



FCC SUPPLEMENTARY TEST REPORT

REPORT NO.: RF970130H02C

MODEL NO.: RU-859, RU-859-XXX

RECEIVED: Sep. 14, 2009

TESTED: Sep. 28 to Oct. 07, 2009

ISSUED: Oct. 14, 2009

APPLICANT: Microelectronics Technology Inc.

ADDRESS: 1, Innovation Road II, Hsinchu Science-based
Industrial Park, Hsinchu, Taiwan, R.O.C.

ISSUED BY: Bureau Veritas Consumer Products Services (H.K.)
Ltd., Taoyuan Branch Hsin Chu Laboratory

ADDRESS: No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen,
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TABLE OF CONTENTS

1.	CERTIFICATION.....	3
2.	SUMMARY OF TEST RESULTS	4
2.1	MEASUREMENT UNCERTAINTY	4
3.	GENERAL INFORMATION.....	5
3.1	GENERAL DESCRIPTION OF EUT	5
3.2	DESCRIPTION OF TEST MODES	7
3.2.1	TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL.....	8
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS.....	9
3.4	DESCRIPTION OF SUPPORT UNITS.....	10
3.5	CONFIGURATION OF SYSTEM UNDER TEST.....	10
4.	TEST TYPES AND RESULTS	11
4.1	MAXIMUM PEAK OUTPUT POWER.....	11
4.1.1	LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT.....	11
4.1.2	INSTRUMENTS	11
4.1.3	TEST PROCEDURES	11
4.1.4	DEVIATION FROM TEST STANDARD	11
4.1.5	TEST SETUP.....	12
4.1.6	EUT OPERATING CONDITION.....	12
4.1.7	TEST RESULTS	13
4.2	RADIATED EMISSION MEASUREMENT	15
4.2.1	LIMITS OF RADIATED EMISSION MEASUREMENT	15
4.2.2	TEST INSTRUMENTS.....	16
4.2.3	TEST PROCEDURES	17
4.2.4	DEVIATION FROM TEST STANDARD	17
4.2.5	TEST SETUP	18
4.2.6	TEST RESULTS	19
5.	INFORMATION ON THE TESTING LABORATORIES.....	25
6.	APPENDIX - A MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	26



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1. CERTIFICATION

PRODUCT : MTI RFID RF Module
BRAND : MTI
MODEL NO.: RU-859, RU-859-XXX
APPLICANT : Microelectronics Technology Inc.
TESTED : Sep. 28 to Oct. 07, 2009
TEST SAMPLE : ENGINEERING SAMPLE
STANDARDS : FCC Part 15, Subpart C (Section 15.247),
ANSI C63.4-2003

The above equipment (Model: RU-859) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Sunny Wen , **DATE:** Oct. 14, 2009
(Sunny Wen, Specialist)

TECHNICAL ACCEPTANCE : Hank Chung , **DATE:** Oct. 14, 2009
(Hank Chung, Deputy Manager)

APPROVED BY : May Chen , **DATE:** Oct. 14, 2009
(May Chen, Deputy Manager)



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2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.247(b)(2)	Maximum Peak Output Power Spec.: max. 30dBm	PASS	Meet the requirement of limit
15.247(d)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -4.09dB at 9027.50MHz.

NOTE:

1. This report is prepared for FCC class II permissive change. Only maximum peak output power and radiated emission were presented in this test report.

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:

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

Measurement	Value
Radiated emissions (30MHz-1GHz)	3.94 dB
Radiated emissions (1GHz -18GHz)	2.49 dB
Radiated emissions (18GHz -40GHz)	2.70 dB



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	MTI RFID RF Module
MODEL NO.	RU-859, RU-859-XXX
FCC ID	MAD-RU-859
POWER SUPPLY	DC 5V from DC power supply
MODULATION TYPE	ASK
MODULATION TECHNOLOGY	FHSS
FREQUENCY RANGE	902.75MHz ~ 927.25MHz
NUMBER OF CHANNEL	50
MAXIMUM OUTPUT POWER	905.733mW
ANTENNA TYPE	Please see note 1
DATA CABLE	NA
I/O PORT	NA
ASSOCIATED DEVICES	NA

NOTE:

1. This report is prepared for FCC class II permissive change. The difference compared with the Report No.: RF970130H02 design is as the following:

u Add two new antennas, and there is one antenna provided to this EUT:

Original						
Model No.	Antenna Type	Connector Type	Gain (dBi)	Cable loss (dB)	Net Gain (dBi)	
PFID0900-ANT	Patch Antenna	SMA Female	6	0.75	5.25	
Newly						
Model No.	Antenna Type	Connector Type	Gain (dBi)	Cable loss (dB)	Net Gain (dBi)	Cable Length (mm)
4604-0014	Patch Antenna	SMA-male	5.5	0.22	5.28	127
4604-0015	Patch Antenna	SMA-male	5.5	1.1	4.4	1016

From the above antennas, model no.: **4604-0014** was selected as representative antennas for the test and their data were recorded in this report.

The EUT has two antennas ports: Antenna Port 1 & Antenna Port 2, **Antenna Port 1** was selected as representative for the test.



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- Ø This product added new model name: RU-859-XXX before through FCC class I change, in another test report <RF970130H02A>.

Brand	Model No.	Difference
MTI	RU-859	For marketing requirement
	RU-859-XXX ("X" can be 0~9, A~Z) ↓ ↓ ↓ ↓ ↓ ↓ Configuration Code Configuration Code Customer Code	

From the above models, model: **RU-859** was selected as representative model for the test and its data was recorded in this report.

- Ø This product move the RF Schematic of component, move the ICT test point and modify the R1000 transceiver of package before through FCC class I change, and the test data was recorded in another test report <RF970130H02B>.



3.2 DESCRIPTION OF TEST MODES

Fifty channels are provided to this EUT.

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	902.75	21	913.25	42	923.75
1	903.25	22	913.75	43	924.25
2	903.75	23	914.25	44	924.75
3	904.25	24	914.75	45	925.25
4	904.75	25	915.25	46	925.75
5	905.25	26	915.75	47	926.25
6	905.75	27	916.25	48	926.75
7	906.25	28	916.75	49	927.25
8	906.75	29	917.25		
9	907.25	30	917.75		
10	907.75	31	918.25		
11	908.25	32	918.75		
12	908.75	33	919.25		
13	909.25	34	919.75		
14	909.75	35	920.25		
15	910.25	36	920.75		
16	910.75	37	921.25		
17	911.25	38	921.75		
18	911.75	39	922.25		
19	912.25	40	922.75		
20	912.75	41	923.25		



3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	
-	-	√	√	√	-

Where **PLC**: Power Line Conducted Emission **RE < 1G**: Radiated Emission below 1GHz
RE ≥ 1G: Radiated Emission above 1GHz **APCM**: Antenna Port Conducted Measurement

Radiated Emission Test (Below 1 GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

Available Channel	Tested Channel	Modulation Technology	Modulation Type
0 to 49	0, 24, 49	FHSS	ASK

Radiated Emission Test (Above 1 GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

Available Channel	Tested Channel	Modulation Technology	Modulation Type
0 to 49	0, 24, 49	FHSS	ASK

Antenna Port Conducted Measurement:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

Available Channel	Tested Channel	Modulation Technology	Modulation Type
0 to 49	0, 24, 49	FHSS	ASK



3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart C. (15.247)

ANSI C63.4-2003

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



3.4 DESCRIPTION OF SUPPORT UNITS

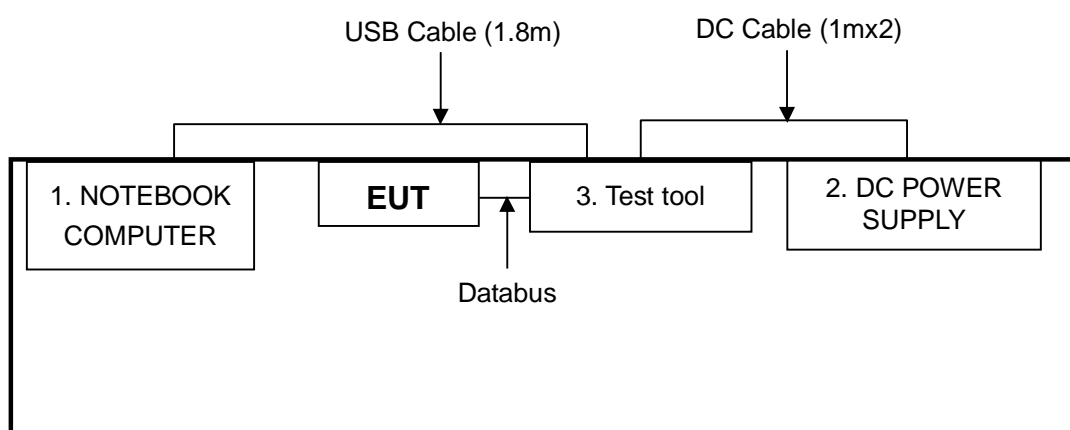
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP19L	CN-OHC416-70166-5CA-0448	PIW632500516610
2	DC POWER SUPPLY	GOOD WILL INSTRUMENT CO., LTD.	GPC-3030D	7700087	NA
3	TEST TOOL	MTI	NA	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	1.0 m DC line.
3	1.8 m shielded, USB cable.

NOTE: All power cords of the above support units are non shielded (1.8m).

3.5 CONFIGURATION OF SYSTEM UNDER TEST



4. TEST TYPES AND RESULTS

4.1 MAXIMUM PEAK OUTPUT POWER

4.1.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.1.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Dec. 09, 2008	Dec. 08, 2009

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

4.1.3 TEST PROCEDURES

- a. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- c. The center frequency of the spectrum analyzer is set to the fundamental frequency and using 3MHz RBW and 3 MHz VBW.
- d. Measure the captured power within the band and recording the plot.
- e. Repeat above procedures until all frequencies required were complete.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITION

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.



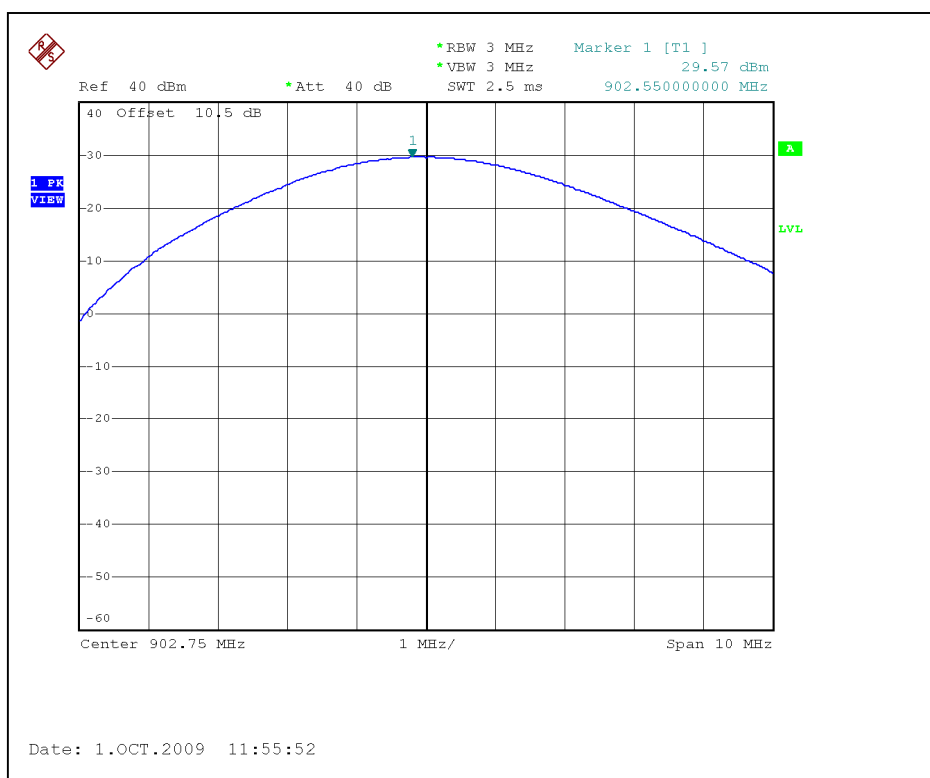
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4.1.7 TEST RESULTS

ENVIRONMENTAL CONDITIONS	16deg. C, 62%RH, 965 hPa	INPUT POWER (SYSTEM)	120Vac, 60 Hz
TESTED BY	Kent Liu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
0	902.75	905.733	29.57	30	PASS
24	914.75	847.227	29.28	30	PASS
49	927.25	829.851	29.19	30	PASS

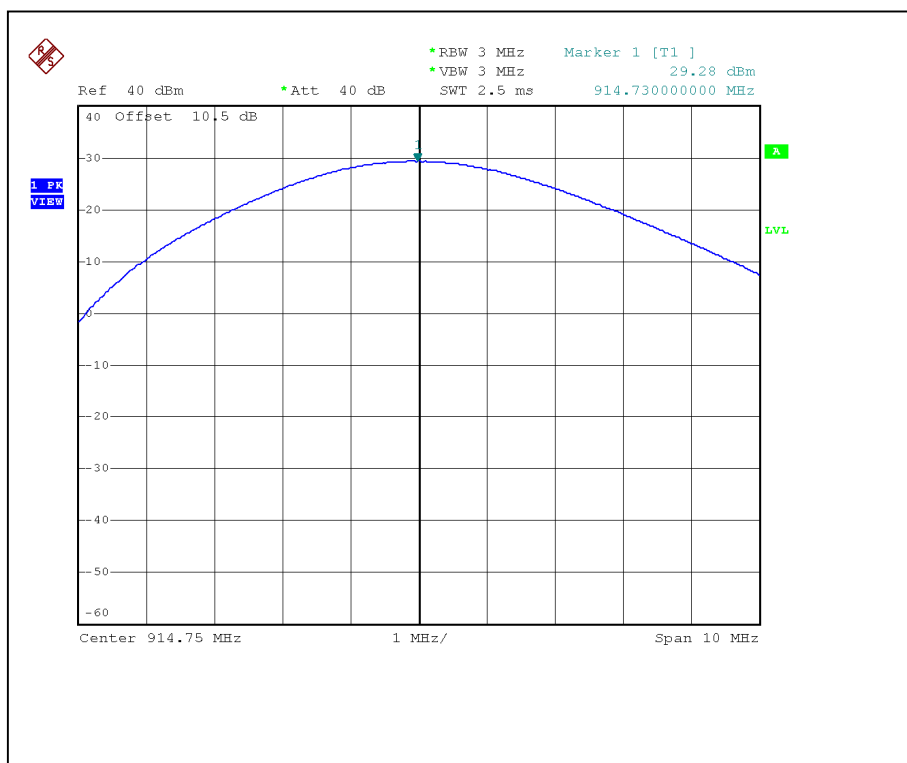
Channel 0



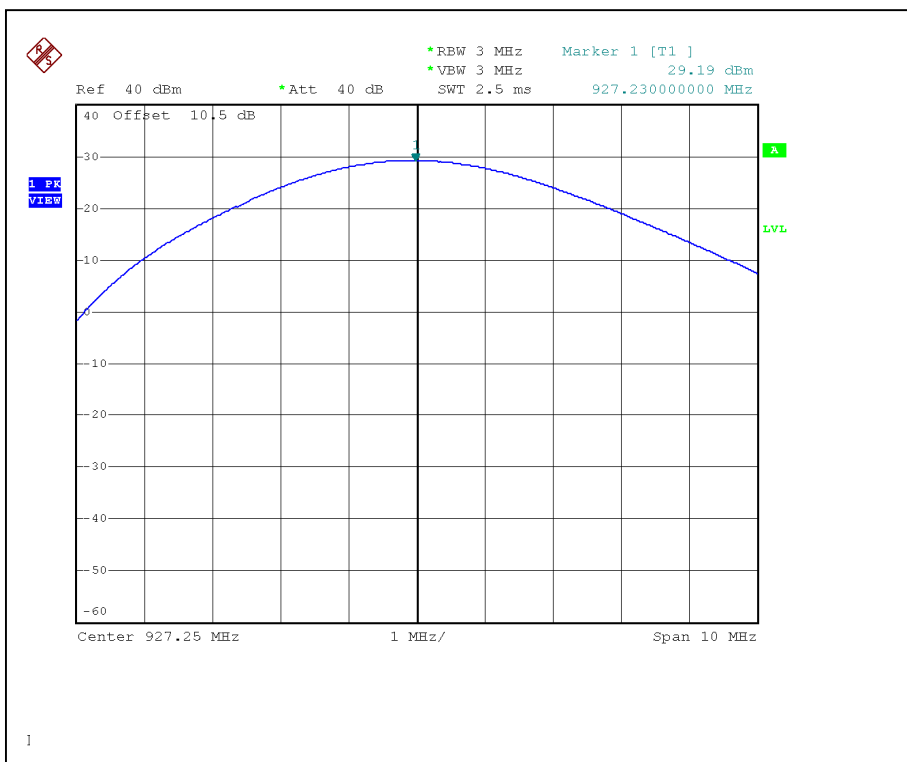


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Channel 24



Channel 49



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



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4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 09, 2008	Dec. 08, 2009
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	Apr. 24 , 2009	Apr. 23 , 2010
HP Pre_Amplifier	8449B	3008A01923	Nov. 10, 2008	Nov. 09, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Aug. 28, 2009	Aug. 28, 2010
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 29, 2009	April 28, 2010
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 09, 2008	Dec. 08, 2009
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2009	Jan. 21, 2010
RF Switches	EMH-011	08009	Sep. 26, 2009	Sep. 25, 2010
RF CABLE (Chaintek)	Sucoflex 106	28077	Aug. 14, 2009	Aug. 13, 2010
RF Cable	8D	STCCAB-001	Sep. 26, 2009	Sep. 25, 2010
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	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 horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.

3. The test was performed in Open Site No. C.

4. The FCC Site Registration No. is 656396.

5. The VCCI Site Registration No. is R-1626.

6. The CANADA Site Registration No. is IC 7450G-3.

4.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

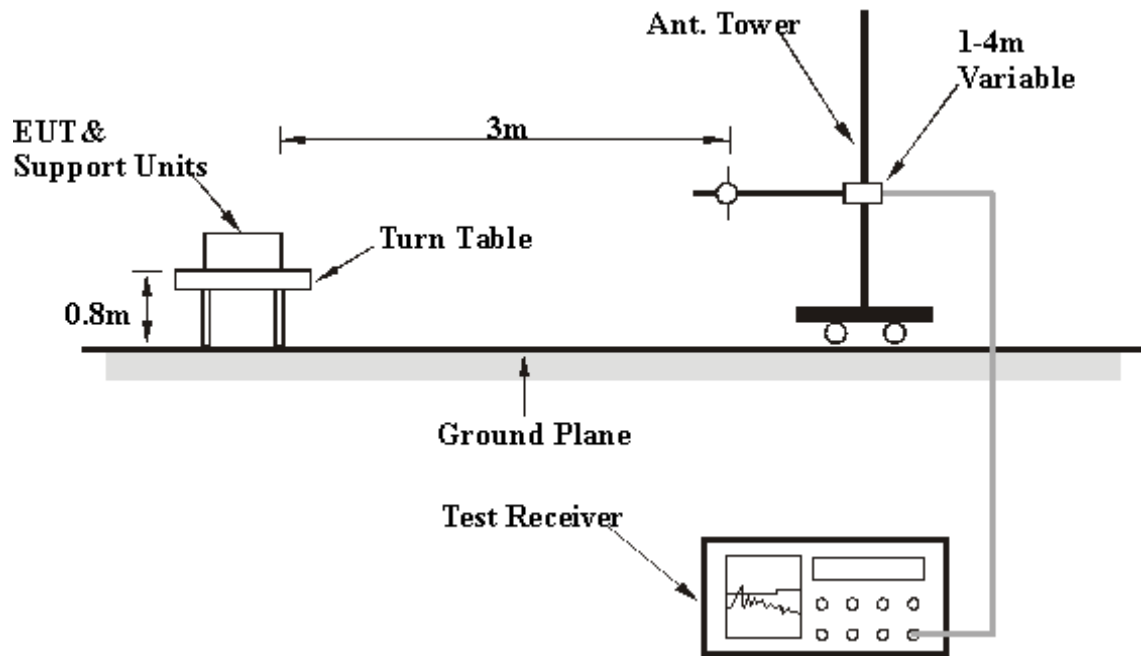
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency above 1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.



4.2.6 TEST RESULTS

CHANNEL	0	FREQUENCY RANGE	Below 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak Peak(PK) / Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	29deg. C, 68%RH, 965 hPa	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.00	35.71 QP	43.50	-7.79	1.51 H	91	23.76	11.95
2	192.00	36.58 QP	43.50	-6.92	1.24 H	100	24.23	12.35
3	264.38	23.68 QP	46.00	-22.32	1.00 H	58	9.30	14.38
4	312.34	39.15 QP	46.00	-6.85	1.00 H	73	22.83	16.32
5	336.36	30.78 QP	46.00	-15.22	1.08 H	54	13.86	16.92
6	480.00	29.05 QP	46.00	-16.95	1.32 H	119	8.31	20.74
7	500.00	27.76 QP	46.00	-18.24	1.46 H	99	6.45	21.31
8	960.00	30.43 QP	46.00	-15.57	1.15 H	41	1.75	28.68
9	902.00	62.71 PK	102.41	-39.70	1.00 H	278	34.50	28.21
10	902.00	44.71 AV	98.11	-53.40	1.00 H	278	16.50	28.21
11	*902.75	122.41 PK			1.00 H	244	94.20	28.21
12	*902.75	118.11 AV			1.00 H	244	89.90	28.21

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.00	30.56 QP	43.50	-12.94	1.00 V	147	18.61	11.95
2	144.15	38.48 QP	43.50	-5.02	1.50 V	56	23.91	14.57
3	480.00	25.32 QP	46.00	-20.68	1.12 V	38	4.58	20.74
4	500.00	26.73 QP	46.00	-19.27	1.36 V	33	5.42	21.31
5	720.00	25.63 QP	46.00	-20.37	1.44 V	9	0.41	25.22
6	960.00	29.53 QP	46.00	-16.47	1.72 V	96	0.85	28.68
7	902.00	65.71 PK	105.91	-40.20	1.10 V	173	37.50	28.21
8	902.00	48.01 AV	101.61	-53.60	1.10 V	173	19.80	28.21
9	*902.75	125.91 PK			1.13 V	178	97.70	28.21
10	*902.75	121.61 AV			1.13 V	178	93.40	28.21

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.



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CHANNEL	24	FREQUENCY RANGE	Below 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak Peak(PK) / Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	29deg. C, 68%RH, 965 hPa	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.00	34.56 QP	43.50	-8.94	1.43 H	84	22.61	11.95
2	192.00	36.21 QP	43.50	-7.29	1.32 H	49	23.86	12.35
3	312.33	38.76 QP	46.00	-7.24	1.00 H	89	22.44	16.32
4	480.00	28.31 QP	46.00	-17.69	1.29 H	241	7.57	20.74
5	500.00	26.85 QP	46.00	-19.15	1.52 H	74	5.54	21.31
6	*914.75	127.91 PK			1.26 H	194	98.00	29.91
7	*914.75	123.61 AV			1.26 H	194	93.70	29.91
8	960.00	29.76 QP	46.00	-16.24	1.20 H	48	1.08	28.68

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.00	30.21 QP	43.50	-13.29	1.00 V	162	18.26	11.95
2	144.09	38.12 QP	43.50	-5.38	1.43 V	64	23.56	14.56
3	480.00	24.49 QP	46.00	-21.51	1.00 V	242	3.75	20.74
4	500.00	27.38 QP	46.00	-18.62	1.27 V	31	6.07	21.31
5	720.00	25.91 QP	46.00	-20.09	1.43 V	357	0.69	25.22
6	*914.75	130.51 PK			1.00 V	179	100.60	29.91
7	*914.75	126.21 AV			1.00 V	179	96.30	29.91
8	960.00	29.32 QP	46.00	-16.68	1.64 V	88	0.64	28.68

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.



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CHANNEL	49	FREQUENCY RANGE	Below 1GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak Peak(PK) / Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	29deg. C, 68%RH, 965 hPa	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.00	35.24 QP	43.50	-8.26	1.42 H	77	23.29	11.95
2	192.00	36.87 QP	43.50	-6.63	1.34 H	57	24.52	12.35
3	312.34	38.43 QP	46.00	-7.57	1.00 H	84	22.11	16.32
4	480.00	29.12 QP	46.00	-16.88	1.31 H	254	8.38	20.74
5	500.00	27.25 QP	46.00	-18.75	1.47 H	69	5.94	21.31
6	960.00	30.11 QP	46.00	-15.89	1.21 H	56	1.43	28.68
7	927.25	127.91 PK			1.29 H	194	97.90	30.01
8	927.25	123.61 AV			1.29 H	194	93.60	30.01
9	928.00	67.91 PK	107.91	-40.00	1.29 H	194	37.89	30.02
10	928.00	49.71 AV	103.61	-59.90	1.29 H	194	19.69	30.02

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	120.00	29.66 QP	43.50	-13.84	1.00 V	157	17.71	11.95
2	144.09	37.93 QP	43.50	-5.57	1.49 V	62	23.37	14.56
3	480.00	26.21 QP	46.00	-19.79	1.17 V	43	5.47	20.74
4	500.00	26.08 QP	46.00	-19.92	1.42 V	54	4.77	21.31
5	720.00	25.97 QP	46.00	-20.03	1.42 V	36	0.75	25.22
6	960.00	29.24 QP	46.00	-16.76	1.64 V	108	0.56	28.68
7	927.25	129.51 PK			1.00 V	174	99.50	30.01
8	927.25	125.21 AV			1.00 V	174	95.20	30.01
9	928.00	69.91 PK	109.51	-39.60	1.00 V	174	39.89	30.02
10	928.00	51.61 AV	105.21	-53.60	1.00 V	174	21.59	30.02

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.



CHANNEL	Channel 0	FREQUENCY RANGE	1 ~10GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	29deg. C, 68%RH, 965 hPa	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2708.25	43.52 PK	74.00	-30.48	1.49 H	221	12.11	31.41
2	2708.25	39.22 AV	54.00	-14.78	1.49 H	221	7.81	31.41
3	3611.00	41.25 PK	74.00	-32.75	1.24 H	55	8.00	33.25
4	3611.00	36.95 AV	54.00	-17.05	1.24 H	55	3.70	33.25
5	4513.75	43.85 PK	74.00	-30.15	1.02 H	355	7.89	35.96
6	4513.75	39.55 AV	54.00	-14.45	1.02 H	355	3.59	35.96
7	5416.50	44.56 PK	74.00	-29.44	1.19 H	258	7.30	37.26
8	5416.50	40.26 AV	54.00	-13.74	1.19 H	258	3.00	37.26
9	8124.75	51.89 PK	74.00	-22.11	1.17 H	259	7.81	44.08
10	8124.75	47.59 AV	54.00	-6.41	1.17 H	259	3.51	44.08
11	9027.50	54.21 PK	74.00	-19.79	1.24 H	183	9.68	44.53
12	9027.50	49.91 AV	54.00	-4.09	1.24 H	183	5.38	44.53

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2708.25	44.61 PK	74.00	-29.39	1.01 V	207	13.20	31.41
2	2708.25	40.31 AV	54.00	-13.69	1.01 V	207	8.90	31.41
3	3611.00	46.63 PK	74.00	-27.37	1.05 V	334	13.38	33.25
4	3611.00	42.33 AV	54.00	-11.67	1.05 V	334	9.08	33.25
5	4513.75	48.12 PK	74.00	-25.88	1.15 V	188	12.16	35.96
6	4513.75	43.82 AV	54.00	-10.18	1.15 V	188	7.86	35.96
7	5416.50	49.37 PK	74.00	-24.63	1.10 V	181	12.11	37.26
8	5416.50	45.07 AV	54.00	-8.93	1.10 V	181	7.81	37.26
9	8124.75	52.42 PK	74.00	-21.58	1.13 V	247	8.34	44.08
10	8124.75	48.12 AV	54.00	-5.88	1.13 V	247	4.04	44.08
11	9027.50	52.86 PK	74.00	-21.14	1.15 V	13	8.33	44.53
12	9027.50	48.56 AV	54.00	-5.44	1.15 V	13	4.03	44.53

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.



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CHANNEL	Channel 24	FREQUENCY RANGE	1 ~10GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	29deg. C, 68%RH, 965 hPa	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2744.25	46.63 PK	74.00	-27.37	1.23 H	171	15.10	31.53
2	2744.25	42.33 AV	54.00	-11.67	1.23 H	171	10.80	31.53
3	3659.00	40.90 PK	74.00	-33.10	2.01 H	221	7.51	33.39
4	3659.00	36.60 AV	54.00	-17.40	2.01 H	221	3.21	33.39
5	4573.75	42.80 PK	74.00	-31.20	1.55 H	149	6.68	36.12
6	4573.75	38.50 AV	54.00	-15.50	1.55 H	149	2.38	36.12
7	7318.00	48.57 PK	74.00	-25.43	1.27 H	174	5.44	43.13
8	7318.00	44.27 AV	54.00	-9.73	1.27 H	174	1.14	43.13
9	8232.75	49.10 PK	74.00	-24.90	1.69 H	40	5.01	44.09
10	8232.75	44.80 AV	54.00	-9.20	1.69 H	40	0.71	44.09
11	9147.50	51.80 PK	74.00	-22.20	1.57 H	11	6.94	44.86
12	9147.50	47.50 AV	54.00	-6.50	1.57 H	11	2.64	44.86

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2744.25	46.80 PK	74.00	-27.20	1.37 V	180	15.27	31.53
2	2744.25	42.50 AV	54.00	-11.50	1.37 V	180	10.97	31.53
3	3659.03	40.50 PK	74.00	-33.50	1.09 V	300	7.11	33.39
4	3659.03	36.20 AV	54.00	-17.80	1.09 V	300	2.81	33.39
5	4573.77	43.66 PK	74.00	-30.34	1.22 V	166	7.54	36.12
6	4573.77	39.36 AV	54.00	-14.64	1.22 V	166	3.24	36.12
7	7318.02	48.95 PK	74.00	-25.05	1.39 V	75	5.82	43.13
8	7318.02	44.65 AV	54.00	-9.35	1.39 V	75	1.52	43.13
9	8232.75	50.50 PK	74.00	-23.50	1.39 V	145	6.41	44.09
10	8232.75	46.20 AV	54.00	-7.80	1.39 V	145	2.11	44.09
11	9147.50	51.00 PK	74.00	-23.00	1.45 V	15	6.14	44.86
12	9147.50	46.70 AV	54.00	-7.30	1.45 V	15	1.84	44.86

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.



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CHANNEL	Channel 49	FREQUENCY RANGE	1 ~10GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak(PK) Average (AV)
ENVIRONMENTAL CONDITIONS	29deg. C, 68%RH, 965 hPa	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2781.75	44.60 PK	74.00	-29.40	1.47 H	163	12.94	31.66
2	2781.75	40.30 AV	54.00	-13.70	1.47 H	163	8.64	31.66
3	3709.00	40.30 PK	74.00	-33.70	1.97 H	144	6.76	33.54
4	3709.00	36.00 AV	54.00	-18.00	1.97 H	144	2.46	33.54
5	4636.25	42.10 PK	74.00	-31.90	1.22 H	145	5.81	36.29
6	4636.25	37.80 AV	54.00	-16.20	1.22 H	145	1.51	36.29
7	7418.00	49.20 PK	74.00	-24.80	1.33 H	178	6.07	43.13
8	7418.00	44.90 AV	54.00	-9.10	1.33 H	178	1.77	43.13
9	8345.25	49.60 PK	74.00	-24.40	1.48 H	177	5.50	44.10
10	8345.25	45.30 AV	54.00	-8.70	1.48 H	177	1.20	44.10

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2781.75	45.30 PK	74.00	-28.70	1.39 V	172	13.64	31.66
2	2781.75	41.00 AV	54.00	-13.00	1.39 V	172	9.34	31.66
3	3709.00	40.21 PK	74.00	-33.79	1.38 V	167	6.67	33.54
4	3709.00	35.91 AV	54.00	-18.09	1.38 V	167	2.37	33.54
5	4636.25	43.10 PK	74.00	-30.90	1.37 V	166	6.81	36.29
6	4636.25	38.80 AV	54.00	-15.20	1.37 V	166	2.51	36.29
7	7418.00	49.20 PK	74.00	-24.80	1.33 V	210	6.07	43.13
8	7418.00	44.90 AV	54.00	-9.10	1.33 V	210	1.77	43.13
9	8345.25	49.50 PK	74.00	-24.50	1.85 V	136	5.40	44.10
10	8345.25	45.20 AV	54.00	-8.80	1.85 V	136	1.10	44.10

- REMARKS:**
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.



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5. 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 by the following approval agencies according to ISO/IEC 17025.

USA	FCC, NVLAP
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA, CSA
R.O.C.	TAF, BSMI, NCC
Netherlands	Telefication
Singapore	GOST-ASIA(MOU)
Russia	CERTIS(MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml.
If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

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Hwa Ya EMC/RF/Safety Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Web Site: www.adt.com.tw

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



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6. 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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