TEST REPORT

REGULATIONS : **FCC Part15 C §15.247**
RSS-247 Issue 1

Applicant	Testing Laboratory
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Equipment Type	700/800MHz DIGITAL TRANSCEIVER with Bluetooth
Trademark	KENWOOD
Model(s)	NX-5900-K, NX-5900-F
Serial No.	No.03 (for Radiated testing) No.21 (for Antenna Port Conductive testing)
FCC ID	K44478500
IC CN and UPN	282F-478500
Test Result	Complied
Report Number	15060365JMA-001
Original Issue Date	July 30, 2015
Revised Issue Date	August 10, 2015

Approved by H. Kosemura
Hideaki Kosemura
[Reviewer]

Tested by S. Kobayashi
Shiro Kobayashi
[Engineer]

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SECTION 1. GENERAL INFORMATION

Test Performed

EUT Received	June 29, 2015	
Date of Test	From July 09, 2015 to July 12, 2015	
Standard Applied	FCC	IC
	FCC Part15 C §15.247	RSS-247 Issue 1
Test methods	ANSI C63.10-2013	RSS-Gen Issue 4 ANSI C63.10-2013
Deviation from Standard(s)	None	

Qualifications of Testing Laboratory (Matsuda Lab.)

Accreditation	**Scope**	**Lab. Code**	**Remarks**
VLAC	EMC Testing	VLAC-008-3	JAPAN
BSMI	EMC Testing	SL2-IN-E-6009	TAIWAN
Filing			
VCCI	EMC Testing	A-0127	JAPAN
FCC	EMC Testing	Designation Number : JP0009	USA
IC	EMC Testing	2042S-1, 2042S-2, 2042S-3, 2042S-4	Canada
CB-Scheme	EMC Testing	TL223	IECEE
SAUDI ARABIA	EMC Testing	N/A	

Qualifications of Testing Laboratory (Kashima Lab.)

Accreditation	**Scope**	**Lab. Code**	**Remarks**
VLAC	EMC Testing	VLAC-008-1	JAPAN
BSMI	EMC Testing	SL2-IN-E-6008	TAIWAN
Filing			
VCCI	EMC Testing	A-0126	JAPAN
FCC	EMC Testing	Designation Number : JP0008	USA
IC	EMC Testing	IC-2042K-3, IC-2042Q-12	Canada
CB-Scheme	EMC Testing	TL222	IECEE

Abbreviations

EUT	Equipment Under Test	DoC	Declaration of Conformity
AMN	Artificial Mains Network	ISN	Impedance Stabilization Network
LISN	Line Impedance Stabilization Network	Q-P	Quasi-peak
AMP	Amplifier	AVG	Average
ATT	Attenuator	PK	Peak
ANT	Antenna	Cal	Calibration
BBA	Broadband Antenna	N/A	Not applicable or Not available
DIP	Dipole Antenna	LCD	Liquid-Crystal Display
AE	Associated Equipment	HDMI	High-Definition Multimedia Interface
AFH	Adaptive Hopping Frequency		

Revision Summary

Revised Date	Section	Description of Changes
August 7, 2015	3.4	Add Number of Channels of AFH mode.
	9.5	Add Time of occupancy of AFH mode.

SECTION 2. SUMMARY OF TEST RESULTS

Test Item	Specification	Results	Detail
20 dB Bandwidth and 99 % Occupied Bandwidth	FCC Part15C §15.247 (a) (1) RSS-247 5.1 (1) RSS-Gen 6.6	N/A	Section 9.1
Maximum Peak Output Power	FCC Part15C §15.247 (b) (1) RSS-247 5.4 (2)	PASS	Section 9.2
Carrier Frequency Separation	FCC Part15C §15.247 (a) (1) RSS-247 5.1 (2)	PASS	Section 9.3
Number of Hopping Frequency	FCC Part15C §15.247 (a) (1) (iii) RSS-247 5.1 (4)	PASS	Section 9.4
Time of occupancy	FCC Part15C §15.247 (a) (1) (iii) RSS-247 5.1 (4)	PASS	Section 9.5
Radiated Spurious Emissions and Restrict Band edge	FCC Part15C §15.209, §15.205 RSS-247 5.5 RSS-Gen 8.9	PASS	Section 9.6
Band Edge of Authorized Frequency Band	FCC Part15C §15.247 (d) RSS-247 5.5	PASS	Section 9.7
Spurious RF Conducted Emissions	FCC Part15C §15.247 (d) RSS-247 5.5	PASS	Section 9.8
AC Conducted Emissions	FCC Part15C §15.207 RSS-Gen 7.2.2	PASS	Section 9.9
Receiver Spurious Emissions	RSS-Gen 7.1	PASS	Section 9.10

Limitation on Results

The test result of this report is effective equipment under test itself and under the test configuration described on the report.
This test report does not assure that whether the test result taken in other testing laboratory is compatible or reproducible to the test result on this report or not.

SECTION 3. EQUIPMENT UNDER TEST

The equipment under test (EUT) consisted of the following apparatus.

3.1 System Configuration

Symbol	Item	Model No.	Serial No.	Manufacturer
A	700/800MHz DIGITAL TRANSCEIVER with Bluetooth	NX-5900-K NX-5900-F	No.3 (for Radiated testing) No.21 (for ANT Port Conductive testing)	JVC KENWOOD Corporation
Rated Power : DC 13.6 V +/- 15 %, 13.0 A Maximum				
Supplied Power : DC 13.6 V				
Condition of Equipment	Prototype			
Type	Mobile type			
Suppression Devices	No Modifications by the laboratory were made to the device			

3.2 Port(s)/Connector(s)

Port Name	Connector Type	Connector Pin	Remarks
ACC	D-sub	25 pin	-
External Speaker	3.5φ	2 pin	-
RF Antenna	N	2 pin	-
Microphone	RJ-45	8 pin	-
GPS Antenna	SMA	2 pin	-
Ignition sense	Original	2 pin	-

3.3 Highest Frequency Generated / Used

Operating Frequency	Board Name	Remarks
869 MHz	TXRX UNIT	-
4960 MHz	Bluetooth UNIT	-

3.4 Over View of EUT

Access method	Bluetooth Version 3.0
Rated Output Power	2.5 mW
Frequency Range of Operating	2402 – 2480 MHz
Number of Channels	Max: 79 ch, 1 MHz step (Normal mode) Min: 20 ch (AFH mode)
Modulation Method	FHSS (GFSK, π/4DQPSK, 8DPSK)
Antenna Type and Gain	Integrated Printed PCB Antenna, 1.69 dBi See Note 1
Antenna Connector	None

Note:
1. The EUT comply with the requirement of FCC Part15C §15.203, because
   (1) The antenna was built in the EUT and permanently attached.
   (2) There were no other antenna connectors.

SECTION 4. SUPPORT EQUIPMENT

The EUT was supported by the following equipment during the test.

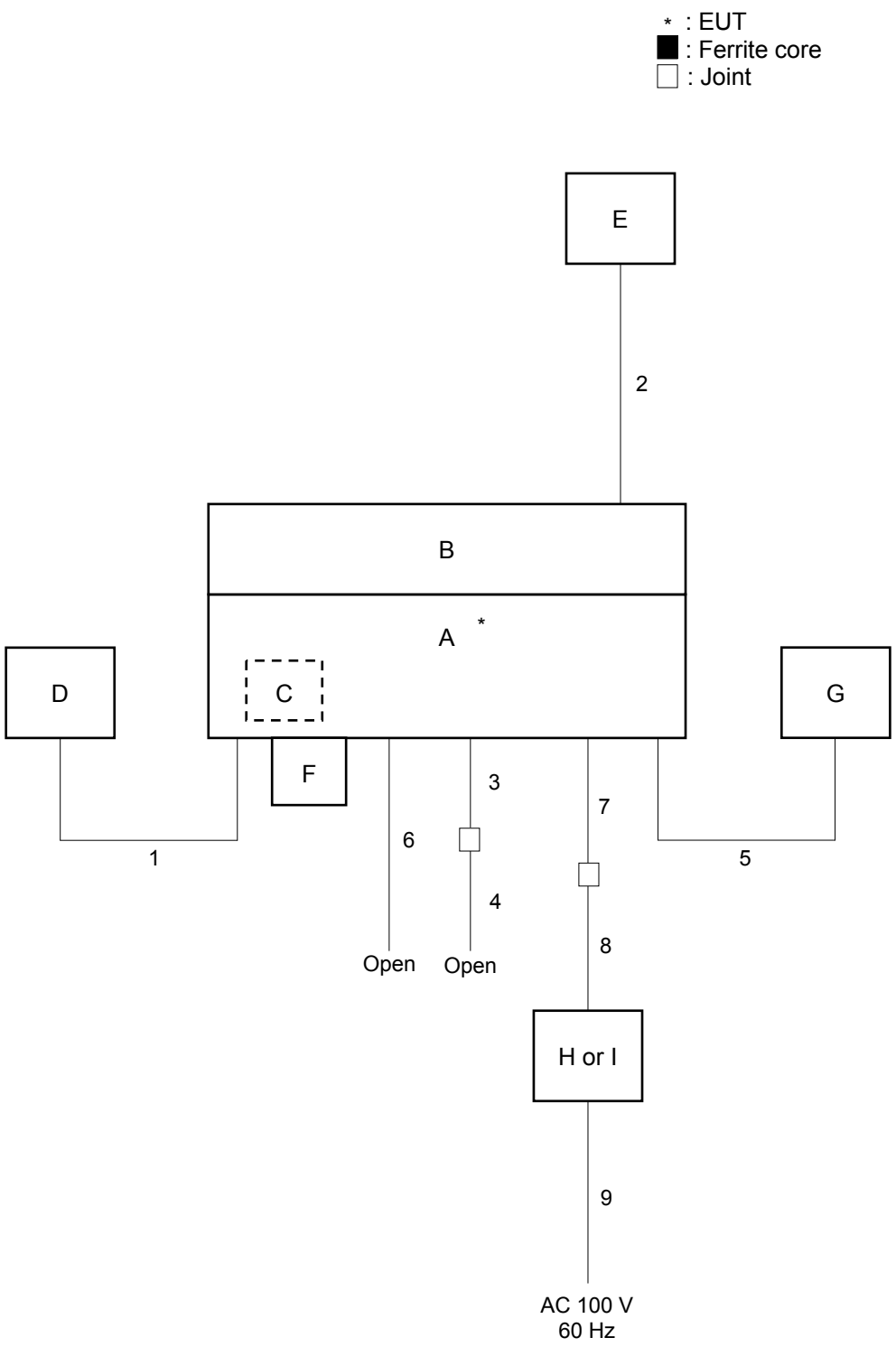
Symbol	Item	Model No.	Serial No.	Manufacturer	FCC ID
B	REMOTE CONTROL HEAD	KCH-19	No.3 (for Radiated testing) No.21 (for ANT Port Conductive testing)	JVC KENWOOD Corporation	N/A
C	SECURE CRYPTOGRAPHIC MODULE	KWD-AE30	No.3 (for Radiated testing) No.21 (for ANT Port Conductive testing)	JVC KENWOOD Corporation	N/A
D	External Speaker	KES-3	No.28	JVC KENWOOD Corporation	N/A
E	Microphone with 12-Keypad	KMC-36	No.4	JVC KENWOOD Corporation	N/A
F	Dummy Load	SK-50	None	JVC KENWOOD Corporation	N/A
G	GPS Antenna	KRA-40	No.2	JVC KENWOOD Corporation	N/A
H	DC Power Supply (1)	PAB 25-1TR	28020014	KIKUSUI	N/A
I	DC Power Supply (2)	PMC35-3A	LE000716	KIKUSUI	N/A
Supplied Power:					
H, I	AC 100 V, 60 Hz				

SECTION 5. USED CABLE(S)

The following cable(s) was used for the test.

No.	Name	Length (m)	Shield	Metal Connector	Ferrite Core
1	Speaker cable	2.90	No	No	-
2	Mic. Cable	0.55	No	No	-
3	Ignition sense cable	0.12	No	No	-
4	KCT-46 (Ignition sense cable)	3.20	No	No	-
5	GPS Antenna cable	5.00	No	No	-
6	ACC cable	1.70	Yes	Yes	-
7	DC cable	0.25	No	No	-
8	DC cable	3.40	No	No	-
9	Power cable for DC Power Supply	2.00	No	No	-

SECTION 6. TEST CONFIGURATION



The symbols and numbers assigned to the equipment and cables on this diagram correspond to the ones in Sections 3 to 5.

SECTION 7. OPERATING CONDITION

The test was carried out under the following mode.

Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

7.1 Test Channel

In accordance with Section 15.31 (m), all test items was conducted in the following three channels:

Test Channel	Frequency [MHz]
Low	2402
Middle	2441
High	2480

7.2 Test modes

Test Item	Operating modes
Maximum Peak Output Power	Hopping OFF DH1, DH3, DH5 2-DH1, 2-DH3, 2-DH5 3-DH1, 3-DH3, 3-DH5
Carrier Frequency Separation	Hopping ON DH5, 2-DH5, 3-DH5
Number of Hopping Frequency	Hopping ON DH5, 2-DH5, 3-DH5
Time of occupancy	Hopping OFF DH1, DH3, DH5 2-DH1, 2-DH3, 2-DH5 3-DH1, 3-DH3, 3-DH5
Radiated Spurious Emissions and Restrict Band edge	Hopping OFF DH5, 2-DH5, 3-DH5
Band Edge of Authorized Frequency Band	Hopping OFF/ON DH5, 2-DH5, 3-DH5
Spurious RF Conducted Emissions	Hopping ON DH5, 2-DH5, 3-DH5
AC Conducted Emissions	Hopping ON DH5, 2-DH5, 3-DH5
Receiver Spurious Emissions	Transmit OFF, Receive mode

Note: The Test modes were configured in typical fashion as a customer would normally use it.

SECTION 8. UNCERTAINTY

The following uncertainty represents the expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.
Traceability to national standard in SI units is ensured with these values.
Compliance with the limits in this standard are determined without in consideration of the measurement uncertainty of the measurement instrumentation.

8.1 Emission tests

Test items	U_{lab} [k = 2]	U_{cispr}
Radiated Spurious Emissions at 3m		
30 MHz – 1000 MHz	+/- 3.96 dB	6.3 dB
Above 1 GHz	+/- 4.91 dB	5.2 dB
AC Conducted Emissions		
150 kHz – 30 MHz	+/- 2.80 dB	3.4 dB

The above expanded instrumentation uncertainty, $U_{lab.}$, is estimated in accordance with CISPR 16-4-2:2011.

8.2 RF Conducted tests

Test Items	U_{lab} [k = 2]
Bandwidth	+/- 1.42 %
Maximum Output Power	+/- 1.96 dB
Conducted Emissions	+/- 1.82 dB

SECTION 9. TEST DATA

9.1 20 dB Bandwidth and 99 % Occupied Bandwidth

Regulations	FCC Part15C §15.247 (a) (1) RSS-247 5.1 (1) RSS-Gen 6.6
Test Method/Guide	ANSI C63.10-2013 clause 6.9.2

Test Procedure

1. The EUT and test instrument were set up as shown on section 10.1.
2. Adjust the test instrument for the following setting:

RBW	:	1 to 5 % of the 20 dB bandwidth
VBW	:	approximately 3 times RBW
Span	:	approximately 3 times the 20 dB bandwidth
Detector	:	Peak
Sweep Time	:	Auto
Trace mode	:	Max Hold

3. Allow trace to fully stabilize.
4. Use “Occupied Bandwidth Measurement” function to measure the 20 dB bandwidth.

Test Result

Location	Matsuda No.4 Test Site
Test date	Jul. 09, 2015
Temperature	22.0 [degree C]
Humidity variation	65.0 [%]
Test Engineer	Shiro Kobayashi

Operating modes	Frequency [MHz]	20 dB Bandwidth [MHz]	99 % Bandwidth [MHz]
DH5	2402	0.958	0.851
	2441	0.955	0.850
	2480	0.955	0.847
2-DH5	2402	1.344	1.199
	2441	1.343	1.204
	2480	1.344	1.200
3-DH5	2402	1.334	1.201
	2441	1.334	1.202
	2480	1.331	1.201

Spectrum Plots

See ANNEX A.1.

9.2 Maximum Peak Output Power

Regulations	FCC Part15C §15.247 (b) (1) RSS-247 5.4 (2)
Test Method/Guide	ANSI C63.10-2013 clause 7.8.5

Test Procedure

1. The EUT and test instrument were set up as shown on section 10.1.
2. Adjust the test instrument for the following setting:

RBW	:	≥ the 20 dB bandwidth
VBW	:	≥ RBW
Span	:	approximately 5 times the 20 dB bandwidth
Detector	:	Peak
Sweep Time	:	Auto
Trace mode	:	Max Hold

Note: The value of the “20 dB bandwidth”, from the result of section 9.1.

3. Allow trace to fully stabilize.
4. Use the peak search function to measure the peak of the emission.
5. Measurement data correction;

Measured Value [dBm] = Reading [dBm] + Factor [dB]

*Factor = Cable Loss [dB] + Attenuator [dB]

Margin [dB] = Limit [dBm] - Measured Value [dBm]

Test Result

Location	Matsuda No.4 Test Site
Test date	Jul. 09, 2015
Temperature	22.0 [degree C]
Humidity variation	65.0 [%]
Test Engineer	Shiro Kobayashi

Operating modes	Freq. [MHz]	Reading [dBm]	Factor [dB]	Measured Value [dBm]	Limit		Margin [dB]
					[mW]	[dBm]	
DH1	2402	-21.52	20.57	-0.95	125	20.97	21.92
	2441	-21.37	20.58	-0.79			21.76
	2480	-20.95	20.58	-0.37			21.34
DH3	2402	-21.53	20.57	-0.96			21.93
	2441	-21.38	20.58	-0.81			21.77
	2480	-20.96	20.58	-0.38			21.34
DH5	2402	-21.55	20.57	-0.97			21.94
	2441	-21.40	20.58	-0.82			21.79
	2480	-20.95	20.58	-0.37			21.33
2-DH1	2402	-20.86	20.57	-0.29			21.26
	2441	-20.73	20.58	-0.16			21.12
	2480	-20.27	20.58	0.31			20.65
2-DH3	2402	-20.88	20.57	-0.31			21.28
	2441	-20.71	20.58	-0.13			21.10
	2480	-20.29	20.58	0.29			20.68
2-DH5	2402	-20.87	20.57	-0.29			21.26
	2441	-20.72	20.58	-0.14			21.11
	2480	-20.28	20.58	0.30			20.67
3-DH1	2402	-20.26	20.57	0.31			20.66
	2441	-20.06	20.58	0.52			20.45
	2480	-19.65	20.58	0.93			20.04
3-DH3	2402	-20.24	20.57	0.33			20.63
	2441	-20.09	20.58	0.49			20.48
	2480	-19.65	20.58	0.94			20.03
3-DH5	2402	-20.25	20.57	0.32			20.65
	2441	-20.09	20.58	0.49			20.48
	2480	-19.67	20.58	0.91			20.06

Spectrum Plots

See ANNEX A.2

9.3 Carrier Frequency Separation

Regulations	FCC Part15C §15.247 (a) (1) RSS-247 5.1 (2)
Test Method/Guide	ANSI C63.10-2013 clause 7.8.2

Test Procedure

1. The EUT and test instrument were set up as shown on section 10.1.
2. Adjust the test instrument for the following setting:

RBW	:	approximately 30% of the channel spacing
VBW	:	≥ RBW
Span	:	Including emission band
Detector	:	Peak
Sweep Time	:	Auto
Trace mode	:	Max Hold

3. Allow trace to fully stabilize.
4. Use delta marker function to measure the separation between the two channels.

Test Result

Location	Matsuda No.4 Test Site
Test date	Jul. 09, 2015
Temperature	22.0 [degree C]
Humidity variation	65.0 [%]
Test Engineer	Shiro Kobayashi

Operating modes	Frequency [MHz]	Measured Value [MHz]	Limit [MHz]
DH5	2402	1.000	≥ 0.638
	2441	1.000	≥ 0.637
	2480	1.000	≥ 0.637
2-DH5	2402	1.000	≥ 0.896
	2441	1.000	≥ 0.895
	2480	1.000	≥ 0.896
3-DH5	2402	1.000	≥ 0.889
	2441	1.000	≥ 0.889
	2480	1.000	≥ 0.887

Note: Limits were applied to two-thirds of 20 dB bandwidth.
The value of the “20 dB bandwidth”, from the result of section 9.1.

Spectrum Plots

See ANNEX A.3

9.4 Number of Hopping Frequency

Regulations	FCC Part15C §15.247 (a) (1) (iii) RSS-247 5.1 (4)
Test Method/Guide	ANSI C63.10-2013 clause 7.8.3

Test Procedure

1. The EUT and test instrument were set up as shown on section 10.1.
2. Adjust the test instrument for the following setting:

RBW	:	< 30% of the channel spacing
VBW	:	≥ RBW
Span	:	Including emission band
Detector	:	Peak
Sweep Time	:	Auto
Trace mode	:	Max Hold

3. Allow trace to fully stabilize.
4. Count the peaks.

Test Result

Location	Matsuda No.4 Test Site
Test date	Jul. 09, 2015
Temperature	22.0 [degree C]
Humidity variation	65.0 [%]
Test Engineer	Shiro Kobayashi

Operating modes	Measured Value	Limit
DH5	79	≥ 15
2-DH5	79	
3-DH5	79	

Spectrum Plots

See ANNEX A.4

9.5 Time of Occupancy

Regulations	FCC Part15C §15.247 (a) (1) (iii) RSS-247 5.1 (4)
Test Method/Guide	ANSI C63.10-2013 clause 7.8.4

Test Procedure

1. The EUT and test instrument were set up as shown on section 10.1.
2. Adjust the test instrument for the following setting:

RBW	:	≤ channel spacing
VBW	:	≥ RBW
Span	:	0 Hz
Detector	:	Peak
Sweep Time	:	As necessary to capture the entire dwell time per hopping channel
Trace mode	:	Single, Use Video Trigger

3. Use delta marker function to measure the transmit time as per hop.
4. By the following method, calculated time of occupancy;

(1) Number of hops per sec
= Hopping rate / 1 time slots / 1 [sec].

* 1 time slots : 2 for DH1 packet
4 for DH3 packet
6 for DH5 packet
* Hopping rate : 1600 for Normal mode
800 for AFH mode

(2) Number of hops per sec in each channel
= Number of hops per sec / number of hopping channel.
* number of hopping channel: 79 for Normal mode
20 for AFH mode

(3) Specified periods [sec]
= 0.4 [sec] x number of hopping channels.

(4) Number of hops per specified periods in each channel
= Number of hops per sec in each channel x Specified periods [sec].

(5) Time of occupancy [ms]
= Number of hops per specified periods in each channel x the transmit time as per hop [ms].

Test Result

Test date	Jul. 09, 2015
Location	Matsuda No.4 Test Site
Temperature	22.0 [degree C]
Humidity variation	65.0 [%]
Test Engineer	Shiro Kobayashi

Normal mode

Operating modes	Transmit Time per Hop [ms]	Number of hops per channel in specified period	Time of Occupancy [ms]	Limit [ms]
DH1	0.3991	320.00	127.71	400.00
DH3	1.6550	160.00	264.80	
DH5	2.9030	106.67	309.65	
2-DH1	0.3128	320.00	100.10	
2-DH3	0.9377	160.00	150.03	
2-DH5	1.5620	106.67	166.61	
3-DH1	0.2724	320.00	87.17	
3-DH3	0.6880	160.00	110.08	
3-DH5	1.1040	106.67	117.76	

AFH mode

Operating modes	Transmit Time per Hop [ms]	Number of hops per channel in specified period	Time of Occupancy [ms]	Limit [ms]
DH1	0.3991	160.00	63.86	400.00
DH3	1.6550	80.00	132.40	
DH5	2.9030	53.33	154.83	
2-DH1	0.3128	160.00	50.05	
2-DH3	0.9377	80.00	75.02	
2-DH5	1.5620	53.33	83.31	
3-DH1	0.2724	160.00	43.58	
3-DH3	0.6880	80.00	55.04	
3-DH5	1.1040	53.33	58.88	

Spectrum Chart

See ANNEX A.5

9.6 Radiated Spurious Emissions and Band Edge of Restrict Band

Regulations	FCC Part15C §15.209, §15.205 RSS-247 5.5 RSS-Gen 8.9
Test Method/Guide	ANSI C63.10-2013 clause 6.5 and 6.6

Test Procedure

1. The EUT and test instrument were set up as shown on section 10.2.
2. The measurement antenna was placed at a distance of 3 m from the EUT.
4. The turntable azimuth (EUT direction) and antenna height are adjusted the position so that maximum field strength is obtained for each frequency spectrum to be measured.
   The equipment and cables are arranged or manipulated within the range of the test standard in the above condition. At least six highest spectrums are measured by the test receiver (below 1 GHz) and spectrum analyzer (above 1 GHz).
5. Adjust the test instrument for the following setting:

Frequency	Instruments	Detector	RBW	VBW	Remarks
30 – 1000 MHz	CISPR Receiver	QP	120 kHz	N/A	-
Above 1000 MHz	Spectrum Analyzer	Peak	1 MHz	1 MHz	for Peak
				10 Hz	for Average

6. Measurement data correction;

   Emission Level [dBuV/m] = Reading [dBuV] + Factor [dB/m]

   Margin [dB] = Limit [dBuV/m] – Emission Level [dBuV/m]

   * Factor = Antenna Factor + Amplifier gain + Cable loss + Attenuator (+ Filter)
   (+ Distance Conversion Factor)*

* For other than Standard distance:
  Distance Conversion Factor = 20 log (Measurement distance / Standard distance)

Note: Did not carried out the fainal measurement about frequency range of 9 kHz to 30 MHz, because result of pre-check in shield room, spurious emissions was not detected.

Test Result

Operating mode	DH5, 2402 MHz			
Location	Matsuda No.3 Test Site,	Kashima No.12 Test Site		
Frequency	30 – 1000 MHz,	1-18 GHz,	18 – 25 GHz	
Test date	Jul. 10, 2015,	Jul. 11, 2015,	Jul. 12, 2015	
Temperature	24.0,	22.0,	23.0	[degree C]
Humidity variation	53.0,	44.0,	48.0	[%]
Test Engineer	Shiro Kobayashi			

No.	Freq. [MHz]	Detector	Reading [dBuV]		Factor [dB/m]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	180.00	QP	24.8	24.7	-4.5	20.3	20.2	43.5	23.2	23.3
2	249.60	QP	31.2	24.6	0.0	31.2	24.6	46.0	14.8	21.4
3	288.00	QP	28.3	21.6	1.5	29.8	23.1	46.0	16.2	22.9
4	384.00	QP	22.3	-	4.0	26.3	-	46.0	19.7	-
5	1440.00	PEK	42.8	42.1	3.9	46.7	46.0	74.0	27.3	28.0
6	1440.00	AVG	31.2	31.3	3.9	35.1	35.2	54.0	18.9	18.8
7*	2390.00	PEK	41.5	42.3	8.5	50.0	50.8	74.0	24.0	23.2
8*	2390.00	AVG	29.6	29.5	8.5	38.1	38.0	54.0	15.9	16.0
9	4804.00	PEK	41.2	41.1	12.6	53.8	53.7	74.0	20.2	20.3
10	4804.00	AVG	29.2	29.2	12.6	41.8	41.8	54.0	12.2	12.2
11	4962.60	PEK	39.2	39.4	12.6	51.8	52.0	74.0	22.2	22.0
12	4962.60	AVG	28.8	28.7	12.6	41.4	41.3	54.0	12.6	12.7
13	6616.80	PEK	36.4	37.2	15.3	51.7	52.5	74.0	22.3	21.5
14	6616.80	AVG	26.7	26.6	15.3	42.0	41.9	54.0	12.0	12.1
15	7206.00	PEK	39.6	38.2	15.1	54.7	53.3	74.0	19.3	20.7
16	7206.00	AVG	27.3	27.3	15.1	42.4	42.4	54.0	11.6	11.6

Note.
* : Band Edge of Restrict Band
- : Measurement limit

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

Operating mode	DH5, 2441 MHz			
Location	Matsuda No.3 Test Site,	Kashima No.12 Test Site		
Frequency	30 – 1000 MHz,	1-18 GHz,	18 – 25 GHz	
Test date	Jul. 10, 2015,	Jul. 11, 2015,	Jul. 12, 2015	
Temperature	24.0,	22.0,	23.0	[degree C]
Humidity variation	53.0,	44.0,	48.0	[%]
Test Engineer	Shiro Kobayashi			

No.	Freq. [MHz]	Detector	Reading [dBuV]		Factor [dB/m]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	180.00	QP	24.8	24.8	-4.5	20.3	20.3	43.5	23.2	23.2
2	249.60	QP	31.2	24.5	0.0	31.2	24.5	46.0	14.8	21.5
3	288.00	QP	28.3	21.6	1.5	29.8	23.1	46.0	16.2	22.9
4	384.00	QP	22.2	-	4.0	26.2	-	46.0	19.8	-
5	1440.00	PEK	43.1	43.0	3.9	47.0	46.9	74.0	27.0	27.1
6	1440.00	AVG	31.2	31.3	3.9	35.1	35.2	54.0	18.9	18.8
7*	2390.00	PEK	42.5	44.6	8.5	51.0	53.1	74.0	23.0	20.9
8*	2390.00	AVG	29.5	29.5	8.5	38.0	38.0	54.0	16.0	16.0
9	4882.00	PEK	39.8	38.7	12.5	52.3	51.2	74.0	21.7	22.8
10	4882.00	AVG	28.4	28.6	12.5	40.9	41.1	54.0	13.1	12.9
11	4962.60	PEK	39.5	39.1	12.6	52.1	51.7	74.0	21.9	22.3
12	4962.60	AVG	28.6	28.7	12.6	41.2	41.3	54.0	12.8	12.7
13	6616.80	PEK	37.2	36.9	15.3	52.5	52.2	74.0	21.5	21.8
14	6616.80	AVG	26.5	26.6	15.3	41.8	41.9	54.0	12.2	12.1
15	7323.00	PEK	38.4	37.6	15.0	53.4	52.6	74.0	20.6	21.4
16	7323.00	AVG	27.0	27.0	15.0	42.0	42.0	54.0	12.0	12.0

Note.
* : Band Edge of Restrict Band
- : Measurement limit

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

Operating mode	DH5, 2480 MHz			
Location	Matsuda No.3 Test Site,	Kashima No.12 Test Site		
Frequency	30 – 1000 MHz,	1-18 GHz,	18 – 25 GHz	
Test date	Jul. 10, 2015,	Jul. 11, 2015,	Jul. 12, 2015	
Temperature	24.0,	22.0,	23.0	[degree C]
Humidity variation	53.0,	44.0,	48.0	[%]
Test Engineer	Shiro Kobayashi			

No.	Freq. [MHz]	Detector	Reading [dBuV]		Factor [dB/m]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	180.00	QP	24.8	24.6	-4.5	20.3	20.1	43.5	23.2	23.4
2	249.60	QP	31.4	24.4	0.0	31.4	24.4	46.0	14.6	21.6
3	288.00	QP	28.4	21.8	1.5	29.9	23.3	46.0	16.1	22.7
4	384.00	QP	22.4	-	4.0	26.4	-	46.0	19.6	-
5	1440.00	PEK	43.2	42.4	3.9	47.1	46.3	74.0	26.9	27.7
6	1440.00	AVG	31.2	31.3	3.9	35.1	35.2	54.0	18.9	18.8
7*	2483.50	PEK	42.6	42.5	8.8	51.4	51.3	74.0	22.6	22.7
8*	2483.50	AVG	29.6	30.2	8.8	38.4	39.0	54.0	15.6	15.0
9	4960.00	PEK	39.1	39.4	12.6	51.7	52.0	74.0	22.3	22.0
10	4960.00	AVG	28.5	28.7	12.6	41.1	41.3	54.0	12.9	12.7
11	4962.60	PEK	38.6	38.9	12.6	51.2	51.5	74.0	22.8	22.5
12	4962.60	AVG	28.7	28.7	12.6	41.3	41.3	54.0	12.7	12.7
13	6616.80	PEK	36.8	36.5	15.3	52.1	51.8	74.0	21.9	22.2
14	6616.80	AVG	26.4	26.6	15.3	41.7	41.9	54.0	12.3	12.1
15	7440.00	PEK	36.9	37.2	15.1	52.0	52.3	74.0	22.0	21.7
16	7440.00	AVG	26.4	26.3	15.1	41.5	41.4	54.0	12.5	12.6

Note.
* : Band Edge of Restrict Band
- : Measurement limit

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

Operating mode	2-DH5, 2402 MHz			
Location	Matsuda No.3 Test Site,	Kashima No.12 Test Site		
Frequency	30 – 1000 MHz,	1-18 GHz,	18 – 25 GHz	
Test date	Jul. 10, 2015,	Jul. 11, 2015,	Jul. 12, 2015	
Temperature	24.0,	22.0,	23.0	[degree C]
Humidity variation	53.0,	44.0,	48.0	[%]
Test Engineer	Shiro Kobayashi			

No.	Freq. [MHz]	Detector	Reading [dBuV]		Factor [dB/m]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	180.00	QP	24.8	24.8	-4.5	20.3	20.3	43.5	23.2	23.2
2	249.60	QP	30.9	24.4	0.0	30.9	24.4	46.0	15.1	21.6
3	288.00	QP	28.3	21.8	1.5	29.8	23.3	46.0	16.2	22.7
4	384.00	QP	22.3	-	4.0	26.3	-	46.0	19.7	-
5	1440.00	PEK	43.0	42.2	3.9	46.9	46.1	74.0	27.1	27.9
6	1440.00	AVG	31.7	31.7	3.9	35.6	35.6	54.0	18.4	18.4
7	2332.07	PEK	50.3	55.3	8.4	58.7	63.7	74.0	15.3	10.3
8	2332.07	AVG	29.4	29.5	8.4	37.8	37.9	54.0	16.2	16.1
9*	2389.05	PEK	51.2	55.6	8.5	59.7	64.1	74.0	14.3	9.9
10*	2389.05	AVG	29.8	29.8	8.5	38.3	38.3	54.0	15.7	15.7
11	4804.00	PEK	39.0	38.7	12.6	51.6	51.3	74.0	22.4	22.7
12	4804.00	AVG	29.2	29.7	12.6	41.8	42.3	54.0	12.2	11.7
13	4962.60	PEK	39.2	38.8	12.6	51.8	51.4	74.0	22.2	22.6
14	4962.60	AVG	29.0	29.2	12.6	41.6	41.8	54.0	12.4	12.2
15	6616.80	PEK	36.6	37.2	15.3	51.9	52.5	74.0	22.1	21.5
16	6616.80	AVG	26.7	26.9	15.3	42.0	42.2	54.0	12.0	11.8
17	7206.00	PEK	37.3	37.3	15.1	52.4	52.4	74.0	21.6	21.6
18	7206.00	AVG	27.5	27.5	15.1	42.6	42.6	54.0	11.4	11.4

Note.
* : Band Edge of Restrict Band
- : Measurement limit

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

Operating mode	2-DH5, 2441 MHz			
Location	Matsuda No.3 Test Site,	Kashima No.12 Test Site		
Frequency	30 – 1000 MHz,	1-18 GHz,	18 – 25 GHz	
Test date	Jul. 10, 2015,	Jul. 11, 2015,	Jul. 12, 2015	
Temperature	24.0,	22.0,	23.0	[degree C]
Humidity variation	53.0,	44.0,	48.0	[%]
Test Engineer	Shiro Kobayashi			

No.	Freq. [MHz]	Detector	Reading [dBuV]		Factor [dB/m]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	180.00	QP	24.8	24.7	-4.5	20.3	20.2	43.5	23.2	23.3
2	249.60	QP	31.1	24.5	0.0	31.1	24.5	46.0	14.9	21.5
3	288.00	QP	28.3	21.5	1.5	29.8	23.0	46.0	16.2	23.0
4	384.00	QP	22.3	-	4.0	26.3	-	46.0	19.7	-
5	1440.00	PEK	42.2	42.7	3.9	46.1	46.6	74.0	27.9	27.4
6	1440.00	AVG	31.7	31.7	3.9	35.6	35.6	54.0	18.4	18.4
7	2331.40	PEK	51.1	55.4	8.4	59.5	63.8	74.0	14.5	10.2
8	2331.40	AVG	29.4	29.5	8.4	37.8	37.9	54.0	16.2	16.1
9*	2388.72	PEK	50.9	56.0	8.5	59.4	64.5	74.0	14.6	9.5
10*	2388.72	AVG	29.7	29.8	8.5	38.2	38.3	54.0	15.8	15.7
11	4882.00	PEK	39.3	38.9	12.5	51.8	51.4	74.0	22.2	22.6
12	4882.00	AVG	29.0	29.0	12.5	41.5	41.5	54.0	12.5	12.5
13	4962.60	PEK	39.3	38.0	12.6	51.9	50.6	74.0	22.1	23.4
14	4962.60	AVG	29.0	28.9	12.6	41.6	41.5	54.0	12.4	12.5
15	6616.80	PEK	37.0	35.9	15.3	52.3	51.2	74.0	21.7	22.8
16	6616.80	AVG	26.8	26.9	15.3	42.1	42.2	54.0	11.9	11.8
17	7323.00	PEK	37.9	37.4	15.0	52.9	52.4	74.0	21.1	21.6
18	7323.00	AVG	27.2	27.3	15.0	42.2	42.3	54.0	11.8	11.7

Note.
* : Band Edge of Restrict Band
- : Measurement limit

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

Operating mode	2-DH5, 2480 MHz			
Location	Matsuda No.3 Test Site,	Kashima No.12 Test Site		
Frequency	30 – 1000 MHz,	1-18 GHz,	18 – 25 GHz	
Test date	Jul. 10, 2015,	Jul. 11, 2015,	Jul. 12, 2015	
Temperature	24.0,	22.0,	23.0	[degree C]
Humidity variation	53.0,	44.0,	48.0	[%]
Test Engineer	Shiro Kobayashi			

No.	Freq. [MHz]	Detector	Reading [dBuV]		Factor [dB/m]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	180.00	QP	24.8	24.7	-4.5	20.3	20.2	43.5	23.2	23.3
2	249.60	QP	31.1	24.6	0.0	31.1	24.6	46.0	14.9	21.4
3	288.00	QP	28.3	21.8	1.5	29.8	23.3	46.0	16.2	22.7
4	384.00	QP	22.3	-	4.0	26.3	-	46.0	19.7	-
5	1440.00	PEK	41.6	41.8	3.9	45.5	45.7	74.0	28.5	28.3
6	1440.00	AVG	31.7	31.7	3.9	35.6	35.6	54.0	18.4	18.4
7	2331.21	PEK	52.1	55.0	8.4	60.5	63.4	74.0	13.5	10.6
8	2331.21	AVG	29.4	29.6	8.4	37.8	38.0	54.0	16.2	16.0
9*	2388.28	PEK	51.6	56.0	8.5	60.1	64.5	74.0	13.9	9.5
10*	2388.28	AVG	29.7	29.8	8.5	38.2	38.3	54.0	15.8	15.7
11*	2483.50	PEK	41.0	44.2	8.8	49.8	53.0	74.0	24.2	21.0
12*	2483.50	AVG	28.3	30.6	8.8	37.1	39.4	54.0	16.9	14.6
13	4960.00	PEK	39.6	39.3	12.6	52.2	51.9	74.0	21.8	22.1
14	4960.00	AVG	28.9	28.8	12.6	41.5	41.4	54.0	12.5	12.6
15	4962.60	PEK	39.2	40.0	12.6	51.8	52.6	74.0	22.2	21.4
16	4962.60	AVG	28.9	28.9	12.6	41.5	41.5	54.0	12.5	12.5
17	6616.80	PEK	37.6	37.4	15.3	52.9	52.7	74.0	21.1	21.3
18	6616.80	AVG	26.8	26.8	15.3	42.1	42.1	54.0	11.9	11.9
19	7440.00	PEK	37.2	36.9	15.1	52.3	52.0	74.0	21.7	22.0
20	7440.00	AVG	26.7	26.6	15.1	41.8	41.7	54.0	12.2	12.3

Note.
* : Band Edge of Restrict Band
- : Measurement limit

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

Operating mode	3-DH5, 2402 MHz			
Location	Matsuda No.3 Test Site,	Kashima No.12 Test Site		
Frequency	30 – 1000 MHz,	1-18 GHz,	18 – 25 GHz	
Test date	Jul. 10, 2015,	Jul. 11, 2015,	Jul. 12, 2015	
Temperature	24.0,	22.0,	23.0	[degree C]
Humidity variation	53.0,	44.0,	48.0	[%]
Test Engineer	Shiro Kobayashi			

No.	Freq. [MHz]	Detector	Reading [dBuV]		Factor [dB/m]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	180.00	QP	24.9	24.3	-4.5	20.4	19.8	43.5	23.1	23.7
2	249.60	QP	31.2	24.5	0.0	31.2	24.5	46.0	14.8	21.5
3	288.00	QP	28.3	21.9	1.5	29.8	23.4	46.0	16.2	22.6
4	384.00	QP	22.3	-	4.0	26.3	-	46.0	19.7	-
5	1440.00	PEK	42.2	42.6	3.9	46.1	46.5	74.0	27.9	27.5
6	1440.00	AVG	31.8	31.8	3.9	35.7	35.7	54.0	18.3	18.3
7	2334.80	PEK	50.4	54.0	8.5	58.9	62.5	74.0	15.1	11.5
8	2334.80	AVG	29.5	29.5	8.5	38.0	38.0	54.0	16.0	16.0
9*	2389.42	PEK	50.1	53.0	8.5	58.6	61.5	74.0	15.4	12.5
10*	2389.42	AVG	29.7	29.9	8.5	38.2	38.4	54.0	15.8	15.6
11	4804.00	PEK	39.6	39.7	12.6	52.2	52.3	74.0	21.8	21.7
12	4804.00	AVG	29.7	29.5	12.6	42.3	42.1	54.0	11.7	11.9
13	4962.60	PEK	39.8	39.9	12.6	52.4	52.5	74.0	21.6	21.5
14	4962.60	AVG	29.3	29.2	12.6	41.9	41.8	54.0	12.1	12.2
15	6616.80	PEK	37.3	37.9	15.3	52.6	53.2	74.0	21.4	20.8
16	6616.80	AVG	27.1	27.0	15.3	42.4	42.3	54.0	11.6	11.7
17	7206.00	PEK	37.6	37.7	15.1	52.7	52.8	74.0	21.3	21.2
18	7206.00	AVG	27.7	27.6	15.1	42.8	42.7	54.0	11.2	11.3

Note.
* : Band Edge of Restrict Band
- : Measurement limit

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

Operating mode	3-DH5, 2441 MHz			
Location	Matsuda No.3 Test Site,	Kashima No.12 Test Site		
Frequency	30 – 1000 MHz,	1-18 GHz,	18 – 25 GHz	
Test date	Jul. 10, 2015,	Jul. 11, 2015,	Jul. 12, 2015	
Temperature	24.0,	22.0,	23.0	[degree C]
Humidity variation	53.0,	44.0,	48.0	[%]
Test Engineer	Shiro Kobayashi			

No.	Freq. [MHz]	Detector	Reading [dBuV]		Factor [dB/m]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	180.00	QP	24.8	24.3	-4.5	20.3	19.8	43.5	23.2	23.7
2	249.60	QP	31.2	24.4	0.0	31.2	24.4	46.0	14.8	21.6
3	288.00	QP	28.1	21.9	1.5	29.6	23.4	46.0	16.4	22.6
4	384.00	QP	22.2	-	4.0	26.2	-	46.0	19.8	-
5	1440.00	PEK	41.1	40.9	3.9	45.0	44.8	74.0	29.0	29.2
6	1440.00	AVG	31.8	31.7	3.9	35.7	35.6	54.0	18.3	18.4
7	2333.71	PEK	52.2	55.9	8.4	60.6	64.3	74.0	13.4	9.7
8	2333.71	AVG	29.4	29.5	8.4	37.8	37.9	54.0	16.2	16.1
9*	2386.88	PEK	50.6	56.4	8.5	59.1	64.9	74.0	14.9	9.1
10*	2386.88	AVG	29.7	29.8	8.5	38.2	38.3	54.0	15.8	15.7
11	4882.00	PEK	39.9	39.9	12.5	52.4	52.4	74.0	21.6	21.6
12	4882.00	AVG	29.2	29.1	12.5	41.7	41.6	54.0	12.3	12.4
13	4962.60	PEK	39.0	39.3	12.6	51.6	51.9	74.0	22.4	22.1
14	4962.60	AVG	29.2	29.2	12.6	41.8	41.8	54.0	12.2	12.2
15	6616.80	PEK	37.7	37.9	15.3	53.0	53.2	74.0	21.0	20.8
16	6616.80	AVG	27.1	27.1	15.3	42.4	42.4	54.0	11.6	11.6
17	7323.00	PEK	38.3	38.6	15.0	53.3	53.6	74.0	20.7	20.4
18	7323.00	AVG	27.5	27.4	15.0	42.5	42.4	54.0	11.5	11.6

Note.
* : Band Edge of Restrict Band
- : Measurement limit

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

Operating mode	3-DH5, 2480 MHz			
Location	Matsuda No.3 Test Site,	Kashima No.12 Test Site		
Frequency	30 – 1000 MHz,	1-18 GHz,	18 – 25 GHz	
Test date	Jul. 10, 2015,	Jul. 11, 2015,	Jul. 12, 2015	
Temperature	24.0,	22.0,	23.0	[degree C]
Humidity variation	53.0,	44.0,	48.0	[%]
Test Engineer	Shiro Kobayashi			

No.	Freq. [MHz]	Detector	Reading [dBuV]		Factor [dB/m]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	180.00	QP	24.8	24.4	-4.5	20.3	19.9	43.5	23.2	23.6
2	249.60	QP	31.1	24.4	0.0	31.1	24.4	46.0	14.9	21.6
3	288.00	QP	28.2	21.8	1.5	29.7	23.3	46.0	16.3	22.7
4	384.00	QP	22.3	-	4.0	26.3	-	46.0	19.7	-
5	1440.00	PEK	42.2	41.7	3.9	46.1	45.6	74.0	27.9	28.4
6	1440.00	AVG	31.7	31.7	3.9	35.6	35.6	54.0	18.4	18.4
7	2333.12	PEK	52.2	55.6	8.4	60.6	64.0	74.0	13.4	10.0
8	2333.12	AVG	29.4	29.5	8.4	37.8	37.9	54.0	16.2	16.1
9*	2389.07	PEK	51.8	55.2	8.5	60.3	63.7	74.0	13.7	10.3
10*	2389.07	AVG	29.7	29.8	8.5	38.2	38.3	54.0	15.8	15.7
11*	2483.50	PEK	42.2	46.0	8.8	51.0	54.8	74.0	23.0	19.2
12*	2483.50	AVG	29.7	30.4	8.8	38.5	39.2	54.0	15.5	14.8
13	4960.00	PEK	39.7	39.8	12.6	52.3	52.4	74.0	21.7	21.6
14	4960.00	AVG	29.1	29.1	12.6	41.7	41.7	54.0	12.3	12.3
15	4962.60	PEK	38.8	38.9	12.6	51.4	51.5	74.0	22.6	22.5
16	4962.60	AVG	29.1	29.1	12.6	41.7	41.7	54.0	12.3	12.3
17	6616.80	PEK	37.3	37.3	15.3	52.6	52.6	74.0	21.4	21.4
18	6616.80	AVG	27.0	27.0	15.3	42.3	42.3	54.0	11.7	11.7
19	7440.00	PEK	37.2	37.2	15.1	52.3	52.3	74.0	21.7	21.7
20	7440.00	AVG	26.9	26.8	15.1	42.0	41.9	54.0	12.0	12.1

Note.
* : Band Edge of Restrict Band
- : Measurement limit

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

9.7 Band Edge of Authorized Frequency Band

Regulations	FCC Part15C §15.247 (d) RSS-247 5.5
Test Method/Guide	ANSI C63.10-2013 clause 6.10.4

Test Procedure

1. The EUT and test instrument were set up as shown on section 10.1.
2. Adjust the measurement instrument for the following setting:

RBW	:	100 kHz
VBW	:	300 kHz
Span	:	20 MHz
Detector	:	Peak
Sweep Time	:	Auto
Correction Factor	:	Input Cable loss and Attenuator
Trace mode	:	Max Hold

3. Allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within in-band emission.
5. Use the marker function to ensure that the band edge level of the authorized frequency band was attenuated by at least the minimum requirements specified.
6. Band Edge Measurement data correction;

   Limit [dBm] = Peak level within in-band emission [dBm] - 20 [dB]

   Margin [dB] = Limit [dBm] – Band edge Level [dBm]

Test Result

Location	Matsuda No.4 Test Site
Test date	Jul. 09, 2015
Temperature	22.0 [degree C]
Humidity variation	65.0 [%]
Test Engineer	Shiro Kobayashi

Operating mode	**DH5, Hopping OFF**			
Freq. [MHz]	**Peak level within in-band emission [dBm]**	**Limit [dBm]**	**Band edge level [dBm]**	**Margin [dB]**
2400	-1.166	-21.166	-53.315	32.149
2483.5	-0.607	-20.607	-52.427	31.820

Operating mode	**DH5, Hopping ON**			
Freq. [MHz]	**Peak level within in-band emission [dBm]**	**Limit [dBm]**	**Band edge level [dBm]**	**Margin [dB]**
2400	-1.800	-21.800	-52.427	30.627
2483.5	-1.100	-21.100	-51.487	30.387

Operating mode	**2-DH5, Hopping OFF**			
Freq. [MHz]	**Peak level within in-band emission [dBm]**	**Limit [dBm]**	**Band edge level [dBm]**	**Margin [dB]**
2400	-2.753	-22.753	-51.278	28.525
2483.5	-2.132	-22.132	-51.144	29.012

Operating mode	**2-DH5, Hopping ON**			
Freq. [MHz]	**Peak level within in-band emission [dBm]**	**Limit [dBm]**	**Band edge level [dBm]**	**Margin [dB]**
2400	-2.731	-22.731	-51.882	29.151
2483.5	-2.160	-22.160	-50.866	28.706

Operating mode	3-DH5, Hopping OFF			
Freq. [MHz]	**Peak level within in-band emission [dBm]**	**Limit [dBm]**	**Band edge level [dBm]**	**Margin [dB]**
2400	-2.773	-22.773	-51.709	28.936
2483.5	-2.138	-22.138	-52.393	30.255

Operating mode	3-DH5, Hopping ON			
Freq. [MHz]	**Peak level within in-band emission [dBm]**	**Limit [dBm]**	**Band edge level [dBm]**	**Margin [dB]**
2400	-2.856	-22.856	-50.091	27.235
2483.5	-2.149	-22.149	-50.593	28.444

Spectrum Plots

See ANNEX A.6

9.8 Spurious RF Conducted Emissions

Regulations	FCC Part15C §15.247 (d) RSS-247 5.5
Test Method/Guide	ANSI C63.10-2013 clause 7.8.8

Test Procedure

1. The EUT and test instrument were set up as shown on section 10.1.
2. Adjust the measurement instrument for the following setting:

RBW	:	100 kHz
VBW	:	300 kHz
Span	:	Set span to encompass the spectrum to be examined
Detector	:	Peak
Sweep Time	:	Auto
Correction Factor	:	Input Cable loss and Attenuator
Trace mode	:	Max Hold, Allow trace to fully stabilize.

3. Use the marker function to ensure that the amplitude of all unwanted emissions outside of the authorized frequency band is attenuated by at least the minimum requirements specified.

Spectrum Plots

See ANNEX A.7

Location	Matsuda No.4 Test Site
Test date	Jul. 09, 2015
Temperature	22.0 [degree C]
Humidity variation	65.0 [%]
Test Engineer	Shiro Kobayashi

9.9 AC Conducted Emissions

Regulations	FCC Part15C §15.207 RSS-Gen 7.2.2
Test Method/Guide	ANSI C63.10-2013 clause 6.2

Test Procedure

1. The EUT and test instrument were set up as shown on section 10.3.
2. The spectrum analyzer is controlled by the computer program to sweep the frequency range to be measured, then spectrum chart is plotted out to find the worst emission.
   At least six highest spectrum are measured in quasi-peak and average (if necessary) using the CISPR Receiver.
3. Adjust the test instrument for the following setting:

Frequency	Instruments	Detector	RBW	VBW
0.15 – 30 MHz	CISPR Receiver	QP	9 kHz	N/A
		AVG		

6. Measurement data correction;
   Emission Level [dBuV] = Reading [dBuV] + Factor [dB]
   Margin [dB] = Limit [dBuV] – Emission Level [dBuV]
   * Factor = LISN Factor + Cable loss + Attenuator

Test Result

Test date	Jul. 12, 2015
Location	Kashima No.12 Test Site
Temperature	23.0 [degree C]
Humidity variation	48.0 [%]
Test Engineer	Shiro Kobayashi

Operating mode			**DH5, Hopping ON**								
No.	**Freq [MHz]**	**Detector**	**Reading [dBuV]**		**Factor [dB]**		**Emission Level [dBuV]**		**Limit [dBuV]**	**Margin [dB]**	
			L1	**L2**	**L1**	**L2**	**L1**	**L2**		**L1**	**L2**
1	0.150	QP	27.1	27.7	10.4	10.4	37.5	38.1	66.0	28.5	27.9
2	0.150	AVG	4.5	6.8	10.4	10.4	14.9	17.2	56.0	41.1	38.8
3	0.212	QP	23.6	24.3	10.4	10.4	34.0	34.7	63.1	29.1	28.4
4	0.298	QP	16.5	16.1	10.4	10.4	26.9	26.5	60.3	33.4	33.8
5	0.409	QP	9.8	9.3	10.4	10.4	20.2	19.7	57.7	37.5	38.0
6	1.137	QP	0.5	2.7	10.5	10.5	11.0	13.2	56.0	45.0	42.8
7	1.839	QP	-1.0	2.2	10.5	10.5	9.5	12.7	56.0	46.5	43.3
8	4.553	QP	-2.0	-2.3	10.7	10.7	8.7	8.4	56.0	47.3	47.6

Operating mode			2-DH5, Hopping ON								
No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]		Emission Level [dBuV]		Limit [dBuV]	Margin [dB]	
			L1	L2	L1	L2	L1	L2		L1	L2
1	0.150	QP	27.7	28.2	10.4	10.4	38.1	38.6	66.0	27.9	27.4
2	0.150	AVG	4.5	6.9	10.4	10.4	14.9	17.3	56.0	41.1	38.7
3	0.201	QP	25.2	25.2	10.4	10.4	35.6	35.6	63.6	28.0	28.0
4	0.298	QP	16.2	16.6	10.4	10.4	26.6	27.0	60.3	33.7	33.3
5	0.596	QP	5.7	0.9	10.4	10.4	16.1	11.3	56.0	39.9	44.7
6	1.085	QP	3.2	0.7	10.5	10.5	13.7	11.2	56.0	42.3	44.8
7	1.729	QP	1.7	1.3	10.5	10.5	12.2	11.8	56.0	43.8	44.2
8	4.284	QP	-2.2	-2.1	10.7	10.7	8.5	8.6	56.0	47.5	47.4

Operating mode			3-DH5, Hopping ON								
No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]		Emission Level [dBuV]		Limit [dBuV]	Margin [dB]	
			L1	L2	L1	L2	L1	L2		L1	L2
1	0.150	QP	28.1	28.2	10.4	10.4	38.5	38.6	66.0	27.5	27.4
2	0.150	AVG	5.0	7.0	10.4	10.4	15.4	17.4	56.0	40.6	38.6
3	0.201	QP	23.4	23.9	10.4	10.4	33.8	34.3	63.6	29.8	29.3
4	0.298	QP	16.4	16.0	10.4	10.4	26.8	26.4	60.3	33.5	33.9
5	0.596	QP	2.8	5.7	10.4	10.4	13.2	16.1	56.0	42.8	39.9
6	1.179	QP	3.6	3.9	10.5	10.5	14.1	14.4	56.0	41.9	41.6
7	1.861	QP	-1.3	2.3	10.5	10.5	9.2	12.8	56.0	46.8	43.2
8	4.077	QP	-1.9	-1.9	10.7	10.7	8.8	8.8	56.0	47.2	47.2

9.10 Receiver Spurious Emissions

Regulations	RSS-Gen 7.1
Test Method/Guide	ANSI C63.10-2013 clause 6.5 and 6.6

Test Procedure

See section 9.6

Test Result

Operating mode	Receive mode			
Location	Matsuda No.3 Test Site,	Kashima No.12 Test Site		
Frequency	30 – 1000 MHz,	1-18 GHz,	18 – 25 GHz	
Test date	Jul. 10, 2015,	Jul. 11, 2015,	Jul. 12, 2015	
Temperature	24.0,	22.0,	23.0	[degree C]
Humidity variation	53.0,	44.0,	48.0	[%]
Test Engineer	Shiro Kobayashi			

No.	Freq. [MHz]	Detector	Reading [dBuV]		Factor [dB/m]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	180.00	QP	24.8	24.3	-4.5	20.3	19.8	43.5	23.2	23.7
2	249.60	QP	31.1	24.5	0.0	31.1	24.5	46.0	14.9	21.5
3	288.00	QP	28.4	21.8	1.5	29.9	23.3	46.0	16.1	22.7
4	384.00	QP	22.3	-	4.0	26.3	-	46.0	19.7	-
5	1440.00	PEK	43.0	42.6	3.9	46.9	46.5	74.0	27.1	27.5
6	1440.00	AVG	31.0	31.0	3.9	34.9	34.9	54.0	19.1	19.1
7	4962.60	PEK	40.5	40.1	12.6	53.1	52.7	74.0	20.9	21.3
8	4962.60	AVG	29.0	29.0	12.6	41.6	41.6	54.0	12.4	12.4
9	6616.80	PEK	38.7	37.8	15.3	54.0	53.1	74.0	20.0	20.9
10	6616.80	AVG	26.5	26.6	15.3	41.8	41.9	54.0	12.2	12.1

Note.

* : Band Edge of Restrict Band

\- : Measurement limit

Any Spurious emissions higher than the frequency reported in the table above were not detected during the measurement.

SECTION 10. LIST AND DIAGRUM OF MEASURING INSTRUMENTS

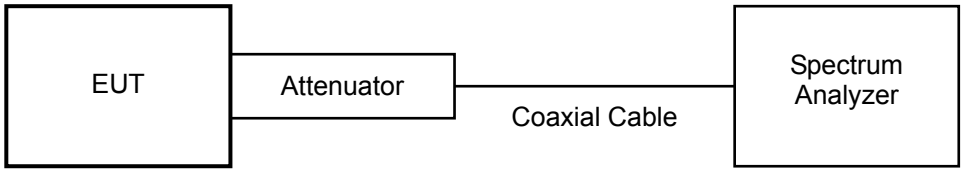
Test instruments are calibrated according to Quality Manual and Calibration Rules of Intertek Japan K.K.

10.1 RF Conducted

Measurement Instruments

Instrument	Model No.	Serial No.	Manufacturer	Cal. Interval	Effective period
Spectrum Analyzer	N9030A	MY52350520	Agilent	1 Y	Oct.31, 2015
20 dB Attenuator	8493C	78585	Agilent	1 Y	Jul.31, 2016
Coaxial Cable	SUCOFLEX 104PE	94703/4PE	SUHNER	1 Y	Jul.31, 2016

Measurement Equipment Configuration



10.2 Radiated Emission

Measurement Instruments

Instrument	Model No.	Serial No.	Manufacturer	Cal. Interval	Effective period
30 – 1000 MHz					
Dipole Antenna	VHA9103	F01082008	Schwarzbeck	1 Y	Jan 31, 2016
Dipole Antenna	UHA9105	E01082011	Schwarzbeck	1 Y	Jan 31, 2016
Amplifier	8447D	2727A05321	Hewlett Packard	1 Y	Jan 31, 2016
3dB Attenuator	MP721A	M87938	ANRITSU	1 Y	Jan 31, 2016
Step Attenuator	8494B	2726A13827	Hewlett Packard	1 Y	Jan 31, 2016
Coaxial Cable (R1)	RG214HF(8.0m)	MTS03R3-1	Intertek	1 Y	Jan 31, 2016
Coaxial Cable (R2)	12D-SFA(28.0m)	MTS03R3-2	Intertek	1 Y	Jan 31, 2016
Coaxial Cable (R3)	RG214HF(2.0m)	MTS03R3-3	Intertek	1 Y	Jan 31, 2016
Coaxial Cable (R4)	RG214HF(0.4m)	MTS03R3-4	Intertek	1 Y	Jan 31, 2016
Coaxial Cable (R5)	RG214HF(0.4m)	MTS03R3-5	Intertek	1 Y	Jan 31, 2016
Coaxial Cable (R6)	RG214HF(1.5m)	MTS03R3-6	Intertek	1 Y	Jan 31, 2016
Coaxial Cable (R7)	RG214HF(1.5m)	MTS03R3-7	Intertek	1 Y	Jan 31, 2016
Coaxial Cable (R8)	RG214HF(1.5m)	MTS03R3-8	Intertek	1 Y	Jan 31, 2016
Coaxial Cable (R9)	5D-2W(8.0m)	MTS03R3-9	Intertek	1 Y	Jan 31, 2016
Site Attenuation	-	-	-	1 Y	May 31, 2016
Above 1000 MHz					
Double Ridged Antenna	3117	00055157	ETS LINDGREN	1 Y	Oct.31, 2016
Notch Filter	BRM50702	111	Micro-Tronics	1 Y	Jul.31, 2016
6dB Attenuator	6803.17.B	KSR00089	SUNNER	1 Y	Feb.29, 2016
Amplifier	TPA0118-30	0402	TOYO Corporation	1 Y	Feb.29, 2016
Coaxial Cable (R11)	5B-048-98-98-5000	111130	Candox	1 Y	Feb.29, 2016
Coaxial Cable (R12)	SUCOFLEX 104	229603/4	SUNNER	1 Y	Feb.29, 2016
Coaxial Cable (R13)	5B-048-98-98-6000	120315	Candox	1 Y	Sep.30, 2015
Horn Antenna with Preamplifier	MLA-18265-B03-30	1694440	TSJ	1 Y	Sep.30, 2015
Spectrum Analyzer	N9030A	US51350170	Agilent	1 Y	Mar.31, 2016
SVSWR(1 – 18GHz)	-	-	-	1 Y	Jun.30, 2016
Common					
Testing Software	emiT (Version 3,0,0,0)	-	-	--	-

Measurement Instruments Configurations

Diagram of the measurement instruments (30-1000 MHz)

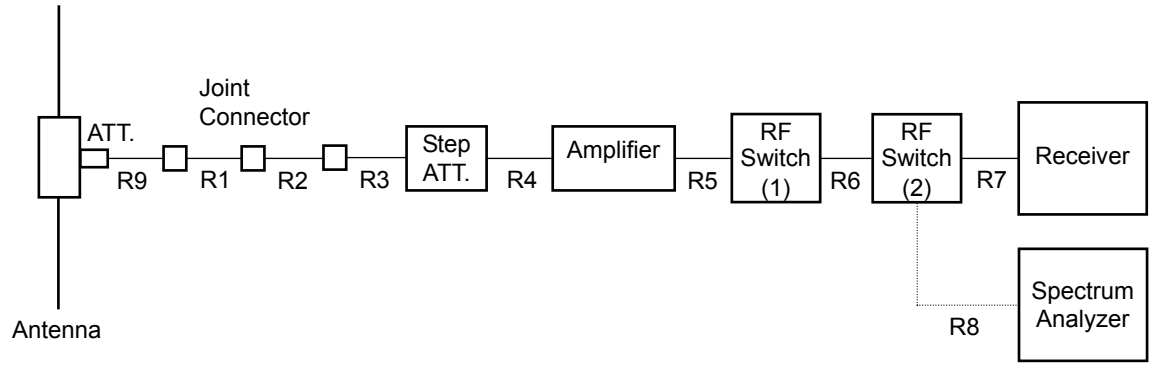


Diagram of the measurement instruments (2000 - 3000 MHz)

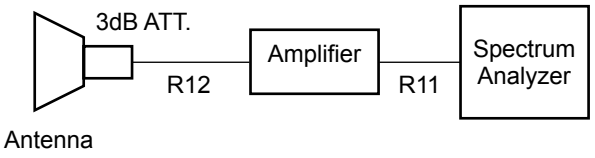


Diagram of the measurement instruments (1000- 2000 and 3000 – 18000 MHz)

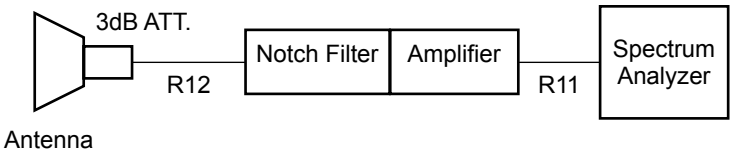
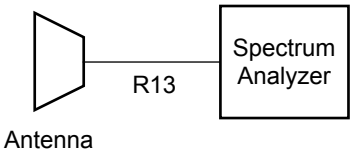
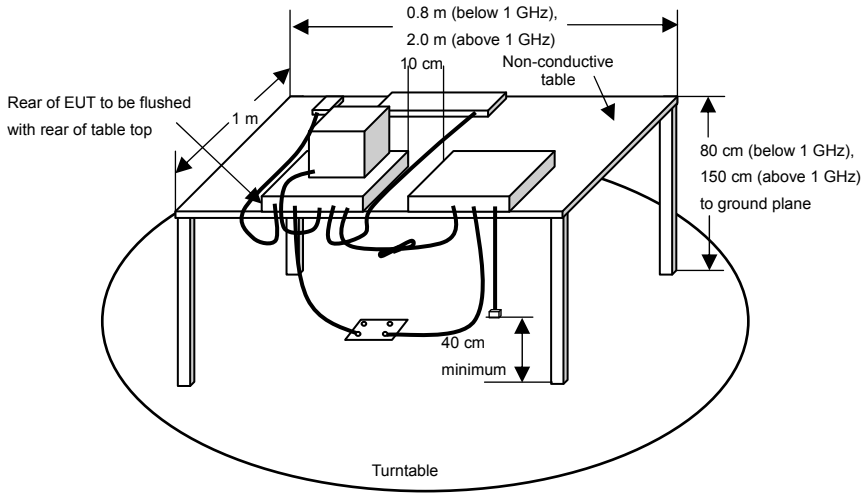


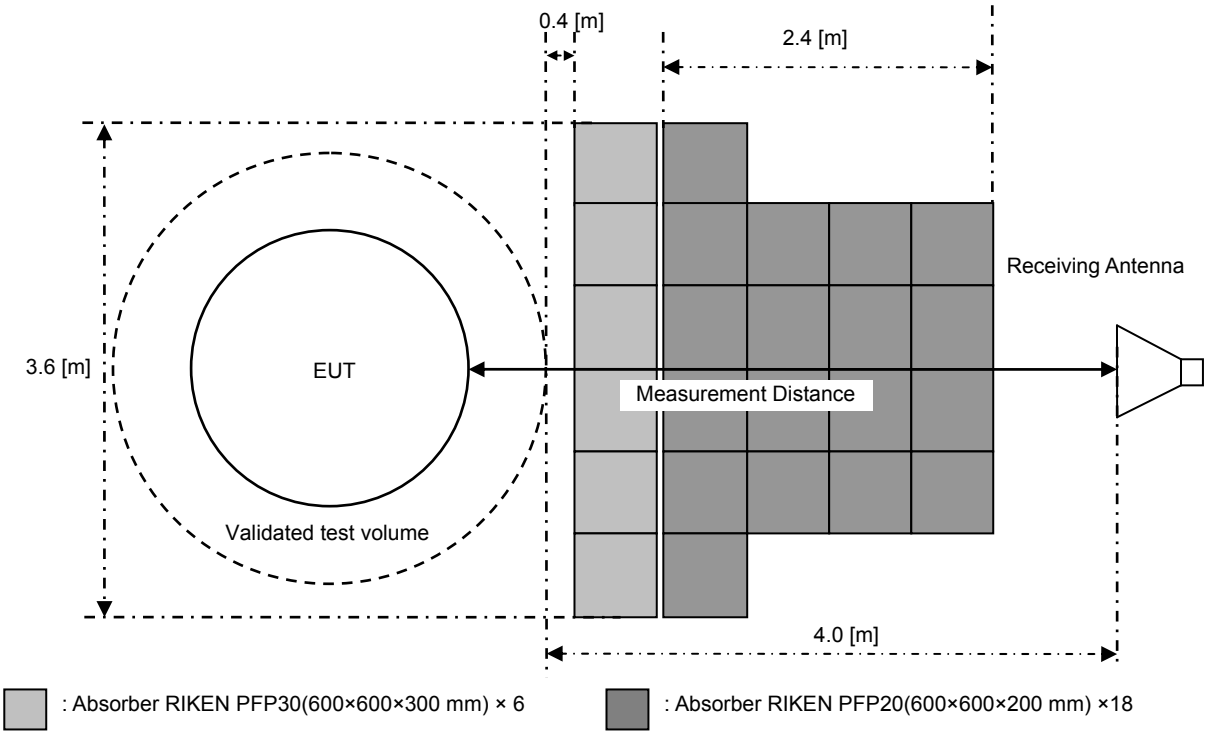
Diagram of the measurement instruments (18000 - 25000 MHz)



EUT set-up as per standard



Absorber placement and Receive Antenna location in Radiated disturbance above 1 GHz

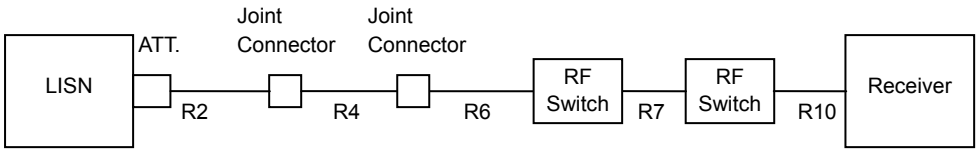


10.3 AC Line Conducted Emission

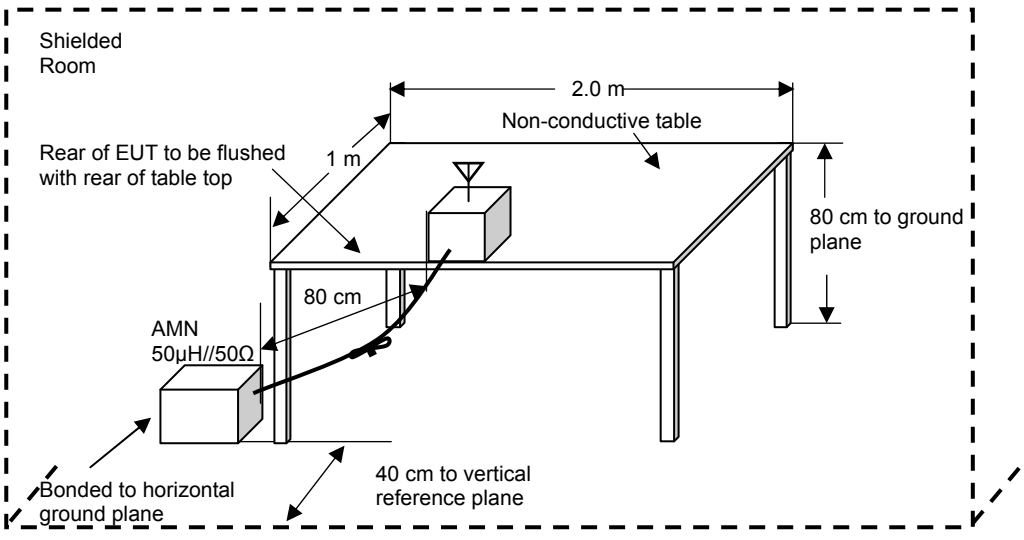
Measurement Instrument

Instrument	Model No.	Serial No.	Manufacturer	Cal. Interval	Effective period
LISN (EUT)	ESH2-Z5	879675/014	ROHDE & SCHWARZ	1 Y	Nov,30 2015
10 dB Attenuator	CFA-01	KSR00251	TAMAGAWA	1 Y	Nov,30 2015
Coaxial cable	RG-5A/U (14.0 m)	R2	FUJIKURA	1 Y	Jan,31 2016
Coaxial cable	10D-2W(7.0 m)	R4	FUJIKURA	1 Y	Jan,31 2016
Coaxial cable	RG-5A/U(4.0 m)	R6	FUJIKURA	1 Y	Jan,31 2016
Coaxial Cable	5D-2W(0.6m)	R7	MIYAZAKI	1 Y	Jan.31, 2016
Coaxial cable	5D-2W(1.2 m)	R10	FUJIKURA	1 Y	Jan,31 2016
Test receiver	N9038A	MY51210201	Agilent	1 Y	Aug.31 2015
RF Switch	ACX-150-1	A12301501	Intertek Japan	1 Y	Jan.31 2016
Testing Software	emiT (Version 3,0,0,0)	-	-	-	-

Measurement Instruments Configurations



Test setup as per standard

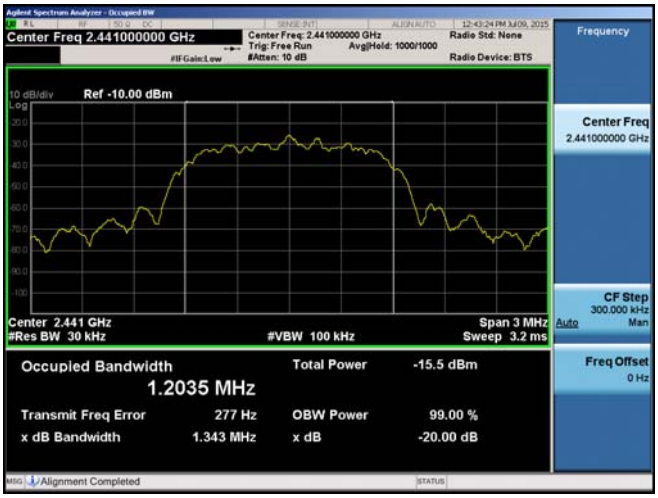


* Reference Ground plane : greater than 2 x 2m

ANNEX

A. HARD COPY OF SPECTRUM PLOTS

A.1 20 dB Bandwidth and 99 % Occupied Bandwidth

DH5	2-DH5
2402 MHz	**2402 MHz**
	
2441 MHz	**2441 MHz**
	
2480 MHz	**2480 MHz**
	

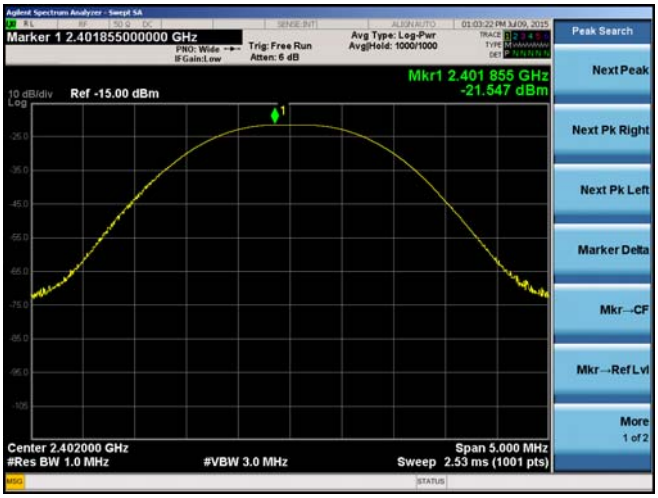
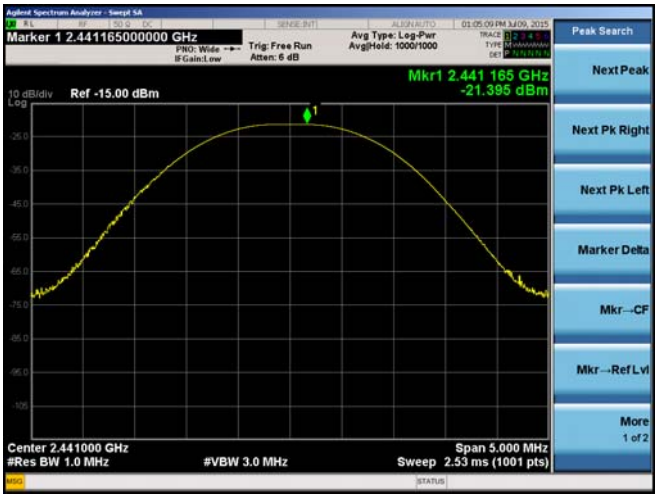
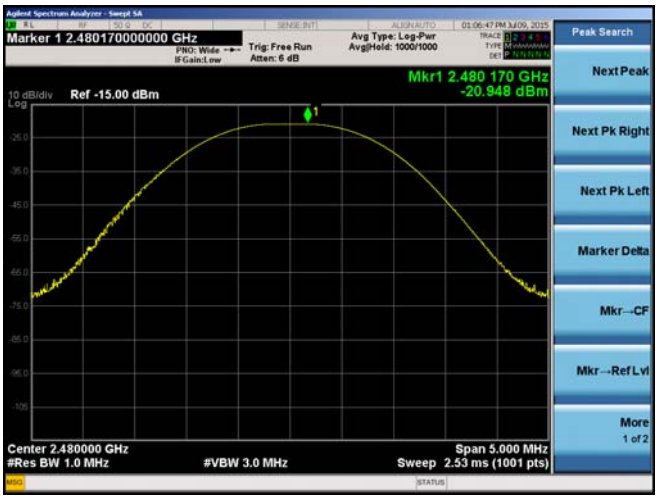
3-DH5

2402 MHz

2441 MHz

2480 MHz

A.2 Maximum Peak Output Power

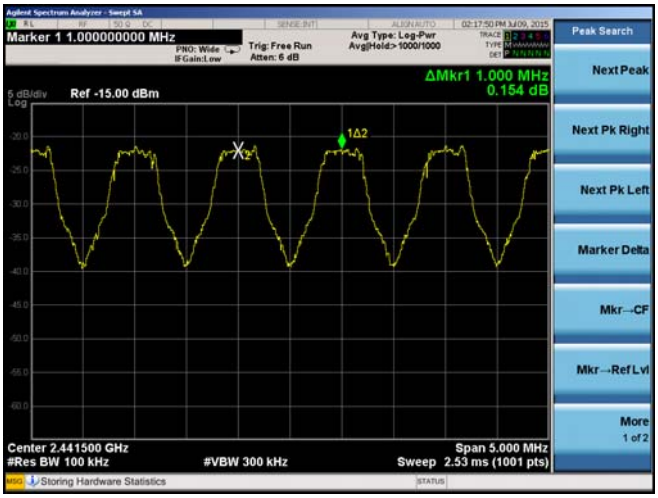
DH5	2-DH5
2402 MHz	**2402 MHz**
	
2441 MHz	**2441 MHz**
	
2480 MHz	**2480 MHz**
	

3-DH5
2402 MHz

2441 MHz

2480 MHz


A.3 Carrier Frequency Separation

DH5	2-DH5
2402 MHz	**2402 MHz**
	
2441 MHz	**2441 MHz**
	
2480 MHz	**2480 MHz**
	

3-DH5
2402 MHz

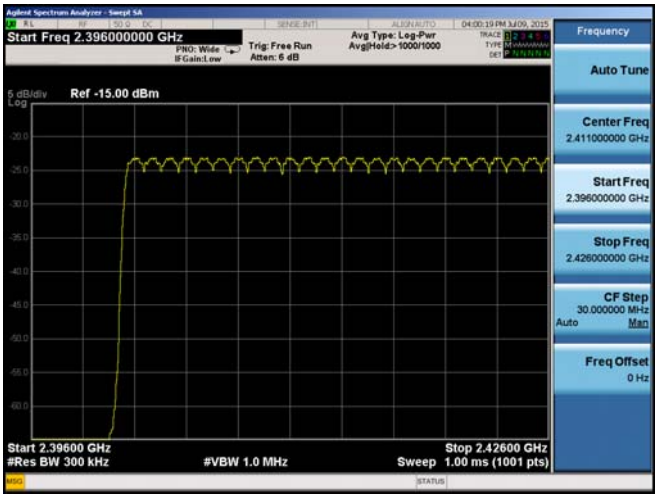
2441 MHz

2480 MHz

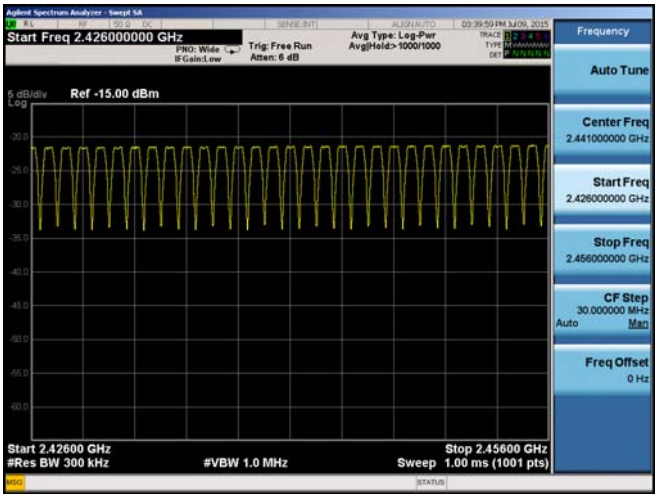

A.4 Number of Hopping Frequency

DH5_1

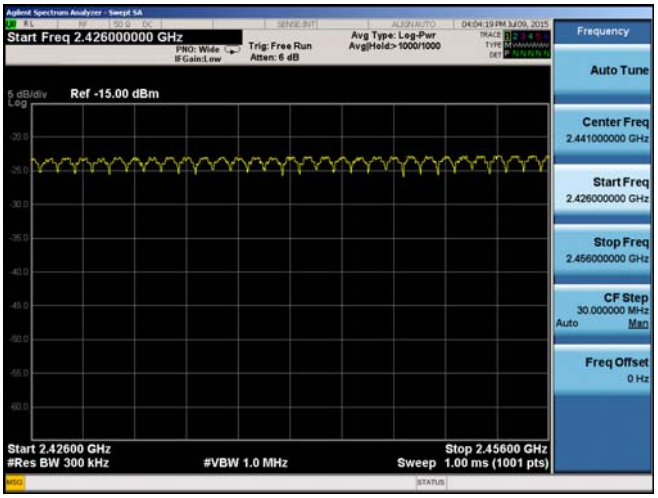
2-DH5_1



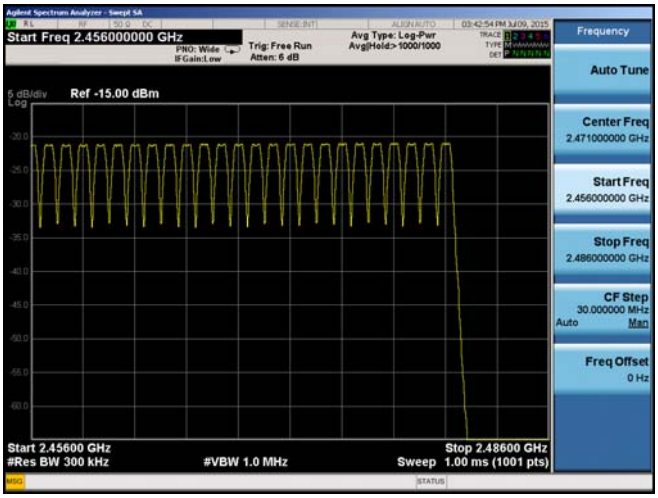
DH5_2



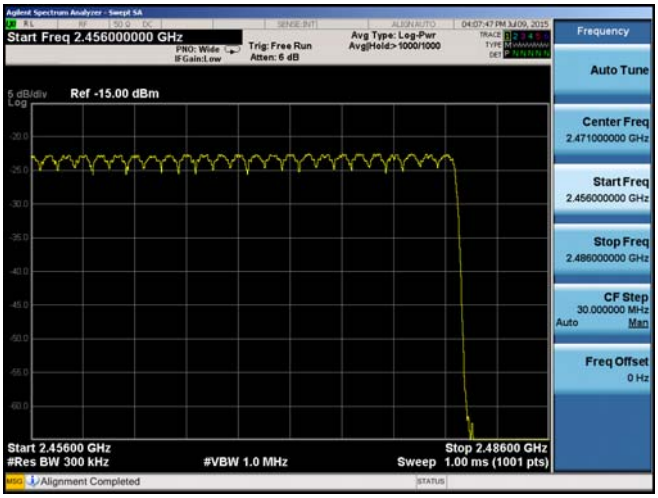
2-DH5_2



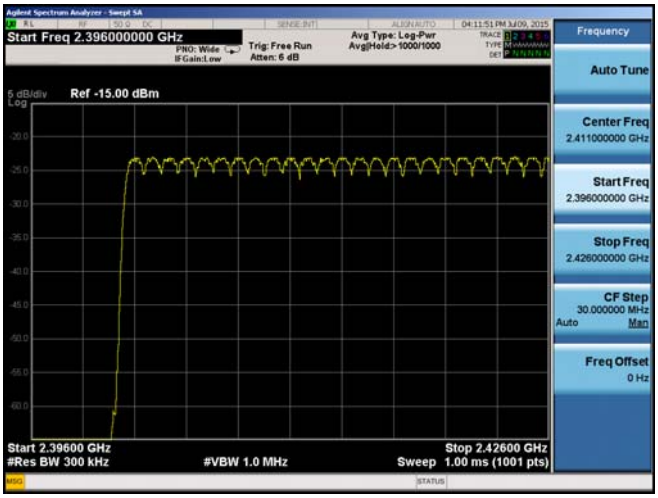
DH5_3



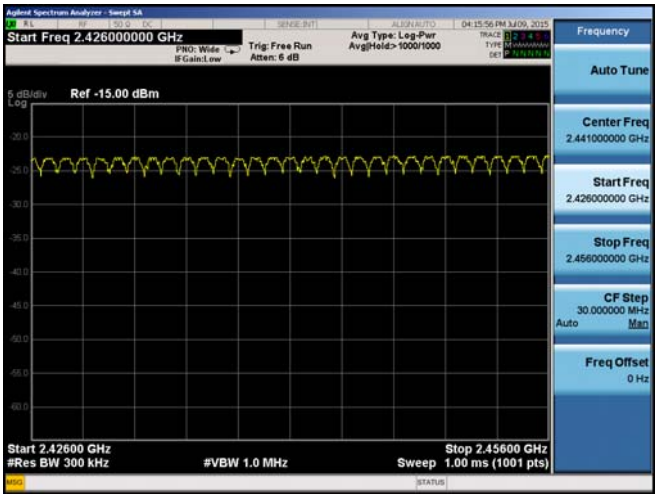
2-DH5_3



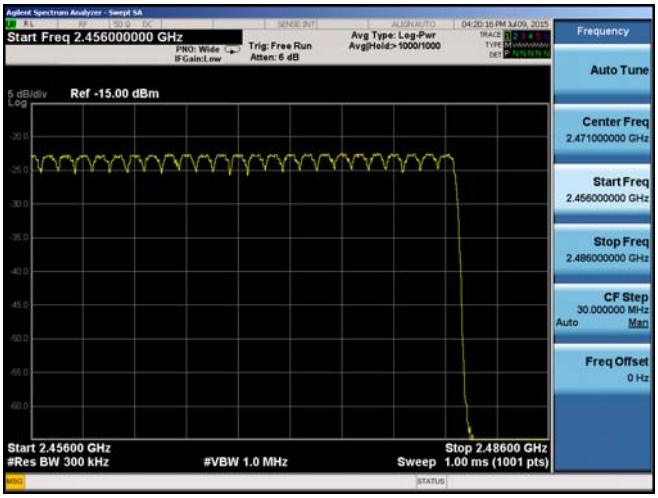
3-DH5_1



3-DH5_2

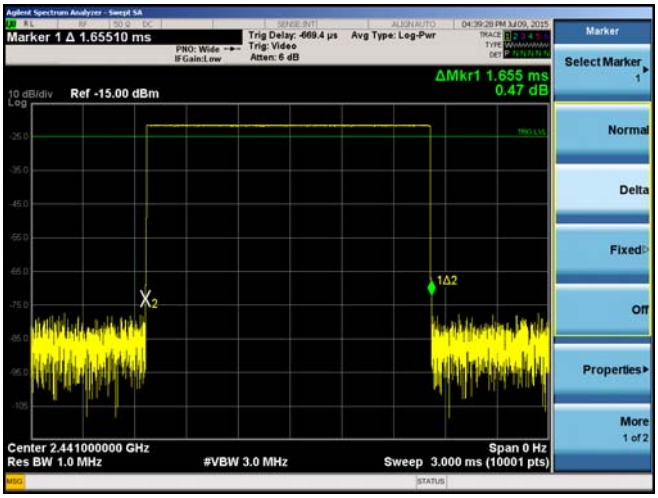


3-DH5_3

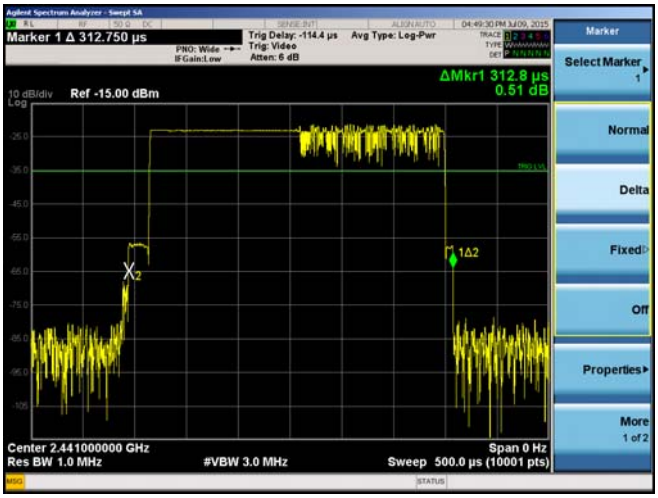


A.5 Time of Occupancy

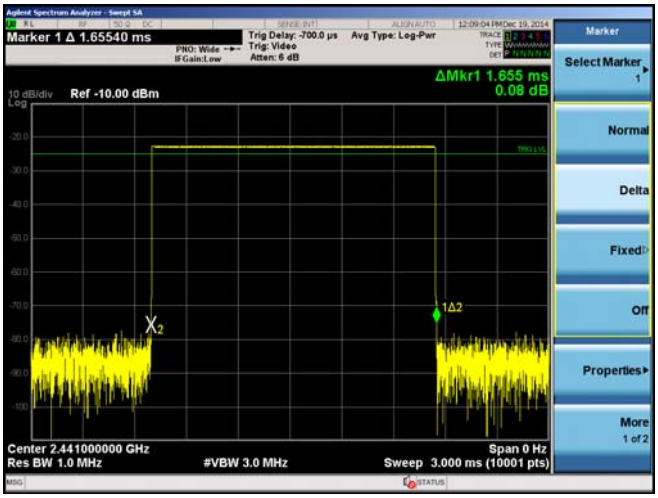
DH1



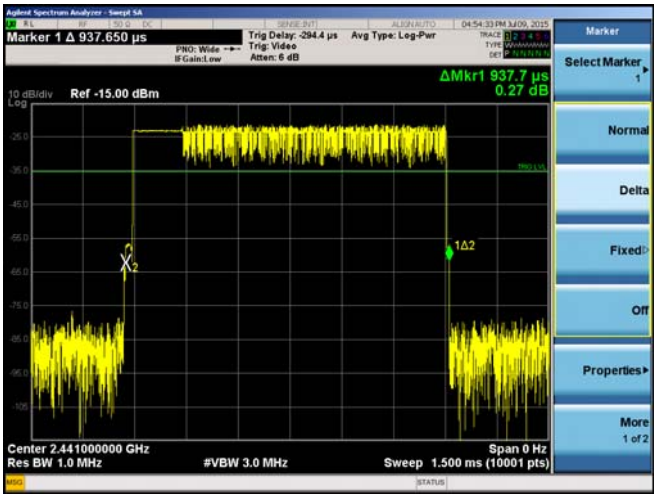
2-DH1



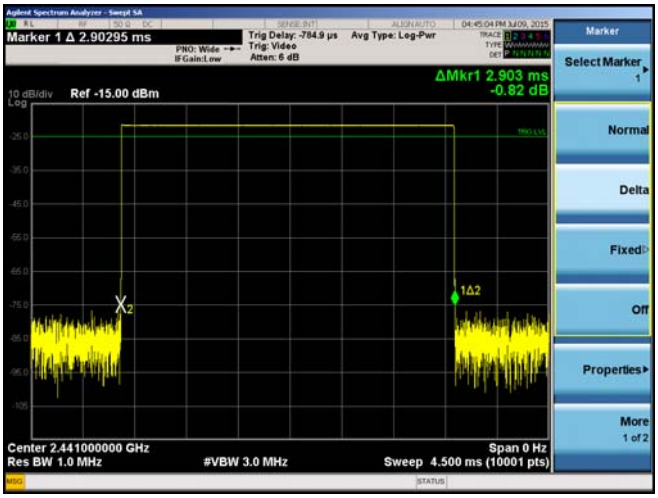
DH3



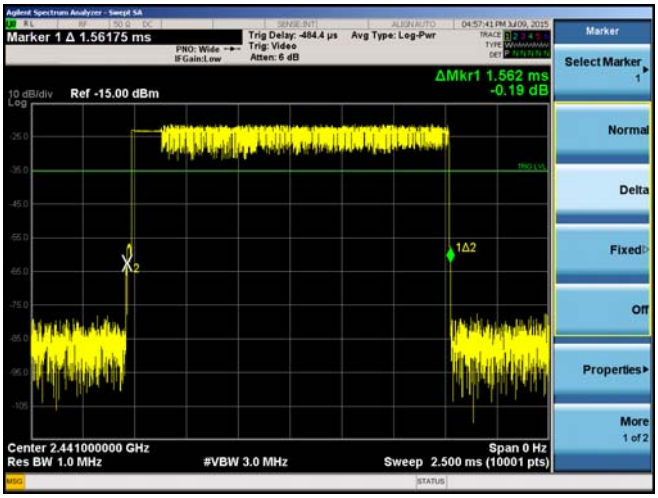
2-DH3



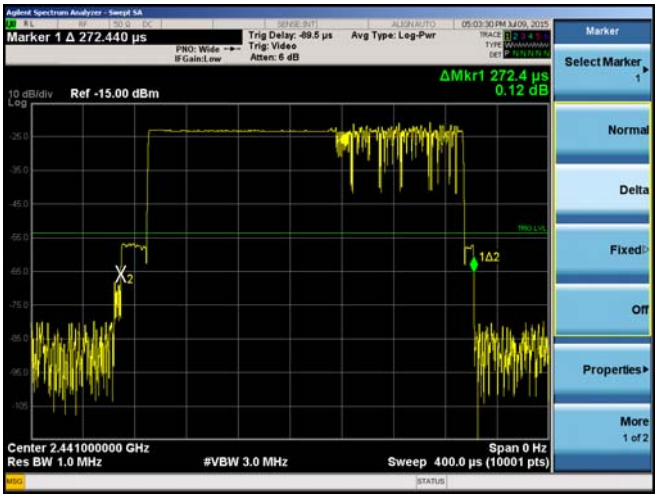
DH5



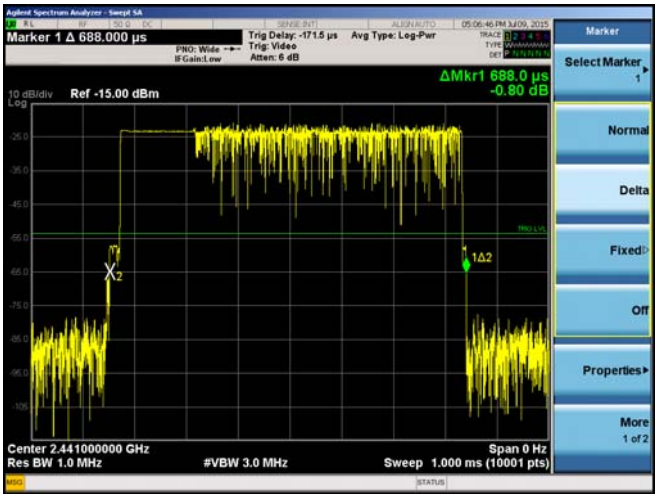
2-DH5



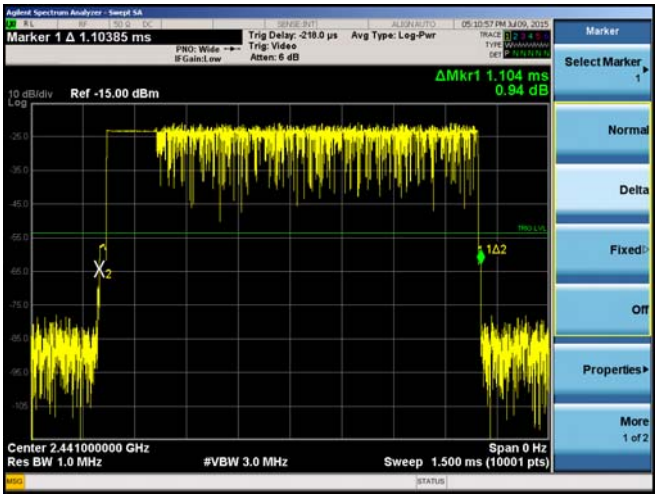
3-DH1



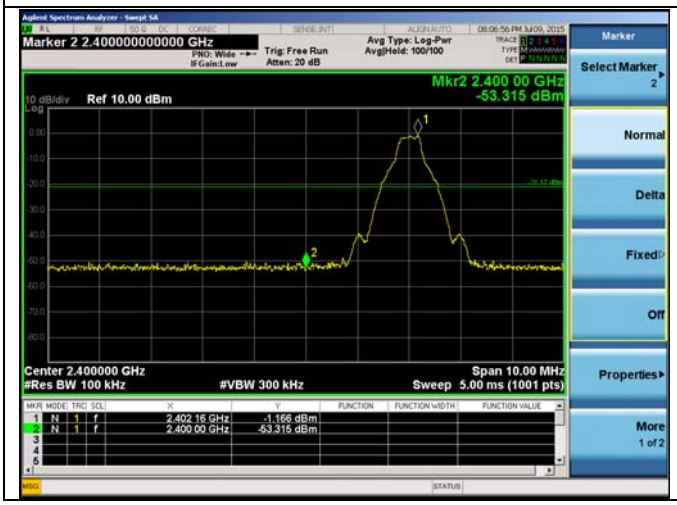
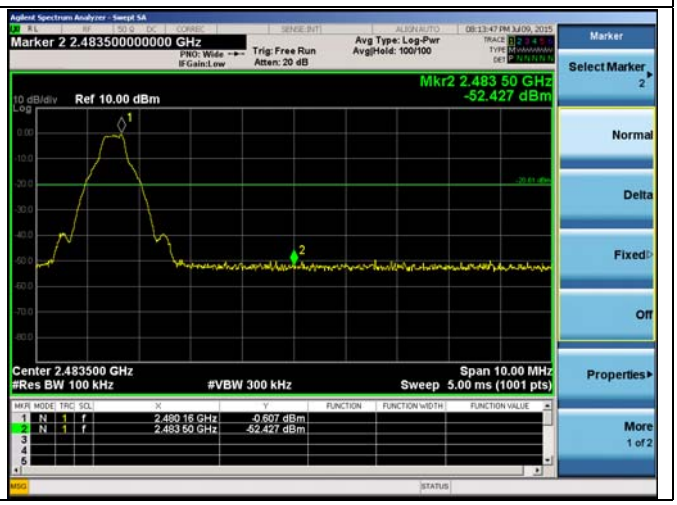
3-DH3

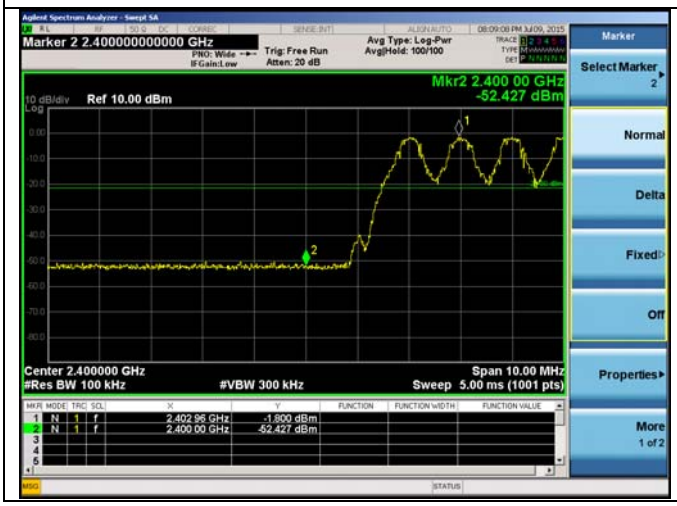
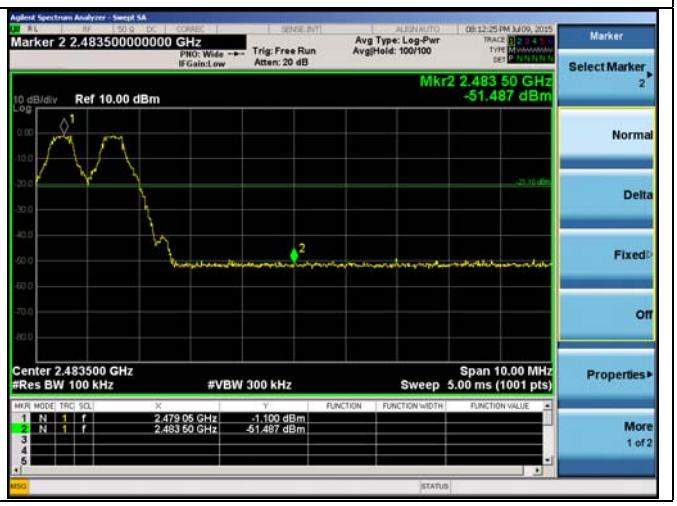


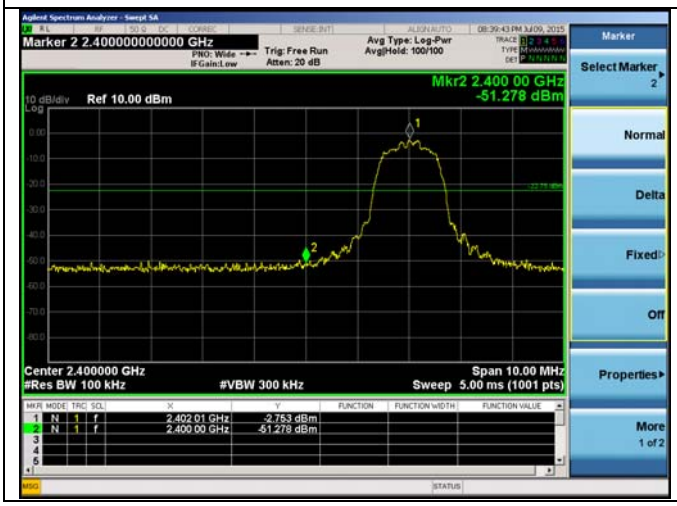
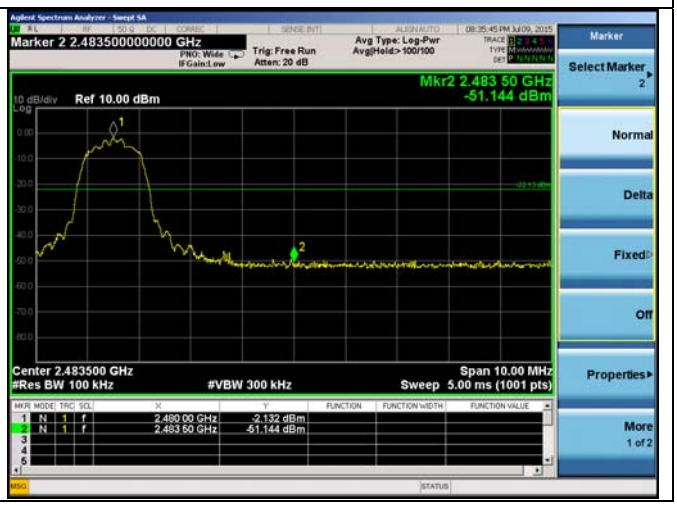
3-DH5

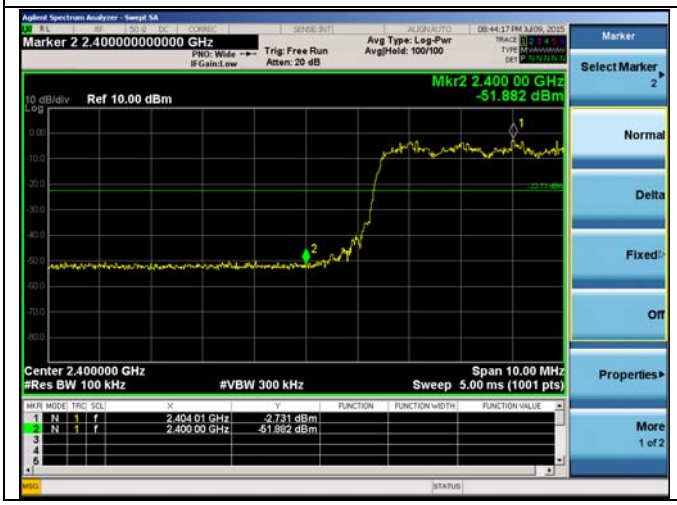


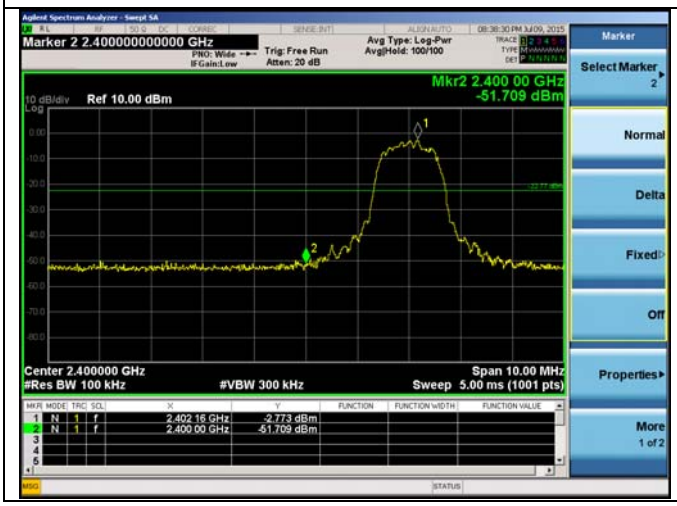
A.6 Band Edge of Authorized Frequency Band

DH5, Hopping OFF	
2400 MHz	**2483.5 MHz**
	

DH5, Hopping ON	
2400 MHz	**2483.5 MHz**
	

2-DH5, Hopping OFF	
2400 MHz	**2483.5 MHz**
	

2-DH5, Hopping ON	
2400 MHz	**2483.5 MHz**
	

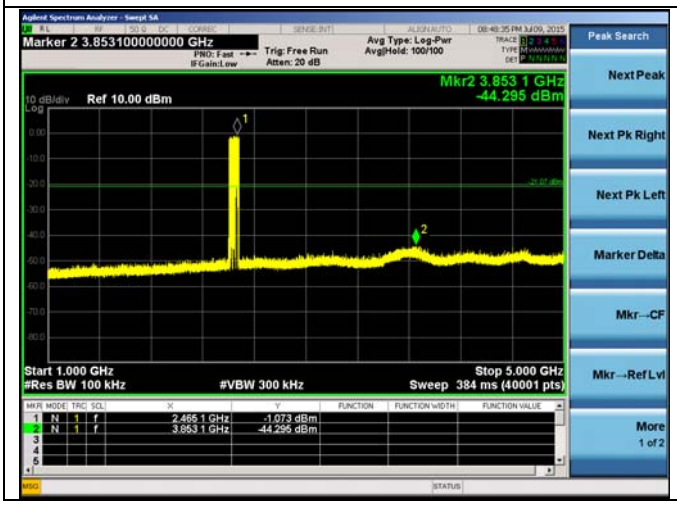
3-DH5, Hopping OFF	
2400 MHz	**2483.5 MHz**
	

3-DH5, Hopping ON	
2400 MHz	**2483.5 MHz**
	

A.7 Spurious RF Conducted Emissions

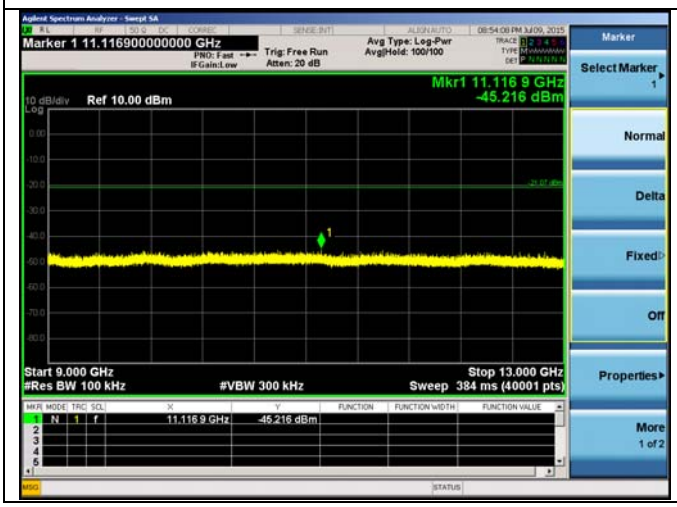
DH5, Hopping ON

1 – 5 GHz



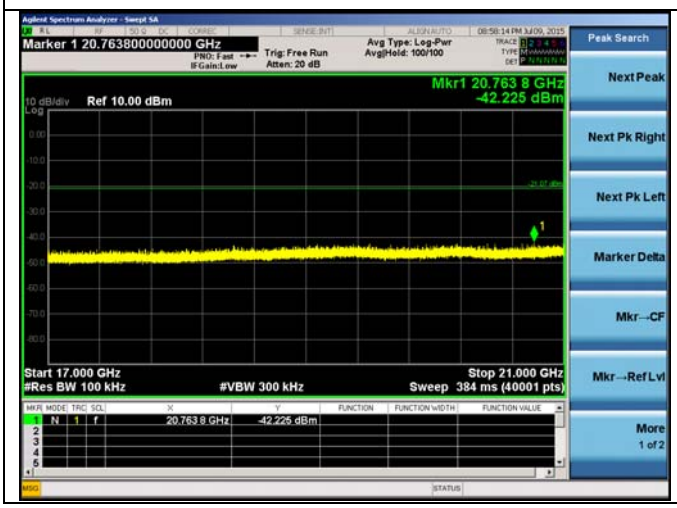
5 – 9 GHz

9 – 13 GHz



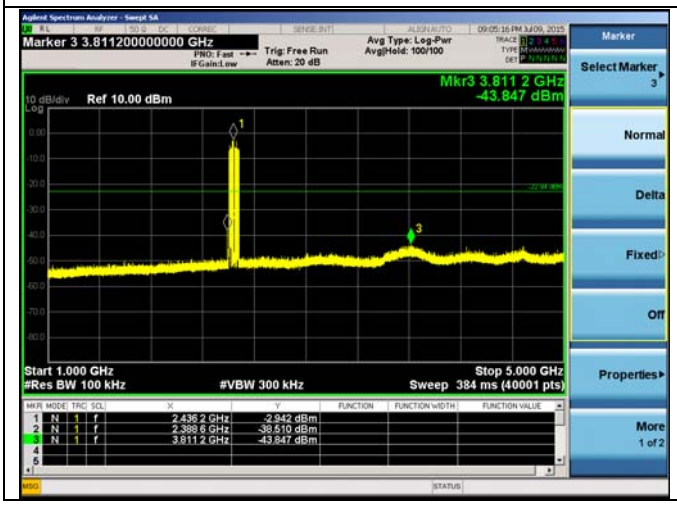
13 – 17 GHz

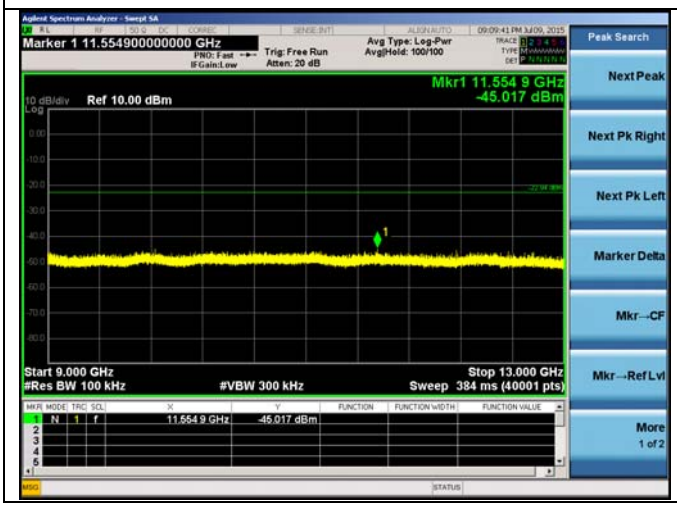
17 – 21 GHz

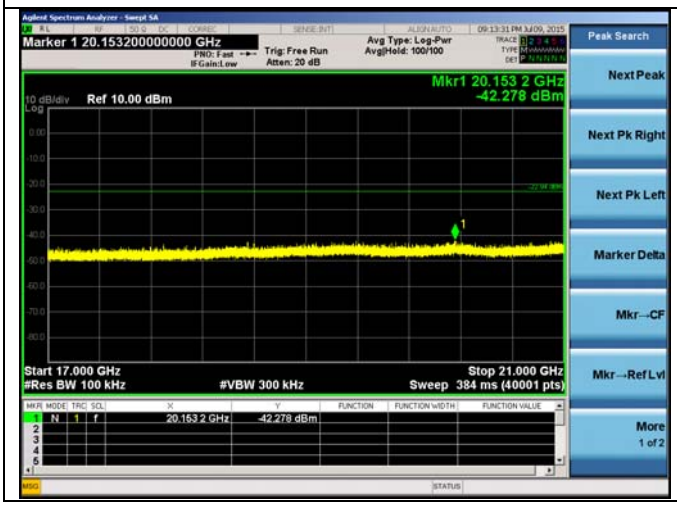


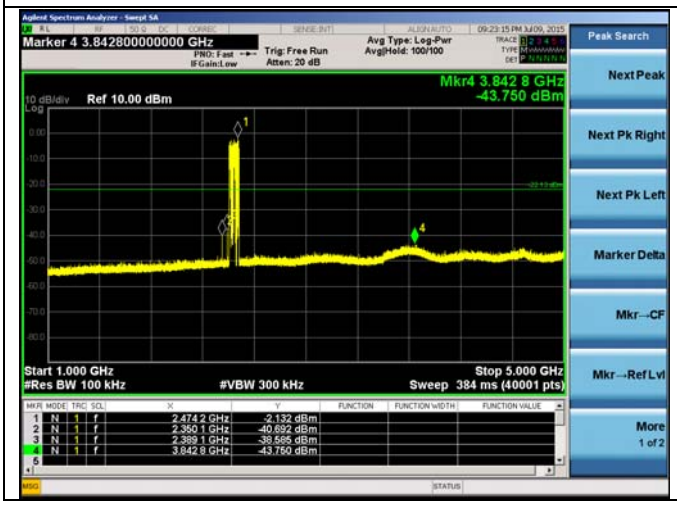
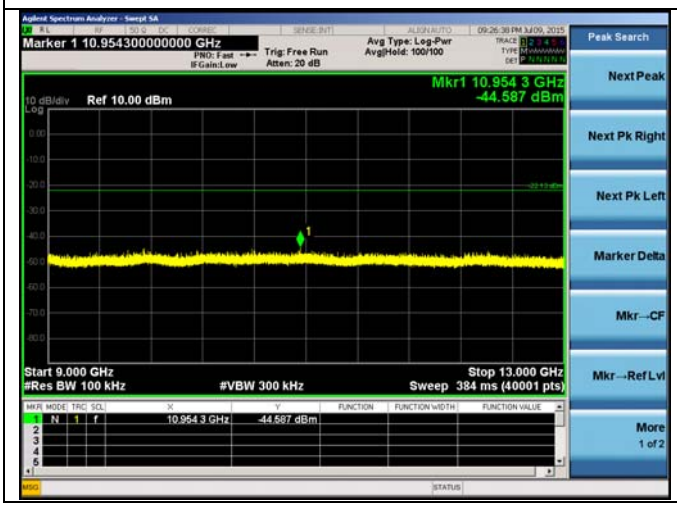
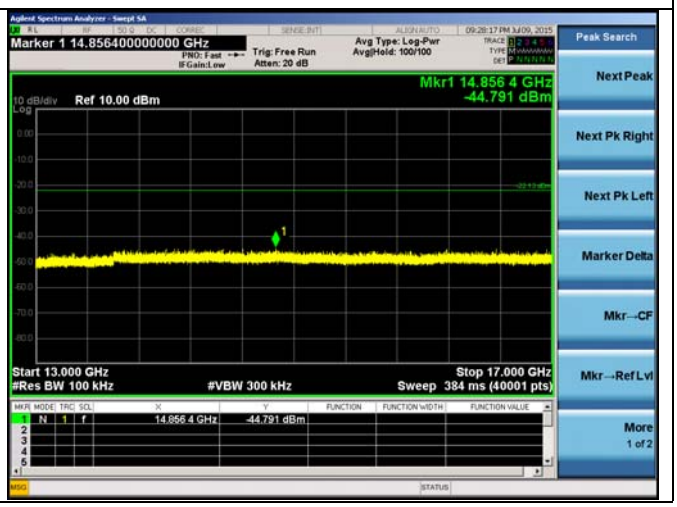
21 – 25 GHz

2-DH5, Hopping ON

1 – 5 GHz	5 – 9 GHz
	

9 – 13 GHz	13 – 17 GHz
	

17 – 21 GHz	21 – 25 GHz
	

3-DH5, Hopping ON	
1 – 5 GHz	5 – 9 GHz
	
9 – 13 GHz	13 – 17 GHz
	
17 – 21 GHz	21 – 25 GHz