



RADIO TEST REPORT

Test Report No.: 31EE0030-SH-01-A

Applicant : PIONEER CORPORATION
Type of Equipment : COMBINATION CAR NAVIGATION
Model No. : NXH-9718
FCC ID : AJDK041
Test regulation : FCC Part15 Subpart C: 2010
Test result : Complied

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by any agency of the Federal Government.
6. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.

Date of test: January 25 to 27, 2011

**Representative
test engineer:**

S. Takano

Shinichi Takano
Engineer of WiSE Japan,
UL Verification Service

Approved by :

G. Ishiwata

Go Ishiwata
Assistant Manager of WiSE Japan,
UL Verification Service

- ☐ The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan.
☒ There is no testing item of "Non-accreditation".



UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

MF058d (12.01.11)

Contents

Page

SECTION 1: Customer information	3
SECTION 2: Equipment under test (E.U.T.)	3
SECTION 3: Test specification, procedures & results	5
SECTION 4: Operation of E.U.T. during testing.....	8
SECTION 5: Carrier frequency separation.....	14
SECTION 6: 20dB bandwidth & Occupied bandwidth (99%)	14
SECTION 7: Number of hopping frequency	14
SECTION 8: Dwell time	14
SECTION 9: Maximum peak output power.....	14
SECTION 10: Out of band emissions (Antenna port conducted).....	14
SECTION 11: Radiated emission.....	15
Contents of appendixes	17
APPENDIX 1: Photographs of test setup.....	18
APPENDIX 2: Test data.....	19
APPENDIX 3: Test instruments.....	49

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

SECTION 1: Customer information

Company Name : PIONEER CORPORATION
Address : 25-1 Nishi-machi, Yamada-aza, Kawagoe-shi, Saitama, 350-8555, JAPAN
Telephone Number : +81 49 228 6415
Facsimile Number : +81 49 228 6493
Contact Person : Makoto Kaieda

SECTION 2: Equipment under test (E.U.T.)**2.1 Identification of E.U.T.**

Type of Equipment : COMBINATION CAR NAVIGATION
Model Number : NXH-9718
Serial Number : Refer to 4.2.
Rating : DC 10.5 - 16V
Country of Mass-production : Japan
Condition of EUT : Engineering prototype
(Not for Sale: This sample is equivalent to mass-produced items.)
Receipt Date of Sample : January 21, 2011
Modification of EUT : No modification by the test lab.

2.2 Product description

Model: NXH-9718 (referred to as the EUT in this report) is a COMBINATION CAR NAVIGATION.

The EUT has some derived models:

Pioneer Number	DVZ-0118	NXH-9718	NXH-9918
Audio Amplifier Supplier	Pioneer	Pioneer	Other
NAVI	None	Yes	Yes
Display	8 inch	12.3 inch	12.3 inch

UL Japan, Inc.**Shonan EMC Lab.**

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Clock frequency(ies) in the system : (Audio_Board)
 DC-DC Converter: 461kHz, 500kHz
 DVD: 27MHz, 108MHz, 121.5MHz
 XM(SDARS)Tuner: 24.265MHz, 1871.004MHz, 467.751MHz,
 4.7175MHz
 XM Serial: 500kHz
 Audio-u: 16MHz, 4MHz, 6MHz
 CAN-u: 8MHz
 FM/AM Tuner: 74.1MHz, 10.7MHz
 HD-RADIO: 71.422MHz, 24MHz, 126MHz
 D/A converter: 24.576MHz
 A/D converter: 24.576MHz
 (Navi_Board)
 Core LSI: 32.4576MHz
 Drawing(dot clock): 33.231MHz
 Drawing NTSC capture: 27MHz
 USB: 48MHz
 SW Power: 416kHz, 463kHz
 A/D converter: 12.288MHz
 RTC(Resonator): 32.768kHz
 Reset IC: 4MHz
 SATA: 100.01MHz
 VICS: 100.01MHz
 GPS: 16.368MHz
 (PANEL)
 Bluetooth module: 32MHz
 Power Circuit: 311.5kHz
 u-com: 9.83MHz
 (Other)
 HDD: 2.086MHz

<Radio part>

Equipment type : Transceiver
 Frequency of operation : 2402-2480MHz
 Bandwidth / Channel spacing : 79MHz & 1MHz
 Type of modulation : FHSS (GFSK, $\pi/4$ -DQPSK, 8DPSK)
 Antenna type : Ceramic Patch
 Antenna connector type : Wiring pattern on PCB
 Antenna gain : 2.0dBi
 ITU code : F1D, G1D
 Operation temperature range : -40 to +85 deg.C.

FCC Part15.31 (e)

The equipment provides the Bluetooth transmitter with stable power supply (DC 3.3 V), therefore, the equipment complies power supply regulation.

FCC Part15.203 Antenna requirement

The equipment and its antenna comply with this requirement since this antenna is built in the equipment and it cannot be replaced by end users.

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

SECTION 3: Test specification, procedures & results**3.1 Test specification**

Test specification : FCC Part 15 Subpart C: 2010, final revised on December 6, 2010 and effective January 5, 2011

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

The EUT complies with FCC Part 15 Subpart B: 2010. The test is performed by the customer.

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	FCC Section 15.207	-	N/A *1)	N/A	N/A
Carrier frequency separation	FCC Public Notice DA 00-705 & ANSI C63.4:2003 13. Measurement of intentional radiators	FCC Section15.247 (a)(1)	Conducted	N/A	*See data.	Complied
20dB bandwidth	FCC Public Notice DA 00-705 & ANSI C63.4:2003 13. Measurement of intentional radiators	FCC Section15.247 (a)(1)	Conducted	N/A		Complied
Number of hopping frequency	FCC Public Notice DA 00-705 & ANSI C63.4:2003 13. Measurement of intentional radiators	FCC Section15.247 (a)(1)(iii)	Conducted	N/A		Complied
Dwell time	FCC Public Notice DA 00-705 & ANSI C63.4:2003 13. Measurement of intentional radiators	FCC Section15.247 (a)(1)(iii)	Conducted	N/A		Complied
Maximum peak output power	FCC Public Notice DA 00-705 & ANSI C63.4:2003 13. Measurement of intentional radiators	FCC Section15.247 (b)(1)	Conducted	N/A		Complied
Band edge compliance & Spurious emission	FCC Public Notice DA 00-705 & ANSI C63.4:2003 13. Measurement of intentional radiators	FCC Section15.247 (d) Section15.209	Conducted/ Radiated	N/A	0.9dB Freq.: 328.03MHz Detector: Quasi-Peak Polarization: Horizontal Mode: Tx 2402MHz, DH5	Complied

Note: UL Japan's EMI Work Procedures No.QPM05 and QPM15.

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

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

3.3 Addition to standard

Item	Test Procedure	Specification	Remarks	Worst Margin	Results
Occupied Bandwidth (99%)	ANSI C63.4:2003 13. Measurement of intentional radiators, RSS-Gen 4.6.1	RSS-Gen 4.6.1	Conducted	-	Complied
Note: UL Japan's EMI Work Procedures No.QPM05 and QPM15.					

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

3.4 Uncertainty

The following uncertainties have been calculated to provide a confidence level of 95% using a coverage factor k=2.

Item	Frequency range	No.1 SAC ^{*1} /SR ^{*2} (±)	No.2 SAC/SR (±)	No.3 SAC/SR (±)
Radiated emission (Measurement distance: 3m)	9kHz-30MHz	3.3 dB	2.7 dB	3.4 dB
	30MHz-300MHz	4.7 dB	4.5 dB	4.7 dB
	300MHz-1GHz	4.5 dB	4.6 dB	4.6 dB
	1GHz-13GHz	3.9 dB	3.9 dB	4.0 dB
Radiated emission (Measurement distance: 1m)	13GHz-18GHz	4.8 dB	4.8 dB	4.8 dB
	18GHz-40GHz	4.4 dB	4.2 dB	4.2 dB

*1: SAC=Semi-Anechoic Chamber

*2: SR= Shielded Room is applied besides radiated emission

Radiated emission test

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

Antenna port conducted test

Power Measurement uncertainty above 1GHz for this test was: (±) 0.8dB

Conducted emissions Measurement (below 1GHz) uncertainty for this test was: (±) 1.1dB

Conducted emissions Measurement (1G-3GHz) uncertainty for this test was: (±) 1.2dB

Conducted emissions Measurement (3G-18GHz) uncertainty for this test was: (±) 2.9dB

Conducted emissions Measurement (18G-26.5GHz) uncertainty for this test was: (±) 3.4dB

Bandwidth Measurement uncertainty for this test was: (±) 5.4%

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

3.5 Test location

UL Japan, Inc. Shonan EMC Lab.

1-22-3, Megumigaoka, Hiratsuka-shi, Kanagawa-ken 259-1220 JAPAN

Telephone number : +81 463 50 6400

Facsimile number : +81 463 50 6401

JAB Accreditation No. : RTL02610

	FCC Registration No.	IC Registration No.	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
☐ No.1 Semi-anechoic chamber	697847	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☐ No.2 Semi-anechoic chamber	697847	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☒ No.3 Semi-anechoic chamber	697847	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5m
☐ No.4 Full-anechoic chamber	-	-	8.1 x 5.1 x 3.55	8.1 x 5.1	-
☐ No.1 shielded room	-	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
☐ No.2 shielded room	-	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
☐ No.3 shielded room	-	-	6.3 x 4.7 x 2.7	6.3 x 4.7	-
☐ No.4 shielded room	-	-	4.4 x 4.7 x 2.7	4.4 x 4.7	-
☒ No.5 shielded room	-	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
☒ No.6 shielded room	-	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-

3.6 Test setup, Data of test & Test instruments

Refer to Appendix 1 to 3.

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

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

4.1 Operating mode

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

Operation: TEST MODE

Test item	Operating mode	Tested frequency
Carrier frequency separation	Transmitting Hopping ON (DH5/3DH5), Payload: PRBS9	-
20dB bandwidth	Transmitting Hopping OFF (DH5/3DH5), Payload: PRBS9	2402MHz, 2441MHz, 2480MHz
Number of hopping frequency	Transmitting Hopping ON (DH5/3DH5), Payload: PRBS9	-
Dwell time	Transmitting (Hopping ON) -DH1, -DH3, -DH5 -3DH1, -3DH3, -3DH5	-
Maximum peak output power	Transmitting Hopping OFF, Payload: PRBS9 -DH5, -2DH5, -3DH5	2402MHz, 2441MHz, 2480MHz
Spurious emission & Band edge compliance (Conducted)	Transmitting (DH5/3DH5), Payload: PRBS9 -Hopping ON -Hopping OFF	Spurious emission: 2402MHz, 2441MHz, 2480MHz Band edge compliance:
(Radiated)	Transmitting (DH5/3DH5), Payload: PRBS9	2402MHz, 2480MHz
99% occupied bandwidth	Transmitting, -Hopping ON (DH5/3DH5) -Hopping OFF(DH5/3DH5), Payload: PRBS9	2402MHz, 2441MHz, 2480MHz

*As a result of preliminary test, the formal test was performed with the above modes, which had the maximum payload (except Dwell time test).

**The EUT has no Inquiry mode.

*Remarks: Test was not performed at AFH mode, because the decrease of number of channel (min: 20ch) at AFH mode does not influence on the output power and bandwidth of the EUT.

However, the limit level 125mW of AFH mode was used for the test.

*EUT has the power settings by the software as follows;

Power settings: BDR: Ext.=0, Int.=45

EDR: Ext.=0, Int.=47

Software: CSR BlueSuite BlueTest3 Version 2.0

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

UL Japan, Inc.

Shonan EMC Lab.

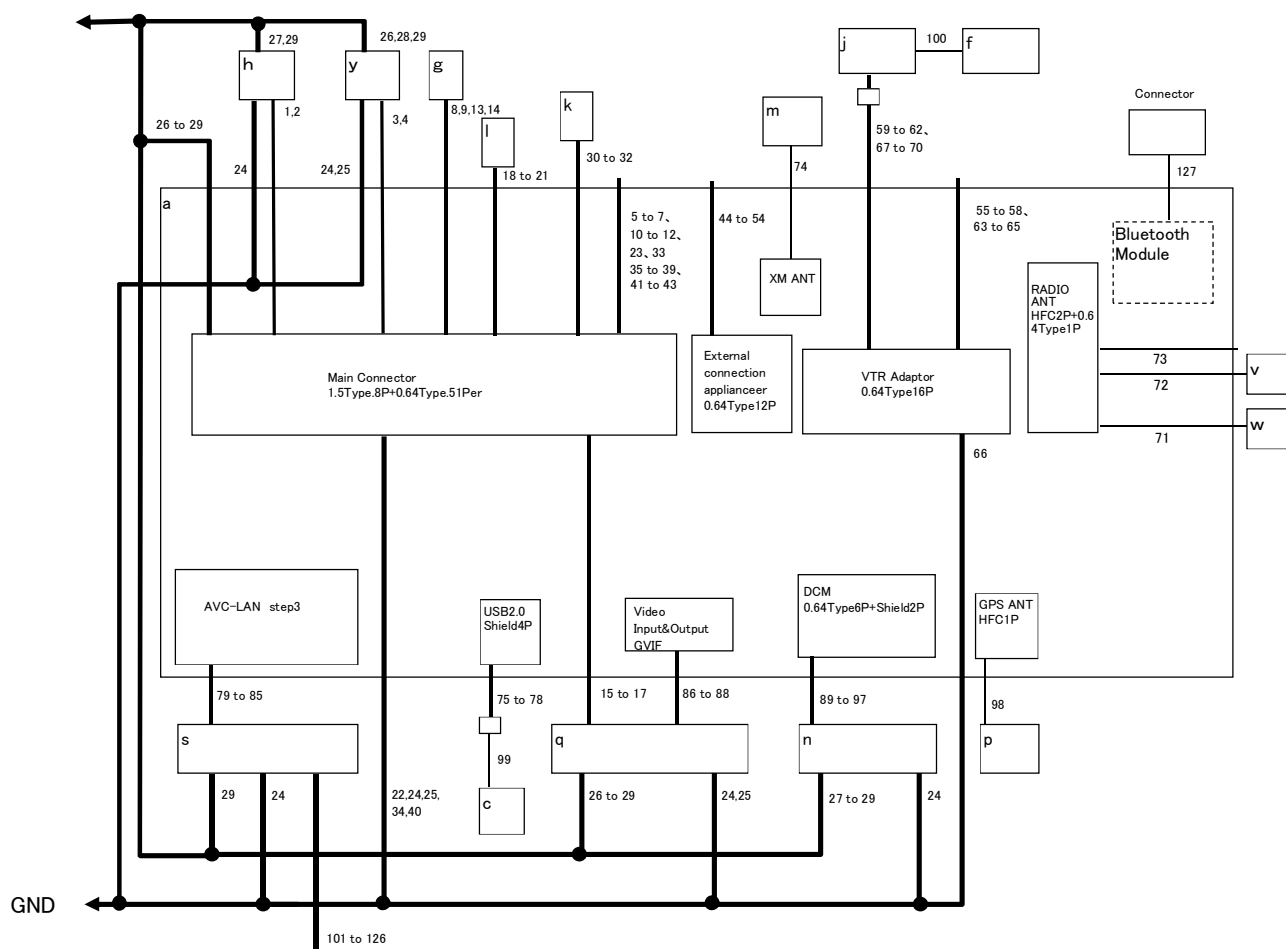
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

4.2 Configuration of tested system

DC Power Supply
12V



* Test data was taken under worse case conditions.

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
a	COMBINATION CAR NAVIGATION (Main Unit)	NXH-9718	JLPKTP0013US *2) JLPKTP0005US *3)	PIONEER	EUT
c	iPod	ipod nano	-	Apple	-
f	Digital Audio Player	DP250	-	SIREN	-
g	Camera	86790-30130	93C00461	Panasonic	-
h	Air-Conditioning ECU	88650-50B80	-	DENSO	-
j	Mini jack cable	86190-48010	-	Panasonic	-
k	Steering switch	PBT-GF15	-	TOKAI RIKA	-
l	Microphone	-	-	KOJIMA PRESS	-
m	XM Antenna	-	-	-	-
n	DCM	DEP30-07665	8KYKY900100	DENSO	-
p	GPS Antenna	-	-	Pioneer	-
q	Display	86110-30320	-	DENSO	-
s	Amplifier	86280-919L0	K3JH126	Pioneer	-
v	75ohm termination	T1221C	-	STACK	-
w	75ohm termination	T1221C	-	STACK	-
y	Remote Control Device	DEP81-10205	10Oct1203	DENSO	-

*1) DC power supply (Model No.: PAN35-10A) was used for DC 12V input.

*2) Used for Spurious emissions tests (Radiated)

*3) Used for Antenna Terminal Conducted tests

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

List of cables used *4)

No.	Connector	Item	Length(m)	Shield		Remarks
				Cable	Connector	
1	Main Connector	CAN H	2	Unshielded	Unshielded	-
2		CAN L	2	Unshielded	Unshielded	-
3		CNH1	2	Unshielded	Unshielded	-
4		CNL1	2	Unshielded	Unshielded	-
5		BTCY	2	Unshielded	Unshielded	OPEN
6		TX1+	2	Unshielded	Unshielded	OPEN
7		TX1-	2	Unshielded	Unshielded	OPEN
8		V+	2	Shielded	Unshielded	-
9		V-	2	Shielded	Unshielded	-
10		TX2+	2	Unshielded	Unshielded	OPEN
11		TX2-	2	Unshielded	Unshielded	OPEN
12		SECH	2	Unshielded	Unshielded	OPEN
13		CA+	2	Shielded	Unshielded	-
14		CGND	2	Shielded	Unshielded	-
15		TX3+	2	Unshielded	Unshielded	-
16		TX3-	2	Unshielded	Unshielded	-
17		VMTF	2	Unshielded	Unshielded	-
18		MIN+	2	Shielded	Unshielded	-
19		SGND	2	Shielded	Unshielded	-
20		MACC	2	Unshielded	Unshielded	-
21		MIN-	2	Shielded	Unshielded	-
22		SNS2	2	Unshielded	Unshielded	GND
23		DR	2	Unshielded	Unshielded	OPEN
24		GND1	2	Unshielded	Unshielded	-
25		ILL-	2	Unshielded	Unshielded	GND
26		ILL+	2	Unshielded	Unshielded	-
27		IG	2	Unshielded	Unshielded	-
28		ACC1	2	Unshielded	Unshielded	-
29		+B1	2	Unshielded	Unshielded	-
30		SW1	2	Unshielded	Unshielded	-
31		SW2	2	Unshielded	Unshielded	-
32		SWG	2	Unshielded	Unshielded	-
33		AIR	2	Unshielded	Unshielded	OPEN
34		ARON	2	Unshielded	Unshielded	GND
35		UPSW	2	Unshielded	Unshielded	OPEN
36		UIND	2	Unshielded	Unshielded	OPEN
37		SEUC	2	Unshielded	Unshielded	OPEN
38		PBEW	2	Unshielded	Unshielded	OPEN
39		SW3	2	Unshielded	Unshielded	OPEN
40		PKB	2	Unshielded	Unshielded	GND
41		SPD	2	Unshielded	Unshielded	OPEN
42		REV	2	Unshielded	Unshielded	OPEN
43		TEST	2	Unshielded	Unshielded	OPEN

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

No.	Connector	Item	Length(m)	Shield		Remarks
				Cable	Connector	
44	External connection appliance	CSLD	1	Unshielded	Unshielded	OPEN
45		CDR+	1	Unshielded	Unshielded	OPEN
46		CDR-	1	Unshielded	Unshielded	OPEN
47		CDL+	1	Unshielded	Unshielded	OPEN
48		CDL-	1	Unshielded	Unshielded	OPEN
49		MUTE	1	Unshielded	Unshielded	OPEN
50		GND2	1	Unshielded	Unshielded	OPEN
51		TX+	1	Unshielded	Unshielded	OPEN
52		TX-	1	Unshielded	Unshielded	OPEN
53		ACC1	1	Unshielded	Unshielded	OPEN
54		+B	1	Unshielded	Unshielded	OPEN
55	VTR Adaptor	NTSO	2	Shielded	Unshielded	OPEN
56		NTSG	2	Shielded	Unshielded	OPEN
57		SLD2	2	Shielded	Unshielded	OPEN
58		VMTR	2	Unshielded	Unshielded	OPEN
59		AGND	2+0.1	Shielded	Unshielded	-
60		VV+	2+0.1	Shielded	Unshielded	-
61		VAR+	2+0.1	Shielded	Unshielded	-
62		VAL+	2+0.1	Shielded	Unshielded	-
63		HAZ	2	Unshielded	Unshielded	OPEN
64		LJB	2	Unshielded	Unshielded	OPEN
65		FLSW	2	Unshielded	Unshielded	OPEN
66		HFL	2	Unshielded	Unshielded	GND
67		SG	2+0.1	Shielded	Unshielded	-
68		VV-	2+0.1	Shielded	Unshielded	-
69		VA-	2+0.1	Shielded	Unshielded	-
70		ADPG	2+0.1	Unshielded	Unshielded	-
71	RADIO ANT	SUB	0.14	Shielded	Unshielded	-
72		MAIN	0.14	Shielded	Unshielded	-
73		ANT+	0.18	Shielded	Unshielded	-
74	XM ANT	XM	5.0	Shielded	Unshielded	-
75	USB 2.0	USV1	1+1	Shielded	Unshielded	-
76		US1-	1+1	Shielded	Unshielded	-
77		US1+	1+1	Shielded	Unshielded	-
78		UGD1	1+1	Shielded	Unshielded	-
79	AVC-LAN step 3	MI+	1	Shielded	Unshielded	-
80		MI-	1	Shielded	Unshielded	-
81		SLDI	1	Shielded	Unshielded	-
82		WUO	1	Unshielded	Unshielded	-
83		MO+	1	Shielded	Unshielded	-
84		MO-	1	Shielded	Unshielded	-
85		SLDO	1	Shielded	Unshielded	-
86	GVIF	GVI+	2	Shielded	Unshielded	-
87		GVI-	2	Shielded	Unshielded	-
88		GVG1	2	Shielded	Unshielded	-

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

No.	Connector	Item	Length(m)	Shield		Remarks
				Cable	Connector	
89	DCM	USB-	0.8	Shielded	Unshielded	-
90		USB+	0.8	Shielded	Unshielded	-
91		USBS	0.8	Shielded	Unshielded	-
92		USBG	0.8	Unshielded	Unshielded	-
93		VOT+	0.8	Shielded	Unshielded	-
94		USBV	0.8	Unshielded	Unshielded	-
95		VOT-	0.8	Shielded	Unshielded	-
96		VOR-	0.8	Shielded	Unshielded	-
97		VOR+	0.8	Shielded	Unshielded	-
98	GPS ANT	GPS	3.5	Shielded	Unshielded	-
99	-	i-Pod USB	2	Shielded	Unshielded	-
100	-	Audio-Connection	2	Shielded	Unshielded	-
101	AMP Connector	CH1+	2	Unshielded	Unshielded	OPEN
102		CH1-	2	Unshielded	Unshielded	OPEN
103		CH2+	2	Unshielded	Unshielded	OPEN
104		CH2-	2	Unshielded	Unshielded	OPEN
105		CH3+	2	Unshielded	Unshielded	OPEN
106		CH3-	2	Unshielded	Unshielded	OPEN
107		CH4+	2	Unshielded	Unshielded	OPEN
108		CH4-	2	Unshielded	Unshielded	OPEN
109		CH5+	2	Unshielded	Unshielded	OPEN
110		CH5-	2	Unshielded	Unshielded	OPEN
111		CH6+	2	Unshielded	Unshielded	OPEN
112		CH6-	2	Unshielded	Unshielded	OPEN
113		CH7+	2	Unshielded	Unshielded	OPEN
114		CH7-	2	Unshielded	Unshielded	OPEN
115		CH8+	2	Unshielded	Unshielded	OPEN
116		CH8-	2	Unshielded	Unshielded	OPEN
117		CH9+	2	Unshielded	Unshielded	OPEN
118		CH9-	2	Unshielded	Unshielded	OPEN
119		CH10+	2	Unshielded	Unshielded	OPEN
120		CH10-	2	Unshielded	Unshielded	OPEN
121		CH11+	2	Unshielded	Unshielded	OPEN
122		CH11-	2	Unshielded	Unshielded	OPEN
123		CH12+	2	Unshielded	Unshielded	OPEN
124		CH12-	2	Unshielded	Unshielded	OPEN
125	AMP Connector	TMUT	2	Unshielded	Unshielded	OPEN
126	AMP Connector	SPD	2	Unshielded	Unshielded	OPEN
127	-	Jig	0.9	Unshielded	Unshielded	OPEN

*4) All cables used for the measurement are exclusive use or marketed.

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

SECTION 5: 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
Refer to APPENDIX 2

SECTION 6: 20dB bandwidth & Occupied bandwidth (99%)

Test procedure

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

Summary of the test results: Pass
Refer to APPENDIX 2

SECTION 7: 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
Refer to APPENDIX 2

SECTION 8: Dwell time

Test procedure

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

Summary of the test results: Pass
Refer to APPENDIX 2

SECTION 9: 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
Refer to APPENDIX 2

SECTION 10: 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.

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.

Summary of the test results: Pass
Refer to APPENDIX 2

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

SECTION 11: Radiated emission

11.1 Operating environment

The test was carried out in No.2 Semi-Anechoic Chamber.

Temperature : See test data (APPENDIX 2)

Humidity : See test data (APPENDIX 2)

11.2 Test configuration

EUT was placed on a platform of nominal size, 1m by 2.0m, raised 80cm above the conducting ground plane.

The table is made of Styrofoam and covered with polyvinyl chloride. That has very low permittivity.

The rear of EUT, including its peripherals was aligned and flushed with rear of tabletop. I/O cables that were connected to the peripherals were bundled in center. They were folded back and for the forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane.

Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

Photographs of the set up are shown in Appendix 1.

11.3 Test conditions

Frequency range : 30MHz to 25GHz

Test distance : 3m (below 13GHz) / 1m (above 13GHz)

EUT position : Table top

EUT operation mode : Refer to 4.1.

11.4 Test procedure

The Radiated Electric Field Strength intensity has been measured on a semi-anechoic chamber with a ground plane and at a distance of 3m (below 13GHz) / 1m (above 13GHz). Measurements were performed with quasi-peak, peak and average detector. 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.

The radiated emission measurements were made with the following detection of the test receiver and Spectrum Analyzer.

Frequency	:	30-1000MHz	1000-25000MHz	
Detection Type	:	Quasi-Peak	Peak	* Average
IF Bandwidth	:	120kHz	RBW:1MHz/VBW:3MHz	RBW:1MHz/VBW:See data

* When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

*.The VBW was based on the inverse of the duty cycle (Refer to Appendix 2).

The EUT was tested in the direction normally used.

UL Japan, Inc.

Shonan EMC Lab.

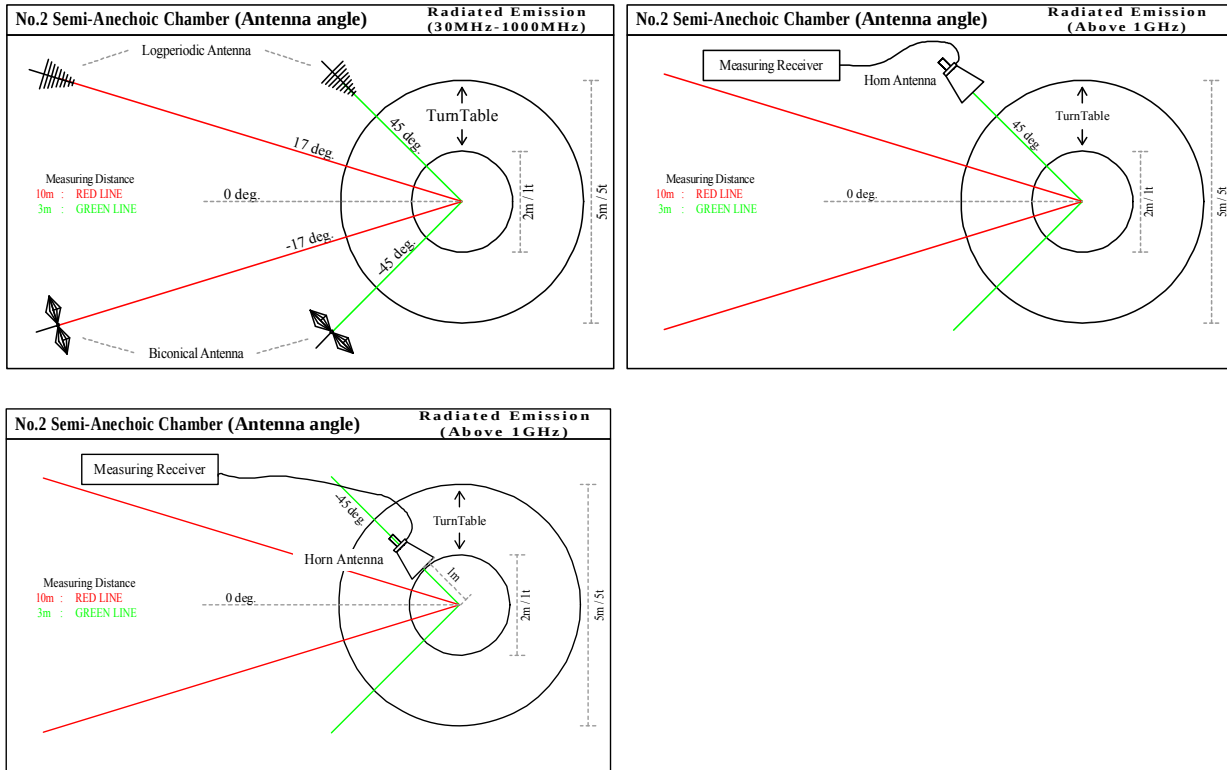
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Figure 1. Antenna angle

No.3 Semi-Anechoic Chamber



11.5 Band edge

Band edge level at 2390MHz, 2400MHz and 2483.5MHz is below the limits of FCC 15.209. Refer to the data.

11.6 Results

Summary of the test results : Pass *No noise was detected above the 5th order harmonics.
Refer to APPENDIX 2

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Contents of appendixes

APPENDIX 1: Photographs of test setup

Radiated emission

APPENDIX 2: Test data

20dB bandwidth and Carrier frequency separation

Number of hopping frequency

Dwell time

Maximum peak output power

Spurious emission (Antenna port conducted)

Radiated emission

99% Occupied bandwidth

APPENDIX 3: Test instruments

Test instruments

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401