

FCC CERTIFICATION
On Behalf of
La Crosse Technology

Thermo-hygro Transmitter
Model No.: TX59U-IT

FCC ID: OMO-M-06

Prepared for : La Crosse Technology
Address : 2809 Losey Blvd. So. La Crosse WI 54601, USA

Prepared by : ACCURATE TECHNOLOGY CO. LTD
Address : F1, Bldg. A, Changyuan New Material Port, Keyuan Rd.
Science & Industry Park, Nanshan, Shenzhen, Guangdong
P.R. China

Tel: (0755) 26503290
Fax: (0755) 26503396

Report Number : ATE20091798
Date of Test : October 16-17, 2009
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TABLE OF CONTENTS

Description	Page
Test Report Certification	
1. GENERAL INFORMATION	4
1.1. Description of Device (EUT).....	4
1.2. Description of Test Facility	4
1.3. Measurement Uncertainty	5
2. MEASURING DEVICE AND TEST EQUIPMENT	6
3. SUMMARY OF TEST RESULTS.....	7
4. FUNDAMENTAL AND HARMONICS RADIATED EMISSION FOR SECTION 15.249(A) 8	8
4.1. Block Diagram of Test Setup.....	8
4.2. The Emission Limit	9
4.3. Configuration of EUT on Measurement	9
4.4. Operating Condition of EUT	9
4.5. Test Procedure	10
4.6. The Field Strength of Radiation Emission Measurement Results	11
5. SPURIOUS RADIATED EMISSION FOR SECTION 15.249(D)	14
5.1. Block Diagram of Test Setup.....	14
5.2. The Emission Limit For Section 15.249(d)	15
5.3. EUT Configuration on Measurement	15
5.4. Operating Condition of EUT	15
5.5. Test Procedure	16
5.6. The Emission Measurement Result	17
6. BAND EDGES	20
6.1. The Requirement	20
6.2. EUT Configuration on Measurement	20
6.3. Operating Condition of EUT	20
6.4. Test Procedure	20
6.5. The Measurement Result	21
7. ANTENNA REQUIREMENT.....	23
7.1. The Requirement	23
7.2. Antenna Construction	23

APPENDIX I (TEST CURVES) (16 pages)

Test Report Certification

Applicant : La Crosse Technology
Manufacturer : Golden ESL Instrument (S.Z.) Co. Ltd.
EUT Description : Thermo-hygro Transmitter
(A) MODEL NO.: TX59U-IT
(B) SERIAL NO.: N/A
(C) POWER SUPPLY: 3V DC (“C” batteries 2×)

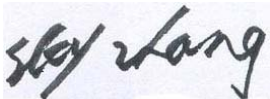
Measurement Procedure Used:

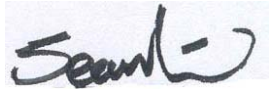
FCC Rules and Regulations Part 15 Subpart C Section 15.249
ANSI C63.4: 2003

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.249 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY 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 ACCURATE TECHNOLOGY CO. LTD.

Date of Test : October 16-17, 2009

Prepared by : 
(Engineer)

Approved & Authorized Signer : 
(Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT : Thermo-hygro Transmitter

Model Number : TX59U-IT

Power Supply : 3V DC (“C” batteries 2×)

Transmitting Frequency : Channel 1: 903MHz
Channel 2: 915MHz
Channel 3: 927MHz

Applicant : La Crosse Technology
Address : 2809 Losey Blvd. So. La Crosse WI 54601, USA

Manufacturer : Golden ESL Instrument (S.Z.) Co. Ltd.
Address : Fu Yuan #2 Manufactory Building, 45 Area of Baoan District, ShenZhen, China

Date of sample received : October 13, 2009

Date of Test : October 16-17, 2009

1.2. Description of Test Facility

EMC Lab : Accredited by TUV Rheinland Shenzhen

Listed by FCC
The Registration Number is 752051

Listed by Industry Canada
The Registration Number is 5077A-2

Accredited by China National Accreditation Committee
for Laboratories
The Certificate Registration Number is L3193

Name of Firm : ACCURATE TECHNOLOGY CO. LTD
Site Location : F1, Bldg. A, Changyuan New Material Port, Keyuan Rd.
Science & Industry Park, Nanshan, Shenzhen, Guangdong
P.R. China

1.3.Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2

Radiated emission expanded uncertainty
(9kHz-30MHz) = 3.08dB, k=2

Radiated emission expanded uncertainty
(30MHz-1000MHz) = 4.42dB, k=2

Radiated emission expanded uncertainty
(Above 1GHz) = 4.06dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	03.28.2010
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	03.28.2010
Spectrum Analyzer	Agilent	E7405A	MY45115511	03.28.2010
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	03.30.2010
Loop Antenna	Schwarzbeck	FMZB1516	1516131	03.28.2010
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	03.28.2010
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	12.19.2009
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	10.09.2010
LISN	Rohde&Schwarz	ESH3-Z5	100305	03.28.2010
LISN	Schwarzbeck	NSLK8126	8126431	03.28.2010

3. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
Section 15.207	Conducted Emission	N/A
Section 15.249(a)	Fundamental and Harmonics Radiated Emission	Compliant
Section 15.249(d)	Spurious Radiated Emission	Compliant
Section 15.249(d)	Band Edge	Compliant
Section 15.203	Antenna Requirement	Compliant

Remark: "N/A" means "Not applicable".

4. FUNDAMENTAL AND HARMONICS RADIATED EMISSION FOR SECTION 15.249(A)

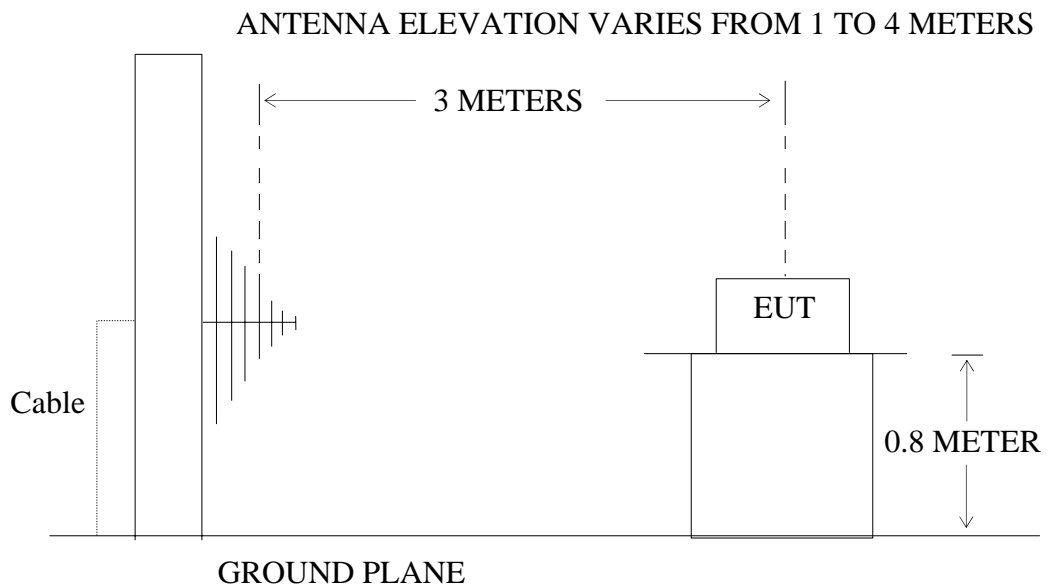
4.1. Block Diagram of Test Setup

4.1.1. Block diagram of connection between the EUT and simulators



(EUT: Thermo-hygro Transmitter)

4.1.2. Semi-Anechoic Chamber Test Setup Diagram



(EUT: Thermo-hygro Transmitter)

4.2.The Emission Limit

4.2.1.For intentional radiators, According to section 15.249(a), Operation within the frequency band of 902 to 928MHz, The fundamental field strength shall not exceed 94 dB μ V/m and the harmonics shall not exceed 54 dB μ V/m.

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of harmonics (microvolts/meter)
902-928MHz	50	500
2400-2483.5MHz	50	500
5725-5875MHz	50	500
24.0-24.25GHz	250	2500

4.2.2.According to section 15.249(e), as shown in section 15.35(b), the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

4.3.Configuration of EUT 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.

4.3.1.Thermo-hygro Transmitter (EUT)

Model Number : TX59U-IT
 Serial Number : N/A
 Manufacturer : Golden ESL Instrument (S.Z.) Co. Ltd.

4.4.Operating Condition of EUT

4.4.1.Setup the EUT and simulator as shown as Section 4.1.

4.4.2.Turn on the power of all equipment.

4.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 903MHz, 915MHz, 927MHz.

4.5. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable 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 an 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 polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated emission measurement.

The bandwidth of test receiver is set at 120kHz in 30-1000MHz. and set at 1MHz in above 1000MHz.

4.6. The Field Strength of Radiation Emission Measurement Results

PASS.

Date of Test:	<u>October 16, 2009</u>	Temperature:	<u>25°C</u>
EUT:	<u>Thermo-hygro Transmitter</u>	Humidity:	<u>50%</u>
Model No.:	<u>TX59U-IT</u>	Power Supply:	<u>3V DC ("C" batteries 2×)</u>
Test Mode:	<u>TX Channel 1: 903MHz</u>	Test Engineer:	<u>Joe</u>

Fundamental Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
903.0041	51.19	52.78	28.79	79.98	81.57	94	114	-14.02	-32.43	Vertical
903.0041	40.36	41.93	28.79	69.15	70.72	94	114	-24.85	-43.28	Horizontal

Harmonics Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
1806.009	57.73	59.42	-9.99	47.74	49.43	54	74	-6.26	-24.57	Vertical
2709.012	55.59	57.26	-6.30	49.29	50.96	54	74	-4.71	-23.04	Vertical
4515.017	46.49	48.10	-1.27	45.22	46.83	54	74	-8.78	-27.17	Vertical
1806.009	59.02	60.60	-9.99	49.03	50.61	54	74	-4.97	-23.39	Horizontal
2709.012	56.53	58.14	-6.30	50.23	51.84	54	74	-3.77	-22.16	Horizontal
4515.017	45.51	47.12	-1.27	44.24	45.85	54	74	-9.76	-28.15	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$

3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test:	October 16, 2009	Temperature:	25°C
EUT:	Thermo-hygro Transmitter	Humidity:	50%
Model No.:	TX59U-IT	Power Supply:	3V DC ("C" batteries 2×)
Test Mode:	TX Channel 2: 915MHz	Test Engineer:	Joe

Fundamental Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
915.0036	50.36	51.95	28.92	79.28	80.87	94	114	-14.72	-33.13	Vertical
915.0036	41.17	42.77	28.92	70.09	71.69	94	114	-23.91	-42.31	Horizontal

Harmonics Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
1830.008	59.23	60.84	-9.73	49.50	51.11	54	74	-4.50	-22.89	Vertical
2745.012	56.36	57.91	-6.12	50.24	51.79	54	74	-3.76	-22.21	Vertical
4575.020	45.63	47.21	-1.17	44.46	46.04	54	74	-9.54	-27.96	Vertical
1830.008	59.72	61.34	-9.73	49.99	51.61	54	74	-4.01	-22.39	Horizontal
2745.012	56.40	58.01	-6.12	50.28	51.89	54	74	-3.72	-22.11	Horizontal
4575.020	45.73	47.38	-1.17	44.56	46.21	54	74	-9.44	-27.79	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$
3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test:	<u>October 16, 2009</u>	Temperature:	<u>25°C</u>
EUT:	<u>Thermo-hygro Transmitter</u>	Humidity:	<u>50%</u>
Model No.:	<u>TX59U-IT</u>	Power Supply:	<u>3V DC ("C" batteries 2×)</u>
Test Mode:	<u>TX Channel 3: 927MHz</u>	Test Engineer:	<u>Joe</u>

Fundamental Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
927.0042	50.76	52.37	29.19	79.95	81.56	94	114	-14.05	-32.44	Vertical
927.0042	42.61	44.23	29.19	71.80	73.42	94	114	-22.20	-40.58	Horizontal

Harmonics Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
1854.010	58.81	60.40	-9.54	49.27	50.86	54	74	-4.73	-23.14	Vertical
2781.012	56.11	57.70	-6.07	50.04	51.63	54	74	-3.96	-22.37	Vertical
4635.018	45.15	46.76	-1.05	44.10	45.71	54	74	-9.90	-28.29	Vertical
1854.010	59.33	60.93	-9.54	49.79	51.39	54	74	-4.21	-22.61	Horizontal
2781.012	55.93	57.55	-6.07	49.86	51.48	54	74	-4.14	-22.52	Horizontal
4635.018	45.90	47.53	-1.05	44.85	46.48	54	74	-9.15	-27.52	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$
3. The spectral diagrams in appendix I display the measurement of peak values.

5. SPURIOUS RADIATED EMISSION FOR SECTION 15.249(D)

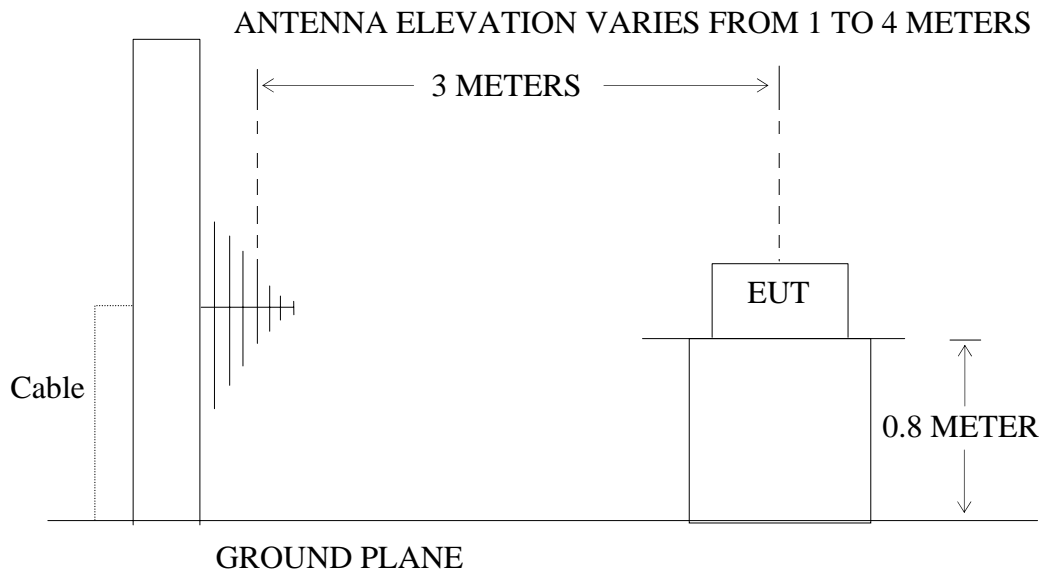
5.1. Block Diagram of Test Setup

5.1.1. Block diagram of connection between the EUT and simulators



(EUT: Thermo-hygro Transmitter)

5.1.2. Semi-Anechoic Chamber Test Setup Diagram



(EUT: Thermo-hygro Transmitter)

5.2.The Emission Limit For Section 15.249(d)

5.2.1.Emission radiated outside of the specified frequency bands, except for harmonics, shall be comply with the general radiated emission limits in Section 15.209.

Radiation Emission Measurement Limits According to Section 15.209

Frequency (MHz)	Limit		The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.
	Field Strength of Quasi-peak Value (microvolts/m)	Field Strength of Quasi-peak Value (dB μ V/m)	
30 - 88	100	40	
88 - 216	150	43.5	
216 - 960	200	46	
Above 960	500	54	

5.3.EUT Configuration on Measurement

The following equipment are installed on the Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

5.3.1.Thermo-hygro Transmitter (EUT)

Model Number : TX59U-IT
 Serial Number : N/A
 Manufacturer : Golden ESL Instrument (S.Z.) Co. Ltd.

5.4.Operating Condition of EUT

5.4.1.Setup the EUT and simulator as shown as Section 5.1.

5.4.2.Turn on the power of all equipment.

5.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 903MHz, 915MHz, 920MHz.

5.5. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable 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 an 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 polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated emission measurement.

The bandwidth of test receiver is set at 120kHz in 30-1000MHz. and set at 1MHz in above 1000MHz.

The frequency range from 30MHz to 10000MHz is checked.

The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

5.6.The Emission Measurement Result

PASS.

Date of Test:	<u>October 16, 2009</u>	Temperature:	<u>25°C</u>
EUT:	<u>Thermo-hygro Transmitter</u>	Humidity:	<u>50%</u>
Model No.:	<u>TX59U-IT</u>	Power Supply:	<u>3V DC (“C” batteries 2×)</u>
Test Mode:	<u>TX Channel 1: 903MHz</u>	Test Engineer:	<u>Joe</u>

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss – Amplifier Gain
3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test:	<u>October 16, 2009</u>	Temperature:	<u>25°C</u>
EUT:	<u>Thermo-hygro Transmitter</u>	Humidity:	<u>50%</u>
Model No.:	<u>TX59U-IT</u>	Power Supply:	<u>3V DC (“C” batteries 2×)</u>
Test Mode:	<u>TX Channel 2: 915MHz</u>	Test Engineer:	<u>Joe</u>

Frequency (MHz)	Reading (dBµV/m)	Factor(dB) Corr.	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$

3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test:	<u>October 16, 2009</u>	Temperature:	<u>25°C</u>
EUT:	<u>Thermo-hygro Transmitter</u>	Humidity:	<u>50%</u>
Model No.:	<u>TX59U-IT</u>	Power Supply:	<u>3V DC (“C” batteries 2×)</u>
Test Mode:	<u>TX Channel 3: 927MHz</u>	Test Engineer:	<u>Joe</u>

Frequency (MHz)	Reading (dBµV/m)	Factor(dB) Corr.	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$

3. The spectral diagrams in appendix I display the measurement of peak values.

6. BAND EDGES

6.1. The Requirement

6.1.1. Band Edge from 902MHz to 928MHz. Emission radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

6.2. EUT Configuration on Measurement

The following equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.2.1. Thermo-hygro Transmitter (EUT)

Model Number : TX59U-IT
Serial Number : N/A
Manufacturer : Golden ESL Instrument (S.Z.) Co. Ltd.

6.3. Operating Condition of EUT

6.3.1. Setup the EUT and simulator as shown as Section 4.1.

6.3.2. Turn on the power of all equipment.

6.3.3. Let the EUT work in TX modes measure it. The transmit frequency are 903MHz, 915MHz, 927MHz. We select 903MHz, 927MHz TX frequency to transmit.

6.4. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable 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 an 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 polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated emission measurement.

The bandwidth of test receiver is set at 120kHz in 30-1000MHz. and set at 1MHz in above 1000MHz.

6.5.The Measurement Result

Pass.

Date of Test:	<u>October 16, 2009</u>	Temperature:	<u>25°C</u>
EUT:	<u>Thermo-hygro Transmitter</u>	Humidity:	<u>50%</u>
Model No.:	<u>TX59U-IT</u>	Power Supply:	<u>3V DC (“C” batteries 2×)</u>
Test Mode:	<u>TX Channel 1: 903MHz</u>	Test Engineer:	<u>Joe</u>

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$

3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test:	<u>October 16, 2009</u>	Temperature:	<u>25°C</u>
EUT:	<u>Thermo-hygro Transmitter</u>	Humidity:	<u>50%</u>
Model No.:	<u>TX59U-IT</u>	Power Supply:	<u>3V DC (“C” batteries 2×)</u>
Test Mode:	<u>TX Channel 3: 927MHz</u>	Test Engineer:	<u>Joe</u>

Frequency (MHz)	Reading (dBµV/m)	Factor(dB) Corr.	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$

3. The spectral diagrams in appendix I display the measurement of peak values.

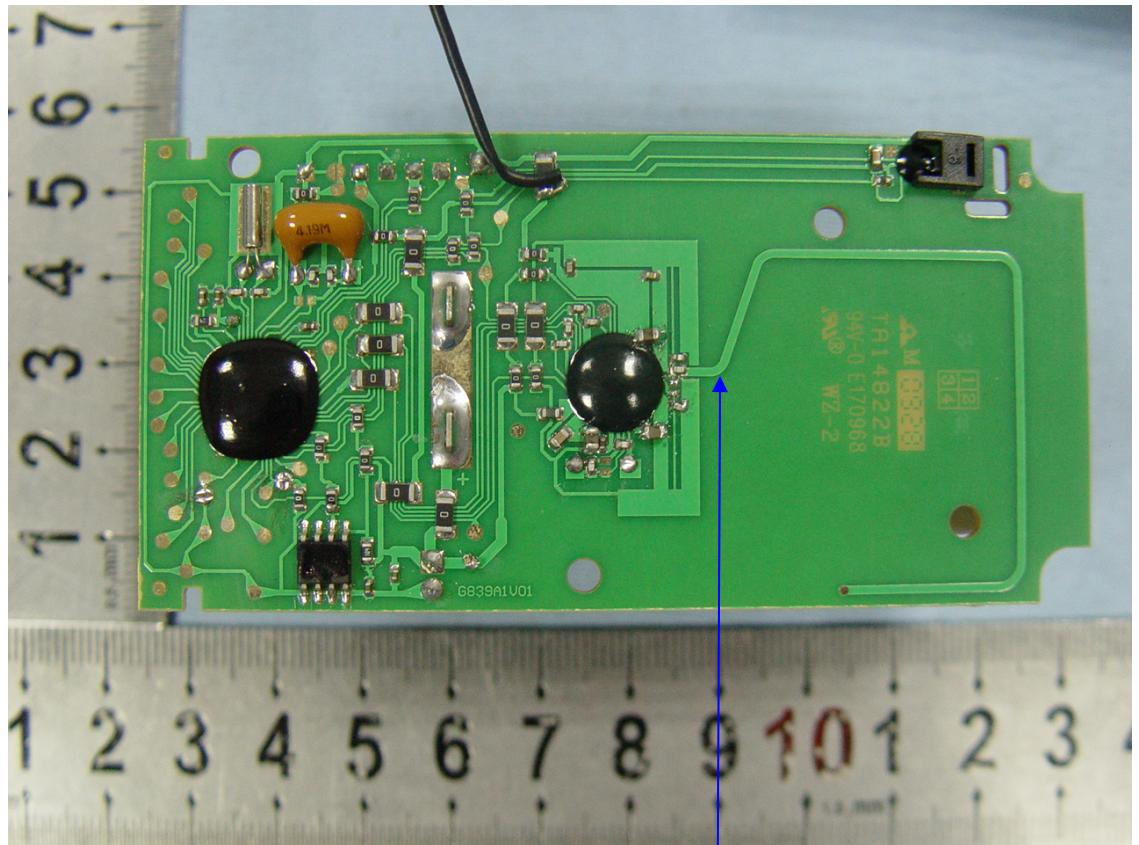
7. ANTENNA REQUIREMENT

7.1.The Requirement

7.1.1. According to Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

7.2.Antenna Construction

Antenna is formed by a copper trace on the PCB, no consideration of replacement.



Antenna

APPENDIX I (Test Curves)



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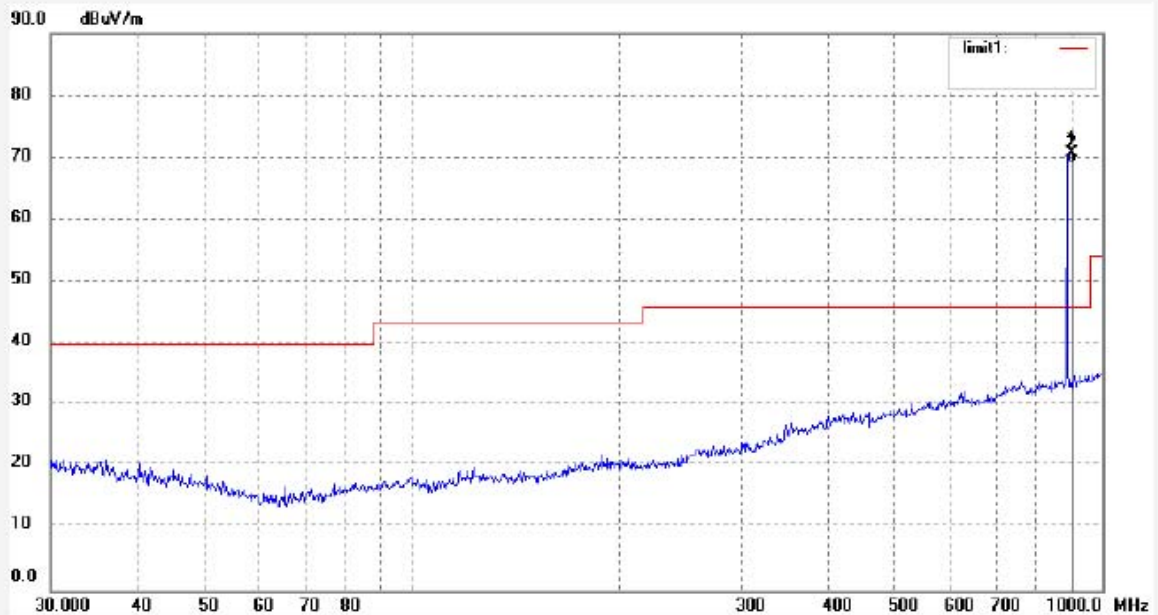
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: RTTE #3389
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 50 %
EUT: Thermo-hygro transmitter
Mode: TX Channel 1
Model: TX59U-IT
Manufacturer: La Crosse Technology

Polarization: Horizontal
Power Source: DC 3V
Date: 2009/10/16
Time: 17:31:34
Engineer Signature: Joe
Distance: 3m

Note: Sample No.:092073 Report No.:ATE20091798



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	903.0041	41.93	28.79	70.72	114.00	-43.28	peak			
2	903.0041	40.36	28.79	69.15	94.00	-24.85	AVG			



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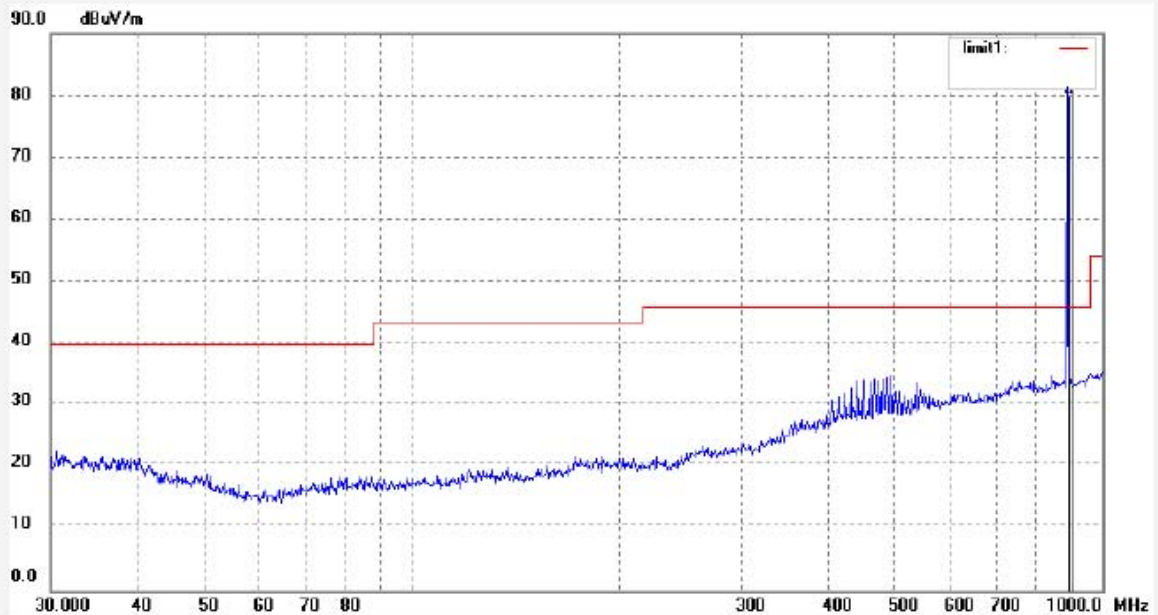
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: RTTE #3390
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 50 %
EUT: Thermo-hygro transmitter
Mode: TX Channel 1
Model: TX59U-IT
Manufacturer: La Crosse Technology

Polarization: Vertical
Power Source: DC 3V
Date: 2009/10/16
Time: 17:34:53
Engineer Signature: Joe
Distance: 3m

Note: Sample No.:092073 Report No.:ATE20091798



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	903.0041	52.78	28.79	81.57	114.00	-32.43	peak			
2	903.0041	51.19	28.79	79.98	94.00	-14.02	AVG			



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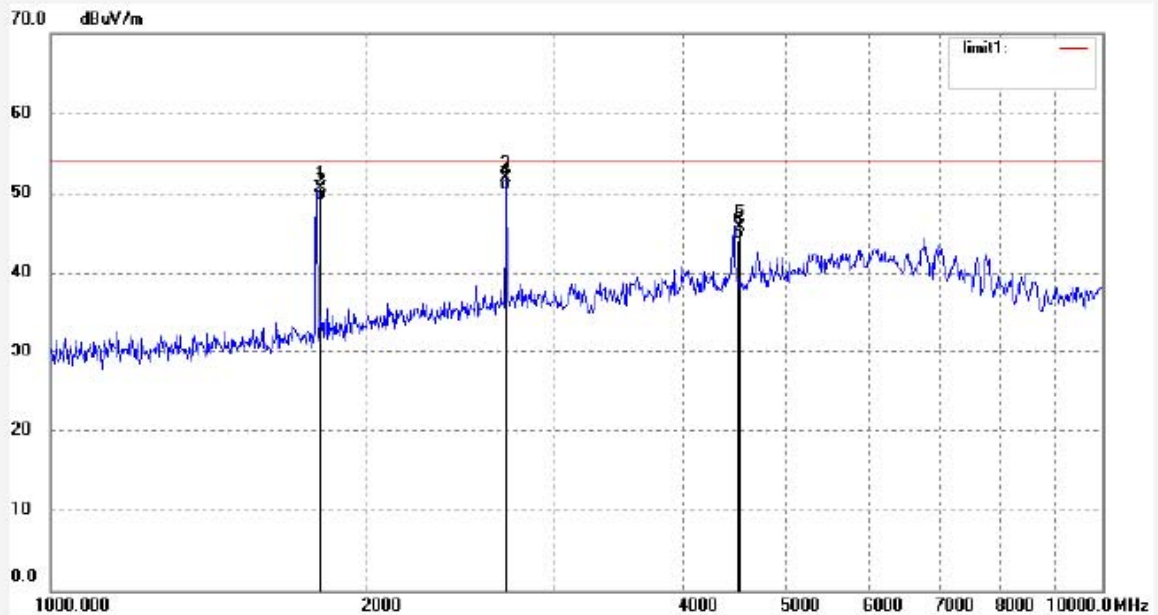
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: RTTE #3394
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 50 %
EUT: Thermo-hygro transmitter
Mode: TX Channel 1
Model: TX59U-IT
Manufacturer: La Crosse Technology

Polarization: Horizontal
Power Source: DC 3V
Date: 2009/10/16
Time: 17:51:21
Engineer Signature: Joe
Distance: 3m

Note: Sample No.:092073 Report No.:ATE20091798



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1806.009	60.60	-9.99	50.61	74.00	-23.39	peak			
2	1806.009	59.02	-9.99	49.03	54.00	-4.97	AVG			
3	2709.012	58.14	-6.30	51.84	74.00	-22.16	peak			
4	2709.012	56.53	-6.30	50.23	54.00	-3.77	AVG			
5	4515.017	47.12	-1.27	45.85	74.00	-28.15	peak			
6	4515.017	45.51	-1.27	44.24	54.00	-9.76	AVG			



ACCURATE TECHNOLOGY CO., LTD.

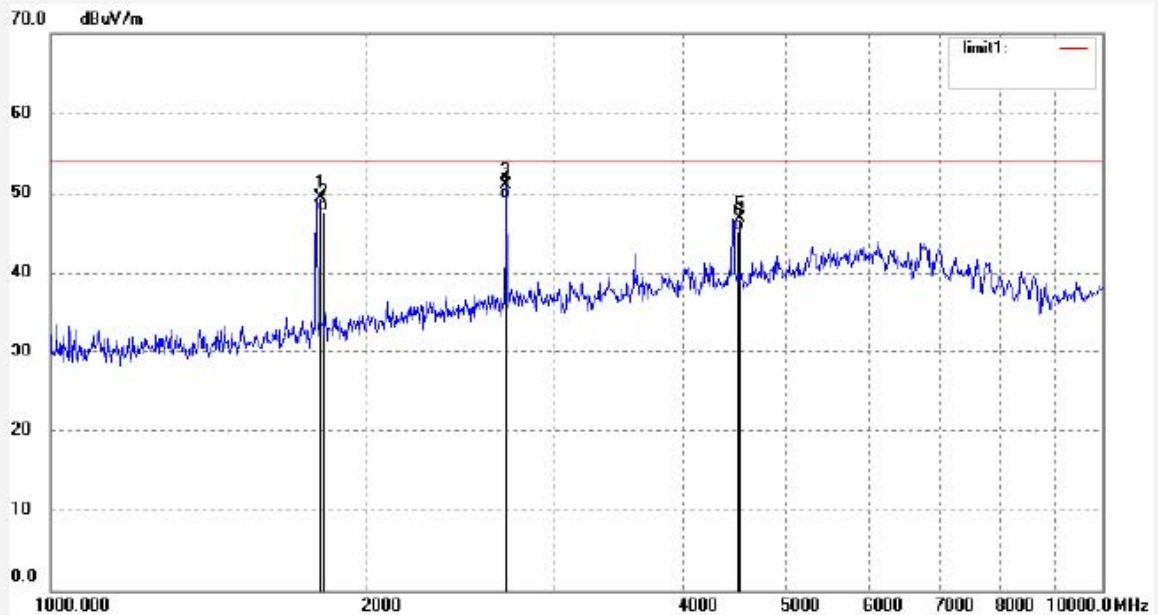
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: RTTE #3393
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 50 %
EUT: Thermo-hygro transmitter
Mode: TX Channel 1
Model: TX59U-IT
Manufacturer: La Crosse Technology

Polarization: Vertical
Power Source: DC 3V
Date: 2009/10/16
Time: 17:47:51
Engineer Signature: Joe
Distance: 3m

Note: Sample No.:092073 Report No.:ATE20091798



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1806.009	59.42	-9.99	49.43	74.00	-24.57	peak			
2	1806.009	57.73	-9.99	47.74	54.00	-6.26	AVG			
3	2709.012	57.26	-6.30	50.96	74.00	-23.04	peak			
4	2709.012	55.59	-6.30	49.29	54.00	-4.71	AVG			
5	4515.017	48.10	-1.27	46.83	74.00	-27.17	peak			
6	4515.017	46.49	-1.27	45.22	54.00	-8.78	AVG			



ACCURATE TECHNOLOGY CO., LTD.

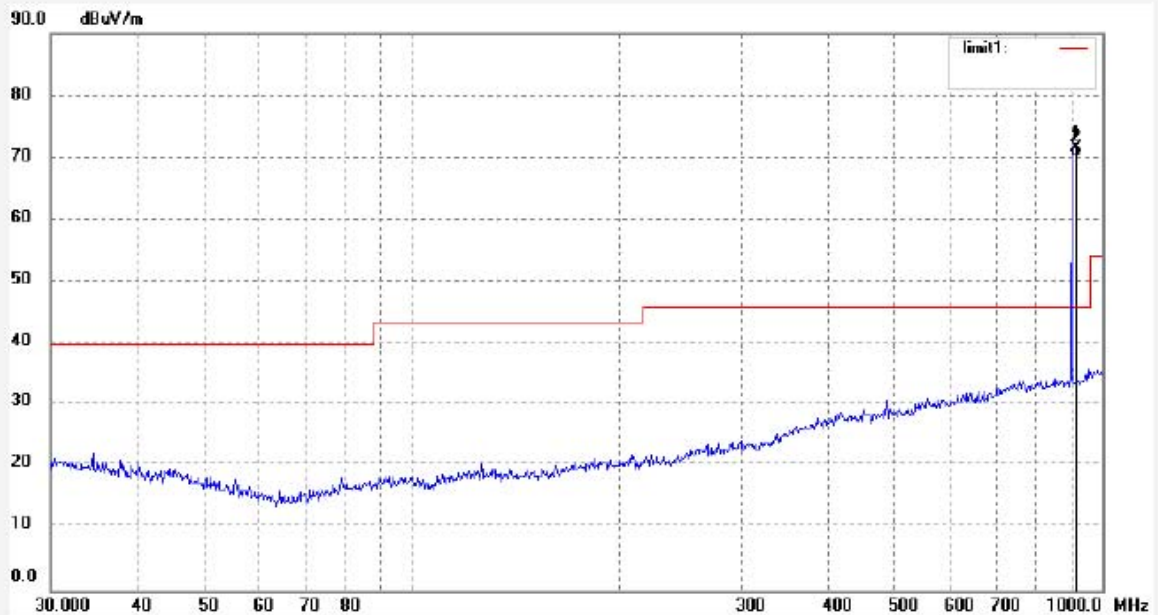
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: RTTE #3377
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 50 %
EUT: Thermo-hygro transmitter
Mode: TX Channel 2
Model: TX59U-IT
Manufacturer: La Crosse Technology

Polarization: Horizontal
Power Source: DC 3V
Date: 2009/10/16
Time: 12:57:06
Engineer Signature: Joe
Distance: 3m

Note: Sample No.:092073 Report No.:ATE20091798



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	915.0036	42.77	28.92	71.69	114.00	-42.31	peak			
2	915.0036	41.17	28.92	70.09	94.00	-23.91	AVG			



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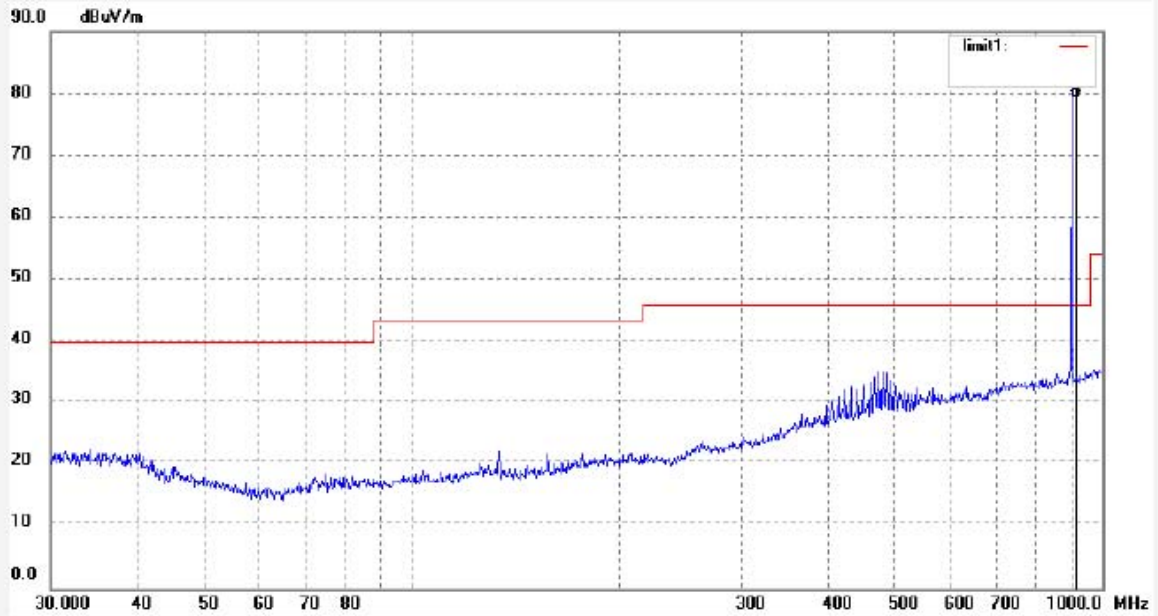
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: RTTE #3378
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 50 %
EUT: Thermo-hygro transmitter
Mode: TX Channel 2
Model: TX59U-IT
Manufacturer: La Crosse Technology

Polarization: Vertical
Power Source: DC 3V
Date: 2009/10/16
Time: 13:00:16
Engineer Signature: Joe
Distance: 3m

Note: Sample No.:092073 Report No.:ATE20091798



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	915.0036	51.95	28.92	80.87	114.00	-33.13	peak			
2	915.0036	50.36	28.92	79.28	94.00	-14.72	AVG			



ACCURATE TECHNOLOGY CO., LTD.

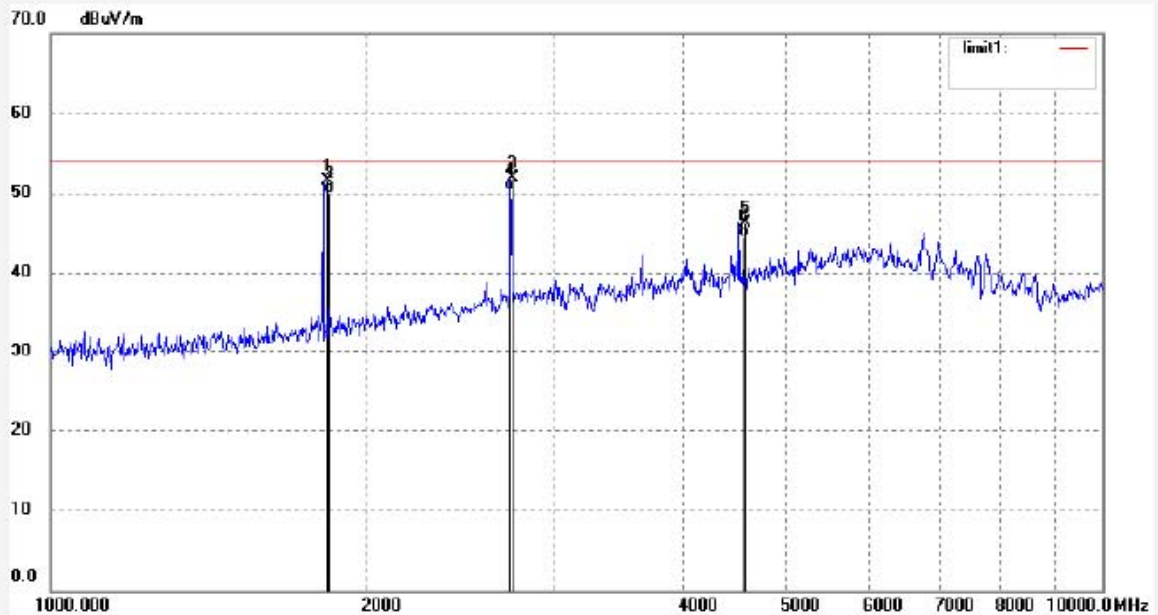
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: RTTE #3382
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 50 %
EUT: Thermo-hygro transmitter
Mode: TX Channel 2
Model: TX59U-IT
Manufacturer: La Crosse Technology

Polarization: Horizontal
Power Source: DC 3V
Date: 2009/10/16
Time: 13:18:23
Engineer Signature: Joe
Distance: 3m

Note: Sample No.:092073 Report No.:ATE20091798



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1830.008	61.34	-9.73	51.61	74.00	-22.39	peak			
2	1830.008	59.72	-9.73	49.99	54.00	-4.01	AVG			
3	2745.012	58.01	-6.12	51.89	74.00	-22.11	peak			
4	2745.012	56.40	-6.12	50.28	54.00	-3.72	AVG			
5	4575.020	47.38	-1.17	46.21	74.00	-27.79	peak			
6	4575.020	45.73	-1.17	44.56	54.00	-9.44	AVG			



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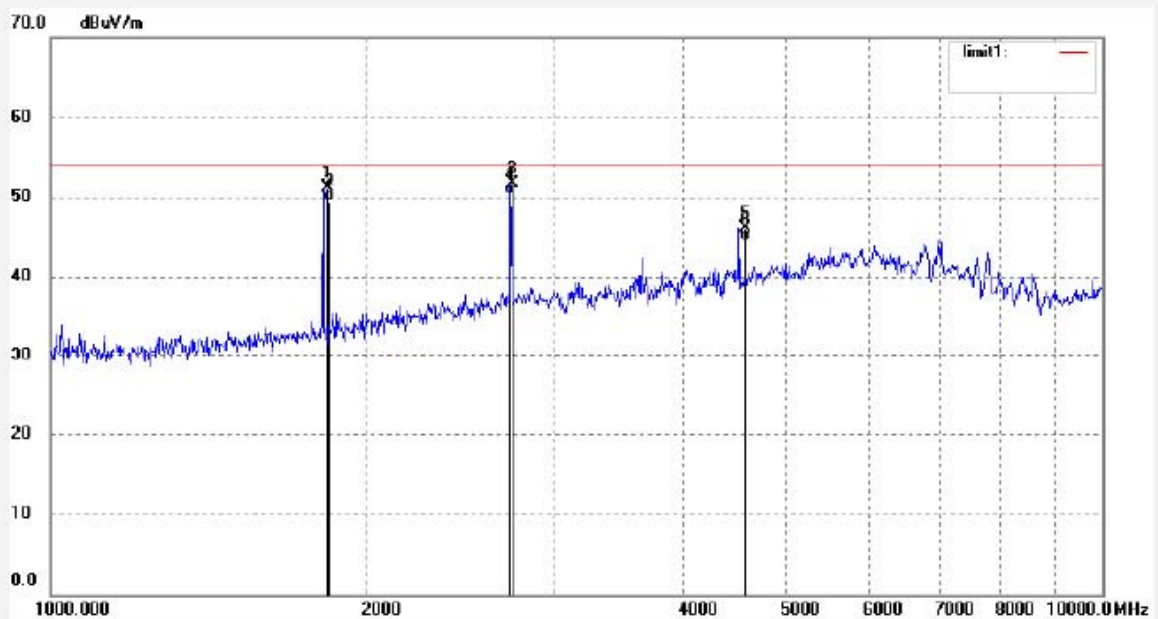
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: RTTE #3381
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 50 %
EUT: Thermo-hygro transmitter
Mode: TX Channel 2
Model: TX59U-IT
Manufacturer: La Crosse Technology

Polarization: Vertical
Power Source: DC 3V
Date: 2009/10/16
Time: 13:14:55
Engineer Signature: Joe
Distance: 3m

Note: Sample No.:092073 Report No.:ATE20091798



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1830.008	60.84	-9.73	51.11	74.00	-22.89	peak			
2	1830.008	59.23	-9.73	49.50	54.00	-4.50	AVG			
3	2745.012	57.91	-6.12	51.79	74.00	-22.21	peak			
4	2745.012	56.36	-6.12	50.24	54.00	-3.76	AVG			
5	4575.020	47.21	-1.17	46.04	74.00	-27.96	peak			
6	4575.020	45.63	-1.17	44.46	54.00	-9.54	AVG			



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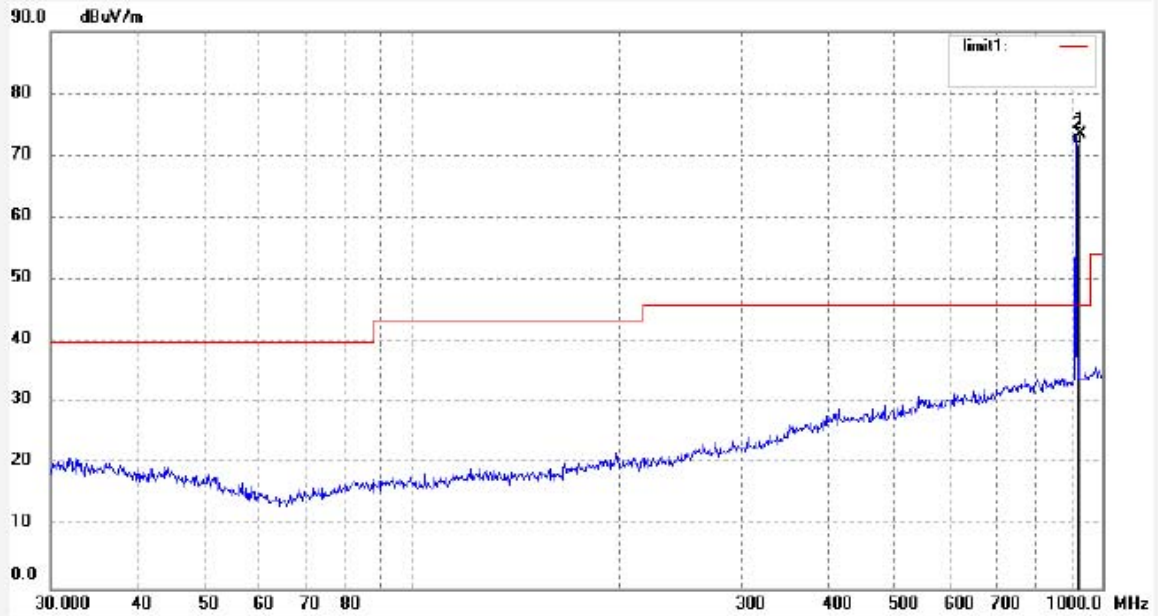
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: RTTE #3385
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 50 %
EUT: Thermo-hygro transmitter
Mode: TX Channel 3
Model: TX59U-IT
Manufacturer: La Crosse Technology

Polarization: Horizontal
Power Source: DC 3V
Date: 2009/10/16
Time: 13:32:34
Engineer Signature: Joe
Distance: 3m

Note: Sample No.:092073 Report No.:ATE20091798



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	927.0042	44.23	29.19	73.42	114.00	-40.58	peak			
2	927.0042	42.61	29.19	71.80	94.00	-22.20	AVG			



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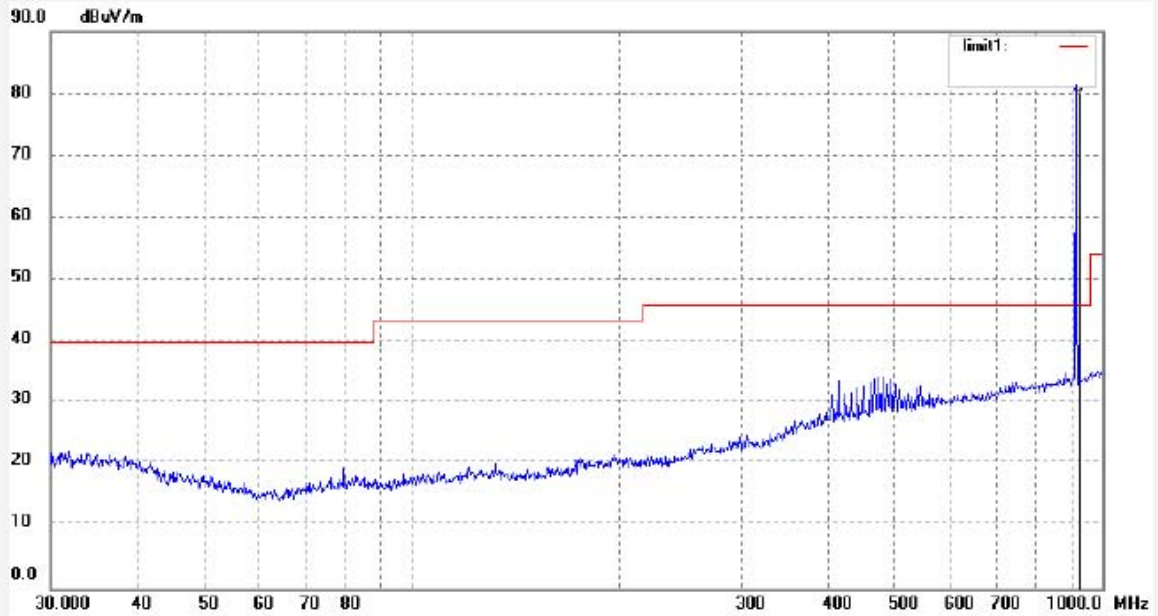
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: RTTE #3386
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 50 %
EUT: Thermo-hygro transmitter
Mode: TX Channel 3
Model: TX59U-IT
Manufacturer: La Crosse Technology

Polarization: Vertical
Power Source: DC 3V
Date: 2009/10/16
Time: 13:35:49
Engineer Signature: Joe
Distance: 3m

Note: Sample No.:092073 Report No.:ATE20091798



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	927.0042	52.37	29.19	81.56	114.00	-32.44	peak			
2	927.0042	50.76	29.19	79.95	94.00	-14.05	AVG			



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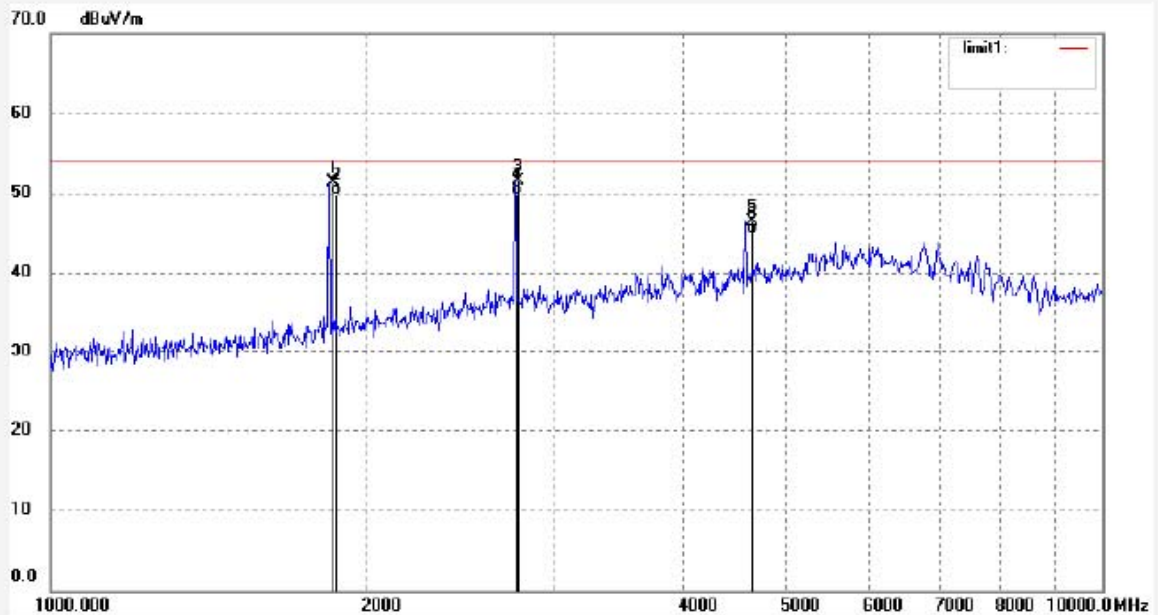
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: RTTE #3383
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 50 %
EUT: Thermo-hygro transmitter
Mode: TX Channel 3
Model: TX59U-IT
Manufacturer: La Crosse Technology

Polarization: Horizontal
Power Source: DC 3V
Date: 2009/10/16
Time: 13:22:57
Engineer Signature: Joe
Distance: 3m

Note: Sample No.:092073 Report No.:ATE20091798



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1854.010	60.93	-9.54	51.39	74.00	-22.61	peak			
2	1854.010	59.33	-9.54	49.79	54.00	-4.21	AVG			
3	2781.012	57.55	-6.07	51.48	74.00	-22.52	peak			
4	2781.012	55.93	-6.07	49.86	54.00	-4.14	AVG			
5	4635.018	47.53	-1.05	46.48	74.00	-27.52	peak			
6	4635.018	45.90	-1.05	44.85	54.00	-9.15	AVG			



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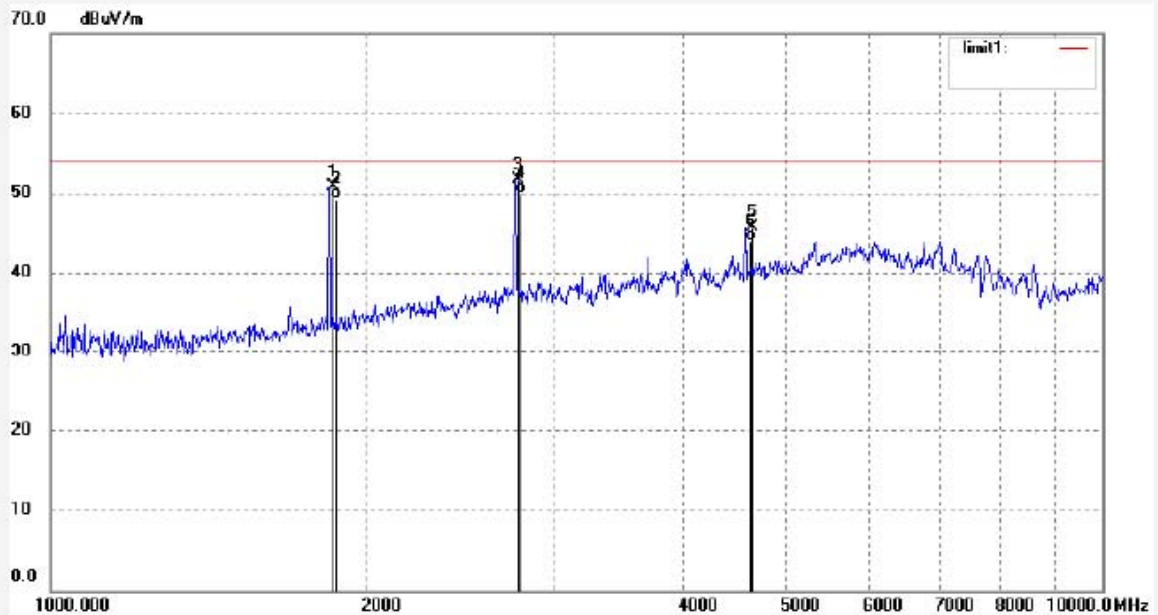
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: RTTE #3384
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 50 %
EUT: Thermo-hygro transmitter
Mode: TX Channel 3
Model: TX59U-IT
Manufacturer: La Crosse Technology

Polarization: Vertical
Power Source: DC 3V
Date: 2009/10/16
Time: 13:26:04
Engineer Signature: Joe
Distance: 3m

Note: Sample No.:092073 Report No.:ATE20091798



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	1854.010	60.40	-9.54	50.86	74.00	-23.14	peak			
2	1854.010	58.81	-9.54	49.27	54.00	-4.73	AVG			
3	2781.012	57.70	-6.07	51.63	74.00	-22.37	peak			
4	2781.012	56.11	-6.07	50.04	54.00	-3.96	AVG			
5	4635.018	46.76	-1.05	45.71	74.00	-28.29	peak			
6	4635.018	45.15	-1.05	44.10	54.00	-9.90	AVG			



ACCURATE TECHNOLOGY CO., LTD.

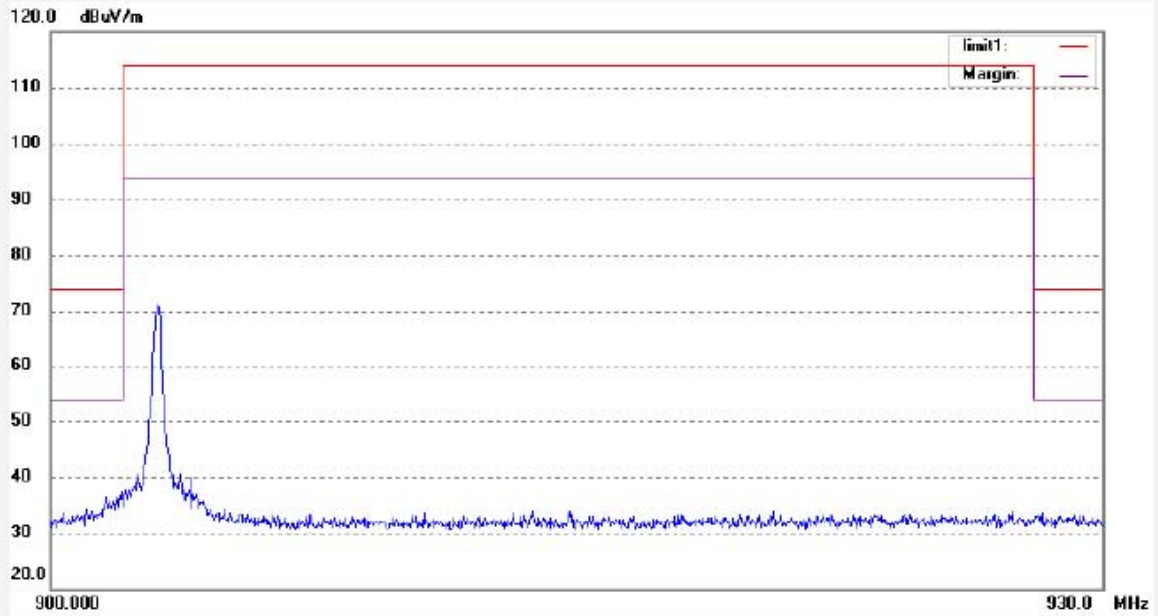
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: RTTE #3392
Standard: FCC Band Edge
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 50 %
EUT: Thermo-hygro transmitter
Mode: TX Channel 1
Model: TX59U-IT
Manufacturer: La Crosse Technology

Polarization: Horizontal
Power Source: DC 3V
Date: 2009/10/16
Time: 17:42:07
Engineer Signature: Joe
Distance: 3m

Note: Sample No.:092073 Report No.:ATE20091798



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
-----	-------------	------------------	-------------	-----------------	----------------	-------------	----------	-------------	---------------	--------



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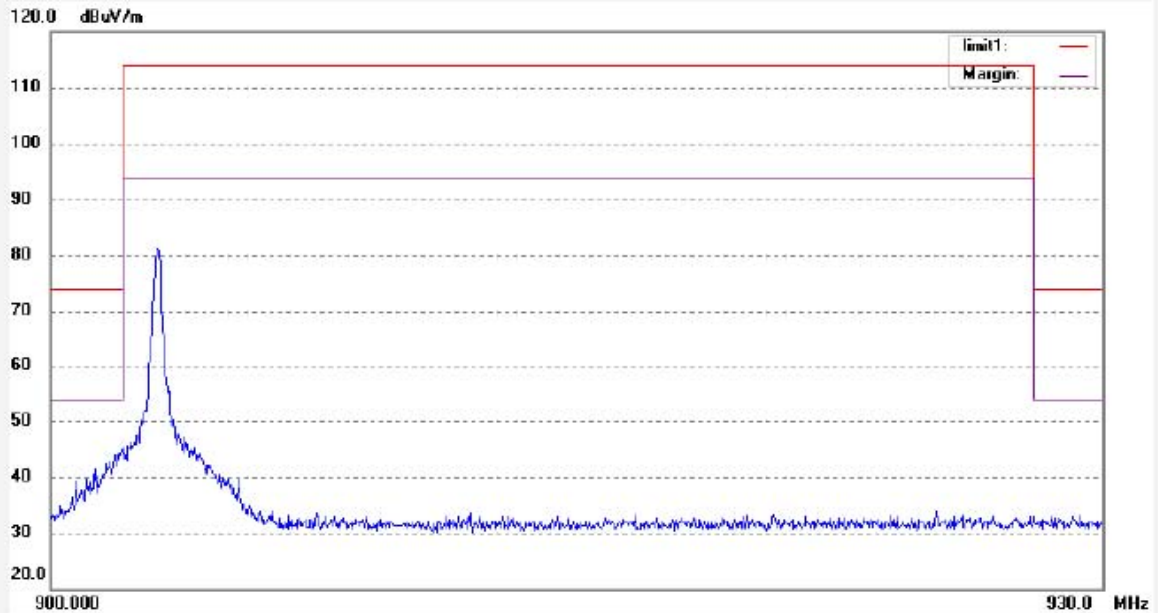
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: RTTE #3391
Standard: FCC Band Edge
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 50 %
EUT: Thermo-hygro transmitter
Mode: TX Channel 1
Model: TX59U-IT
Manufacturer: La Crosse Technology

Polarization: Vertical
Power Source: DC 3V
Date: 2009/10/16
Time: 17:38:59
Engineer Signature: Joe
Distance: 3m

Note: Sample No.:092073 Report No.:ATE20091798



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
-----	-------------	------------------	-------------	-----------------	----------------	-------------	----------	-------------	---------------	--------



ACCURATE TECHNOLOGY CO., LTD.

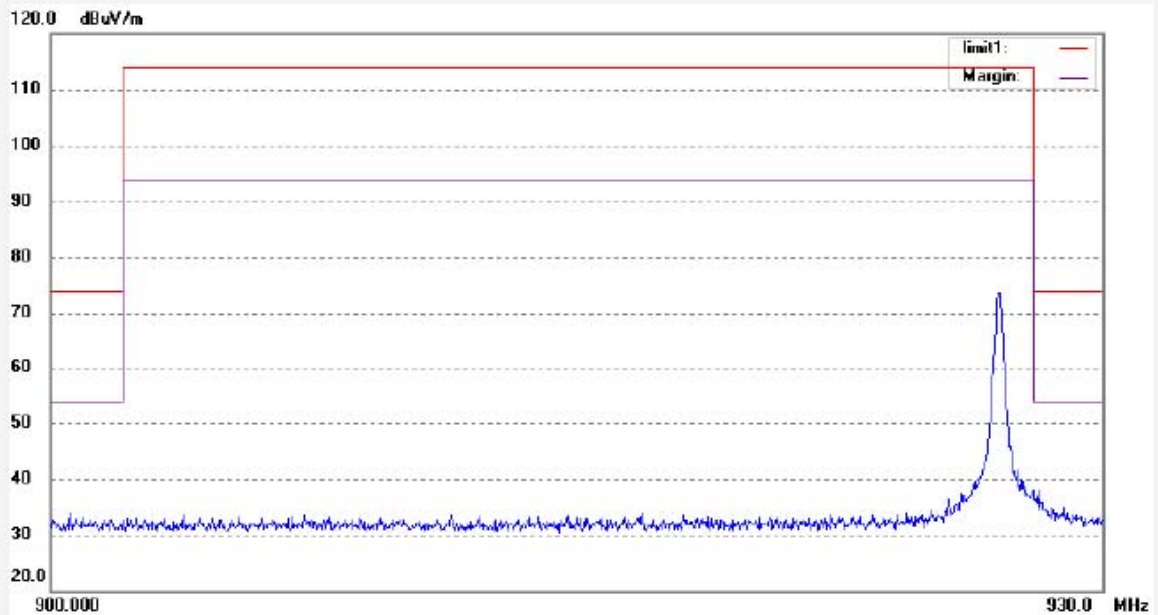
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: RTTE #3388
Standard: FCC Band Edge
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 50 %
EUT: Thermo-hygro transmitter
Mode: TX Channel 3
Model: TX59U-IT
Manufacturer: La Crosse Technology

Polarization: Horizontal
Power Source: DC 3V
Date: 2009/10/16
Time: 17:26:02
Engineer Signature: Joe
Distance: 3m

Note: Sample No.:092073 Report No.:ATE20091798



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
-----	-------------	------------------	-------------	-----------------	----------------	-------------	----------	-------------	---------------	--------



ACCURATE TECHNOLOGY CO., LTD.

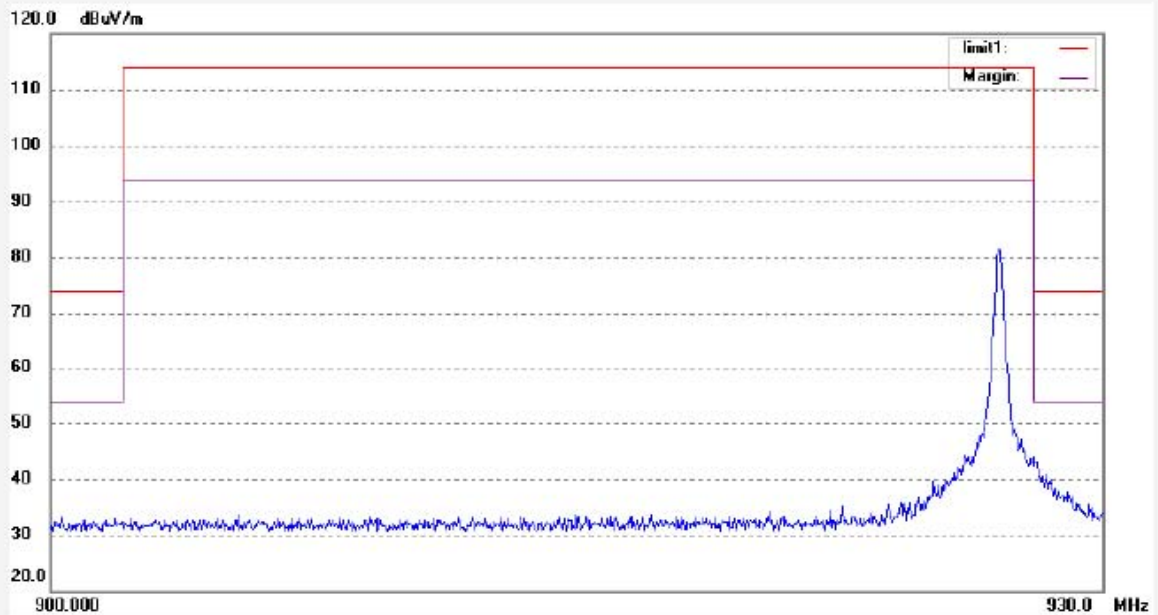
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: RTTE #3387
Standard: FCC Band Edge
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 50 %
EUT: Thermo-hygro transmitter
Mode: TX Channel 3
Model: TX59U-IT
Manufacturer: La Crosse Technology

Polarization: Vertical
Power Source: DC 3V
Date: 2009/10/16
Time: 17:23:05
Engineer Signature: Joe
Distance: 3m

Note: Sample No.:092073 Report No.:ATE20091798



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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