

FCC CERTIFICATION RADIO MEASUREMENT TECHNICAL REPORT

On Model Name: Tire pressure monitoring transmitter

Model Number : TAT-E-TX

Trademark : **SecuTire**

FCC ID : TWC-TATETX0401

Prepared for Jiangxi Kysonix Inc.

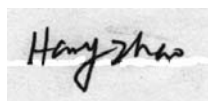
According to FCC Part 15 (2004), Subpart C

Test Report #: JIA-0512-0175SH-FCC

Prepared by: Chris Huang

QC Manager: Harry Zhao

Test Report Released by:



Harry Zhao

2005, December 27th

Date

Test Location

Tests performed at EMC Compliance Management Group (China) in a Certified ANSI Semi-Anechoic Chamber and Shielded Room performed testing.

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Fax: 86-510-5105579
Registration Number: 399439*

Accreditation Bodies

EMC Compliance Management Group is a fully accredited Test Laboratory for ITE, ISM and Telecommunications Products.



In compliance with the site registration requirements of Section 2.948 of the FCC Rules to perform EMI measurements for the general public.



Accredited by the National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code # 200068-0.

Table of Contents

<i>DISCLAIMER NOTICE</i>	<i>1</i>
<i>REPRODUCTION CLAUSE</i>	<i>1</i>
<i>ADMINISTRATIVE DATA</i>	<i>2</i>
<i>EUT DESCRIPTION</i>	<i>2</i>
<i>TEST SUMMARY</i>	<i>3</i>
<i>TEST MODE JUSTIFICATION</i>	<i>4</i>
<i>EUT EXERCISE SOFTWARE</i>	<i>4</i>
<i>EQUIPMENT MODIFICATION</i>	<i>4</i>
<i>TEST SYSTEM DETAILS</i>	<i>5</i>
<i>CONFIGURATION OF TESTED SYSTEM</i>	<i>6</i>
<i>EUT SAMPLE PHOTOS OF TAT-E-TX</i>	<i>7</i>
<i>ATTACHMENT 1 - ANTENNA REQUIREMENT</i>	<i>11</i>
<i>ATTACHMENT 2 - RESTRICTED BAND OF OPERATION</i>	<i>14</i>
<i>ATTACHMENT 3 - OPERATION MODE</i>	<i>21</i>
<i>ATTACHMENT 4 -FIELD STRENGTH OF FUNDAMENTAL AND SPURIOUS EMISSIONS</i>	<i>25</i>
<i>ATTACHMENT 5 - BANDWIDTH</i>	<i>35</i>

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Opinions and Interpretations

This test report relates to the abovementioned equipment under test (EUT). Without the permission of EMC Compliance Management Group Test Lab this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark on this or similar products. The manufacturer has sole responsibility of continued compliance of the device.

Statement of Measurement Uncertainty

The data and results referenced in the document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities that can account for a nominal measurement error. Furthermore, component and process variability of devices similar to that tested may result in additional deviation.

Administrative Data

Test Sample : Tire pressure monitoring transmitter

Model Number : TAT-E-TX

Models Tested : TAT-E-TX

Trade Mark : **SecuTire**

Date Tested : 2005, December 19th

Applicant : Jiangxi Kysonix Inc.
801 Huoju Street, Gaoxing District,
Nanchang, Jiangxi, China
330069

Telephone : 86-791-8161525

Fax : 86-791-8161653

Manufacturer : Jiangxi Kysonix Inc.
801 Huoju Street, Gaoxing District,
Nanchang, Jiangxi, China
330069

EUT Description

Jiangxi Kysonix Inc. Model number TAT-E-TX (referred to as the EUT in this test report) is a Tire pressure monitoring transmitter.

Test Summary

The Electromagnetic Compatibility requirements on TAT-E for this test are stated below. All results listed in this report relate exclusively to this above-mentioned model as the Equipment Under Test. This report confers no approval or endorsement upon any other component, host or subsystem used in the test set-up.

EMC Test Items			
<i>Reference FCC Part 15 (2004), Subpart C</i>			
Specification	Description	Test Results	Remark
<i>FCC Part 15.203</i>	<i>Antenna Requirement</i>	<i>Compliance</i>	<i>Attachment 1</i>
<i>FCC Part 15.205</i>	<i>Restricted Band of Operation</i>	<i>Compliance</i>	<i>Attachment 2</i>
<i>FCC Part 15.207</i>	<i>Conducted Limits</i>	<i>Test is not applicable, because EUT only employ battery power for operation.</i>	
<i>FCC Part 15.209</i>	<i>Radiated Emission Limits</i>	<i>Compliance</i>	<i>Refer to Attachment 4</i>
<i>FCC Part 15.231</i>	<i>Periodic Operation in the Band 40.66-40.70MHz and above 70MHz</i>	--	--
<i>(e)</i>	<i>Operation Mode</i>	<i>Compliance</i>	<i>Attachment 3</i>
<i>(e)</i>	<i>Field Strength of Fundamental and Spurious Emissions</i>	<i>Compliance</i>	<i>Attachment 4</i>
<i>(c)</i>	<i>Bandwidth</i>	<i>Compliance</i>	<i>Attachment 5</i>

Test Mode Justification

The test modes (Lie, Stand) were done for testing.

Note: Lie mode means let EUT put flat;

Stand mode means let EUT stand up.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

EUT Exercise Software

The device is not programmable and does not use software.

Equipment Modification

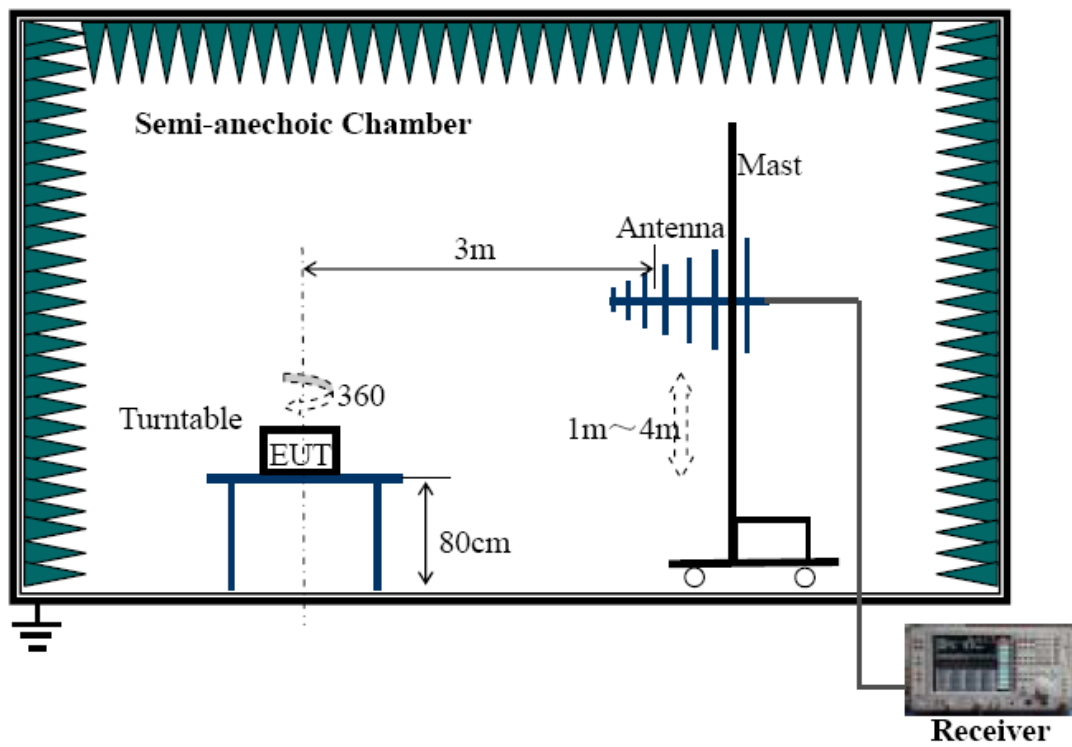
Any modifications installed previous to testing by Jiangxi Kysonix Inc. will be incorporated in each production model sold or leased in United States.

There were no modifications installed by EMC Compliance Management Group (China) test personnel.

Test System Details

EUT	
Model Number:	TAT-E-TX
Model Tested:	TAT-E-TX
Trademark::	SecuTire
Serial Number:	Engineering Sample
Input Voltage:	3V DC
Description:	Tire pressure monitoring transmitter
Manufacturer:	Jiangxi Kysonix Inc.
Support Equipment	
None	
Cable Description	
None	

Configuration of Tested System



EUT Sample Photos of TAT-E-TX



General View



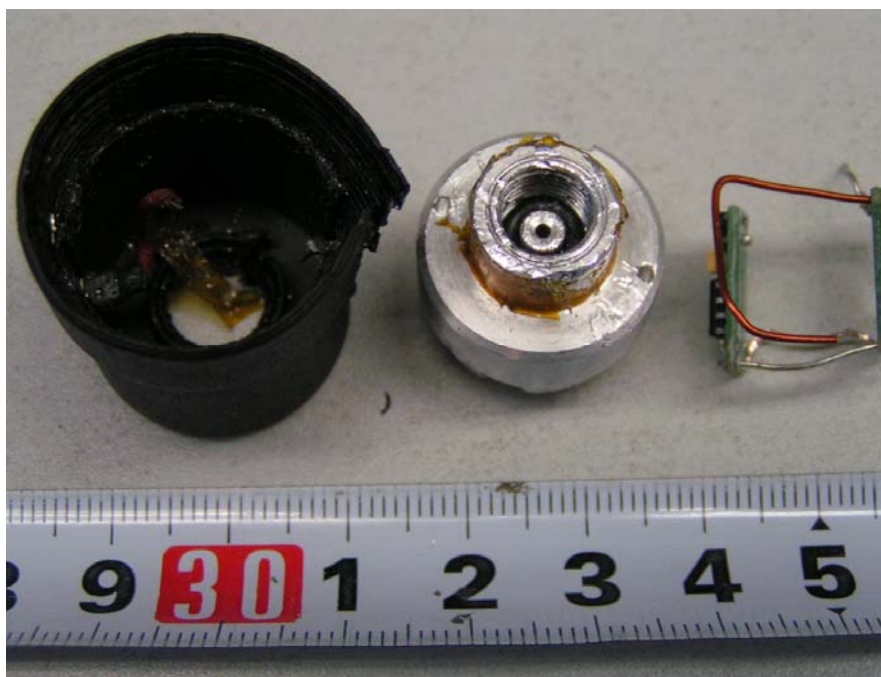
Uncovered 1



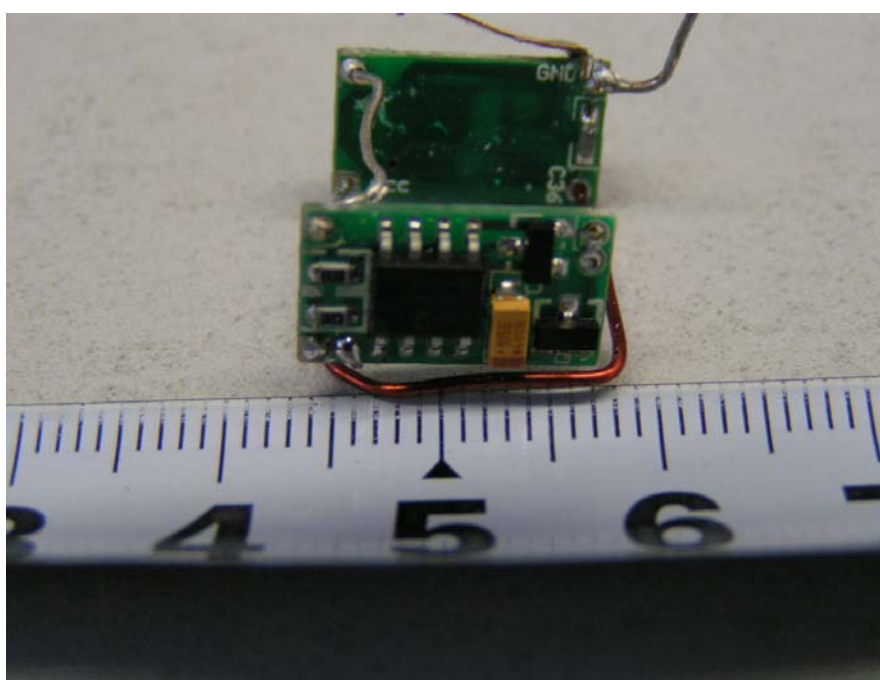
Battery View



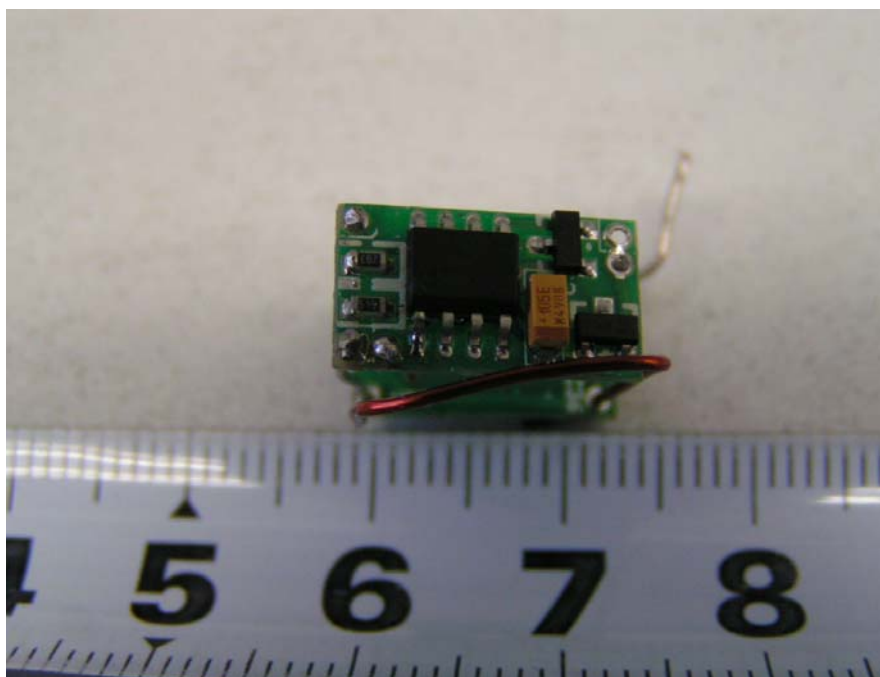
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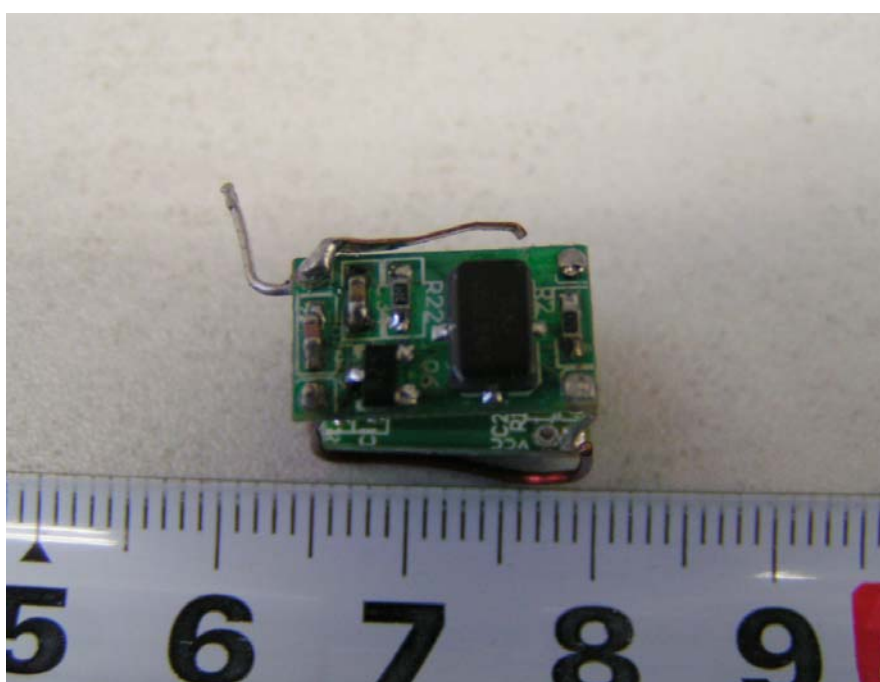
Uncovered 3



Main Board-General View



Main Board-Front View

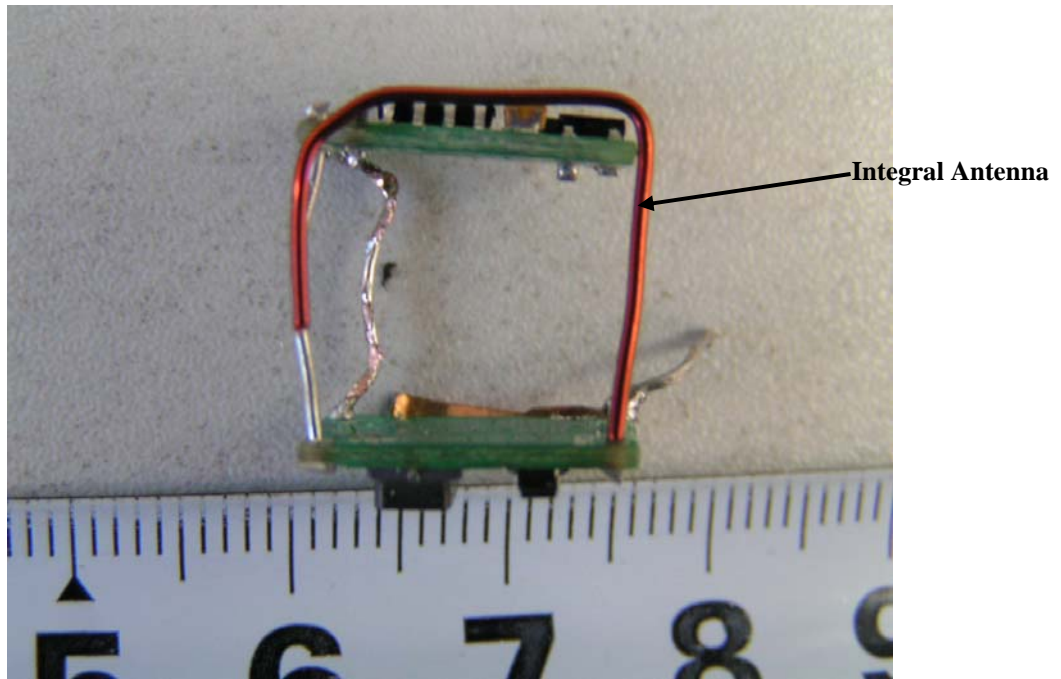


Main Board-Rear View

ATTACHMENT 1 - ANTENNA REQUIREMENT

CLIENT:	Jiangxi Kysonix Inc.	TEST STANDARD:	FCC Part 15.203 (2004)
MODEL TESTED:	TAT-E-TX	PRODUCT:	Tire pressure monitoring Transmitter
SERIAL NO.:	Engineering Sample	EUT DESIGNATION:	RF Equipment
TEMPERATURE:	21°C	HUMIDITY:	55%RH
ATM PRESSURE:	101.8 kPa	GROUNDING:	No Grounding
TESTED BY:	Shi Xiting	DATE OF TEST:	2005, Dec 19 th
SETUP METHOD:	N/A		
ANTENNA REQUIREMENT:	An intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.		
TEST VOLTAGE:	1x3V DC Battery		
TEST STATUS:	Normal Operation As Usual		
RESULTS:	The EUT meets the Antenna requirement. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by EMC Compliance Management Group (China) test personnel.		
M. UNCERTAINTY:	N/A		

<i>FCC Section</i>	<i>FCC Rules</i>	<i>Conclusion</i>
15.203	<p><i>Described how the EUT complies with the requirement that either its antenna is permanently attached, or that it employs a unique antenna connector, for every antenna proposed for use with the EUT.</i></p> <p><i>The exception is in those cases where EUT must be professionally installed. In order to demonstrate that professional installation is required, the following 3 points must be addressed:</i></p> <ul style="list-style-type: none"> <i>● The application (or intended use) of the EUT</i> <i>● The installation requirements of the EUT</i> <i>● The method by which the EUT will be marketed</i> 	<i>The RF Device uses an integral antenna without connector</i>



Integral Antenna without Connector View

ATTACHMENT 2 – RESTRICTED BAND OF OPERATION

CLIENT:	Jiangxi Kysonix Inc.	TEST STANDARD:	FCC Part 15.205 (2004)
MODEL TESTED:	TAT-E-TX	PRODUCT:	Tire pressure monitoring Transmitter
SERIAL NO.:	Engineering Sample	EUT DESIGNATION:	RF Equipment
TEMPERATURE:	21°C	HUMIDITY:	55%RH
ATM PRESSURE:	101.6 kPa	GROUNDING:	No Grounding
TESTED BY:	Shi Xiting	DATE OF TEST:	2005, Dec 19 th
SETUP METHOD:	ANSI C63.4 - 2003		
RESTRICTED BANDS OF OPERATION REQUIREMENT:	The only spurious emissions are permitted in any of the frequency bands listed below table of next page.		
TESTED RANGE:	30MHz to 5000MHz		
TEST VOLTAGE:	1x3V DC Battery		
TEST STATUS:	Keep Tx in continuous transmission mode, modulated		
RESULTS:	The EUT meets the restricted bands of operation requirement. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by EMC Compliance Management Group (China) test personnel.		
M. UNCERTAINTY:	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp ± 2.6 dB		

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41			

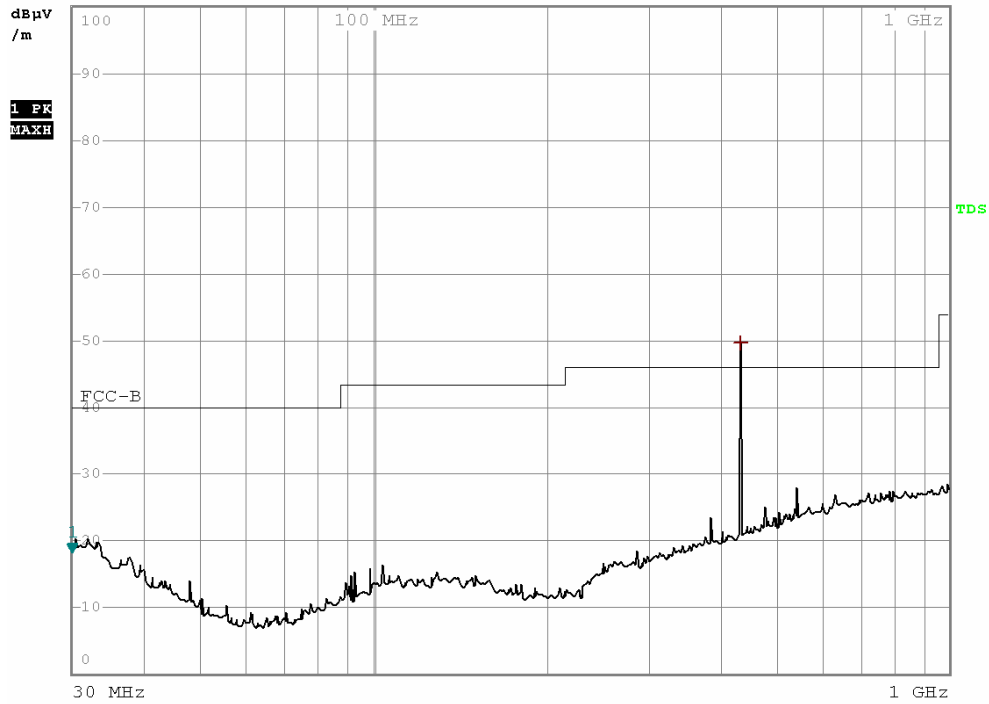
¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6

Test Data (Below 1GHz)



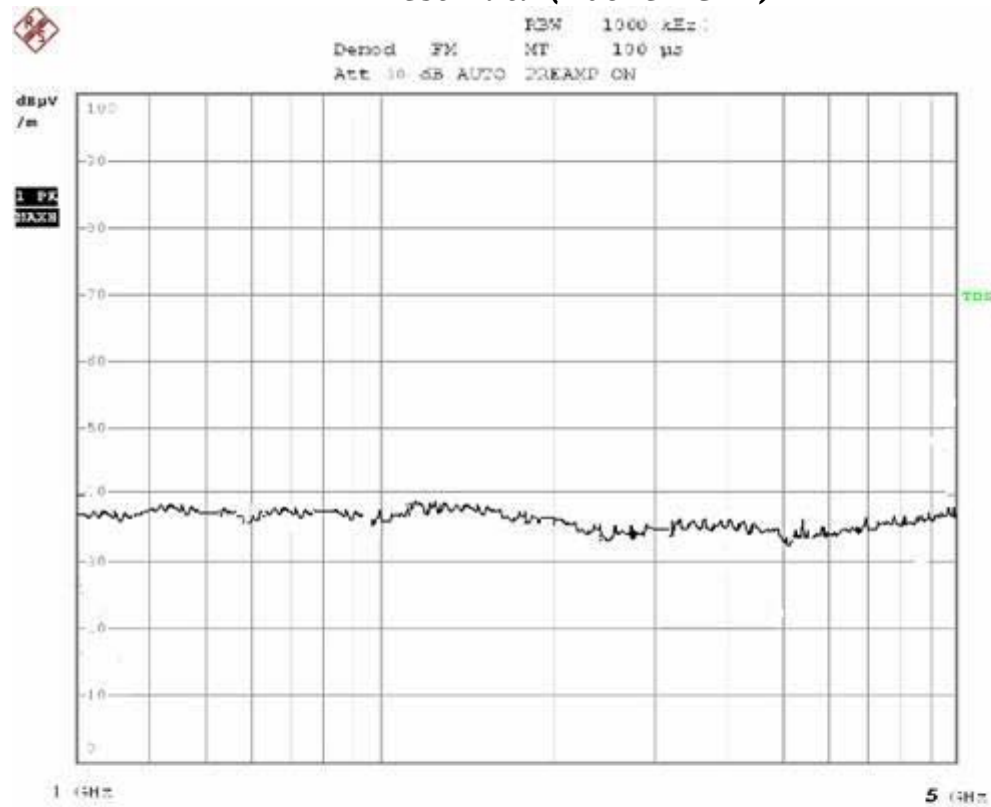
RBW 120 kHz Marker 1 [T1]
 Demod FM MT 100 μ s 18.30 dB μ V/m
 Att 10 dB AUTO PREAMP ON 30.000000000 MHz



ABC

Date: 19.DEC.2005 14:52:44

Test Data (Above 1GHz)



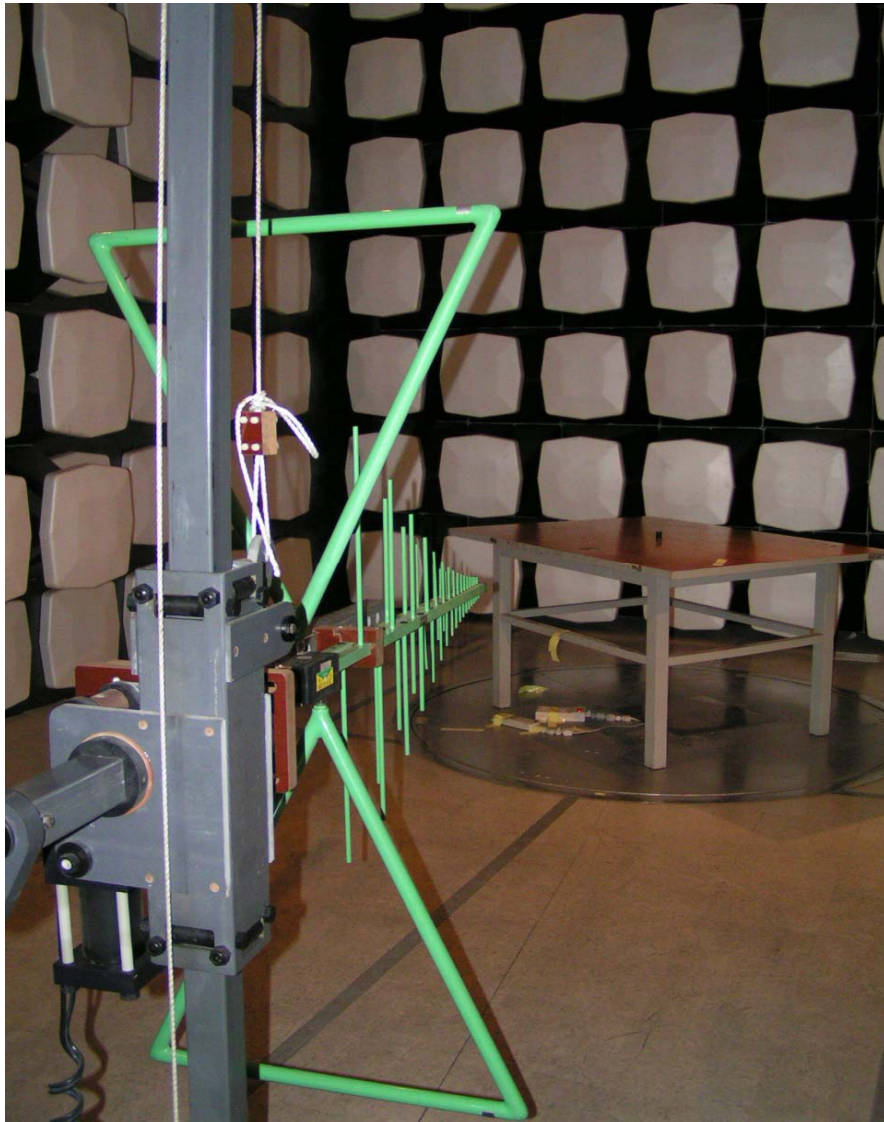
ABC

Date: 19.D2C.2005 15:47:33

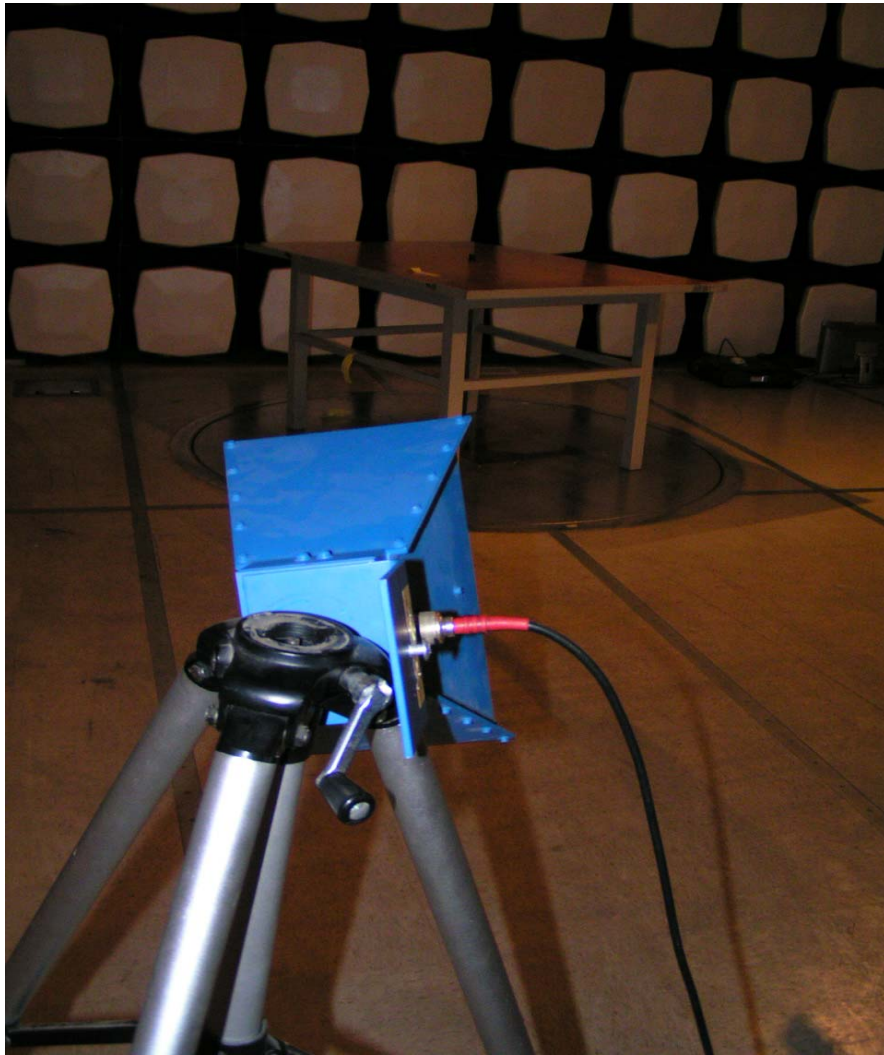
Test Equipment	Manufacturer	Serial No.	Model	Last Cal.	Cal. Due Date
EMI TEST RECEIVER	ESCI	1166.5950 03 100065	ROHDE&SCWARZ	11/23/05	11/22/06
BILOG ANTENNA	CBL6112	117.0800.2 0	CHASE	02/17/05	02/16/06
HORN ANTENNA	XiBao	040507	XB-18	02/17/05	02/16/06
Anechoic Chamber	FACT-3	601	LINDGREN	01/10/05	01/10/06
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

SIGNED BY: Shi-xiting
ENGINEER

REVIEWED BY: Hanyzhan
QC



Radiated Emissions Test Set-up (Below 1GHz)



Radiated Emissions Test Set-up (Above 1GHz)

ATTACHMENT 3 – OPERATION MODE

CLIENT:	Jiangxi Kysonix Inc.	TEST STANDARD:	FCC Part 15.231 (a) FCC Part 15.231 (e)
MODEL TESTED:	TAT-E-TX	PRODUCT:	Tire pressure monitoring Transmitter
SERIAL NO.:	Engineering Sample	EUT DESIGNATION:	RF Equipment
TEMPERATURE:	21°C	HUMIDITY:	55%RH
ATM PRESSURE:	101.8 kPa	GROUNDING:	No Grounding
TESTED BY:	Shi Xiting	DATE OF TEST:	2005, Dec 19 th
SETUP METHOD:	N/A		
OPERATION MODE REQUIREMENT:	In addition, devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds.		
TEST VOLTAGE:	1x3V DC Battery		
TEST STATUS:	Keep Tx in normal transmission mode, modulated, to measure the Silent period; Keep Tx in continuous transmission mode, modulated, to measure the transmit period.		
RESULTS:	The EUT meets the operation mode requirement. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by EMC Compliance Management Group (China) test personnel.		
M. UNCERTAINTY:	N/A		

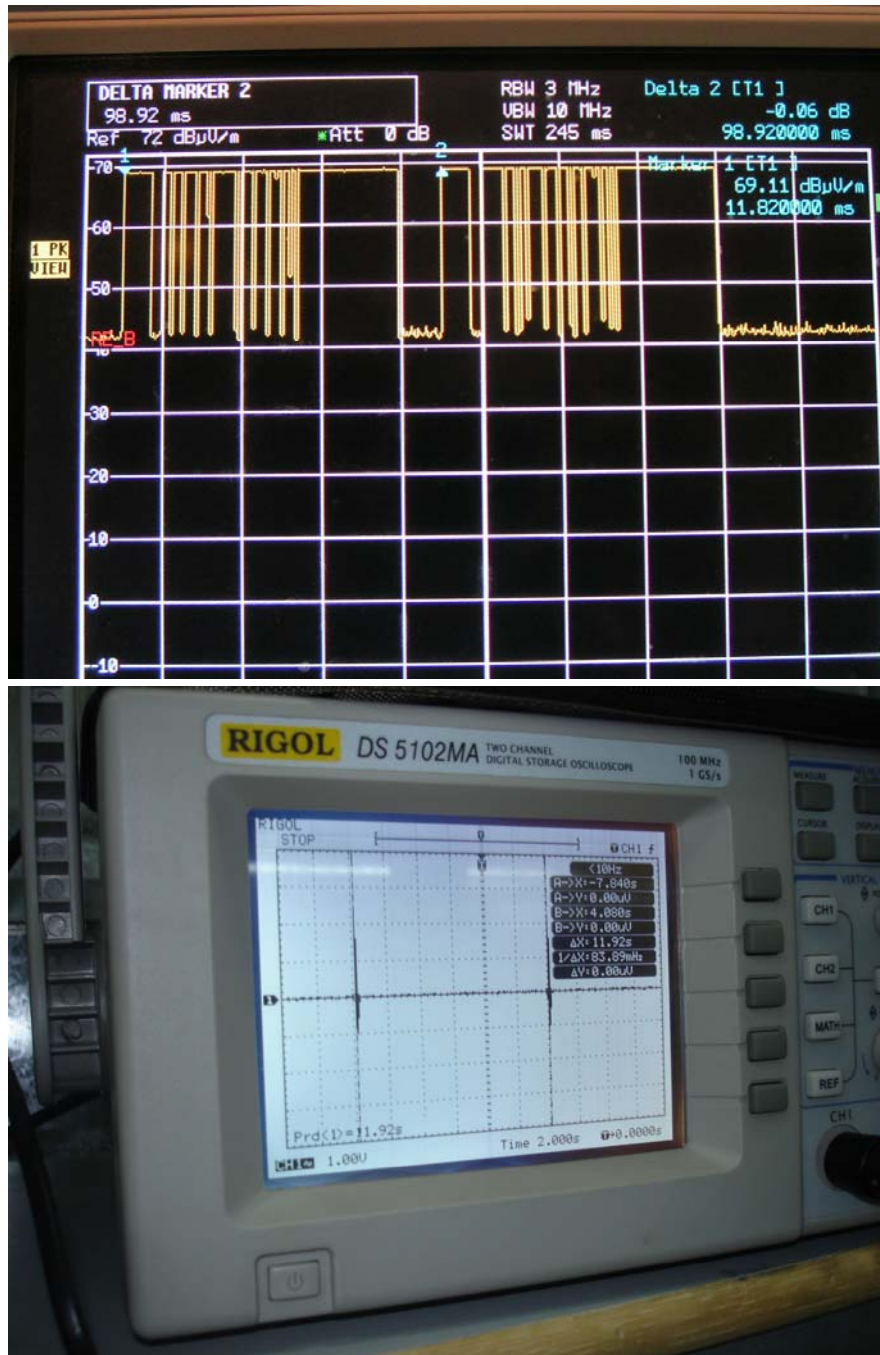
Transmission period:

<i>Frequency (Fundamental)</i>	<i>Transmission period(continuous transmission)</i>	<i>Limits</i>	<i>Result</i>
433.941MHz	$98.92\text{ms} \times 2 = 197.84\text{ms}$	1s	Pass

Silent period:

<i>Frequency (Fundamental)</i>	<i>Silent period(normal transmission)</i>	<i>Limits 1 about transmission period</i>	<i>Limits 2</i>	<i>Result</i>
433.941MHz	11.92s	$30 \times 197.84\text{ms} = 5.934\text{s}$	10s	Pass

<i>FCC Section</i>	<i>FCC Rules</i>	<i>Conclusion</i>
15.231 (e)	<i>In addition, devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds.</i>	<i>The transmitter is activated by the pressure of the tire. As it is activated, it will transmit signal (duration time 197.84ms) at a predetermined interval of 11.92s.</i>



Transmit period and silent period

Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due Date
EMI TEST RECEIVER	ESCI	ROHDE&SCWARZ	1166.595003 100065	11/23/05	11/22/06
BILOG ANTENNA	CBL6112	CHASE	117.0800.20	02/17/05	02/16/06
Digital Storage oscilloscope	Rigol	DS5102MA	135.033.2	02/17/05	02/16/06
Anechoic Chamber	FACT-3	LINDGREN	601	01/10/05	01/10/06
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

SIGNED BY: Shi-xiting
ENGINEER

REVIEWED BY: Hanyzhan
QC

ATTACHMENT 4 –FIELD STRENGTH OF FUNDAMENTAL AND SPURIOUS EMISSIONS

CLIENT:	Jiangxi Kysonix Inc.	TEST STANDARD:	FCC Part 15.231(e) FCC Part 15.209																					
MODEL TESTED:	TAT-E-TX	PRODUCT:	Tire pressure monitoring transmitter																					
SERIAL NO.:	Engineering Sample	EUT DESIGNATION:	RF Equipment																					
TEMPERATURE:	21°C	HUMIDITY:	53%RH																					
ATM PRESSURE:	101.6 kPa	GROUNDING:	No Grounding																					
TESTED BY:	Shi Xiting	DATE OF TEST:	2005, Dec 19 th																					
SETUP METHOD:	ANSI C63.4 - 2003																							
FCC REQUIREMENT	<p>Intentional radiators may operate at a periodic rate exceeding that specified in paragraph (a) and may be employed for any type of operation, including operation prohibited in paragraph (a), provided the intentional radiator complies with the provisions of paragraph (b) through (d) of this Section, except the field strength table in paragraph (b) is replaced by the following:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th style="width: 33%;">Fundamental Frequency (MHz)</th> <th style="width: 33%;">Field Strength of Fundamental (microvolts/meter)</th> <th style="width: 33%;">Field Strength of Spurious Emission (microvolts/meter)</th> </tr> </thead> <tbody> <tr> <td>40.66-40.70</td> <td>1,000</td> <td>100</td> </tr> <tr> <td>70-130</td> <td>500</td> <td>50</td> </tr> <tr> <td>130-174</td> <td>500 to 1,500 **</td> <td>50 to 150 **</td> </tr> <tr> <td>174-260</td> <td>1,500</td> <td>150</td> </tr> <tr> <td>260-470</td> <td>1,500 to 5,00 **</td> <td>150 to 500 **</td> </tr> <tr> <td>Above 470</td> <td>5,000</td> <td>500</td> </tr> </tbody> </table> <p>** linear interpolations</p> <p>[Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows: for the band 130-174MHz, uV/m at 3 meters =22.72727(F)-2454.545; for the band 260-470MHz, uV/m at 3 meters =16.6667(F)-2833.3333. The maximum permitted unwanted emission level is 20dB below the maximum permitted fundamental level.]</p>			Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emission (microvolts/meter)	40.66-40.70	1,000	100	70-130	500	50	130-174	500 to 1,500 **	50 to 150 **	174-260	1,500	150	260-470	1,500 to 5,00 **	150 to 500 **	Above 470	5,000	500
Fundamental Frequency (MHz)	Field Strength of Fundamental (microvolts/meter)	Field Strength of Spurious Emission (microvolts/meter)																						
40.66-40.70	1,000	100																						
70-130	500	50																						
130-174	500 to 1,500 **	50 to 150 **																						
174-260	1,500	150																						
260-470	1,500 to 5,00 **	150 to 500 **																						
Above 470	5,000	500																						

CONTINUE ON THE NEXT PAGE...

TEST PROCEDURE:	<p>a. The EUT was placed on a rotatable table with 0.8 meters above ground.</p> <p>b. The EUT was set 3 meters from the interference-receiving antenna, which was mounted on the top of a variable height antenna tower.</p> <p>c. The antenna was varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna were set to make measurement.</p> <p>d. For each suspected emission the EUT was arranged to its worst case and then change the antenna tower height (from 1m to 4m) and turn table (from 0 degree to 360 degree) to find the maximum reading.</p> <p>e. If the emission level of the EUT in peak mode was 20 dB lower than the specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be tested using the quasi-peak method in about six maximal points and the results will be reported.</p> <p>f. Broadband antenna (Calibrated antenna) was used as receiving antenna below 1000MHz. Horn antenna were used as receiving antenna above 1000MHz.</p> <p>g. The bandwidth is 120 kHz below 1000 MHz, and 1 MHz above 1000 MHz</p> <p>Explanation of the Correction Factor are given as follows:</p> $FS = RA + AF + CF - AG - DC$ <p>Where: FS = Field Strength RA = Receiver Amplitude AF = Antenna Factor CF = Cable Attenuation Factor AG = Amplifier Gain DC = Duty Cycle Correction Factor</p>
TESTED RANGE:	30MHz to 5000MHz
TEST VOLTAGE:	1x3V battery
TEST STATUS:	Keep Tx in continuous transmission mode, modulated
RESULTS:	The EUT meets the requirements of field strength test. The test results only to the equipment under test provided by client.
CHANGES OR MODIFICATIONS:	There were no modifications installed by EMC Compliance Management Group (China) test personnel.
M. UNCERTAINTY:	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp ± 2.6 dB

Direction	Polarization	Frequency Type	Frequency (MHz)	Field Strength dB(μV/m)	Limit dB(μV/m)	Over Limit dB(μV/m)	Read Level dB(μV)	Factor (dB)	Duty cycle Correction Factor (dB)
Lying	Horizontal	Fundamental	433.941	69.51	72.82	-3.31	79.51	-6.68	3.32
		Spurious	867.882	47.57	52.82	-5.25	49.19	1.70	3.32
		Spurious	1301.823	35.20	52.82	-17.62	37.33	1.19	3.32
		Spurious	1735.764	33.24	52.82	-19.58	35.65	0.91	3.32
	Vertical	Fundamental	433.941	65.84	72.82	-6.98	75.84	-6.68	3.32
		Spurious	867.882	43.47	52.82	-9.35	45.09	1.70	3.32
		Spurious	1301.823	37.98	52.82	-14.84	40.11	1.19	3.32
		Spurious	1735.764	33.86	52.82	-18.96	36.27	0.91	3.32
Stand	Horizontal	Fundamental	433.941	65.82	72.82	-7.00	75.82	-6.68	3.32
		Spurious	867.882	44.76	52.82	-8.06	46.38	1.70	3.32
		Spurious	1301.823	34.47	52.82	-18.35	36.60	1.19	3.32
		Spurious	1735.764	32.47	52.82	-20.35	34.88	0.91	3.32
	Vertical	Fundamental	433.941	68.48	72.82	-4.34	78.48	-6.68	3.32
		Spurious	867.882	45.81	52.82	-7.01	47.43	1.70	3.32
		Spurious	1301.823	33.85	52.82	-18.97	35.98	1.19	3.32
		Spurious	1735.764	33.60	52.82	-19.22	36.01	0.91	3.32

Note:

- Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follow:

For fundamental frequency ($F=433.941\text{MHz}$)

$$\begin{aligned}\text{Field Strength of Fundamental (dBuV/m)} &= 20\log(16.6667 \times F - 2833.3333) \\ &= 20\log(16.6667 \times 433.941 - 2833.3333) \\ &= 72.826 \text{ dBuV/m}\end{aligned}$$

$$\text{Field Strength of Spurious (dBuV/m)} = 72.826 - 20 = 52.826 \text{ dBuV/m}$$

- Field Strength = Read Level + Factor – Duty Cycle Correction Factor

Factor = Antenna Factor + Cable Loss - Preamp Factor

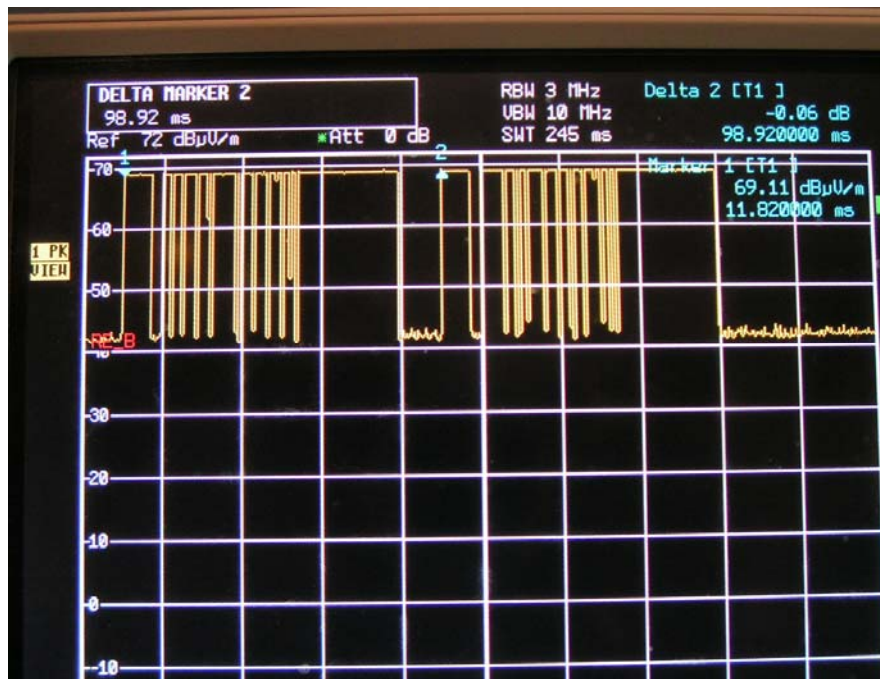
Duty Cycle Correction Factor is calculated by averaging the sum of the pulse train.

Correction factor is measured as follows:

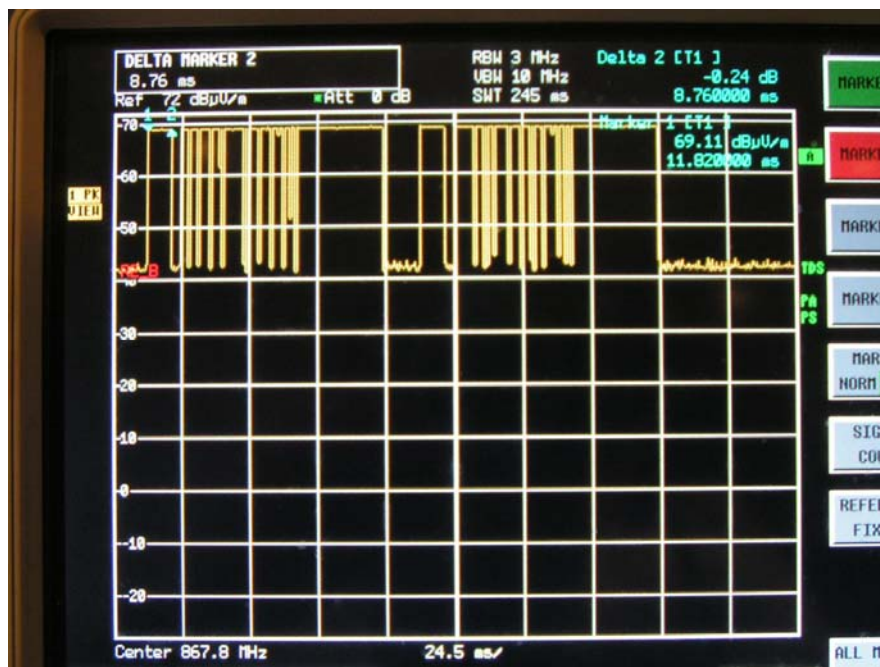
Keep the EUT in continuous transmission mode (modulated), and set the spectrum to the fundamental frequency and set the span width to 0 Hz. Then connect a storage oscilloscope to the video output of the spectrum that is used to detect the pulse train. Adjust the oscilloscope settings to observe the pulse train and determine the number and width of the pulses, as well as the period of the train.

$$\begin{aligned}\text{Duty Cycle Correction Factor} &= |20\log(T1^2+T2^2+T3^2+T4^2+T5+T6)/\text{Period}| \\ &= |20\log(8.76^2+2.51^2+2.88^2+2.94^2+2.94+30.38)/98.92| \\ &= 3.32\text{dB}\end{aligned}$$

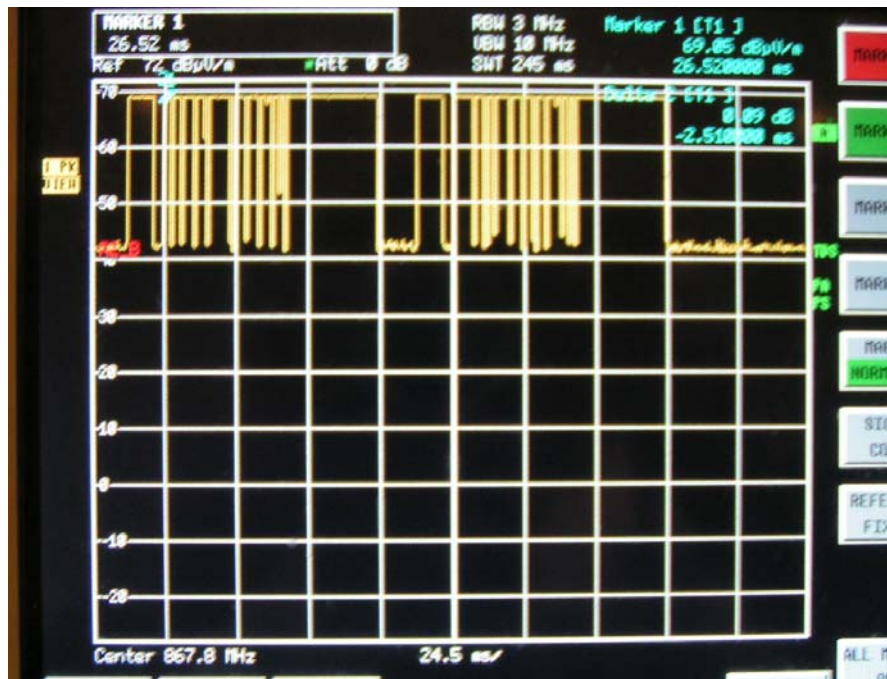
(please refer to the following test graph of next page)



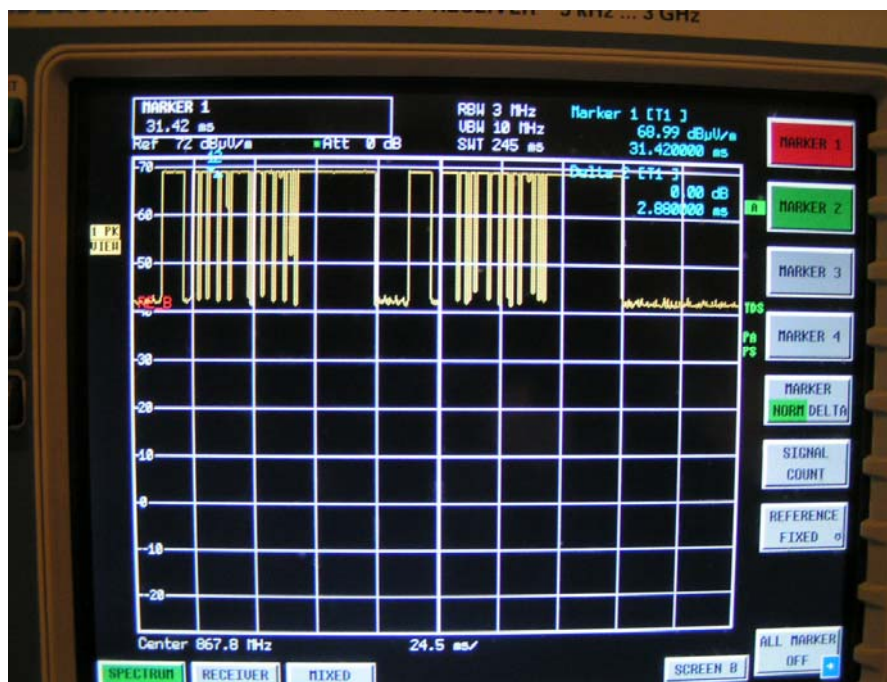
Period



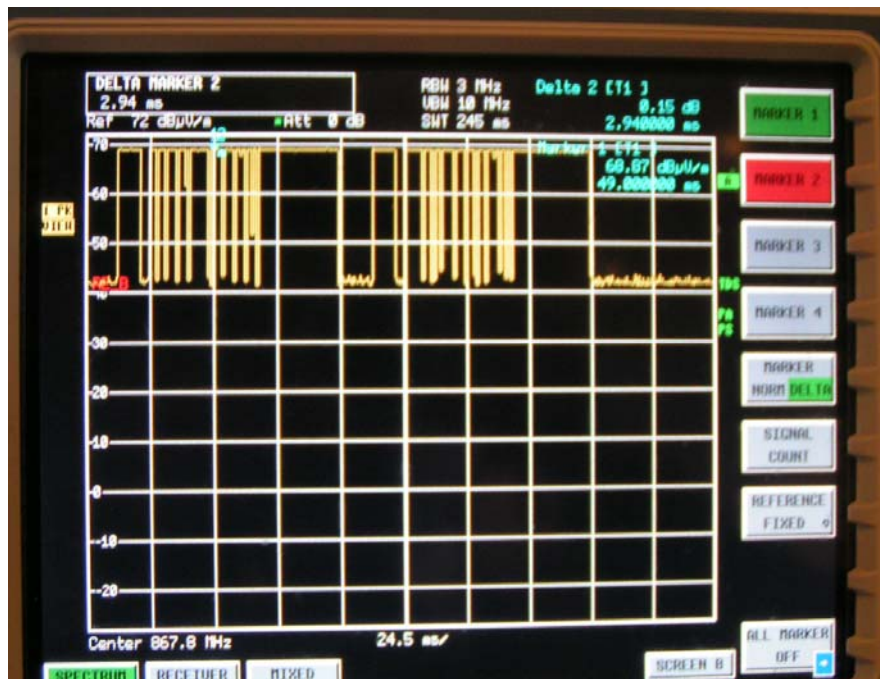
T1



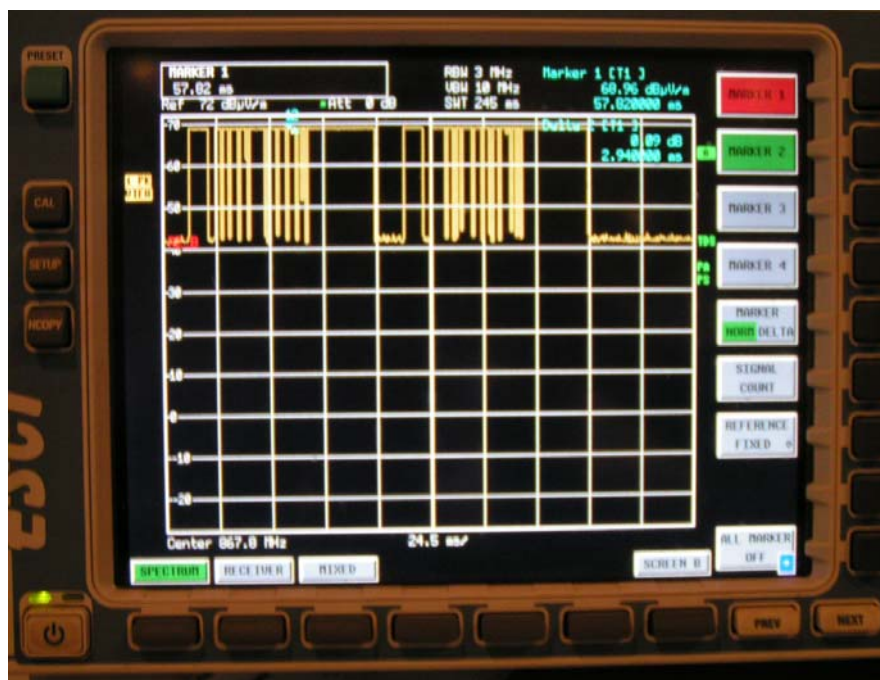
T2



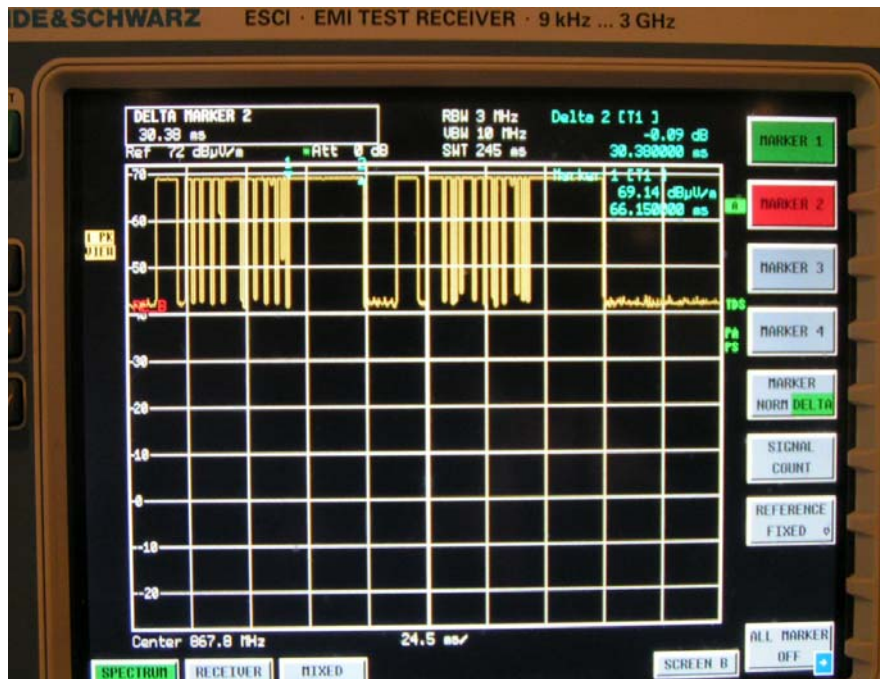
T3



T4



T5

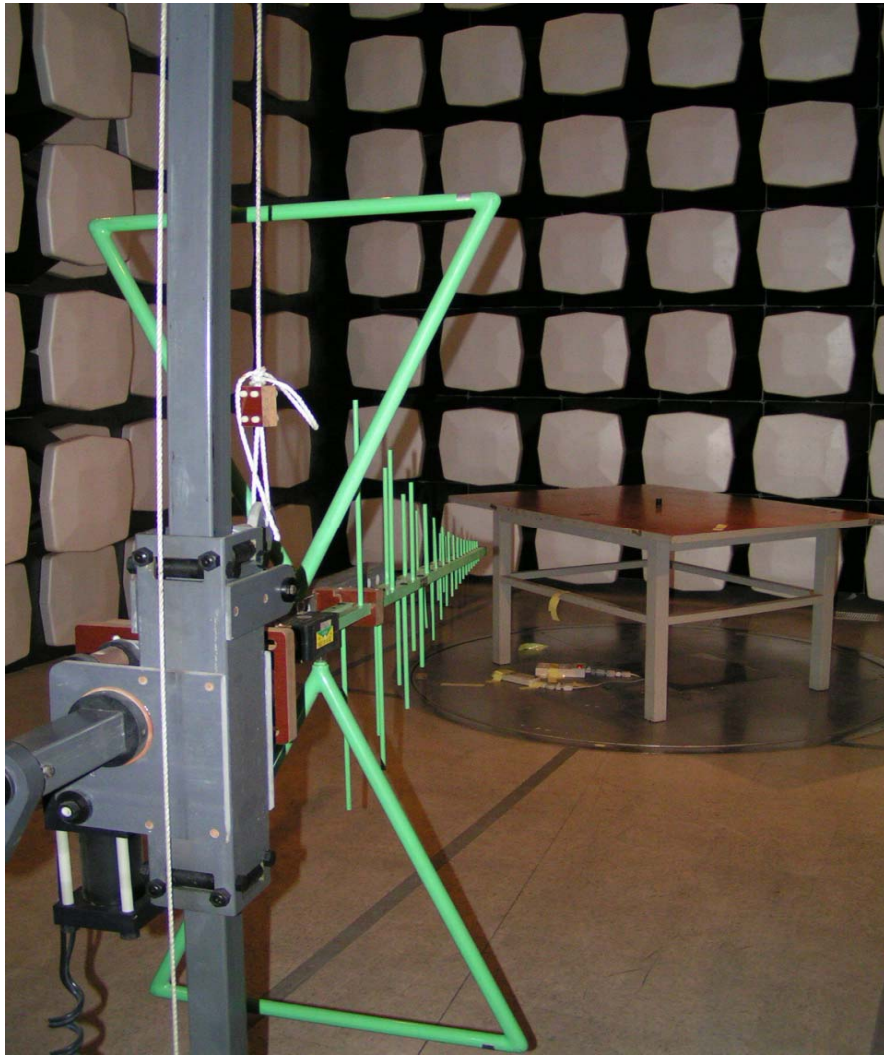


T6

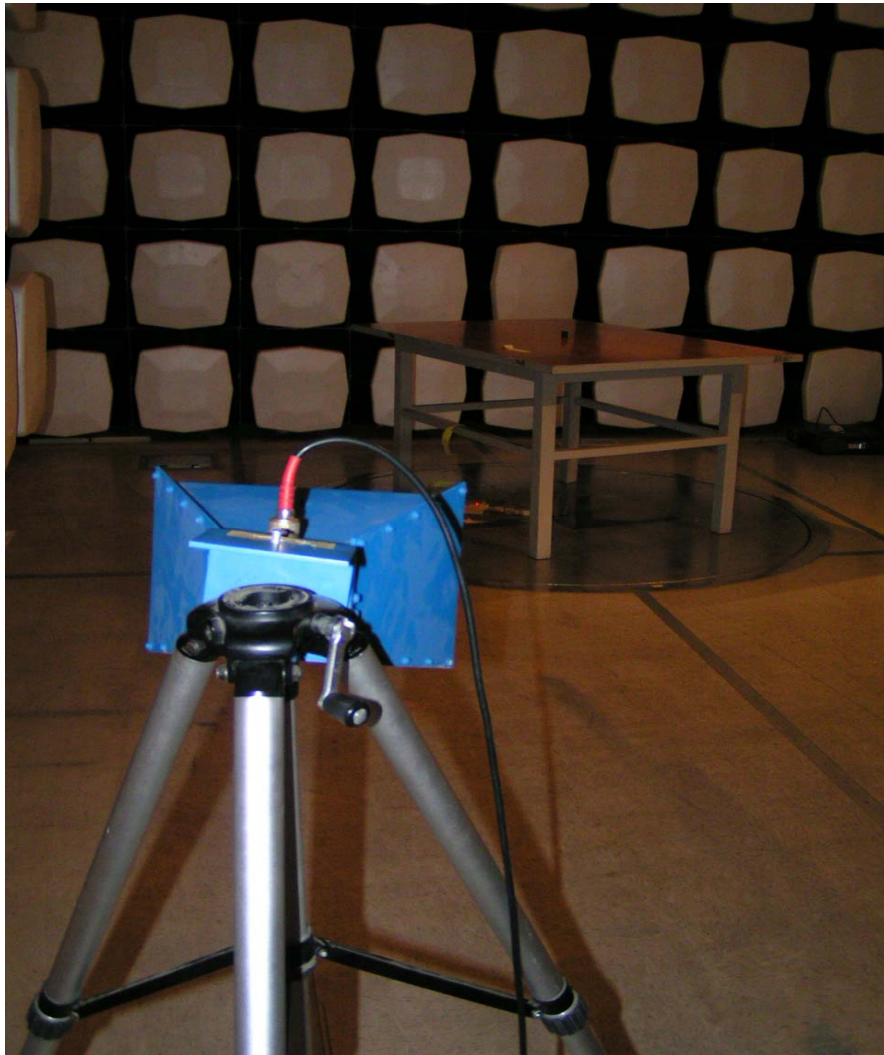
Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due Date
EMI TEST RECEIVER	ESCI	1166.5950 03 100065	ROHDE&SCWARZ	11/23/05	11/22/06
BILOG ANTENNA	CBL6112	117.0800.2 0	CHASE	02/17/05	02/16/06
HORN ANTENNA	XiBao	040507	XB-18	02/17/05	02/16/06
Anechoic Chamber	FACT-3	601	LINDGREN	01/10/05	01/09/06
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

SIGNED BY: Shi-xiting
ENGINEER

REVIEWED BY: Hanyzhan
QC



Field Strength Emissions Test Set-up (Below 1GHz)

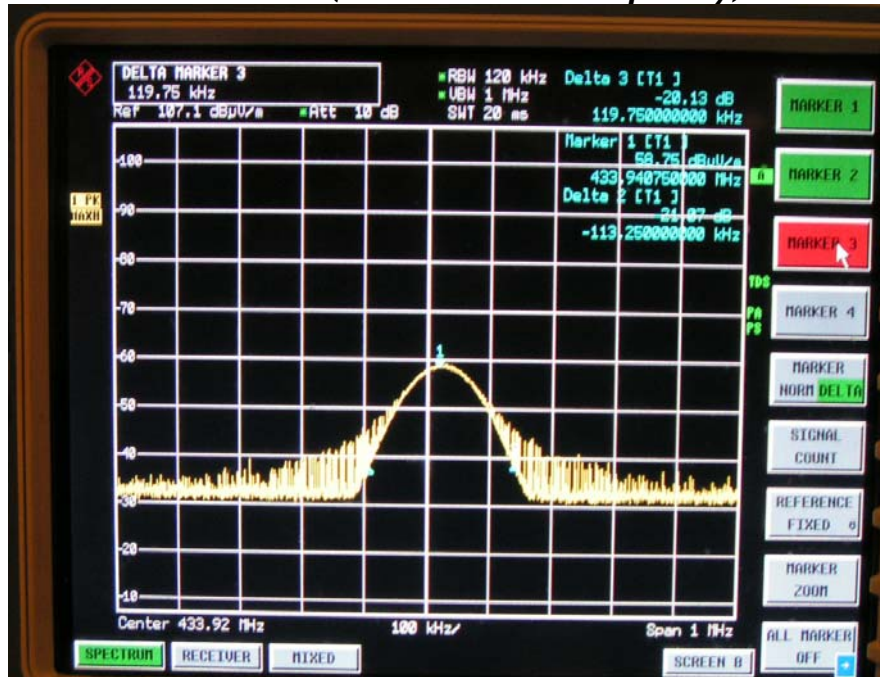


Field Strength Emissions Test Set-up (Above 1GHz)

ATTACHMENT 5 – BANDWIDTH

CLIENT:	Jiangxi Kysonix Inc.	TEST STANDARD:	FCC Part 15.231 (c)
MODEL TESTED:	TAT-E-TX	PRODUCT:	Tire pressure monitoring transmitter
SERIAL NO.:	Engineering Sample	EUT DESIGNATION:	RF Equipment
TEMPERATURE:	21°C	HUMIDITY:	53%RH
ATM PRESSURE:	101.6 kPa	GROUNDING:	No Grounding
TESTED BY:	Shi Xiting	DATE OF TEST:	2005, Dec 19 th
SETUP METHOD:	ANSI C63.4 - 2003		
BANDWIDTH REQUIREMENT:	The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, The emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.		
TEST VOLTAGE:	1x3V DC Battery		
TEST STATUS:	Keep Tx in continuous transmission mode, modulated		
RESULTS:	The EUT meets the bandwidth requirement. The test results relate only to the equipment under test provided by client.		
CHANGES OR MODIFICATIONS:	There were no modifications installed by EMC Compliance Management Group (China) test personnel.		
M. UNCERTAINTY:	Freq. $\pm 2 \times 10^{-7}$ x Center Freq., Amp ± 2.6 dB		

Test Data (Fundamental Frequency)

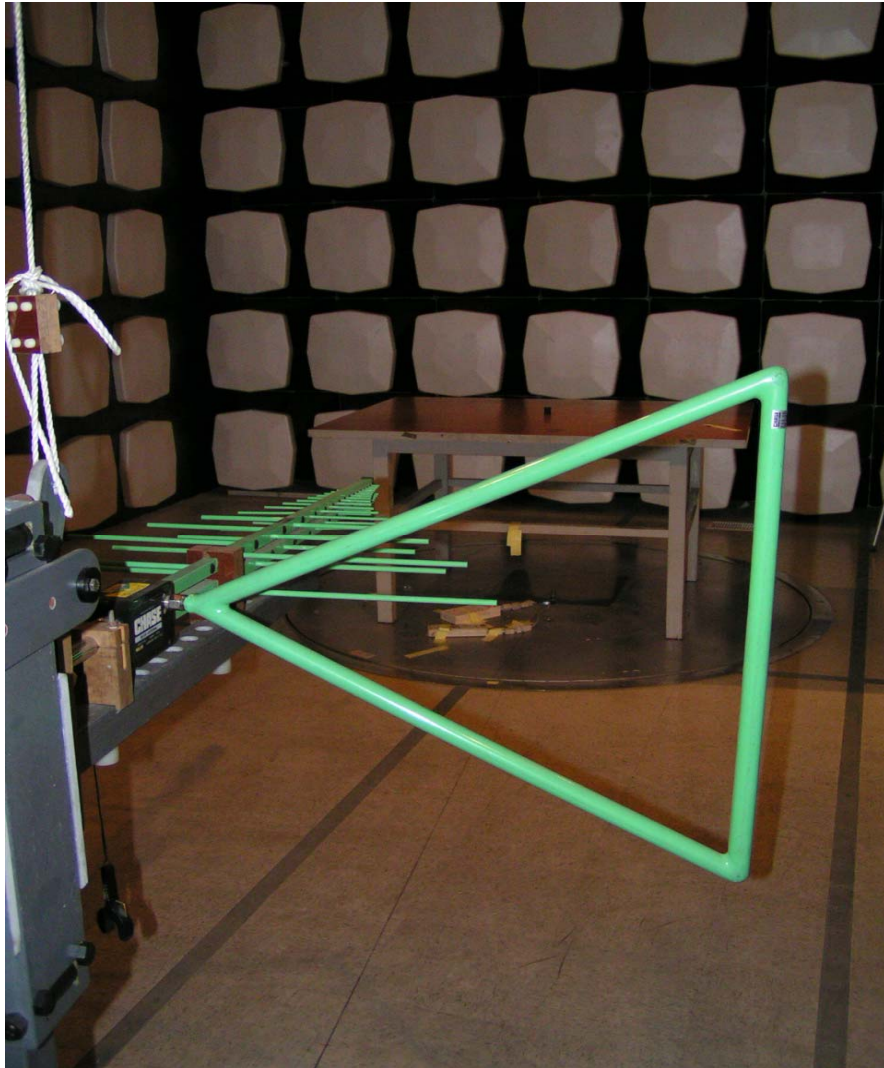


Frequency (MHz)			Bandwidth Limit (MHz) ($F_{center} \times 0.25\%$)	Test Result (MHz) ($F_{end} - F_{start}$)	Conclusion
Start	Center	End			
-0.11325	433.941	+0.11975	1.0848525	0.233	Compliance

Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due Date
EMI TEST RECEIVER	ESCI	1166.595003 100065	ROHDE&SCWARZ	11/23/05	11/22/06
BILOG ANTENNA	CBL6112	117.0800.20	CHASE	02/17/05	02/17/06
Anechoic Chamber	FACT-3	601	LINDGREN	01/10/05	01/10/06
Note: All testing were performed using internationally recognized standards. All test instruments were calibrated.					

SIGNED BY: Shi-xiting
ENGINEER

REVIEWED BY: Hangzhou
QC



Bandwidth Test Set-up