APPLICATION CERTIFICATION FCC Part 15C
On Behalf of
Long Range Systems Inc

Table Tracker
Model No.:6863

FCC ID: M74-6863

Prepared for	:	Long Range Systems Inc
Address	:	4550 Excel Parkway #200, Addsion, Texas, 75001, United States
Prepared by	:	ACCURATE TECHNOLOGY CO., LTD
Address	:	F1, Bldg. A, Chan Yuan New Material Port, Keyuan Rd. Science & Industry Park, Nan Shan, Shenzhen, Guangdong P.R. China Tel: (0755) 26503290 Fax: (0755) 26503396

Report Number	:	ATE20121266
Date of Test	:	Jun 11- Oct 28, 2012
Date of Report	:	Oct 28, 2012

TABLE OF CONTENTS

Description Page

Test Report Certification

Applicant **:** Long Range Systems Inc

Manufacturer **:** SEVECO GIOBAL LIMITED.

EUT Description **:** Table Tracker

(A) MODEL NO.: 6863

(B) TRADE NAME.: Long Range Systems

(C) POWER SUPPLY: DC 3.7V

Measurement Procedure Used:

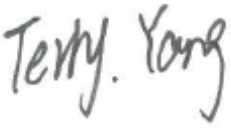
FCC Rules and Regulations Part 15 Subpart C Section 15.247
ANSI C63.4: 2009
KDB 558074 D01 DTS Meas Guidance v02

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 : Jun 11-Oct 28, 2012

Prepared by :



(Engineer)

Approved & Authorized Signer :

(Manager)

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT	:	Table Tracker
Model Number	:	6863
Frequency Range	:	2405MHz-2480MHz
Number of Channels	:	16
Antenna Gain	:	0dBi
Power Supply	:	DC 3.7V
Adapter	:	N/A
Data Rate	:	
Applicant	:	Long Range Systems Inc
Address	:	4550 Excel Parkway #200, Addsion, Texas, 75001, United States
Manufacturer	:	SEVECO GIOBAL LIMITED.
Address	:	1 JianXiang Street. Hanxishui, Chashan Town Dongguan. Guangdong. China
Date of sample received	:	Jun 11, 2012
Date of Test	:	Jun 11-Oct 28, 2012

1.2.Carrier Frequency of Channels

Channel	Frequency	Channel	Frequency
1	2.405GHz	9	2.445GHz
2	2.410GHz	10	2.450GHz
3	2.415GHz	11	2.455GHz
4	2.420GHz	12	2.460GHz
5	2.425GHz	13	2.465GHz
6	2.430GHz	14	2.470GHz
7	2.435GHz	15	2.475GHz
8	2.440GHz	16	2.480GHz

1.3.Special Accessory and Auxiliary Equipment

N/A

1.4.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

1.5.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. 8, 2012	Jan. 7, 2013
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 8, 2012	Jan. 7, 2013
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 8, 2012	Jan. 7, 2013
Pre-Amplifier	Rohde&Schwarz	CBLU1183540-01	3791	Jan. 8, 2012	Jan. 7, 2013
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 8, 2012	Jan. 7, 2013
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 8, 2012	Jan. 7, 2013
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 8, 2012	Jan. 7, 2013
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 8, 2012	Jan. 7, 2013
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 8, 2012	Jan. 7, 2013
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 8, 2012	Jan. 7, 2013

3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

The mode is used: **Zigbee Transmitting mode**

Low Channel: 2405MHz

Middle Channel: 2440MHz

High Channel: 2480MHz

3.2.Configuration and peripherals

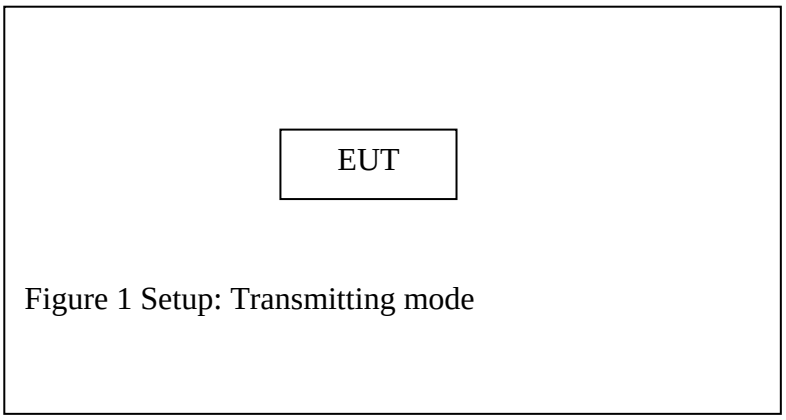


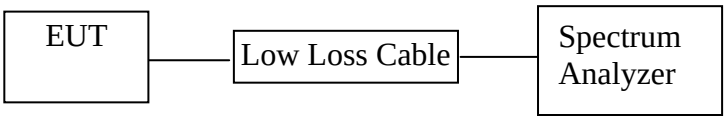
Figure 1 Setup: Transmitting mode

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 15.247(d)	Conducted Spurious Emission Test	Compliant
Section 15.207	AC Power Line Conducted Emission Test	N/A
Section 15.203	Antenna Requirement	Compliant

5. 6DB BANDWIDTH MEASUREMENT

5.1.Block Diagram of Test Setup



(EUT: Table Tracker)

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 following 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.

5.3.1. Table Tracker (EUT)

Model Number	**:**	6863
Serial Number	**:**	N/A

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 2405-2480 MHz. We select 2405MHz, 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 30 kHz and VBW to 100 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

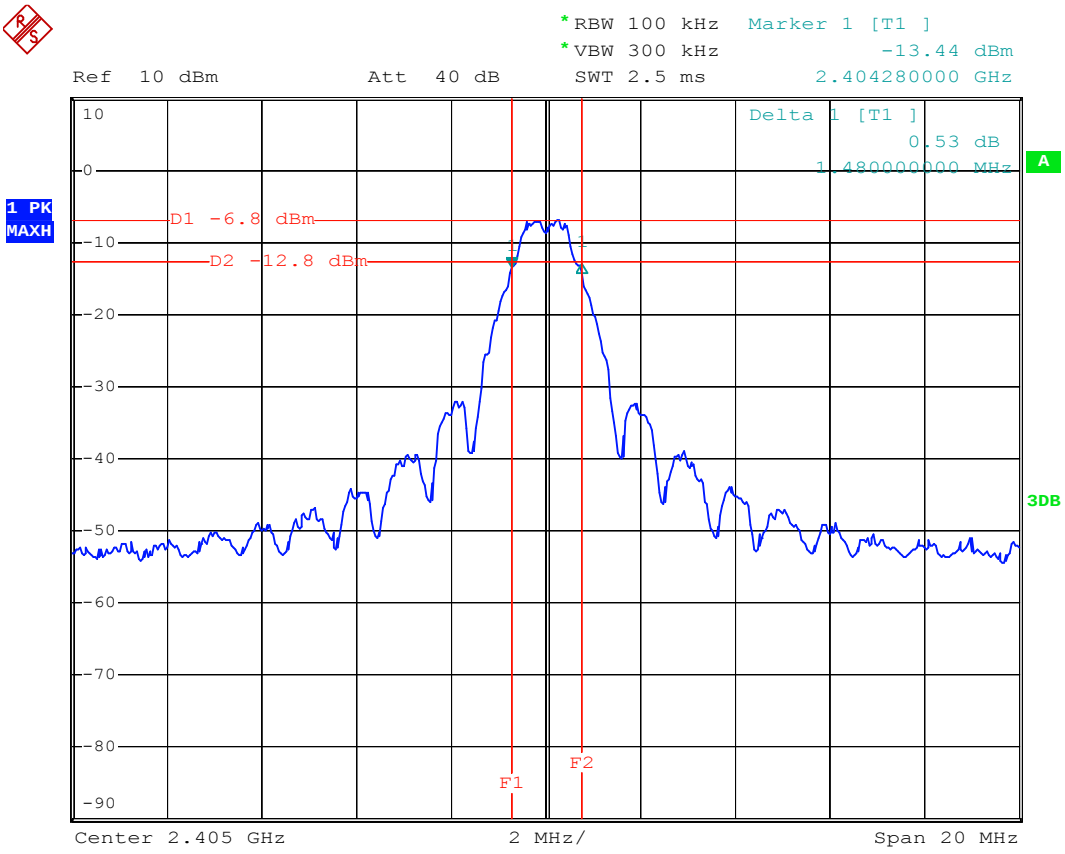
PASS.

Date of Test:	Oct 26, 2012	Temperature:	25°C
EUT:	Table Tracker	Humidity:	50%
Model No.:	6863	Power Supply:	DC 3.7V
Test Mode:	TX	Test Engineer:	Star

The test was performed with Zigbee			
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
Low	2405	1.480	> 0.5MHz
Middle	2440	1.600	> 0.5MHz
High	2480	1.640	> 0.5MHz

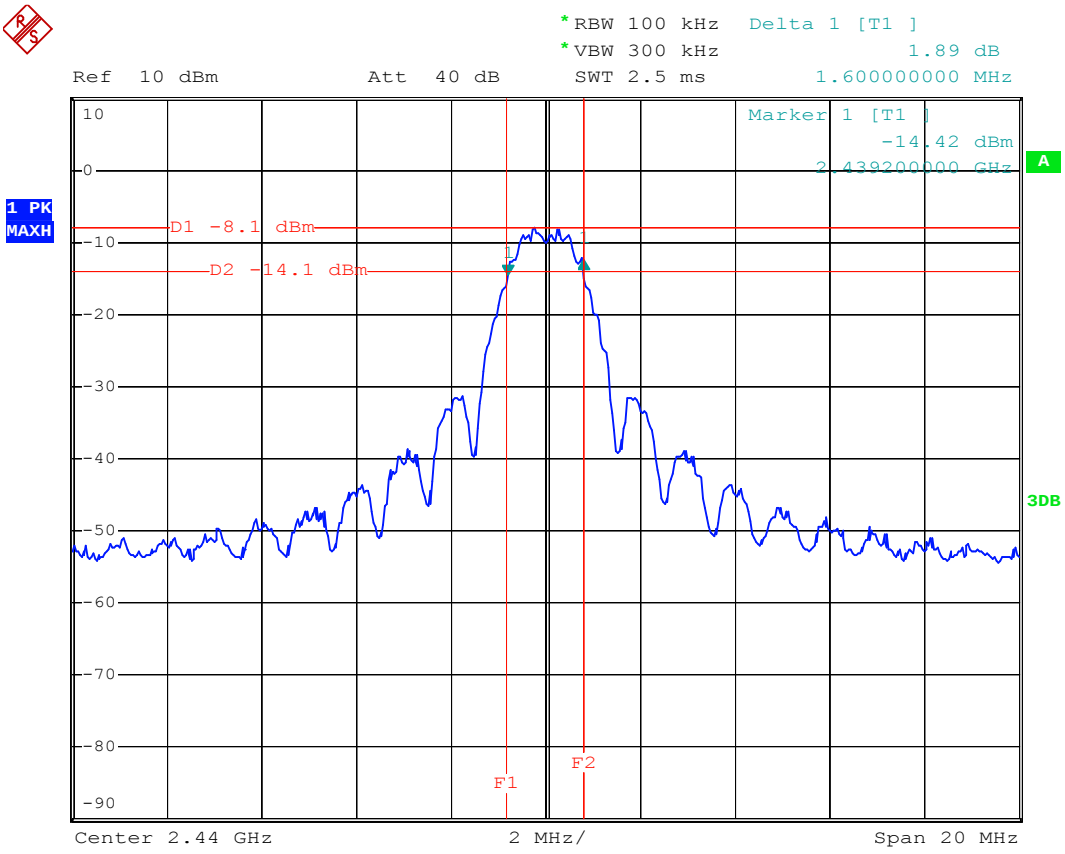
The spectrum analyzer plots are attached as below.

Zigbee Channel Low 2405MHz

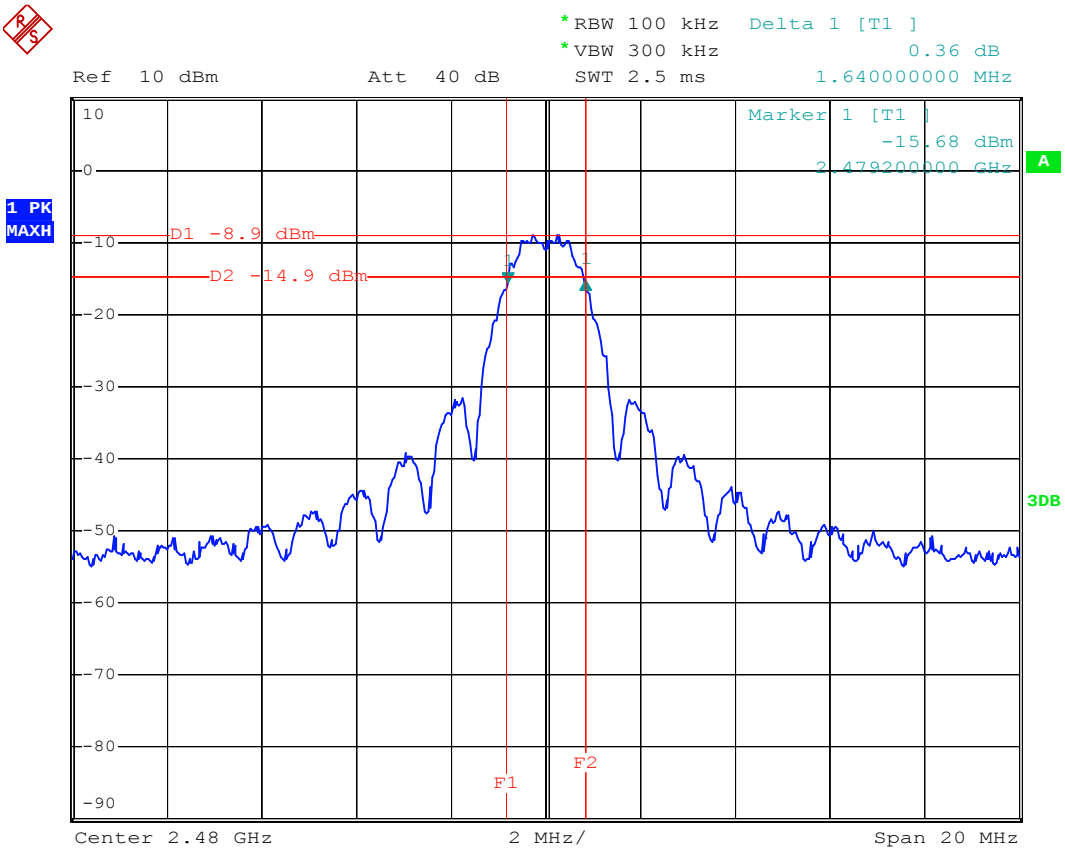


Date: 26.OCT.2012 18:27:00

Zigbee Channel Middle 2440MHz



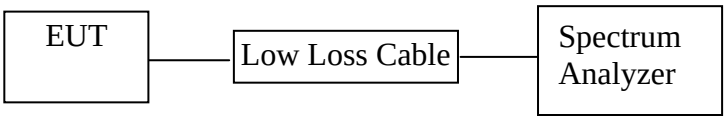
Zigbee Channel High 2480MHz



Date: 26.OCT.2012 18:37:15

6. MAXIMUM PEAK OUTPUT POWER

6.1.Block Diagram of Test Setup



(EUT: Table Tracker)

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 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. Table Tracker (EUT)

Model Number	**:**	6863
Serial Number	**:**	N/A

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 2405-2480 MHz. We select 2405MHz, 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 1MHz and VBW to 3MHz.

6.5.3.Measurement the maximum peak output power.

6.6.Test Result

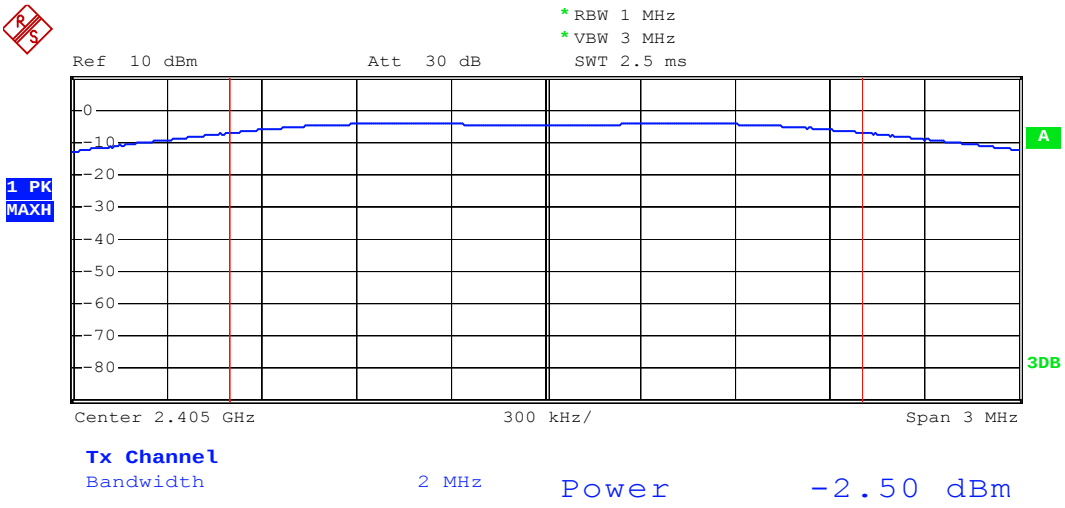
PASS.

Date of Test:	Oct 26, 2012	Temperature:	25°C
EUT:	Table Tracker	Humidity:	50%
Model No.:	6863	Power Supply:	DC 3.7V
Test Mode:	TX	Test Engineer:	Star

The test was performed with Zigbee				
Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (mW)	Limits dBm / W
Low	2405	-2.50	0.56	30 dBm / 1 W
Middle	2440	-3.16	0.48	30 dBm / 1 W
High	2480	-3.92	0.41	30 dBm / 1 W

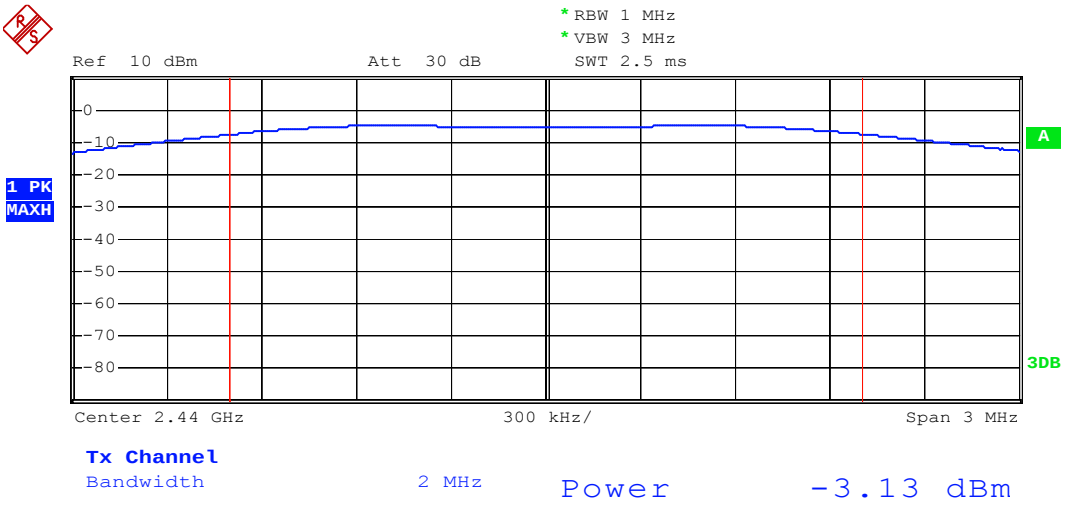
The spectrum analyzer plots are attached as below.

Zigbee Channel Low 2405MHz



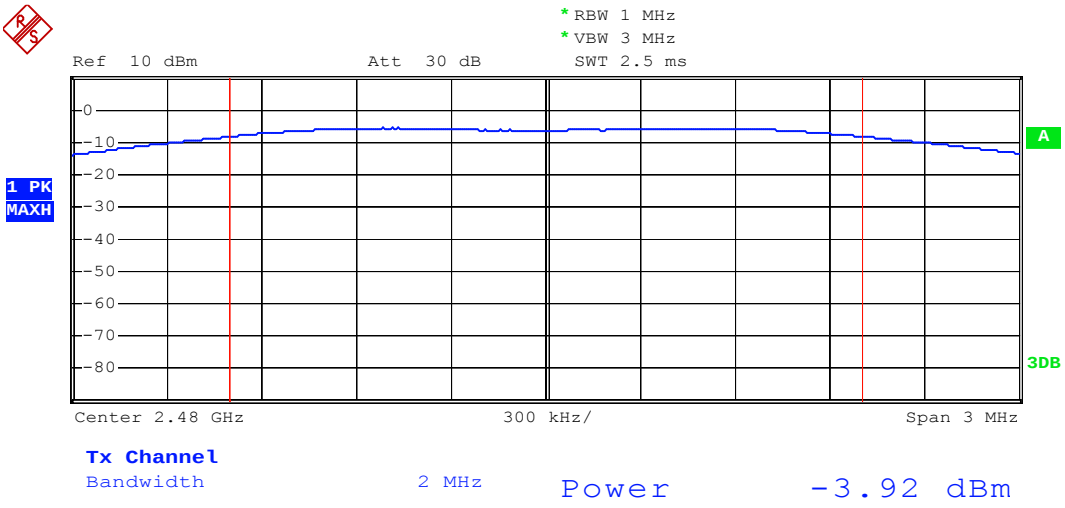
Date: 26.OCT.2012 18:41:57

Zigbee Channel Middle 2440MHz



Date: 26.OCT.2012 18:44:47

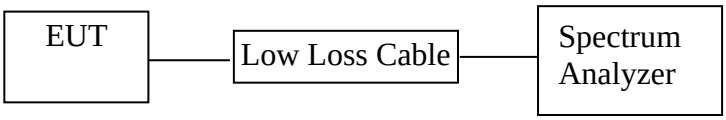
Zigbee Channel High 2480MHz



Date: 26.OCT.2012 18:39:56

7. POWER SPECTRAL DENSITY MEASUREMENT

7.1.Block Diagram of Test Setup



(EUT: Table Tracker)

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 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.

7.3.1. Table Tracker (EUT)

Model Number	**:**	6863
Serial Number	**:**	N/A

7.4.Operating Condition of EUT

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

7.4.2.Turn on the power of all equipment.

7.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2405-2480. We select 2405MHz, 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. Set RBW of spectrum analyzer to 3 kHz and VBW to 10 kHz, sweep time = auto, span=1.5 time the DTS channel bandwidth.

7.5.3. Measurement the maximum power spectral density.

7.6. Test Result

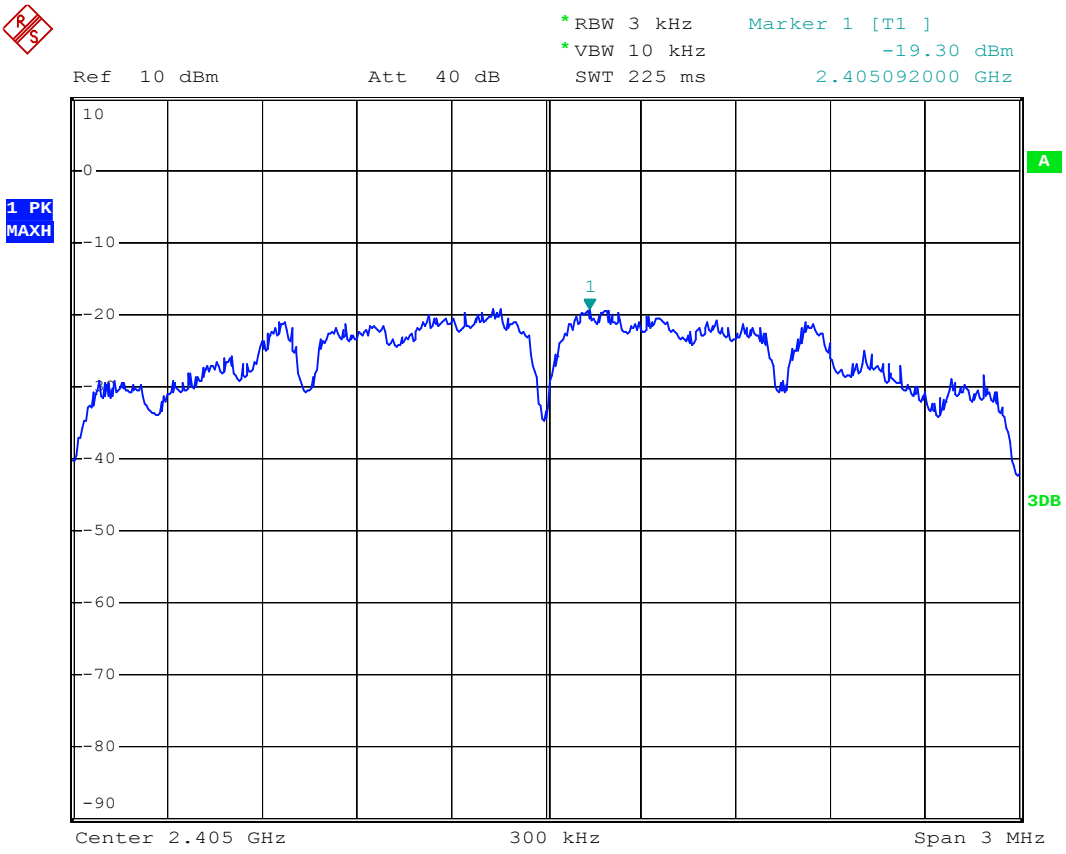
PASS.

Date of Test:	Oct 26, 2012	Temperature:	25°C
EUT:	Table Tracker	Humidity:	50%
Model No.:	6863	Power Supply:	DC 4.5V
Test Mode:	TX	Test Engineer:	Star

The test was performed with Zigbee			
Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Limits (dBm/3kHz)
Low	2405	-19.30	8 dBm
Middle	2440	-19.69	8 dBm
High	2480	-20.16	8 dBm

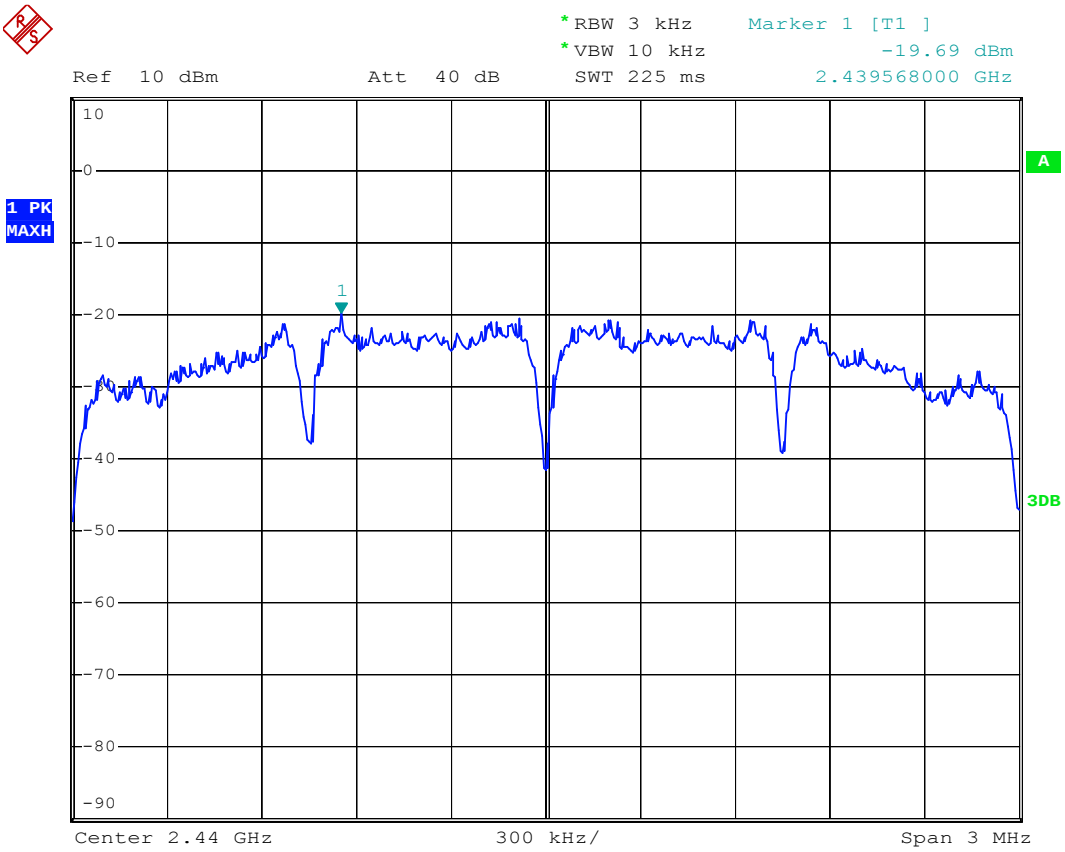
The spectrum analyzer plots are attached as below.

Zigbee Channel Low 2405MHz



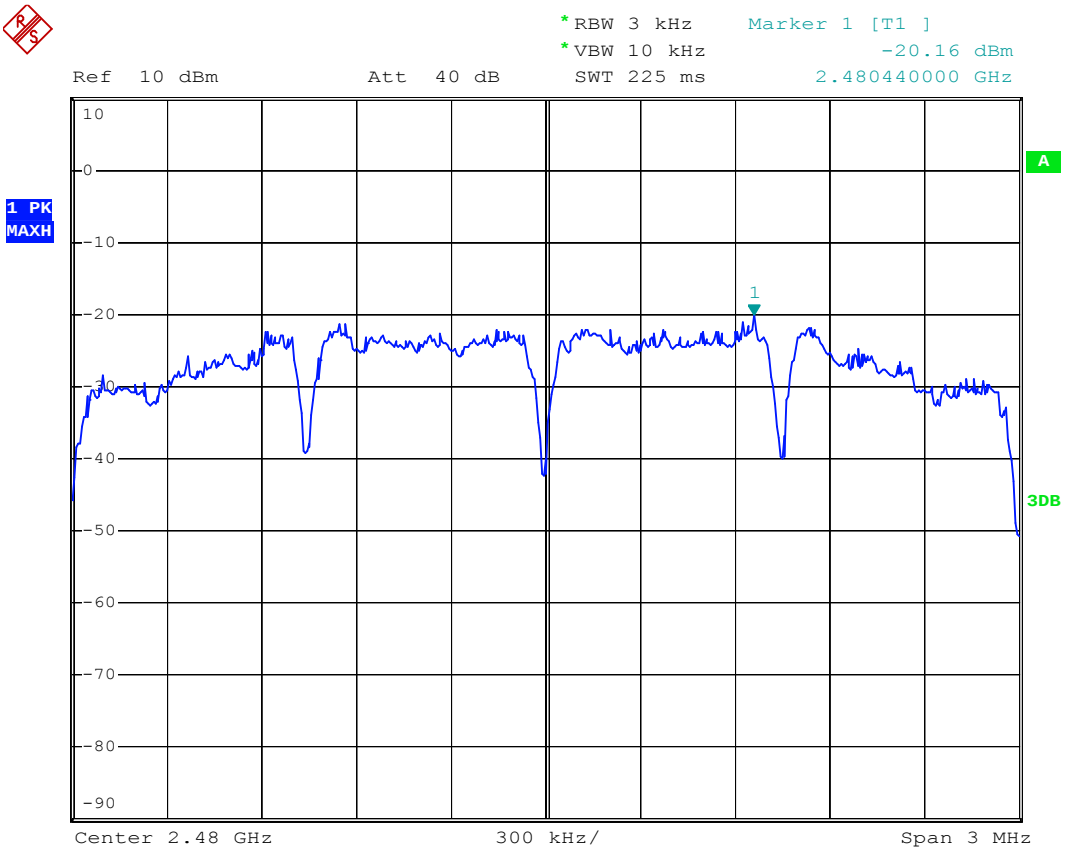
Date: 26.OCT.2012 18:50:53

Zigbee Channel Middle 2440MHz



Date: 26.OCT.2012 18:46:45

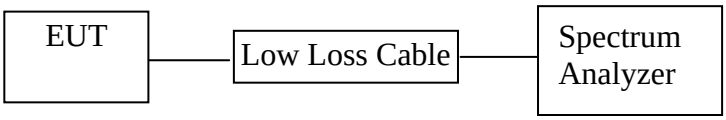
Zigbee Channel High 2480MHz



Date: 26.OCT.2012 18:48:14

8. BAND EDGE COMPLIANCE TEST

8.1.Block Diagram of Test Setup



(EUT: Table Tracker)

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 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.

8.3.1. Table Tracker (EUT)

Model Number **:** 6863
Serial Number **:** N/A

8.4.Operating Condition of EUT

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

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 2405-2480 MHz. We select 2405MHz, 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.

Radiate Band Edge:

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

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

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

8.5.6. 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

8.5.7.The band edges was measured and recorded.

8.6.Test Result

Pass

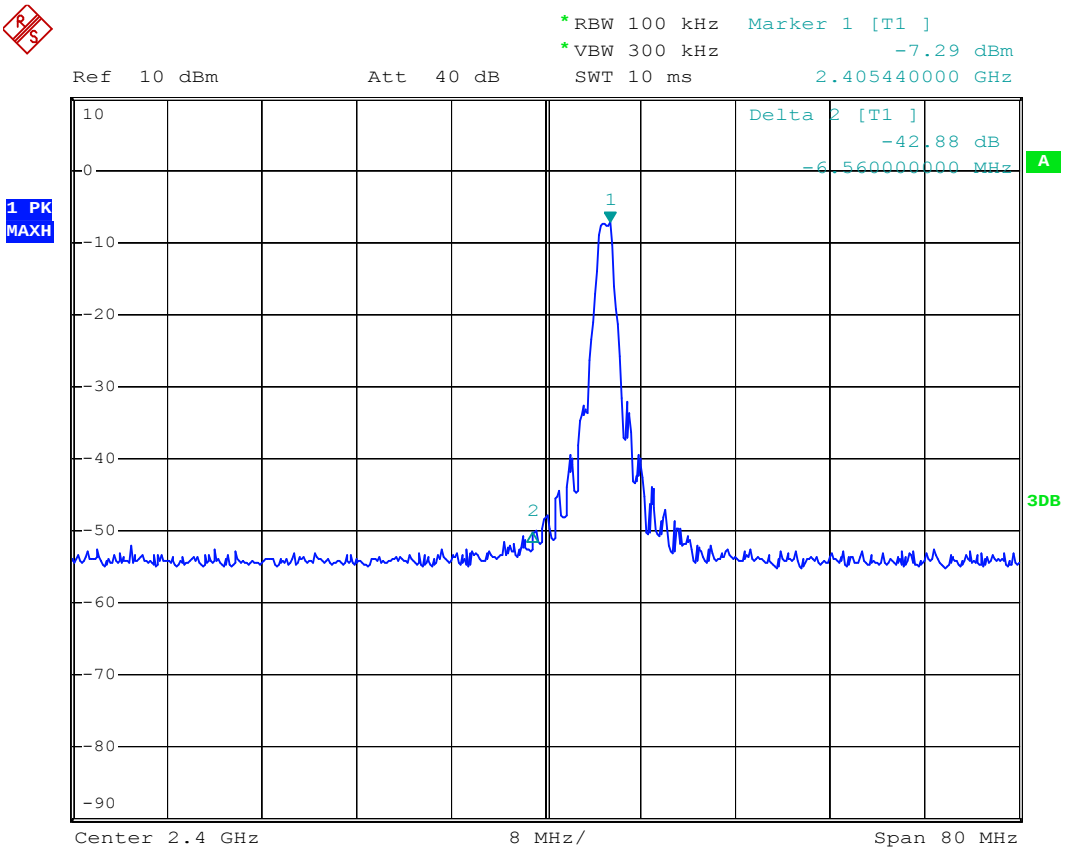
Conducted test

Date of Test:	Oct 26, 2012	Temperature:	25°C
EUT:	Table Tracker	Humidity:	50%
Model No.:	6863	Power Supply:	DC 3.7V
Test Mode:	TX	Test Engineer:	Star

The test was performed with Zigbee

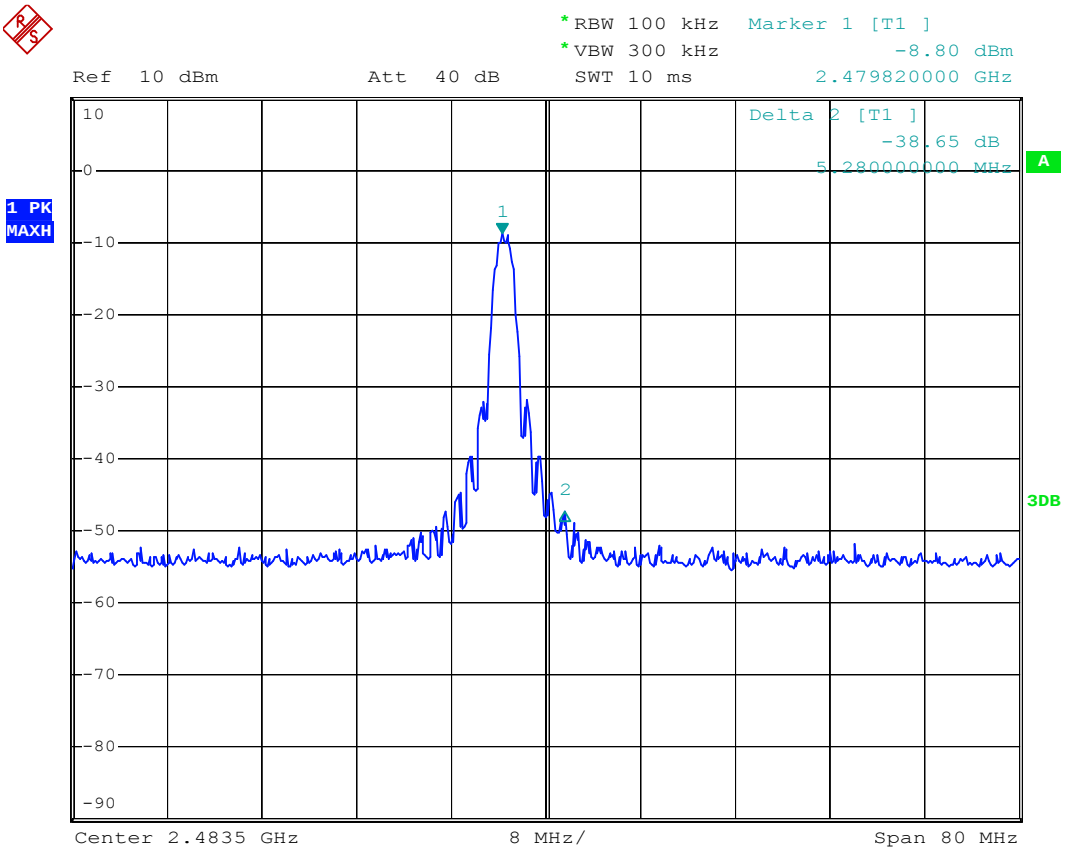
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2405	42.88	> 20dBc
2480	38.65	> 20dBc

Zigbee Channel Low 2405MHz



Date: 26.OCT.2012 18:52:56

Zigbee Channel High 2480MHz



Date: 26.OCT.2012 18:54:41

Radiated Band Edge Result

Date of Test:	Oct 28, 2012	Temperature:	25°C
EUT:	Table Tracker	Humidity:	50%
Model No.:	6863	Power Supply:	DC 3.7V
Test Mode:	Zigbee Channel Low 2405MHz	Test Engineer:	Star

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	
2310.000	43.00	48.43	-7.81	35.19	40.62	54	74	-18.81	-33.38	Vertical
2362.802	45.00	50.67	-7.71	37.29	42.96	54	74	-16.71	-31.04	Vertical
2390.000	45.02	50.02	-7.53	37.49	42.49	54	74	-16.51	-31.51	Vertical
2310.000	43.25	48.83	-7.81	35.44	41.02	54	74	-18.56	-32.98	Horizontal
2361.404	45.28	50.49	-7.71	37.57	42.78	54	74	-16.43	-31.22	Horizontal
2390.000	42.36	47.94	-7.53	34.83	40.41	54	74	-19.17	-33.59	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.

Date of Test:	Oct 28, 2012	Temperature:	25°C
EUT:	Table Tracker	Humidity:	50%
Model No.:	6863	Power Supply:	DC 4.5V
Test Mode:	Zigbee Channel High 2480MHz	Test Engineer:	Star

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	58.39	64.14	-7.37	51.02	56.77	54	74	-2.98	-17.23	Vertical
2486.874	45.02	52.98	-7.38	37.64	45.60	54	74	-16.36	-28.40	Vertical
2500.000	42.39	48.26	-7.40	34.99	40.86	54	74	-19.01	-33.14	Vertical
2483.500	51.00	58.38	-7.37	43.63	51.01	54	74	-10.37	-22.99	Horizontal
2490.517	42.69	49.50	-7.38	35.31	42.12	54	74	-18.69	-31.88	Horizontal
2500.000	41.00	47.69	-7.40	33.60	40.29	54	74	-20.40	-33.71	Horizontal

Note:

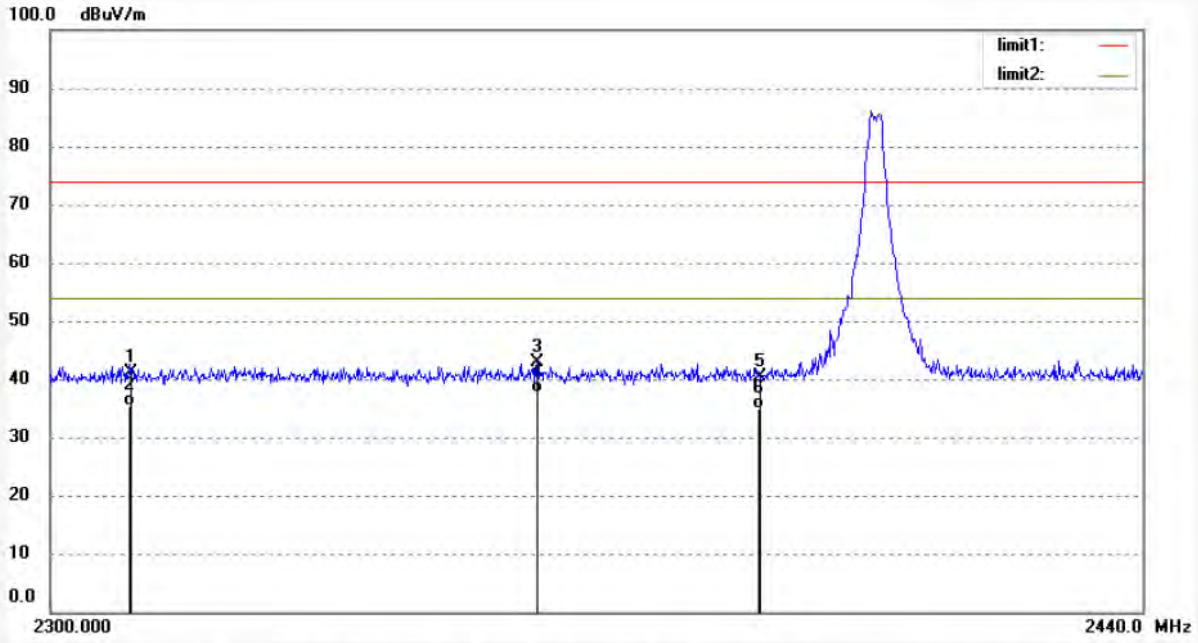
1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is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

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.: STAR #3002
Standard: FCC 15C PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 49 %
EUT: Table Tracker
Mode: TX Channel 1
Model: 6863
Manufacturer: SEVECO GIOBAL LIMITED

Polarization: Horizontal
Power Source: DC 3.7V
Date: 12/10/28/
Time: 3/10/22
Engineer Signature:
Distance: 3m

Note: Report No.:ATE20121266



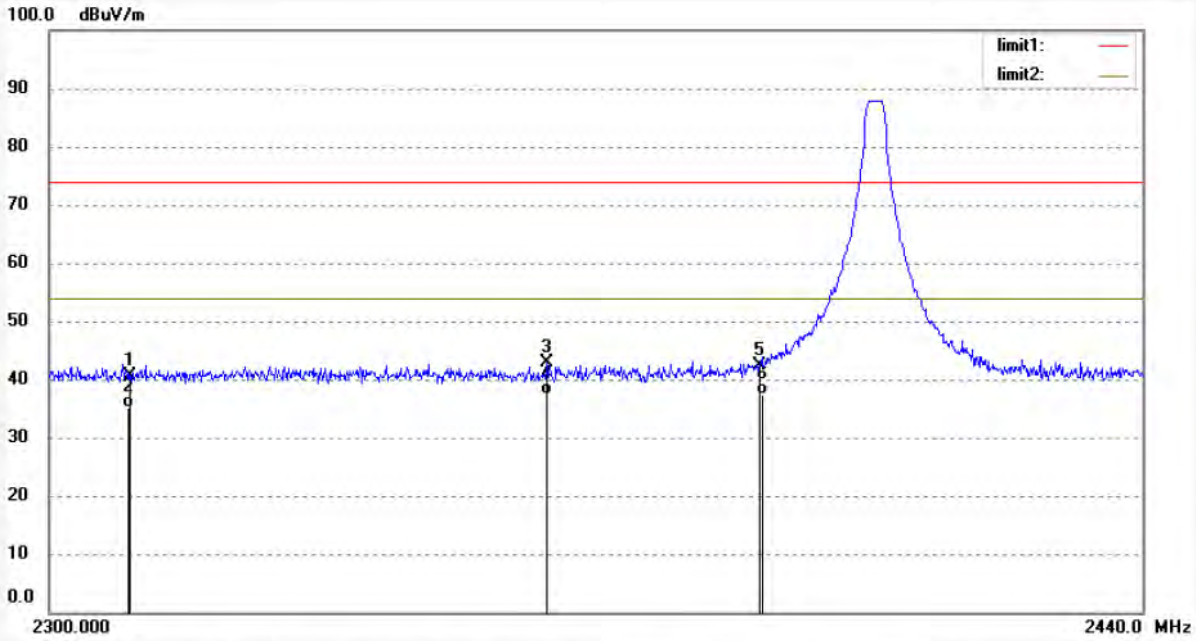
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	48.83	-7.81	41.02	74.00	-32.98	peak			
2	2310.000	43.25	-7.81	35.44	54.00	-18.56	AVG			
3	2361.404	50.49	-7.71	42.78	74.00	-31.22	peak			
4	2361.404	45.28	-7.71	37.57	54.00	-16.43	AVG			
5	2390.000	47.94	-7.53	40.41	74.00	-33.59	peak			
6	2390.000	42.36	-7.53	34.83	54.00	-19.17	AVG			

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #3003
Standard: FCC 15C PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 49 %
EUT: Table Tracker
Mode: TX Channel 1
Model: 6863
Manufacturer: SEVECO GIOBAL LIMITED

Polarization: Vertical
Power Source: DC 3.7V
Date: 12/10/28/
Time: 3/14/07
Engineer Signature:
Distance: 3m

Note: Report No.:ATE20121266



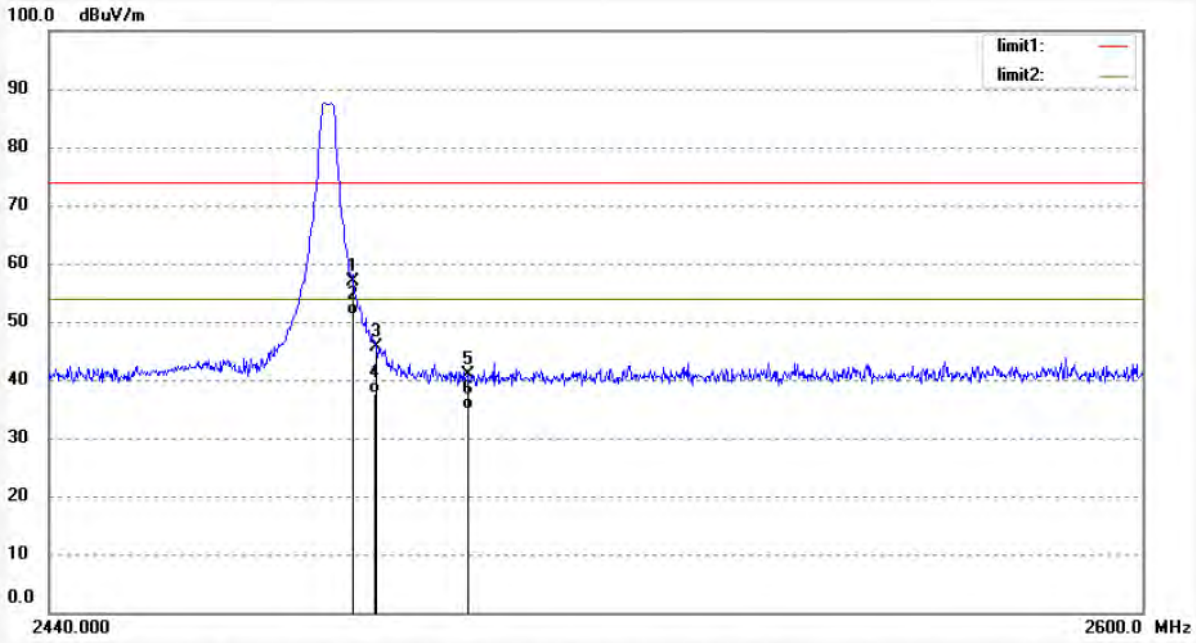
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	48.43	-7.81	40.62	74.00	-33.38	peak			
2	2310.000	43.00	-7.81	35.19	54.00	-18.81	AVG			
3	2362.802	50.67	-7.71	42.96	74.00	-31.04	peak			
4	2362.802	45.00	-7.71	37.29	54.00	-16.71	AVG			
5	2390.000	50.02	-7.53	42.49	74.00	-31.51	peak			
6	2390.000	45.02	-7.53	37.49	54.00	-16.51	AVG			

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #3004
Standard: FCC 15C PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 49 %
EUT: Table Tracker
Mode: TX Channel 16
Model: 6863
Manufacturer: SEVECO GIOBAL LIMITED

Polarization: Vertical
Power Source: DC 3.7V
Date: 12/10/28/
Time: 3/18/21
Engineer Signature:
Distance: 3m

Note: Report No.:ATE20121266



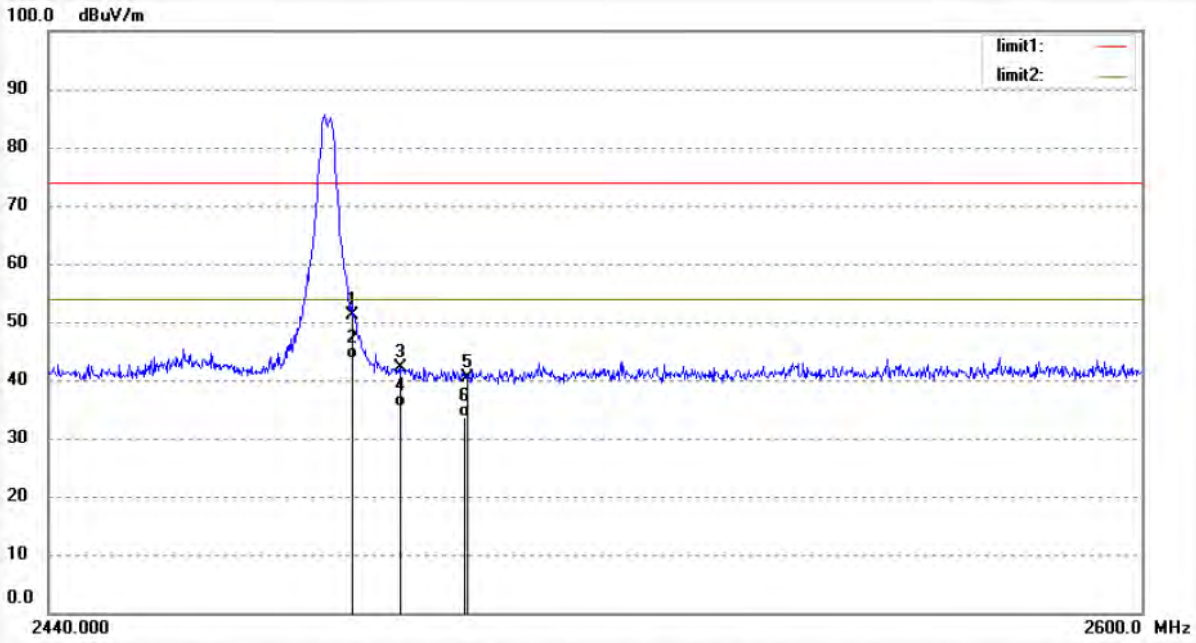
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	64.14	-7.37	56.77	74.00	-17.23	peak			
2	2483.500	58.39	-7.37	51.02	54.00	-2.98	AVG			
3	2486.874	52.98	-7.38	45.60	74.00	-28.40	peak			
4	2486.874	45.02	-7.38	37.64	54.00	-16.36	AVG			
5	2500.000	48.26	-7.40	40.86	74.00	-33.14	peak			
6	2500.000	42.39	-7.40	34.99	54.00	-19.01	AVG			

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #3005
Standard: FCC 15C PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 49 %
EUT: Table Tracker
Mode: TX Channel 16
Model: 6863
Manufacturer: SEVECO GIOBAL LIMITED

Polarization: Horizontal
Power Source: DC 3.7V
Date: 12/10/28/
Time: 3/22/19
Engineer Signature:
Distance: 3m

Note: Report No.:ATE20121266

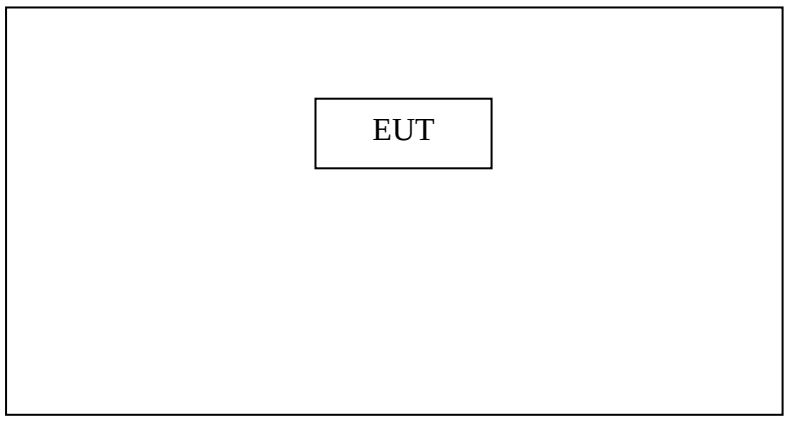


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	58.38	-7.37	51.01	74.00	-22.99	peak			
2	2483.500	51.00	-7.37	43.63	54.00	-10.37	AVG			
3	2490.517	49.50	-7.38	42.12	74.00	-31.88	peak			
4	2490.517	42.69	-7.38	35.31	54.00	-18.69	AVG			
5	2500.000	47.69	-7.40	40.29	74.00	-33.71	peak			
6	2500.000	41.00	-7.40	33.60	54.00	-20.40	AVG			

9. RADIATED SPURIOUS EMISSION TEST

9.1.Block Diagram of Test Setup

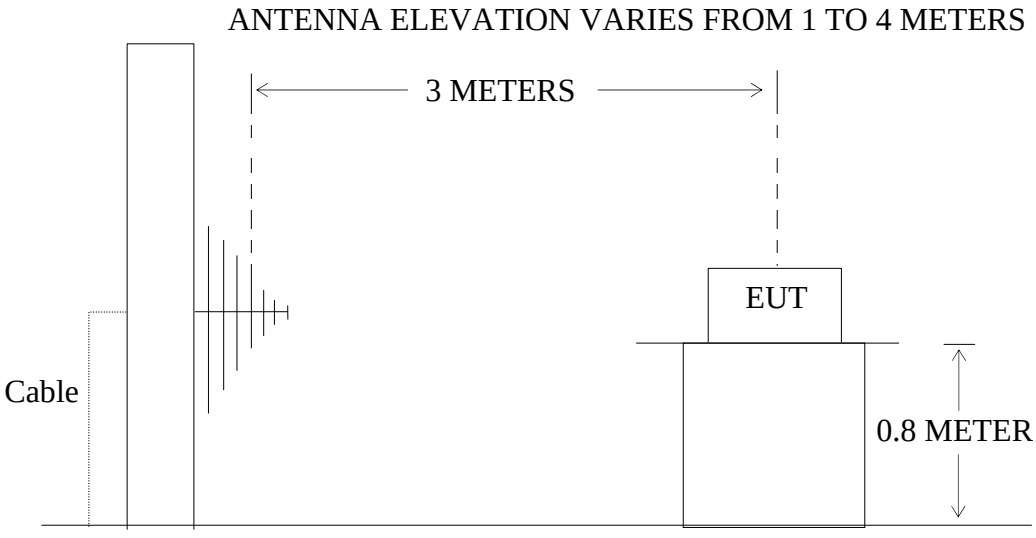
9.1.1.Block diagram of connection between the EUT and peripherals



Setup: Transmitting mode

(EUT: Table Tracker)

9.1.2.Semi-Anechoic Chamber Test Setup Diagram



(EUT: Table Tracker)

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 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.

9.4.1.Table Tracker (EUT)

Model Number	**:**	6863
Serial Number	**:**	N/A

9.5.Operating Condition of EUT

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

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 2405-2480 MHz. We select 2405MHz, 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. 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: 2009 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.
The worst-case data rate for this channel to be 1Mbps for 802.11b mode and 6Mbps for 802.11g mode and 300Mbps for 802.11n mode, based on previous with 802.11 WLAN product design architectures.

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.The Field Strength of Radiation Emission Measurement Results

PASS.

Date of Test:	Oct 28, 2012	Temperature:	25°C
EUT:	Table Tracker	Humidity:	50%
Model No.:	6863	Power Supply:	DC 3.7V
Test Mode:	Zigbee Channel Low 2405MHz	Test Engineer:	Star

For Below 30MHz

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
-	-	-	-	-	-	X
-	-	-	-	-	-	Y
-	-	-	-	-	-	Z

For 30MHz-1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

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

For 1GHz-25GHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

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

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

2. *: Denotes restricted band of operation.

3. The fundamental radiated emissions were reduced by 2.4G Band Reject Filter in the attached plots

Date of Test:	Oct 28, 2012	Temperature:	25°C
EUT:	Table Tracker	Humidity:	50%
Model No.:	6863	Power Supply:	DC 3.7V
Test Mode:	Zigbee Channel Middle 2440MHz	Test Engineer:	Star

For Below 30MHz

Frequency (MHz)	Reading (dBμV/m) QP	Factor(dB) Corr.	Result (dBμV/m) QP	Limit (dBμV/m) QP	Margin (dB) QP	Polarization
-	-	-	-	-	-	X
-	-	-	-	-	-	Y
-	-	-	-	-	-	Z

For 30MHz-1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

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

For 1GHz-25GHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

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

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

2. *: Denotes restricted band of operation.

3. The fundamental radiated emissions were reduced by 2.4G Band Reject Filter in the attached plots

Date of Test:	Oct 28, 2012	Temperature:	25°C
EUT:	Table Tracker	Humidity:	50%
Model No.:	6863	Power Supply:	DC 3.7V
Test Mode:	Zigbee Channel High 2480MHz	Test Engineer:	Star

For Below 30MHz

Frequency (MHz)	Reading (dBμV/m) QP	Factor(dB) Corr.	Result (dBμV/m) QP	Limit (dBμV/m) QP	Margin (dB) QP	Polarization
-	-	-	-	-	-	X
-	-	-	-	-	-	Y
-	-	-	-	-	-	Z

For 30MHz-1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

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

For 1GHz-25GHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

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

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

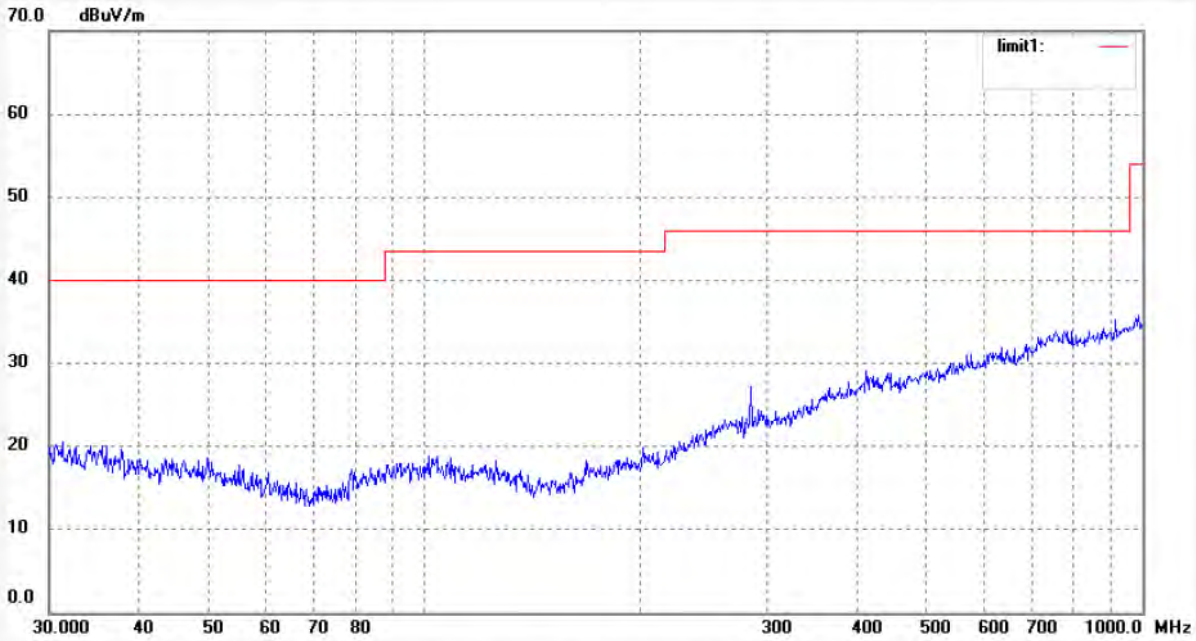
2. *: Denotes restricted band of operation.

3. The fundamental radiated emissions were reduced by 2.4G Band Reject Filter in the attached plots

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.: STAR #2984	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 12/10/28/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 2/10/19
EUT: Table Tracker	Engineer Signature:
Mode: TX Channel 1	Distance: 3m
Model: 6863	
Manufacturer: SEVECO GIOBAL LIMITED	

Note: Report No.:ATE20121266

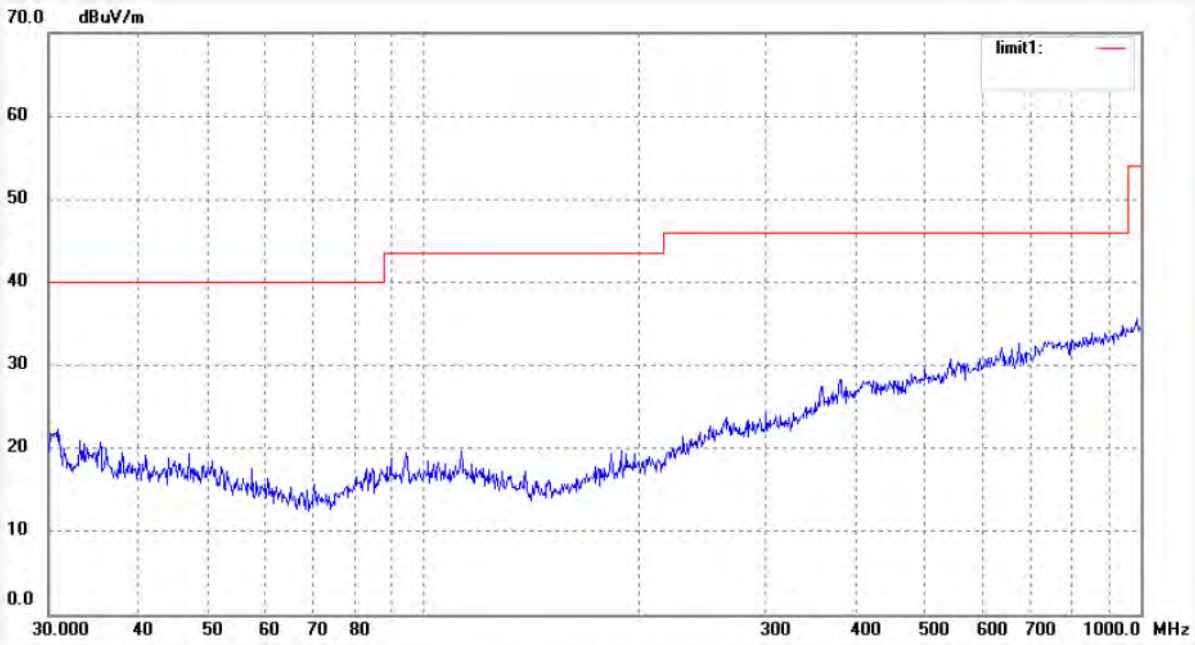


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2985	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 12/10/28/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 2/14/51
EUT: Table Tracker	Engineer Signature:
Mode: TX Channel 1	Distance: 3m
Model: 6863	
Manufacturer: SEVECO GIOBAL LIMITED	

Note: Report No.:ATE20121266

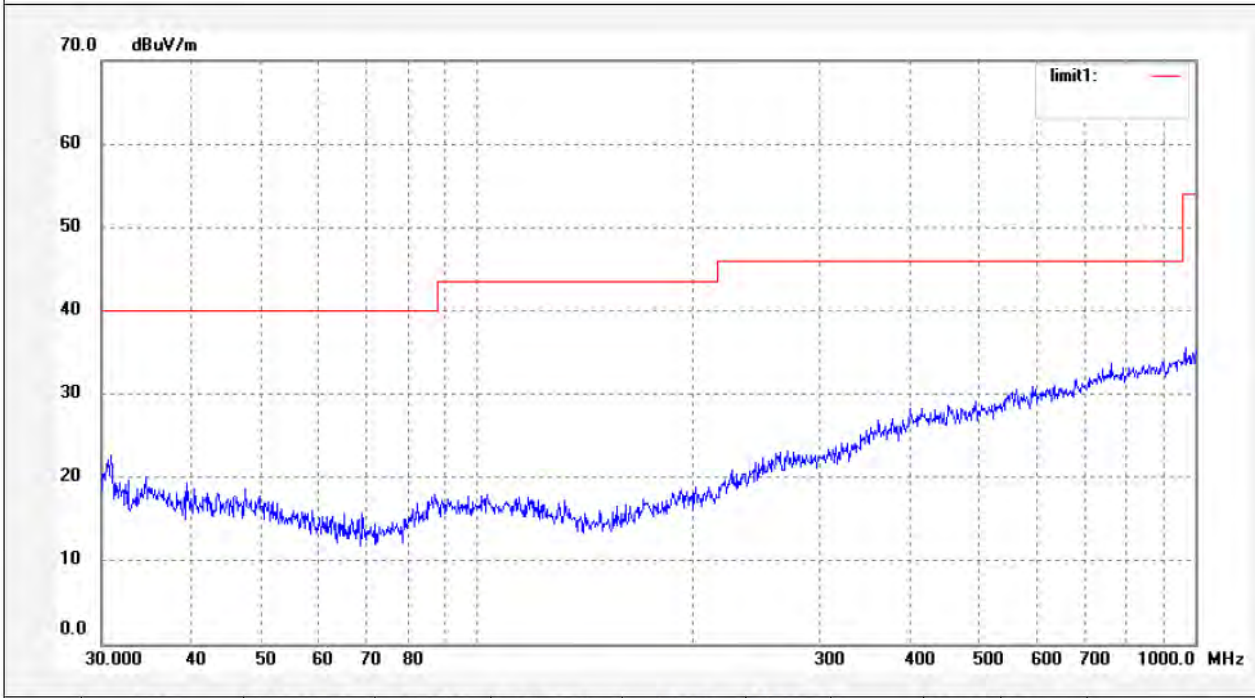


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2986	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 12/10/28/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 2/18/06
EUT: Table Tracker	Engineer Signature:
Mode: TX Channel 8	Distance: 3m
Model: 6863	
Manufacturer: SEVECO GIOBAL LIMITED	

Note: Report No.:ATE20121266

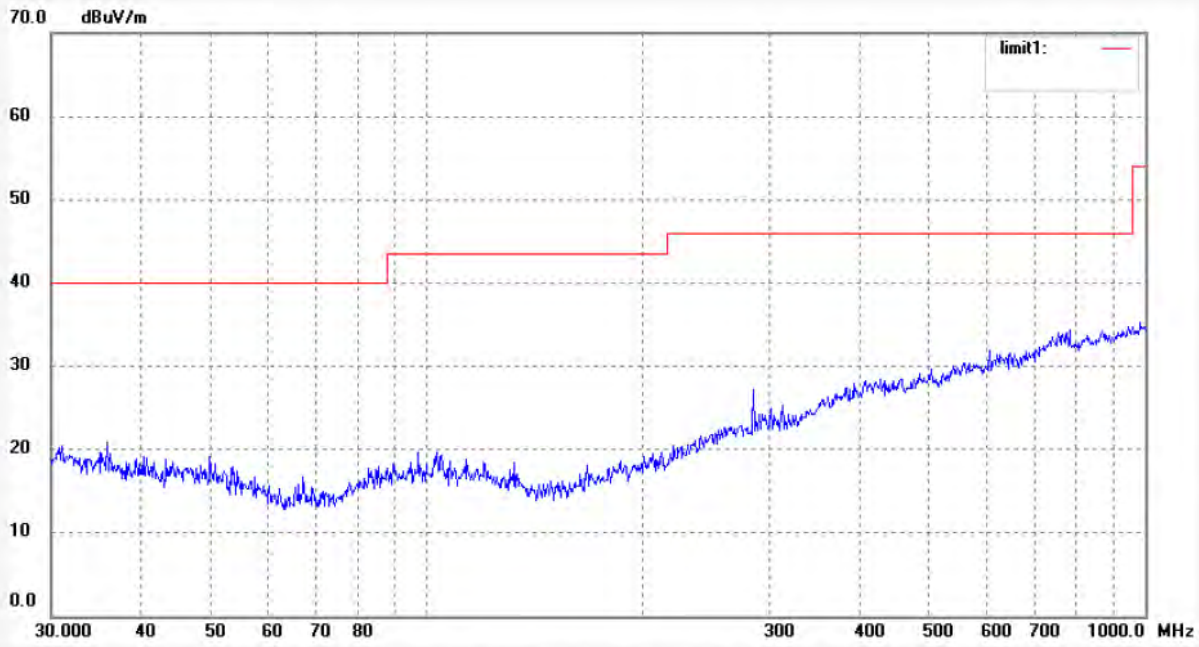


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2987	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 12/10/28/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 2/21/41
EUT: Table Tracker	Engineer Signature:
Mode: TX Channel 8	Distance: 3m
Model: 6863	
Manufacturer: SEVECO GIOBAL LIMITED	

Note: Report No.:ATE20121266

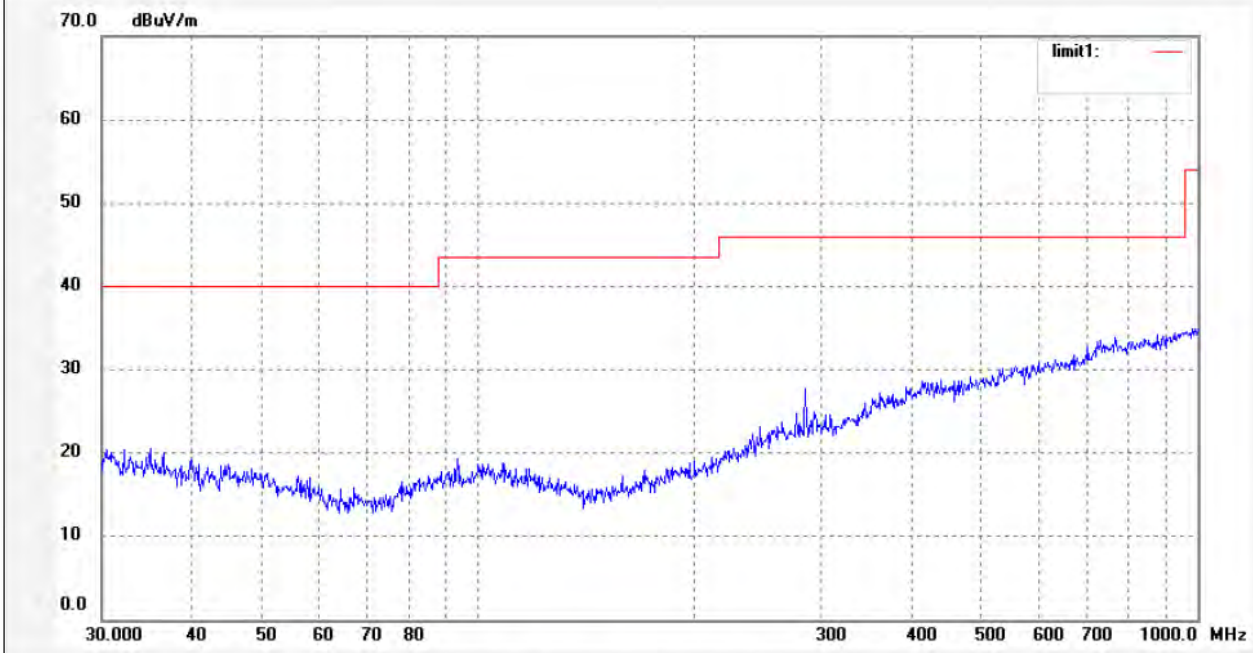


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2988	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 12/10/28/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 2/23/17
EUT: Table Tracker	Engineer Signature:
Mode: TX Channel 16	Distance: 3m
Model: 6863	
Manufacturer: SEVECO GIOBAL LIMITED	

Note: Report No.:ATE20121266

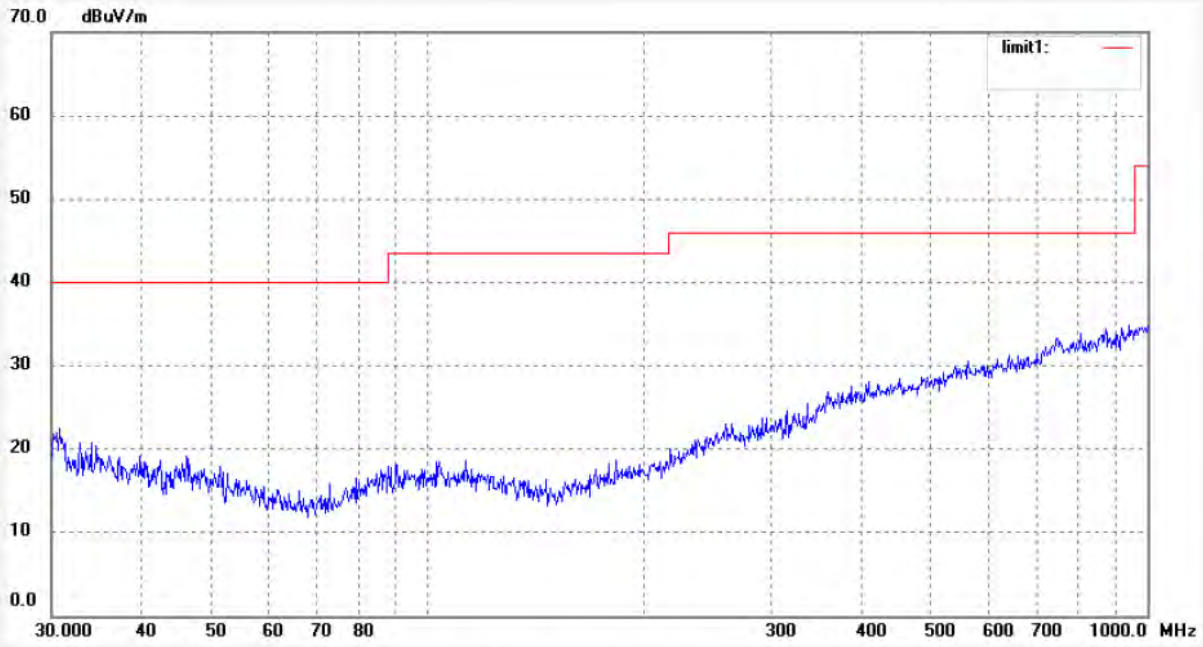


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2989	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 12/10/28/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 2/25/36
EUT: Table Tracker	Engineer Signature:
Mode: TX Channel 16	Distance: 3m
Model: 6863	
Manufacturer: SEVECO GIOBAL LIMITED	

Note: Report No.:ATE20121266

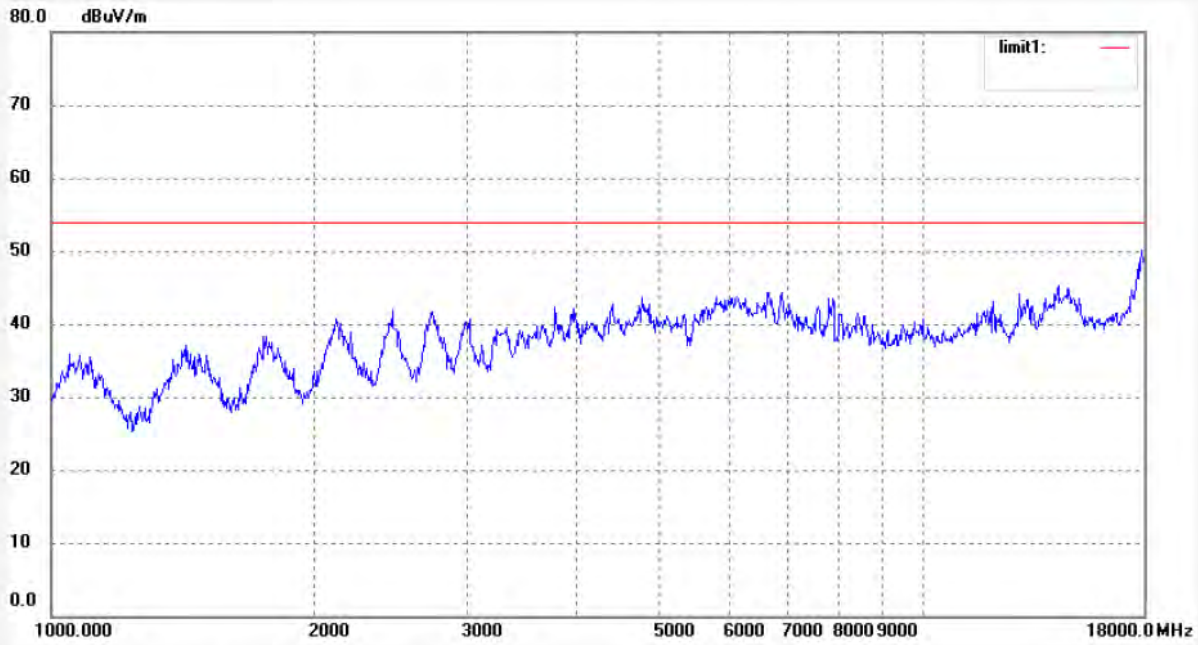


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2990	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 12/10/28/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 2/28/15
EUT: Table Tracker	Engineer Signature:
Mode: TX Channel 1	Distance: 3m
Model: 6863	
Manufacturer: SEVECO GIOBAL LIMITED	

Note: Report No.:ATE20121266

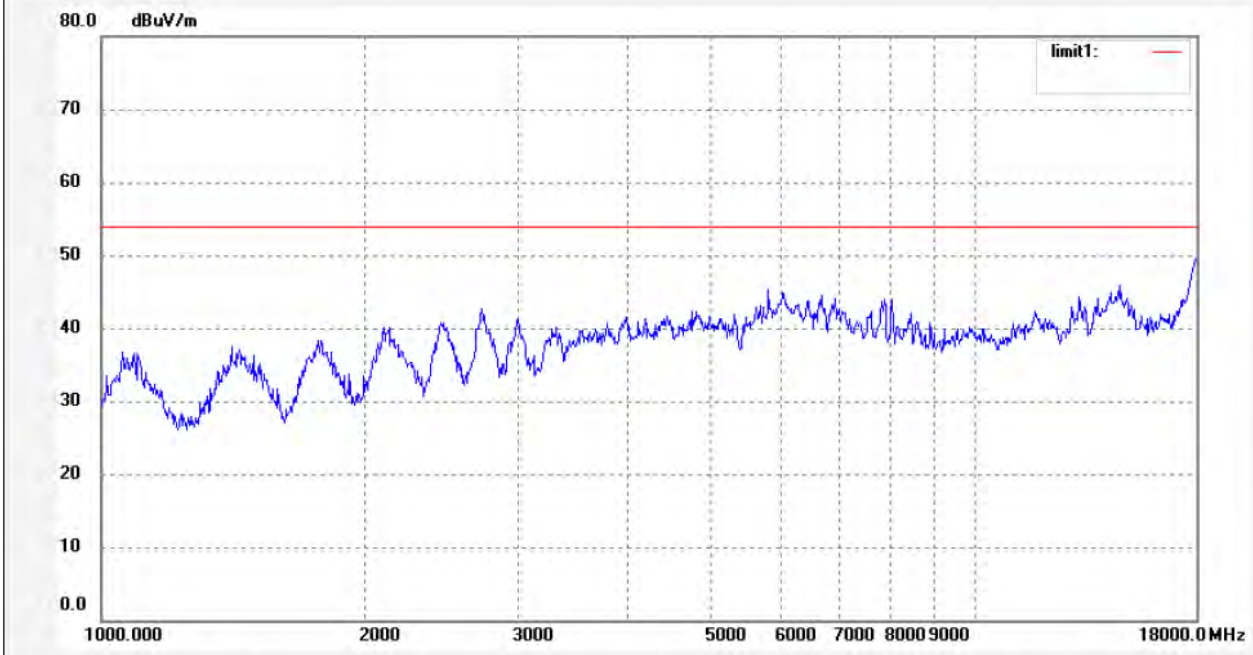


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2991	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 12/10/28/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 2/31/49
EUT: Table Tracker	Engineer Signature:
Mode: TX Channel 1	Distance: 3m
Model: 6863	
Manufacturer: SEVECO GIOBAL LIMITED	

Note: Report No.:ATE20121266

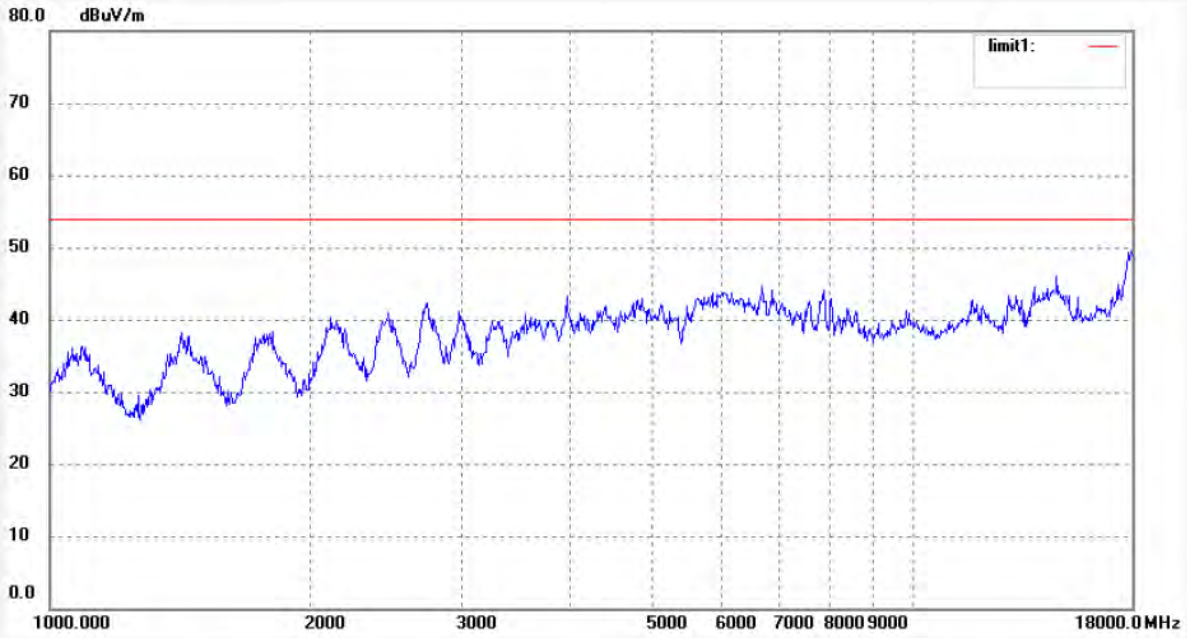


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2992	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 12/10/28/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 2/35/29
EUT: Table Tracker	Engineer Signature:
Mode: TX Channel 8	Distance: 3m
Model: 6863	
Manufacturer: SEVECO GIOBAL LIMITED	

Note: Report No.:ATE20121266

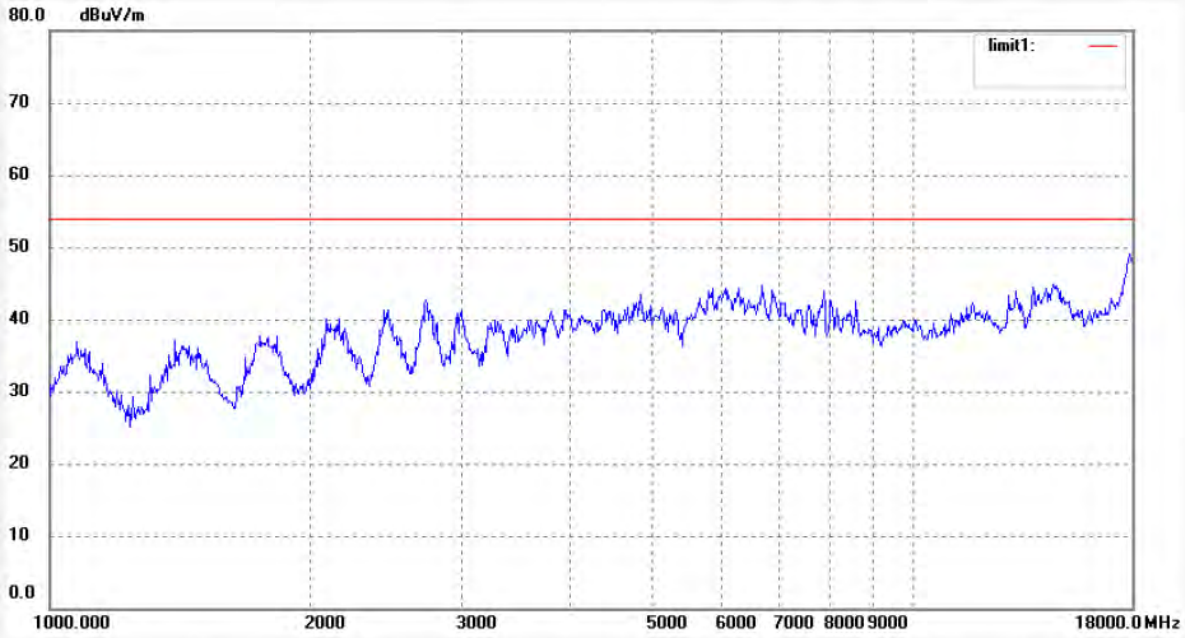


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2993	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 12/10/28/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 2/39/04
EUT: Table Tracker	Engineer Signature:
Mode: TX Channel 8	Distance: 3m
Model: 6863	
Manufacturer: SEVECO GIOBAL LIMITED	

Note: Report No.:ATE20121266

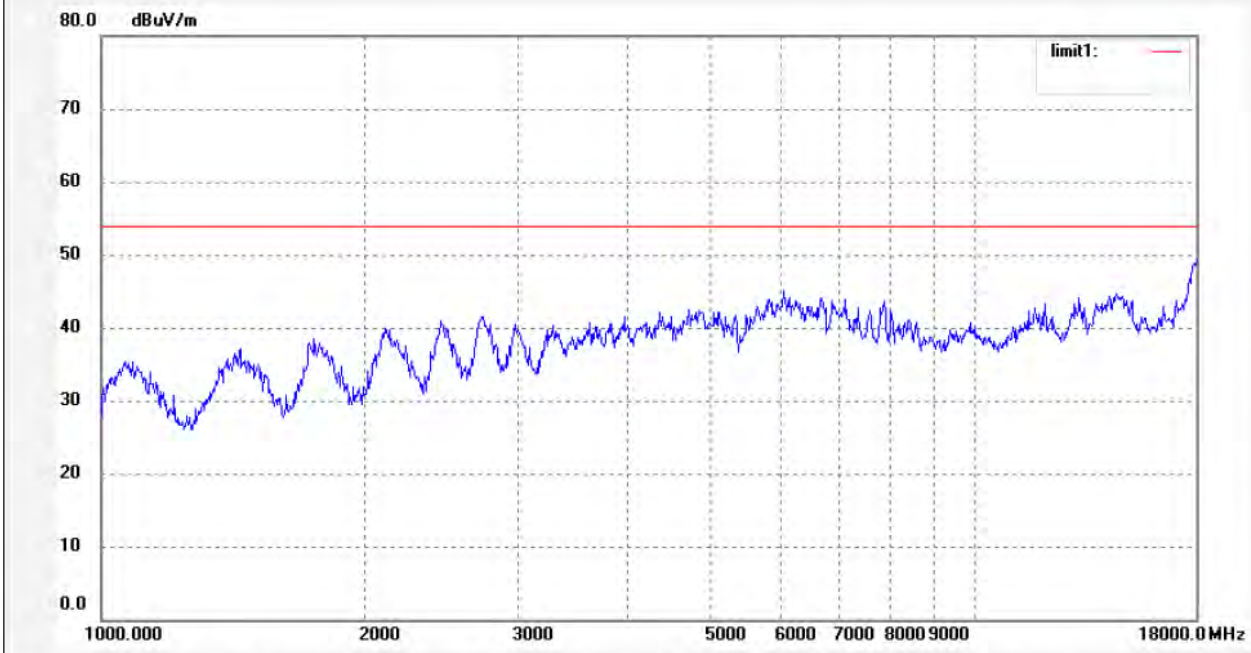


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2994	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 12/10/28/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 2/42/41
EUT: Table Tracker	Engineer Signature:
Mode: TX Channel 16	Distance: 3m
Model: 6863	
Manufacturer: SEVECO GIOBAL LIMITED	

Note: Report No.:ATE20121266

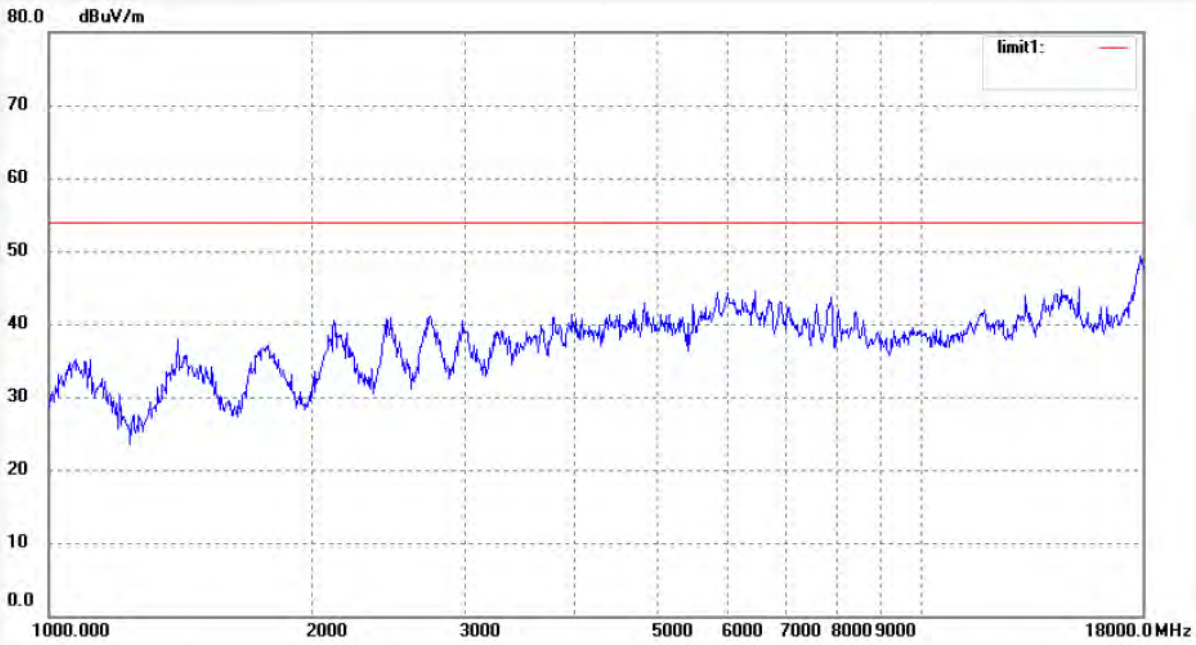


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2995	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 12/10/28/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 2/45/01
EUT: Table Tracker	Engineer Signature:
Mode: TX Channel 16	Distance: 3m
Model: 6863	
Manufacturer: SEVECO GIOBAL LIMITED	

Note: Report No.:ATE20121266

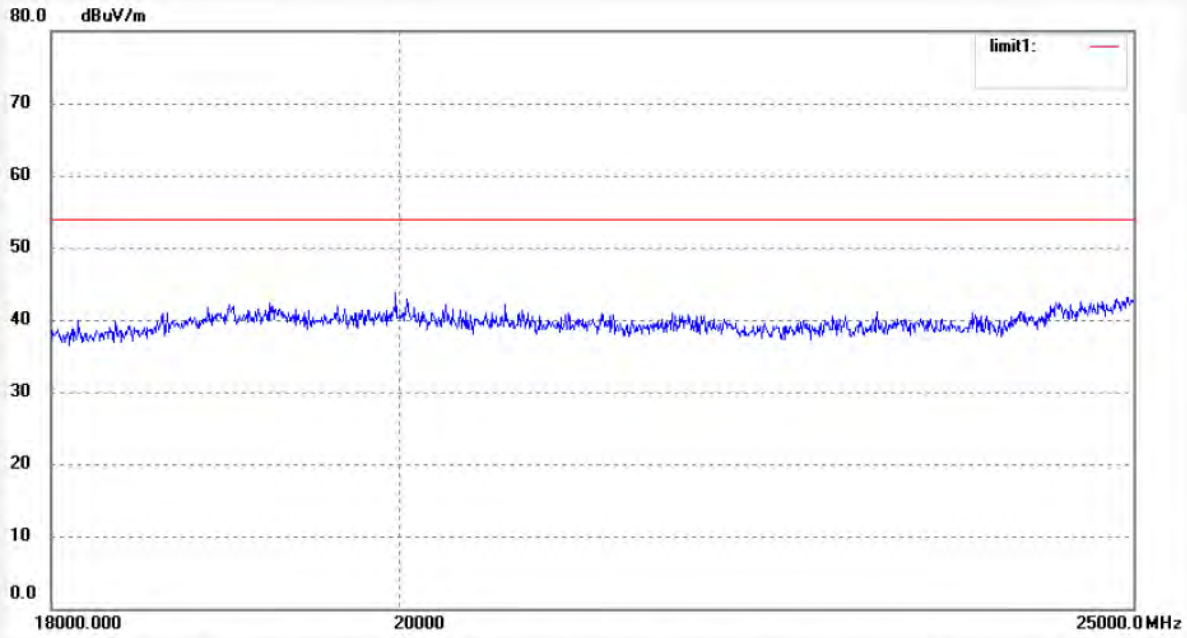


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2996	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 12/10/28/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 2/48/41
EUT: Table Tracker	Engineer Signature:
Mode: TX Channel 1	Distance: 3m
Model: 6863	
Manufacturer: SEVECO GIOBAL LIMITED	

Note: Report No.:ATE20121266

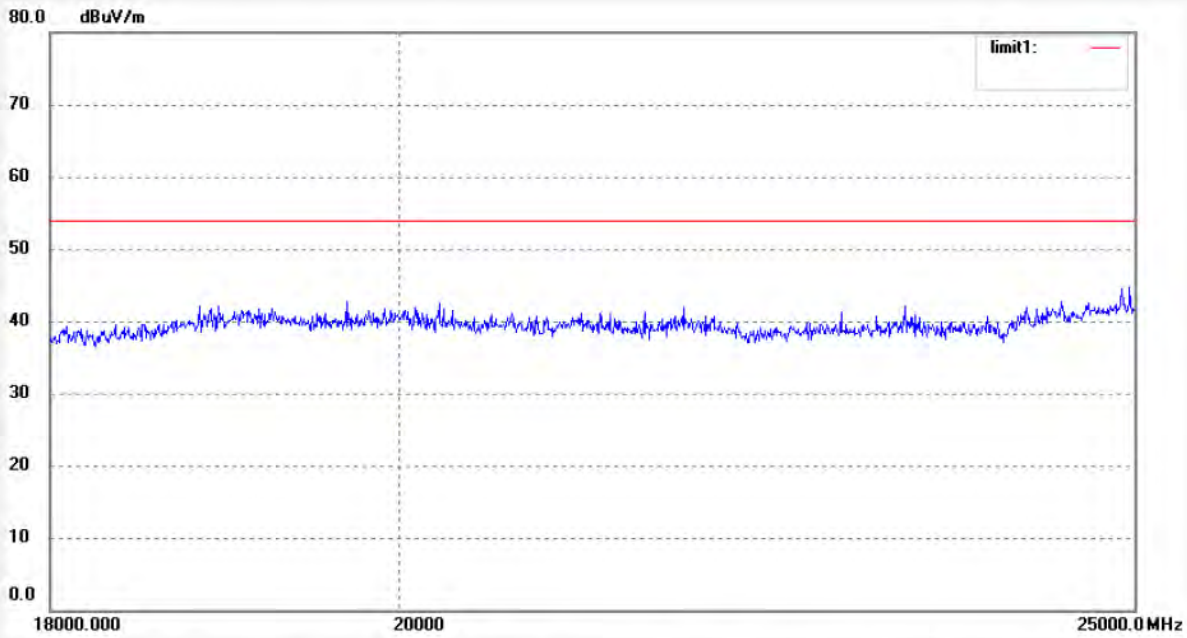


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2997	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 12/10/28/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 2/52/53
EUT: Table Tracker	Engineer Signature:
Mode: TX Channel 1	Distance: 3m
Model: 6863	
Manufacturer: SEVECO GIOBAL LIMITED	

Note: Report No.:ATE20121266

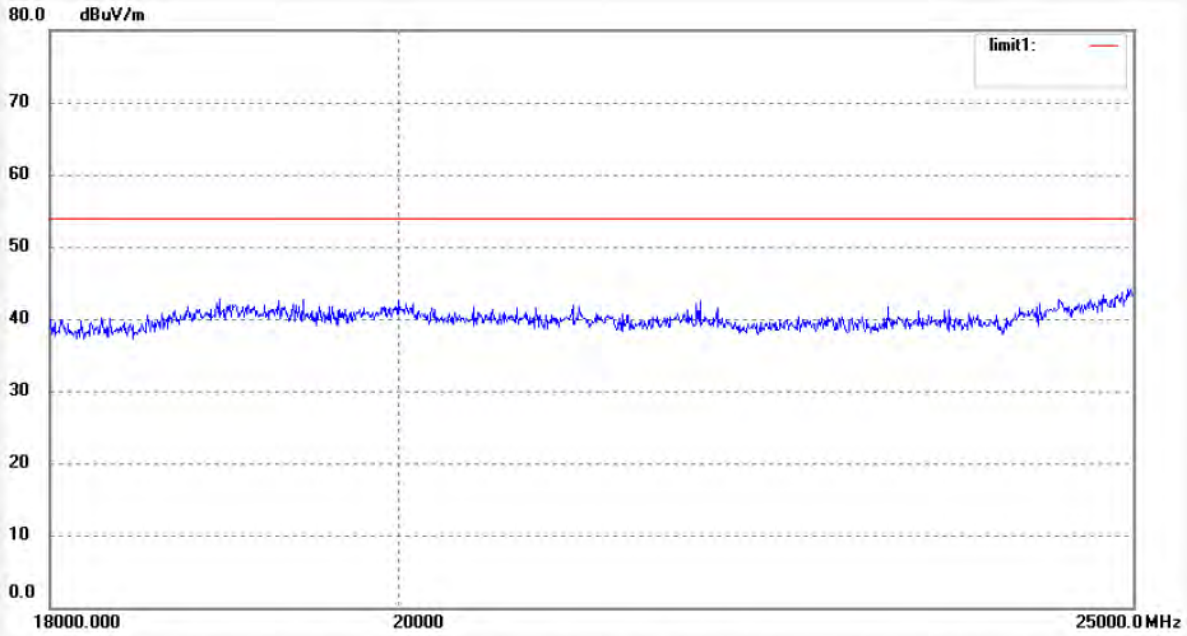


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2998	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 12/10/28/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 2/55/18
EUT: Table Tracker	Engineer Signature:
Mode: TX Channel 8	Distance: 3m
Model: 6863	
Manufacturer: SEVECO GIOBAL LIMITED	

Note: Report No.:ATE20121266

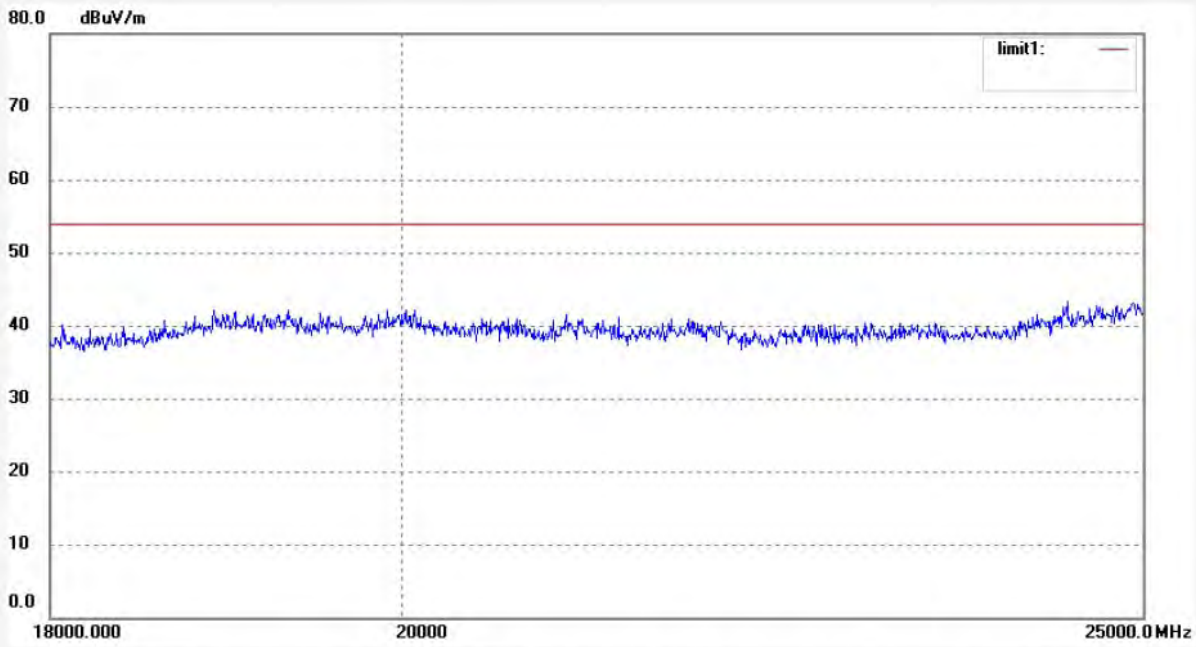


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2999	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 12/10/28/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 2/59/40
EUT: Table Tracker	Engineer Signature:
Mode: TX Channel 8	Distance: 3m
Model: 6863	
Manufacturer: SEVECO GIOBAL LIMITED	

Note: Report No.:ATE20121266

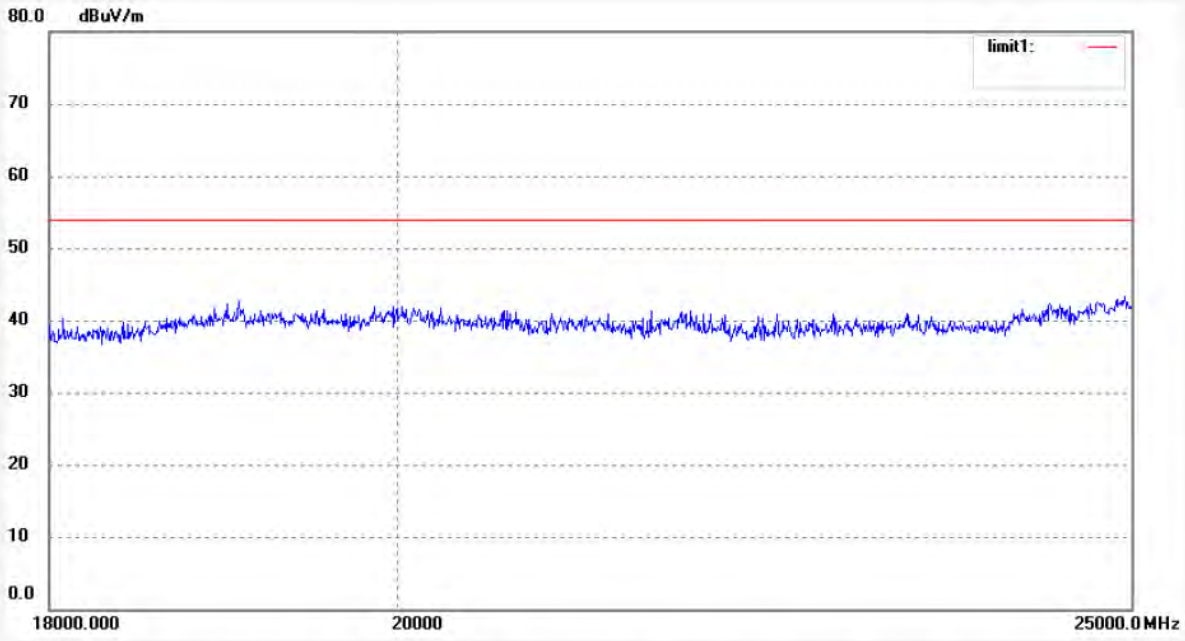


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #3000	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 12/10/28/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 3/03/52
EUT: Table Tracker	Engineer Signature:
Mode: TX Channel 16	Distance: 3m
Model: 6863	
Manufacturer: SEVECO GIOBAL LIMITED	

Note: Report No.:ATE20121266

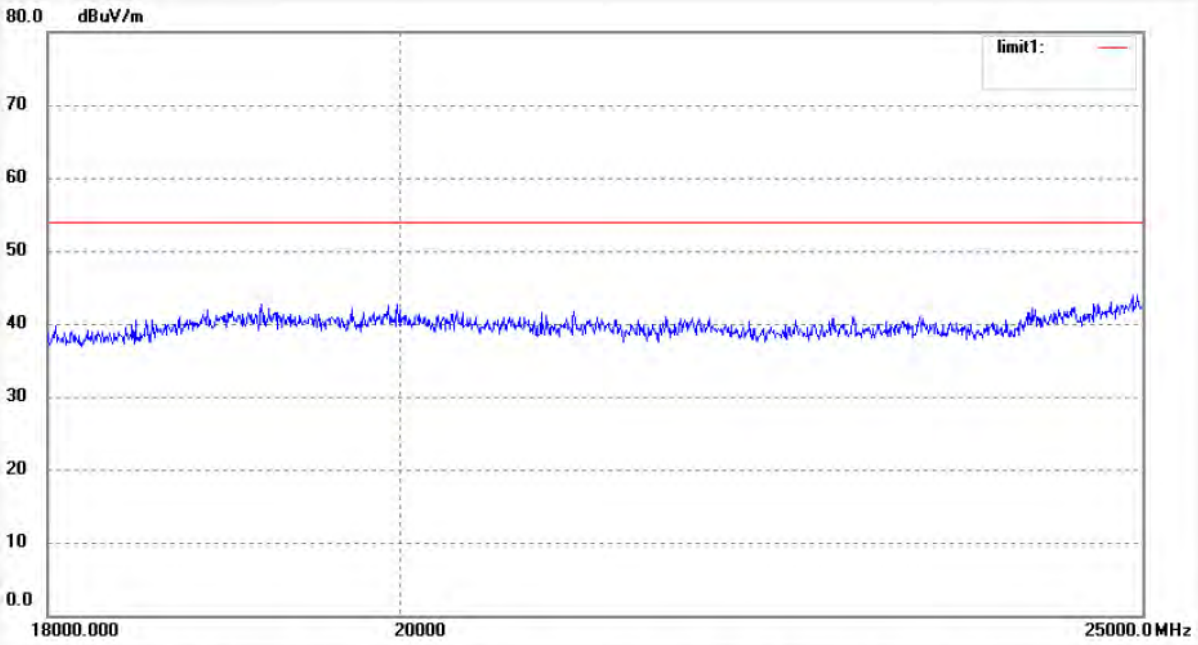


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #3001	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 12/10/28/
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 3/06/07
EUT: Table Tracker	Engineer Signature:
Mode: TX Channel 16	Distance: 3m
Model: 6863	
Manufacturer: SEVECO GIOBAL LIMITED	

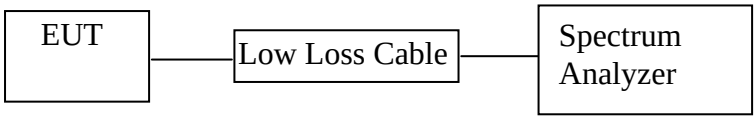
Note: Report No.:ATE20121266



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

10. CONDUCTED SPURIOUS EMISSION COMPLIANCE TEST

10.1. Block Diagram of Test Setup



(EUT: Table Tracker)

10.2. 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).

10.3. EUT Configuration on Measurement

The following 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.

10.3.1. Table Tracker (EUT)

Model Number : 6863
Serial Number : N/A

10.4.Operating Condition of EUT

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

10.4.2.Turn on the power of all equipment.

10.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2405-2480 MHz. We select 2405MHz, 2440MHz, and 2480MHz TX frequency to transmit.

10.5.Test Procedure

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

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

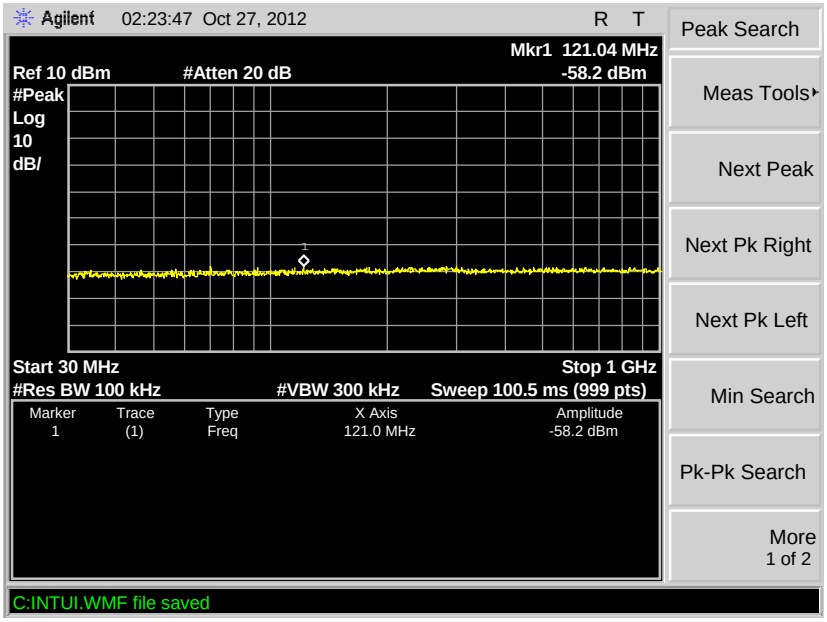
10.5.3.The Conducted Spurious Emission was measured and recorded.

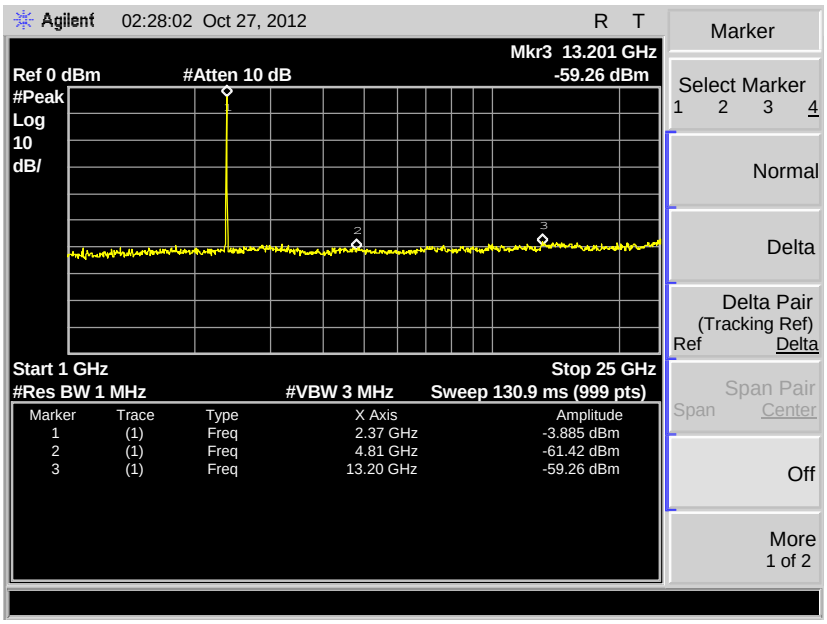
10.6.Test Result

Pass.

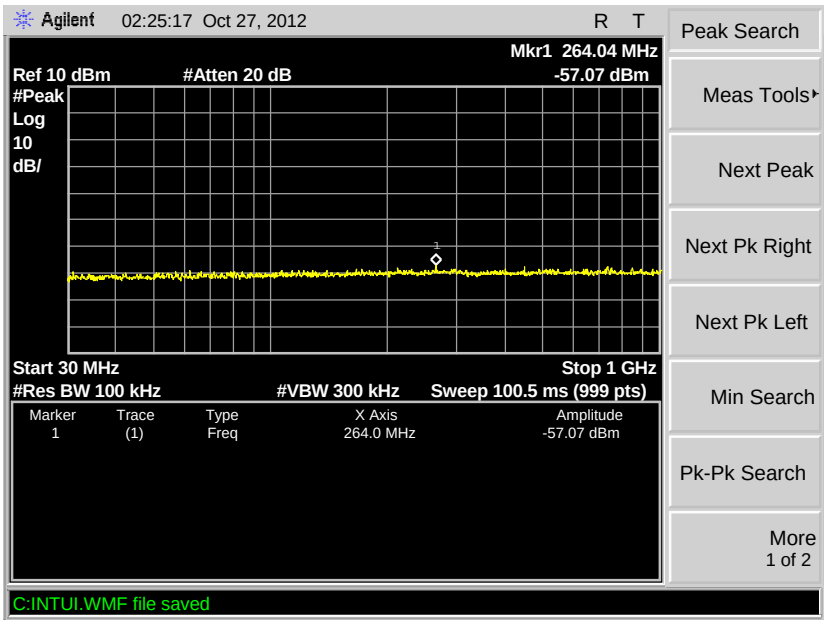
The spectrum analyzer plots are attached as below.

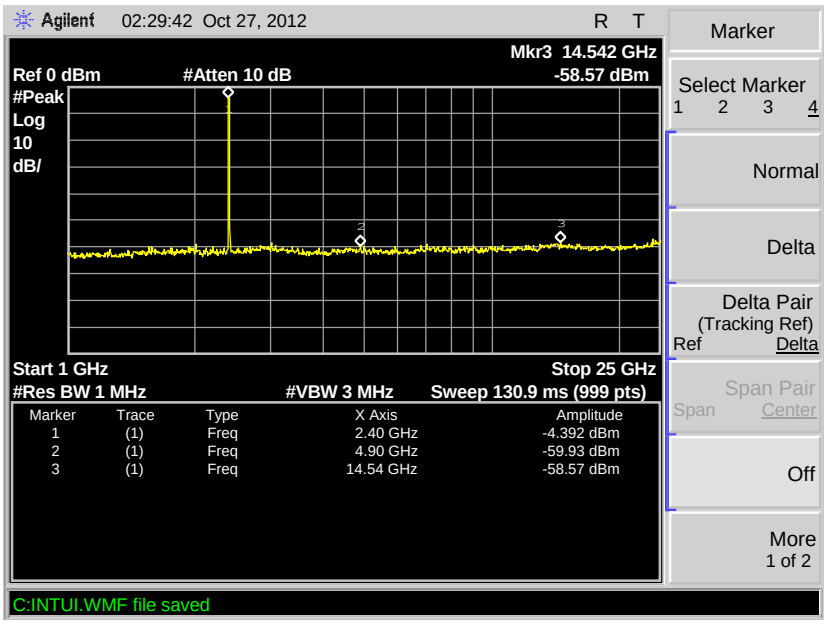
Zigbee Channel Low 2405MHz



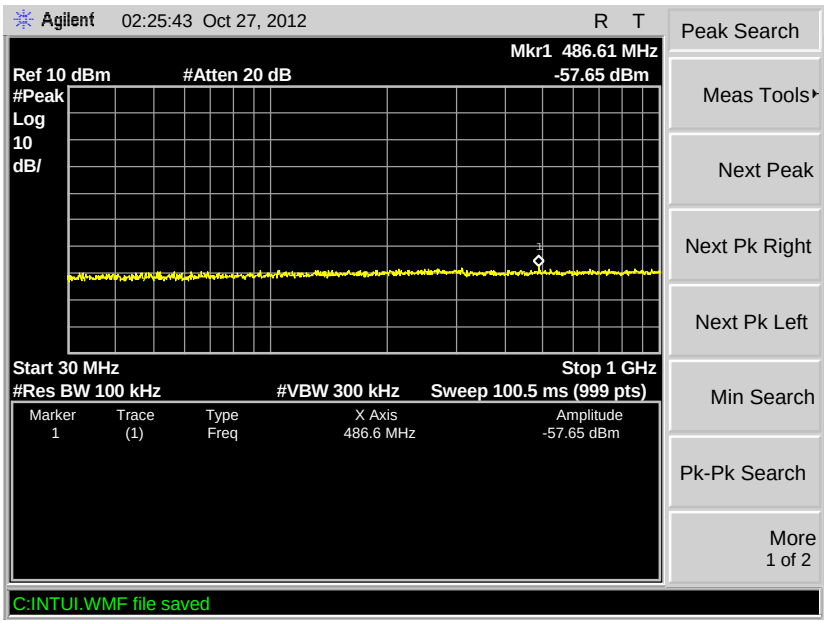


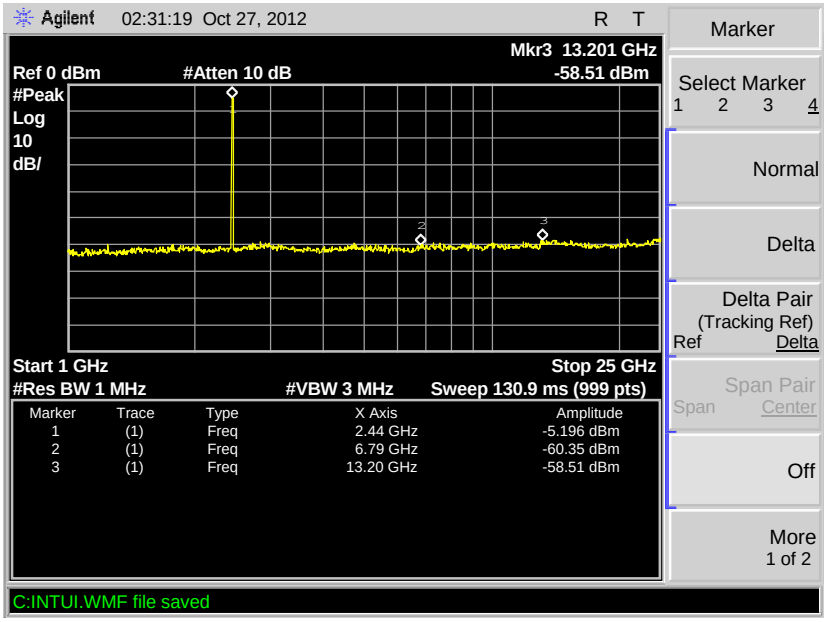
Zigbee Channel Middle 2440MHz





Zigbee Channel High 2480MHz





11. AC POWER LINE CONDUCTED EMISSION FOR FCC PART 15 SECTION 15.207(A)

N/A

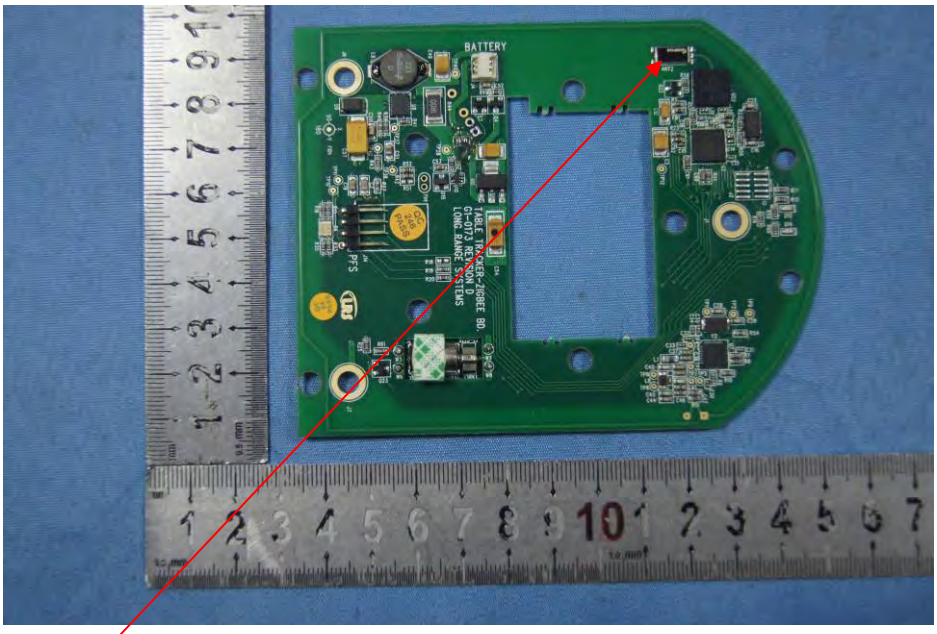
12. ANTENNA REQUIREMENT

12.1. 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.

12.2. Antenna Construction

Device is equipped with unique antenna, which isn't displaced by other antenna. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna