APPLICATION CERTIFICATION FCC Part 15C
On Behalf of
Heng Ke Metal Works

Slim Wireless Vehicle Weighing System
Model No.: VS800W17

FCC ID: ZCDVS17R

Prepared for	:	Heng Ke Metal Works
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Report No.	:	ATE20171737
Date of Test	:	September 2, 2017
Date of Report	:	September 4, 2017

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Test Report Certification

Applicant	:	Heng Ke Metal Works
Manufacturer	:	Heng Ke Metal Works
EUT Description	:	Slim Wireless Vehicle Weighing System
Model No.	:	VS800W17
Trade Mark	:	n.a.

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247: 2016
ANSI C63.10: 2013

The EUT was tested according to DTS test procedure of Apr 05, 2017 KDB558074 D01 DTS Meas Guidance v04 for compliance to FCC 47CFR 15.247 requirements

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 15.247 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 : September 2, 2017
Date of Report: September 4, 2017

Prepared by : (Bob Wang, Engineer)

Approved & Authorized Signer : (Sean Liu, Manager)

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT	:	Slim Wireless Vehicle Weighing System
Model Number	:	VS800W17
Trade Mark	:	n.a.
Bluetooth version	:	BT V4.1
Frequency Range	:	2402MHz-2480MHz
Number of Channels	:	40
Antenna Gain	:	2dBi
Antenna type	:	Integral Antenna
Power Supply	:	DC 6V
Modulation mode	:	GFSK
Applicant	:	Heng Ke Metal Works
Address	:	1 Jiang Bel Road, Xia Ni, Qing Xi, DongGuan, Guang Dong, China
Manufacturer	:	Heng Ke Metal Works
Address	:	1 Jiang Bel Road, Xia Ni, Qing Xi, DongGuan, Guang Dong, China
Date of sample received	:	August 25 2017
Date of Test	:	September 2, 2017
Sample No.	:	1701379

1.2.Special Accessory and Auxiliary Equipment

n.a.

1.3.Carrier Frequency of Channels

Channel	Frequceny (MHz)	Channel	Frequceny (MHz)	Channel	Frequceny (MHz)	Channe l	Frequceny (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

1.4.Description of Test Facility

EMC Lab	:	Recognition of accreditation by Federal Communications Commission (FCC) The Designation Number is CN1189 The Registration Number is 708358 Listed by Innovation, Science and Economic Development Canada (ISEDC) The Registration Number is 5077A-2 Accredited by China National Accreditation Service for Conformity Assessment (CNAS) The Registration Number is CNAS L3193 Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 4297.01
Name of Firm	:	Shenzhen Accurate Technology Co., Ltd.
Site Location	:	1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China

1.5.Measurement Uncertainty

Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty (9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty (Above 1GHz)	=	4.06dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated dates	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 7, 2017	1 Year
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 7, 2017	1 Year
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 7, 2017	1 Year
Pre-Amplifier	Rohde&Schwarz	CBLU1183540-01	3791	Jan. 7, 2017	1 Year
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 13, 2017	1 Year
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 13, 2017	1 Year
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 13, 2017	1 Year
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 13, 2017	1 Year
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 7, 2017	1 Year
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 7, 2017	1 Year
Highpass Filter	Wainwright Instruments	WHKX3.6/18G-10SS	N/A	Jan. 7, 2017	1 Year
Band Reject Filter	Wainwright Instruments	WRCG2400/2485-2375/2510-60/11SS	N/A	Jan. 7, 2017	1 Year

3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

The mode is used: **BLE Transmitting mode**
Low Channel: 2402MHz
Middle Channel: 2440MHz
High Channel: 2480MHz

3.2.Configuration and peripherals

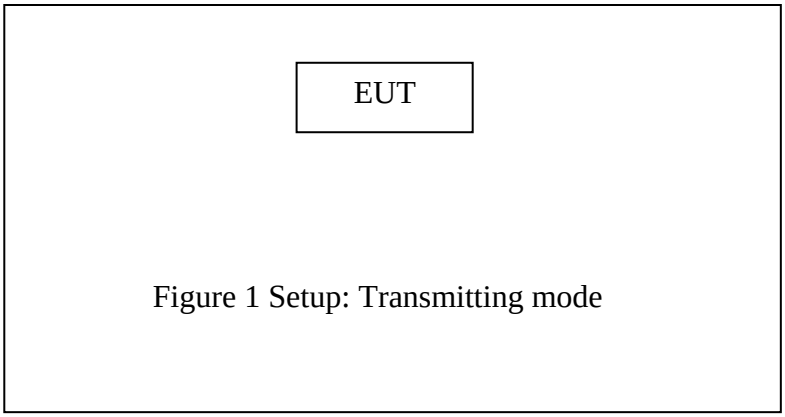


Figure 1 Setup: Transmitting mode

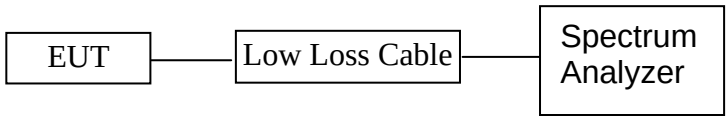
4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.247(a)(2)	6dB Bandwidth Test	Compliant
Section 15.247(e)	Power Spectral Density Test	Compliant
Section 15.247(b)(3)	Maximum Peak Output Power Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.247(d) Section 15.209	Radiated Spurious Emission Test	Compliant
Section 15.207	AC Power Line Conducted Emission Test	N/A
Section 15.203	Antenna Requirement	Compliant

Note: The power supply mode of the module is DC 6V, According to the FCC standard requirements, conducted emission is not applicable.

5. 6DB BANDWIDTH MEASUREMENT

5.1.Block Diagram of Test Setup



(EUT: Slim Wireless Vehicle Weighing System)

5.2.The Requirement For Section 15.247(a)(2)

Section 15.247(a)(2): Systems using digital modulation techniques may operate in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

5.3.EUT Configuration on Measurement

The equipment is 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.

5.4.Operating Condition of EUT

5.4.1.Setup the EUT and simulator as shown as Section 6.1.

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 2402-2480 MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

5.5.Test Procedure

5.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

5.5.2.Set RBW of spectrum analyzer to 100 kHz and VBW to300 kHz.

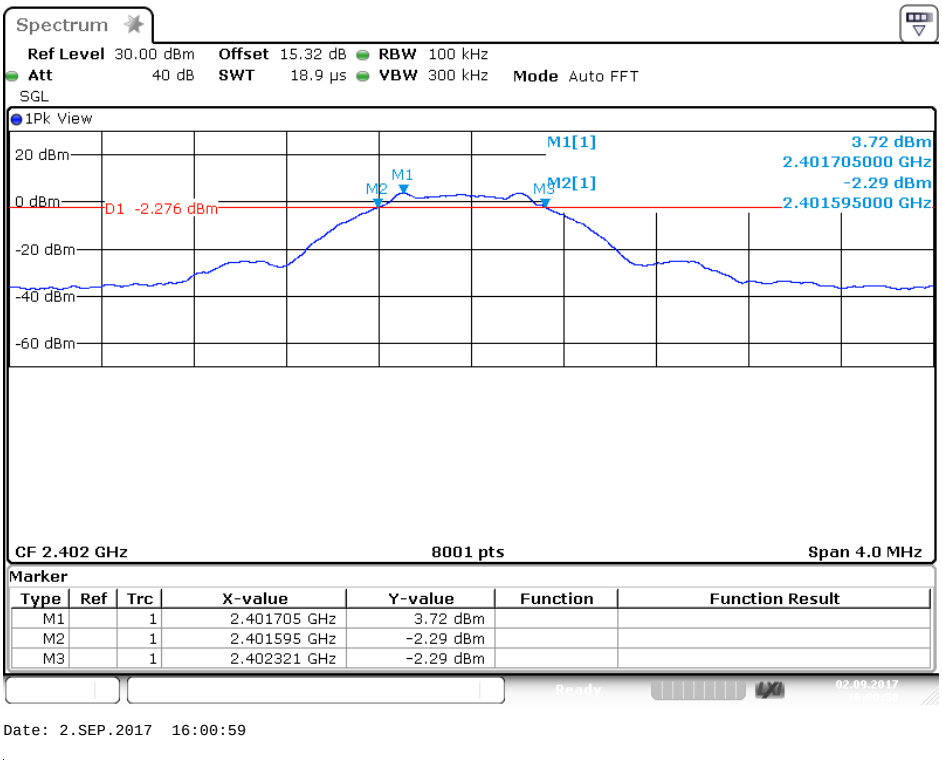
5.5.3.The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

5.6.Test Result

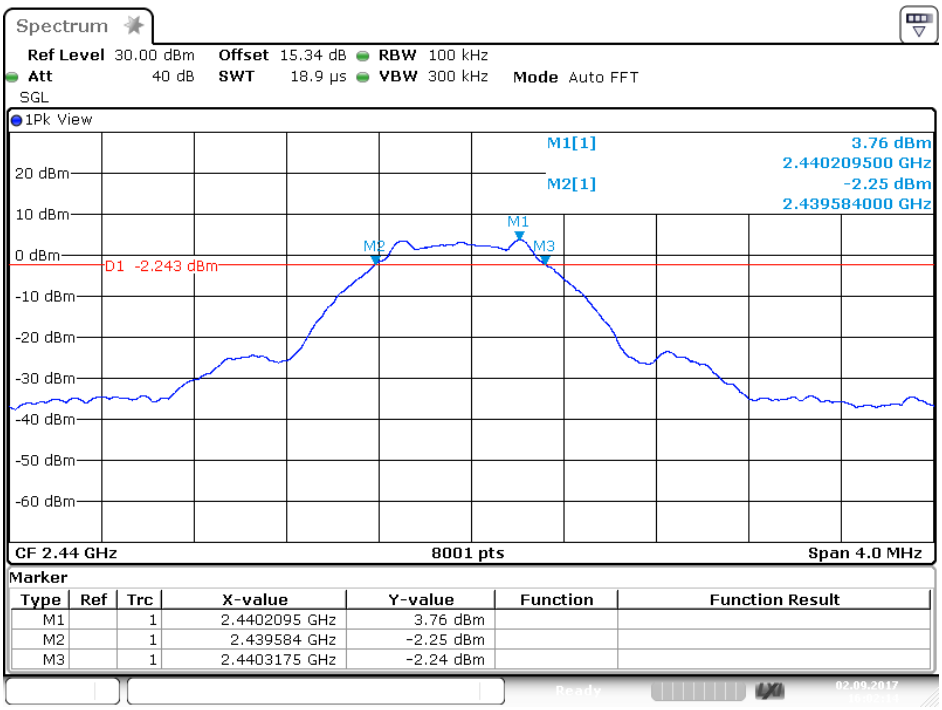
Channel	Frequency (MHz)	6 dB Bandwith (MHz)	Minimum Limit(MHz)	PASS/FAIL
0	2402	0.726	0.5	PASS
19	2440	0.734	0.5	PASS
39	2480	0.742	0.5	PASS

The spectrum analyzer plots are attached as below.

channel 0



channel 19



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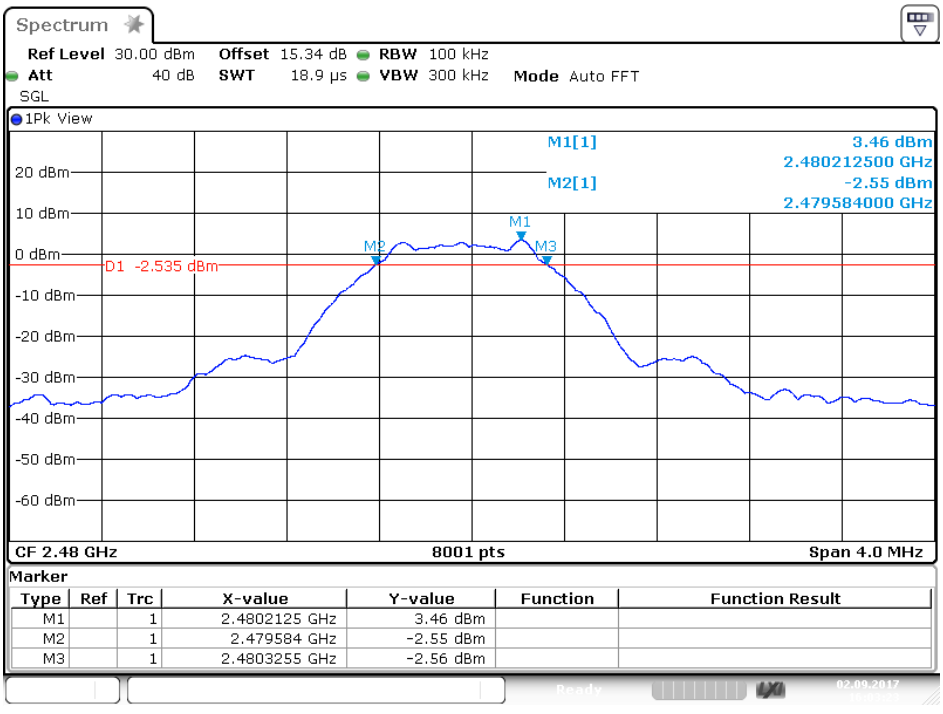
channel 39



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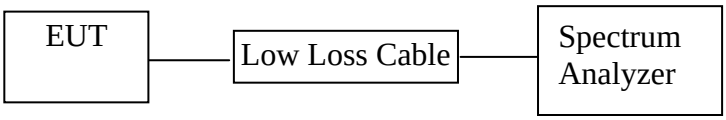
6. MAXIMUM PEAK OUTPUT POWER

6.1.Block Diagram of Test Setup



(EUT: Slim Wireless Vehicle Weighing System)

6.2.The Requirement For Section 15.247(b)(3)

Section 15.247(b)(3): For systems using digital modulation in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands: 1 Watt.

6.3.EUT Configuration on Measurement

The 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.

6.4.Operating Condition of EUT

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

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 2402-2480 MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

6.5.Test Procedure

6.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

6.5.2.Set RBW of spectrum analyzer to 3 MHz and VBW to 3 MHz.

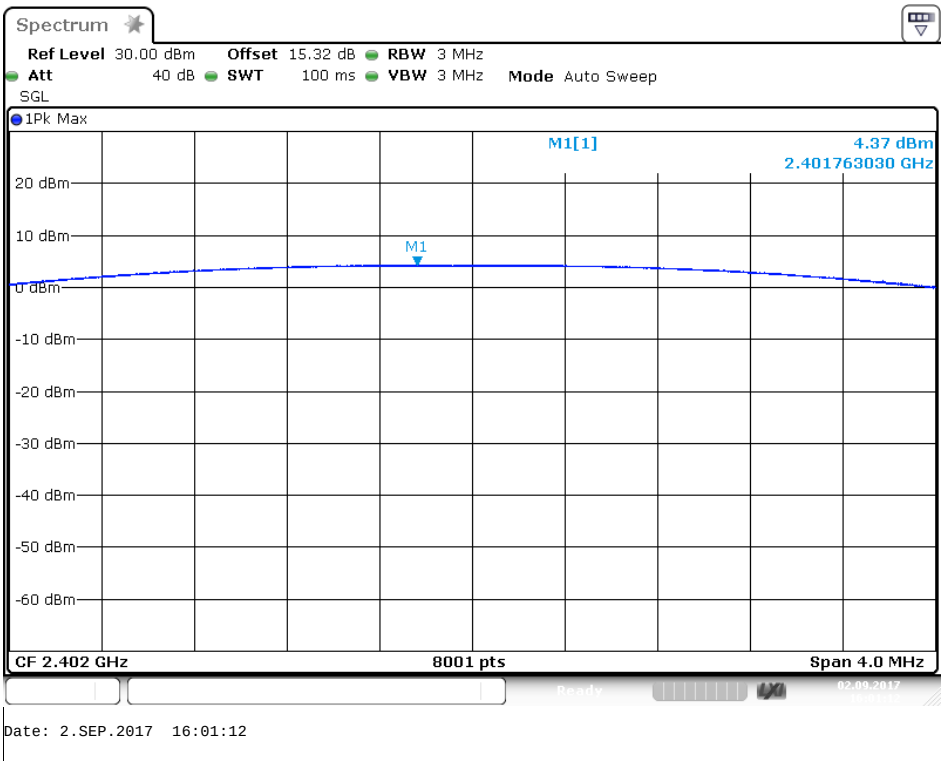
6.5.3.Measurement the maximum peak output power.

6.6.Test Result

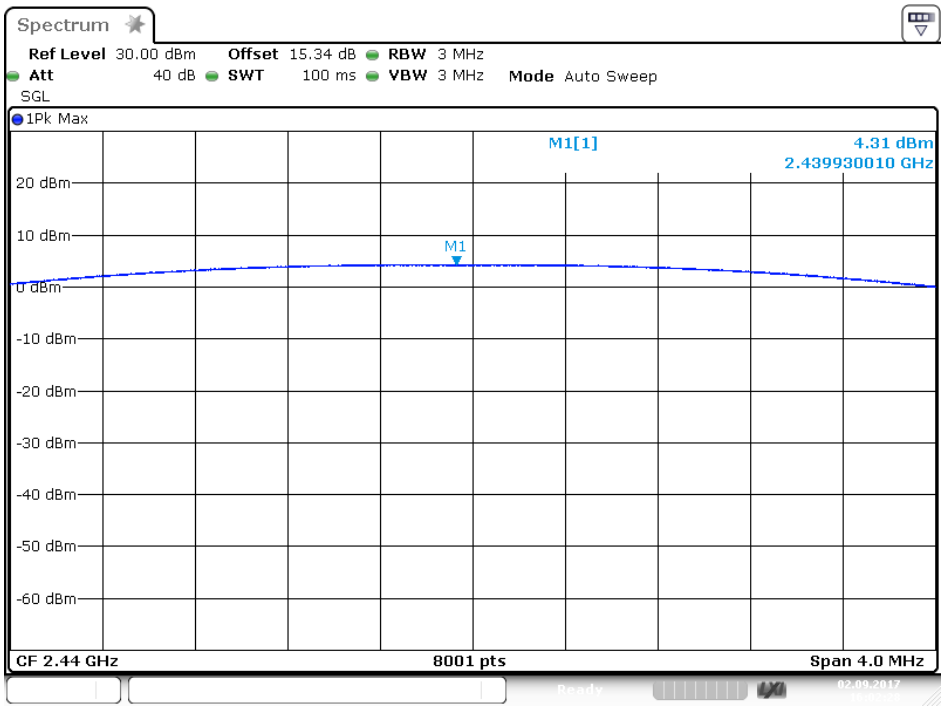
Channel	Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass / Fail
0	2402	4.37	30	PASS
19	2440	4.31	30	PASS
39	2480	4.01	30	PASS

The spectrum analyzer plots are attached as below.

channel 0

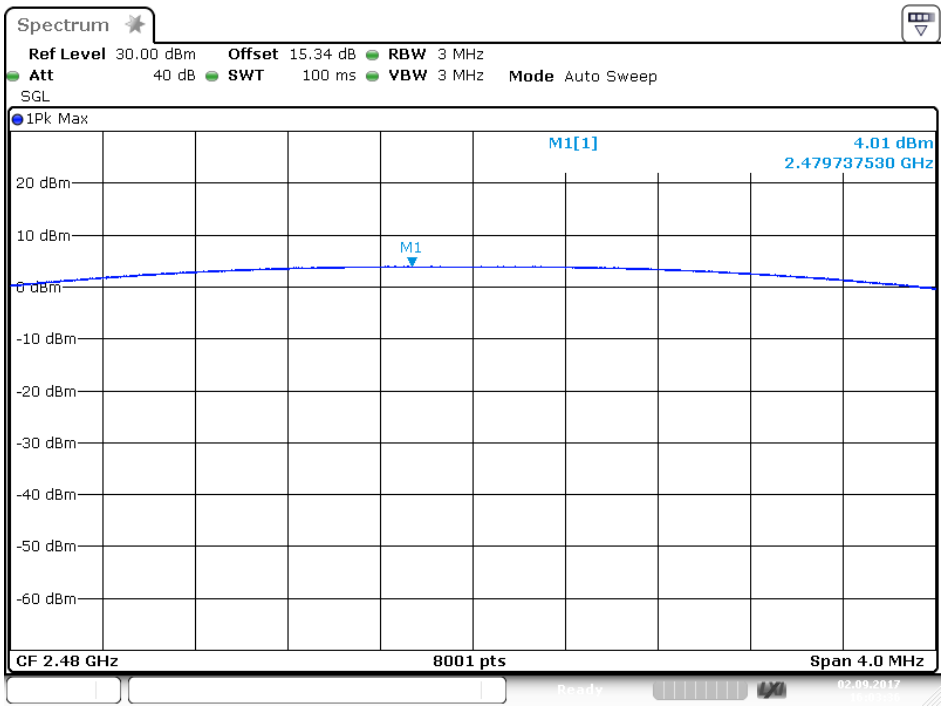


channel 19



Date: 2.SEP.2017 16:02:28

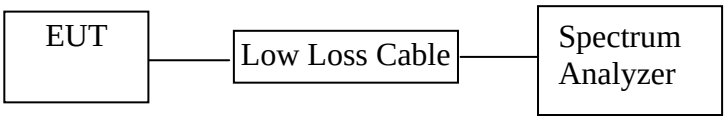
channel 39



Date: 2.SEP.2017 16:03:37

7. POWER SPECTRAL DENSITY MEASUREMENT

7.1.Block Diagram of Test Setup



(EUT: Slim Wireless Vehicle Weighing System)

7.2.The Requirement For Section 15.247(e)

Section 15.247(e): For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

7.3.EUT Configuration on Measurement

The 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.

7.4.Operating Condition of EUT

7.4.1.Setup the EUT and simulator as shown as Section 8.1.

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 2402-2480. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

7.5.Test Procedure

7.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.

7.5.2.Measurement Procedure PKPSD:

7.5.3.This procedure must be used if maximum peak conducted output power was used to demonstrate compliance to the fundamental output power limit, and is optional if the maximum (average) conducted output power was used to demonstrate compliance.

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
4. Set the VBW ≥ 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

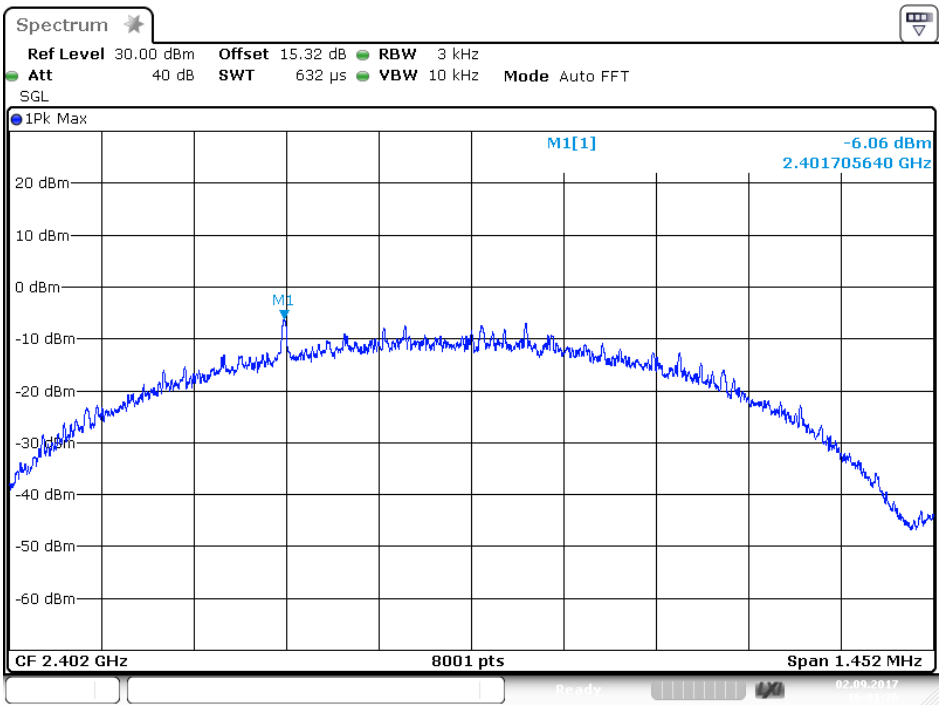
7.5.4.Measurement the maximum power spectral density.

7.6.Test Result

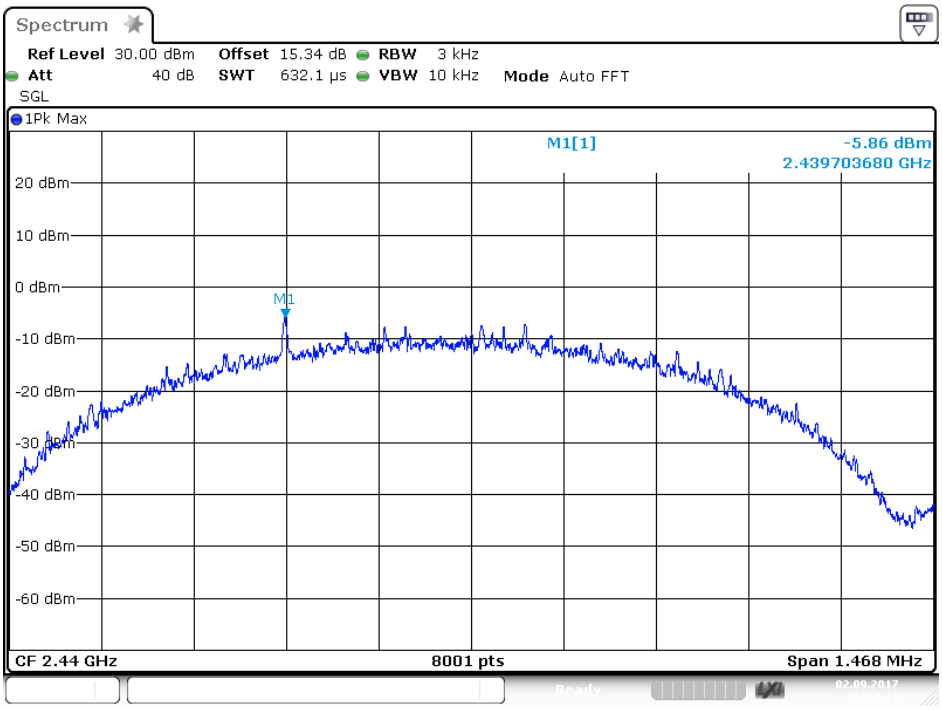
CHANNEL NUMBER	FREQUENCY (MHz)	PSD (dBm/3KHz)	LIMIT (dBm/3KHz)	PASS/FAIL
0	2402	-6.06	8	PASS
19	2440	-5.86	8	PASS
39	2480	-6.40	8	PASS

The spectrum analyzer plots are attached as below.

channel 0

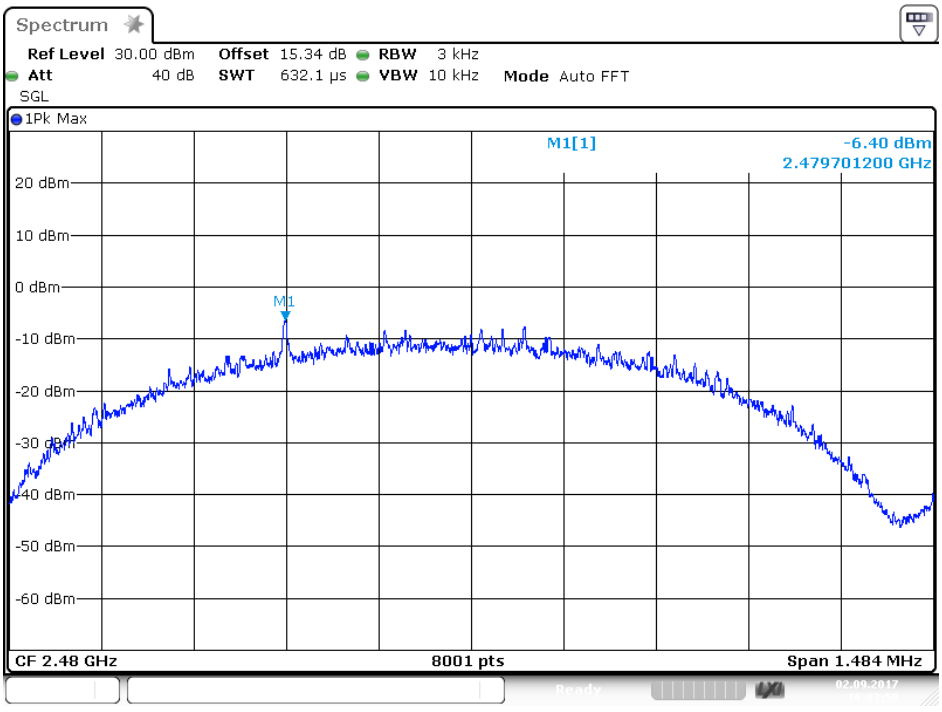


channel 19



Date: 2.SEP.2017 16:02:42

channel 39



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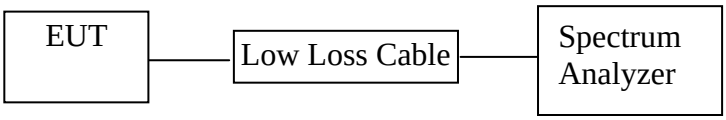
8. BAND EDGE COMPLIANCE TEST

8.1.Block Diagram of Test Setup



(EUT: Slim Wireless Vehicle Weighing System)

8.2.The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

8.3.EUT Configuration on Measurement

The 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.

8.4.Operating Condition of EUT

8.4.1.Setup the EUT and simulator as shown as Section 9.1.

8.4.2.Turn on the power of all equipment.

8.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480 MHz. We select 2402MHz, 2480MHz TX frequency to transmit.

8.5.Test Procedure

Conducted Band Edge:

8.5.1.The transmitter output was connected to the spectrum analyzer via a low loss cable.

8.5.2.Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz.

8.5.3. Radiate Band Edge:

8.5.4.The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.

8.5.5.The turntable was rotated for 360 degrees to determine the position of maximum emission level.

8.5.6.EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.

8.5.7.Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

8.5.8.RBW=3kHz, VBW=10kHz

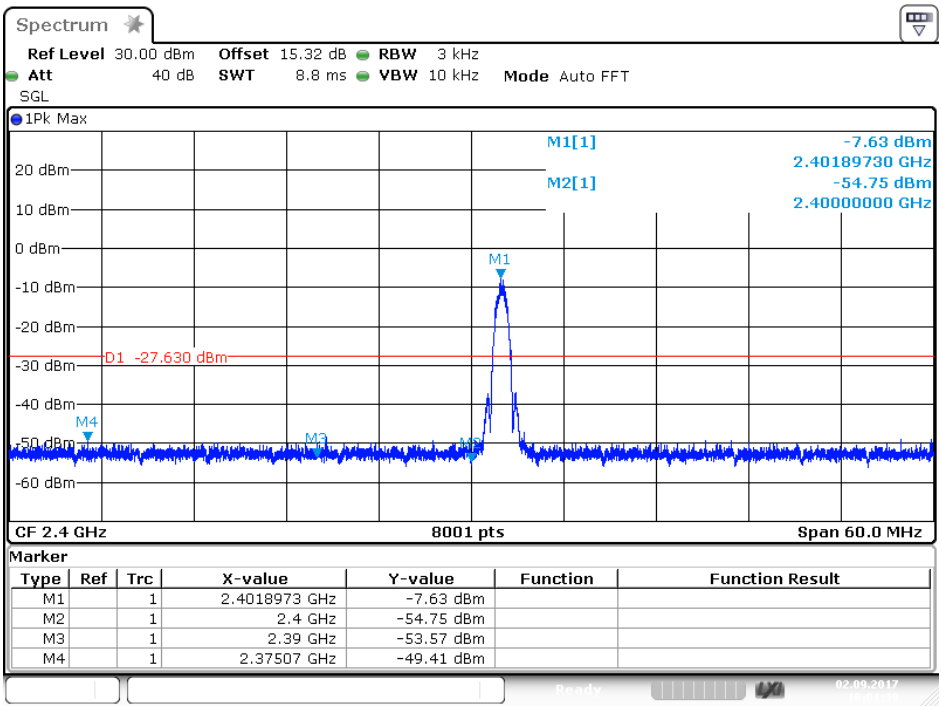
8.5.9.The band edges was measured and recorded.

8.6.Test Result

Pass

Channel	Frequency	Delta peak to band emission	Limit(dBc)
0	2.4GHz	47.12	20
39	2.4835GHz	46.82	20

channel 0



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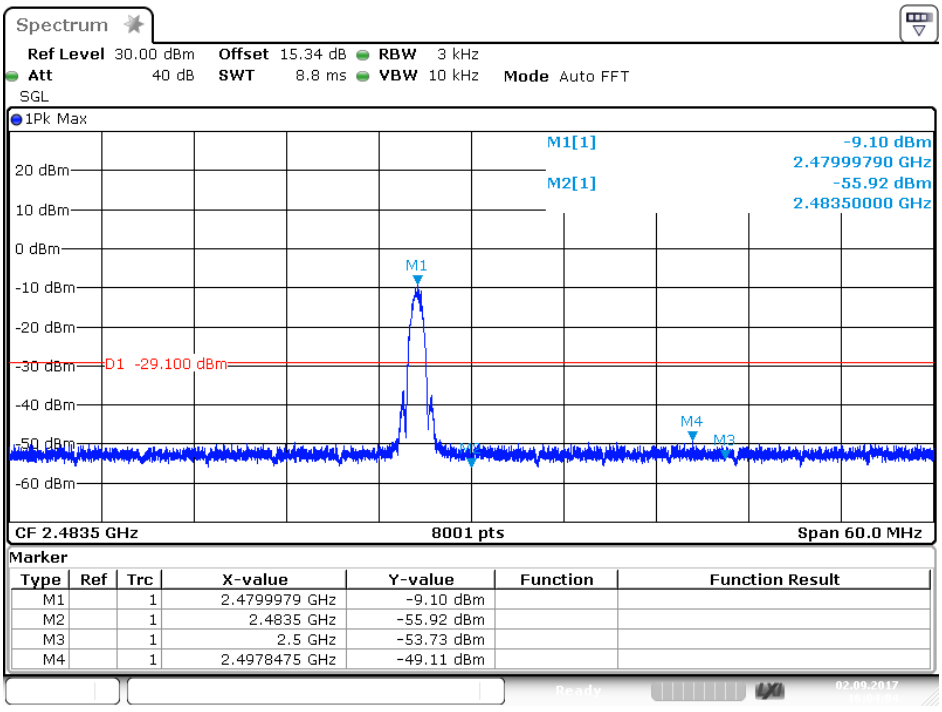
channel 39



Date: 2.SEP.2017 16:04:04

Radiated Band Edge Result

Date of Test:	September 2, 2017	Temperature:	25°C
EUT:	Slim Wireless Vehicle Weighing System	Humidity:	50%
Model No.:	VS800W17	Power Supply:	DC 6V
Test Mode:	TX (2402MHz) GFSK	Test Engineer:	Frank

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	
2390.000	32.56	42.41	-1.71	30.85	40.70	54.00	74.00	-23.15	-33.30	Vertical
2400.000	42.01	51.82	-1.62	40.39	50.20	54.00	74.00	-13.61	-23.80	Vertical
2390.000	33.23	42.41	-1.71	31.52	40.70	54.00	74.00	-22.48	-33.30	Horizontal
2400.000	46.56	57.32	-1.62	44.94	55.70	54.00	74.00	-9.06	-18.30	Horizontal

Date of Test:	September 2, 2017	Temperature:	25°C
EUT:	Slim Wireless Vehicle Weighing System	Humidity:	50%
Model No.:	VS800W17	Power Supply:	DC 6V
Test Mode:	TX (2480MHz) GFSK	Test Engineer:	Frank

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	34.12	42.39	-1.40	32.72	40.99	54.00	74.00	-21.28	-33.01	Vertical
2500.000	33.56	42.75	-4.40	32.16	41.35	54.00	74.00	-21.84	-32.65	Vertical
2483.500	33.25	42.39	-1.40	31.85	40.99	54.00	74.00	-22.15	-33.01	Horizontal
2500.000	33.56	42.75	-1.40	32.16	41.35	54.00	74.00	-21.84	-32.65	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
3. Display the measurement of peak values.

ACCURATE TECHNOLOGY CO., LTD.
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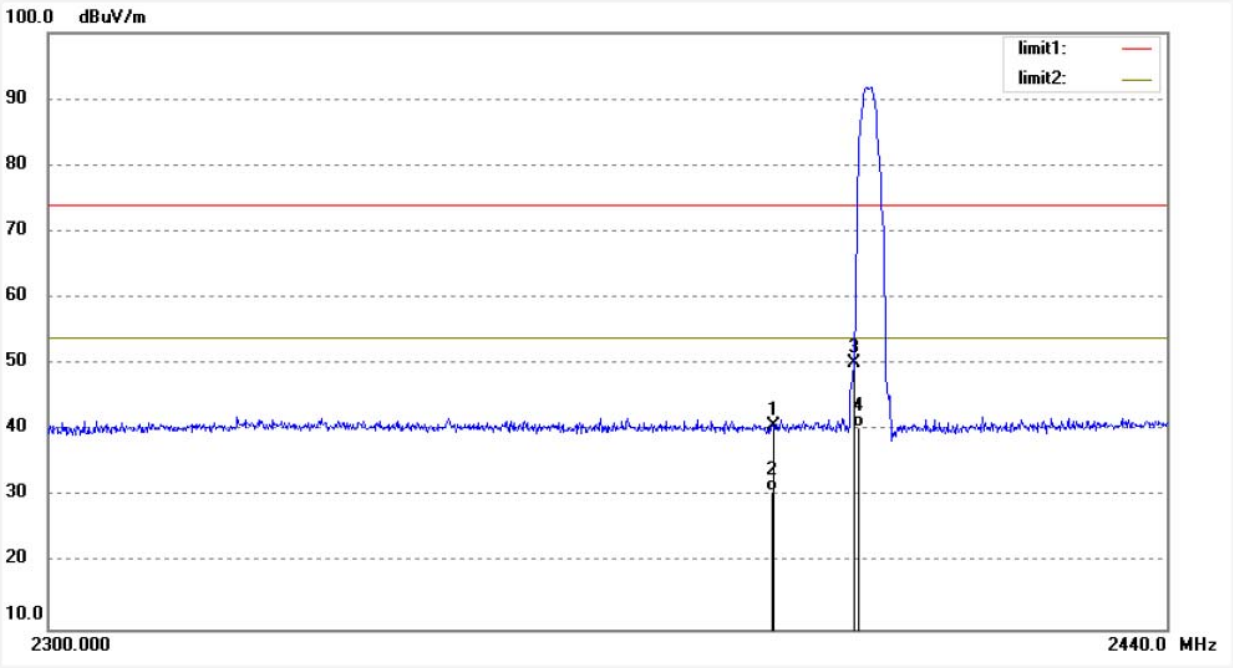
Fax:+86-0755-26503396

Job No.: yjzh #379	Polarization: Vertical
Standard: FCC PK	Power Source: DC 6V
Test item: Radiation Test	Date: 17/09/02/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 13/18/18
EUT: Slim Wireless Vehicle Weighing System	Engineer Signature: Nick
Mode: TX 2402MHz	Distance: 3m
Model: VS800W17	
Manufacturer: Heng Ke Metal Works	

Note: Report NO.:ATE20171737



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	42.41	-1.71	40.70	74.00	-33.30	peak	150	79	
2	2390.000	32.56	-1.71	30.85	54.00	-23.15	AVG	150	79	
3	2400.000	51.82	-1.62	50.20	74.00	-23.80	peak	150	112	
4	2400.000	42.01	-1.62	40.39	54.00	-13.61	AVG	150	112	

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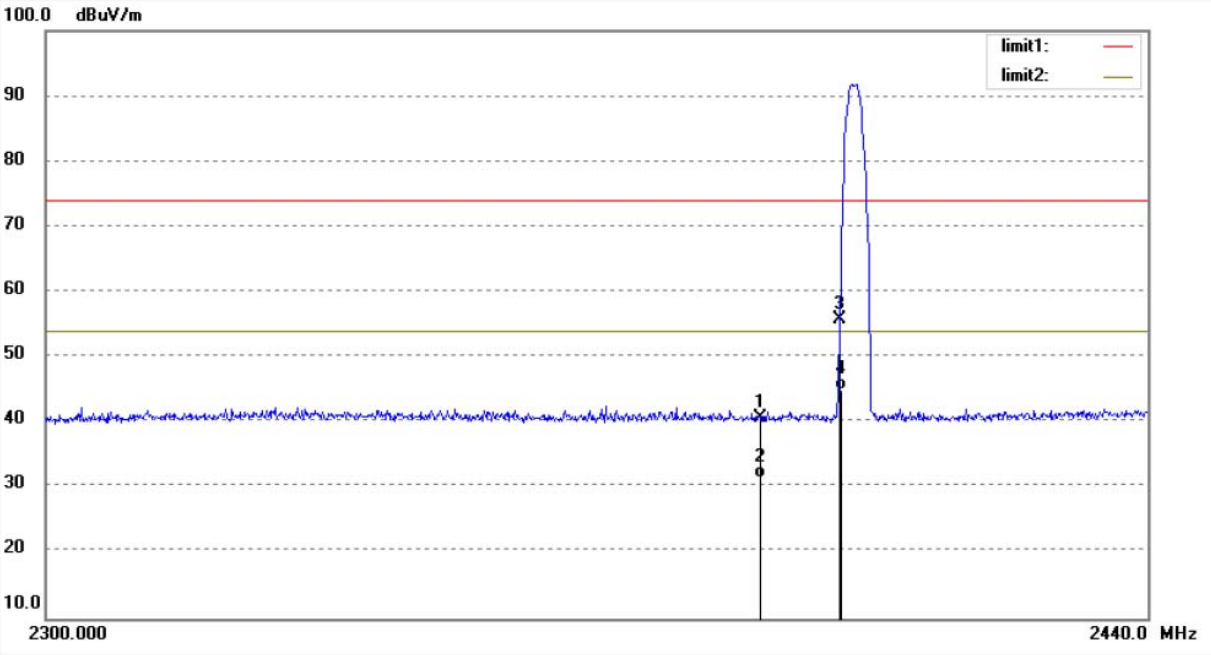
Job No.: yjzh #380	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 6V
Test item: Radiation Test	Date: 17/09/02/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 13/20/35
EUT: Slim Wireless Vehicle Weighing System	Engineer Signature: Nick
Mode: TX 2402MHz	Distance: 3m
Model: VS800W17	
Manufacturer: Heng Ke Metal Works	

Note: Report NO.:ATE20171737



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	42.41	-1.71	40.70	74.00	-33.30	peak	150	119	
2	2390.000	33.23	-1.71	31.52	54.00	-22.48	AVG	150	119	
3	2400.000	57.32	-1.62	55.70	74.00	-18.30	peak	150	239	
4	2400.000	46.56	-1.62	44.94	54.00	-9.06	AVG	150	239	

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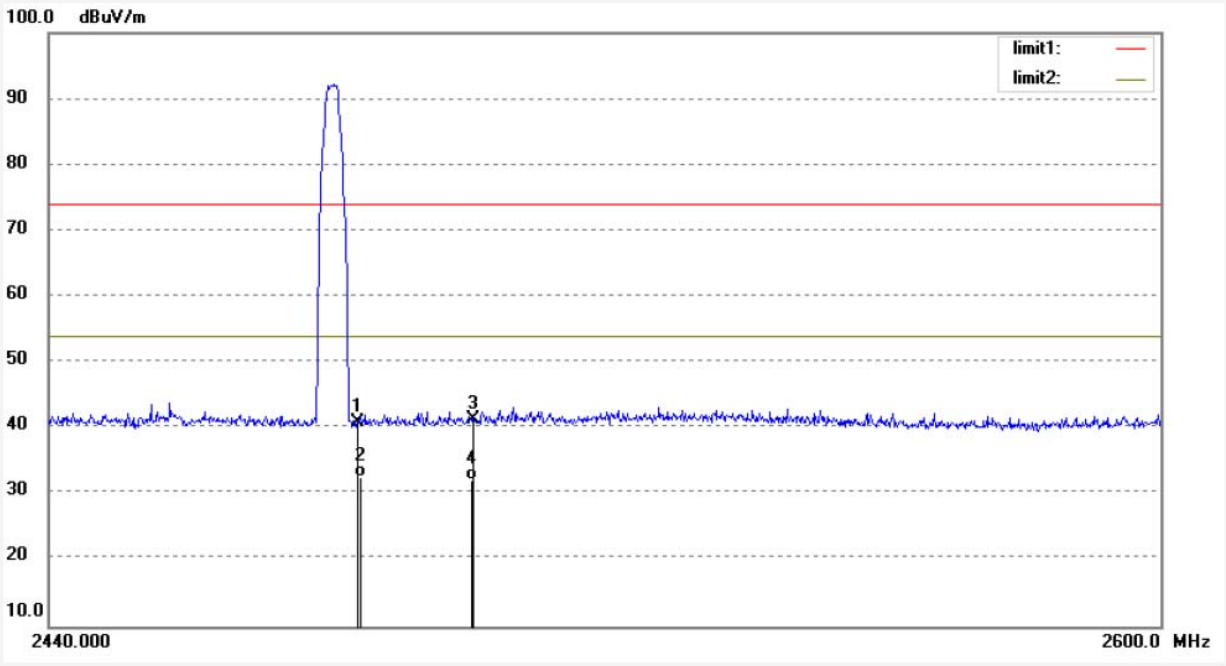
Job No.: yjzh #385
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Slim Wireless Vehicle Weighing System
Mode: TX 2480MHz
Model: VS800W17
Manufacturer: Heng Ke Metal Works

Polarization: Vertical
Power Source: DC 6V
Date: 17/09/02/
Time: 13/3855
Engineer Signature: Nick
Distance: 3m

Note: Report NO.:ATE20171737



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	42.39	-1.40	40.99	74.00	-33.01	peak	150	147	
2	2483.500	34.12	-1.40	32.72	54.00	-21.28	AVG	150	147	
3	2500.000	42.75	-1.40	41.35	74.00	-32.65	peak	150	27	
4	2500.000	33.56	-1.40	32.16	54.00	-21.84	AVG	150	27	

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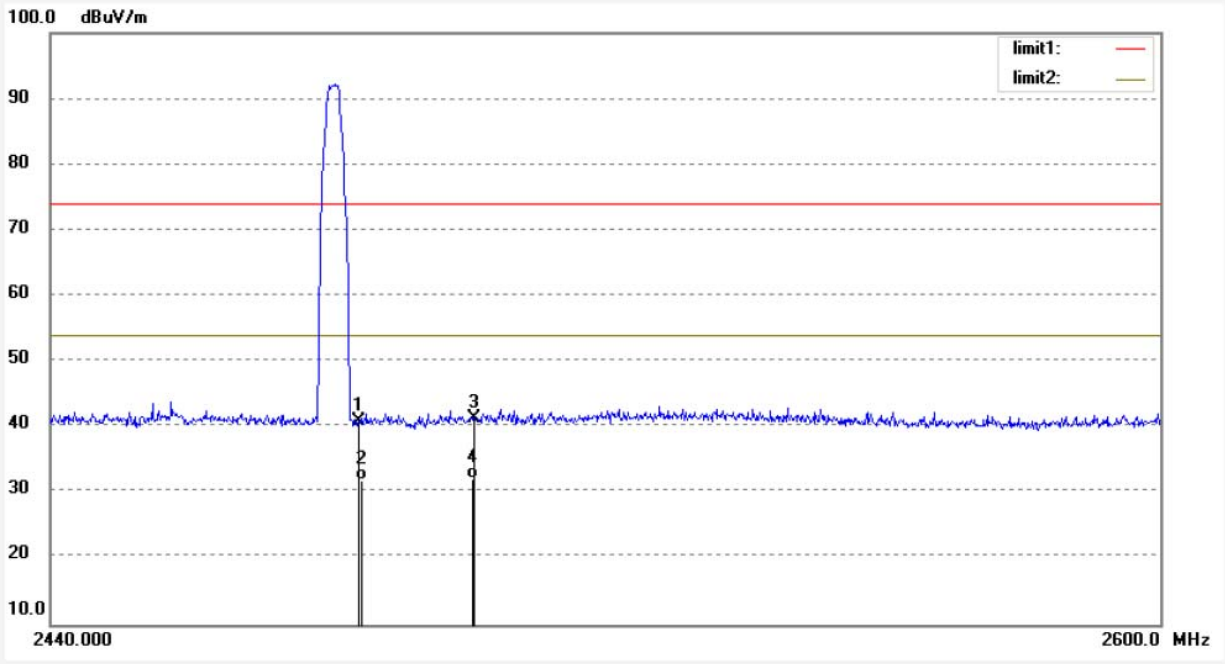
Job No.: yjzh #386	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 6V
Test item: Radiation Test	Date: 17/09/02/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 13/41/12
EUT: Slim Wireless Vehicle Weighing System	Engineer Signature: Nick
Mode: TX 2480MHz	Distance: 3m
Model: VS800W17	
Manufacturer: Heng Ke Metal Works	

Note: Report NO.:ATE20171737



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	42.39	-1.40	40.99	74.00	-33.01	peak	150	134	
2	2483.500	33.25	-1.40	31.85	54.00	-22.15	AVG	150	134	
3	2500.000	42.75	-1.40	41.35	74.00	-32.65	peak	150	284	
4	2500.000	33.56	-1.40	32.16	54.00	-21.84	AVG	150	284	

Note:

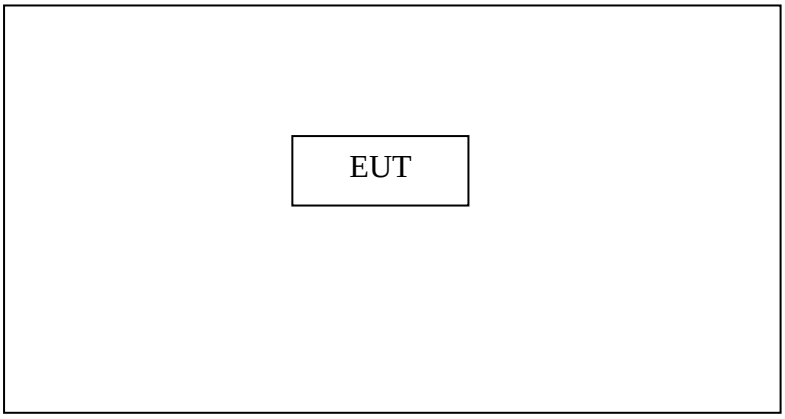
1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is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

   Result = Reading + Corrected Factor
3. Display the measurement of peak values.

9. RADIATED SPURIOUS EMISSION TEST

9.1.Block Diagram of Test Setup

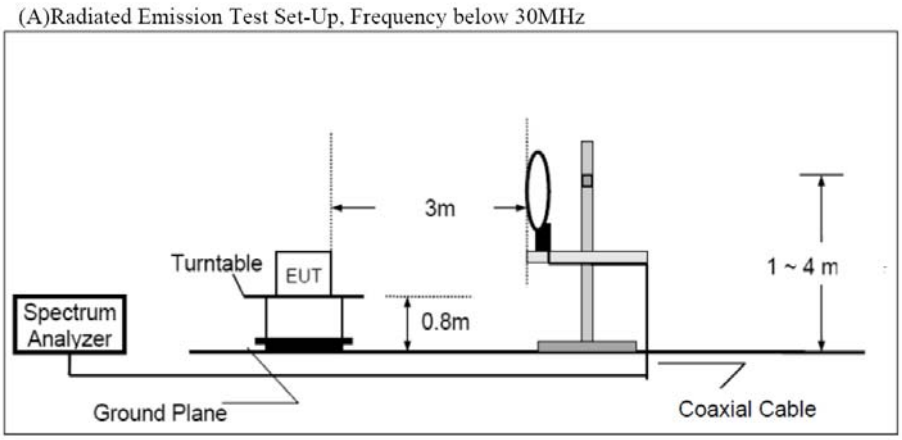
9.1.1.Block diagram of connection between the EUT and peripherals



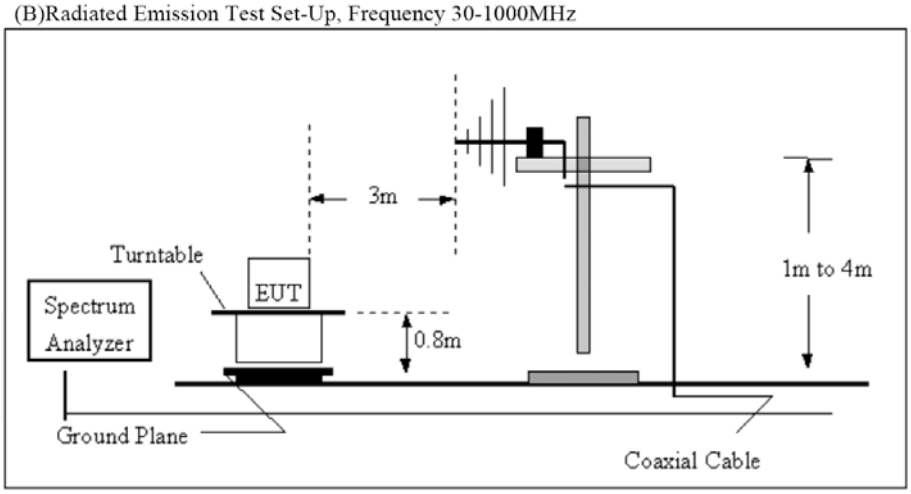
Setup: Transmitting mode

(EUT: Slim Wireless Vehicle Weighing System)

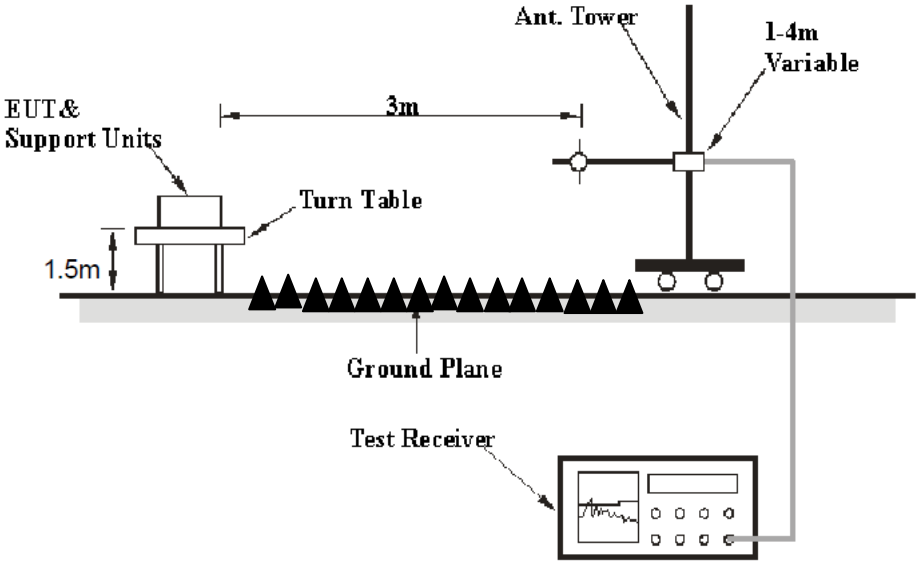
9.1.2.Semi-Anechoic Chamber Test Setup Diagram



(B)Radiated Emission Test Set-Up, Frequency 30-1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1GHz



9.2.The Limit For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

9.3.Restricted bands of operation

9.3.1.FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

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

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510
[2]Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

9.4.Configuration of EUT on Measurement

The 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.

9.5.Operating Condition of EUT

9.5.1.Setup the EUT and simulator as shown as Section 10.1.

9.5.2.Turn on the power of all equipment.

9.5.3.Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

9.6.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground(Below 1GHz). The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground(Above 1GHz). 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 bi-log 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 EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 9 kHz in below 30MHz. and set at 120 kHz in 30-1000MHz, and 1MHz in above 1000MHz.

The frequency range from 9 kHz to 25GHz is checked.
The final measurement in band 9-90 kHz, 110-490 kHz 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.
The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:
Result = Reading + Corrected Factor
Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

9.7.Data Sample

Frequency (MHz)	Reading (dBμv)	Factor (dB/m)	Result (dBμv/m)	Limit (dBμv/m)	Margin (dB)	Remark
31.0728	28.05	-14.97	13.08	40.00	-26.92	QP

Frequency(MHz) = Emission frequency in MHz
Reading(dBμv) = Uncorrected Analyzer/Receiver reading
Factor (dB/m) = Antenna factor + Cable Loss – Amplifier gain
Result(dBμv/m) = Reading(dBμv) + Factor(dB/m)
Limit (dBμv/m) = Limit stated in standard
Margin (dB) = Result(dBμv/m) - Limit (dBμv/m)
QP = Quasi-peak Reading
Calculation Formula:
Margin(dB) = Result (dBμV/m)–Limit(dBμV/m)
Result(dBμV/m)= Reading(dBμV)+ Factor(dB/m)
The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit.

9.8.The Field Strength of Radiation Emission Measurement Results

PASS.

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.

2. *: Denotes restricted band of operation.

3. The radiation emissions from 18-25GHz are not reported, because the test values lower than the limits of 20dB.

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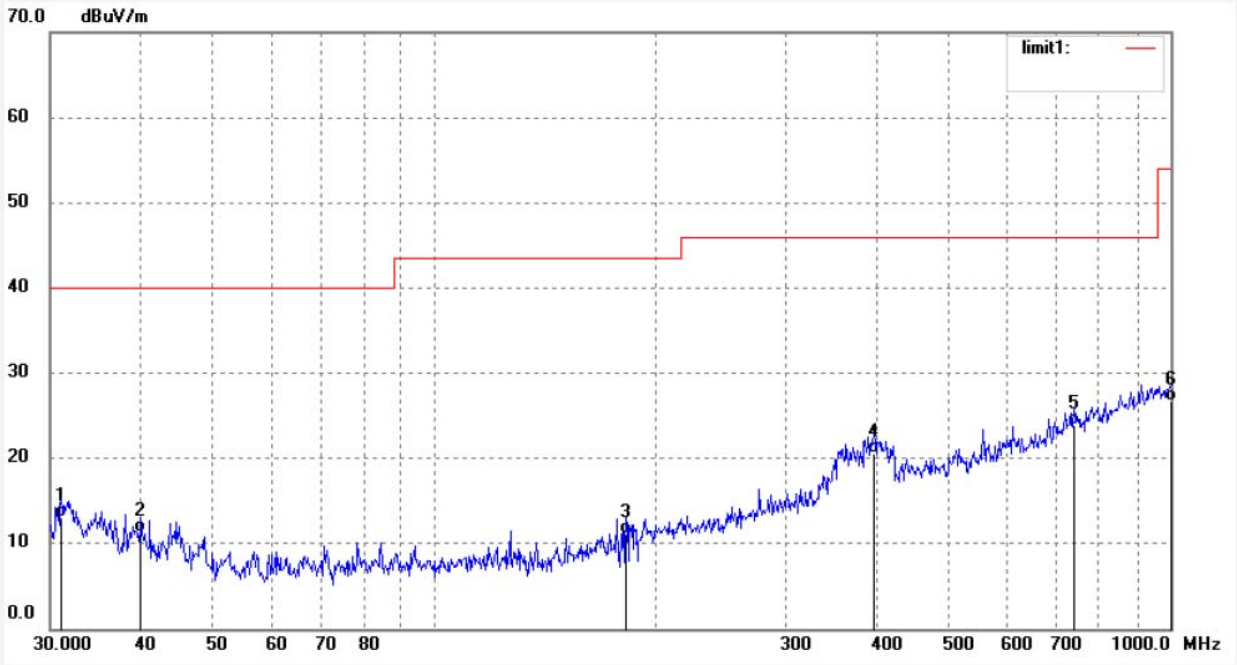
Job No.: yjzh1 #181
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Slim Wireless Vehicle Weighing System
Mode: TX 2402MHz
Model: VS800W17
Manufacturer: Heng Ke Metal Works

Polarization: Horizontal
Power Source: DC 6V
Date: 17/09/02/
Time: 8/32/38
Engineer Signature: YJZH
Distance: 3m

Note: Report NO.:ATE20171737



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.0728	28.05	-14.97	13.08	40.00	-26.92	QP	200	250	
2	39.8769	29.32	-18.04	11.28	40.00	-28.72	QP	200	251	
3	181.9381	31.23	-20.14	11.09	43.50	-32.41	QP	200	248	
4	395.5071	33.59	-13.07	20.52	46.00	-25.48	QP	200	252	
5	739.2136	29.33	-5.39	23.94	46.00	-22.06	QP	200	253	
6	1000.0000	26.90	-0.20	26.70	54.00	-27.30	QP	200	251	

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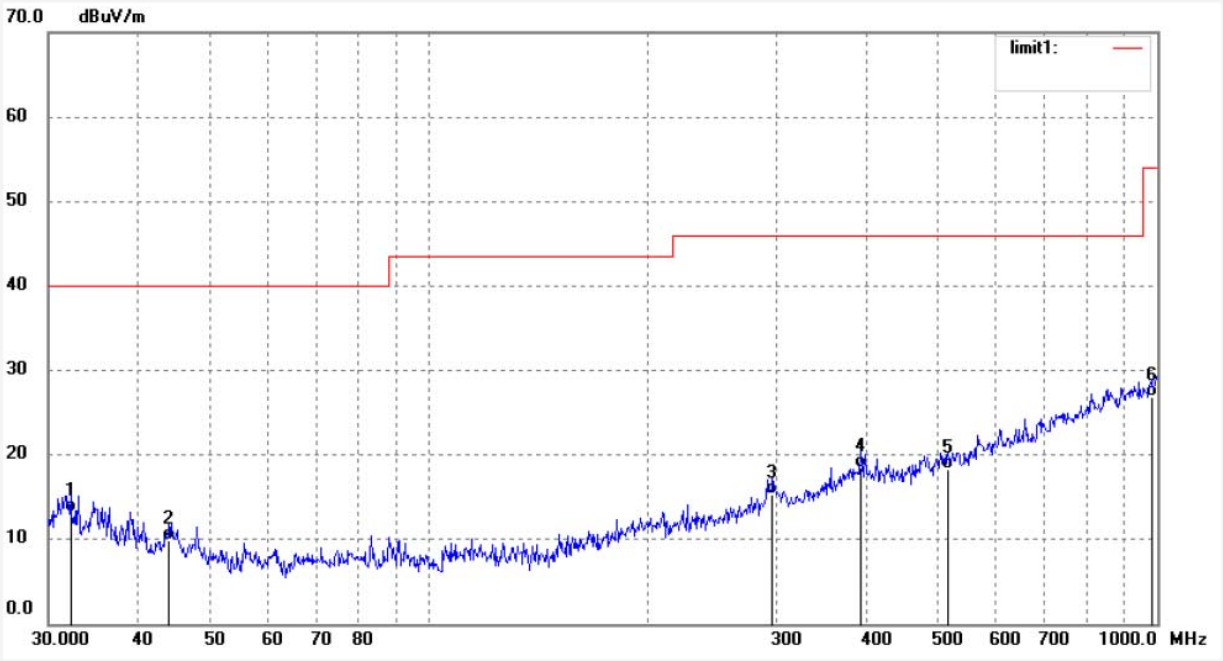
Job No.: yjzh1 #182
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Slim Wireless Vehicle Weighing System
Mode: TX 2402MHz
Model: VS800W17
Manufacturer: Heng Ke Metal Works

Polarization: Vertical
Power Source: DC 6V
Date: 17/09/02/
Time: 8/34/21
Engineer Signature: YJZH
Distance: 3m

Note: Report NO.:ATE20171737



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	32.1840	28.53	-15.24	13.29	40.00	-26.71	QP	100	248	
2	43.9995	28.60	-18.76	9.84	40.00	-30.16	QP	100	252	
3	296.5023	31.17	-15.86	15.31	46.00	-30.69	QP	100	255	
4	391.3601	31.54	-13.12	18.42	46.00	-27.58	QP	100	251	
5	516.5651	28.77	-10.50	18.27	46.00	-27.73	QP	100	252	
6	982.5855	27.56	-0.65	26.91	54.00	-27.09	QP	100	253	

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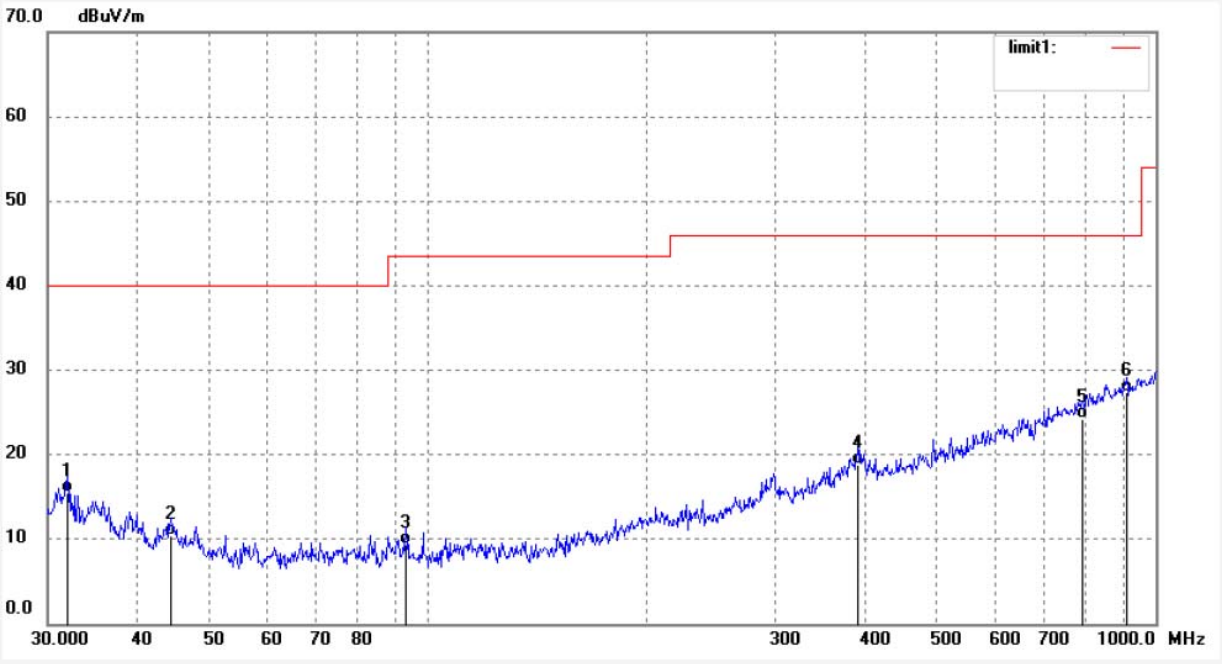
Job No.: yjzh1 #183	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 6V
Test item: Radiation Test	Date: 17/09/02/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 8/35/34
EUT: Slim Wireless Vehicle Weighing System	Engineer Signature: YJZH
Mode: TX 2440MHz	Distance: 3m
Model: VS800W17	
Manufacturer: Heng Ke Metal Works	

Note: Report NO.:ATE20171737



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.9586	30.63	-15.19	15.44	40.00	-24.56	QP	100	250	
2	44.3098	29.26	-18.81	10.45	40.00	-29.55	QP	100	252	
3	93.3248	31.36	-21.92	9.44	43.50	-34.06	QP	100	247	
4	389.9874	31.98	-13.15	18.83	46.00	-27.17	QP	100	253	
5	793.0281	28.51	-4.27	24.24	46.00	-21.76	QP	100	255	
6	912.6953	29.54	-2.08	27.46	46.00	-18.54	QP	100	250	

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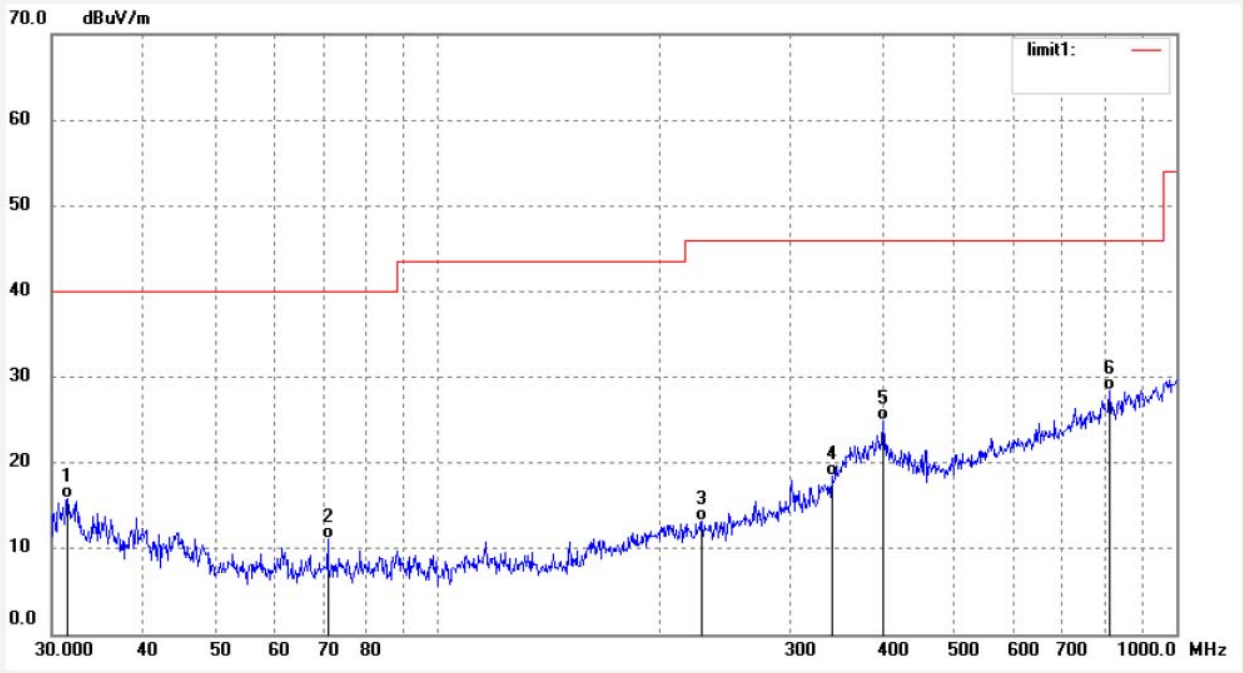
Job No.: yjzh1 #184
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Slim Wireless Vehicle Weighing System
Mode: TX 2440MHz
Model: VS800W17
Manufacturer: Heng Ke Metal Works

Polarization: Horizontal
Power Source: DC 6V
Date: 17/09/02/
Time: 8/37/35
Engineer Signature: YJZH
Distance: 3m

Note: Report NO.:ATE20171737



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.5126	30.91	-15.07	15.84	40.00	-24.16	QP	200	248	
2	70.9536	33.24	-22.12	11.12	40.00	-28.88	QP	200	242	
3	227.8155	31.56	-18.30	13.26	46.00	-32.74	QP	200	251	
4	341.2442	32.64	-14.19	18.45	46.00	-27.55	QP	200	249	
5	401.1050	37.89	-13.00	24.89	46.00	-21.11	QP	200	252	
6	812.7745	32.43	-3.91	28.52	46.00	-17.48	QP	200	253	

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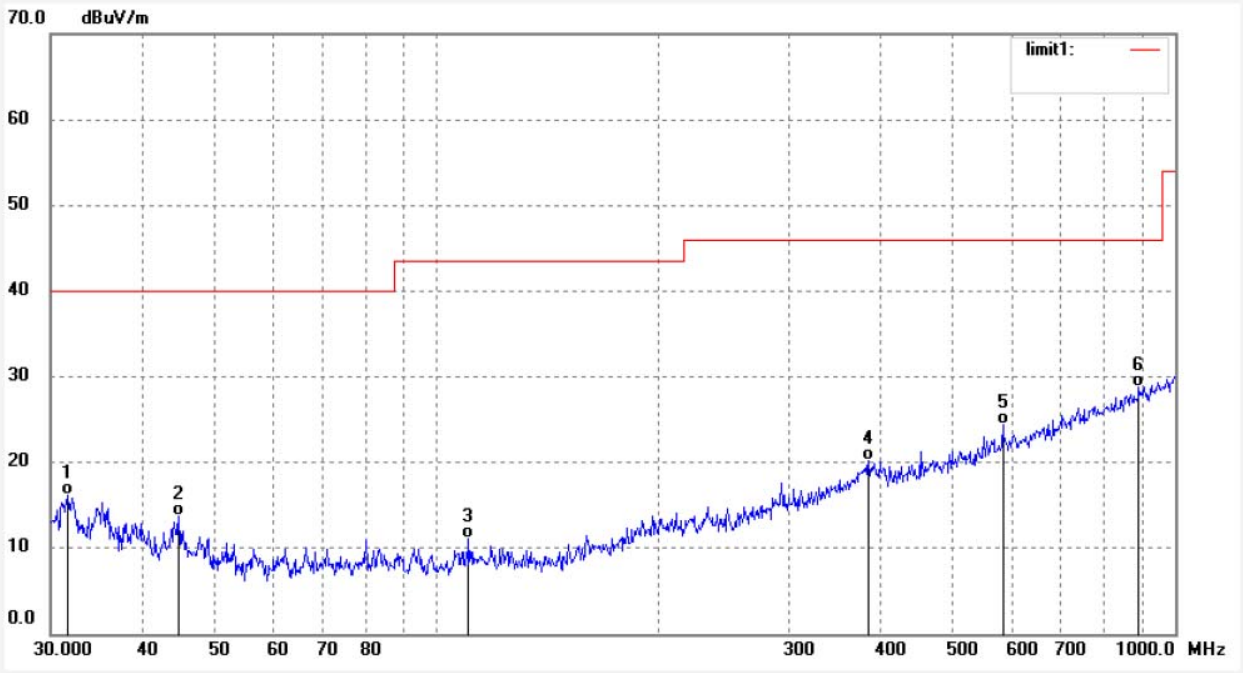
Job No.: yjzh1 #186
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Slim Wireless Vehicle Weighing System
Mode: TX 2480MHz
Model: VS800W17
Manufacturer: Heng Ke Metal Works

Polarization: Vertical
Power Source: DC 6V
Date: 17/09/02/
Time: 8/39/18
Engineer Signature: YJZH
Distance: 3m

Note: Report NO.:ATE20171737



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.6235	31.31	-15.10	16.21	40.00	-23.79	QP	100	251	
2	44.7793	32.66	-18.88	13.78	40.00	-26.22	QP	100	240	
3	110.4693	32.88	-21.82	11.06	43.50	-32.44	QP	100	245	
4	384.5447	33.38	-13.21	20.17	46.00	-25.83	QP	100	249	
5	584.1611	33.22	-8.79	24.43	46.00	-21.57	QP	100	252	
6	893.6557	31.25	-2.42	28.83	46.00	-17.17	QP	100	253	

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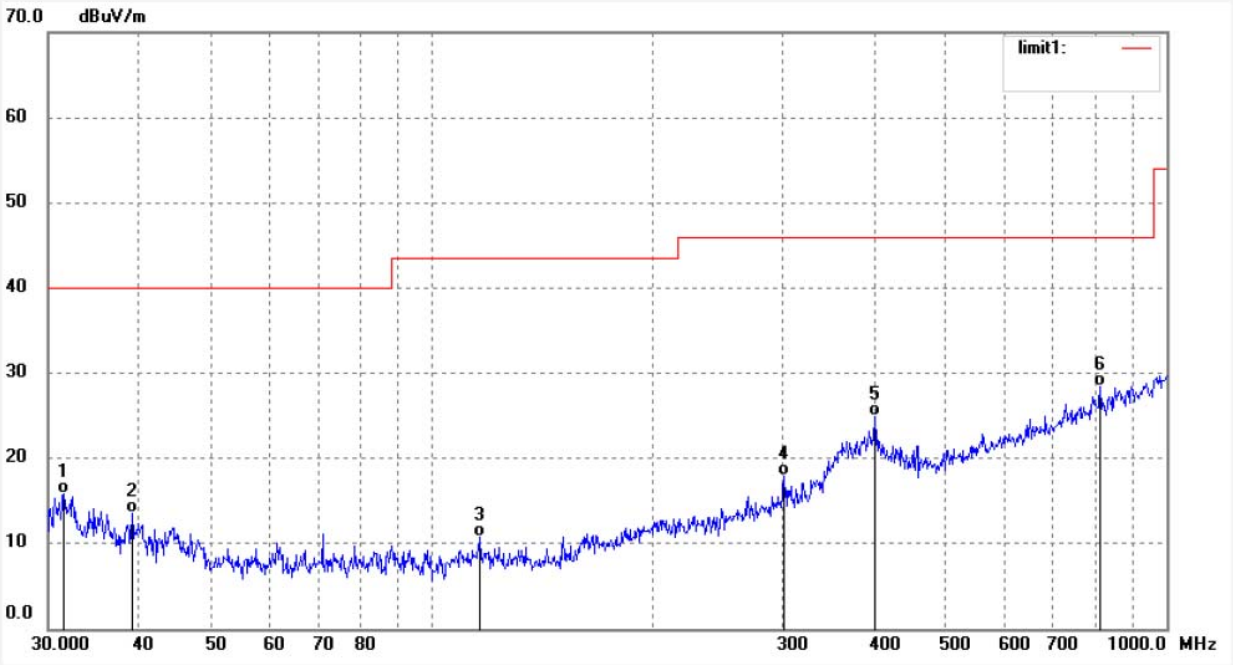
Job No.: yjzh1 #187	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 6V
Test item: Radiation Test	Date: 17/09/02/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 8/42/25
EUT: Slim Wireless Vehicle Weighing System	Engineer Signature: YJZH
Mode: TX 2480MHz	Distance: 3m
Model: VS800W17	
Manufacturer: Heng Ke Metal Works	

Note: Report NO.:ATE20171737



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.5124	30.91	-15.07	15.84	40.00	-24.16	QP	200	245	
2	39.0449	31.26	-17.69	13.57	40.00	-26.43	QP	200	252	
3	116.0391	32.70	-21.88	10.82	43.50	-32.68	QP	200	255	
4	301.7572	33.53	-15.67	17.86	46.00	-28.14	QP	200	251	
5	401.1050	37.89	-13.00	24.89	46.00	-21.11	QP	200	249	
6	812.7744	32.43	-3.91	28.52	46.00	-17.48	QP	200	253	

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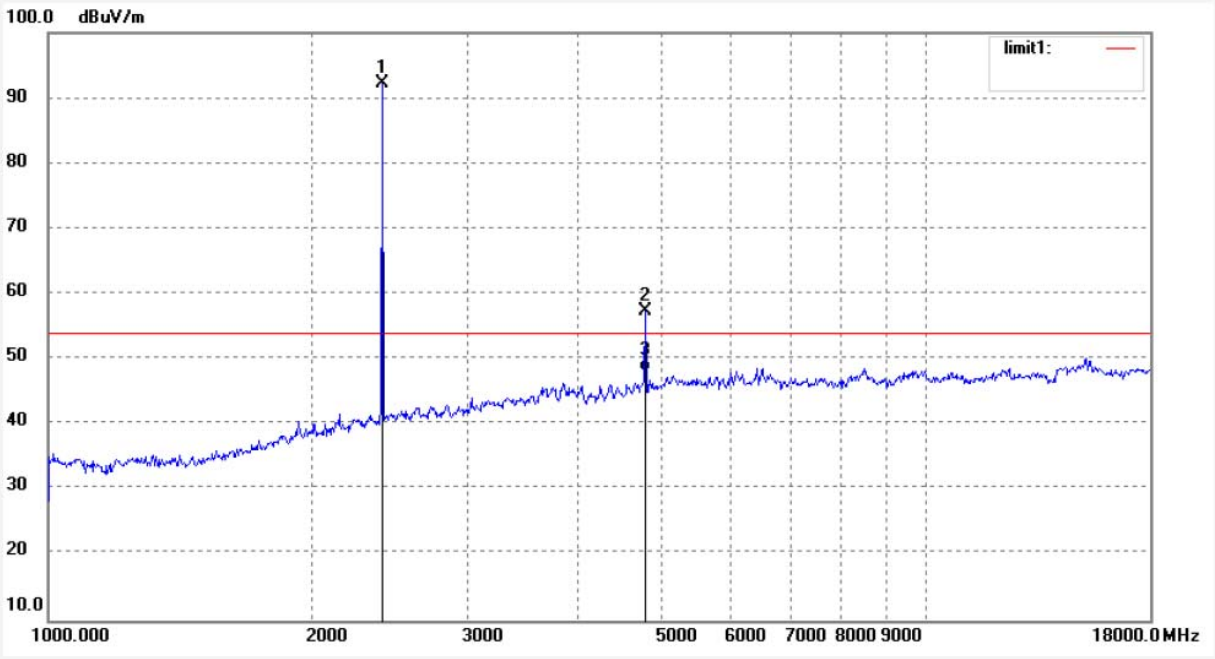
Job No.: yjzh #364	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 6V
Test item: Radiation Test	Date: 17/09/02/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 12/52/57
EUT: Slim Wireless Vehicle Weighing System	Engineer Signature: Nick
Mode: TX 2402MHz	Distance: 3m
Model: VS800W17	
Manufacturer: Heng Ke Metal Works	

Note: Report NO.:ATE20171737



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	93.87	-1.62	92.25			peak	150	15	
2	4804.000	52.50	4.80	57.30	74.00	-16.7	peak	150	278	
3	4804.000	43.33	4.80	48.13	54.00	-5.87	AVG	150	278	

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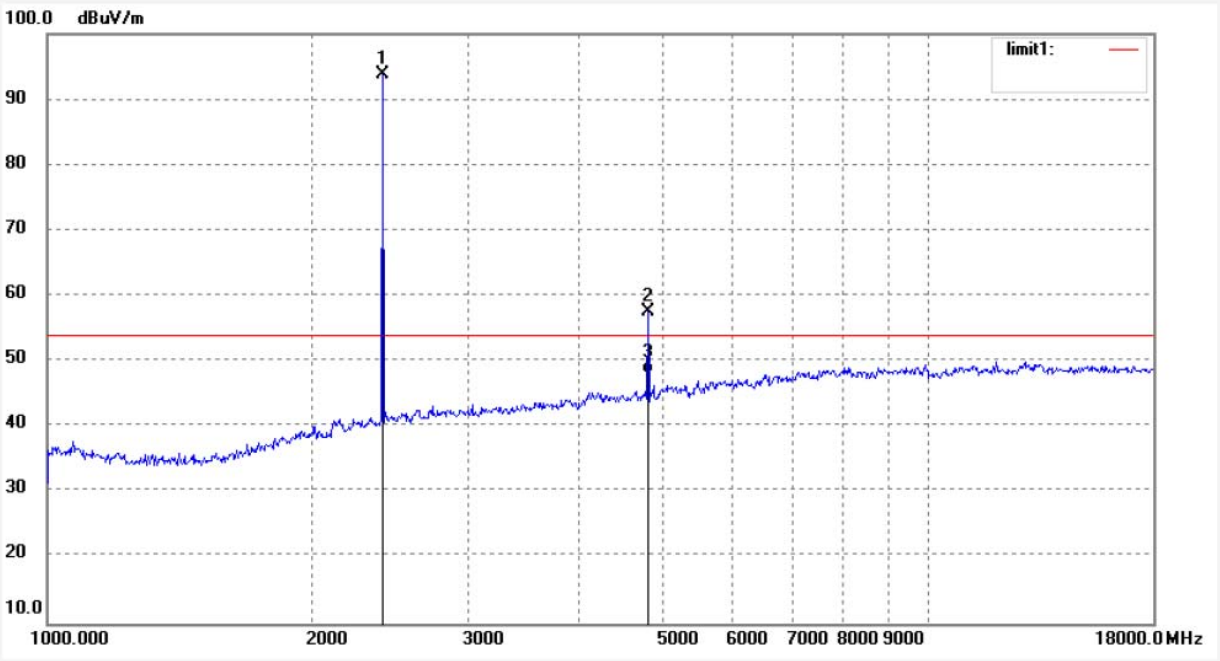
Job No.: yjzh #365
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Slim Wireless Vehicle Weighing System
Mode: TX 2402MHz
Model: VS800W17
Manufacturer: Heng Ke Metal Works

Polarization: Horizontal
Power Source: DC 6V
Date: 17/09/02/
Time: 12/55/20
Engineer Signature: Nick
Distance: 3m

Note: Report NO.:ATE20171737



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	95.37	-1.62	93.75			peak	150	116	
2	4804.000	52.74	4.90	57.64	74.00	-16.36	peak	150	179	
3	4804.000	43.35	4.90	48.25	54.00	-5.75	AVG	150	179	

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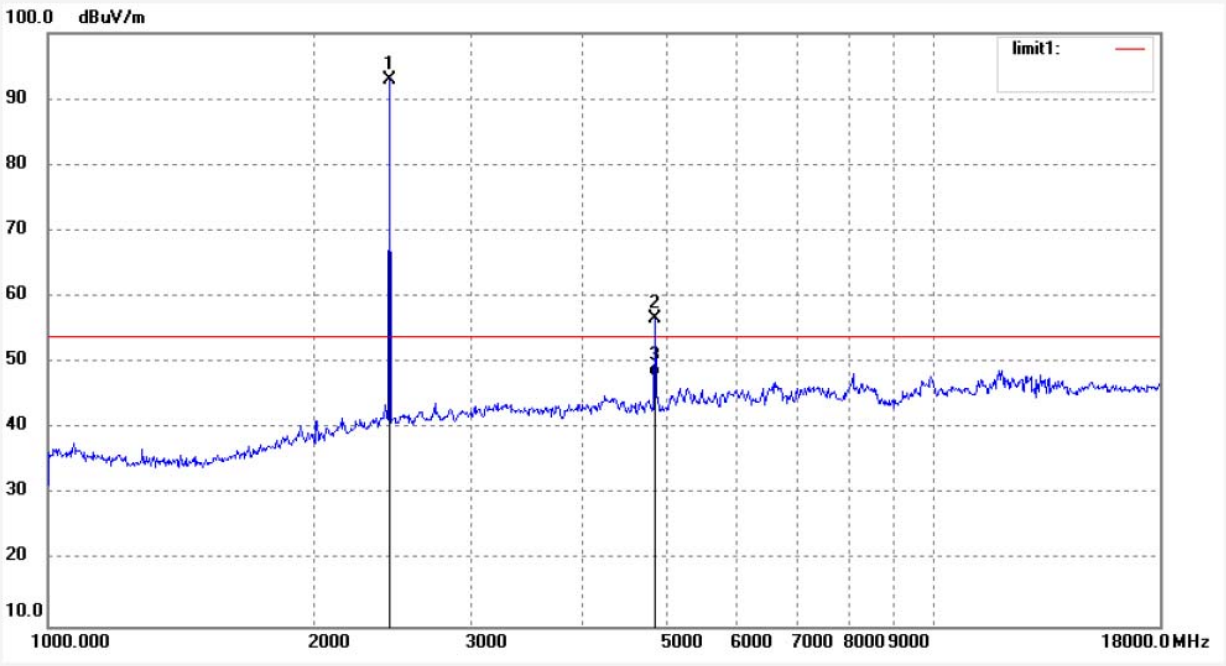
Job No.: yjzh #366
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Slim Wireless Vehicle Weighing System
Mode: TX 2440MHz
Model: VS800W17
Manufacturer: Heng Ke Metal Works

Polarization: Horizontal
Power Source: DC 6V
Date: 17/09/02/
Time: 12/57/37
Engineer Signature: Nick
Distance: 3m

Note: Report NO.:ATE20171737



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.000	94.33	-1.50	92.83			peak	150	51	
2	4880.000	51.49	5.28	56.77	74.00	-17.23	peak	150	310	
3	4880.000	42.53	5.28	47.81	54.00	-6.19	AVG	150	310	

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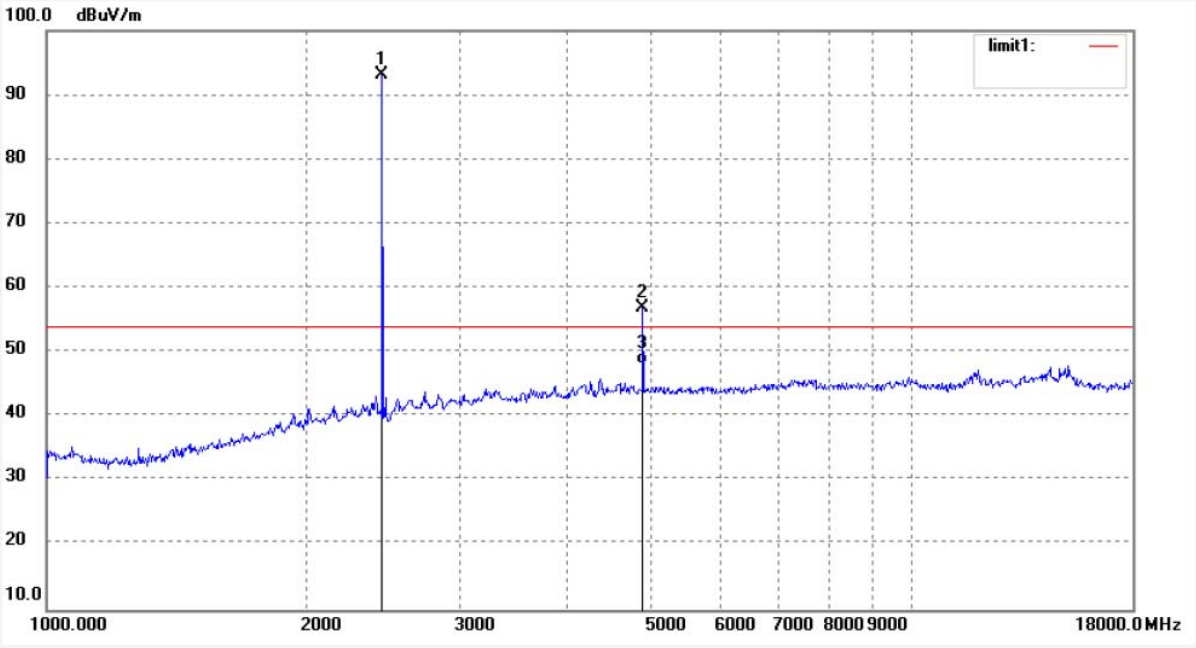
Job No.: yjzh #368
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Slim Wireless Vehicle Weighing System
Mode: TX 2440MHz
Model: VS800W17
Manufacturer: Heng Ke Metal Works

Polarization: Vertical
Power Source: DC 6V
Date: 17/09/02/
Time: 13/00/36
Engineer Signature: Nick
Distance: 3m

Note: Report NO.:ATE20171737



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.000	94.67	-1.44	93.23			peak	150	222	
2	4880.000	51.15	5.67	56.82	74.00	-17.18	peak	150	226	
3	4880.000	42.56	5.67	48.23	54.00	-5.77	AVG	150	226	

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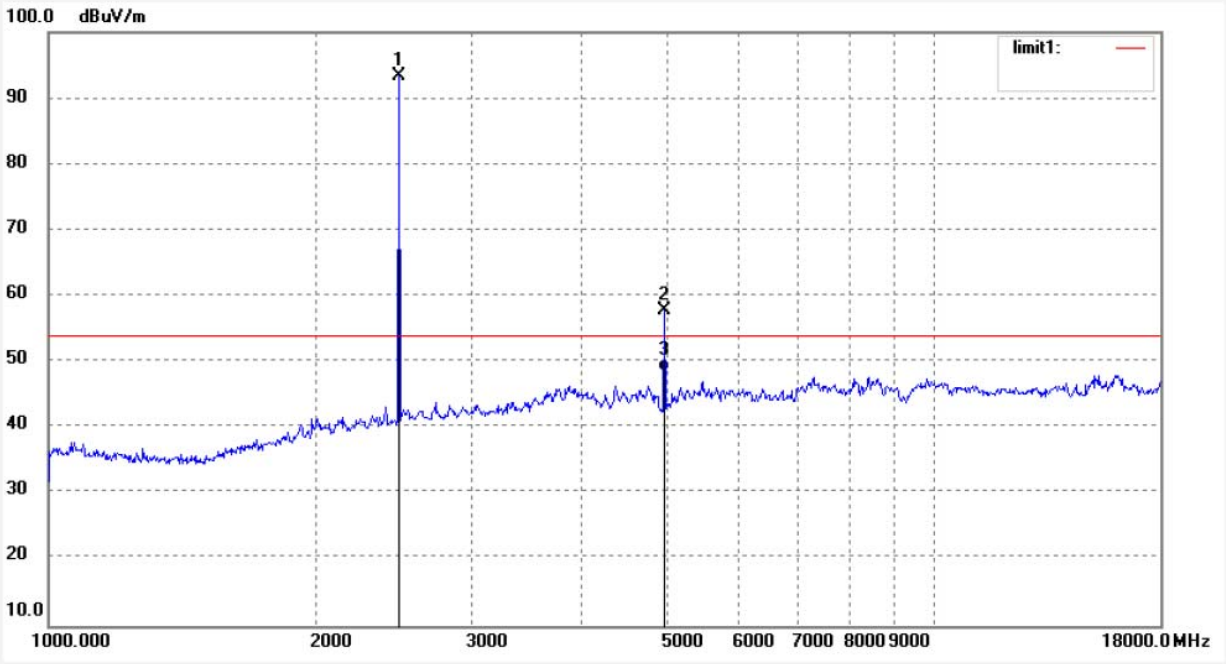
Job No.: yjzh #373
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Slim Wireless Vehicle Weighing System
Mode: TX 2480MHz
Model: VS800W17
Manufacturer: Heng Ke Metal Works

Polarization: Horizontal
Power Source: DC 6V
Date: 17/09/02/
Time: 13/16/25
Engineer Signature: Nick
Distance: 3m

Note: Report NO.:ATE20171737



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	94.81	-1.40	93.41			peak	150	96	
2	4960.000	51.77	6.08	57.85	74.00	-16.15	peak	150	51	
3	4960.000	42.55	6.08	48.63	54.00	-5.37	AVG	150	51	

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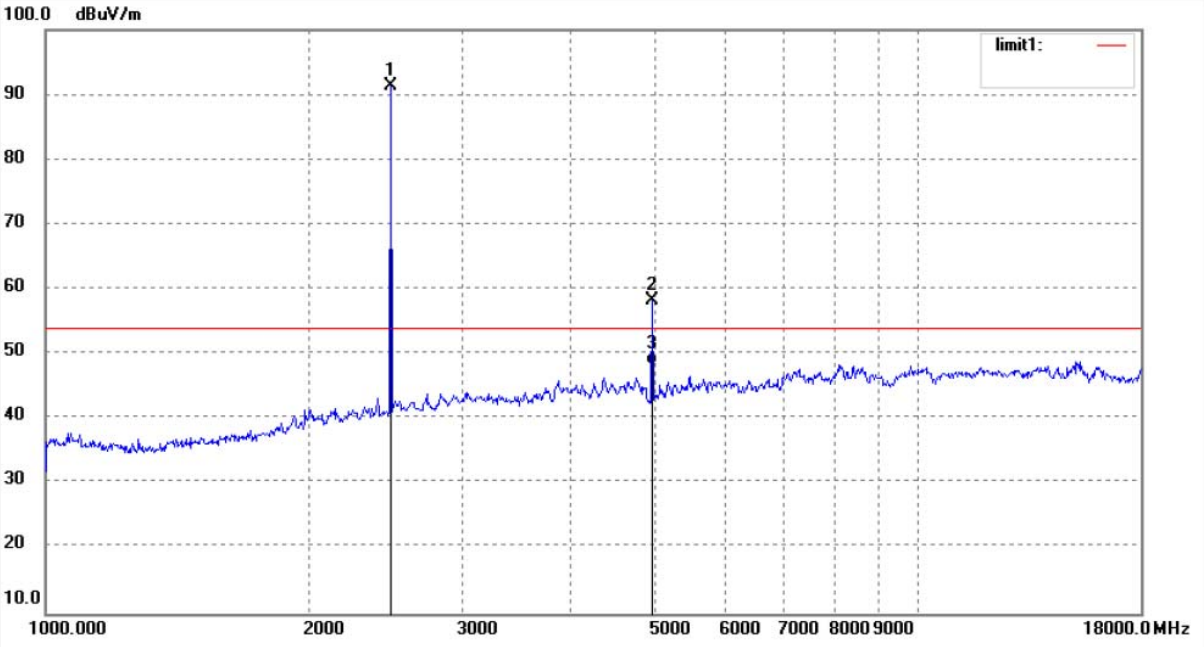
Job No.: yjzh #374
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Slim Wireless Vehicle Weighing System
Mode: TX 2480MHz
Model: VS800W17
Manufacturer: Heng Ke Metal Works

Polarization: Vertical
Power Source: DC 6V
Date: 17/09/02/
Time: 13/17/55
Engineer Signature: Nick
Distance: 3m

Note: Report NO.:ATE20171737



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	92.81	-1.40	91.41			peak	150	222	
2	4960.000	52.27	6.08	58.35	74.00	-15.65	peak	150	134	
3	4960.000	42.33	6.08	48.41	54.00	-5.59	AVG	150	134	

10. ANTENNA REQUIREMENT

10.1. The Requirement

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.

10.2. Antenna Construction

Device is equipped with external Antenna, which isn't displaced by other antenna. The Antenna gain of EUT is 2.0dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.