

RADIO TEST REPORT

Test Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
Type of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
FCC ID : CWTUGPZ6
Test Standard : FCC Part15 Subpart C,
Section 15.207, Section 15.209, Section 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 the above regulation.
4. The test results in this test report are traceable to the national or international standards.

Date of test: January 11, 12, 20, 23 and February 1, 2007

Tested by:

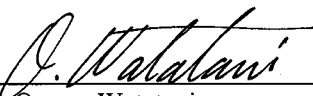

Tatsuya Arai

&


Ichiro Isozaki


Toyokazu Imamura

Approved by:


Osamu Watatani
Manager of Yamakita EMC Lab.

UL Apex Co., Ltd.

YAMAKITA EMC LAB.

907 Kawanishi, Yamakita-machi, Ashigarakami-gun, Kanagawa-ken, 258-0124 JAPAN

Telephone: +81 465 77 1011

Facsimile: +81 465 77 2112

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1 Applicant Information

Company Name : Alps Electric Co., Ltd.
 Address : 1-7, Yukigaya, Otsuka-cho, Ota-ku, Tokyo, 145-8501 JAPAN
 Telephone Number : +81 244 35 1207
 Facsimile Number : +81 244 35 1602
 Contact Person : Masaaki Ueki

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

2.1 Identification of E.U.T.

Type of Equipment : Bluetooth Transceiver Module
 Model No. : UGPZ6
 Serial No. : 4C4E20
 Rating : DC 3.3V
 Country of Manufacture : Japan
 Receipt Date of Sample : December 29, 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: UGPZ6 (referred to as the EUT in this report) is a Bluetooth Transceiver Module.

Equipment type : Transceiver
 Frequency of operation : 2402-2480MHz
 Clock frequency : 26MHz
 Bandwidth & channel spacing : 79MHz & 1MHz
 Type of modulation : FHSS (GFSK, $\pi/4$ DQPSK, 8DPSK)
 Antenna model & type : C680 (inverted F), LDA31 ($\lambda/4$ monopole), WDAN-SCMS9004-1F (inverted F)
 Antenna gain with cable loss : C680: +2.95dBi, LDA31: -0.5dBi, WDAN-SCMS9004-1F: +1.59dBi
 Antenna connector type : U. FL (Hirose)
 ITU code : FXD
 Operation temperature range : 15 to 35 deg.C.

This is a test report for a class II permissive change for FCC ID: CWTUGPZ6, originally granted on June 13, 2005.
 The major change field under is:

Items	Explanation of modifications	Remarks
Flas ROM (IC2)	Addition of following alternate components. MX29LV800 and S29AL008	Electrically equivalent
X'tal (X1)	Addition of following alternate components. FCX-04, DSX321S and NX3225DA	Electrically equivalent
RF connector (CN1)	Addition of following alternate component. AYU(JST)	Same size as the present one.
Input/output connector (CN2)	Change to small size and pin numbers from type, AXK6 (20 pins) to type, AXK6 (10 pins).	Electrically equivalent
Circuits	Addition of circuits that are used for illumination of LED mounted on the host machine, when UGPZ6 operates on.	No affected to RF characteristics.
Antenna	Addition of following alternate component. Planar Inverted "F" type (WDAN-SCMS9004-1F) Gain: +1.59dBi	Electrically equivalent

FCC Part15.31 (e)

Host devise (ex. PC) provides the Bluetooth Transceiver Module with stable power supply (DC1.8V), and the power is not changed when voltage of the device is varied. Therefore, the equipment complies power supply regulation.

FCC Part15.203 Antenna requirement

Bluetooth Transceiver Module complies with the requirement. When it is put up for sale, one of the antennas is attached and the antenna is with a unique coupling to the intentional radiator.

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907 Kawanishi, Yamakita-machi, Ashigarakami-gun, Kanagawa-ken, 258-0124 JAPAN

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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	8.2dB (0.1607MHz, AV, Antenna: C680, Tx 2402MHz)	Complied
Carrier Frequency Separation	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247 (a)(1)	Conducted	N/A	*See data.	Complied
20dB Bandwidth	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247 (a)(1)	Conducted	N/A		Complied
Number of Hopping Frequency	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247 (a)(1)(iii)	Conducted	N/A		Complied
Dwell time	ANSI C63.4:2003 13.Measurement of intentional radiators	Section15.247 (a)(1)(iii)	Conducted	N/A		Complied
Maximum Peak Output Power	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247 (b)(1)	Conducted	N/A		Complied
Spurious Emission	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.209 Section15.247 (d)	Conducted / Radiated	N/A *1)	3.4dB (9920.00MHz, AV, Horizontal, Antenna: C680, Tx 2480MHz)	Complied

The measurements also referred to FCC Public Notice DA 00-705 "Guidance on Measurement for Frequency Hopping Spread Spectrum Systems".

* No addition, exclusion nor deviation has been made from the standard.

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3.3 Uncertainty

Conducted emission

The measurement uncertainty (with 95% confidence level) for this test is ± 2.7 dB.

The data listed in this test report has enough margin, more than site margin.

Antenna port conducted test

The measurement uncertainty (with 95% confidence level) for this test is ± 0.4 dB.

Spurious emission test (Radiated)

The measurement uncertainty (with 95% confidence level) for this test using Biconical antenna is ± 4.5 dB.

The measurement uncertainty (with 95% confidence level) for this test using Logperiodic antenna is ± 4.3 dB.

The measurement uncertainty (with 95% confidence level) for this test using Horn antenna is ± 5.2 dB.

The data listed in this report meets the limits unless the uncertainty is taken into consideration.

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		

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4 System Test Configuration

4.1 Justification

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

Test mode: Transmitting (Packet size: DH5)
- Low channel : 2402MHz
- Middle channel : 2441MHz
- High channel : 2480MHz
- Hopping
- Inquiry
- Page

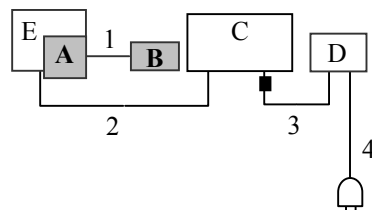
Connected antenna:

The worst-case antenna was selected from each antenna type in the granted antennas for the measurement.
Test was also performed with Model: WDAN-SCMS9004-1F which is a novel antenna.

*Remarks: Test was not performed at AFH mode, because the decrease of number of channel (min: 20ch) at AFH mode does not influence on the output power and bandwidth of the EUT.
However, the limit level 125mW of AFH mode was used for the test.

4.2 Configuration of Tested System

■: Ferrite core



* Test data was taken under worse case conditions.

AC120V/60Hz

Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	FCC ID (Remarks)
A	Bluetooth Transceiver Module	UGPZ6	4C4E20	ALPS	CWTUGPZ6 (EUT)
B	Antenna	C680	-	Wha Yu Industrial	EUT
		LDA31	-	Murata	EUT
		WDAN-SCMS9004-1F	-	HON HAI PRECISION IND. CO., LTD.	EUT
C	Notebook PC	2626-20J	AA-D1HVZ98/11	IBM	-
D	AC Adapter	83H6340	J14HC56211S	IBM	-
E	Testing Board	-	-	-	-(Test jig)

List of cables used

No.	Name	Length (m)	Shield		Remark
			Cable	Connector	
1	Antenna cable	0.08	Shielded	Shielded	Antenna: C680
		0.1	Shielded	Shielded	Antenna: LDA31
		0.1	Shielded	Shielded	Antenna: WDAN-SCMS9004-1F
2	USB cable	1.0	Shielded	Shielded	-
3	DC cable	1.8	Unshielded	Unshielded	-
4	AC cable	1.1	Unshielded	Unshielded	-

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5 Conducted Emissions

5.1 Operating environment

The test was carried out in No.1 / No.2 shielded room.

5.2 Test configuration

EUT was placed on a platform of nominal size, 1m by 1.8m, raised 80cm above the conducting ground plane. The rear of tabletop was located 40cm to the vertical conducting plane. The rear of peripherals was aligned and flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. EUT was located 80cm from a Line Impedance Stabilization Network (LISN) and excess AC cable was bundled in center. I/O cable were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane.

5.3 Test conditions

Frequency range : 0.15 - 30MHz
EUT operation mode : Transmitting

5.4 Test procedure

The EUT was connected to a LISN.

An overview sweep with peak detection has been performed.

The Conducted emission measurements were made with the following detector function of the test receiver.

Detector: QP/AV
IF Bandwidth: 9kHz

5.5 Results

Summary of the test results : Pass

Date : January 12 and February 1, 2007 Test engineer : Tatsuya Arai and Ichiro Isozaki

6 Carrier Frequency Separation

Test Procedure

The carrier frequency separation was measured with a spectrum analyzer connected to the antenna port.

Summary of the test results: Pass

Date: January 23, 2007

Test engineer : Tatsuya Arai

7 20dB Bandwidth

Test Procedure

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

Summary of the test results: Pass

Date: January 23, 2007

Test engineer : Tatsuya Arai

8 Number of Hopping Frequency

Test Procedure

The Number of Hopping Frequency was measured with a spectrum analyzer connected to the antenna port.

Summary of the test results: Pass

Date: January 23, 2007

Test engineer : Tatsuya Arai

9 Dwell time

Test Procedure

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

Summary of the test results: Pass

Date: January 23, 2007

Test engineer : Tatsuya Arai

10 Maximum Peak Output Power

Test Procedure

The Maximum Peak Output Power was measured with a power meter connected to the antenna port.

Summary of the test results: Pass

Date: January 23, 2007

Test engineer : Tatsuya Arai

11 Out of Band Emissions (Antenna Port Conducted)

Test Procedure

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

Summary of the test results: Pass

Date: January 23, 2007

Test engineer : Tatsuya Arai

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YAMAKITA EMC LAB.

907 Kawanishi, Yamakita-machi, Ashigarakami-gun, Kanagawa-ken, 258-0124 JAPAN

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Facsimile: +81 465 77 2112

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12 Out of Band Emissions (Radiated)

12.1 Operating environment

The test was carried out in No.1 anechoic chamber.

12.2 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.

12.3 Test conditions

Frequency range : 30MHz - 26GHz
 Test distance : 3m
 EUT operation mode : Transmitting

12.4 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.

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

The equipment and its antenna were previously checked at each position of three axes X, Y and Z. The position in which the maximum noise occurred was chosen to put into measurement. See the table below and photographs in page 13 to 16. With the position, the noise levels of all the frequencies were measured.

Combinations of the worst case

Model	Worst position	
	Below 1GHz	Above 1GHz
Module (UGPZ6)	Horizontal: Y, Vertical: X	Horizontal: Y, Vertical: X
Antenna (C680)	Horizontal: X, Vertical: Z	Horizontal: X, Vertical: Z
Antenna (LDA31)	Horizontal: X, Vertical: Y	Horizontal: X, Vertical: Y
Antenna (WDAN-SCMS9004-1F)	Horizontal: Z, Vertical: X	Horizontal: Y, Vertical: Z

12.5 Results

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

Date: January 11, 12 and 20, 2007

Test engineer : Tatsuya Arai and Toyokazu Imamura

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YAMAKITA EMC LAB.

907 Kawanishi, Yamakita-machi, Ashigarakami-gun, Kanagawa-ken, 258-0124 JAPAN

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APPENDIX 1: Photographs of test setup

Page 11	:	Conducted emission
Page 12	:	Radiated emission
Page 13 - 16	:	Pre check of worse-case position

APPENDIX 2: Test Data

Page 17 - 31	:	Conducted emission
Page 32	:	Carrier Frequency Separation
Page 33	:	20dB Bandwidth
Page 34 - 36	:	Number of Hopping Frequency
Page 37 - 42	:	Dwell time
Page 43	:	Maximum Peak Output Power
Page 44 - 49	:	Out of Band Emissions (Antenna Port Conducted)
Page 50 - 76	:	Out of Band Emissions (Radiated)
50-58	:	Antenna: C680
59-67	:	Antenna: LDA31
68-76	:	Antenna: WDAN-SCMS9004-1F
Page 77 - 78	:	Occupied Bandwidth

APPENDIX 3: Test instruments

Page 79	:	Test instruments
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Conducted emission



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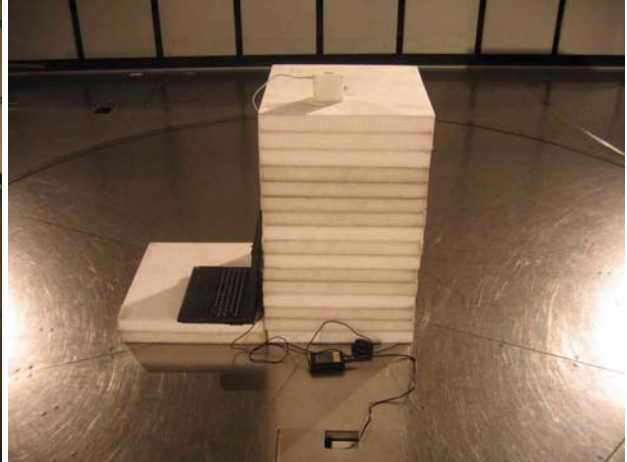
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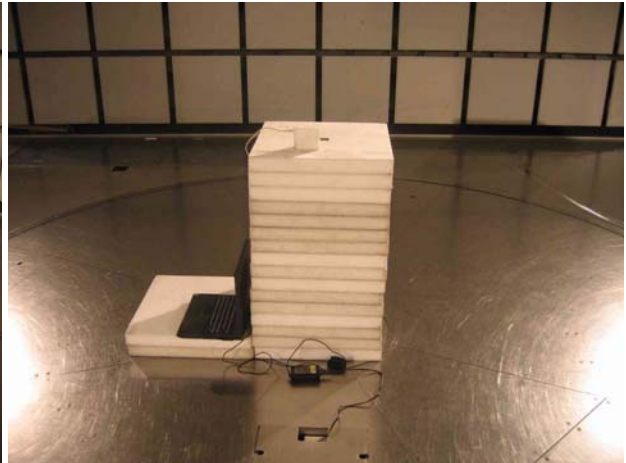
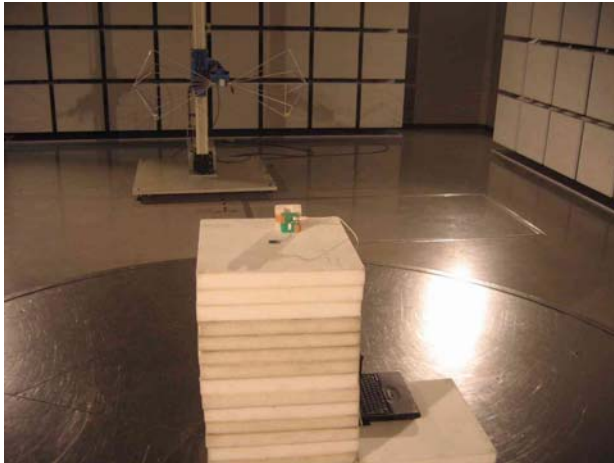
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Radiated emission

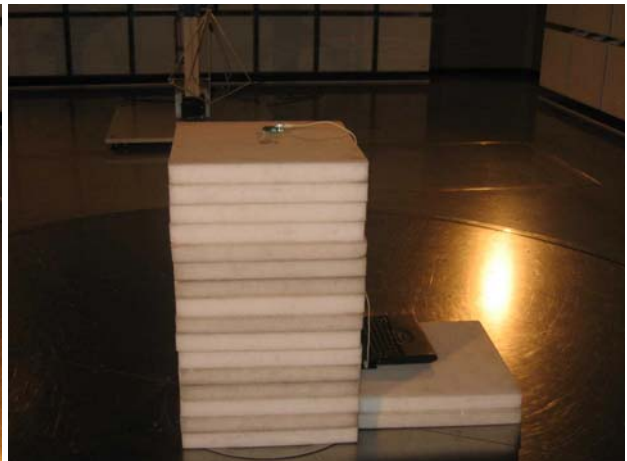
Antenna: C680



Antenna: LDA31



Antenna: WDAN-SCMS9004-1F



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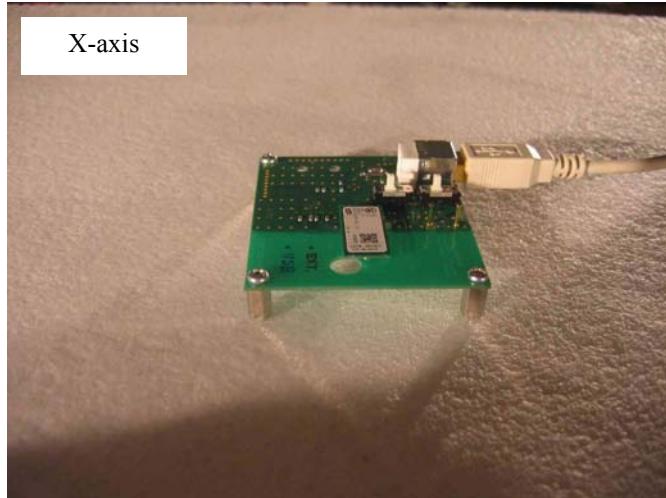
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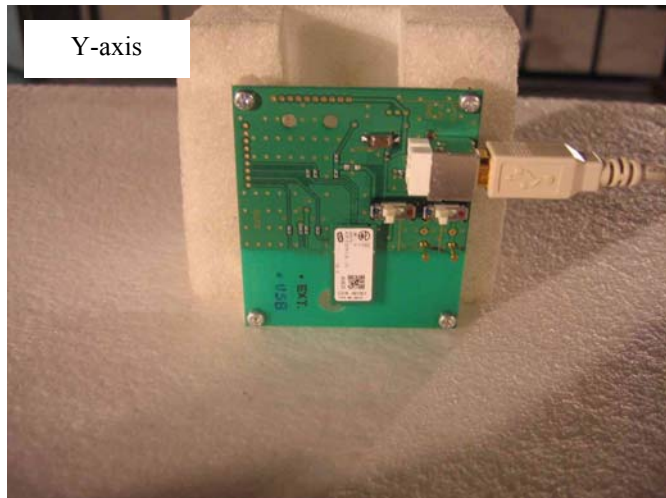
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Pre check of worse-case position (Module)

X-axis



Y-axis



Z-axis



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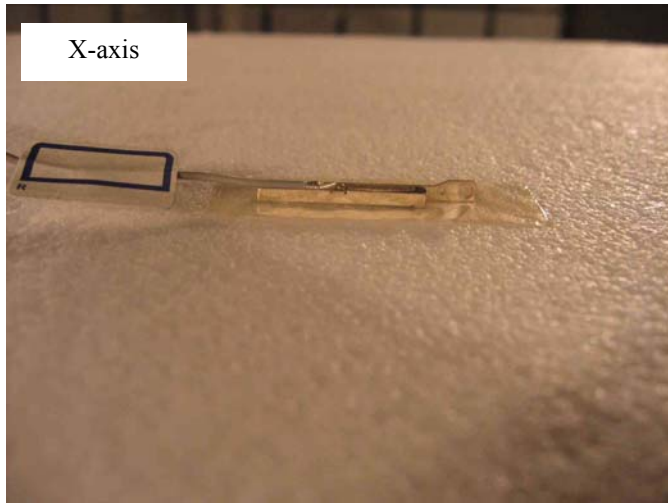
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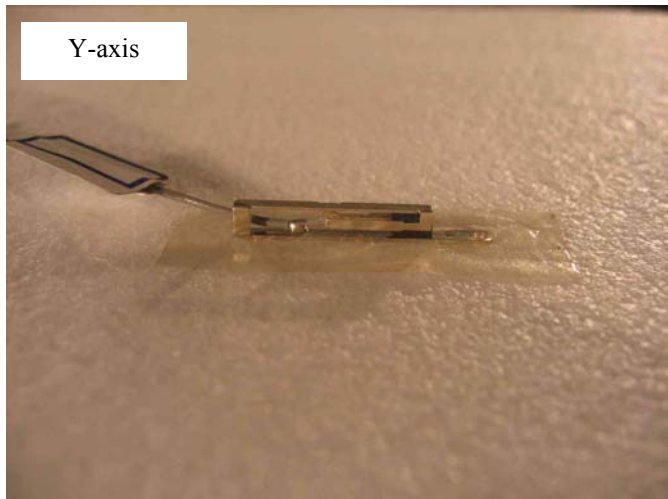
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Pre check of worse-case position (Antenna: C680)

X-axis



Y-axis

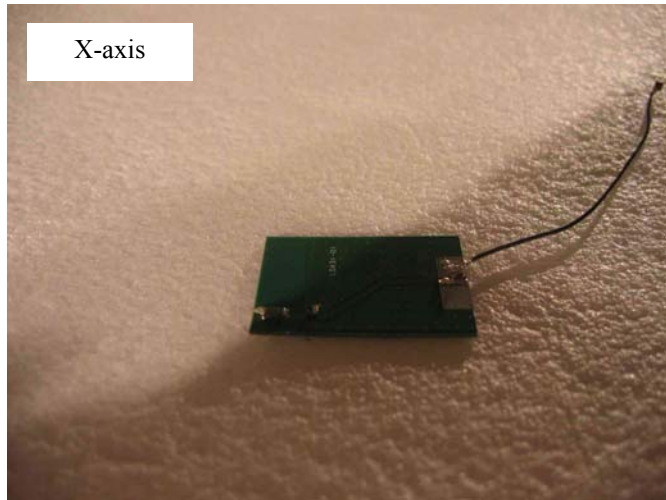


Z-axis

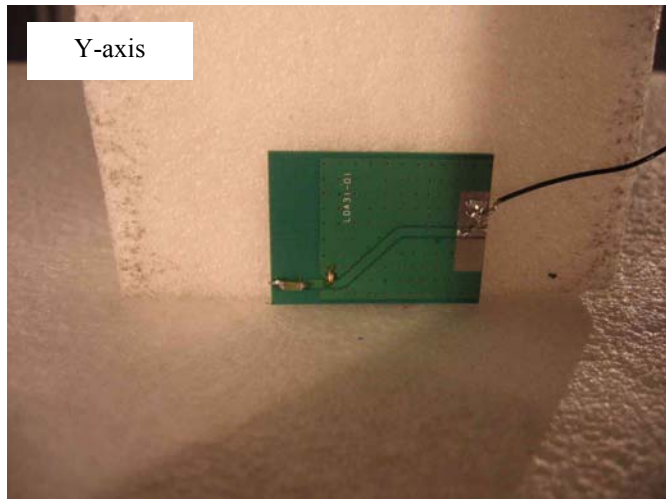


Pre check of worse-case position (Antenna: LDA31)

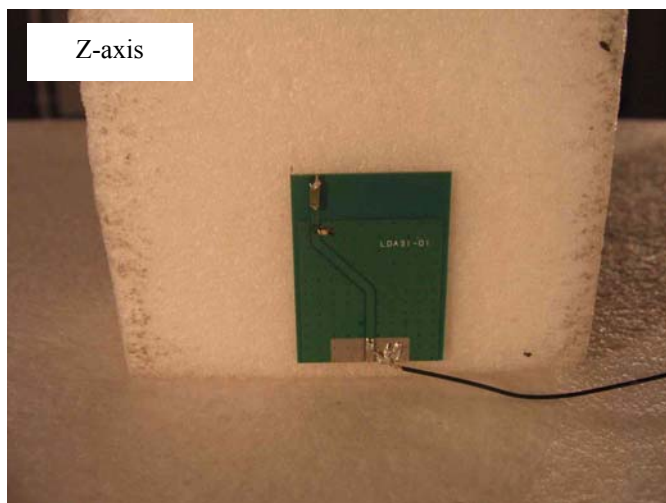
X-axis



Y-axis



Z-axis



Pre check of worse-case position (Antenna: WDAN-SCMS9004-1F)

X-axis



Y-axis



Z-axis



DATA OF CONDUCTION TEST

UL Apex Co.,Ltd.
YAMAKITA No.1 SHIELD ROOM
Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V (AC120V/60Hz)
Mode : Tx:2402MHz
Remarks : ANT:C680
Date : 1/12/2007
Phase : Single Phase
Temperature : 26 °C
Humidity : 34 %
Regulation : FCC Part15C § 15.207. (CISPR Pub. 22)

Engineer : Tatsuya Arai

No.	FREQ. [MHz]	READING (N)		READING (L1)		LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
		QP [dB μV]	AV [dB μV]	QP [dB μV]	AV [dB μV]				QP [dB]	AV [dB μV]	QP [dB μV]	AV [dB μV]	QP [dB]	AV [dB]
1.	0.1607	50.0	47.0	49.7	45.3	0.1	0.1	0.0	50.2	47.2	65.4	55.4	15.2	8.2
2.	0.2163	42.7	31.7	42.5	30.7	0.1	0.1	0.0	42.9	31.9	63.0	53.0	20.1	21.1
3.	0.3138	34.5	-	34.5	-	0.1	0.1	0.0	34.7	-	59.9	49.9	25.2	-
4.	1.0152	27.2	-	28.0	-	0.1	0.2	0.0	28.3	-	56.0	46.0	27.7	-
5.	2.5309	30.1	-	30.8	-	0.1	0.4	0.0	31.3	-	56.0	46.0	24.7	-
6.	13.6896	28.9	-	28.3	-	0.3	1.3	0.0	30.5	-	60.0	50.0	29.5	-

CALCULATION: READING + LISN FACTOR + CABLE LOSS + ATTEN.

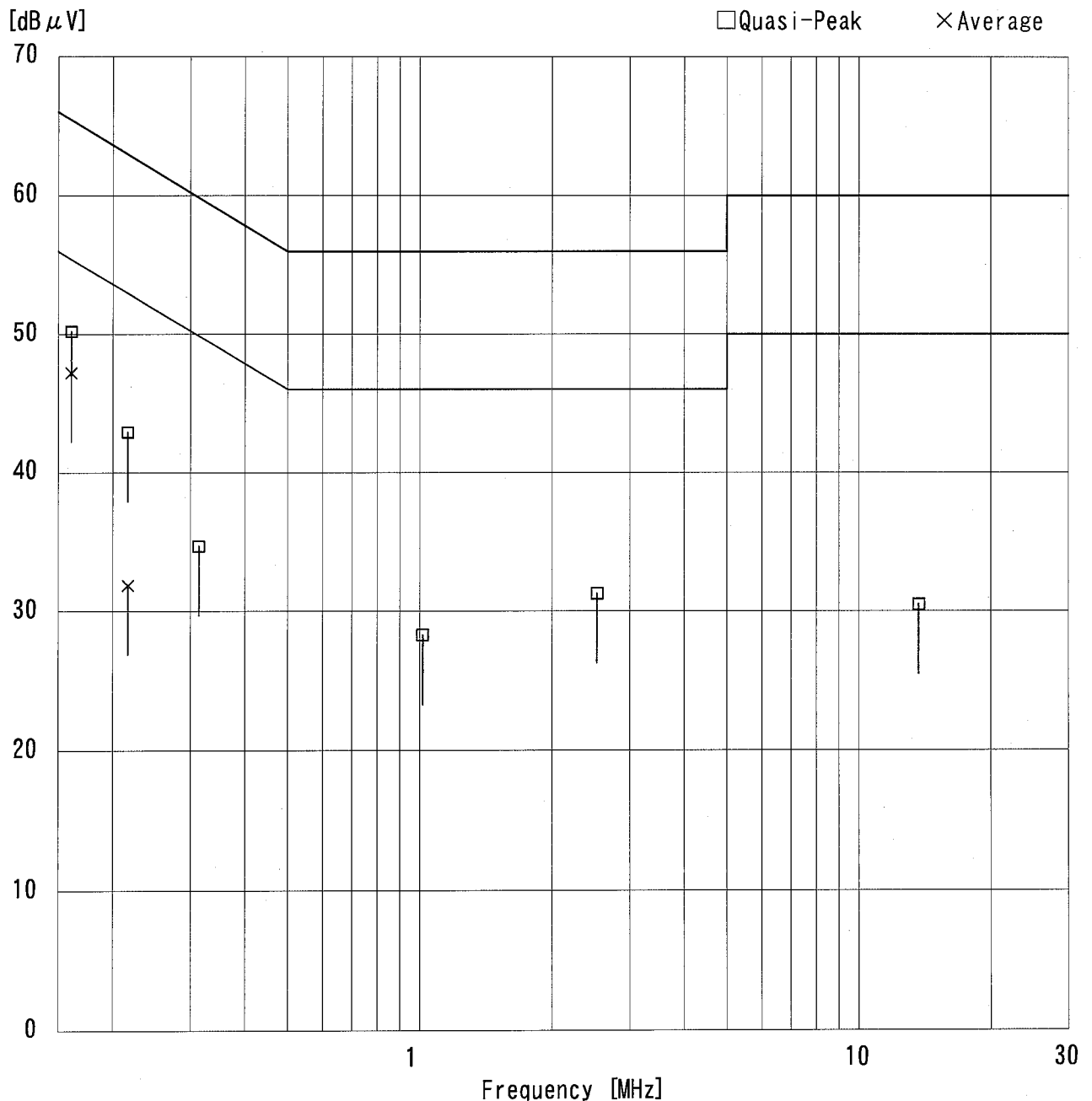
■ LISN : KLS-02 (NSLK8127) ■ COAXIAL CABLE : KCC-14/15/16/18
■ PULSE LIMITTER : KPL-01 (PL01) ■ EMI RECEIVER : KTR-02 (ESCS30)

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Date : 1/12/2007
Phase : Single Phase
Temperature : 26 °C
Humidity : 34 %
Regulation : FCC Part15C § 15.207. (CISPR Pub. 22)

Engineer : Tatsuya Arai



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DATA OF CONDUCTION TEST CHART

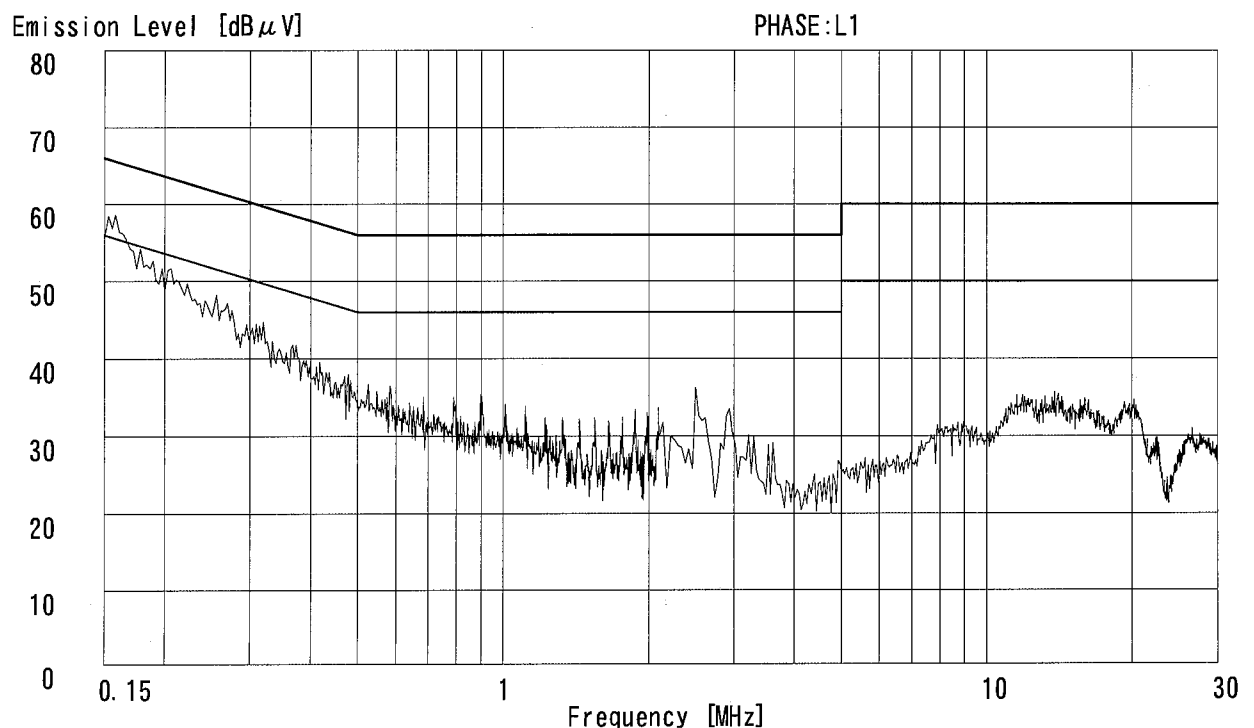
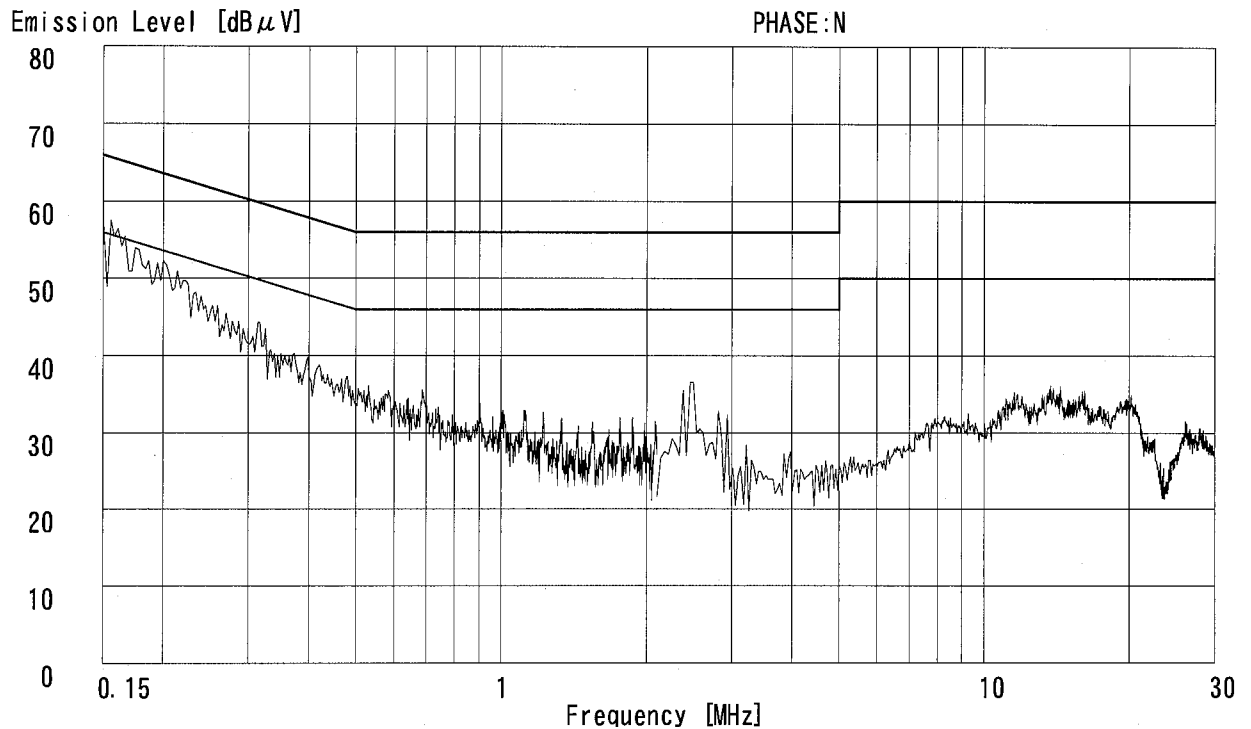
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Serial No. : 4C4E20
Power : DC3.3V (AC120V/60Hz)
Mode : Tx:2402MHz
Remarks : ANT:C680
Date : 1/12/2007
Phase : Single Phase
Temperature : 26 °C
Humidity : 34 %
Regulation 1 : FCC Part15C § 15. 207. (CISPR Pub. 22)
Regulation 2 : None

Engineer : Tatsuya Arai



Page:

DATA OF CONDUCTION TEST CHART

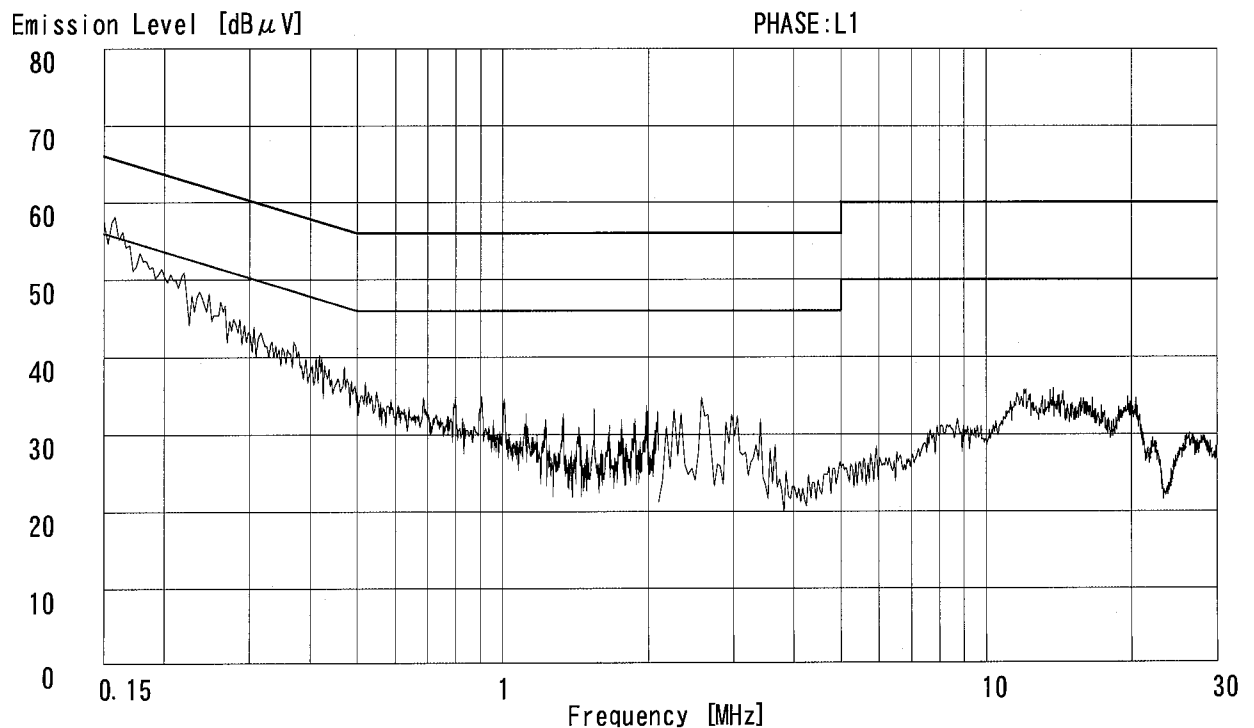
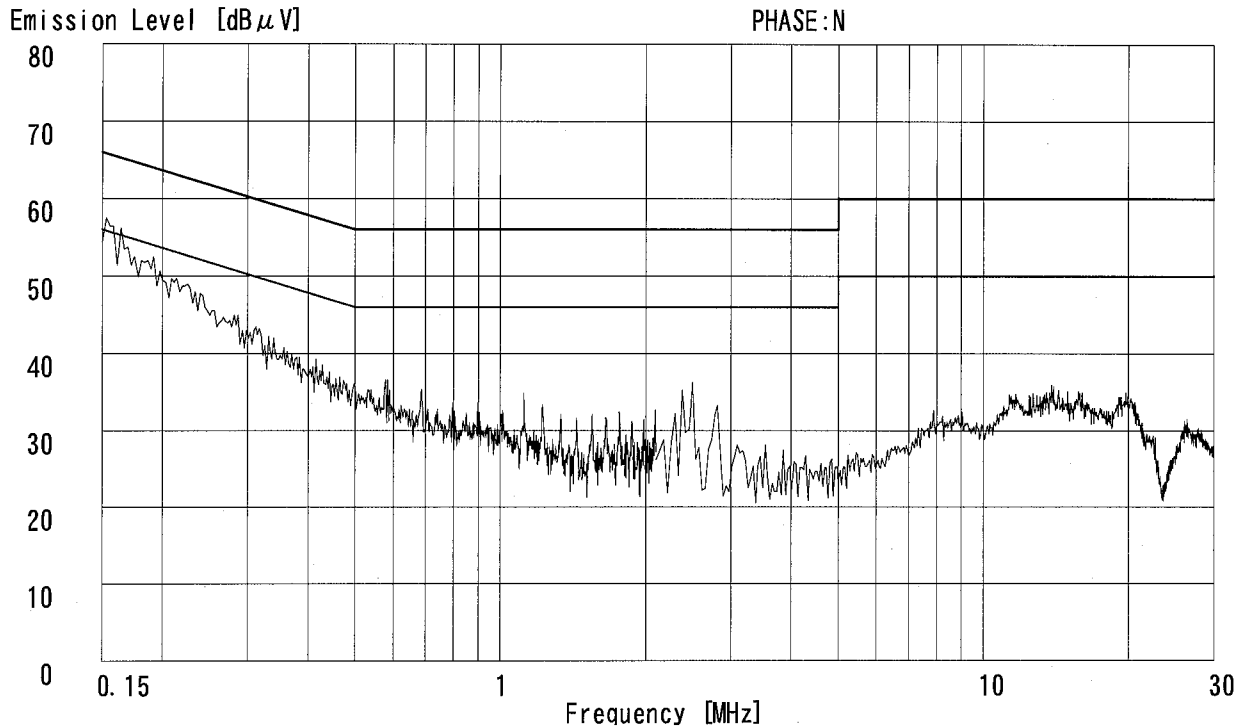
UL Apex Co.,Ltd.

YAMAKITA No.1 SHIELD ROOM

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co.,Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V (AC120V/60Hz)
Mode : Tx:2441MHz
Remarks : ANT:C680
Date : 1/12/2007
Phase : Single Phase
Temperature : 26 °C
Humidity : 34 %
Regulation 1 : FCC Part15C § 15. 207. (CISPR Pub. 22)
Regulation 2 : None

Engineer : Tatsuya Arai



Page:

DATA OF CONDUCTION TEST CHART

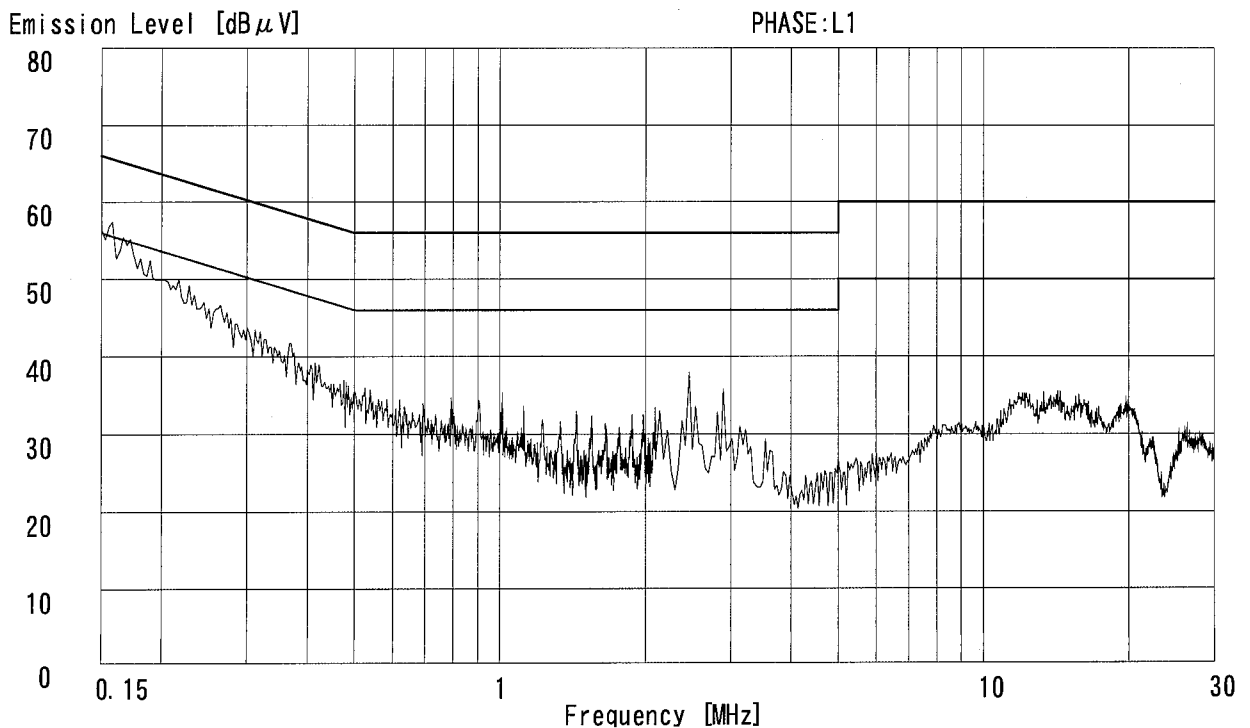
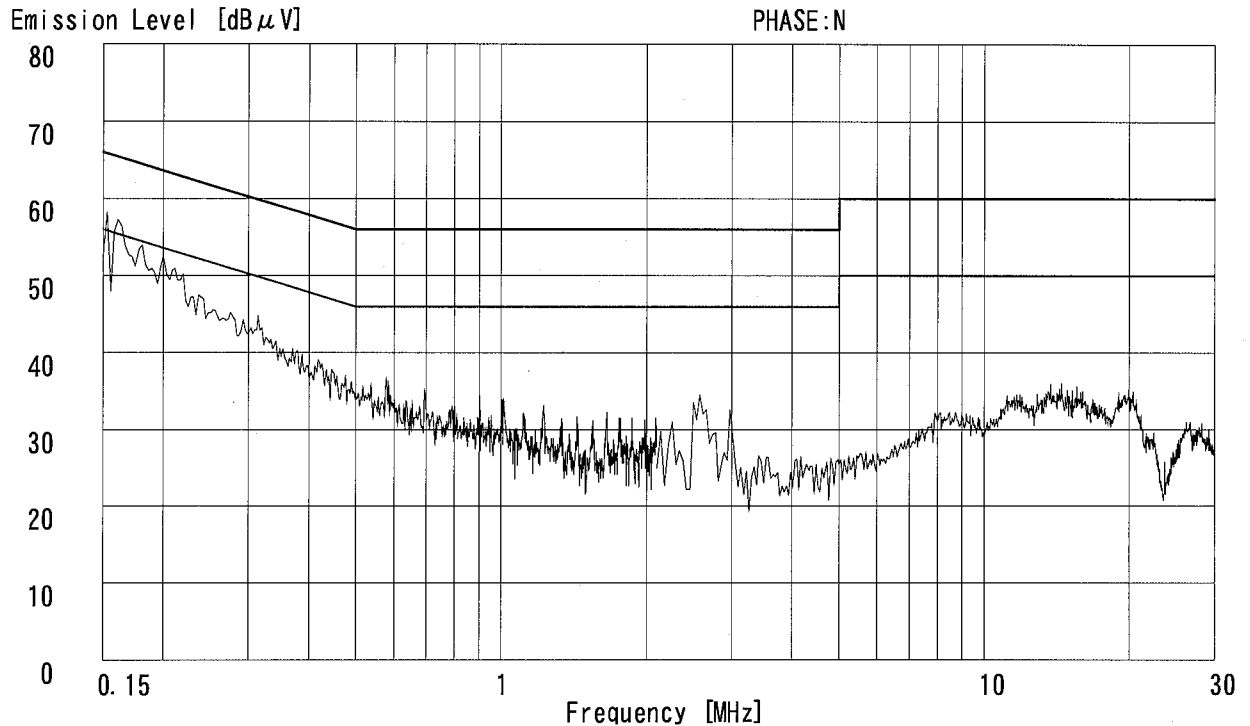
UL Apex Co.,Ltd.

YAMAKITA No.1 SHIELD ROOM

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co.,Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V (AC120V/60Hz)
Mode : Tx:2480MHz
Remarks : ANT:C680
Date : 1/12/2007
Phase : Single Phase
Temperature : 26 °C
Humidity : 34 %
Regulation 1 : FCC Part15C § 15.207. (CISPR Pub. 22)
Regulation 2 : None

Engineer : Tatsuya Arai



Page:

DATA OF CONDUCTION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 SHIELD ROOM

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V (AC120V/60Hz)
Mode : Tx:2402MHz
Remarks : ANT:LDA31
Date : 1/12/2007
Phase : Single Phase
Temperature : 26 °C
Humidity : 34 %
Regulation : FCC Part15C § 15.207. (CISPR Pub. 22)
Engineer : Tatsuya Arai

No.	FREQ. [MHz]	READING (N)		READING (L1)		LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
		QP [dB μV]	AV [dB μV]	QP [dB μV]	AV [dB μV]				QP [dB]	AV [dB μV]	QP [dB μV]	AV [dB μV]	QP [dB]	AV [dB]
1.	0.1595	50.1	46.9	49.1	44.9	0.1	0.1	0.0	50.3	47.1	65.5	55.5	15.2	8.4
2.	0.2141	42.4	30.8	43.6	31.3	0.1	0.1	0.0	43.8	31.5	63.0	53.0	19.2	21.5
3.	0.3209	35.6	-	34.7	-	0.1	0.2	0.0	35.9	-	59.7	49.7	23.8	-
4.	1.0199	27.1	-	28.8	-	0.1	0.2	0.0	29.1	-	56.0	46.0	26.9	-
5.	2.5300	28.1	-	30.1	-	0.1	0.4	0.0	30.6	-	56.0	46.0	25.4	-
6.	13.6883	28.7	-	28.2	-	0.3	1.3	0.0	30.3	-	60.0	50.0	29.7	-

CALCULATION: READING + LISN FACTOR + CABLE LOSS + ATTEN.

■ LISN : KLS-02 (NSLK8127) ■ COAXIAL CABLE : KCC-14/15/16/18
■ PULSE LIMITTER : KPL-01 (PL01) ■ EMI RECEIVER : KTR-02 (ESCS30)

DATA OF CONDUCTION TEST

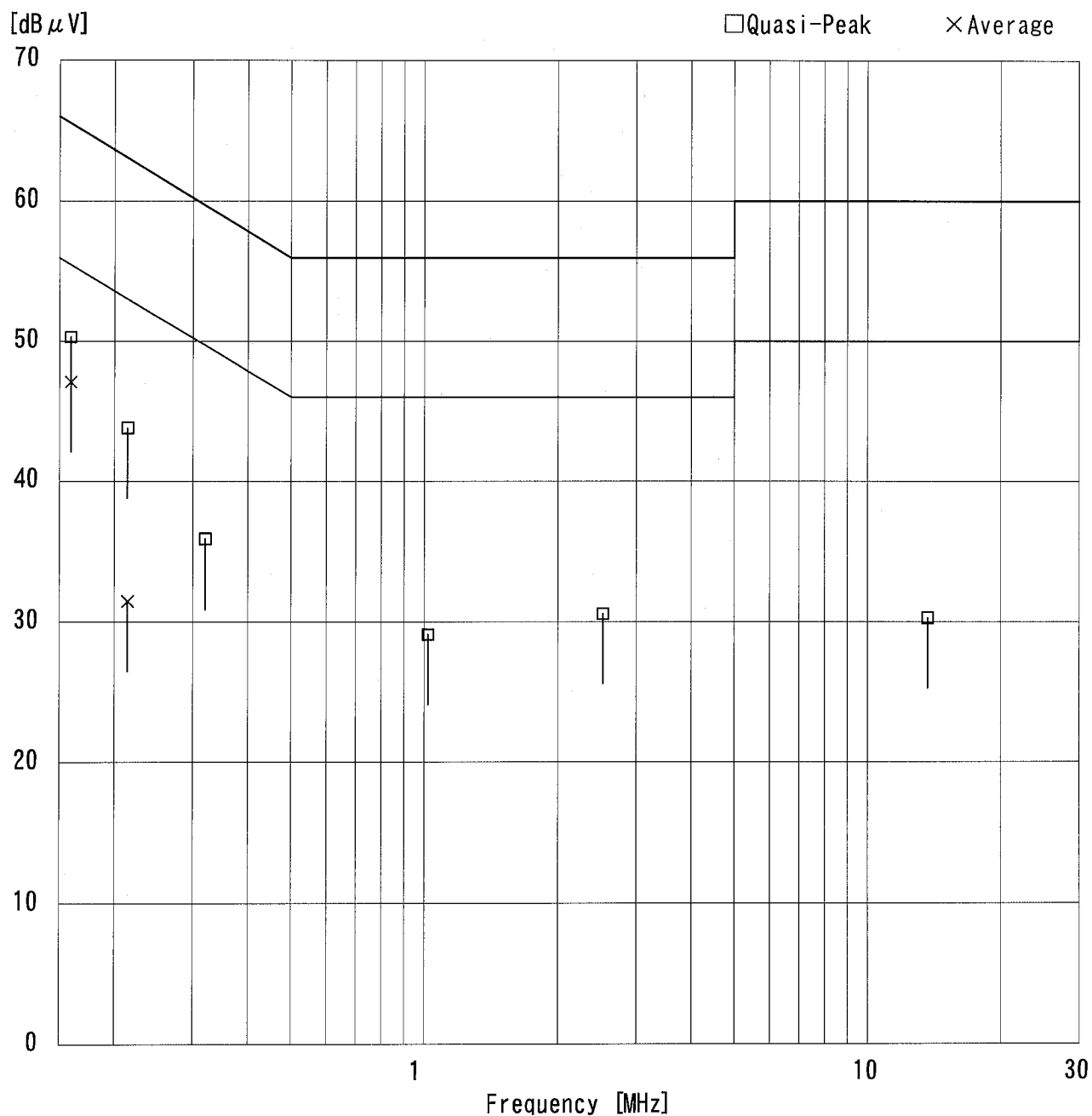
UL Apex Co.,Ltd.

YAMAKITA No.1 SHIELD ROOM

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V (AC120V/60Hz)
Mode : Tx:2402MHz
Remarks : ANT:LDA31
Date : 1/12/2007
Phase : Single Phase
Temperature : 26 °C
Humidity : 34 %
Regulation : FCC Part15C § 15. 207. (CISPR Pub. 22)

Engineer : Tatsuya Arai



DATA OF CONDUCTION TEST CHART

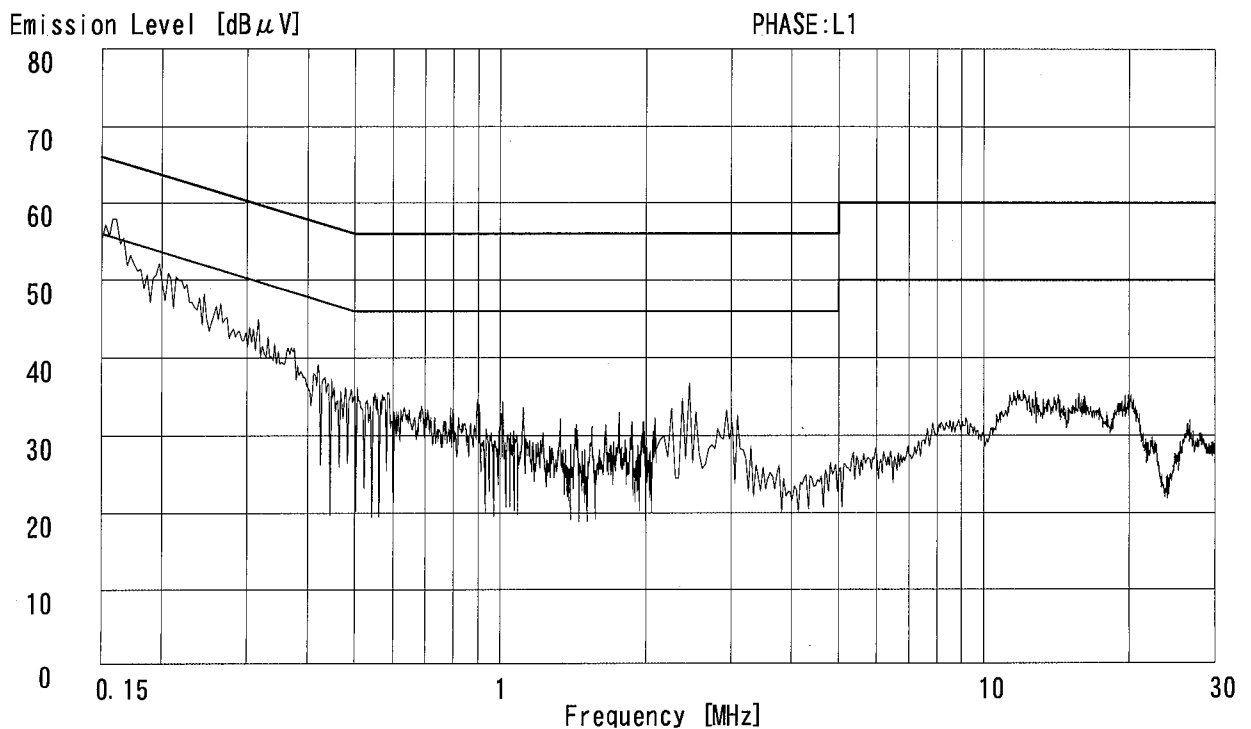
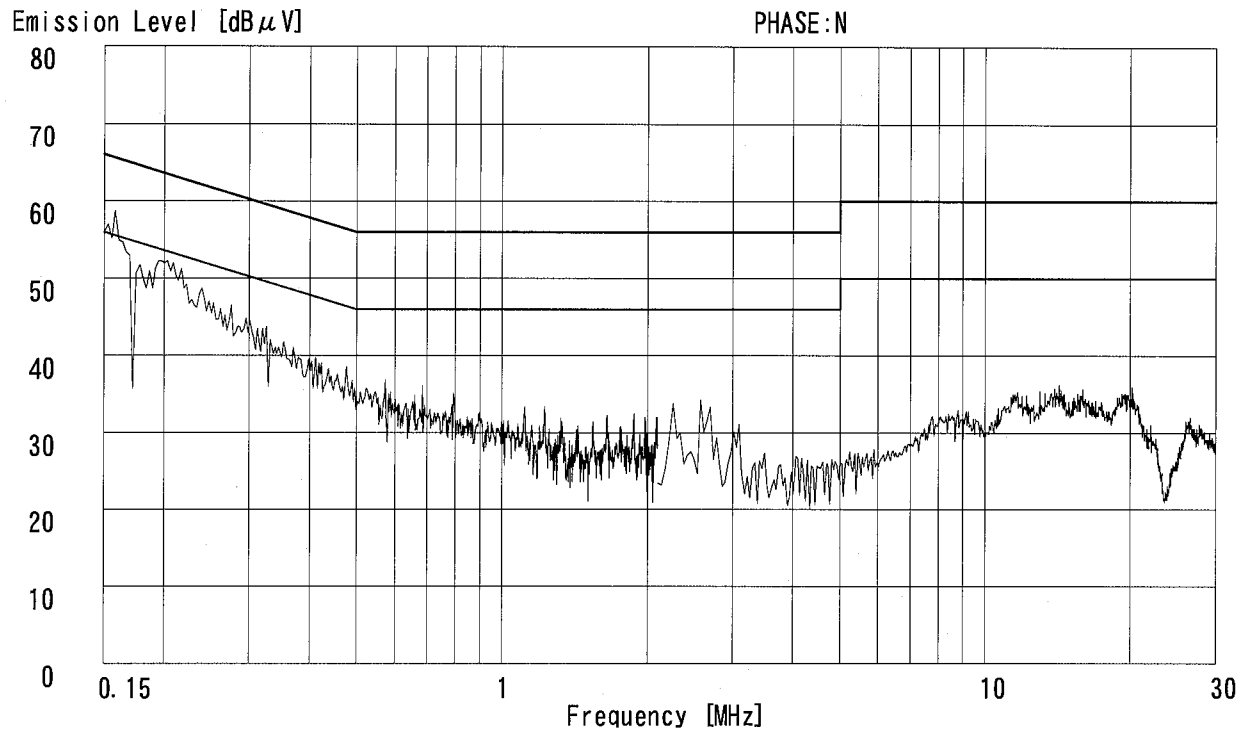
UL Apex Co.,Ltd.

YAMAKITA No.1 SHIELD ROOM

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V (AC120V/60Hz)
Mode : Tx:2402MHz
Remarks : ANT:LDA31
Date : 1/12/2007
Phase : Single Phase
Temperature : 26 °C
Humidity : 34 %
Regulation 1 : FCC Part15C §15.207. (CISPR Pub. 22)
Regulation 2 : None

Engineer : Tatsuya Arai



Page:

DATA OF CONDUCTION TEST CHART

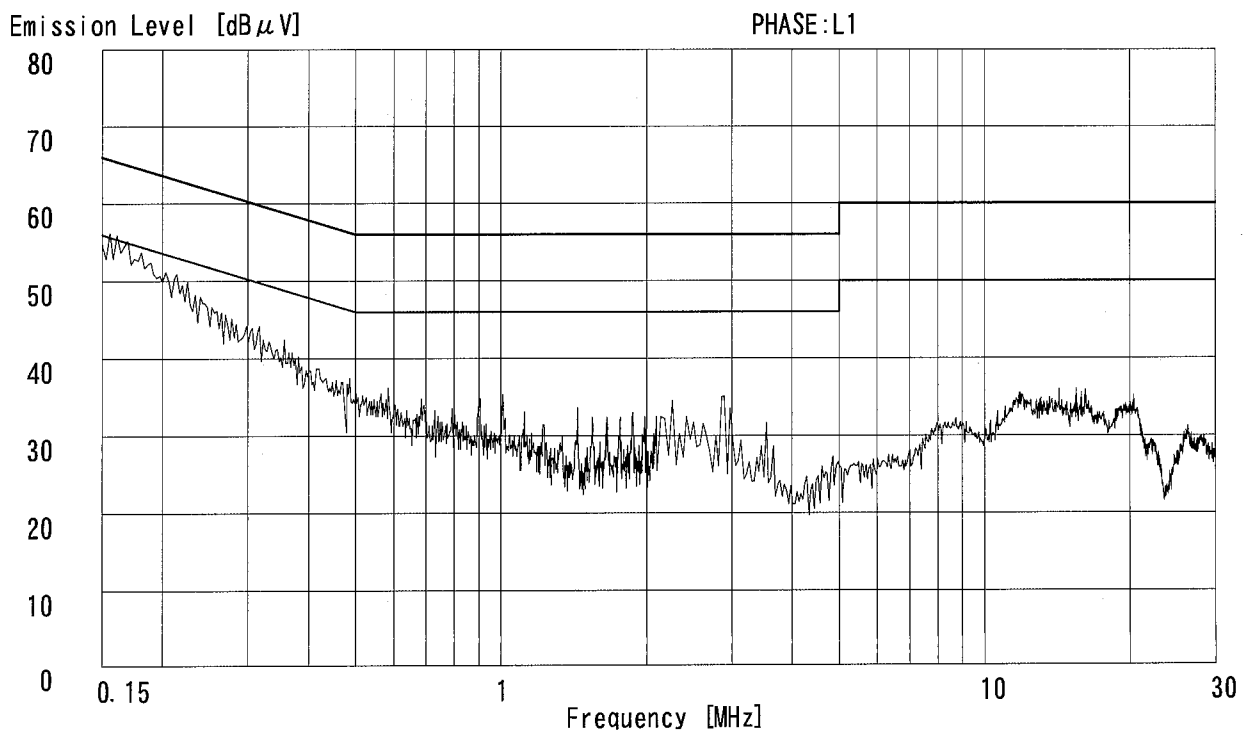
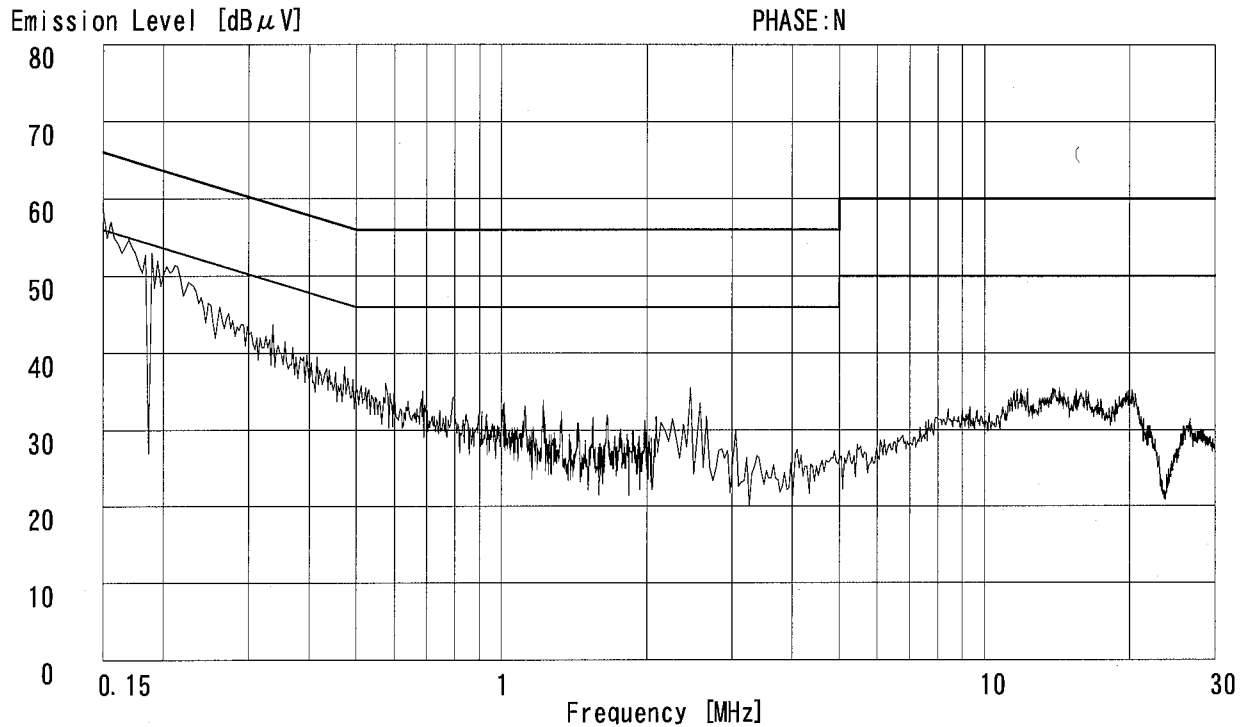
UL Apex Co.,Ltd.

YAMAKITA No.1 SHIELD ROOM

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V (AC120V/60Hz)
Mode : Tx:2441MHz
Remarks : ANT:LDA31
Date : 1/12/2007
Phase : Single Phase
Temperature : 26 °C
Humidity : 34 %
Regulation 1 : FCC Part15C § 15.207. (CISPR Pub. 22)
Regulation 2 : None

Engineer : Tatsuya Arai



Page:

DATA OF CONDUCTION TEST CHART

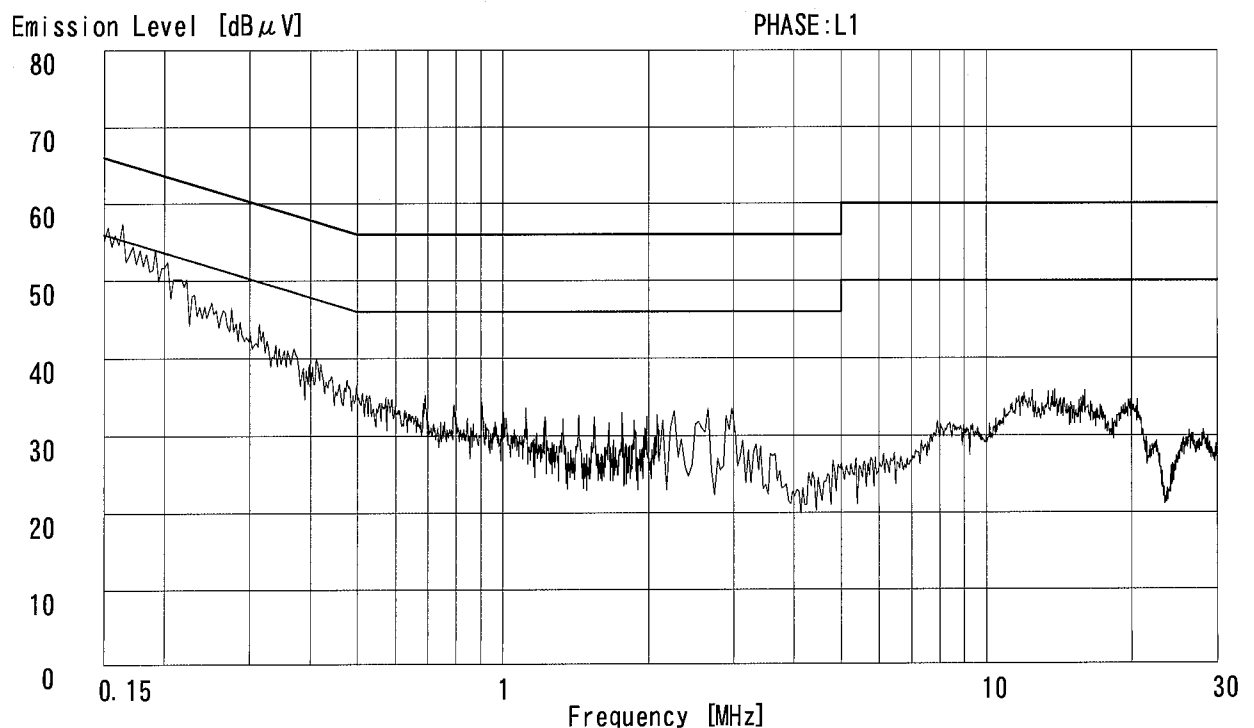
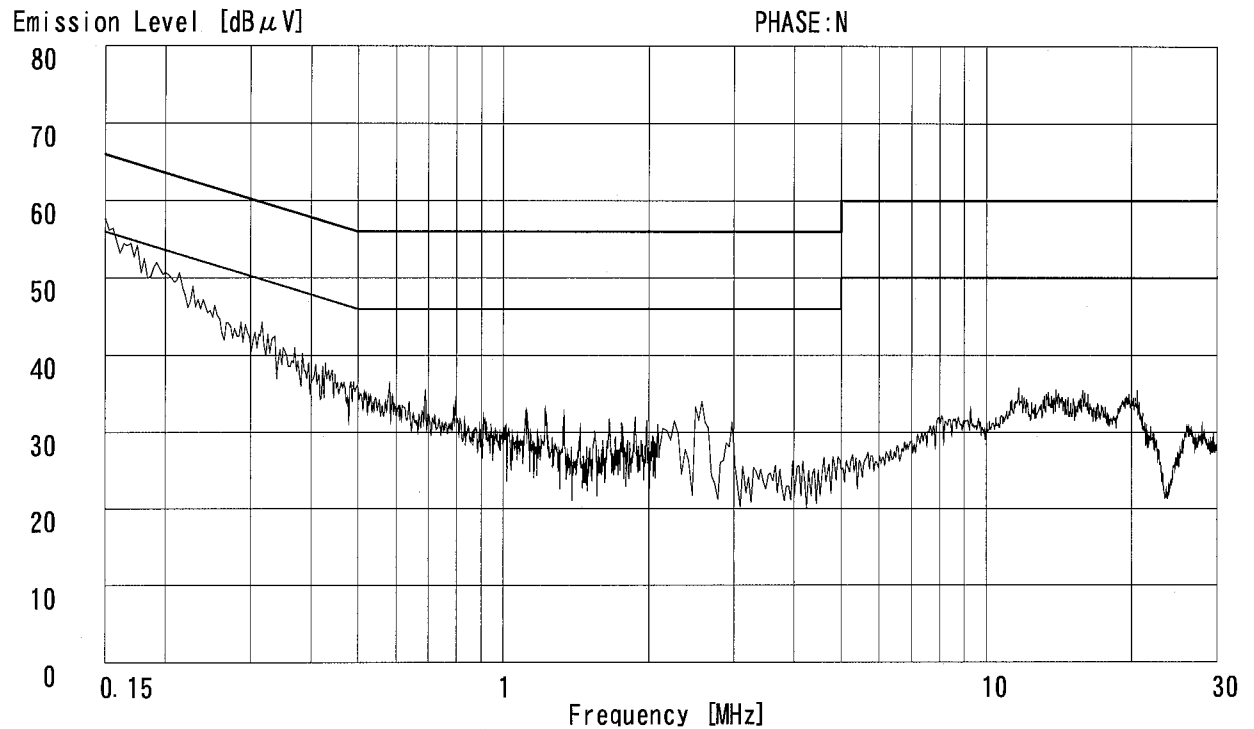
UL Apex Co.,Ltd.

YAMAKITA No.1 SHIELD ROOM

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V (AC120V/60Hz)
Mode : Tx:2480MHz
Remarks : ANT:LDA31
Date : 1/12/2007
Phase : Single Phase
Temperature : 26 °C
Humidity : 34 %
Regulation 1 : FCC Part15C § 15.207. (CISPR Pub. 22)
Regulation 2 : None

Engineer : Tatsuya Arai



Page:

DATA OF CONDUCTION TEST

UL Apex Co.,Ltd.
YAMAKITA No.2 SHIELD ROOM
Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co.,Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V (AC120V/60Hz)
Mode : Tx:2402MHz
Remarks : ANT:WDAN-SCMS9004-1F
Date : 2/1/2007
Phase : Single Phase
Temperature : 24 °C
Humidity : 31 %
Regulation : FCC Part15C § 15.207. (CISPR Pub. 22)

Engineer : Ichiro Isozaki

No.	FREQ. [MHz]	READING (N)		READING (L1)		LISN FACTOR [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS		MARGIN	
		QP [dB μ V]	AV [dB μ V]	QP [dB μ V]	AV [dB μ V]				QP [dB]	AV [dB μ V]	QP [dB μ V]	AV [dB μ V]	QP [dB]	AV [dB]
1.	0.1593	48.3	44.6	47.1	44.2	0.1	0.1	0.0	48.5	44.8	65.5	55.5	17.0	10.7
2.	0.2672	39.3	-	36.9	-	0.1	0.1	0.0	39.5	-	61.2	51.2	21.7	-
3.	0.5370	26.7	-	25.9	-	0.1	0.1	0.0	26.9	-	56.0	46.0	29.1	-
4.	2.6266	27.9	-	28.0	-	0.1	0.2	0.0	28.3	-	56.0	46.0	27.7	-
5.	4.9822	36.8	28.7	36.9	28.8	0.2	0.3	0.0	37.4	29.3	56.0	46.0	18.6	16.7
6.	5.7315	37.4	-	37.3	-	0.3	0.3	0.0	38.0	-	60.0	50.0	22.0	-
7.	14.0870	34.3	-	35.0	-	0.6	0.5	0.0	36.1	-	60.0	50.0	23.9	-

CALCULATION: READING + LISN FACTOR + CABLE LOSS + ATTEN.

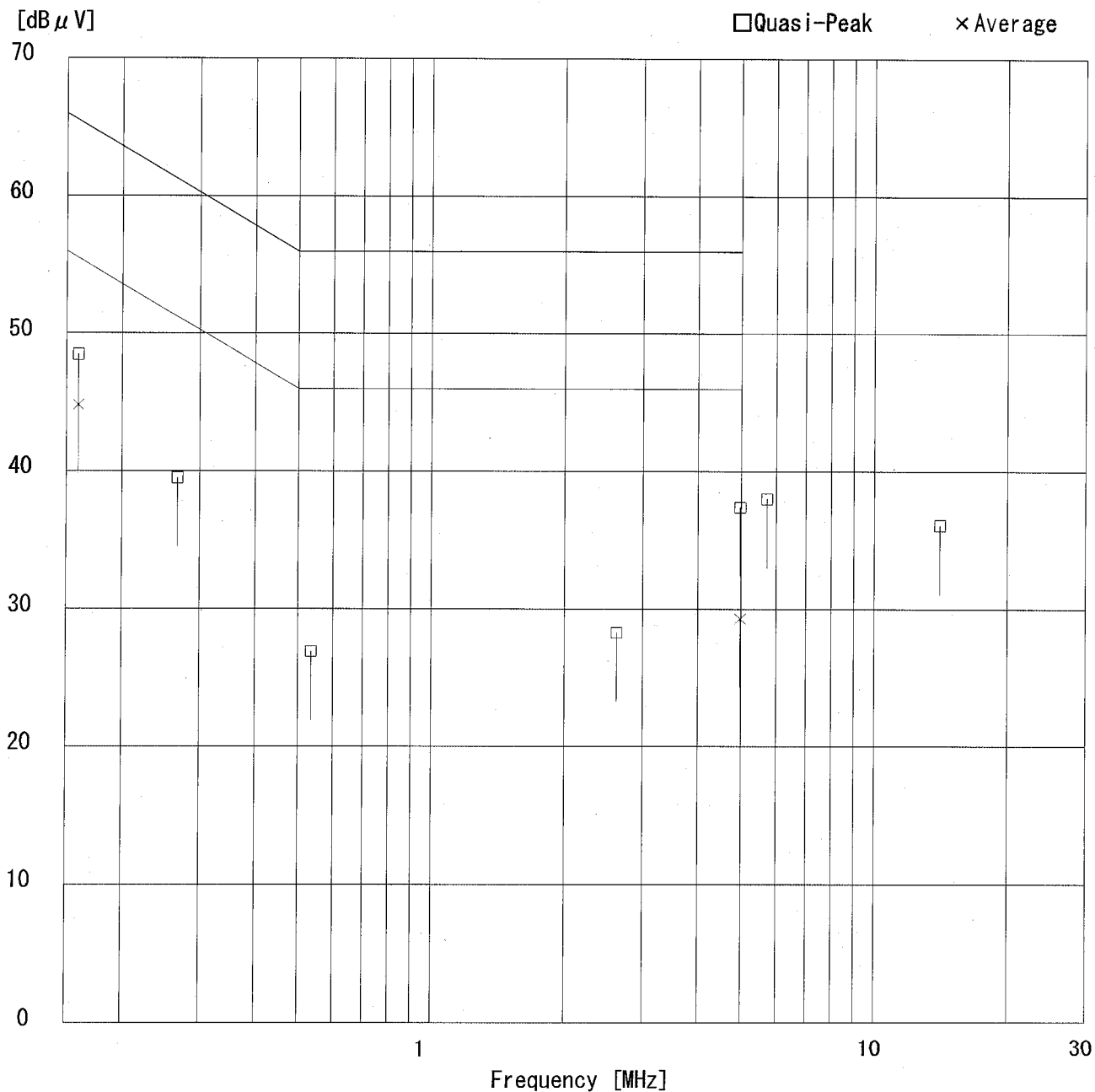
■ LISN: KLS-01 (NSLK8126) ■ COAXIAL CABLE: KCC-33/34
■ EMI RECEIVER: KTR-R1 (ESS)

DATA OF CONDUCTION TEST

UL Apex Co.,Ltd.
YAMAKITA No.2 SHIELD ROOM
Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co.,Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V (AC120V/60Hz)
Mode : Tx:2402MHz
Remarks : ANT:WDAN-SCMS9004-1F
Date : 2/1/2007
Phase : Single Phase
Temperature : 24 °C
Humidity : 31 %
Regulation : FCC Part15C § 15.207. (CISPR Pub.22)

Engineer : Ichiro Isozaki



DATA OF CONDUCTION TEST CHART

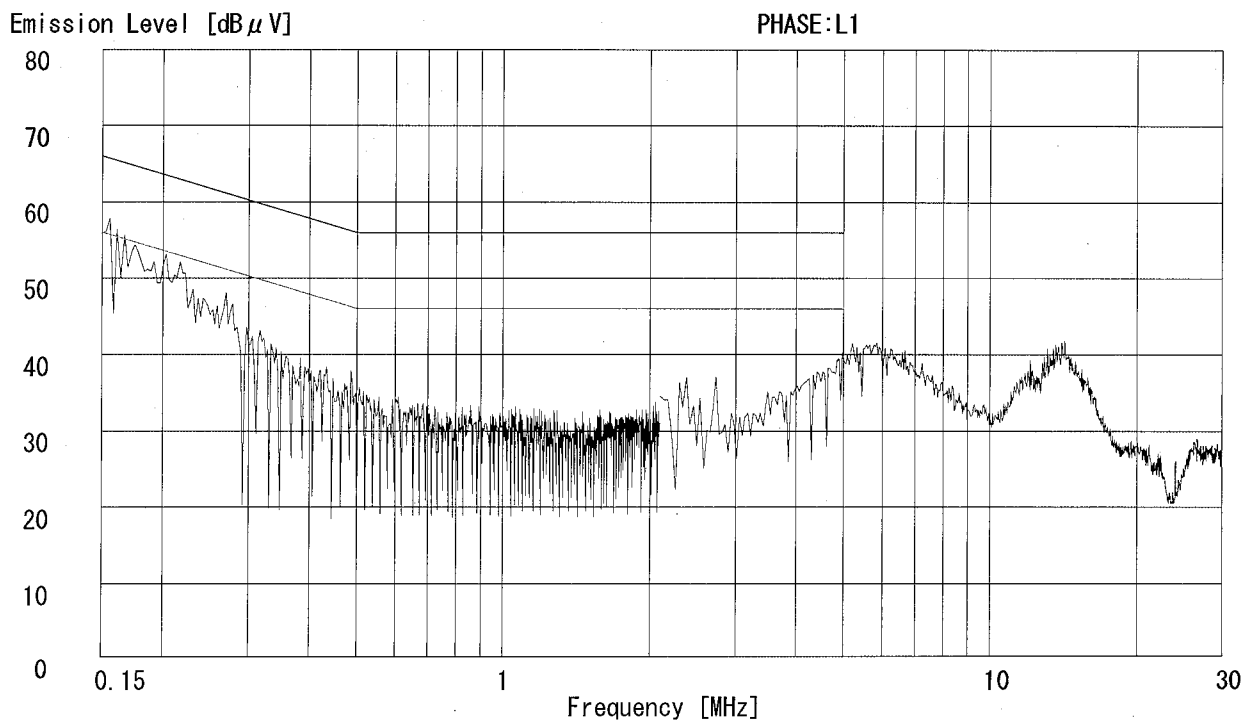
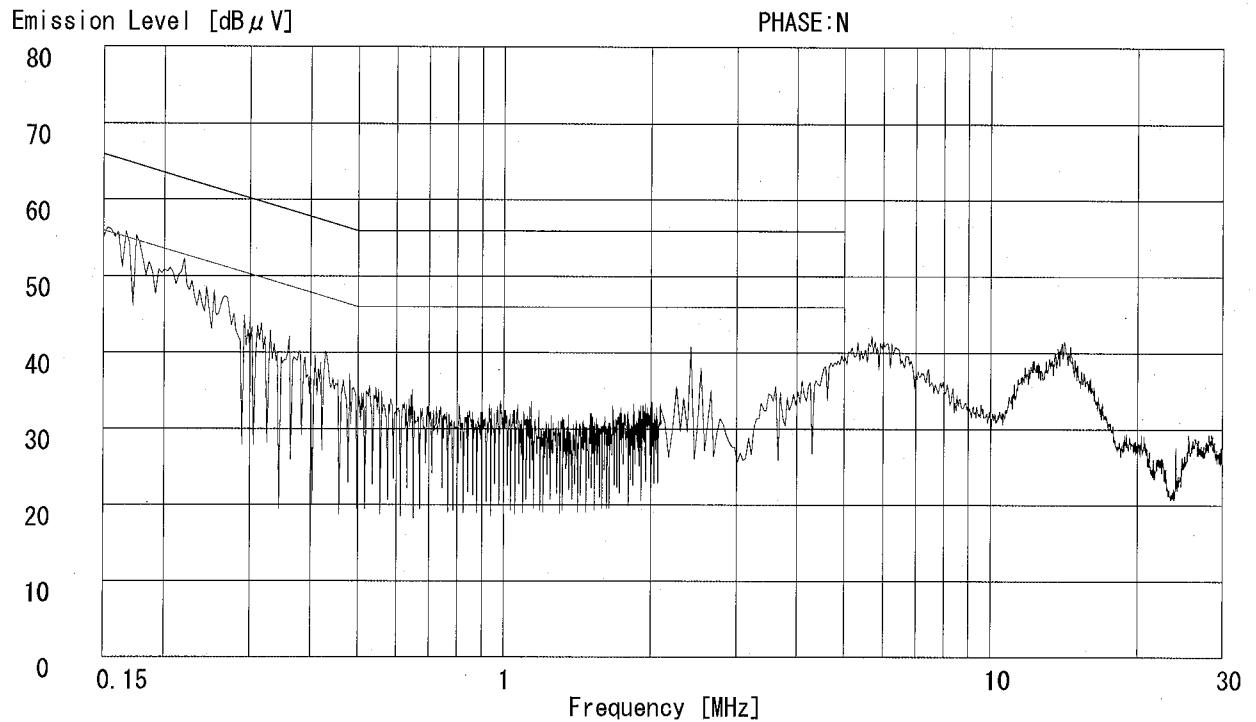
UL Apex Co.,Ltd.

YAMAKITA No.2 SHIELD ROOM

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co.,Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V(AC120V/60Hz)
Mode : Tx:2402MHz
Remarks : ANT:WDAN-SCMS9004-1F
Date : 2/1/2007
Phase : Single Phase
Temperature : 24 °C
Humidity : 31 %
Regulation 1 : FCC Part15C § 15.207. (CISPR Pub.22)
Regulation 2 : None

Engineer : Ichiro Isozaki



DATA OF CONDUCTION TEST CHART

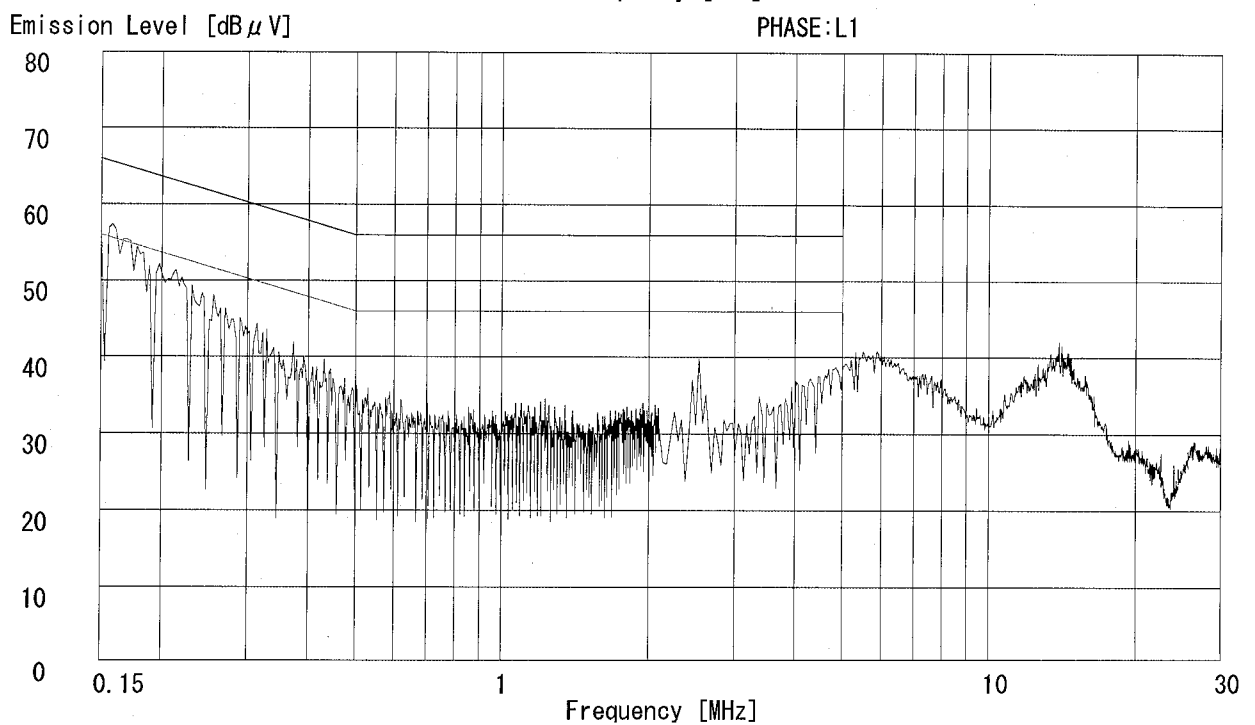
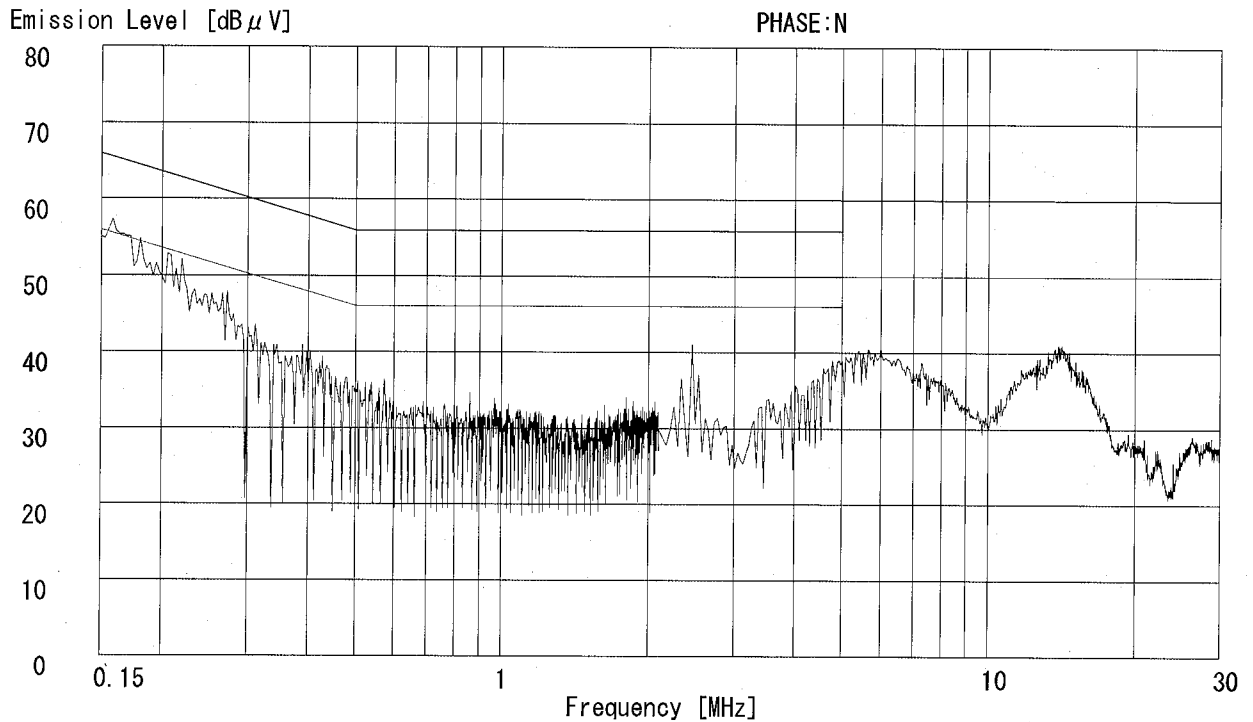
UL Apex Co.,Ltd.

YAMAKITA No.2 SHIELD ROOM

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co.,Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V (AC120V/60Hz)
Mode : Tx:2441MHz
Remarks : ANT:WDAN-SCMS9004-1F
Date : 2/1/2007
Phase : Single Phase
Temperature : 24 °C
Humidity : 31 %
Regulation 1 : FCC Part15C § 15.207. (CISPR Pub. 22)
Regulation 2 : None

Engineer : Ichiro Isozaki



Page:

DATA OF CONDUCTION TEST CHART

UL Apex Co.,Ltd.

YAMAKITA No.2 SHIELD ROOM

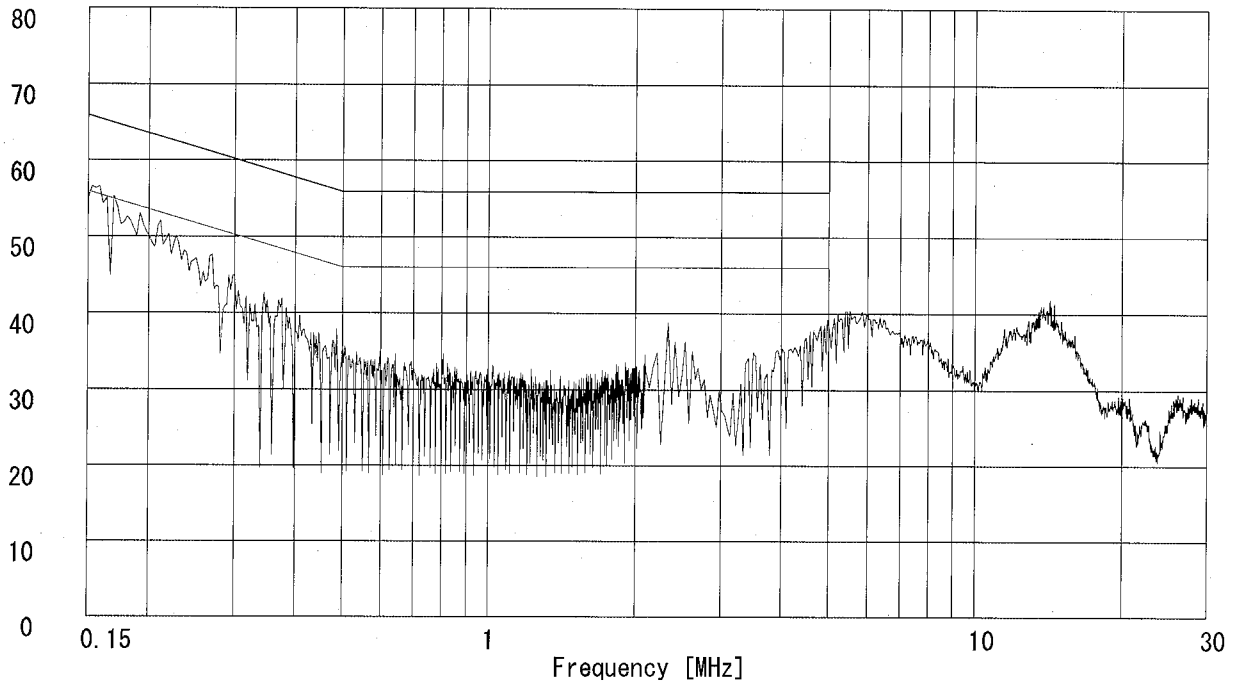
Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co.,Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V (AC120V/60Hz)
Mode : Tx:2480MHz
Remarks : ANT:WDAN-SCMS9004-1F
Date : 2/1/2007
Phase : Single Phase
Temperature : 24 °C
Humidity : 31 %
Regulation 1 : FCC Part15C § 15.207. (CISPR Pub.22)
Regulation 2 : None

Engineer : Ichiro Isozaki

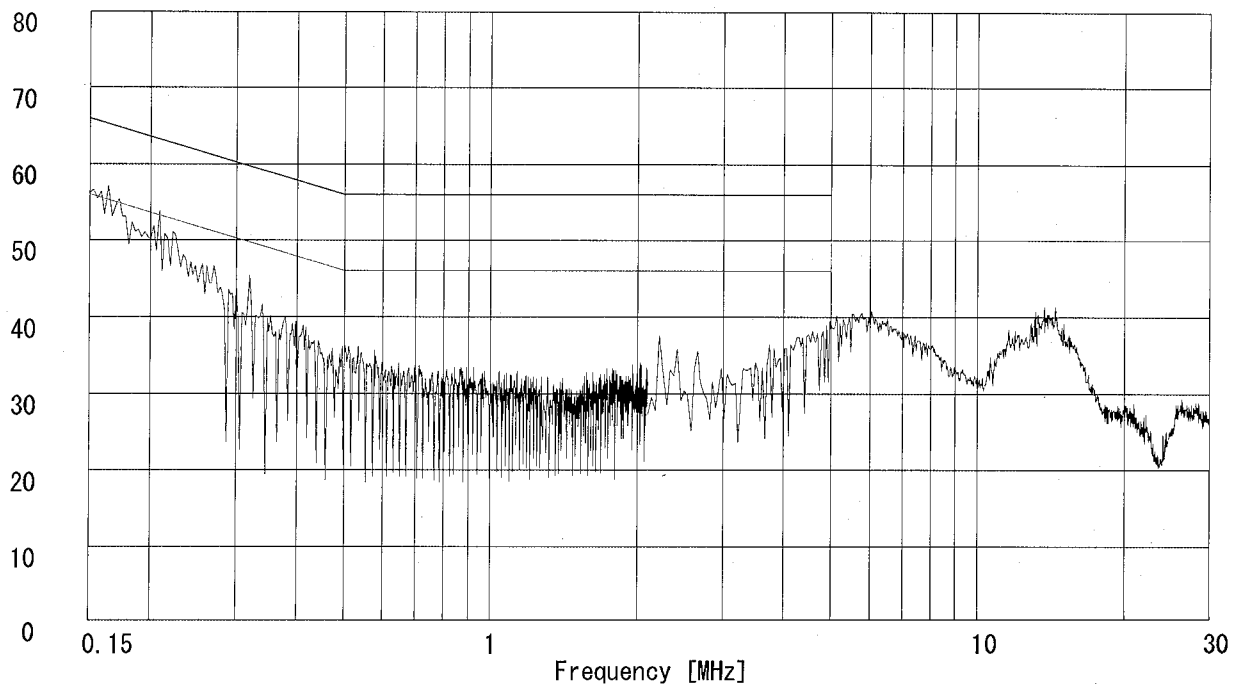
Emission Level [dB μ V]

PHASE:N



Emission Level [dB μ V]

PHASE:L1



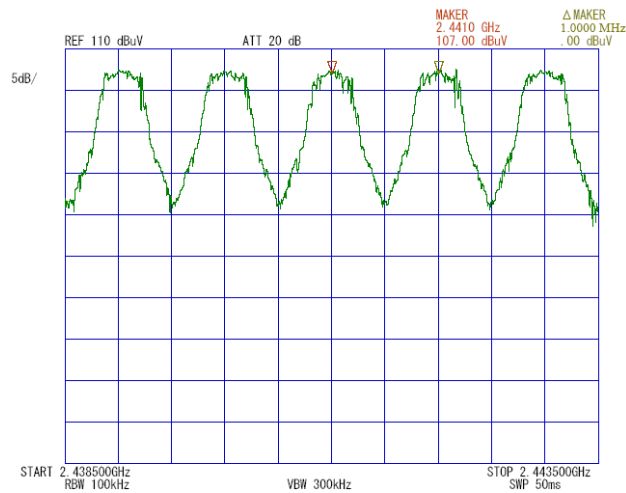
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Channel Separation: FCC 15.247(a)(1)

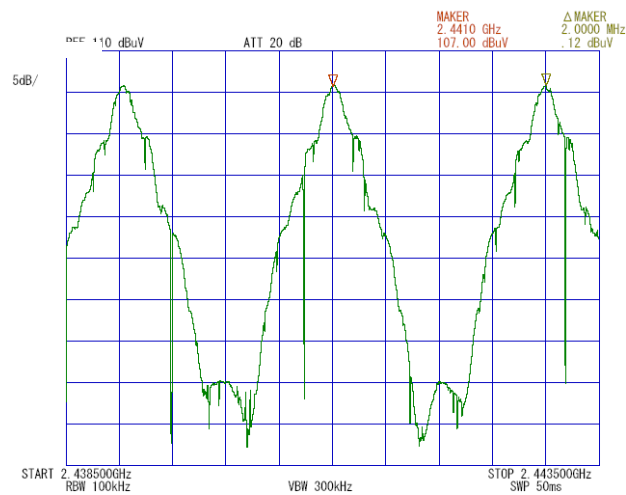
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(a)(1)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting
ENGINEER : Tatsuya Arai

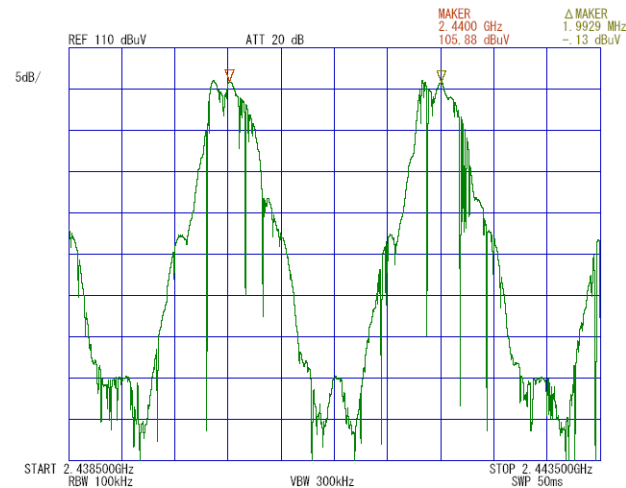
1. Hopping:1000.00kHz



2. Inquiry:2000.00kHz



2. Inquiry:1992.90kHz

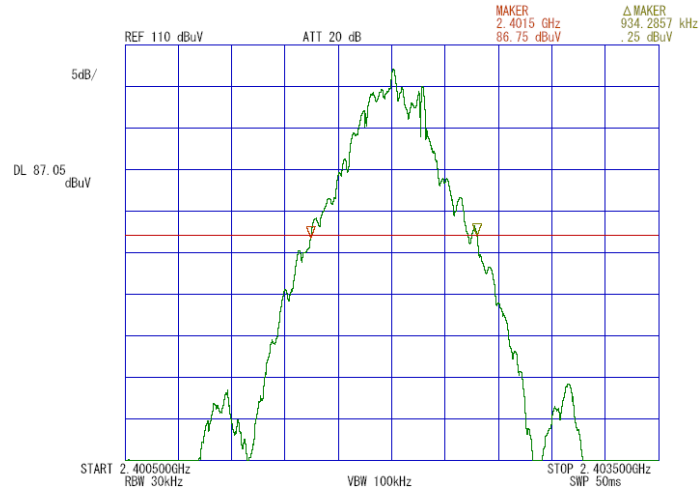


20dB Bandwidth: FCC 15.247(a)(1)

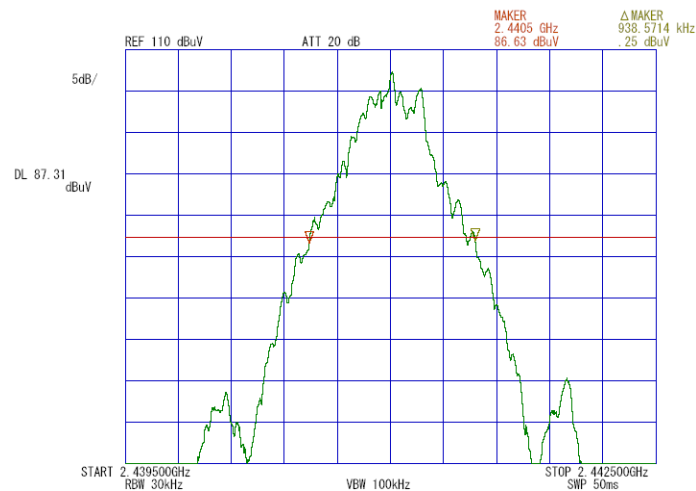
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : UGPZ6
MODEL NUMBER: DR-BT21
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(a)(1)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting (Hopping off)
ENGINEER : Tatsuya Arai

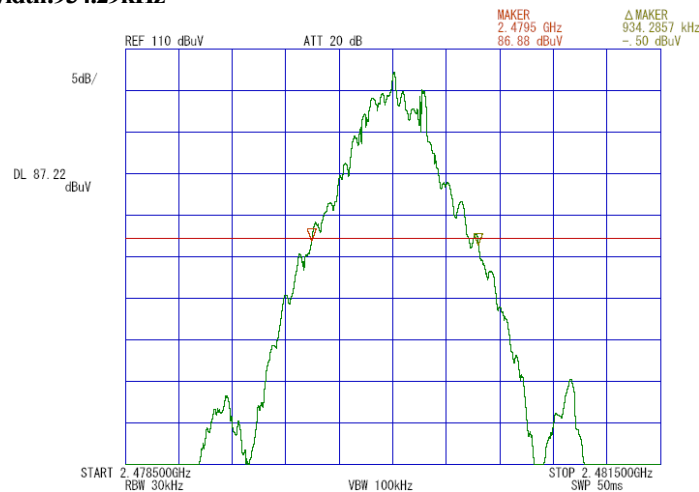
1. ch : 2402MHz/20dB Bandwidth:934.29kHz



2. ch : 2441MHz/20dB Bandwidth:938.57kHz



3. ch : 2480MHz/20dB Bandwidth:934.29kHz



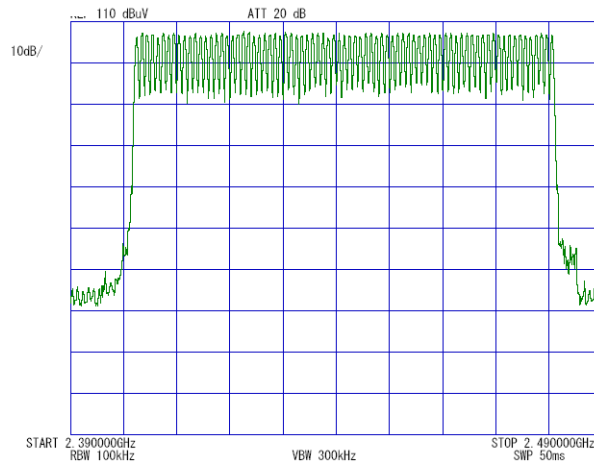
Channel Utilization: FCC 15.247(a)(1)(iii)

COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

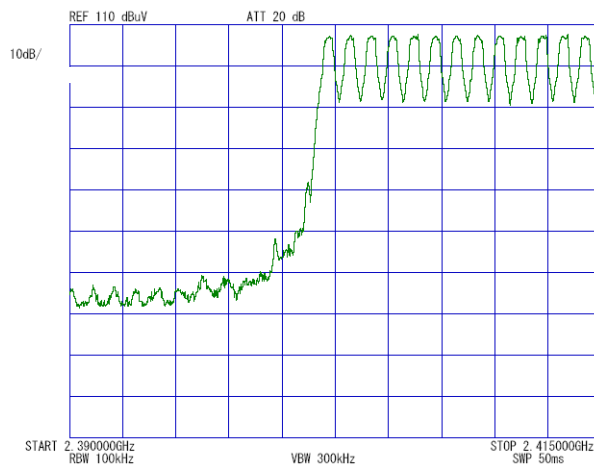
UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(a)(1)(iii)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting
ENGINEER : Tatsuya Arai

Hopping: 79ch

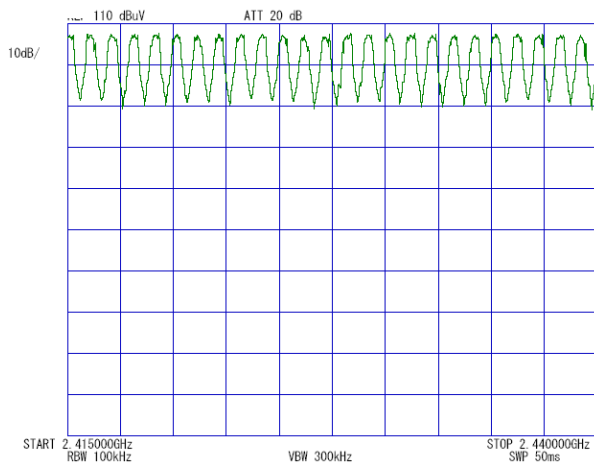
1.



2.



3.

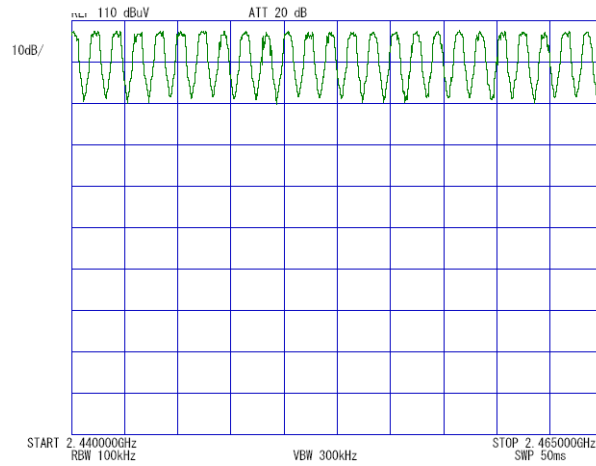


Channel Utilization: FCC 15.247(a)(1)(iii)

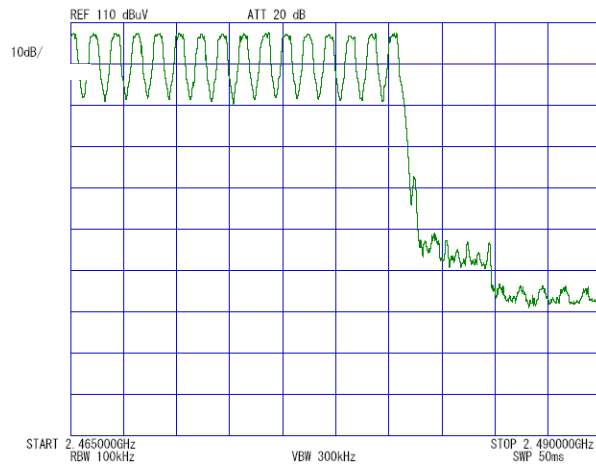
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(a)(1)(iii)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting
ENGINEER : Tatsuya Arai

4.



5.

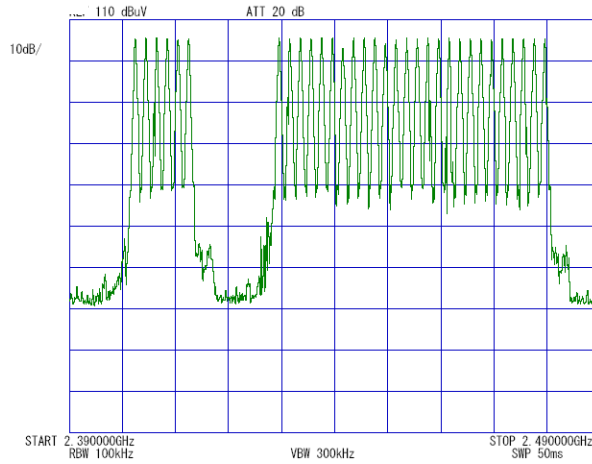


Channel Utilization: FCC 15.247(a)(1)(iii)

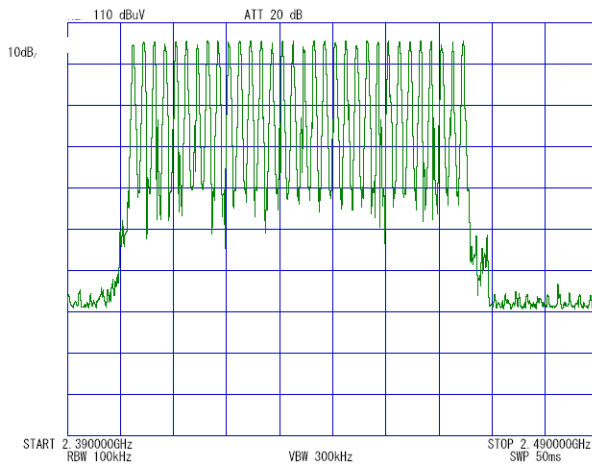
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(a)(1)(iii)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting
ENGINEER : Tatsuya Arai

1. Inquiry: 32ch



2. Page: 32ch



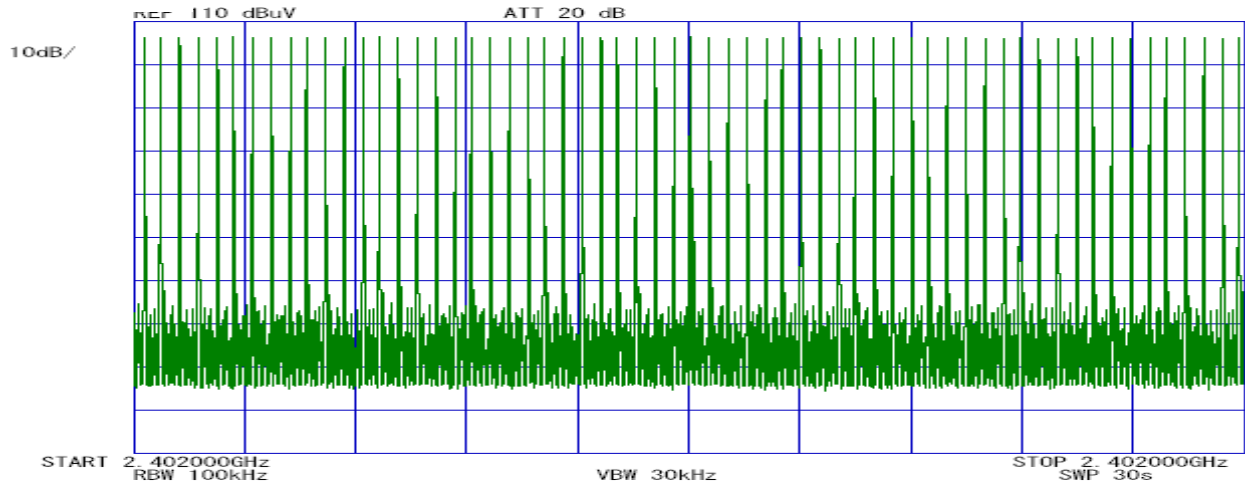
Dwell Time: FCC 15.247(a)(1)(iii)

COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

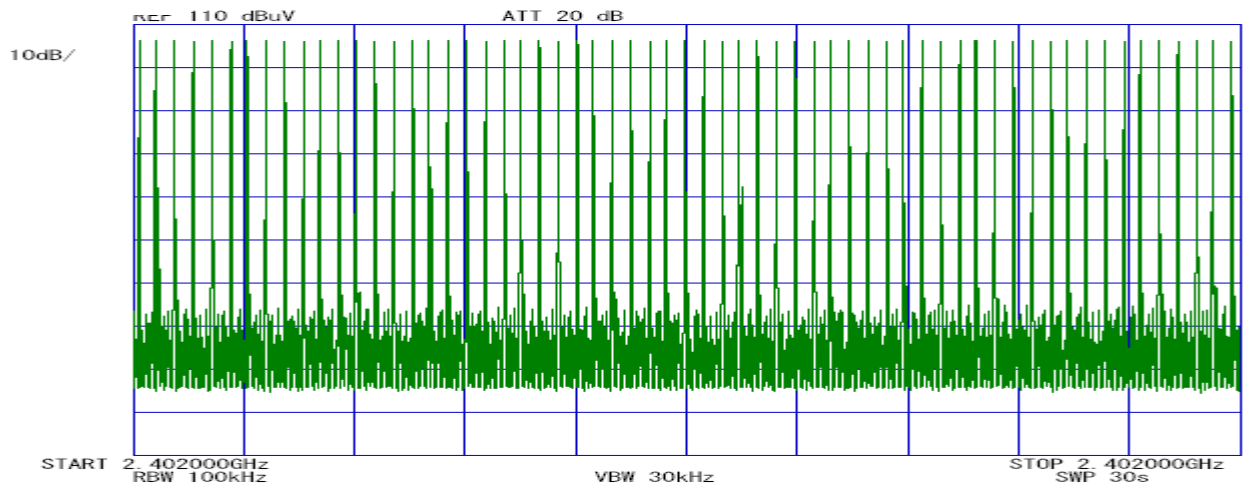
UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(a)(1)(iii)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting
ENGINEER : Tatsuya Arai

Hopping (DH5):

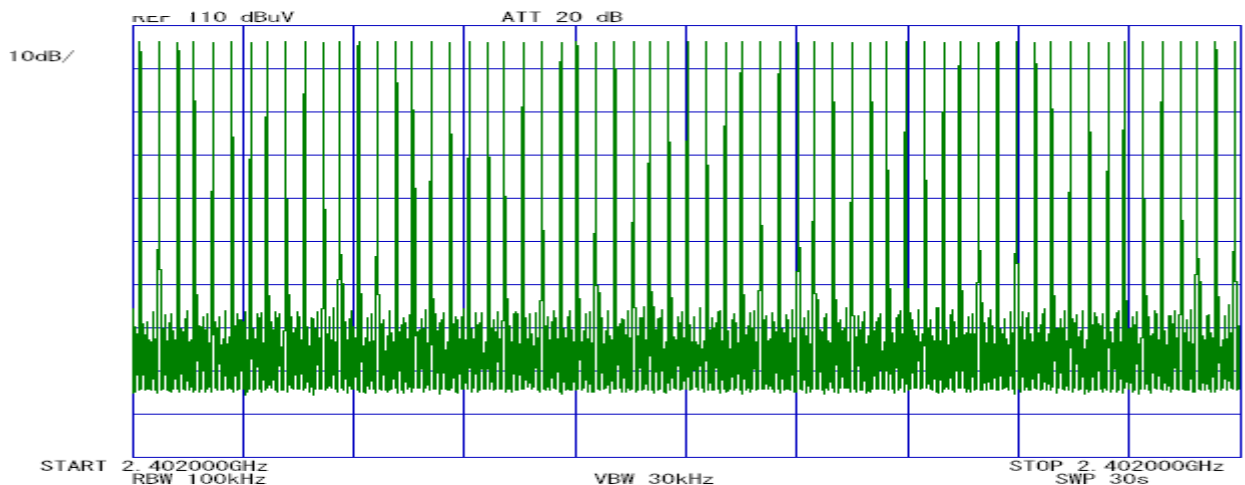
Count 1



Count 2



Count 3

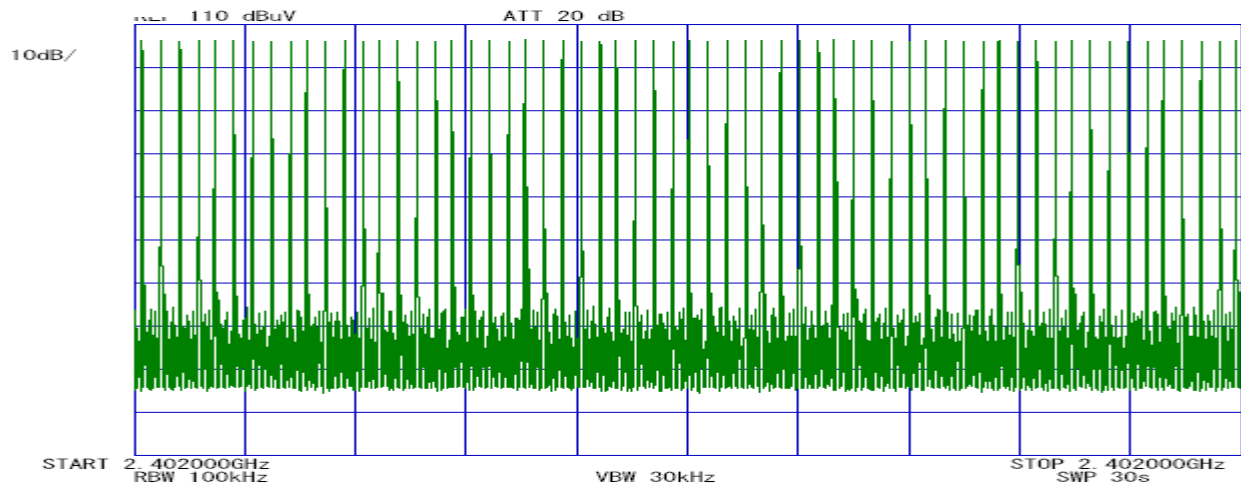


Dwell Time: FCC 15.247(a)(1)(iii)

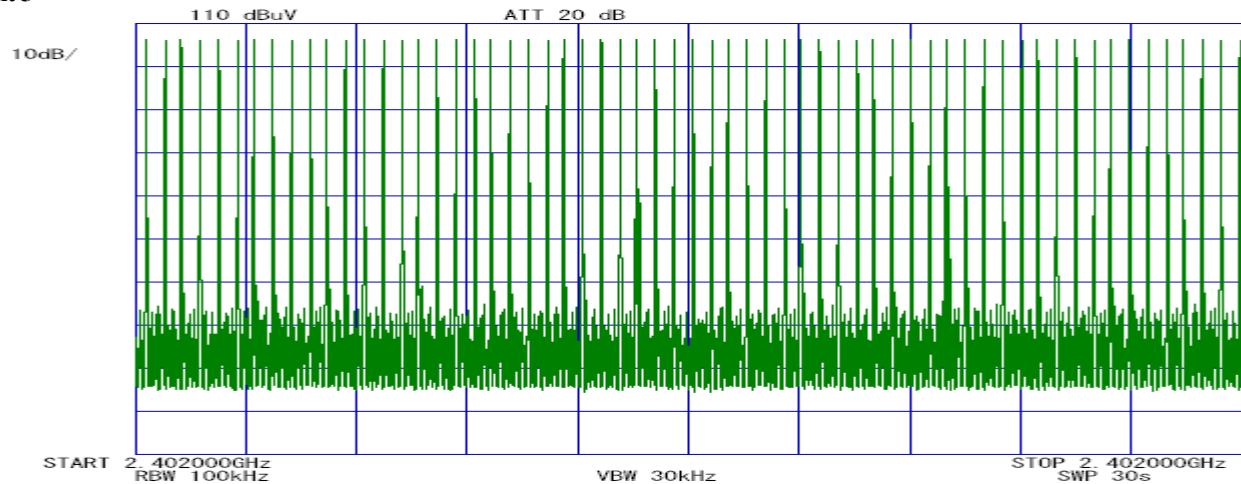
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(a)(1)(iii)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting
ENGINEER : Tatsuya Arai

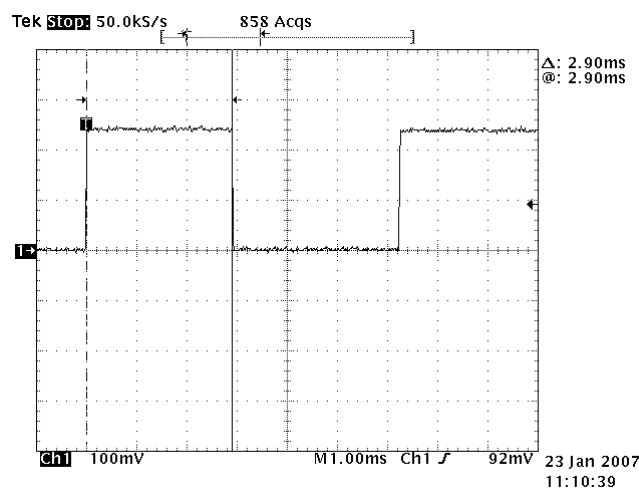
Count 4



Count 5



Duty cycle(Hopping DH5)



Average times of rising in 30 sec. of sweep = $(61 + 61 + 61 + 61 + 61) / 5 = 61$

Average times of rising in 1 sec. = $61 / 30s = 2.03$

Average times of rising in 0.4x = $0.4 * 79ch * 2.03 = 64.15$

Dwell time = $64.15 * 2.90 = 186.04 [ms]$

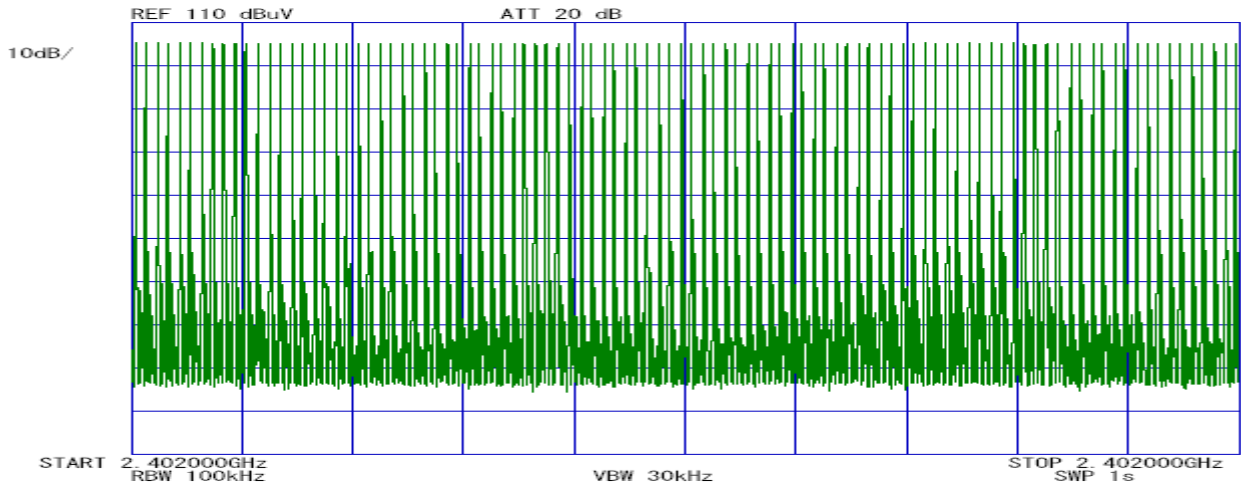
Limit : Dwell Time < 0.4[s]

Dwell Time: FCC 15.247(a)(1)(iii)

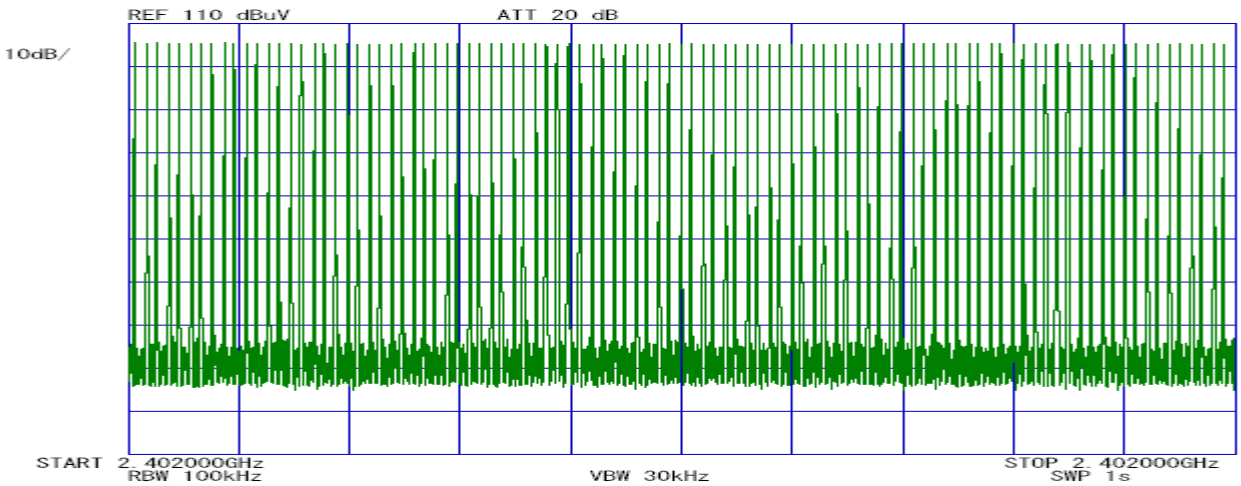
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(a)(1)(iii)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting
ENGINEER : Tatsuya Arai

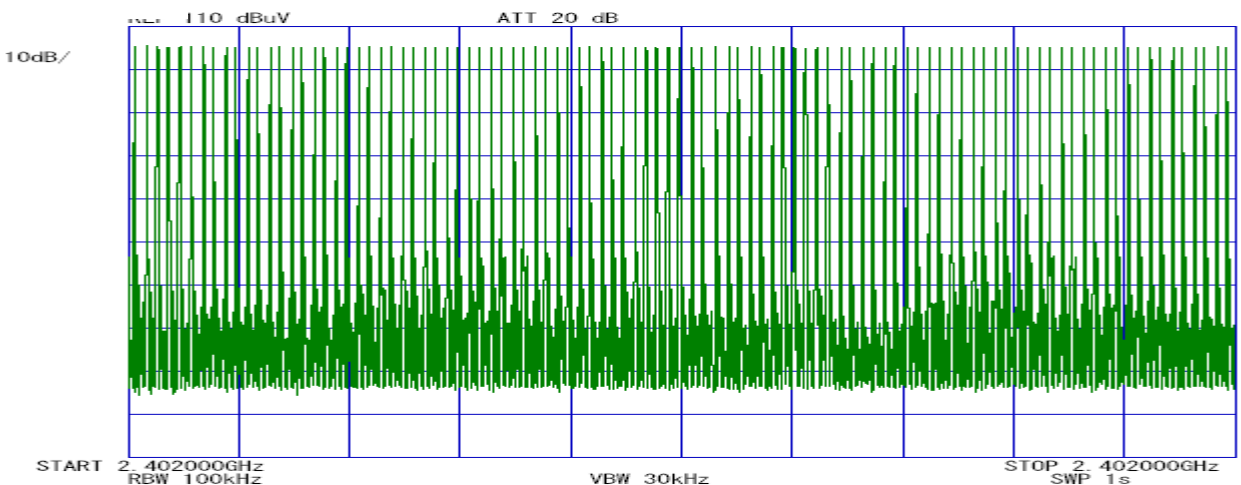
Inquiry: Count 1



Count 2



Count 3

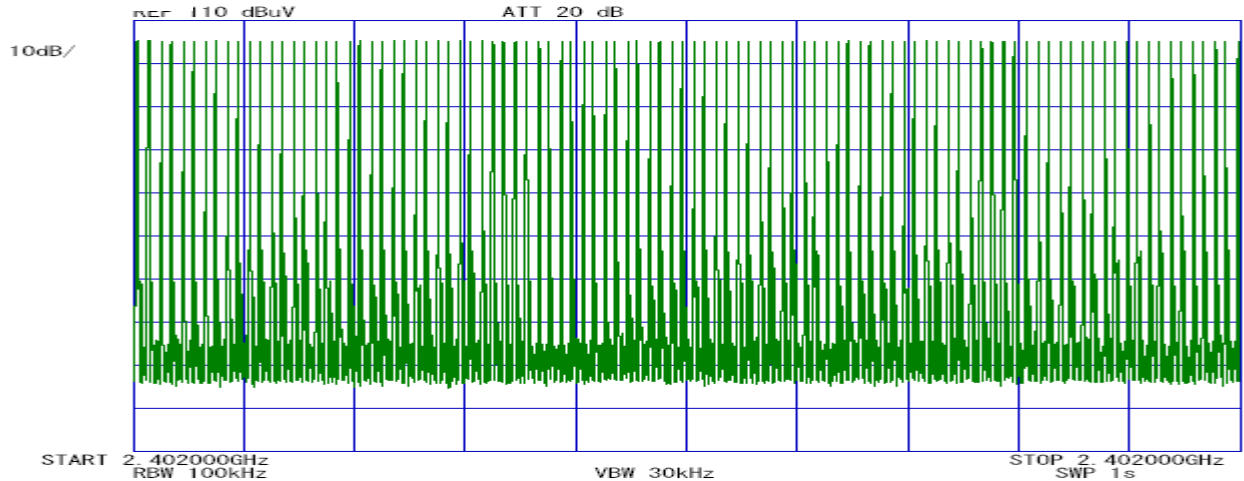


Dwell Time: FCC 15.247(a)(1)(iii)

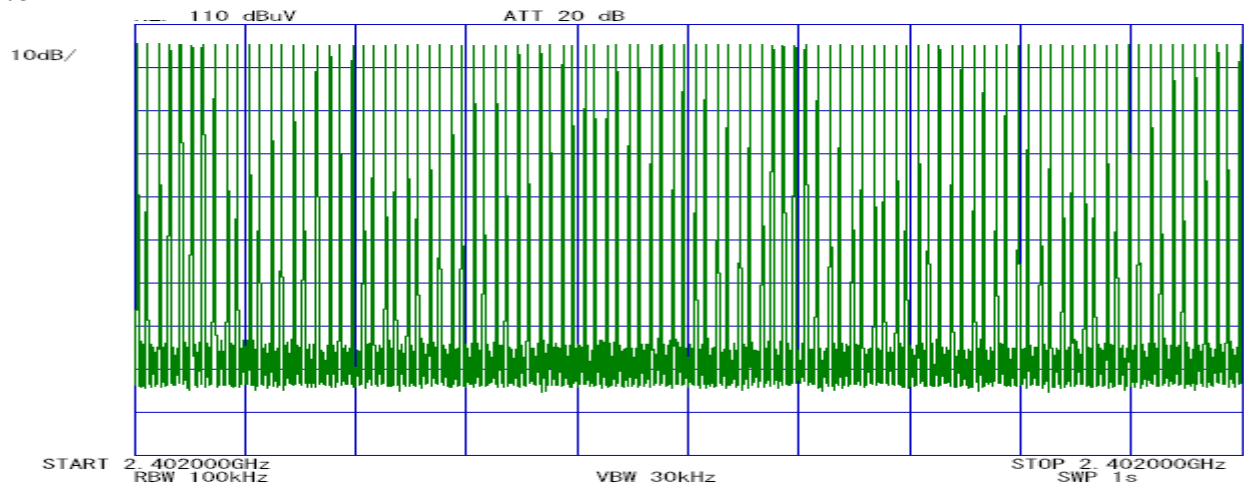
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(a)(1)(iii)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting
ENGINEER : Tatsuya Arai

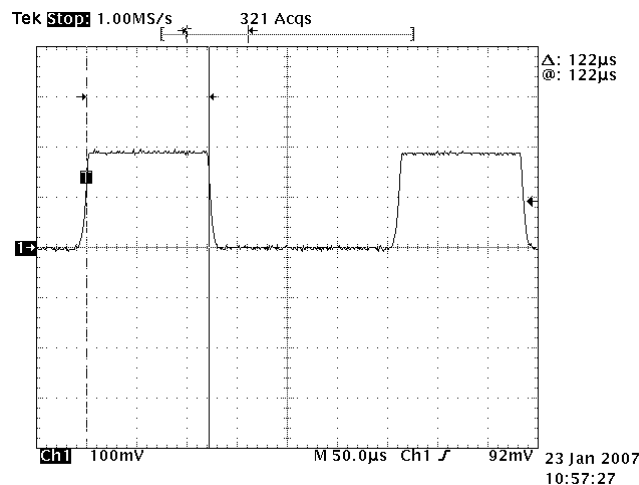
Count 4



Count 5



Duty cycle(Inquiry)



Average times of rising in 30 sec. of sweep = $(100 + 100 + 100 + 100 + 100) / 5 = 100$

Average times of rising in 1 sec. = $100 / 1s = 100.0$

Average times of rising in 0.4x = $0.4 * 32ch * 100.0 = 1280.0$

Dwell time = $1280.0 * 0.12 = 153.60 \text{ [ms]}$

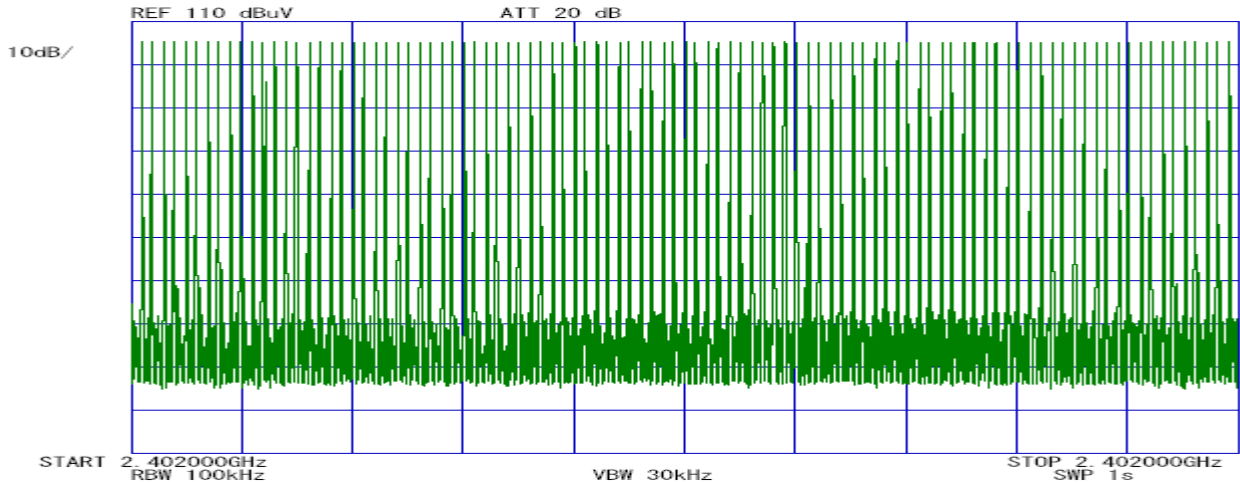
Limit : Dwell Time < 0.4[s]

Dwell Time: FCC 15.247(a)(1)(iii)

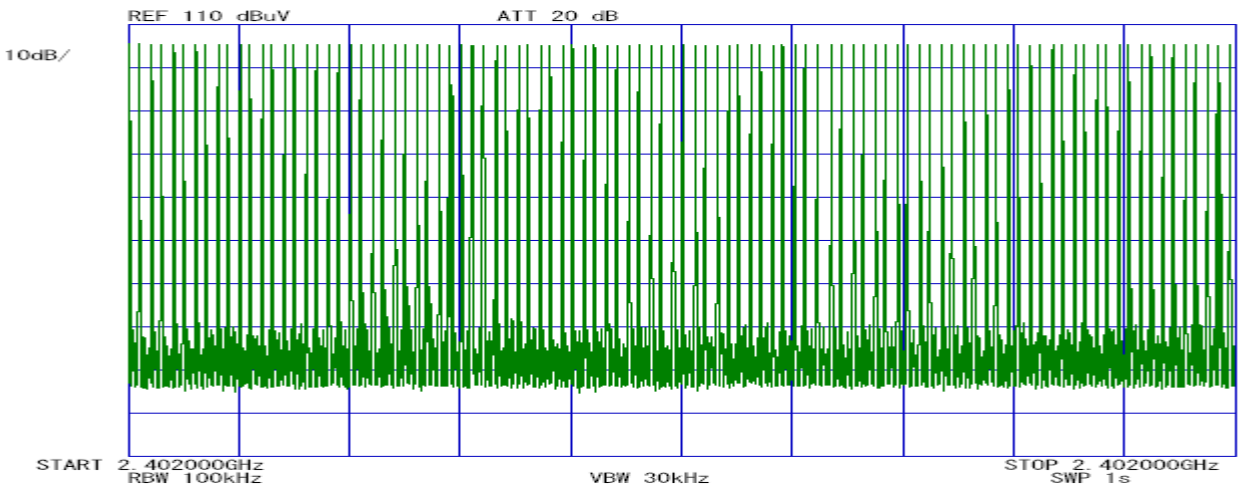
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(a)(1)(iii)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting
ENGINEER : Tatsuya Arai

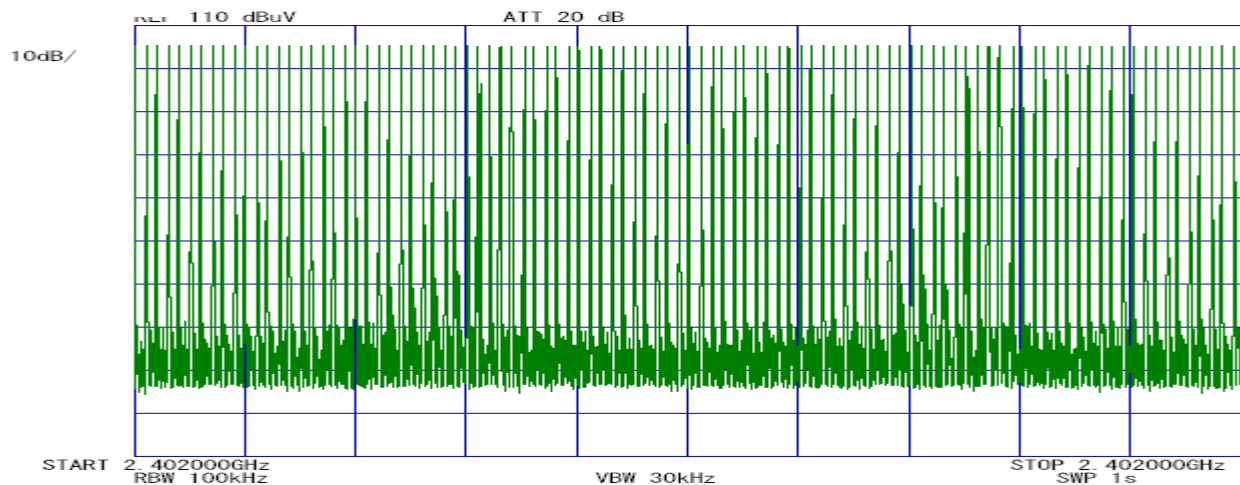
Page:
Count 1



Count 2



Count 3

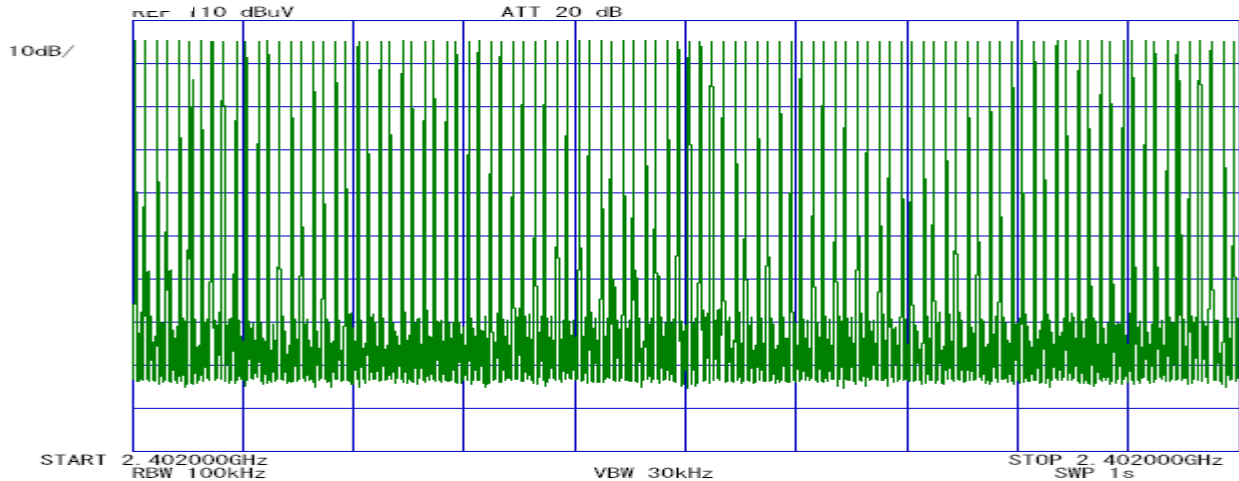


Dwell Time: FCC 15.247(a)(1)(iii)

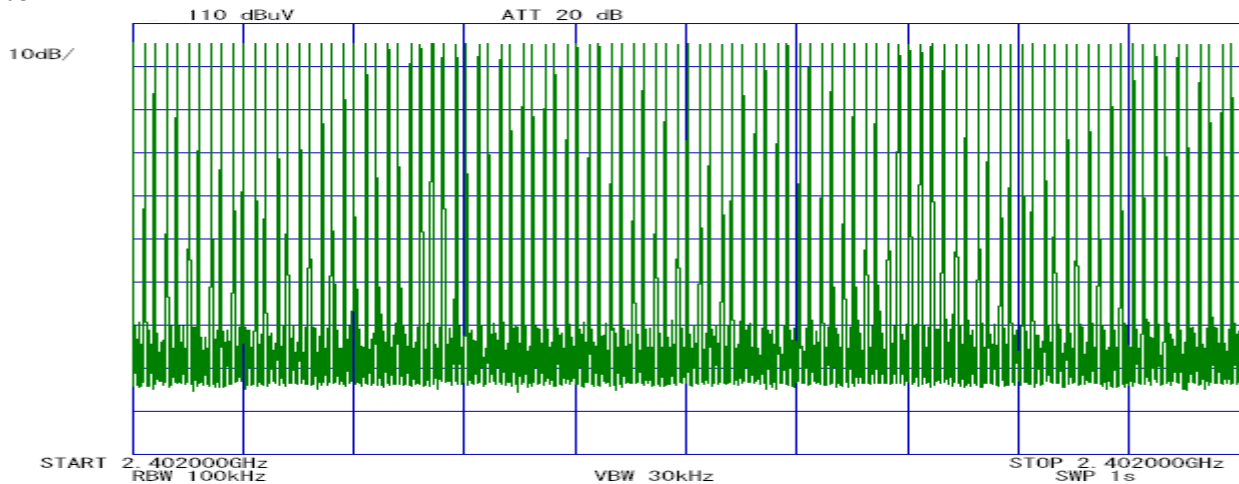
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(a)(1)(iii)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting
ENGINEER : Tatsuya Arai

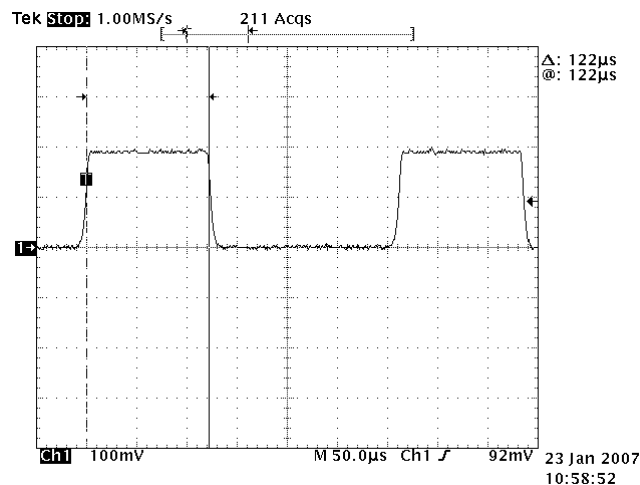
Count 4



Count 5



Duty cycle(Inquiry)



Average times of rising in 30 sec. of sweep = $(100 + 100 + 100 + 100 + 100) / 5 = 100$

Average times of rising in 1 sec. = $100 / 1s = 100.0$

Average times of rising in 0.4x = $0.4 * 32ch * 100.0 = 1280.0$

Dwell time = $1280.0 * 0.12 = 153.60 [ms]$

Limit : Dwell Time < 0.4[s]

Maximum Peak Conducted Output Power

UL Apex Co.,Ltd
YAMAKITA No.1 Shielded Room

COMPANY : Alps Electric Co., Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER : UGPZ6
SERIAL NUMBER : 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V
TEST MODE : Transmitting

REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(b)(1)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C/32%

ENGINEER : Tatsuya Arai

CH	FREQ [GHz]	P/M Reading [dBm]	Cable Loss [dB]	Results [dBm]	Limit (125mW) [dBm]	MARGIN [dB]
Low	2402.00	0.82	0.90	1.72	20.96	19.24
Mid	2441.00	0.92	0.90	1.82	20.96	19.14
High	2480.00	0.75	0.80	1.55	20.96	19.41
Hopping	-	0.91	0.90	1.81	20.96	19.15
Inquiry	-	-0.68	0.90	0.22	20.96	20.74
Page	-	-0.59	0.90	0.31	20.96	20.65

Limit: 125mW=20.96dBm

P/M: Power Meter

CABLE LOSS:The Cable Prepared by The Client + KCC-D7

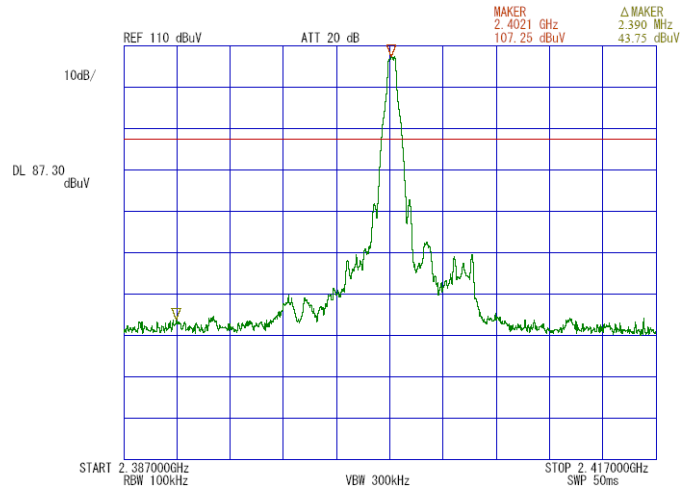
Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

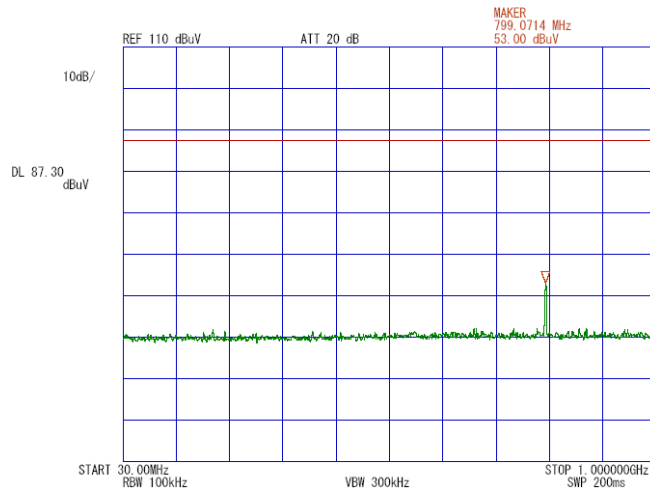
UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(d)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting (Hopping off)
ENGINEER : Tatsuya Arai

[Transmitting]
Ch:2402MHz

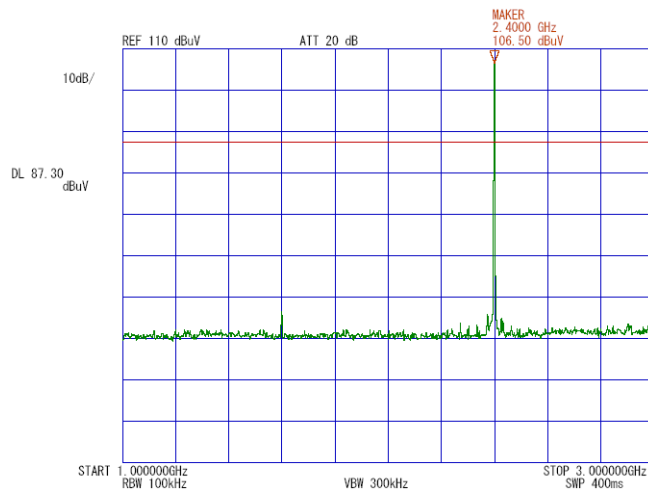
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Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

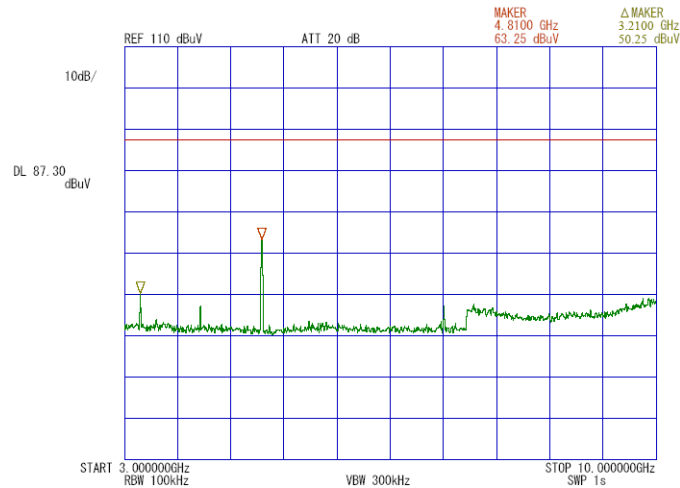
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(d)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting (Hopping off)
ENGINEER : Tatsuya Arai

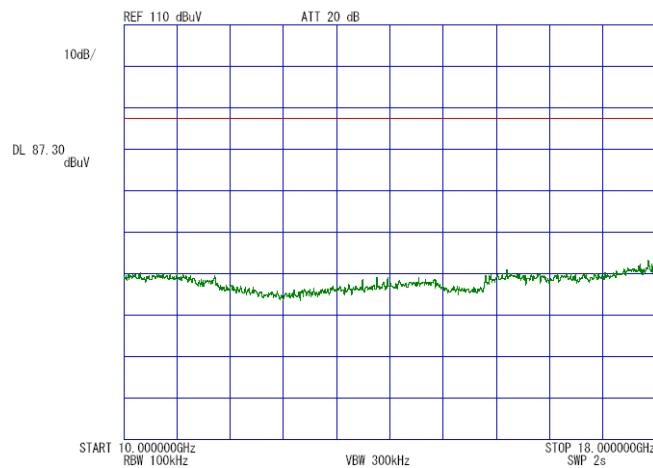
[Transmitting]

Ch:2402MHz

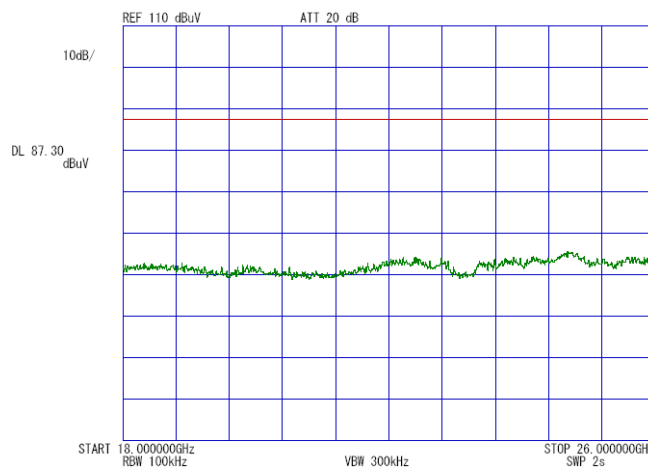
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5.



6.



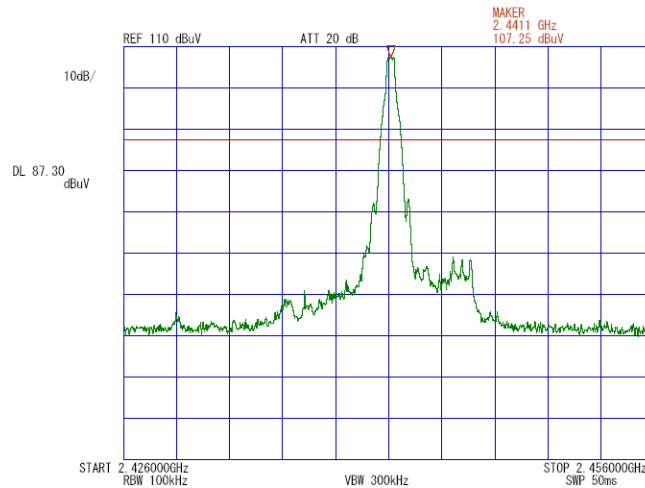
Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

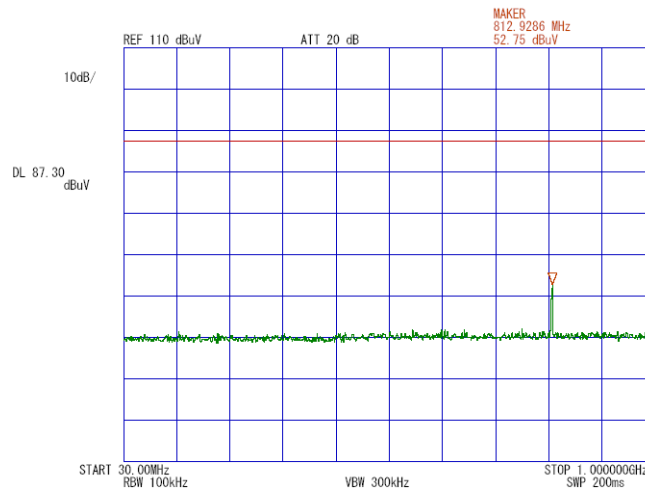
UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(d)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting (Hopping off)
ENGINEER : Tatsuya Arai

[Transmitting]
Ch:2441MHz

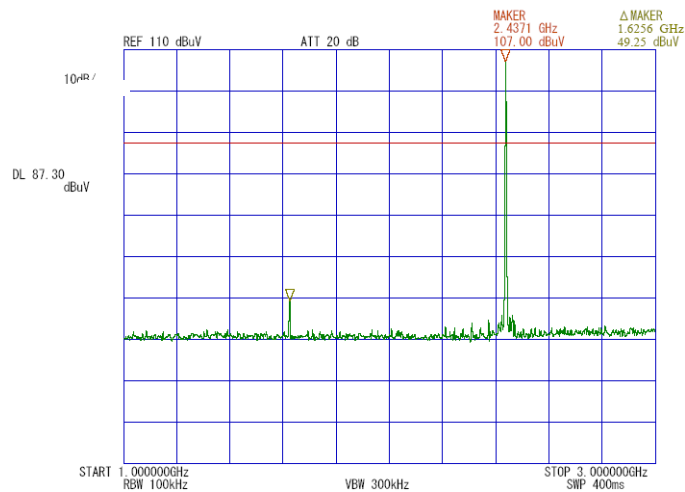
1.



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

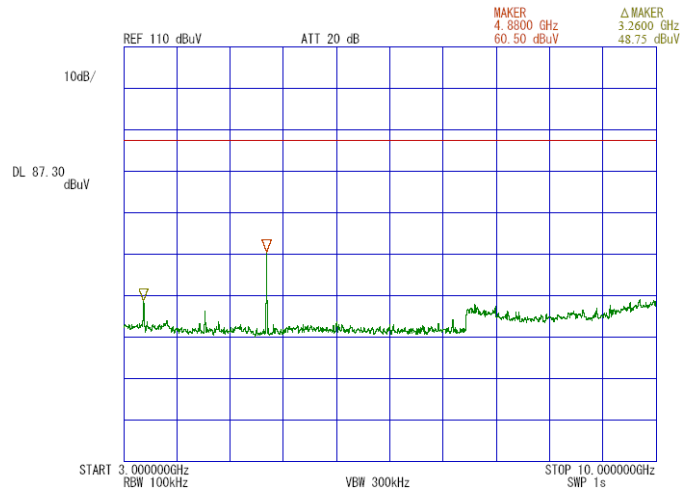
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(d)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting (Hopping off)
ENGINEER : Tatsuya Arai

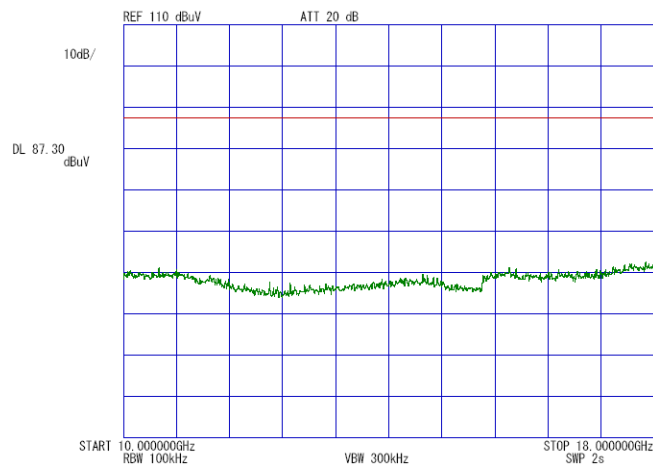
[Transmitting]

Ch:2441MHz

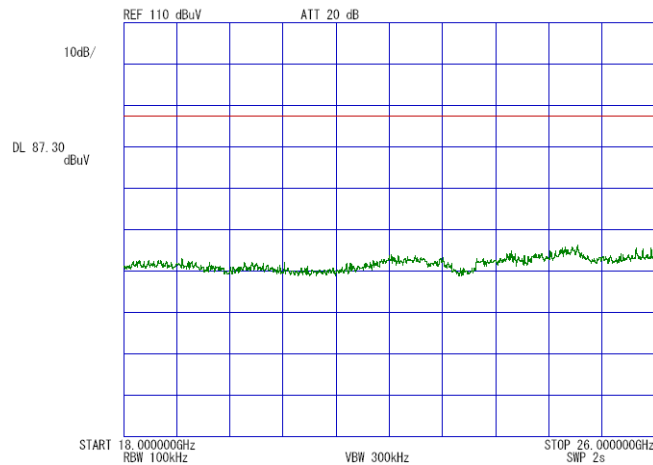
4.



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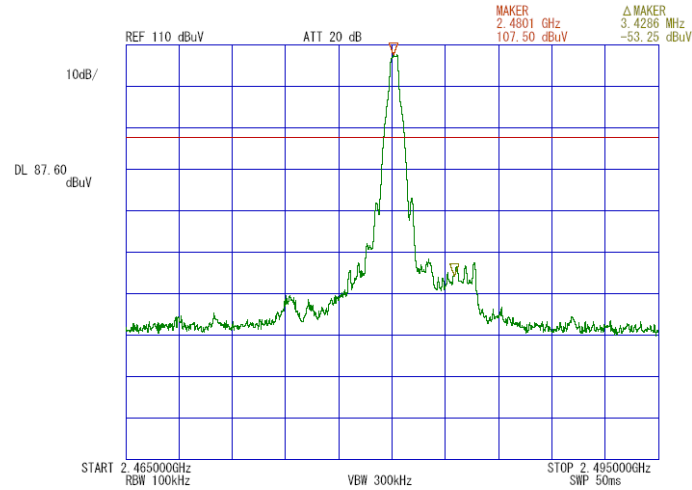
Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

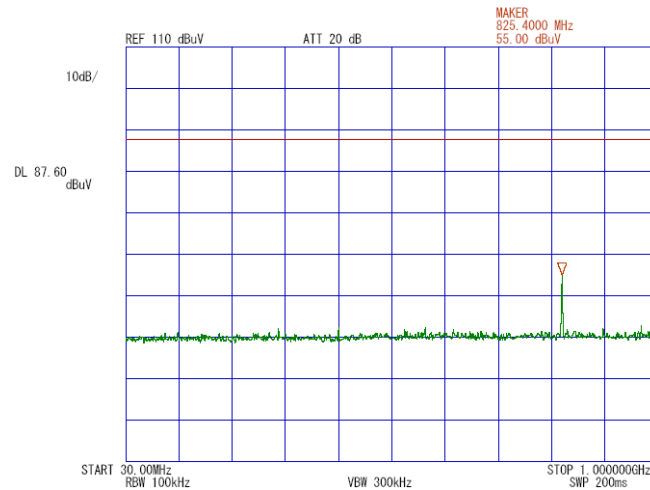
UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(d)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting (Hopping off)
ENGINEER : Tatsuya Arai

[Transmitting]
Ch11:2480MHz

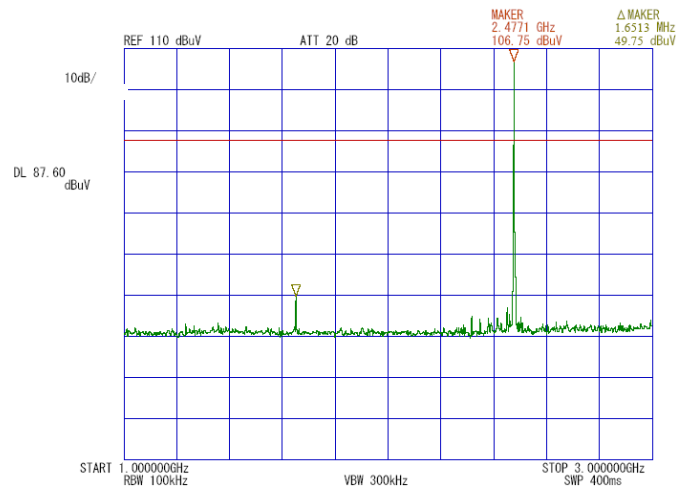
1.



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

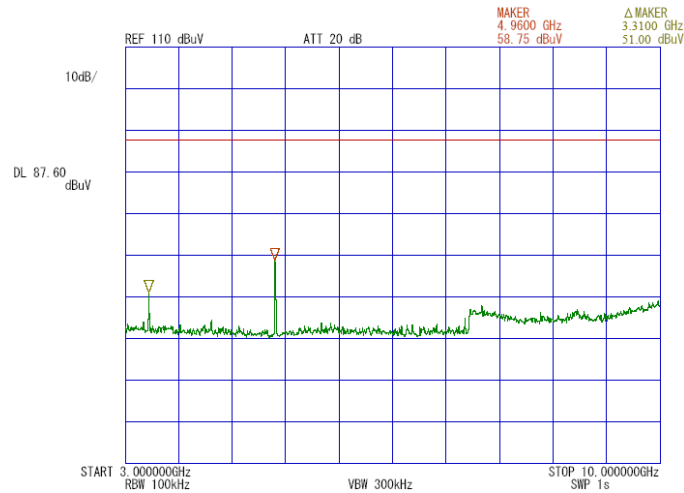
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(d)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting (Hopping off)
ENGINEER : Tatsuya Arai

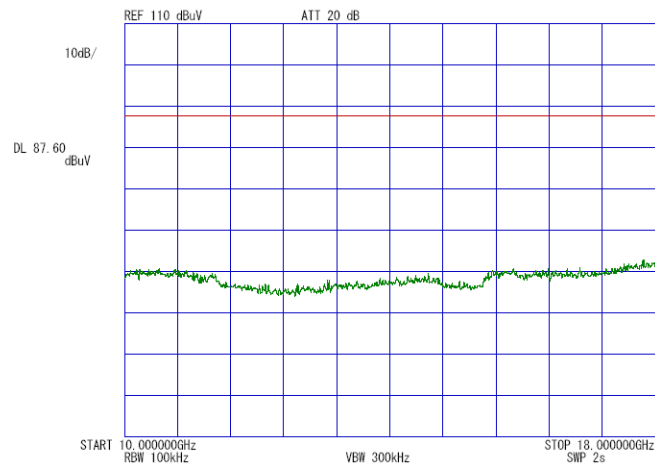
[Transmitting]

Ch:2480MHz

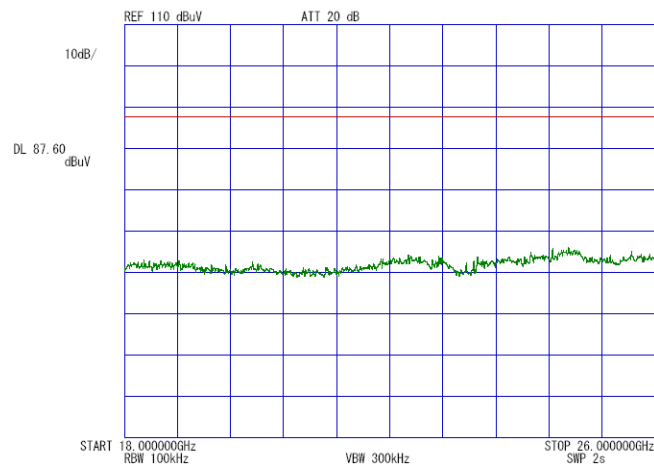
4.



5.



6.



DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
 Kind of Equipment : Bluetooth Transceiver Module
 Model No. : UGPZ6
 Serial No. : 4C4E20
 Power : DC3.3V
 Mode : Tx:2402MHz
 Remarks : ANT:C680
 Date : 1/12/2007
 Test Distance : 3 m
 Temperature : 25 °C
 Humidity : 36 %
 Regulation : FCC Part15C § 15.209

Engineer : Tatsuya Arai

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	39.47	BB	26.7	35.4	14.3	28.5	1.2	6.0	19.7	28.4	40.0	20.3	11.6
2.	108.01	BB	30.3	39.7	11.6	28.4	2.1	6.1	21.7	31.1	43.5	21.8	12.4
3.	199.95	BB	38.2	39.6	16.8	28.0	2.9	6.0	35.9	37.3	43.5	7.6	6.2
4.	466.55	BB	32.4	29.6	17.7	28.9	5.0	6.0	32.2	29.4	46.0	13.8	16.6

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

■ ANTENNA: KBA-03 (BBA9106) 30-299.99MHz/KLA-03 (USLP9143) 300-1000MHz
 ■ AMP: KAF-05 (8447D) ■ RECEIVER: KTR-R1 (ESS) ■ KCC-30_31_32_34 (RE)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
 Kind of Equipment : Bluetooth Transceiver Module
 Model No. : UGPZ6
 Serial No. : 4C4E20
 Power : DC3.3V
 Mode : Tx:2402MHz
 Remarks : ANT:C680, PK (RBW:1MHz, VBW:1MHz)
 Date : 1/11/2007
 Test Distance : 3 m
 Temperature : 25 °C
 Humidity : 37 %
 Regulation : FCC Part15C § 15.209 (PK Detection)

Engineer : Tatsuya Arai

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	2390.00	BB	45.1	44.2	29.8	36.8	4.0	9.9	52.0	51.1	74.0	22.0	22.9
2.	4804.00	BB	58.7	60.0	33.8	37.1	5.8	0.5	61.7	63.0	74.0	12.3	11.0
3.	7206.00	BB	45.1	45.3	37.5	36.9	6.6	0.5	52.8	53.0	74.0	21.2	21.0
4.	9608.00	BB	48.4	49.7	38.9	37.0	7.6	1.0	58.9	60.2	74.0	15.1	13.8

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) ■ SPECTRUMANALYZER: KSA-04 (R3271A)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V
Mode : Tx:2402MHz
Remarks : ANT:C680, AV (RBW:1MHz, VBW:10Hz)
Date : 1/11/2007
Test Distance : 3 m
Temperature : 25 °C
Humidity : 37 %
Regulation : FCC Part15C § 15.209 (AV Detection)
Engineer : Tatsuya Arai

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	2390.00	BB	32.6	32.5	29.8	36.8	4.0	9.9	39.5	39.4	54.0	14.5	14.6
2.	4804.00	BB	43.9	44.8	33.8	37.1	5.8	0.5	46.9	47.8	54.0	7.1	6.2
3.	7206.00	BB	32.8	33.1	37.5	36.9	6.6	0.5	40.5	40.8	54.0	13.5	13.2
4.	9608.00	BB	36.5	36.0	38.9	37.0	7.6	1.0	47.0	46.5	54.0	7.0	7.5

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) ■ SPECTRUMANALYZER: KSA-04 (R3271A)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V
Mode : Tx:2441MHz
Remarks : ANT:C680
Date : 1/12/2007
Test Distance : 3 m
Temperature : 25 °C
Humidity : 36 %
Regulation : FCC Part15C § 15.209

Engineer : Tatsuya Arai

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	39.47	BB	25.6	34.1	14.3	28.5	1.2	6.0	18.6	27.1	40.0	21.4	12.9
2.	108.01	BB	29.8	40.1	11.6	28.4	2.1	6.1	21.2	31.5	43.5	22.3	12.0
3.	199.95	BB	38.0	39.8	16.8	28.0	2.9	6.0	35.7	37.5	43.5	7.8	6.0
4.	466.55	BB	32.4	28.8	17.7	28.9	5.0	6.0	32.2	28.6	46.0	13.8	17.4

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

■ ANTENNA: KBA-03 (BBA9106) 30-299.99MHz/KLA-03 (USLP9143) 300-1000MHz
■ AMP: KAF-05 (8447D) ■ RECEIVER: KTR-R1 (ESS) ■ KCC-30_31_32_34 (RE)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V
Mode : Tx:2441MHz
Remarks : ANT:C680, PK (RBW:1MHz, VBW:1MHz)
Date : 1/11/2007
Test Distance : 3 m
Temperature : 25 °C Engineer : Tatsuya Arai
Humidity : 37 %
Regulation : FCC Part15C § 15.209 (PK Detection)

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	4882.00	BB	58.1	54.5	34.0	37.2	5.8	0.5	61.2	57.6	74.0	12.8	16.4
2.	7323.00	BB	45.6	45.9	37.6	37.0	6.7	0.5	53.4	53.7	74.0	20.6	20.3
3.	9764.00	BB	51.1	49.2	38.8	37.0	7.6	0.9	61.4	59.5	74.0	12.6	14.5

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) ■ SPECTRUMANALYZER: KSA-04 (R3271A)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V
Mode : Tx:2441MHz
Remarks : ANT:C680, AV (RBW:1MHz, VBW:10Hz)
Date : 1/11/2007
Test Distance : 3 m
Temperature : 25 °C Engineer : Tatsuya Arai
Humidity : 37 %
Regulation : FCC Part15C § 15.209 (AV Detection)

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	4882.00	BB	43.7	41.8	34.0	37.2	5.8	0.5	46.8	44.9	54.0	7.2	9.1
2.	7323.00	BB	33.6	34.8	37.6	37.0	6.7	0.5	41.4	42.6	54.0	12.6	11.4
3.	9764.00	BB	38.6	36.5	38.8	37.0	7.6	0.9	48.9	46.8	54.0	5.1	7.2

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) ■SPECTRUMANALYZER:KSA-04 (R3271A)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
 Kind of Equipment : Bluetooth Transceiver Module
 Model No. : UGPZ6
 Serial No. : 4C4E20
 Power : DC3.3V
 Mode : Tx:2480MHz
 Remarks : ANT:C680
 Date : 1/12/2007
 Test Distance : 3 m
 Temperature : 25 °C
 Humidity : 36 %
 Regulation : FCC Part15C § 15.209

Engineer : Tatsuya Arai

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	39.47	BB	26.6	35.8	14.3	28.5	1.2	6.0	19.6	28.8	40.0	20.4	11.2
2.	108.01	BB	30.1	40.7	11.6	28.4	2.1	6.1	21.5	32.1	43.5	22.0	11.4
3.	199.95	BB	36.7	39.2	16.8	28.0	2.9	6.0	34.4	36.9	43.5	9.1	6.6
4.	466.55	BB	32.0	29.8	17.7	28.9	5.0	6.0	31.8	29.6	46.0	14.2	16.4

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

■ ANTENNA: KBA-03 (BBA9106) 30-299.99MHz/KLA-03 (USLP9143) 300-1000MHz
 ■ AMP: KAF-05 (8447D) ■ RECEIVER: KTR-R1 (ESS) ■ KCC-30_31_32_34 (RE)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3. 3V
Mode : Tx:2480MHz
Remarks : ANT:C680, PK (RBW:1MHz, VBW:1MHz)
Date : 1/11/2007
Test Distance : 3 m
Temperature : 25 °C Engineer : Tatsuya Arai
Humidity : 37 %
Regulation : FCC Part15C §15. 209 (PK Detection)

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	2483.50	BB	44.7	44.8	29.7	36.8	4.0	9.9	51.5	51.6	74.0	22.5	22.4
2.	4960.00	BB	51.4	46.0	34.2	37.3	5.8	0.4	54.5	49.1	74.0	19.5	24.9
3.	7440.00	BB	45.6	48.0	37.8	37.0	6.7	0.5	53.6	56.0	74.0	20.4	18.0
4.	9920.00	BB	52.6	49.0	38.7	36.9	7.6	0.8	62.8	59.2	74.0	11.2	14.8

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) ■ SPECTRUMANALYZER: KSA-04 (R3271A)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V
Mode : Tx:2480MHz
Remarks : ANT:C680, AV (RBW:1MHz, VBW:10Hz)
Date : 1/11/2007
Test Distance : 3 m
Temperature : 25 °C Engineer : Tatsuya Arai
Humidity : 37 %
Regulation : FCC Part15C § 15.209 (AV Detection)

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	2483.50	BB	35.4	35.6	29.7	36.8	4.0	9.9	42.2	42.4	54.0	11.8	11.6
2.	4960.00	BB	38.8	34.8	34.2	37.3	5.8	0.4	41.9	37.9	54.0	12.1	16.1
3.	7440.00	BB	33.5	36.0	37.8	37.0	6.7	0.5	41.5	44.0	54.0	12.5	10.0
4.	9920.00	BB	40.4	36.7	38.7	36.9	7.6	0.8	50.6	46.9	54.0	3.4	7.1

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) ■ SPECTRUMANALYZER: KSA-04 (R3271A)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
 Kind of Equipment : Bluetooth Transceiver Module
 Model No. : UGPZ6
 Serial No. : 4C4E20
 Power : DC3.3V
 Mode : Tx:2402MHz
 Remarks : ANT:LDA31
 Date : 1/12/2007
 Test Distance : 3 m
 Temperature : 25 °C
 Humidity : 36 %
 Regulation : FCC Part15C § 15.209

Engineer : Tatsuya Arai

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	39.47	BB	27.5	35.4	14.3	28.5	1.2	6.0	20.5	28.4	40.0	19.5	11.6
2.	108.01	BB	29.5	40.7	11.6	28.4	2.1	6.1	20.9	32.1	43.5	22.6	11.4
3.	199.95	BB	35.1	39.2	16.8	28.0	2.9	6.0	32.8	36.9	43.5	10.7	6.6
4.	466.55	BB	30.5	32.3	17.7	28.9	5.0	6.0	30.3	32.1	46.0	15.7	13.9

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

■ ANTENNA: KBA-03 (BBA9106) 30-299.99MHz/KLA-03 (USLP9143) 300-1000MHz
 ■ AMP: KAF-05 (8447D) ■ RECEIVER: KTR-R1 (ESS) ■ KCC-30_31_32_34 (RE)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
 Kind of Equipment : Bluetooth Transceiver Module
 Model No. : UGPZ6
 Serial No. : 4C4E20
 Power : DC3.3V
 Mode : Tx:2402MHz
 Remarks : ANT:LDA31, PK (RBW:1MHz, VBW:1MHz)
 Date : 1/11/2007
 Test Distance : 3 m
 Temperature : 25 °C
 Humidity : 37 %
 Regulation : FCC Part15C § 15.209 (PK Detection)

Engineer : Tatsuya Arai

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	2390.00	BB	45.9	45.3	29.8	36.8	4.0	9.9	52.8	52.2	74.0	21.2	21.8
2.	4804.00	BB	55.4	54.2	33.8	37.1	5.8	0.5	58.4	57.2	74.0	15.6	16.8
3.	7206.00	BB	44.8	44.5	37.5	36.9	6.6	0.5	52.5	52.2	74.0	21.5	21.8
4.	9608.00	BB	48.9	47.8	38.9	37.0	7.6	1.0	59.4	58.3	74.0	14.6	15.7

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) ■ SPECTRUMANALYZER: KSA-04 (R3271A)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3. 3V
Mode : Tx:2402MHz
Remarks : ANT:LDA31, AV (RBW:1MHz, VBW:10Hz)
Date : 1/11/2007
Test Distance : 3 m
Temperature : 25 °C Engineer : Tatsuya Arai
Humidity : 37 %
Regulation : FCC Part15C § 15. 209 (AV Detection)

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	2390.00	BB	33.9	33.9	29.8	36.8	4.0	9.9	40.8	40.8	54.0	13.2	13.2
2.	4804.00	BB	42.4	41.7	33.8	37.1	5.8	0.5	45.4	44.7	54.0	8.6	9.3
3.	7206.00	BB	32.3	32.4	37.5	36.9	6.6	0.5	40.0	40.1	54.0	14.0	13.9
4.	9608.00	BB	35.9	35.6	38.9	37.0	7.6	1.0	46.4	46.1	54.0	7.6	7.9

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) ■ SPECTRUMANALYZER: KSA-04 (R3271A)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
 Kind of Equipment : Bluetooth Transceiver Module
 Model No. : UGPZ6
 Serial No. : 4C4E20
 Power : DC3.3V
 Mode : Tx:2441MHz
 Remarks : ANT:LDA31
 Date : 1/12/2007
 Test Distance : 3 m
 Temperature : 25 °C
 Humidity : 36 %
 Regulation : FCC Part15C § 15.209

Engineer : Tatsuya Arai

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	39.47	BB	26.3	37.1	14.3	28.5	1.2	6.0	19.3	30.1	40.0	20.7	9.9
2.	108.01	BB	30.0	41.1	11.6	28.4	2.1	6.1	21.4	32.5	43.5	22.1	11.0
3.	199.95	BB	35.0	39.8	16.8	28.0	2.9	6.0	32.7	37.5	43.5	10.8	6.0
4.	466.55	BB	31.0	32.2	17.7	28.9	5.0	6.0	30.8	32.0	46.0	15.2	14.0

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

■ ANTENNA: KBA-03 (BBA9106) 30-299.99MHz/KLA-03 (USLP9143) 300-1000MHz
 ■ AMP: KAF-05 (8447D) ■ RECEIVER: KTR-R1 (ESS) ■ KCC-30_31_32_34 (RE)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
 Kind of Equipment : Bluetooth Transceiver Module
 Model No. : UGPZ6
 Serial No. : 4C4E20
 Power : DC3.3V
 Mode : Tx:2441MHz
 Remarks : ANT:LDA31, PK (RBW:1MHz, VBW:1MHz)
 Date : 1/11/2007
 Test Distance : 3 m
 Temperature : 25 °C
 Humidity : 37 %
 Regulation : FCC Part15C § 15.209 (PK Detection)

Engineer : Tatsuya Arai

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	4882.00	BB	51.9	48.8	34.0	37.2	5.8	0.5	55.0	51.9	74.0	19.0	22.1
2.	7323.00	BB	44.2	44.7	37.6	37.0	6.7	0.5	52.0	52.5	74.0	22.0	21.5
3.	9764.00	BB	47.9	47.5	38.8	37.0	7.6	0.9	58.2	57.8	74.0	15.8	16.2

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) ■ SPECTRUMANALYZER: KSA-04 (R3271A)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co.,Ltd.
 Kind of Equipment : Bluetooth Transceiver Module
 Model No. : UGPZ6
 Serial No. : 4C4E20
 Power : DC3.3V
 Mode : Tx:2441MHz
 Remarks : ANT:LDA31, AV (RBW:1MHz, VBW:10Hz)
 Date : 1/11/2007
 Test Distance : 3 m
 Temperature : 25 °C
 Humidity : 37 %
 Regulation : FCC Part15C § 15.209 (AV Detection)

Engineer : Tatsuya Arai

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	4882.00	BB	39.9	37.6	34.0	37.2	5.8	0.5	43.0	40.7	54.0	11.0	13.3
2.	7323.00	BB	32.2	32.5	37.6	37.0	6.7	0.5	40.0	40.3	54.0	14.0	13.7
3.	9764.00	BB	36.0	35.8	38.8	37.0	7.6	0.9	46.3	46.1	54.0	7.7	7.9

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) ■ SPECTRUMANALYZER:KSA-04 (R3271A)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co.,Ltd.
 Kind of Equipment : Bluetooth Transceiver Module
 Model No. : UGPZ6
 Serial No. : 4C4E20
 Power : DC3.3V
 Mode : Tx:2480MHz
 Remarks : ANT:LDA31
 Date : 1/12/2007
 Test Distance : 3 m
 Temperature : 25 °C
 Humidity : 36 %
 Regulation : FCC Part15C § 15.209

Engineer : Tatsuya Arai

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	39.47	BB	27.5	35.3	14.3	28.5	1.2	6.0	20.5	28.3	40.0	19.5	11.7
2.	108.01	BB	30.4	40.2	11.6	28.4	2.1	6.1	21.8	31.6	43.5	21.7	11.9
3.	199.95	BB	35.0	39.5	16.8	28.0	2.9	6.0	32.7	37.2	43.5	10.8	6.3
4.	466.55	BB	32.0	37.5	17.7	28.9	5.0	6.0	31.8	37.3	46.0	14.2	8.7

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

■ ANTENNA: KBA-03 (BBA9106) 30-299.99MHz/KLA-03 (USLP9143) 300-1000MHz
 ■ AMP: KAF-05 (8447D) ■ RECEIVER: KTR-R1 (ESS) ■ KCC-30_31_32_34 (RE)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V
Mode : Tx:2480MHz
Remarks : ANT:LDA31, PK (RBW:1MHz, VBW:1MHz)
Date : 1/11/2007
Test Distance : 3 m
Temperature : 25 °C
Humidity : 37 %
Regulation : FCC Part15C § 15.209 (PK Detection)
Engineer : Tatsuya Arai

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	2483.50	BB	52.2	50.5	29.7	36.8	4.0	9.9	59.0	57.3	74.0	15.0	16.7
2.	4960.00	BB	51.3	48.4	34.2	37.3	5.8	0.4	54.4	51.5	74.0	19.6	22.5
3.	7440.00	BB	44.1	44.2	37.8	37.0	6.7	0.5	52.1	52.2	74.0	21.9	21.8
4.	9920.00	BB	49.0	48.4	38.7	36.9	7.6	0.8	59.2	58.6	74.0	14.8	15.4

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) ■ SPECTRUMANALYZER: KSA-04 (R3271A)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V
Mode : Tx:2480MHz
Remarks : ANT:LDA31, AV (RBW:1MHz, VBW:10Hz)
Date : 1/11/2007
Test Distance : 3 m
Temperature : 25 °C Engineer : Tatsuya Arai
Humidity : 37 %
Regulation : FCC Part15C § 15.209 (AV Detection)

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	2483.50	BB	41.5	40.1	29.7	36.8	4.0	9.9	48.3	46.9	54.0	5.7	7.1
2.	4960.00	BB	39.9	37.3	34.2	37.3	5.8	0.4	43.0	40.4	54.0	11.0	13.6
3.	7440.00	BB	32.3	32.1	37.8	37.0	6.7	0.5	40.3	40.1	54.0	13.7	13.9
4.	9920.00	BB	36.7	36.5	38.7	36.9	7.6	0.8	46.9	46.7	54.0	7.1	7.3

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) ■ SPECTRUMANALYZER: KSA-04 (R3271A)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co.,Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V
Mode : Tx:2402MHz
Remarks : ANT:WDAN-SCMS9004-1F
Date : 1/20/2007
Test Distance : 3 m
Temperature : 21 °C
Humidity : 35 %
Regulation : FCC Part15C § 15.209

Engineer : Toyokazu Imamura

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	39.49	BB	29.2	35.9	14.3	28.5	1.2	6.0	22.2	28.9	40.0	17.8	11.1
2.	108.01	BB	30.5	37.8	11.6	28.4	2.1	6.1	21.9	29.2	43.5	21.6	14.3
3.	199.95	BB	41.1	40.4	16.8	28.0	2.9	6.0	38.8	38.1	43.5	4.7	5.4
4.	466.54	BB	34.4	30.5	17.7	28.9	5.0	6.0	34.2	30.3	46.0	11.8	15.7

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

■ ANTENNA:KBA-01 (BBA9106) 30-299.99MHz/KLA-01 (USLP9143) 300-1000MHz

■ AMP:KAF-05 (8447D) ■ RECEIVER:KTR-R1 (ESS) ■ CABLE:KCC-30_31_32_34 (RE)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant	: Alps Electric Co., Ltd.
Kind of Equipment	: Bluetooth Transceiver Module
Model No.	: UGPZ6
Serial No.	: 4C4E20
Power	: DC3.3V
Mode	: Tx:2402MHz
Remarks	: ANT:WDAN-SCMS9004-1F, PK (RBW:1MHz, VBW:1MHz)
Date	: 1/20/2007
Test Distance	: 3 m
Temperature	: 21 °C
Humidity	: 35 %
Regulation	: FCC Part15C § 15.209 (PK Detection)

Engineer : Toyokazu Imamura

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	2390.00	BB	43.5	43.4	29.8	36.8	4.0	9.9	50.4	50.3	74.0	23.6	23.7
2.	4804.00	BB	48.1	48.8	33.8	37.1	5.8	0.5	51.1	51.8	74.0	22.9	22.2
3.	7206.00	BB	43.8	45.7	37.5	36.9	6.6	0.5	51.5	53.4	74.0	22.5	20.6
4.	9608.00	BB	43.7	42.9	38.9	37.0	7.6	1.0	54.2	53.4	74.0	19.8	20.6

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) ■ SPECTRUMANALYZER: R3271A (KSA-04)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co.,Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V
Mode : Tx:2402MHz
Remarks : ANT:WDAN-SCMS9004-1F, AV (RBW:1MHz, VBW:10Hz)
Date : 1/20/2007
Test Distance : 3 m
Temperature : 21 °C Engineer : Toyokazu Imamura
Humidity : 35 %
Regulation : FCC Part15C § 15.209 (AV Detection)

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	2390.00	BB	33.1	33.2	29.8	36.8	4.0	9.9	40.0	40.1	54.0	14.0	13.9
2.	4804.00	BB	40.6	41.3	33.8	37.1	5.8	0.5	43.6	44.3	54.0	10.4	9.7
3.	7206.00	BB	31.7	32.0	37.5	36.9	6.6	0.5	39.4	39.7	54.0	14.6	14.3
4.	9608.00	BB	32.7	31.7	38.9	37.0	7.6	1.0	43.2	42.2	54.0	10.8	11.8

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) ■ SPECTRUMANALYZER: R3271A (KSA-04)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YKA

Applicant : Alps Electric Co.,Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V
Mode : Tx:2441MHz
Remarks : ANT:WDAN-SCMS9004-1F
Date : 1/20/2007
Test Distance : 3 m
Temperature : 21 °C
Humidity : 35 %
Regulation : FCC Part15C § 15.209
Engineer : Toyokazu Imamura

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	39.48	BB	25.9	33.7	14.3	28.5	1.2	6.0	18.9	26.7	40.0	21.1	13.3
2.	108.01	BB	26.6	36.8	11.6	28.4	2.1	6.1	18.0	28.2	43.5	25.5	15.3
3.	199.95	BB	39.6	41.6	16.8	28.0	2.9	6.0	37.3	39.3	43.5	6.2	4.2
4.	466.54	BB	32.7	29.4	17.7	28.9	5.0	6.0	32.5	29.2	46.0	13.5	16.8

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

■ ANTENNA:KBA-01 (BBA9106) 30-299.99MHz/KLA-01 (USLP9143) 300-1000MHz

■ AMP:KAF-05 (8447D) ■ RECEIVER:KTR-R1 (ESS) ■ CABLE:KCC-30_31_32_34 (RE)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co.,Ltd.
 Kind of Equipment : Bluetooth Transceiver Module
 Model No. : UGPZ6
 Serial No. : 4C4E20
 Power : DC3.3V
 Mode : Tx:2441MHz
 Remarks : ANT:WDAN-SCMS9004-1F, PK (RBW:1MHz, VBW:1MHz)
 Date : 1/20/2007
 Test Distance : 3 m
 Temperature : 21 °C
 Humidity : 35 %
 Regulation : FCC Part15C § 15.209 (PK Detection)

Engineer : Toyokazu Imamura

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	4882.00	BB	47.3	47.2	34.0	37.2	5.8	0.5	50.4	50.3	74.0	23.6	23.7
2.	7323.00	BB	43.2	43.4	37.6	37.0	6.7	0.5	51.0	51.2	74.0	23.0	22.8
3.	9764.00	BB	42.9	44.3	38.8	37.0	7.6	0.9	53.2	54.6	74.0	20.8	19.4

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) ■ SPECTRUMANALYZER: R3271A (KSA-04)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
YAMAKITA No.1 ANECHOIC CHAMBER
Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co.,Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V
Mode : Tx:2441MHz
Remarks : ANT:WDAN-SCMS9004-1F, AV (RBW:1MHz, VBW:10Hz)
Date : 1/20/2007
Test Distance : 3 m
Temperature : 21 °C
Humidity : 35 %
Regulation : FCC Part15C § 15.209 (AV Detection)
Engineer : Toyokazu Imamura

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	4882.00	BB	38.8	39.6	34.0	37.2	5.8	0.5	41.9	42.7	54.0	12.1	11.3
2.	7323.00	BB	31.3	31.5	37.6	37.0	6.7	0.5	39.1	39.3	54.0	14.9	14.7
3.	9764.00	BB	32.2	32.9	38.8	37.0	7.6	0.9	42.5	43.2	54.0	11.5	10.8

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) ■ SPECTRUMANALYZER: R3271A (KSA-04)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YKA

Applicant : Alps Electric Co.,Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V
Mode : Tx:2480MHz
Remarks : ANT:WDAN-SCMS9004-1F
Date : 1/20/2007
Test Distance : 3 m
Temperature : 21 °C
Humidity : 35 %
Regulation : FCC Part15C § 15.209
Engineer : Toyokazu Imamura

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	39.48	BB	26.9	35.2	14.3	28.5	1.2	6.0	19.9	28.2	40.0	20.1	11.8
2.	108.01	BB	27.2	37.8	11.6	28.4	2.1	6.1	18.6	29.2	43.5	24.9	14.3
3.	199.95	BB	40.1	41.5	16.8	28.0	2.9	6.0	37.8	39.2	43.5	5.7	4.3
4.	366.54	BB	32.7	33.9	16.1	28.2	4.4	6.0	31.0	32.2	46.0	15.0	13.8

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

■ ANTENNA:KBA-01 (BBA9106) 30-299.99MHz/KLA-01 (USLP9143) 300-1000MHz

■ AMP:KAF-05 (8447D) ■ RECEIVER:KTR-R1 (ESS) ■ CABLE:KCC-30_31_32_34 (RE)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YK-A

Applicant : Alps Electric Co.,Ltd.
 Kind of Equipment : Bluetooth Transceiver Module
 Model No. : UGPZ6
 Serial No. : 4C4E20
 Power : DC3.3V
 Mode : Tx:2480MHz
 Remarks : ANT:WDAN-SCMS9004-1F, PK (RBW:1MHz, VBW:1MHz)
 Date : 1/20/2007
 Test Distance : 3 m
 Temperature : 21 °C
 Humidity : 35 %
 Regulation : FCC Part15C § 15.209 (PK Detection)

Engineer : Toyokazu Imamura

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	2483.50	BB	48.3	46.9	29.7	36.8	4.0	9.9	55.1	53.7	74.0	18.9	20.3
2.	4960.00	BB	46.0	46.7	34.2	37.3	5.8	0.4	49.1	49.8	74.0	24.9	24.2
3.	7440.00	BB	43.9	43.5	37.8	37.0	6.7	0.5	51.9	51.5	74.0	22.1	22.5
4.	9920.00	BB	43.7	44.5	38.7	36.9	7.6	0.8	53.9	54.7	74.0	20.1	19.3

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) ■ SPECTRUMANALYZER: R3271A (KSA-04)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 27DE0019-YKA

Applicant : Alps Electric Co.,Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 4C4E20
Power : DC3.3V
Mode : Tx:2480MHz
Remarks : ANT:WDAN-SCMS9004-1F, AV (RBW:1MHz, VBW:10Hz)
Date : 1/20/2007
Test Distance : 3 m
Temperature : 21 °C
Humidity : 35 %
Regulation : FCC Part15C § 15.209 (AV Detection)
Engineer : Toyokazu Imamura

No.	FREQ. [MHz]	ANT TYPE	READING		ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT		LIMITS [dB μV/m]	MARGIN	
			HOR [dB μV]	VER [dB μV]					HOR [dB μV/m]	VER [dB μV/m]		HOR [dB]	VER [dB]
1.	2483.50	BB	42.1	40.5	29.7	36.8	4.0	9.9	48.9	47.3	54.0	5.1	6.7
2.	4960.00	BB	37.0	39.0	34.2	37.3	5.8	0.4	40.1	42.1	54.0	13.9	11.9
3.	7440.00	BB	32.1	33.0	37.8	37.0	6.7	0.5	40.1	41.0	54.0	13.9	13.0
4.	9920.00	BB	32.5	32.7	38.7	36.9	7.6	0.8	42.7	42.9	54.0	11.3	11.1

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

■ ANTENNA:KHA-01 (SAS-200 571) 1-18GHz/KHA-03 (3160-09) 18-26GHz

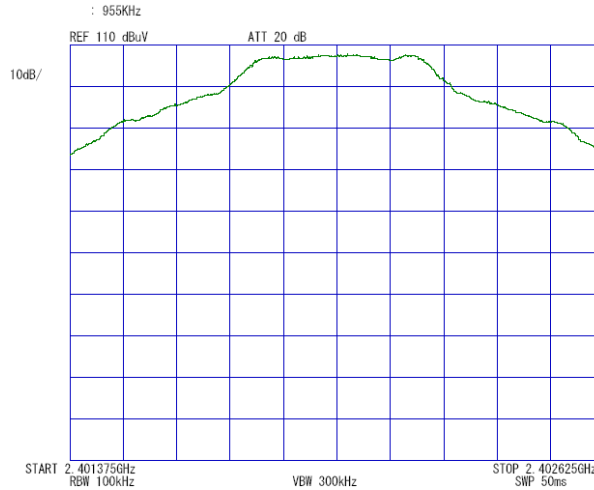
■ CABLE:KCC-D3/D7 ■ PREAMP:KAF-02 (8449B) ■ SPECTRUMANALYZER: R3271A (KSA-04)

Occupied Bandwidth(99%)

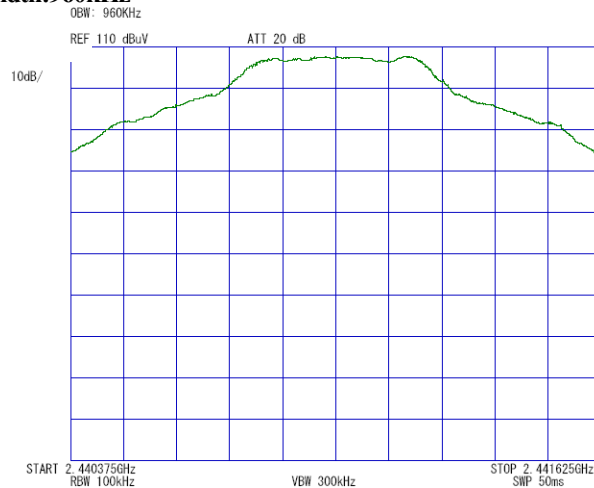
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : RSS-210
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting
ENGINEER : Tatsuya Arai

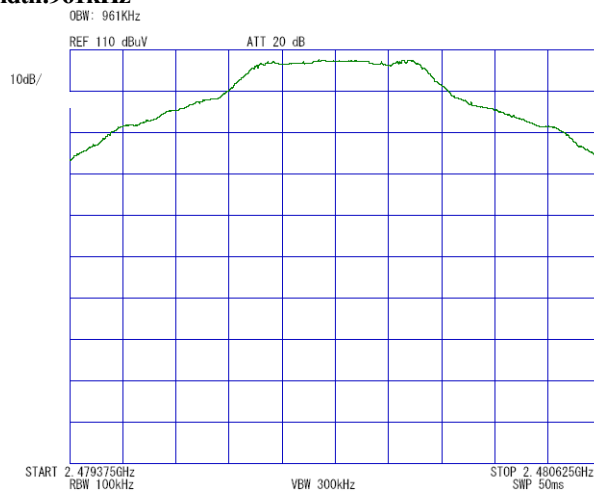
1. ch : 2402MHz/Occupied Bandwidth:955kHz



2. ch : 2441MHz/Occupied Bandwidth:960kHz



3. ch : 2480MHz/Occupied Bandwidth:961kHz

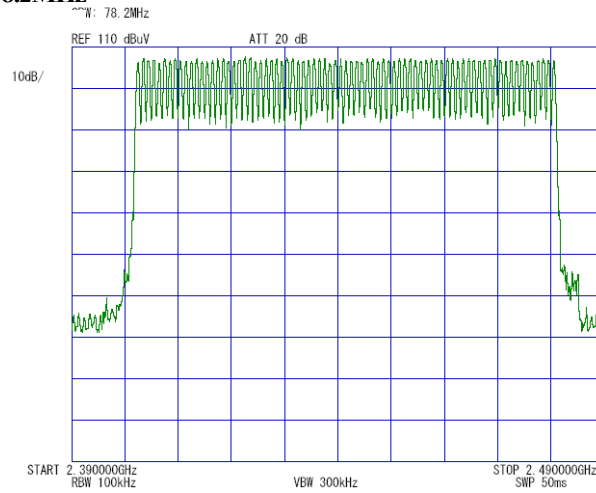


Occupied Bandwidth(99%)

COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : RSS-210
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting
ENGINEER : Tatsuya Arai

4. Hopping/Occupied Bandwidth:78.2MHz



APPENDIX 3

Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
YA-CE	Conducted emission(software)	UL-Apex	CE(Ver.1.6)	CE	-
KCC-14/15/16/18/KPL-01/KRM-01	Coaxial Cable/Pulse Limiter/RF Relay Matrix	Fujikura/Suhner/PMM/TSJ	5D-2W/8D-2W/S04272B/S04272B/PL01/-	CE	2006/05/16 * 12
KLS-01	LISN(AMN)	Schwarzbeck	NSLK8126	CE	2006/04/19 * 12
KLS-02	LISN(AMN)	Schwarzbeck	NSLK8127	CE	2006/09/25 * 12
KSA-01	Spectrum Analyzer	Advantest	R3365	CE	2006/07/01 * 12
KTM-01	Terminator	TME	CT-01BP	CE	2006/03/24 * 12
KTR-02	Test Receiver	Rohde & Schwarz	ESCS30	CE	2006/11/25 * 12
KOS-04	Humidity Indicator	SATO	PC-5000TRH	CE	2006/07/14 * 24
KJM-03	Measure	TAJIMA	GL19-55	CE	-
YA-RE	Radiated emission(software)	UL-Apex	RE(Ver.1.5)	RE	-
KAEC-01(NSA)	Anechoic Chamber	JSE	Semi 3m	RE	2006/08/31 * 12
KAF-05	Pre Amplifier	Agilent	8447D	RE	2006/04/21 * 12
KAT6-01	Attenuator	INMET	18N-6dB	RE	2006/03/24 * 12
KBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2007/01/06 * 12
KCC-30/31/32/34/KRM-03	Coaxial Cable/RF Relay Matrix	Fujikura/Suhner/TSJ	5D-2W/S04272B/RFM-E421	RE	2006/11/27 * 12
KCC-33/34/KRM-03	Coaxial Cable/RF Relay Matrix	Fujikura/Suhner/TSJ	5D-2W/S04272B/RFM-E421	CE	2006/11/27 * 12
KLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2007/01/06 * 12
KSA-04	Spectrum Analyzer	Advantest	R3271A	RE/AT 1,2,3,4,6	2006/09/05 * 12
KOS-01	Humidity Indicator	Custom	CTH-190	CE	2006/07/14 * 24
KOS-02	Humidity Indicator	Custom	CTH-190	RE/AT	2006/07/10 * 24
KJM-01	Measure	TAJIMA	GL19-55	RE	-
KTR-R1	Test Receiver	Rohde & Schwarz	ESS	RE	2006/07/15 * 12
KAF-02	Pre Amplifier	Hewlett Packard	8449B	RE/AT	2006/04/24 * 12
KAT10-S1	Attenuator	Agilent	8449D 010	RE	2006/04/11 * 12
KCC-D3/D7	Coaxial Cable	Rosenberger/Advantest	2201/JUN-08-01-061	RE	2006/04/11 * 12
KDT-01	Coaxial Crystal Detector	Agilent	8473C	AT 4	Pre Check
KFL-01	Highpass Filter	Hewlett Packard	84300 80038	RE	2006/04/11 * 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
KPM-05	Power meter	Agilent	E4417A	AT 5	2006/02/16 * 12
KPSS-01	Power sensor	Agilent	E9327A	AT 5	2006/03/15 * 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 :

CE: Conducted Emission

RE: Out of Band Emission (Radiated)

AT: Antenna Terminal Conducted Test

1: Carrier Frequency Separation

2: 20dB Bandwidth

3: Number of Hopping Frequency

4: Dwell time

5: Maximum Peak Output Power

6: Out of Band Emission (Conducted)