# FCC CERTIFICATION On Behalf of Hanshin International Limited

eBoard Model No.: HSTNX-001

FCC ID: WT4HSTNX-001

Prepared for : Hanshin International Limited

Address : 1/F., Block 3, No. 5 Zhuji Road, Tianhe District, Guangzhou

China

Prepared by : ACCURATE TECHNOLOGY CO. LTD

Address : F1, Bldg. A, Changyuan New Material Port, Keyuan Rd.

Science & Industry Park, Nanshan, Shenzhen, Guangdong

P.R. China

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

Report Number : ATE20082001

Date of Test : October 18-23, 2008 Date of Report : October 23, 2008

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APPENDIX I (TEST CURVES) (28 pages)

#### **Test Report Certification**

Applicant : Hanshin International Limited

Manufacturer : Hanshin International Limited

EUT Description : eBoard

(A) MODEL NO.: HSTNX-001

(B) SERIAL NO.: N/A

(C) POWER SUPPLY: DC 12V (Adapter input)

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.249: 2008 & 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 Section15.249 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test:	October 18-23, 2008	
Prepared by :	sky Long	
	(Engineer)	
Approved & Authorized Signer:	Sean (-)	
	(Manager)	

#### 1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT : eBoard

Model Number : HSTNX-001

Power Supply : DC 12V (Adapter input)

AC Adapter : M/N: GFP121U-1210

Input: AC 100-240V, 50/60Hz 0.3A

Output: DC 12V, 1A

Output cable: non-shielded, non-detachable, 1.8m, with a

ferrite core

Operate Frequency : 2411.2-2480.2MHz

Applicant : Hanshin International Limited

Address : 1/F., Block 3, No. 5 Zhuji Road, Tianhe District,

Guangzhou, China

Manufacturer : Hanshin International Limited

Address : 1/F., Block 3, No. 5 Zhuji Road, Tianhe District,

Guangzhou, China

Date of sample received: October 17, 2008

Date of Test : October 18-23, 2008

#### 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	03.29.2009
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	03.29.2009
Spectrum Analyzer	Agilent	E7405A	MY45115511	03.29.2009
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	03.31.2009
Loop Antenna	Schwarzbeck	FMZB1516	1516131	03.28.2009
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	03.29.2009
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	12.20.2008
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	10.09.2009
LISN	Rohde&Schwarz	ESH3-Z5	100305	03.29.2009
LISN	Schwarzbeck	NSLK8126	8126431	03.29.2009

### 3. SUMMARY OF TEST RESULTS

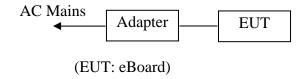
FCC Rules	<b>Description of Test</b>	Result
Section 15.207	Conducted Emission	Compliant
Section 15.209 Section 15.249(d)	Radiated Emission	Compliant
Section 15.249(a)	The fundamental field strength and the harmonics	Compliant
Section 15.249(d)	Band Edge	Compliant

#### 4. CONDUCTED EMISSION FOR FCC PART 15 SECTION

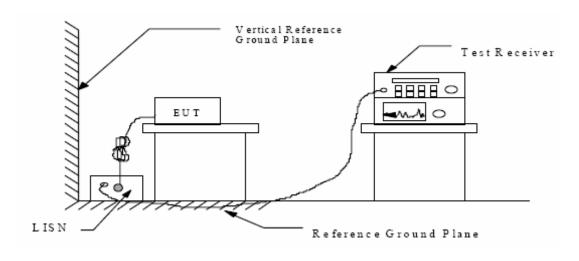
#### 15.207(A)

#### 4.1.Block Diagram of Test Setup

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



#### 4.1.2. Shielding Room Test Setup Diagram



(EUT: eBoard)

#### 4.2. The Emission Limit

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

Frequency	Limit dB(μV)					
(MHz)	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				

<sup>\*</sup> Decreases with the logarithm of the frequency.

#### 4.3. 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.

4.3.1.eBoard (EUT)

Model Number : HSTNX-001

Serial Number : N/A

Manufacturer : Hanshin International 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 2411.2-2480.2MHz. We are select 2411.2MHz, 2447.2MHz, 2480.2MHz TX frequency to transmit.

#### 4.5.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.

#### 4.6. Power Line Conducted Emission Measurement Results

PASS.

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

Date of Test: October 23, 2008

EUT: eBoard

Humidity: 53%

DC 12V (Adapter input)

Model No.: HSTNX-001

Power Supply: Adapter power: AC120V/60Hz

Test Mode: TX 2411.2MHz

Test Engineer: Joe

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE	
0.154500 0.492000 0.564000		11.0 12.0 12.0		22.7	QP	N N N	GND GND GND	
Frequency MHz	Level dBµV		Limit dBµV	_	Detector	Line	PE	
	42.00 29.50 39.70	12.0			AV	N N N	GND GND GND	
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE	
0.154500 0.501000 0.564000	48.60 31.70 42.50	11.0 12.0 12.0		24.3	QP	L1 L1 L1	GND GND GND	
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE	
0.154500 0.492000 0.564000	43.00 27.70 37.80	11.0 12.0 12.0		12.8 18.4 8.2		L1 L1 L1	GND GND GND	

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

Date of Test: October 23, 2008 Temperature: 25°C

EUT: eBoard Humidity: 53%

DC 12V (Adapter input)

Model No.: HSTNX-001 Power Supply: Adapter power: AC120V/60Hz

Test Mode: TX 2447.2MHz Test Engineer: Joe

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE	
0.150000 0.501000 0.559500	46.40 33.20 44.20		56	19.6 22.8 11.8	QP	N N N	GND GND GND	
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE	
0.150000 0.505500 0.559500		11.0 12.0 12.0		14.6 16.2 5.8	AV	N N N	GND GND GND	
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE	
0.150000 0.496500 0.559500	48.30 32.20 42.60		56	23.9	QP	L1 L1 L1	GND GND GND	
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE	
0.150000 0.505500 0.559500	42.20 27.10 37.20	11.0 12.0 12.0				L1 L1 L1	GND GND GND	

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

Date of Test: October 23, 2008 Temperature: 25°C

EUT: eBoard Humidity: 53%

DC 12V (Adapter input)

Model No.: HSTNX-001 Power Supply: Adapter power: AC120V/60Hz

Test Mode: TX 2480.2MHz Test Engineer: Joe

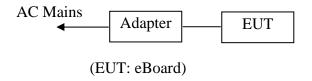
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE	
0.154500 0.492000 0.559500	45.80 33.40 43.90	11.0 12.0 12.0	66 56 56	20.0 22.7 12.1	_	N N N	GND GND GND	
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE	
0.150000 0.559500	42.10 40.00	11.0 12.0	56 46	13.9 6.0	AV AV	N N	GND GND	
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE	
0.159000 0.505500 0.564000	49.20 32.50 43.10	11.0 12.0 12.0			QP	L1 L1 L1	GND GND GND	
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE	
0.159000 0.492000 0.564000	44.20 29.30 39.20	11.0 12.0 12.0	56 46 46	11.3 16.8 6.8		L1 L1 L1	GND GND GND	

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

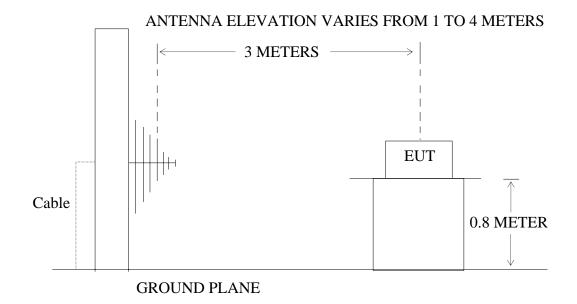
# 5. FUNDAMENTAL AND HARMONICS RADIATED EMISSION MEASURMENT

#### 5.1.Block Diagram of Test Setup

5.1.1.Block diagram of connection between the EUT and simulators



#### 5.1.2. Anechoic Chamber Test Setup Diagram



(EUT: eBoard)

#### 5.2. The Emission Limit

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

5.2.2.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.

#### 5.3. 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.

5.3.1.eBoard (EUT)

Model Number : HSTNX-001

Serial Number : N/A

Manufacturer : Hanshin International 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 2411.2-2480.2MHz. We are select 2411.2MHz, 2447.2MHz, 2480.2MHz 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 (R&S ESI26) is set at 1MHz.

## 5.6. The Field Strength of Radiation Emission Measurement Results **PASS.**

Date of Test: October 18-21, 2008

EUT: eBoard

Temperature: 25°C

Humidity: 52%

DC 12V (Adapter input)

Model No.: HSTNX-001 Power Supply: Adapter power: AC120V/60Hz

Test Mode: TX 2411.2MHz Test Engineer: Joe

#### **Fundamental Radiated Emissions**

Frequency	Reading(	dBμV/m)	Factor(dB)	Result(dBµV/m)		BμV/m) Limit(dBμV		Margi	in(dB)	Polarization
(MHz)	AV	PEAK	Corr.	AV PEAK		AV	PEAK	AV	PEAK	
2411.197	78.69	90.00	-7.43	71.26	82.57	94	114	-22.74	-31.43	Vertical
2411.196	77.06	88.34	-7.43	69.63	80.91	94	114	-24.37	-33.09	Horizontal

#### **Harmonics Radiated Emissions**

Polarization	in(dB)	Margi	BμV/m)	Limit(dl	Result(dBµV/m) L		Result(dBμV/m)		Result(dB\u03c4V/m)		Factor(dB)	Reading(dBµV/m)		Frequency
	PEAK	AV	PEAK	AV	PEAK	AV	Corr.	PEAK	AV	(MHz)				
	-13.68	-5.48	74	54	60.32	48.52	-0.19	60.51	48.71	4822.396				
Vertical	-24.15	-15.33	74	54	49.85	38.67	3.04	46.81	35.63	7233.594				
	-16.83	-8.08	74	54	57.17	45.92	-0.19	57.36	46.11	4822.396				
Horizontal	-24.80	-16.12	74	54	49.20	37.88	3.04	46.16	34.84	7233.594				

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

#### Note:

- 1. The emission emitted by the EUT is too low to be measured except the emission listed above.
- 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

Date of Test: October 18-21, 2008 Temperature: 25°C
EUT: eBoard Humidity: 52%

DC 12V (Adapter input)

Model No.: HSTNX-001 Power Supply: Adapter power: AC120V/60Hz

Test Mode: TX 2447.2MHz Test Engineer: Joe

#### **Fundamental Radiated Emissions**

Frequency	Reading(	dBμV/m)	Factor(dB)	Result(dBµV/m)		Limit(dBµV/m)		Margin(dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
2447.199	81.88	93.04	-7.34	74.54	85.70	94	114	-19.46	-28.30	Vertical
2447.199	76.01	87.22	-7.34	68.67	79.88	94	114	-25.33	-34.12	Horizontal

#### **Harmonics Radiated Emissions**

Frequency	Reading(c	dBμV/m)	Factor(dB)	Result(dBµV/m)		Limit(dBµV/m)		Margin(dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
4894.401	49.86	61.20	0.21	50.07	61.41	54	74	-3.93	-12.59	Vertical
4894.401	44.48	55.90	0.21	44.69	56.11	54	74	-9.31	-17.89	Horizontal

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

#### Note:

- 1. The emission emitted by the EUT is too low to be measured except the emission listed above.
- 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

Date of Test: October 18-21, 2008 Temperature: 25°C
EUT: eBoard Humidity: 52%

DC 12V (Adapter input)

Model No.: HSTNX-001 Power Supply: Adapter power: AC120V/60Hz

Test Mode: TX 2480.2MHz Test Engineer: Joe

#### **Fundamental Radiated Emissions**

Frequency	Reading(	dBμV/m)	Factor(dB)	Result(dBµV/m)		Limit(dBµV/m)		Margin(dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
2480.168	75.38	86.54	-7.37	68.01	79.17	94	114	-25.99	-34.83	Vertical
2480.168	79.26	90.58	-7.37	71.89	83.21	94	114	-22.11	-30.79	Horizontal

#### **Harmonics Radiated Emissions**

Frequency	Reading(	dBμV/m)	Factor(dB)	Result(dBµV/m)		Limit(dBµV/m)		Margin(dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
4960.312	45.39	56.64	0.52	45.91	57.16	54	74	-8.09	-16.84	
7440.501	33.61	44.38	3.69	37.30	48.07	54	74	-16.70	-25.93	Vertical
4960.312	46.97	58.62	0.52	47.49	59.14	54	74	-6.51	-14.86	
7440.501	31.24	41.63	3.69	34.93	45.32	54	74	-19.07	-28.68	Horizontal

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

#### Note:

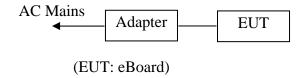
- 1. The emission emitted by the EUT is too low to be measured except the emission listed above.
- 2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

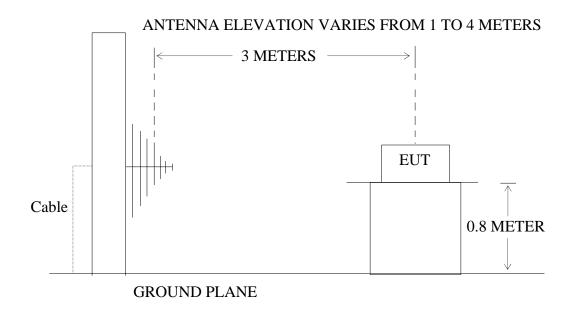
### 6. RADIATED EMISSION FOR FCC PART 15 SECTION 15.249(D)

#### 6.1.Block Diagram of Test Setup

6.1.1.Block diagram of connection between the EUT and simulators



#### 6.1.2. Anechoic Chamber Test Setup Diagram



#### 6.2. The Emission Limit For Section 15.249(d)

6.2.1.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.

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

#### 6.3.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.

#### 6.3.1. eBoard (EUT)

Model Number : HSTNX-001

Serial Number : N/A

Manufacturer : Hanshin International Limited

#### 6.4. Operating Condition of EUT

- 6.4.1. Setup the EUT and simulator as shown as Section 6.1.
- 6.4.2. Turn on the power of all equipment.
- 6.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2411.2-2480.2MHz. We are select 2411.2MHz, 2447.2MHz, 2480.2MHz TX frequency to transmit.

#### 6.5. 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 (R&S ESI26) 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.

#### 6.6. The Emission Measurement Result

#### PASS.

Date of Test: October 18-21, 2008

EUT: eBoard

Model No.: HSTNX-001

Test Mode: TX 2411.2MHz

Test Mode: TX 2411.2MHz

Test Mode: TX 2411.2MHz

Temperature: 25°C

Humidity: 52%

DC 12V (Adapter input)

Adapter power: AC120V/60Hz

Test Engineer: Joe

Polarization	Margin	Limit	Result	Factor(dB)	Reading	Frequency
	(dB)	(dBµV/m)	$(dB\mu V/m)$	Corr.	(dBµV/m)	(MHz)
	QP	QP	QP		QP	
	-5.44	40.00	34.56	18.64	15.92	35.2060
	-4.32	40.00	35.68	13.65	22.03	53.4556
	-7.64	43.50	35.86	14.61	21.25	160.5469
Vertical	-9.90	46.00	36.10	15.61	20.49	217.6194
	-12.78	46.00	33.22	19.54	13.68	324.6921
	-10.03	46.00	35.97	22.96	13.01	431.7917
	-6.13	43.50	37.37	14.61	22.76	160.5506
	-7.64	46.00	38.36	15.61	22.75	217.6198
	-6.95	46.00	39.05	18.44	20.61	267.4835
Horizontal	-4.43	46.00	41.57	19.54	22.03	324.6896
	-3.53	46.00	42.47	22.96	19.51	431.7859
	-7.78	46.00	38.22	23.91	14.31	486.5060

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

#### Note:

- 1. Remark "- " means that the emission level is too low to be measured.
- 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

Date of Test:October 18-21, 2008Temperature:25°CEUT:eBoardHumidity:52%Model No.:HSTNX-001Power Supply:DC 12V (Adapter input)

Adapter power: AC120V/60Hz

Test Mode: TX 2447.2MHz Test Engineer: Joe

Frequency	Reading	Factor(dB)	Result	Limit	Margin	Polarization
(MHz)	(dBµV/m)	Corr.	$(dB\mu V/m)$	(dBµV/m)	(dB)	
	QP		QP	QP	QP	
35.1957	16.28	18.64	34.92	40.00	-5.08	
53.4541	21.98	13.65	35.63	40.00	-4.37	
160.5502	22.66	14.61	37.27	43.50	-6.23	
217.6219	20.49	15.61	36.10	46.00	-9.90	Vertical
322.5896	14.79	19.45	34.24	46.00	-11.76	
431.7879	13.48	22.96	36.44	46.00	-9.56	
160.5552	23.03	14.61	37.64	43.50	-5.86	
217.6231	22.53	15.61	38.14	46.00	-7.86	
267.4849	20.48	18.44	38.92	46.00	-7.08	
324.6889	22.04	19.54	41.58	46.00	-4.42	Horizontal
431.7874	19.63	22.96	42.59	46.00	-3.41	
462.4122	15.14	23.33	38.47	46.00	-7.53	

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

#### Note:

- 1. Remark "- " means that the emission level is too low to be measured.
- 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

Date of Test: October 18-21, 2008 Temperature: 25°C

EUT: eBoard Humidity: 52%

Model No.: HSTNX-001 Power Supply: DC 12V (Adapter input)

Adapter power: AC120V/60Hz

Test Mode: TX 2480.2MHz Test Engineer: Joe

Frequency	Reading	Factor(dB)	Result	Limit	Margin	Polarization
(MHz)	(dBµV/m)	Corr.	$(dB\mu V/m)$	(dBµV/m)	(dB)	
	QP		QP	QP	QP	
35.1988	17.31	18.64	35.95	40.00	-4.05	
53.4439	22.10	13.66	35.76	40.00	-4.24	
160.5520	22.01	14.61	36.62	43.50	-6.88	37 . 1
217.6153	21.86	15.61	37.47	46.00	-8.53	Vertical
324.6578	15.32	19.54	34.86	46.00	-11.14	
431.7838	12.04	22.96	35.00	46.00	-11.00	
160.5543	22.43	14.61	37.04	43.50	-6.46	
217.6177	23.75	15.61	39.36	46.00	-6.64	
267.4864	20.22	18.44	38.66	46.00	-7.34	
324.6858	22.11	19.54	41.65	46.00	-4.35	Horizontal
348.2740	18.87	20.60	39.47	46.00	-6.53	
431.7884	17.68	22.96	40.64	46.00	-5.36	

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

#### Note:

- 1. Remark "- " means that the emission level is too low to be measured.
- 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

#### 7. BAND EDGES

#### 7.1. The Requirement

7.1.1.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.

#### 7.2.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.

#### 7.2.1. eBoard (EUT)

Model Number : HSTNX-001

Serial Number : N/A

Manufacturer : Hanshin International Limited

#### 7.3. Operating Condition of EUT

- 7.3.1. Setup the EUT and simulator as shown as Section 7.1.
- 7.3.2. Turn on the power of all equipment.
- 7.3.3. Let the EUT work in TX modes measure it. The transmit frequency are 2411.2-2480.2MHz. We are select 2411.2MHz, 2480.2MHz TX frequency to transmit.

#### 7.4.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

#### 7.5. The Measurement Result

Pass.

Date of Test: October 21, 2008

EUT: eBoard

Model No.: HSTNX-001

Test Mode: TX 2411.2MHz

Test Mode: TX 2411.2MHz

Temperature: 25°C

Humidity: 52%

DC 12V (Adapter input)

Adapter power: AC120V/60Hz

Joe

Frequency	Reading(c	dBμV/m)	Factor(dB)			in(dB)	Polarization			
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
2394.041	43.53	55.27	-7.50	36.03	47.77	54	74	-17.97	-26.23	
2400.000	43.68	55.30	-7.46	36.22	47.84	54	74	-17.78	-26.16	Vertical
2397.888	45.75	57.12	-7.48	38.27	49.64	54	74	-15.73	-24.36	
2398.988	45.03	56.26	-7.46	37.57	48.80	54	74	-16.43	-25.20	Horizontal
2400.000	42.77	54.02	-7.46	35.31	46.56	54	74	-18.69	-27.44	

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

#### Note:

- 1. The emission emitted by the EUT is too low to be measured except the emission listed above.
- 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

Date of Test: October 21, 2008

EUT: eBoard Humidity: 52%

Model No.: HSTNX-001 Power Supply: DC 12V (Adapter input)

Adapter power: AC120V/60Hz

Test Mode: TX 2480.2MHz Test Engineer: Joe

Frequency	Reading(c	dBμV/m)	Factor(dB)	Result(dBµV/m)		Limit(dBµV/m)		Margin(dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
2483.500	52.72	63.25	-7.37	45.35	55.88	54	74	-8.65	-18.12	
2484.212	51.87	62.34	-7.38	44.49	54.96	54	74	-9.51	-19.04	Vertical
2484.814	50.09	60.92	-7.38	42.71	53.54	54	74	-11.29	-20.46	
2483.500	51.36	62.78	-7.37	43.99	55.41	54	74	-10.01	-18.59	
2483.871	51.03	62.55	-7.38	43.65	55.17	54	74	-10.35	-18.83	Horizontal
2484.413	52.14	63.34	-7.38	44.76	55.96	54	74	-9.24	-18.04	

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

#### Note:

- 1. The emission emitted by the EUT is too low to be measured except the emission listed above.
- 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

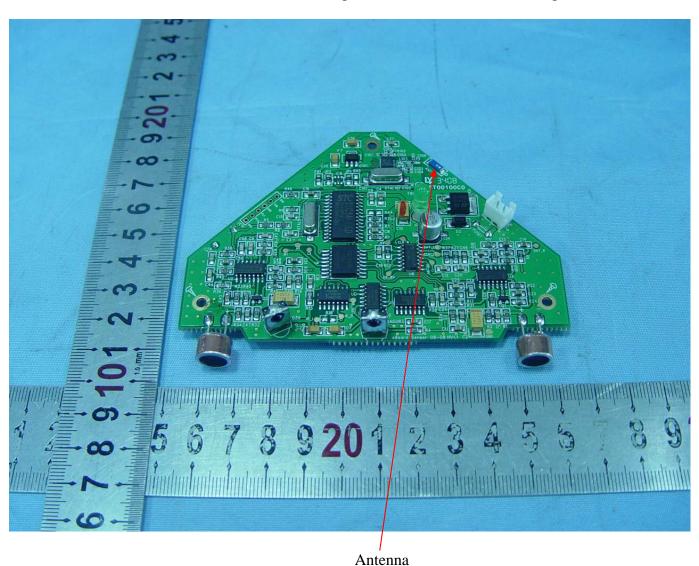
### 8. ANTENNA REQUIREMENT

#### 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.



# APPENDIX I (Test Curves)

#### CONDUCTED EMISSION STANDARD FCC PART15

EUT: eBoard M/N:HSTNX-001

Manufacturer: Hanshin
Operating Condition: TX 2411.2MHz
Test Site: 1#Shielding Room

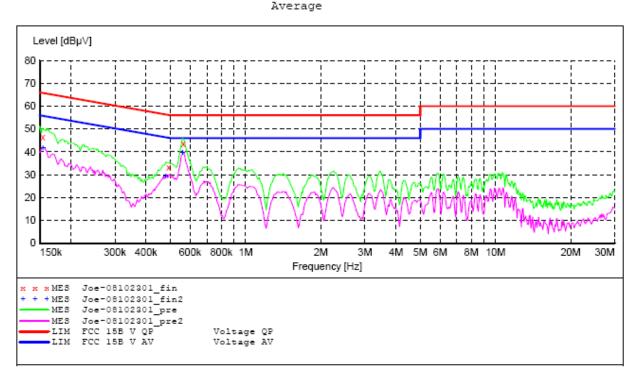
Operator: Joe

Test Specification: Va 120V/60Hz Sample No.:083785 Report No.:ATE20082001

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

Short Description: Conducted emission

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



#### MEASUREMENT RESULT: "Joe-08102301 fin"

10/23/2008 09	:08AM						
Frequency				_	Detector	Line	PΕ
MHz	dBµV	dB	dBµV	dB			
0.154500	46.60	11.0	66	19.2	QP	N	GND
0.492000	33.40	12.0	56	22.7	QP	N	GND
0.564000	43.70	12.0	56	12.3	QP	N	GND

#### MEASUREMENT RESULT: "Joe-08102301 fin2"

10/23/2008 0	9:08AM						
Frequency				_	Detector	Line	PΕ
MHz	dBµV	dB	dBµV	dB			
0.154500	42.00	11.0	56	13.8	AV	N	GND
0.478500	29.50	12.0	46	16.9	AV	N	GND
0.559500	39.70	12.0	46	6.3	AV	N	GND

#### CONDUCTED EMISSION STANDARD FCC PART15

M/N:HSTNX-001 eBoard

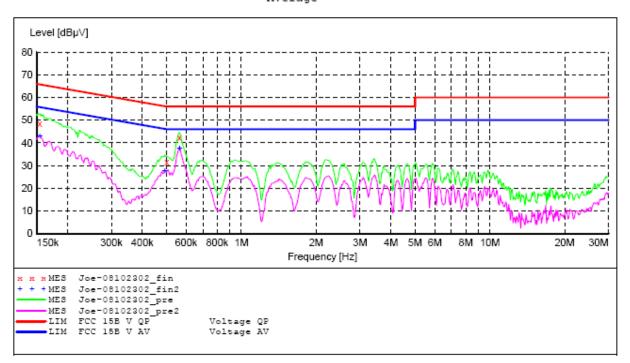
Manufacturer: Hanshin Operating Condition: TX 2411.2MHz Test Site: 1#Shielding Room

Operator: Joe

Test Specification: Vb 120V/60Hz Sample No.:083785 Report No.:ATE20082001

SCAN TABLE: "V 150K-30MHz fin"
Short Description: Conducted emission

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



#### MEASUREMENT RESULT: "Joe-08102302 fin"

10/23/2008 0 Frequency MHz			Limit dBµV	Margin dB	Detector	Line	PE
0.154500	48.60	11.0	66	17.2	QP	L1	GND
0.501000	31.70	12.0	56	24.3		L1	GND
0.564000	42.50	12.0	56	13.5		L1	GND

#### MEASUREMENT RESULT: "Joe-08102302 fin2"

10	0/23/2008 09	:23AM						
	Frequency MHz	Level dBµV		Limit dBµV	Margin dB	Detector	Line	PE
	0.154500	43.00	11.0	56	12.8	AV	L1	GND
	0.492000	27.70	12.0	46	18.4	AV	L1	GND
	0.564000	37.80	12.0	46	8.2	AV	L1	GND

#### CONDUCTED EMISSION STANDARD FCC PART15

M/N:HSTNX-001 eBoard

Manufacturer: Hanshin Operating Condition: TX 2447.2MHz Test Site: 1#Shielding Room

Operator: Joe

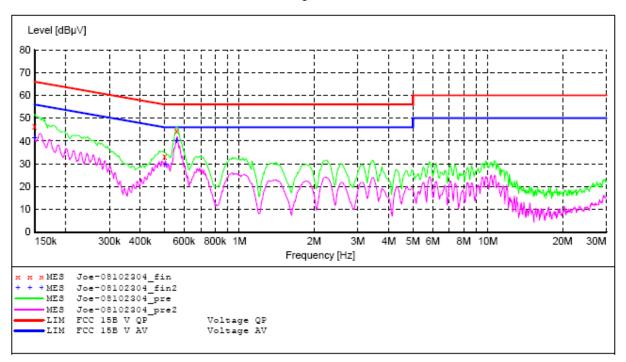
Test Specification: Va 120V/60Hz Sample No.:083785 Report No.:ATE20082001

SCAN TABLE: "V 150K-30MHz fin"
Short Description: Conducted emission

Start Stop Step IF Detector Meas. Transducer

Frequency Frequency Width 150.0 kHz 30.0 MHz 0.8 % Bandw. Time QuasiPeak 1.0 s 9 kHz NSLK8126 2008

Average



#### MEASUREMENT RESULT: "Joe-08102304 fin"

10/23/2008 0	9:44AM						
Frequency MHz	Level dBµV		Limit dBµV	Margin dB	Detector	Line	PE
0.150000	46.40	11.0	66	19.6	QP	N	GND
0.501000	33.20	12.0	56	22.8	QP	N	GND
0.559500	44.20	12.0	56	11.8	QP	N	GND

#### MEASUREMENT RESULT: "Joe-08102304 fin2"

10/23/2008	09:44AM						
Frequency MH:	y Level z dBµV		Limit dBµV	Margin dB	Detector	Line	PE
0.15000	0 41.40	11.0	56	14.6	AV	N	GND
0.50550	0 29.80	12.0	46	16.2	AV	N	GND
0.55950	0 40.20	12.0	46	5.8	AV	N	GND

#### CONDUCTED EMISSION STANDARD FCC PART15

EUT: eBoard M/N:HSTNX-001

Manufacturer: Hanshin Operating Condition: TX 2447.2MHz Test Site: 1#Shielding Room

Operator: Joe

Test Specification: Vb 120V/60Hz Sample No.:083785 Report No.:ATE20082001

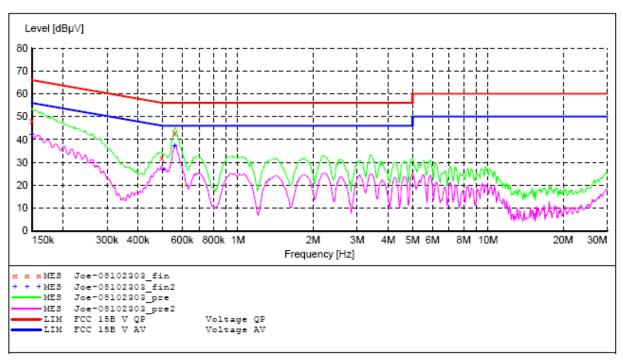
SCAN TABLE: "V 150K-30MHz fin" Short Description: Conducted emission

Step Start Stop Detector Meas. IF Transducer

Time Bandw.

Frequency Frequency Width 150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008

Average



#### MEASUREMENT RESULT: "Joe-08102303 fin"

10/23/2008 09	:34AM						
Frequency MHz	Level dBµV		Limit dBµV	Margin dB	Detector	Line	PE
0.150000	48.30	11.0	66	17.7	QP	L1	GND
0.496500	32.20	12.0	56	23.9	QP	L1	GND
0.559500	42.60	12.0	56	13.4	QP	L1	GND

#### MEASUREMENT RESULT: "Joe-08102303 fin2"

1	0/23/2008 09	:34AM						
	Frequency				_	Detector	Line	PΕ
	MHz	dΒμV	dB	dBµV	dB			
	0.150000	42.20	11.0	56	13.8	AV	L1	GND
	0.505500	27.10	12.0	46	18.9	AV	L1	GND
	0.559500	37.20	12.0	46	8.2	AV	L1	GND

#### CONDUCTED EMISSION STANDARD FCC PART15

eBoard M/N:HSTNX-001

Manufacturer: Hanshin Operating Condition: TX 2480.2MHz 1#Shielding Room Test Site:

Operator: Joe

Test Specification: Va 120V/60Hz Sample No.:083785 Report No.:ATE20082001

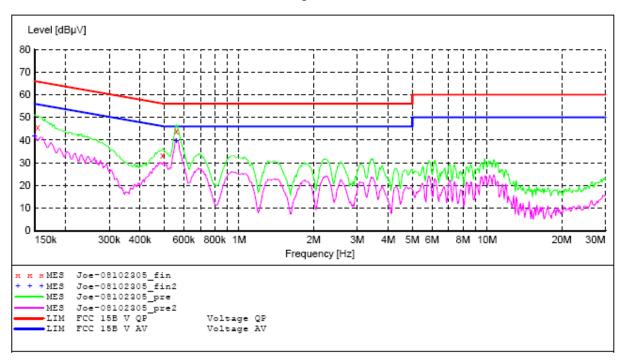
SCAN TABLE: "V 150K-30MHz fin"
Short Description: Conducted emission

Start IF Step Detector Meas. Transducer Stop

Time Bandw.

Frequency Frequency Width 150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008

Average



#### MEASUREMENT RESULT: "Joe-08102305 fin"

10/23/2008 0 Frequency MHz			Limit dBµV	Margin dB	Detector	Line	PE
0.154500 0.492000	45.80 33.40	11.0 12.0	66 56	20.0		N N	GND GND
0.559500	43.90	12.0	56	12.1	QP	N	GND

#### MEASUREMENT RESULT: "Joe-08102305 fin2"

10/23/2008 09 Frequency MHz			Limit dBµV	Margin dB	Detector	Line	PE
0.150000	42.10	11.0	56	13.9	AV	N	GND
0.559500	40.00	12.0	46	6.0	AV	N	GND

#### CONDUCTED EMISSION STANDARD FCC PART15

eBoard M/N:HSTNX-001

Manufacturer: Hanshin Operating Condition: TX 2480.2MHz Test Site: 1#Shielding Room

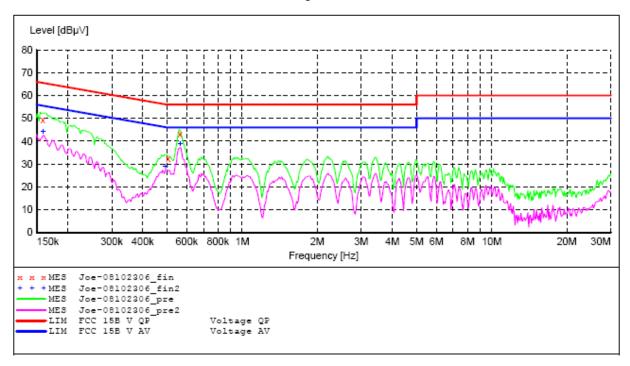
Operator: Joe

Test Specification: Vb 120V/60Hz Sample No.:083785 Report No.:ATE20082001

SCAN TABLE: "V 150K-30MHz fin"
Short Description: Conducted emission

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

Average



#### MEASUREMENT RESULT: "Joe-08102306 fin"

Mā				10/23/2008 09 Frequency MHz
	66	11.0	49.20	0.159000

Frequency MHz	Level dBµV		Limit dBµV	_	Detector	Line	PE
0.159000	49.20	11.0	66	16.3	QP	L1	GND
0.505500	32.50	12.0	56	23.5	QP	L1	GND
0.564000	43.10	12.0	56	12.9	QP	L1	GND

#### MEASUREMENT RESULT: "Joe-08102306 fin2"

	10/	23/	2008	09:	55AM
--	-----	-----	------	-----	------

10,	Frequency MHz			Limit dBµV	_	Detector	Line	PE
	0.159000	44.20	11.0	56	11.3	AV	L1	GND
	0.492000	29.30	12.0	46	16.8	AV	L1	GND
	0.564000	39.20	12.0	46	6.8	AV	L1	GND



#### 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 #611

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard

Mode: TX 2411.2MHz Model: HSTNX-001

Manufacturer: Hanshin

Polarization: Horizontal

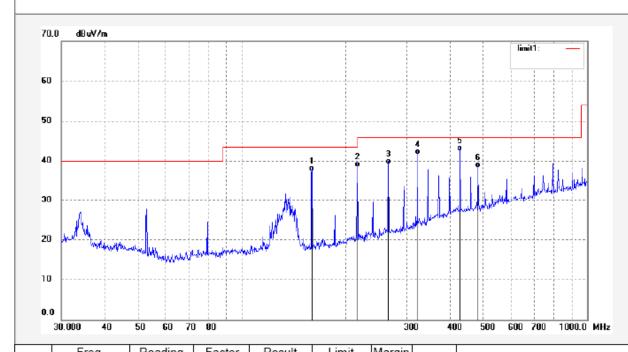
Power Source: AC 120V/60Hz

Date: 08/10/18/ Time: 10/00/12

Engineer Signature: Joe

Distance: 3m





No.	Freq. (MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Detector	Remark
1	160.5506	22.76	14.61	37.37	43.50	-6.13	QP	
2	217.6198	22.75	15.61	38.36	46.00	-7.64	QP	
3	267.4835	20.61	18.44	39.05	46.00	-6.95	QP	
4	324.6896	22.03	19.54	41.57	46.00	-4.43	QP	
5	431.7859	19.51	22.96	42.47	46.00	-3.53	QP	
6	486.5060	14.31	23.91	38.22	46.00	-7.78	QP	



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 #612

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard

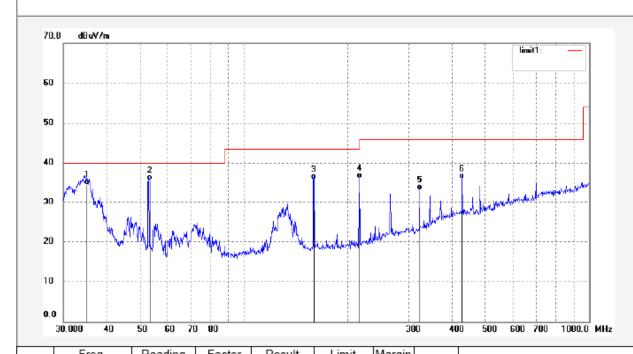
Mode: TX 2411.2MHz Model: HSTNX-001 Manufacturer: Hanshin Polarization: Vertical

Power Source: AC 120V/60Hz

Date: 08/10/18/ Time: 10/02/14

Engineer Signature: Joe

Distance: 3m



No.	Freq. (MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Detector	Remark
1	35.2060	15.92	18.64	34.56	40.00	-5.44	QP	
2	53.4556	22.03	13.65	35.68	40.00	-4.32	QP	
3	160.5469	21.25	14.61	35.86	43.50	-7.64	QP	
4	217.6194	20.49	15.61	36.10	46.00	-9.90	QP	
5	324.6921	13.68	19.54	33.22	46.00	-12.78	QP	
6	431.7917	13.01	22.96	35.97	46.00	-10.03	QP	



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Job No.: RTTE #634

Standard: FCC Class B 3M Radiated

Test item: Radiation Test
Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard Mode: TX 2411.2MHz

Model: HSTNX-001
Manufacturer: Hanshin

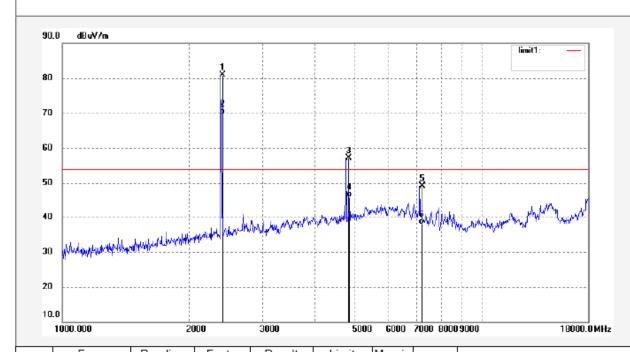
Polarization: Horizontal

Power Source: AC 120V/60Hz

Date: 08/10/20/ Time: 10/46/22

Engineer Signature: Joe

Distance: 3m



No.	Freq. (MHz)	(dBuV/m)	Factor (dB)	(dBuV/m)	(dBuV/m)	(dB)	Detector	Remark
1	2411.196	88.34	-7.43	80.91	114.00	-33.09	peak	
2	2411.196	77.06	-7.43	69.63	94.00	-24.37	AVG	
3	4822.396	57.36	-0.19	57.17	74.00	-16.83	peak	
4	4822.396	46.11	-0.19	45.92	54.00	-8.08	AVG	
5	7233.594	46.16	3.04	49.20	74.00	-24.80	peak	
6	7233.594	34.84	3.04	37.88	54.00	-16.12	AVG	



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 #633

Standard: FCC Class B 3M Radiated

Test item: Radiation Test
Temp.( C)/Hum.(%) 25 C / 52 %

Sample No.:083785

EUT: eBoard Mode: TX 2411.2MHz

Model: HSTNX-001 Manufacturer: Hanshin

Note:

Polarization: Vertical

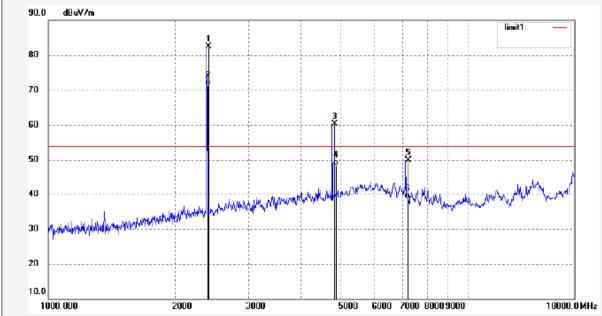
Power Source: AC 120V/60Hz

Date: 08/10/20/ Time: 10/44/01

Engineer Signature: Joe

Distance: 3m





Report No.:ATE20082001

No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)		Margin (dB)	Detector	Remark
1	2411.197	90.00	-7.43	82.57	114.00	-31.43	peak	
2	2411.197	78.69	-7.43	71.26	94.00	-22.74	AVG	
3	4822.396	60.51	-0.19	60.32	74.00	-13.68	peak	
4	4822.396	48.71	-0.19	48.52	54.00	-5.48	AVG	
5	7233.594	46.81	3.04	49.85	74.00	-24.15	peak	
6	7233.594	35.63	3.04	38.67	54.00	-15.33	AVG	



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 #652

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 52 %

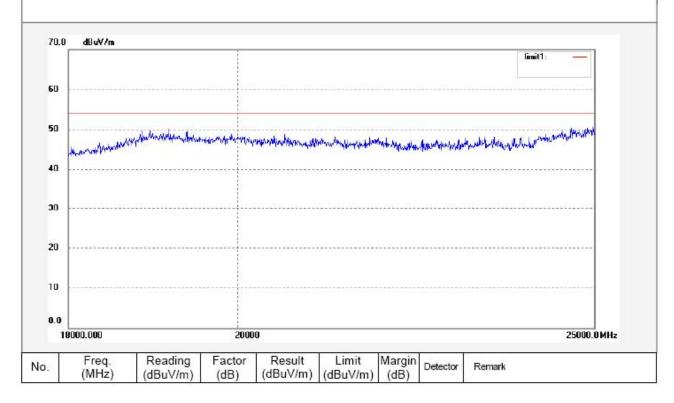
EUT: eBoard Mode: TX 2411.2MHz Model: HSTNX-001 Polarization: Horizontal Power Source: AC 120V/60Hz

Date: 2008/10/21 Time: 16:43:16

Engineer Signature: Joe

Distance: 3m

Manufacturer: Hanshin





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 #651

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard Mode: TX 2411.2MHz Model: HSTNX-001

Manufacturer: Hanshin

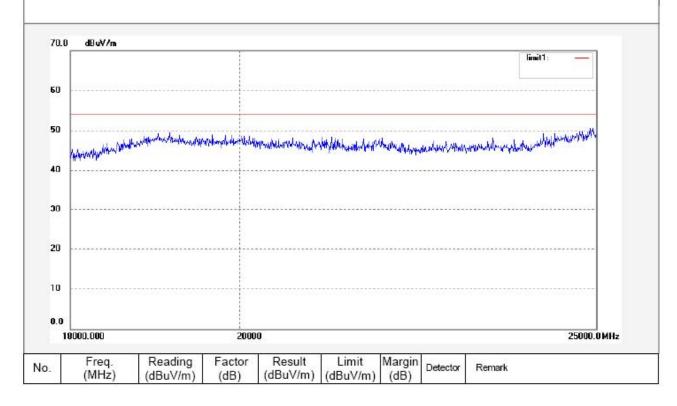
Polarization: Vertical

Power Source: AC 120V/60Hz

Date: 2008/10/21 Time: 16:40:24

Engineer Signature: Joe

Distance: 3m





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 #614

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

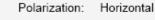
Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard

Mode: TX 2447.2MHz Model: HSTNX-001

Manufacturer: Hanshin

Note: Sample No.:083785 Report No.:ATE20082001

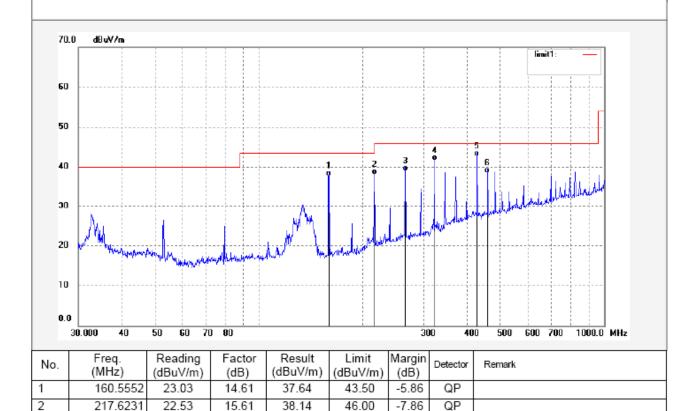


Power Source: AC 120V/60Hz

Date: 08/10/18/ Time: 10/19/03

Engineer Signature: Joe

Distance: 3m



3

4

5

6

267.4849

324.6889

431.7874

462.4122

20.48

22.04

19.63

15.14

18.44

19.54

22.96

23.33

38.92

41.58

42.59

38.47

46.00

46.00

46.00

46.00

-7.08

-4.42

-3.41

-7.53

QΡ

QΡ

QΡ

QΡ



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 #613

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard Mode: TX 2447.2MHz

Model: HSTNX-001 Manufacturer: Hanshin Polarization: Vertical

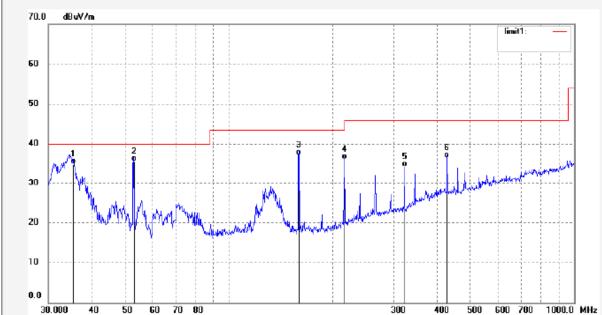
Power Source: AC 120V/60Hz

Date: 08/10/18/ Time: 10/14/13

Engineer Signature: Joe

Distance: 3m





No	o. Freq. (MHz)	(dBuV/m)	Factor (dB)	(dBuV/m)	(dBuV/m)	(dB)	Detector	Remark
1	35.1957	16.28	18.64	34.92	40.00	-5.08	QP	
2	53.4541	21.98	13.65	35.63	40.00	-4.37	QP	
3	160.5502	22.66	14.61	37.27	43.50	-6.23	QP	
4	217.6219	20.49	15.61	36.10	46.00	-9.90	QP	
5	322.5896	14.79	19.45	34.24	46.00	-11.76	QP	
6	431.7879	13.48	22.96	36.44	46.00	-9.56	QP	



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 #631

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard Mode: TX 2447.2MHz

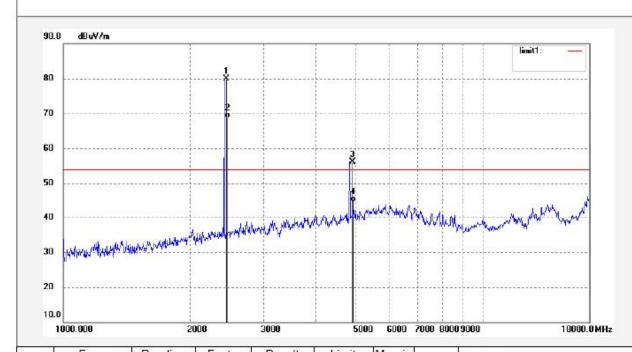
Model: HSTNX-001 Manufacturer: Hanshin Polarization: Horizontal

Power Source: AC 120V/60Hz

Date: 08/10/20/ Time: 10/37/33

Engineer Signature: Joe

Distance: 3m



No.	Freq. (MHz)	(dBuV/m)	Factor (dB)	(dBuV/m)	(dBuV/m)	(dB)	Detector	Remark
1	2447.199	87.22	-7.34	79.88	114.00	-34.12	peak	
2	2447.199	76.01	-7.34	68.67	94.00	-25.33	AVG	
3	4894.401	55.90	0.21	56.11	74.00	-17.89	peak	
4	4894.401	44.48	0.21	44.69	54.00	-9.31	AVG	



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 #632

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard TX 2447.2MHz Mode:

Model: HSTNX-001 Manufacturer: Hanshin

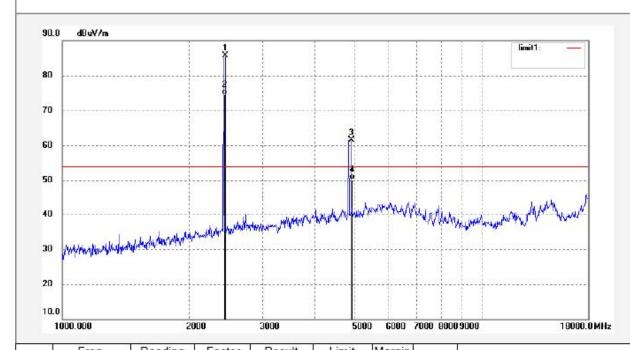
Polarization: Vertical

Power Source: AC 120V/60Hz

Date: 08/10/20/ Time: 10/40/42

Engineer Signature: Joe

Distance: 3m



No.	rreq. (MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Detector	Remark
1	2447.199	93.04	-7.34	85.70	114.00	-28.30	peak	
2	2447.199	81.88	-7.34	74.54	94.00	-19.46	AVG	
3	4894.401	61.20	0.21	61.41	74.00	-12.59	peak	
4	4894.401	49.86	0.21	50.07	54.00	-3.93	AVG	



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

Job No.: RTTE #653

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard Mode: TX 2447.2MHz Model: HSTNX-001

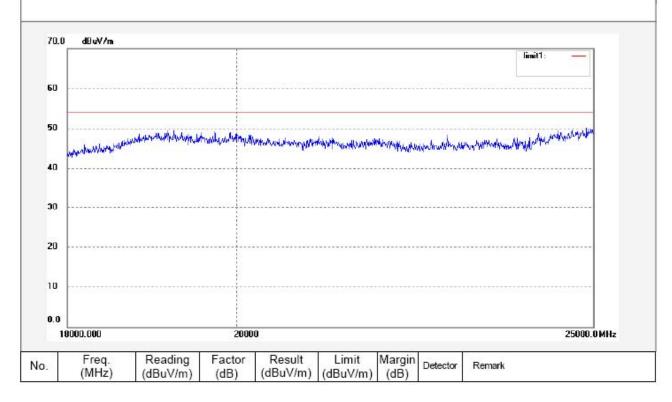
Manufacturer: Hanshin

Polarization: Horizontal Power Source: AC 120V/60Hz

Date: 2008/10/21 Time: 16:46:59

Engineer Signature: Joe

Distance: 3m





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 #654

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard Mode: TX 2447.2MHz Model: HSTNX-001 2 % Time: 16:50:12

Engineer Signature: Joe

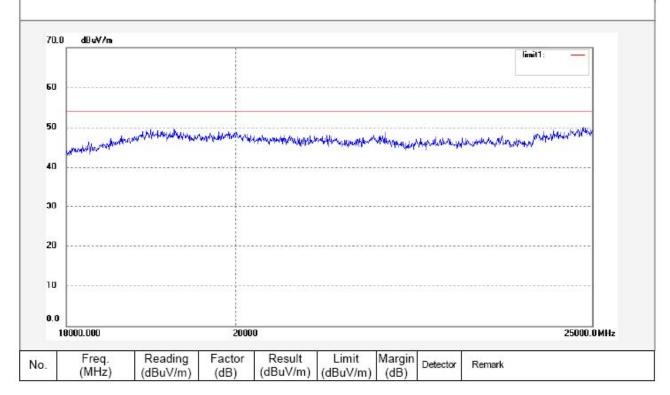
Polarization: Vertical

Power Source: AC 120V/60Hz

Distance: 3m

Date: 2008/10/21

Model: HSTNX-001 Manufacturer: Hanshin





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 #615

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard

Mode: TX 2480.2MHz Model: HSTNX-001

Manufacturer: Hanshin

Date: 08/10/18/

Time: 10/23/53

Engineer Signature: Joe

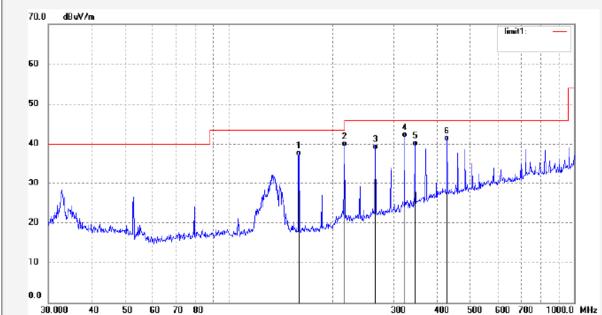
Power Source: AC 120V/60Hz

Horizontal

Distance: 3m

Polarization:





No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	(dBuV/m)	Margin (dB)	Detector	Remark
1	160.5543	22.43	14.61	37.04	43.50	-6.46	QP	
2	217.6177	23.75	15.61	39.36	46.00	-6.64	QP	
3	267.4864	20.22	18.44	38.66	46.00	-7.34	QP	
4	324.6858	22.11	19.54	41.65	46.00	-4.35	QP	
5	348.2740	18.87	20.60	39.47	46.00	-6.53	QP	
6	431.7884	17.68	22.96	40.64	46.00	-5.36	QP	



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 #616

Standard: FCC Class B 3M Radiated

Test item: Radiation Test
Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard Mode: TX 2480.2MHz

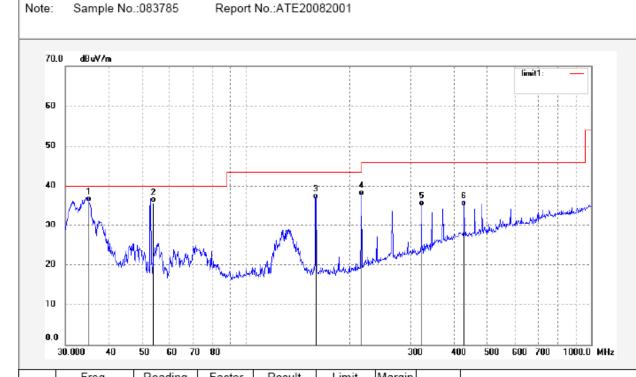
Model: HSTNX-001 Manufacturer: Hanshin Polarization: Vertical

Power Source: AC 120V/60Hz

Date: 08/10/18/ Time: 10/26/51

Engineer Signature: Joe

Distance: 3m



No.	Freq. (MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Detector	Remark
1	35.1988	17.31	18.64	35.95	40.00	-4.05	QP	
2	53.4439	22.10	13.66	35.76	40.00	-4.24	QP	
3	160.5520	22.01	14.61	36.62	43.50	-6.88	QP	
4	217.6153	21.86	15.61	37.47	46.00	-8.53	QP	
5	324.6578	15.32	19.54	34.86	46.00	-11.14	QP	
6	431.7838	12.04	22.96	35.00	46.00	-11.00	QP	



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 #630

Standard: FCC Class B 3M Radiated

Test item: Radiation Test
Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard

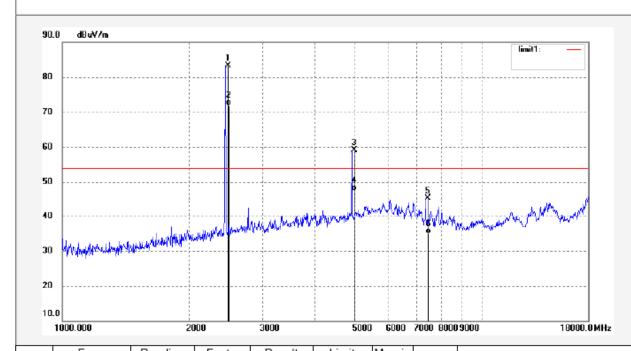
Mode: TX 2480.2MHz
Model: HSTNX-001
Manufacturer: Hanshin

Polarization: Horizontal Power Source: AC 120V/60Hz

Date: 08/10/20/ Time: 10/31/02

Engineer Signature: Joe

Distance: 3m



No.	Freq. (MHz)	(dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2480.168	90.58	-7.37	83.21	114.00	-30.79	peak	
2	2480.168	79.26	-7.37	71.89	94.00	-22.11	AVG	
3	4960.312	58.62	0.52	59.14	74.00	-14.86	peak	
4	4960.312	46.97	0.52	47.49	54.00	-6.51	AVG	
5	7440.501	41.63	3.69	45.32	74.00	-28.68	peak	
6	7440.501	31.24	3.69	34.93	54.00	-19.07	AVG	



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Job No.: RTTE #629

Standard: FCC Class B 3M Radiated

Test item: Radiation Test
Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard Mode: TX 2480.2MHz

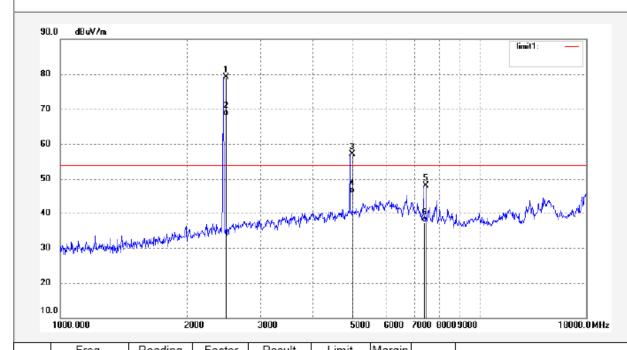
Model: HSTNX-001 Manufacturer: Hanshin Polarization: Vertical

Power Source: AC 120V/60Hz

Date: 08/10/20/ Time: 10/12/37

Engineer Signature: Joe

Distance: 3m



	No.	Freq. (MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Detector	Remark
,	1	2480.168	86.54	-7.37	79.17	114.00	-34.83	peak	
2	2	2480.168	75.38	-7.37	68.01	94.00	-25.99	AVG	
1	3	4960.312	56.64	0.52	57.16	74.00	-16.84	peak	
4	4	4960.312	45.39	0.52	45.91	54.00	-8.09	AVG	
į	5	7440.501	44.38	3.69	48.07	74.00	-25.93	peak	
(	ó	7440.501	33.61	3.69	37.30	54.00	-16.70	AVG	



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

Polarization:

Date: 2008/10/21

Time: 16:57:39

Distance: 3m

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

Horizontal

Power Source: AC 120V/60Hz

Engineer Signature: Joe

Job No.: RTTE #656

Standard: FCC Class B 3M Radiated

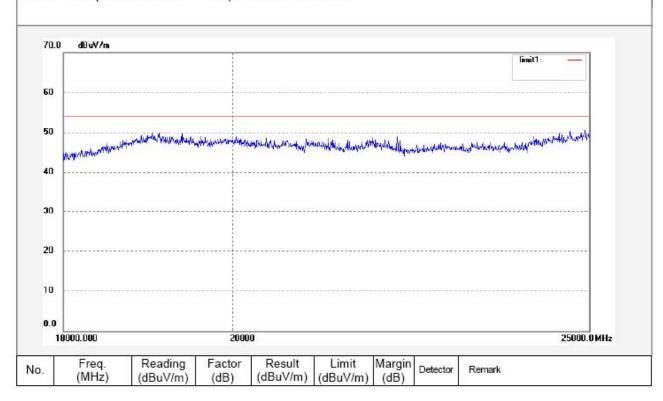
Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard Mode: TX 2480.2MHz Model: HSTNX-001

Manufacturer: Hanshin

Note: Sample No.:083785 Report No.:ATE20082001





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 #655

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard Mode: TX 2480.2MHz Model: HSTNX-001

Manufacturer: Hanshin

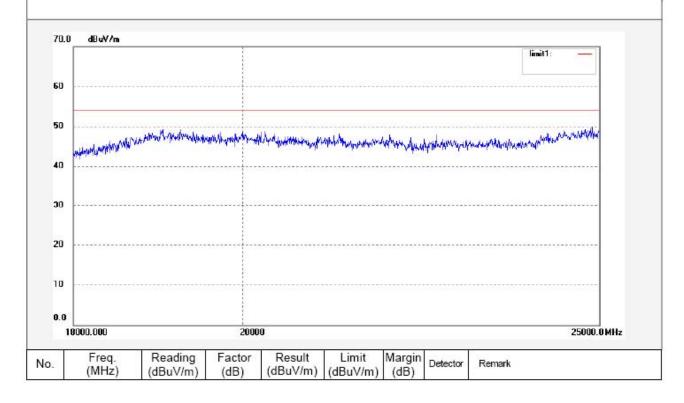
Polarization: Vertical

Power Source: AC 120V/60Hz

Date: 2008/10/21 Time: 16:54:13

Engineer Signature: Joe

Distance: 3m





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

2415.0 MHz

Job No.: RTTE #637

Standard: FCC Part 15 PEAK 2.4G

Test item: Radiation Test Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard

Mode: TX 2411.2MHz Model: HSTNX-001 Manufacturer: Hanshin

Sample No.:083785 Note:

Polarization: Horizontal

Power Source: AC 120V/60Hz

Date: 08/10/21/ Time: 9/49/53

Engineer Signature: Joe

Distance: 3m



Report No.:ATE20082001

No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2397.888	57.12	-7.48	49.64	74.00	-24.36	peak	
2	2397.888	45.75	-7.48	38.27	54.00	-15.73	AVG	
3	2398.988	56.26	-7.46	48.80	74.00	-25.20	peak	
4	2398.988	45.03	-7.46	37.57	54.00	-16.43	AVG	
5	2400.000	54.02	-7.46	46.56	74.00	-27.44	peak	
6	2400.000	42.77	-7.46	35.31	54.00	-18.69	AVG	

40

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

Job No.: RTTE #638

Standard: FCC Part 15 PEAK 2.4G

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard Mode: TX 2411.2MHz Model: HSTNX-001

Manufacturer: Hanshin

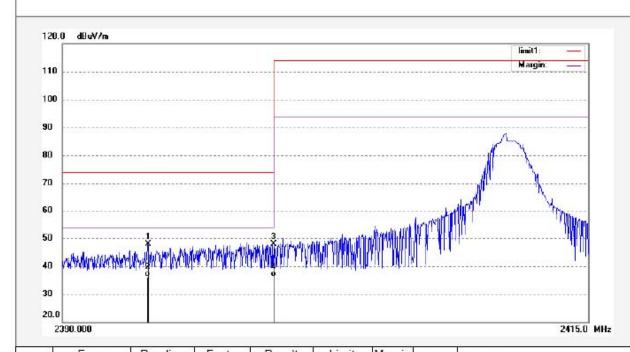
Polarization: Vertical

Power Source: AC 120V/60Hz

Date: 08/10/21/ Time: 9/55/00

Engineer Signature: Joe

Distance: 3m



No.	Freq. (MHz)	(dBuV/m)	Factor (dB)	(dBuV/m)	(dBuV/m)	(dB)	Detector	Remark
1	2394.041	55.27	-7.50	47.77	74.00	-26.23	peak	
2	2394.041	43.53	-7.50	36.03	54.00	-17.97	AVG	
3	2400.000	55.30	-7.46	47.84	74.00	-26.16	peak	
4	2400.000	43.68	-7.46	36.22	54.00	-17.78	AVG	



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Job No.: RTTE #636

Standard: FCC Part 15 PEAK 2.4G

Test item: Radiation Test
Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard

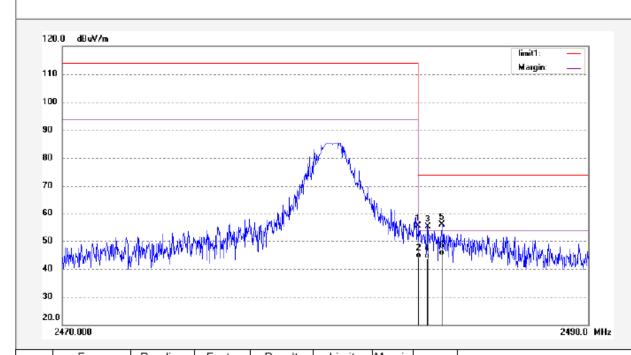
Mode: TX 2480.2MHz Model: HSTNX-001 Manufacturer: Hanshin Polarization: Horizontal

Power Source: AC 120V/60Hz

Date: 08/10/21/ Time: 9/38/40

Engineer Signature: Joe

Distance: 3m



No.	Freq. (MHz)	(dBuV/m)	Factor (dB)	Result (dBuV/m)	(dBuV/m)	Margin (dB)	Detector	Remark
1	2483.500	62.78	-7.37	55.41	74.00	-18.59	peak	
2	2483.500	51.36	-7.37	43.99	54.00	-10.01	AVG	
3	2483.871	62.55	-7.38	55.17	74.00	-18.83	peak	
4	2483.871	51.03	-7.38	43.65	54.00	-10.35	AVG	
5	2484.413	63.34	-7.38	55.96	74.00	-18.04	peak	
6	2484.413	52.14	-7.38	44.76	54.00	-9.24	AVG	



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

2490.0 MHz

Job No.: RTTE #635

Standard: FCC Part 15 PEAK 2.4G

Test item: Radiation Test
Temp.( C)/Hum.(%) 25 C / 52 %

EUT: eBoard Mode: TX 2480.2MHz

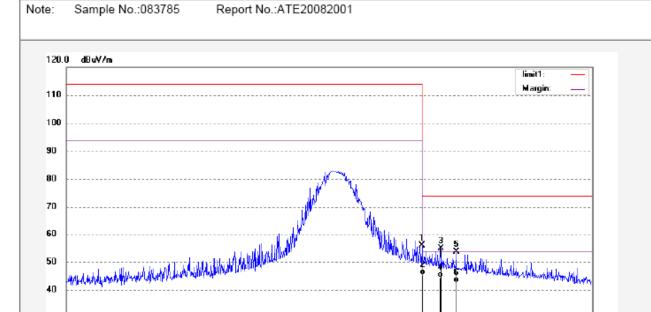
Model: HSTNX-001 Manufacturer: Hanshin Polarization: Vertical

Power Source: AC 120V/60Hz

Date: 08/10/21/ Time: 9/20/24

Engineer Signature: Joe

Distance: 3m



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2483.500	63.25	-7.37	55.88	74.00	-18.12	peak	
2	2483.500	52.72	-7.37	45.35	54.00	-8.65	AVG	
3	2484.212	62.34	-7.38	54.96	74.00	-19.04	peak	
4	2484.212	51.87	-7.38	44.49	54.00	-9.51	AVG	
5	2484.814	60.92	-7.38	53.54	74.00	-20.46	peak	
6	2484.814	50.09	-7.38	42.71	54.00	-11.29	AVG	

20.0