FCC TEST REPORT

(PART 24)

REPORT NO.:	RF110303C19D-5
MODEL NO.:	SC900 (Refer to item 3.1 for more details)
FCC ID:	TQ2-SC900PDT-BWG
RECEIVED:	Jan. 31, 2012
TESTED:	Aug. 14 ~ Aug. 15, 2012
ISSUED:	Aug. 21, 2012

APPLICANT:	Shin Chuan Computer Co., Ltd.
ADDRESS:	6F-2, No. 268, LianCheng Rd., Zhonghe District, New Taipei City 23553, Taiwan

ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
LAB ADDRESS:	No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.
TEST LOCATION:	No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

This report should not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF110303C19D-5	Original release	Aug. 21, 2012

1 CERTIFICATION

PRODUCT:	Portable Data Terminal
MODEL:	SC900
BRAND:	SCC
APPLICANT:	Shin Chuan Computer Co., Ltd.
TESTED:	Aug. 14 ~ Aug. 15, 2012
TEST SAMPLE:	ENGINEERING SAMPLE
STANDARDS:	**FCC Part 24, Subpart E**

This report is issued as a supplementary report of BV ADT report no.: **RF110303C19A-5** for adding model, barcode readers and data pin changing from 6pin to 10 pin. This report shall be used combining with its original report.

PREPARED BY	: Ivy Lin / Specialist	**, DATE :**	Aug. 21, 2012
APPROVED BY	: Gary Chang / Technical Manager	**, DATE :**	Aug. 21, 2012

NOTE: Only e.i.r.p. power and RSE were performed for this addendum. Refer to original report for other test data.

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 24 & Part 2			
STANDARD SECTION	**TEST TYPE**	**RESULT**	**REMARK**
2.1046 24.232	Equivalent isotropically radiated power	PASS	Meet the requirement of limit.
2.1055 24.235	Frequency Stability	NA	Refer to Note
2.1049 24.238(b)	Occupied Bandwidth	NA	Refer to Note
24.238(b)	Band Edge Measurements	NA	Refer to Note
2.1051 24.238	Conducted Spurious Emissions	NA	Refer to Note
2.1053 24.238	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -37.5dB at 7400.00MHz.

NOTE: Only e.i.r.p. power and RSE were performed for this addendum. Refer to original report for other test data.

2.1 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	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.34 dB
	200MHz ~1000MHz	3.35 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

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

2.2 TEST SITE AND INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESIB7	100212	Aug. 06, 2012	Aug. 05, 2013
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Feb. 03, 2012	Feb. 02, 2013
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Apr. 06, 2012	Apr. 05, 2013
HORN Antenna SCHWARZBECK	9120D	209	Aug. 25, 2011	Aug. 24, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 11, 2012	Jul. 10, 2013
Preamplifier Agilent	8447D	2944A10633	Oct. 29, 2011	Oct. 28, 2012
Preamplifier Agilent	8449B	3008A01964	Oct. 29, 2011	Oct. 28, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250723/4	Aug. 30, 2011	Aug. 29, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 106	12738/6+309224/4	Aug. 30, 2011	Aug. 29, 2012
Software ADT.	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller inn-co GmbH	CO2000	017303	NA	NA
Turn Table ADT.	TT100	TT93021703	NA	NA
Turn Table Controller ADT.	SC100	SC93021703	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Chamber 3.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 988962.

4. The IC Site Registration No. is IC 7450F-3.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Portable Data Terminal
MODEL NO.	SC900 (Refer to NOTE for more details)
POWER SUPPLY	3.7Vdc (Li-ion battery) 5.0Vdc (Adapter) 5.0Vdc (Host equipment)
MODULATION TYPE	**GPRS:** GMSK **E-GPRS:** 8PSK
FREQUENCY RANGE	**GPRS, E-GPRS:** 1850.2MHz ~ 1909.8MHz
MAX. EIRP POWER	0.7413Watts
MULTI-SLOTS CLASS	12
ANTENNA TYPE	PIFAantenna with -1.99dBi gain
I/O PORTS	1.3m non-shielded USB cable with 2 cores
DATA CABLE	Refer to user's manual
ACCESSORY DEVICES	Battery, Adapter, Earphone (1.2m non-shielded cable)

NOTE:

1. This report is issued as a supplementary report of RF110303C19A-5. This report shall be combined together with its original report.
2. This report is prepared for FCC class II permissive change. Differences compared with the original report are adding model, barcode readers and data pin changing from 6pin to 10 pin.
3. The following models are provided to the EUT. (New models are marked in boldface.)

BRAND NAME	MODEL NO.	DIFFERENCE	
		USB PORT	EARPHONE PORT
SCC	SC900	With	Without
	M1000	Without	With
SCC	**H25**	**Based on model: SC900**	
SCC	**CX3**	**Marketing purpose**	

4. The following barcode readers are provided to EUT.

For model: SC900			For model: M1000		
Brand	**Model**	**Barcode Reader**	**Brand**	**Model**	**Barcode Reader**
MDI	MDI2350	2D image	Motorola	SE4500	2D image

*After pre-testing, model: SC900 is the worst case for final test.

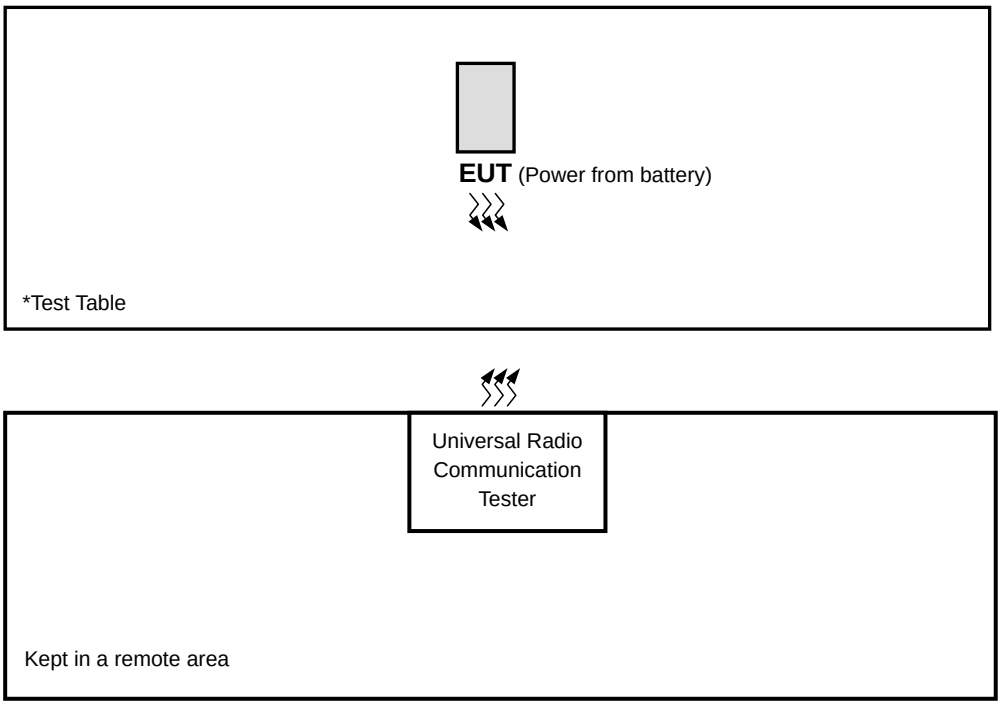
5. The EUT uses following adapter and battery.

ADAPTER	
Brand	Powertron Electronics Corp.
Model	PA1008-050SI100
Input Power	100-240Vac, 50-60Hz, 0.3A
Output Power	5Vdc, 1.0A, 5W Max.

Li-ion Battery	
Brand	ETI CA
Power Rating	3.7Vdc, 1840mAh/ 6.8Wh

6. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 CONFIGURATION OF SYSTEM UNDER TEST



3.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	UNIVERSAL RADIO COMMUNICATION TESTER	R&S	CMU200	104484	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA

NOTE:
1. All power cords of the above support units are non-shielded (1.8 m).
2. Item 1 acted as a communication partner to transfer data.

3.4 TEST ITEM AND TEST CONFIGURATION

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports The worst case was found when positioned on Y-plane for EIRP and X-axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

GPRS MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
-	EIRP	512 to 810	810	GPRS
-	RADIATED EMISSION < 1GHz	512 to 810	661	GPRS
-	RADIATED EMISSION > 1GHz	512 to 810	512	GPRS

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
EIRP	25deg. C, 65%RH	3.7Vdc	Aska Huang
RADIATED EMISSION	25deg. C, 65%RH	3.7Vdc	Aska Huang

3.5 EUT OPERATING CONDITIONS

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

3.6 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2

FCC 47 CFR Part 24

ANSI/TIA/EIA-603-C 2004

NOTE: All test items have been performed and recorded as per the above standards.

4 TEST TYPES AND RESULTS

4.1 OUTPUT POWER MEASUREMENT

4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Mobile and portable stations are limited to 2 watts EIRP

4.1.2 TEST PROCEDURES

EIRP MEASUREMENT:

a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 1MHz for GSM, GPRS & EDGE.

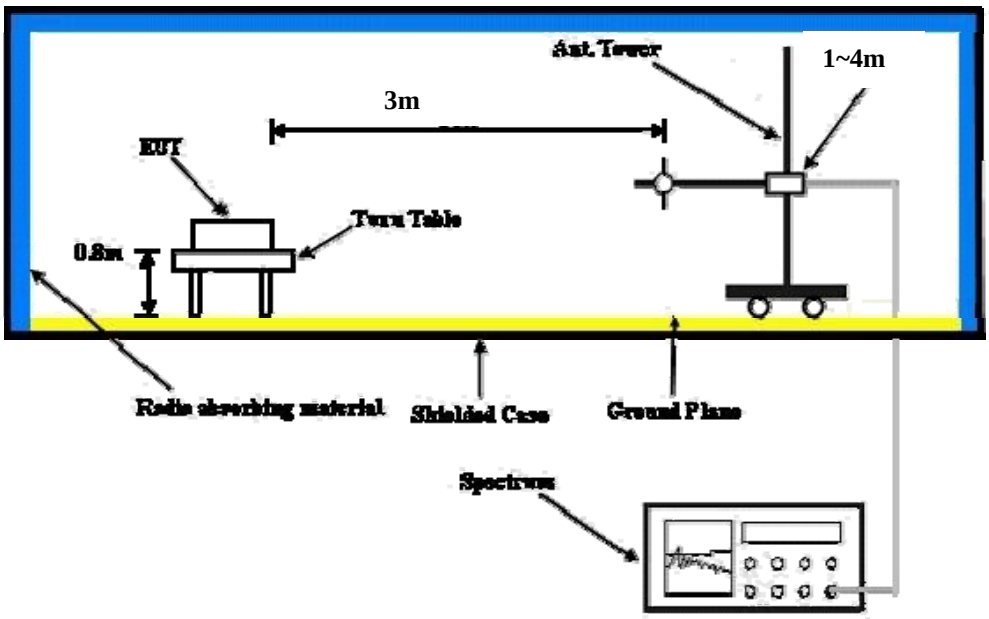
b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.

c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value " of step b. Record the power level of S.G

d. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

4.1.3 TEST SETUP

EIRP MEASUREMENT:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.4 TEST RESULTS

EIRP POWER (dBm)

GPRS MODE:

MODE	TX channel 810						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1909.80	7.9	27.6	1.1	28.7	33.0	-4.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	**Freq. (MHz)**	**Reading (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**Limit (dBm)**	**Margin (dB)**
1	1909.80	-12.4	22.9	1.11	24.0	33.0	-9.0

NOTE: Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to –13dBm.

4.2.2 TEST PROCEDURES

a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.

b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value " of step a. Record the power level of S.G

c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

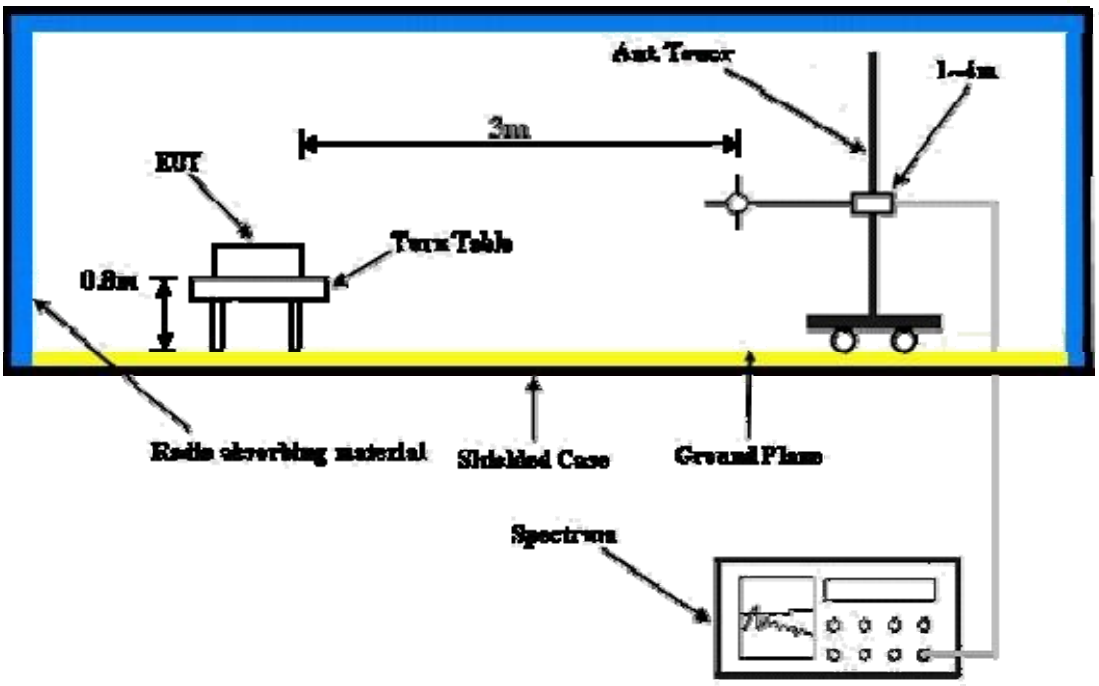
d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.

NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.2.3 DEVIATION FROM TEST STANDARD

No deviation

4.2.4 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.5 TEST RESULTS

Below 1GHz

GPRS:

MODE	TX channel 810	FREQUENCY RANGE	Below 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER	3.7Vdc
TESTED BY	Aska Huang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	31.94	-60.1	-43.8	-12.37	-56.2	-13.0	-43.2
2	41.66	-62.4	-47.6	-11.1	-58.7	-13.0	-45.7
3	70.82	-59.7	-61.9	-4.7	-66.6	-13.0	-53.6
4	409.06	-58.4	-63.41	5.2	-58.2	-13.0	-45.2
5	447.94	-58.2	-62.9	5.1	-57.9	-13.0	-44.9
6	488.76	-60.1	-64.7	4.9	-59.8	-13.0	-46.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	33.89	-53.5	-48.1	-12.1	-60.2	-13.0	-47.2
2	154.41	-57.5	-56.5	0	-56.5	-13.0	-43.5
3	204.95	-49.5	-57.5	5.5	-52.0	-13.0	-39.0
4	341.02	-52.0	-58.3	5.2	-53.1	-13.0	-40.1
5	409.06	-57.1	-61.3	5.2	-56.0	-13.0	-43.0
6	856.15	-61.5	-57.4	4.0	-53.4	-13.0	-40.4

REMARKS:

1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Above 1GHz

GPRS:

MODE	TX channel 512	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	INPUT POWER	3.7Vdc
TESTED BY	Aska Huang		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3700.40	-62.7	-58.65	7.2	-51.5	-13.0	-38.5
2	5550.60	-70.3	-59.4	6.8	-52.6	-13.0	-39.6
3	**7400.00**	**-71.9**	**-54.8**	**4.3**	**-50.5**	**-13.0**	**-37.5**
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3700.40	-62.2	-58.3	7.2	-51.2	-13.0	-38.2
2	5550.60	-71.8	-62.3	6.8	-55.53	-13.0	-42.53
3	7400.80	-73.1	-56.6	4.3	-52.3	-13.0	-39.3

REMARKS:

1. Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

6 INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3270892
Email: service.adt@tw.bureauveritas.com
Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.

7 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

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