Zacta

TEST REPORT

Report number : Z071C-13457
Issue date : December 26, 2013

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

FCC Part24 Subpart E

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

Applicant	:	KYOCERA Corporation
Equipment under test (EUT)	:	Mobile Phone
Model number	:	KYY22
FCC ID	:	JOYKYY22

Date of test	:	December 10, 11, 12, 13, 2013
Test place	:	TÜV SÜD Zacta Ltd. Yonezawa Testing Center 4149-7 Hachimanpara 5-chome Yonezawa-shi Yamagata 992-1128 Japan Phone: +81-238-28-2880 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 client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Tested by : Chiaki Kanno
Chiaki Kanno

Authorized by : Hiro Suzuki
Hiroaki Suzuki
Manager of EMC Technical Department

Zacta

Table of contents

Zacta

1. Summary of Test

1.1 Purpose of test

It is the original test in order to verify conformance to FCC Part 24 Subpart E.

1.2 Standards

CFR47 FCC Part 24 Subpart E

1.2.1 Test Methods

ANSI/TIA/EIA-603-C-2004

1.2.2 Deviation from standards

None

1.3 List of applied test to the EUT

Test items Section	Test items	Condition	Result
24.232(c)	Effective Radiated Power Equivalent Isotropic Radiated Power	Radiated	PASS
24.238(a) 2.1053	Radiated emissions and Harmonic Emissions	Radiated	PASS

*: Conducted test was to proceed at FCCID:JOYKYY21.
FCCID:JOYKYY22 was measured by applying only Radiated test.

1.3.1 Test set up

Table-Top

1.4 Modification to the EUT by laboratory

None

Zacta

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	:	KYY22
Serial number	:	N/A
EUT condition	:	Pre-Production
Max. frequency	:	1.5GHz
Power ratings	:	Battery: DC 3.8V
Size	:	(W) 65.0 × (D) 11.0 × (H) 134.0 mm
Environment	:	Indoor and Outdoor use
Terminal limitation	:	-20˚C to 60˚C
RF Specification <GSM>		
Equipment type	:	Transceiver
Frequency of Operation	:	Up Link: 1850.2-1909.8MHz Down Link: 1930.2-1989.8MHz
Modulation type	:	GMSK
Output power	:	0.933W EIRP (29.7dBm)
Antenna type	:	Internal antenna
Antenna gain	:	0dBi

2.3 Variation of the family model(s)

Not applicable

2.4 Description of Test mode

The EUT had been tested under operating condition.
There are three channels have been tested as following:

Band	Channel	Frequency
GSM1900	512	1850.2MHz
	661	1880.0MHz
	810	1909.8MHz

The field strength of spurious emissions was measured at each position of all three axis X, Y and Z to compare the level, and the maximum noise.
The worst emission was found in Z axis and the worst case recorded.

Zacta

3. Configuration of equipment

3.1 Equipment(s) used

No.	Equipment	Company	Model No.	Serial No.	FCC ID / DoC	Comment
1	Mobile Phone	KYOCERA	KYY22	N/A	JOYKYY22	EUT

3.2 System configuration

1. Mobile Phone
   (EUT)

Note1: Numbers assigned to equipment or cables on this diagram correspond to the list in “3.1 Equipment(s) used”.

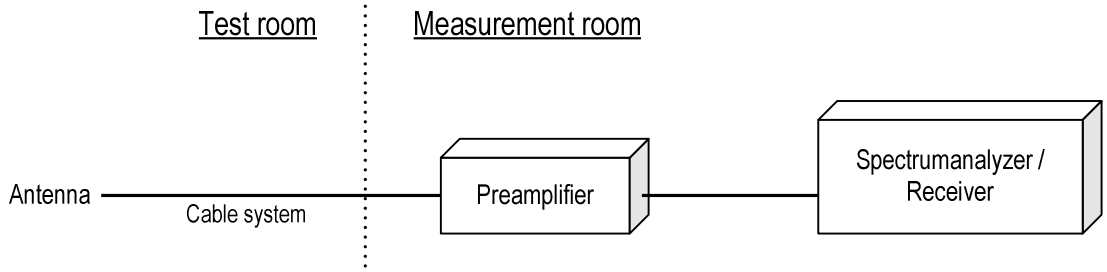
4. Equivalent Isotropic Radiated Power

4.1 Measurement procedure [FCC 24.232(c)]

<Step 1>
The EUT and support equipment are placed on a 1 meter x 1.5 meter surface, 0.8 meter height FRP table. Radiated emission measurements are performed at 3 meter distance with the broadband antenna (double ridged guide antenna). The antenna is positioned both the horizontal and vertical planes of polarization and height is varied 1 to 4 meters and stopped at height producing the maximum emission.
The bandwidth of the spectrum analyzer is set to 1MHz. The turntable is rotated by 360 degrees and stopped at azimuth of producing the maximum emission.

<Step 2>
The substitution antenna is replaced by the transmitter antenna (EUT).
The frequency of the signal generator is adjusted to the measurement frequency.
Level of the signal generator is adjusted to the level that is obtained from step 1, and record the emission level of signal generator.

- Test configuration



4.2 Calculation method

Result (EIRP) = S.G Reading – Cable loss + Antenna Gain
Margin = Limit – Result (EIRP)

4.3 Limit

2 W (33dBm)

Zacta

4.4 Test data

Date	:	Dec. 13, 2013	Test personnel	:	
Temperature	:	23.9 [˚C]			
Humidity	:	39.3 [%]	Tested by	:	
Test place	:	3m Semi-anechoic chamber			Chiaki kanno

H/V	Frequency [MHz]	S.A Reading [dBm]	S.G Reading [dBm]	Cable loss [dB]	Ant.Gain [dBi]	Result [dBm]	Limit [dBm]	Margin [dB]
H	1850.2	13.5	24.9	1.1	5.9	29.7	33.0	3.3
H	1880.0	11.6	23.2	1.1	6.0	28.1	33.0	4.9
H	1909.8	11.6	22.9	1.1	6.1	27.9	33.0	5.1

Zacta

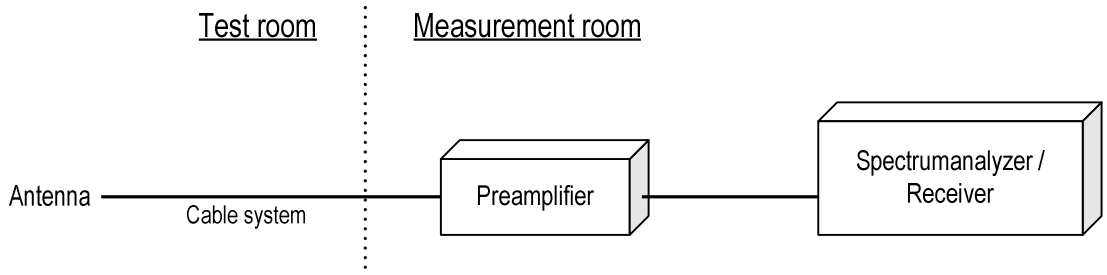
5. Radiated Emissions and Harmonic Emissions

5.1 Measurement procedure [FCC 24.238(a), 2.1053]

<Step 1>
The EUT and support equipment are placed on a 1 meter x 1.5 meter surface, 0.8 meter height FRP table.
Radiated emission measurements are performed at 3 meter distance with the broadband antenna (Biconical antenna, Log periodic antenna and double ridged guide antenna). The antenna is positioned both the horizontal and vertical planes of polarization and height is varied 1 to 4 meters and stopped at height producing the maximum emission.
The bandwidth of the spectrum analyzer is set to 1MHz. The turntable is rotated by 360 degrees and stopped at azimuth of producing the maximum emission. The frequency is investigated up to 20GHz.

<Step 2>
The substitution antenna is replaced by the transmitter antenna (EUT).
The frequency of the signal generator is adjusted to the measurement frequency.
Level of the signal generator is adjusted to the level that is obtained from step 1, and record the emission level of signal generator.

- Test configuration



5.2 Calculation method

Result = S.G Reading – Cable loss + Antenna Gain
Margin = Limit – Result (EIRP)

5.3 Limit

-13dBm or less

Zacta

5.4 Test data

Date	:	Dec. 13, 2013	Test personnel	:	
Temperature	:	23.9 [˚C]			
Humidity	:	39.3 [%]	Tested by	:	
Test place	:	3m Semi-anechoic chamber			Chiaki Kanno

[GSM 1900]

(Channel: 512)

H/V	Frequency [MHz]	S.A Reading [dBm]	S.G Reading [dBm]	Cable loss [dB]	Ant.Gain [dBi]	Result [dBm]	Limit [dBm]	Margin [dB]
H	3700.4	-61.2	-64.1	1.6	7.2	-58.5	-13.0	45.5
V	3700.4	-61.9	-64.4	1.6	7.2	-58.8	-13.0	45.8
H	5551.0	-64.6	-66.5	1.9	8.8	-59.7	-13.0	46.7
V	5551.0	-62.3	-63.8	1.9	8.8	-57.0	-13.0	44.0

(Channel: 661)

H/V	Frequency [MHz]	S.A Reading [dBm]	S.G Reading [dBm]	Cable loss [dB]	Ant.Gain [dBi]	Result [dBm]	Limit [dBm]	Margin [dB]
H	3760.0	-63.3	-66.5	1.6	7.1	-61.0	-13.0	48.0
V	3760.0	-62.5	-65.1	1.6	7.1	-59.6	-13.0	46.6
H	5640.0	-63.7	-63.6	2.0	9.1	-56.5	-13.0	43.5
V	5640.0	-61.7	-63.7	2.0	9.1	-56.6	-13.0	43.6

(Channel: 810)

H/V	Frequency [MHz]	S.A Reading [dBm]	S.G Reading [dBm]	Cable loss [dB]	Ant.Gain [dBi]	Result [dBm]	Limit [dBm]	Margin [dB]
H	3819.6	-62.9	-65.7	1.6	7.0	-60.3	-13.0	47.3
V	3819.6	-62.9	-66.3	1.6	7.0	-60.9	-13.0	47.9
H	5729.0	-63.7	-66.3	2.0	9.4	-58.9	-13.0	45.9
V	5729.0	-61.6	-65.8	2.0	9.4	-58.4	-13.0	45.4

Note: No emission were detected in frequency range 30MHz to 1000MHz at the 3 meters distance.

Zacta

6. 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	±3.0dB
Radiated emission (9kHz – 30MHz)	±4.4dB
Radiated emission (30MHz – 1000MHz)	±4.5dB
Radiated emission (1000MHz – 26GHz)	±3.9dB

7. Laboratory description

1. Location:

TÜV SÜD Zacta Ltd. Yonezawa Testing Center
4149-7 Hachimanpara 5-chome Yonezawa-shi Yamagata 992-1128 Japan
Phone: +81-238-28-2880 Fax: +81-238-28-2888

2. Facility filing information:

1) NVLAP accreditation: NVLAP Lab. code: 200306-0

2) VLAC accreditation: Lab. code: VLAC-013

Site name	Radiated emission	Conducted emission for mains port	Conducted emission for telecom port	Radiated emission (CMAD)	Expiry Date
3m Semi-anechoic chamber	VLAC-013			-	Jul. 3, 2015
10m Semi-anechoic chamber				VLAC-013	
Shielded room No.1	-	VLAC-013		-	

3) FCC filing:

Site name	Registration Number	Expiry Date
Site 2	91065	Oct.31, 2014
Site 3		
3m Semi-anechoic chamber	540072	Jan. 9, 2016
10m Semi-anechoic chamber		
Shielded room No.1		

4) Industry Canada Oats site filing:

Site name	Sites on file: Oats 3m/10m	Expiry Date
Site 2	4224A-2	Jan. 23, 2015
Site 3	4224A-3	
3m Semi-anechoic chamber	4224A-4	
10m Semi-anechoic chamber	4224A-5	

5) VCCI site filing:

Site name	Radiated emission	Conducted emission for mains port	Conducted emission for telecom port	Expiry Date
Site 2	R-137	C-133	T-1221	Nov. 16, 2014 Nov. 28, 2014* (*:Telecom port)
Site 3	R-138	C-134	T-1222	
3m Semi-anechoic chamber	A-0166			Jul. 3, 2015
10m Semi-anechoic chamber				
Shielded room No.1	-	A-0166		

6) TÜV SÜD PS authorization:
Authorized as an EMC test laboratory

7) TÜV Rheinland authorization:
Authorized as an EMC test laboratory

Appendix A. Test equipment

Radiated emission

Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
EMI Receiver	ROHDE&SCHWARZ	ECSI	100451	Nov. 2014	Nov. 16, 2013
Preamplifier	ANRITSU	MH648A	M96057	Jun. 2014	Jun. 12, 2013
Biconical antenna	Schwarzbeck	VHA9103/BBA9106	2155	May 2014	May 1, 2013
Log periodic antenna	Schwarzbeck	UHALP9108A	0560	May 2014	May 1, 2013
Attenuator	TME	CFA-01NPJ-6	N/A (S275)	Jun. 2014	Jun. 6, 2013
Attenuator	TME	CFA-01NPJ-3	N/A (S272)	Jun. 2014	Jun. 6, 2013
Spectrum analyzer	Agilent Technologies	E4440A	US4432655	May 2014	May 14, 2013
Preamplifier	Agilent Technologies	8449B	3008A1008	Dec. 2014	Dec. 9, 2013
Double ridged guide antenna	EMCO	3115	4328	Jan. 2014	Jan. 21, 2013
Attenuator	AEROFLEX	40A-03	081217-20	Feb. 2014	Feb. 23, 2013
Dipole antenna	Schwarzbeck	VHAP	1021	Sep. 2014	Sep. 19, 2013
Dipole antenna	Schwarzbeck	UHAP	993	Sep. 2014	Sep. 19,2013
Double ridged guide antenna	EMCO	3115	00058532	Sep. 2014	Sep. 6, 2013
Signal generator	ROHDE&SCHWARZ	SMR27	839256/034	Jan. 2014	Jan. 30, 2013
Wideband radio frequency tester	ROHDE&SCHWARZ	CMW500	126079	Aug. 2014	Aug. 7, 2013
High pass filter	Wainwright	WHKX2.8/18G-6SS	1	Jul. 2014	Jul. 17, 2013
Microwave cable	SUHNER	SUCOFLEX102/2m	31648/2	Jan. 2014	Jan. 22, 2013
		SUCOFLEX104/9m	322083/4	May 2014	May 14, 2013
		SUCOFLEX104/9m	346316/4	Oct. 2014	Oct. 6, 2013
		SUCOFLEX104/1m	322084/4	Oct. 2014	Oct. 6, 2013
		SUCOFLEX104/1.5m	317226/4	Oct. 2014	Oct. 6, 2013
		SUCOFLEX104/7m	41625/6	Oct. 2014	Oct. 6, 2013
PC	DELL	DIMENSION E521	75465BX	N/A	N/A
Software	TOYO Corporation	EP5/RE-AJ	0611193/V5.3.61	N/A	N/A
3m Semi-anechoic chamber	TOKIN	N/A	N/A (9002-NSA)	May 2014	May 6, 2013
3m Semi-anechoic chamber	TOKIN	N/A	N/A (9002-SVSWR)	May 2014	May 6, 2013