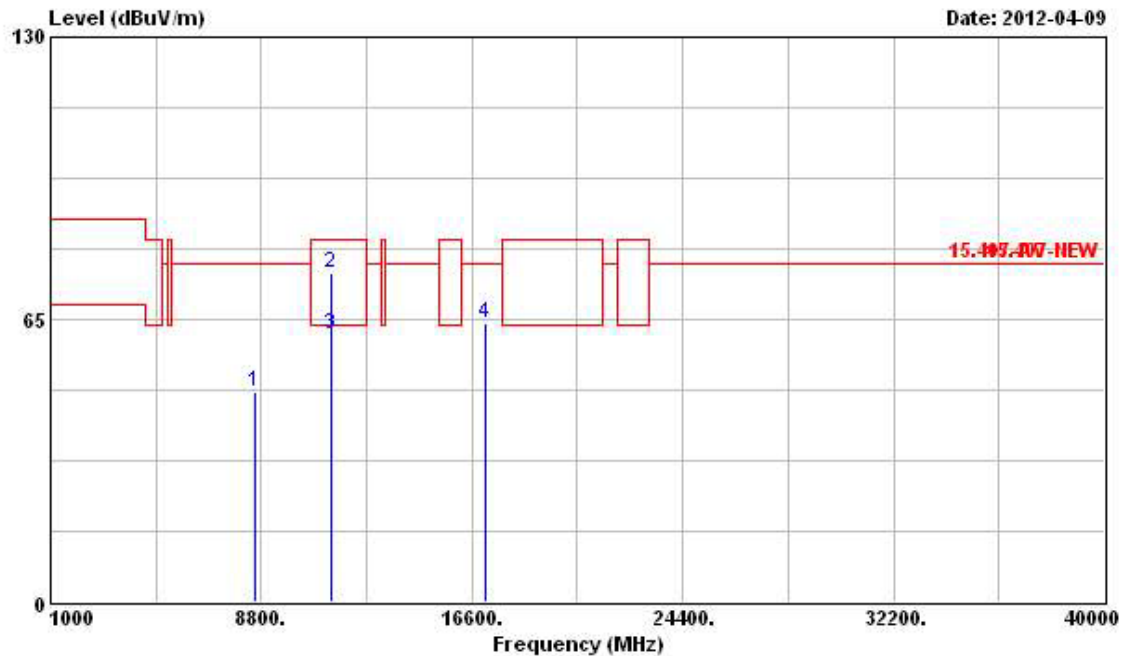
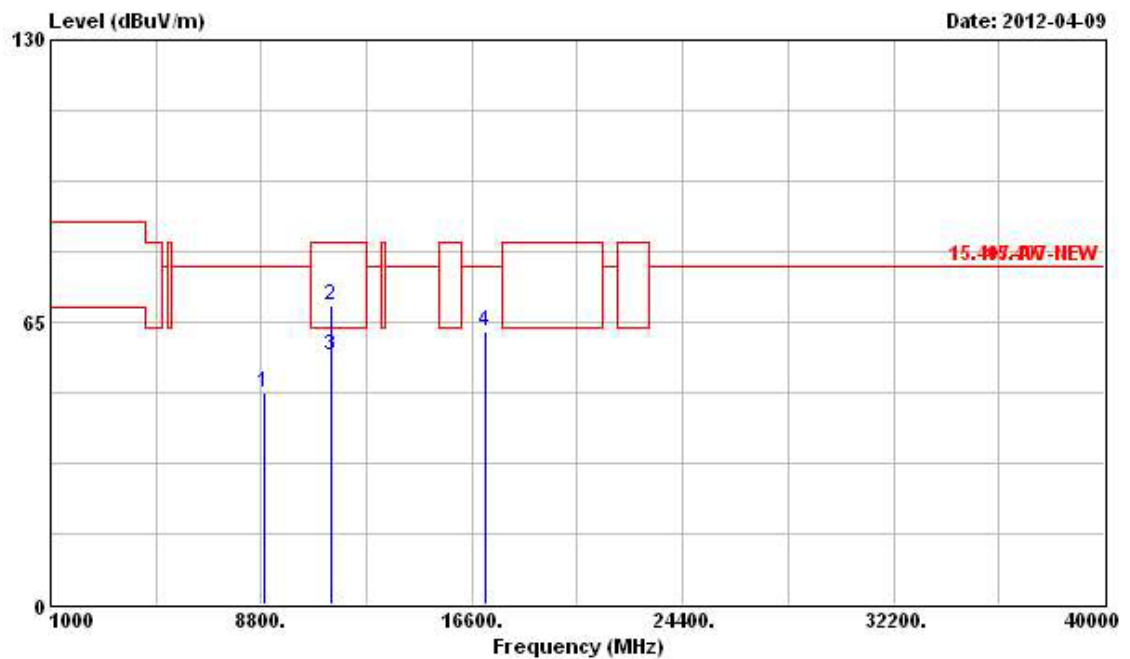


|                 |               |               |                          |
|-----------------|---------------|---------------|--------------------------|
| Final Test Date | Apr. 09, 2012 | Test Site No. | 03CH02-HY                |
| Temperature     | 23.9°C        | Humidity      | 63%                      |
| Test Engineer   | Streak        | Configuration | 802.11n Ch. 140 (20 MHz) |

**Horizontal**

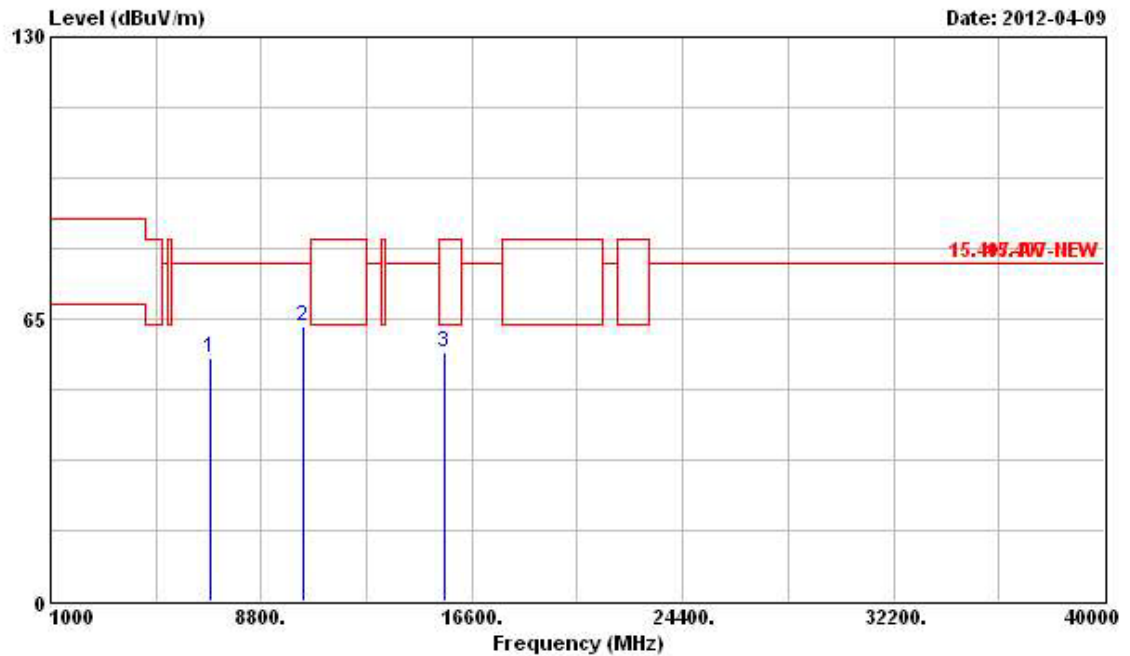
|   | Freq      | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|-----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|   | MHz       | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1 | 8568.000  | 48.50  | -29.34     | 77.84      | 41.44             | 36.34          | 5.97       | 35.25         | Peak    | ---     | ---       |
| 2 | 11400.000 | 75.85  | -7.69      | 83.54      | 65.02             | 38.84          | 6.71       | 34.72         | Peak    | ---     | ---       |
| 3 | 11400.000 | 61.45  | -2.09      | 63.54      | 50.62             | 38.84          | 6.71       | 34.72         | Average | ---     | ---       |
| 4 | 17100.000 | 63.98  | -13.86     | 77.84      | 47.69             | 41.66          | 8.61       | 33.98         | Peak    | ---     | ---       |

## Vertical



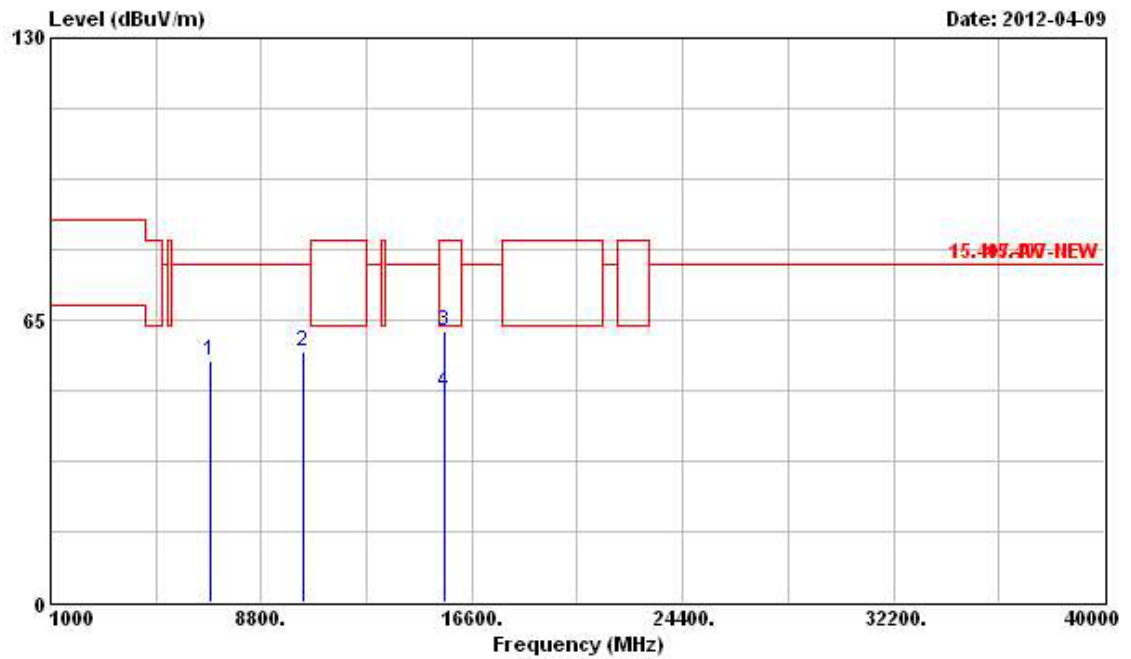
|   | Freq      | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|-----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|   | MHz       | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1 | 8916.000  | 48.58  | -29.26     | 77.84      | 41.20             | 36.55          | 6.13       | 35.30         | Peak    | ---     | ---       |
| 2 | 11400.000 | 68.95  | -14.59     | 83.54      | 58.12             | 38.84          | 6.71       | 34.72         | Peak    | ---     | ---       |
| 3 | 11400.000 | 57.13  | -6.41      | 63.54      | 46.30             | 38.84          | 6.71       | 34.72         | Average | ---     | ---       |
| 4 | 17100.000 | 62.71  | -15.13     | 77.84      | 46.42             | 41.66          | 8.61       | 33.98         | Peak    | ---     | ---       |

|                 |               |               |                        |
|-----------------|---------------|---------------|------------------------|
| Final Test Date | Apr. 09, 2012 | Test Site No. | 03CH02-HY              |
| Temperature     | 23.9°C        | Humidity      | 63%                    |
| Test Engineer   | Streak        | Configuration | 802.11n Ch. 38 (40MHz) |

**Horizontal**

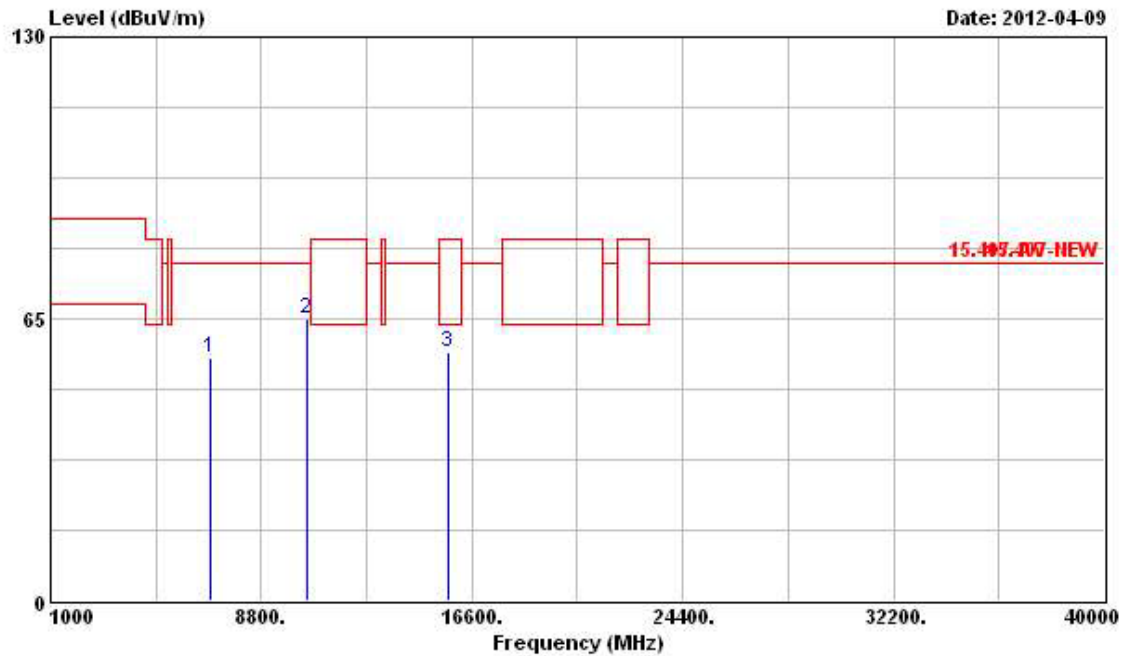
|   | Freq      | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark | Ant Pos | Table Pos |
|---|-----------|--------|------------|------------|-------------------|----------------|------------|---------------|--------|---------|-----------|
|   | MHz       | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |        | cm      | deg       |
| 1 | 6900.000  | 56.12  | -21.72     | 77.84      | 49.68             | 35.86          | 5.57       | 34.99         | Peak   | ---     | ---       |
| 2 | 10380.000 | 63.41  | -14.43     | 77.84      | 53.63             | 38.23          | 6.75       | 35.20         | Peak   | ---     | ---       |
| 3 | 15570.000 | 57.44  | -6.10      | 63.54      | 43.21             | 40.83          | 8.45       | 35.05         | PK     | ---     | ---       |

## Vertical



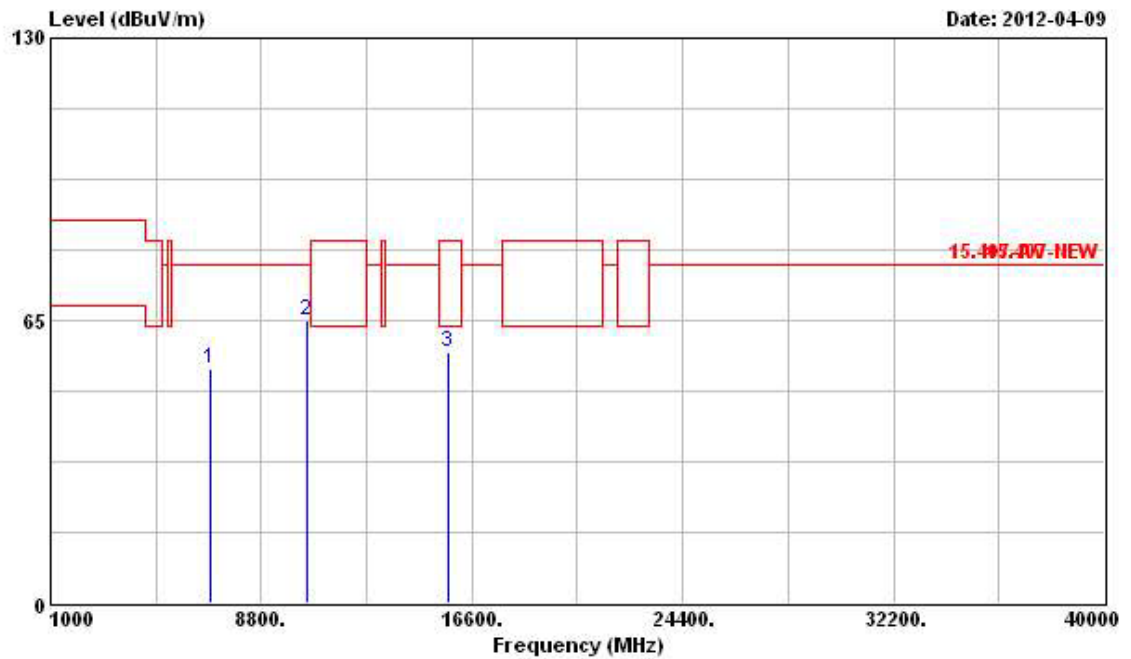
|   | Freq      | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|-----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|   | MHz       | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1 | 6900.000  | 55.40  | -22.44     | 77.84      | 48.96             | 35.86          | 5.57       | 34.99         | Peak    | ---     | ---       |
| 2 | 10380.000 | 57.61  | -20.23     | 77.84      | 47.83             | 38.23          | 6.75       | 35.20         | Peak    | ---     | ---       |
| 3 | 15570.000 | 62.34  | -21.20     | 83.54      | 48.11             | 40.83          | 8.45       | 35.05         | Peak    | ---     | ---       |
| 4 | 15570.000 | 48.25  | -15.29     | 63.54      | 34.02             | 40.83          | 8.45       | 35.05         | Average | ---     | ---       |

|                 |               |               |                        |
|-----------------|---------------|---------------|------------------------|
| Final Test Date | Apr. 09, 2012 | Test Site No. | 03CH02-HY              |
| Temperature     | 23.9°C        | Humidity      | 63%                    |
| Test Engineer   | Streak        | Configuration | 802.11n Ch. 46 (40MHz) |

**Horizontal**

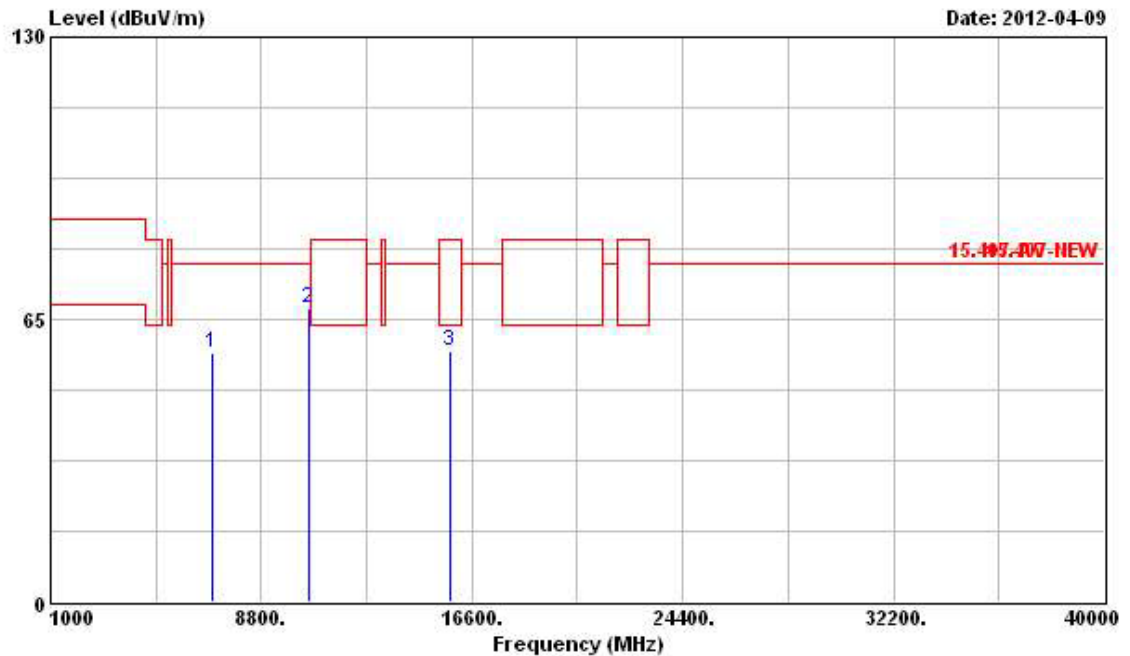
|   | Freq      | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark | Ant Pos | Table Pos |
|---|-----------|--------|------------|------------|-------------------|----------------|------------|---------------|--------|---------|-----------|
|   | MHz       | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |        | cm      | deg       |
| 1 | 6948.000  | 56.12  | -21.72     | 77.84      | 49.66             | 35.88          | 5.59       | 35.01         | Peak   | ---     | ---       |
| 2 | 10460.000 | 65.11  | -12.73     | 77.84      | 55.16             | 38.27          | 6.82       | 35.14         | Peak   | ---     | ---       |
| 3 | 15690.000 | 57.37  | -6.17      | 63.54      | 43.21             | 40.88          | 8.46       | 35.18         | PK     | ---     | ---       |

## Vertical



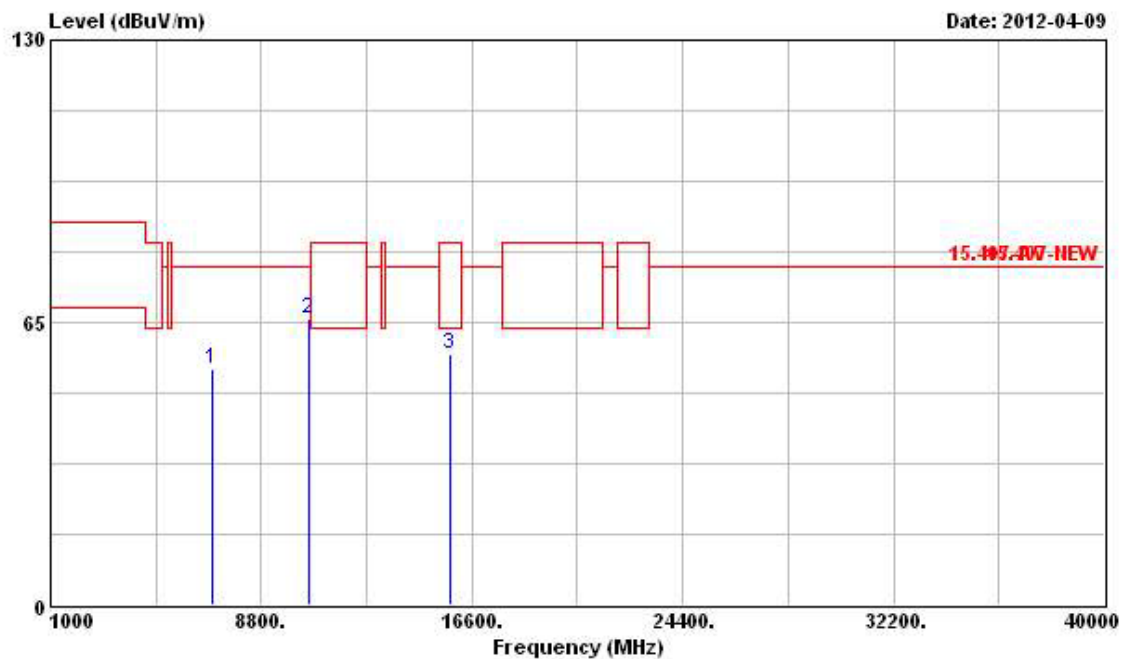
|   | Freq      | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark | Ant Pos | Table Pos |
|---|-----------|--------|------------|------------|-------------------|----------------|------------|---------------|--------|---------|-----------|
|   | MHz       | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |        | cm      | deg       |
| 1 | 6948.000  | 53.85  | -23.99     | 77.84      | 47.39             | 35.88          | 5.59       | 35.01         | Peak   | ---     | ---       |
| 2 | 10460.000 | 64.95  | -12.89     | 77.84      | 55.00             | 38.27          | 6.82       | 35.14         | Peak   | ---     | ---       |
| 3 | 15690.000 | 57.71  | -5.83      | 63.54      | 43.55             | 40.88          | 8.46       | 35.18         | PK     | ---     | ---       |

|                 |               |               |                        |
|-----------------|---------------|---------------|------------------------|
| Final Test Date | Apr. 09, 2012 | Test Site No. | 03CH02-HY              |
| Temperature     | 23.9°C        | Humidity      | 63%                    |
| Test Engineer   | Streak        | Configuration | 802.11n Ch. 54 (40MHz) |

**Horizontal**

|   | Freq      | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark | Ant Pos | Table Pos |
|---|-----------|--------|------------|------------|-------------------|----------------|------------|---------------|--------|---------|-----------|
|   | MHz       | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |        | cm      | deg       |
| 1 | 6996.000  | 57.47  | -20.37     | 77.84      | 50.99             | 35.90          | 5.60       | 35.02         | Peak   | ---     | ---       |
| 2 | 10540.000 | 67.65  | -10.19     | 77.84      | 57.53             | 38.32          | 6.88       | 35.08         | Peak   | ---     | ---       |
| 3 | 15810.000 | 57.72  | -5.82      | 63.54      | 43.64             | 40.92          | 8.46       | 35.30         | PK     | ---     | ---       |

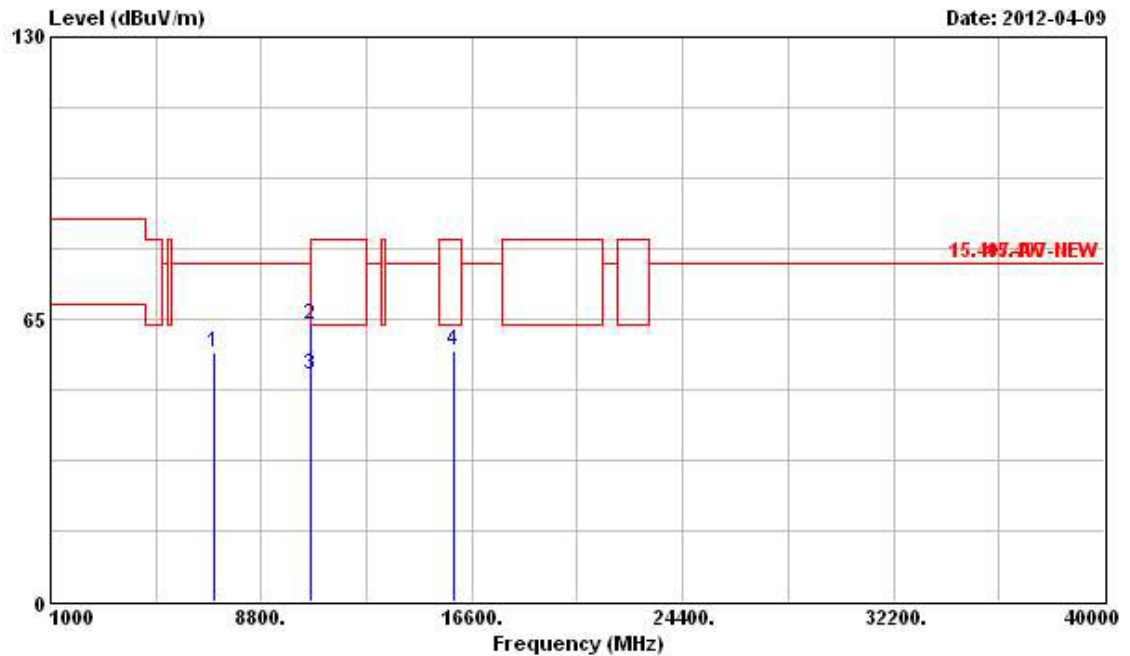
## Vertical



|   | Freq      | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark | Ant Pos | Table Pos |
|---|-----------|--------|------------|------------|-------------------|----------------|------------|---------------|--------|---------|-----------|
|   | MHz       | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |        | cm      | deg       |
| 1 | 6996.000  | 54.28  | -23.56     | 77.84      | 47.80             | 35.90          | 5.60       | 35.02         | Peak   | ---     | ---       |
| 2 | 10540.000 | 65.83  | -12.01     | 77.84      | 55.71             | 38.32          | 6.88       | 35.08         | Peak   | ---     | ---       |
| 3 | 15810.000 | 57.61  | -5.93      | 63.54      | 43.53             | 40.92          | 8.46       | 35.30         | PK     | ---     | ---       |

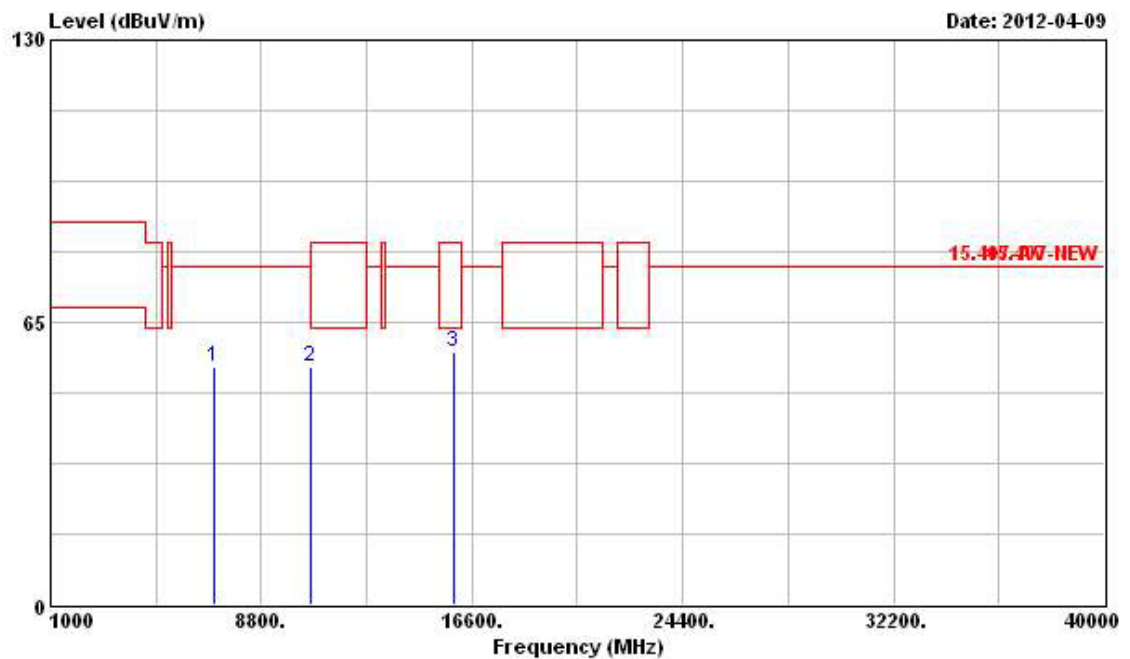


|                 |               |               |                        |
|-----------------|---------------|---------------|------------------------|
| Final Test Date | Apr. 09, 2012 | Test Site No. | 03CH02-HY              |
| Temperature     | 23.9°C        | Humidity      | 63%                    |
| Test Engineer   | Streak        | Configuration | 802.11n Ch. 62 (40MHz) |

**Horizontal**

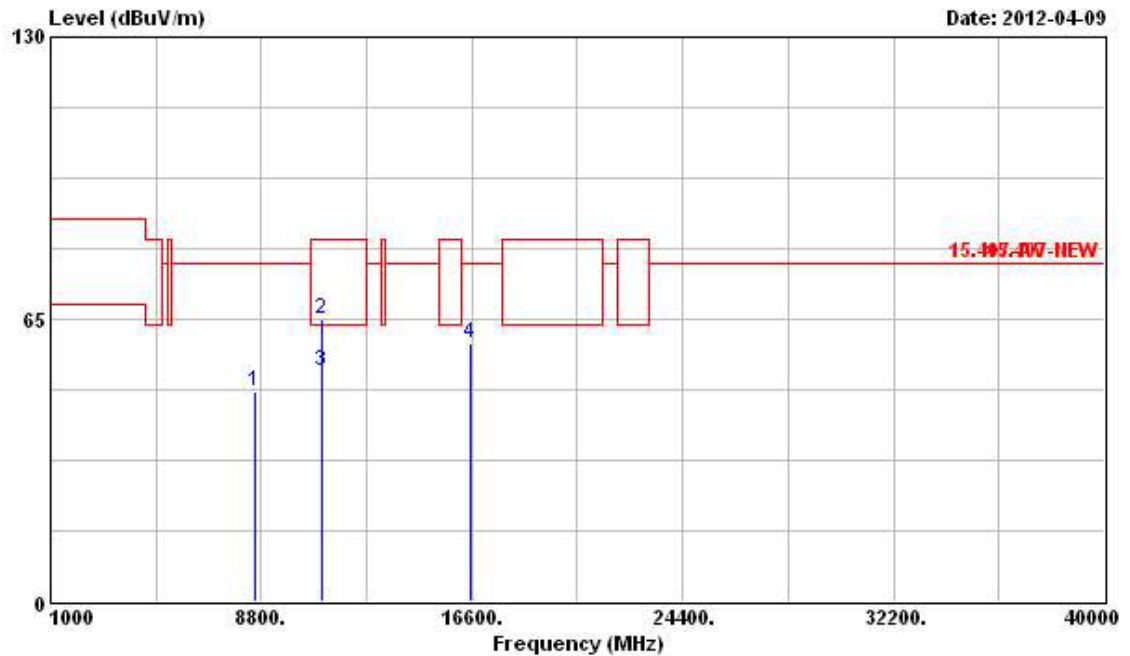
|   | Freq      | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|-----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|   | MHz       | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1 | 7080.000  | 57.50  | -20.34     | 77.84      | 51.05             | 35.88          | 5.61       | 35.04         | Peak    | ---     | ---       |
| 2 | 10620.000 | 63.64  | -19.90     | 83.54      | 53.36             | 38.37          | 6.93       | 35.02         | Peak    | ---     | ---       |
| 3 | 10620.000 | 52.16  | -11.38     | 63.54      | 41.88             | 38.37          | 6.93       | 35.02         | Average | ---     | ---       |
| 4 | 15930.000 | 57.81  | -5.73      | 63.54      | 43.77             | 40.97          | 8.47       | 35.40         | PK      | ---     | ---       |

## Vertical



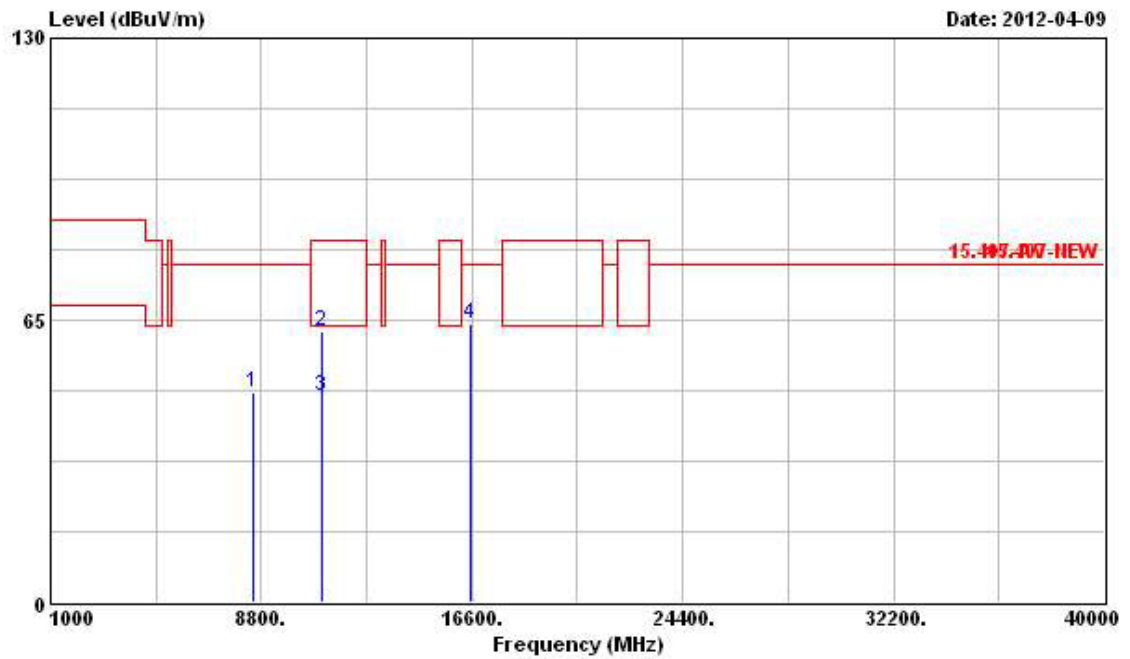
|   | Freq      | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark | Ant Pos | Table Pos |
|---|-----------|--------|------------|------------|-------------------|----------------|------------|---------------|--------|---------|-----------|
|   | MHz       | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |        | cm      | deg       |
| 1 | 7080.000  | 54.85  | -22.99     | 77.84      | 48.40             | 35.88          | 5.61       | 35.04         | Peak   | ---     | ---       |
| 2 | 10620.000 | 54.90  | -8.64      | 63.54      | 44.62             | 38.37          | 6.93       | 35.02         | PK     | ---     | ---       |
| 3 | 15930.000 | 57.97  | -5.57      | 63.54      | 43.93             | 40.97          | 8.47       | 35.40         | PK     | ---     | ---       |

|                 |               |               |                         |
|-----------------|---------------|---------------|-------------------------|
| Final Test Date | Apr. 09, 2012 | Test Site No. | 03CH02-HY               |
| Temperature     | 23.9°C        | Humidity      | 63%                     |
| Test Engineer   | Streak        | Configuration | 802.11n Ch. 102 (40MHz) |

**Horizontal**

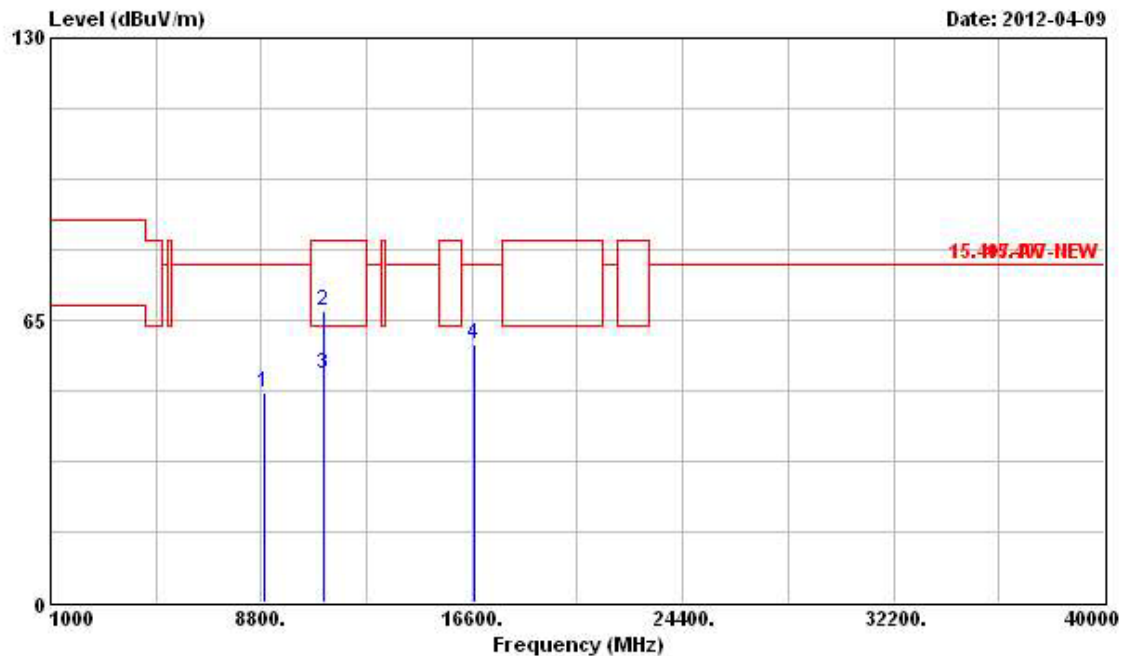
|   | Freq      | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|-----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|   | MHz       | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1 | 8568.000  | 48.29  | -29.55     | 77.84      | 41.23             | 36.34          | 5.97       | 35.25         | Peak    | ---     | ---       |
| 2 | 11020.000 | 65.05  | -18.49     | 83.54      | 54.03             | 38.61          | 7.13       | 34.72         | Peak    | ---     | ---       |
| 3 | 11020.000 | 53.02  | -10.52     | 63.54      | 42.00             | 38.61          | 7.13       | 34.72         | Average | ---     | ---       |
| 4 | 16530.000 | 59.33  | -18.51     | 77.84      | 44.02             | 41.98          | 8.27       | 34.94         | Peak    | ---     | ---       |

## Vertical



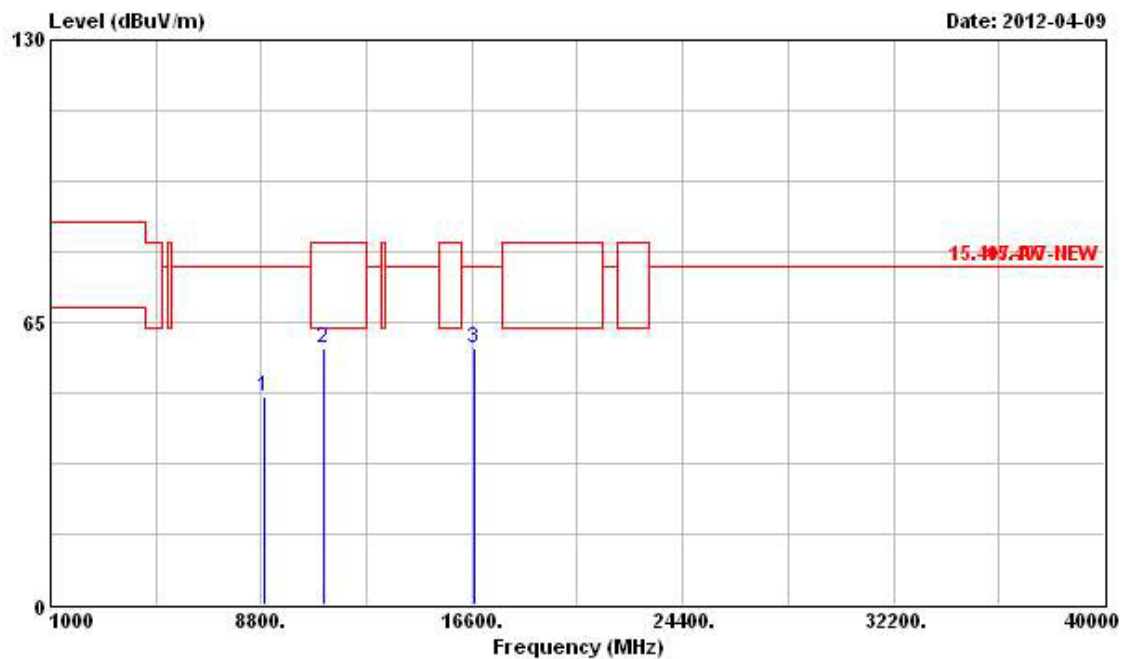
|   | Freq      | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|-----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|   | MHz       | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1 | 8520.000  | 48.46  | -29.38     | 77.84      | 41.43             | 36.31          | 5.96       | 35.24         | Peak    | ---     | ---       |
| 2 | 11020.000 | 62.53  | -21.01     | 83.54      | 51.51             | 38.61          | 7.13       | 34.72         | Peak    | ---     | ---       |
| 3 | 11020.000 | 47.27  | -16.27     | 63.54      | 36.25             | 38.61          | 7.13       | 34.72         | Average | ---     | ---       |
| 4 | 16530.000 | 64.20  | -13.64     | 77.84      | 48.89             | 41.98          | 8.27       | 34.94         | Peak    | ---     | ---       |

|                 |               |               |                         |
|-----------------|---------------|---------------|-------------------------|
| Final Test Date | Apr. 09, 2012 | Test Site No. | 03CH02-HY               |
| Temperature     | 23.9°C        | Humidity      | 63%                     |
| Test Engineer   | Streak        | Configuration | 802.11n Ch. 110 (40MHz) |

**Horizontal**

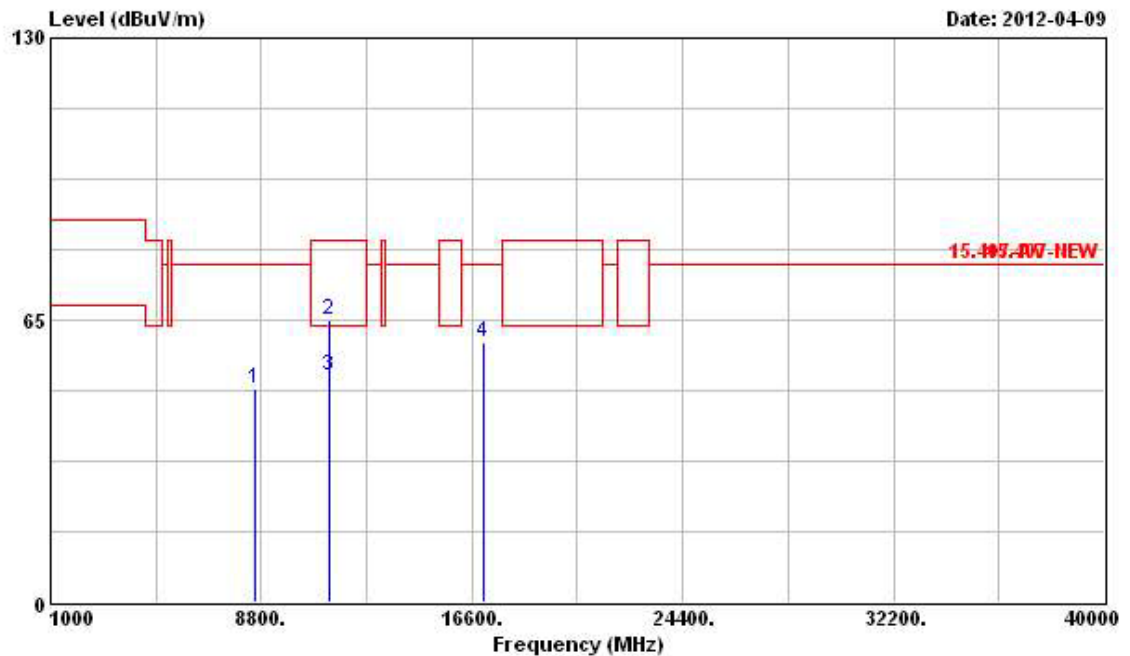
|   | Freq      | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|-----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|   | MHz       | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1 | 8904.000  | 48.22  | -29.62     | 77.84      | 40.85             | 36.54          | 6.13       | 35.30         | Peak    | ---     | ---       |
| 2 | 11100.000 | 66.99  | -16.55     | 83.54      | 56.00             | 38.66          | 7.05       | 34.72         | Peak    | ---     | ---       |
| 3 | 11100.000 | 52.66  | -10.88     | 63.54      | 41.67             | 38.66          | 7.05       | 34.72         | Average | ---     | ---       |
| 4 | 16650.000 | 59.27  | -18.57     | 77.84      | 43.66             | 41.91          | 8.37       | 34.67         | Peak    | ---     | ---       |

## Vertical



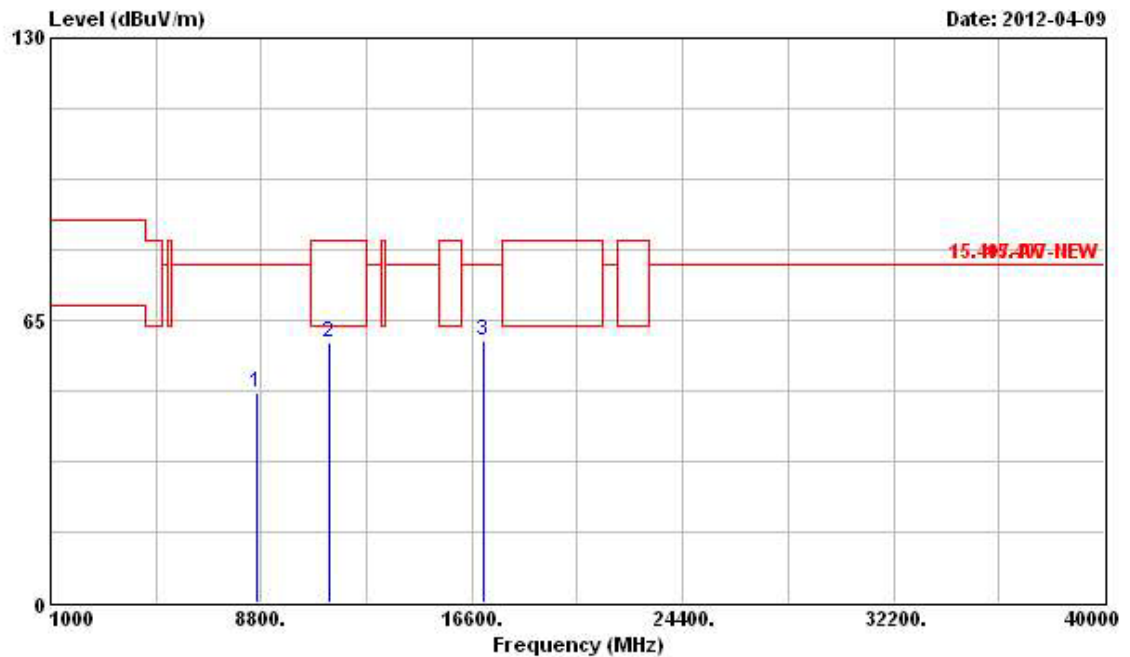
|   | Freq      | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark | Ant Pos | Table Pos |
|---|-----------|--------|------------|------------|-------------------|----------------|------------|---------------|--------|---------|-----------|
|   | MHz       | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |        | cm      | deg       |
| 1 | 8904.000  | 47.94  | -29.90     | 77.84      | 40.57             | 36.54          | 6.13       | 35.30         | Peak   | ---     | ---       |
| 2 | 11100.000 | 58.90  | -4.64      | 63.54      | 47.91             | 38.66          | 7.05       | 34.72         | PK     | ---     | ---       |
| 3 | 16650.000 | 59.21  | -18.63     | 77.84      | 43.60             | 41.91          | 8.37       | 34.67         | Peak   | ---     | ---       |

|                 |               |               |                         |
|-----------------|---------------|---------------|-------------------------|
| Final Test Date | Apr. 09, 2012 | Test Site No. | 03CH02-HY               |
| Temperature     | 23.9°C        | Humidity      | 63%                     |
| Test Engineer   | Streak        | Configuration | 802.11n Ch. 134 (40MHz) |

**Horizontal**

|   | Freq      | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|---|-----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|   | MHz       | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1 | 8568.000  | 49.28  | -28.56     | 77.84      | 42.22             | 36.34          | 5.97       | 35.25         | Peak    | ---     | ---       |
| 2 | 11340.000 | 64.82  | -18.72     | 83.54      | 53.94             | 38.80          | 6.80       | 34.72         | Peak    | ---     | ---       |
| 3 | 11340.000 | 52.02  | -11.52     | 63.54      | 41.14             | 38.80          | 6.80       | 34.72         | Average | ---     | ---       |
| 4 | 17010.000 | 59.97  | -17.87     | 77.84      | 43.61             | 41.69          | 8.65       | 33.98         | Peak    | ---     | ---       |

## Vertical



|   | Freq      | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark | Ant Pos | Table Pos |
|---|-----------|--------|------------|------------|-------------------|----------------|------------|---------------|--------|---------|-----------|
|   | MHz       | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |        | cm      | deg       |
| 1 | 8616.000  | 48.21  | -29.63     | 77.84      | 41.11             | 36.37          | 5.99       | 35.26         | Peak   | ---     | ---       |
| 2 | 11340.000 | 60.05  | -3.49      | 63.54      | 49.17             | 38.80          | 6.80       | 34.72         | PK     | ---     | ---       |
| 3 | 17010.000 | 60.16  | -17.68     | 77.84      | 43.80             | 41.69          | 8.65       | 33.98         | Peak   | ---     | ---       |

## Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (Uv/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level – Preamp Factor = Level.

The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].



### 3.7 Band Edge and Fundamental Emissions Measurement

#### 3.7.1 Limit

For transmitters operating in the 5.15~5.25 GHz band: all emissions outside of the 5.15~5.25 GHz band shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m at 3m). For transmitters operating in the 5.47~5.725 GHz band: all emissions outside of the 5.47~5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m at 3m). In addition, In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

| Frequencies<br>(MHz) | Field Strength<br>(micorvolts/meter) | Measurement Distance<br>(meters) |
|----------------------|--------------------------------------|----------------------------------|
| 0.009~0.490          | 2400/F(kHz)                          | 300                              |
| 0.490~1.705          | 24000/F(kHz)                         | 30                               |
| 1.705~30.0           | 30                                   | 30                               |
| 30~88                | 100                                  | 3                                |
| 88~216               | 150                                  | 3                                |
| 216~960              | 200                                  | 3                                |
| Above 960            | 500                                  | 3                                |

#### 3.7.2 Measuring Instruments and Setting

Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

| Spectrum Parameter                        | Setting                                        |
|-------------------------------------------|------------------------------------------------|
| Attenuation                               | Auto                                           |
| Span Frequency                            | 100 MHz                                        |
| RB / VB (Emission in restricted band)     | 1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average |
| RB / VB (Emission in non-restricted band) | 1 MHz /1 MHz for Peak                          |

#### 3.7.3 Test Procedures

1. The test procedure is the same as section 3.6.3; only the frequency range investigated is limited to 100MHz around band edges.
2. In case the emission is fail due to the used RB/VB is too wide, marker-delta method of FCC Public Notice DA00-705 will be followed.

#### 3.7.4 Test Setup Layout

This test setup layout is the same as that shown in section 3.6.4.

#### 3.7.5 Test Deviation

There is no deviation with the original standard.

#### 3.7.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

## 3.7.7 Test Result of Band Edge and Fundamental Emissions

For Single Chain:

|                 |               |               |                        |
|-----------------|---------------|---------------|------------------------|
| Final Test Date | Apr. 09, 2012 | Test Site No. | 03CH02-HY              |
| Temperature     | 23.9℃         | Humidity      | 63%                    |
| Test Engineer   | Streak        | Configuration | 802.11a Ch. 36, 40, 48 |

## Channel 36

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5149.900 | 57.94  | -5.60      | 63.54      | 18.27             | 34.89          | 4.78       | 0.00          | Average | ---     | ---       |
| 2 X | 5181.900 | 103.09 |            |            | 63.38             | 34.91          | 4.80       | 0.00          | Average | ---     | ---       |
| 1   | 5149.900 | 73.00  | -10.54     | 83.54      | 33.33             | 34.89          | 4.78       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5183.400 | 112.89 |            |            | 73.18             | 34.91          | 4.80       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.

## Channel 40

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5147.400 | 56.06  | -7.48      | 63.54      | 16.39             | 34.89          | 4.78       | 0.00          | Average | ---     | ---       |
| 2 X | 5196.900 | 103.78 |            |            | 64.05             | 34.92          | 4.81       | 0.00          | Average | ---     | ---       |
| 3   | 5350.000 | 54.65  | -8.89      | 63.54      | 14.77             | 35.01          | 4.87       | 0.00          | Average | ---     | ---       |
| 1   | 5147.400 | 68.47  | -15.07     | 83.54      | 28.80             | 34.89          | 4.78       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5202.900 | 113.14 |            |            | 73.41             | 34.92          | 4.81       | 0.00          | Peak    | ---     | ---       |
| 3   | 5397.000 | 67.91  | -15.63     | 83.54      | 27.99             | 35.04          | 4.88       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.

## Channel 48

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5117.400 | 54.94  | -8.60      | 63.54      | 15.29             | 34.87          | 4.78       | 0.00          | Average | ---     | ---       |
| 2 X | 5242.200 | 103.76 |            |            | 63.99             | 34.95          | 4.82       | 0.00          | Average | ---     | ---       |
| 3   | 5351.700 | 54.61  | -8.93      | 63.54      | 14.73             | 35.01          | 4.87       | 0.00          | Average | ---     | ---       |
| 1   | 5140.500 | 68.06  | -15.48     | 83.54      | 28.39             | 34.89          | 4.78       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5243.400 | 113.47 |            |            | 73.70             | 34.95          | 4.82       | 0.00          | Peak    | ---     | ---       |
| 3   | 5388.600 | 67.86  | -15.68     | 83.54      | 27.95             | 35.03          | 4.88       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.

|                 |               |               |                        |
|-----------------|---------------|---------------|------------------------|
| Final Test Date | Apr. 09, 2012 | Test Site No. | 03CH02-HY              |
| Temperature     | 23.9°C        | Humidity      | 63%                    |
| Test Engineer   | Streak        | Configuration | 802.11a Ch. 52, 56, 64 |

**Channel 52**

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5143.800 | 54.92  | -8.62      | 63.54      | 15.25             | 34.89          | 4.78       | 0.00          | Average | ---     | ---       |
| 2 X | 5256.900 | 104.61 |            |            | 64.84             | 34.95          | 4.82       | 0.00          | Average | ---     | ---       |
| 3   | 5360.100 | 54.68  | -8.86      | 63.54      | 14.80             | 35.01          | 4.87       | 0.00          | Average | ---     | ---       |
| 1   | 5114.100 | 68.24  | -15.30     | 83.54      | 28.60             | 34.87          | 4.77       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5253.300 | 114.19 |            |            | 74.42             | 34.95          | 4.82       | 0.00          | Peak    | ---     | ---       |
| 3   | 5374.200 | 68.99  | -14.55     | 83.54      | 29.10             | 35.02          | 4.87       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.

**Channel 56**

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5143.800 | 54.93  | -8.61      | 63.54      | 15.26             | 34.89          | 4.78       | 0.00          | Average | ---     | ---       |
| 2 X | 5283.000 | 104.15 |            |            | 64.34             | 34.97          | 4.84       | 0.00          | Average | ---     | ---       |
| 3   | 5353.800 | 54.76  | -8.78      | 63.54      | 14.88             | 35.01          | 4.87       | 0.00          | Average | ---     | ---       |
| 1   | 5112.600 | 68.72  | -14.82     | 83.54      | 29.08             | 34.87          | 4.77       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5284.200 | 113.62 |            |            | 73.81             | 34.97          | 4.84       | 0.00          | Peak    | ---     | ---       |
| 3   | 5352.900 | 68.07  | -15.47     | 83.54      | 28.19             | 35.01          | 4.87       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.

**Channel 64**

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1 X | 5317.420 | 101.95 |            |            | 62.11             | 34.99          | 4.85       | 0.00          | Average | ---     | ---       |
| 2   | 5372.300 | 55.11  | -8.43      | 63.54      | 15.22             | 35.02          | 4.87       | 0.00          | Average | ---     | ---       |
| 1 X | 5316.020 | 111.74 |            |            | 71.90             | 34.99          | 4.85       | 0.00          | Peak    | ---     | ---       |
| 2   | 5370.900 | 67.29  | -16.25     | 83.54      | 27.40             | 35.02          | 4.87       | 0.00          | Peak    | ---     | ---       |

The item 1 is fundamental emissions.

|                 |               |               |                           |
|-----------------|---------------|---------------|---------------------------|
| Final Test Date | Apr. 09, 2012 | Test Site No. | 03CH02-HY                 |
| Temperature     | 23.9°C        | Humidity      | 63%                       |
| Test Engineer   | Streak        | Configuration | 802.11a Ch. 100, 116, 140 |

**Channel 100**

|     | Freq     | Level  | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5447.840 | 55.62  | -7.92      | 63.54      | 15.65      | 35.07          | 4.90       | 0.00          | Average | ---     | ---       |
| 2 X | 5498.320 | 102.88 |            |            | 62.87      | 35.10          | 4.91       | 0.00          | Average | ---     | ---       |
| 1   | 5446.480 | 69.12  | -14.42     | 83.54      | 29.15      | 35.07          | 4.90       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5497.440 | 112.13 |            |            | 72.12      | 35.10          | 4.91       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.

**Channel 116**

|     | Freq     | Level  | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5450.160 | 55.48  | -8.06      | 63.54      | 15.51      | 35.07          | 4.90       | 0.00          | Average | ---     | ---       |
| 2 X | 5576.880 | 92.14  |            |            | 52.03      | 35.16          | 4.95       | 0.00          | Average | ---     | ---       |
| 3   | 5726.640 | 56.13  | -21.71     | 77.84      | 15.81      | 35.28          | 5.04       | 0.00          | Average | ---     | ---       |
| 1   | 5457.840 | 68.41  | -15.13     | 83.54      | 28.44      | 35.07          | 4.90       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5575.600 | 101.20 |            |            | 61.09      | 35.16          | 4.95       | 0.00          | Peak    | ---     | ---       |
| 3   | 5738.160 | 68.51  | -9.33      | 77.84      | 28.18      | 35.29          | 5.04       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.

**Channel 140**

|     | Freq     | Level  | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB/m           | dB         | dB            |         | cm      | deg       |
| 1 X | 5697.320 | 100.57 |            |            | 60.30      | 35.25          | 5.02       | 0.00          | Average | ---     | ---       |
| 2   | 5725.000 | 55.81  | -22.03     | 77.84      | 15.49      | 35.28          | 5.04       | 0.00          | Average | ---     | ---       |
| 1 X | 5703.140 | 110.40 |            |            | 70.09      | 35.27          | 5.04       | 0.00          | Peak    | ---     | ---       |
| 2   | 5725.940 | 70.13  | -7.71      | 77.84      | 29.81      | 35.28          | 5.04       | 0.00          | Peak    | ---     | ---       |

The item 1 is fundamental emissions.

For Two Chains:

|                 |               |               |                                   |
|-----------------|---------------|---------------|-----------------------------------|
| Final Test Date | Apr. 09, 2012 | Test Site No. | 03CH02-HY                         |
| Temperature     | 23.9°C        | Humidity      | 63%                               |
| Test Engineer   | Streak        | Configuration | 802.11n (20MHz)<br>Ch. 36, 40, 48 |

**Channel 36**

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5128.300 | 55.41  | -8.13      | 63.54      | 15.75             | 34.88          | 4.78       | 0.00          | Average | ---     | ---       |
| 2 X | 5181.800 | 98.42  |            |            | 58.71             | 34.91          | 4.80       | 0.00          | Average | ---     | ---       |
| 1   | 5105.100 | 68.63  | -14.91     | 83.54      | 29.00             | 34.86          | 4.77       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5182.700 | 110.25 |            |            | 70.54             | 34.91          | 4.80       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.

**Channel 40**

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5147.700 | 55.02  | -8.52      | 63.54      | 15.35             | 34.89          | 4.78       | 0.00          | Average | ---     | ---       |
| 2 X | 5197.800 | 97.96  |            |            | 58.23             | 34.92          | 4.81       | 0.00          | Average | ---     | ---       |
| 3   | 5358.600 | 54.49  | -9.05      | 63.54      | 14.61             | 35.01          | 4.87       | 0.00          | Average | ---     | ---       |
| 1   | 5148.900 | 67.47  | -16.07     | 83.54      | 27.80             | 34.89          | 4.78       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5202.600 | 109.11 |            |            | 69.38             | 34.92          | 4.81       | 0.00          | Peak    | ---     | ---       |
| 3   | 5351.400 | 68.10  | -15.44     | 83.54      | 28.22             | 35.01          | 4.87       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.

**Channel 48**

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5128.200 | 54.60  | -8.94      | 63.54      | 14.94             | 34.88          | 4.78       | 0.00          | Average | ---     | ---       |
| 2 X | 5241.300 | 97.99  |            |            | 58.23             | 34.94          | 4.82       | 0.00          | Average | ---     | ---       |
| 3   | 5351.400 | 54.41  | -9.13      | 63.54      | 14.53             | 35.01          | 4.87       | 0.00          | Average | ---     | ---       |
| 1   | 5127.300 | 67.92  | -15.62     | 83.54      | 28.26             | 34.88          | 4.78       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5243.400 | 109.28 |            |            | 69.51             | 34.95          | 4.82       | 0.00          | Peak    | ---     | ---       |
| 3   | 5352.900 | 67.43  | -16.11     | 83.54      | 27.55             | 35.01          | 4.87       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.

|                 |               |               |                                   |
|-----------------|---------------|---------------|-----------------------------------|
| Final Test Date | Apr. 09, 2012 | Test Site No. | 03CH02-HY                         |
| Temperature     | 23.9°C        | Humidity      | 63%                               |
| Test Engineer   | Streak        | Configuration | 802.11n (20MHz)<br>Ch. 52, 56, 64 |

**Channel 52**

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5142.600 | 54.72  | -8.82      | 63.54      | 15.05             | 34.89          | 4.78       | 0.00          | Average | ---     | ---       |
| 2 X | 5257.800 | 100.25 |            |            | 60.48             | 34.95          | 4.82       | 0.00          | Average | ---     | ---       |
| 3   | 5351.400 | 54.62  | -8.92      | 63.54      | 14.74             | 35.01          | 4.87       | 0.00          | Average | ---     | ---       |
| 1   | 5141.400 | 67.81  | -15.73     | 83.54      | 28.14             | 34.89          | 4.78       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5262.600 | 111.25 |            |            | 71.47             | 34.96          | 4.82       | 0.00          | Peak    | ---     | ---       |
| 3   | 5355.000 | 67.91  | -15.63     | 83.54      | 28.03             | 35.01          | 4.87       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.

**Channel 56**

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5140.500 | 54.68  | -8.86      | 63.54      | 15.01             | 34.89          | 4.78       | 0.00          | Average | ---     | ---       |
| 2 X | 5281.800 | 98.96  |            |            | 59.15             | 34.97          | 4.84       | 0.00          | Average | ---     | ---       |
| 3   | 5362.200 | 54.42  | -9.12      | 63.54      | 14.53             | 35.02          | 4.87       | 0.00          | Average | ---     | ---       |
| 1   | 5127.000 | 68.04  | -15.50     | 83.54      | 28.38             | 34.88          | 4.78       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5283.000 | 109.91 |            |            | 70.10             | 34.97          | 4.84       | 0.00          | Peak    | ---     | ---       |
| 3   | 5362.500 | 67.84  | -15.70     | 83.54      | 27.95             | 35.02          | 4.87       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.

**Channel 64**

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1 X | 5319.170 | 97.61  |            |            | 57.77             | 34.99          | 4.85       | 0.00          | Average | ---     | ---       |
| 2   | 5372.370 | 54.60  | -8.94      | 63.54      | 14.71             | 35.02          | 4.87       | 0.00          | Average | ---     | ---       |
| 1 X | 5317.420 | 108.74 |            |            | 68.90             | 34.99          | 4.85       | 0.00          | Peak    | ---     | ---       |
| 2   | 5365.930 | 68.09  | -15.45     | 83.54      | 28.20             | 35.02          | 4.87       | 0.00          | Peak    | ---     | ---       |

The item 1 is fundamental emissions.

|                 |               |               |                                      |
|-----------------|---------------|---------------|--------------------------------------|
| Final Test Date | Apr. 11, 2012 | Test Site No. | 03CH02-HY                            |
| Temperature     | 23.9°C        | Humidity      | 63%                                  |
| Test Engineer   | Streak        | Configuration | 802.11n (20MHz)<br>Ch. 100, 116, 140 |

**Channel 100**

|     | Freq     | Level  | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5448.160 | 55.60  | -7.94      | 63.54      | 15.63      | 35.07          | 4.90       | 0.00          | Average | ---     | ---       |
| 2 X | 5501.280 | 100.22 |            |            | 60.21      | 35.10          | 4.91       | 0.00          | Average | ---     | ---       |
| 1   | 5448.400 | 68.38  | -15.16     | 83.54      | 28.41      | 35.07          | 4.90       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5502.880 | 112.12 |            |            | 72.11      | 35.10          | 4.91       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.

**Channel 116**

|     | Freq     | Level  | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5446.000 | 56.12  | -7.42      | 63.54      | 16.15      | 35.07          | 4.90       | 0.00          | Average | ---     | ---       |
| 2 X | 5579.120 | 102.97 |            |            | 62.86      | 35.16          | 4.95       | 0.00          | Average | ---     | ---       |
| 3   | 5725.360 | 56.37  | -21.47     | 77.84      | 16.05      | 35.28          | 5.04       | 0.00          | Average | ---     | ---       |
| 1   | 5457.520 | 69.19  | -14.35     | 83.54      | 29.22      | 35.07          | 4.90       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5578.160 | 112.82 |            |            | 72.71      | 35.16          | 4.95       | 0.00          | Peak    | ---     | ---       |
| 3   | 5738.160 | 69.62  | -8.22      | 77.84      | 29.29      | 35.29          | 5.04       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.

**Channel 140**

|     | Freq     | Level  | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV       | dB/m           | dB         | dB            |         | cm      | deg       |
| 1 X | 5701.160 | 100.10 |            |            | 59.79      | 35.27          | 5.04       | 0.00          | Average | ---     | ---       |
| 2   | 5725.000 | 56.01  | -21.83     | 77.84      | 15.69      | 35.28          | 5.04       | 0.00          | Average | ---     | ---       |
| 1 X | 5702.840 | 112.34 |            |            | 72.03      | 35.27          | 5.04       | 0.00          | Peak    | ---     | ---       |
| 2   | 5728.100 | 70.12  | -7.72      | 77.84      | 29.80      | 35.28          | 5.04       | 0.00          | Peak    | ---     | ---       |

The item 1 is fundamental emissions.

|                 |               |               |                               |
|-----------------|---------------|---------------|-------------------------------|
| Final Test Date | Apr. 09, 2012 | Test Site No. | 03CH02-HY                     |
| Temperature     | 23.9°C        | Humidity      | 63%                           |
| Test Engineer   | Streak        | Configuration | 802.11n (40MHz)<br>Ch. 38, 46 |

**Channel 38**

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5150.000 | 59.25  | -4.29      | 63.54      | 19.58             | 34.89          | 4.78       | 0.00          | Average | ---     | ---       |
| 2 X | 5196.030 | 94.32  |            |            | 54.59             | 34.92          | 4.81       | 0.00          | Average | ---     | ---       |
| 1   | 5147.730 | 74.25  | -9.29      | 83.54      | 34.58             | 34.89          | 4.78       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5195.450 | 106.30 |            |            | 66.57             | 34.92          | 4.81       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.

**Channel 46**

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5138.750 | 54.74  | -8.80      | 63.54      | 15.08             | 34.88          | 4.78       | 0.00          | Average | ---     | ---       |
| 2 X | 5241.750 | 94.46  |            |            | 54.69             | 34.95          | 4.82       | 0.00          | Average | ---     | ---       |
| 3   | 5357.750 | 54.53  | -9.01      | 63.54      | 14.65             | 35.01          | 4.87       | 0.00          | Average | ---     | ---       |
| 1   | 5120.750 | 68.40  | -15.14     | 83.54      | 28.75             | 34.87          | 4.78       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5235.500 | 106.19 |            |            | 66.43             | 34.94          | 4.82       | 0.00          | Peak    | ---     | ---       |
| 3   | 5369.500 | 67.70  | -15.84     | 83.54      | 27.81             | 35.02          | 4.87       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.



|                 |               |               |                               |
|-----------------|---------------|---------------|-------------------------------|
| Final Test Date | Apr. 09, 2012 | Test Site No. | 03CH02-HY                     |
| Temperature     | 23.9°C        | Humidity      | 63%                           |
| Test Engineer   | Streak        | Configuration | 802.11n (40MHz)<br>Ch. 54, 62 |

**Channel 54**

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5145.000 | 54.71  | -8.83      | 63.54      | 15.04             | 34.89          | 4.78       | 0.00          | Average | ---     | ---       |
| 2 X | 5254.200 | 95.33  |            |            | 55.56             | 34.95          | 4.82       | 0.00          | Average | ---     | ---       |
| 3   | 5351.700 | 54.59  | -8.95      | 63.54      | 14.71             | 35.01          | 4.87       | 0.00          | Average | ---     | ---       |
| 1   | 5116.500 | 67.81  | -15.73     | 83.54      | 28.16             | 34.87          | 4.78       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5256.600 | 106.73 |            |            | 66.96             | 34.95          | 4.82       | 0.00          | Peak    | ---     | ---       |
| 3   | 5365.800 | 67.75  | -15.79     | 83.54      | 27.86             | 35.02          | 4.87       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.

**Channel 62**

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1 X | 5294.300 | 95.38  |            |            | 55.56             | 34.98          | 4.84       | 0.00          | Average | ---     | ---       |
| 2   | 5350.000 | 56.89  | -6.65      | 63.54      | 17.01             | 35.01          | 4.87       | 0.00          | Average | ---     | ---       |
| 1 X | 5315.400 | 106.88 |            |            | 67.04             | 34.99          | 4.85       | 0.00          | Peak    | ---     | ---       |
| 2   | 5355.100 | 71.06  | -12.48     | 83.54      | 31.18             | 35.01          | 4.87       | 0.00          | Peak    | ---     | ---       |

The item 1 is fundamental emissions.

|                 |               |               |                                      |
|-----------------|---------------|---------------|--------------------------------------|
| Final Test Date | Apr. 09, 2012 | Test Site No. | 03CH02-HY                            |
| Temperature     | 23.9℃         | Humidity      | 63%                                  |
| Test Engineer   | Streak        | Configuration | 802.11n (40MHz)<br>Ch. 102, 110, 134 |

**Channel 102**

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5459.800 | 55.64  | -7.90      | 63.54      | 15.67             | 35.07          | 4.90       | 0.00          | Average | ---     | ---       |
| 2 X | 5499.900 | 96.40  |            |            | 56.39             | 35.10          | 4.91       | 0.00          | Average | ---     | ---       |
| 1   | 5459.800 | 68.67  | -14.87     | 83.54      | 28.70             | 35.07          | 4.90       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5496.600 | 107.43 |            |            | 67.42             | 35.10          | 4.91       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.

**Channel 110**

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1   | 5447.800 | 54.93  | -8.61      | 63.54      | 14.96             | 35.07          | 4.90       | 0.00          | Average | ---     | ---       |
| 2 X | 5539.300 | 95.57  |            |            | 55.51             | 35.13          | 4.93       | 0.00          | Average | ---     | ---       |
| 3   | 5725.000 | 55.03  | -22.81     | 77.84      | 14.71             | 35.28          | 5.04       | 0.00          | Average | ---     | ---       |
| 1   | 5446.900 | 67.67  | -15.87     | 83.54      | 27.70             | 35.07          | 4.90       | 0.00          | Peak    | ---     | ---       |
| 2 X | 5551.300 | 107.11 |            |            | 67.02             | 35.14          | 4.95       | 0.00          | Peak    | ---     | ---       |
| 3   | 5725.300 | 68.01  | -9.83      | 77.84      | 27.69             | 35.28          | 5.04       | 0.00          | Peak    | ---     | ---       |

The item 2 is fundamental emissions.

**Channel 134**

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark  | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m           | dB         | dB            |         | cm      | deg       |
| 1 X | 5659.400 | 94.05  |            |            | 53.83             | 35.22          | 5.00       | 0.00          | Average | ---     | ---       |
| 2   | 5726.300 | 55.04  | -22.80     | 77.84      | 14.72             | 35.28          | 5.04       | 0.00          | Average | ---     | ---       |
| 1 X | 5675.400 | 105.62 |            |            | 65.36             | 35.24          | 5.02       | 0.00          | Peak    | ---     | ---       |
| 2   | 5748.700 | 68.82  | -9.02      | 77.84      | 28.46             | 35.29          | 5.07       | 0.00          | Peak    | ---     | ---       |

The item 1 is fundamental emissions.

### 3.8 Frequency Stability Measurement

#### 3.8.1 Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emissions is maintained within the band of operation under all conditions of normal operation as specified in the user's manual or  $\pm 20\text{ppm}$  (IEEE 802.11a specification).

#### 3.8.2 Measuring Instruments and Setting

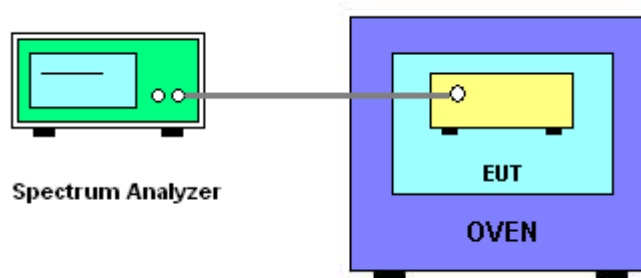
Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

| Spectrum Parameter | Setting                                          |
|--------------------|--------------------------------------------------|
| Attenuation        | Auto                                             |
| Span Frequency     | Entire absence of modulation emissions bandwidth |
| RB                 | 10 kHz                                           |
| VB                 | 10 kHz                                           |
| Sweep Time         | Auto                                             |

#### 3.8.3 Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5.  $f_c$  is declaring of channel frequency. Then the frequency error formula is  $(f_c - f)/f_c \times 10^6$  ppm and the limit is less than  $\pm 20\text{ppm}$  (IEEE 802.11a specification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature rule is  $-20^\circ\text{C} \sim 50^\circ\text{C}$ .
8. Measuring multiple antennas, the connectors are required to link with Spectrum Analyzer through a combiner.

#### 3.8.4 Test Setup Layout



#### 3.8.5 Test Deviation

There is no deviation with the original standard.

#### 3.8.6 EUT Operation during Test

The EUT was programmed to be in continuously un-modulation transmitting mode.

**3.8.7 Test Result of Frequency Stability****Voltage vs. Frequency Stability**

| <b>Voltage</b>              | <b>Measurement Frequency (MHz)</b> |
|-----------------------------|------------------------------------|
| <b>(V)</b>                  | <b>5180 MHz</b>                    |
| 110.00                      | 5180.0000                          |
| 93.50                       | 5179.9994                          |
| 126.50                      | 5179.9994                          |
| <b>Max. Deviation (MHz)</b> | <b>0.0006</b>                      |
| <b>Max. Deviation (ppm)</b> | <b>0.12</b>                        |

**Temperature vs. Frequency Stability**

| <b>Temperature</b>          | <b>Measurement Frequency (MHz)</b> |
|-----------------------------|------------------------------------|
| <b>(°C)</b>                 | <b>5180 MHz</b>                    |
| 50                          | 5179.9526                          |
| 40                          | 5179.9640                          |
| 30                          | 5179.9796                          |
| 20                          | 5180.0006                          |
| 10                          | 5180.0198                          |
| 0                           | 5180.0252                          |
| -10                         | 5180.0288                          |
| -20                         | 5180.0282                          |
| <b>Max. Deviation (MHz)</b> | <b>0.0474</b>                      |
| <b>Max. Deviation (ppm)</b> | <b>9.15</b>                        |

### **3.9 Antenna Requirements**

#### **3.9.1 Limit**

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited.

#### **3.9.2 Antenna Connector Construction**

Please refer to section 2.2 in this test report; antenna connector complied with the requirements.

#### 4 LIST OF MEASURING EQUIPMENTS

| Instrument          | Manufacturer | Model No. | Serial No.     | Characteristics | Calibration Date | Remark               |
|---------------------|--------------|-----------|----------------|-----------------|------------------|----------------------|
| EMC Receiver        | R&S          | ESCS 30   | 100132         | 9kHz ~ 2.75GHz  | Feb. 08, 2012    | Conduction (CO01-HY) |
| LISN                | MessTec      | NNB-2/16Z | 2001/004       | 9kHz ~ 30MHz    | Jan. 12, 2012    | Conduction (CO01-HY) |
| LISN (Support Unit) | MessTec      | NNB-2/16Z | 2001/009       | 9kHz ~ 30MHz    | Feb. 20, 2012    | Conduction (CO01-HY) |
| EMI Filter          | LINDGREN     | LRE-2060  | 1004           | < 450Hz         | N/A              | Conduction (CO01-HY) |
| EMI Filter          | LINDGREN     | N6006     | 201052         | 0 ~ 60Hz        | N/A              | Conduction (CO01-HY) |
| RF Cable-CON        | HUBER+SUHNER | RG213/U   | 07611832010001 | 9kHz ~ 30MHz    | Mar. 02, 2012    | Conduction (CO01-HY) |

Note: Calibration Interval of instruments listed above is one year.

| Instrument                 | Manufacturer | Model No.        | Serial No.  | Characteristics | Calibration Date | Remark              |
|----------------------------|--------------|------------------|-------------|-----------------|------------------|---------------------|
| Spectrum Analyzer          | R&S          | FSP 40           | 100305      | 9KHz ~ 40GHz    | Feb. 21, 2012    | Conducted (TH01-HY) |
| DC Power Source            | G.W.         | GPC-6030D        | C671845     | DC 1V ~ 60V     | Jun. 03, 2011    | Conducted (TH01-HY) |
| Temp. and Humidity Chamber | Giant Force  | GTH-225-20-SP-SD | MAA1112-007 | -20 ~ 100℃      | Dec. 07, 2011    | Conducted (TH01-HY) |
| Signal Generator           | R&S          | SMR40            | 100116      | 10MHz ~ 40GHz   | Jun. 07, 2011    | Conducted (TH01-HY) |
| Power Sensor               | Anritsu      | MA2411B          | 1027452     | 300MHz ~ 40GHz  | Jun. 16, 2011    | Conducted (TH01-HY) |
| Power Meter                | Anritsu      | ML2495A          | 1124009     | 300MHz ~ 40GHz  | Jun. 20, 2011    | Conducted (TH01-HY) |
| RF Cable-1m                | Jye Bao      | RG142            | CB034-1m    | 20MHz ~ 7GHz    | Dec. 03, 2011    | Conducted (TH01-HY) |
| RF Cable-2m                | Jye Bao      | RG142            | CB035-2m    | 20MHz ~ 1GHz    | Dec. 03, 2011    | Conducted (TH01-HY) |

Note: Calibration Interval of instruments listed above is one year.

| Instrument      | Manufacturer | Model No. | Serial No.  | Characteristics | Calibration Date | Remark              |
|-----------------|--------------|-----------|-------------|-----------------|------------------|---------------------|
| AC Power Source | HPC          | HPA-500W  | HPA-9100024 | AC 0 ~ 300V     | Jun. 09, 2011*   | Conducted (TH01-HY) |

Note: Calibration Interval of instruments listed above is two year.

| Instrument               | Manufacturer      | Model No.   | Serial No. | Characteristics    | Calibration Date | Remark                   |
|--------------------------|-------------------|-------------|------------|--------------------|------------------|--------------------------|
| Spectrum Analyzer        | R&S               | FSP40       | 100593     | 9kHz ~ 40GHz       | Aug. 08, 2011    | Radiation<br>(03CH02-HY) |
| 3m Semi Anechoic Chamber | SIDT<br>FRANKONIA | SAC-3M      | 03CH02-HY  | 30MHz ~ 1GHz<br>3m | May 11, 2011     | Radiation<br>(03CH02-HY) |
| Amplifier                | Agilent           | 8447D       | 2944A11146 | 100kHz ~ 1.3GHz    | Jul. 25, 2011    | Radiation<br>(03CH02-HY) |
| Amplifier                | Agilent           | 8449B       | 3008A02373 | 1 Hz ~ 26.5GHz     | Jul. 25, 2011    | Radiation<br>(03CH02-HY) |
| Horn Antenna             | ETS-LINDGREN      | 3117        | 00091920   | 1GHz ~ 18GHz       | Nov. 15, 2011    | Radiation<br>(03CH02-HY) |
| RF Cable-R03m            | Jye Bao           | RG142       | CB021      | 30MHz ~ 1GHz       | Nov. 11, 2011    | Radiation<br>(03CH02-HY) |
| RF Cable-high            | SUHNER            | SUCOFLEX106 | 03CH02-HY  | 1GHz ~ 40GHz       | Mar. 06, 2012    | Radiation<br>(03CH02-HY) |
| Bilog Antenna            | SCHAFFNER         | CBL61128    | 2723       | 30MHz ~ 2GHz       | Oct. 22, 2011    | Radiation<br>(03CH02-HY) |
| Turn Table               | HD                | DS 420      | 420/649/00 | 0~ 360 degree      | N/A              | Radiation<br>(03CH02-HY) |
| Antenna Mast             | HD                | MA 240      | 240/559/00 | 1 ~ 4 m            | N/A              | Radiation<br>(03CH02-HY) |

Note: Calibration Interval of instruments listed above is one year.

| Instrument   | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark                   |
|--------------|--------------|-----------|------------|-----------------|------------------|--------------------------|
| Loop Antenna | R&S          | HFH2-Z2   | 860004/001 | 9kHz ~ 30MHz    | Jul. 29, 2010*   | Radiation<br>(03CH02-HY) |

Note: Calibration Interval of instruments listed above is two year.

## 5 TEST LOCATION

|        |                                                                                                                                        |
|--------|----------------------------------------------------------------------------------------------------------------------------------------|
| SHIJR  | ADD : 6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei 221, Taiwan, R.O.C.<br>TEL : 886-2-2696-2468<br>FAX : 886-2-2696-2255 |
| HWA YA | ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.<br>TEL : 886-3-327-3456<br>FAX : 886-3-327-0973         |
| LINKOU | ADD : No. 30-2, Dingfu Vil., Linkou Dist., New Taipei City 244, Taiwan, R.O.C.<br>TEL : 886-2-2601-1640<br>FAX : 886-2-2601-1695       |
| DUNGHU | ADD : No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei 114, Taiwan, R.O.C.<br>TEL : 886-2-2631-4739<br>FAX : 886-2-2631-9740            |
| JUNGHE | ADD : 7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei 235, Taiwan, R.O.C.<br>TEL : 886-2-8227-2020<br>FAX : 886-2-8227-2626           |
| NEIHU  | ADD : 4Fl., No. 339, Hsin Hu 2 <sup>nd</sup> Rd., Taipei 114, Taiwan, R.O.C.<br>TEL : 886-2-2794-8886<br>FAX : 886-2-2794-9777         |
| JHUBEI | ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.<br>TEL : 886-3-656-9065<br>FAX : 886-3-656-9085       |



## 6 TAF CERTIFICATE OF ACCREDITATION

  
財團法人全國認證基金會  
Taiwan Accreditation Foundation

Certificate No. : L1190-111208

## Certificate of Accreditation

This is to certify that

**Sporton International Inc.**  
**EMC & Wireless Communications Laboratory**  
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,  
Taiwan, R.O.C.

**is accredited in respect of laboratory**

|                                       |                                                                                                                                                                                                                                                            |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Accreditation Criteria</b>         | : ISO/IEC 17025:2005                                                                                                                                                                                                                                       |
| <b>Accreditation Number</b>           | : 1190                                                                                                                                                                                                                                                     |
| <b>Originally Accredited</b>          | : December 15, 2003                                                                                                                                                                                                                                        |
| <b>Effective Period</b>               | : January 10, 2010 to January 09, 2013                                                                                                                                                                                                                     |
| <b>Accredited Scope</b>               | : Testing Field, see described in the Appendix                                                                                                                                                                                                             |
| <b>Specific Accreditation Program</b> | : Accreditation Program for Designated Testing Laboratory for Commodities Inspection<br>Accreditation Program for Telecommunication Equipment Testing Laboratory<br>Accreditation Program for BSMI Mutual Recognition Arrangement with Foreign Authorities |

  
Jay-San Chen  
President, Taiwan Accreditation Foundation  
Date : December 08, 2011

P1, total 24 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when use without the Appendix