Spectrum Research & Testing Lab., Inc. No. 101-10, Ling 8, Shan-Tong Li, Chung-Li City, Taoyuan, Taiwan	**TEST REPORT**	Reference No.: A08092607 Report No.: FCCA08092607 FCCID: W4W-TMS1055 Page:1 of 25 Date : Jan. 22, 2009

Product Name:	UNIQUE TRAFFIC MANAGEMENT SYSTEM
Model Number:	UTMS-1055
Applicant:	U&U Engineering Inc. No.15,Gao-Yang S. Road, Lung-Tan, Taoyuan county, 32544, Taiwan, R.O.C.
Date of Receipt:	Sep. 26, 2008
Finished date of Test:	Jan. 20, 2009
Applicable Standards:	47 CFR Part 15, Subpart C ANSI C63.4:2003

We, **Spectrum Research & Testing Laboratory Inc.**, hereby certify that one sample of the above was tested in our laboratory with positive results according to the above-mentioned standards. The records in the report are an accurate account of the results. Details of the results are given in the subsequent pages of this report.

Checked By : Shunm Wang , Date: Jan. 22. 2009

(Shunm Wang)

Approved By : Date: 1/22/2009

(Johnson Ho, Director)

NVLAP®

Lab Code: 200099-0

TABLE OF CONTENTS

1. DOCUMENT POLICY AND TEST STATEMENT

1.1 DOCUMENT POLICY

- The report shall not be reproduced except in full, without the written approval of SRT Lab, Inc.
- The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

1.2 TEST STATEMENT

- The test results in the report apply to the unit tested by SRT Lab. and DNB Engineering, INC.(26GHz ~ 75GHz).
- There was no deviation from the requirements of test standards during the test.
- AC power source, 120 VAC/60 Hz, was used during the test.

1.3 EUT MODIFICATION

- No modification in SRT Lab.

2. DESCRIPTION OF EUT AND TEST MODE

2.1 GENERAL DESCRIPTION OF EUT

Product	UNIQUE TRAFFIC MANAGEMENT SYSTEM
Model No.	UTMS-1055
Power Supply	DC 12~30 V , 0.33~0.83A
Frequency Band	10.5-10.55 GHz
Carrier Frequency	10.525 GHz
Number of Channel	1
Channel Spacing	NA
Rated RF Output Power	13~15 dBm
Modulation Type	FMCW
Bit Rate of Transmission	NA
Mode of Operation	NA
Antenna Gain	13.0 ± 0.5 dBi
Operating Temperature Range	-20 ~ 75 ^{o}C
Channel Bandwidth	42~45 MHz
Antenna Type	Microstrip Patch
Duty Cycle	100 %

NOTE：

1. For more detailed information, please refer to the EUT's specification or user's manual provided by manufacturer.

2.2 DESCRIPTION OF SUPPORT UNIT

The transmitter part of EUT was tested with a NB system and configured by the requirement of ANSI C63.4. All interface ports were connected to the appropriate support units via specific cables. The support units and cables are listed below.

No	Device	Brand	Model #	FCC ID/DoC	Cable
1	Power	NA	NA	NA	1.2m unshielding cable

NOTE ： For the actual test configuration, please refer to the photos of testing.

2.3 DESCRIPTION OF TEST MODE

1. TX
2. RX

3 DESCRIPTION OF APPLIED STANDARDS

The EUT is a kind of wireless product and to be connected with a traffic system for normal use. According to the specifications provided by the applicant, it must comply with the requirements of the following standards:

47 CFR Part 15, Subpart C
ANSI C63.4: 2003

All tests have been performed and recorded as the above standards.

4 CONDUCTED EMISSION TEST

4.1 LIMIT

Frequency (MHz)	Class A (dBμV)		Class B (dBμV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	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 0.50 MHz.

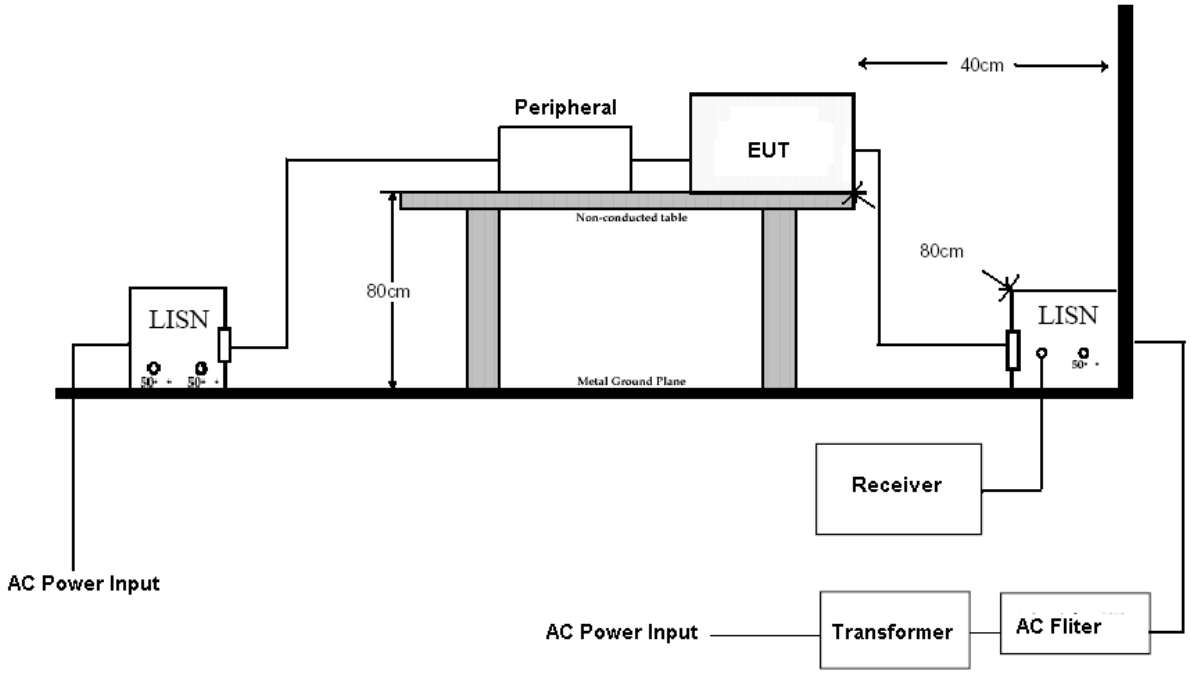
4.2 TEST EQUIPMENT

The following test equipment was used for the test:

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER	9 kHz TO 30 MHz	ROHDE & SCHWARZ	ESHS30 / 826003/008	SEP. 2009 ETC
LISN	50 μH, 50 ohm	FCC	FCC-LISN-50-25-2 / 01017	OCT. 2009 ETC
LISN	50μH, 50 ohm	FCC	9252-50-R24-BNC / 951315	JUN. 2009 ETC
50 OHM TERMINATOR	50 ohm	HP	11593A / #2	OCT. 2009 ETC
COAXIAL CABLE	5M	TIMES	EQM-0159 / #5-5m	AUG. 2009 SRT
Filter	2 LINE, 30A	FIL.COIL	FC-943 / 771	NCR
GROUND PLANE	2.3M (H) x 2.4M (W)	SRT	N/A	NCR
GROUND PLANE	2.4M (H) x 2.4M (W)	SRT	N/A	NCR

NOTE: The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.

4.3 TEST SETUP



NOTE :

1. The EUT was put on a wooden table with 0.8m heights above ground plane, and 0.4m away from reference ground plane (> 2mx2m).
2. For the actual test configuration, please refer to the photos of testing.
3. The serial no. of the LISN connected to EUT is 01017.
4. The serial no. of the LISN connected to support units is 01018.

4.4 TEST PROCEDURE

The EUT was tested according to the requirement of ANSI C63.4:2003 and CISPR22:2003. The frequency spectrum from 0.15 MHz to 30 MHz was investigated. The LISN used was 50 ohm/50µH as specified. All readings were quasi-peak and average values with 10 kHz resolution bandwidth of the test receiver. The EUT system was operated in all typical methods by users. Both lines of the power mains of EUT were measured and the cables connected to EUT and support units were moved to find the maximum emission levels for each frequency.
First, find the margin or higher points at least 6 points by software, then use manual to find the maximum data. The procedure is referred on the test procedure of SRT LAB.

4.5 EUT OPERATING CONDITION

1. Setup the EUT and turn on the power.
2. Set the EUT under continuous transmission condition.

4.6 TEST RESULT

Temperature:	22 °C	Humidity:	73 %RH
Frequency Range:	0.15 – 30 MHz	Tested Mode:	TX
Receiver Detector:	Q.P. and AV.	Modulation Type:	FMCW
Tested By:	Shunm Wang	Tested Channel:	N/A
		Tested Date:	Oct. 06, 2008

Power Line Measured : Line

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.156	0.30	50.60	41.85	50.90	42.15	65.66	55.66	-14.76	-13.51
0.159	0.30	51.68	42.78	51.98	43.08	65.50	55.50	-13.52	-12.42
4.982	0.22	33.82	30.59	34.04	30.81	56.00	46.00	-21.96	-15.19
5.457	0.22	47.00	43.46	47.22	43.68	60.00	50.00	-12.78	-6.32
5.467	0.22	45.46	39.47	45.68	39.69	60.00	50.00	-14.32	-10.31
25.486	0.40	35.44	30.08	35.84	30.48	60.00	50.00	-24.16	-19.52

Power Line Measured : Neutral

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.156	0.30	51.28	42.33	51.58	42.63	65.66	55.66	-14.08	-13.03
0.159	0.30	52.50	43.54	52.80	43.84	65.50	55.50	-12.70	-11.66
4.833	0.22	31.20	27.11	31.42	27.33	56.00	46.00	-24.58	-18.67
5.467	0.22	45.98	39.95	46.20	40.17	60.00	50.00	-13.80	-9.83
5.518	0.22	43.66	39.31	43.88	39.53	60.00	50.00	-16.12	-10.47
23.969	0.29	34.38	28.93	34.67	29.22	60.00	50.00	-25.33	-20.78

NOTE :

1. Measurement uncertainty is +/-2dB
2. Emission level = Reading valus + Correction factor
3. Correction Factor = Cable loss + Insertion loss of LISN
4. Margin value = Emission level - Limit
5. The emission of other frequencies was very low against the limit.
6. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.

Temperature:	22 °C	Humidity:	73 %RH
Frequency Range:	0.15 – 30 MHz	Tested Mode:	RX
Receiver Detector:	Q.P. and AV.	Modulation Type:	FMCW
Tested By:	Shunm Wang	Tested Channel:	N/A
		Tested Date:	Oct. 06, 2008

Power Line Measured : Line

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.156	0.30	50.58	41.70	50.88	42.00	65.66	55.66	-14.78	-13.66
0.159	0.30	51.40	42.58	51.70	42.88	65.50	55.50	-13.80	-12.62
4.982	0.22	31.68	26.99	31.90	27.21	56.00	46.00	-24.10	-18.79
5.457	0.22	43.56	38.35	43.78	38.57	60.00	50.00	-16.22	-11.43
5.467	0.22	44.84	39.33	45.06	39.55	60.00	50.00	-14.94	-10.45
25.271	0.39	35.72	30.32	36.11	30.71	60.00	50.00	-23.89	-19.29

Power Line Measured : Neutral

Freq. (MHz)	Correct. Factor (dB)	Reading Value (dBμV)		Emission Level (dBμV)		Limit (dBμV)		Margin (dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.156	0.30	50.84	42.01	51.14	42.31	65.66	55.66	-14.52	-13.35
0.159	0.30	51.60	42.81	51.90	43.11	65.50	55.50	-13.60	-12.39
4.893	0.22	36.02	33.49	36.24	33.71	56.00	46.00	-19.76	-12.29
5.467	0.22	44.26	39.03	44.48	39.25	60.00	50.00	-15.52	-10.75
5.528	0.22	45.04	40.17	45.26	40.39	60.00	50.00	-14.74	-9.61
24.348	0.29	34.46	28.89	34.75	29.18	60.00	50.00	-25.25	-20.82

NOTE :

1. Measurement uncertainty is +/-2dB
2. Emission level = Reading valus + Correction factor
3. Correction Factor = Cable loss + Insertion loss of LISN
4. Margin value = Emission level - Limit
5. The emission of other frequencies was very low against the limit.
6. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.

5 RADIATED EMISSION TEST

5.1 LIMIT

FCC Part15, Subpart C Section 15.209 limit of radiated emission for frequency below1000MHz. The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

FREQUENCY (MHz)	DISTANCE (m)	FIELD STRENGTH (dBμV/m)
30 - 88	3	40.0
88 - 216	3	43.5
216 - 960	3	46.0
Above 960	3	54.0

NOTE :

1. In the emission tables above , the tighter limit applies at the band edges.
2. Distance refers to the distance between measuring instrument, antemma, and the closest point of any part of the device or system.

FCC Part 15, Section15.35(b) limit of radiated emission for frequency above 1000 MHz

FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80.0	60.0	74.0	54.0

FCC Part 15, Section15.245 limit of Fundamental and Harmonics.

Fundamental Frequency (MHz)	Field Strength of Fundamental (mv/m)	Field Strength of Harmonics (mv/m)
902-928	500 (114dBuV)	1.6 (64.1dBuV)
2435-2465	500 (114dBuV)	1.6 (64.1dBuV)
5785-5815	500 (114dBuV)	1.6 (64.1dBuV)
10500-10550	2500 (128dBuV)	25.0 (88dBuV)
24075-24175	2500 (128dBuV)	25.0 (88dBuV)

5.2 TEST EQUIPMENT

The following test equipment was used during the radiated emission test:

EQUIPMENT/ FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL#/ SERIAL#	DUE DATE OF CAL. & CAL. CENTER
EMI TEST RECEIVER	9kHz TO 2.75 GHz	ROHDE & SCHWARZ	ESCS30/ 830245/012	OCT. 2009 ETC
SPECTRUM ANALYZER	9K-40GHz	ROHDE & SCHWARZ	FSP40/ 100093	SEP 2009 ETC
BI-LOG ANTENNA	25 MHz TO 2 GHz	EMCO	3142B/ 0005-1534	NOV. 2009 SRT
PRE-AMPLIFIER	1 GHz TO 26.5 GHz	HP	8449B/ 3008A01995	SEP. 2009 ETC
HORN ANTENNA	1 GHz TO 18 GHz	EMCO	3115/ 9602-4681	JAN. 2009 ETC
OATS	3 – 10 M MEASUREMENT	SRT	SRT-1	NOV. 2009 SRT
COAXIAL CABLE	25M	TIMES	J400/ #25M	AUG. 2009 ETC
FILTER	2 LINE, 30A	FIL.COIL	FC-943/ 869	NCR

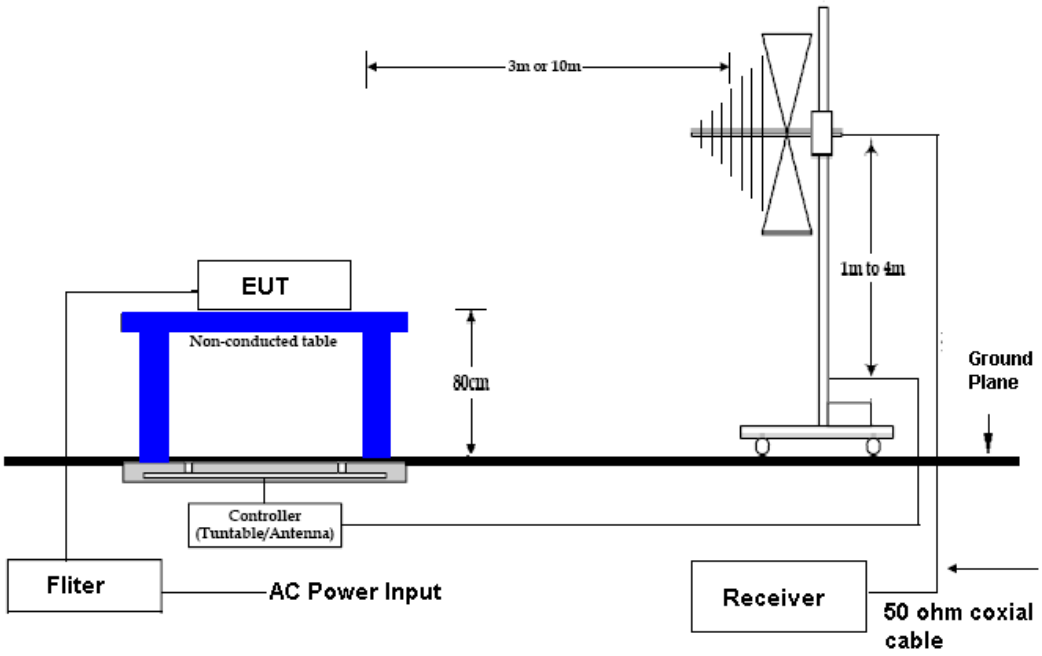
DESCRIPTION	MANUFACTURER	MODEL # / SERIAL #	CAL. DATE
SPECTRUM ANALYZER	HP	8566A /2403A06307	1/17/10
PLOTTER	HP	7470A/2517A20741	N/A
DOUBLE RIDGED GUIDE	EMCO	3115/2280	2/04/10
HORN ANT.(18-26.5GHz)	ALFA IND.	861K-595/79	N/A
HORN ANT.(26.5-40GHz)	ALFA IND.	861A-599/366	N/A
HORN ANT (33-50GHz)	NARDA	637/63	N/A
HORN ANT (50-75GHz)	MILTEC	SGH-15	N/A
HARMONIC MIXER	HP	11970K/2332A01514	N/A
HARMONIC MIXER	HP	11971A/2332A01351	N/A
HARMONIC MIXER	HP	11970Q	N/A
HARMONIC MIXER	HP	11970V/2521A00617	N/A
AMPLIFIER	HP	11975A/2304A00355	N/A

NOTE:

1. The calibration interval of the above test equipment is one year and the calibrations are traceable to NML/ROC and NIST/USA.
2. The Open Area Test Site (SRT-1) is registered by FCC with No. 90957 and VCCI with No. R-1081.
3. The Open Area Test Site (SRT-2) is registered by FCC with No. 98458 and VCCI with No. R-1168.

5.3 TEST SET-UP

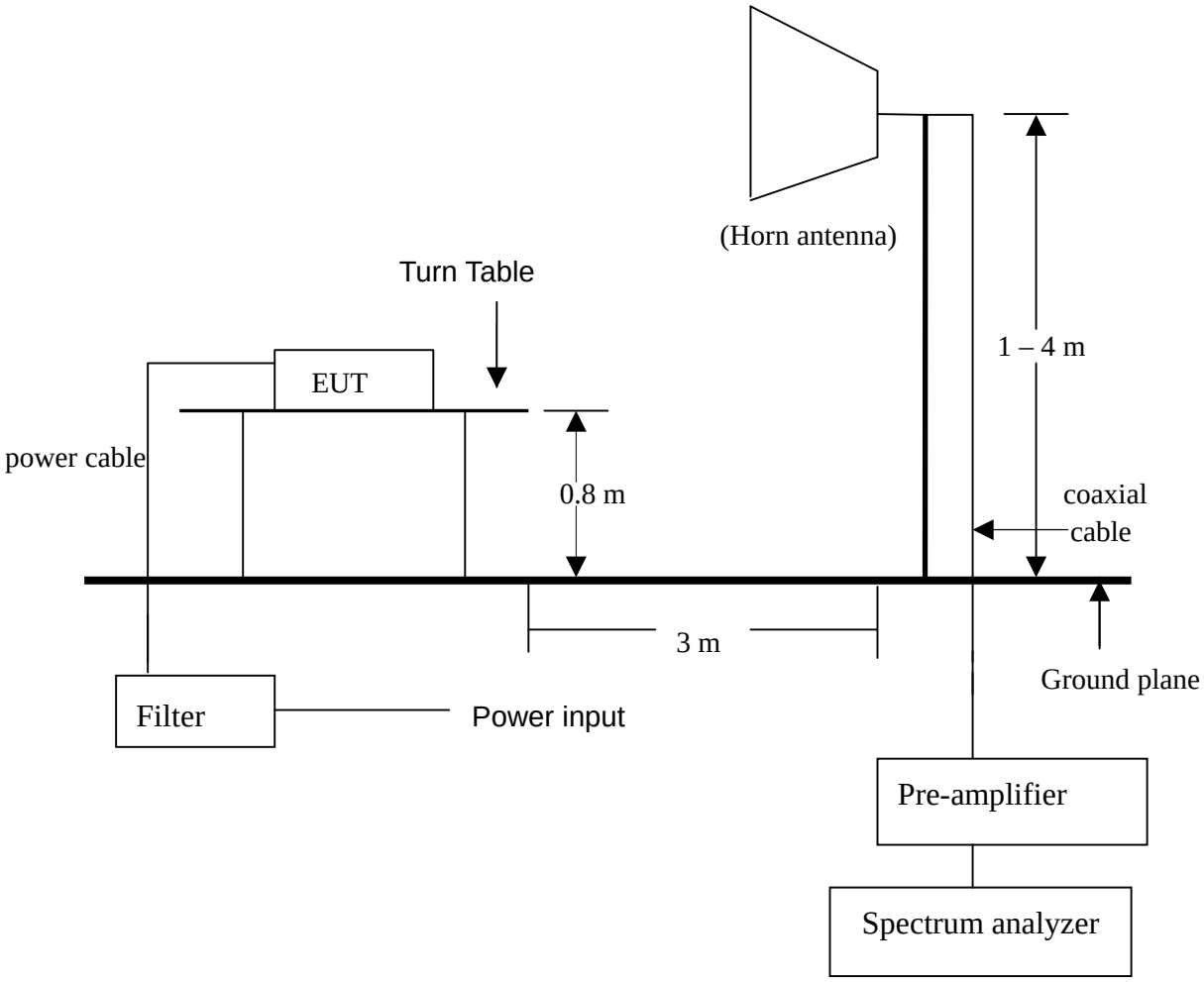
.



NOTE :

1. The EUT system was put on a wooden table with 0.8m heights above a ground plane.
2. For the actual test configuration, please refer to the photos of testing.

TEST SET- UP (1GHz - 25GHz)



NOTE :

1.The EUT system was put on a wooden table with 0.8m heights above a ground plane.

2.For the actual test configuration, please refer to the photos of testing.

5.4 TEST PROCEDURE

The EUT was tested according to the requirement of ANSI C63.4:2003 and CISPR 22:2003. The measurements were made at an open area test site with 3 meter measurement distance under 1 GHz and with 3m distance above 1GHz. The frequency spectrum measured started from 30 MHz. Under 1 GHz, all readings were quasi-peak values with 120 kHz resolution bandwidth of the test receiver. Above 1 GHz, the measurements were made at an open area test site with 3 meter measurement distance and all readings were peak or average values with 1 MHz resolution bandwidth of the test receiver. The EUT system was operated in all typical methods by users. The cables connected to EUT and support units were moved to find the maximum emission levels for each frequency.
First, find the margin or higher points at least 6 points by software, then use manual to find the maximum data. The procedure is referred on the test procedure of SRT LAB.

5.5 EUT OPERATING CONDITION

1. Setup the EUT and turn on the power.
2. Set the EUT under continuous transmission condition.

5.6 TEST RESULT

Temperature:	26 °C	Humidity:	63 %RH
Frequency Range:	30 – 1000 MHz	Measured Distance:	3m
Receiver Detector:	Q.P.	Tested Mode:	TX
Tested By:	Shunm Wang	Tested Date:	Oct. 22, 2008

Antenna Polarization : Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
37.5410	0.76	10.73	21.9	33.4	40.0	-6.6	351	2.51
214.8200	2.03	9.99	18.6	30.6	43.5	-12.9	13	2.13
229.1100	2.09	10.62	21.5	34.2	46.0	-11.8	345	1.95
257.7300	2.52	11.86	22.8	37.2	46.0	-8.8	355	1.83
286.4100	2.65	13.37	23.7	39.7	46.0	-6.3	6	1.87
625.0600	4.25	19.70	14.3	38.3	46.0	-7.8	1	1.21

Antenna Polarization : Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
37.5400	0.76	10.73	24.3	35.8	40.0	-4.2	353	1.12
186.1400	1.79	9.33	20.9	32.0	43.5	-11.5	9	1.14
200.4600	2.15	9.40	22.1	33.7	43.5	-9.8	19	1.28
257.7320	2.52	11.86	25.6	40.0	46.0	-6.0	359	1.46
272.0300	2.25	12.64	24.4	39.3	46.0	-6.7	0	1.14
286.4110	2.65	13.37	23.1	39.1	46.0	-6.9	4	1.19

NOTE :

1. Measurement uncertainty is +/-3.7dB.
2. "*": Measurement does not apply for this frequency.
3. Emissiom Level = Reading Value + Ant. Factor + Cable Loss.
4. The field strength of other emission frequencies were very low against the limit.

Temperature:	26 °C	Humidity:	63 %RH
Frequency Range:	30 – 1000 MHz	Measured Distance:	3m
Receiver Detector:	Q.P.	Tested Mode:	RX
Tested By:	Shunm Wang	Tested Date:	Oct. 22, 2008

Antenna Polarization : Horizontal

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
37.5419	0.76	10.73	21.8	33.3	40.0	-6.7	353	2.50
214.8240	2.03	9.99	18.7	30.7	43.5	-12.8	10	2.14
229.1160	2.09	10.62	21.6	34.3	46.0	-11.7	349	1.96
257.7320	2.52	11.86	22.7	37.1	46.0	-8.9	352	1.82
286.4170	2.65	13.37	23.6	39.6	46.0	-6.4	2	1.86
625.0650	4.25	19.70	14.2	38.2	46.0	-7.8	8	1.20

Antenna Polarization : Vertical

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Reading Data (dBμV)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	AZ(°)	EL(m)
37.5450	0.76	10.73	24.2	35.7	40.0	-4.3	354	1.13
186.1490	1.79	9.33	21.0	32.1	43.5	-11.4	5	1.13
200.4670	2.15	9.40	22.2	33.8	43.5	-9.8	22	1.27
257.7322	2.52	11.86	25.5	39.9	46.0	-6.1	357	1.45
272.0320	2.25	12.64	24.3	39.2	46.0	-6.8	3	1.15
286.4114	2.65	13.37	23.2	39.2	46.0	-6.8	359	1.18

NOTE :

1. Measurement uncertainty is +/-3.7dB.
2. "*": Measurement does not apply for this frequency.
3. Emissiom Level = Reading Value + Ant. Factor + Cable Loss.
4. The field strength of other emission frequencies were very low against the limit.

Temperature:	26 °C	Humidity:	63 %RH
Frequency Range:	1 – 53 GHz	Measured Distance:	3m
Receiver Detector:	PK. or AV.	Modulation Type:	FMCW
Tested Date:	Oct. 22, 2008	Test Mode:	TX
		Tested By:	Shunm Wang

Antenna Polarization : Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1003.15	-34.99	24.21	50.4	41.3	39.6	30.5	74.0	54.0	-34.4	-23.5	37	1.68
1066.09	-34.59	24.35	49.6	*	39.4	*	74.0	54.0	-34.6	*	9	1.52
1828.31	-33.05	26.55	51.5	42.6	45.0	36.1	74.0	54.0	-29.0	-17.9	21	1.37
1846.11	-33.05	26.61	50.3	*	43.9	*	74.0	54.0	-30.1	*	356	1.61
1910.53	-32.61	26.86	48.9	*	43.1	*	74.0	54.0	-30.9	*	18	1.15
2116.01	-32.39	27.43	52.8	43.9	47.8	38.9	74.0	54.0	-26.2	-15.1	349	1.22

Antenna Polarization : Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1003.15	-34.99	24.21	50.8	41.9	40.0	31.1	74.0	54.0	-34.0	-22.9	33	1.49
1715.54	-32.96	26.12	58.6	49.7	51.8	42.9	74.0	54.0	-22.2	-11.1	25	1.31
1828.31	-33.05	26.55	50.4	*	43.9	*	74.0	54.0	-30.1	*	19	1.28
1846.11	-33.05	26.61	50.1	*	43.7	*	74.0	54.0	-30.3	*	352	1.09
2045.47	-32.98	27.29	47.4	*	41.7	*	74.0	54.0	-32.3	*	7	1.12
2131.17	-32.32	27.46	50.7	40.2	45.8	35.3	74.0	54.0	-28.2	-18.7	350	1.24

NOTE :

1. Measurement uncertainty is +/-3.7dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	26 °C	Humidity:	63 %RH
Frequency Range:	1 – 53 GHz	Measured Distance:	3m
Receiver Detector:	PK. or AV.	Modulation Type:	FMCW
Tested Date:	Oct. 22, 2008	Test Mode:	RX
		Tested By:	Shunm Wang

Antenna Polarization : Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1073.51	-34.62	24.40	51.6	42.1	41.4	31.9	74.0	54.0	-32.6	-22.1	12	1.57
1738.31	-33.01	26.20	51.5	42.5	44.7	35.7	74.0	54.0	-29.3	-18.3	2	1.44
1828.31	-33.05	26.55	51.0	*	44.5	*	74.0	54.0	-29.5	*	23	1.38
1846.11	-33.05	26.61	50.7	*	44.3	*	74.0	54.0	-29.7	*	359	1.60
1910.53	-32.61	26.86	49.8	*	44.0	*	74.0	54.0	-30.0	*	14	1.16
2113.04	-32.41	27.43	53.6	44.5	48.6	39.5	74.0	54.0	-25.4	-14.5	351	1.23

Antenna Polarization : Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
1043.55	-34.58	24.29	59.5	50.1	49.2	39.8	74.0	54.0	-24.8	-14.2	1	1.37
1085.51	-34.68	24.39	49.5	*	39.2	*	74.0	54.0	-34.8	*	22	1.16
1828.31	-33.05	26.55	51.1	40.9	44.6	34.4	74.0	54.0	-29.4	-19.6	16	1.27
1846.11	-33.05	26.61	49.8	*	43.4	*	74.0	54.0	-30.6	*	355	1.10
1910.53	-32.61	26.86	50.6	*	44.8	*	74.0	54.0	-29.2	*	23	1.05
2135.44	-32.30	27.47	50.9	41.3	46.1	36.5	74.0	54.0	-27.9	-17.5	7	1.13

NOTE :

1. Measurement uncertainty is +/-3.7dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	26 °C	Humidity:	63 %RH
Frequency Range:	1 – 53 GHz	Measured Distance:	3m
Receiver Detector:	PK. or AV.	Modulation Type:	FMCW
Tested Date:	Oct. 22, 2008	Test Mode:	TX (Fundamental / Harmonics)
Tested By:	Shunm Wang		

Antenna Polarization : Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
10535.00	-27.99	38.23	75.5	63.6	85.7	73.9	148	128	-62.3	-54.1	174	1.49
21070.00	-22.00	43.40	*	*	*	*	108	88	*	*	*	*
31650.00	-23.00	45.00	*	*	*	*	108	88	*	*	*	*
42140.00	-23.00	50.00	*	*	*	*	108	88	*	*	*	*
52675.00	-31.00	50.00	*	*	*	*	108	88	*	*	*	*
63210.00	-31.00	50.00	*	*	*	*	108	88	*	*	*	*

Antenna Polarization : Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
10535.00	-27.99	38.43	96.5	96.3	106.9	106.7	148	128	-41.1	-21.3	182	1.15
21070.00	-22.00	43.40	*	*	*	*	108	88	*	*	*	*
31650.00	-23.00	45.00	*	*	*	*	108	88	*	*	*	*
42140.00	-23.00	50.00	*	*	*	*	108	88	*	*	*	*
52675.00	-31.00	50.00	*	*	*	*	108	88	*	*	*	*
63210.00	-31.00	50.00	*	*	*	*	108	88	*	*	*	*

NOTE :

1. Measurement uncertainty is +/-3.7dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

Temperature:	26 °C	Humidity:	63 %RH
Frequency Range:	1 – 53 GHz	Measured Distance:	3m
Receiver Detector:	PK. or AV.	Modulation Type:	FMCW
Tested Date:	Oct. 22, 2008	Test Mode:	RX (Fundamental / Harmonics)
Tested By:	Shunm Wang		

Antenna Polarization : Horizontal

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
10535.00	-27.99	38.23	51.4	43.2	61.7	53.4	148	128	-86.3	-74.6	176	1.48
21070.00	-22.00	43.40	*	*	*	*	108	88	*	*	*	*
31650.00	-23.00	45.00	*	*	*	*	108	88	*	*	*	*
42140.00	-23.00	50.00	*	*	*	*	108	88	*	*	*	*
52675.00	-31.00	50.00	*	*	*	*	108	88	*	*	*	*
63210.00	-31.00	50.00	*	*	*	*	108	88	*	*	*	*

Antenna Polarization : Vertical

Frequency (MHz)	Correct Factor (dB)	Ant. Factor (dB/m)	Reading Data (dBμV)		Emission Level (dBμV/m)		Limit (dBμV/m)		Margin (dB)		AZ (°)	EL (m)
			PK.	AV.	PK.	AV.	PK.	AV.	PK.	AV.		
10535.00	-27.99	38.43	58.8	51.9	69.2	62.3	148	128	-78.8	-65.7	180	1.16
21070.00	-22.00	43.40	*	*	*	*	108	88	*	*	*	*
31650.00	-23.00	45.00	*	*	*	*	108	88	*	*	*	*
42140.00	-23.00	50.00	*	*	*	*	108	88	*	*	*	*
52675.00	-31.00	50.00	*	*	*	*	108	88	*	*	*	*
63210.00	-31.00	50.00	*	*	*	*	108	88	*	*	*	*

NOTE :

1. Measurement uncertainty is +/-3.7dB.
2. "*": The Peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Emissiom Level = Reading Value + Ant. Factor + Correct Factor (incl.:Cable Loss and Pre-Amplifier Gain)
4. The field strength of other emission frequencies were very low against the limit.
5. (F):The field stregth of fundamental frequency.

6 ANTENNA APPLICATION

6.1 ANTENNA REQUIREMENT

The EUT's antenna is met the requirement of FCC part15C section15.203 and 15.204.

6.2 RESULT

The EUT's antenna used a unique coupling Microstrip Patch Antenna, the antenna is permanently attached. The antenna is meet the requirement.

7 MAXIMUM PERMISSIBLE EXPOSURE

7.1 BASIC RESTRICTION

According to the requirement of OET65 and 47CFR Part 1 Section 1.1307(b)(1).

7.2 MPE EXPOSURE LEVELS CALCULATED

$$S = \frac{EIRP}{4\pi R^2}$$

where: S = power density (in appropriate units, e.g. mW/cm^2)
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)
EIRP = equivalent (or effective) isotropically radiated power (appropriate units, e.g., power in watts)

7.3 TEST RESULT

Max EIRP Output Power (W)	Power Density (mW/cm^2)	Limit of Power Density (mW/cm^2)
0.0316	2.7940558	5

Note: According user manual detection range is 3~60 meter, R=300 cm.

9 TERMS OF ABBREVIATION

AV.	Average detection
AZ(°)	Turn table azimuth
Correct.	Correction
EL(m)	Antenna height (meter)
EUT	Equipment Under Test
Horiz.	Horizontal direction
LISN	Line Impedance Stabilization Network
NSA	Normalized Site Attenuation
Q.P.	Quasi-peak detection
SRT Lab	Spectrum Research & Testing Laboratory, Inc.
Vert.	Vertical direction