EMI TEST REPORT

Test Report No. : 25JE0028-YK-1

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 15.247: 2005**
Test Result	**:**	**Complied**

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

Date of test: May 16-20 and 23, 2005

Tested by:  Ichiro Isozaki &  Toyokazu Imamura

Approved by: 
Osamu Watatani
Site Manager of Yamakita EMC Lab.

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1 Applicant Information

Company Name : Alps Electric Co., Ltd.

Brand Name : ALPS

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 Product Description

Type of Equipment : Bluetooth Transceiver Module

Model No. : UGPZ6

Serial No. : 1

Rating : DC 3.3V

Country of Manufacture : Japan

Receipt Date of Sample : May 13, 2005

Condition of EUT : Production prototype
(Not for Sale: This sample is equivalent to mass-produced items.)

Model: UGPZ6 (referred to as the EUT in this report) is a Bluetooth Transceiver Module.

The clock frequency used in EUT: 26MHz

Equipment type	:	Transceiver
Frequency of operation	:	2402 - 2480 MHz
Band width	:	79 MHz
Channel spacing	:	1 MHz
Channel number	:	79 channels
Type of modulation	:	FHSS
Antenna model	:	LDA31, C680, CAN4313359
Antenna type	:	λ/4 monopole antenna: LDA31 Inverted F antenna: C680, CAN4313359
Antenna connector type	:	U. FL (Hirose)
Antenna gain	:	4 dBi
Emission Designation	:	F1D, G1D
Operation temperature range:		15 - 35 deg. C.

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.

3 Test Specification, Procedures and Results

3.1 Test specification

Test specification : FCC Part15 Subpart C: 2005
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits: 2005
Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz: 2005

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	*Antenna: LDA31* 21.1dB (0.1822MHz, N, QP) *Antenna: C680* 21.0dB (0.1809MHz, N, QP) *Antenna: CAN4313359* 21.1dB (0.1816MHz, N, QP)	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 & Band Edge Compliance	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(d)	Conducted / Radiated	N/A	(Radiated) *Antenna: LDA31* 4.7dB (96.34MHz, QP, Vertical, Tx 2480MHz) *Antenna: C680* 5.7dB (24410MHz&22320MHz, AV, Tx 2441MHz & Tx 2480MHz) *Antenna: CAN4313359* 5.4dB (24020MHz, AV, Horizontal, Tx 2402MHz)	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.

3.3 Uncertainty

Conducted emission
The measurement uncertainty (with 95% confidence level) for this test is ±1.3dB.
The data listed in this test report has enough margin, more than site margin.

Radiated emission
The measurement uncertainty (with 95% confidence level) for this test using Biconical antenna is ±4.8dB.
The measurement uncertainty (with 95% confidence level) for this test using Logperiodic antenna is ±5.2dB.
The measurement uncertainty (with 95% confidence level) for this test using Horn antenna is ±6.6dB.
The data listed in this report meets the limits unless the uncertainty is taken into consideration.

3.4 Test Location

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

No. 1 test site has been fully described in a report submitted to FCC office, and accepted on September 20, 2002 (Registration No.: 95486).
IC Registration No. : IC3489

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. : IC3489-2

No. 1 anechoic chamber has been fully described in a report submitted to FCC office, and accepted on November 8, 2002 (Registration No.: 95967).
IC Registration No. : IC3489-B

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

4 System Test Configuration

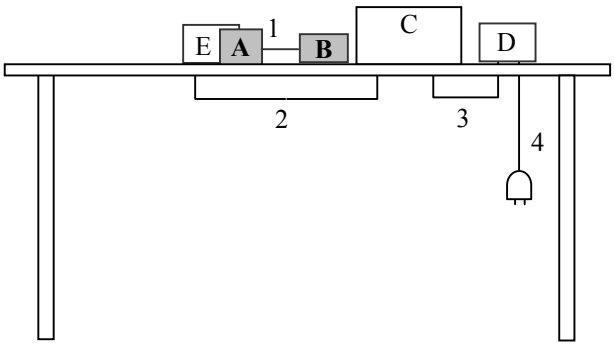
4.1 Justification

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

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

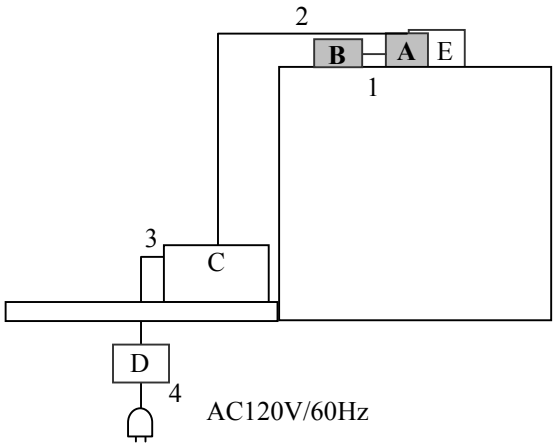
4.2 Configuration of Tested System

Front View (Conducted emission)



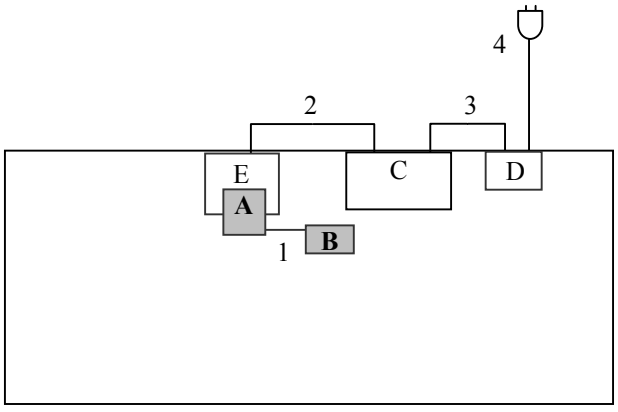
AC120V/60Hz

Front View (Radiated emission)

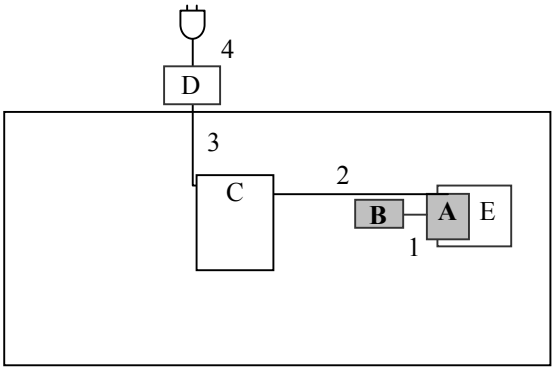


AC120V/60Hz

Top View (Conducted emission)



Top View (Radiated emission)



* Test data was taken under worse case conditions.

Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	FCC ID (Remarks)
A	Bluetooth Transceiver Module	UGPZ6	1	ALPS	CWTUGPZ6 (EUT)
B	Antenna (3 types)	LDA31	-	Murata	(EUT)
		C680	-	Wha Yu Industrial	(EUT)
		CAN4313359	-	YAGEO	(EUT)
C	Notebook PC	PA1262S9	78013342	TOSHIBA	-
D	AC Adapter	PA3048U-1ACA	0009A0222707P	TOSHIBA	-
E	Testing Board	-	-	-	(Test jig)

List of cables used

No.	Name	Length (m)	Shield	Backshell material	Remark
1	Antenna cable	0.1	Unshielded	Polyvinyl chloride	-
2	USB cable	1.9	Shielded	Polyvinyl chloride	-
3	DC cable	1.8	Unshielded	Polyvinyl chloride	-
4	AC cable	1.0	Unshielded	Polyvinyl chloride	-

5 Conducted Emissions

5.1 Operating environment

The test was carried out in 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
Test data : APPENDIX 2 Page 24 - 38

Date : May 19 and 20, 2005 Test engineer : Toyokazu Imamura

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	Test data:	APPENDIX 2 Page 39
Date:	May 16, 2005	Test engineer :	Toyokazu Imamura

7 20dB Bandwidth

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

Summary of the test results:	Pass	Test data:	APPENDIX 2 Page 40
Date:	May 16, 2005	Test engineer :	Toyokazu Imamura

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	Test data:	APPENDIX 2 Page 41 - 43
Date:	May 16, 2005	Test engineer :	Toyokazu Imamura

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	Test data:	APPENDIX 2 Page 44 - 49
Date:	May 16, 2005	Test engineer :	Toyokazu Imamura

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	Test data:	APPENDIX 2 Page 50
Date:	May 16, 2005	Test engineer :	Toyokazu Imamura

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	Test data:	APPENDIX 2 Page 51 - 56
Date:	May 16, 2005	Test engineer :	Toyokazu Imamura

12 Out of Band Emissions (Radiated)

11.1 Operating environment

The test was carried out in an open site or an anechoic chamber.

11.2 Test configuration

EUT was placed on a 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.

11.3 Test conditions

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

11.4 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

The equipment was 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 20 to 23.
With the position, the noise levels of all the frequencies were measured.

Combinations of the worst case

	Module	Antenna		
Model No.	UGPZ6	LDA31	C680	CAN4313359
Below 1GHz				
Horizontal	Z	Y	X	X
Vertical	X	Y	X	X
Above 1GHz				
Horizontal	X	Z	X	X
Vertical	Z	Z	Y	Y

11.5 Results

Summary of the test results : Pass
Test data : APPENDIX 2 Page 57 - 65 (30 - 1000MHz)
: APPENDIX 2 Page 66 - 83 (1 - 26GHz)
Date: May 17, 18, 19 and 23, 2005 Test engineer : Ichiro Isozaki and Toyokazu Imamura

APPENDIX 1: Photographs of test setup

APPENDIX 2: Test Data

APPENDIX 3: Test instruments

DATA OF CONDUCTION TEST

UL Apex Co.,Ltd.
YAMAKITA No.2 SHIELD TEST ROOM
Report No.: 25JE0028-YK ⇨ 1

Applicant	: Alps Electric Co.,Ltd.		
Kind of Equipment	: Bluetooth Transceiver Module		
Model No.	: UGPZ6		
Serial No.	: 1		
Power	: DC3.3V(AC120V/60Hz)		
Mode	: Transmitting(2402MHz)		
Remarks	: ANT:LDA31		
Date	: 5/19/2005		
Phase	: Single Phase		
Temperature	: 26 ℃	Engineer	: Toyokazu Imamura
Humidity	: 50 %		
Regulation	: FCC Part15C §15.207.(CISPR Pub.22)		

No.	FREQ.	READING(N) QP	READING(N) AV	READING(L1) QP	READING(L1) AV	LISN FACTOR	CABLE LOSS	ATTEN.	RESULT QP	RESULT AV	LIMITS QP	LIMITS AV	MARGIN QP	MARGIN AV
	[MHz]	[dBμV]		[dBμV]		[dB]	[dB]	[dB]	[dB]		[dBμV]		[dBμV]	[dB]
1.	0.1500	31.3	-	31.1	-	0.1	0.1	0.0	31.5	-	66.0	56.0	34.5	-
2.	0.1822	43.1	-	41.8	-	0.1	0.1	0.0	43.3	-	64.4	54.4	21.1	-
3.	0.2418	34.8	-	33.0	-	0.1	0.1	0.0	35.0	-	62.0	52.0	27.0	-
4.	0.3048	35.6	-	34.2	-	0.1	0.1	0.0	35.8	-	60.1	50.1	24.3	-
5.	0.3639	28.8	-	25.0	-	0.1	0.1	0.0	29.0	-	58.6	48.6	29.6	-
6.	0.5434	29.1	-	23.3	-	0.0	0.1	0.0	29.2	-	56.0	46.0	26.8	-

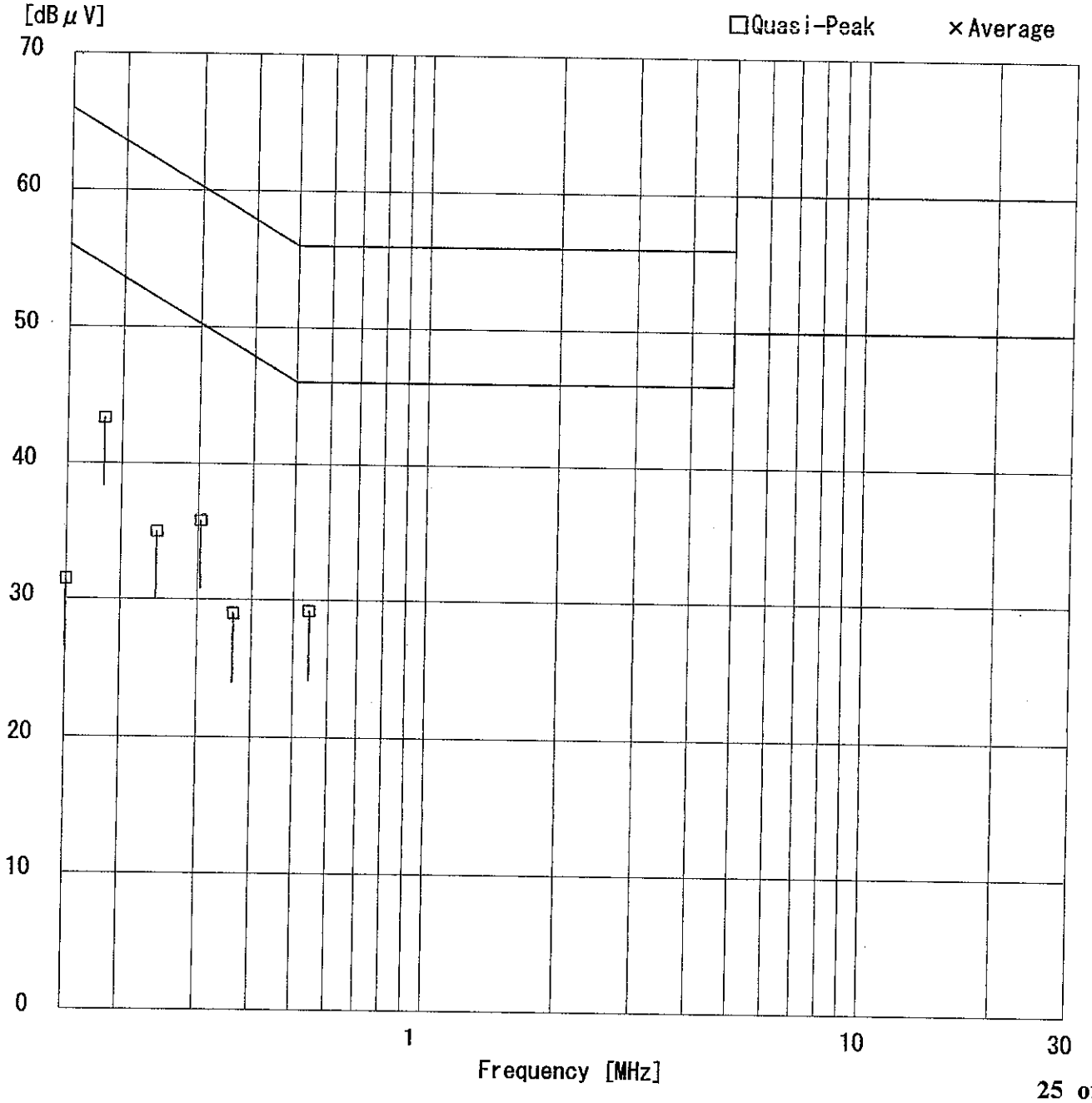
CALCULATION: READING + LISN FACTOR + CABLE LOSS + ATTEN.

■LISN :KLS-01(NSLK8126) ■COAXIAL CABLE:KCC-33/34
■EMI RECEIVER:KTR-01(ESI40)

DATA OF CONDUCTION TEST

UL Apex Co.,Ltd.
YAMAKITA No.2 SHIELD TEST ROOM
Report No.: 25JE0028-YK

Applicant	: Alps Electric Co.,Ltd.		
Kind of Equipment	: Bluetooth Transceiver Module		
Model No.	: UGPZ6		
Serial No.	: 1		
Power	: DC3.3V(AC120V/60Hz)		
Mode	: Transmitting(2402MHz)		
Remarks	: ANT:LDA31		
Date	: 5/19/2005		
Phase	: Single Phase		
Temperature	: 26 ℃	Engineer	: Toyokazu Imamura
Humidity	: 50 %		
Regulation	: FCC Part15C §15.207.(CISPR Pub.22)		



DATA OF CONDUCTION TEST CHART

UL Apex Co.,Ltd.
YAMAKITA No.2 SHIELD TEST ROOM
Report No.: 25JE0028-YK ~~1~~

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Serial No.	: 1		
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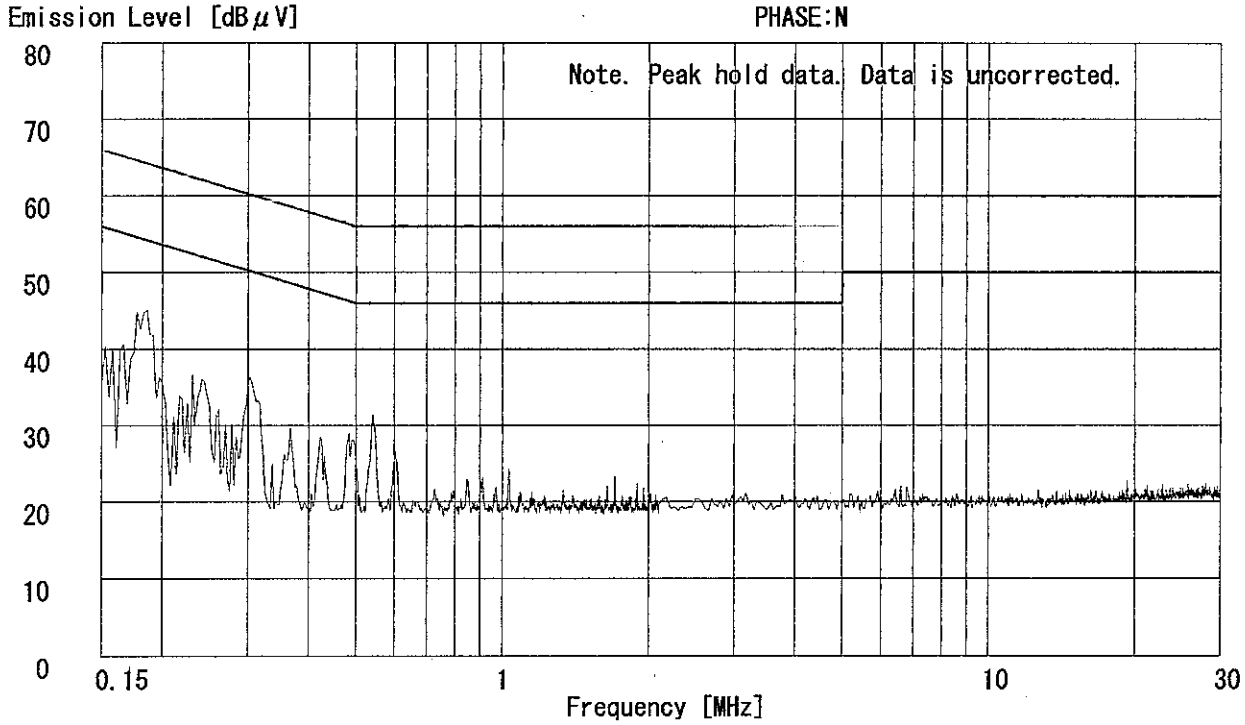
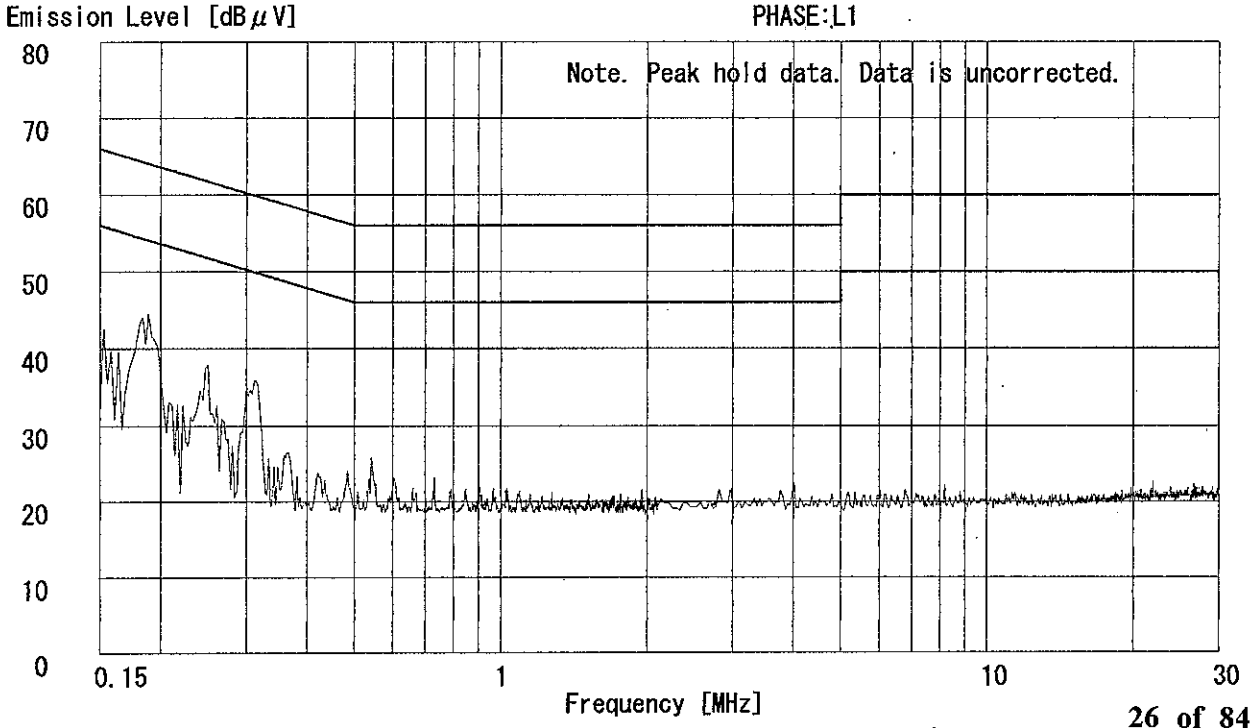
Mode	: Transmitting(2402MHz)		
Remarks	: ANT:LDA31		
Date	: 5/19/2005		
Phase	: Single Phase		
Temperature	: 26 ℃	Engineer	: Toyokazu Imamura
Humidity	: 50 %		
Regulation 1	: FCC Part15C §15.207.(CISPR Pub.22)		
Regulation 2	: None		





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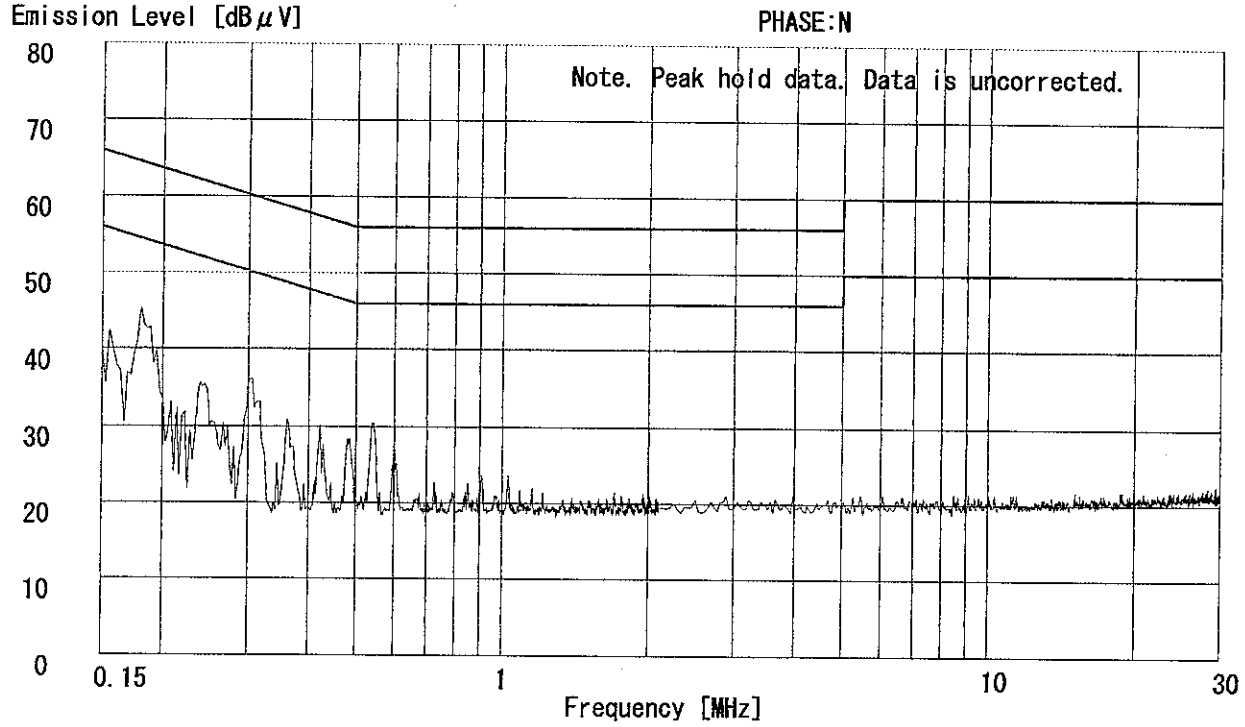
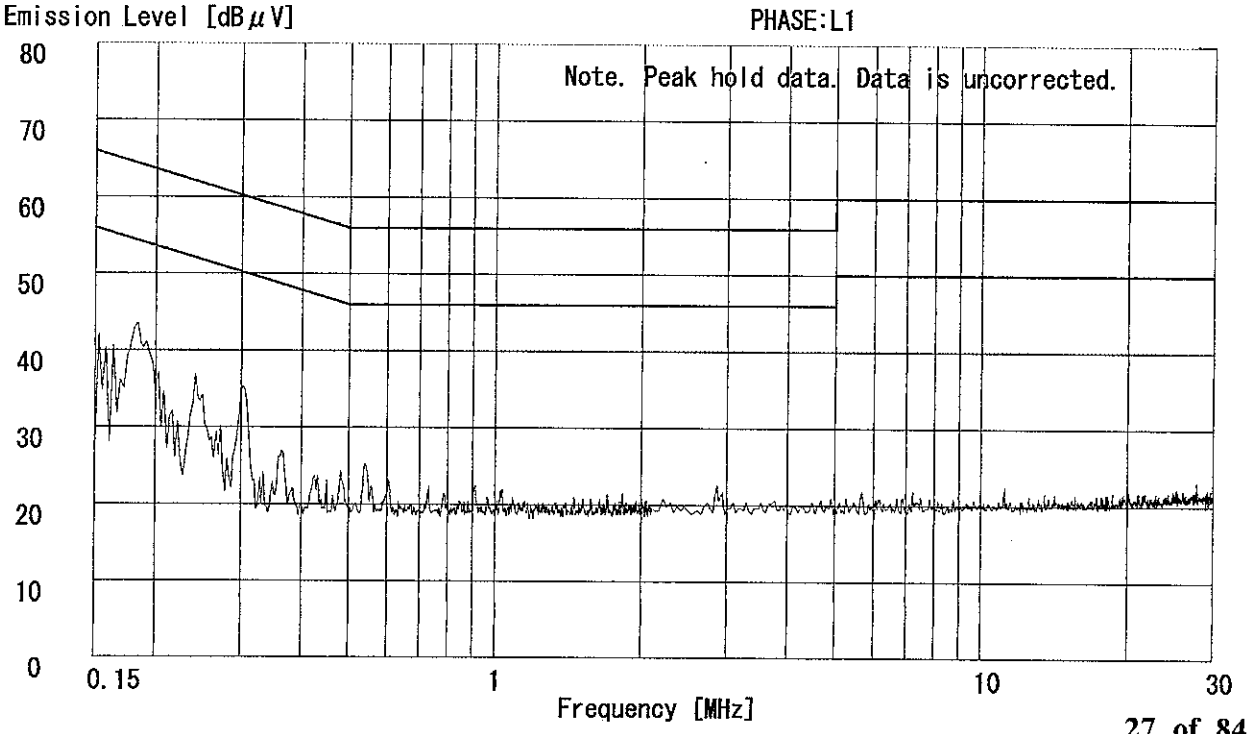
Kind of Equipment	: Bluetooth Transceiver Module		
Model No.	: UGPZ6		
Serial No.	: 1		
Power	: DC3.3V(AC120V/60Hz)		
Mode	: Transmitting(2441MHz)		
Remarks	: ANT:LDA31		
Date	: 5/19/2005		
Phase	: Single Phase		
Temperature	: 26 ℃	Engineer	: Toyokazu Imamura
Humidity	: 50 %		
Regulation 1	: FCC Part15C §15.207.(CISPR Pub.22)		
Regulation 2	: None		





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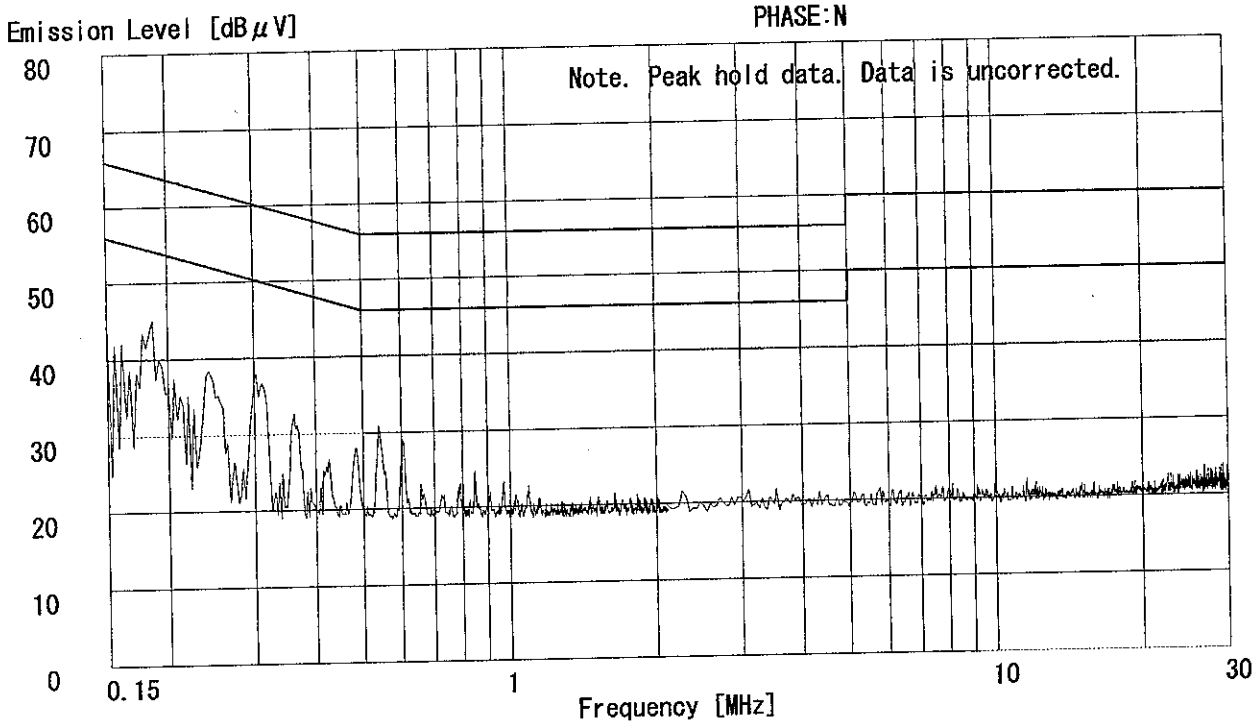
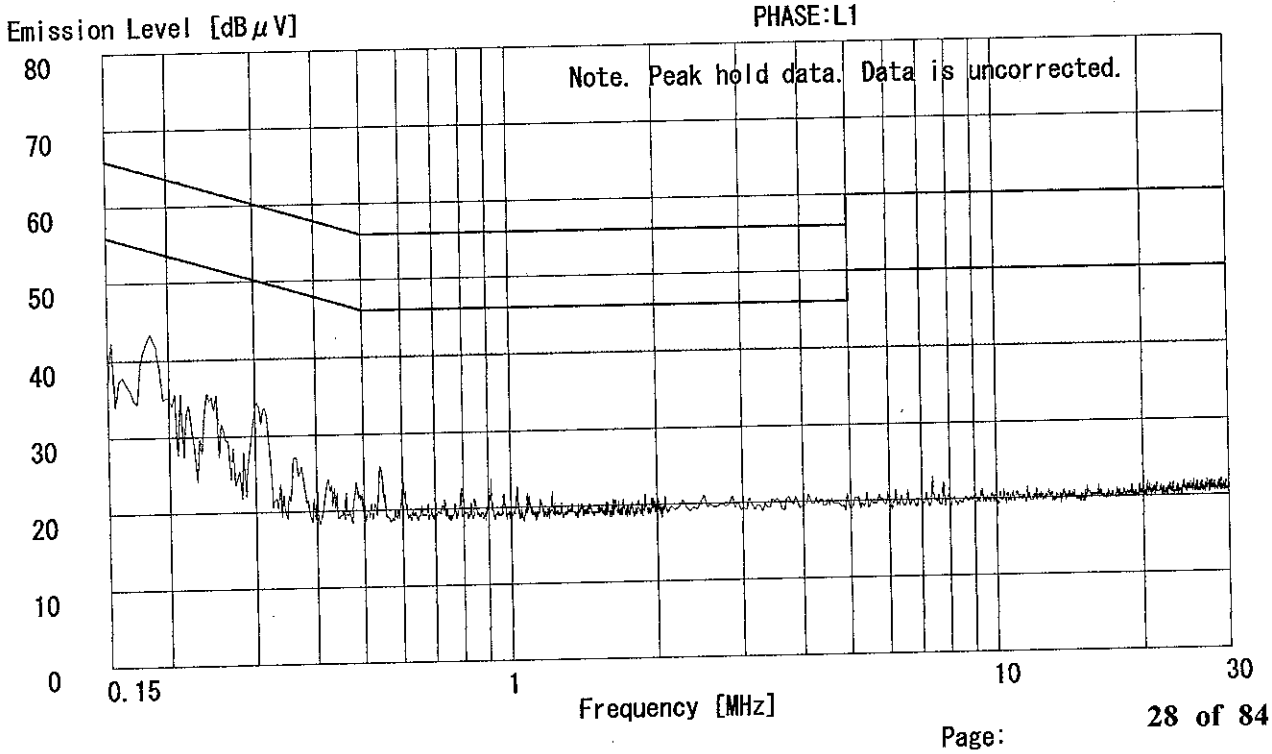
Kind of Equipment	: Bluetooth Transceiver Module		
Model No.	: UGPZ6		
Serial No.	: 1		
Power	: DC3.3V(AC120V/60Hz)		
Mode	: Transmitting(2480MHz)		
Remarks	: ANT:LDA31		
Date	: 5/19/2005		
Phase	: Single Phase		
Temperature	: 26 ℃	Engineer	: Toyokazu Imamura
Humidity	: 50 %		
Regulation 1	: FCC Part15C §15.207.(CISPR Pub.22)		
Regulation 2	: None		





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Kind of Equipment	: Bluetooth Transceiver Module		
Model No.	: UGPZ6		
Serial No.	: 1		
Power	: DC3.3V(AC120V/60Hz)		
Mode	: Transmitting(2402MHz)		
Remarks	: ANT:C680		
Date	: 5/19/2005		
Phase	: Single Phase		
Temperature	: 26 ℃	Engineer	: Toyokazu Imamura
Humidity	: 50 %		
Regulation	: FCC Part15C §15.207.(CISPR Pub.22)		

No.	FREQ.	READING(N) QP	READING(N) AV	READING(L1) QP	READING(L1) AV	LISN FACTOR	CABLE LOSS	ATTEN.	RESULT QP	RESULT AV	LIMITS QP	LIMITS AV	MARGIN QP	MARGIN AV
	[MHz]	[dBμV]		[dBμV]		[dB]	[dB]	[dB]	[dB]	[dBμV]		[dBμV]		[dB]
1.	0.1500	31.4	-	31.1	-	0.1	0.1	0.0	31.6	-	66.0	56.0	34.4	-
2.	0.1809	43.2	-	42.8	-	0.1	0.1	0.0	43.4	-	64.4	54.4	21.0	-
3.	0.2439	34.4	-	32.3	-	0.1	0.1	0.0	34.6	-	62.0	52.0	27.4	-
4.	0.3048	35.8	-	34.6	-	0.1	0.1	0.0	36.0	-	60.1	50.1	24.1	-
5.	0.3644	28.5	-	24.7	-	0.1	0.1	0.0	28.7	-	58.6	48.6	29.9	-
6.	0.5441	28.8	-	24.0	-	0.0	0.1	0.0	28.9	-	56.0	46.0	27.1	-

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

■LISN :KLS-01(NSLK8126) ■COAXIAL CABLE:KCC-33/34
■EMI RECEIVER:KTR-01(ESI40)

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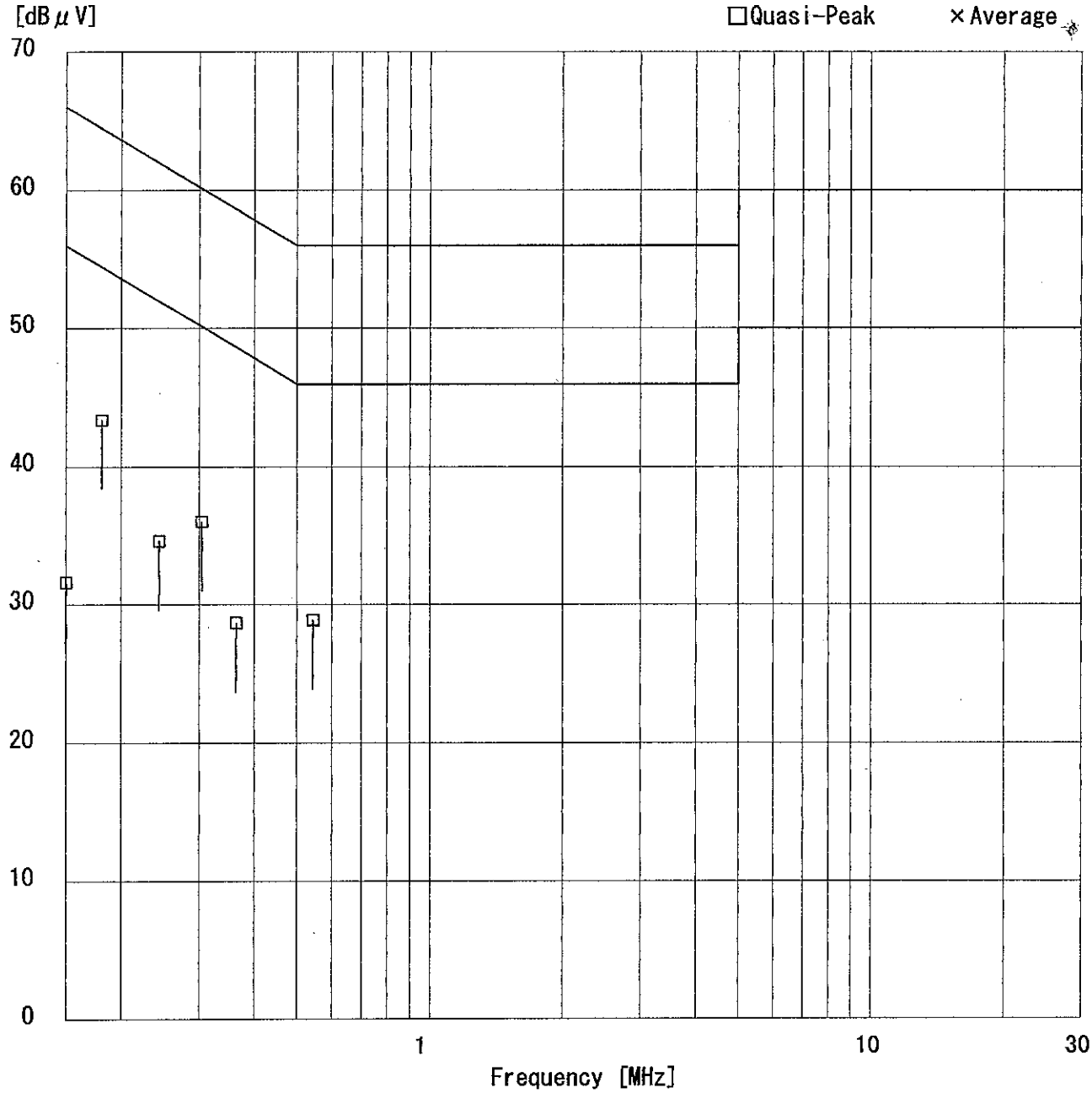
Humidity	: 50 %		
Regulation	: FCC Part15C §15.207.(CISPR Pub.22)		



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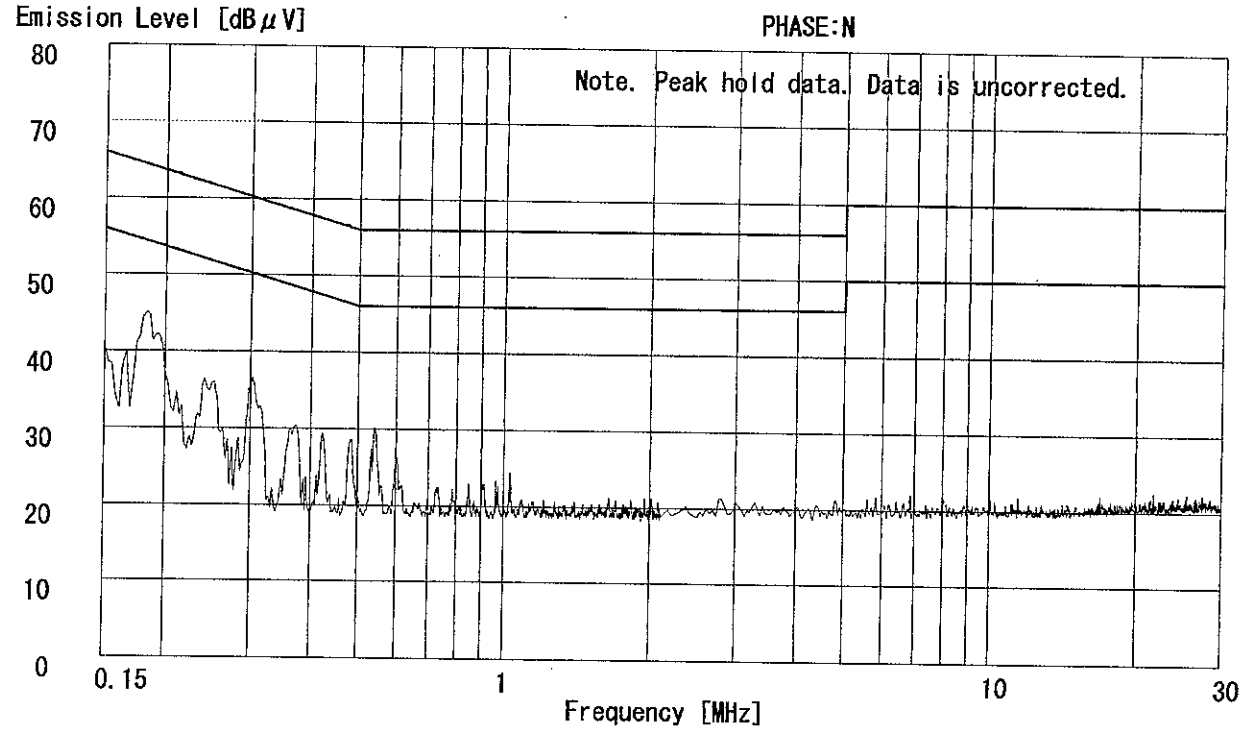
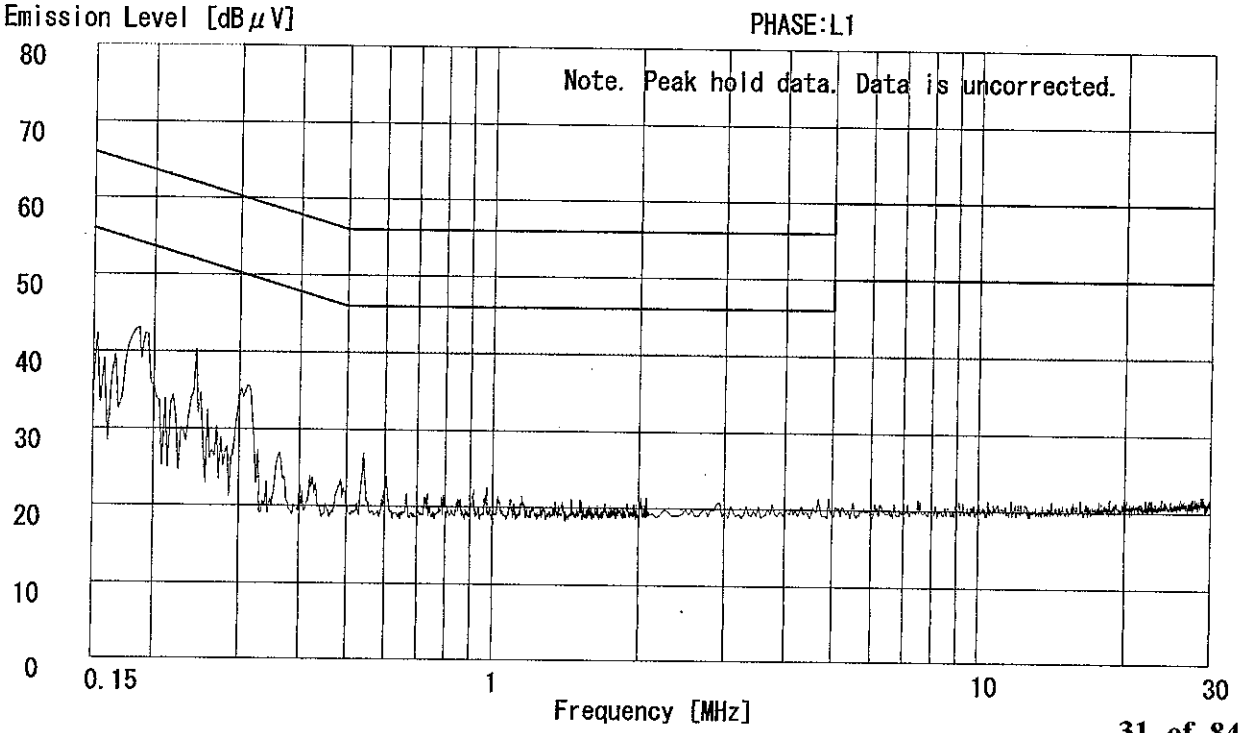
Date	: 5/19/2005		
Phase	: Single Phase		
Temperature	: 26 ℃	Engineer	: Toyokazu Imamura
Humidity	: 50 %		
Regulation 1	: FCC Part15C §15.207.(CISPR Pub.22)		
Regulation 2	: None		

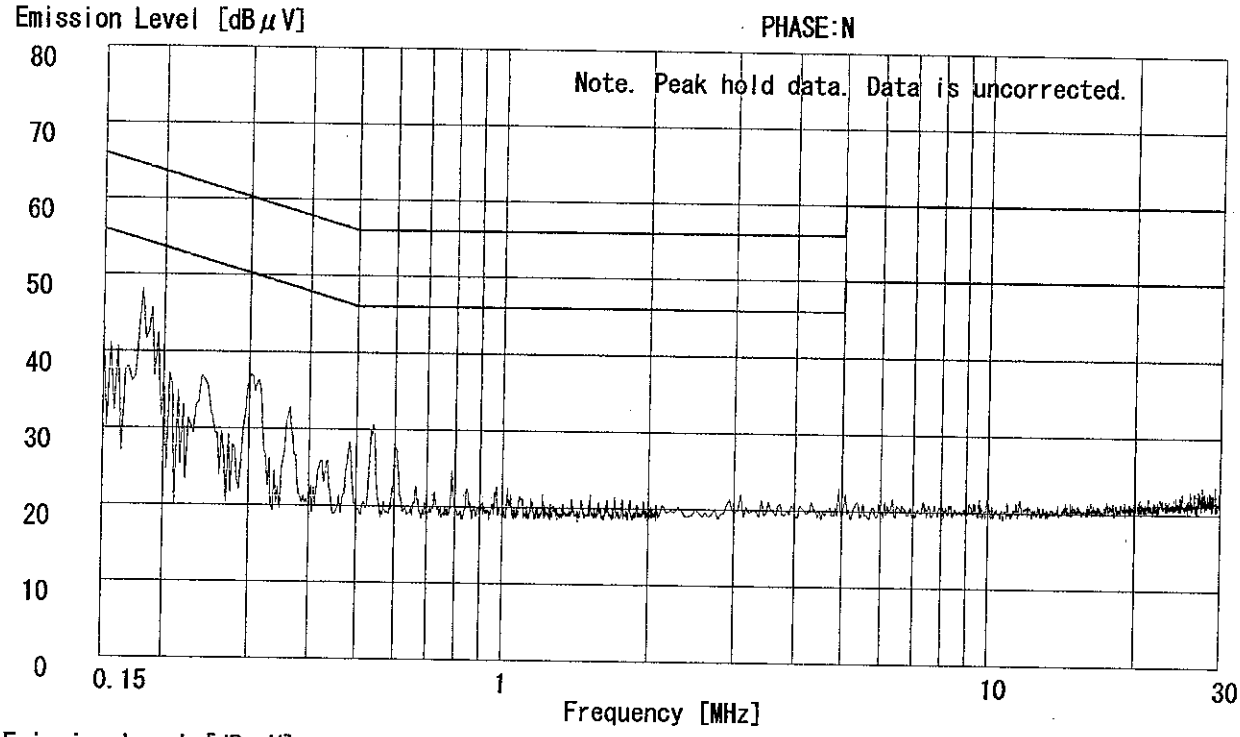


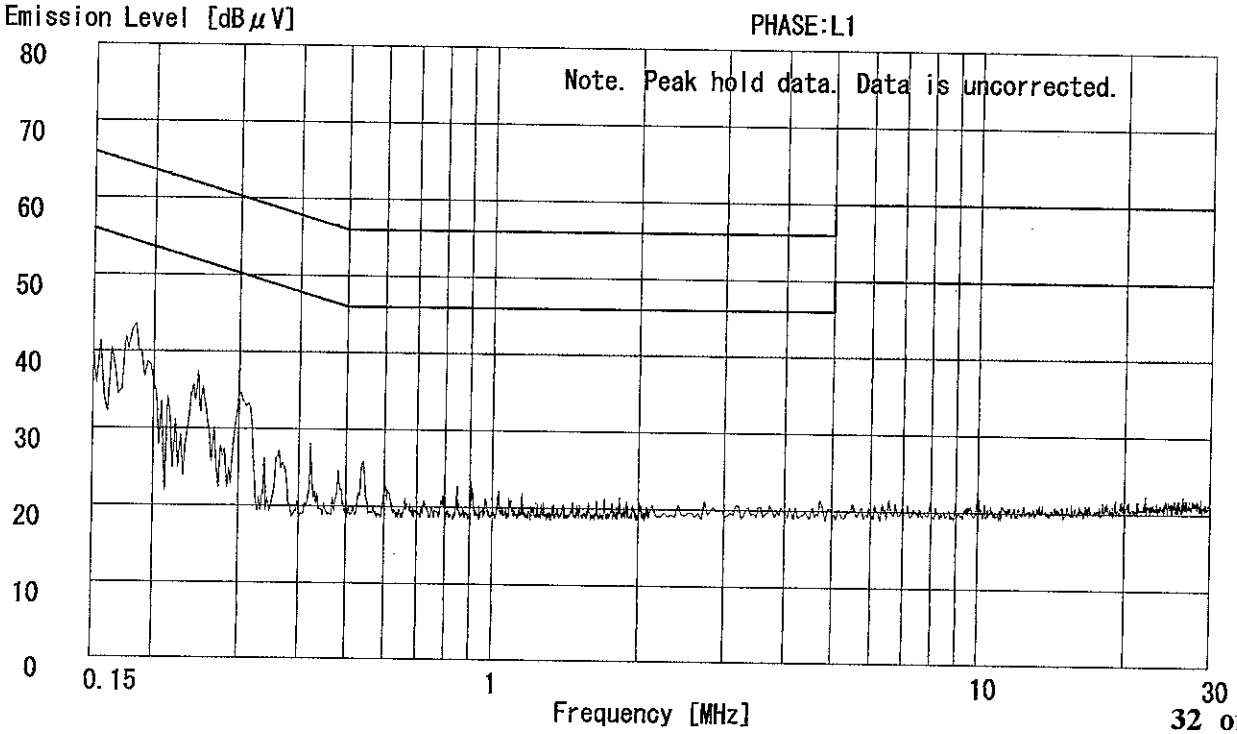


DATA OF CONDUCTION TEST CHART

UL Apex Co.,Ltd.
YAMAKITA No.2 SHIELD TEST ROOM
Report No.: 25JE0028-YK

Applicant	: Alps Electric Co.,Ltd.		
Kind of Equipment	: Bluetooth Transceiver Module		
Model No.	: UGPZ6		
Serial No.	: 1		
Power	: DC3.3V(AC120V/60Hz)		
Mode	: Transmitting(2441MHz)		
Remarks	: ANT:C680		
Date	: 5/19/2005		
Phase	: Single Phase		
Temperature	: 26 ℃	Engineer	: Toyokazu Imamura
Humidity	: 50 %		
Regulation 1	: FCC Part15C §15.207.(CISPR Pub.22)		
Regulation 2	: None		

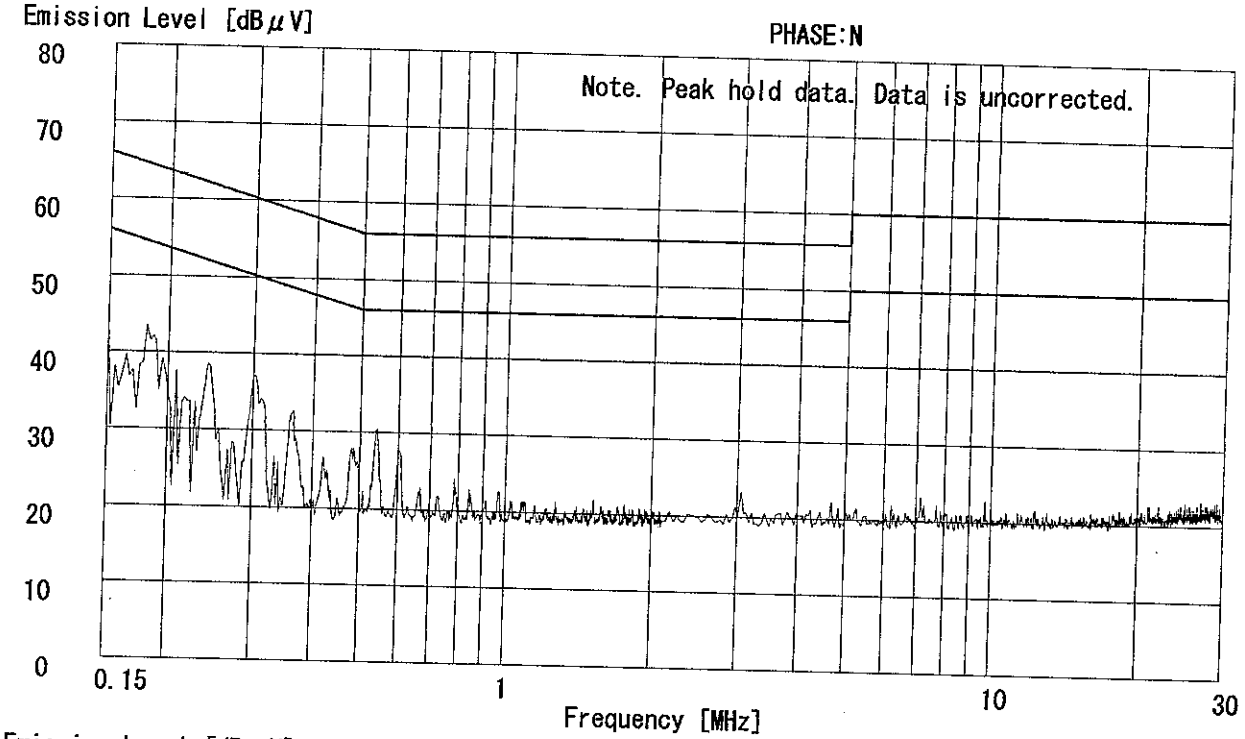


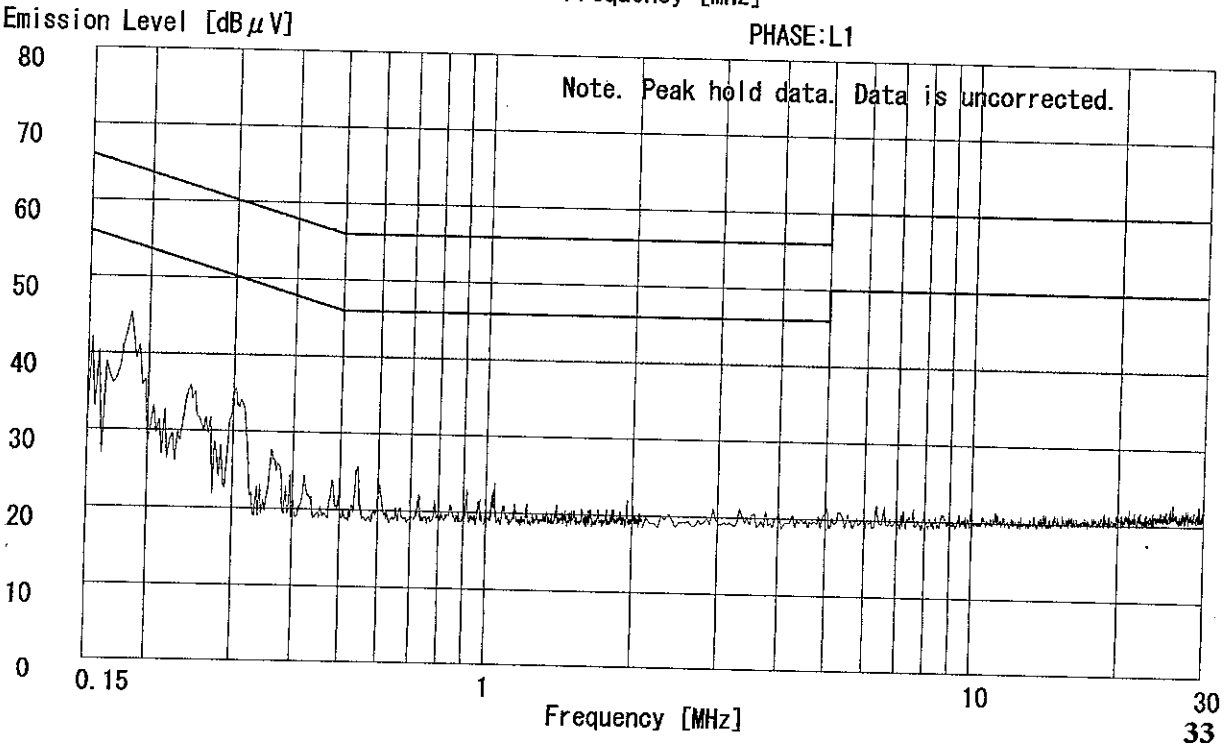


DATA OF CONDUCTION TEST CHART

UL Apex Co.,Ltd.
YAMAKITA No.2 SHIELD TEST ROOM
Report No. : 25JE0028-YK

Applicant	: Alps Electric Co., Ltd.		
Kind of Equipment	: Bluetooth Transceiver Module		
Model No.	: UGPZ6		
Serial No.	: 1		
Power	: DC3.3V(AC120V/60Hz)		
Mode	: Transmitting(2480MHz)		
Remarks	: ANT:C680		
Date	: 5/19/2005		
Phase	: Single Phase		
Temperature	: 26 ℃		
Humidity	: 50 %	Engineer	: Toyokazu Imamura
Regulation 1	: FCC Part15C §15.207. (CISPR Pub.22)		
Regulation 2	: None		





DATA OF CONDUCTION TEST

UL Apex Co.,Ltd.
YAMAKITA No.2 SHIELD TEST ROOM
Report No.: 25JE0028-YK

Applicant	: Alps Electric Co.,Ltd.		
Kind of Equipment	: Bluetooth Transceiver Module		
Model No.	: UGPZ6		
Serial No.	: 1		
Power	: DC3.3V(AC120V/60Hz)		
Mode	: Transmitting(2402MHz)		
Remarks	: ANT:CAN4313359		
Date	: 5/20/2005		
Phase	: Single Phase		
Temperature	: 25 ℃	Engineer	: Toyokazu Imamura
Humidity	: 47 %		
Regulation	: FCC Part15C §15.207.(CISPR Pub.22)		

No.	FREQ.	READING(N) QP	READING(N) AV	READING(L1) QP	READING(L1) AV	LISN FACTOR	CABLE LOSS	ATTEN.	RESULT QP	RESULT AV	LIMITS QP	LIMITS AV	MARGIN QP	MARGIN AV
	[MHz]	[dBμV]		[dBμV]		[dB]	[dB]	[dB]	[dB]	[dBμV]		[dBμV]		[dB]
1.	0.1500	31.5	-	31.4	-	0.2	0.1	0.0	31.8	-	66.0	56.0	34.2	-
2.	0.1816	43.1	-	41.7	-	0.1	0.1	0.0	43.3	-	64.4	54.4	21.1	-
3.	0.2436	34.5	-	32.6	-	0.1	0.1	0.0	34.7	-	62.0	52.0	27.3	-
4.	0.3047	35.4	-	34.6	-	0.1	0.1	0.0	35.6	-	60.1	50.1	24.5	-
5.	0.3639	28.5	-	24.8	-	0.1	0.1	0.0	28.7	-	58.6	48.6	29.9	-
6.	0.5453	28.9	-	23.2	-	0.1	0.1	0.0	29.1	-	56.0	46.0	26.9	-

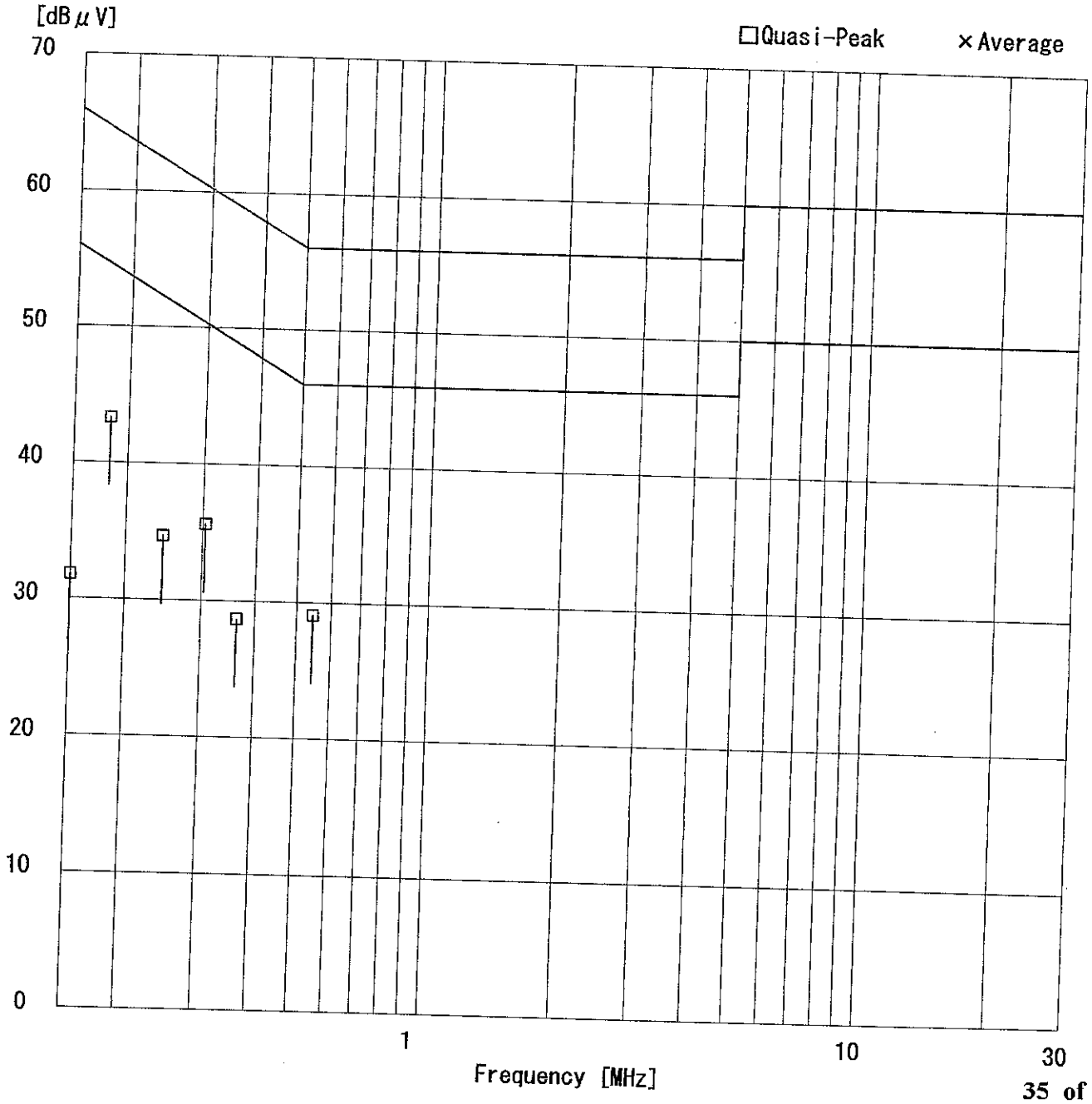
CALCULATION: READING + LISN FACTOR + CABLE LOSS + ATTEN.

■LISN:KLS-05(NSLK8126) ■COAXIAL CABLE:KCC-33/34
■EMI RECEIVER:KTR-01(ESI40)

DATA OF CONDUCTION TEST

UL Apex Co.,Ltd.
YAMAKITA No.2 SHIELD TEST ROOM
Report No. : 25JE0028-YK

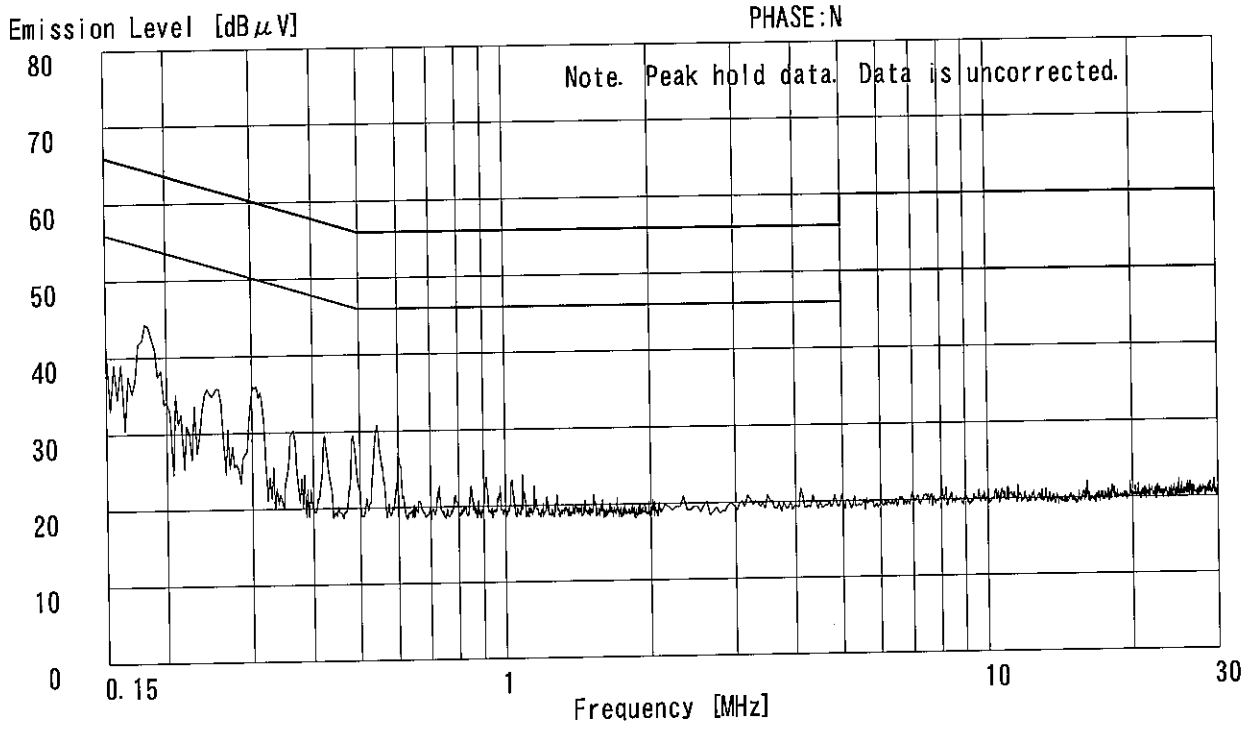
Applicant	: Alps Electric Co.,Ltd.		
Kind of Equipment	: Bluetooth Transceiver Module		
Model No.	: UGPZ6		
Serial No.	: 1		
Power	: DC3.3V(AC120V/60Hz)		
Mode	: Transmitting(2402MHz)		
Remarks	: ANT:CAN4313359		
Date	: 5/20/2005		
Phase	: Single Phase		
Temperature	: 25 ℃	Engineer	: Toyokazu Imamura
Humidity	: 47 %		
Regulation	: FCC Part15C §15.207.(CISPR Pub.22)		

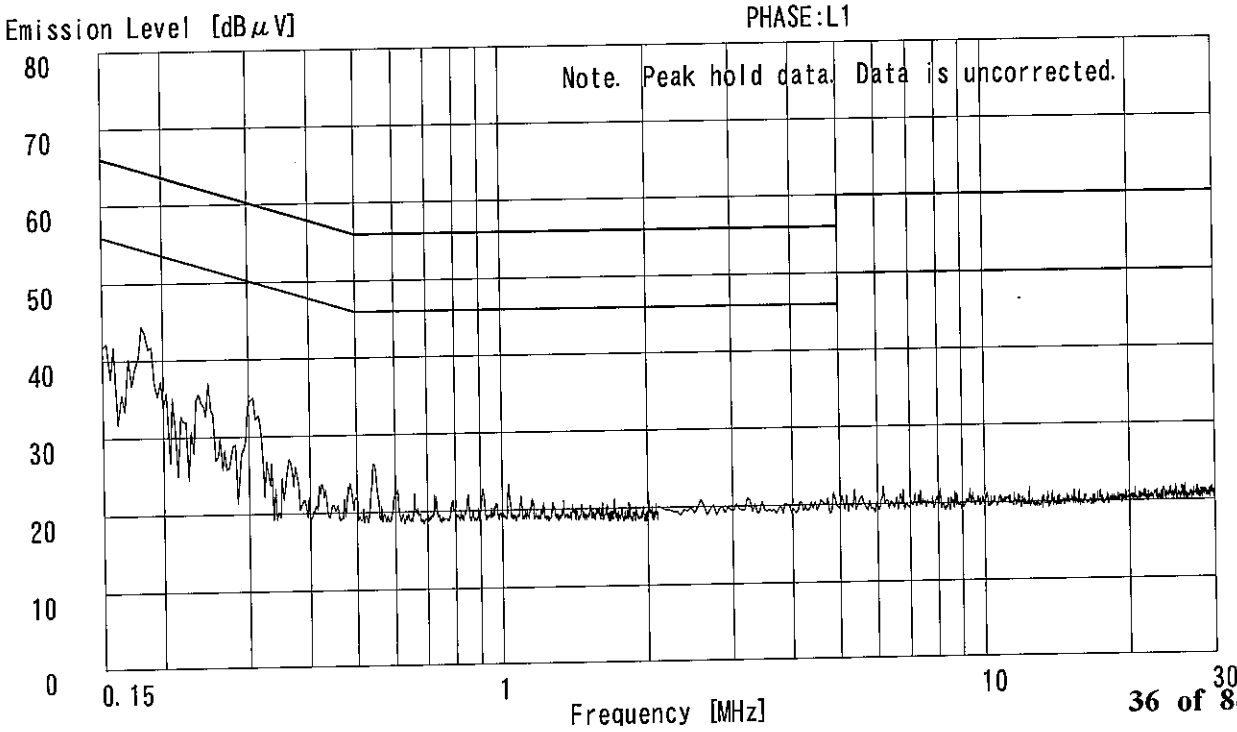


DATA OF CONDUCTION TEST CHART

UL Apex Co.,Ltd.
YAMAKITA No.2 SHIELD TEST ROOM
Report No. : 25JE0028-YK

Applicant	: Alps Electric Co., Ltd.		
Kind of Equipment	: Bluetooth Transceiver Module		
Model No.	: UGPZ6		
Serial No.	: 1		
Power	: DC3.3V (AC120V/60Hz)		
Mode	: Transmitting (2402MHz)		
Remarks	: ANT:CAN4313359		
Date	: 5/20/2005		
Phase	: Single Phase		
Temperature	: 25 ℃	Engineer	: Toyokazu Imamura
Humidity	: 47 %		
Regulation 1	: FCC Part15C §15.207. (CISPR Pub.22)		
Regulation 2	: None		

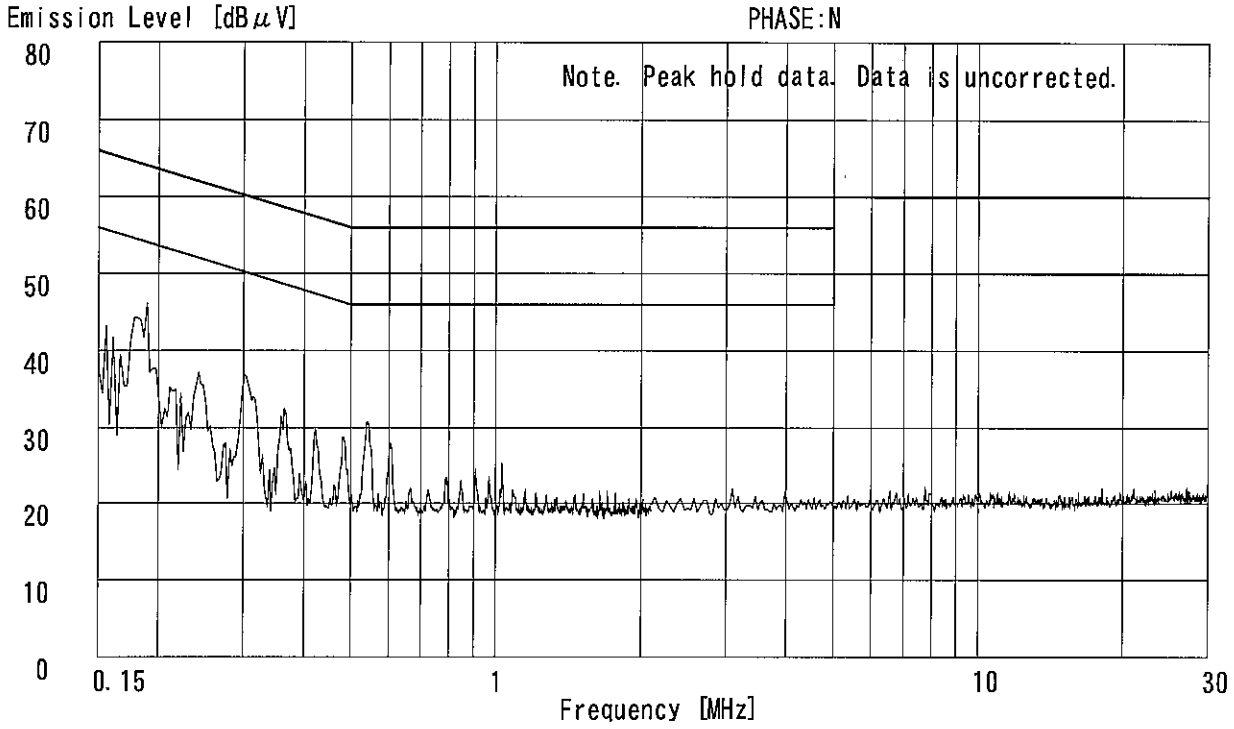


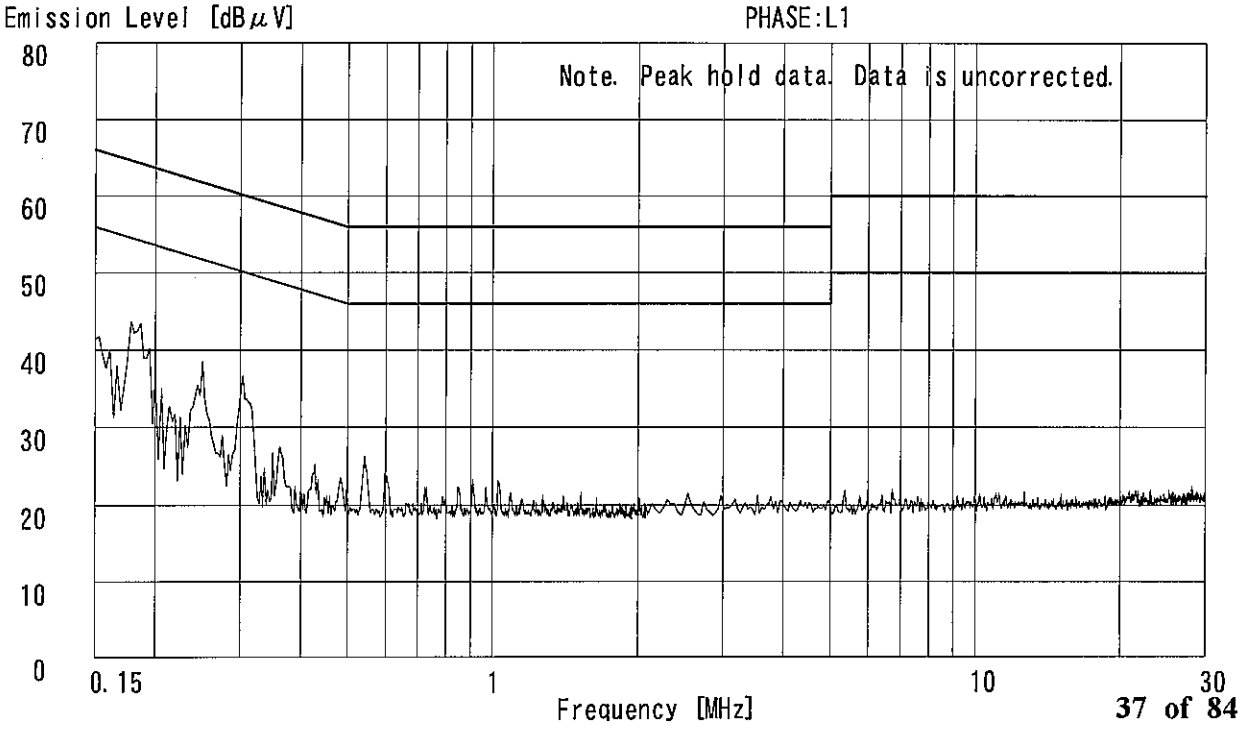


DATA OF CONDUCTION TEST CHART

UL Apex Co.,Ltd.
YAMAKITA No.2 SHIELD TEST ROOM
Report No. : 25JE0028-YK

Applicant	: Alps Electric Co., Ltd.		
Kind of Equipment	: Bluetooth Transceiver Module		
Model No.	: UGPZ6		
Serial No.	: 1		
Power	: DC3.3V (AC120V/60Hz)		
Mode	: Transmitting (2441MHz)		
Remarks	: ANT:CAN4313359		
Date	: 5/20/2005		
Phase	: Single Phase		
Temperature	: 25 ℃	Engineer	: Toyokazu Imamura
Humidity	: 47 %		
Regulation 1	: FCC Part15C §15.207. (CISPR Pub.22)		
Regulation 2	: None		

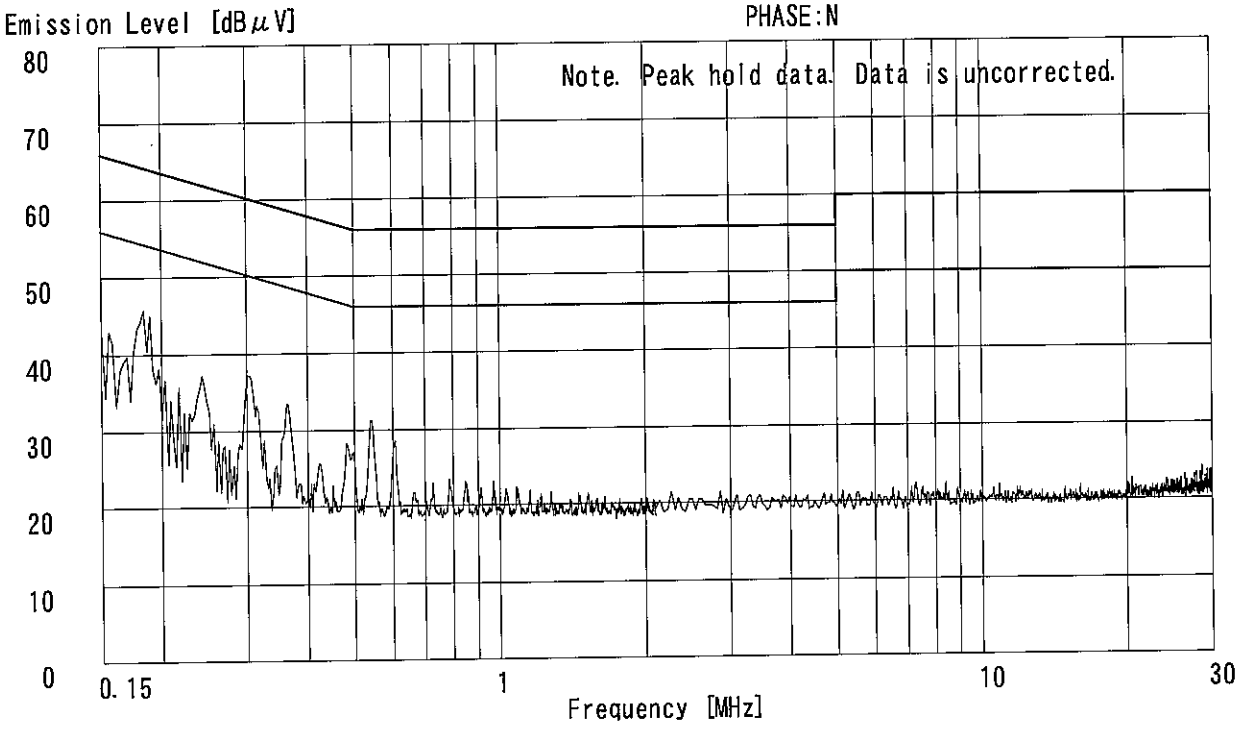


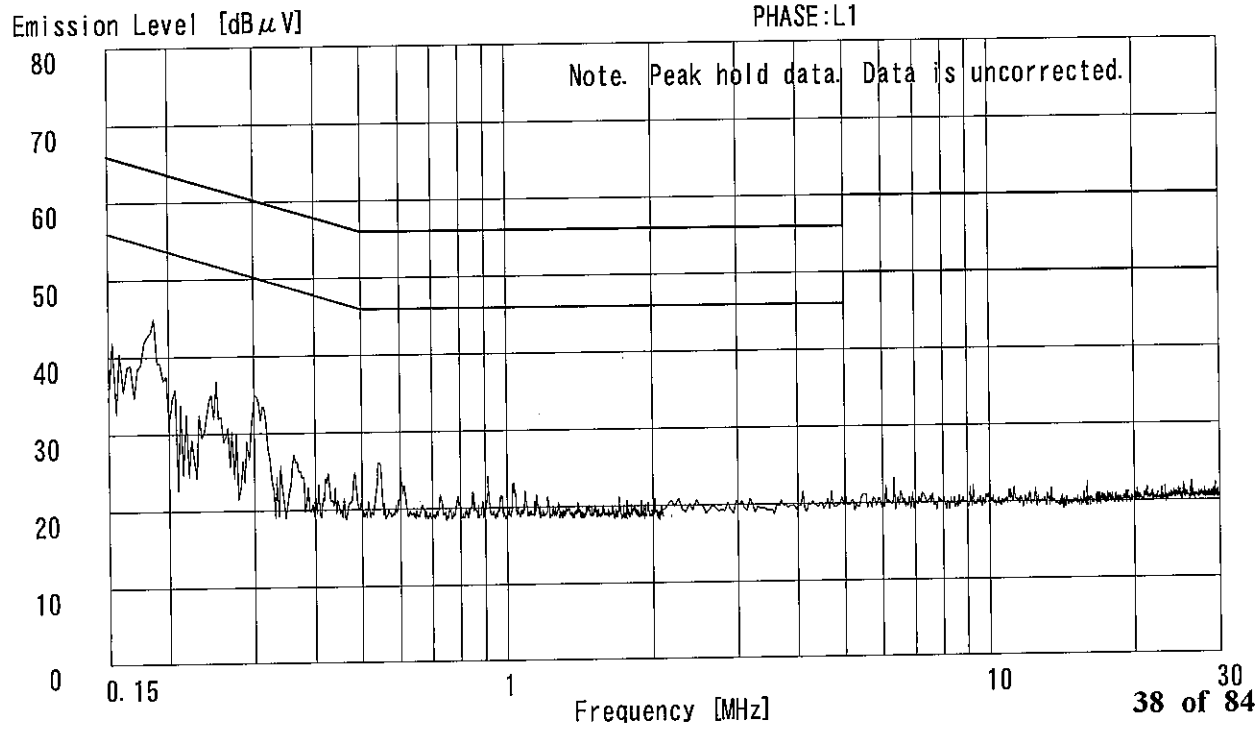


DATA OF CONDUCTION TEST CHART

UL Apex Co.,Ltd.
YAMAKITA No.2 SHIELD TEST ROOM
Report No. : 25JE0028-YK

Applicant	: Alps Electric Co., Ltd.		
Kind of Equipment	: Bluetooth Transceiver Module		
Model No.	: UGPZ6		
Serial No.	: 1		
Power	: DC3.3V (AC120V/60Hz)		
Mode	: Transmitting (2480MHz)		
Remarks	: ANT:CAN4313359		
Date	: 5/20/2005		
Phase	: Single Phase		
Temperature	: 25 ℃	Engineer	: Toyokazu Imamura
Humidity	: 47 %		
Regulation 1	: FCC Part15C §15.207. (CISPR Pub.22)		
Regulation 2	: None		



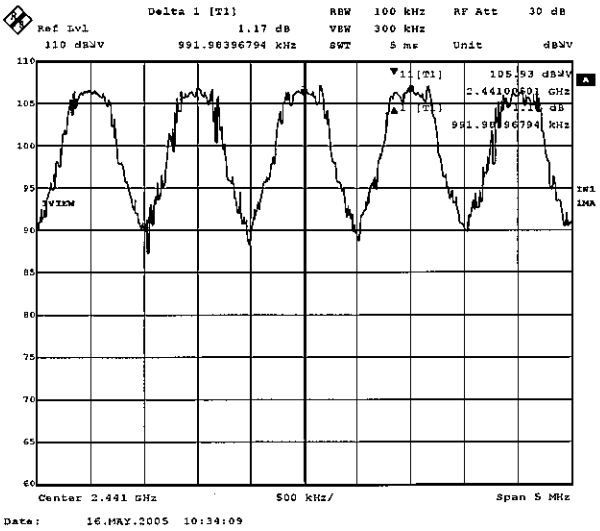


Channel Separation: FCC 15.247(a)(1)

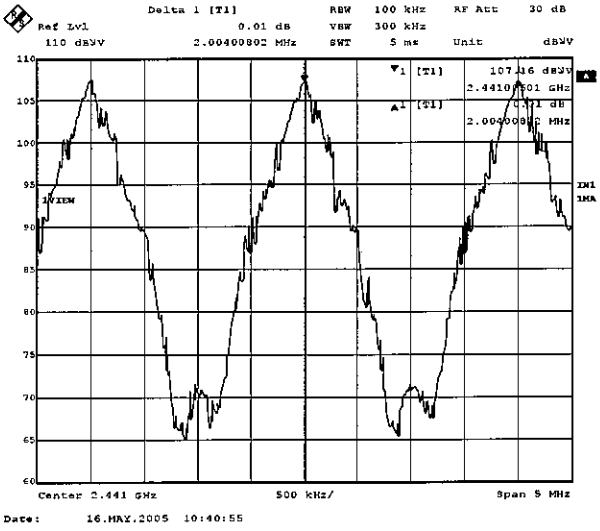
UL Apex Co.,Ltd. Yamakita No.4 Shielded Room

COMPANY	: Alps Electric Co., Ltd.	REPORT NO	: 25JE0028-YK-1
EQUIPMENT	: Bluetooth Transceiver Module	REGULATION	: Fcc Part15SubpartC 247(a)(1)
MODEL NUMBER	: UGPZ6	DATE	: 2005/5/16
SERIAL NUMBER	: 1	TEMP./HUMI	: 24°C/39%
FCC ID	: CWTUGPZ6	TEST MODE	: Transmitting
POWER	: DC3.3V	ENGINEER	: Toyokazu Imamura

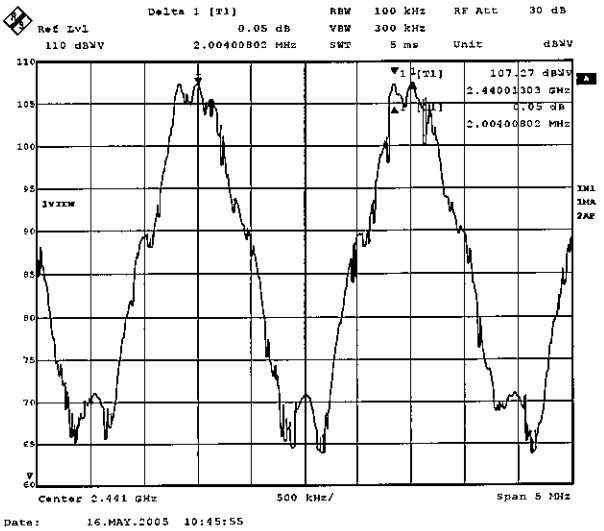
1. **Hopping:991.98kHz**



2. **Inquiry:2004.01kHz**



3. **Page:2004.01kHz**

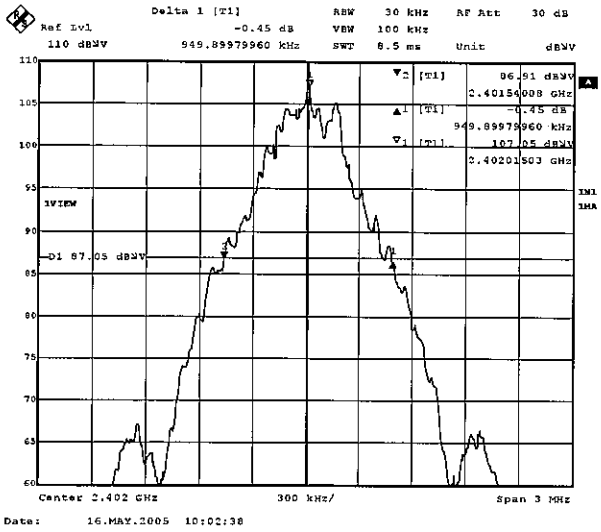


20dB Bandwidth: FCC 15.247(a)(1)

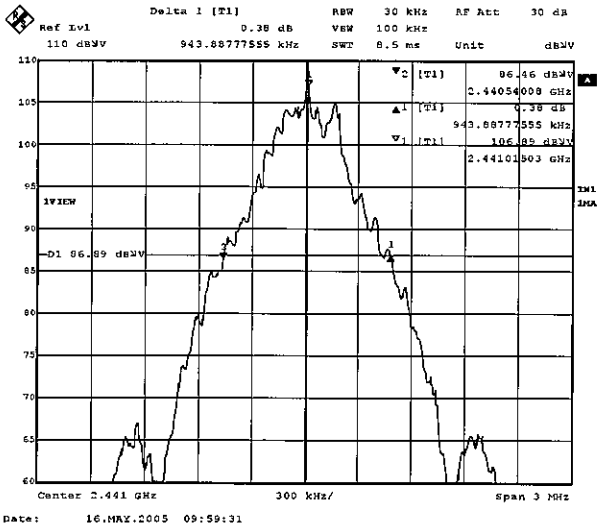
UL Apex Co.,Ltd. Yamakita No.4 Shielded Room

COMPANY	: Alps Electric Co., Ltd.	REPORT NO	: 25JE0028-YK-1
EQUIPMENT	: Bluetooth Transceiver Module	REGULATION	: Fcc Part15SubpartC 247(a)(1)
MODEL NUMBER	: UGPZ6	DATE	: 2005/5/16
SERIAL NUMBER	: 1	TEMP./HUMI	: 24℃/39%
FCC ID	: CWTUGPZ6	TEST MODE	: Transmitting (Hopping off)
POWER	: DC3.3V	ENGINEER	: Toyokazu Imamura

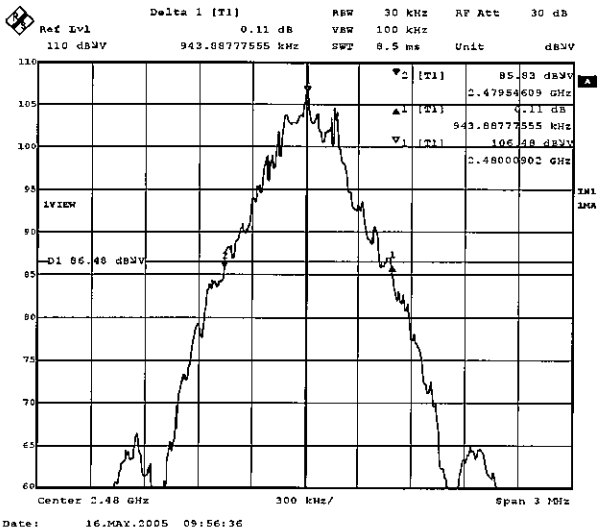
1. ch : 2402MHz/20dB Bandwidth:949.90kHz



2. ch : 2441MHz/20dB Bandwidth:943.89kHz



3. ch : 2480MHz/20dB Bandwidth:943.89kHz



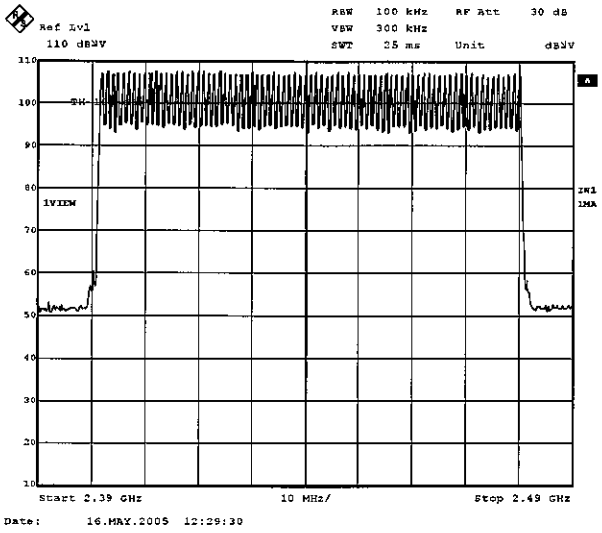
Channel Utilization: FCC 15.247(a)(1)(iii)

UL Apex Co.,Ltd. Yamakita No.4 Shielded Room

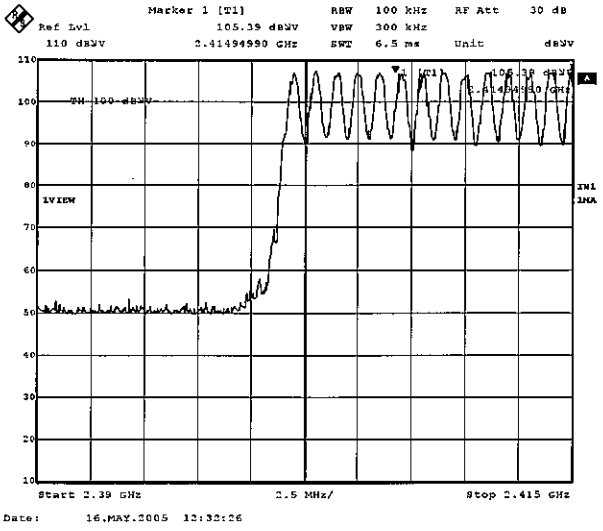
COMPANY	: Alps Electric Co., Ltd.	REPORT NO	: 25FE0137-YK-1
EQUIPMENT	: Bluetooth Transceiver Module	REGULATION	: Fcc Part15SubpartC 247(a)(1)(iii)
MODEL NUMBER	: UGPZ6	DATE	: 2005/5/16
SERIAL NUMBER	: 1	TEMP./HUMI	: 24℃/39%
FCC ID	: CWTUGPZ6	TEST MODE	: Transmitting
POWER	: DC3.3V	ENGINEER	: Toyokazu Imamura

Hopping: 79ch

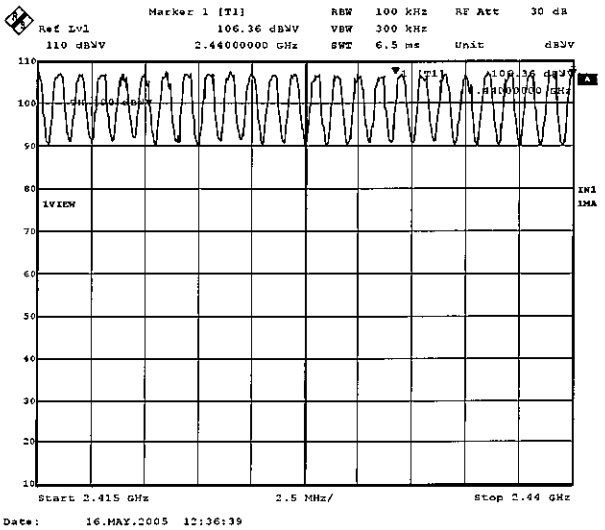
1.



2.



3.

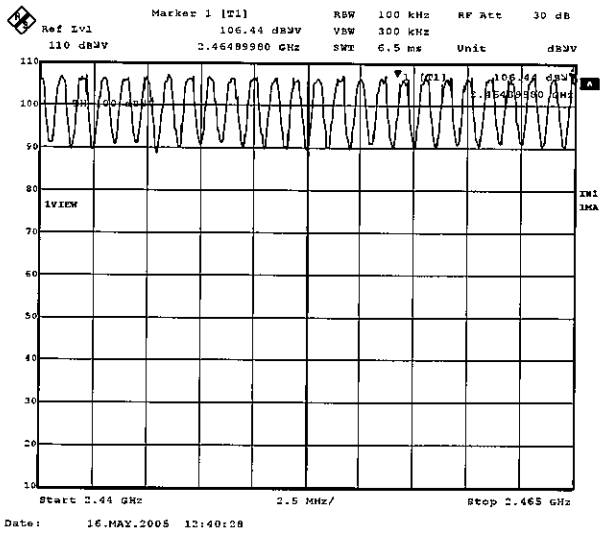


Channel Utilization: FCC 15.247(a)(1)(iii)

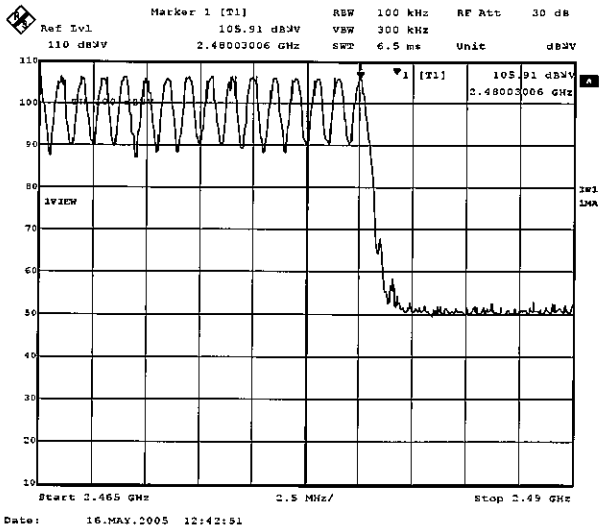
UL Apex Co.,Ltd. Yamakita No.4 Shielded Room

COMPANY	: Alps Electric Co., Ltd.	REPORT NO	: 25FE0137-YK-1
EQUIPMENT	: Bluetooth Transceiver Module	REGULATION	: Fcc Part15SubpartC 247(a)(1)(iii)
MODEL NUMBER	: UGPZ6	DATE	: 2005/5/16
SERIAL NUMBER	: 1	TEMP./HUMI	: 24℃/39%
FCC ID	: CWTUGPZ6	TEST MODE	: Transmitting
POWER	: DC3.3V	ENGINEER	: Toyokazu Imamura

4.



5.

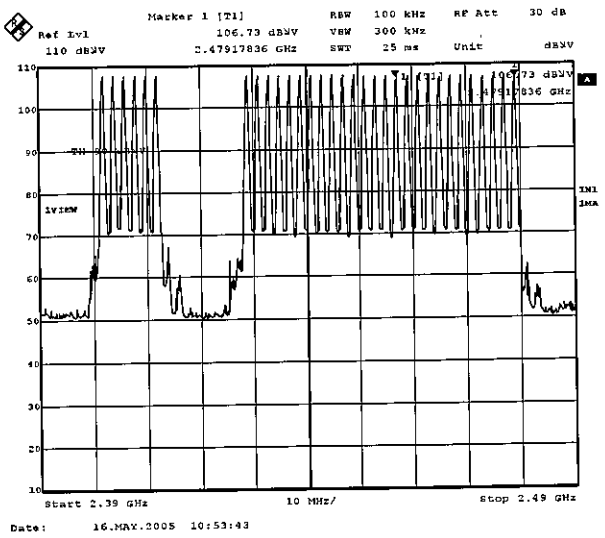


Channel Utilization: FCC 15.247(a)(1)(iii)

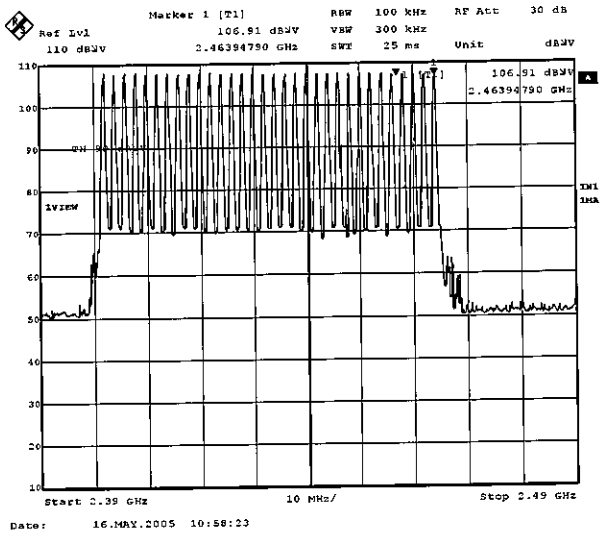
UL Apex Co.,Ltd. Yamakita No.4 Shielded Room

COMPANY	: Alps Electric Co., Ltd.	REPORT NO	: 25FE0137-YK-1
EQUIPMENT	: Bluetooth Transceiver Module	REGULATION	: Fcc Part15SubpartC 247(a)(1)(iii)
MODEL NUMBER	: UGPZ6	DATE	: 2005/5/16
SERIAL NUMBER	: 1	TEMP./HUMI	: 24℃/39%
FCC ID	: CWTUGPZ6	TEST MODE	: Transmitting
POWER	: DC3.3V	ENGINEER	: Toyokazu Imamura

2. Inquiry: 32ch



3. Page: 32ch



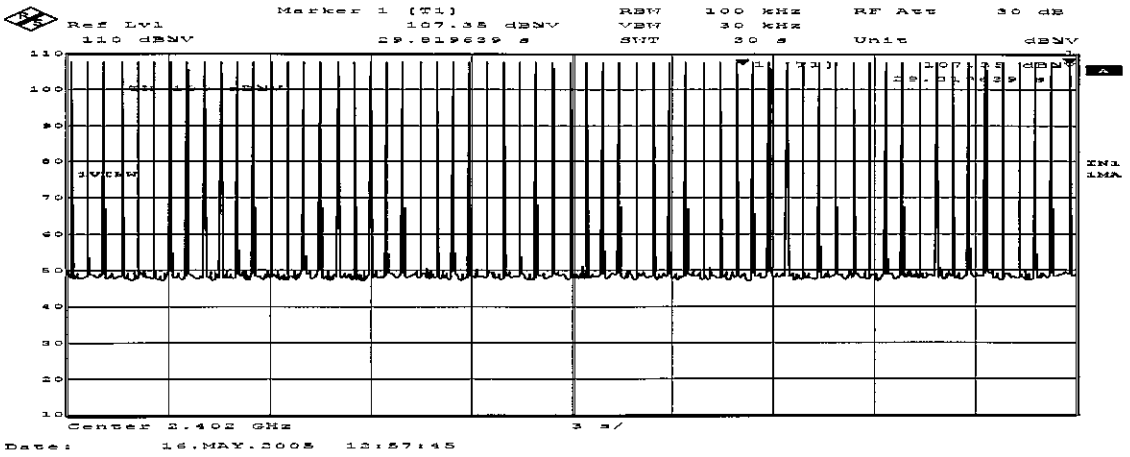
Dwell Time: FCC 15.247(a)(1)(iii)

UL Apex Co.,Ltd. Yamakita No.4 Shielded Room

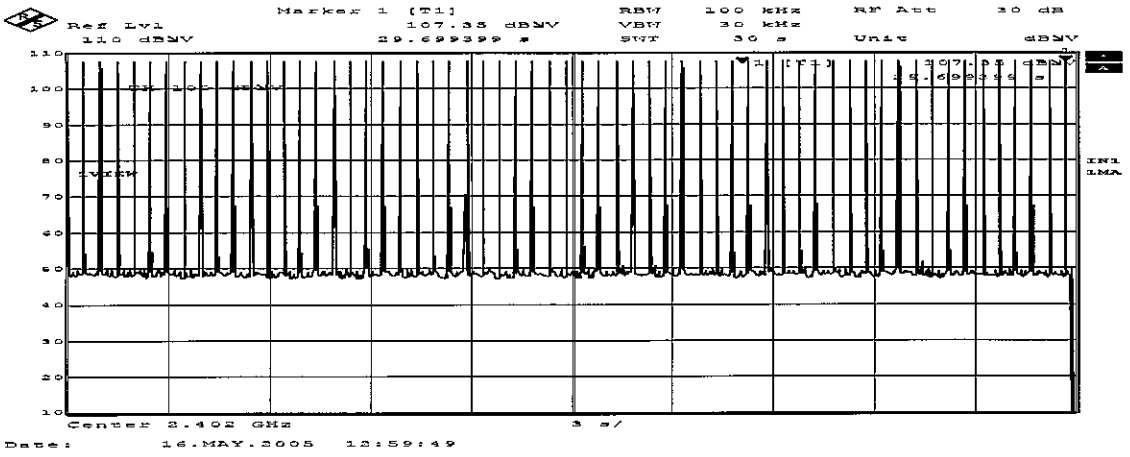
COMPANY	: Alps Electric Co., Ltd.	REPORT NO	: 25JE0028-YK-1
EQUIPMENT	: Bluetooth Transceiver Module	REGULATION	: Fcc Part15SubpartC 247(a)(1)(iii)
MODEL NUMBER	: UGPZ6	DATE	: 2005/5/16
SERIAL NUMBER	: 1	TEMP./HUMI	: 24℃/39%
FCC ID	: CWTUGPZ6	TEST MODE	: Transmitting
POWER	: DC3.3V	ENGINEER	: Toyokazu Imamura

Hopping:

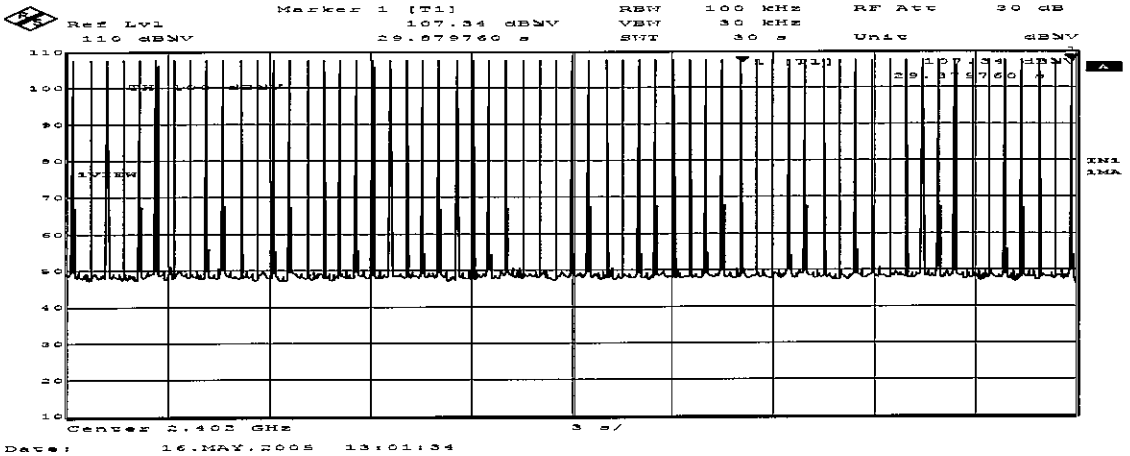
Count 1



Count 2



Count 3

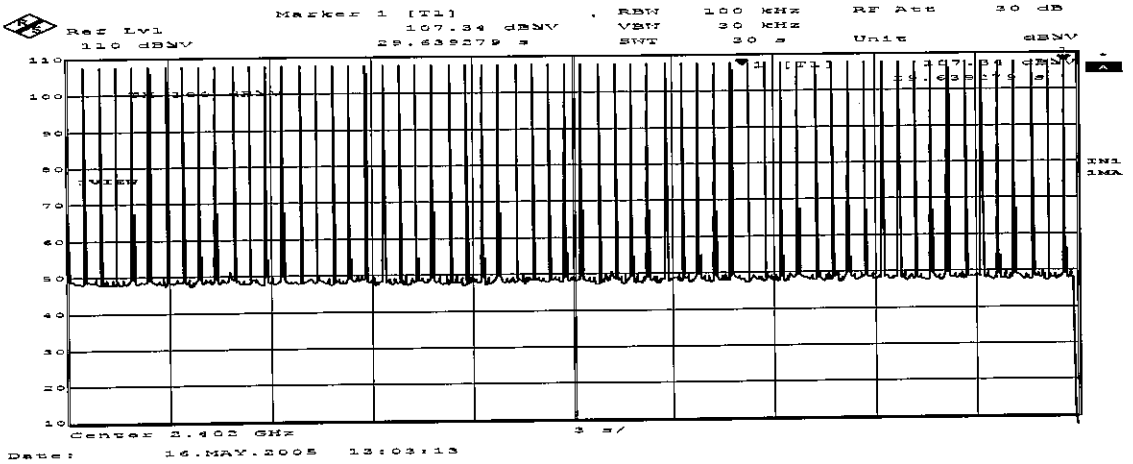


Dwell Time: FCC 15.247(a)(1)(iii)

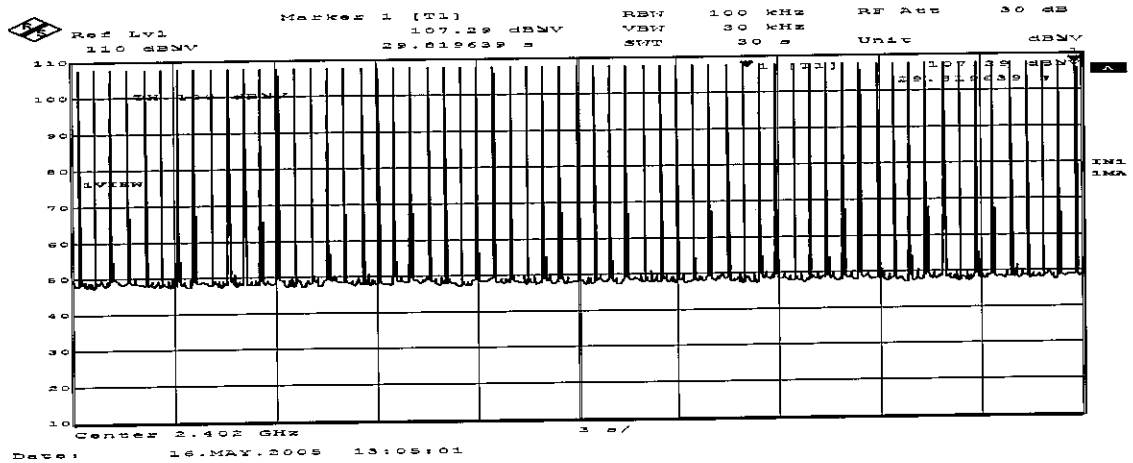
UL Apex Co.,Ltd. Yamakita No.4 Shielded Room

COMPANY	: Alps Electric Co., Ltd.	REPORT NO	: 25JE0028-YK-1
EQUIPMENT	: Bluetooth Transceiver Module	REGULATION	: Fcc Part15SubpartC 247(a)(1)(iii)
MODEL NUMBER	: UGPZ6	DATE	: 2005/5/16
SERIAL NUMBER	: 1	TEMP./HUMI	: 24℃/39%
FCC ID	: CWTUGPZ6	TEST MODE	: Transmitting
POWER	: DC3.3V	ENGINEER	: Toyokazu Imamura

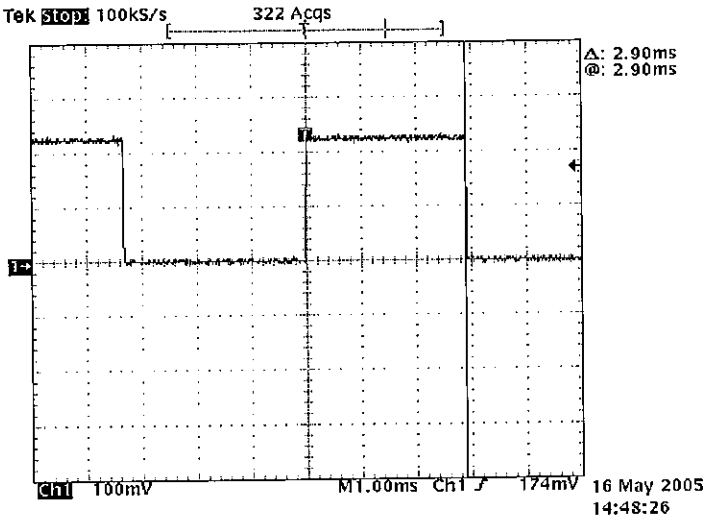
Count 4



Count 5



Duty cycle(Hopping)



Dwell time = (Count 1 + Count 2 + Count 3 + Count 4 + Count5) / 5 * Ton
= (61 + 61 + 61 + 60 + 61) / 5 * 2.90[ms]
= 176.32 [ms]

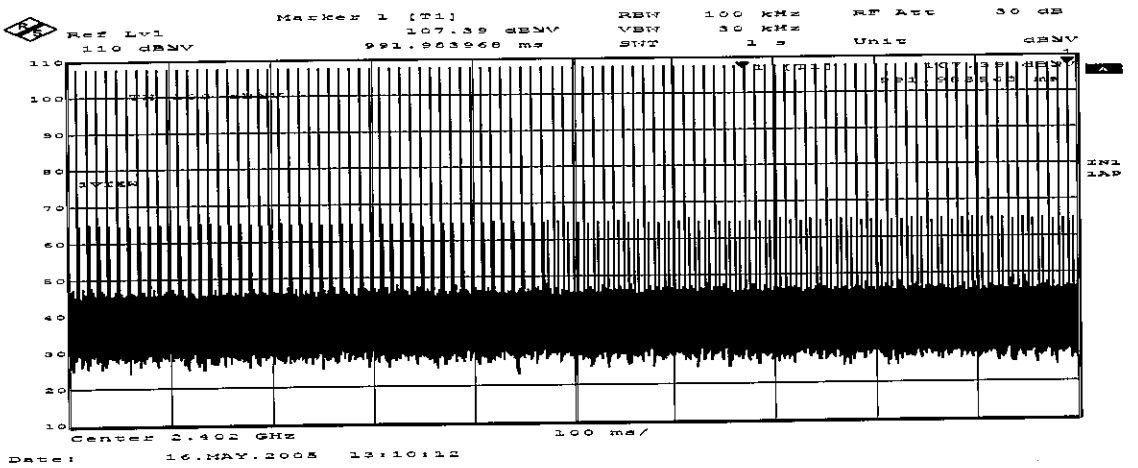
Dwell Time: FCC 15.247(a)(1)(iii)

UL Apex Co.,Ltd. Yamakita No.4 Shielded Room

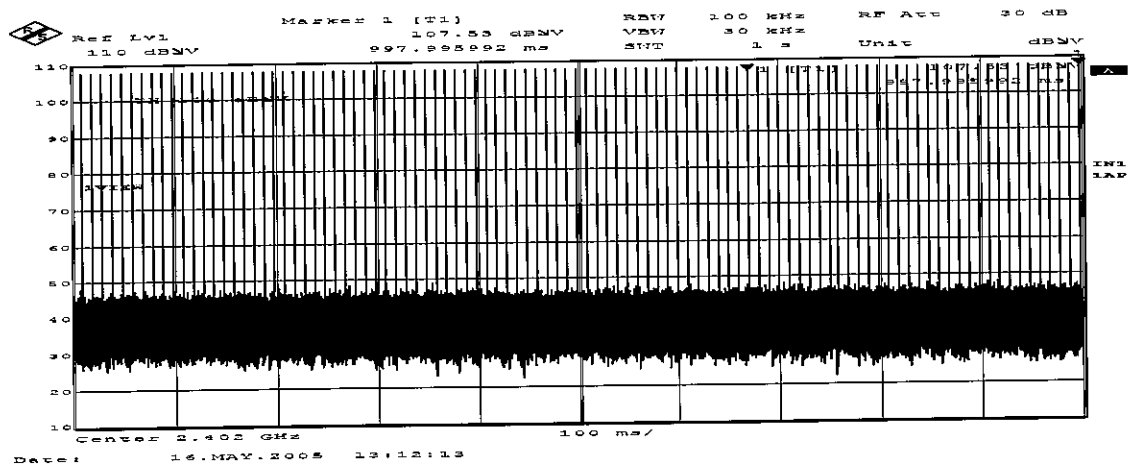
COMPANY	: Alps Electric Co., Ltd.	REPORT NO	: 25JE0028-YK-1
EQUIPMENT	: Bluetooth Transceiver Module	REGULATION	: Fcc Part15SubpartC 247(a)(1)(iii)
MODEL NUMBER	: UGPZ6	DATE	: 2005/5/16
SERIAL NUMBER	: 1	TEMP./HUMI	: 24℃/39%
FCC ID	: CWTUGPZ6	TEST MODE	: Transmitting
POWER	: DC3.3V	ENGINEER	: Toyokazu Imamura

Inquiry:

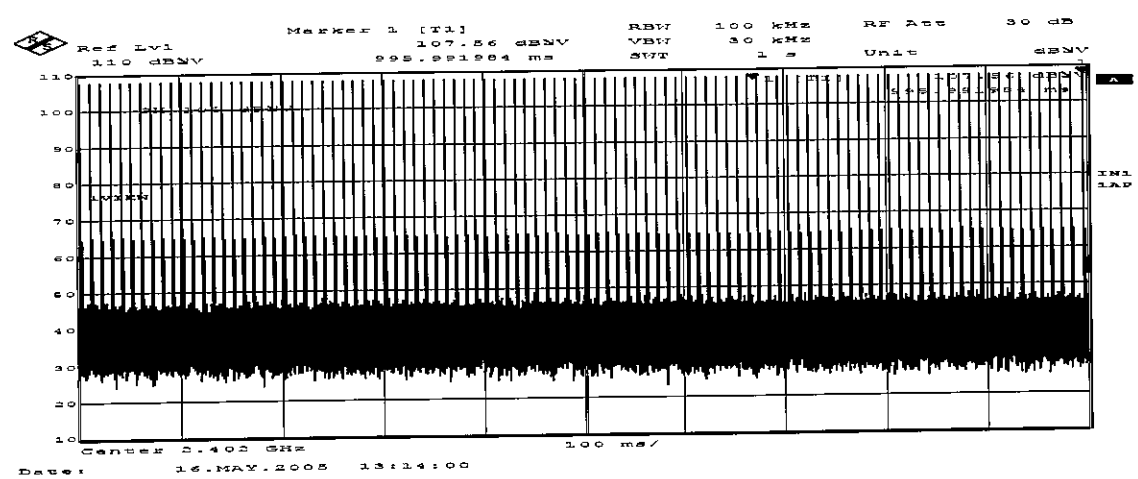
Count 1



Count 2



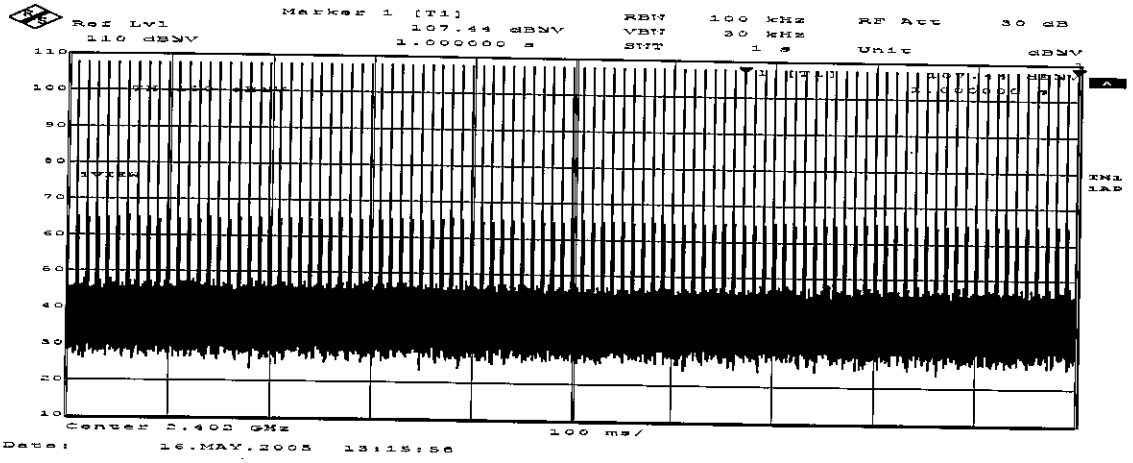
Count 3



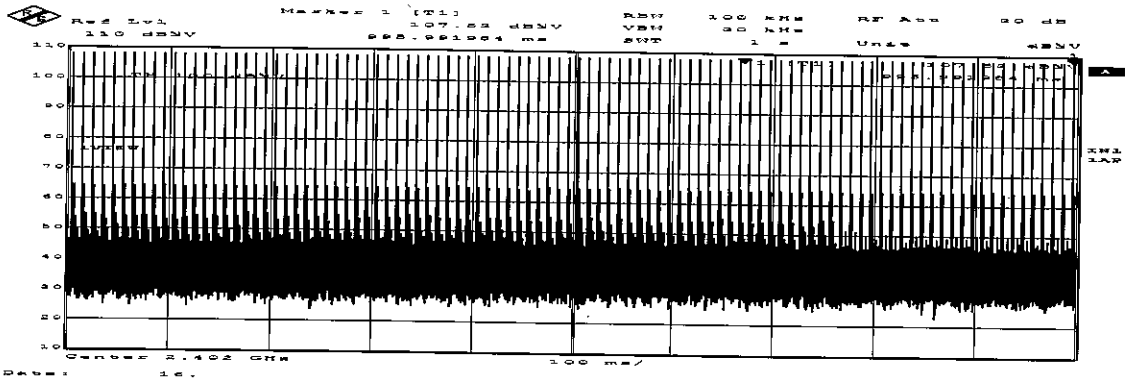
Dwell Time: FCC 15.247(a)(1)(iii)

COMPANY	: Alps Electric Co., Ltd.	UL Apex Co.,Ltd. Yamakita No.4 Shielded Room	
EQUIPMENT	: Bluetooth Transceiver Module	REPORT NO	: 25JE0028-YK-1
MODEL NUMBER	: UGPZ6	REGULATION	: Fcc Part15SubpartC 247(a)(1)(iii)
SERIAL NUMBER	: 1	DATE	: 2005/5/16
FCC ID	: CWTUGPZ6	TEMP./HUMI	: 24℃/39%
POWER	: DC3.3V	TEST MODE	: Transmitting
		ENGINEER	: Toyokazu Imamura

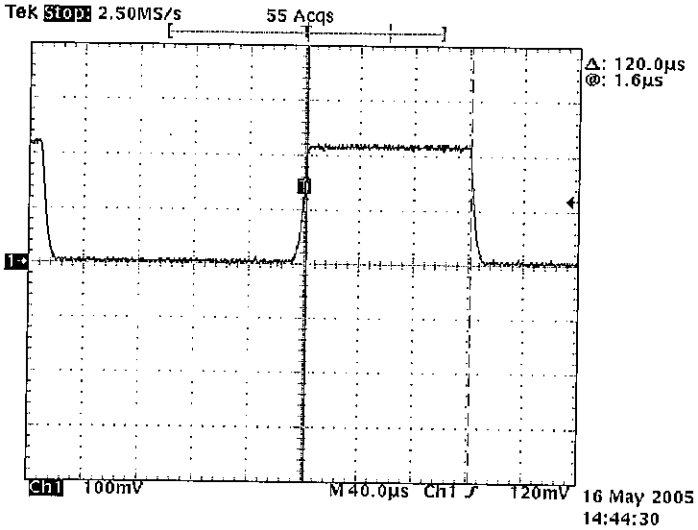
Count 4



Count 5



Duty cycle(Inquiry)



Dwell time = (Count 1 + Count 2 + Count 3 + Count 4 + Count5) / 5 * 0.4x * Ton
= (99 + 100 + 100 + 100 + 100) / 5 * 12.8[s] * 120 [µs]
= 153.3 [ms]

Note.0.4x = 0.4 * 32ch = 12.8[s]

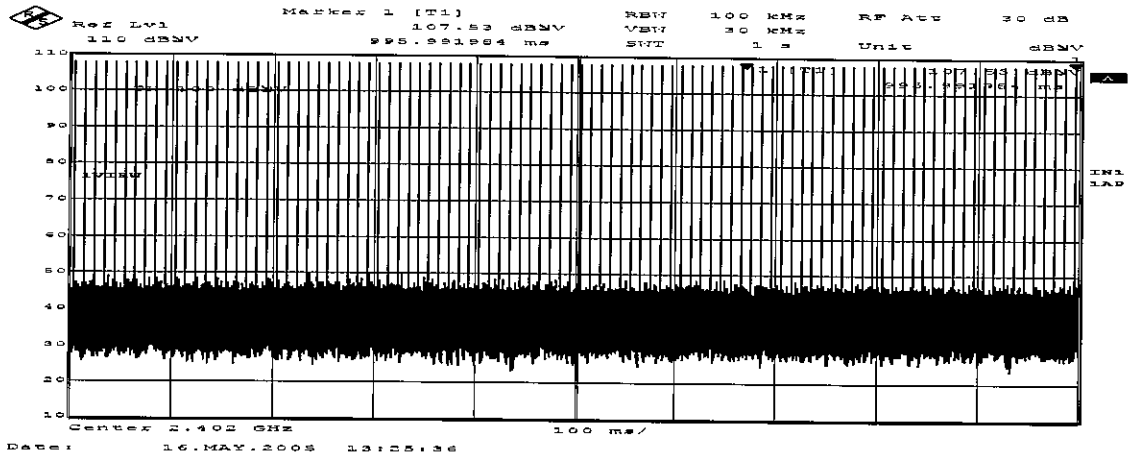
Dwell Time: FCC 15.247(a)(1)(iii)

UL Apex Co.,Ltd. Yamakita No.4 Shielded Room

COMPANY	: Alps Electric Co., Ltd.	REPORT NO	: 25JE0028-YK-1
EQUIPMENT	: Bluetooth Transceiver Module	REGULATION	: Fcc Part15SubpartC 247(a)(1)(iii)
MODEL NUMBER	: UGPZ6	DATE	: 2005/5/16
SERIAL NUMBER	: 1	TEMP./HUMI	: 24℃/39%
FCC ID	: CWTUGPZ6	TEST MODE	: Transmitting
POWER	: DC3.3V	ENGINEER	: Toyokazu Imamura

Page:

Count 1



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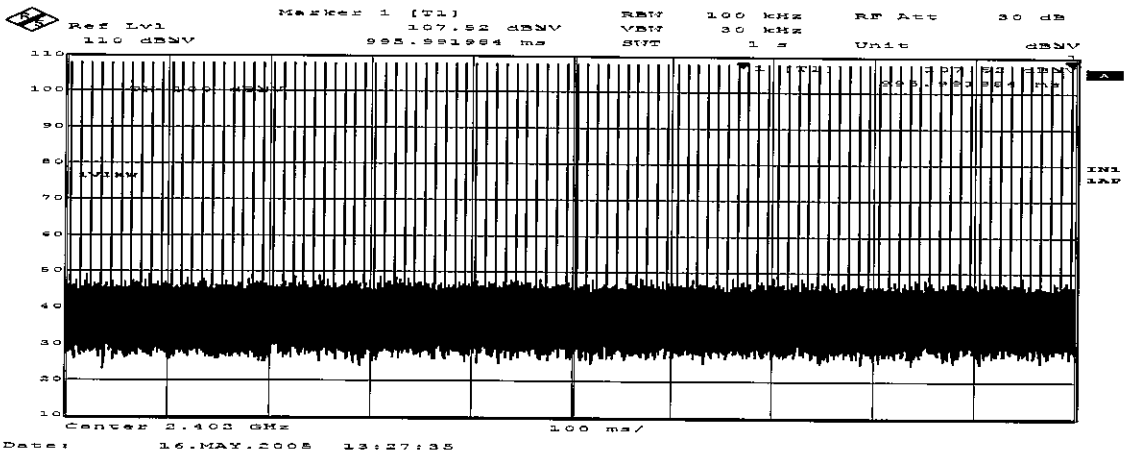
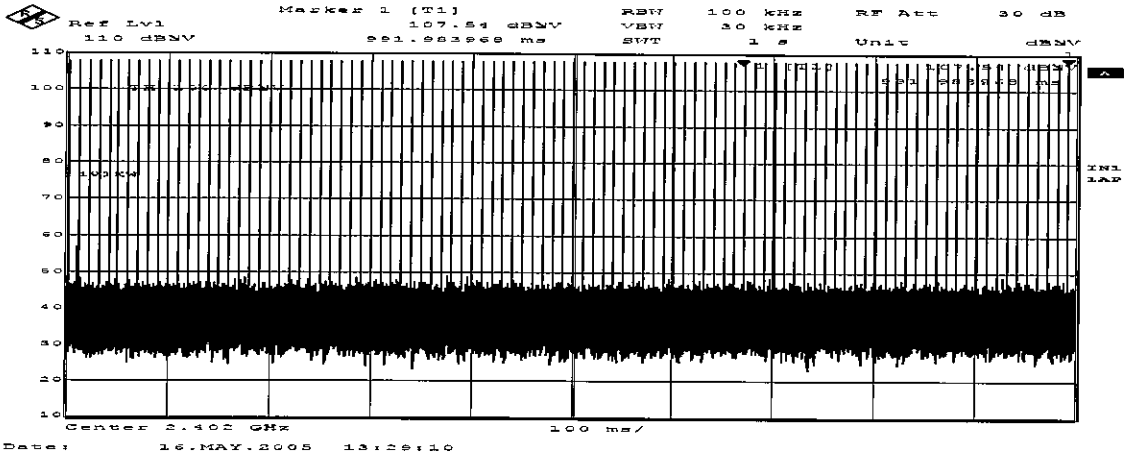


Count 3

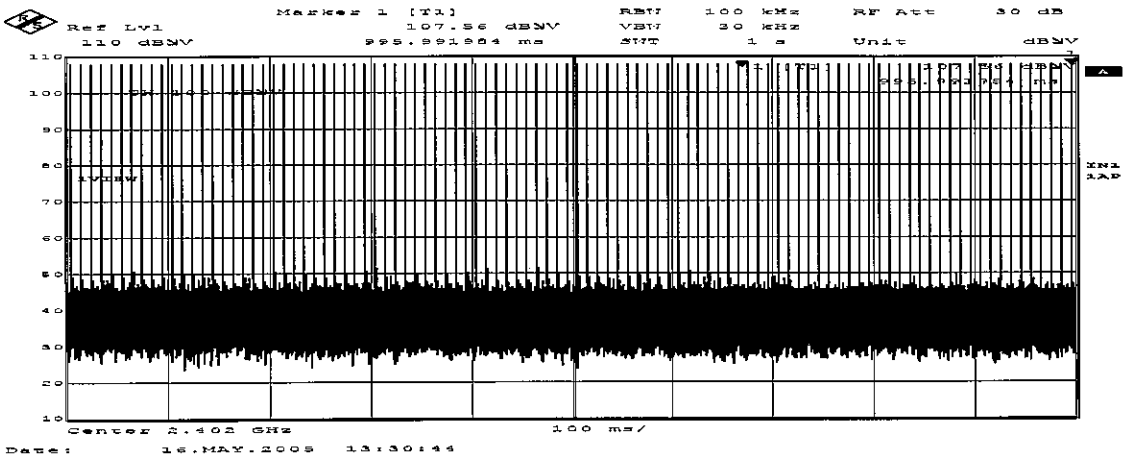


Dwell Time: FCC 15.247(a)(1)(iii)

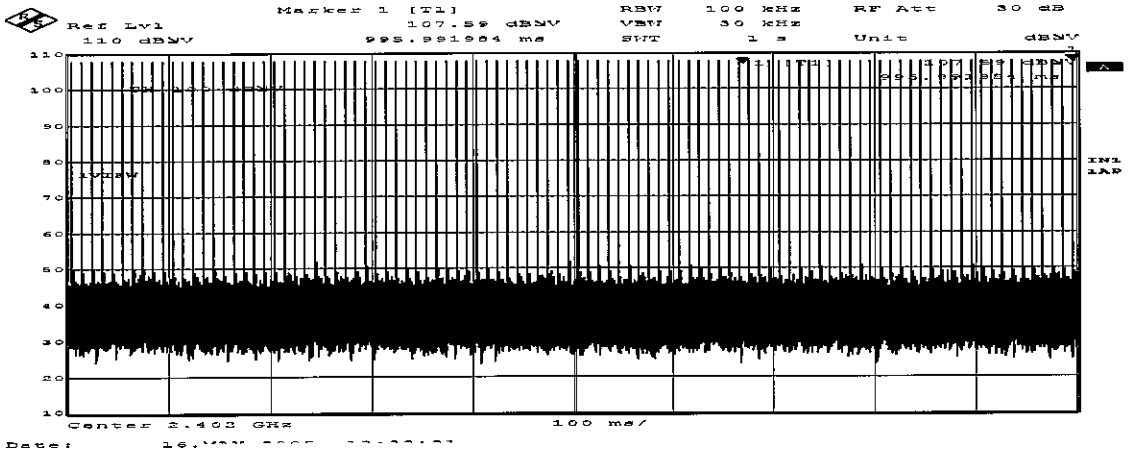
UL Apex Co.,Ltd. Yamakita No.4 Shielded Room

COMPANY	: Alps Electric Co., Ltd.	REPORT NO	: 25JE0028-YK-1
EQUIPMENT	: Bluetooth Transceiver Module	REGULATION	: Fcc Part15SubpartC 247(a)(1)(iii)
MODEL NUMBER	: UGPZ6	DATE	: 2005/5/16
SERIAL NUMBER	: 1	TEMP./HUMI	: 24°C/39%
FCC ID	: CWTUGPZ6	TEST MODE	: Transmitting
POWER	: DC3.3V	ENGINEER	: Toyokazu Imamura

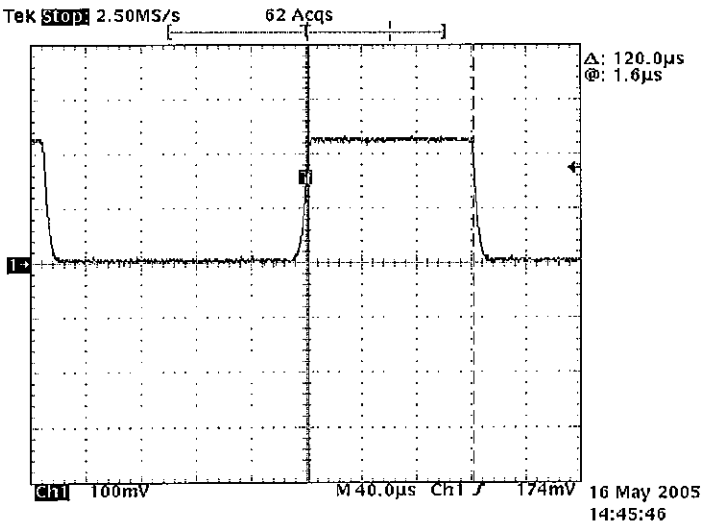
Count 4



Count 5



Duty cycle(Page)



Dwell time = (Count 1 + Count 2 + Count 3 + Count 4 + Count5) / 5 * 0.4x * Ton
= (100 + 100 + 100 + 100 + 100) / 5 * 12.8[s] * 120 [µs]
= 153.6 [ms]

Note.0.4x = 0.4 * 32ch = 12.8[s]

Maximum Peak Conducted Output Power

UL Apex Co.,Ltd
YAMAKITA No.4 Shielded Room

COMPANY : Alps Electric Co.,Ltd.
EQUIPMENT : Bluetooth Transceiver Module
MODEL NUMBE : UGPZ6
SERIAL NUMBE : 1
FCC ID : CWTUGPZ6
POWER : DC3.3V
TEST MODE : Transmitting

REPORT NO : 25JE0028-YK-1
REGULATION : Fcc Part15SubpartC 247(b)(1)
DATE : 2005/5/16
TEMP./HUMI : 24℃/39%

ENGINEER : Toyokazu Imamura

CH	FREQ [GHz]	P/M Reading [dBm]	Cable Loss [dB]	Results [dBm]	Limit (1W) [dBm]	MARGIN [dB]
Low	2402.00	0.52	0.30	0.82	30.0	29.18
Mid	2441.00	0.36	0.30	0.66	30.0	29.34
High	2480.00	-0.04	0.30	0.26	30.0	29.74
Inquiry	-	0.56	0.30	0.86	30.0	29.14
page	-	0.64	0.30	0.94	30.0	29.06
Hopping	-	0.56	0.30	0.86	20.96	20.10

Limit: 1W=30dBm
Limit(Hopping): 125mW=20.96dBm
P/M: Power Meter

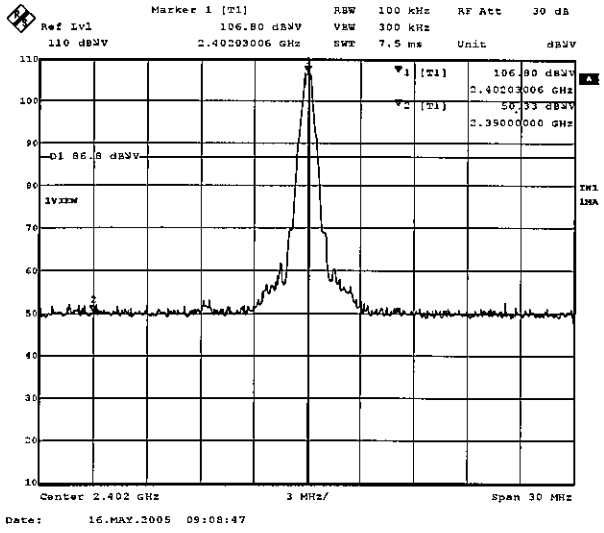
Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

UL Apex Co.,Ltd. Yamakita No.4 Shielded Room

COMPANY	: Alps Electric Co., Ltd.	REPORT NO	: 25JE0028-YK-1
EQUIPMENT	: Bluetooth Transceiver Module	REGULATION	: Fcc Part15SubpartC 247(d)
MODEL NUMBER	: UGPZ6	DATE	: 2005/5/16
SERIAL NUMBER	: 1	TEMP./HUMI	: 24℃/39%
FCC ID	: CWTUGPZ6	TEST MODE	: Transmitting (Hopping off)
POWER	: DC3.3V	ENGINEER	: Toyokazu Imamura

Ch:2402MHz

1.



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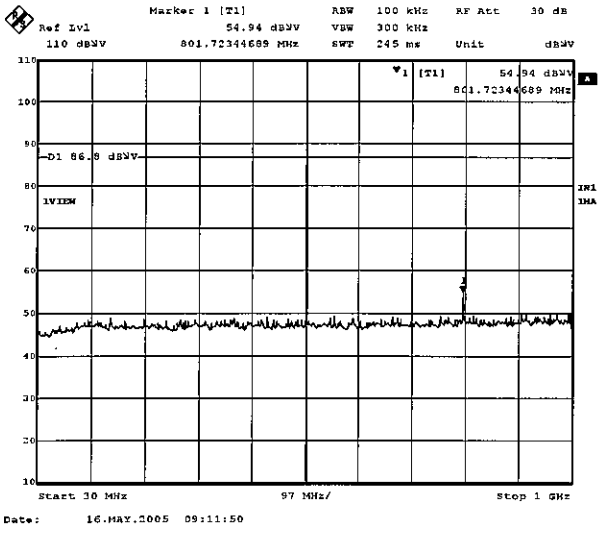
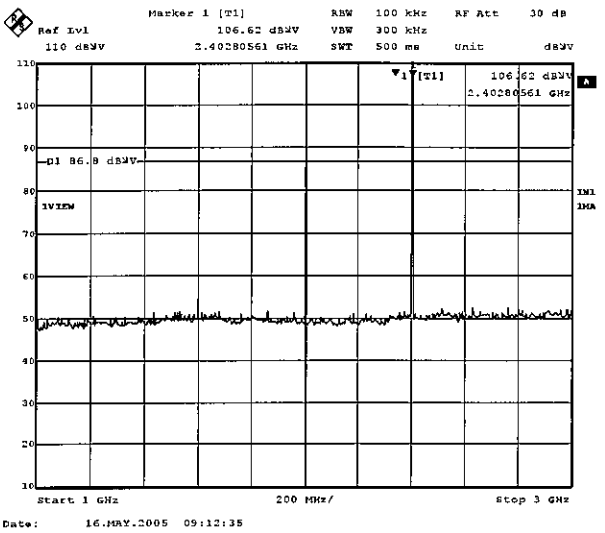


3.



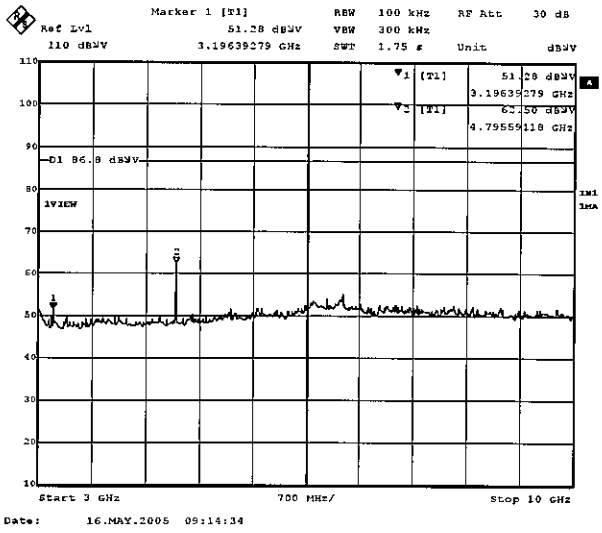
Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

UL Apex Co.,Ltd. Yamakita No.4 Shielded Room

COMPANY	: Alps Electric Co., Ltd.	REPORT NO	: 25JE0028-YK-1
EQUIPMENT	: Bluetooth Transceiver Module	REGULATION	: Fcc Part15SubpartC 247(d)
MODEL NUMBER	: UGPZ6	DATE	: 2005/5/16
SERIAL NUMBER	: 1	TEMP./HUMI	: 24℃/39%
FCC ID	: CWTUGPZ6	TEST MODE	: Transmitting (Hopping off)
POWER	: DC3.3V	ENGINEER	: Toyokazu Imamura

Ch:2402MHz

4.



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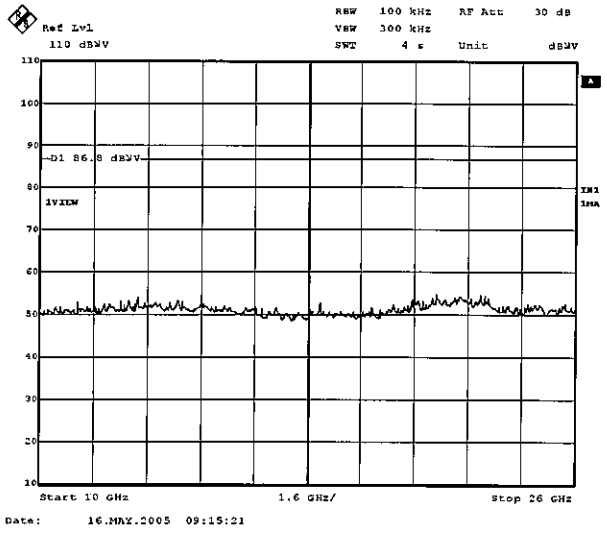


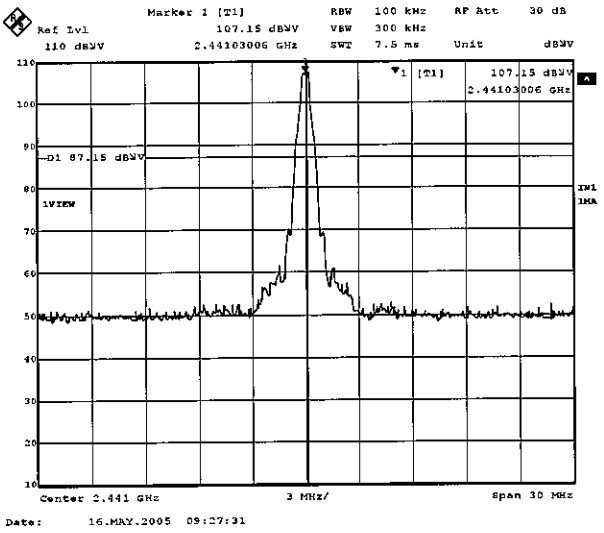
Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

UL Apex Co.,Ltd. Yamakita No.4 Shielded Room

COMPANY	: Alps Electric Co., Ltd.	REPORT NO	: 25JE0028-YK-1
EQUIPMENT	: Bluetooth Transceiver Module	REGULATION	: Fcc Part15SubpartC 247(d)
MODEL NUMBER	: UGPZ6	DATE	: 2005/5/16
SERIAL NUMBER	: 1	TEMP./HUMI	: 24℃/39%
FCC ID	: CWTUGPZ6	TEST MODE	: Transmitting (Hopping off)
POWER	: DC3.3V	ENGINEER	: Toyokazu Imamura

Ch:2441MHz

1.



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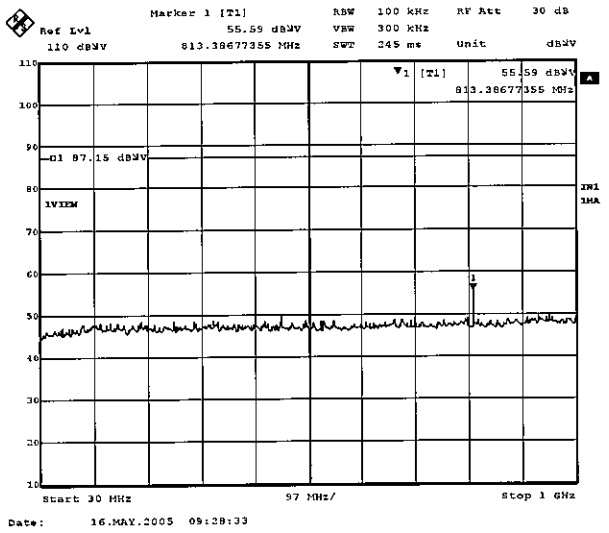

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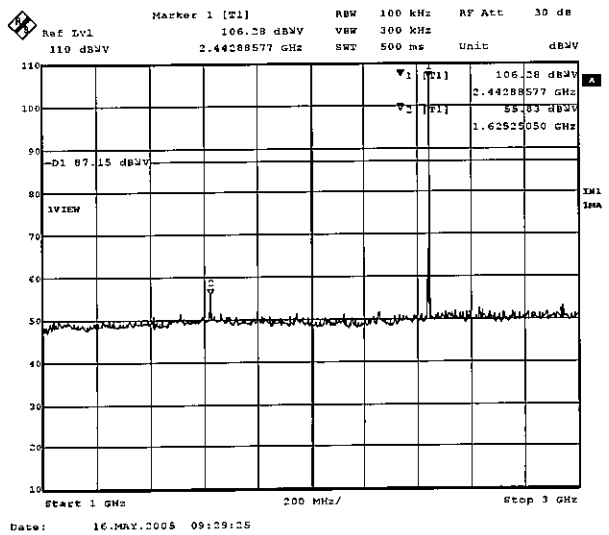


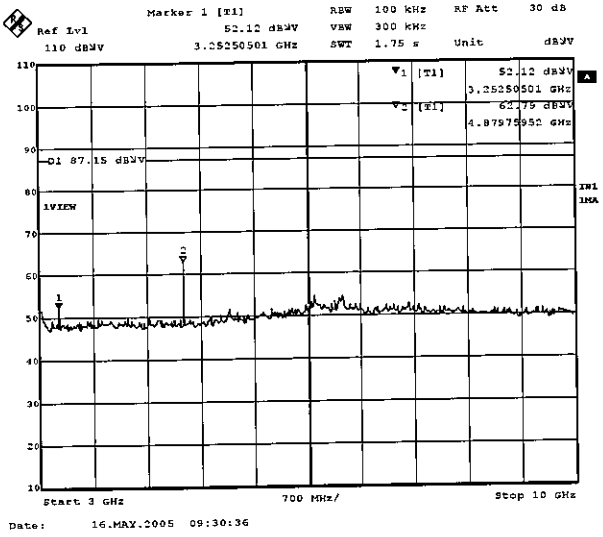
Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

UL Apex Co.,Ltd. Yamakita No.4 Shielded Room

COMPANY	: Alps Electric Co., Ltd.
EQUIPMENT	: Bluetooth Transceiver Module
MODEL NUMBER	: UGPZ6
SERIAL NUMBER	: 1
FCC ID	: CWTUGPZ6
POWER	: DC3.3V
REPORT NO	: 25JE0028-YK-1
REGULATION	: Fcc Part15SubpartC 247(d)
DATE	: 2005/5/16
TEMP./HUMI	: 24℃/39%
TEST MODE	: Transmitting (Hopping off)
ENGINEER	: Toyokazu Imamura

Ch:2441MHz

4.



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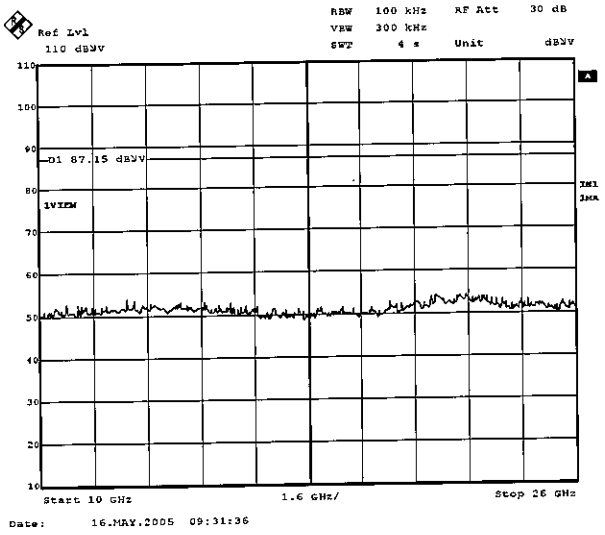


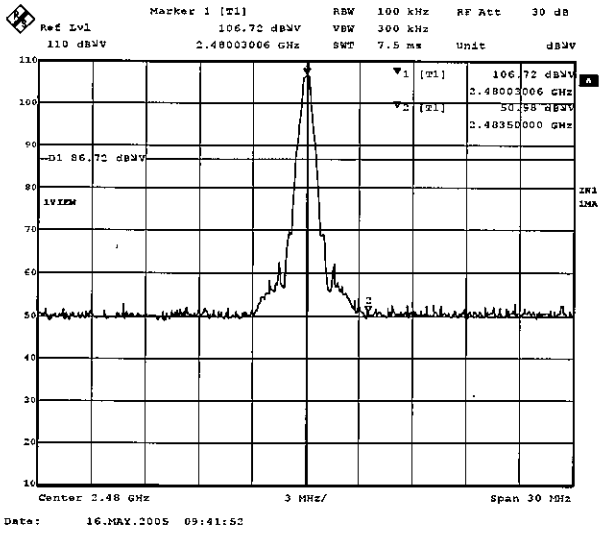
Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

UL Apex Co.,Ltd. Yamakita No.4 Shielded Room

COMPANY	: Alps Electric Co., Ltd.	REPORT NO	: 25JE0028-YK-1
EQUIPMENT	: Bluetooth Transceiver Module	REGULATION	: Fcc Part15SubpartC 247(d)
MODEL NUMBER	: UGPZ6	DATE	: 2005/5/16
SERIAL NUMBER	: 1	TEMP./HUMI	: 24℃/39%
FCC ID	: CWTUGPZ6	TEST MODE	: Transmitting (Hopping off)
POWER	: DC3.3V	ENGINEER	: Toyokazu Imamura

Ch11:2480MHz

1.



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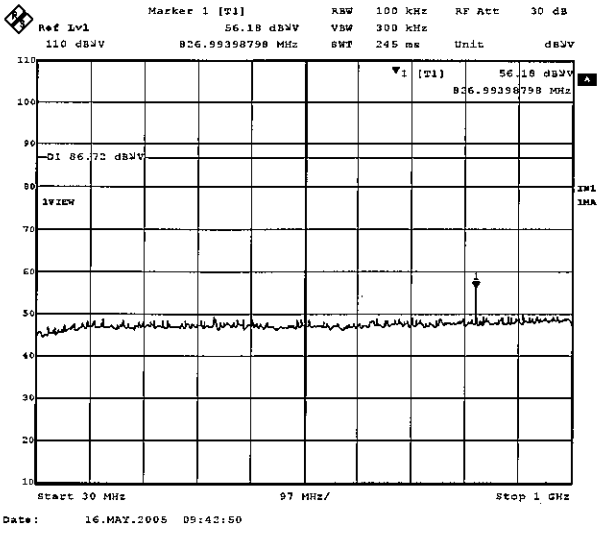

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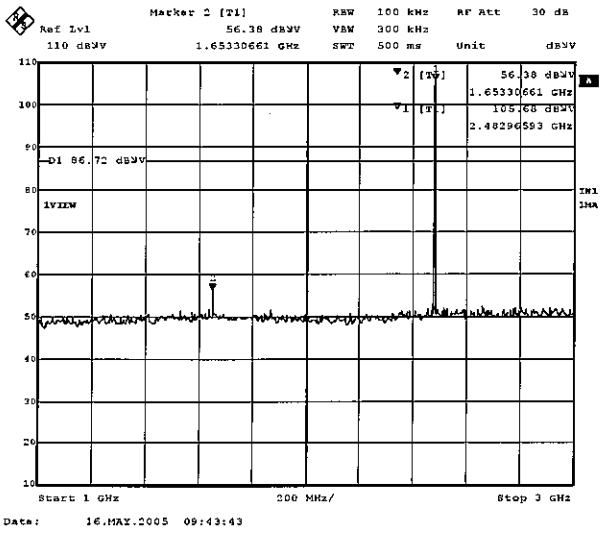


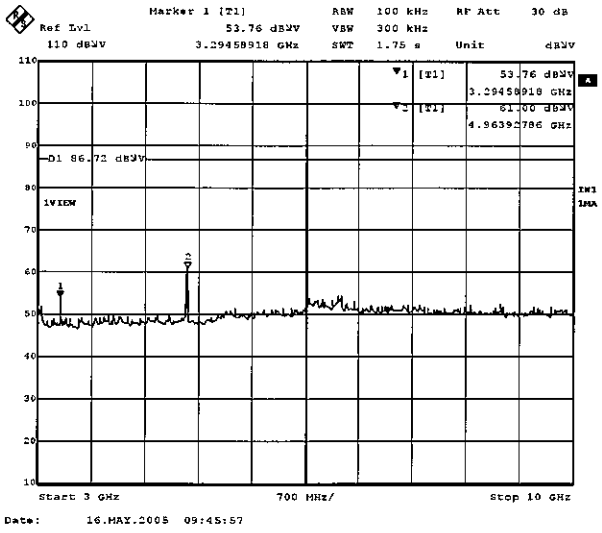
Out of Band Emission(Antenna Terminal Conducted): FCC 15.247(d)

UL Apex Co.,Ltd. Yamakita No.4 Shielded Room

COMPANY	: Alps Electric Co., Ltd.	REPORT NO	: 25JE0028-YK-1
EQUIPMENT	: Bluetooth Transceiver Module	REGULATION	: Fcc Part15SubpartC 247(d)
MODEL NUMBER	: UGPZ6	DATE	: 2005/5/16
SERIAL NUMBER	: 1	TEMP./HUMI	: 24℃/39%
FCC ID	: CWTUGPZ6	TEST MODE	: Transmitting (Hopping off)
POWER	: DC3.3V	ENGINEER	: Toyokazu Imamura

Ch:2480MHz

4.



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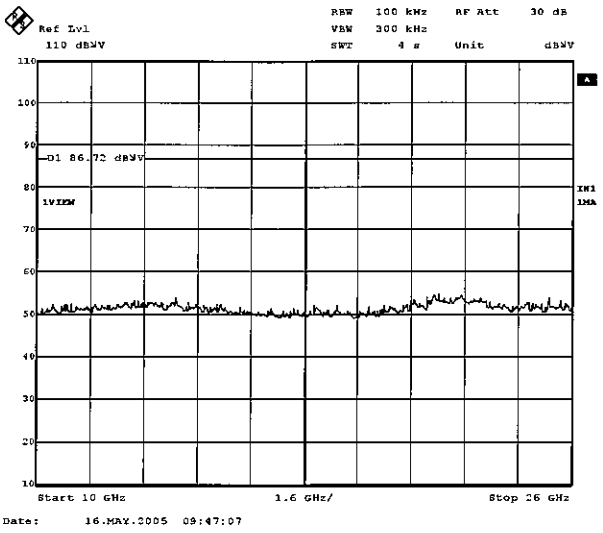

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.2 Open Test Site
Report No.: 25JE0028-YK

Applicant	: Alps Electric Co.,Ltd.		
Kind of Equipment	: Bluetooth Transceiver Module		
Model No.	: UGPZ6		
Serial No.	: 1		
Power	: DC3.3V		
Mode	: Transmitting(2402MHz)		
Remarks	: ANT:LDA31		
Date	: 5/19/2005		
Test Distance	: 3 m		
Temperature	: 22 ℃	Engineer	: Ichiro Isozaki
Humidity	: 58 %		
Regulation	: FCC Part15C §15.209		

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	96.35	BB	35.6	48.7	9.0	27.8	2.0	5.8	24.6	37.7	43.5	18.9	5.8
2.	128.46	BB	36.0	36.3	13.3	28.0	2.3	5.8	29.4	29.7	43.5	14.1	13.8
3.	133.31	BB	35.7	35.1	13.7	28.1	2.3	5.8	29.4	28.8	43.5	14.1	14.7
4.	192.71	BB	30.9	36.1	17.0	27.6	2.8	5.8	28.9	34.1	43.5	14.6	9.4
5.	199.97	BB	34.6	36.6	17.1	27.6	2.8	5.8	32.7	34.7	43.5	10.8	8.8
6.	266.62	BB	31.7	35.5	18.3	27.4	3.3	5.8	31.7	35.5	46.0	14.3	10.5
7.	299.94	BB	30.1	35.1	19.6	27.4	3.5	5.8	31.6	36.6	46.0	14.4	9.4
8.	333.26	BB	33.4	41.0	15.3	27.6	3.8	5.8	30.7	38.3	46.0	15.3	7.7
9.	399.91	BB	35.9	39.4	17.8	28.1	4.2	5.8	35.6	39.1	46.0	10.4	6.9
10.	533.20	BB	34.4	35.2	18.6	28.9	4.9	5.8	34.8	35.6	46.0	11.2	10.4

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

■ANTENNA:KBA-02(BBA9106)30-299MHz/KLA-02(USLP9143)300-1000MHz
■AMP:KAF-03(8447D) ■RECEIVER:KTR-04(ESVS10) ■CABLE:KCC-20/21/22/23/29

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.2 Open Test Site
Report No.: 25JE0028-YK

Applicant : Alps Electric Co.,Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 1
Power : DC3.3V
Mode : Transmitting(2441MHz)
Remarks : ANT:LDA31
Date : 5/19/2005
Test Distance : 3 m
Temperature : 22 ℃ Engineer : Ichiro Isozaki
Humidity : 58 %
Regulation : FCC Part15C §15.209

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	96.36	BB	37.9	47.8	9.0	27.8	2.0	5.8	26.9	36.8	43.5	16.6	6.7
2.	128.46	BB	35.4	35.8	13.3	28.0	2.3	5.8	28.8	29.2	43.5	14.7	14.3
3.	133.31	BB	35.3	36.5	13.7	28.1	2.3	5.8	29.0	30.2	43.5	14.5	13.3
4.	192.69	BB	31.0	36.9	17.0	27.6	2.8	5.8	29.0	34.9	43.5	14.5	8.6
5.	199.96	BB	34.1	35.8	17.1	27.6	2.8	5.8	32.2	33.9	43.5	11.3	9.6
6.	266.61	BB	32.4	35.8	18.3	27.4	3.3	5.8	32.4	35.8	46.0	13.6	10.2
7.	299.94	BB	30.2	33.9	19.6	27.4	3.5	5.8	31.7	35.4	46.0	14.3	10.6
8.	333.26	BB	35.7	40.9	15.3	27.6	3.8	5.8	33.0	38.2	46.0	13.0	7.8
9.	399.91	BB	35.6	38.6	17.8	28.1	4.2	5.8	35.3	38.3	46.0	10.7	7.7
10.	533.22	BB	34.8	35.5	18.6	28.9	4.9	5.8	35.2	35.9	46.0	10.8	10.1

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

■ANTENNA:KBA-02(BBA9106)30-299MHz/KLA-02(USLP9143)300-1000MHz
■AMP:KAF-03(8447D) ■RECEIVER:KTR-04(ESVS10) ■CABLE:KCC-20/21/22/23/29

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.2 Open Test Site
Report No.: 25JE0028-YK

Applicant	: Alps Electric Co.,Ltd.		
Kind of Equipment	: Bluetooth Transceiver Module		
Model No.	: UGPZ6		
Serial No.	: 1		
Power	: DC3.3V		
Mode	: Transmitting(2480MHz)		
Remarks	: ANT:LDA31		
Date	: 5/19/2005		
Test Distance	: 3 m		
Temperature	: 22 ℃	Engineer	: Ichiro Isozaki
Humidity	: 58 %		
Regulation	: FCC Part15C §15.209		

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	96.34	BB	37.8	49.8	9.0	27.8	2.0	5.8	26.8	38.8	43.5	16.7	4.7
2.	128.47	BB	35.5	37.8	13.3	28.0	2.3	5.8	28.9	31.2	43.5	14.6	12.3
3.	133.32	BB	36.3	37.4	13.7	28.1	2.3	5.8	30.0	31.1	43.5	13.5	12.4
4.	192.70	BB	31.0	37.5	17.0	27.6	2.8	5.8	29.0	35.5	43.5	14.5	8.0
5.	199.97	BB	34.6	35.4	17.1	27.6	2.8	5.8	32.7	33.5	43.5	10.8	10.0
6.	266.63	BB	32.5	35.7	18.3	27.4	3.3	5.8	32.5	35.7	46.0	13.5	10.3
7.	299.95	BB	30.6	35.4	19.6	27.4	3.5	5.8	32.1	36.9	46.0	13.9	9.1
8.	333.26	BB	35.7	40.1	15.3	27.6	3.8	5.8	33.0	37.4	46.0	13.0	8.6
9.	399.90	BB	35.2	38.2	17.8	28.1	4.2	5.8	34.9	37.9	46.0	11.1	8.1
10.	533.22	BB	34.7	35.5	18.6	28.9	4.9	5.8	35.1	35.9	46.0	10.9	10.1

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

■ANTENNA:KBA-02(BBA9106)30-299MHz/KLA-02(USLP9143)300-1000MHz
■AMP:KAF-03(8447D) ■RECEIVER:KTR-04(ESVS10) ■CABLE:KCC-20/21/22/23/29

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.2 Open Test Site
Report No. : 25JE0028-YK

Applicant	: Alps Electric Co.,Ltd.
Kind of Equipment	: Bluetooth Transceiver Module
Model No.	: UGPZ6
Serial No.	: 1
Power	: DC3.3V
Mode	: Transmitting(2402MHz)
Remarks	: ANT:C680
Date	: 5/18/2005
Test Distance	: 3 m
Temperature	: 21 ℃
Humidity	: 64 %
Regulation	: FCC Part15C §15.209

Engineer : Ichiro Isozaki

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	96.33	BB	37.7	46.4	9.0	27.8	2.0	5.8	26.7	35.4	43.5	16.8	8.1
2.	128.48	BB	31.6	39.1	13.3	28.0	2.3	5.8	25.0	32.5	43.5	18.5	11.0
3.	133.31	BB	33.4	35.1	13.7	28.1	2.3	5.8	27.1	28.8	43.5	16.4	14.7
4.	192.71	BB	28.4	36.8	17.0	27.6	2.8	5.8	26.4	34.8	43.5	17.1	8.7
5.	199.95	BB	32.7	36.0	17.1	27.6	2.8	5.8	30.8	34.1	43.5	12.7	9.4
6.	266.61	BB	31.6	34.8	18.3	27.4	3.3	5.8	31.6	34.8	46.0	14.4	11.2
7.	299.93	BB	31.9	33.8	19.6	27.4	3.5	5.8	33.4	35.3	46.0	12.6	10.7
8.	333.27	BB	38.1	36.6	15.3	27.6	3.8	5.8	35.4	33.9	46.0	10.6	12.1
9.	399.92	BB	33.8	39.0	17.8	28.1	4.2	5.8	33.5	38.7	46.0	12.5	7.3
10.	533.21	BB	33.8	33.7	18.6	28.9	4.9	5.8	34.2	34.1	46.0	11.8	11.9

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

■ANTENNA:KBA-02(BBA9106)30-299MHz/KLA-02(USLP9143)300-1000MHz
■AMP:KAF-03(8447D) ■RECEIVER:KTR-04(ESVS10) ■CABLE:KCC-20/21/22/23/29

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.2 Open Test Site
Report No. : 25JE0028-YK

Applicant	: Alps Electric Co.,Ltd.
Kind of Equipment	: Bluetooth Transceiver Module
Model No.	: UGPZ6
Serial No.	: 1
Power	: DC3.3V
Mode	: Transmitting(2441MHz)
Remarks	: ANT:C680
Date	: 5/18/2005
Test Distance	: 3 m
Temperature	: 21 ℃
Humidity	: 64 %
Regulation	: FCC Part15C §15.209

Engineer : Ichiro Isozaki

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	96.36	BB	36.2	44.3	9.0	27.8	2.0	5.8	25.2	33.3	43.5	18.3	10.2
2.	128.49	BB	30.6	38.2	13.3	28.0	2.3	5.8	24.0	31.6	43.5	19.5	11.9
3.	133.31	BB	33.2	36.3	13.7	28.1	2.3	5.8	26.9	30.0	43.5	16.6	13.5
4.	192.70	BB	30.7	35.7	17.0	27.6	2.8	5.8	28.7	33.7	43.5	14.8	9.8
5.	199.97	BB	31.0	33.0	17.1	27.6	2.8	5.8	29.1	31.1	43.5	14.4	12.4
6.	266.60	BB	32.3	33.5	18.3	27.4	3.3	5.8	32.3	33.5	46.0	13.7	12.5
7.	299.93	BB	32.1	33.0	19.6	27.4	3.5	5.8	33.6	34.5	46.0	12.4	11.5
8.	333.27	BB	36.8	36.4	15.3	27.6	3.8	5.8	34.1	33.7	46.0	11.9	12.3
9.	399.91	BB	33.0	38.3	17.8	28.1	4.2	5.8	32.7	38.0	46.0	13.3	8.0
10.	533.20	BB	32.3	32.9	18.6	28.9	4.9	5.8	32.7	33.3	46.0	13.3	12.7

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

■ANTENNA:KBA-02(BBA9106)30-299MHz/KLA-02(USLP9143)300-1000MHz
■AMP:KAF-03(8447D) ■RECEIVER:KTR-04(ESVS10) ■CABLE:KCC-20/21/22/23/29

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.2 Open Test Site
Report No. : 25JE0028-YK ✏ 1

Applicant	: Alps Electric Co.,Ltd.		
Kind of Equipment	: Bluetooth Transceiver Module		
Model No.	: UGPZ6		
Serial No.	: 1		
Power	: DC3.3V		
Mode	: Transmitting(2480MHz)		
Remarks	: ANT:C680		
Date	: 5/18/2005		
Test Distance	: 3 m		
Temperature	: 21 ℃	Engineer	: Ichiro Isozaki
Humidity	: 64 %		
Regulation	: FCC Part15C §15.209		

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT. FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	96.35	BB	37.3	45.9	9.0	27.8	2.0	5.8	26.3	34.9	43.5	17.2	8.6
2.	128.48	BB	31.6	39.1	13.3	28.0	2.3	5.8	25.0	32.5	43.5	18.5	11.0
3.	133.31	BB	32.8	35.6	13.7	28.1	2.3	5.8	26.5	29.3	43.5	17.0	14.2
4.	192.71	BB	29.3	36.7	17.0	27.6	2.8	5.8	27.3	34.7	43.5	16.2	8.8
5.	199.97	BB	30.9	32.6	17.1	27.6	2.8	5.8	29.0	30.7	43.5	14.5	12.8
6.	266.61	BB	31.1	32.7	18.3	27.4	3.3	5.8	31.1	32.7	46.0	14.9	13.3
7.	299.93	BB	29.1	32.5	19.6	27.4	3.5	5.8	30.6	34.0	46.0	15.4	12.0
8.	333.27	BB	37.0	35.8	15.3	27.6	3.8	5.8	34.3	33.1	46.0	11.7	12.9
9.	399.91	BB	33.2	38.2	17.8	28.1	4.2	5.8	32.9	37.9	46.0	13.1	8.1
10.	533.20	BB	31.8	31.8	18.6	28.9	4.9	5.8	32.2	32.2	46.0	13.8	13.8

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

■ANTENNA:KBA-02(BBA9106)30-299MHz/KLA-02(USLP9143)300-1000MHz
■AMP:KAF-03(8447D) ■RECEIVER:KTR-04(ESVS10) ■CABLE:KCC-20/21/22/23/29

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.1 Anechoic Chamber
Report No. : 25JE0028-YK ⇨ 1

Applicant	: Alps Electric Co.,Ltd.
Kind of Equipment	: Bluetooth Transceiver Module
Model No.	: UGPZ6
Serial No.	: 1
Power	: DC3.3V
Mode	: Transmitting(2402MHz)
Remarks	: ANT:CAN4313359
Date	: 5/23/2005
Test Distance	: 3 m
Temperature	: 21 ℃
Humidity	: 60 %
Regulation	: FCC Part15C §15.209

Engineer : Toyokazu Imamura

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	96.36	BB	41.7	46.3	9.2	27.5	1.9	5.8	31.1	35.7	43.5	12.4	7.8
2.	128.48	BB	33.4	39.3	14.0	27.4	2.2	5.8	28.0	33.9	43.5	15.5	9.6
3.	199.95	BB	33.4	37.5	17.2	27.0	2.8	5.8	32.2	36.3	43.5	11.3	7.2
4.	333.26	BB	30.4	36.3	15.1	26.9	3.7	5.8	28.1	34.0	46.0	17.9	12.0
5.	399.90	BB	30.3	40.5	17.1	27.3	4.2	5.8	30.1	40.3	46.0	15.9	5.7
6.	533.20	BB	27.9	29.4	18.8	28.0	4.8	5.8	29.3	30.8	46.0	16.7	15.2

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

■ANTENNA:KBA-03(BBA9106)30-299MHz/KLA-03(USLP9143)300-1000MHz
■AMP:KAF-05(8447D) ■RECEIVER:KTR-01(ES140) ■KCC-30_31_32_34(RE)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.1 Anechoic Chamber
Report No.: 25JE0028-YK

Applicant	: Alps Electric Co.,Ltd.		
Kind of Equipment	: Bluetooth Transceiver Module		
Model No.	: UGPZ6		
Serial No.	: 1		
Power	: DC3.3V		
Mode	: Transmitting(2441MHz)		
Remarks	: ANT:CAN4313359		
Date	: 5/23/2005		
Test Distance	: 3 m		
Temperature	: 21 ℃	Engineer	: Toyokazu Imamura
Humidity	: 60 %		
Regulation	: FCC Part15C §15.209		

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	96.37	BB	34.0	36.3	9.2	27.5	1.9	5.8	23.4	25.7	43.5	20.1	17.8
2.	128.49	BB	33.1	41.6	14.0	27.4	2.2	5.8	27.7	36.2	43.5	15.8	7.3
3.	199.95	BB	33.4	38.6	17.2	27.0	2.8	5.8	32.2	37.4	43.5	11.3	6.1
4.	333.24	BB	32.5	37.6	15.1	26.9	3.7	5.8	30.2	35.3	46.0	15.8	10.7
5.	399.40	BB	27.3	39.4	17.0	27.3	4.2	5.8	27.0	39.1	46.0	19.0	6.9
6.	533.20	BB	31.4	32.7	18.8	28.0	4.8	5.8	32.8	34.1	46.0	13.2	11.9

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

■ANTENNA:KBA-03(BBA9106)30-299MHz/KLA-03(USLP9143)300-1000MHz
■AMP:KAF-05(8447D) ■RECEIVER:KTR-01(ESI40) ■KCC-30_31_32_34(RE)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.1 Anechoic Chamber
Report No. : 25JE0028-YK

Applicant	: Alps Electric Co.,Ltd.
Kind of Equipment	: Bluetooth Transceiver Module
Model No.	: UGPZ6
Serial No.	: 1
Power	: DC3.3V
Mode	: Transmitting(2480MHz)
Remarks	: ANT:CAN4313359
Date	: 5/23/2005
Test Distance	: 3 m
Temperature	: 21 ℃
Humidity	: 60 %
Regulation	: FCC Part15C §15.209

Engineer : Toyokazu Imamura

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	96.37	BB	35.4	38.1	9.2	27.5	1.9	5.8	24.8	27.5	43.5	18.7	16.0
2.	128.48	BB	33.3	41.5	14.0	27.4	2.2	5.8	27.9	36.1	43.5	15.6	7.4
3.	199.95	BB	33.2	38.9	17.2	27.0	2.8	5.8	32.0	37.7	43.5	11.5	5.8
4.	333.26	BB	32.7	38.0	15.1	26.9	3.7	5.8	30.4	35.7	46.0	15.6	10.3
5.	399.90	BB	26.3	39.6	17.1	27.3	4.2	5.8	26.1	39.4	46.0	19.9	6.6
6.	533.20	BB	30.6	31.8	18.8	28.0	4.8	5.8	32.0	33.2	46.0	14.0	12.8

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

■ANTENNA:KBA-03(BBA9106)30-299MHz/KLA-03(USLP9143)300-1000MHz
■AMP:KAF-05(8447D) ■RECEIVER:KTR-01(ESI40) ■KCC-30_31_32_34(RE)

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.2 Open Test Site
Report No. : 25JE0028-YK

Applicant	:	Alps Electric Co.,Ltd.
Kind of Equipment	:	Bluetooth Transceiver Module
Model No.	:	UGPZ6
Serial No.	:	1
Power	:	DC3.3V
Mode	:	Transmitting(2402MHz)
Remarks	:	ANT:LDA31, PK(RBW:1MHz, VBW:1MHz)
Date	:	5/17/2005
Test Distance	:	3 m
Temperature	:	21 ℃
Humidity	:	58 %
Regulation	:	FCC Part15C §15.209(PK Detection)

Engineer : Ichiro Isozaki

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	2390.00	BB	42.6	42.3	27.7	34.6	4.0	10.0	49.7	49.4	74.0	24.3	24.6
2.	4804.00	BB	45.4	47.3	32.0	34.0	5.5	0.5	49.4	51.3	74.0	24.6	22.7
3.	7206.00	BB	42.6	41.9	36.5	34.3	6.6	0.2	51.6	50.9	74.0	22.4	23.1
4.	9608.00	BB	42.9	42.8	38.9	34.9	7.4	0.5	54.8	54.7	74.0	19.2	19.3
5.	12010.00	BB	42.4	42.3	39.9	34.3	8.2	0.0	56.2	56.1	74.0	17.8	17.9
6.	14412.00	BB	41.8	42.8	42.5	33.8	8.9	0.3	59.7	60.7	74.0	14.3	13.3
7.	16184.00	BB	41.5	41.5	38.4	34.8	9.4	0.2	54.7	54.7	74.0	19.3	19.3
8.	19216.00	BB	41.0	41.3	41.7	33.7	10.2	0.0	59.2	59.5	74.0	14.8	14.5
9.	20420.00	BB	41.1	42.0	40.8	33.6	10.6	0.0	58.9	59.8	74.0	15.1	14.2
10.	21618.00	BB	41.3	42.7	40.4	34.2	10.6	0.0	58.1	59.5	74.0	15.9	14.5

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

■ANTENNA:KHA-02(1-18GHz)/MHA-01(18-26GHz)
■AMP:KAF-04(8449B) ■SPECTRUM ANALYZER:KTR-01 ■CABLE:KCC-D3/D7

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.2 Open Test Site
Report No. : 25JE0028-YK

Applicant	:	Alps Electric Co.,Ltd.
Kind of Equipment	:	Bluetooth Transceiver Module
Model No.	:	UGPZ6
Serial No.	:	1
Power	:	DC3.3V
Mode	:	Transmitting(2402MHz)
Remarks	:	ANT:LDA31, AV(RBW:1MHz, VBW:10Hz)
Date	:	5/17/2005
Test Distance	:	3 m
Temperature	:	21 ℃
Humidity	:	58 %
Regulation	:	FCC Part15C §15.209(AV Detection)

Engineer : Ichiro Isozaki

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	2390.00	BB	29.5	29.5	27.7	34.6	4.0	10.0	36.6	36.6	54.0	17.4	17.4
2.	4804.00	BB	33.3	33.9	32.0	34.0	5.5	0.5	37.3	37.9	54.0	16.7	16.1
3.	7206.00	BB	29.0	29.0	36.5	34.3	6.6	0.2	38.0	38.0	54.0	16.0	16.0
4.	9608.00	BB	29.0	29.2	38.9	34.9	7.4	0.5	40.9	41.1	54.0	13.1	12.9
5.	12010.00	BB	29.1	29.1	39.9	34.3	8.2	0.0	42.9	42.9	54.0	11.1	11.1
6.	14412.00	BB	29.2	29.3	42.5	33.8	8.9	0.3	47.1	47.2	54.0	6.9	6.8
7.	16184.00	BB	28.9	28.9	38.4	34.8	9.4	0.2	42.1	42.1	54.0	11.9	11.9
8.	19216.00	BB	28.6	28.6	41.7	33.7	10.2	0.0	46.8	46.8	54.0	7.2	7.2
9.	20420.00	BB	29.3	29.3	40.8	33.6	10.6	0.0	47.1	47.1	54.0	6.9	6.9
10.	21618.00	BB	29.3	29.2	40.4	34.2	10.6	0.0	46.1	46.0	54.0	7.9	8.0

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

■ANTENNA:KHA-02(1-18GHz)/MHA-01(18-26GHz)
■AMP:KAF-04(8449B) ■SPECTRUM ANALYZER:KTR-01 ■CABLE:KCC-D3/D7

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.2 Open Test Site
Report No. : 25JE0028-YK

Applicant	:	Alps Electric Co.,Ltd.
Kind of Equipment	:	Bluetooth Transceiver Module
Model No.	:	UGPZ6
Serial No.	:	1
Power	:	DC3.3V
Mode	:	Transmitting(2441MHz)
Remarks	:	ANT:LDA31, PK(RBW:1MHz, VBW:1MHz)
Date	:	5/17/2005
Test Distance	:	3 m
Temperature	:	21 ℃
Humidity	:	58 %
Regulation	:	FCC Part15C §15.209(PK Detection)

Engineer : Ichiro Isozaki

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	4882.00	BB	42.3	46.2	32.2	34.0	5.5	0.5	46.5	50.4	74.0	27.5	23.6
2.	7323.00	BB	42.5	42.5	36.7	34.3	6.7	0.2	51.8	51.8	74.0	22.2	22.2
3.	9764.00	BB	41.6	41.5	39.1	34.9	7.4	0.3	53.5	53.4	74.0	20.5	20.6
4.	12205.00	BB	41.5	42.0	39.5	34.2	8.1	0.0	54.9	55.4	74.0	19.1	18.6
5.	14646.00	BB	42.1	41.8	42.0	34.1	8.9	0.5	59.4	59.1	74.0	14.6	14.9
6.	17087.00	BB	41.5	41.9	41.2	34.6	9.7	0.5	58.3	58.7	74.0	15.7	15.3
7.	19528.00	BB	41.5	41.0	41.4	34.2	10.5	0.0	59.2	58.7	74.0	14.8	15.3
8.	21969.00	BB	42.5	42.6	40.5	33.8	10.9	0.0	60.1	60.2	74.0	13.9	13.8
9.	24410.00	BB	42.0	42.2	41.1	33.1	11.1	0.0	61.1	61.3	74.0	12.9	12.7

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

■ANTENNA:KHA-02(1-18GHz)/MHA-01(18-26GHz)
■AMP:KAF-04(8449B) ■SPECTRUM ANALYZER:KTR-01 ■CABLE:KCC-D3/D7

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.2 Open Test Site
Report No. : 25JE0028-YK

Applicant	: Alps Electric Co.,Ltd.		
Kind of Equipment	: Bluetooth Transceiver Module		
Model No.	: UGPZ6		
Serial No.	: 1		
Power	: DC3.3V		
Mode	: Transmitting(2441MHz)		
Remarks	: ANT:LDA31, AV(RBW:1MHz, VBW:10Hz)		
Date	: 5/17/2005		
Test Distance	: 3 m		
Temperature	: 21 ℃	Engineer	: Ichiro Isozaki
Humidity	: 58 %		
Regulation	: FCC Part15C §15.209(AV Detection)		

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	4882.00	BB	30.6	33.1	32.2	34.0	5.5	0.5	34.8	37.3	54.0	19.2	16.7
2.	7323.00	BB	29.0	28.9	36.7	34.3	6.7	0.2	38.3	38.2	54.0	15.7	15.8
3.	9764.00	BB	29.1	29.1	39.1	34.9	7.4	0.3	41.0	41.0	54.0	13.0	13.0
4.	12205.00	BB	29.1	29.1	39.5	34.2	8.1	0.0	42.5	42.5	54.0	11.5	11.5
5.	14646.00	BB	29.2	29.3	42.0	34.1	8.9	0.5	46.5	46.6	54.0	7.5	7.4
6.	17087.00	BB	29.1	29.0	41.2	34.6	9.7	0.5	45.9	45.8	54.0	8.1	8.2
7.	19528.00	BB	28.6	28.7	41.4	34.2	10.5	0.0	46.3	46.4	54.0	7.7	7.6
8.	21969.00	BB	30.5	30.5	40.5	33.8	10.9	0.0	48.1	48.1	54.0	5.9	5.9
9.	24410.00	BB	29.8	29.9	41.1	33.1	11.1	0.0	48.9	49.0	54.0	5.1	5.0

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

■ANTENNA:KHA-02(1-18GHz)/MHA-01(18-26GHz)
■AMP:KAF-04(8449B) ■SPECTRUM ANALYZER:KTR-01 ■CABLE:KCC-D3/D7

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.2 Open Test Site
Report No. : 25JE0028-YK

Applicant	: Alps Electric Co.,Ltd.
Kind of Equipment	: Bluetooth Transceiver Module
Model No.	: UGPZ6
Serial No.	: 1
Power	: DC3.3V
Mode	: Transmitting(2480MHz)
Remarks	: ANT:LDA31, PK(RBW:1MHz, VBW:1MHz)
Date	: 5/17/2005
Test Distance	: 3 m
Temperature	: 21 ℃
Humidity	: 58 %
Regulation	: FCC Part15C §15.209(PK Detection)

Engineer : Ichiro Isozaki

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	2483.50	BB	41.9	42.6	28.0	34.6	4.0	10.0	49.3	50.0	74.0	24.7	24.0
2.	4960.00	BB	43.4	44.3	32.3	34.0	5.6	0.5	47.8	48.7	74.0	26.2	25.3
3.	7440.00	BB	42.6	41.7	36.8	34.3	6.7	0.2	52.0	51.1	74.0	22.0	22.9
4.	9920.00	BB	41.5	41.1	39.3	34.8	7.4	0.2	53.6	53.2	74.0	20.4	20.8
5.	12400.00	BB	42.1	42.4	39.2	34.1	8.1	0.0	55.3	55.6	74.0	18.7	18.4
6.	14880.00	BB	41.0	41.1	41.3	34.4	9.0	0.7	57.6	57.7	74.0	16.4	16.3
7.	17360.00	BB	42.0	42.2	41.9	34.7	9.5	0.2	58.9	59.1	74.0	15.1	14.9
8.	19840.00	BB	40.7	41.3	41.1	34.1	10.5	0.0	58.2	58.8	74.0	15.8	15.2
9.	22320.00	BB	42.9	42.2	40.4	32.9	11.0	0.0	61.4	60.7	74.0	12.6	13.3
10.	24800.00	BB	41.2	41.4	41.1	33.6	11.5	0.0	60.2	60.4	74.0	13.8	13.6

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

■ANTENNA:KHA-02(1-18GHz)/MHA-01(18-26GHz)
■AMP:KAF-04(8449B) ■SPECTRUM ANALYZER:KTR-01 ■CABLE:KCC-D3/D7

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.2 Open Test Site
Report No.: 25JE0028-YK

Applicant	:	Alps Electric Co.,Ltd.
Kind of Equipment	:	Bluetooth Transceiver Module
Model No.	:	UGPZ6
Serial No.	:	1
Power	:	DC3.3V
Mode	:	Transmitting(2480MHz)
Remarks	:	ANT:LDA31, AV(RBW:1MHz, VBW:10Hz)
Date	:	5/17/2005
Test Distance	:	3 m
Temperature	:	21 ℃
Humidity	:	58 %
Regulation	:	FCC Part15C §15.209(AV Detection)

Engineer : Ichiro Isozaki

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	2483.50	BB	29.5	29.5	28.0	34.6	4.0	10.0	36.9	36.9	54.0	17.1	17.1
2.	4960.00	BB	30.3	31.7	32.3	34.0	5.6	0.5	34.7	36.1	54.0	19.3	17.9
3.	7440.00	BB	28.9	28.9	36.8	34.3	6.7	0.2	38.3	38.3	54.0	15.7	15.7
4.	9920.00	BB	28.9	29.0	39.3	34.8	7.4	0.2	41.0	41.1	54.0	13.0	12.9
5.	12400.00	BB	29.5	29.4	39.2	34.1	8.1	0.0	42.7	42.6	54.0	11.3	11.4
6.	14880.00	BB	28.7	28.7	41.3	34.4	9.0	0.7	45.3	45.3	54.0	8.7	8.7
7.	17360.00	BB	29.2	29.1	41.9	34.7	9.5	0.2	46.1	46.0	54.0	7.9	8.0
8.	19840.00	BB	28.9	29.0	41.1	34.1	10.5	0.0	46.4	46.5	54.0	7.6	7.5
9.	22320.00	BB	30.2	30.2	40.4	32.9	11.0	0.0	48.7	48.7	54.0	5.3	5.3
10.	24800.00	BB	28.8	29.0	41.1	33.6	11.5	0.0	47.8	48.0	54.0	6.2	6.0

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

■ANTENNA:KHA-02(1-18GHz)/MHA-01(18-26GHz)
■AMP:KAF-04(8449B) ■SPECTRUM ANALYZER:KTR-01 ■CABLE:KCC-D3/D7

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.2 Open Test Site
Report No. : 25JE0028-YK-1

Applicant : Alps Electric Co.,Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 1
Power : DC3.3V
Mode : Transmitting(2402MHz)
Remarks : ANT:C680, PK(RBW:1MHz, VBW:1MHz)
Date : 5/18/2005
Test Distance : 3 m
Temperature : 21 ℃ Engineer : Ichiro Isozaki
Humidity : 64 %
Regulation : FCC Part15C §15.209(PK Detection)

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	2390.00	BB	41.8	41.7	27.7	34.6	4.0	10.0	48.9	48.8	74.0	25.1	25.2
2.	4804.00	BB	44.6	42.8	32.0	34.0	5.5	0.5	48.6	46.8	74.0	25.4	27.2
3.	7206.00	BB	42.4	41.8	36.5	34.3	6.6	0.2	51.4	50.8	74.0	22.6	23.2
4.	9608.00	BB	41.2	41.3	38.9	34.9	7.4	0.5	53.1	53.2	74.0	20.9	20.8
5.	12010.00	BB	41.1	41.2	39.9	34.3	8.2	0.0	54.9	55.0	74.0	19.1	19.0
6.	14412.00	BB	41.8	41.6	42.5	33.8	8.9	0.3	59.7	59.5	74.0	14.3	14.5
7.	16184.00	BB	41.0	41.2	38.4	34.8	9.4	0.2	54.2	54.4	74.0	19.8	19.6
8.	19216.00	BB	41.4	40.9	41.7	33.7	10.2	0.0	59.6	59.1	74.0	14.4	14.9
9.	20420.00	BB	42.0	40.8	40.8	33.6	10.6	0.0	59.8	58.6	74.0	14.2	15.4
10.	21618.00	BB	40.7	41.8	40.4	34.2	10.6	0.0	57.5	58.6	74.0	16.5	15.4

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

■ANTENNA:KHA-02(1-18GHz)/MHA-01(18-26GHz)
■AMP:KAF-04(8449B) ■SPECTRUM ANALYZER:KTR-01 ■CABLE:KCC-D3/D7

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.2 Open Test Site
Report No. : 25JE0028-YK

Applicant	:	Alps Electric Co.,Ltd.
Kind of Equipment	:	Bluetooth Transceiver Module
Model No.	:	UGPZ6
Serial No.	:	1
Power	:	DC3.3V
Mode	:	Transmitting(2402MHz)
Remarks	:	ANT:C680, AV(RBW:1MHz, VBW:10Hz)
Date	:	5/18/2005
Test Distance	:	3 m
Temperature	:	21 ℃
Humidity	:	64 %
Regulation	:	FCC Part15C §15.209(AV Detection)

Engineer : Ichiro Isozaki

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	2390.00	BB	29.2	29.1	27.7	34.6	4.0	10.0	36.3	36.2	54.0	17.7	17.8
2.	4804.00	BB	28.1	27.8	32.0	34.0	5.5	0.5	32.1	31.8	54.0	21.9	22.2
3.	7206.00	BB	28.8	28.8	36.5	34.3	6.6	0.2	37.8	37.8	54.0	16.2	16.2
4.	9608.00	BB	29.2	29.1	38.9	34.9	7.4	0.5	41.1	41.0	54.0	12.9	13.0
5.	12010.00	BB	28.6	28.6	39.9	34.3	8.2	0.0	42.4	42.4	54.0	11.6	11.6
6.	14412.00	BB	28.9	28.9	42.5	33.8	8.9	0.3	46.8	46.8	54.0	7.2	7.2
7.	16184.00	BB	28.5	28.5	38.4	34.8	9.4	0.2	41.7	41.7	54.0	12.3	12.3
8.	19216.00	BB	28.4	28.4	41.7	33.7	10.2	0.0	46.6	46.6	54.0	7.4	7.4
9.	20420.00	BB	28.9	28.9	40.8	33.6	10.6	0.0	46.7	46.7	54.0	7.3	7.3
10.	21618.00	BB	28.5	28.8	40.4	34.2	10.6	0.0	45.3	45.6	54.0	8.7	8.4

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

■ANTENNA:KHA-02(1-18GHz)/MHA-01(18-26GHz)
■AMP:KAF-04(8449B) ■SPECTRUM ANALYZER:KTR-01 ■CABLE:KCC-D3/D7

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.2 Open Test Site
Report No.: 25JE0028-YK ⇨ 1

Applicant	:	Alps Electric Co.,Ltd.
Kind of Equipment	:	Bluetooth Transceiver Module
Model No.	:	UGPZ6
Serial No.	:	1
Power	:	DC3.3V
Mode	:	Transmitting(2441MHz)
Remarks	:	ANT:C680, PK(RBW:1MHz, VBW:1MHz)
Date	:	5/18/2005
Test Distance	:	3 m
Temperature	:	21 ℃
Humidity	:	64 %
Regulation	:	FCC Part15C §15.209(PK Detection)

Engineer : Ichiro Isozaki

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	4882.00	BB	42.1	40.4	32.2	34.0	5.5	0.5	46.3	44.6	74.0	27.7	29.4
2.	7323.00	BB	41.5	41.3	36.7	34.3	6.7	0.2	50.8	50.6	74.0	23.2	23.4
3.	9764.00	BB	41.3	42.4	39.1	34.9	7.4	0.3	53.2	54.3	74.0	20.8	19.7
4.	12205.00	BB	41.3	41.2	39.5	34.2	8.1	0.0	54.7	54.6	74.0	19.3	19.4
5.	14646.00	BB	41.8	41.0	42.0	34.1	8.9	0.5	59.1	58.3	74.0	14.9	15.7
6.	17087.00	BB	40.8	40.8	41.2	34.6	9.7	0.5	57.6	57.6	74.0	16.4	16.4
7.	19528.00	BB	40.9	41.2	41.4	34.2	10.5	0.0	58.6	58.9	74.0	15.4	15.1
8.	21969.00	BB	42.6	42.4	40.5	33.8	10.9	0.0	60.2	60.0	74.0	13.8	14.0
9.	24410.00	BB	41.6	41.0	41.1	33.1	11.1	0.0	60.7	60.1	74.0	13.3	13.9

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

■ANTENNA:KHA-02(1-18GHz)/MHA-01(18-26GHz)
■AMP:KAF-03(8447D) ■RECEIVER:KTR-04(ESVS10) ■CABLE:KCC-20/21/22/23/29

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.2 Open Test Site
Report No.: 25JE0028-YK

Applicant	:	Alps Electric Co.,Ltd.
Kind of Equipment	:	Bluetooth Transceiver Module
Model No.	:	UGPZ6
Serial No.	:	1
Power	:	DC3.3V
Mode	:	Transmitting(2441MHz)
Remarks	:	ANT:C680, AV(RBW:1MHz, VBW:10Hz)
Date	:	5/18/2005
Test Distance	:	3 m
Temperature	:	21 ℃
Humidity	:	64 %
Regulation	:	FCC Part15C §15.209(AV Detection)

Engineer : Ichiro Isozaki

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	4882.00	BB	27.6	27.1	32.2	34.0	5.5	0.5	31.8	31.3	54.0	22.2	22.7
2.	7323.00	BB	28.8	28.8	36.7	34.3	6.7	0.2	38.1	38.1	54.0	15.9	15.9
3.	9764.00	BB	29.1	29.0	39.1	34.9	7.4	0.3	41.0	40.9	54.0	13.0	13.1
4.	12205.00	BB	28.5	28.4	39.5	34.2	8.1	0.0	41.9	41.8	54.0	12.1	12.2
5.	14646.00	BB	28.9	28.9	42.0	34.1	8.9	0.5	46.2	46.2	54.0	7.8	7.8
6.	17087.00	BB	28.6	28.7	41.2	34.6	9.7	0.5	45.4	45.5	54.0	8.6	8.5
7.	19528.00	BB	28.4	28.3	41.4	34.2	10.5	0.0	46.1	46.0	54.0	7.9	8.0
8.	21969.00	BB	30.2	30.3	40.5	33.8	10.9	0.0	47.8	47.9	54.0	6.2	6.1
9.	24410.00	BB	29.2	28.6	41.1	33.1	11.1	0.0	48.3	47.7	54.0	5.7	6.3

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

■ANTENNA:KHA-02(1-18GHz)/MHA-01(18-26GHz)
■AMP:KAF-03(8447D) ■RECEIVER:KTR-04(ESVS10) ■CABLE:KCC-20/21/22/23/29

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.2 Open Test Site
Report No. : 25JE0028-YK

Applicant	: Alps Electric Co.,Ltd.		
Kind of Equipment	: Bluetooth Transceiver Module		
Model No.	: UGPZ6		
Serial No.	: 1		
Power	: DC3.3V		
Mode	: Transmitting(2480MHz)		
Remarks	: ANT:C680, PK(RBW:1MHz, VBW:1MHz)		
Date	: 5/18/2005		
Test Distance	: 3 m		
Temperature	: 21 ℃	Engineer	: Ichiro Isozaki
Humidity	: 64 %		
Regulation	: FCC Part15C §15.209(PK Detection)		

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	2483.50	BB	41.5	41.6	28.0	34.6	4.0	10.0	48.9	49.0	74.0	25.1	25.0
2.	4960.00	BB	43.5	42.5	32.3	34.0	5.6	0.5	47.9	46.9	74.0	26.1	27.1
3.	7440.00	BB	42.3	41.0	36.8	34.3	6.7	0.2	51.7	50.4	74.0	22.3	23.6
4.	9920.00	BB	41.7	41.3	39.3	34.8	7.4	0.2	53.8	53.4	74.0	20.2	20.6
5.	12400.00	BB	41.5	41.9	39.2	34.1	8.1	0.0	54.7	55.1	74.0	19.3	18.9
6.	14880.00	BB	41.3	41.4	41.3	34.4	9.0	0.7	57.9	58.0	74.0	16.1	16.0
7.	17360.00	BB	41.5	41.5	41.9	34.7	9.5	0.2	58.4	58.4	74.0	15.6	15.6
8.	19840.00	BB	40.7	41.0	41.1	34.1	10.5	0.0	58.2	58.5	74.0	15.8	15.5
9.	22320.00	BB	42.7	43.0	40.4	32.9	11.0	0.0	61.2	61.5	74.0	12.8	12.5
10.	24800.00	BB	41.5	40.7	41.1	33.6	11.5	0.0	60.5	59.7	74.0	13.5	14.3

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

■ANTENNA:KHA-02(1-18GHz)/MHA-01(18-26GHz)
■AMP:KAF-04(8449B) ■SPECTRUM ANALYZER:KTR-01 ■CABLE:KCC-D3/D7

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.2 Open Test Site
Report No. : 25JE0028-YK

Applicant	:	Alps Electric Co.,Ltd.
Kind of Equipment	:	Bluetooth Transceiver Module
Model No.	:	UGPZ6
Serial No.	:	1
Power	:	DC3.3V
Mode	:	Transmitting(2480MHz)
Remarks	:	ANT:C680, AV(RBW:1MHz, VBW:10Hz)
Date	:	5/18/2005
Test Distance	:	3 m
Temperature	:	21 ℃
Humidity	:	64 %
Regulation	:	FCC Part15C §15.209(AV Detection)

Engineer : Ichiro Isozaki

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	2483.50	BB	29.1	29.1	28.0	34.6	4.0	10.0	36.5	36.5	54.0	17.5	17.5
2.	4960.00	BB	28.3	28.0	32.3	34.0	5.6	0.5	32.7	32.4	54.0	21.3	21.6
3.	7440.00	BB	28.8	28.7	36.8	34.3	6.7	0.2	38.2	38.1	54.0	15.8	15.9
4.	9920.00	BB	29.0	28.9	39.3	34.8	7.4	0.2	41.1	41.0	54.0	12.9	13.0
5.	12400.00	BB	28.7	28.7	39.2	34.1	8.1	0.0	41.9	41.9	54.0	12.1	12.1
6.	14880.00	BB	28.4	28.4	41.3	34.4	9.0	0.7	45.0	45.0	54.0	9.0	9.0
7.	17360.00	BB	28.8	28.7	41.9	34.7	9.5	0.2	45.7	45.6	54.0	8.3	8.4
8.	19840.00	BB	28.5	28.7	41.1	34.1	10.5	0.0	46.0	46.2	54.0	8.0	7.8
9.	22320.00	BB	29.8	29.8	40.4	32.9	11.0	0.0	48.3	48.3	54.0	5.7	5.7
10.	24800.00	BB	28.2	28.5	41.1	33.6	11.5	0.0	47.2	47.5	54.0	6.8	6.5

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

■ANTENNA:KHA-02(1-18GHz)/MHA-01(18-26GHz)
■AMP:KAF-04(8449B) ■SPECTRUM ANALYZER:KTR-01 ■CABLE:KCC-D3/D7

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.1 Anechoic Chamber
Report No. : 25JE0028-YK

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 1
Power : DC3.3V
Mode : Transmitting(2402MHz)
Remarks : ANT:CAN4313359, PK(RBW:1MHz, VBW:1MHz)
Date : 5/28/2005
Test Distance : 3 m
Temperature : 21 ℃ Engineer : Toyokazu Imamura
Humidity : 60 %
Regulation : FCC Part15C §15.209(PK Detection)

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	2390.00	BB	42.3	43.5	27.7	34.6	4.0	10.0	49.4	50.6	74.0	24.6	23.4
2.	4804.00	BB	56.7	59.0	32.0	34.0	5.5	0.5	60.7	63.0	74.0	13.3	11.0
3.	7206.00	BB	43.1	43.5	36.5	34.3	6.6	0.2	52.1	52.5	74.0	21.9	21.5
4.	9608.00	BB	43.5	43.7	38.9	34.9	7.4	0.5	55.4	55.6	74.0	18.6	18.4
5.	12010.00	BB	44.0	43.7	39.9	34.3	8.2	0.0	57.8	57.5	74.0	16.2	16.5
6.	14412.00	BB	43.6	42.7	42.5	33.8	8.9	0.3	61.5	60.6	74.0	12.5	13.4
7.	16814.00	BB	43.0	43.5	40.4	34.6	9.6	0.6	59.0	59.5	74.0	15.0	14.5
8.	19216.00	BB	42.3	41.5	40.8	33.7	10.2	0.0	59.6	58.8	74.0	14.4	15.2
9.	21618.00	BB	41.7	42.6	39.0	34.2	10.6	0.0	57.1	58.0	74.0	16.9	16.0
10.	24020.00	BB	42.9	42.1	39.3	31.5	11.0	0.0	61.7	60.9	74.0	12.3	13.1

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

■ANTENNA:KHA-02(1-18GHz)/MHA-01(18-26GHz)
■AMP:KAF-04(8449B) ■SPECTRUM ANALYZER:KTR-01 ■CABLE:KCC-D3/D7

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.1 Anechoic Chamber
Report No. : 25JE0028-YK-1

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 1
Power : DC3.3V
Mode : Transmitting(2402MHz)
Remarks : ANT:CAN4313359, AV(RBW:1MHz, VBW:10Hz)
Date : 5/28/2005
Test Distance : 3 m
Temperature : 21 ℃ Engineer : Toyokazu Imamura
Humidity : 60 %
Regulation : FCC Part15C §15.209(AV Detection)

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	2390.00	BB	29.8	29.9	27.7	34.6	4.0	10.0	36.9	37.0	54.0	17.1	17.0
2.	4804.00	BB	40.9	41.3	32.0	34.0	5.5	0.5	44.9	45.3	54.0	9.1	8.7
3.	7206.00	BB	30.6	30.5	36.5	34.3	6.6	0.2	39.6	39.5	54.0	14.4	14.5
4.	9608.00	BB	30.6	30.5	38.9	34.9	7.4	0.5	42.5	42.4	54.0	11.5	11.6
5.	12010.00	BB	30.5	30.4	39.9	34.3	8.2	0.0	44.3	44.2	54.0	9.7	9.8
6.	14412.00	BB	30.5	30.4	42.5	33.8	8.9	0.3	48.4	48.3	54.0	5.6	5.7
7.	16814.00	BB	30.4	30.2	40.4	34.6	9.6	0.6	46.4	46.2	54.0	7.6	7.8
8.	19216.00	BB	28.5	28.9	40.8	33.7	10.2	0.0	45.8	46.2	54.0	8.2	7.8
9.	21618.00	BB	29.1	29.0	39.0	34.2	10.6	0.0	44.5	44.4	54.0	9.5	9.6
10.	24020.00	BB	29.8	29.7	39.3	31.5	11.0	0.0	48.6	48.5	54.0	5.4	5.5

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

■ANTENNA:KHA-02(1-18GHz)/MHA-01(18-26GHz)
■AMP:KAF-04(8449B) ■SPECTRUM ANALYZER:KTR-01 ■CABLE:KCC-D3/D7

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.1 Anechoic Chamber
Report No. : 25JE0028-YK-1

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 1
Power : DC3.3V
Mode : Transmitting (2441MHz)
Remarks : ANT:CAN4313359, PK (RBW:1MHz, VBW:1MHz)
Date : 5/28/2005
Test Distance : 3 m
Temperature : 21 ℃ Engineer : Toyokazu Imamura
Humidity : 60 %
Regulation : FCC Part15C §15.209 (PK Detection)

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	4882.00	BB	53.2	55.0	32.2	34.0	5.5	0.5	57.4	59.2	74.0	16.6	14.8
2.	7323.00	BB	41.4	41.5	36.7	34.3	6.7	0.2	50.7	50.8	74.0	23.3	23.2
3.	9764.00	BB	41.3	41.9	39.1	34.9	7.4	0.3	53.2	53.8	74.0	20.8	20.2
4.	12205.00	BB	42.2	41.4	39.5	34.2	8.1	0.0	55.6	54.8	74.0	18.4	19.2
5.	14646.00	BB	41.7	42.8	42.0	34.1	8.9	0.5	59.0	60.1	74.0	15.0	13.9
6.	17087.00	BB	42.7	41.7	41.2	34.6	9.7	0.5	59.5	58.5	74.0	14.5	15.5
7.	19528.00	BB	42.0	42.9	40.1	34.2	10.5	0.0	58.4	59.3	74.0	15.6	14.7
8.	21969.00	BB	43.2	43.4	39.5	33.8	10.9	0.0	59.8	60.0	74.0	14.2	14.0
9.	24410.00	BB	41.7	42.9	39.5	33.1	11.1	0.0	59.2	60.4	74.0	14.8	13.6

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

■ANTENNA:KHA-02 (1-18GHz) /MHA-01 (18-26GHz)
■AMP:KAF-04 (8449B) ■SPECTRUM ANALYZER:KTR-01 ■CABLE:KCC-D3/D7

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.1 Anechoic Chamber
Report No. : 25JE0028-YK-1

Applicant	:	Alps Electric Co., Ltd.
Kind of Equipment	:	Bluetooth Transceiver Module
Model No.	:	UGPZ6
Serial No.	:	1
Power	:	DC3.3V
Mode	:	Transmitting (2441MHz)
Remarks	:	ANT:CAN4313359, AV (RBW:1MHz, VBW:10Hz)
Date	:	5/28/2005
Test Distance	:	3 m
Temperature	:	21 ℃
Humidity	:	60 %
Regulation	:	FCC Part15C §15.209 (AV Detection)

Engineer : Toyokazu Imamura

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	4882.00	BB	38.8	39.4	32.2	34.0	5.5	0.5	43.0	43.6	54.0	11.0	10.4
2.	7323.00	BB	28.7	28.8	36.7	34.3	6.7	0.2	38.0	38.1	54.0	16.0	15.9
3.	9764.00	BB	28.6	28.6	39.1	34.9	7.4	0.3	40.5	40.5	54.0	13.5	13.5
4.	12205.00	BB	29.0	28.9	39.5	34.2	8.1	0.0	42.4	42.3	54.0	11.6	11.7
5.	14646.00	BB	28.8	28.8	42.0	34.1	8.9	0.5	46.1	46.1	54.0	7.9	7.9
6.	17087.00	BB	29.0	28.9	41.2	34.6	9.7	0.5	45.8	45.7	54.0	8.2	8.3
7.	19528.00	BB	28.8	28.9	40.1	34.2	10.5	0.0	45.2	45.3	54.0	8.8	8.7
8.	21969.00	BB	30.4	30.5	39.5	33.8	10.9	0.0	47.0	47.1	54.0	7.0	6.9
9.	24410.00	BB	29.4	29.4	39.5	33.1	11.1	0.0	46.9	46.9	54.0	7.1	7.1

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

■ANTENNA:KHA-02 (1-18GHz) /MHA-01 (18-26GHz)
■AMP:KAF-04 (8449B) ■SPECTRUM ANALYZER:KTR-01 ■CABLE:KCC-D3/D7

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.1 Anechoic Chamber
Report No. : 25JE0028-YK ~~P~~ 1

Applicant : Alps Electric Co., Ltd.
Kind of Equipment : Bluetooth Transceiver Module
Model No. : UGPZ6
Serial No. : 1
Power : DC3.3V
Mode : Transmitting(2480MHz)
Remarks : ANT:CAN4313359, PK(RBW:1MHz, VBW:1MHz)
Date : 5/28/2005
Test Distance : 3 m
Temperature : 21 ℃ Engineer : Toyokazu Imamura
Humidity : 60 %
Regulation : FCC Part15C §15.209(PK Detection)

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	2483.50	BB	43.0	41.3	28.0	34.6	4.0	10.0	50.4	48.7	74.0	23.6	25.3
2.	4960.00	BB	55.8	57.3	32.3	34.0	5.6	0.5	60.2	61.7	74.0	13.8	12.3
3.	7440.00	BB	41.3	42.6	36.8	34.3	6.7	0.2	50.7	52.0	74.0	23.3	22.0
4.	9920.00	BB	41.3	41.5	39.3	34.8	7.4	0.2	53.4	53.6	74.0	20.6	20.4
5.	12400.00	BB	40.9	41.0	39.2	34.1	8.1	0.0	54.1	54.2	74.0	19.9	19.8
6.	14880.00	BB	42.3	42.8	41.3	34.4	9.0	0.7	58.9	59.4	74.0	15.1	14.6
7.	17360.00	BB	42.2	42.4	41.9	34.7	9.5	0.2	59.1	59.3	74.0	14.9	14.7
8.	19840.00	BB	42.6	40.9	40.0	34.1	10.5	0.0	59.0	57.3	74.0	15.0	16.7
9.	22320.00	BB	41.7	42.1	39.9	32.9	11.0	0.0	59.7	60.1	74.0	14.3	13.9
10.	24800.00	BB	42.7	42.2	39.7	33.6	11.5	0.0	60.3	59.8	74.0	13.7	14.2

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

■ANTENNA:KHA-02(1-18GHz)/MHA-01(18-26GHz)
■AMP:KAF-04(8449B) ■SPECTRUM ANALYZER:KTR-01 ■CABLE:KCC-D3/D7

DATA OF RADIATION TEST

UL Apex Co.,Ltd.
Yamakita No.1 Anechoic Chamber
Report No. : 25JE0028-YK

Applicant	:	Alps Electric Co., Ltd.	
Kind of Equipment	:	Bluetooth Transceiver Module	
Model No.	:	UGPZ6	
Serial No.	:	1	
Power	:	DC3.3V	
Mode	:	Transmitting (2480MHz)	
Remarks	:	ANT:CAN4313359, AV (RBW:1MHz, VBW:10Hz)	
Date	:	5/28/2005	
Test Distance	:	3 m	
Temperature	:	21 ℃	Engineer : Toyokazu Imamura
Humidity	:	60 %	
Regulation	:	FCC Part15C §15.209 (AV Detection)	

No.	FREQ. [MHz]	ANT TYPE	READING HOR [dBμV]	READING VER [dBμV]	ANT FACTOR [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATTEN. [dB]	RESULT HOR [dBμV/m]	RESULT VER [dBμV/m]	LIMITS [dBμV/m]	MARGIN HOR [dB]	MARGIN VER [dB]
1.	2483.50	BB	29.9	29.4	28.0	34.6	4.0	10.0	37.3	36.8	54.0	16.7	17.2
2.	4960.00	BB	39.7	40.9	32.3	34.0	5.6	0.5	44.1	45.3	54.0	9.9	8.7
3.	7440.00	BB	28.6	28.7	36.8	34.3	6.7	0.2	38.0	38.1	54.0	16.0	15.9
4.	9920.00	BB	28.6	28.4	39.3	34.8	7.4	0.2	40.7	40.5	54.0	13.3	13.5
5.	12400.00	BB	28.6	29.0	39.2	34.1	8.1	0.0	41.8	42.2	54.0	12.2	11.8
6.	14880.00	BB	28.7	29.0	41.3	34.4	9.0	0.7	45.3	45.6	54.0	8.7	8.4
7.	17360.00	BB	28.6	28.7	41.9	34.7	9.5	0.2	45.5	45.6	54.0	8.5	8.4
8.	19840.00	BB	28.9	29.1	40.0	34.1	10.5	0.0	45.3	45.5	54.0	8.7	8.5
9.	22320.00	BB	30.0	30.0	39.9	32.9	11.0	0.0	48.0	48.0	54.0	6.0	6.0
10.	24800.00	BB	30.2	30.4	39.7	33.6	11.5	0.0	47.8	48.0	54.0	6.2	6.0

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

■ANTENNA:KHA-02 (1-18GHz) /MHA-01 (18-26GHz)
■AMP:KAF-04 (8449B) ■SPECTRUM ANALYZER:KTR-01 ■CABLE:KCC-D3/D7

Test Report No :25JE0028-YK-1

APPENDIX 3
Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No.	Test Item	Calibration Date * Interval(month)
KAEC-01(NSA)	Anechoic Chamber	JSE	Semi 3m	RE	2004/09/05 * 12
KAF-04	Pre Amplifier	Agilent	8449B	RE	2005/04/28 * 12
KAF-05	Pre Amplifier	Agilent	8447D	RE	2005/05/11 * 12
KAT10-S1	Attenuator	Agilent	8449D 010	RE	2005/04/12 * 12
KAT6-03	Attenuator	INMET	18N-6dB	RE	2005/04/07 * 12
KBA-02	Biconical Antenna	Schwarzbeck	BBA9106	RE	2004/08/07 * 12
KBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2005/01/29 * 12
KCC-20/21/22/23/29	Coaxial Cable	Fujikura/Suhner	8D-2W/12D-SFA/S04272B/S04272B	RE	2004/12/27 * 12
KCC-30/31/32/34	Coaxial Cable	Fujikura/Suhner	5D-2W/S04272B	RE	2005/01/06 * 12
KCC-33/34	Coaxial Cable	Fujikura/Suhner	5D-2W/S04272B	CE	2005/01/06 * 12
KCC-D3/D7	Coaxial Cable	Rosenberger/Advantest	2201/JUN-08-01-06 1	RE	2005/04/12 * 12
KFL-01	Highpass Filter	Hewlett Packard	84300 80038	RE	2005/04/12 * 12
KHA-02	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2004/09/25 * 12
KLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2004/08/07 * 12
KLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2005/01/29 * 12
KLS-01	LISN(AMN)	Schwarzbeck	NSLK8126	CE	2005/05/10 * 12
KOTS-02	Open Test Site	JSE	10m	RE	2004/08/09 * 12
KPM-05	Power meter	Agilent	E4417A	AT 5	2005/03/02 * 12
KPSS-01	Power sensor	Agilent	E9327A	AT 5	2005/03/04 * 12
KSA-04	Spectrum Analyzer	Advantest	R3271A	CE/RE	2004/09/15 * 12
KTR-01	Test Receiver	Rohde & Schwarz	ESI40	CE/RE/AT 1,2,3,4,6	2004/07/28 * 12
KTR-04	Test Receiver	Rohde & Schwarz	ESVS10	RE	2004/10/18 * 12
KST-01	Digitizing Oscilloscope	Tektronix	TDS420A	AT 4	2004/08/23 * 12
MHA-01	Horn Antenna	EMCO	3160-09	RE	2005/01/10 * 12
KAF-03	Pre Amplifier	Hewlett Packard	8447D	RE	2004/09/10 * 12

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)