



**TEST REPORT
FOR
IEC 61000-4-4 (EFT/BURST IMMUNITY)
IEC 61000-4-5 (SURGE IMMUNITY)
ANSI/IEEE C62.41**

Report No.: 11-02-MAS-020-01

Client: ComMax International Company
Product: Surge Energy Absorb and Transfer Device
 突波能量吸收及轉換裝置
Model No.: MAT5-C2-15-250
Comment Issues: N/A

Date test item received: 2011/01/27
Date test campaign completed: 2011/02/10
Date of issue: 2011/02/25

The test result only corresponds to the tested sample. It is not permitted to copy this report, in part or in full, without the permission of the test laboratory.

Total number of pages of this test report: 7 pages

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|---|---|
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Laboratory Introduction: Electronics Testing Center, Taiwan is recognized, filed and mutual recognition arrangement as following:

- ① ISO9001: TÜV Product Service
- ② ISO/IEC 17025: BSMI, CNLA, DGT, NVLAP, CCIBLAC, UL, Compliance
- ③ Filing: FCC, Industry Canada, VCCI
- ④ MRA: Australia, Hong Kong, New Zealand, Singapore, USA, Japan, Korea, China, APLAC through CNLA
- ⑤ FCC Registration Number: 90588, 91094, 91095



EFT/BURST IMMUNITY TEST DATA

Test Date: Jan. 27, 2011

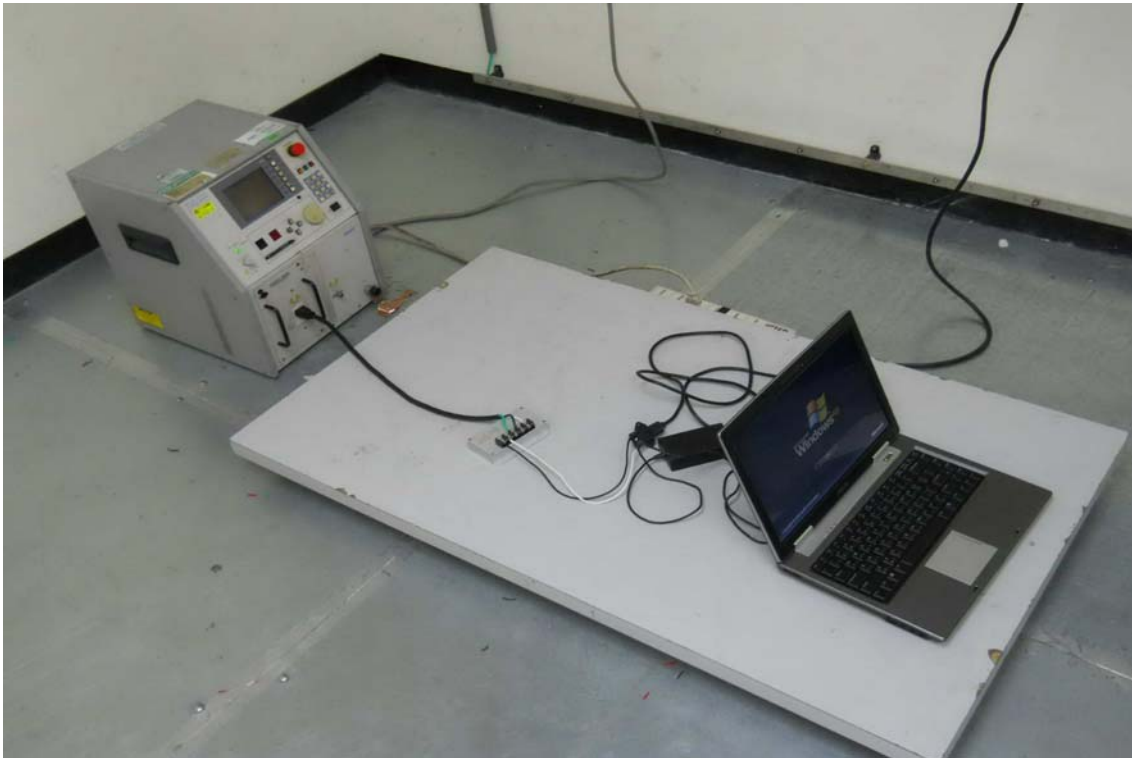
| | | | |
|---------------------------------------|---------------------------------------|------------------|-----------------------------------|
| Test Specification | IEC 61000-4-4:2004 | | |
| Test Equipment | | Calibration Data | Recommended Recal. Date |
| EFT Generator/Clamp\NoiseKen\FNS-AXII | | Mar. 19, 2010 | Mar. 18, 2011 |
| Climatic Condition | Ambient Temperature: <u>22</u> °C | | Relative Humidity: <u>62</u> % RH |
| Atmospheric Pressure | <u>985</u> mbar | | |
| Power Supply System | AC Power: <u>230</u> Vac <u>50</u> Hz | | |
| Operating Conditions of The Device | | Operation Mode | |

| | | | | | |
|--------------------------------------|---|------------------------------|---|--|----|
| Pulse: 5 /50ns Burst: 15ms /300ms | | Repetition Rate: <u>5kHz</u> | | Test time: <u>1</u> min/each condition | |
| \Voltage\Polarity\ | | <u>4.0</u> kV | | ___ kV | |
| \Test Point\Mode\Result\ | | + | - | + | |
| Power Line | L | A | A | -- | -- |
| | N | A | A | -- | -- |
| | G | A | A | -- | -- |

Note: "A" means the EUT function was correct during the test.

"--" means the test is not applicable.

※ Test Method: Conform with IEC61000-4-4 and CNS14676-4 (C6424-4)

EFT/BURST IMMUNITY TEST SETUP PHOTOS



SURGE IMMUNITY TEST DATA

Test Date: Jan. 27, 2011

| | | | |
|--|-------------------------------------|------------------|-----------------------------------|
| Test Specification | IEC 61000-4-5:2005 | | |
| Test Equipment | | Calibration Data | Recommended Recal. Date |
| Lightning Surge Simulator Noiseken\LSS-15AX | | Jan. 07, 2011 | Jan. 06, 2012 |
| Climatic Condition | Ambient Temperature: <u>21</u> °C | | Relative Humidity: <u>53</u> % RH |
| Atmospheric Pressure | <u>985</u> mbar | | |
| Power Supply System | AC Power: <u>230</u> V <u>50</u> Hz | | |
| Operating Conditions of The Device | Operation Mode | | |

| | | | | | | | |
|---|-------|--------------------------------|-----------|--------------------------------------|-------------|--------------------------|--|
| Waveform: 1.2/50 μ s(8/20 μ s) | | Repetition rate: <u>60</u> sec | | Times: <u>1</u> times/each condition | | Testing port :power port | |
| \Voltage \Mode \Polarity \Phase \Result | | | 0° | 90° | 180° | 270° | |
| 10.0kV | L - N | + | A | A | A | A | |
| | | - | A | A | A | A | |
| | L - G | + | A | A | A | A | |
| | | - | A | A | A | A | |
| | N - G | + | A | A | A | A | |
| | | - | A | A | A | A | |

Note: "A" means the EUT function was correct during the test.

"--" means the test is not applicable.

※ Test Method: Conform with IEC61000-4-5 and CNS14676-5 (C6424-5)

SURGE IMMUNITY SETUP PHOTOS



RINGWAVE IMMUNITY TEST DATA

Test Date: Jan. 27, 2011

| | | | |
|---|--|-------------------------|--|
| Test Specification | ANSI/IEEE C62.41:2002 | | |
| Test Equipment | Calibration Data | Recommended Recal. Date | |
| EMC Immunity Test System\ EMC PRO PLUS | May 11, 2010 | May 10, 2011 | |
| Climatic Condition | Ambient Temperature: <u>21</u> °C Relative Humidity: <u>53</u> % RH | | |
| Atmospheric Pressure | <u>985</u> mbar | | |
| Power Supply System | AC Power: <u>230</u> V <u>50</u> Hz | | |
| Operating Conditions of The Device | Operation Mode | | |

| | | | | | | | |
|--|-------|---|-----------|--------------------------------|-------------|--------------------------------------|--|
| Waveform : Combination wave 1.2/50µs(8/20µs) | | | | Repetition rate: <u>60</u> sec | | Times: <u>3</u> times/each condition | |
| \Voltage \Mode \Polarity \Phase Result | | | 0° | 90° | 180° | 270° | |
| 6.0 kV | L - N | + | A | A | A | A | |
| | | - | A | A | A | A | |
| | L - G | + | A | A | A | A | |
| | | - | A | A | A | A | |
| | N - G | + | A | A | A | A | |
| | | - | A | A | A | A | |

Note: "A" means the EUT continued to operate as intended. No degradation of performance or loss of function was allowed below a performance level specified by the manufacturer, when the EUT was used as intended.

RINGWAVE IMMUNITY SETUP PHOTOS