

RF Exposure Evaluation Report

Product : Voice Lighted Mirror
Trade mark : Kohler
Model/Type reference : 99571-VLAN-NA,
99572-VLAN-NA,
99573-VLAN-NA
Serial Number : N/A
Report Number : EED32K00040204
FCC ID : N82-KOHLER026
Date of Issue : Apr. 13, 2018
Test Standards : 47 CFR Part 1.1307
47 CFR Part 1.1310
KDB 447498 D01v06
Test result : PASS

Prepared for:

Kohler Co.

444 Highland Drive, Kohler, Wisconsin 53044 USA

Prepared by:

Centre Testing International Group Co., Ltd.

Hongwei Industrial Zone, Bao'an 70 District,

Shenzhen, Guangdong, China

TEL: +86-755-3368 3668

FAX: +86-755-3368 3385

Tested By:

Tom chen

Tom chen (Test Project)

Reviewed by:

Kevin Yang

Kevin yang (Reviewer)

Compiled by:

Kevin lan

Kevin lan (Project Engineer)

Approved by:

Sheek Luo

Sheek Luo (Lab supervisor)

Date:

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2 Version

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4 General Information

4.1 Client Information

Applicant:	Kohler Co.
Address of Applicant:	444 Highland Drive, Kohler, Wisconsin 53044 USA
Manufacturer:	Kohler Co.
Address of Manufacturer:	444 Highland Drive, Kohler, Wisconsin 53044 USA

4.2 General Description of EUT

Product Name:	Voice Lighted Mirror
Model No.(EUT):	99571-VLAN-NA, 99572-VLAN-NA, 99573-VLAN-NA
Test Model No.:	99571-VLAN-NA
Trade Mark:	Kohler
EUT Supports Radios application:	BT: 4.0Dual mode, 2402-2480MHz; WiFi 802.11b/g/n(20MHz)/n(40MHz) ,2412-2462MHz;
Modulation Type:	DSSS; OFDM; GFSK, $\pi/4$ DQPSK, 8DPSK
Sample Type:	Fixed production
Antenna Type:	Balun antenna
Antenna Gain:	2.5dBi
Power Supply:	AC 120V, 60Hz
Test Voltage:	AC 120V, 60Hz
Hardware Version:	V02A(manufacturer declare)
Firmware version:	V29(manufacturer declare)
Conducted Peak Output Power:	18.33dBm
	The Conducted Peak Output Power data refer to the report EED32K00040203
Sample Received Date:	Mar. 02, 2018
Sample tested Date:	Mar. 02, 2018 to Apr. 12, 2018
<p>The tested samples and the sample information are provided by the client. Model No.:99571-VLAN-NA, 99572-VLAN-NA, 99573-VLAN-NA Only the model 99571-VLAN-NA was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being the appearance and size.</p>	

4.3 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd.

Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China 518101

Telephone: +86 (0) 755 3368 3668 Fax: +86 (0) 755 3368 3385

No tests were sub-contracted.

FCC Designation No.: CN1164

4.4 Deviation from Standards

None.

4.5 Abnormalities from Standard Conditions

None.

4.6 Other Information Requested by the Customer

None.

5 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
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	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
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
300–1500 .....	.....	.....	f/1500	30
1500–100,000 .....	.....	.....	1.0	30

A rough estimation of the expected exposure in power flux density on a given point can be made with the following equation:

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R= distance to the centre of radiation of the antenna

EIRP = P*G

The antenna of the product, under normal use condition is at least 20 cm away from the body of the user.

Warning statement to the user for keeping at least 20cm separation distance and the prohibition of operating to a person has been printed on the user's manual. Therefore, the S of the device is calculated with R=20cm, and if it is below the limit S, then we can conclude the device complies with the rules.

5.1.2 Test Procedure

Software provided by client enabled the EUT to transmit data at lowest, middle and highest channel individually.

5.1.3 EUT RF Exposure Evaluation

Antenna Gain: 2.5dBi

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max Conducted Peak Output Power(dBm)	Gain (dBi)	EIRP* (dBm)	EIRP (mW)	R (cm)	S (mW/cm ²)	Limit (mW/cm ²)	Result
LCH	2412	18.33	2.5	20.83	121.06	20	0.024	1.0	Pass

Note: Refer to report No. EED32K00040203 for EUT test Max Conducted Peak Output Power value.

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32K00040201 for EUT external and internal photos.

*** End of Report ***

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