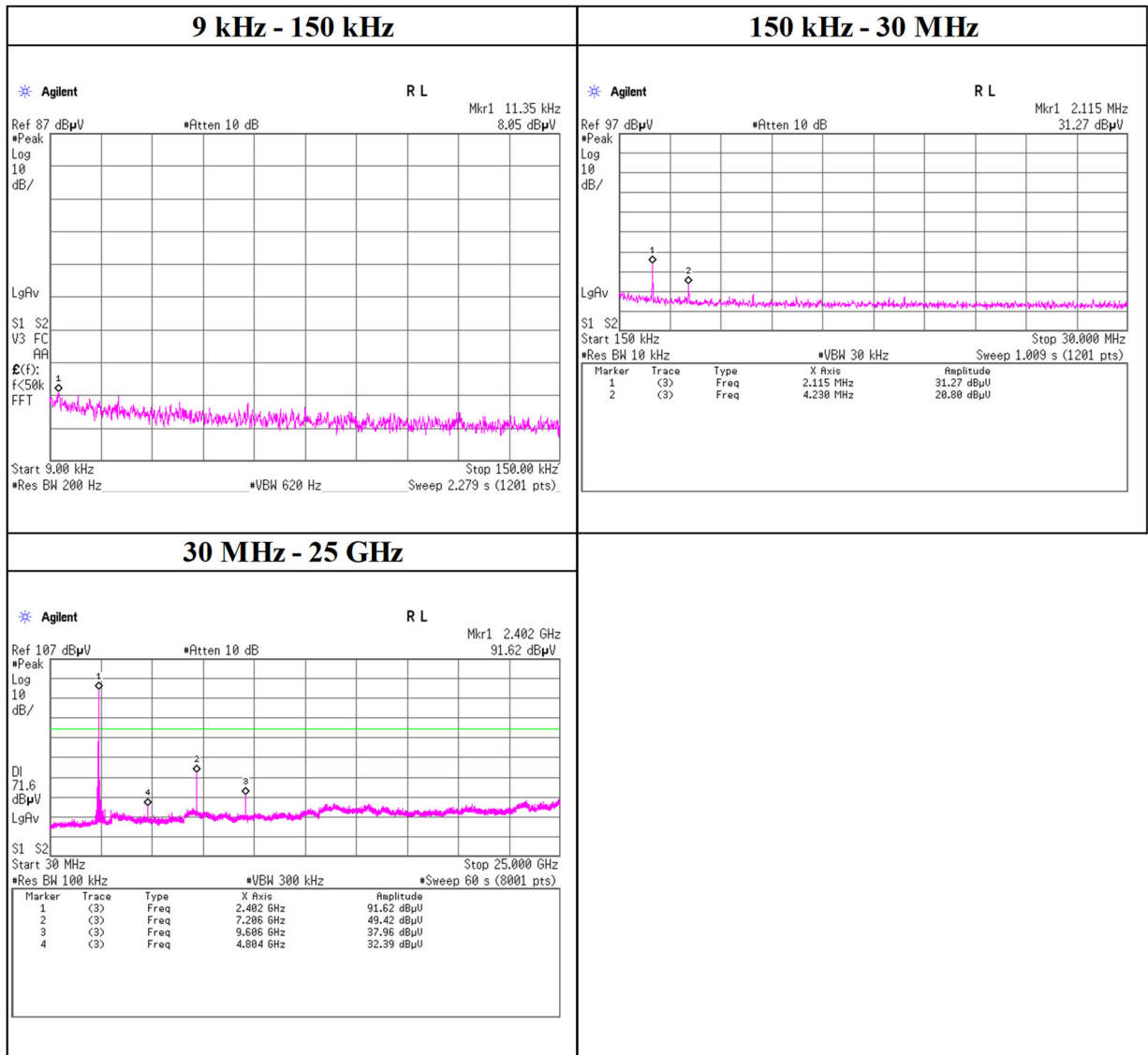


## Conducted Spurious Emission

Report No. 13682531S-A-R2  
Test place Shonan EMC Lab. No.5 Shielded Room  
Date January 20, 2021  
Temperature / Humidity 25 deg. C / 30 % RH  
Engineer Kenichi Adachi  
Mode Tx, Hopping Off, DH5, 2402 MHz

### 2402 MHz



Frequency [kHz]	Reading [dBuV]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain * [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
2115.00	31.3	0.87	9.8	2.0	1	-63.1	30	6.0	18.2	29.5	11.3	-
4230.00	20.8	0.87	9.8	2.0	1	-73.5	30	6.0	7.7	29.5	21.8	-

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

$$\text{EIRP [dBm]} = \text{Reading [dBuV]} - 107 + \text{Cable loss [dB]} + \text{Attenuator Loss [dB]} + \text{Antenna gain [dBi]} + 10 * \log(N)$$

N: Number of output

\*2.0 dBi was applied to the test result based on ANSI C63.10 since antenna gain was less than 2.0 dBi.

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

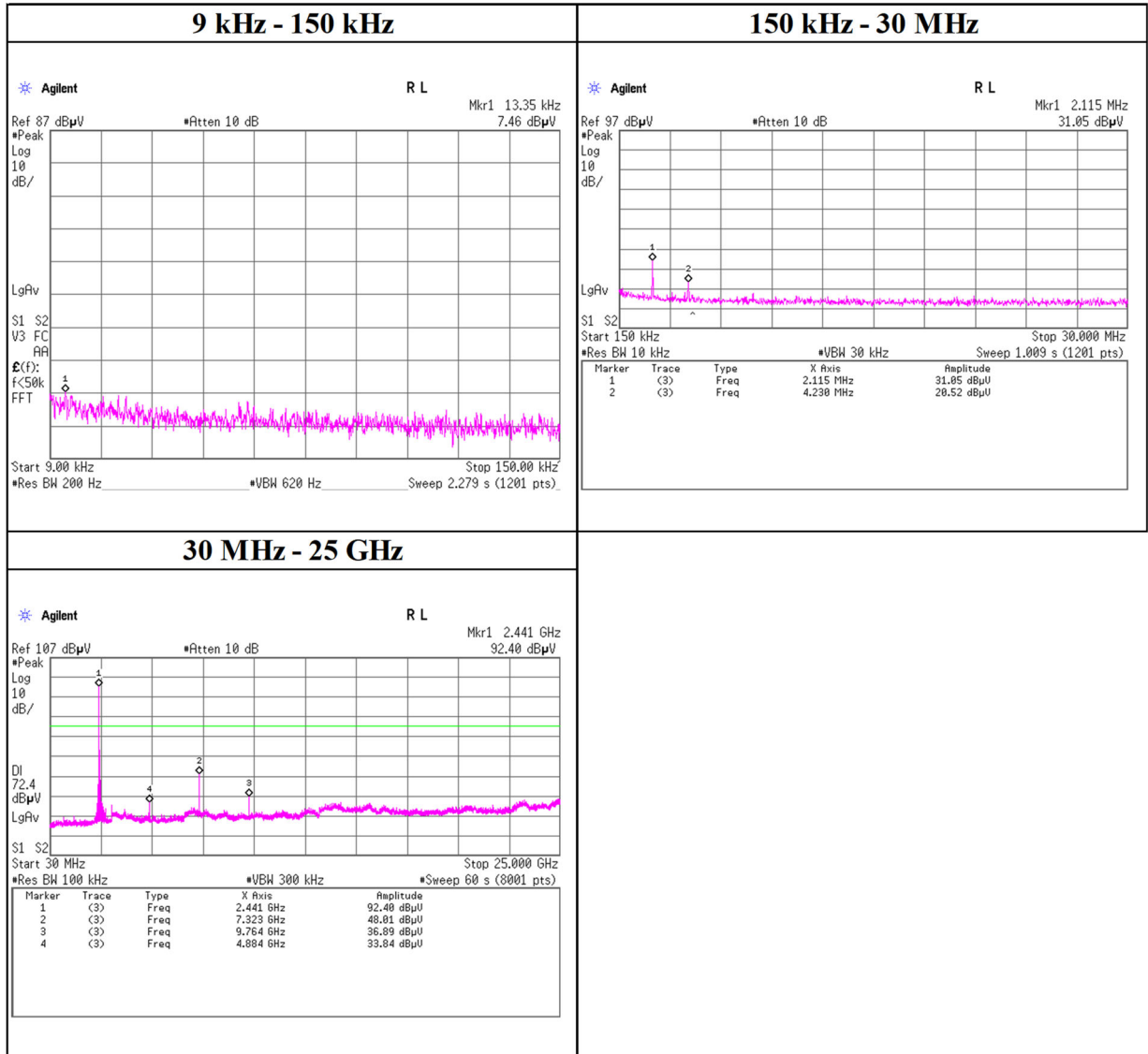
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Conducted Spurious Emission

Report No. 13682531S-A-R2  
Test place Shonan EMC Lab. No.5 Shielded Room  
Date January 20, 2021  
Temperature / Humidity 25 deg. C / 30 % RH  
Engineer Kenichi Adachi  
Mode Tx, Hopping Off, DH5, 2441 MHz

### 2441 MHz



Frequency [kHz]	Reading [dBuV]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain * [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
2115.00	31.1	0.87	9.8	2.0	1	-63.3	30	6.0	18.0	29.5	11.6	-
4230.00	20.5	0.87	9.8	2.0	1	-73.8	30	6.0	7.5	29.5	22.1	-

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

$$\text{EIRP [dBm]} = \text{Reading [dBuV]} - 107 + \text{Cable loss [dB]} + \text{Attenuator Loss [dB]} + \text{Antenna gain [dBi]} + 10 * \log(N)$$

N: Number of output

\*2.0 dBi was applied to the test result based on ANSI C63.10 since antenna gain was less than 2.0 dBi.

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

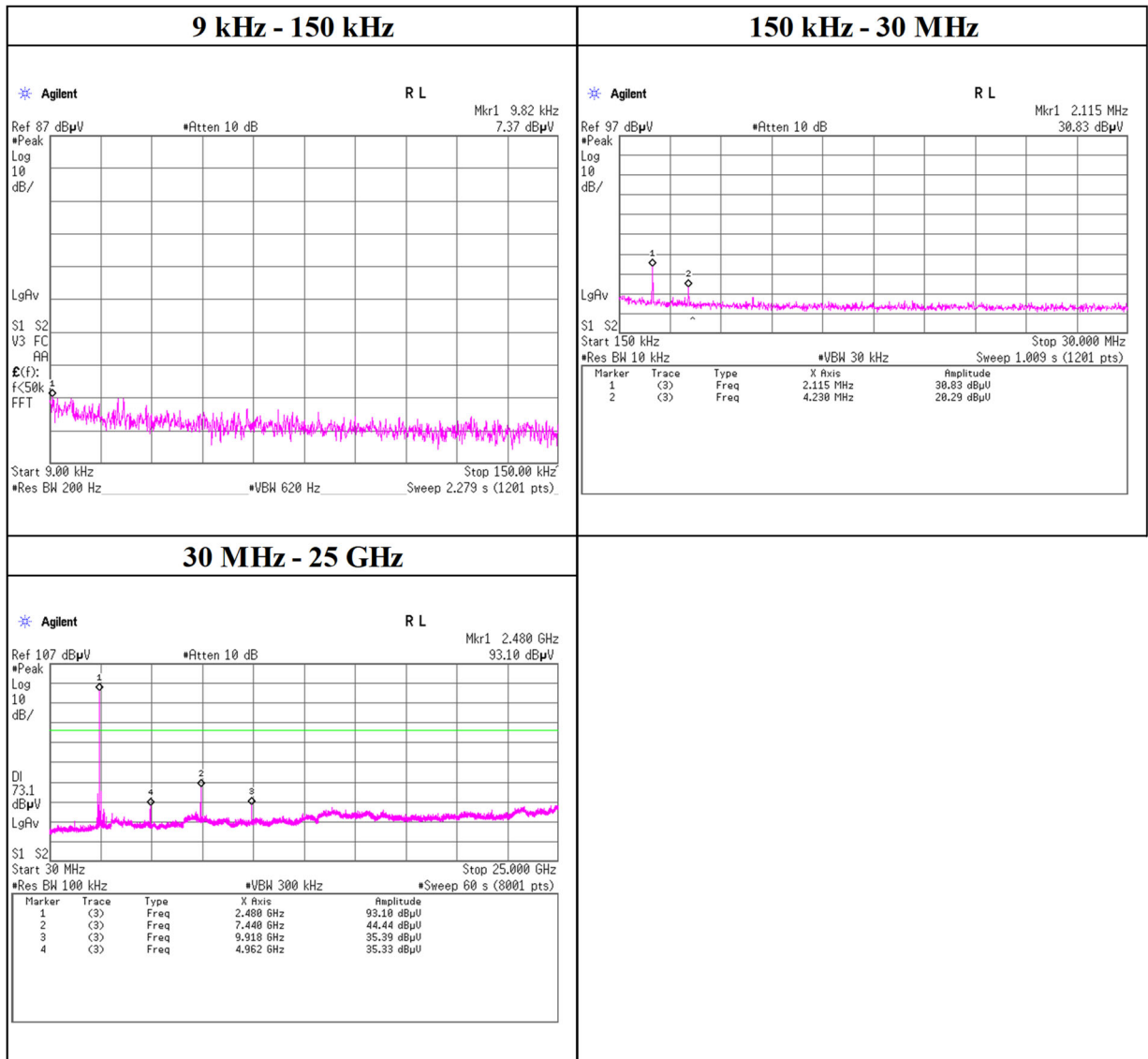
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Conducted Spurious Emission

Report No. 13682531S-A-R2  
Test place Shonan EMC Lab. No.5 Shielded Room  
Date January 20, 2021  
Temperature / Humidity 25 deg. C / 30 % RH  
Engineer Kenichi Adachi  
Mode Tx, Hopping Off, DH5, 2480 MHz

### 2480 MHz



Frequency [kHz]	Reading [dBuV]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain * [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
2115.00	30.8	0.87	9.8	2.0	1	-63.5	30	6.0	17.8	29.5	11.8	-
4230.00	20.3	0.87	9.8	2.0	1	-74.0	30	6.0	7.2	29.5	22.3	-

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

$$\text{EIRP [dBm]} = \text{Reading [dBuV]} - 107 + \text{Cable loss [dB]} + \text{Attenuator Loss [dB]} + \text{Antenna gain [dBi]} + 10 * \log(N)$$

N: Number of output

\*2.0 dBi was applied to the test result based on ANSI C63.10 since antenna gain was less than 2.0 dBi.

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

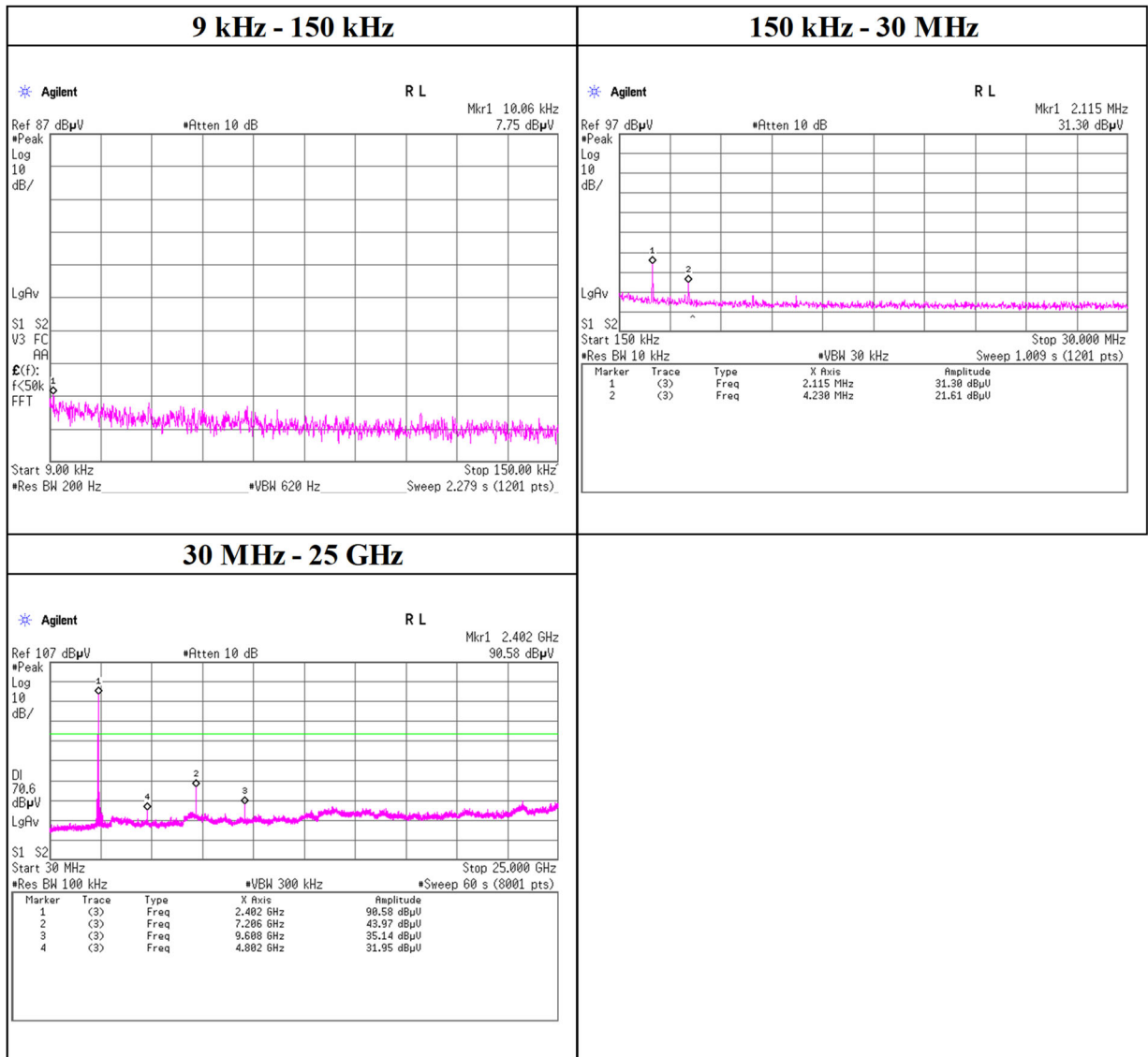
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Conducted Spurious Emission

Report No. 13682531S-A-R2  
Test place Shonan EMC Lab. No.5 Shielded Room  
Date January 20, 2021  
Temperature / Humidity 25 deg. C / 30 % RH  
Engineer Kenichi Adachi  
Mode Tx, Hopping Off, 3DH5, 2402 MHz

### 2402 MHz



Frequency [kHz]	Reading [dBuV]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain * [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
2115.00	31.3	0.87	9.8	2.0	1	-63.0	30	6.0	18.2	29.5	11.3	-
4230.00	21.6	0.87	9.8	2.0	1	-72.7	30	6.0	8.5	29.5	21.0	-

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

$$\text{EIRP[dBm]} = \text{Reading [dBuV]} - 107 + \text{Cable loss [dB]} + \text{Attenuator Loss [dB]} + \text{Antenna gain [dBi]} + 10 * \log(N)$$

N: Number of output

\*2.0 dBi was applied to the test result based on ANSI C63.10 since antenna gain was less than 2.0 dBi.

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

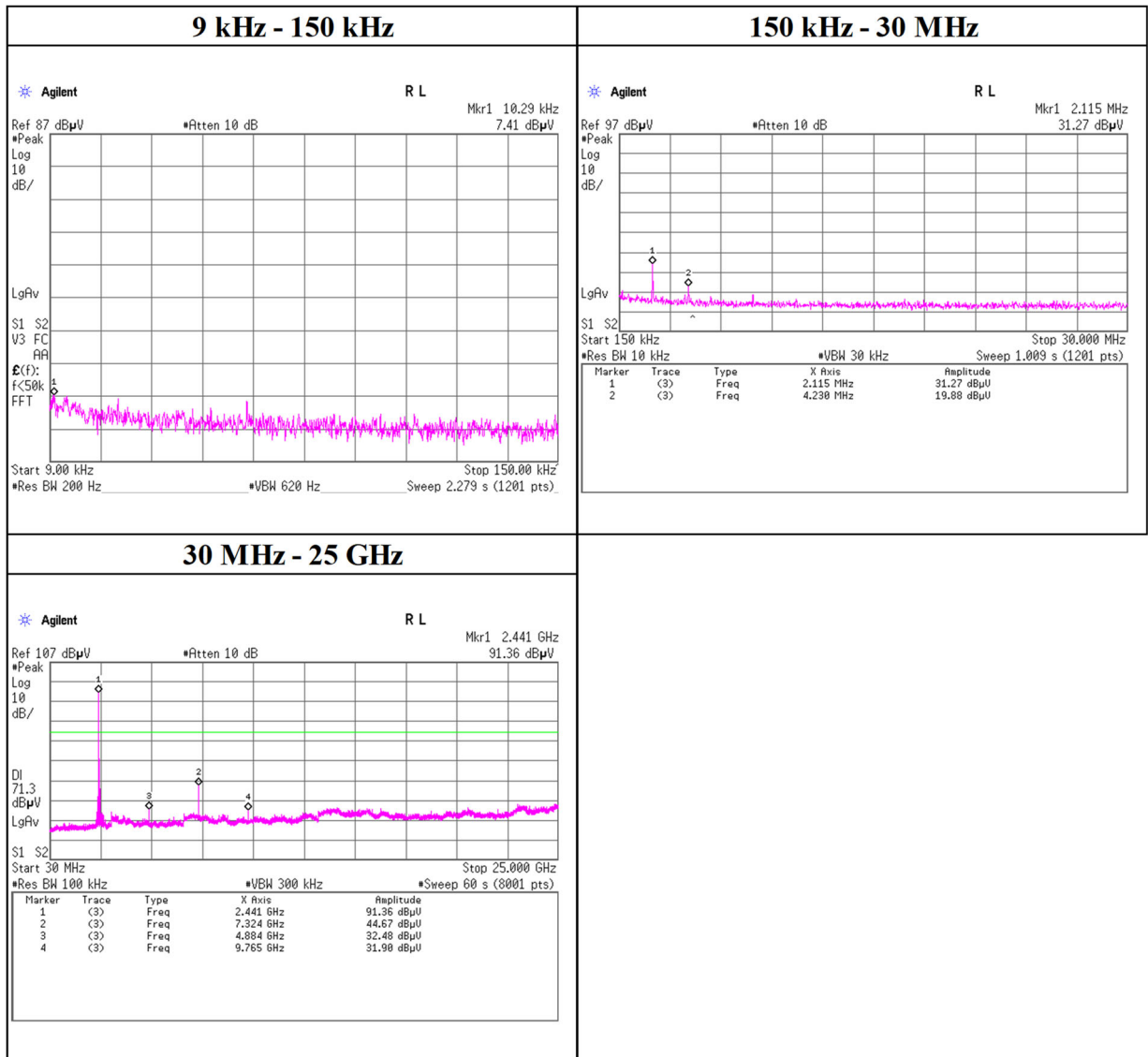
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Conducted Spurious Emission

Report No. 13682531S-A-R2  
Test place Shonan EMC Lab. No.5 Shielded Room  
Date January 20, 2021  
Temperature / Humidity 25 deg. C / 30 % RH  
Engineer Kenichi Adachi  
Mode Tx, Hopping Off, 3DH5, 2441 MHz

### 2441 MHz



Frequency [kHz]	Reading [dBuV]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain * [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
2115.00	31.3	0.87	9.8	2.0	1	-63.1	30	6.0	18.2	29.5	11.3	-
4230.00	19.9	0.87	9.8	2.0	1	-74.4	30	6.0	6.8	29.5	22.7	-

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

$$\text{EIRP [dBm]} = \text{Reading [dBuV]} - 107 + \text{Cable loss [dB]} + \text{Attenuator Loss [dB]} + \text{Antenna gain [dBi]} + 10 * \log(N)$$

N: Number of output

\*2.0 dBi was applied to the test result based on ANSI C63.10 since antenna gain was less than 2.0 dBi.

**UL Japan, Inc.**

**Shonan EMC Lab.**

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

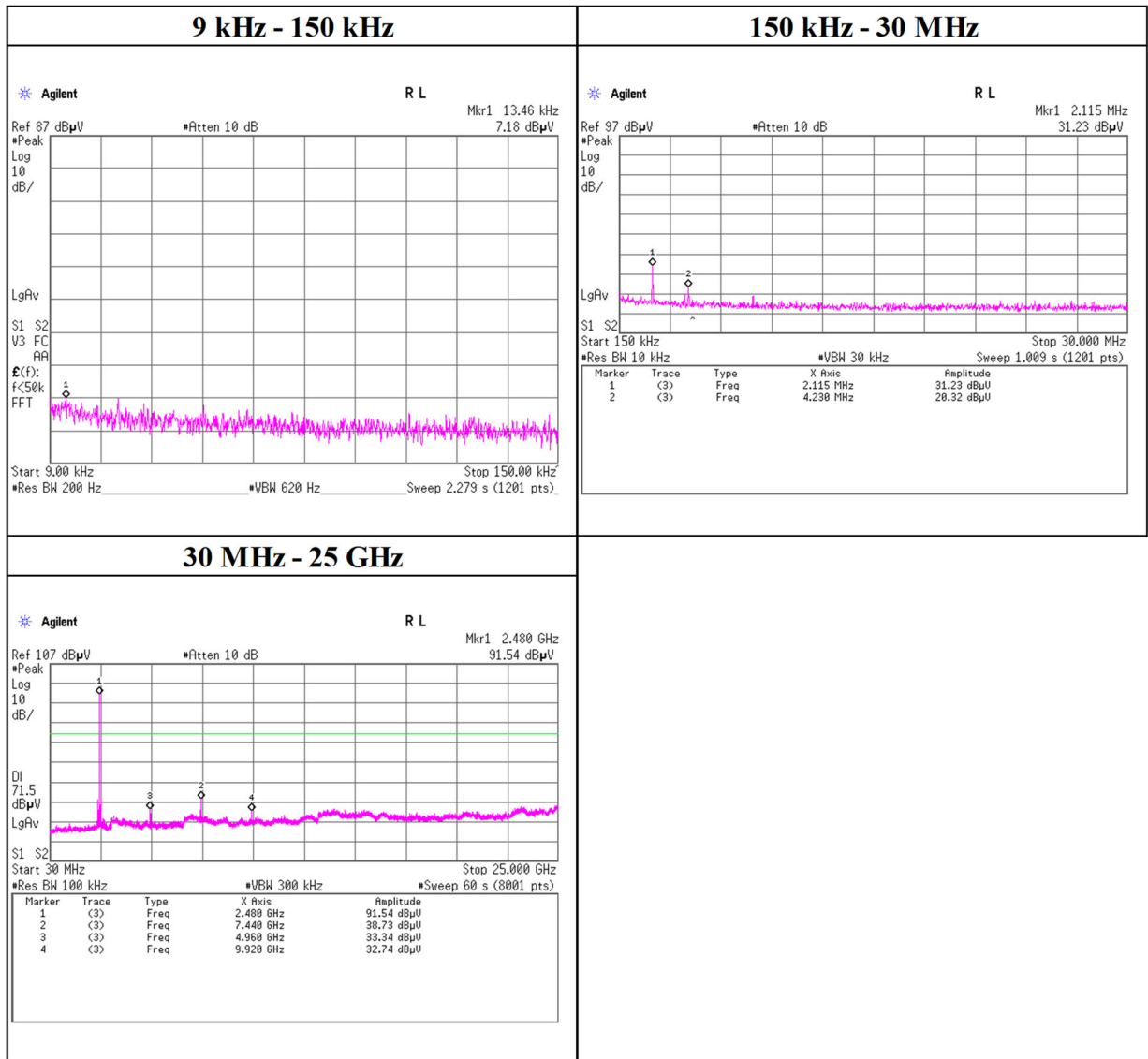
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Conducted Spurious Emission

Report No. 13682531S-A-R2  
Test place Shonan EMC Lab. No.5 Shielded Room  
Date January 20, 2021  
Temperature / Humidity 25 deg. C / 30 % RH  
Engineer Kenichi Adachi  
Mode Tx, Hopping Off, 3DH5, 2480 MHz

### 2480 MHz



Frequency [kHz]	Reading [dBuV]	Cable Loss [dB]	Attenuator Loss [dB]	Antenna Gain * [dBi]	N (Number of Output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Remark
2115.00	31.2	0.87	9.8	2.0	1	-63.1	30	6.0	18.2	29.5	11.4	-
4230.00	20.3	0.87	9.8	2.0	1	-74.0	30	6.0	7.3	29.5	22.3	-

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

$$\text{EIRP [dBm]} = \text{Reading [dBuV]} - 107 + \text{Cable loss [dB]} + \text{Attenuator Loss [dB]} + \text{Antenna gain [dBi]} + 10 * \log(N)$$

N: Number of output

\*2.0 dBi was applied to the test result based on ANSI C63.10 since antenna gain was less than 2.0 dBi.

**UL Japan, Inc.**

**Shonan EMC Lab.**

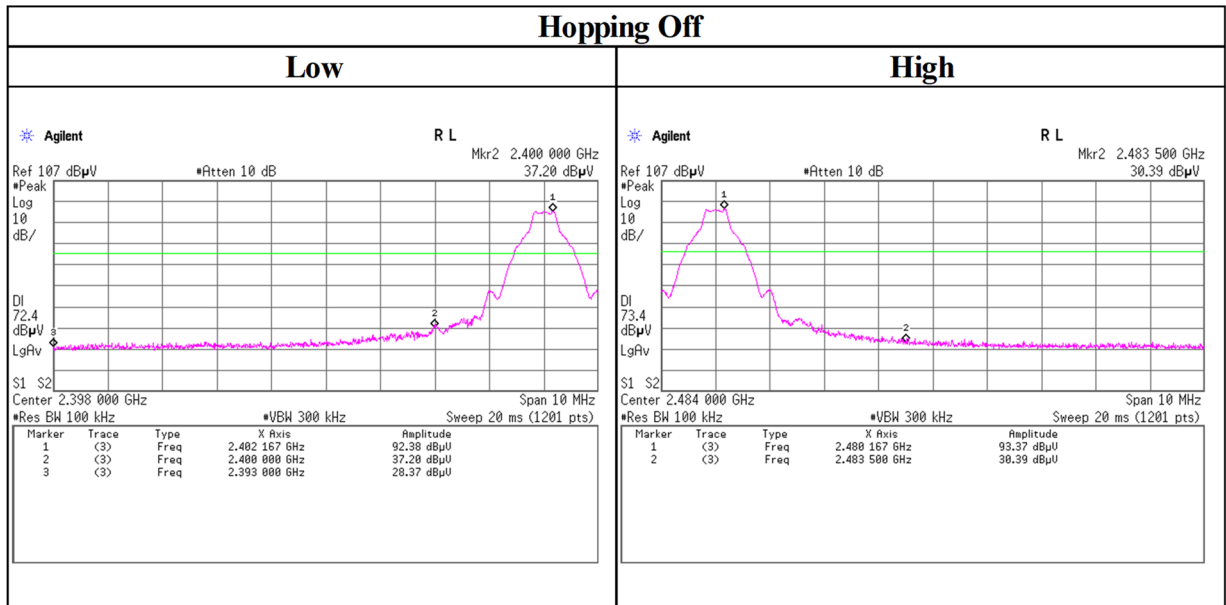
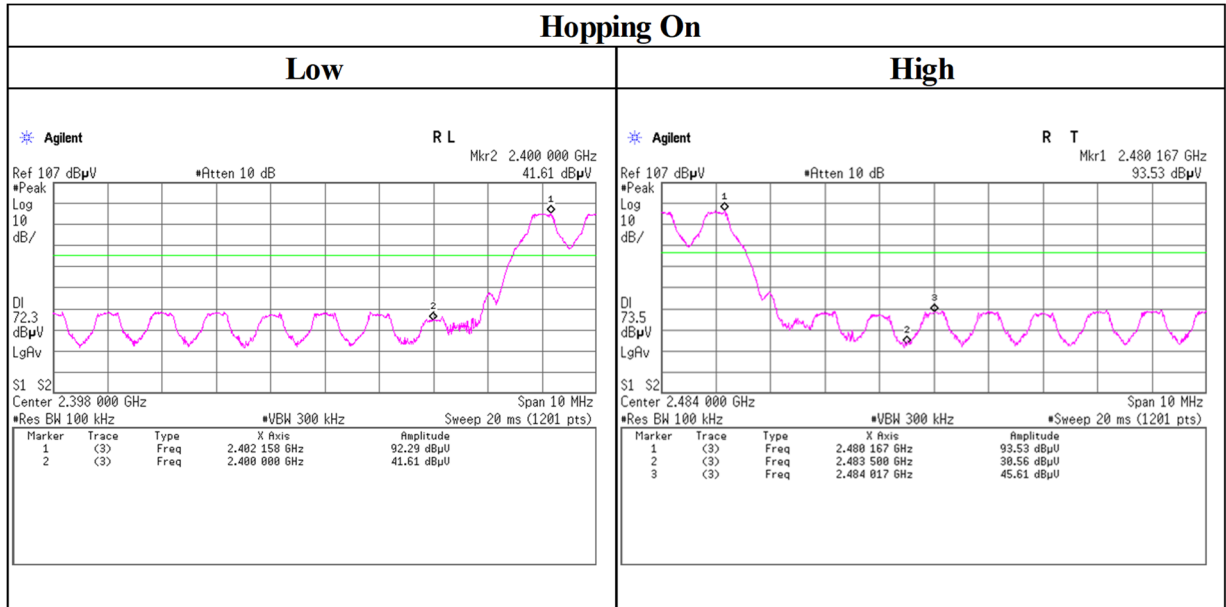
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

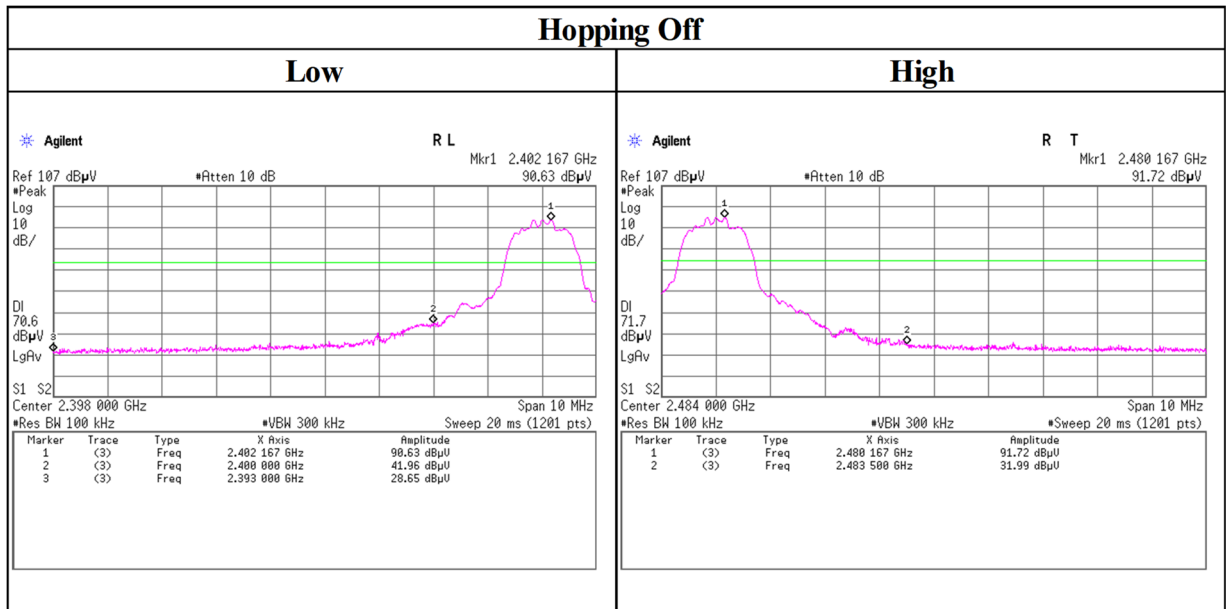
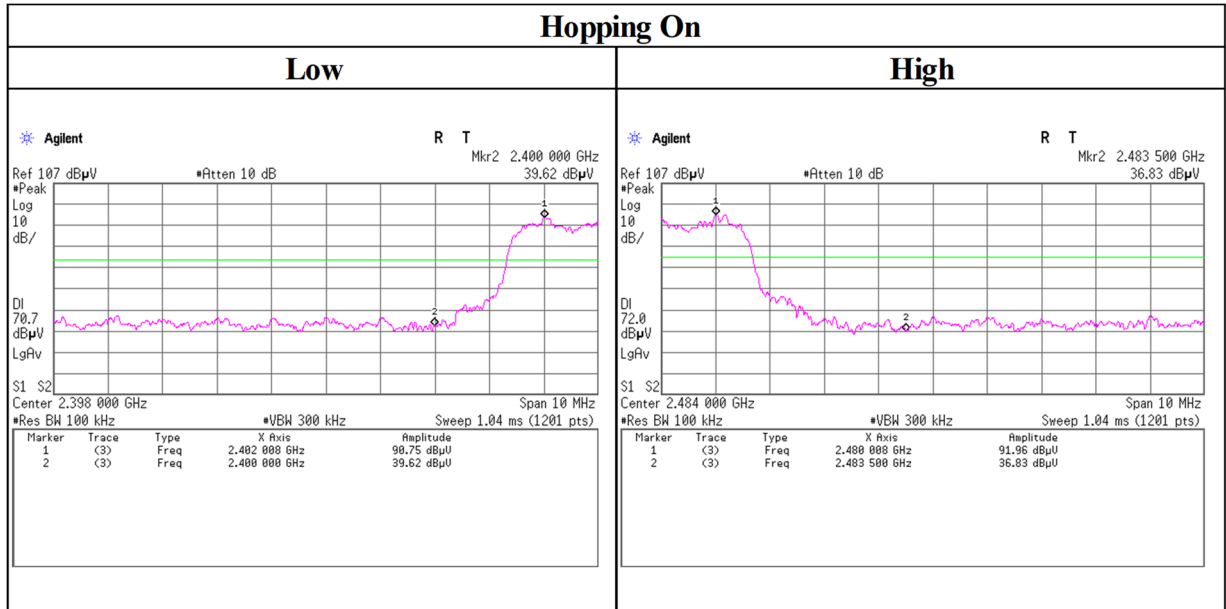
## Conducted Emission Band Edge compliance

Report No. 13682531S-A-R2  
 Test place Shonan EMC Lab. No.5 Shielded Room  
 Date January 20, 2021  
 Temperature / Humidity 25 deg. C / 30 % RH  
 Engineer Kenichi Adachi  
 Mode Tx DH5



## Conducted Emission Band Edge compliance

Report No. 13682531S-A-R2  
 Test place Shonan EMC Lab. No.5 Shielded Room  
 Date January 20, 2021  
 Temperature / Humidity 25 deg. C / 30 % RH  
 Engineer Kenichi Adachi  
 Mode Tx 3DH5



**UL Japan, Inc.**

**Shonan EMC Lab.**

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## APPENDIX 2: Test instruments

### Test equipment (1/2)

Test Item	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
RE	COTS-SEMI-5	170932	EMI Software	TSJ (Techno Science Japan)	TEPTO-DV3(RE,CE,ME,PE)	-	-	-
RE	KAT6-04	144899	Attenuator	Inmet	18N-6dB	-	2020/12/10	12
RE	KJM-02	146432	Measure	TAJIMA	GL19-55	-	-	-
RE	KJM-09	145929	Measure	KOMELON	KMC-36	-	-	-
RE	SAEC-01(NSA)	145597	Semi-Anechoic Chamber	TDK	SAEC-01(NSA)	1	2020/04/08	12
RE	SAEC-02(SVSWR)	145598	Semi-Anechoic Chamber	TDK	SAEC-02(SVSWR)	2	2020/05/07	12
RE	SAEC-03(NSA)	145565	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	2020/04/12	12
RE	SAF-01	145003	Pre Amplifier	SONOMA	310N	290211	2020/02/19	12
RE	SAF-03	145126	Pre Amplifier	SONOMA	310N	290213	2020/02/19	12
RE	SAF-05	145128	Pre Amplifier	Toyo Corporation	TPA0118-36	1440490	2020/06/03	12
RE	SAF-08	145007	Pre Amplifier	Toyo Corporation	HAP18-26W	19	2020/03/03	12
RE	SAT10-06	145137	Attenuator	Keysight Technologies Inc	8493C-010	74865	2020/10/05	12
RE	SAT3-09	144959	Attenuator	JFW	50HF-003N	-	2020/08/18	12
RE	SAT6-15	167096	Attenuator	JFW	50HF-006N	-	2020/02/21	12
RE	SBA-01	145161	Biconical Antenna	Schwarzbeck Mess Elektronik	BBA9106	91032664	2020/04/04	12
RE	SCC-A1/A3/A5/A7/A8/A13/SRSE-01	144967	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-269(RF Selector)	2020/04/12	12
RE	SCC-A2/A4/A6/A7/A8/A13/SRSE-01	144968	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-269(RF Selector)	2020/04/12	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-G15	145176	Coaxial Cable	Suhner	SUCOFLEX 102	32703/2	2020/03/04	12
RE	SCC-G41	151617	Coaxial Cable	Junkosha	MWX221-01000NFSNMS/B	1612S006	2021/01/19	12
RE	SCC-G50	178573	Coaxial Cable	HUBER+SUNER	SUCOFLEX 104 E	MY13407/4E	2020/03/09	12
RE	SCC-G51	178572	Coaxial Cable	HUBER+SUNER	SUCOFLEX 104	800288 /4A	2020/03/09	12
RE	SCC-G57	179540	Coaxial Cable	HUBER+SUNER	SUCOFLEX 102	802815/2	2020/05/12	12
RE	SCC-G69	200009	Coaxial Cable	HUBER+SUNER	SUCOFLEX 104	575617/4	2020/07/07	12
RE	SCC-M1	194601	Coaxial Cable	Fujikura	5D-2W	-	2020/12/10	12
RE	SFL-18	145305	Highpass Filter	MICRO-TRONICS	HPM50111	119	2020/04/03	12
RE	SHA-02	145384	Horn Antenna	Schwarzbeck Mess Elektronik	BBHA9120D	9120D-726	2020/06/15	12
RE	SHA-04	145512	Horn Antenna	ETS LINDGREN	3160-09	00094868	2020/06/15	12
RE	SHA-09	194684	Horn Antenna	Schwarzbeck Mess Elektronik	BBHA 9120 C	695	2020/02/17	12
RE	SJM-09	145336	Measure	PROMART	SEN1935	-	-	-
RE	SLA-05	145527	Logperiodic Antenna	Schwarzbeck Mess Elektronik	VUSLP9111B	193	2020/04/04	12
RE	SLP-02	145536	Loop Antenna	Rohde & Schwarz	HFH2-Z2	100218	2020/04/15	12
RE	SOS-20	191837	Humidity Indicator	CUSTOM. Inc	CTH-201	-	2020/09/28	12
RE	SOS-21	191838	Humidity Indicator	CUSTOM. Inc	CTH-201	-	2020/09/28	12
RE	SOS-23	191840	Humidity Indicator	CUSTOM. Inc	CTH-201	-	2020/09/28	12
RE	SSA-02	145800	Spectrum Analyzer	Keysight Technologies Inc	E4448A	MY48250106	2020/04/16	12
RE	STR-01	145790	Test Receiver	Rohde & Schwarz	ESU40	100093	2020/04/24	12
RE	STR-08	150463	Test Receiver	Rohde & Schwarz	ESW44	101581	2020/12/02	12
RE	STS-01	145792	Digital Hitester	HIOKI CORPORATION	E.E. 3805-50	80997812	2020/10/19	12
RE	STS-02	145793	Digital Hitester	HIOKI CORPORATION	E.E. 3805-50	80997819	2020/04/09	12
RE	STS-03	146210	Digital Hitester	HIOKI CORPORATION	E.E. 3805-50	80997823	2020/10/19	12

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**Test equipment (2/2)**

Test Item	Local ID	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Cal Int
AT	KTS-07	145111	Digital Tester	SANWA	PC500	7019232	2020/10/21	12
AT	SAT10-16	160494	Attenuator	Weinschel Corp.	54A-10	83420	2020/12/21	12
AT	SBT-01	158576	Wireless Connectivity Tester	Rohde & Schwarz	CMW270	101015	2020/06/02	12
AT	SCC-G11	145174	Coaxial Cable	Suhner	SUCOFLEX 102	31595/2	2020/03/02	12
AT	SCC-G13	145166	Coaxial Cable	Suhner	SUCOFLEX 102	31599/2	2020/12/21	12
AT	SCC-G65	196942	Coaxial Cable	HUBER+SUNER	SUCOFLEX 102	803416/2	2020/03/10	12
AT	SOS-19	175823	Humidity Indicator	CUSTOM. Inc	CTH-201	-	2020/10/01	12
AT	SPM-06	146267	Power Meter	ANRITSU	ML2495A	850009	2020/05/25	12
AT	SPSC-02	146252	Power Splitters/Combiners	Mini-Circuits	ZFSC-2-10G+	-	2020/11/19	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

\*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: RE: Radiated Emission test  
AT: Antenna Terminal Conducted test