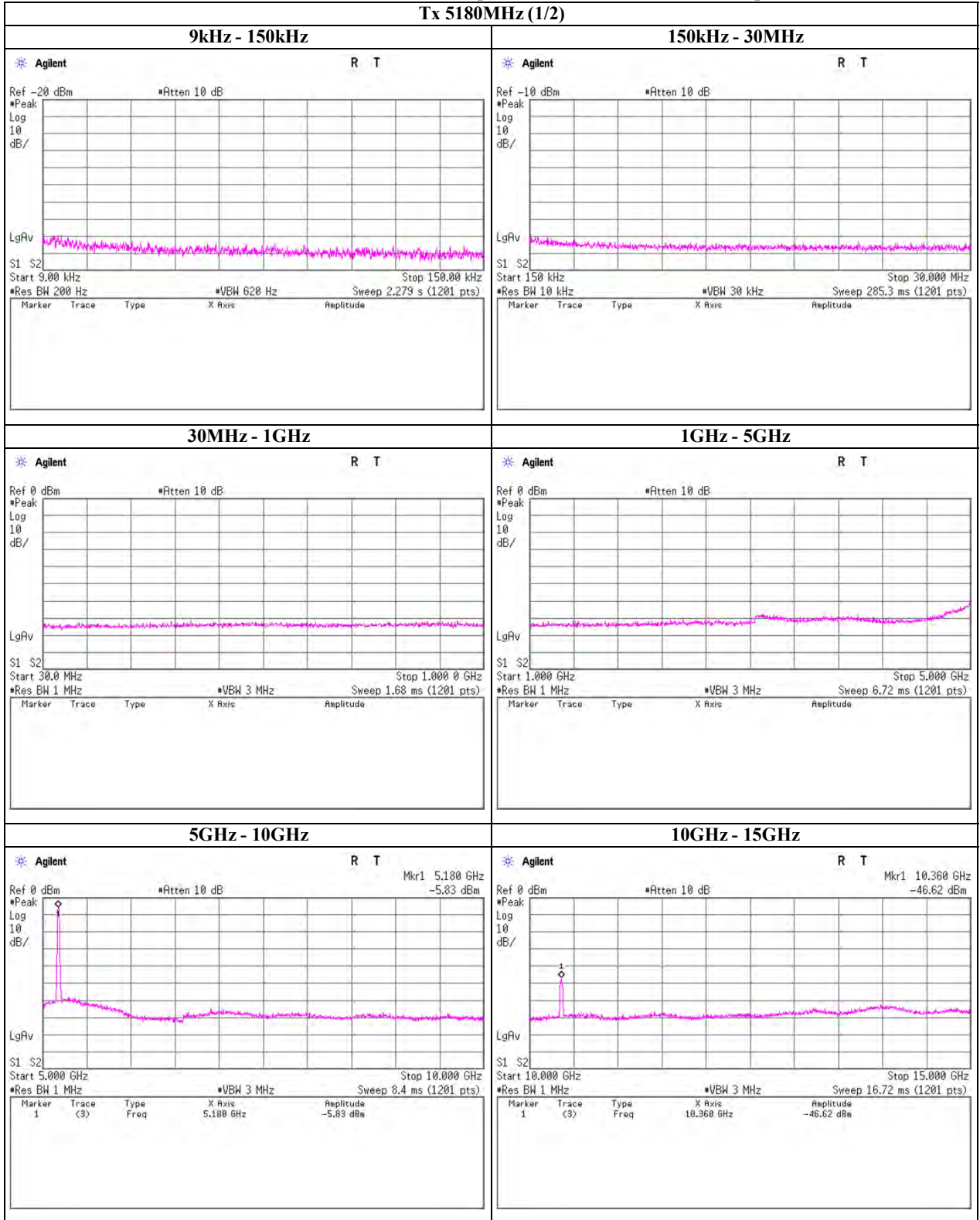


**Spurious emission (Conducted)**

Tx, IEEE802.11a, worst antenna port Main, worst data mode 24Mbps

Tx 5180MHz (1/2)



UL Japan, Inc.

Shonan EMC Lab.

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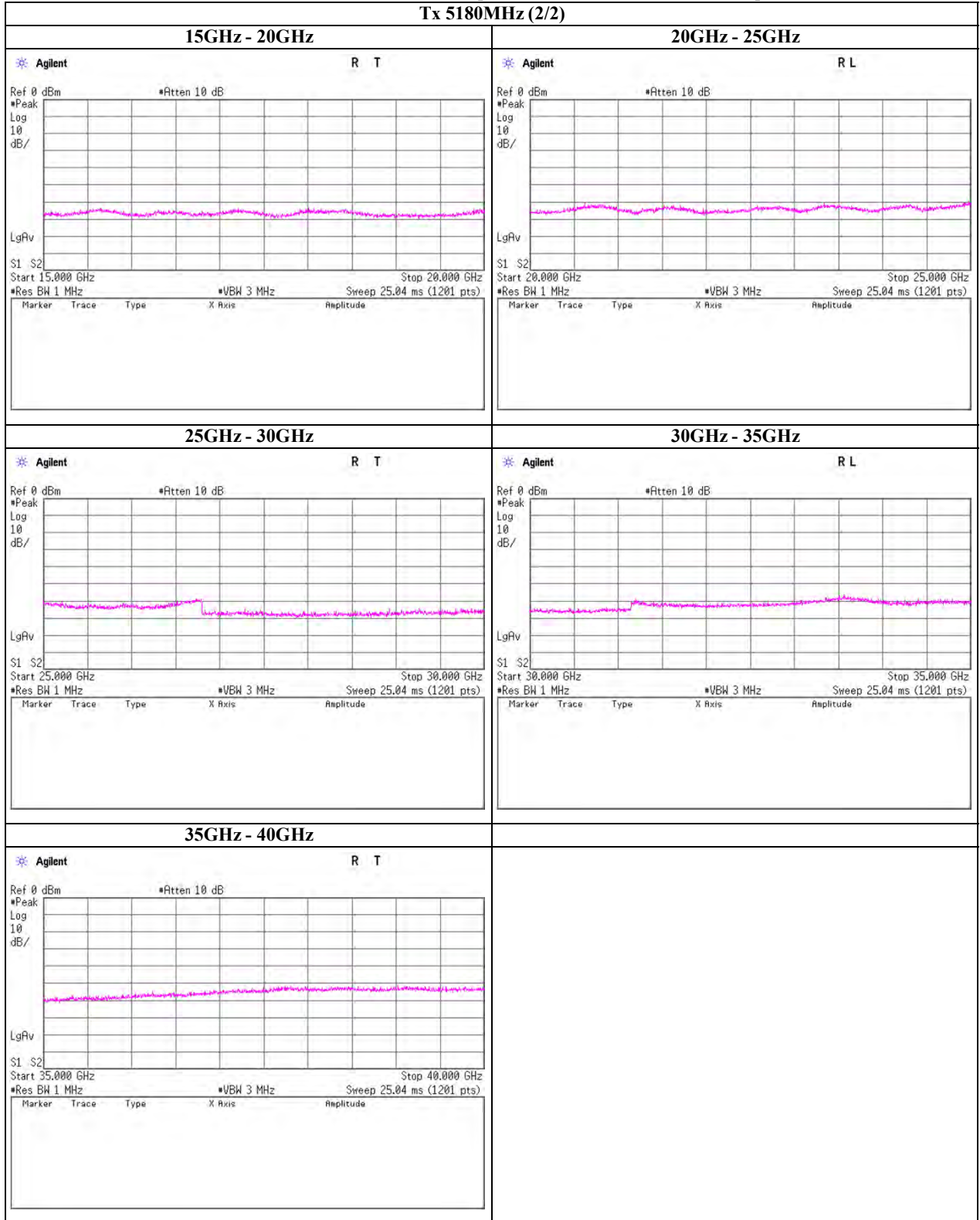
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

### Spurious emission (Conducted)

Tx, IEEE802.11a, worst antenna port Main, worst data mode 24Mbps

Tx 5180MHz (2/2)



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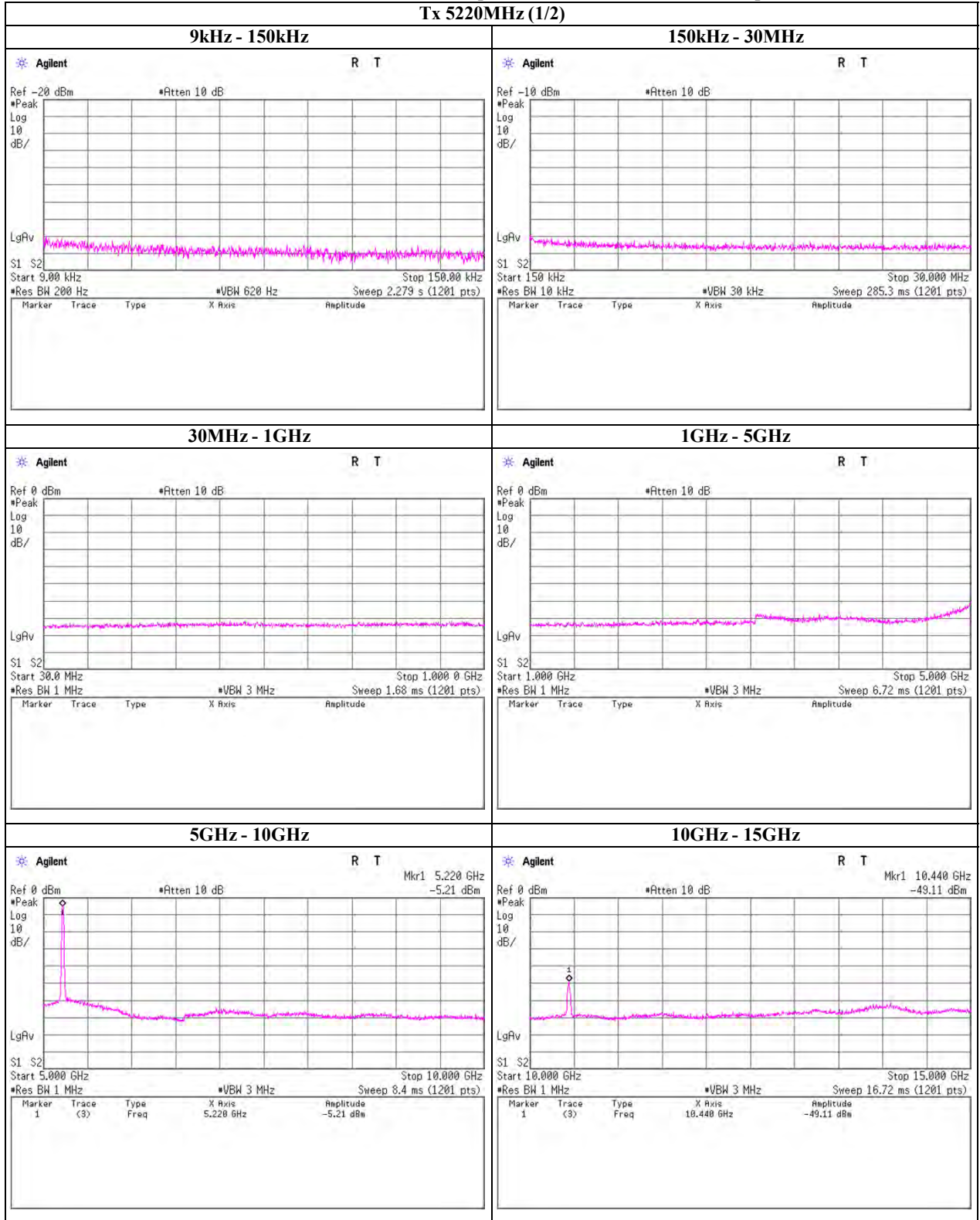
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

### Spurious emission (Conducted)

Tx, IEEE802.11a, worst antenna port Main, worst data mode 24Mbps

Tx 5220MHz (1/2)



**UL Japan, Inc.**

**Shonan EMC Lab.**

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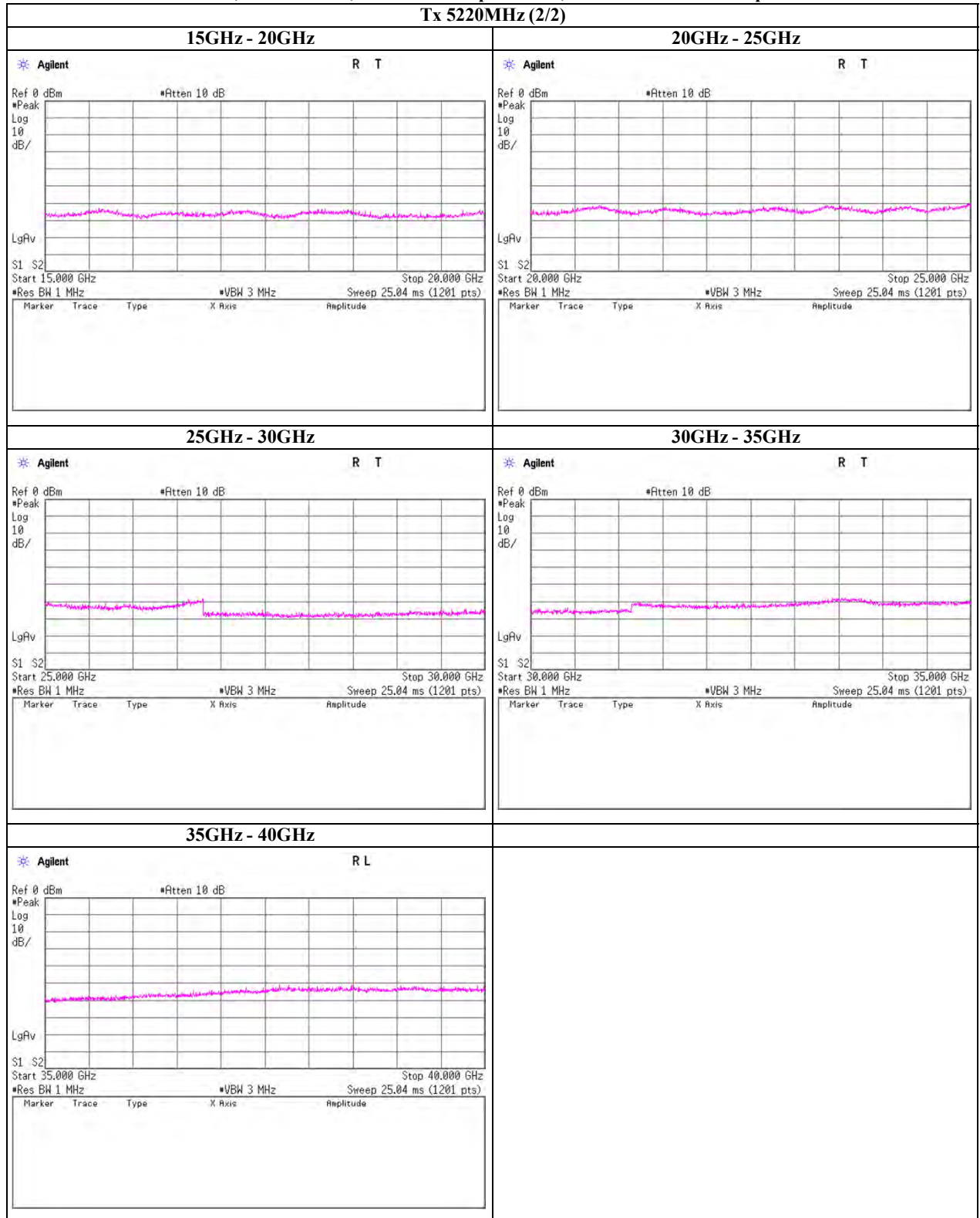
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

### Spurious emission (Conducted)

Tx, IEEE802.11a, worst antenna port Main, worst data mode 24Mbps

Tx 5220MHz (2/2)



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**Shonan EMC Lab.**

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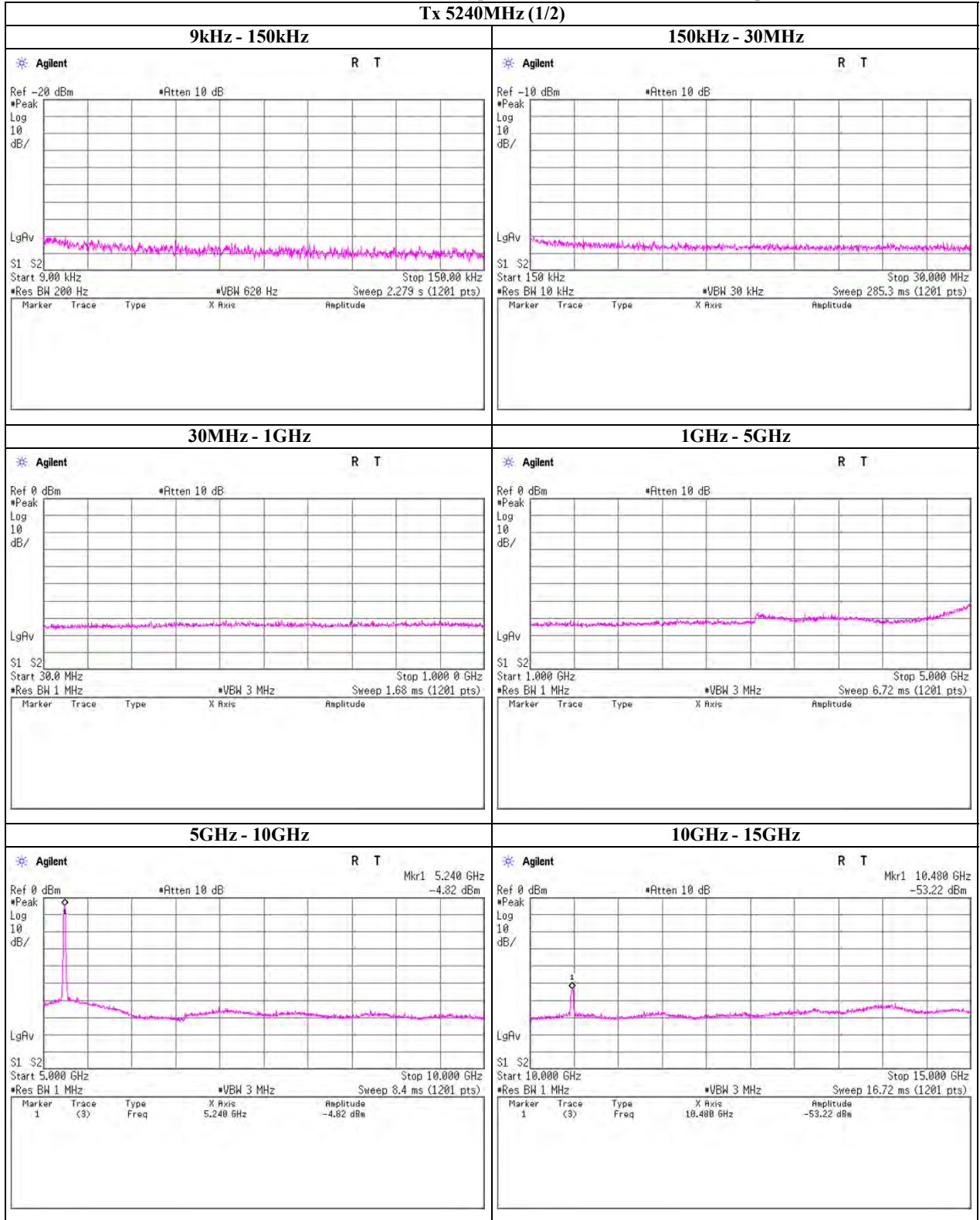
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

### Spurious emission (Conducted)

Tx, IEEE802.11a, worst antenna port Main, worst data mode 24Mbps

Tx 5240MHz (1/2)



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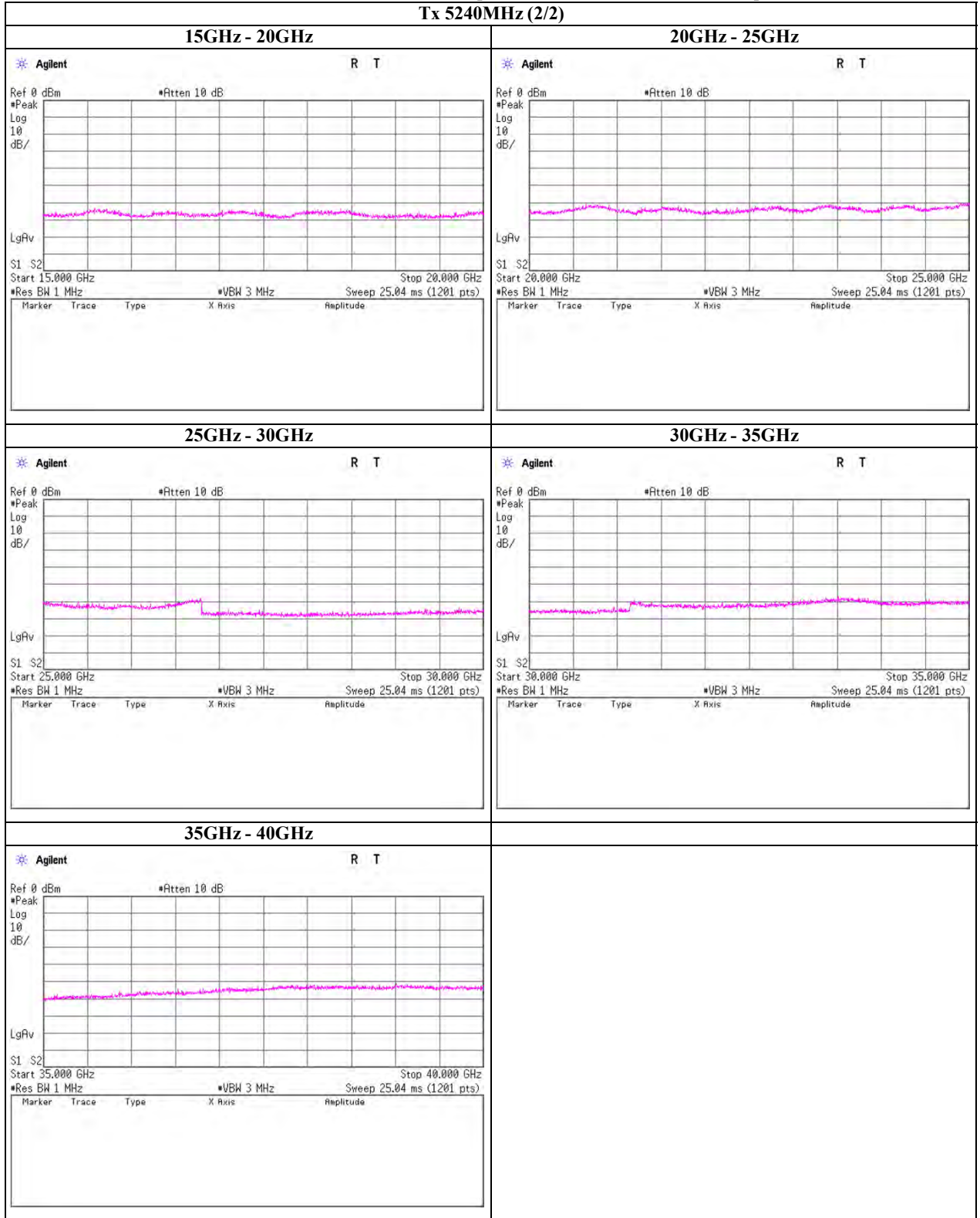
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

### Spurious emission (Conducted)

Tx, IEEE802.11a, worst antenna port Main, worst data mode 24Mbps

Tx 5240MHz (2/2)



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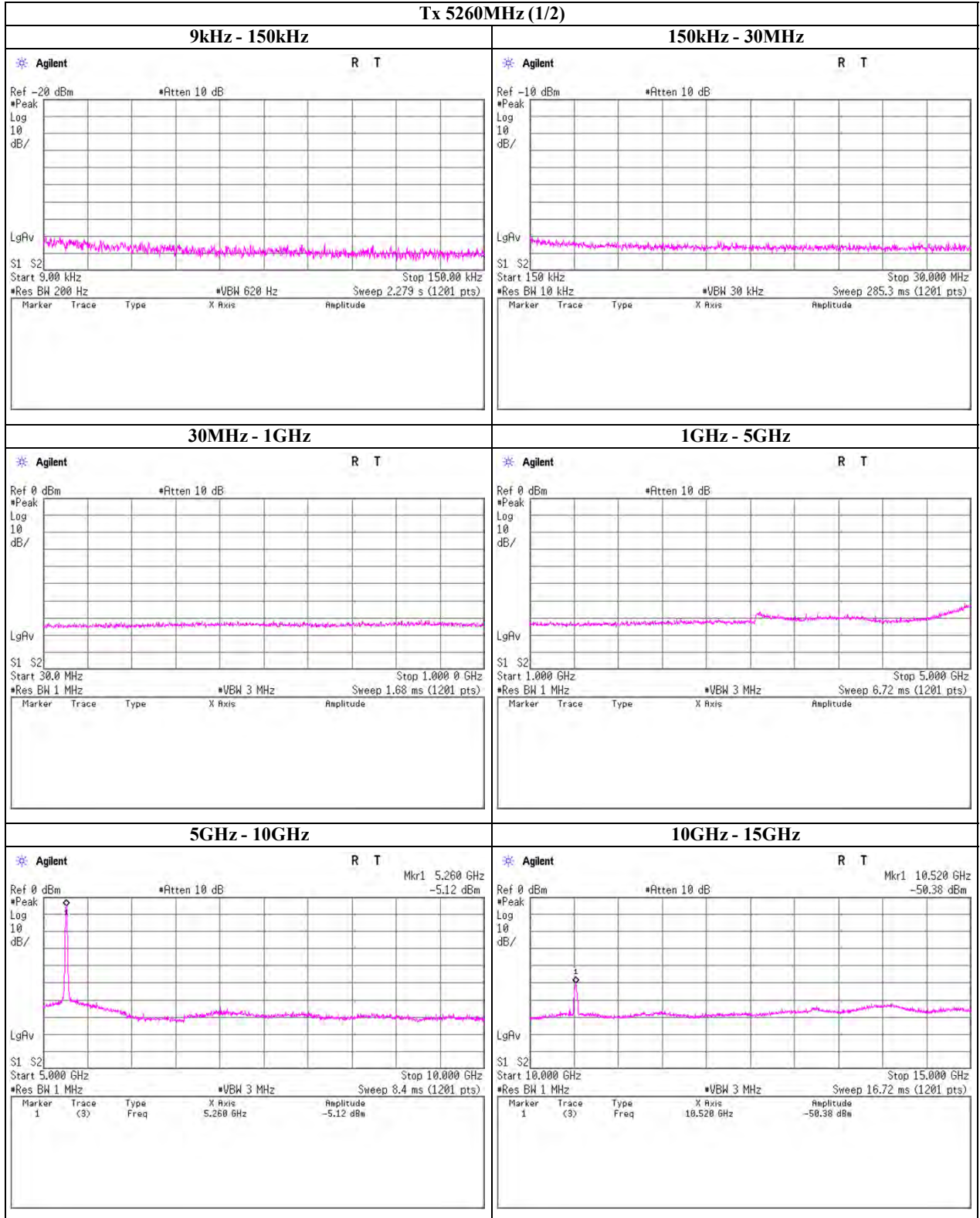
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

**Spurious emission (Conducted)**

Tx, IEEE802.11a, worst antenna port Main, worst data mode 24Mbps

Tx 5260MHz (1/2)



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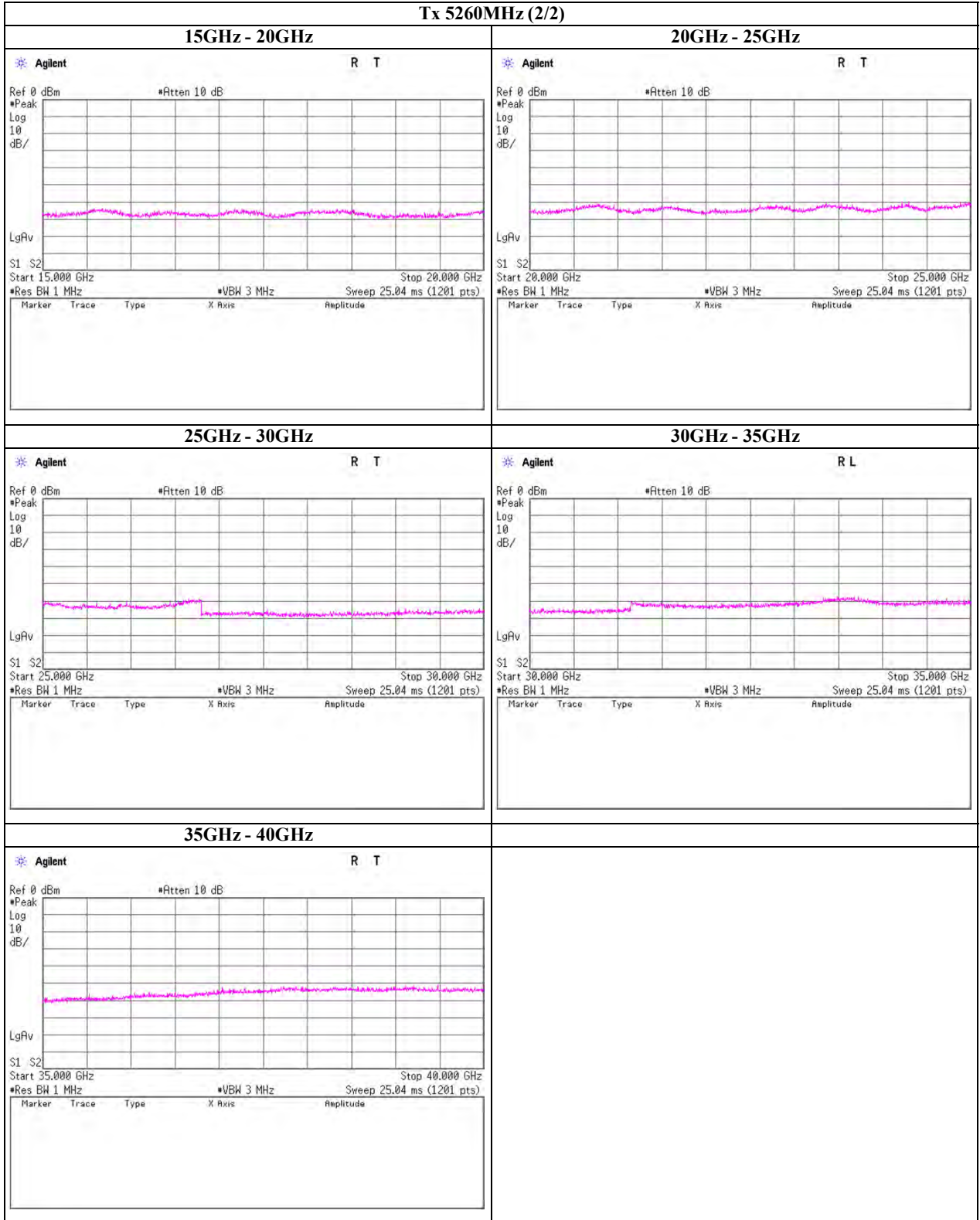
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

### Spurious emission (Conducted)

Tx, IEEE802.11a, worst antenna port Main, worst data mode 24Mbps

Tx 5260MHz (2/2)



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Telephone : +81 463 50 6400

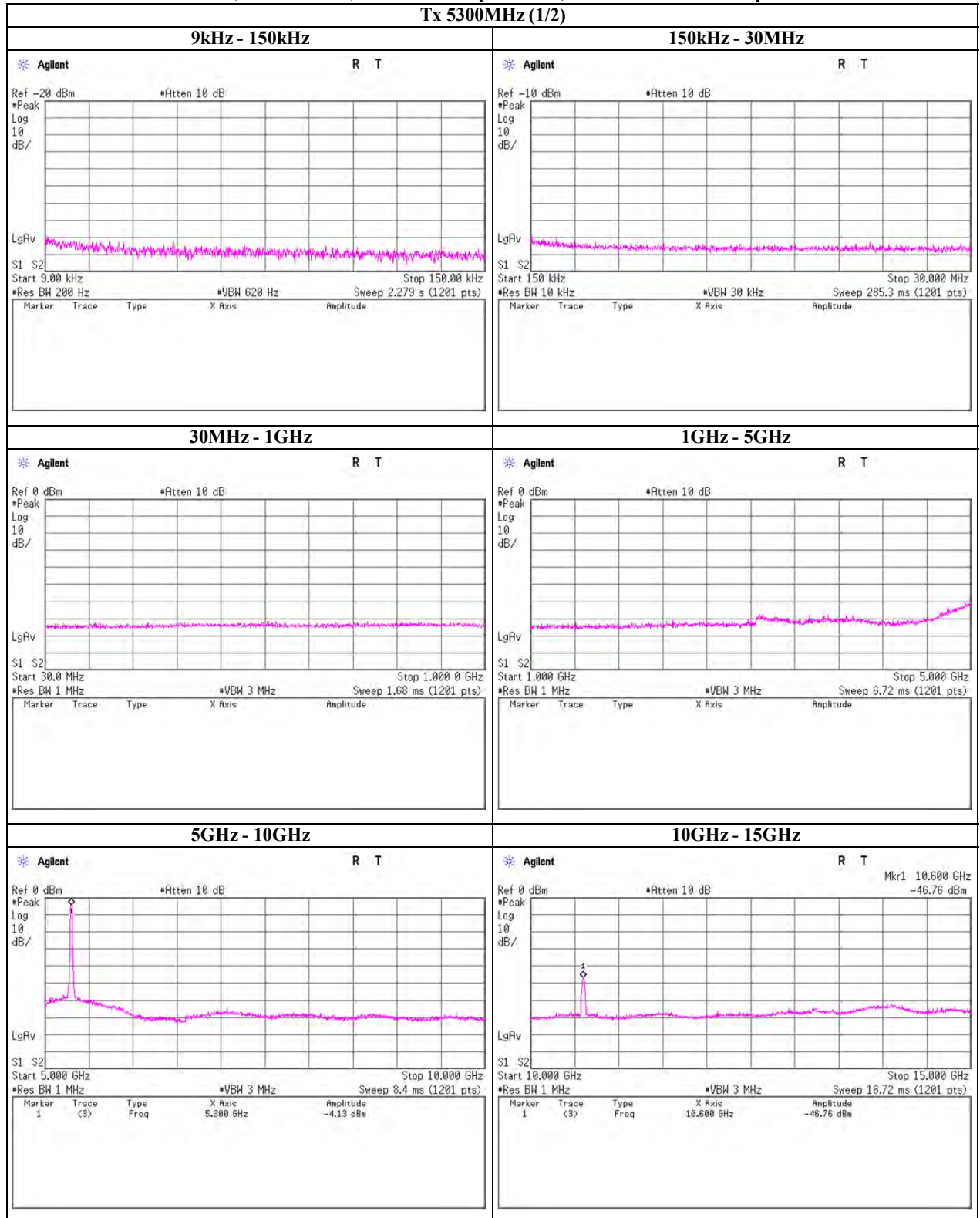
Facsimile : +81 463 50 6401



### Spurious emission (Conducted)

Tx, IEEE802.11a, worst antenna port Main, worst data mode 24Mbps

Tx 5300MHz (1/2)



**UL Japan, Inc.**

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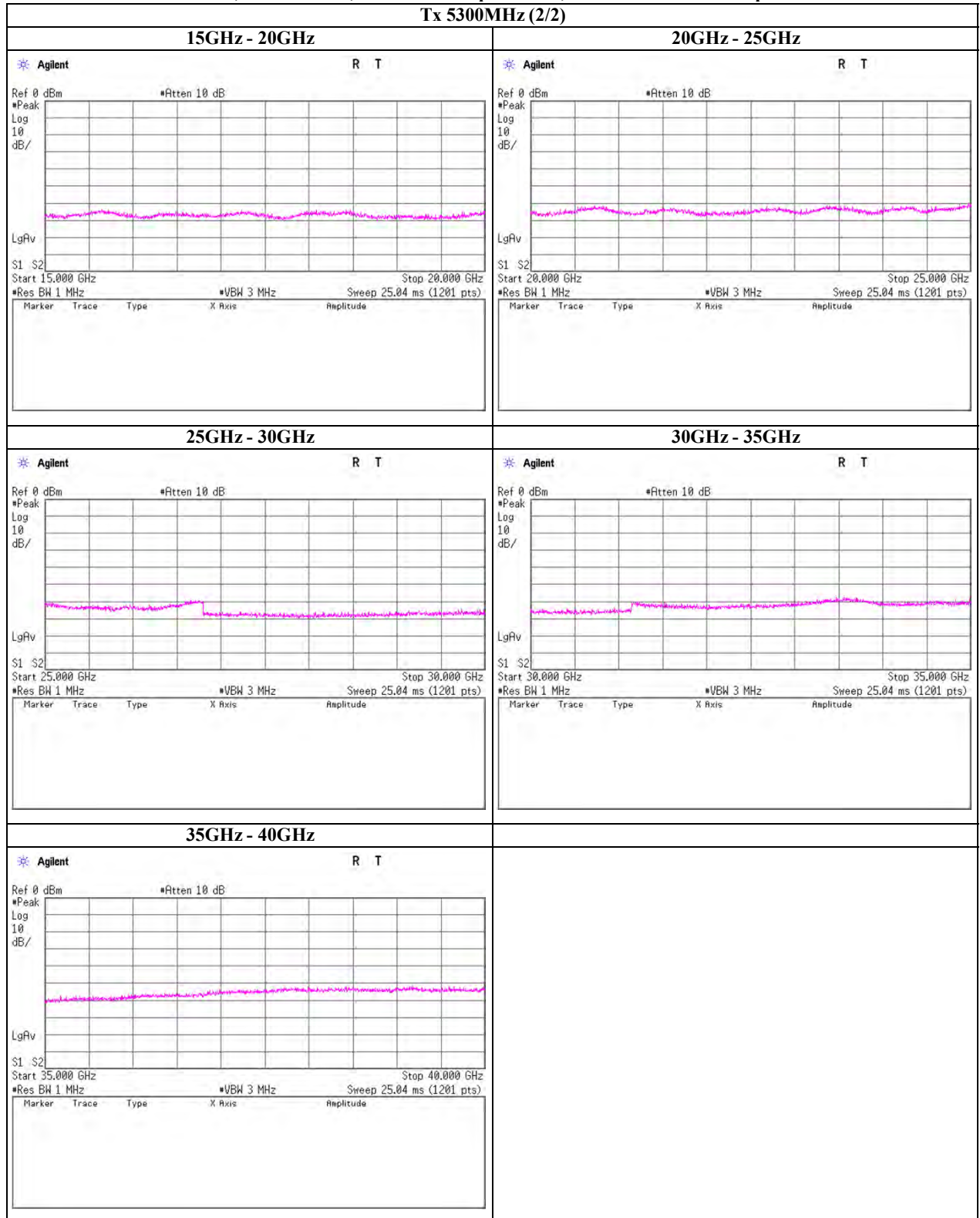
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

### Spurious emission (Conducted)

Tx, IEEE802.11a, worst antenna port Main, worst data mode 24Mbps

Tx 5300MHz (2/2)



**UL Japan, Inc.**

**Shonan EMC Lab.**

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

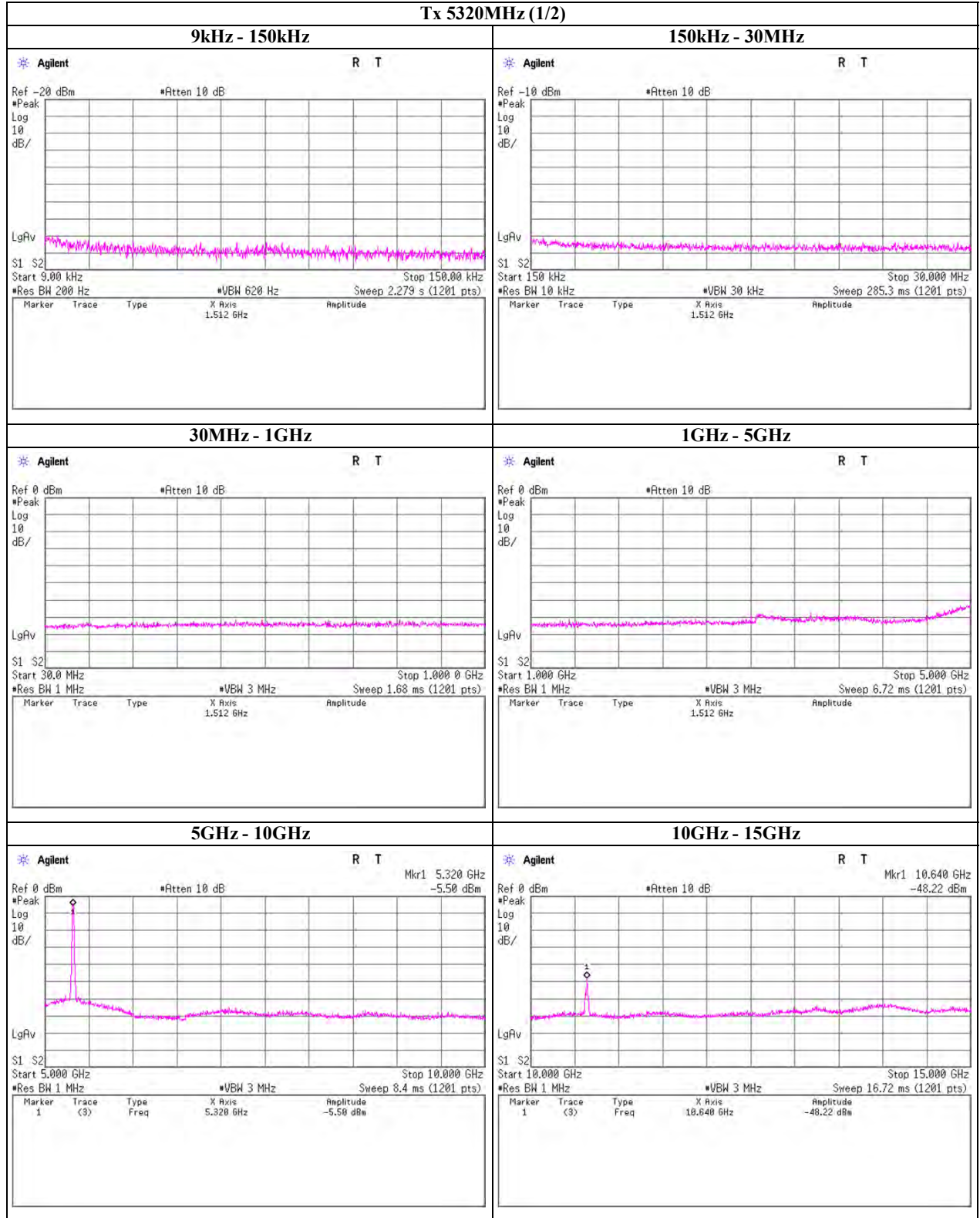
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

### Spurious emission (Conducted)

Tx, IEEE802.11a, worst antenna port Main, worst data mode 24Mbps

Tx 5320MHz (1/2)



**UL Japan, Inc.**

**Shonan EMC Lab.**

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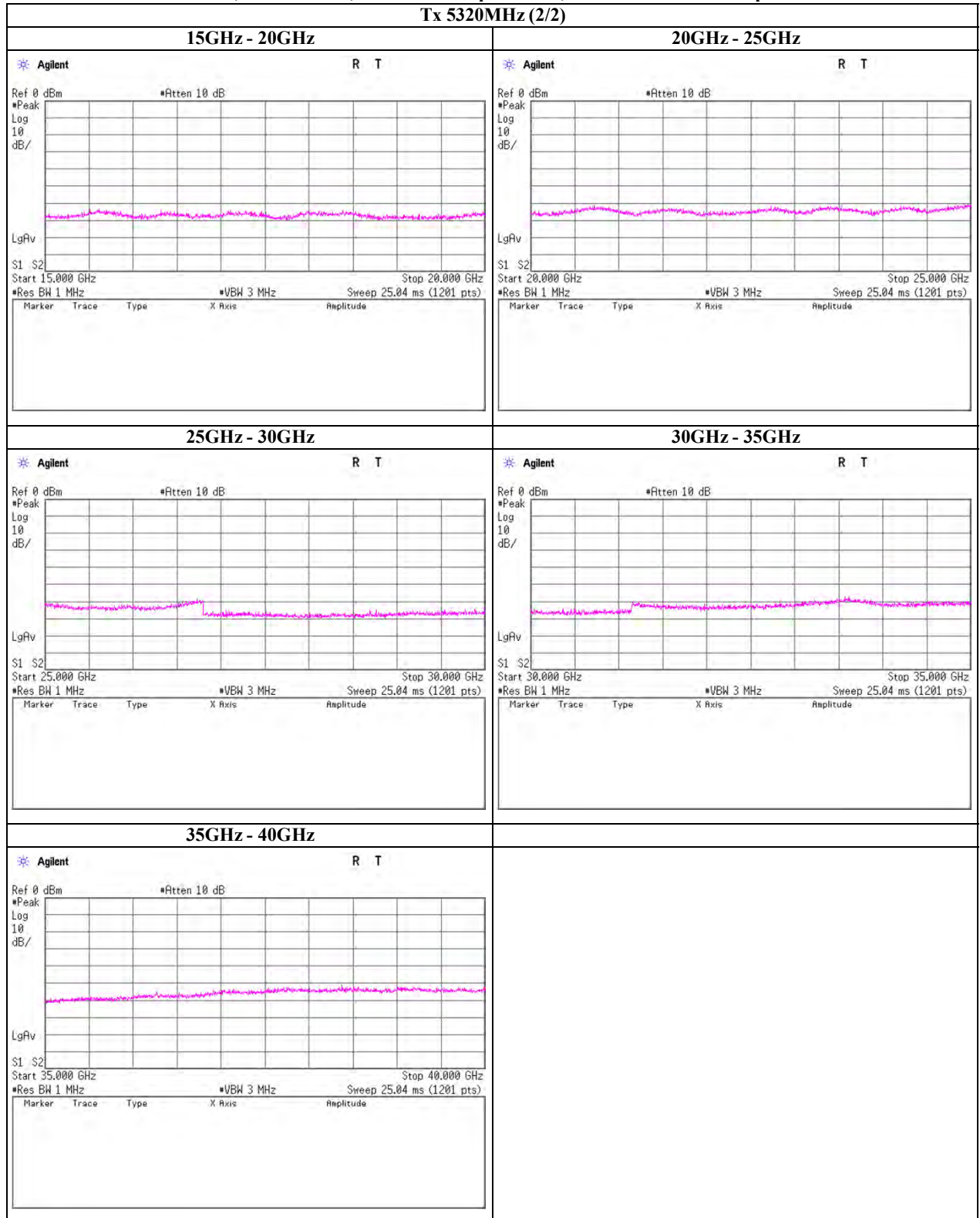
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

### Spurious emission (Conducted)

Tx, IEEE802.11a, worst antenna port Main, worst data mode 24Mbps

Tx 5320MHz (2/2)



**UL Japan, Inc.**

**Shonan EMC Lab.**

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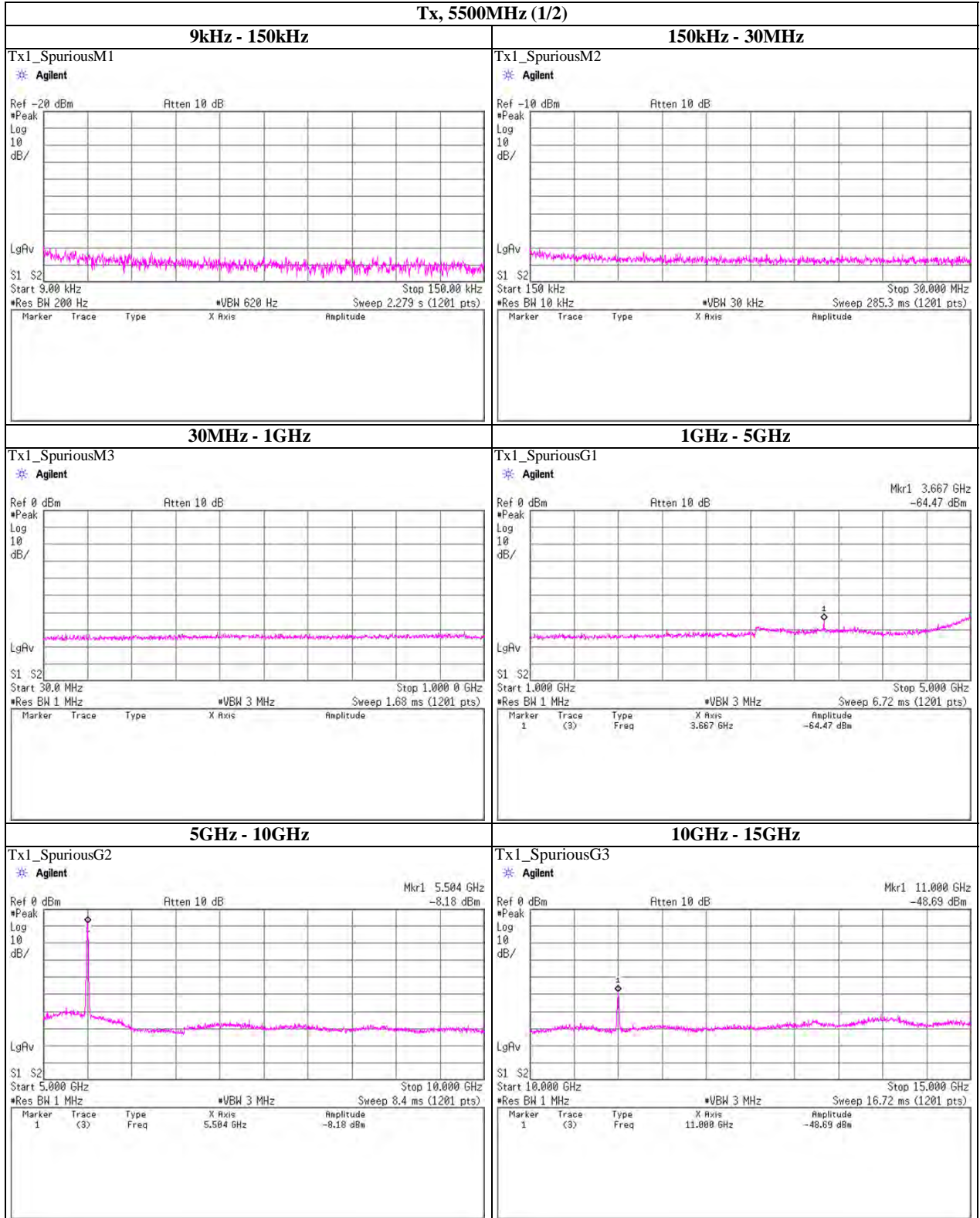
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

### Spurious emission (Conducted)

Tx, IEEE802.11a, worst antenna port Main, worst data mode 6Mbps

Tx, 5500MHz (1/2)



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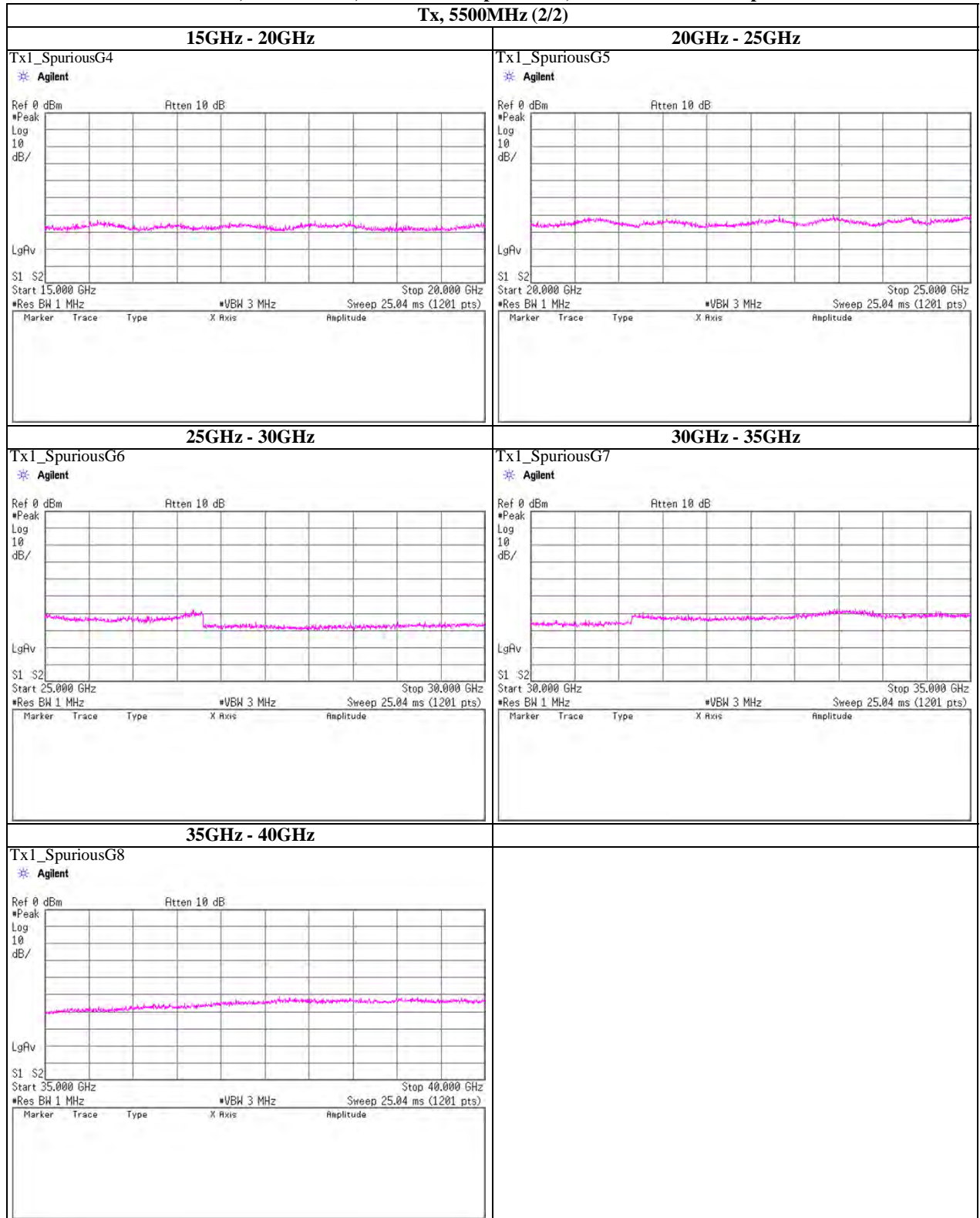
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

### Spurious emission (Conducted)

Tx, IEEE802.11a, worst antenna port Main, worst data mode 6Mbps

Tx, 5500MHz (2/2)

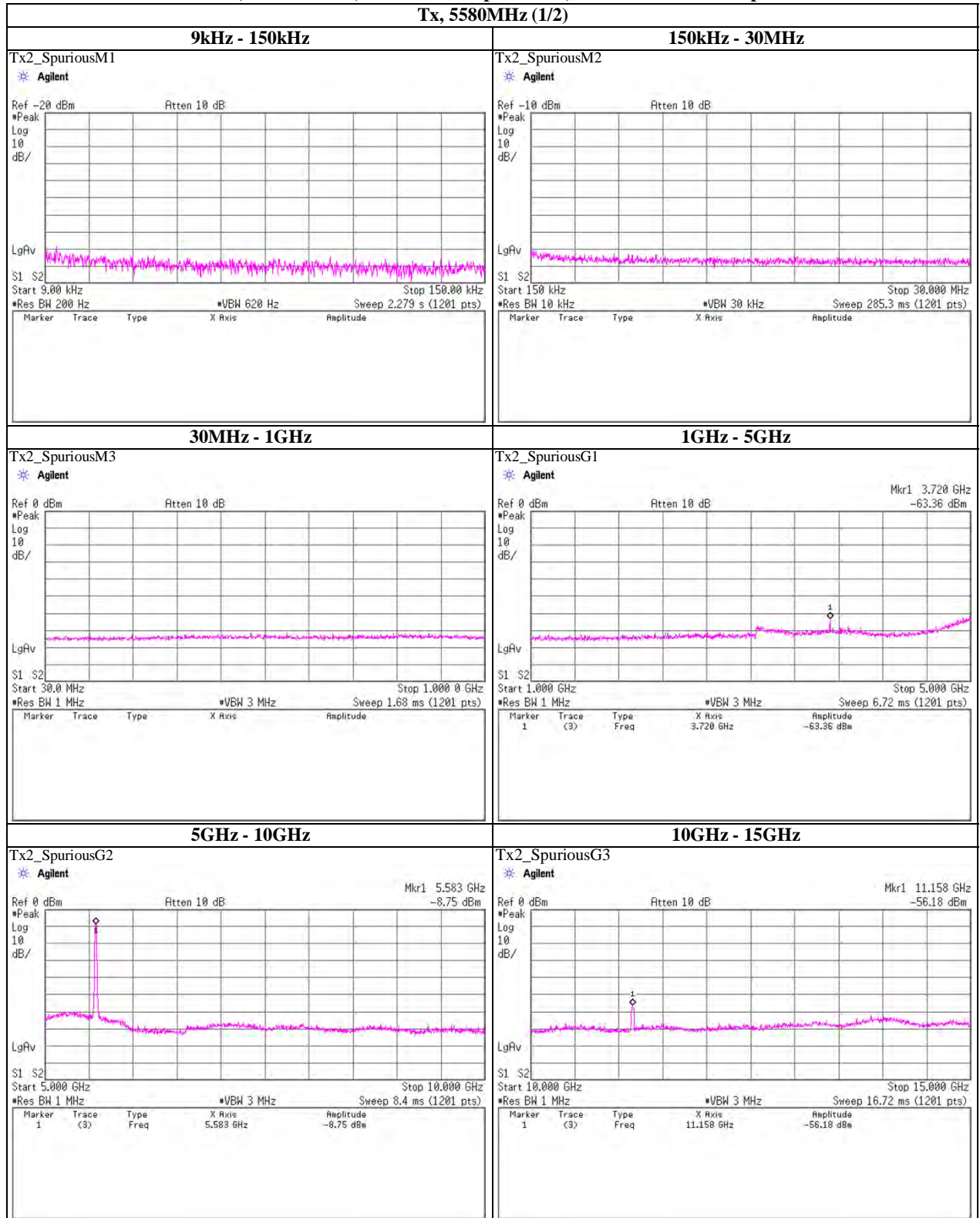


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### Spurious emission (Conducted)

Tx, IEEE802.11a, worst antenna port Main, worst data mode 6Mbps

Tx, 5580MHz (1/2)



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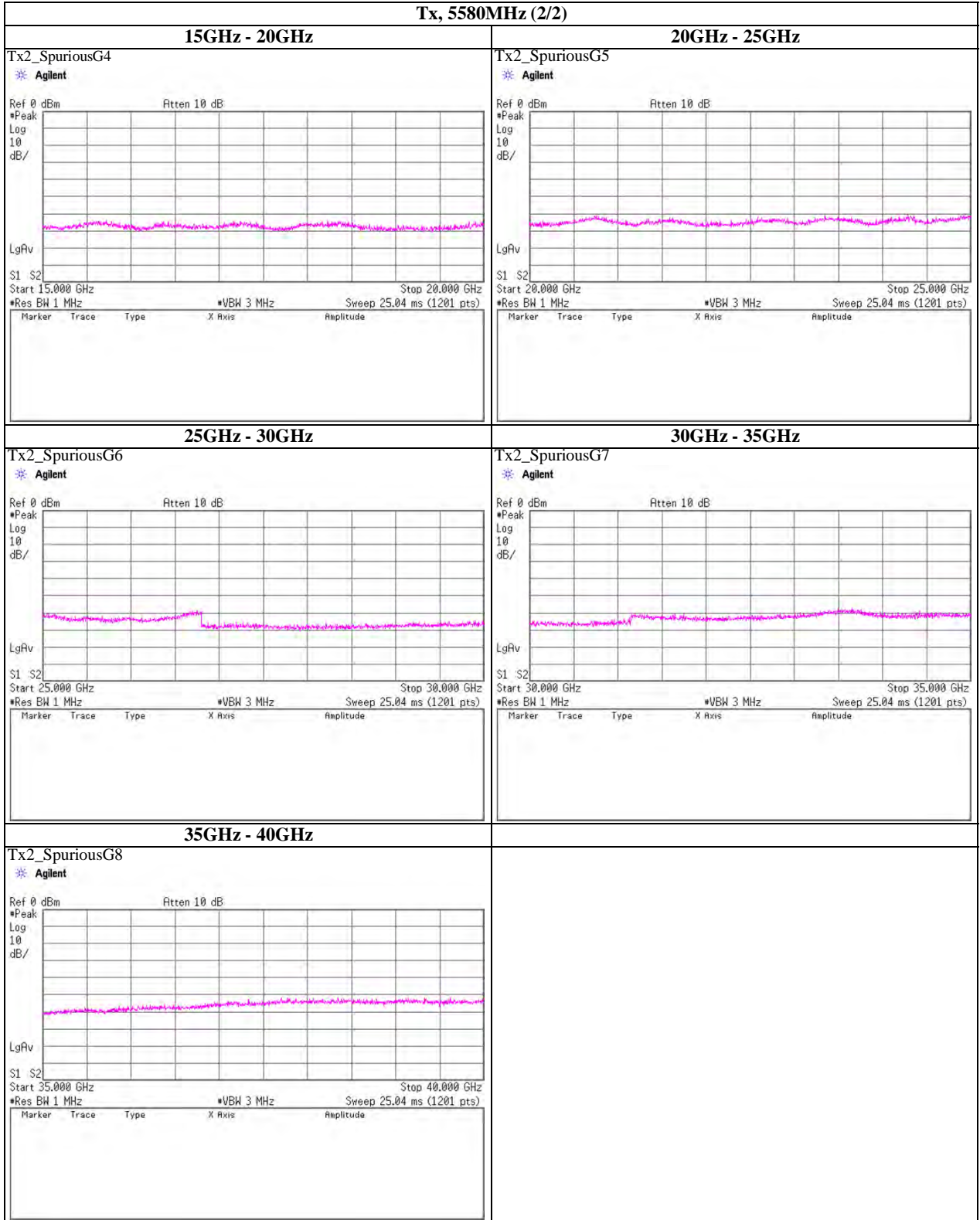
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

**Spurious emission (Conducted)**

Tx, IEEE802.11a, worst antenna port Main, worst data mode 6Mbps

Tx, 5580MHz (2/2)



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Telephone : +81 463 50 6400

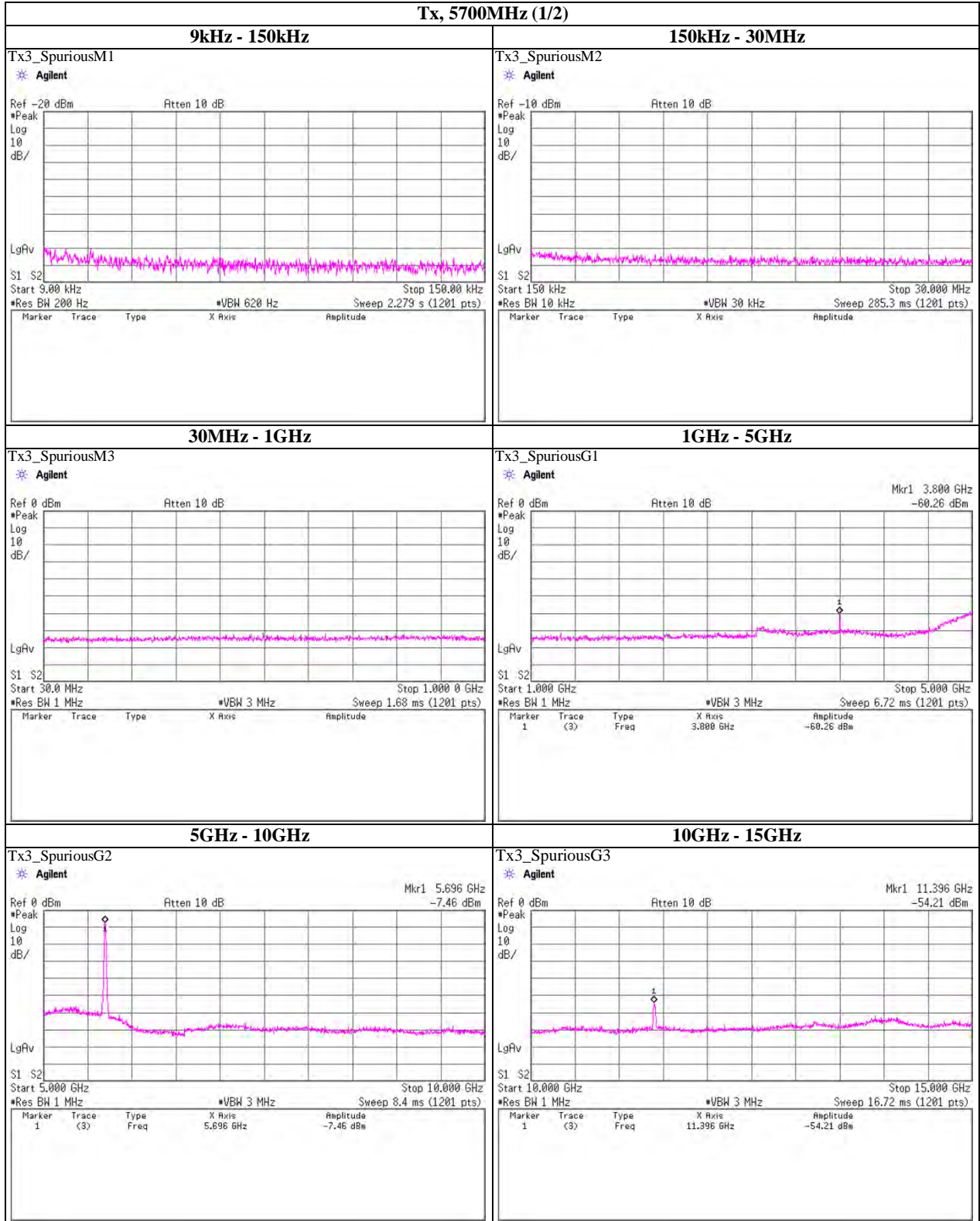
Facsimile : +81 463 50 6401



### Spurious emission (Conducted)

Tx, IEEE802.11a, worst antenna port Main, worst data mode 6Mbps

Tx, 5700MHz (1/2)



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### Spurious emission (Conducted)

Tx, IEEE802.11a, worst antenna port Main, worst data mode 6Mbps

Tx, 5700MHz (2/2)



**UL Japan, Inc.**

**Shonan EMC Lab.**

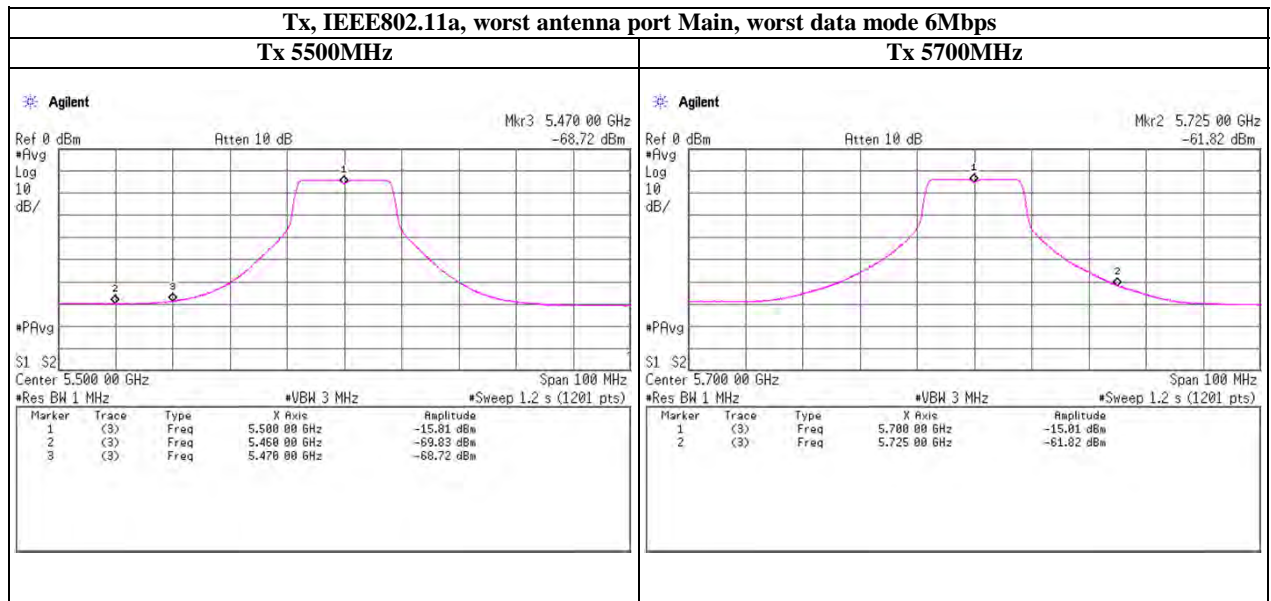
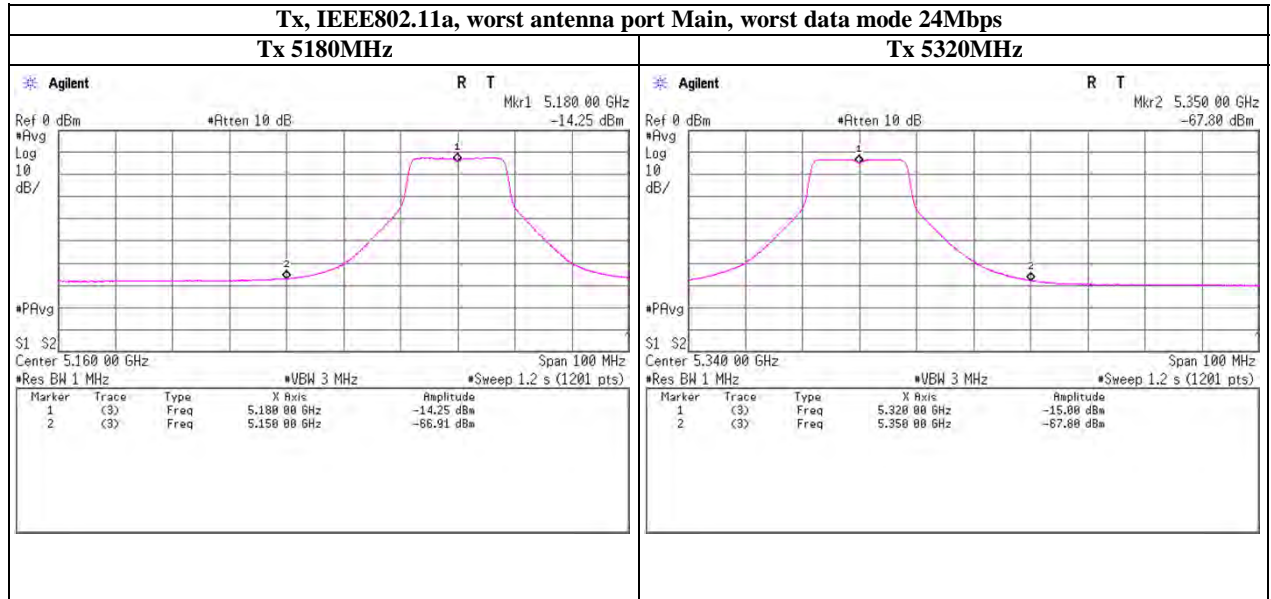
1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

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Facsimile : +81 463 50 6401

## Spurious emission (Conducted)

### Band Edge compliance



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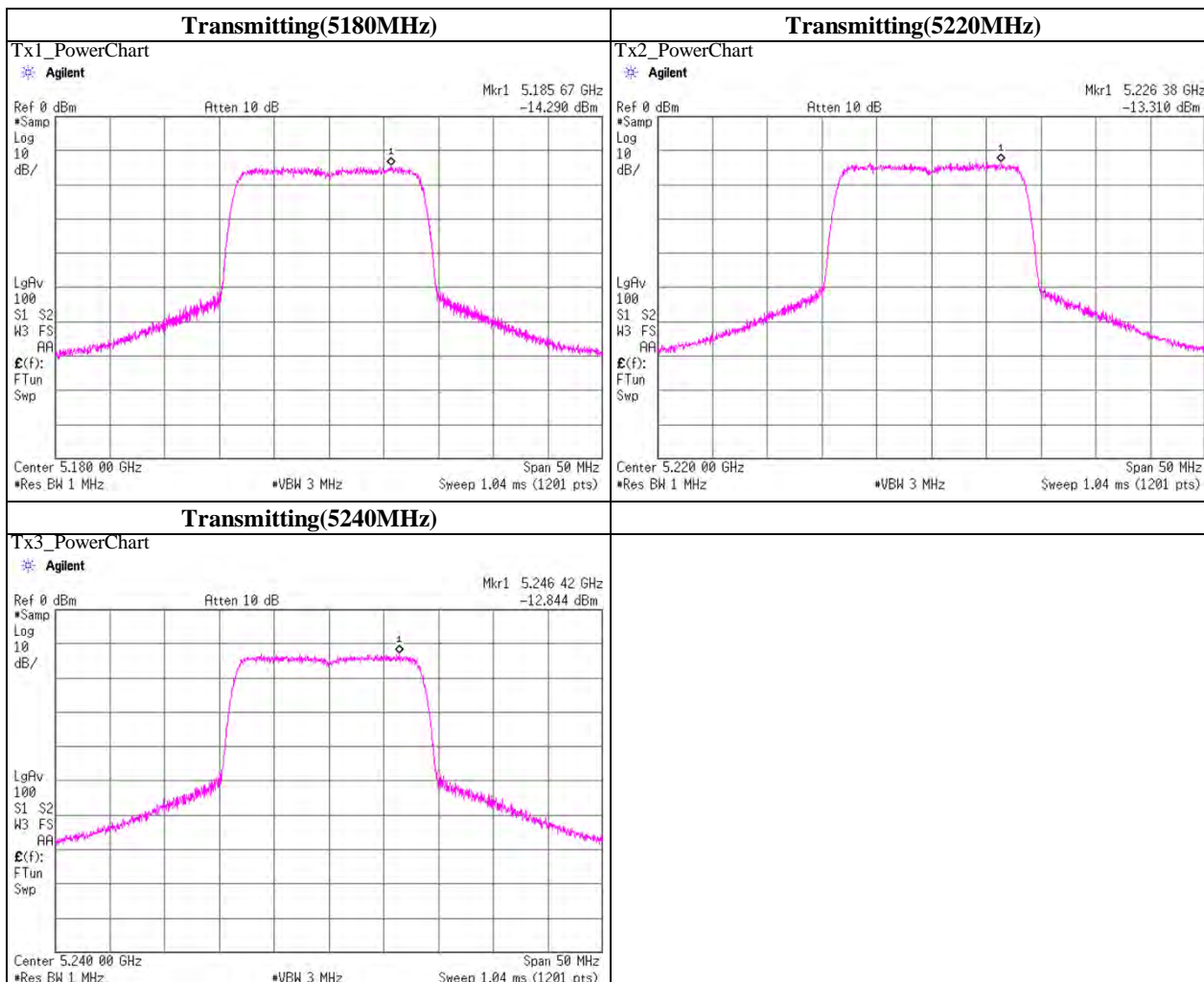
### Power Density

|                        |   |                    |
|------------------------|---|--------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.  | No.6 Shielded Room |
| Date                   | August 25, 2011   |                    |
| Temperature / Humidity | 27deg.C , 60%RH   |                    |
| Engineer               | Tatsuya Arai  |                    |
| Mode                   | Tx, IEEE802.11a, PN9, worst antenna port Main, worst data mode 24Mbps |                    |

| Ch. Freq.<br>[MHz] | Freq.<br>Reading<br>[MHz] | Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>[dB] | Result<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] |
|--------------------|---------------------------|------------------|-----------------------|----------------|-----------------|----------------|----------------|
| 5180.0000          | 5185.67                   | -14.29           | 2.54                  | 9.64           | -2.11           | 4.00           | 6.11           |
| 5220.0000          | 5226.38                   | -13.31           | 2.60                  | 9.63           | -1.08           | 4.00           | 5.08           |
| 5240.0000          | 5246.42                   | -12.84           | 2.60                  | 9.62           | -0.62           | 4.00           | 4.62           |

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Atten. Loss



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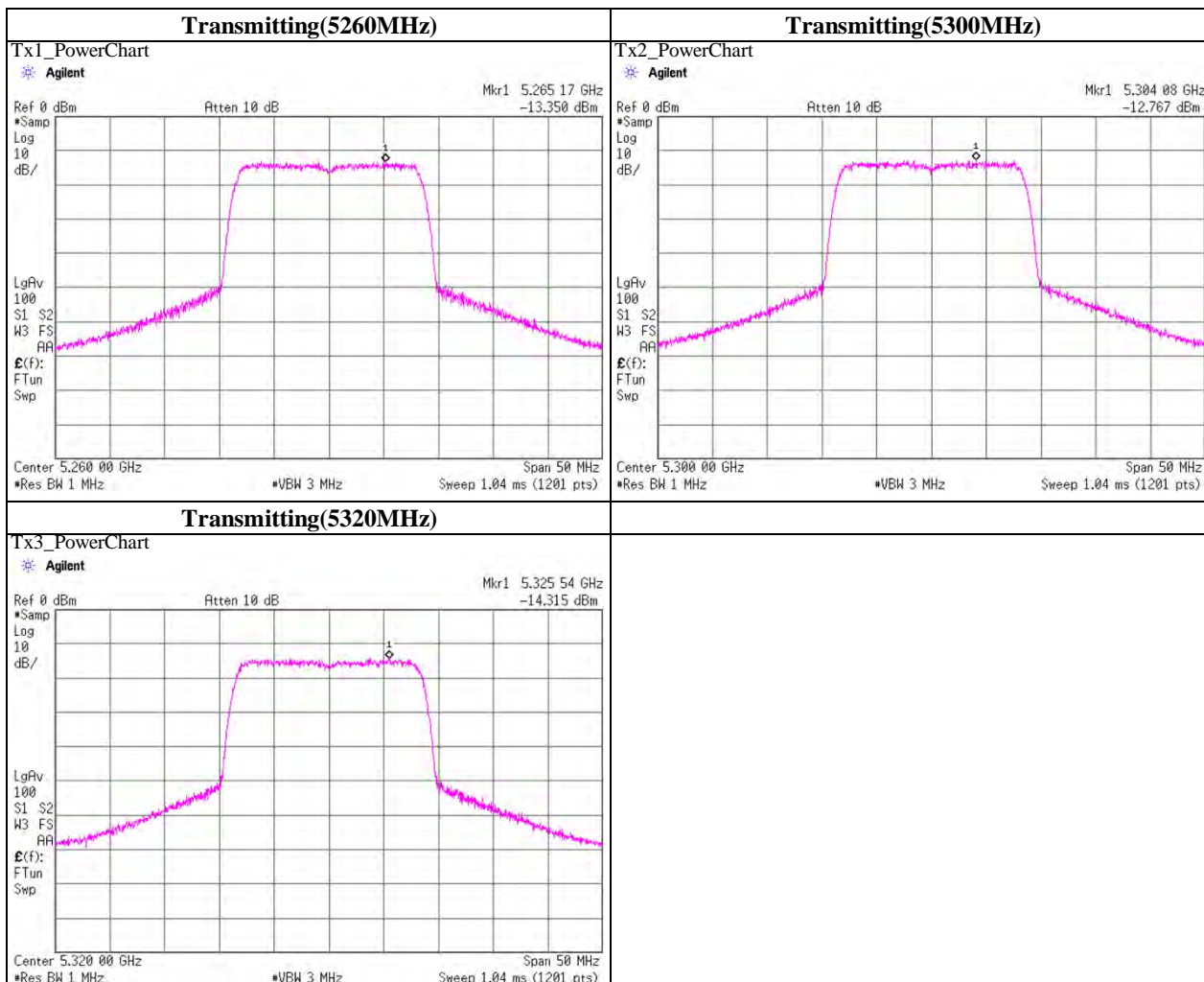
### Power Density

|                        |   |                    |
|------------------------|---|--------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.  | No.6 Shielded Room |
| Date                   | August 25, 2011   |                    |
| Temperature / Humidity | 27deg.C , 60%RH   |                    |
| Engineer               | Tatsuya Arai  |                    |
| Mode                   | Tx, IEEE802.11a, PN9, worst antenna port Main, worst data mode 24Mbps |                    |

| Ch. Freq.<br>[MHz] | Freq.<br>Reading<br>[MHz] | Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>[dB] | Result<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] |
|--------------------|---------------------------|------------------|-----------------------|----------------|-----------------|----------------|----------------|
| 5260.0000          | 5265.17                   | -13.35           | 2.59                  | 9.62           | -1.14           | 11.00          | 12.14          |
| 5300.0000          | 5304.08                   | -12.77           | 2.54                  | 9.61           | -0.62           | 11.00          | 11.62          |
| 5320.0000          | 5325.54                   | -14.32           | 2.52                  | 9.60           | -2.20           | 11.00          | 13.20          |

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Atten. Loss



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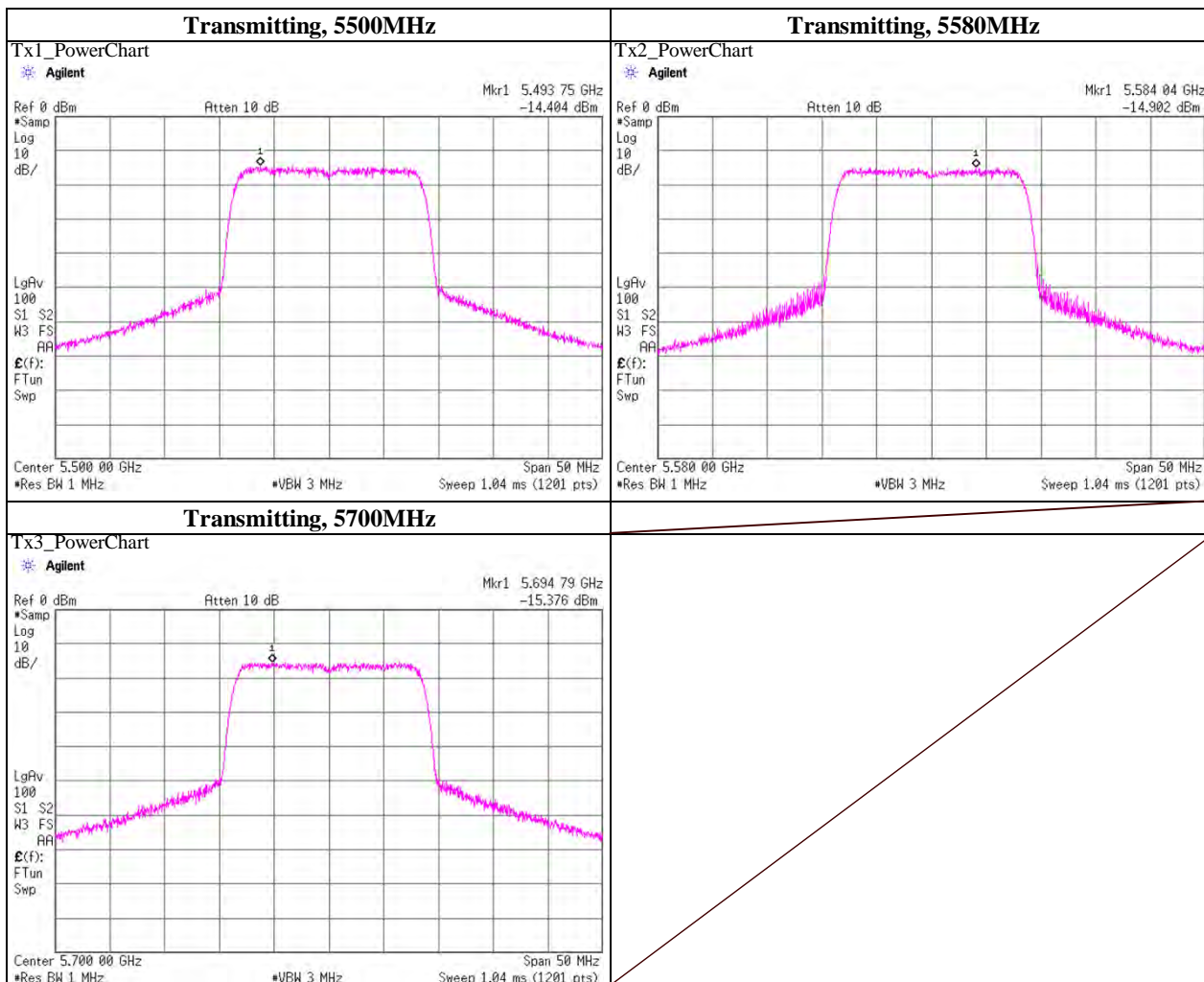
### Power Density

|                        |  |                    |
|------------------------|--|--------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.                                       | No.5 Shielded Room |
| Date                   | November 17, 2011  |                    |
| Temperature / Humidity | 23deg.C , 45%RH  |                    |
| Engineer               | Tatsuya arai   |                    |
| Mode                   | Tx, IEEE802.11a, PN9, worst antenna port Main, worst data mode 6Mbps |                    |

| Ch. Freq.<br>[MHz] | Freq.<br>Reading<br>[MHz] | Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>[dB] | Result<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] |
|--------------------|---------------------------|------------------|-----------------------|----------------|-----------------|----------------|----------------|
| 5500.0000          | 5493.75                   | -14.40           | 2.68                  | 9.56           | -2.16           | 11.00          | 13.16          |
| 5580.0000          | 5584.04                   | -14.90           | 2.58                  | 9.57           | -2.75           | 11.00          | 13.75          |
| 5700.0000          | 5694.79                   | -15.38           | 2.65                  | 9.60           | -3.13           | 11.00          | 14.13          |

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Atten. Loss

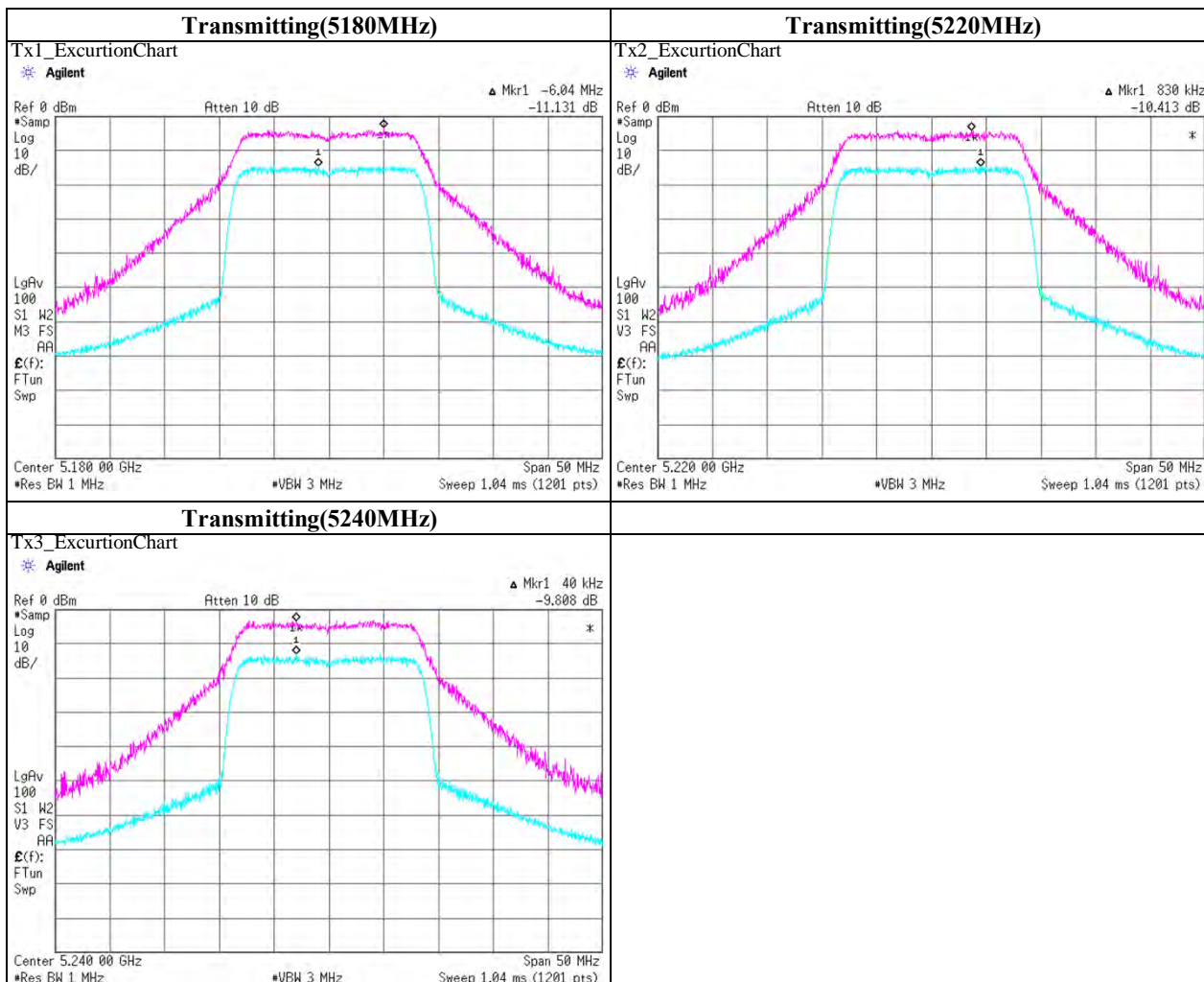


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 Facsimile : +81 463 50 6401

### Peak Excursion Ratio

|                        |   |                    |
|------------------------|---|--------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.  | No.6 Shielded Room |
| Date                   | August 25, 2011   |                    |
| Temperature / Humidity | 27deg.C , 60%RH   |                    |
| Engineer               | Tatsuya Arai  |                    |
| Mode                   | Tx, IEEE802.11a, PN9, worst antenna port Main, worst data mode 24Mbps |                    |

| Ch. Freq.<br>[MHz] | Peak Power<br>Excursion<br>[dB] | Limit<br>[dB] | Margin<br>[dB] |
|--------------------|---------------------------------|---------------|----------------|
| 5180.0000          | 11.13                           | =<13.0        | 1.87           |
| 5220.0000          | 10.41                           | =<13.0        | 2.59           |
| 5240.0000          | 9.81                            | =<13.0        | 3.19           |

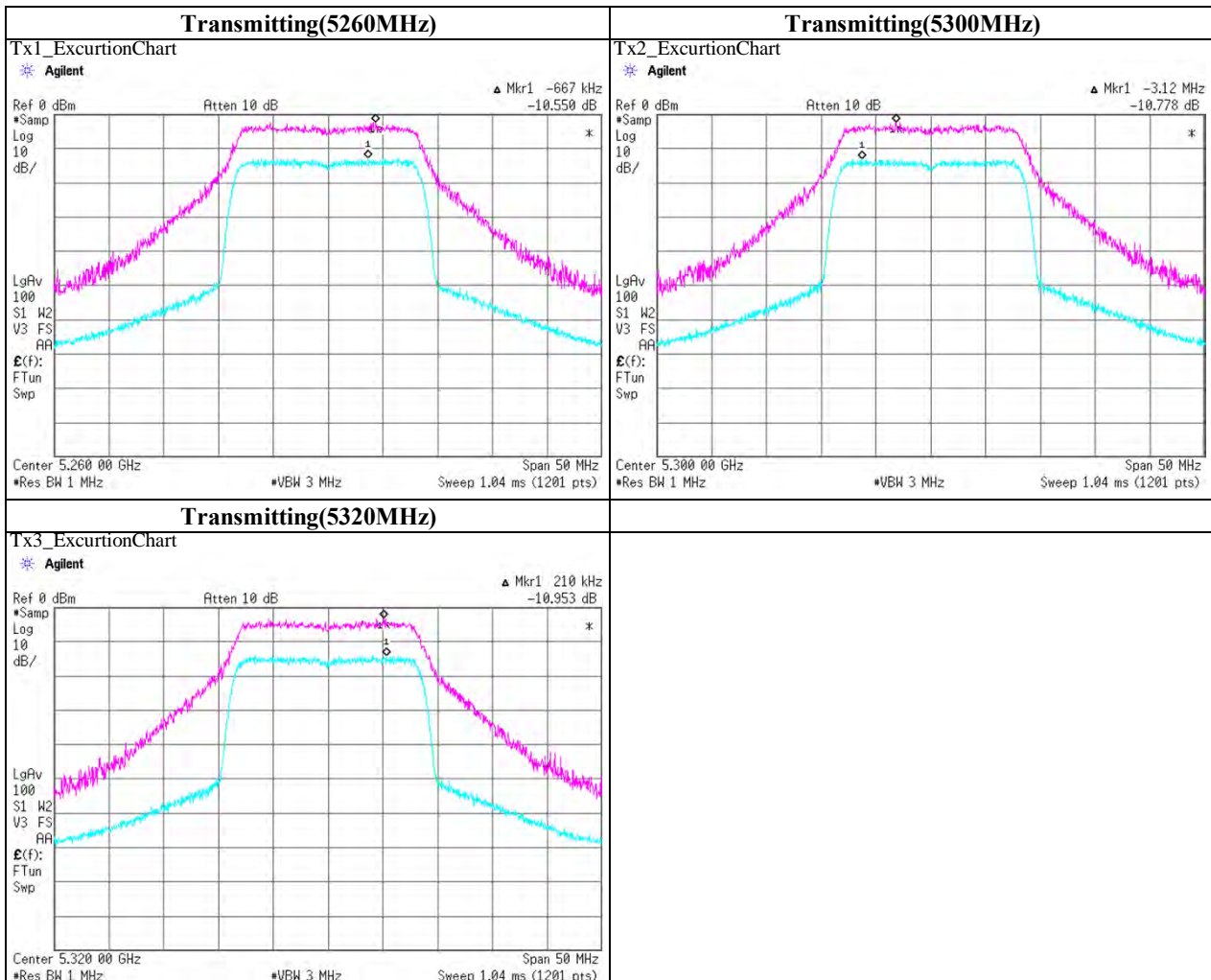


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 Telephone : +81 463 50 6400  
 Facsimile : +81 463 50 6401

## Peak Excursion Ratio

|                        |   |                    |
|------------------------|---|--------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.  | No.6 Shielded Room |
| Date                   | August 25, 2011   |                    |
| Temperature / Humidity | 27deg.C , 60%RH   |                    |
| Engineer               | Tatsuya Arai  |                    |
| Mode                   | Tx, IEEE802.11a, PN9, worst antenna port Main, worst data mode 24Mbps |                    |

| Ch. Freq.<br>[MHz] | Peak Power<br>Excursion<br>[dB] | Limit<br>[dB] | Margin<br>[dB] |
|--------------------|---------------------------------|---------------|----------------|
| 5260.0000          | 10.55                           | =<13.0        | 2.45           |
| 5300.0000          | 10.78                           | =<13.0        | 2.22           |
| 5320.0000          | 10.95                           | =<13.0        | 2.05           |



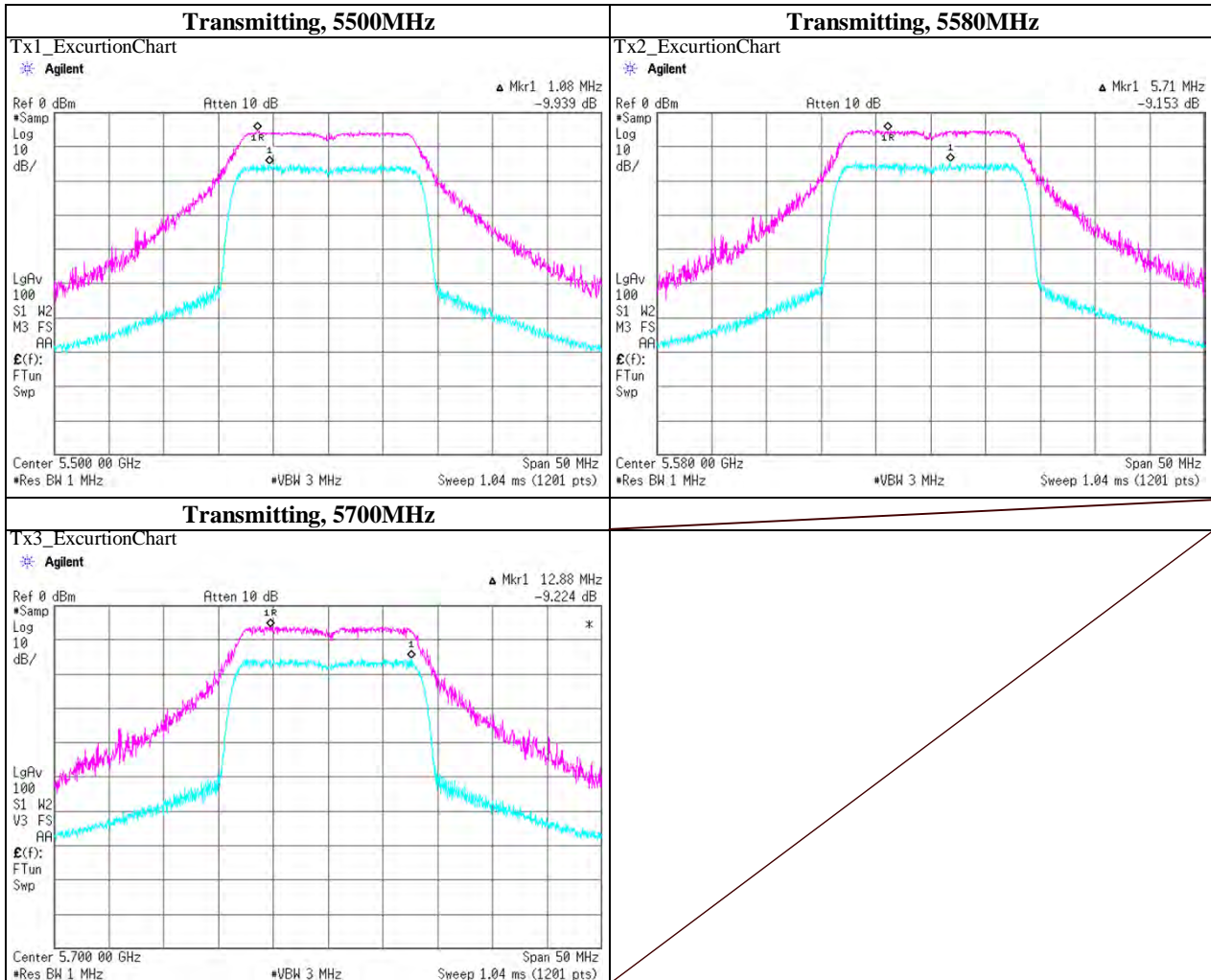
**UL Japan, Inc.**  
**Shonan EMC Lab.**  
 1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN  
 Telephone : +81 463 50 6400  
 Facsimile : +81 463 50 6401



## Peak Excursion Ratio

|                        |  |                    |
|------------------------|--|--------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.                                       | No.5 Shielded Room |
| Date                   | November 17, 2011  |                    |
| Temperature / Humidity | 23deg.C , 45%RH  |                    |
| Engineer               | Tatsuya arai   |                    |
| Mode                   | Tx, IEEE802.11a, PN9, worst antenna port Main, worst data mode 6Mbps |                    |

| Ch. Freq.<br>[MHz] | Peak Power<br>Excursion<br>[dB] | Limit<br>[dB] | Margin<br>[dB] |
|--------------------|---------------------------------|---------------|----------------|
| 5500.0000          | -9.94                           | =<13.0        | 22.94          |
| 5580.0000          | -9.15                           | =<13.0        | 22.15          |
| 5700.0000          | -9.22                           | =<13.0        | 22.22          |



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## APPENDIX 2 Test Instruments

### EMI test equipment

| Control No.                    | Instrument                | Manufacturer                                | Model No                                   | Serial No               | Test Item | Calibration Date * Interval(month) |
|--------------------------------|---------------------------|---|--|-------------------------|-----------|------------------------------------|
| SSA-03                         | Spectrum Analyzer         | Agilent                                     | E4448A                                     | MY48250152              | AT        | 2010/11/16 * 12                    |
| SCC-G11                        | Coaxial Cable             | Suhner                                      | SUCOFLEX 102                               | 31595/2                 | AT        | 2011/03/23 * 12                    |
| SAT10-09                       | Attenuator                | Weinschel Corp.                             | 54A-10                                     | W5692                   | AT        | 2010/11/24 * 12                    |
| SOS-09                         | Humidity Indicator        | A&D   | AD-5681                                    | 4061484                 | AT        | 2011/03/02 * 12                    |
| SAF-06                         | Pre Amplifier             | TOYO Corporation                            | TPA0118-36                                 | 1440491                 | RE        | 2011/07/19 * 12                    |
| SCC-G03                        | Coaxial Cable             | Suhner                                      | SUCOFLEX 104A                              | 46499/4A                | RE        | 2011/04/28 * 12                    |
| SCC-G23                        | Coaxial Cable             | Suhner                                      | SUCOFLEX 104                               | 297342/4                | RE        | 2011/05/27 * 12                    |
| SHA-03                         | Horn Antenna              | Schwarzbeck                                 | BBHA9120D                                  | 9120D-739               | RE        | 2011/08/28 * 12                    |
| SOS-05                         | Humidity Indicator        | A&D   | AD-5681                                    | 4062518                 | RE        | 2011/02/23 * 12                    |
| SSA-02                         | Spectrum Analyzer         | Agilent                                     | E4448A                                     | MY48250106              | RE        | 2011/03/07 * 12                    |
| SJM-10                         | Measure                   | PROMART                                     | SEN1935                                    | -                       | RE        | -                                  |
| COTS-SEMI-1                    | EMI Software              | TSJ   | TEPTO-DV(RE,CE,RFI,MF)                     | -                       | RE        | -                                  |
| SAT10-05                       | Attenuator(above1GHz)     | Agilent                                     | 8493C-010                                  | 74864                   | RE        | 2010/12/15 * 12                    |
| SFL-03                         | Highpass Filter           | MICRO-TRONICS                               | HPM50112                                   | 028                     | RE        | 2010/12/15 * 12                    |
| SAF-02                         | Pre Amplifier             | SONOMA                                      | 310N                                       | 290212                  | RE        | 2011/02/17 * 12                    |
| SAT6-02                        | Attenuator                | JFW   | 50HF-006N                                  | -                       | RE        | 2011/02/17 * 12                    |
| SAT3-02                        | Attenuator                | JFW   | 50HF-003N                                  | -                       | RE        | 2011/02/17 * 12                    |
| SBA-02                         | Biconical Antenna         | Schwarzbeck                                 | BBA9106                                    | 91032665                | RE        | 2011/09/10 * 12                    |
| SCC-B1/B3/B5/B7/B8/B13/SRSE-02 | Coaxial Cable&RF Selector | Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO | 8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906 | -/0901-270(RF Selector) | RE        | 2011/04/28 * 12                    |
| SCC-B2/B4/B6/B7/B8/B13/SRSE-02 | Coaxial Cable&RF Selector | Fujikura/Fujikura/Suhner/Suhner/Suhner/TOYO | 8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906 | -/0901-270(RF Selector) | RE        | 2011/04/28 * 12                    |
| SLA-02                         | Logperiodic Antenna       | Schwarzbeck                                 | UHALP9108A                                 | UHALP 9108-A 0893       | RE        | 2011/09/10 * 12                    |
| SOS-03                         | Humidity Indicator        | A&D   | AD-5681                                    | 4063325                 | RE        | 2011/02/23 * 12                    |
| STR-02                         | Test Receiver             | Rohde & Schwarz                             | ESCI                                       | 100575                  | RE        | 2011/08/04 * 12                    |
| SJM-02                         | Measure                   | KOMELON                                     | KMC-36                                     | -                       | RE        | -                                  |
| SAEC-02(NSA)                   | Semi-Anechoic Chamber     | TDK   | SAEC-02(NSA)                               | 2                       | RE        | 2011/09/25 * 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 test

Test Report No :31HE0102-SH-04-A

## APPENDIX 2 Test Instruments

### EMI test equipment

| Control No. | Instrument       | Manufacturer     | Model No      | Serial No  | Test Item | Calibration Date *<br>Interval(month) |
|-------------|------------------|------------------|---------------|------------|-----------|---------------------------------------|
| SHA-05      | Horn Antenna     | ETS LINDGREN     | 3160-09       | LM4210     | RE        | 2011/03/15 * 12                       |
| SHA-06      | Horn Antenna     | ETS LINDGREN     | 3160-10       | LM3459     | RE        | 2011/03/15 * 12                       |
| SCC-G18     | Coaxial Cable    | Suhner           | SUCOFLEX 104A | 46292/4A   | RE        | 2011/03/16 * 12                       |
| SCC-G19     | Coaxial Cable    | Suhner           | SUCOFLEX 102A | 1188/2A    | RE        | 2011/03/16 * 12                       |
| SAF-09      | Pre Amplifier    | TOYO Corporation | HAP18-26W     | 00000018   | RE        | 2011/03/16 * 12                       |
| SAF-10      | Pre Amplifier    | TOYO Corporation | HAP26-40W     | 00000010   | RE        | 2011/03/16 * 12                       |
| SSG-02      | Signal Generator | Agilent          | E8257D-540    | MY48051404 | RE        | 2011/03/01 * 12                       |
| SCC-G16     | Coaxial Cable    | Suhner           | SUCOFLEX 102  | 32704/2    | RE        | 2011/03/23 * 12                       |
| SHA-RS01    | Horn Antenna     | Schwarzbeck      | BBHA9120D     | 770        | RE        | 2011/08/11 * 12                       |
| SHA-07      | Horn Antenna     | ETS-LINDGREN     | 3116          | 00108256   | RE        | 2011/03/15 * 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,