

TEST REPORT

Report number : JPD-TR-17104-0

Issue date : May 12, 2017

The device, as described herewith, was tested pursuant to applicable test procedure and complies with the requirements of;

FCC Part15 Subpart C

The test results are traceable to the international or national standards.

Applicant	: KYOCERA Corporation
Equipment under test (EUT)	: Mobile Phone
Model number	: DA58
FCC ID	: JOYDA58

Date of test : April 26, 27, 2017
May 11, 2017
Test place : TÜV SÜD Zacta Ltd. Yonezawa Testing Center
5-4149-7, Hachimanpara, Yonezawa-shi,
Yamagata, 992-1128 Japan
Phone: +81-238-28-2881 Fax: +81-238-28-2888
Test results : Complied

The results in this report are applicable only to the equipment tested.
This report shall not be re-produced except in full without the written approval of TÜV SÜD Zacta Ltd.
This test report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, ILAC-MRA or any agency of the federal government.

Tested by : Taiki Watanabe Tadahiro Seino
Taiki Watanabe Tadahiro Seino

Approved by : Hiroaki Suzuki
Hiroaki Suzuki
Lab Manager of RF Lab



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1. Summary of Test

1.1 Purpose of test

It is the original test in order to verify conformance to FCC Part 15 Subpart C.

1.2 Standards

CFR47 FCC Part 15 Subpart C

1.2.1 Test Methods

ANSI C63.10-2013

1.2.2 Deviation from standards

None

1.3 List of applied test to the EUT

Test items Section	Classification of EUT	Condition	Result
RSS-Gen 4.6.1	Occupied Bandwidth	Radiated	PASS
15.209 Rss-210 2.2 RSS-Gen 4.9, 4.10, 4.11	Radiated Emissions	Radiated	PASS
15.207 RSS-Gen 7.2.2	AC Power Line Conducted Emissions	Conducted	PASS

1.3.1 Test set up

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1.4 Modification to the EUT by laboratory

None

2. Equipment Under Test

2.1 General Description of equipment

EUT is the Mobile Phone.

2.2 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 : Mobile Phone

Trade name : Kyocera

Model number : DA58

Serial number : N/A

EUT condition : Pre-production

Power ratings : Battery: DC 3.8V

Size : (W) 71.0 × (D) 13.6 × (H) 145.0 mm

Environment : Indoor use

Terminal limitation : -20°C to 60°C

RF Specification
Frequency range : 110-205kHz

Antenna type : Loop antenna

2.3 Variation of the family model(s)

Not applicable

2.4 Operating mode

[Normal Operation]

- i) EUT is setup on the wireless charge stand.

Note: Tested by wireless charge frequency of 120kHz to 140kHz.

Because, wireless charging frequency range of the wireless charge stand is 120kHz to 140kHz.

3. Configuration of equipment

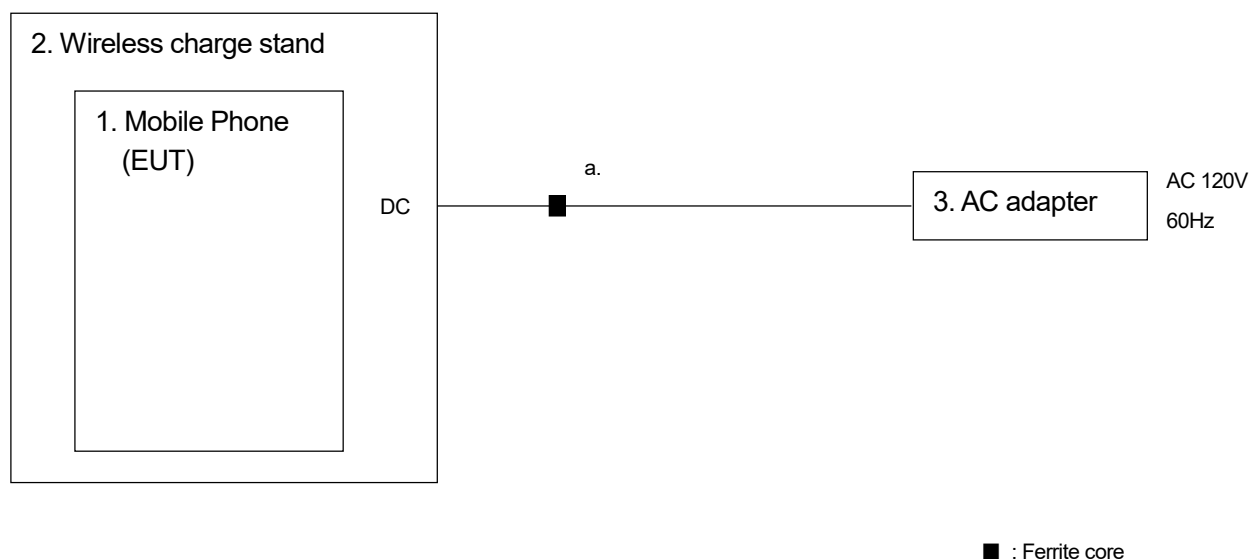
3.1 Equipment(s) used

No.	Equipment	Company	Model No.	Serial No.	FCC ID / DoC	Comment
1	Mobile Phone	KYOCERA	DA58	N/A	JOYDA58	EUT
2	Wireless charge stand	au	N/A	N/A	-	-
3	AC adapter for Wireless charge stand	au	N/A	N/A	-	-

3.2 Cable(s) used

No.	Cable	Length[m]	Shield	Connector	Comment
a	DC cable	2.0	No	Plastic	-

3.3 System configuration



Note1: Numbers assigned to equipment or cables on this diagram correspond to the list in "3.1 Equipment(s) used" and "3.2 Cable(s) used".

Note2: One ferrite core of DC cable (No. a) is not an accessory of EUT.

4. Occupied Bandwidth

4.1 Measurement procedure [IC RSS-Gen 4.6.1]

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99% bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

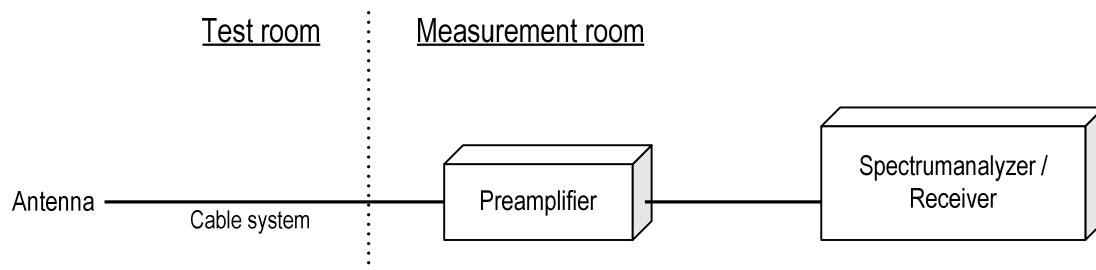
The spectrum analyzer is set to;

- RBW=300Hz, VBW=1kHz, Span=10kHz, Sweep=auto

The test mode of EUT is as follows.

- Normal Operation

- Test configuration



4.2 Limit

None

4.3 Measurement result

Date : April 27, 2017

Temperature : 21.5 [°C]

Humidity : 34.5 [%]

Test place : Shielded room No.4

Test engineer :

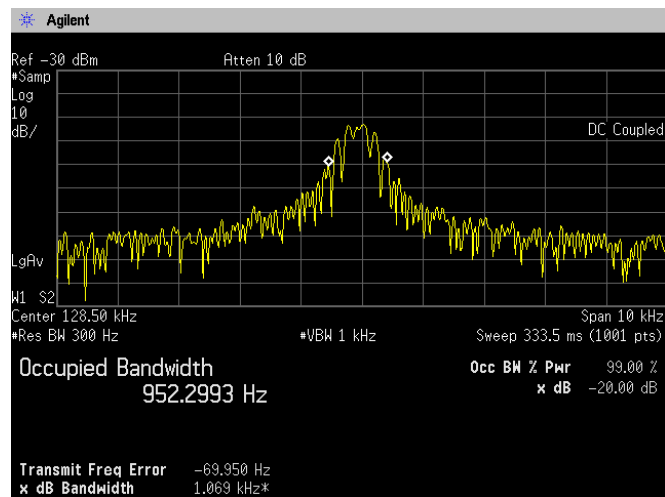
Taiki Watanabe

Frequency [kHz]	Occupied bandwidth [kHz]
120.65	0.878
128.50	0.952
137.10	0.989

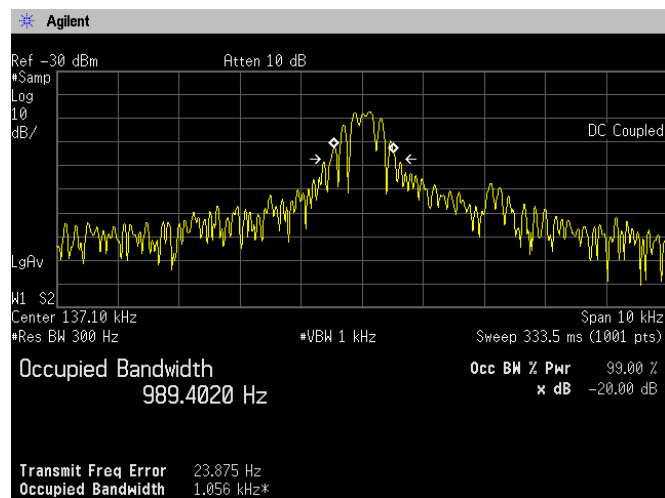
4.4 Trace data <Low frequency>



<Middle frequency>



<High frequency>



5. Radiated Emissions

5.1 Measurement procedure

[FCC 15.209, IC RSS-210 2.2, IC RSS-Gen 4.9, 4.10, 4.11]

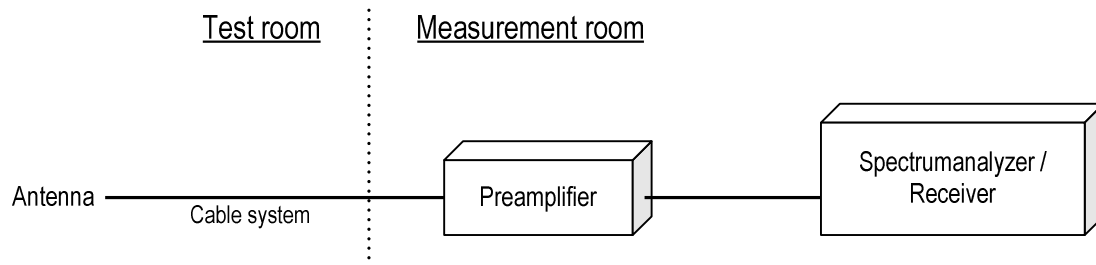
Test was applied by following conditions.

Test method	: ANSI C63.10
Frequency range	: 9kHz to 30MHz
Test place	: 3m Semi-anechoic chamber
EUT was placed on	: FRP table / (W)2.0m × (D)1.0m × (H)0.8m
Antenna distance	: 3m

Test receiver setting	
- Detector	: Average (9kHz-90kHz, 110kHz-490kHz), Quasi-peak
- Bandwidth	: 200Hz, 120kHz

EUT operating mode is selected to emit the maximum noise. Overall frequency range is investigated with spectrum analyzer using peak detector. Then, emission measurements up to 30MHz were performed with test receiver in above setting. The turntable and the Loop antenna are rotated by 360 degrees and stopped at azimuth of producing the maximum emission. Sufficient time for EUT, peripherals and test equipment is provided in order for them to warm up to their normal operating condition.

- Test configuration



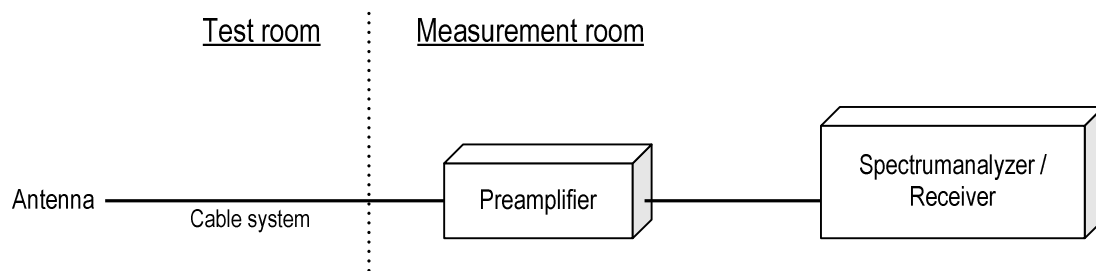
Test was applied by following conditions.

Test method : ANSI C63.10
 Frequency range : 30MHz to 1000MHz
 Test place : 3m Semi-anechoic chamber
 EUT was placed on : FRP table / (W)2.0m × (D)1.0m × (H)0.8m
 Antenna distance : 3m

Test receiver setting
 - Detector : Quasi-peak
 - Bandwidth : 120kHz

EUT operating mode is selected to emit the maximum noise. Overall frequency range is investigated with spectrum analyzer using peak detector. Then, emission measurements up to 1000MHz were performed with test receiver in above setting. In order to find the maximum emissions, antenna is adjusted between 1m and 4m in height and varied its polarization (horizontal and vertical), and EUT azimuth was also varied by rotating turntable 0 to 360 degrees. Sufficient time for EUT, peripherals and test equipment is provided in order for them to warm up to their normal operating condition.

- Test configuration



5.2 Calculation method

[9kHz to 150kHz]

Emission level = Reading + (Ant. factor + Cable system loss)

Margin = Limit – Emission level

[150kHz to 1000MHz]

Emission level = Reading + (Ant. factor + Cable system loss – Amp. Gain)

Margin = Limit – Emission level

5.3 Limit

Frequency [MHz]	Field strength		Distance [m]
	[uV/m]	[dBuV/m]	
0.009-0.490	2400 / F [kHz]	20logE [uV/m]	300
0.490-1.705	24000 / F [kHz]	20logE [uV/m]	30
1.705-30	30	29.5	30
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level [dBuV/m] = 20log Emission [uV/m]
3. Measurements were corrected to 30m using $40\log(3/300) = -80.0\text{dB}$
Measurements were corrected to 30m using $40\log(3/30) = -40.0\text{dB}$

5.4 Test data

[9kHz to 30MHz]

Date : April 27, 2017
 Temperature : 20.4 [°C]
 Humidity : 37.7 [%]
 Test place : 3m Semi-anechoic chamber

Test engineer : Taiki Watanabe

<Low frequency>

Frequency [MHz]	Reading [dBuV] At 3m	c.f [dB(1/m)]	Result [dBuV/m] At 3m	Result [dBuV/m] At 300/30m	Limit [dBuV/m] At 300/30m	Margin [dB]	Result
0.100	26.0	24.7	50.7	-29.3	27.6	56.9	PASS
0.123	53.0	24.7	77.7	-2.3	25.8	28.1	PASS
0.367	61.2	-5.0	56.2	-23.8	16.3	40.1	PASS
0.613	51.3	-5.2	46.1	-33.9	31.9	65.8	PASS
0.858	45.9	-5.2	40.7	-39.3	28.9	68.2	PASS

<Middle frequency>

Frequency [MHz]	Reading [dBuV] At 3m	c.f [dB(1/m)]	Result [dBuV/m] At 3m	Result [dBuV/m] At 300/30m	Limit [dBuV/m] At 300/30m	Margin [dB]	Result
0.106	23.3	24.7	48.0	-32.0	27.1	59.1	PASS
0.129	48.2	24.7	72.9	-7.1	25.4	32.5	PASS
0.386	54.6	-5.1	49.5	-30.5	15.9	46.4	PASS
0.642	39.9	-5.2	34.7	-45.3	31.5	76.8	PASS

<High frequency>

Frequency [MHz]	Reading [dBuV] At 3m	c.f [dB(1/m)]	Result [dBuV/m] At 3m	Result [dBuV/m] At 300/30m	Limit [dBuV/m] At 300/30m	Margin [dB]	Result
0.098	25.4	24.7	50.1	-29.9	27.8	57.7	PASS
0.137	46.3	24.7	71.0	-9.0	24.9	33.9	PASS
0.412	54.9	-5.1	49.8	-30.2	15.3	45.5	PASS
0.687	44.7	-5.2	39.5	-40.5	30.9	71.4	PASS
0.961	41.3	-5.2	36.1	-43.9	27.9	71.8	PASS

[30MHz to 1000MHz]

Date : April 26, 2017

Temperature : 21.3 [°C]

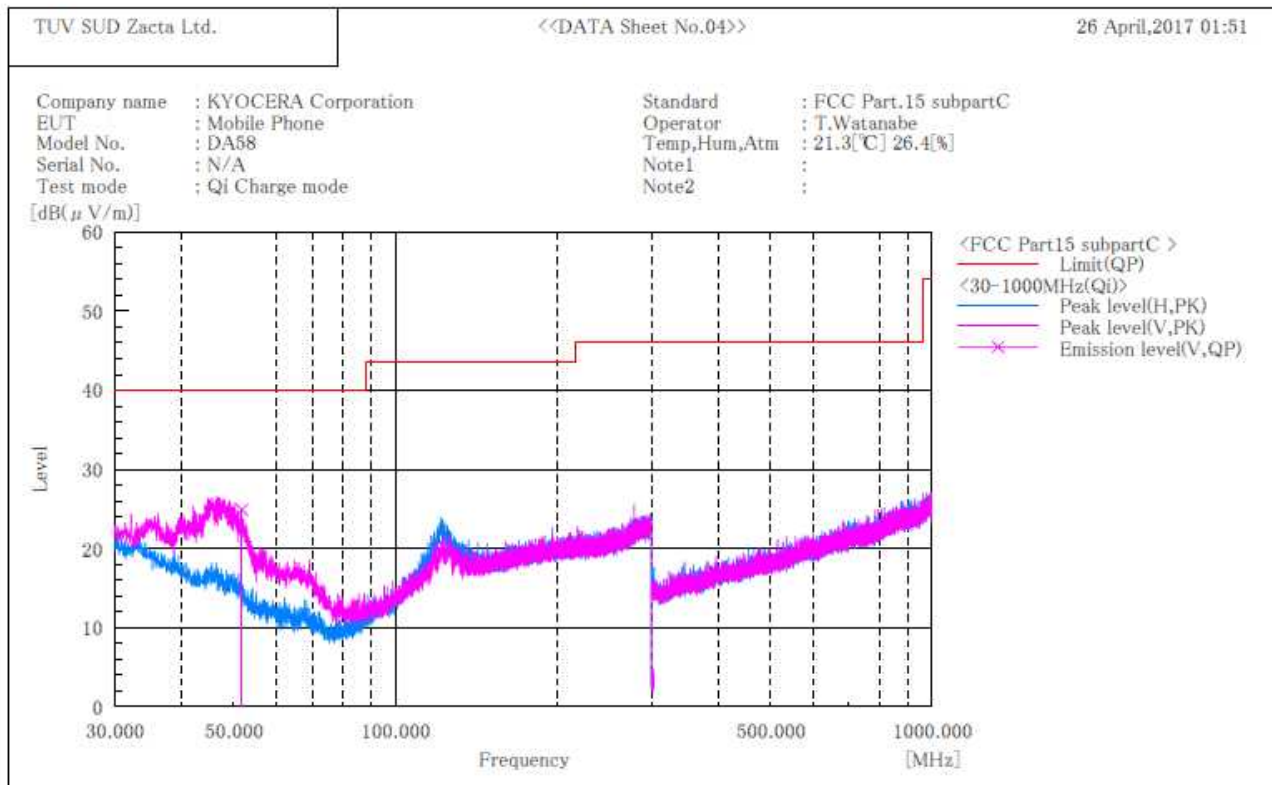
Humidity : 26.4 [%]

Test place : 3m Semi-anechoic chamber

Test engineer :

Taiki Watanabe

***** RADIATED EMISSION *****
[3m Semi-anechoic chamber]

**Final Result**

No.	Frequency	(P)	Reading	c. f	Result	Limit	Margin	Height	Angle
	[MHz]		QP [dB(μV)]	[dB(1/m)]	QP [dB(μV/m)]	QP [dB(μV/m)]	QP [dB]	[cm]	[°]
1	51.790	V	37.0	-12.1	24.9	40.0	15.1	100.0	183.0

Note: Measurement of above 30MHz has been tested in the worst mode.

6. AC Power Line Conducted Emissions

6.1 Measurement procedure [FCC 15.207, IC RSS-Gen 7.2.2]

Test was applied by following conditions.

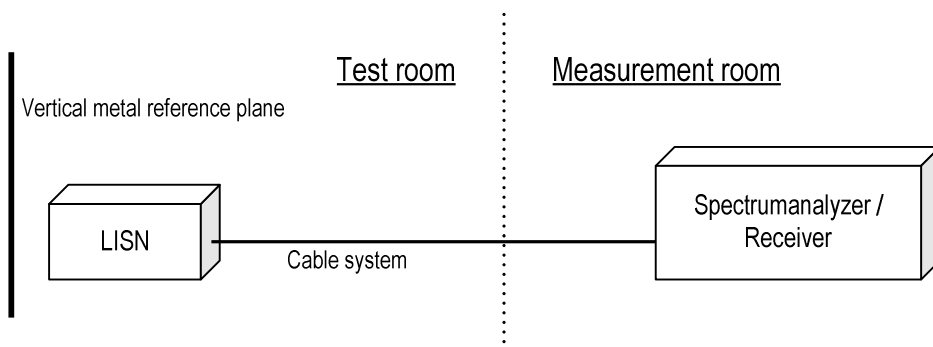
Test method	: ANSI C63.10
Frequency range	: 0.15MHz to 30MHz
Test place	: 3m Semi-anechoic chamber
EUT was placed on	: FRP table / (W)2.0m × (D)1.0m × (H)0.8m
Vertical Metal Reference Plane	: (W)2.0m × (H)2.0m 0.4m away from EUT
Test receiver setting	
- Detector	: Quasi-peak, Average
- Bandwidth	: 9kHz

EUT and peripherals are connected to 50Ω/50μH Line Impedance Stabilization Network (LISN) which are connected to reference ground plane, and are placed 80cm away from EUT. Excess of AC power cable is bundled in center.

LISN for peripheral is terminated in 50Ω.

EUT operating mode is selected to emit the maximum noise. Overall frequency range is investigated with spectrum analyzer using peak detector. Maximum emission configuration is determined by manipulating the EUT, peripherals, interconnecting cables. Then, emission measurements are performed with test receiver in above setting to each current-carrying conductor of the mains port. Sufficient time for EUT, peripherals and test equipment is provided in order for them to warm up to their normal operating condition. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits.

- Test configuration



6.2 Calculation method

Emission level = Reading + (LISN. factor + Cable system loss)

Margin = Limit – Emission level

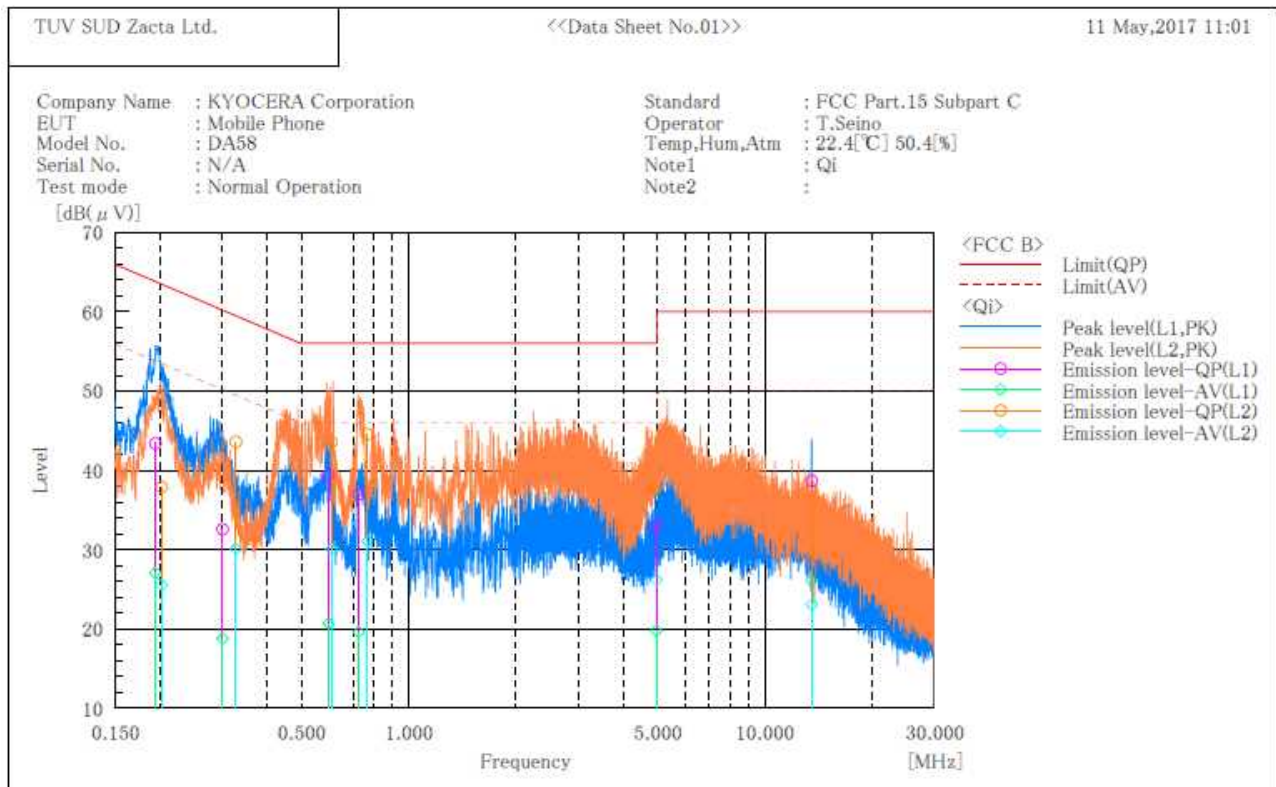
6.3 Limit

Frequency [MHz]	Limit	
	QP [dBuV]	AV [dBuV]
0.15-0.5	66-56*	56-46*
0.5-5	56	46
5-30	60	50

*: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

6.4 Test data

***** CONDUCTED EMISSION at MAINS PORT *****
[3m Semi-anechoic chamber]



Final Result

— L1 Phase —

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c. f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.195	33.0	16.7	10.4	43.4	27.1	63.8	53.8	20.4	26.7
2	0.301	22.3	8.5	10.3	32.6	18.8	60.2	50.2	27.6	31.4
3	0.597	29.1	10.4	10.3	39.4	20.7	56.0	46.0	16.6	25.3
4	0.725	26.7	9.3	10.3	37.0	19.6	56.0	46.0	19.0	26.4
5	4.970	22.6	9.3	10.5	33.1	19.8	56.0	46.0	22.9	26.2
6	13.560	27.9	15.3	10.8	38.7	26.1	60.0	50.0	21.3	23.9

— L2 Phase —

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c. f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.203	27.5	15.2	10.4	37.9	25.6	63.5	53.5	25.6	27.9
2	0.328	33.3	19.8	10.3	43.6	30.1	59.5	49.5	15.9	19.4
3	0.608	33.3	19.8	10.3	43.6	30.1	56.0	46.0	12.4	15.9
4	0.767	34.3	20.8	10.3	44.6	31.1	56.0	46.0	11.4	14.9
5	4.960	27.4	15.7	10.5	37.9	26.2	56.0	46.0	18.1	19.8
6	13.560	26.9	12.3	10.8	37.7	23.1	60.0	50.0	22.3	26.9

Note: Measurement of above 30MHz has been tested in the worst mode.

7. Uncertainty of measurement

Expanded uncertainties stated are calculated with a coverage Factor $k=2$.

Please note that these results are not taken into account when determining compliance or non-compliance with test result.

Test item	Measurement uncertainty
Conducted emission at mains port	$\pm 3.0\text{dB}$
Radiated emission (9kHz – 30MHz)	$\pm 4.4\text{dB}$
Radiated emission (30MHz – 1000MHz)	$\pm 4.5\text{dB}$
Radiated emission (1000MHz – 26GHz)	$\pm 3.9\text{dB}$

8. Laboratory Information

1. Location

Name: Yonezawa Testing Center
 Address: 5-4149-7, Hachimanpara, Yonezawa-shi, Yamagata, 992-1128 Japan
 Phone: +81-238-28-2881
 Fax: +81-238-28-2888

2. Accreditation and Registration

1) NVLAP

LAB CODE: 200306-0

2) VLAC

Accreditation No.: VLAC-013

3) BSMI

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

4) Industry Canada

Site number	Facility	Expiration date
4224A-4	3m Semi-anechoic chamber	2017-12-03
4224A-5	10m Semi-anechoic chamber No.1	2017-12-03
4224A-6	10m Semi-anechoic chamber No.2	2019-12-14

5) VCCI Council

Registration number	Expiration date
A-0166	2017-07-03

Appendix A. Test equipment

Radiated emission

Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
Spectrum analyzer	Agilent Technologies	E4440A	US40420937	Jul. 31, 2017	Jul. 15, 2016
Microwave cable	SUHNER	SUCOFLEX104/1.5m	322087/4	Jul. 31, 2017	Jul. 20, 2016
Coaxial cable	FUJIKURA	3D-2W/0.8m	N/A(S320)	Nov. 30, 2017	Nov. 1, 2016
EMI Probe	ANRITSU	MA2601C	N/A(1753)	Oct. 31, 2017	Oct. 30, 2016
EMI Receiver	ROHDE&SCHWARZ	ESCI	100764	Aug. 31, 2017	Aug. 19, 2016
Preamplifier	ANRITSU	MH648A	M96057	May 31, 2017	May 10, 2016
Loop antenna	ROHDE&SCHWARZ	HFH2-Z2	892246/010	Feb. 28, 2018	Feb. 17, 2017
Attenuator	TDC	TAT-43B-06	N/A(S209)	May 31, 2017	May 10, 2016
Biconical antenna	Schwarzbeck	VHA9103/BBA9106	2155	Jun. 30, 2017	Jun. 2, 2016
Log periodic antenna	Schwarzbeck	UHALP9108A	0560	Jun. 30, 2017	Jun. 2, 2016
Attenuator	TME	CFA-01NPJ-6	N/A(S275)	Feb. 28, 2018	Feb. 3, 2017
Attenuator	TME	CFA-01NPJ-3	N/A(S272)	Feb. 28, 2018	Feb. 2, 2017
Microwave cable	SUHNER	SUCOFLEX104/9m	MY30037/4	Feb. 28, 2018	Feb. 3, 2017
		SUCOFLEX104/1m	my24610/4	Feb. 28, 2018	Feb. 2, 2017
		SUCOFLEX104/1.5m	317226/4	May 31, 2017	May 10, 2016
		SUCOFLEX106/7m	41625/6	Feb. 28, 2018	Feb. 3, 2017
PC	DELL	DIMENSION E521	75465BX	N/A	N/A
Software	TOYO Corporation	EP5/RE-AJ	0611193/V5.6.0	N/A	N/A
3m Semi an-echoic Chamber	TOKIN	N/A	N/A(9002-NSA)	May 31, 2017	May 11, 2016

Conducted emission at mains port

Equipment	Company	Model No.	Serial No.	Cal. due	Cal. date
EMI Receiver	ROHDE&SCHWARZ	ESCI	100764	Aug. 31, 2017	Aug. 19, 2016
Attenuator	HUBER+SUHNER	6810.01.A	N/A(S411)	Feb. 28, 2018	Feb. 2, 2017
Line impedance stabilization network for EUT	Kyoritsu Electrical Works, Ltd.	KNW-407F	8-2003-1	Mar. 31, 2018	Mar. 13, 2017
Coaxial cable	FUJIKURA	5D-2W/4m	N/A(S350)	Feb. 28, 2018	Feb. 2, 2017
Coaxial cable	FUJIKURA	5D-2W/1m	N/A(S193)	Feb. 28, 2018	Feb. 3, 2017
Coaxial cable	SUHNER	RG214/U/10m	N/A(S194)	Feb. 28, 2018	Feb. 3, 2017
PC	DELL	DIMENSION E521	75465BX	N/A	N/A
Software	TOYO Corporation	EP5/CE-AJ	0611193/V5.4.11	N/A	N/A

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