Certificate of Conformity

The products

EUT : Data Converter
Model No. : RSXXXX

which produced by

SMART CABLING & TRANSMISSION CORP.
10F, No.493, Chung-Cheng Rd., Hsin Tien City, Taipei County, 231, Taiwan

Has been tested by Electronics Testing Center, Taiwan ETC
And was found to comply with the EMC requirements of Directive 2004/108/EC on the basis of

EN 55022:2006/A1:2007(Class B) **EN 55024:1998/A1:2001/A2:2003**

Will Yauo

Signature
Will Yauo
Manager of EMC Testing Department II
Electronics Testing Center, Taiwan

Report Number : 11-02-RBF-091
Date of Issue: Jun. 17, 2011

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4. EC Declaration of Conformity is the responsibility of the manufacturer/ importer.

ELECTRONICS TESTING CENTER, TAIWAN
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NEW TAIPEI COUNTY, TAIWAN, 24442,
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CE

EMC

TEST REPORT

Responsible Party : ***SMART CABLING & TRANSMISSION CORP.***

Manufacturer : ***SMART CABLING & TRANSMISSION CORP.***

Description of Product : ***Data Converter***

Model No. : ***RSXXXX***

Test Report File No. : ***11-02-RBF-091***

Date Test Item Received : ***Feb. 19, 2011***

Date Test Campaign Completed : ***Jun. 17, 2011***

Date of Issue : ***Jun. 17, 2011***

Test Performed by

ELECTRONICS TESTING CENTER (ETC) , TAIWAN
NO. 34. LIN 5. DINGFU, LINKOU DIST.,
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TEL : (02)26023052 FAX : (02)26010910
http:// www.etc.org.tw；e-mail: emc@etc.org.tw

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Note : 1. The results of the Test Report relate only to the items tested.
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1 TEST REPORT CERTIFICATION

Client	: SMART CABLING & TRANSMISSION CORP.
Address	: 10F, No.493, Chung-Cheng Rd., Hsin Tien City, Taipei County, 231, Taiwan
Manufacturer	: SMART CABLING & TRANSMISSION CORP.
Address	: 10F, No.493, Chung-Cheng Rd., Hsin Tien City, Taipei County, 231, Taiwan
EUT	: Data Converter
Model No.	: RSXXXX
Test specifications	:
Emissions	: EN 55022:2006/A1:2007 (Class B)
Immunity	: IEC61000-4-2:2008 IEC61000-4-3:2006/A1:2007/A2:2010 IEC61000-4-8:2009
Regulations applied	:
Emissions	: EN 55022:2006/A1:2007 (Class B)
Immunity	: EN 55024:1998/A1:2001/A2:2003

The testing described in this report has been carried out to the best of our knowledge and ability, and our responsibility is limited to the exercise of reasonable care. This certification is not intended to relieve the sellers from their legal and/or contractual obligations. Besides, the “Comment Issues” highlight above is important information for this test report. Responsible must read carefully about the description.

Test Engineer : _____
(Tien-Lu Liao, Engineer)

Check By : _____
(Charles Wang, Supervisor)

Approve & Authorized : _____
Will Yauo, Manager
EMC Dept. II of ELECTRONICS
TESTING CENTER, TAIWAN

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

1. ISO9002 : BSMI, TüV Product Service
2. ISO/IEC 17025 : BSMI, CNLA, DGT, NVLAP, CCIBLAC, UL, Compliance
3. EN45001 : TüV Rheinland, NEMKO, FIMKO, SGS
4. Filing : FCC, Industry Canada, VCCI
5. MRA : Australia, Hong Kong, New Zealand, Singapore, USA, Japan, Korea, China, APLAC through CNLA

2 GENERAL INFORMATIONS

2.1 Description of EUT

Data Converter

2.2 Related Information of EUT

Size of EUT : 68mm x 68mm x 30mm

Power Supply : Power from PC

Highest working Frequency : 4MHz

* For more detailed features, please refer to *User's Manual*.

2.3 Tested Configuration

The EUT connected with other devices.

Following peripheral devices and interface cables were connected during the measurement:

Device	Manufacture	Model	Description
Data Converter *	SMART CABLING & TRANSMISSION CORP.	RSXXXX	1.83m Shieled USB Cable 1.81m Shieled RS-232 Cable
PC	Lenovo	7298 RN1	1.8m Unshielded AC Adaptor Power Cord 2.1m Shieled DVI cable with 2 core
Monitor	DELL	3008WFPt	1.8m Unshielded AC Adaptor Power Cord
Keyboard	Logitech	M-U0026	1.5m Unshielded Cable
Mouse	Logitech	M-BE58	1.5m Unshielded Cable

Remark "*" means equipment under test.

2.4 Deviation Record

No deviations were required.

2.5 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Uncertainty
Conducted emissions	150kHz ~ 30MHz	2.45(Mains)
Conducted emission at telecommunication ports	150kHz ~ 30MHz	2.22(Voltage)
		2.88(Current)
Radiated emissions	30MHz ~ 1GHz	3.90(30MHz≦f≦300MHz)
		3.95(300MHz＜f≦1GHz)
	Above 1GHz	4.42(1GHz≦f≦18GHz)

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

2.6 Description of Test Mode

The EUT is designed with DC power supply from PC, radiated emission evaluation, power from PC had been covered during the pre-test. The worst radiated emission data was found at power from PC and recorded in the applied test report.

The EUT has been pre-tested under following modes, and mode 1 is the worst case for final emission test.

Test Mode	Test condition
1	Operation Mode

2.7 Modification Record

No modifications were required. (That is the EUT complied with the requirement as tested.)

3 SUMMARY OF TEST RESULTS

3.1 Emissions

3.1.1 Conducted Emissions

[X] – PASS (Operation -Neutral)
Minimum EMI Margin to the limit: -17.68 dB at 0.3539 MHz
[X] – PASS (Operation –Line)
Minimum EMI Margin to the limit: -19.73 dB at 0.8261 MHz

3.1.2 Conducted Telecommunication ports

Not Applicable

3.1.3 Radiated Emissions

[X] – PASS (Operation -HOR)
Minimum EMI Margin to the limit: -9.20 dB at 95.6100 MHz
[X] – PASS (Operation -VER)
Minimum EMI Margin to the limit: -3.70 dB at 143.9400 MHz

3.2 Immunity

3.2.1 Immunity Criteria

The results of all of the immunity tests performed on the EUT were evaluated according to the following criteria, and according to the manufacturer's specifications for the EUT:

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

Performance criterion B : The EUT continued to operate as intended after the test. No degradation of performance or loss of function was allowed below a performance level specified by the manufacturer, when the EUT was used as intended. During the test, degradation of performance was however allowed. No change of actual operating state or stored data was allowed.

Performance criterion C: Temporary loss of function was allowed, provided the function was self recoverable or could be restored by the operation of the controls.

3.2.2 Electrostatic Discharge Immunity

Requirement :Criterion B (or better)

[X]	- No Degradation of Function	- Satisfies Criterion A
[ ]	- Distortion of Function	- Satisfies Criterion B
[ ]	- Error of Function	- Satisfies Criterion C

3.2.3 RF Radiated Fields Immunity

Requirement :Criterion A

[X]	- No Degradation of Function	- Satisfies Criterion A
[ ]	- Distortion of Function	- Satisfies Criterion B
[ ]	- Error of Function	- Satisfies Criterion C

3.2.4 Power Frequency Magnetic Field Immunity

Requirement :Criterion A

[X]	- No Degradation of Function	- Satisfies Criterion A
[ ]	- Distortion of Function	- Satisfies Criterion B
[ ]	- Error of Function	- Satisfies Criterion C

4 TEST DATA & RELATED INFORMATIONS

4.1 Emissions

4.1.1 Conducted Emissions Test

4.1.1.1 Limit of Conducted Emission Measurement

Frequency (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15-0.5	79	66	66-56	56-46
0.5-5	73	60	56	46
5-30	73	60	60	50

NOTE: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.1.1.2 Test Instruments

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
EMI Test Receiver	Rohde & Schwarz	ESCI	2011/02/03	2012/02/02
LISN	EMCO	3625/2	2011/03/01	2012/02/28
LISN	Rohde & Schwarz	ESH2-Z5	2010/08/10	2011/08/09
Current Probe	Rohde & Schwarz	ESH2-Z1	2010/10/27	2011/10/26
ISN	FCC	FCC-TLISN-T2-02	2010/10/08	2011/10/07
ISN	RCC	FCC-TLISN-T4-02	2010/10/08	2011/10/07
ISN	RCC	FCC-TLISN-T8-02	2010/10/08	2011/10/07
EMI Test Receiver	Rohde & Schwarz	ESCI	2011/02/03	2012/02/02

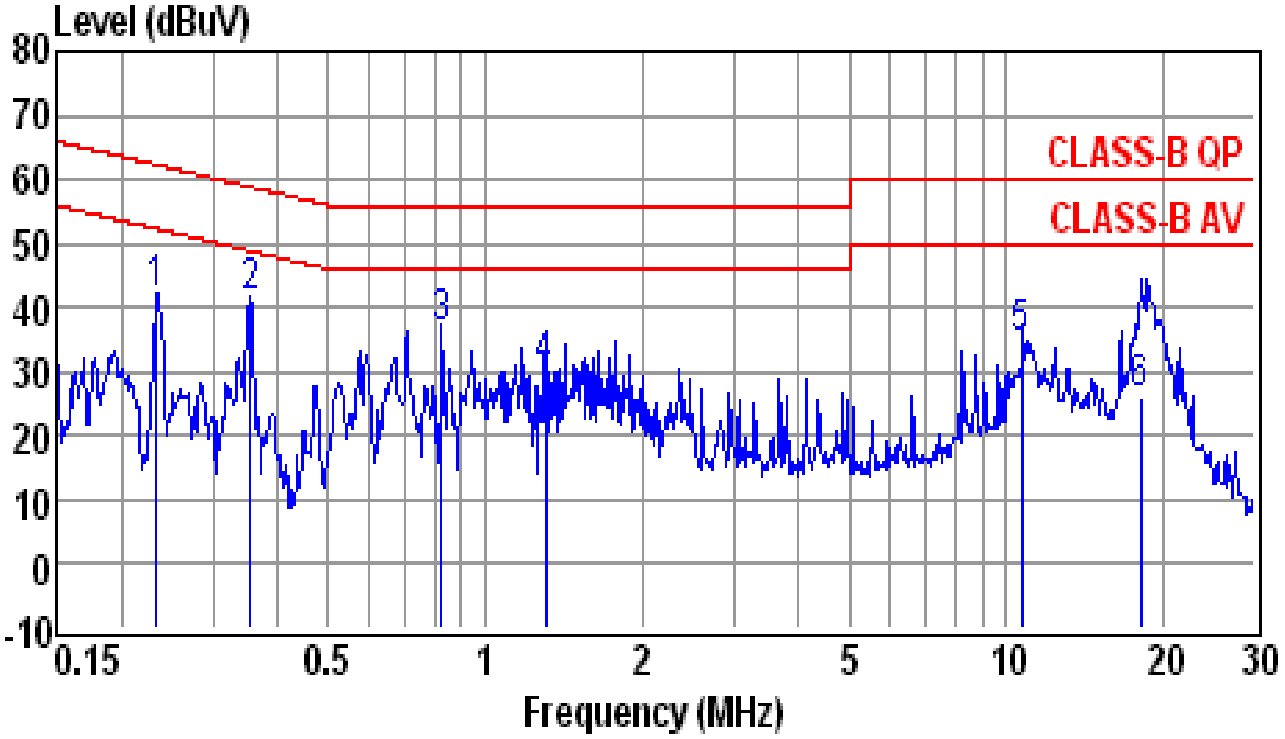
4.1.1.3 Conducted Emissions Test Data

Operating Conditions of The EUT : Operation

Test Date : Jun. 17, 2011

Test Specification	EN 55022:2006/A1:2007 (Class B)
Climatic Condition	Ambient Temperature: 26 °C Relative Humidity: 55 %RH
Power Supply System	Power From PC
Test Set-up	Table-top Equipment

Test data see the next pages.

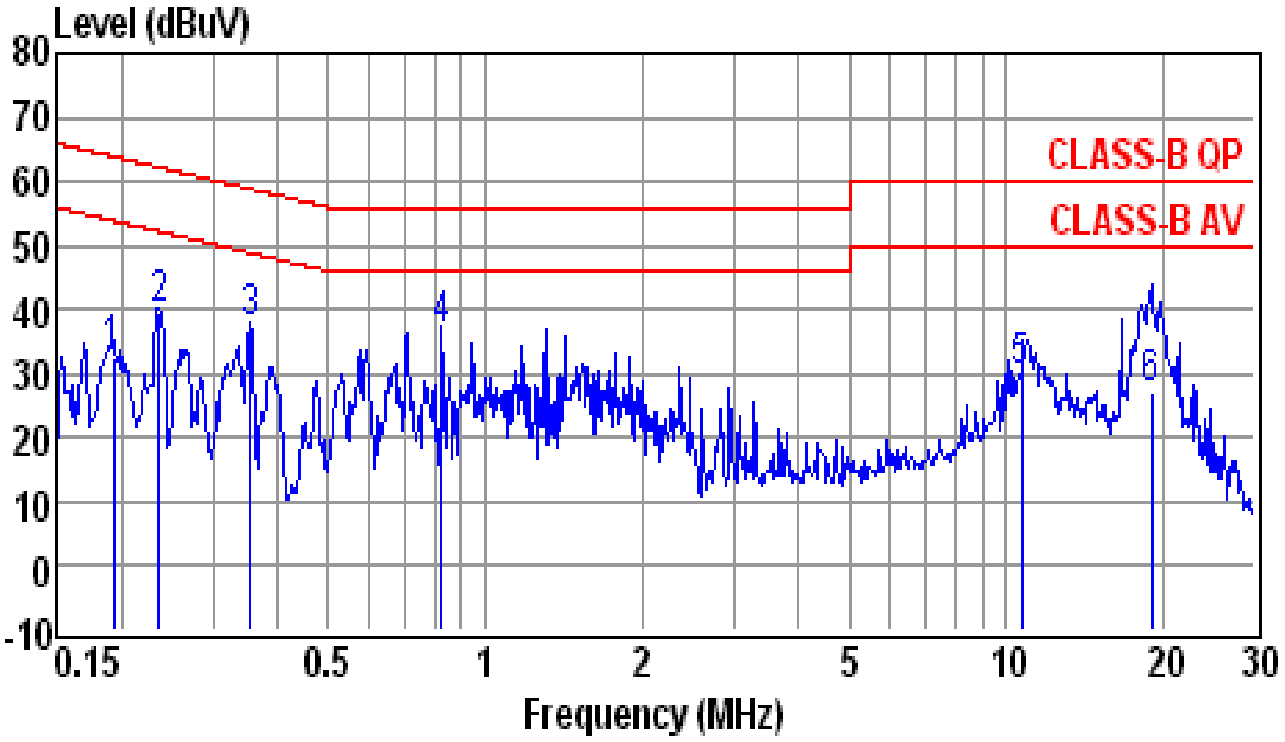


Site	: conducted #1	Date	: 06-15-2011
Condition	: CLASS-B QP	LISN	: NEUTRAL
Tem / Hum	: 26 ℃ / 55%	Test Mode	: Operation
EUT	: 11-02-RBF-091	Power Rating	: From PC
Memo	:	Memo	:

Freq (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Remark
0.2341	41.29	0.50	41.79	62.30	-20.51	QP
0.3539	40.67	0.52	41.19	58.87	-17.68	QP
0.8261	35.76	0.55	36.31	56.00	-19.69	QP
1.3030	29.30	0.57	29.87	56.00	-26.13	QP
10.7330	34.06	0.88	34.94	60.00	-25.06	QP
18.1350	25.06	1.06	26.12	60.00	-33.88	QP

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss



Site	: conducted #1	Date	: 06-15-2011
Condition	: CLASS-B QP	LISN	: LINE
Tem / Hum	: 26 ℃ / 55%	Test Mode	: Operation
EUT	: 11-02-RBF-091	Power Rating	: From PC
Memo	:	Memo	:

Freq (MHz)	Reading (dBuV)	Factor (dB)	Emission Level (dBuV)	Limit Line (dBuV)	Over Limit (dB)	Remark
0.1934	32.01	0.50	32.51	63.89	-31.38	QP
0.2366	38.94	0.50	39.44	62.22	-22.78	QP
0.3539	36.73	0.52	37.25	58.87	-21.62	QP
0.8261	35.72	0.55	36.27	56.00	-19.73	QP
10.7330	28.88	0.88	29.76	60.00	-30.24	QP
19.0210	26.20	1.06	27.26	60.00	-32.74	QP

Note :

1. Result = Reading + Factor
2. Factor = LISN Factor + Cable Loss

4.1.1.4 Conducted Emissions Test Setup Photos

4.1.2 Conducted Telecommunication ports Test

4.1.2.1 Conducted Telecommunication ports Test Data

Not Applicable

4.1.3 Radiated Emissions Test

4.1.3.1 Limit of Radiated Emission Measurement.

Frequency (MHz)	Class A (at 10m)	Class B (at 10m)
	Quasi-peak (dBuV/m)	Quasi-peak (dBuV/m)
30-230	40	30
230-1000	47	37

Frequency (MHz)	Class A (at 3m)		Class B (at 3m)	
	Peak (dBuV/m)	Average (dBuV/m)	Peak (dBuV/m)	Average (dBuV/m)
1000-3000	76	56	70	50
3000-6000	80	60	74	54

NOTE: 1. The lower limit shall apply at the transition frequencies.

2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

Frequency range of radiated measurement

Highest frequency generated or used within the EUT or on which the WUT operates or tunes (MHz)	Upper frequency of measurement rang (MHz)
Below 108	1000
108-500	2000
500-1000	5000
Above 1000	Up to 5 times of the highest frequency to 6 GHz, whichever is less

4.1.3.2 Test Instruments

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Test Receiver	Rohde & Schwarz	ESVS30	2011/05/13	2012/05/12
Amplifier	HP	8447D	2011/05/09	2012/05/10
Spectrum	Advantest	R3162	2011/03/03	2012/03/01
Bi-Log Antenna	Schaffner	CBL 6111	2011/05/20	2012/05/19
Test Receiver	Rohde & Schwarz	ESU40	2010/08/05	2011/08/04
Amplifier	HP	8449B	2010/12/29	2011/12/28
Horn Antenna	EMCO	3115	2011/05/10	2012/05/09

4.1.3.3 Radiated Emissions Test Data

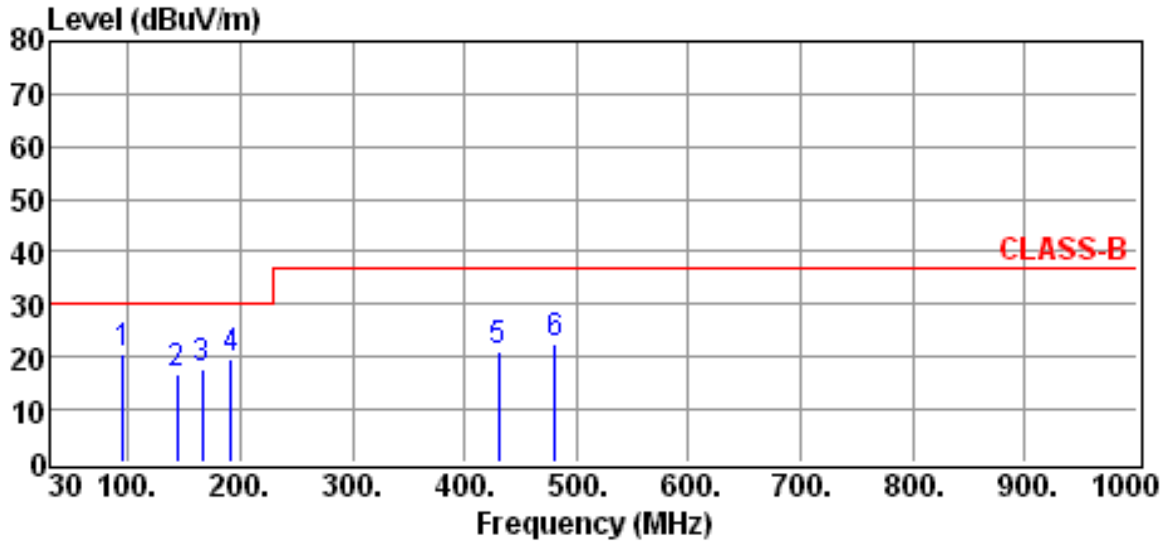
1. Operating Conditions of The EUT : Operation

Test Date : Jun. 17, 2011

Test Specification	EN 55022:2006/A1:2007 (Class B)
Climatic Condition	Ambient Temperature: 31 °C Relative Humidity: 58 %RH
Power Supply System	Power From PC
Test Set-up	Table-top Equipment

Test data see the next pages.

(30MHz to 1GHz)

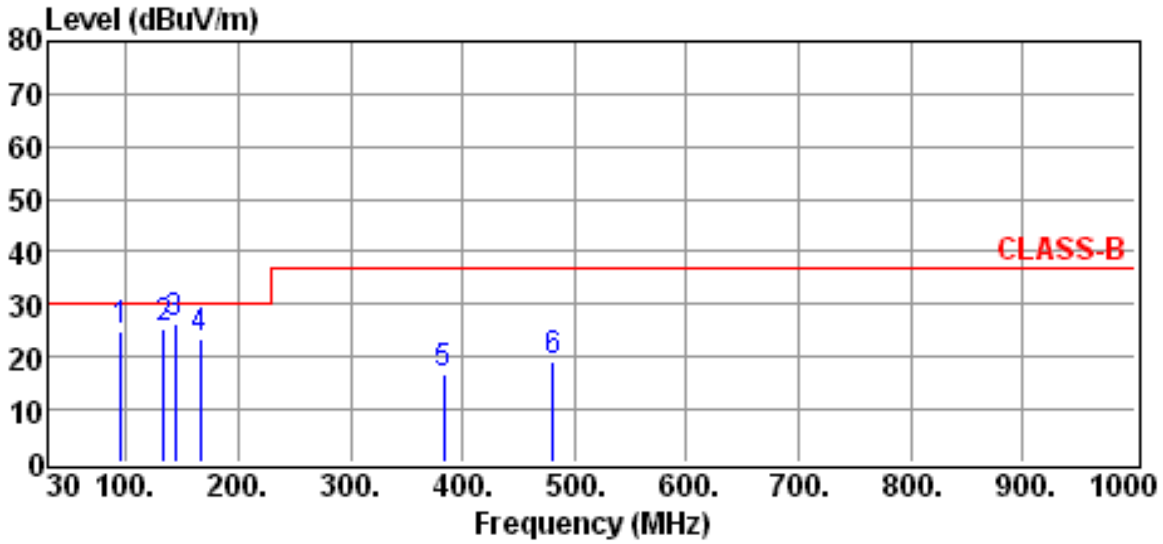


Site	:Open site #2	Date	:2011-06-15
EUT	:11-02-RBF-091	Ant. Pol.	:HORIZONTAL
Model	:	Detector	:QP
Power Rating	:From PC	Engineer	: Operation
Limit	:CLASS-B	Temp.	:31 ℃
Memo	:	Humi.	:58 %

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB
95.6100	9.50	11.30	20.80	30.00	-9.20
143.9400	3.41	13.49	16.90	30.00	-13.10
166.6200	4.94	12.56	17.50	30.00	-12.50
191.7300	8.02	11.78	19.80	30.00	-10.20
430.9000	0.02	21.18	21.20	37.00	-15.80
480.6000	0.07	22.53	22.60	37.00	-14.40

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The expanded uncertainty of the radiated emission tests is 3.53 dB.
4. The margin value=Limit - Result



Site	:Open site #2	Date	:2011-06-15
EUT	:11-02-RBF-091	Ant. Pol.	:VERTICAL
Model	:	Detector	:QP
Power Rating	:From PC	Engineer	: Operation
Limit	:CLASS-B	Temp.	:31 ℃
Memo	:	Humi.	:58 %

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB
95.6100	13.40	11.30	24.70	30.00	-5.30
133.1400	11.49	13.91	25.40	30.00	-4.60
143.9400	12.81	13.49	26.30	30.00	-3.70
166.6200	10.94	12.56	23.50	30.00	-6.50
383.3000	-2.59	19.59	17.00	37.00	-20.00
480.6000	-3.43	22.53	19.10	37.00	-17.90

Note :

1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
3. The expanded uncertainty of the radiated emission tests is 3.53 dB.
4. The margin value=Limit - Result

(Above 1GHz)

Not Applicable

4.1.3.4 Radiated Emissions Test Setup Photos

(30MHz to 1GHz)

4.2 Immunity

4.2.1 Electrostatic Discharge Immunity Test

4.2.1.1 Test Instruments

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Electrostatic Discharge Simulator	Noiseken	ESS2002	2010/10/08	2011/10/07

4.2.1.2 Electrostatic Discharge Immunity Test Data

Test data see the next pages.

Operating Conditions of The EUT : Operation

Test Date : Jun. 17, 2011

Test Specification	IEC 61000-4-2:2008
Climatic Condition	Ambient Temperature: 28 °C Relative Humidity: 48 %RH
	Atmospheric Pressure : 990 mbar
Power Supply System	Power From PC
Test Set-up	Table-top Equipment

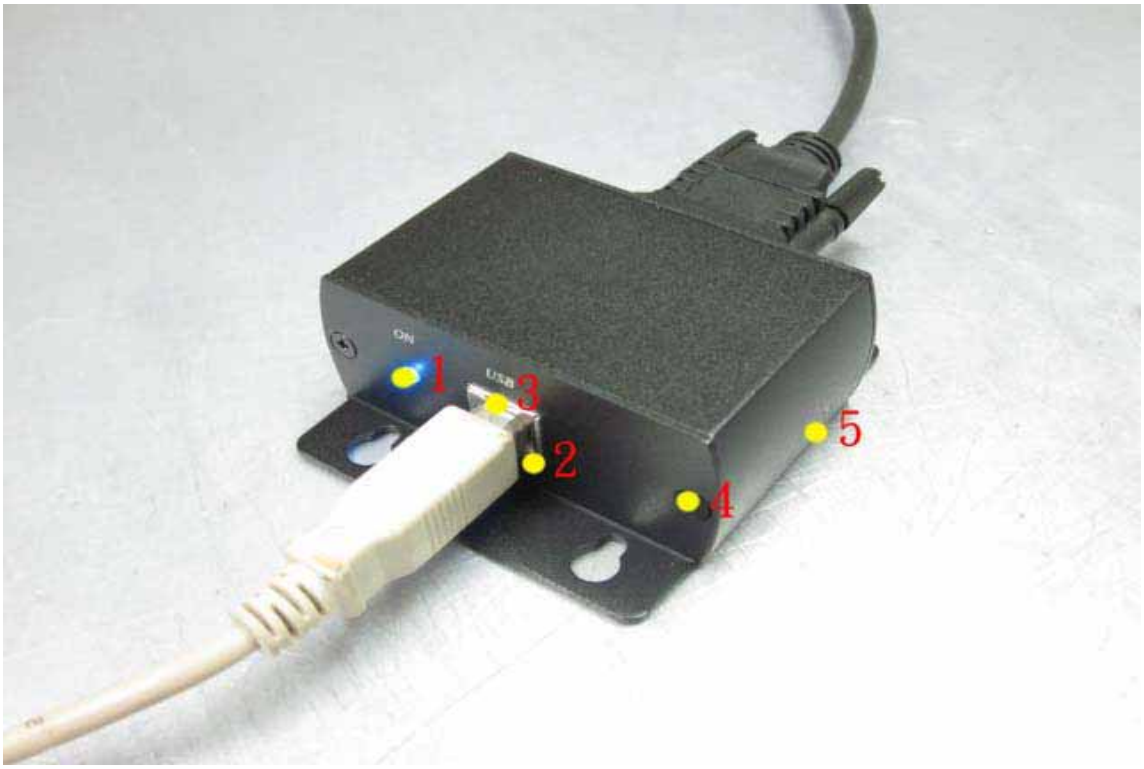
Energy-Storage Capacitor : 150 pF Contact Discharge Times : 25 times/each condition
Discharge Resistor : 330 Ω Air Discharge Times : 10 times/each condition

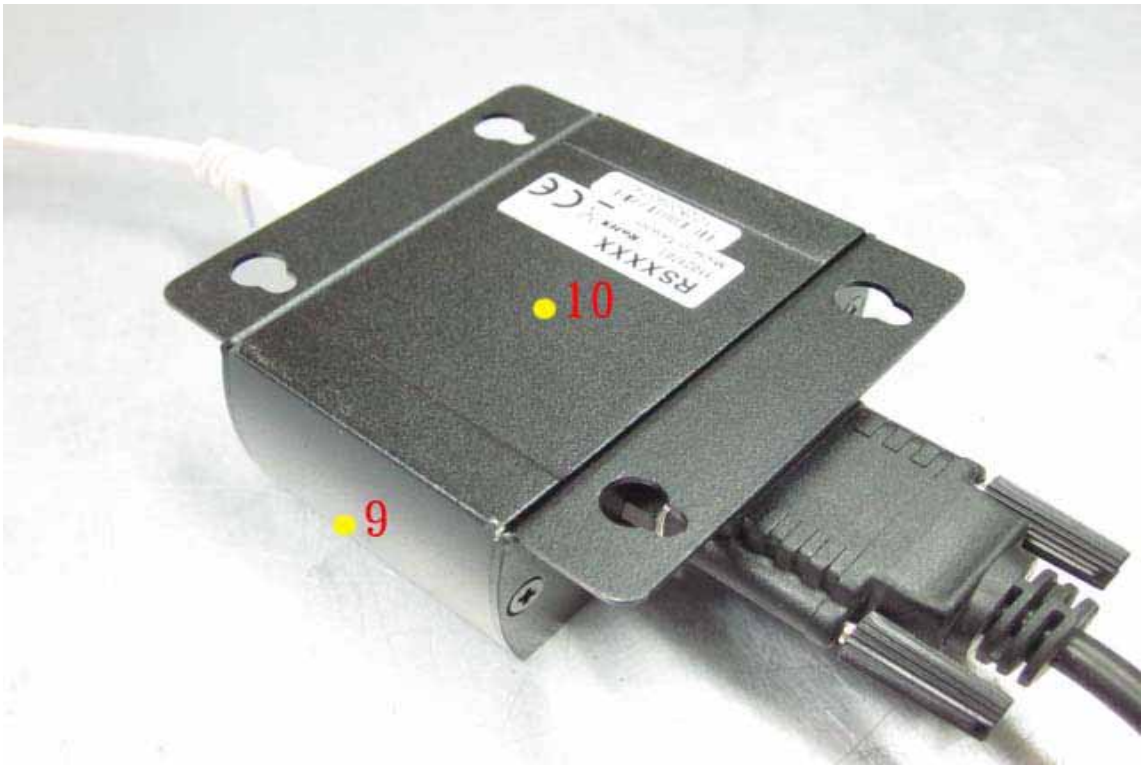
\ Discharge Mode	**Contact Discharge**								**Air Discharge**							
\ESD Voltage	**2 kV**		**4 kV**		**___ kV**		**___ kV**		**2 kV**		**4 kV**		**8 kV**		**___ kV**	
\Points\Result\Polarity	+	−	+	−	+	−	+	−	+	−	+	−	+	−	+	−
VCP	A	A	A	A	---	---	---	---	---	---	---	---	---	---	---	---
HCP	A	A	A	A	---	---	---	---	---	---	---	---	---	---	---	---
P1-P2,P8	---	---	---	---	---	---	---	---	A	A	A	A	A	A	---	---
P3-P7,P9-P10	A	A	A	A	---	---	---	---	---	---	---	---	---	---	---	---

Note : "---"means the test could not be carrier out.

" A " means the EUT's function was correct normal performance during the test.

TEST POINTS




RSXXXX
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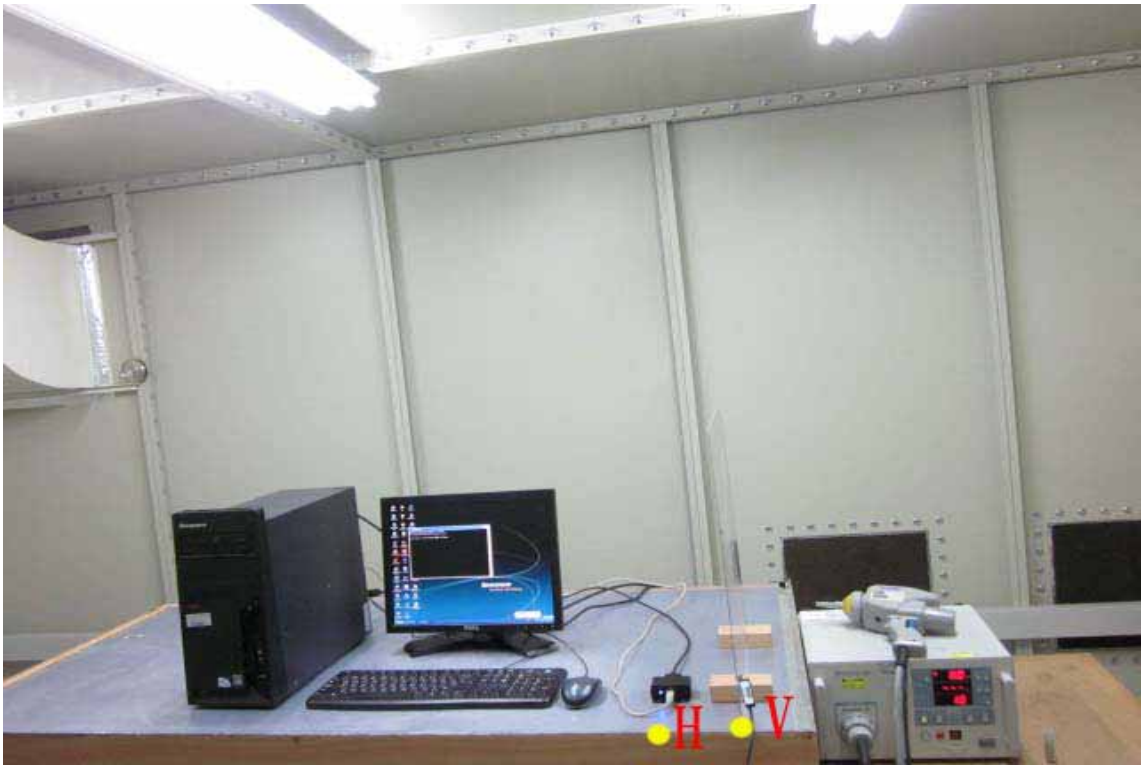
4.2.1.3 Electrostatic Discharge Immunity Test Setup Photos



4.2.2 RF Radiated Fields Immunity Test

4.2.2.1 Test Instruments

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Antenna	AR	AT5080	N/A	N/A
signal Generator	Aglient	E4421B	2010/08/03	2011/08/02
Amplifier	Ophir	5172	N/A	N/A
Amplifier	Ophir	5127	N/A	N/A
POWER METER	Booton	4232A	2010/08/06	2011/08/05

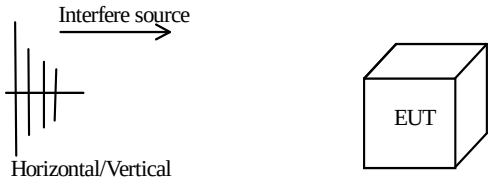
4.2.2.2 RF Radiated Fields Immunity Test Data

Test data see the next pages.

Operating Conditions of The EUT : Operation

Test Date : Jun. 17, 2011

Test Specification	IEC 61000-4-3:2006/A1:2007/A2:2010
Climatic Condition	Ambient Temperature: 28 °C Relative Humidity: 55 %RH
	Atmospheric Pressure : 990 mbar
Power Supply System	Power From PC
Test Set-up	Table-top Equipment



Frequency Range: 80 MHz ~ 1000 MHz	Field Strength: 3 V/m	Modulation (AM 1KHz 80%)
Sweep Rate : ≤ 1.5×10-3 decades/s	Step Size : ≤ 1 % of preceding frequency value	Dwell time : 2.9 s

Frequency Range (MHz)	Antenna-Polarization	Direction of Device	Test Result
80~1000	Horizontal	front	A
		rear	A
		left	A
		right	A
80~1000	Vertical	front	A
		rear	A
		left	A
		right	A

Note : " A " means the EUT's function was correct normal performance during the test.

4.2.2.3 RF Radiated Fields Immunity Test Setup Photos

4.2.3 Power Frequency Magnetic Field Immunity Test

4.2.3.1 Test Instruments

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
EMC Immunity Tester	EMC-PARTNER	TRANSIENT-1000	2010/08/17	2011/08/16
Mfgenerator	EMC-PAPTNER	MF-1000	2011/03/09	2012/03/08

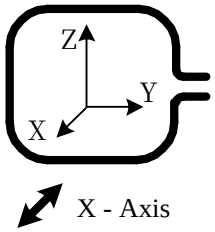
4.2.3.2 Power Frequency Magnetic Field Immunity Test Data

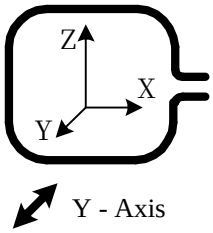
Test data see the next pages.

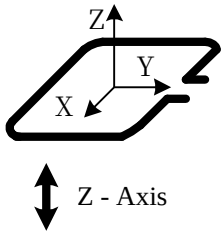
Operating Conditions of The EUT : Operation

Test Date : Jun 17, 2011

Test Specification	IEC61000-4-8:2009
Climatic Condition	Ambient Temperature: 28 °C Relative Humidity: 49 %RH
	Atmospheric Pressure : 990 mbar
Power Supply System	Power From PC
Test Set-up	Table-top Equipment







Magnetic field frequency : 50 Hz	Continuous magnetic field strength : 1 A/m
Magnetic field direction	Testing result
X - Axis	A
Y - Axis	A
Z - Axis	A

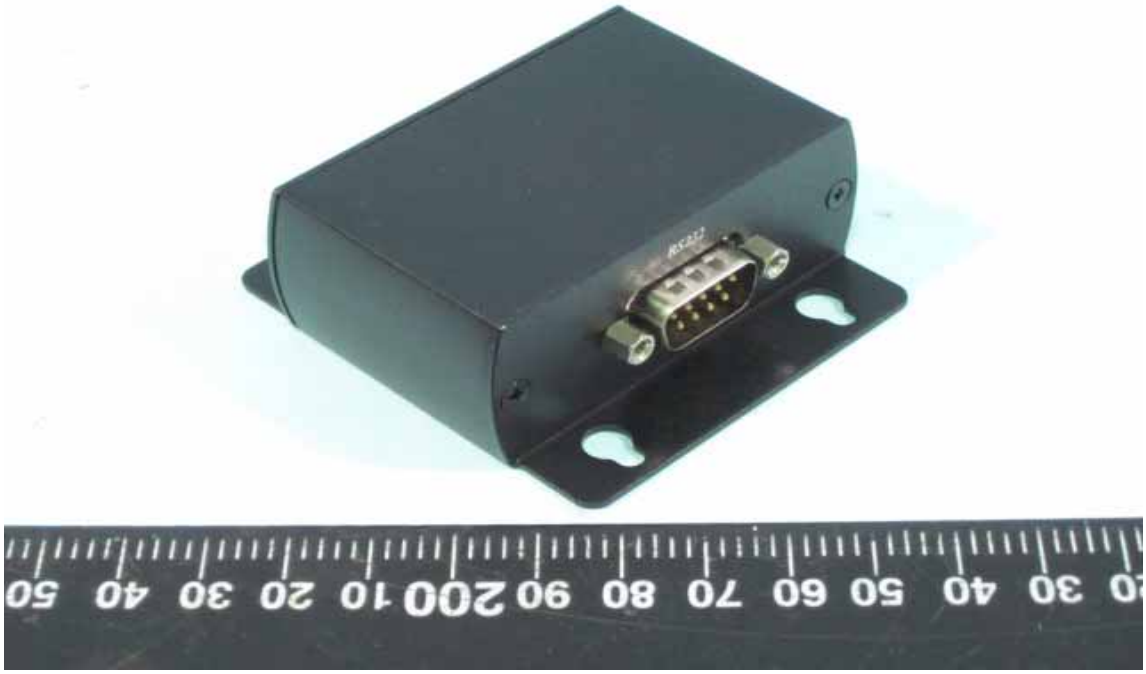
Note : " A " means the EUT's function was correct normal performance during the test.

4.2.3.3 Power Frequency Magnetic Field Immunity Test Setup Photos

CONSTRUCTED PHOTOS of EUT

1. Front View of EUT

2. Side View of EUT



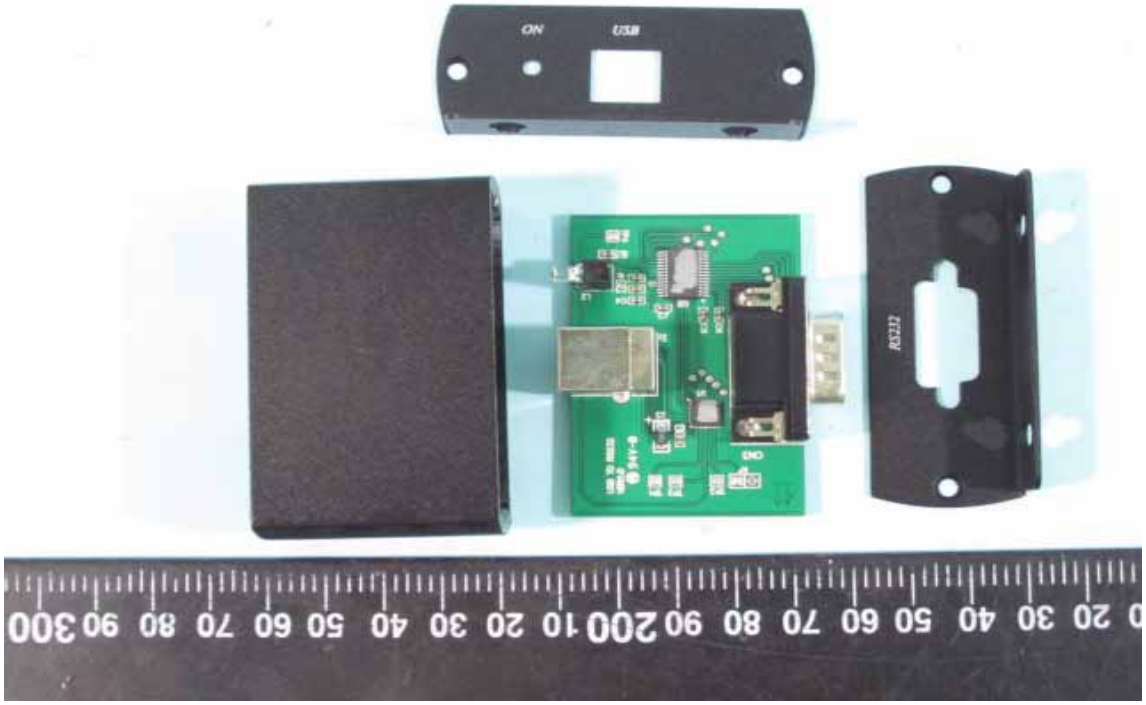
CONSTRUCTED PHOTOS of EUT

3. Side View of EUT

4. Rear View of EUT

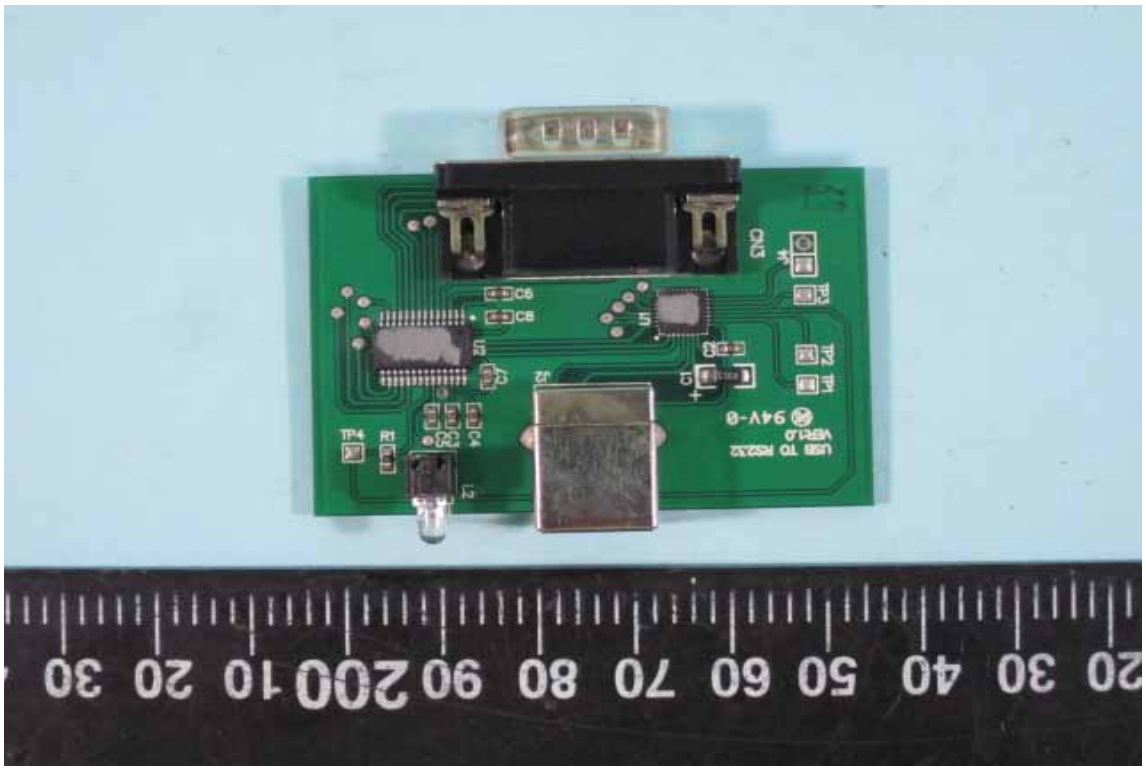
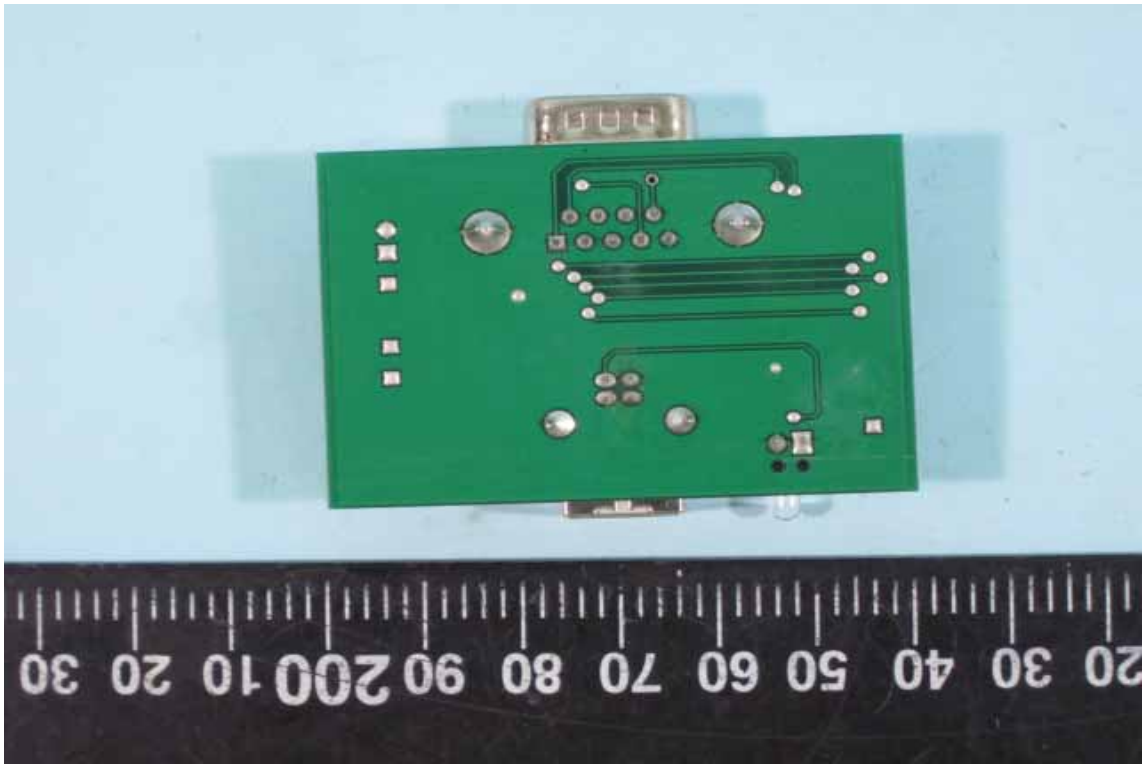
CONSTRUCTED PHOTOS of EUT

5. Internal View of EUT



CONSTRUCTED PHOTOS of EUT

6. Component View of PCB



7. Solder View of PCB