

Report on the RF Testing of:

KYOCERA Corporation
Mobile Phone, Model: EB1157
FCC ID: JOYEB1157

In accordance with FCC 47 CFR §1.1310 and §2.1091

Prepared for: KYOCERA Corporation
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Japan

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Document Number: JPD-TR-23093-0

SIGNATURE

NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
Hiroaki Suzuki	Deputy Manager of RF Group	Approved Signatory	2023.08.31

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Japan Ltd. document control rules.

EXECUTIVE SUMMARY - Result: Complied

A sample(s) of this product was tested and the result above was confirmed in accordance with FCC 47 CFR §1.1310 and §2.1091.



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1 Summary of Test

1.1 Modification history of the test report

Document Number	Modification History	Issue Date
JPD-TR-23093-0	First Issue	Refer to the cover page

1.2 Standards

FCC CFR47 § 1.1307
FCC CFR47 § 1.1310
FCC CFR47 § 2.1091
KDB680106 D01 RF Exposure Wireless Charging Apps v03r01

1.3 Test methods

KDB680106 D01 RF Exposure Wireless Charging Apps v03r01

1.4 Deviation from standards

None

1.5 List of applied test(s) of the EUT

Test item section	Test item	Condition	Result	Remark
1.1310 KDB680106	Radio frequency radiation exposure	Radiated	PASS	-

1.6 Test information

None

1.7 Test set up

Table-top

1.8 Test period

31-August-2023

2 Equipment Under Test

2.1 EUT information

Applicant	KYOCERA Corporation Yokohama Office 2-1-1 Kagahara, Tsuzuki-ku Yokohama-shi, Kanagawa, Japan Phone: +81-45-943-6253 Fax: +81-45-943-6314
Equipment Under Test (EUT)	Mobile Phone
Model number	EB1157
Serial number	358018240001032
Trade name	Kyocera
Number of sample(s)	1
EUT condition	Pre-Production
Power rating	Battery: DC 3.87 V
Size	(W) 75 mm × (D) 14.6 mm × (H) 154 mm
Environment	Indoor and Outdoor use
Terminal limitation	-20 °C to 60 °C
Hardware version	Pre-Production
Software version	0.130RI
Firmware version	Not applicable
RF Specification	
Frequency range	110-205kHz
Antenna type	Loop antenna

2.2 Modification to the EUT

The table below details modifications made to the EUT during the test project.

Modification State	Description of Modification	Modification fitted by	Date of Modification
Model: EB1157, Serial Number: 358018240001032			
0	As supplied by the applicant	Not Applicable	Not Applicable



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2.3 Variation of family model(s)

2.3.1 List of family model(s)

Not applicable

2.3.2 Reason for selection of EUT

Not applicable

2.4 Operating mode

[Normal Operation]

- i) EUT is setup on the wireless charger.

3 Configuration of Equipment

Numbers assigned to equipment on the diagram in “3.3 System configuration” correspond to the list in “3.1 Equipment used” and “3.2 Cable(s) used”.

Cabling and setup(s) were taken into consideration and test data was taken under worse case condition.

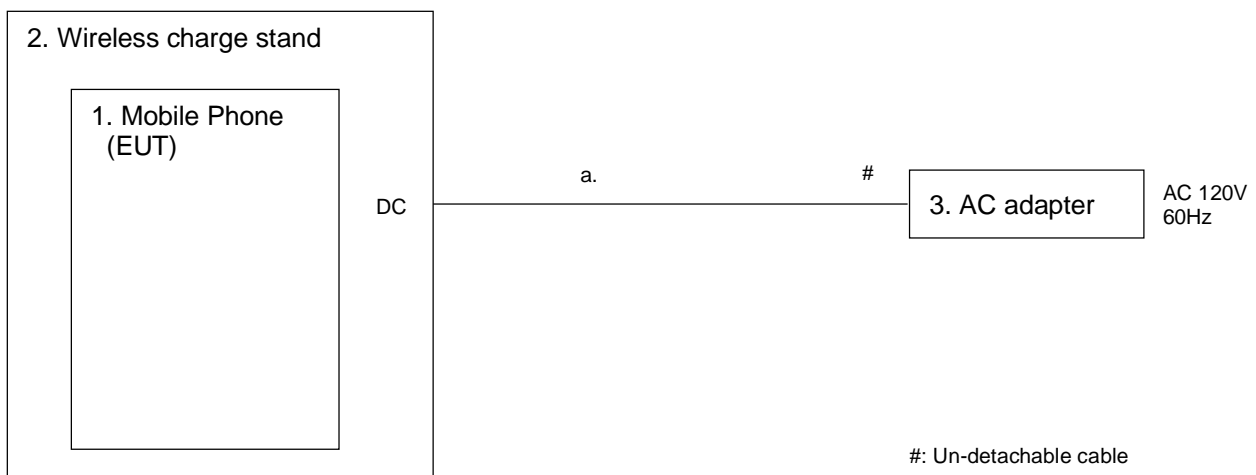
3.1 Equipment used

No.	Equipment	Company	Model No.	Serial No.	FCC ID/DoC	Comment
1	Mobile Phone	KYOCERA	EB1157	358018240001032	JOYEB1157	EUT
2	Wireless charger	KDDI	R08P003W	LJ8MD7554	N/A	-
3	AC Adapter	KDDI	S024AMT1200200	N/A	N/A	-

3.2 Cable(s) used

No.	Equipment	Length[m]	Shield	Connector	Comment
a	DC cable	1.5	Yes	Metal	-

3.3 System configuration



4 Test Result

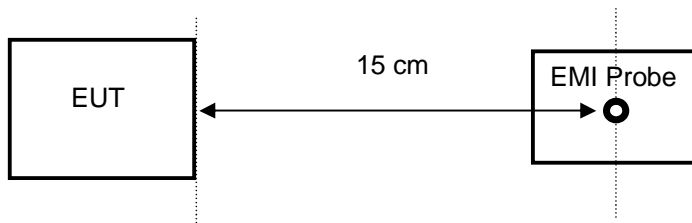
4.1 RF Exposure Evaluation

4.1.1 Measurement procedure

[FCC CFR47 §1.1310, KDB680106]

For devices designed for typical desktop applications, such a wireless charging pads, RF exposure evaluation should be conducted assuming a user separation distance of 15 cm. E and H field strength measurements or numerical modeling may be used to demonstrate compliance. Measurements should be made from all sides and the top of the primary/client pair, with the 15 cm measured from the center of the probe(s) to the edge of the device.

- Test configuration



4.1.2 Limit

KDB 680106

Section 3, c) of RF EXPOSURE REQUIREMENTS, states the following.

Emissions between 100 kHz to 300 kHz should be assessed versus the limits at 300 kHz in Table 1 of Section 1.1310: 614 V/m and 1.63 A/m. Below 100 kHz, applicable reference levels for maximum instantaneous exposure field strengths are defined in clause 3.a).(2)

Therefore, the evaluation was made in comparison with the limits in Table 1 of 1.1310 at 300 kHz: 614 V/m and 1.63 A/m.

Limits for Occupational/Controlled Exposure

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
0.3–3.0	614	1.63	*(100)	≤6
3.0–30	1842/f	4.89/f	*(900/f ²)	<6
30–300	61.4	0.163	1	<6
300–1,500			f/300	<6
1,500–100,000			5	<6

Limits for General Population/Uncontrolled Exposure

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
0.3–1.34	614	1.63	*(100)	<30
1.34–30	824/f	2.19/f	*(180/f ²)	<30
30–300	27.5	0.073	0.2	<30
300–1,500			f/1500	<30
1,500–100,000			1	<30



4.1.3 Measurement result

KDB 680106

Section 5, b) of EQUIPMENT APPROVAL CONSIDERATIONS, states the following.

(1) Power transfer frequency is less than 1 MHz

[Conform]

(2) Output power from each primary coil is less than or equal to 15 watts.

[Conform]

(3) The system may consist of more than one source primary coils, charging one or more clients. If more than one primary coil is present, the coil pairs may be powered on at the same time.

[Conform]

(4) Client device is placed directly in contact with the transmitter.

[Conform]

(5) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion).

[Conform]

(6) The aggregate H-field strengths anywhere at or beyond 15 cm surrounding the device, and 20 cm away from the surface from all coils that by design can simultaneously transmit, and while those coils are simultaneously energized, are demonstrated to be less than 50% of the applicable MPE limit.

[Conform]

Date : 31-Aug-2023
 Temperature : 23.8 [°C]
 Humidity : 71.2 [%]
 Test place : 3m Semi-anechoic chamber
 Test engineer : Chiaki Kanno

E-field strength test result

[Battery(25%)]

EUT direction	E-field strength	Limit	Result
	[V/m]	[V/m]	
Front	2.54	614.0	PASS
Right	1.26	614.0	PASS
Left	1.20	614.0	PASS
Top	1.14	614.0	PASS
Bottom	1.27	614.0	PASS

[Battery(65%)]

EUT direction	E-field strength	Limit	Result
	[V/m]	[V/m]	
Front	2.57	614.0	PASS
Right	1.50	614.0	PASS
Left	1.20	614.0	PASS
Top	1.14	614.0	PASS
Bottom	1.18	614.0	PASS

H-field strength test result

[Battery(25%)]

EUT direction	H-field strength	Limit	Result
	[A/m]	[A/m]	
Front	0.2436	1.63	PASS
Right	0.1671	1.63	PASS
Left	0.1377	1.63	PASS
Top	0.1457	1.63	PASS
Bottom	0.1552	1.63	PASS

[Battery(65%)]

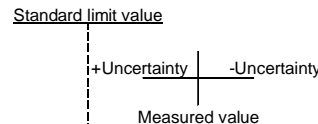

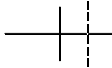
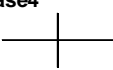
EUT direction	H-field strength	Limit	Result
	[A/m]	[A/m]	
Front	0.2117	1.63	PASS
Right	0.1496	1.63	PASS
Left	0.1465	1.63	PASS
Top	0.1528	1.63	PASS
Bottom	0.1457	1.63	PASS

5 Measurement Uncertainty

The reported measurement uncertainty is based on a value obtained by multiplying standard uncertainty by coverage factor of k=2, and a level of confidence becomes 95 %.

Electromagnetic fields test	
Test item	Measurement uncertainty
Electromagnetic fields test, H Field (10Hz to 400kHz)	± 18.7 %
Electromagnetic fields test, H Field (1Hz to 400kHz)	± 21.9 %
Electromagnetic fields test, H Field (300kHz to 30MHz)	± 33.3 %
Electromagnetic fields test, H Field (27MHz to 1GHz)	± 57.8 %
Electromagnetic fields test, E Field (100kHz to 3GHz)	± 46.4 %
Electromagnetic fields test, E Field (100MHz to 60GHz)	± 89.4 %

Measurement uncertainty of not listed immunity tests is considered to suffice because requirements of relevant standards are met.

Judge	Measured value and standard limit value
PASS	<p>Case1</p>  <p>Even if it takes uncertainty into consideration, a standard limit value is fulfilled.</p>
	<p>Case2</p>  <p>Although measured value is in a standard limit value, a limit value won't be fulfilled if uncertainty is taken into consideration.</p>
FAIL	<p>Case3</p>  <p>Although measured value exceeds a standard limit value, a limit value will be fulfilled if uncertainty is taken into consideration.</p>
	<p>Case4</p>  <p>Even if it takes uncertainty into consideration, a standard limit value isn't fulfilled.</p>



Japan

6 Laboratory Information

Testing was performed and the report was issued at:

TÜV SÜD Japan Ltd. Yonezawa Testing Center

Address: 5-4149-7 Hachimanpara, Yonezawa-shi, Yamagata, 992-1128 Japan

Phone: +81-238-28-2881

Accreditation and Registration

A2LA

Certificate #3686.03

VLAC

Accreditation No.: VLAC-013

BSMI

Laboratory Code: SL2-IN-E-6018, SL2-A1-E-6018

Innovation, Science and Economic Development Canada

ISED#: 4224A

VCCI Council

Registration number: A-0166



Appendix A. Test Equipment

Radiated emission

Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
EMF Probe and Level Tester	Narda S.T.S	ELT-400	H-0005,H-0025	31-May-2024	18-May-2023
E-Field Isotropic Probe	Narda S.T.S.	EF0391	A-1156	31-May-2024	25-May-2023
Broadband Field Meter	Narda.S.T.S	NBM-550	2400/101B	31-May-2024	25-May-2023
Electrical Field Probe	Narda.S.T.S	EF6092	2042/17/B	31-May-2024	25-May-2023
3m Semi an-echoic Chamber	TOKIN	N/A	N/A(9002-NSA)	31-May-2024	28-May-2023

*: The calibrations of the above equipment are traceable to NIST or equivalent standards of the reference organizations.