

TEST REPORT

SCOPE OF WORK

COMMISSION REGULATION (EU) No 617/2013 (ErP Lot 3)

PRODUCT/MODEL

Notebook /GM5MP0Y&GM5MPHY

DESCRIPTION OF REGULATION

COMMISSION REGULATION (EU) No 617/2013 (ErP Lot 3) of 26 June 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for computers and computer servers

DESCRIPTION OF TEST METHODS AND STANDARDS

EN 62623:2013 Desktop and notebook computers - Measurement of energy consumption

SAMPLE #	SERIEL #	DATE	CONDITION
1		2020/03/18	--

I. ErP Report

1. General Information:

1. Applicant/address:	TONGFANG HONGKONG (SUZHOU) LIMITED NO. 10 Plant, Jianwu Phase III, Western Zone, Comprehensive Bonded Zone, NO.200, Suhong Middle Road, Suzhou Industrial Park
2. Model name:	GM5MP0Y &GM5MPHY

3. Year of Manufacture: 2020

2. General Technical Information:

1. Manufacturer/address:	Same as applicant
2. Product type	<input type="checkbox"/> Desktop <input type="checkbox"/> All In One Tablet <input checked="" type="checkbox"/> Notebook <input type="checkbox"/> Workstation
3. Operating system:	Windows 10
3. Central processing unit:	Intel CPU i7-10875H, 8cores, 2.3GHz
4. Diagonal screen size	15.6 (inch)
5. Installed system memory:	32 GB
6. Internal storage:	1T*2
7. Discrete graphics card:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
8. Category:	Category C
9. External power supply:	FSP Group Inc. / FSP230-AJAS3

3. General Technical Information:

1. Test laboratory and Address	TONGFANG HONGKONG (SUZHOU) LIMITED NO. 10 Plant, Jianwu Phase III, Western Zone, Comprehensive Bonded Zone, NO.200, Suhong Middle Road, Suzhou Industrial Park
2. Voltage/Freq. of power supply	230 Vac/50 Hz
3. Ambient temp. (°C)	24
4. Humidity (%)	55
5. Air Speed Close to the UUT: (m/s)	0.1

4. Equipment list:

Reg. No.	Equipment Name	Brand Name	Type / Model	Cal. Date	Next Cal.
CCC061	Thermo-Hygrograph	ISUZU	TH-27R	06/04/2019	06/03/2020
CCC077	Digital Power Meter	Yokogawa	WT210 760401	06/03/2019	06/02/2020
CCC039	Timer	E-MORE	CM-173	04/23/2019	04/22/2020
CCCN0028	AC Power Source	APE	AFR-130W	--	--

5. Test result (Intel CPU i7-10875H, 8 Cores, 2.3GHz):

Sleep Mode Test Result:

1. Tested at:	230 Vac / 50 Hz
2. The Average power (W)	1.38

OFF Mode Test Result:

1. Tested at:	230 Vac / 50 Hz
2. The Average power (W)	0.42

Idle state Test Result:

1. Tested at:	230 Vac / 50 Hz
2. The Average power (W)	5.62

TEC Calculation (E_{TEC}) for Notebook computers:

The annual total energy consumption (E_{TEC}) shall be determined using the following formula:
$$E_{TEC} = (8760/1000) * (0.60 * P_{off} + 0.10 * P_{sleep} + 0.30 * P_{idle}) = \underline{18.19} \text{ (kWh/y)}$$

Ecodesign requirement:

The annual total energy consumption (E_{TEC} in kWh/year) shall not exceed:

- (a) Category A computer: 27.00.
- (b) Category B computer: 36.00.
- (c) Category C computer: 60.50.

The following capability adjustments apply:

- (a) memory: 0.4 kWh/year per GB over base, where base memory is 4 GB.
- (b) additional internal storage: 3 kWh/year.
- (c) discrete television tuner: 2.1kWh/year.
- (d) discrete graphics card (dGfx) (for the first and each additional discrete graphics card (dGfx))discrete graphics card (dGfx) for the first and each additional discrete graphics card (dGfx):

	dGfx category	TEC allowance (kWh/year)
First discrete graphics card (dGfx)	G1	7
	G2	11
	G3	13
	G4	20
	G5	27
	G6	33
	G7	61
Each additional discrete graphics card (dGfx)	G1	4
	G2	6
	G3	8
	G4	12
	G5	16
	G6	20
	G7	36

$$E_{TEC_MAX} = 60.50 + 0.4 \times (32 - 4) + 3 + 61 = 135.7 \text{ kWh/year}$$

Test Summary:

When tested at 230 Vac, 50 Hz:

Ecodesign requirement:

$E_{TEC_MAX} = 135.7\text{ kWh/year}$

TEC Calculation (E_{TEC}) for Notebook computers (Intel CPU i7-10875H @2.3GHz):

$E_{TEC} = 18.19\text{ kWh/year}$

Summary:

Intel CPU i7-10875H , 8 Cores,2.3GHz	E_{TEC}	Sleep Mode (W)	Off Mode (W)	Idle
Requirement	135.7	3.70	1.70	N/A
Result	18.19	1.38	0.42	5.62

The measurements of P_{off} , P_{sleep} and P_{idle} for calculation of E_{TEC} of notebook computers are refer to EN 62623:2013

The test result of UUT complies with the limits of COMMISSION REGULATION (EU) No 617/2013 (ErP Lot 3)

<u>Verdict</u>	<u>Pass</u>
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The results only relate to the item tested

***The ErP data above can be adapted to GM5MPOY and GM5MPHY

II. Power Consumption

1. Sleep mode with WOL enabled power demand (Watts)

Model	GM5MPOY	GM5MPHY
Watts	1.38	1.38

2. Off mode with WOL enabled power demand (Watts)

Model	GM5MPOY	GM5MPHY
Watts	0.42	0.42

3. Internal power supply efficiency at 10 %, 20 %, 50 % and 100 % of rated output power

80%

4. external power supply efficiency

Efficiency

1. Specification:

1-1

DOE(Level VI):

- (1)115Vac / 0A load $\leq 0.21W$
 (2)115Vac / 25%,50%,75%,100% load $\geq 88\%$

(Average Active Mode Efficiency ,Warm up 30 minutes later , DC Cable ≤ 1200 mm,14AWG)

Erp(Tier 2):

- (1)230Vac / 0A load $\leq 0.21W$
 (2)230Vac / 25%,50%,75%,100% load $\geq 88\%$

(Average Active Mode Efficiency ,Warm up 30 minutes later , DC Cable ≤ 1200 mm,14AWG)

1-2

Efficiency: (Warm up 10minutes later)

100Vac @ 11.8A load, Efficiency $\geq 89\%$

240Vac @ 11.8A load, Efficiency $\geq 91\%$

2. Test condition:

Input: 100Vac/60Hz; 115Vac/60Hz; 230Vac/50Hz; 240Vac/50Hz

Ambient Temperature: 25°C

Load	+19.5V
No load	0A
10%	1.18A
25%	2.95A
50%	5.9A
75%	8.85A
Max	11.8A

3. Test record:

Load	Vin (Vac)	Iimrms (A)	Pin (W)	Pout (W)	PF	Eff (%)	Spec (%)	Result
Max	100.050	2.465	244.160	225.174	0.990	92.224	>89	PASS
	239.790	1.054	241.336	225.186	0.955	93.308	>91	PASS

	115V/60Hz					
	No load	Active power values				
Load	0%	10%	25%	50%	75%	100%
Iout (A)	--	1.18	2.95	5.91	8.86	11.81
Vout (V)		19.51	19.46	19.37	19.27	19.17
Pout (W)		23.10	57.50	114.41	170.72	226.44
Fin (Hz)	60	60	60	60	60	60
Iin (A)	0.02	0.26	0.57	1.12	1.65	2.18
Vin (V)	115.46	115.39	115.29	115.11	115.03	114.85
Pin (W)	0.07	27.03	62.86	123.56	184.98	247.73
THDv (%)	0.08	0.06	0.06	0.22	0.19	0.11
PF (W/VA)	0.03	0.92	0.96	0.95	0.98	0.99
Power Consumed (W)	0.07	3.93	5.36	9.15	14.26	21.29
Efficiency	--	85.5%	91.5%	92.6%	92.3%	91.4%
Average Efficiency	--	--		91.94%		

	230V/50Hz					
	No load	Active power values				
Load	0%	10%	25%	50%	75%	100%
Iout (A)	--	1.18	2.95	5.91	8.86	11.81
Vout (V)		19.52	19.46	19.37	19.28	19.18
Pout (W)		23.10	57.50	114.45	170.81	226.57
Fin (Hz)	50	50	50	50	50	50
Iin (A)	0.03	0.16	0.31	0.58	0.85	1.11
Vin (V)	230.40	230.37	230.32	230.24	230.15	230.06
Pin (W)	0.08	28.31	63.84	123.62	183.51	244.07
THDv (%)	0.14	0.11	0.17	0.13	0.06	0.18
PF (W/VA)	0.01	0.76	0.89	0.93	0.94	0.96
Power Consumed (W)	0.08	5.21	6.33	9.17	12.70	17.49
Efficiency	--	81.6%	90.1%	92.6%	93.1%	92.8%
Average Efficiency	--	--		92.14%		

5. Minimum number of loading cycles that the batteries can withstand (applies only to notebook computers):

500 Cycles

6. User information on the energy-saving potential of power management functionality

https://www.energystar.gov/products/low_carbon_it_campaign/power_management_computer

7. The notebook contains a "permanently installed" battery.

III. Noise Levels (the declared A-weighted **sound pressure** level) of the computer

***The noise test below can be adapted to GM5MPOY and GM5MPHY

1. Samples Configuration:

<i>Configuration:</i>	<i>Brand/Frequency/Capacity/Description</i>
<i>P/N</i>	<i>FGM-GM5MG7Y0001TRQ</i>
<i>Main Board Version</i>	<i>VB</i>
<i>Windows version</i>	<i>Windows10</i>
<i>BIOS/EC Version</i>	<i>B.1.02/ 0.10.72</i>
<i>CPU</i>	<i>Intel,I7-10875H@2.3GHz</i>
<i>Memory</i>	<i>D4,3200,32GB*2PCS,M471A4G43AB1-CWE,SS</i>
<i>VGA</i>	<i>NV,GN20E RTX3070</i>
<i>VRAM</i>	<i>GD6,180FBGA,8Gb 1.2V,K4Z80325BC-HC14,SS</i>
<i>Storage/ HDD</i>	<i>NA</i>
<i>SSD</i>	<i>SSD,PCIeX4,1TB*2pc s,MZVLQ1T0HALB-00000,SS</i>
<i>Wi-Fi</i>	<i>INTEL, AX201</i>
<i>ADAPTER</i>	<i>230w adapter</i>

2. Test Equipment:

2-1 *Semi-Anechoic Chamber*: Acoustic testing for system sound pressure/ quality shall be testing in a qualified Semi-anechoic chamber meeting the requirements of ISO-3744.

2-2 *Microphone*: Follow ISO-3744

3. Test Condition

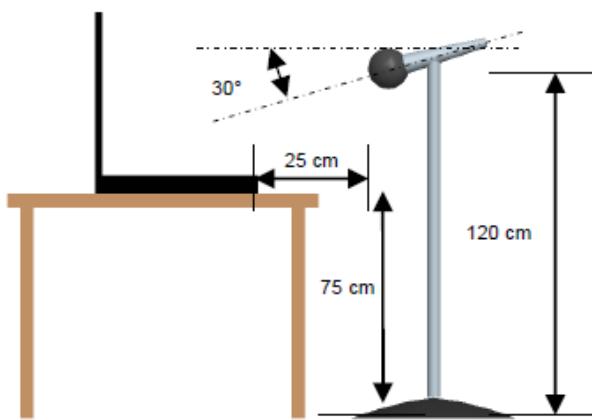
3-1 *Environment Temperature*: 23+-2degC

4. Test Standard Reference

4-1 Sound pressure standard: follow ISO7779-chapter 8.6.3-C

4-2 It is 25cm away from test machine for four edges.

4-3 Show as below picture.



4-4. For B phase test, we determine the fan RPM to meet THF acoustic SPEC in front side sound pressure.

4-5. Sound pressure SPEC

NB	Front(dBA)SPEC
Turbo mode	50
Gaming mode	46
Office mode	35

5. Acoustic test report

Sound pressure

Semi-Anechoic Chamber	MiTAC	
	Front(dBA)	SPEC
Turbo mode	49.3	50
Gaming mode	45.1	46
Office mode	34.8	35

6. Conclusion:

- Sound pressure:
Turbo mode test is under spec.
Gaming mode test is under spec.
Office mode test is under spec.

IV. MS OS Setting

1. Description of how sleep and/or off mode was selected or programmed;	The sleep and/or off mode was selected or be programmed by operating system power management function.
2. Sequence of steps for achieving a stable condition with respect to power demand;	Plug in power supply (adapter) and press power button to turn on system
3. Sequence of events required to reach the mode where the equipment automatically changes to sleep and/or off mode;	The power management function allow the system automatically switching from idle mode to display sleep mode , then system sleep mode will be active after a period of user inactivity(idle-> display off ->sleep).
4. The duration of idle state condition before the computer automatically reaches sleep mode, or another condition which does not exceed the applicable power demand requirements for sleep mode;	The system for a period no user activity or network activity (base on user power management settings). user power management settings:"Control Panel\Hardware and Sound\Power Options>Edit Plan Settings"

5. The length of time after a period of user inactivity in which the computer automatically reaches a power mode that has a lower power demand requirement than sleep mode;	The system for a period no user activity or network activity (base on user power management settings) user power management settings:"Control Panel\Hardware and Sound\Power Options>Edit Plan Settings"
6. The length of time before the display sleep mode is set to activate after user inactivity;	The system for a period no user or network activity (up to 10 minutes).
7. User information on how to enable the power management functionality;	User power management settings:"Control Panel\Hardware and Sound\Power Options>Edit Plan Settings" or Press this key combination (Fn+F1) to enter sleep mode