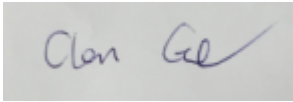


# RF TEST REPORT



Report No.: FCC\_RF\_SL16031001-SPC-003\_0412  
Supersede Report No.:

|                                                                                                                                      |                                                    |                                                                                      |  |
|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------------------|--|
| Applicant                                                                                                                            | SpiderCloud Wireless, Inc.                         |                                                                                      |  |
| Product Name                                                                                                                         | Universal Small Cell 8818 LTE/LTE Module           |                                                                                      |  |
| Model No.                                                                                                                            | USC8818-C412-K9                                    |                                                                                      |  |
| Test Standard                                                                                                                        | 47CFR Part27                                       |                                                                                      |  |
| Test Method                                                                                                                          | TIA-603-D: 2010                                    |                                                                                      |  |
| FCC ID                                                                                                                               | Y478818C412                                        |                                                                                      |  |
| Date of test                                                                                                                         | 10/26/2015 - 11/02/2015<br>04/12/2016 - 04/15/2016 |                                                                                      |  |
| Issue Date                                                                                                                           | 04/18/2016                                         |                                                                                      |  |
| Test Result                                                                                                                          | <u>Pass</u> Fail                                   |                                                                                      |  |
| Equipment complied with the specification                                                                                            | <input checked="" type="checkbox"/> [ x ]          |                                                                                      |  |
| Equipment did not comply with the specification                                                                                      | <input type="checkbox"/> [ ]                       |                                                                                      |  |
|                                                                                                                                      |                                                    |                                                                                      |  |
| Gary Chou                                                                                                                            |                                                    |  |  |
| Gary Chou                                                                                                                            |                                                    | Chen Ge                                                                              |  |
| Test Engineer                                                                                                                        |                                                    | Engineer Reviewer                                                                    |  |
| This test report may be reproduced in full only<br>Test result presented in this test report is applicable to the tested sample only |                                                    |                                                                                      |  |

Issued By:  
SIEMIC Laboratories  
775 Montague Expressway, Milpitas, 95035 CA



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## Laboratory Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

### Accreditations for Conformity Assessment

| Country/Region | Accreditation Body     | Scope                              |
|----------------|------------------------|------------------------------------|
| USA            | FCC, A2LA              | EMC , RF/Wireless , Telecom        |
| Canada         | IC, A2LA, NIST         | EMC, RF/Wireless , Telecom         |
| Taiwan         | BSMI , NCC , NIST      | EMC, RF, Telecom , Safety          |
| Hong Kong      | OFTA , NIST            | RF/Wireless ,Telecom               |
| Australia      | NATA, NIST             | EMC, RF, Telecom , Safety          |
| Korea          | KCC/RRR, NIST          | EMI, EMS, RF , Telecom, Safety     |
| Japan          | VCCI, JATE, TELEC, RFT | EMI, RF/Wireless, Telecom          |
| Mexico         | NOM, COFETEL, Caniety  | Safety, EMC , RF/Wireless, Telecom |
| Europe         | A2LA, NIST             | EMC, RF, Telecom , Safety          |
| Israel         | MOC, NIST              | EMC, RF, Telecom, Safety           |

### Accreditations for Product Certifications

| Country   | Accreditation Body | Scope                 |
|-----------|--------------------|-----------------------|
| USA       | FCC TCB, NIST      | EMC , RF , Telecom    |
| Canada    | IC FCB , NIST      | EMC , RF , Telecom    |
| Singapore | iDA, NIST          | EMC , RF , Telecom    |
| EU        | NB                 | EMC & R&TTE Directive |
| Japan     | MIC (RCB 208)      | RF , Telecom          |
| HongKong  | OFTA (US002)       | RF , Telecom          |

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## 1 Report Revision History

| Report No.                     | Report Version | Description | Issue Date |
|--------------------------------|----------------|-------------|------------|
| FCC_RF_SL16031001-SPC-003_0412 | None           | Original    | 04/18/2016 |
|                                |                |             |            |
|                                |                |             |            |
|                                |                |             |            |
|                                |                |             |            |
|                                |                |             |            |

## 2 Executive Summary

The purpose of this test program was to demonstrate compliance of following product

Company: SpiderCloud Wireless, Inc.  
Product: Universal Small Cell 8818 LTE/LTE Module  
Model: USC8818-C412-K9

against the current Stipulated Standards. The specified model product stated above has demonstrated compliance with the Stipulated Standard listed on 1<sup>st</sup> page.

## 3 Customer information

|                      |                                     |
|----------------------|-------------------------------------|
| Applicant Name       | SpiderCloud Wireless, Inc.          |
| Applicant Address    | 475 Sycamore Dr, Milpitas, CA 95035 |
| Manufacturer Name    | SpiderCloud Wireless, Inc.          |
| Manufacturer Address | 475 Sycamore Dr, Milpitas, CA 95035 |

## 4 Test site information

|                      |                                             |
|----------------------|---------------------------------------------|
| Lab performing tests | SIEMIC Laboratories                         |
| Lab Address          | 775 Montague Expressway, Milpitas, CA 95035 |
| FCC Test Site No.    | 881796                                      |
| IC Test Site No.     | 4842D-2                                     |
| VCCI Test Site No.   | A0133                                       |

## 5 Modification

| Index | Item | Description | Note |
|-------|------|-------------|------|
| -     | -    | -           | -    |
|       |      |             |      |
|       |      |             |      |
|       |      |             |      |
|       |      |             |      |
|       |      |             |      |

## 6 EUT Information

### 6.1 EUT Description

|                           |                                                                                                                              |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Product Name              | Universal Small Cell 8818 LTE/LTE Module                                                                                     |
| Model No.                 | USC8818-C412-K9                                                                                                              |
| Trade Name                | SpiderCloud                                                                                                                  |
| Serial No.                | FOC1910NMSY                                                                                                                  |
| Input Power               | 48VDC                                                                                                                        |
| Power Adapter Manu/Model  | N/A                                                                                                                          |
| Power Adapter SN          | -                                                                                                                            |
| Hardware version          | -                                                                                                                            |
| Software version          | -                                                                                                                            |
| Date of EUT received      | 10/20/2015                                                                                                                   |
| Equipment Class/ Category | PCB, TNB                                                                                                                     |
| Operating Frequencies     | LTE: TX (729 MHz to 746 MHz), LTE: RX (699 MHz to 716 MHz)<br>LTE: TX (2110 MHz to 2155 MHz), LTE: RX (1710 MHz to 1755 MHz) |
| Port/Connectors           | N/A                                                                                                                          |
| Remark                    | NONE                                                                                                                         |

## 6.2 Radio Description

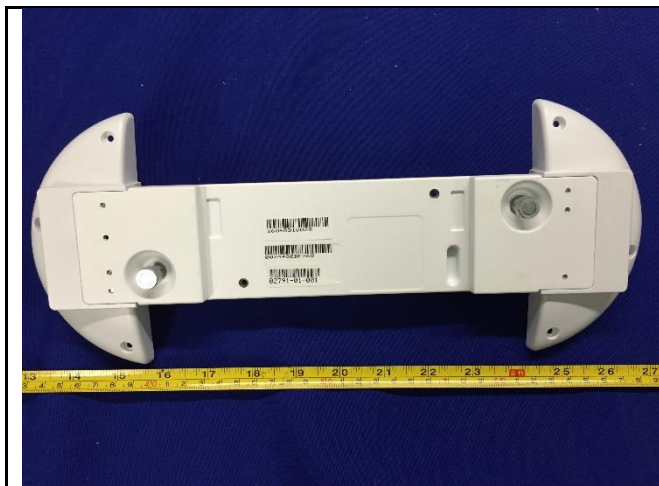
| Item                       | LTE                                                  | LTE                                              |
|----------------------------|------------------------------------------------------|--------------------------------------------------|
| Operating Band /Radio Type | LTE Band 4                                           | LTE Band 12                                      |
| Bandwidth                  | 5MHz, 10MHz, 15MHz, 20MHz                            | 5MHz, 10MHz                                      |
| Modulation                 | QPSK/16QAM/64QAM                                     | QPSK/16QAM/64QAM                                 |
| Antenna Type               | Internal Omni-directional antenna                    | Internal Omni-directional antenna                |
| Antenna Gain               | 2 dBi                                                | 2 dBi                                            |
| Frequency TX(MHz)          | TX: 2110 MHz to 2155 MHz<br>RX: 1710 MHz to 1755 MHz | TX: 729 MHz to 746 MHz<br>RX: 699 MHz to 716 MHz |

### 6.3 EUT test modes/configuration Description

#### Test mode

| Final Test Mode                                   |                                  | Note |
|---------------------------------------------------|----------------------------------|------|
| Final_test_mode_1                                 | Continuous transmission, band 4  | LTE  |
| Final_test_mode_2                                 | Continuous transmission, band 12 | LTE  |
|                                                   |                                  |      |
|                                                   |                                  |      |
|                                                   |                                  |      |
|                                                   |                                  |      |
|                                                   |                                  |      |
| Remark: LTE band 12 and LTE band 4 are evaluated. |                                  |      |

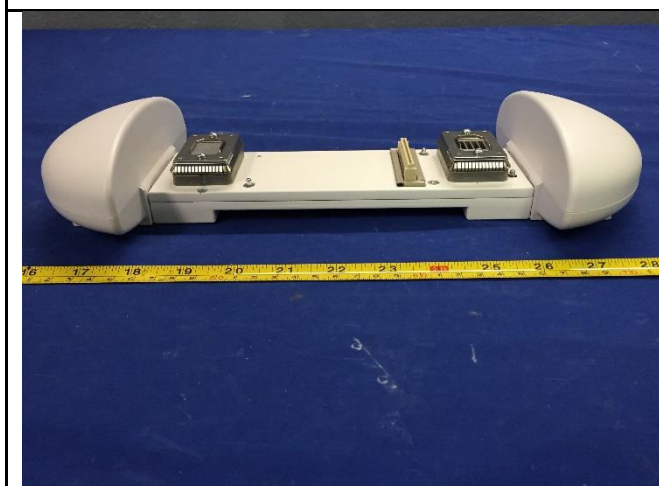
## 6.4 EUT Photos - External



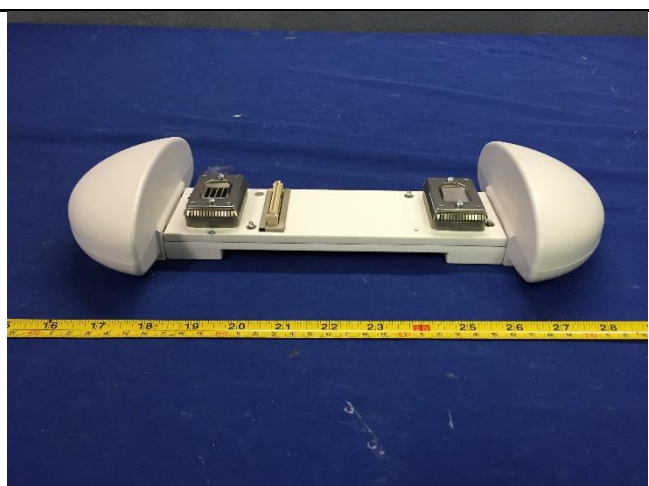
Top View



Bottom View



Front View



Rear View

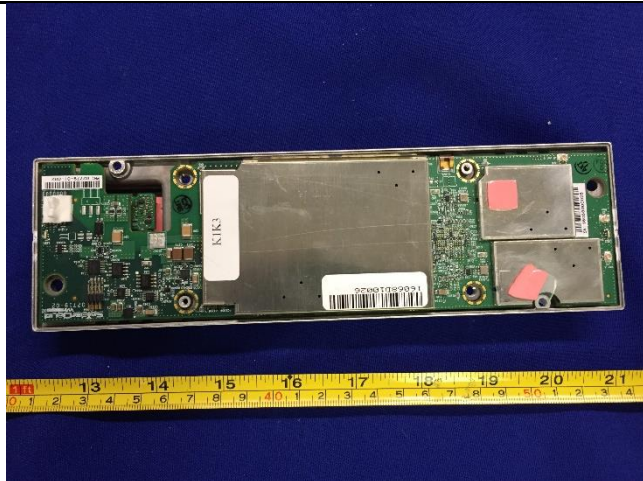


Left Side View

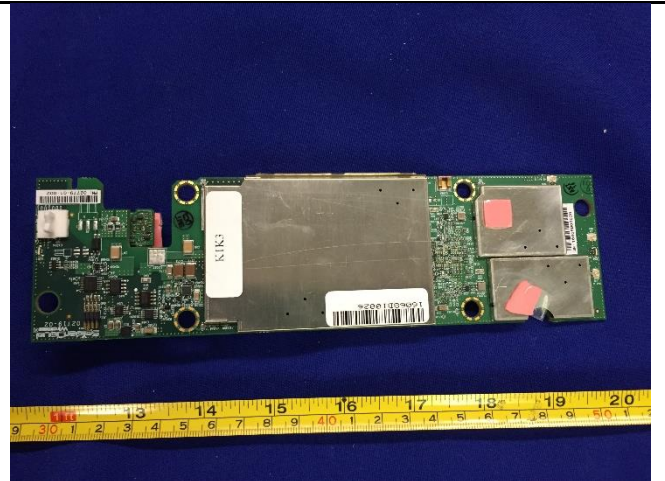


Right Side View

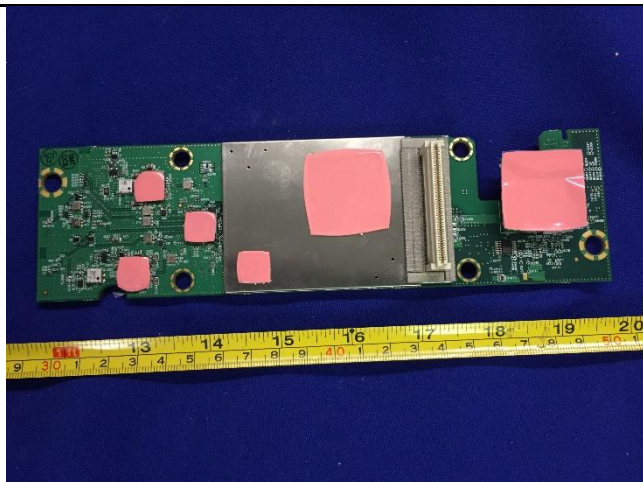
## 6.5 EUT Photos - Internal



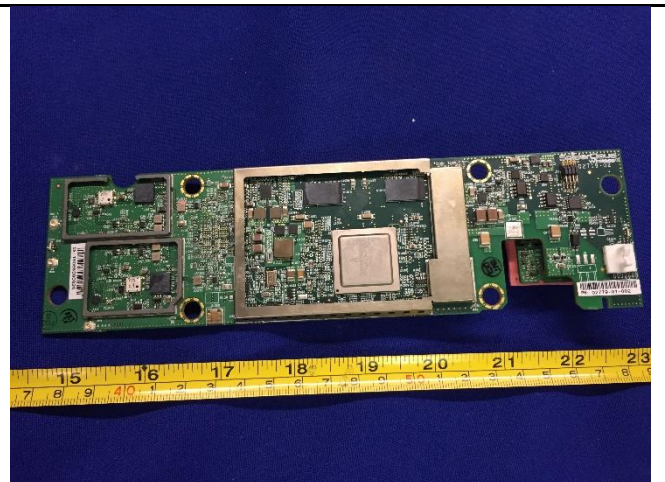
**EUT - Open Case View**



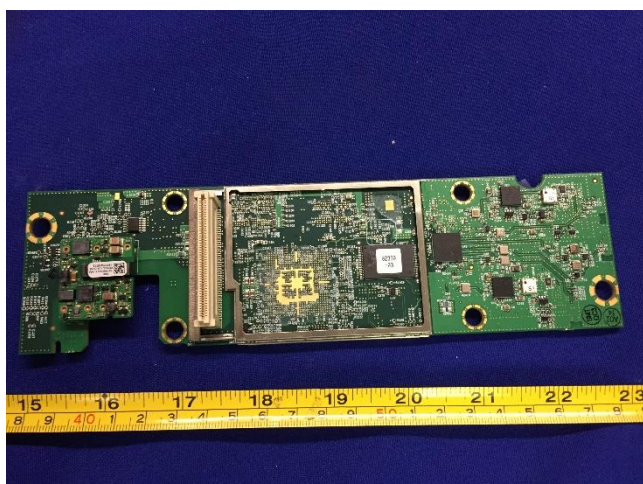
**Main PCB - Top View**



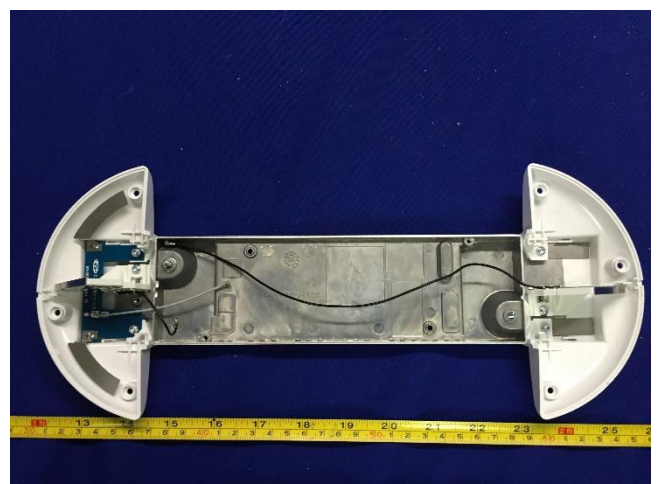
**Main PCB - Bottom View**



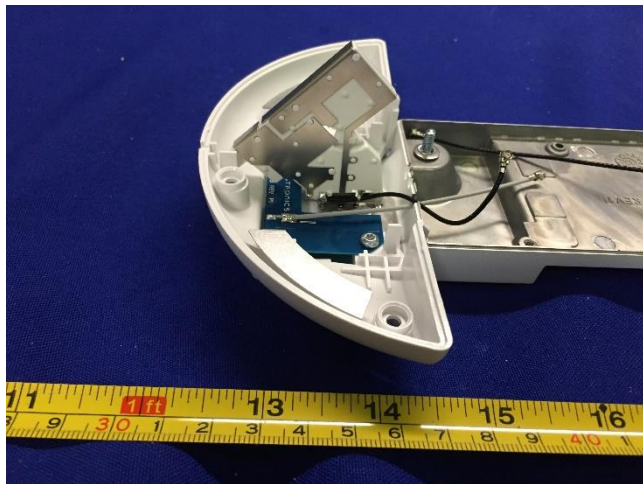
**Main PCB - Top View without shielding**



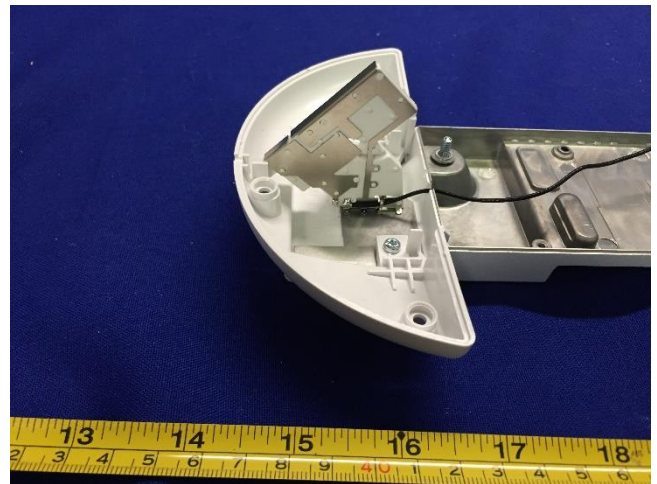
**Main PCB - Bottom View without shielding**



**Antenna View**



**Antenna 1**



**Antenna 2**

## 6.6 EUT Test Setup Photos



**Radiated Emissions (<1GHz) – Front View**



**Radiated Emissions (<1GHz) – Rear View**



**Radiated Emissions (>1GHz) – Front View**



**Radiated Emissions (>1GHz) – Rear View**

Note: The spurious emission in different EUT orientation was investigated, including the EUT standing up position and the laying down position. The EUT orientation shown in above setup photo is the worst case position.

## 7 Supporting Equipment/Software and cabling Description

### 7.1 Supporting Equipment

| Item | Supporting Equipment Description | Model             | Serial Number | Manufacturer | Note |
|------|----------------------------------|-------------------|---------------|--------------|------|
| 1    | PoE Adatper                      | POE36U-1AT-R      | P90212324A1   | Phihong      | -    |
| 2    | Service Node                     | SCSN-9000         | 14193C26505   | SpiderCloud  | -    |
| 3    | Access Point                     | AIR-CAP3702I-A-K9 | FTX1848RA30   | Cisco        | -    |
|      |                                  |                   |               |              |      |
|      |                                  |                   |               |              |      |
|      |                                  |                   |               |              |      |
|      |                                  |                   |               |              |      |
|      |                                  |                   |               |              |      |
|      |                                  |                   |               |              |      |
|      |                                  |                   |               |              |      |
|      |                                  |                   |               |              |      |
|      |                                  |                   |               |              |      |

### 7.2 Test Software Description

| Test Item  | Software | Description                                                   |
|------------|----------|---------------------------------------------------------------|
| RF testing | ePewiew  | Enable EUT continuous TX mode and change to different channel |
|            |          |                                                               |
|            |          |                                                               |
|            |          |                                                               |
|            |          |                                                               |

## 8 Test Summary

| Test Item                                      | Test standard                                                                                                                                                                                                                                                                                                                                          |                         | Test Method/Procedure |                 | Pass / Fail                                                              |
|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------|-----------------|--------------------------------------------------------------------------|
| E.R.P/ E.I.R.P                                 | FCC                                                                                                                                                                                                                                                                                                                                                    | 47CFR27.50              | FCC                   | TIA-603-D: 2010 | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |
| Occupied Bandwidth                             | FCC                                                                                                                                                                                                                                                                                                                                                    | 47CFR27.53              | FCC                   | TIA-603-D: 2010 | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |
| Peak-Average Ratio                             | FCC                                                                                                                                                                                                                                                                                                                                                    | 47CFR27.50              | FCC                   | TIA-603-D: 2010 | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |
| Spurious and harmonic Emission at antenna port | FCC                                                                                                                                                                                                                                                                                                                                                    | 47CFR2.1051, 47CFR27.53 | FCC                   | TIA-603-D: 2010 | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |
| Band Edge                                      | FCC                                                                                                                                                                                                                                                                                                                                                    | 47CFR2.1053, 47CFR27.53 | FCC                   | TIA-603-D: 2010 | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |
| Radiated spurious and harmonic emission        | FCC                                                                                                                                                                                                                                                                                                                                                    | 47CFR2.1053, 47CFR27.53 | FCC                   | TIA-603-D: 2010 | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |
| Frequency stability                            | FCC                                                                                                                                                                                                                                                                                                                                                    | 47CFR2.1053, 47CFR27.53 | FCC                   | TIA-603-D: 2010 | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |
| Remark                                         | <ol style="list-style-type: none"> <li>All measurement uncertainties do not take into consideration for all presented test results.</li> <li>The applicant shall ensure frequency stability by showing that an emission is maintained within the band of operation under all normal operating conditions as specified in the user's manual.</li> </ol> |                         |                       |                 |                                                                          |

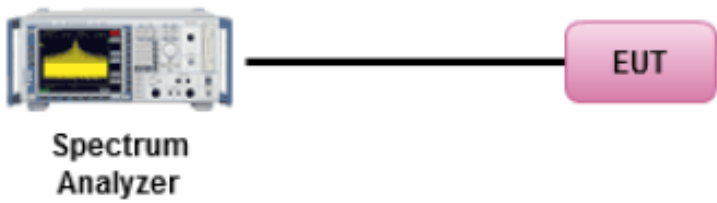
## 9 Measurement Uncertainty

| Test Item                                 | Frequency Range | Description                                                                                                                                     | Uncertainty   |
|-------------------------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Band Edge and Radiated Spurious Emissions | 30MHz – 1GHz    | Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m) | +5.6dB/-4.5dB |
| Band Edge and Radiated Spurious Emissions | 1GHz – 40GHz    | Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m) | +4.3dB/-4.1dB |

## 10 Measurements, Examination and Derived Results

### 10.1 RF Output Power

#### Requirement(s):

| Spec           | Item                                                                                                                                                                                                                                                                                                                           | Requirement                                                                                      | Applicable                                                                 |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| 47CFR27.50     | -                                                                                                                                                                                                                                                                                                                              | The maximum effective radiated power (ERP) of fixed and base station must not exceed 1000 Watts. | <input checked="" type="checkbox"/>                                        |
| Test Setup     |  <p>The diagram shows a Spectrum Analyzer connected via a cable to a pink box labeled EUT.</p>                                                                                                                                               |                                                                                                  |                                                                            |
| Test Procedure | <ul style="list-style-type: none"> <li>- EUT was set for low, mid, high channel with modulated mode and highest RF output power.</li> <li>- The spectrum analyzer was connected to the antenna terminal.</li> </ul>                                                                                                            |                                                                                                  |                                                                            |
| Test Date      | 10/26/2015 – 11/02/2015<br>04/12/2016 – 04/15/2016                                                                                                                                                                                                                                                                             | Environmental condition                                                                          | Temperature 22°C<br>Relative Humidity 48%<br>Atmospheric Pressure 1008mbar |
| Remark         | <p>For LTE mode, EUT is using 2x2 MIMO, which has 2 transmit antennas. They are correlated to each other. The directional gain is calculated per the formula at below,</p> <p>Directional gain dBi = <math>G_{max} + 10 \log_{10} N</math></p> <p>The max gain of single antenna is 2 dBi. So the directional gain = 5 dBi</p> |                                                                                                  |                                                                            |
| Result         | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail                                                                                                                                                                                                                                                         |                                                                                                  |                                                                            |

Test Data    ☒ Yes                      ☐ N/A

Test Plot    ☒ Yes (See below)              ☐ N/A

Test was done by **Chen Ge** at **RF test site**.

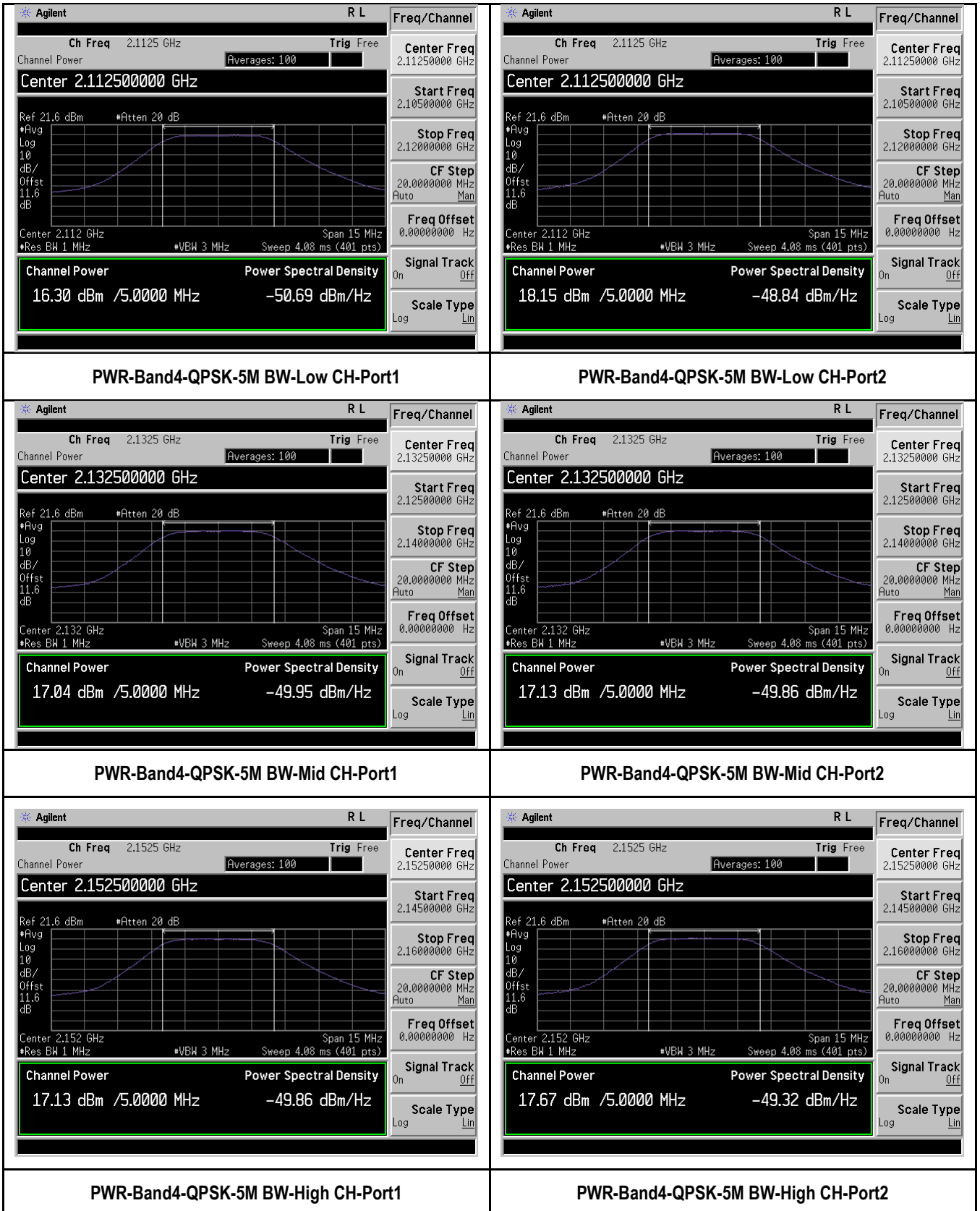
Test Data for LTE band 4:

| Type            | Channel | Frequency (MHz) | Measured PW –Port 1(dBm) | Measured PW –Port 2(dBm) | Combined Power (dBm) | Antenna Gain (dBi) | E.I.R.P (dBm) |
|-----------------|---------|-----------------|--------------------------|--------------------------|----------------------|--------------------|---------------|
| 5MHz BW, QPSK   | Low     | 2112.5          | 16.30                    | 18.15                    | 20.33                | 5                  | 25.33         |
|                 | Mid     | 2132.5          | 17.04                    | 17.13                    | 20.10                | 5                  | 25.10         |
|                 | High    | 2152.5          | 17.13                    | 17.67                    | 20.42                | 5                  | 25.42         |
| 5MHz BW, 64QAM  | Low     | 2112.5          | 16.33                    | 18.13                    | 20.33                | 5                  | 25.33         |
|                 | Mid     | 2132.5          | 17.16                    | 17.31                    | 20.25                | 5                  | 25.25         |
|                 | High    | 2152.5          | 16.62                    | 17.01                    | 19.83                | 5                  | 24.83         |
| 10MHz BW, QPSK  | Low     | 2115.0          | 15.40                    | 16.91                    | 19.23                | 5                  | 24.23         |
|                 | Mid     | 2132.5          | 16.72                    | 16.73                    | 19.74                | 5                  | 24.74         |
|                 | High    | 2150.0          | 17.25                    | 17.27                    | 20.27                | 5                  | 25.27         |
| 10MHz BW, 64QAM | Low     | 2115.0          | 15.46                    | 17.23                    | 19.44                | 5                  | 24.44         |
|                 | Mid     | 2132.5          | 17.01                    | 17.36                    | 20.20                | 5                  | 25.20         |
|                 | High    | 2150.0          | 17.37                    | 17.62                    | 20.51                | 5                  | 25.51         |
| 15MHz BW, QPSK  | Low     | 2117.5          | 15.24                    | 16.95                    | 19.19                | 5                  | 24.19         |
|                 | Mid     | 2132.5          | 17.02                    | 17.09                    | 20.07                | 5                  | 25.07         |
|                 | High    | 2147.5          | 16.78                    | 17.44                    | 20.13                | 5                  | 25.13         |
| 15MHz BW, 64QAM | Low     | 2117.5          | 15.53                    | 16.75                    | 19.19                | 5                  | 24.19         |
|                 | Mid     | 2132.5          | 16.95                    | 17.26                    | 20.12                | 5                  | 25.12         |
|                 | High    | 2147.5          | 17.52                    | 17.86                    | 20.70                | 5                  | 25.70         |
| 20MHz BW, QPSK  | Low     | 2120.0          | 16.57                    | 17.58                    | 20.11                | 5                  | 25.11         |
|                 | Mid     | 2132.5          | 17.74                    | 17.78                    | 20.77                | 5                  | 25.77         |
|                 | High    | 2145.0          | 17.67                    | 17.70                    | 20.70                | 5                  | 25.70         |
| 20MHz BW, 64QAM | Low     | 2120.0          | 16.72                    | 17.90                    | 20.36                | 5                  | 25.36         |
|                 | Mid     | 2132.5          | 17.09                    | 17.40                    | 20.26                | 5                  | 25.26         |
|                 | High    | 2145.0          | 17.78                    | 17.77                    | 20.79                | 5                  | 25.79         |

Test Data for LTE band 12:

| Type            | Channel | Frequency (MHz) | Measured PW -Port 1(dBm) | Measured PW -Port 2(dBm) | Combined Power (dBm) | Antenna Gain (dBi) | E.I.R.P (dBm) |
|-----------------|---------|-----------------|--------------------------|--------------------------|----------------------|--------------------|---------------|
| 5MHz BW, QPSK   | Low     | 731.5           | 17.21                    | 17.28                    | 20.26                | 5                  | 25.26         |
|                 | Mid     | 737.5           | 17.16                    | 17.18                    | 20.18                | 5                  | 25.18         |
|                 | High    | 743.5           | 17.26                    | 17.29                    | 20.29                | 5                  | 25.29         |
| 5MHz BW, 64QAM  | Low     | 731.5           | 17.12                    | 17.10                    | 20.12                | 5                  | 25.12         |
|                 | Mid     | 737.5           | 17.11                    | 17.26                    | 20.20                | 5                  | 25.20         |
|                 | High    | 743.5           | 17.30                    | 17.36                    | 20.34                | 5                  | 25.34         |
| 10MHz BW, QPSK  | Low     | 734.0           | 17.41                    | 17.40                    | 20.42                | 5                  | 25.42         |
|                 | Mid     | 737.5           | 17.54                    | 17.42                    | 20.49                | 5                  | 25.49         |
|                 | High    | 741.0           | 17.58                    | 17.53                    | 20.57                | 5                  | 25.57         |
| 10MHz BW, 64QAM | Low     | 734.0           | 17.19                    | 17.23                    | 20.22                | 5                  | 25.22         |
|                 | Mid     | 737.5           | 17.53                    | 17.45                    | 20.50                | 5                  | 25.05         |
|                 | High    | 741.0           | 17.52                    | 17.52                    | 20.53                | 5                  | 25.53         |

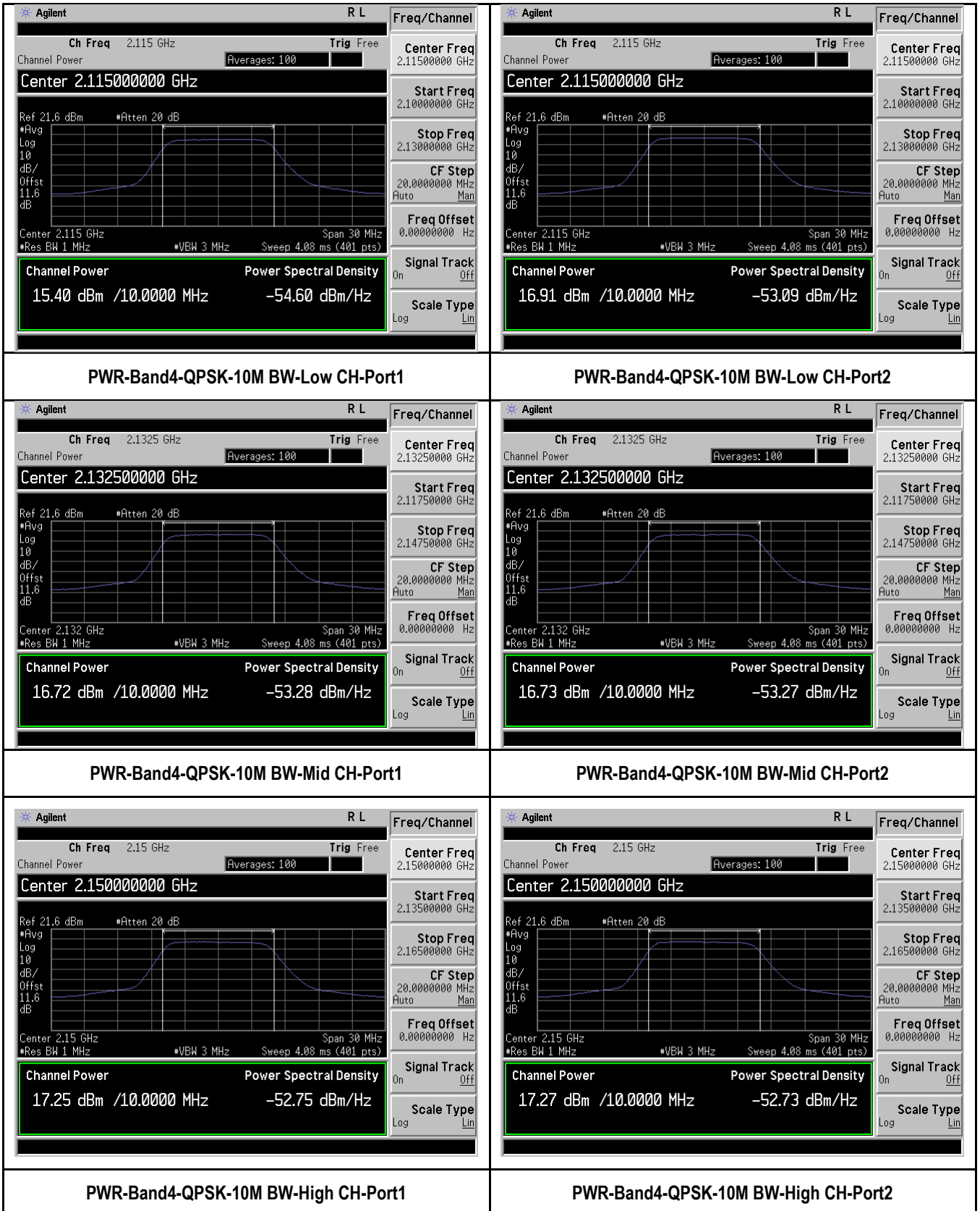
### Test Plots for Band 4-QPSK-5MHz



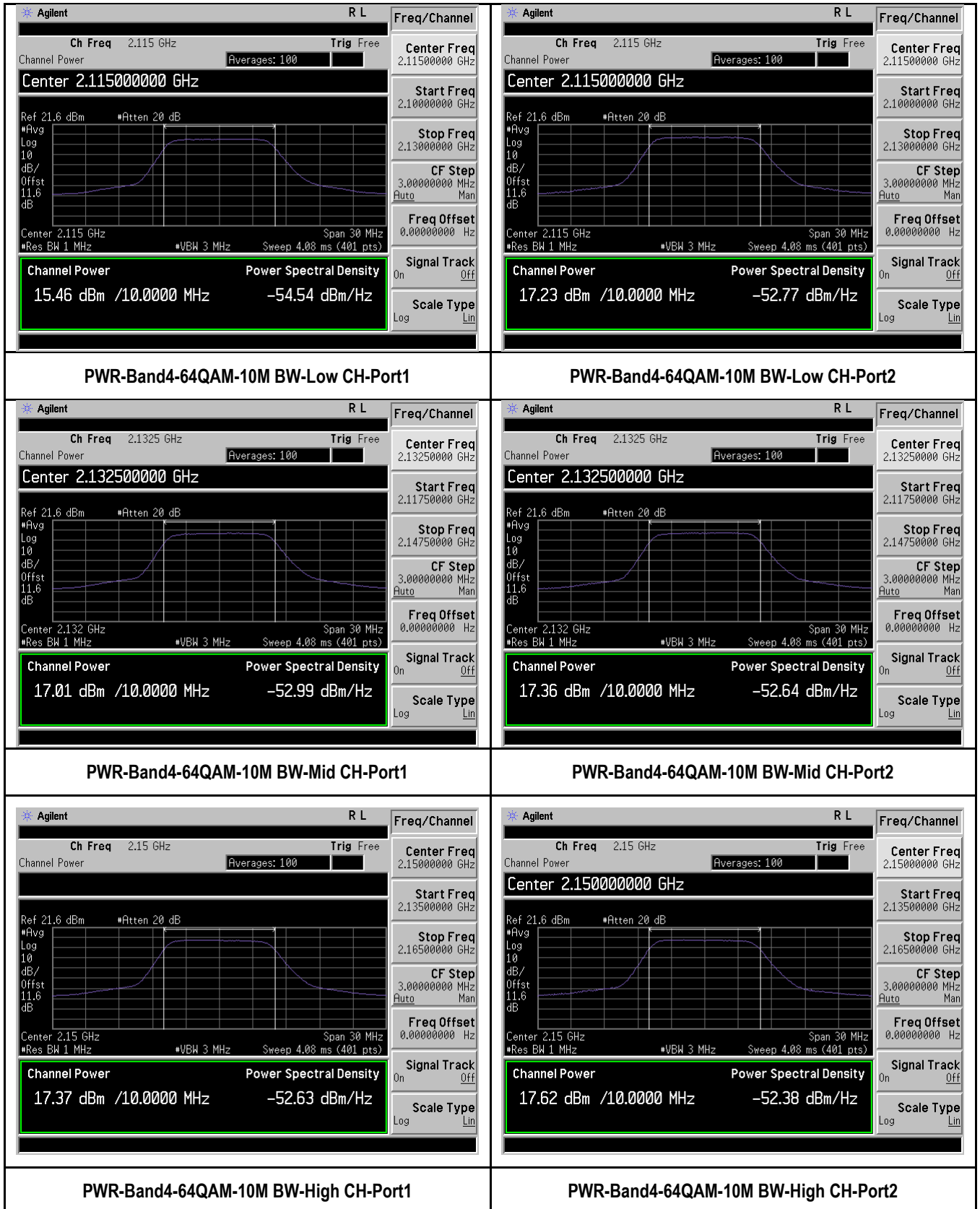
### Test Plots for Band 4-64QAM-5MHz



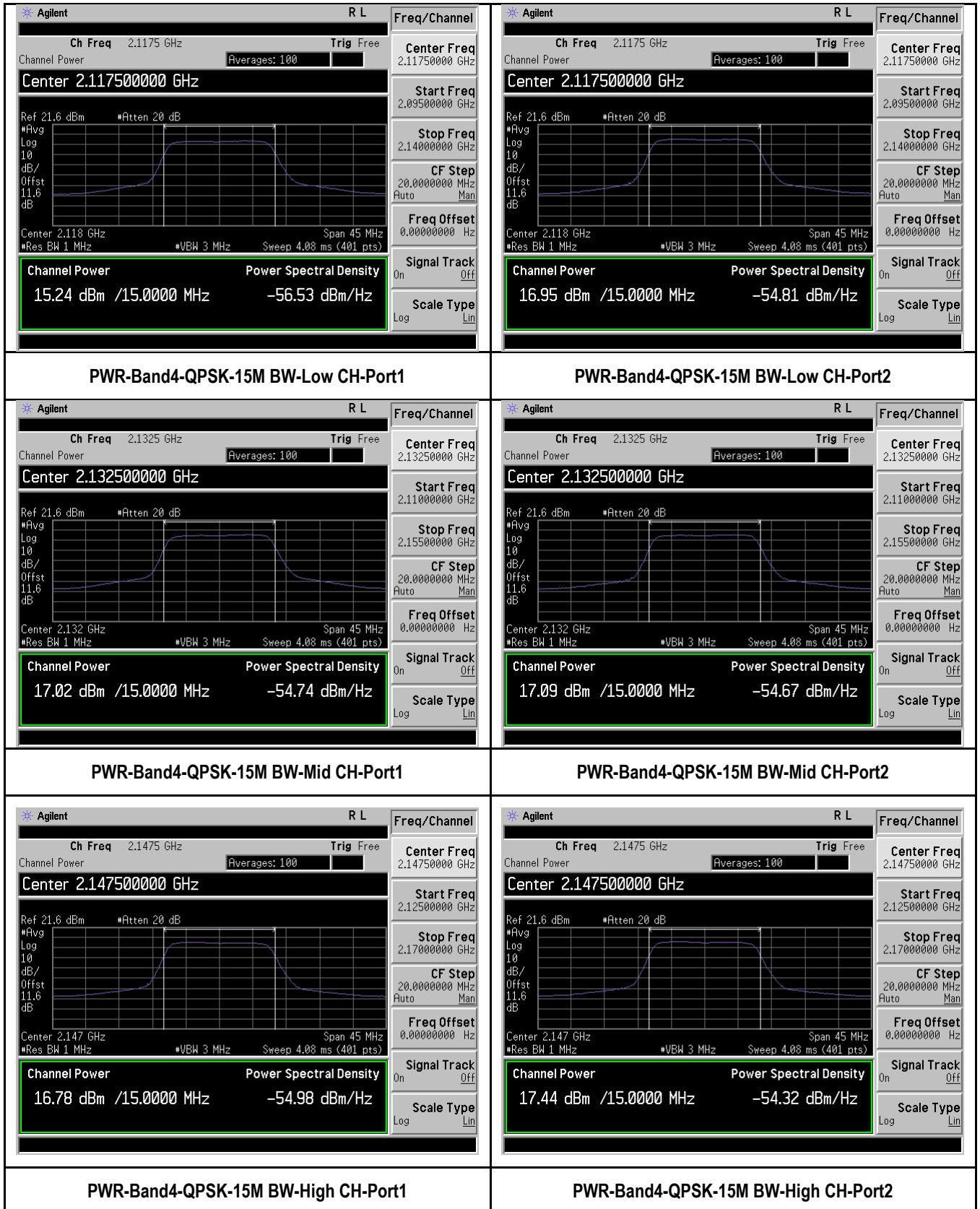
### Test Plots for Band 4-QPSK-10MHz



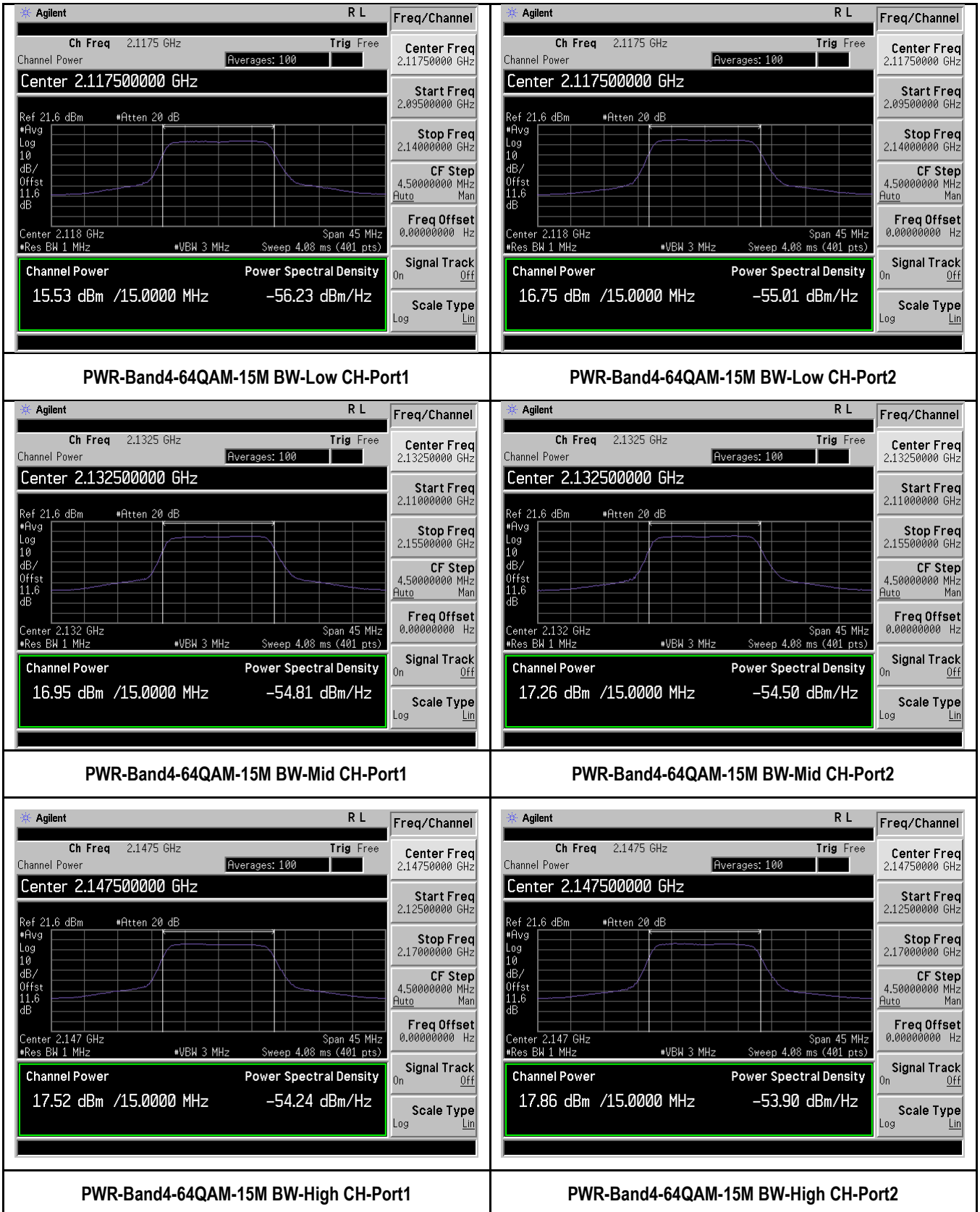
### Test Plots for Band 4-64QAM-10MHz



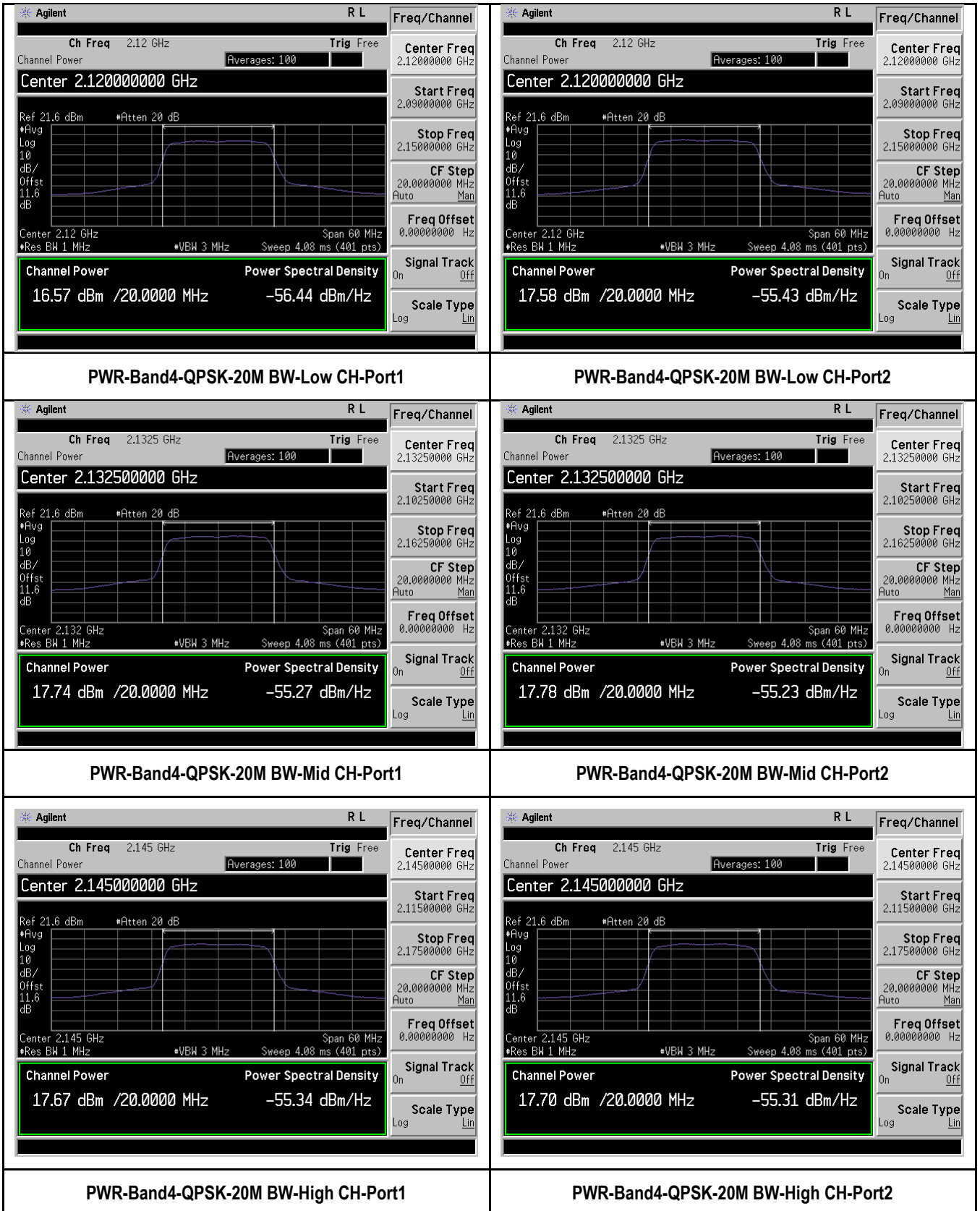
### Test Plots for Band 4-QPSK-15MHz



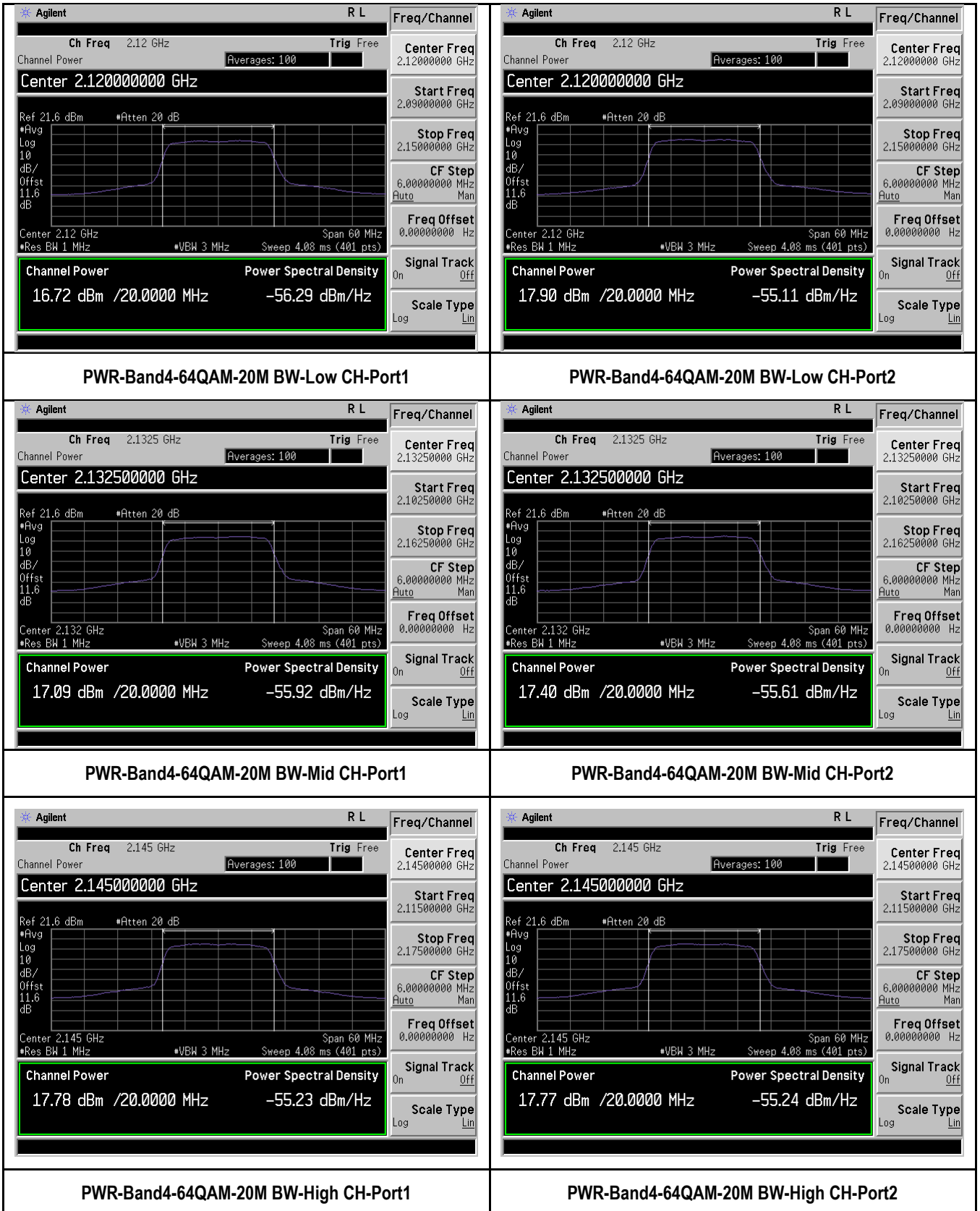
### Test Plots for Band 4-64QAM-15MHz



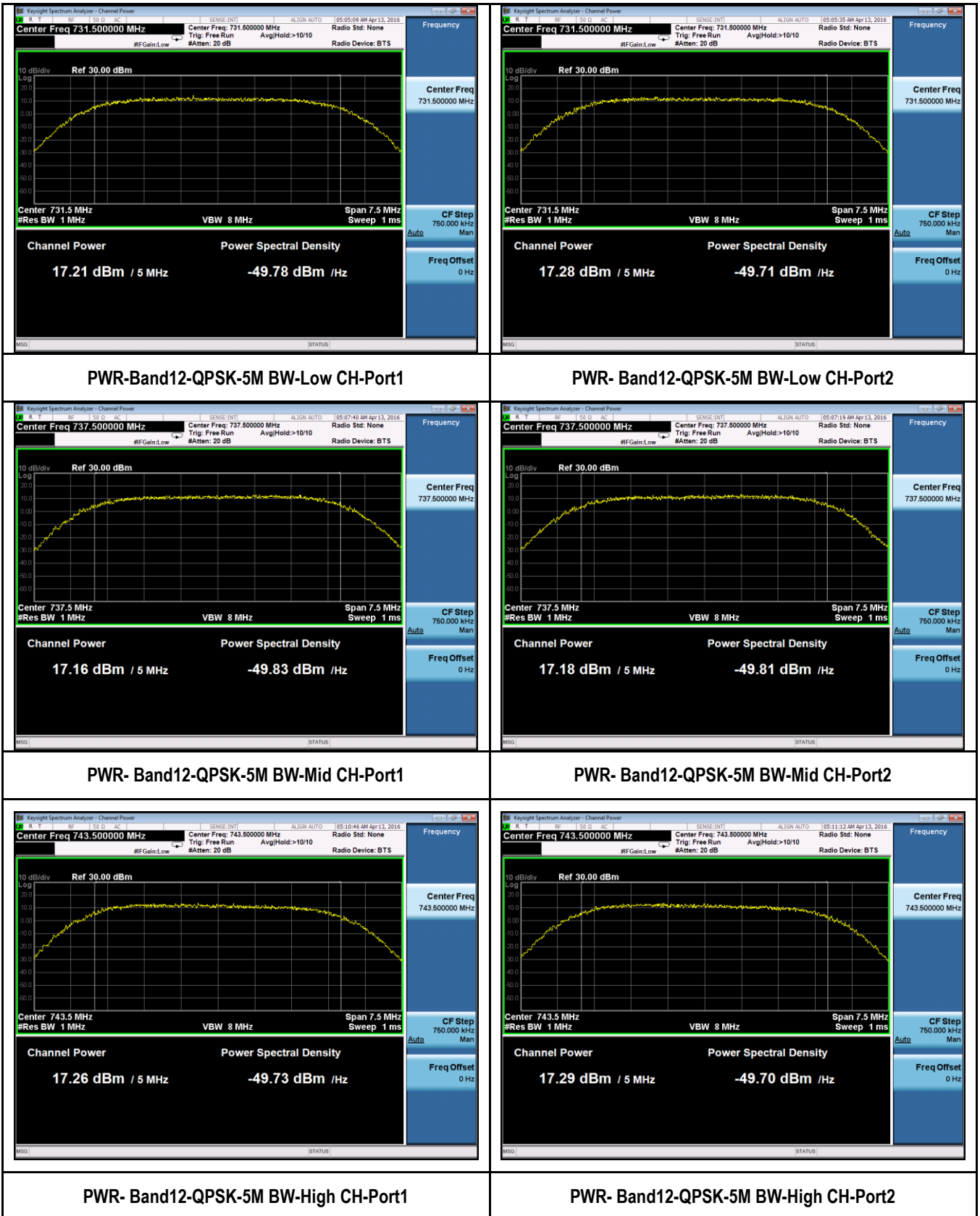
### Test Plots for Band 4-QPSK-20MHz



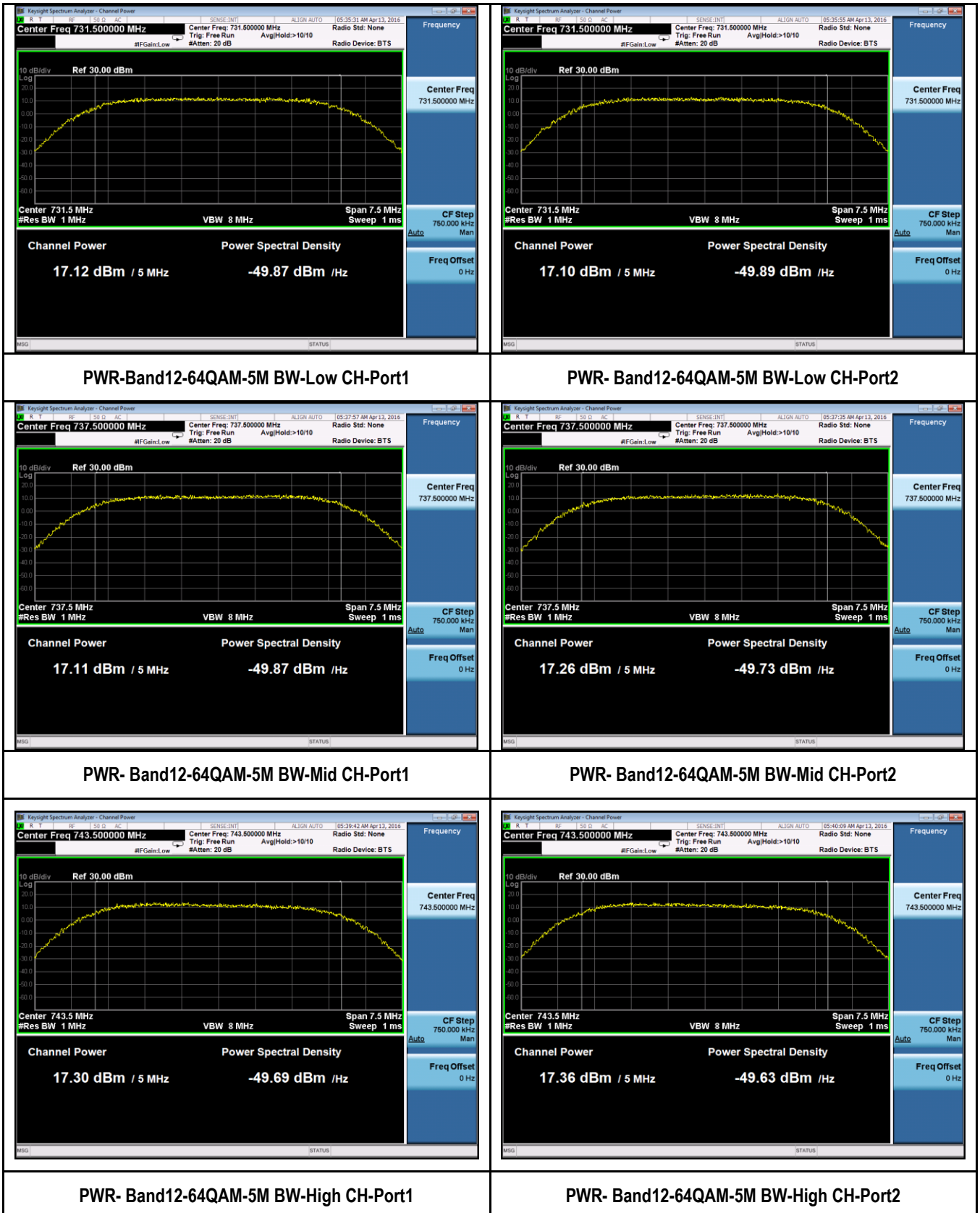
### Test Plots for Band 4-64QAM-20MHz



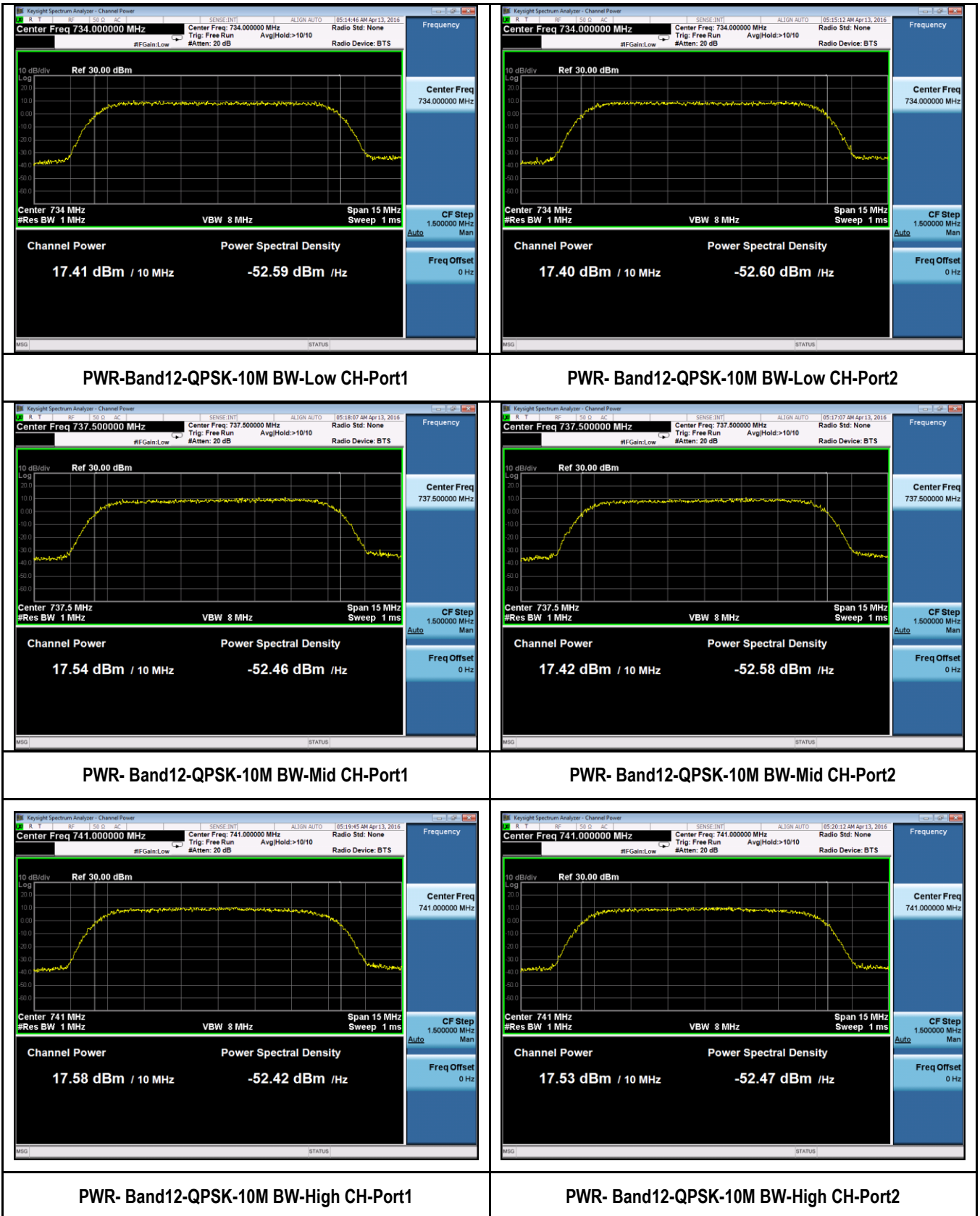
### Test Plots for Band 12-QPSK-5MHz



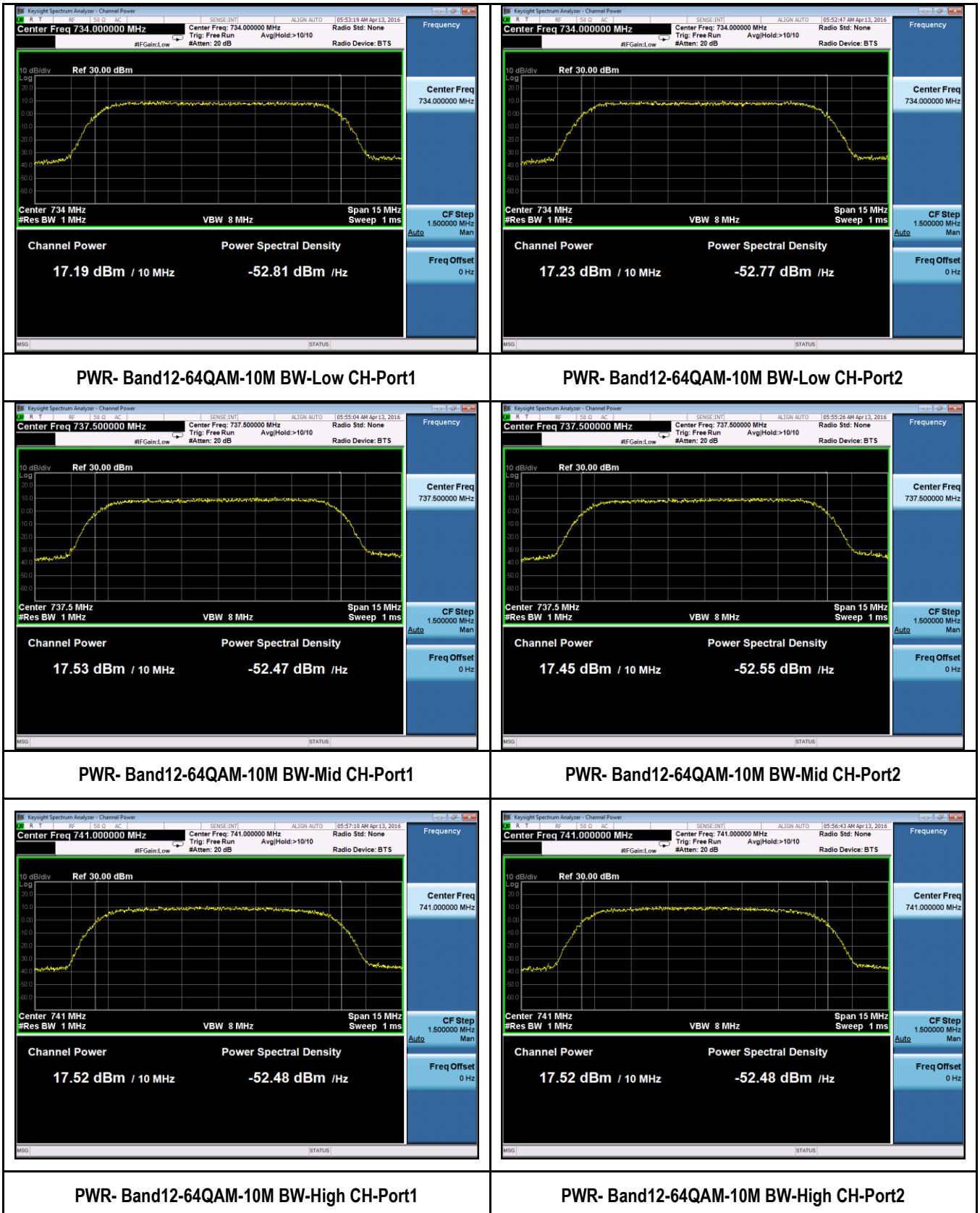
### Test Plots for Band 12-64QAM-5MHz



### Test Plots for Band 12-QPSK-10MHz

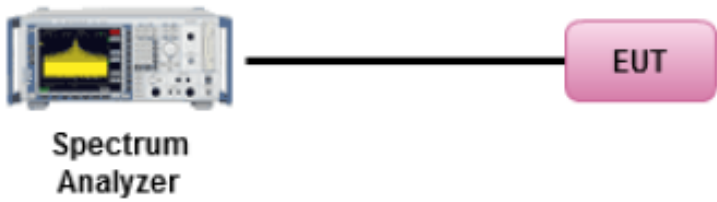


### Test Plots for Band 12-64QAM-10MHz



## 10.2 Peak-Average Ratio

### Requirement(s):

| Spec           | Item                                                                                                                                                                                                                | Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Applicable                                                                 |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| 47CFR27.50     | (b)                                                                                                                                                                                                                 | The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure. The measurement must be performed using a signal corresponding to the highest PAPR expected during periods of continuous transmission. | <input checked="" type="checkbox"/>                                        |
| Test Setup     |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                            |
| Test Procedure | <ul style="list-style-type: none"> <li>- EUT was set for low, mid, high channel with modulated mode and highest RF output power.</li> <li>- The spectrum analyzer was connected to the antenna terminal.</li> </ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                            |
| Test Date      | 10/26/2015 – 11/02/2015<br>04/11/2016 – 04/15/2016                                                                                                                                                                  | Environmental condition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Temperature 23°C<br>Relative Humidity 48%<br>Atmospheric Pressure 1008mbar |
| Remark         | NONE                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                            |
| Result         | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                            |

Test Data    ☒ Yes                      ☐ N/A

Test Plot    ☒ Yes (See below)              ☐ N/A

Test was done by *Chen Ge* at *RF test site*.

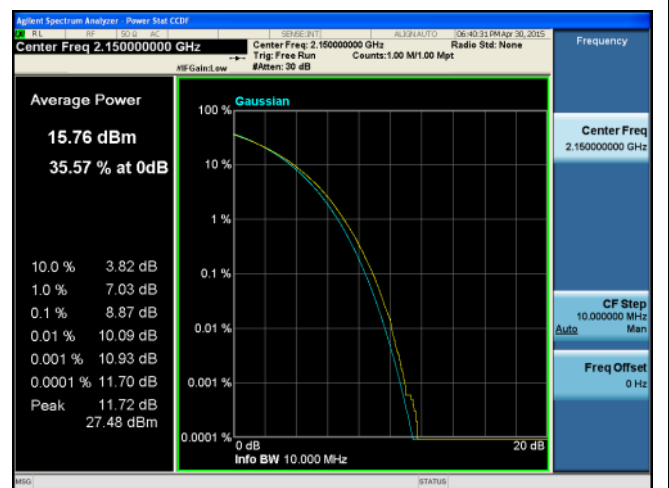
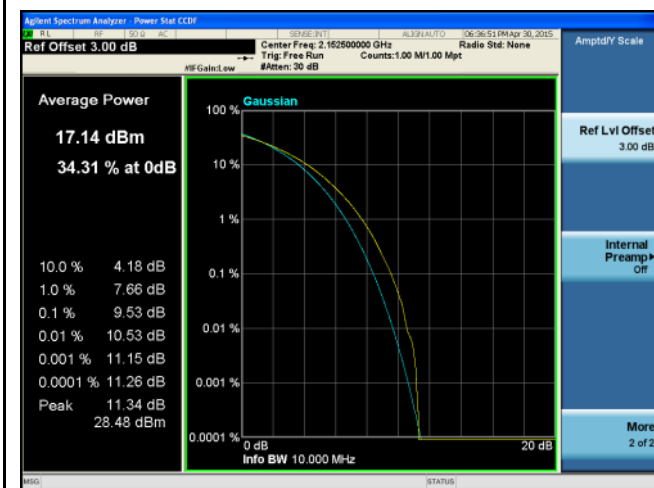
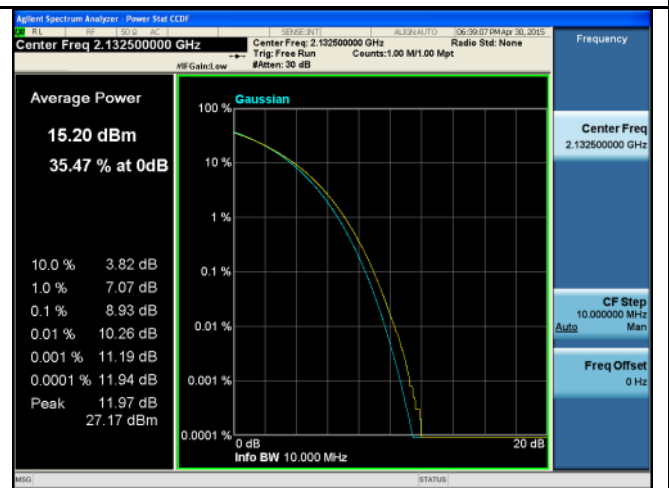
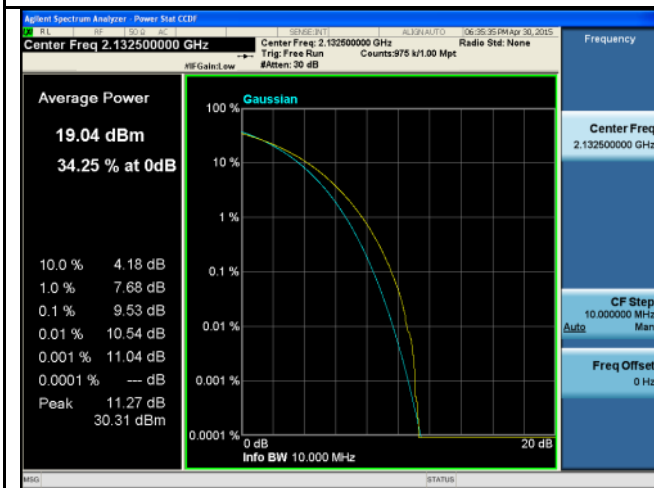
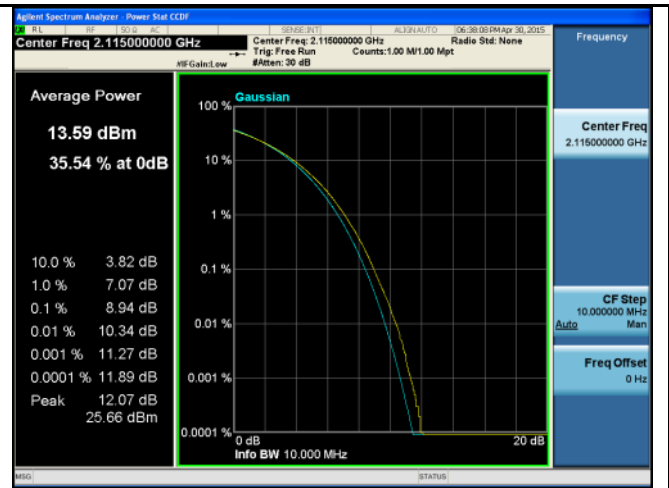
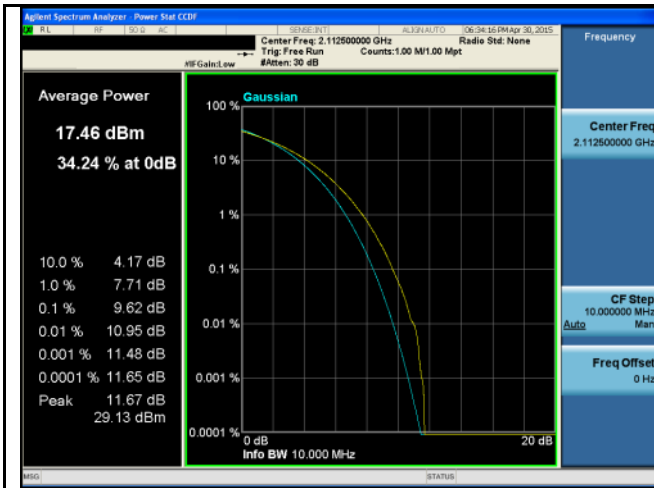
Test Data for LTE band 4:

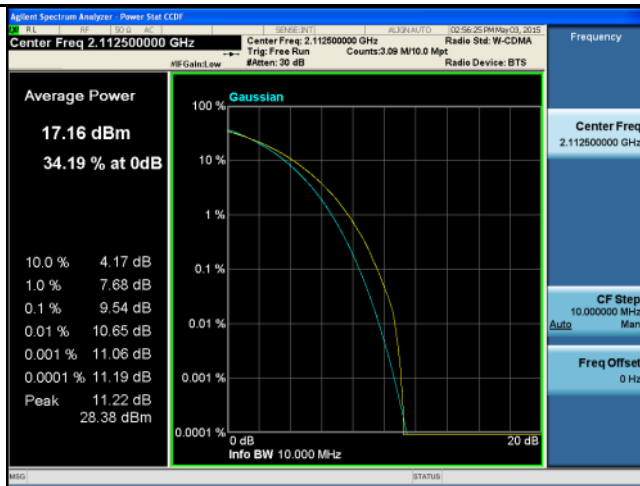
| Type            | Channel | Frequency (MHz) | Peak-Average Ratio (dB) | Peak-Average Ratio (dB) |
|-----------------|---------|-----------------|-------------------------|-------------------------|
| 5MHz BW, QPSK   | Low     | 2112.5          | 9.62                    | 13                      |
|                 | Mid     | 2132.5          | 9.53                    | 13                      |
|                 | High    | 2152.5          | 9.53                    | 13                      |
| 5MHz BW, 16QAM  | Low     | 2112.5          | 9.54                    | 13                      |
|                 | Mid     | 2132.5          | 9.95                    | 13                      |
|                 | High    | 2152.5          | 9.51                    | 13                      |
| 5MHz BW, 64QAM  | Low     | 2112.5          | 9.65                    | 13                      |
|                 | Mid     | 2132.5          | 9.52                    | 13                      |
|                 | High    | 2152.5          | 9.49                    | 13                      |
| 10MHz BW, QPSK  | Low     | 2115.0          | 8.94                    | 13                      |
|                 | Mid     | 2132.5          | 8.93                    | 13                      |
|                 | High    | 2150.0          | 8.87                    | 13                      |
| 10MHz BW, 16QAM | Low     | 2115.0          | 8.98                    | 13                      |
|                 | Mid     | 2132.5          | 8.93                    | 13                      |
|                 | High    | 2150.0          | 8.93                    | 13                      |
| 10MHz BW, 64QAM | Low     | 2115.0          | 8.94                    | 13                      |
|                 | Mid     | 2132.5          | 8.94                    | 13                      |
|                 | High    | 2150.0          | 8.91                    | 13                      |
| 15MHz BW, QPSK  | Low     | 2117.5          | 9.11                    | 13                      |
|                 | Mid     | 2132.5          | 9.01                    | 13                      |
|                 | High    | 2147.5          | 9.01                    | 13                      |
| 15MHz BW, 16QAM | Low     | 2117.5          | 8.94                    | 13                      |
|                 | Mid     | 2132.5          | 8.82                    | 13                      |
|                 | High    | 2147.5          | 8.88                    | 13                      |
| 15MHz BW, 64QAM | Low     | 2117.5          | 9.09                    | 13                      |
|                 | Mid     | 2132.5          | 9.02                    | 13                      |
|                 | High    | 2147.5          | 9.00                    | 13                      |
| 20MHz BW, QPSK  | Low     | 2120.0          | 8.98                    | 13                      |
|                 | Mid     | 2132.5          | 8.90                    | 13                      |
|                 | High    | 2145.0          | 8.87                    | 13                      |
| 20MHz BW, 16QAM | Low     | 2120.0          | 8.95                    | 13                      |
|                 | Mid     | 2132.5          | 8.91                    | 13                      |
|                 | High    | 2145.0          | 8.88                    | 13                      |
| 20MHz BW, 64QAM | Low     | 2120.0          | 8.95                    | 13                      |
|                 | Mid     | 2132.5          | 8.88                    | 13                      |
|                 | High    | 2145.0          | 8.85                    | 13                      |

Test Data for LTE band 12:

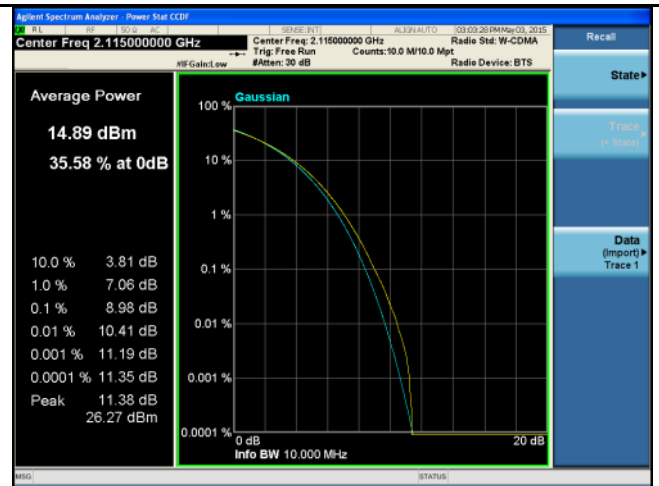
| Type            | Channel | Frequency (MHz) | Peak-Average Ratio (dB) | Peak-Average Ratio (dB) |
|-----------------|---------|-----------------|-------------------------|-------------------------|
| 5MHz BW, QPSK   | Low     | 731.5           | 10.12                   | 13                      |
|                 | Mid     | 737.5           | 10.08                   | 13                      |
|                 | High    | 743.5           | 9.97                    | 13                      |
| 5MHz BW, 64QAM  | Low     | 731.5           | 9.91                    | 13                      |
|                 | Mid     | 737.5           | 9.83                    | 13                      |
|                 | High    | 743.5           | 9.75                    | 13                      |
| 10MHz BW, QPSK  | Low     | 734.0           | 9.87                    | 13                      |
|                 | Mid     | 737.5           | 9.72                    | 13                      |
|                 | High    | 741.0           | 9.87                    | 13                      |
| 10MHz BW, 64QAM | Low     | 734.0           | 10.02                   | 13                      |
|                 | Mid     | 737.5           | 10.02                   | 13                      |
|                 | High    | 741.0           | 9.89                    | 13                      |

Test Plots for LTE band 4:

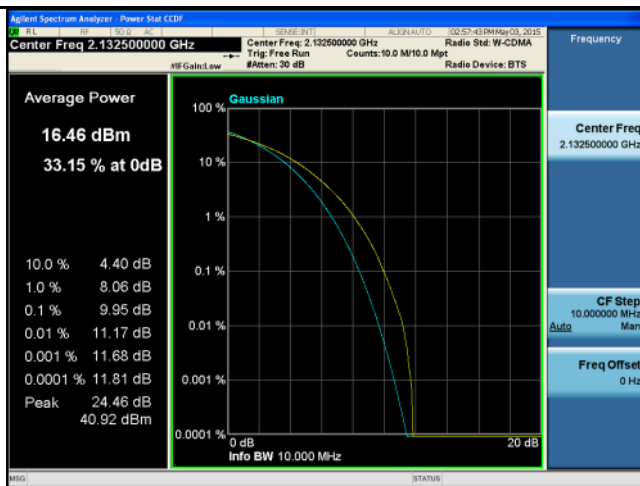




PK-AV-Ratio-Band4-16QAM-5M BW-Low



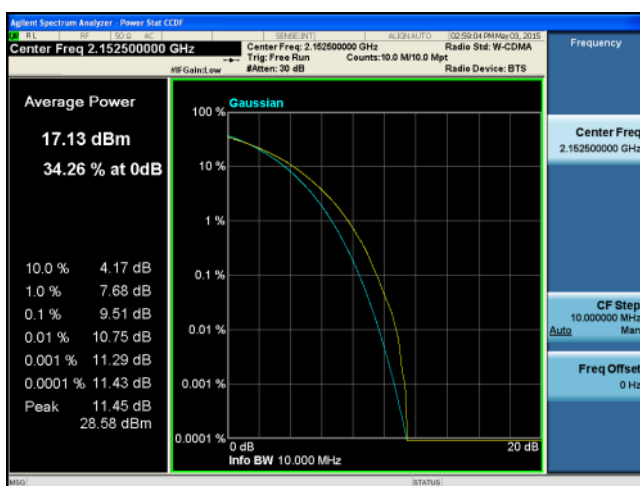
PK-AV-Ratio-Band4-16QAM-10M BW-Low



PK-AV-Ratio-Band4-16QAM-5M BW-Mid



PK-AV-Ratio-Band4-16QAM-10M BW-Mid



PK-AV-Ratio-Band4-16QAM-5M BW-High



PK-AV-Ratio-Band4-16QAM-10M BW-High