



RADIO TEST REPORT

Test Report No. : 10582469S-C

Applicant : Sony Corporation
Type of Equipment : Wireless Noise Canceling Stereo Headset
Model No. : MDR-ZX770BN
FCC ID : AK8ZX770BN
Test regulation : FCC Part 15 Subpart C: 2014
Test Result : Complied

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the above regulation.
4. The test results in this 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: December 4, 5, 12, 2014

Representative test engineer:

Kazuhiro Ando
Engineer of EMC/Wireless Group,
Consumer Technology Division

Approved by:

Go Ishiwata
Site Manager
Engineer of EMC/Wireless Group,
Consumer Technology Division



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

TESTING
CERTIFICATE 1266.01

UL Japan, Inc.
Kashima EMC Lab.

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13-EM-F0429

CONTENTS	PAGE
SECTION 1: Customer information.....	3
SECTION 2: Equipment under test (E.U.T.).....	3
SECTION 3: Test specification, procedures & results.....	4
SECTION 4: Operation of E.U.T. during testing.....	7
SECTION 5: Carrier frequency separation.....	9
SECTION 6: 20dB bandwidth & Occupied bandwidth (99%).....	9
SECTION 7: Number of hopping frequency	9
SECTION 8: Dwell time	9
SECTION 9: Maximum peak output power	9
SECTION 10: Spurious emissions (Antenna port conducted)	9
SECTION 11: Radiated emission.....	10
Contents of APPENDIXES	12
APPENDIX 1: Data of radio tests.....	13
APPENDIX 2: Test instruments	41
APPENDIX 3: Photographs of test setup.....	42

REVISION HISTORY

Original Test Report No. 10582469S-C

Revision	Date	Page revised	Revision Description
00	January 7, 2015	-	Original
01	January 9, 2015	4	Update of 3.1
		7, 18, 21-22, 25-30	Correction of typo

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SECTION 1: Customer information

Company name : Sony Corporation
Brand name : SONY
Address : 2-10-1 Osaki, Shinagawa-ku, Tokyo 141-8610 Japan
Telephone Number : +81-50-3750-7630
Facsimile Number : +81-50-3750-6574
Contact Person : Shigeru Higai

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

2.1 Identification of E.U.T.

Type of Equipment : Wireless Noise Canceling Stereo Headset
Model No. : MDR-ZX770BN
Serial No. : Refer to Clause 4.2
Rating : DC3.7V
Receipt Date of Sample : November 19, 2014
Country of Mass-production : Malaysia
Condition of EUT : Engineering prototype
(Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT : No Modification by the test lab

2.2 Product Description

Model: MDR-ZX770BN (referred to as the EUT in this report) is a Wireless Noise Canceling Stereo Headset.

Clock frequencies: 26MHz (Bluetooth)

Bluetooth specification:

Equipment type : Transceiver
Frequency of operation : 2402-2480MHz
Bandwidth / Channel spacing : 1MHz / 1MHz
Type of modulation : FHSS
Antenna type : Helical (Chip) Antenna
Antenna connector type : Integral
Antenna gain : -2.23dBi
ITU code : F1D, G1D
Operation temperature range : 0 to +40 deg.C

FCC 15.31 (e)

The EUT is a battery-operated device and test was performed with the full-charged battery.
Therefore, the equipment complies with the requirement.

FCC 15.203

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

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart C: 2014, final revised on December 23, 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 December 23, 2014 does not affect the test specification applied to the EUT.

The EUT has been tested for compliance with FCC Part 15 Subpart B. Refer to the test report 10582469S-E.

3.2 Procedures and results

Item	Test Procedure	Specification	Remarks	Deviation	Worst Margin	Results
Conducted emission	ANSI C63.4:2009 7. AC powerline conducted emission measurements	FCC 15.207	-	N/A *1)	-	-
Carrier frequency separation	FCC Public Notice DA 00-705 & ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.247 (a)(1)	Conducted	N/A	*See data.	Complied
20dB bandwidth	FCC Public Notice DA 00-705 & ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.247 (a)(1)	Conducted	N/A		-
Number of hopping frequency	FCC Public Notice DA 00-705 & ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.247 (a)(1)(iii)	Conducted	N/A		Complied
Dwell time	FCC Public Notice DA 00-705 & ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.247 (a)(1)(iii)	Conducted	N/A		Complied
Maximum peak output power	FCC Public Notice DA 00-705 & ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.247 (b)(1)	Conducted	N/A		Complied
Band edge compliance & Spurious emission	FCC Public Notice DA 00-705 & ANSI C63.4:2009 13. Measurement of intentional radiators	FCC 15.247 (d) 15.209	Conducted/ Radiated	N/A	13.9 dB Freq.: 4960.018 MHz Polarization: Vertical Detection: AV Mode: Tx 2480MHz, BDR	Complied

Note: UL Japan's Work Procedures No. 13-EM-W0420 and 13-EM-W0422

*1) The test is not applicable since the EUT has no AC mains. During charging, the EUT doesn't perform BT operation.

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3.3 Addition to standard

Item	Test Procedure	Specification	Remarks	Worst Margin	Results
Occupied Bandwidth (99%)	ANSI C63.4:2009 13. Measurement of intentional radiators, RSS-Gen 6.6	-	Conducted	-	-

Note: UL Japan's Work Procedures No. 13-EM-W0420 and 13-EM-W0422

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

3.4 Confirmation

UL Japan, Inc. hereby confirms the E.U.T., in the configuration tested, complies with the specifications FCC Part 15 Subpart C: 2014.

3.5 Uncertainty

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

Item	Frequency range	
Radiated emission	30 MHz-300 MHz	5.1 dB
	300 MHz-1 GHz	6.3 dB
	1 GHz-6 GHz	4.5 dB
	6 GHz-18 GHz	4.8 dB
	18 GHz-26.5 GHz	4.9 dB

The data listed in this test report has enough margin, more than the site margin.

Antenna port conducted test

Power measurement uncertainty above 1GHz for this test was: (±) 1.5dB

Spurious emission (Conducted) measurement (below 1GHz) uncertainty for this test was: (±) 1.6dB

Spurious emission (Conducted) measurement (1G-3GHz) uncertainty for this test was: (±) 1.4dB

Spurious emission (Conducted) measurement (3G-18GHz) uncertainty for this test was: (±) 2.8dB

Spurious emission (Conducted) measurement (18G-26.5GHz) uncertainty for this test was: (±) 2.5dB

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

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3.6 Test Location

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A2LA Accreditation No. : 1266-01

	FCC Registration No.	IC Registration No.	Width x Depth x Height (m)	Size of reference ground plane/horizontal conducting plane (m)	Maximum measurement distance
No.1 Open site	90558	IC 4659A-1	6.0 x 5.5 x 2.5	20 x 40	10 m
No.2 Open site	510504	IC 4659A-2	4.4 x 4.4 x 2.15	18 x 20	10 m
No.5 Open site	99356	IC 4659A-5	8.6 x 7.1 x 2.4	18 x 23	10 m
No.1 Shielded room	90558	IC 4659A-1	5.4 x 4.5 x 2.3	-	-
No.2 Shielded room	510504	IC 4659A-2	3.6 x 2.7 x 2.3	-	-
No.3 Shielded room	-	-	5.4 x 3.6 x 2.3	-	-
No.4 Shielded Room	-	-	6.1 x 6.1 x 3.1	-	-
No.5 Shielded Room	99356	IC 4659A-5	4.2 x 3.1 x 2.5	-	-
No.3 Fully Anechoic Chamber	-	-	7.0 x 3.5 x 3.5	-	-
No.6 Semi-anechoic Chamber	372431	IC 4659A-6	8.5 x 5.5 x 5.2	-	3 m
No.10 Semi-anechoic Chamber	682397	IC 4659A-10	18.4 x 9.9 x 7.7	-	10 m
No.11 Semi-anechoic Chamber	718605	IC 4659A-7	9.0 x 6.5 x 5.2	-	3 m
No.1 Measurement room	-	-	5.0 x 3.7 x 2.6	-	-
No.6 Measurement room	-	-	4.3 x 4.4 x 2.7	-	-

Our company name was changed from “UL Japan, Inc.” to “UL Japan, Inc.” on January 1st, 2015.

3.7 Data of EMI, Test instruments, and Test set up

Refer to APPENDIX.

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

4.1 Operating Mode(s)

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

*Remarks: Test was not performed at AFH mode, because the decrease of number of channel (min: 20ch) at AFH mode does not affect the output power and bandwidth of the EUT.
As this device had AFH mode and frequency separation could not meet the requirement of over 20dB BW without 2/3 relaxation, 125mW power limit was applied to it.

The EUT has no inquiry mode.

Software: CSR Blue Suite BlueTest 3

Power settings:

BDR: Ext.=23, Int.=32

EDR: Ext.=56, Int.=35

TX PA ATTEN settings:

BDR: 1

EDR: 0

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

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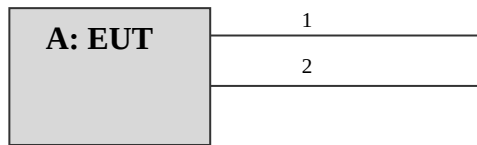
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4.2 Configuration and peripherals



* Test data was taken under worse case conditions.

Description of EUT and support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Wireless Noise Canceling Stereo Headset	MDR-ZX770BN	*1)	Sony	EUT

*1) 2000133: Antenna port conducted tests, 2000132: Radiated emission tests

List of cables used

No.	Cable name	Length(m)	Shield		Remarks
			Cable	Connector	
1	Audio	1.5	Unshielded	Unshielded	-
2	USB	0.5	Shielded	Shielded	-

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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 1.

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 1.

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 1.

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 1.

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 1.

SECTION 10: Spurious emissions (Antenna port conducted)

Test procedure

The Out of Band Emissions was measured with a spectrum analyzer connected to the antenna port.

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. In the frequency range below 30MHz, RBW was narrowed to separate the noise contents.

Then, wide-band noise near the limit was checked separately, however the noise was not detected as shown in the chart. (9kHz-150kHz:RBW=200Hz, 150kHz-30MHz:RBW=10kHz)

Summary of the test results: Pass
Refer to APPENDIX 1.

SECTION 11: Radiated emission

11.1 Operating environment

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

11.2 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.

11.3 Test conditions

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

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) (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	RBW:1MHz	RBW: 100kHz,
		VBW:3MHz	VBW:10Hz	VBW: 300kHz

*1) When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold. Although 00-705 accepts VBW=10Hz for AV measurements, confirmed that superfluous smoothing was not performed.

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.

Antenna polarization	Carrier	Spurious (Below 1GHz)	Spurious (1-13GHz)	Spurious (13-18GHz)	Spurious (18-25GHz)
Horizontal	X	Y	X	X	X
Vertical	Z	Y	Z	Z	Z

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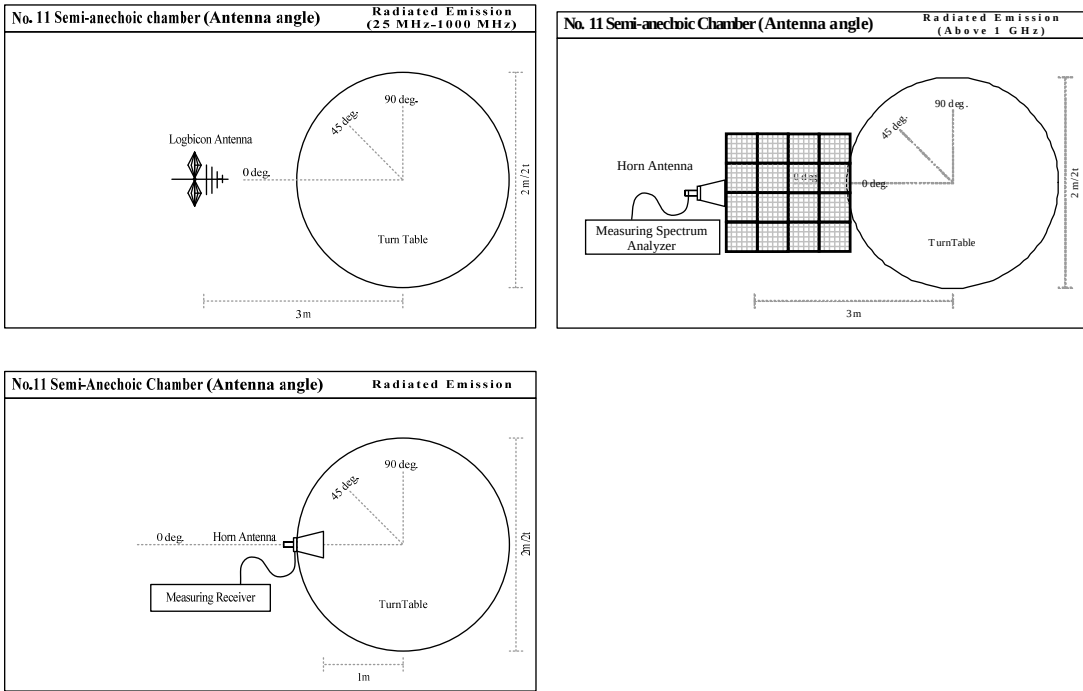
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Figure 1. Antenna angle



11.5 Band edge

Band edge level 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 9th order harmonics.

Refer to APPENDIX 1.

Contents of APPENDIXES

APPENDIX 1: Data of Radio tests

20dB bandwidth and Carrier frequency separation
Number of hopping frequency
Dwell time
Maximum peak output power
Radiated emission
Spurious emission (Antenna port conducted)
Occupied bandwidth

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

20dB Bandwidth and Carrier Frequency Separation

Test place	UL Kashima, Inc.	No.6 Measurement Room
Date	December 12, 2014	
Temperature / Humidity	22 deg.C , 45 %RH	
Engineer	Kazuhiro Ando	
Mode	Tx, Bluetooth, BDR, PRBS9	

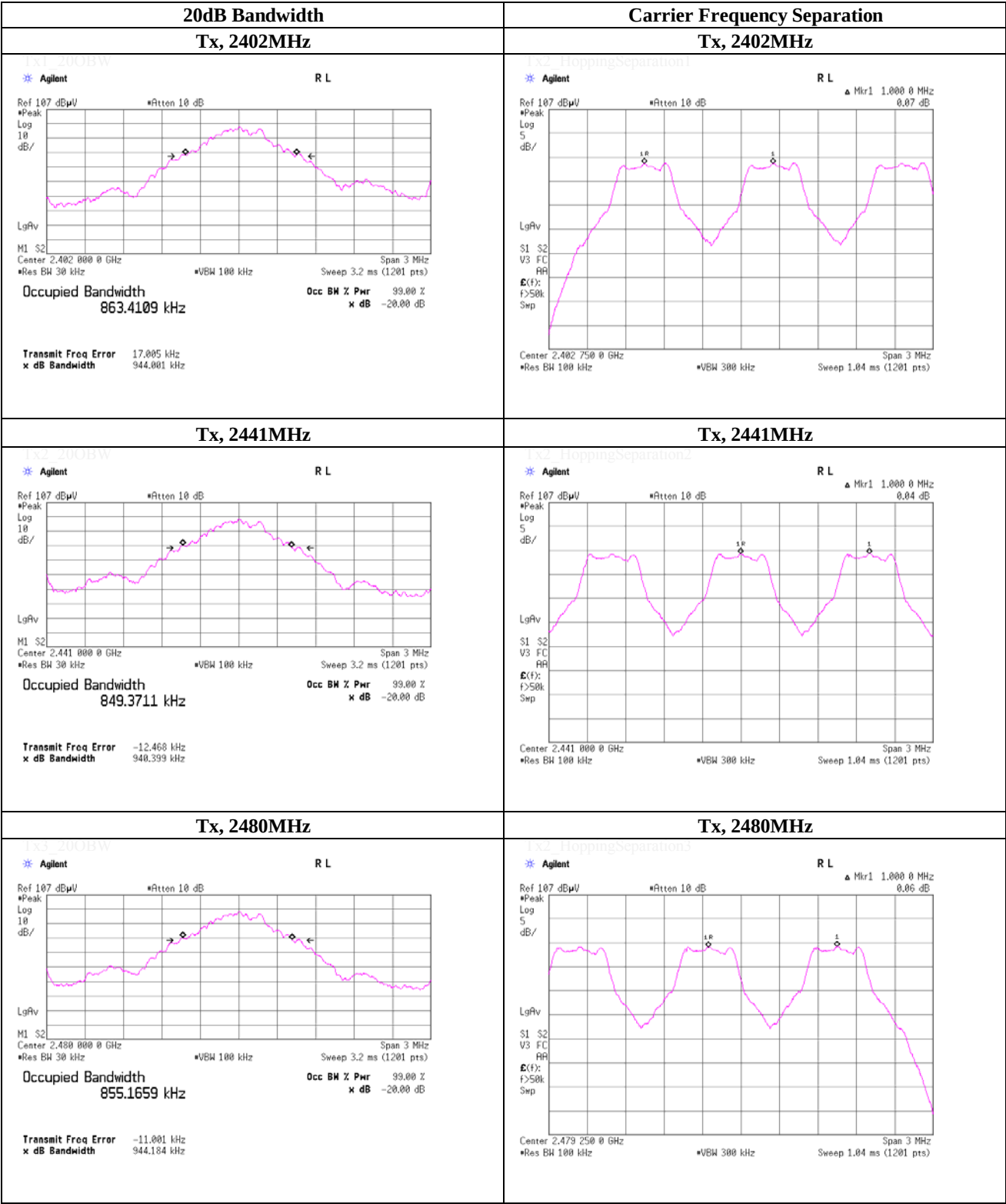
Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency Separation [MHz]
DH5	2402.0	0.944	1.000	>= 0.629
DH5	2441.0	0.940	1.000	>= 0.627
DH5	2480.0	0.944	1.000	>= 0.629

Limit: Two-thirds of 20dB Bandwidth or 25kHz (whichever is greater).

No limit applies to 20dB Bandwidth.

20dB Bandwidth and Carrier Frequency Separation

Tx, Bluetooth, BDR, PRBS9



20dB Bandwidth and Carrier Frequency Separation

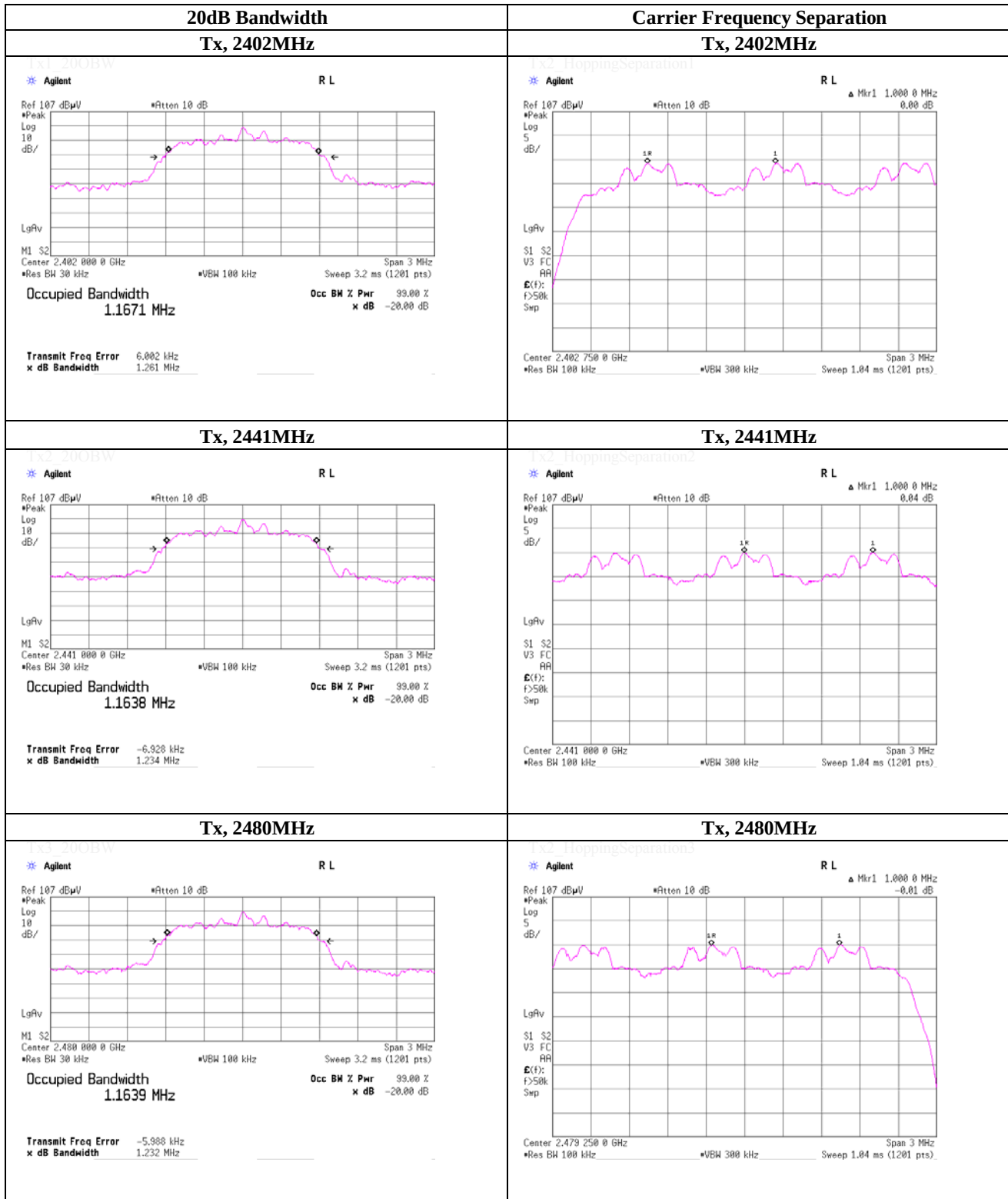
Test place UL Kashima, Inc. No.6 Measurement Room
Date December 12, 2014
Temperature / Humidity 22 deg.C , 45 %RH
Engineer Kazuhiro Ando
Mode Tx, Bluetooth, EDR, PRBS9

Mode	Freq. [MHz]	20dB Bandwidth [MHz]	Carrier Frequency Separation [MHz]	Limit for Carrier Frequency Separation [MHz]
2-DH5	2402.0	1.261	1.000	>= 0.841
2-DH5	2441.0	1.234	1.000	>= 0.823
2-DH5	2480.0	1.232	1.000	>= 0.821

Limit: Two-thirds of 20dB Bandwidth or 25kHz (whichever is greater).
No limit applies to 20dB Bandwidth.

20dB Bandwidth and Carrier Frequency Separation

Tx, Bluetooth, EDR, PRBS9



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Number of Hopping Frequency

Test place

UL Kashima, Inc.

No.6 Measurement Room

Date

December 12, 2014

Temperature / Humidity

22 deg.C , 45 %RH

Engineer

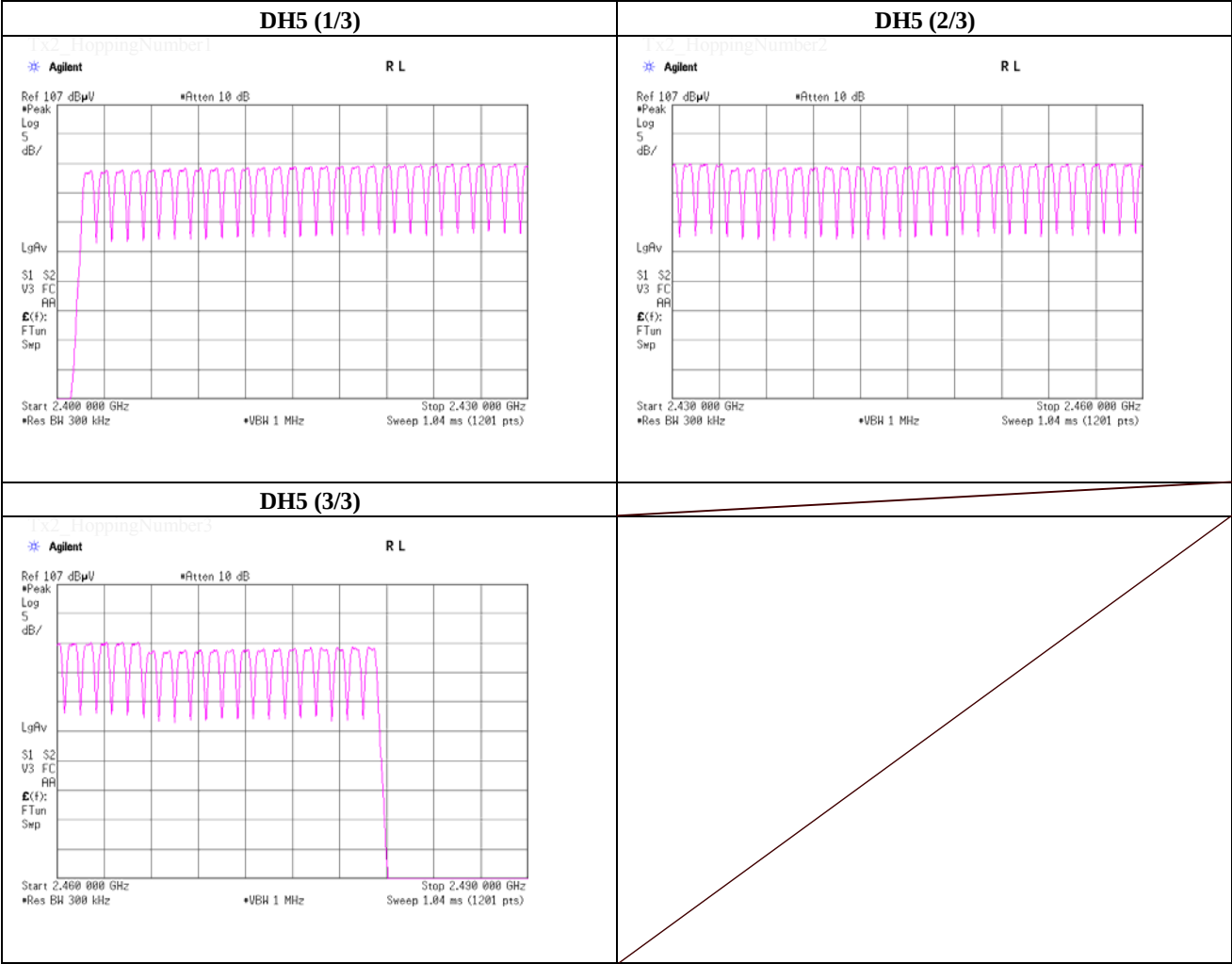
Kazuhiro Ando

Mode

Tx, Bluetooth, BDR, PRBS9

Mode	Number of Channel [times]	Limit [times]
DH5	79	>= 15

* Test was not performed at AFH mode whose number of hopping channel is 20 channels because this Bluetooth radio is in compliance of Bluetooth Specification.

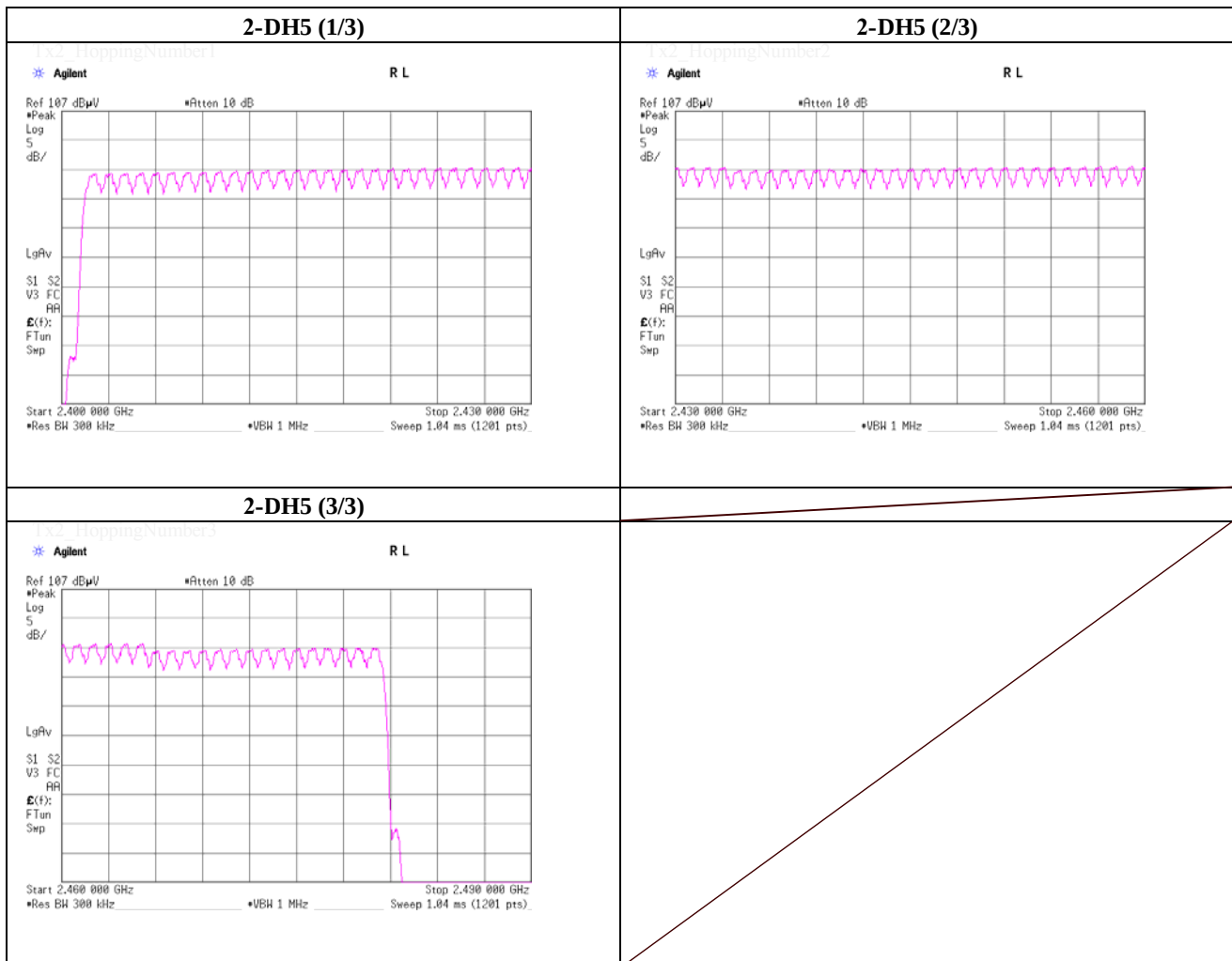


Number of Hopping Frequency

Test place	UL Kashima, Inc.	No.6 Measurement Room
Date	December 12, 2014	
Temperature / Humidity	22 deg.C , 45 %RH	
Engineer	Kazuhiro Ando	
Mode	Tx, Bluetooth, EDR, PRBS9	

Mode	Number of Channel [times]	Limit [times]
2-DH5	79	>= 15

* Test was not performed at AFH mode whose number of hopping channel is 20 channels because this Bluetooth radio is in compliance of Bluetooth Specification.



Dwell Time

Test place	UL Kashima, Inc.	No.6 Measurement Room
Date	December 12, 2014	
Temperature / Humidity	22 deg.C , 45 %RH	
Engineer	Kazuhiro Ando	
Mode	Tx, Bluetooth, BDR, PRBS9	

Mode	Number of transmission in a 31.6 (=79 Hopping x 0.4) second period	Length of transmission time [msec]	Result [msec]	Limit [msec]
DH1	51.0 / 5.0 sec. x 31.6 sec. = 323 times	0.417	135	400
DH3	26.0 / 5.0 sec. x 31.6 sec. = 165 times	1.673	276	400
DH5	17.0 / 5.0 sec. x 31.6 sec. = 108 times	2.919	315	400

Sample Calculation

Result = Number of transmission x Length of transmission time

* This device complies with the Bluetooth protocol for FHSS operation, employing a pseudo random channel selection and hopping rate to ensure that the occupancy time in $N \times 0.4s$, where N is the number of channels being used in the hopping sequence ($20 \leq N \leq 79$), is always less than 0.4s regardless of packet size (DH1, DH3 or DH5). This is confirmed in the test report for $N=79$.

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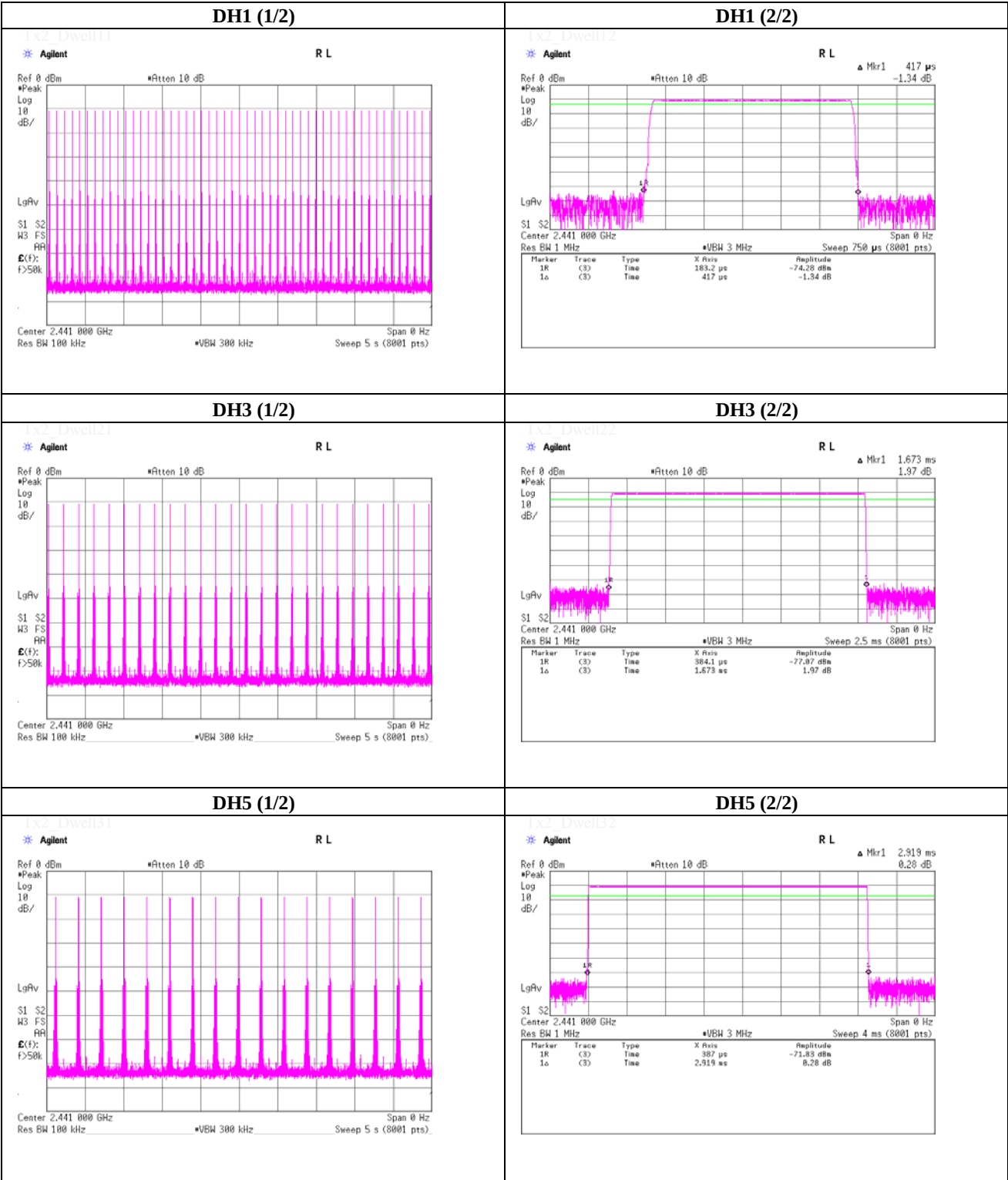
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Dwell time

Tx, Bluetooth, BDR, PRBS9



Dwell Time

Test place	UL Kashima, Inc.	No.6 Measurement Room
Date	December 12, 2014	
Temperature / Humidity	22 deg.C , 45 %RH	
Engineer	Kazuhiro Ando	
Mode	Tx, Bluetooth, EDR, PRBS9	

Mode	Number of transmission in a 31.6 (=79 Hopping x 0.4) second period			Length of transmission time [msec]	Result [msec]	Limit [msec]
2-DH1	51.0	/ 5.0 sec. x	31.6 sec. = 323 times	0.431	139	400
2-DH3	26.0	/ 5.0 sec. x	31.6 sec. = 165 times	1.683	278	400
2-DH5	17.0	/ 5.0 sec. x	31.6 sec. = 108 times	2.929	316	400

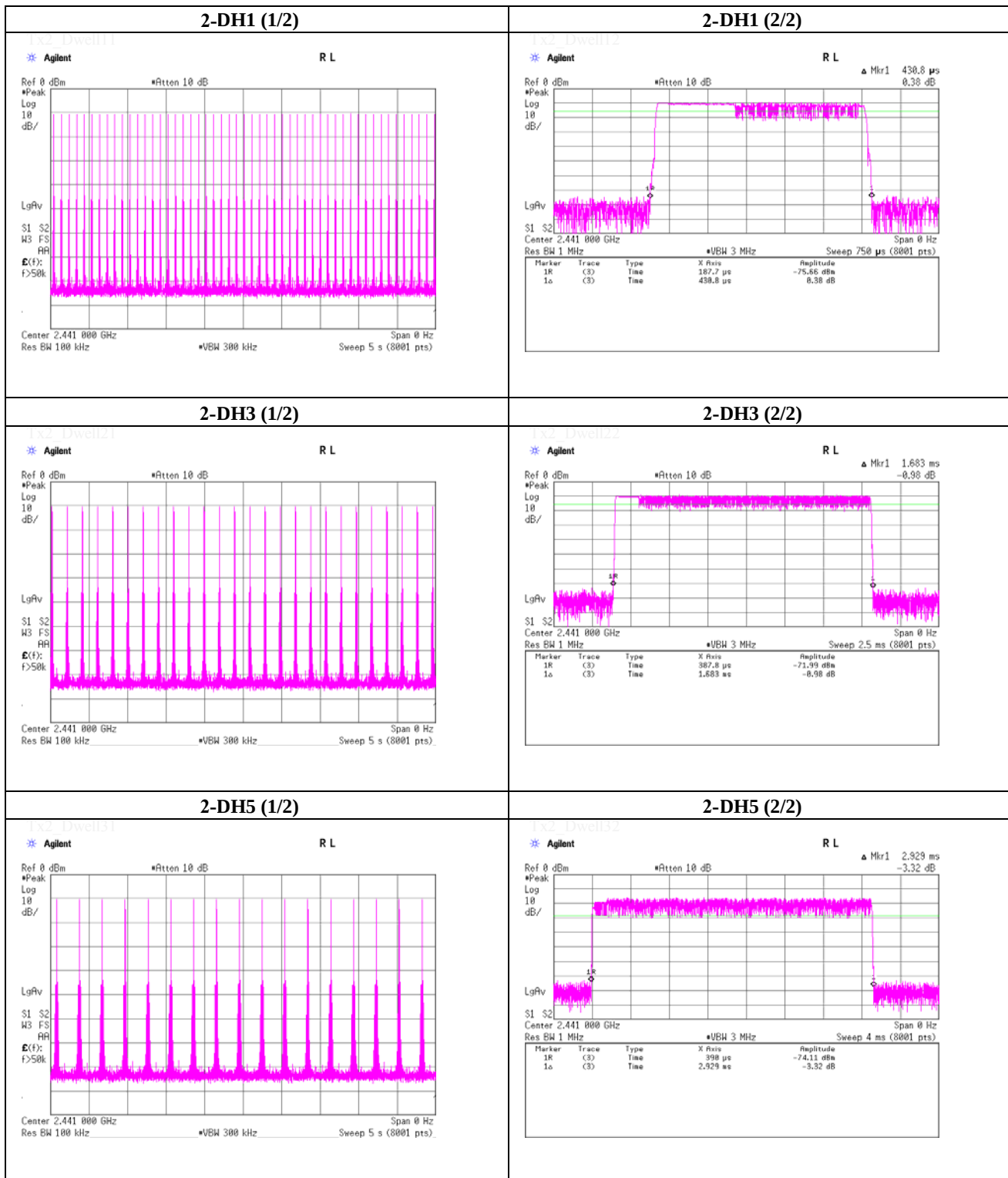
Sample Calculation

Result = Number of transmission x Length of transmission time

* This device complies with the Bluetooth protocol for FHSS operation, employing a pseudo random channel selection and hopping rate to ensure that the occupancy time in $N \times 0.4s$, where N is the number of channels being used in the hopping sequence ($20 \leq N \leq 79$), is always less than 0.4s regardless of packet size (2-DH1, 2-DH3 or 2-DH5). This is confirmed in the test report for $N=79$.

Dwell time

Tx, Bluetooth, EDR, PRBS9



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Maximum Peak Conducted Output Power (Conducted)

Test place UL Kashima, Inc. No.6 Measurement Room
 Date December 12, 2014
 Temperature / Humidity 22 deg.C , 45 %RH
 Engineer Kazuhiro Ando
 Mode Tx, Bluetooth

(* P/M: Power Meter with power sensor)

	Freq.	P/M (Peak) Reading	Cable Loss	Atten. Loss	Result		Limit		Margin
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]	[dB]
DH5	2402.0	-10.78	0.97	10.07	0.26	1.06	20.97	125	20.71
DH5	2441.0	-10.11	0.98	10.07	0.94	1.24	20.97	125	20.03
DH5	2480.0	-10.24	0.98	10.07	0.81	1.21	20.97	125	20.16
2-DH5	2402.0	-8.52	0.97	10.07	2.52	1.79	20.97	125	18.45
2-DH5	2441.0	-7.81	0.98	10.07	3.24	2.11	20.97	125	17.73
2-DH5	2480.0	-7.85	0.98	10.07	3.20	2.09	20.97	125	17.77

Sample Calculation:

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

Maximum Average Output Power (Conducted)

(Reference data for SAR testing)

Test place UL Kashima, Inc. No.6 Measurement Room
Date December 12, 2014
Temperature / Humidity 22 deg.C , 45 %RH
Engineer Kazuhiro Ando
Mode Tx, Bluetooth

(* P/M: Power Meter with power sensor)

	Freq.	P/M (AV) Reading	Cable Loss	Atten. Loss	Result	
	[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]
DH5	2402.0	-11.54	0.97	10.07	-0.50	0.89
DH5	2441.0	-10.87	0.98	10.07	0.18	1.04
DH5	2480.0	-11.01	0.98	10.07	0.04	1.01
2-DH5	2402.0	-11.99	0.97	10.07	-0.95	0.80
2-DH5	2441.0	-11.21	0.98	10.07	-0.16	0.96
2-DH5	2480.0	-11.24	0.98	10.07	-0.19	0.96

Sample Calculation:

Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

Average Output Power (Conducted)
(Reference data for SAR testing)

UL Japan, Inc.
Kashima EMC Lab.

1614, Mushiata, Katori-shi, Chiba-ken, 289-0341 Japan
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Radiated Emission

Test place No.11 Semi Anechoic Chamber
 Date December 4, 2014 December 5, 2014
 Temperature / Humidity 21 deg.C, 40 %RH 22 deg.C, 41 %RH
 Engineer Makoto Ebato Hiromitsu Tanabe
 Mode Tx, 2402 MHz
 Tx, Bluetooth, BDR, PRBS9 30-1000MHz : Hor Y Axis, Ver Y Axis
 1-25GHz : Hor X Axis, Ver Z Axis

(* 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.	120.000	QP	23.4	11.3	7.8	32.1	10.4	43.5	33.1	100	243	
Hori.	124.000	QP	24.7	11.6	7.9	32.1	12.1	43.5	31.4	100	252	
Hori.	2390.000	PK	45.7	27.6	14.0	38.5	48.8	73.9	25.1	100	0	
Hori.	4804.033	PK	51.3	31.3	6.0	39.6	49.0	73.9	24.9	100	102	
Hori.	7206.126	PK	46.0	36.0	7.5	38.7	50.8	73.9	23.1	100	102	
Hori.	19220.040	PK	51.6	40.3	-3.3	46.1	42.5	73.9	31.4	100	19	
Hori.	2390.000	AV	33.3	27.6	14.0	38.5	36.4	53.9	17.5	100	0	
Hori.	4804.033	AV	40.4	31.3	6.0	39.6	38.1	53.9	15.8	100	102	
Hori.	7206.126	AV	33.7	36.0	7.5	38.7	38.5	53.9	15.4	100	102	
Hori.	19220.040	AV	41.6	40.3	-3.3	46.1	32.5	53.9	21.4	100	19	
Vert.	116.000	QP	28.0	10.8	7.8	32.2	14.4	43.5	29.1	100	36	
Vert.	120.000	QP	27.4	11.3	7.8	32.1	14.4	43.5	29.1	100	21	
Vert.	124.000	QP	33.4	11.6	7.9	32.1	20.8	43.5	22.7	100	55	
Vert.	136.000	QP	27.3	12.7	8.0	32.1	15.9	43.5	27.6	100	76	
Vert.	240.000	QP	27.9	11.3	8.7	32.0	15.9	46.0	30.1	100	335	
Vert.	480.000	QP	24.2	17.3	10.0	32.0	19.5	46.0	26.5	100	245	
Vert.	2390.000	PK	44.1	27.6	14.0	38.5	47.2	73.9	26.7	100	0	
Vert.	4804.027	PK	51.3	31.3	6.0	39.6	49.0	73.9	24.9	100	168	
Vert.	7206.276	PK	46.2	36.0	7.5	38.7	51.0	73.9	22.9	100	165	
Vert.	19220.050	PK	51.2	40.3	-3.3	46.1	42.1	73.9	31.8	100	181	
Vert.	2390.000	AV	33.3	27.6	14.0	38.5	36.4	53.9	17.5	100	0	
Vert.	4804.027	AV	40.9	31.3	6.0	39.6	38.6	53.9	15.3	100	168	
Vert.	7206.276	AV	33.6	36.0	7.5	38.7	38.4	53.9	15.5	100	165	
Vert.	19220.050	AV	42.5	40.3	-3.3	46.1	33.4	53.9	20.5	100	181	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter)(below 18GHz)-Distance factor(above 13GHz)) - Gain(Amplifier)

Distance factor : 13GHz -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	88.7	27.5	14.0	38.5	91.7	-	-	
Hori.	2400.000	PK	42.2	27.5	14.0	38.5	45.2	71.7	26.5	
Vert.	2402.000	PK	88.4	27.5	14.0	38.5	91.4	-	-	
Vert.	2400.000	PK	41.8	27.5	14.0	38.5	44.8	71.4	26.6	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter)(below 18GHz)-Distance factor(above 13GHz)) - Gain(Amplifier)

Distance factor : 13GHz -40GHz : 20log(3.0m/1.0m)= 9.5dB

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Test place	No.11 Semi Anechoic Chamber	
Date	December 4, 2014	December 5, 2014
Temperature / Humidity	21 deg.C, 40 %RH	22 deg.C, 41 %RH
Engineer	Makoto Ebato	Hiromitsu Tanabe
Mode	Tx, 2441 MHz	
	Tx, Bluetooth, BDR, PRBS9	30-1000MHz : Hor Y Axis, Ver Y Axis 1-25GHz : Hor X Axis, Ver Z Axis

(* PK: Peak, AV: Average, OP: 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.	116.000	QP	23.0	10.8	7.8	32.2	9.4	43.5	34.1	100	253	
Hori.	124.000	QP	25.1	11.6	7.9	32.1	12.5	43.5	31.0	100	246	
Hori.	4882.029	PK	50.4	31.2	6.0	39.6	48.0	73.9	25.9	112	102	
Hori.	7323.078	PK	45.9	36.2	7.6	38.7	51.0	73.9	22.9	100	97	
Hori.	19524.050	PK	50.2	40.3	-3.2	46.1	41.2	73.9	32.7	100	16	
Hori.	4882.029	AV	40.6	31.2	6.0	39.6	38.2	53.9	15.7	112	102	
Hori.	7323.078	AV	33.3	36.2	7.6	38.7	38.4	53.9	15.5	100	97	
Hori.	19524.050	AV	40.9	40.3	-3.2	46.1	31.9	53.9	22.0	100	16	
Vert.	116.000	QP	27.9	10.8	7.8	32.2	14.3	43.5	29.2	100	42	
Vert.	120.000	QP	26.9	11.3	7.8	32.1	13.9	43.5	29.6	100	23	
Vert.	124.000	QP	33.9	11.6	7.9	32.1	21.3	43.5	22.2	100	64	
Vert.	128.000	QP	29.3	11.9	7.9	32.1	17.0	43.5	26.5	100	82	
Vert.	240.000	QP	25.9	11.3	8.7	32.0	13.9	46.0	32.1	100	341	
Vert.	480.000	QP	24.6	17.3	10.0	32.0	19.9	46.0	26.1	100	251	
Vert.	4882.033	PK	51.2	31.2	6.0	39.6	48.8	73.9	25.1	100	213	
Vert.	7323.000	PK	46.0	36.2	7.6	38.7	51.1	73.9	22.8	100	0	
Vert.	19524.040	PK	49.6	40.3	-3.2	46.1	40.6	73.9	33.3	100	177	
Vert.	4882.033	AV	41.4	31.2	6.0	39.6	39.0	53.9	14.9	100	213	
Vert.	7323.000	AV	33.2	36.2	7.6	38.7	38.3	53.9	15.6	100	0	
Vert.	19524.040	AV	39.1	40.3	-3.2	46.1	30.1	53.9	23.8	100	177	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter)(below 18GHz)-Distance factor(above 13GHz)) - Gain(Amplifier)
Distance factor : 13GHz -40GHz : $20\log(3.0m/1.0m) = 9.5dB$

Test place	No.11 Semi Anechoic Chamber	
Date	December 4, 2014	December 5, 2014
Temperature / Humidity	21 deg.C, 40 %RH	22 deg.C, 41 %RH
Engineer	Makoto Ebato	Hiromitsu Tanabe
Mode	Tx, 2480 MHz	
	Tx, Bluetooth, BDR, PRBS9	30-1000MHz : Hor Y Axis, Ver Y Axis 1-25GHz : Hor X Axis, Ver Z Axis

(* 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.	116.000	QP	23.1	10.8	7.8	32.2	9.5	43.5	34.0	100	296	
Hori.	124.000	QP	24.8	11.6	7.9	32.1	12.2	43.5	31.3	100	281	
Hori.	2483.500	PK	43.1	27.5	14.1	38.5	46.2	73.9	27.7	100	0	
Hori.	2483.500	PK	50.7	0.0	-7.4	0.0	43.3	73.9	30.6	100	275	
Hori.	4959.942	PK	50.2	0.0	-6.6	0.0	43.6	73.9	30.3	100	121	
Hori.	4960.018	PK	50.8	31.5	6.1	39.6	48.8	73.9	25.1	100	118	
Hori.	7440.033	PK	45.5	0.0	-5.8	0.0	39.7	73.9	34.2	100	0	
Hori.	7440.488	PK	46.0	36.3	7.6	38.6	51.3	73.9	22.6	100	0	
Hori.	19836.040	PK	51.2	40.2	-3.1	46.1	42.2	73.9	31.7	100	65	
Hori.	2483.500	AV	33.6	27.5	14.1	38.5	36.7	53.9	17.2	100	0	
Hori.	2483.500	AV	34.8	0.0	-7.4	0.0	27.4	53.9	26.5	100	275	
Hori.	4959.942	AV	37.0	0.0	-6.6	0.0	30.4	53.9	23.5	100	121	
Hori.	4960.018	AV	41.0	31.5	6.1	39.6	39.0	53.9	14.9	100	118	
Hori.	7440.033	AV	33.7	0.0	-5.8	0.0	27.9	53.9	26.0	100	0	
Hori.	7440.488	AV	33.8	36.3	7.6	38.6	39.1	53.9	14.8	100	0	
Hori.	19836.040	AV	42.3	40.2	-3.1	46.1	33.3	53.9	20.6	100	65	
Vert.	116.000	QP	27.8	10.8	7.8	32.2	14.2	43.5	29.3	100	28	
Vert.	120.000	QP	27.4	11.3	7.8	32.1	14.4	43.5	29.1	100	57	
Vert.	124.000	QP	33.9	11.6	7.9	32.1	21.3	43.5	22.2	100	83	
Vert.	136.000	QP	27.8	12.7	8.0	32.1	16.4	43.5	27.1	100	72	
Vert.	240.000	QP	25.3	11.3	8.7	32.0	13.3	46.0	32.7	100	0	
Vert.	480.000	QP	24.6	17.3	10.0	32.0	19.9	46.0	26.1	100	254	
Vert.	2483.500	PK	47.6	27.5	14.1	38.5	50.7	73.9	23.2	100	0	
Vert.	2483.500	PK	49.0	0.0	-7.4	0.0	41.6	73.9	32.3	100	0	
Vert.	4959.957	PK	50.2	0.0	-6.6	0.0	43.6	73.9	30.3	100	181	
Vert.	4960.018	PK	52.1	31.5	6.1	39.6	50.1	73.9	23.8	100	199	
Vert.	7440.304	PK	45.7	36.3	7.6	38.6	51.0	73.9	22.9	100	0	
Vert.	7440.836	PK	46.1	0.0	-5.8	0.0	40.3	73.9	33.6	100	0	
Vert.	19836.000	PK	49.7	40.2	-3.1	46.1	40.7	73.9	33.2	100	203	
Vert.	2483.500	AV	36.5	27.5	14.1	38.5	39.6	53.9	14.3	100	0	
Vert.	2483.500	AV	34.4	0.0	-7.4	0.0	27.0	53.9	26.9	100	0	
Vert.	4959.957	AV	37.6	0.0	-6.6	0.0	31.0	53.9	22.9	100	181	
Vert.	4960.018	AV	42.0	31.5	6.1	39.6	40.0	53.9	13.9	100	199	
Vert.	7440.304	AV	33.7	36.3	7.6	38.6	39.0	53.9	14.9	100	0	
Vert.	7440.836	AV	33.7	0.0	-5.8	0.0	27.9	53.9	26.0	100	0	
Vert.	19836.000	AV	39.0	40.2	-3.1	46.1	30.0	53.9	23.9	100	203	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter)(below 18GHz)-Distance factor(above 13GHz)) - Gain(Amplifier)
Distance factor : 13GHz -40GHz : $20\log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

Test place	No.11 Semi Anechoic Chamber	
Date	December 4, 2014	December 5, 2014
Temperature / Humidity	21 deg.C, 40 %RH	22 deg.C, 41 %RH
Engineer	Makoto Ebato	Hiromitsu Tanabe
Mode	Tx, 2402 MHz	
	Tx, Bluetooth, EDR, PRBS9	30-1000MHz : Hor Y Axis, Ver Y Axis

(* PK: Peak, AV: Average, OP: 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.	124.000	QP	24.6	11.6	7.9	32.1	12.0	43.5	31.5	100	247	
Hori.	136.000	QP	22.6	12.7	8.0	32.1	11.2	43.5	32.3	100	121	
Hori.	2390.000	PK	46.0	27.6	14.0	38.5	49.1	73.9	24.8	100	0	
Hori.	4804.016	PK	51.5	31.3	6.0	39.6	49.2	73.9	24.7	100	79	
Hori.	7206.403	PK	45.8	36.0	7.5	38.7	50.6	73.9	23.3	100	141	
Hori.	19220.020	PK	51.1	40.3	-3.3	46.1	42.0	73.9	31.9	100	17	
Hori.	2390.000	AV	33.3	27.6	14.0	38.5	36.4	53.9	17.5	100	0	
Hori.	4804.016	AV	38.5	31.3	6.0	39.6	36.2	53.9	17.7	100	79	
Hori.	7206.403	AV	33.7	36.0	7.5	38.7	38.5	53.9	15.4	100	141	
Hori.	19220.020	AV	39.7	40.3	-3.3	46.1	30.6	53.9	23.3	100	17	
Vert.	116.000	QP	27.5	10.8	7.8	32.2	13.9	43.5	29.6	100	78	
Vert.	120.000	QP	27.5	11.3	7.8	32.1	14.5	43.5	29.0	100	68	
Vert.	124.000	QP	34.3	11.6	7.9	32.1	21.7	43.5	21.8	100	92	
Vert.	136.000	QP	27.3	12.7	8.0	32.1	15.9	43.5	27.6	100	71	
Vert.	240.000	QP	25.6	11.3	8.7	32.0	13.6	46.0	32.4	100	0	
Vert.	480.000	QP	24.5	17.3	10.0	32.0	19.8	46.0	26.2	100	276	
Vert.	2390.000	PK	45.4	27.6	14.0	38.5	48.5	73.9	25.4	100	0	
Vert.	4804.064	PK	51.4	31.3	6.0	39.6	49.1	73.9	24.8	100	207	
Vert.	7206.633	PK	46.0	36.0	7.5	38.7	50.8	73.9	23.1	100	0	
Vert.	19220.010	PK	51.7	40.3	-3.3	46.1	42.6	73.9	31.3	100	176	
Vert.	2390.000	AV	33.3	27.6	14.0	38.5	36.4	53.9	17.5	100	0	
Vert.	4804.064	AV	38.7	31.3	6.0	39.6	36.4	53.9	17.5	100	207	
Vert.	7206.633	AV	33.6	36.0	7.5	38.7	38.4	53.9	15.5	100	0	
Vert.	19220.010	AV	40.3	40.3	-3.3	46.1	31.2	53.9	22.7	100	176	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter)(below 18GHz)-Distance factor(above 13GHz)) - Gain(Amplifier)
Distance factor : 13GHz -40GHz : $20\log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

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	88.6	27.5	14.0	38.5	91.6	-	-	
Hori.	2400.000	PK	41.5	27.5	14.0	38.5	44.5	71.6	27.1	
Vert.	2402.000	PK	88.0	27.5	14.0	38.5	91.0	-	-	
Vert.	2400.000	PK	41.7	27.5	14.0	38.5	44.7	71.0	26.3	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter)(below 18GHz)-Distance factor(above 13GHz)) - Gain(Amplifier)
Distance factor : 13GHz -40GHz : $20\log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

Test place	No.11 Semi Anechoic Chamber	
Date	December 4, 2014	December 5, 2014
Temperature / Humidity	21 deg.C, 40 %RH	22 deg.C, 41 %RH
Engineer	Makoto Ebato	Hiromitsu Tanabe
Mode	Tx, 2441 MHz	
	Tx, Bluetooth, EDR, PRBS9	30-1000MHz : Hor Y Axis, Ver Y Axis 1-25GHz : Hor X Axis, Ver Z Axis

(* PK: Peak, AV: Average, OP: 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.	116.000	QP	22.9	10.8	7.8	32.2	9.3	43.5	34.2	100	111	
Hori.	124.000	QP	25.4	11.6	7.9	32.1	12.8	43.5	30.7	100	256	
Hori.	240.000	QP	24.4	11.3	8.7	32.0	12.4	46.0	33.6	100	0	
Hori.	480.000	QP	24.6	17.3	10.0	32.0	19.9	46.0	26.1	100	253	
Hori.	4882.072	PK	47.8	31.2	6.0	39.6	45.4	73.9	28.5	100	347	
Hori.	7323.064	PK	45.1	36.2	7.6	38.7	50.2	73.9	23.7	100	251	
Hori.	19523.990	PK	51.3	40.3	-3.2	46.1	42.3	73.9	31.6	100	14	
Hori.	4882.072	AV	35.8	31.2	6.0	39.6	33.4	53.9	20.5	100	347	
Hori.	7323.064	AV	33.2	36.2	7.6	38.7	38.3	53.9	15.6	100	251	
Hori.	19523.990	AV	39.0	40.3	-3.2	46.1	30.0	53.9	23.9	100	14	
Vert.	116.000	QP	27.5	10.8	7.8	32.2	13.9	43.5	29.6	100	34	
Vert.	120.000	QP	27.6	11.3	7.8	32.1	14.6	43.5	28.9	100	79	
Vert.	124.000	QP	34.2	11.6	7.9	32.1	21.6	43.5	21.9	100	81	
Vert.	136.000	QP	27.2	12.7	8.0	32.1	15.8	43.5	27.7	100	92	
Vert.	4882.072	PK	51.3	31.2	6.0	39.6	48.9	73.9	25.0	100	198	
Vert.	7323.643	PK	45.0	36.2	7.6	38.7	50.1	73.9	23.8	100	79	
Vert.	19524.040	PK	50.2	40.3	-3.2	46.1	41.2	73.9	32.7	100	185	
Vert.	4882.072	AV	37.6	31.2	6.0	39.6	35.2	53.9	18.7	100	198	
Vert.	7323.643	AV	33.2	36.2	7.6	38.7	38.3	53.9	15.6	100	79	
Vert.	19524.040	AV	38.1	40.3	-3.2	46.1	29.1	53.9	24.8	100	185	

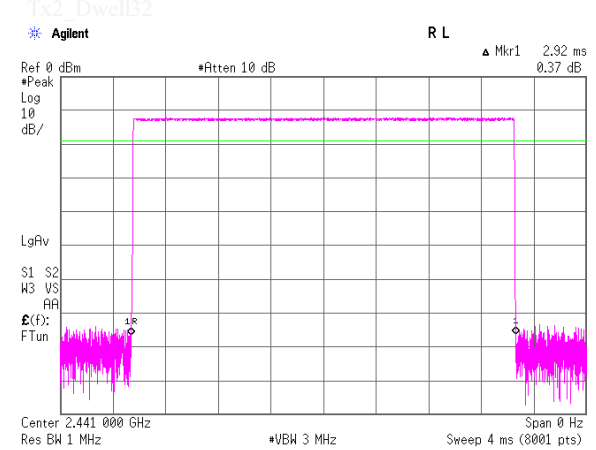
Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter)(below 18GHz)-Distance factor(above 13GHz)) - Gain(Amplifier)
Distance factor : 13GHz -40GHz : $20\log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

Test place	No.11 Semi Anechoic Chamber	
Date	December 4, 2014	December 5, 2014
Temperature / Humidity	21 deg.C, 40 %RH	22 deg.C, 41 %RH
Engineer	Makoto Ebato	Hiromitsu Tanabe
Mode	Tx, 2480 MHz	
	Tx, Bluetooth, EDR, PRBS9	30-1000MHz : Hor Y Axis, Ver Y Axis 1-25GHz : Hor X Axis, Ver Z Axis

(* 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.	124.000	QP	22.8	11.6	7.9	32.1	10.2	43.5	33.3	100	93	
Hori.	136.000	QP	22.5	12.7	8.0	32.1	11.1	43.5	32.4	100	295	
Hori.	2483.500	PK	50.7	27.5	14.1	38.5	53.8	73.9	20.1	100	275	
Hori.	4959.942	PK	50.2	31.5	6.1	39.6	48.2	73.9	25.7	100	121	
Hori.	7440.033	PK	45.5	36.3	7.6	38.6	50.8	73.9	23.1	100	0	
Hori.	19836.010	PK	51.3	40.2	-3.1	46.1	42.3	73.9	31.6	100	63	
Hori.	2483.500	AV	34.8	27.5	14.1	38.5	37.9	53.9	16.0	100	275	
Hori.	4959.942	AV	37.0	31.5	6.1	39.6	35.0	53.9	18.9	100	121	
Hori.	7440.033	AV	33.7	36.3	7.6	38.6	39.0	53.9	14.9	100	0	
Hori.	19836.010	AV	39.5	40.2	-3.1	46.1	30.5	53.9	23.4	100	63	
Vert.	116.000	QP	27.8	10.8	7.8	32.2	14.2	43.5	29.3	100	23	
Vert.	120.000	QP	26.5	11.3	7.8	32.1	13.5	43.5	30.0	100	0	
Vert.	124.000	QP	32.2	11.6	7.9	32.1	19.6	43.5	23.9	100	87	
Vert.	136.000	QP	26.8	12.7	8.0	32.1	15.4	43.5	28.1	100	68	
Vert.	240.000	QP	27.1	11.3	8.7	32.0	15.1	46.0	30.9	100	0	
Vert.	480.000	QP	24.1	17.3	10.0	32.0	19.4	46.0	26.6	100	234	
Vert.	2483.500	PK	49.0	27.5	14.1	38.5	52.1	73.9	21.8	100	0	
Vert.	4959.957	PK	50.2	31.5	6.1	39.6	48.2	73.9	25.7	100	181	
Vert.	7440.836	PK	46.1	36.3	7.6	38.6	51.4	73.9	22.5	100	0	
Vert.	19836.010	PK	49.3	40.2	-3.1	46.1	40.3	73.9	33.6	100	202	
Vert.	2483.500	AV	34.4	27.5	14.1	38.5	37.5	53.9	16.4	100	0	
Vert.	4959.957	AV	37.6	31.5	6.1	39.6	35.6	53.9	18.3	100	181	
Vert.	7440.836	AV	33.7	36.3	7.6	38.6	39.0	53.9	14.9	100	0	
Vert.	19836.010	AV	37.5	40.2	-3.1	46.1	28.5	53.9	25.4	100	202	

Result = Reading + Ant.Fac. + Loss (Cable+Attenuator+Filter)(below 18GHz)-Distance factor(above 13GHz)) - Gain(Amplifier)
Distance factor : 13GHz -40GHz : $20\log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

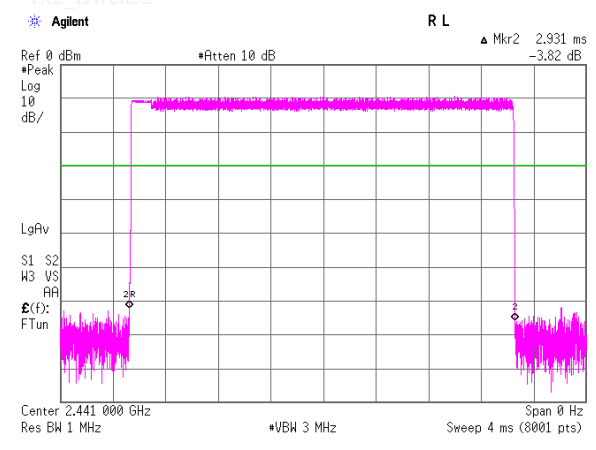
Dwell time factor Calculation chart

Dwell time factor Calculation	
Tx, Bluetooth, BDR, PRBS9	
Worst 100ms Dwell time factor =20log((2.92 x 2)/100) = -24.67dB 1x2_duty2 ON time of some channel during 100ms: Twice This is the worst case in hopping sequence of Bluetooth.	1cycle On time : 2.92ms  Agilent R L Ref 0 dBm *Aatten 10 dB *Peak Log 10 dB/ LgRv S1 S2 W3 VS AA Δ(f): FTun Center 2.441 000 GHz Res BW 1 MHz *VBW 3 MHz Span 0 Hz Sweep 4 ms (8001 pts) Mkr1 2.92 ms 0.37 dB

VBW (Average) setting

***Although 00-705 accepts VBW=10Hz for AV measurements, confirmed that superfluous smoothing was not performed.**

Dwell time factor Calculation chart

Dwell time factor Calculation	
Tx, Bluetooth, EDR, PRBS9	
Worst 100ms Dwell time factor =$20\log((2.931 \times 2)/100) = -24.64\text{dB}$ 1x2_duty2 ON time of some channel during 100ms: Twice This is the worst case in hopping sequence of Bluetooth.	1cycle On time : 2.931ms 1x2_Dwell32  Agilent R L Ref 0 dBm *Atten 10 dB Δ Mkr2 2.931 ms *Peak -3.82 dB Log 10 dB/ LgRv S1 S2 W3 VS AA Δ(f): FTun Center 2.441 000 GHz *VBW 3 MHz Span 0 Hz Res BW 1 MHz Sweep 4 ms (8001 pts)

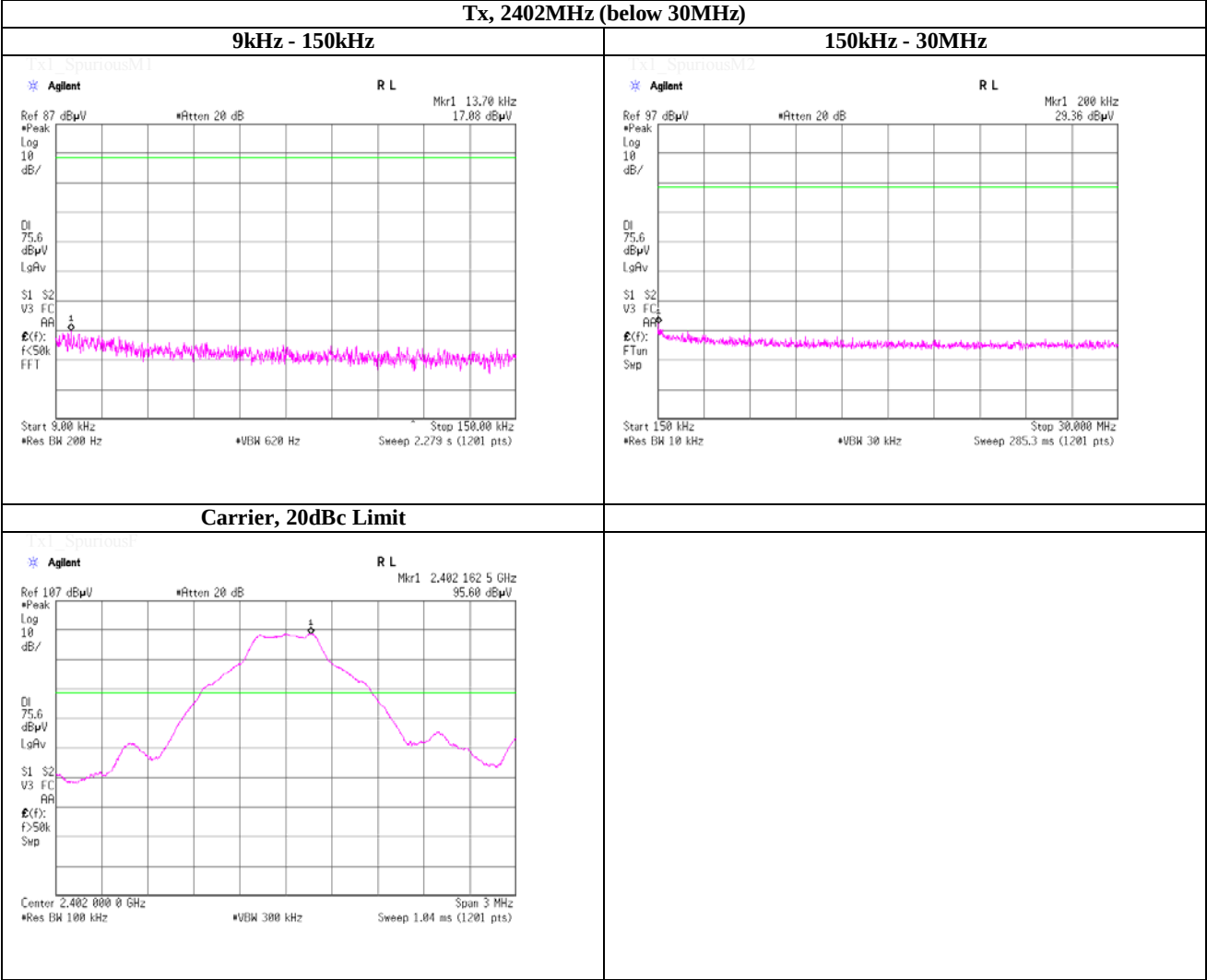
VBW (Average) setting

***Although 00-705 accepts VBW=10Hz for AV measurements, confirmed that superfluous smoothing was not performed.**

Spurious emission (Conducted)

Tx, Bluetooth, BDR, PRBS9

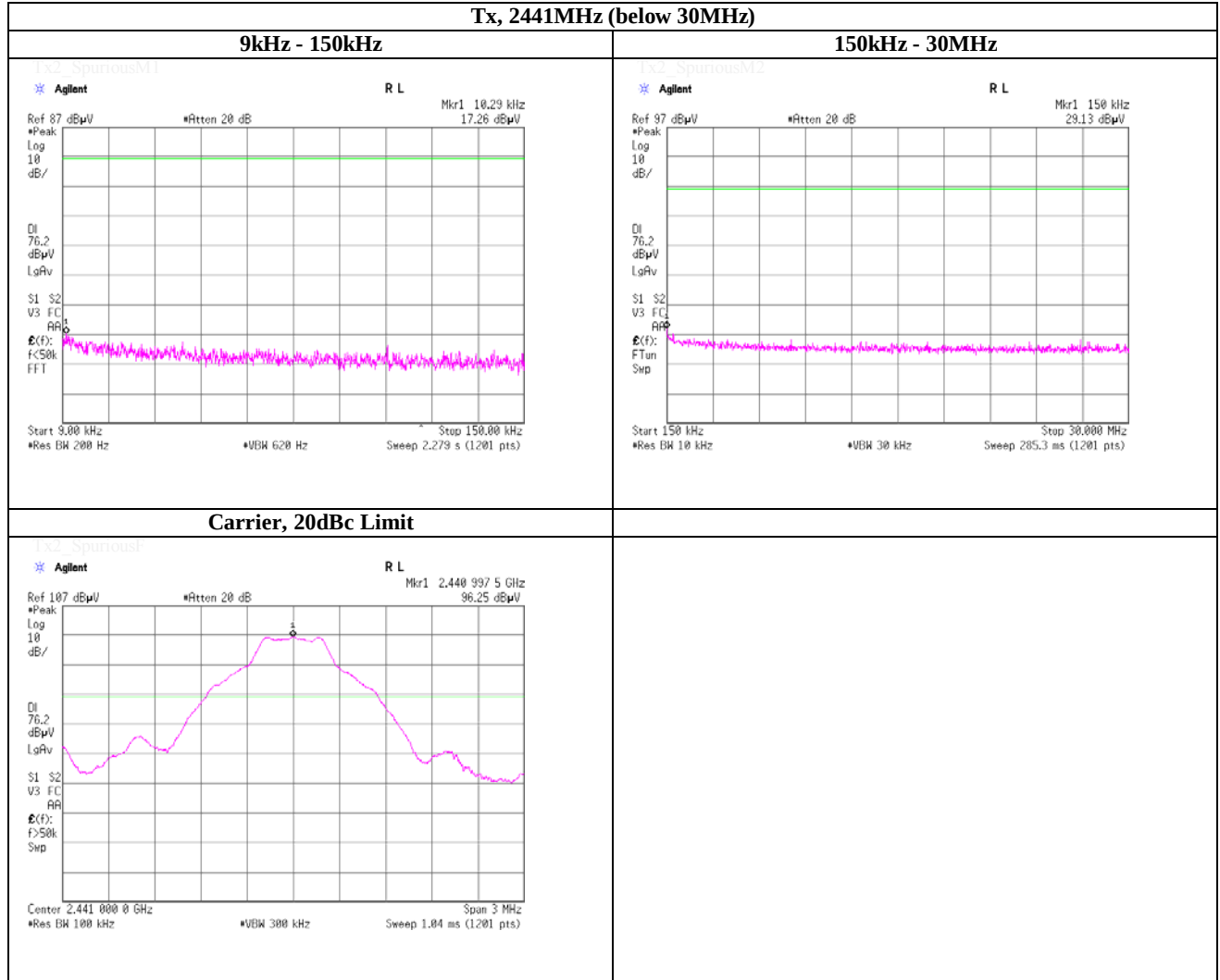
Tx, 2402MHz (below 30MHz)



Spurious emission (Conducted)

Tx, Bluetooth, BDR, PRBS9

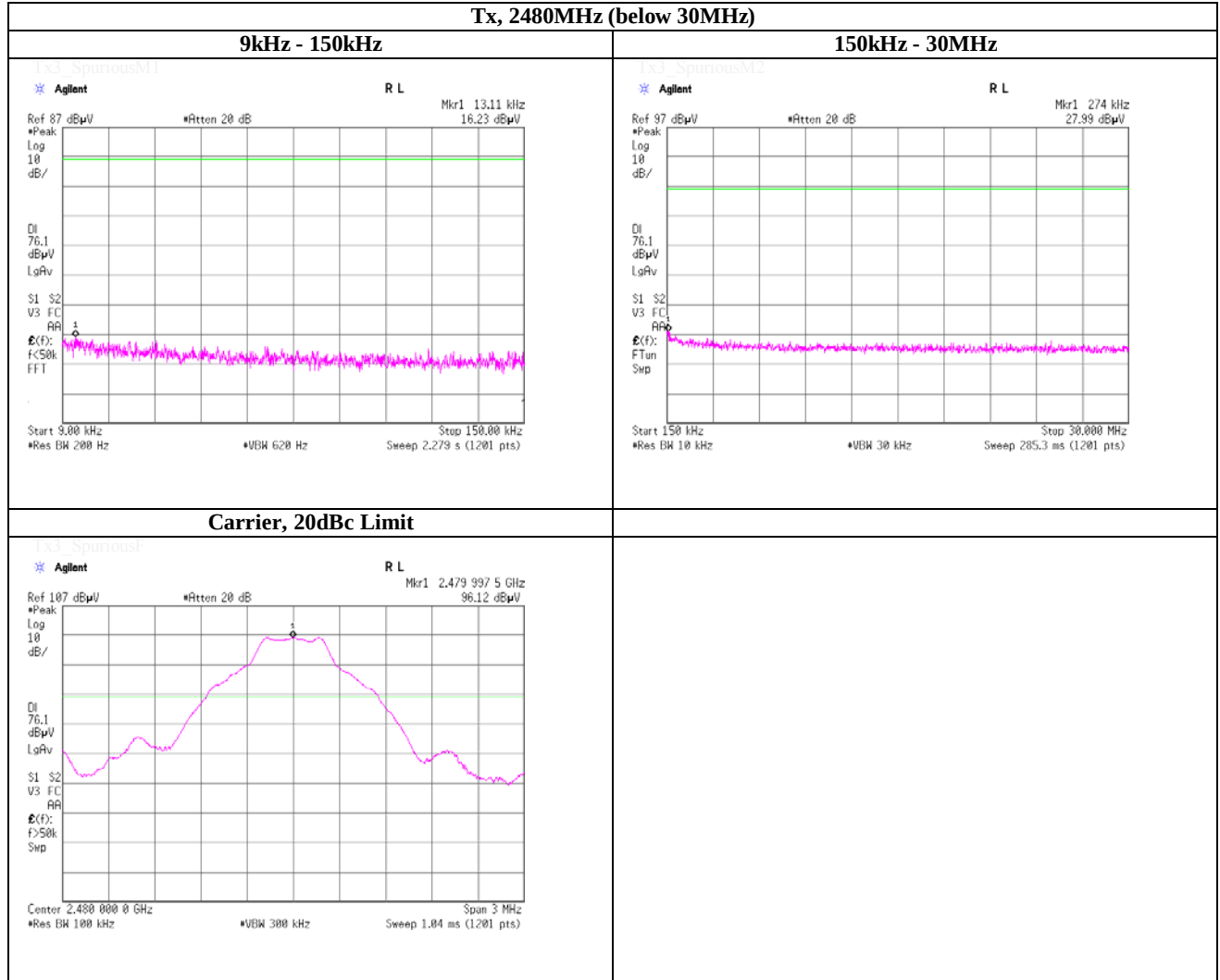
Tx, 2441MHz (below 30MHz)



Spurious emission (Conducted)

Tx, Bluetooth, BDR, PRBS9

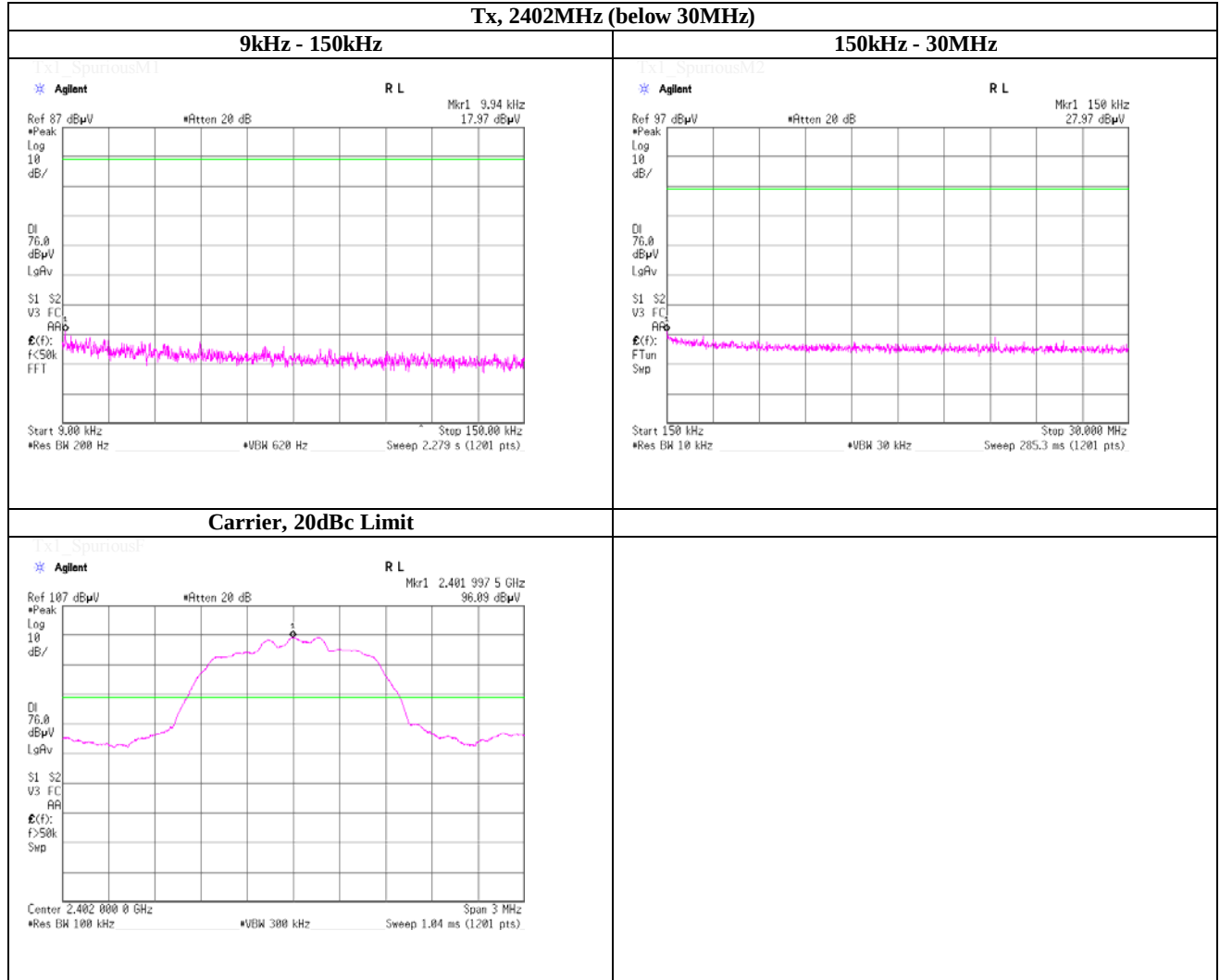
Tx, 2480MHz (below 30MHz)



Spurious emission (Conducted)

Tx, Bluetooth, EDR, PRBS9

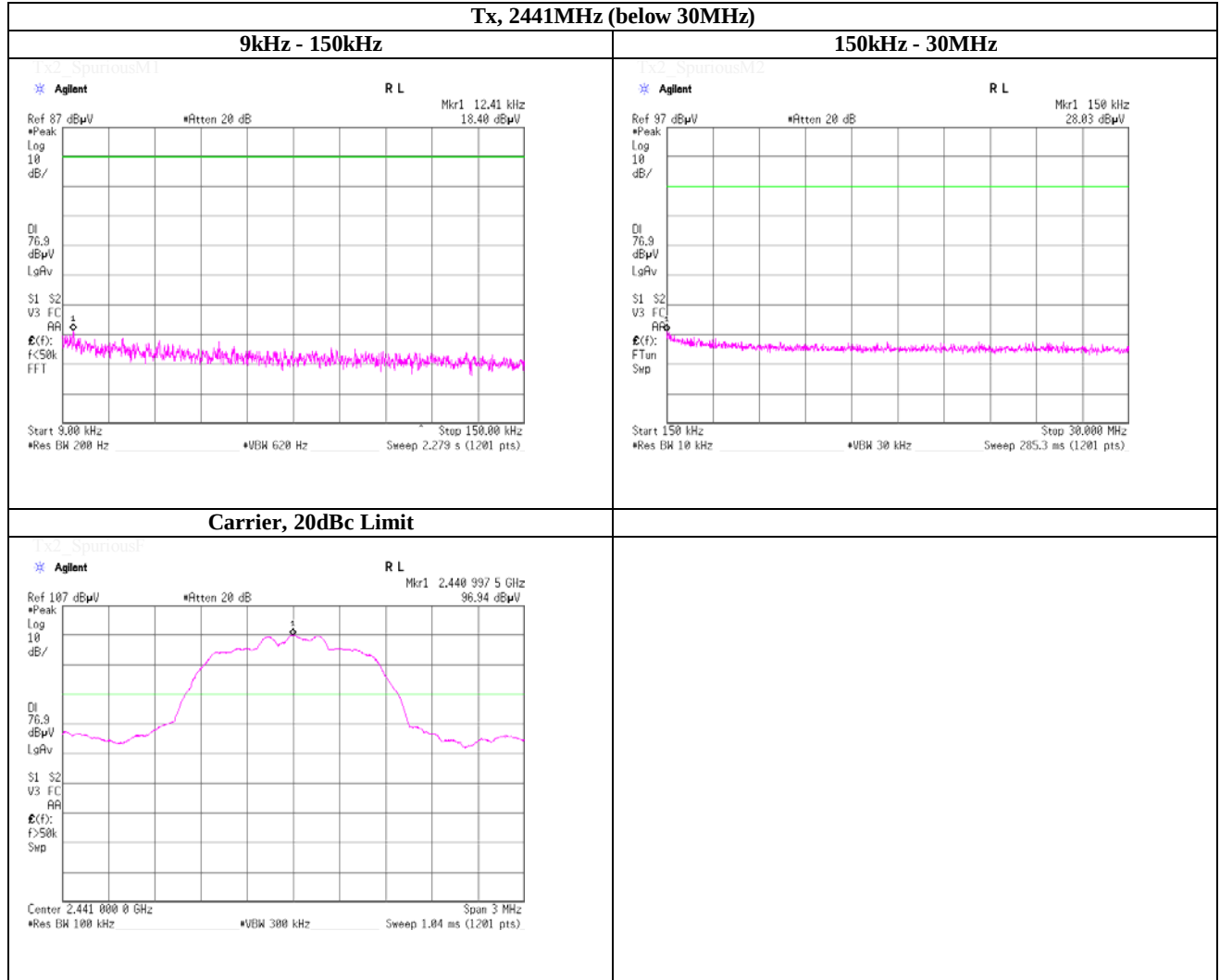
Tx, 2402MHz (below 30MHz)



Spurious emission (Conducted)

Tx, Bluetooth, EDR, PRBS9

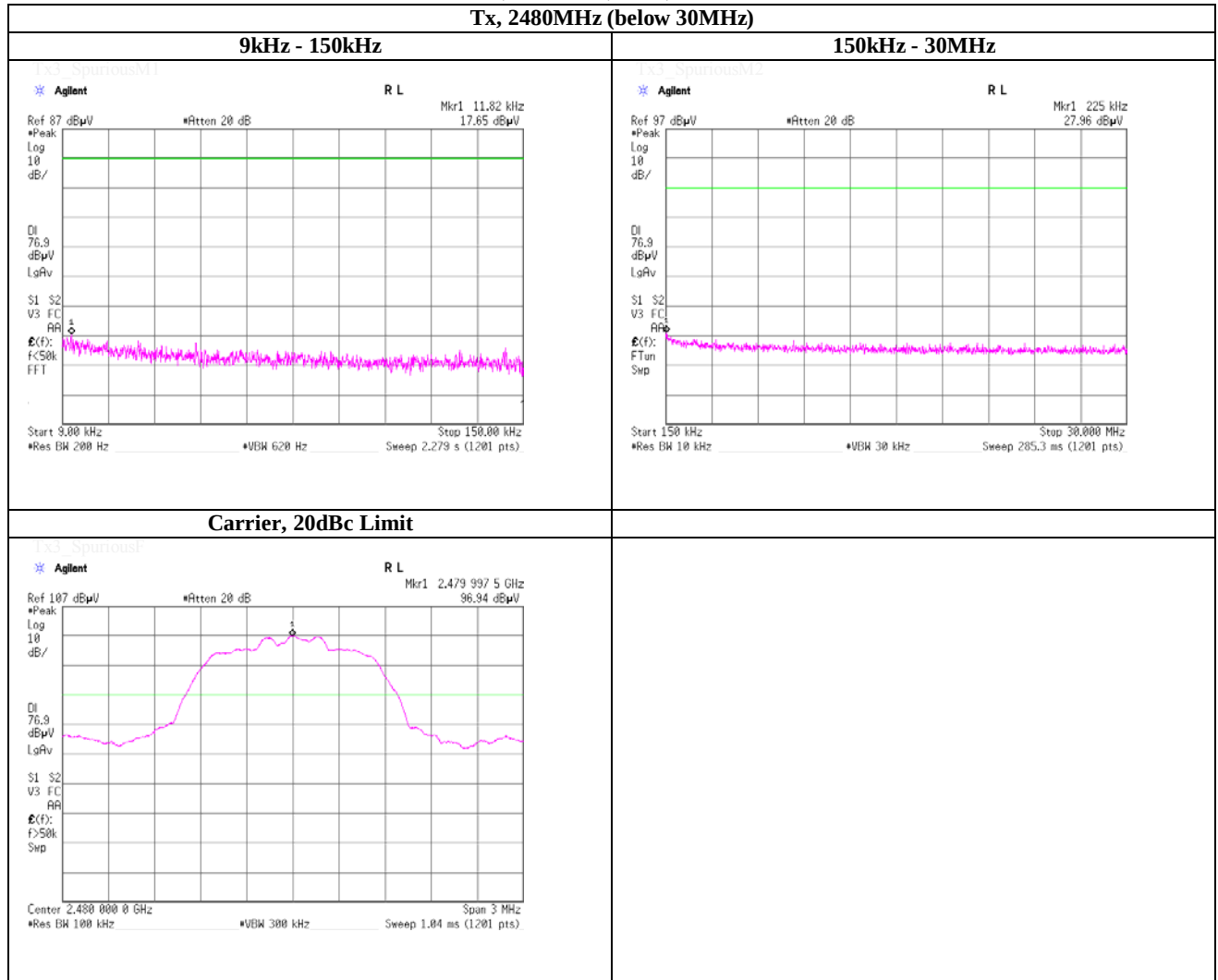
Tx, 2441MHz (below 30MHz)



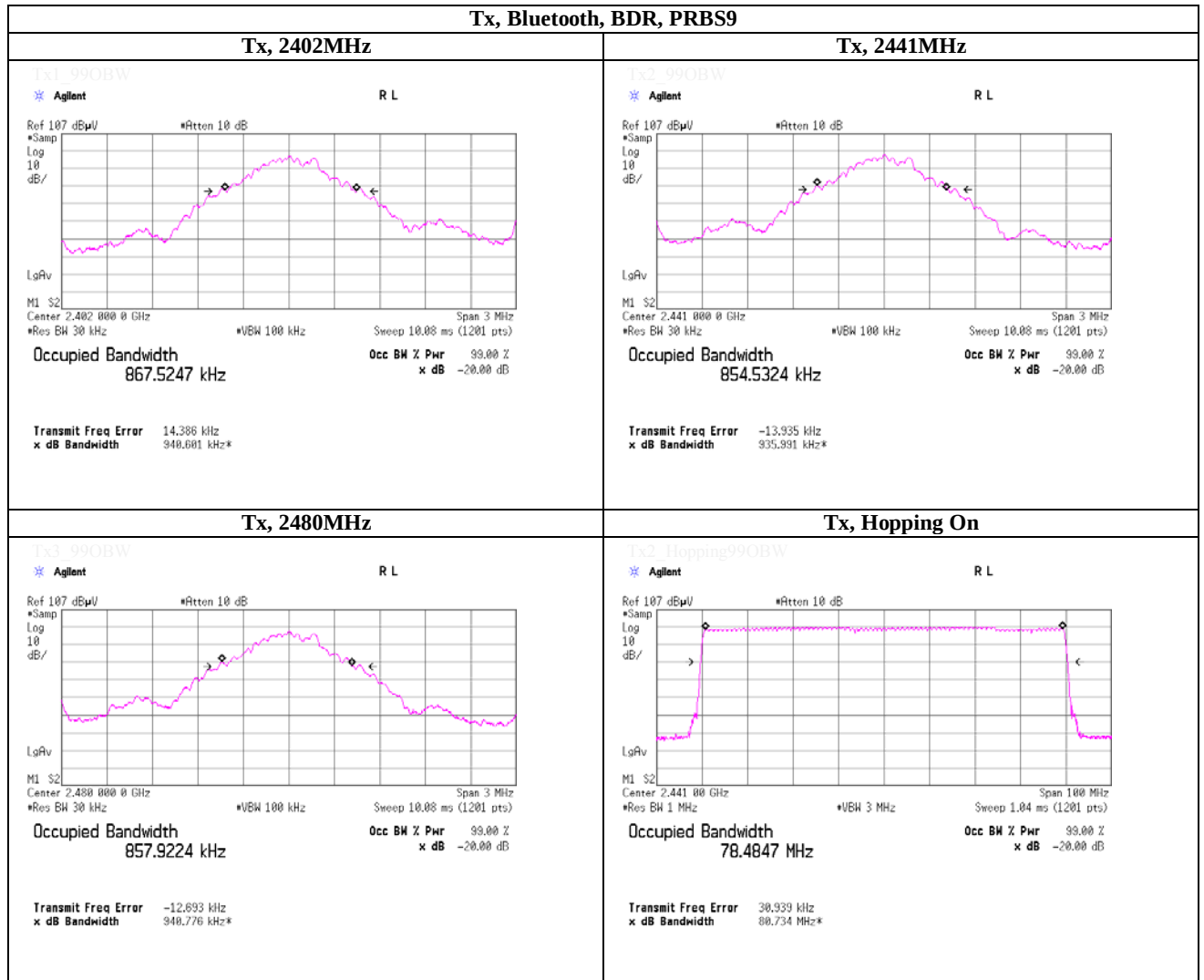
Spurious emission (Conducted)

Tx, Bluetooth, EDR, PRBS9

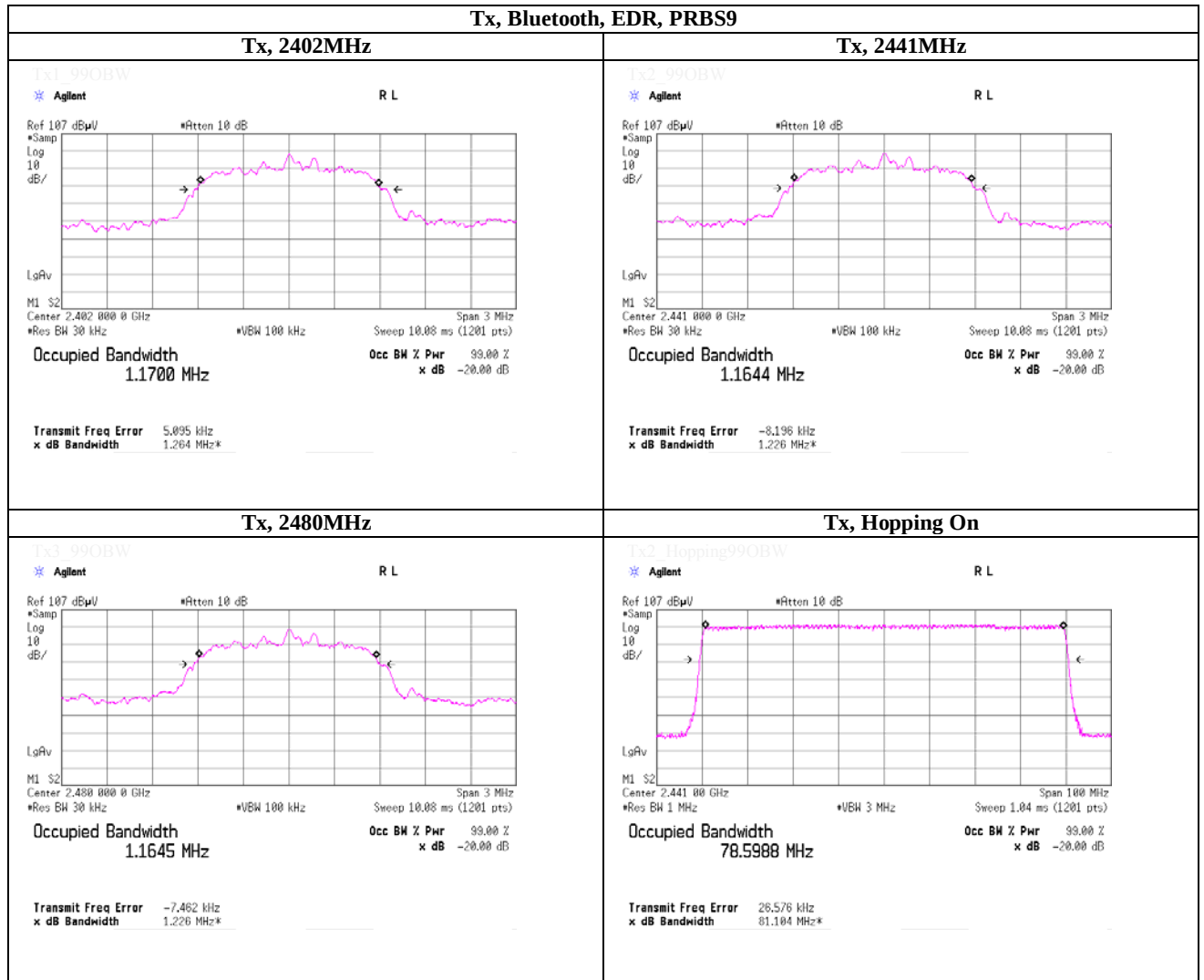
Tx, 2480MHz (below 30MHz)



99% Occupied Bandwidth



99% Occupied Bandwidth



APPENDIX 2

Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
CCC-W10	Micro Wave Cable	Suhner	SUCOFLEX102	MY010/2A	RE	2014/07/17 * 12
CTR-06	Test Receiver	Rohde & Schwarz	ESCI	100107 Rev 4.32	RE	2014/09/03 * 12
CCC-S11-R(1/ 4/5/CATS12-1 3/6/7/8/10)	Coaxial Cable	Fujikura,Suhner,Suhner, Agilent,Suhner,-,Suhner	5D-2W,SF106,SF10 4,8496B+8494B,SF 106,-,SF106	MY42143380,US 00431042(Step Att)	RE	2014/11/09 * 12
CBL-09	LOGBICON	Schwarzbeck	VULB 9168	508	RE	2014/04/25 * 12
CAF-16	Pre-Amplifier	Sonoma Instrument	310N	325015	RE	2014/05/23 * 12
CSCL-16	Ruler	Tajima	G3 gold	none	RE	2014/02/03 * 12
COS-11	Temperature, Humidity & Atmospheric Logger	T&D	TR-73U	F8060468	RE	2014/05/07 * 12
COTS-CEMI-02	EMI Software	TSJ	TEPTO-DV(RE,CE, MF,PE)	Ver.2.5.0130	RE	-
CAT6-11	6dB Fixed Atten.	TAMAGAWA	UFA-01	none	RE	2014/09/18 * 12
CSA-06	Spectrum Analyzer	Agilent	N9030A	MY53310670	RE	2014/05/20 * 12
CHA-20	Broad Band Horn	Schwarzbeck	BBHA 9120D	9120D-1270	RE	2014/07/12 * 12
CHA-07	Double Ridged Horn	TOYO	HAP18-26W	00000035	RE	2014/06/26 * 12
CHA-08	Double Ridged Horn	TOYO	HAP26-40W	00000005	RE	2014/06/26 * 12
CAF-18	Pre-Amplifier	TOYO	TPA0118-36	A-1001	RE	2014/07/14 * 12
CAT10-16	10dB Fixed Atten.	Weinschel	54A-10	56246	RE	2014/05/23 * 12
CHF-03	HPF	Micro-Tronics	HPM50111-02	008	RE	2014/05/23 * 12
CCC-W05	Micro Wave Cable	Junkosha	MWX241	MRA-12-14-14 5	RE	2014/05/23 * 12
CCC-W07	Micro Wave Cable	Junkosha	MWX221	MRA-12-14-14 8	RE	2014/05/23 * 12
CCC-W09	Micro Wave Cable	SUHNER	SUCOFLEX104	MY588/4	RE	2014/07/17 * 12
CSA-07	Spectrum Analyzer	Agilent	E4448A	MY52490024	AT	2014/05/19 * 12
CCC-W06	Micro Wave Cable	Junkosha	MWX241	MRA-12-14-14 6	AT	2014/05/23 * 12
CPM-16	Peak Power Analyzer	Agilent	8990B	MY51000276	AT	2014/06/26 * 12
CPSO-24	Power Sensor	Agilent	N1923A	MY54070024	AT	2014/06/26 * 12
COS-12	Temperature & Humidity Indicator	A&D	AD-5681	6876017	AT	2014/07/01 * 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,

AT: Antenna terminal disturbance voltage

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