



**BCT**  
Bontek Compliance Testing

**Shenzhen Bontek Compliance Testing Laboratory Co., Ltd.**

EN 55022:2010  
EN 55024:2010  
EN 61000-3-2:2006+A2:2009  
EN 61000-3-3:2008

## MEASUREMENT AND TEST REPORT

For  
**FINGERTEC WORLDWIDE SDN BHD**

NO.6, 8 & 10, JALAN BK 3/2, BANDAR KINRARA, 47180 PUCHONG, SELANGOR,  
MALAYSIA

**Model:TA100C, TA100TC ,AC100C**

September 17, 2012

<b>This Report Concerns:</b> <input checked="" type="checkbox"/> Original Report	<b>Equipment Type:</b> Fingerprint T&A System
<b>Test By:</b>	Yang yang/ <i>Yang yang</i>
<b>Report Number:</b>	BCT12HR-1525E
<b>Test Date:</b>	September 6~17, 2012
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior written consent of Shenzhen Bontek Compliance Testing Laboratory Co., Ltd.

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## 1- GENERAL INFORMATION

### 1.1 Product Description for Equipment Under Test (EUT)

#### Client Information

Applicant: **FINGERTEC WORLDWIDE SDN BHD**  
Address of applicant: NO.6, 8 & 10, JALAN BK 3/2, BANDAR KINRARA, 47180  
PUCHONG, SELANGOR, MALAYSIA  
Manufacturer: **FINGERTEC WORLDWIDE SDN BHD**  
Address of manufacturer: NO.6, 8 & 10, JALAN BK 3/2, BANDAR KINRARA, 47180  
PUCHONG, SELANGOR, MALAYSIA

#### General Description of E.U.T

EUT Description: **Fingerprint T&A System**  
Trade Mark: **FINGERTEC**  
Model No.: **TA100C, TA100TC, AC100C**  
Test Model No.: **TA100C**  
Adapter Power Rating: **Model: KSAFC0500200W1UV**  
**Input: 100-240V 50/60Hz 0.3A**  
**Output: DC5V 2.0A**  
Power Rating: **Input: DC5V 2.0A**

Remark: \* The test data gathered are from the production sample provided by the manufacturer.

### 1.2 Test Standards

The following Declaration of Conformity report of EUT is prepared in accordance with

EN 55022:2010

EN 55024:2010

EN 61000-3-2:2006+A2:2009

EN 61000-3-3:2008

The objective of the manufacturer is to demonstrate compliance with the described standards above.



### 1.3 Test Summary

For the EUT described above. The standards used were EN 55022 Class B for Emissions & EN 55024 for Immunity.

Table 1 : Tests Carried Out Under EN 55022:2010

Standard	Test Items	Status
EN 55022:2010	Disturbance Voltage at The Mains Terminals (150KHz To 30MHz)	√
	Radiated Disturbances (30MHz To 6GHz)	√

- √ Indicates that the test is applicable  
 × Indicates that the test is not applicable

Table 2 : Tests Carried Out Under EN 61000-3-2:2006+A2:2009/ EN 61000-3-3:2008

Standard	Test Items	Status
EN 61000-3-2:2006+A2:2009	Harmonic Current Test	√
EN 61000-3-3:2008	Voltage Fluctuations and Flicker Test	√

- √ Indicates that the test is applicable  
 × Indicates that the test is not applicable

Table 3 : Tests Carried Out Under EN 55024:2010

Standard	Test Items	Status
EN 61000-4-2:2009	Electrostatic discharge Immunity	√
EN 61000-4-3:2006+A2:2010	Radiated Susceptibility (80MHz to 1GHz)	√
EN 61000-4-4:2004+A2:2010	Electrical Fast Transient/Burst Immunity	√
EN 61000-4-5:2006	Surge Immunity	√
EN 61000-4-6:2009	Conducted Susceptibility (150kHz to 80MHz)	√
EN 61000-4-8:2010	Power Frequency Magnetic Field Immunity (50/60Hz)	X
EN 61000-4-11:2004	Voltage Dips, Short Interruptions Immunity	√

- √ Indicates that the test is applicable  
 × Indicates that the test is not applicable

## 1.4 Test Methodology

All measurements contained in this report were conducted with CISPR 16-1-1: 2006, radio disturbance and immunity measuring apparatus, and CISPR16-2-3: 2010, Method of measurement of disturbances and immunity.

All measurement required was performed at SHENZHEN BONTEK ELECTRONIC TECHNOLOGY CO., LTD. at 1/F,Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East Road, Nanshan, Shenzhen, China

## 1.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

### FCC – Registration No.: 338263

Shenzhen Bontek Compliance Testing Laboratory Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 338263, March, 2011.

### IC Registration No.: 7631A

The 3m alternate test site of Shenzhen Bontek Compliance Testing Laboratory Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 7631A on January 2011.

The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

### CNAS - Registration No.: L3923

Shenzhen Bontek Compliance Testing Laboratory Co., Ltd. to ISO/IEC 17025:25 General Requirements for the Competence of Testing and Calibration Laboratories(CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

The acceptance letter from the CNAS is maintained in our files: Registration: L3923, March, 2012.

### TUV - Registration No.: UA 50203122-0001

Shenzhen Bontek Compliance Testing Laboratory Co., Ltd. An assessment of the laboratory was conducted according to the "Procedures and Conditions for EMC Test Laboratories" with reference to EN ISO/IEC 17025 by a TUV Rheinland auditor. Audit Report NO. 17010783-002



## 1.6 Test Equipment List and Details

Test equipments list of Shenzhen Bontek Compliance Testing Laboratory Co., Ltd.

No.	Instrument no.	Equipment	Manufacturer	Model No.	S/N	Calculator date	Calculator due date
1	BCT-EMC001	EMI Test Receiver	R&S	ESCI	100687	2012-4-6	2013-4-5
2	BCT-EMC002	EMI Test Receiver	R&S	ESPI	100097	2012-7-24	2013-7-23
3	BCT-EMC003	Amplifier	HP	8447D	1937A02492	2012-4-6	2013-4-5
4	BCT-EMC004	Single Power Conductor Module	FCC	FCC-LISN-5-50-1-01-CISPR25	07101	2012-4-6	2013-4-5
5	BCT-EMC005	Single Power Conductor Module	FCC	FCC-LISN-5-50-1-01-CISPR25	07102	2012-4-6	2013-4-5
6	BCT-EMC006	Power Clamp	SCHWARZBECK	MDS-21	3812	2012-4-6	2013-4-5
7	BCT-EMC007	Positioning Controller	C&C	CC-C-1F	MF7802113	N/A	N/A
8	BCT-EMC008	Electrostatic Discharge Simulator	TESEQ	NSG437	125	2012-4-6	2013-4-5
9	BCT-EMC009	Fast Transient Burst Generator	SCHAFFNER	MODULA6150	34572	2012-4-6	2013-4-5
10	BCT-EMC010	Fast Transient Noise Simulator	Noiseken	FNS-105AX	10501	2012-5-06	2013-5-05
11	BCT-EMC011	Color TV Pattern Generator	PHILIPS	PM5418	TM209947	N/A	N/A
12	BCT-EMC012	Power Frequency Magnetic Field Generator	EVERFINE	EMS61000-8K	608002	2012-4-6	2013-4-5
14	BCT-EMC014	Capacitive Coupling Clamp	TESEQ	CDN8014	25096	2012-4-6	2013-4-5
15	BCT-EMC015	High Field Biconical Antenna	ELECTRO-METRICS	EM-6913	166	2011-11-28	2012-11-27
16	BCT-EMC016	Log Periodic Antenna	ELECTRO-METRICS	EM-6950	811	2011-11-28	2012-11-27
17	BCT-EMC017	Remote Active Vertical Antenna	ELECTRO-METRICS	EM-6892	304	2011-11-28	2012-11-27
18	BCT-EMC018	TRILOG Broadband Test-Antenna	SCHWARZBECK	VULB9163	9163-324	2012-04-11	2013-04-10
19	BCT-EMC019	Horn Antenna	SCHWARZBECK	BBHA9120A	0499	2011-11-28	2012-11-27
20	BCT-EMC020	Teo Line Single Phase Module	SCHWARZBECK	NSLK8128	8128247	2011-10-24	2012-10-23

21	BCT-EMC021	Triple-Loop Antenna	EVERFINE	LLA-2	711002	2012-4-6	2013-4-5
22	BCT-EMC022	Electric bridge	Jhai	JK2812C	803024	N/A	N/A
23	BCT-EMC026	RF POWER AMPLIFIER	FRANKONIA	FLL-75	1020A1109	2012-4-6	2013-4-5
24	BCT-EMC027	CDN	FRANKONIA	CDN M2+M3	A3027019	2012-4-6	2013-4-5
25	BCT-EMC029	6DB Attenuator	FRANKONIA	N/A	1001698	2012-4-6	2013-4-5
26	BCT-EMC030	EM Injection clamp	FCC	F-203I-23mm	091536	2012-4-6	2013-4-5
27	BCT-EMC031	9kHz-2.4GHz signal generator 2024	MARCONI	10S/6625-99-457-8730	112260/042	2012-4-6	2013-4-5
28	BCT-EMC032	10dB attenuator	ELECTRO-METRICS	EM-7600	836	2012-4-6	2013-4-5
29	BCT-EMC033	ISN	TESEQ	ISN-T800	30301	2012-6-05	2013-6-04
30	BCT-EMC034	10KV surge generator	SANKI	SKS-0510M	048110003E321	2011-11-14	2012-11-13
31	BCT-EMC035	HRMONICS&FLICKRE ANALYSER	VOLTECH	PM6000	200006700433	2012-6-05	2013-6-04
32	BCT-EMC036	Spectrum Analyzer	R&S	FSP	100397	2011-11-2	2012-11-1
33	BCT-EMC037	Broadband preamplifier	SCH WARZBECK	BBV9718	9718-182	2012-4-6	2013-4-5



## 2 - SYSTEM TEST CONFIGURATION

### 2.1 Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

### 2.2 EUT Exercise Software

The EUT exercising program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The software offered by manufacture, can let the EUT being normal operation.

### 2.3 Special Accessories

As shown in section 2.5, interface cable used for compliance testing is shielded as normally supplied by **FINGERTEC WORLDWIDE SDN BHD** and its respective support equipment manufacturers.

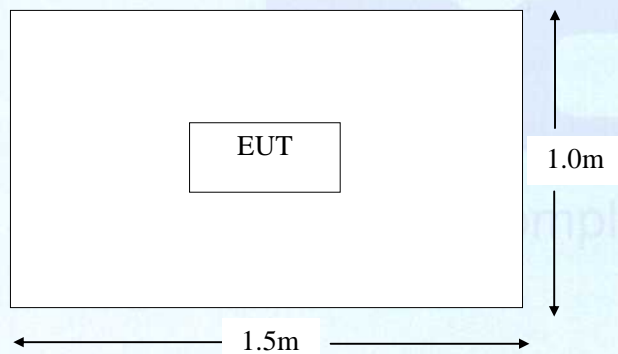
### 2.4 Equipment Modifications

The EUT tested was not modified by BCT.



EUT

### 2.5 Test Setup Diagram



### 3 - DISTURBANCE VOLTAGE AT THE MAINS TERMINALS

#### 3.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is 3.4 dB.

#### 3.2 Limit of Disturbance Voltage At The Mains Terminals (Class B)

Frequency Range (MHz)	Limits ( dBuV)	
	Quasi-Peak	Average
0.150~0.500	66~56	56~46
0.500~5.000	56	46
5.000~30.00	60	50

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

#### 3.3 EUT Setup

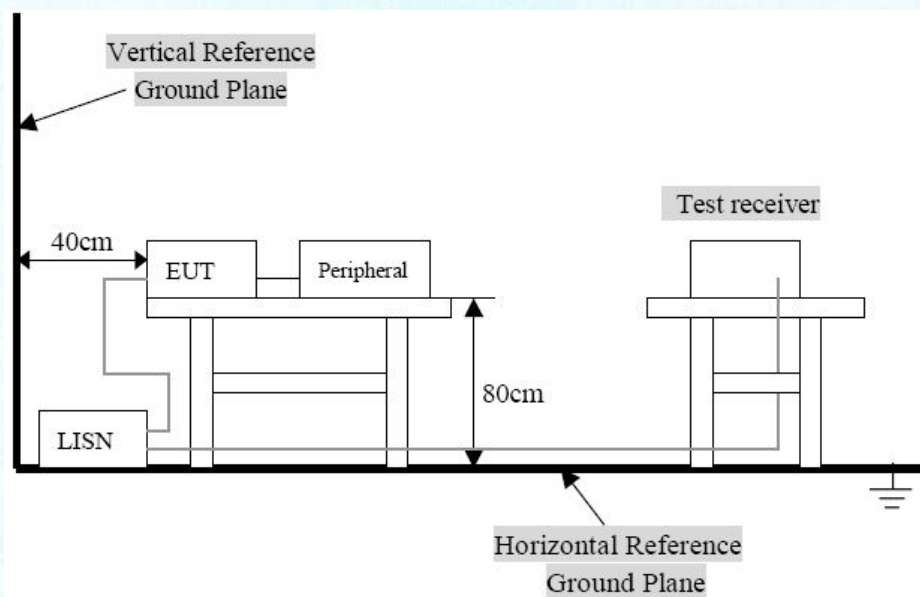
The setup of EUT is according with CISPR 16-1-1: 2006, CISPR16-2-3: 2010 measurement procedure. The specification used was the EN 55022 limits.

The EUT was placed center and the back edge of the test table.

The AV cables were draped along the test table and bundled to 30-40cm in the middle.

The spacing between the peripherals was 10 cm.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.





### 3.4 Instrument Setup

The test receiver was set with the following configurations:

Test Receiver Setting:

Frequency Range.....150 KHz to 30 MHz  
Detector.....Peak & Quasi-Peak & Average  
Sweep Speed.....Auto  
IF Band Width.....9 KHz

### 3.5 Test Procedure

During the conducted emission test, the EUT power cord was connected to the auxiliary outlet of the first Artificial Mains.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination.

All data was recorded in the peak detection mode. Quasi-peak and Average readings were only performed when an emission was found to be marginal (within -10 dB $\mu$ V of specification limits). Quasi-peak readings are distinguished with a "QP". Average readings are distinguished with a "AV".

### 3.6 Summary of Test Results

According to the data in section 3.6, the EUT complied with the EN 55022 Conducted margin, with the *worst* margin reading of:

### 3.7 Disturbance Voltage Test Data

Temperature ( °C )	22~25
Humidity ( %RH )	50~60
Barometric Pressure ( mbar )	950~1000
EUT	Fingerprint T&A System
M/N	TA100C
Operating Mode	Normal Operation

Test data see following pages

### 3.8 Test Result

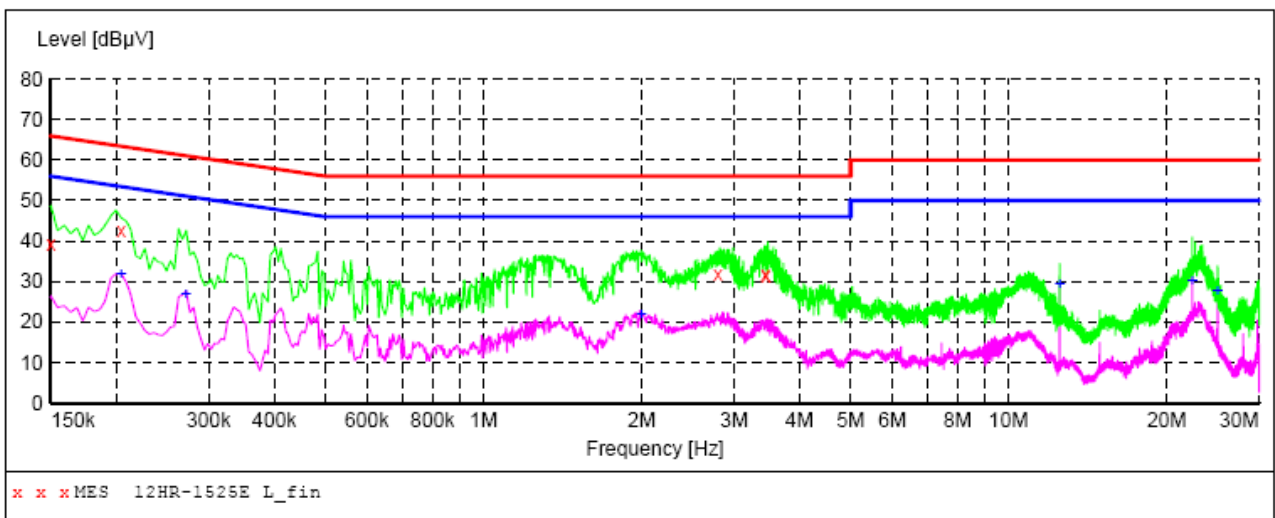
**PASS**

## Conducted Emission Test Data

EUT: Fingerprint T&A System  
 M/N: TA100C  
 Operating Condition: Normal Operation  
 Test Site: Shielded Room  
 Operator: Chen  
 Test Specification: AC 230V/50Hz for Adapter  
 Comment: L Line  
 Start of Test: 9/6/2012/ 8:24PM Tem:24°C Hum:60%

### SCAN TABLE: "Voltage(150K-30M)FIN"

Short Description: 150K-30M Voltage



### MEASUREMENT RESULT: "12HR-1525E L\_fin"

9/6/2012 8:24PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.150000	39.30	11.4	66	26.7	QP	L1	GND
0.204000	42.80	10.8	63	20.6	QP	L1	GND
2.796000	31.90	10.2	56	24.1	QP	L1	GND
3.444000	31.80	10.3	56	24.2	QP	L1	GND
3.453000	31.60	10.3	56	24.4	QP	L1	GND

### MEASUREMENT RESULT: "12HR-1525E L\_fin2"

9/6/2012 8:24PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.204000	31.90	10.8	53	21.5	AV	L1	GND
0.271500	26.80	10.6	51	24.3	AV	L1	GND
1.999500	22.00	10.2	46	24.0	AV	L1	GND
12.502500	29.50	10.5	50	20.5	AV	L1	GND
22.366500	30.20	10.8	50	19.8	AV	L1	GND
24.999000	27.90	10.9	50	22.1	AV	L1	GND

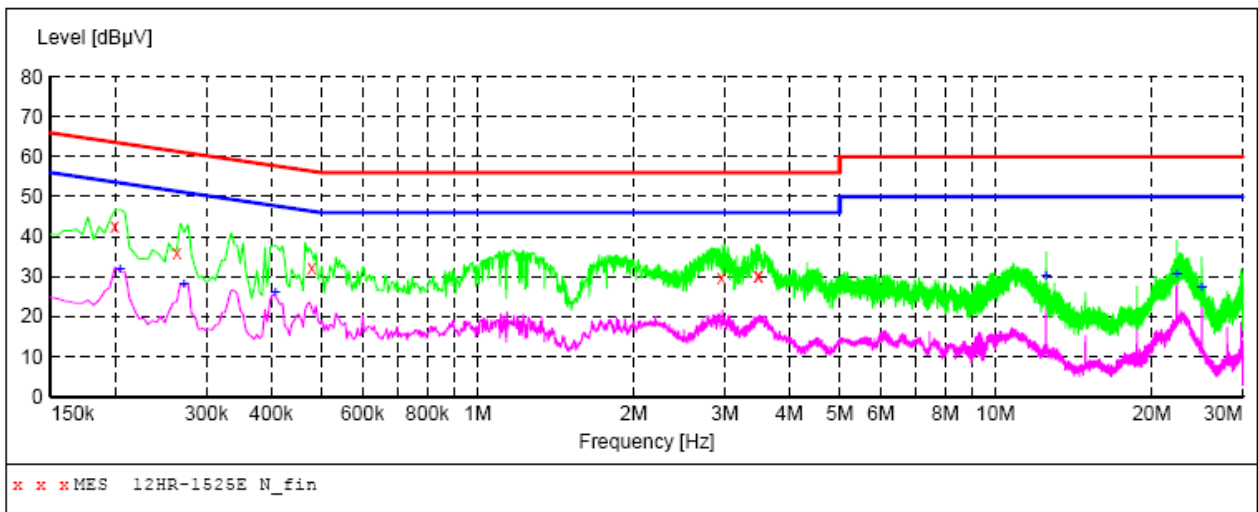


## Conducted Emission Test Data

EUT: Fingerprint T&A System  
 M/N: TA100C  
 Operating Condition: Normal Operation  
 Test Site: Shielded Room  
 Operator: Chen  
 Test Specification: AC 230V/50Hz for Adapter  
 Comment: N Line  
 Start of Test: 9/6/2012/ 8:27PM Tem:24°C Hum:60%

### SCAN TABLE: "Voltage (150K-30M) FIN"

Short Description: 150K-30M Voltage



### MEASUREMENT RESULT: "12HR-1525E N\_fin"

9/6/2012 8:27PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.199500	42.40	10.8	64	21.2	QP	N	GND
0.262500	36.00	10.6	61	25.4	QP	N	GND
0.478500	32.10	10.3	56	24.3	QP	N	GND
2.953500	29.70	10.2	56	26.3	QP	N	GND
3.475500	30.30	10.3	56	25.7	QP	N	GND
3.484500	30.10	10.3	56	25.9	QP	N	GND

### MEASUREMENT RESULT: "12HR-1525E N\_fin2"

9/6/2012 8:27PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.204000	32.00	10.8	53	21.4	AV	N	GND
0.271500	28.20	10.6	51	22.9	AV	N	GND
0.406500	26.00	10.4	48	21.7	AV	N	GND
12.502500	30.20	10.5	50	19.8	AV	N	GND
22.366500	30.60	10.8	50	19.4	AV	N	GND
24.999000	27.30	10.9	50	22.7	AV	N	GND

## 4 - RADIATED DISTURBANCES

### 4.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is 4.0 dB.

### 4.2 Limit of Radiated Disturbances (Class B )

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dB $\mu$ V/m)
30 ~ 230	3	40
230 ~ 1000	3	47

Frequency (MHz)	Distance (Meters)	Field Strengths Limits AV(dB $\mu$ V/m)	Field Strengths Limits PK(dB $\mu$ V/m)
1000~3000	3	50	70
3000-6000	3	54	74

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

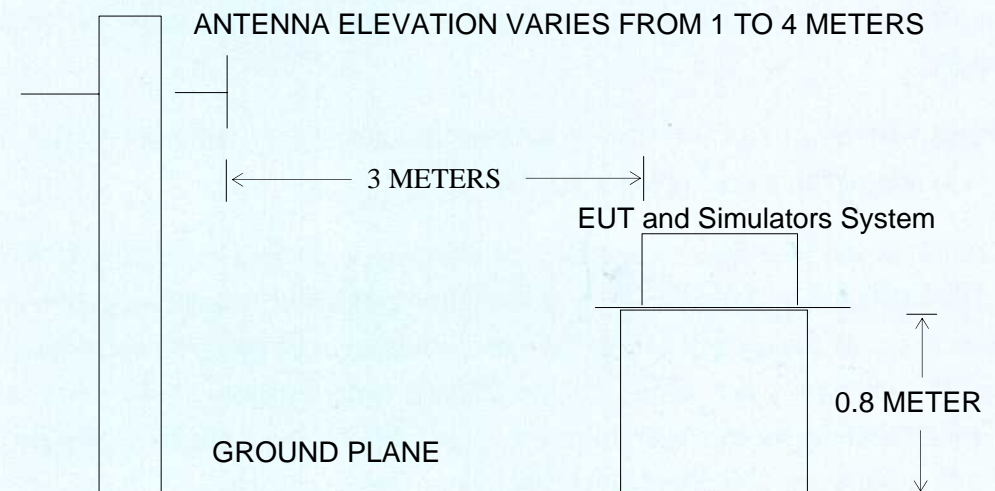
### 4.3 EUT Setup

The radiated emission tests were performed in the open area 3-meter test site, using the setup accordance with the CISPR 16-1-1: 2006, CISPR16-2-3: 2010. The specification used was EN 55022 Class B limits.

The EUT was placed on the center of the test table.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.

Block diagram of test setup (In chamber)





#### 4.4 Test Receiver Setup

According to EN 55022 rules, the frequency was investigated from 30 to 1000 MHz. During the radiated emission test, the test receiver was set with the following configurations:

Test Receiver Setting:

Detector.....Peak & Quasi-Peak  
 IF Band Width.....120KHz  
 Frequency Range.....30MHz to 1000MHz  
 Turntable Rotated.....0 to 360 degrees

Antenna Position:

Height.....1m to 4m  
 Polarity.....Horizontal and Vertical

#### 4.5 Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the peak detection mode. Quasi-peak readings performed only when an emission was found to be marginal (within -10 dB $\mu$ V of specification limits), and are distinguished with a "QP" in the data table.

#### 4.6 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB $\mu$ V means the emission is 7dB $\mu$ V below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Class B Limit} - \text{Corr. Ampl.}$$

#### 4.7 Radiated Emissions Test Result

Temperature ( °C )	22~25
Humidity ( %RH )	50~55
Barometric Pressure ( mbar )	950~1000
EUT	Fingerprint T&A System
M/N	TA100C
Operating Mode	Normal Operation

#### 4.8 Test Result

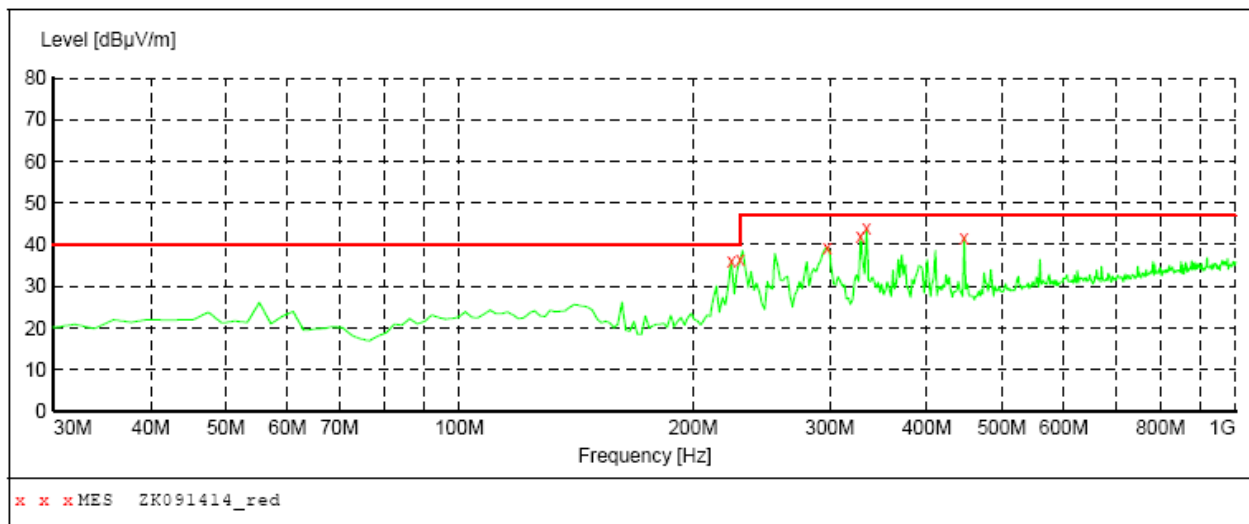
**PASS**

## Radiated Emission Test Data

EUT: Fingerprint T&A System  
 M/N: TA100C  
 Operating Condition: Normal Operation  
 Test Site: 3m CHAMBER  
 Operator: Yang  
 Test Specification: AC 230V/50Hz for Adapter  
 Comment: Polarization: Horizontal  
 Start of Test: 9/14/2012/ 14:30 Tem:25°C Hum:50%

### SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	VULB9163 NEW



### MEASUREMENT RESULT: "ZK091414\_red"

9/14/2012 14:30

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
224.000000	36.20	15.6	40.0	3.8	QP	100.0	0.00	HORIZONTAL
229.820000	36.40	16.1	40.0	3.6	QP	100.0	0.00	HORIZONTAL
297.720000	39.40	18.7	47.0	7.6	QP	100.0	0.00	HORIZONTAL
328.760000	42.10	19.6	47.0	4.9	QP	100.0	0.00	HORIZONTAL
334.580000	43.90	19.9	47.0	3.1	QP	100.0	0.00	HORIZONTAL
447.100000	41.80	22.1	47.0	5.2	QP	100.0	0.00	HORIZONTAL

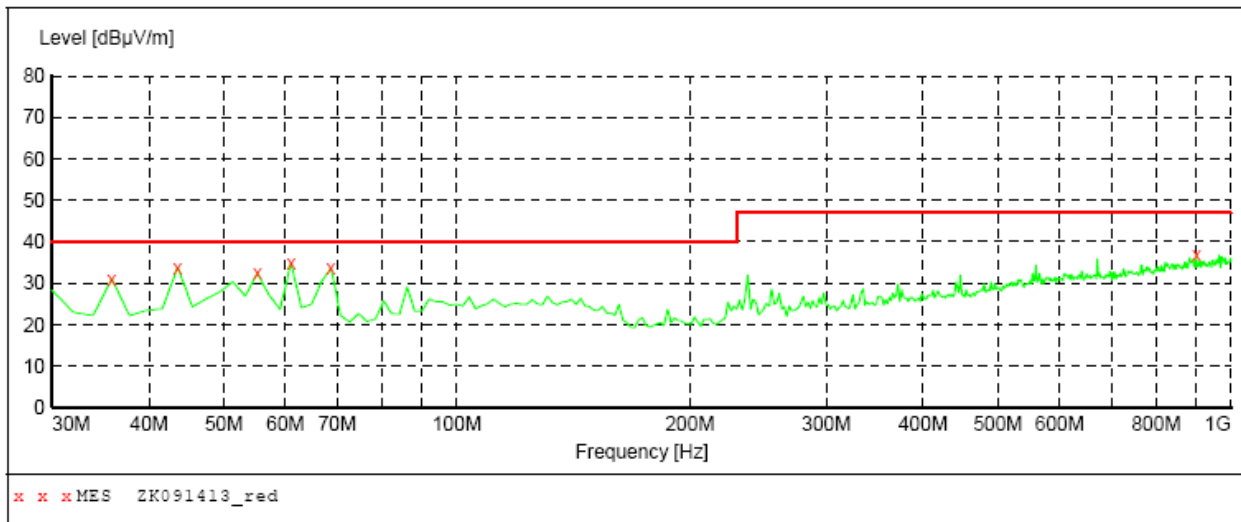


## Radiated Emission Test Data

EUT: Fingerprint T&A System  
 M/N: TA100C  
 Operating Condition: Normal Operation  
 Test Site: 3m CHAMBER  
 Operator: Yang  
 Test Specification: AC 230V/50Hz for Adapter  
 Comment: Polarization: Vertical  
 Start of Test: 9/14/2012/ 14:32 Tem:25°C Hum:50%

### SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength				Transducer
Start	Stop	Detector	Meas. Time	IF Bandw.		
Frequency 30.0 MHz	Frequency 1.0 GHz	MaxPeak	Coupled	100 kHz	VULB9163 NEW	



### MEASUREMENT RESULT: "ZK091413\_red"

9/14/2012 14:32

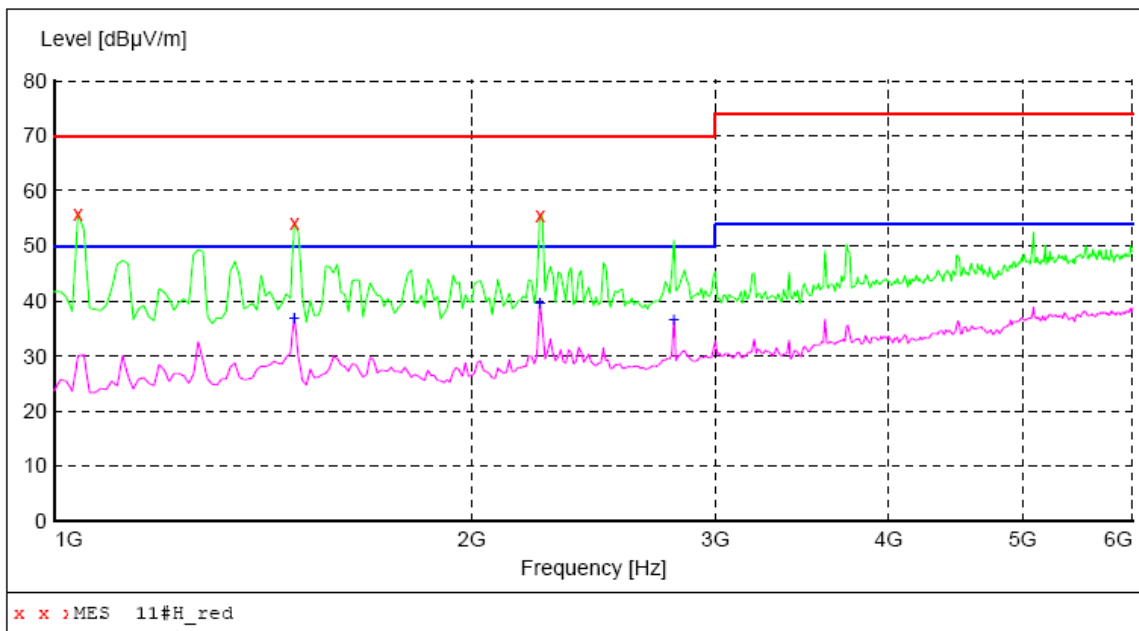
Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
35.820000	31.00	14.7	40.0	9.0	QP	100.0	0.00	VERTICAL
43.580000	33.90	15.9	40.0	6.1	QP	100.0	0.00	VERTICAL
55.220000	32.40	15.6	40.0	7.6	QP	100.0	0.00	VERTICAL
61.040000	34.90	14.2	40.0	5.1	QP	100.0	0.00	VERTICAL
68.800000	33.60	12.7	40.0	6.4	QP	100.0	0.00	VERTICAL
903.000000	36.90	29.2	47.0	10.1	QP	100.0	0.00	VERTICAL

## Radiated Emission Test Data of above 1GHz:

EUT: Fingerprint T&A System  
 M/N: TA100C  
 Operating Condition: Normal Operation  
 Test Site: 3m CHAMBER  
 Operator: Yang  
 Test Specification: AC 230V/50Hz for Adapter  
 Comment: Polarization: Horizontal  
 Start of Test: 9/14/2012/ 14:50 Tem:25°C Hum:50%

### SWEEP TABLE: "test (1G-6G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
1.0 GHz	6.0 GHz	MaxPeak	Coupled	1 MHz	BBHA 9120 A
		Average			



### MEASUREMENT RESULT: "11#H\_red"

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1040.000000	55.90	-12.5	70.0	14.1	PK	100.0	0.00	HORIZONTAL
1490.000000	54.10	-11.0	70.0	15.9	PK	100.0	0.00	HORIZONTAL
2240.000000	55.70	-7.5	70.0	14.3	PK	100.0	0.00	HORIZONTAL

### MEASUREMENT RESULT: "11#H\_red2"

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1490.000000	37.10	-11.0	50.0	12.9	AV	100.0	0.00	HORIZONTAL
2240.000000	39.80	-7.5	50.0	10.2	AV	100.0	0.00	HORIZONTAL
2800.000000	36.80	-6.6	50.0	13.2	AV	100.0	0.00	HORIZONTAL

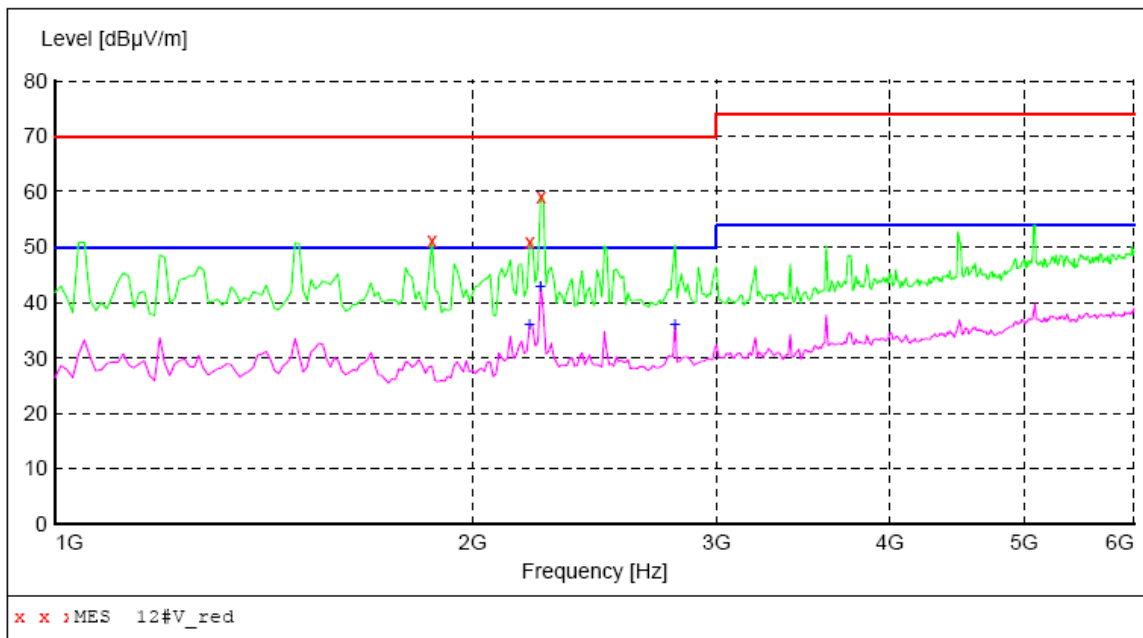


## Radiated Emission Test Data of above 1GHz:

EUT: Fingerprint T&A System  
 M/N: TA100C  
 Operating Condition: Normal Operation  
 Test Site: 3m CHAMBER  
 Operator: Yang  
 Test Specification: AC 230V/50Hz for Adapter  
 Comment: Polarization: Vertical  
 Start of Test: 9/14/2012/ 14:45      Tem:25°C Hum:50%

### SWEEP TABLE: "test (1G-6G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
1.0 GHz	6.0 GHz	MaxPeak	Coupled	1 MHz	BBHA 9120 A
		Average			



### MEASUREMENT RESULT: "12#V\_red"

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1870.000000	51.30	-10.5	70.0	18.7	PK	100.0	0.00	VERTICAL
2200.000000	50.90	-7.5	70.0	19.1	PK	100.0	0.00	VERTICAL
2240.000000	59.20	-7.5	70.0	10.8	PK	100.0	0.00	VERTICAL

### MEASUREMENT RESULT: "12#V\_red2"

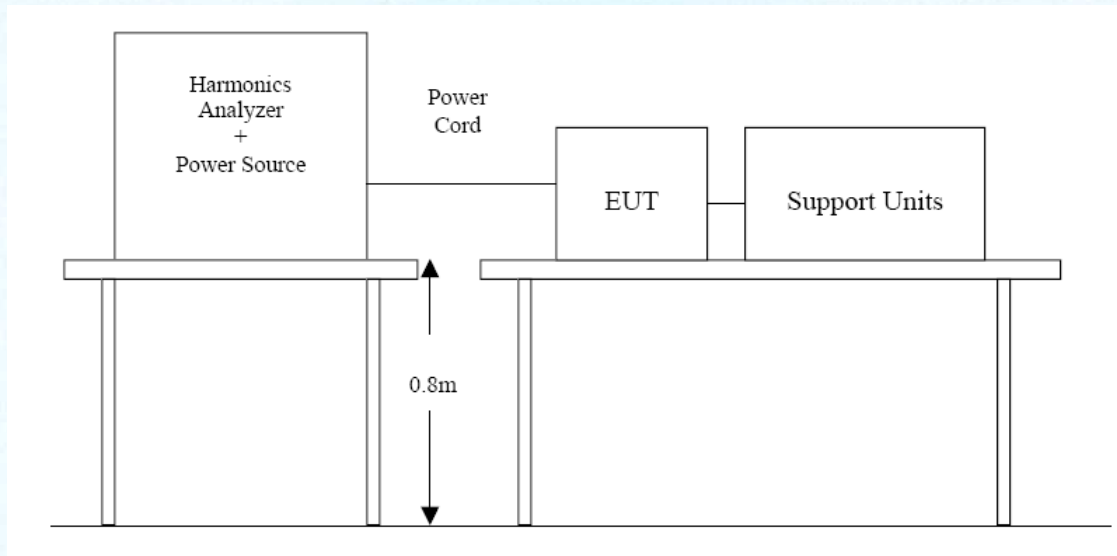
Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
2200.000000	36.10	-7.5	50.0	13.9	AV	100.0	0.00	VERTICAL
2240.000000	43.10	-7.5	50.0	6.9	AV	100.0	0.00	VERTICAL
2800.000000	36.10	-6.6	50.0	13.9	AV	100.0	0.00	VERTICAL

## 5 - HARMONIC CURRENT TEST (EN 61000-3-2)

### 5.1 Application of Harmonic Current Emission

Compliance to these standards ensures that tested equipment will not generate harmonic currents at levels that cause unacceptable degradation of the main environment. This directly contributes to meeting compatibility levels established in other EMC standards, which defines compatibility levels for low-frequency conducted disturbances in low-voltage supply systems.

### 5.2 Block Diagram of Test Setup



### 5.3 Measurement Data

Note: For detailed test data, refer to the following pages:

Standard used:	EN/IEC 61000-3-2 Quasi-stationary - Equipment D
Observation time:	150s
E. U. T.:	Fingerprint T&A System
M/N	TA100C
Operation Mode	Normal Operation

### 5.4 Test Results

This EUT is deemed to comply with the requirements of EN61000-3-2:2006+A2:2009 without test since the power of EUT is less than 75W.

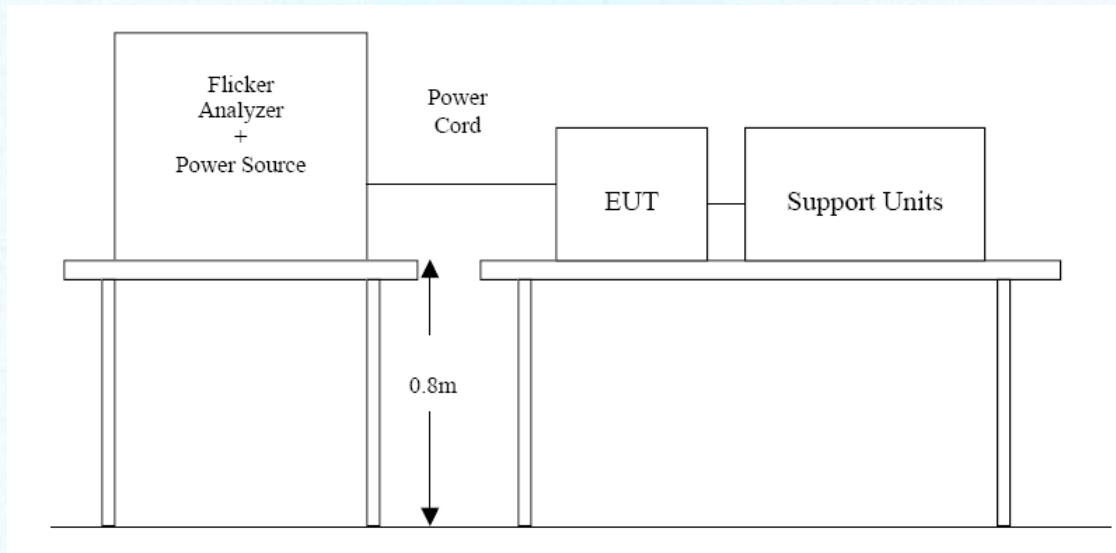


## 6 - VOLTAGE FLUCTUATIONS AND FLICKER TEST (EN 61000-3-3)

### 6.1 Application of Voltage Fluctuations and Flicker Test

Compliance to these standards ensures that tested equipment will not generate flickers and voltage change at levels that cause unacceptable degradation of the main environment. This directly contributes to meeting compatibility levels established in other EMC standards, which defines compatibility levels for low-frequency conducted disturbances in low-voltage supply systems.

### 6.2 Block Diagram of Test Setup



### 6.3 Measurement Data

Note: For detailed test data, refer to the following pages:

Standard used:	EN/IEC 61000-3-3 Flicker
Short time (Pst):	10 min
Observation time:	10 min (1 Flicker measurement)
Flickermeter:	230V / 50Hz
E. U. T.:	Fingerprint T&A System
M/N	TA100C
Operation Mode	Normal Operation

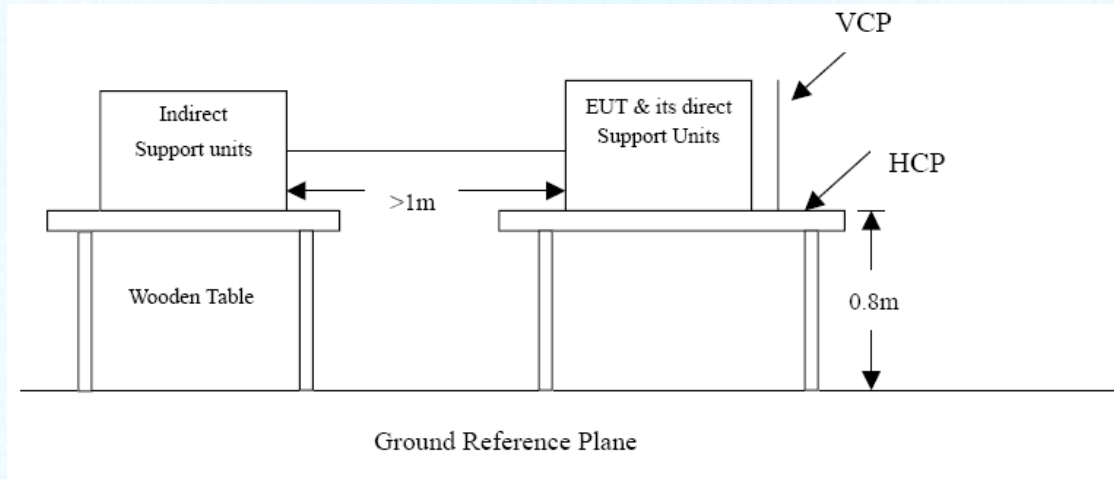
### 6.4 Test Results

**Pass**

	Pst	dc (%)	dmax (%)	d(t) > 3.3%(ms)
Limit	1.000	3.300	4.000	500
Reading 1	0.086	0.003	0.105	0

## 7 - Electrostatic Discharge immunity Test (IEC 61000-4-2)

### 7.1 Block Diagram of Test Setup



### 7.2 Test Standard

EN55024:2010, EN61000-4-2:2009 (EN61000-4-2:2009 Severity Level: 3 / Air Discharge:  $\pm 8\text{KV}$  Level: 2 / Contact Discharge:  $\pm 4\text{KV}$ )

### 7.3 Severity Levels and Performance Criterion

#### 7.3.1 Severity level

Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1.	$\pm 2$	$\pm 2$
2.	$\pm 4$	$\pm 4$
3.	$\pm 6$	$\pm 8$
4.	$\pm 8$	$\pm 15$
X	Special	Special

#### 7.3.2 Performance criterion : B

### 7.4 Operating Condition of EUT

7.4.1 Setup the EUT as shown on Section 7.1.

7.4.2 Turn on the power of all equipments.

7.4.3 Let the EUT work in measuring mode (Normal Operation) and measure it.



## 7.5 Test Procedure

### 7.5.1 Air Discharge:

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

### 7.5.2 Contact Discharge:

All the procedure shall be same as Section 7.6.1. Except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

### 7.5.3 Indirect discharge for horizontal coupling plane

At least 10 single discharges (in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit (if applicable) of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

### 7.5.4 Indirect discharge for vertical coupling plane

At least 10 single discharge (in the most sensitive polarity) shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

## 7.6 Test Results

### PASS

Please refer to the following pages

Temperature ( °C )	22~24
Humidity ( %RH )	50~55
Barometric Pressure ( mbar )	950~1000
EUT	Fingerprint T&A System
M/N	TA100C
Operating Mode	Normal Operation

Table 1: Electrostatic Discharge Immunity (Air Discharge)

IEC 61000-4-2 Test Points	Test Levels									
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	-15 kV	+15 kV
Button	A	A	A	A	A	A	A	A	/	/
LED Screen	A	A	A	A	A	A	A	A	/	/
Gap	A	A	A	A	A	A	A	A	/	/
Others	A	A	A	A	A	A	A	A	/	/

Table 2: Electrostatic Discharge Immunity (Direct Contact)

IEC 61000-4-2 Test Points	Test Levels									
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	-15 kV	+15 kV
Port	A	A	A	A	/	/	/	/	/	/
Others	A	A	A	A	/	/	/	/	/	/

Table 3: Electrostatic Discharge Immunity (Indirect Contact HCP)

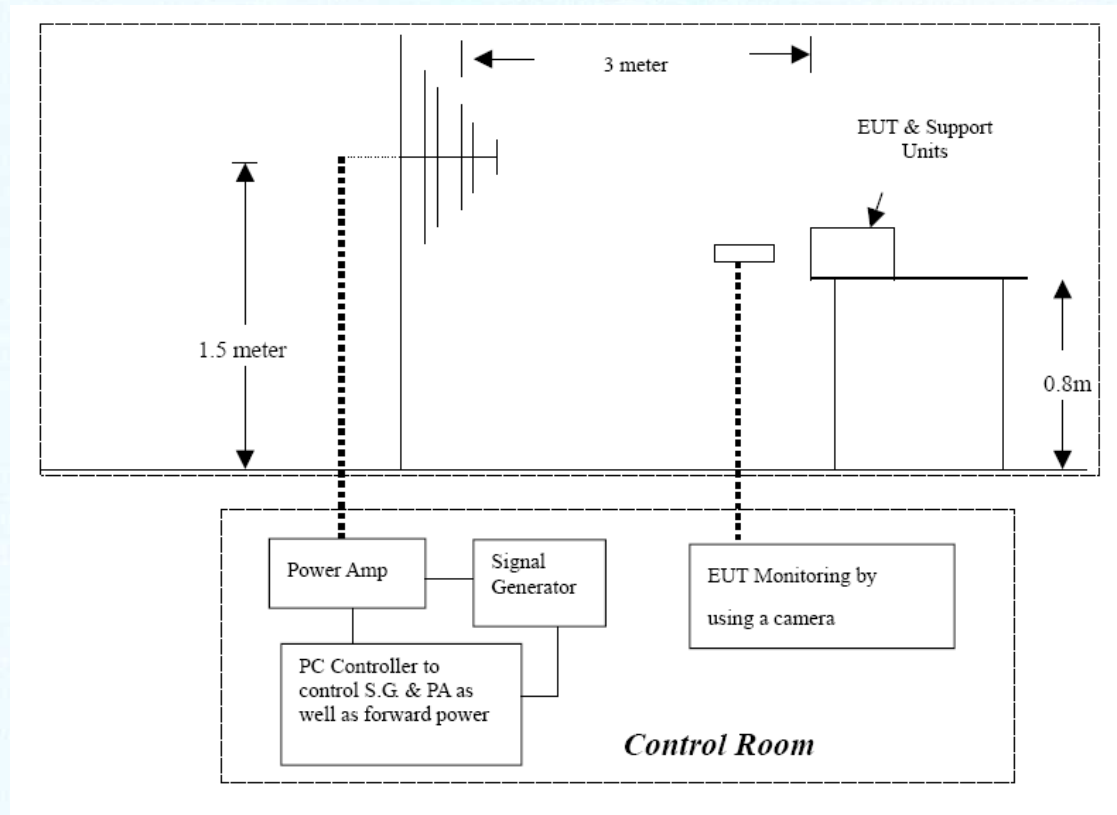
IEC 61000-4-2 Test Points	Test Levels									
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	-15 kV	+15 kV
Front Side	A	A	A	A	/	/	/	/	/	/
Back Side	A	A	A	A	/	/	/	/	/	/
Left Side	A	A	A	A	/	/	/	/	/	/
Right Side	A	A	A	A	/	/	/	/	/	/

Table 4: Electrostatic Discharge Immunity (Indirect Contact VCP)

IEC 61000-4-2 Test Points	Test Levels									
	-2 kV	+2 kV	-4 kV	+4 kV	-6 kV	+6 kV	-8 kV	+8 kV	-15 kV	+15 kV
Front Side	A	A	A	A	/	/	/	/	/	/
Back Side	A	A	A	A	/	/	/	/	/	/
Left Side	A	A	A	A	/	/	/	/	/	/
Right Side	A	A	A	A	/	/	/	/	/	/

## 8 - RF Field Strength susceptibility TEST (IEC 61000-4-3)

### 8.1 Block Diagram of Test



### 8.2 Test Standard

EN55024:2010, EN61000-4-3:2006+A2:2010 (EN61000-4-3:2006+A2:2010, Severity Level: 2, 3V / m)

### 8.3 Severity Levels and Performance Criterion

#### 8.3.1 Severity Levels

Level	Field Strength V/m
1.	1
2.	3
3.	10
X	Special

#### 8.3.2 Performance Criterion: A

### 8.4 Operating Condition of EUT

8.4.1 Setup the EUT as shown on Section 8.1.

8.4.2 Turn on the power of all equipments.

8.4.3 Let the EUT work in measuring mode (Normal Operation) and measure it..



## 8.5 Test Procedure

The EUT are placed on a table which is 0.8 meter high above the ground. The EUT is set 3 meters away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of the EUT must be faced this transmitting antenna and measured individually. In order to judge the EUT performance, a CCD camera is used to monitor its screen. All the scanning conditions are as following:

Condition of Test	Remark
1. Fielded Strength	3V/m (Severity Level 2)
2. Radiated Signal	Modulated
3. Scanning Frequency	80-1000MHz 1400-2700MHz
4. Sweep time of radiated	0.0015 Decade/s
5. Dwell Time	1 Sec.

## 8.6 Test Results

**PASS**

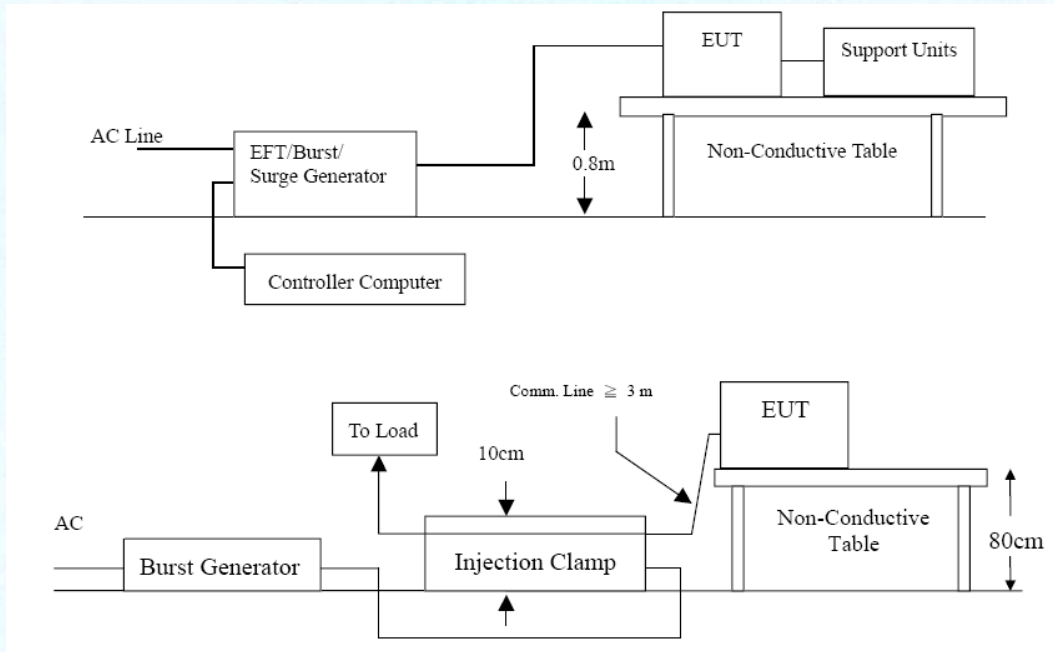
Please refer to the following page.

Temperature ( °C )	22~24
Humidity ( %RH )	50~55
Barometric Pressure ( mbar )	950~1000
EUT	Fingerprint T&A System
M/N	TA100C
Operating Mode	Normal Operation

Frequency Range (MHz)	Front (3 V/m)		Rear (3 V/m)		Left Side (3 V/m)		Right Side (3 V/m)	
	VERT	HORI	VERT	HORI	VERT	HORI	VERT	HORI
80-1000	A	A	A	A	A	A	A	A

## 9 - Electrical Fast Transient/Burst Immunity Test (IEC 61000-4-4)

### 9.1 Block Diagram of Test Setup



### 9.2 Test Standard

EN55024:2010, EN61000-4-4:2004+A2:2010 (EN61000-4-4:2004+A2:2010, Severity Level, Level 1: 0.5KV)

### 9.3 Severity Levels and Performance Criterion

#### 9.3.1 Severity level

Open Circuit Output Test Voltage $\pm 10\%$		
Level	On Fingerprint T&A System Lines	On I/O (Input/Output) Signal data and control lines
1.	0.5 KV	0.25 KV
2.	1 KV	0.5 KV
3.	2 KV	1 KV
4.	4 KV	2 KV
X	Special	Special

#### 9.3.2 Performance criterion : B

### 9.4 Operating Condition of EUT

9.4.1 Setup the EUT as shown in Section 9.1.

9.4.2 Turn on the power of all equipments.

9.4.3 Let the EUT work in test mode (Normal Operation) and measure it.

## 9.5 Test Procedure

The EUT is put on the table which is 0.8 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

### 9.5.1 For signal lines and control lines ports:

It's unnecessary to test.

### 9.5.2 For DC Input line ports:

It's unnecessary to test.

### 9.5.3 For AC Input line ports:

The EUT is connected to the AC power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 mins.

## 9.6 Test Result

**PASS**

Please refer to the following page.

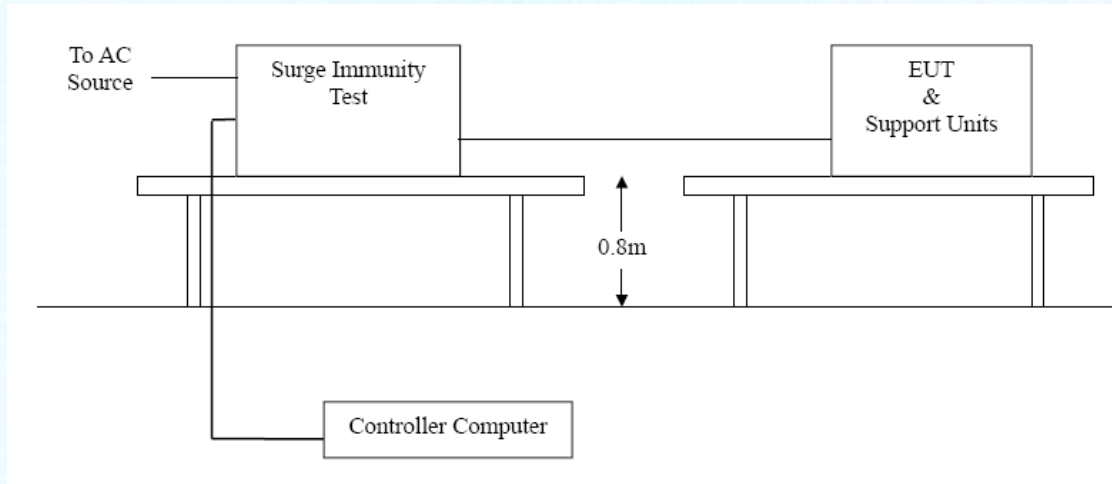
Temperature ( °C )	22~24
Humidity ( %RH )	50~55
Barometric Pressure ( mbar )	950~1000
EUT	Fingerprint T&A System
M/N	TA100C
Operating Mode	Normal Operation

IEC 61000-4-4 Test Points		Test Levels (kV)							
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0	+4.0	-4.0
Power Supply  Power Line of EUT	L1	A	A	A	A	/	/	/	/
	L2	A	A	A	A	/	/	/	/
	Earth	/	/	/	/	/	/	/	/
	L1+L2	A	A	A	A	/	/	/	/
	L1 + Earth	/	/	/	/	/	/	/	/
	L2 + Earth	/	/	/	/	/	/	/	/
	L1+L2+Earth	/	/	/	/	/	/	/	/



## 10 - Surge Immunity Test (IEC 61000-4-5)

### 10.1 Block Diagram of Test Setup



### 10.2 Test Standard

EN55024:2010, EN61000-4-5:2006 (EN61000-4-5:2006 Severity Level: Line to Line, Level 1: 0.5KV)

### 10.3 Severity Levels and Performance Criterion

#### 10.3.1 Severity level

Severity Level	Open-Circuit Test Voltage KV
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

#### 10.3.2 Performance criterion: B

### 10.4 Operating Condition of EUT

10.4.1 Setup the EUT as shown in Section 10.1.

10.4.2. Turn on the power of all equipments.

10.4.3. Let the EUT work in test mode (Normal Operation) and measure it.

### 10.5 Test Procedure

1) Set up the EUT and test generator as shown on Section 10.1.

2) For DC port coupling mode, provide a 1 KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.

3) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.

4) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

## 10.6 Test Result

**PASS**

Please refer to the following page.

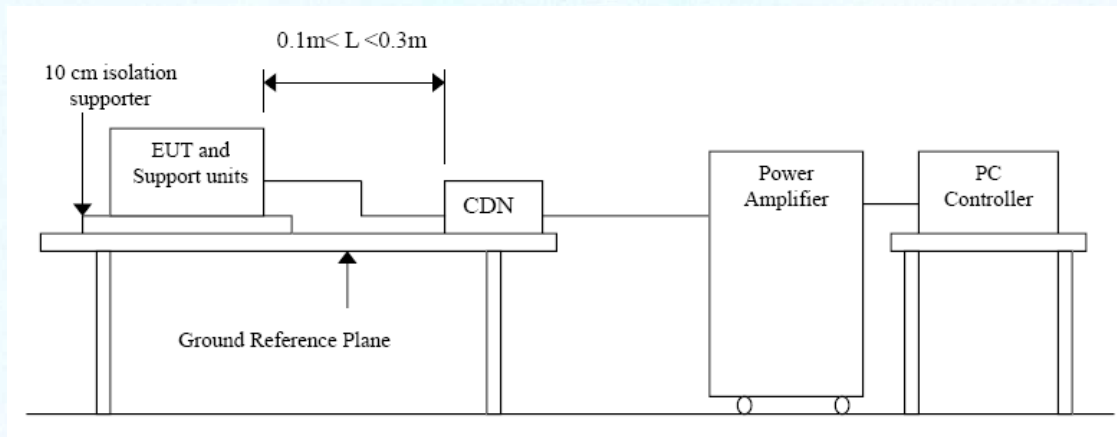
Temperature ( °C )	22~24
Humidity ( %RH )	50~55
Barometric Pressure ( mbar )	950~1000
EUT	Fingerprint T&A System
M/N	TA100C
Operating Mode	Normal Operation

Surge Power Supply

Level	Voltage	Poll	Path	Pass	Fail
1	0.5kV	±	L-N	A	/
2	1kV	±	L-N	A	/
3	2kV	±	L-PE, N-PE	/	/
4	4kV	±	L-N, L-PE, N-PE	/	/

## 11 - Conducted Susceptibility Test (IEC 61000-4-6)

### 11.1 Block Diagram of Test Setup



### 11.2 Test Standard

EN55024:2010 , EN61000-4-6: 2006 (EN61000-4-6: 2006, Severity Level 2: 3V (rms)).(0.15MHz ~ 80MHz)

### 11.3 Severity Levels and Performance Criterion

#### 11.3.1 Severity level

Level	Field Strength V(rms)
1.	1
2.	3
3.	10
X	Special

#### 11.3.2 Performance criterion: A

### 11.4 Operating Condition of EUT

11.4.1 Setup the EUT as shown in Section 11.1.

11.4.2 Turn on the power of all equipments.

11.4.3 Let the EUT work in test mode (Normal Operation) and measure it.

### 11.5 Test Procedure

11.5.1 For signal lines and control lines ports:  
It's unnecessary to test.

11.5.2 For DC&AC Input line ports:

- 1) Set up the EUT, CDN and test generators as shown on Section 11.1.
- 2) Let the EUT work in test mode and measure it.
- 3) The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling network) is placed on the ground plane about 0.3m from EUT. Cables



between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).

- 4) The disturbance signal described below is injected to EUT through CDN.
- 5) The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- 6) The frequency range is swept from 150KHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1KHz sine wave.
- 7) The rate of sweep shall not exceed  $1.5 \times 10^{-3}$  decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.

Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

## 11.6 Test Results

**PASS**

Please refer to the following page.

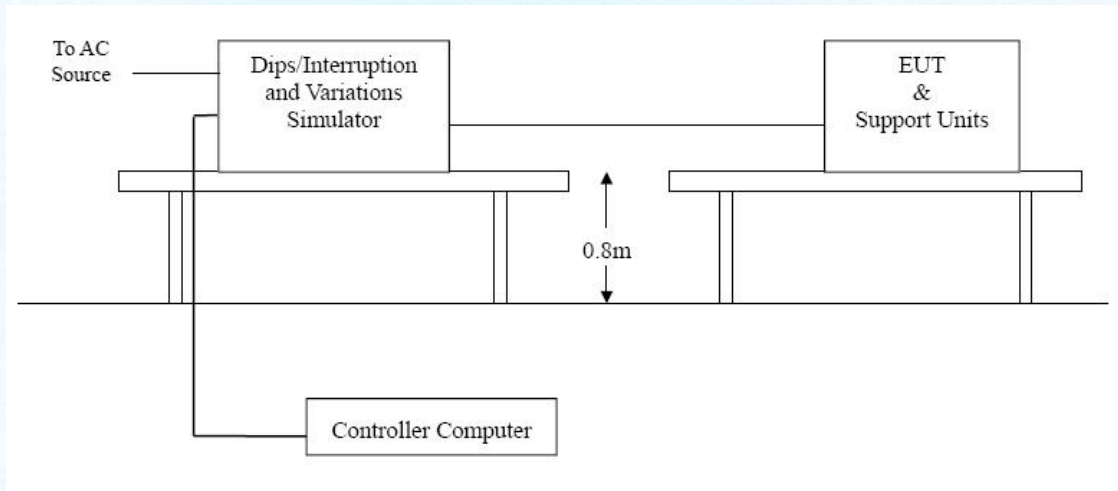
**Frequency Range (MHz):** 0.15~80MHz  
**Modulation:** Amplitude 80%, 1kHz sinewave  
**Severity Level:** 3Vr.m.s.

Temperature ( °C )	22~24
Humidity ( %RH )	50~55
Barometric Pressure ( mbar )	950~1000
EUT	Fingerprint T&A System
M/N	TA100C
Operating Mode	Normal Operation

Level	Voltage Level (e.m.f.) $U_0$	Pass	Fail
1	1	/	/
2	3	A	/
3	10	/	/
X	Special	/	/

## 12 - VOLTAGE DIPS, SHORT INTERRUPTIONS IMMUNITY TESTS (IEC 61000-4-11)

### 12.1 Block Diagram of Test Setup



### 12.2 Test Standard

EN55024:2010 (EN61000-4-11:2004)

### 12.3 Severity Levels and Performance Criterion

#### 12.3.1 Severity level

Test Level %UT	Voltage dip and short interruptions %UT	Duration (in period)
0	100	0.5
40	60	1
		5
		10
70	30	25
		50
		*

#### 12.3.2 Performance criterion: B&C

### 12.4 EUT Configuration

The configuration of EUT is listed in Section 12.1

### 12.5 Operating Condition of EUT

12.5.1 Turn on the power of all equipments.

12.5.2 Let the EUT work in test mode (Normal operation) and measure it.

## 12.6 Test Procedure

- 1) Set up the EUT and test generator as shown on Section 12.1.
- 2) The interruption is introduced at selected phase angles with specified duration.
- 3) Record any degradation of performance.

## 12.7 Test Result

### PASS

Please refer to the following page.

Temperature ( °C )	22~23
Humidity ( %RH )	50~54
Barometric Pressure ( mbar )	950~1000
EUT	Fingerprint T&A System
M/N	TA100C
Operating Mode	Normal Operation

Level	U2	td	Phase Angle	N	Pass	Fail
1	>95%	10ms	0/90/180/270	3	B	/
2	30%	500ms	0/90/180/270	3	C	/
3	>95%	5000ms	0/90/180/270	3	C	/

Note:

- A. The apparatus shall continue to operate as intended during and after the test. The manufacturer specifies some minimum performance level. The performance level may be specified by the manufacturer as a permissible loss of performance.
- B. The apparatus shall continue to operate as intended after the test. This indicates that the EUT does not need to function at normal performance levels during the test, but must recover. Again some minimal performance is defined by the manufacture. No change in operating state or loss or data is permitted.
- C. Temporary loss of function is allowed. Operation of the EUT may stop as long as it is either automatically reset or can be manually restored by operation of the controls.



## 13- TEST RESULTS

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The following tests were performed on the **FINGERTEC WORLDWIDE SDN BHD** 's product; model: **TA100C** ; the actual test results are contained within the Test Data section of this report.

### 13.1 IEC 61000-4-2 Electrostatic Discharge Immunity Test Configuration

The EUT was subjected to the electrostatic discharge tests required by EN 55024 and all lower levels specified in IEC 61000-4-2.

*The EUT continued to perform as intended during and after the application of the ESD. Test setup photographs presented in Appendix C.*

### 13.2 IEC 61000-4-3 Radiated Susceptibility Test Configuration

The EUT was subjected to a 3-volt/meter, 80% Amplitude, 1 kHz Sine wave field as required by EN 55024 and all lower levels specified in IEC 61000-4-3.

*The EUT continued to perform as intended during and after the application of the electromagnetic field. Test setup photographs presented in Appendix C.*

### 13.3 IEC 61000-4-4 Electrical Fast Transient/Burst Immunity Test Configuration

The EUT was subjected to the electrical fast transient tests required by EN 55024 and all lower levels specified in IEC 61000-4-4.

*The EUT continued to perform as intended during and after the application of the EFT/B. Test setup photographs presented in Appendix C.*

### 13.4 IEC 61000-4-5 Surge Immunity Test Configuration

The EUT was subjected to the Surge Immunity tests required by EN 55024 and all lower levels specified in IEC 61000-4-5.

*The EUT continued to perform as intended during and after the application of the Surge Immunity Test. Test setup photographs presented in Appendix C.*

### 13.5 IEC 61000-4-6 Conducted Susceptibility Test Configuration

The EUT was subjected to the Conducted Susceptibility tests required by EN 55024 and all lower levels specified in IEC 61000-4-6.

*The EUT continued to perform as intended during and after the application of the Conducted Susceptibility Test.*

### 13.6 IEC 61000-4-11 Voltage Dips, Short Interruptions Immunity Tests Configuration

The EUT was subjected to the Voltage Dips/Interruptions tests required by EN 55024 and all lower levels specified in IEC 61000-4-11.

*The EUT continued to perform as intended during and after the application of the Voltage Dips/Interruptions Test. Test setup photographs presented in Appendix C.*

## APPENDIX A - PRODUCT LABELING

### CE Marking Label Specification

Specification: Text is Black or white in color and is left justified. Labels are printed in indelible ink on permanent adhesive backing and shall be affixed at a conspicuous location on the EUT or silk-screened onto the EUT.



### Proposed Label Location on EUT

EUT Rear View/Proposed CE Marking Location





## APPENDIX B - EUT PHOTOGRAPHS

### EUT – Whole View



### EUT – Front View



### EUT – Back View





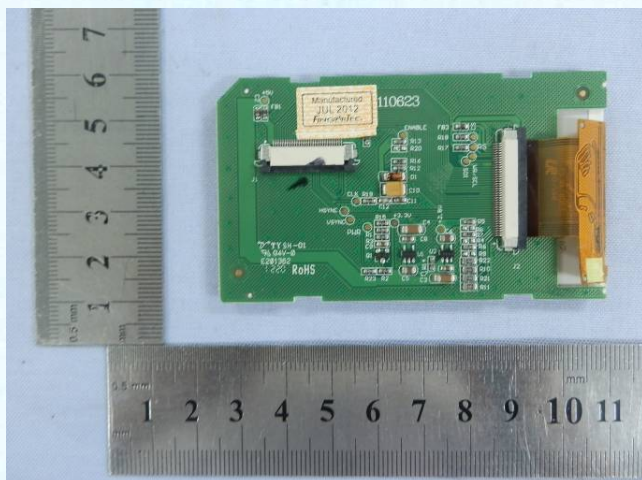
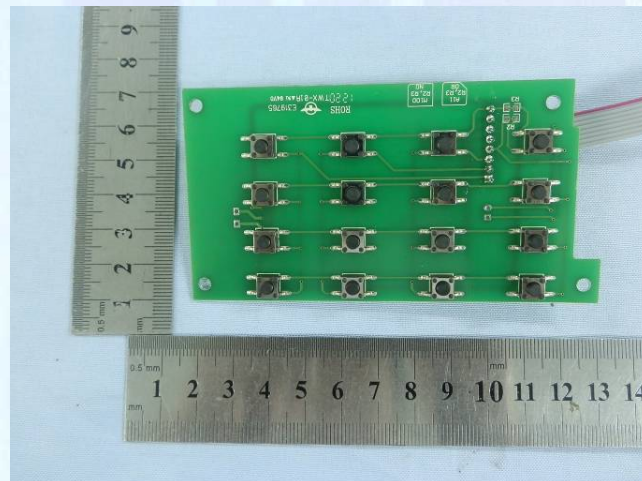
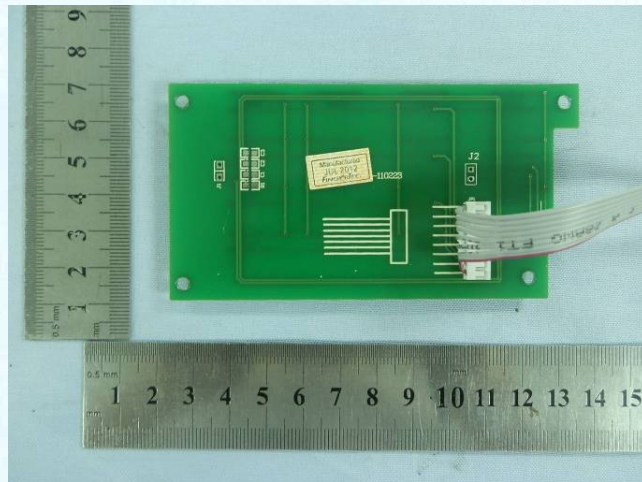
### EUT –Side View



### EUT –Open View

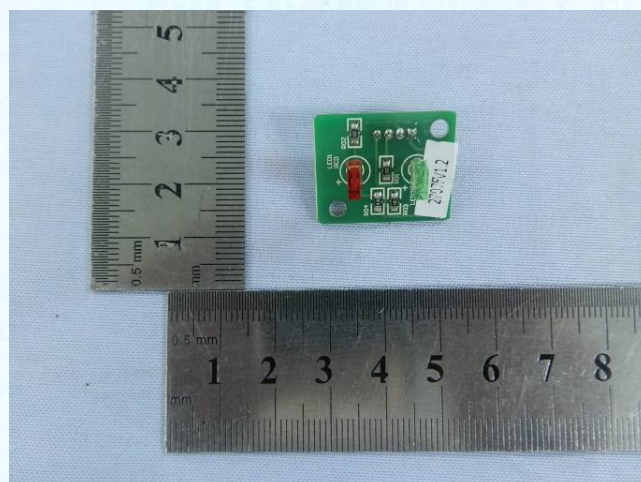
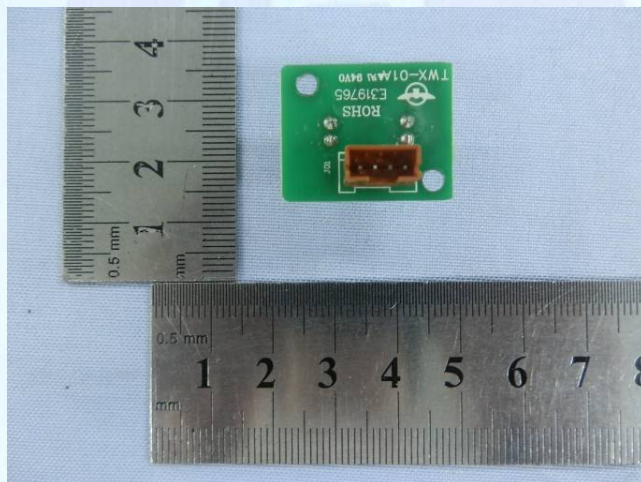
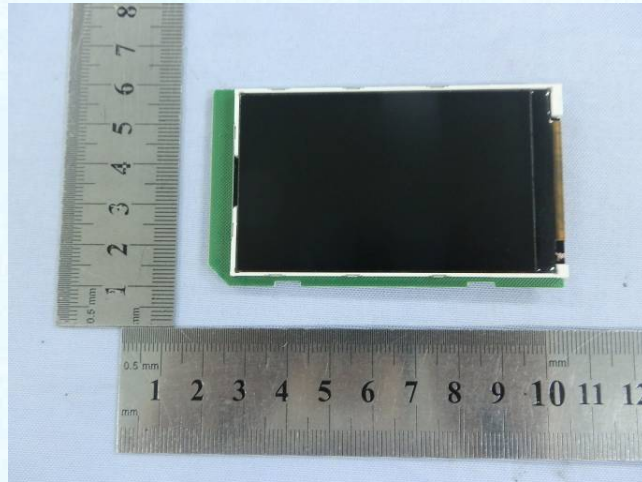


## EUT –PCB View



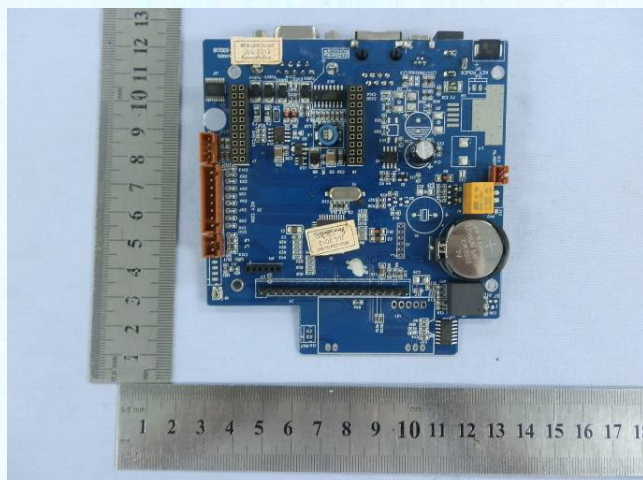
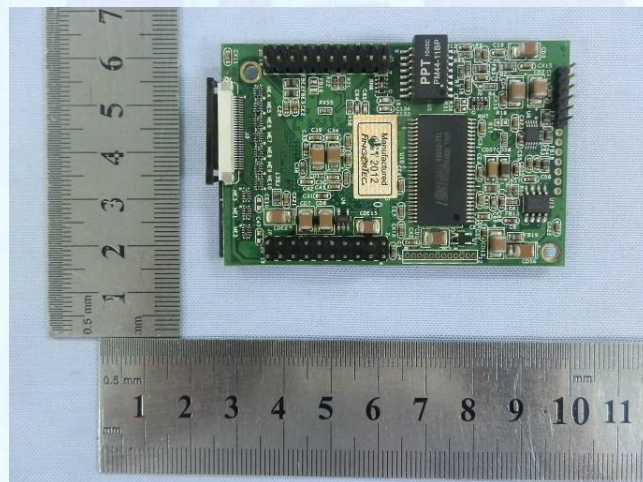
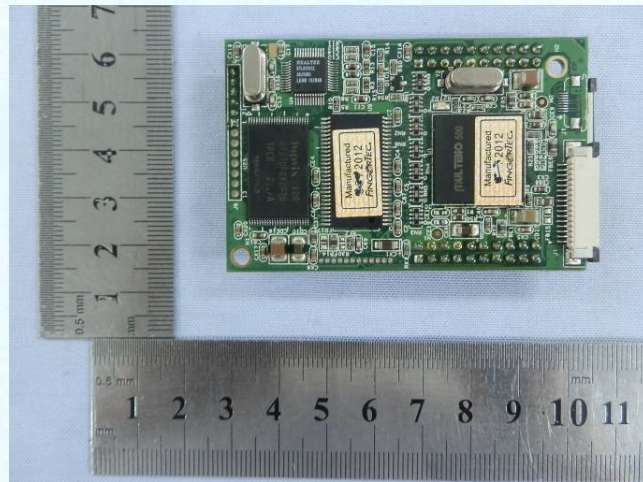


## EUT –PCB View

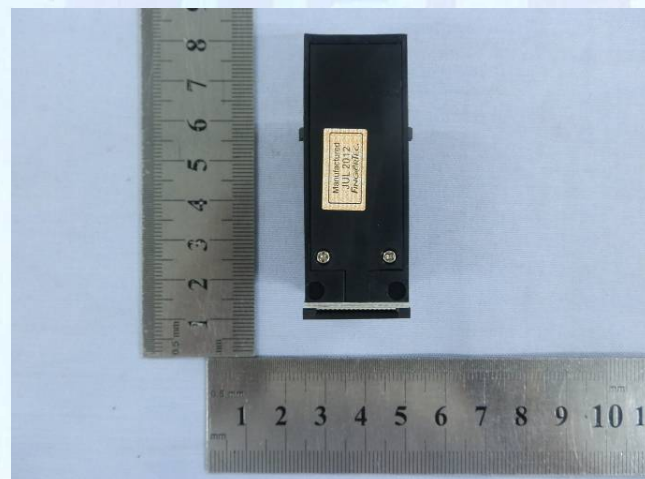
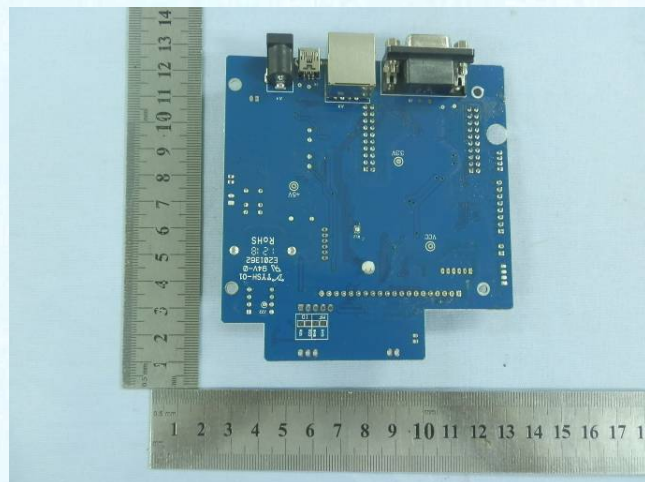




## EUT –PCB View

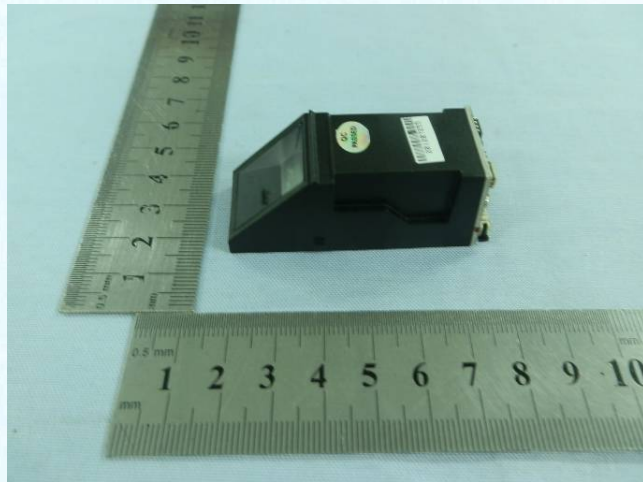


## EUT –PCB View



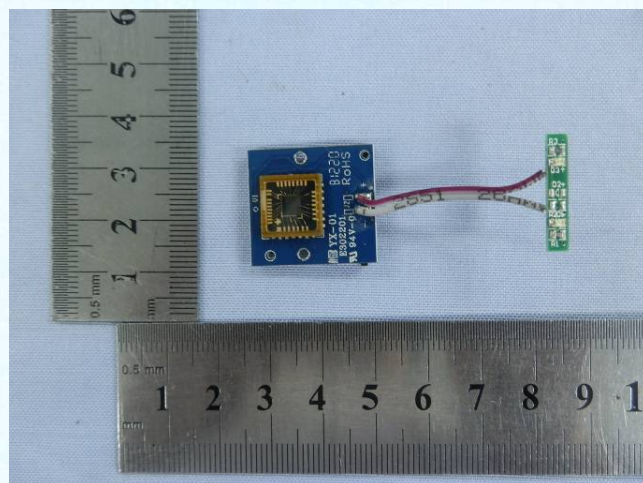
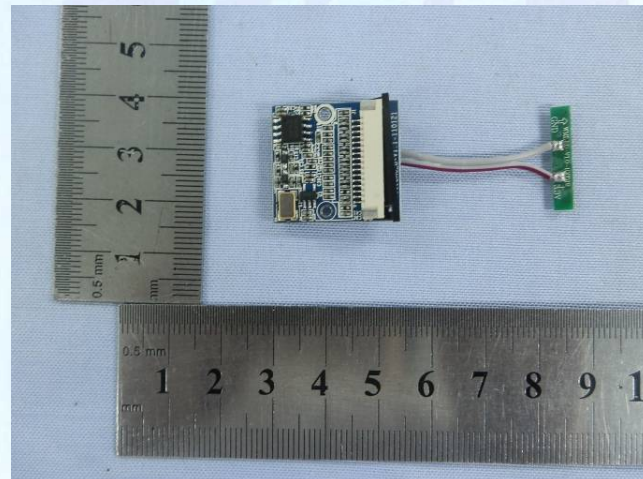
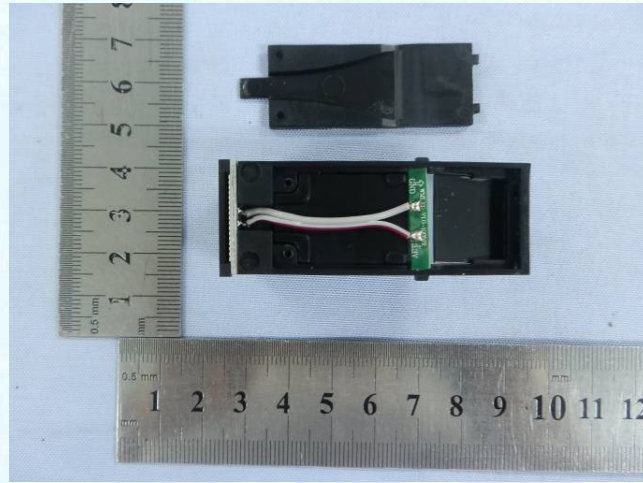


## EUT -PCB View





## EUT –PCB View



## APPENDIX C - TEST SETUP PHOTOGRAPHS

### Conducted Emission



### Radiated Emission



### Electrostatic Discharge Immunity Test (IEC 61000-4-2)





### Radiated Susceptibility Test (IEC 61000-4-3)



### Electrical Fast Transient/Surge Test (IEC 61000-4-4/IEC 61000-4-5)



### Conducted Susceptibility Test (IEC 61000-4-6)





## Voltage Dips, Short Interruptions Immunity Test (IEC 61000-4-11)



## Voltage Fluctuations and Flicker Test



## APPENDIX D - BONTEK ACCREDITATION CERTIFICATES

 
<b>China National Accreditation Service for Conformity Assessment</b>
<b>LABORATORY ACCREDITATION CERTIFICATE</b>
<b>(Registration No. CNAS L3923 )</b>
<b>Shenzhen Bontek Compliance Testing Laboratory Co., Ltd.</b> <u>1/F., Block East H-3, OCT Eastern Ind. Zone, the 1st Road,</u> <u>Xiangshan East Street, Nanshan District, Shenzhen, Guangdong, China</u>
<i>is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories(CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence of testing.</i> <i>The scope of accreditation is detailed in the attached appendices bearing the same registration number as above. The appendices form an integral part of this certificate.</i>
Date of Issue: 2012-03-22 Date of Expiry: 2015-03-21 Date of Initial Accreditation: 2009-02-27 Date of Update: 2012-03-22
 Signed on behalf of China National Accreditation Service for Conformity Assessment
<small>China National Accreditation Service for Conformity Assessment (CNAS) is authorized by Certification and Accreditation Administration of the People's Republic of China (CNCA) to operate the national accreditation schemes for conformity assessment. CNAS is the signatory to International Laboratory Accreditation Cooperation Multilateral Recognition Arrangement (ILAC-MRA) and Asia Pacific Laboratory Accreditation Cooperation Multilateral Recognition Arrangement (APLAC-MRA).</small>
No.CNAS AL 2 <span style="float: right;">0003595</span>





# Certificate

of

Appointment

No. UA 50203122-0001

The Applicant

**Bontek Compliance Testing  
Laboratory Ltd**  
1/F, Block East H-3, OCT Eastern  
Industrial Zone, Qiaocheng East Rd.  
Nanshan, Shenzhen, Guangdong  
P.R. China

has been authorized to carry out EMC tests  
by order and under supervision of TÜV Rheinland according to .

EN55011, EN55012, EN55013, EN55014-1, EN55014-2, EN55015, EN55020  
CISPR11, CISPR12, CISPR13, CISPR14-1, CISPR14-2, CISPR15, EN55022  
EN55024, EN55025, CISPR20, CISPR22, CISPR24, CISPR25  
EN/IEC61000-3-2/-3, EN/IEC61000-4-2/-4/-5/-6/-8/-11  
EN/IEC61547, EN/IEC62040-2, EN/IEC61000-6-1  
EN/IEC61000-6-2, EN/IEC61000-6-3, EN/IEC61000-6-4  
EN/IEC60601-1-2, EN/IEC61326-1, EN/IEC61326-x(x=2,3,4, or 5)

An assessment of the laboratory was conducted according to the "Procedures and  
Conditions for Appointments of EMC Test Laboratories" with reference to  
EN ISO/IEC 17025 by a TÜV Rheinland auditor.

Audit Report No. 17010783-002

This certificate is valid until the next scheduled audit or up to 18 months,  
at the discretion of TÜV Rheinland.

Date of issue: 06.05.2011

TÜV Rheinland/CCIC (Qingdao) Co., Ltd.  
18 Hong Kong Middle Road, Qingdao 266071, P.R.China  
Tel: +86-532-8578-1778  
Fax: +86-532-8578-1079 <http://www.chn.tuv.com>

Certification Body

  
**Shawn Peng**  




**FEDERAL COMMUNICATIONS COMMISSION**

**Laboratory Division  
7435 Oakland Mills Road  
Columbia, MD 21046**

March 03, 2011

Registration Number: 338263

Bontek Compliance Testing Laboratory Ltd  
1/F, Block East H-3, OCT Eastern Ind. Zone,  
Qiaocheng East Road, Nanshan,  
Shenzhen,  
China

Attention: Tony Wu, General Manager

Re: Measurement facility located at Hua Qiao Cheng East Ind. Area, Shenzhen, China  
Anechoic chamber (3 meter)  
Date of Renewal: March 03, 2011

Dear Sir or Madam:

Your request for renewal of the registration of the subject measurement facility has been received. The information submitted has been placed in your file and the registration has been renewed. The name of your organization will remain on the list of facilities whose measurement data will be accepted in conjunction with applications for Certification under Parts 15 or 18 of the Commission's Rules. Please note that the file must be updated for any changes made to the facility and the registration must be renewed at least every three years.

Measurement facilities that have indicated that they are available to the public to perform measurement services on a fee basis may be found on the FCC website [www.fcc.gov](http://www.fcc.gov) under E-Filing, OET Equipment Authorization Electronic Filing, Test Firms.

Sincerely,



Phyllis Parrish  
Industry Analyst