

TEST REPORT

REGULATIONS : FCC Part15 C §15.247

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Equipment Type Trademark Model(s) Serial No. FCC ID Test Result Report Number Report Issue Date	The Gateway HITACHI EM-G21 No.1 R2BEMG21 Complied JM12100001(R1) November 12, 2012
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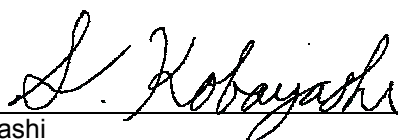
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Approved by



Koichi Sakai
[Assistant Manager]

Tested by



Shiro Kobayashi



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SECTION 1. GENERAL INFORMATION

Test Performed

EUT Received	September 05, 2012
Date of Test	From September 09, 2012 to October 03, 2012
Standard Applied	FCC Part15 C §15.247
Test methods	ANSI C63.4:2003 558074 D01 DTS Meas Guidance v01 662911 D01 Multiple Transmitter Output v01r02
Deviation from Standard(s)	None

Qualifications of Testing Laboratory

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	

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

SECTION 2. SUMMARY OF TEST RESULTS

Test Item	Specification	Results	Detail
Maximum Peak Output Power	FCC Part15C §15.247 (b) (3)	PASS	Section 9.1
6 dB Bandwidth	FCC Part15C §15.247 (b) (3)	PASS	Section 9.2
Power Spectrum Density	FCC Part15C §15.247 (e)	PASS	Section 9.3
Radiated Spurious Emissions and Restrict Band edge	FCC Part15C §15.209, §15.205	PASS	Section 9.4
Conducted Spurious Emissions and Band Edge	FCC Part15C §15.247 (d)	PASS	Section 9.5
AC Conducted Emissions	FCC Part15C §15.207	PASS	Section 9.6

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 dose 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.

Note:

As for the FCC Part15 Subpart B - Unintentional Radiators, the EUT has been measured and declared as Declaration of Conformity by Hitachi, Ltd.

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	Remarks
A1	The Gateway	EM-G21	No.1	Hitachi, Ltd.	
A2	AC Adapter	CSW1220N-SO446Z	201111001360	Hitachi, Ltd.	
Rated Power : AC100-120 V, 60 Hz, 10 W					
Supplied Power : AC120 V, 60 Hz					
Condition of Equipment		Prototype			
Type		Combination type of table-top and wall-hanging type			
Dimensions (W x H x D)		40 x 149 x 135 mm			
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
LAN	RJ-45	8 pin	
WAN	RJ-45	8 pin	
USB	Type A	4 pin	

3.3 Highest Frequency Generated / Used

Operating Frequency	Board Name	Remarks
2500 MHz	-	

3.4 Over View of EUT

Access method	IEEE802.11 b/g/n
Frequency Range of Operating	IEEE802.11 b/g/n HT20 : 2412 to 2462 MHz IEEE802.11 n HT40 : 2422 to 2452 MHz
Modulation Method	IEEE802.11 b : DSSS (DBPSK, DQPSK, CCK) IEEE802.11 g : OFDM (BPSK, QPSK, 16-QAM, 64-QAM) IEEE802.11 n : OFDM (BPSK, QPSK, 16-QAM, 64-QAM):
Data Transfer Rate	IEEE802.11 b : 11 / 5.5 / 2 / 1 Mbps IEEE802.11 g : 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6 Mbps IEEE802.11 n HT20 : 800 ns GI, MCS0 to MCS15 IEEE802.11 n HT40 : 800 or 400 ns GI, MCS0 to MCS15
Antenna Type and Gain	$\lambda/2$ Dipole Antenna : 4.00 dBi $\lambda/4$ PIFA Antenna : 4.00 dBi
Antenna Connector	$\lambda/2$ Dipole Antenna : U.FL $\lambda/4$ PIFA Antenna : U.FL

Note :

- The EUT controls the transmit method by the wireless networking mode and data transmission rate:
IEEE802.11b/g/n (from MCS0 to 7): the same data streams by two antennas.
IEEE802.11n (from MCS8 to 15): the two multiple streams by two antennas.
- According to "662911 D01 Multiple Transmitter Output v01r02", there is a correlation between the output signal, corrected the antenna gain:
Corrected antenna gain = $G_{ant} + 10 \log(\text{Number of Tx})$
= 7.01 dBi

3.5 Operation Channel Frequency

3.5.1 IEEE 802.11 b/g/n HT20

Channel Number	Frequency [MHz]	Channel Number	Frequency [MHz]
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437		

3.5.2 IEEE 802.11 n HT40

Channel Number	Frequency [MHz]	Channel Number	Frequency [MHz]
3	2422	7	2442
4	2427	8	2447
5	2432	9	2452
6	2437		

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	Note Computer	PR730BEANRBC51	2B095803H	TOSHIBA	DoC
C	AC Adapter	PA3714U-1ACA	T0210482062027A	TOSHIBA	N/A
Supplied Power:					
C	AC100 V, 50 Hz				

SECTION 5. USED CABLE(S)

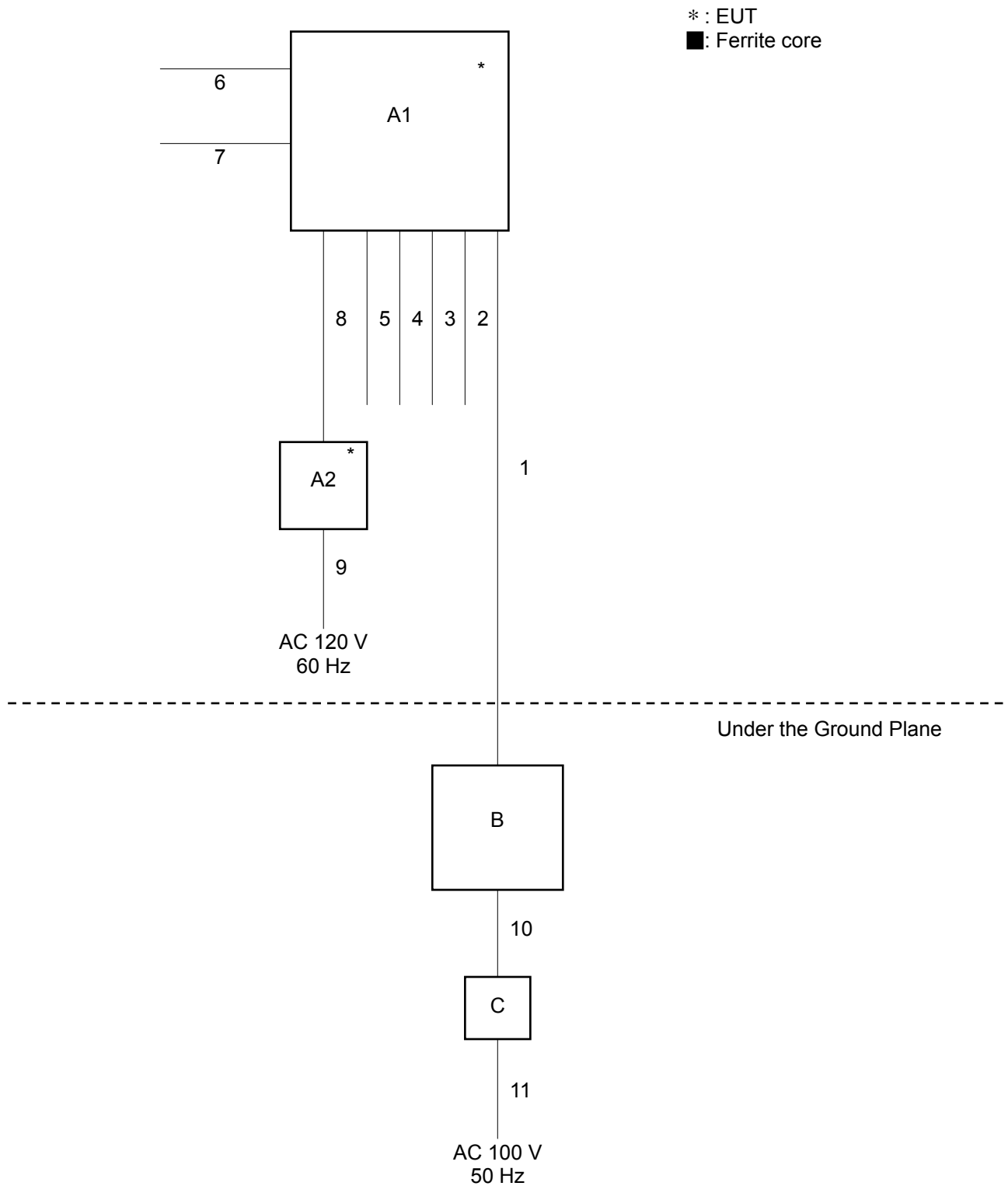
The following cable(s) was used for the test.

No.	Name	Length (m)	Shield	Metal Connector	Ferrite Core
1	LAN cable	5.0	No	No	
2	LAN cable	2.0	No	No	
3	LAN cable	2.0	No	No	
4	LAN cable	2.0	No	No	
5	LAN cable	2.0	No	No	
6	USB cable	1.0	Yes	Yes	
7	USB cable	1.0	Yes	Yes	
8	Power cable for EUT (DC)	1.2	No	No	
9	Power cable for EUT (AC)	2.0	No	No	
10	Power cable for Computer (DC)	1.7	No	No	Fixed x 1
11	Power cable for Computer (DC)	0.8	No	No	

Note :

1. No.10 cable is supplied together with Note Computer.

SECTION 6. TEST CONFIGURATION



The symbols and numbers assigned to the equipments 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.

7.1 Test Channel

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

Access Method	Low	Middle	High
IEEE 802.11 b/g/n HT20	Ch 1	Ch 6	Ch 11
IEEE 802.11 n HT40	Ch 3	Ch 6	Ch 9

7.2 Data Transfer Rate

Access Method	Data Transfer Rate
IEEE 802.11 b	11 Mbps
IEEE 802.11 g	54 Mbps
IEEE 802.11 n HT20	800 ns GI, MCS5
IEEE 802.11 n HT20 with MIMO	800 ns GI, MCS14
IEEE 802.11 n HT40	400 ns GI, MCS6
IEEE 802.11 n HT40 with MIMO	400 ns GI, MCS11

Note :

The Data Transfer Rate was determined based on the results of Maximum Peak Output Power in the Middle channel.

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_{cisp}
Radiated Spurious Emissions at 3m		
9 kHz – 30 MHz	+/- 1.82 dB	-
30 MHz – 1000 MHz	+/- 4.03 dB	5.19 dB
Above 1 GHz ANCI 63.4	+/- 4.40 dB	-
AC Conducted Emissions		
9 kHz – 150 kHz	+/- 1.63 dB	3.97 dB
150 kHz – 30 MHz		3.60 dB

The above expanded instrumentation uncertainty, U_{lab} , is estimated in accordance with CISPR 16-4-2:2003.

8.2 Antenna port Conducted tests

Test Items	$U_{lab} [k = 2]$
Maximum Peak Output Power	+/- 1.97 dB
6 dB Bandwidth	+/- 0.15 MHz
Power Spectrum Density	+/- 1.65 dB
Conducted Spurious Emissions	+/- 1.80 dB

SECTION 9. TEST DATA

9.1 Maximum Peak Output Power

Regulations	§15.247 (b) (3)
Test Method/Guide	558074 D01 DTS Meas Guidance v01 662911 D01 Multiple Transmitter Output v01r02

Test Procedure

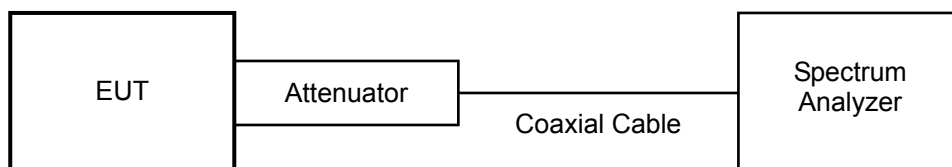
- The EUT and test instrument were set up as shown on the following.
- Adjust the test instrument for the following setting:
 - Measurement mode : Channel Power Measurement
 - RBW : 1 MHz
 - VBW : 3 MHz
 - Span : 5 – 30 % greater than the Emission Bandwidth
 - Detector : Peak
 - Sweep Time : Auto
 - Trace mode : Max Hold, Allow trace to fully stabilize.
 - Integration Bandwidth : Emission Bandwidth
 - * Emission Bandwidth from 6 dB Bandwidth Data
- Measurement data correction;
 - Output Power [dBm] = Reading [dBm] + Factor [dB]
 - Margin [dB] = Limit [dBm] - Output Power [dBm]
 - *Factor = Cable Loss + Attenuator

The measure-and-sum technique was used for measuring maximum peak output power of the EUT.
The measured results at the each antenna ports were then summed mathematically.
Summing was performed in linear power units.

Measurement Instrument

Instrument	Model No.	Serial No.	Manufacturer	Cal. Interval	Effective period
Spectrum Analyzer	N9030A	US51350220	Agilent	1 Y	Feb.28, 2013
20 dB Attenuator	8493C	78585	Agilent	1 Y	Mar.31, 2013
Coaxial Cable	SUCOFLEX 104PE	94703/4PE	SUHNER	1 Y	Mar.31, 2013

Measurement Equipment Configuration



Test Result

Test date	Sep. 09 to Nov. 12, 2012
Location	Matsuda No.4 Test Site
Temperature	20.0 to 24.7 [degree C]
Humidity variation	50.0 to 65.0 [%]
Test Engineer	Shiro Kobayashi

[Access Method : IEEE802.11 b

Ch	Freq. [MHz]	Reading [dBm]		Factor [dBm]	Output Power [dBm]	Limit [dBm]	Margin [dB]
		Tx1	Tx2				
1	2412	-1.95	-2.20	20.36	21.29	28.99	7.69
6	2437	-1.28	-1.93	20.36	21.77	28.99	7.22
11	2462	-1.80	-2.37	20.35	21.29	28.99	7.70

Access Method : IEEE802.11 g

Ch	Freq. [MHz]	Reading [dBm]		Factor [dBm]	Output Power [dBm]	Limit [dBm]	Margin [dB]
		Tx1	Tx2				
1	2412	-2.37	-2.67	20.36	20.85	28.99	8.14
6	2437	-2.22	-2.44	20.36	21.04	28.99	7.95
11	2462	-2.75	-2.86	20.35	20.56	28.99	8.43

Access Method : IEEE802.11 n HT20

Ch	Freq. [MHz]	Reading [dBm]		Factor [dBm]	Output Power [dBm]	Limit [dBm]	Margin [dB]
		Tx1	Tx2				
1	2412	-4.13	-5.12	20.36	18.77	28.99	10.22
6	2437	-3.94	-4.88	20.36	18.98	28.99	10.01
11	2462	-4.74	-5.23	20.35	18.39	28.99	10.60

Access Method : IEEE802.11 n HT20 with MIMO

Ch	Freq. [MHz]	Reading [dBm]		Factor [dBm]	Output Power [dBm]	Limit [dBm]	Margin [dB]
		Tx1	Tx2				
1	2412	-3.73	-4.99	20.36	19.05	28.99	9.94
6	2437	-3.36	-4.26	20.36	19.58	28.99	9.41
11	2462	-4.17	-4.88	20.35	18.86	28.99	10.13

Access Method : IEEE802.11 n HT40

Ch	Freq. [MHz]	Reading [dBm]		Factor [dBm]	Output Power [dBm]	Limit [dBm]	Margin [dB]
		Tx1	Tx2				
3	2422	-5.43	-5.76	20.36	17.78	28.99	11.21
6	2437	-4.97	-5.40	20.36	18.19	28.99	10.80
9	2452	-5.25	-5.54	20.36	17.97	28.99	11.02

Access Method : IEEE802.11 n HT40 with MIMO

Ch	Freq. [MHz]	Reading [dBm]		Factor [dBm]	Output Power [dBm]	Limit [dBm]	Margin [dB]
		Tx1	Tx2				
3	2422	-5.96	-6.49	20.36	17.15	28.99	11.84
6	2437	-5.56	-6.01	20.36	17.59	28.99	11.40
9	2452	-5.82	-6.20	20.36	17.36	28.99	11.63

Spectrum Chart
See ANNEX A.1.1.

9.2 6 dB Bandwidth

Regulations	FCC Part15C §15.247 (b) (3)
Test Method/Guide	558074 D01 DTS Meas Guidance v01

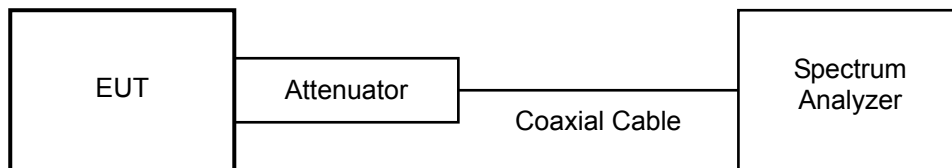
Test Procedure

1. The EUT and test instrument were set up as shown on the following.
2. Adjust the test instrument for the following setting:
 - Measurement mode : Occupied Bandwidth Measurement
 - RBW : Adjust RBW/EBW ratio was 1 – 5 %
 - VBW : > 3 x RBW
 - Span : Including emission band
 - Detector : Peak
 - Sweep Time : Auto
 - Trace mode : Max Hold, Allow trace to fully stabilize.

Measurement Instrument

Instrument	Model No.	Serial No.	Manufacturer	Cal. Interval	Effective period
Spectrum Analyzer	N9030A	US51350220	Agilent	1 Y	Feb.28, 2013
20 dB Attenuator	8493C	78585	Agilent	1 Y	Mar.31, 2013
Coaxial Cable	SUCOFLEX 104PE	94703/4PE	SUHNER	1 Y	Mar.31, 2013

Measurement Equipment Configuration



Test Result

Test date	Sep. 09 to Nov 12, 2012
Location	Matsuda No.4 Test Site
Temperature	20.0 to 24.7 [degree C]
Humidity variation	50.0 to 65.0 [%]
Test Engineer	Shiro Kobayashi

Access Method : IEEE802.11 b

Ch	Freq. [MHz]	6 dB Bandwidth [MHz]		Limit [kHz]
		Tx1	Tx2	
1	2412	10.74	10.66	Above 500
6	2437	10.61	10.71	Above 500
11	2462	10.63	10.68	Above 500

Access Method : IEEE802.11 g

Ch	Freq. [MHz]	6 dB Bandwidth [MHz]		Limit [kHz]
		Tx1	Tx2	
1	2412	16.70	16.62	Above 500
6	2437	16.55	16.58	Above 500
11	2462	16.53	16.57	Above 500

Access Method : IEEE802.11 n HT20

Ch	Freq. [MHz]	6 dB Bandwidth [MHz]		Limit [kHz]
		Tx1	Tx2	
1	2412	17.85	17.87	Above 500
6	2437	17.87	17.86	Above 500
11	2462	17.85	17.90	Above 500

Access Method : IEEE802.11 n HT20 with MIMO

Ch	Freq. [MHz]	6 dB Bandwidth [MHz]		Limit [kHz]
		Tx1	Tx2	
1	2412	17.77	17.78	Above 500
6	2437	17.88	17.84	Above 500
11	2462	17.83	17.83	Above 500

Access Method : IEEE802.11 n HT40

Ch	Freq. [MHz]	6 dB Bandwidth [MHz]		Limit [kHz]
		Tx1	Tx2	
3	2422	37.11	36.97	Above 500
6	2437	37.14	37.03	Above 500
9	2452	37.31	37.16	Above 500

Access Method : IEEE802.11 n HT40 with MIMO

Ch	Freq. [MHz]	6 dB Bandwidth [MHz]		Limit [kHz]
		Tx1	Tx2	
3	2422	36.88	37.00	Above 500
6	2437	37.01	37.05	Above 500
9	2452	37.01	36.88	Above 500

Spectrum Chart
See ANNEX A.1.2.

9.3 Power Spectrum Density

Regulations	FCC Part15C §15.247 (e)
Test Method/Guide	558074 D01 DTS Meas Guidance v01 662911 D01 Multiple Transmitter Output v01r02

Test Procedure

- The EUT and test instrument were set up as shown on the following.
- Adjust the test instrument for the following setting:
 - RBW : 100 kHz
 - VBW : 300 kHz
 - Span : 5 – 30 % greater than the Emission Bandwidth
 - Detector : Peak
 - Sweep Time : Auto
 - Trace mode : Max Hold, Allow trace to fully stabilize.

* Emission Bandwidth from 6 dB Bandwidth Data
- Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
- Scale the observed power level to an equivalent value in 3 kHz by reducing the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(3\text{ kHz}/100\text{ kHz} = -15.2\text{ dB})$.
- Measurement data correction;
 - $PSD\text{ [dBm]} = \text{Reading [dBm]} + \text{Factor [dB]}$
 - $\text{Margin [dB]} = \text{Limit [dBm]} - PSD\text{ [dBm]}$

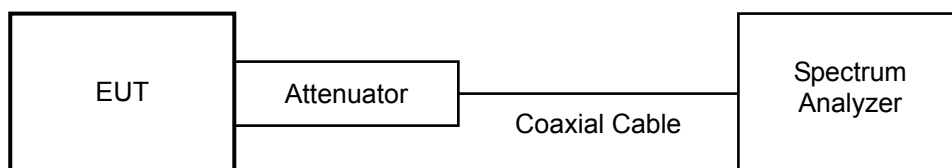
*Factor = Cable Loss + Attenuator + BWCF

The measure-and-sum technique was used for measuring power spectrum density of the EUT.
The measured results at the each antenna ports were then summed mathematically.
Summing was performed in linear power units.

Measurement Instrument

Instrument	Model No.	Serial No.	Manufacturer	Cal. Interval	Effective period
Spectrum Analyzer	N9030A	US51350220	Agilent	1 Y	Feb.28, 2013
20 dB Attenuator	8493C	78585	Agilent	1 Y	Mar.31, 2013
Coaxial Cable	SUCOFLEX 104PE	94703/4PE	SUHNER	1 Y	Mar.31, 2013

Measurement Instrument Configuration



Test Result

Test date	Sep. 28, 2012
Location	Matsuda No.4 Test Site
Temperature	24.1 [degree C]
Humidity variation	59.0 [%]
Test Engineer	Shiro Kobayashi

Access Method : IEEE802.11 b

Ch	Freq. [MHz]	Reading [dBm]		Factor [dBm]	PSD [dBm]	Limit [dBm]	Margin [dB]
		Tx1	Tx2				
1	2412	-15.62	-16.04	5.16	-7.66	8.00	15.66
6	2437	-15.39	-16.00	5.16	-7.52	8.00	15.52
11	2462	-15.91	-16.22	5.15	-7.90	8.00	15.90

Access Method : IEEE802.11 g

Ch	Freq. [MHz]	Reading [dBm]		Factor [dBm]	PSD [dBm]	Limit [dBm]	Margin [dB]
		Tx1	Tx2				
1	2412	-21.70	-22.51	5.16	-13.92	8.00	21.92
6	2437	-21.79	-22.21	5.16	-13.83	8.00	21.83
11	2462	-22.06	-22.57	5.15	-14.14	8.00	22.14

Access Method : IEEE802.11 n HT20

Ch	Freq. [MHz]	Reading [dBm]		Factor [dBm]	PSD [dBm]	Limit [dBm]	Margin [dB]
		Tx1	Tx2				
1	2412	-24.33	-25.24	5.16	-16.59	8.00	24.59
6	2437	-23.81	-24.59	5.16	-16.01	8.00	24.01
11	2462	-24.87	-24.96	5.15	-16.75	8.00	24.75

Access Method : IEEE802.11 n HT20 with MIMO

Ch	Freq. [MHz]	Reading [dBm]		Factor [dBm]	PSD [dBm]	Limit [dBm]	Margin [dB]
		Tx1	Tx2				
1	2412	-23.13	-24.37	5.16	-15.54	8.00	23.54
6	2437	-22.91	-24.07	5.16	-15.28	8.00	23.28
11	2462	-23.62	-24.32	5.15	-15.79	8.00	23.79

Access Method : IEEE802.11 n HT40

Ch	Freq. [MHz]	Reading [dBm]		Factor [dBm]	PSD [dBm]	Limit [dBm]	Margin [dB]
		Tx1	Tx2				
1	2422	-28.43	-28.54	5.16	-20.32	8.00	28.32
6	2437	-27.98	-28.08	5.16	-19.87	8.00	27.87
11	2452	-27.98	-28.04	5.16	-19.85	8.00	27.85

Access Method : IEEE802.11 n HT40 with MIMO

Ch	Freq. [MHz]	Reading [dBm]		Factor [dBm]	PSD [dBm]	Limit [dBm]	Margin [dB]
		Tx1	Tx2				
1	2422	-28.56	-29.63	5.16	-20.89	8.00	28.89
6	2437	-28.08	-29.43	5.16	-20.53	8.00	28.53
11	2452	-28.01	-29.27	5.16	-20.43	8.00	28.43

Spectrum Chart
See ANNEX A.1.3.

9.4 Radiated Spurious Emissions and Band Edge of Restrict Band

Regulations	FCC Part15C §15.209, §15.205
Test Method/Guide	ANSI C63.4:2003

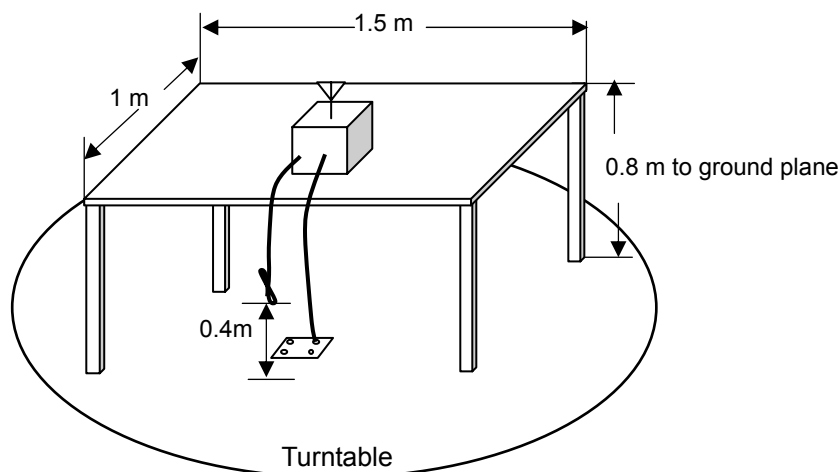
Test Procedure

1. The EUT and test instrument were set up as shown on the following.
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;
 $\text{Emission Level [dBuV/m]} = \text{Reading [dBuV]} + \text{Factor [dB]}$
 $\text{Margin [dB]} = \text{Limit [dBuV/m]} - \text{Emission Level [dBuV/m]}$
 * Factor = Antenna Factor + Amplifier gain + Cable loss + Attenuator (+ Filter)

Test setup as per standard



Measurement Instruments Configurations

Diagram of the measurement instruments (30-1000 MHz)

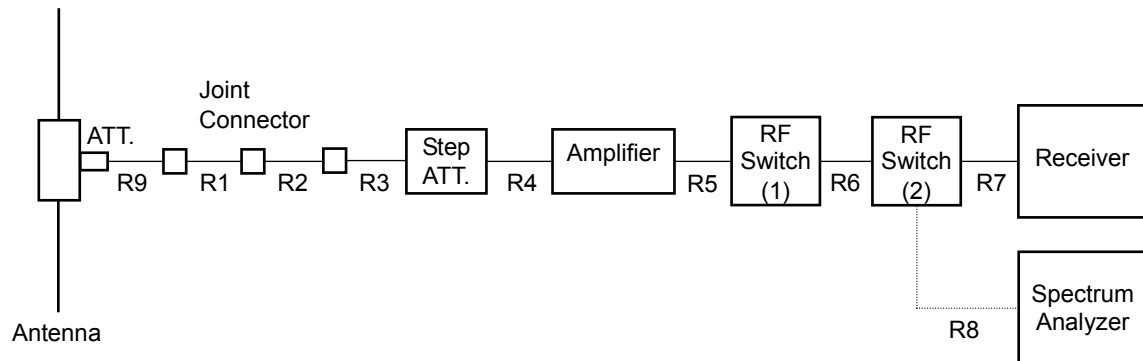


Diagram of the measurement instruments (1000- 2000 and 3000 – 18000 MHz)

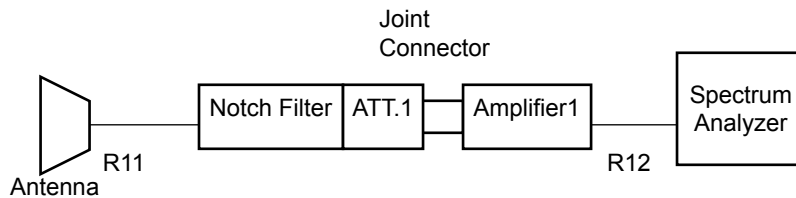


Diagram of the measurement instruments (2000 - 3000 MHz)

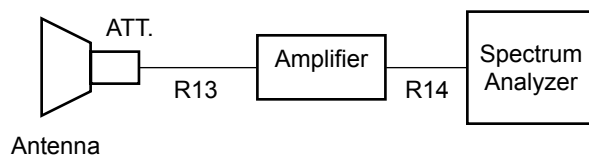
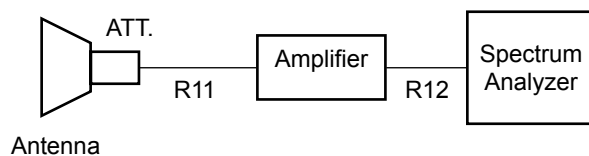


Diagram of the measurement instruments (18000 - 25000 MHz)



Measurement Instrument

Instrument	Model No.	Serial No.	Manufacturer	Cal. Interval	Effective period
30 – 1000 MHz					
Broad Band Antenna	VULB9168	332	Schwarzbeck	1 Y	Sep.30, 2012
Amplifier	8447D	1937A02669	Hewlett Packard	1 Y	Aug.31, 2013
6dB Attenuator	6806.17.AC	None	HUBER+SUHNER	1 Y	Aug.31, 2013
Step Attenuator	8494A	1510A08521	Hewlett Packard	1 Y	Aug.31, 2013
Coaxial Cable (R1)	RG214HF(9.0m)	MTS04R3-1	SUHNER	1 Y	Aug.31, 2013
Coaxial Cable (R2)	8D-2W(15.0m)	MTS04R3-2	Intertek	1 Y	Aug.31, 2013
Coaxial Cable (R3)	RG214HF(2.0m)	MTS04R3-3	SUHNER	1 Y	Aug.31, 2013
Coaxial Cable (R4)	RG214HF(0.4m)	MTS04R3-4	SUHNER	1 Y	Aug.31, 2013
Coaxial Cable (R5)	RG214HF(0.4m)	MTS04R3-5	SUHNER	1 Y	Aug.31, 2013
Coaxial Cable (R6)	RG214HF(1.5m)	MTS04R3-6	SUHNER	1 Y	Aug.31, 2013
Coaxial Cable (R7)	RG214HF(1.5m)	MTS04R3-7	SUHNER	1 Y	Aug.31, 2013
Coaxial Cable (R8)	RG214HF(1.5m)	MTS04R3-8	SUHNER	1 Y	Aug.31, 2013
Coaxial Cable (R9)	RG214HF(6.0m)	MTS04R3-9	SUHNER	1 Y	Aug.31, 2013
Test Receiver	ESS (Firmware Version 1.08)	845637/001	Rohde & Schwarz	1 Y	Dec.31, 2012
RF Switch(1)	MP59B	M21448	ANRITSU	1 Y	Aug.31, 2013
RF Switch(2)	ACX-150-1	E04301501	Intertek	1 Y	Aug.31, 2013
Site Attenuation				1 Y	May.31, 2013
Above 1000 MHz					
Double Ridged Antenna	3115	3024	EMCO	1 Y	Nov.30, 2012
Notch Filter	BRM50702	111	Micro-Tronics	1 Y	Mar.31, 2013
3dB Attenuator	8493C	01271	Agilent	1 Y	Apr.30, 2013
Amplifier	TPA0118-30	950186	TOYO Corporation	1 Y	Apr.30, 2013
Coaxial Cable (R11)	SUCOFLEX 104(1.0m)	94703/4PE	SUNNER	1 Y	Mar.31, 2013
Coaxial Cable (R12)	SUCOFLEX 104(6.0m)	94702/4PE	SUNNER	1 Y	Mar.31, 2013
6dB Attenuator	6806.17.B	None	SUNNER	1 Y	Jul.31, 2013
Amplifier	8449B	3008A00615	Hewlett Packard	1 Y	Jul.31, 2013
Coaxial Cable (R13)	SUCOFLEX 104(6.0m)	58440/4PE	SUNNER	1 Y	Jul.31, 2013
Coaxial Cable (R14)	SUCOFLEX 104(1.0m)	58441/4PE	SUNNER	1 Y	Jul.31, 2013
Horn Antenna	94626-1	121	EMCO	1 Y	Feb.28, 2013
Amplifier	AMF-6F-08004000-37-8P	1045836	TOYO Corporation	1 Y	Apr.30, 2013
Spectrum Analyzer	N9030A	US51350220	Agilent	1 Y	Feb.28, 2013
Common					
Testing Software	emiT (Version 3,0,0,0)				

Test Result

Access Method : IEEE802.11 b
Channel : Ch1

Test date	Sep. 20 to 28, 2012
Location	Matsuda No.4 Test Site
Temperature	23.4 to 25.5 [degree C]
Humidity variation	59.0 to 64.0 [%]
Test Engineer	Shiro Kobayashi

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	52.73	QP	-	39.7	-6.5	-	33.2	40.0	-	6.8
2	63.28	QP	-	39.0	-7.5	-	31.5	40.0	-	8.5
3	96.10	QP	-	44.4	-11.4	-	33.0	43.5	-	10.5
4	375.00	QP	39.6	40.0	-2.5	37.1	37.5	46.0	8.9	8.5
5	458.28	QP	-	34.1	-0.2	-	33.9	46.0	-	12.1
6	625.00	QP	-	30.9	4.3	-	35.2	46.0	-	10.8
7	750.00	QP	-	28.5	6.6	-	35.1	46.0	-	10.9
8	875.00	QP	25.9	24.5	8.6	34.5	33.1	46.0	11.5	12.9
9	1125.00	PEK	41.4	43.8	-5.6	35.8	38.2	74.0	38.2	35.8
10	1125.00	AVG	35.2	38.1	-5.6	29.6	32.5	54.0	24.4	21.5
11	1500.00	PEK	43.1	41.2	-4.1	39.0	37.1	74.0	35.0	36.9
12	1500.00	AVG	35.6	32.3	-4.1	31.5	28.2	54.0	22.5	25.8
13	1608.00	PEK	47.2	52.5	-3.3	43.9	49.2	74.0	30.1	24.8
14	1608.00	AVG	44.4	50.7	-3.3	41.1	47.4	54.0	12.9	6.6
15 *	2386.94	PEK	50.9	57.3	1.1	52.0	58.4	74.0	22.0	15.6
16 *	2386.94	AVG	40.3	47.0	1.1	41.4	48.1	54.0	12.6	5.9
17	3750.00	PEK	38.5	-	4.5	43.0	-	74.0	31.0	-
18	3750.00	AVG	30.6	-	4.5	35.1	-	54.0	18.9	-
19	4824.00	PEK	48.1	49.9	6.3	54.4	56.2	74.0	19.6	17.8
20	4824.00	AVG	38.5	40.1	6.3	44.8	46.4	54.0	9.2	7.6
21	7236.00	PEK	36.7	37.3	10.9	47.6	48.2	74.0	26.4	25.8
22	7236.00	AVG	27.5	27.4	10.9	38.4	38.3	54.0	15.6	15.7
23	9648.00	PEK	41.2	35.9	14.5	55.7	50.4	74.0	18.3	23.6
24	9648.00	AVG	35.6	27.8	14.5	50.1	42.3	54.0	3.9	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.

Test Result

Access Method : IEEE802.11 b
Channel : Ch6

Test date	Sep. 20 to 28, 2012
Location	Matsuda No.4 Test Site
Temperature	23.4 to 25.5 [degree C]
Humidity variation	59.0 to 64.0 [%]
Test Engineer	Shiro Kobayashi

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	52.73	QP	-	39.5	-6.5	-	33.0	40.0	-	7.0
2	63.28	QP	-	38.5	-7.5	-	31.0	40.0	-	9.0
3	96.10	QP	-	44.6	-11.4	-	33.2	43.5	-	10.3
4	375.00	QP	42.2	40.0	-2.5	39.7	37.5	46.0	6.3	8.5
5	458.15	QP	-	35.2	-0.2	-	35.0	46.0	-	11.0
6	625.00	QP	-	30.1	4.3	-	34.4	46.0	-	11.6
7	750.00	QP	-	28.4	6.6	-	35.0	46.0	-	11.0
8	875.00	QP	24.5	25.6	8.6	33.1	34.2	46.0	12.9	11.8
9	1125.00	PEK	41.2	44.3	-5.6	35.6	38.7	74.0	38.4	35.3
10	1125.00	AVG	37.5	39.4	-5.6	31.9	33.8	54.0	22.1	20.2
11	1500.00	PEK	41.7	41.3	-4.1	37.6	37.2	74.0	36.4	36.8
12	1500.00	AVG	32.7	32.5	-4.1	28.6	28.4	54.0	25.4	25.6
13	1624.67	PEK	54.9	49.4	-3.3	51.6	46.1	74.0	22.4	27.9
14	1624.67	AVG	46.3	47.4	-3.3	43.0	44.1	54.0	11.0	9.9
15	3249.30	PEK	47.0	50.6	2.7	49.7	53.3	74.0	24.3	20.7
16	3249.30	AVG	43.3	47.1	2.7	46.0	49.8	54.0	8.0	4.2
17	3750.00	PEK	39.6	38.7	4.5	44.1	43.2	74.0	29.9	30.8
18	3750.00	AVG	29.3	30.3	4.5	33.8	34.8	54.0	20.2	19.2
19	4874.00	PEK	51.7	50.2	6.4	58.1	56.6	74.0	15.9	17.4
20	4874.00	AVG	42.2	39.9	6.4	48.6	46.3	54.0	5.4	7.7
21	7311.00	PEK	40.9	35.3	11.3	52.2	46.6	74.0	21.8	27.4
22	7311.00	AVG	32.7	27.1	11.3	44.0	38.4	54.0	10.0	15.6
23	9748.00	PEK	42.8	37.7	14.6	57.4	52.3	74.0	16.6	21.7
24	9748.00	AVG	37.6	29.0	14.6	52.2	43.6	54.0	1.8	10.4

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.

Test Result

Access Method : IEEE802.11 b
Channel : Ch11

Test date	Sep. 20 to 28, 2012
Location	Matsuda No.4 Test Site
Temperature	23.4 to 25.5 [degree C]
Humidity variation	59.0 to 64.0 [%]
Test Engineer	Shiro Kobayashi

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	52.73	QP	-	38.8	-6.5	-	32.3	40.0	-	7.7
2	63.28	QP	-	38.3	-7.5	-	30.8	40.0	-	9.2
3	96.10	QP	-	44.0	-11.4	-	32.6	43.5	-	10.9
4	375.00	QP	42.4	41.5	-2.5	39.9	39.0	46.0	6.1	7.0
5	455.05	QP	-	35.2	-0.2	-	35.0	46.0	-	11.0
6	625.00	QP	-	30.3	4.3	-	34.6	46.0	-	11.4
7	750.00	QP	-	28.0	6.6	-	34.6	46.0	-	11.4
8	875.00	QP	25.4	25.7	8.6	34.0	34.3	46.0	12.0	11.7
9	1125.00	PEK	39.1	44.7	-5.6	33.5	39.1	74.0	40.5	34.9
10	1125.00	AVG	31.2	39.0	-5.6	25.6	33.4	54.0	28.4	20.6
11	1500.00	PEK	41.9	41.7	-4.1	37.8	37.6	74.0	36.2	36.4
12	1500.00	AVG	33.6	33.3	-4.1	29.5	29.2	54.0	24.5	24.8
13	1641.34	PEK	47.9	47.6	-3.0	44.9	44.6	74.0	29.1	29.4
14	1641.34	AVG	45.5	44.9	-3.0	42.5	41.9	54.0	11.5	12.1
15 *	2483.5	PEK	53.7	54.4	1.2	54.9	55.6	74.0	19.1	18.4
16 *	2483.5	AVG	43.7	44.2	1.2	44.9	45.4	54.0	9.1	8.6
17	3282.63	PEK	48.5	50.4	2.9	51.4	53.3	74.0	22.6	20.7
18	3282.63	AVG	46.2	47.2	2.9	49.1	50.1	54.0	4.9	3.9
19	3750.00	PEK	38.7	-	4.5	43.2	-	74.0	30.8	-
20	3750.00	AVG	30.4	-	4.5	34.9	-	54.0	19.1	-
21	4924.00	PEK	51.4	47.9	6.5	57.9	54.4	74.0	16.1	19.6
22	4924.00	AVG	42.1	38.3	6.5	48.6	44.8	54.0	5.4	9.2
23	7386.00	PEK	41.3	36.6	11.6	52.9	48.2	74.0	21.1	25.8
24	7386.00	AVG	32.7	27.9	11.6	44.3	39.5	54.0	9.7	14.5
25	9848.00	PEK	40.3	37.6	14.9	55.2	52.5	74.0	18.8	21.5
26	9848.00	AVG	33.8	28.6	14.9	48.7	43.5	54.0	5.3	10.5

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.

Test Result

Access Method : IEEE802.11 g
Channel : Ch1

Test date	Sep. 20 to 28, 2012
Location	Matsuda No.4 Test Site
Temperature	23.4 to 25.5 [degree C]
Humidity variation	59.0 to 64.0 [%]
Test Engineer	Shiro Kobayashi

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	52.73	QP	-	38.0	-6.5	-	31.5	40.0	-	8.5
2	63.28	QP	-	37.5	-7.5	-	30.0	40.0	-	10.0
3	96.10	QP	-	44.7	-11.4	-	33.3	43.5	-	10.2
4	375.00	QP	41.5	39.8	-2.5	39.0	37.3	46.0	7.0	8.7
5	454.88	QP	-	38.2	-0.2	-	38.0	46.0	-	8.0
6	625.00	QP	-	30.3	4.3	-	34.6	46.0	-	11.4
7	750.00	QP	-	27.3	6.6	-	33.9	46.0	-	12.1
8	875.00	QP	26.6	26.5	8.6	35.2	35.1	46.0	10.8	10.9
9	1125.00	PEK	42.0	44.7	-5.6	36.4	39.1	74.0	37.6	34.9
10	1125.00	AVG	33.6	39.9	-5.6	28.0	34.3	54.0	26.0	19.7
11	1500.00	PEK	42.7	43.7	-4.1	38.6	39.6	74.0	35.4	34.4
12	1500.00	AVG	35.1	34.6	-4.1	31.0	30.5	54.0	23.0	23.5
13	1608.00	PEK	50.3	53.5	-3.3	47.0	50.2	74.0	27.0	23.8
14	1608.00	AVG	46.5	49.8	-3.3	43.2	46.5	54.0	10.8	7.5
15 *	2390.00	PEK	65.0	68.5	1.1	66.1	69.6	74.0	7.9	4.4
16 *	2390.00	AVG	47.4	50.8	1.1	48.5	51.9	54.0	5.5	2.1
17	3216.00	PEK	50.6	46.1	2.7	53.3	48.8	74.0	20.7	25.2
18	3216.00	AVG	46.6	41.2	2.7	49.3	43.9	54.0	4.7	10.1
19	3750.00	PEK	39.1	39.0	4.5	43.6	43.5	74.0	30.4	30.5
20	3750.00	AVG	30.8	30.2	4.5	35.3	34.7	54.0	18.7	19.3
21	4824.00	PEK	40.9	41.1	6.3	47.2	47.4	74.0	26.8	26.6
22	4824.00	AVG	30.5	30.7	6.3	36.8	37.0	54.0	17.2	17.0

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.

Test Result

Access Method : IEEE802.11 g
Channel : Ch6

Test date	Sep. 20 to 28, 2012
Location	Matsuda No.4 Test Site
Temperature	23.4 to 25.5 [degree C]
Humidity variation	59.0 to 64.0 [%]
Test Engineer	Shiro Kobayashi

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	52.73	QP	-	38.2	-6.5	-	31.7	40.0	-	8.3
2	63.28	QP	-	37.0	-7.5	-	29.5	40.0	-	10.5
3	96.10	QP	-	44.8	-11.4	-	33.4	43.5	-	10.1
4	375.00	QP	41.7	40.0	-2.5	39.2	37.5	46.0	6.8	8.5
5	455.26	QP	-	37.4	-0.2	-	37.2	46.0	-	8.8
6	625.00	QP	-	30.3	4.3	-	34.6	46.0	-	11.4
7	750.00	QP	-	27.6	6.6	-	34.2	46.0	-	11.8
8	875.00	QP	26.5	26.0	8.6	35.1	34.6	46.0	10.9	11.4
9	1125.00	PEK	40.5	43.5	-5.6	34.9	37.9	74.0	39.1	36.1
10	1125.00	AVG	33.4	38.4	-5.6	27.8	32.8	54.0	26.2	21.2
11	1500.00	PEK	42.5	42.5	-4.1	38.4	38.4	74.0	35.6	35.6
12	1500.00	AVG	34.7	33.5	-4.1	30.6	29.4	54.0	23.4	24.6
13	1624.67	PEK	50.2	53.4	-3.3	46.9	50.1	74.0	27.1	23.9
14	1624.67	AVG	46.3	49.8	-3.3	43.0	46.5	54.0	11.0	7.5
15	3249.29	PEK	46.6	44.9	2.7	49.3	47.6	74.0	24.7	26.4
16	3249.29	AVG	42.1	39.8	2.7	44.8	42.5	54.0	9.2	11.5
17	3750.00	PEK	37.4	-	4.5	41.9	-	74.0	32.1	-
18	3750.00	AVG	29.8	-	4.5	34.3	-	54.0	19.7	-
19	4874.00	PEK	42.5	40.9	6.4	48.9	47.3	74.0	25.1	26.7
20	4874.00	AVG	31.3	30.8	6.4	37.7	37.2	54.0	16.3	16.8

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.

Test Result

Access Method : IEEE802.11 g
Channel : Ch11

Test date	Sep. 20 to 28, 2012
Location	Matsuda No.4 Test Site
Temperature	23.4 to 25.5 [degree C]
Humidity variation	59.0 to 64.0 [%]
Test Engineer	Shiro Kobayashi

No.	Freq [MHz]	Detector	Reading [dBUV]		Factor [dB]	Emission Level [dBUV/m]		Limit [dBUV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	52.73	QP	-	38.2	-6.5	-	31.7	40.0	-	8.3
2	63.28	QP	-	38.0	-7.5	-	30.5	40.0	-	9.5
3	96.10	QP	-	45.1	-11.4	-	33.7	43.5	-	9.8
4	375.00	QP	40.2	39.6	-2.5	37.7	37.1	46.0	8.3	8.9
5	454.70	QP	-	37.7	-0.2	-	37.5	46.0	-	8.5
6	625.00	QP	-	30.3	4.3	-	34.6	46.0	-	11.4
7	750.00	QP	-	26.7	6.6	-	33.3	46.0	-	12.7
8	875.00	QP	25.0	25.2	8.6	33.6	33.8	46.0	12.4	12.2
9	1125.00	PEK	42.0	41.3	-5.6	36.4	35.7	74.0	37.6	38.3
10	1125.00	AVG	4.5	33.2	-5.6	-1.1	27.6	54.0	55.1	26.4
11	1500.00	PEK	42.7	43.2	-4.1	38.6	39.1	74.0	35.4	34.9
12	1500.00	AVG	35.0	34.0	-4.1	30.9	29.9	54.0	23.1	24.1
13	1641.33	PEK	50.2	48.5	-3.0	47.2	45.5	74.0	26.8	28.5
14	1641.33	AVG	46.5	44.8	-3.0	43.5	41.8	54.0	10.5	12.2
15 *	2483.5	PEK	63.2	68.4	1.2	64.4	69.6	74.0	9.6	4.4
16 *	2483.5	AVG	45.5	49.1	1.2	46.7	50.3	54.0	7.3	3.7
17	3282.63	PEK	48.4	48.4	2.9	51.3	51.3	74.0	22.7	22.7
18	3282.63	AVG	44.7	44.9	2.9	47.6	47.8	54.0	6.4	6.2
19	3750.00	PEK	39.2	38.7	4.5	43.7	43.2	74.0	30.3	30.8
20	3750.00	AVG	30.8	30.5	4.5	35.3	35.0	54.0	18.7	19.0
21	4924.00	PEK	43.0	40.2	6.5	49.5	46.7	74.0	24.5	27.3
22	4924.00	AVG	31.9	30.1	6.5	38.4	36.6	54.0	15.6	17.4

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.

Test Result

Access Method : IEEE802.11 n HT20
Channel : Ch1

Test date	Sep. 20 to 28, 2012
Location	Matsuda No.4 Test Site
Temperature	23.4 to 25.5 [degree C]
Humidity variation	59.0 to 64.0 [%]
Test Engineer	Shiro Kobayashi

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	52.73	QP	-	35.9	-6.5	-	29.4	40.0	-	10.6
2	63.28	QP	-	35.9	-7.5	-	28.4	40.0	-	11.6
3	96.10	QP	-	44.5	-11.4	-	33.1	43.5	-	10.4
4	375.00	QP	42.2	40.1	-2.5	39.7	37.6	46.0	6.3	8.4
5	455.28	QP	-	38.0	-0.2	-	37.8	46.0	-	8.2
6	625.00	QP	-	30.9	4.3	-	35.2	46.0	-	10.8
7	750.00	QP	-	27.5	6.6	-	34.1	46.0	-	11.9
8	875.00	QP	25.7	26.6	8.6	34.3	35.2	46.0	11.7	10.8
9	1125.00	PEK	42.6	45.1	-5.6	37.0	39.5	74.0	37.0	34.5
10	1125.00	AVG	34.2	39.2	-5.6	28.6	33.6	54.0	25.4	20.4
11	1500.00	PEK	43.5	43.3	-4.1	39.4	39.2	74.0	34.6	34.8
12	1500.00	AVG	35.1	34.5	-4.1	31.0	30.4	54.0	23.0	23.6
13	1608.00	PEK	50.4	52.7	-3.3	47.1	49.4	74.0	26.9	24.6
14	1608.00	AVG	46.7	49.2	-3.3	43.4	45.9	54.0	10.6	8.1
15 *	2390.00	PEK	62.9	68.5	1.1	64.0	69.6	74.0	10.0	4.4
16 *	2390.00	AVG	44.0	49.4	1.1	45.1	50.5	54.0	8.9	3.5
17	3216.00	PEK	48.0	46.0	2.7	50.7	48.7	74.0	23.3	25.3
18	3216.00	AVG	44.0	41.5	2.7	46.7	44.2	54.0	7.3	9.8
19	3750.00	PEK	39.1	38.2	4.5	43.6	42.7	74.0	30.4	31.3
20	3750.00	AVG	31.4	30.0	4.5	35.9	34.5	54.0	18.1	19.5
21	4824.00	PEK	37.5	37.6	6.3	43.8	43.9	74.0	30.2	30.1
22	4824.00	AVG	27.9	27.9	6.3	34.2	34.2	54.0	19.8	19.8

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.

Test Result

Access Method : IEEE802.11 n HT20
Channel : Ch6

Test date	Sep. 20 to 28, 2012
Location	Matsuda No.4 Test Site
Temperature	23.4 to 25.5 [degree C]
Humidity variation	59.0 to 64.0 [%]
Test Engineer	Shiro Kobayashi

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	52.73	QP	-	36.2	-6.5	-	29.7	40.0	-	10.3
2	63.28	QP	-	36.0	-7.5	-	28.5	40.0	-	11.5
3	96.10	QP	-	44.0	-11.4	-	32.6	43.5	-	10.9
4	375.00	QP	42.1	40.3	-2.5	39.6	37.8	46.0	6.4	8.2
5	455.28	QP	-	38.2	-0.2	-	38.0	46.0	-	8.0
6	625.00	QP	-	30.8	4.3	-	35.1	46.0	-	10.9
7	750.00	QP	-	27.0	6.6	-	33.6	46.0	-	12.4
8	875.00	QP	25.5	26.5	8.6	34.1	35.1	46.0	11.9	10.9
9	1125.00	PEK	41.5	45.1	-5.6	35.9	39.5	74.0	38.1	34.5
10	1125.00	AVG	34.6	39.3	-5.6	29.0	33.7	54.0	25.0	20.3
11	1500.00	PEK	43.0	42.7	-4.1	38.9	38.6	74.0	35.1	35.4
12	1500.00	AVG	35.0	34.0	-4.1	30.9	29.9	54.0	23.1	24.1
13	1624.66	PEK	49.5	49.9	-3.3	46.2	46.6	74.0	27.8	27.4
14	1624.66	AVG	45.9	46.7	-3.3	42.6	43.4	54.0	11.4	10.6
15	3249.26	PEK	48.6	47.0	2.7	51.3	49.7	74.0	22.7	24.3
16	3249.26	AVG	45.2	42.9	2.7	47.9	45.6	54.0	6.1	8.4
17	3750.00	PEK	38.7	38.3	4.5	43.2	42.8	74.0	30.8	31.2
18	3750.00	AVG	30.9	30.1	4.5	35.4	34.6	54.0	18.6	19.4
19	4874.00	PEK	38.9	36.8	6.4	45.3	43.2	74.0	28.7	30.8
20	4874.00	AVG	28.9	27.5	6.4	35.3	33.9	54.0	18.7	20.1

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.

Test Result

Access Method : IEEE802.11 n HT20
Channel : Ch11

Test date	Sep. 20 to 28, 2012
Location	Matsuda No.4 Test Site
Temperature	23.4 to 25.5 [degree C]
Humidity variation	59.0 to 64.0 [%]
Test Engineer	Shiro Kobayashi

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	52.73	QP	-	36.3	-6.5	-	29.8	40.0	-	10.2
2	63.28	QP	-	36.0	-7.5	-	28.5	40.0	-	11.5
3	96.10	QP	-	44.4	-11.4	-	33.0	43.5	-	10.5
4	375.00	QP	42.1	40.5	-2.5	39.6	38.0	46.0	6.4	8.0
5	455.28	QP	-	37.8	-0.2	-	37.6	46.0	-	8.4
6	625.00	QP	-	30.6	4.3	-	34.9	46.0	-	11.1
7	750.00	QP	-	27.5	6.6	-	34.1	46.0	-	11.9
8	875.00	QP	25.4	26.5	8.6	34.0	35.1	46.0	12.0	10.9
9	1125.00	PEK	41.2	45.0	-5.6	35.6	39.4	74.0	38.4	34.6
10	1125.00	AVG	34.7	38.8	-5.6	29.1	33.2	54.0	24.9	20.8
11	1500.00	PEK	43.2	41.4	-4.1	39.1	37.3	74.0	34.9	36.7
12	1500.00	AVG	35.4	33.5	-4.1	31.3	29.4	54.0	22.7	24.6
13	1641.30	PEK	48.3	46.2	-3.0	45.3	43.2	74.0	28.7	30.8
14	1641.30	AVG	44.7	41.9	-3.0	41.7	38.9	54.0	12.3	15.1
15 *	2483.50	PEK	62.7	62.7	1.2	63.9	63.9	74.0	10.1	10.1
16 *	2483.50	AVG	45.5	46.2	1.2	46.7	47.4	54.0	7.3	6.6
17	3282.65	PEK	47.1	38.5	2.9	50.0	41.4	74.0	24.0	32.6
18	3282.65	AVG	43.3	31.3	2.9	46.2	34.2	54.0	7.8	19.8
19	3750.00	PEK	39.8	38.8	4.5	44.3	43.3	74.0	29.7	30.7
20	3750.00	AVG	31.8	30.1	4.5	36.3	34.6	54.0	17.7	19.4
21	4924.00	PEK	38.4	35.4	6.5	44.9	41.9	74.0	29.1	32.1
22	4924.00	AVG	28.7	26.3	6.5	35.2	32.8	54.0	18.8	21.2

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.

Test Result

Access Method : IEEE802.11 n HT20 with MIMO
Channel : Ch1

Test date	Sep. 20 to 28, 2012
Location	Matsuda No.4 Test Site
Temperature	23.4 to 25.5 [degree C]
Humidity variation	59.0 to 64.0 [%]
Test Engineer	Shiro Kobayashi

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	52.73	QP	-	36.7	-6.5	-	30.2	40.0	-	9.8
2	63.28	QP	-	36.8	-7.5	-	29.3	40.0	-	10.7
3	96.10	QP	-	44.5	-11.4	-	33.1	43.5	-	10.4
4	375.00	QP	41.3	39.6	-2.5	38.8	37.1	46.0	7.2	8.9
5	455.28	QP	-	38.2	-0.2	-	38.0	46.0	-	8.0
6	625.00	QP	-	30.8	4.3	-	35.1	46.0	-	10.9
7	750.00	QP	-	27.1	6.6	-	33.7	46.0	-	12.3
8	875.00	QP	25.7	26.2	8.6	34.3	34.8	46.0	11.7	11.2
9	1125.00	PEK	41.8	43.7	-5.6	36.2	38.1	74.0	37.8	35.9
10	1125.00	AVG	34.6	37.3	-5.6	29.0	31.7	54.0	25.0	22.3
11	1500.00	PEK	42.9	41.8	-4.1	38.8	37.7	74.0	35.2	36.3
12	1500.00	AVG	35.2	34.2	-4.1	31.1	30.1	54.0	22.9	23.9
13	1608.00	PEK	47.8	49.8	-3.3	44.5	46.5	74.0	29.5	27.5
14	1608.00	AVG	42.8	45.0	-3.3	39.5	41.7	54.0	14.5	12.3
15 *	2390.00	PEK	60.7	64.0	1.1	61.8	35.1	74.0	12.2	8.9
16 *	2390.00	AVG	43.3	47.0	1.1	44.4	48.1	54.0	9.6	5.9
17	3216.00	PEK	50.0	46.3	2.7	52.7	49.0	74.0	21.3	25.0
18	3216.00	AVG	45.5	40.9	2.7	48.2	43.6	54.0	5.8	10.4
19	3750.00	PEK	40.5	40.7	4.5	45.0	45.2	74.0	29.0	28.8
20	3750.00	AVG	33.2	33.0	4.5	37.7	37.5	54.0	16.3	16.5
21	4824.00	PEK	45.0	38.3	6.3	51.3	44.6	74.0	22.7	29.4
22	4824.00	AVG	29.8	29.0	6.3	36.1	35.3	54.0	17.9	18.7

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.

Test Result

Access Method : IEEE802.11 n HT20 with MIMO
Channel : Ch6

Test date	Sep. 20 to 28, 2012
Location	Matsuda No.4 Test Site
Temperature	23.4 to 25.5 [degree C]
Humidity variation	59.0 to 64.0 [%]
Test Engineer	Shiro Kobayashi

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	52.73	QP	-	36.7	-6.5	-	30.2	40.0	-	9.8
2	63.28	QP	-	36.8	-7.5	-	29.3	40.0	-	10.7
3	96.10	QP	-	44.3	-11.4	-	32.9	43.5	-	10.6
4	375.00	QP	41.0	39.6	-2.5	38.5	37.1	46.0	7.5	8.9
5	455.28	QP	-	37.6	-0.2	-	37.4	46.0	-	8.6
6	625.00	QP	-	30.7	4.3	-	35.0	46.0	-	11.0
7	750.00	QP	-	28.0	6.6	-	34.6	46.0	-	11.4
8	875.00	QP	26.0	26.3	8.6	34.6	34.9	46.0	11.4	11.1
9	1125.00	PEK	41.3	44.2	-5.6	35.7	38.6	74.0	38.3	35.4
10	1125.00	AVG	34.8	40.4	-5.6	29.2	34.8	54.0	24.8	19.2
11	1500.00	PEK	42.5	43.4	-4.1	38.4	39.3	74.0	35.6	34.7
12	1500.00	AVG	35.4	36.4	-4.1	31.3	32.3	54.0	22.7	21.7
13	1624.65	PEK	47.8	51.7	-3.3	44.5	48.4	74.0	29.5	25.6
14	1624.65	AVG	43.1	47.1	-3.3	39.8	43.8	54.0	14.2	10.2
15	3249.30	PEK	49.8	47.1	2.7	52.5	49.8	74.0	21.5	24.2
16	3249.30	AVG	45.2	42.4	2.7	47.9	45.1	54.0	6.1	8.9
17	3750.00	PEK	40.6	40.5	4.5	45.1	45.0	74.0	28.9	29.0
18	3750.00	AVG	33.8	32.6	4.5	38.3	37.1	54.0	15.7	16.9
19	4874.00	PEK	39.1	38.2	6.4	45.5	44.6	74.0	28.5	29.4
20	4874.00	AVG	29.8	29.4	6.4	36.2	35.8	54.0	17.8	18.2

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.

Test Result

Access Method : IEEE802.11 n HT20 with MIMO
Channel : Ch11

Test date	Sep. 20 to 28, 2012
Location	Matsuda No.4 Test Site
Temperature	23.4 to 25.5 [degree C]
Humidity variation	59.0 to 64.0 [%]
Test Engineer	Shiro Kobayashi

No.	Freq [MHz]	Detector	Reading [dBUV]		Factor [dB]	Emission Level [dBUV/m]		Limit [dBUV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	52.73	QP	-	36.7	-6.5	-	30.2	40.0	-	9.8
2	63.28	QP	-	36.8	-7.5	-	29.3	40.0	-	10.7
3	96.10	QP	-	44.3	-11.4	-	32.9	43.5	-	10.6
4	375.00	QP	41.0	39.9	-2.5	38.5	37.4	46.0	7.5	8.6
5	455.28	QP	-	37.8	-0.2	-	37.6	46.0	-	8.4
6	625.00	QP	-	31.1	4.3	-	35.4	46.0	-	10.6
7	750.00	QP	-	28.1	6.6	-	34.7	46.0	-	11.3
8	875.00	QP	26.0	26.6	8.6	34.6	35.2	46.0	11.4	10.8
9	1125.00	PEK	41.9	44.9	-5.6	36.3	39.3	74.0	37.7	34.7
10	1125.00	AVG	34.9	40.0	-5.6	29.3	34.4	54.0	24.7	19.6
11	1500.00	PEK	42.3	41.1	-4.1	38.2	37.0	74.0	35.8	37.0
12	1500.00	AVG	35.3	33.0	-4.1	31.2	28.9	54.0	22.8	25.1
13	1641.33	PEK	49.2	49.7	-3.0	46.2	46.7	74.0	27.8	27.3
14	1641.33	AVG	44.7	45.3	-3.0	41.7	42.3	54.0	12.3	11.7
15 *	2483.50	PEK	57.1	61.7	1.2	58.3	62.9	74.0	15.7	11.1
16 *	2483.50	AVG	41.9	44.2	1.2	43.1	45.4	54.0	10.9	8.6
17	3282.66	PEK	47.7	47.4	2.9	50.6	50.3	74.0	23.4	23.7
18	3282.66	AVG	42.6	42.7	2.9	45.5	45.6	54.0	8.5	8.4
19	3750.00	PEK	40.1	41.2	4.5	44.6	45.7	74.0	29.4	28.3
20	3750.00	AVG	32.0	33.6	4.5	36.5	38.1	54.0	17.5	15.9
21	4924.00	PEK	38.9	38.7	6.5	45.4	45.2	74.0	28.6	28.8
22	4924.00	AVG	30.3	29.6	6.5	36.8	36.1	54.0	17.2	17.9

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.

Test Result

Access Method : IEEE802.11 n HT40
Channel : Ch3

Test date	Sep. 20 to 28, 2012
Location	Matsuda No.4 Test Site
Temperature	23.4 to 25.5 [degree C]
Humidity variation	59.0 to 64.0 [%]
Test Engineer	Shiro Kobayashi

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	52.73	QP	-	37.3	-6.5	-	30.8	40.0	-	9.2
2	71.45	QP	-	37.5	-8.8	-	28.7	40.0	-	11.3
3	96.10	QP	-	45.1	-11.4	-	33.7	43.5	-	9.8
4	375.00	QP	42.0	39.0	-2.5	39.5	36.5	46.0	6.5	9.5
5	454.73	QP	-	38.2	-0.2	-	38.0	46.0	-	8.0
6	625.00	QP	-	30.4	4.3	-	34.7	46.0	-	11.3
7	750.00	QP	-	27.8	6.6	-	34.4	46.0	-	11.6
8	875.00	QP	25.7	26.0	8.6	34.3	34.6	46.0	11.7	11.4
9	1125.00	PEK	44.8	41.8	-5.6	39.2	36.2	74.0	34.8	37.8
10	1125.00	AVG	39.4	35.2	-5.6	33.8	29.6	54.0	20.2	24.4
11	1500.00	PEK	41.8	42.7	-4.1	37.7	38.6	74.0	36.3	35.4
12	1500.00	AVG	32.9	35.2	-4.1	28.8	31.1	54.0	25.2	22.9
13	1614.66	PEK	49.6	50.1	-3.3	46.3	46.8	74.0	27.7	27.2
14	1614.66	AVG	45.4	45.7	-3.3	42.1	42.4	54.0	11.9	11.6
15 *	2389.55	PEK	60.3	68.2	1.1	61.4	69.3	74.0	12.6	4.7
16 *	2389.55	AVG	47.0	52.7	1.1	48.1	53.8	54.0	5.9	0.2
17	3229.33	PEK	44.2	49.6	2.7	46.9	52.3	74.0	27.1	21.7
18	3229.33	AVG	38.5	45.7	2.7	41.2	48.4	54.0	12.8	5.6

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.

Test Result

Access Method : IEEE802.11 n HT40
Channel : Ch6

Test date	Sep. 20 to 28, 2012
Location	Matsuda No.4 Test Site
Temperature	23.4 to 25.5 [degree C]
Humidity variation	59.0 to 64.0 [%]
Test Engineer	Shiro Kobayashi

No.	Freq [MHz]	Detector	Reading [dBUV]		Factor [dB]	Emission Level [dBUV/m]		Limit [dBUV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	52.73	QP	-	37.3	-6.5	-	30.8	40.0	-	9.2
2	71.45	QP	-	37.3	-8.8	-	28.5	40.0	-	11.5
3	96.10	QP	-	44.7	-11.4	-	33.3	43.5	-	10.2
4	375.00	QP	40.7	39.0	-2.5	38.2	36.5	46.0	7.8	9.5
5	454.73	QP	-	38.5	-0.2	-	38.3	46.0	-	7.7
6	625.00	QP	-	30.6	4.3	-	34.9	46.0	-	11.1
7	750.00	QP	-	28.1	6.6	-	34.7	46.0	-	11.3
8	875.00	QP	25.0	25.2	8.6	33.6	33.8	46.0	12.4	12.2
9	1125.00	PEK	45.6	41.4	-5.6	40.0	35.8	74.0	34.0	38.2
10	1125.00	AVG	39.4	35.3	-5.6	33.8	29.7	54.0	20.2	24.3
11	1500.00	PEK	41.6	42.2	-4.1	37.5	38.1	74.0	36.5	35.9
12	1500.00	AVG	33.4	35.0	-4.1	29.3	30.9	54.0	24.7	23.1
13	1624.66	PEK	49.0	49.5	-3.3	45.7	46.2	74.0	28.3	27.8
14	1624.66	AVG	44.7	45.3	-3.3	41.4	42.0	54.0	12.6	12.0
15	3249.32	PEK	46.5	49.0	2.7	49.2	51.7	74.0	24.8	22.3
16	3249.32	AVG	41.9	44.7	2.7	44.6	47.4	54.0	9.4	6.6

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.

Test Result

Access Method : IEEE802.11 n HT40
Channel : Ch9

Test date	Sep. 20 to 28, 2012
Location	Matsuda No.4 Test Site
Temperature	23.4 to 25.5 [degree C]
Humidity variation	59.0 to 64.0 [%]
Test Engineer	Shiro Kobayashi

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	52.73	QP	-	37.2	-6.5	-	30.7	40.0	-	9.3
2	71.45	QP	-	37.4	-8.8	-	28.6	40.0	-	11.4
3	96.10	QP	-	44.6	-11.4	-	33.2	43.5	-	10.3
4	375.00	QP	40.6	39.0	-2.5	38.1	36.5	46.0	7.9	9.5
5	454.82	QP	-	37.5	-0.2	-	37.3	46.0	-	8.7
6	625.00	QP	-	30.5	4.3	-	34.8	46.0	-	11.2
7	750.00	QP	-	27.8	6.6	-	34.4	46.0	-	11.6
8	875.00	QP	25.0	25.3	8.6	33.6	33.9	46.0	12.4	12.1
9	1125.00	PEK	45.1	41.7	-5.6	39.5	36.1	74.0	34.5	37.9
10	1125.00	AVG	39.5	35.2	-5.6	33.9	29.6	54.0	20.1	24.4
11	1500.00	PEK	42.2	42.9	-4.1	38.1	38.8	74.0	35.9	35.2
12	1500.00	AVG	33.5	35.1	-4.1	29.4	31.0	54.0	24.6	23.0
13	1634.66	PEK	49.7	49.0	-3.0	46.7	46.0	74.0	27.3	28.0
14	1634.66	AVG	45.3	44.8	-3.0	42.3	41.8	54.0	11.7	12.2
15 *	2485.5	PEK	65.8	66.4	1.2	67.0	67.6	74.0	7.0	6.4
16 *	2485.5	AVG	50.9	51.8	1.2	52.1	53.0	54.0	1.9	1.0
17	3269.33	PEK	47.3	48.0	2.9	50.2	50.9	74.0	23.8	23.1
18	3269.33	AVG	42.5	43.5	2.9	45.4	46.4	54.0	8.6	7.6

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.

Test Result

Access Method : IEEE802.11 n HT40 with MIMO
Channel : Ch3

Test date	Sep. 20 to 28, 2012
Location	Matsuda No.4 Test Site
Temperature	23.4 to 25.5 [degree C]
Humidity variation	59.0 to 64.0 [%]
Test Engineer	Shiro Kobayashi

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]	Emission Level [dBuV/m]		Limit [dBuV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	52.73	QP	-	37.4	-6.5	-	30.9	40.0	-	9.1
2	71.45	QP	-	37.4	-8.8	-	28.6	40.0	-	11.4
3	96.10	QP	-	45.3	-11.4	-	33.9	43.5	-	9.6
4	375.00	QP	40.7	38.9	-2.5	38.2	36.4	46.0	7.8	9.6
5	454.72	QP	-	38.1	-0.2	-	37.9	46.0	-	8.1
6	625.00	QP	-	30.5	4.3	-	34.8	46.0	-	11.2
7	750.00	QP	-	28.2	6.6	-	34.8	46.0	-	11.2
8	875.00	QP	25.0	25.3	8.6	33.6	33.9	46.0	12.4	12.1
9	1125.00	PEK	41.9	45.4	-5.6	36.3	39.8	74.0	37.7	34.2
10	1125.00	AVG	35.2	39.4	-5.6	29.6	33.8	54.0	24.4	20.2
11	1500.00	PEK	43.4	43.5	-4.1	39.3	39.4	74.0	34.7	34.6
12	1500.00	AVG	35.1	36.4	-4.1	31.0	32.3	54.0	23.0	21.7
13	1614.66	PEK	49.8	49.5	-3.3	46.5	46.2	74.0	27.5	27.8
14	1614.66	AVG	45.7	45.3	-3.3	42.4	42.0	54.0	11.6	12.0
15 *	2389.47	PEK	60.4	65.7	1.1	61.5	66.8	74.0	12.5	7.2
16 *	2389.47	AVG	46.5	51.1	1.1	47.6	52.2	54.0	6.4	1.8
17	3229.33	PEK	49.2	46.0	2.7	51.9	48.7	74.0	22.1	25.3
18	3229.33	AVG	45.3	41.3	2.7	48.0	44.0	54.0	6.0	10.0

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.

Test Result

Access Method : IEEE802.11 n HT40 with MIMO
Channel : Ch6

Test date	Sep. 20 to 28, 2012
Location	Matsuda No.4 Test Site
Temperature	23.4 to 25.5 [degree C]
Humidity variation	59.0 to 64.0 [%]
Test Engineer	Shiro Kobayashi

No.	Freq [MHz]	Detector	Reading [dBUV]		Factor [dB]	Emission Level [dBUV/m]		Limit [dBUV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	52.73	QP	-	37.3	-6.5	-	30.8	40.0	-	9.2
2	71.45	QP	-	37.2	-8.8	-	28.4	40.0	-	11.6
3	96.10	QP	-	45.1	-11.4	-	33.7	43.5	-	9.8
4	375.00	QP	40.6	38.8	-2.5	38.1	36.3	46.0	7.9	9.7
5	454.79	QP	-	37.5	-0.2	-	37.3	46.0	-	8.7
6	625.00	QP	-	30.5	4.3	-	34.8	46.0	-	11.2
7	750.00	QP	-	27.9	6.6	-	34.5	46.0	-	11.5
8	875.00	QP	24.8	25.5	8.6	33.4	34.1	46.0	12.6	11.9
9	1125.00	PEK	41.3	44.8	-5.6	35.7	39.2	74.0	38.3	34.8
10	1125.00	AVG	35.0	39.4	-5.6	29.4	33.8	54.0	24.6	20.2
11	1500.00	PEK	42.9	43.2	-4.1	38.8	39.1	74.0	35.2	34.9
12	1500.00	AVG	35.0	36.1	-4.1	30.9	32.0	54.0	23.1	22.0
13	1624.66	PEK	49.5	51.0	-3.3	46.2	47.7	74.0	27.8	26.3
14	1624.66	AVG	45.8	47.1	-3.3	42.5	43.8	54.0	11.5	10.2
15	3249.32	PEK	48.1	46.9	2.7	50.8	49.6	74.0	23.2	24.4
16	3249.32	AVG	43.8	41.9	2.7	46.5	44.6	54.0	7.5	9.4

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.

Test Result

Access Method : IEEE802.11 n HT40 with MIMO
Channel : Ch9

Test date	Sep. 20 to 28, 2012
Location	Matsuda No.4 Test Site
Temperature	23.4 to 25.5 [degree C]
Humidity variation	59.0 to 64.0 [%]
Test Engineer	Shiro Kobayashi

No.	Freq [MHz]	Detector	Reading [dBUV]		Factor [dB]	Emission Level [dBUV/m]		Limit [dBUV/m]	Margin [dB]	
			Hori	Vert		Hori	Vert		Hori	Vert
1	52.73	QP	-	37.2	-6.5	-	30.7	40.0	-	9.3
2	71.45	QP	-	37.1	-8.8	-	28.3	40.0	-	11.7
3	96.10	QP	-	45.2	-11.4	-	33.8	43.5	-	9.7
4	375.00	QP	40.7	38.8	-2.5	38.2	36.3	46.0	7.8	9.7
5	454.79	QP	-	37.3	-0.2	-	37.1	46.0	-	8.9
6	625.00	QP	-	30.4	4.3	-	34.7	46.0	-	11.3
7	750.00	QP	-	27.9	6.6	-	34.5	46.0	-	11.5
8	875.00	QP	24.8	25.3	8.6	33.4	33.9	46.0	12.6	12.1
9	1125.00	PEK	40.9	45.2	-5.6	35.3	39.6	74.0	38.7	34.4
10	1125.00	AVG	35.3	39.3	-5.6	29.7	33.7	54.0	24.3	20.3
11	1500.00	PEK	42.6	42.5	-4.1	38.5	38.4	74.0	35.5	35.6
12	1500.00	AVG	35.1	36.0	-4.1	31.0	31.9	54.0	23.0	22.1
13	1634.66	PEK	49.4	48.4	-3.0	46.4	45.4	74.0	27.6	28.6
14	1634.66	AVG	45.4	44.2	-3.0	42.4	41.2	54.0	11.6	12.8
15 *	2483.50	PEK	60.4	64.5	1.2	61.6	65.7	74.0	12.4	8.3
16 *	2483.50	AVG	45.4	48.6	1.2	46.6	49.8	54.0	7.4	4.2
17	3269.33	PEK	47.7	46.8	2.9	50.6	49.7	74.0	23.4	24.3
18	3269.33	AVG	43.4	42.4	2.9	46.3	45.3	54.0	7.7	8.7

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.

9.5 Conducted Spurious Emissions and Band Edge of Authorized Frequency Band

Regulations	FCC Part15C §15.247 (d)
Test Method/Guide	558074 D01 DTS Meas Guidance v01

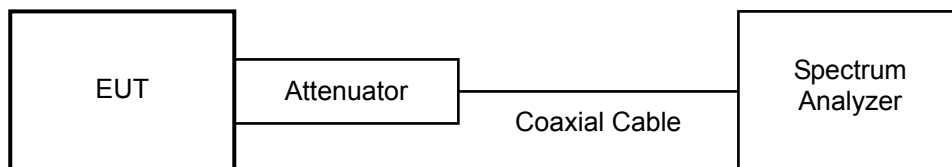
Test Procedure

- The EUT and test instrument were set up as shown on the following.
- Measurement Procedure – Reference Level
Adjust the measurement instrument for the following setting:
 RBW : 100 kHz
 VBW : 300 kHz
 Span : 5 – 30 % greater than the Emission Bandwidth
 Detector : Peak
 Sweep Time : Auto
 Correction Factor : Input Cable loss and Attenuator
 Trace mode : Max Hold, Allow trace to fully stabilize.
 * Emission Bandwidth from 6 dB Bandwidth Data
- Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
- Measurement Procedure – Spurious Emissions and Band Edge
 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.
- 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.
- Band Edge Measurement data correction;
 Limit [dBm] = Reference Level [dBm] - 20 [dB]
 Margin [dB] = Limit [dBm] – Reading [dBm]

Measurement Instrument

Instrument	Model No.	Serial No.	Manufacturer	Cal. Interval	Effective period
Spectrum Analyzer	N9030A	US51350220	Agilent	1 Y	Feb.28, 2013
20 dB Attenuator	8493C	78585	Agilent	1 Y	Mar.31, 2013
Coaxial Cable	SUCOFLEX 104PE	94703/4PE	SUHNER	1 Y	Mar.31, 2013

Measurement Equipment Configuration



Test Result

Test date	Sep. 20,to 24, 2012
Location	Matsuda No.4 Test Site
Temperature	24.5 to 25.4 [degree C]
Humidity variation	56.6 to 62.5 [%]
Test Engineer	Shiro Kobayashi

Conducted Spurious Emissions

See ANNEX A.1.4.

Band Edge of Authorized Frequency Band

Access Method: IEEE802.11 b

Ch	Freq. [MHz]	Antenna Port	Reading [dBm]	Reference Level [dBm]	Limit [dBm]	Margin [dB]
1	2400	Tx1	-41.48	4.54	-15.46	26.02
		Tx2	-42.76	4.33	-15.67	27.09
11	2483.5	Tx1	-49.88	4.56	-15.44	34.44
		Tx2	-50.22	4.27	-15.73	34.49

Access Method: IEEE802.11 g

Ch	Freq. [MHz]	Antenna Port	Reading [dBm]	Reference Level [dBm]	Limit [dBm]	Margin [dB]
1	2400	Tx1	-33.58	-1.89	-21.88	11.70
		Tx2	-34.61	-2.27	-22.27	12.34
11	2483.5	Tx1	-43.83	-2.22	-22.22	26.61
		Tx2	-50.09	-2.25	-22.25	27.84

Access Method: IEEE802.11 n HT20

Ch	Freq. [MHz]	Antenna Port	Reading [dBm]	Reference Level [dBm]	Limit [dBm]	Margin [dB]
1	2400	Tx1	-35.95	-4.79	-24.79	11.16
		Tx2	-36.57	-4.50	-24.50	12.07
11	2483.5	Tx1	-48.96	-4.55	-24.55	24.41
		Tx2	-50.19	-4.68	-24.68	25.51

Access Method: IEEE802.11 n HT20 with MIMO

Ch	Freq. [MHz]	Antenna Port	Reading [dBm]	Reference Level [dBm]	Limit [dBm]	Margin [dB]
1	2400	Tx1	-38.74	-3.45	-23.45	15.29
		Tx2	-37.98	-3.83	-23.83	14.15
11	2483.5	Tx1	-48.27	-3.34	-23.34	24.93
		Tx2	-51.55	-3.80	-23.80	27.75

Access Method: IEEE802.11 n HT40

Ch	Freq. [MHz]	Antenna Port	Reading [dBm]	Reference Level [dBm]	Limit [dBm]	Margin [dB]
3	2400	Tx1	-36.99	-7.77	-27.77	9.22
		Tx2	-37.88	-8.29	-28.29	9.59
9	2483.5	Tx1	-47.57	-7.70	-27.70	19.87
		Tx2	-48.07	-7.73	-27.73	20.34

Access Method: IEEE802.11 n HT40 with MIMO

Ch	Freq. [MHz]	Antenna Port	Reading [dBm]	Reference Level [dBm]	Limit [dBm]	Margin [dB]
3	2400	Tx1	-39.68	-8.14	-28.14	11.54
		Tx2	-38.80	-8.90	-28.90	9.9
9	2483.5	Tx1	-47.21	-7.60	-27.60	19.61
		Tx2	-46.99	-8.81	-28.81	18.18

9.6 AC Conducted Emissions

Regulations	FCC Part15C §15.207
Test Method/Guide	ANSI C63.4:2003

Test Procedure

1. The EUT and test instrument were set up as shown on the following.
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		

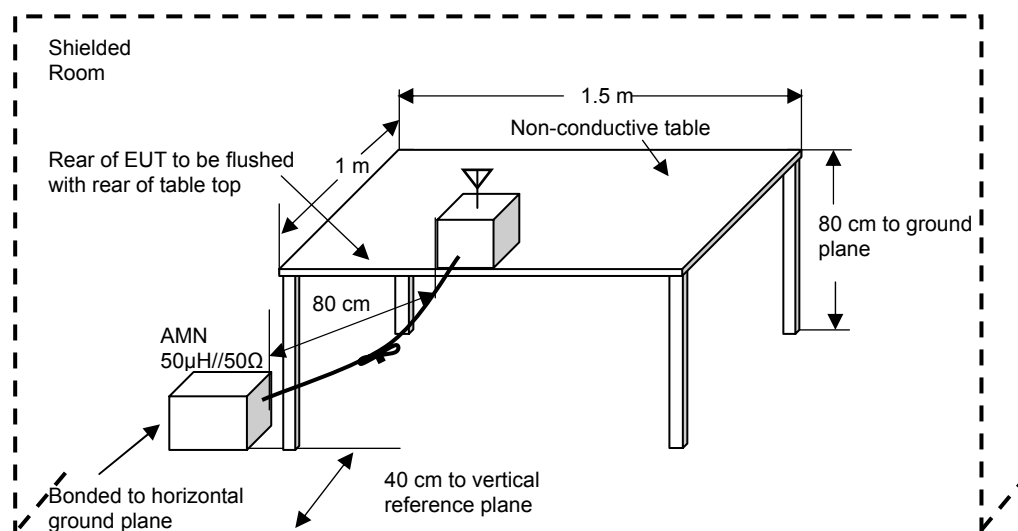
6. Measurement data correction;

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

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

* Factor = LISN Factor + Cable loss + Attenuator

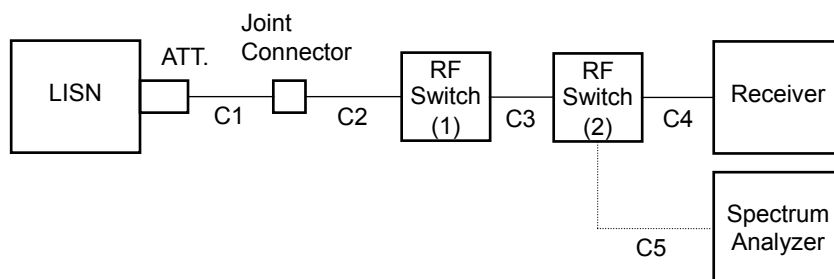
Test setup as per standard



* Reference Ground plane : greater than 2 x 2m

Turntable

Measurement Instruments Configurations



Measurement Instrument

Instrument	Model No.	Serial No.	Manufacturer	Cal. Interval	Effective period
LISN(EUT)	ESH2-Z5	882395/019	Rohde & Schwarz	1 Y	Jul.31, 2013
LISN(Peripheral)	KNW-407	8-1395-9	Kyoritsu	1 Y	Jul.31, 2013
10dB LISN Pad	CFA-01	E04AT10B	TAMAGAWA	1 Y	Jul.31, 2013
50Ω Termination	65BNC-50-0-2/133NE	E04TRM50B	SUHNER	1 Y	Jul.31, 2013
Coaxial Cable (C1)	3D-2W(5.0m)	MTS04CSR-1	Intertek	1 Y	Aug.31, 2013
Coaxial Cable (C2)	RG-5A/U(4.0m)	MTS04CSR-2	Intertek	1 Y	Aug.31, 2013
Coaxial Cable (C3)	RG214HF(1.5m)	MTS04CSR-3	SUHNER	1 Y	Aug.31, 2013
Coaxial Cable (C4)	RG214HF(1.5m)	MTS04CSR-4	SUHNER	1 Y	Aug.31, 2013
Coaxial Cable (C5)	RG214HF(1.5m)	MTS04CSR-5	SUHNER	1 Y	Aug.31, 2013
CISPR Receiver	ESS (Firmware Version 1.08)	845637/001	Rohde & Schwarz	1 Y	Dec.31, 2012
RF Switch(1)	MP59B	M21448	ANRITSU	1 Y	Aug.31, 2013
RF Switch(2)	ACX-150-1	E04301501	Intertek	1 Y	Aug.31, 2013
Common					
Testing Software	emiT (Version 3,0,0,0)				

Test Result

Test date	Oct. 03, 2012
Location	Matsuda No.4 Test Site
Temperature	23.0 [degree C]
Humidity variation	54.0 [%]
Test Engineer	Shiro Kobayashi

Report only the worst case.

Access Method: IEEE802.11 b

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]		Emission Level [dBuV]		Limit [dBuV/m]	Margin [dB]	
			L1	L2	L1	L2	L1	L2		L1	L2
1	0.1625	QP	38.9	39.6	10.1	10.1	49.0	49.7	65.3	16.3	15.6
2	0.2447	QP	30.5	31.6	10.2	10.2	40.7	41.8	61.9	21.2	20.1
3	0.8136	QP	34.0	34.6	10.2	10.3	44.2	44.9	56.0	11.8	11.1
4	0.8136	AVG	30.8	31.2	10.2	10.3	41.0	41.5	46.0	5.0	4.5
5	2.4394	QP	28.8	29.7	10.4	10.4	39.2	40.1	56.0	16.8	15.9
6	4.4040	QP	23.4	24.4	10.5	10.5	33.9	34.9	56.0	22.1	21.1
7	8.4886	QP	22.0	23.1	10.7	10.7	32.7	33.8	60.0	27.3	26.2
8	12.5467	QP	16.1	16.1	10.8	10.8	26.9	26.9	60.0	33.1	33.1

Note.

- : Measurement limit

Access Method: IEEE802.11 g

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]		Emission Level [dBuV]		Limit [dBuV/m]	Margin [dB]	
			L1	L2	L1	L2	L1	L2		L1	L2
1	0.1640	QP	38.0	38.7	10.1	10.1	48.1	48.8	65.3	17.2	16.5
2	0.2458	QP	29.3	30.5	10.2	10.2	39.5	40.7	61.9	22.4	21.2
3	0.8148	QP	32.6	33.0	10.2	10.3	42.8	43.3	56.0	13.2	12.7
4	0.8148	AVG	27.2	27.6	10.2	10.3	37.4	37.9	46.0	8.6	8.1
5	1.8189	QP	22.7	23.4	10.4	10.4	33.1	33.8	56.0	22.9	22.2
6	2.4812	QP	25.0	25.9	10.4	10.4	35.4	36.3	56.0	20.6	19.7
7	8.3128	QP	17.6	18.6	10.7	10.7	28.3	29.3	60.0	31.7	30.7

Note.

- : Measurement limit

Access Method: IEEE802.11 n HT20

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]		Emission Level [dBuV]		Limit [dBuV/m]	Margin [dB]	
			L1	L2	L1	L2	L1	L2		L1	L2
1	0.1661	QP	37.6	38.2	10.1	10.1	47.7	48.3	65.2	17.5	16.9
2	0.2463	QP	29.0	30.2	10.2	10.2	39.2	40.4	61.9	22.7	21.5
3	0.8155	QP	32.6	33.1	10.2	10.3	42.8	43.4	56.0	13.2	12.6
4	0.8155	AVG	27.0	27.4	10.2	10.3	37.2	37.7	46.0	8.8	8.3
5	1.7944	QP	23.0	23.7	10.4	10.4	33.4	34.1	56.0	22.6	21.9
6	2.4442	QP	25.6	26.5	10.4	10.4	36.0	36.9	56.0	20.0	19.1
7	8.3109	QP	18.3	19.1	10.7	10.7	29.0	29.8	60.0	31.0	30.2

Note.

- : Measurement limit

Access Method: IEEE802.11 n HT20 with MIMO

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]		Emission Level [dBuV]		Limit [dBuV/m]	Margin [dB]	
			L1	L2	L1	L2	L1	L2		L1	L2
1	0.1649	QP	37.9	38.5	10.1	10.1	48.0	48.6	65.2	17.2	16.6
2	0.2477	QP	29.0	30.3	10.2	10.2	39.2	40.5	61.8	22.6	21.3
3	0.7409	QP	25.7	26.1	10.2	10.3	35.9	36.4	56.0	20.1	19.6
4	0.8234	QP	33.0	33.5	10.2	10.3	43.2	43.8	56.0	12.8	12.2
5	0.8234	AVG	30.5	30.9	10.2	10.3	40.7	41.2	46.0	5.3	4.8
6	2.4790	QP	25.6	26.5	10.4	10.4	36.0	36.9	56.0	20.0	19.1
7	8.3448	QP	17.7	18.5	10.7	10.7	28.4	29.2	60.0	31.6	30.8

Note.

- : Measurement limit

Access Method: IEEE802.11 n HT40

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]		Emission Level [dBuV]		Limit [dBuV/m]	Margin [dB]	
			L1	L2	L1	L2	L1	L2		L1	L2
1	0.1647	QP	38.0	38.6	10.1	10.1	48.1	48.7	65.2	17.1	16.5
2	0.2473	QP	29.1	30.4	10.2	10.2	39.3	40.6	61.8	22.5	21.2
3	0.7409	QP	26.1	26.4	10.2	10.3	36.3	36.7	56.0	19.7	19.3
4	0.8222	QP	33.8	34.3	10.2	10.3	44.0	44.6	56.0	12.0	11.4
5	0.8222	AVG	31.5	31.9	10.2	10.3	41.7	42.2	46.0	4.3	3.8
6	1.8096	QP	24.8	25.4	10.4	10.4	35.2	35.8	56.0	20.8	20.2
7	2.4674	QP	26.8	27.6	10.4	10.4	37.2	38.0	56.0	18.8	18.0
8	8.4777	QP	17.4	18.2	10.7	10.7	28.1	28.9	60.0	31.9	31.1

Note.

- : Measurement limit

Access Method: IEEE802.11 n HT40 with MIMO

No.	Freq [MHz]	Detector	Reading [dBuV]		Factor [dB]		Emission Level [dBuV]		Limit [dBuV/m]	Margin [dB]	
			L1	L2	L1	L2	L1	L2		L1	L2
1	0.1649	QP	38.0	38.6	10.1	10.1	48.1	48.7	65.2	17.1	16.5
2	0.2477	QP	29.0	30.3	10.2	10.2	39.2	40.5	61.8	22.6	21.3
3	0.7409	QP	26.0	26.3	10.2	10.3	36.2	36.6	56.0	19.8	19.4
4	0.8223	QP	33.7	34.2	10.2	10.3	43.9	44.5	56.0	12.1	11.5
5	0.8223	AVG	31.5	31.8	10.2	10.3	41.7	42.1	46.0	4.3	3.9
6	1.8093	QP	24.5	25.1	10.4	10.4	34.9	35.5	56.0	21.1	20.5
7	2.4674	QP	26.4	27.2	10.4	10.4	36.8	37.6	56.0	19.2	18.4
8	8.4448	QP	16.9	17.6	10.7	10.7	27.6	28.3	60.0	32.4	31.7

Note.

- : Measurement limit

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