

# FCC Test Report

Product Name : WEL-3750/WEL7750/WEL3790/  
WEL7790 RFID Electronic Lock  
Model No. : L375, L775, WEL-7750, REP7001,  
WEL-3750, RAP3001, WEL-3790, L379,  
RAF3002, WEL-7790, L779, REF7002  
FCC ID. : 2AMWX-L00005

Applicant : WFE TECHNOLOGY CORP  
Address : 4F-8, NO.238, Chin-Hua N.Rd Taichung City 404, Taiwan

Date of Receipt : Jul. 17, 2017  
Issued Date : Aug. 10, 2017  
Report No. : 1770215R-RFUSP14V00  
Report Version : V1.0



The declaration results relate only to the samples calculated.

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# Test Report Certification

Issued Date : Aug. 10, 2017

Report No. : 1770215R-RFUSP14V00



Product Name : WEL-3750/WEL7750/WEL3790/WEL7790 RFID Electronic Lock

Applicant : WFE TECHNOLOGY CORP

Address : 4F-8, NO.238, Chin-Hua N.Rd Taichung City 404, Taiwan

Manufacturer : WFE TECHNOLOGY CORP

Model No. : L375, L775, WEL-7750, REP7001, WEL-3750, RAP3001, WEL-3790, L379, RAF3002, WEL-7790, L779, REF7002

FCC ID. : 2AMWX-L00005

EUT Voltage : DC 6V (Power by Battery)

Testing Voltage : DC 6V (Power by Battery)


Trade Name : **WAFFERLOCK®**

Applicable Standard : FCC 15 Subpart C Section 15.231: 2015

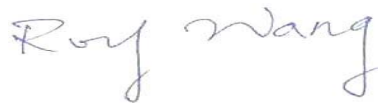
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Test Result : Complied

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Approved By :   
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**Revision History**

Report No.	Version	Description	Issued Date
1770215R-RFUSP14V00	V1.0	Initial issue of report.	Aug. 10, 2017

## Laboratory Information

We, **DEKRA Testing and Certification Co., Ltd.**, are an independent RF consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025 specified testing scopes:

<b>Taiwan R.O.C.</b>	<b>:</b>	<b>TAF, Accreditation Number: 3024</b>
<b>USA</b>	<b>:</b>	<b>FCC, Registration Number: 0007939127</b>
<b>Canada</b>	<b>:</b>	<b>IC, Submission No: 181665 / IC Registration Number: 22397-1 / 22397-2 / 22397-3</b>

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site :

<http://www.dekra.com.tw/english/about/certificates.aspx?bval=5>

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site : [http://www.dekra.com.tw/index\\_en.aspx](http://www.dekra.com.tw/index_en.aspx)

If you have any comments, Please don't hesitate to contact us. Our test sites as below:

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## 1. General Information

### 1.1. EUT Description

Product Name	WEL-3750/WEL7750/WEL3790/WEL7790 RFID Electronic Lock
Trade Name	<b>WAFFERLOCK®</b>
Model No.	L375, L775, WEL-7750, REP7001, WEL-3750, RAP3001, WEL-3790, L379, RAF3002, WEL-7790, L779, REF7002
Frequency Range	315MHz
Channel Number	1
Type of Modulation	ASK

Antenna Information	
Antenna Type	Printed
Antenna Gain	0dBi

Working Frequency of Each Channel	
Channel	Frequency
Channel 1	315MHz

#### Note:

1. This device is a WEL-3750/WEL7750/WEL3790/WEL7790 RFID Electronic Lock including BT function/315MHz/13.56MHz transmitting and receiving function.
2. The different of the each model is shown as below:
  1. Different firmware. L375,WEL-3750, RAP3001, L379,WEL-3790, RAF3002, L775, WEL-7750, REP7001, L779, WEL-7790, REF7002
  2. Different mortise. L375 WEL-3750, RAP3001 / L379,WEL-3790, RAF3002, is using ANSI profile mortise, and L775, WEL-7750, REP7001/ L779, WEL-7790, REF7002 is using European profile mortise.
  3. Adding finger print sensor handle on model L379, WEL-3790,RAF3002/ L779,WEL-7790, REF7002 including finger print sensor modulars and mTouch sensors on handles.  
Reader PCB, mTouch panel, antenna PCB, and main control PCB are same on all models.
3. These tests are conducted on a sample for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.231.
4. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

## 1.2. Test Mode

DEKRA verified the construction and function in typical operation. All the test modes are performed in normal operation and are defined as:

Test Mode	
TX	Mode 1: Transmit

Performed Item	Mode 1
Conducted Emission	No
Radiated Emission	Yes
Occupied Bandwidth	Yes
Duty cycle	Yes
Transmitter time	Yes

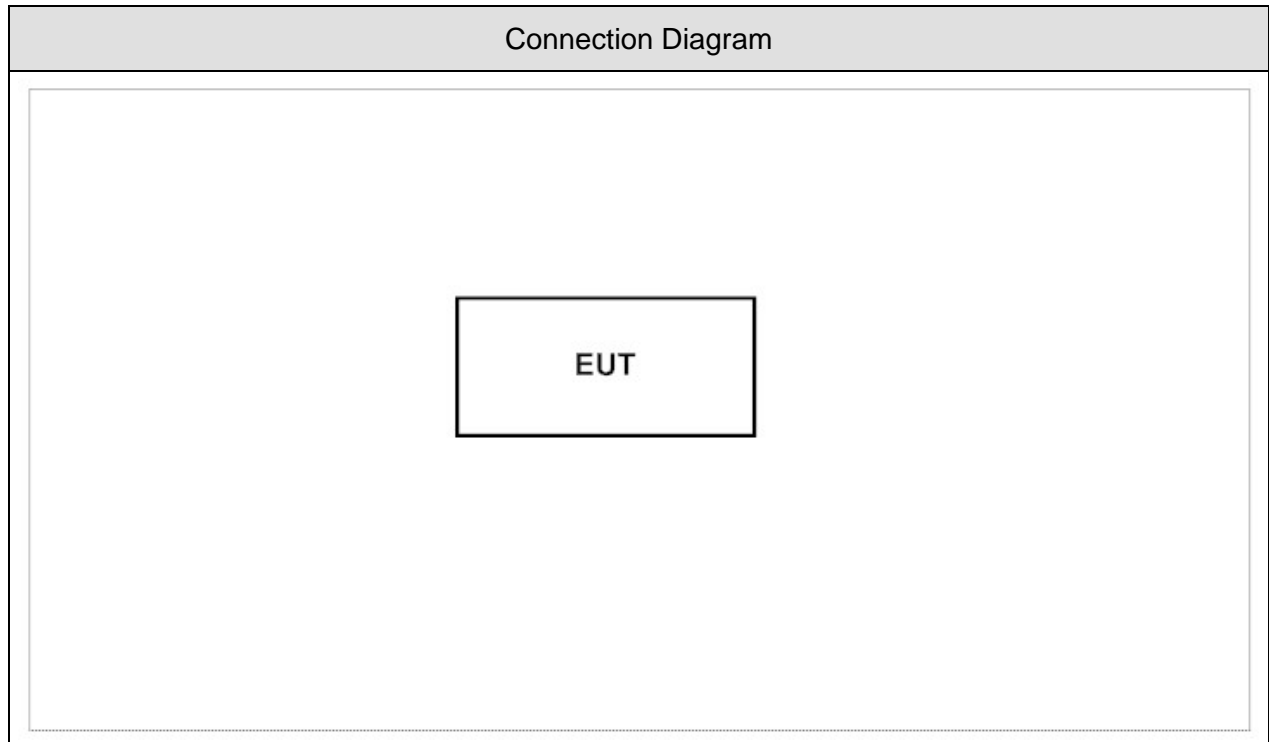


### 1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
N/A					

### 1.4. Configuration of tested System



### 1.5. EUT Exercise Software

1	Setup the EUT as shown in Section 1.4.
2	Turn on the EUT power.
3	Configure the test mode, the test channel, and the data rate.
4	Press "Start TX" to start the continuous transmitting.
5	Verify that the EUT works properly.

## 1.6. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual	Test Site
Temperature (°C)	FCC PART 15 C 15.231(b) Conducted Emission	15 - 35	25°C	--
Humidity (%RH)		25 - 75	45%RH	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.231(b) Radiated Emission	15 - 35	25°C	1/2
Humidity (%RH)		25 - 75	45%RH	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.231(b) Occupied Bandwidth	15 - 35	25°C	1
Humidity (%RH)		25 - 75	65%RH	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.231(b) Duty cycle	15 - 35	25°C	3
Humidity (%RH)		25 - 75	45%RH	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.231(b) Transmitter time	15 - 35	25°C	1
Humidity (%RH)		25 - 75	48%RH	
Barometric pressure (mbar)		860 - 1060	950-1000	

Note: Test Site information refers to Laboratory Information.

## 2. Conducted Emission

### 2.1. Test Equipment

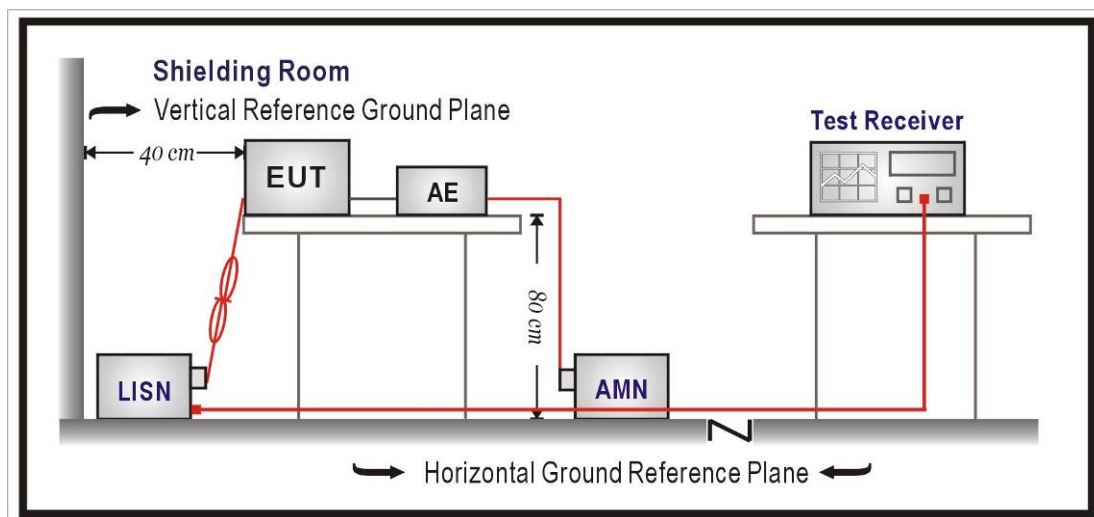
The following test equipment are used during the test:

#### Conducted Emission / SR2-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Artificial Mains Network	R&S	ENV4200	848411/010	2018/02/05
LISN	R&S	ENV216	100092	2017/08/16
Test Receiver	R&S	ESCS 30	836858/022	2018/04/11

Note: All equipment that need to calibrate are with calibration period of 1 year.

### 2.2. Test Setup



### 2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency MHz	QP	AV
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

## **2.4. Test Procedure**

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs.)

Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

## **2.5. Test Specification**

According to FCC Part 15 Subpart C Paragraph 15.207: 2014

## **2.6. Uncertainty**

The measurement uncertainty is defined as  $\pm 2.26$  dB.

## **2.7. Test Result**

EUT using DC input voltage, so the project does not have to test for testing.

### 3. Radiated Emission

#### 3.1. Test Equipment

The following test equipment are used during the test:

##### Radiated Emission (Fundamental/ Above 1GHz) / CB1

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Bilog Antenna	Schaffner	CBL6112B	2895	2016/08/14
Horn Antenna	Schwarzbeck	BBHA 9120	D743	2017/01/14
Pre-Amplifier	EMCI	EMC0031835	980233	2017/01/26
Pre-Amplifier	QuieTek	AP-025C	CHM-0706049	2017/01/03
Spectrum	Agilent	E4440A	MY46187335	2016/12/24
k Type Cable	Huber+Suhner	SF 102	25623/2	2017/01/11

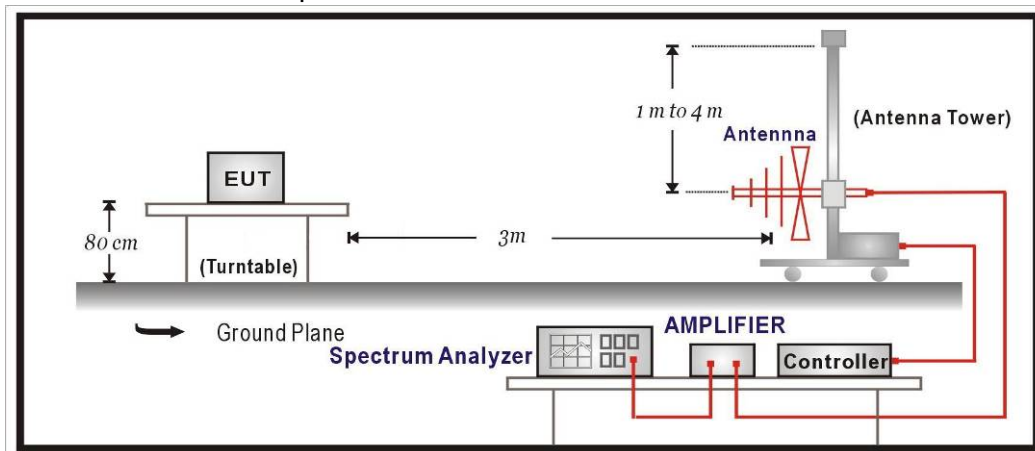
##### Radiated Emission (30MHz~1GHz) / CB4-H

Instrument	Manufacturer	Model No.	Serial No.	Next Cal. Date
Bilog Antenna	Schaffner	CBL6112B	2891	2017/08/14
Horn Antenna	Schwarzbeck	BBHA 9120	D312	2017/10/25
Horn Antenna	Schwarzbeck	BBHA 9170	203	2017/08/28
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/01/22
Pre-Amplifier	EMCI	EMC0031835	980233	2018/02/02
Pre-Amplifier	Schwarzbeck	DBL-1840N506	013	2017/09/29
Pre-Amplifier	Miteq	JS41-001040000-58-5P	1573954	2017/10/04
k Type Cable	Huber+Suhner	SF 102	25623/2	2018/01/19

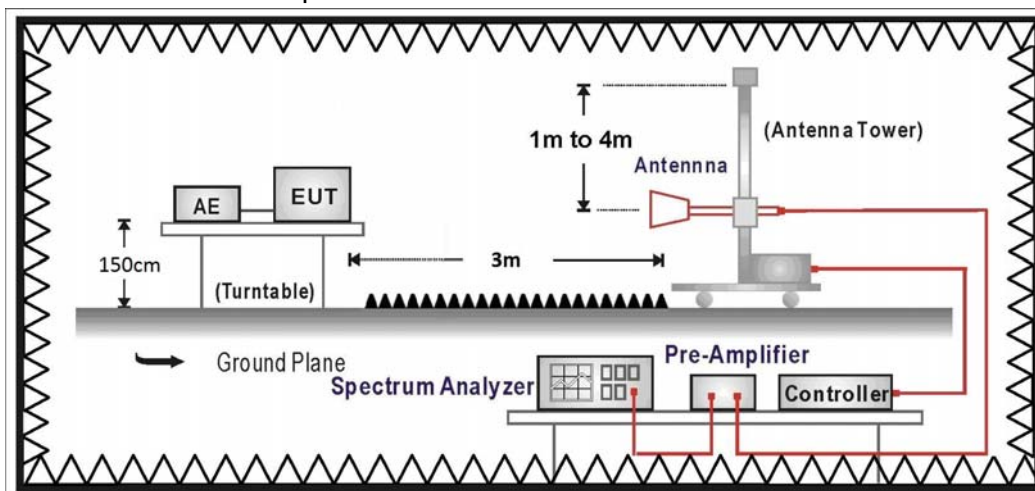
Note: All equipment that need to calibrate are with calibration period of 1 year.

### 3.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



### 3.3. Limits

#### ➤ Fundamental and Harmonics Emission Limits

FCC Part 15 Subpart C Paragraph 15.231(b) Limits				
Fundamental Frequency MHz	Field Strength of Fundamental		Field Strength of Harmonics	
	uV/m	dBuV/m	uV/m	dBuV/m
40.66 - 40.70	2250	67.04	225	47.04
70 - 130	1250	61.94	125	41.94
130 - 174	1250 - 3750	61.94 - 71.48	125 - 375	41.94 - 51.48
174 - 260	3750	71.48	375	51.48
260 - 470	3750 - 12500	71.48 - 81.94	375 - 1250	51.48 - 61.94
above 470	12500	81.94	1250	61.94

Remarks: 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)  
 2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.  
 3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

#### ➤ Spurious electric field strength limits

FCC Part 15 Subpart C Paragraph 15.209 Limits			
Frequency MHz	uV/m	dBuV/m	Measurement distance (meter)
0.009 - 0.490	2400/F(kHz)	See Remark <sup>1</sup>	300
0.490 - 1.705	24000/F(kHz)	See Remark <sup>1</sup>	30
1.705 - 30	30	29.5	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

Remarks : 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)  
 2. In the Above Table, the tighter limit applies at the band edges.  
 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

### **3.4. Test Procedure**

The EUT and its simulators are placed on a turn table which is 0.8 and 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB beamwidth of the antenna.

The worst radiated emission is measured on the Final Measurement.

The frequency range from 30MHz to 10th harmonics is checked.

### **3.5. Test Specification**

According to FCC Part 15 Subpart C Paragraph 15.231(b): 2015

### **3.6. Uncertainty**

± 3.8 dB below 1GHz

± 3.9 dB above 1GHz



### 3.7. Test Result

Product	WEL-3750/WEL7750/WEL3790/WEL7790 RFID Electronic Lock		
Test Item	Fundamental Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2016/07/20	Test Site	CB1

#### Fundamental Power

Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Peak Measurement Level (dBuV/m)	Average Measurement Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)
Horizontal						
315 (X-axis)	14.023	62.696	76.719	66.448	95.623	75.623
Vertical						
315 (X-axis)	14.023	64.905	78.928	68.657	95.623	75.623

Note :

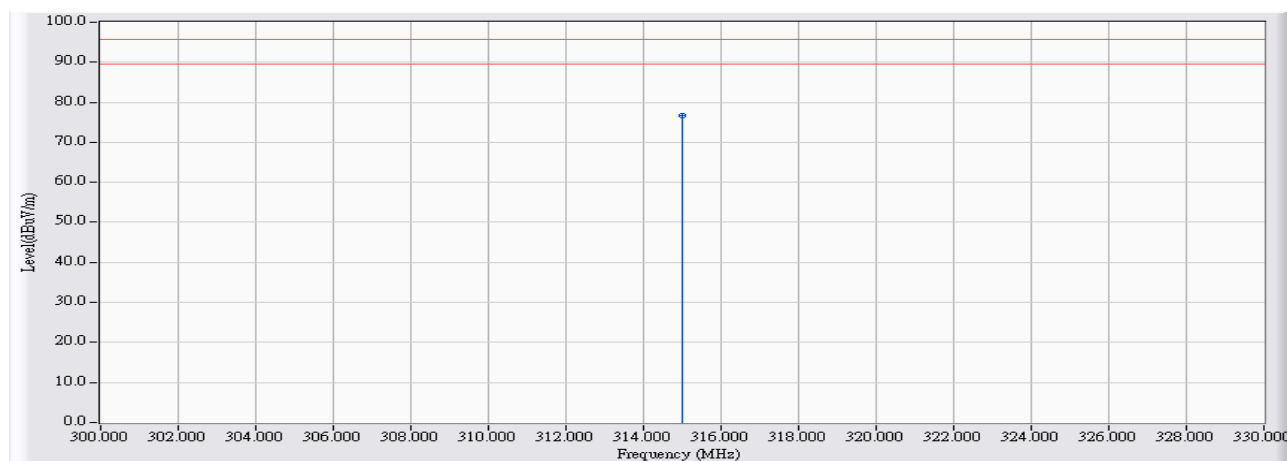
Peak Measurement Level = Reading Level + Correct Factor

Average Measurement Level = Peak Measurement Level + 20Log (Duty Cycle)

Duty Cycle =  $(T_{ON2} / (T_{ON2} + T_{OFF2})) = 0.306$

$20 * \text{Log}(\text{Duty Cycle}) = -10.271$

<b>Site : CB1</b>	<b>Time : 2016/07/20 - 11:48</b>
<b>Limit : FCC_SpartC_15.231(B)_F_315MHz_03M_PK</b>	<b>Margin : 6</b>
<b>Probe : CB1_FCC_30M-1G-4_9161 - HORIZONTAL</b>	<b>Power : DC 6V (Power by Battery)</b>
<b>EUT : WEL-3750/WEL7750/WEL3790/WEL7790 RFID Electronic Lock</b>	<b>Note : X-axis</b>

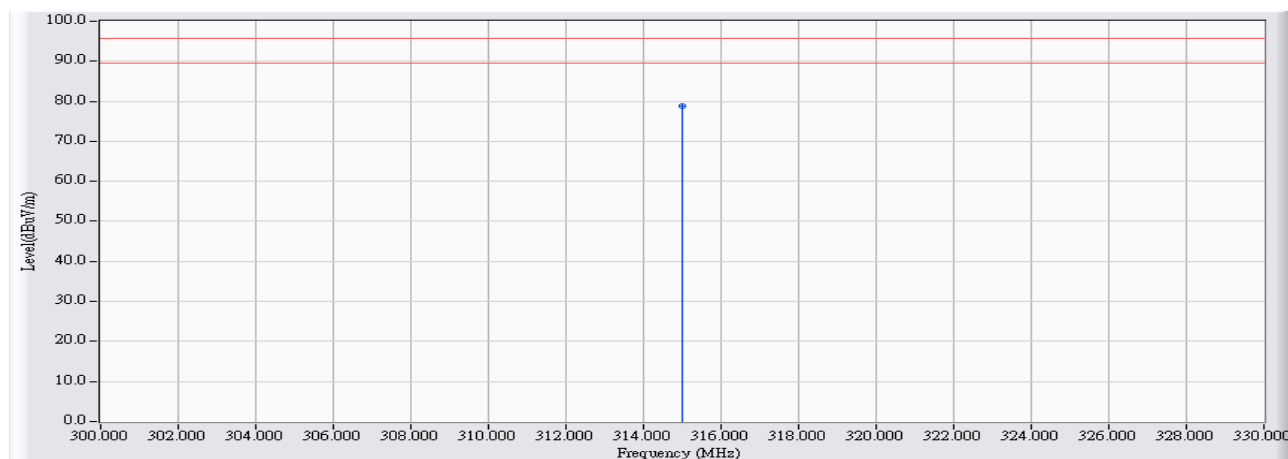


		<b>Frequency (MHz)</b>	<b>Correct Factor (dB)</b>	<b>Reading Level (dBuV)</b>	<b>Measure Level (dBuV/m)</b>	<b>Margin (dB)</b>	<b>Limit (dBuV/m)</b>	<b>Detector Type</b>
1	*	314.993	14.023	62.696	76.719	-18.904	95.623	PEAK

**Note:**

1. All Reading Levels are Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB1	Time : 2016/07/20 - 11:48
Limit : FCC_SpartC_15.231(B)_F_315MHz_03M_PK	Margin : 6
Probe : CB1_FCC_30M-1G-4_9161 - VERTICAL	Power : DC 6V (Power by Battery)
EUT : WEL-3750/WEL7750/WEL3790/WEL7790 RFID Electronic Lock	Note : X-axis



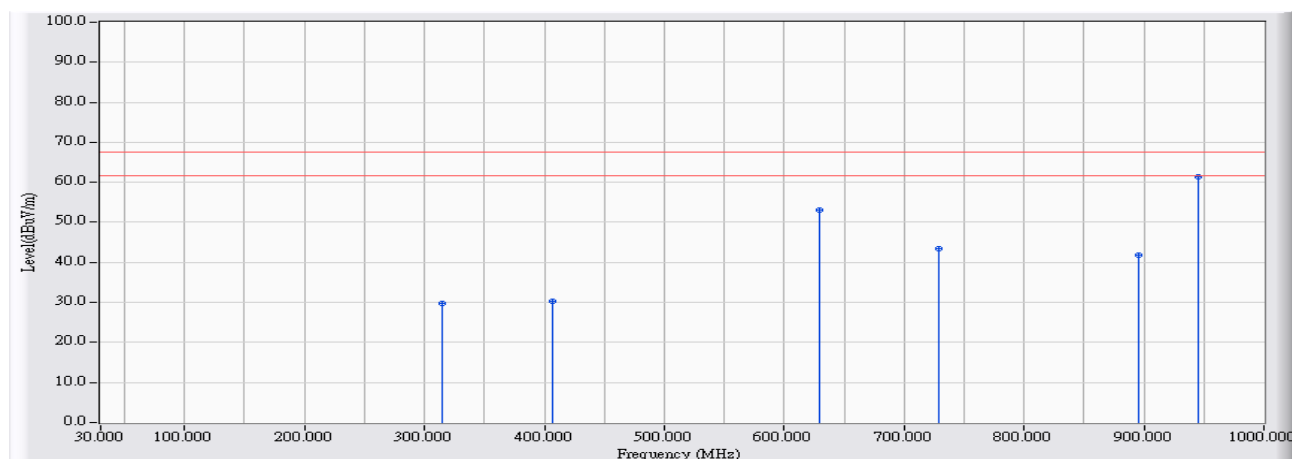
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	314.996	14.023	64.905	78.928	-16.695	95.623	PEAK

Note:

1. All Reading Levels are Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

**Spurious Emission (30MHz~1GHz)**

Site : CB4-H	Time : 2017/03/01
Limit : NCC_3.4.2_H_315MHz_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - HORIZONTAL	Power : DC 6V (Power by Battery)
EUT : WEL-3750/WEL7750/WEL3790/WEL7790 RFID Electronic Lock	Note : X-axis

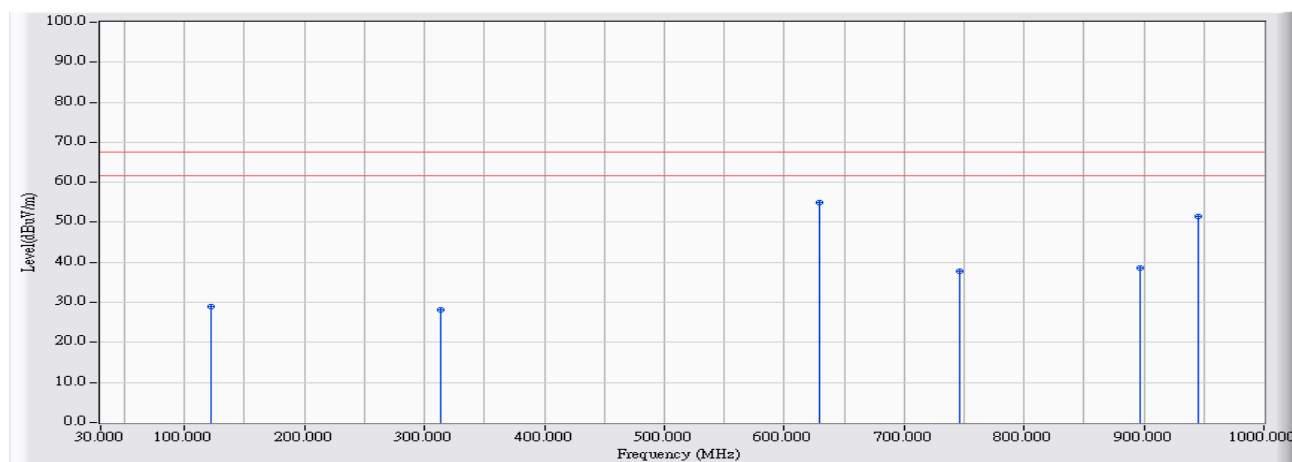


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		314.958	-19.079	48.971	29.892	-37.768	67.660	PEAK
2		406.807	-15.588	45.785	30.197	-37.463	67.660	PEAK
3		629.885	-12.150	65.136	52.986	-14.674	67.660	PEAK
4		729.106	-10.596	54.159	43.563	-24.097	67.660	PEAK
5		896.026	-8.620	50.488	41.867	-25.793	67.660	PEAK
6	*	944.813	-7.203	68.581	61.378	-6.282	67.660	PEAK

**Note:**

1. All Reading Levels are Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB4-H	Time : 2017/03/01
Limit : NCC_3.4.2_H_315MHz_03M_PK	Margin : 6
Probe : CB4-H_FCC_EFS_S2_30M-1GHz_1116 - VERTICAL	Power : DC 6V (Power by Battery)
EUT : WEL-3750/WEL7750/WEL3790/WEL7790 RFID Electronic Lock	Note : X-axis



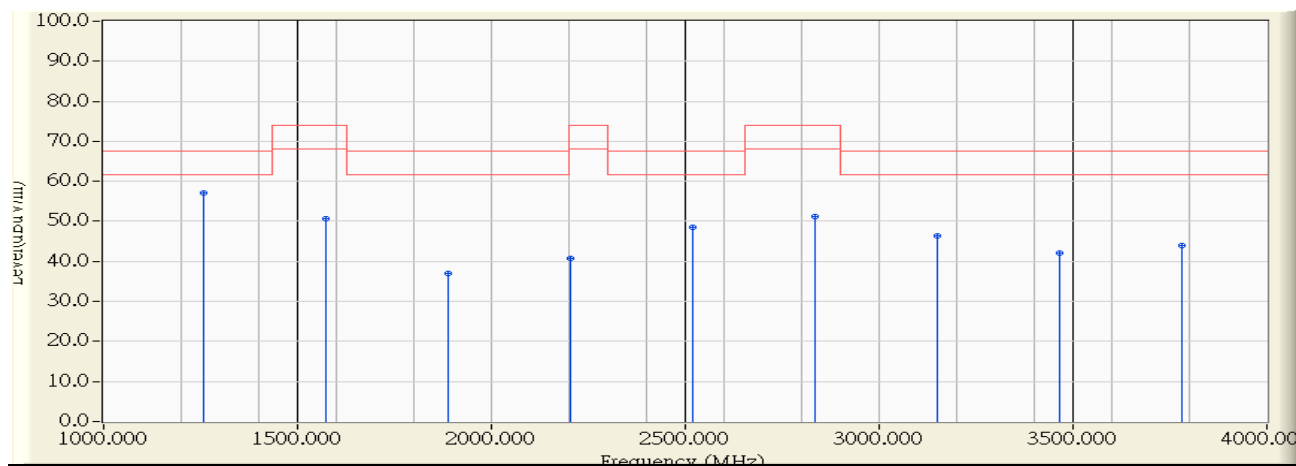
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	122.335	-21.164	50.042	28.878	-38.782	67.660	PEAK
2	313.600	-19.122	47.252	28.130	-39.530	67.660	PEAK
3	* 629.885	-12.150	66.976	54.826	-12.834	67.660	PEAK
4	746.855	-11.146	48.961	37.815	-29.845	67.660	PEAK
5	896.899	-8.667	47.244	38.577	-29.083	67.660	PEAK
6	944.813	-7.203	58.700	51.497	-16.163	67.660	PEAK

Note:

1. All Reading Levels are Peak value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

**Spurious Emission (Above 1GHz)**

Site : CB1	Time : 2016/07/04 - 17:48
Limit : NCC_3.4.2_H_315MHz_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G_H2_Ant3 - HORIZONTAL	Power : DC 6V (Power by Battery)
EUT : WEL-3750/WEL7750/WEL3790/WEL7790 RFID Electronic Lock	Note : X-axis

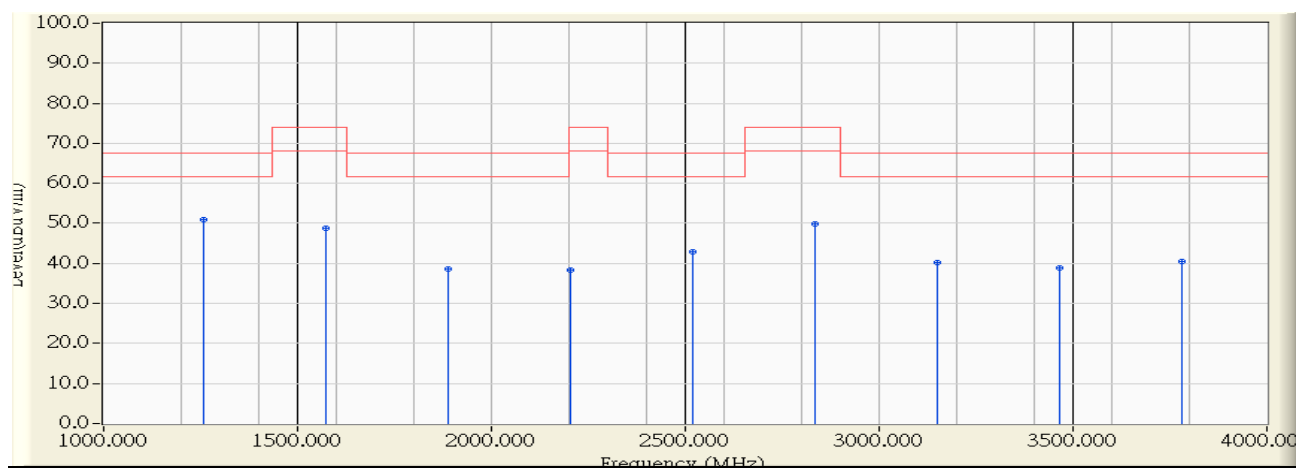


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	1259.500	-10.323	67.336	57.013	-10.647	67.660	PEAK
2		1574.500	-10.152	60.689	50.537	-23.463	74.000	PEAK
3		1889.500	-11.772	48.760	36.987	-30.673	67.660	PEAK
4		2204.500	-9.365	50.101	40.736	-33.264	74.000	PEAK
5		2519.500	-5.843	54.480	48.636	-19.024	67.660	PEAK
6		2834.500	-6.803	57.961	51.157	-22.843	74.000	PEAK
7		3149.500	-7.410	53.859	46.449	-21.211	67.660	PEAK
8		3464.500	-7.701	49.903	42.202	-25.458	67.660	PEAK
9		3779.500	-7.185	51.228	44.042	-23.618	67.660	PEAK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. “ \* ”, means this data is the worst emission level.
4. Measurement Level = Reading Level + Correct Factor.
5. Average Measurement Level = Peak Measurement Level + 20Log (Duty Cycle)  
 Duty Cycle(Only Ton)= Ton/ (Ton+off)=8.45/100=0.0845  
 $20 \times \text{Log}(\text{Duty Cycle}) = -21.463$
6. The average measurement was not performed when the peak measured data under the limit of peak detection.

Site : CB1	Time : 2016/07/04 - 17:51
Limit : NCC_3.4.2_H_315MHz_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G_H2_Ant3 - VERTICAL	Power : DC 6V (Power by Battery)
EUT : WEL-3750/WEL7750/WEL3790/WEL7790 RFID	Note : X-axis
Electronic Lock	



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	1259.500	-9.599	60.547	50.948	-16.712	67.660	PEAK
2		1574.500	-9.743	58.528	48.785	-25.215	74.000	PEAK
3		1889.500	-11.679	50.378	38.699	-28.961	67.660	PEAK
4		2204.500	-8.922	47.261	38.339	-35.661	74.000	PEAK
5		2519.500	-4.770	47.642	42.871	-24.789	67.660	PEAK
6		2834.500	-5.100	54.955	49.854	-24.146	74.000	PEAK
7		3149.500	-5.244	45.539	40.296	-27.364	67.660	PEAK
8		3464.500	-5.220	43.975	38.756	-28.904	67.660	PEAK
9		3779.500	-4.389	44.990	40.601	-27.059	67.660	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. " \* ", means this data is the worst emission level.
4. Measurement Level = Reading Level + Correct Factor.
5. Average Measurement Level = Peak Measurement Level + 20Log (Duty Cycle)  
 Duty Cycle(Only Ton)= Ton/ (Ton+off)=8.45/100=0.0845  
 $20 \cdot \text{Log}(\text{Duty Cycle}) = -21.463$
6. The average measurement was not performed when the peak measured data under the limit of peak detection.

#### 4. Occupied Bandwidth

##### 4.1. Test Equipment

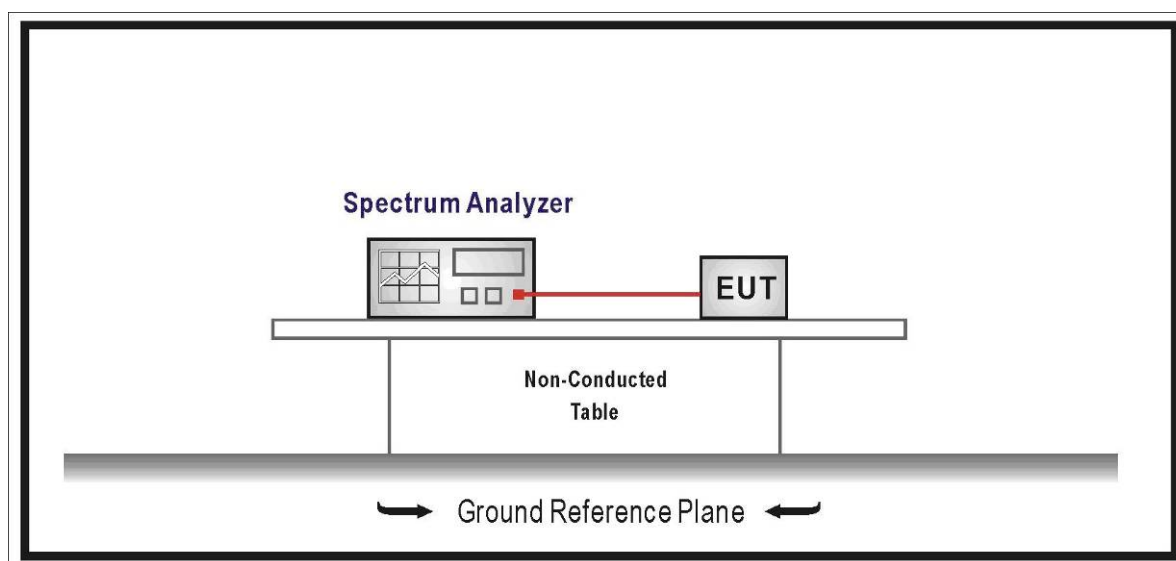
The following test equipment are used during the radiated emission tests:

Occupied Bandwidth / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2016/12/28

Note: All equipment that need to calibrate are with calibration period of 1 year.

##### 4.2. Test Setup



##### 4.3. Limits

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

##### 4.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.231(C): 2015

##### 4.5. Uncertainty

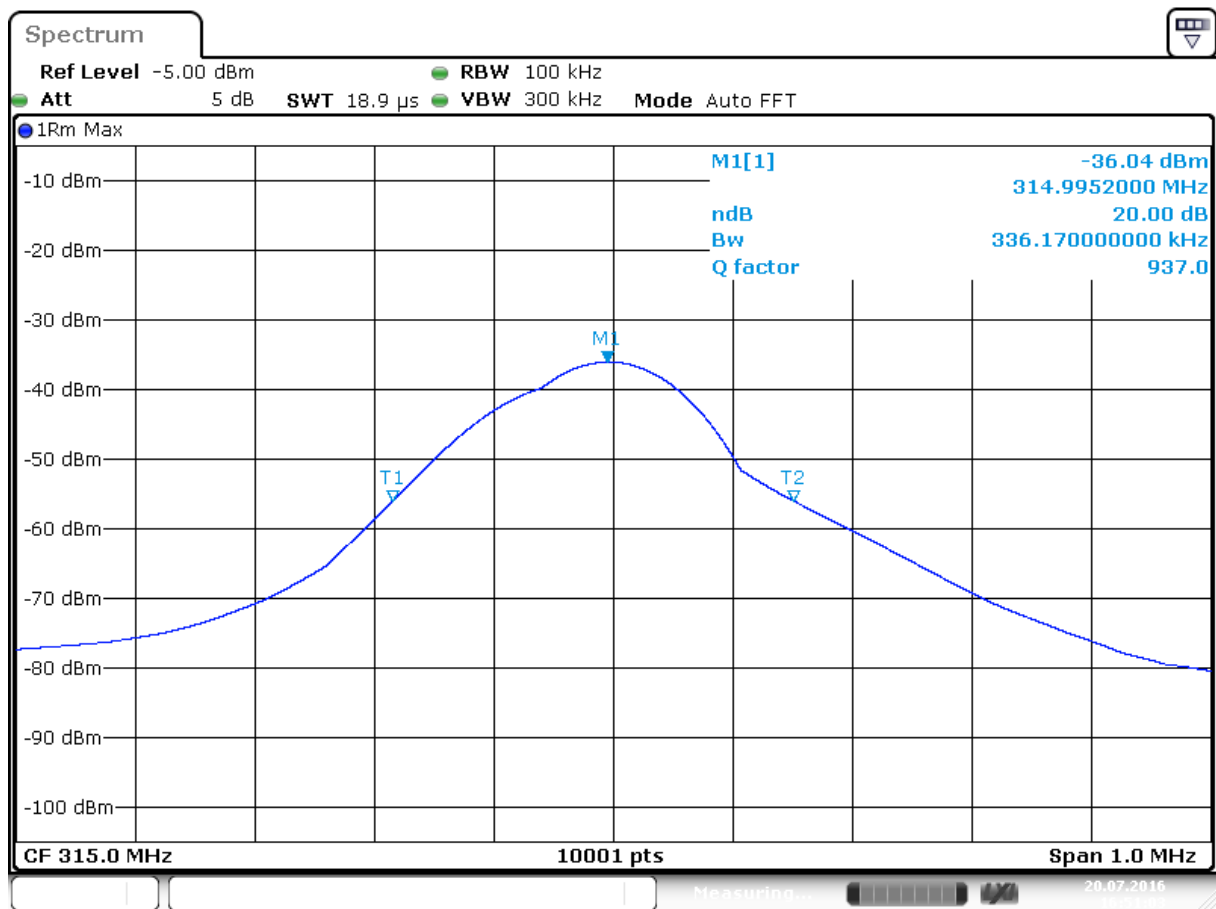
$\pm 150\text{Hz}$



#### 4.6. Test Result

Product	WEL-3750/WEL7750/WEL3790/WEL7790 RFID Electronic Lock		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2016/07/20	Test Site	SR7

Frequency (MHz)	Occupied Bandwidth (KHz)	Limit (KHz)
315	336.170	787.5



Date: 20 JUL 2016 16:51:03

## 5. Duty cycle

### 5.1. Test Equipment

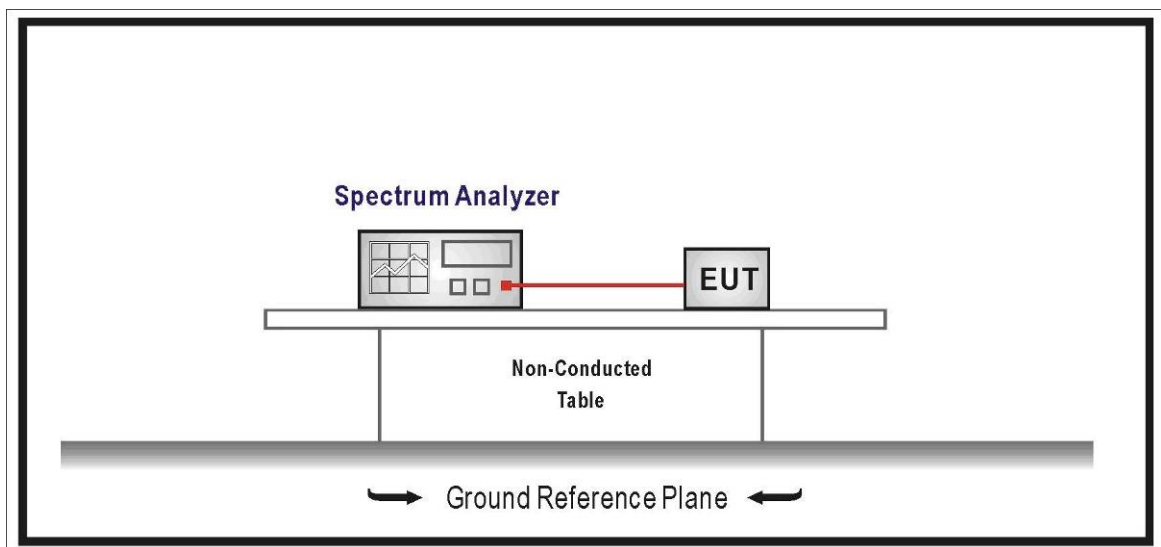
The following test equipment are used during the radiated emission tests:

Duty cycle / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2018/03/12

Note: All equipment that need to calibrate are with calibration period of 1 year.

### 5.2. Test Setup



### 5.3. Limits

N/A

### 5.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.231(b): 2015

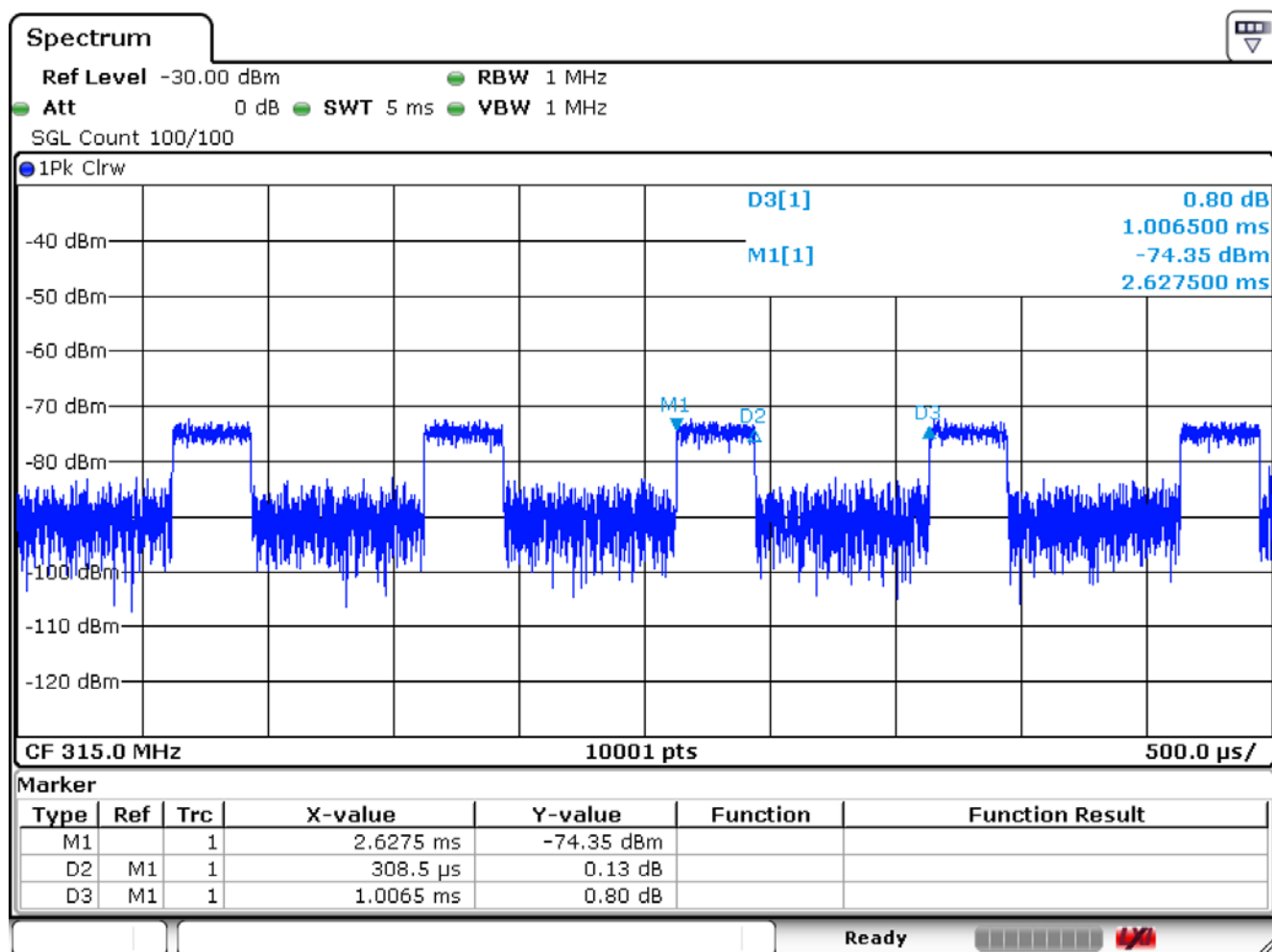
### 5.5. Uncertainty

± 25msec

## 5.6. Test Result

Product	WEL-3750/WEL7750/WEL3790/WEL7790 RFID Electronic Lock		
Test Item	Duty Cycle		
Test Mode	Mode 1: Transmit		
Date of Test	2017/08/02	Test Site	SR7

Mode	On Time(ms)	On+Off Time(ms)	Duty Cycle(%)	Duty Factor(dB)
315MHz	0.3085	1.0065	30.65	10.271



Date: 2.AUG.2017 01:15:18

## 6. Transmitter time

### 6.1. Test Equipment

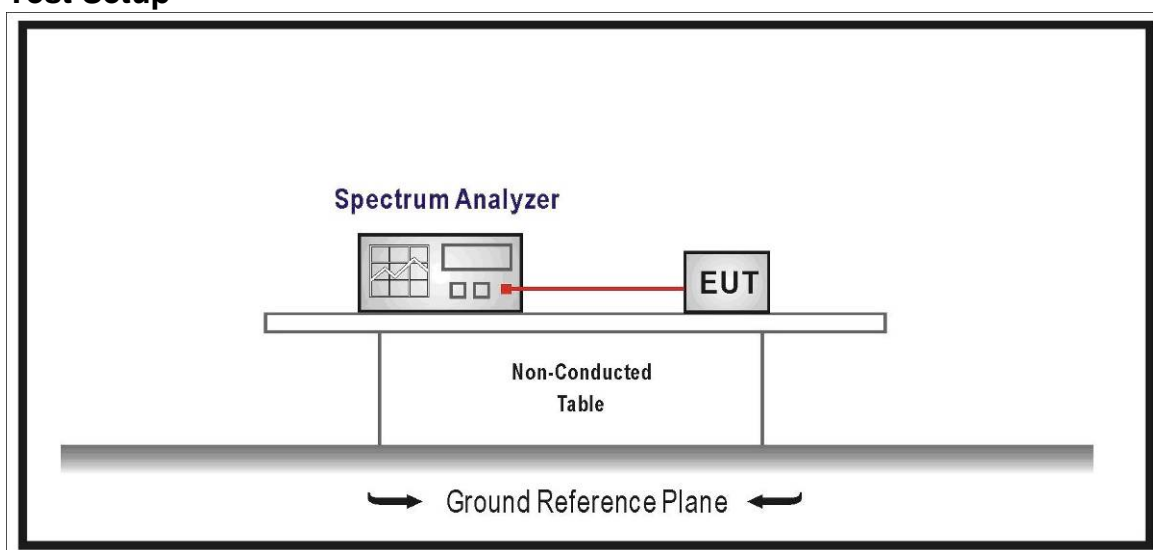
The following test equipment are used during the radiated emission tests:

Transmitter time / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	R&S	FSP	100561	2016/12/28

Note: All equipment that need to calibrate are with calibration period of 1 year.

### 6.2. Test Setup



### 6.3. Limits

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released. A transmitter activated automatically shall cease transmission within 5 seconds after activation.

### 6.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.231(a): 2015

### 6.5. Uncertainty

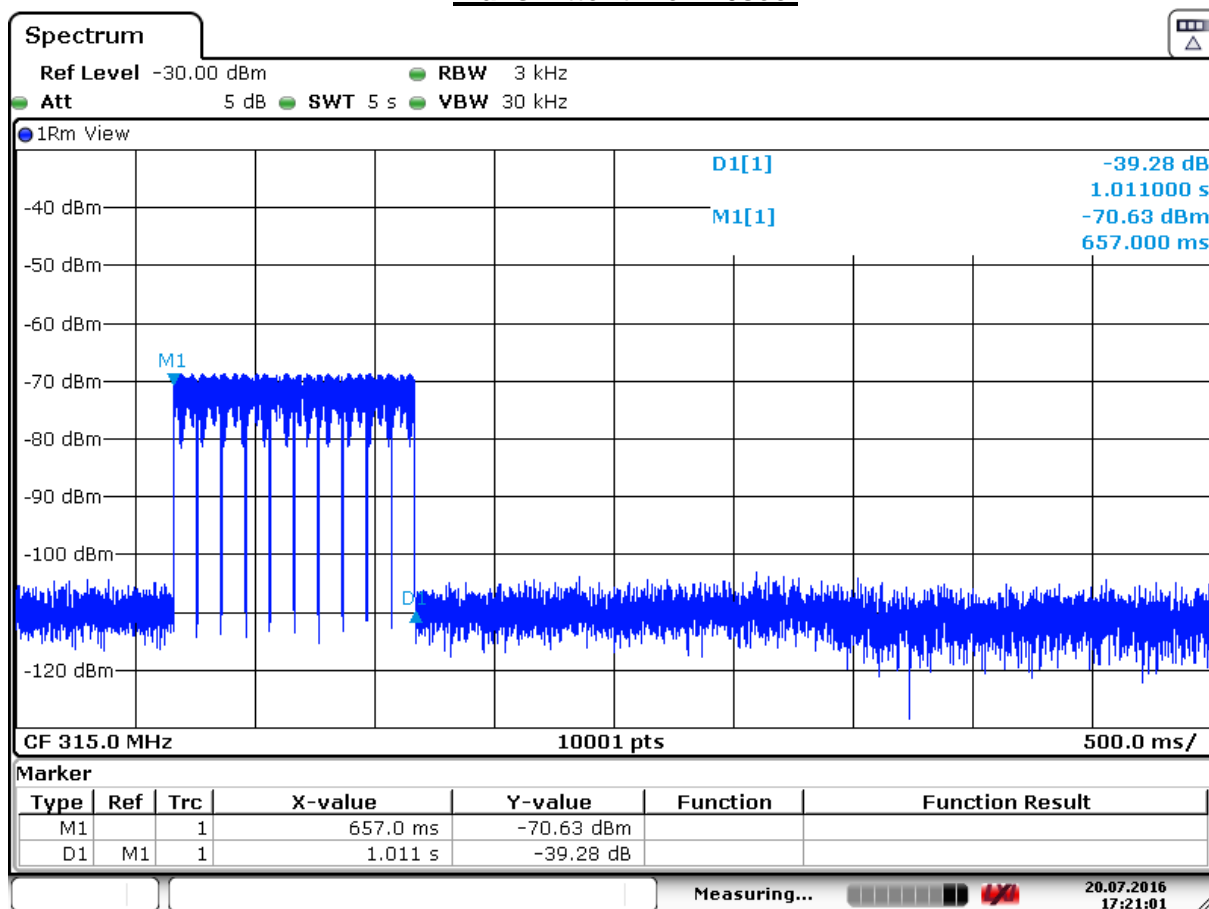
± 25msec

## 6.6. Test Result

Product	WEL-3750/WEL7750/WEL3790/WEL7790 RFID Electronic Lock		
Test Item	Transmitter time		
Test Mode	Mode 1: Transmit		
Date of Test	2016/07/20	Test Site	SR7

Center Frequency	315MHz
Transmitter time =1.011 s	Below 5 sec

### Transmitter time in 6sec.



Date: 20 JUL.2016 17:21:01