# APPENDIX 2: Data of EMI test

## Conducted Emission

### DATA OF CONDUCTED EMISSION TEST

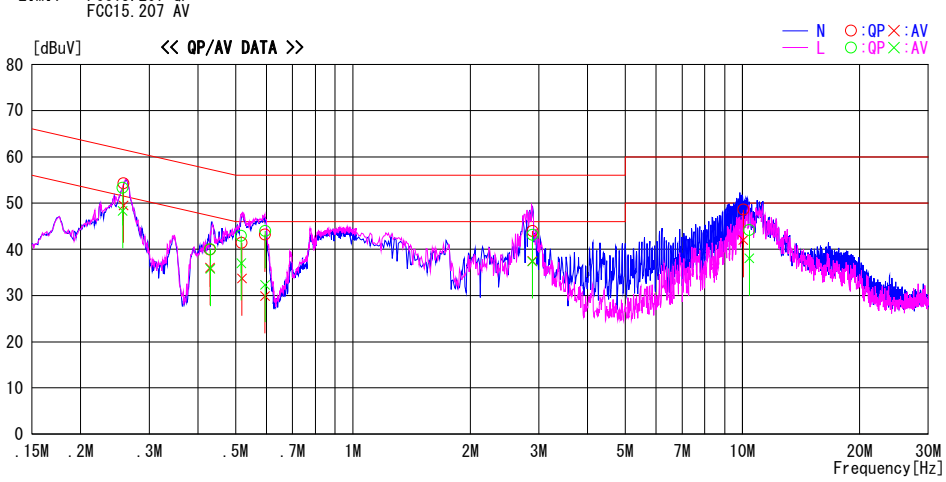
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2010/12/23

Report No. : 31BE0221-HO-06

Temp./Humi. : 24deg.C / 35% RH
Engineer : Takumi Shimada

Mode / Remarks : Tx 11b 11Mbps 2437MHz

LIMIT : FCC15.207 QP
FCC15.207 AV



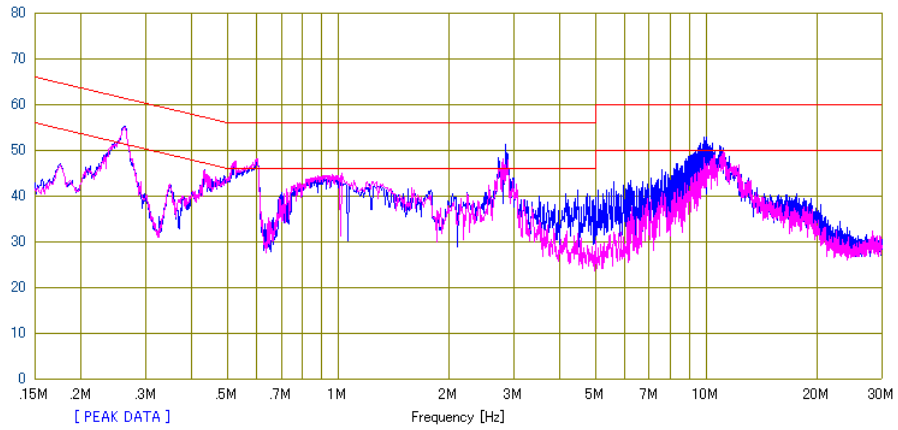

| Frequency | Reading Level | | Corr. | Results | | Limit | | Margin | | Phase | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | QP | AV | Factor | QP | AV | QP | AV | QP | AV | | |
| [MHz] | [dBuV] | [dBuV] | [dB] | [dBuV] | [dBuV] | [dBuV] | [dBuV] | [dB] | [dB] | | |
| 0.25764 | 40.9 | 36.2 | 13.3 | 54.2 | 49.5 | 61.5 | 51.5 | 7.3 | 2.0 | N | |
| 0.42963 | 26.6 | 22.7 | 13.3 | 39.9 | 36.0 | 57.3 | 47.3 | 17.4 | 11.3 | N | |
| 0.51882 | 28.1 | 20.4 | 13.3 | 41.4 | 33.7 | 56.0 | 46.0 | 14.6 | 12.3 | N | |
| 0.59437 | 29.9 | 16.6 | 13.3 | 43.2 | 29.9 | 56.0 | 46.0 | 12.8 | 16.1 | N | |
| 2.88865 | 30.6 | 24.1 | 13.4 | 44.0 | 37.5 | 56.0 | 46.0 | 12.0 | 8.5 | N | |
| 10.05970 | 34.5 | 27.9 | 14.1 | 48.6 | 42.0 | 60.0 | 50.0 | 11.4 | 8.0 | N | |
| 0.25632 | 40.0 | 35.0 | 13.3 | 53.3 | 48.3 | 61.5 | 51.5 | 8.2 | 3.2 | L | |
| 0.43059 | 26.7 | 22.5 | 13.3 | 40.0 | 35.8 | 57.2 | 47.2 | 17.2 | 11.4 | L | |
| 0.51628 | 29.6 | 23.7 | 13.3 | 42.9 | 37.0 | 56.0 | 46.0 | 13.1 | 9.0 | L | |
| 0.59537 | 30.7 | 19.0 | 13.3 | 44.0 | 32.3 | 56.0 | 46.0 | 12.0 | 13.7 | L | |
| 2.88881 | 29.7 | 24.0 | 13.4 | 43.1 | 37.4 | 56.0 | 46.0 | 12.9 | 8.6 | L | |
| 10.41180 | 30.0 | 23.9 | 14.1 | 44.1 | 38.0 | 60.0 | 50.0 | 15.9 | 12.0 | L | |

CHART:WITH FACTOR,Peak hold data. CALCULATION:RESULT[dBuV]=READING[dBuV]+C.F[dB](LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

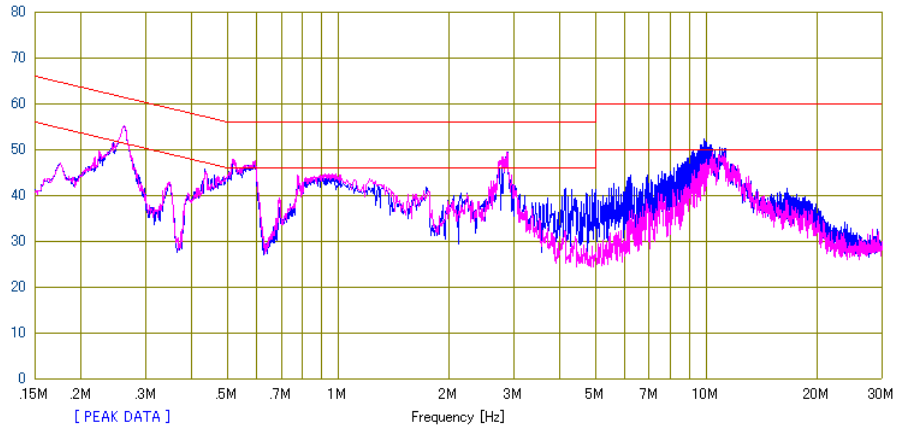
# Conducted Emission

| | |
|---|---|
| Test place | Head Office EMC Lab. No.4 Semi Anechoic Chamber |
| Report No. | 31BE0221-HO-06 |
| Date | 12/23/2010 |
| Temperature/ Humidity | 24 deg.C./ 35% RH |
| Engineer | Takumi Shimada |
| Mode | 11b Tx |

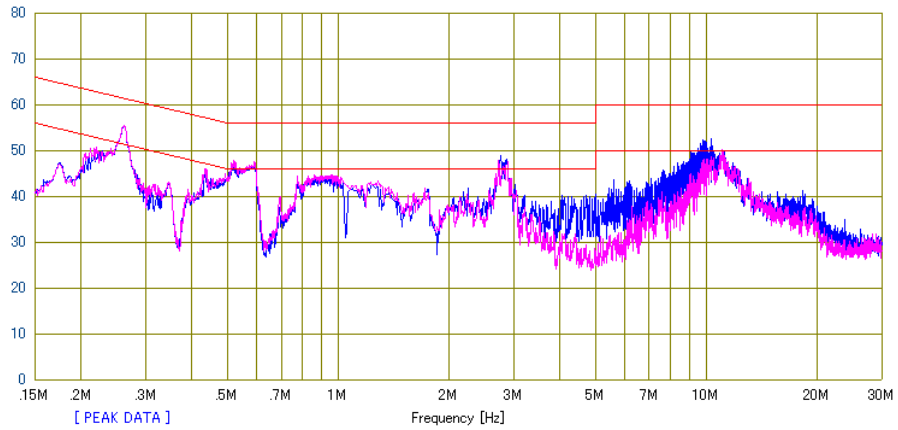
**2412MHz**




**2437MHz**




**2462MHz**




Y scale [dBuV] Chart — N — L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# Conducted Emission

## DATA OF CONDUCTED EMISSION TEST

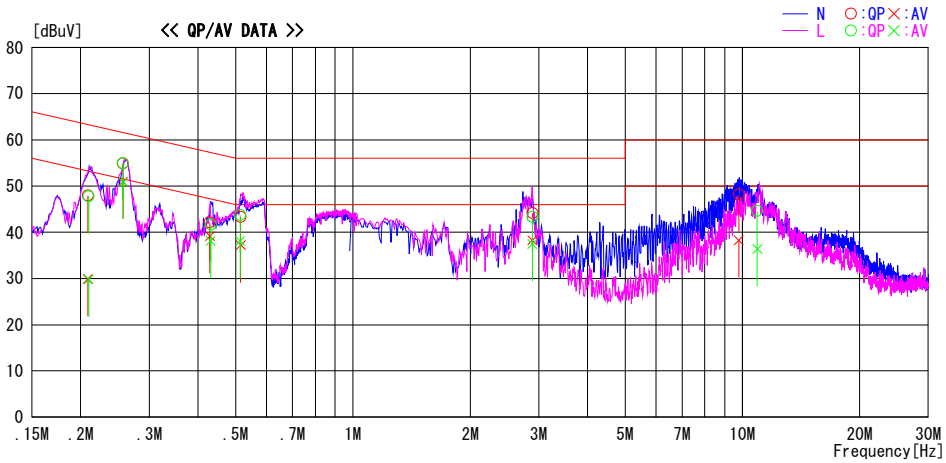
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2010/12/23

Report No. : 31BE0221-HO-06

Temp./Humi. : 24deg.C / 35% RH
Engineer : Takumi Shimada

Mode / Remarks : Tx 11g 18Mbps 2437MHz

LIMIT : FCC15.207 QP
FCC15.207 AV




| Frequency | Reading Level | | Corr. | Results | | Limit | | Margin | | Phase | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | QP | AV | Factor | QP | AV | QP | AV | QP | AV | | |
| [MHz] | [dBuV] | [dBuV] | [dB] | [dBuV] | [dBuV] | [dBuV] | [dBuV] | [dB] | [dB] | | |
| 0.20868 | 34.6 | 16.6 | 13.3 | 47.9 | 29.9 | 63.3 | 53.3 | 15.4 | 23.4 | N | |
| 0.25680 | 41.6 | 37.7 | 13.3 | 54.9 | 51.0 | 61.5 | 51.5 | 6.6 | 0.5 | N | |
| 0.42876 | 28.8 | 25.9 | 13.3 | 42.1 | 39.2 | 57.3 | 47.3 | 15.2 | 8.1 | N | |
| 0.51500 | 30.0 | 23.9 | 13.3 | 43.3 | 37.2 | 56.0 | 46.0 | 12.7 | 8.8 | N | |
| 2.89153 | 30.7 | 24.9 | 13.4 | 44.1 | 38.3 | 56.0 | 46.0 | 11.9 | 7.7 | N | |
| 9.79720 | 34.1 | 24.2 | 14.1 | 48.2 | 38.3 | 60.0 | 50.0 | 11.8 | 11.7 | N | |
| 0.20964 | 34.5 | 16.5 | 13.3 | 47.8 | 29.8 | 63.2 | 53.2 | 15.4 | 23.4 | L | |
| 0.25704 | 41.7 | 37.6 | 13.3 | 55.0 | 50.9 | 61.5 | 51.5 | 6.5 | 0.6 | L | |
| 0.43120 | 28.3 | 24.8 | 13.3 | 41.6 | 38.1 | 57.2 | 47.2 | 15.6 | 9.1 | L | |
| 0.51324 | 30.4 | 24.8 | 13.3 | 43.7 | 38.1 | 56.0 | 46.0 | 12.3 | 7.9 | L | |
| 2.88914 | 29.9 | 24.1 | 13.4 | 43.3 | 37.5 | 56.0 | 46.0 | 12.7 | 8.5 | L | |
| 10.92520 | 30.5 | 22.3 | 14.1 | 44.6 | 36.4 | 60.0 | 50.0 | 15.4 | 13.6 | L | |

CHART:WITH FACTOR,Peak hold data. CALCULATION:RESULT[dBuV]=READING[dBuV]+C.F[dB](LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

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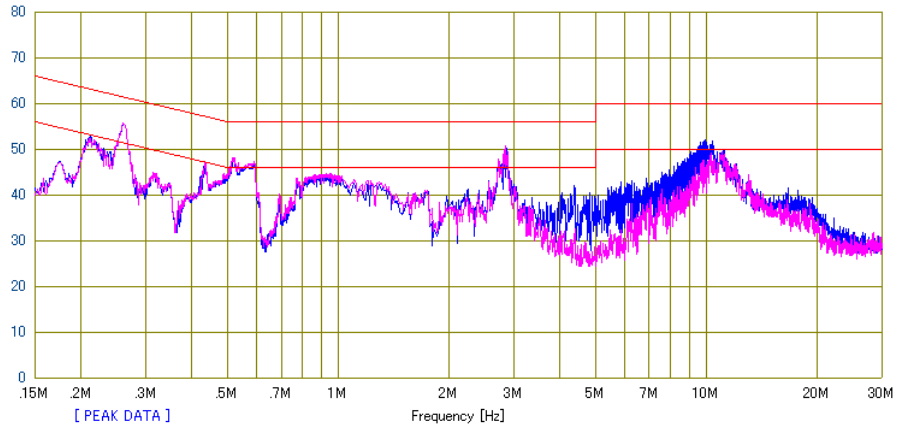
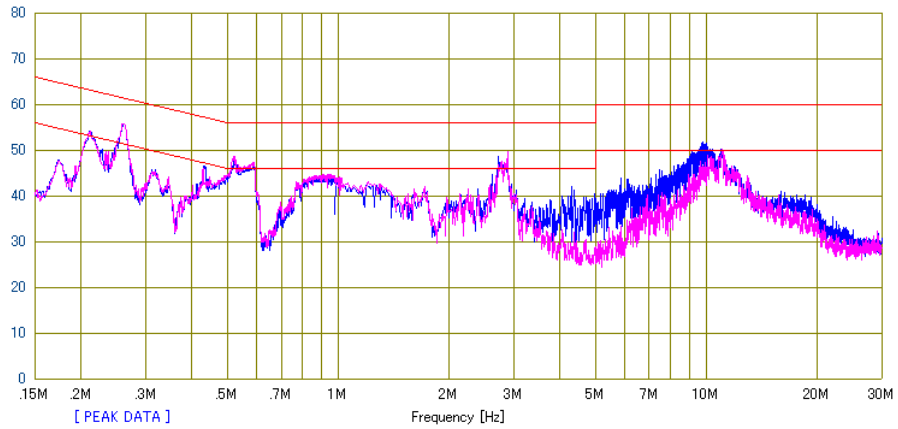
# Conducted Emission

| | |
|---|---|
| Test place | Head Office EMC Lab. No.4 Semi Anechoic Chamber |
| Report No. | 31BE0221-HO-06 |
| Date | 12/23/2010 |
| Temperature/ Humidity | 24 deg.C./ 35% RH |
| Engineer | Takumi Shimada |
| Mode | 11g Tx |

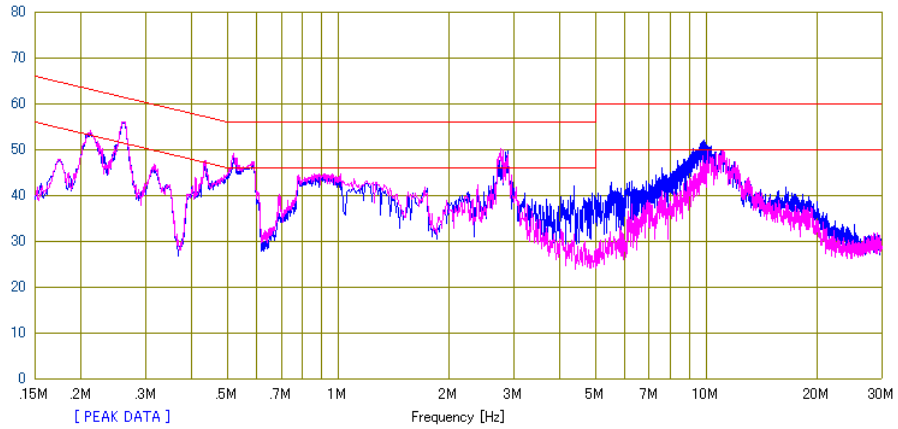
**2412MHz**




**2437MHz**




**2462MHz**




Y scale [dBuV]  Chart — N — L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# Conducted Emission

## DATA OF CONDUCTED EMISSION TEST

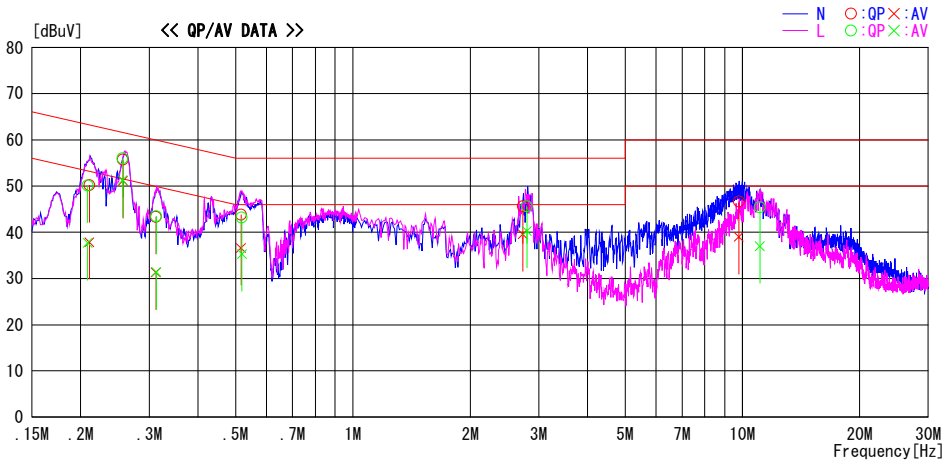
UL Japan, Inc. Head Office EMC Lab. No.4 Semi Anechoic Chamber
Date : 2010/12/23

Report No. : 31BE0221-HO-06

Temp./Humi. : 24deg.C / 35% RH
Engineer : Takumi Shimada

Mode / Remarks : Tx 11a 18Mbps 5785MHz

LIMIT : FCC15.207 QP
FCC15.207 AV



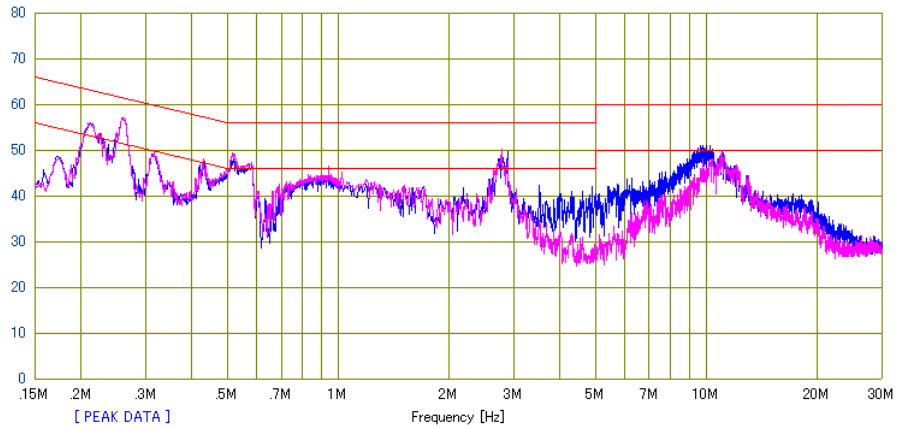

| Frequency | Reading Level | | Corr. | Results | | Limit | | Margin | | Phase | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | QP | AV | Factor | QP | AV | QP | AV | QP | AV | | |
| [MHz] | [dBuV] | [dBuV] | [dB] | [dBuV] | [dBuV] | [dBuV] | [dBuV] | [dB] | [dB] | | |
| 0.21061 | 36.9 | 24.6 | 13.3 | 50.2 | 37.9 | 63.2 | 53.2 | 13.0 | 15.3 | N | |
| 0.25680 | 42.4 | 37.8 | 13.3 | 55.7 | 51.1 | 61.5 | 51.5 | 5.8 | 0.4 | N | |
| 0.31191 | 30.0 | 18.0 | 13.3 | 43.3 | 31.3 | 59.9 | 49.9 | 16.6 | 18.6 | N | |
| 0.51553 | 30.5 | 23.3 | 13.3 | 43.8 | 36.6 | 56.0 | 46.0 | 12.2 | 9.4 | N | |
| 2.72873 | 32.2 | 26.2 | 13.4 | 45.6 | 39.6 | 56.0 | 46.0 | 10.4 | 6.4 | N | |
| 9.79416 | 32.5 | 24.9 | 14.1 | 46.6 | 39.0 | 60.0 | 50.0 | 13.4 | 11.0 | N | |
| 0.20848 | 36.8 | 24.4 | 13.3 | 50.1 | 37.7 | 63.3 | 53.3 | 13.2 | 15.6 | L | |
| 0.25626 | 42.7 | 38.0 | 13.3 | 56.0 | 51.3 | 61.6 | 51.6 | 5.6 | 0.3 | L | |
| 0.31250 | 30.2 | 18.1 | 13.3 | 43.5 | 31.4 | 59.9 | 49.9 | 16.4 | 18.5 | L | |
| 0.51833 | 29.9 | 22.0 | 13.3 | 43.2 | 35.3 | 56.0 | 46.0 | 12.8 | 10.7 | L | |
| 2.79573 | 32.2 | 26.9 | 13.4 | 45.6 | 40.3 | 56.0 | 46.0 | 10.4 | 5.7 | L | |
| 11.08560 | 31.3 | 22.9 | 14.1 | 45.4 | 37.0 | 60.0 | 50.0 | 14.6 | 13.0 | L | |

CHART:WITH FACTOR,Peak hold data. CALCULATION:RESULT[dBuV]=READING[dBuV]+C.F[dB](LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

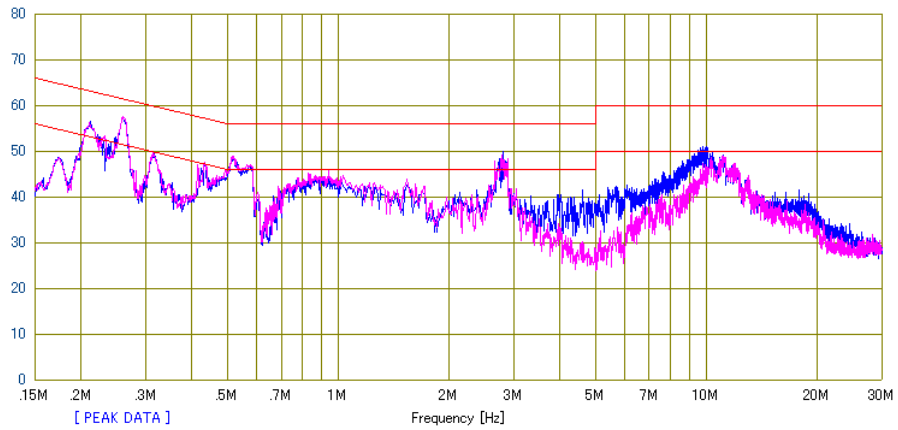
# Conducted Emission

| | |
|---|---|
| Test place | Head Office EMC Lab. No.4 Semi Anechoic Chamber |
| Report No. | 31BE0221-HO-06 |
| Date | 12/23/2010 |
| Temperature/ Humidity | 24 deg.C./ 35% RH |
| Engineer | Takumi Shimada |
| Mode | 11a Tx |

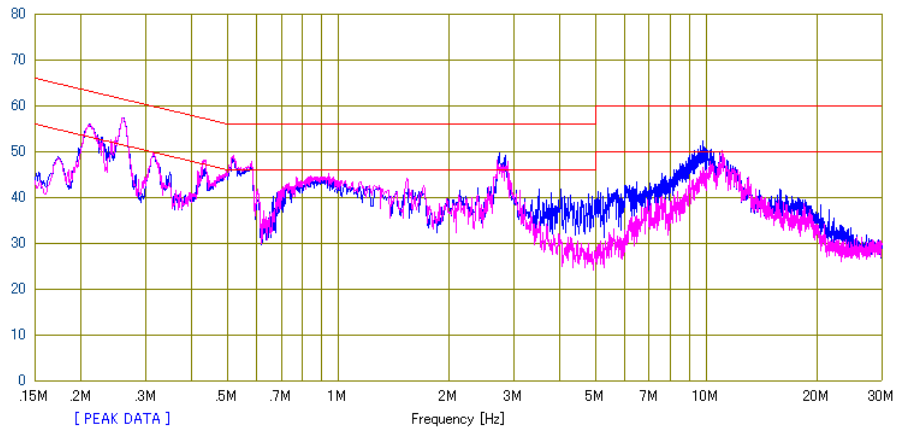
**5745MHz**




**5785MHz**




**5825MHz**




Y scale [dBuV] Chart — N — L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# 6dB Bandwidth

| | |
|---|---|
| Test place | Head Office EMC Lab. No.6 Measurement Room |
| Report No. | 31E0221-HO-06 |
| Date | 12/04/2010 |
| Temperature/ Humidity | 21 deg.C./ 49% RH |
| Engineer | Takayuki Shimada |
| Mode | Tx |

11b

| Frequency [MHz] | 6dB Bandwidth [MHz] | Limit [kHz] |
|---|---|---|
| 2412 | 10.932 | >500 |
| 2437 | 11.690 | >500 |
| 2462 | 11.958 | >500 |

11g

| Frequency [MHz] | 6dB Bandwidth [MHz] | Limit [kHz] |
|---|---|---|
| 2412 | 16.543 | >500 |
| 2437 | 16.537 | >500 |
| 2462 | 16.535 | >500 |

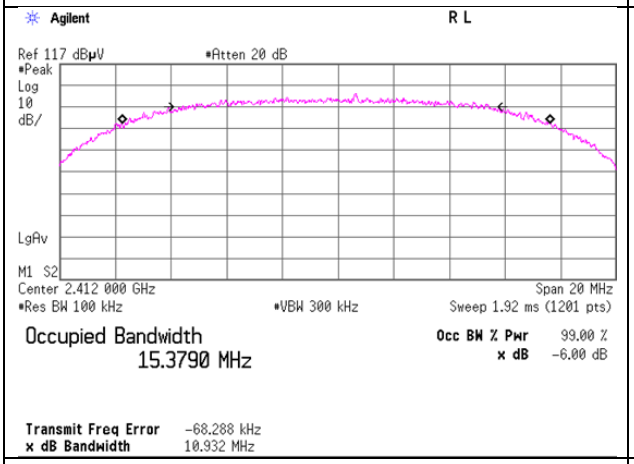
11a

| Frequency [MHz] | 6dB Bandwidth [MHz] | Limit [kHz] |
|---|---|---|
| 5745 | 16.529 | >500 |
| 5785 | 16.503 | >500 |
| 5825 | 16.520 | >500 |

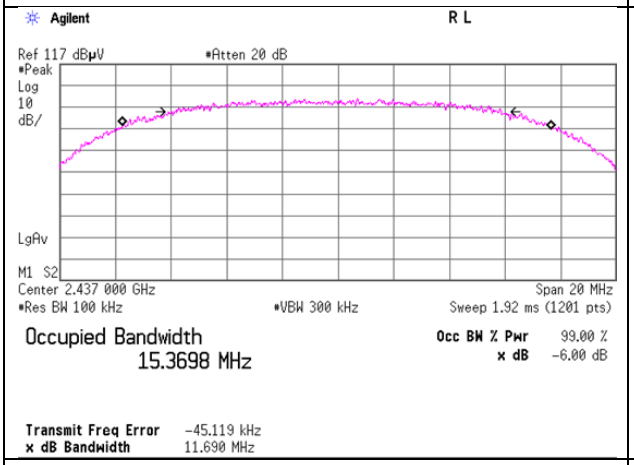
# 6dB Bandwidth

## 11b

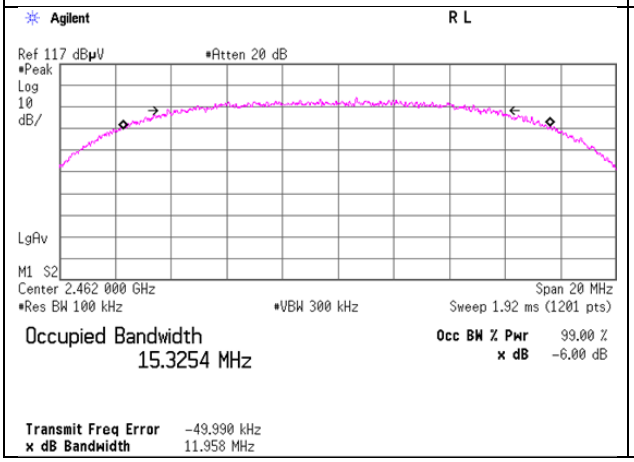
### 2412MHz




### 2437MHz

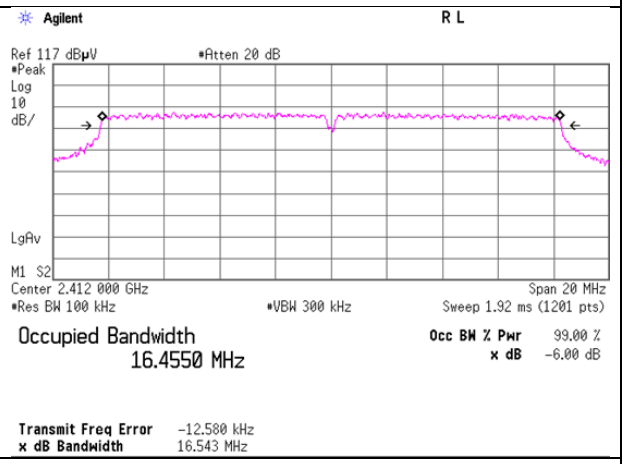



### 2462MHz

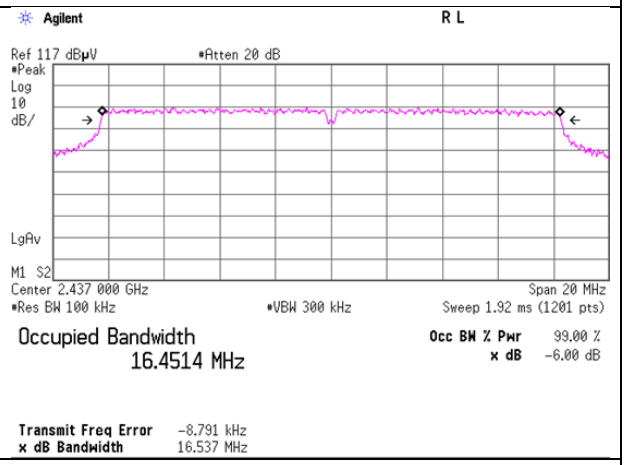



## 11g

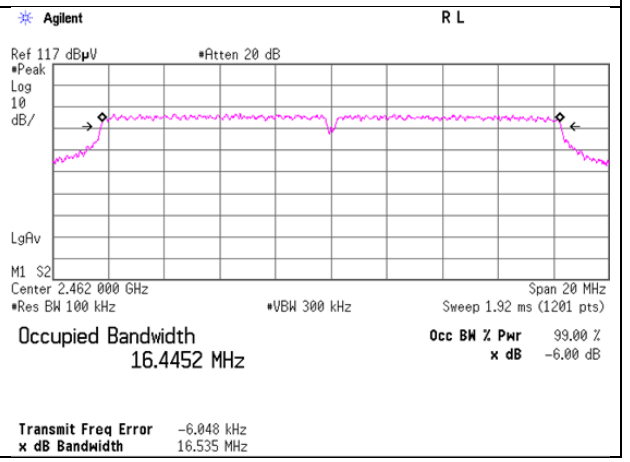
### 2412MHz




### 2437MHz




### 2462MHz





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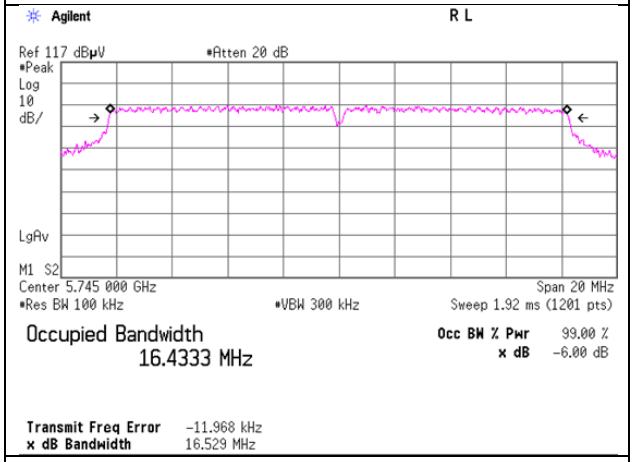
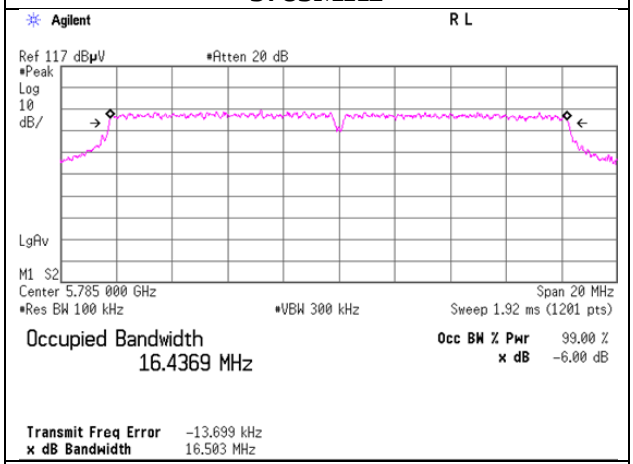
# 6dB Bandwidth

## 11a

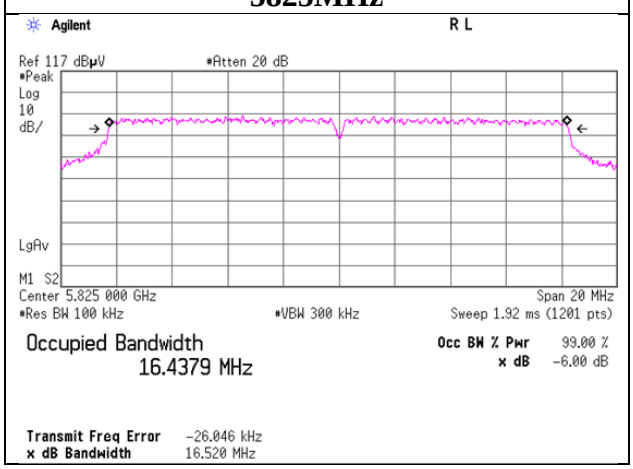
### 5745MHz




### 5785MHz




### 5825MHz



# Maximum Peak Output Power

| | |
|---|---|
| Test place | Head Office EMC Lab. No.6 Measurement Room |
| Report No. | 31E0221-HO-06 |
| Date | 12/04/2010 |
| Temperature/ Humidity | 21 deg.C/ 49% RH |
| Engineer | Takayuki Shimada |
| Mode | 11b Tx |

Antenna A

| Freq. | Reading | Cable Loss | Atten. | Result | | Limit | | Margin |
|---|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| 2412 | 6.72 | 0.97 | 10.08 | 17.77 | 59.84 | 30.00 | 1000 | 12.23 |
| 2437 | 6.25 | 0.98 | 10.08 | 17.31 | 53.83 | 30.00 | 1000 | 12.69 |
| 2462 | 5.75 | 0.98 | 10.08 | 16.81 | 47.97 | 30.00 | 1000 | 13.19 |

Antenna B

| Freq. | Reading | Cable Loss | Atten. | Result | | Limit | | Margin |
|---|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| 2412 | -14.86 | 0.97 | 10.08 | -3.81 | 0.42 | 30.00 | 1000 | 33.81 |
| 2437 | -15.02 | 0.98 | 10.08 | -3.96 | 0.40 | 30.00 | 1000 | 33.96 |
| 2462 | -15.55 | 0.98 | 10.08 | -4.49 | 0.36 | 30.00 | 1000 | 34.49 |

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

Antenna A, 2437MHz

| Rate | Reading | Remark |
|---|---|---|
| [Mbps] | [dBm] | |
| 1 | 6.14 | |
| 2 | 6.08 | |
| 5.5 | 6.03 | |
| 11 | 6.25 | * |

*: Worst Rate
All comparizon were carried out on same frequency and measurement factors.

# Maximum Peak Output Power

| | |
|---|---|
| Test place | Head Office EMC Lab. No.6 Measurement Room |
| Report No. | 31E0221-HO-06 |
| Date | 12/04/2010 |
| Temperature/ Humidity | 21 deg.C/ 49% RH |
| Engineer | Takayuki Shimada |
| Mode | 11g Tx |

Antenna A

| Freq. | Reading | Cable Loss | Atten. | Result | | Limit | | Margin |
|---|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| 2412 | 9.44 | 0.97 | 10.08 | 20.49 | 111.94 | 30.00 | 1000 | 9.51 |
| 2437 | 10.49 | 0.98 | 10.08 | 21.55 | 142.89 | 30.00 | 1000 | 8.45 |
| 2462 | 8.88 | 0.98 | 10.08 | 19.94 | 98.63 | 30.00 | 1000 | 10.06 |

Antenna B

| Freq. | Reading | Cable Loss | Atten. | Result | | Limit | | Margin |
|---|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| 2412 | -12.26 | 0.97 | 10.08 | -1.21 | 0.76 | 30.00 | 1000 | 31.21 |
| 2437 | -11.00 | 0.98 | 10.08 | 0.06 | 1.01 | 30.00 | 1000 | 29.94 |
| 2462 | -12.31 | 0.98 | 10.08 | -1.25 | 0.75 | 30.00 | 1000 | 31.25 |

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator

Antenna A, 2437MHz

| Rate | Reading | Remark |
|---|---|---|
| [Mbps] | [dBm] | |
| 6 | 10.32 | |
| 9 | 10.44 | |
| 12 | 10.37 | |
| 18 | 10.49 | * |
| 24 | 10.42 | |
| 36 | 9.98 | |
| 48 | 9.03 | |
| 54 | 9.05 | |

*: Worst Rate
All comparison were carried out on same frequency and measurement factors.

# Maximum Peak Output Power

| | |
|---|---|
| Test place | Head Office EMC Lab. No.6 Measurement Room |
| Report No. | 31E0221-HO-06 |
| Date | 12/04/2010 |
| Temperature/ Humidity | 21 deg.C/ 49% RH |
| Engineer | Takayuki Shimada |
| Mode | 11a Tx |

Antenna A

| Freq. | Reading | Cable Loss | Atten. | Result | | Limit | | Margin |
|---|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| 5745 | 10.10 | 1.51 | 10.14 | 21.75 | 149.62 | 30.00 | 1000 | 8.25 |
| 5785 | 9.61 | 1.51 | 10.14 | 21.26 | 133.66 | 30.00 | 1000 | 8.74 |
| 5825 | 9.02 | 1.52 | 10.14 | 20.68 | 116.95 | 30.00 | 1000 | 9.32 |

Antenna B

| Freq. | Reading | Cable Loss | Atten. | Result | | Limit | | Margin |
|---|---|---|---|---|---|---|---|---|
| [MHz] | [dBm] | [dB] | [dB] | [dBm] | [mW] | [dBm] | [mW] | [dB] |
| 5745 | -13.45 | 1.51 | 10.14 | -1.80 | 0.66 | 30.00 | 1000 | 31.80 |
| 5785 | -14.26 | 1.51 | 10.14 | -2.61 | 0.55 | 30.00 | 1000 | 32.61 |
| 5825 | -15.23 | 1.52 | 10.14 | -3.57 | 0.44 | 30.00 | 1000 | 33.57 |

Sample Calculation:
Result = Reading + Cable Loss (including the cable(s) customer supplied) + Attenuator

Antenna A, 5785MHz

| Rate | Reading | Remark |
|---|---|---|
| [Mbps] | [dBm] | |
| 6 | 9.32 | |
| 9 | 9.57 | |
| 12 | 9.56 | |
| 18 | 9.61 | * |
| 24 | 9.60 | |
| 36 | 9.27 | |
| 48 | 7.92 | |
| 54 | 7.12 | |

*: Worst Rate
All comparison were carried out on same frequency and measurement factors.

# Radiated Spurious Emission

| | | |
|---|---|---|
| Report No. | 31BE0221-HO-06 | |
| Test place | Head Office EMC Lab. | |
| Semi Anechoic Chamber | No.2 | No.2 |
| Date | 03/18/2011 | 03/19/2010 |
| Temperature/ Humidity | 20 deg.C./ 23% RH | 20 deg.C./ 28% RH |
| Engineer | Takayuki Shimada (1-26.5GHz) | Tomohisa Nakagawa (30-1000MHz) |
| Mode | 11b Tx 2412MHz | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 32.400 | QP | 28.6 | 17.6 | 6.8 | 28.7 | 24.3 | 40.0 | 15.7 | |
| Hori | 191.996 | QP | 36.4 | 16.6 | 8.1 | 28.0 | 33.1 | 43.5 | 10.4 | |
| Hori | 239.995 | QP | 39.5 | 17.2 | 8.4 | 27.8 | 37.3 | 46.0 | 8.7 | |
| Hori | 374.996 | QP | 40.0 | 16.7 | 9.2 | 28.2 | 37.7 | 46.0 | 8.3 | |
| Hori | 499.999 | QP | 31.7 | 18.0 | 9.8 | 28.9 | 30.6 | 46.0 | 15.4 | |
| Hori | 599.605 | QP | 34.2 | 19.3 | 10.2 | 28.7 | 35.0 | 46.0 | 11.0 | |
| Hori | 2390.000 | PK | 52.5 | 27.4 | 2.6 | 32.4 | 50.1 | 73.9 | 23.8 | |
| Hori | 2400.000 | PK | 68.0 | 27.4 | 2.6 | 32.4 | 65.6 | - | - | See 20dBc Data Sheet |
| Hori | 3216.000 | PK | 46.0 | 28.8 | 3.1 | 32.2 | 45.7 | 73.9 | 28.2 | |
| Hori | 4824.000 | PK | 45.9 | 31.4 | 5.1 | 31.3 | 51.1 | 73.9 | 22.8 | |
| Hori | 7236.000 | PK | 41.7 | 35.5 | 6.3 | 31.6 | 51.9 | 73.9 | 22.0 | NS |
| Hori | 9648.000 | PK | 42.8 | 38.4 | 6.9 | 31.9 | 56.2 | 73.9 | 17.7 | NS |
| Hori | 24120.000 | PK | 47.6 | 40.4 | -1.0 | 29.6 | 57.4 | 73.9 | 16.5 | NS |
| Hori | 2390.000 | AV | 41.8 | 27.4 | 2.6 | 32.4 | 39.4 | 53.9 | 14.5 | |
| Hori | 2400.000 | AV | 60.5 | 27.4 | 2.6 | 32.4 | 58.1 | - | - | See 20dBc Data Sheet |
| Hori | 3216.000 | AV | 39.7 | 28.8 | 3.1 | 32.2 | 39.4 | 53.9 | 14.5 | |
| Hori | 4824.000 | AV | 31.2 | 31.4 | 5.1 | 31.3 | 36.4 | 53.9 | 17.5 | |
| Hori | 7236.000 | AV | 27.6 | 35.5 | 6.3 | 31.6 | 37.8 | 53.9 | 16.1 | NS |
| Hori | 9648.000 | AV | 28.5 | 38.4 | 6.9 | 31.9 | 41.9 | 53.9 | 12.0 | NS |
| Hori | 24120.000 | AV | 30.1 | 40.4 | -1.0 | 29.6 | 39.9 | 53.9 | 14.0 | NS |
| Vert | 39.920 | QP | 36.0 | 15.4 | 6.9 | 28.7 | 29.6 | 40.0 | 10.4 | |
| Vert | 191.996 | QP | 32.0 | 16.6 | 8.1 | 28.0 | 28.7 | 43.5 | 14.8 | |
| Vert | 239.996 | QP | 34.1 | 17.2 | 8.4 | 27.8 | 31.9 | 46.0 | 14.1 | |
| Vert | 374.201 | QP | 37.2 | 16.7 | 9.2 | 28.2 | 34.9 | 46.0 | 11.1 | |
| Vert | 499.504 | QP | 36.5 | 18.0 | 9.8 | 28.9 | 35.4 | 46.0 | 10.6 | |
| Vert | 599.605 | QP | 41.0 | 19.3 | 10.2 | 28.7 | 41.8 | 46.0 | 4.2 | |
| Vert | 2390.000 | PK | 54.4 | 27.4 | 2.6 | 32.4 | 52.0 | 73.9 | 21.9 | |
| Vert | 2400.000 | PK | 71.0 | 27.4 | 2.6 | 32.4 | 68.6 | - | - | See 20dBc Data Sheet |
| Vert | 3216.000 | PK | 46.1 | 28.8 | 3.1 | 32.2 | 45.8 | 73.9 | 28.1 | |
| Vert | 4824.000 | PK | 45.1 | 31.4 | 5.1 | 31.3 | 50.3 | 73.9 | 23.6 | |
| Vert | 7236.000 | PK | 41.7 | 35.5 | 6.3 | 31.6 | 51.9 | 73.9 | 22.0 | NS |
| Vert | 9648.000 | PK | 42.7 | 38.4 | 6.9 | 31.9 | 56.1 | 73.9 | 17.8 | NS |
| Vert | 24120.000 | PK | 47.7 | 40.4 | -1.0 | 29.6 | 57.5 | 73.9 | 16.4 | NS |
| Vert | 2390.000 | AV | 43.4 | 27.4 | 2.6 | 32.4 | 41.0 | 53.9 | 12.9 | |
| Vert | 2400.000 | AV | 64.0 | 27.4 | 2.6 | 32.4 | 61.6 | - | - | See 20dBc Data Sheet |
| Vert | 3216.000 | AV | 40.5 | 28.8 | 3.1 | 32.2 | 40.2 | 53.9 | 13.7 | |
| Vert | 4824.000 | AV | 30.8 | 31.4 | 5.1 | 31.3 | 36.0 | 53.9 | 17.9 | |
| Vert | 7236.000 | AV | 27.6 | 35.5 | 6.3 | 31.6 | 37.8 | 53.9 | 16.1 | NS |
| Vert | 9648.000 | AV | 28.5 | 38.4 | 6.9 | 31.9 | 41.9 | 53.9 | 12.0 | NS |
| Vert | 24120.000 | AV | 30.1 | 40.4 | -1.0 | 29.6 | 39.9 | 53.9 | 14.0 | NS |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

# Radiated Spurious Emission

(20dBc Data Sheet)

| | |
|---|---|
| Report No. | 31BE0221-HO-06 |
| Test place | Head Office EMC Lab. |
| Semi Anechoic Chamber | No.2 |
| Date | 03/18/2011 |
| Temperature/ Humidity | 20 deg.C./ 23% RH |
| Engineer | Takayuki Shimada |
| Mode | 11b Tx 2412MHz |

**20dBc Data Sheet**

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant Factor [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 2412.000 | PK | 102.1 | 27.4 | 2.6 | 32.4 | 99.7 | - | - | Carrier |
| Hori | 2400.000 | PK | 60.2 | 27.4 | 2.6 | 32.4 | 57.8 | 79.7 | 21.9 | |
| Vert | 2412.000 | PK | 104.2 | 27.4 | 2.6 | 32.4 | 101.8 | - | - | Carrier |
| Vert | 2400.000 | PK | 63.6 | 27.4 | 2.6 | 32.4 | 61.2 | 81.8 | 20.6 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 31BE0221-HO-06 | | |
| Test place | Head Office EMC Lab. | | |
| Semi Anechoic Chamber | No.1 | No.2 | No.2 |
| Date | 03/16/2011 | 03/18/2011 | 03/19/2010 |
| Temperature/ Humidity | 21 deg.C./ 32% RH | 20 deg.C./ 23% RH | 20 deg.C./ 28% RH |
| Engineer | Tomotaka Sasagawa (1-10GHz) | Takayuki Shimada (10-26.5GHz) | Tomohisa Nakagawa (30-1000MHz) |
| Mode | 11b Tx 2437MHz | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 39.880 | QP | 25.2 | 15.4 | 6.9 | 28.7 | 18.8 | 40.0 | 21.2 | |
| Hori | 191.997 | QP | 35.9 | 16.6 | 8.1 | 28.0 | 32.6 | 43.5 | 10.9 | |
| Hori | 239.995 | QP | 39.0 | 17.2 | 8.4 | 27.8 | 36.8 | 46.0 | 9.2 | |
| Hori | 374.996 | QP | 40.4 | 16.7 | 9.2 | 28.2 | 38.1 | 46.0 | 7.9 | |
| Hori | 499.999 | QP | 30.0 | 18.0 | 9.8 | 28.9 | 28.9 | 46.0 | 17.1 | NS |
| Hori | 599.997 | QP | 33.6 | 19.3 | 10.2 | 28.7 | 34.4 | 46.0 | 11.6 | |
| Hori | 1539.765 | PK | 40.3 | 25.4 | 12.1 | 36.6 | 41.2 | 73.9 | 32.8 | NS |
| Hori | 3249.628 | PK | 44.9 | 27.9 | 3.1 | 36.3 | 39.6 | 73.9 | 34.3 | |
| Hori | 4874.000 | PK | 53.7 | 30.4 | 3.8 | 35.8 | 52.1 | 73.9 | 21.8 | |
| Hori | 7311.000 | PK | 45.8 | 35.5 | 4.8 | 35.9 | 50.2 | 73.9 | 23.7 | NS |
| Hori | 9748.000 | PK | 44.8 | 38.1 | 5.5 | 36.5 | 51.9 | 73.9 | 22.0 | |
| Hori | 24370.000 | PK | 48.2 | 40.4 | -1.0 | 29.5 | 58.1 | 73.9 | 15.8 | |
| Hori | 1539.765 | AV | 34.5 | 25.4 | 12.1 | 36.6 | 35.4 | 53.9 | 18.5 | NS |
| Hori | 3249.628 | AV | 38.2 | 27.9 | 3.1 | 36.3 | 32.9 | 53.9 | 21.0 | |
| Hori | 4874.000 | AV | 43.5 | 30.4 | 3.8 | 35.8 | 41.9 | 53.9 | 12.0 | |
| Hori | 7311.000 | AV | 37.8 | 35.5 | 4.8 | 35.9 | 42.2 | 53.9 | 11.7 | NS |
| Hori | 9748.000 | AV | 35.6 | 38.1 | 5.5 | 36.5 | 42.7 | 53.9 | 11.2 | NS |
| Hori | 24370.000 | AV | 30.2 | 40.4 | -1.0 | 29.5 | 40.1 | 53.9 | 13.8 | |
| Vert | 39.920 | QP | 36.4 | 15.4 | 6.9 | 28.7 | 30.0 | 40.0 | 10.0 | |
| Vert | 191.996 | QP | 31.3 | 16.6 | 8.1 | 28.0 | 28.0 | 43.5 | 15.5 | |
| Vert | 239.996 | QP | 34.5 | 17.2 | 8.4 | 27.8 | 32.3 | 46.0 | 13.7 | |
| Vert | 374.993 | QP | 37.9 | 16.7 | 9.2 | 28.2 | 35.6 | 46.0 | 10.4 | |
| Vert | 499.998 | QP | 34.4 | 18.0 | 9.8 | 28.9 | 33.3 | 46.0 | 12.7 | NS |
| Vert | 599.605 | QP | 39.0 | 19.3 | 10.2 | 28.7 | 39.8 | 46.0 | 6.2 | NS |
| Vert | 1535.807 | PK | 56.5 | 25.4 | 2.1 | 36.6 | 47.4 | 73.9 | 26.5 | |
| Vert | 3249.628 | PK | 47.2 | 27.9 | 3.1 | 36.3 | 41.9 | 73.9 | 32.0 | |
| Vert | 4874.000 | PK | 55.1 | 30.4 | 3.8 | 35.8 | 53.5 | 73.9 | 20.4 | |
| Vert | 7311.000 | PK | 45.3 | 35.5 | 4.8 | 35.9 | 49.7 | 73.9 | 24.2 | NS |
| Vert | 9748.000 | PK | 44.9 | 38.1 | 5.5 | 36.5 | 52.0 | 73.9 | 21.9 | NS |
| Vert | 24370.000 | PK | 48.0 | 40.4 | -1.0 | 29.5 | 57.9 | 73.9 | 16.0 | |
| Vert | 1535.807 | AV | 42.5 | 25.4 | 2.1 | 36.6 | 33.4 | 53.9 | 20.6 | NS |
| Vert | 3249.628 | AV | 36.7 | 27.9 | 3.1 | 36.3 | 31.4 | 53.9 | 22.5 | |
| Vert | 4874.000 | AV | 38.0 | 30.4 | 3.8 | 35.8 | 36.4 | 53.9 | 17.5 | |
| Vert | 7311.000 | AV | 34.5 | 35.5 | 4.8 | 35.9 | 38.9 | 53.9 | 15.0 | |
| Vert | 9748.000 | AV | 38.9 | 38.1 | 5.5 | 36.5 | 46.0 | 53.9 | 7.9 | NS |
| Vert | 24370.000 | AV | 30.2 | 40.4 | -1.0 | 29.5 | 40.1 | 53.9 | 13.8 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

# Radiated Spurious Emission

| | | |
|---|---|---|
| Report No. | 31BE0221-HO-06 | |
| Test place | Head Office EMC Lab. | |
| Semi Anechoic Chamber | No.2 | No.2 |
| Date | 03/18/2011 | 03/19/2010 |
| Temperature/ Humidity | 20 deg.C./ 23% RH | 20 deg.C./ 28% RH |
| Engineer | Takayuki Shimada (1-26.5GHz) | Tomohisa Nakagawa (30-1000MHz) |
| Mode | 11b Tx 2462MHz | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 39.960 | QP | 23.8 | 15.4 | 6.9 | 28.7 | 17.4 | 40.0 | 22.6 | |
| Hori | 191.996 | QP | 35.9 | 16.6 | 8.1 | 28.0 | 32.6 | 43.5 | 10.9 | |
| Hori | 239.995 | QP | 38.9 | 17.2 | 8.4 | 27.8 | 36.7 | 46.0 | 9.3 | |
| Hori | 374.996 | QP | 39.7 | 16.7 | 9.2 | 28.2 | 37.4 | 46.0 | 8.6 | |
| Hori | 499.999 | QP | 30.2 | 18.0 | 9.8 | 28.9 | 29.1 | 46.0 | 16.9 | |
| Hori | 599.997 | QP | 33.7 | 19.3 | 10.2 | 28.7 | 34.5 | 46.0 | 11.5 | |
| Hori | 2483.500 | PK | 55.3 | 27.6 | 2.7 | 32.4 | 53.2 | 73.9 | 20.7 | |
| Hori | 3282.700 | PK | 45.1 | 28.9 | 3.1 | 32.1 | 45.0 | 73.9 | 28.9 | |
| Hori | 4924.000 | PK | 49.9 | 31.6 | 5.2 | 31.3 | 55.4 | 73.9 | 18.5 | |
| Hori | 7386.000 | PK | 41.7 | 35.7 | 6.3 | 31.6 | 52.1 | 73.9 | 21.8 | NS |
| Hori | 9848.000 | PK | 42.7 | 38.6 | 6.9 | 31.8 | 56.4 | 73.9 | 17.5 | NS |
| Hori | 24620.000 | PK | 47.9 | 40.3 | -1.0 | 29.4 | 57.8 | 73.9 | 16.1 | NS |
| Hori | 2483.500 | AV | 44.1 | 27.6 | 2.7 | 32.4 | 42.0 | 53.9 | 11.9 | |
| Hori | 3282.700 | AV | 38.3 | 28.9 | 3.1 | 32.1 | 38.2 | 53.9 | 15.7 | |
| Hori | 4924.000 | AV | 37.0 | 31.6 | 5.2 | 31.3 | 42.5 | 53.9 | 11.4 | |
| Hori | 7386.000 | AV | 27.7 | 35.7 | 6.3 | 31.6 | 38.1 | 53.9 | 15.8 | NS |
| Hori | 9848.000 | AV | 29.1 | 38.6 | 6.9 | 31.8 | 42.8 | 53.9 | 11.1 | NS |
| Hori | 24620.000 | AV | 30.0 | 40.3 | -1.0 | 29.4 | 39.9 | 53.9 | 14.0 | NS |
| Vert | 39.960 | QP | 36.4 | 15.4 | 6.9 | 28.7 | 30.0 | 40.0 | 10.0 | |
| Vert | 191.999 | QP | 31.2 | 16.6 | 8.1 | 28.0 | 27.9 | 43.5 | 15.6 | |
| Vert | 239.996 | QP | 34.7 | 17.2 | 8.4 | 27.8 | 32.5 | 46.0 | 13.5 | |
| Vert | 374.999 | QP | 37.6 | 16.7 | 9.2 | 28.2 | 35.3 | 46.0 | 10.7 | |
| Vert | 499.998 | QP | 34.2 | 18.0 | 9.8 | 28.9 | 33.1 | 46.0 | 12.9 | |
| Vert | 599.605 | QP | 39.0 | 19.3 | 10.2 | 28.7 | 39.8 | 46.0 | 6.2 | |
| Vert | 2483.500 | PK | 60.7 | 27.6 | 2.7 | 32.4 | 58.6 | 73.9 | 15.3 | |
| Vert | 3282.700 | PK | 46.6 | 28.9 | 3.1 | 32.1 | 46.5 | 73.9 | 27.4 | |
| Vert | 4924.000 | PK | 51.2 | 31.6 | 5.2 | 31.3 | 56.7 | 73.9 | 17.2 | |
| Vert | 7386.000 | PK | 41.6 | 35.7 | 6.3 | 31.6 | 52.0 | 73.9 | 21.9 | NS |
| Vert | 9848.000 | PK | 42.9 | 38.6 | 6.9 | 31.8 | 56.6 | 73.9 | 17.3 | NS |
| Vert | 24620.000 | PK | 47.8 | 40.3 | -1.0 | 29.4 | 57.7 | 73.9 | 16.2 | NS |
| Vert | 2483.500 | AV | 49.4 | 27.6 | 2.7 | 32.4 | 47.3 | 53.9 | 6.6 | |
| Vert | 3282.700 | AV | 40.8 | 28.9 | 3.1 | 32.1 | 40.7 | 53.9 | 13.2 | |
| Vert | 4924.000 | AV | 38.1 | 31.6 | 5.2 | 31.3 | 43.6 | 53.9 | 10.3 | |
| Vert | 7386.000 | AV | 27.7 | 35.7 | 6.3 | 31.6 | 38.1 | 53.9 | 15.8 | NS |
| Vert | 9848.000 | AV | 29.1 | 38.6 | 6.9 | 31.8 | 42.8 | 53.9 | 11.1 | NS |
| Vert | 24620.000 | AV | 30.0 | 40.3 | -1.0 | 29.4 | 39.9 | 53.9 | 14.0 | NS |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 31BE0221-HO-06 | | |
| Test place | Head Office EMC Lab. | | |
| Semi Anechoic Chamber | No.1 | No.2 | No.2 |
| Date | 03/16/2011 | 03/18/2011 | 03/19/2010 |
| Temperature/ Humidity | 21 deg.C./ 32% RH | 20 deg.C./ 23% RH | 20 deg.C./ 28% RH |
| Engineer | Tomotaka Sasagawa (1-10GHz) | Takayuki Shimada (10-26.5GHz) | Tomohisa Nakagawa (30-1000MHz) |
| Mode | 11g Tx 2412MHz | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 39.880 | QP | 24.9 | 15.4 | 6.9 | 28.7 | 18.5 | 40.0 | 21.5 | |
| Hori | 191.999 | QP | 35.7 | 16.6 | 8.1 | 28.0 | 32.4 | 43.5 | 11.1 | |
| Hori | 239.995 | QP | 39.1 | 17.2 | 8.4 | 27.8 | 36.9 | 46.0 | 9.1 | |
| Hori | 374.996 | QP | 40.4 | 16.7 | 9.2 | 28.2 | 38.1 | 46.0 | 7.9 | |
| Hori | 499.999 | QP | 30.0 | 18.0 | 9.8 | 28.9 | 28.9 | 46.0 | 17.1 | |
| Hori | 600.000 | QP | 32.6 | 19.3 | 10.2 | 28.7 | 33.4 | 46.0 | 12.6 | |
| Hori | 2022.213 | PK | 46.5 | 26.8 | 2.4 | 36.2 | 39.5 | 73.9 | 34.4 | |
| Hori | 2390.000 | PK | 58.4 | 26.9 | 2.6 | 36.3 | 51.6 | 73.9 | 22.3 | |
| Hori | 2400.000 | PK | 93.2 | 26.9 | 2.6 | 36.3 | 86.4 | - | - | See 20dBc Data Sheet |
| Hori | 3215.428 | PK | 47.9 | 27.8 | 3.1 | 36.3 | 42.5 | 73.9 | 31.4 | |
| Hori | 4824.000 | PK | 50.2 | 30.2 | 3.8 | 35.8 | 48.4 | 73.9 | 25.5 | NS |
| Hori | 7236.000 | PK | 44.9 | 35.4 | 4.8 | 35.9 | 49.2 | 73.9 | 24.7 | NS |
| Hori | 9648.000 | PK | 44.7 | 38.0 | 5.5 | 36.5 | 51.7 | 73.9 | 22.2 | NS |
| Hori | 24120.000 | PK | 47.6 | 40.4 | -1.0 | 29.6 | 57.4 | 73.9 | 16.5 | NS |
| Hori | 2022.213 | AV | 33.9 | 26.8 | 2.4 | 36.2 | 26.9 | 53.9 | 27.0 | |
| Hori | 2390.000 | AV | 46.4 | 26.9 | 2.6 | 36.3 | 39.6 | 53.9 | 14.3 | |
| Hori | 2400.000 | AV | 71.7 | 26.9 | 2.6 | 36.3 | 64.9 | - | - | See 20dBc Data Sheet |
| Hori | 3215.428 | AV | 44.8 | 27.8 | 3.1 | 36.3 | 39.4 | 53.9 | 14.5 | |
| Hori | 4824.000 | AV | 34.5 | 30.2 | 3.8 | 35.8 | 32.7 | 53.9 | 21.2 | NS |
| Hori | 7236.000 | AV | 32.9 | 35.4 | 4.8 | 35.9 | 37.2 | 53.9 | 16.7 | NS |
| Hori | 9648.000 | AV | 34.8 | 38.0 | 5.5 | 36.5 | 41.8 | 53.9 | 12.1 | NS |
| Hori | 24120.000 | AV | 30.1 | 40.4 | -1.0 | 29.6 | 39.9 | 53.9 | 14.0 | NS |
| Vert | 39.520 | QP | 35.9 | 15.5 | 6.9 | 28.7 | 29.6 | 40.0 | 10.4 | |
| Vert | 191.999 | QP | 31.1 | 16.6 | 8.1 | 28.0 | 27.8 | 43.5 | 15.7 | |
| Vert | 239.996 | QP | 34.5 | 17.2 | 8.4 | 27.8 | 32.3 | 46.0 | 13.7 | |
| Vert | 374.999 | QP | 37.9 | 16.7 | 9.2 | 28.2 | 35.6 | 46.0 | 10.4 | |
| Vert | 499.998 | QP | 33.4 | 18.0 | 9.8 | 28.9 | 32.3 | 46.0 | 13.7 | |
| Vert | 599.605 | QP | 38.9 | 19.3 | 10.2 | 28.7 | 39.7 | 46.0 | 6.3 | |
| Vert | 2022.213 | PK | 48.5 | 26.8 | 2.4 | 36.2 | 41.5 | 73.9 | 32.4 | |
| Vert | 2390.000 | PK | 59.7 | 26.9 | 2.6 | 36.3 | 52.9 | 73.9 | 21.0 | |
| Vert | 2400.000 | PK | 79.1 | 26.9 | 2.6 | 36.3 | 72.3 | - | - | See 20dBc Data Sheet |
| Vert | 3215.428 | PK | 50.0 | 27.8 | 3.1 | 36.3 | 44.6 | 73.9 | 29.3 | |
| Vert | 4824.000 | PK | 52.3 | 30.2 | 3.8 | 35.8 | 50.5 | 73.9 | 23.4 | NS |
| Vert | 7236.000 | PK | 44.8 | 35.4 | 4.8 | 35.9 | 49.1 | 73.9 | 24.8 | NS |
| Vert | 9648.000 | PK | 44.6 | 38.0 | 5.5 | 36.5 | 51.6 | 73.9 | 22.3 | NS |
| Vert | 24120.000 | PK | 47.4 | 40.4 | -1.0 | 29.6 | 57.2 | 73.9 | 16.7 | NS |
| Vert | 2022.213 | AV | 37.9 | 26.8 | 2.4 | 36.2 | 30.9 | 53.9 | 23.0 | |
| Vert | 2390.000 | AV | 46.8 | 26.9 | 2.6 | 36.3 | 40.0 | 53.9 | 13.9 | |
| Vert | 2400.000 | AV | 66.9 | 26.9 | 2.6 | 36.3 | 60.1 | - | - | See 20dBc Data Sheet |
| Vert | 3215.428 | AV | 34.9 | 27.8 | 3.1 | 36.3 | 29.5 | 53.9 | 24.4 | |
| Vert | 4824.000 | AV | 38.7 | 30.2 | 3.8 | 35.8 | 36.9 | 53.9 | 17.0 | NS |
| Vert | 7236.000 | AV | 33.7 | 35.4 | 4.8 | 35.9 | 38.0 | 53.9 | 15.9 | NS |
| Vert | 9648.000 | AV | 33.9 | 38.0 | 5.5 | 36.5 | 40.9 | 53.9 | 13.0 | NS |
| Vert | 24120.000 | AV | 30.1 | 40.4 | -1.0 | 29.6 | 39.9 | 53.9 | 14.0 | NS |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

# Radiated Spurious Emission

(20dBc Data Sheet)

| | |
|---|---|
| Report No. | 31BE0221-HO-06 |
| Test place | Head Office EMC Lab. |
| Semi Anechoic Chamber | No.1 |
| Date | 03/16/2011 |
| Temperature/ Humidity | 21 deg.C./ 32% RH |
| Engineer | Tomotaka Sasagawa |
| Mode | 11g Tx 2412MHz |

**20dBc Data Sheet**

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant Factor [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 2412.000 | PK | 105.8 | 26.9 | 2.6 | 36.3 | 99.0 | - | - | Carrier |
| Hori | 2400.000 | PK | 76.5 | 26.9 | 2.6 | 36.3 | 69.7 | 79.0 | 9.3 | |
| Vert | 2412.000 | PK | 105.1 | 26.9 | 2.6 | 36.3 | 98.3 | - | - | Carrier |
| Vert | 2400.000 | PK | 78.3 | 26.9 | 2.6 | 36.3 | 71.5 | 78.3 | 6.8 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 31BE0221-HO-06 | | |
| Test place | Head Office EMC Lab. | | |
| Semi Anechoic Chamber | No.1 | No.2 | No.2 |
| Date | 03/16/2011 | 03/18/2011 | 03/19/2010 |
| Temperature/ Humidity | 21 deg.C./ 32% RH | 20 deg.C./ 23% RH | 20 deg.C./ 28% RH |
| Engineer | Tomotaka Sasagawa (1-10GHz) | Takayuki Shimada (10-26.5GHz) | Tomohisa Nakagawa (30-1000MHz) |
| Mode | 11g Tx 2437MHz | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 39.760 | QP | 25.2 | 15.4 | 6.9 | 28.7 | 18.8 | 40.0 | 21.2 | |
| Hori | 191.999 | QP | 35.4 | 16.6 | 8.1 | 28.0 | 32.1 | 43.5 | 11.4 | |
| Hori | 239.995 | QP | 39.8 | 17.2 | 8.4 | 27.8 | 37.6 | 46.0 | 8.4 | |
| Hori | 374.996 | QP | 40.6 | 16.7 | 9.2 | 28.2 | 38.3 | 46.0 | 7.7 | |
| Hori | 499.998 | QP | 30.1 | 18.0 | 9.8 | 28.9 | 29.0 | 46.0 | 17.0 | |
| Hori | 599.992 | QP | 33.5 | 19.3 | 10.2 | 28.7 | 34.3 | 46.0 | 11.7 | |
| Hori | 1540.220 | PK | 41.2 | 25.4 | 2.1 | 36.6 | 32.1 | 73.9 | 41.8 | |
| Hori | 3249.628 | PK | 48.2 | 27.9 | 3.1 | 36.3 | 42.9 | 73.9 | 31.0 | |
| Hori | 4874.000 | PK | 50.2 | 30.4 | 3.8 | 35.8 | 48.6 | 73.9 | 25.3 | NS |
| Hori | 7311.000 | PK | 44.8 | 35.5 | 4.8 | 35.9 | 49.2 | 73.9 | 24.7 | NS |
| Hori | 9748.000 | PK | 45.2 | 38.1 | 5.5 | 36.5 | 52.3 | 73.9 | 21.6 | NS |
| Hori | 24370.000 | PK | 48.0 | 40.4 | -1.0 | 29.5 | 57.9 | 73.9 | 16.0 | NS |
| Hori | 1540.220 | AV | 34.6 | 25.4 | 2.1 | 36.6 | 25.5 | 53.9 | 28.4 | |
| Hori | 3249.628 | AV | 36.5 | 27.9 | 3.1 | 36.3 | 31.2 | 53.9 | 22.7 | |
| Hori | 4874.000 | AV | 43.2 | 30.4 | 3.8 | 35.8 | 41.6 | 53.9 | 12.3 | NS |
| Hori | 7311.000 | AV | 36.5 | 35.5 | 4.8 | 35.9 | 40.9 | 53.9 | 13.0 | NS |
| Hori | 9748.000 | AV | 34.9 | 38.1 | 5.5 | 36.5 | 42.0 | 53.9 | 11.9 | NS |
| Hori | 24370.000 | AV | 30.2 | 40.4 | -1.0 | 29.5 | 40.1 | 53.9 | 13.8 | NS |
| Vert | 39.520 | QP | 35.9 | 15.5 | 6.9 | 28.7 | 29.6 | 40.0 | 10.4 | |
| Vert | 191.999 | QP | 31.0 | 16.6 | 8.1 | 28.0 | 27.7 | 43.5 | 15.8 | |
| Vert | 239.996 | QP | 35.1 | 17.2 | 8.4 | 27.8 | 32.9 | 46.0 | 13.1 | |
| Vert | 374.999 | QP | 37.9 | 16.7 | 9.2 | 28.2 | 35.6 | 46.0 | 10.4 | |
| Vert | 499.998 | QP | 33.2 | 18.0 | 9.8 | 28.9 | 32.1 | 46.0 | 13.9 | |
| Vert | 1540.820 | PK | 56.2 | 25.4 | 2.1 | 36.6 | 47.1 | 73.9 | 26.8 | |
| Vert | 3253.428 | PK | 48.5 | 27.9 | 3.1 | 36.3 | 43.2 | 73.9 | 30.7 | |
| Vert | 4874.000 | PK | 54.3 | 30.4 | 3.8 | 35.8 | 52.7 | 73.9 | 21.2 | NS |
| Vert | 7311.000 | PK | 44.9 | 35.5 | 4.8 | 35.9 | 49.3 | 73.9 | 24.6 | NS |
| Vert | 9748.000 | PK | 45.1 | 38.1 | 5.5 | 36.5 | 52.2 | 73.9 | 21.7 | NS |
| Vert | 24370.000 | PK | 48.0 | 40.4 | -1.0 | 29.5 | 57.9 | 73.9 | 16.0 | NS |
| Vert | 1540.820 | AV | 44.0 | 25.4 | 2.1 | 36.6 | 34.9 | 53.9 | 19.0 | |
| Vert | 3253.428 | AV | 38.9 | 27.9 | 3.1 | 36.3 | 33.6 | 53.9 | 20.3 | |
| Vert | 4874.000 | AV | 37.2 | 30.4 | 3.8 | 35.8 | 35.6 | 53.9 | 18.3 | NS |
| Vert | 7311.000 | AV | 34.8 | 35.5 | 4.8 | 35.9 | 39.2 | 53.9 | 14.7 | NS |
| Vert | 9748.000 | AV | 33.8 | 38.1 | 5.5 | 36.5 | 40.9 | 53.9 | 13.0 | NS |
| Vert | 24370.000 | AV | 30.2 | 40.4 | -1.0 | 29.5 | 40.1 | 53.9 | 13.8 | NS |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 31BE0221-HO-06 | | |
| Test place | Head Office EMC Lab. | | |
| Semi Anechoic Chamber | No.1 | No.2 | No.2 |
| Date | 03/16/2011 | 03/18/2011 | 03/19/2010 |
| Temperature/ Humidity | 21 deg.C./ 32% RH | 20 deg.C./ 23% RH | 20 deg.C./ 28% RH |
| Engineer | Tomotaka Sasagawa (1-10GHz) | Takayuki Shimada (10-26.5GHz) | Tomohisa Nakagawa (30-1000MHz) |
| Mode | 11g Tx 2462MHz | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 39.760 | QP | 25.2 | 15.4 | 6.9 | 28.7 | 18.8 | 40.0 | 21.2 | |
| Hori | 191.999 | QP | 35.4 | 16.6 | 8.1 | 28.0 | 32.1 | 43.5 | 11.4 | |
| Hori | 239.995 | QP | 39.3 | 17.2 | 8.4 | 27.8 | 37.1 | 46.0 | 8.9 | |
| Hori | 374.996 | QP | 40.0 | 16.7 | 9.2 | 28.2 | 37.7 | 46.0 | 8.3 | |
| Hori | 500.008 | QP | 29.8 | 18.0 | 9.8 | 28.9 | 28.7 | 46.0 | 17.3 | |
| Hori | 599.998 | QP | 32.8 | 19.3 | 10.2 | 28.7 | 33.6 | 46.0 | 12.4 | |
| Hori | 1851.211 | PK | 51.9 | 26.4 | 2.3 | 36.3 | 44.3 | 73.9 | 29.6 | |
| Hori | 2483.500 | PK | 57.0 | 26.9 | 2.7 | 36.3 | 50.3 | 73.9 | 23.6 | |
| Hori | 3283.829 | PK | 44.2 | 28.0 | 3.1 | 36.3 | 39.0 | 73.9 | 34.9 | |
| Hori | 4924.000 | PK | 51.2 | 30.5 | 3.9 | 35.8 | 49.8 | 73.9 | 24.1 | NS |
| Hori | 7386.000 | PK | 45.7 | 35.7 | 4.8 | 35.9 | 50.3 | 73.9 | 23.6 | NS |
| Hori | 9848.000 | PK | 44.5 | 38.3 | 5.5 | 36.5 | 51.8 | 73.9 | 22.1 | NS |
| Hori | 24620.000 | PK | 47.9 | 40.3 | -1.0 | 29.4 | 57.8 | 73.9 | 16.1 | NS |
| Hori | 1851.211 | AV | 37.8 | 26.4 | 2.3 | 36.3 | 30.2 | 53.9 | 23.7 | |
| Hori | 2483.500 | AV | 43.5 | 26.9 | 2.7 | 36.3 | 36.8 | 53.9 | 17.1 | |
| Hori | 3283.829 | AV | 38.7 | 28.0 | 3.1 | 36.3 | 33.5 | 53.9 | 20.4 | |
| Hori | 4924.000 | AV | 37.8 | 30.5 | 3.9 | 35.8 | 36.4 | 53.9 | 17.5 | NS |
| Hori | 7386.000 | AV | 34.5 | 35.7 | 4.8 | 35.9 | 39.1 | 53.9 | 14.8 | NS |
| Hori | 9848.000 | AV | 34.2 | 38.3 | 5.5 | 36.5 | 41.5 | 53.9 | 12.4 | NS |
| Hori | 24620.000 | AV | 30.0 | 40.3 | -1.0 | 29.4 | 39.9 | 53.9 | 14.0 | NS |
| Vert | 39.520 | QP | 36.1 | 15.5 | 6.9 | 28.7 | 29.8 | 40.0 | 10.2 | |
| Vert | 191.997 | QP | 30.9 | 16.6 | 8.1 | 28.0 | 27.6 | 43.5 | 15.9 | |
| Vert | 239.997 | QP | 35.0 | 17.2 | 8.4 | 27.8 | 32.8 | 46.0 | 13.2 | |
| Vert | 374.999 | QP | 37.6 | 16.7 | 9.2 | 28.2 | 35.3 | 46.0 | 10.7 | |
| Vert | 499.998 | QP | 33.4 | 18.0 | 9.8 | 28.9 | 32.3 | 46.0 | 13.7 | |
| Vert | 600.004 | QP | 39.4 | 19.3 | 10.2 | 28.7 | 40.2 | 46.0 | 5.8 | |
| Vert | 1851.211 | PK | 52.8 | 26.4 | 2.3 | 36.3 | 45.2 | 73.9 | 28.7 | |
| Vert | 2483.500 | PK | 57.2 | 26.9 | 2.7 | 36.3 | 50.5 | 73.9 | 23.4 | |
| Vert | 3283.829 | PK | 50.9 | 28.0 | 3.1 | 36.3 | 45.7 | 73.9 | 28.2 | |
| Vert | 4924.000 | PK | 47.9 | 30.5 | 3.9 | 35.8 | 46.5 | 73.9 | 27.4 | NS |
| Vert | 7386.000 | PK | 45.2 | 35.7 | 4.8 | 35.9 | 49.8 | 73.9 | 24.1 | NS |
| Vert | 9848.000 | PK | 45.1 | 38.3 | 5.5 | 36.5 | 52.4 | 73.9 | 21.5 | NS |
| Vert | 24620.000 | PK | 47.8 | 40.3 | -1.0 | 29.4 | 57.7 | 73.9 | 16.2 | NS |
| Vert | 1851.211 | AV | 35.9 | 26.4 | 2.3 | 36.3 | 28.3 | 53.9 | 25.6 | |
| Vert | 2483.500 | AV | 45.6 | 26.9 | 2.7 | 36.3 | 38.9 | 53.9 | 15.0 | |
| Vert | 3283.829 | AV | 37.5 | 28.0 | 3.1 | 36.3 | 32.3 | 53.9 | 21.6 | |
| Vert | 4924.000 | AV | 35.6 | 30.5 | 3.9 | 35.8 | 34.2 | 53.9 | 19.7 | NS |
| Vert | 7386.000 | AV | 34.5 | 35.7 | 4.8 | 35.9 | 39.1 | 53.9 | 14.8 | NS |
| Vert | 9848.000 | AV | 34.9 | 38.3 | 5.5 | 36.5 | 42.2 | 53.9 | 11.7 | NS |
| Vert | 24620.000 | AV | 30.0 | 40.3 | -1.0 | 29.4 | 39.9 | 53.9 | 14.0 | NS |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 31BE0221-HO-06 | | |
| Test place | Head Office EMC Lab. | | |
| Semi Anechoic Chamber | No.1 | No.1 and No.2 | No.2 |
| Date | 03/16/2011 | 03/18/2011 | 03/19/2010 |
| Temperature/ Humidity | 21 deg.C./ 32% RH | 20 deg.C./ 23% RH | 20 deg.C./ 28% RH |
| Engineer | Tomotaka Sasagawa (1-18GHz) | Takayuki Shimada (18-40GHz) | Tomohisa Nakagawa (30-1000MHz) |
| Mode | 11a Tx 5745MHz | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 39.840 | QP | 26.5 | 15.4 | 6.9 | 28.7 | 20.1 | 40.0 | 19.9 | |
| Hori | 191.996 | QP | 34.9 | 16.6 | 8.1 | 28.0 | 31.6 | 43.5 | 11.9 | |
| Hori | 239.996 | QP | 39.1 | 17.2 | 8.4 | 27.8 | 36.9 | 46.0 | 9.1 | |
| Hori | 375.001 | QP | 41.4 | 16.7 | 9.2 | 28.2 | 39.1 | 46.0 | 6.9 | |
| Hori | 500.008 | QP | 29.3 | 18.0 | 9.8 | 28.9 | 28.2 | 46.0 | 17.8 | |
| Hori | 599.998 | QP | 34.1 | 19.3 | 10.2 | 28.7 | 34.9 | 46.0 | 11.1 | |
| Hori | 3834.836 | PK | 55.3 | 28.7 | 3.3 | 36.0 | 51.3 | 73.9 | 22.6 | |
| Hori | 5120.000 | PK | 54.7 | 30.8 | 4.0 | 35.8 | 53.7 | 73.9 | 20.2 | |
| Hori | 5725.000 | PK | 74.2 | 31.6 | 4.2 | 35.6 | 74.4 | - | - | See 20dBc Data Sheet |
| Hori | 11490.000 | PK | 45.9 | 39.8 | -1.7 | 35.9 | 48.1 | 73.9 | 25.8 | NS |
| Hori | 17235.000 | PK | 35.1 | 42.3 | -0.7 | 35.6 | 41.1 | 73.9 | 32.8 | NS |
| Hori | 34470.000 | PK | 46.4 | 40.5 | 1.0 | 24.6 | 63.3 | 73.9 | 10.6 | NS |
| Hori | 3834.836 | AV | 54.8 | 28.7 | 3.3 | 36.0 | 50.8 | 53.9 | 3.1 | |
| Hori | 5120.000 | AV | 47.2 | 30.8 | 4.0 | 35.8 | 46.2 | 53.9 | 7.7 | |
| Hori | 5725.000 | AV | 52.3 | 31.6 | 4.2 | 35.6 | 52.5 | - | - | See 20dBc Data Sheet |
| Hori | 11490.000 | AV | 35.1 | 39.8 | -1.7 | 35.9 | 37.3 | 53.9 | 16.6 | NS |
| Hori | 17235.000 | AV | 47.1 | 42.3 | -0.7 | 35.6 | 53.1 | 53.9 | 0.8 | NS |
| Hori | 34470.000 | AV | 29.1 | 40.5 | 1.0 | 24.6 | 46.0 | 53.9 | 7.9 | NS |
| Vert | 39.520 | QP | 36.2 | 15.5 | 6.9 | 28.7 | 29.9 | 40.0 | 10.1 | |
| Vert | 191.997 | QP | 30.8 | 16.6 | 8.1 | 28.0 | 27.5 | 43.5 | 16.0 | |
| Vert | 239.997 | QP | 34.1 | 17.2 | 8.4 | 27.8 | 31.9 | 46.0 | 14.1 | |
| Vert | 374.999 | QP | 39.1 | 16.7 | 9.2 | 28.2 | 36.8 | 46.0 | 9.2 | |
| Vert | 500.004 | QP | 33.0 | 18.0 | 9.8 | 28.9 | 31.9 | 46.0 | 14.1 | |
| Vert | 600.004 | QP | 39.4 | 19.3 | 10.2 | 28.7 | 40.2 | 46.0 | 5.8 | |
| Vert | 3834.836 | PK | 52.3 | 28.7 | 3.3 | 36.0 | 48.3 | 73.9 | 25.6 | |
| Vert | 5120.000 | PK | 54.9 | 30.8 | 4.0 | 35.8 | 53.9 | 73.9 | 20.0 | |
| Vert | 5725.000 | PK | 72.3 | 31.6 | 4.2 | 35.6 | 72.5 | - | - | See 20dBc Data Sheet |
| Vert | 11490.000 | PK | 46.2 | 39.8 | -1.7 | 35.9 | 48.4 | 73.9 | 25.5 | NS |
| Vert | 17235.000 | PK | 47.6 | 42.3 | -0.7 | 35.6 | 53.6 | 73.9 | 20.3 | NS |
| Vert | 34470.000 | PK | 46.7 | 40.5 | 1.0 | 24.6 | 63.6 | 73.9 | 10.3 | NS |
| Vert | 3834.836 | AV | 48.2 | 28.7 | 3.3 | 36.0 | 44.2 | 53.9 | 9.7 | |
| Vert | 5120.000 | AV | 44.8 | 30.8 | 4.0 | 35.8 | 43.8 | 53.9 | 10.1 | |
| Vert | 5725.000 | AV | 51.2 | 31.6 | 4.2 | 35.6 | 51.4 | - | - | See 20dBc Data Sheet |
| Vert | 11490.000 | AV | 34.8 | 39.8 | -1.7 | 35.9 | 37.0 | 53.9 | 16.9 | NS |
| Vert | 17235.000 | AV | 35.0 | 42.3 | -0.7 | 35.6 | 41.0 | 53.9 | 12.9 | NS |
| Vert | 34470.000 | AV | 29.1 | 40.5 | 1.0 | 24.6 | 46.0 | 53.9 | 7.9 | NS |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

**UL Japan, Inc.**
**Head Office EMC Lab.**
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# Radiated Spurious Emission
(20dBc Data Sheet)

| | |
|---|---|
| Report No. | 31BE0221-HO-06 |
| Test place | Head Office EMC Lab. |
| Semi Anechoic Chamber | No.1 |
| Date | 03/16/2011 |
| Temperature/ Humidity | 21 deg.C./ 32% RH |
| Engineer | Tomotaka Sasagawa |
| Mode | 11a Tx 5745MHz |

**20dBc Data Sheet**

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant Factor [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 5745.000 | PK | 101.2 | 31.6 | 4.2 | 35.6 | 101.4 | - | - | Carrier |
| Hori | 5725.000 | PK | 58.1 | 31.6 | 4.2 | 35.6 | 58.3 | 81.4 | 23.1 | |
| Vert | 5745.000 | PK | 95.1 | 31.6 | 4.2 | 35.6 | 95.3 | - | - | Carrier |
| Vert | 5725.000 | PK | 54.3 | 31.6 | 4.2 | 35.6 | 54.5 | 75.3 | 20.8 | |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amprifier)

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 31BE0221-HO-06 | | |
| Test place | Head Office EMC Lab. | | |
| Semi Anechoic Chamber | No.1 | No.1 and No.2 | No.2 |
| Date | 03/16/2011 | 03/18/2011 | 03/19/2010 |
| Temperature/ Humidity | 21 deg.C./ 32% RH | 20 deg.C./ 23% RH | 20 deg.C./ 28% RH |
| Engineer | Tomotaka Sasagawa (1-18GHz) | Takayuki Shimada (18-40GHz) | Tomohisa Nakagawa (30-1000MHz) |
| Mode | 11a Tx 5785MHz | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 39.760 | QP | 25.7 | 15.4 | 6.9 | 28.7 | 19.3 | 40.0 | 20.7 | |
| Hori | 191.996 | QP | 38.8 | 16.6 | 8.1 | 28.0 | 35.5 | 43.5 | 8.0 | |
| Hori | 239.996 | QP | 40.1 | 17.2 | 8.4 | 27.8 | 37.9 | 46.0 | 8.1 | |
| Hori | 375.001 | QP | 41.5 | 16.7 | 9.2 | 28.2 | 39.2 | 46.0 | 6.8 | |
| Hori | 500.016 | QP | 28.0 | 18.0 | 9.8 | 28.9 | 26.9 | 46.0 | 19.1 | |
| Hori | 599.998 | QP | 33.9 | 19.3 | 10.2 | 28.7 | 34.7 | 46.0 | 11.3 | |
| Hori | 3856.764 | PK | 56.8 | 28.8 | 3.3 | 36.0 | 52.9 | 73.9 | 21.0 | |
| Hori | 5120.000 | PK | 55.2 | 30.8 | 4.0 | 35.8 | 54.2 | 73.9 | 19.7 | |
| Hori | 11570.000 | PK | 46.2 | 39.7 | -1.5 | 35.9 | 48.5 | 73.9 | 25.4 | NS |
| Hori | 17355.000 | PK | 46.8 | 43.3 | -0.6 | 35.6 | 53.9 | 73.9 | 20.0 | NS |
| Hori | 34710.000 | PK | 46.4 | 40.5 | 1.1 | 24.6 | 63.4 | 73.9 | 10.5 | NS |
| Hori | 3856.764 | AV | 55.1 | 28.8 | 3.3 | 36.0 | 51.2 | 53.9 | 2.7 | |
| Hori | 5120.000 | AV | 48.2 | 30.8 | 4.0 | 35.8 | 47.2 | 53.9 | 6.7 | |
| Hori | 11570.000 | AV | 34.8 | 39.7 | -1.5 | 35.9 | 37.1 | 53.9 | 16.8 | NS |
| Hori | 17355.000 | AV | 35.4 | 43.3 | -0.6 | 35.6 | 42.5 | 53.9 | 11.4 | NS |
| Hori | 34710.000 | AV | 29.2 | 40.5 | 1.1 | 24.6 | 46.2 | 53.9 | 7.7 | NS |
| Vert | 39.480 | QP | 35.9 | 15.5 | 6.9 | 28.7 | 29.6 | 40.0 | 10.4 | |
| Vert | 191.997 | QP | 30.8 | 16.6 | 8.1 | 28.0 | 27.5 | 43.5 | 16.0 | |
| Vert | 239.997 | QP | 34.5 | 17.2 | 8.4 | 27.8 | 32.3 | 46.0 | 13.7 | |
| Vert | 374.999 | QP | 38.5 | 16.7 | 9.2 | 28.2 | 36.2 | 46.0 | 9.8 | |
| Vert | 499.996 | QP | 32.6 | 18.0 | 9.8 | 28.9 | 31.5 | 46.0 | 14.5 | |
| Vert | 599.999 | QP | 39.1 | 19.3 | 10.2 | 28.7 | 39.9 | 46.0 | 6.1 | |
| Vert | 3856.735 | PK | 51.9 | 28.8 | 3.3 | 36.0 | 48.0 | 73.9 | 25.9 | |
| Vert | 5120.000 | PK | 54.8 | 30.8 | 4.0 | 35.8 | 53.8 | 73.9 | 20.1 | |
| Vert | 11570.000 | PK | 46.7 | 39.7 | -1.5 | 35.9 | 49.0 | 73.9 | 24.9 | NS |
| Vert | 17355.000 | PK | 47.5 | 43.3 | -0.6 | 35.6 | 54.6 | 73.9 | 19.3 | NS |
| Vert | 34710.000 | PK | 46.7 | 40.5 | 1.1 | 24.6 | 63.7 | 73.9 | 10.2 | NS |
| Vert | 3856.735 | AV | 42.9 | 28.8 | 3.3 | 36.0 | 39.0 | 53.9 | 14.9 | |
| Vert | 5120.000 | AV | 44.5 | 30.8 | 4.0 | 35.8 | 43.5 | 53.9 | 10.4 | |
| Vert | 11570.000 | AV | 34.9 | 39.7 | -1.5 | 35.9 | 37.2 | 53.9 | 16.7 | NS |
| Vert | 17355.000 | AV | 34.9 | 43.3 | -0.6 | 35.6 | 42.0 | 53.9 | 11.9 | NS |
| Vert | 34710.000 | AV | 29.2 | 40.5 | 1.1 | 24.6 | 46.2 | 53.9 | 7.7 | NS |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

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

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

# Radiated Spurious Emission

| | | | |
|---|---|---|---|
| Report No. | 31BE0221-HO-06 | | |
| Test place | Head Office EMC Lab. | | |
| Semi Anechoic Chamber | No.1 | No.1 and No.2 | No.2 |
| Date | 03/16/2011 | 03/18/2011 | 03/19/2010 |
| Temperature/ Humidity | 21 deg.C./ 32% RH | 20 deg.C./ 23% RH | 20 deg.C./ 28% RH |
| Engineer | Tomotaka Sasagawa (1-18GHz) | Takayuki Shimada (18-40GHz) | Tomohisa Nakagawa (30-1000MHz) |
| Mode | 11a Tx 5825MHz | | |

| Polarity | Frequency [MHz] | Detector | Reading [dBuV] | Ant.Fac. [dB/m] | Loss [dB] | Gain [dB] | Result [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| Hori | 39.760 | QP | 24.9 | 15.4 | 6.9 | 28.7 | 18.5 | 40.0 | 21.5 | |
| Hori | 191.996 | QP | 35.3 | 16.6 | 8.1 | 28.0 | 32.0 | 43.5 | 11.5 | |
| Hori | 239.996 | QP | 39.6 | 17.2 | 8.4 | 27.8 | 37.4 | 46.0 | 8.6 | |
| Hori | 375.001 | QP | 41.4 | 16.7 | 9.2 | 28.2 | 39.1 | 46.0 | 6.9 | |
| Hori | 500.008 | QP | 29.1 | 18.0 | 9.8 | 28.9 | 28.0 | 46.0 | 18.0 | |
| Hori | 599.998 | QP | 34.4 | 19.3 | 10.2 | 28.7 | 35.2 | 46.0 | 10.8 | |
| Hori | 3883.123 | PK | 61.5 | 28.8 | 3.4 | 36.0 | 57.7 | 73.9 | 16.2 | |
| Hori | 5120.000 | PK | 56.8 | 30.8 | 4.0 | 35.8 | 55.8 | 73.9 | 18.1 | |
| Hori | 5850.000 | PK | 68.2 | 31.8 | 4.2 | 35.6 | 68.6 | 73.9 | 5.3 | |
| Hori | 11650.000 | PK | 46.5 | 39.6 | -1.5 | 36.0 | 48.6 | 73.9 | 25.3 | NS |
| Hori | 17475.000 | PK | 46.2 | 44.3 | -0.6 | 35.5 | 54.4 | 73.9 | 19.5 | NS |
| Hori | 34950.000 | PK | 47.4 | 40.5 | 1.2 | 24.5 | 64.6 | 73.9 | 9.3 | NS |
| Hori | 3883.123 | AV | 55.3 | 28.8 | 3.4 | 36.0 | 51.5 | 53.9 | 2.4 | |
| Hori | 5120.000 | AV | 49.2 | 30.8 | 4.0 | 35.8 | 48.2 | 53.9 | 5.7 | |
| Hori | 5850.000 | AV | 47.1 | 31.8 | 4.2 | 35.6 | 47.5 | 53.9 | 6.4 | |
| Hori | 11650.000 | AV | 34.5 | 39.6 | -1.5 | 36.0 | 36.6 | 53.9 | 17.3 | NS |
| Hori | 17475.000 | AV | 35.2 | 44.3 | -0.6 | 35.5 | 43.4 | 53.9 | 10.5 | NS |
| Hori | 34950.000 | AV | 29.6 | 40.5 | 1.2 | 24.5 | 46.8 | 53.9 | 7.1 | NS |
| Vert | 39.480 | QP | 36.0 | 15.5 | 6.9 | 28.7 | 29.7 | 40.0 | 10.3 | |
| Vert | 191.995 | QP | 30.0 | 16.6 | 8.1 | 28.0 | 26.7 | 43.5 | 16.8 | |
| Vert | 239.997 | QP | 34.6 | 17.2 | 8.4 | 27.8 | 32.4 | 46.0 | 13.6 | |
| Vert | 375.000 | QP | 38.6 | 16.7 | 9.2 | 28.2 | 36.3 | 46.0 | 9.7 | |
| Vert | 499.996 | QP | 32.7 | 18.0 | 9.8 | 28.9 | 31.6 | 46.0 | 14.4 | |
| Vert | 599.999 | QP | 40.0 | 19.3 | 10.2 | 28.7 | 40.8 | 46.0 | 5.2 | |
| Vert | 3883.400 | PK | 52.8 | 28.8 | 3.4 | 36.0 | 49.0 | 73.9 | 24.9 | |
| Vert | 5120.000 | PK | 53.9 | 30.8 | 4.0 | 35.8 | 52.9 | 73.9 | 21.0 | |
| Vert | 5850.000 | PK | 68.3 | 31.8 | 4.2 | 35.6 | 68.7 | 73.9 | 5.2 | |
| Vert | 11650.000 | PK | 46.9 | 39.6 | -1.5 | 36.0 | 49.0 | 73.9 | 24.9 | NS |
| Vert | 17475.000 | PK | 47.2 | 44.3 | -0.6 | 35.5 | 55.4 | 73.9 | 18.5 | NS |
| Vert | 34950.000 | PK | 47.2 | 40.5 | 1.2 | 24.5 | 64.4 | 73.9 | 9.5 | NS |
| Vert | 3883.400 | AV | 44.9 | 28.8 | 3.4 | 36.0 | 41.1 | 53.9 | 12.8 | |
| Vert | 5120.000 | AV | 43.8 | 30.8 | 4.0 | 35.8 | 42.8 | 53.9 | 11.1 | |
| Vert | 5850.000 | AV | 49.1 | 31.8 | 4.2 | 35.6 | 49.5 | 53.9 | 4.4 | |
| Vert | 11650.000 | AV | 34.7 | 39.6 | -1.5 | 36.0 | 36.8 | 53.9 | 17.1 | NS |
| Vert | 17475.000 | AV | 35.4 | 44.3 | -0.6 | 35.5 | 43.6 | 53.9 | 10.3 | NS |
| Vert | 34950.000 | AV | 29.6 | 40.5 | 1.2 | 24.5 | 46.8 | 53.9 | 7.1 | NS |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 10GHz)) - Gain(Amplifier)

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

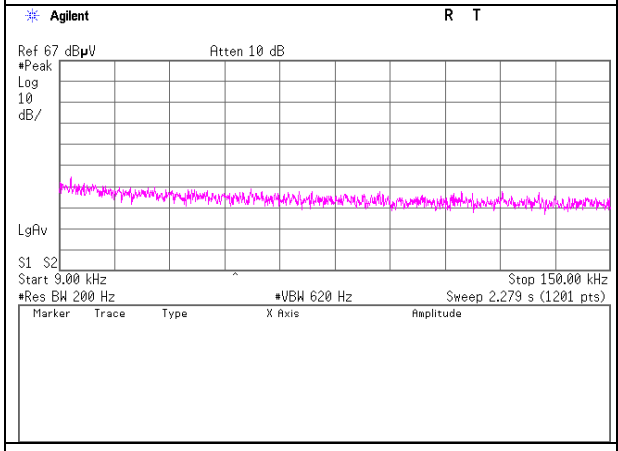
*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 10GHz-26.5GHz 20log(3.0m/1.0m)= 9.5dB
26.5GHz-40GHz 20log(3.0m/0.5m)=15.6dB

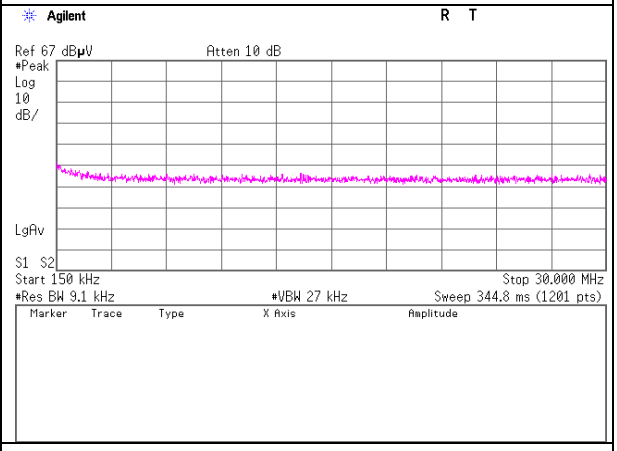
# Conducted Spurious Emission

## 11b Tx 2412MHz

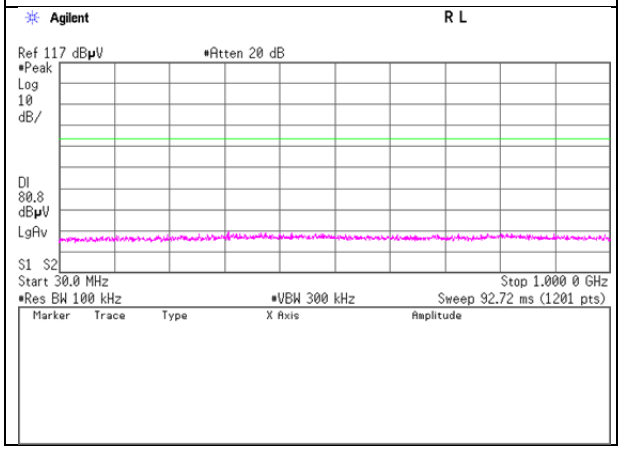
### 9kHz-150kHz



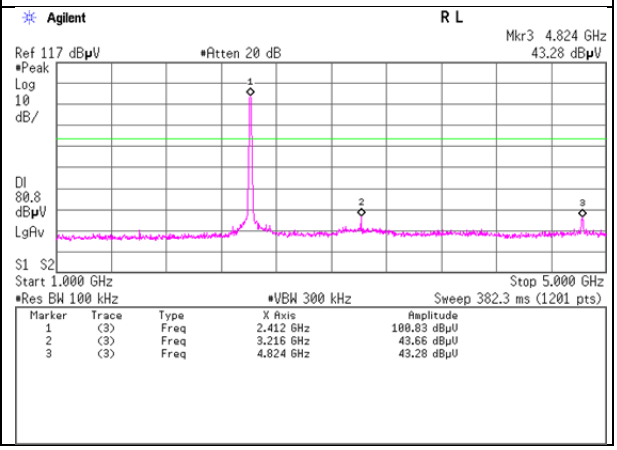

### 150kHz-30MHz




### 30MHz-1GHz



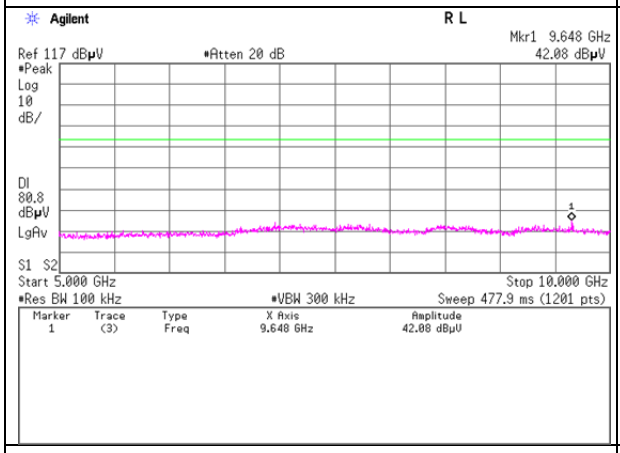

### 1GHz-5GHz



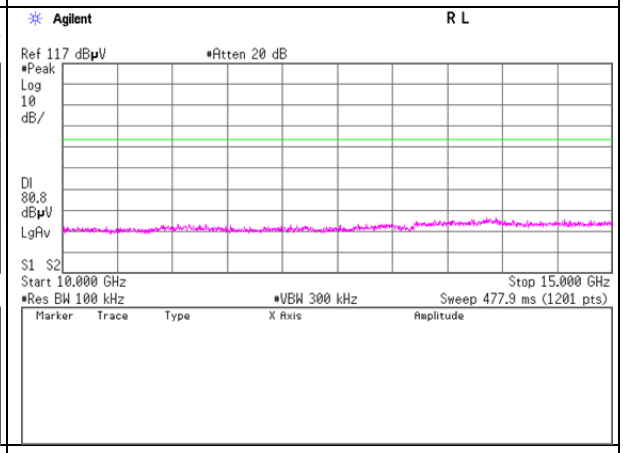
# Conducted Spurious Emission

## 11b Tx 2412MHz

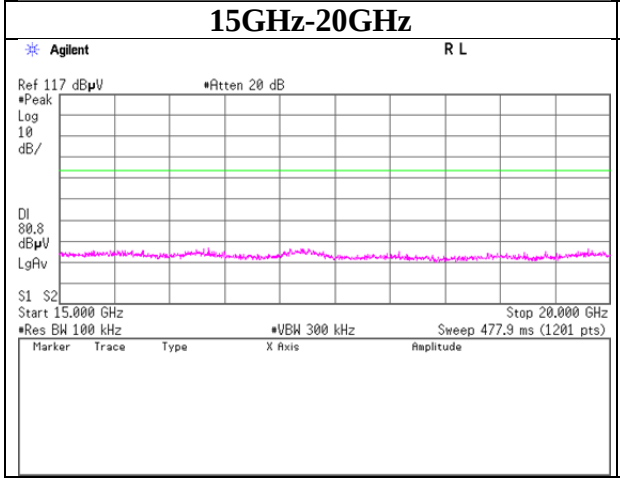
### 5GHz-10GHz



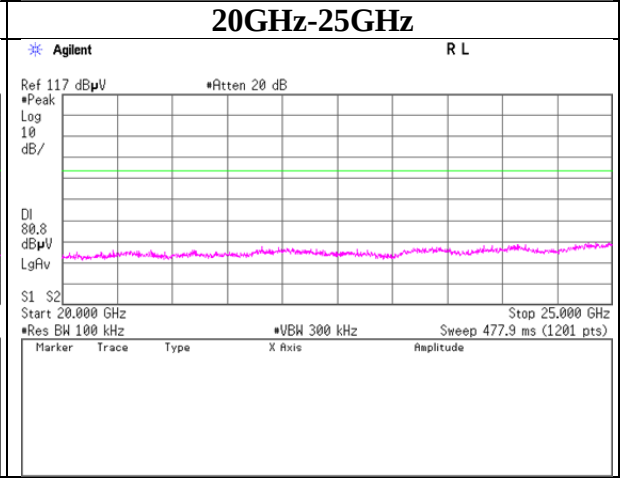

### 10GHz-15GHz




### 15GHz-20GHz




### 20GHz-25GHz





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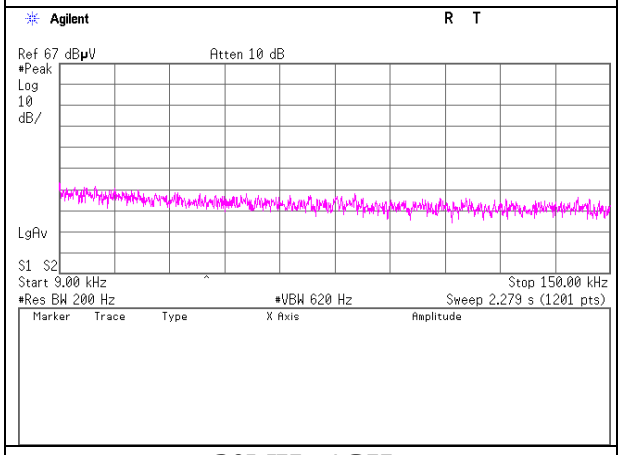
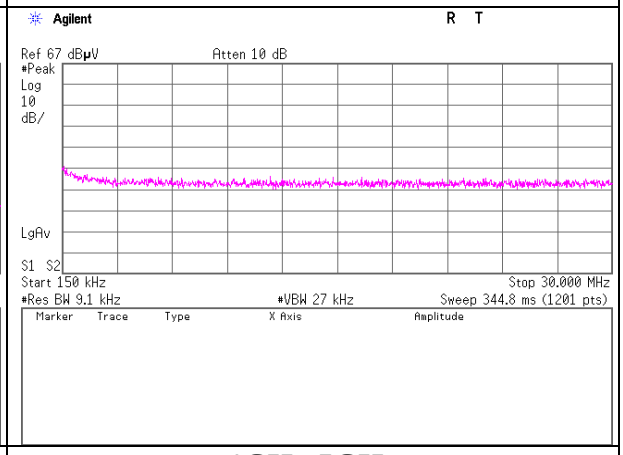
# Conducted Spurious Emission

## 11b Tx 2437MHz

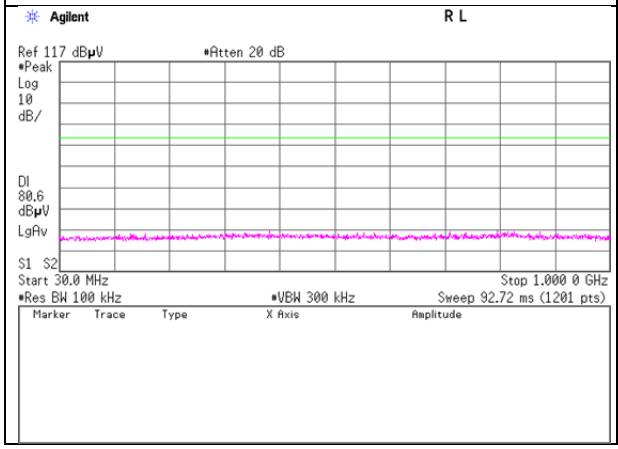
### 9kHz-150kHz



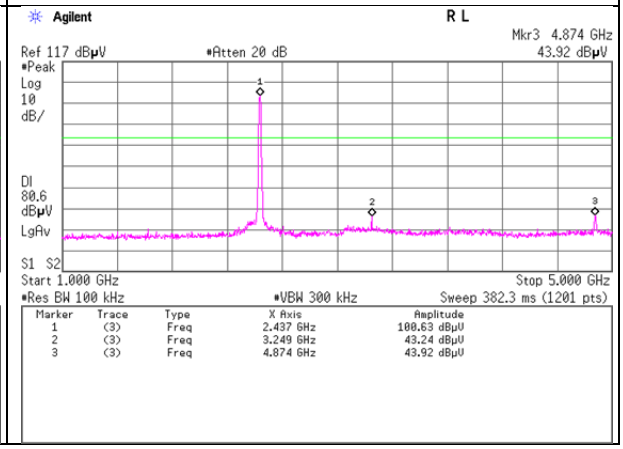

### 150kHz-30MHz




### 30MHz-1GHz



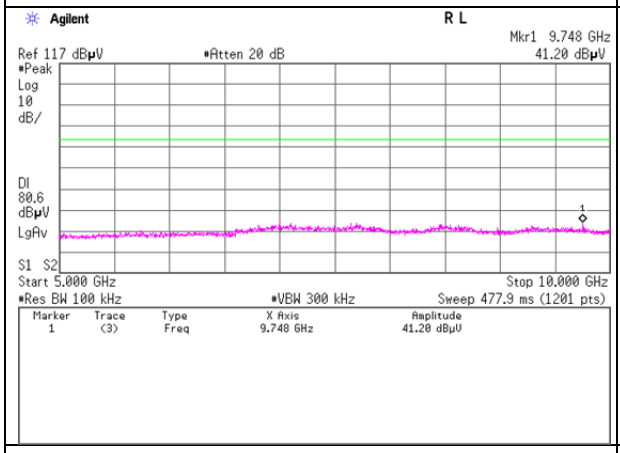

### 1GHz-5GHz



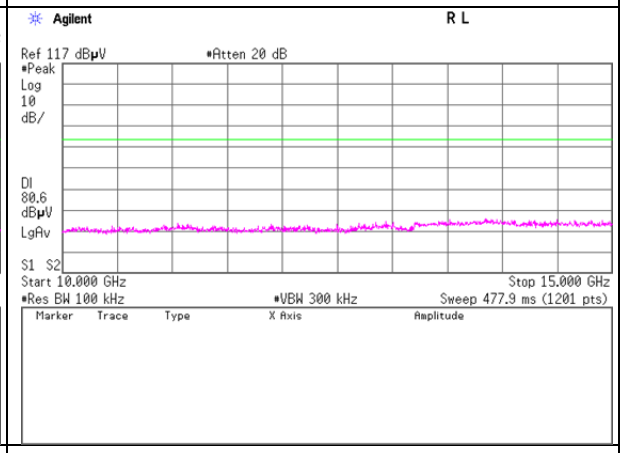
# Conducted Spurious Emission

## 11b Tx 2437MHz

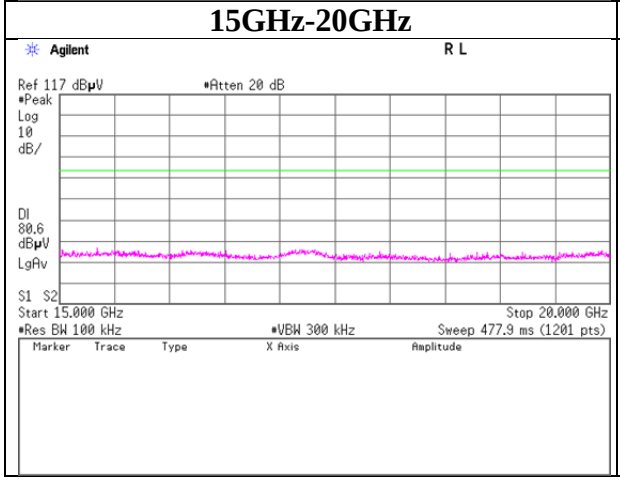
### 5GHz-10GHz



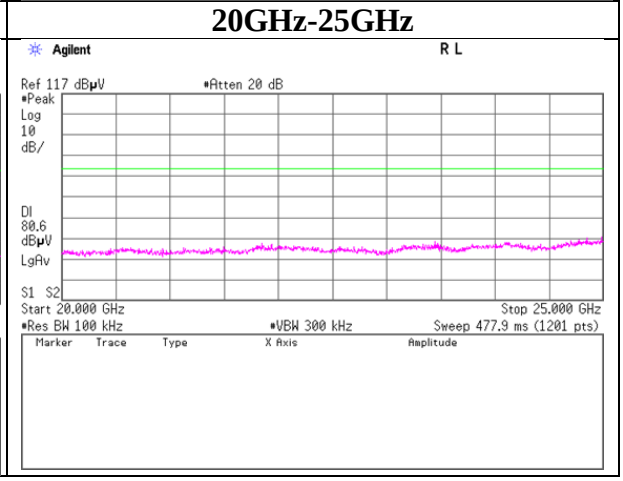

### 10GHz-15GHz




### 15GHz-20GHz




### 20GHz-25GHz

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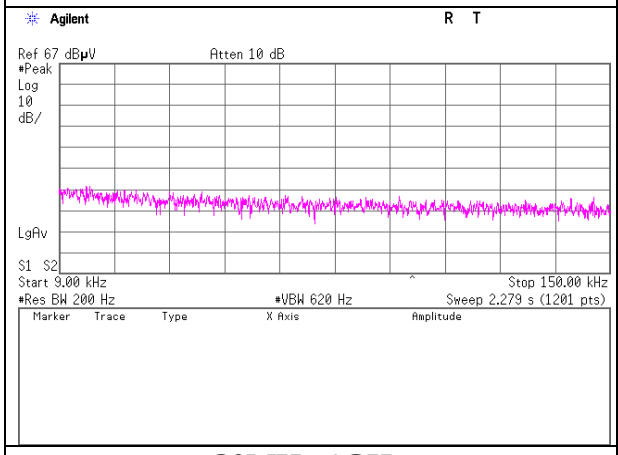
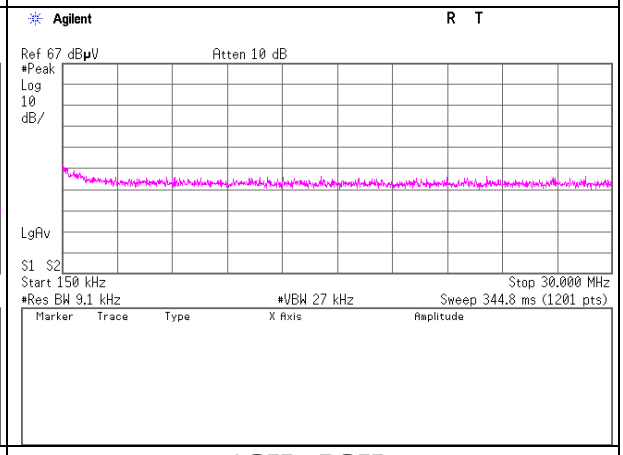
# Conducted Spurious Emission

## 11b Tx 2462MHz

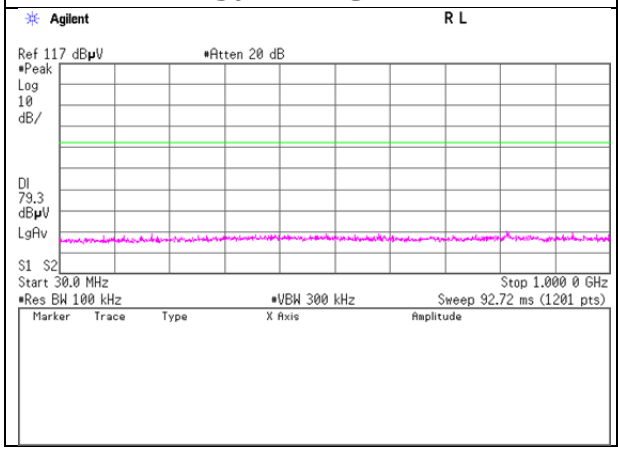
### 9kHz-150kHz



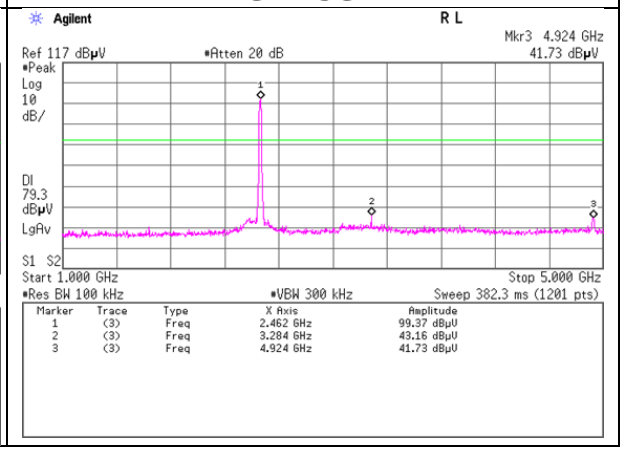

### 150kHz-30MHz




### 30MHz-1GHz



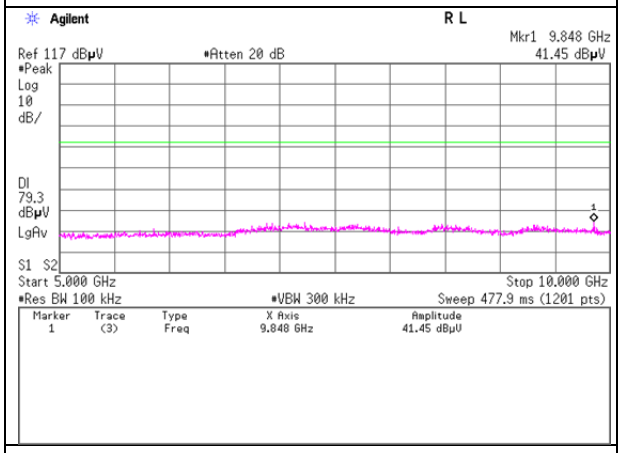

### 1GHz-5GHz



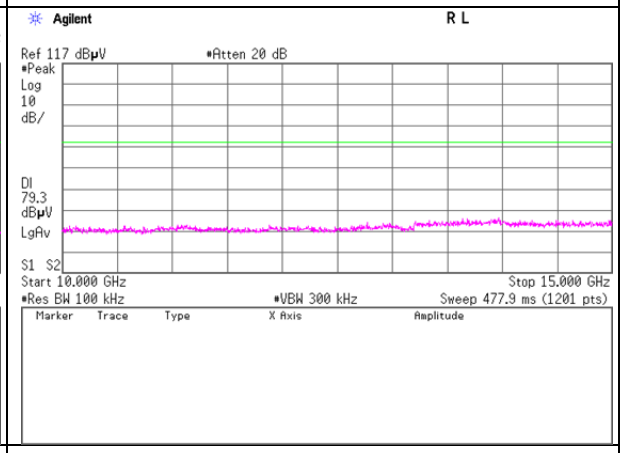
# Conducted Spurious Emission

## 11b Tx 2462MHz

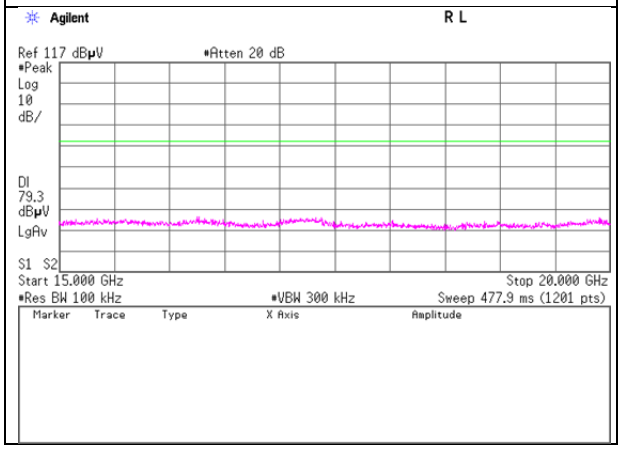
### 5GHz-10GHz



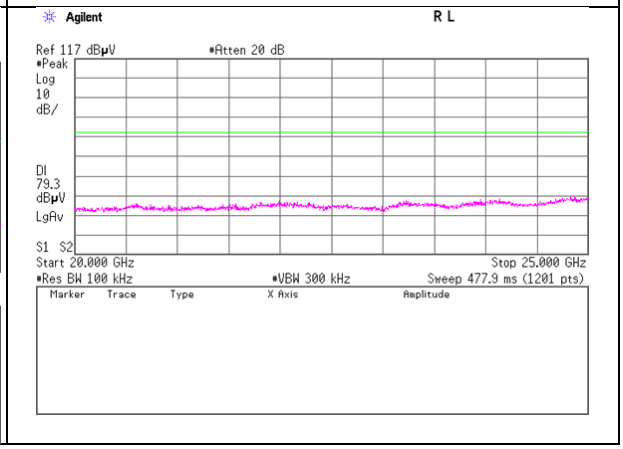

### 10GHz-15GHz




### 15GHz-20GHz




### 20GHz-25GHz

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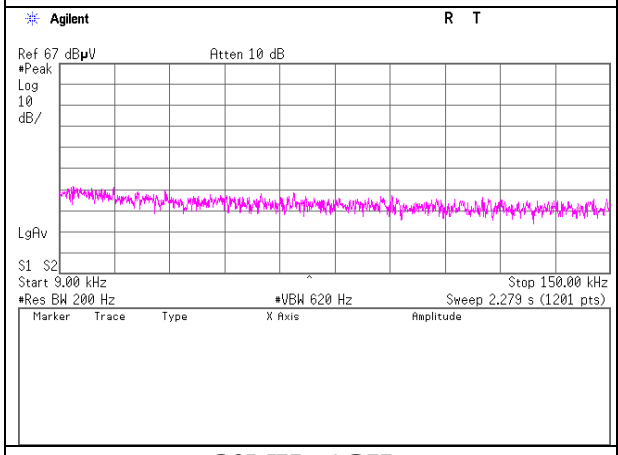
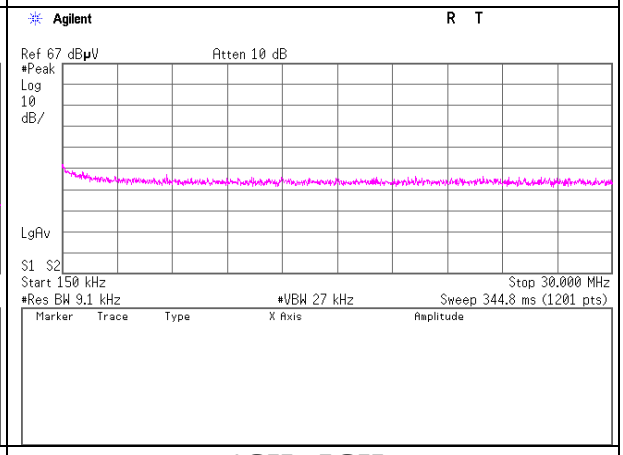
# Conducted Spurious Emission

## 11g Tx 2412MHz

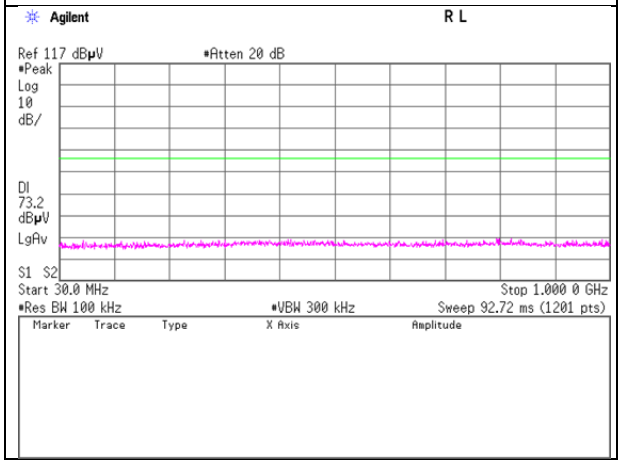
### 9kHz-150kHz



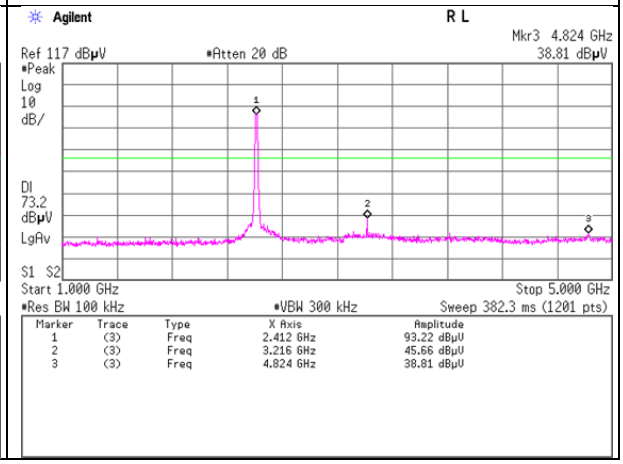

### 150kHz-30MHz




### 30MHz-1GHz



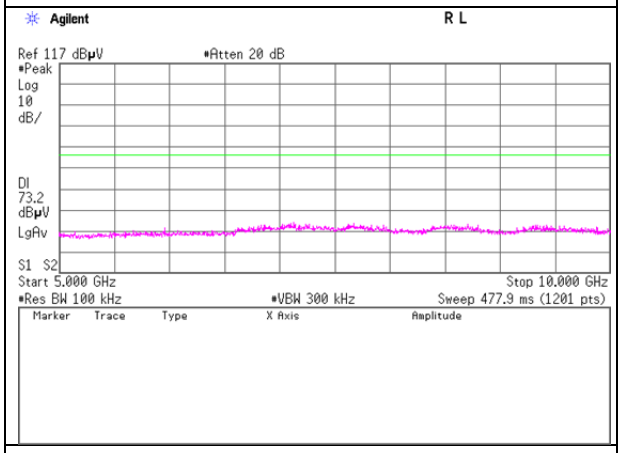

### 1GHz-5GHz



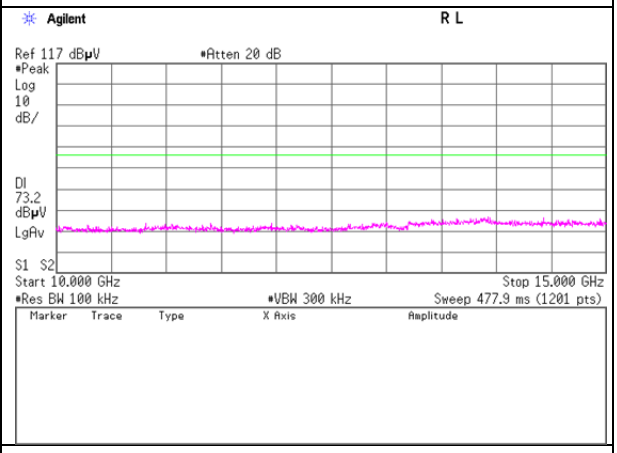
# Conducted Spurious Emission

## 11g Tx 2412MHz

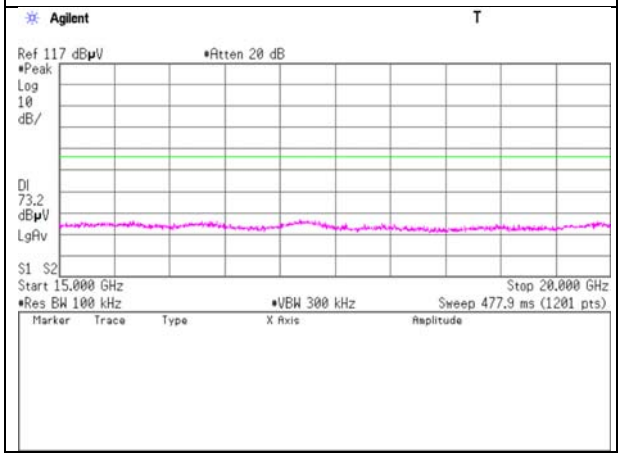
### 5GHz-10GHz



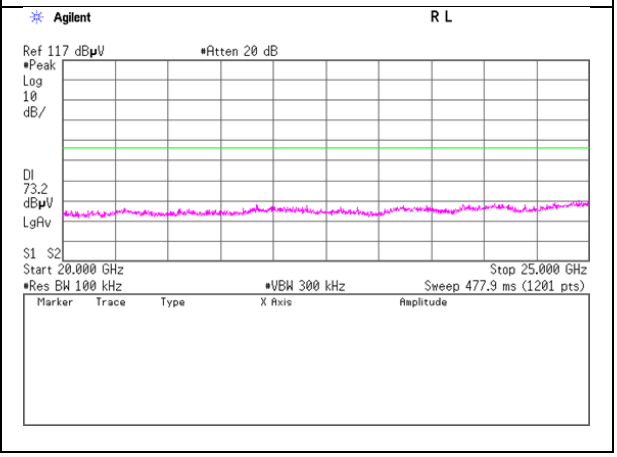

### 10GHz-15GHz




### 15GHz-20GHz



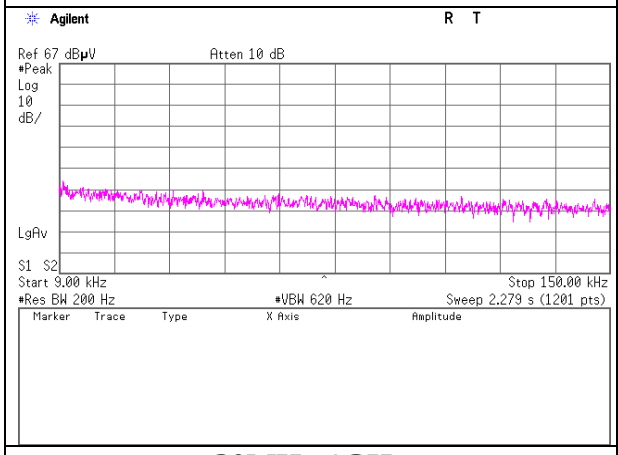

### 20GHz-25GHz



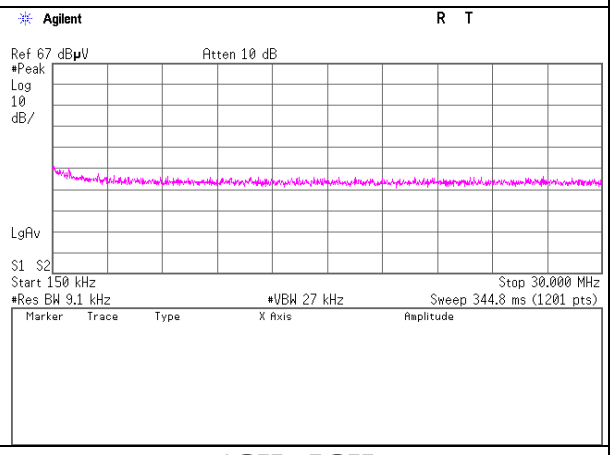
# Conducted Spurious Emission

## 11g Tx 2437MHz

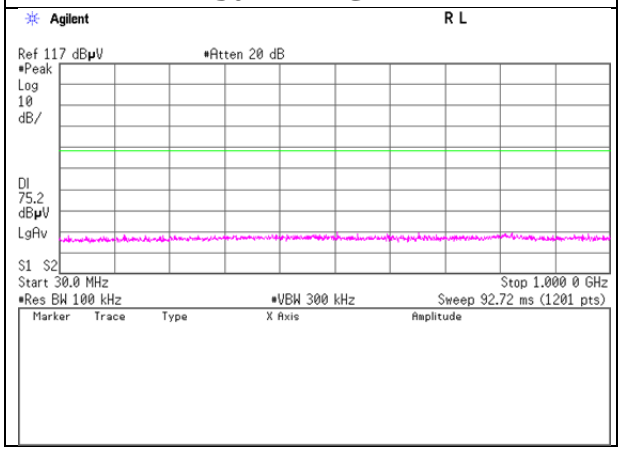
### 9kHz-150kHz



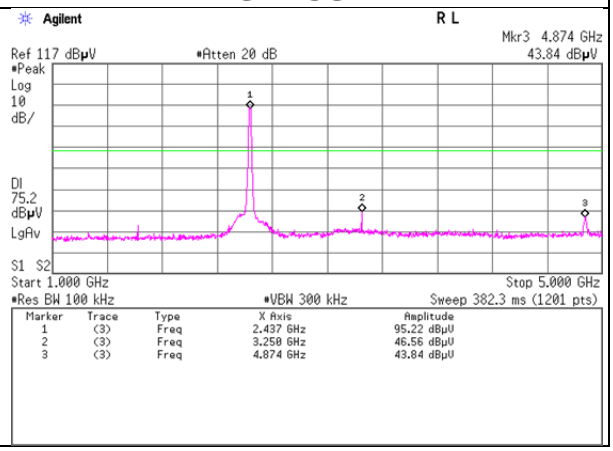

### 150kHz-30MHz




### 30MHz-1GHz



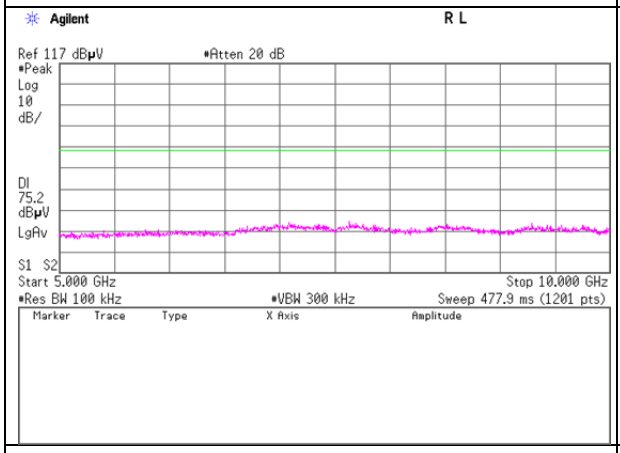

### 1GHz-5GHz



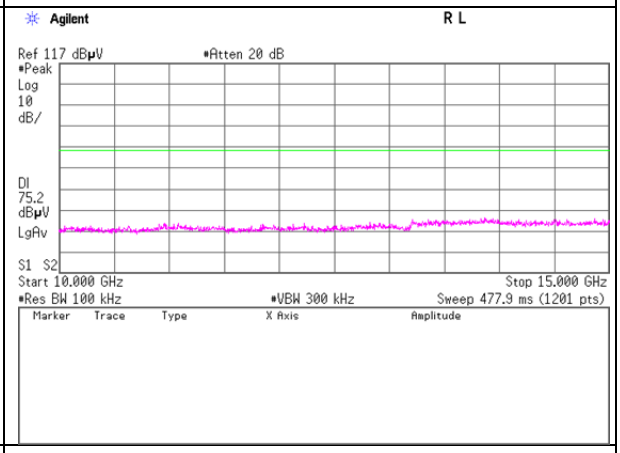
# Conducted Spurious Emission

## 11g Tx 2437MHz

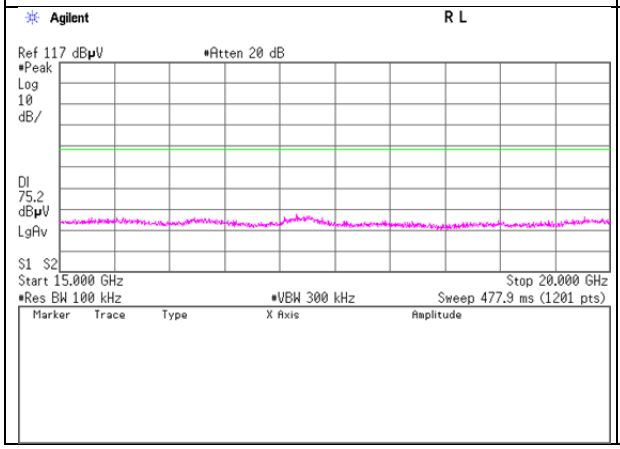
### 5GHz-10GHz



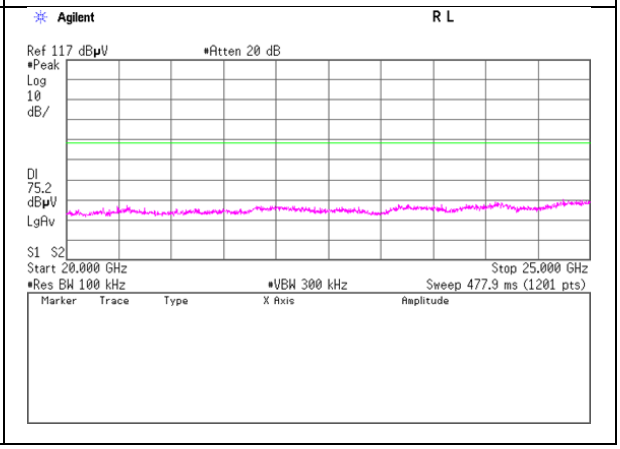

### 10GHz-15GHz




### 15GHz-20GHz




### 20GHz-25GHz

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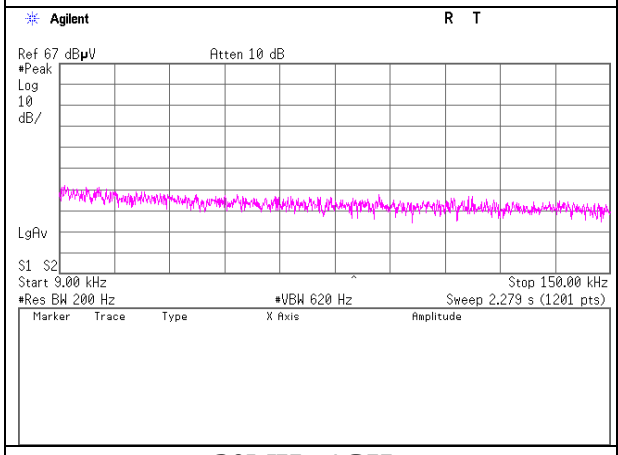
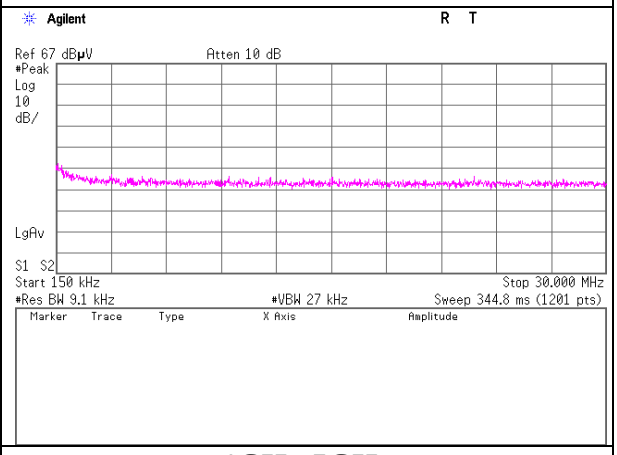
# Conducted Spurious Emission

## 11g Tx 2462MHz

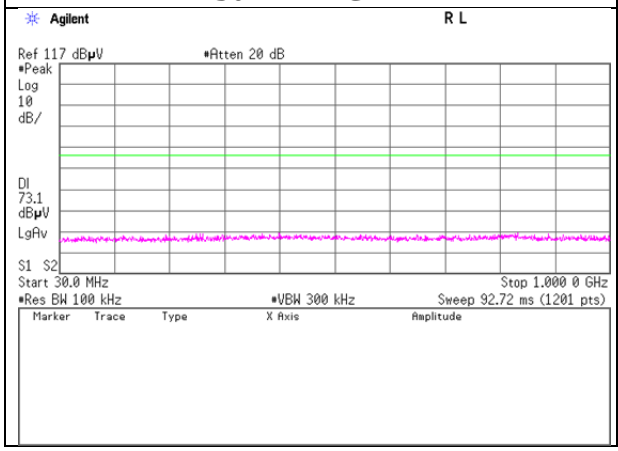
### 9kHz-150kHz



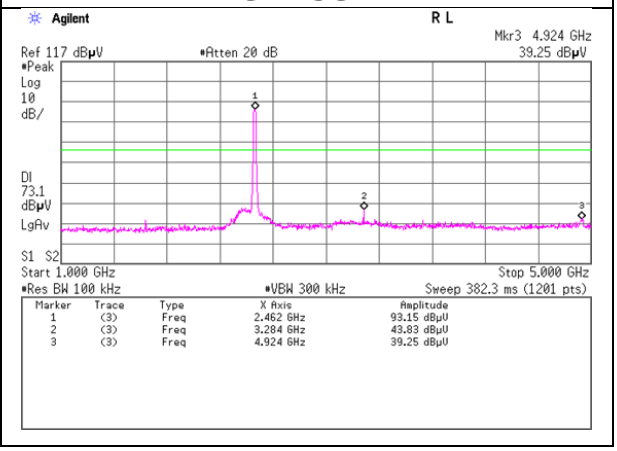

### 150kHz-30MHz




### 30MHz-1GHz



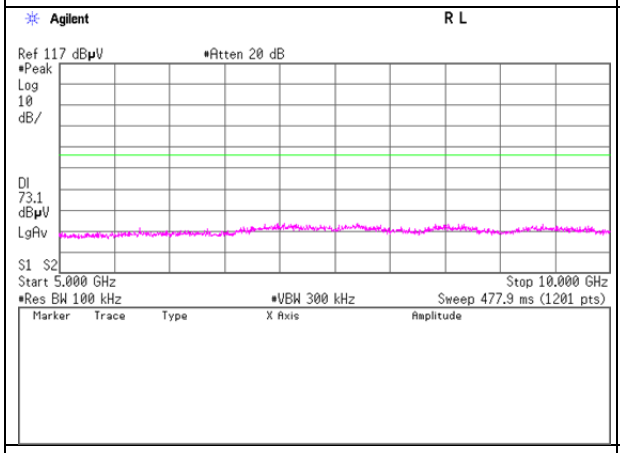

### 1GHz-5GHz



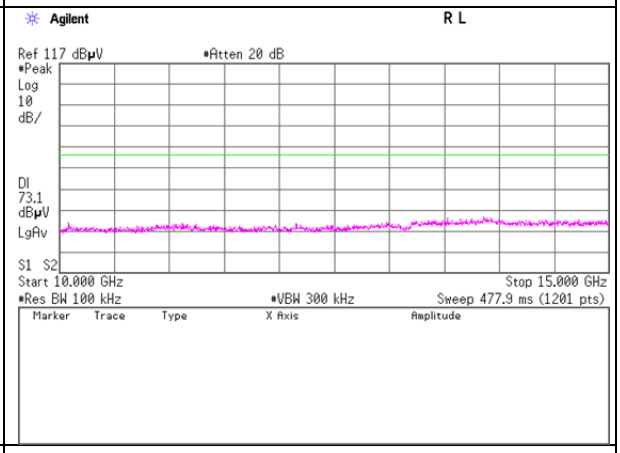
# Conducted Spurious Emission

## 11g Tx 2462MHz

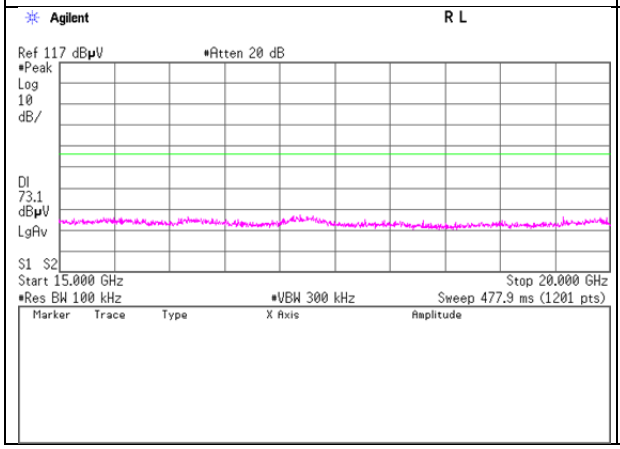
### 5GHz-10GHz



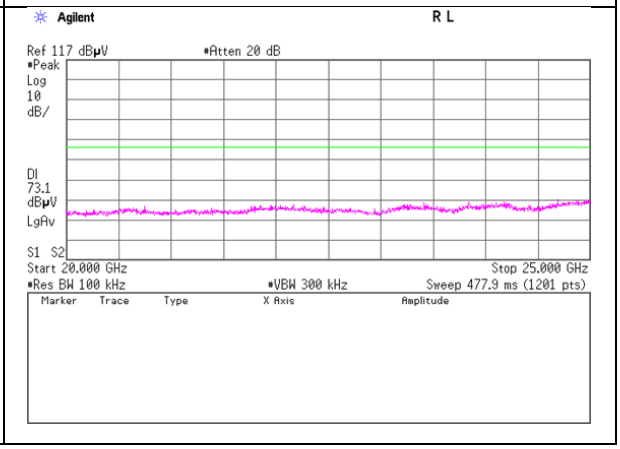

### 10GHz-15GHz




### 15GHz-20GHz



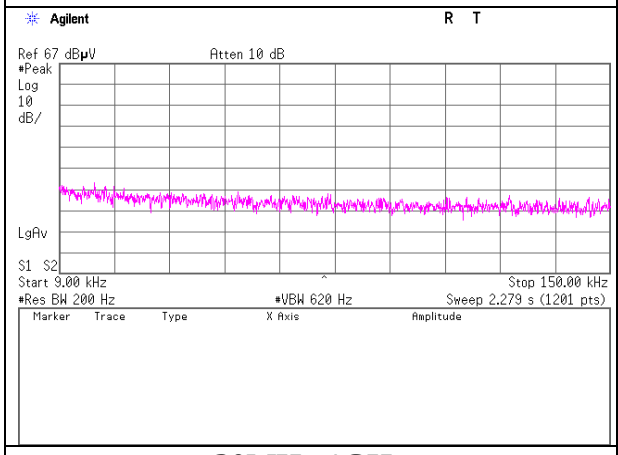

### 20GHz-25GHz



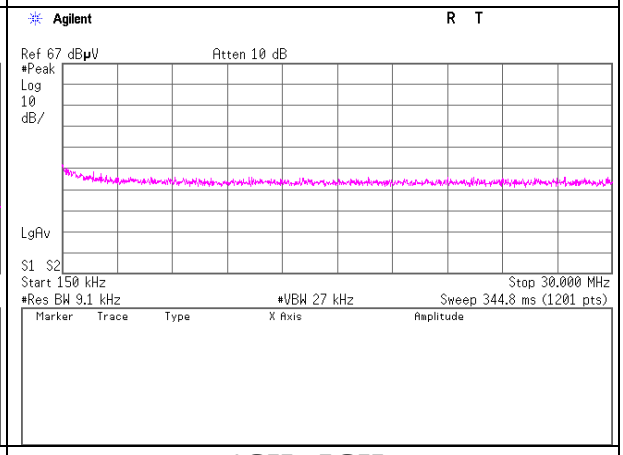
# Conducted Spurious Emission

## 11a Tx 5745MHz

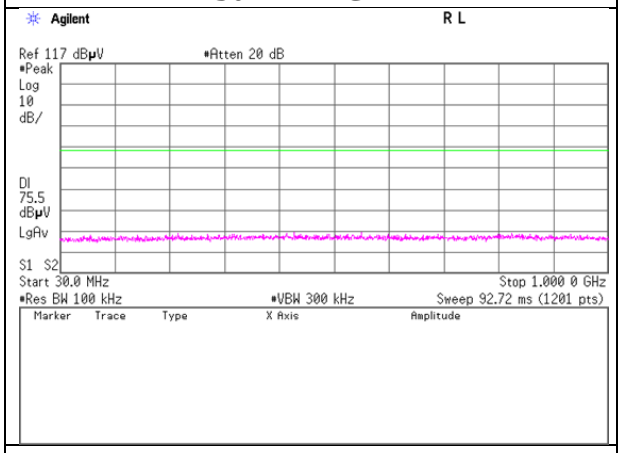
### 9kHz-150kHz



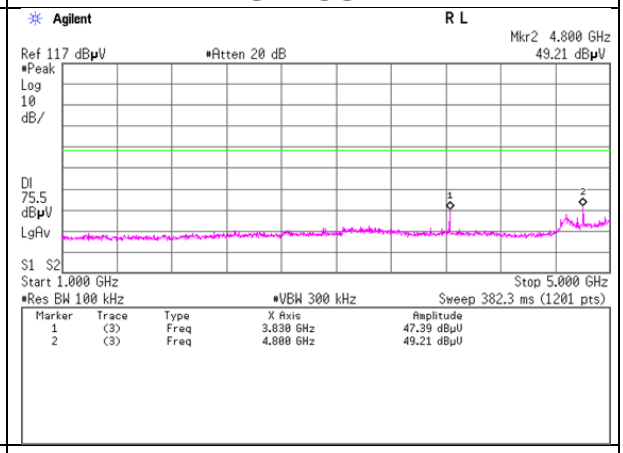

### 150kHz-30MHz



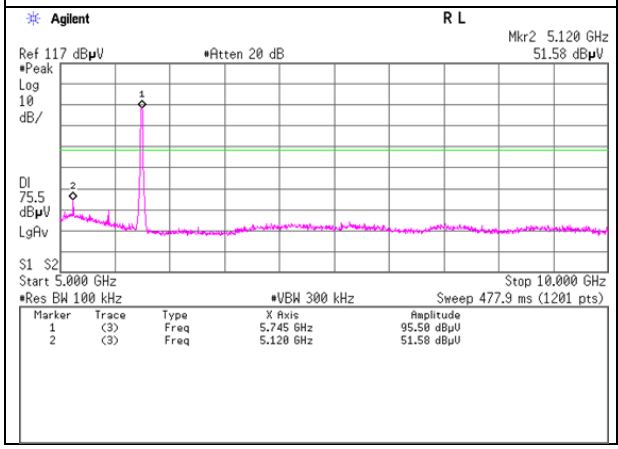

### 30MHz-1GHz



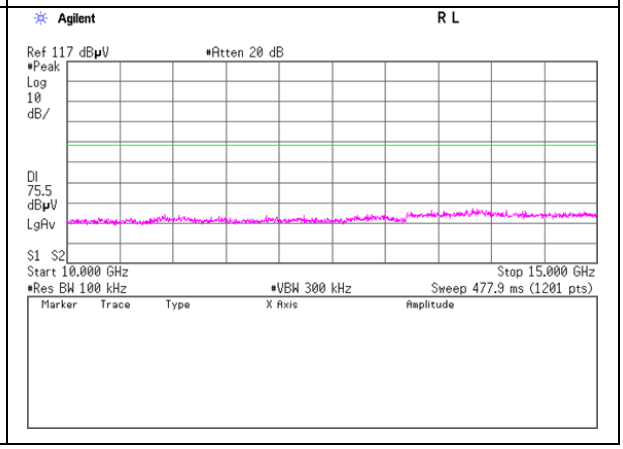

### 1GHz-5GHz




### 5GHz-10GHz




### 10GHz-15GHz

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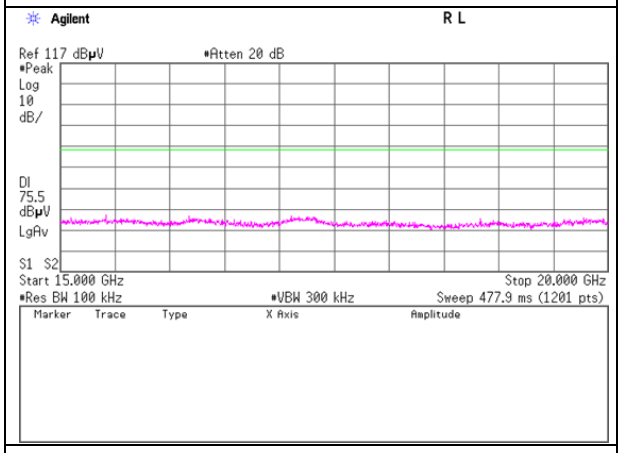
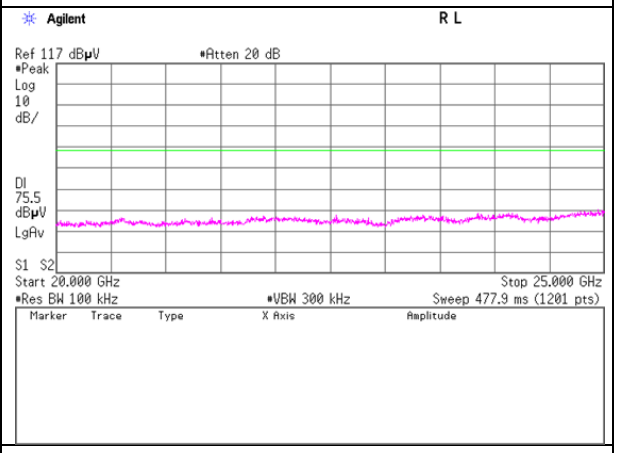
# Conducted Spurious Emission

## 11a Tx 5745MHz

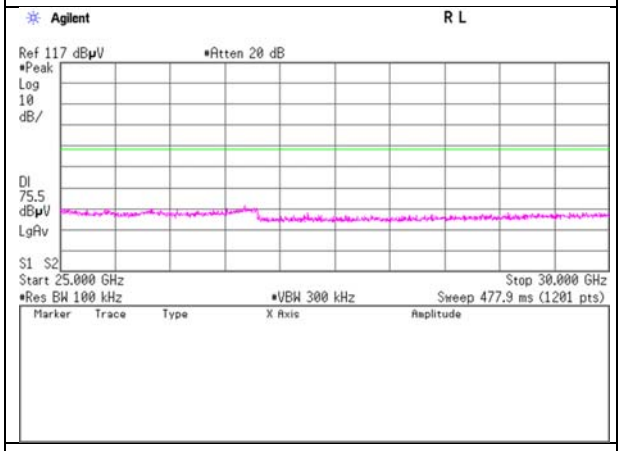
### 15GHz-20GHz



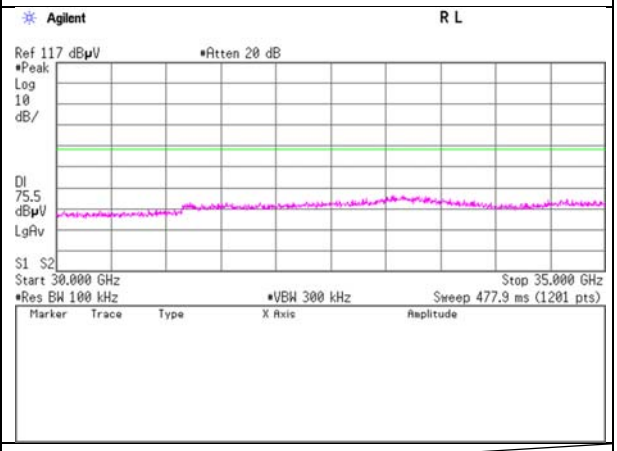

### 20GHz-25GHz



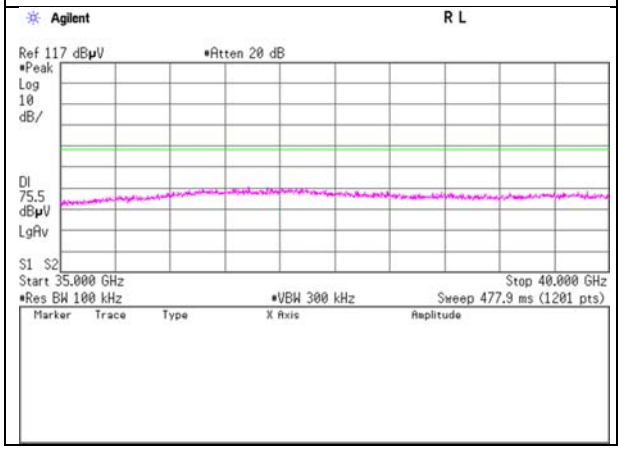

### 25GHz-30GHz




### 30GHz-35GHz



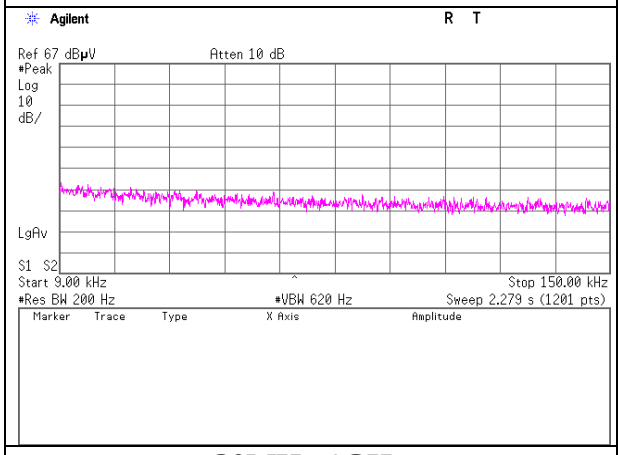

### 35GHz-40GHz



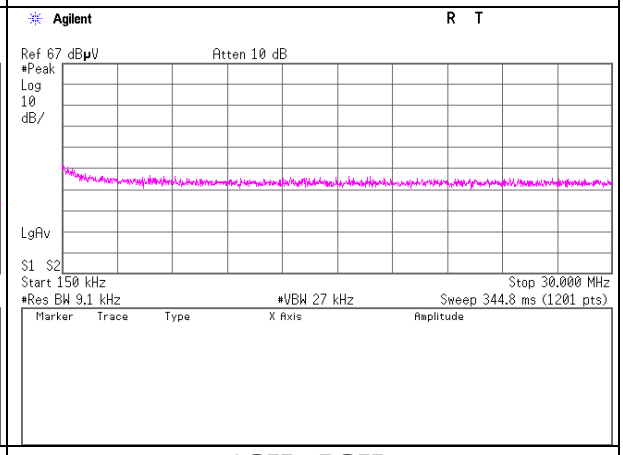
# Conducted Spurious Emission

## 11a Tx 5785MHz

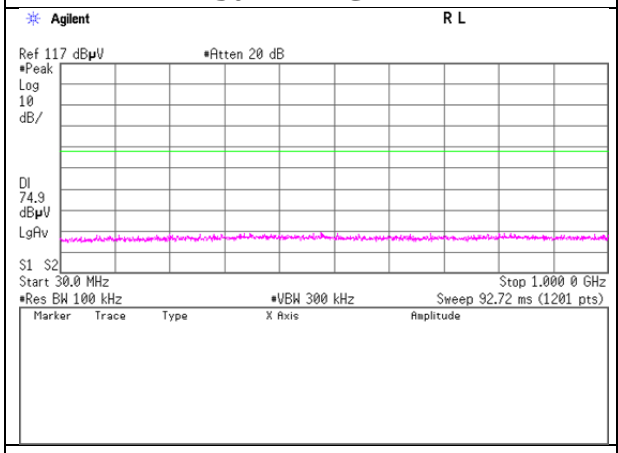
### 9kHz-150kHz



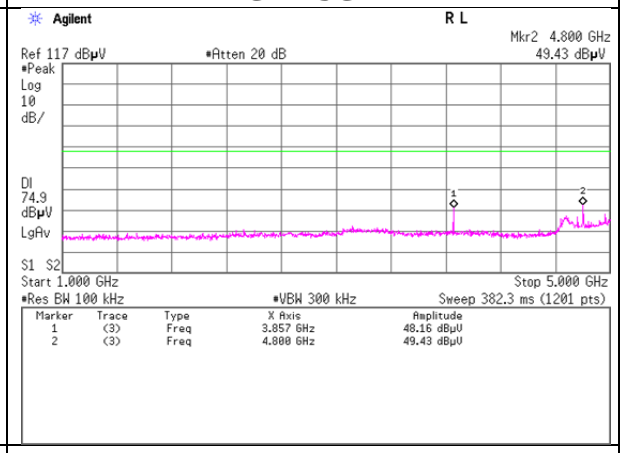

### 150kHz-30MHz



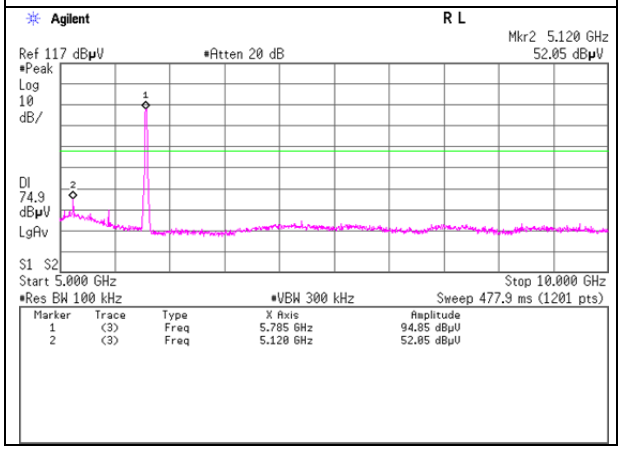

### 30MHz-1GHz



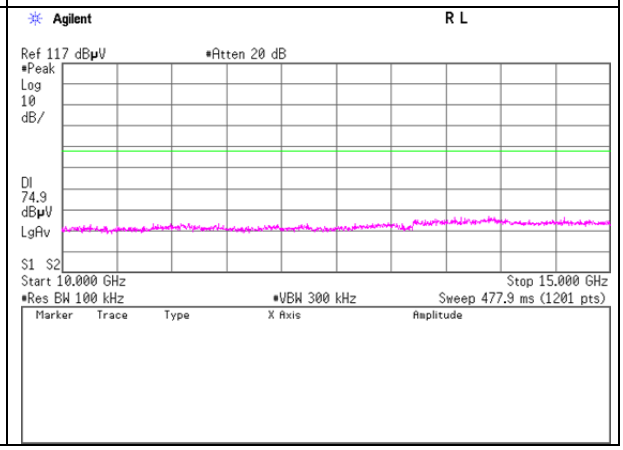

### 1GHz-5GHz




### 5GHz-10GHz



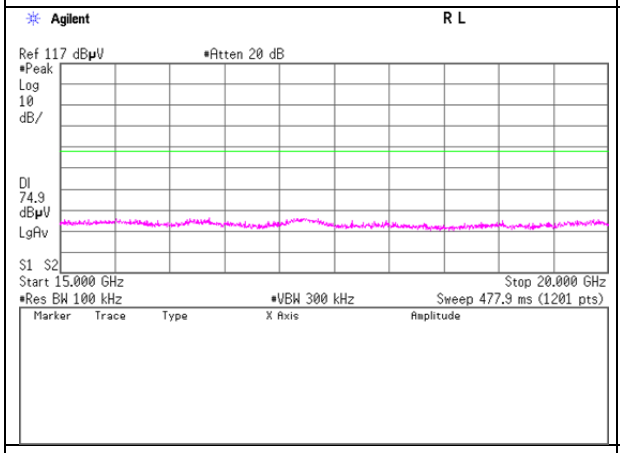

### 10GHz-15GHz



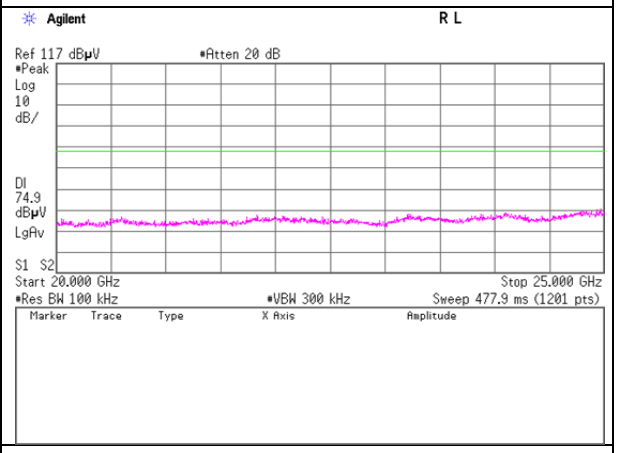
# Conducted Spurious Emission

## 11a Tx 5785MHz

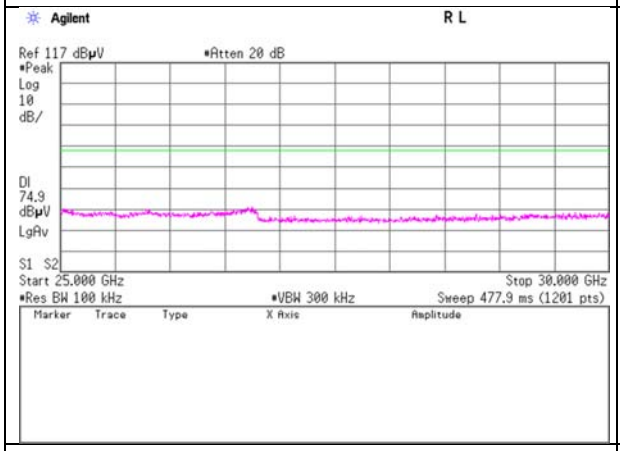
### 15GHz-20GHz



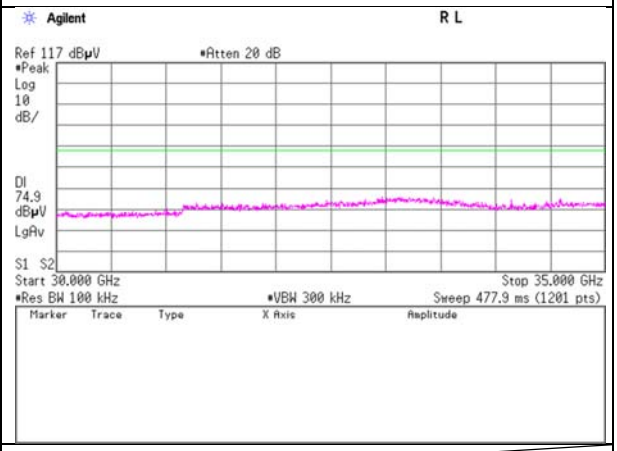

### 20GHz-25GHz



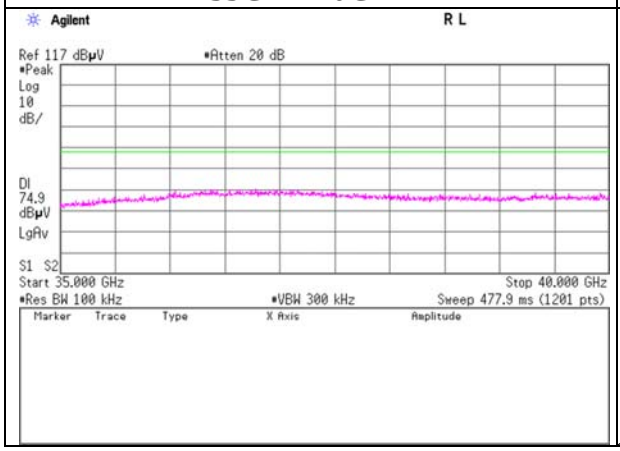

### 25GHz-30GHz




### 30GHz-35GHz



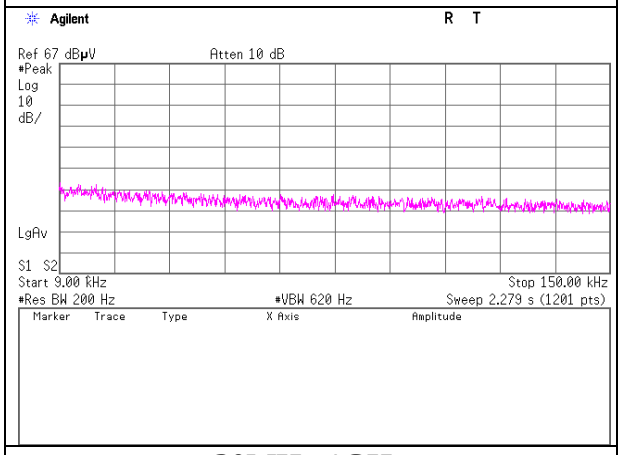

### 35GHz-40GHz



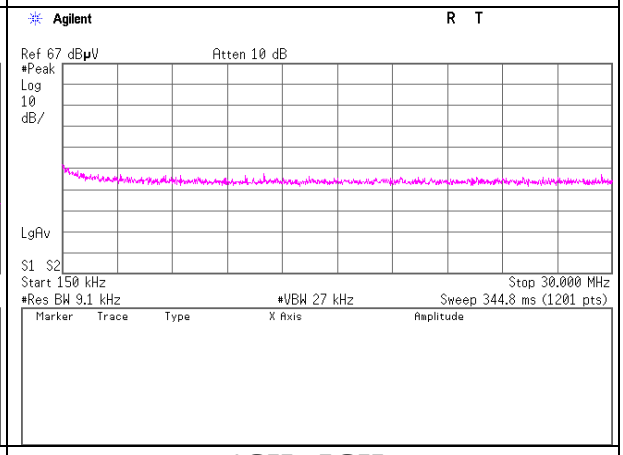
# Conducted Spurious Emission

## 11a Tx 5825MHz

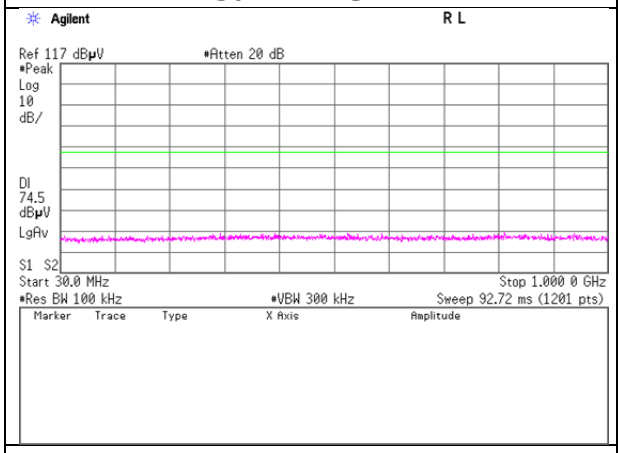
### 9kHz-150kHz



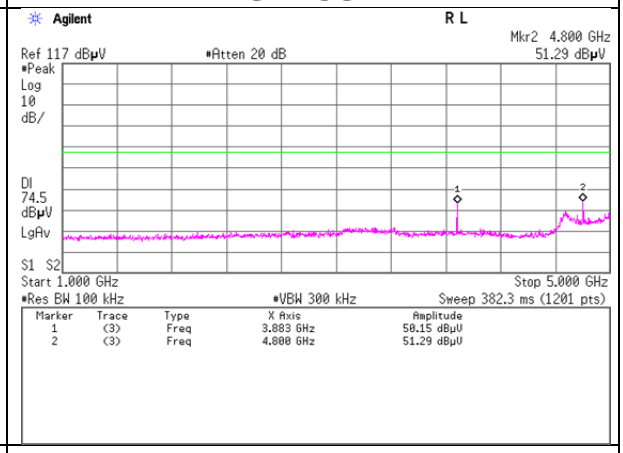

### 150kHz-30MHz



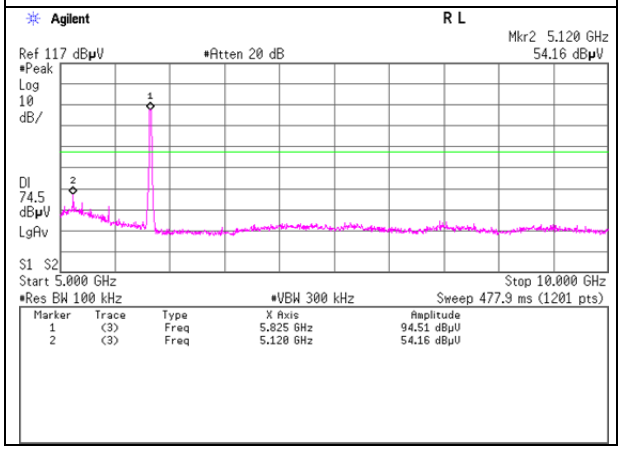

### 30MHz-1GHz



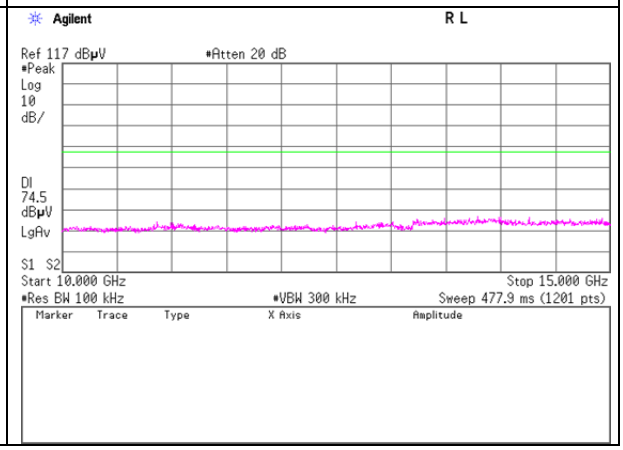

### 1GHz-5GHz




### 5GHz-10GHz




### 10GHz-15GHz

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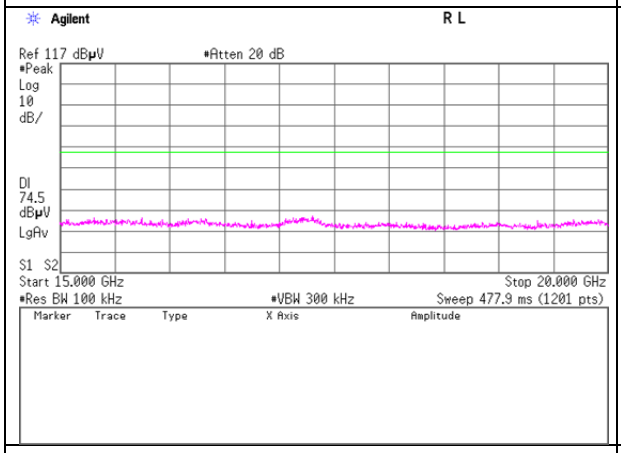
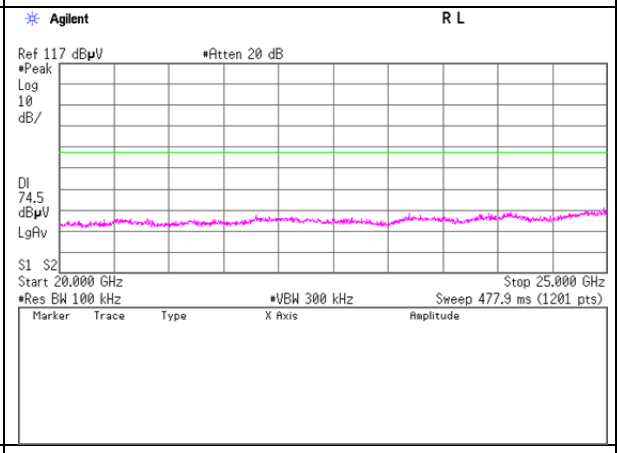
# Conducted Spurious Emission

## 11a Tx 5825MHz

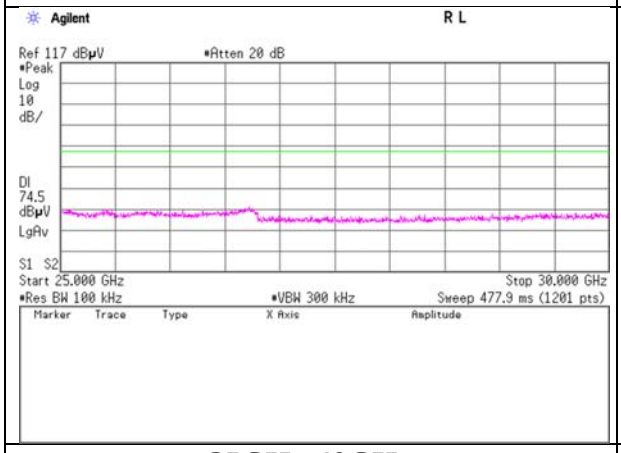
### 15GHz-20GHz



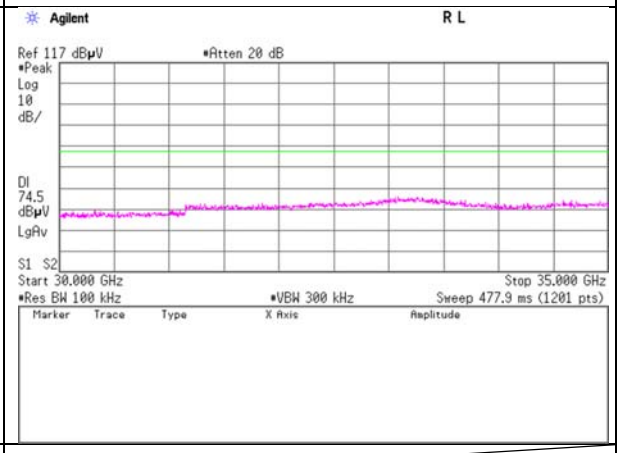

### 20GHz-25GHz



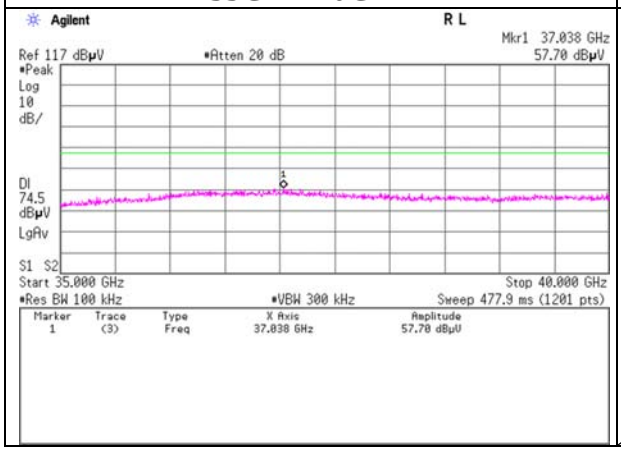

### 25GHz-30GHz




### 30GHz-35GHz




### 35GHz-40GHz

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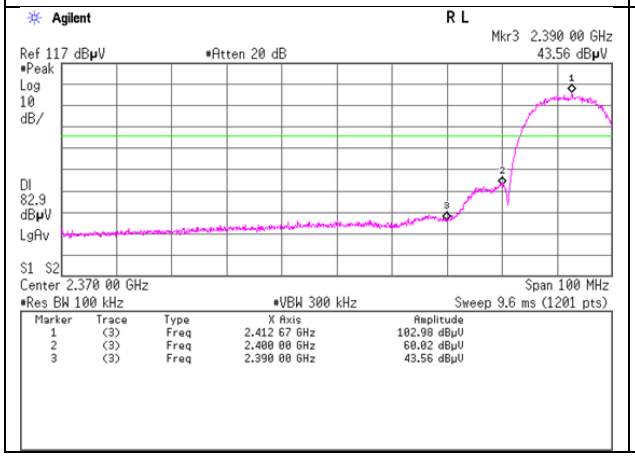
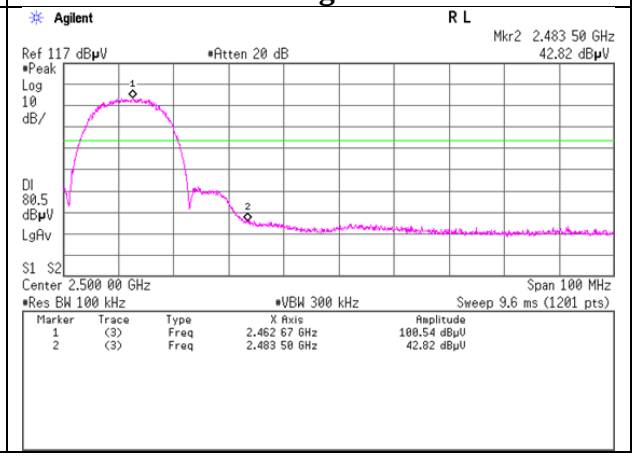
# Conducted Emission Band Edge compliance

## 11b Tx

### Low

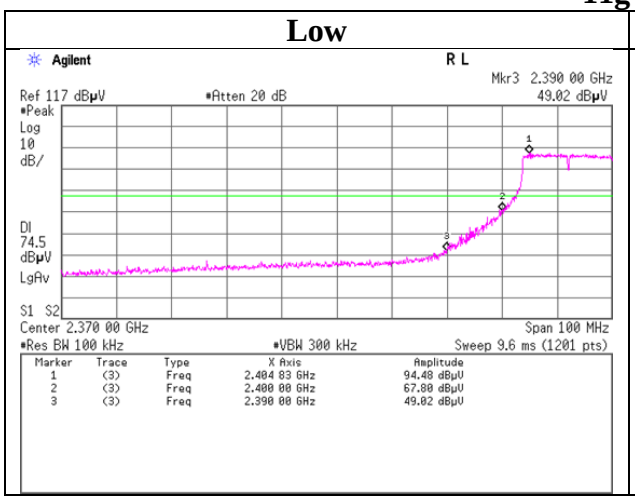



### High

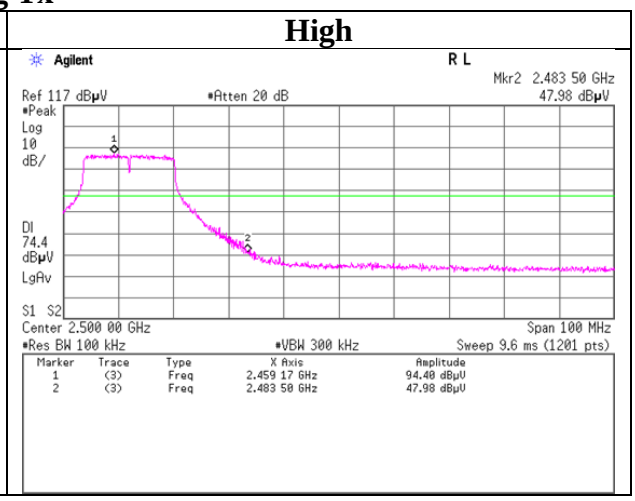



## 11g Tx

### Low

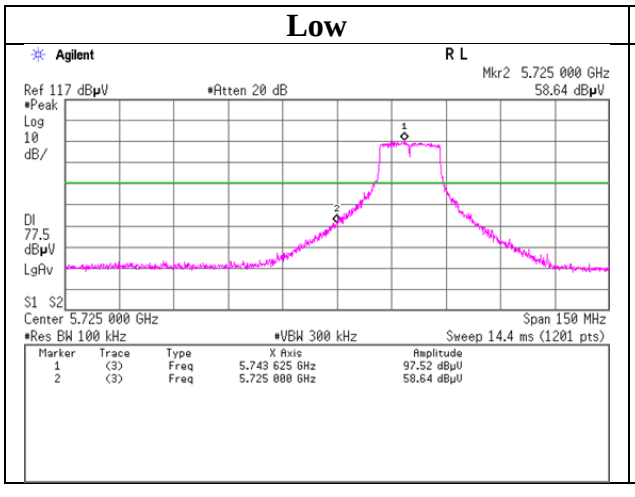



### High

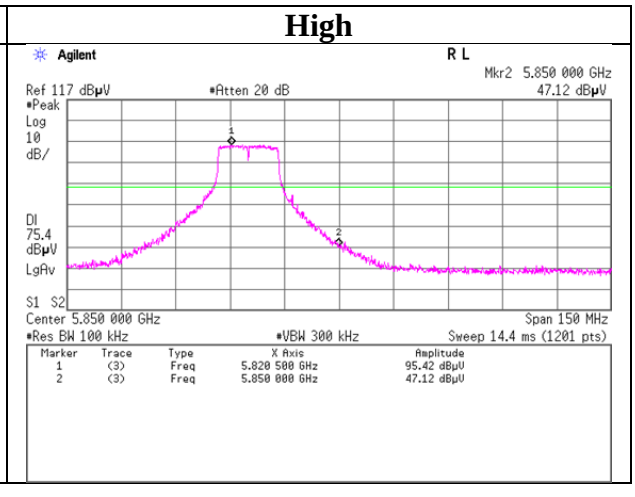



## 11a

### Low




### High



# Power Density

| | |
|---|---|
| Test place | Head Office EMC Lab. No.6 Measurement Room |
| Report No. | 31E0221-HO-06 |
| Date | 12/04/2010 |
| Temperature/ Humidity | 21 deg.C/ 49% RH |
| Engineer | Takayuki Shimada |
| Mode | Tx |

11b Antenna A

| Freq. [MHz] | Reading [dBm] | Cable Loss [dB] | Atten. [dB] | Result [dBm] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|
| 2412 | -9.77 | 0.97 | 10.08 | 1.28 | 8.00 | 6.72 |
| 2437 | -10.08 | 0.98 | 10.08 | 0.98 | 8.00 | 7.02 |
| 2462 | -10.57 | 0.98 | 10.08 | 0.49 | 8.00 | 7.51 |

11g Antenna A

| Freq. [MHz] | Reading [dBm] | Cable Loss [dB] | Atten. [dB] | Result [dBm] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|
| 2412 | -14.48 | 0.97 | 10.08 | -3.43 | 8.00 | 11.43 |
| 2437 | -12.23 | 0.98 | 10.08 | -1.17 | 8.00 | 9.17 |
| 2462 | -15.16 | 0.98 | 10.08 | -4.10 | 8.00 | 12.10 |

11a Antenna A

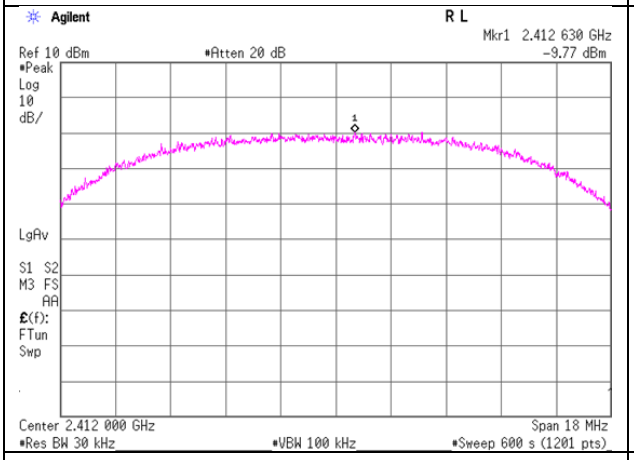
| Freq. [MHz] | Reading [dBm] | Cable Loss [dB] | Atten. [dB] | Result [dBm] | Limit [dBm] | Margin [dB] |
|---|---|---|---|---|---|---|
| 5745 | -12.12 | 1.51 | 10.14 | -0.47 | 8.00 | 8.47 |
| 5785 | -13.12 | 1.51 | 10.14 | -1.47 | 8.00 | 9.47 |
| 5825 | -12.72 | 1.52 | 10.14 | -1.06 | 8.00 | 9.06 |

Sample Calculation:
Result = Reading + Cable Loss + Attenuator

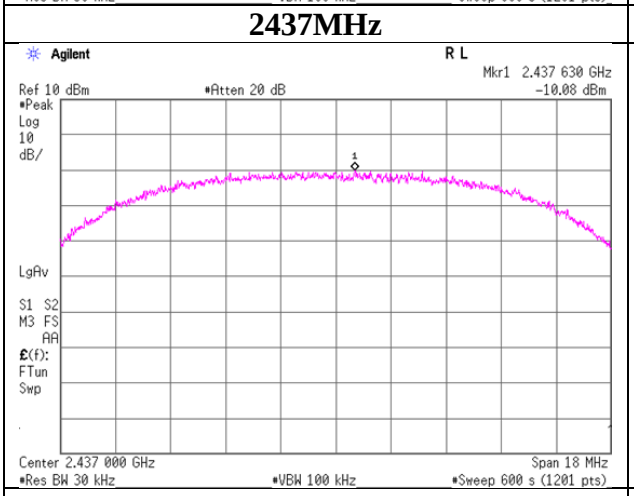
# Power Density

## 11b

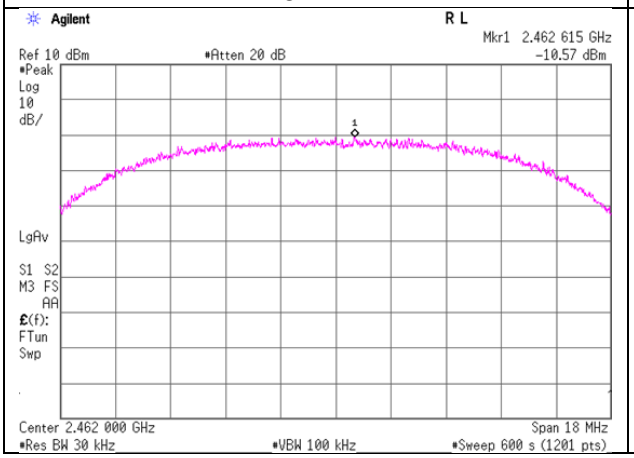
### 2412MHz




### 2437MHz

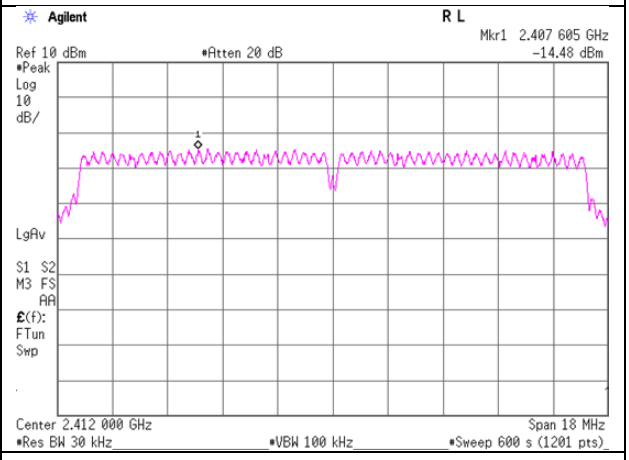



### 2462MHz

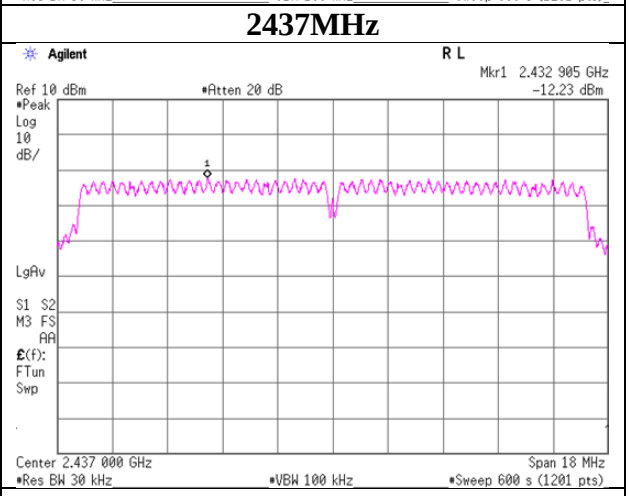



## 11g

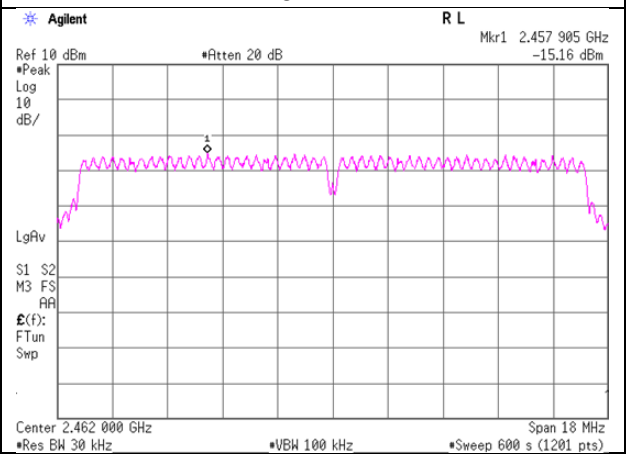
### 2412MHz




### 2437MHz



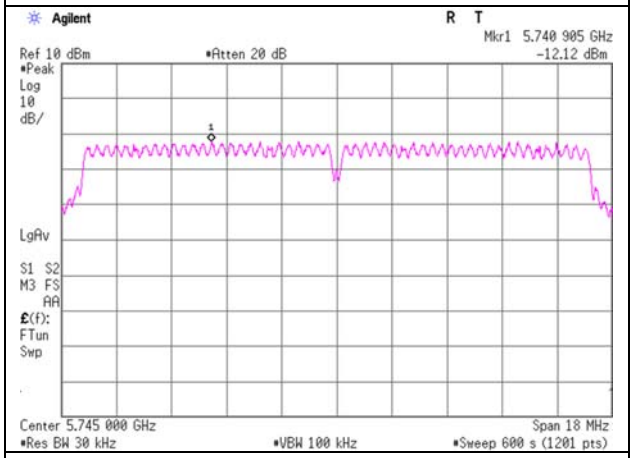

### 2462MHz



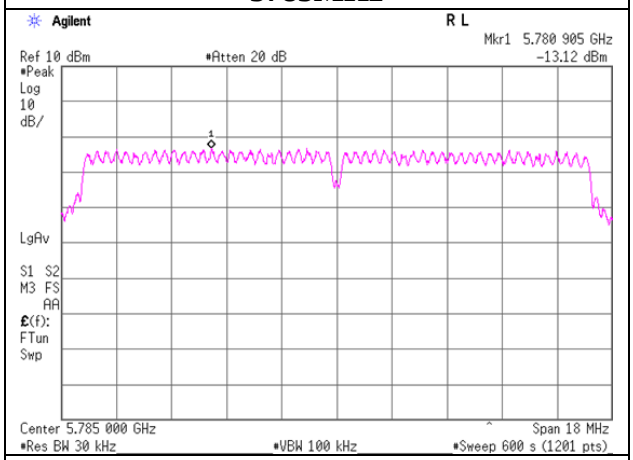
# Power Density

## 11a

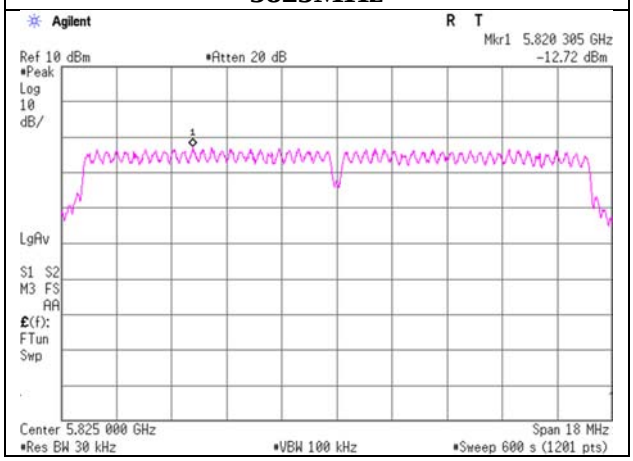
### 5745MHz



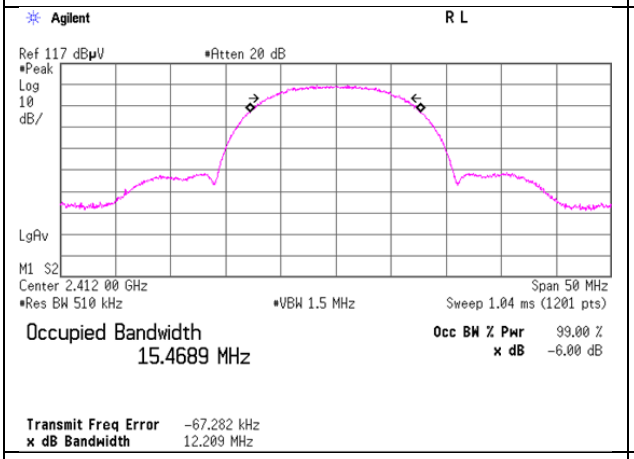
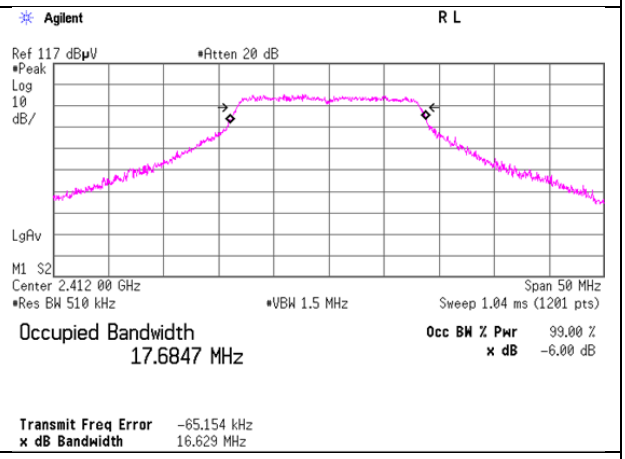
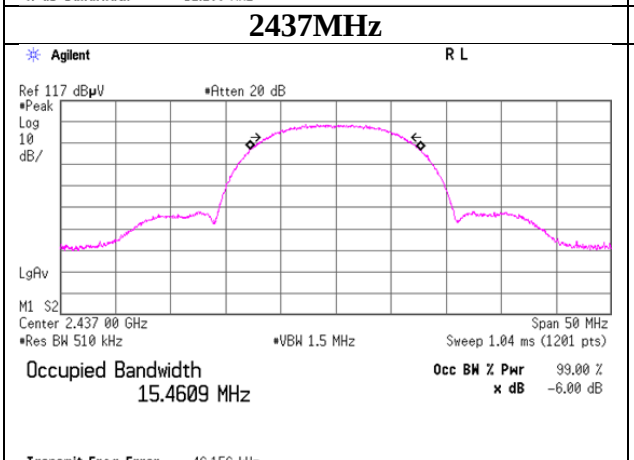
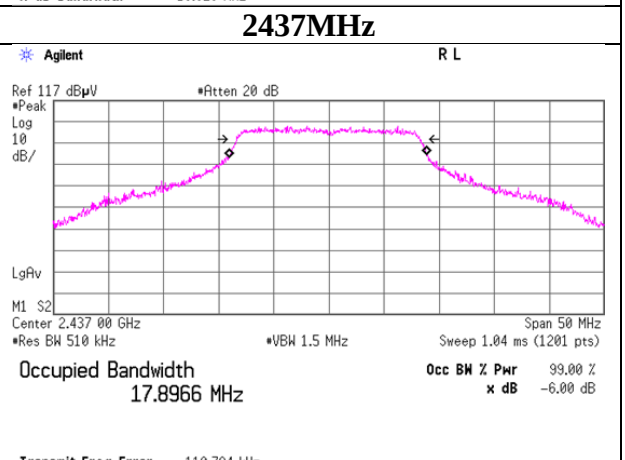
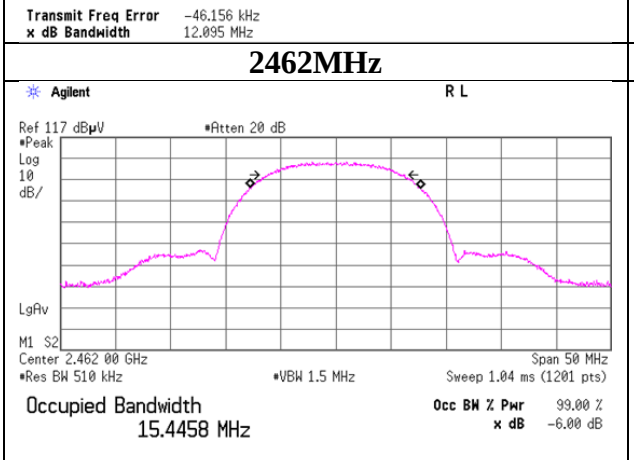
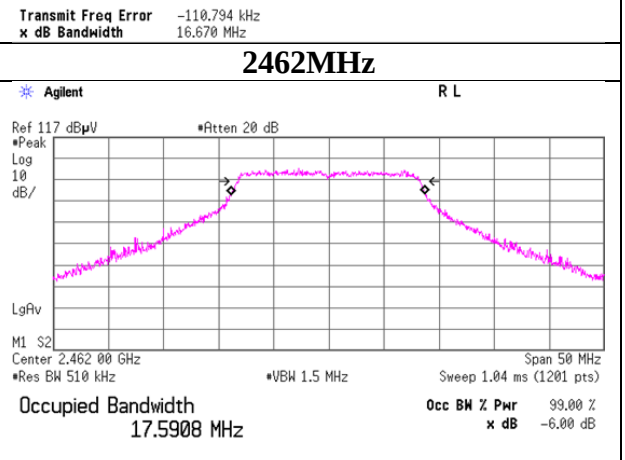

### 5785MHz




### 5825MHz



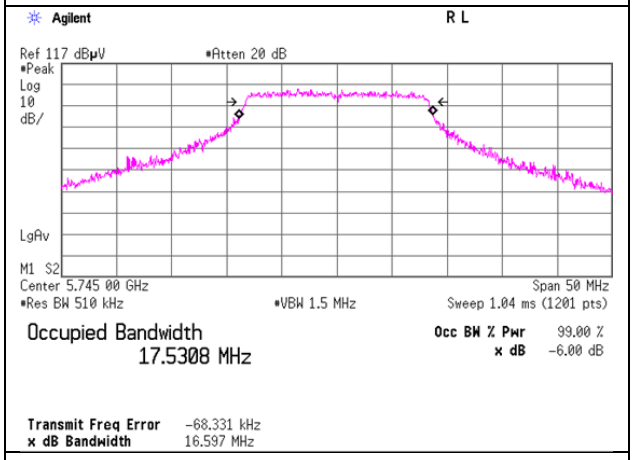
# 99%Occupied Bandwidth

| 11b | 11g |
|---|---|
| **2412MHz** | **2412MHz** |
|  |  |
| **2437MHz** | **2437MHz** |
|  |  |
| **2462MHz** | **2462MHz** |
|  |  |

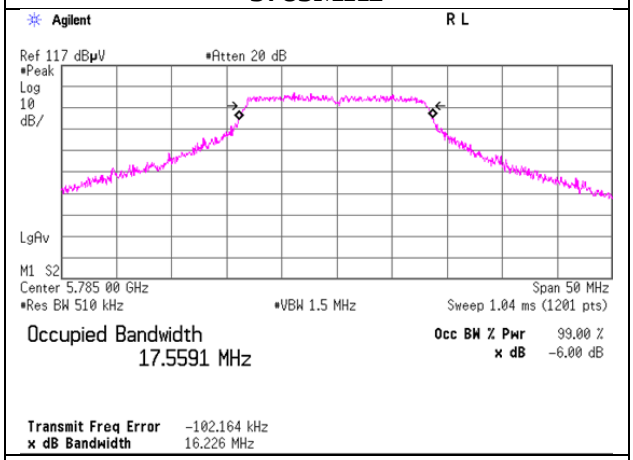
# 99% Occupied Bandwidth

## 11a

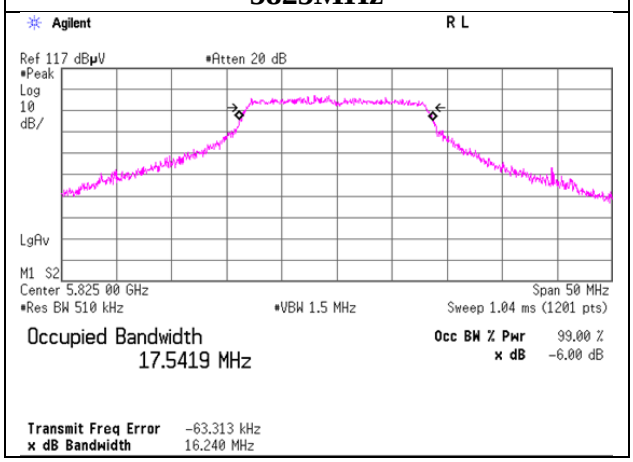
### 5745MHz




### 5785MHz




### 5825MHz



# APPENDIX 3: Test instruments

**EMI test equipment (1/2)**

| Control No. | Instrument | Manufacturer | Model No | Serial No | Test Item | Calibration Date * Interval(month) |
|---|---|---|---|---|---|---|
| MAEC-01 | Semi Anechoic Chamber(NSA) | TDK | Semi Anechoic Chamber 10m | DA-06881 | RE | 2010/07/02 * 12 |
| MOS-01 | Digital Humidity Indicator | N.T | NT-1800 | MOS01 | RE | 2011/02/23 * 12 |
| MJM-01 | Measure | KDS | ES19-55 | - | RE | - |
| MHA-05 | Horn Antenna 1-18GHz | Schwarzbeck | BBHA9120D | 253 | RE | 2010/06/29 * 12 |
| MPA-01 | Pre Amplifier | Agilent | 8449B | 3008A01671 | RE | 2011/02/24 * 12 |
| MAEC-02 | Semi Anechoic Chamber(NSA) | TDK | Semi Anechoic Chamber 3m | DA-06902 | RE | 2010/09/01 * 12 |
| MOS-22 | Thermo-Hygrometer | Custom | CTH-201 | 0003 | RE | 2011/02/23 * 12 |
| MJM-05 | Measure | PROMART | SEN1955 | - | RE | - |
| COTS-MEMI | EMI measurement program | TSJ | TEPTO-DV | - | RE/CE | - |
| MSA-09 | Spectrum Analyzer | Advantest | R3273 | 95090115 | RE | 2010/11/18 * 12 |
| MHA-06 | Horn Antenna 1-18GHz | Schwarzbeck | BBHA9120D | 254 | RE | 2011/01/16 * 12 |
| MPA-10 | Pre Amplifier | Agilent | 8449B | 3008A02142 | RE | 2010/09/30 * 12 |
| MHA-02 | Horn Antenna 18-26.5GHz | EMCO | 3160-09 | 1265 | RE | 2011/01/16 * 12 |
| MCC-18 | Microwave Cable 1G-26.5GHz | Suhner | SUCOFLEX 104 | 148048-143(1m) / 292410(5m) | RE | 2010/09/30 * 12 |
| MCC-76 | Microwave Cable 1G-26.5GHz | Suhner | SUCOFLEX104 | 278967/4 | RE | 2010/12/03 * 12 |
| MHF-17 | High Pass Filter 3.5-18.0GHz | TOKIMEC | TF323DCA | 7001 | RE | 2010/09/21 * 12 |
| MHF-21 | High Pass Filter 7-20GHz | TOKIMEC | TF37NCCA | 601 | RE | 2011/01/06 * 12 |
| MSA-10 | Spectrum Analyzer | Agilent | E4448A | MY46180655 | RE | 2011/02/15 * 12 |
| MPA-03 | Microwave System Power Amplifier | Agilent | 83050A | 3950M00205 | RE | 2010/06/11 * 12 |
| MCC-55 | Microwave Cable | Suhner | SUCOFLEX101 | 2874(1m) / 2877(5m) | RE | 2011/03/03 * 12 |
| MHA-16 | Horn Antenna 15-40GHz | Schwarzbeck | BBHA9170 | BBHA9170306 | RE | 2010/05/07 * 12 |
| MSA-09 | Spectrum Analyzer | Advantest | R3273 | 95090115 | RE | 2010/11/18 * 12 |
| MTR-03 | Test Receiver | Rohde & Schwarz | ESCI | 100300 | RE | 2010/04/19 * 12 |
| MBA-02 | Biconical Antenna | Schwarzbeck | BBA9106 | VHA91032008 | RE | 2010/10/11 * 12 |

**EMI test equipment (2/2)**

| Control No. | Instrument | Manufacturer | Model No | Serial No | Test Item | Calibration Date * Interval(month) |
|---|---|---|---|---|---|---|
| MLA-02 | Logperiodic Antenna | Schwarzbeck | USLP9143 | 201 | RE | 2010/10/11 * 12 |
| MCC-12 | Coaxial Cable | Fujikura/Agilent | - | - | RE | 2011/02/18 * 12 |
| MAT-07 | Attenuator(6dB) | Weinschel Corp | 2 | BK7970 | RE | 2010/11/05 * 12 |
| MPA-09 | Pre Amplifier | Agilent | 8447D | 2944A10845 | RE | 2010/09/09 * 12 |
| MOS-14 | Thermo-Hygrometer | Custom | CTH-201 | - | AT | 2010/05/19 * 12 |
| MSA-03 | Spectrum Analyzer | Agilent | E4448A | MY44020357 | AT | 2010/11/30 * 12 |
| MCC-114 | Microwave Cable 1G-26.5GHz | Suhner | SUCOFLEX104 | 290212/4 | AT | 2010/08/05 * 12 |
| MAT-23 | Attenuator(10dB) 1-18GHz | Orient Microwave | BX10-0476-00 | - | AT | 2010/03/01 * 12 |
| MPM-09 | Power Meter | Anritsu | ML2495A | 6K00003348 | AT | 2010/09/10 * 12 |
| MPSE-12 | Power sensor | Anritsu | MA2411B | 011598 | AT | 2010/09/10 * 12 |
| MAEC-04 | Semi Anechoic Chamber(NSA) | TDK | Semi Anechoic Chamber 3m | DA-10005 | CE | 2010/02/02 * 12 |
| MOS-15 | Thermo-Hygrometer | Custom | CTH-180 | - | CE | 2010/02/09 * 12 |
| MJM-07 | Measure | PROMART | SEN1955 | - | CE | - |
| MSA-05 | Spectrum Analyzer | Advantest | R3273 | 160400285 | CE | 2010/11/18 * 12 |
| MTR-07 | Test Receiver | Rohde & Schwarz | ESCI | 100635 | CE | 2010/10/27 * 12 |
| MLS-06 | LISN(AMN) | Schwarzbeck | NSLK8127 | 8127363 | CE(EUT) | 2010/02/04 * 12 |
| MLS-07 | LISN(AMN) | Schwarzbeck | NSLK8127 | 8127364 | CE(AE) | 2010/02/05 * 12 |
| MTA-31 | Terminator | TME | CT-01 | - | CE | 2010/01/20 * 12 |
| MAT-67 | Attenuator(13dB) | JFW Industries, Inc. | 50FP-013H2 N | - | CE | 2010/02/04 * 12 |
| MCC-113 | Coaxial cable | Fujikura/Suhner/TSJ | 5D-2W(10m)/SFM141(5m)/421-010(1m)/sucoform141-PE(1m)/RFM-E121(Switcher) | -/04178 | CE | 2010/07/21 * 12 |

**The expiration date of the calibration is the end of the expired month.**
**All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.**

**As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.**

**Test Item: CE: Conducted Emission**
**RE: Radiated Emission**
**AT: Antenna Terminal Conducted test**