

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:

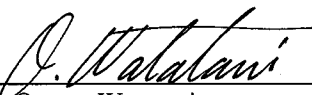

Tatsuya Arai

&


Ichiro Isozaki


Toyokazu Imamura

Approved by:


Osamu Watatani
Manager of Yamakita EMC Lab.

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MF060b (14.06.06)

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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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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

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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

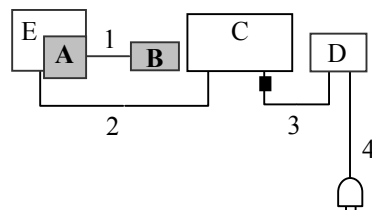
Connected antenna:

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

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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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 |
|---------|---|------------------|

Conducted emission



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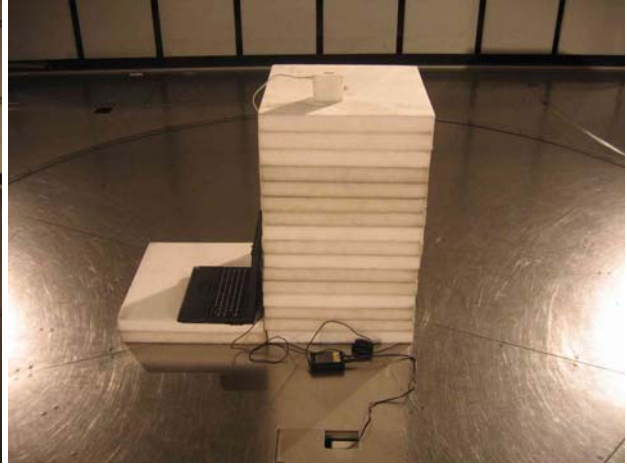
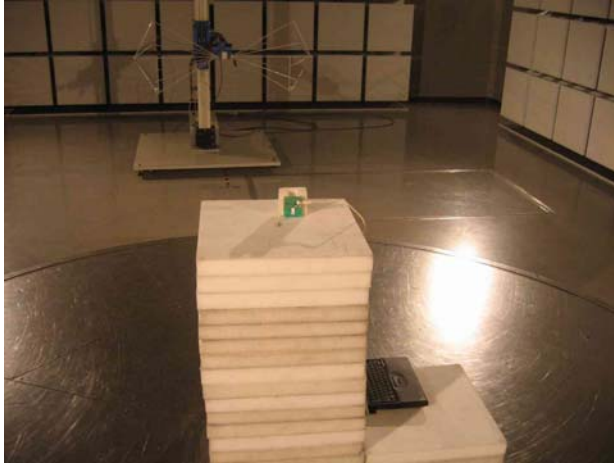
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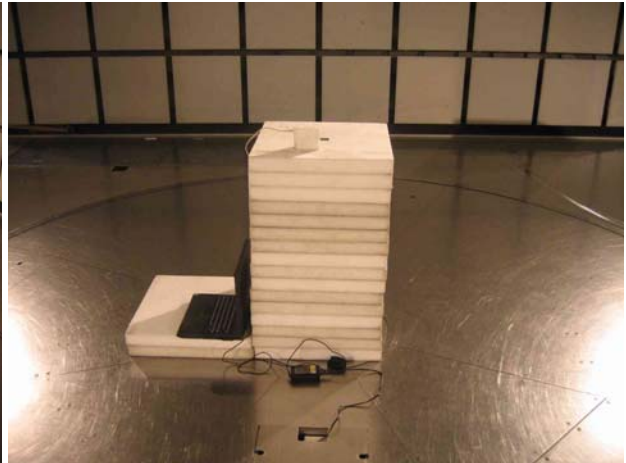
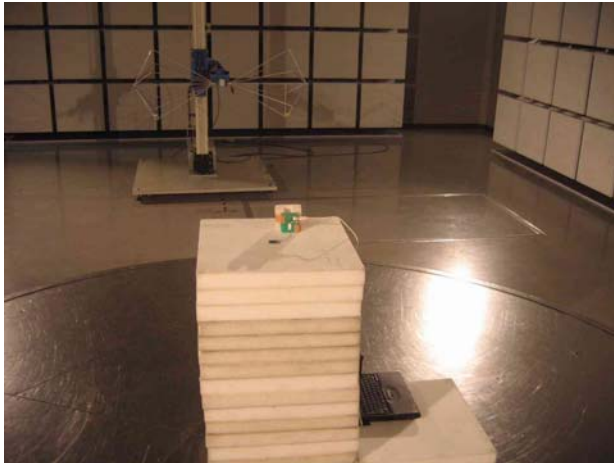
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Radiated emission

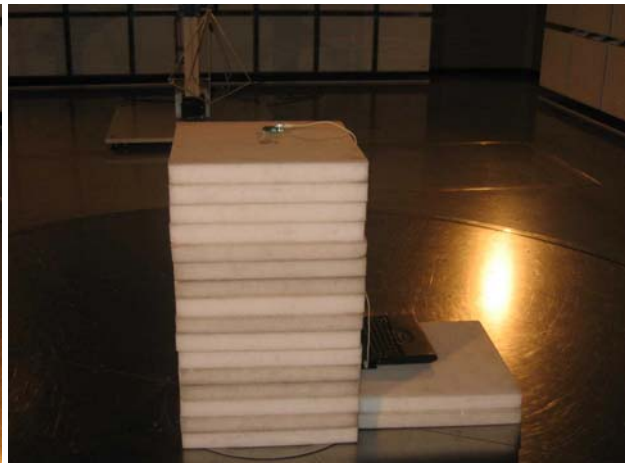
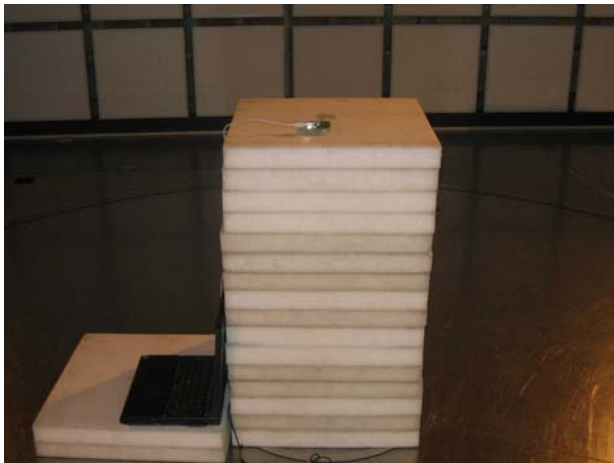
Antenna: C680



Antenna: LDA31



Antenna: WDAN-SCMS9004-1F



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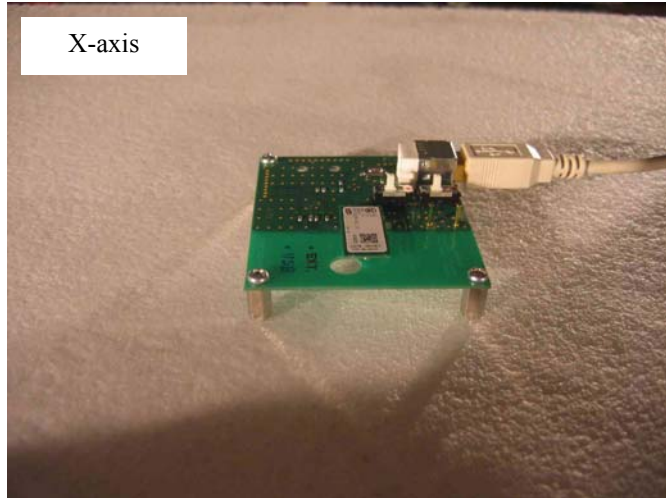
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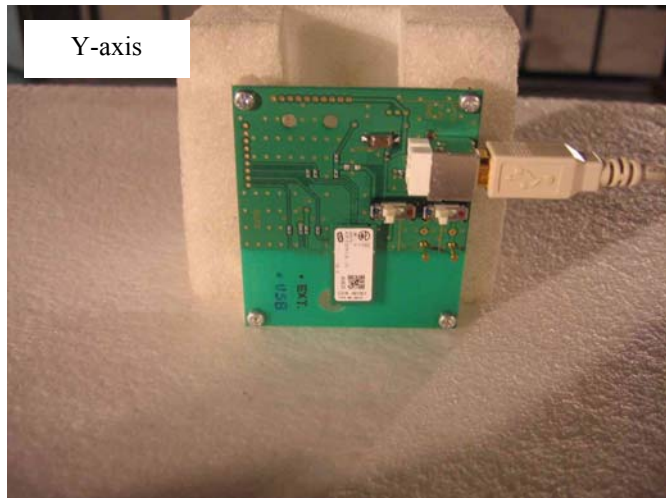
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Pre check of worse-case position (Module)

X-axis



Y-axis

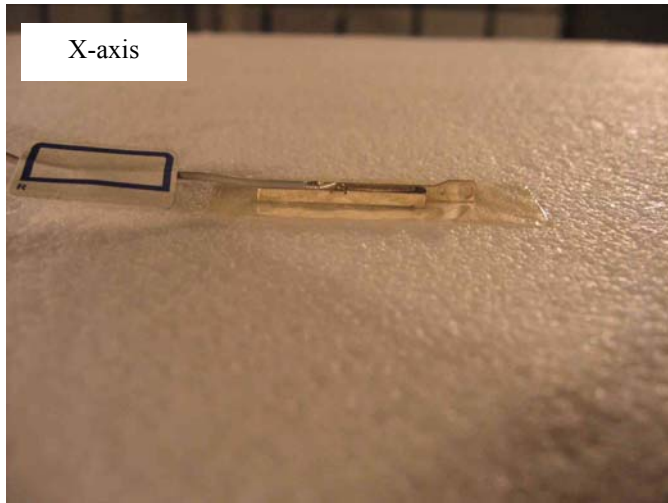


Z-axis

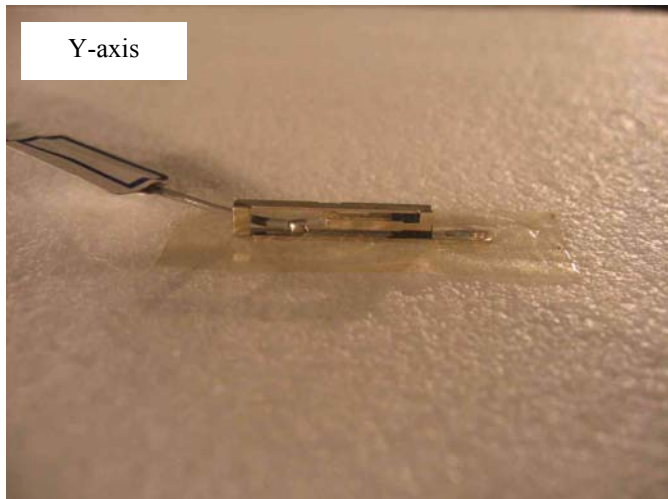


Pre check of worse-case position (Antenna: C680)

X-axis



Y-axis

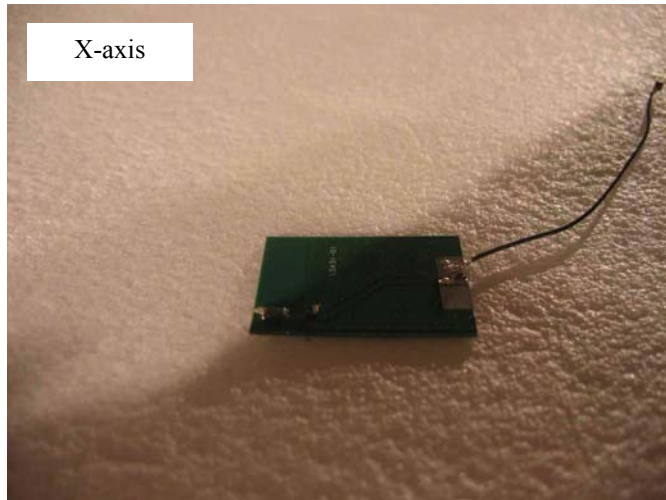


Z-axis

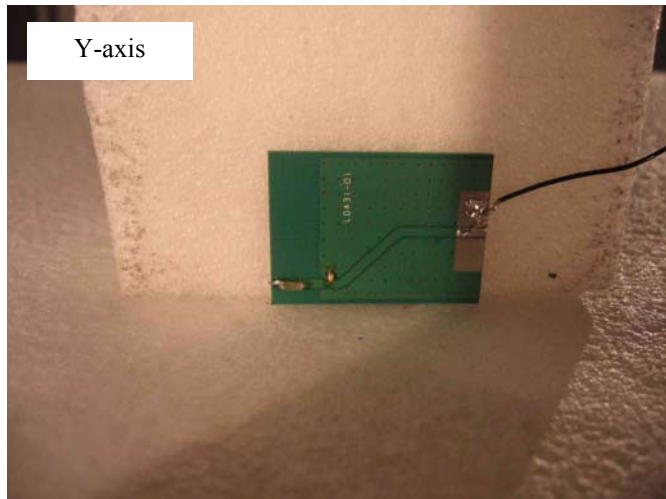


Pre check of worse-case position (Antenna: LDA31)

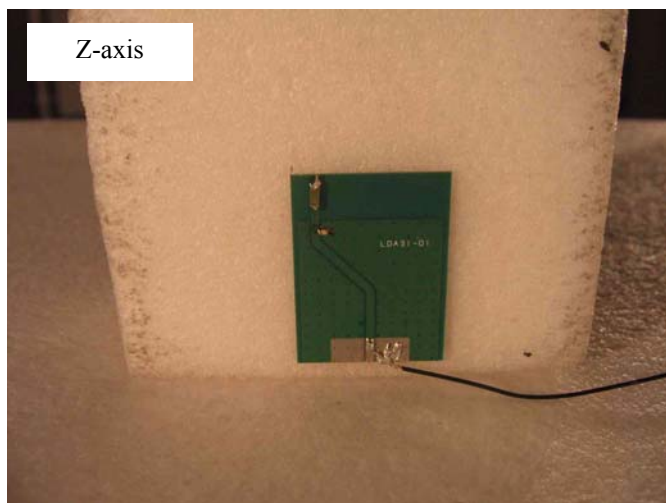
X-axis



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.

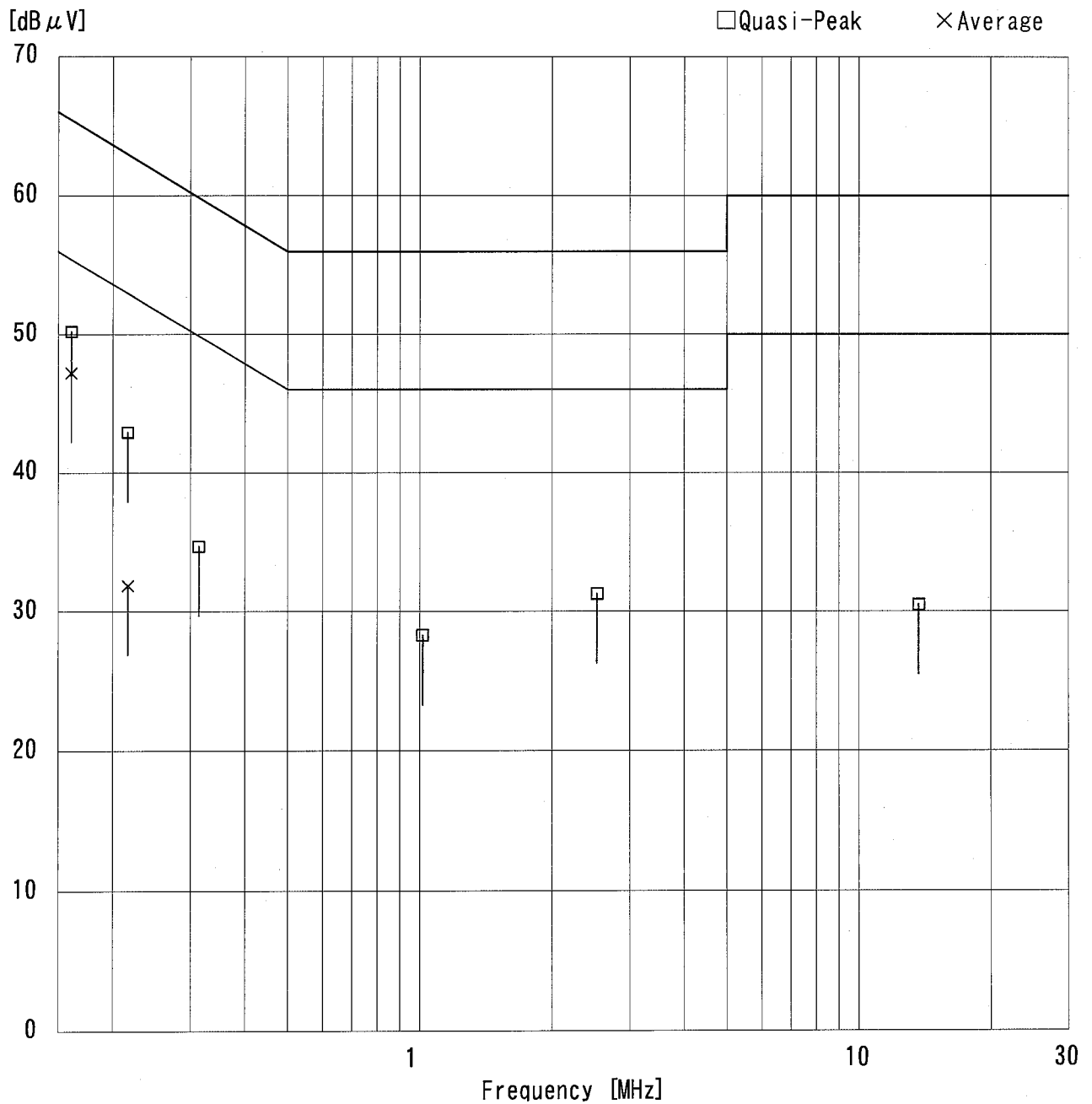
■ LISN : KLS-02 (NSLK8127) ■ COAXIAL CABLE : KCC-14/15/16/18
■ PULSE LIMITTER : KPL-01 (PL01) ■ EMI RECEIVER : KTR-02 (ESCS30)

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



Page:

DATA OF CONDUCTION TEST CHART

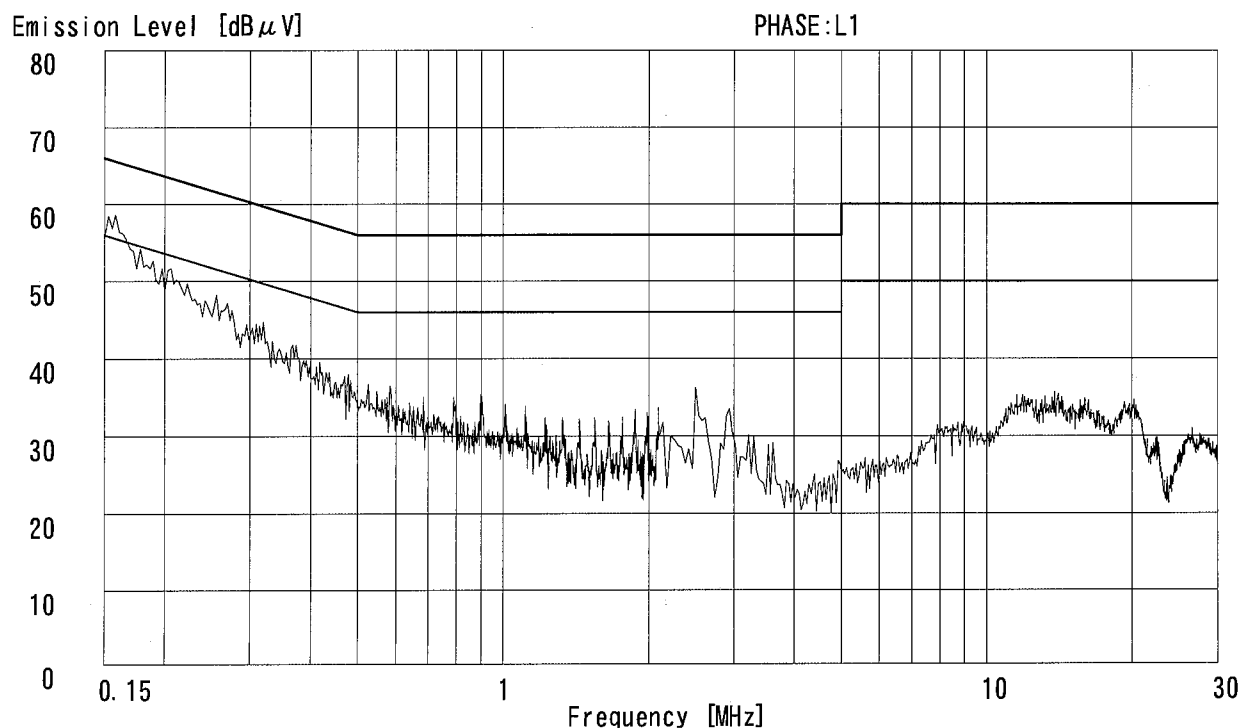
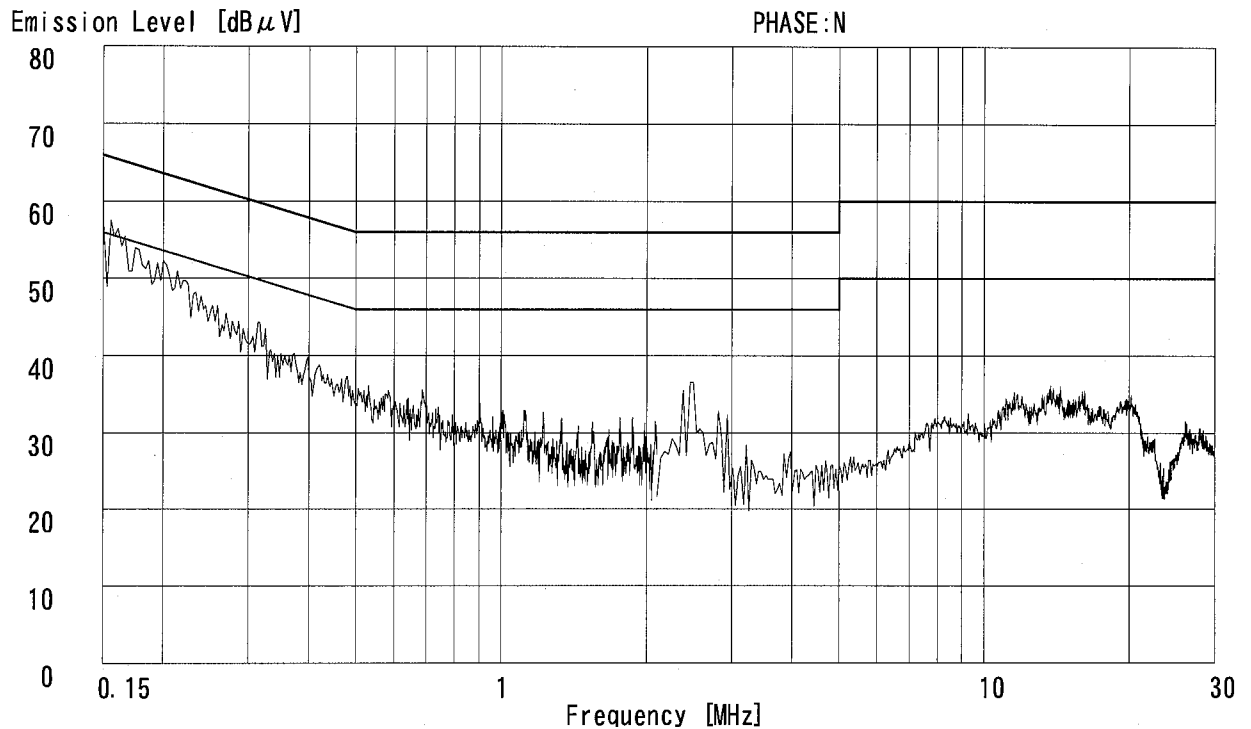
UL Apex Co.,Ltd.

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: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

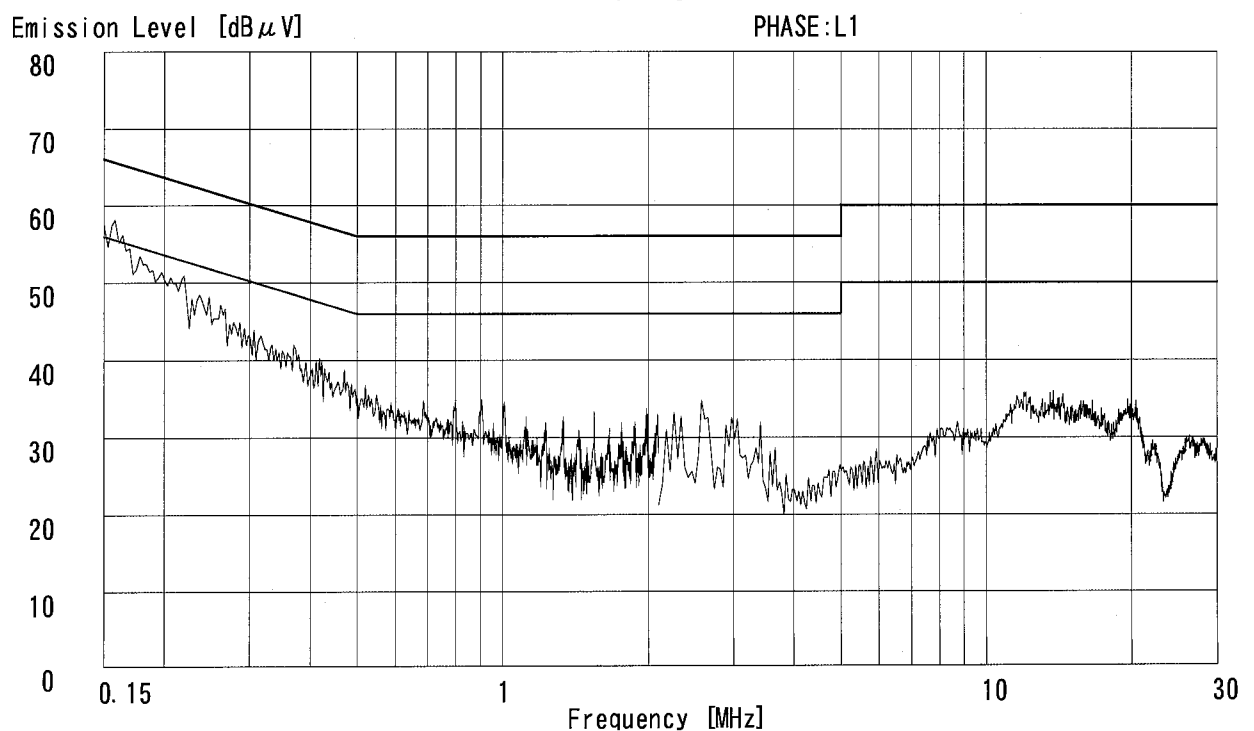
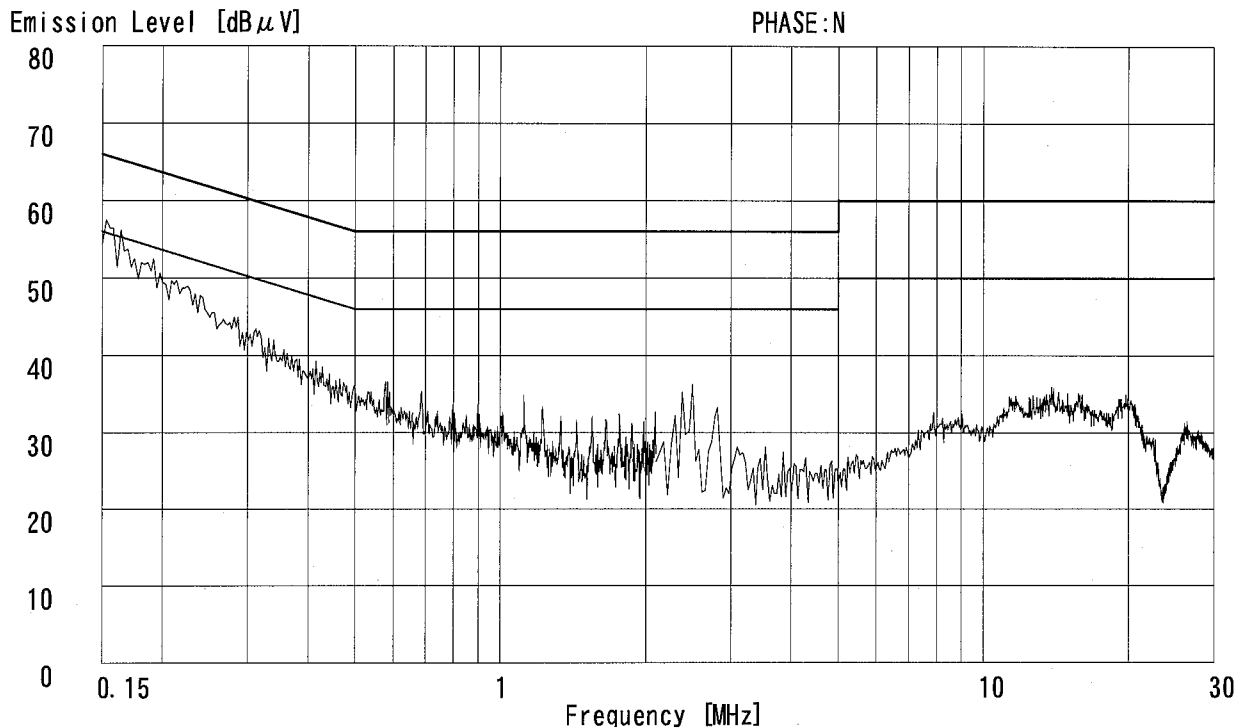
UL Apex Co.,Ltd.

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

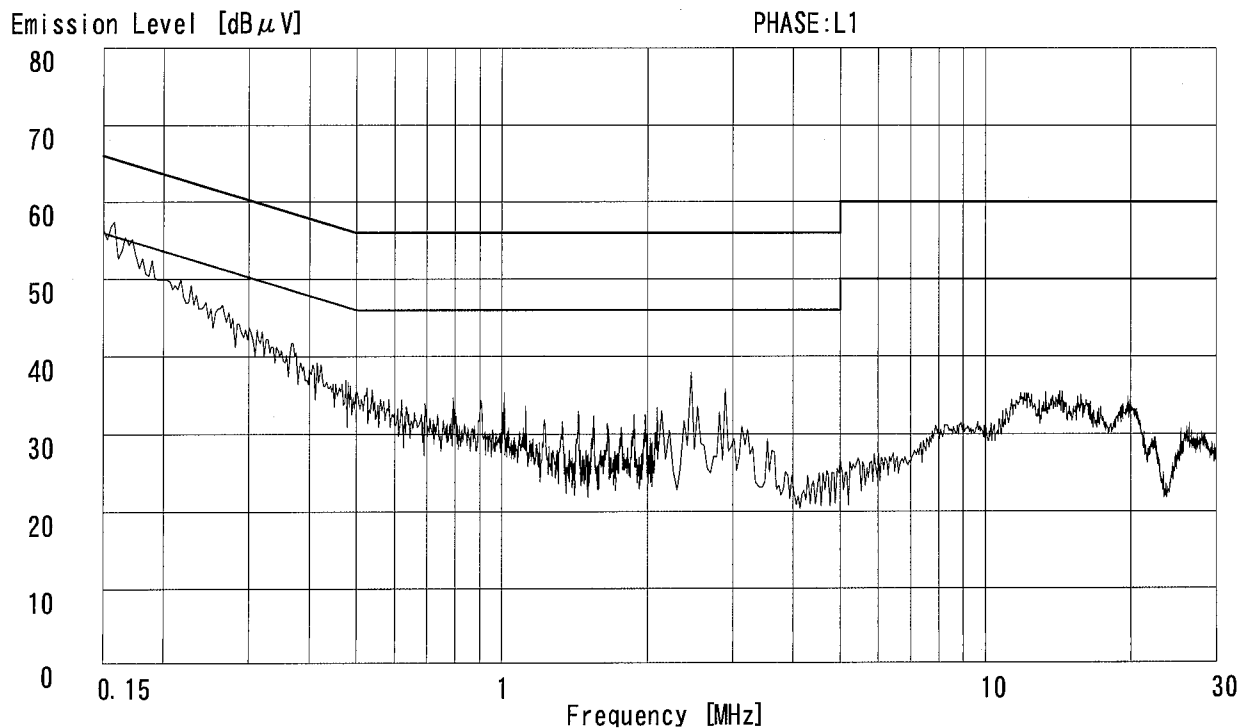
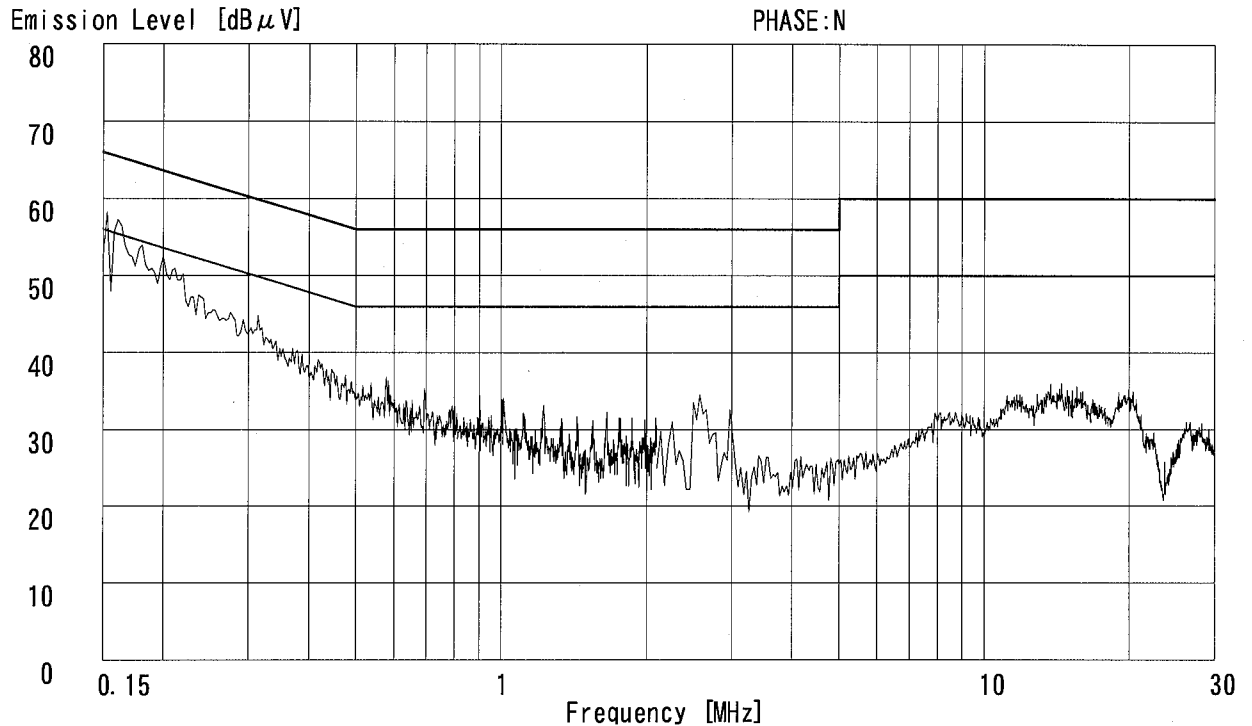
UL Apex Co.,Ltd.

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

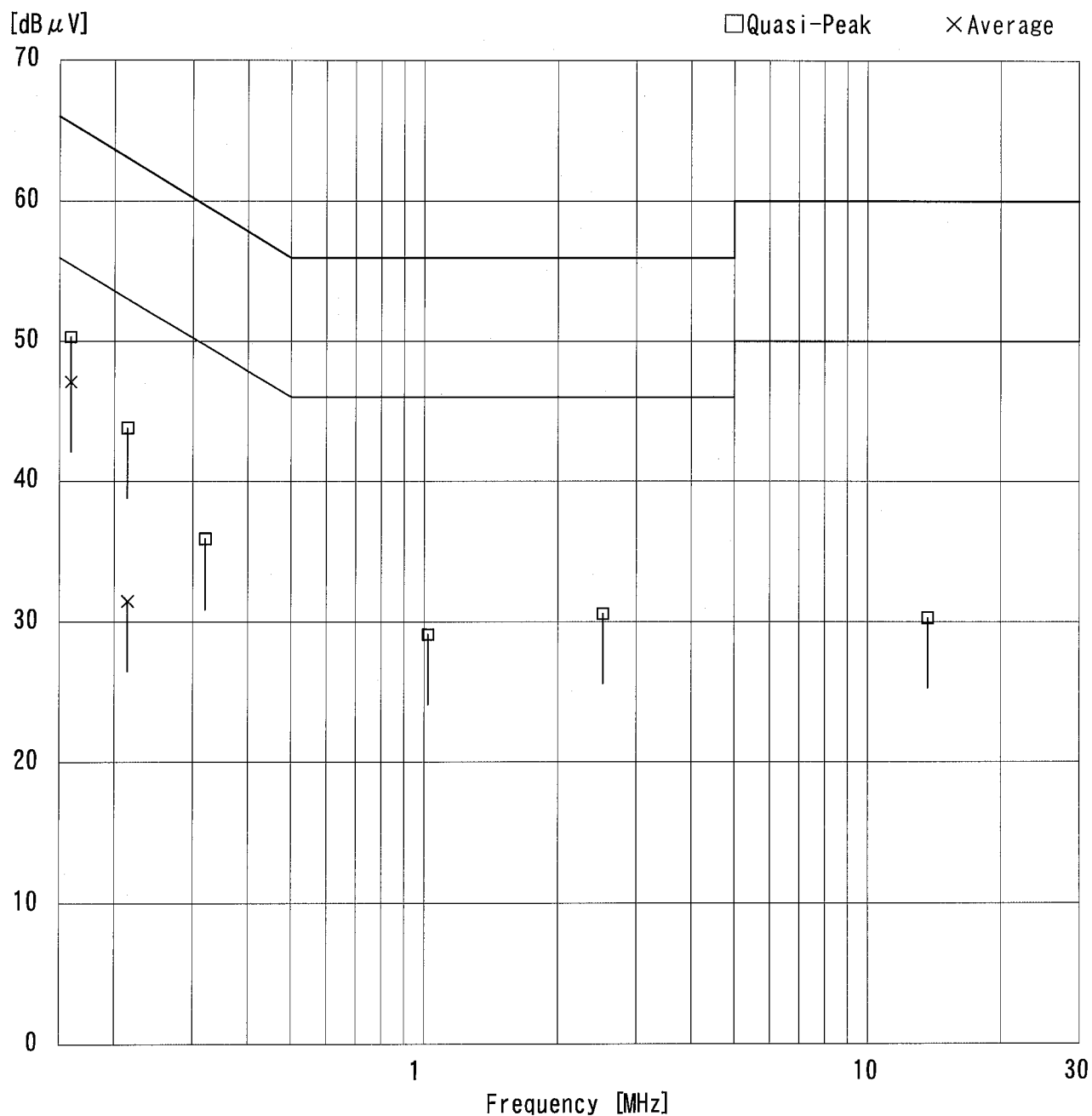
UL Apex Co.,Ltd.

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

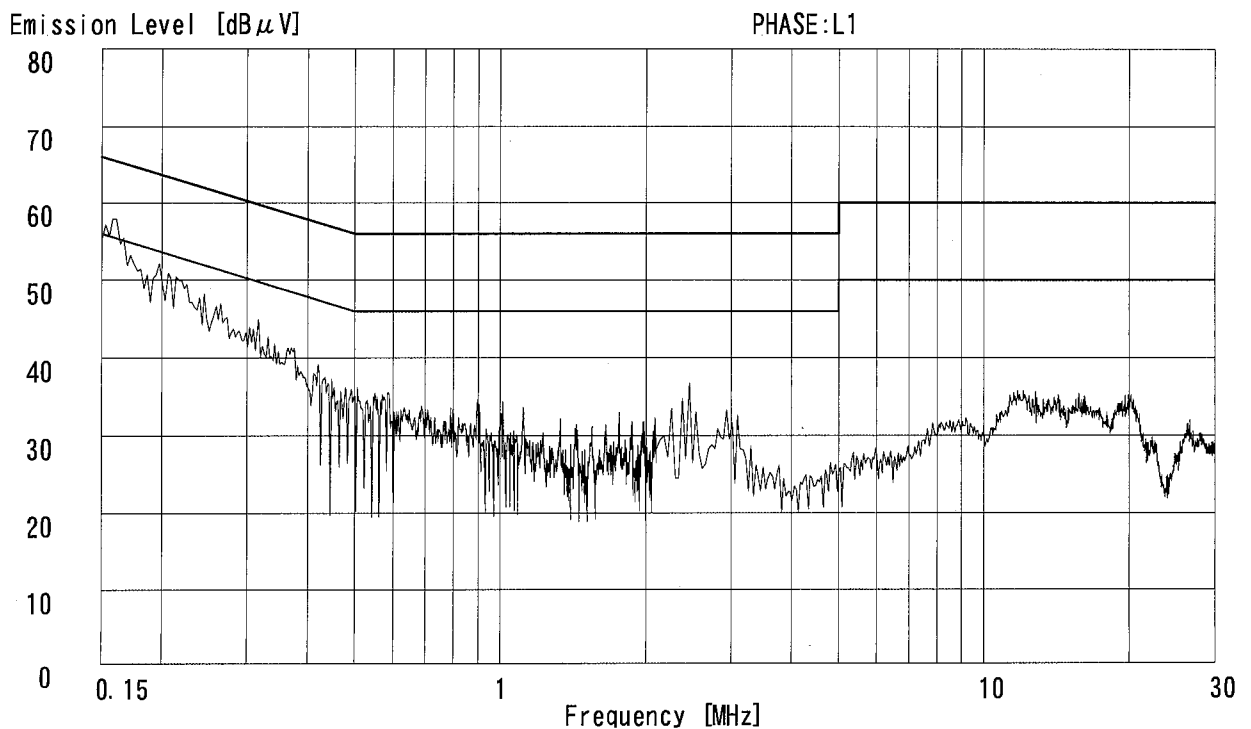
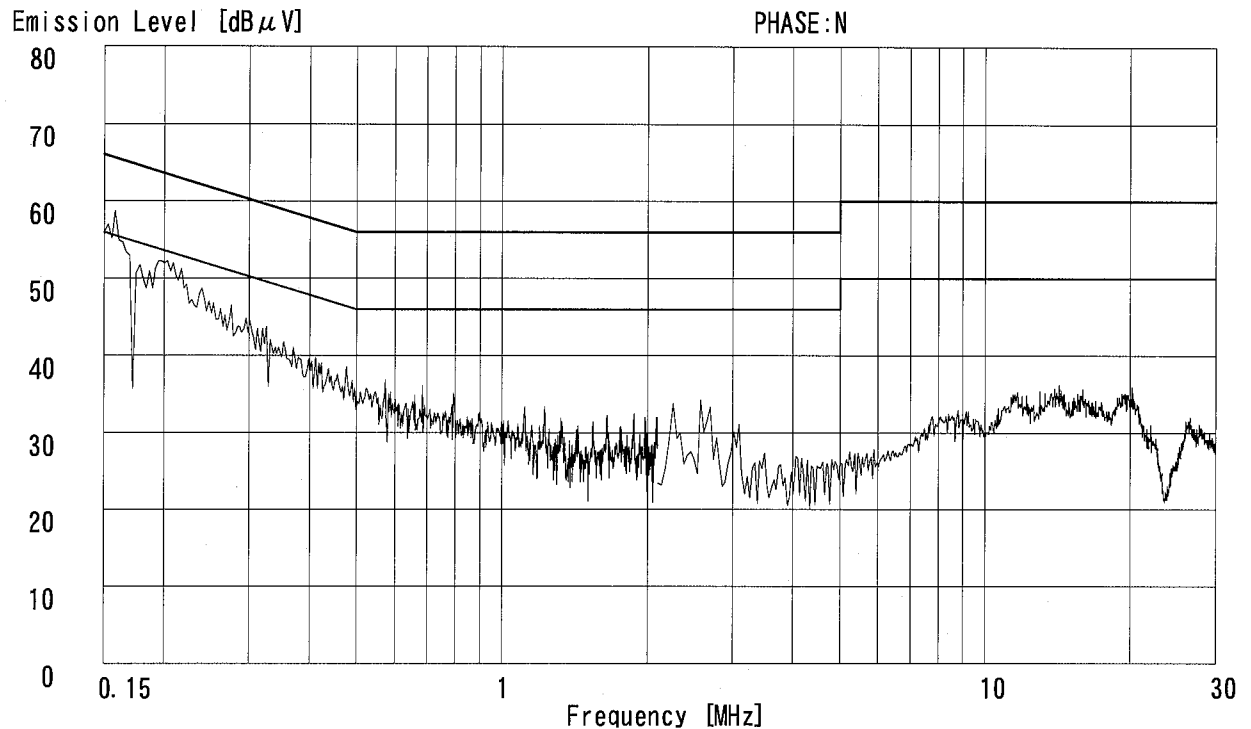
UL Apex Co.,Ltd.

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

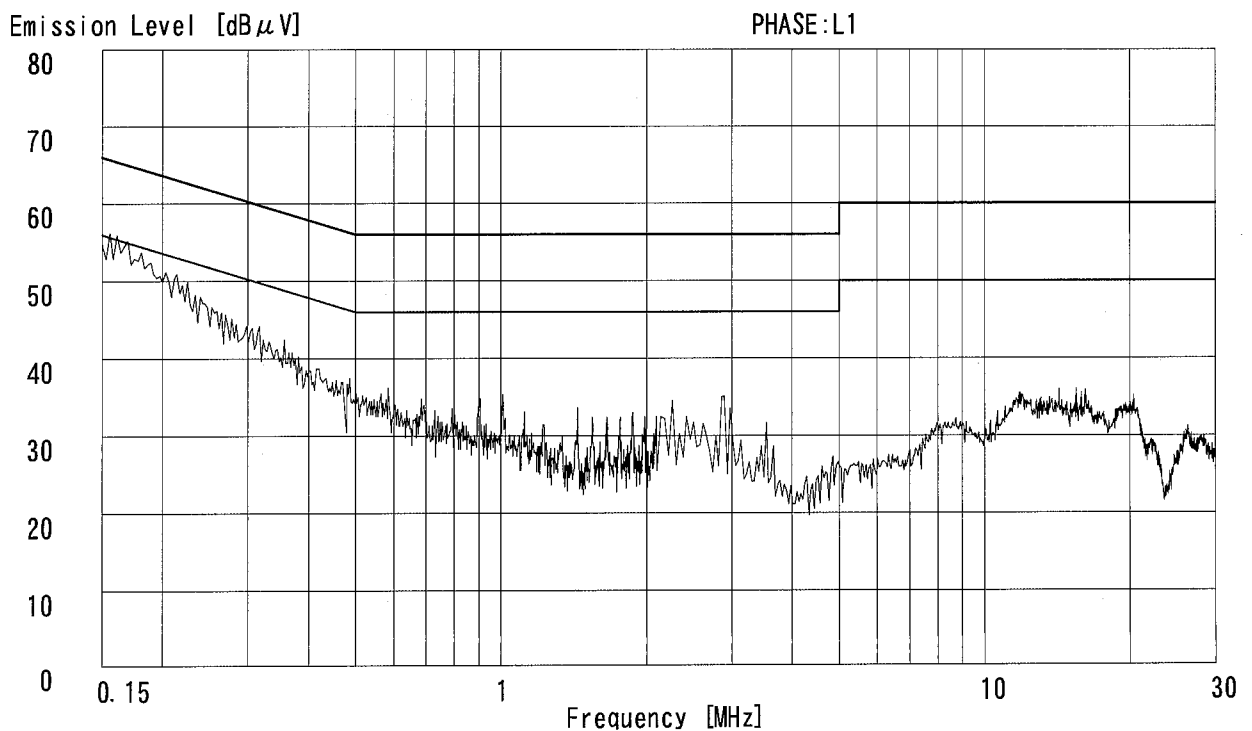
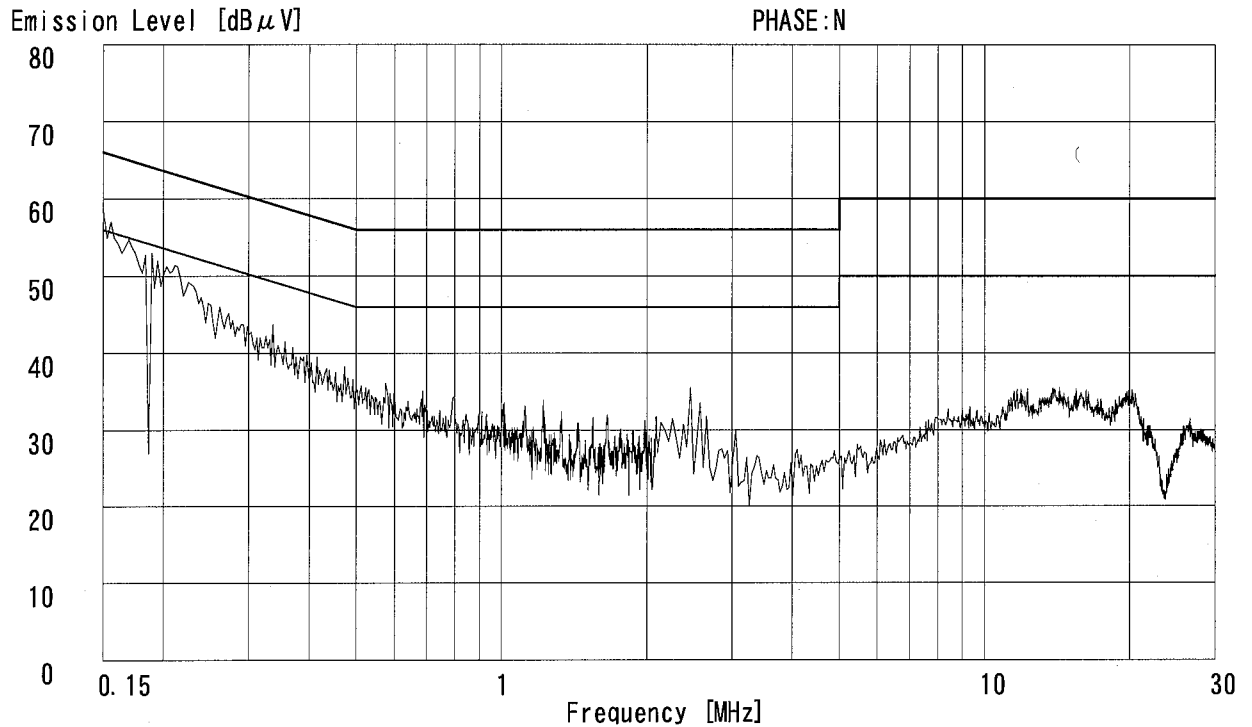
UL Apex Co.,Ltd.

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

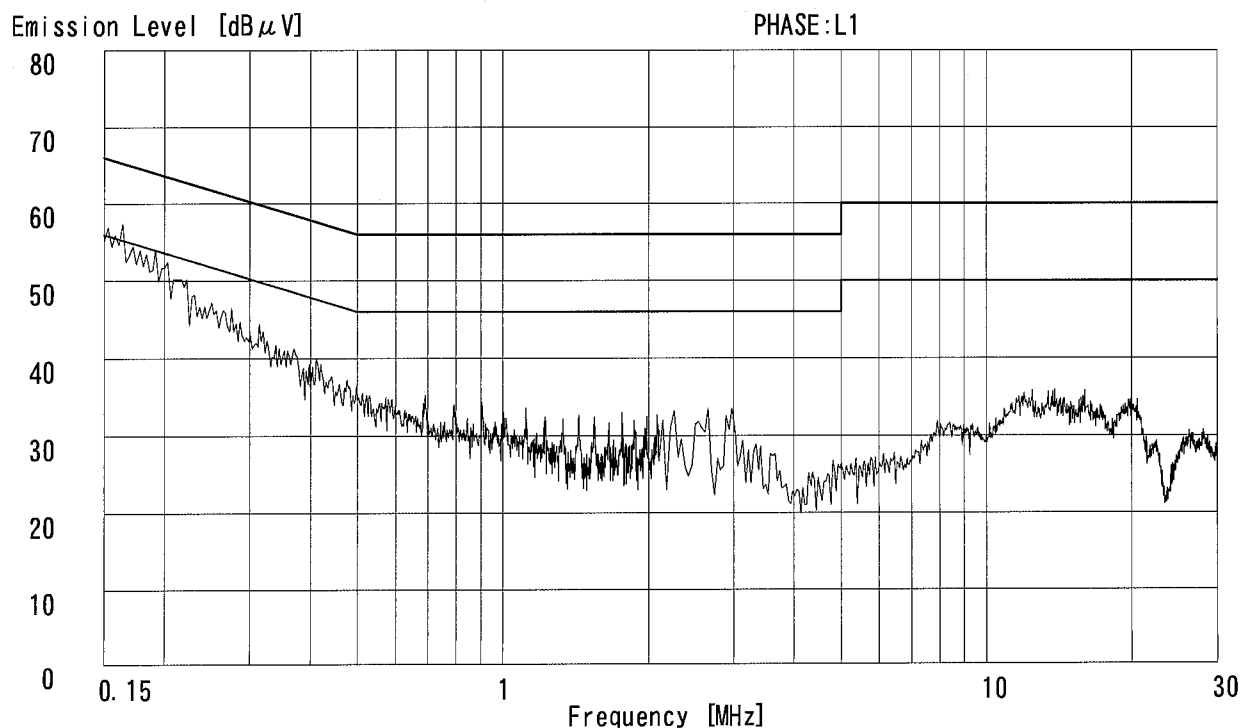
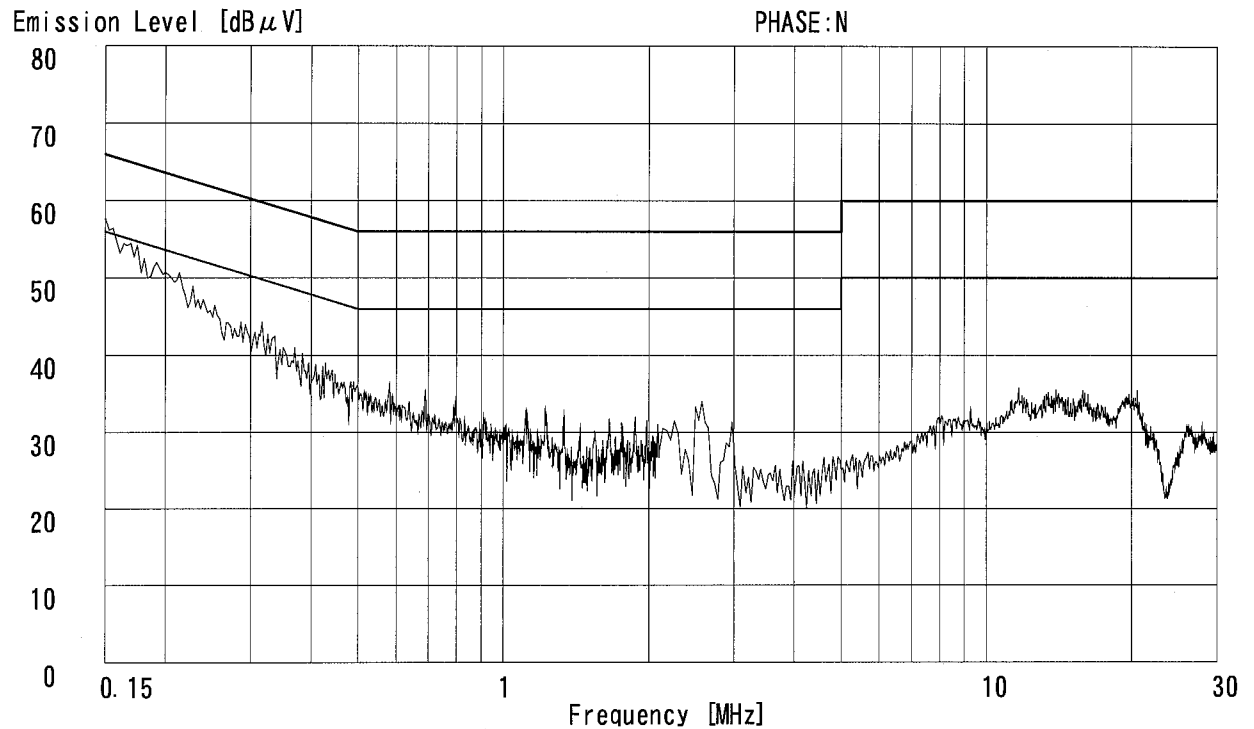
UL Apex Co.,Ltd.

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.

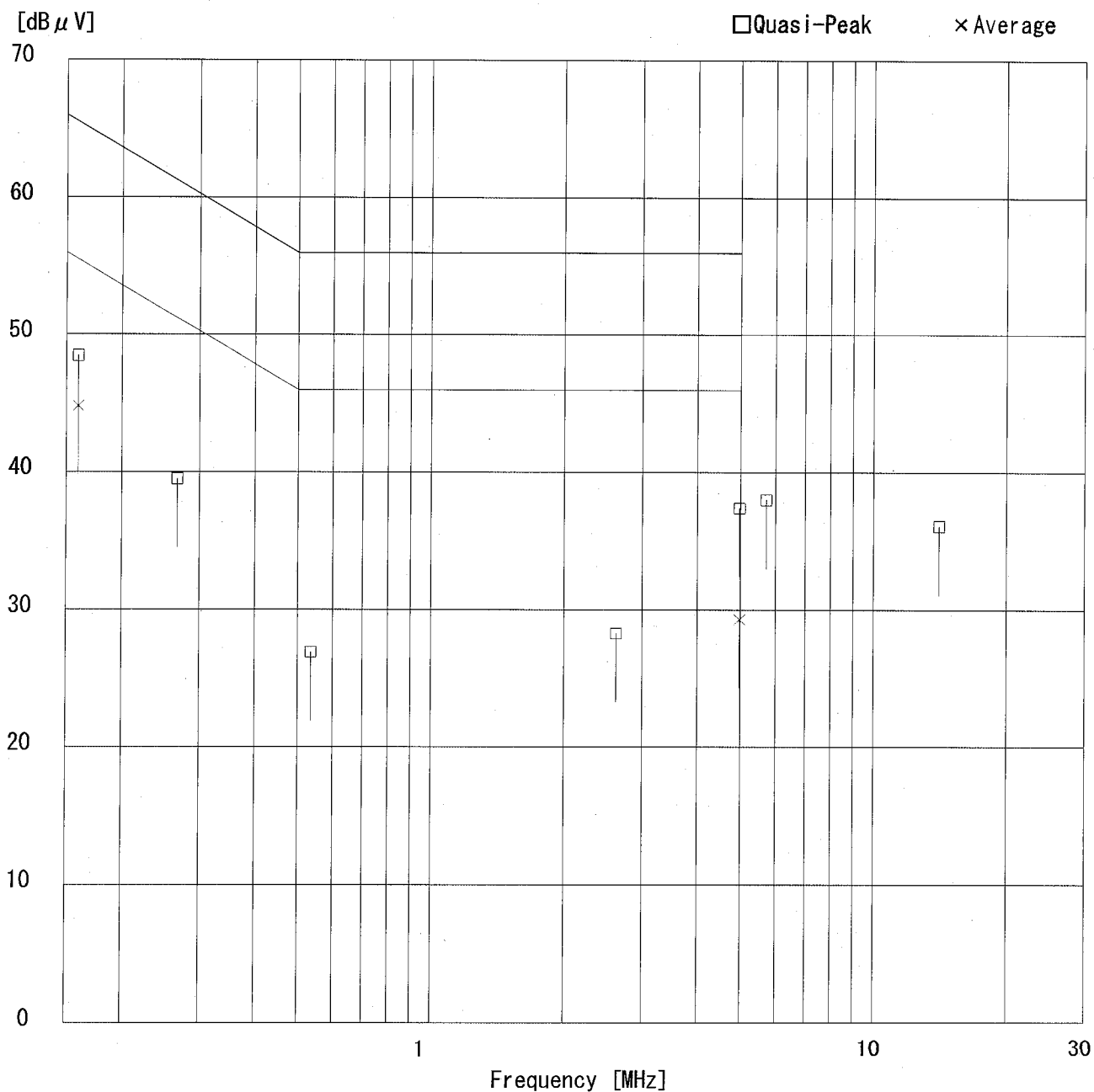
■ LISN: KLS-01 (NSLK8126) ■ COAXIAL CABLE: KCC-33/34
■ EMI RECEIVER: KTR-R1 (ESS)

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

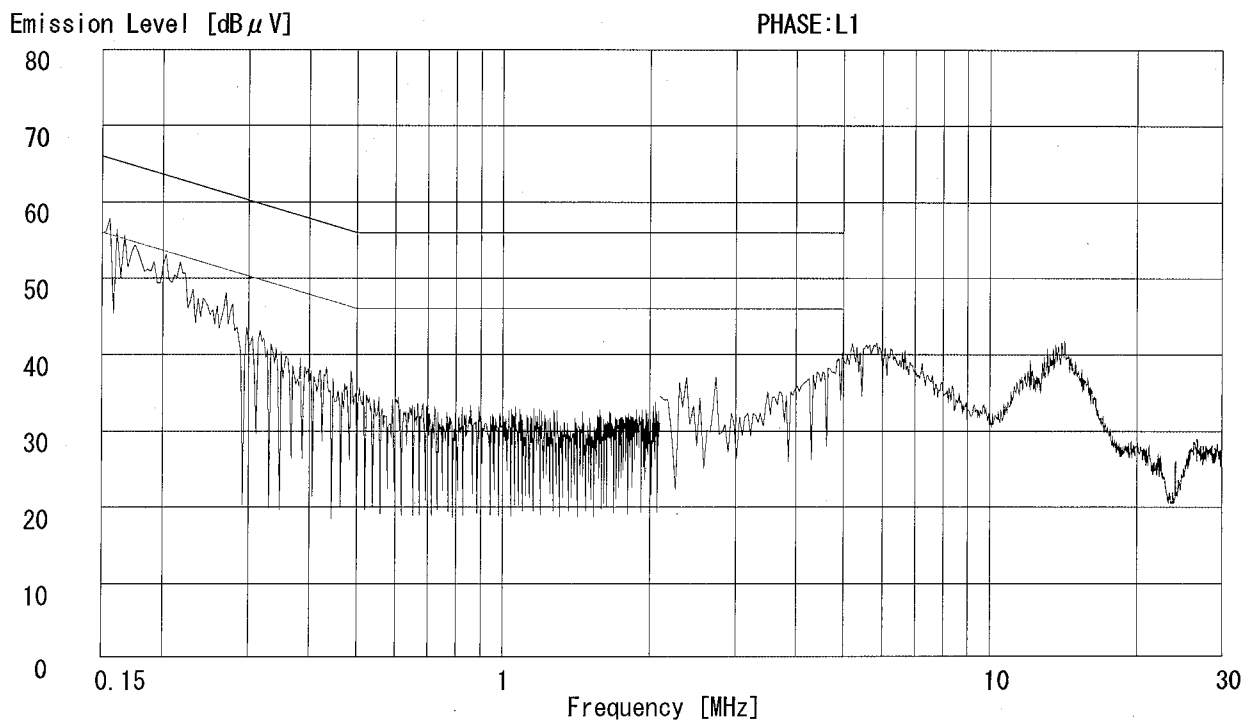
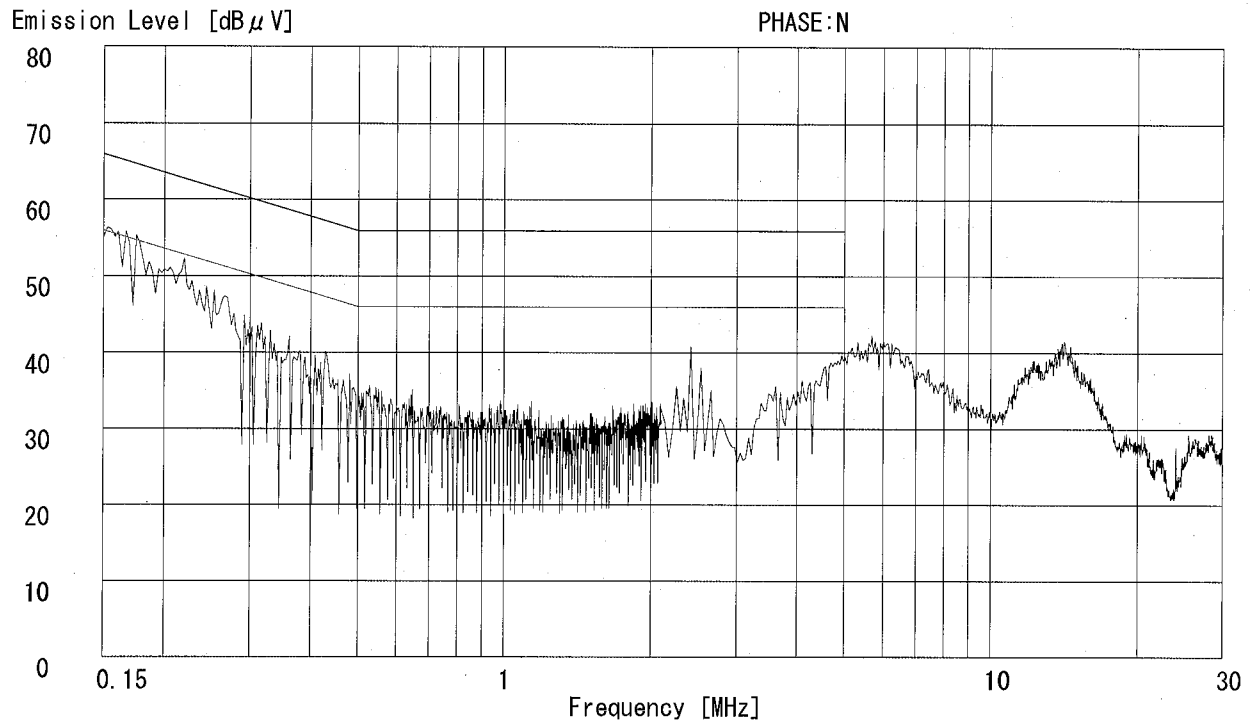
UL Apex Co.,Ltd.

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



Page:

DATA OF CONDUCTION TEST CHART

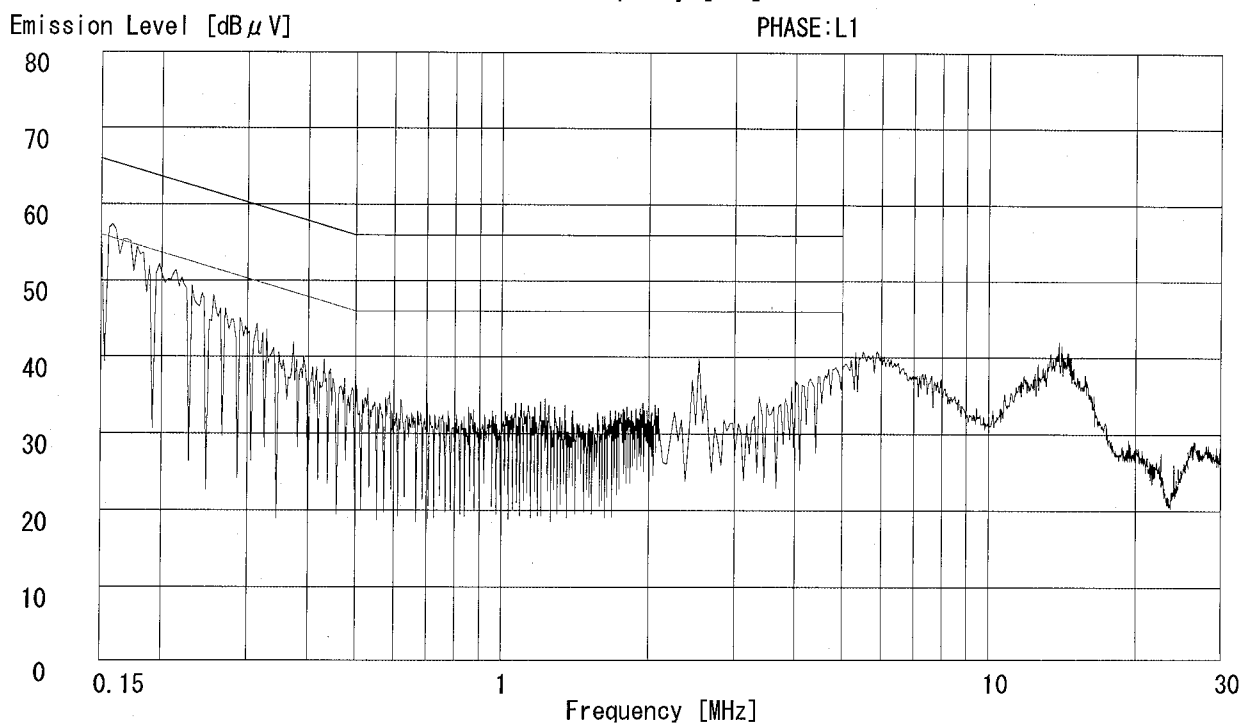
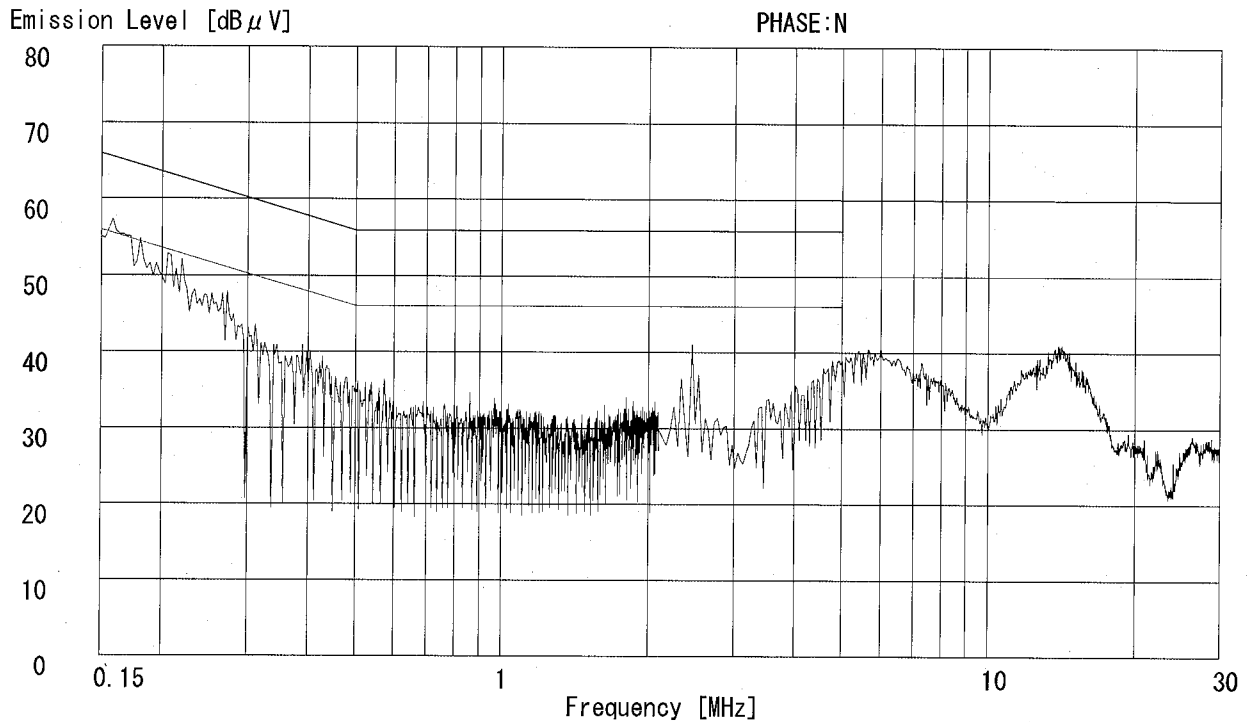
UL Apex Co.,Ltd.

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: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

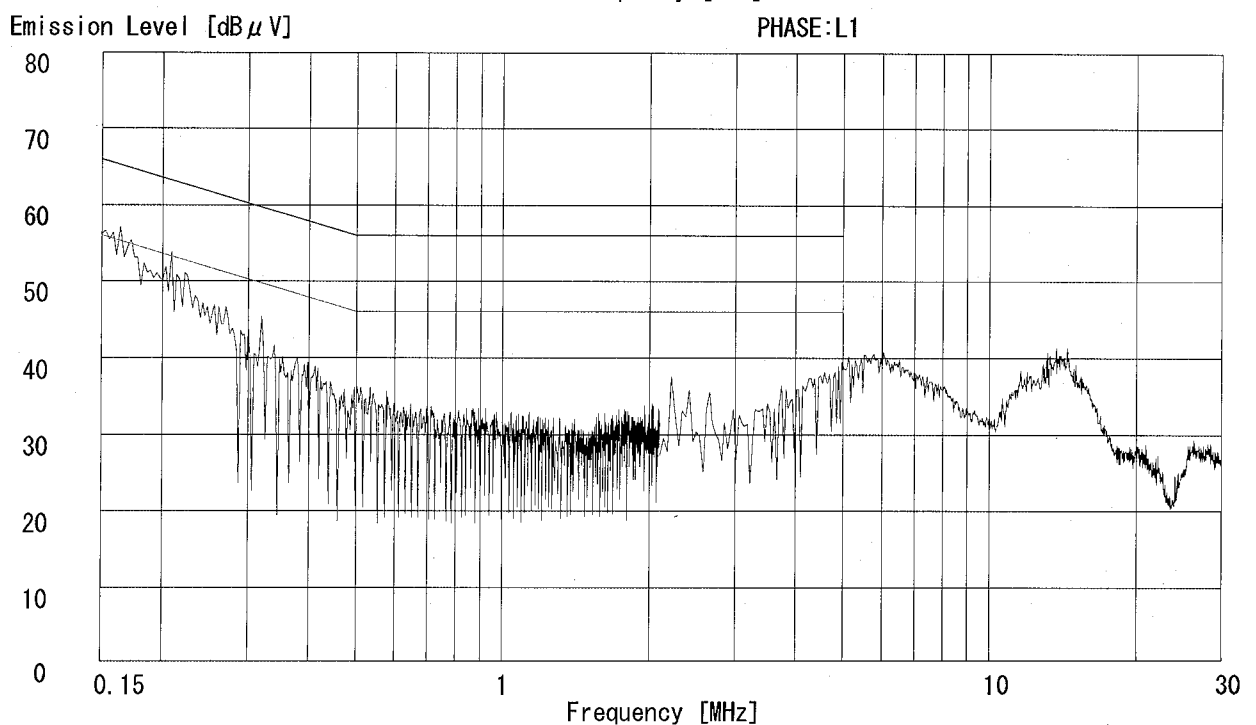
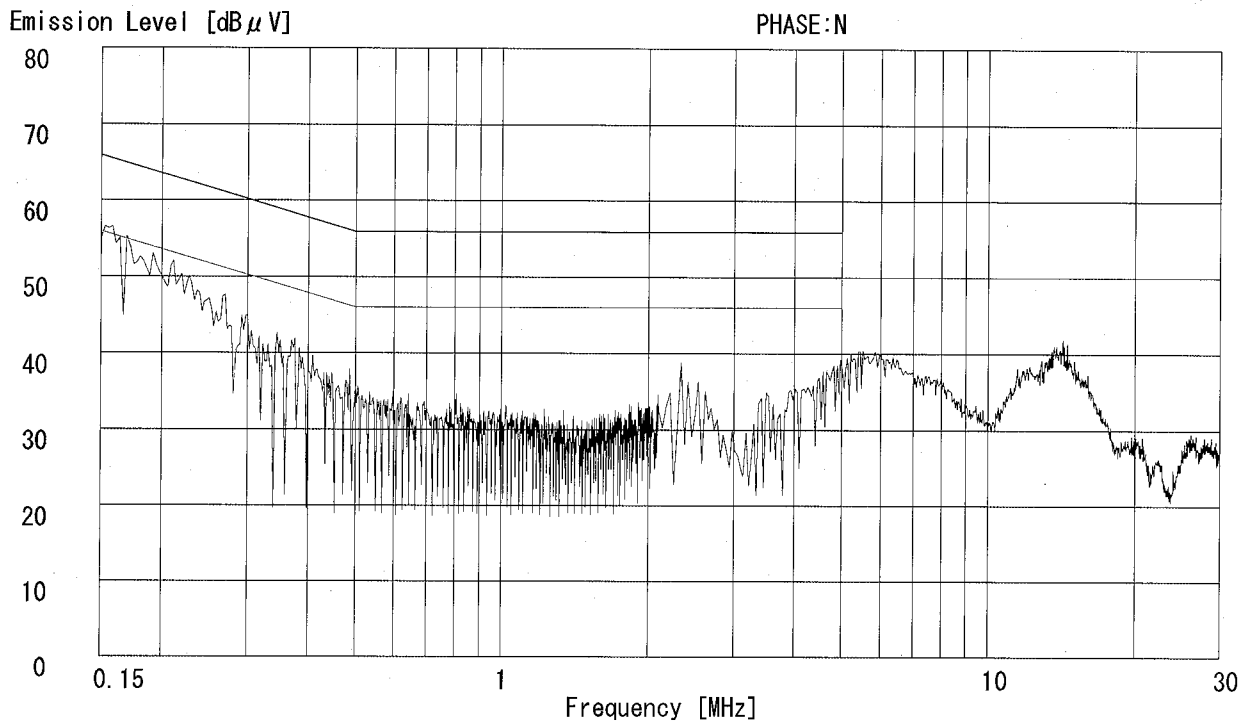
UL Apex Co.,Ltd.

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



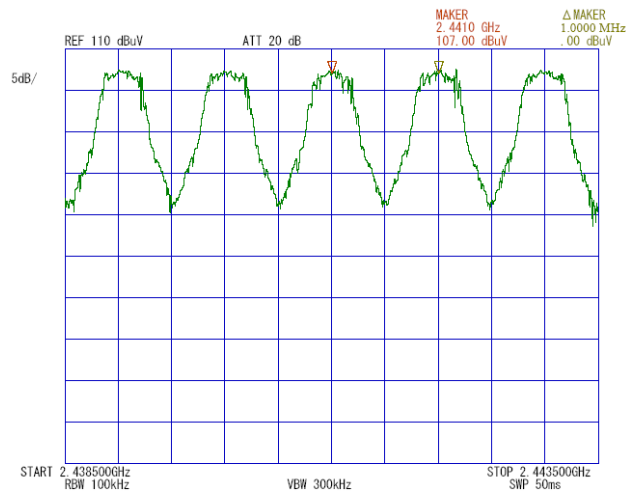
Page:

Channel Separation: FCC 15.247(a)(1)

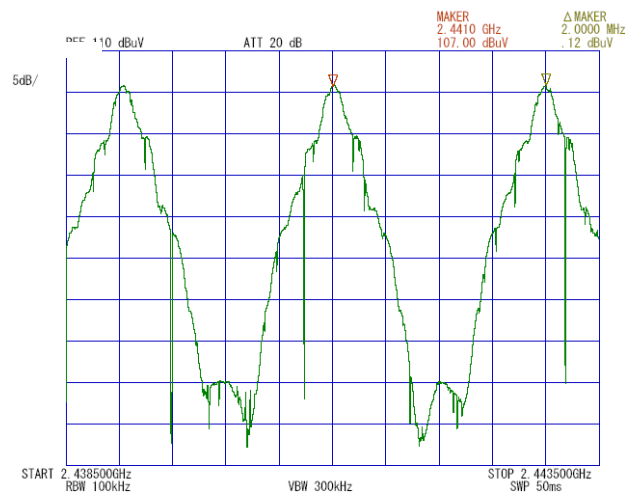
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

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

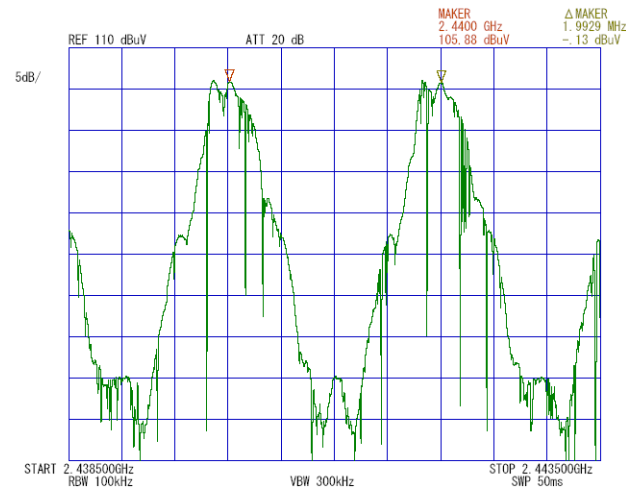
1. Hopping:1000.00kHz



2. Inquiry:2000.00kHz



2. Inquiry:1992.90kHz

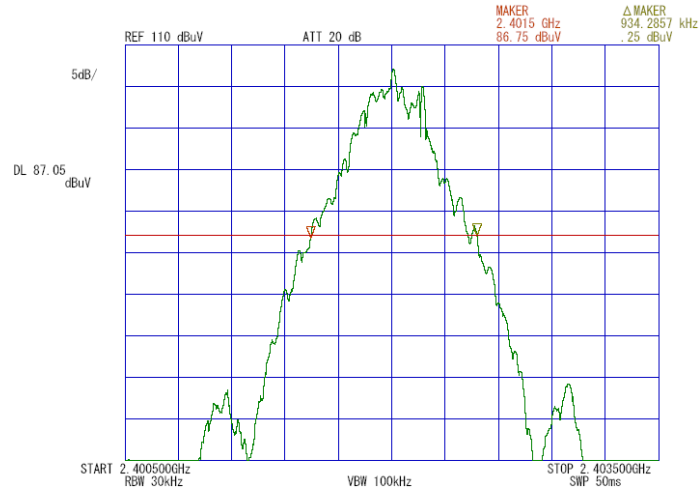


20dB Bandwidth: FCC 15.247(a)(1)

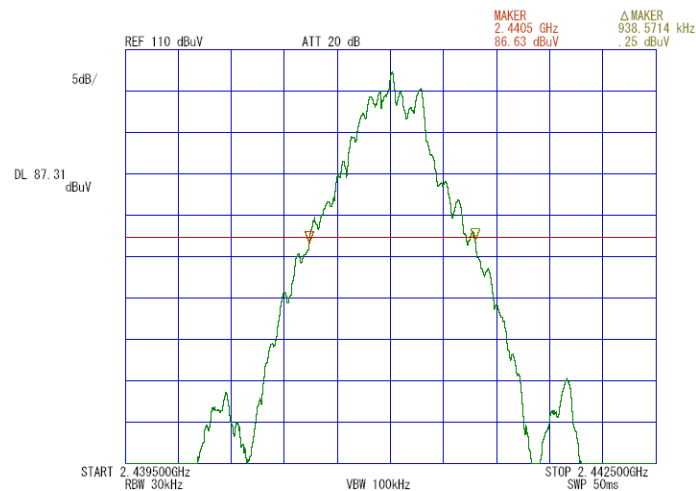
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : UGPZ6
MODEL NUMBER: DR-BT21
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

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

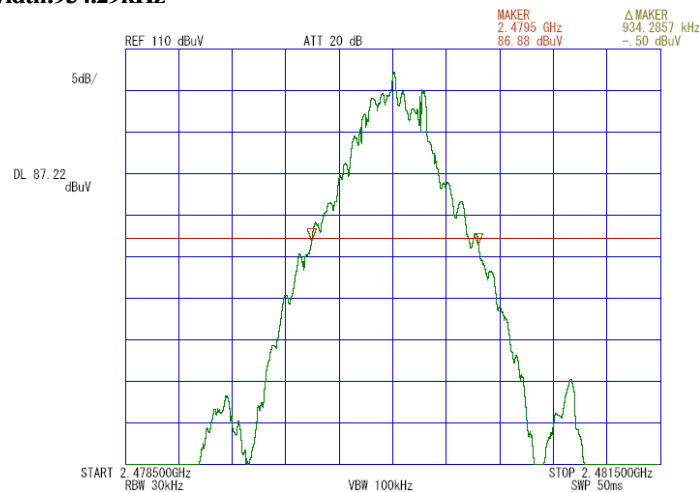
1. ch : 2402MHz/20dB Bandwidth:934.29kHz



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



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



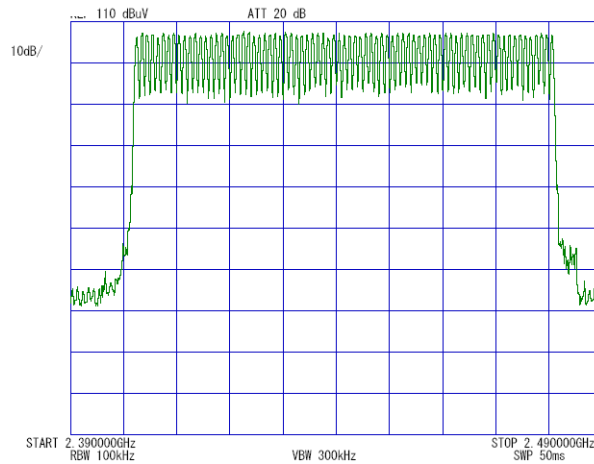
Channel Utilization: FCC 15.247(a)(1)(iii)

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

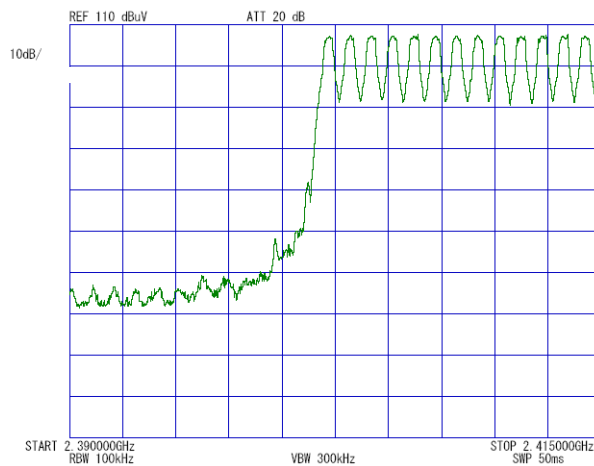
UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(a)(1)(iii)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting
ENGINEER : Tatsuya Arai

Hopping: 79ch

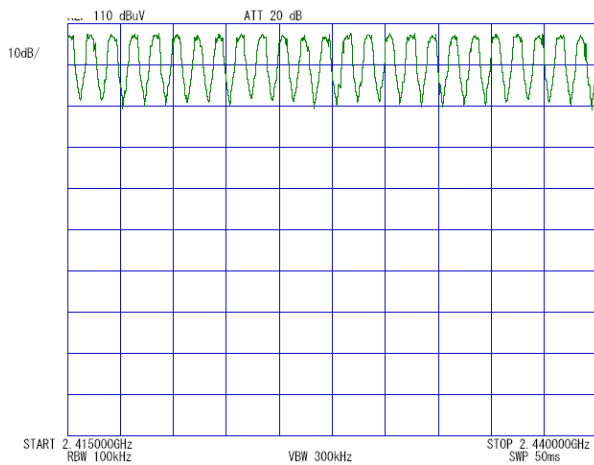
1.



2.



3.

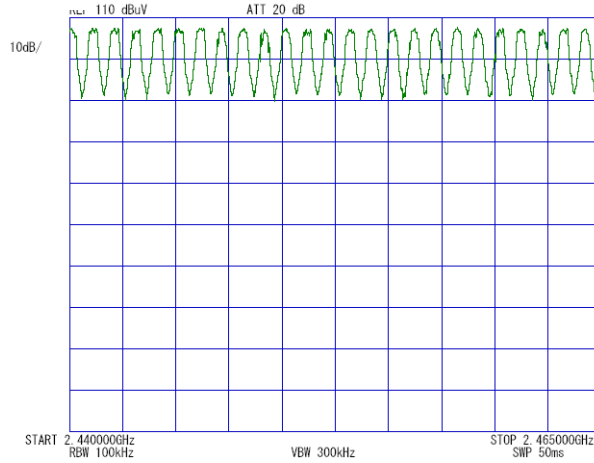


Channel Utilization: FCC 15.247(a)(1)(iii)

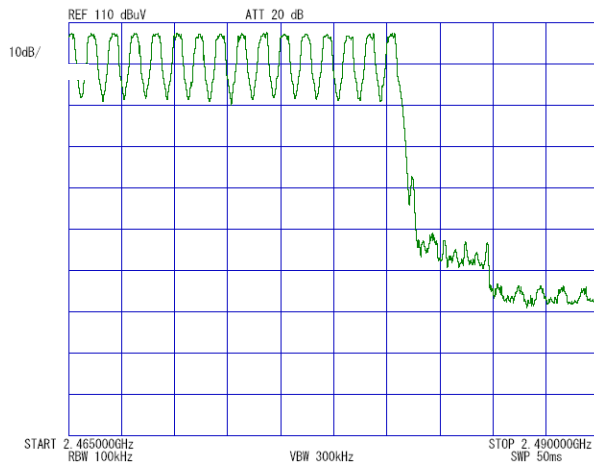
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

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.

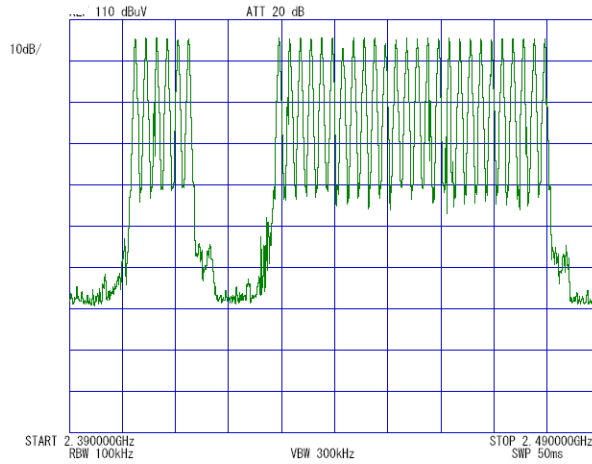


Channel Utilization: FCC 15.247(a)(1)(iii)

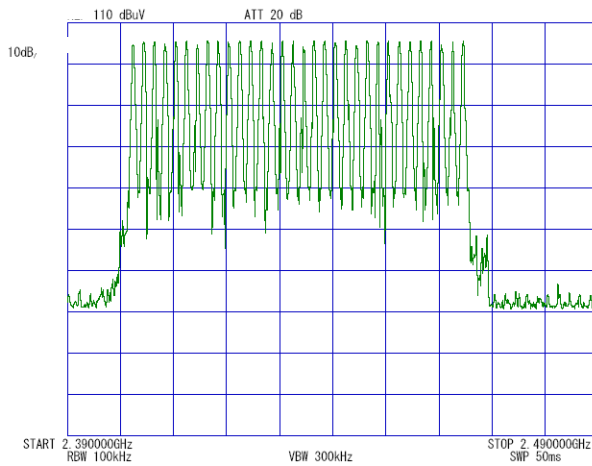
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

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



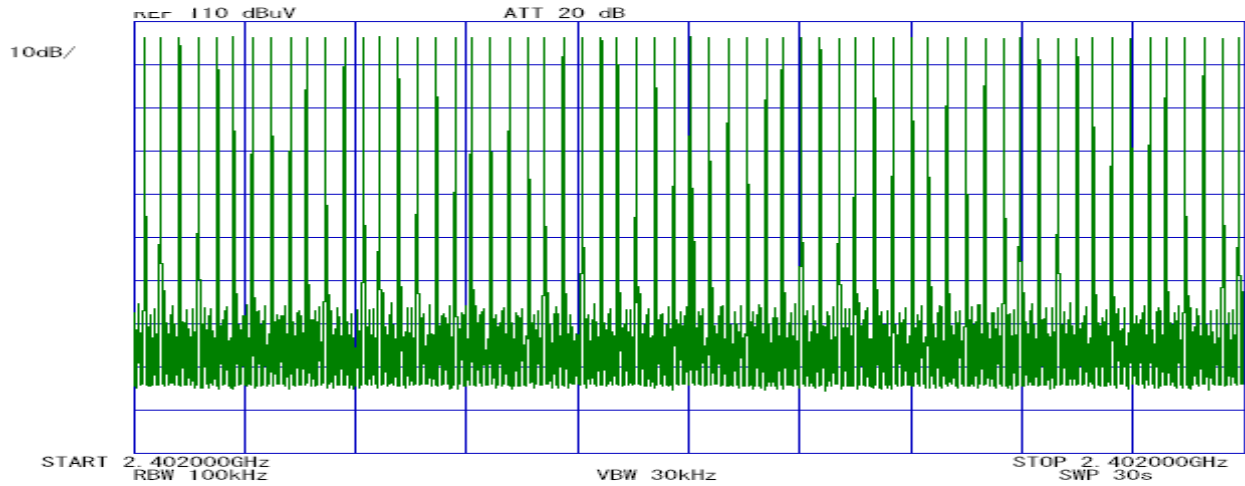
Dwell Time: FCC 15.247(a)(1)(iii)

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

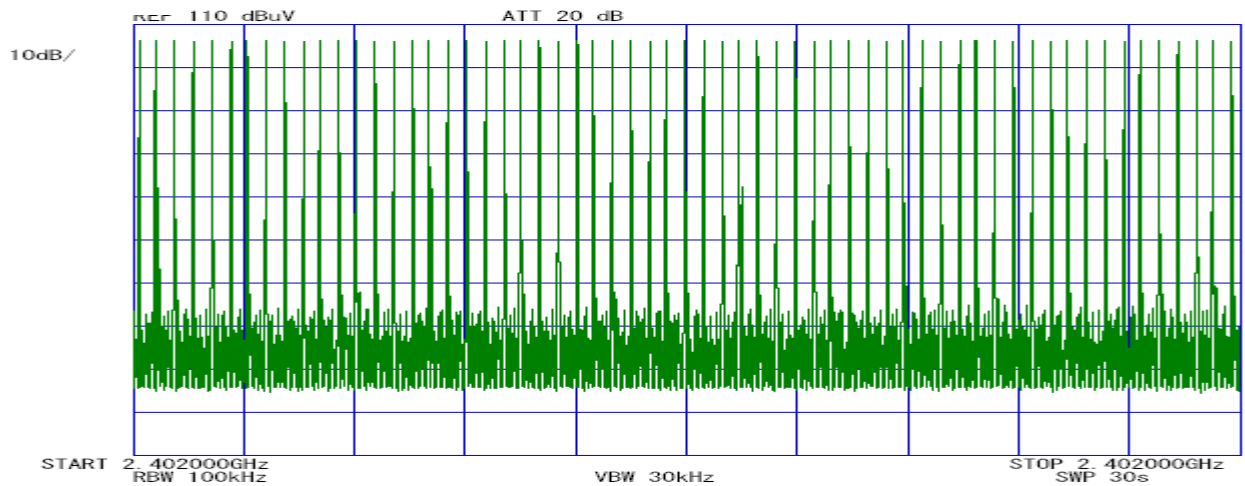
UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(a)(1)(iii)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting
ENGINEER : Tatsuya Arai

Hopping (DH5):

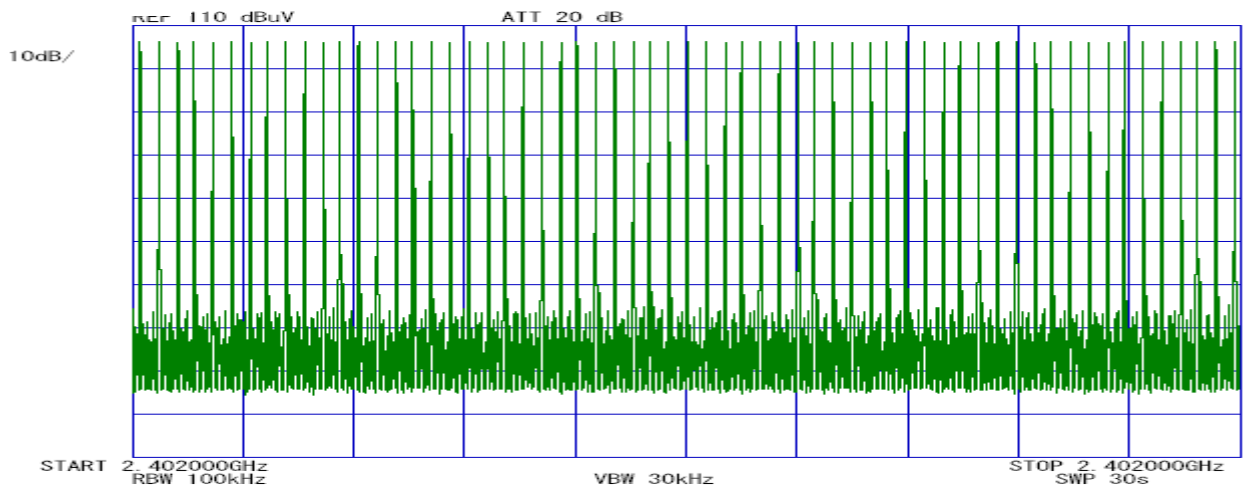
Count 1



Count 2



Count 3

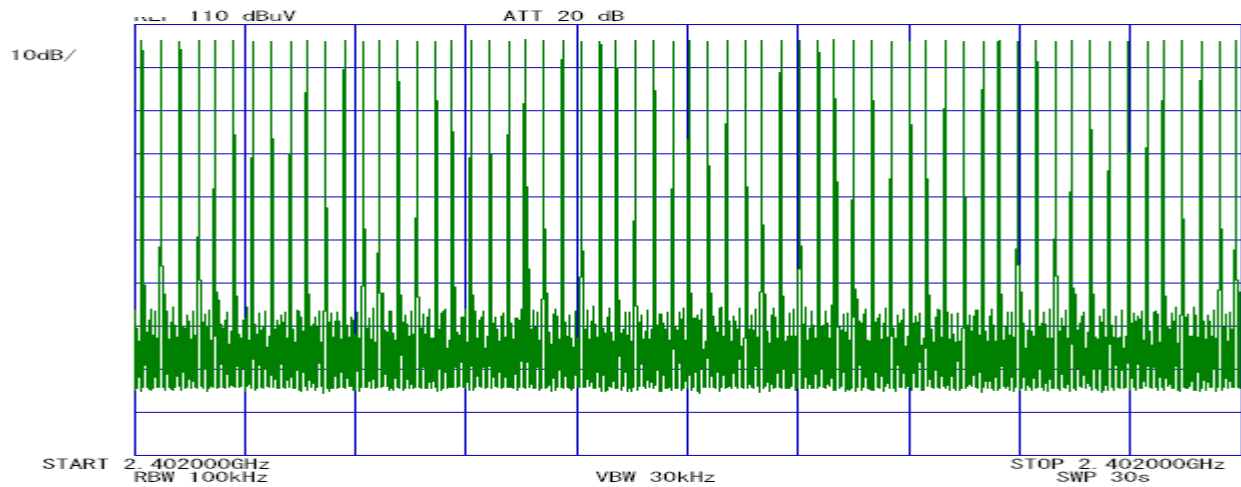


Dwell Time: FCC 15.247(a)(1)(iii)

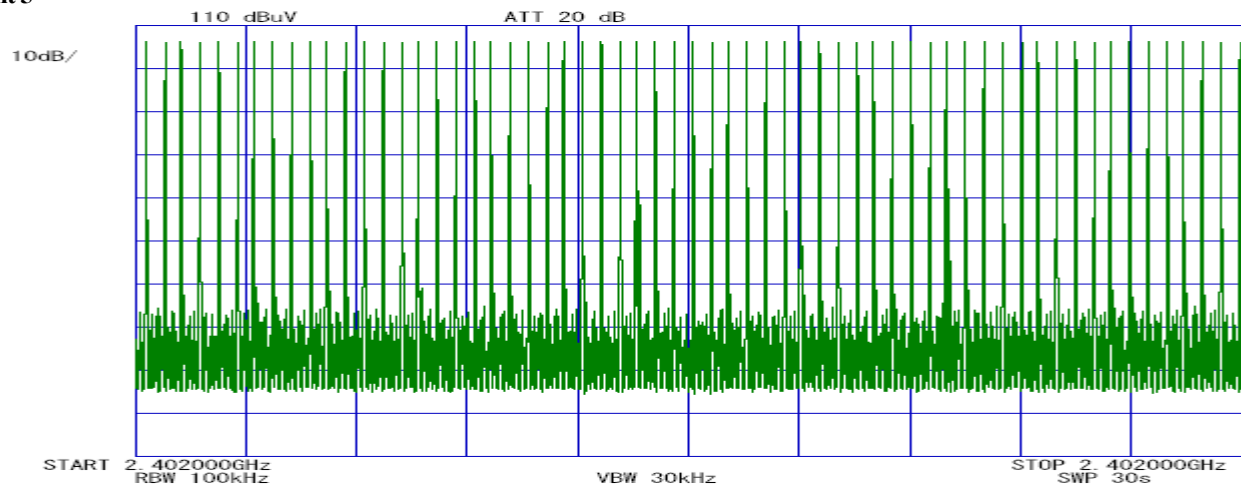
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

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

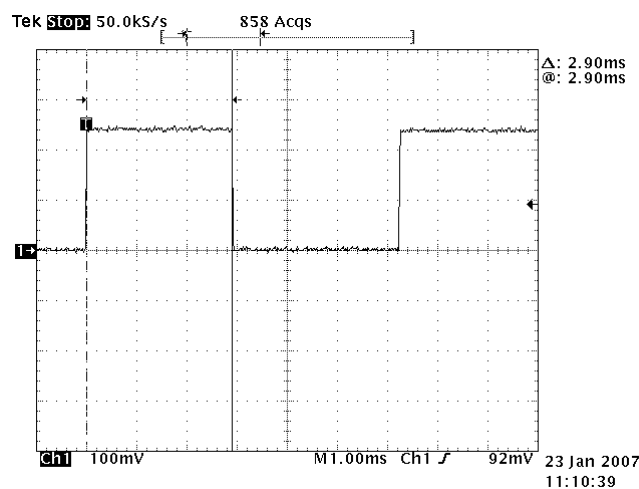
Count 4



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 = $64.15 * 2.90 = 186.04 [ms]$

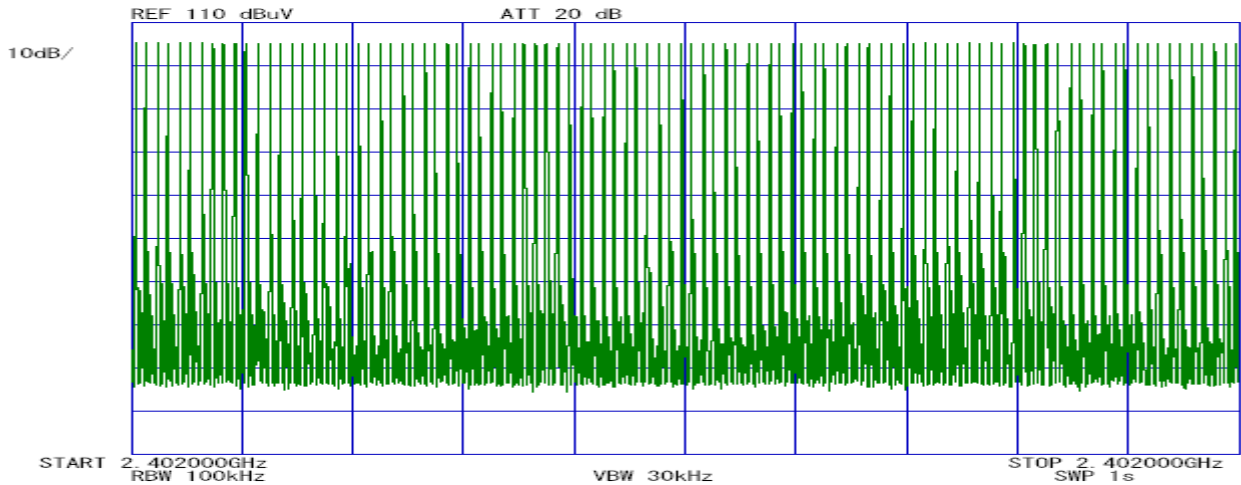
Limit : Dwell Time < 0.4[s]

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

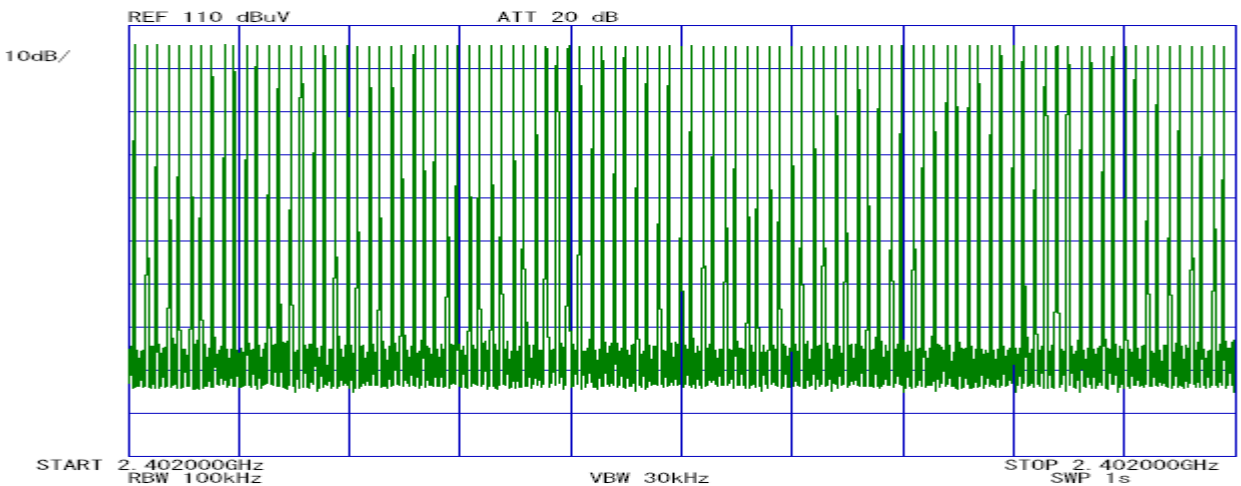
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

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

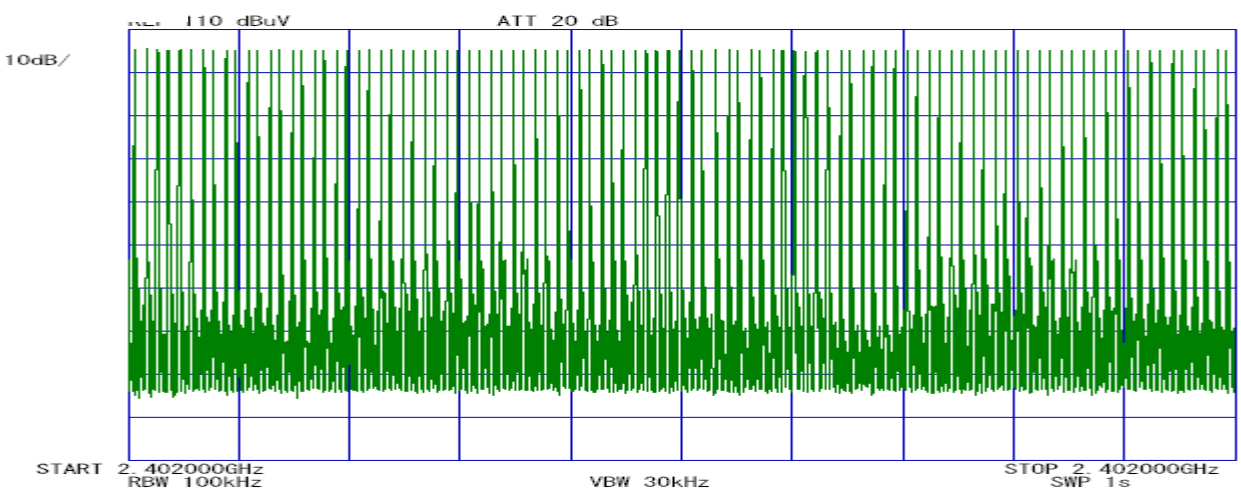
Inquiry: Count 1



Count 2



Count 3

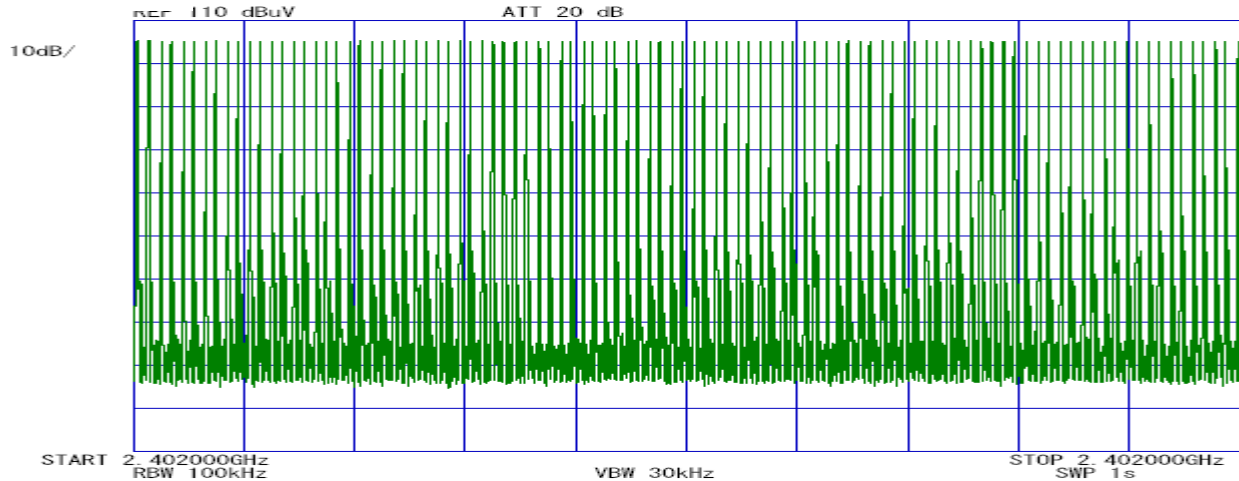


Dwell Time: FCC 15.247(a)(1)(iii)

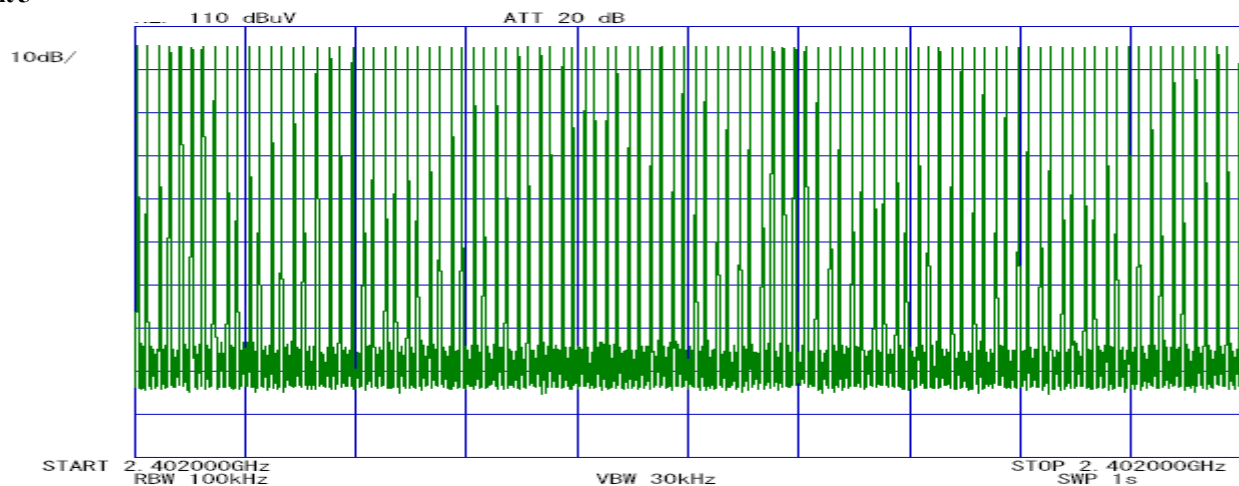
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

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

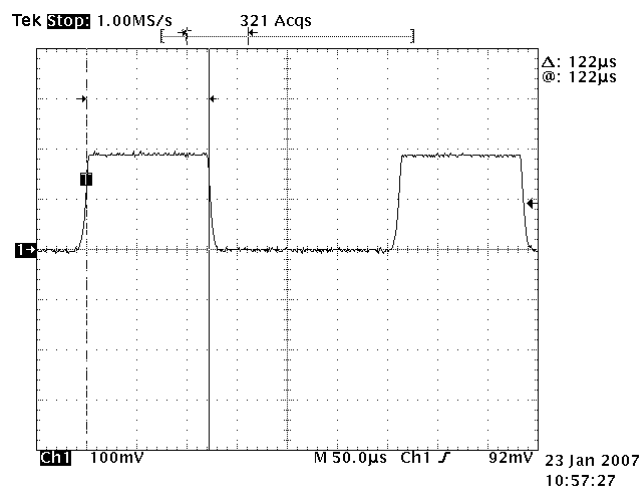
Count 4



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. = $100 / 1\text{s} = 100.0$

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

Dwell time = 1280.0 * 0.12 = 153.60 [ms]

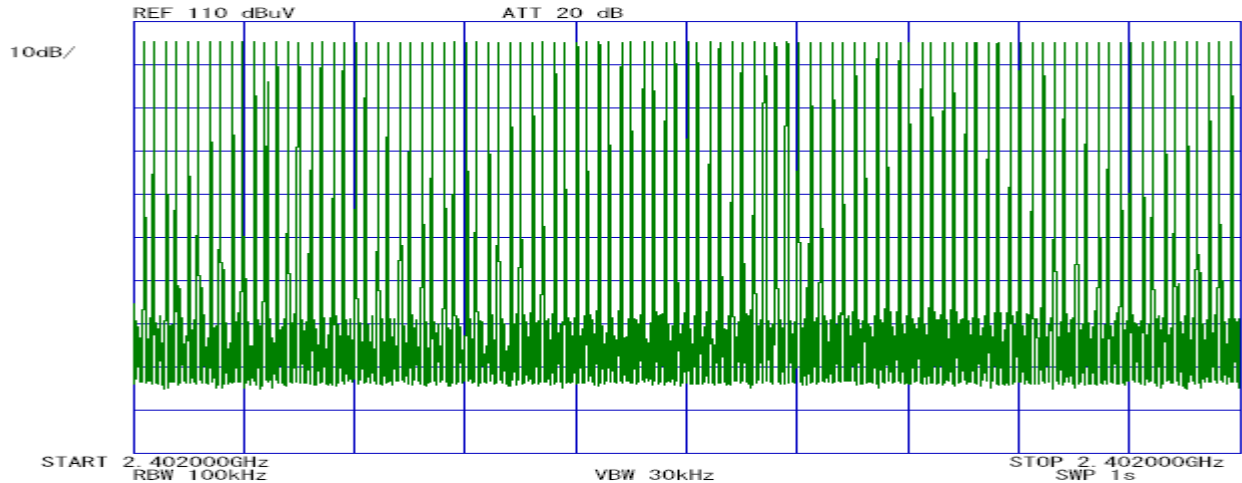
Limit : Dwell Time $< 0.4[s]$

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

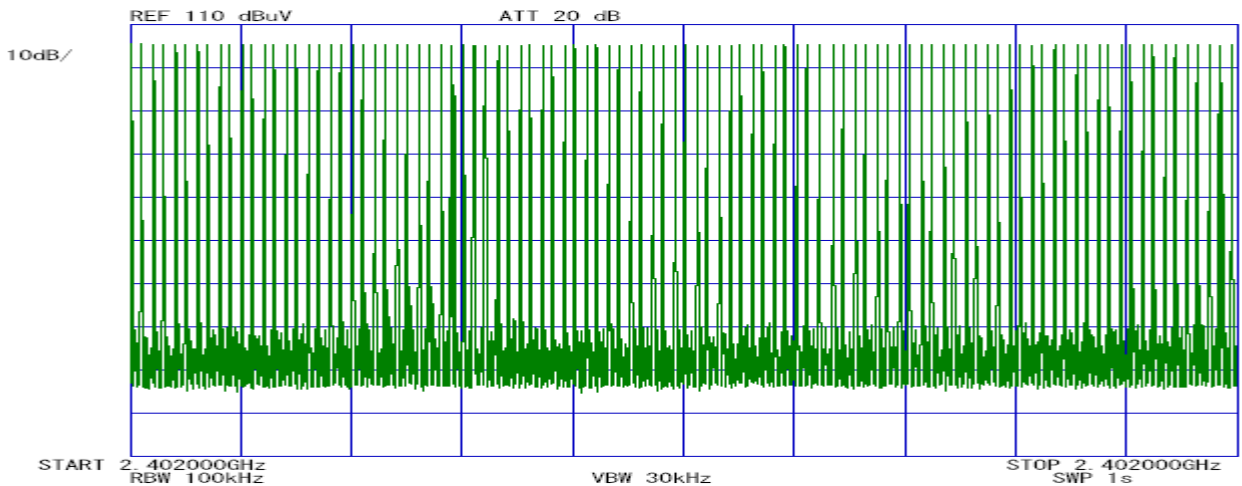
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

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

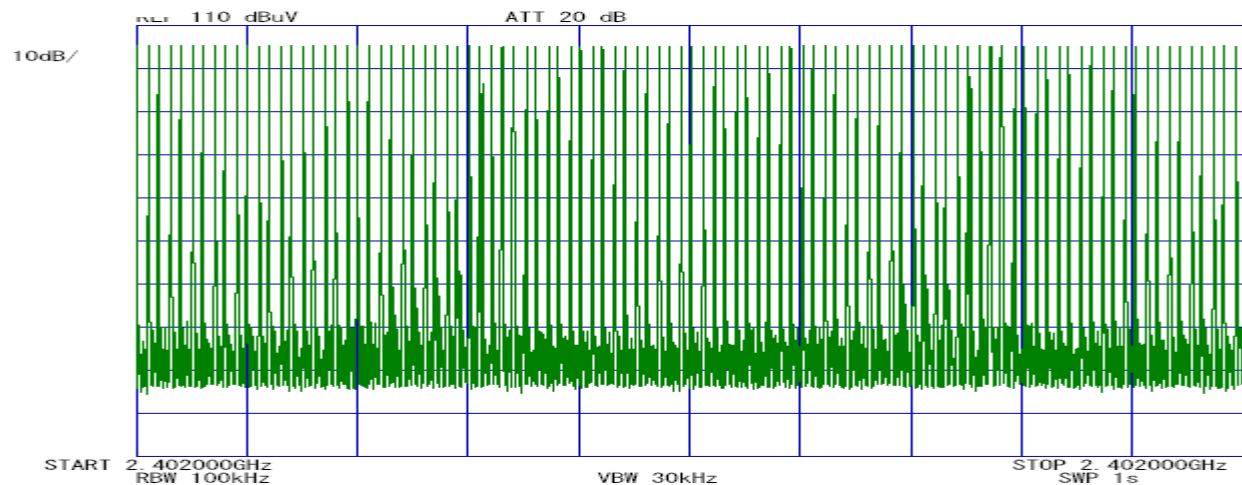
Page:
Count 1



Count 2



Count 3

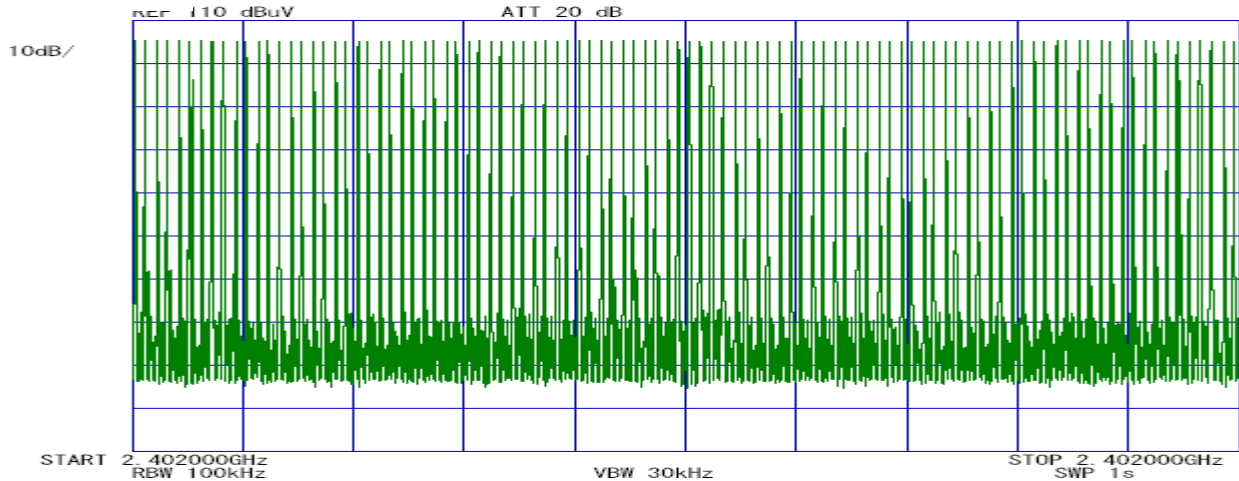


Dwell Time: FCC 15.247(a)(1)(iii)

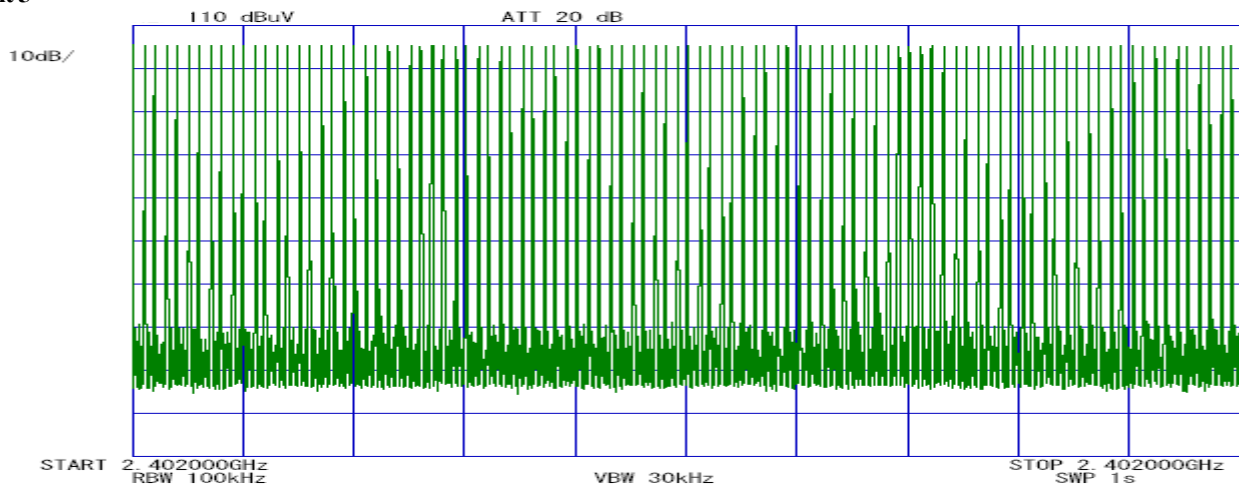
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

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

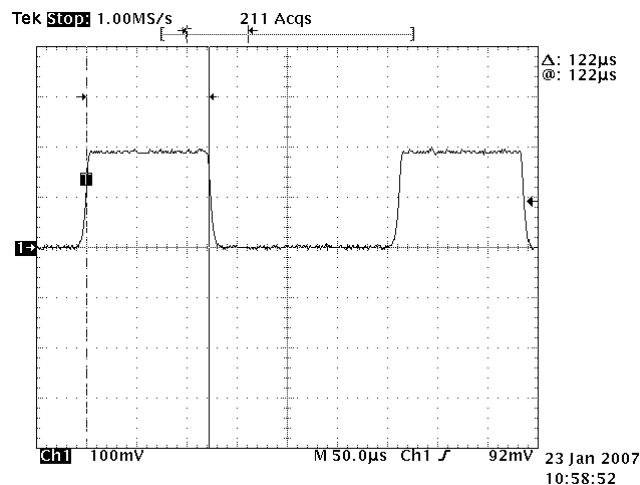
Count 4



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

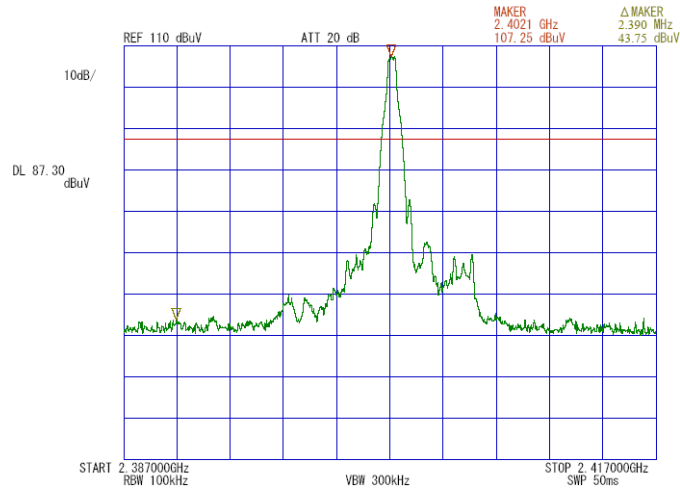
Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

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

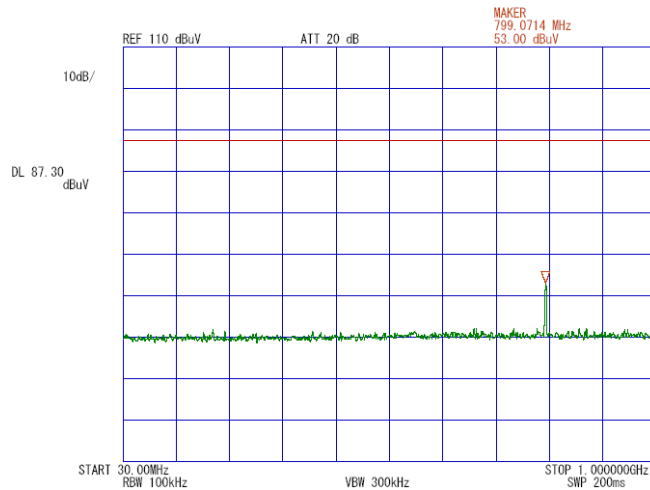
UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(d)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting (Hopping off)
ENGINEER : Tatsuya Arai

[Transmitting]
Ch:2402MHz

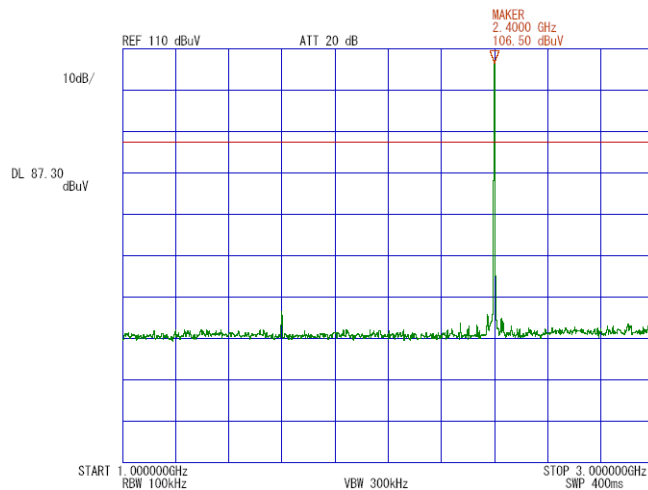
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Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

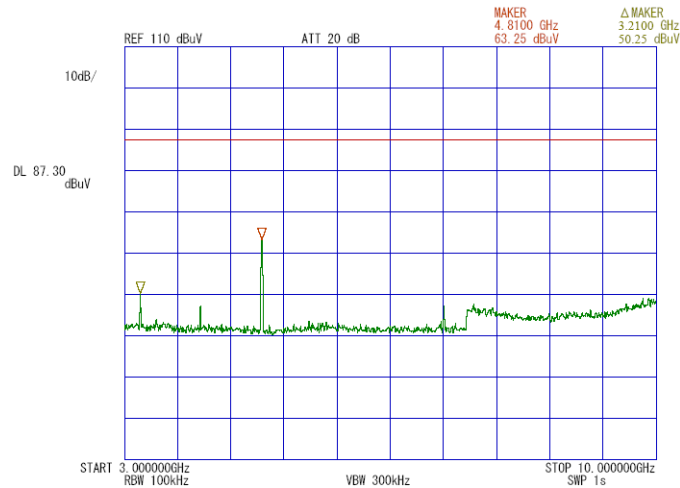
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

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

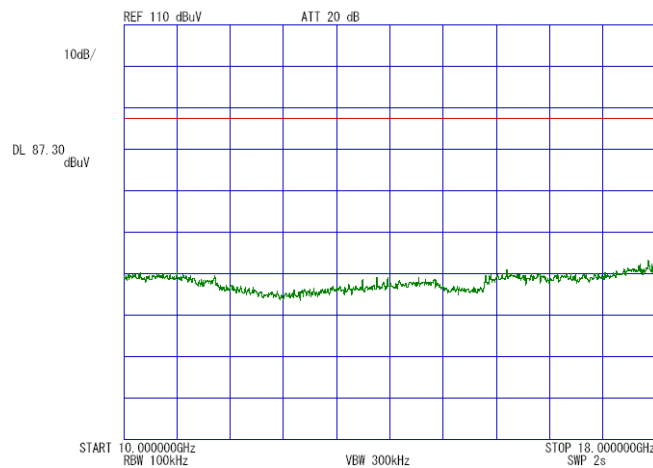
[Transmitting]

Ch:2402MHz

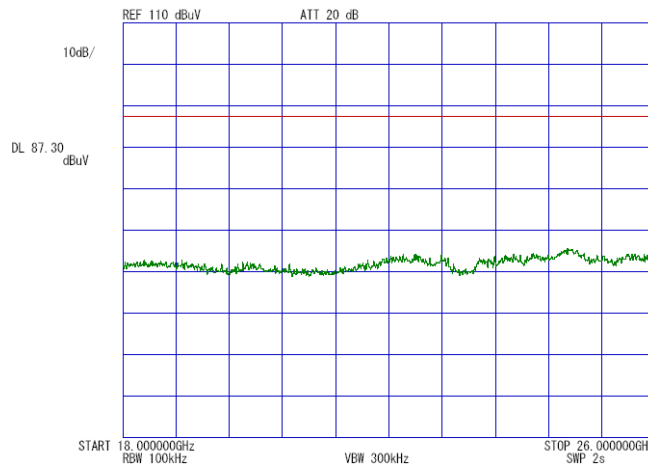
4.



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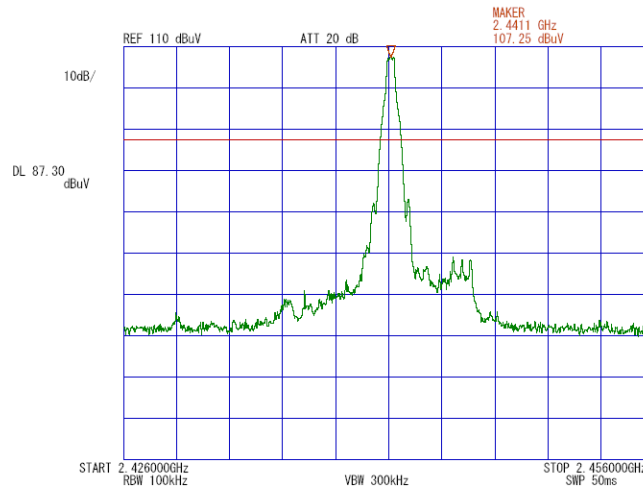
Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

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

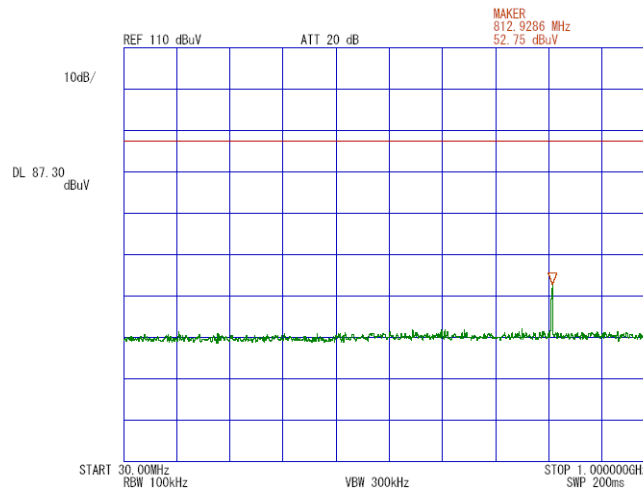
UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(d)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting (Hopping off)
ENGINEER : Tatsuya Arai

[Transmitting]
Ch:2441MHz

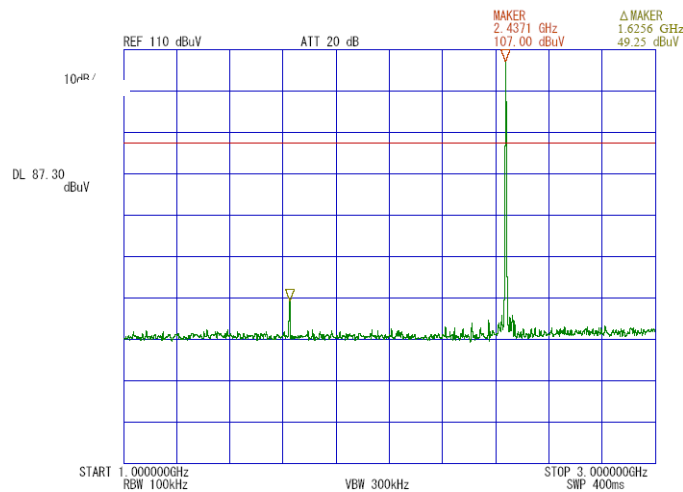
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Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

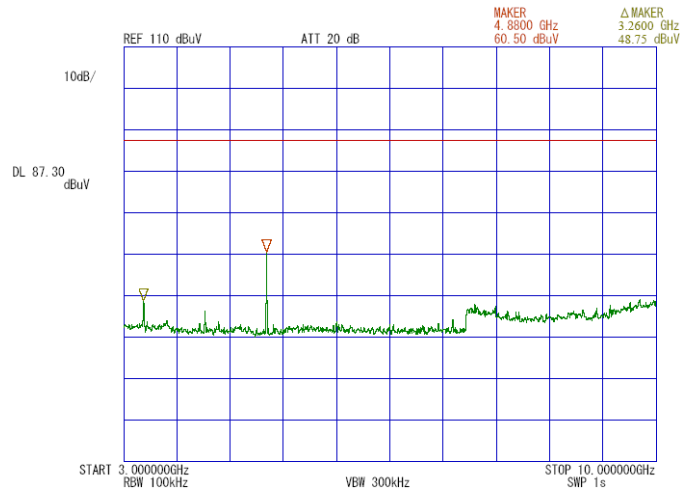
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

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

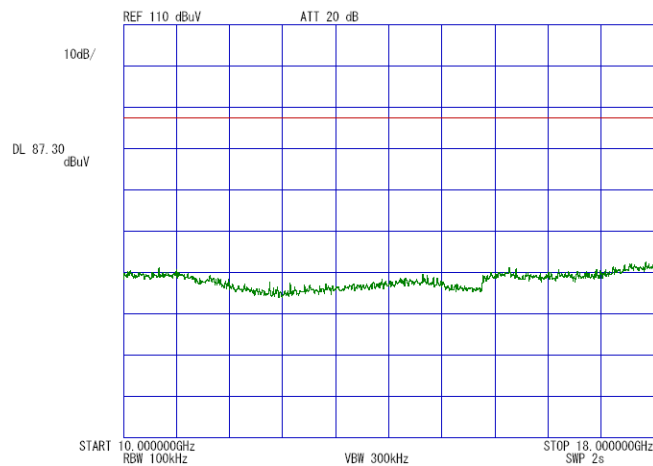
[Transmitting]

Ch:2441MHz

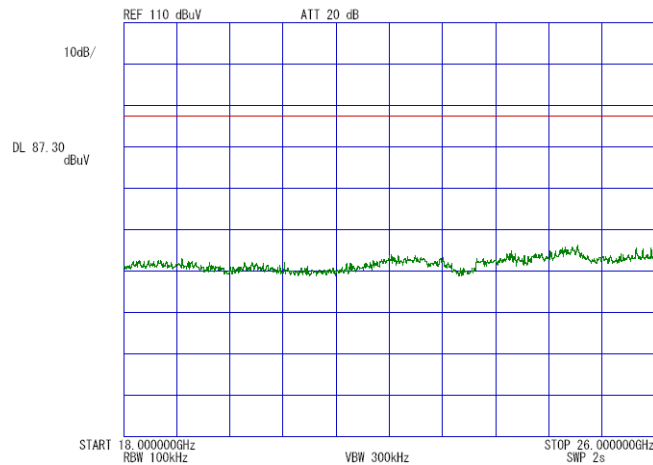
4.



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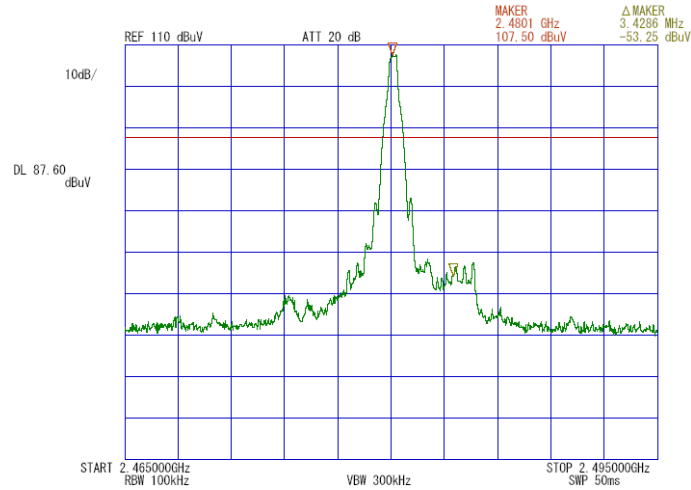
Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

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

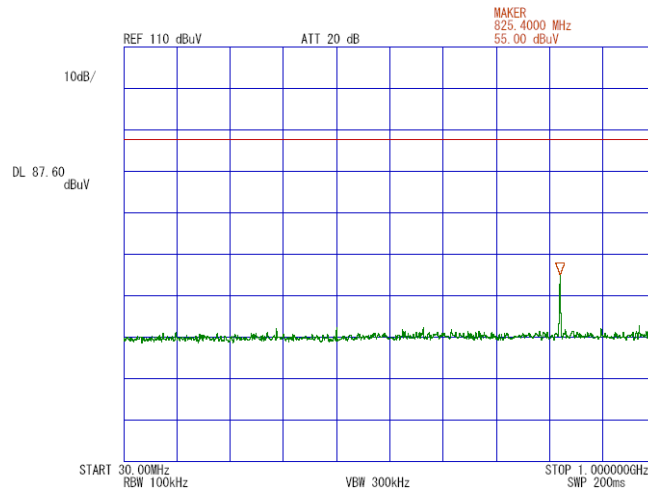
UL Apex Co.,Ltd. Yamakita No.1 Shielded Room
REPORT NO : 27DE0019-YK-A
REGULATION : Fcc Part15SubpartC 247(d)
DATE : 2007/01/23
TEMP./HUMI : 25deg.C./32%
TEST MODE : Transmitting (Hopping off)
ENGINEER : Tatsuya Arai

[Transmitting]
Ch11:2480MHz

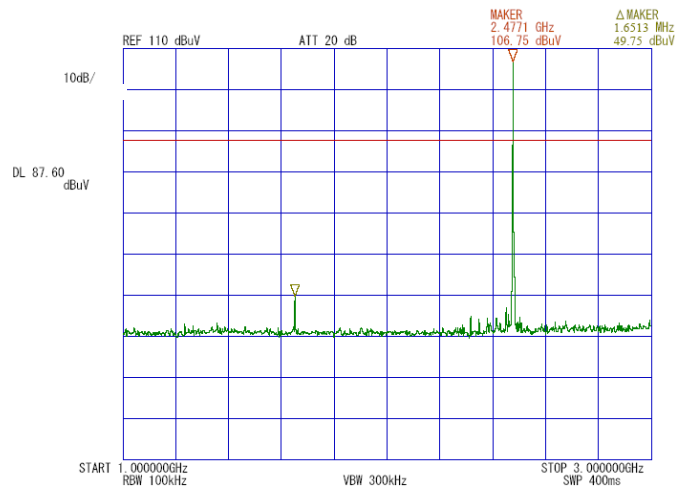
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Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

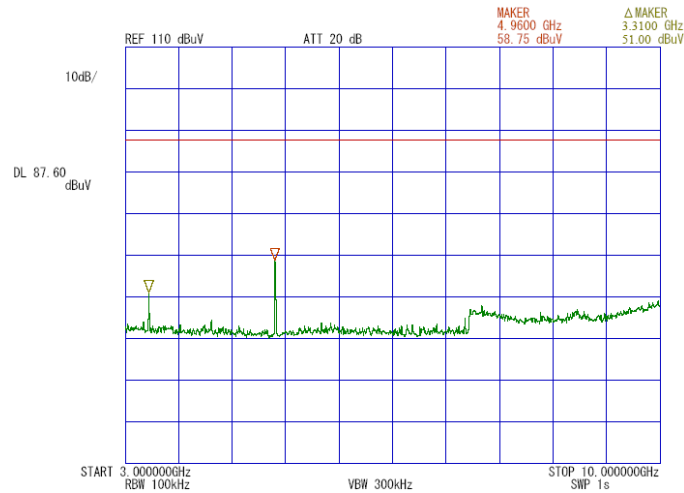
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

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

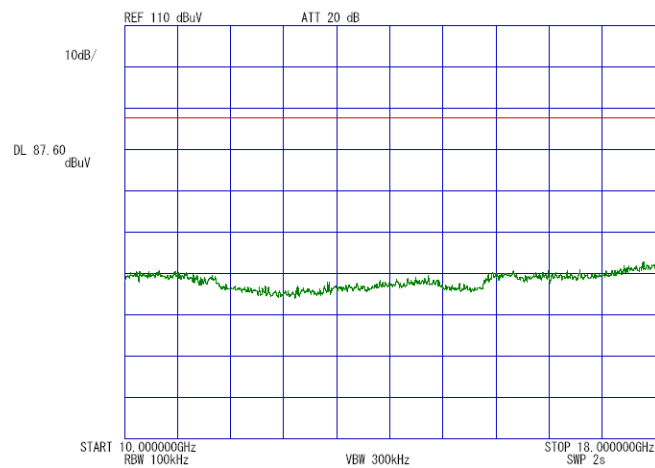
[Transmitting]

Ch:2480MHz

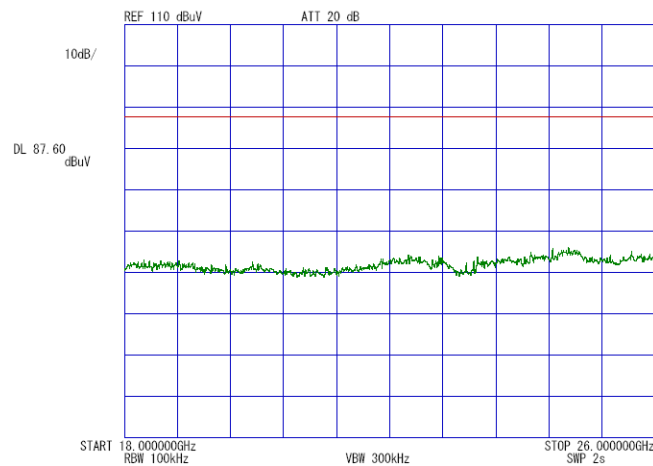
4.



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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
 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 | 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 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 | 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 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 | 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 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 | 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
 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 | | | | | HOR [dB μV/m] | VER | | HOR [dB] | VER |
| 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 Engineer : Toyokazu Imamura
Humidity : 35 %
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. | 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
 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. | 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 Engineer : Toyokazu Imamura
Humidity : 35 %
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 | 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.

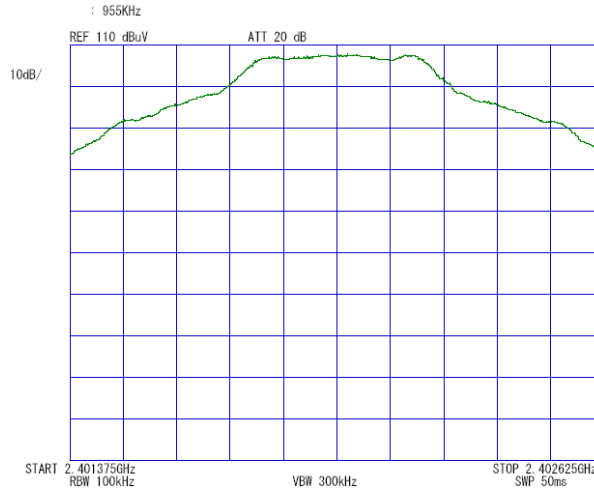
■ ANTENNA: KHA-01 (SAS-200 571) 1-18GHz/KHA-03 (3160-09) 18-26GHz
■ CABLE: KCC-D3/D7 ■ PREAMP: KAF-02 (8449B) ■ SPECTRUMANALYZER: R3271A (KSA-04)

Occupied Bandwidth(99%)

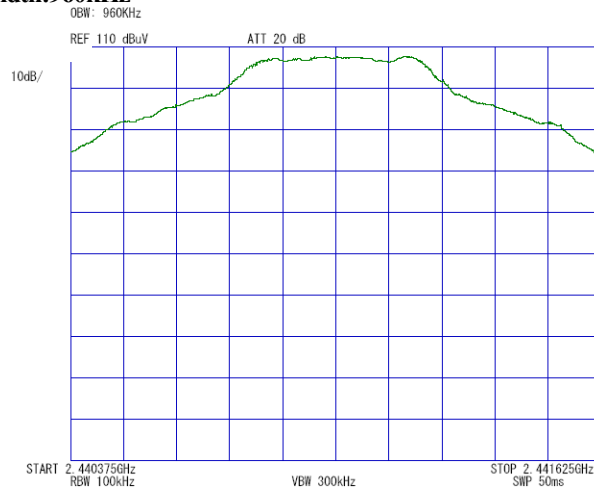
COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBER: UGPZ6
SERIAL NUMBER: 4C4E20
FCC ID : CWTUGPZ6
POWER : DC3.3V

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

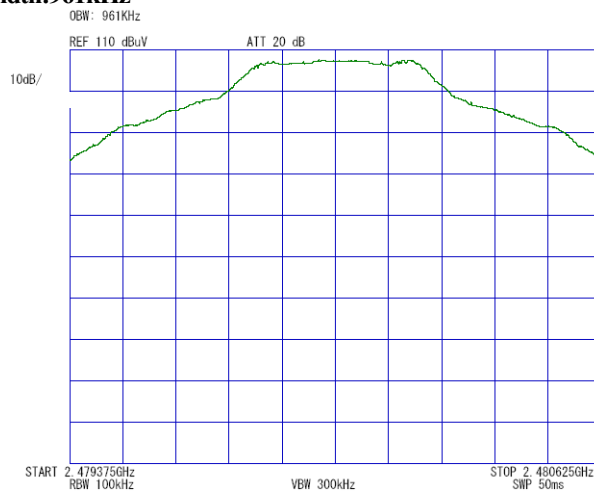
1. ch : 2402MHz/Occupied Bandwidth:955kHz



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



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

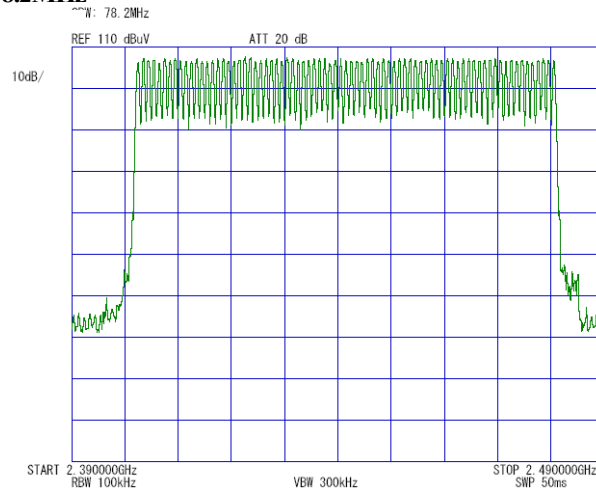


Occupied Bandwidth(99%)

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)