



RADIO TEST REPORT

Test Report No. : 11355859H-B

Applicant : FUJITSU TEN LIMITED
Type of Equipment : Drive Recorder
Model No. : FT0099A
FCC ID : BABFT0099A
Test regulation : FCC Part 15 Subpart C: 2016
Test Result : Complied

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the above regulation.
4. The test results in this report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.
6. This test report covers Radio technical requirements. It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)

Date of test: July 12 and 13, 2016

Representative test engineer:

Ken Fujita
Engineer
Consumer Technology Division

Approved by:

Tsubasa Takayama
Engineer
Consumer Technology Division



NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.
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Ise EMC Lab.

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13-EM-F0429

REVISION HISTORY

Original Test Report No.: 11355859H-B

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SECTION 1: Customer information

Company Name	:	FUJITSU TEN LIMITED
Address	:	2-28, Gosho-dori 1-Chome, Hyogo-ku, Kobe, 652-8510 JAPAN
Telephone Number	:	+81-78-682-2159
Facsimile Number	:	+81-78-671-7160
Contact Person	:	FUKII DAISUKE

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

2.1 Identification of E.U.T.

Type of Equipment	:	Drive Recorder
Model No.	:	FT0099A
Serial No.	:	Refer to Section 4, Clause 4.2
Rating	:	DC 12.0 V
Receipt Date of Sample	:	July 8, 2016
Country of Mass-production	:	Japan
Condition of EUT	:	Production model (Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT	:	No Modification by the test lab

2.2 Product Description

Model: FT0099A (referred to as the EUT in this report) is a Drive Recorder.

Radio Specification

Radio Type	:	Transceiver
Frequency of Operation	:	2412 MHz - 2462 MHz
Modulation	:	DSSS
Power Supply (radio part input)	:	DC 3.3 V
Antenna type	:	Inverted F antenna
Antenna Gain	:	1.58 dBi peak
Clock frequency	:	26MHz (Crystal)

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part 15 Subpart C
FCC part 15 final revised on April 6, 2016.

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

* Also the EUT complies with FCC Part 15 Subpart B.

3.2 Procedures and results

Item	Test Procedure	Specification	Worst margin	Results	Remarks
Conducted Emission	FCC: ANSI C63.10-2013 6. Standard test methods IC: RSS-Gen 8.8	FCC: Section 15.207 IC: RSS-Gen 8.8	-	N/A *1)	-
6dB Bandwidth	FCC: KDB 558074 D01 DTS Meas Guidance v03r05 IC: -	FCC: Section 15.247(a)(2) IC: RSS-247 5.2(1)	See data.	Complied	Conducted
Maximum Peak Output Power	FCC: KDB 558074 D01 DTS Meas Guidance v03r05 IC: RSS-Gen 6.12	FCC: Section 15.247(b)(3) IC: RSS-247 5.4(4)		Complied	Conducted
Power Density	FCC: KDB 558074 D01 DTS Meas Guidance v03r05 IC: -	FCC: Section 15.247(e) IC: RSS-247 5.2(2)		Complied	Conducted
Spurious Emission Restricted Band Edges	FCC: KDB 558074 D01 DTS Meas Guidance v03r05 IC: RSS-Gen 6.13	FCC: Section 15.247(d) IC: RSS-247 5.5 RSS-Gen 8.9 RSS-Gen 8.10	5.1 dB 2483.500 MHz, AV, Horizontal.	Complied	Conducted (below 30 MHz)/ Radiated (above 30 MHz) *2)

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

*1) The test was not performed since the EUT was DC device.

*2) Radiated test was selected over 30 MHz based on section 15.247(d) and KDB 558074 D01 DTS Meas Guidance v03r05 12.2.7.

* In case any questions arise about test procedure, ANSI C63.10: 2013 is also referred.

FCC Part 15.31 (e)

This EUT provides stable voltage(DC 3.3 V) constantly to RF Module regardless of input voltage. Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

3.3 Addition to standard

Item	Test Procedure	Specification	Worst margin	Results	Remarks
99% Occupied Bandwidth	IC: RSS-Gen 6.6	IC: -	N/A	-	Conducted

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

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3.4 Uncertainty

EMI

The following uncertainties have been calculated to provide a confidence level of 95 % using a coverage factor $k = 2$.
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Antenna terminal test Uncertainty (+/-)							
Power meter		Conducted emission and Power density			Conducted emission		Channel power
Below 1 GHz	Above 1 GHz	Below 1 GHz	1 GHz -3 GHz	3 GHz -18 GHz	18 GHz -26.5 GHz	26.5 GHz -40 GHz	
0.9 dB	1.0 dB	1.4 dB	1.7 dB	2.8 dB	2.8 dB	2.9 dB	

Polarity	Radiated emission (Below 1GHz)			
	(3 m*)(+dB)		(10 m*)(+dB)	
	30 – 200 MHz	200 – 1000MHz	30 – 200 MHz	200 – 1000MHz
Horizontal	4.9 dB	5.2 dB	4.9 dB	5.0 dB
Vertical	4.6 dB	5.9 dB	5.0 dB	5.0 dB

Radiated emission				
(3 m*)(+dB)		(1 m*)(+dB)		(10 m*)(+dB)
1 – 6GHz	6 – 18GHz	10 – 26.5 GHz	26.5 – 40GHz	1 -18 GHz
5.1 dB	5.3 dB	5.1 dB	5.1 dB	5.3 dB

*Measurement distance

Radiated emission test

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

3.5 Test Location

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Test site	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms	Maximum measurement distance
No.1 semi-anechoic chamber	2973C-1	19.2 x 11.2 x 7.7	7.0 x 6.0	No.1 Power source room	10 m
No.2 semi-anechoic chamber	2973C-2	7.5 x 5.8 x 5.2	4.0 x 4.0	-	3 m
No.3 semi-anechoic chamber	2973C-3	12.0 x 8.5 x 5.9	6.8 x 5.75	No.3 Preparation room	3 m
No.3 shielded room	-	4.0 x 6.0 x 2.7	N/A	-	-
No.4 semi-anechoic chamber	2973C-4	12.0 x 8.5 x 5.9	6.8 x 5.75	No.4 Preparation room	3 m
No.4 shielded room	-	4.0 x 6.0 x 2.7	N/A	-	-
No.5 semi-anechoic chamber	-	6.0 x 6.0 x 3.9	6.0 x 6.0	-	-
No.6 shielded room	-	4.0 x 4.5 x 2.7	4.0 x 4.5	-	-
No.6 measurement room	-	4.75 x 5.4 x 3.0	4.75 x 4.15	-	-
No.7 shielded room	-	4.7 x 7.5 x 2.7	4.7 x 7.5	-	-
No.8 measurement room	-	3.1 x 5.0 x 2.7	N/A	-	-
No.9 measurement room	-	8.8 x 4.6 x 2.8	2.4 x 2.4	-	-
No.11 measurement room	-	6.2 x 4.7 x 3.0	4.8 x 4.6	-	-

3.6 Test data, Test instruments, and Test set up

Refer to APPENDIX.

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

4.1 Operating Mode(s)

Test operating mode was determined as follows according to “Section 1 of 6 802.11 a/b/g/n testing - Managing Complex Regulatory Approvals - ” of TCB Council Workshop October 2009.

Mode	Remarks*
IEEE 802.11b (11b)	5.5 Mbps, PN9
IEEE 802.11g (11g)	12 Mbps, PN9
IEEE 802.11n MIMO 20 MHz BW (11n-20)	MCS 2 (Long GI), PN9
*The worst condition was determined based on the test result of Maximum Peak Output Power (Mid Channel)	
*Power of the EUT was set by the software as follows; Power settings: powerlevel 1 Software: WLAN : TestTool 1.1.0 WiFi : Manager v1.1.1.0 *This setting of software is the worst case. Any conditions under the normal use do not exceed the condition of setting. In addition, end users cannot change the settings of the output power of the product.	

*The details of Operating mode(s)

Test Item	Operating Mode	Tested frequency
Spurious Emission	11b Tx 11n-20 Tx *1)	2412 MHz 2437 MHz 2462 MHz
6dB Bandwidth Maximum Peak Output Power Power Density 99% Occupied Bandwidth	11b Tx 11g Tx 11n-20 Tx	2412 MHz 2437 MHz 2462 MHz
*1) The test was performed on 11n-20 Tx mode according to “Section 1 of 6 802.11 a/b/g/n testing- Managing Complex Regulatory Approvals - ” of TCB Council Workshop October 2009, as the 11n-20 Tx mode had higher power than 11g mode at antenna terminal test.		

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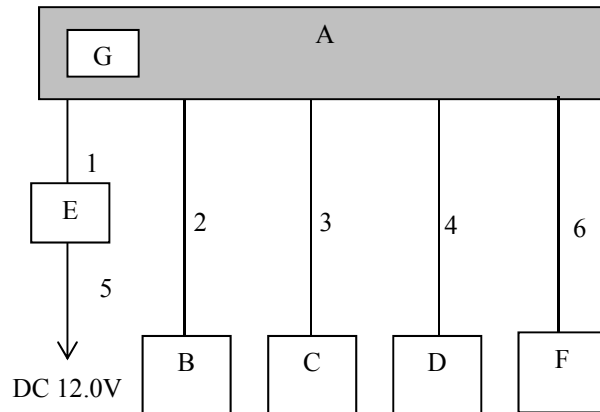
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4.2 Configuration and peripherals



*Cabling and setup were taken into consideration and test data was taken under worse case conditions.

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remark
A	Drive Recorder	FT0099A	TN500027	FUJITSU TEN LIMITED	EUT
B	Camera	GCM0005-9005E	1092A	FUJITSU TEN LIMITED	-
C	Communication instrument	TC-T200-02	0200035408606300 4643151000	Seiko Solutions Inc.	-
D	GPS Antenna	YOP-5181FT03	21D50391	YOKOWO CO.,LTD.	-
E	Jig Box	-	-	-	-
F	USB Memory	PD07-WH4GB	C09000000001430 3	KING MAX	-
G	SD Card	1316G1536	T18150802397	FUJITSU TEN LIMITED	-

List of cables used

No.	Name	Length (m)	Shield		Remark
			Cable	Connector	
1	DC and Signal Cable	1.4	Unshielded	Unshielded	-
2	Signal Cable	5.0	Shielded	Shielded	-
3	Signal Cable	1.6	Shielded	Shielded	-
4	Antenna Cable	5.0	Shielded	Shielded	-
5	DC Cable	2.0	Unshielded	Unshielded	-
6	USB Cable	0.8	Shielded	Shielded	-

SECTION 5: Radiated Spurious Emission

Test Procedure

It was measured based on "11.0 Emissions in non-restricted frequency bands" of "558074 D01 DTS Meas Guidance v03r05".

[For below 1 GHz]

EUT was placed on a urethane platform of nominal size, 0.5 m by 1.0 m, raised 0.8 m above the conducting ground plane. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

[For above 1 GHz]

EUT was placed on a urethane platform of nominal size, 0.5 m by 0.5 m, raised 1.5 m above the conducting ground plane.

The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with absorbent materials lined on a ground plane.

The height of the measuring antenna varied between 1 and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field strength.

The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer.

The measurements were made with the following detector function of the test receiver and the Spectrum analyzer (in linear mode).

The test was made with the detector (RBW/VBW) in the following table.

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

Test Antennas are used as below;

Frequency	30 MHz to 200 MHz	200 MHz to 1 GHz	Above 1 GHz
Antenna Type	Biconical	Logperiodic	Horn

In any 100 kHz bandwidth outside the restricted band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.

20 dBc was applied to the frequency over the limit of FCC 15.209 / Table 4 of RSS-Gen 8.9(IC) and outside the restricted band of FCC15.205 / Table 6 of RSS-Gen 8.10 (IC).

Frequency	Below 1 GHz	Above 1 GHz		20 dBc
Instrument used	Test Receiver	Spectrum Analyzer		Spectrum Analyzer
Detector	QP	PK	AV *3)	PK
IF Bandwidth	BW 120 kHz	RBW: 1 MHz VBW: 3 MHz	Average Power Method: RBW: 1 MHz VBW: 3 MHz Detector: Power Averaging (RMS) Trace: 100 traces If duty cycle was less than 98%, a duty factor was added to the results.	RBW: 100 kHz VBW: 300kHz
Test Distance	3 m	3.65 m *1) (1 GHz – 10 GHz), 1.00 m *2) (10 GHz – 26.5 GHz)		3.65 m *1) (1 GHz – 10 GHz), 1.00 m *2) (10 GHz – 26.5 GHz)

*1) Distance Factor: $20 \times \log(3.65 \text{ m} / 3.0 \text{ m}) = 1.71 \text{ dB}$

*2) Distance Factor: $20 \times \log(1.00 \text{ m} / 3.0 \text{ m}) = -9.5 \text{ dB}$

*3) Average Power Measurement was performed based on 6. 0 & 12.2.5 of "KDB 558074 D01 DTS Meas Guidance v03r05"

The test was made on EUT at the normal use position.

The test results and limit are rounded off to one decimal place, so some differences might be observed.

Measurement range	: 30 M - 26.5 GHz
Test data	: APPENDIX
Test result	: Pass

SECTION 6: Antenna Terminal Conducted Tests

Test Procedure

The tests were made with below setting connected to the antenna port.

Test	Span	RBW	VBW	Sweep time	Detector	Trace	Instrument used
6dB Bandwidth	20 MHz	100 kHz	300 kHz	Auto	Peak	Max Hold	Spectrum Analyzer
99% Occupied Bandwidth *1)	Enough width to display emission skirts	1 to 5 % of OBW	Three times of RBW	Auto	Peak	Max Hold	Spectrum Analyzer
Maximum Peak Output Power	-	-	-	Auto	Peak/Average *2)	-	Power Meter (Sensor: 50 MHz BW)
Peak Power Density	1.5 times the 6dB Bandwidth	3 kHz	10 kHz	Auto	Peak	Max Hold	Spectrum Analyzer *3)
Conducted Spurious Emission *4)	9kHz to 150kHz	200 Hz	620 Hz	Auto	Peak	Max Hold	Spectrum Analyzer
	150kHz to 30MHz	9.1 kHz	27 kHz				

*1) Peak hold was applied as Worst-case measurement.

*2) Reference data

*3) Section 10.2 Method PKPSD (peak PSD) of "KDB 558074 D01 DTS Meas Guidance v03r05".

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

Then, wide-band noise near the limit was checked separately, however the noise was not detected as shown in the chart.

(9 kHz - 150 kHz: RBW = 200 Hz, 150 kHz - 30 MHz: RBW = 9.1 kHz)

The test results and limit are rounded off to two decimals place, so some differences might be observed.

Test data	: APPENDIX
Test result	: Pass

APPENDIX 1: Test data

6dB Bandwidth

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	11355859H
Date	July 12, 2016
Temperature / Humidity	23 deg. C / 68 % RH
Engineer	Ken Fujita
Mode	Tx

Mode	Frequency [MHz]	6dB Bandwidth [MHz]	Limit [kHz]
11b	2412	9.468	> 500
	2437	9.466	> 500
	2462	9.471	> 500
11g	2412	16.328	> 500
	2437	16.327	> 500
	2462	16.336	> 500
11n-20	2412	16.920	> 500
	2437	16.661	> 500
	2462	16.928	> 500

6dB Bandwidth



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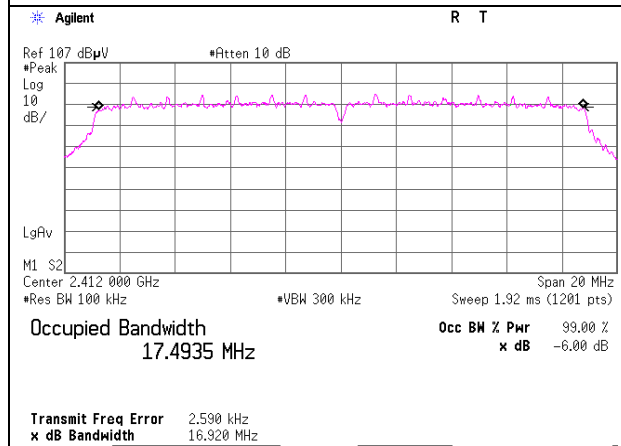
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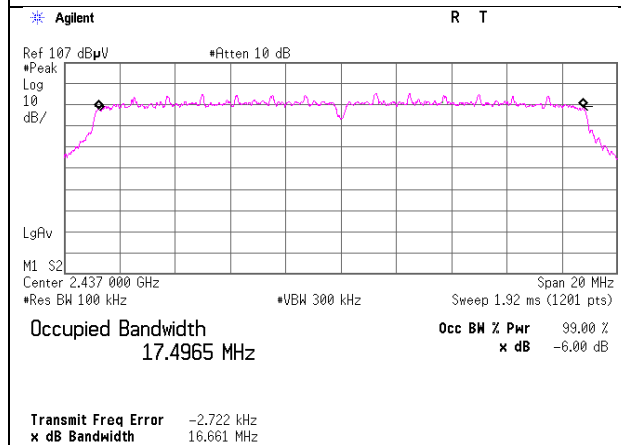
6dB Bandwidth

11n-20

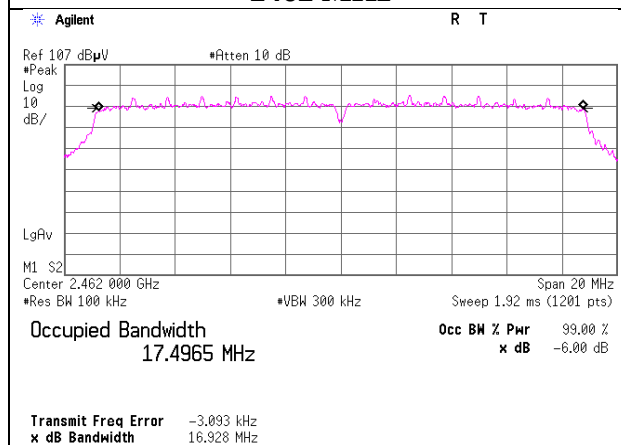
2412 MHz



2437 MHz



2462 MHz



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Maximum Peak Output Power

Test place Ise EMC Lab. No.11 Measurement Room
Report No. 11355859H
Date July 12, 2016
Temperature / Humidity 23 deg. C / 68 % RH
Engineer Ken Fujita
Mode Tx 11b

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	-0.52	1.87	10.09	11.44	13.94	30.00	1000	18.56
2437	-0.06	1.88	10.09	11.91	15.52	30.00	1000	18.09
2462	0.12	1.89	10.09	12.10	16.20	30.00	1000	17.90

Sample Calculation:

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

2437MHz

Rate	Reading	Remark
[Mbps]	[dBm]	
1	-0.21	
2	-0.07	
5.5	-0.06	*
11	-0.08	

*: Worst Rate

All comparison were carried out on same frequency and measurement factors.

Maximum Peak Output Power

Test place : Ise EMC Lab. No.11 Measurement Room
Report No. : 11355859H
Date : July 12, 2016
Temperature / Humidity : 23 deg. C / 68 % RH
Engineer : Ken Fujita
Mode : Tx 11g

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	5.29	1.87	10.09	17.25	53.13	30.00	1000	12.75
2437	5.55	1.88	10.09	17.52	56.49	30.00	1000	12.48
2462	5.67	1.89	10.09	17.65	58.16	30.00	1000	12.35

Sample Calculation:

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

2437 MHz

Rate	Reading	Remark
[Mbps]	[dBm]	
6	5.54	
9	5.34	
12	5.55	*
18	5.29	
24	5.53	
36	5.31	
48	5.51	
54	5.46	

*: Worst Rate

All comparison were carried out on same frequency and measurement factors.

Maximum Peak Output Power

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	11355859H
Date	July 12, 2016
Temperature / Humidity	23 deg. C / 68 % RH
Engineer	Ken Fujita
Mode	Tx 11n-20

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result		Limit		Margin [dB]
				[dBm]	[mW]	[dBm]	[mW]	
2412	5.43	1.87	10.09	17.39	54.87	30.00	1000	12.61
2437	5.72	1.88	10.09	17.69	58.75	30.00	1000	12.31
2462	5.83	1.89	10.09	17.81	60.34	30.00	1000	12.19

Sample Calculation:

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

2437 MHz

MCS Number	Reading[dBm]		Remark
	Long	Short	
0	5.61	5.29	
1	5.31	5.28	
2	5.72	5.63	*
3	5.40	5.48	
4	5.03	5.61	
5	4.43	4.79	
6	5.18	5.02	
7	4.64	4.72	

* Worst MCS

MCS Number	Reading	GI
	[dBm]	
2	5.72	Long
2	5.63	Short

* Worst Condition

All comparison were carried out on same frequency and measurement factors.

Average Output Power (Reference data)

Test place : Ise EMC Lab. No.11 Measurement Room
Report No. : 11355859H
Date : July 12, 2016
Temperature / Humidity : 23 deg. C / 68 % RH
Engineer : Ken Fujita
Mode : Tx

11b 1 Mbps

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average)		Duty factor [dB]	Result (Burst power average)	
				[dBm]	[mW]		[dBm]	[mW]
2412	-2.31	1.87	10.09	9.65	9.23	0.06	9.71	9.36
2437	-1.98	1.88	10.09	9.99	9.98	0.06	10.05	10.12
2462	-1.85	1.89	10.09	10.13	10.30	0.06	10.19	10.44

11g 6 Mbps

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average)		Duty factor [dB]	Result (Burst power average)	
				[dBm]	[mW]		[dBm]	[mW]
2412	-3.97	1.87	10.09	7.99	6.30	0.18	8.17	6.57
2437	-3.71	1.88	10.09	8.26	6.70	0.18	8.44	6.98
2462	-3.61	1.89	10.09	8.37	6.86	0.18	8.55	7.16

11n-20 MCS 0

Freq. [MHz]	Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Time average)		Duty factor [dB]	Result (Burst power average)	
				[dBm]	[mW]		[dBm]	[mW]
2412	-4.16	1.87	10.09	7.80	6.03	0.29	8.09	6.45
2437	-3.83	1.88	10.09	8.14	6.52	0.29	8.43	6.97
2462	-3.77	1.89	10.09	8.21	6.62	0.29	8.50	7.07

Sample Calculation:

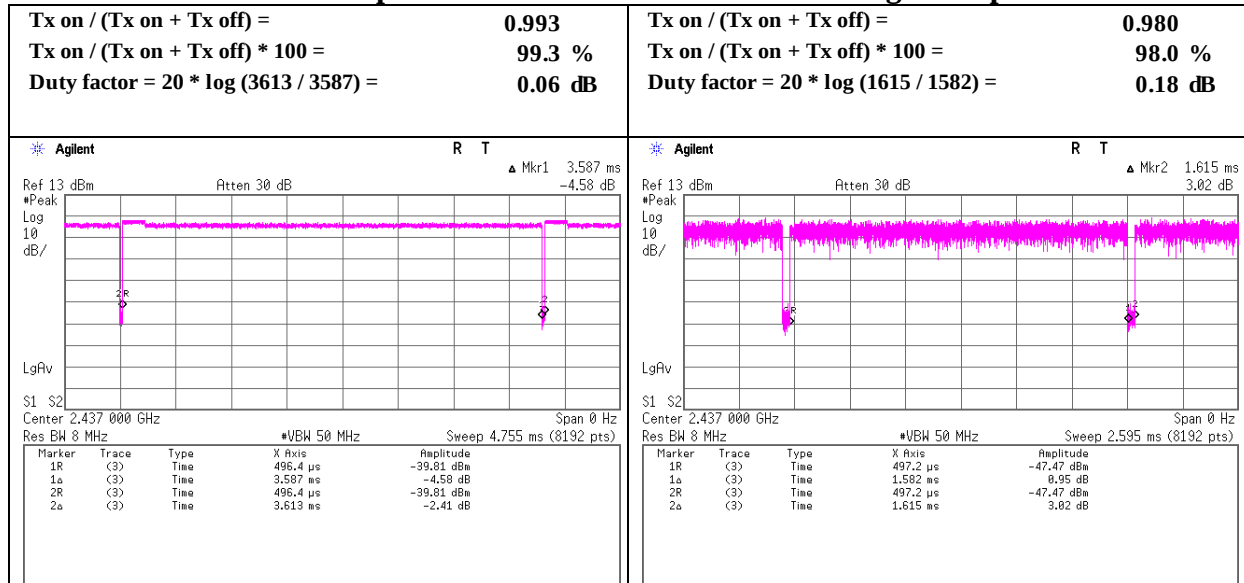
Result (Time average) = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator

Result (Burst power average) = Time average + Duty factor

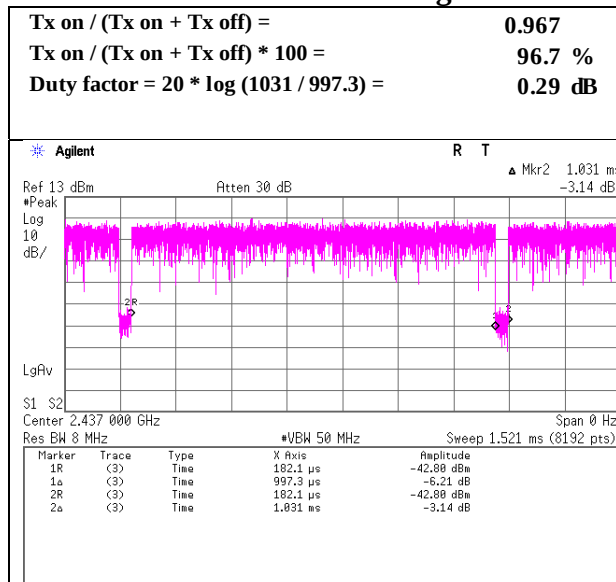
Burst rate confirmation

Test place Ise EMC Lab. No.11 Measurement Room
Report No. 11355859H
Date July 12, 2016
Temperature / Humidity 23 deg. C / 68 % RH
Engineer Ken Fujita
Mode Tx

11b 5.5Mbps



11n-20 MCS2 Long



Radiated Spurious Emission

Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber	
Report No.	11355859H	
Date	July 12, 2016	July 13, 2016
Temperature / Humidity	22 deg. C / 70 % RH	21 deg. C / 65 % RH
Engineer	Shinichi Miyazono	Tomoki Matsui
	(1 GHz - 10 GHz)	(Above 10 GHz)
Mode	Tx 11b 2412 MHz	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2390.000	PK	55.2	27.6	5.0	34.8	-	53.0	73.9	20.9	
Hori	2483.500	PK	55.1	27.7	5.0	34.7	-	53.1	73.9	20.8	
Hori	4824.000	PK	47.3	31.6	7.3	34.1	-	52.1	73.9	21.8	
Hori	7236.000	PK	43.0	36.2	8.5	34.1	-	53.6	73.9	20.3	Floor noise
Hori	9648.000	PK	43.3	38.5	9.3	34.8	-	56.3	73.9	17.6	Floor noise
Hori	2390.000	AV	42.8	27.6	5.0	34.8	-	40.6	53.9	13.3	
Hori	2483.500	AV	46.7	27.7	5.0	34.7	-	44.7	53.9	9.2	
Hori	4824.000	AV	36.8	31.6	7.3	34.1	-	41.6	53.9	12.3	
Hori	7236.000	AV	34.5	36.2	8.5	34.1	-	45.1	53.9	8.8	Floor noise
Hori	9648.000	AV	34.8	38.5	9.3	34.8	-	47.8	53.9	6.1	Floor noise
Vert	2390.000	PK	49.7	27.6	5.0	34.8	-	47.5	73.9	26.4	
Vert	2500.000	PK	46.2	27.7	5.0	34.7	-	44.2	73.9	29.7	
Vert	4824.000	PK	48.5	31.6	7.3	34.1	-	53.3	73.9	20.6	
Vert	7236.000	PK	43.0	36.2	8.5	34.1	-	53.6	73.9	20.3	Floor noise
Vert	9648.000	PK	43.3	38.5	9.3	34.8	-	56.3	73.9	17.6	Floor noise
Vert	2390.000	AV	38.1	27.6	5.0	34.8	-	35.9	53.9	18.0	
Vert	2500.000	AV	42.5	27.7	5.0	34.7	-	40.5	53.9	13.4	
Vert	4824.000	AV	37.8	31.6	7.3	34.1	-	42.6	53.9	11.3	
Vert	7236.000	AV	34.5	36.2	8.5	34.1	-	45.1	53.9	8.8	Floor noise
Vert	9648.000	AV	34.8	38.5	9.3	34.8	-	47.8	53.9	6.1	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

Distance factor: 1 GHz - 10 GHz $20\log(3.65\text{ m} / 3.0\text{ m}) = 1.71\text{ dB}$
 10 GHz - 26.5 GHz $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

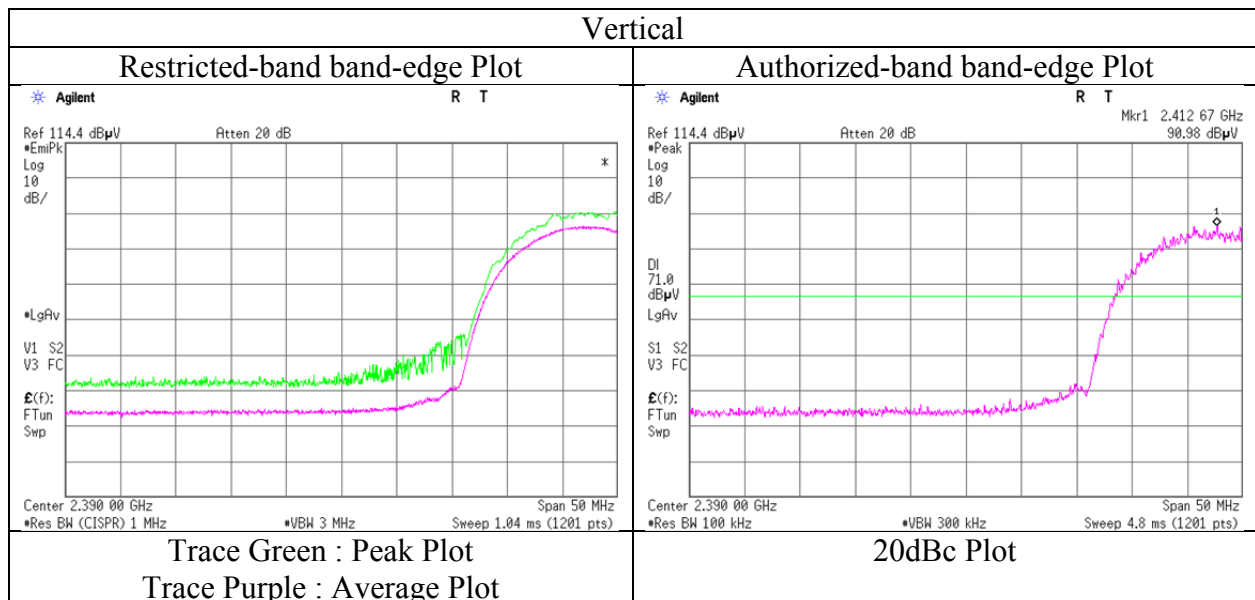
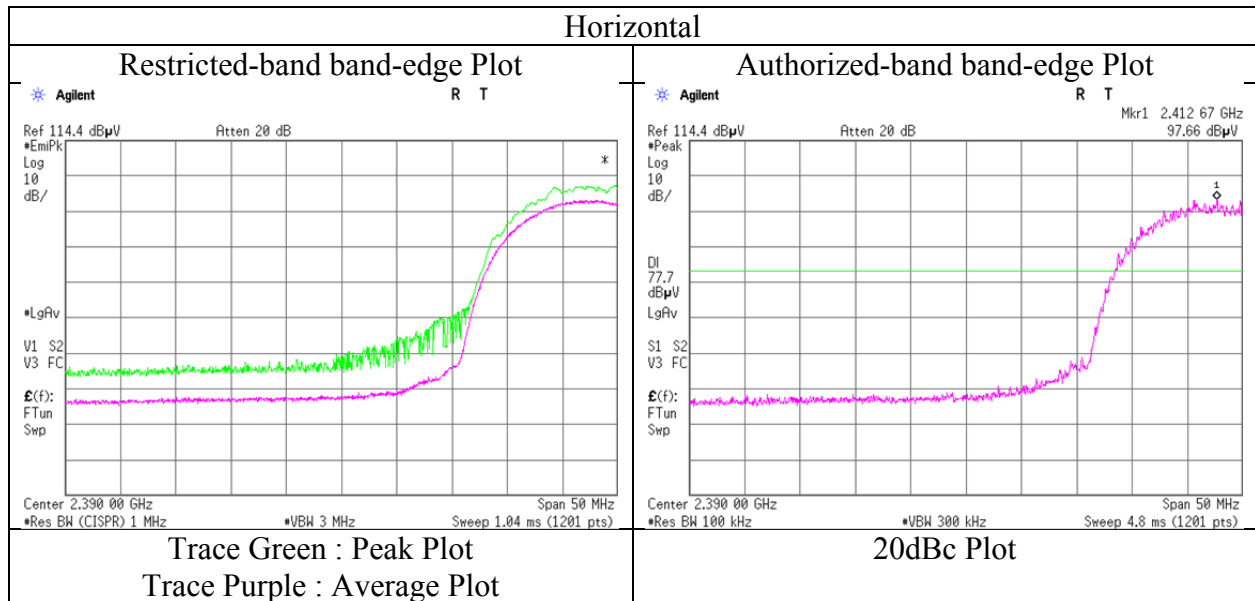
20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2412.000	PK	97.7	27.6	5.0	34.8	95.5	-	-	Carrier
Hori	2400.000	PK	50.4	27.6	5.0	34.8	48.2	75.5	27.3	
Vert	2412.000	PK	91.0	27.6	5.0	34.8	88.8	-	-	Carrier
Vert	2400.000	PK	45.1	27.6	5.0	34.8	42.9	68.8	25.9	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

Radiated Spurious Emission (Reference Plot for band-edge)

Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Report No.	11355859H
Date	July 12, 2016
Temperature / Humidity	22 deg. C / 70 % RH
Engineer	Shinichi Miyazono (1 GHz - 10 GHz)
Mode	Tx 11b 2412 MHz



* Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Semi Anechoic Chamber
Report No. : 11355859H
Date : July 12, 2016 July 13, 2016
Temperature / Humidity : 22 deg. C / 70 % RH 21 deg. C / 65 % RH
Engineer : Shinichi Miyazono Tomoki Matsui
(1 GHz - 10 GHz) (Above 10 GHz)
Mode : Tx 11b 2437 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2483.500	PK	55.5	27.7	5.0	34.7	-	53.5	73.9	20.4	
Hori	4874.000	PK	46.8	31.7	7.3	34.1	-	51.7	73.9	22.2	
Hori	7311.000	PK	42.2	36.3	8.5	34.1	-	52.9	73.9	21.0	Floor noise
Hori	9748.000	PK	44.5	38.5	9.4	34.8	-	57.6	73.9	16.3	Floor noise
Hori	2483.500	AV	46.9	27.7	5.0	34.7	-	44.9	53.9	9.0	
Hori	4874.000	AV	36.1	31.7	7.3	34.1	-	41.0	53.9	12.9	
Hori	7311.000	AV	34.4	36.3	8.5	34.1	-	45.1	53.9	8.8	Floor noise
Hori	9748.000	AV	34.7	38.5	9.4	34.8	-	47.8	53.9	6.1	Floor noise
Vert	2500.000	PK	50.9	27.7	5.0	34.7	-	48.9	73.9	25.0	
Vert	4874.000	PK	50.1	31.7	7.3	34.1	-	55.0	73.9	18.9	
Vert	7311.000	PK	42.2	36.3	8.5	34.1	-	52.9	73.9	21.0	Floor noise
Vert	9748.000	PK	44.5	38.5	9.4	34.8	-	57.6	73.9	16.3	Floor noise
Vert	2500.000	AV	41.8	27.7	5.0	34.7	-	39.8	53.9	14.1	
Vert	4874.000	AV	38.9	31.7	7.3	34.1	-	43.8	53.9	10.1	
Vert	7311.000	AV	34.4	36.3	8.5	34.1	-	45.1	53.9	8.8	Floor noise
Vert	9748.000	AV	34.7	38.5	9.4	34.8	-	47.8	53.9	6.1	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

Distance factor: 1 GHz - 10 GHz $20\log(3.65\text{ m} / 3.0\text{ m}) = 1.71\text{ dB}$
10 GHz - 26.5 GHz $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.5\text{ dB}$

Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Semi Anechoic Chamber
Report No. : 11355859H
Date : July 12, 2016 July 13, 2016
Temperature / Humidity : 22 deg. C / 70 % RH 21 deg. C / 65 % RH
Engineer : Shinichi Miyazono Tomoki Matsui
(1 GHz - 10 GHz) (Above 10 GHz)
Mode : Tx 11b 2462 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2483.500	PK	60.4	27.7	5.0	34.7	-	58.4	73.9	15.5	
Hori	2500.000	PK	55.6	27.7	5.0	34.7	-	53.6	73.9	20.3	
Hori	4924.000	PK	44.2	31.9	7.2	34.1	-	49.2	73.9	24.7	
Hori	7386.000	PK	43.7	36.4	8.4	34.1	-	54.4	73.9	19.5	Floor noise
Hori	9848.000	PK	44.5	38.5	9.4	34.9	-	57.5	73.9	16.4	Floor noise
Hori	2483.500	AV	47.9	27.7	5.0	34.7	-	45.9	53.9	8.0	
Hori	2500.000	AV	46.6	27.7	5.0	34.7	-	44.6	53.9	9.3	
Hori	4924.000	AV	35.1	31.9	7.2	34.1	-	40.1	53.9	13.8	
Hori	7386.000	AV	35.6	36.4	8.4	34.1	-	46.3	53.9	7.6	Floor noise
Hori	9848.000	AV	34.9	38.5	9.4	34.9	-	47.9	53.9	6.0	Floor noise
Vert	2483.500	PK	53.1	27.7	5.0	34.7	-	51.1	73.9	22.8	
Vert	2500.000	PK	52.6	27.7	5.0	34.7	-	50.6	73.9	23.3	
Vert	4924.000	PK	45.4	31.9	7.2	34.1	-	50.4	73.9	23.5	
Vert	7386.000	PK	43.7	36.4	8.4	34.1	-	54.4	73.9	19.5	Floor noise
Vert	9848.000	PK	44.5	38.5	9.4	34.9	-	57.5	73.9	16.4	Floor noise
Vert	2483.500	AV	41.6	27.7	5.0	34.7	-	39.6	53.9	14.3	
Vert	2500.000	AV	43.8	27.7	5.0	34.7	-	41.8	53.9	12.1	
Vert	4924.000	AV	35.6	31.9	7.2	34.1	-	40.6	53.9	13.3	
Vert	7386.000	AV	34.9	36.4	8.4	34.1	-	45.6	53.9	8.3	Floor noise
Vert	9848.000	AV	34.9	38.5	9.4	34.9	-	47.9	53.9	6.0	Floor noise

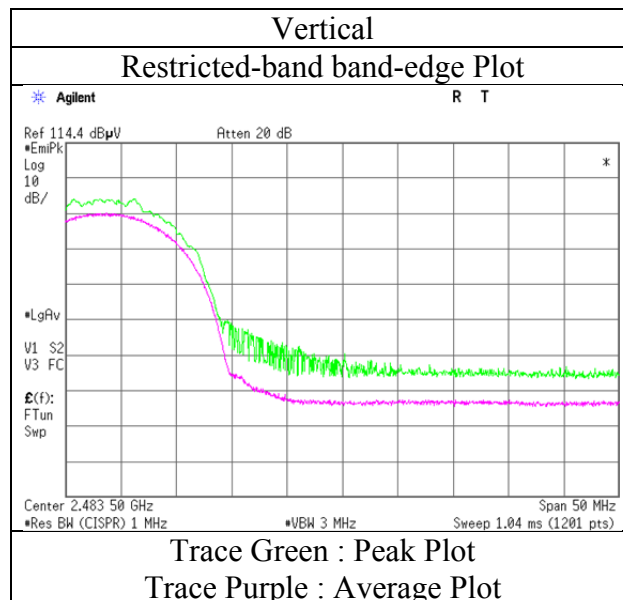
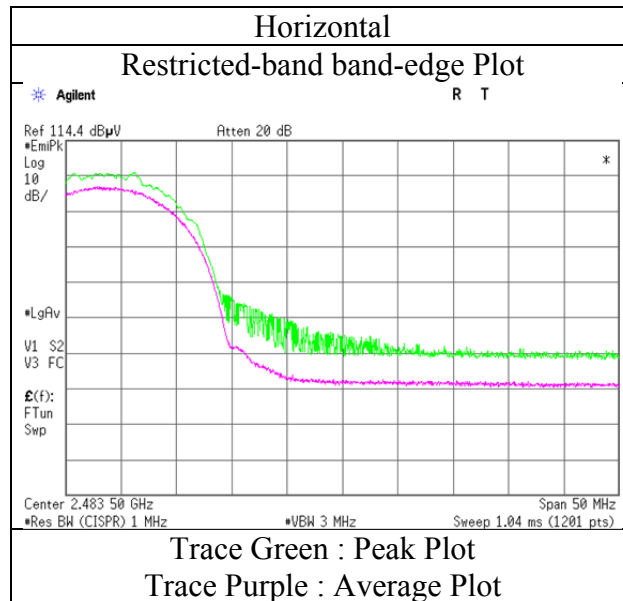
Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

Distance factor: 1 GHz - 10 GHz 20log (3.65 m / 3.0 m) = 1.71 dB
10 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission (Reference Plot for band-edge)

Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Report No.	11355859H
Date	July 12, 2016
Temperature / Humidity	22 deg. C / 70 % RH
Engineer	Shinichi Miyazono
	(1 GHz - 10 GHz)
Mode	Tx 11b 2462 MHz



* Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Ise EMC Lab.

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Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Semi Anechoic Chamber
Report No. : 11355859H
Date : July 13, 2016
Temperature / Humidity : 21 deg. C / 65 % RH
Engineer : Tomoki Matsui
Mode : Tx 11n-20 2412 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2390.000	PK	55.5	27.6	5.0	34.8	-	53.3	73.9	20.6	
Hori	2489.386	PK	55.6	27.7	5.0	34.7	-	53.6	73.9	20.3	
Hori	2570.000	PK	56.5	27.8	5.1	34.6	-	54.8	73.9	19.1	
Hori	4824.000	PK	42.2	31.6	7.3	34.1	-	47.0	73.9	26.9	Floor noise
Hori	7236.000	PK	42.3	36.2	8.5	34.1	-	52.9	73.9	21.0	Floor noise
Hori	9648.000	PK	42.3	38.5	9.3	34.8	-	55.3	73.9	18.6	Floor noise
Hori	2390.000	AV	44.0	27.6	5.0	34.8	0.3	42.1	53.9	11.8	*1)
Hori	2489.386	AV	46.9	27.7	5.0	34.7	0.3	45.2	53.9	8.7	
Hori	2570.000	AV	46.9	27.8	5.1	34.6	0.3	45.5	53.9	8.4	
Hori	4824.000	AV	33.2	31.6	7.3	34.1	-	38.0	53.9	15.9	Floor noise
Hori	7236.000	AV	33.1	36.2	8.5	34.1	-	43.7	53.9	10.2	Floor noise
Hori	9648.000	AV	34.1	38.5	9.3	34.8	-	47.1	53.9	6.8	Floor noise
Vert	2390.000	PK	51.4	27.6	5.0	34.8	-	49.2	73.9	24.7	
Vert	2538.830	PK	52.4	27.8	5.1	34.7	-	50.6	73.9	23.3	
Vert	4824.000	PK	42.7	31.6	7.3	34.1	-	47.5	73.9	26.4	Floor noise
Vert	7236.000	PK	42.4	36.2	8.5	34.1	-	53.0	73.9	20.9	Floor noise
Vert	9648.000	PK	42.3	38.5	9.3	34.8	-	55.3	73.9	18.6	Floor noise
Vert	2390.000	AV	41.2	27.6	5.0	34.8	0.3	39.3	53.9	14.6	*1)
Vert	2538.830	AV	43.8	27.8	5.1	34.7	0.3	42.3	53.9	11.6	
Vert	4824.000	AV	33.4	31.6	7.3	34.1	-	38.2	53.9	15.7	Floor noise
Vert	7236.000	AV	33.3	36.2	8.5	34.1	-	43.9	53.9	10.0	Floor noise
Vert	9648.000	AV	34.1	38.5	9.3	34.8	-	47.1	53.9	6.8	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor

*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

Distance factor: 1 GHz - 10 GHz 20log (3.65 m / 3.0 m) = 1.71 dB
10 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

*1) Not Out of Band emission(Leakage Power)

20dBc Data Sheet

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2412.000	PK	92.8	27.6	5.0	34.7	90.7	-	-	Carrier
Hori	2400.000	PK	51.3	27.6	5.0	34.8	49.1	70.7	21.6	
Vert	2412.000	PK	91.0	27.6	5.0	34.7	88.9	-	-	Carrier
Vert	2400.000	PK	48.9	27.6	5.0	34.8	46.7	68.9	22.2	

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier)

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Ise EMC Lab.

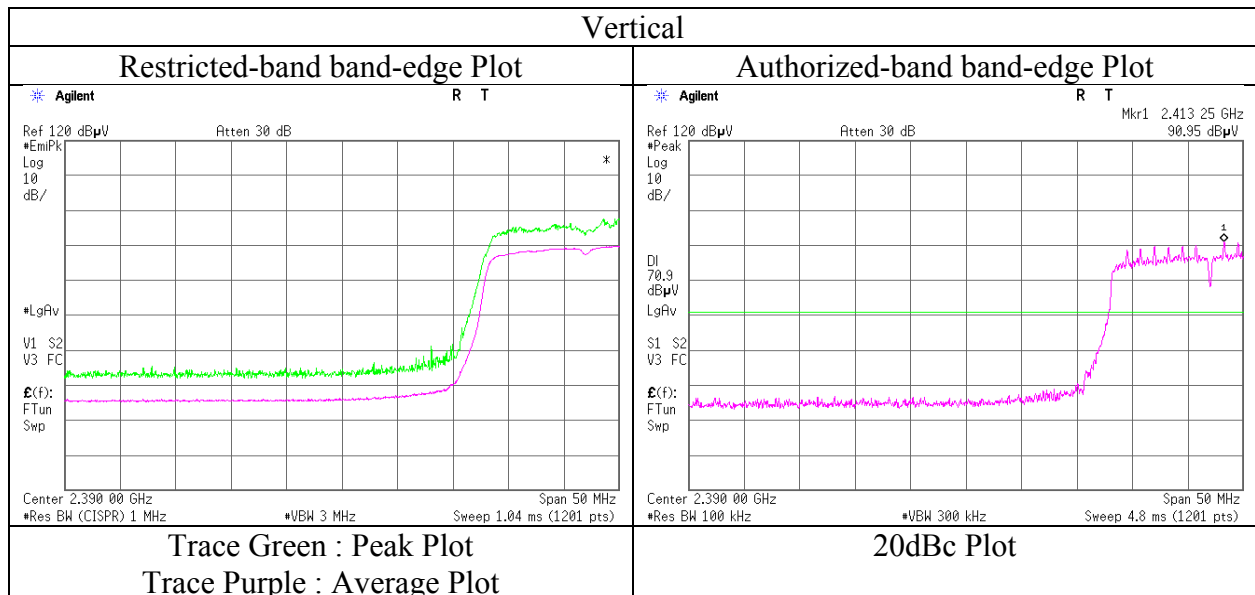
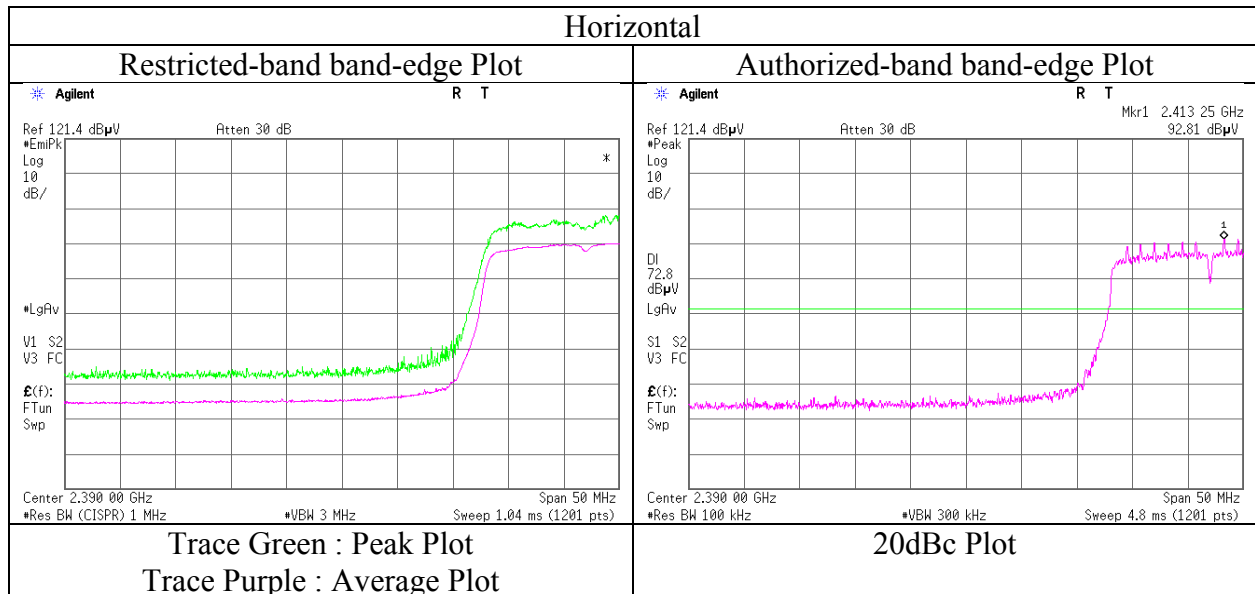
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

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Radiated Spurious Emission (Reference Plot for band-edge)

Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Report No.	11355859H
Date	July 13, 2016
Temperature / Humidity	21 deg. C / 65 % RH
Engineer	Tomoki Matsui
Mode	Tx 11n-20 2412 MHz



* Final result of restricted band edge was shown in tabular data.

UL Japan, Inc.

Ise EMC Lab.

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Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Semi Anechoic Chamber
Report No. : 11355859H
Date : July 13, 2016
Temperature / Humidity : 21 deg. C / 65 % RH
Engineer : Tomoki Matsui
Mode : Tx 11n-20 2437 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	2489.386	PK	57.8	27.7	5.0	34.7	-	55.8	73.9	18.1	
Hori	2570.000	PK	56.7	27.8	5.1	34.6	-	55.0	73.9	18.9	
Hori	4874.000	PK	44.1	31.7	7.3	34.1	-	49.0	73.9	24.9	Floor noise
Hori	7311.000	PK	41.7	36.3	8.5	34.1	-	52.4	73.9	21.5	Floor noise
Hori	9748.000	PK	42.8	38.5	9.4	34.8	-	55.9	73.9	18.0	Floor noise
Hori	2489.386	AV	48.7	27.7	5.0	34.7	0.3	47.0	53.9	6.9	
Hori	2570.000	AV	48.3	27.8	5.1	34.6	0.3	46.9	53.9	7.0	
Hori	4874.000	AV	36.0	31.7	7.3	34.1	-	40.9	53.9	13.0	Floor noise
Hori	7311.000	AV	33.3	36.3	8.5	34.1	-	44.0	53.9	9.9	Floor noise
Hori	9748.000	AV	34.2	38.5	9.4	34.8	-	47.3	53.9	6.6	Floor noise
Vert	2538.830	PK	54.3	27.8	5.1	34.7	-	52.5	73.9	21.4	
Vert	4874.000	PK	44.1	31.7	7.3	34.1	-	49.0	73.9	24.9	Floor noise
Vert	7311.000	PK	41.7	36.3	8.5	34.1	-	52.4	73.9	21.5	Floor noise
Vert	9748.000	PK	43.1	38.5	9.4	34.8	-	56.2	73.9	17.7	Floor noise
Vert	2538.830	AV	45.3	27.8	5.1	34.7	0.3	43.8	53.9	10.1	
Vert	4874.000	AV	35.6	31.7	7.3	34.1	-	40.5	53.9	13.4	Floor noise
Vert	7311.000	AV	33.2	36.3	8.5	34.1	-	43.9	53.9	10.0	Floor noise
Vert	9748.000	AV	34.1	38.5	9.4	34.8	-	47.2	53.9	6.7	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor

*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

Distance factor: 1 GHz - 10 GHz 20log (3.65 m / 3.0 m) = 1.71 dB
10 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

Radiated Spurious Emission

Test place : Ise EMC Lab. No.2 Semi Anechoic Chamber
Report No. : 11355859H
Date : July 13, 2016
Temperature / Humidity : 21 deg. C / 65 % RH
Engineer : Tomoki Matsui
Mode : Tx 11n-20 2462 MHz

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Duty Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
Hori	288.000	QP	36.4	13.3	8.7	27.4	-	31.0	46.0	15.0	
Hori	528.000	QP	31.3	17.9	9.8	28.5	-	30.5	46.0	15.5	
Hori	624.000	QP	33.1	19.1	10.1	28.4	-	33.9	46.0	12.1	
Hori	720.000	QP	33.9	20.0	10.5	28.0	-	36.4	46.0	9.6	
Hori	816.000	QP	34.8	21.0	10.8	27.8	-	38.8	46.0	7.2	
Hori	911.996	QP	27.4	21.9	11.2	27.3	-	33.2	46.0	12.8	
Hori	2483.500	PK	65.3	27.7	5.0	34.7	-	63.3	73.9	10.6	
Hori	2489.386	PK	62.3	27.7	5.0	34.7	-	60.3	73.9	13.6	
Hori	2570.000	PK	57.3	27.8	5.1	34.6	-	55.6	73.9	18.3	
Hori	4924.000	PK	47.8	31.9	7.2	34.1	-	52.8	73.9	21.1	Floor noise
Hori	7386.000	PK	43.3	36.4	8.4	34.1	-	54.0	73.9	19.9	Floor noise
Hori	9848.000	PK	43.8	38.5	9.4	34.9	-	56.8	73.9	17.1	Floor noise
Hori	2483.500	AV	50.5	27.7	5.0	34.7	0.3	48.8	53.9	5.1	*1)
Hori	2489.386	AV	48.9	27.7	5.0	34.7	0.3	47.2	53.9	6.7	
Hori	2570.000	AV	48.1	27.8	5.1	34.6	0.3	46.7	53.9	7.2	
Hori	4924.000	AV	38.7	31.9	7.2	34.1	-	43.7	53.9	10.2	Floor noise
Hori	7386.000	AV	34.9	36.4	8.4	34.1	-	45.6	53.9	8.3	Floor noise
Hori	9848.000	AV	34.0	38.5	9.4	34.9	-	47.0	53.9	6.9	Floor noise
Vert	288.000	QP	38.4	13.3	8.7	27.4	-	33.0	46.0	13.0	
Vert	528.000	QP	27.7	17.9	9.8	28.5	-	26.9	46.0	19.1	
Vert	624.000	QP	33.9	19.1	10.1	28.4	-	34.7	46.0	11.3	
Vert	720.000	QP	30.4	20.0	10.5	28.0	-	32.9	46.0	13.1	
Vert	816.000	QP	31.5	21.0	10.8	27.8	-	35.5	46.0	10.5	
Vert	912.000	QP	29.5	21.9	11.2	27.3	-	35.3	46.0	10.7	
Vert	2483.500	PK	61.1	27.7	5.0	34.7	-	59.1	73.9	14.8	
Vert	2538.830	PK	54.9	27.8	5.1	34.7	-	53.1	73.9	20.8	
Vert	4924.000	PK	47.0	31.9	7.2	34.1	-	52.0	73.9	21.9	Floor noise
Vert	7386.000	PK	42.9	36.4	8.4	34.1	-	53.6	73.9	20.3	Floor noise
Vert	9848.000	PK	43.9	38.5	9.4	34.9	-	56.9	73.9	17.0	Floor noise
Vert	2483.500	AV	47.2	27.7	5.0	34.7	0.3	45.5	53.9	8.4	*1)
Vert	2538.830	AV	45.2	27.8	5.1	34.7	0.3	43.7	53.9	10.2	
Vert	4924.000	AV	38.3	31.9	7.2	34.1	-	43.3	53.9	10.6	Floor noise
Vert	7386.000	AV	34.8	36.4	8.4	34.1	-	45.5	53.9	8.4	Floor noise
Vert	9848.000	AV	34.1	38.5	9.4	34.9	-	47.1	53.9	6.8	Floor noise

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter+Distance factor(above 1 GHz)) - Gain(Amplifier) + Duty factor

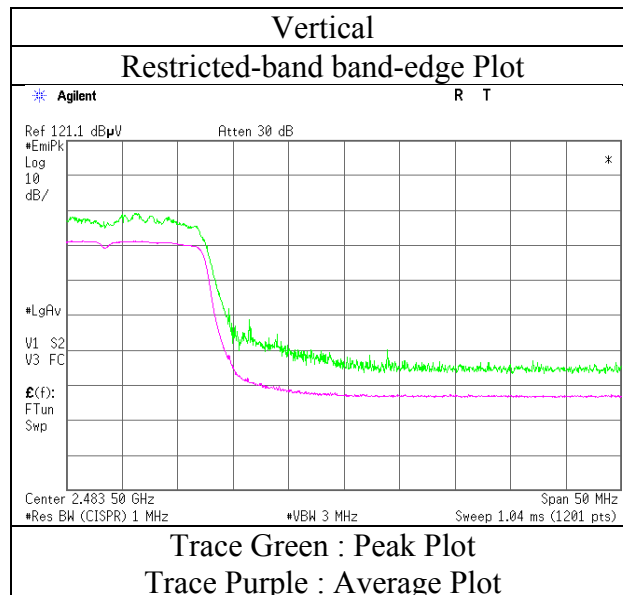
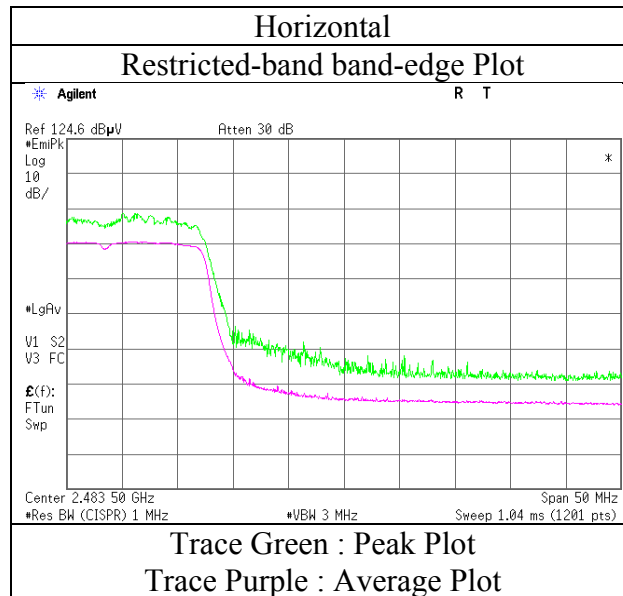
*Other frequency noises omitted in this report were not seen or had enough margin (more than 20 dB).

Distance factor: 1 GHz - 10 GHz 20log (3.65 m / 3.0 m) = 1.71 dB
10 GHz - 26.5 GHz 20log (1.0 m / 3.0 m) = -9.5 dB

*1) Not Out of Band emission(Leakage Power)

Radiated Spurious Emission (Reference Plot for band-edge)

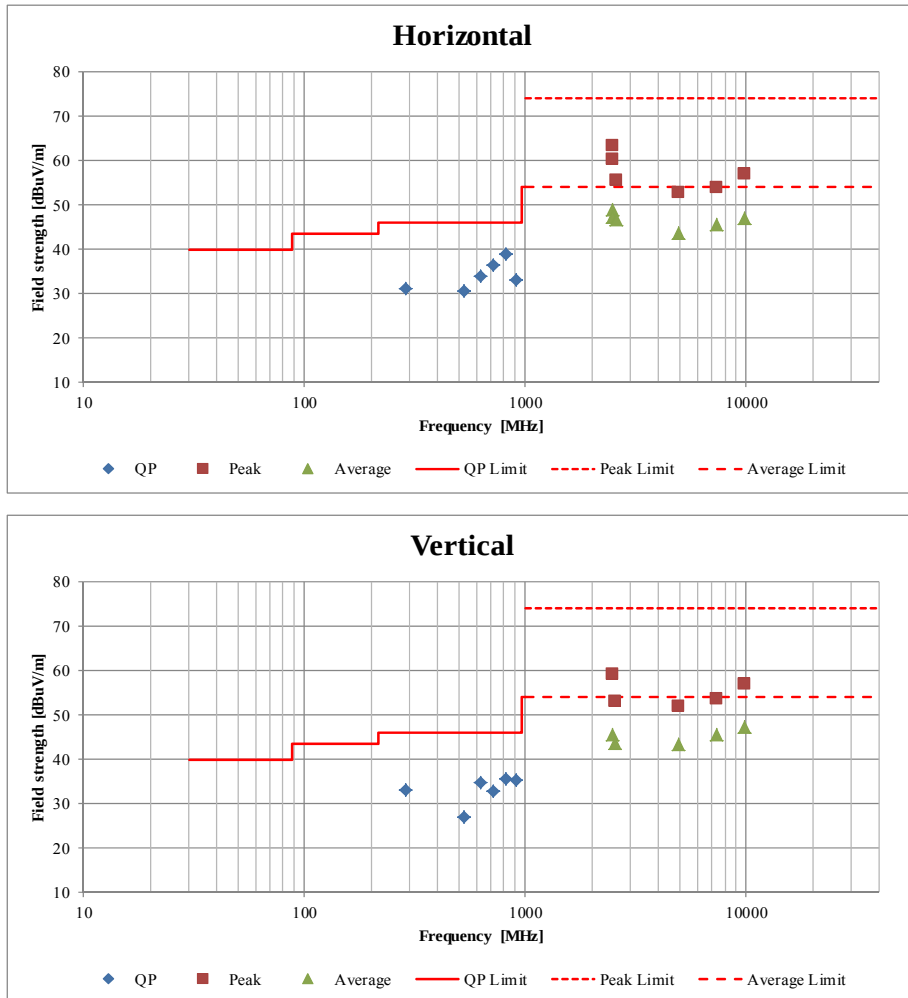
Test place	Ise EMC Lab. No.2 Semi Anechoic Chamber
Report No.	11355859H
Date	July 13, 2016
Temperature / Humidity	21 deg. C / 65 % RH
Engineer	Tomoki Matsui
Mode	Tx 11n-20 2462 MHz



* Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission **(Plot data, Worst case)**

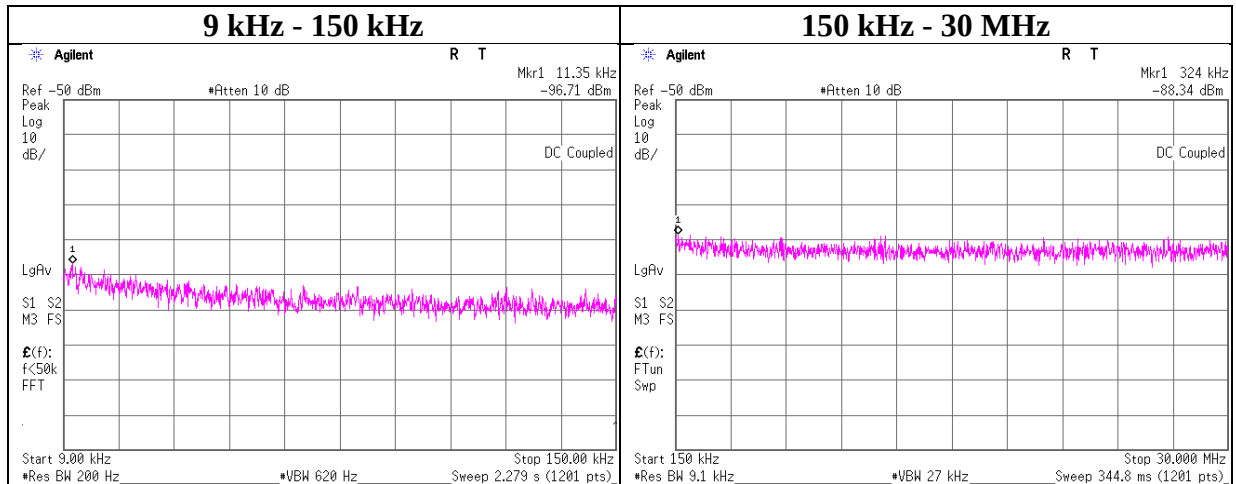
Test place : Ise EMC Lab. No.2 Semi Anechoic Chamber
Report No. : 11355859H
Date : July 13, 2016
Temperature / Humidity : 21 deg. C / 65 % RH
Engineer : Tomoki Matsui
Mode : Tx 11n-20 2462 MHz



*These plots data contains sufficient number to show the trend of characteristic features for EUT.

Conducted Spurious Emission

Test place	Ise EMC Lab. No.11 Measurement Room
Report No.	11355859H
Date	July 12, 2016
Temperature / Humidity	23 deg. C / 68 % RH
Engineer	Ken Fujita
Mode	Tx 11n-20 2462 MHz



Frequency	Reading	Cable Loss	Attenuator Loss	Antenna Gain	N (Number of Output	EIRP	Distance	Ground bounce	E (field strength)	Limit	Margin	Remark
[kHz]	[dBm]	[dB]	[dB]	[dBi]		[dBm]	[m]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	
11.35	-96.7	0.01	10.0	2.0	1	-84.7	300	6.0	-23.4	46.5	69.9	
324.00	-88.3	0.01	10.0	2.0	1	-76.3	300	6.0	-15.1	17.3	32.4	

$E = \text{EIRP} - 20 \log(D) + \text{Ground bounce} + 104.8 \text{ [dBuV/m]}$

$\text{EIRP} = \text{Reading} + \text{Cable Loss} + \text{Attenuator Loss} + \text{Antenna Gain} + 10 * \log(N)$

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Power Density

Test place Ise EMC Lab. No.11 Measurement Room
Report No. 11355859H
Date July 12, 2016
Temperature / Humidity 23 deg. C / 68 % RH
Engineer Ken Fujita
Mode Tx

11b

Freq.	Reading	Cable Loss	Atten. Loss	Result	Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]
2412.00	-26.26	1.87	10.09	-14.30	8.00	22.30
2437.00	-25.94	1.88	10.09	-13.97	8.00	21.97
2462.00	-25.74	1.89	10.09	-13.76	8.00	21.76

11g

Freq.	Reading	Cable Loss	Atten. Loss	Result	Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]
2412.00	-30.83	1.87	10.09	-18.87	8.00	26.87
2437.00	-29.86	1.88	10.09	-17.89	8.00	25.89
2462.00	-30.36	1.89	10.09	-18.38	8.00	26.38

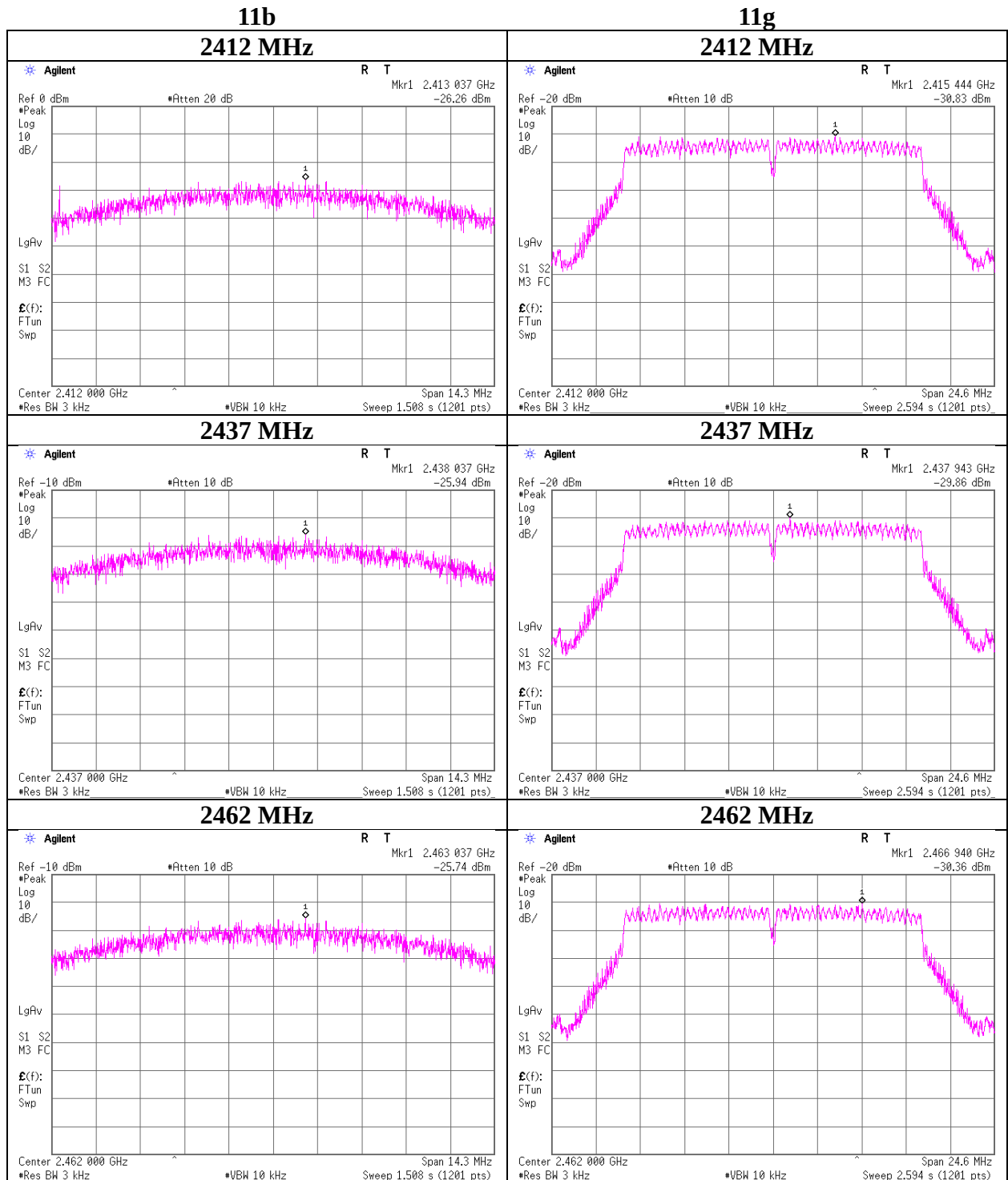
11n20

Freq.	Reading	Cable Loss	Atten. Loss	Result	Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]
2412.00	-30.51	1.87	10.09	-18.55	8.00	26.55
2437.00	-29.95	1.88	10.09	-17.98	8.00	25.98
2462.00	-30.81	1.89	10.09	-18.83	8.00	26.83

Sample Calculation:

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

Power Density



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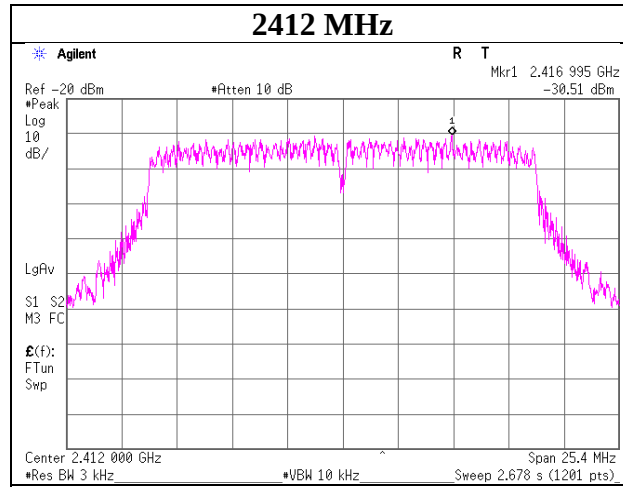
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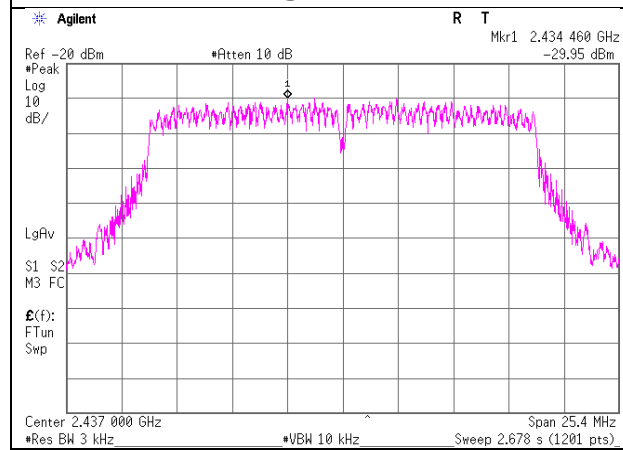
Power Density

11n-20

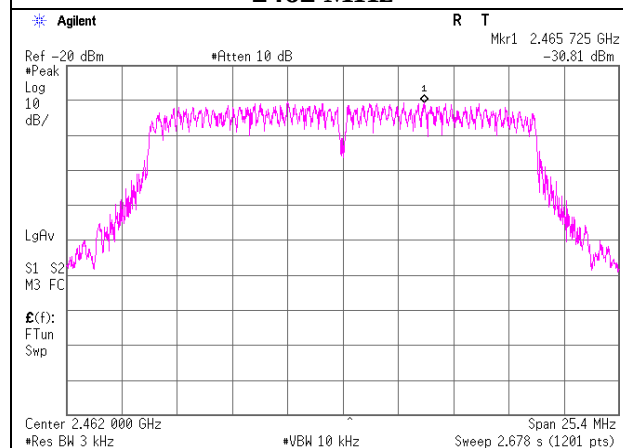
2412 MHz



2437 MHz



2462 MHz



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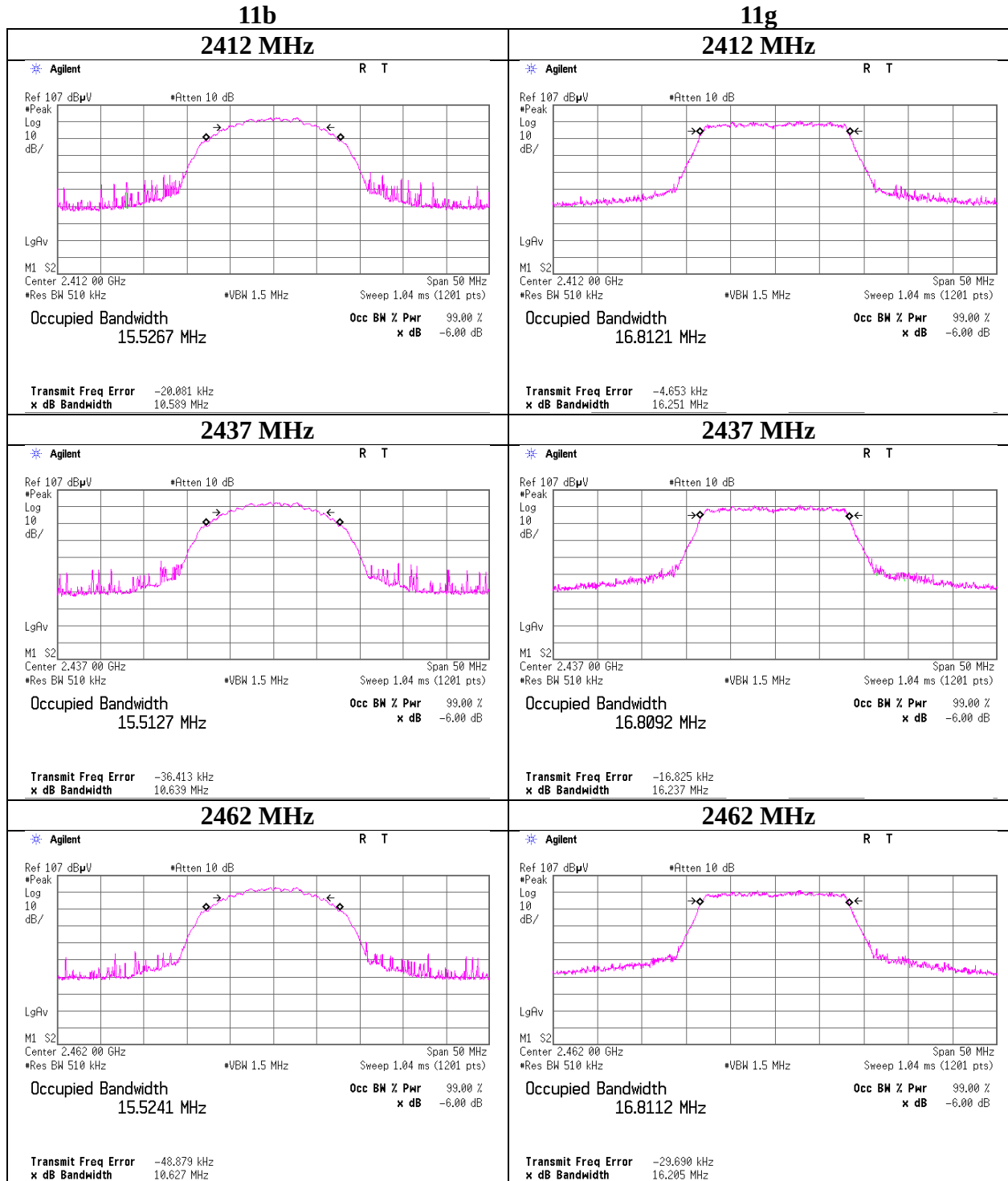
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

99% Occupied Bandwidth

Test place
Report No.
Date
Temperature / Humidity
Engineer
Mode

Ise EMC Lab. No.11 Measurement Room
11355859H
July 12, 2016
23 deg. C / 68 % RH
Ken Fujita
Tx



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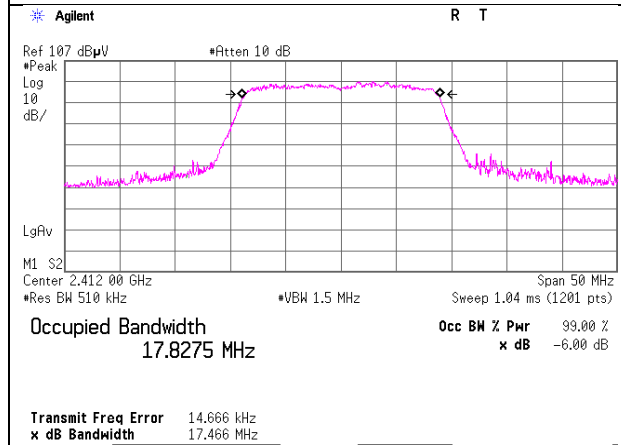
Telephone : +81 596 24 8999

Facsimile : +81 596 24 8124

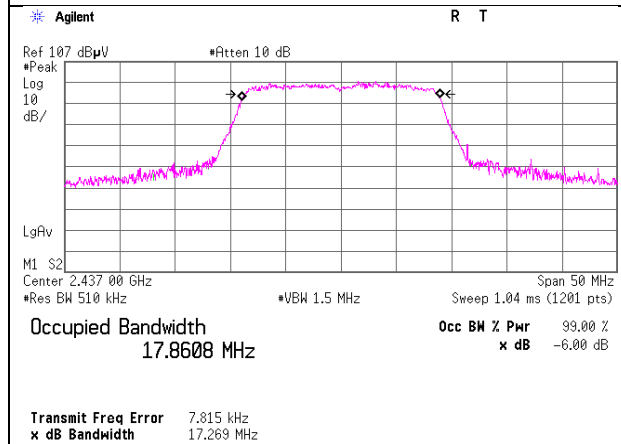
99% Occupied Bandwidth

11n-20

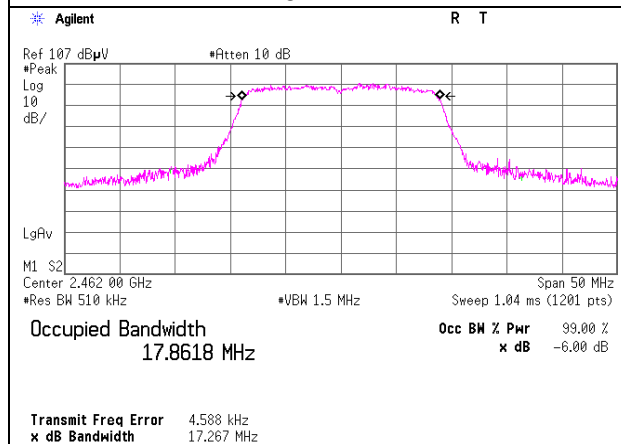
2412 MHz



2437 MHz



2462 MHz



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APPENDIX 2: Test instruments

Test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-02	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-06902	RE	2015/07/01 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	0003	RE	2016/01/21 * 12
MJM-14	Measure	KOMELON	KMC-36	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MSA-13	Spectrum Analyzer	Agilent	E4440A	MY46185823	RE	2016/06/17 * 12
MHA-06	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	254	RE	2016/02/29 * 12
MCC-165	Microwave Cable	Junkosha	MWX221	1203S213(1m) / 1311S166(5m)	RE	2015/11/10 * 12
MPA-10	Pre Amplifier	Agilent	8449B	3008A02142	RE	2016/01/19 * 12
MMM-01	Digital Tester	Fluke	FLUKE 26-3	78030611	RE	2015/08/19 * 12
MHF-25	High Pass Filter 3.5-18.0GHz	UL Japan	HPF SELECTOR	001	RE	2015/09/16 * 12
MHA-02	Horn Antenna 18-26.5GHz	EMCO	3160-09	1265	RE	2016/02/29 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	100300	RE	2015/10/11 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	1915	RE	2015/10/11 * 12
MLA-21	Logperiodic Antenna(200-1000MHz)	Schwarzbeck	VUSLP9111B	911B-190	RE	2016/01/30 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	-	RE	2016/02/08 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	BK7970	RE	2015/11/10 * 12
MPA-09	Pre Amplifier	Agilent	8447D	2944A10845	RE	2015/09/04 * 12
MOS-19	Thermo-Hygrometer	Custom	CTH-201	0001	AT	2015/12/08 * 12
MSA-15	Spectrum Analyzer	Agilent	E4440A	MY46187105	AT	2015/11/11 * 12
MTA-23	Terminator	TME	CT-03NP	1269941E	AT	
MPSE-17	Power sensor	Anritsu	MA2411B	0738285	AT	2016/06/06 * 12
MPM-12	Power Meter	Anritsu	ML2495A	0825002	AT	2016/06/06 * 12
MCC-138	Microwave cable	HUBER+SUHNER	SUCOFLEX 102	37953/2	AT	2015/10/08 * 12

The expiration date of the calibration is the end of the expired month.

All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

Test Item: RE: Radiated Emission test
AT: Antenna Terminal Conducted test

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