EMI TEST REPORT

Test Report No. : 24FE0040-HO-1

Applicant	:	**ALPS ELECTRIC CO., LTD.**
Type of Equipment	:	**ALPS Bluetooth Module**
Model No.	:	**UGPZ5**
Test standard	:	**FCC Part 15 Subpart C Section 15.207, Section 15.247**
FCC ID	:	**CWTUGPZ5**
Test Result	:	**Complied**

1. This test report shall not be reproduced in full or partial, 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 report are traceable to the national or international standards.
5. This test report does not constitute an endorsement by NIST/NVLAP or U.S. Government.

Date of test : January 19,20, 21 and February 3, 2004

Tested by : M. Fujimura

Mitsuru Fujimura
EMC Service

Approved by :

Hironobu Shimoji
Group Leader of EMC Service

UL Apex Co., Ltd.
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124

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SECTION 1: Client information

Company Name	:	ALPS ELECTRIC CO.,LTD.
Address	:	1-7, YUKIGAYA OTSUKA-CHO, OHTAKU, TOKYO 145-8501 JAPAN
Telephone Number	:	+81-3-3726-1211
Facsimile Number	:	+81-3-3728-1741
Contact Person	:	Dang Chang

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

2.1 Identification of E.U.T.

Type of Equipment	:	ALPS Bluetooth Module
Model No.	:	UGPZ5
Serial No.	:	28, 29
Country of Manufacture	:	Japan
Rating	:	DC3.3V+/-0.2V
Receipt Date of Sample	:	January 16, 2004
Condition of EUT	:	Production prototype

2.2 Product Description

ALPS ELECTRIC CO.,LTD, Model No: UGPZ5 is the Personal computer for Lap top.
The clock frequency of EUT is 16MHz.

[Bluetooth]

ITU code	:	F1D
Equipment Type	:	Transceiver
Frequency of operation	:	2402-2480MHz
Type of modulation	:	FHSS/FSK
Channel spacing	:	1MHz
Channel number	:	79channel
Antenna Type	:	*See the Table 1
Antenna Gain	:	*See the Table 1
Antenna Connector Type	:	*See the Table 1

FCC 15.31 (e)
The host device provides this EUT with stable power supply (DC3.3V) constantly to this module, and the power is not changed when the voltage of this EUT is varied. Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement
ALPS Bluetooth Module and its antenna comply with this requirement since these antennas' types of this EUT are used as the particular type (Type U.FL/manufactured by Hirose).

***This EUT has three antennas of two types as stated below, we tested all three antennas; type LDA92, LDA31, and type CAN4313359.**

Table 1. Details of Antenna

Type	**¼ wave monopole antenna**	**¼ wave monopole antenna**	**Reversed "F" type antenna**
Model No.	LDA92	LDA31	CAN4313359
Antenna Type	External	External	External
Antenna Gain	+4dBi	+4dBi	+4dBi
Antenna Connector Type	Type U.FL (Hirose)	Type U.FL (Hirose)	Type U.FL (Hirose)
*All three antennas have Antenna Gain(+4dBi maximum with the cable having the length of 30mm or more)			

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part15 Subpart C

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

3.2 Procedures and results

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	Conducted emission	ANSI C63.4:2001	Section 15.207	-	N/A	21.5dB, AV 4.4845MHz, L	Complied
2	Carrier Frequency Separation	ANSI C63.4:2001	Section15.247(a)(1)	Conducted	N/A	-	Complied
3	20dB Bandwidth	ANSI C63.4:2001	Section15.247(a)(1)	Conducted	N/A	-	Complied
4	Number of Hopping Frequency	ANSI C63.4:2001	Section15.247(a)(1)(iii)	Conducted	N/A	-	Complied
5	Dwell time	ANSI C63.4:2001	Section15.247(a)(1)(iii)	Conducted	N/A	-	Complied
6	Maximum Peak Output Power	ANSI C63.4:2001	Section15.247(b)(1)	Conducted	N/A	21.7dB Inquiry	Complied
7	Band Edge Compliance	ANSI C63.4:2001	Section15.247(c)	Conducted	N/A	-	Complied
8	Spurious Emission	ANSI C63.4:2001	Section15.247(c)	Conducted/ Radiated	N/A	2.4dB (LDA92) 294.075MHz Horizontal	Complied
Note: UL Apex's EMI Work Procedures No.QPM05.							

*These tests were also referred to FCC Public Notice DA 00-705 "Guidance on Measurement for Frequency Hopping Spread Spectrum Systems".
*These tests were performed without any deviations from test procedure except for additions or exclusions.

3.3 Addition to standards

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	99% Occupied Band Width	RSS210(issue 5) + Amendment	RSS210(issue 5) + Amendment	Conducted	N/A	N/A	N/A

3.4 Confirmation

UL Apex Co., Ltd. hereby confirms that E.U.T., in the configuration tested, complies with the specifications FCC Part 15 Subpart C Section 15.207 and 15.247.

3.5 Uncertainty

Conducted Emission
The measurement uncertainty (with a 95% confidence level) for this test is ±1.3dB.
The data listed in this test report has enough margin.

Spurious Emission (Radiated)
The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is ±4.5dB(3m).
The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is ±5.2dB(3m).
The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is ±6.6dB.
The result is within Head Office EMC lab's uncertainty.

Other test except Conducted Emission and Spurious Emission (Radiated)
The measurement uncertainty (with a 95% confidence level) for this test is ±3.0dB.
The data listed in this test report has enough margin.

3.6 Test Location

UL Apex Co., Ltd. Head Office EMC Lab.
No.2 semi anechoic chamber.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124
No.2 semi anechoic chamber has been fully described in a report submitted to FCC office, and listed on June 05, 2002. (Registration number: No.2:846015 Industry Canada: No.2: IC4247-2)
*NVLAP Lab. code: 200572-0

3.7 Test set up, Test instruments and Data of EMI

Refer to APPENDIX 1 to 3.

SECTION 4: Operation of E.U.T. during testing

4.1 Operating Modes

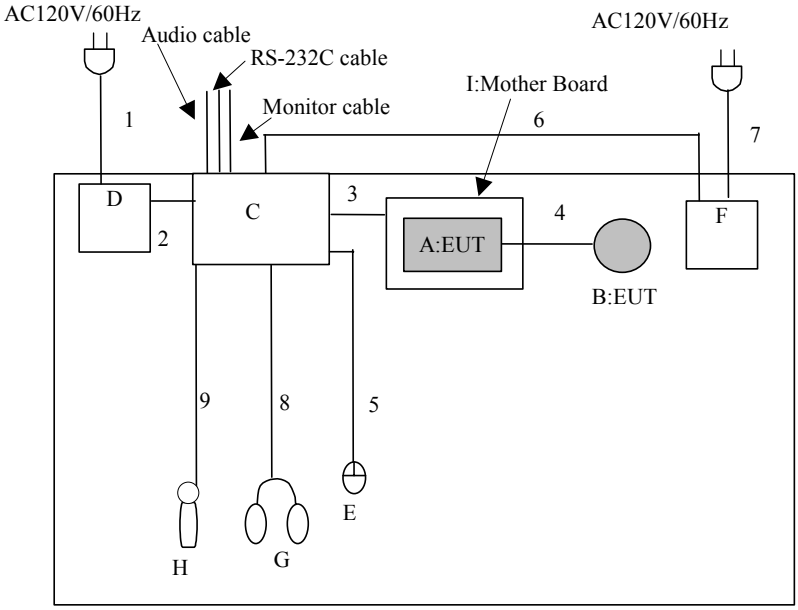
The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to typical use.

The sequence is used : Transmitting mode(Bluetooth)/Hopping On/Off
Low Channel :2402MHz
Mid Channel :2441MHz
High channel :2480MHz
Inquiry
* Tx: Burst Transmitting (DH1, DH3, DH5)

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

4.2 Configuration and peripherals

(AC Main Conducted)



* Cabling was taken into consideration and test data was taken under worse case conditions.

(AC Main Conducted)

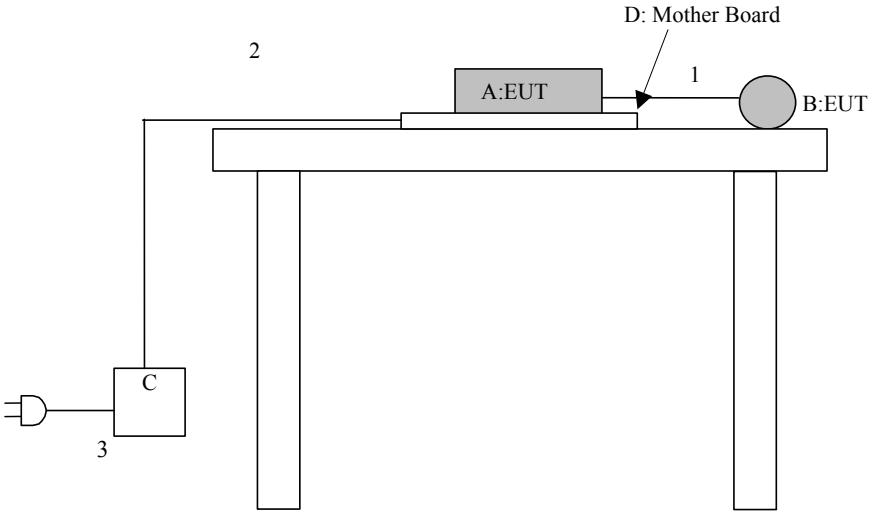
Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	FCC ID
A	ALPS Bluetooth Module	UGPZ5	28	ALPS	CWTUGPZ5
B	PCB Antenna	LDA92	-	ALPS	-
		LDA31	-	ALPS	-
		CAN4313359	-	ALPS	-
C	Personal Computer	PAS252JF	59017062	TOSHIBA	-
D	AC Adaptor	PA2450U	2159403	TOSHIBA	-
E	Mouse	M-S34	23-148198	Logitech	-
F	Printer	PM-890C	DYFE488606	EPSON	-
G	Headphone	LT-100	-	Panasonic	-
H	Microphone	-	-	FUJITSU	-
I	Mother Board	-	-	ALPS	-

List of cables used

No.	Name	Length (m)	Shield	Backshell Material
1	AC Cable	1.9	N	Polyvinyl chloride
2	DC Cable	1.8	N	Polyvinyl chloride
3	USB Cable	0.9	N	Polyvinyl chloride
4	Coaxial Cable	0.1	Y	Polyvinyl chloride
5	Mouse Cable	1.8	N	Polyvinyl chloride
6	Printer Cable	2.0	Y	Polyvinyl chloride
7	AC Cable	1.9	N	Polyvinyl chloride
8	Headphone Cable	3.0	N	Polyvinyl chloride
9	Microphone Cable	1.6	N	Polyvinyl chloride

(Except for AC Main Conducted)



AC120V/60Hz

* Cabling was taken into consideration and test data was taken under worse case conditions.

(Except for AC Main Conducted)
Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	FCC ID
A	ALPS Bluetooth Module	UGPZ5	28, 29	ALPS	CWTUGPZ5
B	PCB Antenna	LDA92	-	ALPS	-
		CAN4313359	-	ALPS	-
C	DC Power Supply	6642A	-	Agilent	-
D	Mother Board	-	-	ALPS	-

List of cables used

No.	Name	Length (m)	Shield	Backshell Material
1	Coaxial Cable	0.1	Y	Polyvinyl chloride
2	DC Cable	2.0	N	Polyvinyl chloride
3	AC Cable	1.8	N	Polyvinyl chloride

SECTION 5: Conducted Emission, Section 15.207

Test Procedure

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane.
The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT, including peripherals 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)/ Artificial mains Network (AMN) and excess AC cable was bundled in center. Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN /(AMN) to the input power source. All unused 50ohm connectors of the LISN(AMN) were resistively terminated in 50ohm when not connected to the measuring equipment.
The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT on a reference ground plane 4.0 x 4.0m in a No.2 semi Anechoic Chamber.
The EUT was connected to a LISN (AMN).
An overview sweep with peak detection has been performed.
The measurements have been performed with a CISPR quasi-peak detector (IF BW 9 kHz).
Measurement range: 0.15-30MHz

Test data : APPENDIX 3
Test result : Pass

SECTION 6: Carrier Frequency Separation, Section15.247(a)(1)

Test Procedure

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

Test data : APPENDIX 3
Test result : Pass

SECTION 7: 20dB Bandwidth, Section 15.247(a)(1)

Test Procedure

The 20dB bandwidth was measured with a spectrum analyzer connected to the antenna port.

Test data : APPENDIX 3
Test result : Pass

SECTION 8: Number of Hopping Frequency, Section 15.247(a)(1)(iii)

Test Procedure

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

Test data : APPENDIX 3
Test result : Pass

SECTION 9: Dwell time, Section 15.247(a)(1)(iii)

Test Procedure

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

Test data : **APPENDIX 3**
Test result : **Pass**

SECTION 10: Maximum Peak Output Power, Section 15.247(b)(1)

Test Procedure

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

Test data : **APPENDIX 3**
Test result : **Pass**

SECTION 11: Band Edge Compliance, Section 15.247(c)

Test Procedure

The Band Edge Compliance was measured with a spectrum analyzer connected to the antenna port.

Test data : **APPENDIX 3**
Test result : **Pass**

SECTION 12: Spurious Emission, Section 15.247(c)

[Conducted]

Test Procedure

The Spurious Emission (Conducted) was measured with a spectrum analyzer connected to the antenna port.

Test data : APPENDIX 3
Test result : Pass

[Radiated]

Test Procedure

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane.
Test was made with the antenna positioned in both the horizontal and vertical planes of polarization.
The Radiated Electric Field Strength intensity has been measured No.2 semi anechoic chamber (7.5x5.8x5.2m) with a ground plane at a distance of 3m (Below 1GHz) and 1m (equal to and Above 1GHz).
The measuring antenna height was varied between 1 to 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 with the Test Receiver or the Spectrum Analyzer.
The result was also satisfied the general limits specified in section 15.209(a).

Frequency	Below 1GHz	Above 1GHz
Instrument used	Test Receiver	Spectrum Analyzer
IF Bandwidth	QP: BW 120kHz	PK: RBW:1MHz/VBW: 1MHz AV: RBW:1MHz/VBW:10Hz 20dBc : RBW:100kHz/VBW:100kHz

Test data : APPENDIX 3
Test result : Pass

APPENDIX : Photographs of test setup

Conducted Emission

Front

Side

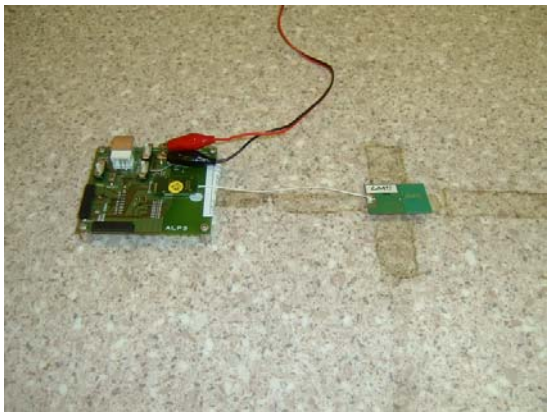
Spurious Emission (Radiated)

Front

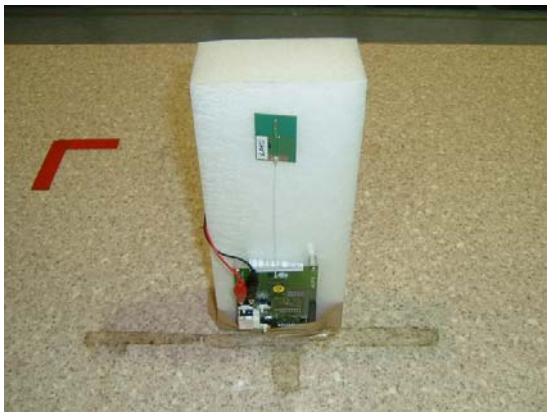
Rear

Worst Case Position (X-axis:Horizontal / X-axis:Vertical) Antenna :LDA92

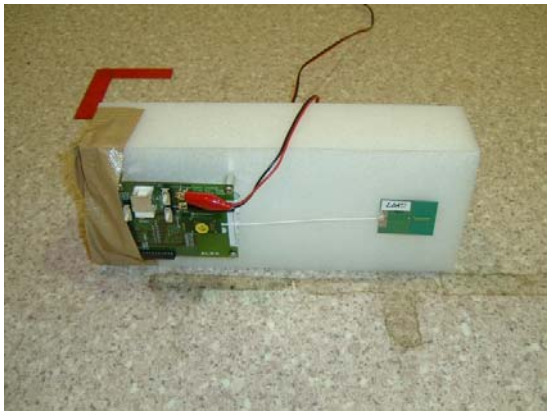
X-axis



Y-axis



Z-axis



Worst Case Position (X-axis:Horizontal / Y-axis:Vertical) Antenna :LDA31

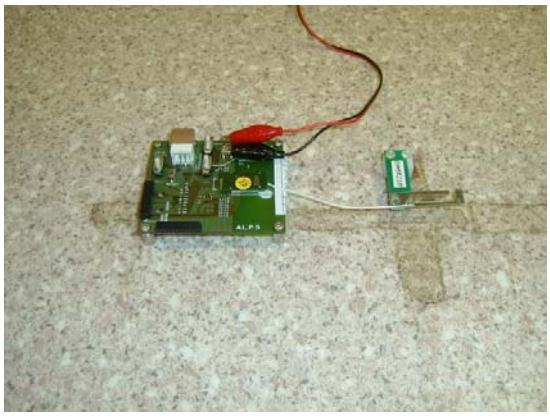
X-axis

Y-axis

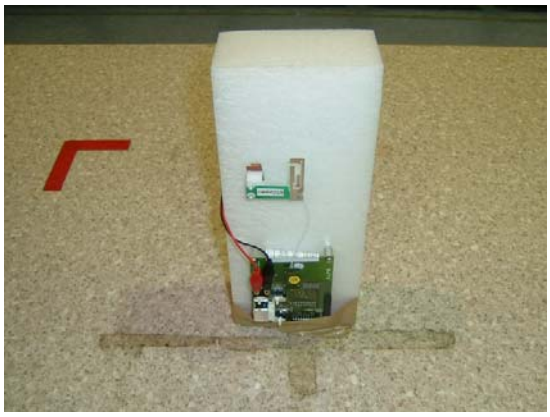
Z-axis

Worst Case Position (X-axis:Horizontal / Y-axis:Vertical) Antenna :CAN4313359

X-axis



Y-axis



Z-axis

APPENDIX 2:Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	1 to 9	2003/04/11 * 12
MRENT-08	Spectrum Analyzer	Advantest	R3272	1, 9	2003/12/14 * 12
MCC-04	Microwave Cable	Storm	421-011	9	2004/01/06 * 12
MCC-24	Microwave Cable	Storm	-	9	2003/04/30 * 12
MCC-25	Microwave Cable	Suhner	SUCOFLEX104	9	2003/06/30 * 12
MPA-01	Pre Amplifier	Agilent	8449B	9	2003/02/08 * 12
MHF-02	High Pass Filter	Tokimec	TF323DCA	9	2003/09/19 * 12
MHA-06	Horn Antenna	Schwarzbeck	BBHA9120D	9	2004/01/10 * 12
MDPS-01	DC Power Supply	Agilent	6642A	9	Pre Check
MHA-02	Horn Antenna	EMCO	3160-09	9	2004/01/10 * 12
MTR-02	Test Receiver	Rohde & Schwarz	ESCS30	1, 9	2003/01/31 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	9	2003/05/08 * 12
MPA-02	Pre Amplifier	Agilent	87405A	9	2003/04/17 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	9	2003/04/28 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	9	2003/12/16 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	9	2003/04/28 * 12
MCC-13	Coaxial Cable	Fujikura/Agilent	-	1	2003/05/08 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	1(EUT)	2003/03/18 * 12
MLS-07	LISN(AMN)	Schwarzbeck	NSLK8127	1	2003/03/18 * 12
MTA-06	Termination	MCL	BTRM-50	1	2003/03/26 * 12
MRENT-06	Spectrum Analyzer	Advantest	R3273	2 to 5, 7, 8,9	2003/10/31 * 12
MPM-04	Power Meter	Agilent	E4416A	6	2003/03/13 * 12
MPSE-04	Power sensor	Agilent	E9327A	6	2003/03/18 * 12
MCC-22	MicrowaveCable	Storm	-	2 to 5, 7, 8	2004/04/29 * 12
MAT-22	Attenuator	Orient Microwave	BX10-0476-00	2 to 8	2003/03/31 * 12
MAEC-01	Anechoic Chamber	TDK	Semi Anechoic Chamber 10m	9	2003/12/27 * 12
MBA-01	Biconical Antenna	Schwarzbeck	BBA9106	9	2003/10/15 * 12
MLA-01	Logperiodic Antenna	Schwarzbeck	USLP9143	9	2003/10/15 * 12
MAT-06	Attenuator(6dB)	Weinschel Corp	2	9	2003/12/16 * 12
MPA-04	Pre Amplifier	Agilent	8447D	9	2003/03/13 * 12

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

Test Item:

1: Conducted emission, **2: Carrier Frequency Separation**
3: 20dB Bandwidth **4: Number of Hopping Frequency**
5: Dwell time **6: Maximum Peak Output Power**
7: Band Edge Compliance **8: Spurious Emission (Conducted)**
9: Spurious Emission (Radiated)

APPENDIX 3: Data of EMI test

Conducted Emission
Standby

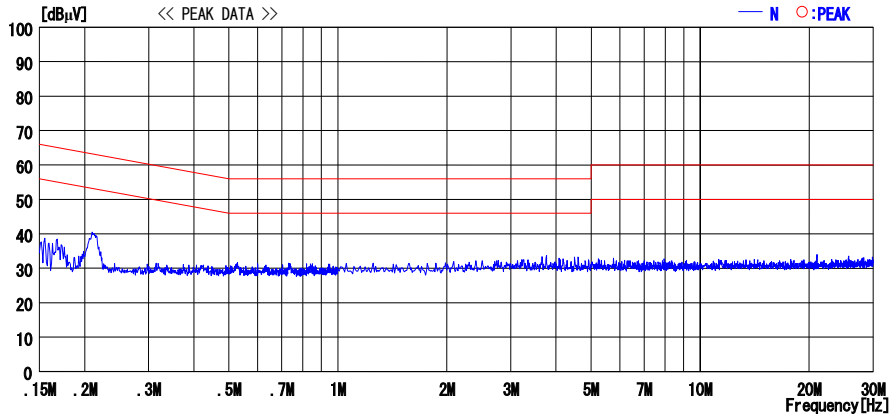
DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2004/01/21 17:46:57

Applicant	: ALPS ELECTRIC CO., LTD.	Report No.	: 24FE0040-HO
Kind of EUT	: ALPS Bluetooth module	Power	: AC120V / 60Hz
Model No.	: UGPZ5	Temp°C/Humi%	: 23 / 28
Serial No.	: 28	Operator	: Mitsuru Fujimura

Mode / Remarks : Standby Antenna:LDA92

LIMIT : FCC15B ClassB(QP) (0.15-30MHz)
FCC15B ClassB(AV) (0.15-30MHz)



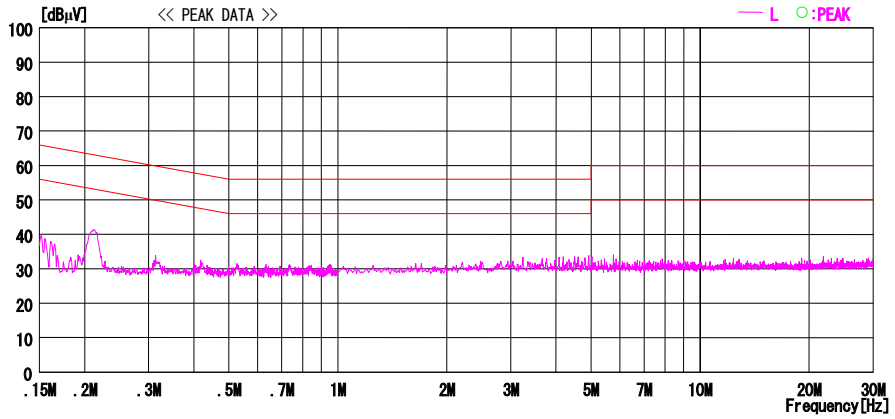


CHART:WITHOUT FACTOR,Peak hold data.Data is uncorrected.
Except for the above table : adequate margin data below the limits.

Conducted Emission
Tx(Hopping)

DATA OF CONDUCTED EMISSION TEST

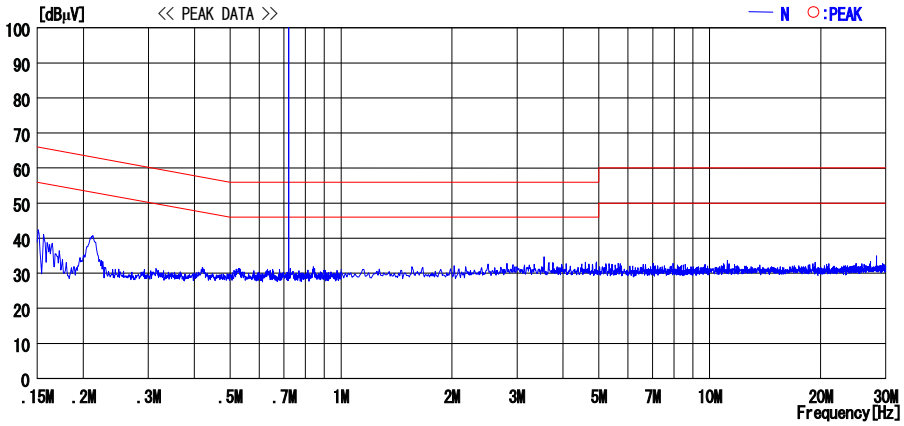
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2004/01/21 16:51:18

Applicant : ALPS ELECTRIC CO., LTD.
Kind of EUT : ALPS Bluetooth module
Model No. : UGPZ5
Serial No. : 28

Report No. : 24FE0040-HO
Power : AC120V / 60Hz
Temp°C/Humi% : 23 / 28
Operator : Mitsuru Fujimura

Mode / Remarks : Hopping Antenna:LDA92

LIMIT : FCC15B ClassB(QP) (0.15-30MHz)
FCC15B ClassB(AV) (0.15-30MHz)



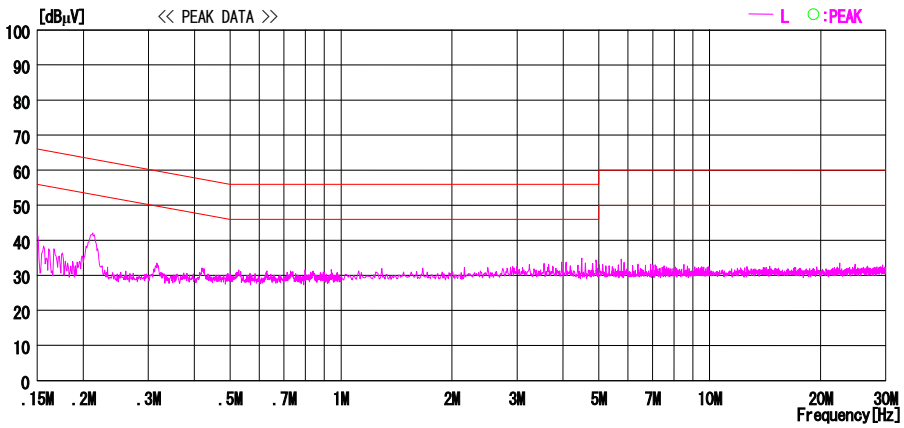


CHART:WITHOUT FACTOR,Peak hold data.Data is uncorrected.
Except for the above table : adequate margin data below the limits.

Conducted Emission
Tx(Hopping)

DATA OF CONDUCTED EMISSION TEST

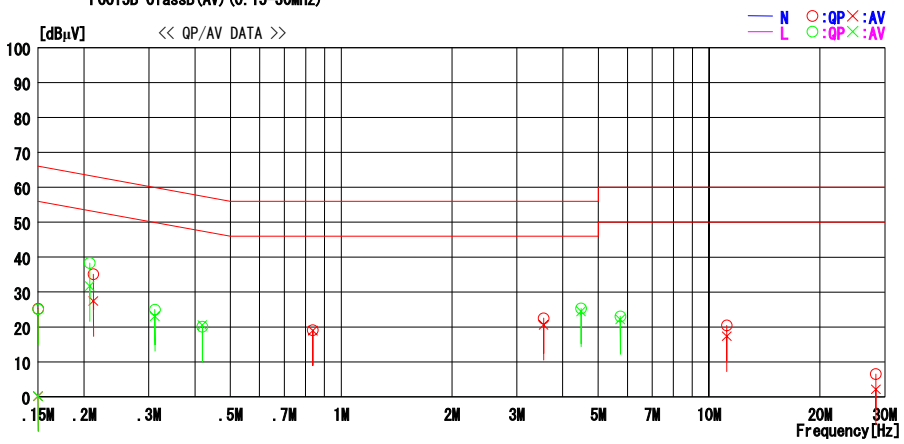
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2004/01/21 16:51:18

Applicant : ALPS ELECTRIC CO., LTD.
Kind of EUT : ALPS Bluetooth module
Model No. : UGPZ5
Serial No. : 28

Report No. : 24FE0040-HO
Power : AC120V / 60Hz
Temp℃/Humi% : 23 / 28
Operator : Mitsuru Fujimura

Mode / Remarks : Hopping Antenna:LDA92

LIMIT : FCC15B ClassB(QP) (0.15-30MHz)
FCC15B ClassB(AV) (0.15-30MHz)



NO	FREQ	READING QP	READING AV	C.F	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBμV]	[dBμV]	[dB]	[dBμV]	[dBμV]	[dBμV]	[dBμV]	[dB]	[dB]	
1	0.1500	25.1	0.1	0.1	25.2	0.2	66.0	56.0	40.8	55.8	N
2	0.2120	35.0	27.3	0.1	35.1	27.4	63.1	53.1	28.0	25.7	N
3	0.8365	18.9	18.8	0.2	19.1	19.0	56.0	46.0	36.9	27.0	N
4	3.5510	21.4	19.5	1.1	22.5	20.6	56.0	46.0	33.5	25.4	N
5	11.1675	19.2	16.1	1.2	20.4	17.3	60.0	50.0	39.6	32.7	N
6	28.3846	4.5	0.1	2.0	6.5	2.1	60.0	50.0	53.5	47.9	N
7	0.1500	25.0	0.1	0.1	25.1	0.2	66.0	56.0	40.9	55.8	L
8	0.2073	38.2	31.6	0.1	38.3	31.7	63.3	53.3	25.0	21.6	L
9	0.3115	24.9	23.0	0.1	25.0	23.1	59.9	49.9	34.9	26.8	L
10	0.4195	20.0	20.4	0.1	20.1	20.5	57.5	47.5	37.4	27.0	L
11	4.4845	24.3	23.5	1.0	25.3	24.5	56.0	46.0	30.7	21.5	L
12	5.7380	21.9	21.1	1.1	23.0	22.2	60.0	50.0	37.0	27.8	L

CHART:WITHOUT FACTOR,Peak hold data.Data is uncorrected.
Except for the above table : adequate margin data below the limits.

Carrier Frequency Separation

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Anechoic Chamber

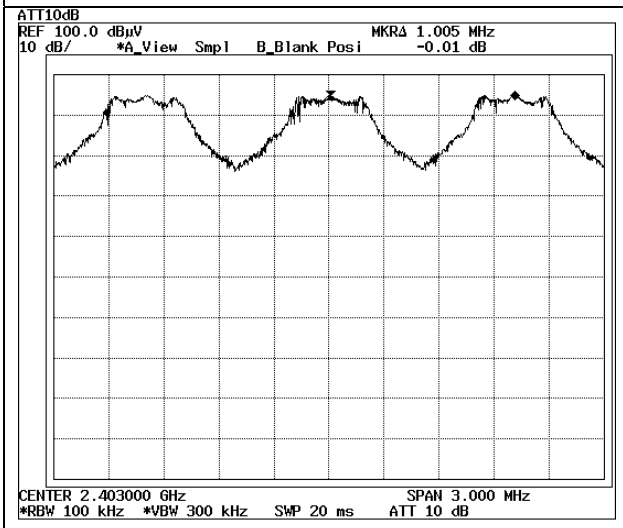
COMPANY	: ALPS ELECTRIC CO.,LTD.	REGULATION	: Fcc Part15 Subpart C 15.247(a)(1)
EQUIPMENT	: ALPS Bluetooth module	TEST DISTANCE	: -
MODEL	: UGPZ5	DATE	: 01/21/2004
S/ N	: 29	TEMPERATURE	: 23deg.C.
POWER	: DC3.3V(PC:AC120V/60Hz)	HUMIDITY	: 30%
MODE	: Tx (Hopping on) /Inquiry	Engineer	: Mitsuru Fujimura
FCC ID	: CWTUGPZ5		
IC No.	: 1788F-UGPZ5		

PK DETECT(S/A :span 3MHz, RBW 100kHz ,VBW 300kHz, sweep time AUTO)

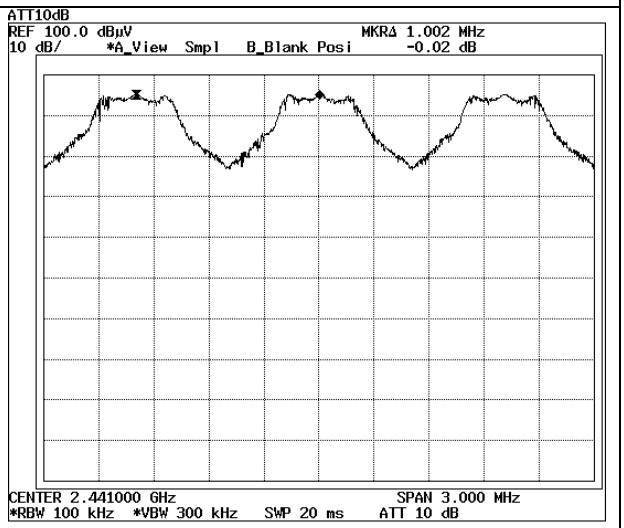
CH	FREQ [MHz]	Channel separation [MHz]	Limit
Low	2402.0	1.000	>20dB Bandwidth and 25[kHz]
Mid	2441.0	1.000	>20dB Bandwidth and 25[kHz]
High	2480.0	1.000	>20dB Bandwidth and 25[kHz]
Inquiry	2441.0	1.000	>20dB Bandwidth and 25[kHz]

Carrier Frequency Separation

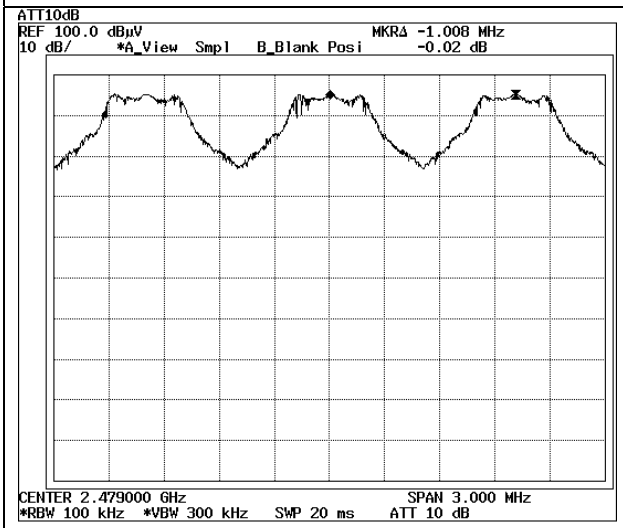
2402MHz



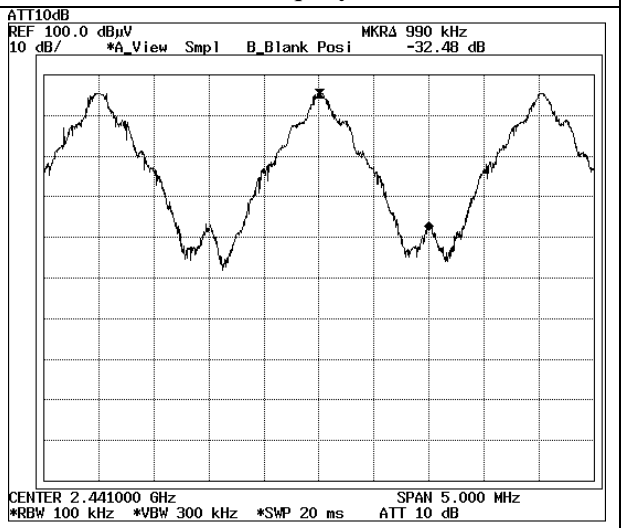
2441MHz



2480MHz



Inquiry



20dB Bandwidth

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Anechoic Chamber

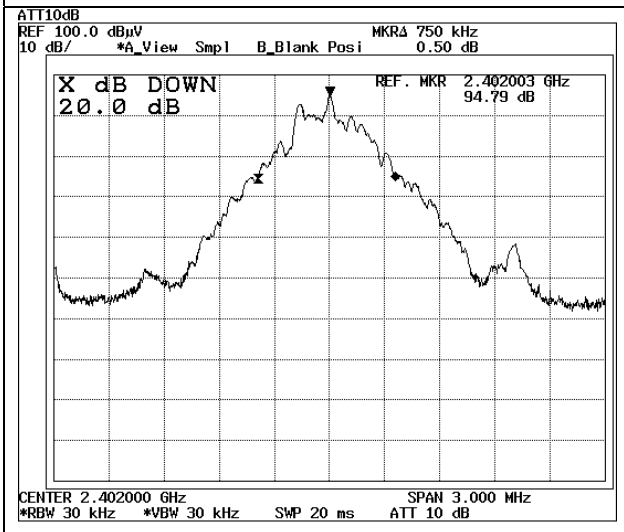
COMPANY	: ALPS ELECTRIC CO.,LTD.	REGULATION	: FCC Part15 Subpart C 15.247(a)(1)
EQUIPMENT	: ALPS Bluetooth module	TEST DISTANCE	: -
MODEL	: UGPZ5	DATE	: 01/21/2004
S/ N	: 29	TEMPERATURE	: 23deg.C.
POWER	: DC3.3V(PC:AC120V/60Hz)	HUMIDITY	: 30%
MODE	: Tx (Hopping off) /Inquiry	Engineer	: Mitsuru Fujimura
FCC ID	: CWTUGPZ5		
IC No.	: 1788F-UGPZ5		

PK DETECT(S/A: span 3MHz, RBW 30kHz ,VBW 30kHz, sweep time AUTO)

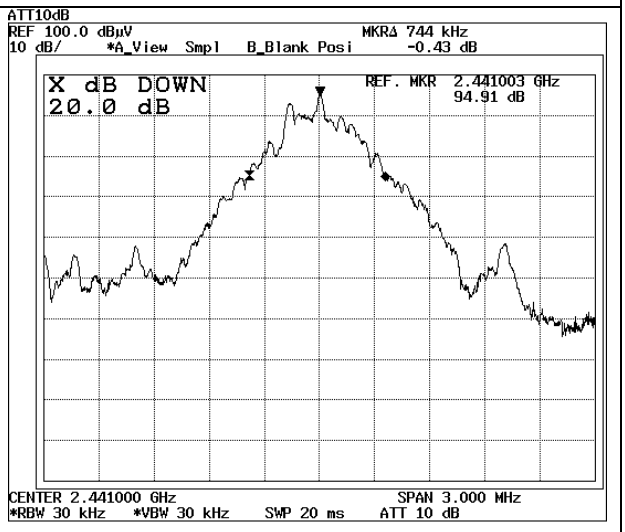
CH	FREQ [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
Low	2402.0	0.750	-
Mid	2441.0	0.744	-
High	2480.0	0.753	-
Inquiry	2441.0	0.681	-

20dB Bandwidth

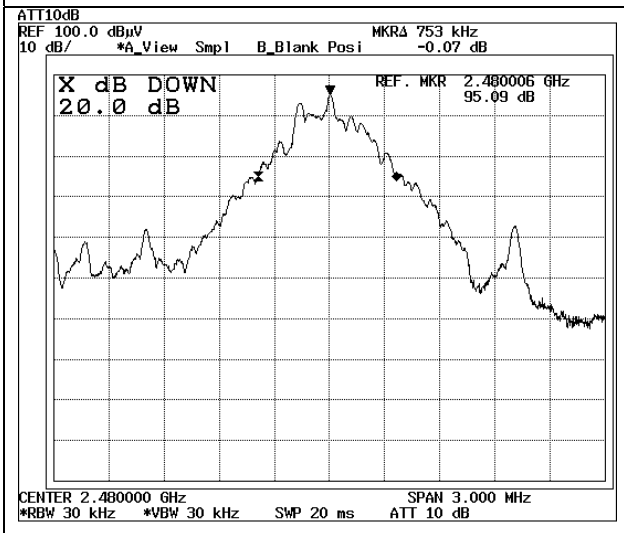
2402MHz



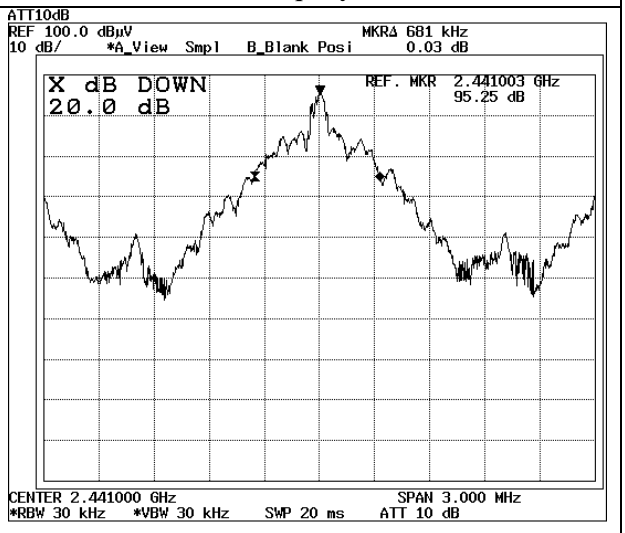
2441MHz



2480MHz



Inquiry



Number of Hopping Frequency

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Anechoic Chamber

COMPANY	: ALPS ELECTRIC CO.,LTD.	REGULATION	: FCC Part15 Subpart C 15.247(a)(1)(iii)
EQUIPMENT	: ALPS Bluetooth module	TEST DISTANCE	: -
MODEL	: UGPZ5	DATE	: 01/21/2004
S/ N	: 29	TEMPERATURE	: 23deg.C.
POWER	: DC3.3V(PC:AC120V/60Hz)	HUMIDITY	: 30%
MODE	: Tx (Hopping on) /Inquiry	Engineer	: Mitsuru Fujimura

PK DETECT(S/A : RBW 300kHz ,VBW 1MHz, sweep time AUTO)

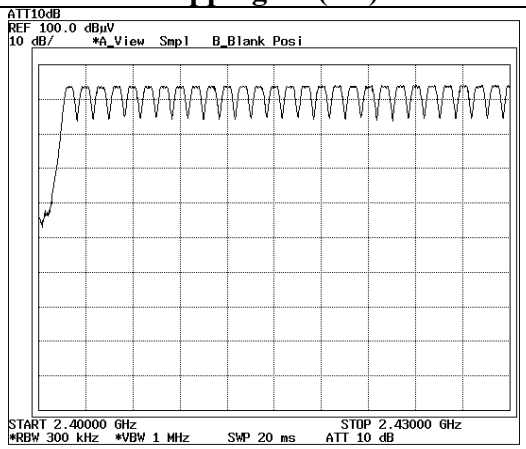
Mode	Number of channel [time]	Limit [time]
Tx(Hoppng on)	79	≧15

PK DETECT(S/A : RBW 300kHz ,VBW 1MHz, sweep time AUTO)

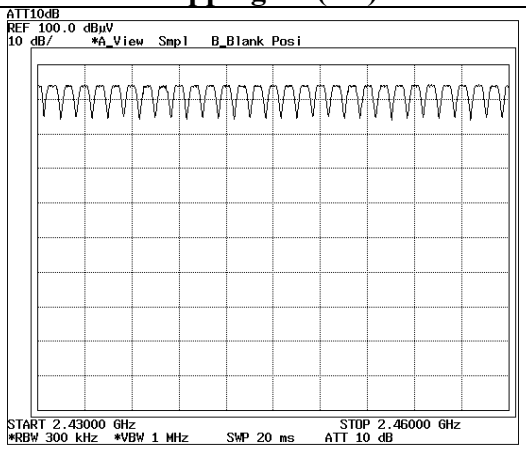
Mode	Number of channel [time]	Limit [time]
Inquiry	32	≧15

Number of Hopping Frequency

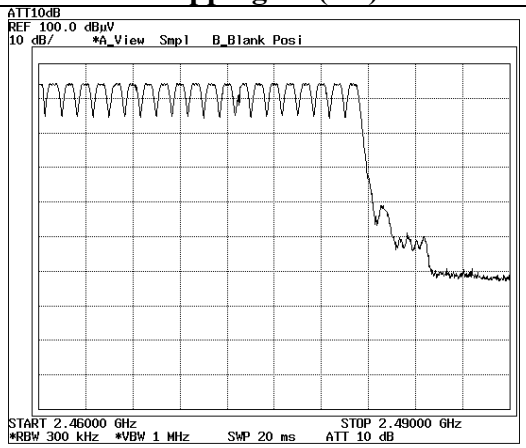
Hopping on (1/3)



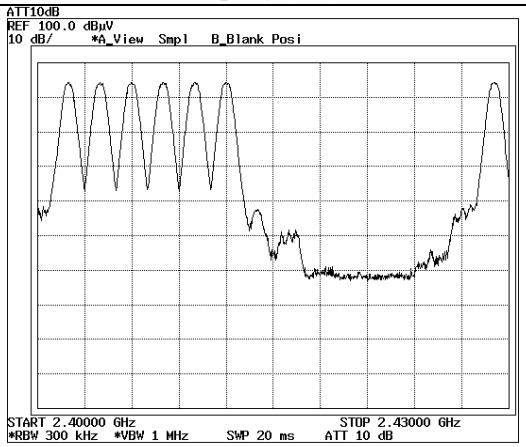
Hopping on (2/3)



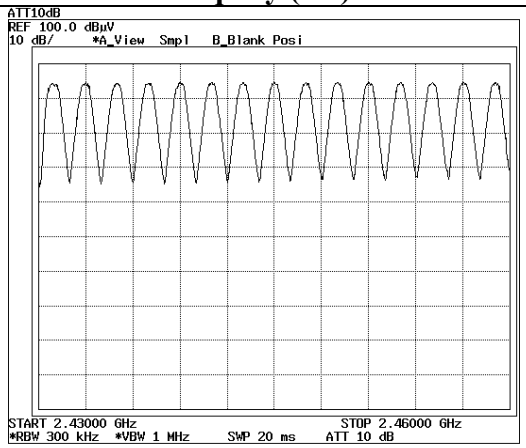
Hopping on (3/3)



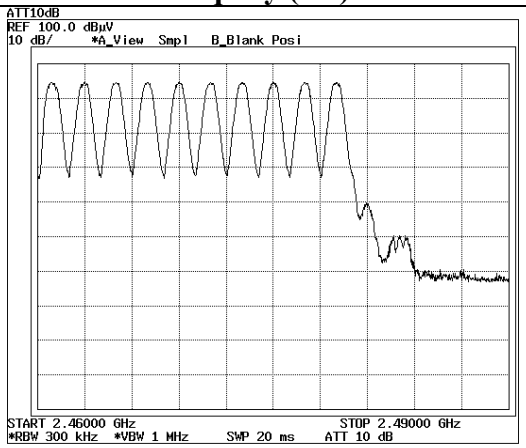
Inquiry (1/3)



Inquiry (2/3)



Inquiry (3/3)



Dwell time

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Anechoic Chamber

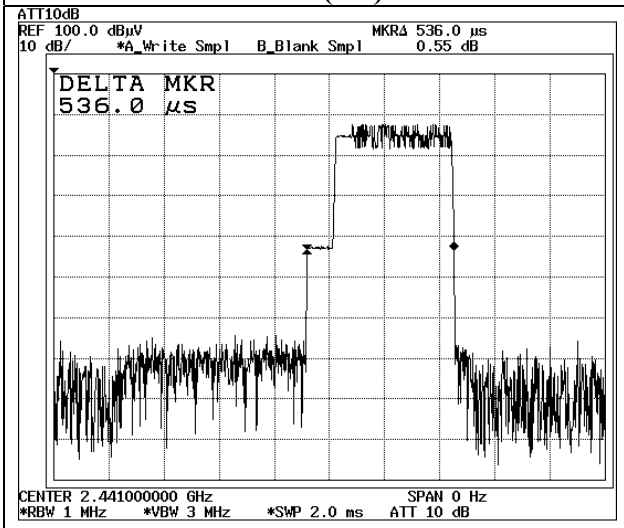
COMPANY	: ALPS ELECTRIC CO.,LTD.	REGULATION	: FCC Part15 Subpart C 15.247(a)(1)(iii)
EQUIPMENT	: ALPS Bluetooth module	TEST DISTANCE	: -
MODEL	: UGPZ5	DATE	: 01/21/2004
S/ N	: 29	TEMPERATURE	: 23deg.C.
POWER	: DC3.3V(PC:AC120V/60Hz)	HUMIDITY	: 30%
MODE	: Tx (Hopping on) /Inquiry	Engineer	: Mitsuru Fujimura

PK DETECT(S/A :span ZERO, RBW 1MHz ,VBW 3MHz, sweep time 1ms-10ms)

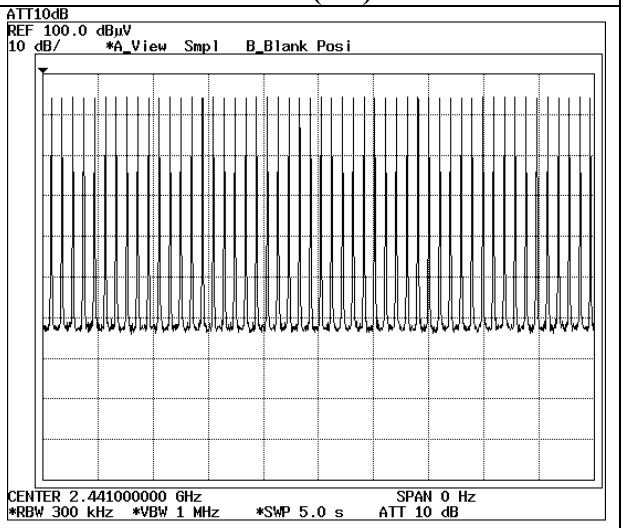
Mode	Number of transmission in a 31.6(79 Hopping x 0.4) / 12.8(32 Hopping x 0.4)second period	Length of transmission time [msec]	Result [msec]	Limit [msec]
DH1	51 times /5sec. x 31.6 = 322 times	0.536	173	400
DH3	17 times / 5sec. x 31.6 = 107 times	1.690	181	400
DH5	20 times / 10 sec. x 31.6 = 63 times	2.940	185	400
Inquiry	20 times / 0.2sec. x 12.8 = 1280 times	0.238	305	400

Dwell time

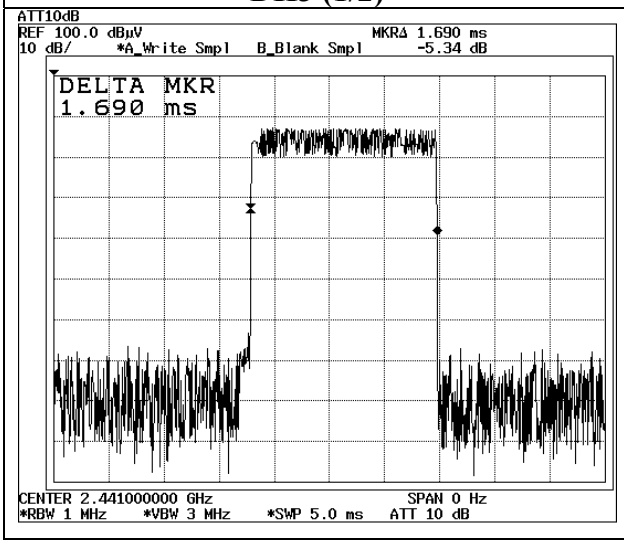
DH1 (1/2)



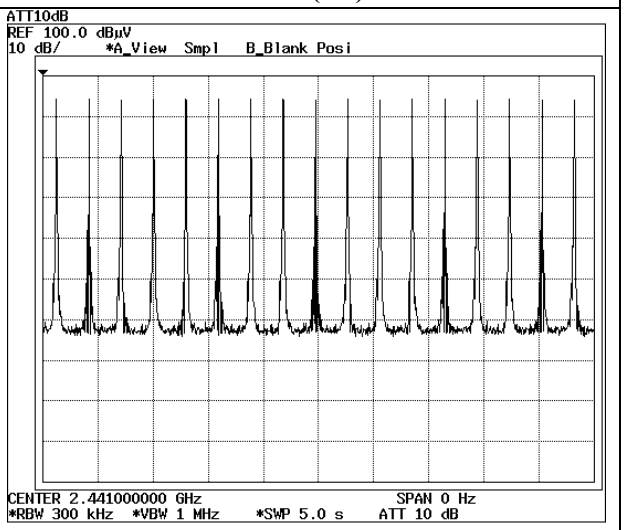
DH1 (2/2)



DH3 (1/2)

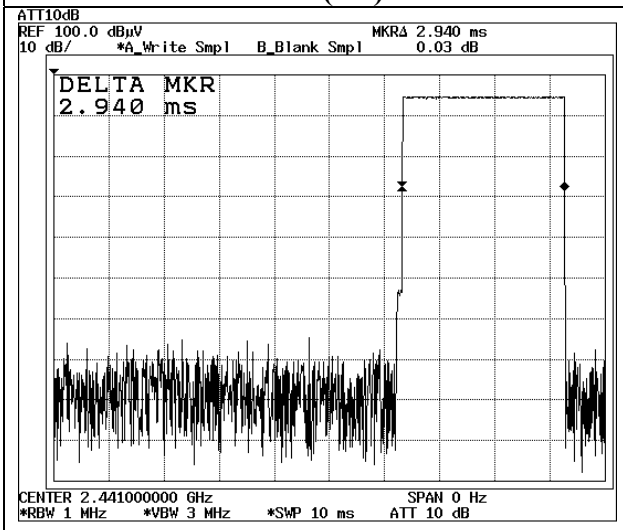


DH3 (2/2)

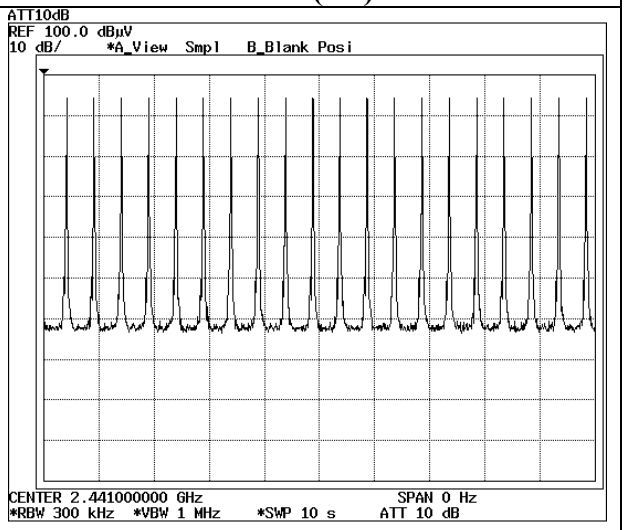


Dwell time

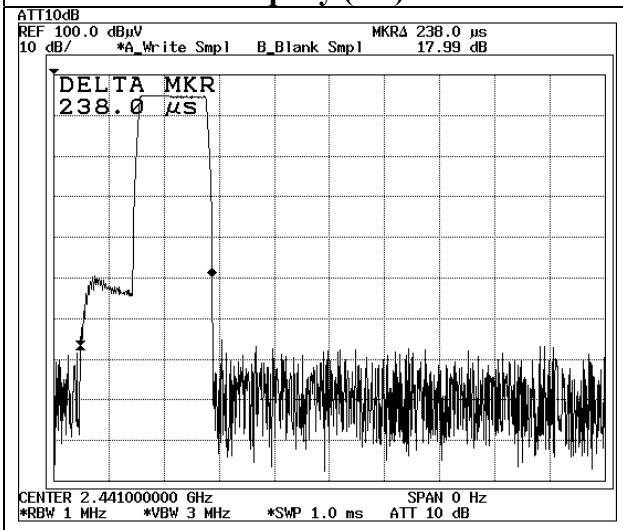
DH5 (1/2)



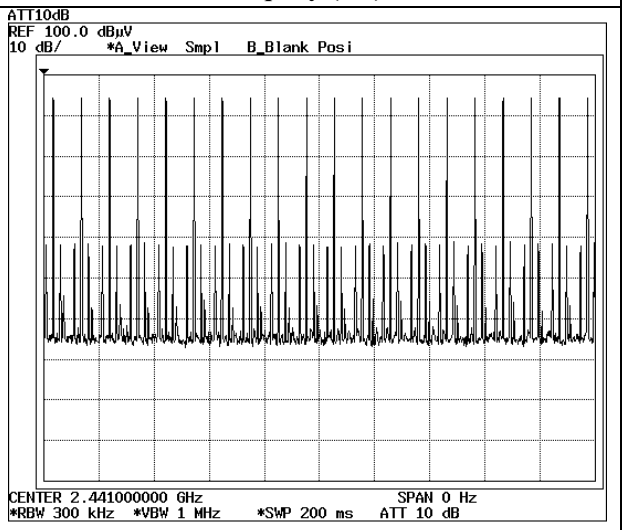
DH5 (2/2)



Inquiry (1/2)



Inquiry (2/2)



Maximum Peak Output Power

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Anechoic Chamber

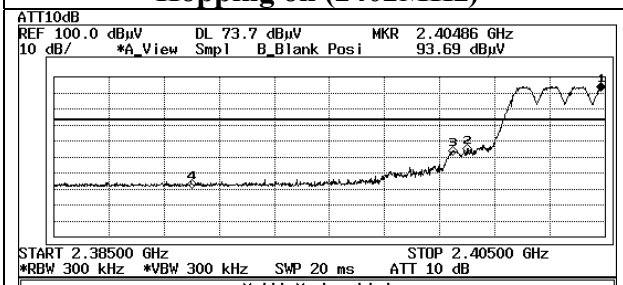
COMPANY	: ALPS ELECTRIC CO.,LTD.	REGULATION	: FCC Part15 Subpart C 15.247(b)(1)
EQUIPMENT	: ALPS Bluetooth module	TEST DISTANCE	: -
MODEL	: UGPZ5	DATE	: 01/21/2004
S/ N	: 29	TEMPERATURE	: 23deg.C.
POWER	: DC3.3V(PC:AC120V/60Hz)	HUMIDITY	: 30%
MODE	: Tx (Hopping off) /Inquiry	Engineer	: Mitsuru Fujimura

CH	FREQ [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Result [dBm]	Limit [dBm]
Low	2402.0	-11.1	10.3	-0.8	30.0
Mid	2441.0	-10.7	10.3	-0.4	30.0
High	2480.0	-10.6	10.3	-0.3	30.0
Inquiry	2441.0	-11.0	10.3	-0.7	21.0

Sample Calculation:
Result = P/M Reading + Cable Loss (Attenuator)

Band Edge compliance

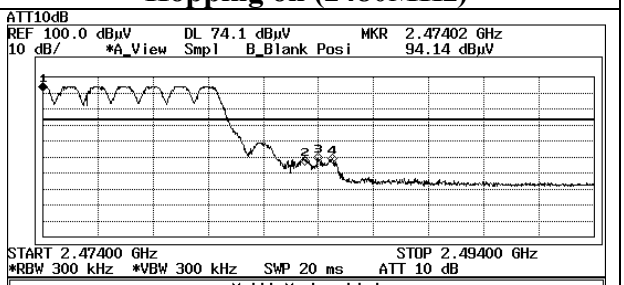
Hopping on (2402MHz)



Multi Marker List

1:	2.40486 GHz	93.69 dBµV
2:	2.40000 GHz	55.22 dBµV
3:	2.39946 GHz	54.11 dBµV
4:	2.39000 GHz	33.03 dBµV
5:		
6:		
7:		
8:		
9:		
10:		
Δ:		

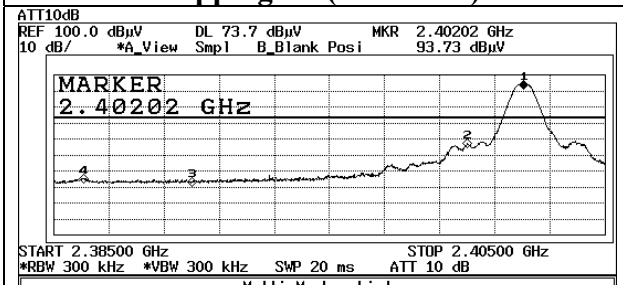
Hopping on (2480MHz)



Multi Marker List

1:	2.47402 GHz	94.14 dBµV
2:	2.48350 GHz	47.40 dBµV
3:	2.48400 GHz	49.45 dBµV
4:	2.48452 GHz	48.91 dBµV
5:		
6:		
7:		
8:		
9:		
10:		
Δ:		

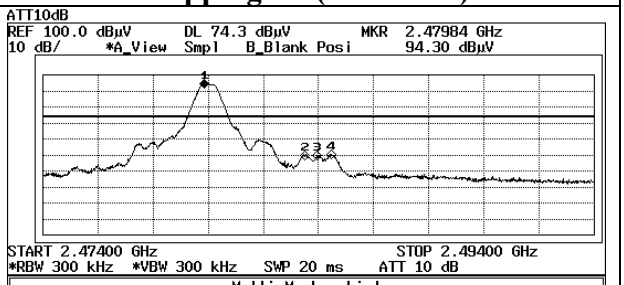
Hopping off (2402MHz)



Multi Marker List

1:	2.40202 GHz	93.73 dBµV
2:	2.40000 GHz	57.15 dBµV
3:	2.39000 GHz	33.25 dBµV
4:	2.38610 GHz	35.52 dBµV
5:		
6:		
7:		
8:		
9:		
10:		
Δ:		

Hopping off (2480MHz)



Multi Marker List

1:	2.47984 GHz	94.30 dBµV
2:	2.48350 GHz	49.50 dBµV
3:	2.48394 GHz	49.70 dBµV
4:	2.48448 GHz	50.71 dBµV
5:		
6:		
7:		
8:		
9:		
10:		
Δ:		

Spurious Emission (Radiated: Below 1GHz) Antenna:LDA92
Tx(2402MHz)

DATA OF RADIATED EMISSION TEST

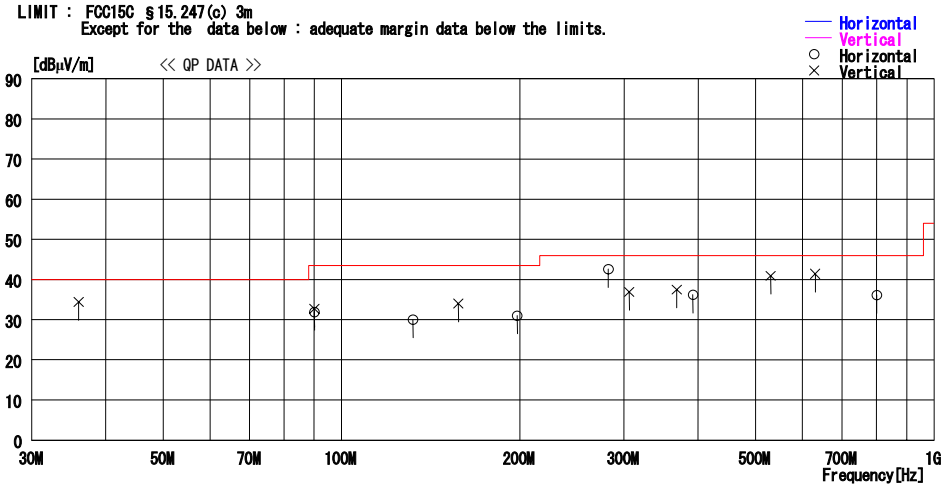
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2004/01/21 09:26:23

Applicant : ALPS ELECTRIC CO., LTD.
Kind of EUT : ALPS Bluetooth module
Model No. : UGPZ5
Serial No. : 28

Report No. : 24FE0040-HO
Power : DC3.3V
Temp℃/Humi% : 22 / 33%
Operator : Mitsuru Fujimura

Mode / Remarks : Tx(2402) Antenna:LDA92

LIMIT : FCC15C §15.247(c) 3m
Except for the data below : adequate margin data below the limits.



No.	FREQ [MHz]	READING QP [dBμV]	ANT FACTOR [dB/m]	LOSS [dB]	GAIN [dB]	RESULT [dBμV/m]	LIMIT [dBμV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
—— Horizontal ——										
1	90.030	40.4	7.7	7.1	23.3	31.9	43.5	11.6	284	203
2	132.039	31.9	13.9	7.5	23.3	30.0	43.5	13.5	140	222
3	198.057	30.0	16.4	7.9	23.3	31.0	43.5	12.5	158	50
4	282.077	38.8	18.7	8.2	23.1	42.6	46.0	3.4	335	193
5	392.082	33.6	17.1	8.7	23.2	36.2	46.0	9.8	150	180
6	800.593	27.6	21.4	10.3	23.2	36.1	46.0	9.9	100	173
—— Vertical ——										
7	36.016	35.3	16.3	6.5	23.7	34.4	40.0	5.6	100	157
8	90.027	41.2	7.7	7.1	23.3	32.7	43.5	10.8	100	137
9	157.602	34.8	14.7	7.7	23.2	34.0	43.5	9.5	100	188
10	306.080	37.2	14.6	8.3	23.2	36.9	46.0	9.1	100	303
11	368.078	35.6	16.4	8.6	23.1	37.5	46.0	8.5	100	145
12	530.394	36.2	18.6	9.3	23.2	40.9	46.0	5.1	100	183
13	630.469	34.9	19.9	9.8	23.2	41.4	46.0	4.6	100	178

CHART:WITHOUT FACTOR ANT TYPE : -30MHz LOOP,30-300MHz BICONICAL,300MHz-1000MHz LOGPERIODIC,1000MHz- HORN
CALCULATION : READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - AMP.GAIN Page:

Spurious Emission (Radiated: Below 1GHz) Antenna:LDA92
Tx(2441MHz)

DATA OF RADIATED EMISSION TEST

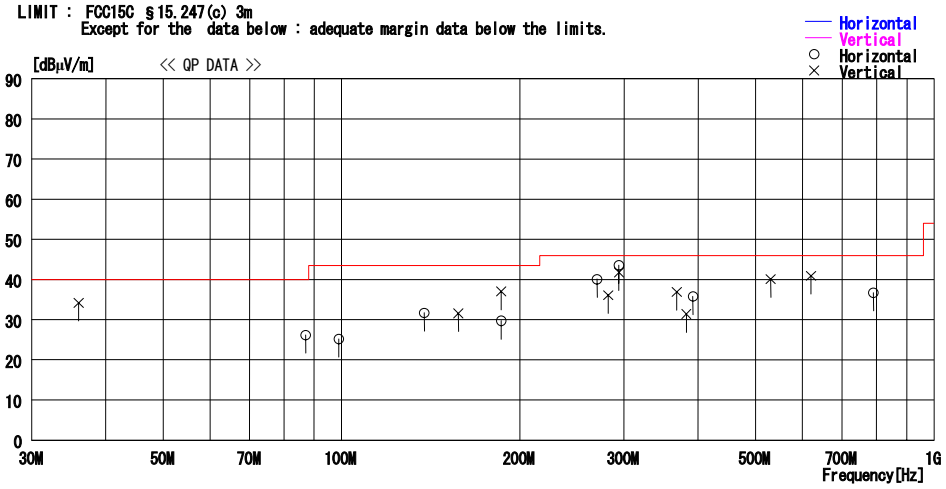
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2004/01/21 10:55:53

Applicant : ALPS ELECTRIC CO., LTD.
Kind of EUT : ALPS Bluetooth module
Model No. : UGPZ5
Serial No. : 28

Report No. : 24FE0040-HO
Power : DC3.3V
Temp℃/Humi% : 22 / 33%
Operator : Mitsuru Fujimura

Mode / Remarks : Tx(2441MHz) Antenna:LDA92

LIMIT : FCC15C §15.247(c) 3m
Except for the data below : adequate margin data below the limits.



No.	FREQ [MHz]	READING QP [dBμV]	ANT FACTOR [dB/m]	LOSS [dB]	GAIN [dB]	RESULT [dBμV/m]	LIMIT [dBμV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
—— Horizontal ——										
1	87.019	35.3	7.2	7.1	23.4	26.2	40.0	13.8	202	205
2	99.024	31.7	9.7	7.2	23.4	25.2	43.5	18.3	303	217
3	138.041	32.5	14.2	7.5	22.5	31.7	43.5	11.8	224	95
4	186.050	29.2	16.0	7.8	23.3	29.7	43.5	13.8	100	141
5	270.066	37.0	17.9	8.2	23.0	40.1	46.0	5.9	319	198
6	294.075	39.1	19.4	8.3	23.2	43.6	46.0	2.4	361	191
7	392.081	33.2	17.1	8.7	23.2	35.8	46.0	10.2	100	178
8	790.584	28.4	21.3	10.2	23.2	36.7	46.0	9.3	100	173
—— Vertical ——										
9	36.013	35.1	16.3	6.5	23.7	34.2	40.0	5.8	100	180
10	157.558	32.4	14.7	7.7	23.2	31.6	43.5	11.9	100	176
11	186.047	36.5	16.0	7.8	23.3	37.0	43.5	6.5	100	197
12	282.074	32.3	18.7	8.2	23.1	36.1	46.0	9.9	100	200
13	294.079	37.3	19.4	8.3	23.2	41.8	46.0	4.2	100	276
14	368.069	35.0	16.4	8.6	23.1	36.9	46.0	9.1	100	134
15	382.080	29.2	16.8	8.6	23.2	31.4	46.0	14.6	100	166
16	530.396	35.4	18.6	9.3	23.2	40.1	46.0	5.9	100	177
17	620.464	34.6	19.8	9.7	23.2	40.9	46.0	5.1	100	177

CHART:WITHOUT FACTOR ANT TYPE : -30MHz LOOP,30-300MHz BICONICAL,300MHz-1000MHz LOGPERIODIC,1000MHz- HORN
CALCULATION : READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - AMP.GAIN Page:

Spurious Emission (Radiated: Below 1GHz) Antenna:LDA92
Tx(2480MHz)

DATA OF RADIATED EMISSION TEST

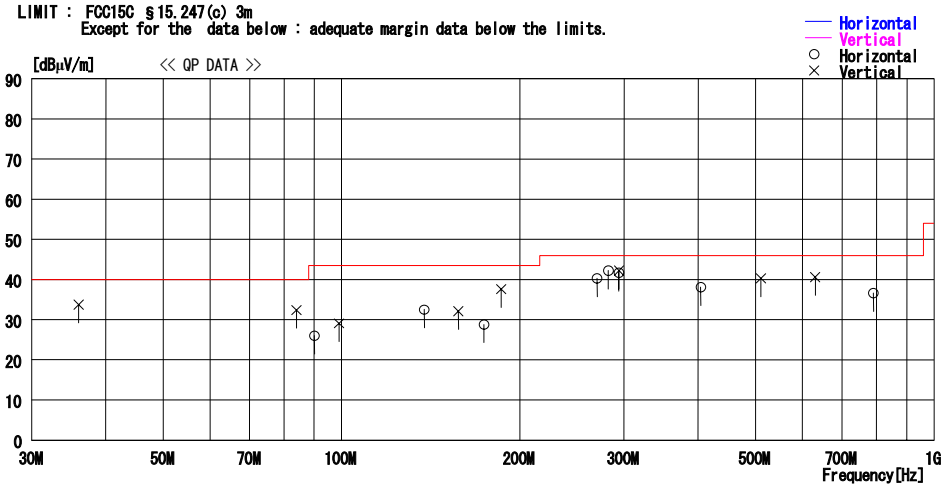
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2004/01/21 13:00:22

Applicant : ALPS ELECTRIC CO., LTD.
Kind of EUT : ALPS Bluetooth module
Model No. : UGPZ5
Serial No. : 28

Report No. : 24FE0040-HO
Power : DC3.3V
Temp℃/Humi% : 22 / 33%
Operator : Mitsuru Fujimura

Mode / Remarks : Tx(2480MHz) Antenna:LDA92

LIMIT : FCC15C §15.247(c) 3m
Except for the data below : adequate margin data below the limits.



No.	FREQ [MHz]	READING QP [dBμV]	ANT FACTOR [dB/m]	LOSS [dB]	GAIN [dB]	RESULT [dBμV/m]	LIMIT [dBμV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
—— Horizontal ——										
1	90.025	34.5	7.7	7.1	23.3	26.0	43.5	17.5	253	191
2	138.038	33.3	14.2	7.5	22.5	32.5	43.5	11.0	209	100
3	174.050	28.7	15.5	7.8	23.2	28.8	43.5	14.7	305	115
4	270.073	37.2	17.9	8.2	23.0	40.3	46.0	5.7	190	179
5	282.078	38.4	18.7	8.2	23.1	42.2	46.0	3.8	335	188
6	294.080	37.2	19.4	8.3	23.2	41.7	46.0	4.3	115	29
7	404.083	35.1	17.3	8.8	23.1	38.1	46.0	7.9	164	178
8	790.585	28.3	21.3	10.2	23.2	36.6	46.0	9.4	100	173
—— Vertical ——										
9	36.009	34.6	16.3	6.5	23.7	33.7	40.0	6.3	100	284
10	83.983	42.0	6.8	7.1	23.5	32.4	40.0	7.6	100	158
11	99.027	35.6	9.7	7.2	23.4	29.1	43.5	14.4	100	219
12	157.578	32.9	14.7	7.7	23.2	32.1	43.5	11.4	100	171
13	186.047	37.1	16.0	7.8	23.3	37.6	43.5	5.9	100	188
14	294.080	37.7	19.4	8.3	23.2	42.2	46.0	3.8	100	273
15	510.380	35.9	18.3	9.2	23.1	40.3	46.0	5.7	100	190
16	630.469	34.1	19.9	9.8	23.2	40.6	46.0	5.4	100	177

CHART:WITHOUT FACTOR ANT TYPE : -30MHz LOOP,30-300MHz BICONICAL,300MHz-1000MHz LOGPERIODIC,1000MHz- HORN
CALCULATION : READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - AMP.GAIN Page:

Spurious Emission (Radiated: Below 1GHz) Antenna:LDA31
Tx(2402MHz)

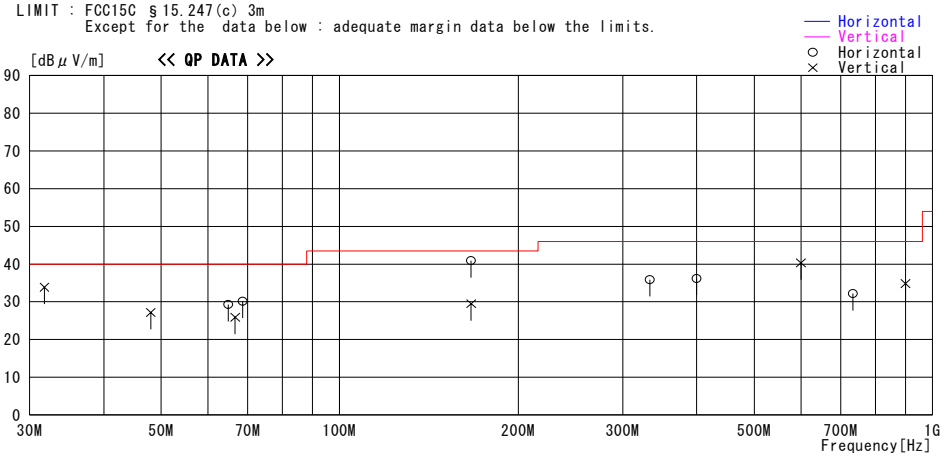
UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2004/02/03 20:32:38

Applicant : ALPS ELECTRIC CO.,LTD
Kind of EUT : ALPS Bluetooth module
Model No. : UGPZ5
Serial No. : 28

Report No. : 24FE0040-HO
Power : DC3.3V
Temp℃/Humi% : 21 / 30
Operator : Mitsuru Fujimura

Mode / Remarks : Tx(2402MHz) Antenna:LDA31

LIMIT : FCC15C §15.247(c) 3m
Except for the data below : adequate margin data below the limits.



No.	FREQ [MHz]	READING QP [dBμV]	ANT FACTOR [dB/m]	LOSS [dB]	GAIN [dB]	RESULT [dBμV/m]	LIMIT [dBμV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	64.830	42.3	7.4	7.4	27.8	29.3	40.0	10.7	300	163
2	68.565	43.5	6.9	7.5	27.7	30.2	40.0	9.8	300	163
3	166.639	43.8	15.6	8.8	27.3	40.9	43.5	2.6	300	250
4	333.272	37.1	15.6	10.1	26.9	35.9	46.0	10.1	100	288
5	399.920	34.4	18.3	10.7	27.2	36.2	46.0	9.8	100	293
6	733.184	27.8	20.7	12.5	28.8	32.2	46.0	13.8	100	267
----- Vertical ------										
7	31.780	37.1	17.9	7.0	28.1	33.9	40.0	6.1	100	277
8	48.015	37.1	10.8	7.2	27.9	27.2	40.0	12.8	100	196
9	66.660	39.0	7.2	7.5	27.8	25.9	40.0	14.1	100	229
10	166.639	32.4	15.6	8.8	27.3	29.5	43.5	14.0	100	207
11	599.877	37.8	19.5	11.7	28.7	40.3	46.0	5.7	100	7
12	899.818	29.3	21.1	13.0	28.6	34.8	46.0	11.2	100	208

CHART:WITHOUT FACTOR ANT TYPE : -30MHz LOOP,30-300MHz BICONICAL,300MHz-1000MHz LOGPERIODIC,1000MHz- HORN
CALCULATION : READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - AMP.GAIN Page:

Spurious Emission (Radiated: Below 1GHz) Antenna:LDA31
Tx(2441MHz)

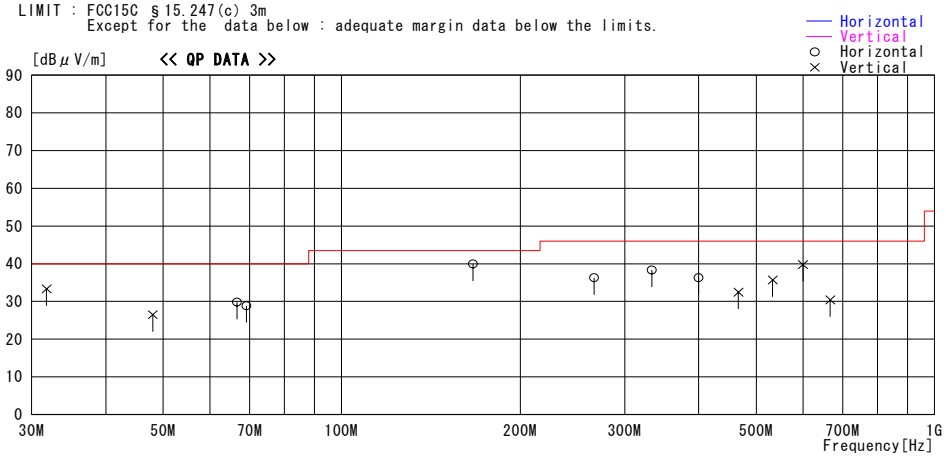
UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2004/02/03 20:44:33

Applicant : ALPS ELECTRIC CO.,LTD
Kind of EUT : ALPS Bluetooth module
Model No. : UGPZ5
Serial No. : 28

Report No. : 24FE0040-HO
Power : DC3.3V
Temp℃/Humi% : 21 / 30
Operator : Mitsuru Fujimura

Mode / Remarks : Tx(2441MHz) Antenna:LDA31

LIMIT : FCC15C §15.247(c) 3m
Except for the data below : adequate margin data below the limits.



No.	FREQ [MHz]	READING QP [dBμV]	ANT FACTOR [dB/m]	LOSS [dB]	GAIN [dB]	RESULT [dBμV/m]	LIMIT [dBμV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	66.660	42.9	7.2	7.5	27.8	29.8	40.0	10.2	300	146
2	69.087	42.2	6.8	7.6	27.7	28.9	40.0	11.1	300	130
3	166.641	42.8	15.6	8.8	27.3	39.9	43.5	3.6	300	233
4	266.617	34.6	18.5	9.7	26.5	36.3	46.0	9.7	300	157
5	333.271	39.5	15.6	10.1	26.9	38.3	46.0	7.7	100	327
6	399.922	34.5	18.3	10.7	27.2	36.3	46.0	9.7	100	332
----- Vertical ------										
7	31.798	36.5	17.9	7.0	28.1	33.3	40.0	6.7	100	243
8	48.015	36.4	10.8	7.2	27.9	26.5	40.0	13.5	100	260
9	466.575	31.6	18.0	10.9	28.0	32.5	46.0	13.5	100	192
10	533.223	34.3	18.4	11.2	28.2	35.7	46.0	10.3	100	315
11	599.877	37.3	19.5	11.7	28.7	39.8	46.0	6.2	100	181
12	666.531	27.0	20.0	12.1	28.7	30.4	46.0	15.6	100	1

CHART:WITHOUT FACTOR ANT TYPE:-30MHz LOOP,30-300MHz BICONICAL,300MHz-1000MHz LOGPERIODIC,1000MHz- HORN
CALCULATION : READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - AMP.GAIN Page:

Spurious Emission (Radiated: Below 1GHz) Antenna:LDA31
Tx(2480MHz)

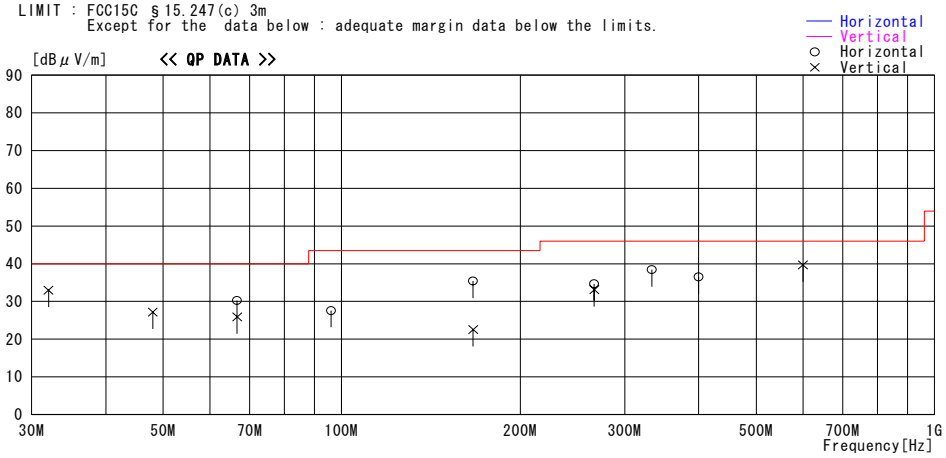
UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2004/02/03 21:06:50

Applicant : ALPS ELECTRIC CO.,LTD
Kind of EUT : ALPS Bluetooth module
Model No. : UGPZ5
Serial No. : 28

Report No. : 24FE0040-HO
Power : DC3.3V
Temp℃/Humi% : 21 / 30
Operator : Mitsuru Fujimura

Mode / Remarks : Tx(2480MHz) Antenna:LDA31

LIMIT : FCC15C §15.247(c) 3m
Except for the data below : adequate margin data below the limits.



No.	FREQ [MHz]	READING QP [dBμV]	ANT FACTOR [dB/m]	LOSS [dB]	GAIN [dB]	RESULT [dBμV/m]	LIMIT [dBμV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	66.662	43.4	7.2	7.5	27.8	30.3	40.0	9.7	300	193
2	96.022	37.3	9.2	8.0	26.9	27.6	43.5	15.9	300	297
3	166.640	38.3	15.6	8.8	27.3	35.4	43.5	8.1	300	218
4	266.616	33.0	18.5	9.7	26.5	34.7	46.0	11.3	300	154
5	333.270	39.6	15.6	10.1	26.9	38.4	46.0	7.6	100	288
6	399.923	34.7	18.3	10.7	27.2	36.5	46.0	9.5	100	165
----- Vertical ------										
7	32.044	36.3	17.8	7.0	28.1	33.0	40.0	7.0	100	179
8	48.016	37.1	10.8	7.2	27.9	27.2	40.0	12.8	100	226
9	66.660	39.0	7.2	7.5	27.8	25.9	40.0	14.1	100	260
10	166.639	25.5	15.6	8.8	27.3	22.6	43.5	20.9	100	224
11	266.617	31.4	18.5	9.7	26.5	33.1	46.0	12.9	100	97
12	599.877	37.2	19.5	11.7	28.7	39.7	46.0	6.3	100	53

CHART:WITHOUT FACTOR ANT TYPE:-30MHz LOOP,30-300MHz BICONICAL,300MHz-1000MHz LOGPERIODIC,1000MHz- HORN
CALCULATION : READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - AMP.GAIN Page:

Spurious Emission (Radiated: Below 1GHz) Antenna:CAN4313359 Tx(2402MHz)

DATA OF RADIATED EMISSION TEST

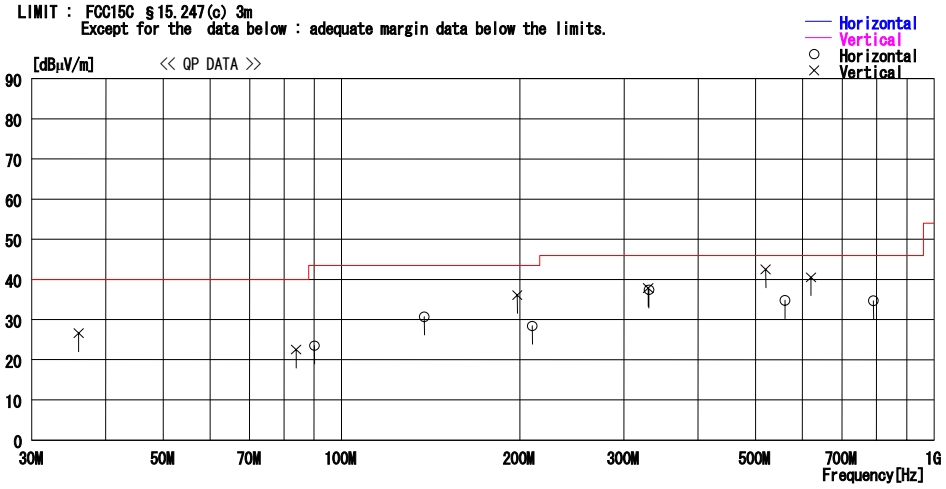
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2004/01/20 14:47:33

Applicant : ALPS ELECTRIC CO., LTD.
Kind of EUT : ALPS Bluetooth module
Model No. : UGPZ5
Serial No. : 28

Report No. : 24FE0040-HO
Power : DC3.3V
Temp℃/Humi% : 25 / 27%
Operator : Mitsuru Fujimura

Mode / Remarks : Tx(2402) Antenna:CAN4313359

LIMIT : FCC15C §15.247(c) 3m
Except for the data below : adequate margin data below the limits.



No.	FREQ [MHz]	READING QP [dBμV]	ANT FACTOR [dB/m]	LOSS [dB]	GAIN [dB]	RESULT [dBμV/m]	LIMIT [dBμV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
—— Horizontal ——										
1	90.068	32.0	7.7	7.1	23.3	23.5	43.5	20.0	295	240
2	138.041	31.5	14.2	7.5	22.5	30.7	43.5	12.8	189	78
3	210.060	27.2	16.5	8.0	23.3	28.4	43.5	15.1	182	174
4	330.090	36.8	15.3	8.5	23.2	37.4	46.0	8.6	100	204
5	560.413	29.4	19.0	9.5	23.1	34.8	46.0	11.2	201	162
6	790.582	26.4	21.3	10.2	23.2	34.7	46.0	11.3	134	178
—— Vertical ——										
7	36.019	27.5	16.3	6.5	23.7	26.6	40.0	13.4	100	162
8	83.819	32.2	6.7	7.1	23.5	22.5	40.0	17.5	100	170
9	198.057	35.1	16.4	7.9	23.3	36.1	43.5	7.4	100	191
10	329.401	37.2	15.3	8.5	23.2	37.8	46.0	8.2	107	100
11	520.391	38.0	18.5	9.2	23.2	42.5	46.0	3.5	100	184
12	620.464	34.2	19.8	9.7	23.2	40.5	46.0	5.5	100	192

CHART:WITHOUT FACTOR ANT TYPE : -30MHz LOOP,30-300MHz BICONICAL,300MHz-1000MHz LOGPERIODIC,1000MHz- HORN
CALCULATION : READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - AMP.GAIN Page:

Spurious Emission (Radiated: Below 1GHz) Antenna:CAN4313359 Tx(2441MHz)

DATA OF RADIATED EMISSION TEST

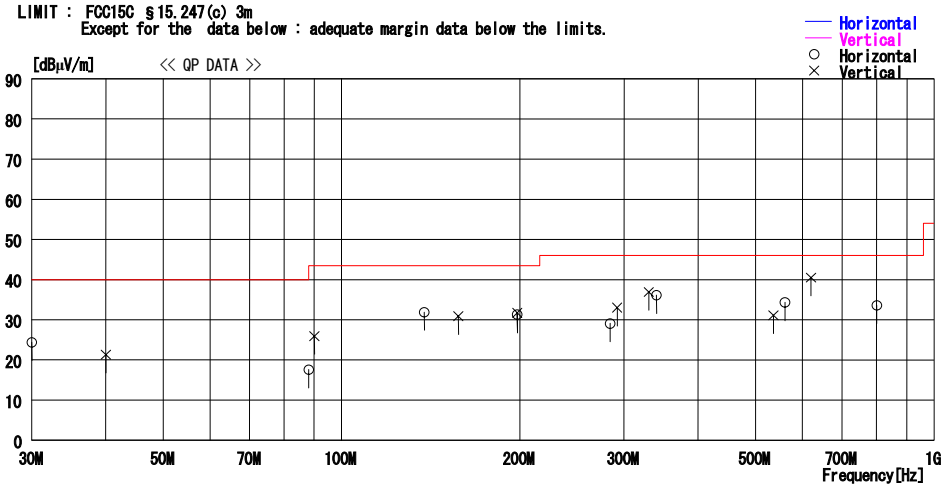
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2004/01/20 16:38:36

Applicant : ALPS ELECTRIC CO., LTD.
Kind of EUT : ALPS Bluetooth module
Model No. : UGPZ5
Serial No. : 28

Report No. : 24FE0040-HO
Power : DC3.3V
Temp℃/Humi% : 25 / 27%
Operator : Mitsuru Fujimura

Mode / Remarks : Tx(2441) Antenna:CAN4313359

LIMIT : FCC15C §15.247(c) 3m
Except for the data below : adequate margin data below the limits.



No.	FREQ [MHz]	READING QP [dBμV]	ANT FACTOR [dB/m]	LOSS [dB]	GAIN [dB]	RESULT [dBμV/m]	LIMIT [dBμV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
—— Horizontal ——										
1	30.030	23.0	18.9	6.3	23.8	24.4	40.0	15.6	100	159
2	88.026	26.5	7.4	7.1	23.4	17.6	43.5	25.9	349	236
3	138.043	32.7	14.2	7.5	22.5	31.9	43.5	11.6	194	73
4	198.058	30.3	16.4	7.9	23.3	31.3	43.5	12.2	354	143
5	284.064	25.2	18.8	8.2	23.1	29.1	46.0	16.9	145	176
6	340.065	35.1	15.6	8.5	23.1	36.1	46.0	9.9	100	189
7	560.410	28.9	19.0	9.5	23.1	34.3	46.0	11.7	155	138
8	800.586	25.1	21.4	10.3	23.2	33.6	46.0	12.4	155	176
—— Vertical ——										
9	40.029	23.8	14.7	6.5	23.7	21.3	40.0	18.7	104	171
10	90.022	34.4	7.7	7.1	23.3	25.9	43.5	17.6	100	231
11	157.602	31.7	14.7	7.7	23.2	30.9	43.5	12.6	153	232
12	198.049	30.7	16.4	7.9	23.3	31.7	43.5	11.8	334	164
13	292.065	28.5	19.3	8.3	23.1	33.0	46.0	13.0	232	157
14	330.081	36.3	15.3	8.5	23.2	36.9	46.0	9.1	100	95
15	536.102	26.3	18.7	9.3	23.2	31.1	46.0	14.9	100	218
16	620.455	34.2	19.8	9.7	23.2	40.5	46.0	5.5	100	175

CHART:WITHOUT FACTOR ANT TYPE : -30MHz LOOP,30-300MHz BICONICAL,300MHz-1000MHz LOGPERIODIC,1000MHz- HORN
CALCULATION : READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - AMP.GAIN Page:

Spurious Emission (Radiated: Below 1GHz) Antenna:CAN4313359 Tx(2480MHz)

DATA OF RADIATED EMISSION TEST

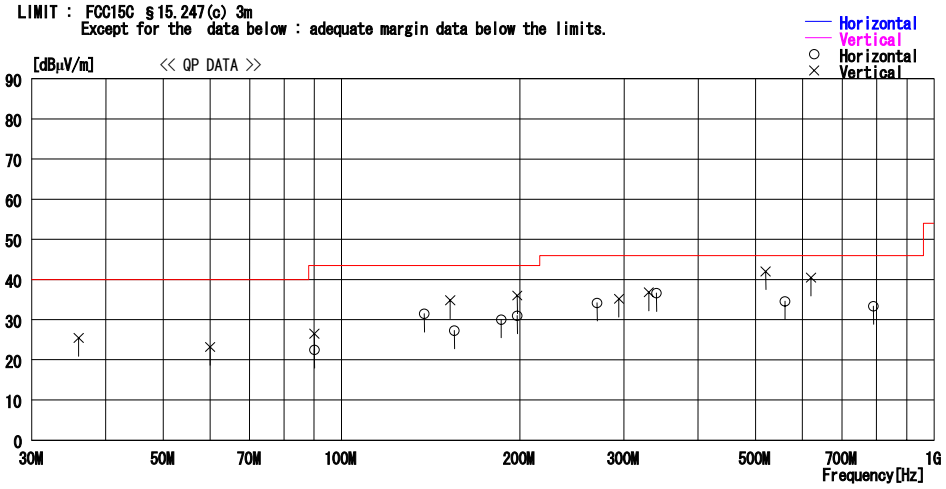
UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2004/01/20 18:31:12

Applicant : ALPS ELECTRIC CO., LTD.
Kind of EUT : ALPS Bluetooth module
Model No. : UGPZ5
Serial No. : 28

Report No. : 24FE0040-HO
Power : DC3.3V
Temp℃/Humi% : 25 / 27%
Operator : Mitsuru Fujimura

Mode / Remarks : Tx(2480MHz) Antenna:CAN4313359

LIMIT : FCC15C §15.247(c) 3m
Except for the data below : adequate margin data below the limits.



No.	FREQ [MHz]	READING QP [dBμV]	ANT FACTOR [dB/m]	LOSS [dB]	GAIN [dB]	RESULT [dBμV/m]	LIMIT [dBμV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
—— Horizontal ——										
1	90.065	31.0	7.7	7.1	23.3	22.5	43.5	21.0	217	230
2	138.043	32.3	14.2	7.5	22.5	31.5	43.5	12.0	204	274
3	155.124	28.2	14.6	7.7	23.2	27.3	43.5	16.2	265	107
4	186.042	29.5	16.0	7.8	23.3	30.0	43.5	13.5	253	129
5	198.053	30.0	16.4	7.9	23.3	31.0	43.5	12.5	265	172
6	270.073	31.1	17.9	8.2	23.0	34.2	46.0	11.8	264	231
7	340.065	35.6	15.6	8.5	23.1	36.6	46.0	9.4	100	191
8	560.420	29.2	19.0	9.5	23.1	34.6	46.0	11.4	201	154
9	790.585	25.1	21.3	10.2	23.2	33.4	46.0	12.6	188	156
—— Vertical ——										
10	36.008	26.3	16.3	6.5	23.7	25.4	40.0	14.6	100	6
11	60.008	31.7	8.2	6.8	23.5	23.2	40.0	16.8	100	291
12	90.028	35.0	7.7	7.1	23.3	26.5	43.5	17.0	100	235
13	152.607	35.7	14.6	7.7	23.2	34.8	43.5	8.7	100	182
14	198.048	35.0	16.4	7.9	23.3	36.0	43.5	7.5	100	193
15	294.082	30.7	19.4	8.3	23.2	35.2	46.0	10.8	100	103
16	330.091	36.2	15.3	8.5	23.2	36.8	46.0	9.2	100	95
17	520.381	37.5	18.5	9.2	23.2	42.0	46.0	4.0	100	196
18	620.454	34.1	19.8	9.7	23.2	40.4	46.0	5.6	100	174

CHART:WITHOUT FACTOR ANT TYPE : -30MHz LOOP,30-300MHz BICONICAL,300MHz-1000MHz LOGPERIODIC,1000MHz- HORN
CALCULATION : READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - AMP.GAIN Page:

Spurious Emission (Radiated: Equal to and Above 1GHz) Antenna:LDA92 2402MHz

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company : ALPS ELECTRIC CO.,LTD
Equipment : ALPS Bluetooth module
Model : UGPZ5(Antenna LDA92)
Sample No. : 28
Power : DC3.3V(PC:AC120V/60Hz)
Mode : Continuous Tx(2402MHz) mode
FCC ID : CWTUGPZ5
IC No. : 1788F-UGPZ5

REPORT NO : 24FE0040-HO
REGULATION : Fcc Part15 Subpart C 15.247(b)(3)
TEST DISTANCE : 3/1m
DATE : Jan 19/20,2004
TEMPERATURE : 20/22deg.C
HUMIDITY : 45/35%
ENGINEER : Mitsuru Fujimura

PK DETECT (RBW: 1MHz , VBW:1MHz)

No.	FREQ	S/A READING HOR	S/A READING VER	ANT Factor	AMP GAIN	CABLE LOSS	Band-Pass Filter	RESULT HOR	RESULT VER	Limit PK	MARGIN HOR	MARGIN VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1200.0	51.8	55.2	23.0	37.6	4.5	0.0	41.7	45.1	74.0	32.3	28.9
2	2390.0	45.1	43.8	30.5	36.9	6.3	0.0	45.0	43.7	74.0	29.0	30.3
3	4804.0	44.2	43.2	35.5	36.8	9.0	0.0	51.9	50.9	74.0	22.1	23.1
4	7206.0	42.4	42.0	37.6	36.5	11.0	0.0	54.5	54.1	74.0	19.5	19.9
5	9608.0	43.0	43.0	37.3	37.2	12.9	0.0	56.0	56.0	74.0	18.0	18.0
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
6	12010.0	42.3	42.3	40.1	36.8	14.4	2.0	52.5	52.5	74.0	21.5	21.5
7	14412.0	42.2	42.4	42.9	35.3	15.7	2.3	58.3	58.5	74.0	15.7	15.5
8	16814.0	44.6	44.0	44.7	36.5	17.2	0.0	60.5	59.9	74.0	13.5	14.1
9	19216.0	42.1	42.2	39.7	35.8	18.5	0.0	55.0	55.1	74.0	19.0	18.9
10	21618.0	43.9	44.1	40.8	36.8	19.6	0.0	58.0	58.2	74.0	16.0	15.8
11	24020.0	44.2	44.5	39.9	36.4	20.9	0.0	59.1	59.4	74.0	14.9	14.6

AV DETECT (RBW: 1MHz , VBW:10Hz)

No.	FREQ	S/A READING HOR	S/A READING VER	ANT Factor	AMP GAIN	CABLE LOSS	Band-Pass Filter	RESULT HOR	RESULT VER	Limit AV	MARGIN HOR	MARGIN VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1200.0	41.8	42.3	23.0	37.6	4.5	0.0	31.7	32.2	54.0	22.3	21.8
2	2390.0	31.6	31.6	30.5	36.9	6.3	0.0	31.5	31.5	54.0	22.5	22.5
3	4804.0	30.6	30.6	35.5	36.8	9.0	0.0	38.3	38.3	54.0	15.7	15.7
4	7206.0	29.5	29.5	37.6	36.5	11.0	0.0	41.6	41.6	54.0	12.4	12.4
5	9608.0	30.7	30.6	37.3	37.2	12.9	0.0	43.7	43.6	54.0	10.3	10.4
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
6	12010.0	30.2	30.2	40.1	36.8	14.4	2.0	40.4	40.4	54.0	13.6	13.6
7	14412.0	29.3	29.3	42.9	35.3	15.7	2.3	45.4	45.4	54.0	8.6	8.6
8	16814.0	31.3	31.3	44.7	36.5	17.2	0.0	47.2	47.2	54.0	6.8	6.8
9	19216.0	30.0	30.1	39.7	35.8	18.5	0.0	42.9	43.0	54.0	11.1	11.0
10	21618.0	31.0	31.0	40.8	36.8	19.6	0.0	45.1	45.1	54.0	8.9	8.9
11	24020.0	31.3	31.3	39.9	36.4	20.9	0.0	46.2	46.2	54.0	7.8	7.8

20dBc(Fundamental 2402MHz) (RBW: 100kHz , VBW:100kHz)

No.	FREQ	S/A READING HOR	S/A READING VER	ANT Factor	AMP GAIN	CABLE LOSS	Band-Pass Filter	RESULT HOR	RESULT VER	Limit 20dBc	MARGIN HOR	MARGIN VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	2402.0	99.3	97.7	30.5	36.9	6.3	-	99.2	97.6	-	-	-
2	2400.0	59.5	58.5	30.5	36.9	6.3	-	59.4	58.4	Funda-20dB	19.8	19.2

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

*Except for the above table : All other spurious emissions were less than 20dB for the limit.

*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.

*The limit values at frequencies excepting restricted bands indicated in 15.205 are values 20dB below lower

Spurious Emission (Radiated: Equal to and Above 1GHz) Antenna:LDA92 2441MHz

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company : ALPS ELECTRIC CO.,LTD.
Equipment : ALPS Bluetooth module
Model : UGPZ5(Antenna LDA92)
Sample No. : 28
Power : DC3.3V(PC:AC120V/60Hz)
Mode : Continuous Tx(2441MHz) mode
FCC ID : CWTUGPZ5
IC No. : 1788F-UGPZ5

REPORT NO : 24FE0040-HO
REGULATION : FCC Part15 Subpart C 15.247(b)(3)
TEST DISTANCE : 3/1m
DATE : Jan 19/20,2004
TEMPERATURE : 20/22deg.C
HUMIDITY : 45/35%
ENGINEER : Mitsuru Fujimura

PK DETECT (RBW: 1MHz , VBW:1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1200.0	53.7	55.6	23.0	37.6	4.5	0.0	43.6	45.5	74.0	30.4	28.5
2	4882.0	49.6	49.8	35.7	36.8	9.0	0.0	57.5	57.7	74.0	16.5	16.3
3	7323.0	43.0	42.2	38.2	36.6	11.1	0.0	55.7	54.9	74.0	18.3	19.1
4	9764.0	43.9	43.4	37.3	37.2	13.1	0.0	57.1	56.6	74.0	16.9	17.4
Test distance 1meter RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
5	12205.0	46.8	47.2	41.5	36.7	14.5	2.0	58.6	59.0	74.0	15.4	15.0
6	14646.0	42.2	42.2	41.6	35.5	15.9	2.3	57.0	57.0	74.0	17.0	17.0
7	17087.0	44.3	44.2	46.5	36.2	17.5	0.0	62.6	62.5	74.0	11.4	11.5
8	19528.0	42.4	42.5	39.3	36.0	18.7	0.0	54.9	55.0	74.0	19.1	19.0
9	21969.0	43.6	43.3	40.4	36.0	19.8	0.0	58.3	58.0	74.0	15.7	16.0
10	24410.0	43.8	44.3	40.1	36.9	21.0	0.0	58.5	59.0	74.0	15.5	15.0

AV DETECT (RBW: 1MHz , VBW:10Hz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1200.0	41.9	44.0	23.0	37.6	4.5	0.0	31.8	33.9	54.0	22.2	20.1
2	4882.0	35.6	36.3	35.7	36.8	9.0	0.0	43.5	44.2	54.0	10.5	9.8
3	7323.0	29.8	29.9	38.2	36.6	11.1	0.0	42.5	42.6	54.0	11.5	11.5
4	9764.0	30.8	30.8	37.3	37.2	13.1	0.0	44.0	44.0	54.0	10.0	10.0
Test distance 1meter RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
5	12205.0	34.4	34.4	41.5	36.7	14.5	2.0	46.2	46.2	54.0	7.8	7.8
6	14646.0	29.4	29.4	41.6	35.5	15.9	2.3	44.2	44.2	54.0	9.8	9.8
7	17087.0	31.4	31.4	46.5	36.2	17.5	0.0	49.7	49.7	54.0	4.3	4.3
8	19528.0	30.0	30.0	39.3	36.0	18.7	0.0	42.5	42.5	54.0	11.5	11.5
9	21969.0	31.0	31.0	40.4	36.0	19.8	0.0	45.7	45.7	54.0	8.3	8.3
10	24410.0	31.4	31.4	40.1	36.9	21.0	0.0	46.1	46.1	54.0	7.9	7.9

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB
*Except for the above table : All other spurious emissions were less than 20dB for the limit.
*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.

Spurious Emission (Radiated: Equal to and Above 1GHz) Antenna: LDA92 2480MHz

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company	: ALPS ELECTRIC CO.,LTD.	REPORT NO	: 24FE0040-HO
Equipment	: ALPS Bluetooth module	REGULATION	: FCC Part15 Subpart C 15.247(b)(3)
Model	: UGPZ5(Antenna LDA92)	TEST DISTANCE	: 3/1m
Sample No.	: 28	DATE	: Jan 19/20,2004
Power	: DC3.3V(PC:AC120V/60Hz)	TEMPERATURE	: 20/22deg.C.
Mode	: Continuous Tx(2480MHz) mode	HUMIDITY	: 45/35%
FCC ID	: CWTUGPZ5	ENGINEER	: Mitsuru Fujimura
IC No.	: 1788F-UGPZ5		

PK DETECT (RBW: 1MHz , VBW:1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1199.7	53.5	52.5	22.8	37.6	4.6	0.0	43.3	42.3	74.0	30.7	31.7
2	2483.5	52.2	56.9	30.6	36.9	6.4	0.0	52.3	57.0	74.0	21.7	17.0
3	4959.9	48.0	49.4	36.5	36.8	9.1	0.0	56.8	58.2	74.0	17.2	15.8
4	7440.0	42.5	42.5	37.9	36.7	11.2	0.0	54.9	54.9	74.0	19.1	19.1
5	9920.0	43.4	43.1	36.4	37.3	13.2	0.0	55.7	55.4	74.0	18.3	18.6
Test distance 1meter RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
6	12400.0	42.2	41.8	41.9	36.6	14.6	1.9	54.5	54.1	74.0	19.5	19.9
7	14880.0	42.6	42.5	42.6	35.7	16.0	2.3	58.3	58.2	74.0	15.7	15.8
8	17360.0	45.8	46.1	46.9	36.2	17.6	0.0	64.6	64.9	74.0	9.4	9.1
9	19840.0	42.8	43.4	39.9	36.1	18.8	0.0	55.9	56.5	74.0	18.1	17.5
10	22320.0	43.3	43.6	40.7	35.5	20.0	0.0	59.0	59.3	74.0	15.0	14.7
11	24800.0	42.6	43.0	40.2	36.7	21.1	0.0	57.7	58.1	74.0	16.3	15.9

AV DETECT (RBW: 1MHz , VBW:10Hz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1199.7	41.6	43.7	22.8	37.6	4.6	0.0	31.4	33.5	54.0	22.6	20.5
2	2483.5	38.1	38.8	30.6	36.9	6.4	0.0	38.2	38.9	54.0	15.8	15.1
3	4959.9	34.3	35.7	36.5	36.8	9.1	0.0	43.1	44.5	54.0	10.9	9.5
4	7440.0	29.7	29.7	37.9	36.7	11.2	0.0	42.1	42.1	54.0	11.9	11.9
5	9920.0	30.9	30.9	36.4	37.3	13.2	0.0	43.2	43.2	54.0	10.8	10.8
Test distance 1meter RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
6	12400.0	30.2	30.2	41.9	36.6	14.6	1.9	42.5	42.5	54.0	11.5	11.5
7	14880.0	30.1	30.1	42.6	35.7	16.0	2.3	45.8	45.8	54.0	8.2	8.2
8	17360.0	31.0	31.0	46.9	36.2	17.6	0.0	49.8	49.8	54.0	4.2	4.2
9	19840.0	30.2	30.2	39.9	36.1	18.8	0.0	43.3	43.3	54.0	10.7	10.7
10	22320.0	31.0	31.0	40.7	35.5	20.0	0.0	46.7	46.7	54.0	7.3	7.3
11	24800.0	30.2	30.2	40.2	36.7	21.1	0.0	45.3	45.3	54.0	8.7	8.7

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB
*Except for the above table : All other spurious emissions were less than 20dB for the limit.
*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.

Spurious Emission (Radiated: Equal to and Above 1GHz) Antenna:LDA31 2402MHz

UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi Anechoic Chamber

Company : ALPS ELECTRIC CO.,LTD
Equipment : ALPS Bluetooth module
Model : UGPZ5(Antenna LDA31)
Sample No. : 28
Power : DC3.3V(PC:AC120V/60Hz)
Mode : Continuous Tx(2402MHz) mode
FCC ID : CWTUGPZ5
IC No. : 1788F-UGPZ5

REPORT NO : 24FE0040-HO
REGULATION : Fcc Part15 Subpart C 15.247(b)(3)
TEST DISTANCE : 3/1m
DATE : Feb 03,2004
TEMPERATURE : 21deg.C
HUMIDITY : 35%
ENGINEER : Mitsuru Fujimura

PK DETECT (RBW: 1MHz , VBW:1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1199.8	48.9	54.7	23.0	37.6	4.5	0.0	38.8	44.6	74.0	35.2	29.4
2	2390.0	44.3	44.8	30.5	36.9	6.3	0.0	44.2	44.7	74.0	29.8	29.3
3	4804.0	52.2	52.2	35.5	36.8	9.0	0.0	59.9	59.9	74.0	14.1	14.1
4	7206.0	42.6	42.2	37.6	36.5	11.0	0.0	54.7	54.3	74.0	19.3	19.7
5	9608.0	42.4	43.5	37.3	37.2	12.9	0.0	55.4	56.5	74.0	18.6	17.5
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
6	12010.0	43.0	42.5	40.1	36.8	14.4	0.0	51.2	50.7	74.0	22.8	23.3
7	14412.0	41.9	41.5	42.9	35.3	15.7	0.0	55.7	55.3	74.0	18.3	18.7
8	16814.0	45.4	44.7	44.7	36.5	17.2	0.0	61.3	60.6	74.0	12.7	13.4
9	19216.0	43.8	43.6	39.7	35.8	18.5	0.0	56.7	56.5	74.0	17.3	17.5
10	21618.0	43.7	44.0	40.8	36.8	19.6	0.0	57.8	58.1	74.0	16.2	15.9
11	24020.0	44.0	44.7	39.9	36.4	20.9	0.0	58.9	59.6	74.0	15.1	14.4

AV DETECT (RBW: 1MHz , VBW:10Hz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1199.8	38.5	43.2	23.0	37.6	4.5	0.0	28.4	33.1	54.0	25.6	20.9
2	2390.0	31.8	31.6	30.5	36.9	6.3	0.0	31.7	31.5	54.0	22.3	22.5
3	4804.0	36.8	36.6	35.5	36.8	9.0	0.0	44.5	44.3	54.0	9.5	9.7
4	7206.0	29.9	29.9	37.6	36.5	11.0	0.0	42.0	42.0	54.0	12.0	12.0
5	9608.0	30.7	30.7	37.3	37.2	12.9	0.0	43.7	43.7	54.0	10.3	10.3
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
6	12010.0	30.3	30.3	40.1	36.8	14.4	0.0	38.5	38.5	54.0	15.5	15.5
7	14412.0	29.3	29.3	42.9	35.3	15.7	0.0	43.1	43.1	54.0	10.9	10.9
8	16814.0	32.4	32.4	44.7	36.5	17.2	0.0	48.3	48.3	54.0	5.7	5.7
9	19216.0	31.2	31.0	39.7	35.8	18.5	0.0	44.1	43.9	54.0	9.9	10.1
10	21618.0	31.2	31.2	40.8	36.8	19.6	0.0	45.3	45.3	54.0	8.7	8.7
11	24020.0	31.7	31.7	39.9	36.4	20.9	0.0	46.6	46.6	54.0	7.4	7.4

20dBc(Fundamental 2402MHz) (RBW: 100kHz , VBW:100kHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	20dBc	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	2402.0	97.5	98.8	30.5	36.9	6.3	-	97.4	98.7	-	-	-
2	2400.0	59.3	59.0	30.5	36.9	6.3	-	59.2	58.9	Funda-20dB	18.2	19.8

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

*Except for the above table : All other spurious emissions were less than 20dB for the limit.

*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.

*The limit values at frequencies excepting restricted bands indicated in 15.205 are values 20dB below lower

Spurious Emission (Radiated: Equal to and Above 1GHz) Antenna: LDA31 2441MHz

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

Company : ALPS ELECTRIC CO.,LTD
Equipment : ALPS Bluetooth module
Model : UGPZ5(Antenna LDA31)
Sample No. : 28
Power : DC3.3V(PC:AC120V/60Hz)
Mode : Continuous Tx(2441MHz) mode
FCC ID : CWTUGPZ5
IC No. : 1788F-UGPZ5

REPORT NO : 24FE0040-HO
REGULATION : Fcc Part15 Subpart C 15.247(b)(3)
TEST DISTANCE : 3/1m
DATE : Feb 03,2004
TEMPERATURE : 21deg.C
HUMIDITY : 35%
ENGINEER : Mitsuru Fujimura

PK DETECT (RBW: 1MHz , VBW:1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1199.7	48.8	55.2	23.0	37.6	4.5	0.0	38.7	45.1	74.0	35.3	28.9
2	4882.0	50.2	51.3	35.7	36.8	9.0	0.0	58.1	59.2	74.0	15.9	14.8
3	7323.0	42.7	42.6	38.2	36.6	11.1	0.0	55.4	55.3	74.0	18.6	18.7
4	9764.0	43.6	43.6	37.3	37.2	13.1	0.0	56.8	56.8	74.0	17.2	17.2
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
5	12205.0	42.7	42.4	41.5	36.7	14.5	0.0	52.5	52.2	74.0	21.5	21.8
6	14646.0	41.8	41.1	41.6	35.5	15.9	0.0	54.3	53.6	74.0	19.7	20.4
7	17087.0	44.3	44.5	46.5	36.2	17.5	0.0	62.6	62.8	74.0	11.4	11.2
8	19528.0	45.1	44.7	39.3	36.0	18.7	0.0	57.6	57.2	74.0	16.4	16.8
9	21969.0	43.9	43.6	40.4	36.0	19.8	0.0	58.6	58.3	74.0	15.4	15.7
10	24410.0	45.2	45.1	40.1	36.9	21.0	0.0	59.9	59.8	74.0	14.1	14.2

AV DETECT (RBW: 1MHz , VBW:10Hz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1199.7	36.1	41.3	23.0	37.6	4.5	0.0	26.0	31.2	54.0	28.0	22.8
2	4882.0	38.2	39.3	35.7	36.8	9.0	0.0	46.1	47.2	54.0	7.9	6.8
3	7323.0	30.1	29.9	38.2	36.6	11.1	0.0	42.8	42.6	54.0	11.2	11.4
4	9764.0	30.7	30.6	37.3	37.2	13.1	0.0	43.9	43.8	54.0	10.1	10.2
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
5	12205.0	30.0	30.0	41.5	36.7	14.5	0.0	39.8	39.8	54.0	14.2	14.2
6	14646.0	29.5	29.5	41.6	35.5	15.9	0.0	42.0	42.0	54.0	12.0	12.0
7	17087.0	32.2	32.2	46.5	36.2	17.5	0.0	50.5	50.5	54.0	3.5	3.5
8	19528.0	31.7	31.7	39.3	36.0	18.7	0.0	44.2	44.2	54.0	9.8	9.8
9	21969.0	30.9	30.9	40.4	36.0	19.8	0.0	45.6	45.6	54.0	8.4	8.4
10	24410.0	32.5	32.5	40.1	36.9	21.0	0.0	47.2	47.2	54.0	6.8	6.8

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB
*Except for the above table : All other spurious emissions were less than 20dB for the limit.
*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.

Spurious Emission (Radiated: Equal to and Above 1GHz) Antenna: LDA31 2480MHz

UL Apex Co., Ltd.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

Company : ALPS ELECTRIC CO.,LTD
Equipment : ALPS Bluetooth module
Model : UGPZ5(Antenna LDA31)
Sample No. : 28
Power : DC3.3V(PC:AC120V/60Hz)
Mode : Continuous Tx(2480MHz) mode
FCC ID : CWTUGPZ5
IC No. : 1788F-UGPZ5

REPORT NO : 24FE0040-HO
REGULATION : Fcc Part15 Subpart C 15.247(b)(3)
TEST DISTANCE : 3/1m
DATE : Feb 03,2004
TEMPERATURE : 21deg.C
HUMIDITY : 35%
ENGINEER : Mitsuru Fujimura

PK DETECT (RBW: 1MHz , VBW:1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1199.8	46.6	50.8	22.8	37.6	4.6	0.0	36.4	40.6	74.0	37.6	33.4
2	2483.5	56.3	61.4	30.6	36.9	6.4	0.0	56.4	61.5	74.0	17.6	12.5
3	4959.9	51.7	51.2	36.5	36.8	9.1	0.0	60.5	60.0	74.0	13.5	14.0
4	7440.0	42.6	42.2	37.9	36.7	11.2	0.0	55.0	54.6	74.0	19.0	19.4
5	9920.0	43.7	42.9	36.4	37.3	13.2	0.0	56.0	55.2	74.0	18.0	18.8
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
6	12400.0	42.3	42.8	41.9	36.6	14.6	0.0	52.7	53.2	74.0	21.3	20.9
7	14880.0	42.4	42.0	42.6	35.7	16.0	0.0	55.8	55.4	74.0	18.2	18.6
8	17360.0	44.9	44.6	46.9	36.2	17.6	0.0	63.7	63.4	74.0	10.3	10.6
9	19840.0	44.5	44.4	39.9	36.1	18.8	0.0	57.6	57.5	74.0	16.4	16.5
10	22320.0	44.3	44.1	40.7	35.5	20.0	0.0	60.0	59.8	74.0	14.0	14.2
11	24800.0	46.2	46.2	40.2	36.7	21.1	0.0	61.3	61.3	74.0	12.7	12.7

AV DETECT (RBW: 1MHz , VBW:10Hz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1199.8	36.6	38.2	22.8	37.6	4.6	0.0	26.4	28.0	54.0	27.6	26.0
2	2483.5	38.5	40.4	30.6	36.9	6.4	0.0	38.6	40.5	54.0	15.4	13.5
3	4959.9	36.5	36.3	36.5	36.8	9.1	0.0	45.3	45.1	54.0	8.7	8.9
4	7440.0	29.9	30.0	37.9	36.7	11.2	0.0	42.3	42.4	54.0	11.7	11.6
5	9920.0	31.1	31.0	36.4	37.3	13.2	0.0	43.4	43.3	54.0	10.6	10.7
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
6	12400.0	30.5	30.5	41.9	36.6	14.6	0.0	40.9	40.9	54.0	13.2	13.2
7	14880.0	29.7	29.7	42.6	35.7	16.0	0.0	43.1	43.1	54.0	10.9	10.9
8	17360.0	32.0	32.1	46.9	36.2	17.6	0.0	50.8	50.9	54.0	3.2	3.2
9	19840.0	32.2	32.2	39.9	36.1	18.8	0.0	45.3	45.3	54.0	8.7	8.7
10	22320.0	31.6	31.6	40.7	35.5	20.0	0.0	47.3	47.3	54.0	6.7	6.7
11	24800.0	33.5	33.5	40.2	36.7	21.1	0.0	48.6	48.6	54.0	5.5	5.5

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB
*Except for the above table : All other spurious emissions were less than 20dB for the limit.
*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.

Spurious Emission (Radiated: Equal to and Above 1GHz) Antenna:CAN4313359 2402MHz

UL Apex Co., Ltd. Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company	: ALPS ELECTRIC CO.,LTD	REPORT NO	: 24FE0040-HO
Equipment	: ALPS Bluetooth module	REGULATION	: Fcc Part15 Subpart C 15.247(b)(3)
Model	: UGPZ5(Antenna CAN4313359)	TEST DISTANCE	: 3/1m
Sample No.	: 28	DATE	: Jan 19/20,2004
Power	: DC3.3V(PC:AC120V/60Hz)	TEMPERATURE	: 20/22deg.C
Mode	: Continuous Tx(2402MHz) mode	HUMIDITY	: 45/35%
FCC ID	: CWTUGPZ5	ENGINEER	: Mitsuru Fujimura
IC No.	: 1788F-UGPZ5		

PK DETECT (RBW: 1MHz , VBW:1MHz)

No.	FREQ	T/R READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1200.0	52.1	52.1	23.0	37.6	4.5	0.0	42.0	42.0	74.0	32.0	32.0
2	2390.0	44.7	44.4	30.5	36.9	6.3	0.0	44.6	44.3	74.0	29.4	29.7
3	4804.3	52.2	54.0	35.5	36.8	9.0	0.0	59.9	61.7	74.0	14.1	12.3
4	7206.0	42.0	42.2	37.6	36.5	11.0	0.0	54.1	54.3	74.0	19.9	19.7
5	9608.0	43.2	44.1	37.3	37.2	12.9	0.0	56.2	57.1	74.0	17.8	16.9
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
6	12010.0	42.5	42.5	40.1	36.8	14.4	2.0	52.7	52.7	74.0	21.3	21.3
7	14412.0	42.7	42.5	42.9	35.3	15.7	2.3	58.8	58.6	74.0	15.2	15.4
8	16814.0	43.7	44.5	44.7	36.5	17.2	0.0	59.6	60.4	74.0	14.4	13.6
9	19216.0	42.8	42.5	39.7	35.8	18.5	0.0	55.7	55.4	74.0	18.3	18.6
10	21618.0	43.6	43.7	40.8	36.8	19.6	0.0	57.7	57.8	74.0	16.3	16.2
11	24020.0	43.7	44.0	39.9	36.4	20.9	0.0	58.6	58.9	74.0	15.4	15.1

AV DETECT (RBW: 1MHz , VBW:10Hz)

No.	FREQ	T/R READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1200.0	42.6	42.3	23.0	37.6	4.5	0.0	32.5	32.2	54.0	21.5	21.8
2	2390.0	32.1	31.5	30.5	36.9	6.3	0.0	32.0	31.4	54.0	22.0	22.6
3	4804.3	39.9	41.2	35.5	36.8	9.0	0.0	47.6	48.9	54.0	6.4	5.1
4	7206.0	29.9	29.7	37.6	36.5	11.0	0.0	42.0	41.8	54.0	12.0	12.2
5	9608.0	30.7	30.7	37.3	37.2	12.9	0.0	43.7	43.7	54.0	10.3	10.3
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
6	12010.0	30.1	30.3	40.1	36.8	14.4	2.0	40.3	40.5	54.0	13.7	13.5
7	14412.0	29.2	29.2	42.9	35.3	15.7	2.3	45.3	45.3	54.0	8.7	8.7
8	16814.0	31.1	31.0	44.7	36.5	17.2	0.0	47.0	46.9	54.0	7.0	7.1
9	19216.0	29.9	29.9	39.7	35.8	18.5	0.0	42.8	42.8	54.0	11.2	11.2
10	21618.0	31.0	31.0	40.8	36.8	19.6	0.0	45.1	45.1	54.0	9.0	8.9
11	24020.0	31.4	31.4	39.9	36.4	20.9	0.0	46.3	46.3	54.0	7.7	7.7

20dBc(Fundamental 2402MHz) (RBW: 100kHz , VBW:100kHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	20dBc	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	2402.0	98.6	98.0	30.5	36.9	6.3	-	98.5	97.9	-	-	-
2	2400.0	58.9	57.8	30.5	36.9	6.3	-	58.8	57.7	Funda-20dB	19.7	20.2

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

*Except for the above table : All other spurious emissions were less than 20dB for the limit.

*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.

*The limit values at frequencies excepting restricted bands indicated in 15.205 are values 20dB below lower

Spurious Emission (Radiated: Equal to and Above 1GHz) Antenna:CAN4313359 2441MHz

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company : ALPS ELECTRIC CO.,LTD.
Equipment : ALPS Bluetooth module
Model : UGPZ5(Antenna CAN4313359)
Sample No. : 28
Power : DC3.3V(PC:AC120V/60Hz)
Mode : Continuous Tx(2441MHz) mode
FCC ID : CWTUGPZ5
IC No. : 1788F-UGPZ5

REPORT NO : 24FE0040-HO
REGULATION : FCC Part15 Subpart C 15.247(b)(3)
TEST DISTANCE : 3/1m
DATE : Jan 19/20,2004
TEMPERATURE : 20/22deg.C.
HUMIDITY : 45/35%
ENGINEER : Mitsuru Fujimura

PK DETECT (RBW: 1MHz , VBW:1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1200.0	52.3	55.7	23.0	37.6	4.5	0.0	42.2	45.6	74.0	31.8	28.4
2	4882.0	54.8	54.1	35.7	36.8	9.0	0.0	62.7	62.0	74.0	11.3	12.0
3	7323.0	42.7	42.3	38.2	36.6	11.1	0.0	55.4	55.0	74.0	18.6	19.0
4	9764.0	44.1	43.0	37.3	37.2	13.1	0.0	57.3	56.2	74.0	16.7	17.8
Test distance 1meter RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
5	12205.0	46.3	46.4	41.5	36.7	14.5	2.0	58.1	58.2	74.0	15.9	15.8
6	14646.0	41.9	42.1	41.6	35.5	15.9	2.3	56.7	56.9	74.0	17.3	17.1
7	17087.0	44.5	44.6	46.5	36.2	17.5	0.0	62.8	62.9	74.0	11.2	11.1
8	19528.0	42.5	42.7	39.3	36.0	18.7	0.0	55.0	55.2	74.0	19.0	18.8
9	21969.0	43.8	43.1	40.4	36.0	19.8	0.0	58.5	57.8	74.0	15.5	16.2
10	24410.0	43.3	44.3	40.1	36.9	21.0	0.0	58.0	59.0	74.0	16.0	15.0

AV DETECT (RBW: 1MHz , VBW:10Hz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1200.0	42.7	43.0	23.0	37.6	4.5	0.0	32.6	32.9	54.0	21.4	21.1
2	4882.0	38.0	37.6	35.7	36.8	9.0	0.0	45.9	45.5	54.0	8.1	8.5
3	7323.0	29.7	29.8	38.2	36.6	11.1	0.0	42.4	42.5	54.0	11.6	11.5
4	9764.0	30.7	30.7	37.3	37.2	13.1	0.0	43.9	43.9	54.0	10.1	10.1
Test distance 1meter RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
5	12205.0	34.1	34.1	41.5	36.7	14.5	2.0	45.9	45.9	54.0	8.1	8.1
6	14646.0	29.3	29.3	41.6	35.5	15.9	2.3	44.1	44.1	54.0	9.9	9.9
7	17087.0	31.1	31.1	46.5	36.2	17.5	0.0	49.4	49.4	54.0	4.6	4.6
8	19528.0	29.8	29.9	39.3	36.0	18.7	0.0	42.3	42.4	54.0	11.7	11.6
9	21969.0	31.0	31.0	40.4	36.0	19.8	0.0	45.7	45.7	54.0	8.3	8.3
10	24410.0	31.3	31.3	40.1	36.9	21.0	0.0	46.0	46.0	54.0	8.0	8.0

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB
*Except for the above table : All other spurious emissions were less than 20dB for the limit.
*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.

Spurious Emission (Radiated: Equal to and Above 1GHz) Antenna:CAN4313359 2480MHz

UL Apex Co., Ltd.
Head Office EMC Lab. No.2 Semi Anechoic Chamber

Company : ALPS ELECTRIC CO.,LTD.
Equipment : ALPS Bluetooth module
Model : UGPZ5(Antenna CAN4313359)
Sample No. : 28
Power : DC3.3V(PC:AC120V/60Hz)
Mode : Continuous Tx(2480MHz) mode
FCC ID : CWTUGPZ5
IC No. : 1788F-UGPZ5

REPORT NO : 24FE0040-HO
REGULATION : FCC Part15 Subpart C 15.247(b)(3)
TEST DISTANCE : 3/1m
DATE : Jan 19/20,2004
TEMPERATURE : 20/22deg.C
HUMIDITY : 45/35%
ENGINEER : Mitsuru Fujimura

PK DETECT (RBW: 1MHz , VBW:1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	PK	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1199.9	53.3	56.9	22.8	37.6	4.6	0.0	43.1	46.7	74.0	30.9	27.3
2	2483.5	59.6	58.8	30.6	36.9	6.4	0.0	59.7	58.9	74.0	14.3	15.1
3	4959.9	54.9	52.2	36.5	36.8	9.1	0.0	63.7	61.0	74.0	10.3	13.0
4	7440.0	43.0	42.3	37.9	36.7	11.2	0.0	55.4	54.7	74.0	18.6	19.3
5	9920.0	43.2	43.5	36.4	37.3	13.2	0.0	55.5	55.8	74.0	18.5	18.2
Test distance 1meter RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
6	12400.0	42.4	42.9	41.9	36.6	14.6	1.9	54.7	55.2	74.0	19.3	18.8
7	14880.0	41.9	42.3	42.6	35.7	16.0	2.3	57.6	58.0	74.0	16.4	16.0
8	17360.0	43.3	43.4	46.9	36.2	17.6	0.0	62.1	62.2	74.0	11.9	11.8
9	19840.0	42.9	42.6	39.9	36.1	18.8	0.0	56.0	55.7	74.0	18.0	18.3
10	22320.0	44.1	43.3	40.7	35.5	20.0	0.0	59.8	59.0	74.0	14.2	15.0
11	24800.0	43.4	42.4	40.2	36.7	21.1	0.0	58.5	57.5	74.0	15.5	16.5

AV DETECT (RBW: 1MHz , VBW:10Hz)

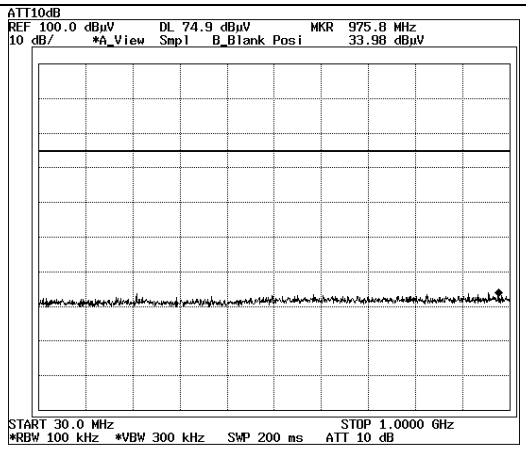
No.	FREQ	S/A READING		ANT	AMP	CABLE	Band-Pass	RESULT		Limit	MARGIN	
		HOR	VER	Factor	GAIN	LOSS	Filter	HOR	VER	AV	HOR	VER
	[MHz]	[dBuV/m]		[dB/m]	[dB]	[dB]	[dB]	[dBuV/m]		[dBuV/m]	[dB]	[dB]
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass												
1	1199.9	43.3	43.3	22.8	37.6	4.6	0.0	33.1	33.1	54.0	20.9	20.9
2	2483.5	39.8	39.3	30.6	36.9	6.4	0.0	39.9	39.4	54.0	14.1	14.6
3	4959.9	37.9	36.3	36.5	36.8	9.1	0.0	46.7	45.1	54.0	7.3	8.9
4	7440.0	29.9	29.8	37.9	36.7	11.2	0.0	42.3	42.2	54.0	11.7	11.8
5	9920.0	30.6	30.6	36.4	37.3	13.2	0.0	42.9	42.9	54.0	11.1	11.2
Test distance 1meter RESULT=Reading + ANT Factor - Amp Gain + CABLE LOSS + Band Pass - Dfac												
6	12400.0	29.8	29.8	41.9	36.6	14.6	1.9	42.1	42.1	54.0	11.9	11.9
7	14880.0	29.8	29.7	42.6	35.7	16.0	2.3	45.5	45.4	54.0	8.5	8.6
8	17360.0	30.6	30.6	46.9	36.2	17.6	0.0	49.4	49.4	54.0	4.6	4.6
9	19840.0	30.2	30.2	39.9	36.1	18.8	0.0	43.3	43.3	54.0	10.7	10.7
10	22320.0	31.0	31.0	40.7	35.5	20.0	0.0	46.7	46.7	54.0	7.3	7.3
11	24800.0	30.1	30.1	40.2	36.7	21.1	0.0	45.2	45.2	54.0	8.8	8.8

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB
*Except for the above table : All other spurious emissions were less than 20dB for the limit.
*In the frequency over the fifth harmonic, the noise from the EUT was not seen.The data above is its base noise.

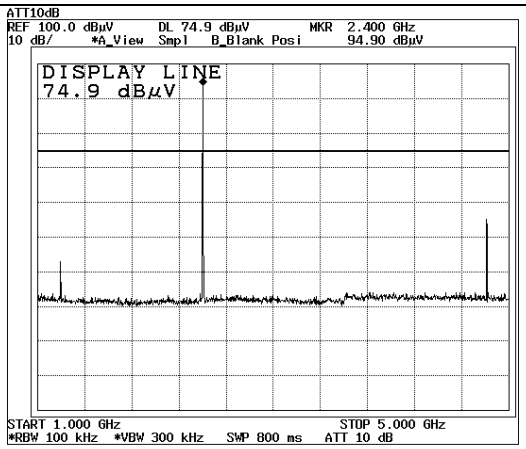
Spurious Emission (Conducted)

2402MHz

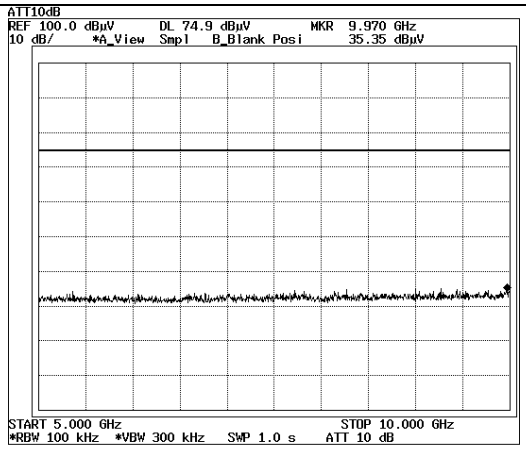
30MHz-1GHz



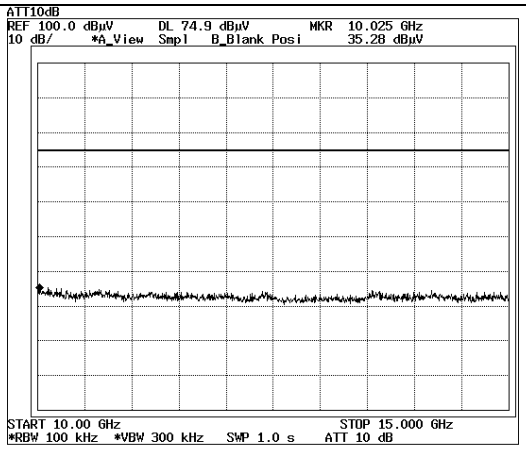
1GHz-5GHz



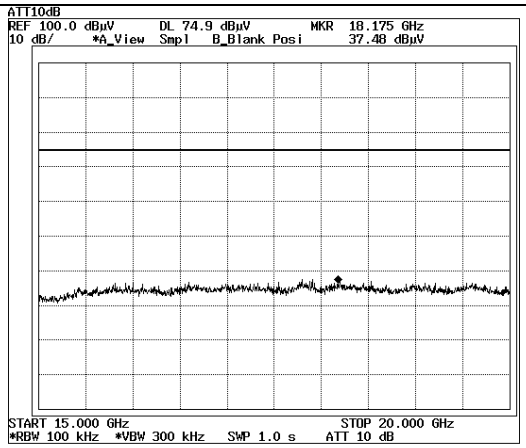
5GHz-10GHz



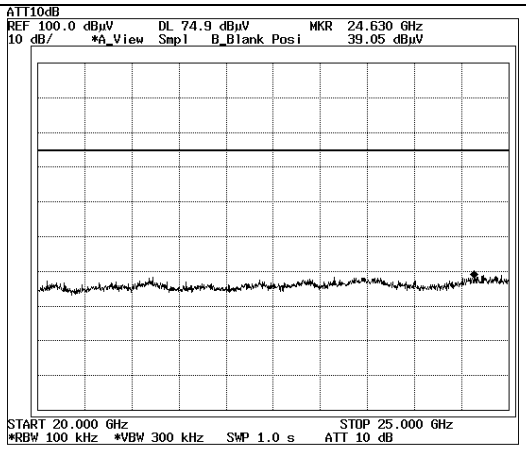
10GHz-15GHz



15GHz-20GHz



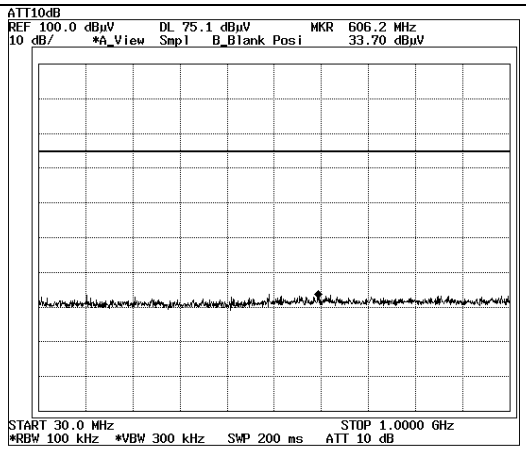
20GHz-25GHz



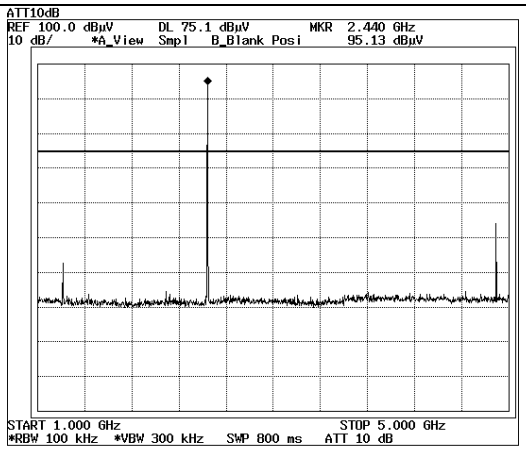
Spurious Emission (Conducted)

2441MHz

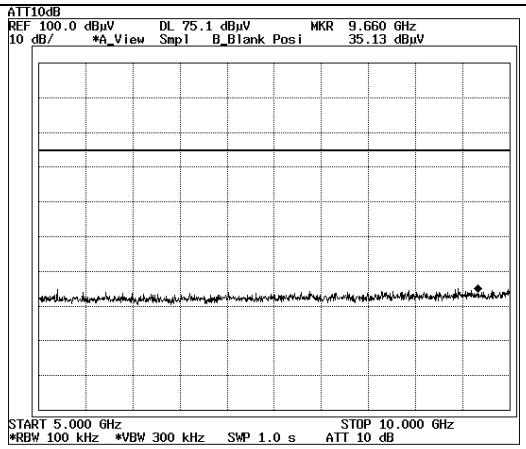
30MHz-1GHz



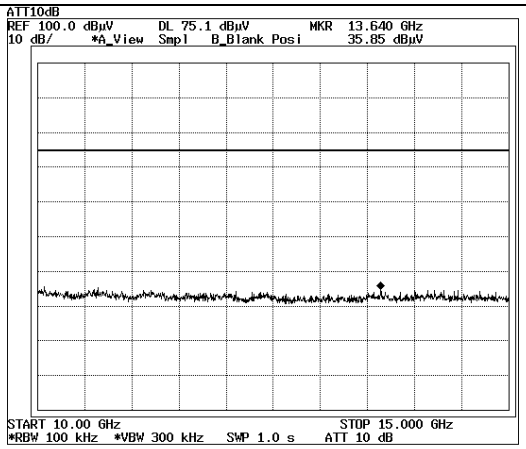
1GHz-5GHz



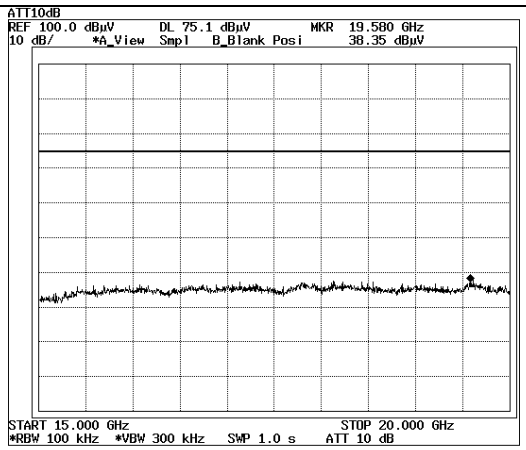
5GHz-10GHz



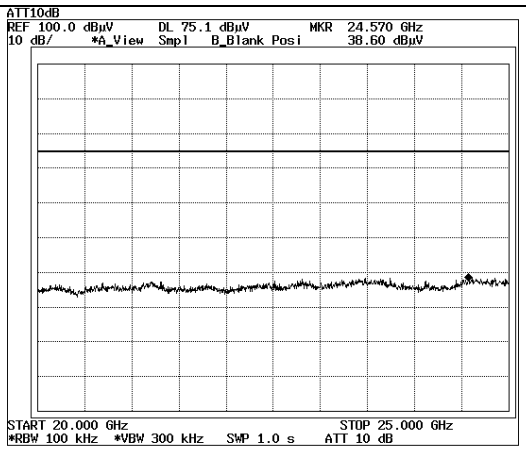
10GHz-15GHz



15GHz-20GHz



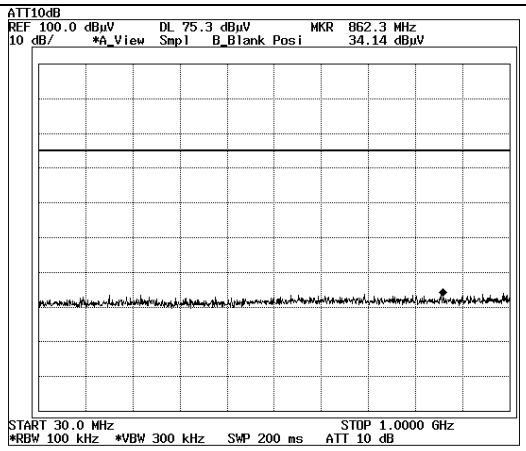
20GHz-25GHz



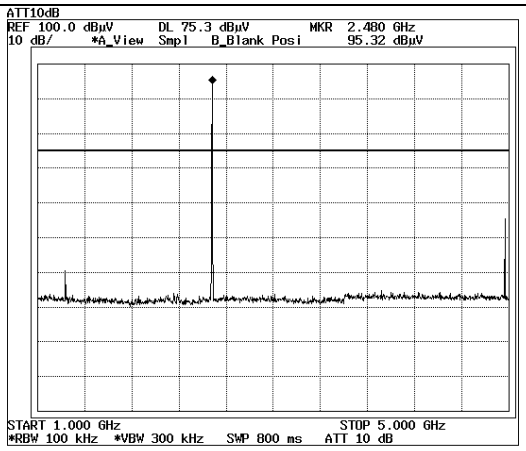
Spurious Emission (Conducted)

2480MHz

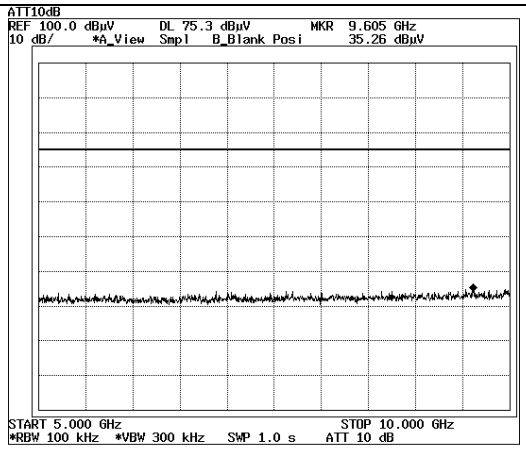
30MHz-1GHz



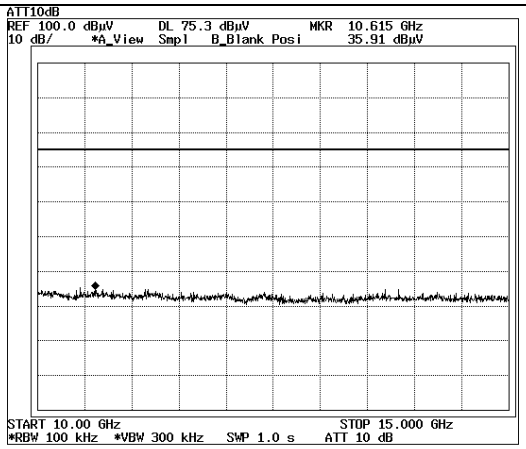
1GHz-5GHz



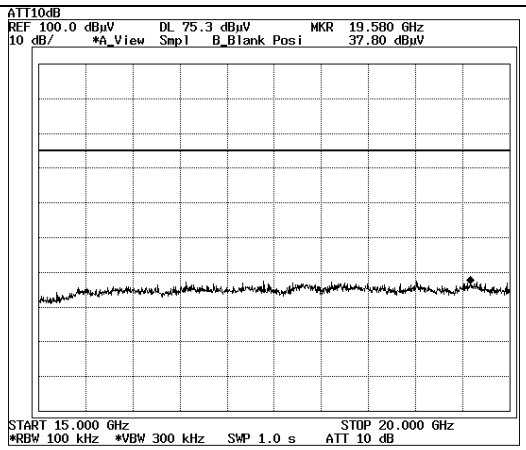
5GHz-10GHz



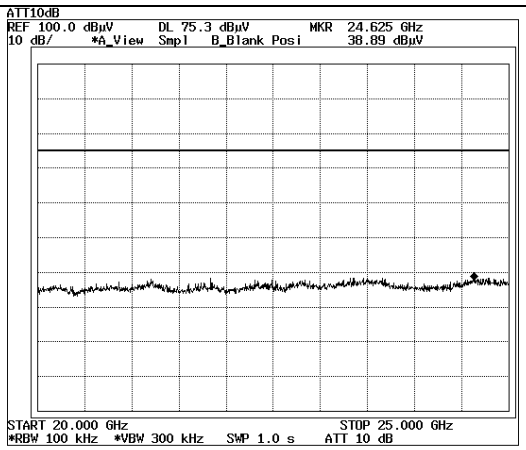
10GHz-15GHz



15GHz-20GHz



20GHz-25GHz



99% Occupied Bandwidth