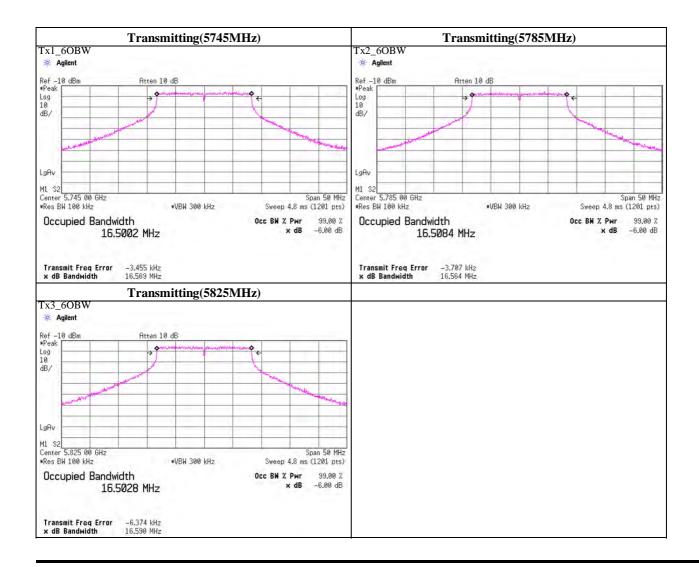
-6dB Bandwidth

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 Sub, worst data mode 36Mbps

| Freq. | -6dB Bandwidth | Limit |
|-----------|----------------|---------|
| [MHz] | [MHz] | [MHz] |
| 5745.0000 | 16.569 | > 0.500 |
| 5785.0000 | 16.564 | > 0.500 |
| 5825.0000 | 16.590 | > 0.500 |



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Shonan EMC Lab.

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Peak Output Power (Conducted)

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

Date August 19, 2011
Temperature / Humidity 28deg.C , 47%RH
Engineer Shinichi Takano

Mode Tx, IEEE802.11a, PN9, worst antenna: Sub worst data mode: 36 Mbps

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

| | | (1/WL TOWE | with po | | | | | | |
|------|--------|-------------|---------|--------|--------|-------|-------|------|--------|
| Ch | Freq. | P/M (PK) | Cable | Atten. | Result | | Liı | mit | Margin |
| | | Reading | Loss | Loss | | | | | |
| | [MHz] | [dBm] | [dB] | [dB] | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| Low | 5745.0 | 4.63 | 2.77 | 9.60 | 17.00 | 50.12 | 30.00 | 1000 | 13.00 |
| Mid | 5785.0 | 5.40 | 2.78 | 9.61 | 17.79 | 60.12 | 30.00 | 1000 | 12.21 |
| High | 5825.0 | 5.79 | 2.72 | 9.61 | 18.12 | 64.86 | 30.00 | 1000 | 11.88 |

Sample Calculation:

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

[Pre check] Antenna Main

| | mitchia i | | | | | | | | | | |
|------|-----------|--------|----------|-------|--------|-------|--------|-------|-------|-------|--|
| | Data rate | Freq. | P/M (PK) | Cable | Atten. | Re | Result | | Limit | | |
| | | | Reading | Loss | Loss | | _ | | | | |
| | [Mbps] | [MHz] | [dBm] | [dB] | [dB] | [dBm] | [mW] | [dBm] | [mW] | [dB] | |
| Main | 6 | 5785.0 | 4.51 | 2.78 | 9.61 | 16.90 | 48.98 | 30.00 | 1000 | 13.10 | |
| Main | 9 | 5785.0 | 4.44 | 2.78 | 9.61 | 16.83 | 48.19 | 30.00 | 1000 | 13.17 | |
| Main | 12 | 5785.0 | 4.45 | 2.78 | 9.61 | 16.84 | 48.31 | 30.00 | 1000 | 13.16 | |
| Main | 18 | 5785.0 | 4.39 | 2.78 | 9.61 | 16.78 | 47.64 | 30.00 | 1000 | 13.22 | |
| Main | 24 | 5785.0 | 4.52 | 2.78 | 9.61 | 16.91 | 49.09 | 30.00 | 1000 | 13.09 | |
| Main | 36 | 5785.0 | 4.54 | 2.78 | 9.61 | 16.93 | 49.32 | 30.00 | 1000 | 13.07 | |
| Main | 48 | 5785.0 | 4.45 | 2.78 | 9.61 | 16.84 | 48.31 | 30.00 | 1000 | 13.16 | |
| Main | 54 | 5785.0 | 4.50 | 2.78 | 9.61 | 16.89 | 48.87 | 30.00 | 1000 | 13.11 | |

Antenna Sub

| | Antenna Bub | | | | | | | | | | | | |
|-----|-------------|--------|----------|-------|--------|-------|--------|-------|------|--------|--|--|--|
| | Data rate | Freq. | P/M (PK) | Cable | Atten. | Re | Result | | mit | Margin | | | |
| | | | Reading | Loss | Loss | | | | | | | | |
| | [Mbps] | [MHz] | [dBm] | [dB] | [dB] | [dBm] | [mW] | [dBm] | [mW] | [dB] | | | |
| Sub | 6 | 5785.0 | 5.32 | 2.78 | 9.61 | 17.71 | 59.02 | 30.00 | 1000 | 12.29 | | | |
| Sub | 9 | 5785.0 | 5.35 | 2.78 | 9.61 | 17.74 | 59.43 | 30.00 | 1000 | 12.26 | | | |
| Sub | 12 | 5785.0 | 5.28 | 2.78 | 9.61 | 17.67 | 58.48 | 30.00 | 1000 | 12.33 | | | |
| Sub | 18 | 5785.0 | 5.26 | 2.78 | 9.61 | 17.65 | 58.21 | 30.00 | 1000 | 12.35 | | | |
| Sub | 24 | 5785.0 | 5.36 | 2.78 | 9.61 | 17.75 | 59.57 | 30.00 | 1000 | 12.25 | | | |
| Sub | 36 | 5785.0 | 5.40 | 2.78 | 9.61 | 17.79 | 60.12 | 30.00 | 1000 | 12.21 | | | |
| Sub | 48 | 5785.0 | 5.36 | 2.78 | 9.61 | 17.75 | 59.57 | 30.00 | 1000 | 12.25 | | | |
| Sub | 54 | 5785.0 | 5.37 | 2.78 | 9.61 | 17.76 | 59.70 | 30.00 | 1000 | 12.24 | | | |

UL Japan, Inc. Shonan EMC Lab.

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

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date August 22, 2011 August 28, 2011 August 29, 2011
Temperature / Humidity 27deg.C ,63%RH 23deg.C ,62%RH 23deg.C ,55%RH
Engineer Tatsuya Arai Tatsuya Arai Tatsuya Arai

Mode Tx, 5745 MHz

Tx, IEEE802.11a, PN9, worst antenna port Sub, worst data mode 36Mbps

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

| Polarity | Frequency | Detector | Reading | Ant.Fac. | Loss | Gain | Result | Limit | Margin | Height | Angle | Remark |
|----------|-----------|----------|---------|----------|------|------|----------|----------|--------|--------|--------|--------|
| | [MHz] | | [dBuV] | [dB/m] | [dB] | [dB] | [dBuV/m] | [dBuV/m] | [dB] | [cm] | [deg.] | |
| Hori. | 52.000 | QP | 23.0 | 10.6 | 7.3 | 31.9 | 9.0 | 40.0 | 31.0 | 200 | 0 | |
| Hori. | 956.472 | QP | 23.5 | 22.6 | 10.2 | 30.5 | 25.8 | 46.0 | 20.2 | 100 | 174 | |
| Hori. | 3830.000 | PK | 51.2 | 29.9 | 14.8 | 41.7 | 54.2 | 73.9 | 19.7 | 103 | 165 | |
| Hori. | 5725.000 | PK | 57.1 | 32.9 | 15.9 | 40.4 | 65.5 | 73.9 | 8.4 | 102 | 185 | |
| Hori. | 7660.000 | PK | 48.7 | 37.3 | 7.3 | 41.3 | 52.0 | 73.9 | 21.9 | 110 | 181 | |
| Hori. | 11490.000 | PK | 44.0 | 40.2 | 9.1 | 39.6 | 53.7 | 73.9 | 20.2 | 100 | 0 | |
| Hori. | 17235.000 | PK | 47.1 | 44.2 | 2.0 | 39.6 | 53.7 | 73.9 | 20.2 | 100 | 0 | |
| Hori. | 22980.000 | PK | 46.7 | 40.4 | -2.2 | 45.2 | 39.7 | 73.9 | 34.2 | 100 | 0 | |
| Hori. | 26600.000 | PK | 56.4 | 43.0 | 3.2 | 68.6 | 34.0 | 73.9 | 39.9 | 100 | 0 | |
| Hori. | 3830.000 | AV | 45.5 | 29.9 | 14.8 | 41.7 | 48.5 | 53.9 | 5.4 | 103 | 165 | |
| Hori. | 5725.000 | AV | 41.7 | 32.9 | 15.9 | 40.4 | 50.1 | 53.9 | 3.8 | 102 | 185 | |
| Hori. | 7660.000 | AV | 38.4 | 37.3 | 7.3 | 41.3 | 41.7 | 53.9 | 12.2 | 110 | 181 | |
| Hori. | 11490.000 | AV | 33.2 | 40.2 | 9.1 | 39.6 | 42.9 | 53.9 | 11.0 | 100 | 0 | |
| Hori. | 17235.000 | AV | 35.4 | 44.2 | 2.0 | 39.6 | 42.0 | 53.9 | 11.9 | 100 | 0 | |
| Hori. | 22980.000 | AV | 34.9 | 40.4 | -2.2 | 45.2 | 27.9 | 53.9 | 26.0 | 100 | 0 | |
| Hori. | 26600.000 | AV | 48.0 | 43.0 | 3.2 | 68.6 | 25.6 | 53.9 | 28.3 | 100 | 0 | |
| Vert. | 52.000 | QP | 22.9 | 10.6 | 7.3 | 31.9 | 8.9 | 40.0 | 31.1 | 100 | 0 | |
| Vert. | | QP | 23.0 | 22.6 | 10.2 | 30.5 | 25.3 | 46.0 | 20.7 | 100 | 0 | |
| Vert. | 3830.000 | PK | 51.3 | 29.9 | 14.8 | 41.7 | 54.3 | 73.9 | 19.6 | 100 | 281 | |
| Vert. | 5725.000 | PK | 56.9 | 32.9 | 15.9 | 40.4 | 65.3 | 73.9 | 8.6 | 100 | 253 | |
| Vert. | 7660.000 | PK | 48.9 | 37.3 | 7.3 | 41.3 | 52.2 | 73.9 | 21.7 | 100 | 268 | |
| Vert. | | PK | 44.5 | 40.2 | 9.1 | 39.6 | 54.2 | 73.9 | 19.7 | 100 | 51 | |
| Vert. | | PK | 46.4 | 44.2 | 2.0 | 39.6 | 53.0 | 73.9 | 20.9 | 100 | 0 | |
| Vert. | | PK | 46.3 | 40.4 | -2.2 | 45.2 | 39.3 | 73.9 | 34.6 | 100 | 0 | |
| Vert. | | PK | 55.0 | 43.0 | 3.2 | 68.6 | 32.6 | 73.9 | 41.3 | 100 | 0 | |
| Vert. | | AV | 44.6 | 29.9 | 14.8 | 41.7 | 47.6 | 53.9 | 6.3 | 100 | 281 | |
| Vert. | | AV | 41.6 | 32.9 | 15.9 | 40.4 | 50.0 | 53.9 | 3.9 | 100 | 253 | |
| Vert. | | AV | 39.0 | 37.3 | 7.3 | 41.3 | 42.3 | 53.9 | 11.6 | 100 | 268 | |
| Vert. | | AV | 34.3 | 40.2 | 9.1 | 39.6 | 44.0 | 53.9 | 9.9 | 100 | 51 | |
| Vert. | | AV | 35.5 | 44.2 | 2.0 | 39.6 | 42.1 | 53.9 | 11.8 | 100 | 0 | |
| Vert. | | AV | 35.1 | 40.4 | -2.2 | 45.2 | 28.1 | 53.9 | 25.8 | 100 | 0 | |
| Vert. | 26600.000 | AV | 48.4 | 43.0 | 3.2 | 68.6 | 26.0 | 53.9 | 27.9 | 100 | 0 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amprifier)

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc. Shonan EMC Lab.

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

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

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date August 22, 2011 August 28, 2011 August 29, 2011
Temperature / Humidity 27deg.C ,63%RH 23deg.C ,62%RH 23deg.C ,55%RH
Engineer Tatsuya Arai Tatsuya Arai Tatsuya Arai

Mode Tx, 5785 MHz

Tx, IEEE802.11a, PN9, worst antenna port Sub, worst data mode 36Mbps

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

| Polarity | Frequency | Detector | Reading | Ant.Fac. | Loss | Gain | Result | Limit | Margin | Height | Angle | Remark |
|----------|-----------|----------|---------|----------|------|------|----------|----------|--------|--------|--------|--------|
| | [MHz] | | [dBuV] | [dB/m] | [dB] | [dB] | [dBuV/m] | [dBuV/m] | [dB] | [cm] | [deg.] | |
| Hori. | 52.000 | QP | 23.1 | 10.6 | 7.3 | 31.9 | 9.1 | 40.0 | 30.9 | 200 | 0 | |
| Hori. | 719.991 | QP | 23.2 | 20.6 | 9.2 | 31.5 | 21.5 | 46.0 | 24.5 | 100 | 212 | |
| Hori. | 938.365 | QP | 23.3 | 22.4 | 10.2 | 30.6 | 25.3 | 46.0 | 20.7 | 100 | 228 | |
| Hori. | 3856.664 | PK | 52.0 | 29.9 | 14.8 | 41.7 | 55.0 | 73.9 | 18.9 | 101 | 180 | |
| Hori. | 7713.328 | PK | 48.7 | 37.4 | 7.4 | 41.3 | 52.2 | 73.9 | 21.7 | 100 | 184 | |
| Hori. | 11570.000 | PK | 43.5 | 40.0 | 9.2 | 39.5 | 53.2 | 73.9 | 20.7 | 100 | 0 | |
| Hori. | 17355.000 | PK | 46.4 | 45.1 | 2.2 | 39.5 | 54.2 | 73.9 | 19.7 | 100 | 0 | |
| Hori. | 23140.000 | PK | 45.4 | 40.4 | -2.1 | 45.2 | 38.5 | 73.9 | 35.4 | 100 | 0 | |
| Hori. | 28925.000 | PK | 61.5 | 43.4 | 3.6 | 67.0 | 41.5 | 73.9 | 32.4 | 100 | 0 | |
| Hori. | 3856.664 | AV | 46.4 | 29.9 | 14.8 | 41.7 | 49.4 | 53.9 | 4.5 | 101 | 180 | |
| Hori. | 7713.328 | AV | 38.8 | 37.4 | 7.4 | 41.3 | 42.3 | 53.9 | 11.6 | 100 | 184 | |
| Hori. | 11570.000 | AV | 33.4 | 40.0 | 9.2 | 39.5 | 43.1 | 53.9 | 10.8 | 100 | 0 | |
| Hori. | 17355.000 | AV | 35.4 | 45.1 | 2.2 | 39.5 | 43.2 | 53.9 | 10.7 | 100 | 0 | |
| Hori. | 23140.000 | AV | 34.3 | 40.4 | -2.1 | 45.2 | 27.4 | 53.9 | 26.5 | 100 | 0 | |
| Hori. | 28925.000 | AV | 50.7 | 43.4 | 3.6 | 67.0 | 30.7 | 53.9 | 23.2 | 100 | 0 | |
| Vert. | 52.000 | QP | 23.0 | 10.6 | 7.3 | 31.9 | 9.0 | 40.0 | 31.0 | 100 | 0 | |
| Vert. | 719.991 | QP | 22.8 | 20.6 | 9.2 | 31.5 | 21.1 | 46.0 | 24.9 | 100 | 0 | |
| Vert. | 938.365 | QP | 22.8 | 22.4 | 10.2 | 30.6 | 24.8 | 46.0 | 21.2 | 100 | 0 | |
| Vert. | 3856.664 | PK | 51.6 | 29.9 | 14.8 | 41.7 | 54.6 | 73.9 | 19.3 | 100 | 270 | |
| Vert. | 7713.328 | PK | 49.7 | 37.4 | 7.4 | 41.3 | 53.2 | 73.9 | 20.7 | 100 | 253 | |
| Vert. | 11570.000 | PK | 43.8 | 40.0 | 9.2 | 39.5 | 53.5 | 73.9 | 20.4 | 100 | 0 | |
| Vert. | 17355.000 | PK | 47.5 | 45.1 | 2.2 | 39.5 | 55.3 | 73.9 | 18.6 | 100 | 0 | |
| Vert. | 23140.000 | PK | 44.9 | 40.4 | -2.1 | 45.2 | 38.0 | 73.9 | 35.9 | 100 | 0 | |
| Vert. | 28925.000 | PK | 60.8 | 43.4 | 3.6 | 67.0 | 40.8 | 73.9 | 33.1 | 100 | 0 | |
| Vert. | 3856.664 | AV | 45.6 | 29.9 | 14.8 | 41.7 | 48.6 | 53.9 | 5.3 | 100 | 270 | |
| Vert. | 7713.328 | AV | 39.2 | 37.4 | 7.4 | 41.3 | 42.7 | 53.9 | 11.2 | 100 | 253 | |
| Vert. | 11570.000 | AV | 33.3 | 40.0 | 9.2 | 39.5 | 43.0 | 53.9 | 10.9 | 100 | 0 | |
| Vert. | | AV | 35.6 | 45.1 | 2.2 | 39.5 | 43.4 | 53.9 | 10.5 | 100 | 0 | |
| Vert. | 23140.000 | AV | 34.5 | 40.4 | -2.1 | 45.2 | 27.6 | 53.9 | 26.3 | 100 | 0 | |
| Vert. | 28925.000 | AV | 50.5 | 43.4 | 3.6 | 67.0 | 30.5 | 53.9 | 23.4 | 100 | 0 | |
| | | | | | | | | | | | | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amprifier)

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc. Shonan EMC Lab.

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

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

Radiated Emission

Test place UL Japan, Inc. Shonan EMC Lab. No.3 Semi Anechoic Chamber
Date August 22, 2011 August 28, 2011 August 29, 2011
Temperature / Humidity 27deg.C ,63%RH 23deg.C ,62%RH 23deg.C ,55%RH
Engineer Tatsuya Arai Tatsuya Arai Tatsuya Arai

Mode Tx, 5825 MHz

Tx, IEEE802.11a, PN9, worst antenna port Sub, worst data mode 36Mbps

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

| Polarity | Frequency | Detector | Reading | Ant.Fac. | Loss | Gain | Result | Limit | Margin | Height | Angle | Remark |
|----------|-----------|----------|---------|----------|------|------|----------|----------|--------|--------|--------|--------|
| | [MHz] | | [dBuV] | [dB/m] | [dB] | [dB] | [dBuV/m] | [dBuV/m] | [dB] | [cm] | [deg.] | |
| Hori. | 52.000 | QP | 23.0 | 10.6 | 7.3 | 31.9 | 9.0 | 40.0 | 31.0 | 200 | 0 | |
| Hori. | 936.000 | QP | 23.1 | 22.4 | 10.2 | 30.6 | 25.1 | 46.0 | 20.9 | 100 | 10 | |
| Hori. | 3883.331 | PK | 52.7 | 30.0 | 14.8 | 41.7 | 55.8 | 73.9 | 18.1 | 102 | 179 | |
| Hori. | 5850.000 | PK | 52.3 | 33.1 | 16.1 | 40.4 | 61.1 | 73.9 | 12.8 | 100 | 173 | |
| Hori. | 7766.662 | PK | 48.5 | 37.5 | 7.4 | 41.2 | 52.2 | 73.9 | 21.7 | 100 | 179 | |
| Hori. | 11650.000 | PK | 42.8 | 39.9 | 9.2 | 39.5 | 52.4 | 73.9 | 21.5 | 100 | 0 | |
| Hori. | 17475.000 | PK | 46.7 | 46.1 | 2.2 | 39.4 | 55.6 | 73.9 | 18.3 | 100 | 0 | |
| Hori. | 23300.000 | PK | 45.2 | 40.4 | -2.1 | 45.1 | 38.4 | 73.9 | 35.5 | 100 | 0 | |
| Hori. | 29125.000 | PK | 62.0 | 43.4 | 3.7 | 67.1 | 42.0 | 73.9 | 31.9 | 100 | 0 | |
| Hori. | 3883.331 | AV | 48.0 | 30.0 | 14.8 | 41.7 | 51.1 | 53.9 | 2.8 | 102 | 179 | |
| Hori. | 5850.000 | AV | 37.1 | 33.1 | 16.1 | 40.4 | 45.9 | 53.9 | 8.0 | 100 | 173 | |
| Hori. | 7766.662 | AV | 38.8 | 37.5 | 7.4 | 41.2 | 42.5 | 53.9 | 11.4 | 100 | 179 | |
| Hori. | 11650.000 | AV | 32.7 | 39.9 | 9.2 | 39.5 | 42.3 | 53.9 | 11.6 | 100 | 0 | |
| Hori. | 17475.000 | AV | 35.8 | 46.1 | 2.2 | 39.4 | 44.7 | 53.9 | 9.2 | 100 | 0 | |
| Hori. | 23300.000 | AV | 34.3 | 40.4 | -2.1 | 45.1 | 27.5 | 53.9 | 26.4 | 100 | 0 | |
| Hori. | 29125.000 | AV | 50.6 | 43.4 | 3.7 | 67.1 | 30.6 | 53.9 | 23.3 | 100 | 0 | |
| Vert. | 52.000 | QP | 23.0 | 10.6 | 7.3 | 31.9 | 9.0 | 40.0 | 31.0 | 100 | 0 | |
| Vert. | 936.000 | QP | 22.8 | 22.4 | 10.2 | 30.6 | 24.8 | 46.0 | 21.2 | 100 | 0 | |
| Vert. | 3883.331 | PK | 52.5 | 30.0 | 14.8 | 41.7 | 55.6 | 73.9 | 18.3 | 100 | 270 | |
| Vert. | 5850.000 | PK | 52.7 | 33.1 | 16.1 | 40.4 | 61.5 | 73.9 | 12.4 | 100 | 282 | |
| Vert. | 7766.662 | | 48.9 | 37.5 | 7.4 | 41.2 | 52.6 | 73.9 | 21.3 | 100 | 250 | |
| Vert. | 11650.000 | | 43.3 | 39.9 | 9.2 | 39.5 | 52.9 | 73.9 | 21.0 | 100 | 0 | |
| Vert. | 17475.000 | PK | 46.9 | 46.1 | 2.2 | 39.4 | 55.8 | 73.9 | 18.1 | 100 | 0 | |
| Vert. | 23300.000 | | 45.1 | 40.4 | -2.1 | 45.1 | 38.3 | 73.9 | 35.6 | 100 | 0 | |
| Vert. | 29125.000 | PK | 61.8 | 43.4 | 3.7 | 67.1 | 41.8 | 73.9 | 32.1 | 100 | 0 | |
| Vert. | | AV | 47.0 | 30.0 | 14.8 | 41.7 | 50.1 | 53.9 | 3.8 | 100 | 270 | |
| Vert. | 5850.000 | AV | 37.1 | 33.1 | 16.1 | 40.4 | 45.9 | 53.9 | 8.0 | 100 | 282 | |
| Vert. | 7766.662 | | 39.0 | 37.5 | 7.4 | 41.2 | 42.7 | 53.9 | 11.2 | 100 | 250 | |
| Vert. | 11650.000 | | 32.8 | 39.9 | 9.2 | 39.5 | 42.4 | 53.9 | 11.5 | 100 | 0 | |
| Vert. | 17475.000 | AV | 36.0 | 46.1 | 2.2 | 39.4 | 44.9 | 53.9 | 9.0 | 100 | 0 | |
| Vert. | 23300.000 | | 34.4 | 40.4 | -2.1 | 45.1 | 27.6 | | 26.3 | 100 | 0 | |
| Vert. | 29125.000 | AV | 50.7 | 43.4 | 3.7 | 67.1 | 30.7 | 53.9 | 23.2 | 100 | 0 | |

 $Result = Reading + Ant\ Factor + Loss\ (Cable + Attenuator + Filter-Distance\ factor (above\ 13GHz)) - Gain (Amprifier)$

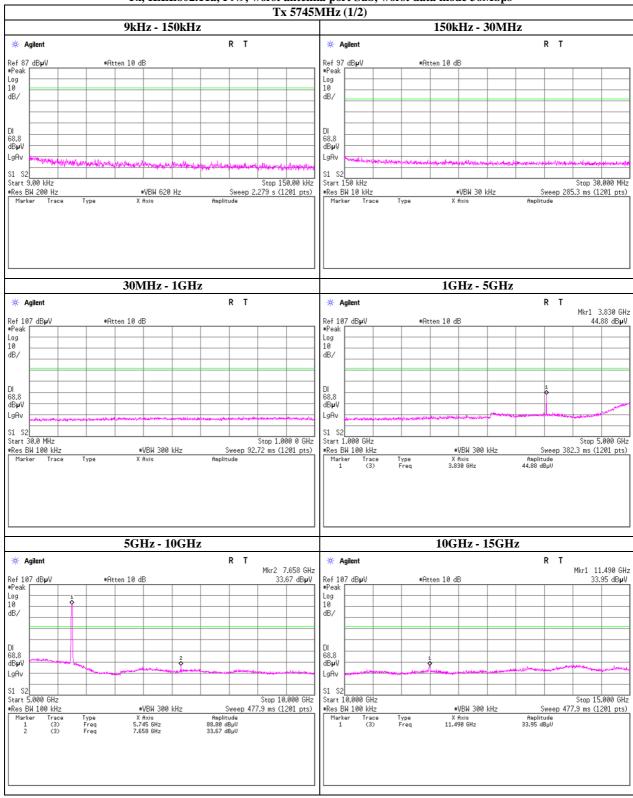
Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

UL Japan, Inc. Shonan EMC Lab.

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

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

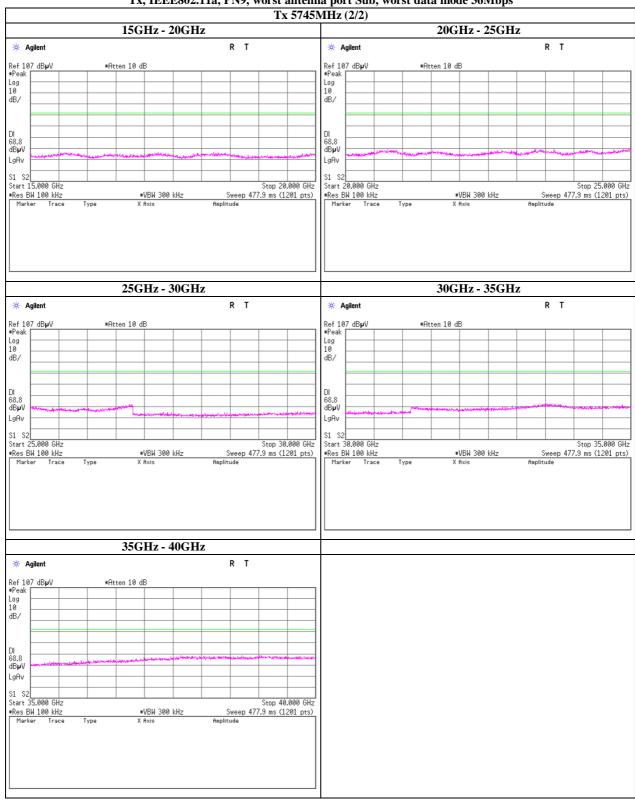
Tx, IEEE802.11a, PN9, worst antenna port Sub, worst data mode 36Mbps



UL Japan, Inc. Shonan EMC Lab.

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Tx, IEEE802.11a, PN9, worst antenna port Sub, worst data mode 36Mbps

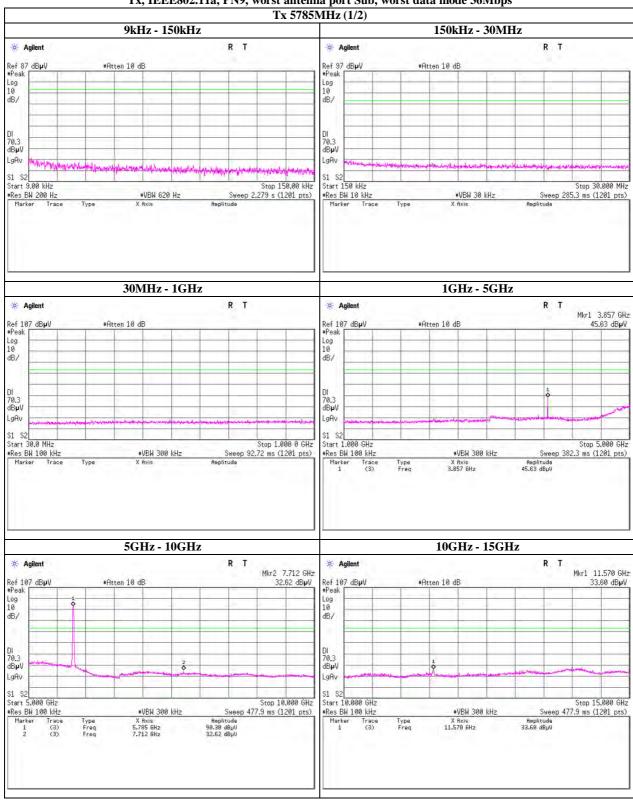


UL Japan, Inc.

Shonan EMC Lab.

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

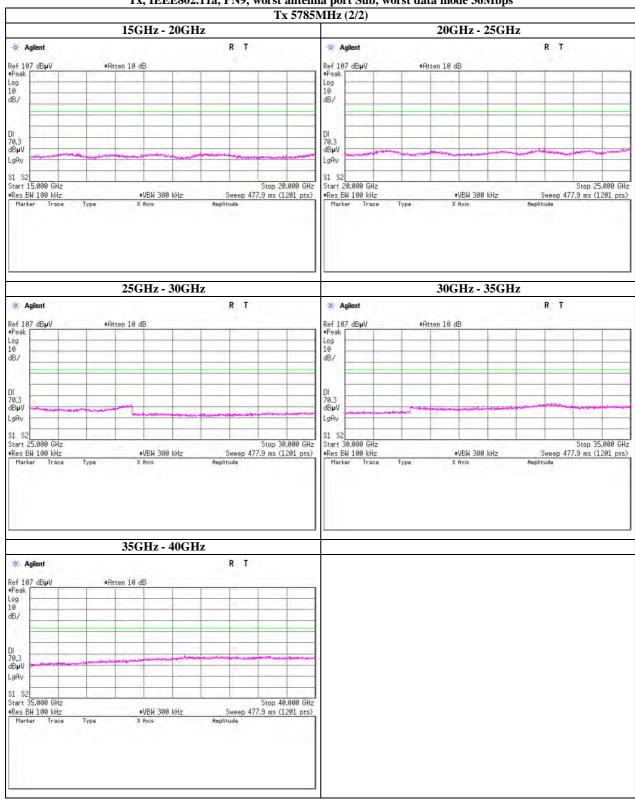
Spurious emission (Conducted)Tx, IEEE802.11a, PN9, worst antenna port Sub, worst data mode 36Mbps



UL Japan, Inc. Shonan EMC Lab.

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

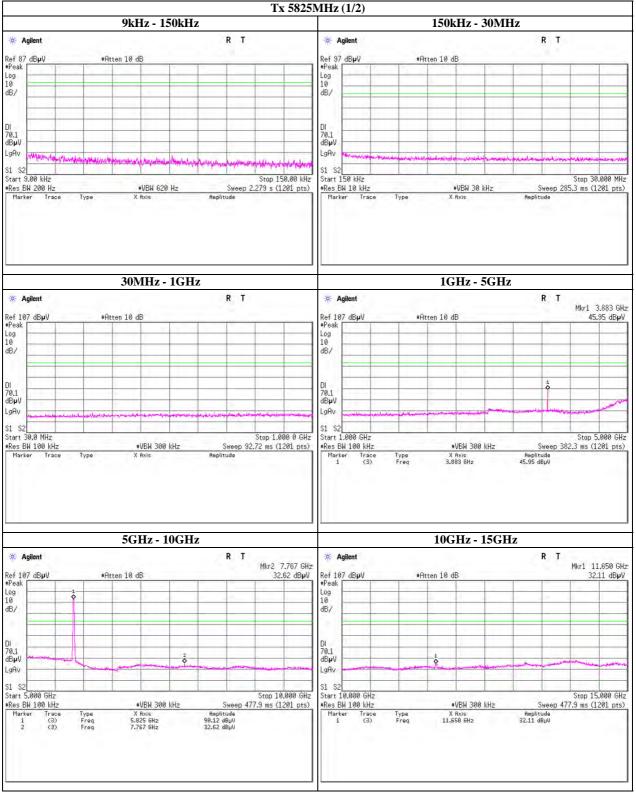
Tx, IEEE802.11a, PN9, worst antenna port Sub, worst data mode 36Mbps



UL Japan, Inc. Shonan EMC Lab.

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

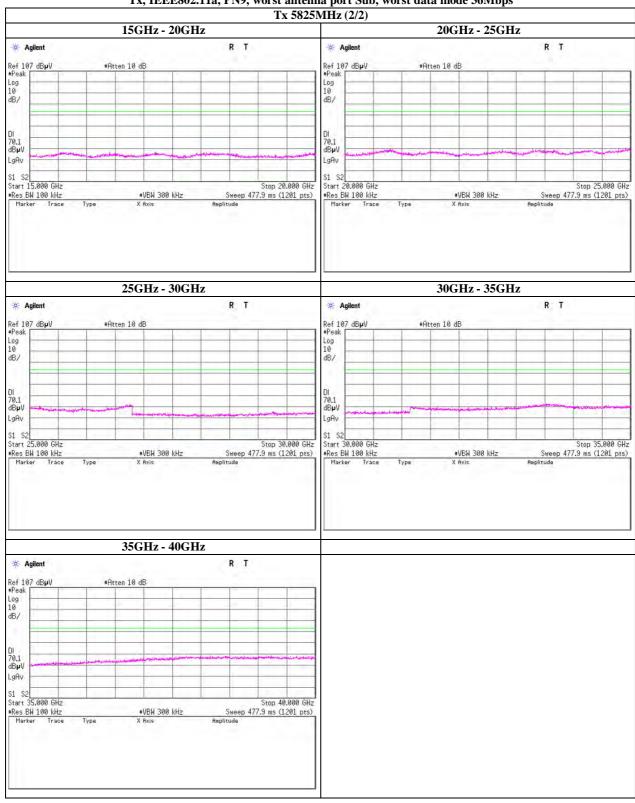
<u>Spurious emission (Conducted)</u> Tx, IEEE802.11a, PN9, worst antenna port Sub, worst data mode 36Mbps Tx 5825MHz (1/2)



UL Japan, Inc. Shonan EMC Lab.

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

Tx, IEEE802.11a, PN9, worst antenna port Sub, worst data mode 36Mbps



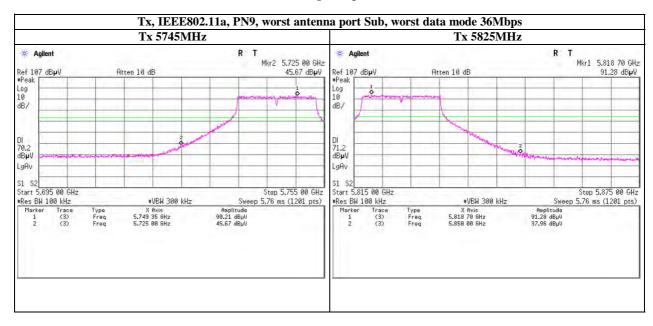
UL Japan, Inc.

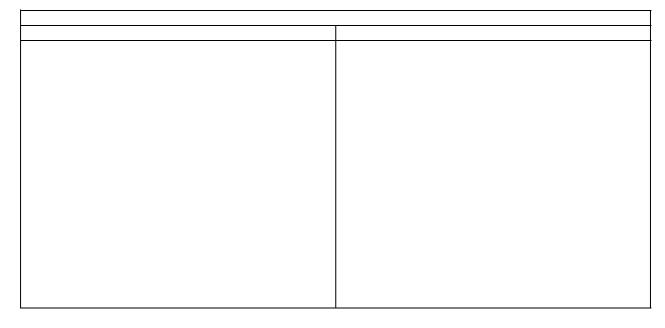
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Spurious emission (Conducted)

Band Edge compliance





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Power Density

Test place UL Japan, Inc. Shonan EMC Lab. No.6 Shielded Room

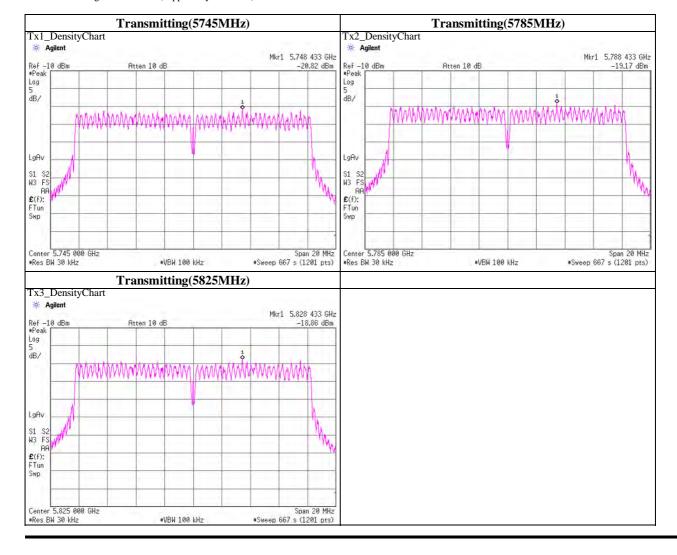
Date August 25, 2011
Temperature / Humidity 27deg.C , 60%RH
Engineer Tatsuya Arai

Mode Tx, IEEE802.11a, PN9, worst antenna port Sub, worst data mode 36Mbps

| Ch. Freq. | Freq. | Reading | Cable | Atten. | Result | Limit | Margin |
|-----------|---------|---------|-------|--------|--------|-------|--------|
| | Reading | | Loss | | | | |
| [MHz] | [MHz] | [dBm] | [dB] | [dB] | [dBm] | [dBm] | [dB] |
| 5745.0000 | 5748.43 | -20.82 | 2.77 | 9.60 | -8.45 | 8.00 | 16.45 |
| 5785.0000 | 5788.43 | -19.17 | 2.78 | 9.61 | -6.78 | 8.00 | 14.78 |
| 5825.0000 | 5828.43 | -18.86 | 2.72 | 9.61 | -6.53 | 8.00 | 14.53 |

Sample Calculation:

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

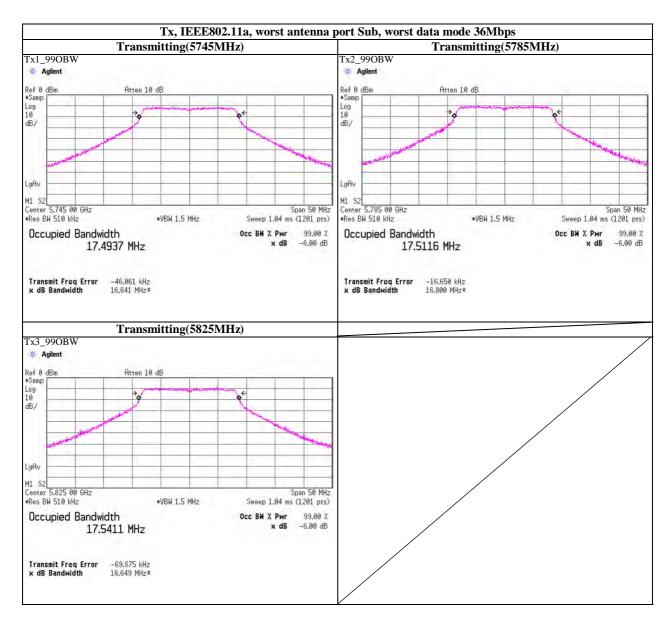


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99% Occupied Bandwidth



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APPENDIX 3 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 |
| KSA-08 | Spectrum Analyzer | Agilent | E4446A | MY46180525 | AT | 2011/02/02 * 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 |
| SPM-06 | Power Meter | Anritsu | ML2495A | 0850009 | AT | 2011/04/12 * 12 |
| SPSS-03 | Power sensor | Anritsu | MA2411B | 0917063 | AT | 2011/04/12 * 12 |
| SOS-10 | Humidity Indicator | A&D | AD-5681 | 4064561 | AT | 2011/02/23 * 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/S RSE-02 | Coaxial Cable&RF Selector | Fujikura/Fujikura/Suhne r/Suhner/Suhner/Suhn er/TOYO | 8D2W/12DSFA/14 1PE/141PE/141PE /141PE/NS4906 | -/0901-270(RF Selector) | RE | 2011/04/28 * 12 |
| SCC-B2/B4/B6 /B7/B8/B13/S RSE-02 | | Fujikura/Fujikura/Suhne r/Suhner/Suhner/Suhn er/TOYO | 8D2W/12DSFA/14 1PE/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

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APPENDIX 3 Test Instruments

EMI test equipment

| Control No. | Instrument | Manufacturer | Model No | Serial No | Test Item | Calibration Date * 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 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

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,

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