



RADIO TEST REPORT

Test Report No. : 10968259S-A

Applicant : **Japan Radio Co., Ltd.**
Type of Equipment : **Solid State Transmitter-Receiver**
Model No. : **NTG-420**
Test regulation : **FCC part 80 Subpart E: 2015**
(Except frequency Stability with variation temperature test)
FCC ID : **CKENTG420**
Test Result : **Complied**

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the 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 any agency of the Federal Government.
6. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.
7. This test report covers Radio technical requirements.
 It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)

Date of test: March 11 to April 11, 2016

Representative test engineer: *K. Adachi*
 Kenichi Adachi
 Engineer
 Consumer Technology Division

Approved by : *A. Hayashi*
 Akio Hayashi
 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".

REVISION HISTORY

Original Test Report No.: 10968259S-A

| Revision | Test report No. | Date | Page revised | Contents |
|-----------------|-----------------|----------------|-------------------------------------|---|
| - (Original) | 10968259S-A | May 11, 2016 | - | - |
| 1 | 10968259S-A | June 3, 2016 | p.1.,p.2, p.4 | Change the specification of antenna information. |
| 2 | 10968259S-A | July 5, 2016 | p.1.,p.2, p.4 p.8 p.41 - p.46 | Correction frequency of operation. Correction specification of transmitting mode. Additional comment "for RSS-238". |
| 3 | 10968259S-A | August 8, 2016 | p.1.,p.2, p.4 p.8 | Correction mode name. (frequency & modulation). Change mode name. (pulse range table -> transmission table (1)). |
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| CONTENTS | PAGE |
|--|-------------|
| SECTION 1: Customer information | 4 |
| SECTION 2: Equipment under test (E.U.T.) | 4 |
| SECTION 3: Test specification, procedures and results | 5 |
| SECTION 4: Operation of E.U.T. during testing | 8 |
| SECTION 5: RF Output power | 10 |
| SECTION 6: Modulation Characteristics | 10 |
| SECTION 7: Emission Bandwidth and Emission masks..... | 11 |
| SECTION 8: Spurious emission at Antenna Terminals | 11 |
| SECTION 9: Field Strength of Spurious Emission..... | 12 |
| SECTION 10: Frequency Stability..... | 13 |
| Contents of APPENDIXES | 14 |

SECTION 1: Customer information

Company Name : Japan Radio Co., Ltd.
Address : 1-1 Shimorenjyaku 5 chome, Mitaka-shi, Tokyo 181-8510, Japan
Telephone Number : +81-422-45-9831
Facsimile Number : +81-422-45-9683
Contact Person : Katsutoshi Ashida

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

2.1 Identification of E.U.T.

Type of Equipment : Solid State Transmitter-Receiver
Model Number : NTG-420
Serial Number : Refer to Section 4.2
Rating : DC 48 V
Size : Width 554 x Length 330 x Height 580 (mm)
Country of Mass-production : Japan
Condition of EUT : Production model
Receipt Date of Sample : March 10, 2016
Modification of EUT : The test lab did not make the modification to the EUT supplied from the customer to have it pass the tests.

2.2 Product Description

Model: NTG-420 (referred to as the EUT in this report) is a Solid State Transmitter-Receiver.

Radio Specification

Radio Type : Transceiver
Frequency of Operation : (Non-chirp pulse): 9410 MHz (P0N)
(Chirp pulse): 9440 MHz +/-15 MHz (Q0N)
(Non-Chirp/Chirp pulse): 9410 MHz and 9440 MHz (P0N/Q0N)
Clock frequency(ies) in the system : 84 MHz
RF output power (specification) : 200 W +1 dB/-3 dB (at EUT output port)
RF output power limit : None
Modulation type : (Non-chirp pulse): CW
(Chirp pulse): Frequency pulse modulation
(Non-Chirp/Chirp pulse): CW and Frequency pulse modulation
Antenna Connector Type : Wave guide
Intermediate frequency : 63 MHz (bandwidth 30 MHz)
Operating Temperature : -15 deg.C to +50 deg.C

(Antenna information) (* The antenna of the antenna gain maximum in the antenna with a used possibility.)
Model No. : NKE-378
Antenna type : 22 feet slotted array antenna
Antenna Gain (include cable loss) : 37 dBi max (= 38 dBi - cable loss 1 dB)

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SECTION 3: Test specification, procedures and results

3.1 Test Specification

Test Specification : FCC Part 80: 2015, final revised on September 8, 2015
Title : STATIONS IN THE MARITIME SREVICES

3.2 Procedures and results

| No. | Item | Test Procedure *1) | Specification | Remarks | Deviation | Worst margin | Results |
|-----|---|---|---|----------|-----------|---------------------------------------|--------------|
| 1 | RF Output Power | FCC section 2.1046, TIA-603-D 2.2.1 | FCC section 80.215, RSS-238 section 4.2 | - | N/A | - | N/A *2) |
| 2 | Modulation Characteristics | FCC section 2.1047(a) and (b), TIA-603-D 2.2.3, 2.2.6 | FCC section 80.213(g), RSS-238 section 3.2 | - | N/A | - | N/A *3) |
| 3 | Emission Bandwidth and Emission Limitations | FCC section 2.1049, TIA-603-D 2.2.11, 1.3.4.4 | FCC section 80.211(f), 80.209(b), RSS-238 section 4.3 | - | N/A | - | Complied |
| 4 | Spurious Emission at Antenna Terminals | FCC section 2.1051, TIA-603-D 2.2.13 | FCC section 80.211(f), RSS-238 section 4.3 | - | N/A | - | Complied *4) |
| 5 | Field Strength of Spurious Emission | FCC section 2.1053, TIA-603-D 2.2.12 | FCC section 80.211(f), RSS-238 section 4.3 | Radiated | N/A | 0.4 dB, (28320 MHz, Horizontal, Peak) | Complied *4) |
| 6 | Frequency Stability | FCC section 2.1055, TIA-603-D 2.2.2 | FCC section 80.209(b), RSS-238 section 4.1 | - | N/A | - | Complied *5) |

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-D: 2010) The procedure used by this test between the latest edition TIA-603-E and TIA-603-D wasn't changed, so it was tested using TIA-603-D.

*2) Since RF output power no limit. EUT is radar equipment.

*3) Because any modulation is compiled by standard (80.213 (g)).

EUT is radar stations operating in the bands above 2.4 GHz.

*4) The receiver spurious emission test is excluded since the transmitter and receiver are operating at the same frequency and the transmitter cannot be switched off as the carrier is used as receiver injection signal. (i.e. the receiving function does not work except this transmitting frequency.)

*5) This report is only the frequency stability test with variation of supply voltage. The frequency stability test with variation of ambient temperature is refer to report no.10968259S-B.

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3.3 Addition to standard

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

3.4 Confirmation

UL Japan, Inc. hereby confirms that E.U.T., in the configuration tested, complies with the specifications FCC part 80.

3.5 Uncertainty

EMI

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

(EMI measurement)

| Item | Frequency range | No.1 SAC* ¹ (±) | No.2 SAC(±) | No.3 SAC (±) |
|--|------------------|----------------------------|-------------|--------------|
| Radiated emission (Measurement distance: 3 m) | 9 kHz - 30 MHz | 2.7 dB | 2.7 dB | 3.1 dB |
| | 30 MHz - 300 MHz | 4.4 dB | 4.4 dB | 4.6 dB |
| | 300 MHz - 1 GHz | 5.6 dB | 5.5 dB | 5.3 dB |
| | 1 GHz - 18 GHz | 5.2 dB | 5.2 dB | 5.2 dB |
| Radiated emission (Measurement distance: 1 m) | 1 GHz - 18 GHz | 4.9 dB | 4.9 dB | 4.9 dB |
| | 18 GHz - 40 GHz | 4.9 dB | 4.9 dB | 4.9 dB |

(Substitution measurement)

| Item | Frequency range | No.1 SAC* ¹ (±) | No.2 SAC(±) | No.3 SAC (±) |
|--|-------------------|----------------------------|-------------|--------------|
| Radiated emission (Substitution measurement; 3 m) (EUT height 0.8 m) | 30 MHz - 300 MHz | 4.8 dB | 4.8 dB | 4.8 dB |
| | 300 MHz - 1 GHz | 3.7 dB | 3.7 dB | 3.7 dB |
| | 1 GHz - 18 GHz | 5.0 dB | 5.0 dB | 5.0 dB |
| Radiated emission (Substitution measurement; 1 m) (EUT height 0.8 m) | 18 GHz - 26.5 GHz | 4.8 dB | 4.8 dB | 4.8 dB |
| | 26.5 GHz - 40 GHz | 4.1 dB | 4.1 dB | 4.1 dB |

Radiated Emission Test

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

Power Measurement uncertainty above 1 GHz for this test was: (±) 0.76 dB

Conducted emissions Measurement (below 1 GHz) uncertainty for this test was: (±) 1.5 dB

Conducted emissions, Power Density Measurement (1GHz - 3 GHz) uncertainty for this test was: (±) 1.4 dB

Conducted emissions Measurement (3 GHz - 18 GHz) uncertainty for this test was: (±) 2.9 dB

Conducted emissions Measurement (18 GHz - 26.5 GHz) uncertainty for this test was: (±) 2.9 dB

Conducted emissions Measurement (26.5 GHz - 40 GHz) uncertainty for this test was: (±) 2.9 dB

Frequency Measurement uncertainty for this test was: (±) 5.3×10^{-6}

Bandwidth Measurement uncertainty for this test was: (±) 1.61%

Time measurement uncertainty for this test was: (±) 0.012 %

Voltage measurement uncertainty for this test was: (±) 0.24 %

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3.6 Test Location

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Telephone number : +81 463 50 6400
Facsimile number : +81 463 50 6401
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 |
|--|---------------------|----------------------------|--|------------------------------|
| <input checked="" type="checkbox"/> No.1 Semi-anechoic chamber | 2973D-1 | 20.6 x 11.3 x 7.65 | 20.6 x 11.3 | 10 m |
| <input type="checkbox"/> No.2 Semi-anechoic chamber | 2973D-2 | 20.6 x 11.3 x 7.65 | 20.6 x 11.3 | 10 m |
| <input checked="" type="checkbox"/> No.3 Semi-anechoic chamber | 2973D-3 | 12.7 x 7.7 x 5.35 | 12.7 x 7.7 | 5 m |
| <input type="checkbox"/> No.4 Semi-anechoic chamber | - | 8.1 x 5.1 x 3.55 | 8.1 x 5.1 | - |
| <input type="checkbox"/> No.1 Shielded room | - | 6.8 x 4.1 x 2.7 | 6.8 x 4.1 | - |
| <input type="checkbox"/> No.2 Shielded room | - | 6.8 x 4.1 x 2.7 | 6.8 x 4.1 | - |
| <input type="checkbox"/> No.3 Shielded room | - | 6.3 x 4.7 x 2.7 | 6.3 x 4.7 | - |
| <input type="checkbox"/> No.4 Shielded room | - | 4.4 x 4.7 x 2.7 | 4.4 x 4.7 | - |
| <input checked="" type="checkbox"/> No.5 Shielded room | - | 7.8 x 6.4 x 2.7 | 7.8 x 6.4 | - |
| <input checked="" type="checkbox"/> No.6 Shielded room | - | 7.8 x 6.4 x 2.7 | 7.8 x 6.4 | - |
| <input type="checkbox"/> No.8 shielded room | - | 3.45 x 5.5 x 2.4 | 3.45 x 5.5 | - |
| <input checked="" type="checkbox"/> No.1 Measurement room | - | 2.55 x 4.1 x 2.5 | - | - |

3.7 Data of EMI, Test instruments, Test set up

Refer to APPENDIX.

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

4.1 Operating Modes

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:

*(Non-chirp pulse): P, (Chirp pulse):Q, (Non-Chirp/Chirp pulse): P & Q)

- (1) Transmitting 9410 MHz, Transmission Table (1) No.0 (on 0.07 us., repetition 2280 Hz), mode P (pulse modulation)
- (2) Transmitting 9410 MHz, Transmission Table (1) No.1 (on 0.15 us., repetition 2280 Hz) , mode P (pulse modulation)
- (3) Transmitting 9410 MHz, Transmission Table (1) No.2 (on 0.30 us., repetition 2280 Hz) , mode P (pulse modulation)
- (4) Transmitting 9410 MHz, Transmission Table (1) No.3 (on 0.15 us., repetition 1280 Hz) , mode P (pulse modulation)
- (5) Transmitting 9410 MHz, Transmission Table (1) No.4 (on 0.15 us., repetition 640 Hz) , mode P (pulse modulation)
- (6) Transmitting 9410 MHz, Transmission Table (1) No.5 (on 0.30 us., repetition 1864 Hz) , mode P (pulse modulation)
- (7) Transmitting 9410 MHz, Transmission Table (1) No.6 (on 0.60 us., repetition 1280 Hz) , mode P (pulse modulation)
- (8) Transmitting 9410 MHz, Transmission Table (1) No.7 (on 0.07 us., repetition 4100 Hz) , mode P (pulse modulation)
- (9) Transmitting 9440 MHz, Transmission Table (1) No.0 (on 2.8 us., repetition 2280 Hz), mode Q (frequency modulation)
- (10) Transmitting 9440 MHz, Transmission Table (1) No.1 (on 4.6 us., repetition 2280 Hz), mode Q (frequency modulation)
- (11) Transmitting 9440 MHz, Transmission Table (1) No.2 (on 9.1 us., repetition 2280 Hz), mode Q (frequency modulation)
- (12) Transmitting 9440 MHz, Transmission Table (1) No.3 (on 18.3 us., repetition 1280 Hz), mode Q (frequency modulation)
- (13) Transmitting 9440 MHz, Transmission Table (1) No.4 (on 28.0 us., repetition 640 Hz), mode Q (frequency modulation)
- (14) Transmitting 9440 MHz, Transmission Table (1) No.5 (on 9.1 us., repetition 1864 Hz), mode Q (frequency modulation)
- (15) Transmitting 9440 MHz, Transmission Table (1) No.6 (on 9.1 us., repetition 1280 Hz), mode Q (frequency modulation)
- (16) Transmitting 9440 MHz, Transmission Table (1) No.7 (on 2.8 us., repetition 4100 Hz), mode Q (frequency modulation)
- (17) Transmitting 9410 MHz (P), Transmission Table (1) No.0 & Transmitting 9440 MHz (Q), Transmission Table (1) No.0
- (18) Transmitting 9410 MHz (P), Transmission Table (1) No.1 & Transmitting 9440 MHz (Q), Transmission Table (1) No.1
- (19) Transmitting 9410 MHz (P), Transmission Table (1) No.2 & Transmitting 9440 MHz (Q), Transmission Table (1) No.2
- (20) Transmitting 9410 MHz (P), Transmission Table (1) No.3 & Transmitting 9440 MHz (Q), Transmission Table (1) No.3
- (21) Transmitting 9410 MHz (P), Transmission Table (1) No.4 & Transmitting 9440 MHz (Q), Transmission Table (1) No.4
- (22) Transmitting 9410 MHz (P), Transmission Table (1) No.5 & Transmitting 9440 MHz (Q), Transmission Table (1) No.5
- (23) Transmitting 9410 MHz (P), Transmission Table (1) No.6 & Transmitting 9440 MHz (Q), Transmission Table (1) No.6
- (24) Transmitting 9410 MHz (P), Transmission Table (1) No.7 & Transmitting 9440 MHz (Q), Transmission Table (1) No.7

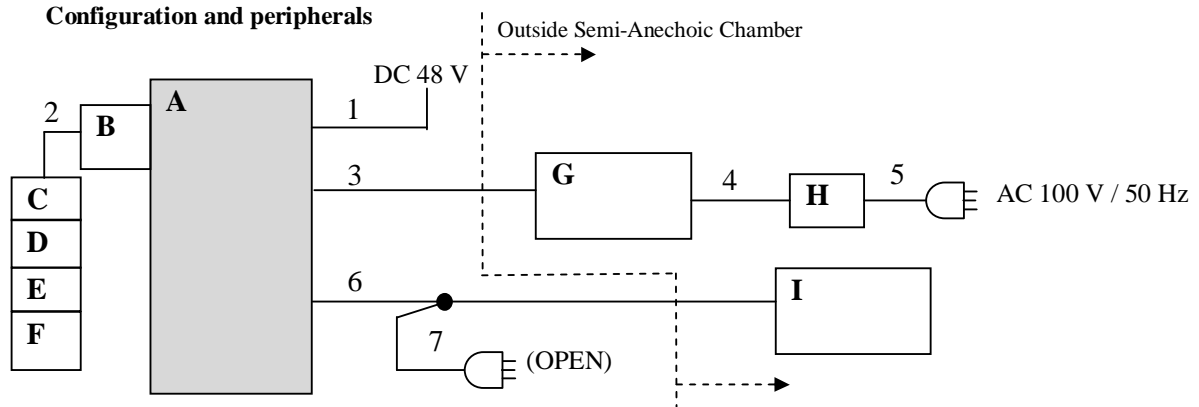
This EUT is two pulse radio-frequency output.

* The spurious emission (Radiated and Conducted) test were mode (21) that selected in the mode that became the worst result by Pre check.

* The frequency stability test were used at minimum measurement time mode. (It's Transmission Table (1) No.5 ((6), (14))) (Because EUT cannot set to no modulation.)

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

4.2 Configuration and peripherals



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

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Description of EUT and support equipment

| No. | Item | Model number | Serial number | Manufacturer | Remark |
|-----|----------------------------------|------------------|--------------------------------|-----------------------|--------|
| A | Solid State Transmitter-Receiver | NTG-420 | 2016RRZ0004 | Japan Radio Co., Ltd. | EUT |
| B | Wave guide to N transducer | 35UM84N | 175193-F | Anritsu | - |
| C | Attenuator (10dB) | PE7019-10 | - | Pasternack | - |
| D | Attenuator (10dB) | PE7019-10 | - | Pasternack | - |
| E | Attenuator (10dB) | PE7019-10 | - | Pasternack | - |
| F | Terminator (50ohm) | CT-01 BP | - | TME | - |
| G | Personal Computer | HP ProBook450 G1 | 2CE4082KK0 | HP | - |
| H | AC adapter | PPP009L-E | CT:WCNXA03U5 XCNE (4113257703) | HP | - |
| I | Scanner unit | NKE-1129 | LB09643 | Japan Radio Co., Ltd. | - |

List of cables used

| No. | Cable name | Length (m) | Shield | |
|-----|------------|------------|------------|------------|
| | | | Cable | Connector |
| 1 | DC | 1.7 | Unshielded | Unshielded |
| 2 | Antenna | 1.0 | Shielded | Unshielded |
| 3 | LAN | 20.24 | Unshielded | Unshielded |
| 4 | DC | 1.7 | Unshielded | Unshielded |
| 5 | AC | 1.0 | Unshielded | Unshielded |
| 6 | Signal | 14 | Shielded | Unshielded |
| 7 | AC | 3.0 | Unshielded | Unshielded |

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SECTION 5: RF Output power

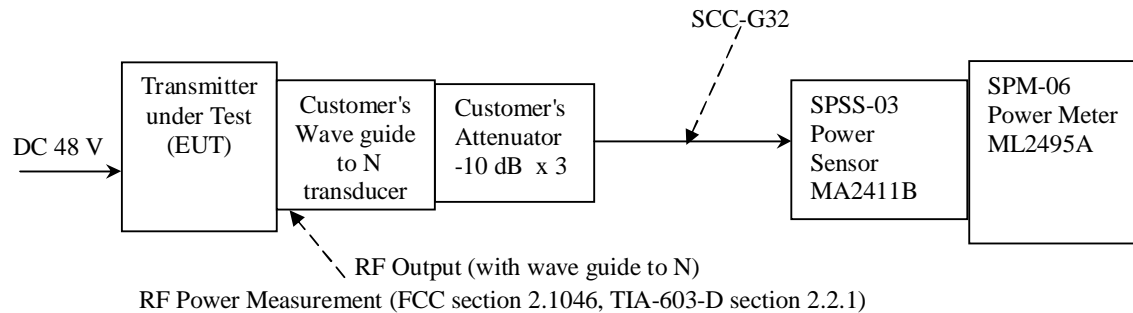
5.1 Test Procedure : FCC part 2 section 2.1046, TIA-603-D section 2.2.1
The RF output power was measured with a Power meter connected to the antenna port.

5.2 Test data : APPENDIX 1

5.3 Test result : Pass

5.4 Test instruments : SPM-06, SPSS-03, SCC-G32

5.5 Measurement Block Diagram of RF power output



SECTION 6: Modulation Characteristics

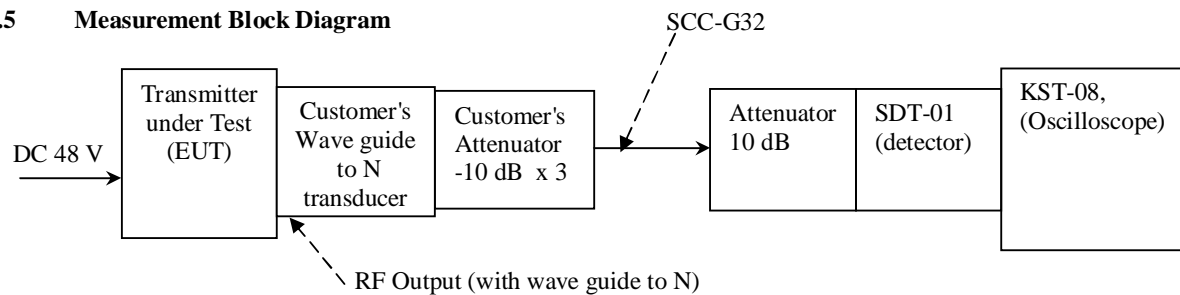
6.1 Test Procedure : FCC Part 2 section 2.1047, TIA-603-D section 2.2.3
The modulation characteristics were measured with an oscilloscope with radio signal detector connected to the antenna port.

6.2 Test Data : APPENDIX 1

6.3 Test Result : Pass

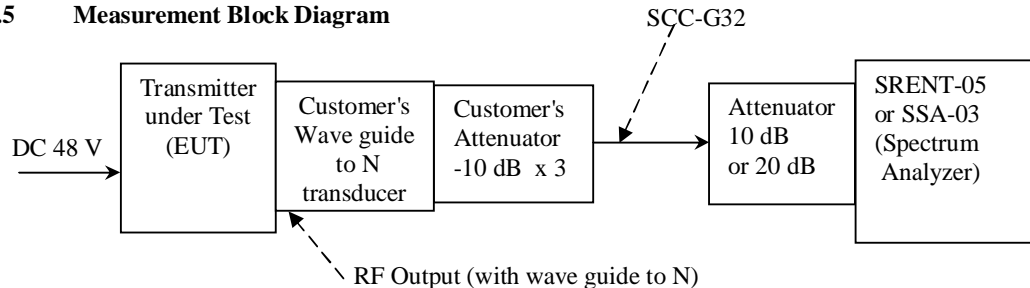
6.4 Test Instrument : KST-08, SDT-01, SAT10-10, SCC-G32

6.5 Measurement Block Diagram



SECTION 7: Emission Bandwidth and Emission masks

- 7.1 Test Procedure** : FCC Part 2 section 2.1049, TIA-603-D section 2.2.11
The Emission Bandwidth and Emission masks was measured with a spectrum analyzer connected to the antenna port.
- 7.2 Test Data** : APPENDIX 1
- 7.3 Test Result** : Pass
- 7.4 Test Instrument** : SRENT-05 or SSA-03, SAT10-10 or SAT20-07
- 7.5 Measurement Block Diagram**



Emission Bandwidth (FCC section 2.1049, TIA-603-D section 2.2.11)

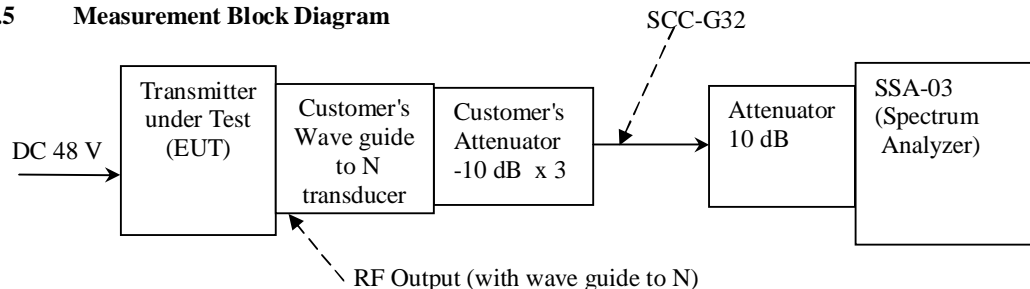
SECTION 8: Spurious emission at Antenna Terminals

- 8.1 Test Procedure** : FCC part 2 section 2.1051, TIA-603-D section 2.2.13
The spurious emission at Antenna Terminals was measured with a spectrum analyzer connected to the antenna port.

| Frequency | Below 1 GHz | Above 1 GHz |
|-----------------|-------------------------------|-----------------------------|
| Instrument used | Spectrum Analyzer | Spectrum Analyzer |
| IF Bandwidth | Peak: RBW: 10 kHz/VBW: 30 kHz | Peak: RBW: 1 MHz/VBW: 3 MHz |

Transmitter spurious Limit: $-60 \text{ dBc} = \text{Carrier peak level} - 60 \text{ dB}$ (refer to RSS-238 clause 4.3) or
 $-13 \text{ dBm} = 10 \times \log(\text{mean power (W)} \times 10^3) - (43 + 10 \times \log(\text{mean power (W)}))$ (FCC 80.211(f)(3))

- 8.2 Test Data** : APPENDIX 1
- 8.3 Test result** : Pass
- 8.4 Test Instrument** : SSA-03, SAT10-10
- 8.5 Measurement Block Diagram**



Spurious Emission at Antenna Terminals (FCC section 2.1051, TIA-603-D section 2.2.13)

SECTION 9: Field Strength of Spurious Emission

9.1 Test Procedure : FCC part 2 section 2.1053, TIA-603-D section 2.2.12

EUT was placed on a polystyrene platform of nominal size, 1.5 m by 1.0 m, raised 0.8 m above the conducting ground plane. The Radiated Electric Field Strength intensity has been measured on a semi-anechoic chamber with a ground plane and at a distance of 3 m(below 18GHz) / 1 m(above 18 GHz) (Refer to Figure 1). Measurements were performed with quasi-peak, peak and average detector. The measuring antenna height was varied between 1 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.

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

| Frequency | Below 1 GHz | Above 1 GHz |
|-----------------|--------------------------------|-----------------------------|
| Instrument used | Spectrum Analyzer | Spectrum Analyzer |
| IF Bandwidth | Peak: RBW: 10 kHz/VBW: 300 kHz | Peak: RBW: 1 MHz/VBW: 3 MHz |

Transmitter Spurious Limit (General emissions): refer to FCC part 15 subpart C section 15.209

Transmitter Spurious Limit (Harmonics emissions): Carrier Level - (43 + 10 x log (Average power [W] = Peak power x Duty))

The Result is converted from electric field strength in dBuV/m to EIRP in Watts using the following formula

$$F [V/m] = 10^{((E [dBuV/m] - 120) / 20)}$$

$$P = ((F \times d [m])^2) / (30 \times g)$$

E = measurement electric field strength, in dBuV/m
F = measurement electric field strength. in V/m
P = EIRP, in dBm
d = measurement distance, in meters = 3 [m]
g = numeric antenna gain (=1)

9.2 Test Data : APPENDIX 1

9.3 Test Result : Pass

9.4 Test Instrument :

[Common]: STM-G13

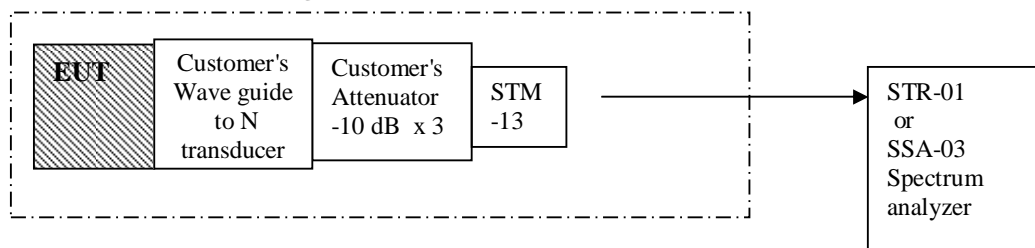
[30 MHz-1 GHz]: SAEC-03, SSA-03, SAF-03, SCC-C1/C2/C3/C4/C5/C10/SRSE-03, SAT6-08, SBA-03, SLA-03,

[1 GHz-18 GHz]: SAEC-01, STR-01, SCC-G21, SAF-04, SAT10-05, SCC-G01, SHA-01

[18 GHz-26 GHz]: SAEC-01, STR-01, SCC-G20, SAF-09, SHA-05

[26 GHz-40 GHz]: SAEC-01, STR-01, SCC-G19, SAF-10, SHA-06

9.5 Measurement Block Diagram



Field Strength of Spurious Emission (FCC section 2.1053, TIA-603-D section 2.2.12)

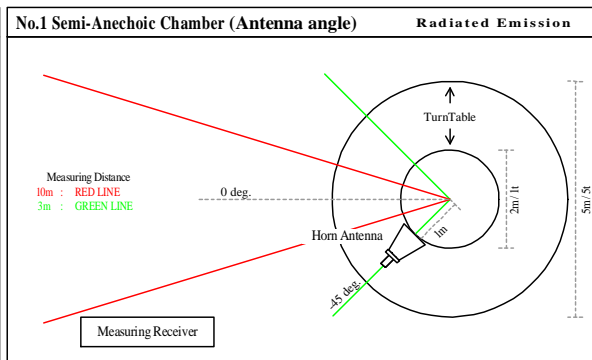
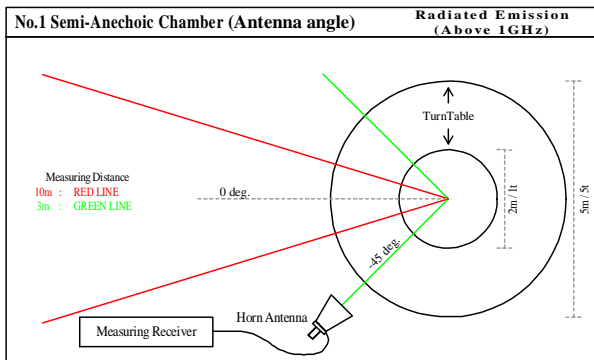
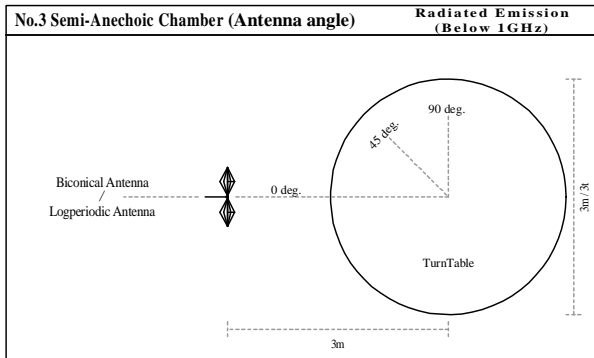
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SECTION 10: Frequency Stability

10.1 Test Procedure : FCC part 2 section 2.1055, TIA-603-D section 2.2.2

Refer to FCC part 2, section 2.1055.

Input Voltage: 85 % to 115 % at 20 deg.C.

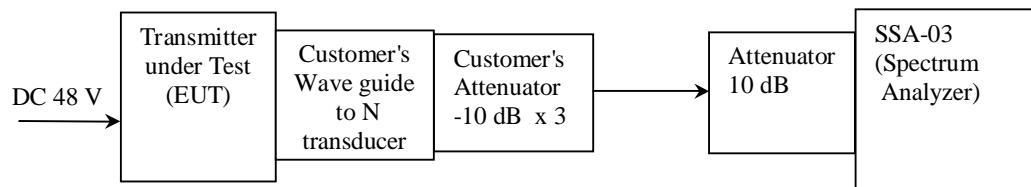
* The test with variation of ambient temperature is referring to report no.10968259S-B.

10.2 Test Data : APPENDIX 1

10.3 Test Result : Pass

10.4 Test Instrument : SSA-03, SAT10-10, SCC-G32

10.5 Measurement Block Diagram



Frequency Stability (FCC section 2.1055, TIA-603-D section 2.2.2)

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Contents of APPENDIXES

APPENDIX 1: Data of Radio tests

RF output power

Modulation Characteristics

Emissions Bandwidth

Spurious emission at antenna terminal

Emissions Limitation

Field Strength of spurious emission (Radiated Emission Test)

Frequency stability

APPENDIX 2: Test instruments

Test instruments

APPENDIX 3: Photographs of test setup

Antenna terminal conducted tests

Radiated emission

APPENDIX 1: Data of Radio tests

RF Output Power (Conducted)(mean power)

Test place UL Japan, Inc. Shonan EMC Lab. No.1 Measurement Room
 Date March 15, 2016
 Temperature / Humidity 25 deg.C 48 %RH
 Engineer Kenichi Adachi
 Mode Transmitting

Pulse range table 0 (* P/M: Power Meter with power sensor)

| mode | Freq. [MHz] | P/M (Peak) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Wave guide Loss [dB] | Duty factor [dB] | Result (average power) | |
|-------|----------------|--------------------------------|-----------------------|------------------------|----------------------------|------------------------|---------------------------|-------|
| | | | | | | | [dBm] | [W] |
| P | 9410.0 | 19.43 | 2.77 | 29.88 | 0.83 | 37.97 | 14.94 | 0.031 |
| Q | 9440.0 | 19.49 | 2.77 | 29.74 | 0.84 | 21.95 | 30.89 | 1.228 |
| P + Q | 9410 + 9440 | 19.49 | 2.77 | 29.74 | 0.84 | 21.95 | 30.89 | 1.228 |

Pulse range table 1 (* P/M: Power Meter with power sensor)

| mode | Freq. [MHz] | P/M (Peak) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Wave guide Loss [dB] | Duty factor [dB] | Result (average power) | |
|-------|----------------|--------------------------------|-----------------------|------------------------|----------------------------|------------------------|---------------------------|-------|
| | | | | | | | [dBm] | [W] |
| P | 9410.0 | 19.67 | 2.77 | 29.88 | 0.83 | 34.66 | 18.49 | 0.071 |
| Q | 9440.0 | 19.41 | 2.77 | 29.74 | 0.84 | 19.89 | 32.87 | 1.937 |
| P + Q | 9410 + 9440 | 19.56 | 2.77 | 29.74 | 0.84 | 19.89 | 33.02 | 2.005 |

Pulse range table 2 (* P/M: Power Meter with power sensor)

| mode | Freq. [MHz] | P/M (Peak) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Wave guide Loss [dB] | Duty factor [dB] | Result (average power) | |
|-------|----------------|--------------------------------|-----------------------|------------------------|----------------------------|------------------------|---------------------------|-------|
| | | | | | | | [dBm] | [W] |
| P | 9410.0 | 19.71 | 2.77 | 29.88 | 0.83 | 31.65 | 21.54 | 0.143 |
| Q | 9440.0 | 19.32 | 2.77 | 29.74 | 0.84 | 16.88 | 35.79 | 3.795 |
| P + Q | 9410 + 9440 | 19.52 | 2.77 | 29.74 | 0.84 | 16.88 | 35.99 | 3.974 |

Pulse range table 3 (* P/M: Power Meter with power sensor)

| mode | Freq. [MHz] | P/M (Peak) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Wave guide Loss [dB] | Duty factor [dB] | Result (average power) | |
|-------|----------------|--------------------------------|-----------------------|------------------------|----------------------------|------------------------|---------------------------|-------|
| | | | | | | | [dBm] | [W] |
| P | 9410.0 | 19.68 | 2.77 | 29.88 | 0.83 | 37.17 | 15.99 | 0.040 |
| Q | 9440.0 | 19.34 | 2.77 | 29.74 | 0.84 | 16.30 | 36.39 | 4.352 |
| P + Q | 9410 + 9440 | 19.50 | 2.77 | 29.74 | 0.84 | 16.30 | 36.55 | 4.515 |

Pulse range table 4 (* P/M: Power Meter with power sensor)

| mode | Freq. [MHz] | P/M (Peak) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Wave guide Loss [dB] | Duty factor [dB] | Result (average power) | |
|-------|----------------|--------------------------------|-----------------------|------------------------|----------------------------|------------------------|---------------------------|-------|
| | | | | | | | [dBm] | [W] |
| P | 9410.0 | 19.63 | 2.77 | 29.88 | 0.83 | 40.18 | 12.93 | 0.020 |
| Q | 9440.0 | 19.42 | 2.77 | 29.74 | 0.84 | 17.47 | 35.30 | 3.391 |
| P + Q | 9410 + 9440 | 19.59 | 2.77 | 29.74 | 0.84 | 17.47 | 35.47 | 3.526 |

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss + Wave guide Loss - Duty factor

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RF Output Power (Conducted)(mean power)

Pulse range table 5

(* P/M: Power Meter with power sensor)

| mode | Freq. [MHz] | P/M (Peak) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Wave guide Loss [dB] | Duty factor [dB] | Result (average power) | |
|-------|----------------|--------------------------------|-----------------------|------------------------|----------------------------|------------------------|---------------------------|-------|
| | | | | | | | [dBm] | [W] |
| P | 9410.0 | 19.76 | 2.77 | 29.88 | 0.83 | 32.52 | 20.72 | 0.118 |
| Q | 9440.0 | 19.37 | 2.77 | 29.74 | 0.84 | 17.75 | 34.97 | 3.138 |
| P + Q | 9410 + 9440 | 19.57 | 2.77 | 29.74 | 0.84 | 17.75 | 35.17 | 3.286 |

Pulse range table 6

(* P/M: Power Meter with power sensor)

| mode | Freq. [MHz] | P/M (Peak) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Wave guide Loss [dB] | Duty factor [dB] | Result (average power) | |
|-------|----------------|--------------------------------|-----------------------|------------------------|----------------------------|------------------------|---------------------------|-------|
| | | | | | | | [dBm] | [W] |
| P | 9410.0 | 19.77 | 2.77 | 29.88 | 0.83 | 31.15 | 22.10 | 0.162 |
| Q | 9440.0 | 19.44 | 2.77 | 29.74 | 0.84 | 19.39 | 33.40 | 2.190 |
| P + Q | 9410 + 9440 | 19.60 | 2.77 | 29.74 | 0.84 | 19.39 | 33.56 | 2.272 |

Pulse range table 7

(* P/M: Power Meter with power sensor)

| mode | Freq. [MHz] | P/M (Peak) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Wave guide Loss [dB] | Duty factor [dB] | Result (average power) | |
|-------|----------------|--------------------------------|-----------------------|------------------------|----------------------------|------------------------|---------------------------|-------|
| | | | | | | | [dBm] | [W] |
| P | 9410.0 | 19.51 | 2.77 | 29.88 | 0.83 | 35.42 | 17.57 | 0.057 |
| Q | 9440.0 | 19.41 | 2.77 | 29.74 | 0.84 | 19.40 | 33.36 | 2.167 |
| P + Q | 9410 + 9440 | 19.41 | 2.77 | 29.74 | 0.84 | 19.40 | 33.36 | 2.167 |

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss + Wave guide Loss - Duty factor

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RF Output Power (Conducted)(Peak power)

Test place UL Japan, Inc. Shonan EMC Lab. No.1 Measurement Room
 Date March 15, 2016
 Temperature / Humidity 25 deg.C 48 %RH
 Engineer Kenichi Adachi
 Mode Transmitting

Pulse range table 0 (* P/M: Power Meter with power sensor)

| mode | Freq. [MHz] | P/M (Peak) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Wave guide Loss [dB] | Result (Peak power) | | FCC Limit [kW] | RSS-238 Limit [kW] |
|-------|----------------|--------------------------------|-----------------------|------------------------|----------------------------|------------------------|-------|----------------------|--------------------------|
| | | | | | | [dBm] | [kW] | | |
| P | 9410.0 | 19.43 | 2.77 | 29.88 | 0.83 | 52.91 | 0.195 | - | 60.000 |
| Q | 9440.0 | 19.49 | 2.77 | 29.74 | 0.84 | 52.84 | 0.192 | - | 60.000 |
| P + Q | 9410 + 9440 | 19.49 | 2.77 | 29.74 | 0.84 | 52.84 | 0.192 | - | 60.000 |

Pulse range table 1 (* P/M: Power Meter with power sensor)

| mode | Freq. [MHz] | P/M (Peak) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Wave guide Loss [dB] | Result (Peak power) | | FCC Limit [kW] | RSS-238 Limit [kW] |
|-------|----------------|--------------------------------|-----------------------|------------------------|----------------------------|------------------------|-------|----------------------|--------------------------|
| | | | | | | [dBm] | [kW] | | |
| P | 9410.0 | 19.67 | 2.77 | 29.88 | 0.83 | 53.15 | 0.207 | - | 60.000 |
| Q | 9440.0 | 19.41 | 2.77 | 29.74 | 0.84 | 52.76 | 0.189 | - | 60.000 |
| P + Q | 9410 + 9440 | 19.56 | 2.77 | 29.74 | 0.84 | 52.91 | 0.195 | - | 60.000 |

Pulse range table 2 (* P/M: Power Meter with power sensor)

| mode | Freq. [MHz] | P/M (Peak) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Wave guide Loss [dB] | Result (Peak power) | | FCC Limit [kW] | RSS-238 Limit [kW] |
|-------|----------------|--------------------------------|-----------------------|------------------------|----------------------------|------------------------|-------|----------------------|--------------------------|
| | | | | | | [dBm] | [kW] | | |
| P | 9410.0 | 19.71 | 2.77 | 29.88 | 0.83 | 53.19 | 0.208 | - | 60.000 |
| Q | 9440.0 | 19.32 | 2.77 | 29.74 | 0.84 | 52.67 | 0.185 | - | 60.000 |
| P + Q | 9410 + 9440 | 19.52 | 2.77 | 29.74 | 0.84 | 52.87 | 0.194 | - | 60.000 |

Pulse range table 3 (* P/M: Power Meter with power sensor)

| mode | Freq. [MHz] | P/M (Peak) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Wave guide Loss [dB] | Result (Peak power) | | FCC Limit [kW] | RSS-238 Limit [kW] |
|-------|----------------|--------------------------------|-----------------------|------------------------|----------------------------|------------------------|-------|----------------------|--------------------------|
| | | | | | | [dBm] | [kW] | | |
| P | 9410.0 | 19.68 | 2.77 | 29.88 | 0.83 | 53.16 | 0.207 | - | 60.000 |
| Q | 9440.0 | 19.34 | 2.77 | 29.74 | 0.84 | 52.69 | 0.186 | - | 60.000 |
| P + Q | 9410 + 9440 | 19.50 | 2.77 | 29.74 | 0.84 | 52.85 | 0.193 | - | 60.000 |

Pulse range table 4 (* P/M: Power Meter with power sensor)

| mode | Freq. [MHz] | P/M (Peak) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Wave guide Loss [dB] | Result (Peak power) | | FCC Limit [kW] | RSS-238 Limit [kW] |
|-------|----------------|--------------------------------|-----------------------|------------------------|----------------------------|------------------------|-------|----------------------|--------------------------|
| | | | | | | [dBm] | [kW] | | |
| P | 9410.0 | 19.63 | 2.77 | 29.88 | 0.83 | 53.11 | 0.205 | - | 60.000 |
| Q | 9440.0 | 19.42 | 2.77 | 29.74 | 0.84 | 52.77 | 0.189 | - | 60.000 |
| P + Q | 9410 + 9440 | 19.59 | 2.77 | 29.74 | 0.84 | 52.94 | 0.197 | - | 60.000 |

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss + Wave guide Loss

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RF Output Power (Conducted)(Peak power)

Pulse range table 5

(* P/M: Power Meter with power sensor)

| mode | Freq. [MHz] | P/M (Peak) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Wave guide Loss [dB] | Result (Peak power) | | FCC Limit [kW] | RSS-238 Limit [kW] |
|-------|----------------|--------------------------------|-----------------------|------------------------|----------------------------|------------------------|-------|----------------------|--------------------------|
| | | | | | | [dBm] | [kW] | | |
| P | 9410.0 | 19.76 | 2.77 | 29.88 | 0.83 | 53.24 | 0.211 | - | 60.000 |
| Q | 9440.0 | 19.37 | 2.77 | 29.74 | 0.84 | 52.72 | 0.187 | - | 60.000 |
| P + Q | 9410 + 9440 | 19.57 | 2.77 | 29.74 | 0.84 | 52.92 | 0.196 | - | 60.000 |

Pulse range table 6

(* P/M: Power Meter with power sensor)

| mode | Freq. [MHz] | P/M (Peak) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Wave guide Loss [dB] | Result (Peak power) | | FCC Limit [kW] | RSS-238 Limit [kW] |
|-------|----------------|--------------------------------|-----------------------|------------------------|----------------------------|------------------------|-------|----------------------|--------------------------|
| | | | | | | [dBm] | [kW] | | |
| P | 9410.0 | 19.77 | 2.77 | 29.88 | 0.83 | 53.25 | 0.211 | - | 60.000 |
| Q | 9440.0 | 19.44 | 2.77 | 29.74 | 0.84 | 52.79 | 0.190 | - | 60.000 |
| P + Q | 9410 + 9440 | 19.60 | 2.77 | 29.74 | 0.84 | 52.95 | 0.197 | - | 60.000 |

Pulse range table 7

(* P/M: Power Meter with power sensor)

| mode | Freq. [MHz] | P/M (Peak) Reading [dBm] | Cable Loss [dB] | Atten. Loss [dB] | Wave guide Loss [dB] | Result (Peak power) | | FCC Limit [kW] | RSS-238 Limit [kW] |
|-------|----------------|--------------------------------|-----------------------|------------------------|----------------------------|------------------------|-------|----------------------|--------------------------|
| | | | | | | [dBm] | [kW] | | |
| P | 9410.0 | 19.51 | 2.77 | 29.88 | 0.83 | 52.99 | 0.199 | - | 60.000 |
| Q | 9440.0 | 19.41 | 2.77 | 29.74 | 0.84 | 52.76 | 0.189 | - | 60.000 |
| P + Q | 9410 + 9440 | 19.41 | 2.77 | 29.74 | 0.84 | 52.76 | 0.189 | - | 60.000 |

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss + Wave guide Loss

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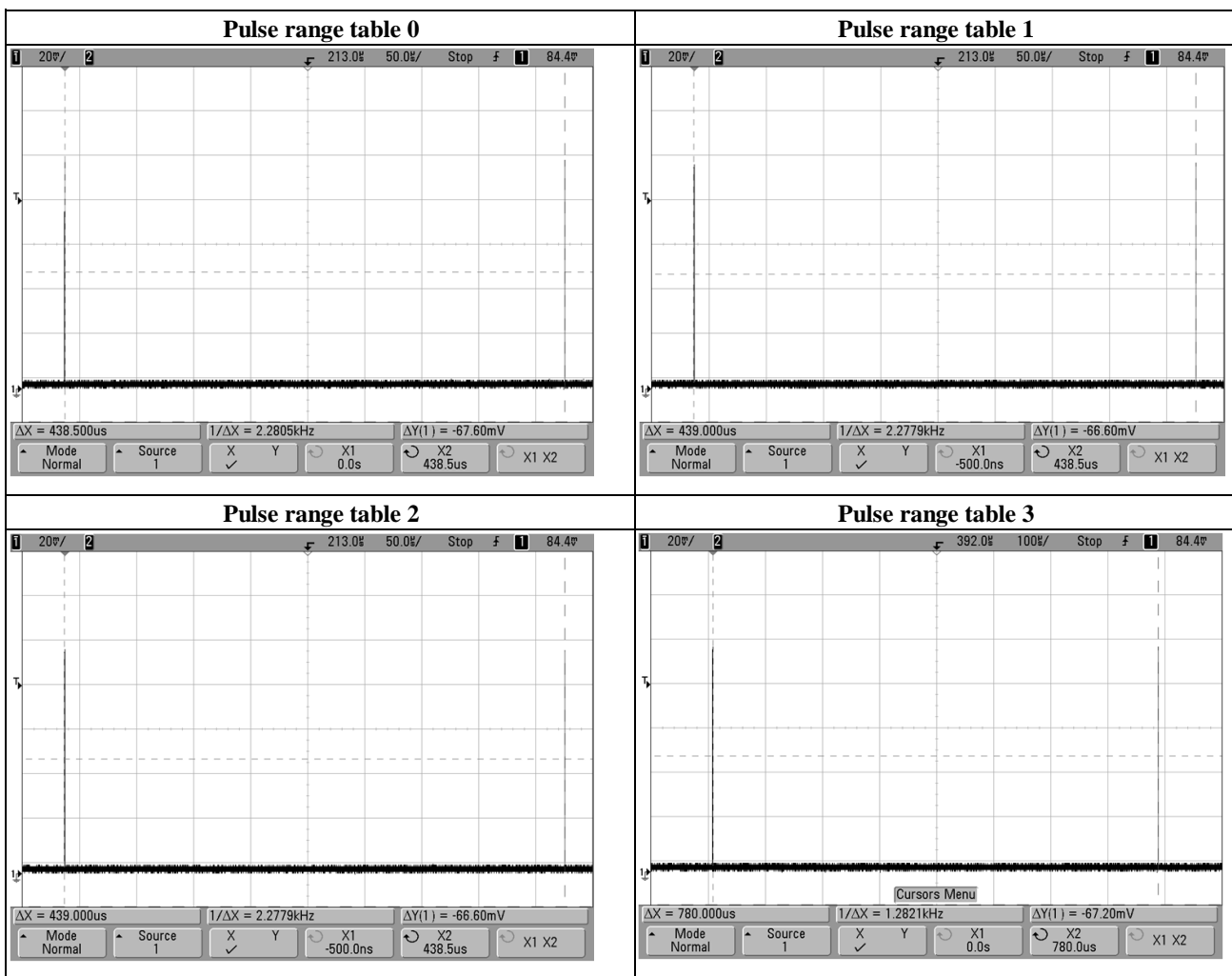
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Modulation Characteristics (Pulse chart 1)

| | | |
|------------------------|--------------------------------|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Shielded Room |
| Date | March 23, 2016 | |
| Temperature / Humidity | 23 deg.C , 30 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) | |

| Pulse range table | Pulse 1 cycle time [us] | Pulse Repetition rate [Hz] | 1.5 / T [MHz] |
|-------------------|-------------------------|----------------------------|---------------|
| 0 | 438.500 | 2280.502 | 0.003 |
| 1 | 439.000 | 2277.904 | 0.003 |
| 2 | 439.000 | 2277.904 | 0.003 |
| 3 | 780.000 | 1282.051 | 0.002 |

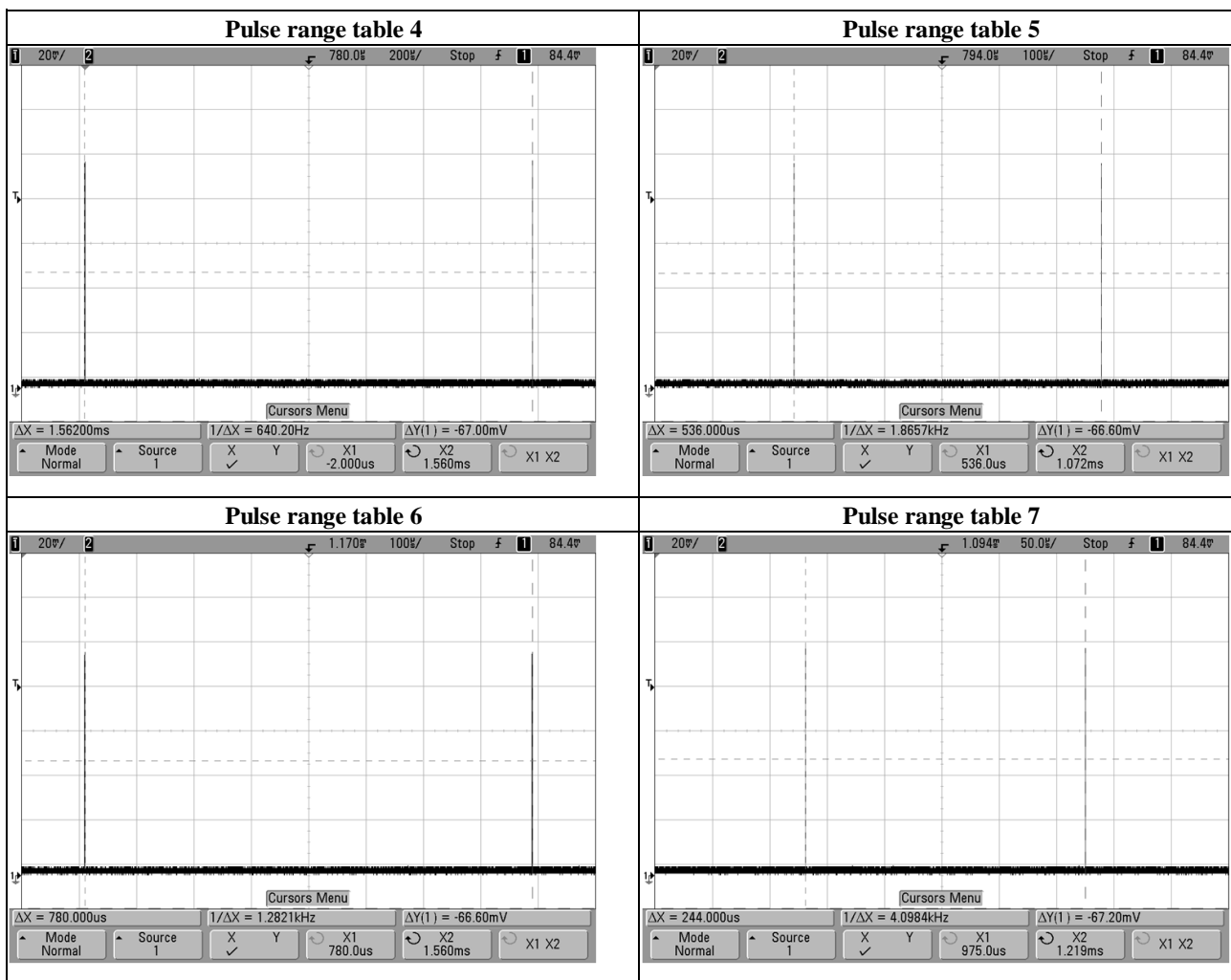


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Modulation Characteristics (Pulse chart 1)

| | | |
|------------------------|--------------------------------|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Shielded Room |
| Date | March 23, 2016 | |
| Temperature / Humidity | 23 deg.C , 30 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) | |

| Pulse range table | Pulse 1 cycle time [us] | Pulse Repetition rate [Hz] | 1.5 / T [MHz] |
|-------------------|-------------------------|----------------------------|---------------|
| 4 | 1562.000 | 640.205 | 0.001 |
| 5 | 536.000 | 1865.672 | 0.003 |
| 6 | 780.000 | 1282.051 | 0.002 |
| 7 | 244.000 | 4098.361 | 0.006 |



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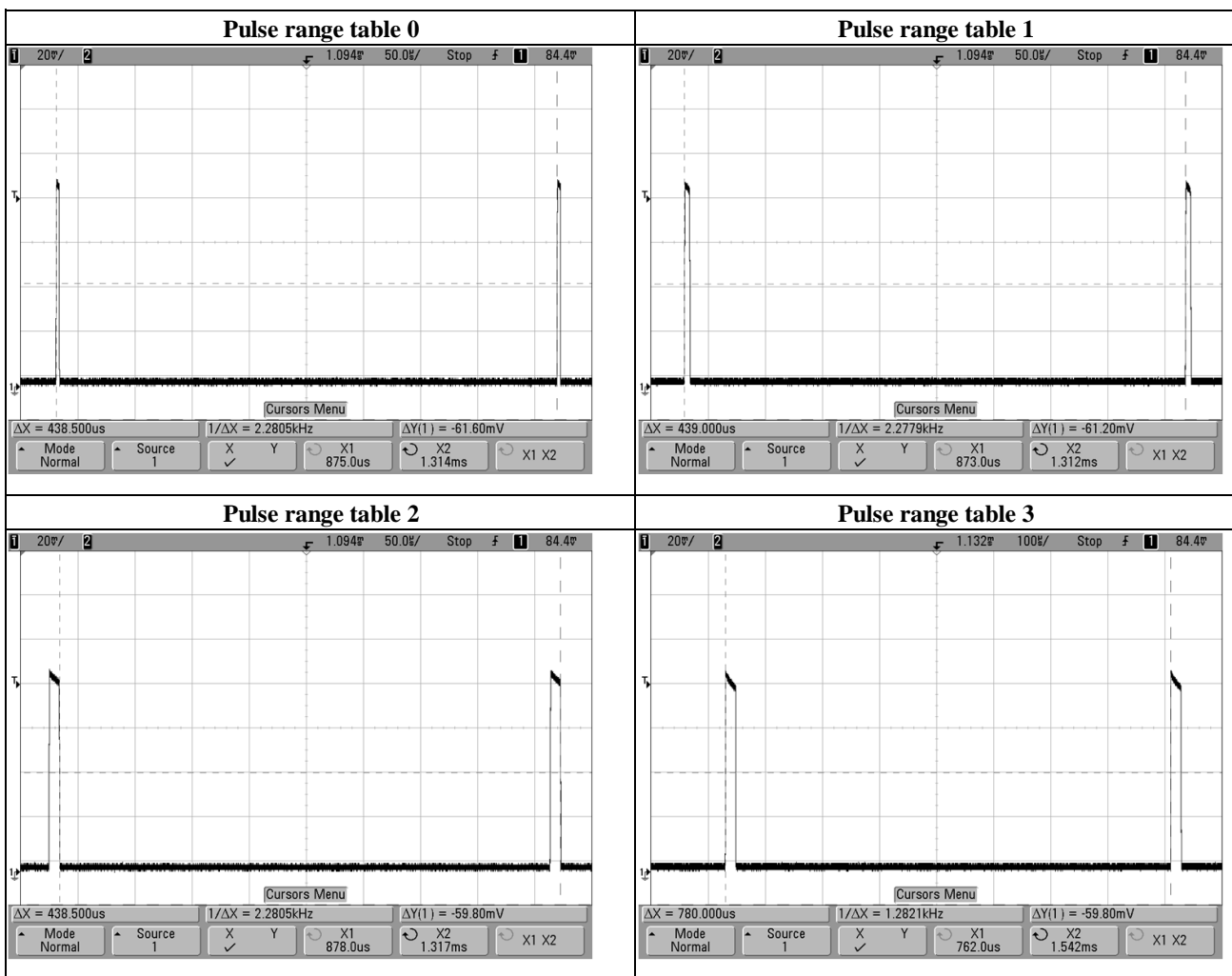
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Modulation Characteristics (Pulse chart 1)

| | | |
|------------------------|--------------------------------|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Shielded Room |
| Date | March 23, 2016 | |
| Temperature / Humidity | 23 deg.C , 30 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9440 MHz (Q) | |

| Pulse range table | Pulse 1 cycle time [us] | Pulse Repetition rate [Hz] | 1.5 / T [MHz] |
|-------------------|-------------------------|----------------------------|---------------|
| 0 | 438.500 | 2280.502 | 0.003 |
| 1 | 439.000 | 2277.904 | 0.003 |
| 2 | 438.500 | 2280.502 | 0.003 |
| 3 | 780.000 | 1282.051 | 0.002 |



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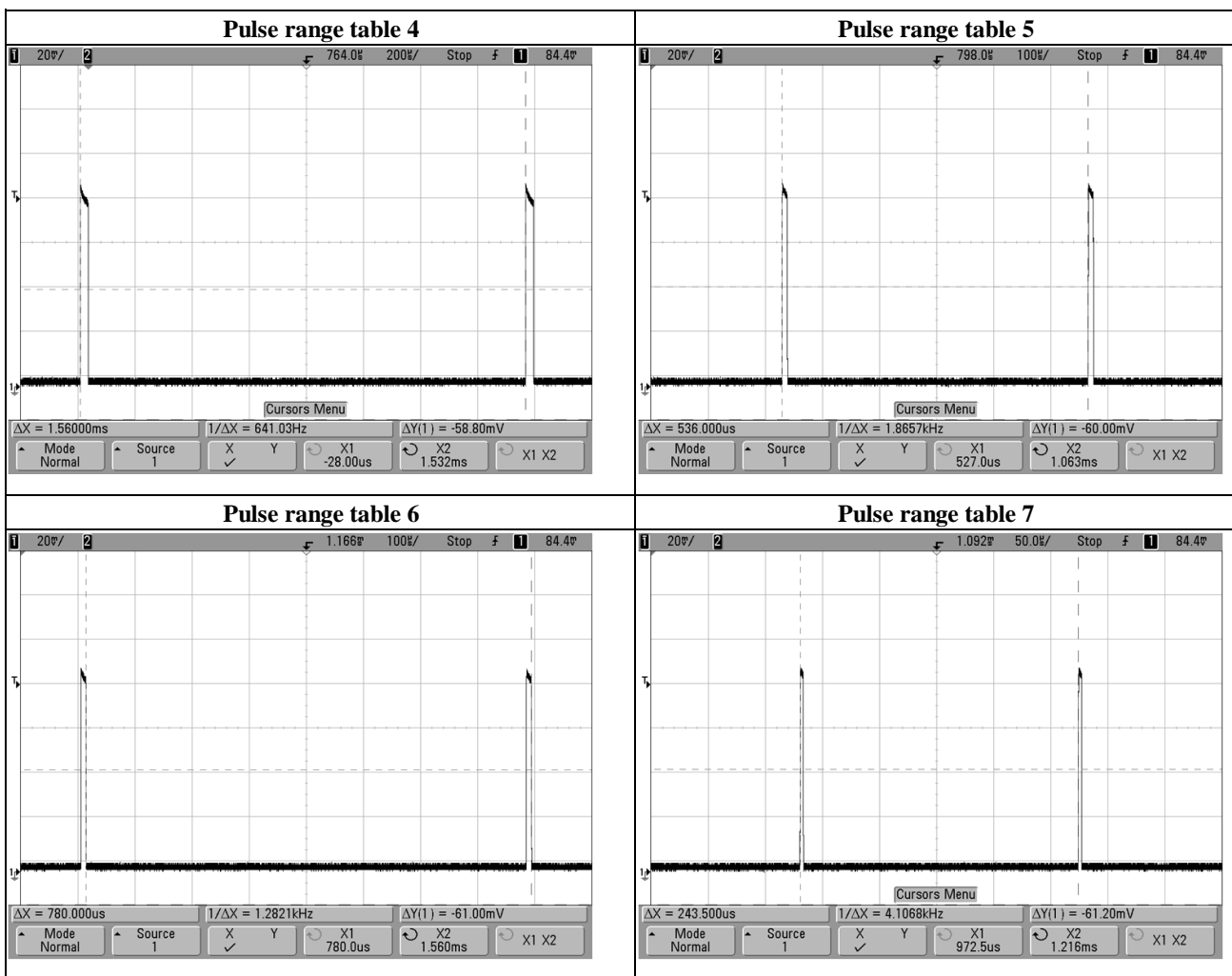
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Modulation Characteristics (Pulse chart 1)

| | | |
|------------------------|--------------------------------|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Shielded Room |
| Date | March 23, 2016 | |
| Temperature / Humidity | 23 deg.C , 30 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9440 MHz (Q) | |

| Pulse range table | Pulse 1 cycle time [us] | Pulse Repetition rate [Hz] | 1.5 / T [MHz] |
|-------------------|-------------------------|----------------------------|---------------|
| 4 | 1560.000 | 641.026 | 0.001 |
| 5 | 536.000 | 1865.672 | 0.003 |
| 6 | 780.000 | 1282.051 | 0.002 |
| 7 | 243.500 | 4106.776 | 0.006 |



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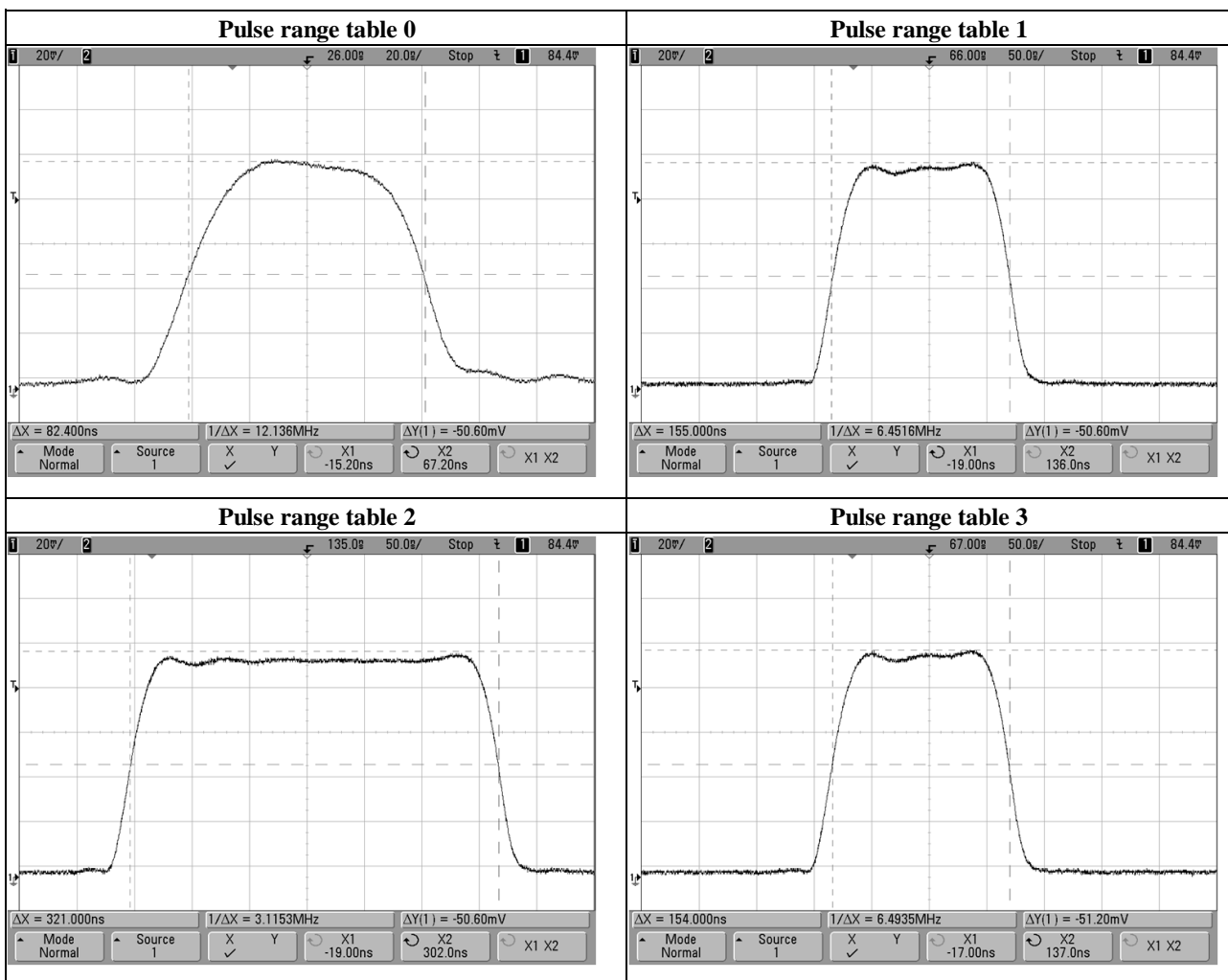
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Modulation Characteristics (Pulse chart 2)

| | | |
|------------------------|--------------------------------|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Shielded Room |
| Date | March 23, 2016 | |
| Temperature / Humidity | 23 deg.C , 30 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) | |

| Pulse range table | Pulse 50 % length [us] | Duty *1) [%] | Duty factor [dB] |
|-------------------|------------------------|--------------|------------------|
| 0 | 0.082 | 0.019 | 37.260 |
| 1 | 0.155 | 0.035 | 34.521 |
| 2 | 0.321 | 0.073 | 31.360 |
| 3 | 0.154 | 0.020 | 37.046 |

*1) Refer to "Modulation Characteristics (Pulse chart 1)".



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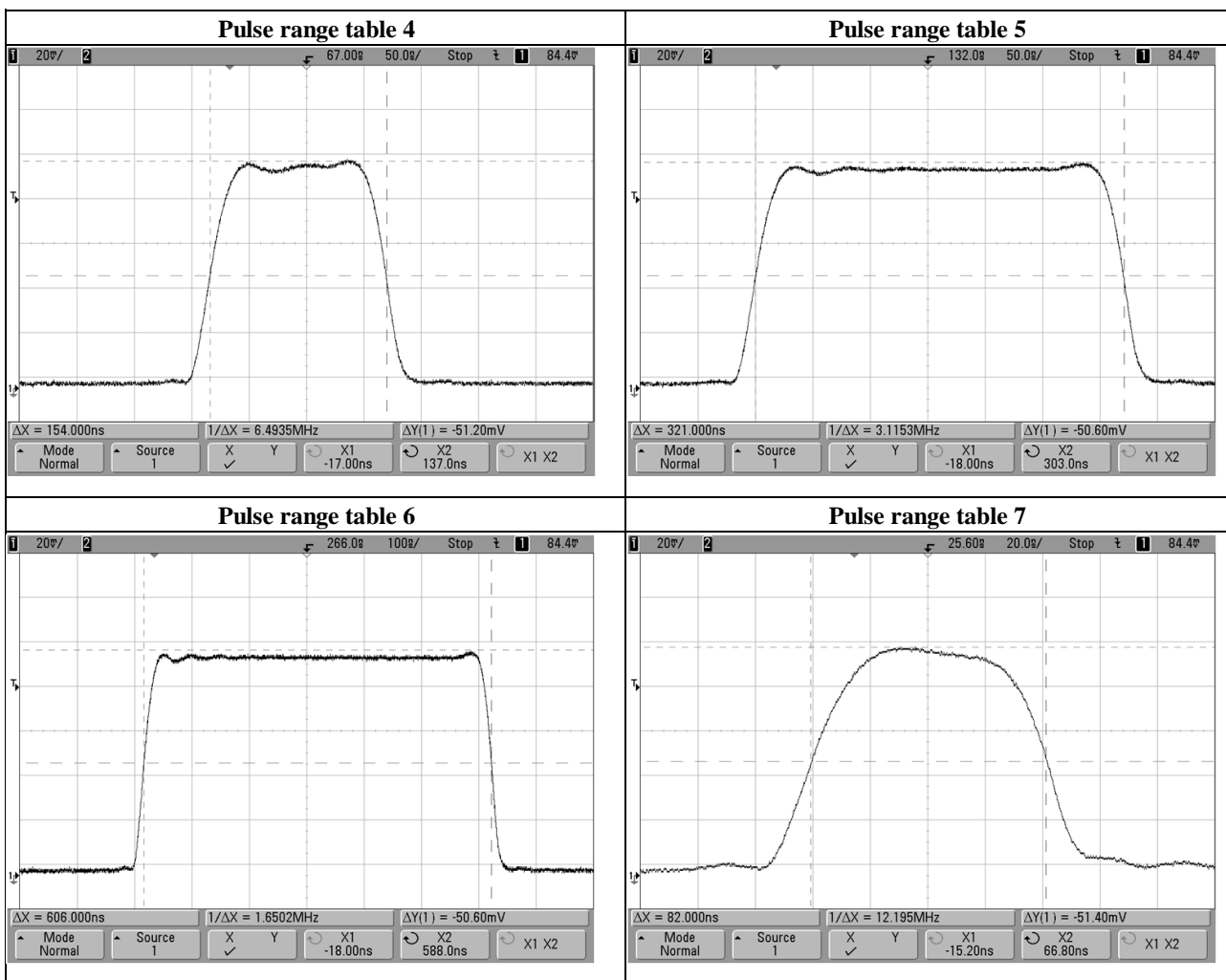
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Modulation Characteristics (Pulse chart 2)

| | | |
|------------------------|--------------------------------|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Shielded Room |
| Date | March 23, 2016 | |
| Temperature / Humidity | 23 deg.C , 30 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) | |

| Pulse range table | Pulse 50 % length [us] | Duty *1) [%] | Duty factor [dB] |
|-------------------|------------------------|--------------|------------------|
| 4 | 0.154 | 0.035 | 34.544 |
| 5 | 0.321 | 0.073 | 31.360 |
| 6 | 0.606 | 0.138 | 28.600 |
| 7 | 0.082 | 0.011 | 39.783 |

*1) Refer to "Modulation Characteristics (Pulse chart 1)".



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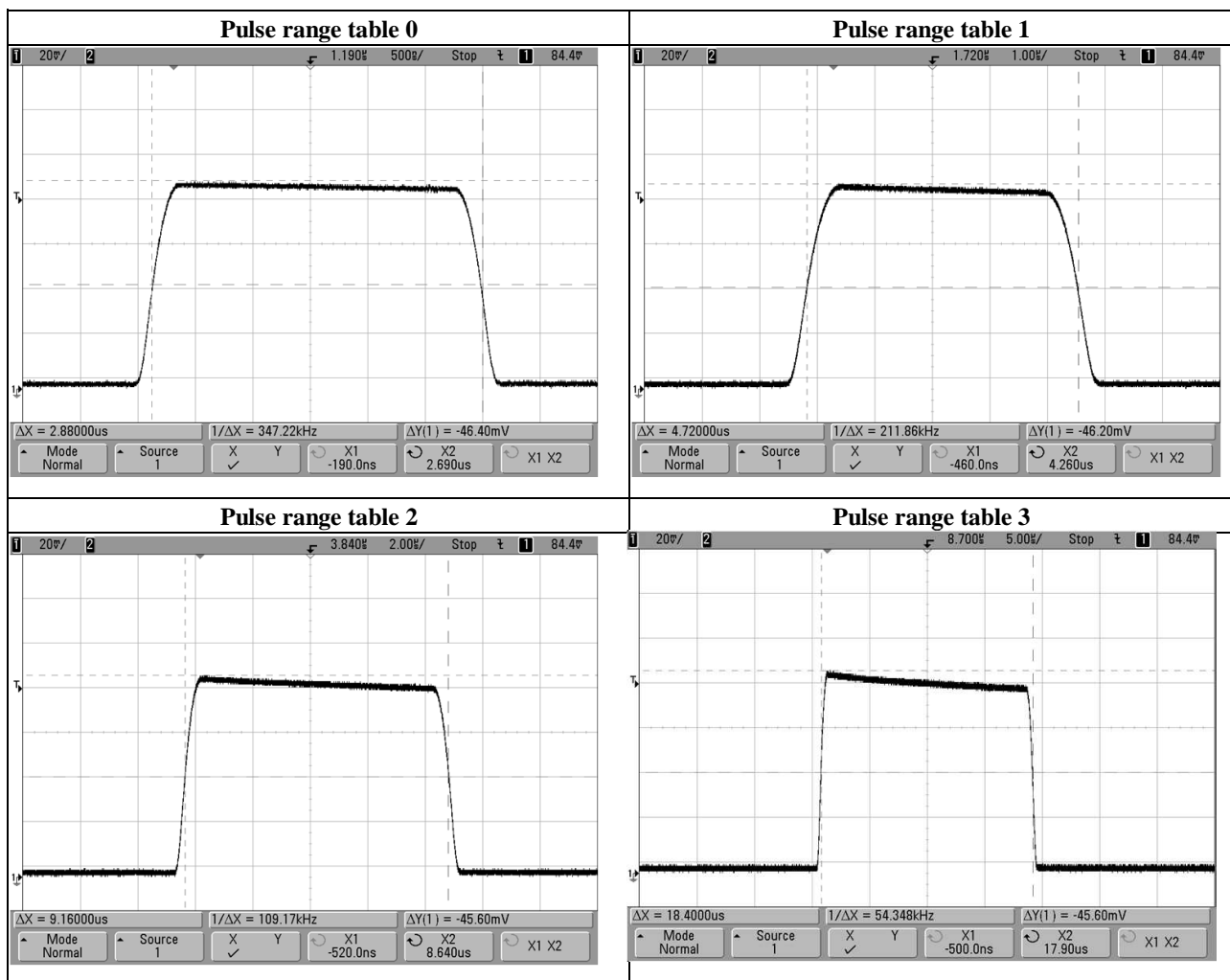
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Modulation Characteristics (Pulse chart 2)

| | | |
|------------------------|--------------------------------|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Shielded Room |
| Date | March 23, 2016 | |
| Temperature / Humidity | 23 deg.C , 30 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9440 MHz (Q) | |

| Pulse range table | Pulse 50 % length [us] | Duty *1) [%] | Duty factor [dB] |
|-------------------|------------------------|--------------|------------------|
| 0 | 2.880 | 0.657 | 21.826 |
| 1 | 4.720 | 1.075 | 19.685 |
| 2 | 9.160 | 2.087 | 16.806 |
| 3 | 18.400 | 2.359 | 16.273 |

*1) Refer to "Modulation Characteristics (Pulse chart 1)".



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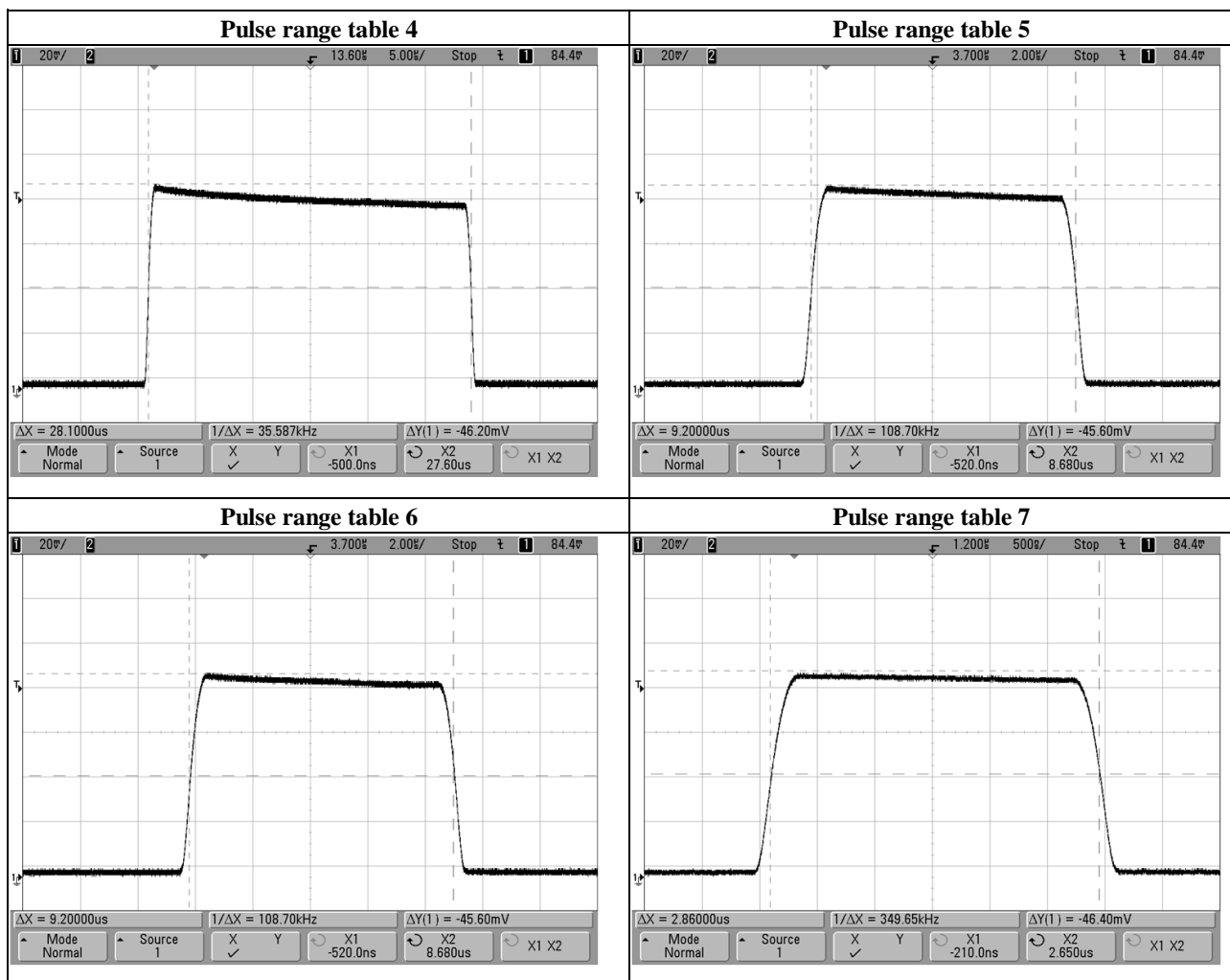
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Modulation Characteristics (Pulse chart 2)

| | | |
|------------------------|--------------------------------|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Shielded Room |
| Date | March 23, 2016 | |
| Temperature / Humidity | 23 deg.C , 30 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9440 MHz (Q) | |

| Pulse range table | Pulse 50 % length [us] | Duty *1) [%] | Duty factor [dB] |
|-------------------|------------------------|--------------|------------------|
| 4 | 28.100 | 6.408 | 11.933 |
| 5 | 9.200 | 2.096 | 16.787 |
| 6 | 9.200 | 2.096 | 16.787 |
| 7 | 2.860 | 0.367 | 24.357 |

*1) Refer to "Modulation Characteristics (Pulse chart 1)".



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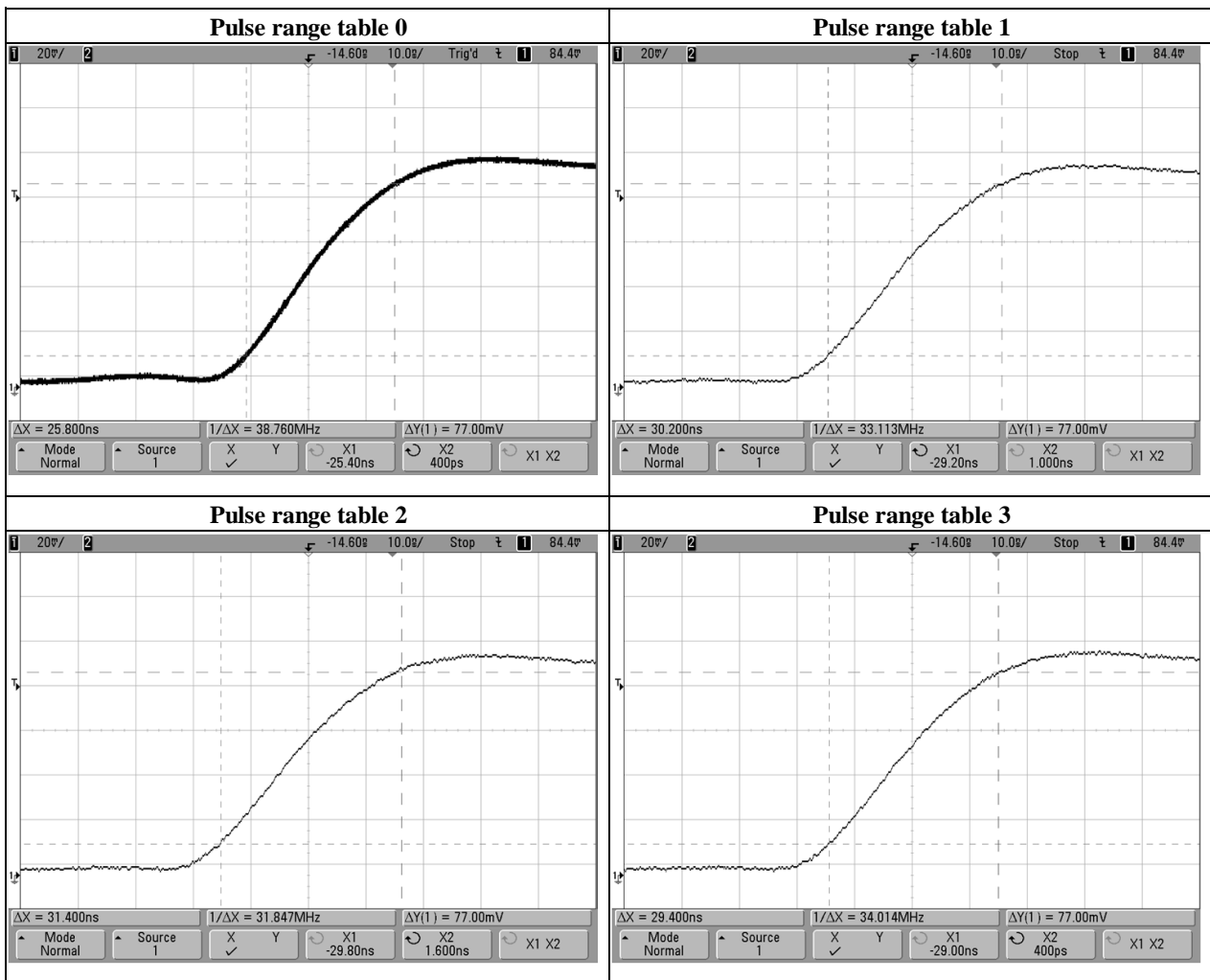
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Modulation Characteristics (Pulse chart 3)

| | | |
|------------------------|--------------------------------|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Shielded Room |
| Date | March 23, 2016 | |
| Temperature / Humidity | 23 deg.C , 30 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) | |

| Pulse range table | Rise time [ns] |
|-------------------|----------------|
| 0 | 25.80 |
| 1 | 30.20 |
| 2 | 31.40 |
| 3 | 29.40 |



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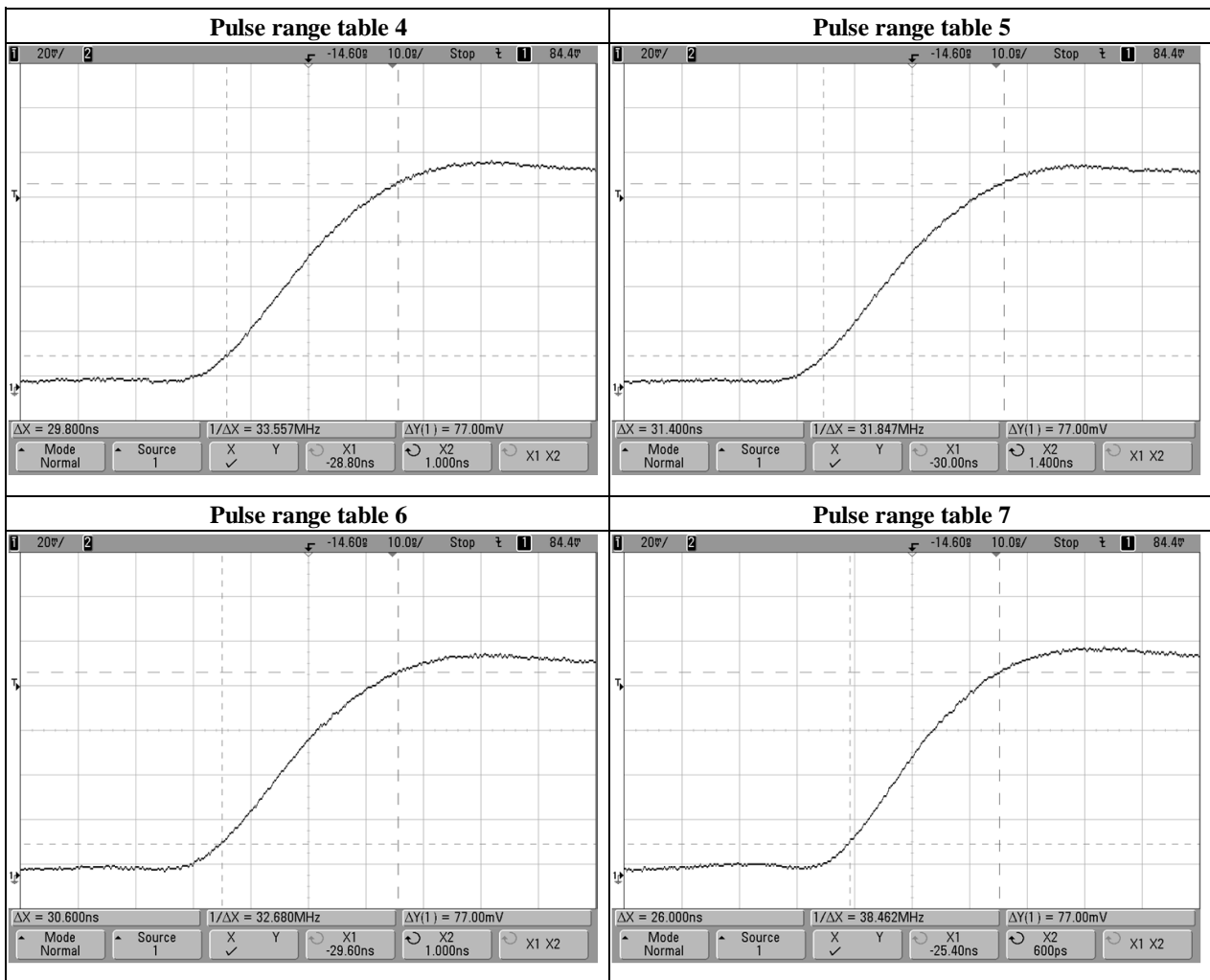
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Modulation Characteristics (Pulse chart 3)

| | | |
|------------------------|--------------------------------|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Shielded Room |
| Date | March 23, 2016 | |
| Temperature / Humidity | 23 deg.C , 30 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) | |

| Pulse range table | Rise time [ns] |
|-------------------|----------------|
| 4 | 29.80 |
| 5 | 31.40 |
| 6 | 30.60 |
| 7 | 26.00 |



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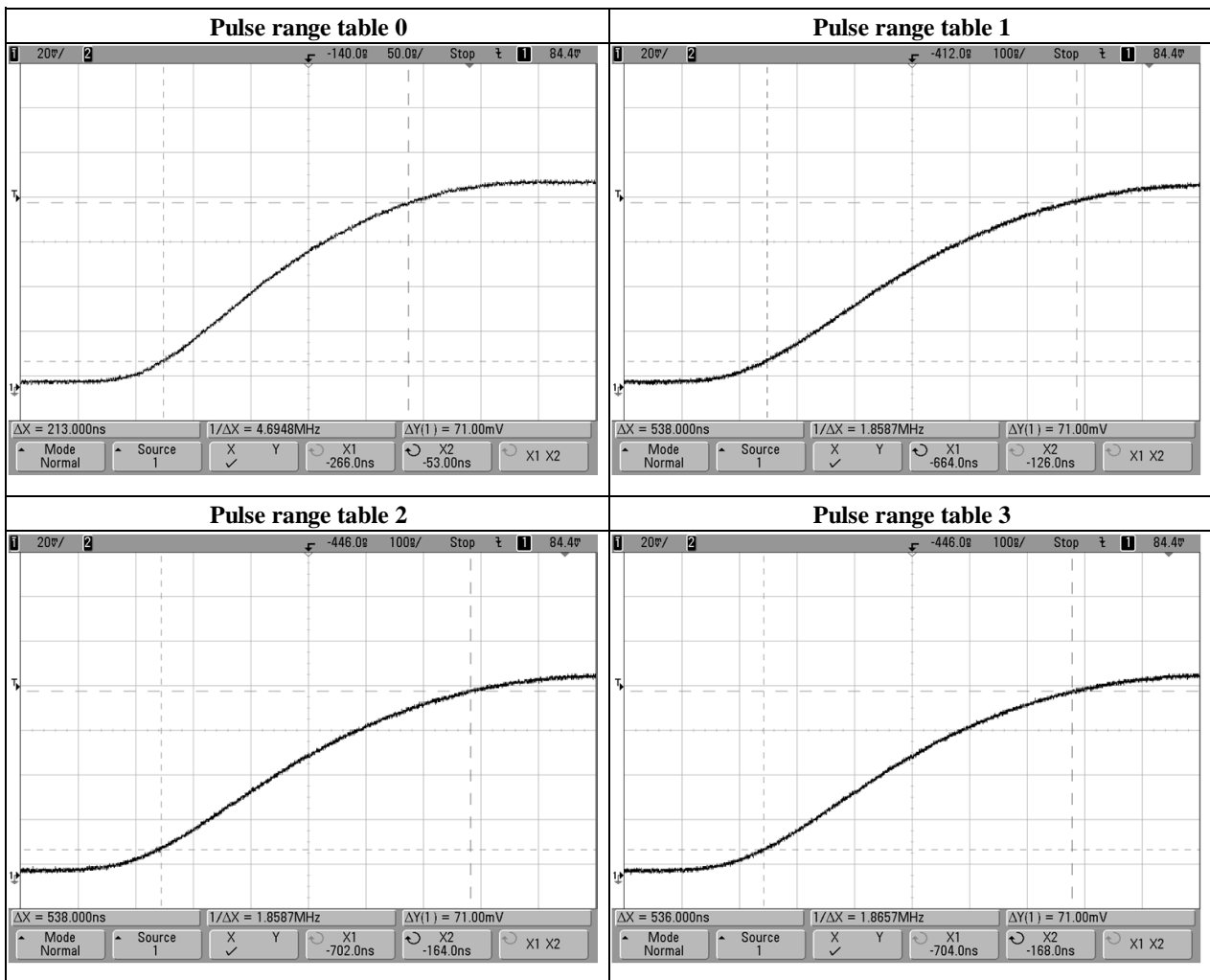
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

Modulation Characteristics (Pulse chart 3)

| | | |
|------------------------|--------------------------------|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Shielded Room |
| Date | March 23, 2016 | |
| Temperature / Humidity | 23 deg.C , 30 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9440 MHz (Q) | |

| Pulse range table | Rise time [ns] |
|-------------------|----------------|
| 0 | 213.00 |
| 1 | 538.00 |
| 2 | 538.00 |
| 3 | 536.00 |



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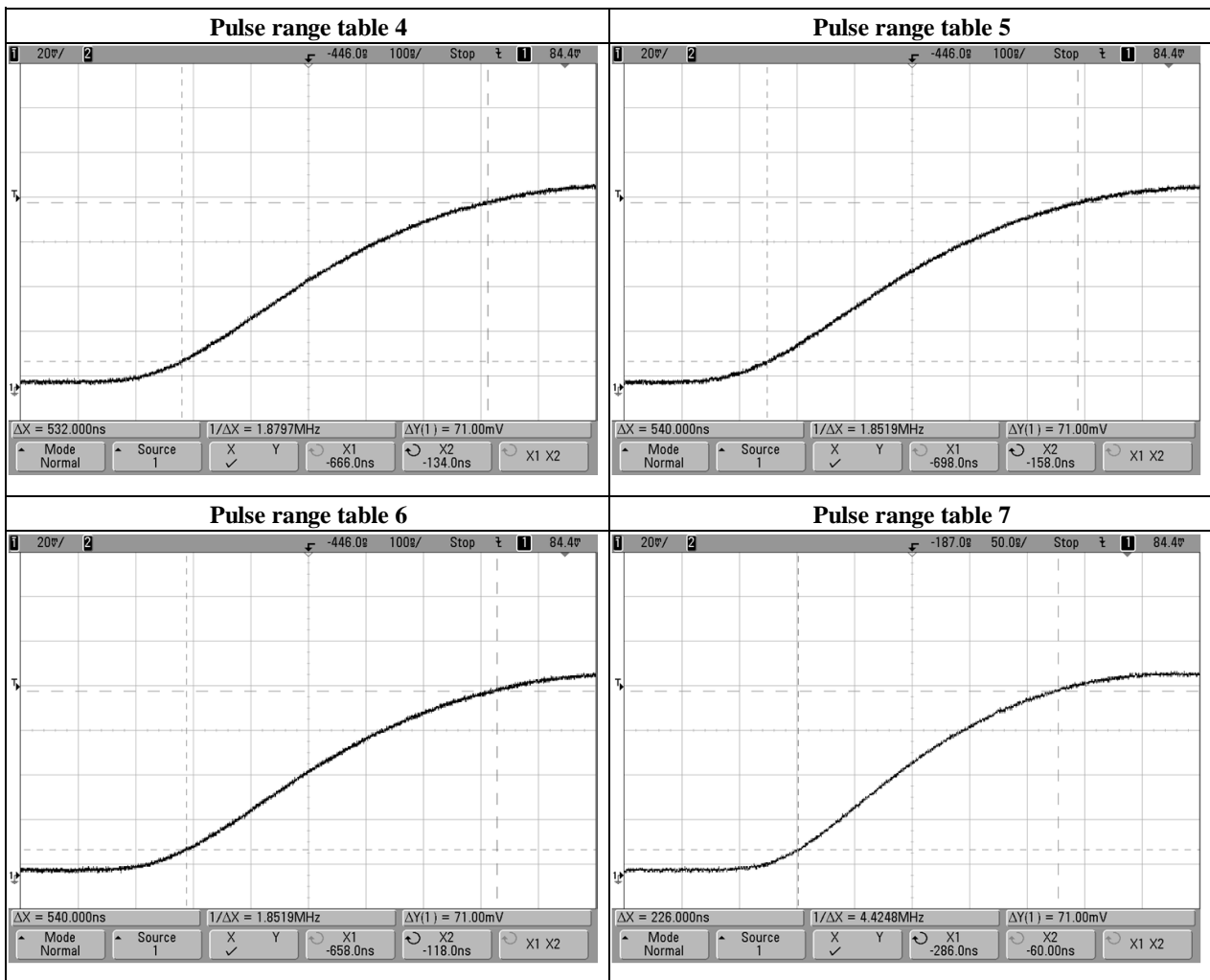
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Facsimile : +81 463 50 6401

Modulation Characteristics (Pulse chart 3)

| | | |
|------------------------|--------------------------------|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Shielded Room |
| Date | March 23, 2016 | |
| Temperature / Humidity | 23 deg.C , 30 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9440 MHz (Q) | |

| Pulse range table | Rise time [ns] |
|-------------------|----------------|
| 4 | 532.00 |
| 5 | 540.00 |
| 6 | 540.00 |
| 7 | 226.00 |



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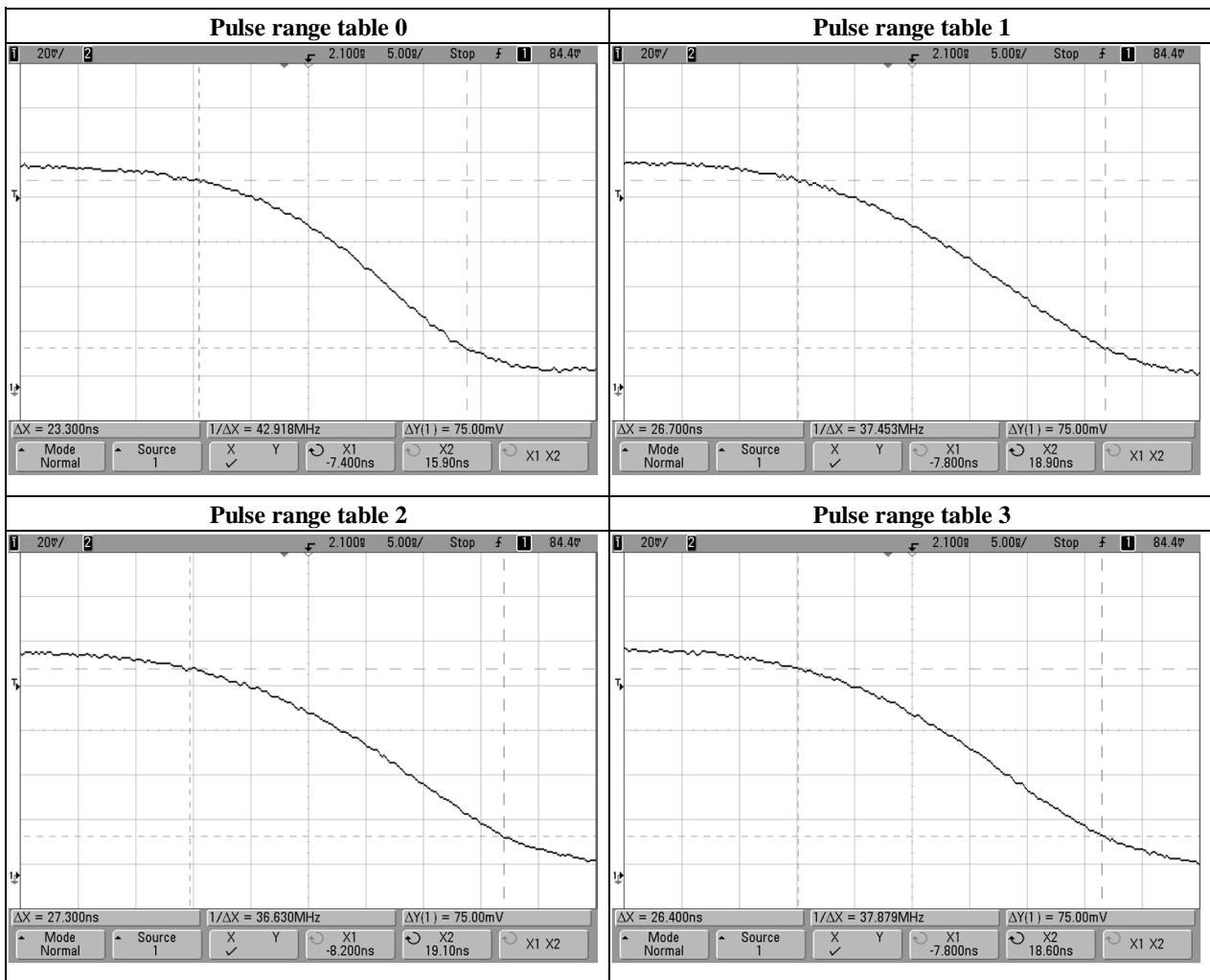
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Facsimile : +81 463 50 6401

Modulation Characteristics (Pulse chart 4)

| | | |
|------------------------|--------------------------------|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Shielded Room |
| Date | March 23, 2016 | |
| Temperature / Humidity | 23 deg.C , 30 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) | |

| Pulse range table | Fall time [ns] |
|-------------------|----------------|
| 0 | 23.30 |
| 1 | 26.70 |
| 2 | 27.30 |
| 3 | 26.40 |



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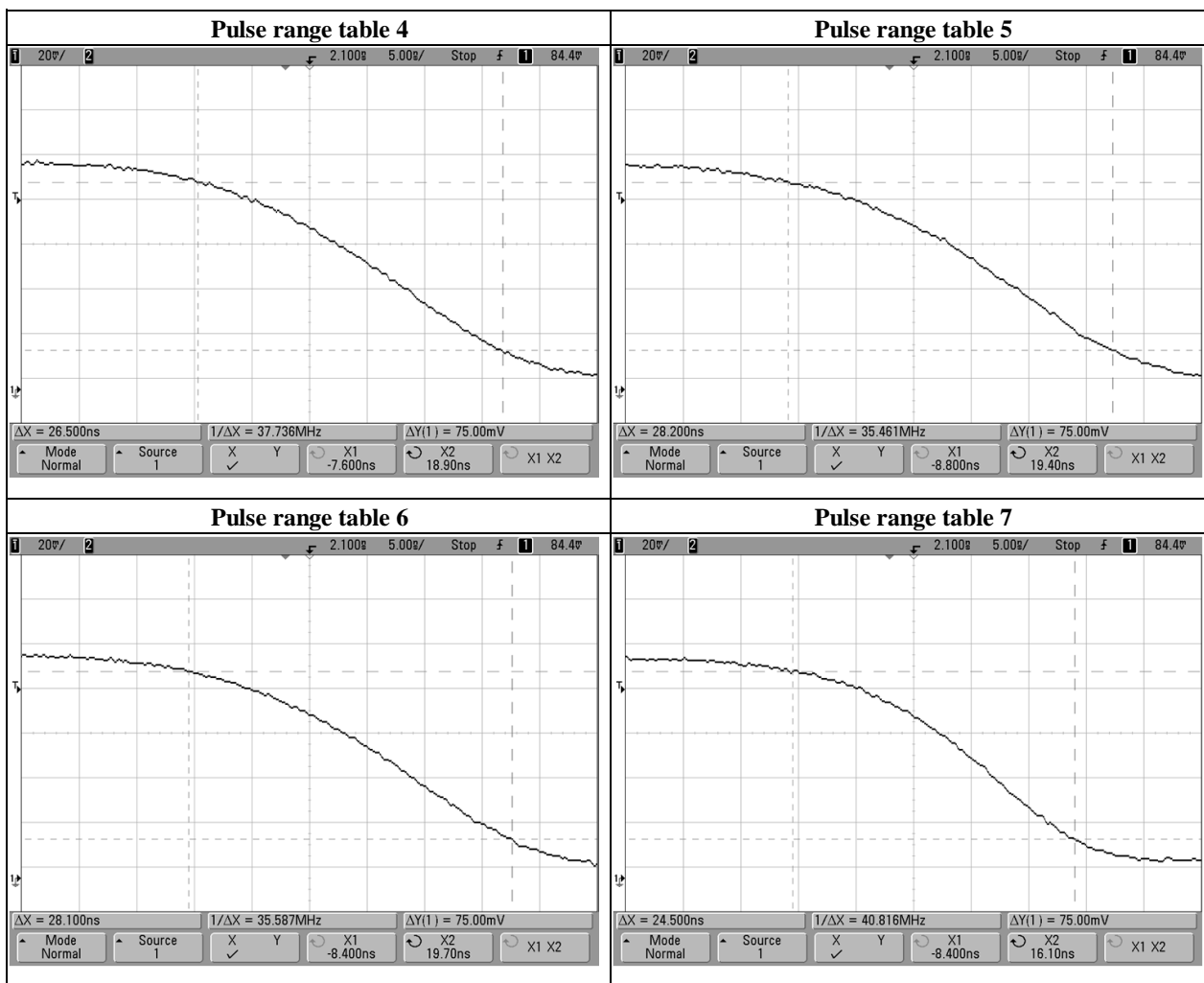
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Facsimile : +81 463 50 6401

Modulation Characteristics (Pulse chart 4)

| | | |
|------------------------|--------------------------------|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Shielded Room |
| Date | March 23, 2016 | |
| Temperature / Humidity | 23 deg.C , 30 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) | |

| Pulse range table | Fall time [ns] |
|-------------------|----------------|
| 4 | 26.50 |
| 5 | 28.20 |
| 6 | 28.10 |
| 7 | 24.50 |



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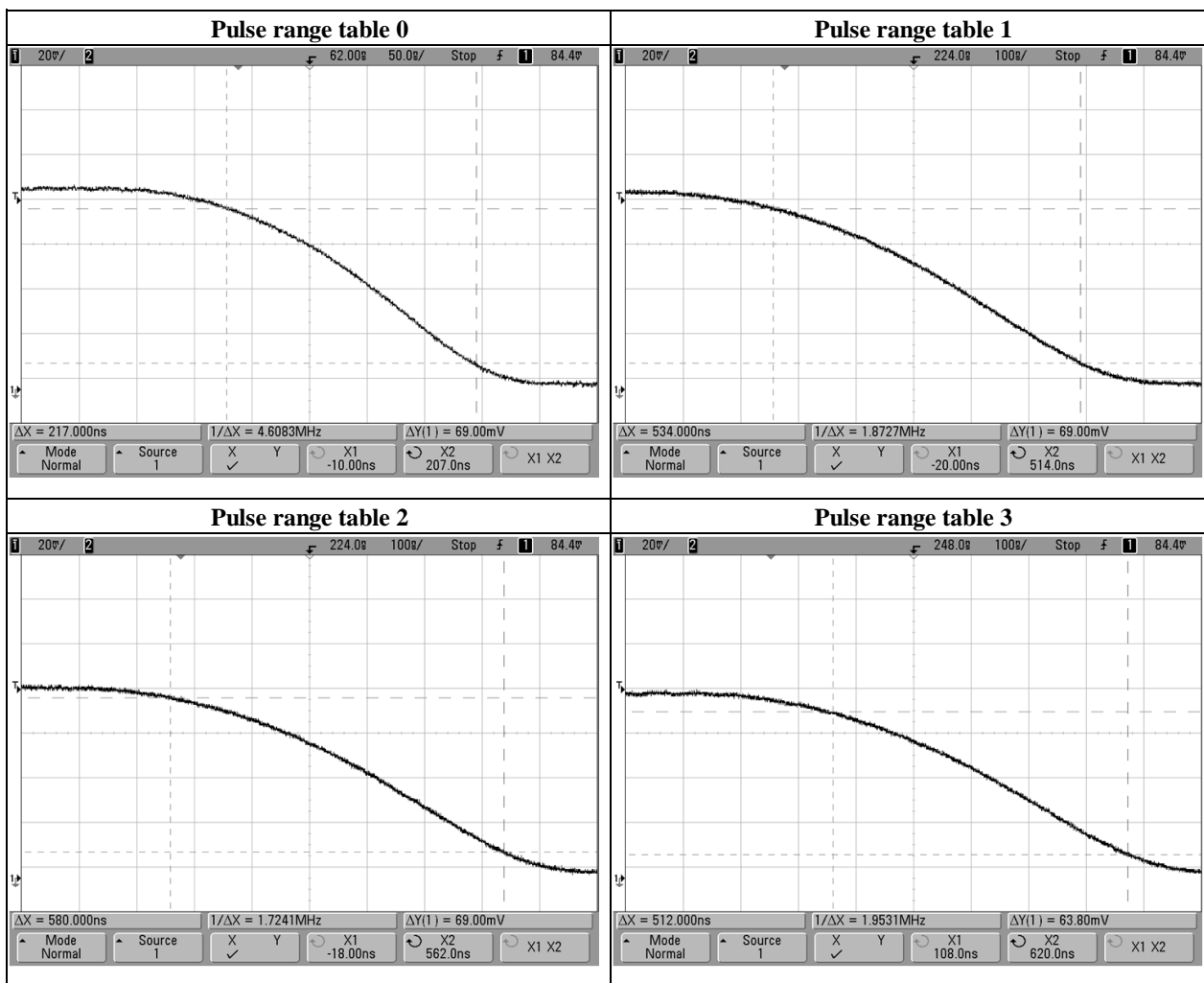
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Modulation Characteristics (Pulse chart 4)

| | | |
|------------------------|--------------------------------|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Shielded Room |
| Date | March 23, 2016 | |
| Temperature / Humidity | 23 deg.C , 30 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9440 MHz (Q) | |

| Pulse range table | Fall time [ns] |
|-------------------|----------------|
| 0 | 217.00 |
| 1 | 534.00 |
| 2 | 580.00 |
| 3 | 512.00 |

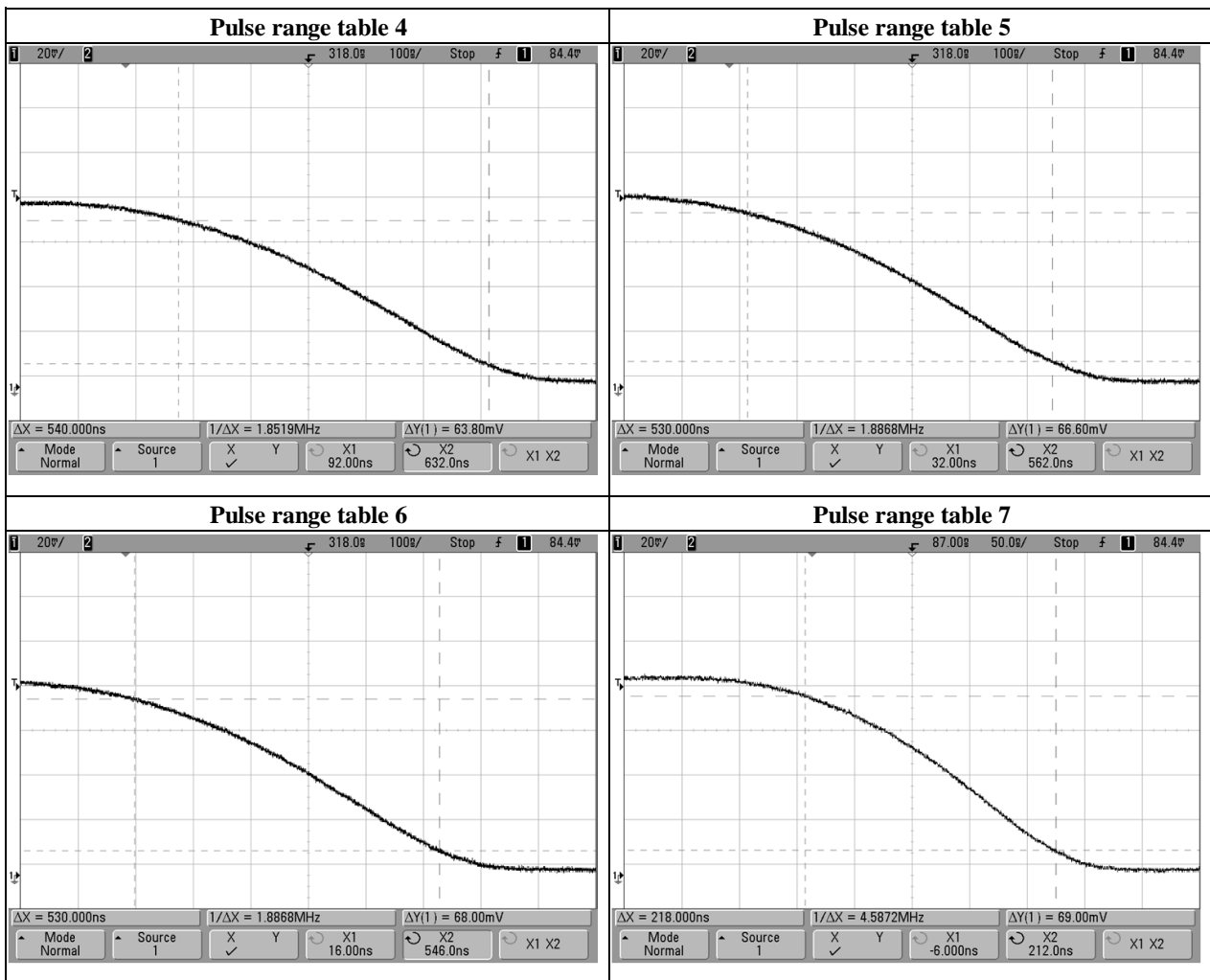


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Modulation Characteristics (Pulse chart 4)

| | | |
|------------------------|--------------------------------|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Shielded Room |
| Date | March 23, 2016 | |
| Temperature / Humidity | 23 deg.C , 30 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9440 MHz (Q) | |

| Pulse range table | Fall time [ns] |
|-------------------|----------------|
| 4 | 540.00 |
| 5 | 530.00 |
| 6 | 530.00 |
| 7 | 218.00 |

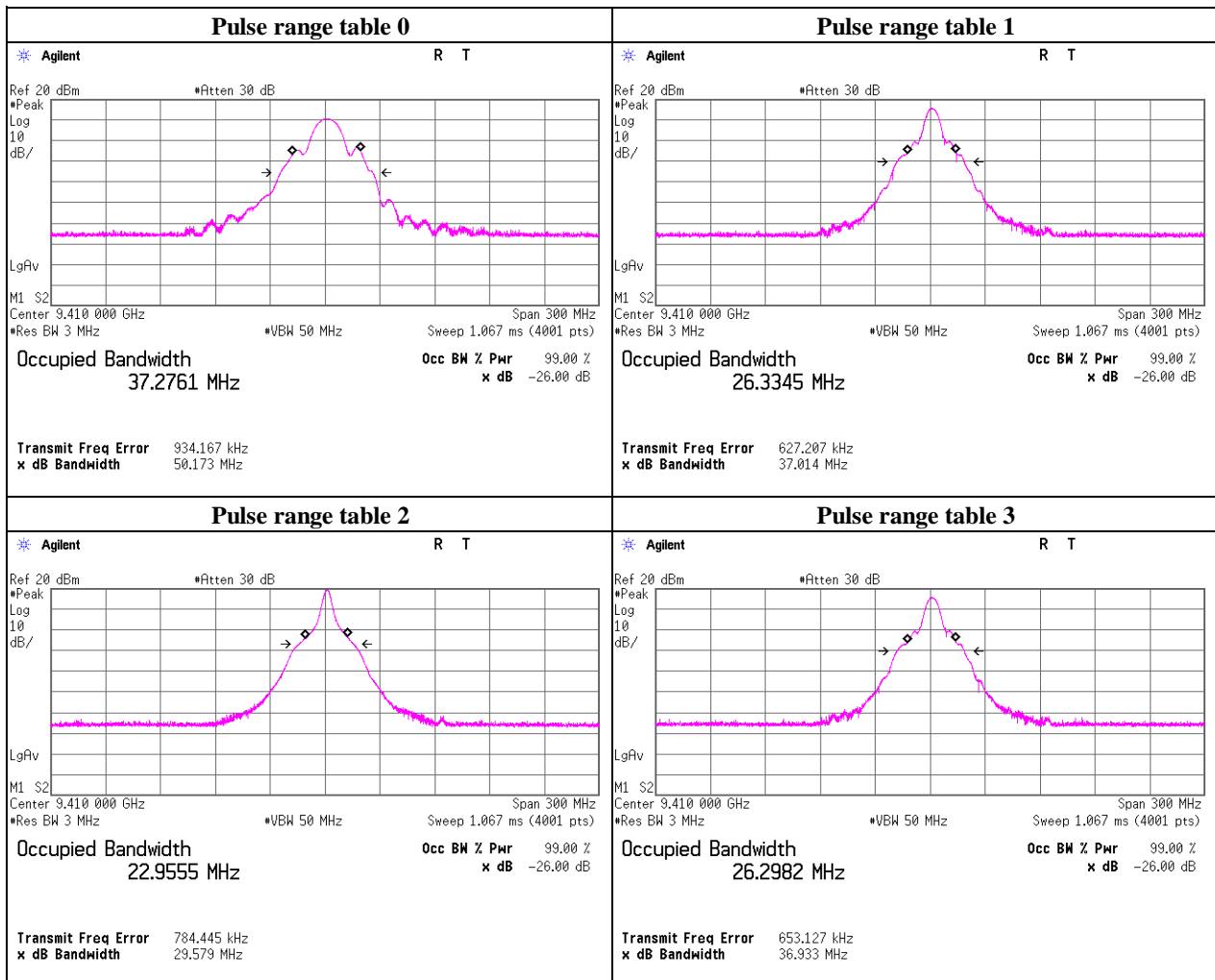


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-26 dB Bandwidth

| | | |
|------------------------|--------------------------------|-----------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Measurement Room |
| Date | March 15, 2016 | |
| Temperature / Humidity | 25 deg.C , 48 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) | |

| Pulse range table | -26 dB Bandwidth [MHz] |
|-------------------|------------------------|
| 0 | 50.173 |
| 1 | 37.014 |
| 2 | 29.579 |
| 3 | 36.933 |

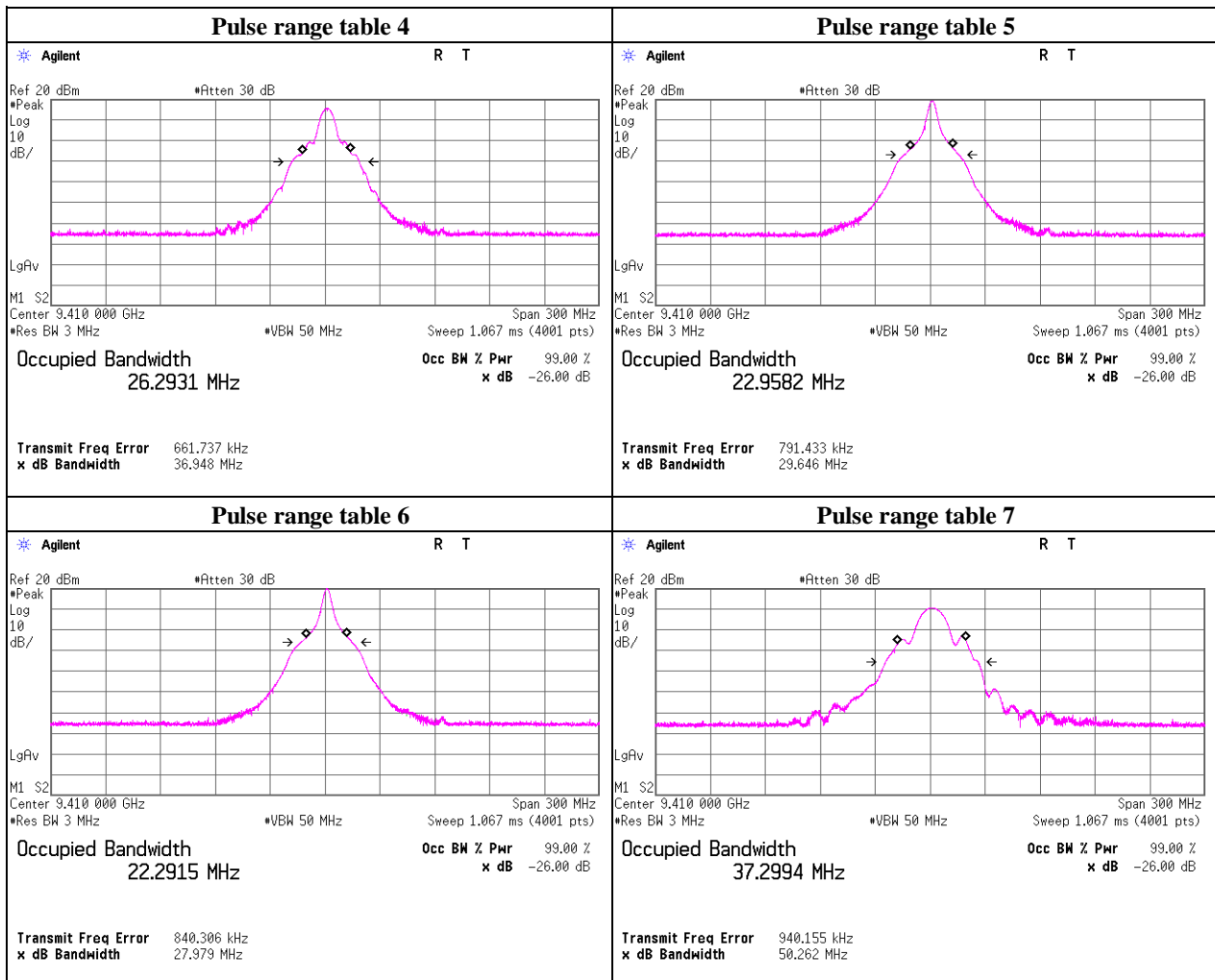


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-26 dB Bandwidth

| | | |
|------------------------|--------------------------------|-----------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Measurement Room |
| Date | March 15, 2016 | |
| Temperature / Humidity | 25 deg.C , 48 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) | |

| Pulse range table | -26 dB Bandwidth [MHz] |
|-------------------|------------------------|
| 4 | 36.948 |
| 5 | 29.646 |
| 6 | 27.979 |
| 7 | 50.262 |

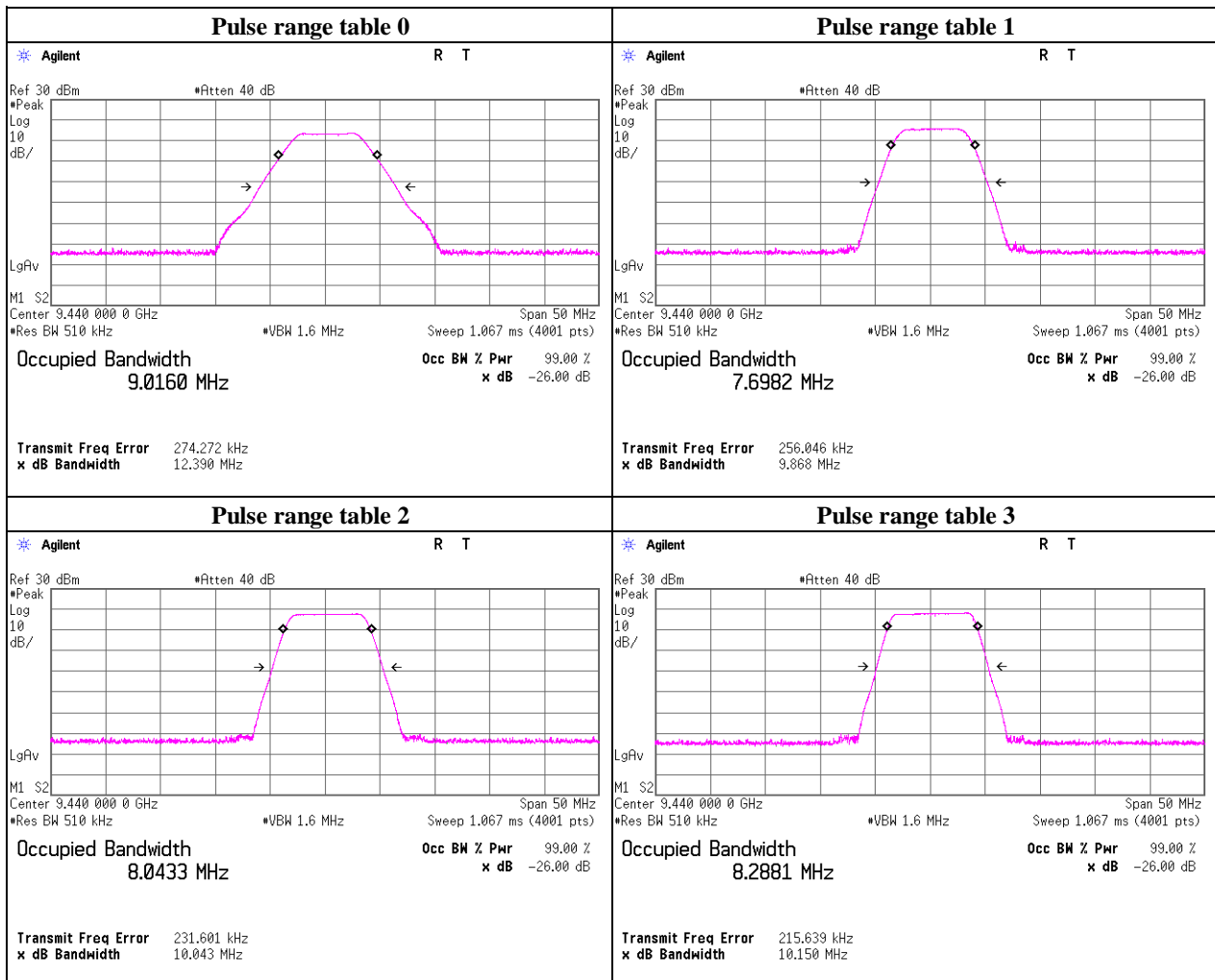


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-26 dB Bandwidth

| | | |
|------------------------|--------------------------------|-----------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Measurement Room |
| Date | March 15, 2016 | |
| Temperature / Humidity | 25 deg.C , 48 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9440 MHz (Q) | |

| Pulse range table | -26 dB Bandwidth [MHz] |
|-------------------|------------------------|
| 0 | 12.390 |
| 1 | 9.868 |
| 2 | 10.043 |
| 3 | 10.150 |

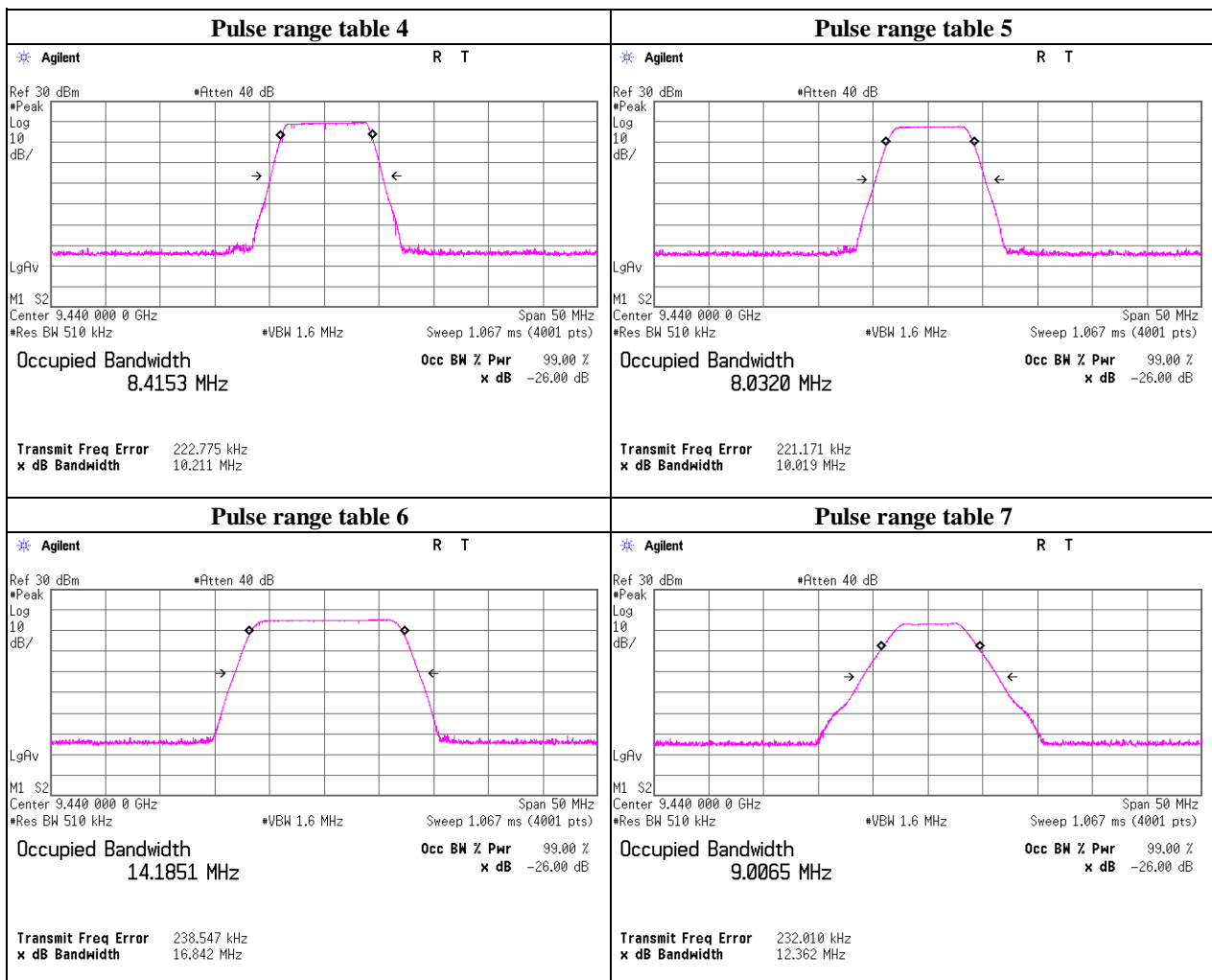


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-26 dB Bandwidth

| | | |
|------------------------|--------------------------------|-----------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Measurement Room |
| Date | March 15, 2016 | |
| Temperature / Humidity | 25 deg.C , 48 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9440 MHz (Q) | |

| Pulse range table | -26 dB Bandwidth [MHz] |
|-------------------|------------------------|
| 4 | 10.211 |
| 5 | 10.019 |
| 6 | 16.842 |
| 7 | 12.362 |

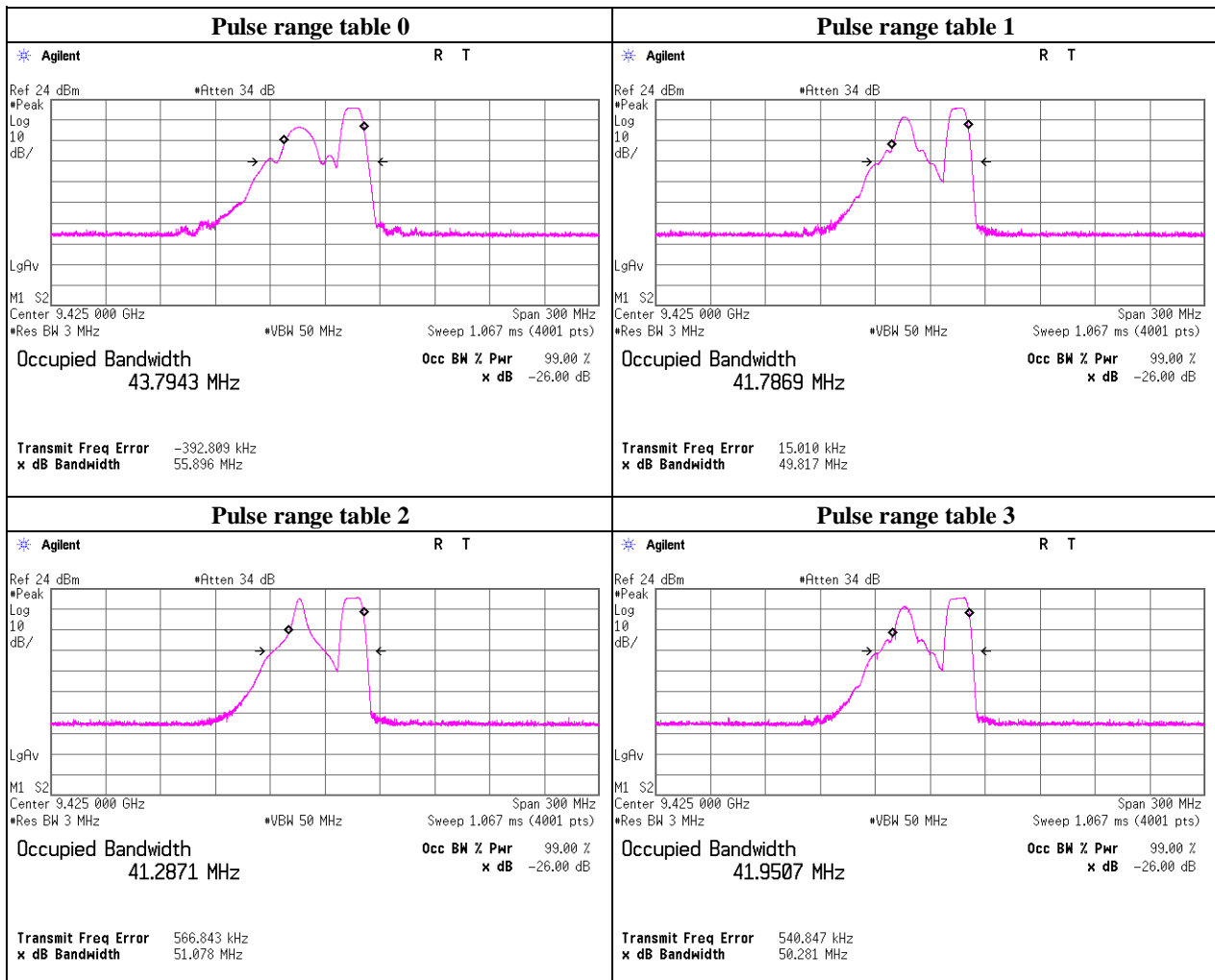


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-26 dB Bandwidth

| | | |
|------------------------|--|-----------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Measurement Room |
| Date | March 15, 2016 | |
| Temperature / Humidity | 25 deg.C , 48 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) and 9440 MHz (Q) | |

| Pulse range table | -26 dB Bandwidth [MHz] |
|-------------------|------------------------|
| 0 | 55.896 |
| 1 | 49.817 |
| 2 | 51.078 |
| 3 | 50.281 |

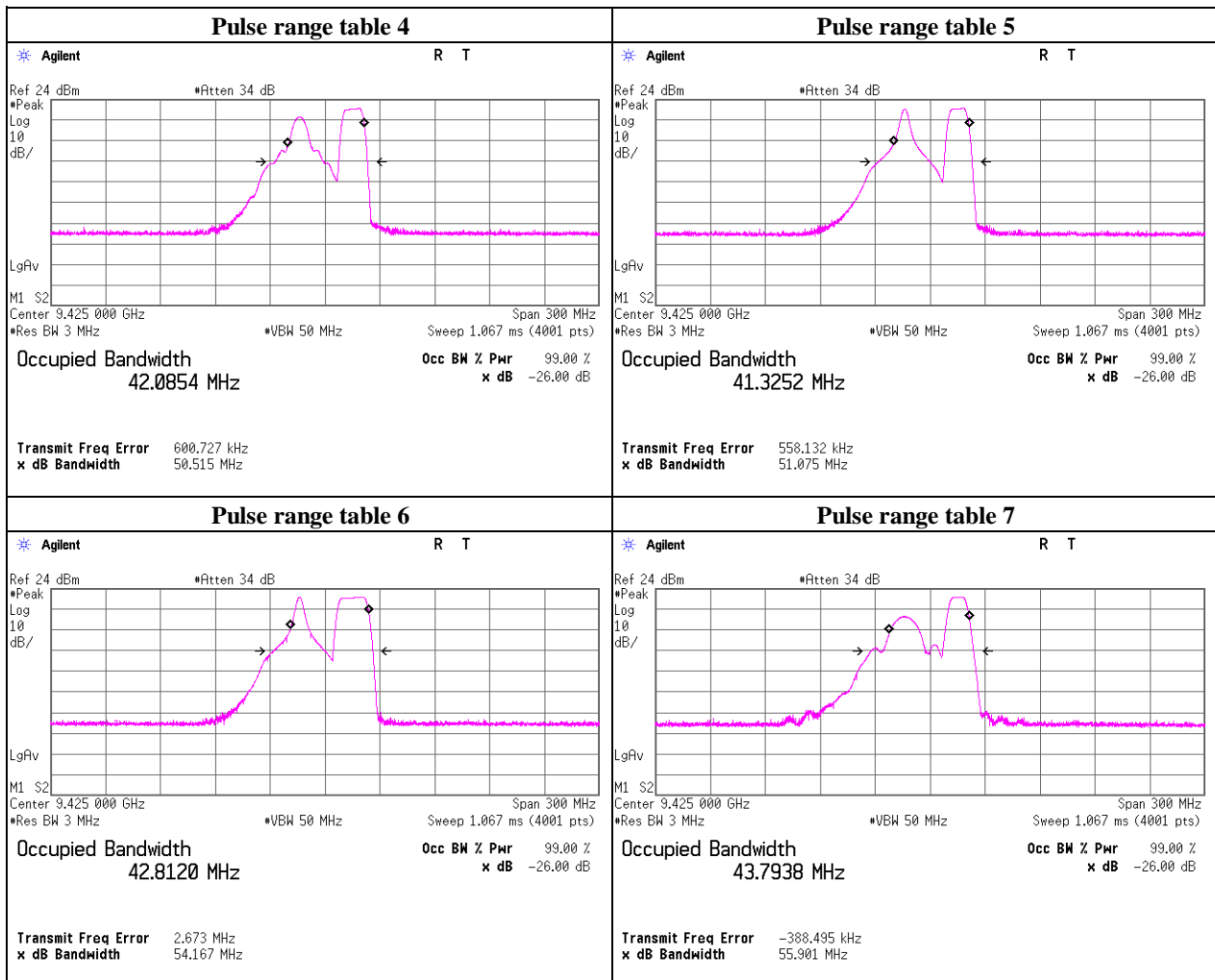


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-26 dB Bandwidth

| | | |
|------------------------|--|-----------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Measurement Room |
| Date | March 15, 2016 | |
| Temperature / Humidity | 25 deg.C , 48 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) and 9440 MHz (Q) | |

| Pulse range table | -26 dB Bandwidth [MHz] |
|-------------------|------------------------|
| 4 | 50.515 |
| 5 | 51.075 |
| 6 | 54.167 |
| 7 | 55.901 |



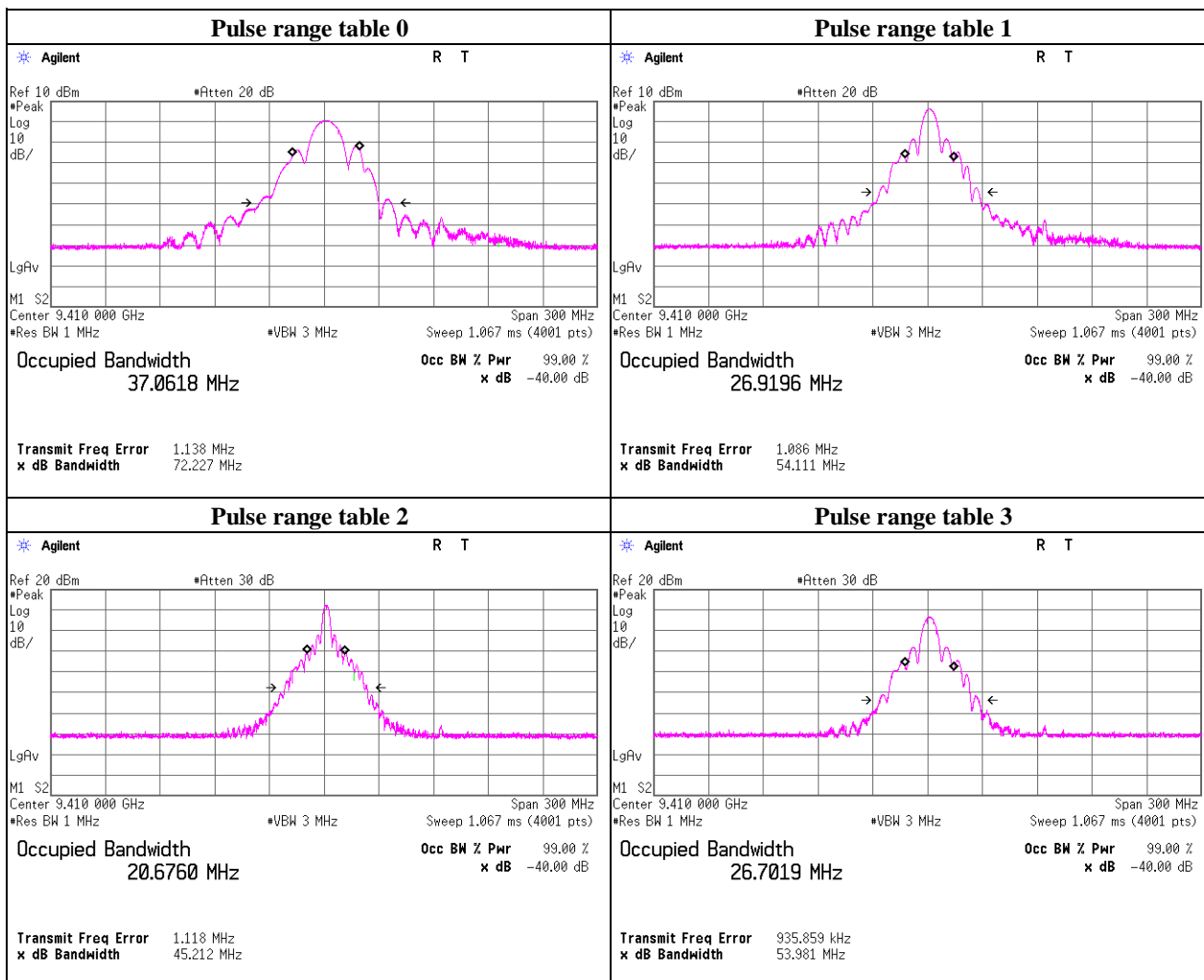
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(Reference data) -40 dB Bandwidth

(This data is reference data tested based on a request of Canadian radio standard RSS-238.)

| | | |
|------------------------|--------------------------------|-----------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Measurement Room |
| Date | April 8, 2016 | |
| Temperature / Humidity | 24 deg.C , 56 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) | |

| Pulse range table | -40 dB Bandwidth [MHz] |
|-------------------|------------------------|
| 0 | 72.227 |
| 1 | 54.111 |
| 2 | 45.212 |
| 3 | 53.981 |



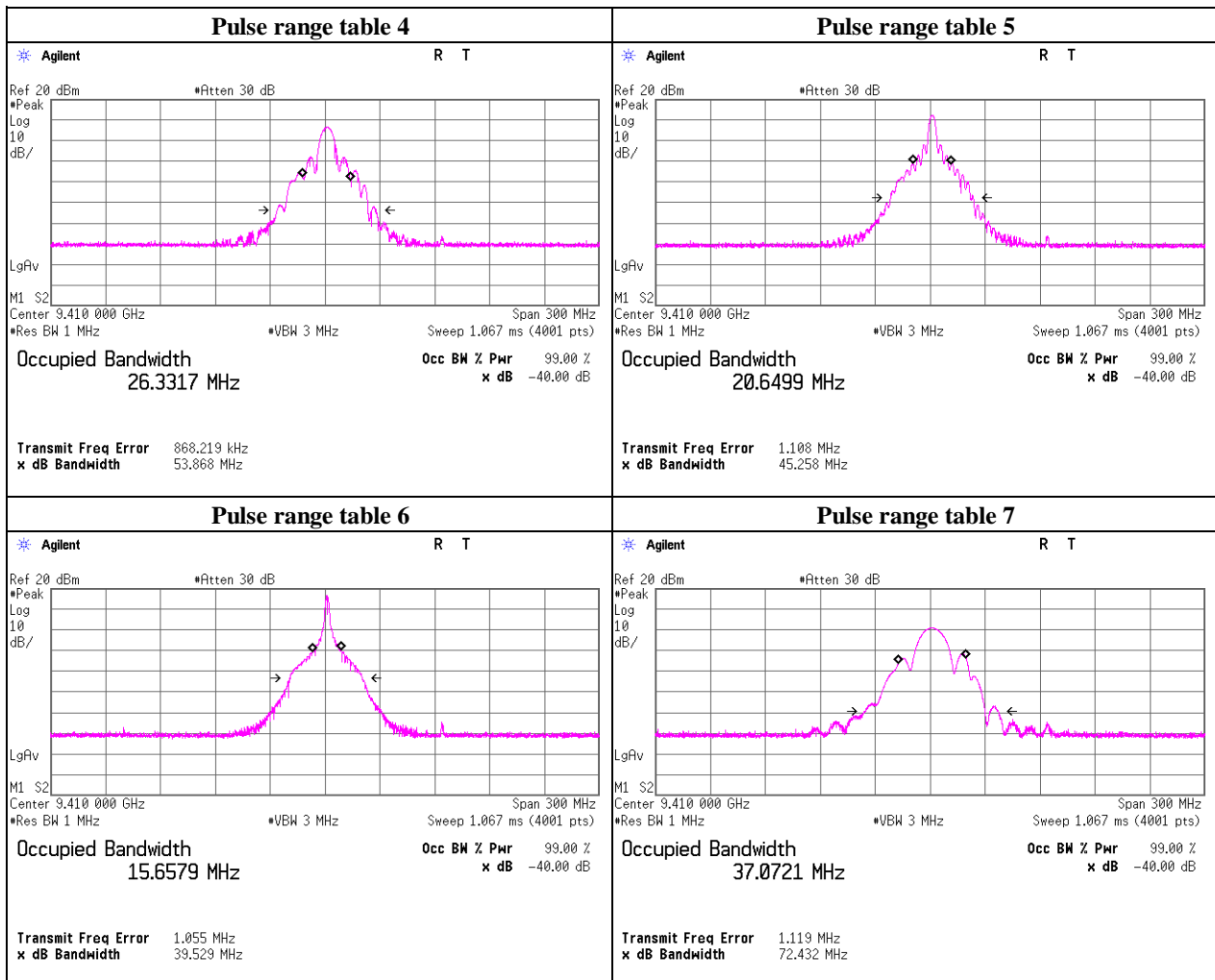
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(Reference data) -40 dB Bandwidth

(This data is reference data tested based on a request of Canadian radio standard RSS-238.)

| | | |
|------------------------|--------------------------------|-----------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Measurement Room |
| Date | April 8, 2016 | |
| Temperature / Humidity | 24 deg.C , 56 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) | |

| Pulse range table | -40 dB Bandwidth [MHz] |
|-------------------|------------------------|
| 4 | 53.868 |
| 5 | 45.258 |
| 6 | 39.529 |
| 7 | 72.432 |



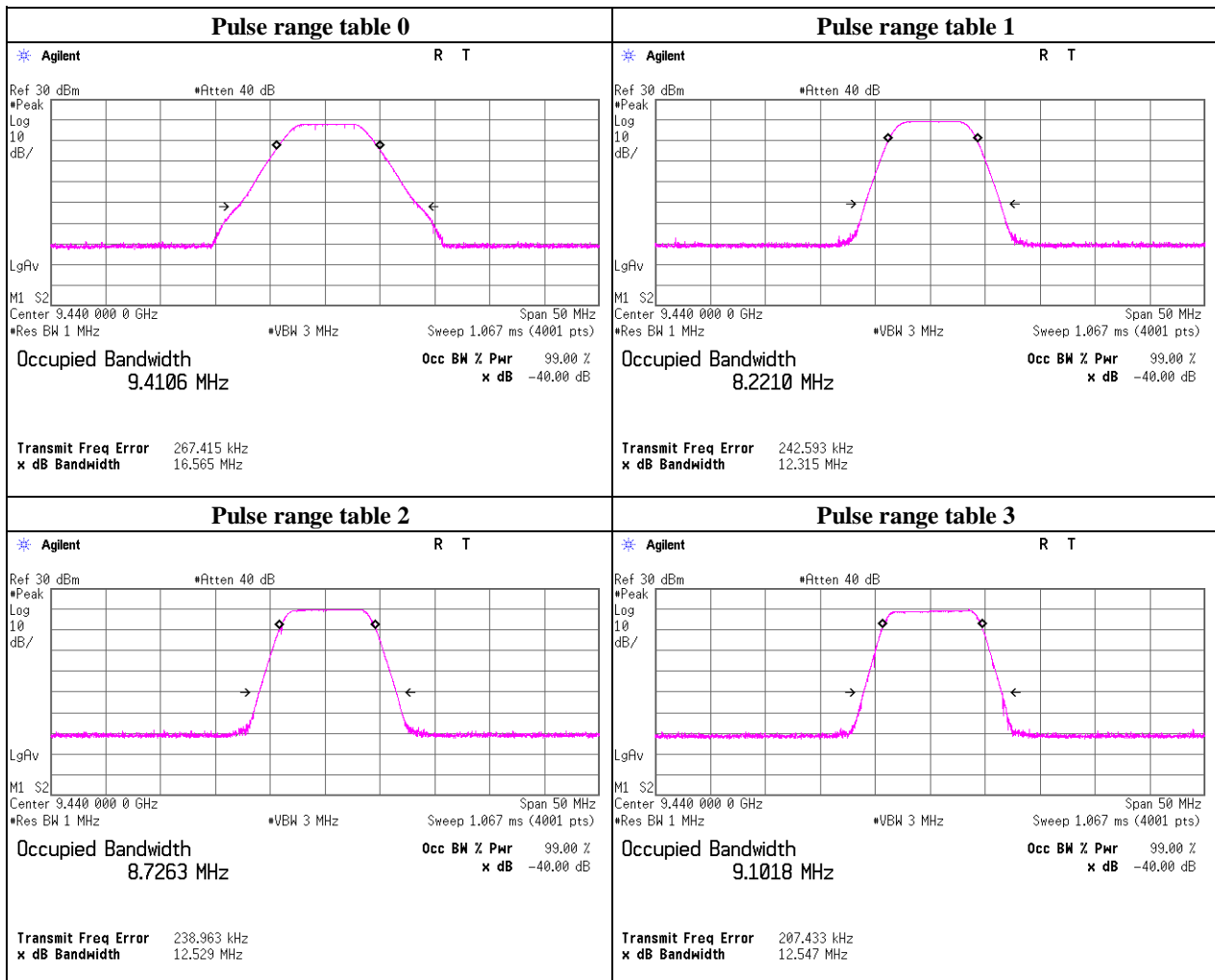
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 Facsimile : +81 463 50 6401

(Reference data) -40 dB Bandwidth

(This data is reference data tested based on a request of Canadian radio standard RSS-238.)

| | | |
|------------------------|--------------------------------|-----------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Measurement Room |
| Date | April 8, 2016 | |
| Temperature / Humidity | 24 deg.C , 56 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9440 MHz (Q) | |

| Pulse range table | -40 dB Bandwidth [MHz] |
|-------------------|------------------------|
| 0 | 16.565 |
| 1 | 12.315 |
| 2 | 12.529 |
| 3 | 12.547 |



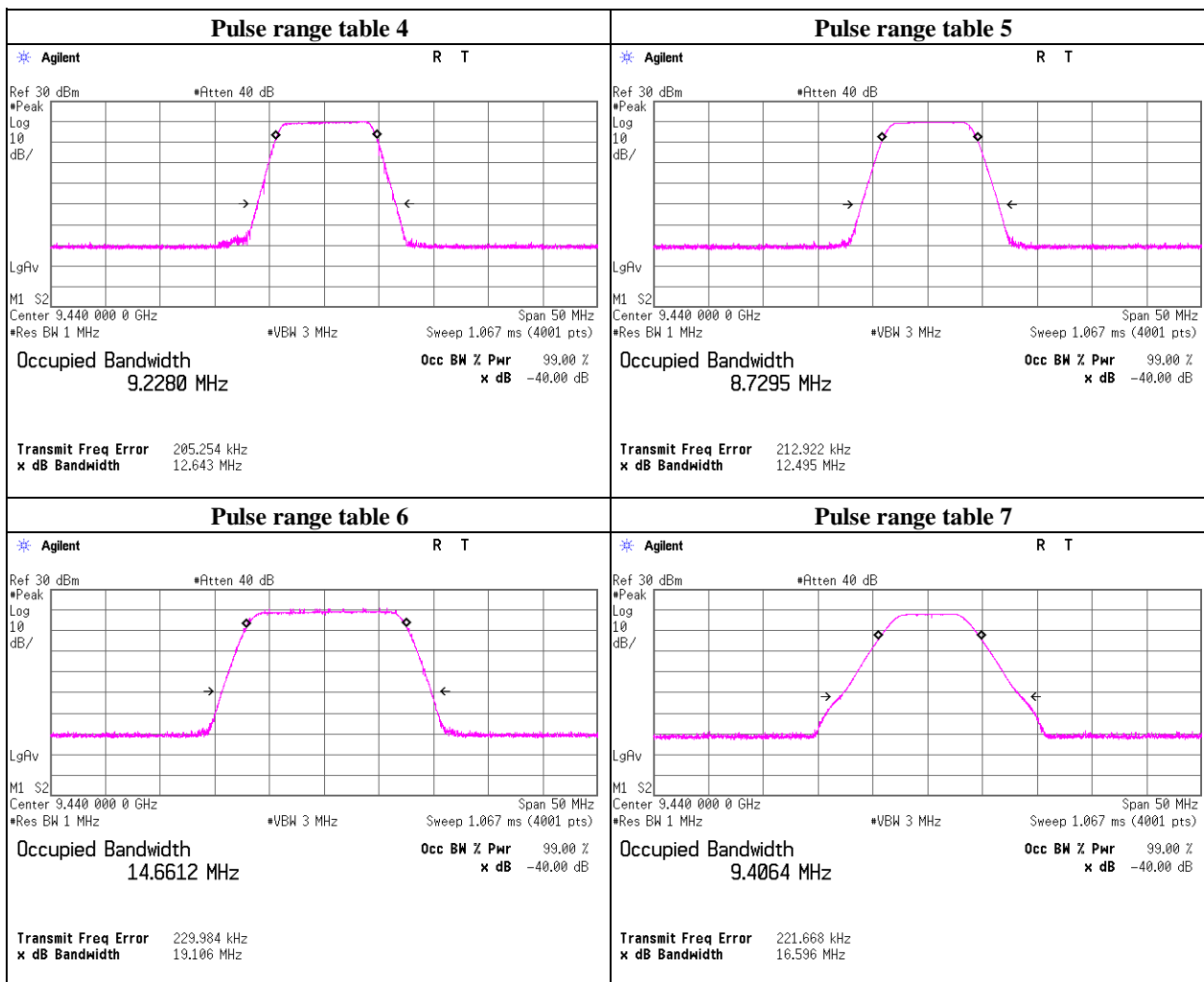
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 Facsimile : +81 463 50 6401

(Reference data) -40 dB Bandwidth

(This data is reference data tested based on a request of Canadian radio standard RSS-238.)

| | | |
|------------------------|--------------------------------|-----------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Measurement Room |
| Date | April 8, 2016 | |
| Temperature / Humidity | 24 deg.C , 56 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9440 MHz (Q) | |

| Pulse range table | -40 dB Bandwidth [MHz] |
|-------------------|------------------------|
| 4 | 12.643 |
| 5 | 12.495 |
| 6 | 19.106 |
| 7 | 16.596 |



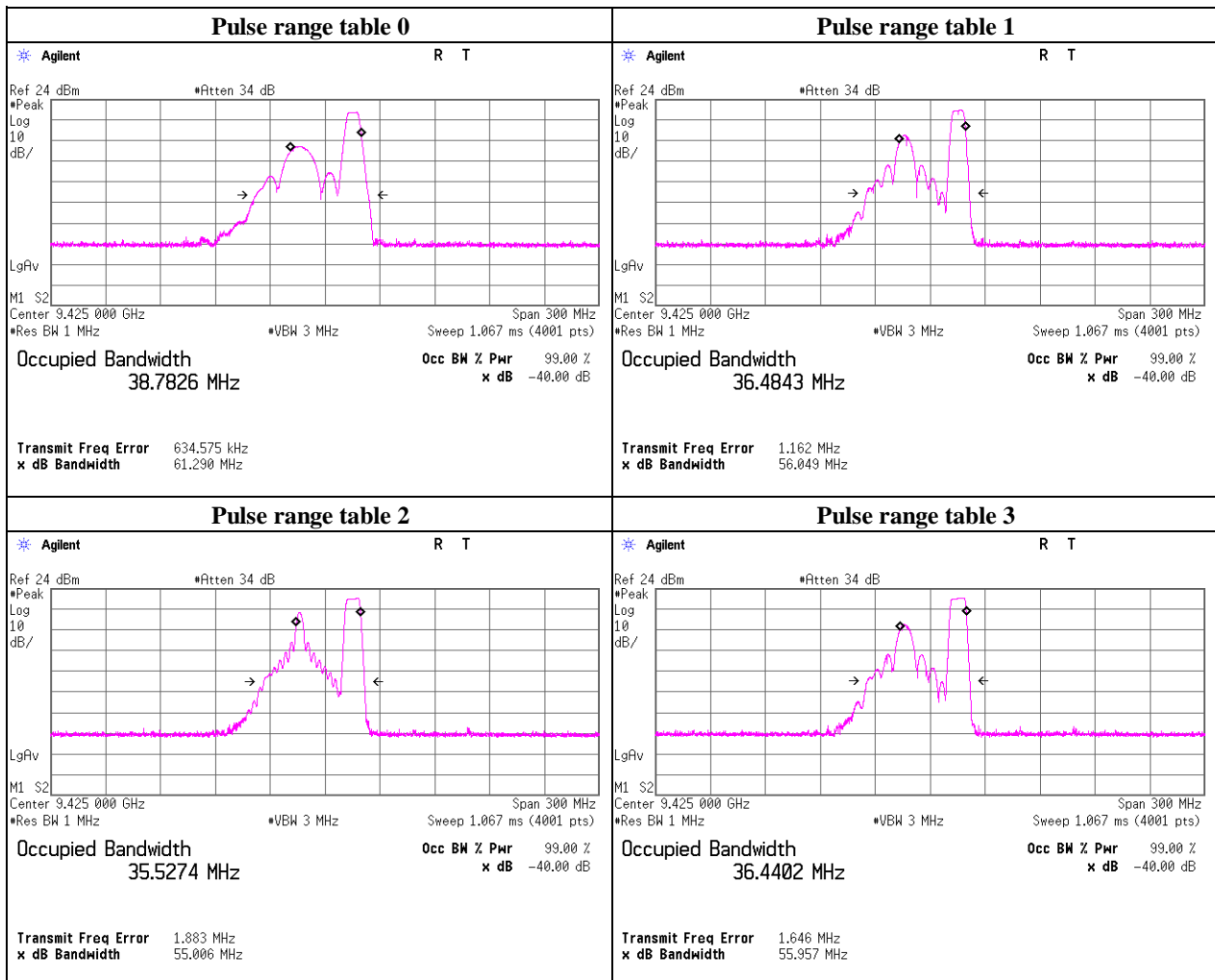
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(Reference data) -40 dB Bandwidth

(This data is reference data tested based on a request of Canadian radio standard RSS-238.)

| | | |
|------------------------|--|-----------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Measurement Room |
| Date | March 15, 2016 | |
| Temperature / Humidity | 25 deg.C , 48 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) and 9440 MHz (Q) | |

| Pulse range table | -40 dB Bandwidth [MHz] |
|-------------------|------------------------|
| 0 | 61.290 |
| 1 | 56.049 |
| 2 | 55.006 |
| 3 | 55.957 |



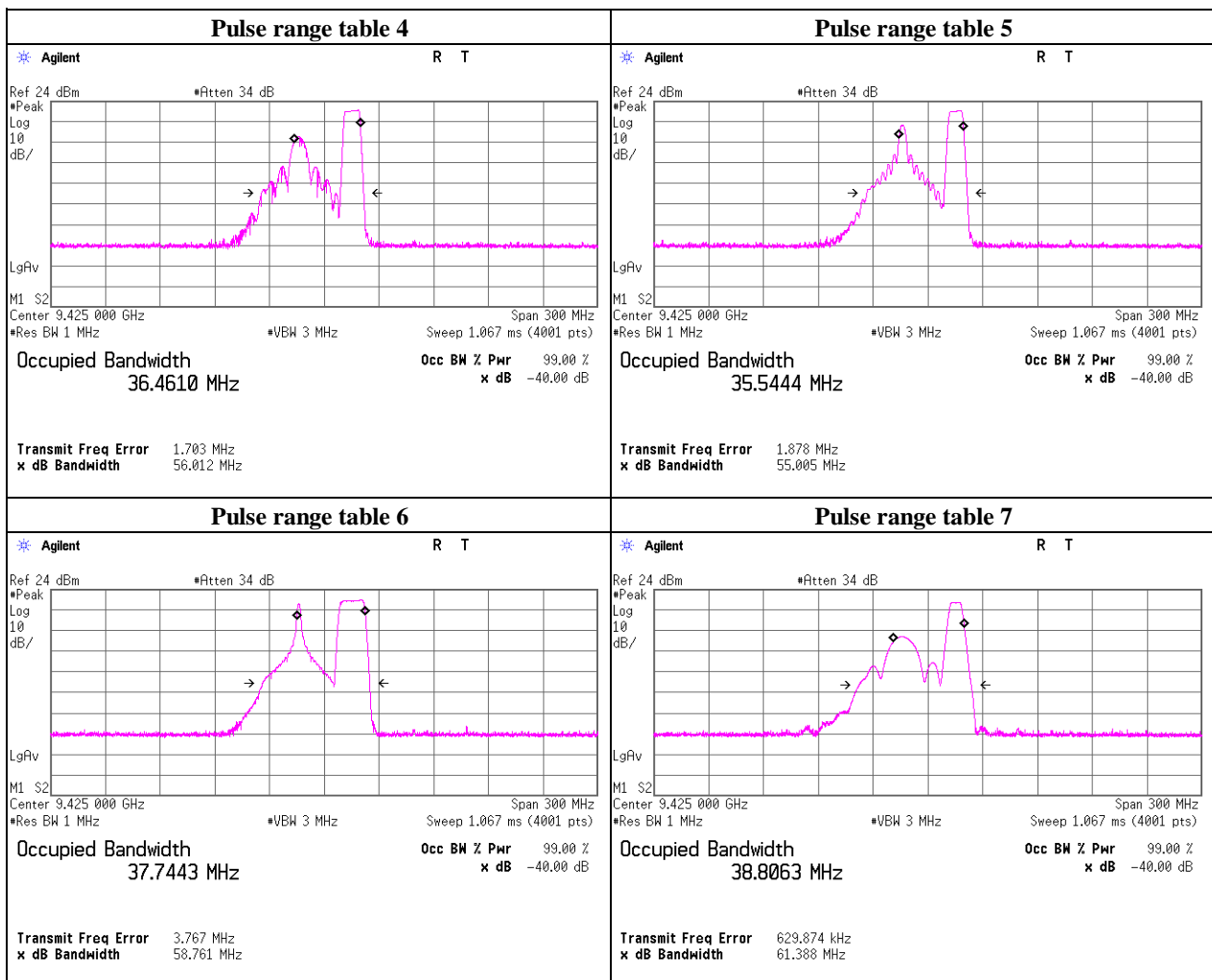
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(Reference data) -40 dB Bandwidth

(This data is reference data tested based on a request of Canadian radio standard RSS-238.)

| | | |
|------------------------|--|-----------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Measurement Room |
| Date | March 15, 2016 | |
| Temperature / Humidity | 25 deg.C , 48 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) and 9440 MHz (Q) | |

| Pulse range table | -40 dB Bandwidth [MHz] |
|-------------------|------------------------|
| 4 | 56.012 |
| 5 | 55.005 |
| 6 | 58.761 |
| 7 | 61.388 |

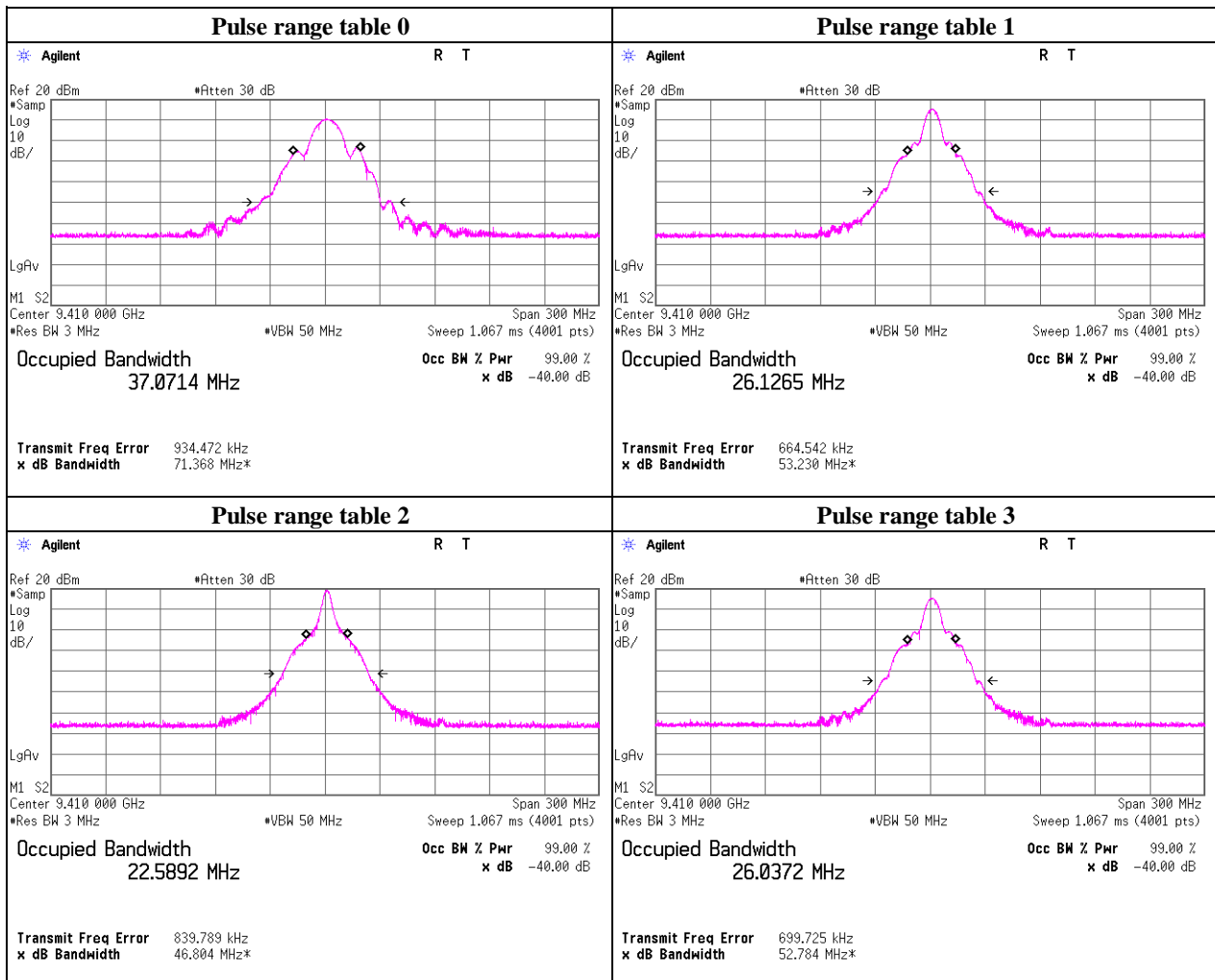


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99 % Occupied Bandwidth

| | | |
|------------------------|--------------------------------|-----------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Measurement Room |
| Date | April 8, 2016 | |
| Temperature / Humidity | 24 deg.C , 56 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) | |

| Pulse range table | 99 % Occupied Bandwidth [MHz] |
|-------------------|-------------------------------|
| 0 | 37.071 |
| 1 | 26.127 |
| 2 | 22.589 |
| 3 | 26.037 |

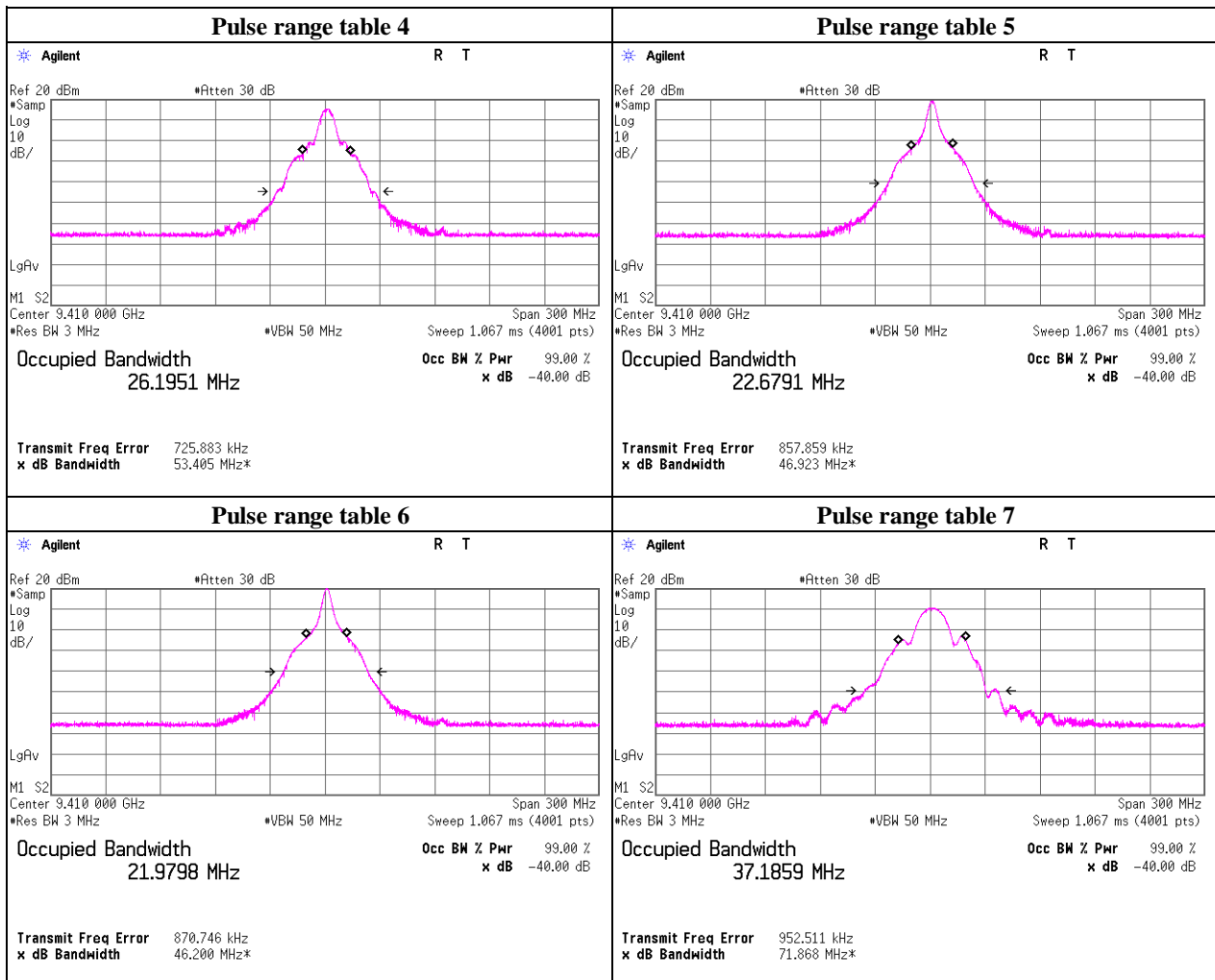


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99 % Occupied Bandwidth

| | | |
|------------------------|--------------------------------|-----------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Measurement Room |
| Date | April 8, 2016 | |
| Temperature / Humidity | 24 deg.C , 56 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) | |

| Pulse range table | 99 % Occupied Bandwidth [MHz] |
|-------------------|-------------------------------|
| 4 | 26.195 |
| 5 | 22.679 |
| 6 | 21.980 |
| 7 | 37.186 |

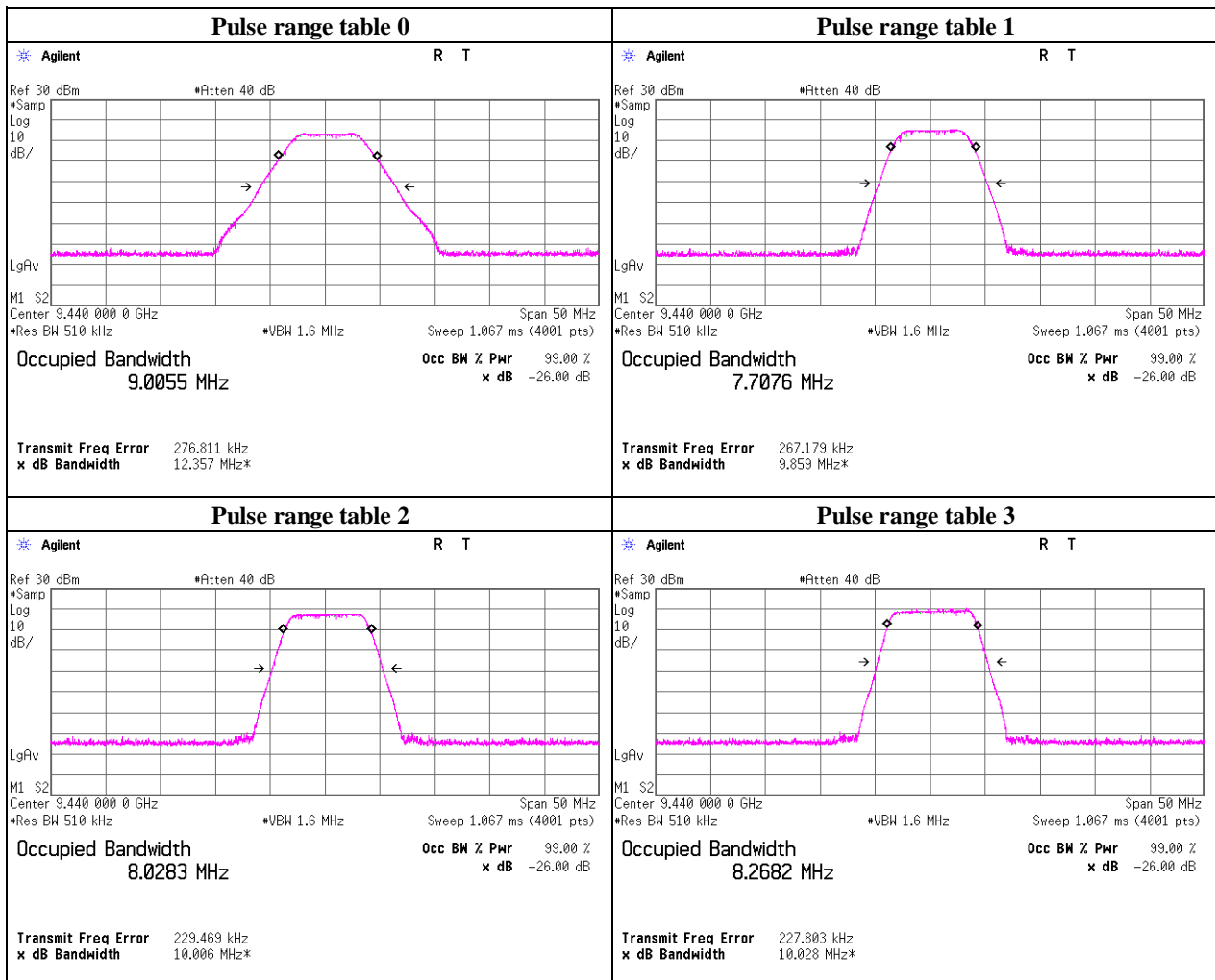


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99 % Occupied Bandwidth

| | | |
|------------------------|--------------------------------|-----------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Measurement Room |
| Date | April 8, 2016 | |
| Temperature / Humidity | 24 deg.C , 56 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9440 MHz (Q) | |

| Pulse range table | 99 % Occupied Bandwidth [MHz] |
|-------------------|-------------------------------|
| 0 | 9.006 |
| 1 | 7.708 |
| 2 | 8.028 |
| 3 | 8.268 |

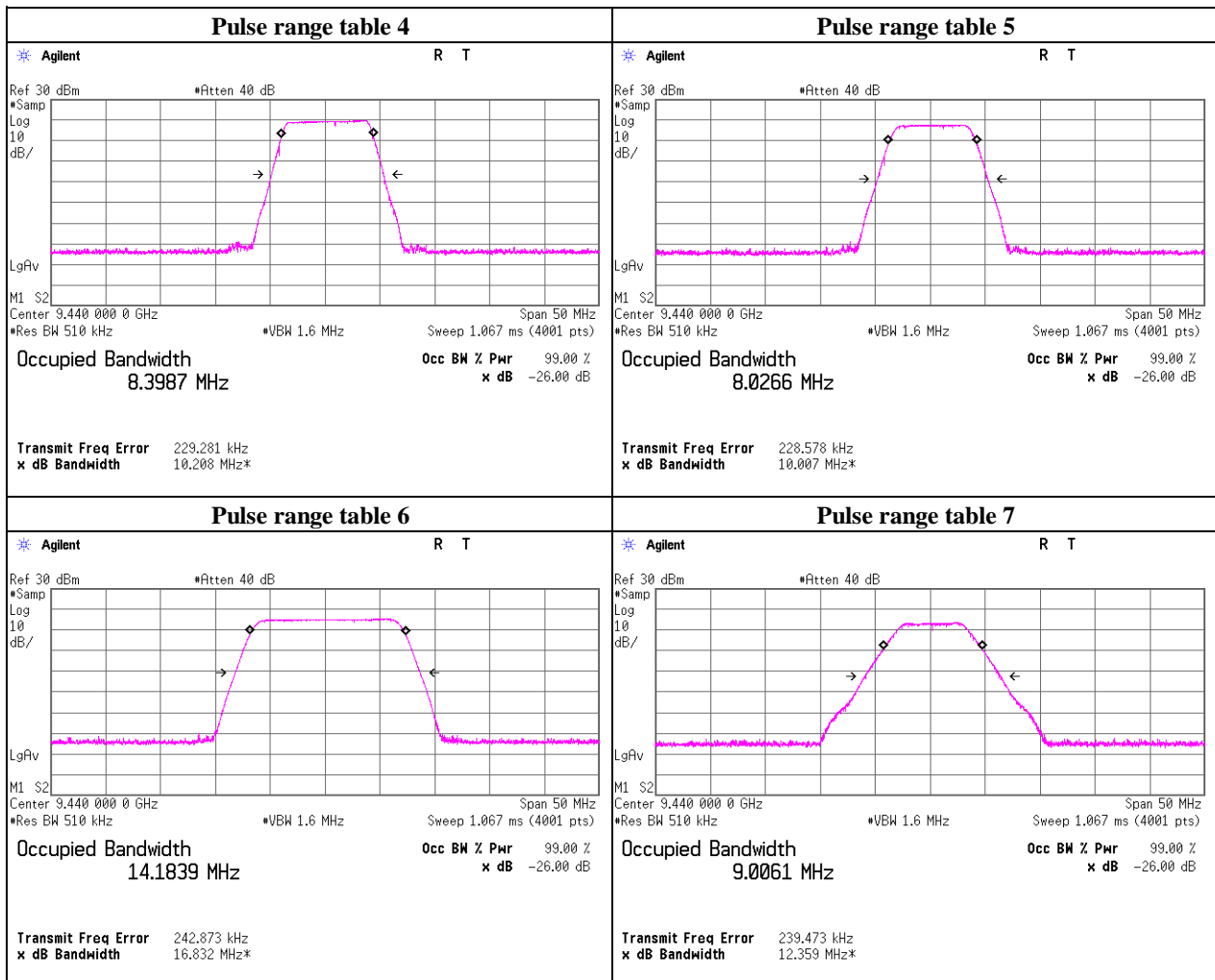


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99 % Occupied Bandwidth

| | | |
|------------------------|--------------------------------|-----------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.1 Measurement Room |
| Date | April 8, 2016 | |
| Temperature / Humidity | 24 deg.C , 56 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9440 MHz (Q) | |

| Pulse range table | 99 % Occupied Bandwidth [MHz] |
|-------------------|-------------------------------|
| 4 | 8.399 |
| 5 | 8.027 |
| 6 | 14.184 |
| 7 | 9.006 |

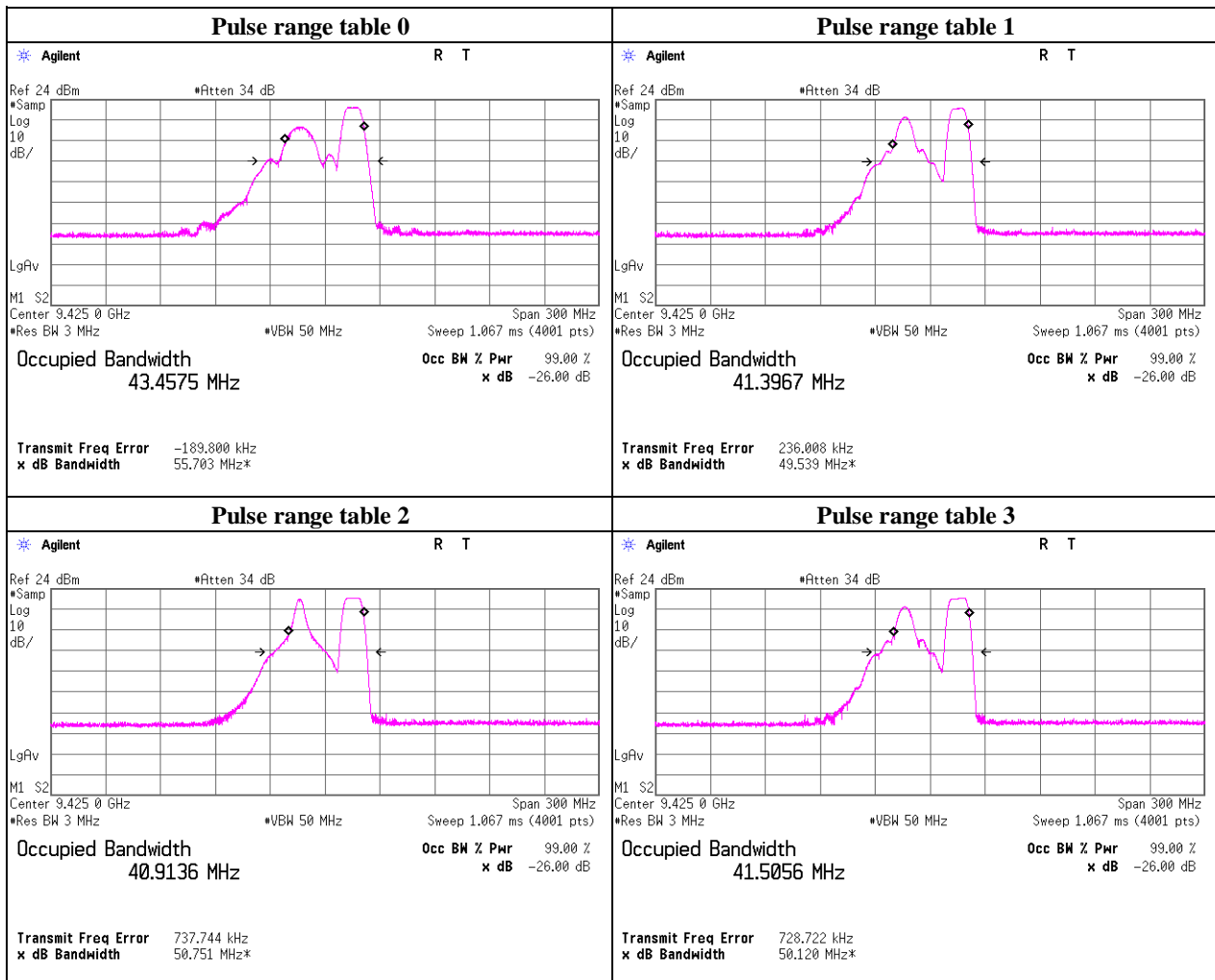


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99 % Occupied Bandwidth

| | | |
|------------------------|--|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.5 Shielded room |
| Date | April 10, 2016 | |
| Temperature / Humidity | 24 deg.C , 45 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) and 9440 MHz (Q) | |

| Pulse range table | 99 % Occupied Bandwidth [MHz] |
|-------------------|-------------------------------|
| 0 | 43.458 |
| 1 | 41.397 |
| 2 | 40.914 |
| 3 | 41.506 |

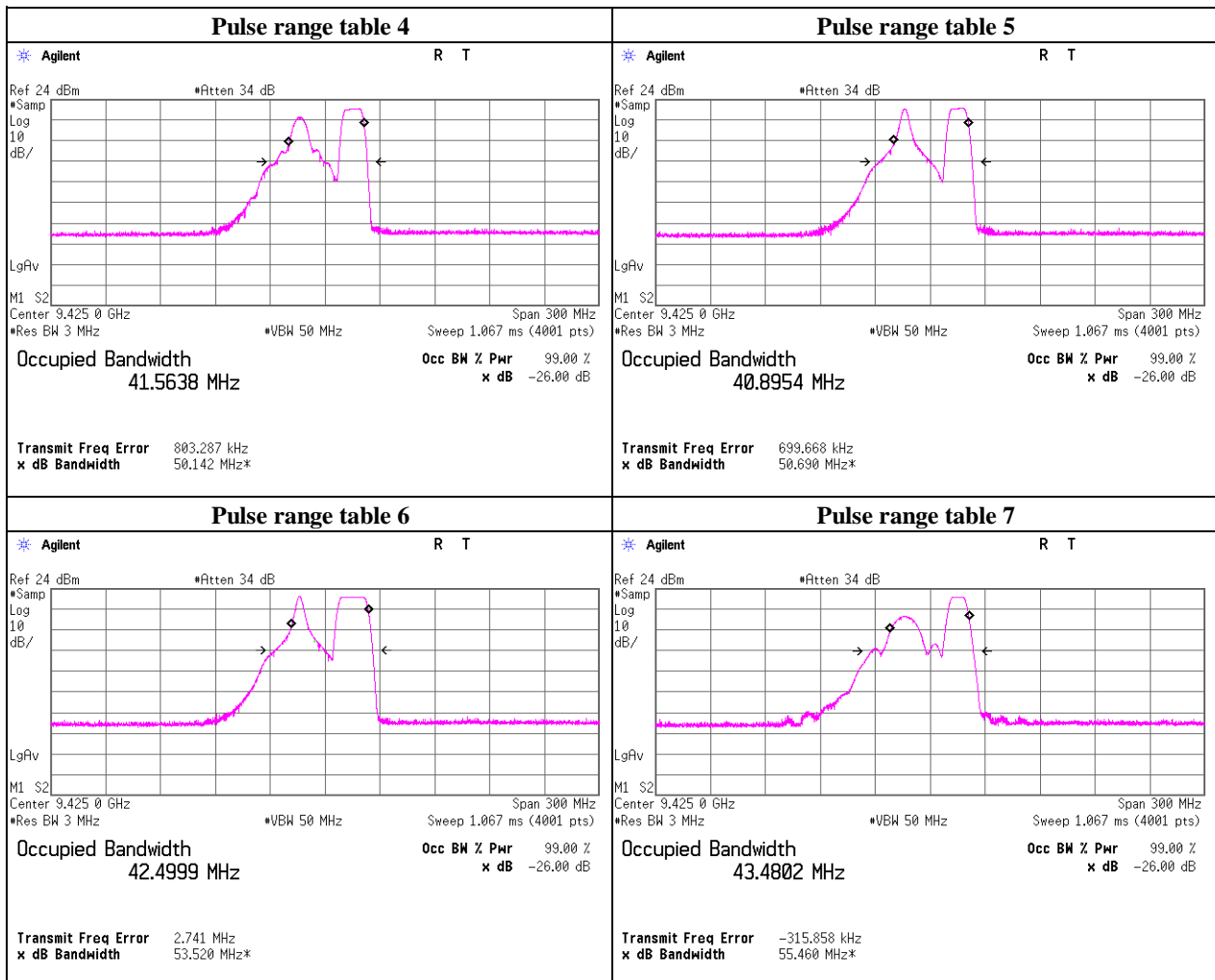


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99 % Occupied Bandwidth

| | | |
|------------------------|--|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.5 Shielded room |
| Date | April 10, 2016 | |
| Temperature / Humidity | 24 deg.C , 45 %RH | |
| Engineer | Kenichi Adachi | |
| Mode | Transmitting 9410 MHz (P) and 9440 MHz (Q) | |

| Pulse range table | 99 % Occupied Bandwidth [MHz] |
|-------------------|-------------------------------|
| 4 | 41.564 |
| 5 | 40.895 |
| 6 | 42.500 |
| 7 | 43.480 |



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Spurious emission (Conducted)

| | | |
|------------------------|--|--------------------|
| Test place | UL Japan, Inc. Shonan EMC Lab. | No.5 Shielded Room |
| Date | April 10, 2016 | |
| Temperature / Humidity | 24 deg.C , 45 %RH | |
| Engineer | Kenichi Adachi | |
| (1) Mode | Transmitting 9410 MHz (P) | |
| (2) Mode | Transmitting 9440 MHz (Q) | |
| (3) Mode | Transmitting 9410 MHz (P) and 9440 MHz (Q) | |

FCC 80.211(f)(3), FCC 90.210(b)(3) Limit

| Frequency [MHz] | outside 250% band [dBm] | Cable Loss [dB] | Atten. Loss [dB] | (Reference) Limit line [dBm] |
|--------------------|-------------------------------|-----------------------|------------------------|------------------------------------|
| 9410 | -13 | 2.77 | 39.84 | -55.61 |
| 9440 | -13 | 2.77 | 39.69 | -55.46 |

RSS-238 Limit line

| |
|-------------------------------|
| outside 250% band [dBm] |
| -60dBc |

* display limit line is RSS-238 Limit, since worst limit is RSS-238 Limit

UL Japan, Inc.

Shonan EMC Lab.

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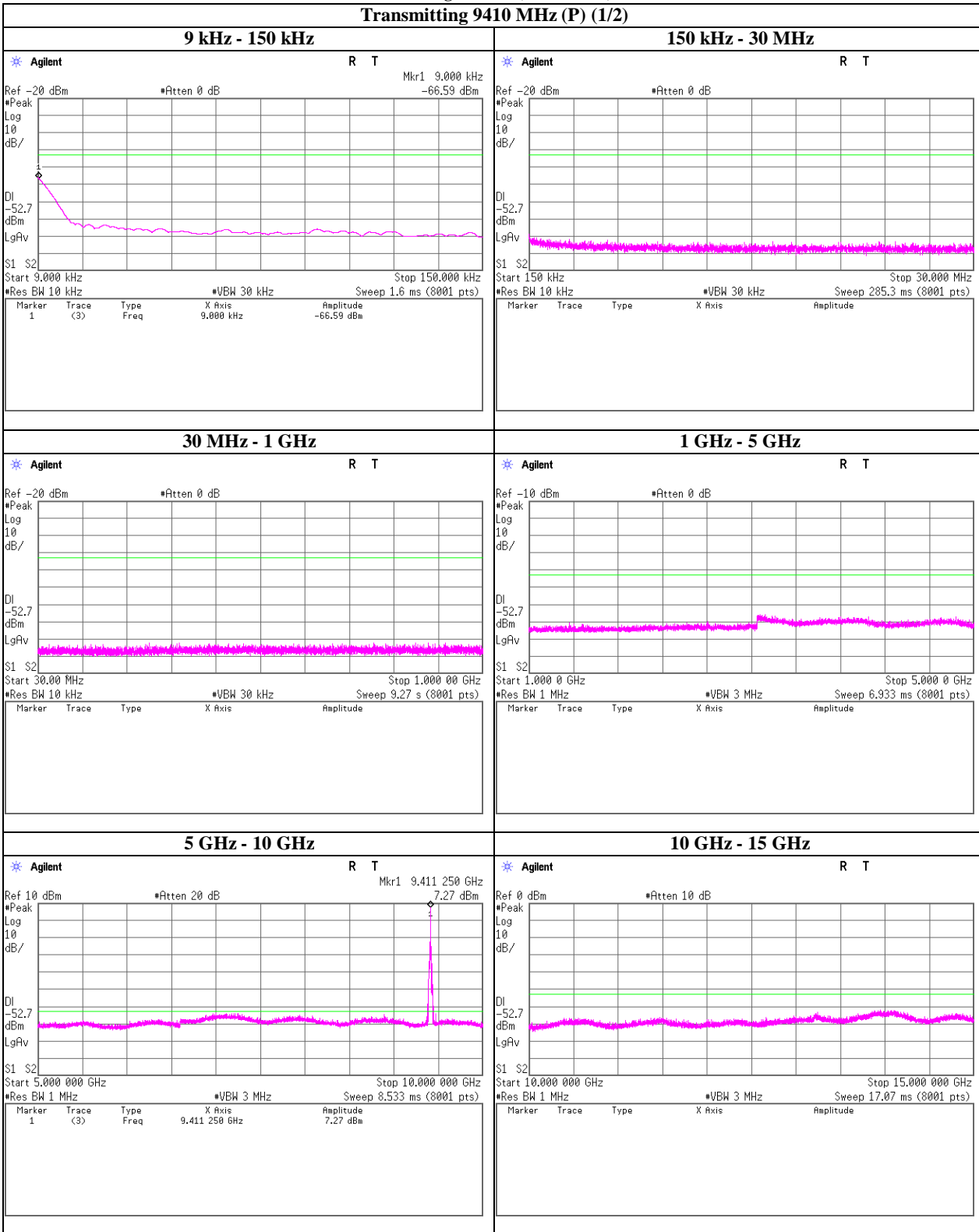
Facsimile : +81 463 50 6401

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
 Date April 10, 2016
 Temperature / Humidity 24 deg.C , 45 %RH
 Engineer Kenichi Adachi

Spurious emission (Conducted) (60 dBc)

Pulse range table 6 (worst mode)

Transmitting 9410 MHz (P) (1/2)



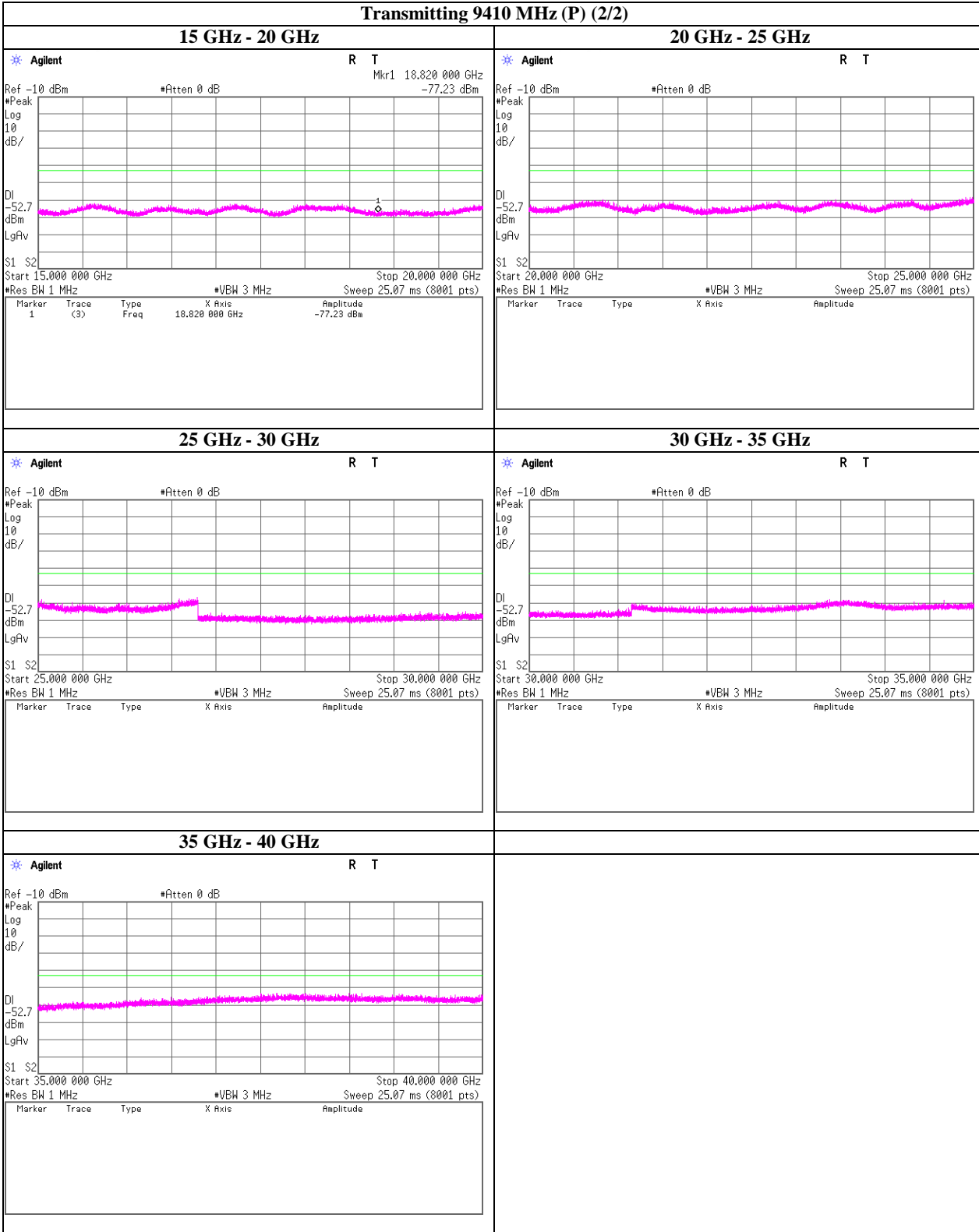
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Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
 Date April 10, 2016
 Temperature / Humidity 24 deg.C , 45 %RH
 Engineer Kenichi Adachi

Spurious emission (Conducted) (60 dBc)

Pulse range table 6 (worst mode)

Transmitting 9410 MHz (P) (2/2)



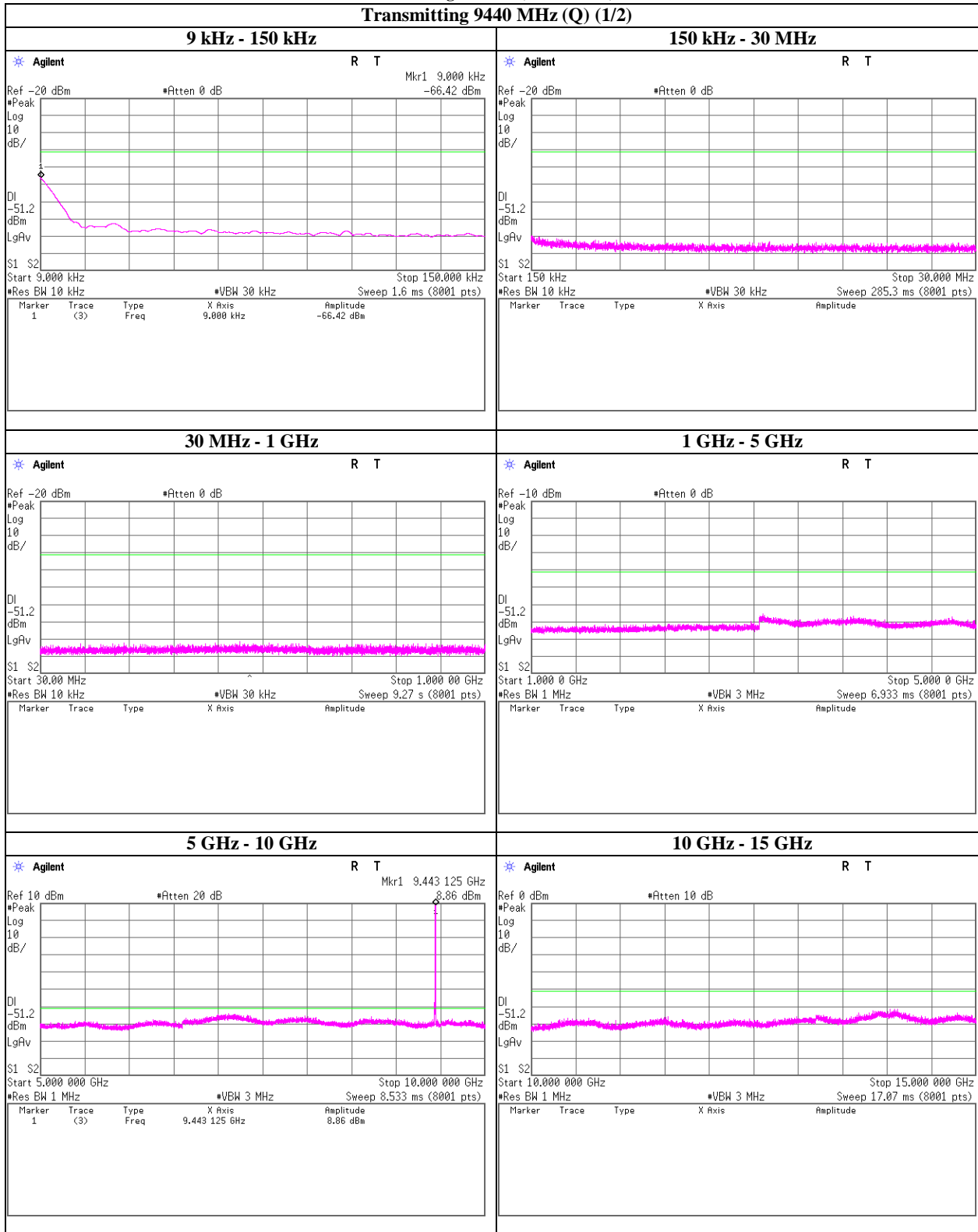
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Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
 Date April 10, 2016
 Temperature / Humidity 24 deg.C , 45 %RH
 Engineer Kenichi Adachi

Spurious emission (Conducted) (60 dBc)

Pulse range table 4 (worst mode)

Transmitting 9440 MHz (Q) (1/2)



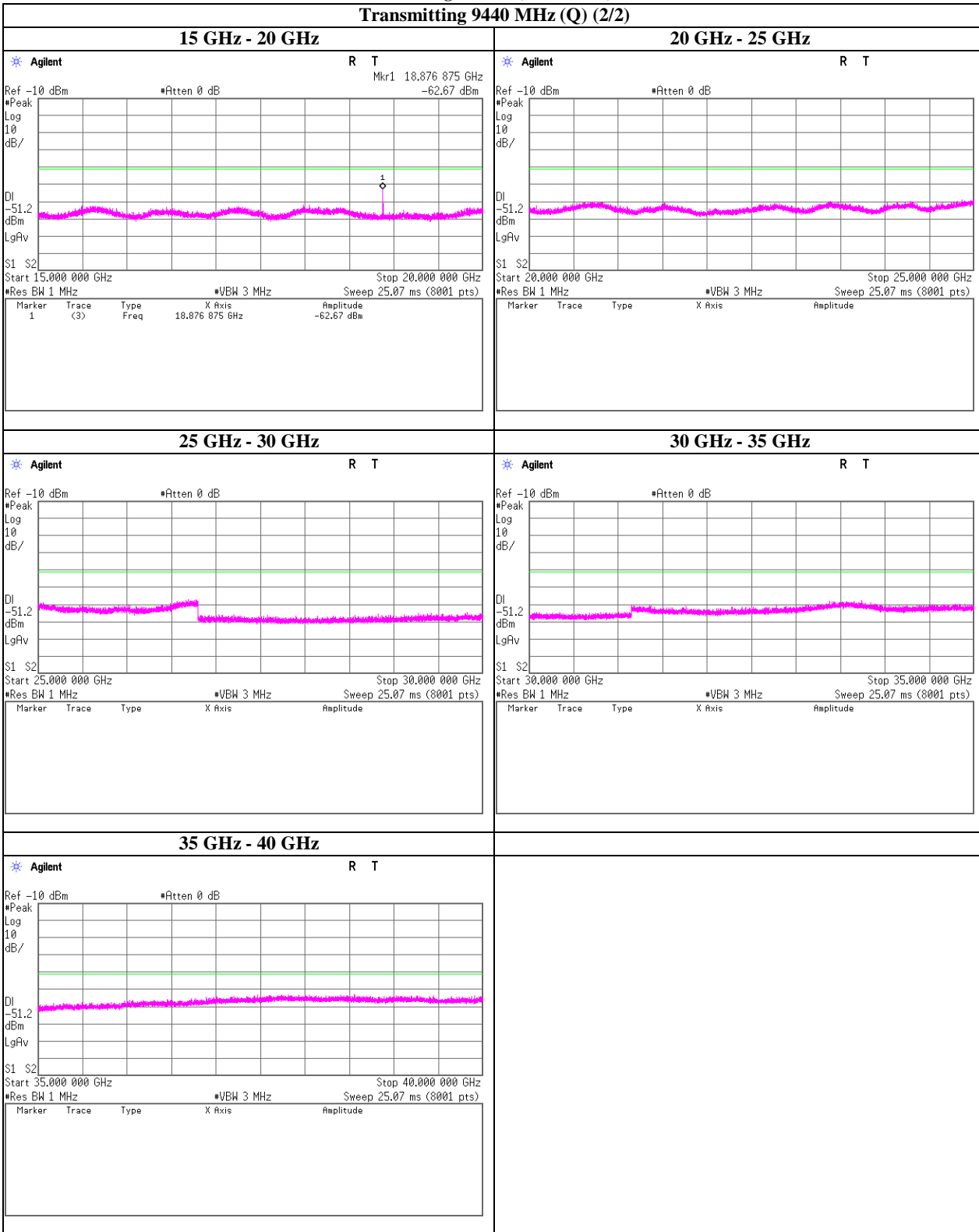
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 Facsimile : +81 463 50 6401

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
 Date April 10, 2016
 Temperature / Humidity 24 deg.C , 45 %RH
 Engineer Kenichi Adachi

Spurious emission (Conducted) (60 dBc)

Pulse range table 4 (worst mode)

Transmitting 9440 MHz (Q) (2/2)

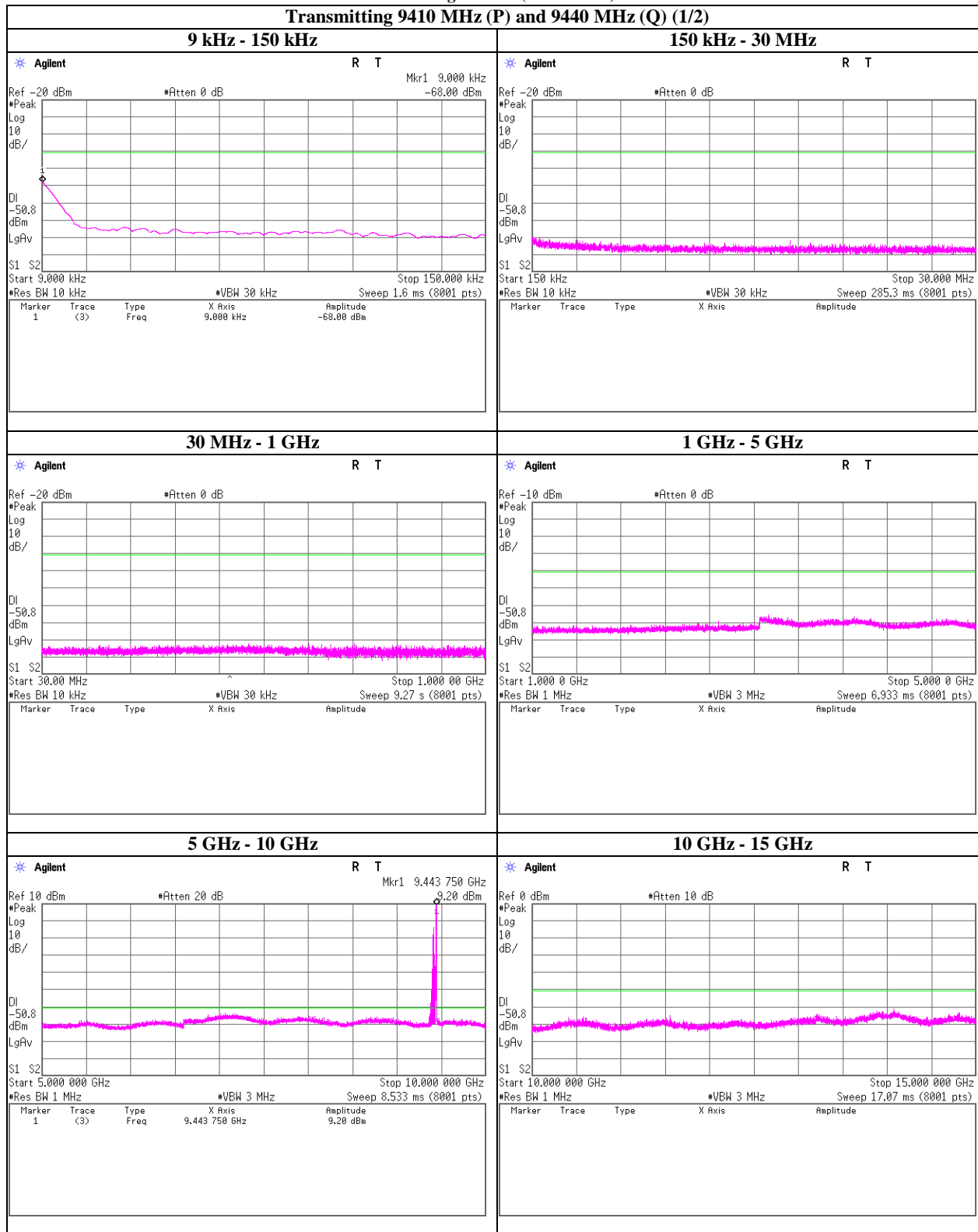


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Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
 Date April 10, 2016
 Temperature / Humidity 24 deg.C , 45 %RH
 Engineer Kenichi Adachi

Spurious emission (Conducted) (60 dBc)

Pulse range table 4 (worst mode)



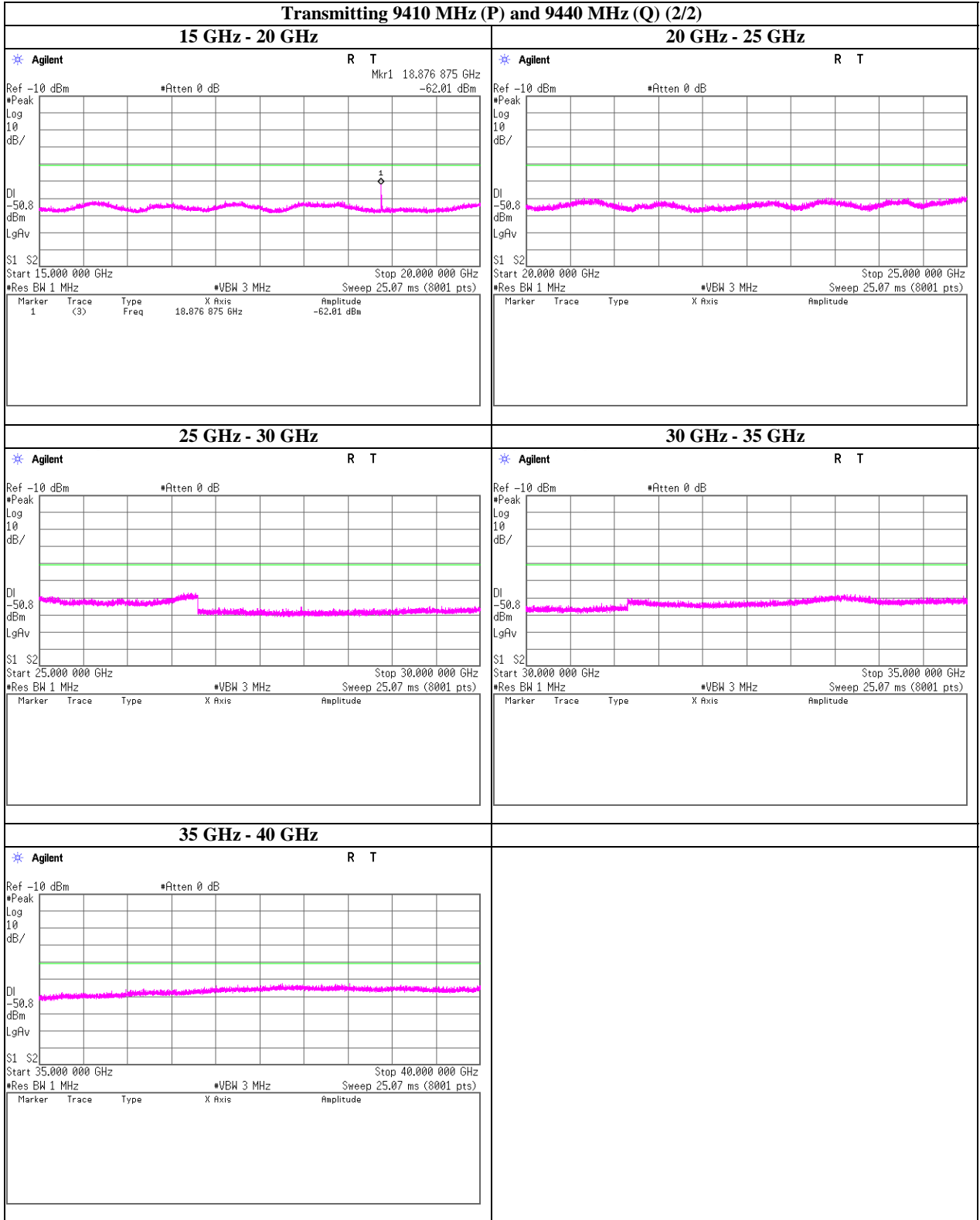
UL Japan, Inc.
Shonan EMC Lab.
 1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN
 Telephone : +81 463 50 6400
 Facsimile : +81 463 50 6401

Test place UL Japan, Inc. Shonan EMC Lab. No.5 Shielded Room
 Date April 10, 2016
 Temperature / Humidity 24 deg.C , 45 %RH
 Engineer Kenichi Adachi

Spurious emission (Conducted) (60 dBc)

Pulse range table 4 (worst mode)

Transmitting 9410 MHz (P) and 9440 MHz (Q) (2/2)

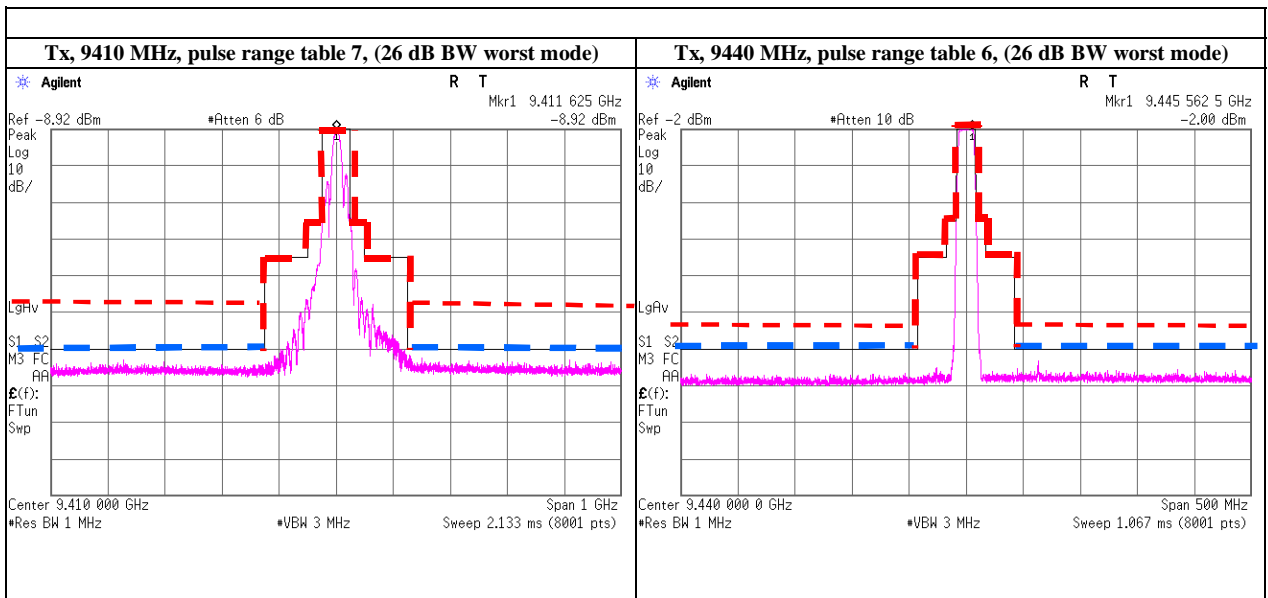
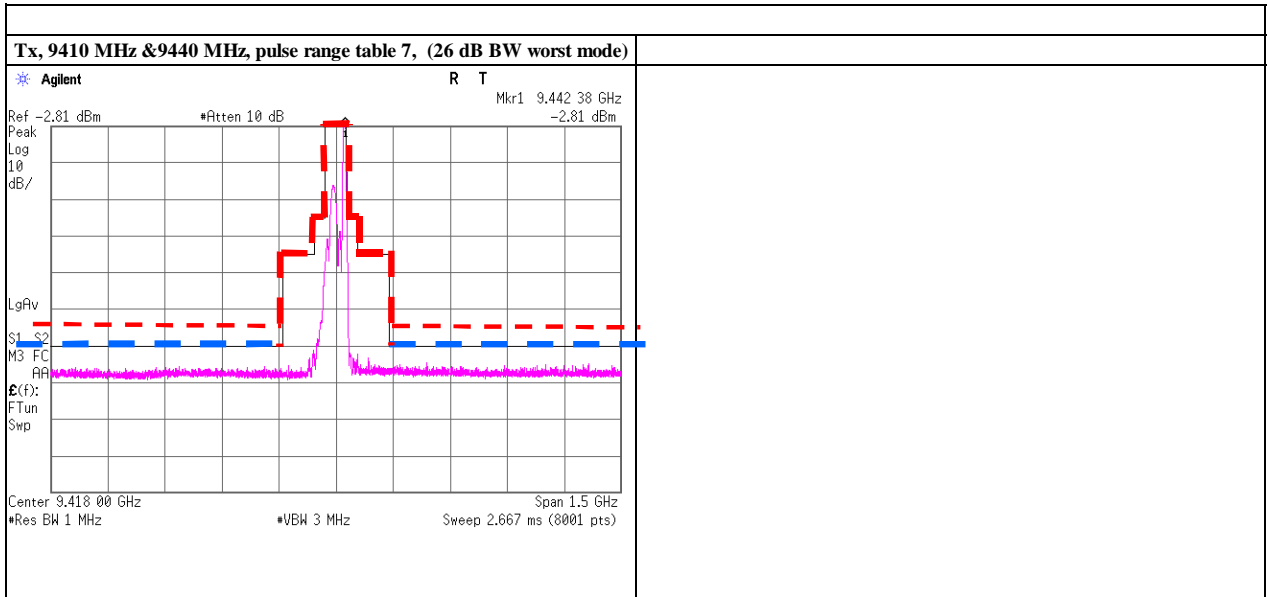


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Test place UL Japan, Inc. Shonan EMC Lab. No.1 Measurement Room
 Date April 8, 2016
 Temperature / Humidity 24 deg.C , 56 %RH
 Engineer Kenichi Adachi

Spurious emission (Conducted)

Emission mask (Refer to FCC80.211(f) / FCC 90.210(b)(emission mask B))



- * center frequency to 50 % nominal bandwidth (measured maximum 26 dB bandwidth): Reference Level (0 dBc) (*since none-specification)
- * 50 % to 100 % nominal bandwidth : -25 dBc
- * 100 % to 250 % nominal bandwidth : -35 dBc
- *outside of 250 % nominal bandwidth : -13 dBm (Reference line -60 dBc line (Blue))

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Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date March 23, 2016 March 14, 2016
Temperature, Humidity 23 deg.C , 27 %RH 24 deg.C , 31 %RH
Engineer Kenichi Adachi Shinichi Takano
Mode Tx, 9410 MHz and 9440 MHz
 Transmitting 9410 MHz and 9440 MHz, Pulse range table 4 (worst mode)
EUT axis: normal axis

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Result [dBm] | Limit [dBm] | Margin [dB] | Height [cm] | Angle [deg.] | Remark |
|----------|-----------------|----------|----------------|-----------------|-----------|-----------|-----------------|--------------|-------------|-------------|-------------|--------------|--------|
| Hori. | 119.268 | PK | 44.9 | 12.5 | 7.4 | 32.1 | 32.7 | -62.5 | -13.0 | 49.5 | 145 | 310 | |
| Hori. | 251.999 | PK | 41.3 | 17.2 | 8.4 | 32.0 | 34.9 | -60.3 | -13.0 | 47.3 | 139 | 117 | |
| Hori. | 503.997 | PK | 36.1 | 17.5 | 9.6 | 31.9 | 31.3 | -63.9 | -13.0 | 50.9 | 100 | 202 | |
| Hori. | 2148.401 | PK | 50.3 | 27.3 | 14.5 | 40.7 | 51.4 | -43.8 | -13.0 | 30.8 | 146 | 167 | |
| Hori. | 4296.798 | PK | 50.2 | 29.9 | 16.7 | 41.8 | 55.0 | -40.2 | -13.0 | 27.2 | 134 | 184 | |
| Hori. | 9225.000 | PK | 47.6 | 37.4 | 19.3 | 40.2 | 64.1 | -31.1 | -13.0 | 18.1 | 258 | 327 | |
| Hori. | 9300.000 | PK | 47.9 | 37.5 | 19.4 | 40.2 | 64.6 | -30.6 | -13.0 | 17.6 | 258 | 327 | |
| Hori. | 9347.500 | PK | 48.2 | 37.6 | 19.4 | 40.2 | 65.0 | -30.2 | -13.0 | 17.2 | 258 | 327 | |
| Hori. | 9483.750 | PK | 47.9 | 37.8 | 19.4 | 40.1 | 65.0 | -30.2 | -13.0 | 17.2 | 258 | 327 | |
| Hori. | 9500.000 | PK | 47.8 | 37.9 | 19.4 | 40.1 | 65.0 | -30.2 | -13.0 | 17.2 | 258 | 327 | |
| Hori. | 9503.250 | PK | 49.6 | 37.9 | 19.4 | 40.1 | 66.8 | -28.4 | -13.0 | 15.4 | 123 | 324 | |
| Hori. | 18820.000 | PK | 48.8 | 40.7 | -3.2 | 45.2 | 41.1 | -54.1 | -13.0 | 41.1 | 123 | 324 | |
| Hori. | 18880.000 | PK | 80.9 | 40.7 | -3.2 | 45.1 | 73.3 | -21.9 | -13.0 | 8.9 | 114 | 316 | |
| Hori. | 28233.730 | PK | 73.9 | 44.1 | 3.7 | 69.0 | 52.7 | -42.5 | -13.0 | 29.5 | 166 | 320 | |
| Hori. | 28320.000 | PK | 102.6 | 44.1 | 3.8 | 68.7 | 81.8 | -13.4 | -13.0 | 0.4 | 146 | 291 | |
| Hori. | 28655.750 | PK | 78.3 | 44.1 | 3.8 | 68.2 | 58.0 | -37.2 | -13.0 | 24.2 | 146 | 291 | |
| Hori. | 34257.900 | PK | 72.2 | 44.1 | 5.2 | 66.4 | 55.1 | -40.1 | -13.0 | 27.1 | 132 | 293 | |
| Hori. | 34374.280 | PK | 73.0 | 44.1 | 5.2 | 66.7 | 55.6 | -39.6 | -13.0 | 26.6 | 136 | 296 | |
| Hori. | 37644.750 | PK | 66.9 | 44.6 | 5.9 | 70.5 | 46.9 | -48.3 | -13.0 | 35.3 | 138 | 248 | |
| Hori. | 37760.000 | PK | 98.3 | 44.6 | 5.9 | 70.6 | 78.2 | -17.0 | -13.0 | 4.0 | 139 | 308 | |
| Vert. | 40.831 | PK | 58.3 | 13.6 | 6.8 | 32.2 | 46.5 | -48.7 | -13.0 | 35.7 | 139 | 308 | |
| Vert. | 58.840 | PK | 56.4 | 7.6 | 6.8 | 32.2 | 38.6 | -56.6 | -13.0 | 43.6 | 100 | 214 | |
| Vert. | 119.283 | PK | 54.4 | 12.5 | 7.4 | 32.1 | 42.2 | -53.0 | -13.0 | 40.0 | 100 | 79 | |
| Vert. | 251.999 | PK | 40.9 | 17.2 | 8.4 | 32.0 | 34.5 | -60.7 | -13.0 | 47.7 | 100 | 179 | |
| Vert. | 587.997 | PK | 35.5 | 18.8 | 9.9 | 31.9 | 32.3 | -62.9 | -13.0 | 49.9 | 100 | 218 | |
| Vert. | 2148.401 | PK | 51.2 | 27.3 | 14.5 | 40.7 | 52.3 | -42.9 | -13.0 | 29.9 | 100 | 254 | |
| Vert. | 4296.798 | PK | 51.6 | 29.9 | 16.7 | 41.8 | 56.4 | -38.8 | -13.0 | 25.8 | 116 | 351 | |
| Vert. | 9225.000 | PK | 47.6 | 37.4 | 19.3 | 40.2 | 64.1 | -31.1 | -13.0 | 18.1 | 118 | 0 | |
| Vert. | 9300.000 | PK | 48.0 | 37.5 | 19.4 | 40.2 | 64.7 | -30.5 | -13.0 | 17.5 | 246 | 337 | |
| Vert. | 9347.500 | PK | 48.5 | 37.6 | 19.4 | 40.2 | 65.3 | -29.9 | -13.0 | 16.9 | 246 | 337 | |
| Vert. | 9483.750 | PK | 47.9 | 37.8 | 19.4 | 40.1 | 65.0 | -30.2 | -13.0 | 17.2 | 246 | 337 | |
| Vert. | 9500.000 | PK | 47.8 | 37.9 | 19.4 | 40.1 | 65.0 | -30.2 | -13.0 | 17.2 | 246 | 337 | |
| Vert. | 9503.250 | PK | 53.5 | 37.9 | 19.4 | 40.1 | 70.7 | -24.5 | -13.0 | 11.5 | 246 | 337 | |
| Vert. | 18820.000 | PK | 49.3 | 40.7 | -3.2 | 45.2 | 41.6 | -53.6 | -13.0 | 40.6 | 170 | 273 | |
| Vert. | 18880.000 | PK | 84.9 | 40.7 | -3.2 | 45.1 | 77.3 | -17.9 | -13.0 | 4.9 | 170 | 273 | |
| Vert. | 28233.730 | PK | 69.4 | 44.1 | 3.7 | 69.0 | 48.2 | -47.0 | -13.0 | 34.0 | 100 | 333 | |
| Vert. | 28320.000 | PK | 91.7 | 44.1 | 3.8 | 68.7 | 70.9 | -24.3 | -13.0 | 11.3 | 100 | 341 | |
| Vert. | 28655.750 | PK | 70.7 | 44.1 | 3.8 | 68.2 | 50.4 | -44.8 | -13.0 | 31.8 | 172 | 268 | |
| Vert. | 34257.900 | PK | 64.1 | 44.1 | 5.2 | 66.4 | 47.0 | -48.2 | -13.0 | 35.2 | 172 | 268 | |
| Vert. | 34374.280 | PK | 63.9 | 44.1 | 5.2 | 66.7 | 46.5 | -48.7 | -13.0 | 35.7 | 147 | 264 | |
| Vert. | 37644.750 | PK | 67.3 | 44.6 | 5.9 | 70.5 | 47.3 | -47.9 | -13.0 | 34.9 | 168 | 291 | |
| Vert. | 37760.000 | PK | 87.8 | 44.6 | 5.9 | 70.6 | 67.7 | -27.5 | -13.0 | 14.5 | 163 | 260 | |

Result [dBuV/m] = Reading[dBuV] + Ant Factor [dB/m]+ Loss (Cable+Attenuator+Filter-Distance factor(above 18 GHz))[dB] - Gain(Amplifier) [dB]

Distance factor : 18 GHz - 40 GHz : 20 log (1.0 m / 3.0 m)= -9.5 dB

Result [dBm] = 10 x log(((10 ^ ((Result [dBuV/m] -120) / 20)) [V/m] x (distance [m])) ^ 2) / (30 x 10 ^ ((Gain = 0 [dBi]) / 10)) x 10 ^ 3)

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

Limit: -13 [dBm] = 10 x log (mean power (W) x 10 ^ 3) - (43 + 10 x log (mean power (W))) (FCC 80.211(f)(3), FCC 90.210(b)(3))

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Frequency Stability

Test place UL Japan, Inc. Shonan EMC Lab.
No.6 Shielded Room
Date April 11, 2016
Temperature / Humidity 26 deg.C , 36 %RH
Engineer Kenichi Adachi
Mode Transmitting 9410 MHz pulse range table 5
(used frequency error function with occupied bandwidth function (spectrum analyzer))

| Test Condition [deg.C] [V] | | Test Timing | Measured frequency [MHz] | Frequency error [MHz] | Result [ppm] | (RSS-238) *1) Limit [+/- ppm] | Margin [ppm] |
|-------------------------------|-----------|-------------|-----------------------------|--------------------------|-----------------|-------------------------------------|-----------------|
| 20 deg.C | DC 48 V | Power on | 9410.882041 | 0.882041 | 93.73 | 1250.00 | 1156.27 |
| | | on 2 min. | 9411.155000 | 1.155000 | 122.74 | 1250.00 | 1127.26 |
| | | on 5 min. | 9411.245000 | 1.245000 | 132.31 | 1250.00 | 1117.69 |
| | | on 10 min. | 9411.220000 | 1.220000 | 129.65 | 1250.00 | 1120.35 |
| 20 deg.C | DC 40.8 V | Power on | 9411.137000 | 1.137000 | 120.83 | 1250.00 | 1129.17 |
| | | on 2 min. | 9410.948522 | 0.948522 | 100.80 | 1250.00 | 1149.20 |
| | | on 5 min. | 9411.246000 | 1.246000 | 132.41 | 1250.00 | 1117.59 |
| | | on 10 min. | 9411.524000 | 1.524000 | 161.96 | 1250.00 | 1088.04 |
| 20 deg.C | DC 55.2 V | Power on | 9410.720965 | 0.720965 | 76.62 | 1250.00 | 1173.38 |
| | | on 2 min. | 9411.239000 | 1.239000 | 131.67 | 1250.00 | 1118.33 |
| | | on 5 min. | 9411.996000 | 1.996000 | 212.11 | 1250.00 | 1037.89 |
| | | on 10 min. | 9411.161000 | 1.161000 | 123.38 | 1250.00 | 1126.62 |

Limit : 9410.0000 MHz +/-1250 ppm = +/- 11.762500 MHz

*1) (FCC) Frequency Lower Limit = $9300 + 1.5/T = 9300.00616$ MHz, Upper Limit = $9500 - 1.5/T = 9499.99384$ MHz. (FCC part 80)

Mode Transmitting 9440 MHz pulse range table 5
(used frequency error function with occupied bandwidth function (spectrum analyzer))

| Test Condition [deg.C] [V] | | Test Timing | Measured frequency [MHz] | Frequency error [MHz] | Result [ppm] | (RSS-238) *1) Limit [+/- ppm] | Margin [ppm] |
|-------------------------------|-----------|-------------|-----------------------------|--------------------------|-----------------|-------------------------------------|-----------------|
| 20 deg.C | DC 48 V | Power on | 9440.504222 | 0.504222 | 53.41 | 1250.00 | 1196.59 |
| | | on 2 min. | 9440.377160 | 0.377160 | 39.95 | 1250.00 | 1210.05 |
| | | on 5 min. | 9440.345922 | 0.345922 | 36.64 | 1250.00 | 1213.36 |
| | | on 10 min. | 9440.338244 | 0.338244 | 35.83 | 1250.00 | 1214.17 |
| 20 deg.C | DC 40.8 V | Power on | 9440.242432 | 0.242432 | 25.68 | 1250.00 | 1224.32 |
| | | on 2 min. | 9440.219723 | 0.219723 | 23.28 | 1250.00 | 1226.72 |
| | | on 5 min. | 9440.255837 | 0.255837 | 27.10 | 1250.00 | 1222.90 |
| | | on 10 min. | 9440.304826 | 0.304826 | 32.29 | 1250.00 | 1217.71 |
| 20 deg.C | DC 55.2 V | Power on | 9440.331128 | 0.331128 | 35.08 | 1250.00 | 1214.92 |
| | | on 2 min. | 9440.299961 | 0.299961 | 31.78 | 1250.00 | 1218.22 |
| | | on 5 min. | 9440.303004 | 0.303004 | 32.10 | 1250.00 | 1217.90 |
| | | on 10 min. | 9440.283830 | 0.283830 | 30.07 | 1250.00 | 1219.93 |

Limit : 9440.0000 MHz +/-1250 ppm = +/- 11.800000 MHz

*1) (FCC) Frequency Lower Limit = $9300 + 1.5/T = 9300.00616$ MHz, Upper Limit = $9500 - 1.5/T = 9499.99384$ MHz. (FCC part 80)

APPENDIX 2 Test Instruments

EMI test equipment (1/2)

| Control No. | Instrument | Manufacturer | Model No | Serial No | Test Item | Calibration Date * Interval(month) |
|--------------------------------|---------------------------|--|--|-------------------------|--------------|------------------------------------|
| SPM-06 | Power Meter | Anritsu | ML2495A | 0850009 | AT | 2016/04/01 * 12 |
| SPSS-03 | Power sensor | Anritsu | MA2411B | 0917063 | AT | 2016/04/01 * 12 |
| SRENT-05 | Spectrum Analyzer | KEYSIGHT | E4440A | MY46187752 | AT | 2015/10/05 * 12 |
| SCC-G32 | Coaxial Cable | Junkosha | MWX241-02000KMSKMS | OCT-09-13-005 | AT, Freq | 2015/10/08 * 12 |
| SOS-13 | Humidity Indicator | Custom | CTH-202 | Q.C.17 | AT | 2015/12/07 * 12 |
| KTS-08 | Digital Tester | SANWA | PC500 | 7019224 | AT | 2016/03/15 * 12 |
| SAEC-03(NSA) | Semi-Anechoic Chamber | TDK | SAEC-03(NSA) | 3 | RE | 2015/07/16 * 12 |
| SBA-03 | Biconical Antenna | Schwarzbeck | BBA9106 | 91032666 | RE | 2015/10/11 * 12 |
| SLA-03 | Logperiodic Antenna | Schwarzbeck | UHALP9108A | UHALP 9108-A0901 | RE | 2015/10/11 * 12 |
| SAT6-08 | Attenuator | HIROSE ELECTRIC CO.,LTD. | AT-406(40) | - | RE | 2015/08/31 * 12 |
| SCC-C1/C2/C3/C4/C5/C10/SRSE-03 | Coaxial Cable&RF Selector | Fujikura/Fujikura/Suhner/Suhner/Suhner/Suhner/TOYO | 8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906 | -/0901-271(RF Selector) | RE | 2015/04/17 * 12 |
| SAF-03 | Pre Amplifier | SONOMA | 310N | 290213 | RE | 2016/02/25 * 12 |
| SSA-03 | Spectrum Analyzer | Agilent | E4448A | MY48250152 | RE, AT, Freq | 2015/09/16 * 12 |
| COTS-SEMI-1 | EMI Software | TSJ | TEPTO-DV(RE,CE, RFLMF) | - | RE | - |
| SJM-15 | Measure | ASKUL | - | - | RE | - |
| SOS-05 | Humidity Indicator | A&D | AD-5681 | 4062518 | RE | 2015/10/22 * 12 |
| STS-03 | Digital Hitester | Hioki | 3805-50 | 080997823 | RE | 2015/11/18 * 12 |
| SCC-03 | Coaxial Cable | Fujikura | 5D2W | - | RE | 2015/06/23 * 12 |
| STM-13 | Terminator | TME | CT-01 BP | - | RE | 2015/12/18 * 12 |
| SAEC-01(NSA) | Semi-Anechoic Chamber | TDK | SAEC-01(NSA) | 1 | RE | 2015/07/13 * 12 |
| SHA-06 | Horn Antenna | ETS LINDGREN | 3160-10 | LM3459 | RE | 2016/03/24 * 12 |
| SAF-10 | Pre Amplifier | TOYO Corporation | HAP26-40W | 00000010 | RE | 2016/03/23 * 12 |
| SCC-G19 | Coaxial Cable | Suhner | SUCOFLEX 102A | 1188/2A | RE | 2016/03/08 * 12 |
| STR-01 | Test Receiver | Rohde & Schwarz | ESU40 | 100093 | RE | 2015/11/06 * 12 |
| SHA-05 | Horn Antenna | ETS LINDGREN | 3160-09 | LM4210 | RE | 2016/03/24 * 12 |
| SAF-09 | Pre Amplifier | TOYO Corporation | HAP18-26W | 00000018 | RE | 2015/09/07 * 12 |
| SCC-G20 | Coaxial Cable | Junkosha | J12J102518-00 | APR-15-15-003 | RE | 2015/04/30 * 12 |
| SCC-01 | Coaxial Cable | Fujikura | 5D2W | - | RE, AT | 2016/01/12 * 12 |
| STM-02 | Terminator | TME | CT-01 BP | - | RE | 2015/12/18 * 12 |
| SOS-01 | Humidity Indicator | A&D | AD-5681 | 4062555 | RE | 2015/10/22 * 12 |
| SJM-16 | Measure | ASKUL | - | - | RE | - |
| STS-01 | Digital Hitester | Hioki | 3805-50 | 080997812 | RE | 2015/11/18 * 12 |
| SHA-01 | Horn Antenna | Schwarzbeck | BBHA9120D | 9120D-725 | RE | 2015/08/10 * 12 |
| SCC-G01 | Coaxial Cable | Suhner | SUCOFLEX 104A | 46497/4A | RE | 2015/04/17 * 12 |
| SAT10-05 | Attenuator(above1GHz) | Agilent | 8493C-010 | 74864 | RE, AT | 2015/11/04 * 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 : RE: Radiated emission, AT: Antenna terminal conducted tests , Freq:
Frequency stability test

APPENDIX 2 Test Instruments

EMI test equipment (2/2)

| Control No. | Instrument | Manufacturer | Model No | Serial No | Test Item | Calibration Date * Interval(month) |
|-------------|--------------------------|------------------|--------------|------------|-----------|---------------------------------------|
| SAF-04 | Pre Amplifier | TOYO Corporation | TPA0118-36 | 1440489 | RE | 2016/03/22 * 12 |
| SCC-G21 | Coaxial Cable | Suhner | SUCOFLEX 104 | 296169/4 | RE | 2015/05/19 * 12 |
| KST-08 | Oscilloscope | Agilent | DSO6052A | MY44001066 | AT | 2015/10/14 * 12 |
| SDT-01 | Coaxial Crystal Detector | Agilent | 8473C | MY42240890 | AT | Pre Check |
| SOS-06 | Humidity Indicator | A&D | AD-5681 | 4062118 | AT | 2015/12/07 * 12 |
| SAT20-07 | Attenuator | Weinschel Corp. | 54A-20 | 31484 | AT | 2015/04/09 * 12 |
| SAT10-10 | Attenuator | Weinschel Corp. | 54A-10 | 37584 | AT, Freq | 2015/04/09 * 12 |
| KTS-07 | Digital Tester | SANWA | PC500 | 7019232 | AT, Freq | 2015/11/18 * 12 |
| SOS-09 | Humidity Indicator | A&D | AD-5681 | 4061484 | AT | 2015/12/07 * 12 |
| SOS-10 | Humidity Indicator | A&D | AD-5681 | 4064561 | AT, Freq | 2015/10/22 * 12 |
| STS-06 | Digital Hitester | Hioki | 3805-50 | 080997830 | AT, Freq | 2016/03/22 * 12 |
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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,
AT: Antenna terminal conducted tests
Freq: Frequency stability test