



RADIO TEST REPORT

Test Report No. : 13451718S-R1

Applicant : Fukuda Denshi Co., Ltd.
Type of EUT : TM XMTR Module
Model Number of EUT : TMX-100
FCC ID : DV8TMX100
Test regulation : FCC Part 95 Subpart H: 2020
FCC Part 2 Subpart J: 2020
Test Result : Complied (Refer to SECTION 3.2)

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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 limits of the above regulation.
4. The test results in this test 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 the A2LA accreditation body.
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. The all test items in this test report are conducted by UL Japan, Inc. Shonan EMC Lab.
8. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.
9. The information provided from the customer for this report is identified in SECTION 1.
10. This report is a revised version of 13451718S. 13451718S is replaced with this report.

Date of test: September 4 to 11, 2020

Representative test engineer: 
Kenichi Adachi
Engineer
Consumer Technology Division

Approved by: 
Toyokazu Imamura
Leader
Consumer Technology Division



CERTIFICATE 1266.03

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

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Shonan EMC Lab.

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REVISION HISTORY

Original Test Report No.: 13451718S

Revision	Test report No.	Date	Page revised	Contents
- (Original)	13451718S	October 30, 2020	-	-
1	13451718S-R1	March 15, 2021	p.10	Added a supplementary explanation about the power supplied. (*1) The test was conducted by changing the voltage of the power supply supplied to the jig did, since the DC power supply line for EUT module is directly connected to the EUT module after entering the jig from the USB interface cable without going through IC etc.)

Reference: Abbreviations (Including words undescribed in this report)

A2LA	The American Association for Laboratory Accreditation	MCS	Modulation and Coding Scheme
AC	Alternating Current	MRA	Mutual Recognition Arrangement
AFH	Adaptive Frequency Hopping	N/A	Not Applicable
AM	Amplitude Modulation	NIST	National Institute of Standards and Technology
Amp, AMP	Amplifier	NS	No signal detect.
ANSI	American National Standards Institute	NSA	Normalized Site Attenuation
Ant, ANT	Antenna	NVLAP	National Voluntary Laboratory Accreditation Program
AP	Access Point	OBW	Occupied Band Width
ASK	Amplitude Shift Keying	OFDM	Orthogonal Frequency Division Multiplexing
Atten., ATT	Attenuator	P/M	Power meter
AV	Average	PCB	Printed Circuit Board
BPSK	Binary Phase-Shift Keying	PER	Packet Error Rate
BR	Bluetooth Basic Rate	PHY	Physical Layer
BT	Bluetooth	PK	Peak
BT LE	Bluetooth Low Energy	PN	Pseudo random Noise
BW	BandWidth	PRBS	Pseudo-Random Bit Sequence
Cal Int	Calibration Interval	PSD	Power Spectral Density
CCK	Complementary Code Keying	QAM	Quadrature Amplitude Modulation
Ch., CH	Channel	QP	Quasi-Peak
CISPR	Comite International Special des Perturbations Radioelectriques	QPSK	Quadri-Phase Shift Keying
CW	Continuous Wave	RBW	Resolution Band Width
DBPSK	Differential BPSK	RDS	Radio Data System
DC	Direct Current	RE	Radio Equipment
D-factor	Distance factor	RF	Radio Frequency
DFS	Dynamic Frequency Selection	RMS	Root Mean Square
DQPSK	Differential QPSK	RSS	Radio Standards Specifications
DSSS	Direct Sequence Spread Spectrum	Rx	Receiving
EDR	Enhanced Data Rate	SA, S/A	Spectrum Analyzer
EIRP, e.i.r.p.	Equivalent Isotropically Radiated Power	SG	Signal Generator
EMC	ElectroMagnetic Compatibility	SVSWR	Site-Voltage Standing Wave Ratio
EMI	ElectroMagnetic Interference	TR	Test Receiver
EN	European Norm	Tx	Transmitting
ERP, e.r.p.	Effective Radiated Power	VBW	Video BandWidth
EU	European Union	Vert.	Vertical
EUT	Equipment Under Test	WLAN	Wireless LAN
Fac.	Factor		
FCC	Federal Communications Commission		
FHSS	Frequency Hopping Spread Spectrum		
FM	Frequency Modulation		
Freq.	Frequency		
FSK	Frequency Shift Keying		
GFSK	Gaussian Frequency-Shift Keying		
GNSS	Global Navigation Satellite System		
GPS	Global Positioning System		
Hori.	Horizontal		
ICES	Interference-Causing Equipment Standard		
IEC	International Electrotechnical Commission		
IEEE	Institute of Electrical and Electronics Engineers		
IF	Intermediate Frequency		
ILAC	International Laboratory Accreditation Conference		
ISED	Innovation, Science and Economic Development Canada		
ISO	International Organization for Standardization		
JAB	Japan Accreditation Board		
LAN	Local Area Network		
LIMS	Laboratory Information Management System		

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SECTION 1: Customer information

Company Name	:	Fukuda Denshi Co., Ltd.
Address	:	35-8, Hongo 2-chome, Bunkyo-ku, Tokyo 113-8420, Japan
Telephone Number	:	+81-3-5684-1300
Facsimile Number	:	+81-3-5684-1449
Contact Person	:	Yasuhiro Yonekawa

The information provided from the customer is as follows;

- Applicant, Type of EUT, Model Number of EUT, FCC ID on the cover and other relevant pages
 - Operating/Test Mode(s) (Mode(s)) on all the relevant pages
 - SECTION 1: Customer information
 - SECTION 2: Equipment under test (EUT) other than the Receipt Date
 - SECTION 4: Operation of EUT during testing
- * The laboratory is exempted from liability of any test results affected from the above information in SECTION 2 and 4.

SECTION 2: Equipment under test (EUT)

2.1 Identification of EUT

Type	:	TM XMTR Module
Model Number	:	TMX-100
Serial Number	:	Refer to SECTION 4.2
Rating	:	DC 5.0 V typical
Receipt Date	:	September 4, 2020
Country of Mass-production	:	Japan
Condition	:	Production model
Modification	:	No Modification by the test lab.

2.2 Product Description

Model: TMX-100 (referred to as the EUT in this report) is a TM XMTR Module.

Clock frequency(ies) in the system	:	16 MHz (CPU), 12.8 MHz (Radio part, TCXO)
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Radio Specification

Radio Type	:	Transmitter
Frequency of Operation	:	608.0125 MHz - 613.9875 MHz
Modulation	:	FSK
Antenna type	:	Printed antenna
Antenna gain	:	-6.13 dBi
Frequency stability	:	+/-2.5 ppm

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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test specification : FCC Part 95 Subpart H, FCC Part 95 final revised on October 13, 2020
Title : FCC 47 CFR Part 95 Personal Radio Services
Subpart H Wireless Medical Telemetry Service

Test specification : FCC Part 2 Subpart J, FCC Part 2 final revised on October 13, 2020
Title : FCC 47 CFR Part 2 Frequency Allocations and Radio Treaty Matters;
General Rules and Regulations
Subpart J Equipment Authorization Procedures

The EUT is used for the purpose of being related with medical treatment. Therefore this device applies to §15.103(e), exempted from FCC Part 15 Subpart B.

3.2 Procedures and results

Item	Test Procedure *1)	Specification	Test method	Worst margin	Results	Remarks
Conducted emissions	ANSI C63.4: 2014	FCC 15.207	-	29.3 dB ----- 0.31658 MHz QP & AV, L1 Mode: Tx 608.0125 MHz ----- 0.31657 MHz QP, L1 Mode: Tx 611.0000 MHz ----- 0.31659 MHz QP & AV, L1 Mode: 613.9875 MHz	Complied a)	-
WMTS field strength limits	FCC 2.1046, ANSI/TIA-603-E	FCC 95.2369 (a)	Radiated	11.5 dB Horizontal 613.9875 MHz Mode: Tx 613.9875 MHz	Complied b)	-
WMTS unwanted emissions limits	FCC 2.1053, ANSI/TIA-603-E	FCC 95.2379	Radiated	0.3 dB Horizontal 614.000 MHz Mode: Tx 613.9875 MHz	Complied# b)	-
WMTS frequency accuracy	FCC 2.1055, ANSI/TIA-603-E	FCC 95.2365	Radiated	-	Complied c)	-
Bandwidth	FCC 2.1049, ANSI/TIA-603-E	Applicant specification	Radiated	-	Complied d)	-
Spurious emission at antenna terminals	FCC 2.1051, ANSI/TIA-603-E	-	Conducted	-	Complied e)	-
Note: UL Japan, Inc.'s EMI Work Test Procedure 13-EM-W0420. *1) These tests were also referred to "Land Mobile FM or PM Communications Equipment Measurement and Performance Standards" (TIA-603-E: 2016). a) Refer to APPENDIX 1 (data of Conducted Emission) b) Refer to APPENDIX 1 (data of Field Strength (Radiated Emission)) c) Refer to APPENDIX 1 (data of Frequency Stability) d) Refer to APPENDIX 1 (data of Bandwidth) e) Refer to APPENDIX 1 (data of Spurious emissions at antenna terminals) Symbols: Complied The data of this test item has enough margin, more than the measurement uncertainty. Complied# The data of this test item meets the limits unless the measurement uncertainty is taken into consideration.						

Supplied voltage

The RF Module has its own regulator. The RF Module is constantly provided voltage through the regulator regardless of input voltage. Therefore, this EUT complies with the requirement.

3.3 Addition to standard

No addition, exclusion nor deviation has been made from the standard.

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3.4 Uncertainty

There is no applicable rule of uncertainty in this applied standard. Therefore, the results are derived depending on whether or not laboratory uncertainty is applied.

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. 4,5,6,8 SR
Conducted emission (AC Mains) LISN	150 kHz-30 MHz	2.6 dB	2.6 dB	2.5 dB	2.6 dB
Radiated emission (Measurement distance: 3 m)	9 kHz-30 MHz	3.0 dB	3.0 dB	3.0 dB	-
	30 MHz-200 MHz	4.6 dB	4.6 dB	4.6 dB	-
	200 MHz-1 GHz	6.0 dB	6.0 dB	6.0 dB	-
	1 GHz-6 GHz	4.9 dB	4.9 dB	4.9 dB	-
	6 GHz-18 GHz	5.5 dB	5.5 dB	5.5 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	0.98 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-06	1.75 dB
Power Measurement above 1 GHz (Average Detector)_SPM-07	0.89 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-07	1.12 dB
Power Measurement above 1 GHz (Average Detector)_SPM-13	1.06 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-13	1.24 dB
Spurious emission (Conducted) below 1GHz	0.9 dB
Spurious emission (Conducted) 1 GHz-3 GHz	0.9 dB
Spurious emission (Conducted) 3 GHz-18 GHz	2.9 dB
Spurious emission (Conducted) 18 GHz-26.5 GHz	2.6 dB
Spurious emission (Conducted) 26.5 GHz-40 GHz	2.0 dB
Bandwidth Measurement	0.07 %
Duty cycle and Time Measurement	0.262 %
Temperature	0.95 deg.C.
Voltage	0.83 %

3.5 Test Location

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A2LA Certificate Number: 1266.03 (FCC Test Firm Registration Number: 626366, ISED Lab Company Number: 2973D)

Test site	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
No.1 Semi-anechoic chamber	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.2 Semi-anechoic chamber	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.3 Semi-anechoic chamber	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 data, Test instruments, and Test set up

Refer to APPENDIX.

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

4.1 Operating Mode(s)

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

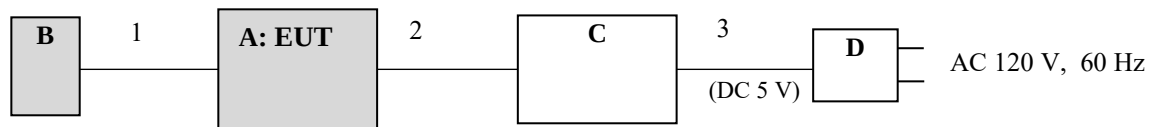
Test item	Operating mode	Tested frequency
All items	Transmitting (Modulated)	608.0125 MHz, 611.0000 MHz, 613.9875 MHz

Software: V01-01 (Date: 2020.9.4, Storage location: EUT memory)

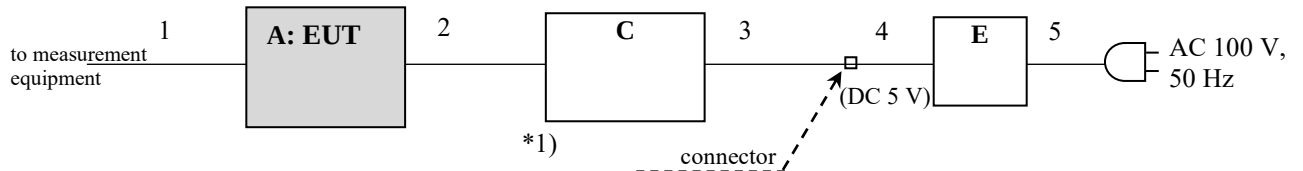
Power setting: Fixed

4.2 Configuration and peripherals

except frequency accuracy test



Frequency accuracy test



*1) The test was conducted by changing the voltage of the power supply supplied to the jig did, since the DC power supply line for EUT module is directly connected to the EUT module after entering the jig from the USB interface cable without going through IC etc..

* Cabling and setup(s) 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	TM XMTR Module	TMX-100	62	Fukuda Denshi Co., Ltd.	EUT
B	Printed Antenna for 600 MHz Band	600ANT(PCB-7936)	6	Fukuda Denshi Co., Ltd.	EUT
C	Jig	-	-	Fukuda Denshi Co., Ltd.	-
D	AC adapter	G71C0007P111	-	Toshiba	-
E	DC power supply	PW8-5ADPS	14086035	TEXIO	-

List of cables used

No.	Cable name	Length (m)	Shield (Cable)	Shield (Connector)	Remarks
1	Antenna cable	0.1	Shielded	Shielded	-
2	DC/Signal cable	0.08	Unshielded	Unshielded	-
3	USB cable	0.95	Shielded	Shielded	-
4	DC cable	0.4	Unshielded	Unshielded	-
5	AC cable	2.0	Unshielded	Unshielded	-

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SECTION 5: Conducted Emission

Test Procedure

EUT was placed on a platform of nominal size, 1.0 m by 2.0 m, raised 0.8 m above the conducting ground plane. The table is made of expanded polystyrol and expanded polypropylene and the table top is covered with polycarbonate. That has very low permittivity.

The rear of tabletop was located 40 cm to the vertical conducting plane. The rear of EUT, including peripherals aligned and 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 a Line Impedance Stabilization Network (LISN) / Artificial mains Network (AMN) and excess AC cable was bundled in center.

The AC Mains terminal continuous disturbance voltage has been measured with the EUT via AC adapter in a Semi Anechoic Chamber.

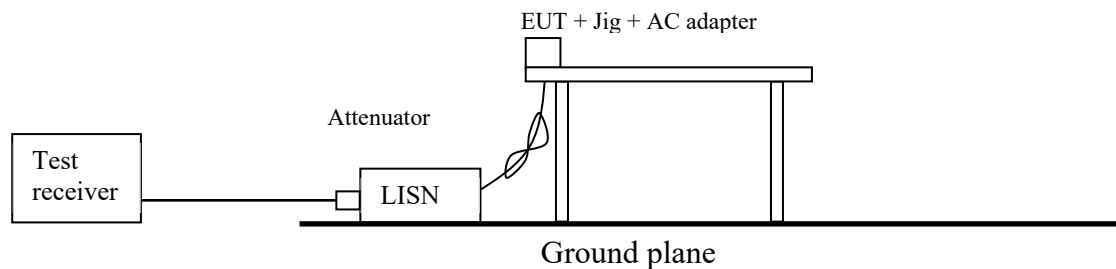
The EUT via AC adapter was connected to a LISN (AMN).

An overview sweep with peak detection has been performed.

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

Detector	: QP and CISPR AV
Measurement range	: 0.15 MHz - 30 MHz
Test data	: APPENDIX
Test result	: Pass

Figure 1: Test Setup



SECTION 6: Bandwidth & Occupied bandwidth (99 %)

Test procedure

The bandwidth was measured with a spectrum analyzer connected to the antenna port.

Test data : APPENDIX
Test result : Pass

SECTION 7: Frequency Stability

Test procedure

The frequency stability was measured with a spectrum analyzer.
The temperature test was started after the temperature stabilization time of 30 minutes.

Tested temperature was -30 deg.C. to +50 deg.C

* The test result on 50 deg.C., 0 deg.C., -10 deg.C., -20 deg.C, and -30 deg.C were reference data, since the specification of operating temperature of EUT was 10 deg.C to 40 deg.C.
(It used the manufacturer's specified conditions (refer to FCC 95.2365))

Test data : APPENDIX
Test result : Pass

SECTION 8: Spurious emission at antenna terminals

Test procedure

The Spurious emission at antenna terminals was measured with a spectrum analyzer.

Test data : APPENDIX
Test result : Pass

SECTION 9: Field Strength (Fundamental Emission & Out of band emissions)

Test Procedure

EUT was placed on a platform of nominal size, 1.0 m by 1.5 m (for 30 MHz – 1 GHz) or 1.0 m by 2.0 m (for other frequency range), raised 0.8 m above the conducting ground plane.

The table is made of expanded polystyrol and expanded polypropylene and the table top is covered with polycarbonate. That has very low permittivity. The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane, and at a distance of 3 m.

The height of the measuring antenna 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 strength.

Test antenna was aimed at the EUT for receiving the maximum signal and always kept within the illumination area of the 3 dB beamwidth of the antenna.

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.

Frequency	Below 1 GHz	Above 1 GHz
Instrument used	Test Receiver	Spectrum Analyzer *1)
Detector IF Bandwidth	QP: RBW 200 Hz (9 kHz - 150 kHz), QP: RBW 9 kHz (150 kHz - 30 MHz), QP: BW 120 kHz (30 MHz - 1000 MHz)	AV: RBW: 1 MHz VBW: 10 Hz (No pulse emission detected)
Measuring antenna	Loop (9 kHz - 30 MHz), Biconical (30 MHz - 200 MHz) Logperiodic (200 MHz - 1 GHz)	Horn

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

The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

Worst case: Refer to the data.

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

Band edge

To determine the level of band-edge spurious, we use the following procedure:

Set the resolution bandwidth to 1 kHz in the peak detector mode.

Because we don't want to include in-band emission at BandEdge measurement if center frequencies are "608.0125 MHz" or "613.9875 MHz" and BandEdges are "608 MHz" or "614 MHz".

(The supplementation: There are some granted test report that were measured by 3 kHz RBW for the equipment that has 350 kHz for 26 dB bandwidth in similar case.)

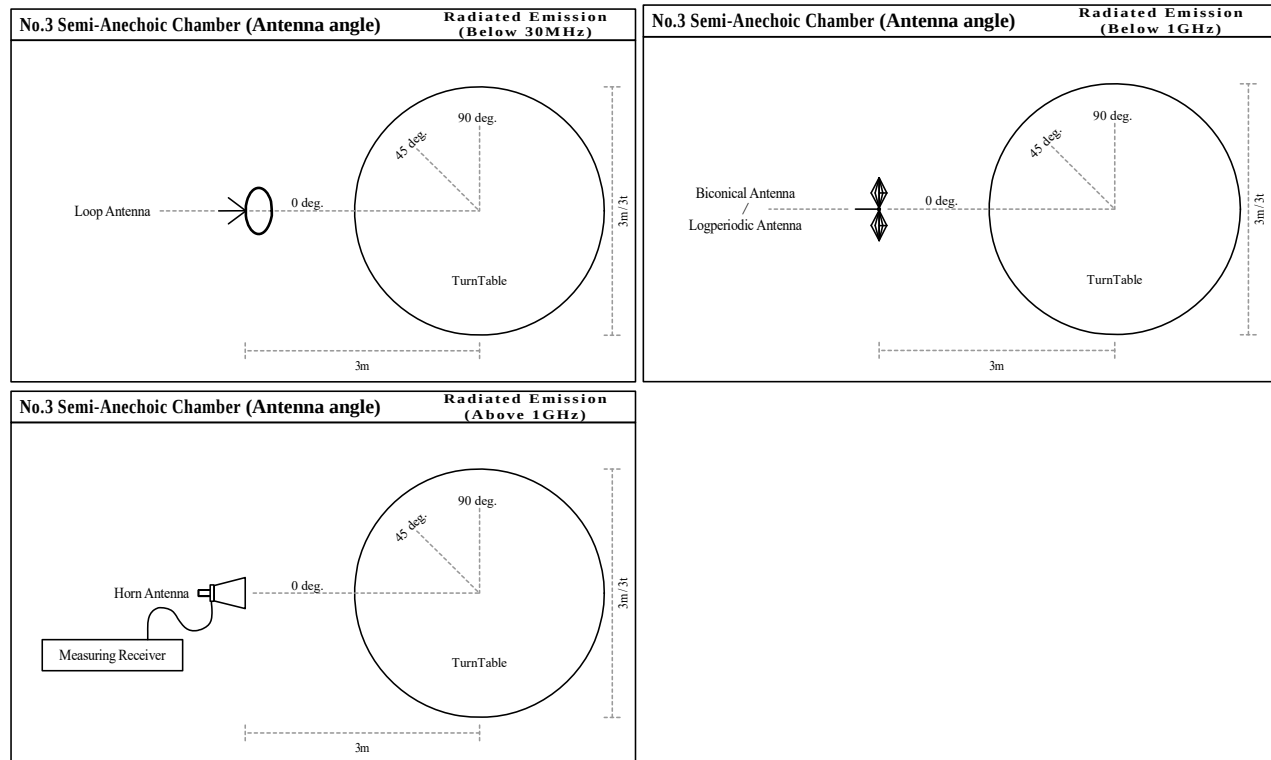
We used RBW = 1 kHz (greater than 1 % bandwidth) to prevent to detect in-band emission. Refer to KDB 971168 D01 (971168 D01 Power Meas License Digital Systems v03r01).

Measure the maximum level of the in-band channel closest to the band edge and the maximum level of the out-of-band emissions close to the same band edge.

Determine the ratio of the in-band signal to the out-of-band emissions. Then, measure the level of the in-band channel in CISPR quasi-peak mode with 120 kHz bandwidth. Using the ratio obtained, we calculate the equivalent level of the out-of-band emissions to determine compliance with the limits.

The emission tests, except for the band edge, were performed with the quasi-peak mode of the spectrum analyzer. (Bandwidth: 1 MHz)

Figure 1. Antenna angle



Measurement range : 9 kHz - 7 GHz

Test data : APPENDIX

Test result : Pass

* No noise from radio part was detected in 9 kHz to 30 MHz.

DATA OF CONDUCTED EMISSION TEST

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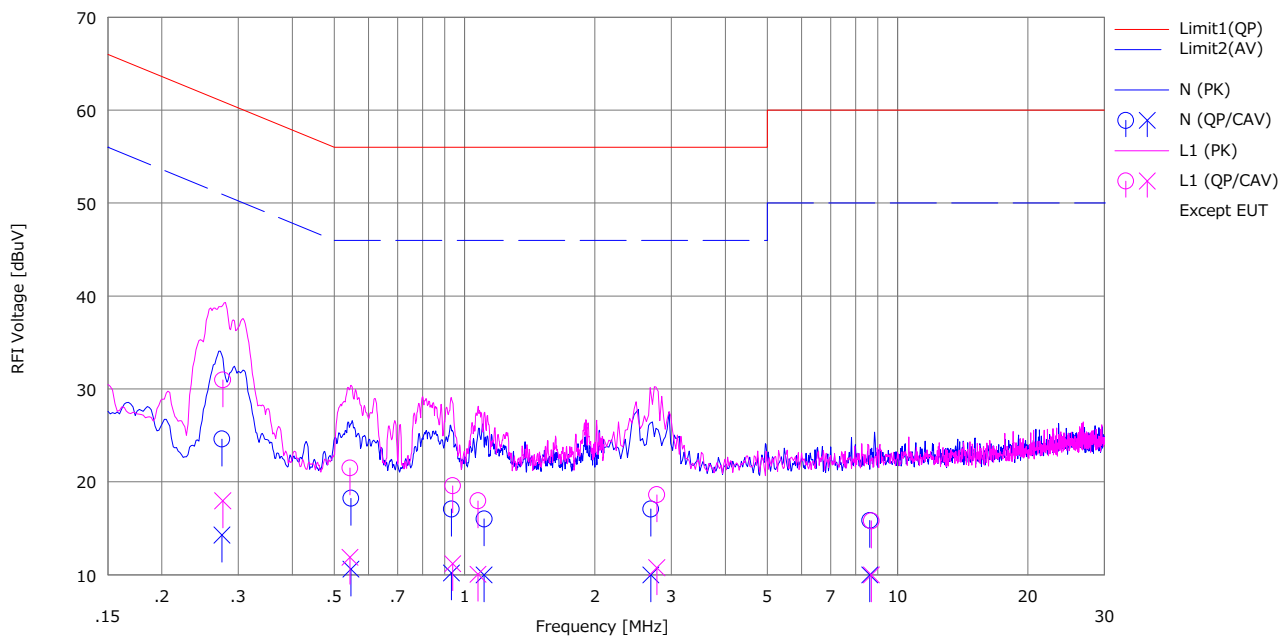
Date : 2020/09/09

Company : FUKUDA DENSHI CO.,LTD
 Kind of EUT : TM XMTR Module
 Model No. : TMX-100
 Serial No. : 62
 Remarks : (AC adapter input: AC 120 V / 60 Hz)

Mode : Transmitting(608.0125 MHz)
 Order No. : 13451718S
 Power : DC 5.0 V (AC 120 V / 60 Hz)
 Temp./Humi. : 23 deg.C / 59 %RH

Limit : FCC_Part 15 Subpart C(15.207)

Engineer : Kenichi Adachi



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<CAV> [dBuV]		<QP> [dBuV]	<CAV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.27515	11.97	1.64	12.64	24.61	14.28	60.96	50.96	36.3	36.6	N	
2	0.54660	5.55	-2.06	12.68	18.23	10.62	56.00	46.00	37.7	35.3	N	
3	0.93281	4.34	-2.54	12.74	17.08	10.20	56.00	46.00	38.9	35.8	N	
4	1.11000	3.22	-3.18	12.79	16.01	9.61	56.00	46.00	39.9	36.3	N	
5	2.69092	4.11	-3.08	12.97	17.08	9.89	56.00	46.00	38.9	36.1	N	
6	8.62842	2.18	-4.11	13.67	15.85	9.56	60.00	50.00	44.1	40.4	N	
7	0.27655	18.33	5.32	12.65	30.98	17.97	60.92	50.92	29.9	32.9	L1	
8	0.54340	8.80	-0.81	12.70	21.50	11.89	56.00	46.00	34.5	34.1	L1	
9	0.93849	6.84	-1.56	12.75	19.59	11.19	56.00	46.00	36.4	34.8	L1	
10	1.07392	5.18	-2.72	12.78	17.96	10.06	56.00	46.00	38.0	35.9	L1	
11	2.77821	5.63	-2.21	12.98	18.61	10.77	56.00	46.00	37.3	35.2	L1	
12	8.69535	2.24	-4.02	13.55	15.79	9.53	60.00	50.00	44.2	40.4	L1	

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

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Semi-Anechoic Chamber

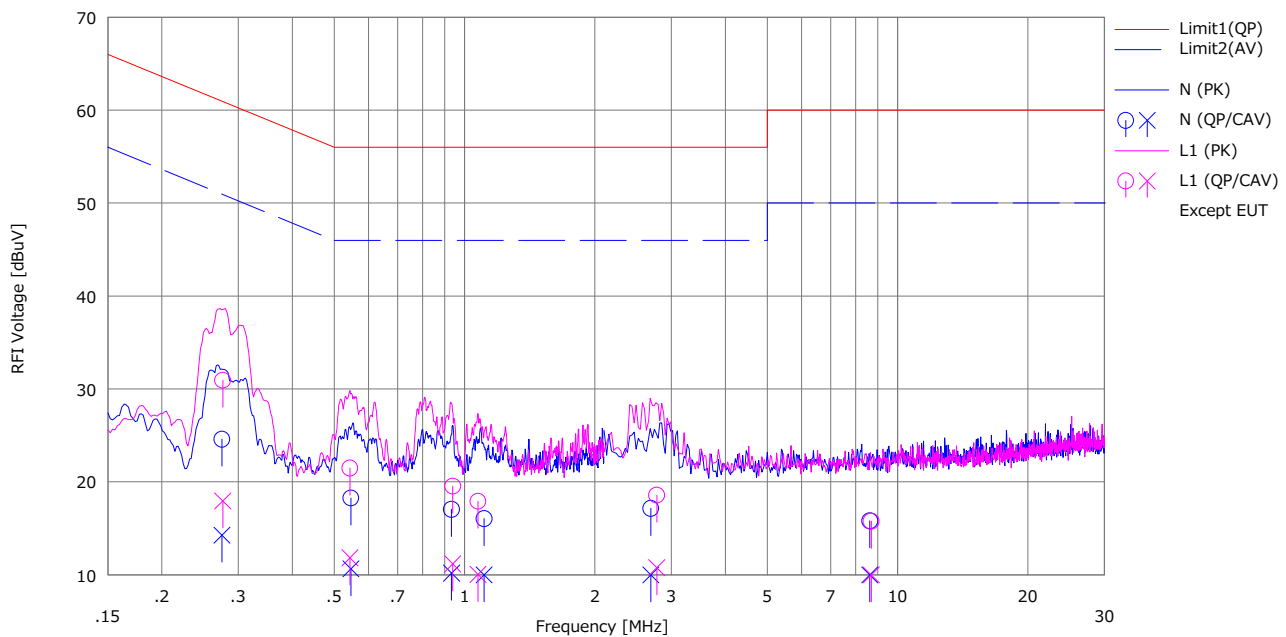
Date : 2020/09/09

Company : FUKUDA DENSHI CO.,LTD
 Kind of EUT : TM XMTR Module
 Model No. : TMX-100
 Serial No. : 62
 Remarks : (AC adapter input: AC 120 V / 60 Hz)

Mode : Transmitting(611.0000 MHz)
 Order No. : 13451718S
 Power : DC 5.0 V (AC 120 V / 60 Hz)
 Temp./Humi. : 23 deg.C / 59 %RH

Limit : FCC_Part 15 Subpart C(15.207)

Engineer : Kenichi Adachi



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<CAV> [dBuV]		<QP> [dBuV]	<CAV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.27522	11.95	1.62	12.64	24.59	14.26	60.96	50.96	36.3	36.7	N	
2	0.54660	5.59	-2.04	12.68	18.27	10.64	56.00	46.00	37.7	35.3	N	
3	0.93313	4.31	-2.56	12.74	17.05	10.18	56.00	46.00	38.9	35.8	N	
4	1.10982	3.26	-3.14	12.79	16.05	9.65	56.00	46.00	39.9	36.3	N	
5	2.69083	4.18	-3.04	12.97	17.15	9.93	56.00	46.00	38.8	36.0	N	
6	8.62789	2.14	-4.18	13.67	15.81	9.49	60.00	50.00	44.1	40.5	N	
7	0.27646	18.28	5.30	12.65	30.93	17.95	60.92	50.92	29.9	32.9	L1	
8	0.54343	8.78	-0.86	12.70	21.48	11.84	56.00	46.00	34.5	34.1	L1	
9	0.93922	6.79	-1.57	12.75	19.54	11.18	56.00	46.00	36.4	34.8	L1	
10	1.07389	5.14	-2.74	12.78	17.92	10.04	56.00	46.00	38.0	35.9	L1	
11	2.77833	5.59	-2.22	12.98	18.57	10.76	56.00	46.00	37.4	35.2	L1	
12	8.68957	2.22	-4.06	13.55	15.77	9.49	60.00	50.00	44.2	40.5	L1	

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

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Semi-Anechoic Chamber

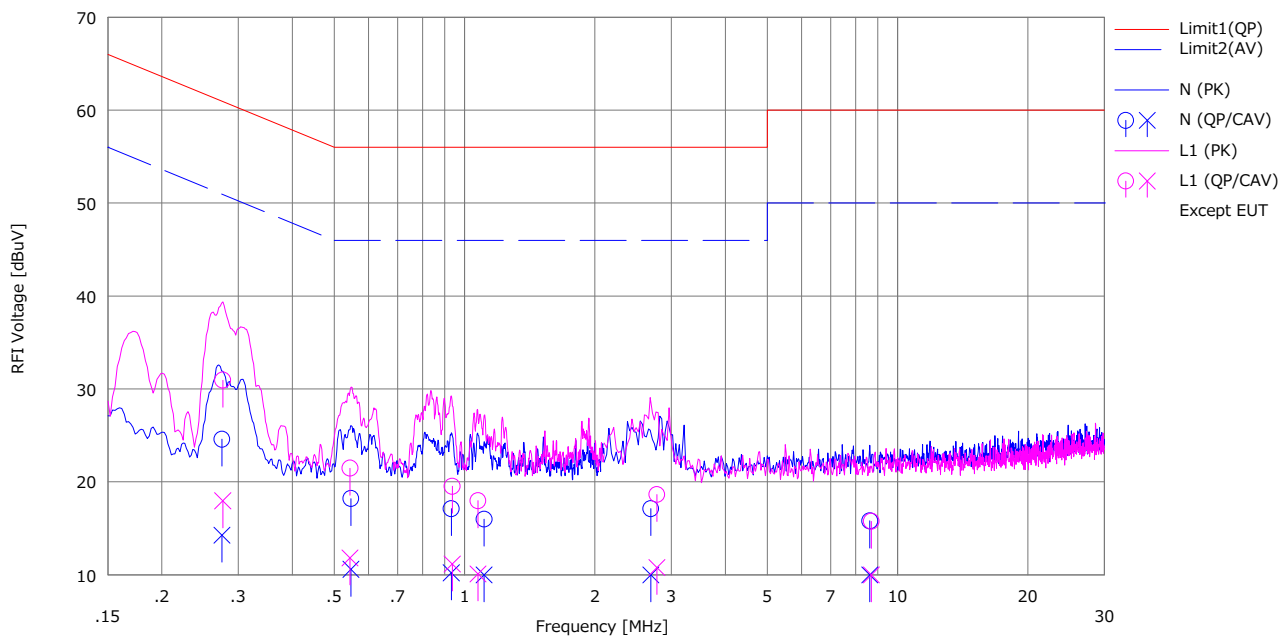
Date : 2020/09/09

Company : FUKUDA DENSHI CO.,LTD
 Kind of EUT : TM XMTR Module
 Model No. : TMX-100
 Serial No. : 62
 Remarks : (AC adapter input: AC 120 V / 60 Hz)

Mode : Transmitting(613.9875 MHz)
 Order No. : 13451718S
 Power : DC 5.0 V (AC 120 V / 60 Hz)
 Temp./Humi. : 23 deg.C / 59 %RH

Limit : FCC_Part 15 Subpart C(15.207)

Engineer : Kenichi Adachi



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<CAV> [dBuV]		<QP> [dBuV]	<CAV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.27527	11.95	1.62	12.64	24.59	14.26	60.96	50.96	36.3	36.7	N	
2	0.54648	5.53	-2.08	12.68	18.21	10.60	56.00	46.00	37.7	35.4	N	
3	0.93165	4.38	-2.51	12.74	17.12	10.23	56.00	46.00	38.8	35.7	N	
4	1.10992	3.20	-3.21	12.79	15.99	9.58	56.00	46.00	40.0	36.4	N	
5	2.69115	4.15	-3.04	12.97	17.12	9.93	56.00	46.00	38.8	36.0	N	
6	8.62852	2.12	-4.22	13.67	15.79	9.45	60.00	50.00	44.2	40.5	N	
7	0.27657	18.30	5.31	12.65	30.95	17.96	60.92	50.92	29.9	32.9	L1	
8	0.54378	8.77	-0.88	12.70	21.47	11.82	56.00	46.00	34.5	34.1	L1	
9	0.93645	6.78	-1.58	12.75	19.53	11.17	56.00	46.00	36.4	34.8	L1	
10	1.07378	5.20	-2.68	12.78	17.98	10.10	56.00	46.00	38.0	35.9	L1	
11	2.77959	5.66	-2.19	12.98	18.64	10.79	56.00	46.00	37.3	35.2	L1	
12	8.69784	2.20	-4.10	13.55	15.75	9.45	60.00	50.00	44.2	40.5	L1	

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

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Semi-Anechoic Chamber

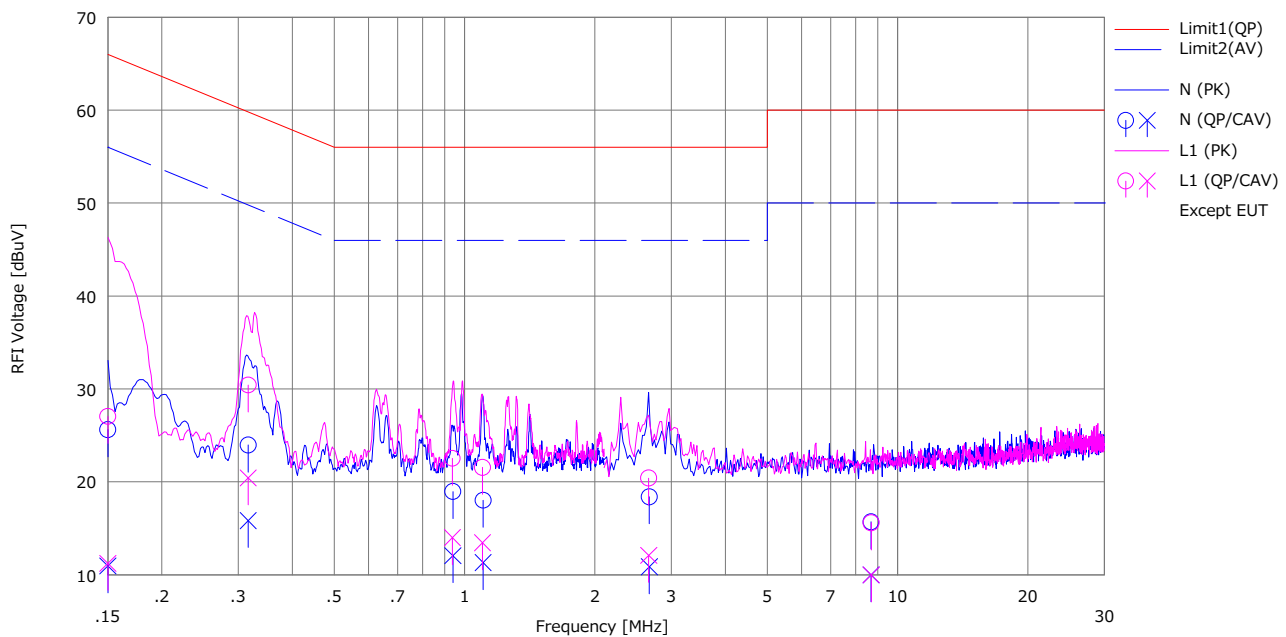
Date : 2020/09/09

Company : FUKUDA DENSHI CO.,LTD
 Kind of EUT : TM XMTR Module
 Model No. : TMX-100
 Serial No. : 62
 Remarks : (AC adapter input: AC 240 V / 60 Hz)

Mode : Transmitting(608.0125 MHz)
 Order No. : 13451718S
 Power : DC 5.0 V (AC 240 V / 60 Hz)
 Temp./Humi. : 23 deg.C / 59 %RH

Limit : FCC_Part 15 Subpart C(15.207)

Engineer : Kenichi Adachi



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<CAV> [dBuV]		<QP> [dBuV]	<CAV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15001	12.98	-1.67	12.64	25.62	10.97	66.00	56.00	40.3	45.0	N	
2	0.31659	11.32	3.20	12.64	23.96	15.84	59.80	49.80	35.8	33.9	N	
3	0.93982	6.22	-0.68	12.74	18.96	12.06	56.00	46.00	37.0	33.9	N	
4	1.10423	5.22	-1.48	12.79	18.01	11.31	56.00	46.00	37.9	34.6	N	
5	2.67242	5.42	-2.11	12.97	18.39	10.86	56.00	46.00	37.6	35.1	N	
6	8.68286	2.02	-4.10	13.68	15.70	9.58	60.00	50.00	44.3	40.4	N	
7	0.15001	14.42	-1.38	12.62	27.04	11.24	66.00	56.00	38.9	44.7	L1	
8	0.31658	17.76	7.76	12.66	30.42	20.42	59.80	49.80	29.3	29.3	L1	
9	0.93698	9.78	1.26	12.75	22.53	14.01	56.00	46.00	33.4	31.9	L1	
10	1.10038	8.78	0.68	12.78	21.56	13.46	56.00	46.00	34.4	32.5	L1	
11	2.66182	7.45	-0.87	12.96	20.41	12.09	56.00	46.00	35.5	33.9	L1	
12	8.68955	2.05	-4.06	13.55	15.60	9.49	60.00	50.00	44.4	40.5	L1	

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

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Semi-Anechoic Chamber

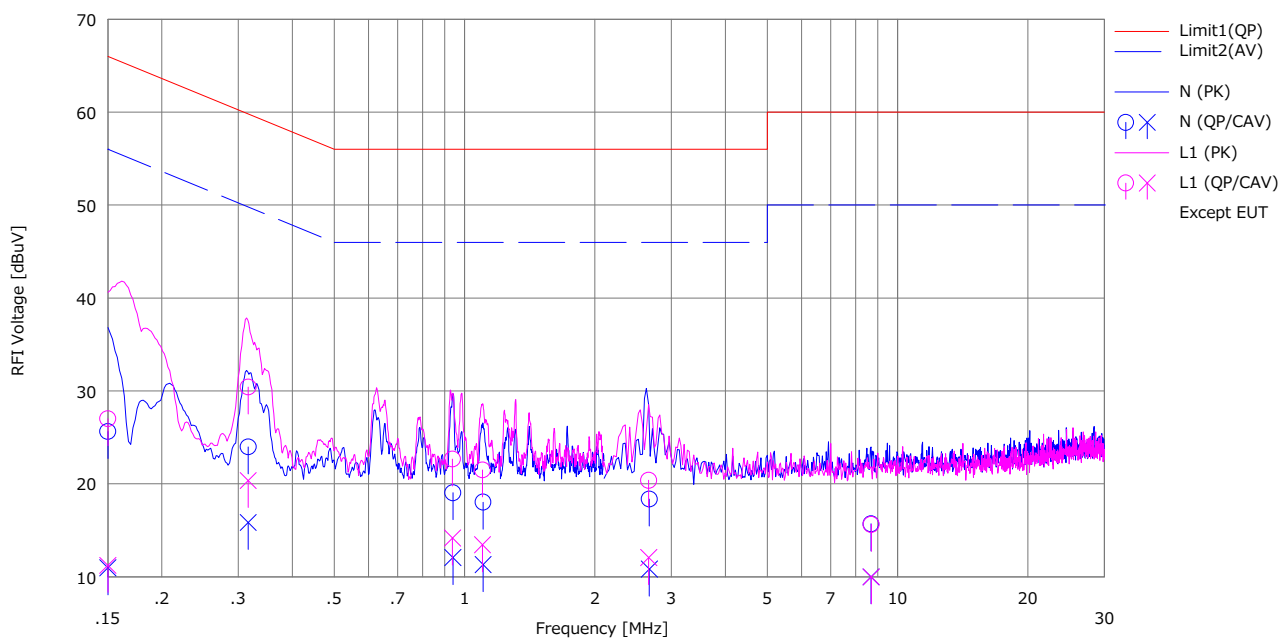
Date : 2020/09/09

Company : FUKUDA DENSHI CO.,LTD
 Kind of EUT : TM XMTR Module
 Model No. : TMX-100
 Serial No. : 62
 Remarks : (AC adapter input: AC 240 V / 60 Hz)

Mode : Transmitting(611.0000 MHz)
 Order No. : 13451718S
 Power : DC 5.0 V (AC 240 V / 60 Hz)
 Temp./Humi. : 23 deg.C / 59 %RH

Limit : FCC_Part 15 Subpart C(15.207)

Engineer : Kenichi Adachi



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<CAV> [dBuV]		<QP> [dBuV]	<CAV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15001	12.99	-1.66	12.64	25.63	10.98	66.00	56.00	40.3	45.0	N	
2	0.31656	11.34	3.22	12.64	23.98	15.86	59.80	49.80	35.8	33.9	N	
3	0.93974	6.30	-0.67	12.74	19.04	12.07	56.00	46.00	36.9	33.9	N	
4	1.10332	5.24	-1.46	12.79	18.03	11.33	56.00	46.00	37.9	34.6	N	
5	2.67223	5.39	-2.14	12.97	18.36	10.83	56.00	46.00	37.6	35.1	N	
6	8.68227	2.01	-4.12	13.68	15.69	9.56	60.00	50.00	44.3	40.4	N	
7	0.15001	14.40	-1.40	12.62	27.02	11.22	66.00	56.00	38.9	44.7	L1	
8	0.31657	17.77	7.70	12.66	30.43	20.36	59.80	49.80	29.3	29.4	L1	
9	0.93785	9.92	1.42	12.75	22.67	14.17	56.00	46.00	33.3	31.8	L1	
10	1.10043	8.72	0.67	12.78	21.50	13.45	56.00	46.00	34.5	32.5	L1	
11	2.66192	7.42	-0.89	12.96	20.38	12.07	56.00	46.00	35.6	33.9	L1	
12	8.69126	2.08	-4.07	13.55	15.63	9.48	60.00	50.00	44.3	40.5	L1	

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

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Semi-Anechoic Chamber

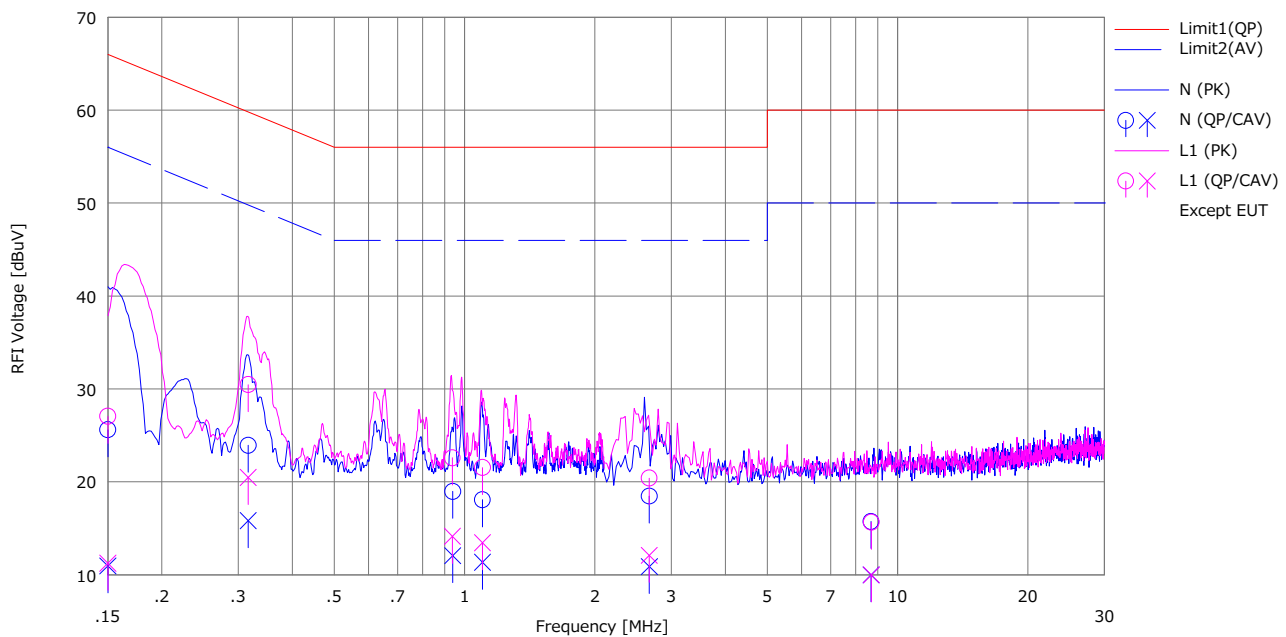
Date : 2020/09/09

Company : FUKUDA DENSHI CO.,LTD
 Kind of EUT : TM XMTR Module
 Model No. : TMX-100
 Serial No. : 62
 Remarks : (AC adapter input: AC 240 V / 60 Hz)

Mode : Transmitting(613.9875 MHz)
 Order No. : 13451718S
 Power : DC 5.0 V (AC 240 V / 60 Hz)
 Temp./Humi. : 23 deg.C / 59 %RH

Limit : FCC_Part 15 Subpart C(15.207)

Engineer : Kenichi Adachi



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<CAV> [dBuV]		<QP> [dBuV]	<CAV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.15001	12.96	-1.68	12.64	25.60	10.96	66.00	56.00	40.4	45.0	N	
2	0.31658	11.29	3.18	12.64	23.93	15.82	59.80	49.80	35.8	33.9	N	
3	0.93922	6.24	-0.68	12.74	18.98	12.06	56.00	46.00	37.0	33.9	N	
4	1.09923	5.28	-1.44	12.79	18.07	11.35	56.00	46.00	37.9	34.6	N	
5	2.67248	5.49	-2.08	12.97	18.46	10.89	56.00	46.00	37.5	35.1	N	
6	8.67925	2.06	-4.02	13.68	15.74	9.66	60.00	50.00	44.2	40.3	N	
7	0.15001	14.44	-1.36	12.62	27.06	11.26	66.00	56.00	38.9	44.7	L1	
8	0.31659	17.81	7.82	12.66	30.47	20.48	59.80	49.80	29.3	29.3	L1	
9	0.93712	9.84	1.39	12.75	22.59	14.14	56.00	46.00	33.4	31.8	L1	
10	1.10049	8.76	0.67	12.78	21.54	13.45	56.00	46.00	34.4	32.5	L1	
11	2.66985	7.44	-0.88	12.97	20.41	12.09	56.00	46.00	35.5	33.9	L1	
12	8.69579	2.10	-4.06	13.55	15.65	9.49	60.00	50.00	44.3	40.5	L1	

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

Frequency Stability

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	September 10, 2020	September 11, 2020
Temperature / Humidity	25 deg.C , 50 %RH	23 deg.C , 57 %RH
Engineer	Kenichi Adachi	Kenichi Adachi
Mode	Transmitting	

Test Condition deg.C Voltage		Test Timing	Measured frequency [MHz]	Frequency error [MHz]	Result [ppm]	Limit [+/- ppm]	Margin [ppm]
20 deg.C	DC 4.25 V (Vmin)	Power on	608.013021	0.000521	0.86	2.50	1.64
		on 2 min.	608.013048	0.000548	0.90	2.50	1.60
		on 5 min.	608.013043	0.000543	0.89	2.50	1.61
		on 10 min.	608.013058	0.000558	0.92	2.50	1.58
	DC 5 V (Vnom)	Power on	608.013056	0.000556	0.91	2.50	1.59
		on 2 min.	608.013048	0.000548	0.90	2.50	1.60
		on 5 min.	608.013039	0.000539	0.89	2.50	1.61
		on 10 min.	608.013018	0.000518	0.85	2.50	1.65
	DC 5.75 V (Vmax)	Power on	608.013016	0.000516	0.85	2.50	1.65
		on 2 min.	608.013026	0.000526	0.87	2.50	1.63
		on 5 min.	608.013009	0.000509	0.84	2.50	1.66
		on 10 min.	608.013007	0.000507	0.83	2.50	1.67
50 deg.C.	DC 5 V	Power on	608.012057	-0.000443	-0.73	-	-
		on 2 min.	608.012062	-0.000438	-0.72	-	-
		on 5 min.	608.012070	-0.000430	-0.71	-	-
		on 10 min.	608.012078	-0.000422	-0.69	-	-
40 deg.C.		Power on	608.012205	-0.000295	-0.49	2.50	2.01
		on 2 min.	608.012230	-0.000270	-0.44	2.50	2.06
		on 5 min.	608.012229	-0.000271	-0.45	2.50	2.05
		on 10 min.	608.012233	-0.000267	-0.44	2.50	2.06
30 deg.C.		Power on	608.012819	0.000319	0.53	2.50	1.97
		on 2 min.	608.012814	0.000314	0.52	2.50	1.98
		on 5 min.	608.012809	0.000309	0.51	2.50	1.99
		on 10 min.	608.012805	0.000305	0.50	2.50	2.00
20 deg.C.		Power on	608.012973	0.000473	0.78	2.50	1.72
		on 2 min.	608.013048	0.000548	0.90	2.50	1.60
		on 5 min.	608.013062	0.000562	0.92	2.50	1.58
		on 10 min.	608.013054	0.000554	0.91	2.50	1.59
10 deg.C.		Power on	608.012725	0.000225	0.37	2.50	2.13
		on 2 min.	608.012810	0.000310	0.51	2.50	1.99
		on 5 min.	608.012852	0.000352	0.58	2.50	1.92
		on 10 min.	608.012866	0.000366	0.60	2.50	1.90
0 deg.C.		Power on	608.012065	-0.000435	-0.71	-	-
		on 2 min.	608.012191	-0.000309	-0.51	-	-
		on 5 min.	608.012198	-0.000302	-0.50	-	-
		on 10 min.	608.012201	-0.000299	-0.49	-	-
-10 deg.C.		Power on	608.010433	-0.002067	-3.40	-	-
		on 2 min.	608.010354	-0.002146	-3.53	-	-
		on 5 min.	608.010506	-0.001994	-3.28	-	-
		on 10 min.	608.010495	-0.002005	-3.30	-	-
-20 deg.C		Power on	608.007152	-0.005348	-8.80	-	-
		on 2 min.	608.007218	-0.005282	-8.69	-	-
		on 5 min.	608.007247	-0.005253	-8.64	-	-
		on 10 min.	608.007264	-0.005236	-8.61	-	-
-30 deg.C		Power on	608.003733	-0.008767	-14.42	-	-
		on 2 min.	608.002141	-0.010359	-17.04	-	-
		on 5 min.	608.002365	-0.010135	-16.67	-	-
		on 10 min.	608.002477	-0.010023	-16.48	-	-

Limit : 608.0125 MHz $\pm 0.00025\%$ (± 2.5 ppm) = ± 0.001520 MHz

*The test on 50 deg.C., 0 deg.C., -10 deg.C., and -20 deg.C. were not apply, since the specification of operating temperature of EUT was 10 deg.C to 40 deg.C. (It used the manufacturer's specified conditions (refer to FCC 95.2365))

UL Japan, Inc.

Shonan EMC Lab.

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Frequency Stability

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	September 10, 2020	September 11, 2020
Temperature / Humidity	25 deg.C , 50 %RH	23 deg.C , 57 %RH
Engineer	Kenichi Adachi	Kenichi Adachi
Mode	Transmitting	

Test Condition deg.C Voltage		Test Timing	Measured frequency [MHz]	Frequency error [MHz]	Result [ppm]	Limit [+/- ppm]	Margin [ppm]
20 deg.C	DC 4.25 V (Vmin)	Power on	611.000518	0.000518	0.85	2.50	1.65
		on 2 min.	611.000555	0.000555	0.91	2.50	1.59
		on 5 min.	611.000549	0.000549	0.90	2.50	1.60
		on 10 min.	611.000558	0.000558	0.91	2.50	1.59
	DC 5 V (Vnom)	Power on	611.000527	0.000527	0.86	2.50	1.64
		on 2 min.	611.000556	0.000556	0.91	2.50	1.59
		on 5 min.	611.000537	0.000537	0.88	2.50	1.62
		on 10 min.	611.000528	0.000528	0.86	2.50	1.64
	DC 5.75 V (Vmax)	Power on	611.000512	0.000512	0.84	2.50	1.66
		on 2 min.	611.000523	0.000523	0.86	2.50	1.64
		on 5 min.	611.000519	0.000519	0.85	2.50	1.65
		on 10 min.	611.000516	0.000516	0.84	2.50	1.66
50 deg.C.	DC 5 V	Power on	610.999551	-0.000449	-0.73	-	-
		on 2 min.	610.999556	-0.000444	-0.73	-	-
		on 5 min.	610.999563	-0.000437	-0.72	-	-
		on 10 min.	610.999593	-0.000407	-0.67	-	-
40 deg.C.		Power on	610.999698	-0.000302	-0.49	2.50	2.01
		on 2 min.	610.999704	-0.000296	-0.48	2.50	2.02
		on 5 min.	610.999712	-0.000288	-0.47	2.50	2.03
		on 10 min.	610.999719	-0.000281	-0.46	2.50	2.04
30 deg.C.		Power on	611.000298	0.000298	0.49	2.50	2.01
		on 2 min.	611.000308	0.000308	0.50	2.50	2.00
		on 5 min.	611.000313	0.000313	0.51	2.50	1.99
		on 10 min.	611.000311	0.000311	0.51	2.50	1.99
20 deg.C.		Power on	611.000511	0.000511	0.84	2.50	1.66
		on 2 min.	611.000530	0.000530	0.87	2.50	1.63
		on 5 min.	611.000536	0.000536	0.88	2.50	1.62
		on 10 min.	611.000551	0.000551	0.90	2.50	1.60
10 deg.C.		Power on	611.000292	0.000292	0.48	2.50	2.02
		on 2 min.	611.000322	0.000322	0.53	2.50	1.97
		on 5 min.	611.000329	0.000329	0.54	2.50	1.96
		on 10 min.	611.000333	0.000333	0.54	2.50	1.96
0 deg.C.		Power on	610.999691	-0.000309	-0.51	-	-
		on 2 min.	610.999646	-0.000354	-0.58	-	-
		on 5 min.	610.999748	-0.000252	-0.41	-	-
		on 10 min.	610.999708	-0.000292	-0.48	-	-
-10 deg.C.		Power on	610.998239	-0.001761	-2.88	-	-
		on 2 min.	610.997860	-0.002140	-3.50	-	-
		on 5 min.	610.997955	-0.002045	-3.35	-	-
		on 10 min.	610.997966	-0.002034	-3.33	-	-
-20 deg.C		Power on	610.994784	-0.005216	-8.54	-	-
		on 2 min.	610.994740	-0.005260	-8.61	-	-
		on 5 min.	610.994764	-0.005236	-8.57	-	-
		on 10 min.	610.994782	-0.005218	-8.54	-	-
-30 deg.C		Power on	610.990866	-0.009134	-14.95	-	-
		on 2 min.	610.989500	-0.010500	-17.18	-	-
		on 5 min.	610.990105	-0.009895	-16.19	-	-
		on 10 min.	610.989927	-0.010073	-16.49	-	-

Limit : 611.0000 MHz +/-0.00025 % (+/-2.5 ppm) = +/- 0.001528 MHz

*The test on 50 deg.C., 0 deg.C., -10 deg.C., and -20 deg.C. were not apply, since the specification of operating temperature of EUT was 10 deg.C to 40 deg.C. (It used the manufacturer's specified conditions (refer to FCC 95.2365))

UL Japan, Inc.

Shonan EMC Lab.

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Frequency Stability

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	September 10, 2020	September 11, 2020
Temperature / Humidity	25 deg.C , 50 %RH	23 deg.C , 57 %RH
Engineer	Kenichi Adachi	Kenichi Adachi
Mode	Transmitting	

Test Condition deg.C Voltage		Test Timing	Measured frequency [MHz]	Frequency error [MHz]	Result [ppm]	Limit [+/- ppm]	Margin [ppm]
20 deg.C	DC 4.25 V (Vmin)	Power on	613.988019	0.000519	0.85	2.50	1.65
		on 2 min.	613.988049	0.000549	0.89	2.50	1.61
		on 5 min.	613.988050	0.000550	0.90	2.50	1.60
		on 10 min.	613.988058	0.000558	0.91	2.50	1.59
	DC 5 V (Vnom)	Power on	613.988017	0.000517	0.84	2.50	1.66
		on 2 min.	613.988024	0.000524	0.85	2.50	1.65
		on 5 min.	613.988025	0.000525	0.86	2.50	1.64
		on 10 min.	613.988021	0.000521	0.85	2.50	1.65
	DC 5.75 V (Vmax)	Power on	613.987995	0.000495	0.81	2.50	1.69
		on 2 min.	613.988020	0.000520	0.85	2.50	1.65
		on 5 min.	613.988016	0.000516	0.84	2.50	1.66
		on 10 min.	613.988005	0.000505	0.82	2.50	1.68
50 deg.C.	DC 5 V	Power on	613.987056	-0.000444	-0.72	-	-
		on 2 min.	613.987114	-0.000386	-0.63	-	-
		on 5 min.	613.987096	-0.000404	-0.66	-	-
		on 10 min.	613.987090	-0.000410	-0.67	-	-
40 deg.C.		Power on	613.987170	-0.000330	-0.54	2.50	1.96
		on 2 min.	613.987180	-0.000320	-0.52	2.50	1.98
		on 5 min.	613.987189	-0.000311	-0.51	2.50	1.99
		on 10 min.	613.987207	-0.000293	-0.48	2.50	2.02
30 deg.C.		Power on	613.987794	0.000294	0.48	2.50	2.02
		on 2 min.	613.987803	0.000303	0.49	2.50	2.01
		on 5 min.	613.987814	0.000314	0.51	2.50	1.99
		on 10 min.	613.987815	0.000315	0.51	2.50	1.99
20 deg.C.		Power on	613.988006	0.000506	0.82	2.50	1.68
		on 2 min.	613.987992	0.000492	0.80	2.50	1.70
		on 5 min.	613.988019	0.000519	0.84	2.50	1.66
		on 10 min.	613.988031	0.000531	0.86	2.50	1.64
10 deg.C.		Power on	613.987639	0.000139	0.23	2.50	2.27
		on 2 min.	613.987759	0.000259	0.42	2.50	2.08
		on 5 min.	613.987789	0.000289	0.47	2.50	2.03
		on 10 min.	613.987795	0.000295	0.48	2.50	2.02
0 deg.C.		Power on	613.987178	-0.000322	-0.52	-	-
		on 2 min.	613.987148	-0.000352	-0.57	-	-
		on 5 min.	613.987229	-0.000271	-0.44	-	-
		on 10 min.	613.987205	-0.000295	-0.48	-	-
-10 deg.C.		Power on	613.985105	-0.002395	-3.90	-	-
		on 2 min.	613.985424	-0.002076	-3.38	-	-
		on 5 min.	613.985445	-0.002055	-3.35	-	-
		on 10 min.	613.985469	-0.002031	-3.31	-	-
-20 deg.C		Power on	613.982582	-0.004918	-8.01	-	-
		on 2 min.	613.982034	-0.005466	-8.90	-	-
		on 5 min.	613.982210	-0.005290	-8.62	-	-
		on 10 min.	613.982234	-0.005266	-8.58	-	-
-30 deg.C		Power on	613.976856	-0.010644	-17.34	-	-
		on 2 min.	613.976996	-0.010504	-17.11	-	-
		on 5 min.	613.977232	-0.010268	-16.72	-	-
		on 10 min.	613.977318	-0.010182	-16.58	-	-

Limit : 613.9875 MHz $\pm 0.00025\%$ (± 2.5 ppm) = ± 0.001535 MHz

*The test on 50 deg.C., 0 deg.C., -10 deg.C., and -20 deg.C. were not apply, since the specification of operating temperature of EUT was 10 deg.C to 40 deg.C. (It used the manufacturer's specified conditions (refer to FCC 95.2365))

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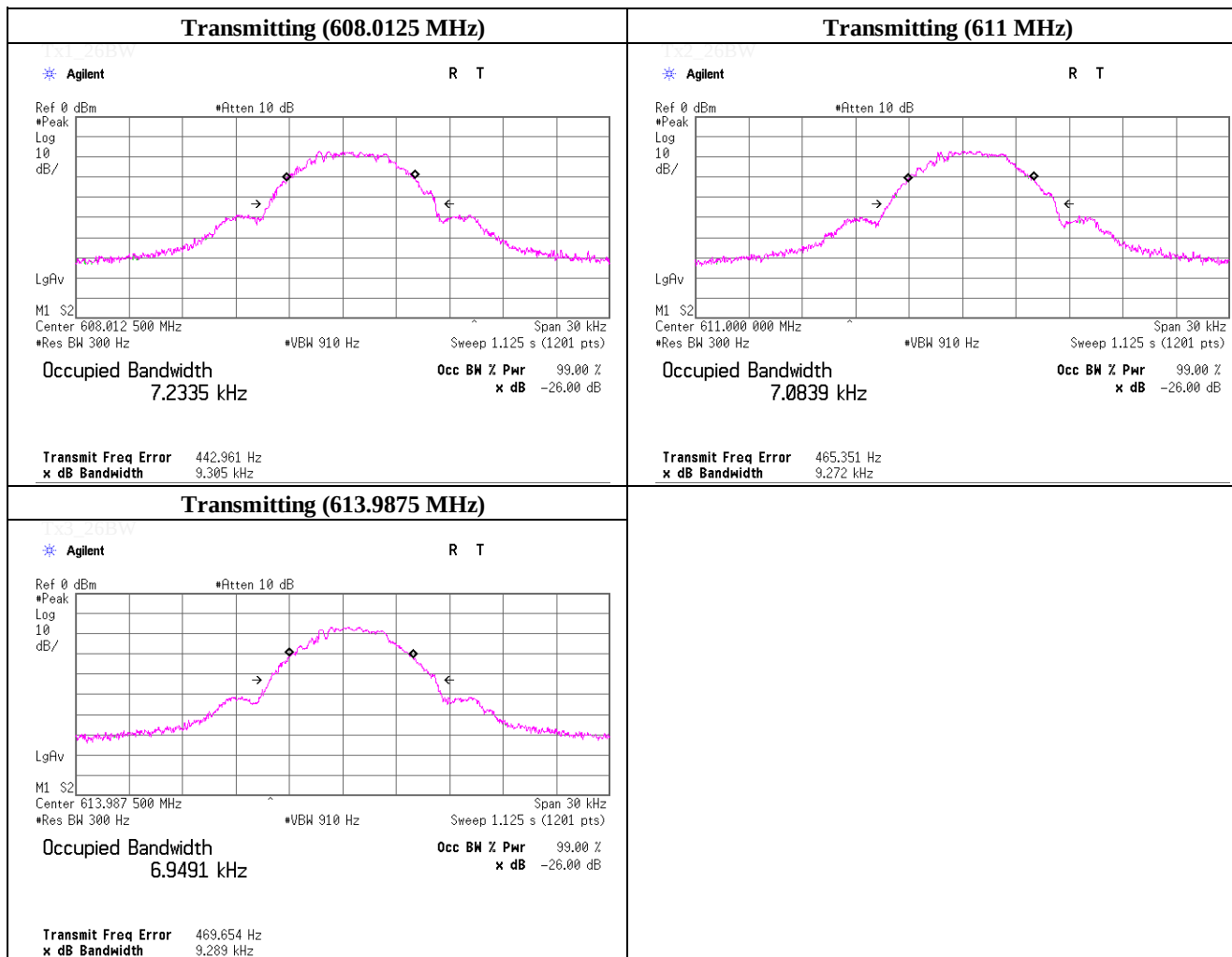
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-26 dB Bandwidth and 99 % Occupied bandwidth

Test place	UL Japan, Inc. Shonan EMC Lab.	No.5 Shielded Room
Date	September 10, 2020	
Temperature / Humidity	25 deg.C / 50 %RH	
Engineer	Kenichi Adachi	
Mode	Transmitting	

Freq. [MHz]	-26 dB Bandwidth [kHz]	99 % Occupied Bandwidth [kHz]
608.0125	9.305	7.234
611.0000	9.272	7.084
613.9875	9.289	6.949

No limit applies to -26 dB Bandwidth.



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Field Strength(Electric Field Strength of Fundamental Emission , Spurious Emission and Band Edge Compliance)

Test place	UL Japan, Inc. Shonan EMC Lab.		
	No.3 Semi Anechoic Chamber	No.3 Semi Anechoic Chamber	No.3 Semi Anechoic Chamber
Date	September 9, 2020	September 4, 2020	September 9, 2020
Temperature / Humidity	23 deg.C / 59 %RH	25 deg.C / 55 %RH	23 deg.C / 59 %RH
Engineer	Kenichi Adachi	Kazuya Noda	Kenichi Adachi
	(9 kHz - 30 MHz)	(30 MHz - 1000 MHz)	(1 GHz - 7 GHz)
Mode	Tx, 608.0125 MHz	EUT worst axis: below 1 GHz Hori: X, Vert: X / above 1 GHz Hori: Z, Vert: Z	
		Antenna worst axis: below 1 GHz Hori: Z, Vert: Y / above 1 GHz Hori: X, Vert: Z	

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	43.340	QP	22.2	13.6	6.7	32.2	10.3	46.0	35.7	100	358	
Hori.	157.281	QP	21.3	15.1	7.8	32.1	12.1	46.0	33.9	100	1	
Hori.	608.000	QP	95.2	19.4	9.8	31.9	92.5	-	-	148	311	(Refer to Marker Delta Method)
Hori.	608.0125	QP	95.6	19.4	9.8	31.9	92.9	106.0	13.1	148	311	Carrier
Hori.	1216.025	AV	52.6	25.8	4.0	41.1	41.2	53.9	12.7	126	85	VBW:10 Hz
Hori.	1824.038	AV	37.3	25.8	3.8	41.4	25.6	53.9	28.3	116	290	VBW:10 Hz
Hori.	2432.050	AV	36.2	28.3	4.5	41.7	27.4	53.9	26.5	112	118	VBW:10 Hz
Hori.	3040.063	AV	35.2	29.2	5.0	41.9	27.5	53.9	26.4	131	233	VBW:10 Hz
Hori.	3648.075	AV	35.4	29.7	5.2	42.2	28.1	53.9	25.8	100	0	VBW:10 Hz
Hori.	4256.088	AV	35.8	30.4	5.5	42.6	29.2	53.9	24.8	100	0	VBW:10 Hz
Hori.	4864.100	AV	36.2	31.6	5.9	42.9	30.8	53.9	23.1	100	0	VBW:10 Hz
Hori.	5472.113	AV	36.5	32.3	6.3	43.5	31.7	53.9	22.2	100	0	VBW:10 Hz
Hori.	6080.125	AV	36.4	33.5	6.7	43.4	33.2	53.9	20.7	100	0	VBW:10 Hz
Vert.	51.207	QP	26.0	10.8	6.8	32.2	11.4	46.0	34.6	100	176	
Vert.	163.605	QP	21.7	15.3	7.9	32.1	12.9	46.0	33.1	100	1	
Vert.	608.000	QP	90.8	19.4	9.8	31.9	88.1	-	-	100	309	(Refer to Marker Delta Method)
Vert.	608.0125	QP	91.1	19.4	9.8	31.9	88.4	106.0	17.6	100	309	Carrier
Vert.	1216.025	AV	54.4	25.8	4.0	41.1	43.1	53.9	10.9	100	281	VBW:10 Hz
Vert.	1824.038	AV	38.7	25.8	3.8	41.4	26.9	53.9	27.0	100	272	VBW:10 Hz
Vert.	2432.050	AV	36.9	28.3	4.5	41.7	28.0	53.9	25.9	100	347	VBW:10 Hz
Vert.	3040.063	AV	35.3	29.2	5.0	41.9	27.6	53.9	26.3	100	191	VBW:10 Hz
Vert.	3648.075	AV	35.5	29.7	5.2	42.2	28.1	53.9	25.8	100	0	VBW:10 Hz
Vert.	4256.088	AV	35.9	30.4	5.5	42.6	29.3	53.9	24.6	100	0	VBW:10 Hz
Vert.	4864.100	AV	36.2	31.6	5.9	42.9	30.8	53.9	23.1	100	0	VBW:10 Hz
Vert.	5472.113	AV	36.5	32.3	6.3	43.5	31.7	53.9	22.2	100	0	VBW:10 Hz
Vert.	6080.125	AV	36.5	33.5	6.7	43.4	33.3	53.9	20.6	100	0	VBW:10 Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.

Marker Delta Method(Test distance 3 m)

			AV			
		Polarity	Hor.		Ver.	
		RBWVBW	[dBuV]	[dBuV/m]	[dBuV]	[dBuV/m]
			Reading	Result	Reading	Result
Step1	Fundamental(608.0125 MHz)	QP	95.59	92.9	91.08	88.4
Step2	Fundamental(608.0125 MHz)	1 kHz/3 kHz	96.10	93.4	90.85	88.1
	Band-edge(608 MHz)	1 kHz/3 kHz	47.96	45.3	44.40	41.7
	Amplitude delta	-	-	48.1	-	46.5
Step3	Field strength of band-edge	-	-	44.7	-	41.9
	Limit	-	-	46.0	-	46.0
	Margin	-	-	1.3	-	4.1

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)

*1 Amplitude delta = Fundamental(RBW:1 kHz,VBW:3 kHz) - Band-edge(RBW:1 kHz,VBW:3 kHz)

*2 Field strength of band-edge = Fundamental(AV) - Amplitude delta

*As we stated at section 9 ("Bandedge" section), we used RBW = 1 kHz (greater than 1 % bandwidth) to prevent to detect in-band emission. Refer to KDB 971168 D01 (KDB 971168 D01 Power Meas Licence Digital System D03r01).

(for RF Exposure sheet)

[RF output power]

	Result 0	Result 1	Result 2
	[dBuV/m]	[mW]	[mW]
carrier	92.9	2.388	0.582
Level			

Calculation: (*Result 0 is the maximum value (Result) in the table above)

$$\text{Result 1 [mW]} = (((10^{(\text{Result [dBuV/m]} / 20)} \times 10^{(-6)}) \times (\text{distance} = 3 \text{ [m]})^2) / (30 \times (\text{gain} = 10^{(-6.13 \text{ dBi} / 10)}) \times 10^{-3})$$

* antenna gain value is average value. (refer to Antenna Specifications.)

$$\text{Result 2 [mW]} = (((10^{(\text{Result [dBuV/m]} / 20)} \times 10^{(-6)}) \times (\text{distance} = 3 \text{ [m]})^2) / (30 \times 1) \times 10^{-3}$$

(*Result 1: Antenna power value, Result 2: EIRP value)

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Field Strength(Electric Field Strength of Fundamental Emission , Spurious Emission)

Test place UL Japan, Inc. Shonan EMC Lab.

Date	September 9, 2020	September 4, 2020
Temperature / Humidity	23 deg.C / 59 %RH	25 deg.C / 55 %RH
Engineer	Kenichi Adachi	Kazuya Noda
	(9 kHz - 30 MHz)	(30 MHz - 1000 MHz)
Mode	Tx, 611.0000 MHz	

Antenna worst axis: below 1 GHz Hori: X, Vert: X / above 1 GHz Hori: Z, Vert: Z

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	31.076	QP	22.4	18.3	6.5	32.2	15.0	46.0	31.0	100	1	
Hori.	149.400	QP	21.8	14.8	7.8	32.1	12.2	46.0	33.8	100	359	
Hori.	611.000	QP	96.4	19.4	9.8	31.9	93.7	106.0	12.3	151	309	Carrier
Hori.	1222.000	AV	52.4	25.8	4.0	41.1	41.0	53.9	12.9	126	117	VBW:10 Hz
Hori.	1833.000	AV	37.4	25.9	3.8	41.4	25.7	53.9	28.2	115	288	VBW:10 Hz
Hori.	2444.000	AV	36.4	28.3	4.5	41.7	27.6	53.9	26.3	111	121	VBW:10 Hz
Hori.	3055.000	AV	35.3	29.2	5.0	41.9	27.6	53.9	26.4	130	231	VBW:10 Hz
Hori.	3666.000	AV	36.6	29.7	5.2	42.2	29.3	53.9	24.6	100	0	VBW:10 Hz
Hori.	4277.000	AV	36.2	30.5	5.6	42.6	29.6	53.9	24.3	100	0	VBW:10 Hz
Hori.	4888.000	AV	36.3	31.6	6.0	42.9	30.9	53.9	23.0	100	0	VBW:10 Hz
Hori.	5499.000	AV	36.5	32.4	6.3	43.5	31.7	53.9	22.2	100	0	VBW:10 Hz
Hori.	6110.000	AV	37.0	33.6	6.7	43.4	33.9	53.9	20.0	100	0	VBW:10 Hz
Vert.	51.208	QP	25.9	10.8	6.8	32.2	11.2	46.0	34.8	100	248	
Vert.	155.079	QP	22.4	15.0	7.8	32.1	13.1	46.0	32.9	100	1	
Vert.	611.000	QP	91.7	19.4	9.8	31.9	89.0	106.0	17.0	100	312	Carrier
Vert.	1222.000	AV	54.6	25.8	4.0	41.1	43.3	53.9	10.6	100	279	VBW:10 Hz
Vert.	1833.000	AV	38.8	25.9	3.8	41.4	27.0	53.9	26.9	100	271	VBW:10 Hz
Vert.	2444.000	AV	37.0	28.3	4.5	41.7	28.1	53.9	25.8	100	344	VBW:10 Hz
Vert.	3055.000	AV	35.4	29.2	5.0	41.9	27.7	53.9	26.2	100	189	VBW:10 Hz
Vert.	3666.000	AV	35.7	29.7	5.2	42.2	28.4	53.9	25.6	100	0	VBW:10 Hz
Vert.	4277.000	AV	36.2	30.5	5.6	42.6	29.6	53.9	24.3	100	0	VBW:10 Hz
Vert.	4888.000	AV	36.3	31.6	6.0	42.9	30.9	53.9	23.0	100	0	VBW:10 Hz
Vert.	5499.000	AV	36.5	32.4	6.3	43.5	31.8	53.9	22.1	100	0	VBW:10 Hz
Vert.	6110.000	AV	37.1	33.6	6.7	43.4	33.9	53.9	20.0	100	0	VBW:10 Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)

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

(for RF Exposure sheet)

[RF output power]

	Result 0	Result 1	Result 2
	[dBuV/m]	[mW]	[mW]
carrier	93.7	2.898	0.707
Level			

Calculation: (*Result 0 is the maximum value (Result) in the table above)

$$\text{Result 1 [mW]} = (((10^{(\text{Result [dBuV/m]} / 20)} \times 10^{(-6)}) \times (\text{distance} = 3 \text{ [m]})^2) / (30 \times (\text{gain} = 10^{(-6.13 \text{ dBi} / 10)})) \times 10^3$$

* antenna gain value is average value. (refer to Antenna Specifications.)

$$\text{Result 2 [mW]} = (((10^{(\text{Result [dBuV/m]} / 20)} \times 10^{(-6)}) \times (\text{distance} = 3 \text{ [m]})^2) / (30 \times 1)) \times 10^3$$

(*Result 1: Antenna power value, Result 2: EIRP value)

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Field Strength(Electric Field Strength of Fundamental Emission , Spurious Emission and Band Edge Compliance)

Test place	UL Japan, Inc. Shonan EMC Lab.		
	No.3 Semi Anechoic Chamber	No.1 Semi Anechoic Chamber	No.3 Semi Anechoic Chamber
Date	September 9, 2020	September 4, 2020	September 9, 2020
Temperature / Humidity	23 deg.C / 59 %RH	25 deg.C / 55 %RH	23 deg.C / 59 %RH
Engineer	Kenichi Adachi	Kazuya Noda	Kenichi Adachi
	(9 kHz - 30 MHz)	(30 MHz - 1000 MHz)	(1 GHz - 7 GHz)
Mode	Tx, 613.9875 MHz EUT worst axis: below 1 GHz Hori: X, Vert: X / above 1 GHz Hori: Z, Vert: Z		
	Antenna worst axis: below 1 GHz Hori: Z, Vert: Y / above 1 GHz Hori: X, Vert: Z		

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	33.840	QP	22.9	17.1	6.5	32.2	14.3	46.0	31.7	100	1	
Hori.	131.213	QP	22.0	13.9	7.4	32.1	11.2	46.0	34.8	100	358	
Hori.	613.9875	QP	97.2	19.4	9.9	31.9	94.5	106.0	11.5	147	311	Carrier
Hori.	614.000	QP	96.9	19.4	9.9	31.9	94.3	-	-	147	311	(Refer to Marker Delta Method)
Hori.	1227.975	AV	50.3	25.8	4.0	41.1	39.0	53.9	14.9	125	115	VBW:10 Hz
Hori.	1841.963	AV	36.7	25.9	3.8	41.4	25.0	53.9	28.9	118	288	VBW:10 Hz
Hori.	2455.950	AV	36.2	28.3	4.5	41.7	27.3	53.9	26.6	109	123	VBW:10 Hz
Hori.	3069.938	AV	35.4	29.2	5.0	41.9	27.7	53.9	26.2	132	232	VBW:10 Hz
Hori.	3683.925	AV	35.3	29.7	5.2	42.2	28.0	53.9	25.9	100	0	VBW:10 Hz
Hori.	4297.913	AV	36.0	30.5	5.6	42.7	29.4	53.9	24.5	100	0	VBW:10 Hz
Hori.	4911.900	AV	36.0	31.7	6.0	42.9	30.7	53.9	23.2	100	0	VBW:10 Hz
Hori.	5525.888	AV	36.2	32.4	6.3	43.5	31.5	53.9	22.4	100	0	VBW:10 Hz
Hori.	6139.875	AV	36.3	33.7	6.7	43.5	33.3	53.9	20.6	100	0	VBW:10 Hz
Vert.	52.880	QP	23.3	10.2	6.8	32.2	8.1	46.0	37.9	100	130	
Vert.	159.997	QP	25.3	15.2	7.8	32.1	16.2	46.0	29.8	100	305	
Vert.	613.9875	QP	91.9	19.4	9.9	31.9	89.3	106.0	16.8	100	310	Carrier
Vert.	614.000	QP	91.7	19.4	9.9	31.9	89.1	-	-	100	310	(Refer to Marker Delta Method)
Vert.	1227.975	AV	51.9	25.8	4.0	41.1	40.5	53.9	13.4	100	282	VBW:10 Hz
Vert.	1841.963	AV	36.6	25.9	3.8	41.4	24.9	53.9	29.0	100	279	VBW:10 Hz
Vert.	2455.950	AV	36.3	28.3	4.5	41.7	27.5	53.9	26.4	100	344	VBW:10 Hz
Vert.	3069.938	AV	35.3	29.2	5.0	41.9	27.6	53.9	26.3	100	194	VBW:10 Hz
Vert.	3683.925	AV	35.3	29.7	5.2	42.2	28.0	53.9	25.9	100	0	VBW:10 Hz
Vert.	4297.913	AV	36.0	30.5	5.6	42.7	29.4	53.9	24.5	100	0	VBW:10 Hz
Vert.	4911.900	AV	36.0	31.7	6.0	42.9	30.7	53.9	23.2	100	0	VBW:10 Hz
Vert.	5525.888	AV	36.3	32.4	6.3	43.5	31.6	53.9	22.4	100	0	VBW:10 Hz
Vert.	6139.875	AV	36.4	33.7	6.7	43.5	33.3	53.9	20.6	100	0	VBW:10 Hz

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)

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

*The 10th harmonic was not seen so the result was its base noise level.

Marker Delta Method(Test distance 3 m)

		AV				
		Polarity	Hor.		Ver.	
			[dBuV]	[dBuV/m]	[dBuV]	[dBuV/m]
		$\frac{RBW}{VBW}$	Reading	Result	Reading	Result
Step1	Fundamental(613.9875 MHz)	QP	97.16	94.5	91.92	89.3
Step2	Fundamental(613.9875 MHz)	1 kHz/3 kHz	96.96	94.3	91.80	89.1
	Band-edge(614 MHz)	1 kHz/3 kHz	48.19	45.5	45.80	43.1
	Amplitude delta	-	-	48.8	-	46.0
Step3	Field strength of band-edge	-	-	45.7	-	43.3
	Limit	-	-	46.0	-	46.0
	Margin	-	-	0.3	-	2.8

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter) - Gain(Amplifier)

*1 Amplitude delta = Fundamental(RBW:1 kHz,VBW:3 kHz) - Band-edge(RBW:1 kHz,VBW:3 kHz)

*2 Field strength of band-edge = Fundamental(AV) - Amplitude delta

*As we stated at section 9 ("Bandedge" section), we used RBW = 1 kHz (greater than 1 % bandwidth) to prevent to detect in-band emission. Refer to KDB 971168 D01 (KDB 971168 D01 Power Meas Licence Digital System D03r01).

(for RF Exposure sheet)

[RF output power]

	Result 0	Result 1	Result 2
	[dBuV/m]	[mW]	[mW]
carrier	94.5	3.460	0.844
Level			

Calculation: (*Result 0 is the maximum value (Result) in the table above)

$$\text{Result 1 [mW]} = (((10^{(\text{Result [dBuV/m]} / 20)} \times 10^{(-6)}) \times (\text{distance} = 3 \text{ [m]})^2) / (30 \times (\text{gain} = 10^{(-6.13 \text{ dBi} / 10)})) \times 10^{-3}$$

* antenna gain value is average value. (refer to Antenna Specifications.)

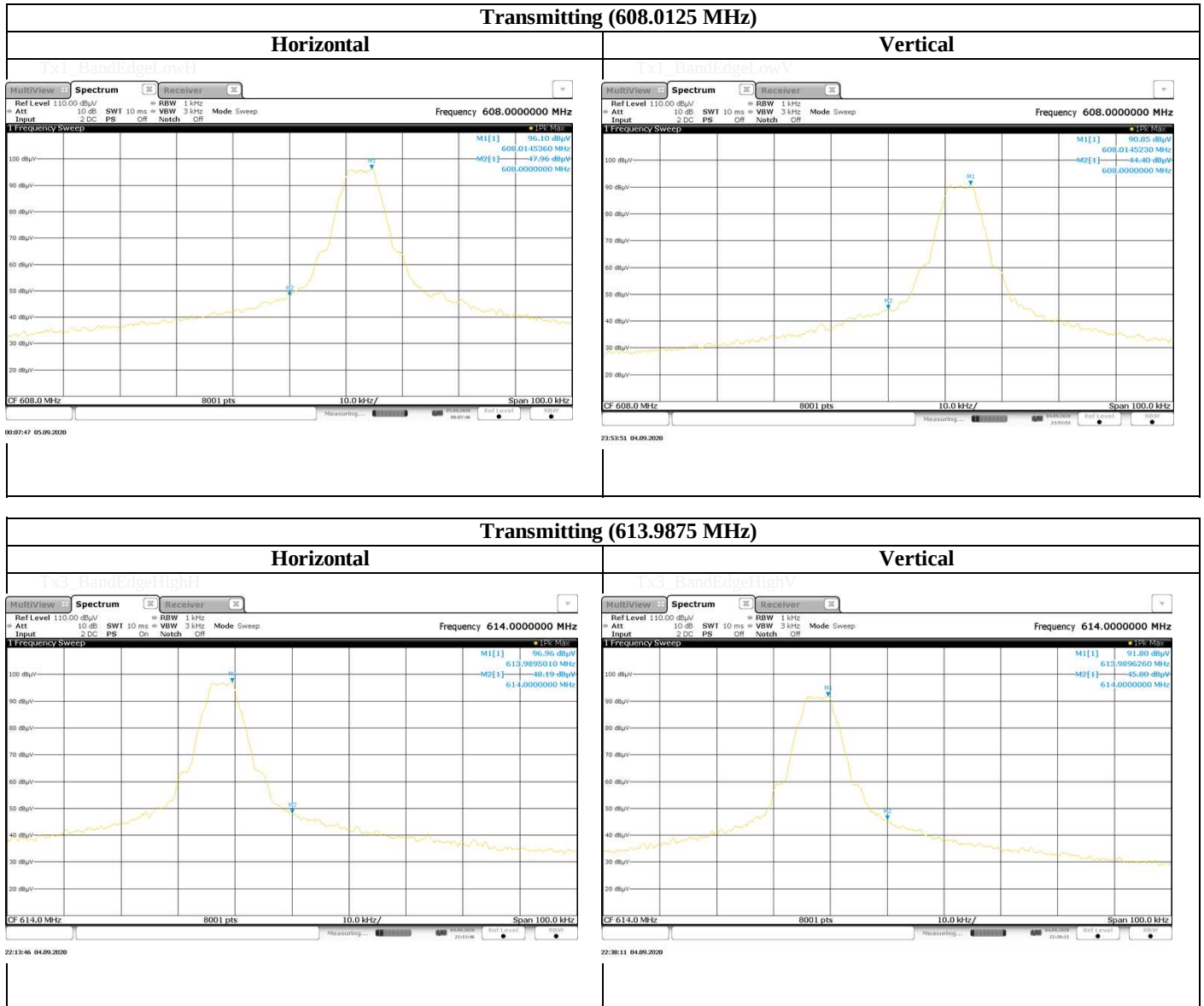
$$\text{Result 2 [mW]} = (((10^{(\text{Result [dBuV/m]} / 20)} \times 10^{(-6)}) \times (\text{distance} = 3 \text{ [m]})^2) / (30 \times 1) \times 10^{-3}$$

(*Result 1: Antenna power value, Result 2: EIRP value)

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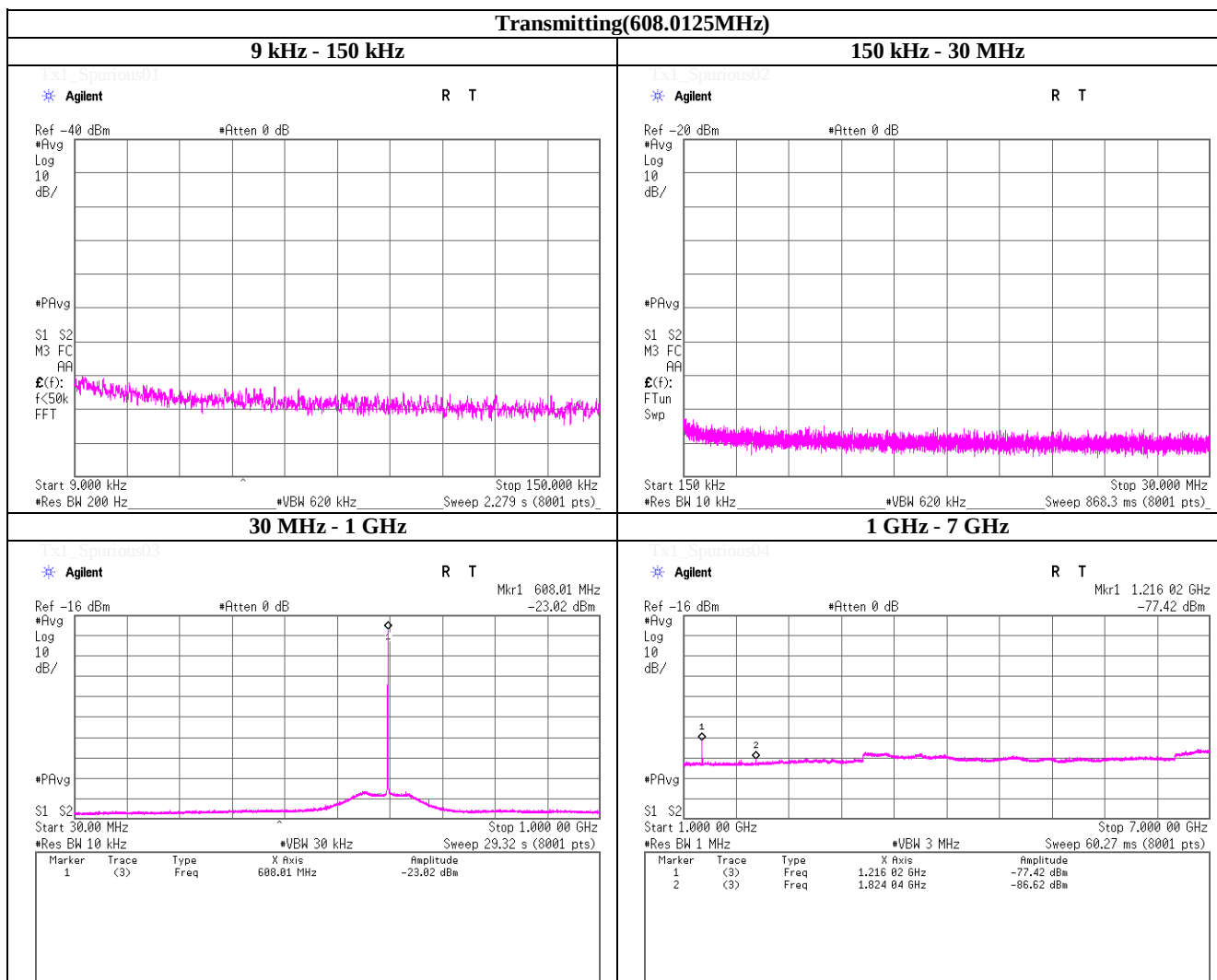
Field Strength(Electric Field Strength of Fundamental Emission, Spurious Emission and Band Edge Compliance)

Band Edge compliance(for Marker Delta Method)



Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
 Date September 10, 2020
 Temperature / Humidity 25 deg.C / 50 %RH
 Engineer Kenichi Adachi

Spurious emissions at antenna terminals



Tx1_Spurious05

Freq. [MHz]	Reading [dBm]	cable loss [dB]	ATT. loss [dB]	Result [dBm]	(reference data)
608.01	-23.02	0.85	10.17	-11.99	
1216.02	-77.42	1.20	10.18	-66.04	
1824.04	-86.62	1.47	10.17	-74.98	

Calculation sample:

Result [dBm] = Reading [dBm] + cable loss [dB] + ATT. loss [dB]

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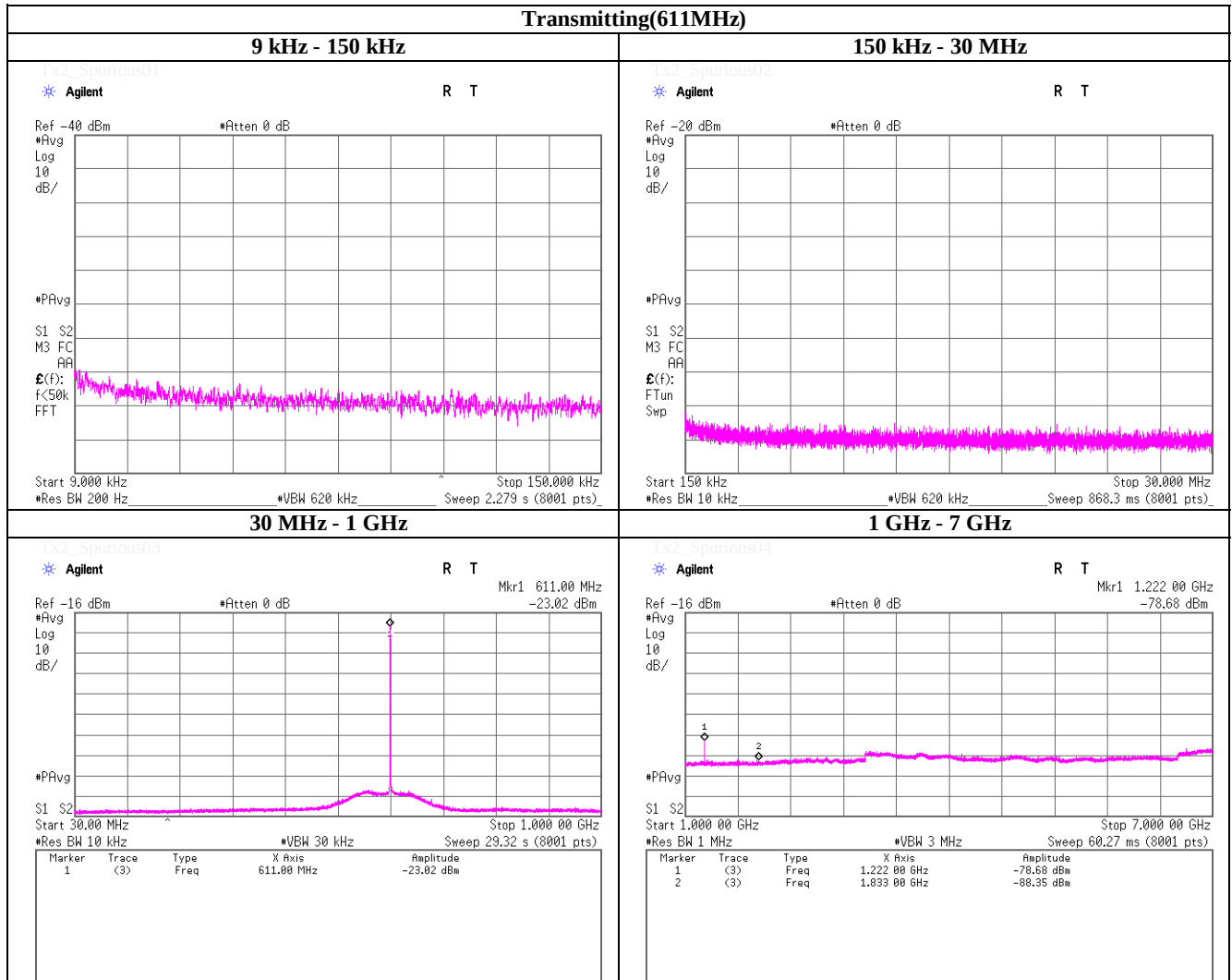
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Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
 Date September 10, 2020
 Temperature / Humidity 25 deg.C / 50 %RH
 Engineer Kenichi Adachi

Spurious emissions at antenna terminals



Tx2_Spurious05

Freq. [MHz]	Reading [dBm]	cable loss [dB]	ATT. loss [dB]	Result [dBm]	(reference data)
611.00	-23.02	0.85	10.17	-12.00	
1222.00	-78.68	1.20	10.18	-67.30	
1833.00	-88.35	1.47	10.17	-76.71	

Calculation sample:

Result [dBm] = Reading [dBm] + cable loss [dB] + ATT. loss [dB]

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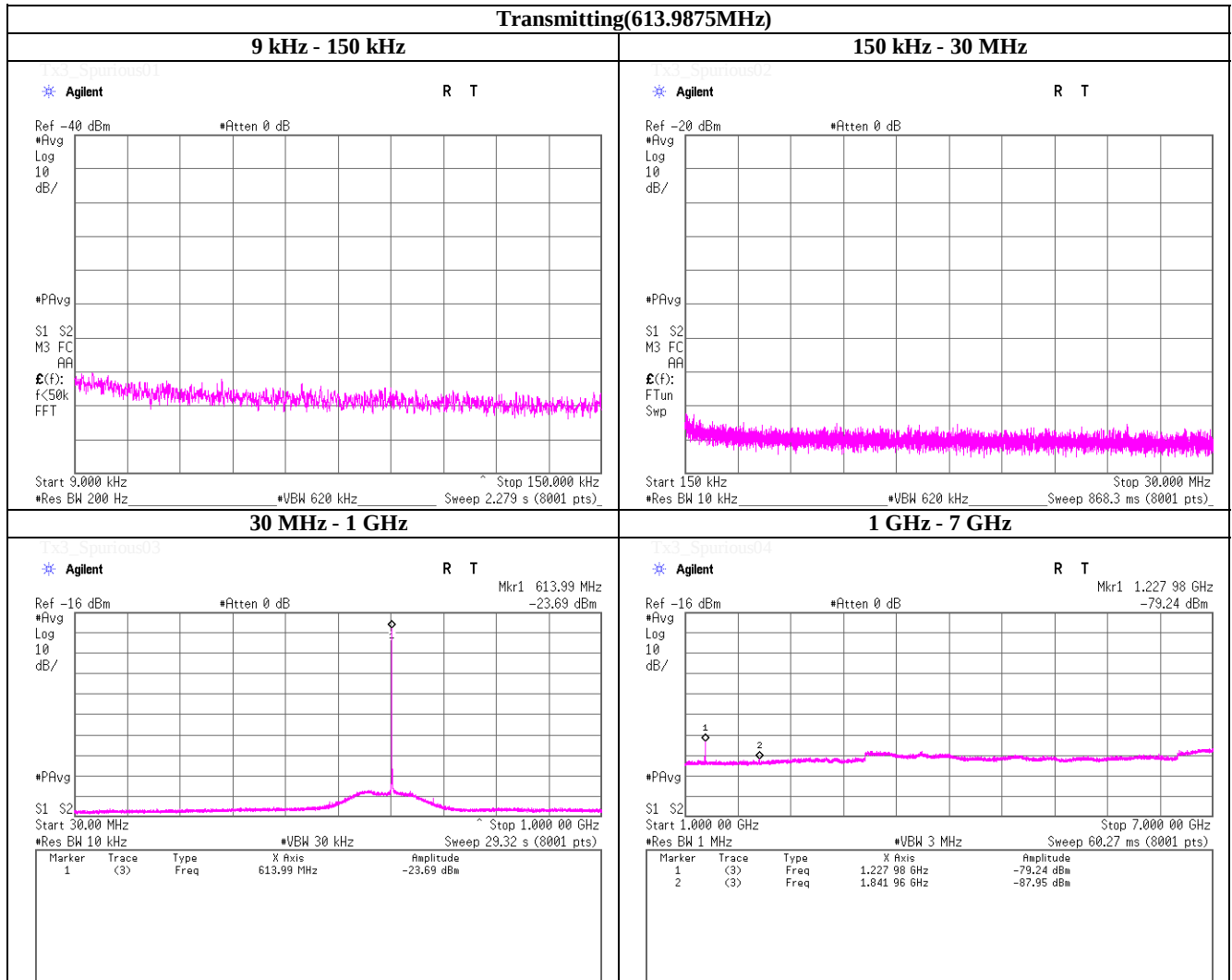
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Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
 Date September 10, 2020
 Temperature / Humidity 25 deg.C / 50 %RH
 Engineer Kenichi Adachi

Spurious emissions at antenna terminals



Tx3_Spurious05

Freq. [MHz]	Reading [dBm]	cable loss [dB]	ATT. loss [dB]	Result [dBm]	(reference data)
613.99	-23.69	0.85	10.17	-12.66	
1227.98	-79.24	1.20	10.18	-67.86	
1841.96	-87.95	1.48	10.17	-76.30	

Calculation sample:

Result [dBm] = Reading [dBm] + cable loss [dB] + ATT. loss [dB]

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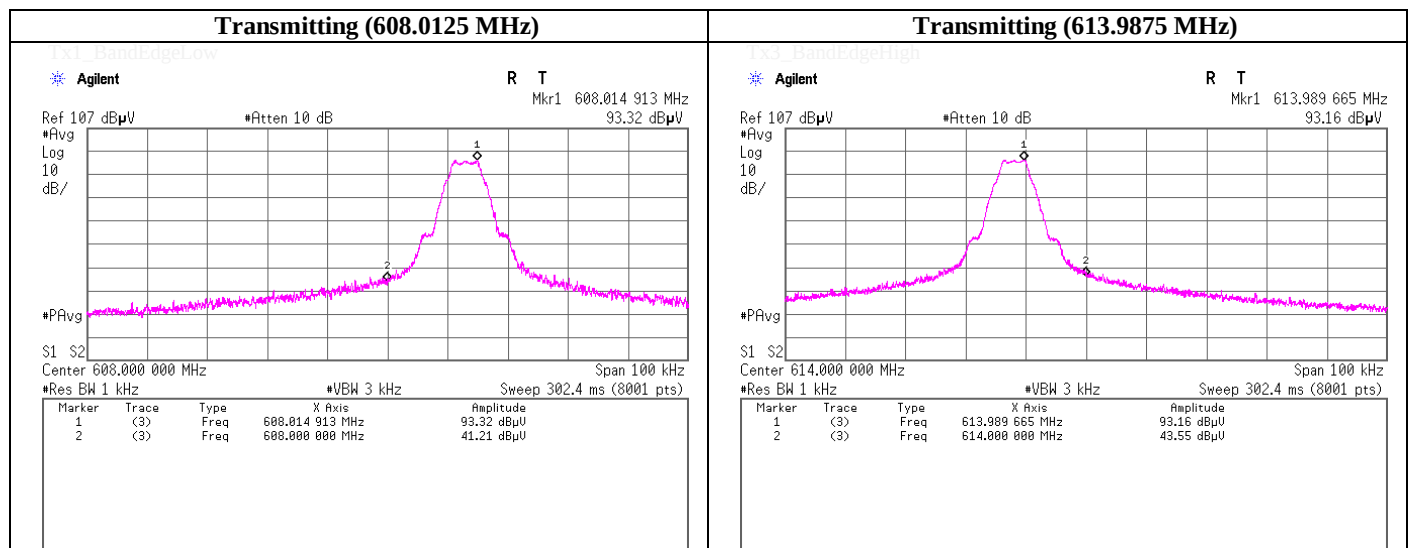
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Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
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Engineer Kenichi Adachi

Spurious emissions at antenna terminals

Band Edge compliance



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APPENDIX 2: Test instruments

Test Instruments

Test Item	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
AT	KTS-07	145111	Digital Tester	SANWA	PC500	7019232	2019/10/01	12
AT	SAT10-15	160493	Attenuator	Weinschel Corp.	54A-10	83406	2019/12/12	12
AT	SCC-G14	145175	Coaxial Cable	Suhner	SUCOFLEX 102	31600/2	2019/12/12	12
AT	SCC-H20	159940	Microwave cable	RS Pro	R-132G7210 100CO	-	2019/11/07	12
AT	SCH-01	145200	Temperature and Humidity Chamber	Espec	PL-1KT	14020837	2020/04/02	12
AT	SOS-19	175823	Humidity Indicator	CUSTOM. Inc	CTH-201	-	2019/12/19	12
AT	SPM-06	146267	Power Meter	ANRITSU	ML2495A	850009	2020/05/25	12
AT	SPSS-03	146309	Power sensor	ANRITSU	MA2411B	917063	2020/05/25	12
AT	SSA-03	145801	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY48250152	2020/08/12	12
CE	SAT3-13	150923	Attenuator	JFW	50HF-003N	-	2020/01/30	12
CE	SCC-C6/C7/C8/C10/SRSE-03	145034	Coaxial Cable&RF Selector	Suhner/Fujikura/Suhner /Suhner/TOYO	141PE/12DSFA/141PE/141PE/NS4906	-/0901-271(RF Selector)	2020/04/12	12
CE	SLS-02	145539	LISN	Rohde & Schwarz	ENV216	100512	2020/02/18	12
RE	SAEC-03(NSA)	145565	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	2020/04/12	12
RE	SAEC-ALL	145568	Semi Anechoic Chamber(ME)	TDK	Semi Anechoic Chamber 3m/10m	1, 2, 3	2018/12/27	24
RE	SAF-03	145126	Pre Amplifier	SONOMA	310N	290213	2020/02/19	12
RE	SAF-06	145005	Pre Amplifier	Toyo Corporation	TPA0118-36	1440491	2020/02/20	12
RE	SAT6-13	167094	Attenuator	JFW	50HF-006N	-	2020/02/21	12
RE	SAT6-15	167096	Attenuator	JFW	50HF-006N	-	2020/02/21	12
RE	SAT6-19	199781	Attenuator	JFW	50HF-006N	-	2020/06/24	12
RE	SBA-03	145023	Biconical Antenna	Schwarzbeck Mess - Elektronik	BBA9106	91032666	2020/05/17	12
RE	SCC-C1/C2/C3/C4/C5/C10/SRSE-03	145171	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner /Suhner/Suhner/Suhner /TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271(RF Selector)	2020/04/12	12
RE	SCC-G43	156380	Coaxial Cable	HUBER+SUNER	SUCOFLEX_104_E	SN MY 13406/4E	2020/06/04	12
RE	SCC-G58	183047	Coaxial Cable	HUBER+SUNER	SUCOFLEX 104	800287/4A	2020/06/04	12
RE	SCC-M1	194601	Coaxial Cable	Fjokura	5D-2W	-	2019/12/17	12
RE	SFL-01	145300	Highpass Filter	MICRO-TRONICS	HPM50115	1	2019/11/06	12
RE	SHA-03	145501	Horn Antenna	Schwarzbeck Mess Elektronik	BBHA9120D	9120D-739	2020/06/15	12
RE	SLA-07	145529	Logperiodic Antenna	Schwarzbeck Mess Elektronik	VUSLP9111B	196	2020/05/17	12
RE	SLP-02	145536	Loop Antenna	Rohde & Schwarz	HFH2-Z2	100218	2020/04/15	12
RE,CE	COTS-SEMI-5	170932	EMI Software	TSJ (Techno Science Japan)	TEPTO-DV3(RE,CE,ME,PE)	-	-	-
RE,CE	KJM-02	146432	Measure	TAJIMA	GL19-55	-	-	-
RE,CE	SOS-23	191840	Humidity Indicator	CUSTOM. Inc	CTH-201	-	2019/12/12	12
RE,CE	STR-08	150463	Test Receiver	Rohde & Schwarz	ESW44	101581	2019/11/22	12
RE,CE	STS-03	146210	Digital Hitester	Hioki	3805-50	80997823	2019/10/01	12

*Hyphens for Last Calibration Date and Cal Int (month) are instruments that Calibration is not required (e.g. software), or instruments checked in advance before use.

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, RE: Radiated Emission, AT: Antenna Terminal Conducted test

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