RADIO TEST REPORT

Test Report No.: 10300228S-A

Applicant	:	**Aplix IP Holdings Corporation**
Type of Equipment	:	**JM1**
Model No.	:	**JM1L2S**
FCC ID	:	**O8CJM1L2S**
Test regulation	:	**FCC Part15 Subpart C: 2014**
Test item	:	**Radiated emission**
Test result	:	**Complied**

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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: April 17 to 22, 2014

Tested by:

Akira Sato
Engineer
Consumer Technology Division

Approved by :

Toyokazu Imamura
Leader
Consumer Technology Division

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☒ There is no testing item of "Non-accreditation".

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REVISION HISTORY

Original Test Report No.: 10300228S-A

Revision	Test report No.	Date	Page revised	Contents
- (Original)	10300228S-A	July 23, 2014	-	-
1	10300228S-A	August 18, 2014	4	Correction of 2.2
			5,11-13	Correction of antenna name

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Contents

SECTION 1: Customer information

Company Name	:	Aplix IP Holdings Corporation
Address	:	Shinjuku Eastside Square 13F 27-30, Shinjuku 6-chome, Shinjuku-ku, Tokyo, 160-0022 Japan
Telephone Number	:	+81-50-3786-1702
Facsimile Number	:	+81-80-8462-0681
Contact Person	:	Isamu Shimosako

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

2.1 Identification of E.U.T.

Type of Equipment	:	JM1
Model Number	:	JM1L2S
Serial Number	:	Refer to Clause 4.2
Rating	:	DC3.3V
Country of Mass-production	:	Japan, China, Taiwan, Ireland
Condition of EUT	:	Engineering prototype (Not for Sale: This sample is equivalent to mass-produced items.)
Receipt Date of Sample	:	April 8, 2014
Modification of EUT	:	No modification by the test lab.

2.2 Product description

Model: JM1L2S (referred to as the EUT in this report) is JM1.

Clock frequency(ies) in the system : 16MHz, 32.768kHz

Bluetooth specification:

Equipment type	:	Transceiver
Frequency of operation	:	2402-2480MHz
Bandwidth	:	1MHz
Channel spacing	:	2MHz
Type of modulation	:	DSSS (GFSK)
Antenna type	:	Sleeve (Hoko AT-SL006), PCB (JOYMAX IFF-D001), Wire (2902003) PCB trace (PCB P/N: 500049)
Antenna connector type	:	U.FL (other than PCB trace antenna)
ITU code	:	F1D
Operation temperature range	:	-20 to +75 deg.C

Model No.	Antenna gain (Peak)
AT-SL006	2.14dBi
IFF-D001	2.0dBi
2902003	<3.0dBi
PCB P/N: 500049	-4.0dBi

FCC 15.31 (e) / 212
The RF transmitter has its own regulator. The RF transmitter is constantly provided voltage (DC1.35V) through the regulator regardless of input voltage. Therefore, the equipment complies with the requirement.

FCC 15.203 / 212
The PCB trace antenna is not removable from the EUT. For other antennas, the EUT has a unique coupling/antenna connector. Therefore, the equipment complies with the requirement.

SECTION 3: Test specification, procedures & results

3.1 Test specification

Test specification : FCC Part 15 Subpart C: 2014, final revised on May 1, 2014 and effective June 2, 2014
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 revision on May 1, 2014 does not affect the test specification applied to the EUT.

3.2 Procedures & Results

Item	Test Procedure *1)	Specification	Remarks	Deviation	Worst Margin	Results
Conducted emission	ANSI C63.10:2009	FCC 15.207	-	N/A *2)	N/A	N/A
6dB bandwidth	ANSI C63.10:2009	FCC 15.247 (a)(2)	Conducted	*3)		N/A
Maximum peak output power	ANSI C63.10:2009	FCC 15.247 (b)(3)	Conducted	*3)		N/A
Out of band emission & Restricted band edges	ANSI C63.10:2009	FCC 15.109, 15.247 (d) & 15.209	Radiated	N/A	4.1 dB Freq.: 9920.000MHz Polarization: Vertical Detection: Average Mode: Tx 2480MHz Antenna: Sleeve	Complied
Power density	ANSI C63.10:2009	FCC 15.247 (e)	Conducted	*3)	N/A	N/A

Note: UL Japan's EMI Work Procedures No.13-EM-W0420 and 13-EM-W0422.
*1) These tests were also referred to KDB 558074 v03r01 (FCC), "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247".
*2) The test is not applicable since the EUT has no AC mains.
*3) Refer to the original report: 10022739S.

3.3 Deviation from standard

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	3.7 dB	3.7 dB	3.6 dB
	30MHz-300MHz	4.8 dB	5.0 dB	4.8 dB
	300MHz-1GHz	5.0 dB	5.0 dB	4.8 dB
	1GHz-15GHz	4.9 dB	4.9 dB	4.9 dB
Radiated emission (Measurement distance: 1m)	15GHz-18GHz	5.7 dB	5.6 dB	5.6 dB
	18GHz-40GHz	5.2 dB	4.3 dB	4.3 dB

*1: SAC=Semi-Anechoic Chamber
*2: SR= Shielded Room is applied besides radiated emission

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

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

	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	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☒ No.2 semi-anechoic chamber	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10m
☒ No.3 semi-anechoic chamber	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5m
☐ No.4 semi-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	-
☐ No.1 measurement room	-	2.55 x 4.1 x 2.5	-	-

3.6 Test setup, Data of test & Test instruments

Refer to APPENDIX 1 to 3.

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

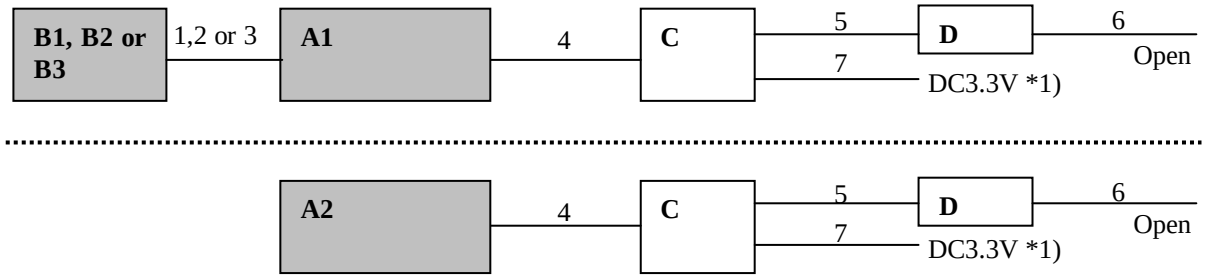
4.1 Operating mode

Test item	Mode	Tested frequency
All items	Transmitting Hopping OFF (Low Energy), Payload: PRBS9	2402MHz, 2440MHz, 2480MHz

Power settings: "0005" (Transmit power level)
Test software: CSR uEnergy Test Application, version 2.0.0.99

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

4.2 Configuration and peripherals



* Test data was taken under worse case conditions.

Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A1	JM1	JM1L2S	A00032969T	Aplix IP Holdings	EUT (Type 1)
A2	JM1	JM1L2S	A000369013	Aplix IP Holdings	EUT (Type 2) *2)
B1	Sleeve antenna	AT-SL006	001	Hoko	EUT
B2	PCB antenna	IFF-D001	001	JOYMAX	EUT
B3	Wire antenna	2902003	001	Aplix IP Holdings	EUT
C	Jig board	-	-	Aplix IP Holdings	-
D	USB-SPI Converter	USB-SPI	268562	csr	-

*1) DC Power Supply (Model No.: PAN55-20A) was used for DC input.
*2) PCB trace antenna is installed in Type 2.

List of cables used

No.	Cable Name	Length (m)	Shield		Remark
			Cable	Connector	
1	Sleeve antenna	0.15	Unshielded	Unshielded	-
2	PCB antenna	0.25	Unshielded	Unshielded	-
3	Wire antenna	0.06	Unshielded	Unshielded	-
4	Jig	0.08+0.3	Unshielded	Unshielded	-
5	LAN	1.0	Shielded	Shielded	-
6	USB	2.0	Shielded	Shielded	-
7	DC	0.8+3.0	Unshielded	Unshielded	-

SECTION 5: Radiated emission

5.1 Operating environment

Test room : See test data (APPENDIX 1)
Temperature : See test data (APPENDIX 1)
Humidity : See test data (APPENDIX 1)

5.2 Test configuration

EUT was placed on a polystyrene platform of nominal size, 0.5m by 0.5m, raised 0.8m above the conducting ground plane. Photographs of the set up are shown in APPENDIX 3.

5.3 Test conditions

Frequency range : 30MHz - 25GHz
EUT position : Table top

5.4 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 15GHz) / 1m (above 15GHz) (Refer to Figure 1). 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.

Frequency		30 - 1000MHz	1 - 25GHz		20dBc
Detection Type	:	Quasi-Peak	Peak	Average *1)	Peak
IF Bandwidth	:	120kHz	RBW:1MHz VBW:3MHz	RBW: 1MHz VBW: 3MHz Detector: Linear Voltage Averaging	RBW: 100kHz, VBW: 300kHz

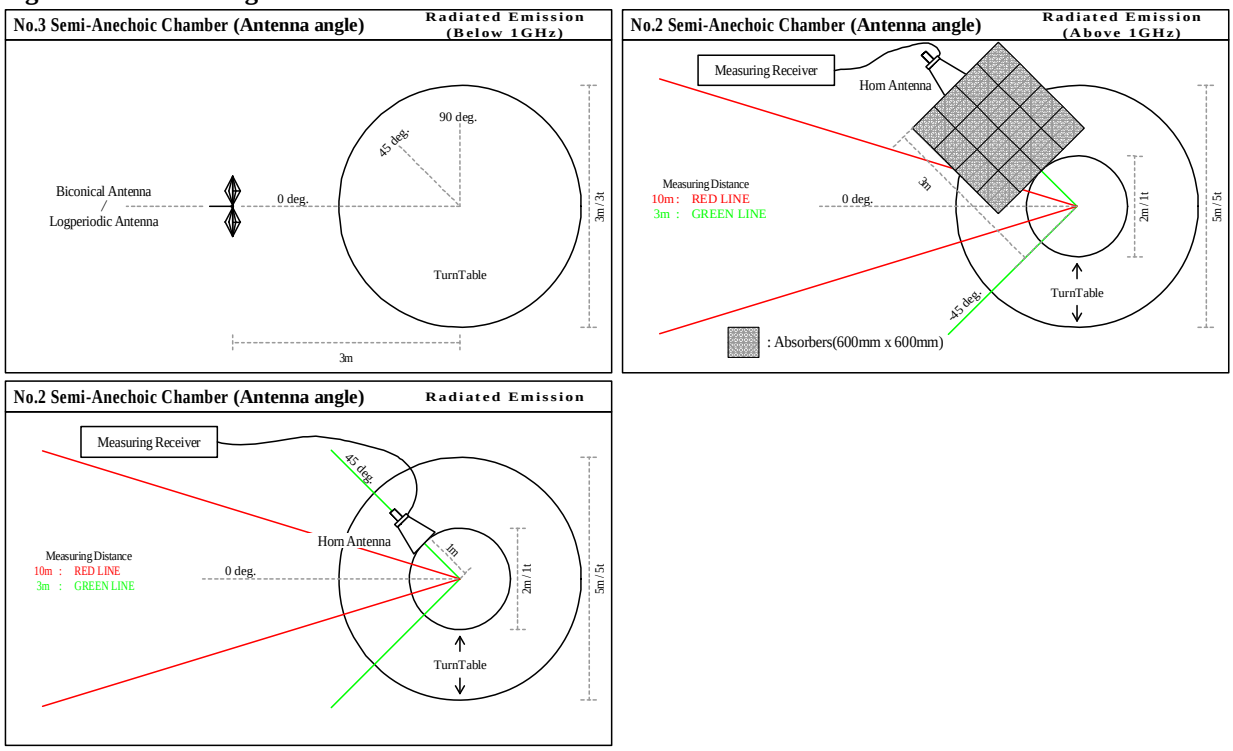
*1) Average Power Measurement was measured based on 12.2.5 of "Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247".

The carrier levels and noise levels were confirmed at each position of X, Y and Z axes to see the position of maximum noise, and the test was made at the position that has the maximum noise.

Worst case:

Subject	Antenna polarization	Carrier	Spurious (Below 1GHz)	Spurious (1-18GHz)	Spurious (18-25GHz)
Module (Type 1)	Horizontal	X	X	X	Z
	Vertical	X	X	X	X
Sleeve antenna	Horizontal	X	X	X	X
	Vertical	X	X	X	Y
Module (Type 1)	Horizontal	X	X	X	X
	Vertical	X	X	X	X
PCB antenna	Horizontal	X	Z	X	X
	Vertical	X	Z	X	X
Module (Type 1)	Horizontal	X	X	X	Z
	Vertical	X	X	X	Y
Wire antenna	Horizontal	X	X	X	X
	Vertical	X	X	X	X
Module (Type 2) & PCB trace antenna	Horizontal	X	X	X	Z
	Vertical	X	X	X	Y

Figure 1. Antenna angle



5.5 Band edge

Band edge level at 2390MHz and 2483.5MHz is below the limits of FCC 15.209 and band edge level at 2400MHz is below the 20dBc. Refer to the data.

5.6 Results

Summary of the test results: Pass

*No noise was detected above the 4th order harmonics.

Refer to APPENDIX 1.

Contents of APPENDIXES

APPENDIX 1: Data of Radio tests

Radiated emission

APPENDIX 2: Test instruments

Test instruments

APPENDIX 3: Photographs of test setup

Radiated emission
Pre-check of the worst position

APPENDIX 1: Data of Radio tests

Radiated Emission

Test place	No.2 Semi Anechoic Chamber and No.3 Semi Anechoic Chamber			
Date	April 17, 2014	April 18, 2014	April 21, 2014	April 21, 2014
Temperature / Humidity	22 deg.C, 29 %RH	24 deg.C, 31 %RH	20 deg.C, 43 %RH	24 deg.C, 36 %RH
Engineer	Akihiro Oda	Wataru Kojima	Wataru Kojima	Akira Sato
Mode	Tx, 2402 MHz			
	Tx, Bluetooth Low Energy, PN9 Sleeve Antenna			

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	280.000	QP	25.4	18.1	8.4	32.0	19.9	46.0	26.1	300	239	
Hori.	348.000	QP	31.1	15.0	8.8	32.0	22.9	46.0	23.1	100	354	
Hori.	356.000	QP	31.4	15.2	8.8	32.0	23.4	46.0	22.6	100	1	
Hori.	364.000	QP	31.5	15.4	8.9	32.0	23.8	46.0	22.2	100	228	
Hori.	2390.000	PK	49.0	27.5	14.3	38.2	52.6	73.9	21.3	100	0	
Hori.	4804.000	PK	42.2	30.9	7.3	37.1	43.3	73.9	30.6	100	0	
Hori.	7206.000	PK	43.8	36.6	8.6	39.4	49.6	73.9	24.3	100	0	
Hori.	9608.000	PK	42.5	39.1	9.6	37.6	53.6	73.9	20.3	100	0	
Hori.	19228.060	PK	49.1	40.8	1.9	48.4	43.4	73.9	30.5	100	201	
Hori.	2390.000	AV	34.2	27.5	14.3	38.2	37.8	53.9	16.1	100	0	
Vert.	272.000	QP	27.9	17.8	8.4	32.0	22.1	46.0	23.9	100	280	
Vert.	280.000	QP	28.3	18.1	8.4	32.0	22.8	46.0	23.2	100	266	
Vert.	296.000	QP	26.5	18.7	8.5	32.0	21.7	46.0	24.3	100	254	
Vert.	348.000	QP	31.1	15.0	8.8	32.0	22.9	46.0	23.1	100	183	
Vert.	2390.000	PK	44.2	27.5	14.3	38.2	47.8	73.9	26.1	100	0	
Vert.	4804.000	PK	42.1	30.9	7.3	37.1	43.2	73.9	30.7	100	0	
Vert.	7206.000	PK	43.4	36.6	8.6	39.4	49.2	73.9	24.7	100	0	
Vert.	9608.000	PK	41.0	39.1	9.6	37.6	52.1	73.9	21.8	100	0	
Vert.	19228.060	PK	48.3	40.8	1.9	48.4	42.6	73.9	31.3	100	313	
Vert.	2390.000	AV	33.8	27.5	14.3	38.2	37.4	53.9	16.5	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4804.000	AV	34.1	30.9	7.3	37.1	3.8	39.0	53.9	14.9	
Hori.	7206.000	AV	36.4	36.6	8.6	39.4	3.8	46.0	53.9	7.9	
Hori.	9608.000	AV	33.3	39.1	9.6	37.6	3.8	48.2	53.9	5.7	
Hori.	19228.060	AV	43.5	40.8	1.9	48.4	3.8	41.6	53.9	12.3	
Vert.	4804.000	AV	33.7	30.9	7.3	37.1	3.8	38.6	53.9	15.3	
Vert.	7206.000	AV	36.2	36.6	8.6	39.4	3.8	45.8	53.9	8.2	
Vert.	9608.000	AV	33.9	39.1	9.6	37.6	3.8	48.8	53.9	5.1	
Vert.	19228.060	AV	41.5	40.8	1.9	48.4	3.8	39.6	53.9	14.3	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

20dBc Data Sheet **(RBW 100kHz, VBW 300kHz)**

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.000	PK	90.4	27.5	14.3	38.2	94.0	-	-	100k/300k
Hori.	2400.000	PK	44.3	27.5	14.3	38.2	47.9	74.0	26.1	100k/300k
Vert.	2402.000	PK	76.9	27.5	14.3	38.2	80.5	-	-	100k/300k
Vert.	2400.000	PK	34.2	27.5	14.3	38.2	37.8	60.5	22.7	100k/300k

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator)- Gain(Amprifier)

Radiated Emission

Test place	No.2 Semi Anechoic Chamber and No.3 Semi Anechoic Chamber			
Date	April 17, 2014	April 18, 2014	April 21, 2014	April 21, 2014
Temperature / Humidity	22 deg.C, 29 %RH	24 deg.C, 31 %RH	24 deg.C, 36 %RH	20 deg.C, 43 %RH
Engineer	Akihiro Oda	Wataru Kojima	Wataru Kojima	Akira Sato
Mode	Tx, 2440 MHz			
	Tx, Bluetooth Low Energy, PN9 Sleeve Antenna			

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	280.000	QP	26.6	18.1	8.4	32.0	21.1	46.0	24.9	300	206	
Hori.	348.000	QP	31.2	15.0	8.8	32.0	23.0	46.0	23.0	150	355	
Hori.	364.000	QP	28.7	15.4	8.9	32.0	21.0	46.0	25.0	100	235	
Hori.	4880.000	PK	42.6	31.3	7.3	37.0	44.2	73.9	29.7	100	0	
Hori.	7320.000	PK	44.9	36.7	8.6	39.4	50.8	73.9	23.1	100	0	
Hori.	9760.000	PK	43.1	39.0	9.5	37.5	54.1	73.9	19.8	100	0	
Hori.	19531.970	PK	48.0	40.8	2.0	48.1	42.7	73.9	31.2	100	190	
Vert.	272.000	QP	27.5	17.8	8.4	32.0	21.7	46.0	24.3	100	256	
Vert.	280.000	QP	28.6	18.1	8.4	32.0	23.1	46.0	22.9	100	265	
Vert.	296.000	QP	28.0	18.7	8.5	32.0	23.2	46.0	22.8	100	275	
Vert.	308.036	QP	27.3	14.0	8.6	32.0	17.9	46.0	28.1	100	263	
Vert.	348.000	QP	30.4	15.0	8.8	32.0	22.2	46.0	23.8	100	203	
Vert.	4880.000	PK	45.1	31.3	7.3	37.0	46.7	73.9	27.2	100	0	
Vert.	7320.000	PK	46.9	36.7	8.6	39.4	52.8	73.9	21.1	100	0	
Vert.	9760.000	PK	42.9	39.0	9.5	37.5	53.9	73.9	20.0	100	0	
Vert.	19531.920	PK	47.5	40.8	2.0	48.1	42.2	73.9	31.7	100	233	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4880.000	AV	34.0	31.3	7.3	37.0	3.8	39.4	53.9	14.5	
Hori.	7320.000	AV	36.4	36.7	8.6	39.4	3.8	46.1	53.9	7.8	
Hori.	9760.000	AV	33.7	39.0	9.5	37.5	3.8	48.5	53.9	5.4	
Hori.	19531.970	AV	40.5	40.8	2.0	48.1	3.8	39.0	53.9	14.9	
Vert.	4880.000	AV	33.9	31.3	7.3	37.0	3.8	39.3	53.9	14.6	
Vert.	7320.000	AV	36.4	36.7	8.6	39.4	3.8	46.1	53.9	7.8	
Vert.	9760.000	AV	33.5	39.0	9.5	37.5	3.8	48.3	53.9	5.6	
Vert.	19531.920	AV	40.3	40.8	2.0	48.1	3.8	38.8	53.9	15.1	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place	No.2 Semi Anechoic Chamber and No.3 Semi Anechoic Chamber			
Date	April 17, 2014	April 18, 2014	April 21, 2013	April 21, 2014
Temperature / Humidity	22 deg.C, 29 %RH	24 deg.C, 31 %RH	20 deg.C, 43 %RH	24 deg.C, 36 %RH
Engineer	Akihiro Oda	Wataru Kojima	Wataru Kojima	Akira Sato
Mode	Tx, 2480 MHz			
	Tx, Bluetooth Low Energy, PN9 Sleeve Antenna			

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	268.000	QP	25.2	17.7	8.4	32.0	19.3	46.0	26.7	123	153	
Hori.	344.000	QP	30.8	14.9	8.8	32.0	22.5	46.0	23.5	100	204	
Hori.	348.000	QP	31.2	15.0	8.8	32.0	23.0	46.0	23.0	100	1	
Hori.	2483.500	PK	58.7	27.8	14.4	38.1	62.8	73.9	11.1	130	318	
Hori.	2538.999	PK	45.6	28.0	14.4	38.1	49.9	73.9	24.0	100	111	
Hori.	4960.000	PK	44.0	31.8	7.3	37.0	46.1	73.9	27.8	100	0	
Hori.	7440.000	PK	45.6	36.8	8.7	39.4	51.7	73.9	22.2	100	0	
Hori.	9920.000	PK	43.4	38.9	9.5	37.5	54.3	73.9	19.6	100	0	
Hori.	19827.990	PK	46.7	40.7	2.1	47.9	41.6	73.9	32.3	117	235	
Hori.	2483.500	AV	42.2	27.8	14.4	38.1	46.3	53.9	7.6	130	318	
Vert.	280.000	QP	28.6	18.1	8.4	32.0	23.1	46.0	22.9	100	241	
Vert.	296.000	QP	24.2	18.7	8.5	32.0	19.4	46.0	26.6	100	283	
Vert.	336.000	QP	29.4	14.7	8.7	32.0	20.8	46.0	25.2	100	146	
Vert.	2483.500	PK	47.5	27.8	14.4	38.1	51.6	73.9	22.3	100	216	
Vert.	4960.000	PK	41.2	31.8	7.3	37.0	43.3	73.9	30.6	100	0	
Vert.	7440.000	PK	42.5	36.8	8.7	39.4	48.6	73.9	25.3	100	0	
Vert.	9920.000	PK	43.6	38.9	9.5	37.5	54.5	73.9	19.4	100	0	
Vert.	19827.990	PK	46.1	40.7	2.1	47.9	41.0	73.9	32.9	100	225	
Vert.	2483.500	AV	35.4	27.8	14.4	38.1	39.5	53.9	14.4	100	216	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2538.999	AV	36.1	28.0	14.4	38.1	3.8	44.2	53.9	9.7	
Hori.	4960.000	AV	36.6	31.8	7.3	37.0	3.8	42.5	53.9	11.4	
Hori.	7440.000	AV	36.0	36.8	8.7	39.4	3.8	45.9	53.9	8.0	
Hori.	9920.000	AV	35.0	38.9	9.5	37.5	3.8	49.7	53.9	4.2	
Hori.	19827.990	AV	39.3	40.7	2.1	47.9	3.8	38.0	53.9	15.9	
Vert.	4960.000	AV	34.0	31.8	7.3	37.0	3.8	39.9	53.9	14.0	
Vert.	7440.000	AV	36.7	36.8	8.7	39.4	3.8	46.6	53.9	7.3	
Vert.	9920.000	AV	35.1	38.9	9.5	37.5	3.8	49.8	53.9	4.1	
Vert.	19827.990	AV	38.6	40.7	2.1	47.9	3.8	37.3	53.9	16.6	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place	No.2 Semi Anechoic Chamber and No.3 Semi Anechoic Chamber			
Date	April 17, 2014	April 18, 2014	April 21, 2014	April 21, 2014
Temperature / Humidity	22 deg.C, 29 %RH	24 deg.C, 31 %RH	20 deg.C, 43 %RH	24 deg.C, 36 %RH
Engineer	Akihiro Oda	Wataru Kojima	Wataru Kojima	Akira Sato
Mode	Tx, 2402 MHz			
	Tx, Bluetooth Low Energy, PN9 PCB Antenna			

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	260.000	QP	23.4	17.4	8.3	32.0	17.1	46.0	28.9	300	283	
Hori.	328.000	QP	30.3	14.5	8.7	32.0	21.5	46.0	24.5	100	10	
Hori.	348.000	QP	31.7	15.0	8.8	32.0	23.5	46.0	22.5	150	1	
Hori.	356.000	QP	31.9	15.2	8.8	32.0	23.9	46.0	22.1	219	232	
Hori.	2390.000	PK	43.2	27.5	14.3	38.2	46.8	73.9	27.1	100	0	
Hori.	4804.000	PK	42.1	30.9	7.3	37.1	43.2	73.9	30.7	100	0	
Hori.	7206.000	PK	43.7	36.6	8.6	39.4	49.5	73.9	24.4	100	0	
Hori.	9608.000	PK	40.7	39.1	9.6	37.6	51.8	73.9	22.1	100	0	
Hori.	19228.020	PK	46.9	40.8	1.9	48.4	41.2	73.9	32.7	100	110	
Hori.	2390.000	AV	35.3	27.5	14.3	38.2	38.9	53.9	15.0	100	0	
Vert.	280.000	QP	27.8	18.1	8.4	32.0	22.3	46.0	23.7	100	304	
Vert.	296.000	QP	26.9	18.7	8.5	32.0	22.1	46.0	23.9	100	272	
Vert.	356.000	QP	30.6	15.2	8.8	32.0	22.6	46.0	23.4	100	213	
Vert.	2390.000	PK	44.1	27.5	14.3	38.2	47.7	73.9	26.2	100	0	
Vert.	4804.000	PK	33.7	30.9	7.3	37.1	34.8	73.9	39.1	100	0	
Vert.	7206.000	PK	44.2	36.6	8.6	39.4	50.0	73.9	23.9	100	0	
Vert.	9608.000	PK	41.0	39.1	9.6	37.6	52.1	73.9	21.8	100	0	
Vert.	19228.020	PK	47.9	40.8	1.9	48.4	42.2	73.9	31.7	100	309	
Vert.	2390.000	AV	35.3	27.5	14.3	38.2	38.9	53.9	15.0	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4804.000	AV	34.6	30.9	7.3	37.1	3.8	39.5	53.9	14.4	
Hori.	7206.000	AV	36.2	36.6	8.6	39.4	3.8	45.8	53.9	8.1	
Hori.	9608.000	AV	32.4	39.1	9.6	37.6	3.8	47.3	53.9	6.6	
Hori.	19228.020	AV	38.8	40.8	1.9	48.4	3.8	36.9	53.9	17.0	
Vert.	4804.000	AV	41.9	30.9	7.3	37.1	3.8	46.8	53.9	7.1	
Vert.	7206.000	AV	36.1	36.6	8.6	39.4	3.8	45.7	53.9	8.2	
Vert.	9608.000	AV	32.4	39.1	9.6	37.6	3.8	47.3	53.9	6.6	
Vert.	19228.020	AV	38.8	40.8	1.9	48.4	3.8	36.9	53.9	17.0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

20dBc Data Sheet **(RBW 100kHz, VBW 300kHz)**

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.000	PK	80.1	27.5	14.3	38.2	83.7	-	-	100k/300k
Hori.	2400.000	PK	36.3	27.5	14.3	38.2	39.9	63.7	23.8	100k/300k
Vert.	2402.000	PK	75.8	27.5	14.3	38.2	79.4	-	-	100k/300k
Vert.	2400.000	PK	35.2	27.5	14.3	38.2	38.8	59.4	20.6	100k/300k

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator) - Gain(Amprifier)

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Radiated Emission

Test place	No.2 Semi Anechoic Chamber and No.3 Semi Anechoic Chamber			
Date	April 17, 2014	April 18, 2014	April 21, 2014	April 21, 2014
Temperature / Humidity	22 deg.C, 29 %RH	24 deg.C, 31 %RH	20 deg.C, 43 %RH	24 deg.C, 36 %RH
Engineer	Akihiro Oda	Wataru Kojima	Wataru Kojima	Akira Sato
Mode	Tx, 2440 MHz			
	Tx, Bluetooth Low Energy, PN9 PCB Antenna			

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	280.000	QP	25.8	18.1	8.4	32.0	20.3	46.0	25.7	150	155	
Hori.	344.000	QP	29.9	14.9	8.8	32.0	21.6	46.0	24.4	150	1	
Hori.	348.000	QP	32.0	15.0	8.8	32.0	23.8	46.0	22.2	100	8	
Hori.	4880.000	PK	41.6	31.3	7.3	37.0	43.2	73.9	30.7	100	0	
Hori.	7320.000	PK	44.1	36.7	8.6	39.4	50.0	73.9	23.9	100	0	
Hori.	9760.000	PK	41.8	39.0	9.5	37.5	52.8	73.9	21.1	100	0	
Hori.	19532.470	PK	45.6	40.8	2.0	48.1	40.3	73.9	33.6	100	2	
Vert.	252.000	QP	25.8	17.1	8.3	32.0	19.2	46.0	26.8	100	357	
Vert.	296.000	QP	27.8	18.7	8.5	32.0	23.0	46.0	23.0	100	221	
Vert.	308.000	QP	30.6	14.0	8.6	32.0	21.2	46.0	24.8	100	238	
Vert.	4880.000	PK	42.3	31.3	7.3	37.0	43.9	73.9	30.0	100	0	
Vert.	7320.000	PK	44.4	36.7	8.6	39.4	50.3	73.9	23.6	100	0	
Vert.	9760.000	PK	41.5	39.0	9.5	37.5	52.5	73.9	21.4	100	0	
Vert.	19532.470	PK	45.3	40.8	2.0	48.1	40.0	73.9	33.9	100	311	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4880.000	AV	33.5	31.3	7.3	37.0	3.8	38.9	53.9	15.0	
Hori.	7320.000	AV	35.4	36.7	8.6	39.4	3.8	45.1	53.9	8.8	
Hori.	9760.000	AV	33.0	39.0	9.5	37.5	3.8	47.8	53.9	6.1	
Hori.	19532.470	AV	37.8	40.8	2.0	48.1	3.8	36.3	53.9	17.6	
Vert.	4880.000	AV	32.2	31.3	7.3	37.0	3.8	37.6	53.9	16.3	
Vert.	7320.000	AV	35.2	36.7	8.6	39.4	3.8	44.9	53.9	9.0	
Vert.	9760.000	AV	32.9	39.0	9.5	37.5	3.8	47.7	53.9	6.2	
Vert.	19532.470	AV	37.9	40.8	2.0	48.1	3.8	36.4	53.9	17.5	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place	No.2 Semi Anechoic Chamber and No.3 Semi Anechoic Chamber			
Date	April 17, 2014	April 18, 2014	April 21, 2014	April 21, 2014
Temperature / Humidity	22 deg.C, 29 %RH	24 deg.C, 31 %RH	20 deg.C, 43 %RH	24 deg.C, 36 %RH
Engineer	Akihiro Oda	Wataru Kojima	Wataru Kojima	Akira Sato
Mode	Tx, 2480 MHz			
	Tx, Bluetooth Low Energy, PN9 PCB Antenna			

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	276.000	QP	25.9	18.0	8.4	32.0	20.3	46.0	25.7	150	357	
Hori.	344.000	QP	29.9	14.9	8.8	32.0	21.6	46.0	24.4	124	360	
Hori.	348.000	QP	30.6	15.0	8.8	32.0	22.4	46.0	23.6	124	0	
Hori.	2483.500	PK	44.7	27.8	14.4	38.1	48.8	73.9	25.1	100	0	
Hori.	4960.000	PK	42.1	31.8	7.3	37.0	44.2	73.9	29.7	100	0	
Hori.	7440.000	PK	44.3	36.8	8.7	39.4	50.4	73.9	23.5	100	0	
Hori.	9920.000	PK	42.6	38.9	9.5	37.5	53.5	73.9	20.4	100	0	
Hori.	19827.510	PK	46.9	40.7	2.1	47.9	41.8	73.9	32.1	100	6	
Hori.	2483.500	AV	32.7	27.8	14.4	38.1	36.8	53.9	17.1	100	0	
Vert.	280.056	QP	27.4	18.1	8.4	32.0	21.9	46.0	24.1	100	262	
Vert.	296.000	QP	29.1	18.7	8.5	32.0	24.3	46.0	21.7	100	239	
Vert.	308.000	QP	30.8	14.0	8.6	32.0	21.4	46.0	24.6	100	234	
Vert.	2483.500	PK	44.5	27.8	14.4	38.1	48.6	73.9	25.3	100	0	
Vert.	4960.000	PK	42.5	31.8	7.3	37.0	44.6	73.9	29.3	100	0	
Vert.	7440.000	PK	46.2	36.8	8.7	39.4	52.3	73.9	21.6	100	0	
Vert.	9920.000	PK	38.6	38.9	9.5	37.5	49.5	73.9	24.4	100	0	
Vert.	19827.510	PK	46.5	40.7	2.1	47.9	41.4	73.9	32.5	100	289	
Vert.	2483.500	AV	34.2	27.8	14.4	38.1	38.3	53.9	15.6	100	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4960.000	AV	33.8	31.8	7.3	37.0	3.8	39.7	53.9	14.2	
Hori.	7440.000	AV	35.8	36.8	8.7	39.4	3.8	45.7	53.9	8.2	
Hori.	9920.000	AV	34.0	38.9	9.5	37.5	3.8	48.7	53.9	5.2	
Hori.	19827.510	AV	39.8	40.7	2.1	47.9	3.8	38.5	53.9	15.4	
Vert.	4960.000	AV	33.0	31.8	7.3	37.0	3.8	38.9	53.9	15.1	
Vert.	7440.000	AV	35.7	36.8	8.7	39.4	3.8	45.6	53.9	8.3	
Vert.	9920.000	AV	33.7	38.9	9.5	37.5	3.8	48.4	53.9	5.5	
Vert.	19827.510	AV	38.1	40.7	2.1	47.9	3.8	36.8	53.9	17.1	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Radiated Emission

Test place	No.2 Semi Anechoic Chamber and No.3 Semi Anechoic Chamber		
Date	April 18, 2014	April 21, 2014	April 21, 2014
Temperature / Humidity	24 deg.C, 31 %RH	20 deg.C, 43 %RH	24 deg.C, 36 %RH
Engineer	Wataru Kojima	Wataru Kojima	Akira Sato
Mode	Tx, 2402 MHz		
	Tx, Bluetooth Low Energy, PN9	Wire Antenna	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	88.113	QP	22.1	7.8	7.5	32.1	5.3	43.5	38.2	300	234	
Hori.	272.005	QP	27.4	17.8	8.4	32.0	21.6	46.0	24.4	300	199	
Hori.	356.002	QP	29.3	15.2	8.8	32.0	21.3	46.0	24.7	209	241	
Hori.	2390.000	PK	47.1	27.5	14.3	38.2	50.7	73.9	23.2	100	256	
Hori.	4804.000	PK	44.5	30.9	7.3	37.1	45.6	73.9	28.3	100	0	
Hori.	7206.000	PK	46.3	36.6	8.6	39.4	52.1	73.9	21.8	100	0	
Hori.	9608.000	PK	43.6	39.1	9.6	37.6	54.7	73.9	19.2	100	0	
Hori.	19227.860	PK	50.5	40.8	1.9	48.4	44.8	73.9	29.1	100	236	
Hori.	2390.000	AV	34.8	27.5	14.3	38.2	38.4	53.9	15.5	100	256	
Vert.	91.775	QP	29.3	8.4	7.5	32.1	13.1	43.5	30.4	205	10	
Vert.	95.071	QP	28.4	9.1	7.4	32.1	12.8	43.5	30.7	209	17	
Vert.	272.005	QP	27.8	17.8	8.4	32.0	22.0	46.0	24.0	100	239	
Vert.	348.000	QP	27.9	15.0	8.8	32.0	19.7	46.0	26.3	100	358	
Vert.	2390.000	PK	41.1	27.5	14.3	38.2	44.7	73.9	29.2	148	167	
Vert.	4804.000	PK	44.2	30.9	7.3	37.1	45.3	73.9	28.6	100	0	
Vert.	7206.000	PK	46.2	36.6	8.6	39.4	52.0	73.9	21.9	100	0	
Vert.	9608.000	PK	43.4	39.1	9.6	37.6	54.5	73.9	19.4	100	0	
Vert.	19227.860	PK	51.7	40.8	1.9	48.4	46.0	73.9	27.9	100	209	
Vert.	2390.000	AV	32.3	27.5	14.3	38.2	35.9	53.9	18.0	148	167	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4804.000	AV	34.1	30.9	7.3	37.1	3.8	39.0	53.9	14.9	
Hori.	7206.000	AV	32.5	36.6	8.6	39.4	3.8	42.1	53.9	11.8	
Hori.	9608.000	AV	31.8	39.1	9.6	37.6	3.8	46.7	53.9	7.2	
Hori.	19227.860	AV	42.9	40.8	1.9	48.4	3.8	41.0	53.9	12.9	
Vert.	4804.000	AV	33.9	30.9	7.3	37.1	3.8	38.8	53.9	15.1	
Vert.	7206.000	AV	35.9	36.6	8.6	39.4	3.8	45.5	53.9	8.4	
Vert.	9608.000	AV	31.6	39.1	9.6	37.6	3.8	46.5	53.9	7.4	
Vert.	19227.860	AV	46.7	40.8	1.9	48.4	3.8	44.8	53.9	9.1	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

20dBc Data Sheet **(RBW 100kHz, VBW 300kHz)**

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.000	PK	83.7	27.5	14.3	38.2	87.3	-	-	100K/300K
Hori.	2400.000	PK	37.3	27.5	14.3	38.2	40.9	67.3	26.4	100K/300K
Vert.	2402.000	PK	77.8	27.5	14.3	38.2	81.4	-	-	100K/300K
Vert.	2400.000	PK	36.4	27.5	14.3	38.2	40.0	61.4	21.4	100K/300K

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator) - Gain(Amprifier)

Radiated Emission

Test place	No.2 Semi Anechoic Chamber and No.3 Semi Anechoic Chamber		
Date	April 18, 2014	April 21, 2014	April 21, 2014
Temperature / Humidity	24 deg.C, 31 %RH	20 deg.C, 43 %RH	24 deg.C, 36 %RH
Engineer	Wataru Kojima	Wataru Kojima	Akira Sato
Mode	Tx, 2440 MHz		
	Tx, Bluetooth Low Energy, PN9	Wire Antenna	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	272.000	QP	28.1	17.8	8.4	32.0	22.3	46.0	23.7	284	211	
Hori.	356.000	QP	30.1	15.2	8.8	32.0	22.1	46.0	23.9	207	242	
Hori.	364.000	QP	27.9	15.4	8.9	32.0	20.2	46.0	25.8	170	242	
Hori.	4880.000	PK	43.5	31.3	7.3	37.0	45.1	73.9	28.8	100	0	
Hori.	7320.000	PK	44.9	36.7	8.6	39.4	50.8	73.9	23.1	100	0	
Hori.	9760.000	PK	43.6	39.0	9.5	37.5	54.6	73.9	19.3	100	0	
Hori.	19531.980	PK	48.1	40.8	2.0	48.1	42.8	73.9	31.1	103	203	
Vert.	91.768	QP	29.7	8.4	7.5	32.1	13.5	43.5	30.0	216	277	
Vert.	95.033	QP	30.6	9.1	7.4	32.1	15.0	43.5	28.5	320	347	
Vert.	272.000	QP	27.4	17.8	8.4	32.0	21.6	46.0	24.4	100	270	
Vert.	308.000	QP	29.2	14.0	8.6	32.0	19.8	46.0	26.2	100	267	
Vert.	356.000	QP	28.1	15.2	8.8	32.0	20.1	46.0	25.9	100	192	
Vert.	4880.000	PK	42.9	31.3	7.3	37.0	44.5	73.9	29.4	100	0	
Vert.	7320.000	PK	46.7	36.7	8.6	39.4	52.6	73.9	21.3	100	0	
Vert.	9760.000	PK	43.7	39.0	9.5	37.5	54.7	73.9	19.2	100	0	
Vert.	19531.980	PK	46.5	40.8	2.0	48.1	41.2	73.9	32.7	100	228	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4880.000	AV	33.6	31.3	7.3	37.0	3.8	39.0	53.9	14.9	
Hori.	7320.000	AV	36.2	36.7	8.6	39.4	3.8	45.9	53.9	8.0	
Hori.	9760.000	AV	31.8	39.0	9.5	37.5	3.8	46.6	53.9	7.3	
Hori.	19531.980	AV	41.6	40.8	2.0	48.1	3.8	40.1	53.9	13.8	
Vert.	4880.000	AV	33.5	31.3	7.3	37.0	3.8	38.9	53.9	15.0	
Vert.	7320.000	AV	36.2	36.7	8.6	39.4	3.8	45.9	53.9	8.0	
Vert.	9760.000	AV	31.7	39.0	9.5	37.5	3.8	46.5	53.9	7.4	
Vert.	19531.980	AV	40.3	40.8	2.0	48.1	3.8	38.8	53.9	15.1	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place	No.2 Semi Anechoic Chamber	No.3 Semi Anechoic Chamber	
Date	April 18, 2014	April 21, 2014	April 21, 2014
Temperature / Humidity	24 deg.C, 31 %RH	20 deg.C, 43 %RH	24 deg.C, 36 %RH
Engineer	Wataru Kojima	Wataru Kojima	Akira Sato
Mode	Tx, 2480 MHz		
	Tx, Bluetooth Low Energy, PN9	Wire Antenna	

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	272.000	QP	27.1	17.8	8.4	32.0	21.3	46.0	24.7	300	72	
Hori.	356.000	QP	30.2	15.2	8.8	32.0	22.2	46.0	23.8	209	244	
Hori.	364.000	QP	28.6	15.4	8.9	32.0	20.9	46.0	25.1	180	236	
Hori.	2483.500	PK	53.2	27.8	14.4	38.1	57.3	73.9	16.6	100	228	
Hori.	4960.000	PK	45.1	31.8	7.3	37.0	47.2	73.9	26.7	100	0	
Hori.	7440.000	PK	46.2	36.8	8.7	39.4	52.3	73.9	21.6	100	0	
Hori.	9920.000	PK	44.3	38.9	9.5	37.5	55.2	73.9	18.7	100	0	
Hori.	19827.960	PK	48.8	40.7	2.1	47.9	43.7	73.9	30.2	105	200	
Hori.	2483.500	AV	37.1	27.8	14.4	38.1	41.2	53.9	12.7	100	228	
Vert.	91.867	QP	26.7	8.5	7.5	32.1	10.6	43.5	32.9	100	71	
Vert.	95.061	QP	30.4	9.1	7.4	32.1	14.8	43.5	28.7	339	26	
Vert.	272.000	QP	26.6	17.8	8.4	32.0	20.8	46.0	25.2	100	252	
Vert.	308.000	QP	29.4	14.0	8.6	32.0	20.0	46.0	26.0	100	245	
Vert.	2483.500	PK	50.4	27.8	14.4	38.1	54.5	73.9	19.4	120	266	
Vert.	4960.000	PK	44.1	31.8	7.3	37.0	46.2	73.9	27.7	100	0	
Vert.	7440.000	PK	46.3	36.8	8.7	39.4	52.4	73.9	21.5	100	0	
Vert.	9920.000	PK	44.6	38.9	9.5	37.5	55.5	73.9	18.4	100	0	
Vert.	19827.960	PK	45.1	40.7	2.1	47.9	40.0	73.9	33.9	100	82	
Vert.	2483.500	AV	36.0	27.8	14.4	38.1	40.1	53.9	13.8	120	266	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4960.000	AV	34.0	31.8	7.3	37.0	3.8	39.9	53.9	14.0	
Hori.	7440.000	AV	36.2	36.8	8.7	39.4	3.8	46.1	53.9	7.8	
Hori.	9920.000	AV	34.3	38.9	9.5	37.5	3.8	49.0	53.9	4.9	
Hori.	19827.960	AV	42.3	40.7	2.1	47.9	3.8	41.0	53.9	12.9	
Vert.	4960.000	AV	33.9	31.8	7.3	37.0	3.8	39.8	53.9	14.1	
Vert.	7440.000	AV	36.2	36.8	8.7	39.4	3.8	46.1	53.9	7.8	
Vert.	9920.000	AV	33.9	38.9	9.5	37.5	3.8	48.6	53.9	5.3	
Vert.	19827.960	AV	36.8	40.7	2.1	47.9	3.8	35.5	53.9	18.4	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place	No.2 Semi Anechoic Chamber and No.3 Semi Anechoic Chamber			
Date	April 17, 2014	April 18, 2014	April 21, 2014	April 21, 2014
Temperature / Humidity	22 deg.C, 29 %RH	24 deg.C, 31 %RH	20 deg.C, 43 %RH	24 deg.C, 36 %RH
Engineer	Akihiro Oda	Wataru Kojima	Wataru Kojima	Akira Sato
Mode	Tx, 2402 MHz			
	Tx, Bluetooth Low Energy, PN9	Type 2 PCB Antenna		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	95.040	QP	24.4	9.1	7.4	32.1	8.8	50.0	41.2	261	348	
Hori.	304.000	QP	33.5	13.9	8.6	32.0	24.0	57.0	33.0	150	38	
Hori.	364.000	QP	23.5	15.4	8.9	32.0	15.8	57.0	41.2	145	0	
Hori.	372.000	QP	23.6	15.6	8.9	32.0	16.1	57.0	40.9	115	245	
Hori.	2390.000	PK	44.2	27.5	14.3	38.2	47.8	73.9	26.1	162	259	
Hori.	4804.000	PK	42.6	30.9	7.3	37.1	43.7	73.9	30.2	100	0	
Hori.	7206.000	PK	43.8	36.6	8.6	39.4	49.6	73.9	24.3	100	0	
Hori.	9608.000	PK	41.4	39.1	9.6	37.6	52.5	73.9	21.4	100	0	
Hori.	19227.810	PK	49.9	40.8	1.9	48.4	44.2	73.9	29.7	100	254	
Hori.	2390.000	AV	33.5	27.5	14.3	38.2	37.1	53.9	16.8	162	259	
Vert.	91.738	QP	26.8	8.4	7.5	32.1	10.6	50.0	39.4	100	10	
Vert.	95.040	QP	29.0	9.1	7.4	32.1	13.4	50.0	36.6	100	4	
Vert.	304.000	QP	31.9	13.9	8.6	32.0	22.4	57.0	34.6	162	287	
Vert.	2390.000	PK	42.7	27.5	14.3	38.2	46.3	73.9	27.6	131	0	
Vert.	4804.000	PK	43.9	30.9	7.3	37.1	45.0	73.9	28.9	100	0	
Vert.	7206.000	PK	44.7	36.6	8.6	39.4	50.5	73.9	23.4	100	0	
Vert.	9608.000	PK	41.1	39.1	9.6	37.6	52.2	73.9	21.7	100	0	
Vert.	19227.810	PK	49.8	40.8	1.9	48.4	44.1	73.9	29.8	100	220	
Vert.	2390.000	AV	33.2	27.5	14.3	38.2	36.8	53.9	17.1	131	0	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4804.000	AV	32.8	30.9	7.3	37.1	3.8	37.7	53.9	16.2	
Hori.	7206.000	AV	33.8	36.6	8.6	39.4	3.8	43.4	53.9	10.5	
Hori.	9608.000	AV	33.3	39.1	9.6	37.6	3.8	48.2	53.9	5.7	
Hori.	19227.810	AV	44.5	40.8	1.9	48.4	3.8	42.6	53.9	11.3	
Vert.	4804.000	AV	33.7	30.9	7.3	37.1	3.8	38.6	53.9	15.3	
Vert.	7206.000	AV	35.5	36.6	8.6	39.4	3.8	45.1	53.9	8.9	
Vert.	9608.000	AV	33.1	39.1	9.6	37.6	3.8	48.0	53.9	5.9	
Vert.	19227.810	AV	43.9	40.8	1.9	48.4	3.8	42.0	53.9	11.9	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

20dBc Data Sheet **(RBW 100kHz, VBW 300kHz)**

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	2402.000	PK	84.3	27.5	14.3	38.2	87.9	-	-	100k/300k
Hori.	2400.000	PK	39.5	27.5	14.3	38.2	43.1	67.9	24.8	100k/300k
Vert.	2402.000	PK	79.6	27.5	14.3	38.2	83.2	-	-	100k/300k
Vert.	2400.000	PK	36.9	27.5	14.3	38.2	40.5	63.2	22.7	100k/300k

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator) - Gain(Amprifier)

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Radiated Emission

Test place	No.2 Semi Anechoic Chamber and No.3 Semi Anechoic Chamber			
Date	April 17, 2014	April 18, 2014	April 21, 2014	April 22, 2014
Temperature / Humidity	22 deg.C, 29 %RH	24 deg.C, 31 %RH	20 deg.C, 43 %RH	24 deg.C, 36 %RH
Engineer	Akihiro Oda	Wataru Kojima	Wataru Kojima	Akira Sato
Mode	Tx, 2440 MHz			
	Tx, Bluetooth Low Energy, PN9	Type 2 PCB Antenna		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	65.372	QP	22.6	7.1	6.4	32.2	3.9	40.0	36.1	300	298	
Hori.	304.000	QP	32.9	13.9	8.6	32.0	23.4	46.0	22.6	194	38	
Hori.	308.000	QP	33.6	14.0	8.6	32.0	24.2	46.0	21.8	197	32	
Hori.	372.000	QP	24.0	15.6	8.9	32.0	16.5	46.0	29.5	145	70	
Hori.	4880.000	PK	43.9	31.3	7.3	37.0	45.5	73.9	28.4	100	0	
Hori.	7320.000	PK	46.3	36.7	8.6	39.4	52.2	73.9	21.7	100	0	
Hori.	9760.000	PK	43.8	39.0	9.5	37.5	54.8	73.9	19.1	100	0	
Hori.	19531.810	PK	49.2	40.8	2.0	48.1	43.9	73.9	30.0	100	195	
Vert.	91.738	QP	26.2	8.4	7.5	32.1	10.0	43.5	33.5	100	194	
Vert.	95.040	QP	26.9	9.1	7.4	32.1	11.3	43.5	32.2	100	33	
Vert.	304.000	QP	32.8	13.9	8.6	32.0	23.3	46.0	22.7	100	258	
Vert.	4880.000	PK	42.5	31.3	7.3	37.0	44.1	73.9	29.8	100	0	
Vert.	7320.000	PK	46.8	36.7	8.6	39.4	52.7	73.9	21.2	100	0	
Vert.	9760.000	PK	43.1	39.0	9.5	37.5	54.1	73.9	19.8	100	0	
Vert.	19531.810	PK	47.9	40.8	2.0	48.1	42.6	73.9	31.3	100	221	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4880.000	AV	34.0	31.3	7.3	37.0	3.8	39.4	53.9	14.5	
Hori.	7320.000	AV	35.1	36.7	8.6	39.4	3.8	44.8	53.9	9.1	
Hori.	9760.000	AV	33.9	39.0	9.5	37.5	3.8	48.7	53.9	5.2	
Hori.	19531.810	AV	43.7	40.8	2.0	48.1	3.8	42.2	53.9	11.7	
Vert.	4880.000	AV	33.9	31.3	7.3	37.0	3.8	39.3	53.9	14.6	
Vert.	7320.000	AV	36.4	36.7	8.6	39.4	3.8	46.1	53.9	7.8	
Vert.	9760.000	AV	33.4	39.0	9.5	37.5	3.8	48.2	53.9	5.7	
Vert.	19531.810	AV	41.1	40.8	2.0	48.1	3.8	39.6	53.9	14.3	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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Radiated Emission

Test place	No.2 Semi Anechoic Chamber and No.3 Semi Anechoic Chamber			
Date	April 17, 2014	April 18, 2014	April 21, 2014	April 22, 2014
Temperature / Humidity	22 deg.C, 29 %RH	24 deg.C, 31 %RH	20 deg.C, 43 %RH	24 deg.C, 36 %RH
Engineer	Akihiro Oda	Wataru Kojima	Wataru Kojima	Akira Sato
Mode	Tx, 2480 MHz			
	Tx, Bluetooth Low Energy, PN9	Type 2 PCB Antenna		

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	63.007	QP	22.7	7.6	6.5	32.2	4.6	40.0	35.4	150	285	
Hori.	308.000	QP	33.9	14.0	8.6	32.0	24.5	46.0	21.5	150	68	
Hori.	2483.500	PK	50.6	27.8	14.4	38.1	54.7	73.9	19.2	100	0	
Hori.	4960.000	PK	41.9	31.8	7.3	37.0	44.0	73.9	29.9	100	0	
Hori.	7440.000	PK	44.8	36.8	8.7	39.4	50.9	73.9	23.0	100	0	
Hori.	9920.000	PK	42.2	38.9	9.5	37.5	53.1	73.9	20.8	100	0	
Hori.	19827.740	PK	49.5	40.7	2.1	47.9	44.4	73.9	29.5	100	206	
Hori.	2483.500	AV	35.1	27.8	14.4	38.1	39.2	53.9	14.7	100	0	
Vert.	91.738	QP	28.4	8.4	7.5	32.1	12.2	43.5	31.3	201	339	
Vert.	95.015	QP	30.9	9.1	7.4	32.1	15.3	43.5	28.2	310	360	
Vert.	98.319	QP	25.0	9.7	7.3	32.1	9.9	43.5	33.6	100	141	
Vert.	304.000	QP	32.6	13.9	8.6	32.0	23.1	46.0	22.9	100	267	
Vert.	308.000	QP	33.2	14.0	8.6	32.0	23.8	46.0	22.2	196	32	
Vert.	2483.500	PK	47.5	27.8	14.4	38.1	51.6	73.9	22.3	124	181	
Vert.	4960.000	PK	42.5	31.8	7.3	37.0	44.6	73.9	29.3	100	0	
Vert.	7440.000	PK	42.0	36.8	8.7	39.4	48.1	73.9	25.8	100	0	
Vert.	9920.000	PK	43.0	38.9	9.5	37.5	53.9	73.9	20.0	100	0	
Vert.	19827.740	PK	49.0	40.7	2.1	47.9	43.9	73.9	30.0	100	216	
Vert.	2483.500	AV	33.7	27.8	14.4	38.1	37.8	53.9	16.1	124	181	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier)
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

Average measurement value with duty factor

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori.	4960.000	AV	34.1	31.8	7.3	37.0	3.8	40.0	53.9	13.9	
Hori.	7440.000	AV	36.6	36.8	8.7	39.4	3.8	46.5	53.9	7.4	
Hori.	9920.000	AV	33.2	38.9	9.5	37.5	3.8	47.9	53.9	6.1	
Hori.	19827.740	AV	43.3	40.7	2.1	47.9	3.8	42.0	53.9	11.9	
Vert.	4960.000	AV	34.2	31.8	7.3	37.0	3.8	40.1	53.9	13.8	
Vert.	7440.000	AV	36.1	36.8	8.7	39.4	3.8	46.0	53.9	7.9	
Vert.	9920.000	AV	34.8	38.9	9.5	37.5	3.8	49.5	53.9	4.4	
Vert.	19827.740	AV	42.7	40.7	2.1	47.9	3.8	41.4	53.9	12.5	

Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18GHz)-Distance factor(above 15GHz)) - Gain(Amprifier) + Duty factor
Distance factor : 15GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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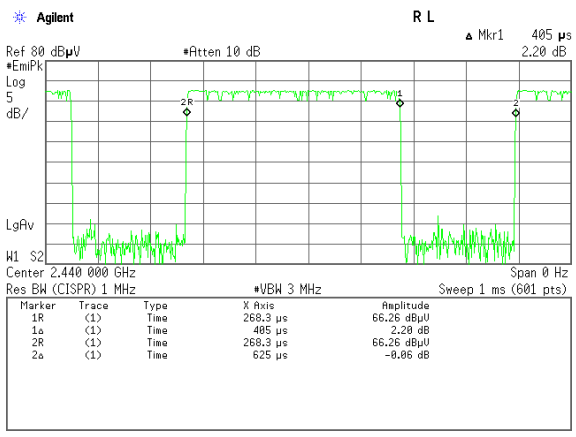
Duty Factor Calculation chart

Tx, Bluetooth Low Energy, PN9

Duty Factor Calculation	
Duty Factor: 20log (1/duty cycle) = 3.8dB	
duty cycle = 405 / 625 = 0.648 (64.8%)	
Tx2_duty1 	Tx2_duty2

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APPENDIX 2
Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SAEC-02(NSA)	Semi-Anechoic Chamber	TDK	SAEC-02(NSA)	2	RE	2013/07/06 * 12
SAF-05	Pre Amplifier	TOYO Corporation	TPA0118-36	1440490	RE	2013/11/22 * 12
SCC-G02	Coaxial Cable	Suhner	SUCOFLEX 104A	46498/4A	RE	2013/04/09 * 12
SCC-G22	Coaxial Cable	Suhner	SUCOFLEX 104	296199/4	RE	2013/05/22 * 12
SHA-02	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-726	RE	2013/08/12 * 12
SOS-03	Humidity Indicator	A&D	AD-5681	4063325	RE	2014/02/21 * 12
KSA-08	Spectrum Analyzer	Agilent	E4446A	MY46180525	RE	2014/03/04 * 12
SJM-02	Measure	KOMELON	KMC-36	-	RE	-
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE, RFI,MF)	-	RE	-
SAT10-06	Attenuator	Agilent	8493C-010	74865	RE	2013/11/22 * 12
SFL-02	Highpass Filter	MICRO-TRONICS	HPM50111	051	RE	2013/11/22 * 12
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2014/02/14 * 12
SAT6-06	Attenuator	JFW	50HF-006N	-	RE	2014/02/17 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2013/10/26 * 12
SCC-C1/C2/C3/C4/C5/C10/SRSE-03	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271(RF Selector)	RE	2013/04/03 * 12
SLA-03	Logperiodic Antenna	Schwarzbeck	UHALP9108A	UHALP 9108-A 0901	RE	2013/10/26 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2014/02/21 * 12
STR-06	Test Receiver	Rohde & Schwarz	ESCI	101259	RE	2014/03/04 * 12
SJM-11	Measure	PROMART	SEN1935	-	RE	-
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2013/07/09 * 12
SSA-03	Spectrum Analyzer	Agilent	E4448A	MY48250152	RE	2014/02/03 * 12
SCC-G15	Coaxial Cable	Suhner	SUCOFLEX 102	32703/2	RE	2014/03/13 * 12
SHA-04	Horn Antenna	ETS LINDGREN	3160-09	LM3640	RE	2014/03/15 * 12
SAF-08	Pre Amplifier	TOYO Corporation	HAP18-26W	00000019	RE	2014/03/14 * 12

The expiration date of the calibration is the end of the expired month .
As for some calibrations performed after the tested dates , those test equipment have been controlled by means of an unbroken chains of calibrations .

All equipment is calibrated with valid calibrations . Each measurement data is traceable to the national or international standards .
Test Item :
RE: Radiated emission