



RADIO TEST REPORT

Test Report No.: 11798803S-A-R2

Applicant : Sony Corporation
Type of Equipment : RF STEREO TRANSMITTER
Model No. : TMR-RF912R
FCC ID : AK8TMRRF912R
Test regulation : FCC Part15 Subpart C: 2017
Test result : Complied

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
5. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.
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)
7. This report is a revised version of 11798803S-A-R1. 11798803S-A-R1 is replaced with this report.

Date of test: June 2 to 7, 2017

Representative test engineer:

Kazutake Takeyama
Engineer
Consumer Technology Division

Approved by :

Toyokazu Imamura
Leader
Consumer Technology Division



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

UL Japan, Inc.

Shonan EMC Lab.

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13-EM-F0429

REVISION HISTORY

Original Test Report No.: 11798803S-A

[illegible]

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SECTION 1: Customer information

Company Name : Sony Corporation
Brand Name : SONY
Address : 1-7-1 Konan, Minato-ku, Tokyo 108-0075, Japan

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

2.1 Identification of E.U.T.

Type of Equipment : RF STEREO TRANSMITTER
Model No. : TMR-RF912R
Serial No. : Refer to Section 4, Clause 4.2
Rating : DC 12 V (DC IN)
AC 100 V - 240 V, 50 Hz / 60 Hz (AC adaptor)
Receipt Date of Sample : May 26, 2017
Country of Mass-production : China
Condition of EUT : Production prototype
(Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT : No Modification by the test lab.

2.2 Product description

Model: TMR-RF912R (referred to as the EUT in this report) is a RF STEREO TRANSMITTER.

General Specification

Clock frequency(ies) in the system : 7.6 MHz (MPX), 4 MHz (PLL)

Radio Specification

Radio Type : Transmitter
Frequency of Operation : 915.5 MHz - 916.5 MHz
Modulation : FM
Antenna type : $\lambda/4$ monopole
Antenna Gain : 2 dBi

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SECTION 3: Test specification, procedures & results

3.1 Test specification

Test specification : FCC Part 15 Subpart C
FCC Part 15 final revised on June 14, 2017 and effective July 14, 2017
Title : FCC 47 CFR Part 15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits
Section 15.249 Operation within the bands 902 MHz - 928 MHz,
2400 MHz - 2483.5 MHz, 5725 MHz - 5875 MHz and 24.0 - 24.25 GHz

* The revision on June 14, 2017, does not affect the test specification applied to the EUT.

3.2 Procedures & Results

Item	Test Procedure	Specification	Deviation	Worst margin	Results
Conducted emission	ANSI C63.4:2009 7. AC powerline conducted emission measurements IC: RSS-Gen 8.8	FCC 15.207(a) IC: RSS-Gen 8.8	N/A	18.3 dB (0.35330 MHz, AV, L1 Tx 915.5 MHz, S/N: 9000001)	Complied
Electric field strength of fundamental emission	ANSI C63.4:2009 13. Measurement of intentional radiators IC: RSS-Gen 6.4, 6.12	FCC 15.249(a)(e) IC: RSS-210 B.10	N/A	3.9 dB (915.500 MHz, Vertical, QP, Tx 915.5 MHz, S/N: 9000001)	Complied
Electric field strength of spurious emission	ANSI C63.4:2009 13. Measurement of intentional radiators IC: RSS-Gen 6.4, 6.13	FCC 15.205(a)(b) FCC 15.209(a) FCC 15.249(a)(d)(e) IC: RSS-210 B.10	N/A	10.1 dB (8239.500 MHz, Vertical, AV Tx 915.5 MHz, S/N: 9000002)	Complied
20dB bandwidth	ANSI C63.4:2009 13. Measurement of intentional radiators IC: -	FCC 15.215 IC: -	N/A	-	-
Frequency tolerance	ANSI C63.4:2009 13. Measurement of intentional radiators IC: RSS-Gen 6.11, 8.11	FCC 15.249(b) IC: -	N/A *1)	-	-
*1) The test is not required since this EUT does not operate with 24.05 GHz to 24.25 GHz. Note: UL Japan's Work Procedures No. 13-EM-W0420 and 13-EM-W0422					

FCC Part 15.31 (e)

The stable voltage of DC 5 V is provided constantly to RF transmitter regardless of input voltage. Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement

The antenna is not removable from the EUT. Therefore, the equipment complies with the antenna requirement.

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3.3 Addition to standard

Item	Test Procedure	Specification	Remarks	Worst Margin	Results
Occupied Bandwidth (99 %)	ANSI C63.10:2013 6. Standard test methods RSS-Gen 6.6	RSS-Gen 4.6.1	Conducted	-	-
Note: UL Japan's EMI Work Procedures No.13-EM-W0420 and 13-EM-W0422.					

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

3.4 Uncertainty

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

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Item	Frequency range	Uncertainty (+/-)				
		No. 1 SAC / SR	No. 2 SAC / SR	No. 3 SAC / SR	No. 4 SAC / SR	No. 5,6,8 SR
Conducted emission (AC Mains) LISN	150 kHz-30 MHz	2.6 dB	2.5 dB	2.6 dB	2.5 dB	2.5 dB
Radiated emission (Measurement distance: 3 m)	9 kHz-30 MHz	3.1 dB	3.1 dB	3.1 dB	-	-
	30 MHz-200 MHz	4.6 dB	4.4 dB	4.6 dB	-	-
	200 MHz-1 GHz	5.8 dB	5.7 dB	5.8 dB	-	-
	1 GHz-13 GHz	4.9 dB	4.9 dB	4.9 dB	-	-
Radiated emission (Measurement distance: 1 m)	13 GHz-18 GHz	4.6 dB	4.6 dB	4.6 dB	-	-
	18 GHz-40 GHz	4.9 dB	4.9 dB	4.9 dB	-	-

SAC=Semi-Anechoic Chamber

SR= Shielded Room is applied besides radiated emission

Antenna terminal test	Uncertainty (+/-)
Power Measurement above 1 GHz (Average Detector) _SPM-06	0.72 dB
Power Measurement above 1 GHz (Peak Detector) _SPM-06	0.85 dB
Power Measurement above 1 GHz (Average Detector) _SPM-07	0.74 dB
Power Measurement above 1 GHz (Peak Detector) _SPM-07	0.91 dB
Spurious emission (Conducted) below 1GHz	1.6 dB
Spurious emission (Conducted) 1 GHz-3 GHz	1.3 dB
Spurious emission (Conducted) 3 GHz-18 GHz	2.2 dB
Spurious emission (Conducted) 18 GHz-26.5 GHz	2.3 dB
Spurious emission (Conducted) 26.5 GHz-40 GHz	2.4 dB
Bandwidth Measurement	1.01 %
Duty cycle and Time Measurement	0.012 %

Conducted emission test

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

Radiated emission test

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

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3.5 Test location

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JAB Accreditation No. : RTL02610

	IC Registration No.	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
No.1 Semi-anechoic chamber	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.2 Semi-anechoic chamber	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.3 Semi-anechoic chamber	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5 m
No.4 Semi-anechoic chamber	-	8.1 x 5.1 x 3.55	8.1 x 5.1	-
No.1 shielded room	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.2 shielded room	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.3 shielded room	-	6.3 x 4.7 x 2.7	6.3 x 4.7	-
No.4 shielded room	-	4.4 x 4.7 x 2.7	4.4 x 4.7	-
No.5 shielded room	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.6 shielded room	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.8 shielded room	-	3.45 x 5.5 x 2.4	3.45 x 5.5	-
No.1 Measurement room	-	2.55 x 4.1 x 2.5	-	-

3.6 Test setup, Data of EMI & Test instruments

Refer to APPENDIX.

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

4.1 Operating mode

The EUT exercise program used during testing was designed to exercise the various system components in a manner similar to typical use.

Test sequence is used: 1) Transmitting (915.5 MHz)
 2) Transmitting (916.5 MHz)

Software: None

Power setting: Fixed

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

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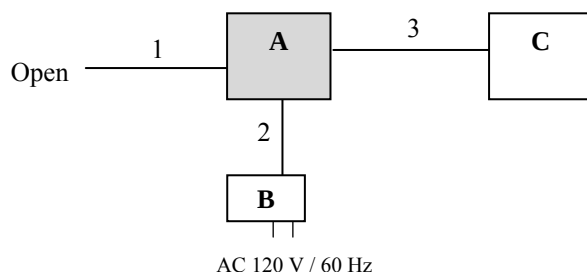
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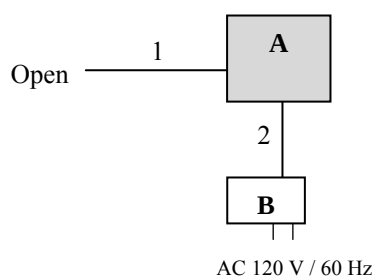
Facsimile : +81 463 50 6401

4.2 Configuration of tested system

State with audio input signal (1 kHz) inserted



State without audio input signal (1 kHz) inserted



* 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	Remarks
A	RF STEREO TRANSMITTER	TMR-RF912R	9000001 *1) 9000002 *2)	SONY	EUT
B	AC adaptor	AC-MS1202C	1635	SONY	-
C	Cassette Recorder	TCM-400DV	6067704	SONY	-

*1) State with audio input signal (1 kHz) inserted

*2) State without audio input signal (1 kHz) inserted

List of cables used

No.	Cable Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC	0.3	Unshielded	Unshielded	-
2	DC	1.8	Unshielded	Unshielded	-
3	Audio	1.5	Unshielded	Unshielded	-

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SECTION 5: Conducted emission

5.1 Operating environment

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

5.2 Test configuration

EUT was placed on a platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane.

The table is made of Styrofoam and covered with polyvinyl chloride. That has very low permittivity.

The rear of tabletop was located 40 cm to the vertical conducting plane. The rear of EUT, including peripherals was aligned and was flushed with rear of tabletop. All other surfaces of tabletop were at least 80 cm from any other grounded conducting surface. EUT was located 80 cm from LISN and excess AC cable was bundled in center. I/O cables that were connected to the peripherals were bundled in center. They were folded back and for the forming a bundle 30 cm to 40 cm long and were hanged at a 40 cm height to the ground plane.

Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN to the input power source. Photographs of the set up are shown in APPENDIX 3.

5.3 Test conditions

Frequency range : 0.15 MHz - 30 MHz
EUT position : Table top

5.4 Test procedure

The AC Mains Terminal Continuous disturbance Voltage had been measured with the EUT within a Shielded room. The EUT was connected to a Line Impedance Stabilization Network (LISN).

An overview sweep with peak detection has been performed.

The measurements had been performed with a quasi-peak detector and if required, a CISPR average detector.

The conducted emission measurements were made with the following detection of the test receiver.

Detection Type : Quasi-Peak/ CISPR Average
IF Bandwidth : 9 kHz

5.5 Results

Summary of the test results : Pass
Refer to APPENDIX 1

SECTION 6: Radiated emission

6.1 Operating environment

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

6.2 Test configuration

For below 1 GHz, EUT was placed on a platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane. The table is made of Styrofoam and covered with polyvinyl chloride. That has very low permittivity. For above 1 GHz, EUT was placed on a polystyrene platform of nominal size, 0.5 m by 0.5 m, raised 1.5 m above the conducting ground plane.

Photographs of the set up are shown in APPENDIX 3.

6.3 Test procedure

The Radiated Electric Field Strength intensity has been measured on a semi-anechoic chamber with a ground plane at a distance of 3 m.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open area test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788. These tests were performed in semi anechoic chamber. Therefore the measured level of emissions may be higher than if measurements were made without a ground plane. However test results were confirmed to pass against standard limit.

The Radiated Electric Field Strength intensity has been measured with a ground plane and at a distance of 3 m.

Frequency: From 9 kHz to 30 MHz at distance 3 m (Refer to Figure 2)

The EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

The measurements were performed for vertical polarization (antenna angle: 0 deg., 45 deg., 90 deg. and 135 deg.) and horizontal polarization. Drawing of the antenna direction is shown in Figure 1.

Frequency: From 30 MHz to 10 GHz at distance 3 m (Refer to Figure 2).

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

The measurements were performed for both vertical and horizontal antenna polarization.

Measurements were performed with QP, PK, and AV detector.

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The radiated emission measurements were made with the following detector function of the test receiver.

	9 kHz to 90 kHz & 110 kHz to 150 kHz	90 kHz to 110 kHz	150 kHz to 490 kHz	490 kHz to 30 MHz	30 MHz to 1 GHz
Detector Type	PK/AV	QP	PK/AV	QP	QP
IF Bandwidth	200 Hz	200 Hz	10 kHz	9 kHz	120 kHz
Distance factor *1)	-80 dB	-80 dB	-80 dB	-40 dB	-
Measuring antenna	Loop antenna				Biconical (30 MHz – 200 MHz) Logperiodic (200 MHz - 1 GHz)

	above 1 GHz	
Detector Type	PK	AV
IF Bandwidth	RBW: 1 MHz VBW: 3 MHz	RBW: 1 MHz VBW: 10 Hz
Distance factor *2)	2.39 dB (1 GHz - 13 GHz) -9.54 dB (13 GHz - 40 GHz)	
Measuring antenna	Horn	

*1) FCC 15.31 (f)(2) (9kHz-30MHz)

Distance Factor: $40 \times \log (3 \text{ m} / 300 \text{ m}) = -80 \text{ dB}$

Distance Factor: $40 \times \log (3 \text{ m} / 30 \text{ m}) = -40 \text{ dB}$

*2) Distance Factor: 1 GHz - 13 GHz: $20 \times \log (3.95 \text{ m} / 3.0 \text{ m}) = 2.39 \text{ dB}$

Distance Factor: 13 GHz - 40 GHz: $20 \times \log (1.0 \text{ m} / 3.0 \text{ m}) = -9.54 \text{ dB}$

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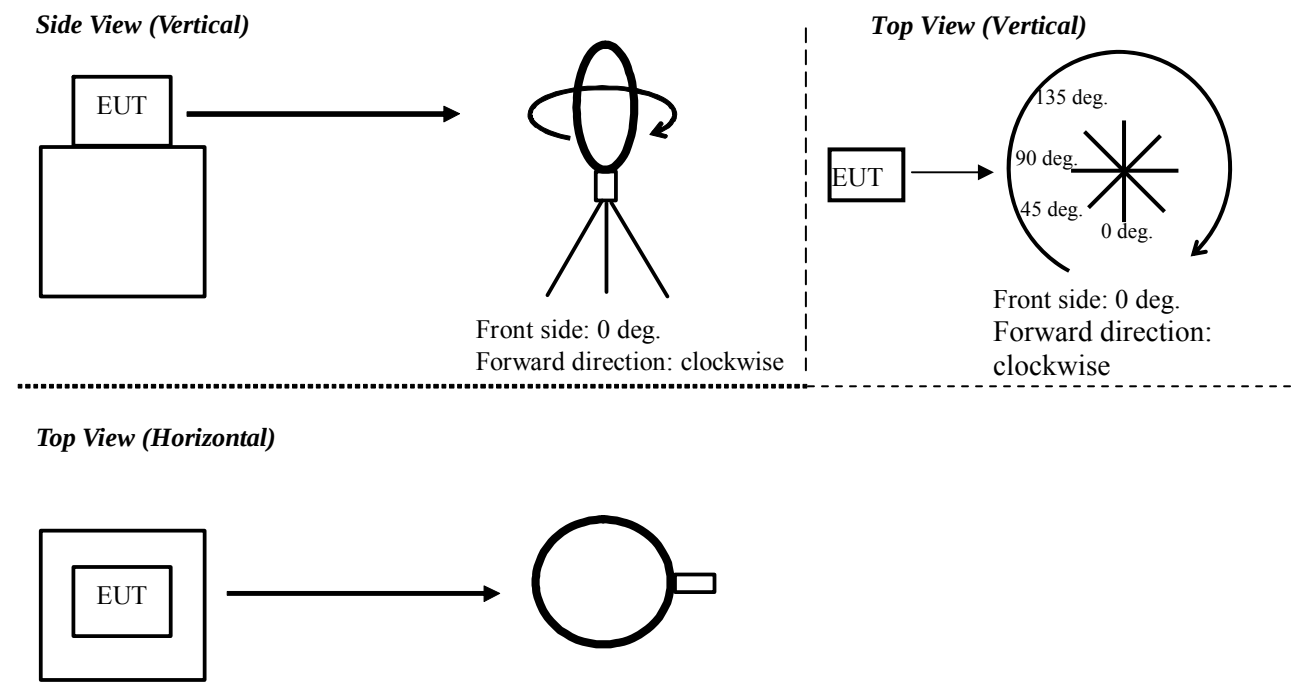
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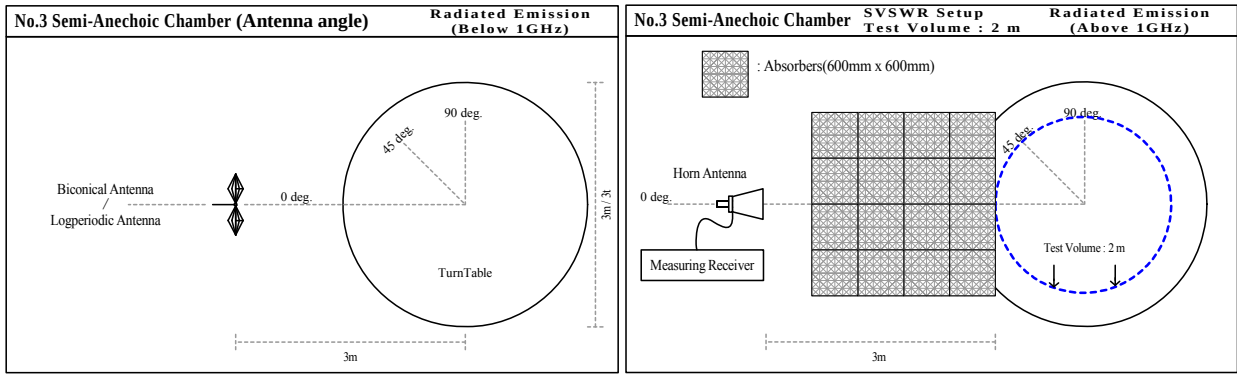
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Figure 1. Direction of the Loop Antenna



Antenna was not rotated.

Figure 2. Antenna angle



6.4 Results

Summary of the test results : Pass

Refer to APPENDIX 1

SECTION 7: 20 dB bandwidth & Occupied bandwidth (99 %)

Test procedure

The test was measured with a spectrum analyzer using a test fixture.

Test	Span	RBW	VBW	Sweep	Detector	Trace	Instrument used
20 dB Bandwidth	600 kHz *1) 190 kHz *2)	3 kHz *1) 1 kHz *2)	9.1 kHz *1) 3 kHz *2)	Auto	Peak	Max Hold	Spectrum Analyzer
99 % Occupied Bandwidth	Enough width to display 20 dB Bandwidth	1 to 5 % of Span	Three times of RBW	Auto (Single)	Sample	Max Hold *3)	Spectrum Analyzer
*1) State with audio input signal (1 kHz) inserted *2) State without audio input signal (1 kHz) inserted *3) The measurement was performed with Max Hold since the duty cycle was not 100 %.							

Summary of the test results: Pass
Refer to APPENDIX 1

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DATA OF CONDUCTED EMISSION TEST

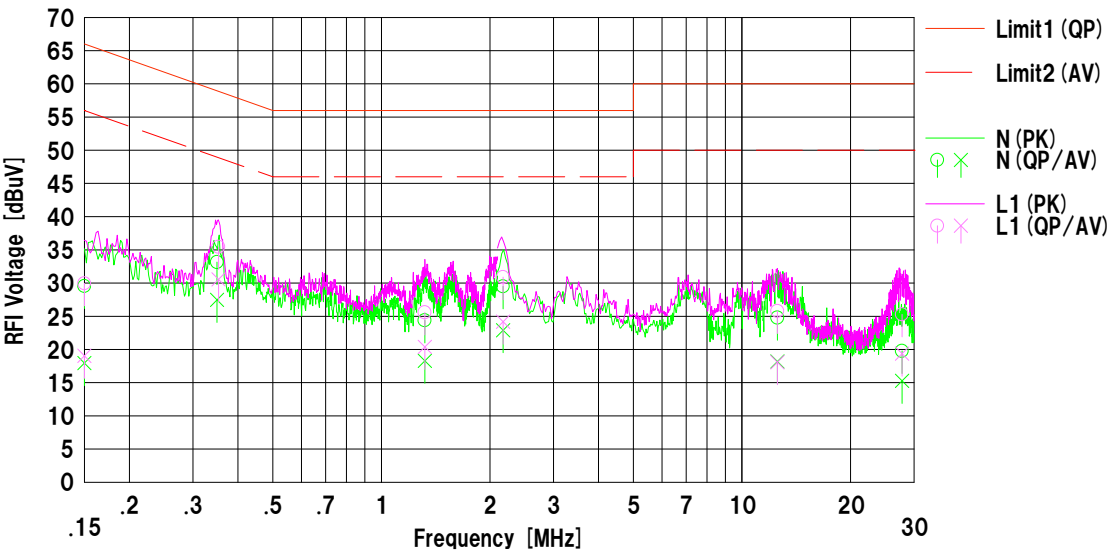
UL Japan,Inc. Shonan EMC Lab. No.1 Shielded Room
Date : 2017/06/06

Serial No. : 9000001
Remarks : ATT: 0dB
State with audio input signal inserted

Mode : Tx, 915.5 MHz
Order No. : 11798803S
Power : AC 120 V / 60 Hz
Temp./Humi. : 23 deg.C / 39 %RH

Limit1 : FCC 15C (15.207) QP
Limit2 : FCC 15C (15.207) AV

Engineer : Hiroyuki Morikawa



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15000	17.00	5.40	12.55	29.55	17.95	66.00	56.00	36.4	38.0	N	
2	0.35000	20.60	14.90	12.56	33.16	27.46	58.96	48.96	25.8	21.5	N	
3	1.32000	11.70	5.60	12.69	24.39	18.29	56.00	46.00	31.6	27.7	N	
4	2.17500	16.70	10.10	12.79	29.49	22.89	56.00	46.00	26.5	23.1	N	
5	12.54800	10.50	3.90	14.29	24.79	18.19	60.00	50.00	35.2	31.8	N	
6	27.81400	4.40	-0.10	15.38	19.78	15.28	60.00	50.00	40.2	34.7	N	
7	0.15000	17.40	6.50	12.55	29.95	19.05	66.00	56.00	36.0	36.9	L1	
8	0.35330	22.90	18.00	12.56	35.46	30.56	58.88	48.88	23.4	18.3	L1	
9	1.32000	12.90	7.70	12.69	25.59	20.39	56.00	46.00	30.4	25.6	L1	
10	2.17500	18.10	11.40	12.79	30.89	24.19	56.00	46.00	25.1	21.8	L1	
11	12.54800	11.50	3.80	14.29	25.79	18.09	60.00	50.00	34.2	31.9	L1	
12	27.81400	9.90	4.00	15.38	25.28	19.38	60.00	50.00	34.7	30.6	L1	

Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-02

DATA OF CONDUCTED EMISSION TEST

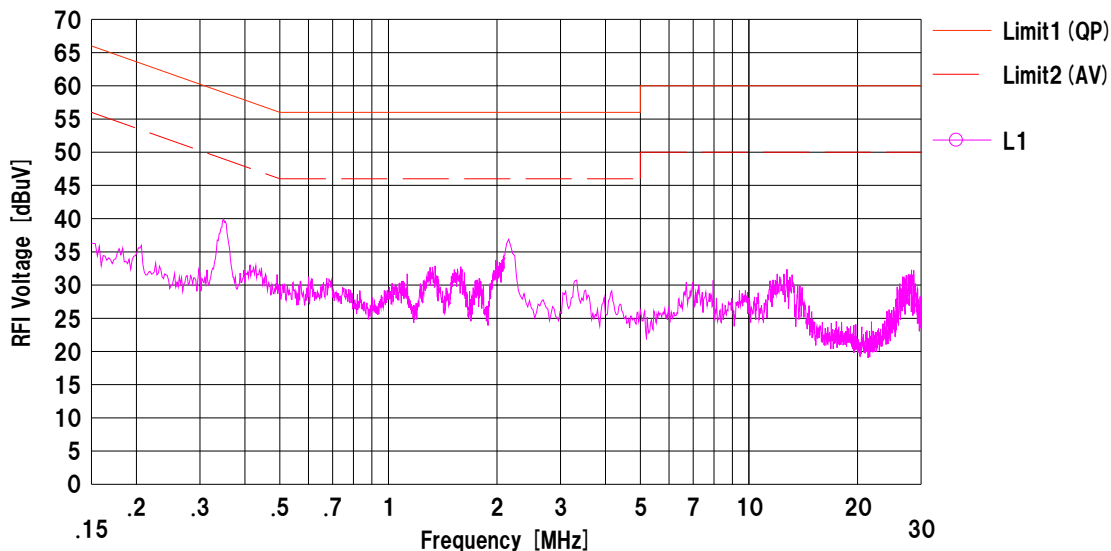
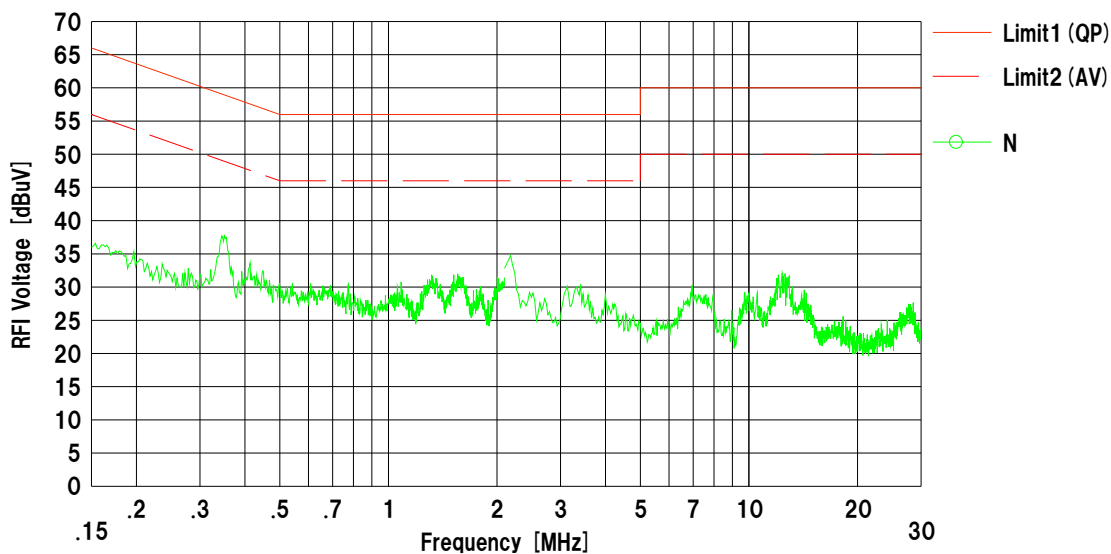
UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room
Date : 2017/06/06

Serial No.	: 9000001	Mode	: Tx, 916.5 MHz
Remarks	: ATT: 0dB	Order No.	: 11798803S
		Power	: AC 120 V / 60 Hz
		Temp./Humi.	: 23 deg.C / 39 %RH

State with audio input signal inserted

Limit1 : FCC 15C (15.207) QP
Limit2 : FCC 15C (15.207) AV

Engineer : Hiroyuki Morikawa



Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-02

DATA OF CONDUCTED EMISSION TEST

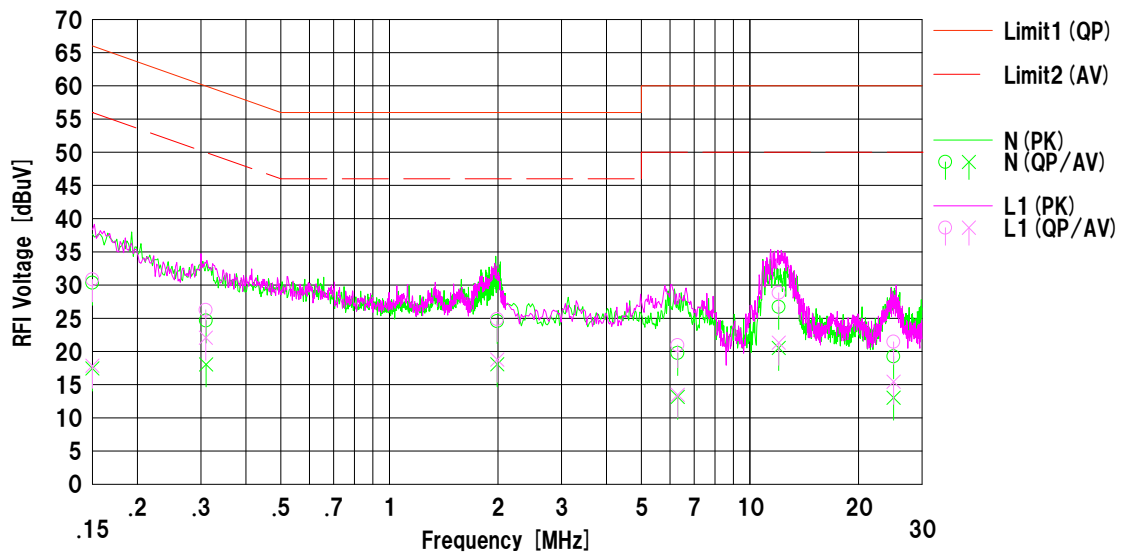
UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room
Date : 2017/06/06

Serial No. : 9000002
Remarks : ATT: 0dB
State without audio input signal inserted

Mode : Tx, 915.5 MHz
Order No. : 11798803S
Power : AC 120 V / 60 Hz
Temp./Humi. : 23 deg.C / 39 %RH

Limit1 : FCC 15C (15.207) QP
Limit2 : FCC 15C (15.207) AV

Engineer : Hiroyuki Morikawa



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15000	17.80	4.90	12.55	30.35	17.45	66.00	56.00	35.6	38.5	N	
2	0.31000	12.10	5.50	12.56	24.66	18.06	59.97	49.97	35.3	31.9	N	
3	1.99200	11.80	5.30	12.77	24.57	18.07	56.00	46.00	31.4	27.9	N	
4	6.30300	6.40	-0.20	13.37	19.77	13.17	60.00	50.00	40.2	36.8	N	
5	12.02200	12.50	6.30	14.22	26.72	20.52	60.00	50.00	33.2	29.4	N	
6	25.01300	4.00	-2.20	15.25	19.25	13.05	60.00	50.00	40.7	36.9	N	
7	0.15000	18.30	5.30	12.55	30.85	17.85	66.00	56.00	35.1	38.1	L1	
8	0.30970	13.70	9.50	12.56	26.26	22.06	59.98	49.98	33.7	27.9	L1	
9	1.99200	12.10	6.00	12.77	24.87	18.77	56.00	46.00	31.1	27.2	L1	
10	6.30300	7.60	0.10	13.37	20.97	13.47	60.00	50.00	39.0	36.5	L1	
11	12.02200	14.60	7.10	14.22	28.82	21.32	60.00	50.00	31.1	28.6	L1	
12	25.01300	6.20	0.20	15.25	21.45	15.45	60.00	50.00	38.5	34.5	L1	

Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-02

DATA OF CONDUCTED EMISSION TEST

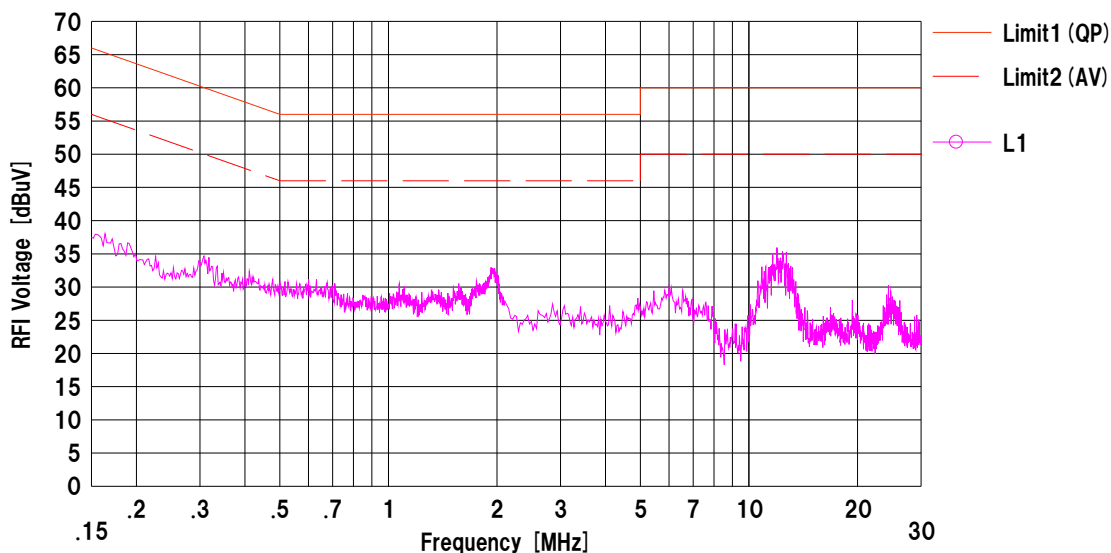
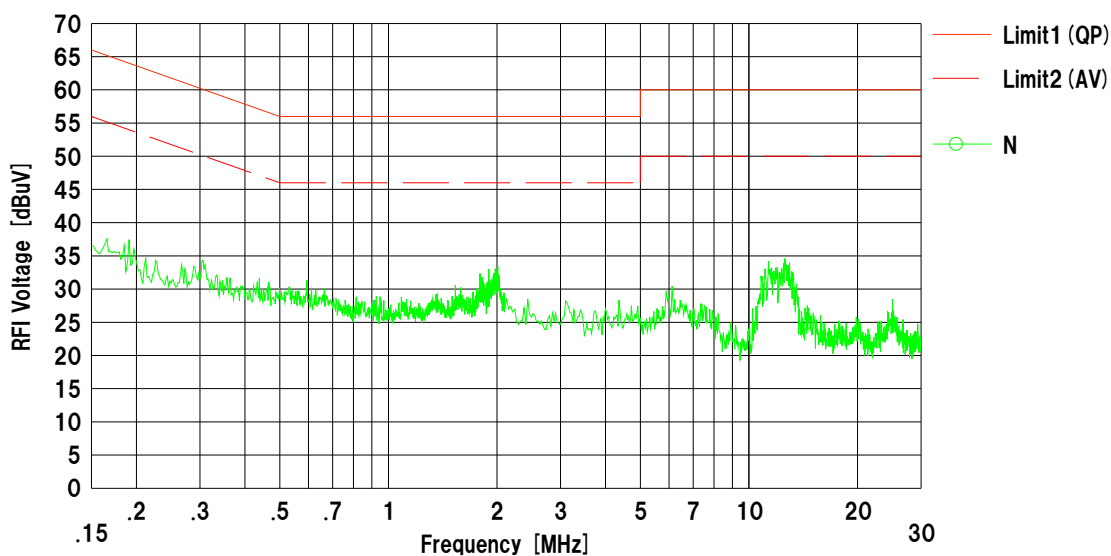
UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room
Date : 2017/06/06

Serial No. : 9000002
Remarks : ATT: 0dB
State without audio input signal inserted

Mode : Tx, 916.5 MHz
Order No. : 11798803S
Power : AC 120 V / 60 Hz
Temp./Humi. : 23 deg.C / 39 %RH

Limit1 : FCC 15C (15.207) QP
Limit2 : FCC 15C (15.207) AV

Engineer : Hiroyuki Morikawa



Calculation: Result [dBuV] = Reading [dBuV] + C.Fac (LISN+Cable+ATT) [dB]
LISN: SLS-02

Radiated Emission

Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date June 2, 2017 June 3, 2017
Temperature / Humidity 23 deg. C / 55 % RH 22 deg. C / 45 % RH
Engineer Yosuke Ishikawa Hikaru Shirasawa
 (30 MHz -1 GHz) (1 GHz -10 GHz)
Mode Tx 915.5 MHz ATT : 0 dB
EUT Serial No. 9000001
Remarks State with audio input signal inserted

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	165.846	QP	33.84	15.65	8.02	32.02	0.00	25.49	43.50	18.0	182	54	carrier
Hori.	322.191	QP	28.91	13.88	8.84	31.88	0.00	19.75	46.00	26.2	100	55	
Hori.	915.500	QP	82.17	21.99	11.09	30.79	0.00	84.46	93.97	9.5	100	290	
Hori.	1831.000	PK	52.79	25.52	4.04	41.03	2.39	43.71	73.90	30.1	143	13	
Hori.	2746.500	PK	49.55	28.14	5.07	41.11	2.39	44.04	73.90	29.8	123	116	
Hori.	3662.000	PK	49.97	29.04	5.63	41.84	2.39	45.19	73.90	28.7	149	69	
Hori.	4577.500	PK	48.97	30.68	6.19	42.18	2.39	46.05	73.90	27.8	100	0	
Hori.	5493.000	PK	48.13	32.10	6.79	41.51	2.39	47.90	73.90	26.0	100	0	
Hori.	6408.500	PK	47.23	34.36	7.38	41.26	2.39	50.10	73.90	23.8	100	0	
Hori.	7324.000	PK	47.90	36.78	7.95	41.27	2.39	53.75	73.90	20.1	100	0	
Hori.	8239.500	PK	47.82	37.55	8.41	41.49	2.39	54.68	73.90	19.2	100	0	
Hori.	9155.000	PK	46.30	37.94	8.96	40.88	2.39	54.71	73.90	19.1	100	0	
Hori.	1831.000	AV	46.22	25.52	4.04	41.03	2.39	37.14	53.90	16.7	143	13	(VBW10Hz)
Hori.	2746.500	AV	38.66	28.14	5.07	41.11	2.39	33.15	53.90	20.7	123	116	(VBW10Hz)
Hori.	3662.000	AV	39.24	29.04	5.63	41.84	2.39	34.46	53.90	19.4	149	69	(VBW10Hz)
Hori.	4577.500	AV	37.13	30.68	6.19	42.18	2.39	34.21	53.90	19.6	100	0	(VBW10Hz)
Hori.	5493.000	AV	36.46	32.10	6.79	41.51	2.39	36.23	53.90	17.6	100	0	(VBW10Hz)
Hori.	6408.500	AV	35.90	34.36	7.38	41.26	2.39	38.77	53.90	15.1	100	0	(VBW10Hz)
Hori.	7324.000	AV	35.99	36.78	7.95	41.27	2.39	41.84	53.90	12.0	100	0	(VBW10Hz)
Hori.	8239.500	AV	35.95	37.55	8.41	41.49	2.39	42.81	53.90	11.0	100	0	(VBW10Hz)
Hori.	9155.000	AV	34.40	37.94	8.96	40.88	2.39	42.81	53.90	11.0	100	0	(VBW10Hz)
Vert.	40.064	QP	37.87	14.27	6.82	32.12	0.00	26.84	40.00	13.1	100	243	carrier
Vert.	43.871	QP	38.27	12.74	6.89	32.12	0.00	25.78	40.00	14.2	100	188	
Vert.	72.041	QP	40.52	6.27	7.11	32.10	0.00	21.80	40.00	18.2	100	81	
Vert.	108.836	QP	37.46	11.24	7.41	32.07	0.00	24.04	43.50	19.4	100	88	
Vert.	148.731	QP	34.01	14.78	7.91	32.03	0.00	24.67	43.50	18.8	100	162	
Vert.	162.351	QP	41.74	15.49	8.02	32.02	0.00	33.23	43.50	10.2	100	232	
Vert.	421.872	QP	29.73	16.06	9.31	31.86	0.00	23.24	46.00	22.7	115	140	
Vert.	915.500	QP	87.75	21.99	11.09	30.79	0.00	90.04	93.97	3.9	115	167	
Vert.	1831.000	PK	51.30	25.52	4.04	41.03	2.39	42.22	73.90	31.6	124	18	
Vert.	2746.500	PK	49.55	28.14	5.07	41.11	2.39	44.04	73.90	29.8	139	107	
Vert.	3662.000	PK	49.90	29.04	5.63	41.84	2.39	45.12	73.90	28.7	136	116	
Vert.	4577.500	PK	48.31	30.68	6.19	42.18	2.39	45.39	73.90	28.5	100	0	
Vert.	5493.000	PK	48.52	32.10	6.79	41.51	2.39	48.29	73.90	25.6	100	0	
Vert.	6408.500	PK	47.69	34.36	7.38	41.26	2.39	50.56	73.90	23.3	100	0	
Vert.	7324.000	PK	47.92	36.78	7.95	41.27	2.39	53.77	73.90	20.1	100	0	
Vert.	8239.500	PK	48.50	37.55	8.41	41.49	2.39	55.36	73.90	18.5	100	0	
Vert.	9155.000	PK	47.09	37.94	8.96	40.88	2.39	55.50	73.90	18.4	100	0	
Vert.	1831.000	AV	44.41	25.52	4.04	41.03	2.39	35.33	53.90	18.5	124	18	(VBW10Hz)
Vert.	2746.500	AV	40.01	28.14	5.07	41.11	2.39	34.50	53.90	19.4	139	107	(VBW10Hz)
Vert.	3662.000	AV	38.84	29.04	5.63	41.84	2.39	34.06	53.90	19.8	136	116	(VBW10Hz)
Vert.	4577.500	AV	37.27	30.68	6.19	42.18	2.39	34.35	53.90	19.5	100	0	(VBW10Hz)
Vert.	5493.000	AV	36.49	32.10	6.79	41.51	2.39	36.26	53.90	17.6	100	0	(VBW10Hz)
Vert.	6408.500	AV	35.87	34.36	7.38	41.26	2.39	38.74	53.90	15.1	100	0	(VBW10Hz)
Vert.	7324.000	AV	36.11	36.78	7.95	41.27	2.39	41.96	53.90	11.9	100	0	(VBW10Hz)
Vert.	8239.500	AV	36.10	37.55	8.41	41.49	2.39	42.96	53.90	10.9	100	0	(VBW10Hz)
Vert.	9155.000	AV	34.49	37.94	8.96	40.88	2.39	42.90	53.90	11.0	100	0	(VBW10Hz)

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

Distance factor : 1 GHz - 13 GHz : 20log (3.95 m / 3.0 m) = 2.39 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date June 2, 2017 June 3, 2017
Temperature / Humidity 23 deg. C / 55 % RH 22 deg. C / 45 % RH
Engineer Yosuke Ishikawa Hikaru Shirasawa
 (30 MHz -1 GHz) (1 GHz -10 GHz)
Mode Tx 916.5 MHz ATT : 0 dB
EUT Serial No. 9000001
Remarks State with audio input signal inserted

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	166.147	QP	33.86	15.66	8.02	32.02	0.00	25.52	43.50	17.9	182	46	carrier
Hori.	322.906	QP	28.96	13.90	8.84	31.88	0.00	19.82	46.00	26.1	100	71	
Hori.	916.500	QP	82.17	22.00	11.10	30.78	0.00	84.49	93.97	9.5	100	284	
Hori.	1833.000	PK	52.21	25.52	4.04	41.03	2.39	43.13	73.90	30.7	145	319	
Hori.	2749.500	PK	49.34	28.14	5.07	41.11	2.39	43.83	73.90	30.0	131	4	
Hori.	3666.000	PK	49.73	29.05	5.64	41.84	2.39	44.97	73.90	28.9	134	78	
Hori.	5499.000	PK	48.70	32.11	6.80	41.51	2.39	48.49	73.90	25.4	100	0	
Hori.	6415.500	PK	47.76	34.38	7.38	41.27	2.39	50.64	73.90	23.2	100	0	
Hori.	7332.000	PK	47.26	36.80	7.96	41.28	2.39	53.13	73.90	20.7	100	0	
Hori.	8248.500	PK	47.22	37.54	8.41	41.49	2.39	54.07	73.90	19.8	100	0	
Hori.	9165.000	PK	45.76	37.95	8.97	40.87	2.39	54.20	73.90	19.7	100	0	
Hori.	1833.000	AV	45.82	25.52	4.04	41.03	2.39	36.74	53.90	17.1	145	319	(VBW10Hz)
Hori.	2749.500	AV	38.27	28.14	5.07	41.11	2.39	32.76	53.90	21.1	131	4	(VBW10Hz)
Hori.	3666.000	AV	39.23	29.05	5.64	41.84	2.39	34.47	53.90	19.4	134	78	(VBW10Hz)
Hori.	5499.000	AV	36.13	32.11	6.80	41.51	2.39	35.92	53.90	17.9	100	0	(VBW10Hz)
Hori.	6415.500	AV	35.60	34.38	7.38	41.27	2.39	38.48	53.90	15.4	100	0	(VBW10Hz)
Hori.	7332.000	AV	34.23	36.80	7.96	41.28	2.39	40.10	53.90	13.8	100	0	(VBW10Hz)
Hori.	8248.500	AV	34.16	37.54	8.41	41.49	2.39	41.01	53.90	12.8	100	0	(VBW10Hz)
Hori.	9165.000	AV	33.87	37.95	8.97	40.87	2.39	42.31	53.90	11.5	100	0	(VBW10Hz)
Vert.	40.070	QP	37.72	14.27	6.82	32.12	0.00	26.69	40.00	13.3	100	237	carrier
Vert.	43.829	QP	37.90	12.75	6.89	32.12	0.00	25.42	40.00	14.5	101	178	
Vert.	72.307	QP	40.66	6.27	7.14	32.10	0.00	21.97	40.00	18.0	100	85	
Vert.	108.901	QP	37.11	11.25	7.41	32.07	0.00	23.70	43.50	19.8	100	79	
Vert.	147.566	QP	33.42	14.71	7.89	32.03	0.00	23.99	43.50	19.5	100	160	
Vert.	162.375	QP	41.47	15.50	8.02	32.02	0.00	32.97	43.50	10.5	100	233	
Vert.	419.195	QP	30.07	16.01	9.29	31.86	0.00	23.51	46.00	22.4	121	144	
Vert.	916.500	QP	87.47	22.00	11.10	30.78	0.00	89.79	93.97	4.2	115	170	
Vert.	1833.000	PK	50.39	25.52	4.04	41.03	2.39	41.31	73.90	32.5	151	85	
Vert.	2749.500	PK	49.47	28.14	5.07	41.11	2.39	43.96	73.90	29.9	158	124	
Vert.	3666.000	PK	49.63	29.05	5.64	41.84	2.39	44.87	73.90	29.0	136	13	
Vert.	4582.500	PK	47.97	30.69	6.19	42.17	2.39	45.07	73.90	28.8	100	0	
Vert.	4582.500	PK	48.51	30.69	6.19	42.17	2.39	45.61	73.90	28.2	100	0	
Vert.	5499.000	PK	47.92	32.11	6.80	41.51	2.39	47.71	73.90	26.1	100	0	
Vert.	6415.500	PK	47.16	34.38	7.38	41.27	2.39	50.04	73.90	23.8	100	0	
Vert.	7332.000	PK	47.83	36.80	7.96	41.28	2.39	53.70	73.90	20.2	100	0	
Vert.	8248.500	PK	46.93	37.54	8.41	41.49	2.39	53.78	73.90	20.1	100	0	
Vert.	9165.000	PK	45.18	37.95	8.97	40.87	2.39	53.62	73.90	20.2	100	0	
Vert.	1833.000	AV	42.58	25.52	4.04	41.03	2.39	33.50	53.90	20.4	151	85	(VBW10Hz)
Vert.	2749.500	AV	39.36	28.14	5.07	41.11	2.39	33.85	53.90	20.0	158	124	(VBW10Hz)
Vert.	3666.000	AV	39.61	29.05	5.64	41.84	2.39	34.85	53.90	19.0	136	13	(VBW10Hz)
Vert.	4582.500	AV	37.14	30.69	6.19	42.17	2.39	34.24	53.90	19.6	100	0	(VBW10Hz)
Vert.	4582.500	AV	37.18	30.69	6.19	42.17	2.39	34.28	53.90	19.6	100	0	(VBW10Hz)
Vert.	5499.000	AV	36.16	32.11	6.80	41.51	2.39	35.95	53.90	17.9	100	0	(VBW10Hz)
Vert.	6415.500	AV	35.62	34.38	7.38	41.27	2.39	38.50	53.90	15.4	100	0	(VBW10Hz)
Vert.	7332.000	AV	35.68	36.80	7.96	41.28	2.39	41.55	53.90	12.3	100	0	(VBW10Hz)
Vert.	8248.500	AV	35.61	37.54	8.41	41.49	2.39	42.46	53.90	11.4	100	0	(VBW10Hz)
Vert.	9165.000	AV	33.92	37.95	8.97	40.87	2.39	42.36	53.90	11.5	100	0	(VBW10Hz)

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

Distance factor : 1 GHz - 13 GHz : $20\log(3.95\text{ m} / 3.0\text{ m}) = 2.39\text{ dB}$ 13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

Radiated Emission

Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date June 2, 2017 June 3, 2017
Temperature / Humidity 23 deg. C / 55 % RH 22 deg. C / 45 % RH
Engineer Yosuke Ishikawa Hikaru Shirasawa
 (30 MHz -1 GHz) (1 GHz -10 GHz)
Mode Tx 915.5 MHz ATT : 0 dB
EUT Serial No. 9000002
Remarks State without audio input signal inserted

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	157.605	QP	33.51	15.26	8.00	32.02	0.00	24.75	43.50	18.7	199	221	carrier
Hori.	418.665	QP	27.12	16.00	9.29	31.86	0.00	20.55	46.00	25.4	100	184	
Hori.	915.500	QP	82.05	21.99	11.09	30.79	0.00	84.34	93.97	9.6	100	127	
Hori.	1831.000	PK	52.03	25.52	4.04	41.03	2.39	42.95	73.90	30.9	183	321	
Hori.	2746.500	PK	49.85	28.14	5.07	41.11	2.39	44.34	73.90	29.5	152	342	
Hori.	3662.000	PK	48.88	29.04	5.63	41.84	2.39	44.10	73.90	29.8	154	322	
Hori.	4577.500	PK	49.39	30.68	6.19	42.18	2.39	46.47	73.90	27.4	100	0	
Hori.	5493.000	PK	47.30	32.10	6.79	41.51	2.39	47.07	73.90	26.8	100	0	
Hori.	6408.500	PK	48.11	34.36	7.38	41.26	2.39	50.98	73.90	22.9	100	0	
Hori.	7324.000	PK	47.75	36.78	7.95	41.27	2.39	53.60	73.90	20.3	100	0	
Hori.	8239.500	PK	47.10	37.55	8.41	41.49	2.39	53.96	73.90	19.9	100	0	(VBW10Hz)
Hori.	9155.000	PK	46.59	37.94	8.96	40.88	2.39	55.00	73.90	18.9	100	0	
Hori.	1831.000	AV	45.92	25.52	4.04	41.03	2.39	36.84	53.90	17.0	183	321	
Hori.	2746.500	AV	37.36	28.14	5.07	41.11	2.39	31.85	53.90	22.0	152	342	
Hori.	3662.000	AV	40.53	29.04	5.63	41.84	2.39	35.75	53.90	18.1	154	322	
Hori.	4577.500	AV	37.06	30.68	6.19	42.18	2.39	34.14	53.90	19.7	100	0	
Hori.	5493.000	AV	35.68	32.10	6.79	41.51	2.39	35.45	53.90	18.4	100	0	
Hori.	6408.500	AV	35.76	34.36	7.38	41.26	2.39	38.63	53.90	15.2	100	0	
Hori.	7324.000	AV	36.04	36.78	7.95	41.27	2.39	41.89	53.90	12.0	100	0	
Hori.	8239.500	AV	36.10	37.55	8.41	41.49	2.39	42.96	53.90	10.9	100	0	
Hori.	9155.000	AV	34.33	37.94	8.96	40.88	2.39	42.74	53.90	11.1	100	0	(VBW10Hz)
Vert.	45.548	QP	39.62	12.11	6.92	32.12	0.00	26.53	40.00	13.4	100	134	
Vert.	48.936	QP	40.51	11.05	6.95	32.12	0.00	26.39	40.00	13.6	100	298	
Vert.	68.756	QP	37.65	6.48	6.86	32.11	0.00	18.88	40.00	21.1	100	89	
Vert.	123.652	QP	37.92	13.11	7.45	32.06	0.00	26.42	43.50	17.0	100	162	
Vert.	157.569	QP	37.64	15.26	8.00	32.02	0.00	28.88	43.50	14.6	100	220	
Vert.	197.536	QP	34.42	16.24	7.98	32.00	0.00	26.64	43.50	16.8	100	1	
Vert.	293.328	QP	31.55	13.16	8.68	31.92	0.00	21.47	46.00	24.5	136	288	
Vert.	915.500	QP	87.07	21.99	11.09	30.79	0.00	89.36	93.97	4.6	112	211	carrier
Vert.	1831.000	PK	50.95	25.52	4.04	41.03	2.39	41.87	73.90	32.0	123	88	
Vert.	2746.500	PK	48.86	28.14	5.07	41.11	2.39	43.35	73.90	30.5	106	105	
Vert.	3662.000	PK	49.99	29.04	5.63	41.84	2.39	45.21	73.90	28.6	105	118	
Vert.	4577.500	PK	48.11	30.68	6.19	42.18	2.39	45.19	73.90	28.7	100	0	
Vert.	5493.000	PK	48.13	32.10	6.79	41.51	2.39	47.90	73.90	26.0	100	0	
Vert.	6408.500	PK	48.18	34.36	7.38	41.26	2.39	51.05	73.90	22.8	100	0	
Vert.	7324.000	PK	48.04	36.78	7.95	41.27	2.39	53.89	73.90	20.0	100	0	
Vert.	8239.500	PK	48.06	37.55	8.41	41.49	2.39	54.92	73.90	18.9	100	0	
Vert.	9155.000	PK	45.51	37.94	8.96	40.88	2.39	53.92	73.90	19.9	100	0	(VBW10Hz)
Vert.	1831.000	AV	41.53	25.52	4.04	41.03	2.39	32.45	53.90	21.4	123	88	
Vert.	2746.500	AV	39.33	28.14	5.07	41.11	2.39	33.82	53.90	20.0	106	105	
Vert.	3662.000	AV	40.06	29.04	5.63	41.84	2.39	35.28	53.90	18.6	105	118	
Vert.	4577.500	AV	38.43	30.68	6.19	42.18	2.39	35.51	53.90	18.3	100	0	
Vert.	5493.000	AV	37.17	32.10	6.79	41.51	2.39	36.94	53.90	16.9	100	0	
Vert.	6408.500	AV	37.22	34.36	7.38	41.26	2.39	40.09	53.90	13.8	100	0	
Vert.	7324.000	AV	37.53	36.78	7.95	41.27	2.39	43.38	53.90	10.5	100	0	
Vert.	8239.500	AV	36.89	37.55	8.41	41.49	2.39	43.75	53.90	10.1	100	0	
Vert.	9155.000	AV	35.17	37.94	8.96	40.88	2.39	43.58	53.90	10.3	100	0	

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

Distance factor : 1 GHz - 13 GHz : 20log (3.95 m / 3.0 m) = 2.39 dB

13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission

Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date June 2, 2017 June 3, 2017
Temperature / Humidity 23 deg. C / 55 % RH 22 deg. C / 45 % RH
Engineer Yosuke Ishikawa Hikaru Shirasawa
 (30 MHz -1 GHz) (1 GHz -10 GHz)
Mode Tx 916.5 MHz ATT : 0 dB
EUT Serial No. 9000002
Remarks State without audio input signal inserted

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

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg]	Remark
Hori.	156.272	QP	33.25	15.19	8.00	32.03	0.00	24.41	43.50	19.0	192	197	carrier
Hori.	418.143	QP	26.78	15.99	9.29	31.86	0.00	20.20	46.00	25.8	100	57	
Hori.	916.500	QP	82.48	22.00	11.10	30.78	0.00	84.80	93.97	9.2	100	123	
Hori.	1833.000	PK	52.68	25.52	4.04	41.03	2.39	43.60	73.90	30.3	144	195	
Hori.	2749.500	PK	48.70	28.14	5.07	41.11	2.39	43.19	73.90	30.7	145	112	
Hori.	3666.000	PK	48.19	29.05	5.64	41.84	2.39	43.43	73.90	30.4	151	262	
Hori.	4582.500	PK	49.25	30.69	6.19	42.17	2.39	46.35	73.90	27.5	100	0	
Hori.	5499.000	PK	47.86	32.11	6.80	41.51	2.39	47.65	73.90	26.2	100	0	
Hori.	6415.500	PK	46.64	34.38	7.38	41.27	2.39	49.52	73.90	24.3	100	0	
Hori.	7332.000	PK	47.65	36.80	7.96	41.28	2.39	53.52	73.90	20.3	100	0	
Hori.	8248.500	PK	48.93	37.54	8.41	41.49	2.39	55.78	73.90	18.1	100	0	
Hori.	9165.000	PK	45.72	37.95	8.97	40.87	2.39	54.16	73.90	19.7	100	0	
Hori.	1833.000	AV	45.76	25.52	4.04	41.03	2.39	36.68	53.90	17.2	144	195	(VBW10Hz)
Hori.	2749.500	AV	38.58	28.14	5.07	41.11	2.39	33.07	53.90	20.8	145	112	(VBW10Hz)
Hori.	3666.000	AV	38.10	29.05	5.64	41.84	2.39	33.34	53.90	20.5	151	262	(VBW10Hz)
Hori.	4582.500	AV	37.22	30.69	6.19	42.17	2.39	34.32	53.90	19.5	100	0	(VBW10Hz)
Hori.	5499.000	AV	35.51	32.11	6.80	41.51	2.39	35.30	53.90	18.6	100	0	(VBW10Hz)
Hori.	6415.500	AV	35.16	34.38	7.38	41.27	2.39	38.04	53.90	15.8	100	0	(VBW10Hz)
Hori.	7332.000	AV	35.53	36.80	7.96	41.28	2.39	41.40	53.90	12.5	100	0	(VBW10Hz)
Hori.	8248.500	AV	35.40	37.54	8.41	41.49	2.39	42.25	53.90	11.6	100	0	(VBW10Hz)
Hori.	9165.000	AV	34.47	37.95	8.97	40.87	2.39	42.91	53.90	10.9	100	0	(VBW10Hz)
Vert.	45.254	QP	39.46	12.20	6.92	32.12	0.00	26.46	40.00	13.5	100	151	carrier
Vert.	48.951	QP	40.64	11.05	6.95	32.12	0.00	26.52	40.00	13.4	100	273	
Vert.	68.743	QP	37.71	6.48	6.86	32.11	0.00	18.94	40.00	21.0	100	92	
Vert.	123.361	QP	37.96	13.09	7.45	32.06	0.00	26.44	43.50	17.0	100	157	
Vert.	157.046	QP	37.62	15.23	8.01	32.02	0.00	28.84	43.50	14.6	100	276	
Vert.	197.172	QP	34.27	16.24	7.99	32.00	0.00	26.50	43.50	17.0	100	358	
Vert.	292.022	QP	31.78	13.12	8.68	31.92	0.00	21.66	46.00	24.3	156	302	
Vert.	916.500	QP	86.95	22.00	11.10	30.78	0.00	89.27	93.97	4.7	113	193	
Vert.	1833.000	PK	52.78	25.52	4.04	41.03	2.39	43.70	73.90	30.2	153	34	
Vert.	2749.500	PK	49.10	28.14	5.07	41.11	2.39	43.59	73.90	30.3	152	125	
Vert.	3666.000	PK	51.17	29.05	5.64	41.84	2.39	46.41	73.90	27.4	146	119	
Vert.	4582.500	PK	49.50	30.69	6.19	42.17	2.39	46.60	73.90	27.3	100	0	
Vert.	5499.000	PK	47.42	32.11	6.80	41.51	2.39	47.21	73.90	26.6	100	0	
Vert.	6415.500	PK	46.11	34.38	7.38	41.27	2.39	48.99	73.90	24.9	100	0	
Vert.	7332.000	PK	47.87	36.80	7.96	41.28	2.39	53.74	73.90	20.1	100	0	
Vert.	8248.500	PK	47.67	37.54	8.41	41.49	2.39	54.52	73.90	19.3	100	0	
Vert.	9165.000	PK	46.71	37.95	8.97	40.87	2.39	55.15	73.90	18.7	100	0	
Vert.	1833.000	AV	42.69	25.52	4.04	41.03	2.39	33.61	53.90	20.2	153	34	(VBW10Hz)
Vert.	2749.500	AV	39.35	28.14	5.07	41.11	2.39	33.84	53.90	20.0	152	125	(VBW10Hz)
Vert.	3666.000	AV	39.94	29.05	5.64	41.84	2.39	35.18	53.90	18.7	146	119	(VBW10Hz)
Vert.	4582.500	AV	37.33	30.69	6.19	42.17	2.39	34.43	53.90	19.4	100	0	(VBW10Hz)
Vert.	5499.000	AV	35.56	32.11	6.80	41.51	2.39	35.35	53.90	18.5	100	0	(VBW10Hz)
Vert.	6415.500	AV	35.06	34.38	7.38	41.27	2.39	37.94	53.90	15.9	100	0	(VBW10Hz)
Vert.	7332.000	AV	35.53	36.80	7.96	41.28	2.39	41.40	53.90	12.5	100	0	(VBW10Hz)
Vert.	8248.500	AV	35.49	37.54	8.41	41.49	2.39	42.34	53.90	11.5	100	0	(VBW10Hz)
Vert.	9165.000	AV	33.99	37.95	8.97	40.87	2.39	42.43	53.90	11.4	100	0	(VBW10Hz)

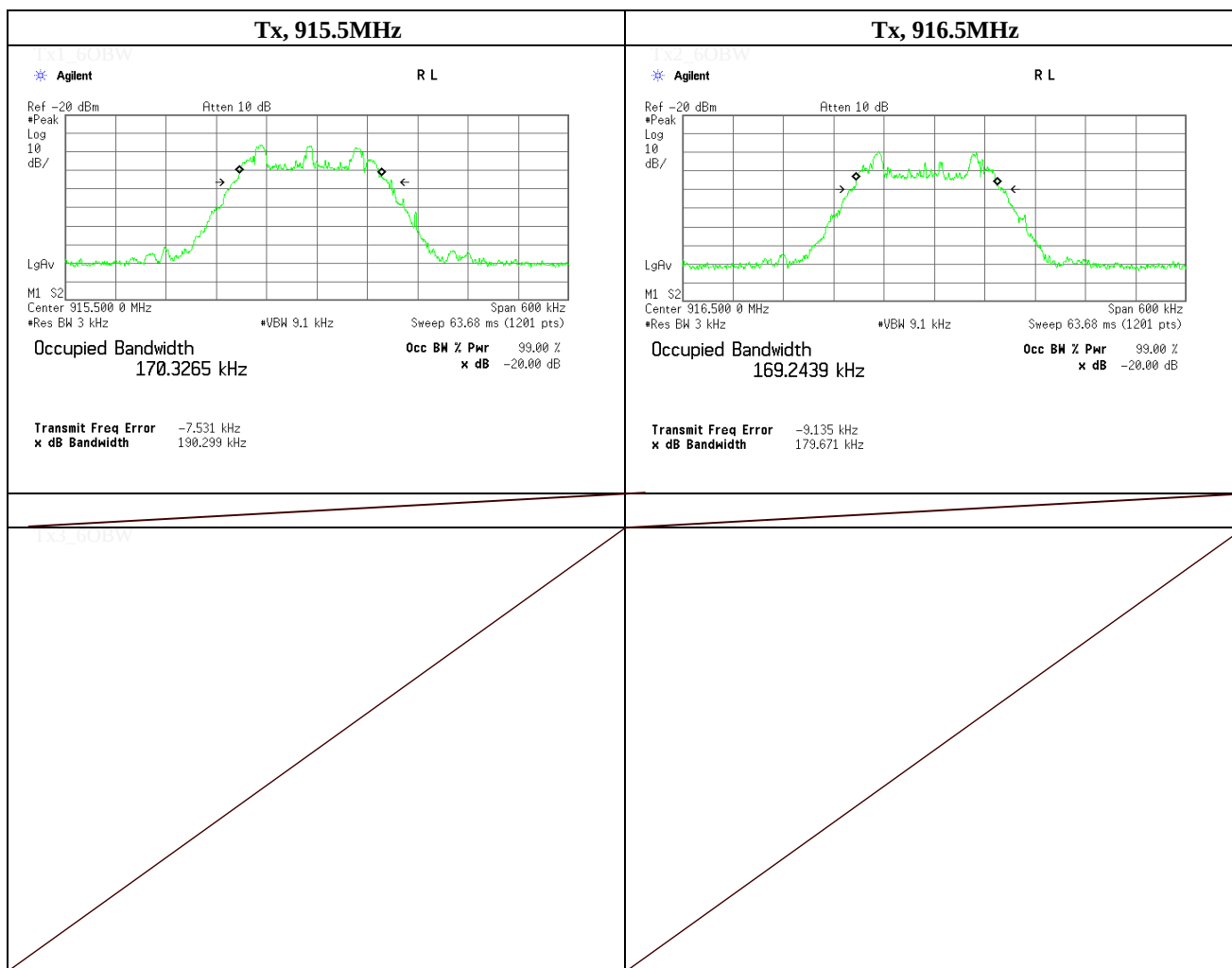
Result = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amplifier) + Distance factor

Distance factor : 1 GHz - 13 GHz : $20\log(3.95\text{ m} / 3.0\text{ m}) = 2.39\text{ dB}$ 13 GHz - 40 GHz : $20\log(1.0\text{ m} / 3.0\text{ m}) = -9.54\text{ dB}$

20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.6 Shielded Room
Date	June 7, 2017	
Temperature / Humidity	25 deg.C , 50 %RH	
Engineer	Kazutaka Takeyama	
Mode	Tx, ATT 0 dB, State with audio input signal inserted	

Freq. [MHz]	20dB Bandwidth [MHz]
915.5000	0.190
916.5000	0.180
-	-



UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

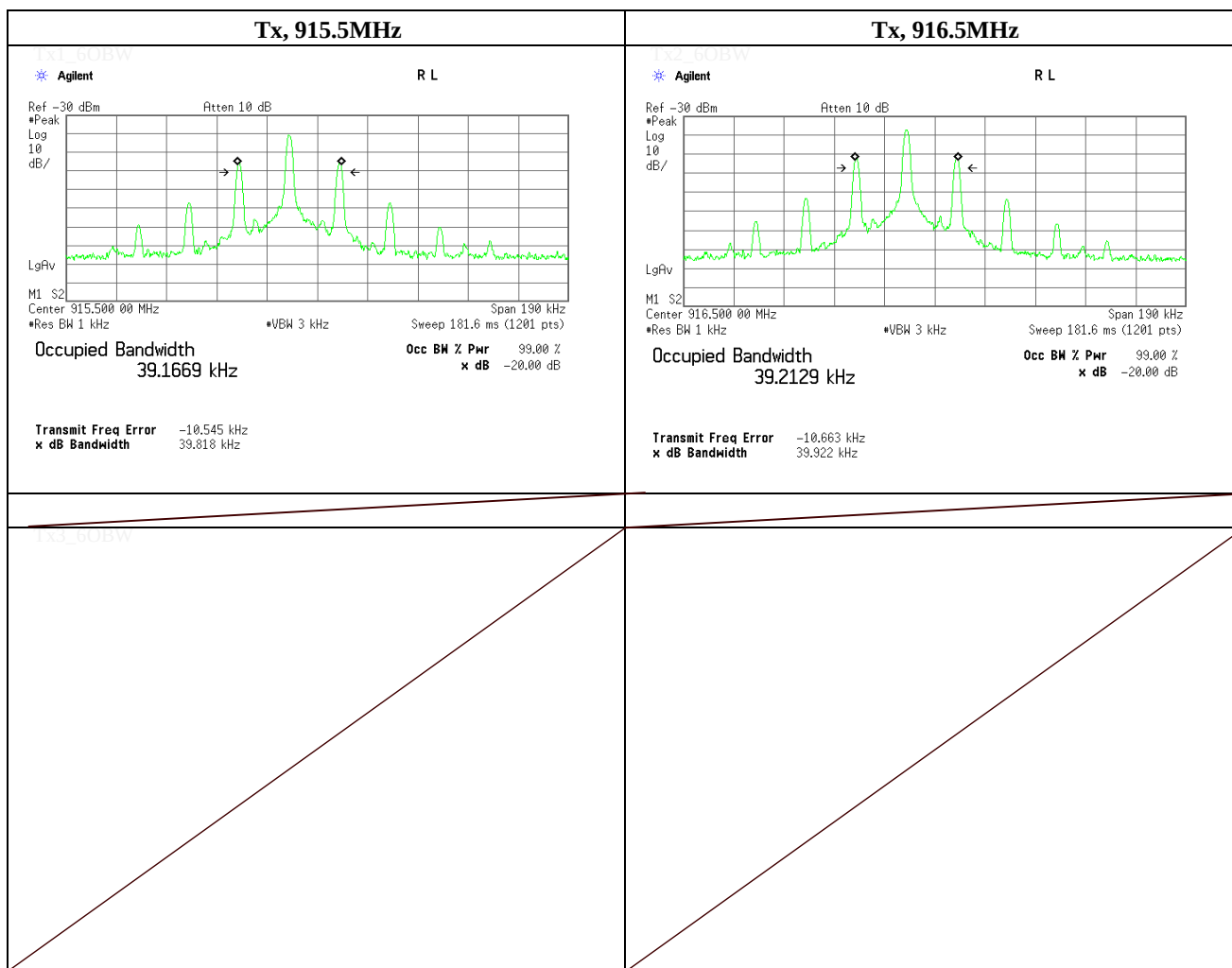
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

20dB Bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.6 Shielded Room
Date	June 7, 2017	
Temperature / Humidity	25 deg.C , 50 %RH	
Engineer	Kazutaka Takeyama	
Mode	Tx, ATT 0 dB, State without audio input signal inserted	

Freq. [MHz]	20dB Bandwidth [MHz]
915.5000	0.040
916.5000	0.040
-	-



UL Japan, Inc.

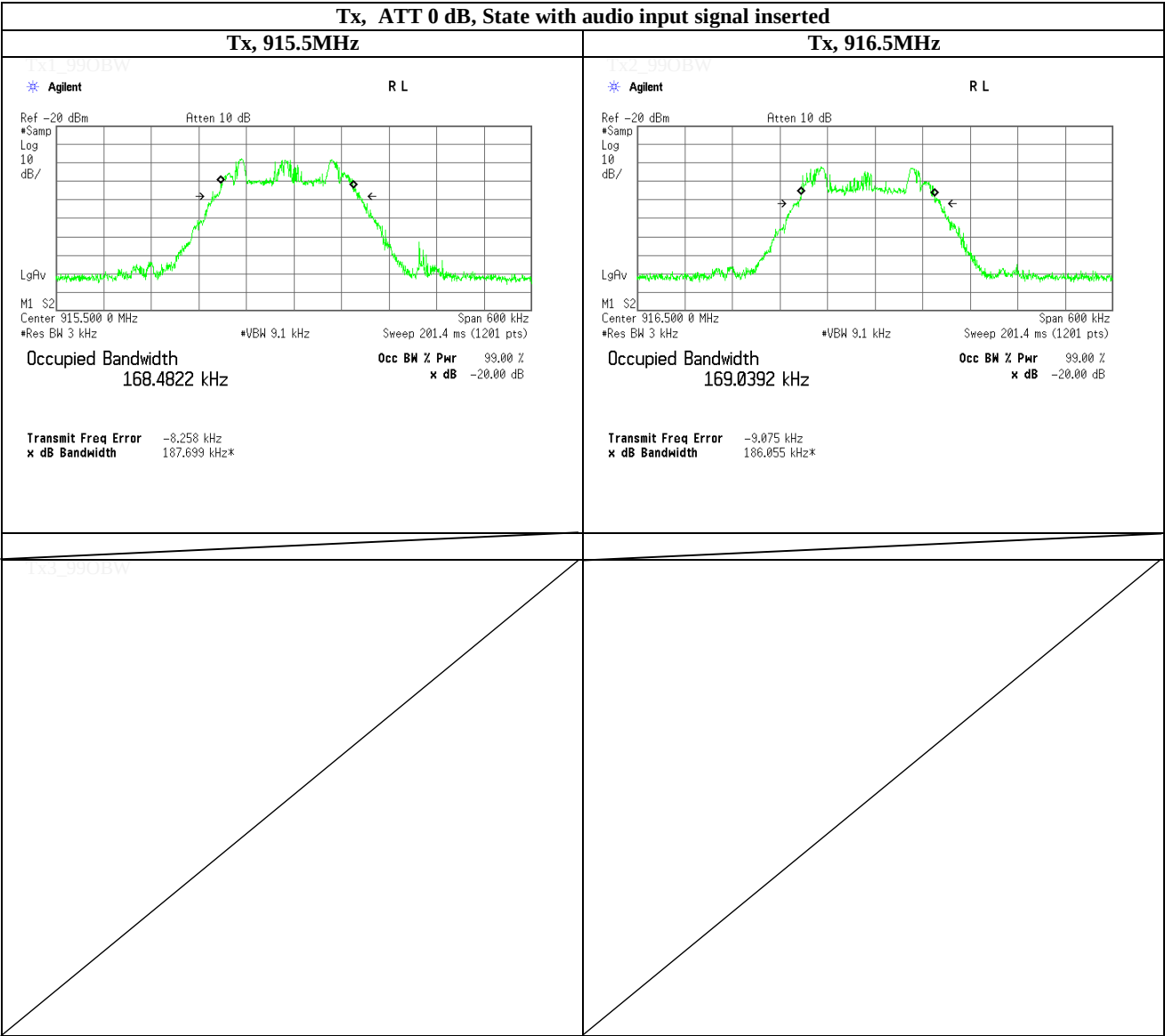
Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

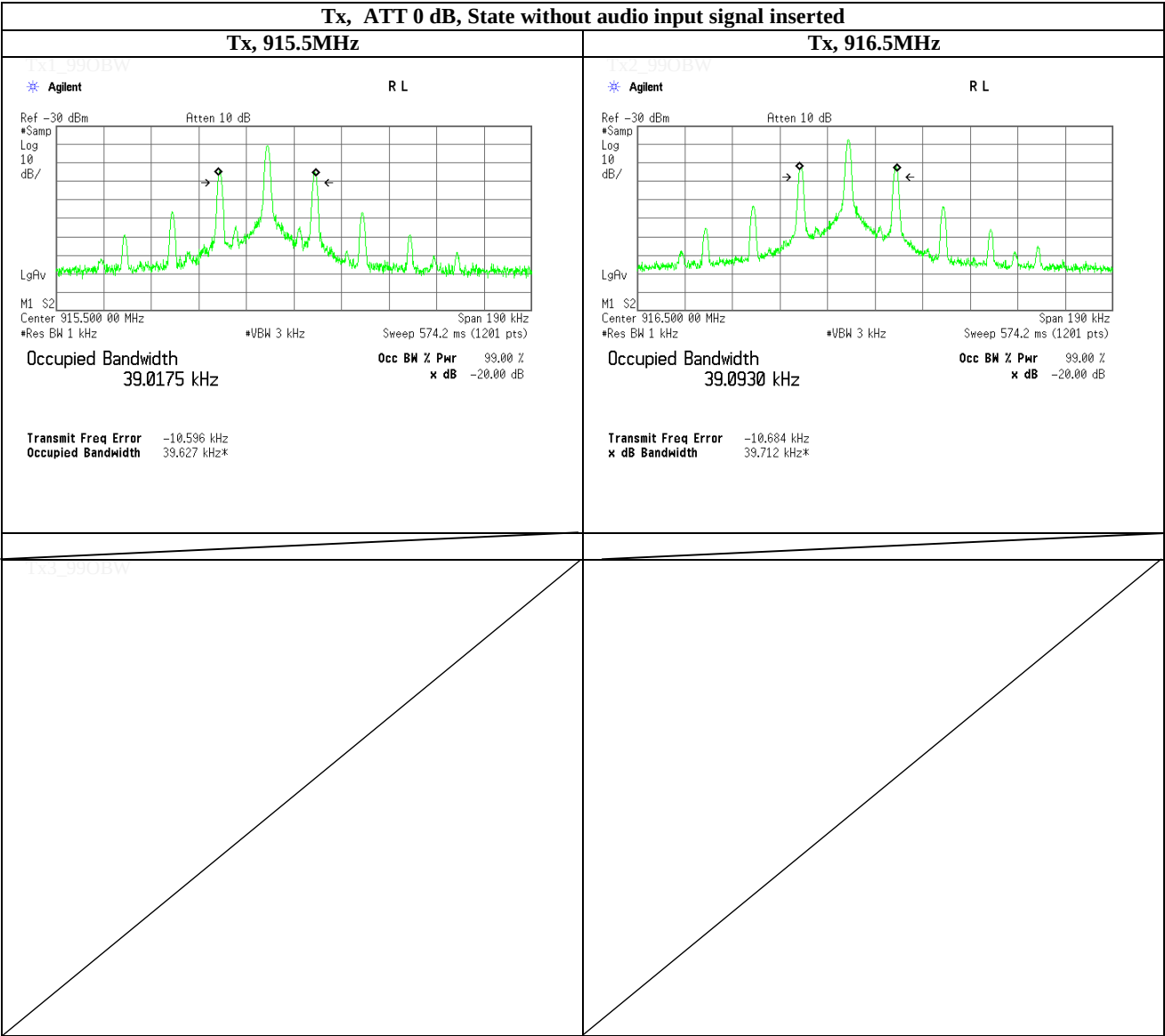
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

99% Occupied Bandwidth



99% Occupied Bandwidth



APPENDIX 2

Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2017/06/11 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2016/10/18 * 12
SLA-07	Logperiodic Antenna	Schwarzbeck	VUSLP9111B	196	RE	2017/01/26 * 12
SAT6-08	Attenuator	HIROSE ELECTRIC CO.,LTD.	AT-406(40)	-	RE	2016/08/04 * 12
SCC-C1/C2/C3/C4/C5/C10/SRSE-03	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271(RF Selector)	RE	2017/04/07 * 12
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2017/02/09 * 12
STR-08	Test Receiver	Rohde & Schwarz	ESW44	101581	RE	2016/11/08 * 12
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE, RFLMF)	-	RE,CE	-
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2016/10/12 * 12
SJM-02	Measure	KOMELON	KMC-36	-	RE	-
STS-03	Digital Hitester	Hioki	3805-50	080997823	RE	2016/10/17 * 12
SCC-G40	Coaxial Cable	Junkosha	MWX221-01000NFSNMS/B	1612S005	RE	2017/01/08 * 12
SCC-G23	Coaxial Cable	Suhner	SUCOFLEX 104	297342/4	RE	2017/05/08 * 12
SCC-G06	Coaxial Cable	Junkosha	J12J102207-00	MAY-23-16-091	RE	2017/06/13 * 12
SFL-01	Highpass Filter	MICRO-TRONICS	HPM50115	001	RE	2016/11/29 * 12
SRENT-08	Spectrum Analyzer	Agilent	E4448A	MY50180019	RE	2016/10/24 * 12
SHA-03	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	RE	2016/08/22 * 12
SAF-04	Pre Amplifier	TOYO Corporation	TPA0118-36	1440489	RE	2017/03/17 * 12
SAEC-03(SVSWR)	Semi-Anechoic Chamber	TDK	SAEC-03(SVSWR)	3	RE	2016/07/25 * 12
SLP-02	Loop Antenna	Rohde & Schwarz	HFH2-Z2	100218	RE	2016/10/28 * 12
SAF-01	Pre Amplifier	SONOMA	310N	290211	RE	2017/02/09 * 12
SAT6-12	Attenuator	HIROSE ELECTRIC CO.,LTD.	AT-406(40)	-	RE	2016/08/04 * 12
SCC-A2/A4/A6/A7/A8/A13/SRSE-01	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-269(RF Selector)	RE	2017/04/07 * 12
SOS-01	Humidity Indicator	A&D	AD-5681	4062555	RE	2016/10/12 * 12
STR-01	Test Receiver	Rohde & Schwarz	ESU40	100093	RE,CE	2017/04/12 * 12
KJM-09	Measure	KOMELON	KMC-36	-	RE,CE	-
STS-01	Digital Hitester	Hioki	3805-50	080997812	RE,CE	2016/10/17 * 12
SCC-A12/A13/SRSE-01	Coaxial Cable&RF Selector	Suhner/Suhner/TOYO	RG223U/141PE/NS4906	-/0901-269(RF Selector)	CE	2017/04/07 * 12
SLS-02	LISN	Rohde & Schwarz	ENV216	100512	CE	2017/02/10 * 12
SAT3-10	Attenuator	JFW	50HF-003N	-	CE	2016/08/04 * 12
SOS-15	Humidity Indicator	A&D	AD-5681	7478311	CE	2017/02/21 * 12

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

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

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

Test Item :

CE: Conducted emission ,

APPENDIX 2

Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SSA-02	Spectrum Analyzer	Agilent	E4448A	MY48250106	TF	2017/03/07 * 12
SOS-10	Humidity Indicator	A&D	AD-5681	4064561	TF	2016/10/12 * 12
SSCA-01	Search coil	LANGER	RF-R 400-1	02-0634	TF	Pre Check
STS-06	Digital Hitester	Hioki	3805-50	080997830	TF	2017/03/08 * 12

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

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

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

Test Item :

TF: Test Fixture