

# NCC

## 行動通信電信終端設備技術規範試驗報告

產品名稱 : LTE Cat M1/ Cat NB2/ EGPRS Module  
型號 : BG95-M3  
廠牌 : Quectel  
商標 :   
申請者 : 上海移遠通信技術股份有限公司  
申請者地址 : 上海市徐匯區虹漕路 25-1 號二層 193 室  
測試標準 : PLMN ALL (109 年版)  
適用範圍 : 窄頻終端設備(PLMN11)\_Cat-M1  
測試結果 : 符合  
接收日期 : 2021/6/9  
測試日期 : 2021/6/16~2021/7/17

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## 修訂紀錄

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## 1. 一般資訊

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 申請者       | 上海移遠通信技術股份有限公司                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 申請者地址     | 上海市徐匯區虹漕路 25-1 號二層 193 室                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 製造商       | 上海移遠通信技術股份有限公司                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 製造商地址     | 上海市徐匯區虹漕路 25-1 號二層 193 室                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 實驗室       | 台灣曼瑞檢測科技有限公司                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 實驗室地址     | 33377 台灣桃園市龜山區復興二路 38 號                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 實驗室資訊     | <ol style="list-style-type: none"><li>1. MRT facility is a FCC registered (Reg. No. 291082) test facility with the site description report on file and is designated by the FCC as an Accredited Test Film.</li><li>2. MRT facility is an IC registered (MRT Reg. No. 21723) test laboratory with the site description on file at Industry Canada.</li><li>3. MRT Lab is accredited to ISO 17025 by the Taiwan Accreditation Foundation (TAF Cert. No. 3261) in EMC, Telecommunications and Radio testing for FCC (Designation Number: TW3261), Industry Taiwan, EU and TELEC Rules.</li></ol> |
| 實驗室測試環境條件 | 溫度 (°C) : 20-35 / 濕度 (%RH) : 30-65                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## 2. 產品描述

### 2.1 產品資訊

|               |                                                                                                                                                       |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 產品名稱          | LTE Cat M1/ Cat NB2/ EGPRS Module                                                                                                                     |
| 產品型號          | BG95-M3                                                                                                                                               |
| 廠牌            | Quectel                                                                                                                                               |
| 商標            |                                                                      |
| 支援規格          | 2G: GSM900<br>Cat-M1: Band1,3,8,28<br>NB-IoT: Band1,3,8,28                                                                                            |
| IMEI 碼        | 864475044729662                                                                                                                                       |
| Cat-M1 功率限制定義 | Class 5: 20dBm                                                                                                                                        |
| 天線樣式          | Dipole Antenna                                                                                                                                        |
| 天線規格          | MFR: Shanghai Saintenna Electronic Technology Co.,Ltd.<br>M/N: SAA30968A<br>Gain:<br>Band1: 1.53dBi, Band3: 2.00dBi, Band8: 2.98dBi, Band28: 4.04dBi, |
| TX Frequency  | Band1: 1920~1980MHz; Band3: 1710~1785MHz;<br>Band8: 885~915MHz; Band28: 703MHz~748MHz                                                                 |
| Rx Frequency  | Band1: 2110~2170MHz; Band3: 1805~1880MHz;<br>Band8: 930~960MHz; Band28: 758MHz~803MHz                                                                 |
| 是否有照相功能       | <input type="checkbox"/> 有 ( 聲響 : 有 <input type="checkbox"/> ; 無 <input type="checkbox"/> )<br><input checked="" type="checkbox"/> 無                  |

### 3. 測試設備明細

#### 輻射干擾 – AC1

| 儀器名稱                        | 製造商         | 型號         | 財產編號        | 校正週期   | 有效日期      |
|-----------------------------|-------------|------------|-------------|--------|-----------|
| Broadband TRILOG<br>Antenna | SCHWARZBECK | VULB 9162  | MRTTWA00001 | 1 year | 2021/10/5 |
| EMI Test Receiver           | R&S         | ESR3       | MRTTWA00009 | 1 year | 2022/3/24 |
| Active Loop Antenna         | Schwarzbeck | FMZB 1519B | MRTTWA00002 | 1 year | 2022/5/6  |
| Broadband Horn<br>antenna   | SCHWARZBECK | BBHA 9120D | MRTTWA00003 | 1 year | 2022/4/21 |
| Breitband<br>Hornantenna    | Schwarzbeck | BBHA 9170  | MRTTWA00004 | 1 year | 2022/4/28 |
| Broadband Amplifier         | Schwarzbeck | BBV 9721   | MRTTWA00006 | 1 year | 2022/4/26 |
| Broadband<br>Preamplifier   | SCHWARZBECK | BBV 9718   | MRTTWA00005 | 1 year | 2022/4/21 |
| Cable                       | HUBERSUHNER | SF106      | MRTTWE00010 | 1 year | 2022/6/15 |

#### 傳導測試 – AC1

| 儀器名稱                                      | 製造商         | 型號       | 財產編號        | 校正週期   | 有效日期       |
|-------------------------------------------|-------------|----------|-------------|--------|------------|
| EXA Signal Analyzer                       | KEYSIGHT    | N9010A   | MRTTWA00012 | 1 year | 2021/10/14 |
| EXA Signal Analyzer                       | KEYSIGHT    | N9010B   | MRTTWA00074 | 1 year | 2022/3/24  |
| Wideband Radio<br>Communication<br>Taster | R&S         | CMW 500  | MRTTWA00084 | 1 year | 2021/9/8   |
| Temperature &<br>Humidity Chamber         | TEN BILLION | TTH-B3UP | MRTTWA00036 | 1 year | 2022/6/14  |

#### EMI 測試軟體

| 軟體名稱 | 製造商     | 版本        |
|------|---------|-----------|
| e3   | Audix   | 9.160520a |
| EMI  | Quietek | V3        |

#### 4. 量測不確定度

|                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 輻射干擾量測 (Radiated Spurious Emission)                                                                                                                                                                                  |
| Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_c(y)$ ):<br>9kHz~30MHz: $\pm 3.92\text{dB}$<br>30MHz~1GHz: $\pm 4.25\text{dB}$<br>1GHz~18GHz: $\pm 4.40\text{dB}$<br>18GHz~40GHz: $\pm 4.45\text{dB}$ |
| 頻率誤差量測 (Frequency Error)                                                                                                                                                                                             |
| Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_c(y)$ ): $\pm 78.4\text{Hz}$                                                                                                                          |
| 傳導功率量測 (Conducted Power)                                                                                                                                                                                             |
| Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_c(y)$ ): $\pm 0.84\text{dB}$                                                                                                                          |
| 傳導干擾量測 (Conducted Spurious Emission)                                                                                                                                                                                 |
| Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_c(y)$ ): $\pm 2.65\text{ dB}$                                                                                                                         |
| 佔用頻寬量測 (Occupied Bandwidth)                                                                                                                                                                                          |
| Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_c(y)$ ): 3.3%                                                                                                                                         |
| 溫度 / 濕度 (Temp. / Humidity )                                                                                                                                                                                          |
| Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_c(y)$ ): $\pm 0.82^\circ\text{C}/ \pm 3\%$                                                                                                            |
| 直流電源 (DC Voltage)                                                                                                                                                                                                    |
| Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_c(y)$ ): $\pm 0.3\%$                                                                                                                                  |

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

## 5. 測試結果

產品名稱  
型號

**LTE Cat M1/ Cat NB2/ EGPRS Module**  
**BG95-M3**

| 法規章節    | 量測項目                | 限制值                                                                                                                                                                                                                              | 測試結果 | 測試數據     |
|---------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|
| 6.2.2.1 | 功率限制                | 有效輻射功率(Effective Radiated Power, ERP)<br>攜帶式終端設備限制為1W。<br>移動式終端臺設備限制為2W。<br>傳導輸出功率限制值<br>採Class 3者：23 dBm +2.7/-3.2 dB。<br>採Class 5者：20 dBm +2.7/-3.2 dB。                                                                        | 符合   | 第 5.1 章節 |
| 6.2.2.2 | 發射頻譜波罩              | 需符合行動通信電信終端設備技術規範附表 29                                                                                                                                                                                                           | 符合   | 第 5.2 章節 |
| 6.2.2.3 | 傳導帶外輻射發射            | 需符合行動通信電信終端設備技術規範附表 31                                                                                                                                                                                                           | 符合   | 第 5.3 章節 |
| 6.2.2.4 | 相鄰頻道洩漏功率比<br>(ACLR) | 需符合行動通信電信終端設備技術規範附表 33                                                                                                                                                                                                           | 符合   | 第 5.4 章節 |
| 6.2.2.5 | 非資源區塊帶內發射           | 需符合行動通信電信終端設備技術規範附表 35                                                                                                                                                                                                           | 符合   | 第 5.5 章節 |
| 6.2.1.1 | 頻率穩定度               | $\pm 0.1\text{PPM}$ 以內                                                                                                                                                                                                           | 符合   | 第 5.6 章節 |
| 6.6.2   | 電波功率密度              | 適用於移動式終端設備<br>700 MHz 頻段為 0.35 毫瓦特/平方公分( $\text{mW}/\text{cm}^2$ )；<br>900 MHz 頻段為 0.45 $\text{mW}/\text{cm}^2$ ；<br>1800 MHz 頻段為 0.9 $\text{mW}/\text{cm}^2$ ；<br>2100MHz、2500 MHz 與 2600 MHz 頻段為 1.0 $\text{mW}/\text{cm}^2$ 。 | 符合   | 第 5.7 章節 |

備註：符合性的判定是基於測試結果符合規範的限制值，測試結果的判定是不考慮測量不確定度的值。

## 5.1 功率限制

### 5.1.1 合格標準

#### (1) 等效輻射功率(Effective Radiated Power, ERP)

攜帶式終端設備限制為 1W；

移動式終端臺設備限制為 2W。

#### (2) 傳導輸出功率限制為

採 Class 3 者：23 dBm +2.7/-3.2 dB；

採 Class 5 者：20 dBm +2.7/-3.2 dB。

### 5.1.2 測試方法

量測發射功率時，必須使用均方根值等效電壓之儀器量測於任何連續傳輸時段，量測結果須依儀器之反應時間、解析頻寬能力及靈敏度等調整得出正確之發射功率。

依附下表進行檢測。

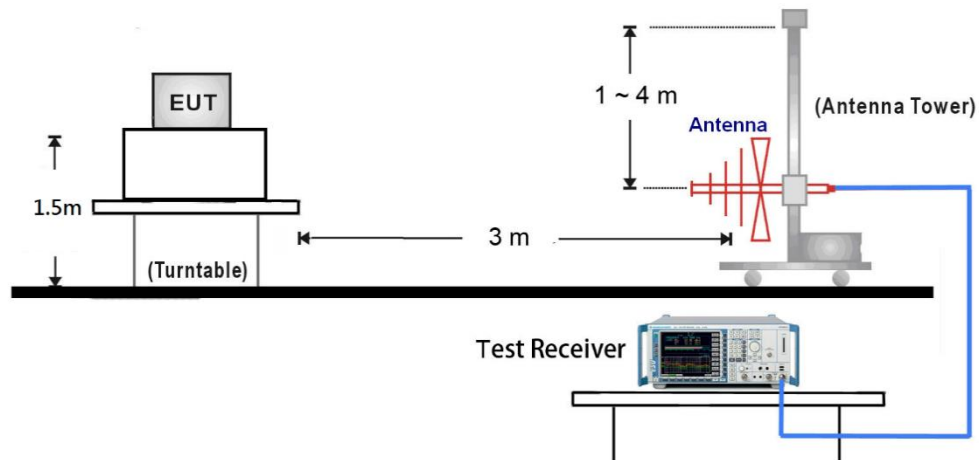
Cat-M1 終端設備發射功率之測試參數

| 預設條件   |                 |          |                            |                            |
|--------|-----------------|----------|----------------------------|----------------------------|
| 測試環境   |                 | 常態環境常態電壓 |                            |                            |
| 測試頻道   |                 | 低、中、高    |                            |                            |
| 測試頻道頻寬 |                 | 最高       |                            |                            |
| 測試參數   |                 |          |                            |                            |
| 頻道頻寬   | 下行結構            | 上行結構     |                            |                            |
|        |                 | 調變方式     | 資源區塊分配                     |                            |
|        |                 |          | FDD 及 HD-FDD               | TDD                        |
| 5MHz   | 最大發射功率<br>測試不適用 | QPSK     | 1                          | 1                          |
| 5MHz   |                 |          | (Class 5) 3                | (Class 5) 3                |
| 10MHz  |                 |          | 1                          | 1                          |
| 10MHz  |                 |          | (Class 3) 4<br>(Class 5) 5 | (Class 3) 4<br>(Class 5) 5 |
| 15MHz  |                 |          | 1                          | 1                          |
| 15MHz  |                 |          | 6                          | 6                          |
| 20MHz  |                 |          | 1                          | 1                          |
| 20MHz  |                 |          | 6                          | 6                          |

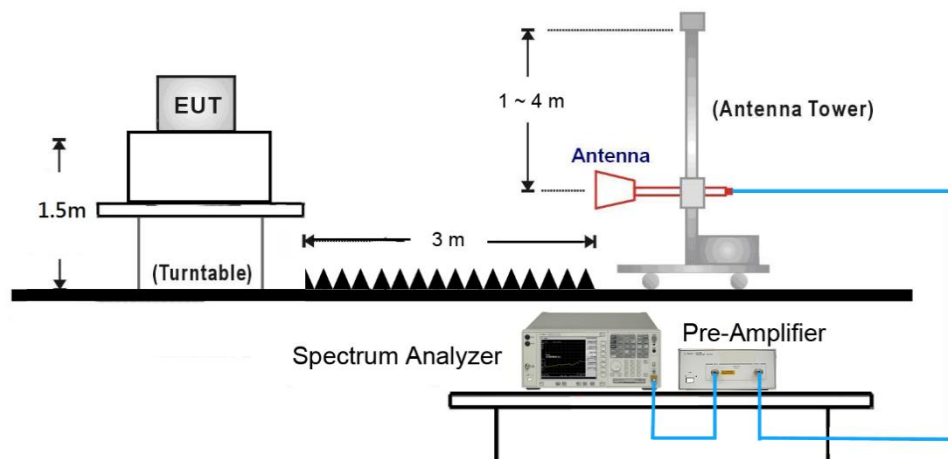
註：RB offset 設定值及應檢項目之測試方法，依 3GPP TS 36.521-1 技術標準規定。

### 5.1.3 實驗方法方塊圖

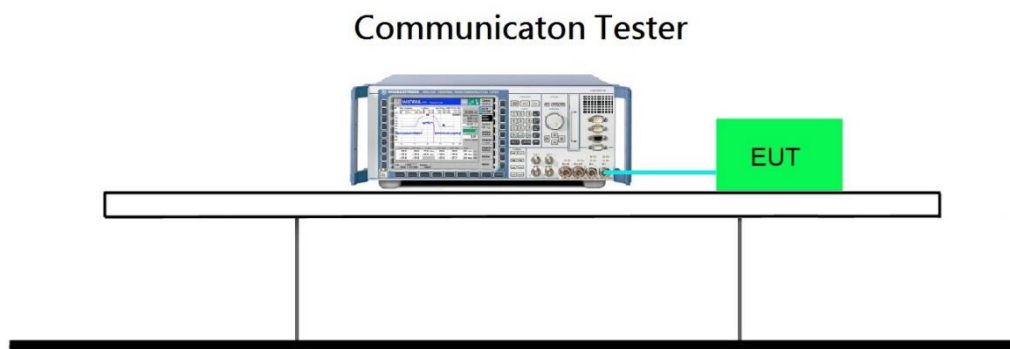
(1) 等效輻射功率 (1G 以下):



(2) 等效輻射功率 (1G 以上):



(3) 傳導輸出功率 :



#### 5.1.4 實驗數據

| Band 1 (2100MHz) FDD |         |            |        |           |                  |                       |             |                    |                 |             |
|----------------------|---------|------------|--------|-----------|------------------|-----------------------|-------------|--------------------|-----------------|-------------|
| Bandwidth            | Channel | Modulation | RB No. | RB Offset | Narrowband Index | Max Power (Conducted) | Limit (dBm) | Antenna Gain (dBi) | Max Power (ERP) | Limit (dBm) |
| 20MHz                | 18100   | QPSK       | 1      | #2        | 0                | 20.99                 | 16.8~22.7   | 1.53               | 20.37           | 30          |
|                      |         |            | 6      | #2        | 0                | 20.64                 | 16.8~22.7   | 1.53               | 20.02           | 30          |
|                      | 18300   | QPSK       | 1      | #2        | 0                | 21.50                 | 16.8~22.7   | 1.53               | 20.88           | 30          |
|                      |         |            | 6      | #2        | 0                | 20.76                 | 16.8~22.7   | 1.53               | 20.14           | 30          |
|                      | 18500   | QPSK       | 1      | #97       | 15               | 21.05                 | 16.8~22.7   | 1.53               | 20.43           | 30          |
|                      |         |            | 6      | #92       | 15               | 20.43                 | 16.8~22.7   | 1.53               | 19.81           | 30          |

註：

- 一、適用於支援上行多頻傳輸（multi-tone transmissions）的終端設備。
- 二、僅適用於低、中、高頻道及最大頻道寬度。
- 三、RB offset 設定值及應檢項目之測試方法，依 3GPP TS 36.521-1 技術標準規定。
- 四、ERP= Conducted Power + Antenna Gain(dBi) - 2.15。

### QPSK 20MHz CH 18100 / 1RB#2 / Index 0

CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement

Multi EvaluationPRACHSRS

FDDFreq: 1930.0 MHzRef. Level: 41.00 dBmBW: 20.0 MHzCP: NormalMeas Subtr/Slot0 / All

TX Measurement

|                         | Current | Average | Extreme | StdDev |        |        |      |      |
|-------------------------|---------|---------|---------|--------|--------|--------|------|------|
| EVM RMS [%] /h          | 3.10    | 3.81    | 3.68    | 4.22   | 4.32   | 4.68   | 0.59 | 0.41 |
| EVM Peak [%] /h         | 11.98   | 16.56   | 13.06   | 15.62  | 14.58  | 16.86  | 1.25 | 0.91 |
| EVM DMRS [%] /h         | 4.29    | 1.31    | 4.24    | 3.65   | 4.39   | 5.12   | 0.09 | 1.86 |
| MErr RMS [%] /h         | 2.87    | 3.64    | 3.32    | 3.86   | 3.82   | 4.15   | 0.48 | 0.23 |
| MErr Peak [%] /h        | -11.41  | -16.55  | 12.72   | 15.47  | -14.50 | -16.85 | 1.45 | 1.04 |
| MErr DMRS [%] /h        | 3.13    | 0.72    | 3.04    | 2.76   | 3.15   | 3.93   | 0.07 | 1.56 |
| PhErr RMS [%] /h        | 0.68    | 0.67    | 0.92    | 1.01   | 1.16   | 1.32   | 0.22 | 0.29 |
| PhErr Peak [%] /h       | 2.44    | -2.19   | 2.83    | 3.95   | -3.60  | -6.29  | 0.58 | 1.77 |
| PhErr DMRS [%] /h       | 1.67    | 0.63    | 1.68    | 1.37   | 1.77   | 1.93   | 0.04 | 0.62 |
| IQ Offset [dBc]         | -61.10  | -62.10  | -59.58  | 2.27   |        |        |      |      |
| IQ Gain Imbalance [dB]  | ---     | ---     | ---     | ---    |        |        |      |      |
| IQ Quadrature Error [°] | ---     | ---     | ---     | ---    |        |        |      |      |
| Freq Error [Hz]         | -9.18   | -9.31   | -14.73  | 2.59   |        |        |      |      |
| Timing Error [Ts]       | 0.92    | 1.61    | 2.66    | 0.69   |        |        |      |      |
| OBW [MHz]               | 0.18    | 0.19    | 0.21    | 0.01   |        |        |      |      |
|                         | Current | Average | Min     | Max    | StdDev |        |      |      |
| TX Power [dBm]          | 20.98   | 20.85   | 20.62   | 20.99  | 0.11   |        |      |      |
| Peak Power [dBm]        | 24.63   | 24.62   | 24.52   | 24.67  | 0.05   |        |      |      |
| RB Power [dBm]          | 20.98   | 20.88   | 20.68   | 20.99  | 0.10   |        |      |      |

Statistic Count20 / 20Out of Tolerance0.00 %Detected ModulationQPSKDetected Channel TypePUSCHView Filter Throughput100.0 %

PS:AttachedRRC State:Connected

### QPSK 20MHz CH 18100 / 6RB#2 / Index 0

CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement

Multi EvaluationPRACHSRS

FDDFreq: 1930.0 MHzRef. Level: 41.00 dBmBW: 20.0 MHzCP: NormalMeas Subtr/Slot: 0 / All

TX Measurement

|                         | Current | Average | Extreme | StdDev |        |        |      |      |
|-------------------------|---------|---------|---------|--------|--------|--------|------|------|
| EVM RMS [%] /h          | 4.74    | 6.81    | 4.62    | 5.94   | 4.83   | 6.83   | 0.15 | 0.92 |
| EVM Peak [%] /h         | 34.72   | 50.79   | 34.30   | 46.74  | 36.01  | 51.21  | 0.87 | 3.99 |
| EVM DMRS [%] /h         | 6.33    | 4.18    | 5.23    | 3.75   | 6.49   | 4.36   | 1.32 | 0.49 |
| MErr RMS [%] /h         | 3.58    | 5.48    | 3.51    | 4.78   | 3.65   | 5.51   | 0.10 | 0.76 |
| MErr Peak [%] /h        | -23.68  | -50.41  | 28.09   | 44.31  | -33.85 | -50.86 | 5.06 | 6.15 |
| MErr DMRS [%] /h        | 4.34    | 2.86    | 3.72    | 2.60   | 4.51   | 2.96   | 0.79 | 0.30 |
| PhErr RMS [%] /h        | 1.88    | 2.57    | 1.81    | 2.23   | 1.93   | 2.57   | 0.09 | 0.33 |
| PhErr Peak [%] /h       | 18.38   | -24.44  | 17.91   | 23.12  | 19.15  | -24.55 | 0.78 | 0.65 |
| PhErr DMRS [%] /h       | 2.66    | 1.75    | 2.12    | 1.55   | 2.70   | 1.88   | 0.63 | 0.23 |
| IQ Offset [dBc]         | -57.23  | -54.13  | -50.20  | 3.14   |        |        |      |      |
| IQ Gain Imbalance [dB]  | ----    | ----    | ----    | ----   |        |        |      |      |
| IQ Quadrature Error [°] | ----    | ----    | ----    | ----   |        |        |      |      |
| Freq Error [Hz]         | -7.37   | -5.39   | -12.19  | 2.35   |        |        |      |      |
| Timing Error [Ts]       | 2.55    | 4.20    | 7.61    | 1.33   |        |        |      |      |
| OBW [MHz]               | 1.05    | 1.05    | 1.05    | 0.00   |        |        |      |      |
|                         | Current | Average | Min     | Max    | StdDev |        |      |      |
| TX Power [dBm]          | 20.56   | 20.60   | 20.55   | 20.64  | 0.04   |        |      |      |
| Peak Power [dBm]        | 24.85   | 24.85   | 24.78   | 24.93  | 0.03   |        |      |      |
| RB Power [dBm]          | 12.86   | 12.89   | 12.86   | 12.91  | 0.02   |        |      |      |

Statistic Count: 20 / 20

Out of Tolerance: 0.00 %

Detected Modulation: QPSK

Detected Channel Type: PUSCH

View Filter: Throughput

100.0 %

PS: Attached RRC State: Connected

### QPSK 20MHz CH 18300 / 1RB#2 / Index 0

CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement

Multi EvaluationPRACHSRS

FDDFreq: 1950.0 MHzRef Level: 41.00 dBmBW: 20.0 MHzCP: NormalMeas Subtr/Slot0 / All

TX Measurement

|                         | Current | Average | Extreme | StdDev |        |        |      |      |
|-------------------------|---------|---------|---------|--------|--------|--------|------|------|
| EVM RMS [%] /h          | 3.29    | 3.86    | 3.44    | 4.25   | 3.61   | 4.64   | 0.14 | 0.30 |
| EVM Peak [%] /h         | 13.07   | 16.74   | 12.78   | 16.86  | 13.93  | 17.72  | 0.52 | 0.29 |
| EVM DMRS [%] /h         | 3.66    | 4.86    | 3.78    | 3.52   | 4.03   | 4.86   | 0.14 | 1.73 |
| MErr RMS [%] /h         | 2.94    | 3.31    | 3.09    | 3.80   | 3.27   | 4.29   | 0.13 | 0.41 |
| MErr Peak [%] /h        | -11.56  | -13.59  | 12.16   | 15.04  | -13.07 | -17.09 | 0.46 | 1.55 |
| MErr DMRS [%] /h        | 2.56    | 3.84    | 2.63    | 2.76   | 2.83   | 3.87   | 0.10 | 1.42 |
| PhErr RMS [%] /h        | 0.86    | 1.19    | 0.88    | 1.14   | 1.00   | 1.33   | 0.05 | 0.12 |
| PhErr Peak [%] /h       | 3.72    | 6.03    | 2.92    | 5.34   | 3.74   | 7.09   | 0.48 | 1.08 |
| PhErr DMRS [%] /h       | 1.49    | 1.72    | 1.55    | 1.26   | 1.70   | 1.74   | 0.07 | 0.59 |
| IQ Offset [dBc]         | -61.43  | -61.19  | -58.32  | 2.00   |        |        |      |      |
| IQ Gain Imbalance [dB]  | ---     | ---     | ---     | ---    |        |        |      |      |
| IQ Quadrature Error [°] | ---     | ---     | ---     | ---    |        |        |      |      |
| Freq Error [Hz]         | 4.75    | 5.32    | 11.87   | 2.13   |        |        |      |      |
| Timing Error [Ts]       | -0.39   | 2.10    | 5.05    | 1.29   |        |        |      |      |
| OBW [MHz]               | 0.19    | 0.19    | 0.19    | 0.00   |        |        |      |      |
|                         | Current | Average | Min     | Max    | StdDev |        |      |      |
| TX Power [dBm]          | 21.23   | 21.35   | 21.11   | 21.50  | 0.12   |        |      |      |
| Peak Power [dBm]        | 24.79   | 24.85   | 24.74   | 24.95  | 0.06   |        |      |      |
| RB Power [dBm]          | 21.28   | 21.37   | 21.16   | 21.47  | 0.11   |        |      |      |

Statistic Count20 / 20Out of Tolerance0.00 %Detected ModulationQPSKDetected Channel TypePUSCHView FilterThroughput100.0 %

PS:AttachedRRC State:Connected

### QPSK 20MHz CH 18300 / 6RB#2 / Index 0

| CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement                                    |                  |                       |              |            |                 |        |      |      |  |
|---------------------------------------------------------------------------------------------------|------------------|-----------------------|--------------|------------|-----------------|--------|------|------|--|
| Multi Evaluation PRACH SRS                                                                        |                  |                       |              |            |                 |        |      |      |  |
| FDD                                                                                               | Freq: 1950.0 MHz | Ref. Level: 41.00 dBm | BW: 20.0 MHz | CP: Normal | Meas Subtr/Slot | 0      | All  |      |  |
| TX Measurement                                                                                    |                  |                       |              |            |                 |        |      |      |  |
|                                                                                                   | Current          | Average               | Extreme      | StdDev     |                 |        |      |      |  |
| EVM RMS [%] /h                                                                                    | 5.06             | 5.15                  | 4.49         | 5.50       | 5.11            | 5.87   | 0.60 | 0.34 |  |
| EVM Peak [%] /h                                                                                   | 37.15            | 47.31                 | 34.85        | 48.15      | 37.59           | 49.70  | 2.24 | 0.97 |  |
| EVM DMRS [%] /h                                                                                   | 6.69             | 3.47                  | 5.59         | 5.68       | 6.87            | 7.38   | 1.34 | 1.95 |  |
| MErr RMS [%] /h                                                                                   | 4.55             | 4.51                  | 3.87         | 4.89       | 4.56            | 5.27   | 0.72 | 0.36 |  |
| MErr Peak [%] /h                                                                                  | -32.03           | -47.14                | 28.50        | 45.68      | -32.88          | -47.50 | 4.00 | 1.43 |  |
| MErr DMRS [%] /h                                                                                  | 4.64             | 2.21                  | 3.95         | 4.11       | 4.78            | 5.44   | 0.80 | 1.59 |  |
| PhErr RMS [%] /h                                                                                  | 1.42             | 1.51                  | 1.41         | 1.60       | 1.47            | 1.74   | 0.03 | 0.11 |  |
| PhErr Peak [%] /h                                                                                 | 14.80            | 15.24                 | 14.94        | 16.40      | 15.94           | -17.91 | 0.65 | 1.28 |  |
| PhErr DMRS [%] /h                                                                                 | 2.79             | 1.54                  | 2.29         | 2.26       | 2.91            | 2.88   | 0.64 | 0.68 |  |
| IQ Offset [dBc]                                                                                   | -51.05           | -52.56                | -49.26       | 2.45       |                 |        |      |      |  |
| IQ Gain Imbalance [dB]                                                                            | ----             | ----                  | ----         | ----       |                 |        |      |      |  |
| IQ Quadrature Error [°]                                                                           | ----             | ----                  | ----         | ----       |                 |        |      |      |  |
| Freq Error [Hz]                                                                                   | 10.76            | 6.69                  | 11.03        | 2.62       |                 |        |      |      |  |
| Timing Error [Ts]                                                                                 | 2.84             | 3.60                  | 5.30         | 1.06       |                 |        |      |      |  |
| OBW [MHz]                                                                                         | 1.05             | 1.05                  | 1.05         | 0.00       |                 |        |      |      |  |
|                                                                                                   | Current          | Average               | Min          | Max        | StdDev          |        |      |      |  |
| TX Power [dBm]                                                                                    | 20.71            | 20.68                 | 20.53        | 20.76      | 0.06            |        |      |      |  |
| Peak Power [dBm]                                                                                  | 24.79            | 24.77                 | 24.70        | 24.84      | 0.04            |        |      |      |  |
| RB Power [dBm]                                                                                    | 13.01            | 12.97                 | 12.83        | 13.04      | 0.05            |        |      |      |  |
| Statistic Count Out of Tolerance Detected Modulation Detected Channel Type View Filter Throughput |                  |                       |              |            |                 |        |      |      |  |
| 20 / 20                                                                                           |                  | 0.00 %                | QPSK         | PUSCH      | 100.0 %         |        |      |      |  |
| PS: Attached RRC State: Connected                                                                 |                  |                       |              |            |                 |        |      |      |  |

### QPSK 20MHz CH 18500 / 1RB#97 / Index 15

CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement

Multi EvaluationPRACHSRS

FDD Freq: 1970.0 MHz Ref. Level: 41.00 dBm BW: 20.0 MHz CP: Normal Meas Subtr/Slot: 0 / All

TX Measurement

|                         | Current | Average | Extreme | StdDev |        |        |      |      |
|-------------------------|---------|---------|---------|--------|--------|--------|------|------|
| EVM RMS [%] /h          | 3.78    | 4.05    | 4.08    | 4.41   | 4.44   | 4.82   | 0.34 | 0.36 |
| EVM Peak [%] /h         | 13.47   | 13.80   | 13.97   | 14.72  | 15.26  | 15.71  | 0.98 | 0.66 |
| EVM DMRS [%] /h         | 2.59    | 4.37    | 2.38    | 3.34   | 2.74   | 4.48   | 0.20 | 1.35 |
| MErr RMS [%] /h         | 3.26    | 3.45    | 3.57    | 3.90   | 3.93   | 4.33   | 0.33 | 0.41 |
| MErr Peak [%] /h        | -13.20  | -13.35  | 13.81   | 14.47  | -15.26 | -15.66 | 1.02 | 0.79 |
| MErr DMRS [%] /h        | 1.98    | 3.56    | 1.84    | 2.67   | 2.13   | 3.65   | 0.16 | 1.19 |
| PhErr RMS [%] /h        | 1.11    | 1.24    | 1.15    | 1.22   | 1.27   | 1.28   | 0.07 | 0.02 |
| PhErr Peak [%] /h       | 6.09    | -5.28   | 5.20    | 4.99   | 6.35   | -5.61  | 0.76 | 0.31 |
| PhErr DMRS [%] /h       | 0.95    | 1.46    | 0.86    | 1.15   | 1.01   | 1.52   | 0.08 | 0.39 |
| IQ Offset [dBc]         | -61.92  | -60.88  | -59.38  | 1.10   |        |        |      |      |
| IQ Gain Imbalance [dB]  | ---     | ---     | ---     | ---    |        |        |      |      |
| IQ Quadrature Error [°] | ---     | ---     | ---     | ---    |        |        |      |      |
| Freq Error [Hz]         | -3.13   | -1.24   | -5.09   | 1.87   |        |        |      |      |
| Timing Error [Ts]       | 0.27    | 1.52    | 2.86    | 0.65   |        |        |      |      |
| OBW [MHz]               | 0.18    | 0.19    | 0.21    | 0.02   |        |        |      |      |
|                         | Current | Average | Min     | Max    | StdDev |        |      |      |
| TX Power [dBm]          | 21.04   | 21.04   | 21.04   | 21.05  | 0.00   |        |      |      |
| Peak Power [dBm]        | 24.67   | 24.67   | 24.64   | 24.70  | 0.01   |        |      |      |
| RB Power [dBm]          | 21.03   | 21.04   | 21.03   | 21.06  | 0.01   |        |      |      |

Statistic Count: 20 / 20

Out of Tolerance: 0.00 %

Detected Modulation: QPSK

Detected Channel Type: PUSCH

View Filter: Throughout

100.0 %

PS: Attached RRC State: Connected

| Band 3 (1800MHz) FDD |         |            |        |           |                  |                       |             |                    |                 |             |
|----------------------|---------|------------|--------|-----------|------------------|-----------------------|-------------|--------------------|-----------------|-------------|
| Bandwidth            | Channel | Modulation | RB No. | RB Offset | Narrowband Index | Max Power (Conducted) | Limit (dBm) | Antenna Gain (dBi) | Max Power (ERP) | Limit (dBm) |
| 20MHz                | 19300   | QPSK       | 1      | #2        | 0                | 21.03                 | 16.8~22.7   | 2.00               | 20.88           | 30          |
|                      |         |            | 6      | #2        | 0                | 20.37                 | 16.8~22.7   | 2.00               | 20.22           | 30          |
|                      | 19575   | QPSK       | 1      | #2        | 0                | 20.85                 | 16.8~22.7   | 2.00               | 20.70           | 30          |
|                      |         |            | 6      | #2        | 0                | 20.45                 | 16.8~22.7   | 2.00               | 20.30           | 30          |
|                      | 19850   | QPSK       | 1      | #97       | 15               | 21.05                 | 16.8~22.7   | 2.00               | 20.90           | 30          |
|                      |         |            | 6      | #92       | 15               | 20.57                 | 16.8~22.7   | 2.00               | 20.42           | 30          |

註：

- 一、適用於支援上行多頻傳輸（multi-tone transmissions）的終端設備。
- 二、僅適用於低、中、高頻道及最大頻道寬度。
- 三、RB offset 設定值及應檢項目之測試方法，依 3GPP TS 36.521-1 技術標準規定。
- 四、ERP= Conducted Power + Antenna Gain(dBi) - 2.15。

### QPSK 20MHz CH 19300 / 1RB#2 / Index 0

CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement

Multi Evaluation PRACH SRS

FDD Freq: 1720.0 MHz Ref. Level: 41.00 dBm BW: 20.0 MHz CP: Normal Meas Subtr/Slot: 0 / All

TX Measurement

|                         | Current | Average | Extreme | StdDev |        |        |      |      |
|-------------------------|---------|---------|---------|--------|--------|--------|------|------|
| EVM RMS [%] /h          | 2.52    | 2.84    | 3.08    | 3.50   | 3.62   | 4.12   | 0.54 | 0.61 |
| EVM Peak [%] /h         | 12.20   | 13.31   | 12.39   | 14.95  | 12.83  | 16.82  | 0.22 | 1.38 |
| EVM DMRS [%] /h         | 1.89    | 4.93    | 2.52    | 3.65   | 3.17   | 4.99   | 0.53 | 1.82 |
| MErr RMS [%] /h         | 2.11    | 2.31    | 2.61    | 2.91   | 3.09   | 3.45   | 0.47 | 0.53 |
| MErr Peak [%] /h        | -11.77  | -12.70  | 12.10   | 13.17  | -12.79 | -13.65 | 0.39 | 0.25 |
| MErr DMRS [%] /h        | 1.47    | 4.11    | 1.74    | 3.02   | 2.09   | 4.18   | 0.28 | 1.58 |
| PhErr RMS [%] /h        | 0.79    | 0.98    | 0.94    | 1.15   | 1.12   | 1.38   | 0.15 | 0.18 |
| PhErr Peak [%] /h       | -3.01   | 5.09    | 3.48    | 5.78   | 4.36   | 7.16   | 0.56 | 0.93 |
| PhErr DMRS [%] /h       | 0.68    | 1.57    | 1.04    | 1.17   | 1.42   | 1.60   | 0.27 | 0.54 |
| IQ Offset [dBc]         | -61.96  |         |         |        | -61.78 |        |      | 1.33 |
| IQ Gain Imbalance [dB]  | ---     |         |         |        | ---    |        |      | ---  |
| IQ Quadrature Error [°] | ---     |         |         |        | ---    |        |      | ---  |
| Freq Error [Hz]         | -0.63   |         |         |        | -0.21  |        |      | 2.27 |
| Timing Error [Ts]       | 2.57    |         |         |        | 1.52   |        |      | 1.06 |
| OBW [MHz]               | 0.18    |         |         |        | 0.19   |        |      | 0.01 |
|                         | Current | Average | Min     | Max    | StdDev |        |      |      |
| TX Power [dBm]          | 21.02   | 20.97   | 20.91   | 21.03  | 0.05   |        |      |      |
| Peak Power [dBm]        | 24.34   | 24.47   | 24.33   | 24.62  | 0.12   |        |      |      |
| RB Power [dBm]          | 20.96   | 20.92   | 20.89   | 20.96  | 0.03   |        |      |      |

Statistic Count: 20 / 20    Out of Tolerance: 0.00 %    Detected Modulation: QPSK    Detected Channel Type: PUSCH    View Filter: Throughput    100.0 %

PS: Attached RRC State: Connected

### QPSK 20MHz CH 19300 / 6RB#2 / Index 0

CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement

Multi Evaluation PRACH SRS

FDD Freq: 1720.0 MHz Ref. Level: 41.00 dBm BW: 20.0 MHz CP: Normal Meas Subtr/Slot: 0 / All

TX Measurement

|                         | Current | Average | Extreme | StdDev |        |        |      |      |
|-------------------------|---------|---------|---------|--------|--------|--------|------|------|
| EVM RMS [%] /h          | 5.19    | 5.36    | 5.26    | 5.00   | 5.41   | 5.44   | 0.11 | 0.40 |
| EVM Peak [%] /h         | 39.35   | 42.67   | 42.55   | 44.17  | 46.41  | 46.29  | 3.30 | 1.46 |
| EVM DMRS [%] /h         | 5.27    | 3.23    | 6.53    | 4.39   | 7.71   | 5.39   | 1.16 | 1.02 |
| MErr RMS [%] /h         | 4.19    | 4.21    | 4.41    | 3.85   | 4.68   | 4.38   | 0.24 | 0.41 |
| MErr Peak [%] /h        | -37.14  | -40.49  | 40.95   | 43.04  | -45.29 | -45.98 | 3.86 | 2.33 |
| MErr DMRS [%] /h        | 3.70    | 2.23    | 4.67    | 3.05   | 5.62   | 3.77   | 0.96 | 0.72 |
| PhErr RMS [%] /h        | 1.88    | 2.04    | 1.76    | 1.92   | 1.88   | 2.08   | 0.10 | 0.13 |
| PhErr Peak [%] /h       | 17.74   | 15.94   | 18.14   | 16.88  | -19.60 | 18.41  | 0.90 | 1.01 |
| PhErr DMRS [%] /h       | 2.16    | 1.34    | 2.63    | 1.81   | 3.05   | 2.25   | 0.39 | 0.41 |
| IQ Offset [dBc]         | -56.38  |         |         | -52.99 |        | -50.55 |      | 1.88 |
| IQ Gain Imbalance [dB]  | ----    |         |         | ----   |        | ----   |      |      |
| IQ Quadrature Error [°] | ----    |         |         | ----   |        | ----   |      |      |
| Freq Error [Hz]         | 3.52    |         |         | 1.44   |        | 6.87   |      | 2.59 |
| Timing Error [Ts]       | -1.56   |         |         | 1.42   |        | 3.64   |      | 1.34 |
| OBW [MHz]               | 1.05    |         |         | 1.05   |        | 1.05   |      | 0.00 |
|                         | Current | Average | Min     | Max    | StdDev |        |      |      |
| TX Power [dBm]          | 20.37   | 20.36   | 20.34   | 20.37  | 0.01   |        |      |      |
| Peak Power [dBm]        | 24.64   | 24.60   | 24.55   | 24.67  | 0.03   |        |      |      |
| RB Power [dBm]          | 12.65   | 12.64   | 12.63   | 12.65  | 0.00   |        |      |      |

Statistic Count: 20 / 20    Out of Tolerance: 0.00 %    Detected Modulation: QPSK    Detected Channel Type: PUSCH    View Filter: Throughput    100.0 %

PS: Attached RRC State: Connected

### QPSK 20MHz CH 19575 / 1RB#2 / Index 0

CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement

Multi Evaluation PRACH SRS

FDD Freq: 1747.5 MHz Ref. Level: 41.00 dBm BW: 20.0 MHz CP: Normal Meas Subtr/Slot: 0 All

TX Measurement

|                         | Current | Average | Extreme | StdDev |
|-------------------------|---------|---------|---------|--------|
| EVM RMS [%] /h          | 4.07    | 4.42    | 3.53    | 4.09   |
| EVM Peak [%] /h         | 13.66   | 14.49   | 12.71   | 15.26  |
| EVM DMRS [%] /h         | 4.18    | 4.89    | 4.21    | 3.63   |
| MErr RMS [%] /h         | 3.62    | 3.95    | 3.18    | 3.73   |
| MErr Peak [%] /h        | -13.58  | -14.47  | 12.46   | 15.20  |
| MErr DMRS [%] /h        | 2.98    | 3.77    | 3.00    | 2.81   |
| PhErr RMS [%] /h        | 1.07    | 1.16    | 0.90    | 0.97   |
| PhErr Peak [%] /h       | -3.69   | -5.21   | 2.95    | 4.02   |
| PhErr DMRS [%] /h       | 1.67    | 1.79    | 1.68    | 1.33   |
| IQ Offset [dBc]         | -64.36  |         |         |        |
| IQ Gain Imbalance [dB]  | ---     | ---     | ---     | ---    |
| IQ Quadrature Error [°] | ---     | ---     | ---     | ---    |
| Freq Error [Hz]         | -8.27   |         |         |        |
| Timing Error [Ts]       | 2.66    |         |         |        |
| OBW [MHz]               | 0.21    |         |         |        |
|                         | Current | Average | Min     | Max    |
| TX Power [dBm]          | 20.62   | 20.65   | 20.43   | 20.85  |
| Peak Power [dBm]        | 24.58   | 24.54   | 24.44   | 24.67  |
| RB Power [dBm]          | 20.68   | 20.68   | 20.49   | 20.85  |

Statistic Count: 20 / 20

Out of Tolerance: 0.00 %

Detected Modulation: QPSK

Detected Channel Type: PUSCH

View Filter: Throughput

PS: Attached RRC State: Connected

100.0 %

### QPSK 20MHz CH 19575 / 6RB#2 / Index 0

CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement

Multi Evaluation PRACH SRS

FDD Freq: 1747.5 MHz Ref. Level: 41.00 dBm BW: 20.0 MHz CP: Normal Meas Subtr/Slot: 0 / All

TX Measurement

|                         | Current | Average | Extreme | StdDev |        |        |      |      |
|-------------------------|---------|---------|---------|--------|--------|--------|------|------|
| EVM RMS [%] /h          | 4.63    | 6.63    | 4.51    | 5.88   | 4.66   | 7.25   | 0.12 | 0.94 |
| EVM Peak [%] /h         | 34.61   | 51.36   | 34.24   | 47.04  | 35.22  | 54.51  | 0.51 | 4.28 |
| EVM DMRS [%] /h         | 6.27    | 4.13    | 5.14    | 3.70   | 6.36   | 4.28   | 1.32 | 0.52 |
| MErr RMS [%] /h         | 3.46    | 5.37    | 3.38    | 4.72   | 3.46   | 6.07   | 0.06 | 0.80 |
| MErr Peak [%] /h        | -23.14  | -51.08  | 28.30   | 44.66  | -33.89 | -54.52 | 5.29 | 6.39 |
| MErr DMRS [%] /h        | 4.37    | 2.82    | 3.65    | 2.57   | 4.41   | 2.93   | 0.79 | 0.32 |
| PhErr RMS [%] /h        | 1.87    | 2.47    | 1.80    | 2.22   | 1.90   | 2.58   | 0.09 | 0.32 |
| PhErr Peak [%] /h       | 18.35   | -22.97  | 17.81   | 23.15  | 18.85  | -24.23 | 0.68 | 0.54 |
| PhErr DMRS [%] /h       | 2.59    | 1.73    | 2.09    | 1.53   | 2.66   | 1.80   | 0.63 | 0.23 |
| IQ Offset [dBc]         | -60.00  |         |         |        | -54.73 |        |      | 3.29 |
| IQ Gain Imbalance [dB]  | ---     |         |         |        | ---    |        |      |      |
| IQ Quadrature Error [°] | ---     |         |         |        | ---    |        |      |      |
| Freq Error [Hz]         | -8.78   |         |         |        | -4.56  |        |      | 2.33 |
| Timing Error [Ts]       | 3.94    |         |         |        | 3.48   |        |      | 0.93 |
| OBW [MHz]               | 1.05    |         |         |        | 1.05   |        |      | 0.00 |
|                         | Current | Average | Min     | Max    | StdDev |        |      |      |
| TX Power [dBm]          | 20.36   | 20.40   | 20.36   | 20.45  | 0.04   |        |      |      |
| Peak Power [dBm]        | 24.74   | 24.78   | 24.73   | 24.86  | 0.03   |        |      |      |
| RB Power [dBm]          | 12.67   | 12.69   | 12.67   | 12.72  | 0.02   |        |      |      |

Statistic Count 20 / 20 Out of Tolerance 0.00 % Detected Modulation QPSK Detected Channel Type PUSCH View Filter Throughput 100.0 %

PS: Attached RRC State: Connected

### QPSK 20MHz CH 19850 / 1RB#97 / Index 15

| CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement |                  |                      |              |                     |                 |                       |       |             |            |
|----------------------------------------------------------------|------------------|----------------------|--------------|---------------------|-----------------|-----------------------|-------|-------------|------------|
| Multi Evaluation PRACH SRS                                     |                  |                      |              |                     |                 |                       |       |             |            |
| FDD                                                            | Freq: 1775.0 MHz | Ref Level: 41.00 dBm | BW: 20.0 MHz | CP: Normal          | Meas Subtr/Slot | 0                     | All   |             |            |
| TX Measurement                                                 |                  |                      |              |                     |                 |                       |       |             |            |
|                                                                | Current          | Average              | Extreme      | StdDev              |                 |                       |       |             |            |
| EVM RMS [%] /h                                                 | 2.75             | 3.77                 | 2.80         | 3.72                | 3.00            | 3.89                  | 0.06  | 0.06        |            |
| EVM Peak [%] /h                                                | 10.26            | 17.97                | 10.03        | 16.72               | 11.04           | 18.66                 | 0.31  | 1.44        |            |
| EVM DMRS [%] /h                                                | 3.85             | 4.68                 | 4.03         | 3.48                | 4.41            | 4.80                  | 0.16  | 1.62        |            |
| MErr RMS [%] /h                                                | 2.27             | 3.26                 | 2.41         | 3.24                | 2.65            | 3.35                  | 0.14  | 0.03        |            |
| MErr Peak [%] /h                                               | -8.93            | -15.56               | 9.32         | 15.50               | -10.28          | -16.43                | 0.36  | 0.45        |            |
| MErr DMRS [%] /h                                               | 2.70             | 3.84                 | 2.79         | 2.78                | 3.04            | 3.94                  | 0.12  | 1.41        |            |
| PhErr RMS [%] /h                                               | 0.90             | 1.13                 | 0.83         | 1.08                | 0.95            | 1.19                  | 0.08  | 0.06        |            |
| PhErr Peak [%] /h                                              | -3.75            | 5.61                 | 3.09         | 4.80                | -4.41           | 6.11                  | 0.87  | 0.69        |            |
| PhErr DMRS [%] /h                                              | 1.57             | 1.55                 | 1.66         | 1.21                | 1.87            | 1.66                  | 0.07  | 0.49        |            |
| IQ Offset [dBc]                                                | -72.87           |                      |              | -65.57              |                 | -60.24                |       | 4.54        |            |
| IQ Gain Imbalance [dB]                                         | ---              |                      |              | ---                 |                 |                       |       |             |            |
| IQ Quadrature Error [°]                                        | ---              |                      |              | ---                 |                 |                       |       |             |            |
| Freq Error [Hz]                                                | 5.61             |                      |              | 7.14                |                 | 13.23                 |       | 2.47        |            |
| Timing Error [Ts]                                              | -2.04            |                      |              | -2.49               |                 | -6.16                 |       | 0.83        |            |
| OBW [MHz]                                                      | 0.19             |                      |              | 0.19                |                 | 0.19                  |       | 0.00        |            |
|                                                                | Current          | Average              | Min          | Max                 | StdDev          |                       |       |             |            |
| TX Power [dBm]                                                 | 20.79            | 20.83                | 20.52        | 21.05               | 0.05            |                       |       |             |            |
| Peak Power [dBm]                                               | 24.70            | 24.71                | 24.52        | 24.81               | 0.01            |                       |       |             |            |
| RB Power [dBm]                                                 | 20.85            | 20.85                | 20.58        | 21.03               | 0.03            |                       |       |             |            |
|                                                                |                  |                      |              |                     |                 |                       |       |             |            |
| Statistic Count                                                | 20 / 20          | Out of Tolerance     | 0.00 %       | Detected Modulation | QPSK            | Detected Channel Type | PUSCH | View Filter | Throughput |
| 100.0 %                                                        |                  |                      |              |                     |                 |                       |       |             |            |
| PS: Attached RRC State: Connected                              |                  |                      |              |                     |                 |                       |       |             |            |

### QPSK 20MHz CH 19850 / 6RB#92 / Index 15

| CMW 500 V 3.7.120 - LTE Measurement - |
|---------------------------------------|
|---------------------------------------|

| Band 8 (900MHz) FDD |         |            |        |           |                  |                       |             |                    |                 |             |
|---------------------|---------|------------|--------|-----------|------------------|-----------------------|-------------|--------------------|-----------------|-------------|
| Bandwidth           | Channel | Modulation | RB No. | RB Offset | Narrowband Index | Max Power (Conducted) | Limit (dBm) | Antenna Gain (dBi) | Max Power (ERP) | Limit (dBm) |
| 10MHz               | 21550   | QPSK       | 1      | #1        | 0                | 20.69                 | 16.8~22.7   | 2.98               | 21.52           | 30          |
|                     |         |            | 5      | #1        | 0                | 20.16                 | 16.8~22.7   | 2.98               | 20.99           | 30          |
|                     | 21650   | QPSK       | 1      | #1        | 0                | 21.19                 | 16.8~22.7   | 2.98               | 22.02           | 30          |
|                     |         |            | 5      | #1        | 0                | 20.25                 | 16.8~22.7   | 2.98               | 21.08           | 30          |
|                     | 21750   | QPSK       | 1      | #48       | 7                | 20.53                 | 16.8~22.7   | 2.98               | 21.36           | 30          |
|                     |         |            | 5      | #44       | 7                | 20.10                 | 16.8~22.7   | 2.98               | 20.93           | 30          |

註：

- 一、適用於支援上行多頻傳輸（multi-tone transmissions）的終端設備。
- 二、僅適用於低、中、高頻道及最大頻道寬度。
- 三、RB offset 設定值及應檢項目之測試方法，依 3GPP TS 36.521-1 技術標準規定。
- 四、ERP= Conducted Power + Antenna Gain(dBi) - 2.15。

### QPSK 10MHz CH 21550 / 1RB#1 / Index 0

| CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement                                    |         |           |             |           |        |          |      |        |                  |         |
|---------------------------------------------------------------------------------------------------|---------|-----------|-------------|-----------|--------|----------|------|--------|------------------|---------|
| Multi Evaluation PRACH SRS                                                                        |         |           |             |           |        |          |      |        |                  |         |
| FDD                                                                                               | Freq:   | 990.0 MHz | Ref. Level: | 41.00 dBm | BW:    | 10.0 MHz | CP:  | Normal | Meas Subfr/Slot: | 0 / All |
| TX Measurement                                                                                    |         |           |             |           |        |          |      |        |                  |         |
|                                                                                                   | Current | Average   | Extreme     | StdDev    |        |          |      |        |                  |         |
| EVM RMS [%] /h                                                                                    | 2.89    | 3.18      | 3.05        | 3.24      | 3.25   | 3.36     | 0.16 | 0.10   |                  |         |
| EVM Peak [%] /h                                                                                   | 8.89    | 13.85     | 10.03       | 12.49     | 11.32  | 14.14    | 1.06 | 1.35   |                  |         |
| EVM DMRS [%] /h                                                                                   | 1.86    | 3.06      | 2.19        | 3.19      | 2.57   | 3.45     | 0.24 | 0.12   |                  |         |
| MErr RMS [%] /h                                                                                   | 2.22    | 2.63      | 2.47        | 2.72      | 2.73   | 2.86     | 0.25 | 0.14   |                  |         |
| MErr Peak [%] /h                                                                                  | -8.55   | -13.85    | 9.77        | 12.39     | -11.31 | -14.08   | 1.28 | 1.43   |                  |         |
| MErr DMRS [%] /h                                                                                  | 1.23    | 2.34      | 1.49        | 2.22      | 1.79   | 2.51     | 0.19 | 0.17   |                  |         |
| PhErr RMS [%] /h                                                                                  | 1.08    | 1.06      | 1.04        | 1.04      | 1.13   | 1.11     | 0.05 | 0.03   |                  |         |
| PhErr Peak [%] /h                                                                                 | 4.34    | 4.58      | 3.83        | 4.63      | 4.34   | 5.19     | 0.28 | 0.25   |                  |         |
| PhErr DMRS [%] /h                                                                                 | 0.80    | 1.13      | 0.91        | 1.31      | 1.09   | 1.59     | 0.09 | 0.17   |                  |         |
| IQ Offset [dBc]                                                                                   | -42.20  | -42.12    | -41.83      | 0.09      |        |          |      |        |                  |         |
| IQ Gain Imbalance [dB]                                                                            | ---     | ---       | ---         | ---       |        |          |      |        |                  |         |
| IQ Quadrature Error [°]                                                                           | ---     | ---       | ---         | ---       |        |          |      |        |                  |         |
| Freq Error [Hz]                                                                                   | -3.79   | -1.92     | -5.16       | 1.40      |        |          |      |        |                  |         |
| Timing Error [Ts]                                                                                 | 1.43    | 1.92      | 4.21        | 1.02      |        |          |      |        |                  |         |
| OBW [MHz]                                                                                         | 0.18    | 0.18      | 0.18        | 0.00      |        |          |      |        |                  |         |
|                                                                                                   | Current | Average   | Min         | Max       | StdDev |          |      |        |                  |         |
| TX Power [dBm]                                                                                    | 20.69   | 20.63     | 20.57       | 20.69     | 0.06   |          |      |        |                  |         |
| Peak Power [dBm]                                                                                  | 24.75   | 24.77     | 24.73       | 24.83     | 0.03   |          |      |        |                  |         |
| RB Power [dBm]                                                                                    | 20.69   | 20.65     | 20.61       | 20.70     | 0.04   |          |      |        |                  |         |
| Statistic Count Out of Tolerance Detected Modulation Detected Channel Type View Filter Throughput |         |           |             |           |        |          |      |        |                  |         |
| 20 / 20 0.00 % QPSK PUSCH 100.0 %                                                                 |         |           |             |           |        |          |      |        |                  |         |
| PS: Attached RRC State: Connected                                                                 |         |           |             |           |        |          |      |        |                  |         |

### QPSK 10MHz CH 21550 / 5RB#1 / Index 0

CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement

Multi Evaluation PRACH SRS

FDD Freq: 890.0 MHz Ref. Level: 41.00 dBm BW: 10.0 MHz CP: Normal Meas Subfr/Slot: 0 / All

TX Measurement

|                         | Current | Average | Extreme | StdDev |        |        |      |      |
|-------------------------|---------|---------|---------|--------|--------|--------|------|------|
| EVM RMS [%] /h          | 3.83    | 4.34    | 4.06    | 4.32   | 4.36   | 4.39   | 0.23 | 0.04 |
| EVM Peak [%] /h         | 32.01   | 31.58   | 32.15   | 33.85  | 33.04  | 36.50  | 0.39 | 2.11 |
| EVM DMRS [%] /h         | 1.64    | 5.91    | 3.57    | 6.50   | 4.92   | 7.28   | 1.58 | 0.65 |
| MErr RMS [%] /h         | 3.13    | 3.52    | 3.44    | 3.39   | 3.80   | 3.55   | 0.30 | 0.15 |
| MErr Peak [%] /h        | -22.56  | -30.42  | 26.58   | 29.02  | -31.82 | -30.81 | 4.46 | 1.58 |
| MErr DMRS [%] /h        | 1.19    | 4.32    | 2.41    | 4.68   | 3.31   | 5.18   | 1.03 | 0.41 |
| PhErr RMS [%] /h        | 1.35    | 1.56    | 1.32    | 1.65   | 1.38   | 1.76   | 0.04 | 0.09 |
| PhErr Peak [%] /h       | -16.80  | -16.43  | 14.70   | 16.11  | -17.19 | -16.80 | 2.13 | 0.41 |
| PhErr DMRS [%] /h       | 0.65    | 2.32    | 1.51    | 2.60   | 2.11   | 2.99   | 0.69 | 0.30 |
| IQ Offset [dBc]         | -41.05  | -41.45  | -40.88  | 0.34   |        |        |      |      |
| IQ Gain Imbalance [dB]  | ---     | ---     | ---     | ---    |        |        |      |      |
| IQ Quadrature Error [°] | ---     | ---     | ---     | ---    |        |        |      |      |
| Freq Error [Hz]         | 2.75    | 0.21    | 2.75    | 1.26   |        |        |      |      |
| Timing Error [Ts]       | 4.07    | 1.91    | 4.76    | 1.48   |        |        |      |      |
| OBW [MHz]               | 0.89    | 0.88    | 0.89    | 0.01   |        |        |      |      |
|                         | Current | Average | Min     | Max    | StdDev |        |      |      |
| TX Power [dBm]          | 20.17   | 20.17   | 20.16   | 20.18  | 0.01   |        |      |      |
| Peak Power [dBm]        | 24.85   | 24.86   | 24.80   | 24.91  | 0.03   |        |      |      |
| RB Power [dBm]          | 13.25   | 13.24   | 13.24   | 13.25  | 0.00   |        |      |      |

Statistic Count: 20 / 20

Out of Tolerance: 0.00 %

Detected Modulation: QPSK

Detected Channel Type: PUSCH

View Filter: Throughput

100.0 %

PS: Attached RRC State: Connected

### QPSK 10MHz CH 21650 / 1RB#1 / Index 0

| CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement                                    |         |           |             |           |        |          |      |        |                  |         |
|---------------------------------------------------------------------------------------------------|---------|-----------|-------------|-----------|--------|----------|------|--------|------------------|---------|
| Multi Evaluation PRACH SRS                                                                        |         |           |             |           |        |          |      |        |                  |         |
| FDD                                                                                               | Freq:   | 990.0 MHz | Ref. Level: | 41.00 dBm | BW:    | 10.0 MHz | CP:  | Normal | Meas Subfr/Slot: | 0 / All |
| TX Measurement                                                                                    |         |           |             |           |        |          |      |        |                  |         |
|                                                                                                   | Current | Average   | Extreme     | StdDev    |        |          |      |        |                  |         |
| EVM RMS [%] /h                                                                                    | 3.73    | 3.83      | 3.44        | 3.67      | 3.76   | 3.87     | 0.28 | 0.16   |                  |         |
| EVM Peak [%] /h                                                                                   | 13.79   | 13.83     | 11.29       | 14.41     | 13.88  | 15.73    | 2.40 | 0.78   |                  |         |
| EVM DMRS [%] /h                                                                                   | 2.62    | 3.42      | 2.37        | 3.29      | 2.90   | 3.62     | 0.26 | 0.17   |                  |         |
| MErr RMS [%] /h                                                                                   | 3.20    | 3.32      | 2.87        | 3.15      | 3.23   | 3.37     | 0.35 | 0.18   |                  |         |
| MErr Peak [%] /h                                                                                  | -13.64  | -13.65    | 10.98       | 14.29     | -13.76 | -15.71   | 2.51 | 0.88   |                  |         |
| MErr DMRS [%] /h                                                                                  | 1.88    | 2.33      | 1.72        | 2.29      | 2.10   | 2.45     | 0.22 | 0.05   |                  |         |
| PhErr RMS [%] /h                                                                                  | 1.10    | 1.11      | 1.10        | 1.11      | 1.16   | 1.17     | 0.02 | 0.02   |                  |         |
| PhErr Peak [%] /h                                                                                 | 3.65    | -4.85     | 3.77        | 4.91      | 4.54   | 5.61     | 0.35 | 0.29   |                  |         |
| PhErr DMRS [%] /h                                                                                 | 1.04    | 1.43      | 0.93        | 1.35      | 1.17   | 1.59     | 0.09 | 0.12   |                  |         |
| IQ Offset [dBc]                                                                                   | -53.15  | -52.50    | -51.41      | 0.41      |        |          |      |        |                  |         |
| IQ Gain Imbalance [dB]                                                                            | ---     | ---       | ---         | ---       |        |          |      |        |                  |         |
| IQ Quadrature Error [°]                                                                           | ---     | ---       | ---         | ---       |        |          |      |        |                  |         |
| Freq Error [Hz]                                                                                   | 3.50    | 2.69      | 6.85        | 1.44      |        |          |      |        |                  |         |
| Timing Error [Ts]                                                                                 | -2.59   | -2.91     | -5.57       | 0.52      |        |          |      |        |                  |         |
| OBW [MHz]                                                                                         | 0.18    | 0.18      | 0.18        | 0.00      |        |          |      |        |                  |         |
|                                                                                                   | Current | Average   | Min         | Max       | StdDev |          |      |        |                  |         |
| TX Power [dBm]                                                                                    | 21.07   | 21.13     | 20.99       | 21.19     | 0.06   |          |      |        |                  |         |
| Peak Power [dBm]                                                                                  | 24.95   | 24.95     | 24.87       | 25.00     | 0.02   |          |      |        |                  |         |
| RB Power [dBm]                                                                                    | 21.10   | 21.14     | 21.02       | 21.19     | 0.04   |          |      |        |                  |         |
| Statistic Count Out of Tolerance Detected Modulation Detected Channel Type View Filter Throughput |         |           |             |           |        |          |      |        |                  |         |
| 20 / 20 0.00 % QPSK PUSCH 100.0 %                                                                 |         |           |             |           |        |          |      |        |                  |         |
| PS: Attached RRC State: Connected                                                                 |         |           |             |           |        |          |      |        |                  |         |

### QPSK 10MHz CH 21650 / 5RB#1 / Index 0

CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement

Multi EvaluationPRACHSRS

FDDFreq: 990.0 MHzRef Level: 41.00 dBmBW: 10.0 MHzCP: NormalMeas Subfr/Slot: 0 / All

TX Measurement

|                         | Current | Average | Extreme | StdDev |        |        |      |      |
|-------------------------|---------|---------|---------|--------|--------|--------|------|------|
| EVM RMS [%] /h          | 3.91    | 4.26    | 3.78    | 4.22   | 3.92   | 4.38   | 0.11 | 0.06 |
| EVM Peak [%] /h         | 29.66   | 35.79   | 29.14   | 34.51  | 30.29  | 36.05  | 0.58 | 1.33 |
| EVM DMRS [%] /h         | 3.15    | 3.80    | 4.28    | 3.77   | 5.35   | 3.90   | 1.05 | 0.08 |
| MErr RMS [%] /h         | 3.09    | 3.58    | 3.10    | 3.38   | 3.15   | 3.61   | 0.03 | 0.22 |
| MErr Peak [%] /h        | -21.63  | -31.03  | 22.28   | 32.06  | -23.24 | -33.58 | 0.69 | 1.06 |
| MErr DMRS [%] /h        | 2.36    | 2.73    | 3.13    | 2.66   | 3.87   | 2.82   | 0.73 | 0.11 |
| PhErr RMS [%] /h        | 1.45    | 1.40    | 1.32    | 1.51   | 1.47   | 1.77   | 0.14 | 0.10 |
| PhErr Peak [%] /h       | 14.70   | 12.33   | 13.45   | 13.32  | 15.24  | 14.70  | 1.34 | 1.11 |
| PhErr DMRS [%] /h       | 1.20    | 1.51    | 1.67    | 1.53   | 2.12   | 1.61   | 0.44 | 0.02 |
| IQ Offset [dBc]         | -41.76  | -42.53  | -41.27  | 1.08   |        |        |      |      |
| IQ Gain Imbalance [dB]  | ---     | ---     | ---     | ---    |        |        |      |      |
| IQ Quadrature Error [°] | ---     | ---     | ---     | ---    |        |        |      |      |
| Freq Error [Hz]         | 1.12    | -2.37   | -4.92   | 1.54   |        |        |      |      |
| Timing Error [Ts]       | 3.92    | 3.09    | 4.20    | 0.65   |        |        |      |      |
| OBW [MHz]               | 0.89    | 0.88    | 0.89    | 0.01   |        |        |      |      |
|                         | Current | Average | Min     | Max    | StdDev |        |      |      |
| TX Power [dBm]          | 20.25   | 20.25   | 20.25   | 20.25  | 0.00   |        |      |      |
| Peak Power [dBm]        | 24.84   | 24.86   | 24.82   | 24.91  | 0.02   |        |      |      |
| RB Power [dBm]          | 13.32   | 13.31   | 13.29   | 13.32  | 0.01   |        |      |      |

Statistic Count

20 / 20

Out of Tolerance

0.00 %

Detected Modulation

QPSK

Detected Channel Type

PUSCH

View Filter

Throughput

100.0 %

PS: Attached RRC State: Connected

### QPSK 10MHz CH 21750 / 1RB#48 / Index 7

| CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement                                    |         |           |             |           |        |          |      |         |                  |         |
|---------------------------------------------------------------------------------------------------|---------|-----------|-------------|-----------|--------|----------|------|---------|------------------|---------|
| Multi Evaluation PRACH SRS                                                                        |         |           |             |           |        |          |      |         |                  |         |
| FDD                                                                                               | Freq:   | 910.0 MHz | Ref. Level: | 41.00 dBm | BW:    | 10.0 MHz | CP:  | Normal  | Meas Subfr/Slot: | 0 / All |
| TX Measurement                                                                                    |         |           |             |           |        |          |      |         |                  |         |
|                                                                                                   | Current | Average   | Extreme     | StdDev    |        |          |      |         |                  |         |
| EVM RMS [%] /h                                                                                    | 2.45    | 2.92      | 3.02        | 3.31      | 3.59   | 3.71     | 0.54 | 0.36    |                  |         |
| EVM Peak [%] /h                                                                                   | 9.36    | 14.49     | 10.74       | 13.90     | 12.65  | 14.78    | 1.60 | 0.58    |                  |         |
| EVM DMRS [%] /h                                                                                   | 3.87    | 2.25      | 3.01        | 3.06      | 3.93   | 3.78     | 1.02 | 0.61    |                  |         |
| MErr RMS [%] /h                                                                                   | 2.06    | 2.63      | 2.62        | 2.84      | 3.17   | 3.09     | 0.54 | 0.21    |                  |         |
| MErr Peak [%] /h                                                                                  | -8.62   | -14.45    | 10.33       | 13.18     | -12.57 | -14.74   | 1.93 | 1.26    |                  |         |
| MErr DMRS [%] /h                                                                                  | 2.78    | 1.66      | 2.19        | 2.28      | 2.85   | 2.89     | 0.71 | 0.53    |                  |         |
| PhErr RMS [%] /h                                                                                  | 0.76    | 0.74      | 0.87        | 0.99      | 0.99   | 1.23     | 0.09 | 0.22    |                  |         |
| PhErr Peak [%] /h                                                                                 | 2.59    | 2.87      | 2.77        | 4.04      | 3.38   | 5.60     | 0.28 | 1.22    |                  |         |
| PhErr DMRS [%] /h                                                                                 | 1.54    | 0.87      | 1.18        | 1.17      | 1.57   | 1.43     | 0.42 | 0.20    |                  |         |
| IQ Offset [dBc]                                                                                   | -42.41  | -         | -           | -42.44    | -      | -42.10   | -    | 0.14    |                  |         |
| IQ Gain Imbalance [dB]                                                                            | ----    | ----      | ----        | ----      | ----   | ----     | ---- | ----    |                  |         |
| IQ Quadrature Error [°]                                                                           | ----    | ----      | ----        | ----      | ----   | ----     | ---- | ----    |                  |         |
| Freq Error [Hz]                                                                                   | -7.40   | -         | -           | -6.77     | -      | -10.23   | -    | 1.49    |                  |         |
| Timing Error [Ts]                                                                                 | 10.39   | -         | -           | 10.18     | -      | 12.23    | -    | 0.78    |                  |         |
| OBW [MHz]                                                                                         | 0.18    | -         | -           | 0.19      | -      | 0.19     | -    | 0.01    |                  |         |
|                                                                                                   | Current | Average   | Min         | Max       | StdDev |          |      |         |                  |         |
| TX Power [dBm]                                                                                    | 20.53   | 20.51     | 20.48       | 20.53     | 0.02   |          |      |         |                  |         |
| Peak Power [dBm]                                                                                  | 24.55   | 24.53     | 24.49       | 24.58     | 0.02   |          |      |         |                  |         |
| RB Power [dBm]                                                                                    | 20.51   | 20.51     | 20.50       | 20.52     | 0.00   |          |      |         |                  |         |
| Statistic Count Out of Tolerance Detected Modulation Detected Channel Type View Filter Throughput |         |           |             |           |        |          |      |         |                  |         |
| 20 / 20                                                                                           |         | 0.00 %    |             | QPSK      |        | PUSCH    |      | 100.0 % |                  |         |
| PS: Attached RRC State: Connected                                                                 |         |           |             |           |        |          |      |         |                  |         |

| Band 28 (700MHz) FDD |         |            |        |           |                  |                       |             |                    |                 |             |
|----------------------|---------|------------|--------|-----------|------------------|-----------------------|-------------|--------------------|-----------------|-------------|
| Bandwidth            | Channel | Modulation | RB No. | RB Offset | Narrowband Index | Max Power (Conducted) | Limit (dBm) | Antenna Gain (dBi) | Max Power (ERP) | Limit (dBm) |
| 20MHz                | 27310   | QPSK       | 1      | #2        | 0                | 21.33                 | 16.8~22.7   | 4.04               | 23.22           | 30          |
|                      |         |            | 6      | #2        | 0                | 21.01                 | 16.8~22.7   | 4.04               | 22.90           | 30          |
|                      | 27435   | QPSK       | 1      | #2        | 0                | 21.49                 | 16.8~22.7   | 4.04               | 23.38           | 30          |
|                      |         |            | 6      | #2        | 0                | 21.16                 | 16.8~22.7   | 4.04               | 23.05           | 30          |
|                      | 27560   | QPSK       | 1      | #97       | 15               | 21.36                 | 16.8~22.7   | 4.04               | 23.25           | 30          |
|                      |         |            | 6      | #92       | 15               | 20.82                 | 16.8~22.7   | 4.04               | 22.71           | 30          |

註：

- 一、適用於支援上行多頻傳輸（multi-tone transmissions）的終端設備。
- 二、僅適用於低、中、高頻道及最大頻道寬度。
- 三、RB offset 設定值及應檢項目之測試方法，依 3GPP TS 36.521-1 技術標準規定。
- 四、ERP= Conducted Power + Antenna Gain(dBi) - 2.15。

### QPSK 20MHz CH 27310 / 1RB#2 / Index 0

CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement

Multi Evaluation

PRACH

SRS

FDD

Freq: 713.0 MHz

Ref. Level: 41.00 dBm

BW: 20.0 MHz

CP: Normal

Meas Subtr/Slot

0 / All

TX Measurement

|                         | Current | Average | Extreme | StdDev |        |        |      |      |
|-------------------------|---------|---------|---------|--------|--------|--------|------|------|
| EVM RMS [%] /h          | 4.08    | 4.51    | 3.57    | 4.12   | 4.08   | 4.52   | 0.55 | 0.39 |
| EVM Peak [%] /h         | 13.35   | 14.29   | 12.53   | 15.13  | 13.67  | 16.30  | 1.00 | 0.94 |
| EVM DMRS [%] /h         | 4.33    | 4.88    | 4.27    | 3.63   | 4.33   | 4.88   | 0.04 | 1.70 |
| MErr RMS [%] /h         | 3.58    | 3.97    | 3.16    | 3.74   | 3.59   | 4.00   | 0.47 | 0.24 |
| MErr Peak [%] /h        | -13.34  | -14.19  | 12.14   | 15.07  | -13.66 | -16.29 | 1.39 | 0.97 |
| MErr DMRS [%] /h        | 3.18    | 3.75    | 3.09    | 2.80   | 3.18   | 3.79   | 0.04 | 1.36 |
| PhErr RMS [%] /h        | 1.13    | 1.25    | 0.97    | 1.02   | 1.14   | 1.26   | 0.16 | 0.25 |
| PhErr Peak [%] /h       | -3.80   | -5.61   | 3.20    | 4.30   | -4.01  | -5.95  | 0.60 | 1.41 |
| PhErr DMRS [%] /h       | 1.68    | 1.80    | 1.68    | 1.33   | 1.73   | 1.80   | 0.03 | 0.60 |
| IQ Offset [dBc]         | -43.31  | -42.97  | -42.72  |        |        |        |      | 0.14 |
| IQ Gain Imbalance [dB]  |         |         |         |        |        |        |      |      |
| IQ Quadrature Error [°] |         |         |         |        |        |        |      |      |
| Freq Error [Hz]         | -6.55   | -6.87   | -9.84   |        |        |        |      | 1.72 |
| Timing Error [Ts]       | 8.02    | 4.84    | 8.02    |        |        |        |      | 1.54 |
| OBW [MHz]               | 0.21    | 0.20    | 0.21    |        |        |        |      | 0.01 |
|                         |         |         |         |        |        |        |      |      |
|                         | Current | Average | Min     | Max    | StdDev |        |      |      |
| TX Power [dBm]          | 21.19   | 21.26   | 21.18   | 21.33  | 0.07   |        |      |      |
| Peak Power [dBm]        | 25.14   | 25.12   | 25.07   | 25.15  | 0.02   |        |      |      |
| RB Power [dBm]          | 21.25   | 21.28   | 21.24   | 21.33  | 0.04   |        |      |      |

Statistic Count

20 / 20

Out of Tolerance

0.00 %

Detected Modulation

QPSK

Detected Channel Type

PUSCH

View Filter Throughput

100.0 %

PS

Attached RRC State: Connected

### QPSK 20MHz CH 27310 / 6RB#2 / Index 0

| CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement |         |           |                  |           |                     |          |                       |        |                        |         |
|----------------------------------------------------------------|---------|-----------|------------------|-----------|---------------------|----------|-----------------------|--------|------------------------|---------|
| Multi Evaluation PRACH SRS                                     |         |           |                  |           |                     |          |                       |        |                        |         |
| FDD                                                            | Freq:   | 713.0 MHz | Ref. Level:      | 41.00 dBm | BW:                 | 20.0 MHz | CP:                   | Normal | Meas Subtr/Slot        | 0 / All |
| TX Measurement                                                 |         |           |                  |           |                     |          |                       |        |                        |         |
|                                                                | Current | Average   | Extreme          | StdDev    |                     |          |                       |        |                        |         |
| EVM RMS [%] /h                                                 | 4.61    | 6.63      | 4.51             | 5.81      | 4.66                | 6.70     | 0.12                  | 0.90   |                        |         |
| EVM Peak [%] /h                                                | 35.40   | 49.67     | 34.70            | 46.14     | 36.14               | 50.15    | 0.89                  | 3.69   |                        |         |
| EVM DMRS [%] /h                                                | 6.13    | 4.13      | 5.04             | 3.65      | 6.23                | 4.19     | 1.29                  | 0.49   |                        |         |
| MErr RMS [%] /h                                                | 3.36    | 5.27      | 3.33             | 4.58      | 3.38                | 5.31     | 0.02                  | 0.75   |                        |         |
| MErr Peak [%] /h                                               | -21.10  | -49.44    | 27.24            | 43.86     | -33.81              | -49.87   | 6.28                  | 5.71   |                        |         |
| MErr DMRS [%] /h                                               | 4.13    | 2.88      | 3.49             | 2.54      | 4.19                | 2.88     | 0.73                  | 0.31   |                        |         |
| PhErr RMS [%] /h                                               | 1.90    | 2.55      | 1.82             | 2.26      | 1.95                | 2.60     | 0.11                  | 0.32   |                        |         |
| PhErr Peak [%] /h                                              | 19.30   | -23.60    | 18.10            | 23.33     | 19.82               | -24.48   | 1.34                  | 0.42   |                        |         |
| PhErr DMRS [%] /h                                              | 2.61    | 1.70      | 2.10             | 1.51      | 2.68                | 1.76     | 0.63                  | 0.21   |                        |         |
| IQ Offset [dBc]                                                | -42.22  | -41.82    | -41.35           |           |                     |          |                       | 0.37   |                        |         |
| IQ Gain Imbalance [dB]                                         | ----    | ----      | ----             | ----      | ----                | ----     | ----                  | ----   |                        |         |
| IQ Quadrature Error [°]                                        | ----    | ----      | ----             | ----      | ----                | ----     | ----                  | ----   |                        |         |
| Freq Error [Hz]                                                | -2.85   | -3.16     | -5.91            |           |                     |          |                       | 1.27   |                        |         |
| Timing Error [Ts]                                              | 0.71    | 1.65      | 3.03             |           |                     |          |                       | 0.88   |                        |         |
| OBW [MHz]                                                      | 1.05    | 1.05      | 1.05             |           |                     |          |                       | 0.00   |                        |         |
|                                                                | Current | Average   | Min              | Max       | StdDev              |          |                       |        |                        |         |
| TX Power [dBm]                                                 | 20.93   | 20.97     | 20.93            | 21.01     | 0.03                |          |                       |        |                        |         |
| Peak Power [dBm]                                               | 25.39   | 25.41     | 25.35            | 25.50     | 0.04                |          |                       |        |                        |         |
| RB Power [dBm]                                                 | 13.24   | 13.25     | 13.23            | 13.27     | 0.02                |          |                       |        |                        |         |
|                                                                |         |           |                  |           |                     |          |                       |        |                        |         |
| Statistic Count                                                | 20 / 20 |           | Out of Tolerance | 0.00 %    | Detected Modulation | QPSK     | Detected Channel Type | PUSCH  | View Filter Throughput |         |
| PS: Attached RRC State: Connected                              |         |           |                  |           |                     |          |                       |        |                        |         |

### QPSK 20MHz CH 27435 / 1RB#2 / Index 0

| CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement |         |           |                  |           |                     |          |                       |        |                        |         |
|----------------------------------------------------------------|---------|-----------|------------------|-----------|---------------------|----------|-----------------------|--------|------------------------|---------|
| Multi Evaluation PRACH SRS                                     |         |           |                  |           |                     |          |                       |        |                        |         |
| FDD                                                            | Freq:   | 725.5 MHz | Ref. Level:      | 41.00 dBm | BW:                 | 20.0 MHz | CP:                   | Normal | Meas Subtr/Slot        | 0 / All |
| TX Measurement                                                 |         |           |                  |           |                     |          |                       |        |                        |         |
|                                                                | Current | Average   | Extreme          | StdDev    |                     |          |                       |        |                        |         |
| EVM RMS [%] /h                                                 | 2.99    | 3.73      | 3.59             | 4.17      | 4.15                | 4.56     | 0.56                  | 0.40   |                        |         |
| EVM Peak [%] /h                                                | 11.32   | 16.12     | 12.60            | 15.27     | 13.98               | 16.56    | 1.19                  | 0.88   |                        |         |
| EVM DMRS [%] /h                                                | 4.32    | 1.42      | 4.28             | 3.56      | 4.37                | 4.91     | 0.04                  | 1.70   |                        |         |
| MErr RMS [%] /h                                                | 2.67    | 3.51      | 3.19             | 3.78      | 3.67                | 4.02     | 0.08                  | 0.24   |                        |         |
| MErr Peak [%] /h                                               | -10.61  | -16.10    | 12.22            | 15.21     | -13.98              | -16.51   | 1.56                  | 0.91   |                        |         |
| MErr DMRS [%] /h                                               | 3.13    | 1.02      | 3.09             | 2.74      | 3.16                | 3.84     | 0.04                  | 1.37   |                        |         |
| PhErr RMS [%] /h                                               | 0.78    | 0.75      | 0.96             | 1.02      | 1.14                | 1.27     | 0.17                  | 0.26   |                        |         |
| PhErr Peak [%] /h                                              | 2.51    | -2.92     | 3.10             | 4.29      | -4.06               | -5.90    | 0.58                  | 1.42   |                        |         |
| PhErr DMRS [%] /h                                              | 1.70    | 0.57      | 1.68             | 1.31      | 1.74                | 1.82     | 0.03                  | 0.60   |                        |         |
| IQ Offset [dBc]                                                | -42.73  | -42.70    | -42.45           |           |                     |          |                       | 0.11   |                        |         |
| IQ Gain Imbalance [dB]                                         | ---     | ---       | ---              |           |                     |          |                       |        |                        |         |
| IQ Quadrature Error [°]                                        | ---     | ---       | ---              |           |                     |          |                       |        |                        |         |
| Freq Error [Hz]                                                | 4.32    | 1.34      | 4.62             |           |                     |          |                       | 1.82   |                        |         |
| Timing Error [Ts]                                              | 3.79    | 1.94      | 3.84             |           |                     |          |                       | 1.05   |                        |         |
| OBW [MHz]                                                      | 0.18    | 0.19      | 0.21             |           |                     |          |                       | 0.02   |                        |         |
|                                                                | Current | Average   | Min              | Max       | StdDev              |          |                       |        |                        |         |
| TX Power [dBm]                                                 | 21.49   | 21.42     | 21.34            | 21.49     | 0.07                |          |                       |        |                        |         |
| Peak Power [dBm]                                               | 25.20   | 25.24     | 25.20            | 25.28     | 0.02                |          |                       |        |                        |         |
| RB Power [dBm]                                                 | 21.48   | 21.44     | 21.40            | 21.49     | 0.04                |          |                       |        |                        |         |
|                                                                |         |           |                  |           |                     |          |                       |        |                        |         |
| Statistic Count                                                | 20 / 20 |           | Out of Tolerance | 0.00 %    | Detected Modulation | QPSK     | Detected Channel Type | PUSCH  | View Filter Throughput |         |
| PS: Attached RRC State: Connected                              |         |           |                  |           |                     |          |                       |        |                        |         |

### QPSK 20MHz CH 27435 / 6RB#2 / Index 0

CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement

Multi Evaluation

PRACH

SRS

FDD

Freq: 725.5 MHz

Ref Level: 41.00 dBm

BW: 20.0 MHz

CP: Normal

Meas Subtr/Slot

0 / All

TX Measurement

|                         | Current | Average | Extreme | StdDev |        |        |      |        |
|-------------------------|---------|---------|---------|--------|--------|--------|------|--------|
| EVM RMS [%] /h          | 4.65    | 6.65    | 4.54    | 5.83   | 4.70   | 6.73   | 0.12 | 0.90   |
| EVM Peak [%] /h         | 35.47   | 49.56   | 34.62   | 46.03  | 35.70  | 50.02  | 0.85 | 3.64   |
| EVM DMRS [%] /h         | 6.19    | 4.05    | 5.06    | 3.64   | 6.27   | 4.20   | 1.30 | 0.48   |
| MErr RMS [%] /h         | 3.41    | 5.27    | 3.37    | 4.60   | 3.42   | 5.35   | 0.03 | 0.74   |
| MErr Peak [%] /h        | -21.61  | -49.30  | 27.32   | 43.80  | -33.84 | -49.76 | 6.19 | 5.61   |
| MErr DMRS [%] /h        | 4.15    | 2.78    | 3.50    | 2.53   | 4.20   | 2.94   | 0.73 | 0.31   |
| PhErr RMS [%] /h        | 1.91    | 2.56    | 1.82    | 2.25   | 1.95   | 2.60   | 0.11 | 0.32   |
| PhErr Peak [%] /h       | 19.37   | -23.77  | 18.07   | 23.36  | 19.50  | -24.24 | 1.27 | 0.42   |
| PhErr DMRS [%] /h       | 2.65    | 1.69    | 2.11    | 1.50   | 2.70   | 1.75   | 0.64 | 0.21   |
| IQ Offset [dBc]         | -41.85  | -41.48  | -40.92  |        |        |        |      | 0.35   |
| IQ Gain Imbalance [dB]  | ---     | ---     | ---     | ---    | ---    | ---    | ---  | ---    |
| IQ Quadrature Error [°] | ---     | ---     | ---     | ---    | ---    | ---    | ---  | ---    |
| Freq Error [Hz]         | 1.93    | 3.03    | 5.41    |        |        |        |      | 1.23   |
| Timing Error [Ts]       | 1.80    | 1.18    | 2.52    |        |        |        |      | 0.88   |
| OBW [MHz]               | 1.05    | 1.05    | 1.05    |        |        |        |      | 0.00   |
|                         | Current | Average | Min     | Max    |        |        |      | StdDev |
| TX Power [dBm]          | 21.08   | 21.12   | 21.08   | 21.16  |        |        |      | 0.04   |
| Peak Power [dBm]        | 25.50   | 25.51   | 25.44   | 25.57  |        |        |      | 0.03   |
| RB Power [dBm]          | 13.39   | 13.40   | 13.39   | 13.42  |        |        |      | 0.02   |

Statistic Count

20 / 20

Out of Tolerance

0.00 %

Detected Modulation

QPSK

Detected Channel Type

PUSCH

View Filter Throughput

100.0 %

PS: Attached RRC State: Connected

### QPSK 20MHz CH 27560 / 1RB#97 / Index 15

CMW 500 V 3.7.120 - LTE Measurement - V3.7.70 - TX Measurement

Multi EvaluationPRACHSRS

FDDFreq: 738.0 MHzRef Level: 41.00 dBmBW: 20.0 MHzCP: NormalMeas Subtr/Slot: 0 / All

TX Measurement

|                         | Current | Average | Extreme | StdDev |        |        |      |      |
|-------------------------|---------|---------|---------|--------|--------|--------|------|------|
| EVM RMS [%] /h          | 2.90    | 3.79    | 2.93    | 3.69   | 2.99   | 3.81   | 0.03 | 0.07 |
| EVM Peak [%] /h         | 10.65   | 17.70   | 10.44   | 16.03  | 11.21  | 17.98  | 0.45 | 1.55 |
| EVM DMRS [%] /h         | 3.92    | 4.54    | 4.03    | 3.38   | 4.31   | 4.59   | 0.15 | 1.58 |
| MErr RMS [%] /h         | 2.37    | 3.23    | 2.46    | 3.16   | 2.58   | 3.25   | 0.09 | 0.05 |
| MErr Peak [%] /h        | -9.27   | -15.04  | 9.53    | 14.62  | -9.89  | -15.32 | 0.19 | 0.31 |
| MErr DMRS [%] /h        | 2.65    | 3.72    | 2.76    | 2.74   | 2.95   | 3.74   | 0.10 | 1.31 |
| PhErr RMS [°] /h        | 0.97    | 1.18    | 0.93    | 1.13   | 1.05   | 1.21   | 0.10 | 0.04 |
| PhErr Peak [°] /h       | -4.38   | 5.81    | 3.49    | 4.99   | -4.67  | 6.20   | 1.01 | 0.82 |
| PhErr DMRS [°] /h       | 1.65    | 1.51    | 1.67    | 1.15   | 1.84   | 1.59   | 0.07 | 0.52 |
| IQ Offset [dBc]         | -42.59  | -42.58  | -42.29  |        |        |        |      | 0.10 |
| IQ Gain Imbalance [dB]  | ---     | ---     | ---     |        |        |        |      |      |
| IQ Quadrature Error [°] | ---     | ---     | ---     |        |        |        |      |      |
| Freq Error [Hz]         | -2.70   | -2.25   | -5.29   |        |        |        |      | 1.39 |
| Timing Error [Ts]       | 3.59    | 4.43    | 8.56    |        |        |        |      | 1.38 |
| OBW [MHz]               | 0.19    | 0.19    | 0.19    |        |        |        |      | 0.00 |
|                         | Current | Average | Min     | Max    | StdDev |        |      |      |
| TX Power [dBm]          | 21.26   | 21.30   | 20.91   | 21.36  |        |        |      | 0.05 |
| Peak Power [dBm]        | 25.15   | 25.17   | 24.95   | 25.26  |        |        |      | 0.02 |
| RB Power [dBm]          | 21.32   | 21.32   | 20.97   | 21.34  |        |        |      | 0.03 |

Statistic Count: 20 / 20Out of Tolerance: 0.00 %Detected Modulation: QPSKDetected Channel Type: PUSCHView Filter Throughput: 100.0 %

PS: Attached RRC State: Connected

## 5.2 發射頻譜波罩

### 5.2.1 合格標準

需符合下表之頻譜波罩規範值

Cat-M1 終端設備頻譜波罩規範值

| $\Delta f_{\text{OOB}}$<br>(MHz) | 發射限制值(dB)/頻道頻寬 |       |       |       |       |       |       |
|----------------------------------|----------------|-------|-------|-------|-------|-------|-------|
|                                  | 1.4MHz         | 3MHz  | 5MHz  | 10MHz | 15MHz | 20MHz | 解析頻寬  |
| $\pm 0$ to 1                     | -8.5           | -11.5 | -13.5 | -16.5 | -18.5 | -19.5 | 30kHz |
| $\pm 1$ to 2.5                   | -8.5           | -8.5  | -8.5  | -8.5  | -8.5  | -8.5  | 1MHz  |
| $\pm 2.5$ to 2.8                 | -23.5          | -8.5  | -8.5  | -8.5  | -8.5  | -8.5  | 1MHz  |
| $\pm 2.8$ to 5                   |                | -8.5  | -8.5  | -8.5  | -8.5  | -8.5  | 1MHz  |
| $\pm 5$ to 6                     |                | -23.5 | -11.5 | -11.5 | -11.5 | -11.5 | 1MHz  |
| $\pm 6$ to 10                    |                |       | -23.5 | -11.5 | -11.5 | -11.5 | 1MHz  |
| $\pm 10$ to 15                   |                |       |       | -23.5 | -11.5 | -11.5 | 1MHz  |
| $\pm 15$ to 20                   |                |       |       |       | -23.5 | -11.5 | 1MHz  |
| $\pm 20$ to 25                   |                |       |       |       |       | -23.5 | 1MHz  |

註： $\Delta f_{\text{OOB}}$  是發射頻帶外的頻率偏移量 ( $\Delta$ Frequency of Out-of-band emission)。

## 5.2.2 測試方法

Cat-M1 終端設備頻譜波罩之頻道頻寬測試參數

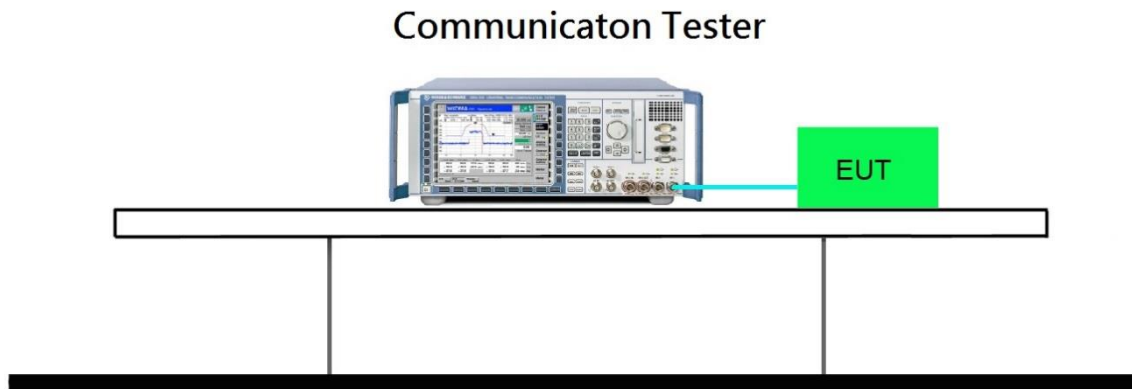
| 預設條件        |               |                     |                 |     |           |
|-------------|---------------|---------------------|-----------------|-----|-----------|
| 測試環境        |               | 常態環境常態電壓            |                 |     |           |
| 測試頻道        |               | 低、中、高               |                 |     |           |
| 測試頻道頻寬      |               | 最低、5MHz、10MHz、15MHz |                 |     |           |
| 測試參數        |               |                     |                 |     |           |
| 頻道頻寬        | 下行結構          | 上行結構                |                 |     |           |
|             |               | 調變方式                | 資源區塊分配          |     |           |
|             |               |                     | FDD 及<br>HD-FDD | TDD | 窄頻索引(註 1) |
| 低頻道、中頻道     |               |                     |                 |     |           |
| 1.4MHz      | 頻譜波罩<br>測試不適用 | QPSK                | 2               | 2   | 0         |
| 1.4MHz      |               | QPSK                | 5               | 5   | 0         |
| 1.4MHz      |               | QPSK                | 6               | 6   | 0         |
| 1.4MHz      |               | 16QAM               | 2               | 2   | 0         |
| 1.4MHz      |               | 16QAM               | 5               | 5   | 0         |
| 3MHz        |               | QPSK                | 2               | 2   | 0         |
| 3MHz        |               | QPSK                | 5               | 5   | 0         |
| 3MHz        |               | QPSK                | 6               | 6   | 0         |
| 3MHz        |               | 16QAM               | 2               | 2   | 0         |
| 3MHz        |               | 16QAM               | 5               | 5   | 0         |
| 5MHz        |               | QPSK                | 6               | 6   | 0         |
| 5MHz (註 3)  |               | 16QAM               | 1               | 1   | 0         |
| 5MHz        |               | 16QAM               | 3               | 3   | 0         |
| 5MHz        |               | 16QAM               | 5               | 5   | 0         |
| 10MHz (註 3) |               | QPSK                | 4               | 4   | 0         |
| 10MHz       |               | QPSK                | 6               | 6   | 0         |
| 10MHz (註 3) |               | 16QAM               | 3               | 3   | 0         |
| 10MHz       |               | 16QAM               | 5               | 5   | 0         |
| 15MHz       |               | QPSK                | 6               | 6   | 0         |
| 15MHz       |               | 16QAM               | 5               | 5   | 0         |

| 高頻道         |               |       |   |   |    |
|-------------|---------------|-------|---|---|----|
| 1.4MHz      | 頻譜波罩<br>測試不適用 | QPSK  | 2 | 2 | 0  |
| 1.4MHz      |               | QPSK  | 5 | 5 | 0  |
| 1.4MHz      |               | QPSK  | 6 | 6 | 0  |
| 1.4MHz      |               | 16QAM | 2 | 2 | 0  |
| 1.4MHz      |               | 16QAM | 5 | 5 | 0  |
| 3MHz        |               | QPSK  | 2 | 2 | 1  |
| 3MHz        |               | QPSK  | 5 | 5 | 1  |
| 3MHz        |               | QPSK  | 6 | 6 | 1  |
| 3MHz        |               | 16QAM | 2 | 2 | 1  |
| 3MHz        |               | 16QAM | 5 | 5 | 1  |
| 5MHz        |               | QPSK  | 6 | 6 | 3  |
| 5MHz (註 3)  |               | 16QAM | 1 | 1 | 3  |
| 5MHz        |               | 16QAM | 3 | 3 | 3  |
| 5MHz        |               | 16QAM | 5 | 5 | 3  |
| 10MHz (註 3) |               | QPSK  | 4 | 4 | 7  |
| 10MHz       |               | QPSK  | 6 | 6 | 7  |
| 10MHz (註 3) |               | 16QAM | 3 | 3 | 7  |
| 10MHz       |               | 16QAM | 5 | 5 | 7  |
| 15MHz       |               | QPSK  | 6 | 6 | 11 |
| 15MHz       |               | 16QAM | 5 | 5 | 11 |

註:

- 1、窄頻索引(Narrowband Index)定義依 3GPP TS 36.211 5.2.4 規定。
- 2、RB offset 設定值及應檢項目之測試方法，依 3GPP TS 36.521-1 技術標準規定。
- 3、僅適用於 Power Class 3 之用戶設備。

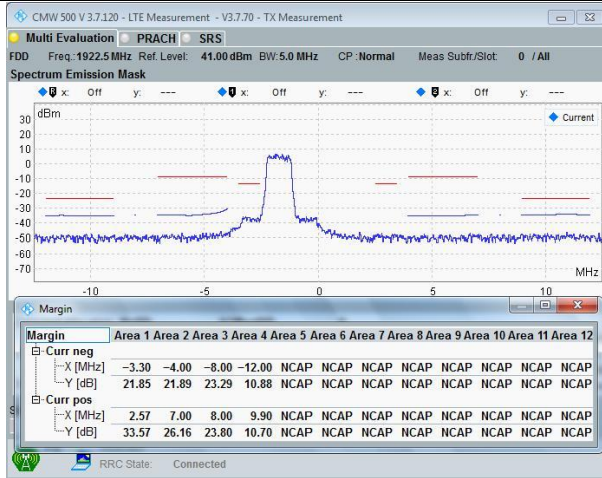
### 5.2.3 實驗方法方塊圖



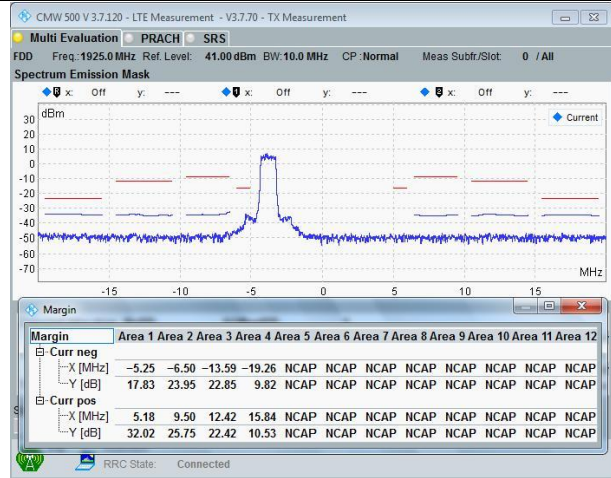
## 5.2.4 實驗數據

| Band 1 (2100MHz) |         |       |          |        |           |                  |            |           |             |           |         |          |           |           |           |
|------------------|---------|-------|----------|--------|-----------|------------------|------------|-----------|-------------|-----------|---------|----------|-----------|-----------|-----------|
| Modulation       | Test CH | CH    | BW (MHz) | RB No. | RB Offset | Narrowband Index | Margin(dB) |           |             |           |         |          |           |           |           |
|                  |         |       |          |        |           |                  | ±0 to 1    | ±1 to 2.5 | ±2.5 to 2.8 | ±2.8 to 5 | ±5 to 6 | ±6 to 10 | ±10 to 15 | ±15 to 20 | ±20 to 25 |
| QPSK             | LOW     | 18025 | 5MHz     | 6      | 0         | 0                | 21.85      | 21.89     |             | 23.29     |         | 10.70    | N/A       | N/A       | N/A       |
|                  |         | 18050 | 10MHz    | 6      | 1         | 0                | 17.83      | 23.95     |             | 22.42     |         | 9.82     | N/A       | N/A       | N/A       |
|                  |         | 18075 | 15MHz    | 6      | 1         | 0                | 14.24      | 24.72     |             | 21.96     |         | 10.74    |           | N/A       | N/A       |
|                  | MID     | 18300 | 5MHz     | 6      | 0         | 0                | 20.15      | 21.18     |             | 23.18     | 10.76   | N/A      | N/A       | N/A       | N/A       |
|                  |         |       | 10MHz    | 6      | 1         | 0                | 17.91      | 24.56     |             | 22.85     |         | 10.39    | N/A       | N/A       | N/A       |
|                  |         |       | 15MHz    | 6      | 1         | 0                | 12.60      | 24.24     |             | 22.01     |         | 10.74    |           | N/A       | N/A       |
|                  | HIGH    | 18575 | 5MHz     | 6      | 19        | 3                | 20.34      | 21.90     |             | 23.14     | 11.02   | N/A      | N/A       | N/A       | N/A       |
|                  |         | 18550 | 10MHz    | 6      | 43        | 7                | 17.89      | 24.25     |             | 22.75     |         | 10.44    | N/A       | N/A       | N/A       |
|                  |         | 18525 | 15MHz    | 6      | 68        | 11               | 14.03      | 24.86     |             | 21.89     |         | 10.96    |           | N/A       | N/A       |
| 16-QAM           | LOW     | 18025 | 5MHz     | 3      | 0         | 0                | 9.96       | 24.20     |             | 23.30     | 10.82   | N/A      | N/A       | N/A       | N/A       |
|                  |         |       |          | 5      | 0         | 0                | 17.90      | 22.38     |             | 23.34     | 11.11   | N/A      | N/A       | N/A       | N/A       |
|                  |         | 18050 | 10MHz    | 5      | 1         | 0                | 14.29      | 25.09     |             | 22.71     |         | 10.31    | N/A       | N/A       | N/A       |
|                  |         | 18075 | 15MHz    | 5      | 1         | 0                | 17.76      | 25.31     |             | 22.12     |         | 10.89    |           | N/A       | N/A       |
|                  | MID     | 18300 | 5MHz     | 3      | 0         | 0                | 10.75      | 24.86     |             | 23.01     | 10.73   | N/A      | N/A       | N/A       | N/A       |
|                  |         |       |          | 5      | 0         | 0                | 17.16      | 21.46     |             | 22.89     | 10.99   | N/A      | N/A       | N/A       | N/A       |
|                  |         |       | 10MHz    | 5      | 1         | 0                | 14.26      | 24.25     |             | 22.49     |         | 10.17    | N/A       | N/A       | N/A       |
|                  |         |       | 15MHz    | 5      | 1         | 0                | 17.52      | 24.46     |             | 22.14     |         | 10.84    |           | N/A       | N/A       |
|                  | HIGH    | 18575 | 5MHz     | 3      | 22        | 3                | 11.23      | 24.71     |             | 23.16     | 11.02   | N/A      | N/A       | N/A       | N/A       |
|                  |         |       |          | 5      | 20        | 3                | 14.37      | 22.67     |             | 22.95     | 10.55   | N/A      | N/A       | N/A       | N/A       |
|                  |         | 18550 | 10MHz    | 5      | 44        | 7                | 15.74      | 24.58     |             | 22.32     |         | 10.03    | N/A       | N/A       | N/A       |
|                  |         | 18525 | 15MHz    | 5      | 69        | 11               | 17.22      | 25.59     |             | 22.14     |         | 10.97    |           | N/A       | N/A       |

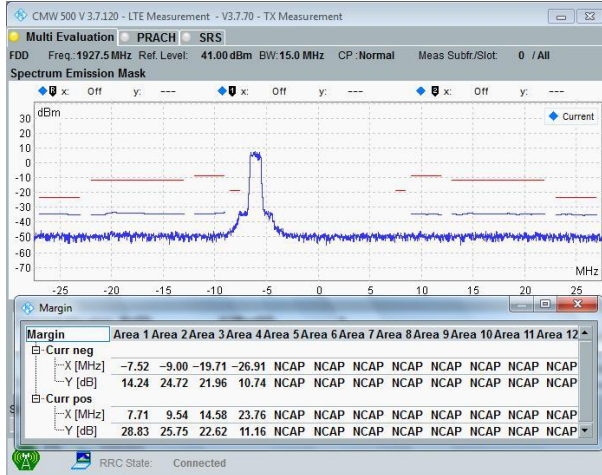
### QPSK 5MHz CH 18025 / 6RB#0 / Index 0



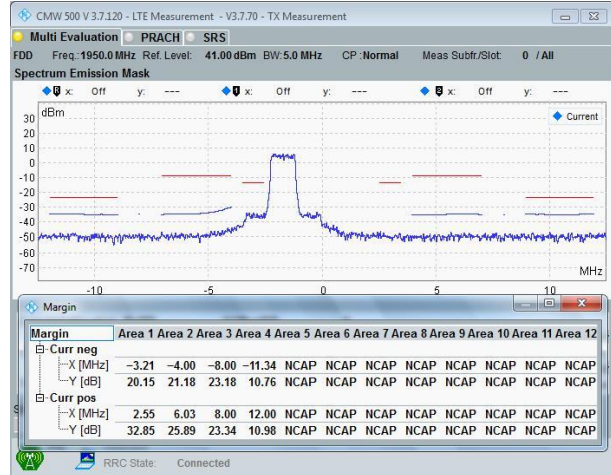
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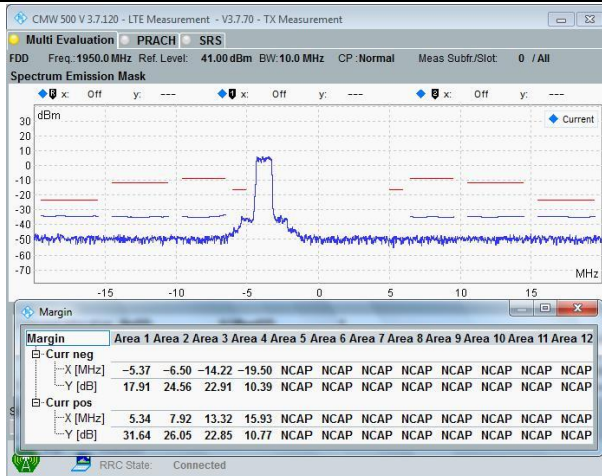
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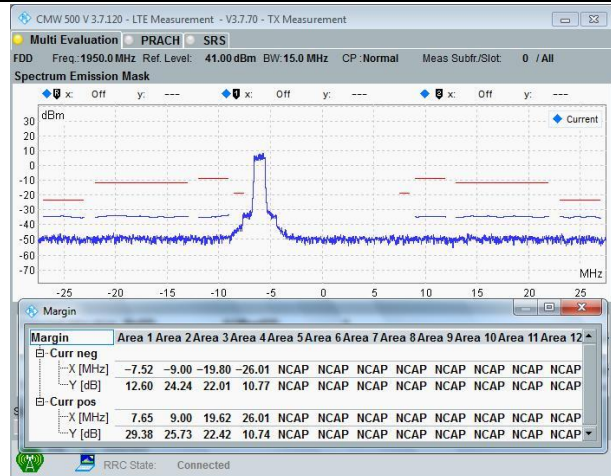
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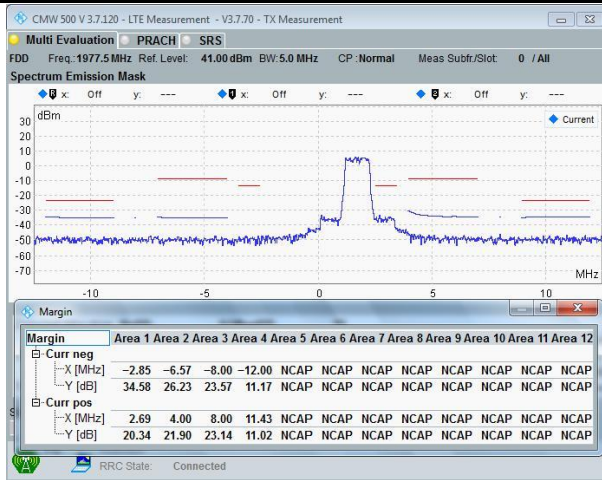
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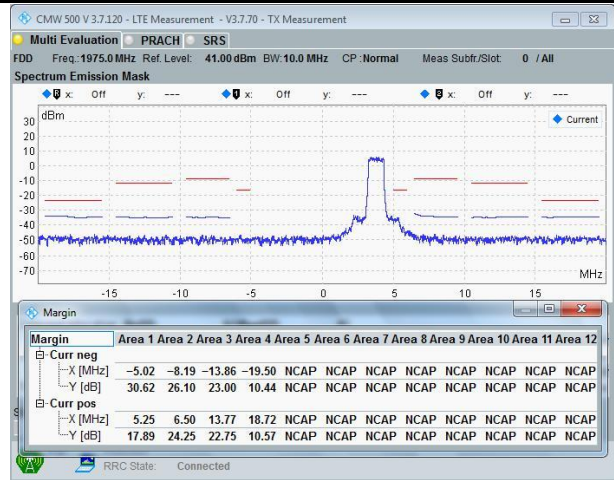
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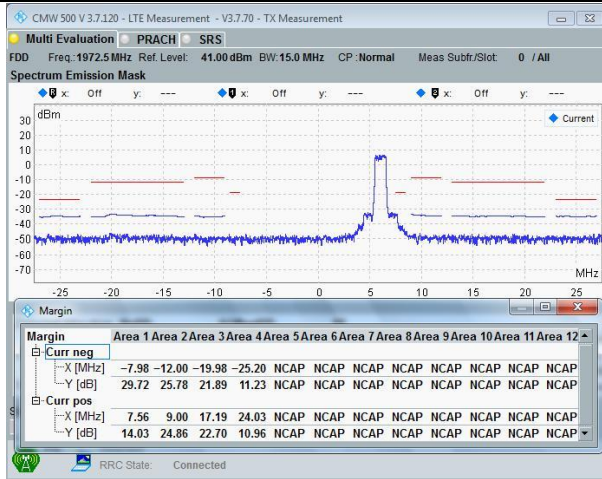
### QPSK 5MHz CH 18575 / 6RB#19 / Index 3



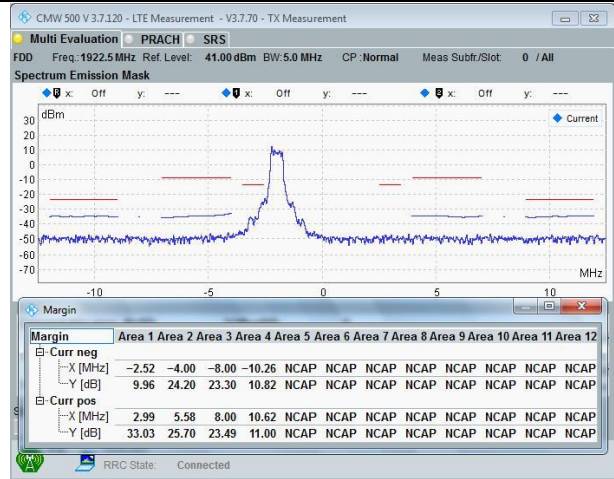
### QPSK 10MHz CH 18550 / 6RB#43 / Index 7



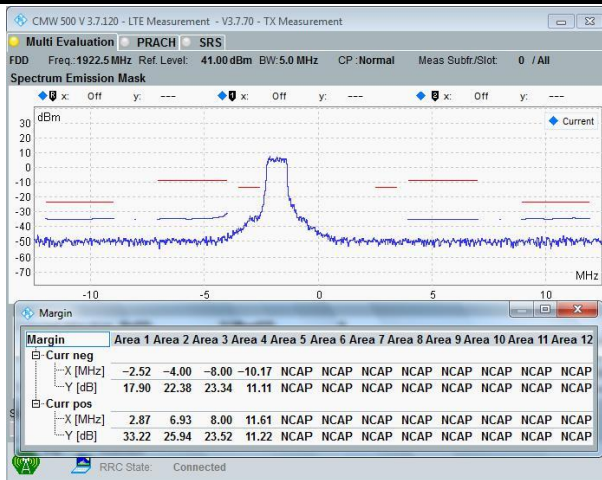
### QPSK 15MHz CH 18525 / 6RB#68 / Index 11



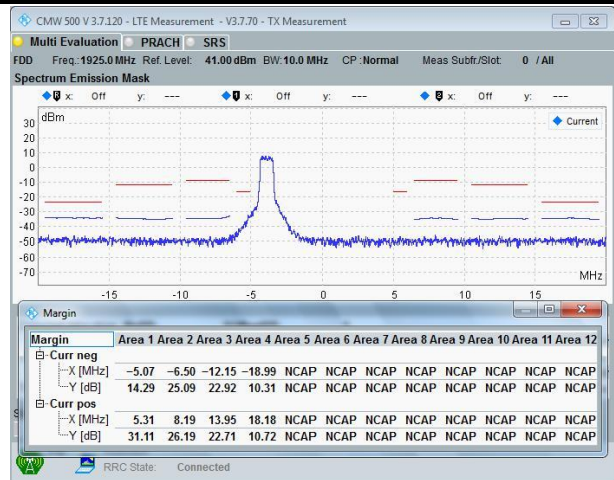
### 16QAM 5MHz CH 18025 / 3RB#0 / Index 0



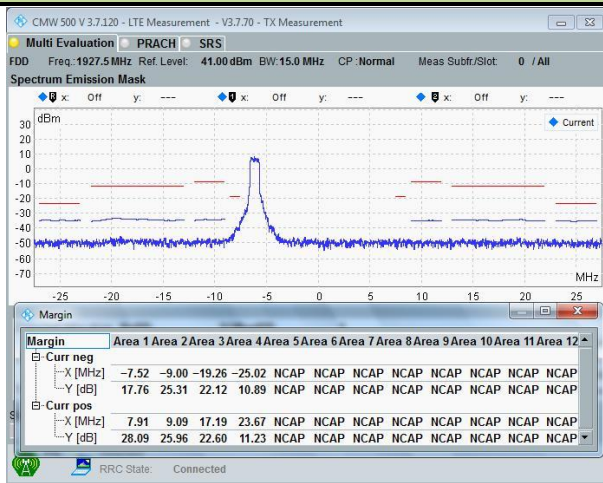
### 16QAM 5MHz CH 18025 / 5RB#0 / Index 0



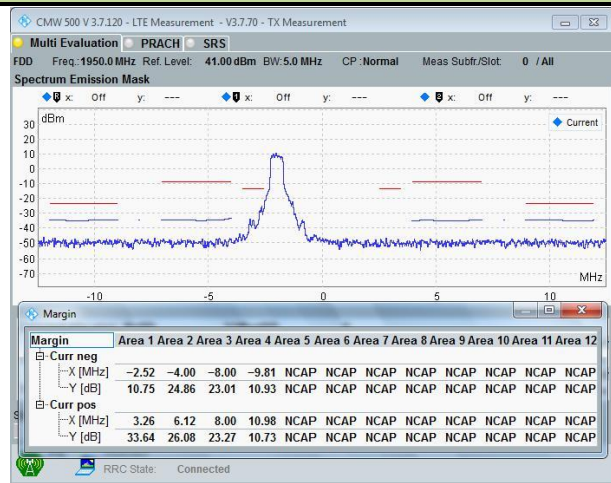
### 16QAM 10MHz CH 18050 / 5RB#1 / Index 0



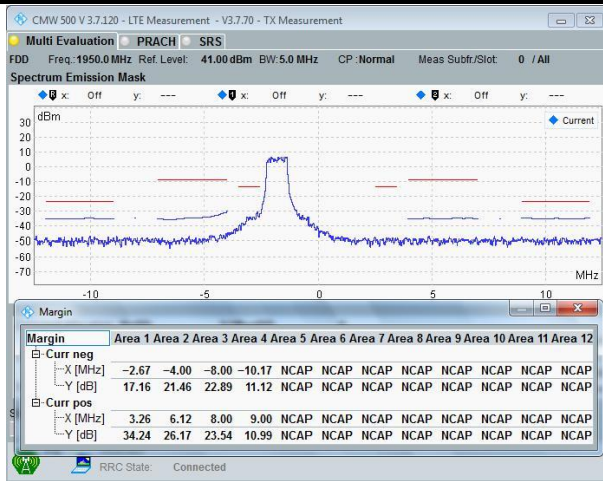
### 16QAM 15MHz CH 18075 / 5RB#1 / Index 0



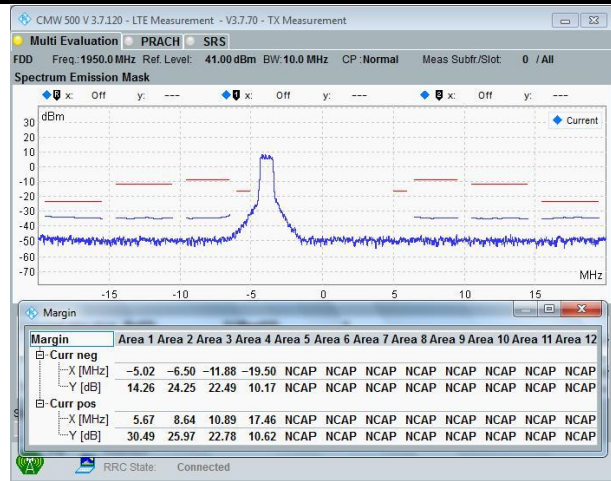
### 16QAM 5MHz CH 18300 / 3RB#0 / Index 0



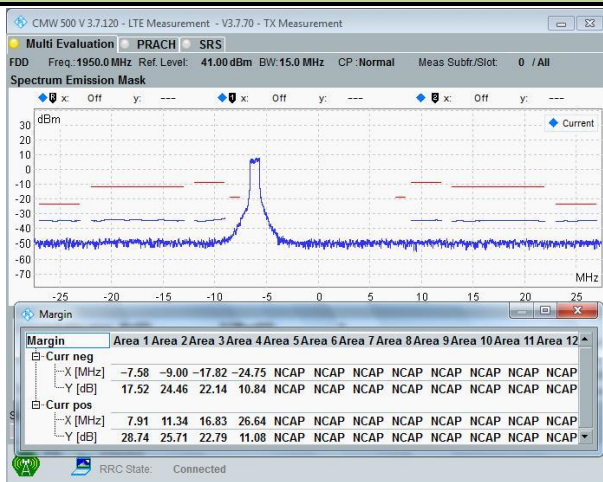
### 16QAM 5MHz CH 18300 / 5RB#0 / Index 0



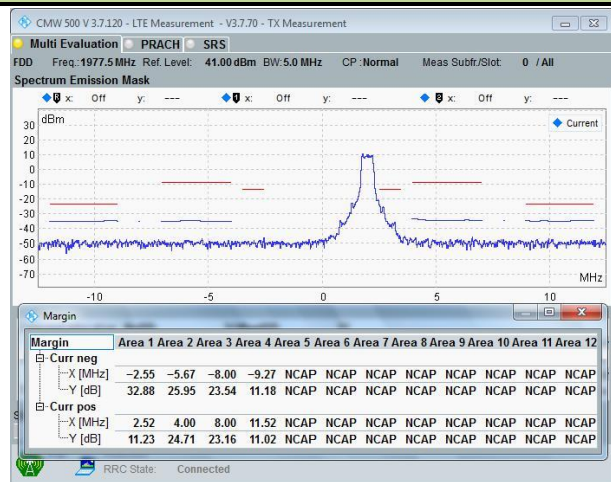
### 16QAM 10MHz CH 18300 / 5RB#1 / Index 0



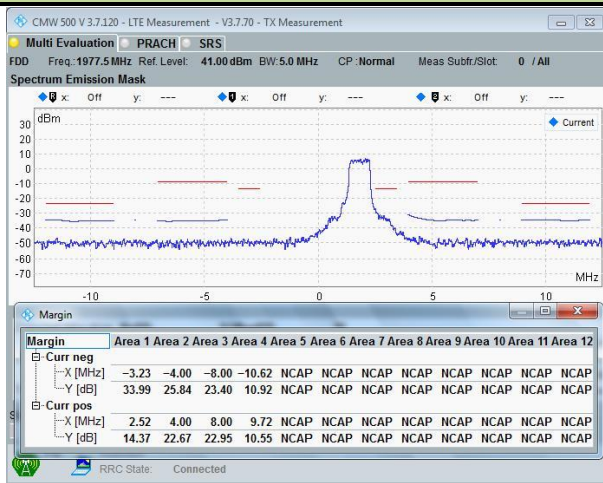
### 16QAM 15MHz CH 18300 / 5RB#1 / Index 0



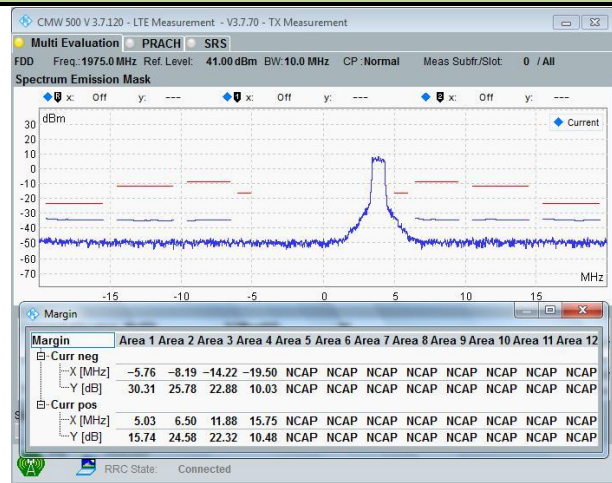
### 16QAM 5MHz CH 18575 / 3RB#22 / Index 3



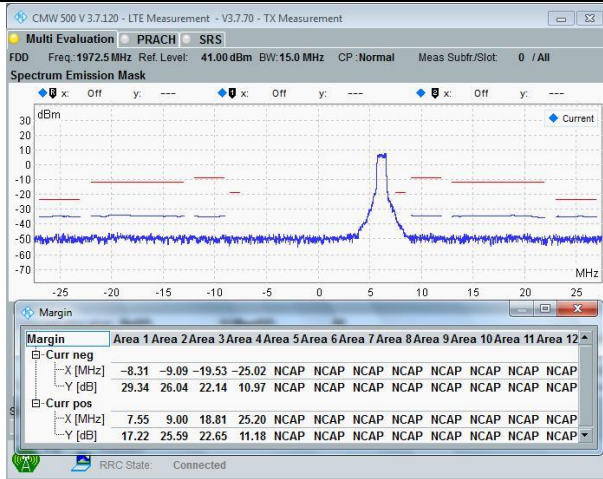
### 16QAM 5MHz CH 18575 / 5RB#20 / Index 3



### 16QAM 10MHz CH 18550 / 5RB#44 / Index 7



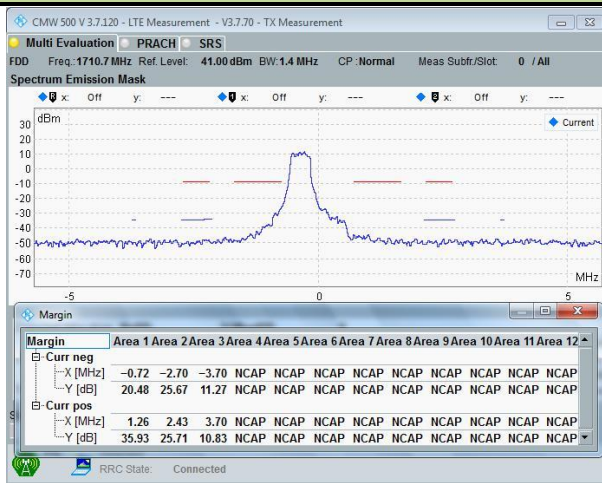
### 16QAM 15MHz CH 18525 / 5RB#69 / Index 11



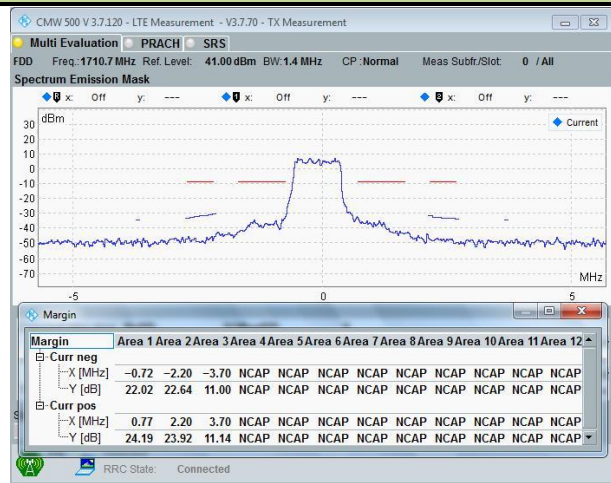
| Band 3 (1800MHz) |         |       |          |        |           |                  |            |        |        |      |       |       |       |       |       |
|------------------|---------|-------|----------|--------|-----------|------------------|------------|--------|--------|------|-------|-------|-------|-------|-------|
| Modulation       | Test CH | CH    | BW (MHz) | RB No. | RB Offset | Narrowband Index | Margin(dB) |        |        |      |       |       |       |       |       |
|                  |         |       |          |        |           |                  | ±0         | ±1     | ±2.5   | ±2.8 | ±5    | ±6    | ±10   | ±15   | ±20   |
|                  |         |       |          |        |           |                  | to 1       | to 2.5 | to 2.8 | to 5 | to 6  | to 10 | to 15 | to 20 | to 25 |
| QPSK             | LOW     | 19207 | 1.4MHz   | 2      | 0         | 0                | 20.48      | 25.67  | 10.83  | N/A  | N/A   | N/A   | N/A   | N/A   | N/A   |
|                  |         |       |          | 5      | 0         | 0                | 22.02      | 22.64  | 11.00  | N/A  | N/A   | N/A   | N/A   | N/A   | N/A   |
|                  |         |       |          | 6      | 0         | 0                | 24.45      | 21.95  | 12.08  | N/A  | N/A   | N/A   | N/A   | N/A   | N/A   |
|                  |         | 19225 | 5MHz     | 6      | 0         | 0                | 22.54      | 21.81  |        |      | 23.28 | 10.72 | N/A   | N/A   | N/A   |
|                  |         | 19250 | 10MHz    | 6      | 1         | 0                | 19.77      | 24.24  |        |      | 22.23 |       | 10.12 | N/A   | N/A   |
|                  |         | 19275 | 15MHz    | 6      | 1         | 0                | 15.69      | 23.97  |        |      | 22.05 |       |       | 10.61 | N/A   |
|                  | MID     | 19575 | 1.4MHz   | 2      | 0         | 0                | 22.19      | 25.59  | 10.81  | N/A  | N/A   | N/A   | N/A   | N/A   | N/A   |
|                  |         |       |          | 5      | 0         | 0                | 20.02      | 22.66  | 14.08  | N/A  | N/A   | N/A   | N/A   | N/A   | N/A   |
|                  |         |       |          | 6      | 0         | 0                | 22.56      | 23.65  | 14.60  | N/A  | N/A   | N/A   | N/A   | N/A   | N/A   |
|                  |         |       | 5MHz     | 6      | 0         | 0                | 22.53      | 22.02  |        |      | 22.80 | 10.36 | N/A   | N/A   | N/A   |
|                  |         |       | 10MHz    | 6      | 1         | 0                | 19.47      | 23.96  |        |      | 22.35 |       | 10.13 | N/A   | N/A   |
|                  |         |       | 15MHz    | 6      | 1         | 0                | 14.75      | 23.99  |        |      | 21.87 |       |       | 10.59 | N/A   |
|                  | HIGH    | 19943 | 1.4MHz   | 2      | 4         | 0                | 22.24      | 26.95  | 12.21  | N/A  | N/A   | N/A   | N/A   | N/A   | N/A   |
|                  |         |       |          | 5      | 1         | 0                | 24.90      | 23.61  | 12.13  | N/A  | N/A   | N/A   | N/A   | N/A   | N/A   |
|                  |         |       |          | 6      | 0         | 0                | 22.80      | 23.15  | 12.07  | N/A  | N/A   | N/A   | N/A   | N/A   | N/A   |
|                  |         | 19925 | 5MHz     | 6      | 19        | 3                | 20.31      | 22.59  |        |      | 22.57 | 10.30 | N/A   | N/A   | N/A   |
|                  |         | 19900 | 10MHz    | 6      | 43        | 7                | 20.45      | 25.06  |        |      | 21.91 |       | 9.98  | N/A   | N/A   |
|                  |         | 19875 | 15MHz    | 6      | 68        | 11               | 16.15      | 24.24  |        |      | 21.83 |       |       | 10.28 | N/A   |
| 16-QAM           | LOW     | 19207 | 1.4MHz   | 2      | 0         | 0                | 17.20      | 26.93  | 12.47  | N/A  | N/A   | N/A   | N/A   | N/A   | N/A   |
|                  |         |       |          | 5      | 0         | 0                | 21.88      | 22.50  | 12.06  | N/A  | N/A   | N/A   | N/A   | N/A   | N/A   |
|                  |         | 19225 | 5MHz     | 3      | 0         | 0                | 11.49      | 25.19  |        |      | 22.64 | 10.47 | N/A   | N/A   | N/A   |
|                  |         |       |          | 5      | 0         | 0                | 23.05      | 23.05  |        |      | 23.13 | 10.45 | N/A   | N/A   | N/A   |
|                  |         | 19250 | 10MHz    | 5      | 1         | 0                | 16.24      | 24.16  |        |      | 22.56 |       | 10.22 | N/A   | N/A   |
|                  |         | 19275 | 15MHz    | 5      | 1         | 0                | 18.47      | 24.72  |        |      | 21.82 |       |       | 10.41 | N/A   |
|                  | MID     | 19575 | 1.4MHz   | 2      | 0         | 0                | 20.76      | 25.41  | 10.78  | N/A  | N/A   | N/A   | N/A   | N/A   | N/A   |
|                  |         |       |          | 5      | 0         | 0                | 21.45      | 22.63  | 10.68  | N/A  | N/A   | N/A   | N/A   | N/A   | N/A   |
|                  |         |       | 5MHz     | 3      | 0         | 0                | 12.23      | 24.79  |        |      | 22.87 | 10.38 | N/A   | N/A   | N/A   |
|                  |         |       |          | 5      | 0         | 0                | 17.11      | 22.37  |        |      | 23.04 | 10.76 | N/A   | N/A   | N/A   |
|                  |         |       | 10MHz    | 5      | 1         | 0                | 16.05      | 24.49  |        |      | 22.25 |       | 9.96  | N/A   | N/A   |
|                  |         |       | 15MHz    | 5      | 1         | 0                | 18.43      | 24.44  |        |      | 21.98 |       |       | 10.45 | N/A   |
|                  | HIGH    | 19943 | 1.4MHz   | 2      | 4         | 0                | 22.22      | 26.84  | 12.61  | N/A  | N/A   | N/A   | N/A   | N/A   | N/A   |

|  |  |       |       |   |    |       |       |       |     |       |       |     |     |     |
|--|--|-------|-------|---|----|-------|-------|-------|-----|-------|-------|-----|-----|-----|
|  |  |       | 5     | 1 | 0  | 22.07 | 24.15 | 11.95 | N/A | N/A   | N/A   | N/A | N/A | N/A |
|  |  | 19925 | 5MHz  | 3 | 22 | 3     | 12.31 | 25.23 |     | 22.53 | 10.05 | N/A | N/A | N/A |
|  |  |       |       | 5 | 20 | 3     | 19.09 | 22.83 |     | 22.48 | 10.02 | N/A | N/A | N/A |
|  |  | 19900 | 10MHz | 5 | 44 | 7     | 17.64 | 24.55 |     | 22.15 | 9.59  | N/A | N/A | N/A |
|  |  | 19875 | 15MHz | 5 | 69 | 11    | 19.82 | 24.99 |     | 21.78 | 10.37 | N/A | N/A | N/A |

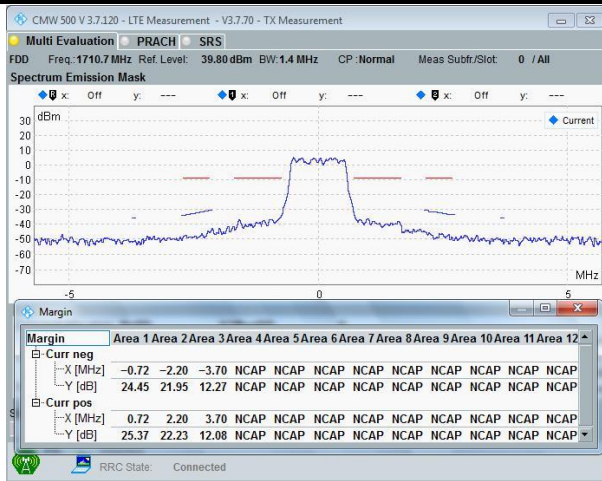
### QPSK 1.4MHz CH 19207 / 2RB#0 / Index 0



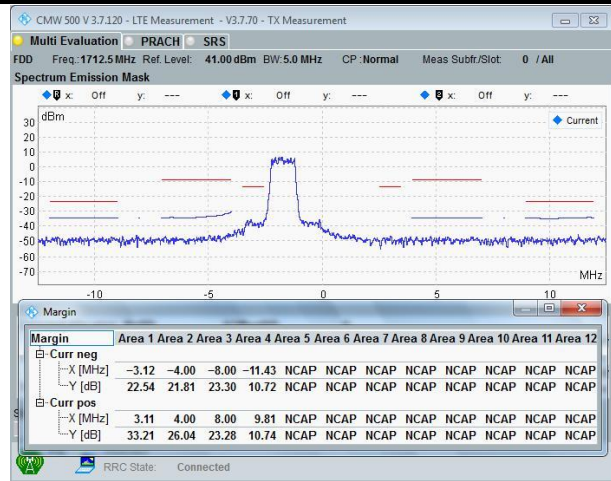
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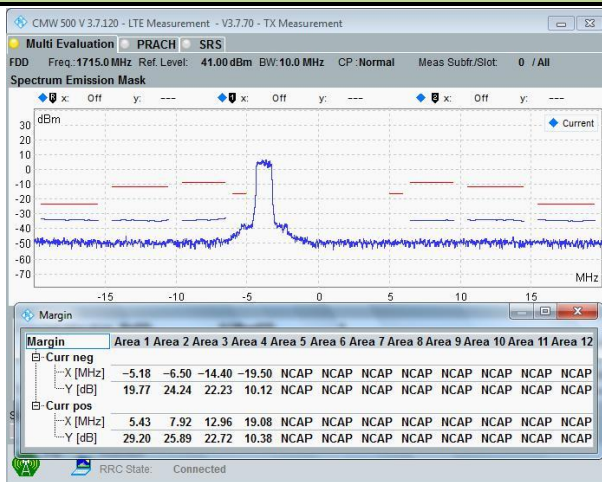
### QPSK 1.4MHz CH 19207 / 6RB#0 / Index 0



### QPSK 5MHz CH 19225 / 6RB#0 / Index 0



### QPSK 10MHz CH 19250 / 6RB#1 / Index 0



### QPSK 15MHz CH 19275 / 6RB#1 / Index 0

