

# STC (Dongguan) Company Limited EC DECLARATION OF CONFORMITY

Reference Number:

EMC-D111059DOC

Darveen Technology Ltd.

Room 7F-B, West 210 Building, No.4 Tairan Road, Chegong Miao, Futian District, Shenzhen, China

declare the product

Description:

Industrial Mobile Computer

Brand Name:

Darveen

Model:

VT-635

complies with the requirements of the

EC Council Directive on electromagnetic compatibility 2004/108/EC

# Applicable Standard(s) with amendments:

EN55022: 2006 +A1: 2007

EN55024: 1998 +A1: 2001 +A2: 2003 EN61000-3-2: 2006 +A1: 2009 +A2: 2009

EN61000-3-3: 2008

#### General Remarks:

This declaration is only valid when used in conjunction with the technical file(s) refers to DM106337.

This declaration applies specifically to the sample(s) investigated in the technical report mentioned above and not to the bulk.

The CE marking as shown below can be affixed on the product after preparation of necessary conformity documentation, as stipulated in Articles of the Council Directive 2004/108/EC.

# Manufacturer/Importer



**Test Laboratory** 

Signature

LONG Yun
Authorized S
ElectroMagnetic Compating
For and on behalf of STC (Dongguan) Company Limited

Date of Issue:

2011-11-15

www.dgstc.org





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Applicant(DAT003):

Darveen Technology Ltd.

Room 7F-B, West 210 Building, No.4 Tairan Road, Chegong Miao, Futian District, Shenzhen, China

Description of Sample(s):

Submitted sample(s) said to be

Product:

Industrial Mobile Computer

Brand Name:

Darveen

Model Number:

VT-635

Date Sample(s) Received:

2011-09-07

Date Tested:

2011-09-09 to 2011-10-21, 2011-11-11

**Investigation Requested:** 

Test for compliance with EMC requirements of EN55022,

EN55024, EN61000-3-2 and EN61000-3-3.

Conclusion(s):

The submitted product <u>COMPLIED</u> with the requirements of EN55022: 2006 +A1: 2007, EN55024: 1998 +A1: 2001 +A2: 2003, EN61000-3-2: 2006 +A1: 2009 +A2: 2009 and EN61000-3-3: 2008. The EMC tests were performed in accordance with the standards described

above and on Section 2.2 in this Test Report.

Remark(s):





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### Appendix B

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### 1.0 General Details

# 1.1 Equipment Under Test [EUT] Description of Sample(s)

Product: Industrial Mobile Computer Manufacturer: Darveen Technology Ltd.

Room 7F-B, West 210 Building, No.4 Tairan Road, Chegong Miao, Futian District, Shenzhen, China

Brand Name: Darveen
Model Number: VT-635
Rating: 9-30VDC, 6A

#### 1.2 Date of Order

2011-09-07

### 1.3 Submitted Sample(s):

1 Sample

#### 1.4 Test Duration

2011-09-09 to 2011-10-21, 2011-11-11

### 1.5 Country of Origin

China



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### **2.0** Technical Details

### 2.1 Investigations Requested

Perform ElectroMagnetic Interference [EMI] & ElectroMagnetic Susceptibility [EMS] tests for CE Marking

### 2.2 Test Standards and Results Summary Tables

	Test Standards				
EN55022: 2006	Information technology equipment - Radio disturbance characteristics -				
+A1: 2007	Limits and methods of measurement				
EN55024: 1998	Information technology equipment - Immunity characteristics - Limits and				
+A1: 2001	methods of measurement				
+A2: 2003					
EN61000-3-2: 2006	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for				
+A1: 2009	harmonic current emissions (equipment input current ≤16 A per phase)				
+A2: 2009					
EN61000-3-3: 2008	Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of				
	voltage changes, voltage fluctuations and flicker in public low-voltage				
	supply systems, for equipment with rated current ≤16 A per phase and not				
	subject to conditional connection				



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### 2.2 Test Standards and Results Summary Tables

EMISSION Results Summary						
Test Condition	Test Requirement	Test Method	Class /	Т	est Result	
			Severity	Pass	Failed	N/A
Radiated Emission,	EN55022: 2006	EN55022: 2006	Class B	$\boxtimes$		
30MHz to 1GHz	+A1: 2007	+A1: 2007				
Conducted	EN55022: 2006	EN55022: 2006	Class B	$\boxtimes$		
Emission on AC,	+A1: 2007	+A1: 2007				
150kHz to 30MHz						
*Harmonic	EN61000-3-2: 2006	EN61000-3-2: 2006	Class D			$\boxtimes$
Emissions on AC	+A1: 2009	+A1: 2009				
Supply	+A2: 2009	+A2: 2009				
Voltage	EN61000-3-3: 2008	EN61000-3-3: 2008	N/A	$\boxtimes$		
Fluctuations on AC						
Supply						

<sup>\*</sup> Limits are not specified once equipment with a rated power of 75 W or less



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### 2.2 Test Standards and Results Summary Tables

		IMMUNITY Results Summary				
Test Condition	Test Requirement	Test Method	Class /	Т	est Result	
	1		Severity	Pass	Failed	N/A
Electrostatic	EN55024: 1998	EN61000-4-2: 1995	±2.0kV,	$\boxtimes$		
Discharge	+A1: 2001		±4.0kV			
	+A2: 2003		Cont			
			±2.0kV,			
			±4.0kV,			
			±8.0kV Air			
Radiated Immunity	EN55024: 1998	EN61000-4-3: 1996	3V/m	$\square$		
80MHz to	+A1: 2001					
1000MHz	+A2: 2003					
Electrical Fast	EN55024: 1998	EN61000-4-4: 1995	±1.0kV	$\boxtimes$		
Transients on AC	+A1: 2001					
Supply	+A2: 2003					
Surge Immunity on	EN55024: 1998	EN61000-4-5: 1995	±0.5kV	$\boxtimes$		
AC Supply	+A1: 2001		±1.0kV			
	+A2: 2003					
Continuous RF	EN55024: 1998	EN61000-4-6: 1996	3.0Vrms	$\boxtimes$		
Immunity on AC	+A1: 2001					
Supply	+A2: 2003					
Voltage Dips,	EN55024: 1998	EN61000-4-11: 1994	0%, 70%	$\boxtimes$		
Interruptions and	+A1: 2001		of U <sub>T</sub>			
Variations on AC	+A2: 2003					
Supply						

Remarks:

N/A: Not Applicable

U<sub>T:</sub> The nominal supply voltage



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#### 3.0 Test Results

#### 3.1 Emission

#### 3.1.1 Radiated Emissions (30MHz to 1000MHz)

Test Requirement: EN 55022
Test Method: EN 55022
Level: Class B

Test Date(s): 2011-11-11

Mode of Operation: On mode

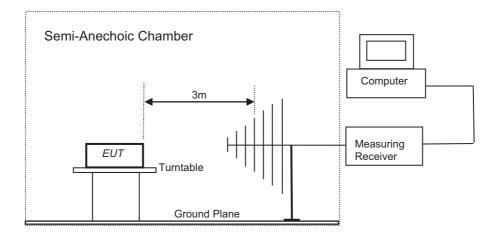
#### **Test Method:**

The test was performed in accordance with EN55022 at 3m test distance on a standard emission test site, with quasi-peak measurements performed if the maximised peak measurements were less than 6dB from the corresponding Class B limit lines.

#### **Test Procedure:**

The EUT is an industrial mobile computer, the test was conducted during the on mode function to simulate the normal usage as well as to produce the maximum electromagnetic disturbances.

### **Test Setup:**





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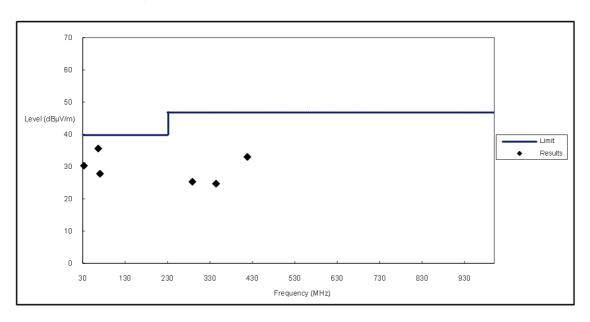
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### **Limits for Radiated Emission:**

Frequency Range [MHz]	Quasi-Peak Limits [dBµV/m]
30-230	40.0
230-1000	47.0

Results of On mode: Pass

Please refer to the following table for result details



The quasi-peak measurements were recorded as follows:

Frequency	Level @3m	Limit @3m	Margin	E-Field Polarity
MHz	dBμV/m	dBμV/m	dB	
33.0	30.3	40	-9.7	Vertical
66.6	35.6	40	-4.4	Vertical
70.8	27.8	40	-22.2	Horizontal
288.4	25.3	47	-21.7	Horizontal
344.4	24.7	47	-22.3	Horizontal
418.1	33.0	47	-14.0	Horizontal

Remark:

Calculated measurement uncertainty: 4.6dB



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#### 3.1.2 Conducted Emissions (150kHz to 30MHz)

Test Requirement: EN 55022
Test Method: EN 55022
Level: Class B

Test Date(s): 2011-10-21

Mode of Operation: On mode

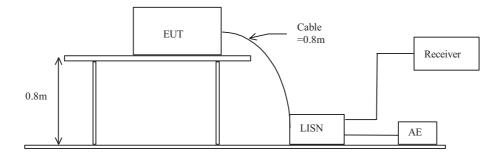
#### **Test Method:**

Initial measurements were performed in peak and average detection modes on the live line. Any emissions recorded within 30dB of the relevant limit lines 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. The test was performed in accordance with EN 55022.

#### **Test Procedure:**

The EUT is an industrial mobile computer, the test was conducted during the on mode function to simulate the normal usage as well as to produce the maximum electromagnetic disturbances.

### **Test Setup:**





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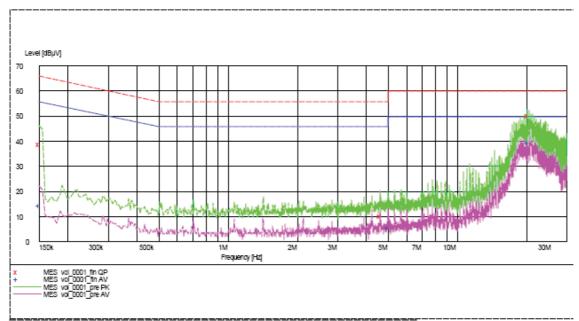
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#### **Results and limit lines for Conducted Emission:**

Limits for Conducted Emission Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.

#### Results of On mode (L): Pass

Please refer to the following diagram for individual results.



MEASUREMENT RESULT: "vol 0001 fin AV"

10/21/2011	6:05PM					
Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBuV	dB	dBuV	dB		
12.12			ш.			
0 150000	14 50	0 6	E 6	41 E	T 1	CND
0.150000	14.50	9.6	56	41.5	T-T	GND
4.975000	5.80	9.7	46	40.2	Ll	GND
20.240000	39.50	10.1	50	10.5	Ll	GND
				40.2	Ll	

### MEASUREMENT RESULT: "vol\_0001\_fin QP"

10/21/2011 6	:05PM					
Frequency				Margin	Line	PΕ
MHz	dΒμV	dB	dBµV	dB		
0.150000	38.70	9.6	66	27.3	Ll	GND
4.625000	10.10	9.7	56	45.9	Ll	GND
20.210000	50.20	10.1	60	9.8	Ll	GND

#### Remark:

Calculated measurement uncertainty: 3.4dB



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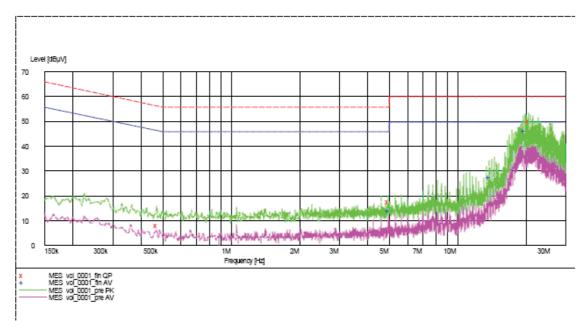
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#### **Results and limit lines for Conducted Emission:**

Limits for Conducted Emission Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.

#### Results of On mode(N): Pass

Please refer to the following diagram for individual results.



MEASUREMENT RESULT: "vol\_0001\_fin AV"

					:11PM	10/21/2011 6:
PE	Line	Margin dB	Limit dBµV		Level dBµV	Frequency MHz
GND	N	32.0	46	9.7	14.00	4.955000
GND	N	22.3	50	9.9	27.70	13.800000
GND	N	3.8	50	10.1	46.20	19.810000

#### MEASUREMENT RESULT: "vol\_0001\_fin QP"

10/21/2011 6	:11PM					
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.470000	8.10	9.6	57	48.4	N	GND
4.955000	17.60	9.7	56	38.4	N	GND
20.520000	50.30	10.1	60	9.7	N	GND

#### Remark:

Calculated measurement uncertainty: 3.4dB



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### 3.1.3 Harmonics Emissions on AC Supply

Test Requirement: EN 61000-3-2
Test Method: EN 61000-3-2
Level: Class A

Test Date(s): 2011-09-09

Mode of Operation: On mode Input Voltage: 230Va.c.

#### **Test Method:**

The test was performed in accordance with EN 61000-3-2.

#### **Test Procedure:**

The EUT is an industrial mobile computer, the test was conducted during the on mode function to simulate the normal usage as well as to produce the maximum electromagnetic disturbances.



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#### Results and limit line for Harmonics Emissions:

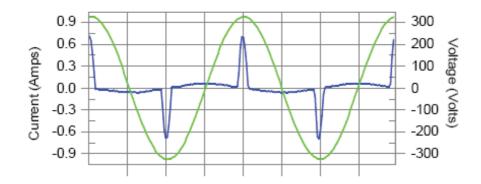
For limits for Harmonics Emission Test, please refer to limit lines (saw-tooth) in the following diagram.

#### **Results of On mode:**

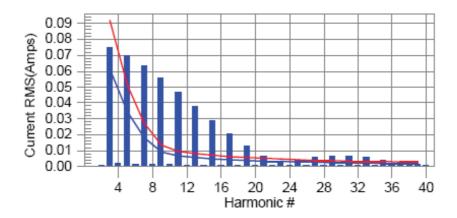
#### Limits are not specified once equipment with a rated power of 75 W or less

Please refer to the following table for individual results.

#### Current & voltage waveforms



#### Harmonics and Class D limit line European Limits



Remark:

Calculated measurement uncertainty: 7.1%



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#### 3.1.4 Emission for Fluctuations & Flicker

Test Requirement: EN 61000-3-3 Test Method: EN 61000-3-3

Level: N/A

Test Date(s): 2011-09-09

Mode of Operation: On mode

#### **Test Method:**

The test was performed in accordance with EN 61000-3-3.

#### **Test Procedure:**

The EUT is an industrial mobile computer, the test was conducted during the on mode function to simulate the normal usage as well as to produce the maximum electromagnetic disturbances.



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#### **Limits for Flicker:**

Please refer to the result table for details.

#### **Results of On mode:** Pass

Please refer to the following table for individual results.

#### Maximum Occurring Levels:

Pst:	0.064	Limit =	1.00	(The Highest Short Term Flicker Value)
Plt:	0.028	Limit =	0.65	(The Highest Long Term Flicker Value)
dc(%):	0.00	Limit =	3.30%	(The Highest Relative Steady State Voltage Change (1sec))
dmax:	0.00	Limit =	4.00%	(*The Highest Maximum Relative Voltage Change)
Tdt:	0.00	Limit =	500ms	(The Max Time (in milli-sec) that dt exceeds 3.3%)
Ut:	230.21V			(EUT Test RMS Voltage)

#### Remark:

<sup>\*</sup> - Some products may have more relax limits (refer to Clause 5 of EN 61000-3-3) Calculated measurement uncertainty: 7.7%



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# 3.2 Immunity

### 3.2.1 Susceptibility Performance Criteria

A	Normal performance within the specification limits
В	Temporary degradation or loss of function or performance which is self-
	recoverable
С	Temporary degradation or loss of function or performance which
	requires operator intervention or system reset
D	Degradation or loss of function which is not recoverable due to damage of
	equipment (components) or software, or loss of data



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### 3.2.2 Electrostatic Discharge

Test Requirement: EN 55024
Test Method: EN 61000-4-2

Severity: ±2kV, ±4kV for Direct & Indirect Contact Discharge

±2kV, ±4kV, ±8kV for Air Discharge

### Performance Criterion Requirement:

Temperature: 22 °C Humidity: 53 % Atmospheric Pressure: 101 kPa

Test Date(s): 2011-10-21

Mode of Operation: On mode

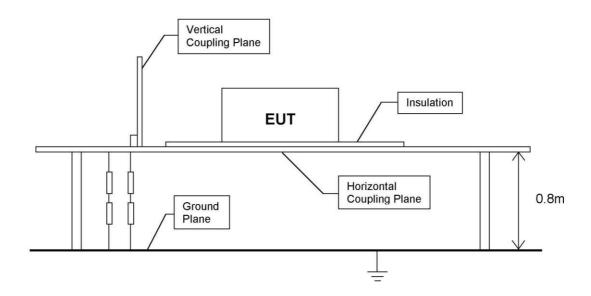
#### **Test Method:**

The test was performed in accordance with EN 61000-4-2.

#### **Test Procedure:**

The EUT is an industrial mobile computer, the test was conducted during the on mode function to simulate the normal usage specified by the manufacturer.

### **Test Setup:**



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Severity Levels for Electrostatic Discharge:

Severity Levels for Electrostatic	eventy bevers for bleethostatic bischarge.					
Level	Test Voltage	Test Voltage				
	Direct & Indirect Contact Discharge	Air Discharge				
	[kV]	[kV]				
1	±2kV	±2kV				
2	±4kV	±4kV				
3	±6kV	±8kV				
4	±8kV	±15kV				

Results of On mode: Pass

Please refer to the following table for individual results.

T		D' 1 M.(1 1	T 4 17 14	Individual Results	
	Location	Discharge Method	Test Voltage	Pass	Failed
HCP	[Horizontal Coupling Plane]	Indirect Contact	±2kV, ±4kV	$\boxtimes$	
VCP	[Vertical Coupling Plane]	Indirect Contact	±2kV, ±4kV	$\boxtimes$	
Screw		Direct Contact	±2kV, ±4kV	$\boxtimes$	
Metal		Direct Contact	±2kV, ±4kV	$\boxtimes$	
Screen		Air	±2kV, ±4kV, ±8kV		
Gap		Air	±2kV, ±4kV, ±8kV		

***EUT Grounding	☐ Grounded	Ungrounded
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#### Remarks:

\*\*\*For ungrounded EUT, the charge on the EUT shall be removed prior to each applied ESD pulse Calculated measurement uncertainty: 7.1%



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### 3.2.3 Radiated Immunity [80MHz to 1000MHz]

Test Requirement: EN 55024
Test Method: EN 61000-4-3
Severity: Level 2 [3V/m]
Modulation: 80% 1kHz AM

#### **Performance Criterion Requirement:** A

Temperature: 23 °C Humidity: 56 %

Test Date(s): 2011-09-10

Mode of Operation: On mode

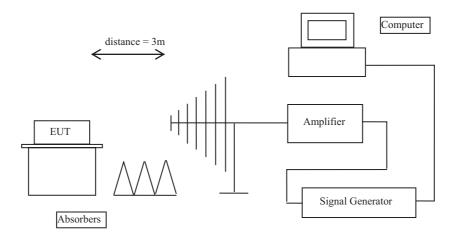
#### **Test Method:**

The test was performed in accordance with EN 61000-4-3.

#### **Test Procedure:**

The EUT is an industrial mobile computer, the test was conducted during the on mode function to simulate the normal usage specified by the manufacturer.

### **Test Setup:**





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### **Severity Levels for Radiated Immunity:**

Level	Field Strength [V/m]
1	1
2	3
3	10

**Results of On mode:** Pass

Please refer to the following table for individual results.

Frequency	Face	Polarity	Level	Dwell Time	Sweep rate		vidual sults
(MHz)			(V/m)	(s)	(%)	Pass	Failed
80-1000	0°	Horizontal	3	3	1	$\boxtimes$	
80-1000	90°	Horizontal	3	3	1	$\boxtimes$	
80-1000	180°	Horizontal	3	3	1	$\boxtimes$	
80-1000	270°	Horizontal	3	3	1	$\boxtimes$	
80-1000	0°	Vertical	3	3	1	$\boxtimes$	
80-1000	90°	Vertical	3	3	1	$\boxtimes$	
80-1000	180°	Vertical	3	3	1	$\boxtimes$	
80-1000	270°	Vertical	3	3	1	$\boxtimes$	

### Remarks:

The dwell time at each frequency is according to the standard being applied and the basic standard Calculated measurement uncertainty: 1.74dB



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### 3.2.4 Electrical Fast Transients on AC Supply

Test Requirement: EN 55024
Test Method: EN 61000-4-4

Severity: Level 2 on AC  $[\pm 1kV]$ 

### Performance Criterion Requirement: B

Temperature: 24 °C Humidity: 53 % Atmospheric Pressure: 101 kPa

Test Date(s): 2011-09-15

Mode of Operation: On mode

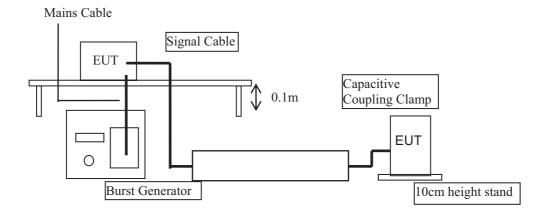
#### **Test Method:**

The test was performed in accordance with EN 61000-4-4.

#### **Test Procedure:**

The EUT is an industrial mobile computer, the test was conducted during the on mode function to simulate the normal usage specified by the manufacturer.

#### **Test Setup:**





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### **Severity Levels for Electrical Fast Transient:**

Level	On power supply port, PE			out) signal, data and
			contro	l ports
	Voltage peak	Repetition rate	Voltage peak	Repetition rate
	[kV]	[kHz]	[kV]	[kHz]
1	0.5	5.0	0.25	5.0
2	1.0	5.0	0.50	5.0
3	2.0	5.0	1.00	5.0
4	4.0	2.5	2.00	5.0

Results of On mode: Pass

Please refer to the following table for individual results.

Conductor	Polarity & Level	Duration/Polarity	Individual Results	
		(s)	Pass	Failed
Live- Neutral- Earth	±1kV	120	$\boxtimes$	

Remark:

Calculated measurement uncertainty: 7.1%



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### 3.2.5 Surge Immunity on AC Supply

Test Requirement: EN 55024 Test Method: EN 61000-4-5

Severity: Level  $1 - \pm 0.5 \text{kV}$  (between live & neutral, between live

& earth, between neutral & earth)

Level 2 - ±1.0kV (between live & neutral, between live

& earth, between neutral & earth)

В

Level 3 - ±2.0kV (between live & earth, between neutral

& earth)

#### **Performance Criterion Requirement:**

Temperature: 24 °C Humidity: 53 % Atmospheric Pressure: 101 kPa

Test Date(s): 2011-09-10

Mode of Operation: On mode

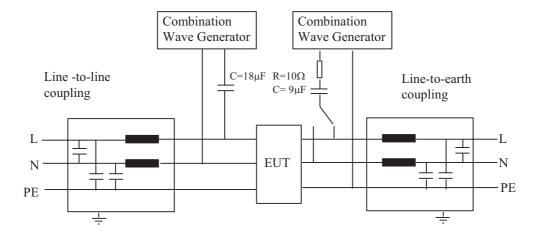
### **Test Method:**

The test was performed in accordance with EN 61000-4-5.

#### **Test Procedure:**

The EUT is an industrial mobile computer, the test was conducted during the on mode function to simulate the normal usage specified by the manufacturer.

### **Test Setup:**



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**Severity Levels for Surge Immunity:** 

Level	Open-circuit test voltage ±10% kV
1	0.5
2	1.0
3	2.0
4	4.0

**Results of On mode:** Pass

Please refer to the following table for individual results

Conductor	Level & Polarity	No. of	Phase	Surge	Individua	al Results
	kV	Surge	Angle	Interval (s)	Pass	Failed
			0°		$\boxtimes$	
Live - Neutral	$\pm 0.5, \pm 1.0$	5	90°	60s	$\boxtimes$	
			180°		$\boxtimes$	
			270°		$\boxtimes$	
			0°		$\boxtimes$	
Live - Earth	$\pm 0.5, \pm 1.0, \pm 2.0$	5	90°	60s	$\boxtimes$	
			180°		$\boxtimes$	
			270°		$\boxtimes$	
			0°		$\boxtimes$	
Neutral - Earth	$\pm 0.5, \pm 1.0, \pm 2.0$	5	90°	60s	$\boxtimes$	
			180°		$\boxtimes$	
			270°		$\boxtimes$	

Remark:

Calculated measurement uncertainty: 7.1%



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# 3.2.6 Continuous RF Immunity on AC Supply (150kHz to 80MHz)

Test Requirement: EN 55024
Test Method: EN 61000-4-6

Severity: Level 2 - 3Vrms(emf) with 80% 1kHz AM

### Performance Criterion Requirement: A

Temperature: 25 °C Humidity: 55 % Atmospheric Pressure: 101 kPa

Test Date(s): 2011-09-15

Mode of Operation: On mode

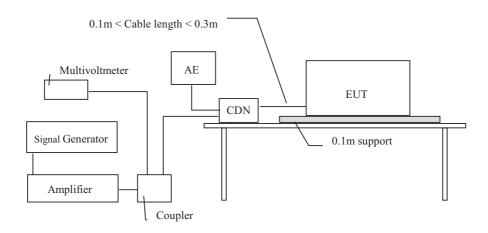
#### **Test Method:**

The test was performed in accordance with EN 61000-4-6.

#### **Test Procedure:**

The EUT is an industrial mobile computer, the test was conducted during the on mode function to simulate the normal usage specified by the manufacturer.

### **Test Setup:**





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### **Severity Levels for Continuous RF Immunity:**

Frequency range 150kHz - 80MHz				
Level	Voltage	level (emf)		
	$U_o [dB(\mu V)]$	$U_{o}[V]$		
1	120	1		
2	130	3		
3	140	10		

Results of On mode: Pass

Please refer to the following table for individual results.

Frequency	Level	Dwell Time	Sweep rate	Individua	al Results
(MHz)	(V/m)	(s)	(%)	Pass	Failed
150kHz – 80MHz	3.0Vrms	3	1	$\boxtimes$	

Remark:

Calculated measurement uncertainty: 2.39dB



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#### 3.2.7 Voltage Dips, Interruptions and Variations on AC Supply

Test Requirement: EN 55024 EN 61000-4-11 Severity: [0, 70]% of  $U_T$ 

**Performance Criterion Requirement: B** for 0% of U<sub>T</sub> for 0.5 period

C for other specifications

Temperature: 24 °C Humidity: 53 % Atmospheric Pressure: 101 kPa

Test Date(s): 2011-09-10

Mode of Operation: On mode

#### **Test Method:**

The test was performed in accordance with EN 61000-4-11.

#### **Test Procedure:**

The EUT is an industrial mobile computer, the test was conducted during the on mode function to simulate the normal usage specified by the manufacturer.



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Severity Levels for voltage dips, short interruptions and voltage variations immunity:

Level	Voltage dip and short interruptions	Duration (period)
0	100	0.5
70	30	25
0	100	250

Results of On mode: Pass

Please refer to the following table for individual results.

Phase	Test Level	Duration	Individua	al Results
	(% of U <sub>T</sub> )	(period)	Pass	Failed
0° followed by 180°	0	0.5	$\boxtimes$	
0° followed by 180°	70	25	$\boxtimes$	
0° followed by 180°	0	250	$\boxtimes$	

Remarks:

Calculated measurement uncertainty: 7.1% of tested voltage

 $\boldsymbol{U}_{\boldsymbol{T}}$  - The nominal supply voltage

\*\*\*\*\*End of Test Report\*\*\*\*



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### List of Measurement Equipment

### **Radiated Emission**

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL
EMD022	EMI Test Receiver	ROHDE & SCHWARZ	ESCS 30	100314	2011.03.15
EMD061	Biconilog Antenna	ETS.LINDGREN	3142C	00060439	2010.11.20
EMD084	MULTI-DVICE CONTROLLER	ETS.LINDGREN	2090	00060107	N/A
EMD088	Video Contol Unit	ETS.LINDGREN	Y21953A	2601073	N/A
EMD093	Monitor	ViewSonic	VA9036	Q8X064201876	N/A
EMD102	Intelligent Frequency	Ainuo Instrument Co., Ltd	AN97005SS	79707454	N/A
EMD105	FACT-3 EMC Chamber	ETS.LINDGREN	FACT-3	3803	N/A

### **Conducted Emission**

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL
EMD003	IMPULSEGRENZER PULSE LIMITER	ROHDE & SCHWARZ	ESH3-Z2	100071	2011.03.15
EMD004	ZWEILEITER-V- NETZNACHBILDUNG TWO- LINE V-NETWORK	ROHDE & SCHWARZ	ESH3-Z5	100102	2011.03.15
EMD009	Passive Voltage Probe	ROHDE & SCHWARZ	ESH2-Z3	100020	2011.03.15
EMD036	EMI Test Receiver	ROHDE & SCHWARZ	ESIB26	100388	2011.09.07
EMD041	TWO-LINE V-NETWORK	ROHDE & SCHWARZ	ENV216	100261	2011.07.15
EMD103	Intelligent Frequency	Ainuo Instrument Co., Ltd	AN97005SS	79707455	N/A
EMD106	Shielding Room #1	ETS.LINDGREN	RFD-100	3802	N/A

#### Harmonics/ Flicker

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL
EMD013	AC power source	SCHAFFNER	NSG1007	54964	2011.03.15
EMD014	Harmonic & flicker meter	SCHAFFNER	CCN1000	72104	2010.11.10
EMD054	LF Measuring System	EMC-PARTNER	HARMONICS1000	149	2011.07.15

### **Electro Static Discharge**

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL
EMD007	HIGH VOLTAGE OUTPUT ±30KV MAX	KIKUSUI	KES4021	LG001717	2011.07.13
EMD034	Dehumidifier	Kawasima electrical appliance Co.,Ltd	DH-820H	N/A	N/A
EMD100	Thermohygrograph	SATO KEIRYOKI MFG.CO.,LTD.	7210-00	1633581	2011.07.13
EMD109	BAROGRAPH	SATO KEIRYOKI MFG.CO.,LTD.	NSII-BQ	567719	2010.12.31



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**Radiated Field Immunity** 

Radiated 1 feed 1 minutity						
EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	
EMD111	Power meter	ROHDE & SCHWARZ	NRVD	102051	2011.03.15	
EMD137	Signal Generator	ROHDE & SCHWARZ	SMB100A	1406600K02- 104532-DF	2011.01.05	
EMD060	Biconilog Antenna	ETS.LINDGREN	3142C	00060445	2010.10.16	
EMD064	Power Amplifier	BONN ELEKTRONIK	BLWA0810- 250/100D	066454A	2011.03.15	

#### EFT /Bust

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL
EMD053	Transient Immunity Test System	EMC-PARTNER	TRANSIENT2000	845	2011.07.15

### **Surge Immunity**

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL
EMD053	Transient Immunity Test	EMC-PARTNER	TRANSIENT2000	845	2011.07.15
	System				

### **Injected Current Immunity**

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL
EMD023	DUAL DIRECTIONAL COUPLER	AMPLIFIER RESEARCH	DC2600A	308682	2011.03.15
EMD024	Amplifier	AMPLIFIER RESEARCH	75A250A	308682	2011.03.15
EMD025	Power meter	ROHDE & SCHWARZ	NRVD	100987	2010.12.20
EMD026	Signal Generator	ROHDE & SCHWARZ	SML01	102439	2011.03.15
EMD029	Coupling Decoupling Network	Fischer Custom Communications Inc	30W1000B	4022	2011.03.15

### **Voltage Dip**

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL
EMD053	Transient Immunity Test System	EMC-PARTNER	TRANSIENT2000	845	2011.07.15

Remark:

N/A Not Applicable



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# PHOTOGRAPH (S) OF PRODUCT

### Front View of The Product





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# PHOTOGRAPH (S) OF PRODUCT

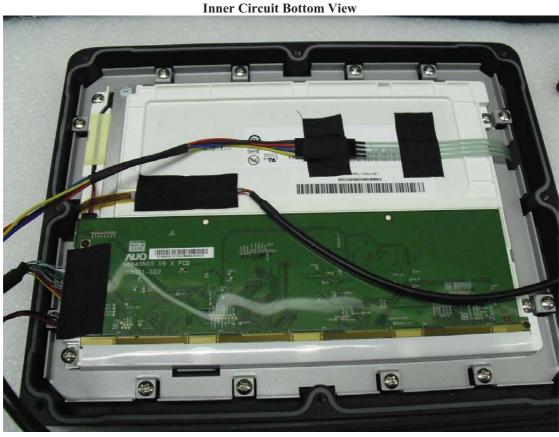
**Inner Circuit Top View** 





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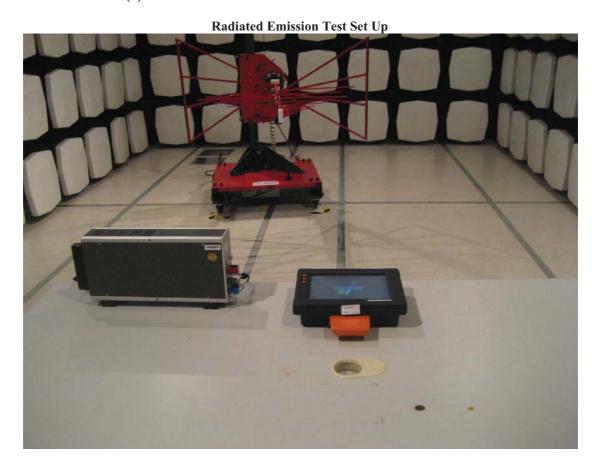
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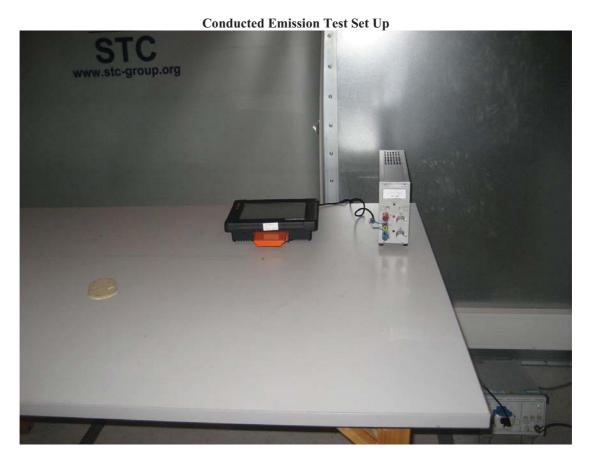
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# PHOTOGRAPH (S) OF PRODUCT

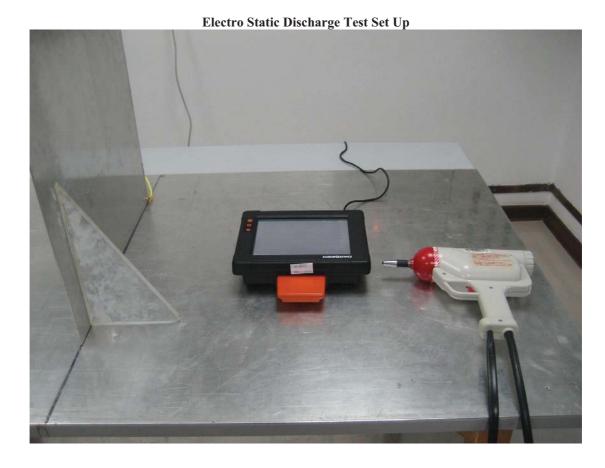
Harmonic Emissions & Voltage Fluctuations Test Set Up





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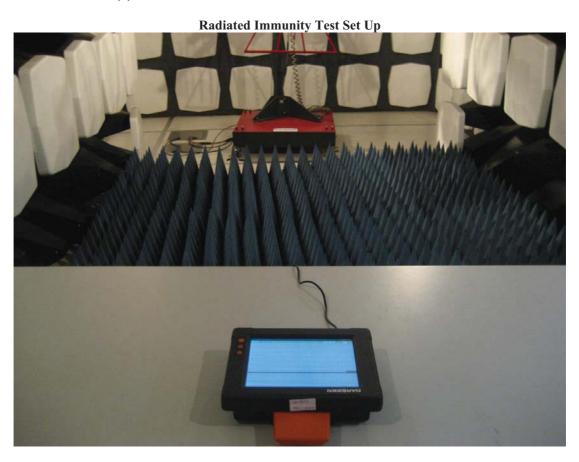
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# PHOTOGRAPH (S) OF PRODUCT

Electrical Fast Transients, Surge Immunity, Voltage Dips Test Set Up





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