax: 852 2664 4353

1.2 Applicant Details Applicant

ALTHON MICRO INC.
280-290 S. Paseo Tesoro, Walnut, CA 91789 USA

Telephone: 909 594 3128
Fax: 909 594 9771

HKSTC Code Number for Applicant

ALM004

Manufacturer

ALTHON MICRO INC.
280-290 S. Paseo Tesoro, Walnut, CA 91789 USA

Telephone: 909 594 3128
Fax: 909 594 9771

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1.3 Equipment Under Test [EUT]

Description of Sample

Product: AGP VGA Card
Manufacturer: Althon Micro Inc.
Brand Name: N/A
Model Number: RDN-119
Input Voltage: The product was drawing power from the signal port of the console.

1.3.1 Description of EUT Operation

The Equipment Under Test (EUT) is an Althon Micro Inc., AGP VGA Card

1.4 Date of Order

2001-10-05

1.5 Submitted Sample(s):

1 sample per model

1.6 Test Duration

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1.7 Country of Origin

China

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1.8 Additional Information of EUT

	Submitted	Not Available
User Manual	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Part List	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Circuit Diagram	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Printed Circuit Board [PCB] Layout	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Block diagram	<input checked="" type="checkbox"/>	<input type="checkbox"/>
FCC DOC Label	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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2.0 Technical Details

2.1 Investigations Requested

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15 and ANSI C63.4: 2000 for FCC Certification.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary						
Test Condition	Test Requirement	Test Method	Class / Severity	Test Result		
				Pass	Failed	N/A
Radiated Emissions, 30MHz to 1GHz	FCC 47CFR 15.109	ANSI C63.4:2000	Class B	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conducted Emissions on AC, 0.45MHz to 30MHz	FCC 47CFR 15.107	ANSI C63.4:2000	Class B	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: N/A - Not Applicable

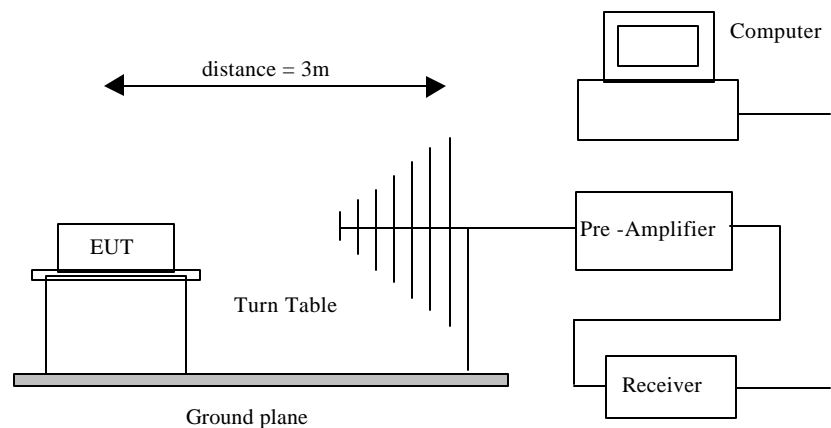
3.0 Test Results**3.1 Emission****3.1.1 Radiated Emissions (30 – 1000MHz)**

Test Requirement:	FCC 47CFR 15.109 Class B
Test Method:	ANSI C63.4:2000
Test Date:	2001-10-16
Mode of Operation:	On mode

Test Method:

The sample was placed 0.8m above the ground plane on the OATS *. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigate all operating modes, rotated about all 3 axis (X, Y & Z) to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

*: OATS [Open Area Test Site] located at HKSTC with a metal ground plane on filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 90657.

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Limited for Radiated Emissions [FCC 47 CFR 15.109 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results:

Radiated Emissions Quasi-Peak				
Frequency MHz	Level @3m dBμV/m	Limit @3m dBμV/m	Margin dBμV/m	Antenna Polarity
71.08	21.1	40.0	-18.9	Horizontal
121.19	26.3	43.5	-17.2	Horizontal
124.13	32.2	43.5	-11.3	Horizontal
134.84	32.3	43.5	-11.2	Horizontal
186.18	25.3	43.5	-18.2	Horizontal
225.00	33.5	46.0	-12.5	Horizontal
248.50	34.7	46.0	-11.3	Horizontal
300.40	34.3	46.0	-11.7	Horizontal
333.80	31.9	46.0	-14.1	Horizontal
366.70	33.3	46.0	-12.7	Horizontal
492.70	33.5	46.0	-12.5	Horizontal
528.10	33.6	46.0	-12.4	Horizontal

** For effective averaging, the bandwidth of the video filter must be smaller than the resolution bandwidth. The higher the ratio of resolution bandwidth to video bandwidth, the greater the averaging will be recorded. Below setting for HP8572A EMI Receiver.

Resolution Bandwidth =3MHz
Video Bandwidth =1Hz

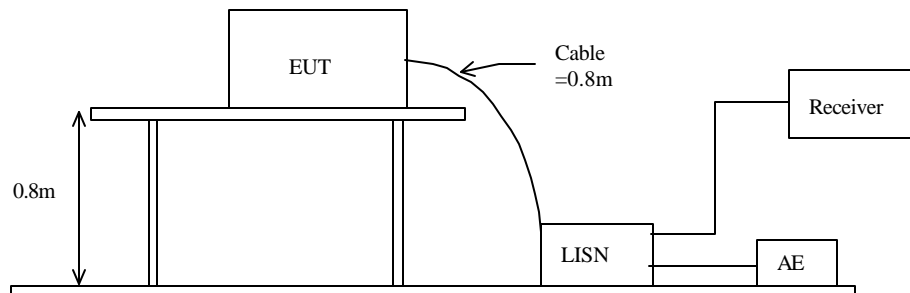
3.1.1 Conducted Emissions (0.45MHz to 30MHz)

Test Requirement:	FCC 47CFR 15.107
Test Method:	ANSI C63.4:2000
Test Date:	2001-10-16
Mode of Operation:	On mode

Test Method:

The test was performed in accordance with ANSI C63.4: 1992, with the following: an initial measurement was performed in peak and average detection mode on the live line. Any emissions recorded within 30dB of the relevant limit line were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

Test Setup:



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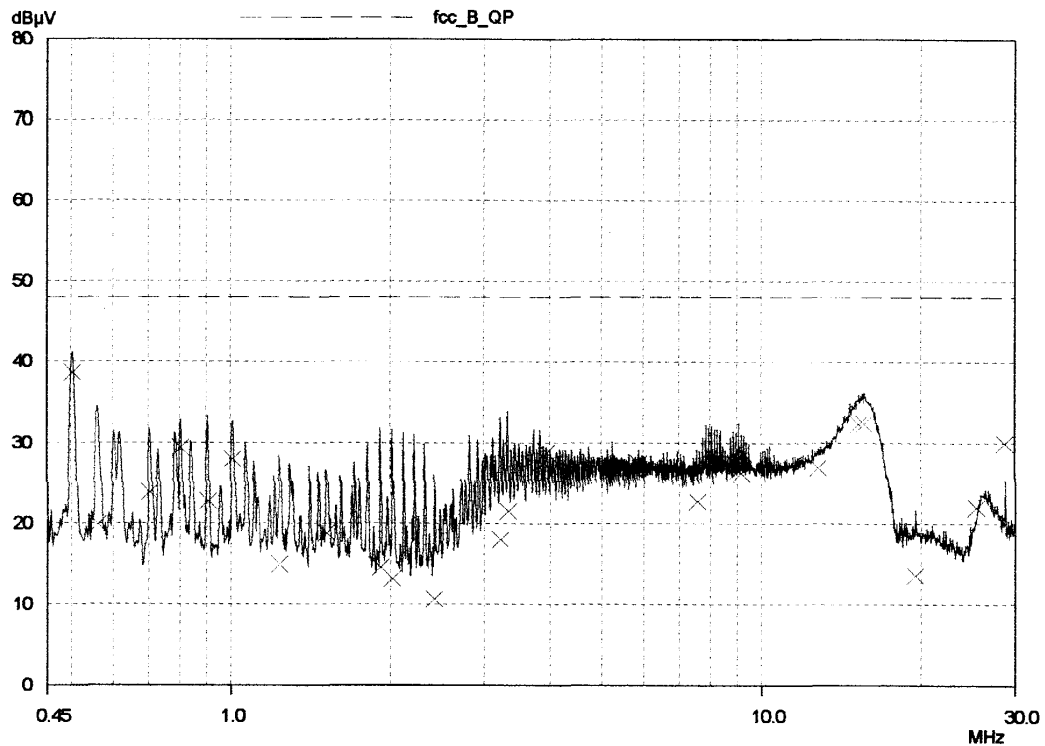
No.: HM106026

Limit for Conducted Emissions (FCC 47 CFR 15.107):

Frequency Range [MHz]	Quasi-Peak Limits [$\mu\text{V}/\text{m}$]
0.45-30	250

Limits for Conducted Emissions Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram labelled as (QP and AV).

Results:



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Results:

(1) Between "Live" and "Ground"

Frequency Range of Emission MHz			Maximum Measured Radio Noise dB(μV) μV		FCC Limit (Class B) μV
0.45	-	0.80		38.64 85.51	250.00
0.80	-	1.60		29.38 29.44	250.00
1.60	-	3.00		14.56 5.35	250.00
3.00	-	5.00	<	28.78 27.48	250.00
5.00	-	7.00	<	27.39 23.42	250.00
7.00	-	9.00	<	22.67 13.60	250.00
9.00	-	11.00	<	26.50 21.13	250.00
11.00	-	13.00	<	26.87 22.05	250.00
13.00	-	15.00		0.00 1.00	250.00
15.00	-	17.00	<	32.38 41.59	250.00
17.00	-	19.00		0.00 1.00	250.00
19.00	-	21.00		13.57 4.77	250.00
21.00	-	23.00		0.00 1.00	250.00
23.00	-	25.00		0.00 1.00	250.00
25.00	-	27.00	<	21.95 12.52	250.00
27.00	-	30.00	<	29.92 31.33	250.00

Remarks:

Calculated measurement uncertainty = $\pm 2.3\text{dB}$

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Results:

(1) Between " Neutral" and "Ground"

Frequency Range of Emission MHz			Maximum Measured Radio Noise dB(μV) μV			FCC Limit (Class B) μV
0.45	-	0.80	<	38.64	85.51	250.00
0.80	-	1.60	<	29.38	29.44	250.00
1.60	-	3.00	<	14.56	5.35	250.00
3.00	-	5.00		28.78	27.48	250.00
5.00	-	7.00		27.39	23.42	250.00
7.00	-	9.00		22.67	13.60	250.00
9.00	-	11.00		26.50	21.13	250.00
11.00	-	13.00		26.87	22.05	250.00
13.00	-	15.00		0.00	1.00	250.00
15.00	-	17.00		32.38	41.59	250.00
17.00	-	19.00		0.00	1.00	250.00
19.00	-	21.00	<	13.57	4.77	250.00
21.00	-	23.00		0.00	1.00	250.00
23.00	-	25.00		0.00	1.00	250.00
25.00	-	27.00		21.95	12.52	250.00
27.00	-	30.00		29.92	31.33	250.00

Remarks:

Calculated measurement uncertainty = $\pm 2.3\text{dB}$

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Appendix A

Test Equipment Audit

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL.
EM007	SPECTRUM ANALYZER	HEWLETT PACKARD	HP85660B	3144A21192	07/09/01
EM008	SPECTRUM ANALYZER DISPLAY	HEWLETT PACKARD	HP85662A	3144A20514	07/09/01
EM009	QUASI PEAK ADAPTOR	HEWLETT PACKARD	HP85650A	3303A01702	07/09/01
EM010	RF PRESELECTOR	HEWLETT PACKARD	HP85685A	3221A01410	07/09/01
EM011	ATTENUATOR/SWITCH	HEWLETT PACKARD	HP11713A	2508A10595	07/09/01
EM012	PRE-AMPLIFIER	HEWLETT PACKARD	HP8449B	3008A00262	07/09/01
EM013	CONTROLLER (COMPUTER), COLOR MONITOR, KEYBOARD & MOUSE FLOPPY DRIVE	HEWLETT PACKARD HEWLETT PACKARD HEWLETT PACKARD	HP9000 HP A1097C HP9133L	6226A60314 3151J39517 2623A02468	CM
EM131	PORTABLE SPECTRUM ANALYSER	HEWLETT PACKARD	8595EM	3710A00155	10/07/00
EM017	ANTENNA	ARA INC.	LPB-2513/A	1069	17/02/00
EM020	HORN ANTENNA	EMCO	3115	4032	09/08/00
EM072	SIGNAL GENERATOR	HEWLETT PACKARD	8640B	1948A11892	30/03/98
EM083	HKSTC OPEN AREA TEST SITE	HKSTC	N/A	N/A	15/02/01
EM145	EMI TEST RECEIVER	R & S	ESCS 30	830245/021	TBD

Conducted Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL
EM078	VARIAC	SHANGHAI VOLTAGE	TDGC-3/0.5	N/A	CM
EM081	SMALL SCREENED ROOM	MIKO INST HK	N/A	N/A	10/09/00
EM002	LISN	EMCO	3825-2	9005-1657	22/08/01
EM119	LISN	R & S	ESH3-Z5	0831.5518.52	31/08/00
EM145	EMI TEST RECEIVER	R & S	ESCS 30	830245/021	31/05/00
EM120	EMI TEST RECEIVER	R&S	ESHS10	1004.0401.10	04/09/00
EM127	ISOLATION TRANSFORMER 220 TO 300	WING SUN	N/A	N/A	N/A
EM142	PLUSE LIMITER	R & S	ESH3Z2	357.8810.52	TBD

Remarks:

CM Corrective Maintenance
N/A Not Applicable or Not Available
TBD To Be Determined

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Appendix B

Ancillary Equipment

ITEM NO.	DESCRIPTION	MODEL NO.	FCC ID	REMARK
1	DELL COMPUTER	MMS	E2KTERMIND	N/A
2	AST AVGA MONITOR	CM6P	GDRCM6P	RESOLUTION:720*400(DURING TESTING) 1.0M UNSHIEDED POWER CORD CONNECTED TO THE COMPUTER 2.8M SHIELDED CABLE CONNECTED TO THE COMPUTER
3	AST KEYBOARD	KB-2923	LIAKWD-200	1.8M SHIELDED COILED CABLE CONNECTED TO THE COMPUTER
4	MOUSE	PS12	FSUGMZC8	2.4M UNSHIELDED CABLE CONNECTED TO THE COMPUTER
5	PARALLEL PRINTER	DMP3000	DE2850CDMP3000	1.8M UNSHIELDED POWER CORD 2.8M SHIELDED CABLE (BYNDLED TO 1M) CONNECTED TO THE COMPUTER

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Appendix C

Photographs of EUT

Inner Circuit Top View



Inner Circuit Bottom View



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Photographs of EUT

Measurement of Radiated Emission Test Set Up



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Measurement of Conducted Emission Test Set Up



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