RADIO TEST REPORT

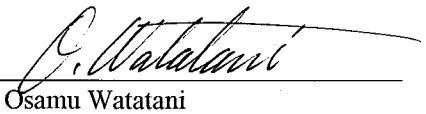
Test Report No. : 27AE0193-YK-A

Applicant	:	**MINEBEA CO., LTD**
Type of Equipment	:	**Wireless Keyboard**
Model No.	:	**VGP-WKB6XX**
FCC ID	:	**AQ6-VGPWKB6**
Test Standard	:	**FCC Part15 Subpart C, Section 15.209, 15.247: 2006**
Test Result	:	**Complied**

1. This test report shall not be reproduced except in full, without the written approval of UL Apex Co., Ltd.
2. The results in this report apply only to the sample tested.
3. This equipment is in compliance with above regulation. We hereby certify that the data contain a true representation of the EMC profile.
4. The test results in this test report are traceable to the national or international standards.

Date of test: November 7 and 8, 2006

Tested by: 
Toyokazu Imamura

Approved by: 
Osamu Watatani
Manager of Yamakita EMC Lab.

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1 Applicant Information

Company Name	:	MINEBEA CO., LTD
Address	:	1-1-1 Katase, Fujisawa-shi Kanagawa-ken, 251-0052 Japan
Telephone Number	:	+81-466-22-7171
Facsimile Number	:	+81-466-23-3551
Contact Person	:	Toshiki Nakanishi

2 Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment	:	Wireless Keyboard
Model No.	:	VGP-WKB6XX (X is replaced an alphanumeric character for each language layout. Refer to the list below.)
Serial No.	:	2000150 (Radiated emission test), 2000038 (Other test)
Rating	:	DC3V (Battery)
Country of Manufacture	:	China
Receipt Date of Sample	:	November 7, 2006
Condition of EUT	:	Production prototype (Not for sale: This sample is equivalent to mass-produced items.)
Modification of EUT	:	No modification by the test lab.

2.2 Product Description

Model: VGP-WKB6XX (referred to as the EUT in this report) is a Wireless Keyboard. XX may change depending on language and countries:

Language	XX	Model No.
Japanese	JP	VGP-WKB6JP
English US (Canada)	US	VGP-WKB6US
English UK	GB	VGP-WKB6GB
French	FR	VGP-WKB6FR
German	DE	VGP-WKB6DE
Italian	IT	VGP-WKB6IT
Spanish	ES	VGP-WKB6ES
Russian	RU	VGP-WKB6RU
Spanish (Mexico)	LA	VGP-WKB6LA

Equipment type	:	Transceiver
Frequency of operation	:	2402 – 2479MHz
Clock frequency	:	13MHz
Bandwidth & channel spacing	:	1MHz & 78ch
Type of modulation	:	GFSK (DSSS)
Antenna type	:	Printed trace Wiggle Antenna
Antenna connector type	:	None
Antenna gain	:	2dBi
Mode of operation	:	Duplex
ITU code	:	F1D
Operation temperature range	:	0 to +50 deg.C.
Bit rate	:	15.75bps, 31.25kbps, 62.5kbps

*FCC Part15.31 (e)

The test was performed with the New Battery (DC3V) and the stable voltage was supplied to the EUT during the tests. Therefore, the EUT complies with the requirement.

*FCC Part15.203

It is impossible for end users to replace the antenna, because the antenna is mounted on the module integrally. Therefore, the equipment complies with the antenna requirement of Section 15.203.

3 Test Specification, Procedures and Results

3.1 Test specification

Test specification : FCC Part15 Subpart C: 2006
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207: Conducted limits
Section 15.209: Radiated emission limits, general requirements
Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz

3.2 Procedures & Results

Item	Test Procedure	Specification	Remarks	Deviation	Worst Margin	Results
Conducted Emission	ANSI C63.4:2003 7. AC powerline conducted emission measurements	Section 15.207	-	N/A *1	-	N/A
6dB Bandwidth	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.247 (a)(2) & 15.209	-	N/A	-	Complied
Maximum Peak Output Power	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.247 (b)(3) & 15.209	-	N/A		Complied
Out of Band Emission & Restricted Band Edges	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.247 (d) & 15.209	Conducted / Radiated	N/A	11.6dB (9916.00MHz, Vertical, Tx 2479MHz)	Complied
Power Density	ANSI C63.4:2003 13. Measurement of intentional radiators	Section 15.247 (e) & 15.209	-	N/A	-	Complied

*1) The test is not applicable since the EUT has no AC mains.

Note: UL Apex's EMI Work Procedures No.QPM05.

* Other than above, no addition, exclusion nor deviation has been made from the standard.

3.3 Uncertainty

Radiated emission
The measurement uncertainty (with 95% confidence level) for this test using Biconical antenna is ±4.5dB.
The measurement uncertainty (with 95% confidence level) for this test using Logperiodic antenna is ±4.3dB.
The measurement uncertainty (with 95% confidence level) for this test using Horn antenna is ±5.2dB.
The data listed in this test report has enough margin, more than site margin.

3.4 Test Location

UL Apex Co., Ltd. Yamakita EMC Lab.
907, Kawanishi, Yamakita-machi, Ashigarakami-gun, Kanagawa-ken 258-0124 JAPAN
Telephone number : +81 465 77 1011
Facsimile number : +81 465 77 2112
NVLAP Lab. code : 200441-0

No. 1 test site has been fully described in a report submitted to FCC office, and accepted on August 26, 2005 (Registration No.: 95486).
IC Registration No. : IC3489A

No. 2 test site has been fully described in a report submitted to FCC office, and accepted on April 4, 2005 (Registration No.: 466226).
IC Registration No. : IC3489A-2

No. 1 anechoic chamber has been fully described in a report submitted to FCC office, and accepted on November 2, 2005 (Registration No.: 95967).
IC Registration No. : IC3489A-B

Test room	Width x Depth x Height (m)	Test room	Width x Depth x Height (m)
No.1 shielded room	8.0 x 5.0 x 2.5	No.1 EMS lab. (Semi-anechoic chamber)	10.0 x 7.5 x 5.7
No.2 shielded room	5.0 x 4.0 x 2.5		
No.3 shielded room	4.0 x 5.0 x 2.7		

4 System Test Configuration

4.1 Justification

The system was configured in typical fashion (as a customer would normally use it) for testing.

Operation: Transmitting
- Low channel : 2402MHz
- Middle channel : 2440MHz
- High channel : 2479MHz

4.2 Configuration of Tested System

Description of EUT and support equipment

No.	Item	Model number	Serial number *1)	Manufacturer	FCC ID (Remark)
A	Wireless Keyboard	VGP-WKB6XX	2000150 2000038	MINEBEA	AQ6-VGPWKB6 (EUT)

*1) 2000150 was for Radiated emission test and 2000038 was for other test.

5 Bandwidth

Test Procedure

The bandwidth was measured with a spectrum analyzer connected to the antenna port.

Results

Summary of the test results : Pass
Date : November 8, 2006 Test engineer : Toyokazu Imamura

6 Maximum Peak Output Power

Test Procedure

The maximum peak output power was measured with a power meter (tested bandwidth: 50MHz) connected to the antenna port. Pre-check was performed with each type of bit rate to confirm that there was no difference. The maximum data rate was chosen for the final measurement.

Results

Summary of the test results : Pass
Date : November 8, 2006 Test engineer : Toyokazu Imamura

7 Out of Band Emissions (Conducted)

Test Procedure
The Out of Band Emission was measured with a spectrum analyzer connected to the antenna port.

Results

Summary of the test results : Pass
Date : November 8, 2006 Test engineer : Toyokazu Imamura

8 Out of Band Emissions (Radiated)

8.1 Operating environment

The test was carried out in No.1 open site.

Temperature : See test data
Humidity : See test data

8.2 Test configuration

EUT was placed on a urethane platform of nominal size, 0.5m by 0.5m, raised 80cm above the conducting ground plane. A drawing of the set up is shown in the photos of Appendix 1.

8.3 Test conditions

Frequency range : 30MHz - 26GHz
EUT position : Table top
EUT operation mode : Transmitting

8.4 Test procedure

The Radiated Electric Field Strength intensity has been measured with a ground plane and at a distance of 3m.
The measuring antenna height was varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
The measurements were performed for both vertical and horizontal antenna polarization.

In any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.

Pre-check was performed with each type of bit rate to confirm no difference. The maximum data rate was chosen for the final measurement.

Measurements were performed with QP, PK, and AV detector.
The radiated emission measurements were made with the following detector function of the test receiver.
When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

Frequency	Below 1GHz	Above 1GHz
Instrument used	Test Receiver	Spectrum Analyzer
Detector IF Bandwidth	QP: BW 120kHz	PK: RBW: 1MHz/VBW: 1MHz AV: RBW: 1MHz/VBW: 10Hz
Measuring antenna	Biconical (30-299MHz) Logperiodic (300MHz-1GHz)	Horn

8.5 Results

Summary of the test results : Pass
No noise was detected above the 5th order harmonics.

Date : November 8, 2006 Test engineer : Toyokazu Imamura

9 Peak Power Density

Test Procedure

The peak power density was measured with a spectrum analyzer connected to the antenna port.

Results

Summary of the test results : Pass
Date : November 8, 2006 Test engineer : Toyokazu Imamura

APPENDIX 1: Photographs of test setup

APPENDIX 2: Test Data

APPENDIX 3: Test instruments

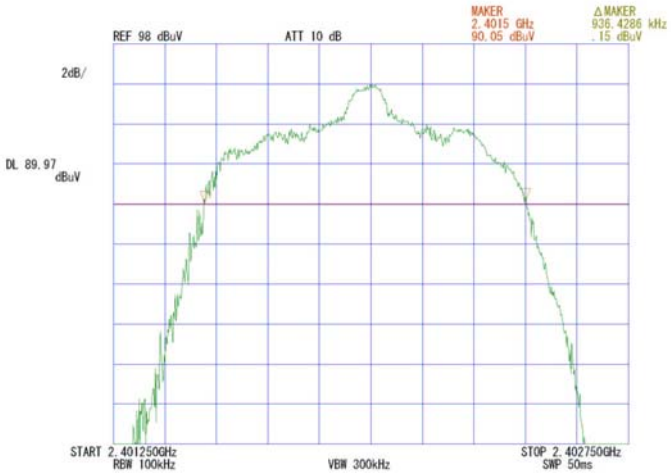
Radiated emission

6dB Bandwidth: FCC 15.247(a)(2)

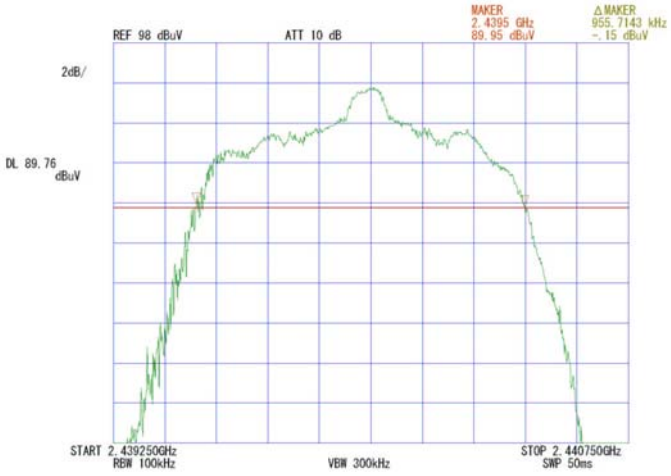
UL Apex Co.,Ltd. Yamakita No.2 Shielded Room

COMPANY	: MINEBEA CO.,LTD	REPORT NO	: 27AE0193-YK-A
EQUIPMENT	: Wireless Keyboard	REGULATION	: FCC Part15SubpartC 247(a)(2)
MODEL NUMBER	: VGP-WKB6XX	DATE	: 2006/11/8
SERIAL NUMBER	: 2000038	TEMP./HUMI	: 29℃/40%
FCC ID	: AQ6-VGPWKB6	TEST MODE	: Transmitting
POWER	: DC3.0V	ENGINEER	: Toyokazu Imamura

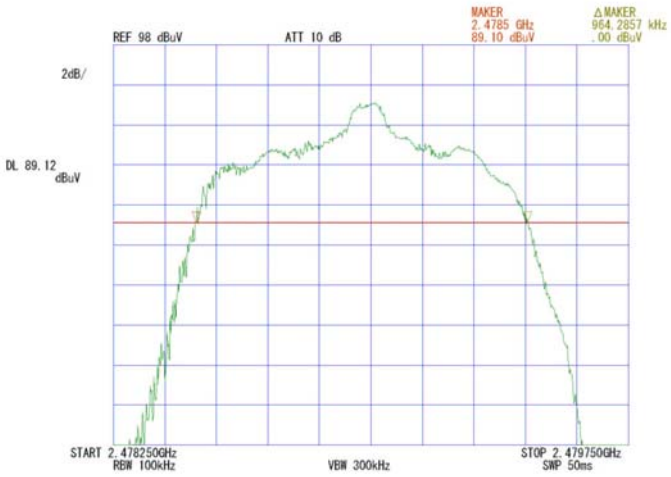
1. ch 1: 2402MHz/6dB Bandwidth:936.43kHz



2. ch 39: 2440MHz/6dB Bandwidth:955.71kHz



3. ch 78: 2479MHz/6dB Bandwidth:964.29kHz

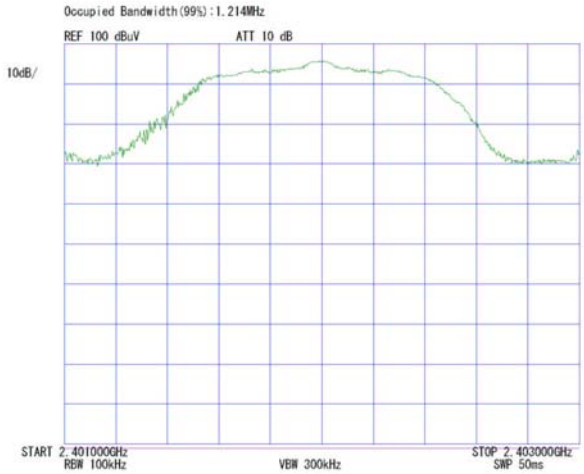


Occupied Bandwidth(99%)

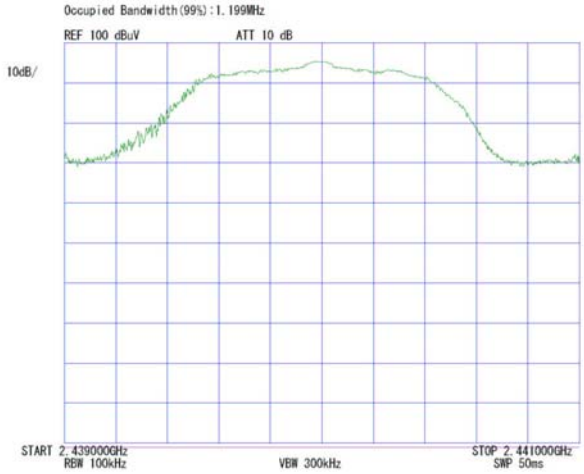
UL Apex Co.,Ltd. Yamakita No.2 Shielded Room

COMPANY	: MINEBEA CO.,LTD	REPORT NO	: 27AE0193-YK-A
EQUIPMENT	: Wireless Keyboard	REGULATION	: -
MODEL NUMBER	: VGP-WKB6XX	DATE	: 2006/11/8
SERIAL NUMBER	: 2000038	TEMP./HUMI	: 29℃/40%
FCC ID	: AQ6-VGPWKB6	TEST MODE	: Transmitting
POWER	: DC3.0V	ENGINEER	: Toyokazu Imamura

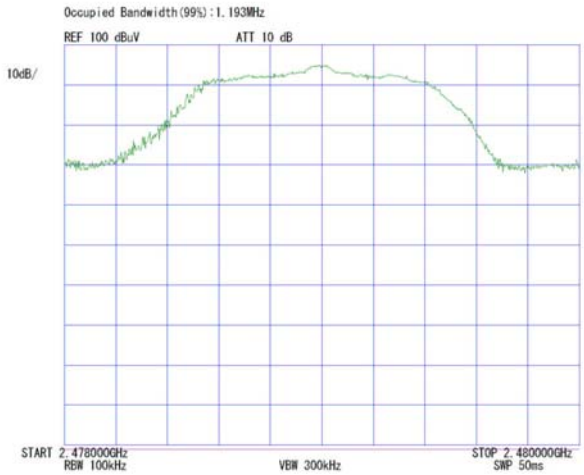
1. ch 1: 2402MHz/Occupied Bandwidth:1.214MHz



2. ch 39: 2440MHz/Occupied Bandwidth:1.199MHz



3. ch 78: 2479MHz/Occupied Bandwidth:1.193MHz



Maximum Peak Conducted Output Power

UL Apex Co.,Ltd
YAMAKITA NO.2 Shielded Room

COMPANY : MINEBEA CO.,LTD
EQUIPMENT : Wireless Keyboard
MODEL No. : VGP-WKB6XX
SERIAL No. : 2000038
FCC ID : AQ6-VGPWKB6
POWER : DC3.0V
TEST MODE : Transmitting

REPORT NO : 26AE0193-YK-A
REGULATION : Fcc Part15SubpartC 247(b)(3)
DATE : 2006/11/8
TEMP./HUMI : 29℃/40％

ENGINEER : Toyokazu Imamura

CH	FREQ [GHz]	P/M Reading [dBm]	Cable Loss [dB]	Results [dBm]	Limit (1W) [dBm]	MARGIN [dB]
Low	2402.00	-3.72	0.00	-3.72	30.0	33.72
Mid	2440.00	-4.84	0.00	-4.84	30.0	34.84
High	2479.00	-4.42	0.00	-4.42	30.0	34.42

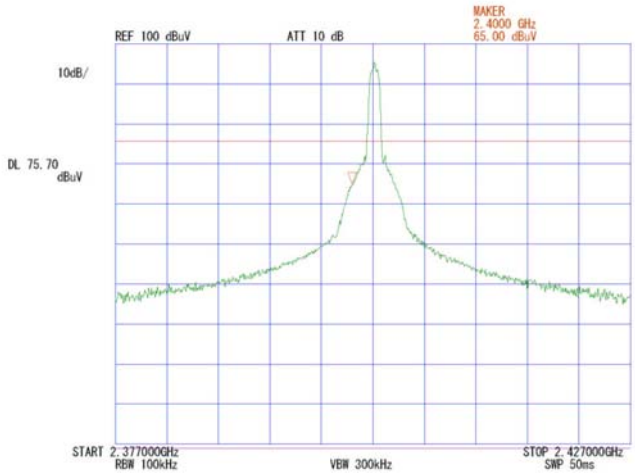
Limit: 1W=30dBm
P/M: Power Meter
*Peak Output power was mesured with the peak function of the Power Meter.
**EUT was connected with the power sensor directly, therefore cable loss was 0dB

Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

COMPANY	**: MINEBEA CO.,LTD**	**REPORT NO**	**: 27AE0193-YK-A**
EQUIPMENT	**: Wireless Keyboard**	**REGULATION**	**: FCC Part15SubpartC 247(d)**
MODEL NUMBER	**: VGP-WKB6XX**	**DATE**	**: 2006/11/8**
SERIAL NUMBER	**: 2000038**	**TEMP./HUMI**	**: 29℃/40%**
FCC ID	**: AQ6-VGPWKB6**	**TEST MODE**	**: Transmitting**
POWER	**: DC3.0V**	**ENGINEER**	**: Toyokazu Imamura**

Ch1:2402MHz

1.



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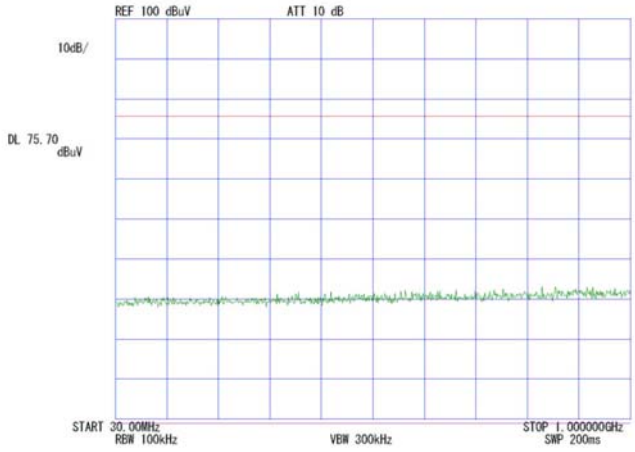

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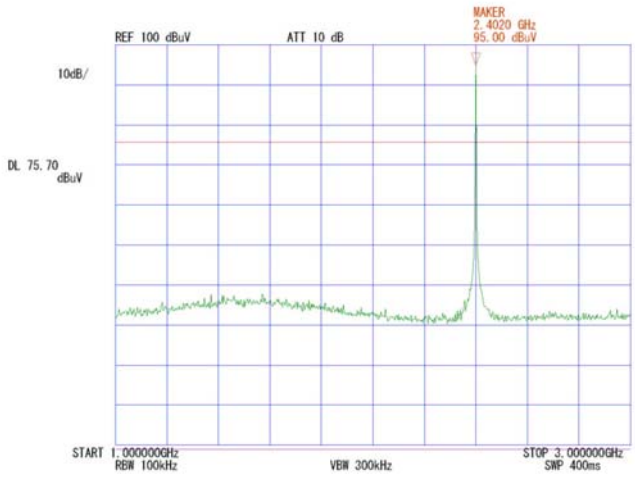
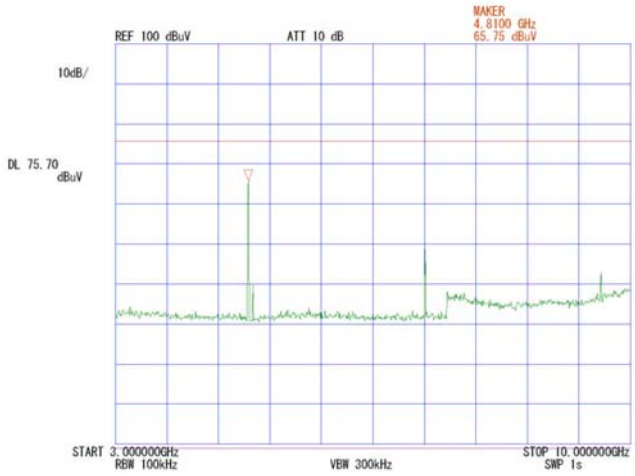


Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

COMPANY	**: MINEBEA CO.,LTD**	**REPORT NO**	**: 27AE0193-YK-A**
EQUIPMENT	**: Wireless Keyboard**	**REGULATION**	**: FCC Part15SubpartC 247(d)**
MODEL NUMBER	**: VGP-WKB6XX**	**DATE**	**: 2006/11/8**
SERIAL NUMBER	**: 2000038**	**TEMP./HUMI**	**: 29℃/40%**
FCC ID	**: AQ6-VGPWKB6**	**TEST MODE**	**: Transmitting**
POWER	**: DC3.0V**	**ENGINEER**	**: Toyokazu Imamura**

Ch1:2402MHz

4.



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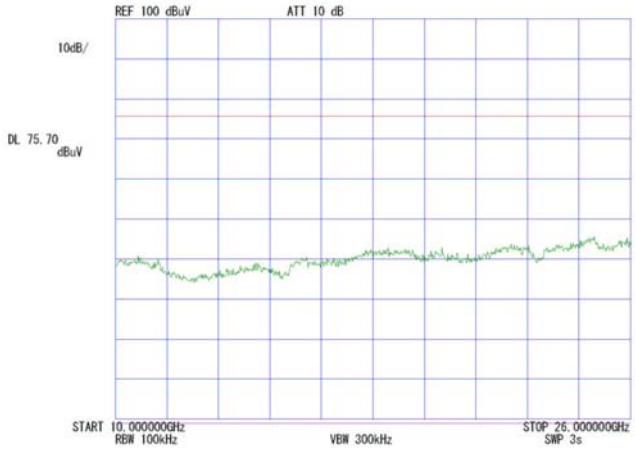
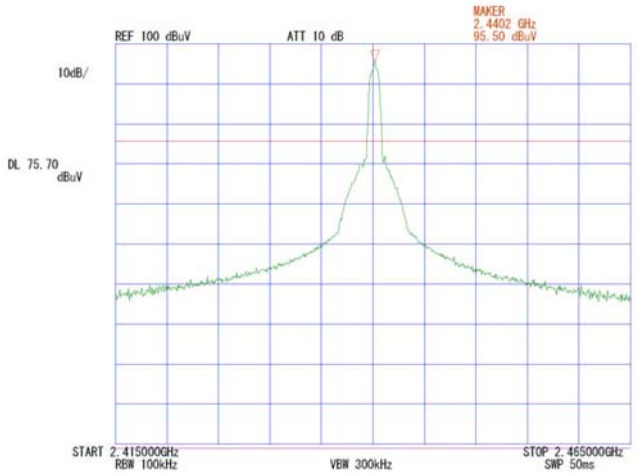


Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

COMPANY	: MINEBEA CO.,LTD	REPORT NO	: 27AE0193-YK-A
EQUIPMENT	: Wireless Keyboard	REGULATION	: FCC Part15SubpartC 247(d)
MODEL NUMBER	: VGP-WKB6XX	DATE	: 2006/11/8
SERIAL NUMBER	: 2000038	TEMP./HUMI	: 29℃/40%
FCC ID	: AQ6-VGPWKB6	TEST MODE	: Transmitting
POWER	: DC3.0V	ENGINEER	: Toyokazu Imamura

Ch39:2440MHz

1.



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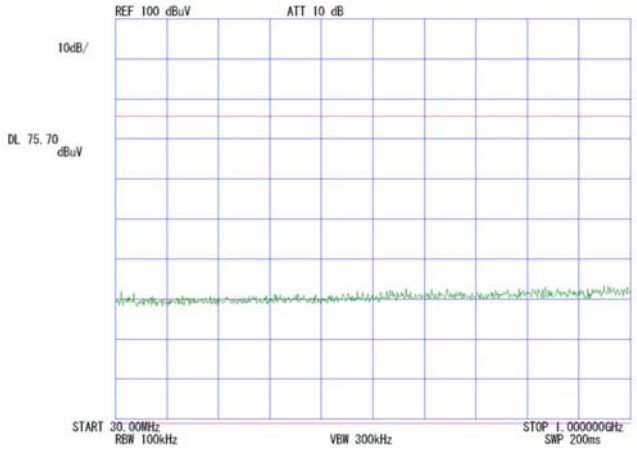

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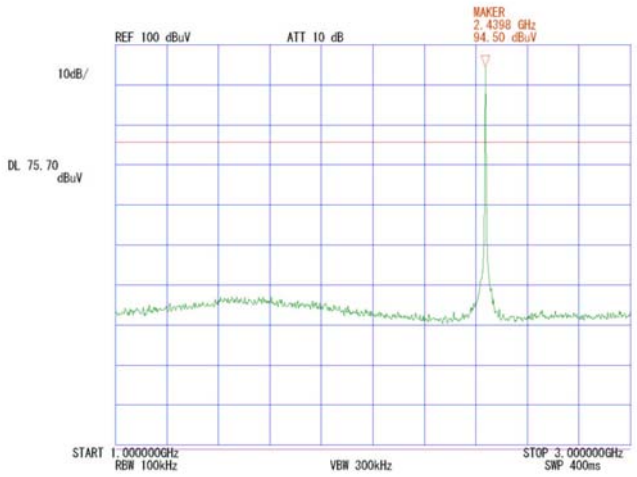

Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

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EQUIPMENT	: Wireless Keyboard	REGULATION	: FCC Part15SubpartC 247(d)
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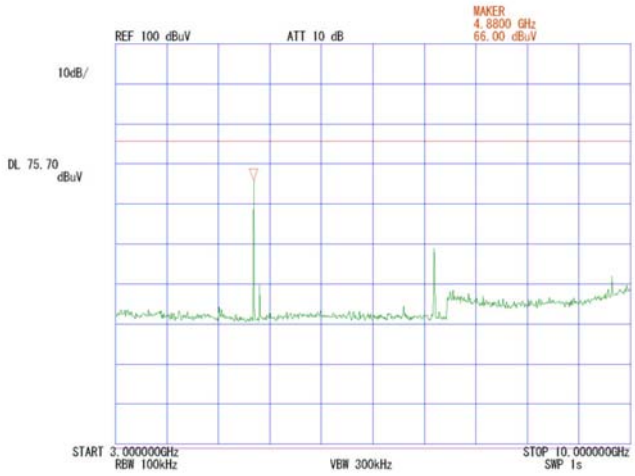
SERIAL NUMBER	: 2000038	TEMP./HUMI	: 29℃/40%
FCC ID	: AQ6-VGPWKB6	TEST MODE	: Transmitting
POWER	: DC3.0V	ENGINEER	: Toyokazu Imamura

Ch39:2440MHz

4.



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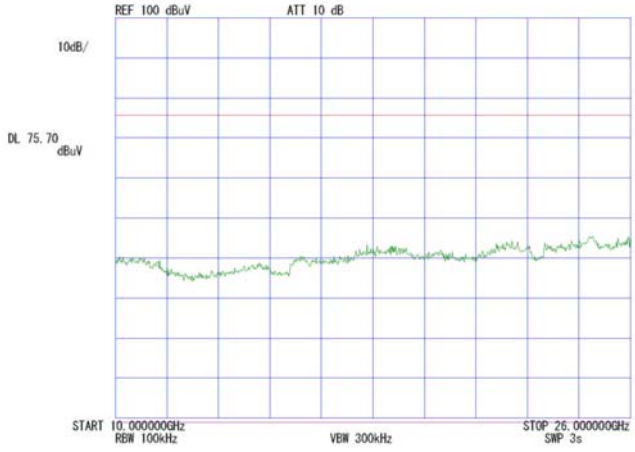

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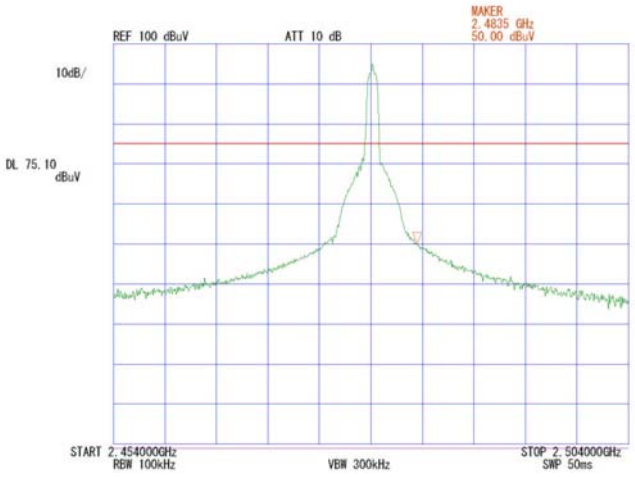
POWER	: DC3.0V	ENGINEER	: Toyokazu Imamura

Ch78:2479MHz

1.



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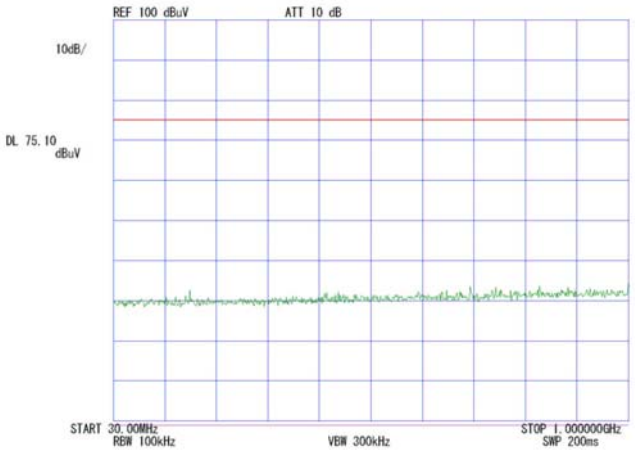

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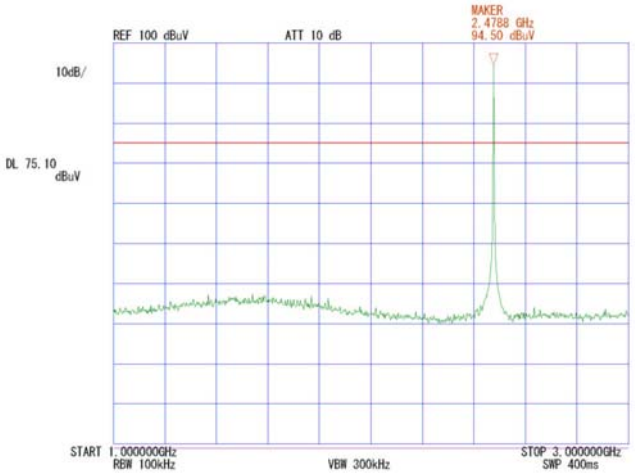

Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

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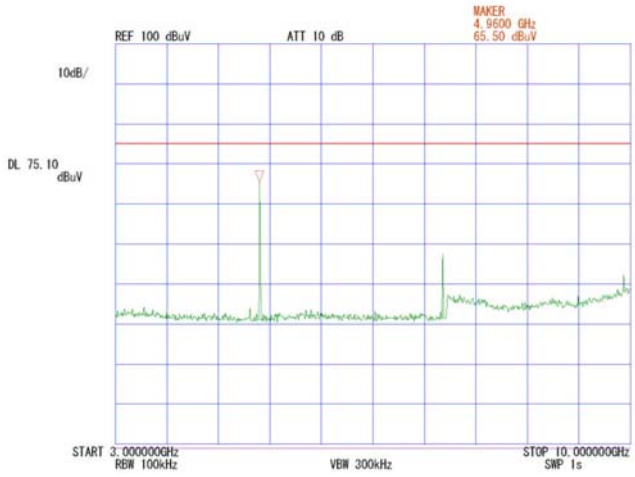
EQUIPMENT	**: Wireless Keyboard**	**REGULATION**	**: FCC Part15SubpartC 247(d)**
MODEL NUMBER	**: VGP-WKB6XX**	**DATE**	**: 2006/11/8**
SERIAL NUMBER	**: 2000038**	**TEMP./HUMI**	**: 29℃/40%**
FCC ID	**: AQ6-VGPWKB6**	**TEST MODE**	**: Transmitting**
POWER	**: DC3.0V**	**ENGINEER**	**: Toyokazu Imamura**

Ch78:2479MHz

4.



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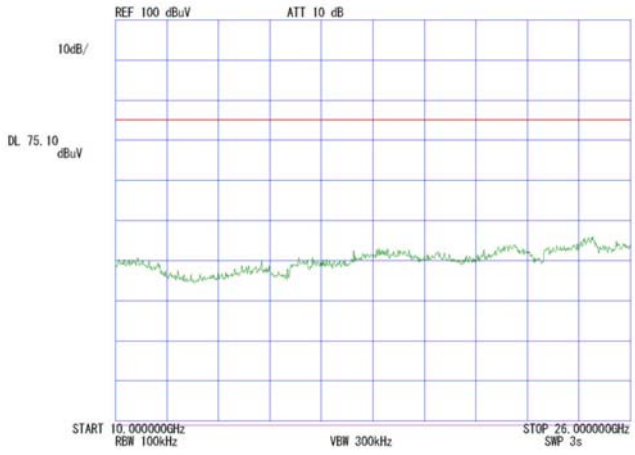

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
YAMAKITA No.1 OPEN TEST SITE
Report No.: 27AE0193-YK-A

Applicant	: MINEBEA CO.,LTD		
Kind of Equipment	: Wireless Keyboard		
Model No.	: VGP-WKB6XX		
Serial No.	: 2000150		
Power	: DC3.0V		
Mode	: Transmitting:2402MHz		
Remarks	:		
Date	: 11/8/2006		
Test Distance	: 3 m		
Temperature	: 24 ℃	Engineer	: Toyokazu Imamura
Humidity	: 40 %		
Regulation	: FCC Part15C §15.209		

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	399.98	BB	20.8	20.9	17.5	28.6	5.7	6.0	21.4	21.5	46.0	24.6	24.5
2.	449.97	BB	21.1	21.0	17.9	28.9	6.1	6.0	22.2	22.1	46.0	23.8	23.9
3.	499.98	BB	21.5	21.7	18.2	29.0	6.4	6.0	23.1	23.3	46.0	22.9	22.7

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ANTENNA:KBA-01(BBA9106)30-299.99MHz/KLA-01(USLP9143)300-1000MHz
■CABLE:KCC-10/11/12/13/18■PREAMP:KAF-01(8447D)■EMI RECEIVER:KTR-02(ESCS30)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
YAMAKITA No.1 OPEN TEST SITE
Report No.: 27AE0193-YK-A

Applicant	:	MINEBEA CO.,LTD	
Kind of Equipment	:	Wireless Keyboard	
Model No.	:	VGP-WKB6XX	
Serial No.	:	2000150	
Power	:	DC3.0V	
Mode	:	Transmitting:2440MHz	
Remarks	:		
Date	:	11/8/2006	
Test Distance	:	3 m	
Temperature	:	24 ℃	Engineer : Toyokazu Imamura
Humidity	:	40 %	
Regulation	:	FCC Part15C §15.209	

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	399.98	BB	20.8	21.0	17.5	28.6	5.7	6.0	21.4	21.6	46.0	24.6	24.4
2.	449.97	BB	21.0	21.1	17.9	28.9	6.1	6.0	22.1	22.2	46.0	23.9	23.8
3.	499.98	BB	21.5	21.8	18.2	29.0	6.4	6.0	23.1	23.4	46.0	22.9	22.6

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ANTENNA:KBA-01(BBA9106)30-299.99MHz/KLA-01(USLP9143)300-1000MHz
■CABLE:KCC-10/11/12/13/18■PREAMP:KAF-01(8447D)■EMI RECEIVER:KTR-02(ESCS30)

Page:

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
YAMAKITA No.1 OPEN TEST SITE
Report No.: 27AE0193-YK-A

Applicant	:	MINEBEA CO.,LTD	
Kind of Equipment	:	Wireless Keyboard	
Model No.	:	VGP-WKB6XX	
Serial No.	:	2000150	
Power	:	DC3.0V	
Mode	:	Transmitting:2479MHz	
Remarks	:		
Date	:	11/8/2006	
Test Distance	:	3 m	
Temperature	:	24 ℃	Engineer : Toyokazu Imamura
Humidity	:	40 %	
Regulation	:	FCC Part15C §15.209	

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	399.98	BB	20.7	20.9	17.5	28.6	5.7	6.0	21.3	21.5	46.0	24.7	24.5
2.	449.97	BB	21.0	21.1	17.9	28.9	6.1	6.0	22.1	22.2	46.0	23.9	23.8
3.	499.98	BB	21.4	21.6	18.2	29.0	6.4	6.0	23.0	23.2	46.0	23.0	22.8

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ANTENNA:KBA-01(BBA9106)30-299.99MHz/KLA-01(USLP9143)300-1000MHz
■CABLE:KCC-10/11/12/13/18■PREAMP:KAF-01(8447D)■EMI RECEIVER:KTR-02(ESCS30)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
YAMAKITA No.1 OPEN TEST SITE
Report No. : 27AE0193-YK-A

Applicant	:	MINEBEA CO., LTD	
Kind of Equipment	:	Wireless Keyboard	
Model No.	:	VGP-WKB6XX	
Serial No.	:	2000150	
Power	:	DC3.0V	
Mode	:	Transmitting:2402MHz	
Remarks	:	PK	
Date	:	11/7/2006	
Test Distance	:	3 m	
Temperature	:	22 ℃	Engineer : Toyokazu Imamura
Humidity	:	65 %	
Regulation	:	FCC Part15C §15.209(a) (PK) 1-18GHz:3m/18-40GHz:1m	

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	2390.00	BB	57.7	54.0	29.8	36.8	4.0	0.0	54.7	51.0	74.0	19.3	23.0
2.	4804.00	BB	48.1	47.0	33.8	37.1	5.8	0.0	50.6	49.5	74.0	23.4	24.5
3.	7206.00	BB	44.6	44.5	37.5	36.9	6.6	0.0	51.8	51.7	74.0	22.2	22.3
4.	9608.00	BB	43.1	42.7	38.9	37.0	7.6	0.0	52.6	52.2	74.0	21.4	21.8

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ANTENNA:KHA-01 (SAS-200 571) 1-18GHz/KHA-03 (3160-09) 18-26GHz
■CABLE:KCC-D3/D7■PREAMP:KAF-02 (8449B) ■SPECTRUM ANALYZER:KSA-04 (R3271A)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
YAMAKITA No.1 OPEN TEST SITE
Report No. : 27AE0193-YK-A

Applicant	:	MINEBEA CO., LTD	
Kind of Equipment	:	Wireless Keyboard	
Model No.	:	VGP-WKB6XX	
Serial No.	:	2000150	
Power	:	DC3.0V	
Mode	:	Transmitting:2402MHz	
Remarks	:	AV	
Date	:	11/7/2006	
Test Distance	:	3 m	
Temperature	:	22 ℃	Engineer : Toyokazu Imamura
Humidity	:	65 %	
Regulation	:	FCC Part15C §15.209(a) 1-18GHz:3m/18-40GHz:1m	

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	2390.00	BB	33.4	31.9	29.8	36.8	4.0	0.0	30.4	28.9	54.0	23.6	25.1
2.	4804.00	BB	37.6	36.4	33.8	37.1	5.8	0.0	40.1	38.9	54.0	13.9	15.1
3.	7206.00	BB	32.8	32.5	37.5	36.9	6.6	0.0	40.0	39.7	54.0	14.0	14.3
4.	9608.00	BB	31.8	31.2	38.9	37.0	7.6	0.0	41.3	40.7	54.0	12.7	13.3

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ANTENNA:KHA-01 (SAS-200 571) 1-18GHz/KHA-03 (3160-09) 18-26GHz
■CABLE:KCC-D3/D7■PREAMP:KAF-02 (8449B) ■SPECTRUM ANALYZER:KSA-04 (R3271A)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
YAMAKITA No.1 OPEN TEST SITE
Report No. : 27AE0193-YK-A

Applicant	:	MINEBEA CO., LTD	
Kind of Equipment	:	Wireless Keyboard	
Model No.	:	VGP-WKB6XX	
Serial No.	:	2000150	
Power	:	DC3.0V	
Mode	:	Transmitting:2440MHz	
Remarks	:	PK	
Date	:	11/7/2006	
Test Distance	:	3 m	
Temperature	:	22 ℃	Engineer : Toyokazu Imamura
Humidity	:	65 %	
Regulation	:	FCC Part15C §15.209(a) (PK) 1-18GHz:3m/18-40GHz:1m	

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	4880.00	BB	47.3	47.8	34.0	37.2	5.8	0.0	49.9	50.4	74.0	24.1	23.6
2.	7320.00	BB	43.2	42.6	37.6	37.0	6.7	0.0	50.5	49.9	74.0	23.5	24.1
3.	9760.00	BB	41.8	41.5	38.8	37.0	7.6	0.0	51.2	50.9	74.0	22.8	23.1

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ANTENNA:KHA-01 (SAS-200 571) 1-18GHz/KHA-03 (3160-09) 18-26GHz
■CABLE:KCC-D3/D7■PREAMP:KAF-02 (8449B) ■SPECTRUM ANALYZER:KSA-04 (R3271A)

Page:

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
YAMAKITA No.1 OPEN TEST SITE
Report No. : 27AE0193-YK-A

Applicant	:	MINEBEA CO., LTD	
Kind of Equipment	:	Wireless Keyboard	
Model No.	:	VGP-WKB6XX	
Serial No.	:	2000150	
Power	:	DC3.0V	
Mode	:	Transmitting:2440MHz	
Remarks	:	AV	
Date	:	11/7/2006	
Test Distance	:	3 m	
Temperature	:	22 ℃	Engineer : Toyokazu Imamura
Humidity	:	65 %	
Regulation	:	FCC Part15C §15.209(a) 1-18GHz:3m/18-40GHz:1m	

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	4880.00	BB	37.4	37.5	34.0	37.2	5.8	0.0	40.0	40.1	54.0	14.0	13.9
2.	7320.00	BB	31.3	31.5	37.6	37.0	6.7	0.0	38.6	38.8	54.0	15.4	15.2
3.	9760.00	BB	31.3	30.9	38.8	37.0	7.6	0.0	40.7	40.3	54.0	13.3	13.7

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ANTENNA:KHA-01 (SAS-200 571) 1-18GHz/KHA-03 (3160-09) 18-26GHz
■CABLE:KCC-D3/D7■PREAMP:KAF-02 (8449B) ■SPECTRUM ANALYZER:KSA-04 (R3271A)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
YAMAKITA No.1 OPEN TEST SITE
Report No. : 27AE0193-YK-A

Applicant	:	MINEBEA CO., LTD	
Kind of Equipment	:	Wireless Keyboard	
Model No.	:	VGP-WKB6XX	
Serial No.	:	2000150	
Power	:	DC3.0V	
Mode	:	Transmitting:2479MHz	
Remarks	:	PK	
Date	:	11/7/2006	
Test Distance	:	3 m	
Temperature	:	22 ℃	Engineer : Toyokazu Imamura
Humidity	:	65 %	
Regulation	:	FCC Part15C §15.209(a) (PK) 1-18GHz:3m/18-40GHz:1m	

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	2483.50	BB	59.7	57.5	29.7	36.8	4.0	0.0	56.6	54.4	74.0	17.4	19.6
2.	4958.00	BB	48.9	47.6	34.2	37.3	5.8	0.0	51.6	50.3	74.0	22.4	23.7
3.	7437.00	BB	44.9	42.1	37.8	37.0	6.7	0.0	52.4	49.6	74.0	21.6	24.4
4.	9916.00	BB	41.2	44.6	38.7	36.9	7.6	0.0	50.6	54.0	74.0	23.4	20.0

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ANTENNA:KHA-01 (SAS-200 571) 1-18GHz/KHA-03 (3160-09) 18-26GHz
■CABLE:KCC-D3/D7■PREAMP:KAF-02 (8449B) ■SPECTRUM ANALYZER:KSA-04 (R3271A)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
YAMAKITA No.1 OPEN TEST SITE
Report No. : 27AE0193-YK-A

Applicant	: MINEBEA CO., LTD		
Kind of Equipment	: Wireless Keyboard		
Model No.	: VGP-WKB6XX		
Serial No.	: 2000150		
Power	: DC3.0V		
Mode	: Transmitting:2479MHz		
Remarks	: AV		
Date	: 11/7/2006		
Test Distance	: 3 m		
Temperature	: 22 ℃	Engineer	: Toyokazu Imamura
Humidity	: 65 %		
Regulation	: FCC Part15C §15.209(a) 1-18GHz:3m/18-40GHz:1m		

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	2483.50	BB	34.8	33.3	29.7	36.8	4.0	0.0	31.7	30.2	54.0	22.3	23.8
2.	4958.00	BB	39.4	37.9	34.2	37.3	5.8	0.0	42.1	40.6	54.0	11.9	13.4
3.	7437.00	BB	33.1	30.1	37.8	37.0	6.7	0.0	40.6	37.6	54.0	13.4	16.4
4.	9916.00	BB	31.1	33.0	38.7	36.9	7.6	0.0	40.5	42.4	54.0	13.5	11.6

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ANTENNA:KHA-01(SAS-200 571)1-18GHz/KHA-03(3160-09)18-26GHz
■CABLE:KCC-D3/D7■PREAMP:KAF-02(8449B) ■SPECTRUM ANALYZER:KSA-04(R3271A)

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Power Density (Conducted)

UL Apex Co.,Ltd
YAMAKITA NO.2 Shielded Room

COMPANY	: MINEBEA CO.,LTD	REPORT NO	: 26AE0193-YK-A
EQUIPMENT	: Wireless Keyboard	REGULATION	: Fcc Part15SubpartC 247(e)
MODEL NUMBER	: VGP-WKB6XX	DATE	: 2006/11/8
SERIAL NUMBER	: 2000038	TEMP./HUMI	: 29℃/40％
FCC ID	: AQ6-VGPWKB6		
POWER	: DC3.0V		
TEST MODE	: Transmitting		

ENGINEER : Toyokazu Imamura

CH	FREQ [GHz]	S/A Reading [dBm]	Cable Loss [dB]	Results [dBm]	Limit [dBm]	MARGIN [dB]
Low	2402.0	-20.75	0.40	-20.35	8.0	28.4
Mid	2440.0	-21.00	0.40	-20.6	8.0	28.6
High	2479.0	-21.50	0.40	-21.1	8.0	29.1

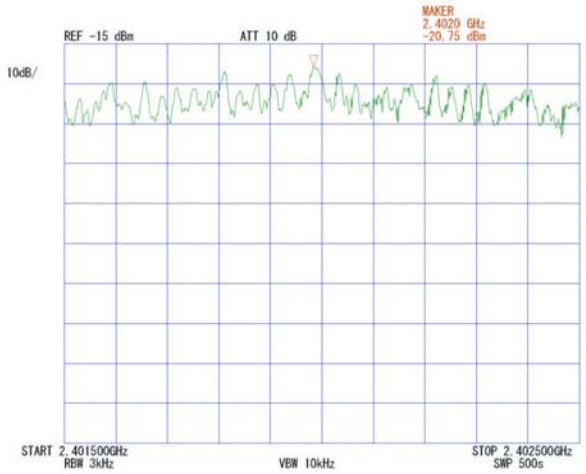
S/A:Spectrum Analyzer

Power Density: FCC 15.247(e)

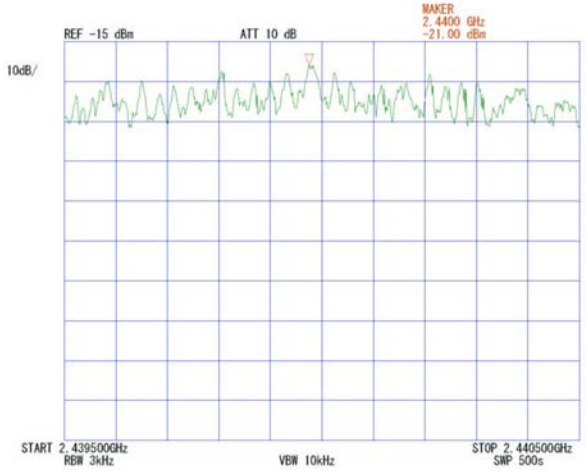
UL Apex Co.,Ltd. Yamakita No.2 Shielded Room

COMPANY	: MINEBEA CO.,LTD	REPORT NO	: 27AE0193-YK-A
EQUIPMENT	: Wireless Keyboard	REGULATION	: FCC Part15SubpartC 247(e)
MODEL NUMBER	: VGP-WKB6XX	DATE	: 2006/11/8
SERIAL NUMBER	: 2000038	TEMP./HUMI	: 29℃/40%
FCC ID	: AQ6-VGPWKB6	TEST MODE	: Transmitting
POWER	: DC3.0V	ENGINEER	: Toyokazu Imamura

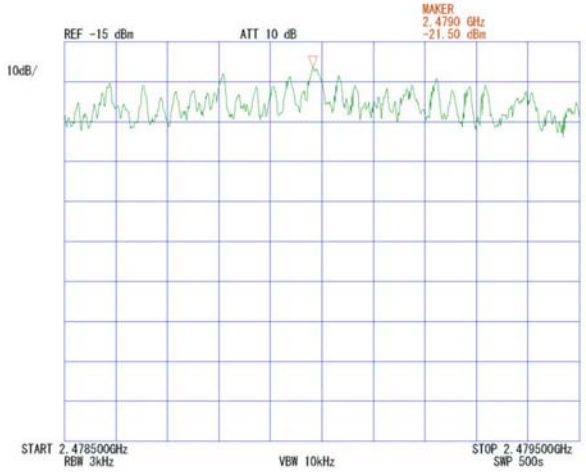
1. ch 1: 2402MHz



2. ch 39: 2440MHz



3. ch 78: 2479MHz



Test Report No :27AE0193-YK-A

APPENDIX 3
Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
YA-RE	Radiated emission(software)	UL-Apex	RE(Ver.1.5)	RE	-
KAF-01	Pre Amplifier	Hewlett Packard	8447D	RE	2006/05/10 * 12
KAT6-02	Attenuator	INMET	18N-6dB	RE	2006/03/24 * 12
KBA-01	Biconical Antenna	Schwarzbeck	BBA9106	RE	2006/07/22 * 12
KCC-10/11/12/13/18/KRM-01	Coaxial Cable/RF Relay Matrix	Fujikura/Suhner/TSJ	8D-2W/12D-SFA/S04272B/S04272B/S04272B/-	RE	2006/05/16 * 12
KLA-01	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2006/01/17 * 12
KOTS-01	Open Test Site	JSE	30m	RE	2006/08/06 * 12
KOS-03	Humidity Indicator	SATO	PC-5000TRH	RE	2006/07/10 * 24
KSA-04	Spectrum Analyzer	Advantest	R3271A	RE/AT 1,3,4	2006/09/05 * 12
KTR-02	Test Receiver	Rohde & Schwarz	ESCS30	RE	2005/11/10 * 12
KJM-03	Measure	TAJIMA	GL19-55	RE	-
KAF-02	Pre Amplifier	Hewlett Packard	8449B	RE	2006/04/24 * 12
KHA-01	Horn Antenna	A.H.Systems	SAS-200/571	RE	2006/08/17 * 12
KHA-03	Horn Antenna	EMCO	3160-09	RE	2006/04/10 * 12
KCC-D3/D7	Coaxial Cable	Rosenberger/Advantest	2201/JUN-08-01-061	RE	2006/04/11 * 12
KPM-05	Power meter	Agilent	E4417A	AT 2	2006/02/16 * 12
KPSS-01	Power sensor	Agilent	E9327A	AT 2	2006/03/15 * 12
KOS-04	Humidity Indicator	SATO	PC-5000TRH	AT all	2006/07/14 * 24
KCC-D7	Coaxial Cable	Advantest	A01002	AT 1,3,4	2006/04/11 * 12

The expiration date of the calibration is the end of the expired month .

All equipment is calibrated with traceable calibrations . Each calibration is traceable to the national or international standards.

Test Item :

RE: Out of Band Emission (Radiated)
AT: Antenna terminal conducted test
1: Bandwidth
2: Maximum Peak Output Power
3: Out of Band Emission (Conducted)
4: Peak Power Density