APPLICATION FOR VERIFICATION
On Behalf of
FINGERTEC WORLDWIDE SDN BHD

FINGERTEC
Model No.: AC 900 Series

Prepared for	:	FINGERTEC WORLDWIDE SDN BHD
Address	:	NO.6, 8 & 10, JALAN BK 3/2, BANDAR KINRARA, 47100 PUCHONG, SELANGOR MALAYSIA
Prepared by	:	SHENZHEN EMTEK CO., LTD.
Address	:	Bldg 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China
		Tel: (0755) 26954280
		Fax: (0755) 26954282

Report Number	:	E0612001F
Date of Test	:	August 01, 2008 to September 04, 2008
Date of Report	:	September 04, 2008

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Description Page

APPLICATION FOR VERIFICATION

Applicant	:	FINGERTEC WORLDWIDE SND BHD
Manufacturer	:	FINGERTEC WORLDWIDE LIMITED
EUT	:	FINGERTEC
Model No.	:	AC 900 Series
Power Supply	:	DC 12V/1.5A with external AC/DC Adaptor

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart B Class B August 2006 & FCC / ANSI C63.4-2003

The device described above is tested by SHENZHEN EMTEK CO., LTD. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and SHENZHEN EMTEK CO., LTD. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.
This report applies to above tested sample only. This report shall not be reproduced in part without written approval of SHENZHEN EMTEK CO., LTD.

Date of Test: August 01, 2008 to September 04, 2008

Prepared by: _____
(Engineer)

Reviewer: _____
(Quality Manager)

Approved & Authorized Signer: _____
(Manager)

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT	:	FINGERTEC
Model Number	:	AC 900 Series
AC Adaptor	:	Model: KSAFC1200150W1UV INPUT: AC100-240V~50/60Hz OUTPUT: 12V⎓1.5A
Test Voltage	:	AC 120V/60Hz
Applicant	:	FINGERTEC WORLDWIDE SDN BHD
Address	:	NO.6, 8&10, JALAN BK 3/2, BANDAR KINRARA, 47100 PUCHONG, SELANGOR, MALAYSIA.
Manufacturer	:	FINGERTEC WORLDWIDE LIMITED
Address	:	Peking University Founder Shiyan Science Park, Bao'an, Shenzhen, China. 518108
Date of receiver	:	August 01, 2008
Date of Test	:	August 01, 2008 to September 04, 2008

1.2.Test Facility

Site Description

EMC Lab. : Accredited by CNAS, 2005.11.02
The certificate is valid until 2010.11
The Laboratory has been assessed and proved to be in compliance with CNAS-CL01: 2006 (identical to ISO/IEC17025: 2005)
The Certificate Registration Number is L2291

Accredited by TUV Rheinland Shenzhen, 2008.3
The Laboratory has been assessed according to the requirements ISO/IEC 17025

Accredited by FCC, March 18, 2008
The Certificate Registration Number is 709623.

Accredited by Industry Canada, May 24, 2008
The Certificate Registration Number is 46405-4480

Name of Firm : SHENZHEN EMTEK CO., LTD.

Address : Bldg 69, Majialong Industry Zone,
Nanshan District, Shenzhen, Guangdong, China

1.3. Measurement Uncertainty

Conducted Emission Uncertainty : ± 1.2656dB

Radiated Emission Uncertainty : ± 1.4118dB

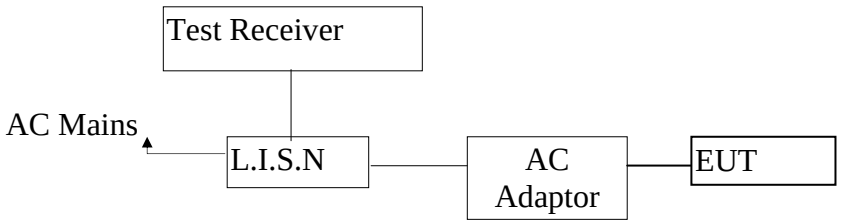
2. POWER LINE CONDUCTED MEASUREMENT

2.1.Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCS30	828985/018	May 29, 2008	1 Year
2.	L.I.S.N	Rohde & Schwarz	ESH2-Z5	834549/005	May 29, 2008	1 Year
3.	50 Coaxial Switch	Anritsu	MP59B	M20531	N/A	N/A
4.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100006	May 29, 2008	1 Year
5.	Voltage Probe	Rohde & Schwarz	TK9416	N/A	May 29, 2008	1 Year

2.2 Block diagram of test setup



(EUT: FINGERTEC)

2.3Power Line Conducted Emission Measurement Limits (Class B)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

2.4. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

FINGERTEC

EUT	:	FINGERTEC
Model Number	:	AC 900 Series

2.5. Operating Condition of EUT

2.5.1. Setup the EUT and simulator as shown as Section 2.2.
2.5.2. Turn on the power of all equipment.
2.5.3. Let the EUT work in test mode (ON) and measure it.

2.6. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.4-2000on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9KHz.

The frequency range from 150KHz to 30MHz is checked.

The test result are reported on Section 2.7. All the scanning waveforms for Conducted Emission Measurement are attached in Appendix I.

2.7.Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150KHz to 30 MHz is investigated.

Date of Test	:	August 15, 2008	Temperature	:	22℃
EUT	:	FINGERTEC	Humidity	:	50%
M/N	:	AC 900 Series	Test Mode	:	ON

Test Line	Frequency MHz	Emission Level QP dB(μV)	Emission Level AV dB(μV)	Limits QP dB(μV)	Limits AV dB(μV)	Margin QP dB(μV)	Margin AV dB(μV)
Neutral	0.150	45.10	35.80	66.00	56.00	20.9	20.2
	0.205	42.50	34.20	63.41	53.41	20.91	19.21
	28.100	30.70	29.30	60.00	50.00	29.3	20.7
Line	**0.150**	**47.10**	**34.80**	**66.00**	**56.00**	**18.90**	**21.20**
	0.205	40.80	34.20	63.41	53.41	22.61	19.21
	28.000	30.70	29.80	60.00	50.00	29.30	20.20

Remark: .The worst emission is detected at 0.150MHz with corrected QP signal level of 47.10 dB(μV) (limit is 66.00dB(μV)), When the Line of the EUT is connected to LISN.

3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

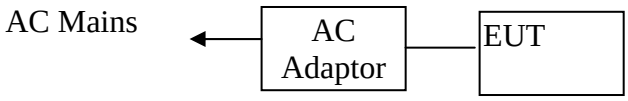
The following test equipments are used during the radiated emission measurement:

3.1.1. For Anechoic Chamber

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	ANRITSU	MS2661C	6200140915	May 29, 2008	1 Year
2.	Test Receiver	Rohde & Schwarz	ESCS30	828985/018	May 29, 2008	1 Year
3.	Bilog Antenna	Schwarzbeck	VULB9163	142	May 29, 2008	1 Year
4.	50 Coaxial Switch	Anritsu Corp	MP59B	6100237248	May 29, 2008	1 Year
5.	Cable	Schwarzbeck	AK9513(1m)	CR RX2	May 29, 2008	1 Year
6.	Cable	Schwarzbeck	AK9513(10m)	AC RX1	May 29, 2008	1 Year
7.	Cable	Rosenberger	N/A(6m)	CR RX1	May 29, 2008	1 Year
8.	Cable	Rosenberger	N/A(10m)	FP2RX2	May 29, 2008	1 Year
9.	DC Power Filter	MPE	23872C	N/A	May 29, 2008	1 Year
10.	Single Phase Power Line Filter	MPE	23332C	N/A	May 29, 2008	1 Year
11.	3 Phase Power Line Filter	MPE	23333C	N/A	May 29, 2008	1 Year
12.	Signal Generator	HP	8648A	3625U00573	May 29, 2008	1 Year

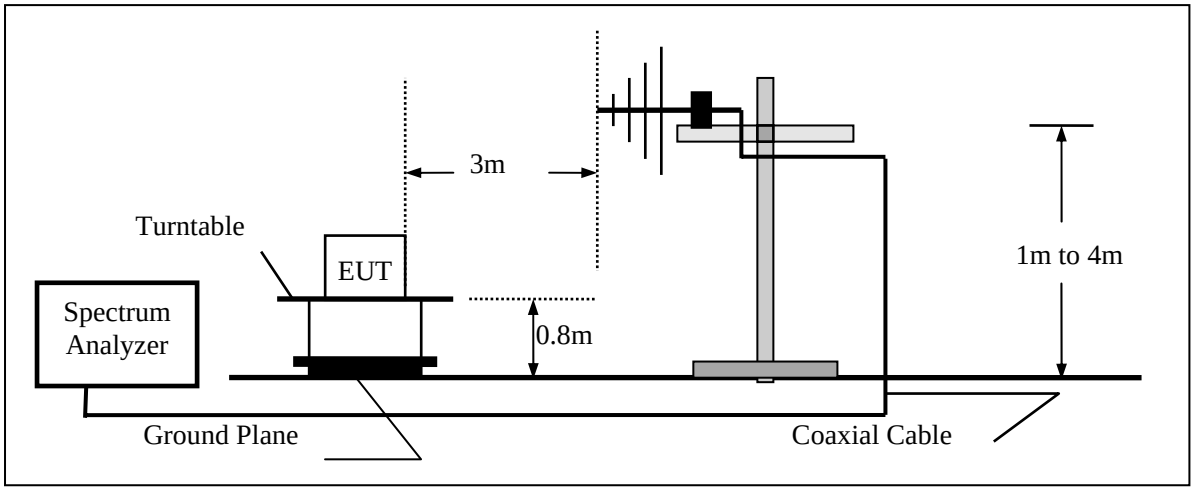
3.2.Block Diagram of Test Setup

3.2.1. Block diagram of connection between the EUT and simulators



(EUT: FINGERTEC)

3.2.2. Anechoic Chamber Test Setup Diagram



(EUT: FINGERTEC)

3.3.Radiated Emission Limit (Class B)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0

Remark： (1) Emission level (dB)μV = 20 log Emission level μV/m

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

3.4.EUT Configuration on Measurement

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to

maximize its emission characteristics in normal application.

FINGERTEC (EUT)

Model Number	:	AC 900 Series
Serial Number	:	N/A

3.5. Operating Condition of EUT

1. Setup the EUT as shown in Section 3.2.
2. Let the EUT work in test mode (ON) and measure it.

3.6. Test Procedure

EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2000 on radiated emission measurement.
The bandwidth of the EMI test receiver (R&S ESCS30) is set at 120KHz.

The frequency range from 30MHz to 1000MHz is checked.

The test mode (ON) is tested in chamber and all the scanning waveforms are attached in Appendix I.

3.7. Radiated Emission Noise Measurement Result

PASS.

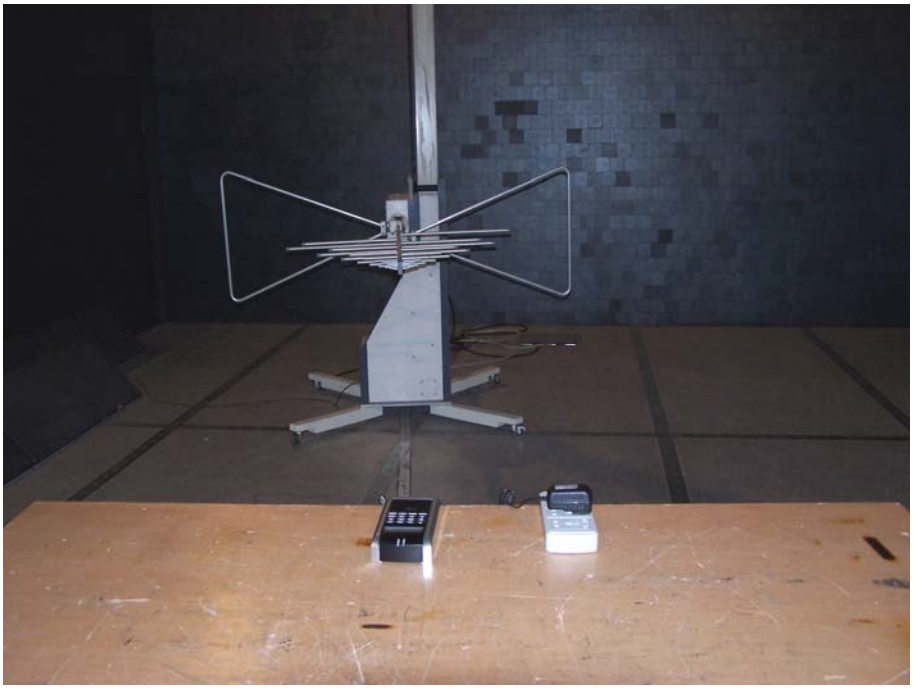
The frequency range from 30MHz to 1000MHz is investigated.

Please reference to the attached data.

4. PHOTOGRAPH

4.1.Photos of Conducted Emission Measurement

4.2.Photo of Radiated Measurement



APPENDIX I

CONDUCTION EMISSION STANDARD FCC PART15B

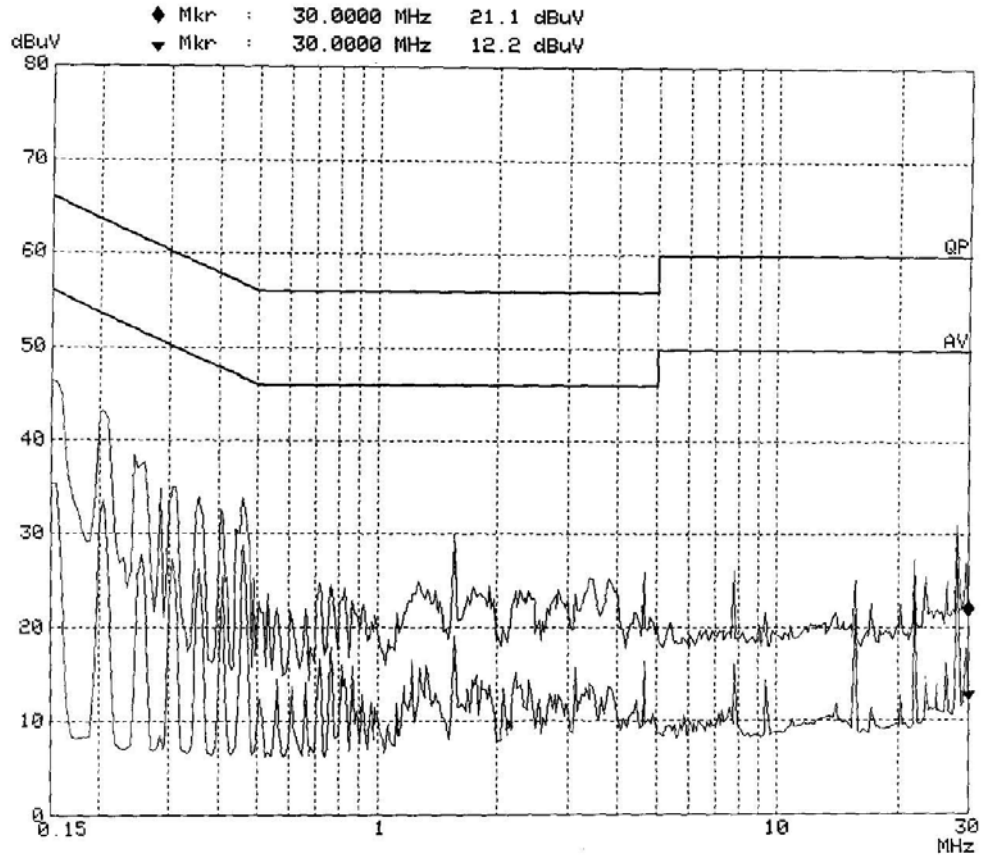
EUT: Fingertec M/N:AC900 Series
Manuf: Fingertec
Op Cond: ON
Operator: CHENTAO
Test Spec: N 120V/60Hz
Comment: Tem22c Humi50%

Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	2M	5k	9k	PK+AV	20ms	AUTO LN	OFF
2M	10M	10k	9k	PK+AV	10ms	AUTO LN	OFF
10M	30M	25k	9k	PK+AV	10ms	AUTO LN	OFF

Transducer No.	Start	Stop	Name
1	9k	30M	CONFAC1

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 6dB



CONDUCTION EMISSION STANDARD FCC PART15B

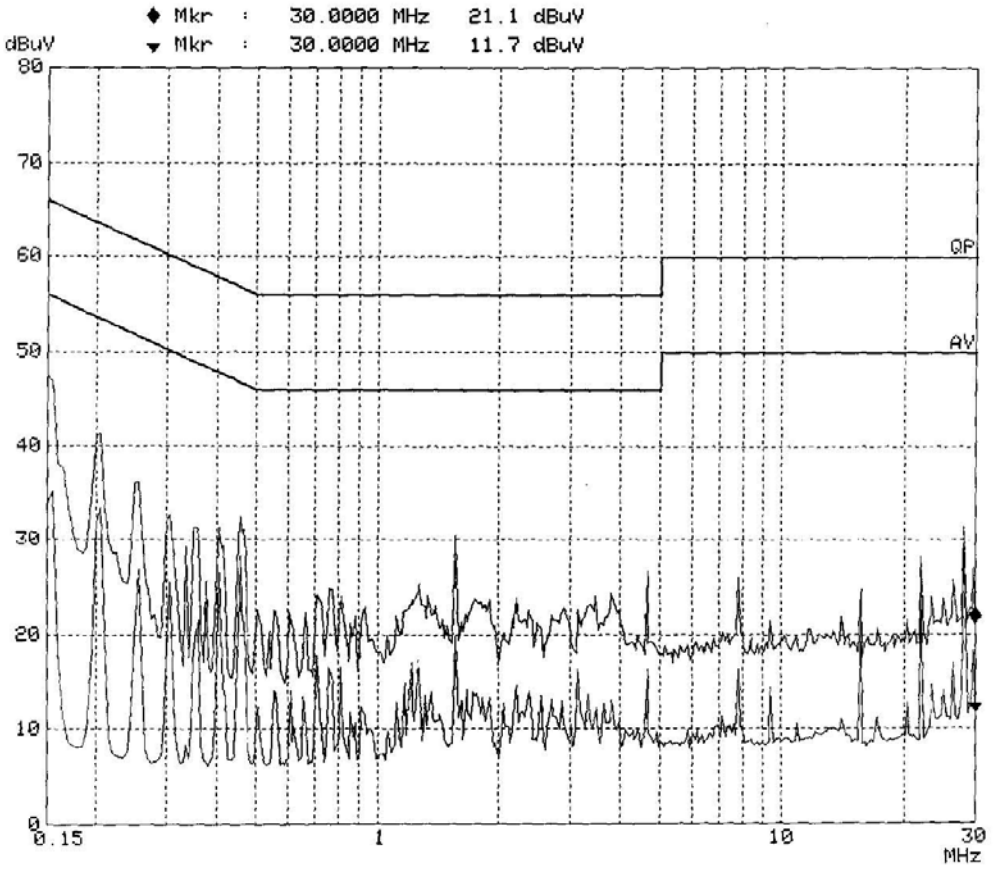
EUT: Fingertec M/N:AC900 Series
Manuf: Fingertec
Op Cond: ON
Operator: CHENTAO
Test Spec: L 120V/60Hz
Comment: Tem22c Humi50%

Scan Settings (3 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	2M	5k	9k	PK+AV	20ms	AUTO LN	OFF
2M	10M	10k	9k	PK+AV	10ms	AUTO LN	OFF
10M	30M	25k	9k	PK+AV	10ms	AUTO LN	OFF

Transducer No.	Start	Stop	Name
1	9k	30M	CONFAC1

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 6dB



APPENDIX II

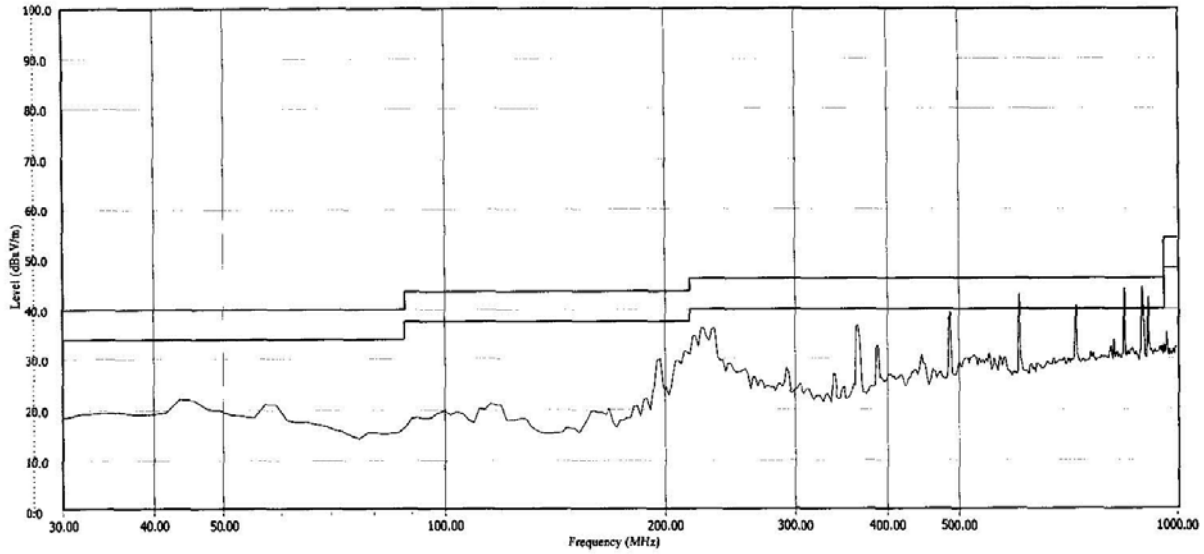
EMTEK®

Shenzhen EMTEK Co., Ltd.

Bldg 69, Majialong,Taipinyang Industry Zone,Nanshan District,Shenzhen Guangdong,China
Tel: (0755)26954280 Fax:(0755)26954282

File# : FINGERTEC
Site : 3M CHAMBER
Limit : FCC PART15 CLASS_B
EUT : Fingertec M/N:AC900 Series
Power : AC 120V/60Hz
Note : ON

Probe : VULB9163 - HORIZONTAL
Margin : 6
Std : 30
Trace :



	Flag	Mark	Freq (MHz)	Measure Level (dB)	Reading Level (dBuV)	Over Limit (dBuV/m)	Limit (dBuV/m)	Probe Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type

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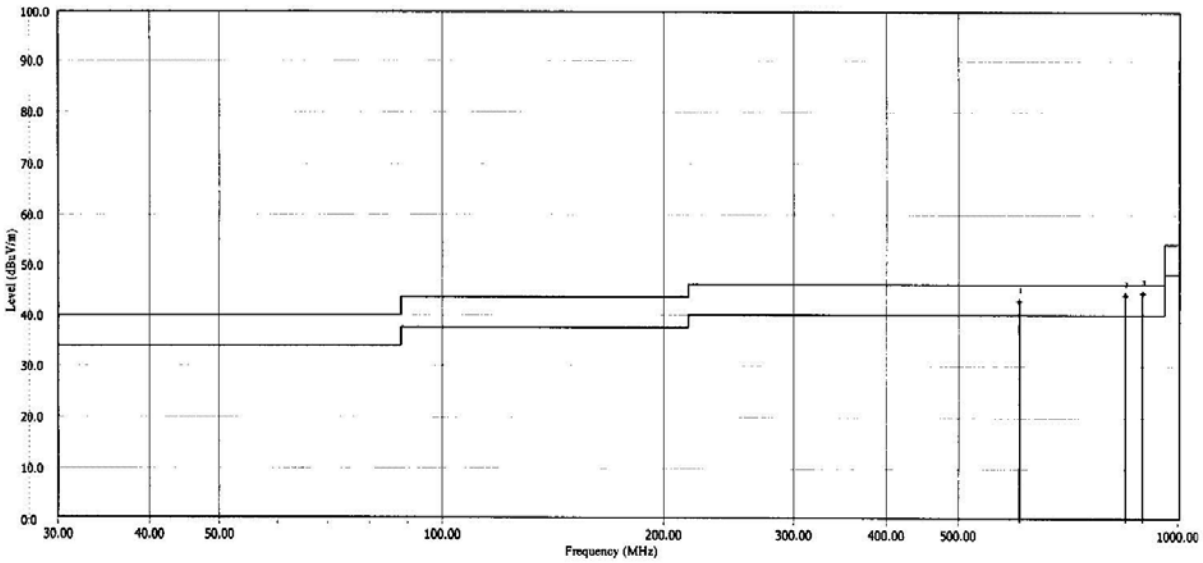
File# : FINGERTEC
Site : 3M CHAMBER
Limit : FCC PART15 CLASS_B
EUT : Fingertec M/N:AC900 Series
Power : AC 120V/60Hz
Note : ON

Probe : VULB9163 - HORIZONTAL
Margin : 6
Std : 30
Trace :



	Flag	Mark	Freq (MHz)	Measure Level (dB)	Reading Level (dBuV)	Over Limit (dBuV/m)	Limit (dBuV/m)	Probe Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1	!		606.180	42.720	22.890	-3.280	46.000	18.630	1.200	0.000	0.000	0.000	
2	!		848.680	43.890	19.990	-2.110	46.000	22.500	1.400	0.000	0.000	0.000	
3	!	*	895.240	44.160	20.540	-1.840	46.000	22.220	1.400	0.000	0.000	0.000	

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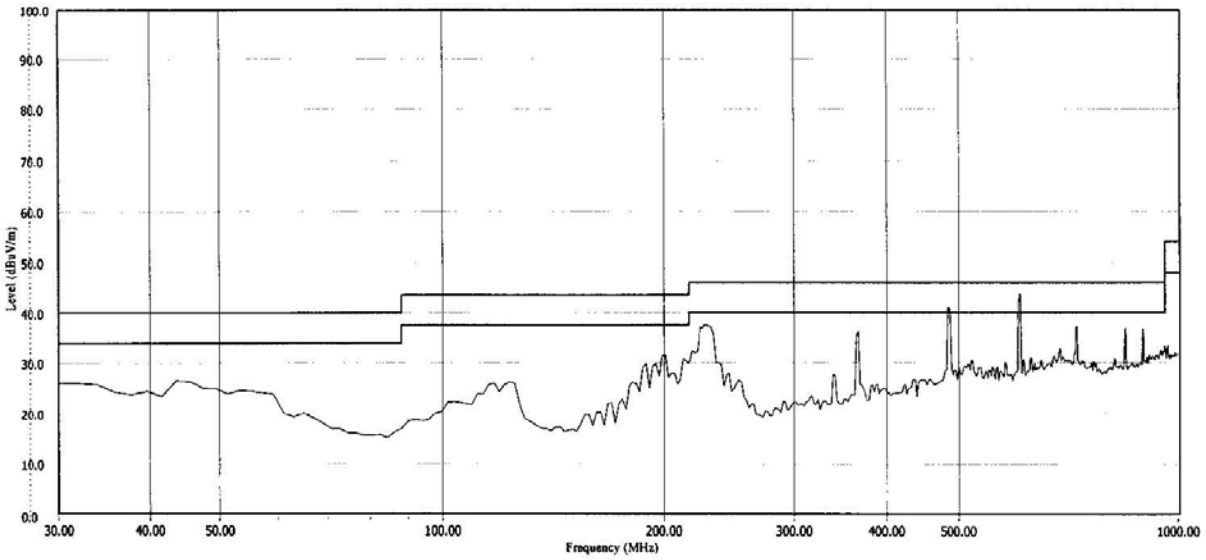
Tel: (0755)26954280 Fax:(0755)26954282

File# : FINGERTEC
Site : 3M CHAMBER
Limit : FCC PART15 CLASS_B
EUT : Fingertec M/N:AC900 Series
Power : AC 120V/60Hz
Note : ON

Probe : VULB9163 - VERTICAL
Margin : 6
Std : 30
Trace :



	Flag	Mark	Freq (MHz)	Measure Level (dB)	Reading Level (dBuV)	Over Limit (dBuV/m)	Limit (dBuV/m)	Probe Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type

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Limit : FCC PART15 CLASS_B
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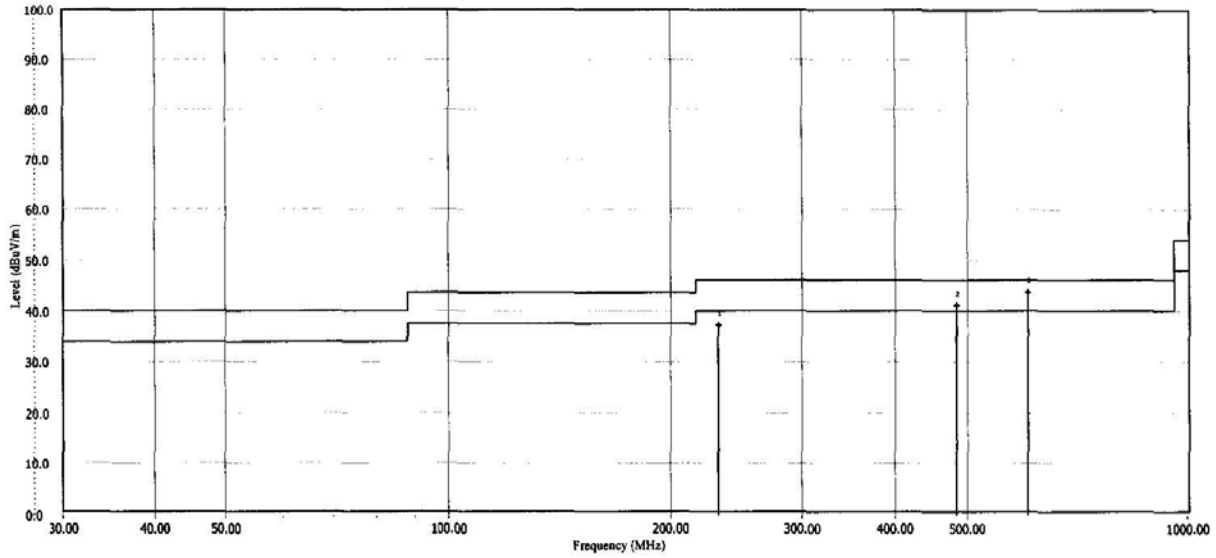
Power : AC 120V/60Hz
Note : ON

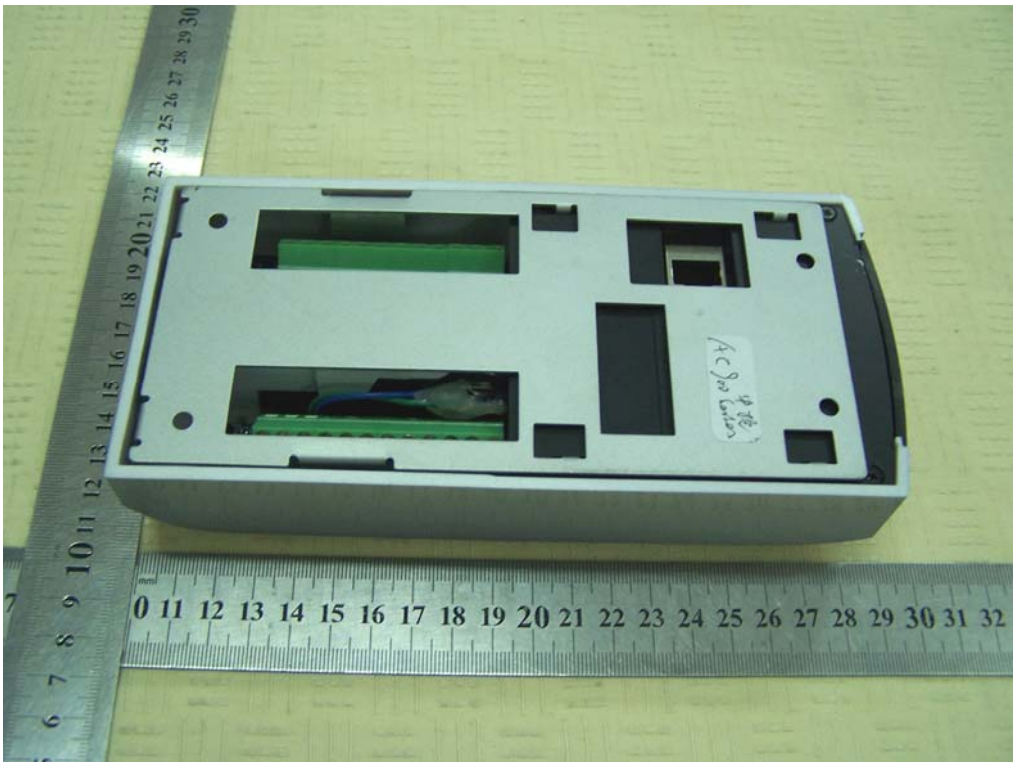
Probe : VULB9163 - VERTICAL
Margin : 6
Std : 30
Trace :

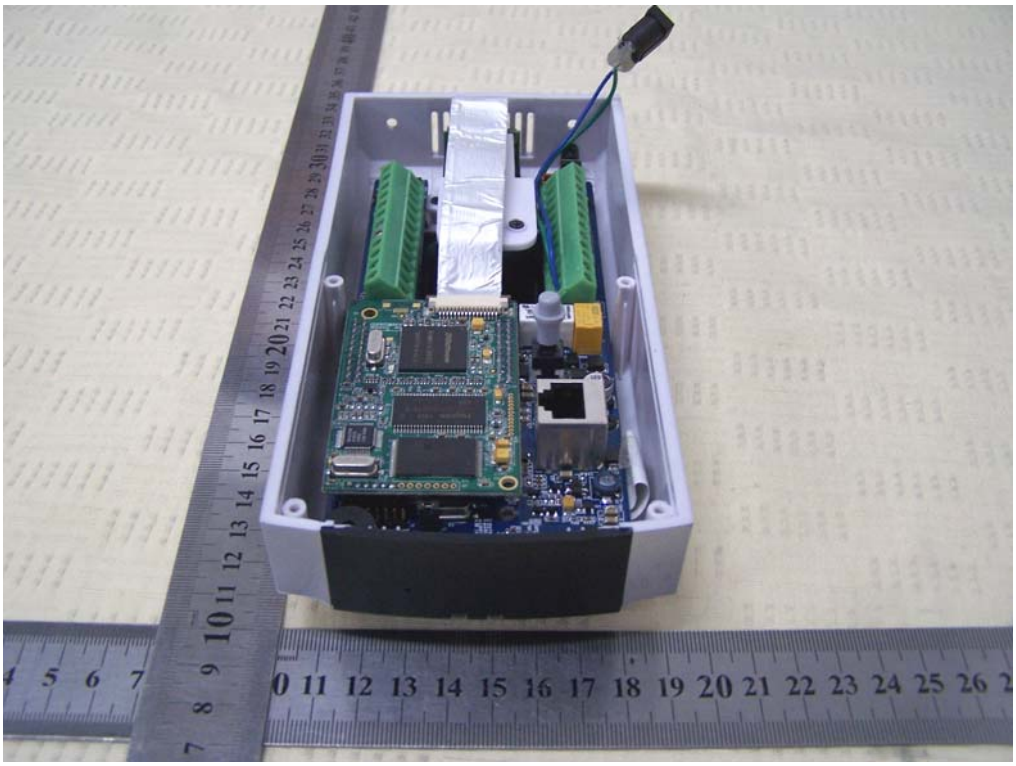


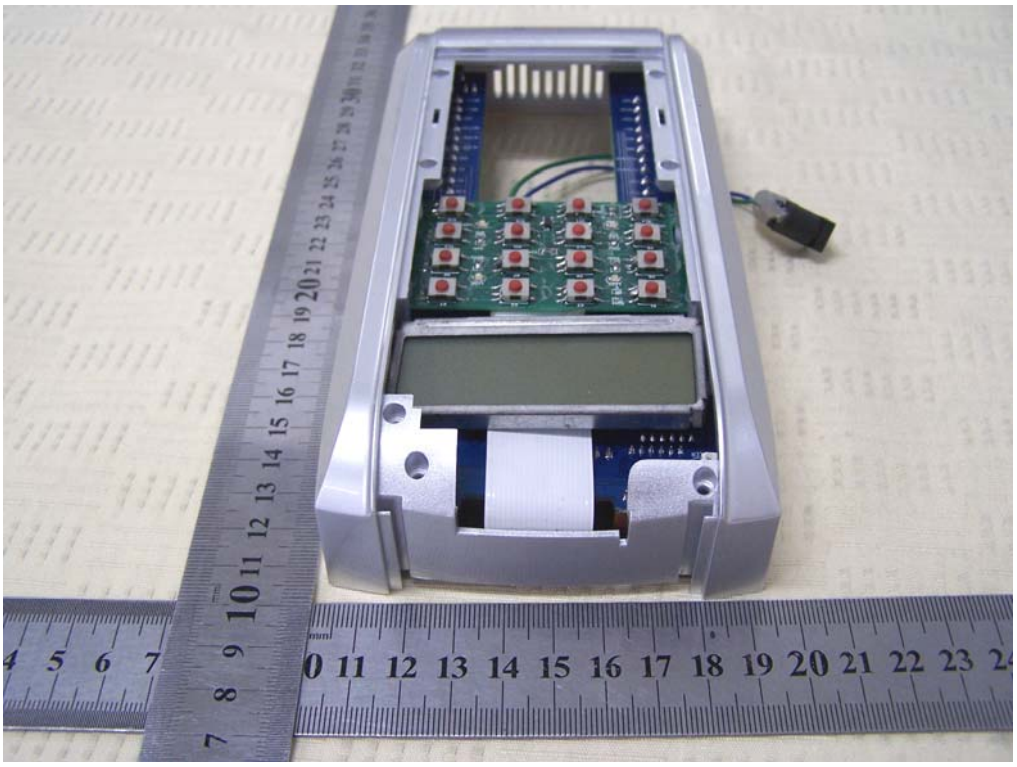
	Flag	Mark	Freq (MHz)	Measure Level (dB)	Reading Level (dBuV)	Over Limit (dBuV/m)	Limit (dBuV/m)	Probe Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1			231.760	37.180	24.110	-8.820	46.000	12.270	0.800	0.000	0.000	0.000	
2	!		483.960	41.070	22.730	-4.930	46.000	17.340	1.000	0.000	0.000	0.000	
3	!	*	606.180	43.660	22.960	-2.340	46.000	19.500	1.200	0.000	0.000	0.000	

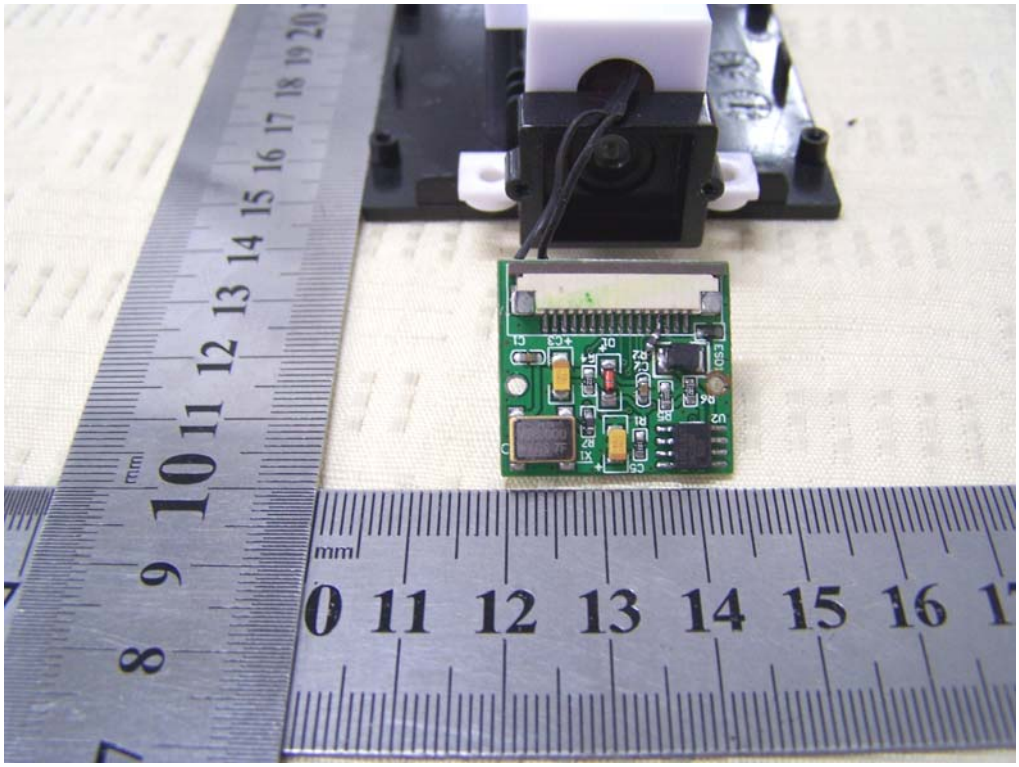
APPENDIX III
(Photos of EUT)

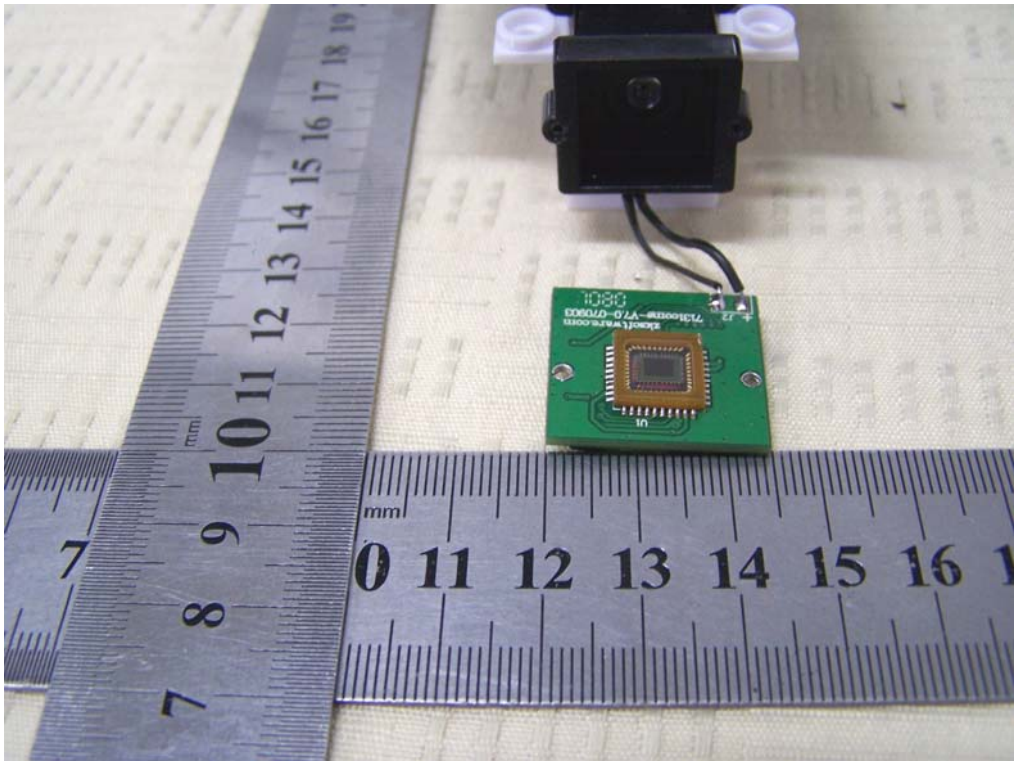
FIGURE 1
GENERAL APPEARANCE OF EUT

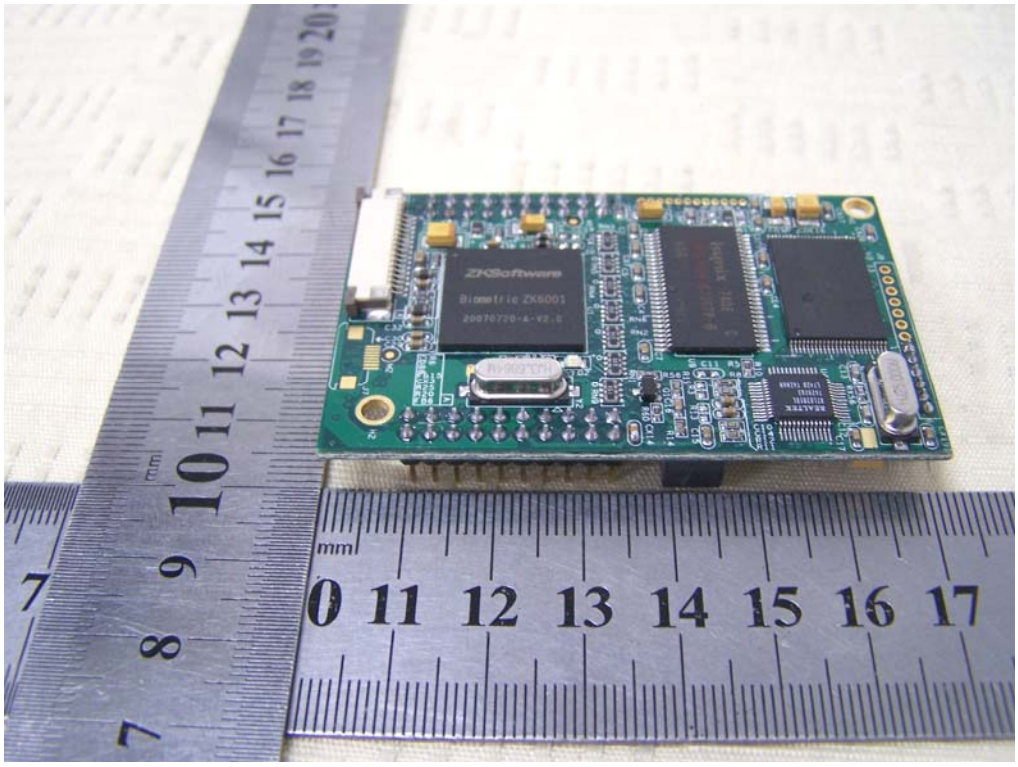








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Biometric ZK6001
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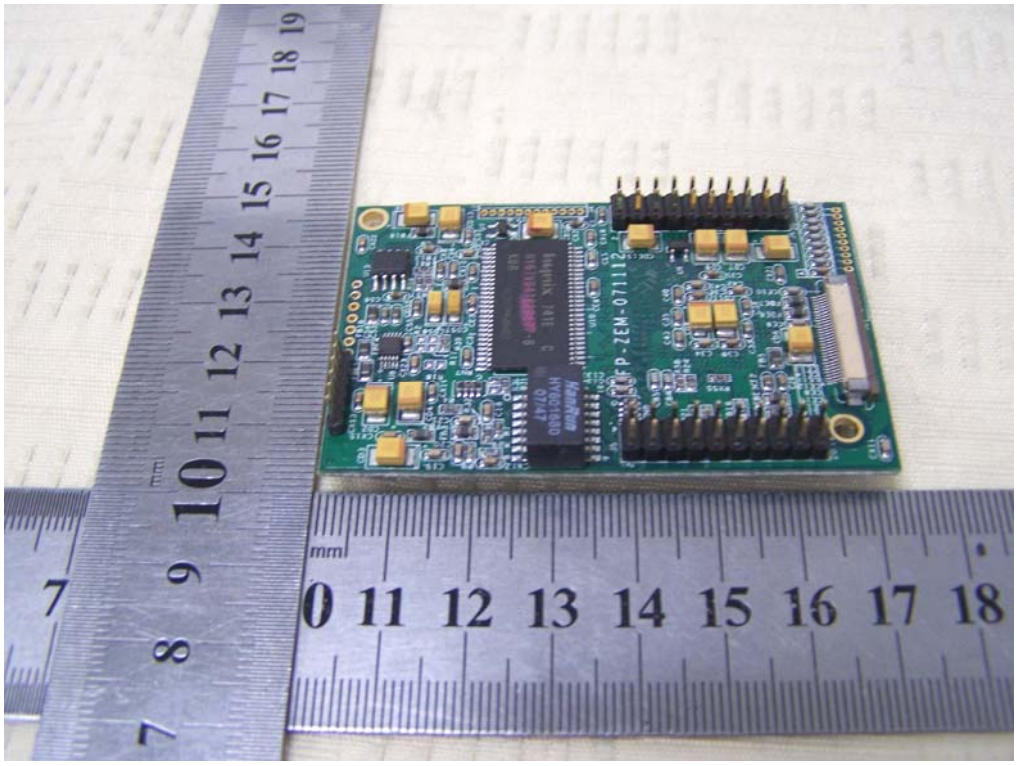
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