

FCC CERTIFICATION  
On Behalf of  
Calasanz Technology

Digital Sensor  
Model No.: HSTNX-0001

FCC ID: X9YHSTNX0001

Prepared for : Calasanz Technology  
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Canada

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Report Number : ATE20100537  
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Date of Report : April 12, 2010

# **TABLE OF CONTENTS**

Description	Page
-------------	------

## Test Report Certification

<b>1. GENERAL INFORMATION .....</b>	<b>4</b>
1.1. Description of Device (EUT).....	4
1.2. Description of Test Facility .....	5
1.3. Measurement Uncertainty .....	5
<b>2. MEASURING DEVICE AND TEST EQUIPMENT .....</b>	<b>6</b>
<b>3. SUMMARY OF TEST RESULTS.....</b>	<b>7</b>
<b>4. FUNDAMENTAL AND HARMONICS RADIATED EMISSION FOR SECTION 15.249(A) 8</b>	<b>8</b>
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
<b>5. SPURIOUS RADIATED EMISSION FOR SECTION 15.249(D) .....</b>	<b>14</b>
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
<b>6. BAND EDGES .....</b>	<b>20</b>
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
<b>7. CONDUCTED EMISSION FOR FCC PART 15 SECTION 15.207(A) .....</b>	<b>23</b>
7.1. Block Diagram of Test Setup.....	23
7.2. The Emission Limit .....	23
7.3. Configuration of EUT on Measurement .....	24
7.4. Operating Condition of EUT .....	24
7.5. Test Procedure .....	24
7.6. Power Line Conducted Emission Measurement Results .....	25
<b>8. ANTENNA REQUIREMENT.....</b>	<b>28</b>
8.1. The Requirement .....	28
8.2. Antenna Construction .....	28

## APPENDIX I ( TEST CURVES) (28 pages)

## Test Report Certification

Applicant : Calasanz Technology  
 Manufacturer : Hanshin Int'l Limited  
 EUT Description : Digital Sensor  
                   (A) MODEL NO.: HSTNX-0001  
                   (B) SERIAL NO.: N/A  
                   (C) POWER SUPPLY: 5V DC (Adapter input)

Measurement Procedure Used:

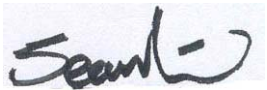
### **FCC Rules and Regulations Part 15 Subpart C Section 15.249 ANSI C63.4: 2003**

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 : April 7-9, 2010

Prepared by :   
 (Engineer)

Approved & Authorized Signer :   
 (Manager)

## 1. GENERAL INFORMATION

### 1.1. Description of Device (EUT)

EUT	:	Digital Sensor
Model Number	:	HSTNX-0001
Power Supply	:	5V DC (Adapter input)
Adapter	:	Model: FY0500500 Input: AC 100-240V, 50/60Hz, 5W Output: DC 5V, 0.5A
Operate Frequency	:	2412-2470MHz
Channel Number	:	30 Channels
Applicant Address	:	Calasanz Technology 6088 rue de Terrebonne, Montreal, Quebec H4A 1B9, Canada
Manufacturer Address	:	Hanshin Int'l Limited East Wing, 3/F., Block H, Yushu Gongye Yuan, Science City, Guangzhou, China
Date of sample received	:	March 19, 2010
Date of Test	:	April 7-9, 2010

## 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 = 3.08dB, k=2  
(9kHz-30MHz)

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

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

## 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	Jan. 9, 2011
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 9, 2011
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 9, 2011
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 9, 2011
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 9, 2011
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 9, 2011
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 9, 2011
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 9, 2011
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 9, 2011
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 9, 2011

### 3. SUMMARY OF TEST RESULTS

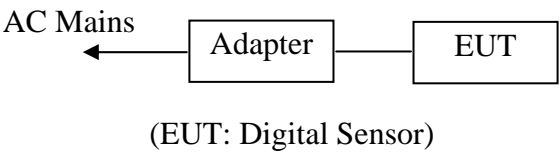
FCC Rules	Description of Test	Result
Section 15.207	Conducted Emission	Compliant
Section 15.249(a)	Fundamental and Harmonics Radiated Emission	Compliant
Section 15.249(d)	Spurious Radiated Emission	Compliant
Section 15.249(d)	Band Edge	Compliant
Section 15.203	Antenna Requirement	Compliant

Remark: “N/A” means “Not applicable”.

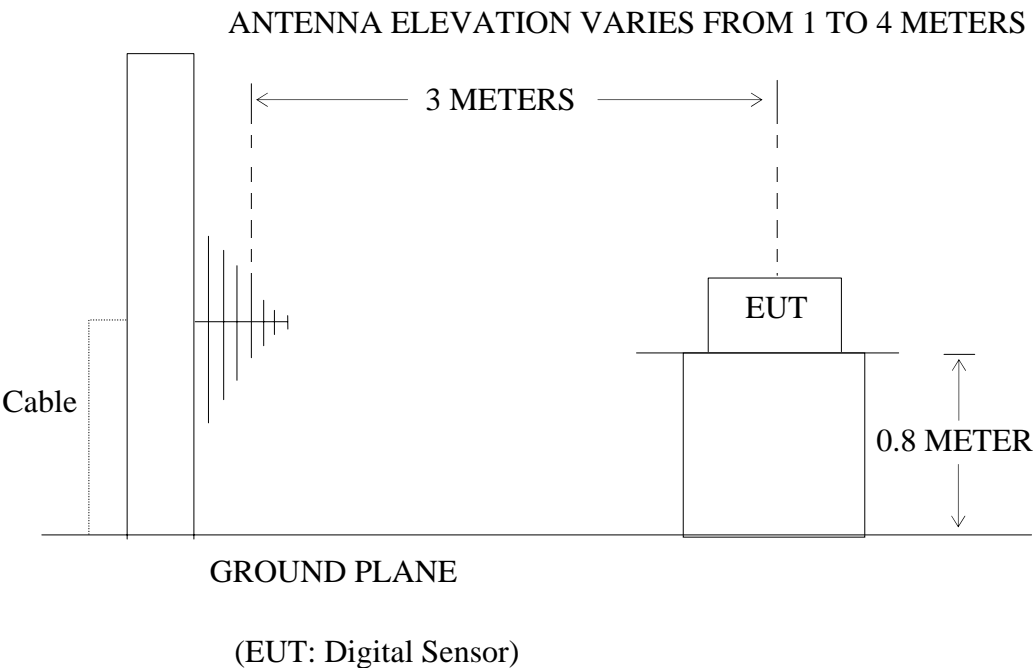
## 4. FUNDAMENTAL AND HARMONICS RADIATED EMISSION FOR SECTION 15.249(A)

### 4.1. Block Diagram of Test Setup

#### 4.1.1. Block diagram of connection between the EUT and simulators



#### 4.1.2. Semi-Anechoic Chamber Test Setup Diagram





## 4.2.The Emission Limit

4.2.1.For intentional radiators, According to section 15.249(a), Operation within the frequency band of 2.4 to 2.4835GHz, The fundamental field strength shall not exceed 94 dB $\mu$ V/m and the harmonics shall not exceed 54 dB $\mu$ 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. Digital Sensor (EUT)

Model Number : HSTNX-0001  
 Serial Number : N/A  
 Manufacturer : Hanshin Int'l Limited

## 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 2412-2470MHz. We are select 2412MHz, 2440MHz, 2470MHz TX frequency to transmit.

#### 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 1MHz.

## 4.6.The Field Strength of Radiation Emission Measurement Results

### PASS.

Date of Test:	<u>April 7, 2010</u>	Temperature:	<u>25°C</u>
EUT:	<u>Digital Sensor</u>	Humidity:	<u>50%</u>
			<u>5V DC (Adapter input)</u>
Model No.:	<u>HSTNX-0001</u>	Power Supply:	<u>Adapter power: AC120V/60Hz</u>
Test Mode:	<u>TX Channel 1: 2412MHz</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	
2412.018	96.61	102.65	-7.43	89.18	95.22	94	114	-4.82	-18.78	Vertical
2412.018	96.24	102.28	-7.43	88.81	94.85	94	114	-5.19	-19.15	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	
4824.030	46.40	52.41	-0.19	46.21	52.22	54	74	-7.79	-21.78	Vertical
4824.030	46.45	52.48	-0.19	46.26	52.29	54	74	-7.74	-21.71	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: April 7, 2010  
 EUT: Digital Sensor

Temperature: 25°C  
 Humidity: 50%

Model No.: HSTNX-0001  
 Test Mode: TX Channel 15: 2440MHz

5V DC (Adapter input)  
 Power Supply: Adapter power: AC120V/60Hz  
 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	
2440.012	96.36	102.42	-7.36	89.00	95.06	94	114	-5.00	-18.94	Vertical
2440.012	95.92	101.94	-7.36	88.56	94.58	94	114	-5.44	-19.42	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	
4880.022	45.76	51.77	0.13	45.89	51.90	54	74	-8.11	-22.10	Vertical
4880.022	46.26	52.25	0.13	46.39	52.38	54	74	-7.61	-21.62	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: April 7, 2010  
EUT: Digital Sensor

Temperature: 25°C  
Humidity: 50%

Model No.: HSTNX-0001  
Test Mode: TX Channel 30: 2470MHz

5V DC (Adapter input)  
Power Supply: Adapter power: AC120V/60Hz  
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	
2470.016	96.58	102.58	-7.36	89.22	95.22	94	114	-4.78	-18.78	Vertical
2470.016	95.94	101.99	-7.36	88.58	94.63	94	114	-5.42	-19.37	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	
4940.028	47.41	53.43	0.42	47.83	53.85	54	74	-6.17	-20.15	Vertical
4940.028	45.79	51.81	0.42	46.21	52.23	54	74	-7.79	-21.77	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:

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

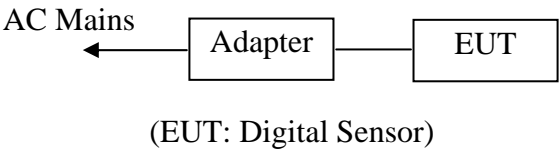
$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$

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

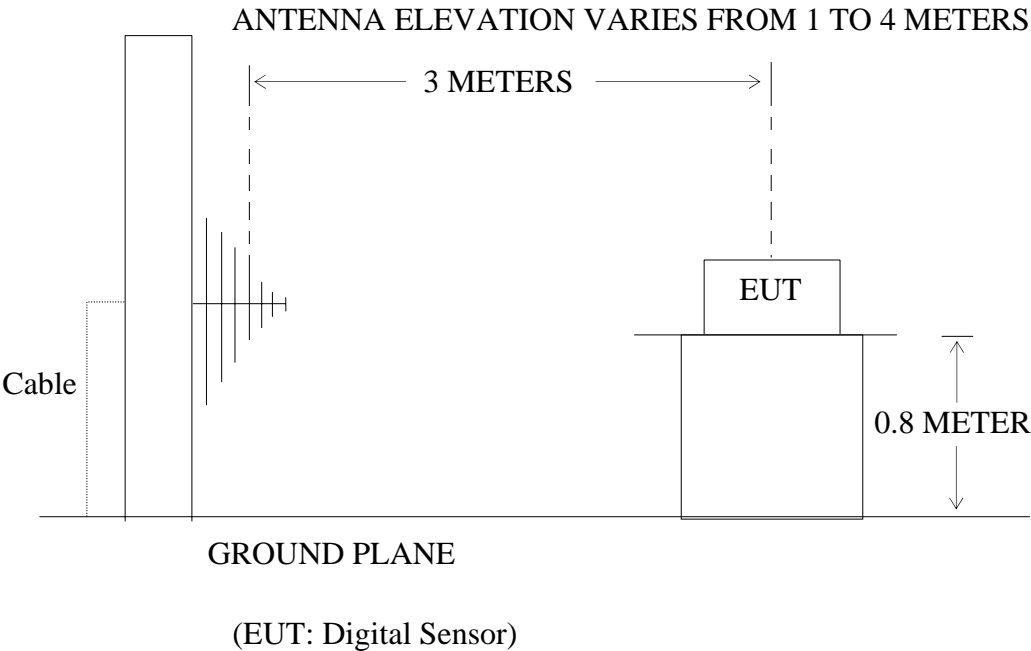
## 5. SPURIOUS RADIATED EMISSION FOR SECTION 15.249(D)

### 5.1. Block Diagram of Test Setup

#### 5.1.1. Block diagram of connection between the EUT and simulators



#### 5.1.2. Semi-Anechoic Chamber Test Setup Diagram



## 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 (dBμV/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 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. Digital Sensor (EUT)

Model Number : HSTNX-0001  
 Serial Number : N/A  
 Manufacturer : Hanshin Int'l Limited

## 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 2412-2470MHz. We are select 2412MHz, 2440MHz, 2470MHz TX frequency to transmit.

## 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 25000MHz 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>April 7, 2010</u>	Temperature:	<u>25°C</u>
EUT:	<u>Digital Sensor</u>	Humidity:	<u>50%</u>
			<u>5V DC (Adapter input)</u>
Model No.:	<u>HSTNX-0001</u>	Power Supply:	<u>Adapter power: AC120V/60Hz</u>
Test Mode:	<u>TX Channel 1: 2412MHz</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	
48.0010	15.05	14.65	29.70	40.00	-10.30	Vertical
144.0020	13.43	14.48	27.91	43.50	-15.59	Vertical
420.0020	12.42	23.20	35.62	46.00	-10.38	Vertical
420.0020	13.49	23.20	36.69	46.00	-9.31	Horizontal
623.9970	12.45	26.05	38.50	46.00	-7.50	Horizontal
671.9980	14.67	26.17	40.84	46.00	-5.16	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: April 7, 2010  
 EUT: Digital Sensor

Temperature: 25°C  
 Humidity: 50%  
 5V DC (Adapter input)

Model No.: HSTNX-0001  
 Test Mode: TX Channel 15: 2440MHz

Power Supply: Adapter power: AC120V/60Hz  
 Test Engineer: Joe

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
48.0010	12.51	14.65	27.16	40.00	-12.84	Vertical
144.0020	14.20	14.48	28.68	43.50	-14.82	Vertical
504.0000	13.11	24.01	37.12	46.00	-8.88	Vertical
504.0000	12.86	24.01	36.87	46.00	-9.13	Horizontal
623.9970	13.96	26.05	40.01	46.00	-5.99	Horizontal
671.9980	14.46	26.17	40.63	46.00	-5.37	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: April 7, 2010  
 EUT: Digital Sensor

Temperature: 25°C  
 Humidity: 50%  
 5V DC (Adapter input)

Model No.: HSTNX-0001  
 Test Mode: TX Channel 30: 2470MHz

Power Supply: Adapter power: AC120V/60Hz  
 Test Engineer: Joe

Frequency (MHz)	Reading (dB $\mu$ V/m)	Factor(dB) Corr.	Result (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
48.0010	11.37	14.65	26.02	40.00	-13.98	Vertical
144.0020	13.67	14.48	28.15	43.50	-15.35	Vertical
504.0000	12.84	24.01	36.85	46.00	-9.15	Vertical
480.0010	13.07	23.86	36.93	46.00	-9.07	Horizontal
623.9970	14.06	26.05	40.11	46.00	-5.89	Horizontal
671.9980	13.60	26.17	39.77	46.00	-6.23	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 2400MHz to 2483.5MHz. 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. Digital Sensor (EUT)

Model Number	:	HSTNX-0001
Serial Number	:	N/A
Manufacturer	:	Hanshin Int'l Limited

### 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 2412-2470MHz. We are select 2412MHz, 2470MHz TX frequency to transmit.

### 6.4.Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:  
RBW=1MHz, VBW=1MHz

## 6.5.The Measurement Result

**Pass.**

Date of Test:	<u>April 7, 2010</u>	Temperature:	<u>25°C</u>
EUT:	<u>Digital Sensor</u>	Humidity:	<u>50%</u>
			<u>5V DC (Adapter input)</u>
Model No.:	<u>HSTNX-0001</u>	Power Supply:	<u>Adapter power: AC120V/60Hz</u>
Test Mode:	<u>TX Channel 1: 2412MHz</u>	Test Engineer:	<u>Joe</u>

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	
2400.000	49.71	55.84	-7.46	42.25	48.38	54	74	-11.75	-25.62	Vertical
2400.000	49.70	55.83	-7.46	42.24	48.37	54	74	-11.76	-25.63	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:

Result = Reading + 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>April 7, 2010</u>	Temperature:	<u>25°C</u>
EUT:	<u>Digital Sensor</u>	Humidity:	<u>50%</u>
			<u>5V DC (Adapter input)</u>
Model No.:	<u>HSTNX-0001</u>	Power Supply:	<u>Adapter power: AC120V/60Hz</u>
Test Mode:	<u>TX Channel 30: 2470MHz</u>	Test Engineer:	<u>Joe</u>

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	
2483.500	45.94	52.09	-7.37	38.57	44.72	54	74	-15.43	-29.28	Vertical
2483.500	48.89	55.01	-7.37	41.52	47.64	54	74	-12.48	-26.36	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:

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

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

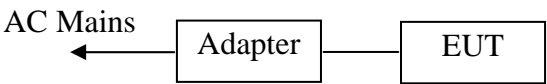
3. The spectral diagrams in appendix I display the measurement of peak values.

# 7. CONDUCTED EMISSION FOR FCC PART 15 SECTION

## 15.207(A)

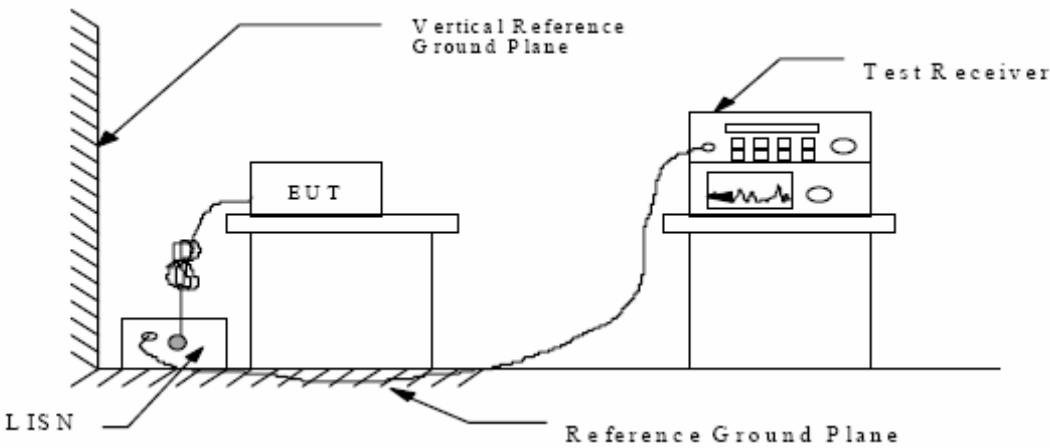
### 7.1. Block Diagram of Test Setup

#### 7.1.1. Block diagram of connection between the EUT and simulators



(EUT: Digital Sensor)

#### 7.1.2. Shielding Room Test Setup Diagram



(EUT: Digital Sensor)

### 7.2. The Emission Limit

#### 7.2.1. Conducted Emission Measurement Limits According to Section 15.207(a)

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

\* Decreases with the logarithm of the frequency.

### 7.3.Configuration of EUT on Measurement

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

#### 7.3.1.Digital Sensor (EUT)

Model Number : HSTNX-0001  
Serial Number : N/A  
Manufacturer : Hanshin Int'l Limited

### 7.4.Operating Condition of EUT

7.4.1.Setup the EUT and simulator as shown as Section 7.1.

7.4.2.Turn on the power of all equipment.

7.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2412-2470MHz. We are select 2412MHz, 2440MHz, 2470MHz TX frequency to transmit.

### 7.5.Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2003 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

All the scanning waveforms are attached in Appendix I.



## 7.6.Power Line Conducted Emission Measurement Results

### PASS.

The frequency range from 150kHz to 30MHz is checked.

Date of Test:	April 9, 2010	Temperature:	25°C
EUT:	Digital Sensor	Humidity:	50%
			5V DC (Adapter input)
Model No.:	HSTNX-0001	Power Supply:	Adapter power: AC120V/60Hz
Test Mode:	TX Channel 1: 2412MHz	Test Engineer:	Joe

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.232499	52.70	11.4	62	9.7	QP	L1	GND
0.290613	57.60	11.5	61	2.9	QP	L1	GND
0.349066	49.80	11.7	59	9.2	QP	L1	GND
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.290613	43.60	11.5	51	6.9	AV	L1	GND
0.349066	37.00	11.7	49	12.0	AV	L1	GND
0.698191	30.80	11.9	46	15.2	AV	L1	GND
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.230653	52.10	11.4	62	10.3	QP	N	GND
0.290613	57.70	11.5	61	2.8	QP	N	GND
0.349066	49.70	11.7	59	9.3	QP	N	GND
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.290613	43.30	11.5	51	7.2	AV	N	GND
0.349066	36.60	11.7	49	12.4	AV	N	GND
0.698191	30.70	11.9	46	15.3	AV	N	GND

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

Date of Test:	April 9, 2010	Temperature:	25°C
EUT:	Digital Sensor	Humidity:	50%
			5V DC (Adapter input)
Model No.:	HSTNX-0001	Power Supply:	Adapter power: AC120V/60Hz
Test Mode:	TX Channel 15: 2440MHz	Test Engineer:	Joe

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.232499	52.60	11.4	62	9.8	QP	L1	GND
0.290613	57.50	11.5	61	3.0	QP	L1	GND
0.349066	49.80	11.7	59	9.2	QP	L1	GND
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.290613	44.00	11.5	51	6.5	AV	L1	GND
0.349066	37.10	11.7	49	11.9	AV	L1	GND
0.698191	30.50	11.9	46	15.5	AV	L1	GND
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.232499	53.10	11.4	62	9.3	QP	N	GND
0.290613	57.80	11.5	61	2.7	QP	N	GND
0.349066	50.10	11.7	59	8.9	QP	N	GND
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.232499	36.90	11.4	52	15.5	AV	N	GND
0.290613	43.80	11.5	51	6.7	AV	N	GND
0.349066	37.20	11.7	49	11.8	AV	N	GND

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

Date of Test:	April 9, 2010	Temperature:	25°C
EUT:	Digital Sensor	Humidity:	50%
			5V DC (Adapter input)
Model No.:	HSTNX-0001	Power Supply:	Adapter power: AC120V/60Hz
Test Mode:	TX Channel 30: 2470MHz	Test Engineer:	Joe

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.234359	52.50	11.4	62	9.8	QP	L1	GND
0.292938	57.50	11.6	60	2.9	QP	L1	GND
0.351859	49.70	11.7	59	9.2	QP	L1	GND
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.234359	36.60	11.4	52	15.7	AV	L1	GND
0.290613	43.50	11.5	51	7.0	AV	L1	GND
0.351859	36.80	11.7	49	12.1	AV	L1	GND
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.232499	52.60	11.4	62	9.8	QP	N	GND
0.290613	57.40	11.5	61	3.1	QP	N	GND
0.351859	49.60	11.7	59	9.3	QP	N	GND
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.290613	43.50	11.5	51	7.0	AV	N	GND
0.349066	37.00	11.7	49	12.0	AV	N	GND
0.937591	30.70	11.8	46	15.3	AV	N	GND

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

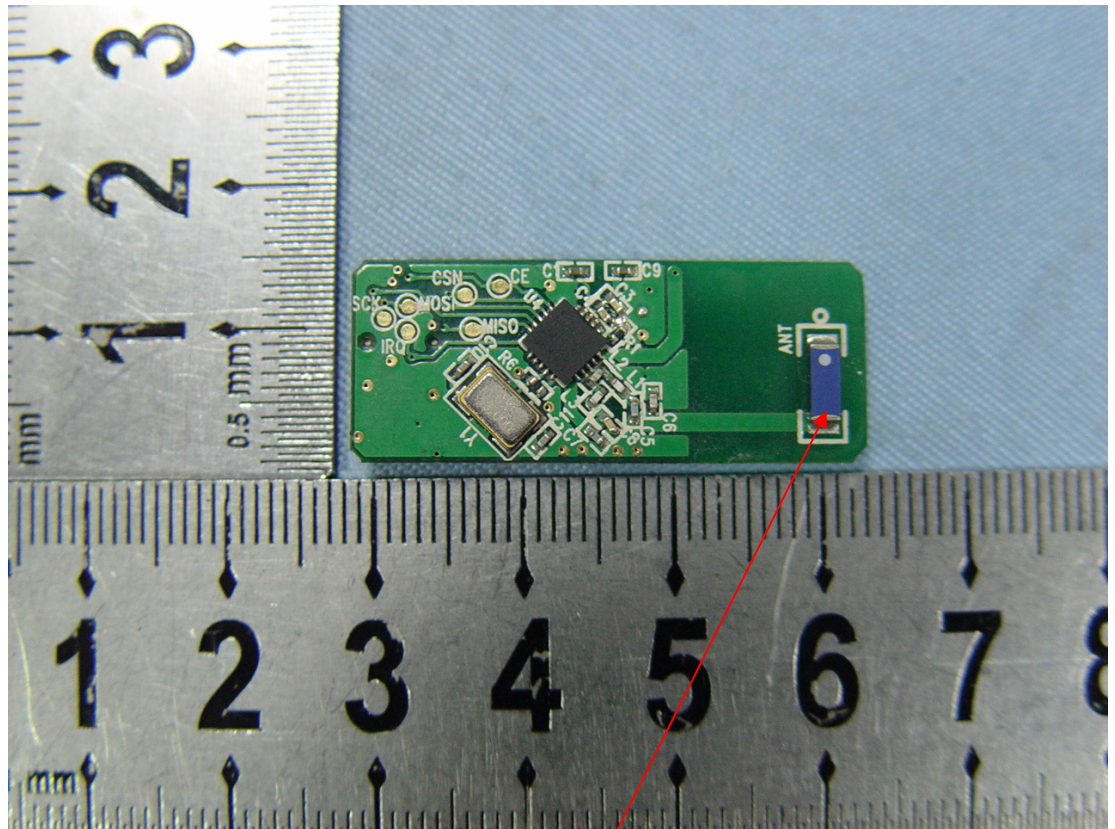
## 8. ANTENNA REQUIREMENT

### 8.1.The Requirement

8.1.1. 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.

### 8.2.Antenna Construction

The transmitter utilizes SMD chip antenna, no consideration of replacement.



Antenna

# APPENDIX I (Test Curves)


**ACCURATE TECHNOLOGY CO., LTD.**

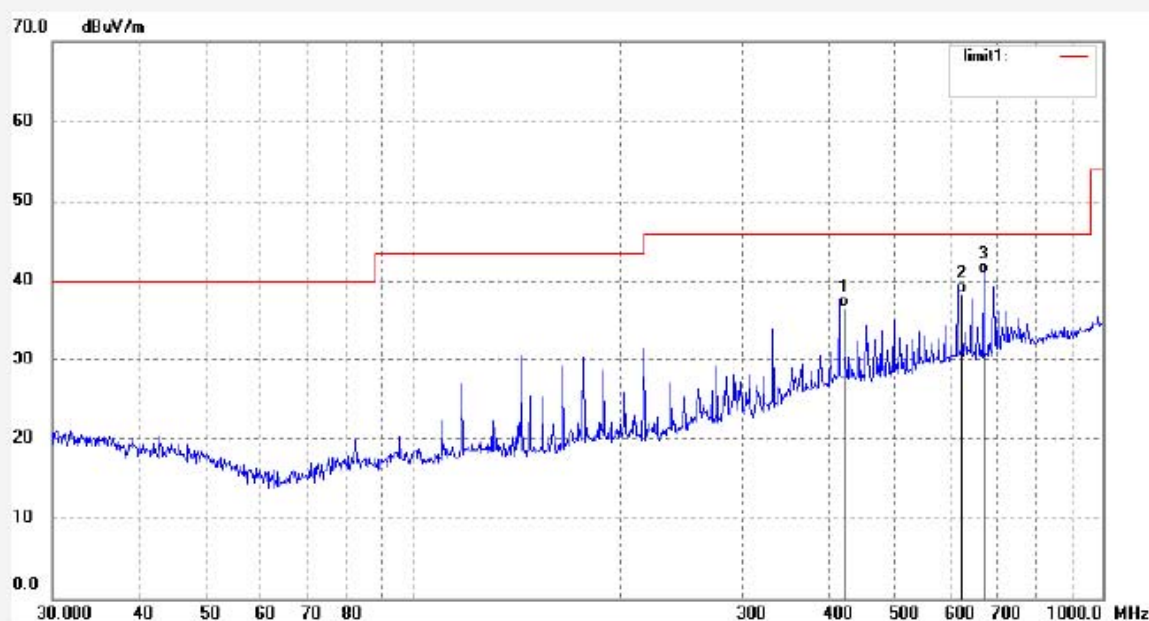
 F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
 Science & Industry Park,Nanshan Shenzhen,P.R.China

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

 Job No.: RTTE #4444  
 Standard: FCC Class B 3M Radiated  
 Test item: Radiation Test  
 Temp.( C)/Hum.(%) 25 C / 50 %  
 EUT: Digital Sensor  
 Mode: TX Channel 1  
 Model: HSTNX-0001  
 Manufacturer: Hanshin int'l Limited

 Polarization: Horizontal  
 Power Source: AC 120V/60Hz  
 Date: 10/04/07/  
 Time: 9/16/26  
 Engineer Signature: Joe  
 Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	420.0020	13.49	23.20	36.69	46.00	-9.31	QP			
2	623.9970	12.45	26.05	38.50	46.00	-7.50	QP			
3	671.9980	14.67	26.17	40.84	46.00	-5.16	QP			


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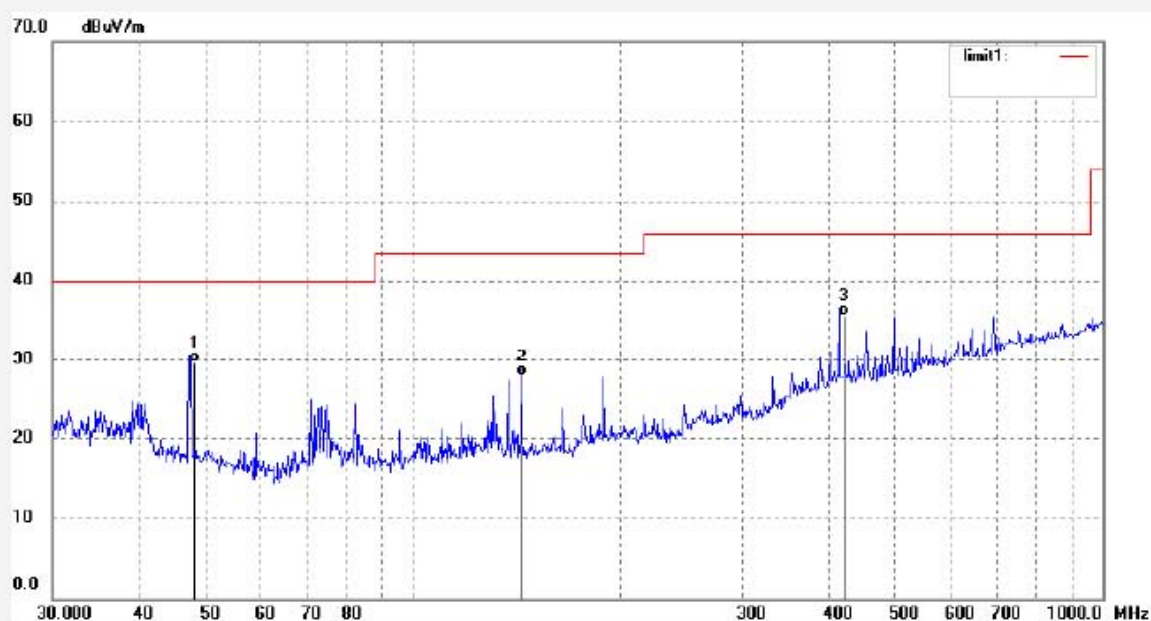
 F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
 Science & Industry Park,Nanshan Shenzhen,P.R.China

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

 Job No.: RTTE #4445  
 Standard: FCC Class B 3M Radiated  
 Test item: Radiation Test  
 Temp.( C)/Hum.(%) 25 C / 50 %  
 EUT: Digital Sensor  
 Mode: TX Channel 1  
 Model: HSTNX-0001  
 Manufacturer: Hanshin int'l Limited

 Polarization: Vertical  
 Power Source: AC 120V/60Hz  
 Date: 10/04/07/  
 Time: 9/20/10  
 Engineer Signature: Joe  
 Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	48.0010	15.05	14.65	29.70	40.00	-10.30	QP			
2	144.0020	13.43	14.48	27.91	43.50	-15.59	QP			
3	420.0020	12.42	23.20	35.62	46.00	-10.38	QP			




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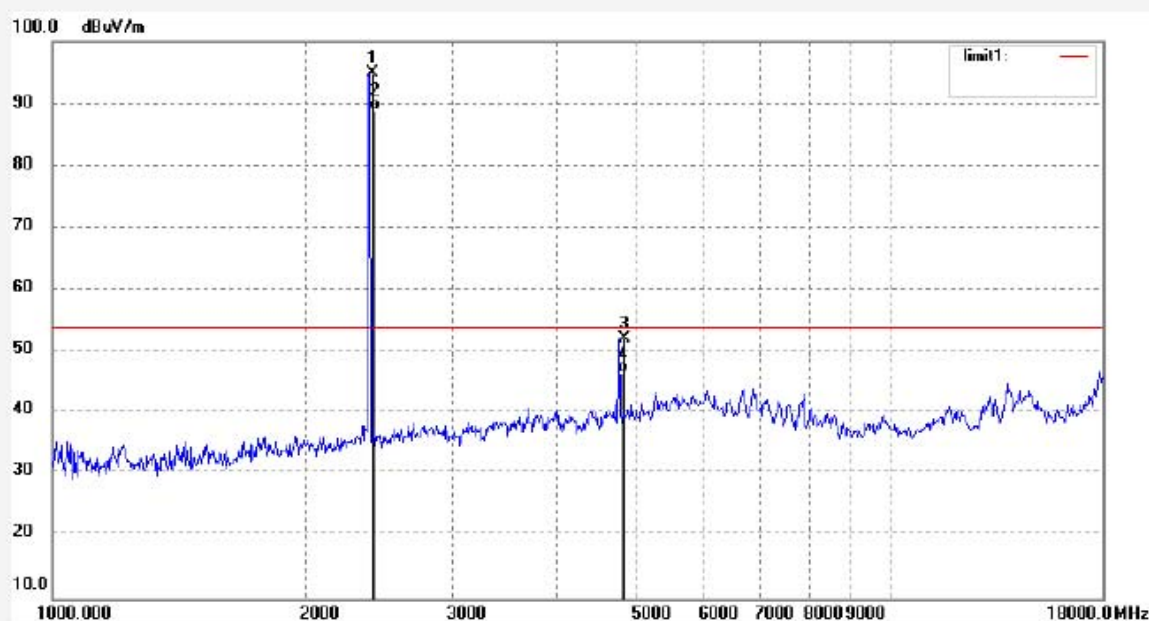
 F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
 Science & Industry Park,Nanshan Shenzhen,P.R.China

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

 Job No.: RTTE #4456  
 Standard: FCC Class B 3M Radiated  
 Test item: Radiation Test  
 Temp.( C)/Hum.(%) 25 C / 50 %  
 EUT: Digital Sensor  
 Mode: TX Channel 1  
 Model: HSTNX-0001  
 Manufacturer: Hanshin int'l Limited

 Polarization: Horizontal  
 Power Source: AC 120V/60Hz  
 Date: 10/04/07/  
 Time: 10/35/50  
 Engineer Signature: Joe  
 Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2412.018	102.28	-7.43	94.85	114.00	-19.15	peak			
2	2412.018	96.24	-7.43	88.81	94.00	-5.19	AVG			
3	4824.030	52.48	-0.19	52.29	74.00	-21.71	peak			
4	4824.030	46.45	-0.19	46.26	54.00	-7.74	AVG			




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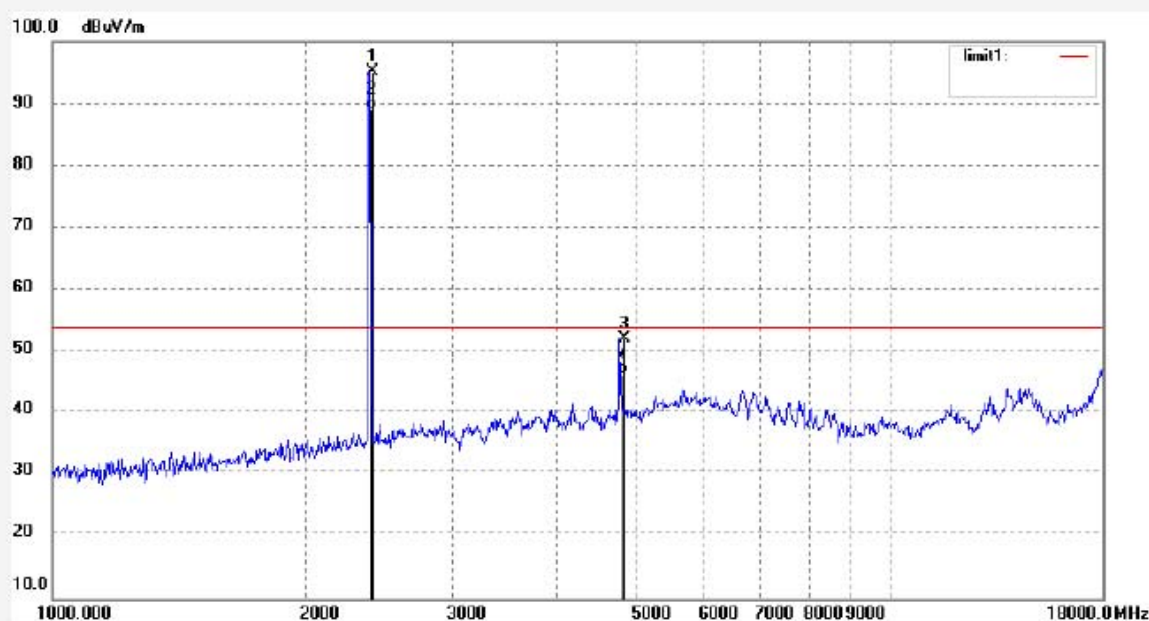
 F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
 Science & Industry Park,Nanshan Shenzhen,P.R.China

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

 Job No.: RTTE #4457  
 Standard: FCC Class B 3M Radiated  
 Test item: Radiation Test  
 Temp.( C)/Hum.(%) 25 C / 50 %  
 EUT: Digital Sensor  
 Mode: TX Channel 1  
 Model: HSTNX-0001  
 Manufacturer: Hanshin int'l Limited

 Polarization: Vertical  
 Power Source: AC 120V/60Hz  
 Date: 10/04/07/  
 Time: 10/40/03  
 Engineer Signature: Joe  
 Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2412.018	102.65	-7.43	95.22	114.00	-18.78	peak			
2	2412.018	96.61	-7.43	89.18	94.00	-4.82	AVG			
3	4824.030	52.41	-0.19	52.22	74.00	-21.78	peak			
4	4824.030	46.40	-0.19	46.21	54.00	-7.79	AVG			


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Site: 966 chamber

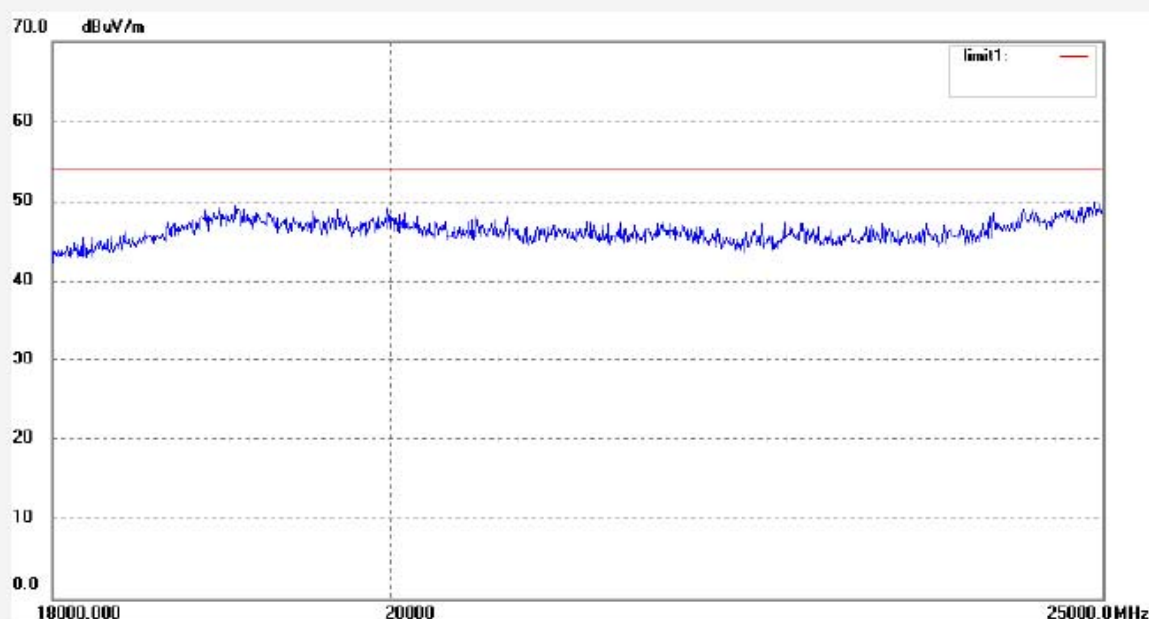
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: RTTE #4460  
 Standard: FCC Class B 3M Radiated  
 Test item: Radiation Test  
 Temp.( C)/Hum.(%) 25 C / 50 %  
 EUT: Digital Sensor  
 Mode: TX Channel 1  
 Model: HSTNX-0001  
 Manufacturer: Hanshin int'l Limited

Polarization: Horizontal  
 Power Source: AC 120V/60Hz  
 Date: 10/04/07/  
 Time: 11/00/23  
 Engineer Signature: Joe  
 Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



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 #4461

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 50 %

EUT: Digital Sensor

Mode: TX Channel 1

Model: HSTNX-0001

Manufacturer: Hanshin int'l Limited

Polarization: Vertical

Power Source: AC 120V/60Hz

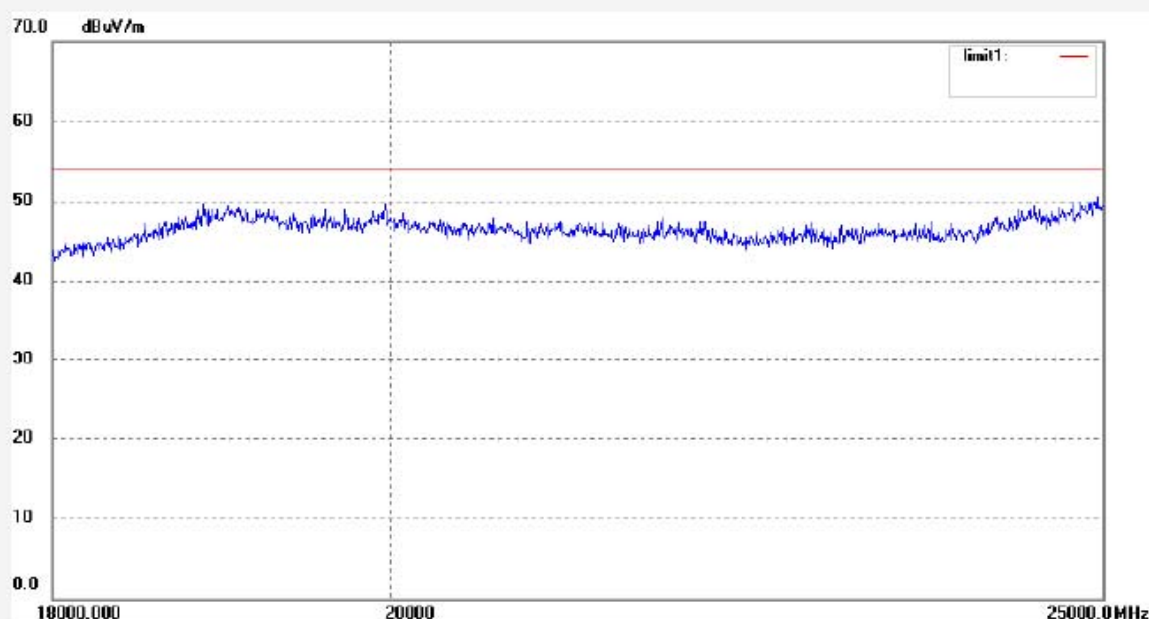
Date: 10/04/07/

Time: 11/04/59

Engineer Signature: Joe

Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



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

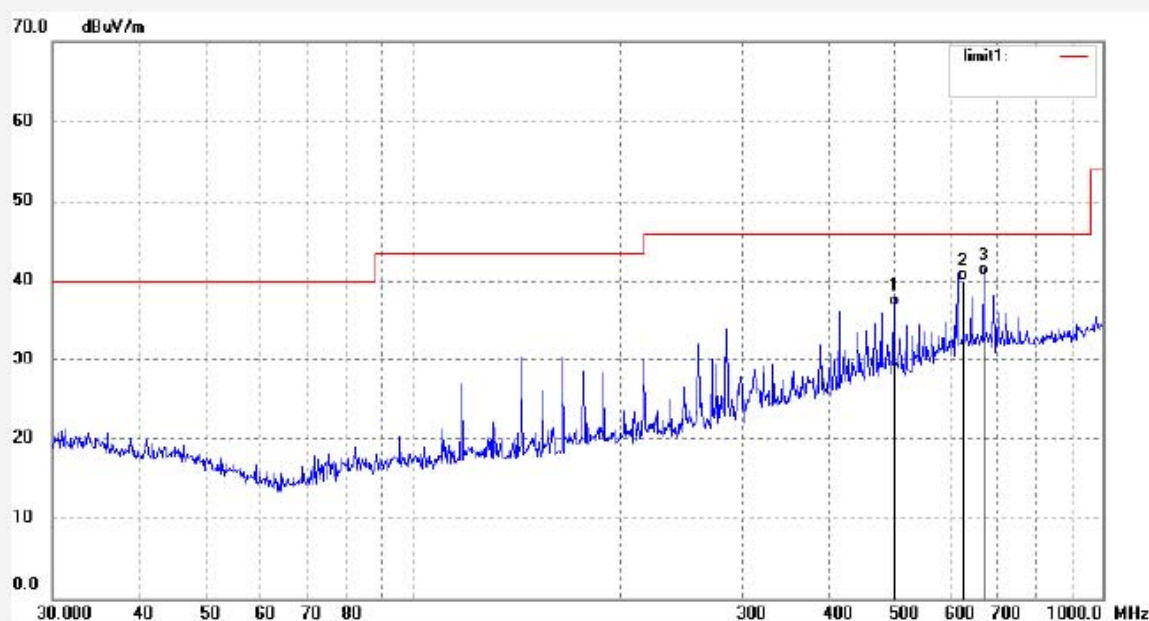
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: RTTE #4447  
 Standard: FCC Class B 3M Radiated  
 Test item: Radiation Test  
 Temp.( C)/Hum.(%) 25 C / 50 %  
 EUT: Digital Sensor  
 Mode: TX Channel 15  
 Model: HSTNX-0001  
 Manufacturer: Hanshin int'l Limited

Polarization: Horizontal  
 Power Source: AC 120V/60Hz  
 Date: 10/04/07/  
 Time: 9/28/31  
 Engineer Signature: Joe  
 Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	504.0000	12.86	24.01	36.87	46.00	-9.13	QP			
2	623.9970	13.96	26.05	40.01	46.00	-5.99	QP			
3	671.9980	14.46	26.17	40.63	46.00	-5.37	QP			


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 Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: RTTE #4446

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 50 %

EUT: Digital Sensor

Mode: TX Channel 15

Model: HSTNX-0001

Manufacturer: Hanshin int'l Limited

Polarization: Vertical

Power Source: AC 120V/60Hz

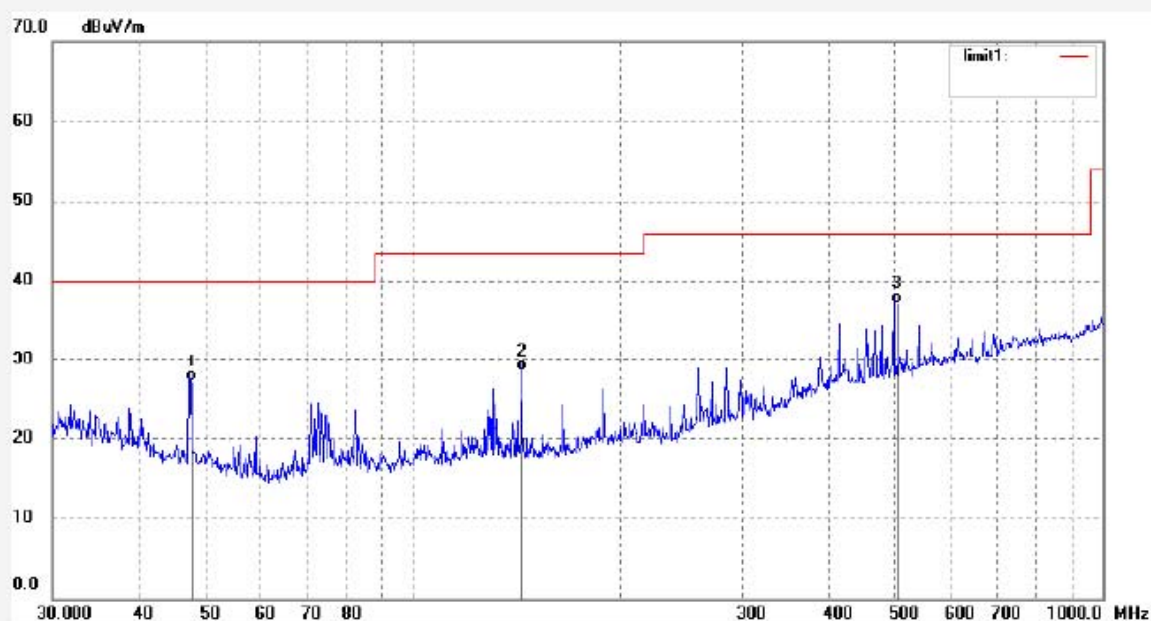
Date: 10/04/07/

Time: 9/24/50

Engineer Signature: Joe

Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	48.0010	12.51	14.65	27.16	40.00	-12.84	QP			
2	144.0020	14.20	14.48	28.68	43.50	-14.82	QP			
3	504.0000	13.11	24.01	37.12	46.00	-8.88	QP			




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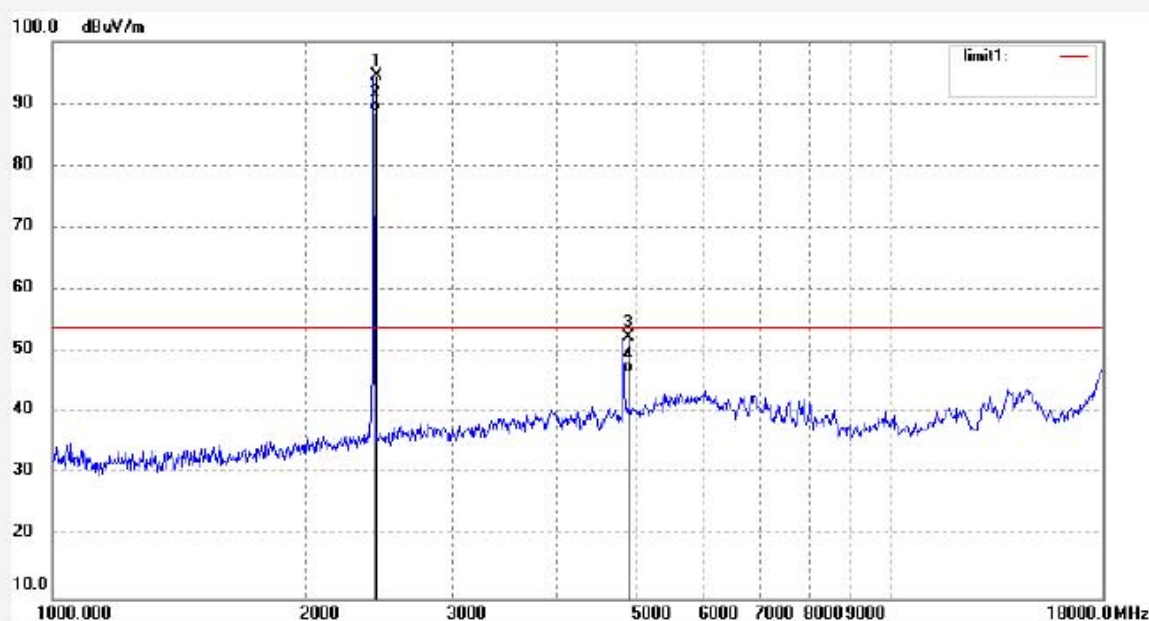
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 Science & Industry Park,Nanshan Shenzhen,P.R.China

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

 Job No.: RTTE #4459  
 Standard: FCC Class B 3M Radiated  
 Test item: Radiation Test  
 Temp.( C)/Hum.(%) 25 C / 50 %  
 EUT: Digital Sensor  
 Mode: TX Channel 15  
 Model: HSTNX-0001  
 Manufacturer: Hanshin int'l Limited

 Polarization: Horizontal  
 Power Source: AC 120V/60Hz  
 Date: 10/04/07/  
 Time: 10/50/52  
 Engineer Signature: Joe  
 Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.012	101.94	-7.36	94.58	114.00	-19.42	peak			
2	2440.012	95.92	-7.36	88.56	94.00	-5.44	AVG			
3	4880.022	52.25	0.13	52.38	74.00	-21.62	peak			
4	4880.022	46.26	0.13	46.39	54.00	-7.61	AVG			


**ACCURATE TECHNOLOGY CO., LTD.**

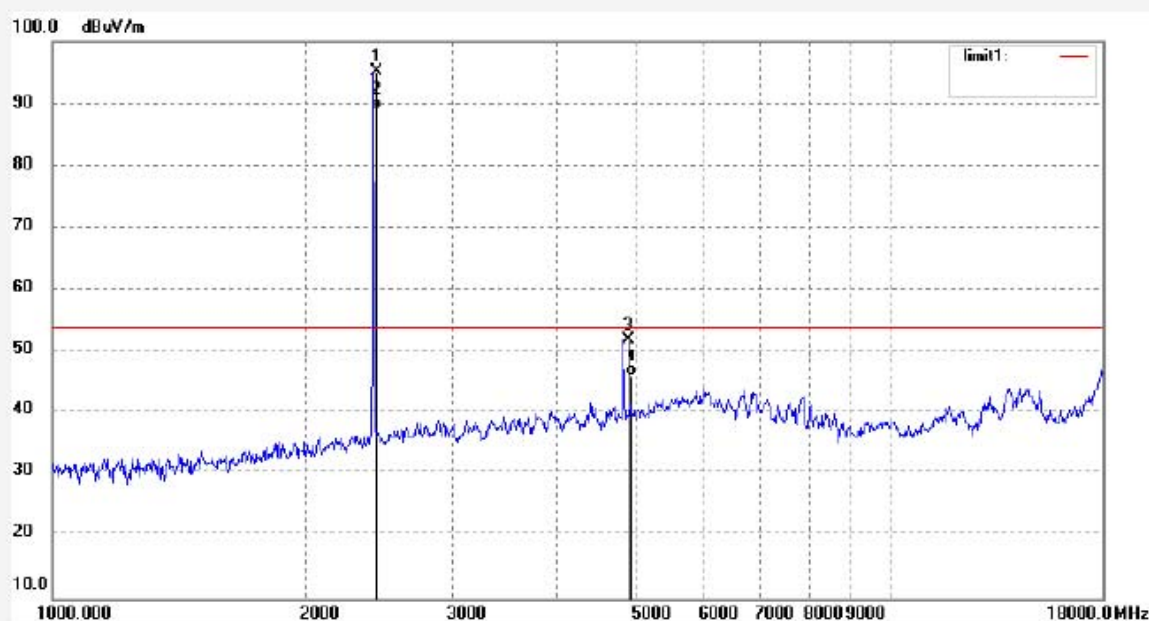
 F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
 Science & Industry Park,Nanshan Shenzhen,P.R.China

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

 Job No.: RTTE #4458  
 Standard: FCC Class B 3M Radiated  
 Test item: Radiation Test  
 Temp.( C)/Hum.(%) 25 C / 50 %  
 EUT: Digital Sensor  
 Mode: TX Channel 15  
 Model: HSTNX-0001  
 Manufacturer: Hanshin int'l Limited

 Polarization: Vertical  
 Power Source: AC 120V/60Hz  
 Date: 10/04/07/  
 Time: 10/46/37  
 Engineer Signature: Joe  
 Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.012	102.42	-7.36	95.06	114.00	-18.94	peak			
2	2440.012	96.36	-7.36	89.00	94.00	-5.00	AVG			
3	4880.022	51.77	0.13	51.90	74.00	-22.10	peak			
4	4880.022	45.76	0.13	45.89	54.00	-8.11	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

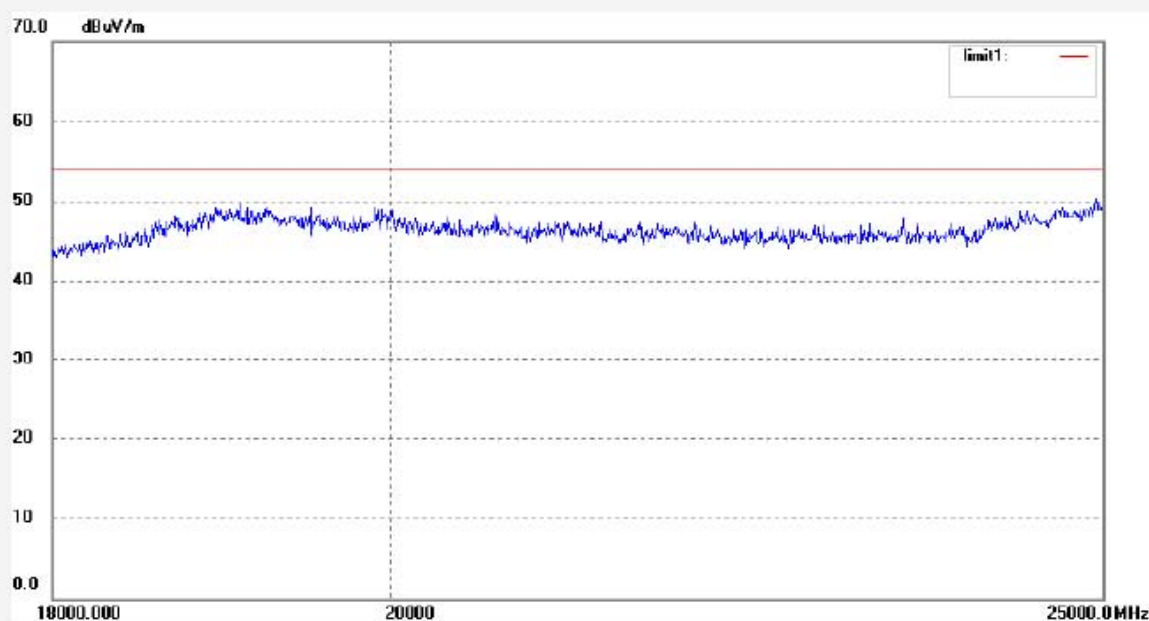
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: RTTE #4463  
 Standard: FCC Class B 3M Radiated  
 Test item: Radiation Test  
 Temp.( C)/Hum.(%) 25 C / 50 %  
 EUT: Digital Sensor  
 Mode: TX Channel 15  
 Model: HSTNX-0001  
 Manufacturer: Hanshin int'l Limited

Polarization: Horizontal  
 Power Source: AC 120V/60Hz  
 Date: 10/04/07/  
 Time: 11/13/49  
 Engineer Signature: Joe  
 Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



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 #4462

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 50 %

EUT: Digital Sensor

Mode: TX Channel 15

Model: HSTNX-0001

Manufacturer: Hanshin int'l Limited

Polarization: Vertical

Power Source: AC 120V/60Hz

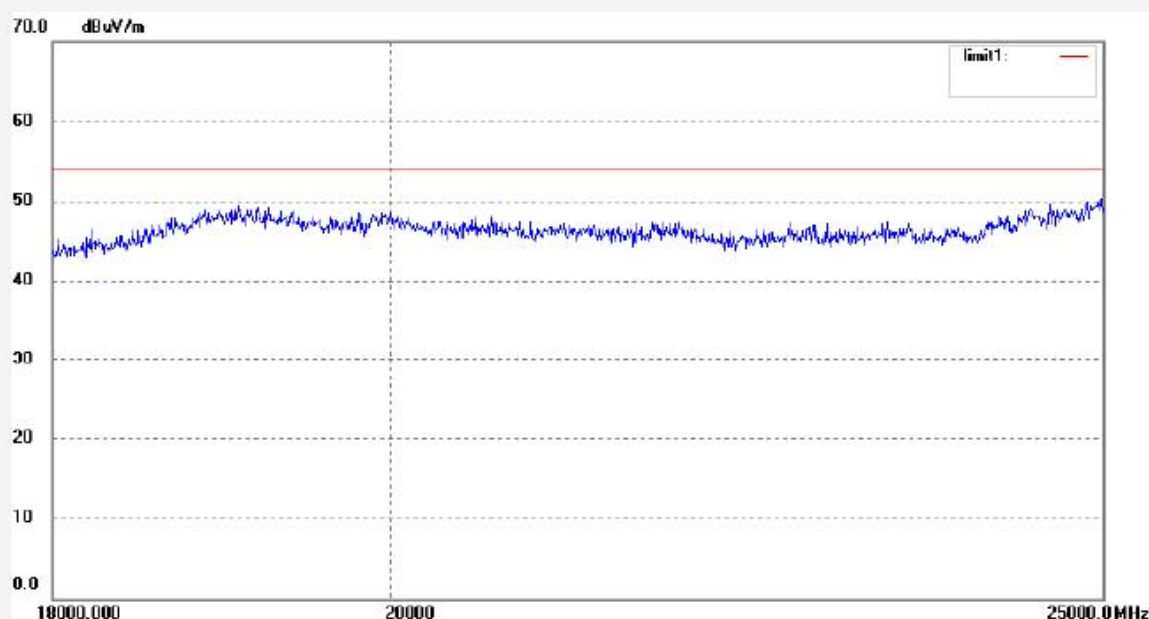
Date: 10/04/07/

Time: 11/09/33

Engineer Signature: Joe

Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



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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**ACCURATE TECHNOLOGY CO., LTD.**

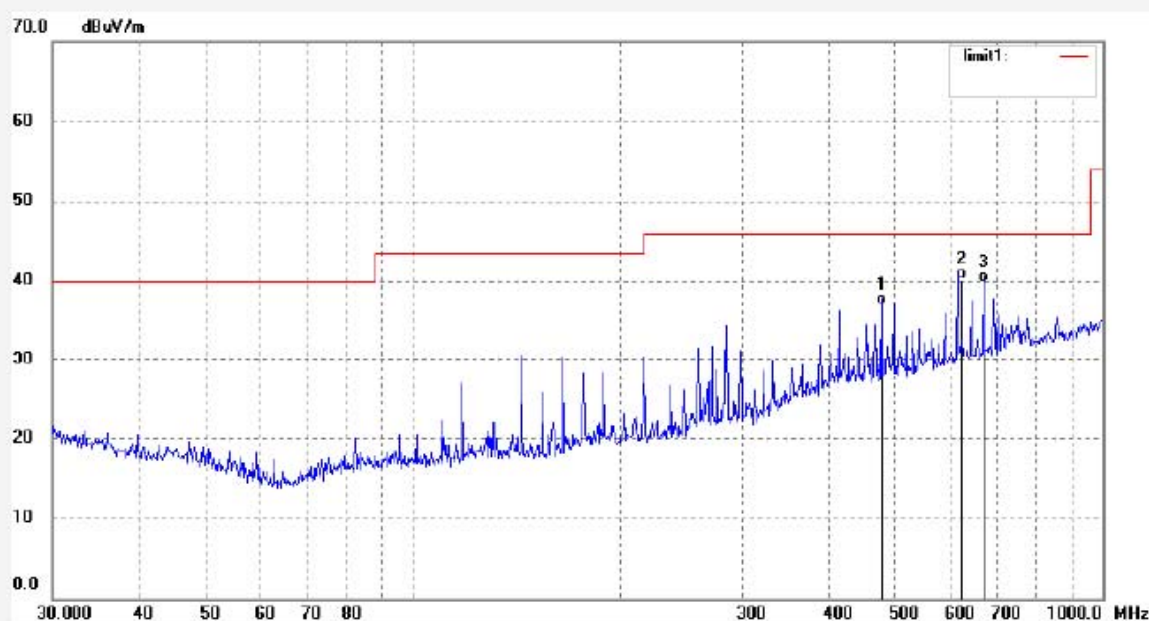
 F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
 Science & Industry Park,Nanshan Shenzhen,P.R.China

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

 Job No.: RTTE #4448  
 Standard: FCC Class B 3M Radiated  
 Test item: Radiation Test  
 Temp.( C)/Hum.(%) 25 C / 50 %  
 EUT: Digital Sensor  
 Mode: TX Channel 30  
 Model: HSTNX-0001  
 Manufacturer: Hanshin int'l Limited

 Polarization: Horizontal  
 Power Source: AC 120V/60Hz  
 Date: 10/04/07/  
 Time: 9/33/33  
 Engineer Signature: Joe  
 Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	480.0010	13.07	23.86	36.93	46.00	-9.07	QP			
2	623.9970	14.06	26.05	40.11	46.00	-5.89	QP			
3	671.9980	13.60	26.17	39.77	46.00	-6.23	QP			



# **ACCURATE TECHNOLOGY CO., LTD.**

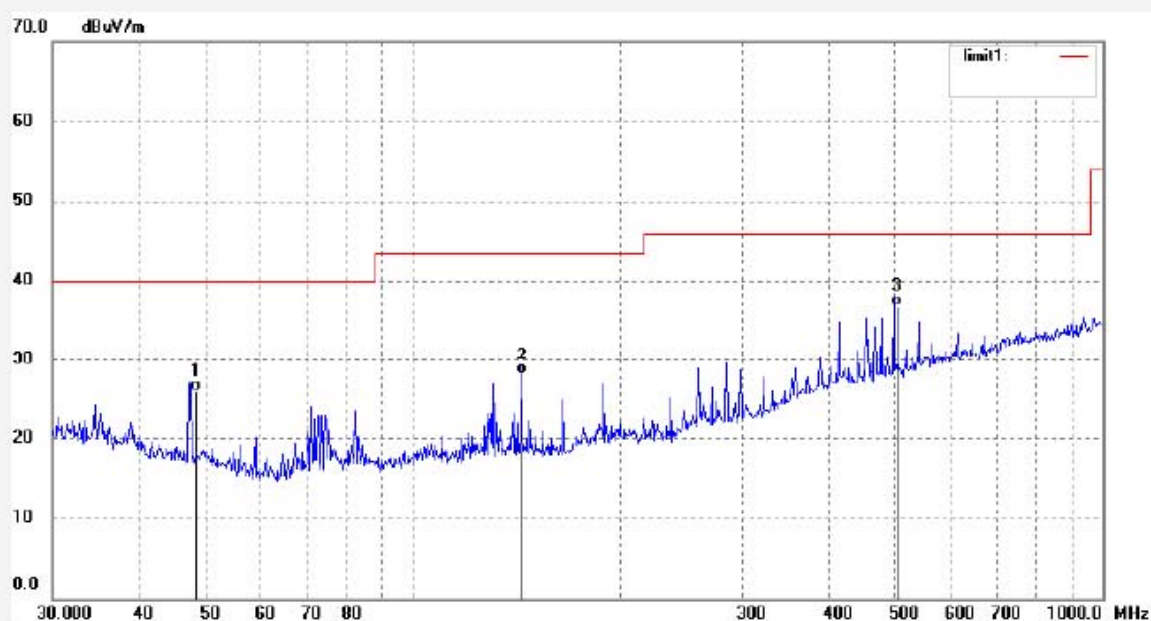
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: RTTE #4449  
Standard: FCC Class B 3M Radiated  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 25 C / 50 %  
EUT: Digital Sensor  
Mode: TX Channel 30  
Model: HSTNX-0001  
Manufacturer: Hanshin int'l Limited

Polarization: Vertical  
Power Source: AC 120V/60Hz  
Date: 10/04/07/  
Time: 9/37/20  
Engineer Signature: Joe  
Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	48.0010	11.37	14.65	26.02	40.00	-13.98	QP			
2	144.0020	13.67	14.48	28.15	43.50	-15.35	QP			
3	504.0000	12.84	24.01	36.85	46.00	-9.15	QP			


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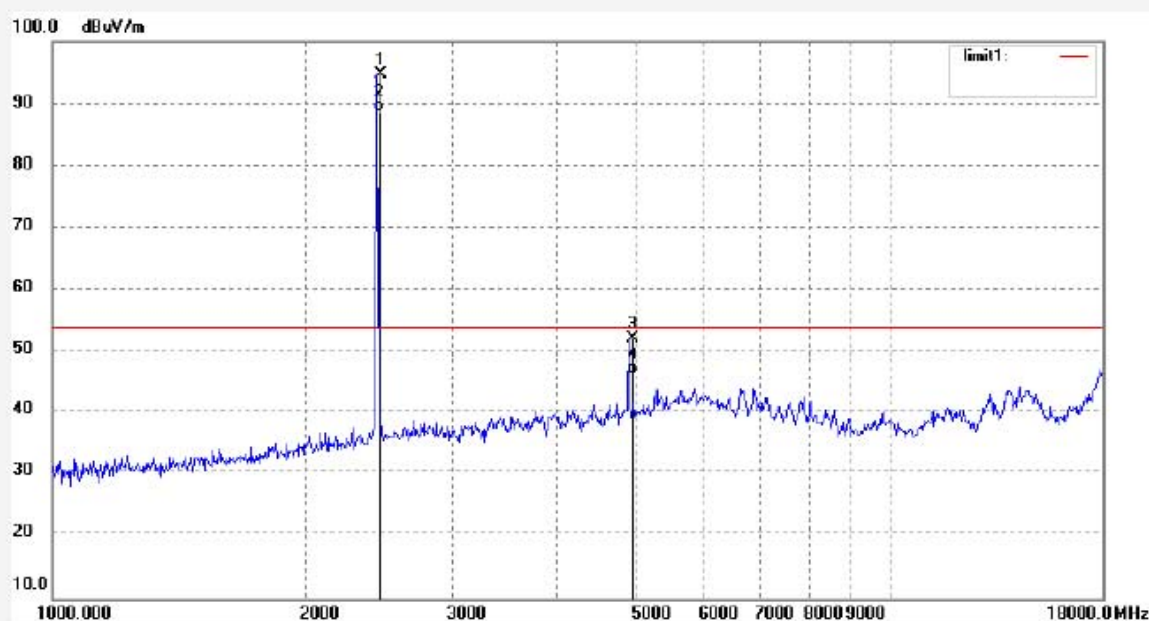
 F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
 Science & Industry Park,Nanshan Shenzhen,P.R.China

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

 Job No.: RTTE #4451  
 Standard: FCC Class B 3M Radiated  
 Test item: Radiation Test  
 Temp.( C)/Hum.(%) 25 C / 50 %  
 EUT: Digital Sensor  
 Mode: TX Channel 30  
 Model: HSTNX-0001  
 Manufacturer: Hanshin int'l Limited

 Polarization: Horizontal  
 Power Source: AC 120V/60Hz  
 Date: 10/04/07/  
 Time: 10/04/35  
 Engineer Signature: Joe  
 Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2470.016	101.99	-7.36	94.63	114.00	-19.37	peak			
2	2470.016	95.94	-7.36	88.58	94.00	-5.42	AVG			
3	4940.028	51.81	0.42	52.23	74.00	-21.77	peak			
4	4940.028	45.79	0.42	46.21	54.00	-7.79	AVG			




**ACCURATE TECHNOLOGY CO., LTD.**

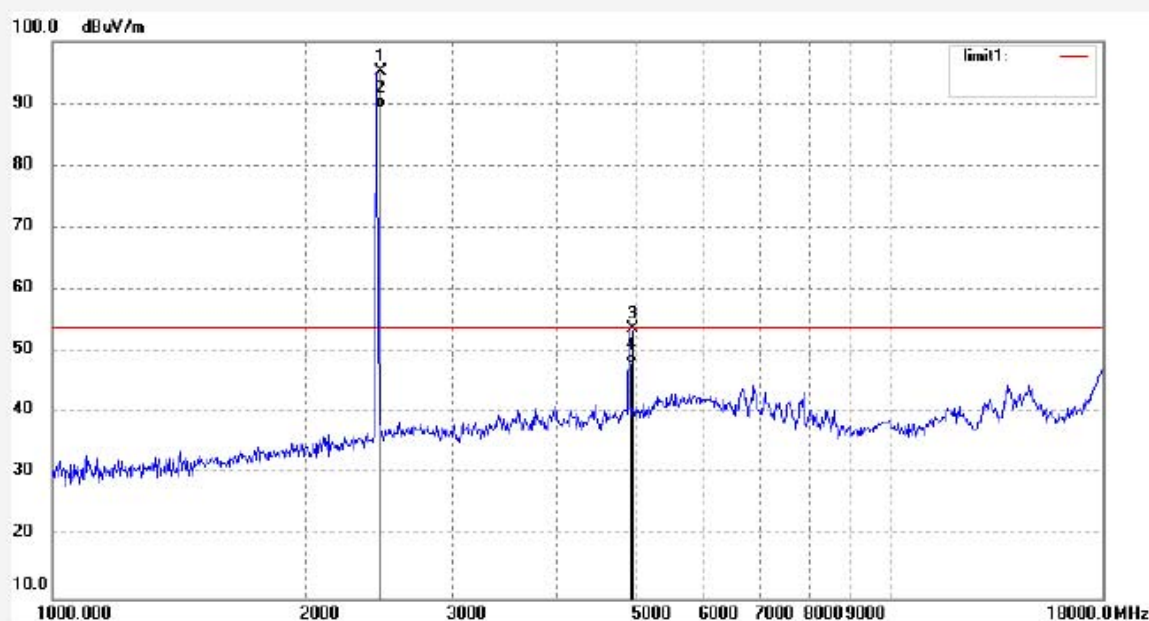
 F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
 Science & Industry Park,Nanshan Shenzhen,P.R.China

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

 Job No.: RTTE #4450  
 Standard: FCC Class B 3M Radiated  
 Test item: Radiation Test  
 Temp.( C)/Hum.(%) 25 C / 50 %  
 EUT: Digital Sensor  
 Mode: TX Channel 30  
 Model: HSTNX-0001  
 Manufacturer: Hanshin int'l Limited

 Polarization: Vertical  
 Power Source: AC 120V/60Hz  
 Date: 10/04/07/  
 Time: 10/00/10  
 Engineer Signature: Joe  
 Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2470.016	102.58	-7.36	95.22	114.00	-18.78	peak			
2	2470.016	96.58	-7.36	89.22	94.00	-4.78	AVG			
3	4940.028	53.43	0.42	53.85	74.00	-20.15	peak			
4	4940.028	47.41	0.42	47.83	54.00	-6.17	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 #4464

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 50 %

EUT: Digital Sensor

Mode: TX Channel 30

Model: HSTNX-0001

Manufacturer: Hanshin int'l Limited

Polarization: Horizontal

Power Source: AC 120V/60Hz

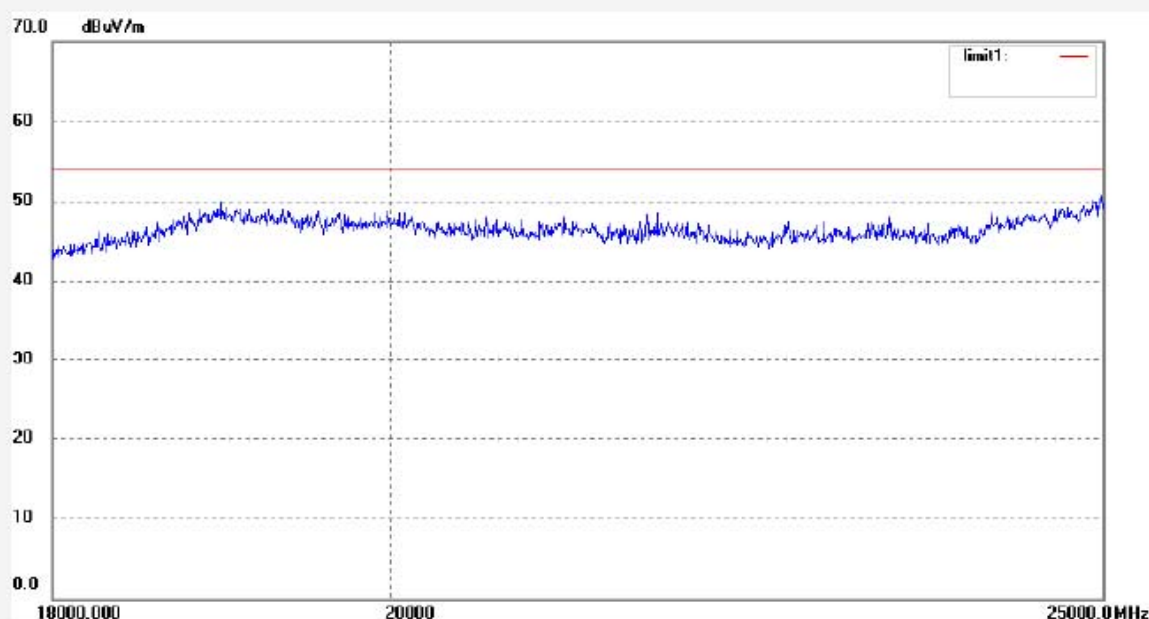
Date: 10/04/07/

Time: 11/19/06

Engineer Signature: Joe

Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



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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# **ACCURATE TECHNOLOGY CO., LTD.**

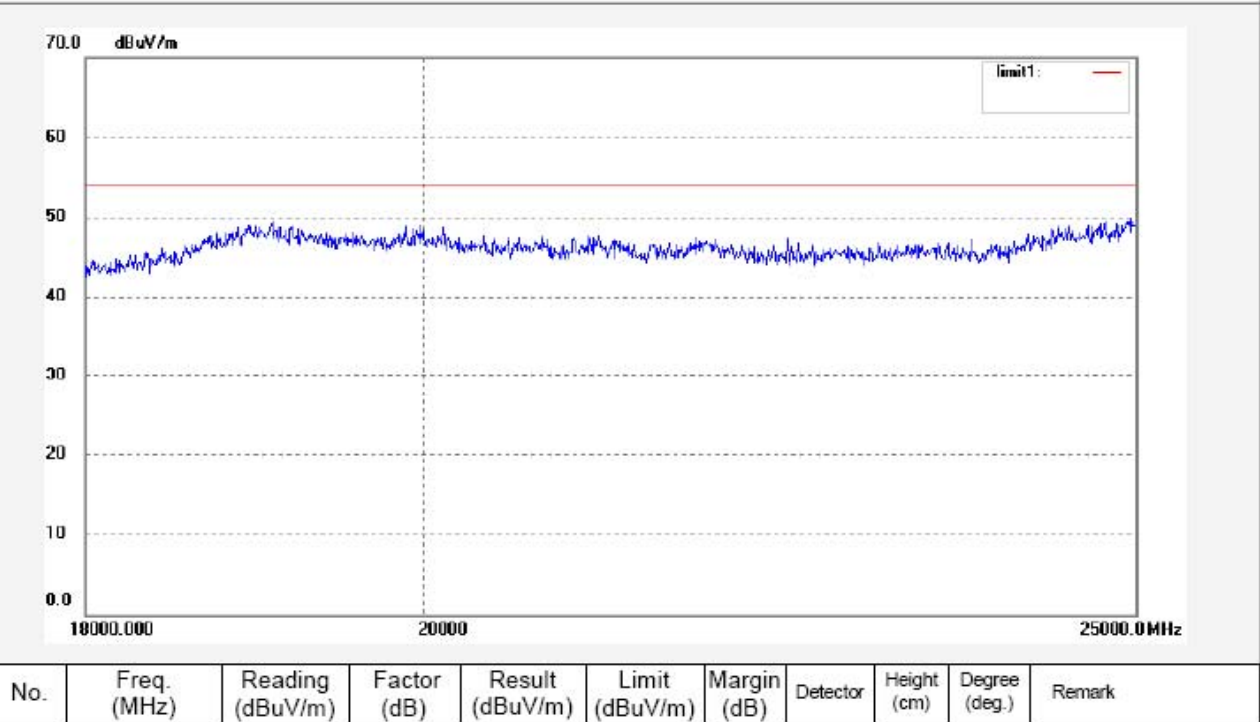
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,  
Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: RTTE #4465  
Standard: FCC Class B 3M Radiated  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 25 C / 50 %  
EUT: Digital Sensor  
Mode: TX Channel 30  
Model: HSTNX-0001  
Manufacturer: Hanshin int'l Limited

Polarization: Vertical  
Power Source: AC 120V/60Hz  
Date: 10/04/07/  
Time: 11/23/24  
Engineer Signature: Joe  
Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537




**ACCURATE TECHNOLOGY CO., LTD.**

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

Site: 966 chamber

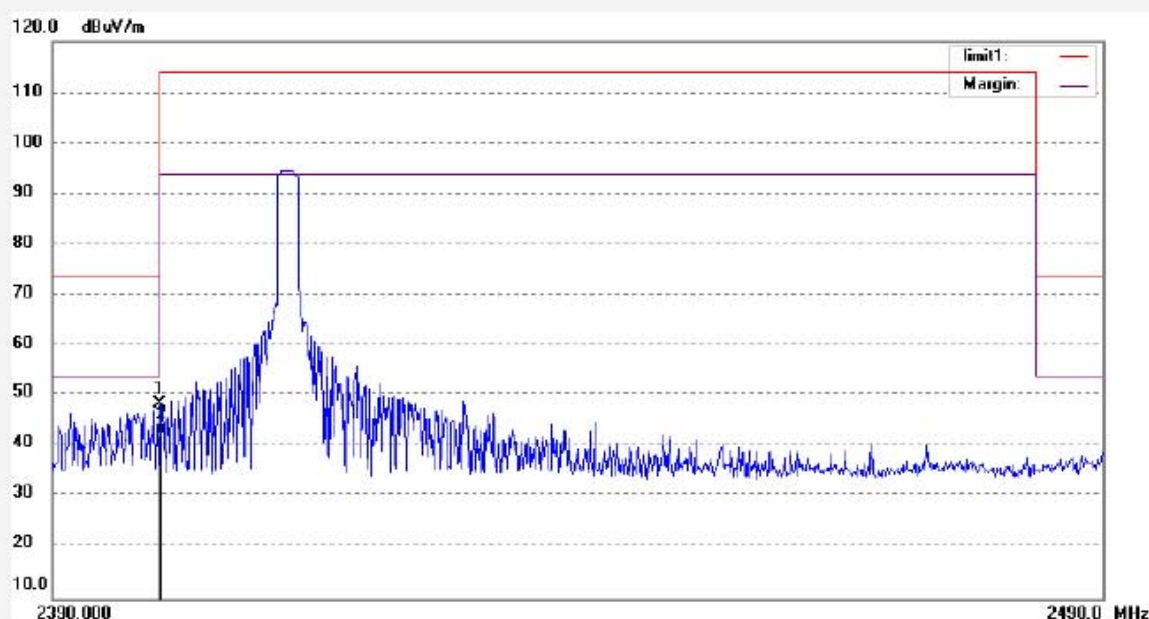
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: RTTE #4455  
 Standard: FCC Part 15 PEAK 2.4G  
 Test item: Radiation Test  
 Temp.( C)/Hum.(%) 25 C / 50 %  
 EUT: Digital Sensor  
 Mode: TX Channel 1  
 Model: HSTNX-0001  
 Manufacturer: Hanshin int'l Limited

Polarization: Horizontal  
 Power Source: AC 120V/60Hz  
 Date: 10/04/07/  
 Time: 10/30/23  
 Engineer Signature: Joe  
 Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2400.000	55.83	-7.46	48.37	74.00	-25.63	peak			
2	2400.000	49.70	-7.46	42.24	54.00	-11.76	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

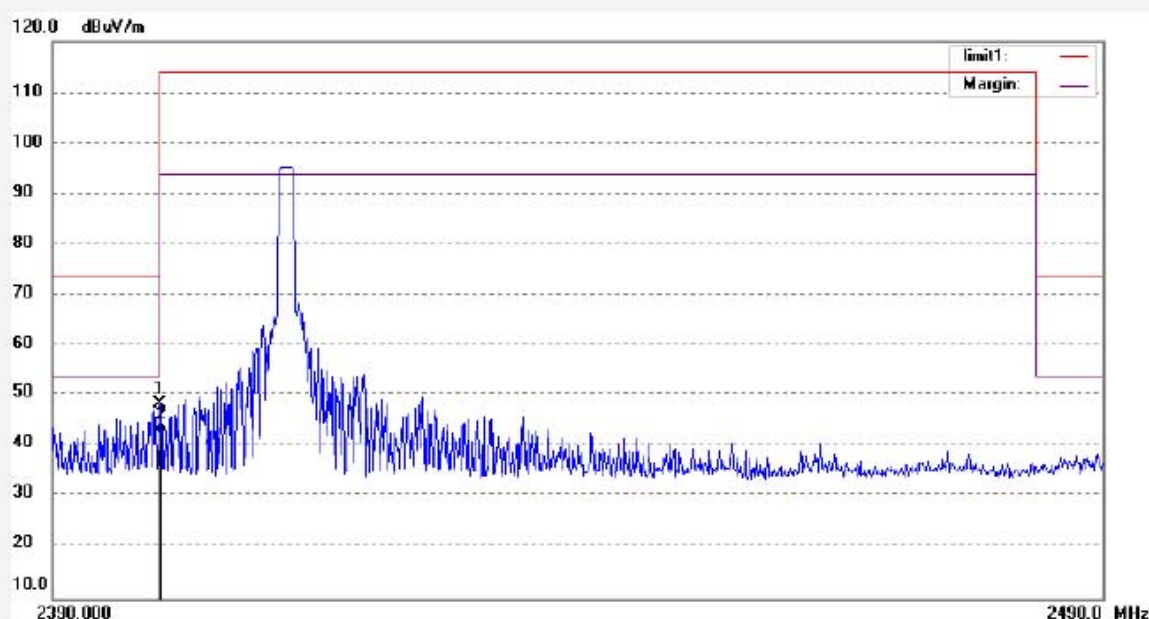
Tel:+86-0755-26503290

Fax:+86-0755-26503396

 Job No.: RTTE #4454  
 Standard: FCC Part 15 PEAK 2.4G  
 Test item: Radiation Test  
 Temp.( C)/Hum.(%) 25 C / 50 %  
 EUT: Digital Sensor  
 Mode: TX Channel 1  
 Model: HSTNX-0001  
 Manufacturer: Hanshin int'l Limited

 Polarization: Vertical  
 Power Source: AC 120V/60Hz  
 Date: 10/04/07/  
 Time: 10/25/44  
 Engineer Signature: Joe  
 Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2400.000	55.84	-7.46	48.38	74.00	-25.62	peak			
2	2400.000	49.71	-7.46	42.25	54.00	-11.75	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 #4452

Standard: FCC Part 15 PEAK 2.4G

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 50 %

EUT: Digital Sensor

Mode: TX Channel 30

Model: HSTNX-0001

Manufacturer: Hanshin int'l Limited

Polarization: Horizontal

Power Source: AC 120V/60Hz

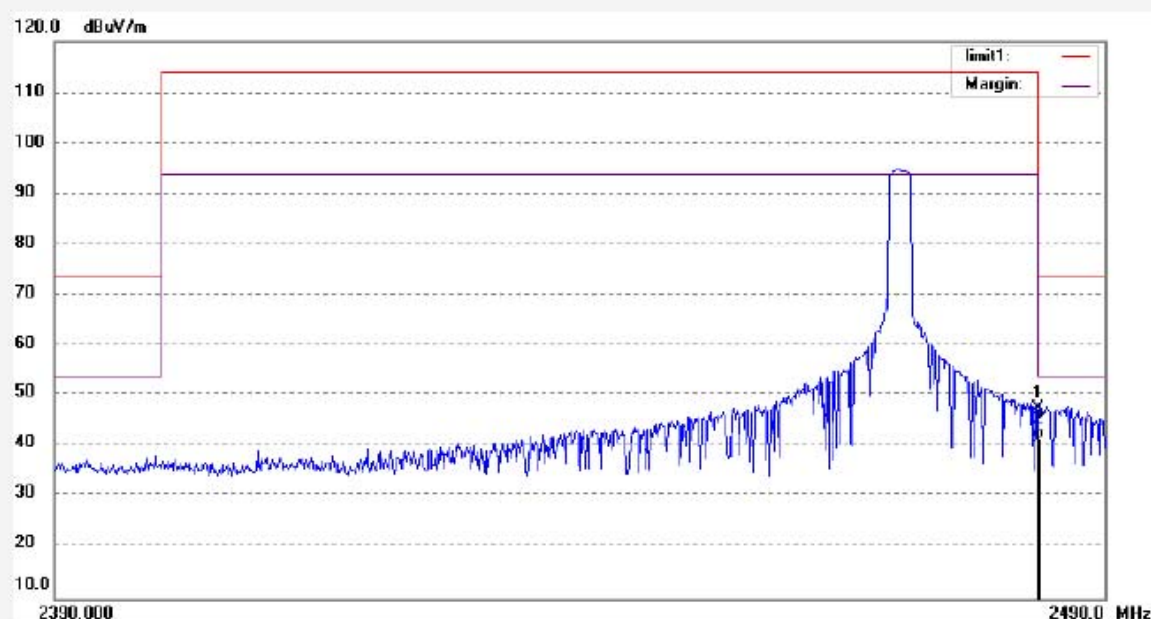
Date: 10/04/07/

Time: 10/11/54

Engineer Signature: Joe

Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	55.01	-7.37	47.64	74.00	-26.36	peak			
2	2483.500	48.89	-7.37	41.52	54.00	-12.48	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

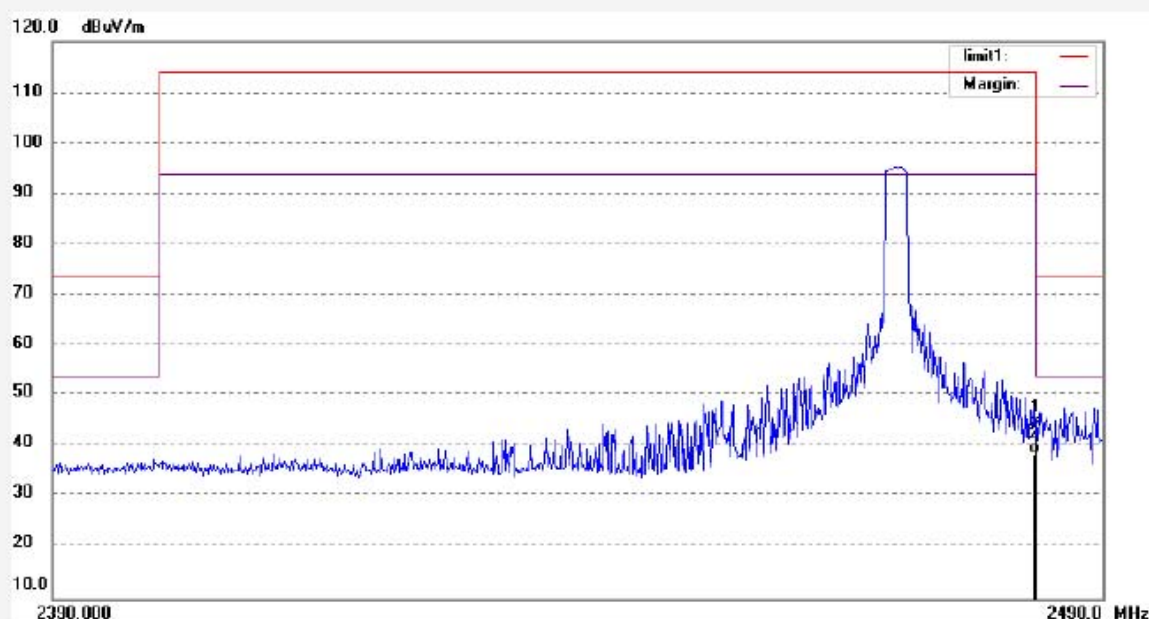
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: RTTE #4453  
 Standard: FCC Part 15 PEAK 2.4G  
 Test item: Radiation Test  
 Temp.( C)/Hum.(%) 25 C / 50 %  
 EUT: Digital Sensor  
 Mode: TX Channel 30  
 Model: HSTNX-0001  
 Manufacturer: Hanshin int'l Limited

Polarization: Vertical  
 Power Source: AC 120V/60Hz  
 Date: 10/04/07/  
 Time: 10/16/27  
 Engineer Signature: Joe  
 Distance: 3m

Note: Sample No.:100575 Report No.:ATE20100537



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	52.09	-7.37	44.72	74.00	-29.28	peak			
2	2483.500	45.94	-7.37	38.57	54.00	-15.43	AVG			

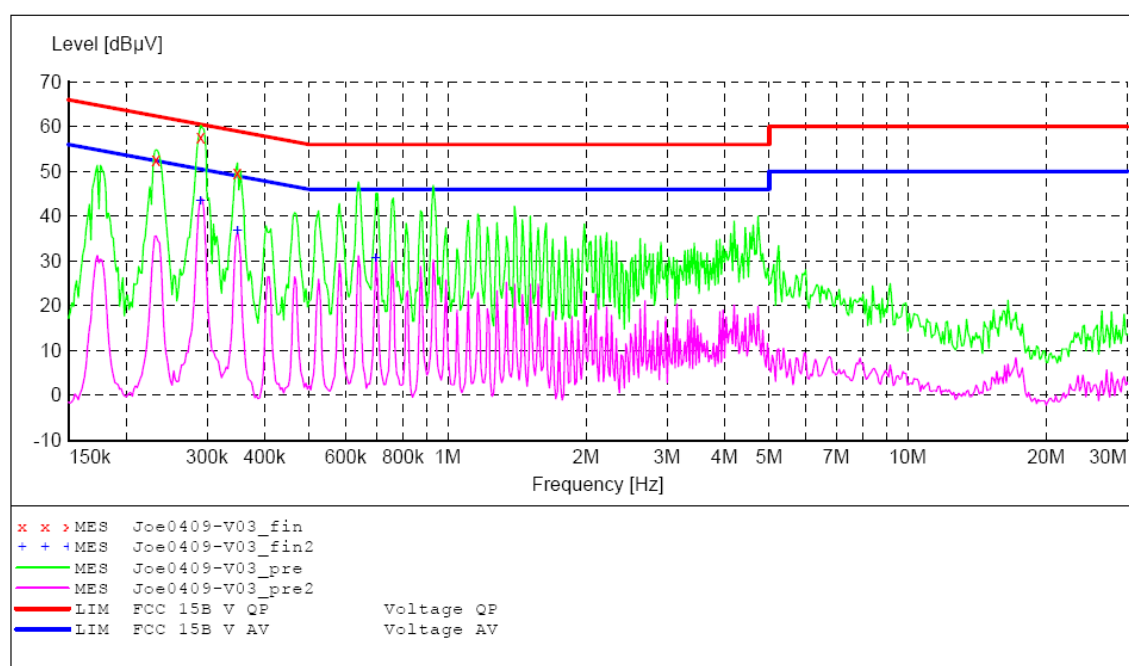
**ACCURATE TECHNOLOGY CO., LTD**
**CONDUCTED EMISSION STANDARD FCC PART 15 B**

EUT: Digital Sensor M/N:HSTNX-0001  
 Manufacturer: Hanshin Int'l Limited  
 Operating Condition: TX Channel 1  
 Test Site: 1#Shielding Room  
 Operator: Joe  
 Test Specification: L 120V/60Hz  
 Comment: Sample No.:100575 Report No.:ATE20100537  
 Start of Test: 4/9/2010 / 9:28:35AM

**SCAN TABLE: "V 150K-30MHz fin"**

Short Description: \_SUB\_STD\_VTERM2 1.70  

Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
Frequency	Frequency	Width				
150.0 kHz	30.0 MHz	0.8 %	QuasiPeak	1.0 s	9 kHz	NSLK8126 2008
			Average			


**MEASUREMENT RESULT: "Joe0409-V03\_fin"**

4/9/2010 9:31AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.232499	52.70	11.4	62	9.7	QP	L1	GND
0.290613	57.60	11.5	61	2.9	QP	L1	GND
0.349066	49.80	11.7	59	9.2	QP	L1	GND

**MEASUREMENT RESULT: "Joe0409-V03\_fin2"**

4/9/2010 9:31AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.290613	43.60	11.5	51	6.9	AV	L1	GND
0.349066	37.00	11.7	49	12.0	AV	L1	GND
0.698191	30.80	11.9	46	15.2	AV	L1	GND

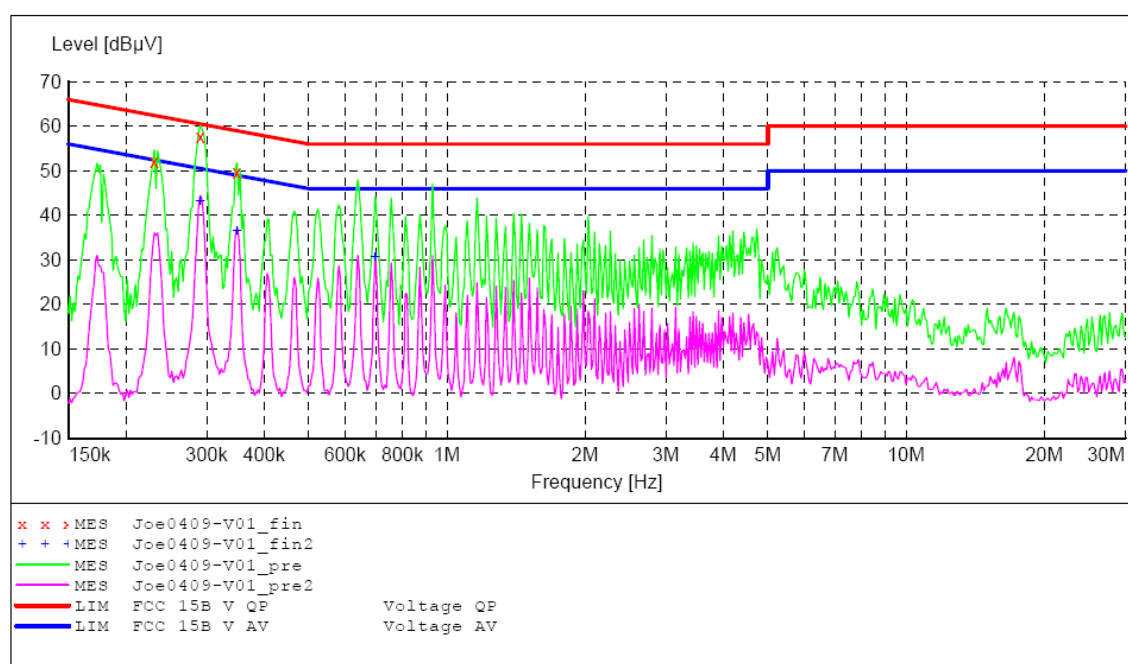
## ACCURATE TECHNOLOGY CO., LTD

## CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: Digital Sensor M/N:HSTNX-0001  
 Manufacturer: Hanshin Int'l Limited  
 Operating Condition: TX Channel 1  
 Test Site: 1#Shielding Room  
 Operator: Joe  
 Test Specification: N 120V/60Hz  
 Comment: Sample No.:100575 Report No.:ATE20100537  
 Start of Test: 4/9/2010 / 9:22:49AM

## SCAN TABLE: "V 150K-30MHz fin"

Short Description: \_SUB\_STD\_VTERM2 1.70  
 Start Stop Step Detector Meas. IF Transducer  
 Frequency Frequency Width Time Bandw.  
 150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008  
 Average



## MEASUREMENT RESULT: "Joe0409-V01\_fin"

4/9/2010 9:24AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.230653	52.10	11.4	62	10.3	QP	N	GND
0.290613	57.70	11.5	61	2.8	QP	N	GND
0.349066	49.70	11.7	59	9.3	QP	N	GND

## MEASUREMENT RESULT: "Joe0409-V01\_fin2"

4/9/2010 9:24AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.290613	43.30	11.5	51	7.2	AV	N	GND
0.349066	36.60	11.7	49	12.4	AV	N	GND
0.698191	30.70	11.9	46	15.3	AV	N	GND

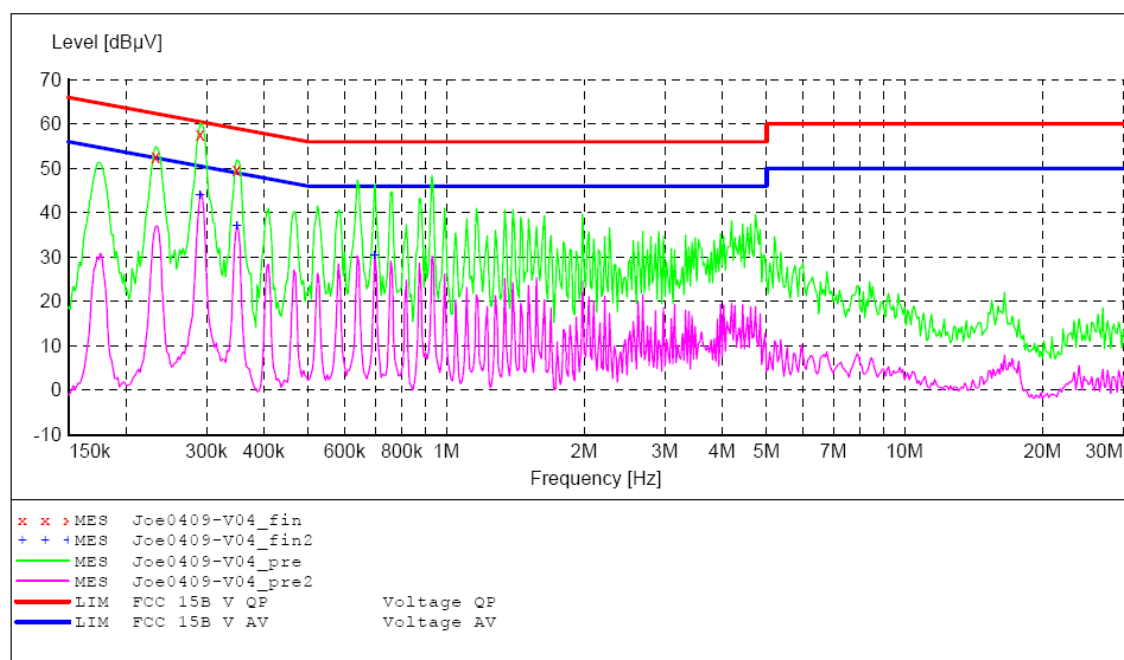
## ACCURATE TECHNOLOGY CO., LTD

## CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: Digital Sensor M/N:HSTNX-0001  
 Manufacturer: Hanshin Int'l Limited  
 Operating Condition: TX Channel 15  
 Test Site: 1#Shielding Room  
 Operator: Joe  
 Test Specification: L 120V/60Hz  
 Comment: Sample No.:100575 Report No.:ATE20100537  
 Start of Test: 4/9/2010 / 9:33:57AM

## SCAN TABLE: "V 150K-30MHz fin"

Short Description: \_SUB\_STD\_VTERM2 1.70  
 Start Stop Step Detector Meas. IF Transducer  
 Frequency Frequency Width Time Bandw.  
 150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008  
 Average



## MEASUREMENT RESULT: "Joe0409-V04\_fin"

4/9/2010 9:35AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.232499	52.60	11.4	62	9.8	QP	L1	GND
0.290613	57.50	11.5	61	3.0	QP	L1	GND
0.349066	49.80	11.7	59	9.2	QP	L1	GND

## MEASUREMENT RESULT: "Joe0409-V04\_fin2"

4/9/2010 9:35AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.290613	44.00	11.5	51	6.5	AV	L1	GND
0.349066	37.10	11.7	49	11.9	AV	L1	GND
0.698191	30.50	11.9	46	15.5	AV	L1	GND



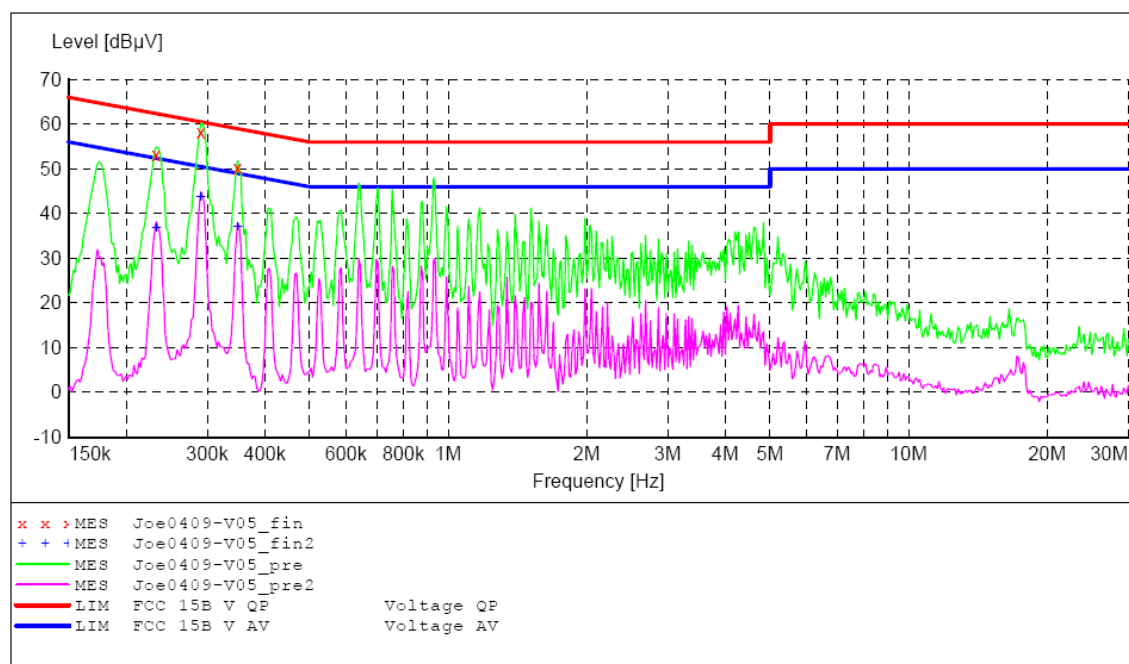
## ACCURATE TECHNOLOGY CO., LTD

## CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: Digital Sensor M/N:HSTNX-0001  
 Manufacturer: Hanshin Int'l Limited  
 Operating Condition: TX Channel 15  
 Test Site: 1#Shielding Room  
 Operator: Joe  
 Test Specification: N 120V/60Hz  
 Comment: Sample No.:100575 Report No.:ATE20100537  
 Start of Test: 4/9/2010 / 9:37:11AM

## SCAN TABLE: "V 150K-30MHz fin"

Short Description: \_SUB\_STD\_VTERM2 1.70  
 Start Stop Step Detector Meas. IF Transducer  
 Frequency Frequency Width Time Bandw.  
 150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008  
 Average



## MEASUREMENT RESULT: "Joe0409-V05\_fin"

4/9/2010 9:40AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.232499	53.10	11.4	62	9.3	QP	N	GND
0.290613	57.80	11.5	61	2.7	QP	N	GND
0.349066	50.10	11.7	59	8.9	QP	N	GND

## MEASUREMENT RESULT: "Joe0409-V05\_fin2"

4/9/2010 9:40AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.232499	36.90	11.4	52	15.5	AV	N	GND
0.290613	43.80	11.5	51	6.7	AV	N	GND
0.349066	37.20	11.7	49	11.8	AV	N	GND

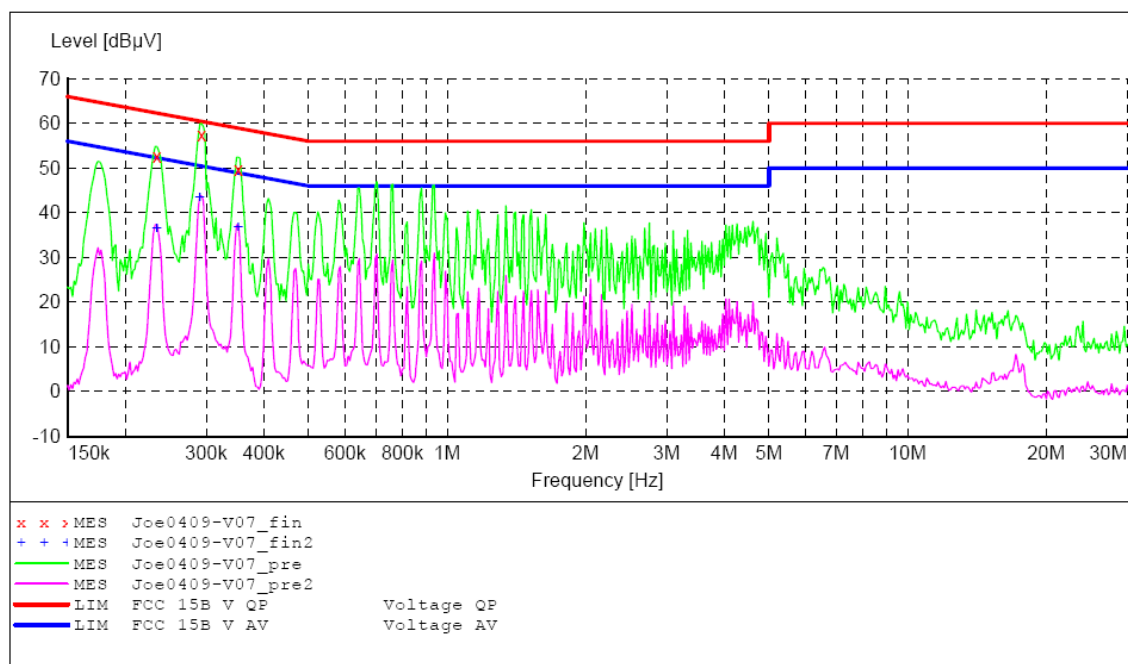
## ACCURATE TECHNOLOGY CO., LTD

## CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: Digital Sensor M/N:HSTNX-0001  
 Manufacturer: Hanshin Int'l Limited  
 Operating Condition: TX Channel 30  
 Test Site: 1#Shielding Room  
 Operator: Joe  
 Test Specification: L 120V/60Hz  
 Comment: Sample No.:100575 Report No.:ATE20100537  
 Start of Test: 4/9/2010 / 9:43:56AM

## SCAN TABLE: "V 150K-30MHz fin"

Short Description: \_SUB\_STD\_VTERM2 1.70  
 Start Stop Step Detector Meas. IF Transducer  
 Frequency Frequency Width Time Bandw.  
 150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008  
 Average



## MEASUREMENT RESULT: "Joe0409-V07\_fin"

4/9/2010 9:45AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.234359	52.50	11.4	62	9.8	QP	L1	GND
0.292938	57.50	11.6	60	2.9	QP	L1	GND
0.351859	49.70	11.7	59	9.2	QP	L1	GND

## MEASUREMENT RESULT: "Joe0409-V07\_fin2"

4/9/2010 9:45AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.234359	36.60	11.4	52	15.7	AV	L1	GND
0.290613	43.50	11.5	51	7.0	AV	L1	GND
0.351859	36.80	11.7	49	12.1	AV	L1	GND

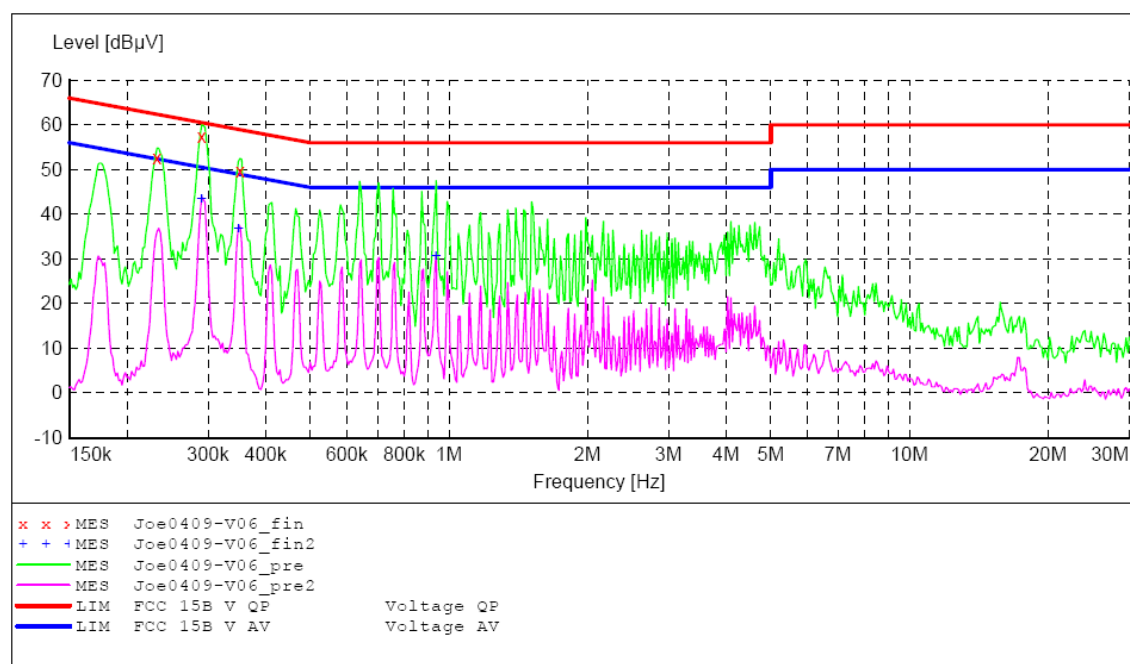


**ACCURATE TECHNOLOGY CO., LTD**
**CONDUCTED EMISSION STANDARD FCC PART 15 B**

EUT: Digital Sensor M/N:HSTNX-0001  
 Manufacturer: Hanshin Int'l Limited  
 Operating Condition: TX Channel 30  
 Test Site: 1#Shielding Room  
 Operator: Joe  
 Test Specification: N 120V/60Hz  
 Comment: Sample No.:100575 Report No.:ATE20100537  
 Start of Test: 4/9/2010 / 9:41:29AM

**SCAN TABLE: "V 150K-30MHz fin"**

Short Description: \_SUB\_STD\_VTERM2 1.70  
 Start Stop Step Detector Meas. IF Transducer  
 Frequency Frequency Width Time Bandw.  
 150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008  
 Average


**MEASUREMENT RESULT: "Joe0409-V06\_fin"**

4/9/2010 9:43AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.232499	52.60	11.4	62	9.8	QP	N	GND
0.290613	57.40	11.5	61	3.1	QP	N	GND
0.351859	49.60	11.7	59	9.3	QP	N	GND

**MEASUREMENT RESULT: "Joe0409-V06\_fin2"**

4/9/2010 9:43AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.290613	43.50	11.5	51	7.0	AV	N	GND
0.349066	37.00	11.7	49	12.0	AV	N	GND
0.937591	30.70	11.8	46	15.3	AV	N	GND