CMA Testing and Certification Laboratories
廠商會檢定中心

TEST REPORT

Report No. : AY0034173(7) Date : 26 Jun 2019

Application No. : LY002912(3)

Applicant : KODA ELECTRONICS (HK) CO., LTD.
2/F MANDARIN COMMERCIAL HOUSE,
38 MORRISON HILL ROAD, WANCHAI, HONG KONG

Sample Description : One(1) item of submitted sample stated to be

Sample description	Model No
Qi Wireless Charging Tray Clock	CA-80WC

Sample registration No. : RY038537-001
Radio Frequency : 128kHz wireless charging
Supply voltage : AC100-240 to DC5V adaptor
(Model: GQ12-050200-AU)
No. of submitted sample : (One) set(s)

Date Received : 27 May 2019.

Test Period : 27 May 2019 to 17 Jun 2019.

Test Requested : FCC Part 15 Certification

Test Method : 47 CFR Part 15 (02 Nov 2017)
ANSI C63.10 – 2013

Test Engineer : Mr. Leung Shu Kan, Ken

Test Result : See attached sheet(s) from page 2 to 17.

Conclusion : The submitted sample complie with requirement of FCC Part 15 Subpart C.

Remark : Nil.

For and on behalf of
CMA Industrial Development Foundation Limited

Authorized Signature : _____

Mr. WONG Lap-pong, Andrew
Manager

FCC ID: 2ADLI-CA-80WC

CMA Industrial Development Foundation Limited
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2 General Information

2.1 General Description

The Qi Wireless Charging Tray Clock is a digital clock with alarm clock, Wireless and USB charging functions. It was powered by AC100-240V to DC5V adaptor with maximum 2A output current.

Once the Time and Alarm set correctly, the current time and setting will be showing on the LED display. The end user can access all functions by pressing SNOOZE/DIMMER, Alarm and Backlight switch.

One USB charging ports are located at the back panel and one wireless charging pad located on the top of upper case.

The USB symbol provides 1A charging current and the maximum power of wireless charging pad is maximum 5W. No data communication for both USB ports and wireless charging pad for portable devices.

The brief circuit description is listed as follows:

- LED and its associated circuit act as LED Display.
- USC2025B and its associated circuit act as MCU controller.
- X2 (32.768KHz) crystal and its associated circuit act as oscillator for MCU USC2025B.
- BAT,EC12 and its associated circuit act as backup battery for alarm clock.
- U2 and its associated circuit act as voltage controller.
- Q2, Q3 and its associated circuit act as voltage controller of LED display.
- IC (U1), (D01), Coil and its associated circuit act as voltage controller for wireless charging pad.

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2.2 Location of the test site

FCC Accredited Lab (Designation Number: HK0004)
Room 1302, Yan Hing Centre, 9 - 13 Wong Chuk Yeung Street, Fo Tan Shatin, New Territories, Hong Kong

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2014 and ANSI C63.10 – 2013. A Semi-Anechoic Chamber Testing Site is set up for investigation and located at:

Ground Floor, Yan Hing Centre,
9 – 13 Wong Chuk Yeung Street,
Fo Tan, Shatin,
New Territories,
Hong Kong.

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2014 and ANSI C63.10 – 2013. A shielded room is located at :

Ground Floor, Yan Hing Centre,
9 – 13 Wong Chuk Yeung Street,
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2.3 List of measuring equipment

Measurement equipment:

Equipment	Manufacturer	Model No.	Serial No.	Calibration Due Date	Calibration Period
EMI Test Receiver	Rohde & Schwarz	ESCI	100152	31 Mar 2020	1Year
Spectrum Analyzer	R&S	FSV40	100964	11 Sep 2019	1Year
Loop Antenna	EMCO	6502	00056620	25 Jan 2020	2Years
Biconical Antenna	Rohde & Schwarz	HK116	837414/004	08 Oct 2020	2Years
Log Periodic Antenna	TESEQ	UPA6109	43666	08 Oct 2020	2Years
Coaxial Cable	Schaffner	RG 213/U	N/A	06 May 2020	1Year
Coaxial Cable	Suhner	RG 214/U	N/A	06 May 2020	1Year
LISN	Rohde & Schwarz	ENV216	101323	22 Jan 2020	1Year
Coaxial Cable	Tyco Electronics	RG 58C/U	N/A	23 Oct 2019	1Year

Supporting equipment (submitted by applicant):

1) USB dummy loading 1A
2) Wirelss dummy loading 10W
3) AC100-240 to DC5V adaptor (Model: GQ12-050200-AU)

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2.4 Measurement Uncertainty

The reported uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%.

Radiated emissions

Frequency	Uncertainty (U_{lab})
30MHz ~ 200MHz (Horizontal)	4.59dB
30MHz ~ 200MHz (Vertical)	4.49dB
200MHz ~1000MHz (Horizontal)	4.94dB
200MHz ~1000MHz (Vertical)	4.97dB
1GHz ~6GHz	4.52dB
6GHz ~18GHz	4.58dB

Line-conducted emissions

Frequency	Uncertainty (U_{lab})
150kHz~30MHz	2.80dB

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3 Description of the emission test

3.1 Test Procedure

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.10 – 2013.

The equipment under test (EUT) was placed on a non-conductive turntable with dimensions of 1.5m x 0.4m and 0.8m high above the ground for below 1GHz measurement and 1.5m high above the ground for above 1GHz measurement. 3m from the EUT, a broadband antenna mounting on the mast received the signal strength. The turntable was rotated to maximize the emission level. The antenna was then moving along the mast from 1m up to 4m until no more higher value was found. Both horizontal and vertical polarization of the antenna were placed and investigated.

For below 30MHz, a loop antenna with its vertical plane is placed 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1 m above the ground.

For 30MHz to 200MHz, biconical antenna with its vertical and horizontal plane is placed 3m from the EUT and rotated about its vertical and horizontal axis for maximum response at each azimuth about the EUT. And the reference point of antenna shall be 1 m above the ground. Same procedure for frequency 200MHz to 1000MHz but Log-periodic antenna is used for final measurements.

The device was rotated through three orthogonal axes to determine which attitude and configuration produce the highest emission during measurement.

The Raio Frequencies from fundamental up to the tenth harmonics were investigated, and emissions more 20dB below limit were not reported.

A dummy wireless and USB loading were used for measurements.

Test Result:
It was found that the EUT meet the FCC requirement.

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3.2 Radiated Emission Measurement results

Measurement Data

Radiated emission

pursuant to

the requirement of FCC Part 15 section 15.209

Mode: Wireless and USB charging with Alam/Clock

Environmental conditions
Ambient temperature : 26.2
Relative humidity : 63.4%
Frequency range : Below 30MHz

Frequency (MHz)	Antenna Polarity (H/V)	Reading at 3m (dBµV)	Antenna Factor and Cable Loss (dB/m)	Peak Field Strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)	Detector
0.128	H	42.9	11.9	54.8	105.4	-48.8	PK
0.133	V	18.3	11.9	30.2	105.1	-64.3	PK
0.661	H	15.1	11.8	26.9	71.2	-63.1	PK
3.173	V	19.3	11.4	30.7	69.5	-64.7	PK
5.001	H	14.9	11.3	26.2	69.5	-54.6	PK
5.023	V	19.9	11.3	31.2	69.5	-37.7	PK
15.525	V	14.3	10.7	25.0	69.5	-56.1	PK
17.158	V	17.2	10.7	27.9	69.5	-52.8	PK
17.169	H	16.7	10.7	27.4	69.5	-55.5	PK
19.339	V	18.2	10.7	28.9	69.5	-50.1	PK

Remark:
1) Peak Detector data was measured unless otherwise stated
2) Other emissions more than 20dB margin are not reported in this report.
3) The limit at specified distance
   For 300m measurement distance = Limit + 80dB below 0.49 MHz
   For 30m measurement distance = Limit + 40 dB between 0.49 MHz - 30 MHz

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Measurement Data

Radiated emission

pursuant to

the requirement of FCC Part 15 section 15.209

Mode: Wireless and USB charging with Alam/Clock

Environmental conditions
Ambient temperature : 26.2
Relative humidity : 63.4%
Frequency range : 30MHz – 1000MHz

Frequency (MHz)	Antenna Polarity (H/V)	Reading at 3m (dBμV)	Antenna Factor and Cable Loss (dB/m)	Peak Field Strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)	Detector
44.695	V	20.3	12.1	32.4	40.0	-7.6	QP
127.485	V	20.9	12.9	33.5	43.5	-10.0	QP
183.275	H	16.5	16.0	32.5	43.5	-11.0	QP
280.353	V	16.8	14.5	31.3	46.0	-14.7	QP
410.141	H	11.0	22.5	33.5	46.0	-12.5	QP
527.913	V	11.0	23.3	34.3	46.0	-11.7	QP
560.243	V	11.3	23.3	34.6	46.0	-11.4	QP

Remark:
1) * means emissions appearing within the restricted bands shall follow the requirement of section 15.205.
2) Other emissions more than 20dB margin are not reported in this report.

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3.3 Average Factor

Not applicable

3.4 Transmission time

Not applicable

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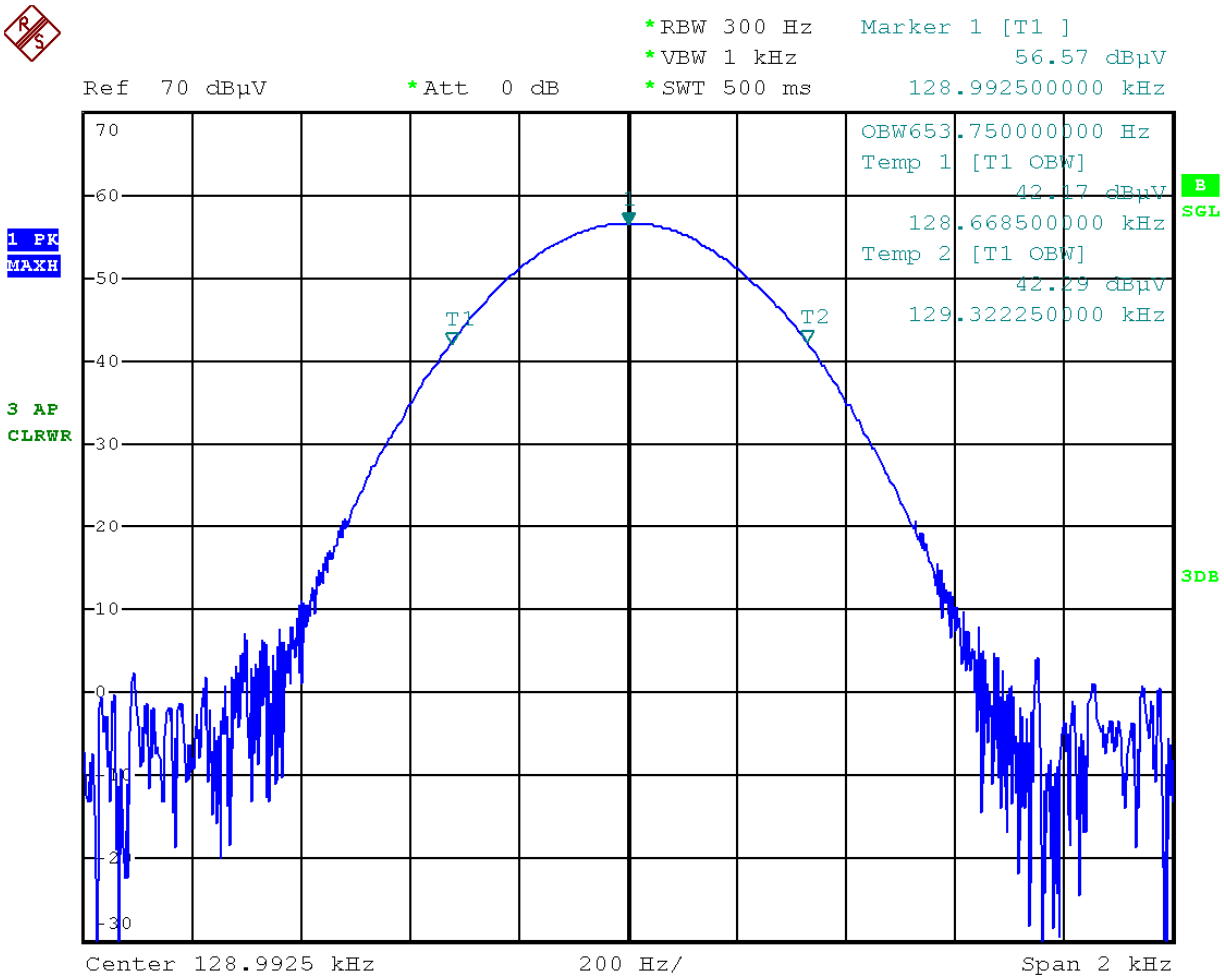
3.5 Occupied bandwidth—power bandwidth (99%)

Mode: Wireless charging with loading



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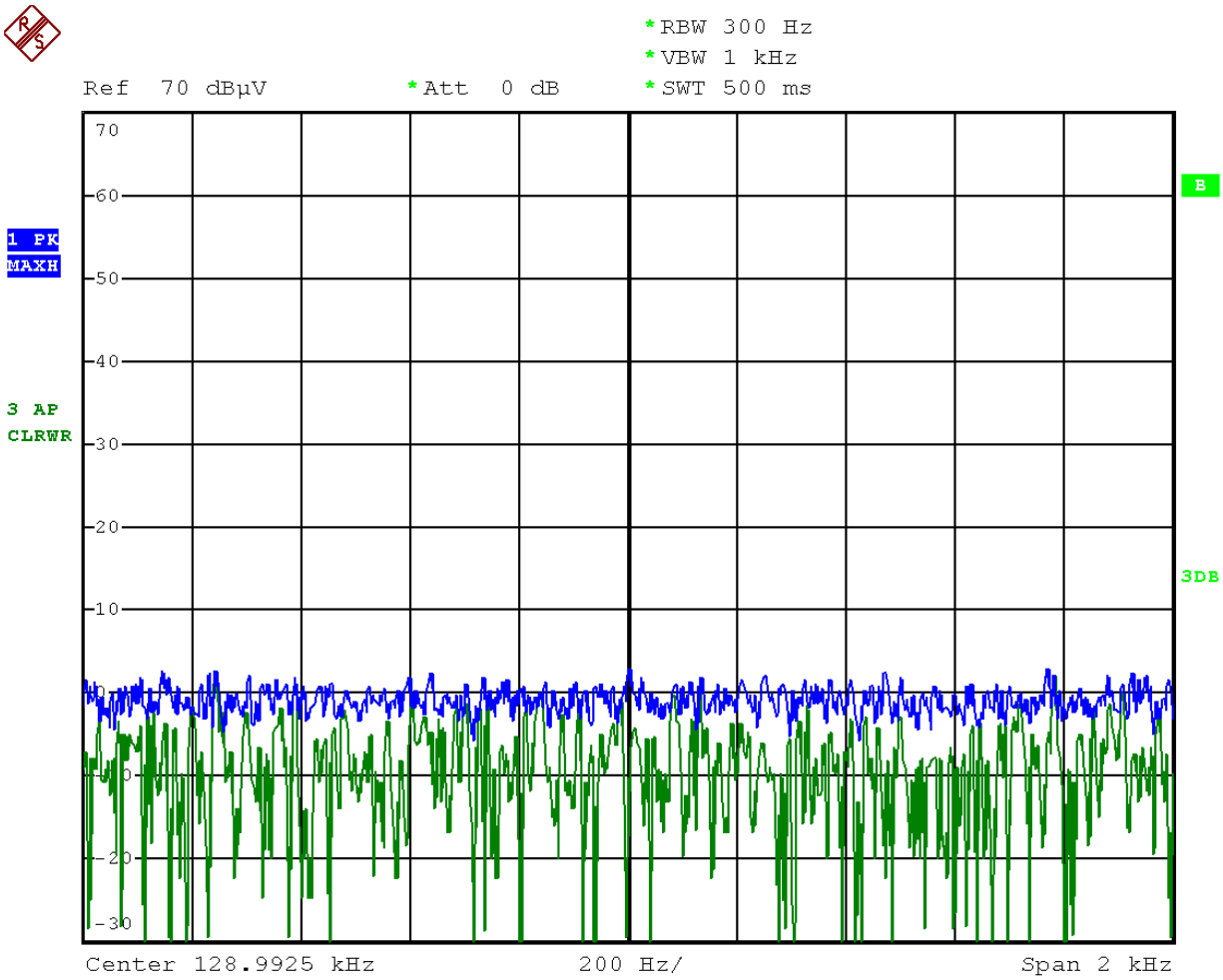
Mode: Wireless charging without loading



Document name: FCC 15.231e - Document Ref No: RT-EL-EMC-004 - Issue Date: 01 Dec 2017 - Edition: 1

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4 Description of the Line-conducted Test

4.1 Test Procedure

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2014 and ANSI C63.10 – 2013. The EUT was setup as described in the procedures, and both lines were measured.

4.2 Test Result

Pass.

4.3 Graph and Table of Conducted Emission Measurement Data

Refer to next pages.

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Graph and table

of

Conducted emission measurement data

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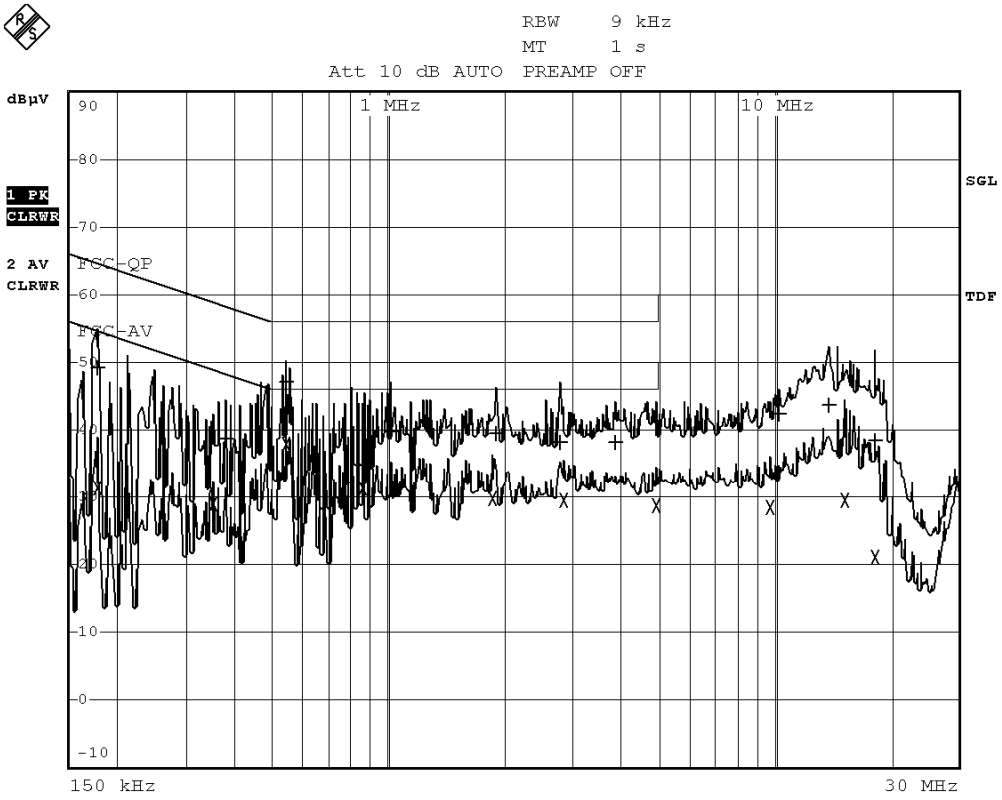
Measurement Data (Graph)

Conducted emission

pursuant to

the requirement of FCC Part 15

Mode: Wireless and USB charging with Alam/Clock



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Measurement Data (Data)

Conducted emission

pursuant to

the requirement of FCC Part 15

Mode: Wireless and USB charging with Alam/Clock

EDIT PEAK LIST (Final Measurement Results)			
Trace1:	FCC-QP		
Trace2:	FCC-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Quasi Peak	177 kHz	49.08 L1 gnd	-15.54
2 Average	177 kHz	31.23 L1 gnd	-23.38
2 Average	352.5 kHz	28.85 L1 gnd	-20.04
1 Quasi Peak	379.5 kHz	38.75 L1 gnd	-19.53
1 Quasi Peak	540.5 kHz	47.04 L1 gnd	-8.95
2 Average	540.5 kHz	37.90 L1 gnd	-8.09
2 Average	855.5 kHz	31.46 L1 gnd	-14.53
1 Quasi Peak	1.0175 MHz	39.76 L1 gnd	-16.23
2 Average	1.8635 MHz	29.65 L1 gnd	-16.35
1 Quasi Peak	1.904 MHz	39.35 N gnd	-16.64
1 Quasi Peak	2.786 MHz	38.22 N gnd	-17.77
2 Average	2.858 MHz	29.44 L1 gnd	-16.56
1 Quasi Peak	3.866 MHz	38.16 N gnd	-17.83
2 Average	4.9505 MHz	28.65 L1 gnd	-17.34
2 Average	9.7295 MHz	28.52 L1 gnd	-21.48
1 Quasi Peak	10.2965 MHz	42.23 L1 gnd	-17.76
1 Quasi Peak	13.82 MHz	43.74 N gnd	-16.25
2 Average	15.17 MHz	29.61 L1 gnd	-20.38
1 Quasi Peak	18.32 MHz	38.32 L1 gnd	-21.68
2 Average	18.32 MHz	21.17 L1 gnd	-28.82

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5 Photograph

5.1 Photographs of the Test Setup for Radiated Emission and Conducted Emission

For electronic filing, the photos are saved with filename 2ADLI-CA-80WC TestPho.pdf.

5.2 Photographs of the External and Internal Configurations of the EUT

For electronic filing, the photos are saved with filename 2ADLI-CA-80WC ExPho.pdf and 2ADLI-CA-80WC InPho.pdf.

5.3 Antenna requirement

The Internal Photo shows a coupling coil is permanently attached inside of EUT for wireless charging. It cannot be changed by the end user or replaced another antenna. It fulfils the section 15.203 requirements.

***** End of Report *****

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