

## 8. 發射頻寬之要求

### 8.1 適用標準

對使用跳頻系統之低功率發射機依據國家通訊傳播委員會低功率射頻電機技術規範4.10.1.6節(1)(A)之規定，跳頻系統之載波頻率頻道間隔應大於或等於25 kHz 或跳頻頻道之20 dB頻寬，兩者取較寬者。但操作頻率為2400 MHz-2483.5 MHz 頻段且輸出功率應小於或等於125 mW 跳頻系統，其載波頻率頻道間隔不得小於25 kHz 或跳頻頻道20 dB頻寬之三分之二，兩者取較寬者。系統之跳頻頻道應依虛擬亂數排列，在各頻率之跳頻頻道上跳躍。每一發射機必須均等的使用每一頻率。系統接收機應具有與發射機跳躍頻道頻寬相匹配之輸入頻寬，且應隨所發射之訊號同步偏移接收頻率。

對使用數位調變技術之低功率發射機，依據國家通訊傳播委員會低功率射頻電機技術規範4.10.1.6節(2)(A)之規定，6dB之頻寬至少應有500kHz。

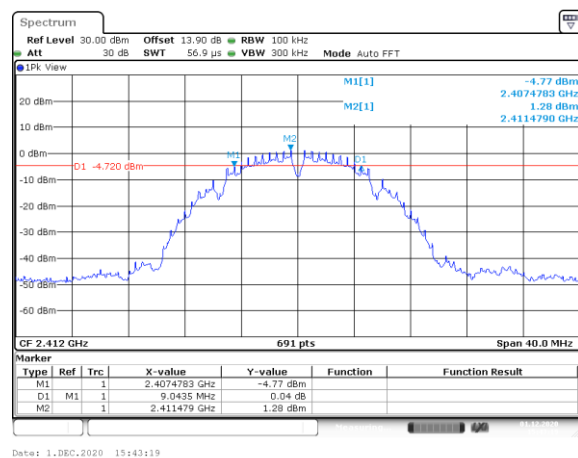
### 8.2 測試方法

測量時，頻譜分析儀之解析頻寬為100kHz，視訊頻寬不小於解析頻寬。為求得精確測量，頻率掃描範圍(Span)遠大於解析頻寬。

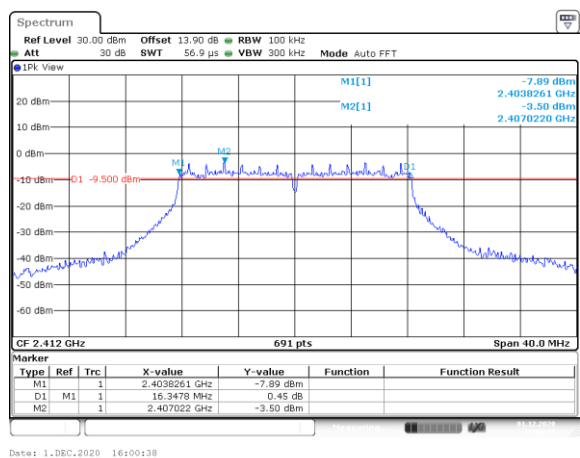
### 8.3 發射頻寬之量測結果

| Configuration     | Channel | Frequency (MHz) | 6 dB Emission Bandwidth (MHz) | Limit (kHz) | Result |
|-------------------|---------|-----------------|-------------------------------|-------------|--------|
| IEEE 802.11b      | Low     | 2412            | 9.04                          | >500        | PASS   |
|                   | Mid     | 2437            | 9.10                          |             | PASS   |
|                   | High    | 2462            | 9.10                          |             | PASS   |
| IEEE 802.11g      | Low     | 2412            | 16.35                         | >500        | PASS   |
|                   | Mid     | 2437            | 16.29                         |             | PASS   |
|                   | High    | 2462            | 16.35                         |             | PASS   |
| IEEE 802.11n HT20 | Low     | 2412            | 17.62                         | >500        | PASS   |
|                   | Mid     | 2437            | 17.22                         |             | PASS   |
|                   | High    | 2462            | 17.57                         |             | PASS   |
| IEEE 802.11n HT40 | Low     | 2422            | 35.48                         | >500        | PASS   |
|                   | Mid     | 2437            | 35.13                         |             | PASS   |
|                   | High    | 2452            | 35.83                         |             | PASS   |

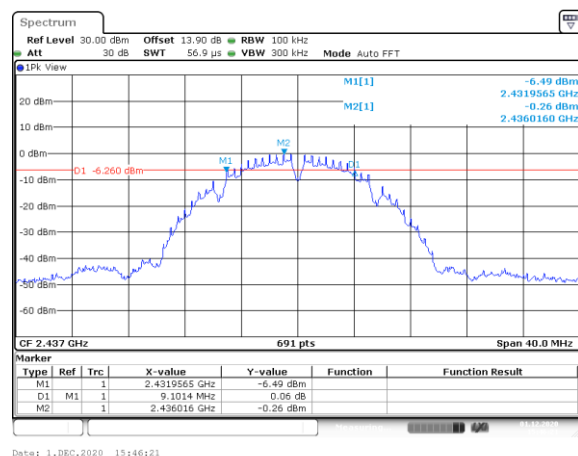
## IEEE 802.11b Low Channel



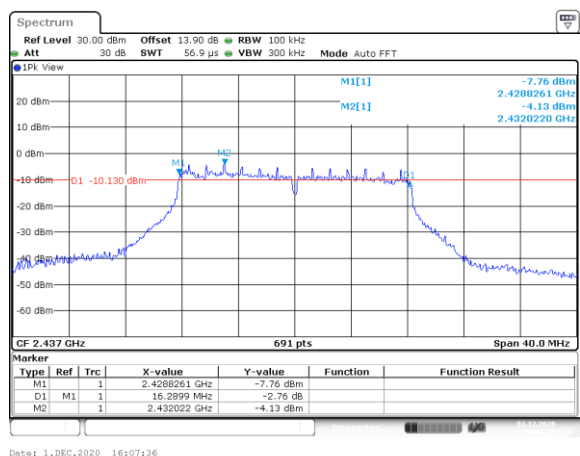
## IEEE 802.11g Low Channel



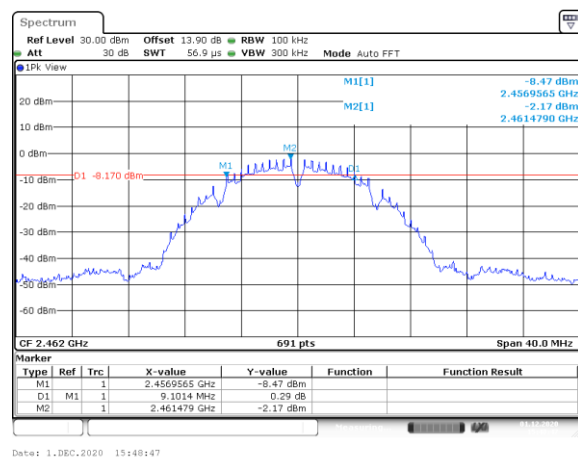
## IEEE 802.11b Middle Channel



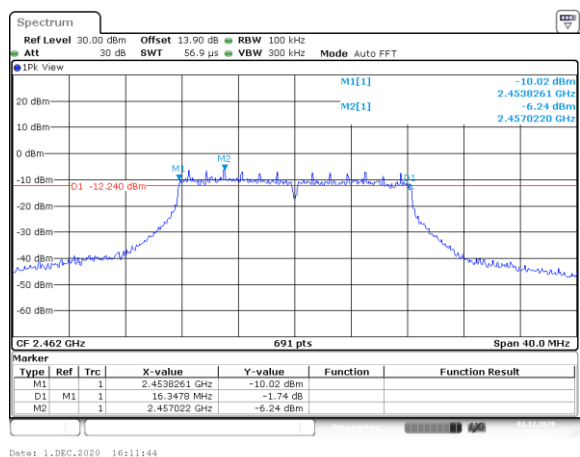
## IEEE 802.11g Middle Channel



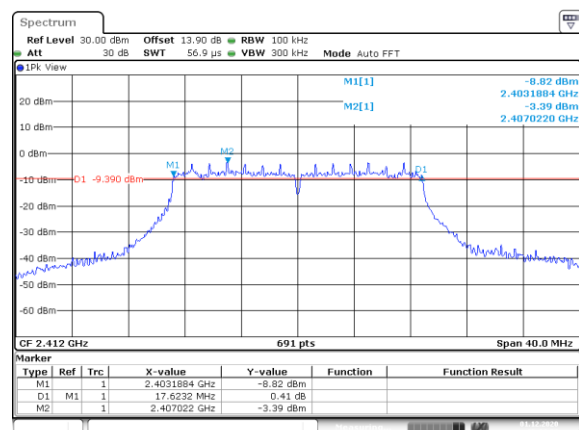
## IEEE 802.11b High Channel



## IEEE 802.11g High Channel

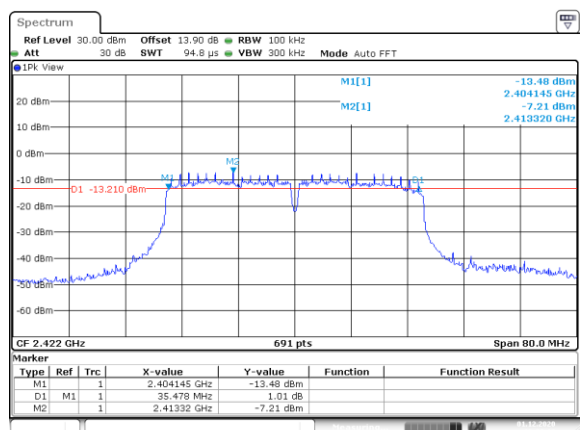


## IEEE 802.11n HT20 Low Channel



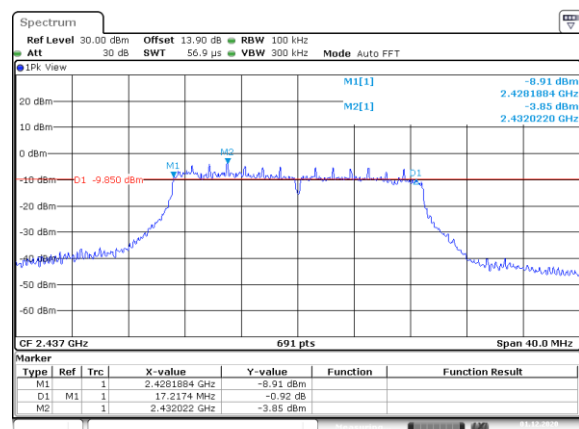
Date: 1.DEC.2020 16:14:38

## IEEE 802.11n HT40 Low Channel



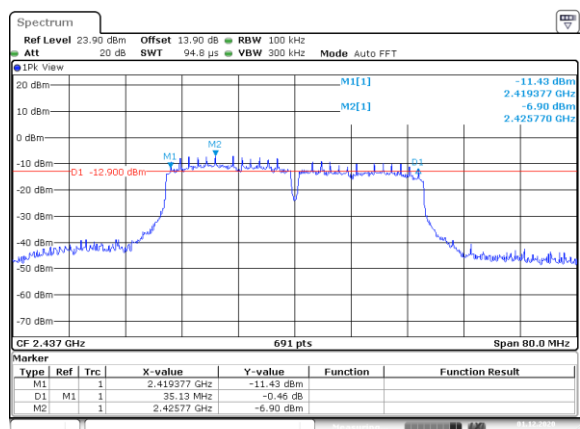
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## IEEE 802.11n HT20 Middle Channel



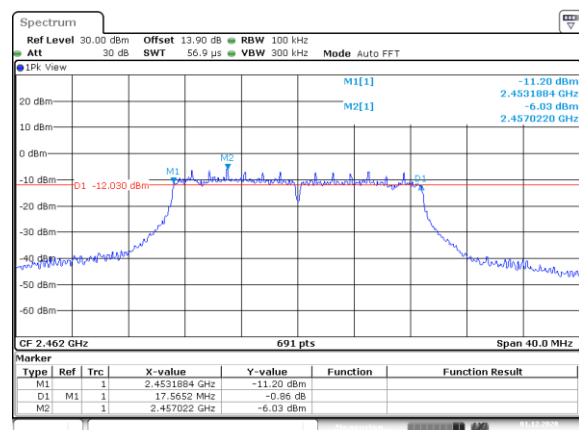
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## IEEE 802.11n HT40 Middle Channel



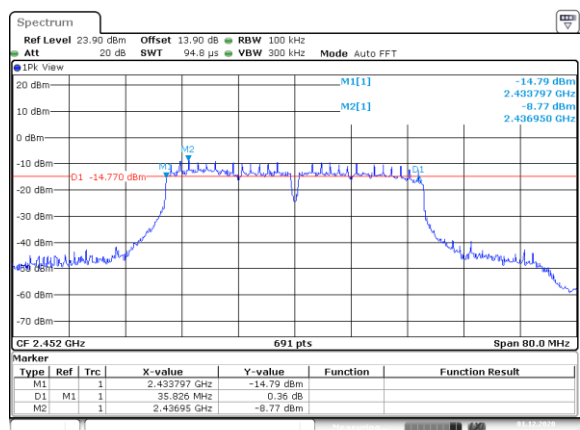
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## IEEE 802.11n HT20 High Channel



Date: 1.DEC.2020 16:19:17

## IEEE 802.11n HT40 High Channel



Date: 1.DEC.2020 16:28:11

## 9. 輸出峰值功率之量測

### 9.1 適用標準

依據國家通訊傳播委員會低功率射頻電機技術規範 4.10.1.2 節(1)(A)之規定，跳頻系統至少使用 75 個跳頻頻道：1 W(含) 以下。

依據國家通訊傳播委員會低功率射頻電機技術規範 4.10.1.2 節(1)(B)之規定，跳頻系統除 4.10.1.2 節(1)(A)外，依 4.10.1.6(1)(A)(a)：0.125 W(含) 以下。

依據國家通訊傳播委員會低功率射頻電機技術規範 4.10.1.2 節(1)(C)之規定，數位調變技術系統：1 W(含) 以下。

### 9.2 測試方法

1. 將受測物的 RF 埠經由一條 50 歐姆纜線連接至功率分析儀。
2. 設定量測頻率為量測頻道。
3. 紀錄最大峰值輸出功率。上述之測試步驟應注意外接之衰減與纜線損失。

### 9.3 輸出功率之量測結果

| Configuration     | Channel | Frequency<br>(MHz) | Output Power<br>(dBm) | Limit<br>(dBm) |
|-------------------|---------|--------------------|-----------------------|----------------|
| IEEE 802.11b      | Low     | 2412               | 17.02                 | 30.00          |
|                   | Mid     | 2437               | 17.74                 | 30.00          |
|                   | High    | 2462               | 17.23                 | 30.00          |
| IEEE 802.11g      | Low     | 2412               | 20.70                 | 30.00          |
|                   | Mid     | 2437               | 21.35                 | 30.00          |
|                   | High    | 2462               | 20.98                 | 30.00          |
| IEEE 802.11n HT20 | Low     | 2412               | 20.76                 | 30.00          |
|                   | Mid     | 2437               | 21.37                 | 30.00          |
|                   | High    | 2462               | 20.97                 | 30.00          |
| IEEE 802.11n HT40 | Low     | 2422               | 19.32                 | 30.00          |
|                   | Mid     | 2437               | 19.52                 | 30.00          |
|                   | High    | 2452               | 19.39                 | 30.00          |

## 10. 開放頻帶邊緣 100kHz 頻寬內之限制

### 10.1 適用標準

依據國家通訊傳播委員會低功率射頻電機技術規範4.10.1.5節之規定，使用頻帶範圍外之任意100kHz 內，發射器所產生的射頻功率相較於使用頻帶範圍中包含最高所需功率之100kHz 內的射頻功率，峰值輸出功率方式測量者須衰減20分貝 (dB)，以射頻傳導或輻射方式測量。最大傳導輸出功率測量方式者，至少須衰減30 dB。此外，落於第2.7節禁用頻段之輻射發射，應符合第2.8節之規定。

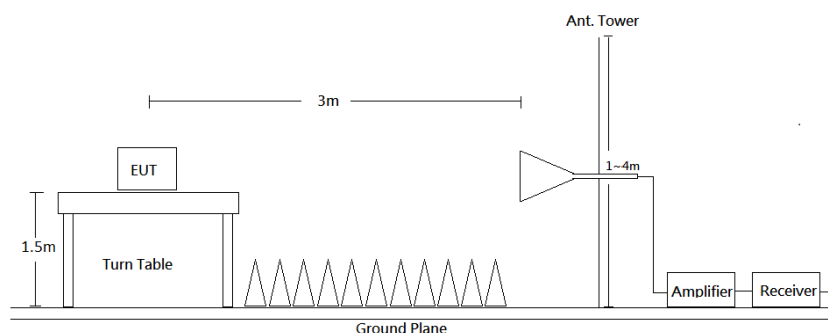
### 10.2 測試方法

- 1 頻率掃描範圍足以涵蓋操作在最靠近頻帶邊緣之頻道的發射波峰位準以及任何落於許可頻帶外之調變產物。
- 2 解析頻寬大於1%頻率掃描範圍寬度，視訊頻寬不小於解析頻寬。掃描時間為自動，檢波功能為峰值，訊號軌跡為最大保留(Max Hold)。
- 3 將標記設定於在頻帶邊緣上的發射，或將標記設定於最大之頻帶外調變產物上若其位準大於頻帶邊緣上的發射。啟動標記差值之功能，利用標記至波峰功能(Marker to Peak)功能以標記頻帶內發射之波峰，所顯示之標記差值必須符合指定之限制值。

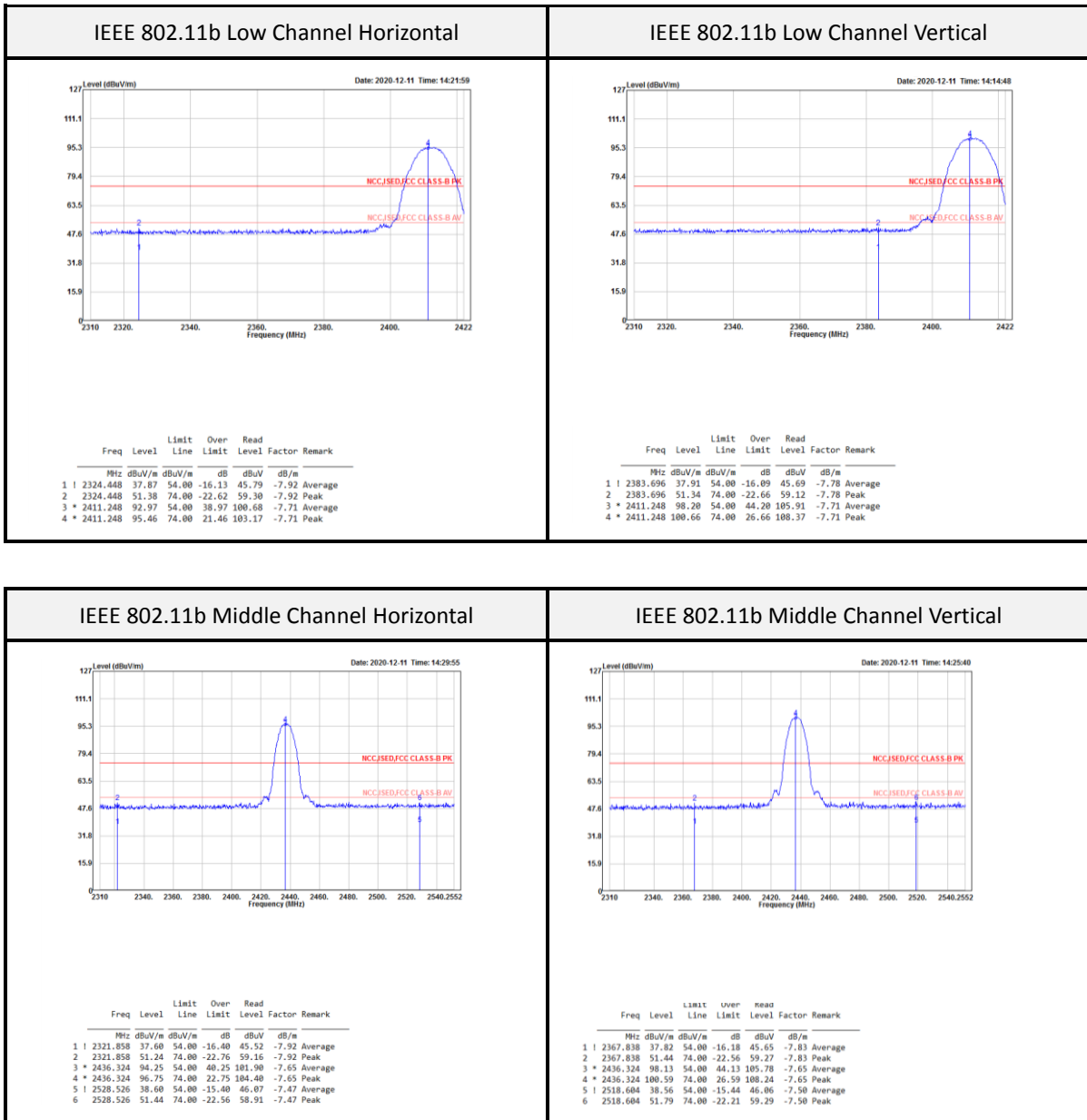
以上述相同的步驟決定由跳頻功能所產生的任何混附波是否亦符合規定之限制值。

### 10.3 測試配置

輻射配置圖



## 10.4 開放頻帶邊緣之量測結果



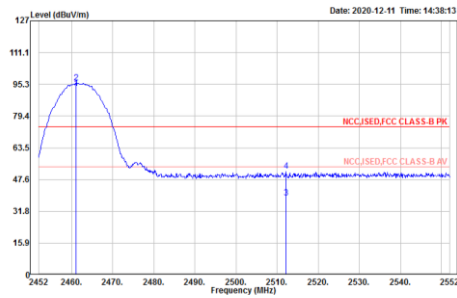
Note:

Result = Reading + Correct Factor

Margin = Result – Limit

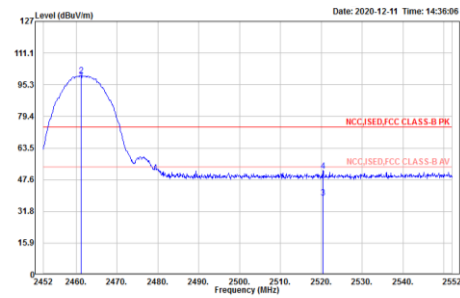
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

## IEEE 802.11b High Channel Horizontal



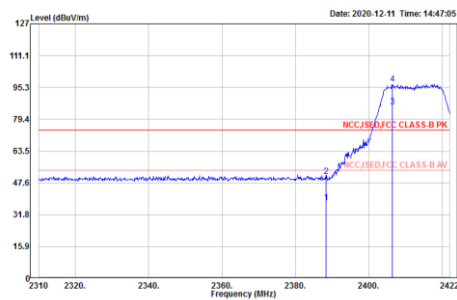
|     | Freq     | Level  | Limit  | Over   | Read   | Level | Factor  | Remark |
|-----|----------|--------|--------|--------|--------|-------|---------|--------|
|     | MHz      | dBuV/m | dBuV/m | dB     | dBuV   | dB/m  |         |        |
| 1 * | 2461.100 | 93.36  | 54.00  | 39.36  | 100.98 | -7.62 | Average |        |
| 2 * | 2461.100 | 95.91  | 74.00  | 21.91  | 103.53 | -7.62 | Peak    |        |
| 3   | 2512.100 | 38.62  | 54.00  | -15.38 | 46.15  | -7.53 | Average |        |
| 4   | 2512.100 | 52.12  | 74.00  | -21.88 | 59.65  | -7.53 | Peak    |        |

## IEEE 802.11b High Channel Vertical



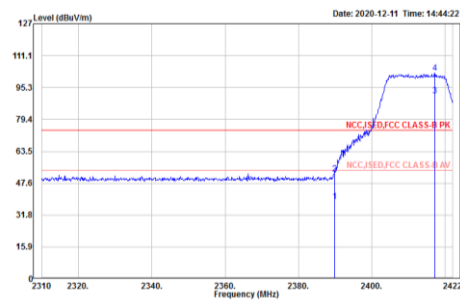
|     | Freq     | Level  | Limit  | Over   | Read   | Level | Factor  | Remark |
|-----|----------|--------|--------|--------|--------|-------|---------|--------|
|     | MHz      | dBuV/m | dBuV/m | dB     | dBuV   | dB/m  |         |        |
| 1 * | 2461.200 | 97.46  | 54.00  | 43.46  | 105.08 | -7.62 | Average |        |
| 2 * | 2461.200 | 99.97  | 74.00  | 25.97  | 107.59 | -7.62 | Peak    |        |
| 3   | 2520.400 | 38.63  | 54.00  | -15.37 | 46.13  | -7.50 | Average |        |
| 4   | 2520.400 | 51.81  | 74.00  | -22.19 | 59.31  | -7.50 | Peak    |        |

## IEEE 802.11g Low Channel Horizontal



|     | Freq     | Level  | Limit  | Over   | Read   | Level | Factor  | Remark |
|-----|----------|--------|--------|--------|--------|-------|---------|--------|
|     | MHz      | dBuV/m | dBuV/m | dB     | dBuV   | dB/m  |         |        |
| 1   | 2388.288 | 37.96  | 54.00  | -16.04 | 45.73  | -7.77 | Average |        |
| 2   | 2388.288 | 51.07  | 74.00  | -22.93 | 58.84  | -7.77 | Peak    |        |
| 3 * | 2406.320 | 85.85  | 54.00  | 31.85  | 93.56  | -7.71 | Average |        |
| 4 * | 2406.320 | 97.01  | 74.00  | 23.01  | 104.72 | -7.71 | Peak    |        |

## IEEE 802.11g Low Channel Vertical



|     | Freq     | Level  | Limit  | Over   | Read   | Level | Factor  | Remark |
|-----|----------|--------|--------|--------|--------|-------|---------|--------|
|     | MHz      | dBuV/m | dBuV/m | dB     | dBuV   | dB/m  |         |        |
| 1   | 2389.856 | 38.57  | 54.00  | -15.43 | 46.33  | -7.76 | Average |        |
| 2   | 2389.856 | 52.44  | 74.00  | -21.56 | 60.20  | -7.76 | Peak    |        |
| 3 * | 2417.072 | 91.35  | 54.00  | 37.35  | 99.04  | -7.69 | Average |        |
| 4 * | 2417.072 | 102.46 | 74.00  | 28.46  | 110.15 | -7.69 | Peak    |        |

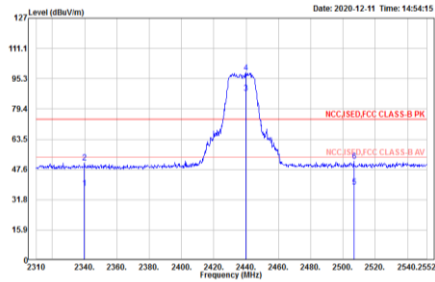
Note:

Result = Reading + Correct Factor

Margin = Result – Limit

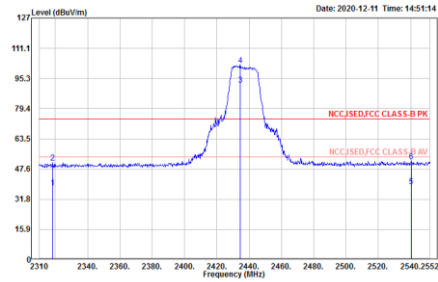
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

## IEEE 802.11g Middle Channel Horizontal



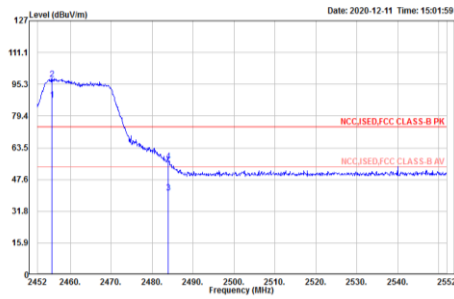
|   | Freq     | Level  | Limit  | Over   | Read   | Factor | Remark  |
|---|----------|--------|--------|--------|--------|--------|---------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV   | dB/m   |         |
| 1 | 2339.766 | 37.69  | 54.00  | -16.31 | 45.59  | -7.90  | Average |
| 2 | 2339.766 | 51.45  | 74.00  | -22.55 | 59.35  | -7.90  | Peak    |
| 3 | 2439.712 | 87.79  | 54.00  | 33.79  | 95.44  | -7.65  | Average |
| 4 | 2439.712 | 98.53  | 74.00  | 24.51  | 106.16 | -7.65  | Peak    |
| 5 | 2506.746 | 38.58  | 54.00  | -15.42 | 46.13  | -7.55  | Average |
| 6 | 2506.746 | 52.01  | 74.00  | -21.99 | 59.56  | -7.55  | Peak    |

## IEEE 802.11g Middle Channel Vertical



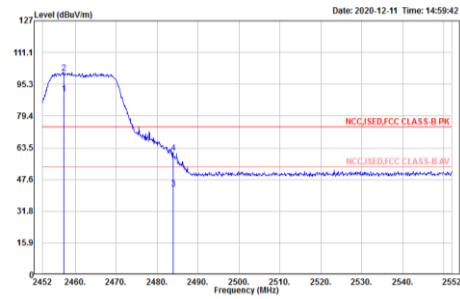
|   | Freq     | Level  | Limit  | Over   | Read   | Factor | Remark  |
|---|----------|--------|--------|--------|--------|--------|---------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV   | dB/m   |         |
| 1 | 2318.228 | 37.70  | 54.00  | -16.30 | 45.63  | -7.93  | Average |
| 2 | 2318.228 | 50.77  | 74.00  | -23.23 | 58.70  | -7.93  | Peak    |
| 3 | 2434.388 | 91.87  | 54.00  | 37.87  | 99.53  | -7.66  | Average |
| 4 | 2434.388 | 102.39 | 74.00  | 28.39  | 110.05 | -7.66  | Peak    |
| 5 | 2540.384 | 38.62  | 54.00  | -15.38 | 46.04  | -7.42  | Average |
| 6 | 2540.384 | 51.62  | 74.00  | -22.38 | 59.04  | -7.42  | Peak    |

## IEEE 802.11g High Channel Horizontal



|   | Freq     | Level  | Limit  | Over   | Read   | Factor | Remark  |
|---|----------|--------|--------|--------|--------|--------|---------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV   | dB/m   |         |
| 1 | 2455.600 | 87.59  | 54.00  | 33.59  | 95.22  | -7.63  | Average |
| 2 | 2455.600 | 97.74  | 74.00  | 23.74  | 105.37 | -7.63  | Peak    |
| 3 | 2483.900 | 41.04  | 54.00  | -12.96 | 48.63  | -7.59  | Average |
| 4 | 2483.900 | 56.73  | 74.00  | -17.27 | 64.32  | -7.59  | Peak    |

## IEEE 802.11g High Channel Vertical



|   | Freq     | Level  | Limit  | Over   | Read   | Factor | Remark  |
|---|----------|--------|--------|--------|--------|--------|---------|
|   | MHz      | dBuV/m | dBuV/m | dB     | dBuV   | dB/m   |         |
| 1 | 2457.200 | 90.61  | 54.00  | 36.61  | 98.23  | -7.62  | Average |
| 2 | 2457.200 | 101.00 | 74.00  | 27.00  | 108.62 | -7.62  | Peak    |
| 3 | 2483.900 | 42.90  | 54.00  | -11.10 | 50.49  | -7.59  | Average |
| 4 | 2483.900 | 60.79  | 74.00  | -13.21 | 68.38  | -7.59  | Peak    |

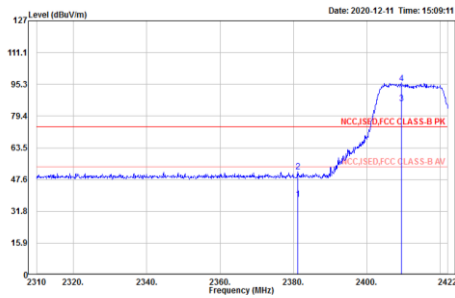
Note:

Result = Reading + Correct Factor

Margin = Result – Limit

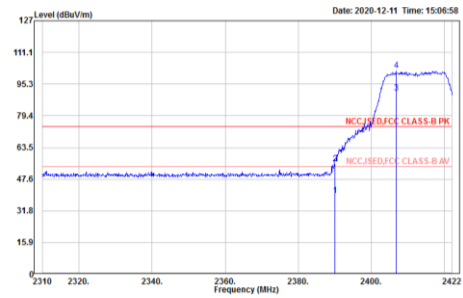
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

## IEEE 802.11n HT20 Low Channel Horizontal



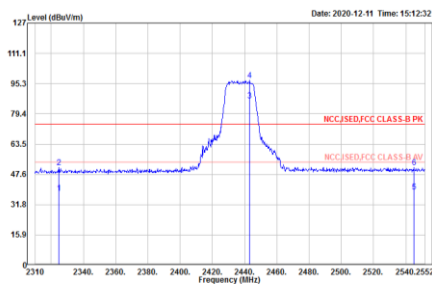
|   | Freq       | Level  | Limit  | Over   | Read   | Level | Factor  | Remark |
|---|------------|--------|--------|--------|--------|-------|---------|--------|
|   | MHz        | dBuV/m | dBuV/m | dB     | dBuV   | dB/m  |         |        |
| 1 | 2381.232   | 37.91  | 54.00  | -16.09 | 45.79  | -7.79 | Average |        |
| 2 | 2381.232   | 51.54  | 74.00  | -22.46 | 59.33  | -7.79 | Peak    |        |
| 3 | * 2409.344 | 85.53  | 54.00  | 31.53  | 93.24  | -7.71 | Average |        |
| 4 | * 2409.344 | 95.75  | 74.00  | 21.75  | 103.46 | -7.71 | Peak    |        |

## IEEE 802.11n HT20 Low Channel Vertical



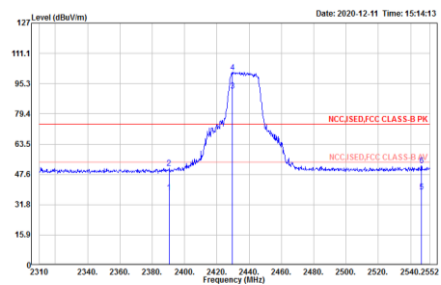
|   | Freq       | Level  | Limit  | Over   | Read   | Level | Factor  | Remark |
|---|------------|--------|--------|--------|--------|-------|---------|--------|
|   | MHz        | dBuV/m | dBuV/m | dB     | dBuV   | dB/m  |         |        |
| 1 | 2389.968   | 39.62  | 54.00  | -14.38 | 47.38  | -7.76 | Average |        |
| 2 | 2389.968   | 55.42  | 74.00  | -18.58 | 63.18  | -7.76 | Peak    |        |
| 3 | * 2406.656 | 90.98  | 54.00  | 36.98  | 98.69  | -7.71 | Average |        |
| 4 | * 2406.656 | 102.06 | 74.00  | 28.06  | 109.77 | -7.71 | Peak    |        |

## IEEE 802.11n HT20 Middle Channel Horizontal



|   | Freq       | Level  | Limit  | Over   | Read   | Level | Factor  | Remark |
|---|------------|--------|--------|--------|--------|-------|---------|--------|
|   | MHz        | dBuV/m | dBuV/m | dB     | dBuV   | dB/m  |         |        |
| 1 | 2324.762   | 37.84  | 54.00  | -16.16 | 45.76  | -7.92 | Average |        |
| 2 | 2324.762   | 51.40  | 74.00  | -22.60 | 59.32  | -7.92 | Peak    |        |
| 3 | * 2443.100 | 86.56  | 54.00  | 32.56  | 94.21  | -7.65 | Average |        |
| 4 | * 2443.100 | 96.90  | 74.00  | 22.90  | 104.55 | -7.65 | Peak    |        |
| 5 | 2544.982   | 38.70  | 54.00  | -15.30 | 46.11  | -7.41 | Average |        |
| 6 | 2544.982   | 51.25  | 74.00  | -22.75 | 58.66  | -7.41 | Peak    |        |

## IEEE 802.11n HT20 Middle Channel Vertical



|   | Freq       | Level  | Limit  | Over   | Read   | Level | Factor  | Remark |
|---|------------|--------|--------|--------|--------|-------|---------|--------|
|   | MHz        | dBuV/m | dBuV/m | dB     | dBuV   | dB/m  |         |        |
| 1 | 2390.344   | 38.12  | 54.00  | -15.88 | 45.88  | -7.76 | Average |        |
| 2 | 2390.344   | 50.92  | 74.00  | -23.08 | 58.68  | -7.76 | Peak    |        |
| 3 | * 2429.548 | 91.60  | 54.00  | 37.60  | 99.27  | -7.67 | Average |        |
| 4 | * 2429.548 | 101.28 | 74.00  | 27.28  | 108.95 | -7.67 | Peak    |        |
| 5 | 2546.676   | 38.71  | 54.00  | -15.29 | 46.10  | -7.39 | Average |        |
| 6 | 2546.676   | 52.19  | 74.00  | -21.81 | 59.58  | -7.39 | Peak    |        |

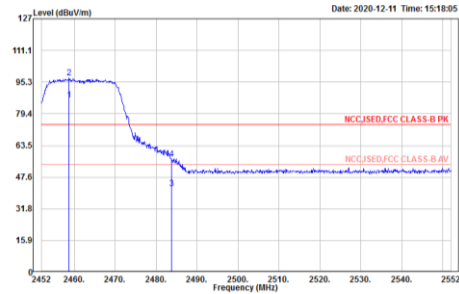
Note:

Result = Reading + Correct Factor

Margin = Result – Limit

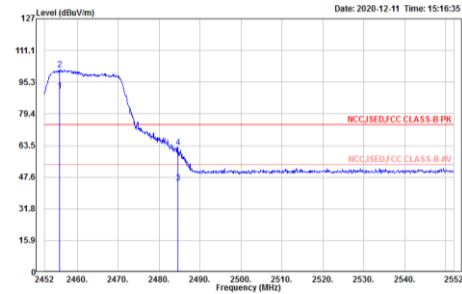
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

## IEEE 802.11n HT20 High Channel Horizontal



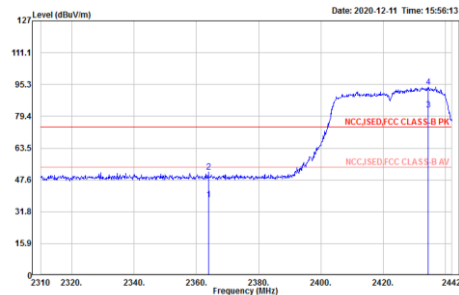
|     | Freq     | Level  | Limit  | Over   | Read   | Factor | Remark  |
|-----|----------|--------|--------|--------|--------|--------|---------|
|     | MHz      | dBuV/m | dBuV/m | dB     | dBuV   | dB/m   |         |
| 1 * | 2458.800 | 86.38  | 54.00  | 32.38  | 94.00  | -7.62  | Average |
| 2 * | 2458.800 | 97.26  | 74.00  | 23.26  | 104.88 | -7.62  | Peak    |
| 3 † | 2483.800 | 41.92  | 54.00  | -12.08 | 49.51  | -7.59  | Average |
| 4 † | 2483.800 | 56.96  | 74.00  | -17.04 | 64.55  | -7.59  | Peak    |

## IEEE 802.11n HT20 High Channel Vertical



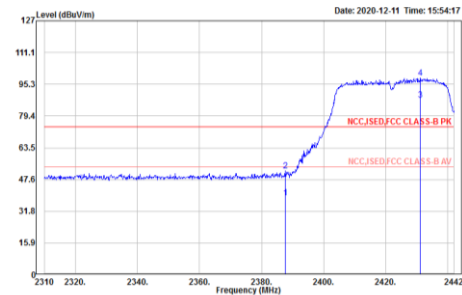
|     | Freq     | Level  | Limit  | Over   | Read   | Factor | Remark  |
|-----|----------|--------|--------|--------|--------|--------|---------|
|     | MHz      | dBuV/m | dBuV/m | dB     | dBuV   | dB/m   |         |
| 1 * | 2455.700 | 90.97  | 54.00  | 36.97  | 98.60  | -7.63  | Average |
| 2 * | 2455.700 | 101.63 | 74.00  | 27.63  | 109.26 | -7.63  | Peak    |
| 3 † | 2484.600 | 44.64  | 54.00  | -9.36  | 52.23  | -7.59  | Average |
| 4 † | 2484.600 | 62.54  | 74.00  | -11.46 | 70.13  | -7.59  | Peak    |

## IEEE 802.11n HT40 Low Channel Horizontal



|     | Freq     | Level  | Limit  | Over   | Read   | Factor | Remark  |
|-----|----------|--------|--------|--------|--------|--------|---------|
|     | MHz      | dBuV/m | dBuV/m | dB     | dBuV   | dB/m   |         |
| 1 † | 2363.856 | 37.88  | 54.00  | -16.12 | 45.72  | -7.84  | Average |
| 2   | 2363.856 | 51.57  | 74.00  | -22.43 | 59.41  | -7.84  | Peak    |
| 3 * | 2434.344 | 82.75  | 54.00  | 28.75  | 90.41  | -7.66  | Average |
| 4 * | 2434.344 | 93.94  | 74.00  | 19.94  | 101.60 | -7.66  | Peak    |

## IEEE 802.11n HT40 Low Channel Vertical



|     | Freq     | Level  | Limit  | Over   | Read   | Factor | Remark  |
|-----|----------|--------|--------|--------|--------|--------|---------|
|     | MHz      | dBuV/m | dBuV/m | dB     | dBuV   | dB/m   |         |
| 1 † | 2387.748 | 38.56  | 54.00  | -15.44 | 46.33  | -7.77  | Average |
| 2   | 2387.748 | 51.89  | 74.00  | -22.11 | 59.66  | -7.77  | Peak    |
| 3 * | 2431.176 | 87.27  | 54.00  | 33.27  | 94.94  | -7.67  | Average |
| 4 * | 2431.176 | 98.39  | 74.00  | 24.39  | 106.06 | -7.67  | Peak    |

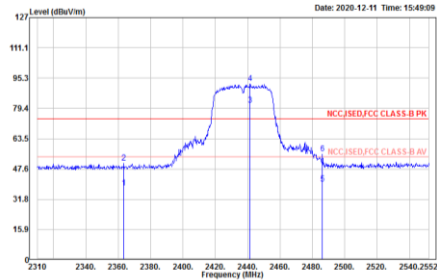
Note:

Result = Reading + Correct Factor

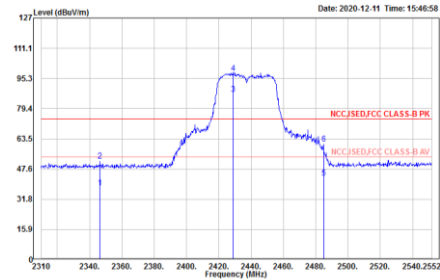
Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

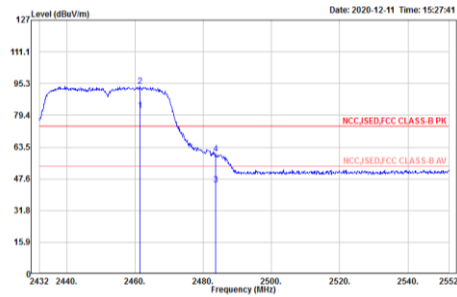
IEEE 802.11n HT40 Middle Channel Horizontal



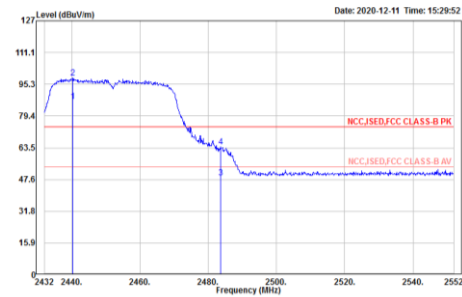
IEEE 802.11n HT40 Middle Channel Vertical



IEEE 802.11n HT40 High Channel Horizontal



IEEE 802.11n HT40 High Channel Vertical



Note:

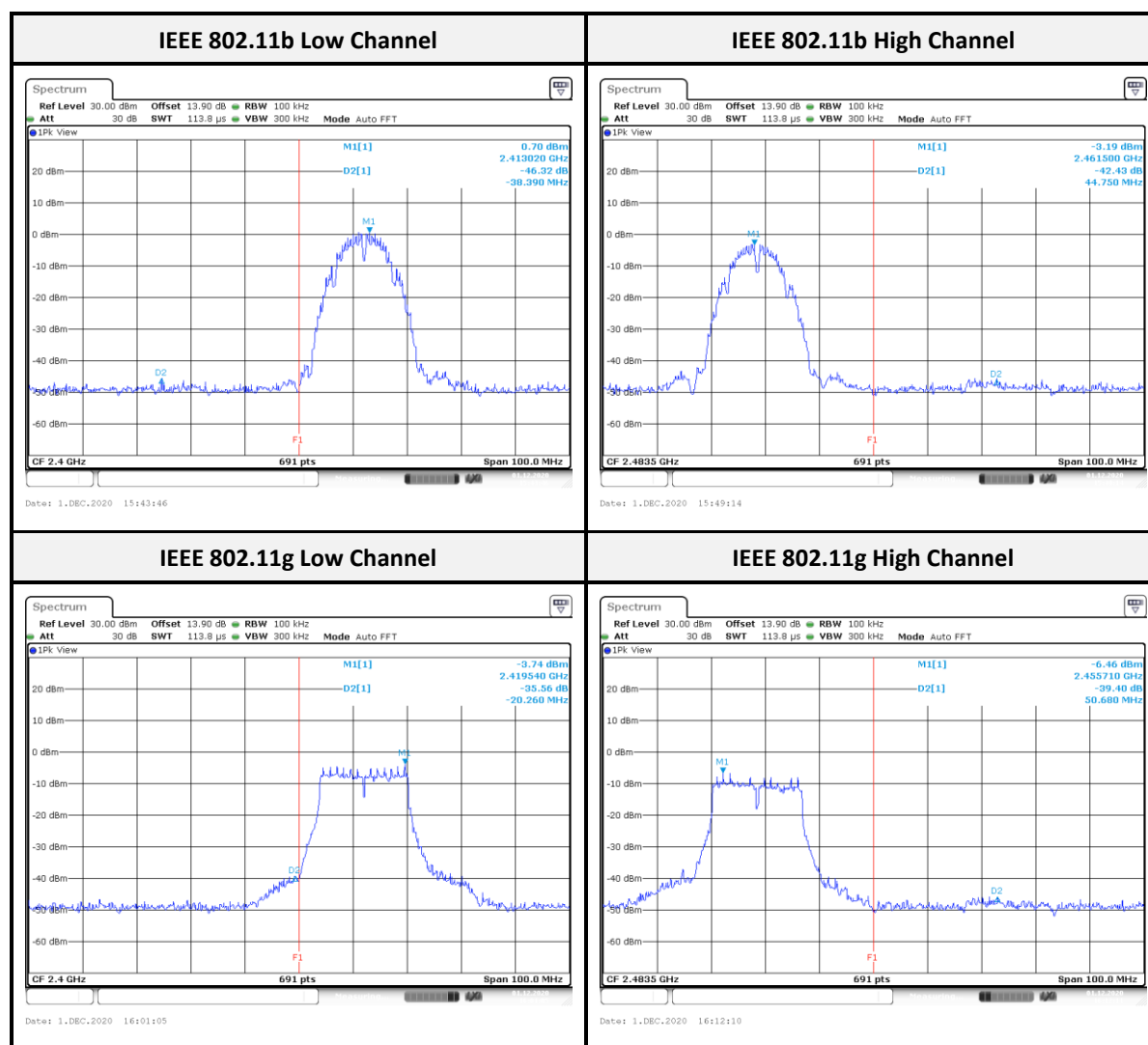
Result = Reading + Correct Factor

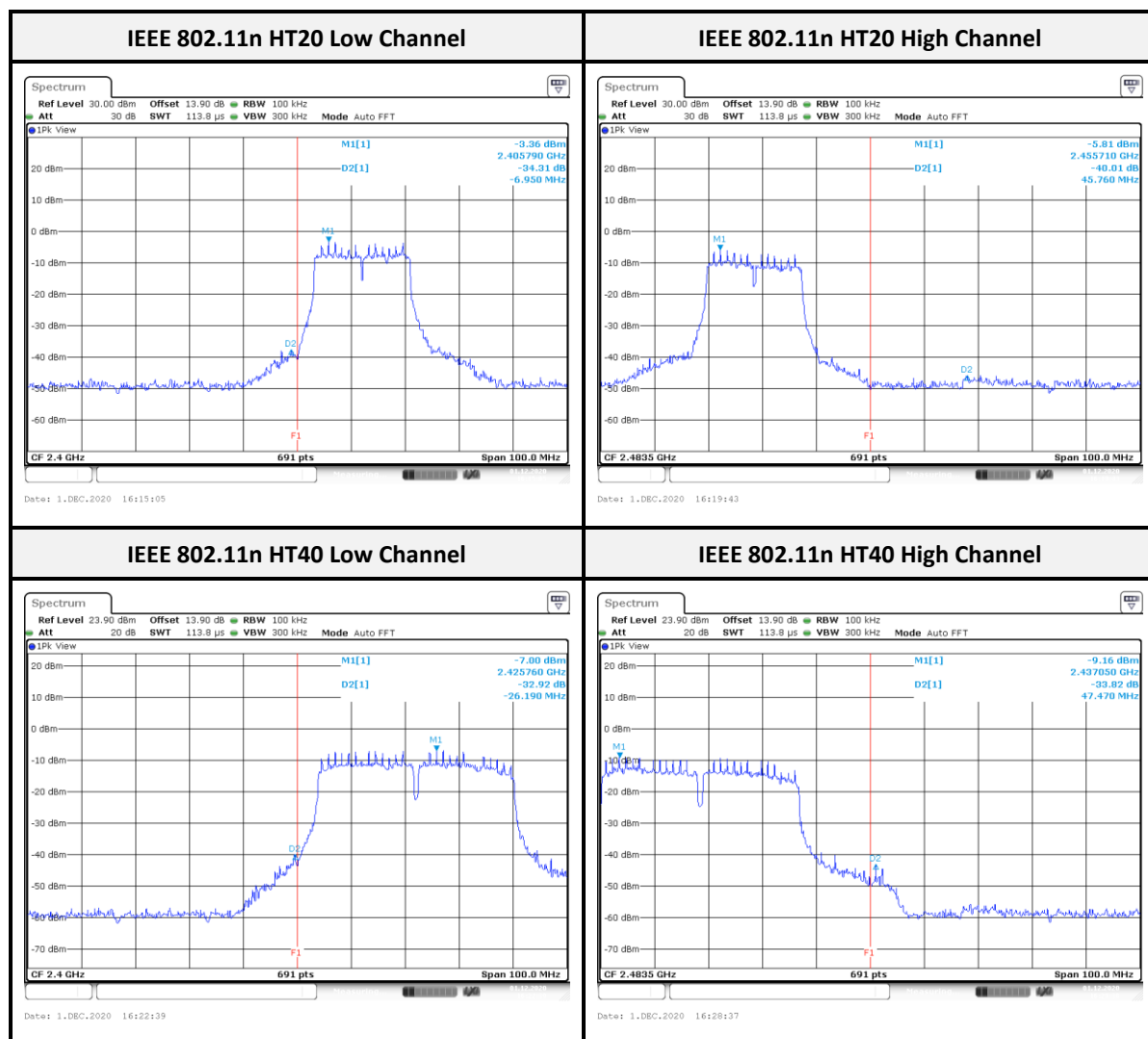
Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

## Conducted Band Edge

| Configuration        | Channel | Frequency (MHz) | Delta Peak to Band Emission (dBc) | Limit (dBc) | Result |
|----------------------|---------|-----------------|-----------------------------------|-------------|--------|
| IEEE 802.11b         | Low     | 2412            | 46.32                             | $\geq 20$   | PASS   |
|                      | High    | 2462            | 42.43                             | $\geq 20$   | PASS   |
| IEEE 802.11g         | Low     | 2412            | 35.56                             | $\geq 20$   | PASS   |
|                      | High    | 2462            | 39.40                             | $\geq 20$   | PASS   |
| IEEE 802.11n<br>HT20 | Low     | 2412            | 34.31                             | $\geq 20$   | PASS   |
|                      | High    | 2462            | 40.01                             | $\geq 20$   | PASS   |
| IEEE 802.11n<br>HT40 | Low     | 2422            | 32.92                             | $\geq 20$   | PASS   |
|                      | High    | 2452            | 33.82                             | $\geq 20$   | PASS   |





## 11. 功率密度之量測

### 11.1 適用標準

依據國家通訊傳播委員會低功率射頻電機技術規範4.10.1.6節之(2)(B)條規定，在使用頻率範圍之任一3 kHz 頻寬內，由發射機傳導至天線之功率頻譜密度在任意傳輸期間內，皆小於或等於8 毫分貝 (dBm)，且應依4.10.1.3 之方式降低功率頻譜密度限制值。

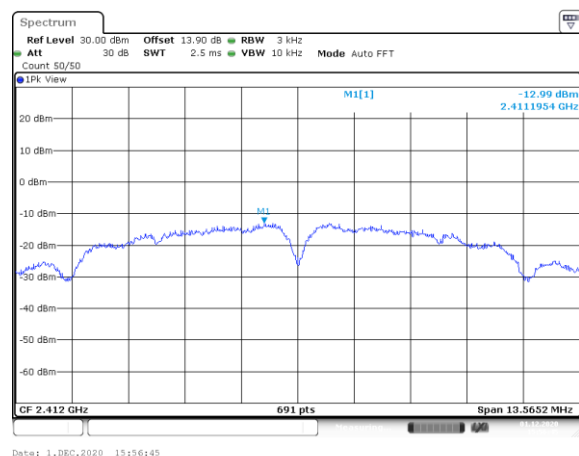
### 11.2 測試方法

1. 將發射機之天線埠經由適當之衰減直接連至測試儀器。找出發射峰值並擴展於通帶內，設定解析頻寬為3 kHz，視訊頻寬大於解析頻寬，掃描時間為頻率掃描範圍除以3 kHz。所測得之峰值位準必須應小於或等於8 dBm。
2. 若受測裝置之頻譜線間隔小於3 kHz，測量時應將解析頻寬降低以使頻譜線間隔大於3kHz，所測得之數據再藉加總3 kHz 頻帶內所有個別頻譜線之功率(即標準化至3 kHz)以決定是否符合規定。
3. 依據FCC 558074 D01 DTS Meas Guidance v04 之要求。

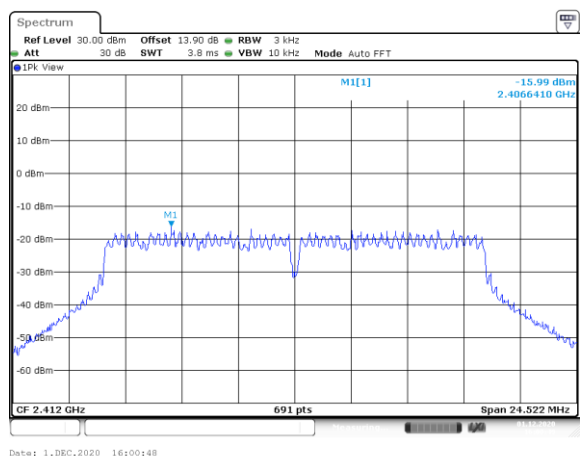
### 11.3 功率密度之量測結果

| Configuration     | Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Result |
|-------------------|---------|-----------------|------------|-------------|--------|
| IEEE 802.11b      | Low     | 2412            | -12.91     | 8.00        | PASS   |
|                   | Mid     | 2437            | -13.40     |             | PASS   |
|                   | High    | 2462            | -15.31     |             | PASS   |
| IEEE 802.11g      | Low     | 2412            | -15.43     | 8.00        | PASS   |
|                   | Mid     | 2437            | -16.79     |             | PASS   |
|                   | High    | 2462            | -19.17     |             | PASS   |
| IEEE 802.11n HT20 | Low     | 2412            | -15.36     | 8.00        | PASS   |
|                   | Mid     | 2437            | -17.13     |             | PASS   |
|                   | High    | 2462            | -19.43     |             | PASS   |
| IEEE 802.11n HT40 | Low     | 2422            | -19.86     | 8.00        | PASS   |
|                   | Mid     | 2437            | -19.54     |             | PASS   |
|                   | High    | 2452            | -21.84     |             | PASS   |

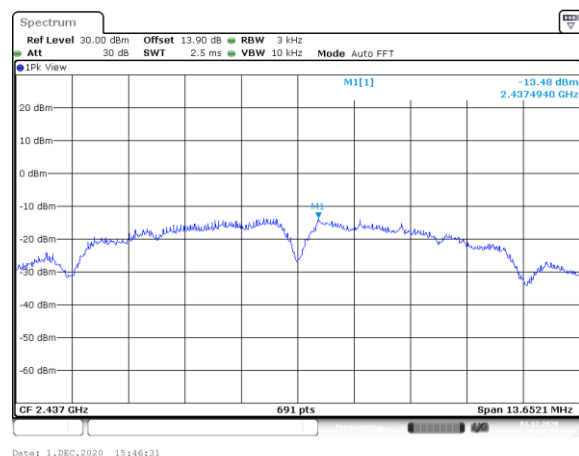
## IEEE 802.11b Low Channel



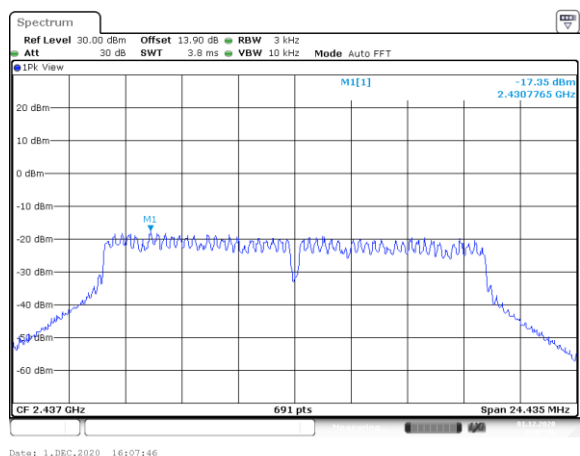
## IEEE 802.11g Low Channel



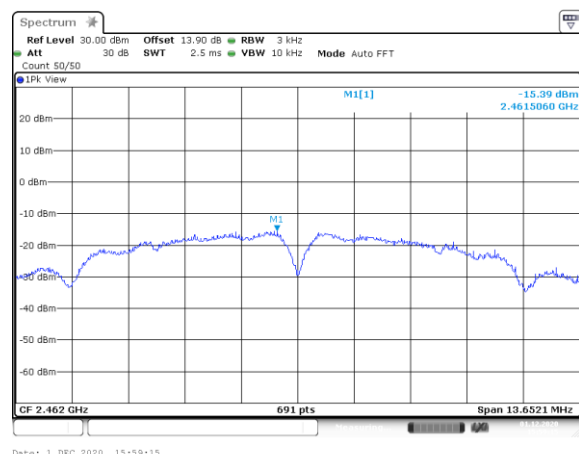
## IEEE 802.11b Middle Channel



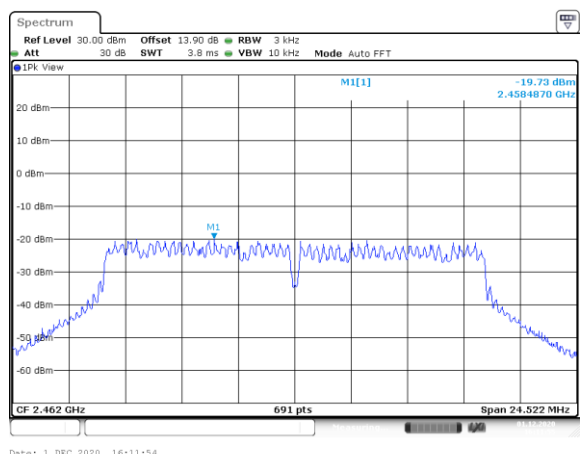
## IEEE 802.11g Middle Channel

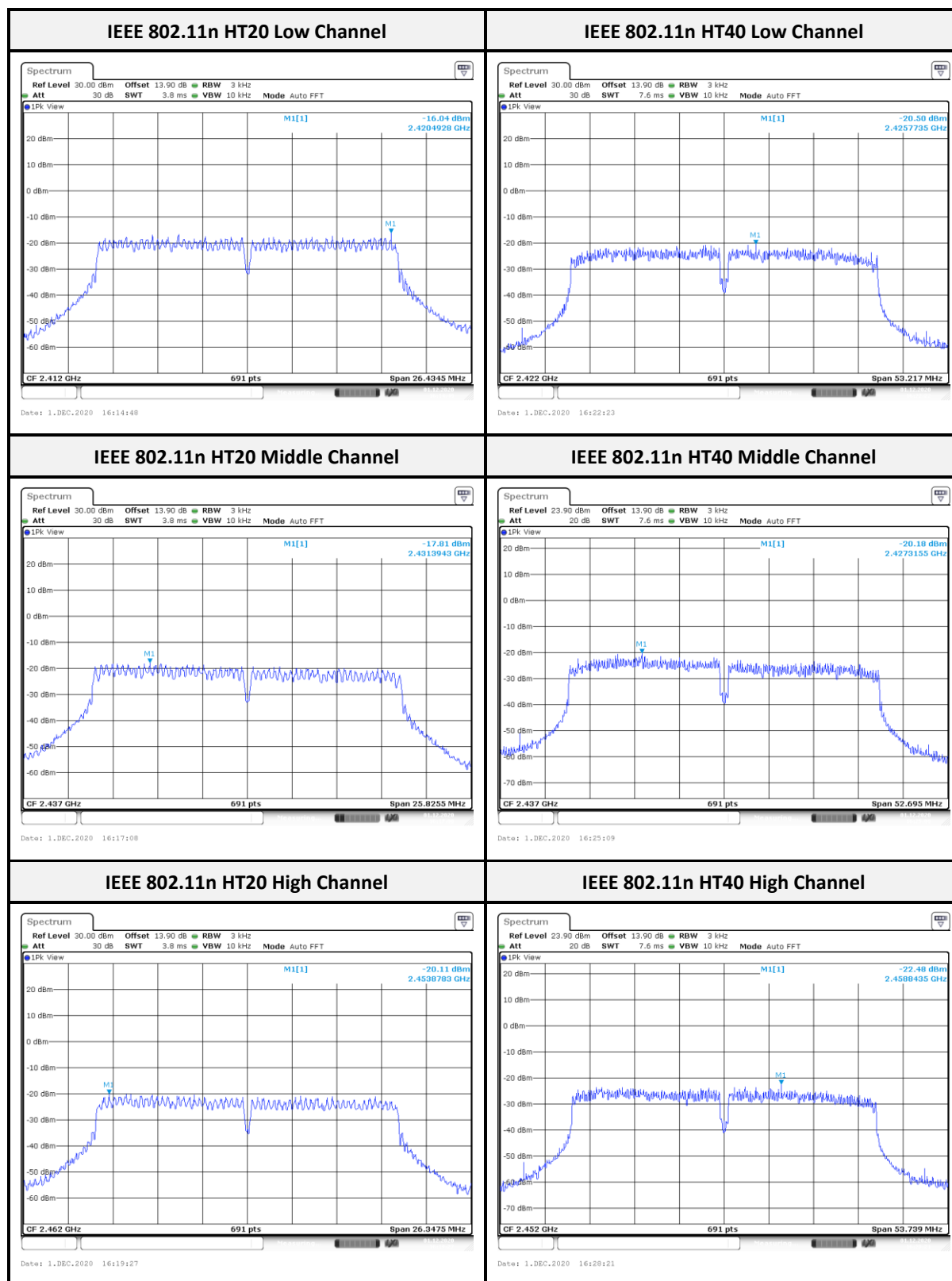


## IEEE 802.11b High Channel



## IEEE 802.11g High Channel





## 12. 電波暴露量

### 12.1 適用標準

依據國家通訊傳播委員會低功率射頻電機技術規範5.20.2.2節之規定，若受測物於正常操作模式下，其發射機距離人體 20 公分以上者，可測試最大暴露允許值(Maximum Permissible Exposure, MPE)以證明其符合電波暴露量之要求。(限制值如下)

| Limits for General Population/Uncontrolled Exposure <sup>Ⓢ</sup> |                                            |                                            |                                                               |                                                    |
|------------------------------------------------------------------|--------------------------------------------|--------------------------------------------|---------------------------------------------------------------|----------------------------------------------------|
| Frequency Range (MHz) <sup>Ⓢ</sup>                               | Electric Field Strength (V/m) <sup>Ⓢ</sup> | Magnetic Field Strength (A/m) <sup>Ⓢ</sup> | Power Density <sup>Ⓢ</sup> (mW/cm <sup>2</sup> ) <sup>Ⓢ</sup> | Averaging Time <sup>Ⓢ</sup> (minutes) <sup>Ⓢ</sup> |
| 0.3–1.34 <sup>Ⓢ</sup>                                            | 614 <sup>Ⓢ</sup>                           | 1.63 <sup>Ⓢ</sup>                          | *(100) <sup>Ⓢ</sup>                                           | 30 <sup>Ⓢ</sup>                                    |
| 1.34–30 <sup>Ⓢ</sup>                                             | 824/f <sup>Ⓢ</sup>                         | 2.19/f <sup>Ⓢ</sup>                        | *(180/f <sup>2</sup> ) <sup>Ⓢ</sup>                           | 30 <sup>Ⓢ</sup>                                    |
| 30–300 <sup>Ⓢ</sup>                                              | 27.5 <sup>Ⓢ</sup>                          | 0.073 <sup>Ⓢ</sup>                         | 0.2 <sup>Ⓢ</sup>                                              | 30 <sup>Ⓢ</sup>                                    |
| 300–1500 <sup>Ⓢ</sup>                                            | / <sup>Ⓢ</sup>                             | / <sup>Ⓢ</sup>                             | f/1500 <sup>Ⓢ</sup>                                           | 30 <sup>Ⓢ</sup>                                    |
| 1500–100,000 <sup>Ⓢ</sup>                                        | / <sup>Ⓢ</sup>                             | / <sup>Ⓢ</sup>                             | 1.0 <sup>Ⓢ</sup>                                              | 30 <sup>Ⓢ</sup>                                    |

f = frequency in MHz; \* = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

#### Calculated Formulary:

Predication of MPE limit at a given distance

$S = PG/4\pi R^2$  = power density (in appropriate units, e.g. mW/cm<sup>2</sup>);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

### 12.2 電波暴露量之評估

| Mode       | Frequency Range (MHz) | Antenna Gain |           | Maximum Power |          | Evaluation Distance (cm) | Power Density (mW/cm <sup>2</sup> ) | MPE Limit (mW/cm <sup>2</sup> ) |
|------------|-----------------------|--------------|-----------|---------------|----------|--------------------------|-------------------------------------|---------------------------------|
|            |                       | (dBi)        | (numeric) | (dBm)         | (mW)     |                          |                                     |                                 |
| Wi-Fi 2.4G | 2412-2462             | 2.23         | 1.6711    | 21.37         | 137.0882 | 20                       | 0.0456                              | 1                               |

\*\*\*\*\* END OF REPORT \*\*\*\*\*