

# FCC Test Report

Product Name : ML865C1-NA  
Trade Name :   
Model No. : ML865C1-NA  
FCC ID : RI7ML865C1NA

Applicant : Telit communications Spa  
Address : Via Stazione di Prosecco 5/B  
34010 Sgonico  
Trieste-Italy

Date of Receipt : Aug. 09, 2018  
Issued Date : Sep. 28, 2018  
Report No. : 1880135R-HPUSP40V00  
Report Version : V1.0



The test results relate only to the samples tested.

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# Test Report Certification

Issued Date : Sep. 28, 2018

Report No. : 1880135R-HPUSP40V00



Product Name : ML865C1-NA  
Applicant : Telit communications Spa  
Address : Via Stazione di Prosecco 5/B  
34010 Sgonico  
Trieste-Italy  
Manufacturer : TELIT WIRELESS SOLUTIONS CO., LTD  
Trade name :   
Model No. : ML865C1-NA  
FCC ID : RI7ML865C1NA  
EUT Voltage : DC 3.8V  
Testing Voltage : DC 3.8V  
Applicable Standard : FCC CFR Title 47 Part 24 Subpart E  
FCC CFR Title 47 Part 27 Subpart L, Subpart M, Subpart F  
ANSI/TIA-603  
KDB 971168 D01 Power Meas License Digital Systems v03  
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County 310, Taiwan, R.O.C.  
TEL: +886-3-582-8001 / FAX: +886-3-582-8958  
Test Result : Complied

Documented By :



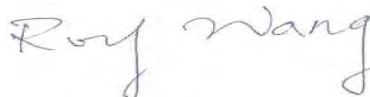
( Carol Tsai / Senior Engineering Adm. Specialist )

Tested By :



( Andy Tsai / Senior Engineer )

Approved By :



( Roy Wang / Director )

### **Revision History**

| Report No.          | Version | Description             | Issued Date   |
|---------------------|---------|-------------------------|---------------|
| 1880135R-HPUSP40V00 | V1.0    | Initial issue of report | Sep. 28, 2018 |
|                     |         |                         |               |
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## 1. General Information

### 1.1. EUT Description

|                                |                                                                                   |
|--------------------------------|-----------------------------------------------------------------------------------|
| Product Name                   | ML865C1-NA                                                                        |
| Trade Name                     |  |
| Model No.                      | ML865C1-NA                                                                        |
| Uplink Frequency Range (MHz)   | Band 2: 1850~1910<br>Band 4: 1710~1755<br>Band 12: 699~716<br>Band 13: 777~787    |
| Downlink Frequency Range (MHz) | Band 2: 1930~1990<br>Band 4: 2110~2115<br>Band 12: 729~746<br>Band 13: 746~756    |
| Modulation                     | QPSK/16QAM                                                                        |
| HW                             | 0.0                                                                               |
| SW                             | M0B.150003                                                                        |

| Accessories Information |       |
|-------------------------|-------|
| Antenna                 | 1 PCS |

| Antenna Information |                   |
|---------------------|-------------------|
| Model No.           | ATEL-CAB; T-AT305 |
| Antenna Type        | 1/4 I Antenna     |
| Antenna Gain        | 2.14 dBi          |

#### Note:

1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. We have pre-scanned the RF output power on all mode. According to the results, the worst case was selected from RF output power to test other test item

## 1.2. Mode of Operation

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

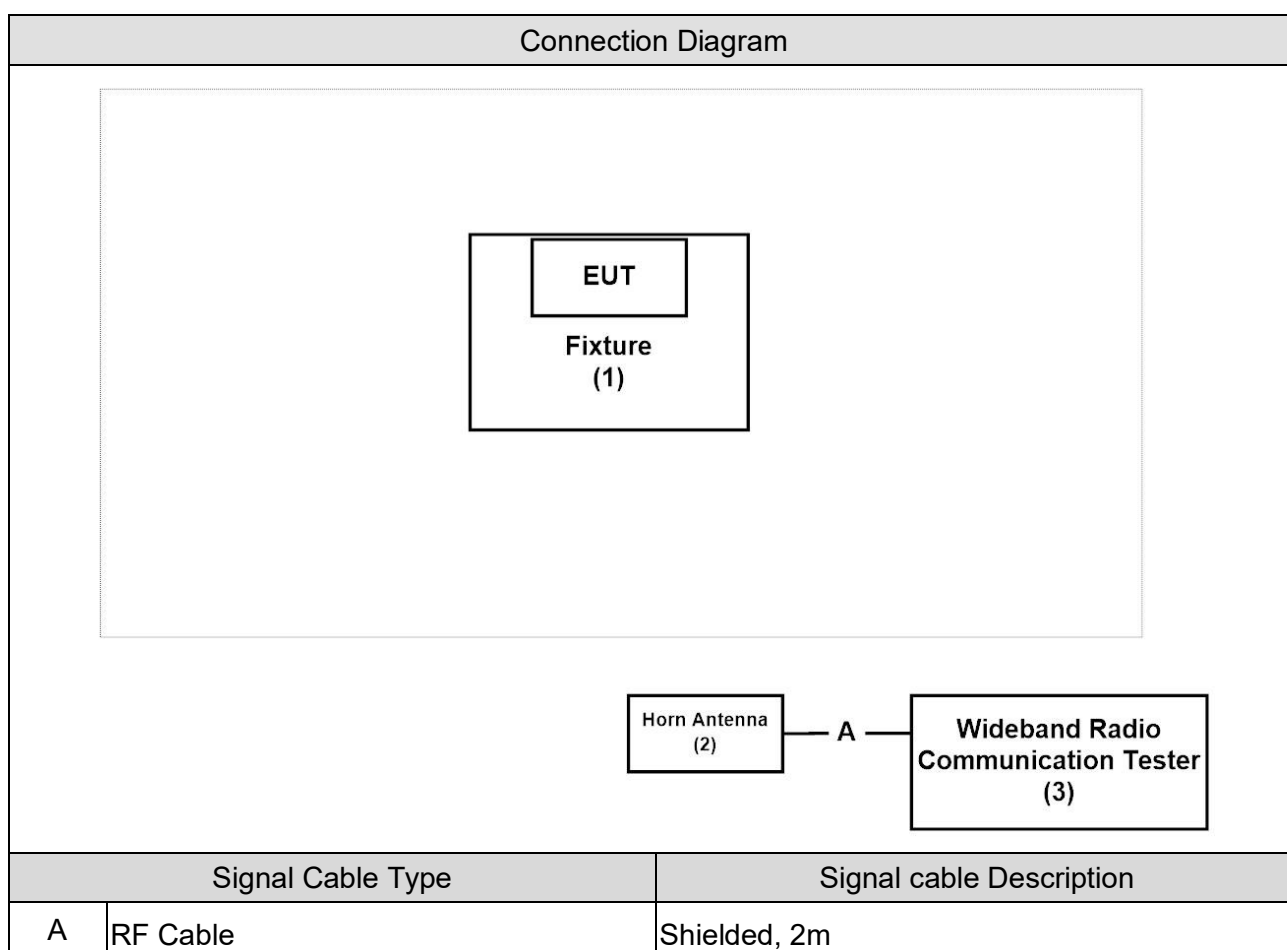
| Test Mode                   |
|-----------------------------|
| Mode 1: LTE_CAT. M1_Band 2  |
| Mode 2: LTE_CAT. M1_Band 4  |
| Mode 3: LTE_CAT. M1_Band 12 |
| Mode 4: LTE_CAT. M1_Band 13 |

### 1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

| Product                                  | Manufacturer | Model No.  | Serial No. | FCC ID | Power Cord |
|------------------------------------------|--------------|------------|------------|--------|------------|
| 1 Fixture                                | Telit        | LE922A6-E2 | N/A        | DoC    | --         |
| 2 Horn Antenna                           | Schwarzbeck  | BBHA 9120D | 639        | DoC    | --         |
| 3 Wideband Radio<br>Communication Tester | R&S          | CMW500     | 150246     | DoC    | --         |

### 1.4. Configuration of Tested System



**1.5. EUT Exercise Software**

|   |                                                               |
|---|---------------------------------------------------------------|
| 1 | Setup the EUT and simulators as shown on 1.4.                 |
| 2 | Turn on the power of all equipment.                           |
| 3 | The EUT will continue receive the signal from CatM1 function. |
| 4 | Repeat the above procedure (3)                                |

## 2. Technical Test

### 2.1. Summary of Test Result

Band2

Uplink: 1850-1910MHz

Downlink: 1930-1990MHz

| LTE Band2                                                |                               |           |                            |           |        |
|----------------------------------------------------------|-------------------------------|-----------|----------------------------|-----------|--------|
| FCC Part 24 Subpart E                                    |                               |           |                            |           |        |
| Industry Canada RSS-133, issue6, Industry Canada RSS-GEN |                               |           |                            |           |        |
| Test item                                                | FCC<br>Reference<br>section   | FCC Limit | IC<br>Reference<br>section | IC Limit  | Result |
| RF Output Power                                          | §2.1033<br>§2.1046<br>§24.232 | <2 Watts  | §6.4                       | <2 Watts  | Pass   |
| Occupied Bandwidth                                       | §2.1049                       | N/A       | RSS-GEN<br>§4.2            | N/A       | Pass   |
| Peak-to-average<br>power ratio                           | §24.232                       | <13 dB    | §6.4                       | <13 dB    | Pass   |
| Spurious Emissions                                       | §2.1053<br>§24.238            | <-13dBm   | §6.5                       | <-13dBm   | Pass   |
| Spurious Emissions<br>at Antenna Terminals               | §27.238                       | <-13dBm   | §6.5                       | <-13dBm   | Pass   |
| Frequency Stability                                      | §2.1055<br>§24.235            | <±2.5 ppm | §6.3                       | <±2.5 ppm | Pass   |

Band 4

Uplink: 1710-1755MHz

Downlink: 2100-2155MHz

| LTE Band4                                                |                              |           |                            |                                  |        |
|----------------------------------------------------------|------------------------------|-----------|----------------------------|----------------------------------|--------|
| FCC Part 27 Subpart L                                    |                              |           |                            |                                  |        |
| Industry Canada RSS-139, issue3, Industry Canada RSS-GEN |                              |           |                            |                                  |        |
| Test item                                                | FCC<br>Reference<br>section  | FCC Limit | IC<br>Reference<br>section | IC Limit                         | Result |
| RF Output Power                                          | §2.1033<br>§2.1046<br>§27.50 | <1 Watt   | §6.5                       | <1 Watt                          | Pass   |
| Occupied Bandwidth                                       | §2.1049                      | N/A       | RSS-GEN<br>§4.2            | N/A                              | Pass   |
| Peak-to-average<br>power ratio                           | §27.50                       | <13 dB    | §6.5                       | <13 dB                           | Pass   |
| Spurious Emissions                                       | §2.1053<br>§27.53            | <-13dBm   | §6.6                       | <-13dBm                          | Pass   |
| Spurious Emissions at<br>Antenna Terminals               | §27.53                       | <-13dBm   | §6.6                       | <-13dBm                          | Pass   |
| Frequency Stability                                      | §2.1055<br>§27.54            | <2.5 ppm  | §6.4                       | Within the<br>frequency<br>range | Pass   |

Band12

Uplink: 699-716MHz

Downlink: 729-746MHz

| LTE Band12                                               |                              |              |                      |                                                                                                                                                                       |        |
|----------------------------------------------------------|------------------------------|--------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| FCC Part 27 Subpart F                                    |                              |              |                      |                                                                                                                                                                       |        |
| Industry Canada RSS-130, issue1, Industry Canada RSS-GEN |                              |              |                      |                                                                                                                                                                       |        |
| Test item                                                | FCC Reference section        | FCC Limit    | IC Reference section | IC Limit                                                                                                                                                              | Result |
| RF Output Power                                          | §2.1033<br>§2.1046<br>§27.50 | <3 Watts ERP | §4.4                 | <5 Watts E.I.R.P for portable equipment or for indoor fixed subscriber equipment                                                                                      | Pass   |
| Occupied Bandwidth                                       | §2.1049                      | N/A          | §4.2                 | N/A                                                                                                                                                                   | Pass   |
| Peak-to-average power ratio                              | §27.50                       | <13 dB       | §4.4                 | <13 dB                                                                                                                                                                | Pass   |
| Spurious Emissions                                       | §2.1053<br>§27.53            | <-13dBm      | §4.6                 | <-13dBm<br>The e.i.r.p. in the band 1559-1610 MHz shall not exceed -70 dBW/MHz for wideband signal and -80 dBW for discrete emission with bandwidth less than 700 Hz. | Pass   |
| Spurious Emissions at Antenna Terminals                  | §27.53                       | <-13dBm      | §4.6                 | <-13dBm                                                                                                                                                               | Pass   |
| Frequency Stability                                      | §2.1055<br>§27.54            | <±2.5 ppm    | §4.3                 | Within the frequency range                                                                                                                                            | Pass   |

Band13

Uplink: 777-787MHz

Downlink: 746-756MHz

| LTE Band 13                                              |                              |                 |                            |                                  |        |
|----------------------------------------------------------|------------------------------|-----------------|----------------------------|----------------------------------|--------|
| FCC Part 27 Subpart F                                    |                              |                 |                            |                                  |        |
| Industry Canada RSS-130, issue1, Industry Canada RSS-GEN |                              |                 |                            |                                  |        |
| Test item                                                | FCC<br>Reference<br>section  | FCC Limit       | IC<br>Reference<br>section | IC Limit                         | Result |
| RF Output Power                                          | §2.1055<br>§27.54            | <3 Watts<br>ERP | §4.3                       | <5 Watts                         | Pass   |
| Occupied Bandwidth                                       | §2.1033<br>§2.1046<br>§27.50 | N/A             | §4.4                       | N/A                              | Pass   |
| Peak-to-average<br>power ratio                           | §2.1049                      | <-13 dB         | RSS-GEN<br>§4.2            | <-13 dB                          | Pass   |
| Spurious Emissions                                       | §27.50                       | <-13dBm         | §4.4                       | <-13dBm                          | Pass   |
| Spurious Emissions<br>at Antenna Terminals               | §2.1053<br>§27.53            | <-13dBm         | §4.6                       | <-13dBm                          | Pass   |
| Frequency Stability                                      | §27.53                       | <±2.5 ppm       | §4.6                       | Within the<br>frequency<br>range | Pass   |

## 2.2. Test Environment

| Items                      | Required (IEC 68-1) | Actual   | Test Site |
|----------------------------|---------------------|----------|-----------|
| Temperature (°C)           | 15-35               | 23       | 2 & 3     |
| Humidity (%RH)             | 25-75               | 52       |           |
| Barometric pressure (mbar) | 860-1060            | 950-1000 |           |

Note: Test site information refers to Laboratory Information.

## Laboratory Information

**USA** : FCC Registration Number: TW3024  
**Canada** : IC Registration Number: 22397-1 / 22397-2 / 22397-3

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:

<http://www.dekra.com.tw/english/about/certificates.aspx?bval=5>

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site : [http://www.dekra.com.tw/index\\_en.aspx](http://www.dekra.com.tw/index_en.aspx)

If you have any comments, Please don't hesitate to contact us. Our test sites as below:

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 TEL: +886-3-582-8001 / FAX: +886-3-582-8958 E-Mail : [info.tw@dekra.com](mailto:info.tw@dekra.com)

### 2.3. List of Test Equipment

#### RF Output Power / SR10-H

| Instrument                             | Manufacturer | Model No. | Serial No. | Cal. Date  | Next Cal. Date |
|----------------------------------------|--------------|-----------|------------|------------|----------------|
| High Speed Peak Power Meter Dual Input | Anritsu      | ML2496A   | 1602004    | 2018/01/02 | 2019/01/01     |
| Wideband Radio Communication Tester    | R&S          | CMW500    | 150246     | 2018/03/30 | 2019/03/29     |
| Directional Coupler                    | Agilent      | 778D      | 20402      | 2017/09/25 | 2018/09/24     |
| EXA Signal Analyzer                    | Keysight     | N9010A    | MY51440132 | 2018/03/05 | 2019/03/04     |

#### Occupied Bandwidth / SR10-H

| Instrument                          | Manufacturer | Model No. | Serial No. | Cal. Date  | Next Cal. Date |
|-------------------------------------|--------------|-----------|------------|------------|----------------|
| Signal Analyzer                     | R&S          | FSVA40    | 101455     | 2017/11/21 | 2018/11/20     |
| Wideband Radio Communication Tester | R&S          | CMW500    | 150246     | 2018/03/30 | 2019/03/29     |
| Directional Coupler                 | Agilent      | 778D      | 20402      | 2017/09/25 | 2018/09/24     |
| EXA Signal Analyzer                 | Keysight     | N9010A    | MY51440132 | 2018/03/05 | 2019/03/04     |

#### Peak To Average Ratio / SR10-H

| Instrument                          | Manufacturer | Model No. | Serial No. | Cal. Date  | Next Cal. Date |
|-------------------------------------|--------------|-----------|------------|------------|----------------|
| Signal Analyzer                     | R&S          | FSVA40    | 101455     | 2017/11/21 | 2018/11/20     |
| Wideband Radio Communication Tester | R&S          | CMW500    | 150246     | 2018/03/30 | 2019/03/29     |
| Directional Coupler                 | Agilent      | 778D      | 20402      | 2017/09/25 | 2018/09/24     |
| EXA Signal Analyzer                 | Keysight     | N9010A    | MY51440132 | 2018/03/05 | 2019/03/04     |

#### Conducted Band Edge Emissions / SR10-H

| Instrument                          | Manufacturer | Model No. | Serial No. | Cal. Date  | Next Cal. Date |
|-------------------------------------|--------------|-----------|------------|------------|----------------|
| Signal Analyzer                     | R&S          | FSVA40    | 101455     | 2017/11/21 | 2018/11/20     |
| Wideband Radio Communication Tester | R&S          | CMW500    | 150246     | 2018/03/30 | 2019/03/29     |
| Directional Coupler                 | Agilent      | 778D      | 20402      | 2017/09/25 | 2018/09/24     |
| EXA Signal Analyzer                 | Keysight     | N9010A    | MY51440132 | 2018/03/05 | 2019/03/04     |

## Spurious Emission / CB4-H

| Instrument                 | Manufacturer | Model No.  | Serial No. | Cal. Date  | Next Cal. Date |
|----------------------------|--------------|------------|------------|------------|----------------|
| Signal Analyzer            | R&S          | FSVA40     | 101455     | 2017/11/21 | 2018/11/20     |
| Signal & Spectrum Analyzer | R&S          | FSV40      | 101049     | 2018/01/10 | 2019/01/09     |
| EXA Signal Analyzer        | Keysight     | N9010A     | MY51440132 | 2018/03/05 | 2019/03/04     |
| Bilog Antenna              | Teseq        | CBL6112D   | 23191      | 2018/06/26 | 2019/06/25     |
| Horn Antenna               | Schwarzbeck  | BBHA 9120D | 639        | 2018/06/01 | 2019/05/31     |
| Horn Antenna               | Schwarzbeck  | BBHA 9170  | 202        | 2018/01/31 | 2019/01/30     |
| Pre-Amplifier              | Dekra        | AP-025C    | 201801236  | 2018/02/26 | 2019/02/25     |
| Pre-Amplifier              | EMCI         | EMC11830I  | 980366     | 2018/01/08 | 2019/01/07     |
| Pre-Amplifier              | Dekra        | AP-400C    | 201801231  | 2017/12/13 | 2018/12/12     |
| EXA Signal Analyzer        | Keysight     | N9010A     | MY51440132 | 2018/03/05 | 2019/03/04     |

## Spurious Emissions at Antenna Terminals / SR10-H

| Instrument                          | Manufacturer | Model No. | Serial No. | Cal. Date  | Next Cal. Date |
|-------------------------------------|--------------|-----------|------------|------------|----------------|
| Signal Analyzer                     | R&S          | FSVA40    | 101455     | 2017/11/21 | 2018/11/20     |
| Wideband Radio Communication Tester | R&S          | CMW500    | 150246     | 2018/03/30 | 2019/03/29     |
| Directional Coupler                 | Agilent      | 778D      | 20402      | 2017/09/25 | 2018/09/24     |
| EXA Signal Analyzer                 | Keysight     | N9010A    | MY51440132 | 2018/03/05 | 2019/03/04     |

## Frequency Stability Under Temperature &amp; Voltage Variations / SR10-H

| Instrument                          | Manufacturer | Model No. | Serial No. | Cal. Date  | Next Cal. Date |
|-------------------------------------|--------------|-----------|------------|------------|----------------|
| Signal Analyzer                     | R&S          | FSVA40    | 101455     | 2017/11/21 | 2018/11/20     |
| Wideband Radio Communication Tester | R&S          | CMW500    | 150246     | 2018/03/30 | 2019/03/29     |
| Directional Coupler                 | Agilent      | 778D      | 20402      | 2017/09/25 | 2018/09/24     |
| EXA Signal Analyzer                 | Keysight     | N9010A    | MY51440132 | 2018/03/05 | 2019/03/04     |

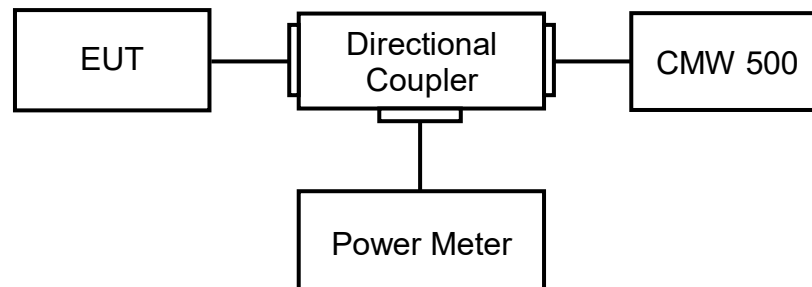
Note: All equipment upon which need to calibrated are with calibration period of 1 year.

## 2.4. Uncertainty

| Test Item                               | Uncertainty                                                                      |
|-----------------------------------------|----------------------------------------------------------------------------------|
| RF Output Power                         | $\pm 1.27$ dB                                                                    |
| Occupied Bandwidth                      | $\pm 10$ Hz                                                                      |
| Peak To Average Ratio                   | not exceed 13 dB                                                                 |
| Spurious Emissions                      | $\pm 1.27$ dB for Conducted Measurement<br>$\pm 3.2$ dB for Radiated Measurement |
| Spurious Emissions at Antenna Terminals | $\pm 3.2$ dB                                                                     |
| Frequency Stability                     | $\pm 10$ Hz                                                                      |

### 3. RF Output Power

#### 3.1. Test Setup



#### 3.2. Test Procedure

- The RF output of the transmitter was connected to base station simulator.
- The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement..
- Set EUT at maximum average power by base station simulator.
- Measure lowest, middle, and highest channels for each bandwidth and different modulation.

Effective Isotropic Radiated Power = Conducted Power(dBm) + Antenna Gain(dBi)

Effective Radiated Power = Conducted Power(dBm) + Antenna Gain(dBi) - 2.15dB

#### 3.3. Test Method

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 5.2.4

ANSI C63.26: 2015 Sub-clause 5.2.4.2

### 3.4. Test Result

|              |                            |           |        |
|--------------|----------------------------|-----------|--------|
| Product      | ML865C1-NA                 |           |        |
| Test Item    | RF Output Power            |           |        |
| Test Mode    | Mode 1: LTE_CAT. M1_Band 2 |           |        |
| Date of Test | 2018/09/26                 | Test Site | SR10-H |

| Band             | Freq. (MHz) | Modulation | RB No. | RB offset | Conducted Output Power (dBm) | RF Output Power (W) EIRP | Limit (W) EIRP |
|------------------|-------------|------------|--------|-----------|------------------------------|--------------------------|----------------|
| Band 2<br>1.4MHz | 1850.7      | QPSK       | 1      | 0         | 23.40                        | 0.358                    | 2              |
|                  |             |            | 6      | 0         | 21.44                        | 0.228                    | 2              |
|                  |             | 16-QAM     | 1      | 0         | 22.62                        | 0.299                    | 2              |
|                  |             |            | 1      | 5         | 22.64                        | 0.301                    | 2              |
|                  |             |            | 5      | 0         | 21.45                        | 0.229                    | 2              |
|                  |             |            | 5      | 1         | 21.43                        | 0.228                    | 2              |
|                  | 1880        | QPSK       | 1      | 0         | 23.23                        | 0.344                    | 2              |
|                  |             |            | 6      | 0         | 21.18                        | 0.215                    | 2              |
|                  |             | 16-QAM     | 1      | 0         | 22.46                        | 0.288                    | 2              |
|                  |             |            | 1      | 5         | 22.44                        | 0.287                    | 2              |
|                  |             |            | 5      | 0         | 21.19                        | 0.215                    | 2              |
|                  |             |            | 5      | 1         | 21.09                        | 0.210                    | 2              |
|                  | 1909.3      | QPSK       | 1      | 0         | 23.46                        | 0.363                    | 2              |
|                  |             |            | 6      | 0         | 21.41                        | 0.226                    | 2              |
|                  |             | 16-QAM     | 1      | 0         | 22.73                        | 0.307                    | 2              |
|                  |             |            | 1      | 5         | 22.71                        | 0.305                    | 2              |
|                  |             |            | 5      | 0         | 21.61                        | 0.237                    | 2              |
|                  |             |            | 5      | 1         | 21.47                        | 0.230                    | 2              |

| Band           | Freq.<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Conducted<br>Output<br>Power<br>(dBm) | RF Output<br>Power<br>(W)<br>EIRP | Limit<br>(W)<br>EIRP |
|----------------|----------------|------------|-----------|--------------|---------------------------------------|-----------------------------------|----------------------|
| Band 2<br>3MHz | 1851.5         | QPSK       | 1         | 0            | 23.57                                 | 0.372                             | 2                    |
|                |                |            | 6         | 0            | 21.44                                 | 0.228                             | 2                    |
|                |                | 16-QAM     | 1         | 0            | 22.72                                 | 0.306                             | 2                    |
|                |                |            | 1         | 5            | 22.73                                 | 0.307                             | 2                    |
|                |                |            | 5         | 0            | 21.60                                 | 0.237                             | 2                    |
|                |                |            | 5         | 1            | 21.59                                 | 0.236                             | 2                    |
|                | 1880           | QPSK       | 1         | 0            | 23.18                                 | 0.340                             | 2                    |
|                |                |            | 6         | 0            | 21.21                                 | 0.216                             | 2                    |
|                |                | 16-QAM     | 1         | 0            | 22.41                                 | 0.285                             | 2                    |
|                |                |            | 1         | 5            | 22.43                                 | 0.286                             | 2                    |
|                |                |            | 5         | 0            | 21.31                                 | 0.221                             | 2                    |
|                |                |            | 5         | 1            | 21.27                                 | 0.219                             | 2                    |
|                | 1908.5         | QPSK       | 1         | 0            | 23.55                                 | 0.371                             | 2                    |
|                |                |            | 6         | 0            | 21.49                                 | 0.231                             | 2                    |
|                |                | 16-QAM     | 1         | 0            | 22.74                                 | 0.308                             | 2                    |
|                |                |            | 1         | 5            | 22.76                                 | 0.309                             | 2                    |
|                |                |            | 5         | 0            | 21.55                                 | 0.234                             | 2                    |
|                |                |            | 5         | 1            | 21.63                                 | 0.238                             | 2                    |

| Band           | Freq.<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Conducted<br>Output<br>Power<br>(dBm) | RF Output<br>Power<br>(W)<br>EIRP | Limit<br>(W)<br>EIRP |
|----------------|----------------|------------|-----------|--------------|---------------------------------------|-----------------------------------|----------------------|
| Band 2<br>5MHz | 1852.5         | QPSK       | 1         | 0            | 23.54                                 | 0.370                             | 2                    |
|                |                |            | 6         | 0            | 22.58                                 | 0.296                             | 2                    |
|                |                | 16-QAM     | 1         | 0            | 23.09                                 | 0.333                             | 2                    |
|                |                |            | 1         | 5            | 23.08                                 | 0.333                             | 2                    |
|                |                |            | 5         | 0            | 21.62                                 | 0.238                             | 2                    |
|                |                |            | 5         | 1            | 21.66                                 | 0.240                             | 2                    |
|                | 1880           | QPSK       | 1         | 0            | 23.27                                 | 0.348                             | 2                    |
|                |                |            | 6         | 0            | 22.35                                 | 0.281                             | 2                    |
|                |                | 16-QAM     | 1         | 0            | 22.85                                 | 0.316                             | 2                    |
|                |                |            | 1         | 5            | 22.83                                 | 0.314                             | 2                    |
|                |                |            | 5         | 0            | 21.53                                 | 0.233                             | 2                    |
|                |                |            | 5         | 1            | 21.46                                 | 0.229                             | 2                    |
|                | 1907.5         | QPSK       | 1         | 0            | 23.66                                 | 0.380                             | 2                    |
|                |                |            | 6         | 0            | 22.63                                 | 0.300                             | 2                    |
|                |                | 16-QAM     | 1         | 0            | 23.02                                 | 0.328                             | 2                    |
|                |                |            | 1         | 5            | 23.08                                 | 0.333                             | 2                    |
|                |                |            | 5         | 0            | 21.68                                 | 0.241                             | 2                    |
|                |                |            | 5         | 1            | 21.64                                 | 0.239                             | 2                    |

| Band            | Freq.<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Conducted<br>Output<br>Power<br>(dBm) | RF Output<br>Power<br>(W)<br>EIRP | Limit<br>(W)<br>EIRP |
|-----------------|----------------|------------|-----------|--------------|---------------------------------------|-----------------------------------|----------------------|
| Band 2<br>10MHz | 1855           | QPSK       | 1         | 0            | 23.54                                 | 0.370                             | 2                    |
|                 |                |            | 6         | 0            | 22.56                                 | 0.295                             | 2                    |
|                 |                | 16-QAM     | 1         | 0            | 23.01                                 | 0.327                             | 2                    |
|                 |                |            | 1         | 5            | 23.08                                 | 0.333                             | 2                    |
|                 |                |            | 5         | 0            | 22.51                                 | 0.292                             | 2                    |
|                 |                |            | 5         | 1            | 22.56                                 | 0.295                             | 2                    |
|                 | 1880           | QPSK       | 1         | 0            | 23.35                                 | 0.354                             | 2                    |
|                 |                |            | 6         | 0            | 22.35                                 | 0.281                             | 2                    |
|                 |                | 16-QAM     | 1         | 0            | 23.05                                 | 0.330                             | 2                    |
|                 |                |            | 1         | 5            | 23.07                                 | 0.332                             | 2                    |
|                 |                |            | 5         | 0            | 22.26                                 | 0.275                             | 2                    |
|                 |                |            | 5         | 1            | 22.25                                 | 0.275                             | 2                    |
|                 | 1905           | QPSK       | 1         | 0            | 23.49                                 | 0.366                             | 2                    |
|                 |                |            | 6         | 0            | 22.64                                 | 0.301                             | 2                    |
|                 |                | 16-QAM     | 1         | 0            | 23.05                                 | 0.330                             | 2                    |
|                 |                |            | 1         | 5            | 23.03                                 | 0.329                             | 2                    |
|                 |                |            | 5         | 0            | 22.51                                 | 0.292                             | 2                    |
|                 |                |            | 5         | 1            | 22.61                                 | 0.299                             | 2                    |

| Band            | Freq.<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Conducted<br>Output<br>Power<br>(dBm) | RF Output<br>Power<br>(W)<br>EIRP | Limit<br>(W)<br>EIRP |
|-----------------|----------------|------------|-----------|--------------|---------------------------------------|-----------------------------------|----------------------|
| Band 2<br>15MHz | 1857.5         | QPSK       | 1         | 0            | 23.47                                 | 0.364                             | 2                    |
|                 |                |            | 6         | 0            | 22.60                                 | 0.298                             | 2                    |
|                 |                | 16-QAM     | 1         | 0            | 23.06                                 | 0.331                             | 2                    |
|                 |                |            | 1         | 5            | 23.08                                 | 0.333                             | 2                    |
|                 |                |            | 5         | 0            | 22.48                                 | 0.290                             | 2                    |
|                 |                |            | 5         | 1            | 22.42                                 | 0.286                             | 2                    |
|                 | 1880           | QPSK       | 1         | 0            | 23.31                                 | 0.351                             | 2                    |
|                 |                |            | 6         | 0            | 22.41                                 | 0.285                             | 2                    |
|                 |                | 16-QAM     | 1         | 0            | 23.05                                 | 0.330                             | 2                    |
|                 |                |            | 1         | 5            | 23.04                                 | 0.330                             | 2                    |
|                 |                |            | 5         | 0            | 22.15                                 | 0.269                             | 2                    |
|                 |                |            | 5         | 1            | 22.11                                 | 0.266                             | 2                    |
|                 | 1902.5         | QPSK       | 1         | 0            | 23.64                                 | 0.378                             | 2                    |
|                 |                |            | 6         | 0            | 22.68                                 | 0.303                             | 2                    |
|                 |                | 16-QAM     | 1         | 0            | 23.05                                 | 0.330                             | 2                    |
|                 |                |            | 1         | 5            | 23.06                                 | 0.331                             | 2                    |
|                 |                |            | 5         | 0            | 22.62                                 | 0.299                             | 2                    |
|                 |                |            | 5         | 1            | 22.49                                 | 0.290                             | 2                    |

| Band            | Freq.<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Conducted<br>Output<br>Power<br>(dBm) | RF Output<br>Power<br>(W)<br>EIRP | Limit<br>(W)<br>EIRP |
|-----------------|----------------|------------|-----------|--------------|---------------------------------------|-----------------------------------|----------------------|
| Band 2<br>20MHz | 1860           | QPSK       | 1         | 0            | 23.54                                 | 0.370                             | 2                    |
|                 |                |            | 6         | 0            | 22.49                                 | 0.290                             | 2                    |
|                 |                | 16-QAM     | 1         | 0            | 23.02                                 | 0.328                             | 2                    |
|                 |                |            | 1         | 5            | 23.05                                 | 0.330                             | 2                    |
|                 |                |            | 5         | 0            | 22.49                                 | 0.290                             | 2                    |
|                 |                |            | 5         | 1            | 22.46                                 | 0.288                             | 2                    |
|                 | 1880           | QPSK       | 1         | 0            | 23.45                                 | 0.362                             | 2                    |
|                 |                |            | 6         | 0            | 22.36                                 | 0.282                             | 2                    |
|                 |                | 16-QAM     | 1         | 0            | 23.08                                 | 0.333                             | 2                    |
|                 |                |            | 1         | 5            | 23.05                                 | 0.330                             | 2                    |
|                 |                |            | 5         | 0            | 22.29                                 | 0.277                             | 2                    |
|                 |                |            | 5         | 1            | 22.31                                 | 0.279                             | 2                    |
|                 | 1900           | QPSK       | 1         | 0            | 23.60                                 | 0.375                             | 2                    |
|                 |                |            | 6         | 0            | 22.62                                 | 0.299                             | 2                    |
|                 |                | 16-QAM     | 1         | 0            | 23.02                                 | 0.328                             | 2                    |
|                 |                |            | 1         | 5            | 23.09                                 | 0.333                             | 2                    |
|                 |                |            | 5         | 0            | 22.57                                 | 0.296                             | 2                    |
|                 |                |            | 5         | 1            | 22.56                                 | 0.295                             | 2                    |

|              |                            |           |        |
|--------------|----------------------------|-----------|--------|
| Product      | ML865C1-NA                 |           |        |
| Test Item    | RF Output Power            |           |        |
| Test Mode    | Mode 2: LTE_CAT. M1_Band 4 |           |        |
| Date of Test | 2018/09/26                 | Test Site | SR10-H |

| Band             | Freq. (MHz) | Modulation | RB No. | RB offset | Conducted Output Power (dBm) | RF Output Power (W) EIRP | Limit (W) EIRP |
|------------------|-------------|------------|--------|-----------|------------------------------|--------------------------|----------------|
| Band 4<br>1.4MHz | 1710.7      | QPSK       | 1      | 0         | 23.76                        | 0.389                    | 1              |
|                  |             |            | 6      | 0         | 21.88                        | 0.252                    | 1              |
|                  |             | 16-QAM     | 1      | 0         | 22.76                        | 0.309                    | 1              |
|                  |             |            | 1      | 5         | 22.73                        | 0.307                    | 1              |
|                  |             |            | 5      | 0         | 21.93                        | 0.255                    | 1              |
|                  |             |            | 5      | 1         | 21.94                        | 0.256                    | 1              |
|                  | 1732.5      | QPSK       | 1      | 0         | 23.59                        | 0.374                    | 1              |
|                  |             |            | 6      | 0         | 21.71                        | 0.243                    | 1              |
|                  |             | 16-QAM     | 1      | 0         | 22.96                        | 0.324                    | 1              |
|                  |             |            | 1      | 5         | 22.98                        | 0.325                    | 1              |
|                  |             |            | 5      | 0         | 21.68                        | 0.241                    | 1              |
|                  |             |            | 5      | 1         | 21.61                        | 0.237                    | 1              |
|                  | 1754.3      | QPSK       | 1      | 0         | 23.65                        | 0.379                    | 1              |
|                  |             |            | 6      | 0         | 21.64                        | 0.239                    | 1              |
|                  |             | 16-QAM     | 1      | 0         | 22.91                        | 0.320                    | 1              |
|                  |             |            | 1      | 5         | 22.94                        | 0.322                    | 1              |
|                  |             |            | 5      | 0         | 21.53                        | 0.233                    | 1              |
|                  |             |            | 5      | 1         | 21.62                        | 0.238                    | 1              |

| Band           | Freq.<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Conducted<br>Output<br>Power<br>(dBm) | RF Output<br>Power<br>(W)<br>EIRP | Limit<br>(W)<br>EIRP |
|----------------|----------------|------------|-----------|--------------|---------------------------------------|-----------------------------------|----------------------|
| Band 4<br>3MHz | 1711.5         | QPSK       | 1         | 0            | 23.94                                 | 0.406                             | 1                    |
|                |                |            | 6         | 0            | 21.84                                 | 0.250                             | 1                    |
|                |                | 16-QAM     | 1         | 0            | 23.09                                 | 0.333                             | 1                    |
|                |                |            | 1         | 5            | 23.11                                 | 0.335                             | 1                    |
|                |                |            | 5         | 0            | 22.09                                 | 0.265                             | 1                    |
|                |                |            | 5         | 1            | 22.00                                 | 0.259                             | 1                    |
|                | 1732.5         | QPSK       | 1         | 0            | 23.43                                 | 0.361                             | 1                    |
|                |                |            | 6         | 0            | 21.51                                 | 0.232                             | 1                    |
|                |                | 16-QAM     | 1         | 0            | 22.72                                 | 0.306                             | 1                    |
|                |                |            | 1         | 5            | 22.78                                 | 0.310                             | 1                    |
|                |                |            | 5         | 0            | 21.68                                 | 0.241                             | 1                    |
|                |                |            | 5         | 1            | 21.64                                 | 0.239                             | 1                    |
|                | 1753.5         | QPSK       | 1         | 0            | 23.75                                 | 0.388                             | 1                    |
|                |                |            | 6         | 0            | 21.68                                 | 0.241                             | 1                    |
|                |                | 16-QAM     | 1         | 0            | 22.97                                 | 0.324                             | 1                    |
|                |                |            | 1         | 5            | 23.04                                 | 0.330                             | 1                    |
|                |                |            | 5         | 0            | 21.82                                 | 0.249                             | 1                    |
|                |                |            | 5         | 1            | 21.79                                 | 0.247                             | 1                    |

| Band           | Freq.<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Conducted<br>Output<br>Power<br>(dBm) | RF Output<br>Power<br>(W)<br>EIRP | Limit<br>(W)<br>EIRP |
|----------------|----------------|------------|-----------|--------------|---------------------------------------|-----------------------------------|----------------------|
| Band 4<br>5MHz | 1712.5         | QPSK       | 1         | 0            | 23.88                                 | 0.400                             | 1                    |
|                |                |            | 6         | 0            | 22.88                                 | 0.318                             | 1                    |
|                |                | 16-QAM     | 1         | 0            | 23.07                                 | 0.332                             | 1                    |
|                |                |            | 1         | 5            | 23.14                                 | 0.337                             | 1                    |
|                |                |            | 5         | 0            | 22.07                                 | 0.264                             | 1                    |
|                |                |            | 5         | 1            | 22.04                                 | 0.262                             | 1                    |
|                | 1732.5         | QPSK       | 1         | 0            | 23.41                                 | 0.359                             | 1                    |
|                |                |            | 6         | 0            | 22.42                                 | 0.286                             | 1                    |
|                |                | 16-QAM     | 1         | 0            | 23.10                                 | 0.334                             | 1                    |
|                |                |            | 1         | 5            | 23.08                                 | 0.333                             | 1                    |
|                |                |            | 5         | 0            | 21.48                                 | 0.230                             | 1                    |
|                |                |            | 5         | 1            | 21.47                                 | 0.230                             | 1                    |
|                | 1752.5         | QPSK       | 1         | 0            | 23.78                                 | 0.391                             | 1                    |
|                |                |            | 6         | 0            | 22.71                                 | 0.305                             | 1                    |
|                |                | 16-QAM     | 1         | 0            | 23.08                                 | 0.333                             | 1                    |
|                |                |            | 1         | 5            | 23.01                                 | 0.327                             | 1                    |
|                |                |            | 5         | 0            | 21.77                                 | 0.246                             | 1                    |
|                |                |            | 5         | 1            | 21.79                                 | 0.247                             | 1                    |

| Band            | Freq.<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Conducted<br>Output<br>Power<br>(dBm) | RF Output<br>Power<br>(W)<br>EIRP | Limit<br>(W)<br>EIRP |
|-----------------|----------------|------------|-----------|--------------|---------------------------------------|-----------------------------------|----------------------|
| Band 4<br>10MHz | 1715           | QPSK       | 1         | 0            | 23.73                                 | 0.386                             | 1                    |
|                 |                |            | 6         | 0            | 22.78                                 | 0.310                             | 1                    |
|                 |                | 16-QAM     | 1         | 0            | 23.02                                 | 0.328                             | 1                    |
|                 |                |            | 1         | 5            | 23.08                                 | 0.333                             | 1                    |
|                 |                |            | 5         | 0            | 22.81                                 | 0.313                             | 1                    |
|                 |                |            | 5         | 1            | 22.85                                 | 0.316                             | 1                    |
|                 | 1732.5         | QPSK       | 1         | 0            | 23.20                                 | 0.342                             | 1                    |
|                 |                |            | 6         | 0            | 22.31                                 | 0.279                             | 1                    |
|                 |                | 16-QAM     | 1         | 0            | 23.11                                 | 0.335                             | 1                    |
|                 |                |            | 1         | 5            | 23.09                                 | 0.333                             | 1                    |
|                 |                |            | 5         | 0            | 22.30                                 | 0.278                             | 1                    |
|                 |                |            | 5         | 1            | 22.31                                 | 0.279                             | 1                    |
|                 | 1750           | QPSK       | 1         | 0            | 23.38                                 | 0.356                             | 1                    |
|                 |                |            | 6         | 0            | 22.51                                 | 0.292                             | 1                    |
|                 |                | 16-QAM     | 1         | 0            | 23.01                                 | 0.327                             | 1                    |
|                 |                |            | 1         | 5            | 23.02                                 | 0.328                             | 1                    |
|                 |                |            | 5         | 0            | 22.54                                 | 0.294                             | 1                    |
|                 |                |            | 5         | 1            | 22.49                                 | 0.290                             | 1                    |

| Band            | Freq.<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Conducted<br>Output<br>Power<br>(dBm) | RF Output<br>Power<br>(W)<br>EIRP | Limit<br>(W)<br>EIRP |
|-----------------|----------------|------------|-----------|--------------|---------------------------------------|-----------------------------------|----------------------|
| Band 4<br>15MHz | 1717.5         | QPSK       | 1         | 0            | 23.77                                 | 0.390                             | 1                    |
|                 |                |            | 6         | 0            | 22.80                                 | 0.312                             | 1                    |
|                 |                | 16-QAM     | 1         | 0            | 23.06                                 | 0.331                             | 1                    |
|                 |                |            | 1         | 5            | 23.05                                 | 0.330                             | 1                    |
|                 |                |            | 5         | 0            | 22.81                                 | 0.313                             | 1                    |
|                 |                |            | 5         | 1            | 22.78                                 | 0.310                             | 1                    |
|                 | 1732.5         | QPSK       | 1         | 0            | 23.46                                 | 0.363                             | 1                    |
|                 |                |            | 6         | 0            | 22.48                                 | 0.290                             | 1                    |
|                 |                | 16-QAM     | 1         | 0            | 23.05                                 | 0.330                             | 1                    |
|                 |                |            | 1         | 5            | 23.06                                 | 0.331                             | 1                    |
|                 |                |            | 5         | 0            | 22.22                                 | 0.273                             | 1                    |
|                 |                |            | 5         | 1            | 22.23                                 | 0.274                             | 1                    |
|                 | 1747.5         | QPSK       | 1         | 0            | 23.24                                 | 0.345                             | 1                    |
|                 |                |            | 6         | 0            | 23.31                                 | 0.351                             | 1                    |
|                 |                | 16-QAM     | 1         | 0            | 23.30                                 | 0.350                             | 1                    |
|                 |                |            | 1         | 5            | 23.33                                 | 0.352                             | 1                    |
|                 |                |            | 5         | 0            | 23.25                                 | 0.346                             | 1                    |
|                 |                |            | 5         | 1            | 23.24                                 | 0.345                             | 1                    |

| Band            | Freq.<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Conducted<br>Output<br>Power<br>(dBm) | RF Output<br>Power<br>(W)<br>EIRP | Limit<br>(W)<br>EIRP |
|-----------------|----------------|------------|-----------|--------------|---------------------------------------|-----------------------------------|----------------------|
| Band 4<br>20MHz | 1720           | QPSK       | 1         | 0            | 23.74                                 | 0.387                             | 1                    |
|                 |                |            | 6         | 0            | 22.79                                 | 0.311                             | 1                    |
|                 |                | 16-QAM     | 1         | 0            | 23.08                                 | 0.333                             | 1                    |
|                 |                |            | 1         | 5            | 23.09                                 | 0.333                             | 1                    |
|                 |                |            | 5         | 0            | 22.75                                 | 0.308                             | 1                    |
|                 |                |            | 5         | 1            | 22.74                                 | 0.308                             | 1                    |
|                 | 1732.5         | QPSK       | 1         | 0            | 23.39                                 | 0.357                             | 1                    |
|                 |                |            | 6         | 0            | 22.41                                 | 0.285                             | 1                    |
|                 |                | 16-QAM     | 1         | 0            | 23.07                                 | 0.332                             | 1                    |
|                 |                |            | 1         | 5            | 23.04                                 | 0.330                             | 1                    |
|                 |                |            | 5         | 0            | 22.25                                 | 0.275                             | 1                    |
|                 |                |            | 5         | 1            | 22.29                                 | 0.277                             | 1                    |
|                 | 1745           | QPSK       | 1         | 0            | 23.33                                 | 0.352                             | 1                    |
|                 |                |            | 6         | 0            | 22.21                                 | 0.272                             | 1                    |
|                 |                | 16-QAM     | 1         | 0            | 23.01                                 | 0.327                             | 1                    |
|                 |                |            | 1         | 5            | 23.04                                 | 0.330                             | 1                    |
|                 |                |            | 5         | 0            | 22.12                                 | 0.267                             | 1                    |
|                 |                |            | 5         | 1            | 22.14                                 | 0.268                             | 1                    |

|              |                             |           |        |
|--------------|-----------------------------|-----------|--------|
| Product      | ML865C1-NA                  |           |        |
| Test Item    | RF Output Power             |           |        |
| Test Mode    | Mode 3: LTE_CAT. M1_Band 12 |           |        |
| Date of Test | 2018/09/26                  | Test Site | SR10-H |

| Band              | Freq. (MHz) | Modulation | RB No. | RB offset | Conducted Output Power (dBm) | RF Output Power (W) ERP | Limit (W) ERP |
|-------------------|-------------|------------|--------|-----------|------------------------------|-------------------------|---------------|
| Band 12<br>1.4MHz | 699.7       | QPSK       | 1      | 0         | 23.63                        | 0.230                   | 3             |
|                   |             |            | 6      | 0         | 21.58                        | 0.144                   | 3             |
|                   |             | 16-QAM     | 1      | 0         | 22.79                        | 0.190                   | 3             |
|                   |             |            | 1      | 5         | 22.84                        | 0.192                   | 3             |
|                   |             |            | 5      | 0         | 21.38                        | 0.137                   | 3             |
|                   |             |            | 5      | 1         | 21.41                        | 0.138                   | 3             |
|                   | 707.5       | QPSK       | 1      | 0         | 23.42                        | 0.219                   | 3             |
|                   |             |            | 6      | 0         | 21.31                        | 0.135                   | 3             |
|                   |             | 16-QAM     | 1      | 0         | 22.69                        | 0.185                   | 3             |
|                   |             |            | 1      | 5         | 22.61                        | 0.182                   | 3             |
|                   |             |            | 5      | 0         | 21.13                        | 0.129                   | 3             |
|                   |             |            | 5      | 1         | 21.30                        | 0.135                   | 3             |
|                   | 715.3       | QPSK       | 1      | 0         | 23.51                        | 0.224                   | 3             |
|                   |             |            | 6      | 0         | 21.42                        | 0.138                   | 3             |
|                   |             | 16-QAM     | 1      | 0         | 22.66                        | 0.184                   | 3             |
|                   |             |            | 1      | 5         | 22.71                        | 0.186                   | 3             |
|                   |             |            | 5      | 0         | 21.29                        | 0.134                   | 3             |
|                   |             |            | 5      | 1         | 21.28                        | 0.134                   | 3             |

| Band            | Freq.<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Conducted<br>Output<br>Power<br>(dBm) | RF Output<br>Power<br>(W)<br>ERP | Limit<br>(W)<br>ERP |
|-----------------|----------------|------------|-----------|--------------|---------------------------------------|----------------------------------|---------------------|
| Band 12<br>3MHz | 700.5          | QPSK       | 1         | 0            | 23.77                                 | 0.238                            | 3                   |
|                 |                |            | 6         | 0            | 21.48                                 | 0.140                            | 3                   |
|                 |                | 16-QAM     | 1         | 0            | 22.86                                 | 0.193                            | 3                   |
|                 |                |            | 1         | 5            | 22.71                                 | 0.186                            | 3                   |
|                 |                |            | 5         | 0            | 21.68                                 | 0.147                            | 3                   |
|                 |                |            | 5         | 1            | 21.69                                 | 0.147                            | 3                   |
|                 | 707.5          | QPSK       | 1         | 0            | 23.58                                 | 0.228                            | 3                   |
|                 |                |            | 6         | 0            | 21.50                                 | 0.141                            | 3                   |
|                 |                | 16-QAM     | 1         | 0            | 22.66                                 | 0.184                            | 3                   |
|                 |                |            | 1         | 5            | 22.64                                 | 0.183                            | 3                   |
|                 |                |            | 5         | 0            | 21.50                                 | 0.141                            | 3                   |
|                 |                |            | 5         | 1            | 21.46                                 | 0.140                            | 3                   |
|                 | 714.5          | QPSK       | 1         | 0            | 23.31                                 | 0.214                            | 3                   |
|                 |                |            | 6         | 0            | 21.43                                 | 0.139                            | 3                   |
|                 |                | 16-QAM     | 1         | 0            | 22.16                                 | 0.164                            | 3                   |
|                 |                |            | 1         | 5            | 22.17                                 | 0.164                            | 3                   |
|                 |                |            | 5         | 0            | 21.65                                 | 0.146                            | 3                   |
|                 |                |            | 5         | 1            | 21.51                                 | 0.141                            | 3                   |

| Band            | Freq.<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Conducted<br>Output<br>Power<br>(dBm) | RF Output<br>Power<br>(W)<br>ERP | Limit<br>(W)<br>ERP |
|-----------------|----------------|------------|-----------|--------------|---------------------------------------|----------------------------------|---------------------|
| Band 12<br>5MHz | 701.5          | QPSK       | 1         | 0            | 23.73                                 | 0.236                            | 3                   |
|                 |                |            | 6         | 0            | 22.56                                 | 0.180                            | 3                   |
|                 |                | 16-QAM     | 1         | 0            | 23.06                                 | 0.202                            | 3                   |
|                 |                |            | 1         | 5            | 23.05                                 | 0.201                            | 3                   |
|                 |                |            | 5         | 0            | 21.46                                 | 0.140                            | 3                   |
|                 |                |            | 5         | 1            | 21.48                                 | 0.140                            | 3                   |
|                 | 707.5          | QPSK       | 1         | 0            | 23.71                                 | 0.234                            | 3                   |
|                 |                |            | 6         | 0            | 22.69                                 | 0.185                            | 3                   |
|                 |                | 16-QAM     | 1         | 0            | 23.01                                 | 0.200                            | 3                   |
|                 |                |            | 1         | 5            | 23.04                                 | 0.201                            | 3                   |
|                 |                |            | 5         | 0            | 21.67                                 | 0.147                            | 3                   |
|                 |                |            | 5         | 1            | 21.66                                 | 0.146                            | 3                   |
|                 | 713.5          | QPSK       | 1         | 0            | 23.70                                 | 0.234                            | 3                   |
|                 |                |            | 6         | 0            | 22.48                                 | 0.177                            | 3                   |
|                 |                | 16-QAM     | 1         | 0            | 23.09                                 | 0.203                            | 3                   |
|                 |                |            | 1         | 5            | 23.08                                 | 0.203                            | 3                   |
|                 |                |            | 5         | 0            | 21.59                                 | 0.144                            | 3                   |
|                 |                |            | 5         | 1            | 21.58                                 | 0.144                            | 3                   |

| Band             | Freq.<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Conducted<br>Output<br>Power<br>(dBm) | RF Output<br>Power<br>(W)<br>ERP | Limit<br>(W)<br>ERP |
|------------------|----------------|------------|-----------|--------------|---------------------------------------|----------------------------------|---------------------|
| Band 12<br>10MHz | 704            | QPSK       | 1         | 0            | 23.72                                 | 0.235                            | 3                   |
|                  |                |            | 6         | 0            | 22.62                                 | 0.182                            | 3                   |
|                  |                | 16-QAM     | 1         | 0            | 23.05                                 | 0.201                            | 3                   |
|                  |                |            | 1         | 5            | 23.08                                 | 0.203                            | 3                   |
|                  |                |            | 5         | 0            | 22.74                                 | 0.187                            | 3                   |
|                  |                |            | 5         | 1            | 22.72                                 | 0.187                            | 3                   |
|                  | 707.5          | QPSK       | 1         | 0            | 23.53                                 | 0.225                            | 3                   |
|                  |                |            | 6         | 0            | 22.72                                 | 0.187                            | 3                   |
|                  |                | 16-QAM     | 1         | 0            | 23.02                                 | 0.200                            | 3                   |
|                  |                |            | 1         | 5            | 23.03                                 | 0.200                            | 3                   |
|                  |                |            | 5         | 0            | 22.59                                 | 0.181                            | 3                   |
|                  |                |            | 5         | 1            | 22.71                                 | 0.186                            | 3                   |
|                  | 711            | QPSK       | 1         | 0            | 23.65                                 | 0.231                            | 3                   |
|                  |                |            | 6         | 0            | 22.58                                 | 0.181                            | 3                   |
|                  |                | 16-QAM     | 1         | 0            | 23.08                                 | 0.203                            | 3                   |
|                  |                |            | 1         | 5            | 23.04                                 | 0.201                            | 3                   |
|                  |                |            | 5         | 0            | 22.65                                 | 0.184                            | 3                   |
|                  |                |            | 5         | 1            | 22.68                                 | 0.185                            | 3                   |

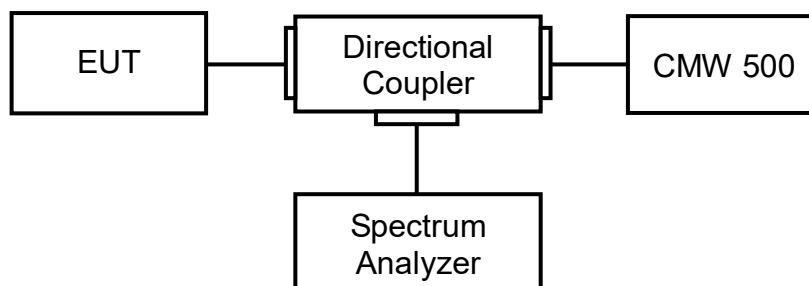
| Band            | Freq.<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Conducted<br>Output<br>Power<br>(dBm) | RF Output<br>Power<br>(W)<br>ERP | Limit<br>(W)<br>ERP |
|-----------------|----------------|------------|-----------|--------------|---------------------------------------|----------------------------------|---------------------|
| Band 13<br>5MHz | 779.5          | QPSK       | 1         | 0            | 23.83                                 | 0.241                            | 3                   |
|                 |                |            | 6         | 0            | 22.78                                 | 0.189                            | 3                   |
|                 |                | 16-QAM     | 1         | 0            | 23.03                                 | 0.200                            | 3                   |
|                 |                |            | 1         | 5            | 23.01                                 | 0.200                            | 3                   |
|                 |                |            | 5         | 0            | 21.82                                 | 0.152                            | 3                   |
|                 |                |            | 5         | 1            | 21.80                                 | 0.151                            | 3                   |
|                 | 782            | QPSK       | 1         | 0            | 23.56                                 | 0.226                            | 3                   |
|                 |                |            | 6         | 0            | 22.62                                 | 0.182                            | 3                   |
|                 |                | 16-QAM     | 1         | 0            | 23.07                                 | 0.202                            | 3                   |
|                 |                |            | 1         | 5            | 23.11                                 | 0.204                            | 3                   |
|                 |                |            | 5         | 0            | 21.71                                 | 0.148                            | 3                   |
|                 |                |            | 5         | 1            | 21.81                                 | 0.151                            | 3                   |
|                 | 784.5          | QPSK       | 1         | 0            | 23.78                                 | 0.238                            | 3                   |
|                 |                |            | 6         | 0            | 22.76                                 | 0.188                            | 3                   |
|                 |                | 16-QAM     | 1         | 0            | 23.18                                 | 0.207                            | 3                   |
|                 |                |            | 1         | 5            | 23.23                                 | 0.210                            | 3                   |
|                 |                |            | 5         | 0            | 21.82                                 | 0.152                            | 3                   |
|                 |                |            | 5         | 1            | 21.74                                 | 0.149                            | 3                   |

|              |                             |           |        |
|--------------|-----------------------------|-----------|--------|
| Product      | ML865C1-NA                  |           |        |
| Test Item    | RF Output Power             |           |        |
| Test Mode    | Mode 4: LTE_CAT. M1_Band 13 |           |        |
| Date of Test | 2018/09/26                  | Test Site | SR10-H |

| Band             | Freq.<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Conducted<br>Output<br>Power<br>(dBm) | RF Output<br>Power<br>(W)<br>ERP | Limit<br>(W)<br>ERP |
|------------------|----------------|------------|-----------|--------------|---------------------------------------|----------------------------------|---------------------|
| Band 13<br>10MHz | 782            | QPSK       | 1         | 0            | 23.68                                 | 0.233                            | 3                   |
|                  |                |            | 6         | 0            | 22.58                                 | 0.181                            | 3                   |
|                  |                | 16-QAM     | 1         | 0            | 23.09                                 | 0.203                            | 3                   |
|                  |                |            | 1         | 5            | 23.04                                 | 0.201                            | 3                   |
|                  |                |            | 5         | 0            | 22.68                                 | 0.185                            | 3                   |
|                  |                |            | 5         | 1            | 22.66                                 | 0.184                            | 3                   |

#### 4. Occupied Bandwidth

##### 4.1. Test Setup



##### 4.2. Test Procedure

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. The 26 dB bandwidth and 99% occupied bandwidth of the low & middle & high channel for the highest RF powers were measured.

##### 4.3. Test Method

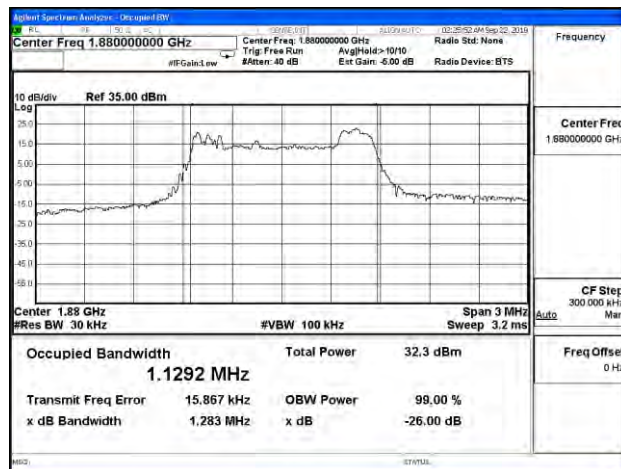
KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 4.2 & 4.3  
ANSI C63.26: 2015 Sub-clause 5.4.3 & 5.4.4

#### 4.4. Test Result

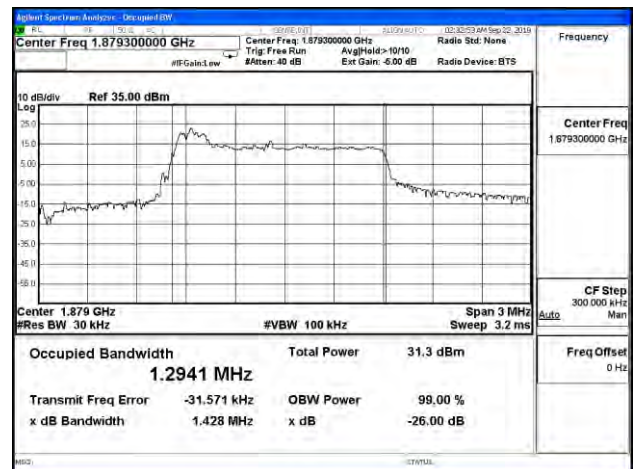
|              |                            |           |        |
|--------------|----------------------------|-----------|--------|
| Product      | ML865C1-NA                 |           |        |
| Test Item    | Occupied Bandwidth         |           |        |
| Test Mode    | Mode 1: LTE_CAT. M1_Band 2 |           |        |
| Date of Test | 2018/09/22                 | Test Site | SR10-H |

| Channel | Freq.<br>(MHz) | BW<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Measure Level (MHz) |         | Limit<br>(MHz) |
|---------|----------------|-------------|------------|-----------|--------------|---------------------|---------|----------------|
|         |                |             |            |           |              | 99% BW              | 26dB BW |                |
| 18900   | 1880           | 1.4M        | QPSK       | 6         | 0            | 1.129               | 1.283   | NA             |
|         |                |             | 16QAM      | 5         | 1            | 0.938               | 1.056   | NA             |
|         |                | 3M          | QPSK       | 6         | 0            | 1.294               | 1.428   | NA             |
|         |                |             | 16QAM      | 5         | 1            | 1.291               | 1.484   | NA             |
|         |                | 5M          | QPSK       | 6         | 0            | 1.111               | 1.664   | NA             |
|         |                |             | 16QAM      | 5         | 1            | 0.959               | 1.526   | NA             |
|         |                | 10M         | QPSK       | 6         | 0            | 1.137               | 1.485   | NA             |
|         |                |             | 16QAM      | 5         | 1            | 0.977               | 1.680   | NA             |
|         |                | 15M         | QPSK       | 6         | 0            | 1.128               | 1.739   | NA             |
|         |                |             | 16QAM      | 5         | 1            | 0.991               | 1.556   | NA             |
|         |                | 20M         | QPSK       | 6         | 0            | 1.142               | 1.773   | NA             |
|         |                |             | 16QAM      | 5         | 1            | 0.971               | 1.731   | NA             |

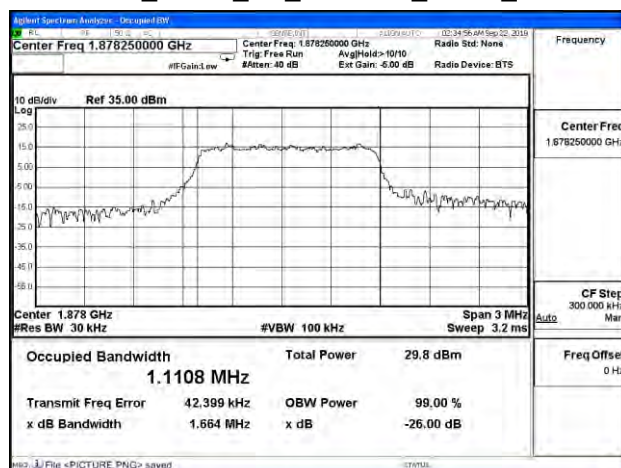
Cat M1\_Band2\_1.4M\_CH18900\_QPSK\_6RB0



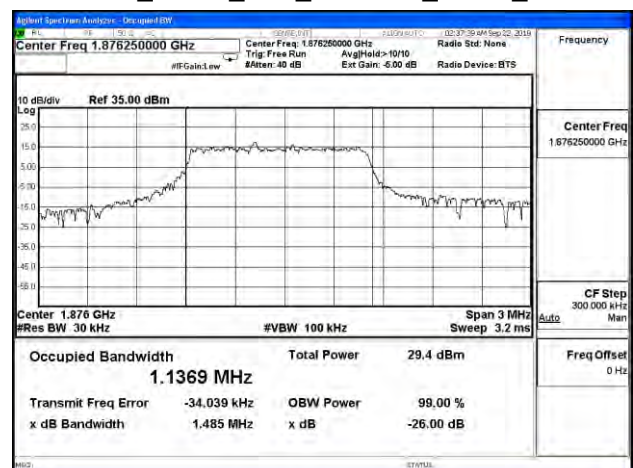
Cat M1\_Band2\_3M\_CH18900\_QPSK\_6RB0



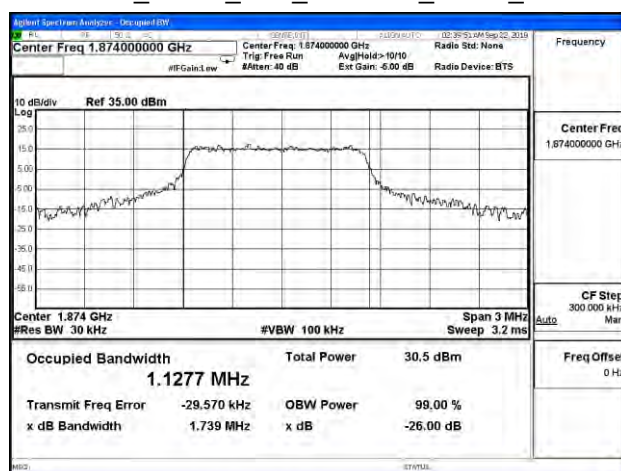
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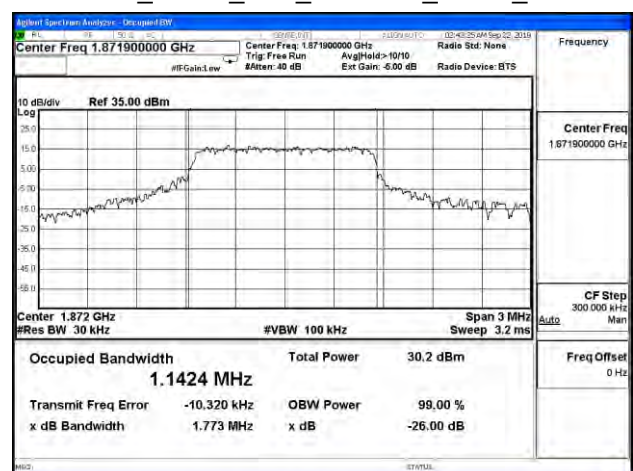
Cat M1\_Band2\_10M\_CH18900\_QPSK\_6RB0



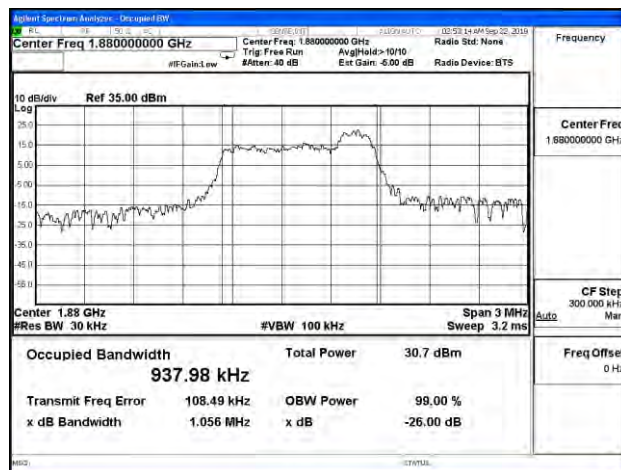
Cat M1\_Band2\_15M\_CH18900\_QPSK\_6RB0



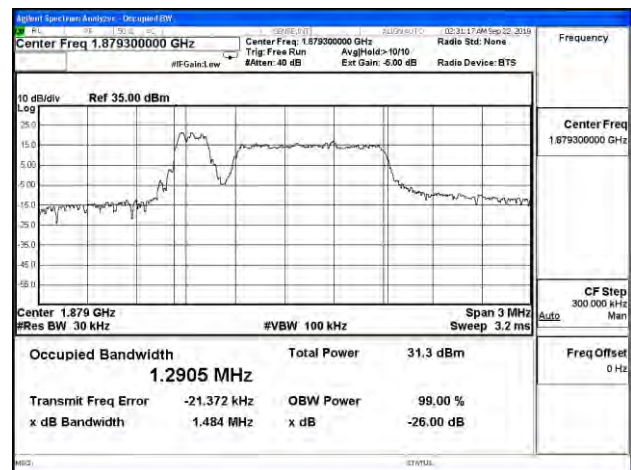
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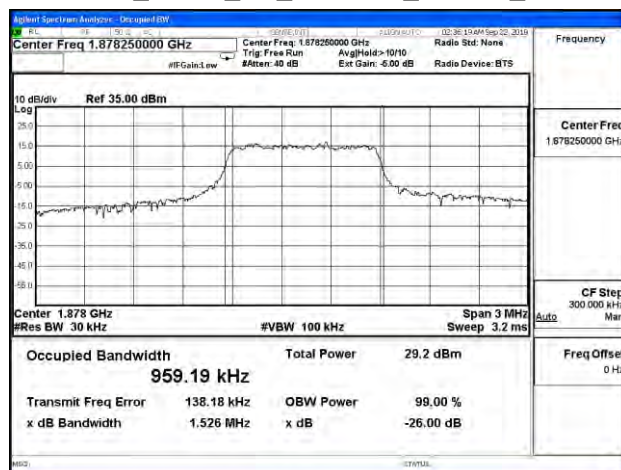
Cat M1\_Band2\_1.4M\_CH18900\_16QAM\_5RB1



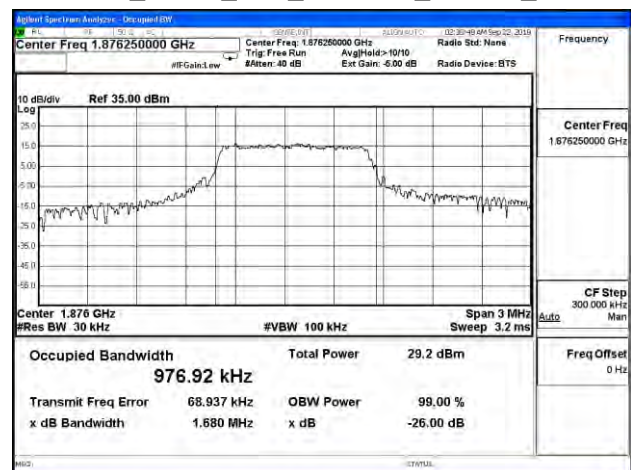
Cat M1\_Band2\_3M\_CH18900\_16QAM\_5RB1



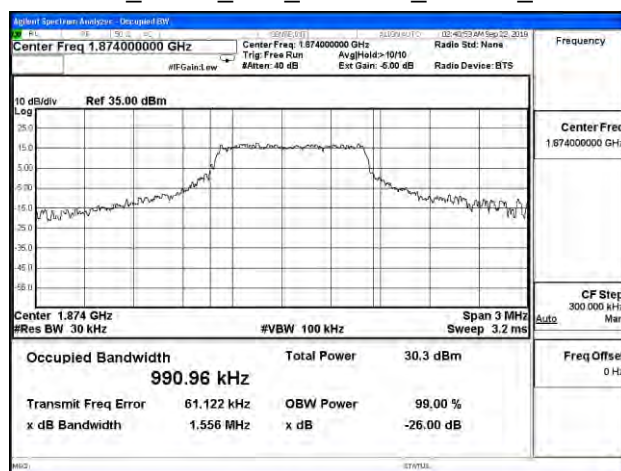
Cat M1\_Band2\_5M\_CH18900\_16QAM\_5RB1



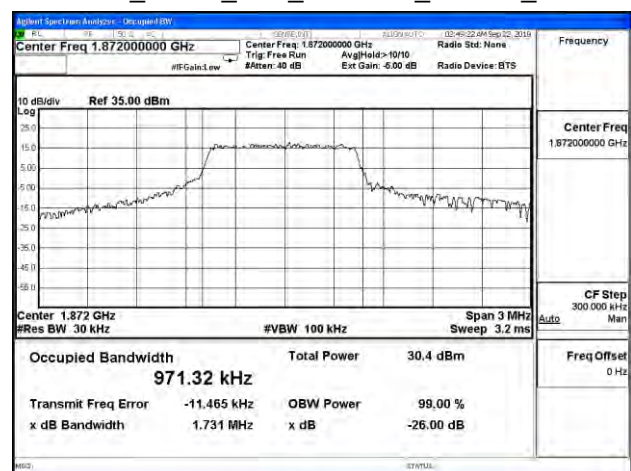
Cat M1\_Band2\_10M\_CH18900\_16QAM\_5RB1



Cat M1\_Band2\_15M\_CH18900\_16QAM\_5RB1



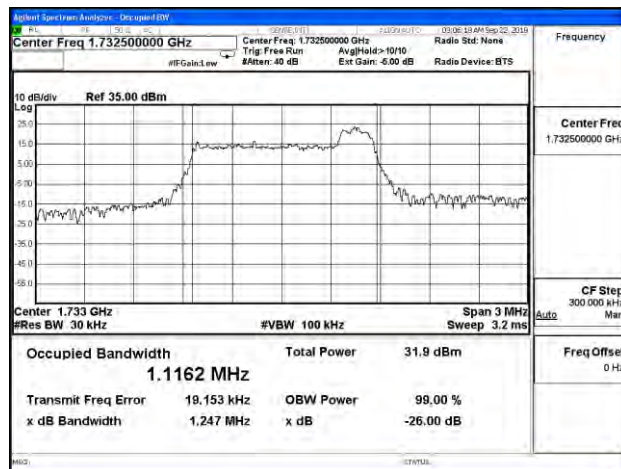
Cat M1\_Band2\_20M\_CH18900\_16QAM\_5RB1



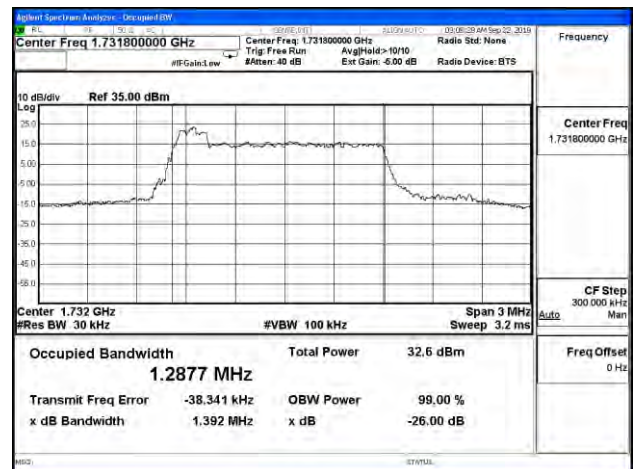
|              |                            |           |        |
|--------------|----------------------------|-----------|--------|
| Product      | ML865C1-NA                 |           |        |
| Test Item    | Occupied Bandwidth         |           |        |
| Test Mode    | Mode 2: LTE_CAT. M1_Band 4 |           |        |
| Date of Test | 2018/09/22                 | Test Site | SR10-H |

| Channel | Freq.<br>(MHz) | BW<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Measure Level (MHz) |         | Limit<br>(MHz) |
|---------|----------------|-------------|------------|-----------|--------------|---------------------|---------|----------------|
|         |                |             |            |           |              | 99% BW              | 26dB BW |                |
| 20175   | 1732.5         | 1.4M        | QPSK       | 6         | 0            | 1.116               | 1.247   | NA             |
|         |                |             | 16QAM      | 5         | 1            | 1.089               | 1.261   | NA             |
|         |                | 3M          | QPSK       | 6         | 0            | 1.288               | 1.392   | NA             |
|         |                |             | 16QAM      | 5         | 1            | 1.292               | 1.465   | NA             |
|         |                | 5M          | QPSK       | 6         | 0            | 1.110               | 1.381   | NA             |
|         |                |             | 16QAM      | 5         | 1            | 0.946               | 1.350   | NA             |
|         |                | 10M         | QPSK       | 6         | 0            | 1.120               | 1.627   | NA             |
|         |                |             | 16QAM      | 5         | 1            | 0.951               | 1.496   | NA             |
|         |                | 15M         | QPSK       | 6         | 0            | 1.127               | 1.895   | NA             |
|         |                |             | 16QAM      | 5         | 1            | 0.983               | 1.662   | NA             |
|         |                | 20M         | QPSK       | 6         | 0            | 1.129               | 1.768   | NA             |
|         |                |             | 16QAM      | 5         | 1            | 0.948               | 1.399   | NA             |

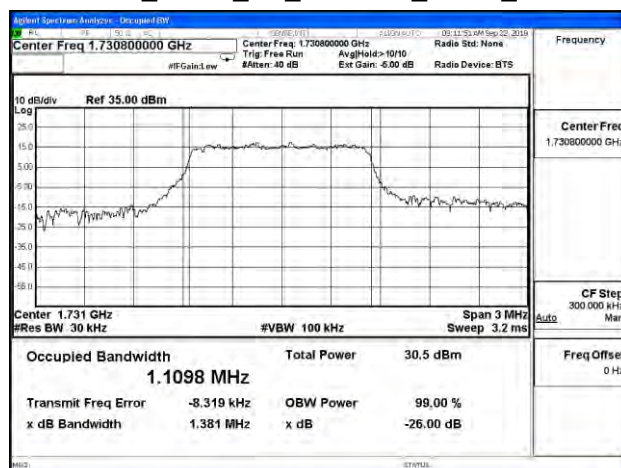
Cat M1\_Band4\_1.4M\_CH20175\_QPSK\_6RB0



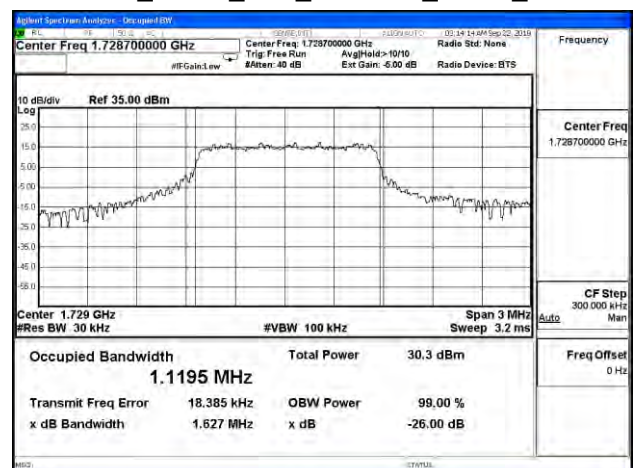
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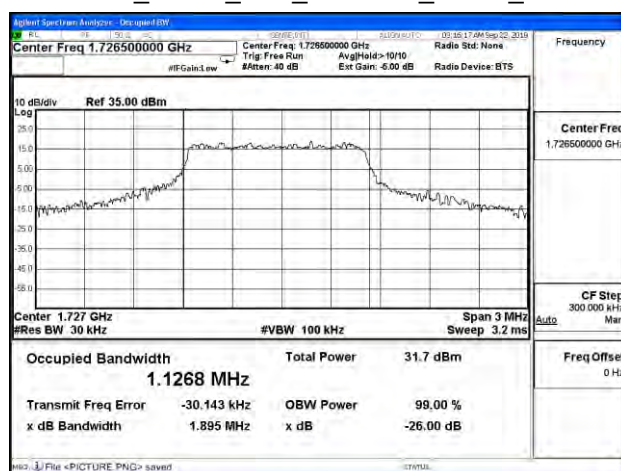
Cat M1\_Band4\_5M\_CH20175\_QPSK\_6RB0



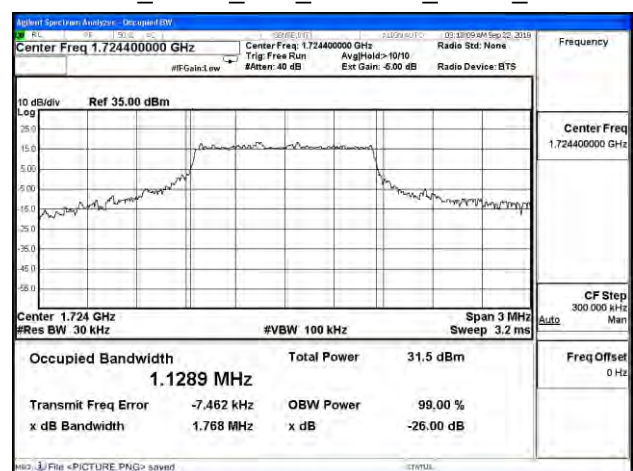
Cat M1\_Band4\_10M\_CH20175\_QPSK\_6RB0



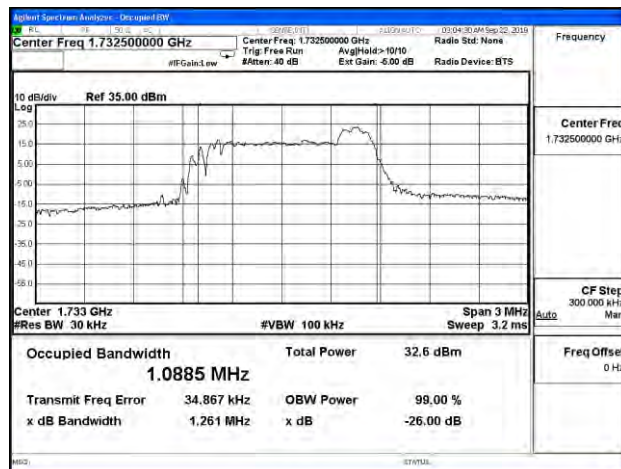
Cat M1\_Band4\_15M\_CH20175\_QPSK\_6RB0



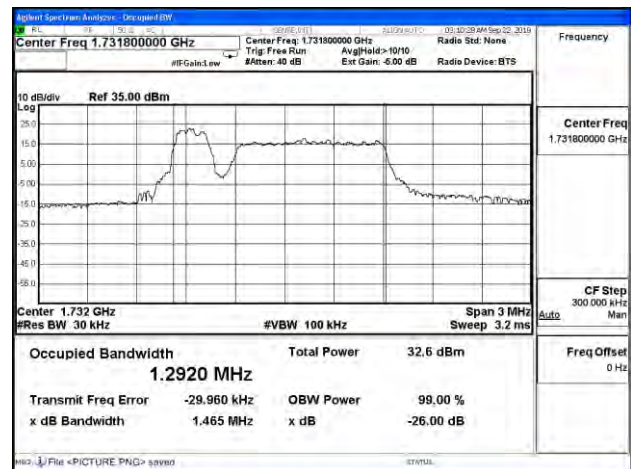
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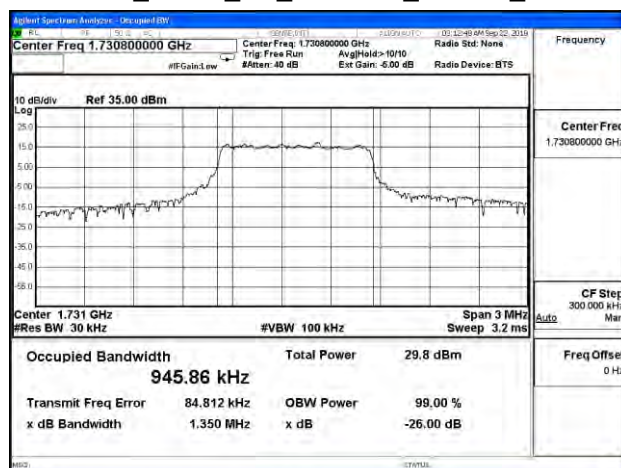
Cat M1\_Band4\_1.4M\_CH20175\_16QAM\_5RB1



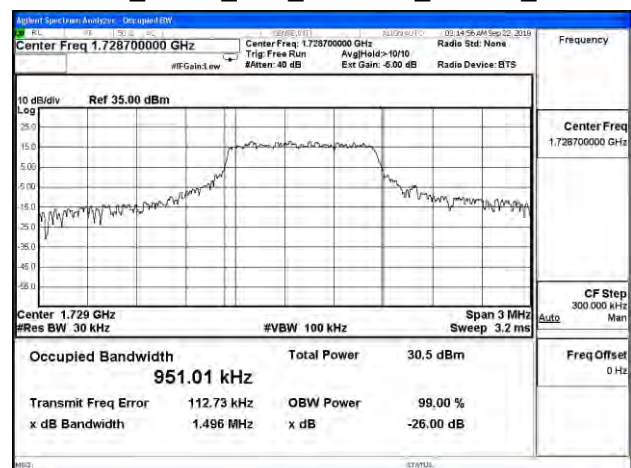
Cat M1\_Band4\_3M\_CH20175\_16QAM\_5RB1



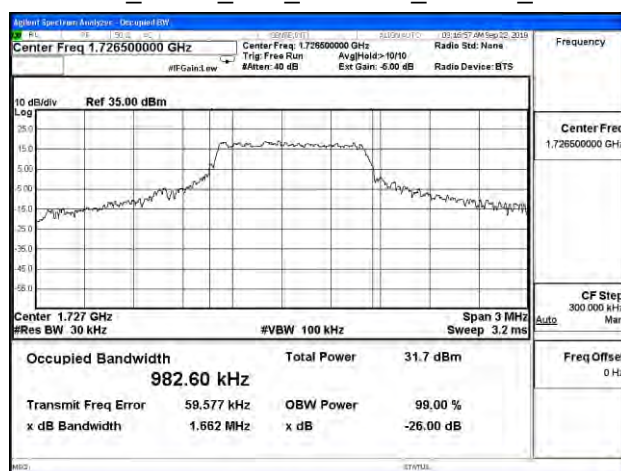
Cat M1\_Band4\_5M\_CH20175\_16QAM\_5RB1



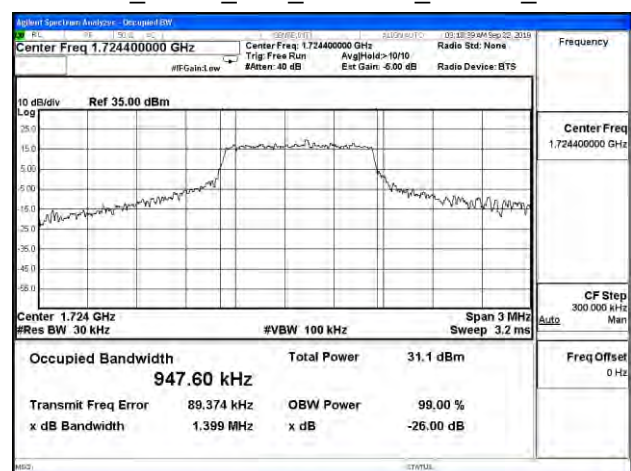
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Cat M1\_Band4\_15M\_CH20175\_16QAM\_5RB1



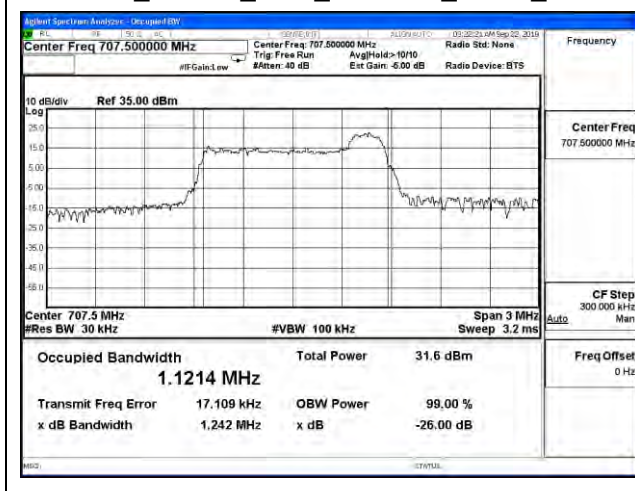
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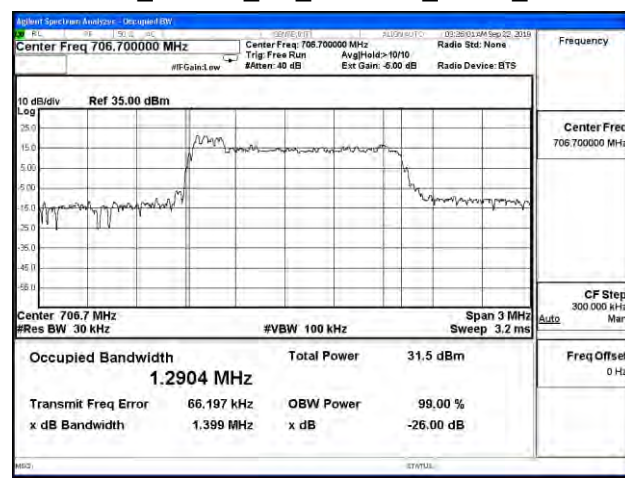
|              |                             |           |        |
|--------------|-----------------------------|-----------|--------|
| Product      | ML865C1-NA                  |           |        |
| Test Item    | Occupied Bandwidth          |           |        |
| Test Mode    | Mode 3: LTE_CAT. M1_Band 12 |           |        |
| Date of Test | 2018/09/22                  | Test Site | SR10-H |

| Channel | Freq.<br>(MHz) | BW<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Measure Level (MHz) |         | Limit<br>(MHz) |
|---------|----------------|-------------|------------|-----------|--------------|---------------------|---------|----------------|
|         |                |             |            |           |              | 99% BW              | 26dB BW |                |
| 23095   | 707.5          | 1.4M        | QPSK       | 6         | 0            | 1.121               | 1.242   | NA             |
|         |                |             | 16QAM      | 5         | 1            | 1.118               | 1.222   | NA             |
|         |                | 3M          | QPSK       | 6         | 0            | 1.290               | 1.399   | NA             |
|         |                |             | 16QAM      | 5         | 1            | 1.311               | 1.458   | NA             |
|         |                | 5M          | QPSK       | 6         | 0            | 1.109               | 1.725   | NA             |
|         |                |             | 16QAM      | 5         | 1            | 0.975               | 1.481   | NA             |
|         |                | 10M         | QPSK       | 6         | 0            | 1.150               | 2.185   | NA             |
|         |                |             | 16QAM      | 5         | 1            | 0.977               | 1.945   | NA             |

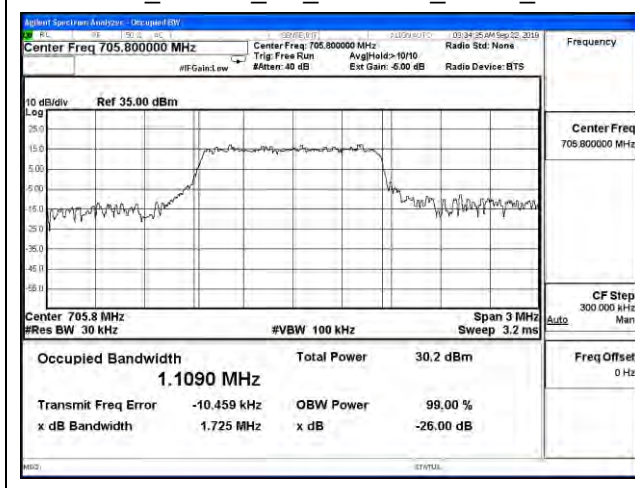
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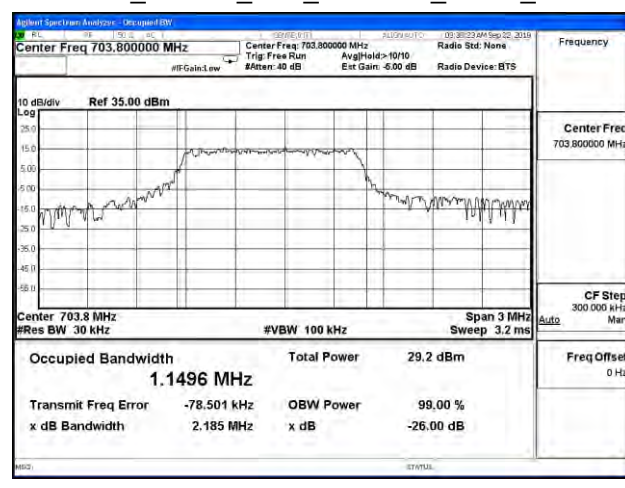
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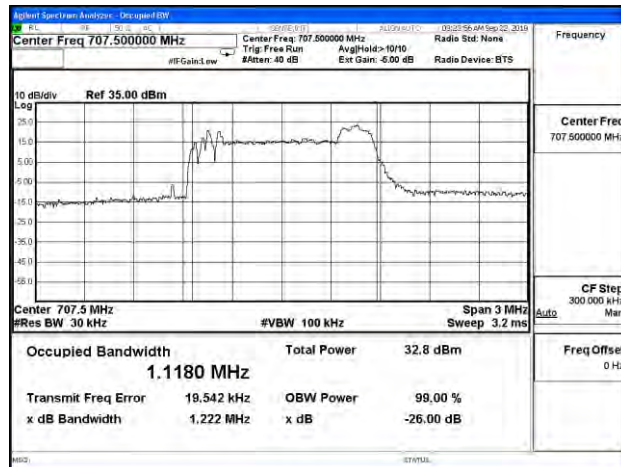
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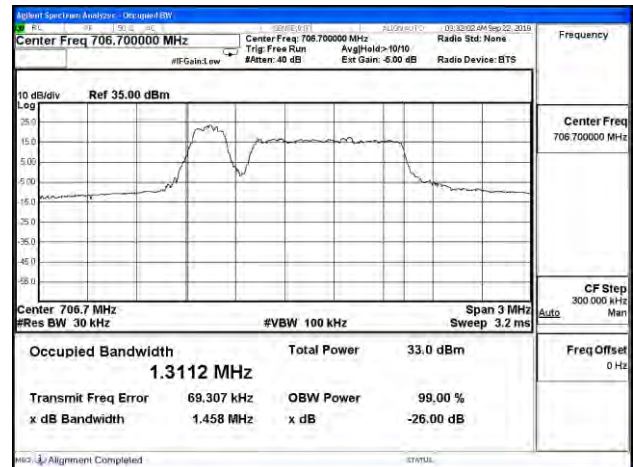
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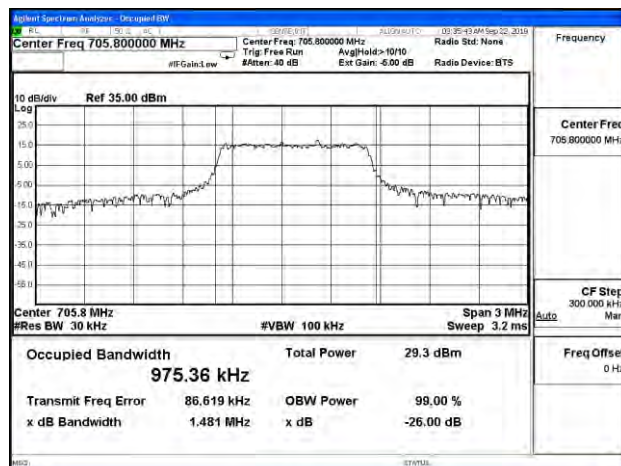
Cat M1\_Band12\_1.4M\_CH23095\_16QAM\_5RB1



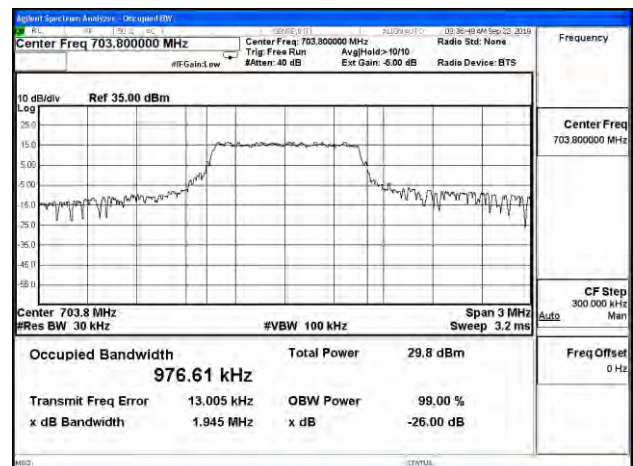
Cat M1\_Band12\_3M\_CH23095\_16QAM\_5RB1



Cat M1\_Band12\_5M\_CH23095\_16QAM\_5RB1



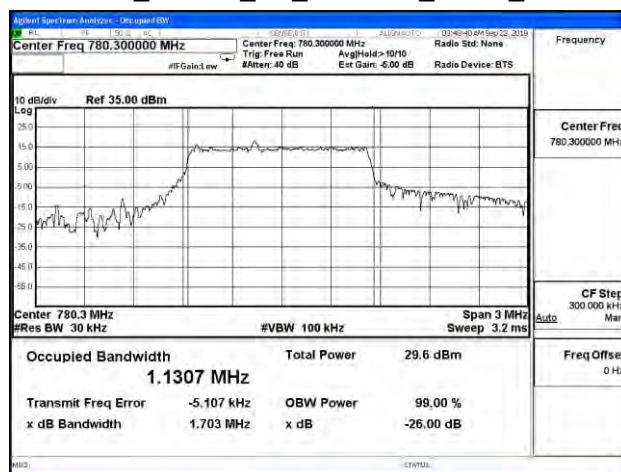
Cat M1\_Band12\_10M\_CH23095\_16QAM\_5RB1



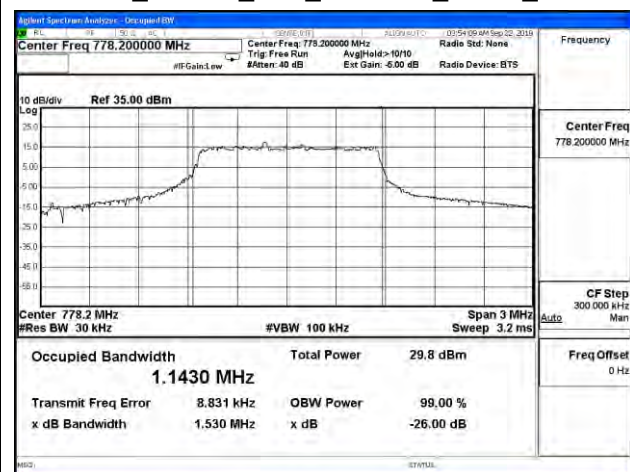
|              |                             |           |        |
|--------------|-----------------------------|-----------|--------|
| Product      | ML865C1-NA                  |           |        |
| Test Item    | Occupied Bandwidth          |           |        |
| Test Mode    | Mode 4: LTE_CAT. M1_Band 13 |           |        |
| Date of Test | 2018/09/22                  | Test Site | SR10-H |

| Channel | Freq.<br>(MHz) | BW<br>(MHz) | Modulation | RB<br>No. | RB<br>offset | Measure Level (MHz) |         | Limit<br>(MHz) |
|---------|----------------|-------------|------------|-----------|--------------|---------------------|---------|----------------|
|         |                |             |            |           |              | 99% BW              | 26dB BW |                |
| 23230   | 782            | 5M          | QPSK       | 6         | 0            | 1.131               | 1.703   | NA             |
|         |                |             | 16QAM      | 5         | 1            | 0.960               | 1.718   | NA             |
|         |                | 10M         | QPSK       | 6         | 0            | 1.143               | 1.530   | NA             |
|         |                |             | 16QAM      | 5         | 1            | 0.993               | 1.477   | NA             |

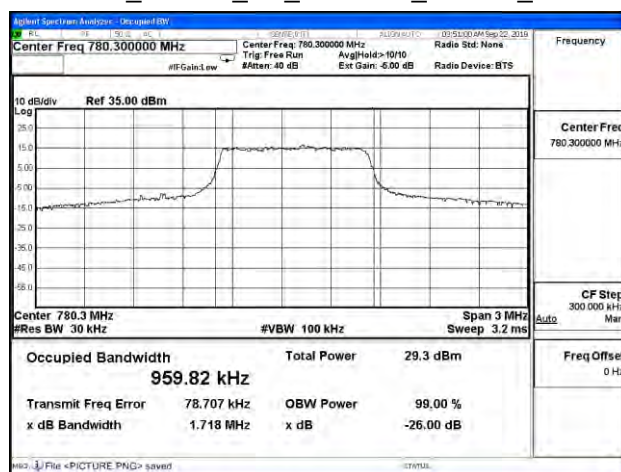
Cat M1\_Band13\_5M\_CH23230\_QPSK\_6RB0



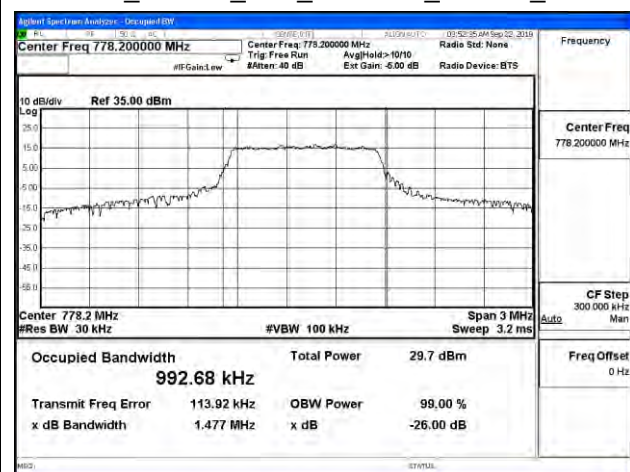
Cat M1\_Band13\_10M\_CH23230\_QPSK\_6RB0



Cat M1\_Band13\_5M\_CH23230\_16QAM\_5RB1

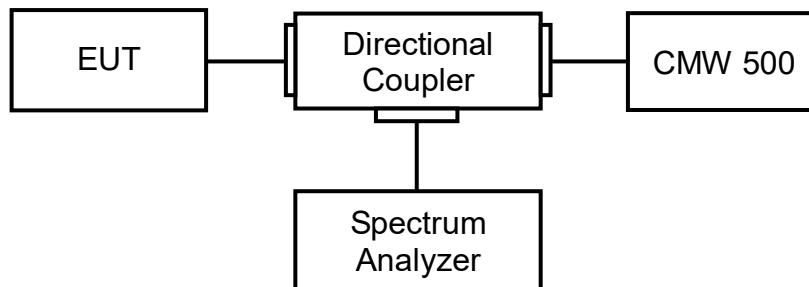


Cat M1\_Band13\_10M\_CH23230\_16QAM\_5RB1



## 5. Peak To Average Ratio

### 5.1. Test Setup



### 5.2. Test Procedure

1. Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth.
2. Set the number of counts to a value that stabilizes the measured CCDF curve.
3. Record the maximum PAPR level associated with a probability of 0.1 %.

### 5.3. Test Method

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 5.7.2  
ANSI C63.26: 2015 Sub-clause 5.2.3.4

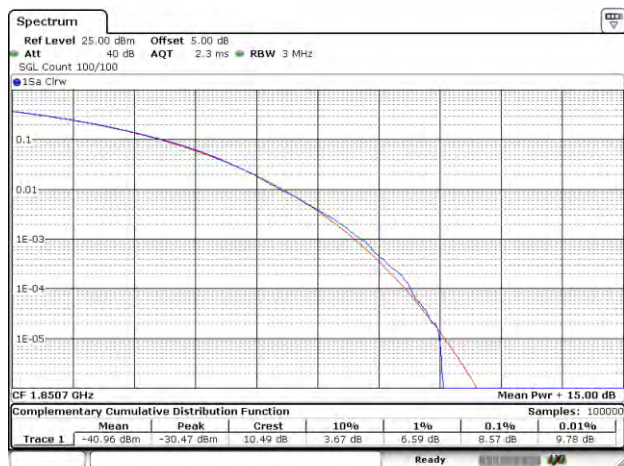
### 5.4. Limit

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13dB.

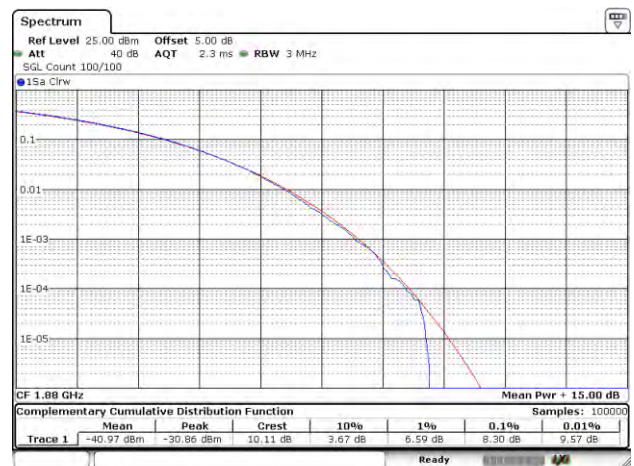
## 5.5. Test Result

|              |                            |           |        |
|--------------|----------------------------|-----------|--------|
| Product      | ML865C1-NA                 |           |        |
| Test Item    | Peak To Average Ratio      |           |        |
| Test Mode    | Mode 1: LTE_CAT. M1_Band 2 |           |        |
| Date of Test | 2018/09/21                 | Test Site | SR10-H |

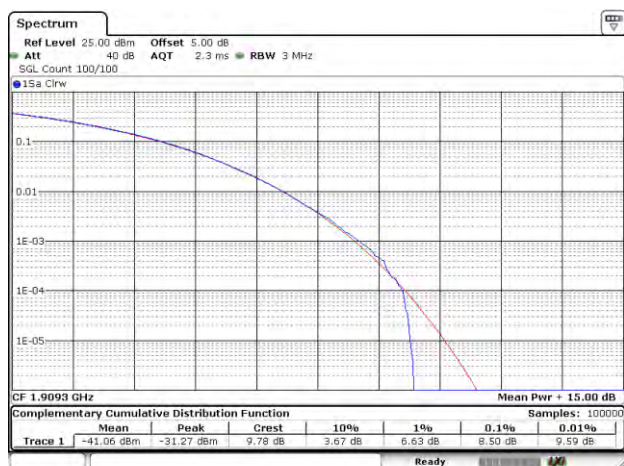
CAT-M1\_Band2\_CH18607\_1.4M\_QPSK\_1RB0



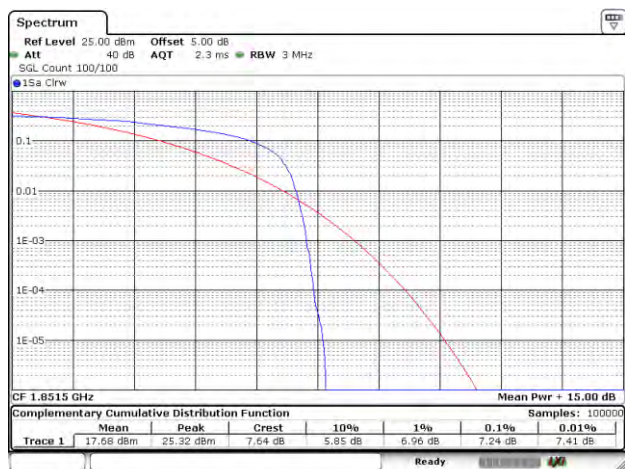
CAT-M1\_Band2\_CH18900\_1.4M\_QPSK\_1RB0



CAT-M1\_Band2\_CH19193\_1.4M\_QPSK\_1RB0

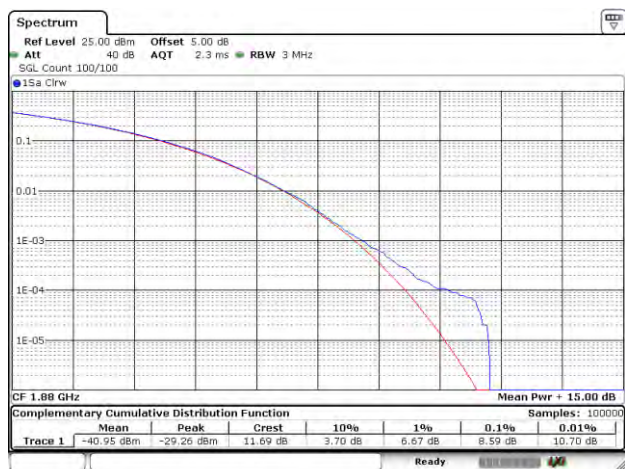


## CAT-M1\_Band2\_CH18615\_3M\_QPSK\_1RB0



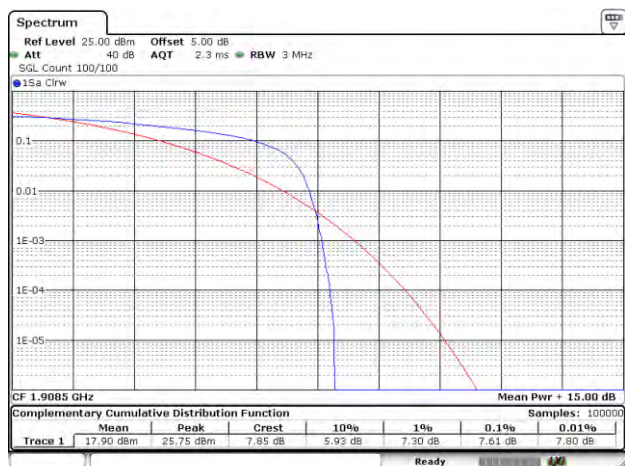
Date: 21 SEP 2018 13:58:57

## CAT-M1\_Band2\_CH18900\_3M\_QPSK\_1RB0



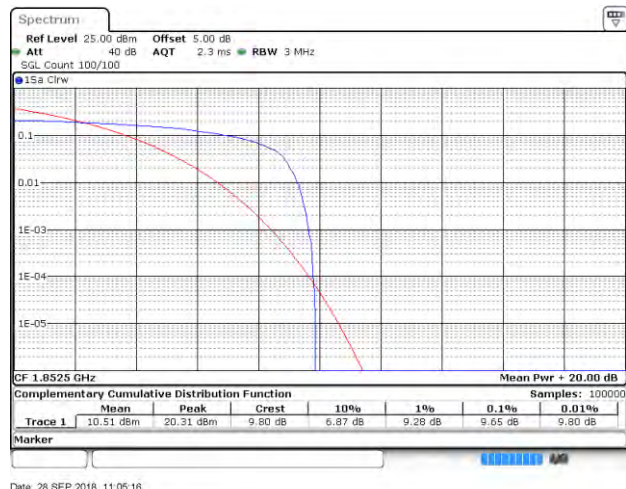
Date: 21 SEP 2018 14:00:35

## CAT-M1\_Band2\_CH19185\_3M\_QPSK\_1RB0



Date: 21 SEP 2018 14:04:20

CAT-M1\_B2\_CH18625\_5M\_QPSK\_1RB0



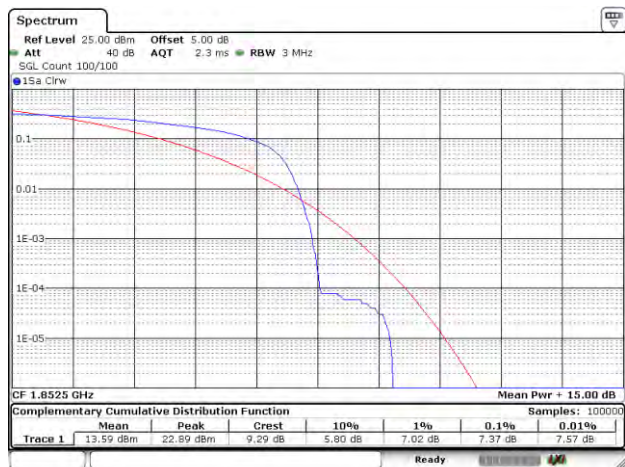
CAT-M1\_B2\_CH18900\_5M\_QPSK\_1RB0



CAT-M1\_B2\_CH19175\_5M\_QPSK\_1RB0

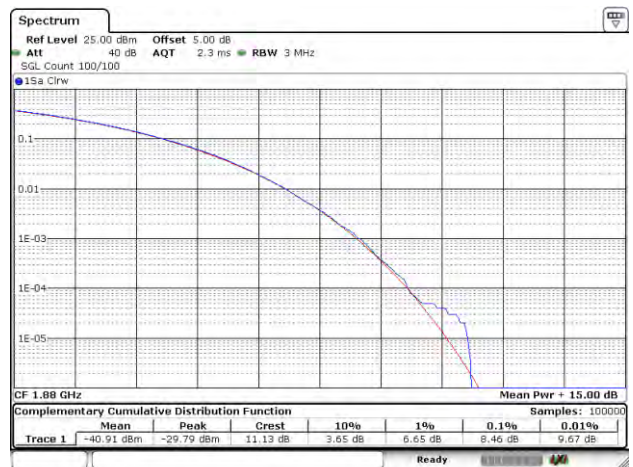


## CAT-M1\_Band2\_CH18650\_10M\_QPSK\_1RB0



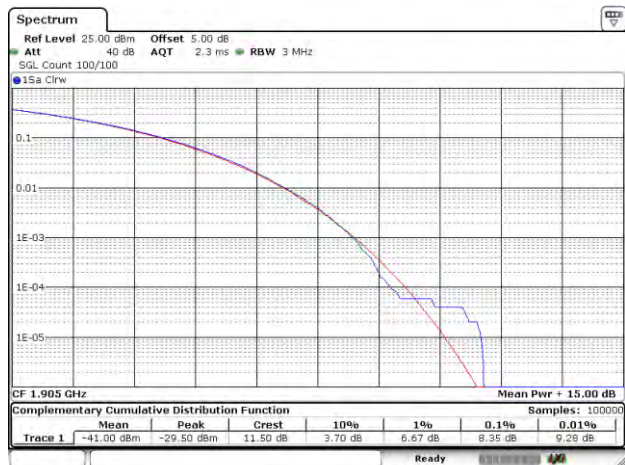
Date: 21 SEP 2018 14:06:17

## CAT-M1\_Band2\_CH18900\_10M\_QPSK\_1RB0



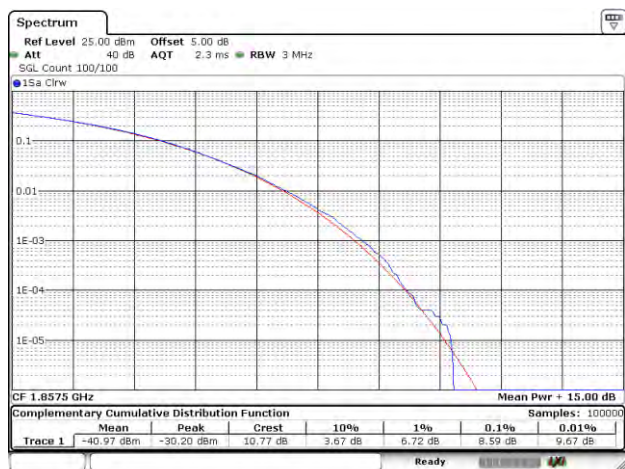
Date: 21 SEP 2018 14:07:37

## CAT-M1\_Band2\_CH19150\_10M\_QPSK\_1RB0

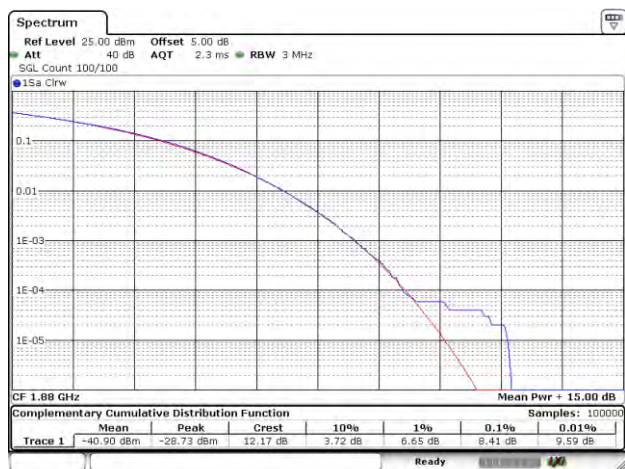


Date: 21 SEP 2018 14:09:54

## CAT-M1\_Band2\_CH18675\_15M\_QPSK\_1RB0



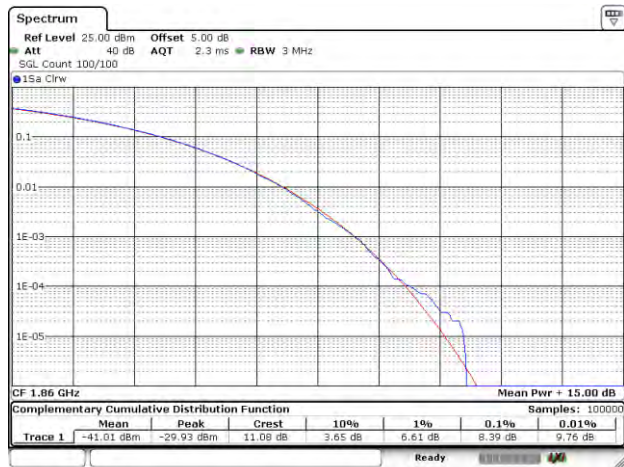
## CAT-M1\_Band2\_CH18900\_15M\_QPSK\_1RB0



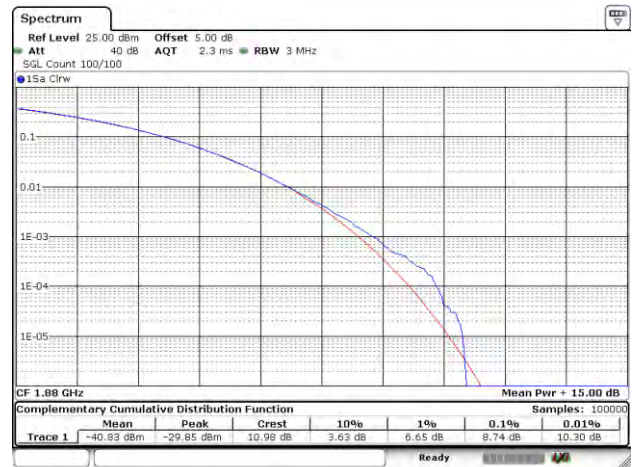
## CAT-M1\_Band2\_CH19125\_15M\_QPSK\_1RB0



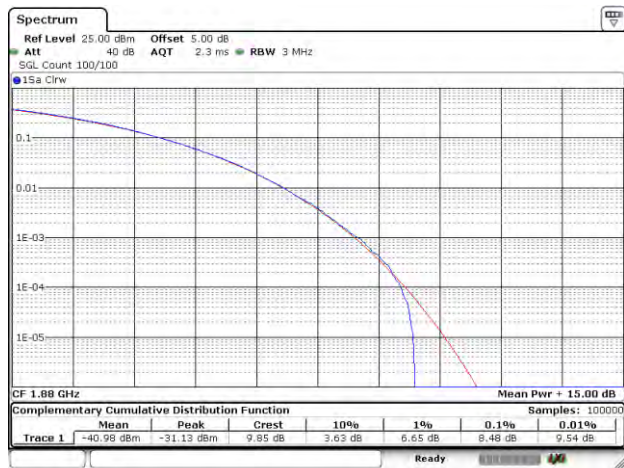
## CAT-M1\_Band2\_CH18700\_20M\_QPSK\_1RB0



## CAT-M1\_Band2\_CH18900\_20M\_QPSK\_1RB0

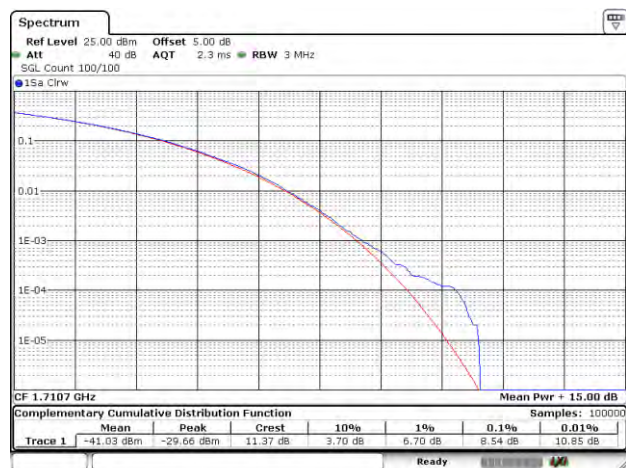


## CAT-M1\_Band2\_CH19100\_20M\_QPSK\_1RB0



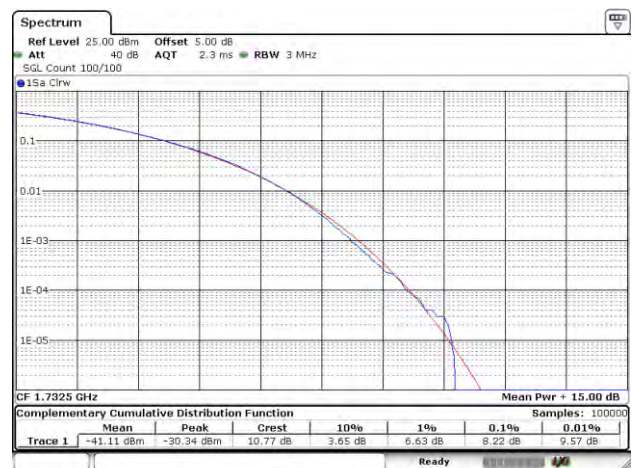
|              |                            |           |        |
|--------------|----------------------------|-----------|--------|
| Product      | ML865C1-NA                 |           |        |
| Test Item    | Peak To Average Ratio      |           |        |
| Test Mode    | Mode 2: LTE_CAT. M1_Band 4 |           |        |
| Date of Test | 2018/09/21                 | Test Site | SR10-H |

CAT-M1\_Band4\_CH19957\_1.4M\_QPSK\_1RB0



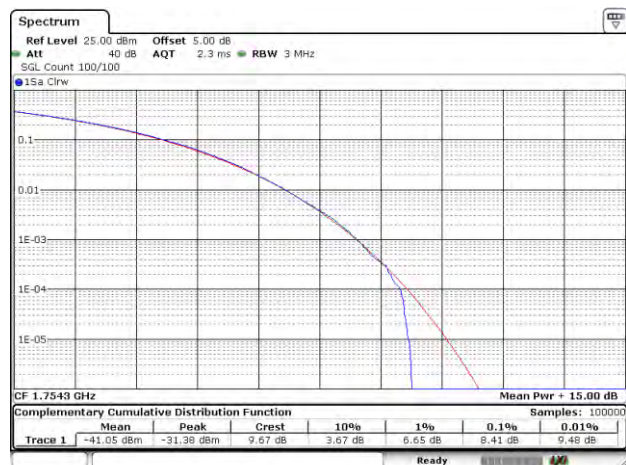
Date: 21 SEP 2018 14:24:53

CAT-M1\_Band4\_CH20175\_1.4M\_QPSK\_1RB0



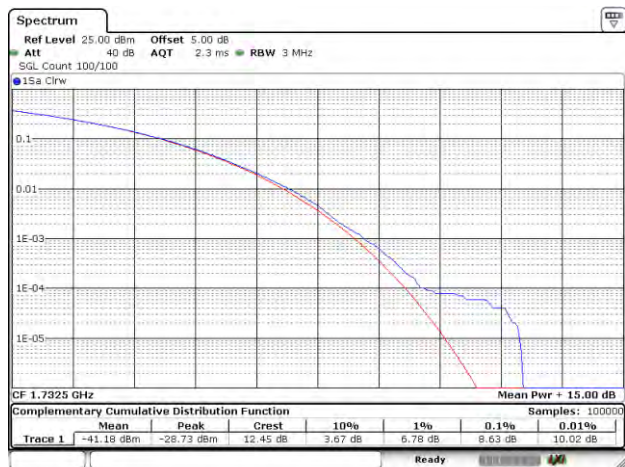
Date: 21 SEP 2018 14:29:23

CAT-M1\_Band4\_CH20393\_1.4M\_QPSK\_1RB0

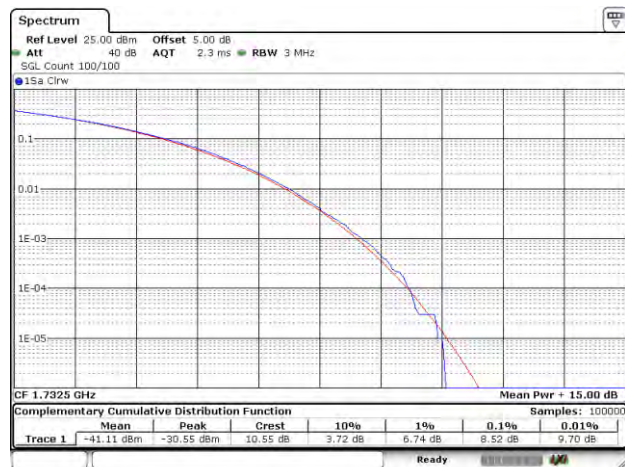


Date: 21 SEP 2018 14:29:44

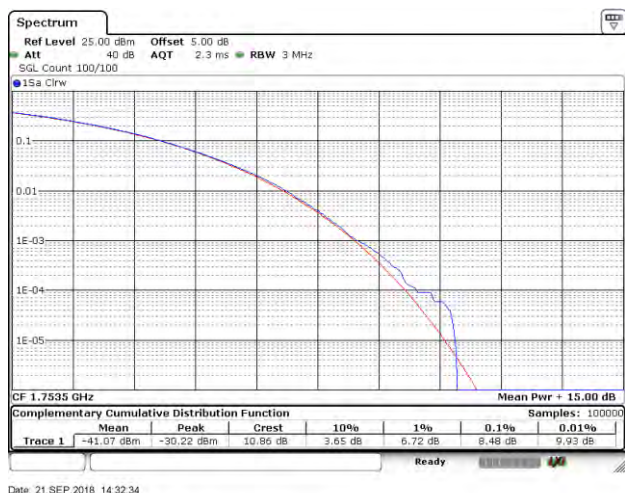
## CAT-M1\_Band4\_CH19965\_3M\_QPSK\_1RB0



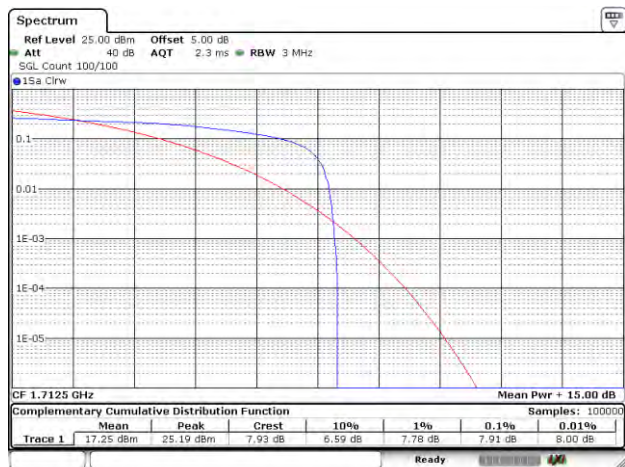
## CAT-M1\_Band4\_CH20175\_3M\_QPSK\_1RB0



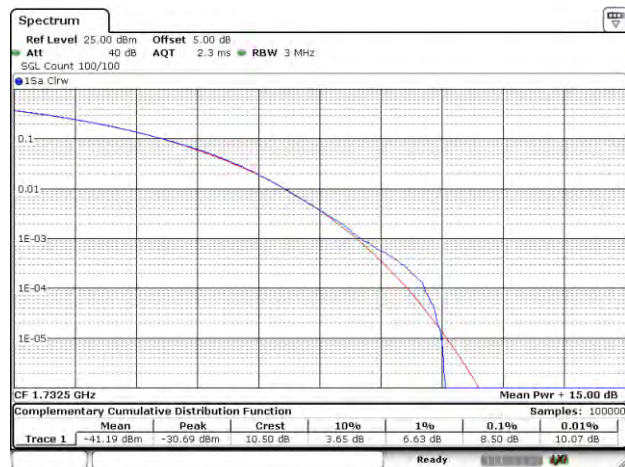
## CAT-M1\_Band4\_CH20385\_3M\_QPSK\_1RB0



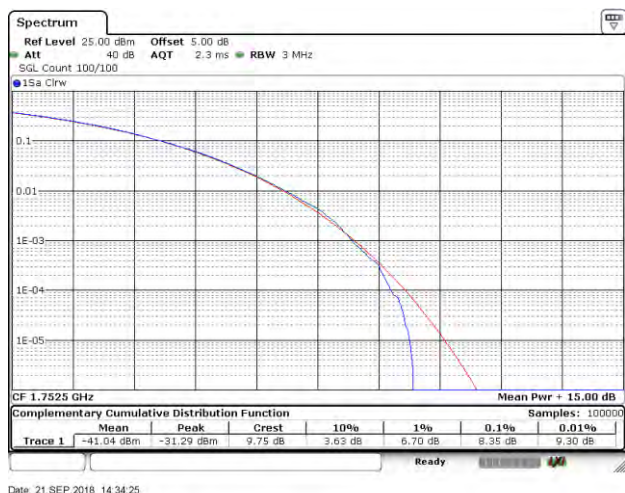
## CAT-M1\_Band4\_CH19975\_5M\_QPSK\_1RB0



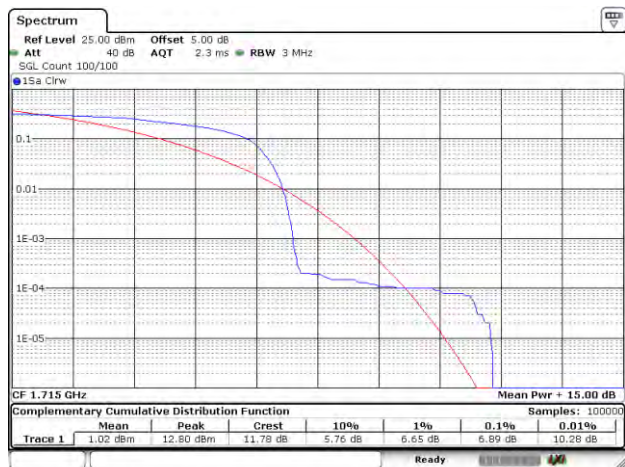
## CAT-M1\_Band4\_CH20175\_5M\_QPSK\_1RB0



## CAT-M1\_Band4\_CH20375\_5M\_QPSK\_1RB0



## CAT-M1\_Band4\_CH20000\_10M\_QPSK\_1RB0



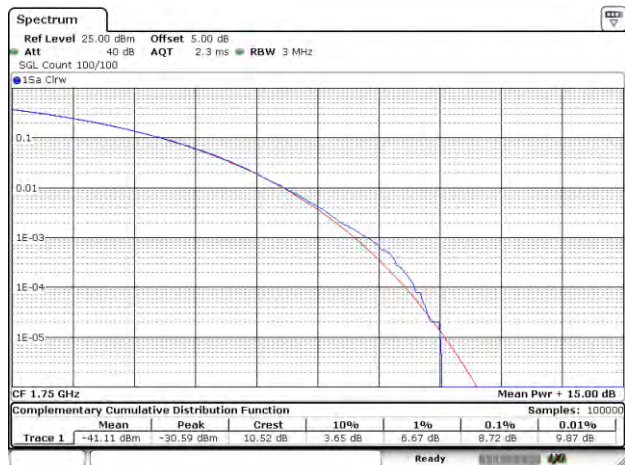
Date: 21 SEP 2018 14:35:21

## CAT-M1\_Band4\_CH20175\_10M\_QPSK\_1RB0



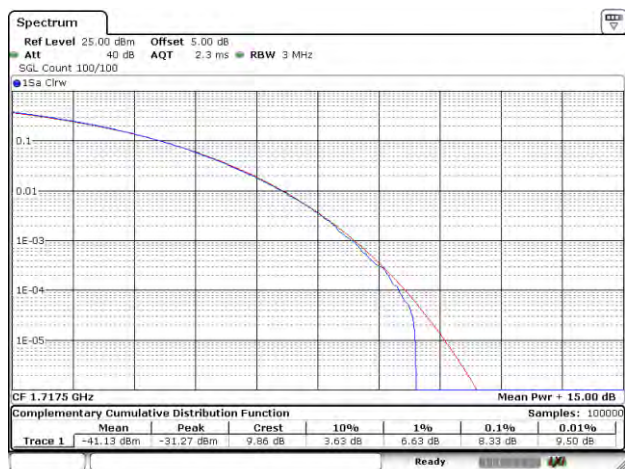
Date: 21 SEP 2018 14:36:35

## CAT-M1\_Band4\_CH20350\_10M\_QPSK\_1RB0



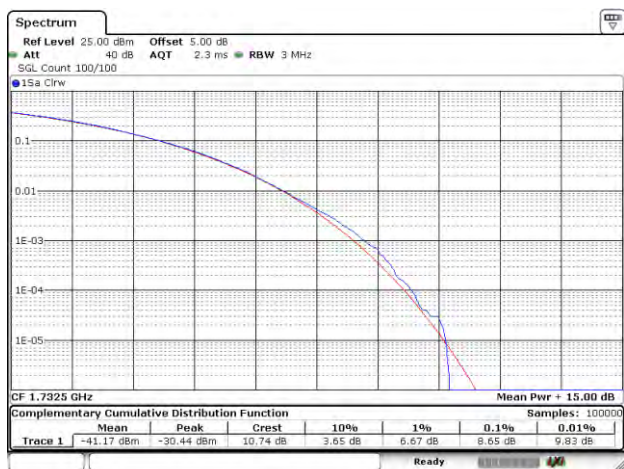
Date: 21 SEP 2018 14:36:58

## CAT-M1\_Band4\_CH20025\_15M\_QPSK\_1RB0



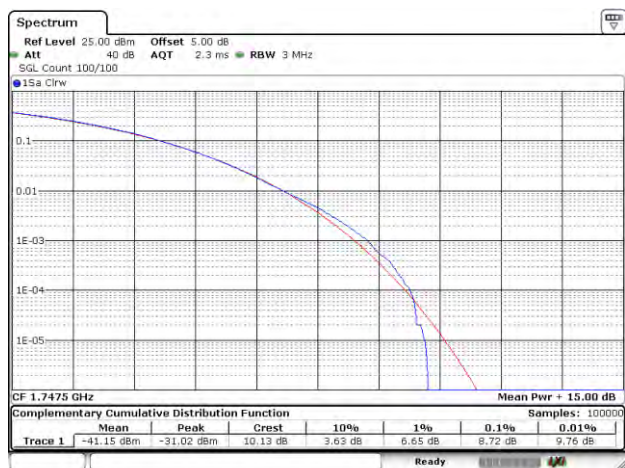
Date: 21 SEP 2018 14:54:23

## CAT-M1\_Band4\_CH20175\_15M\_QPSK\_1RB0



Date: 21 SEP 2018 14:54:52

## CAT-M1\_Band4\_CH20325\_15M\_QPSK\_1RB0



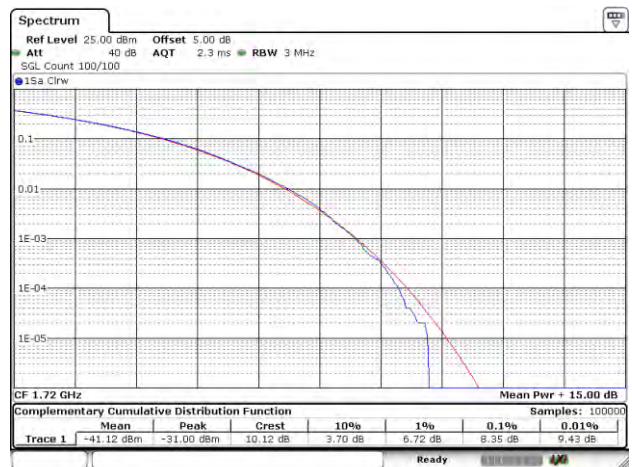
Date: 21 SEP 2018 14:55:10

## CAT-M1\_Band4\_CH20050\_20M\_QPSK\_1RB0



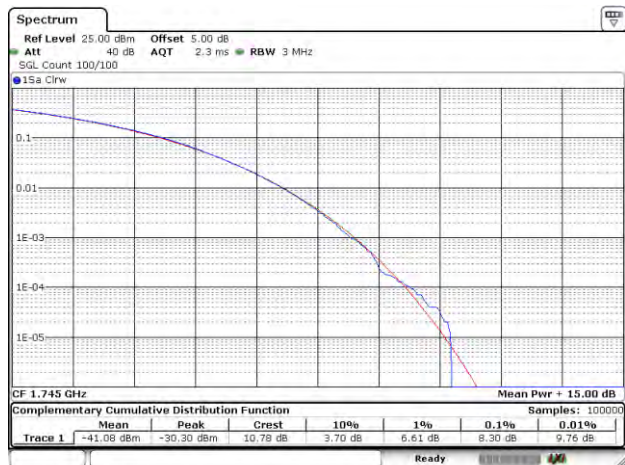
Date: 21 SEP 2018 14:55:29

## CAT-M1\_Band4\_CH20175\_20M\_QPSK\_1RB0



Date: 21 SEP 2018 14:57:49

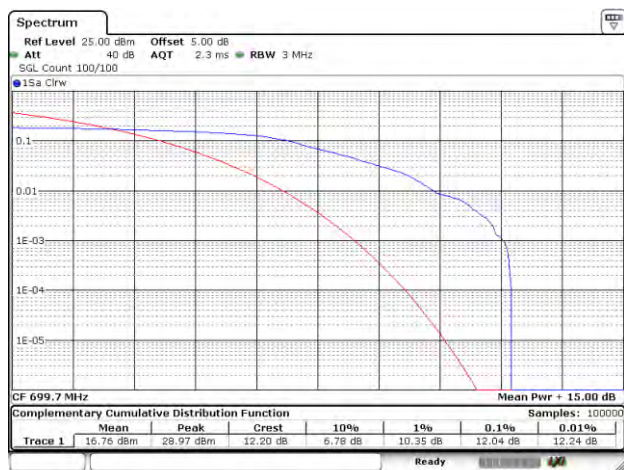
## CAT-M1\_Band4\_CH20300\_20M\_QPSK\_1RB0



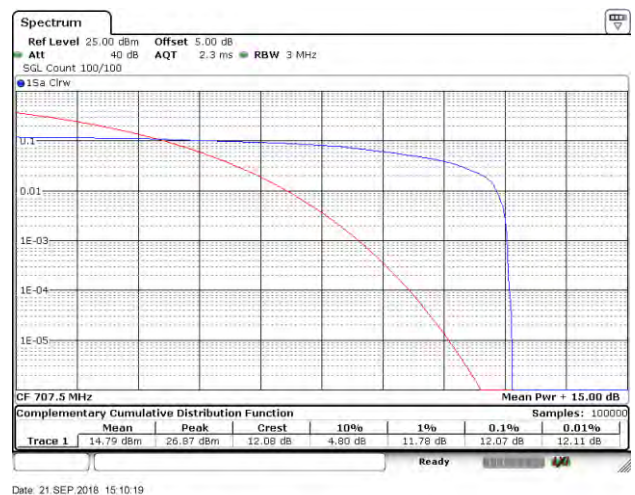
Date: 21 SEP 2018 14:58:07

|              |                             |           |        |
|--------------|-----------------------------|-----------|--------|
| Product      | ML865C1-NA                  |           |        |
| Test Item    | Peak To Average Ratio       |           |        |
| Test Mode    | Mode 3: LTE_CAT. M1_Band 12 |           |        |
| Date of Test | 2018/09/21                  | Test Site | SR10-H |

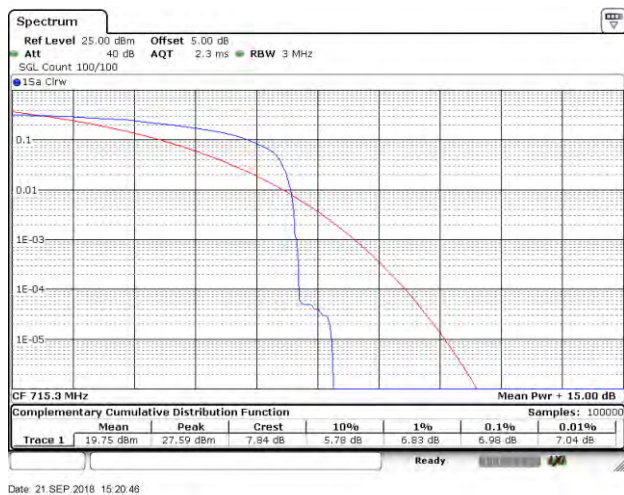
CAT-M1\_Band12\_CH23017\_1.4M\_QPSK\_1RB0



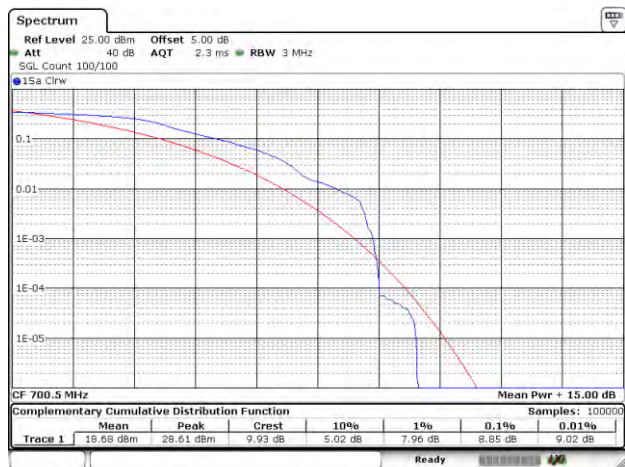
CAT-M1\_Band12\_CH23095\_1.4M\_QPSK\_1RB0



CAT-M1\_Band12\_CH23173\_1.4M\_QPSK\_1RB0



## CAT-M1\_Band12\_CH23025\_3M\_QPSK\_1RB0



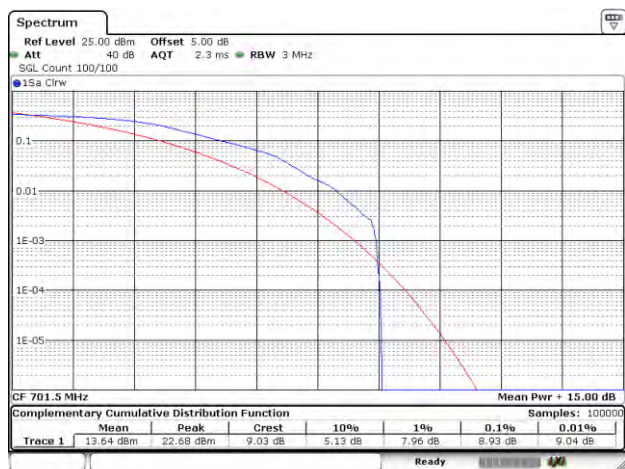
## CAT-M1\_Band12\_CH23095\_3M\_QPSK\_1RB0



## CAT-M1\_Band12\_CH23165\_3M\_QPSK\_1RB0

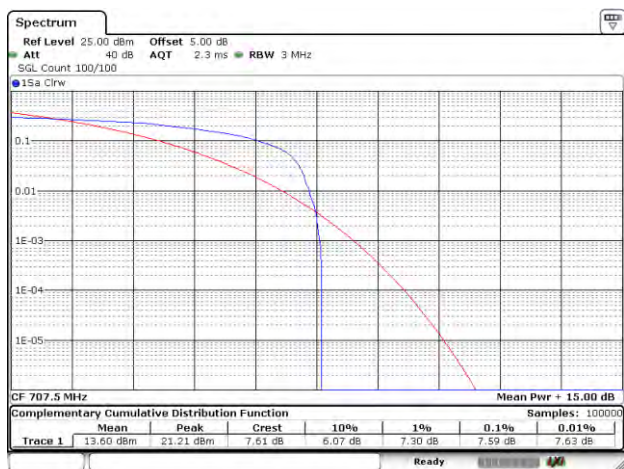


## CAT-M1\_Band12\_CH23035\_5M\_QPSK\_1RB0



Date: 21 SEP 2018 15:30:40

## CAT-M1\_Band12\_CH23095\_5M\_QPSK\_1RB0



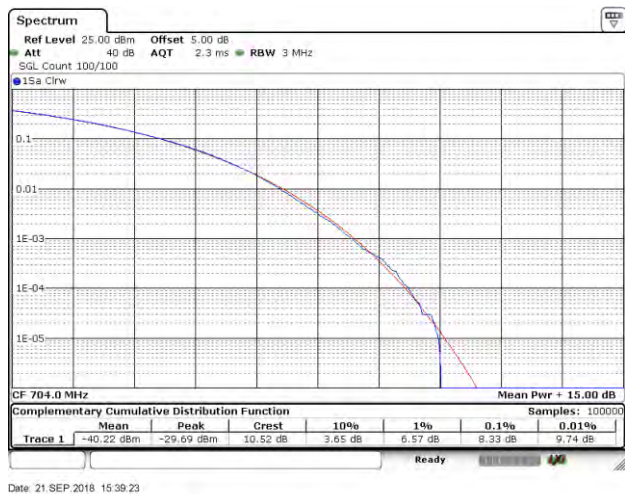
Date: 21 SEP 2018 15:33:12

## CAT-M1\_Band12\_CH23155\_5M\_QPSK\_1RB0

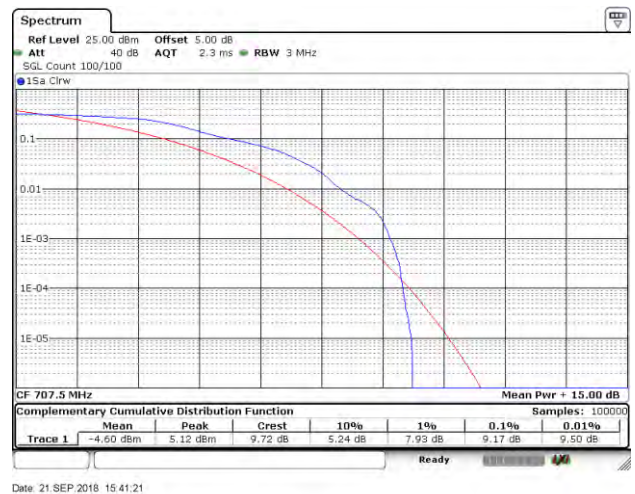


Date: 21 SEP 2018 15:34:48

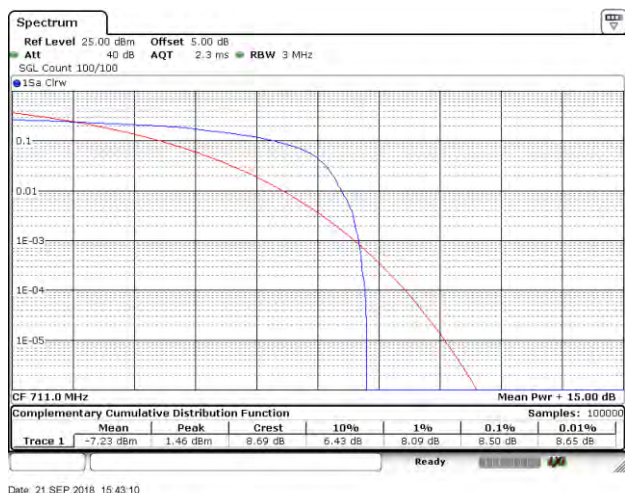
## CAT-M1\_Band12\_CH23060\_10M\_QPSK\_1RB0



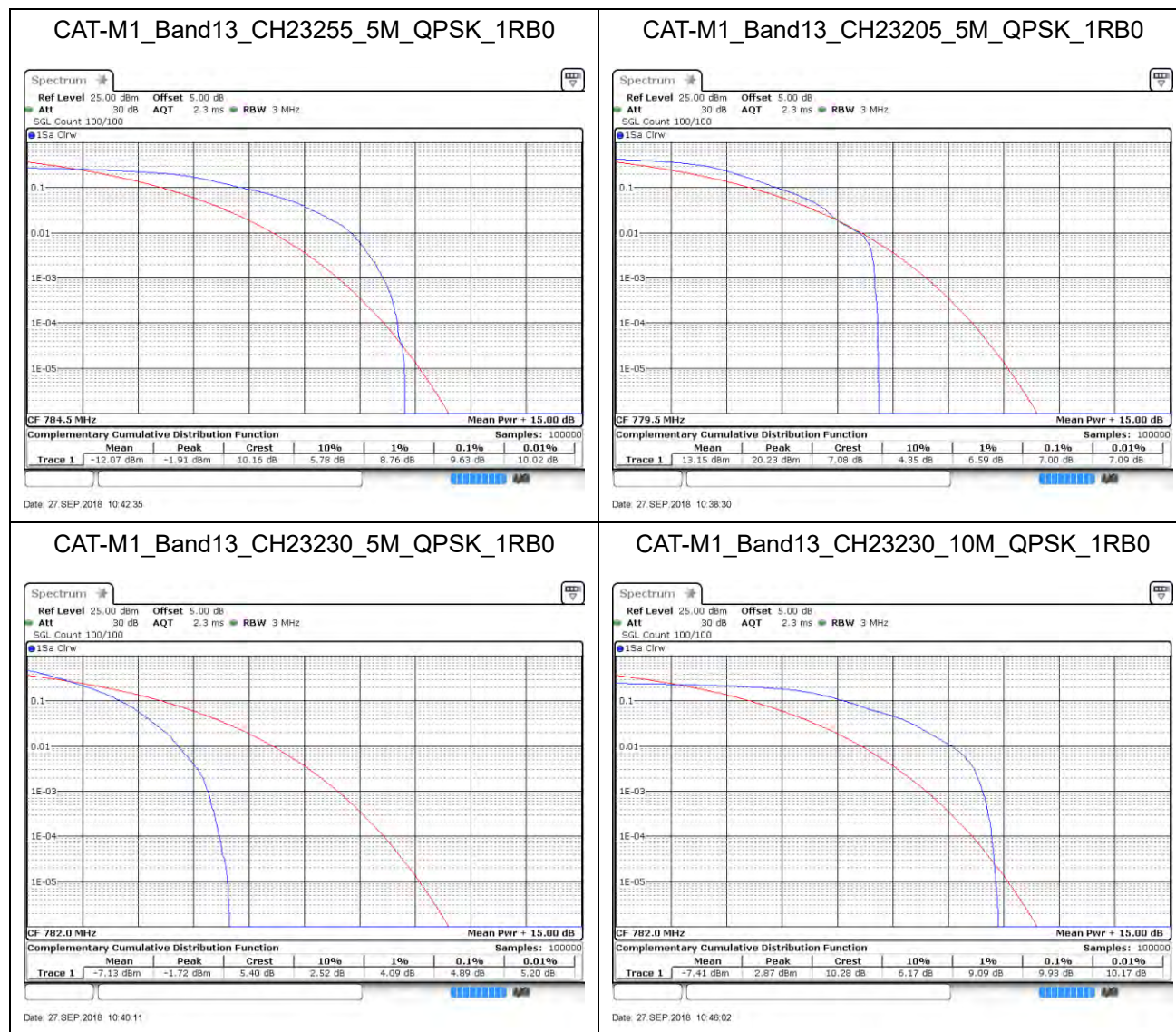
## CAT-M1\_Band12\_CH23095\_10M\_QPSK\_1RB0



## CAT-M1\_Band12\_CH23130\_10M\_QPSK\_1RB0



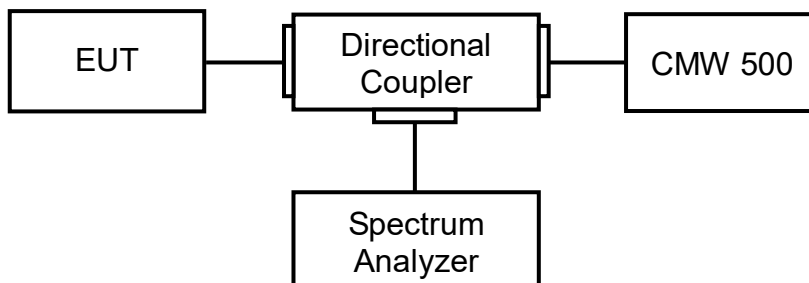
|              |                             |           |        |
|--------------|-----------------------------|-----------|--------|
| Product      | ML865C1-NA                  |           |        |
| Test Item    | Peak To Average Ratio       |           |        |
| Test Mode    | Mode 4: LTE_CAT. M1_Band 13 |           |        |
| Date of Test | 2018/09/27                  | Test Site | SR10-H |



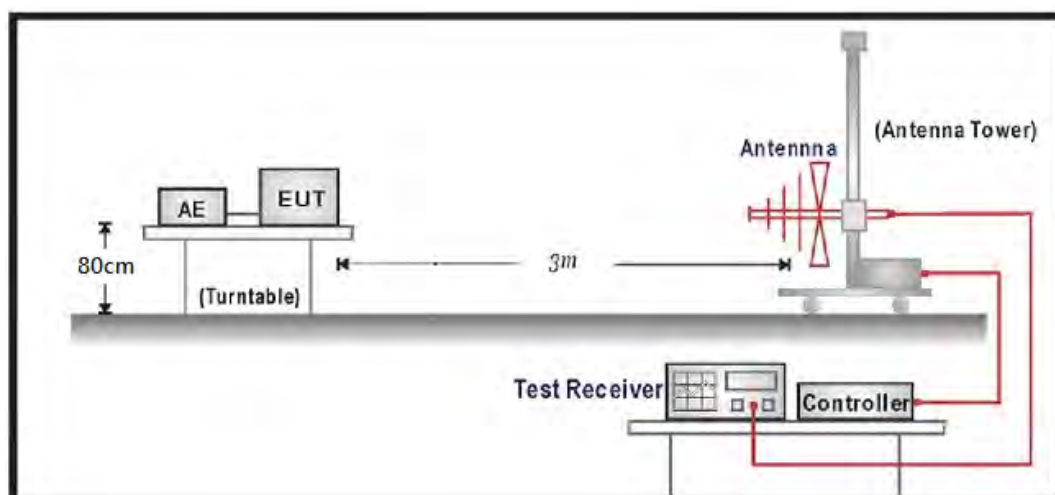
## 6. Spurious Emissions

### 6.1. Test Setup

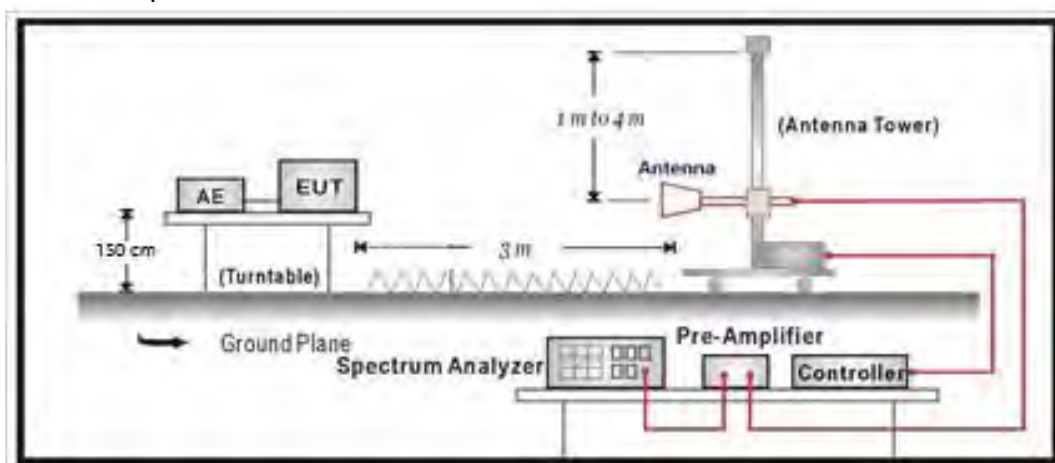
Conducted Spurious Measurement:



Radiated Spurious Measurement: below 1GHz



Radiated Spurious Measurement: above 1GHz



## 6.2. Test Procedure

### Conducted Spurious Measurement:

- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMW500 by a Directional Couple.
- c) EUT Communicate with CMW500, then select a channel for testing.
- d) Add a correction factor to the display of spectrum, and then test.
- e) The resolution bandwidth of the spectrum analyzer was set at 1 MHz, sufficient scans were taken to show the out of band Emission if any up to 10<sup>th</sup> harmonic.

### Radiated Spurious Measurement:

- a) The EUT was placed on a rotatable wooden table with 1.5 meter above ground.
- b) The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
- c) The table was rotated 360 degrees to determine the position of the highest spurious emission.
- d) The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
- e) Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 1MHz, Sweep 500ms, Taking the record of maximum spurious emission.
- f) A horn antenna was substituted in place of the EUT and was driven by a signal generator.
- g) Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
- h) Taking the record of output power at antenna port
- i) Repeat step 7 to step 8 for another polarization.
- j)  $EIRP = SG - \text{Cable loss} + \text{Antenna Gain}$

## 6.3. Test Method

### Conducted Spurious Measurement:

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause6.1  
ANSI C63.26: 2015 Sub-clause 5.7

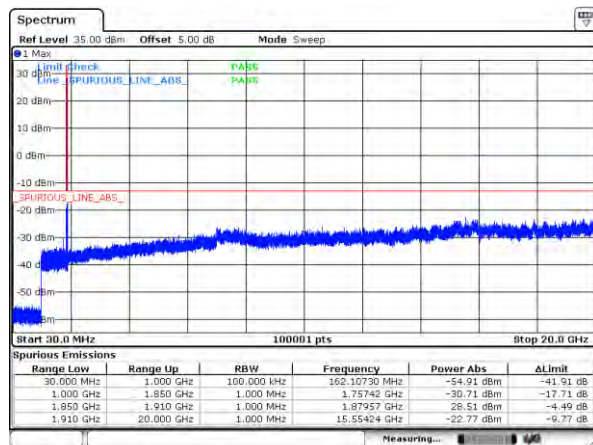
### Radiated Spurious Measurement:

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause5.8  
ANSI C63.26: 2015 Sub-clause 5.5.3.2

## 6.4. Test Result

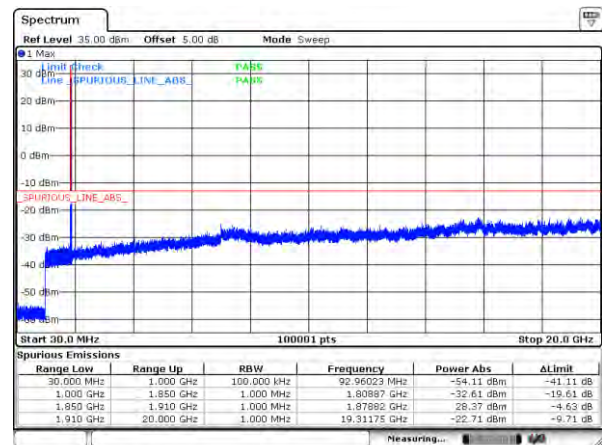
|              |                              |           |        |
|--------------|------------------------------|-----------|--------|
| Product      | ML865C1-NA                   |           |        |
| Test Item    | Conducted Spurious Emissions |           |        |
| Test Mode    | Mode 1: LTE_CAT. M1_Band 2   |           |        |
| Date of Test | 2018/09/22                   | Test Site | SR10-H |

Band2\_1.4M\_CH18900\_QPSK\_1RB0



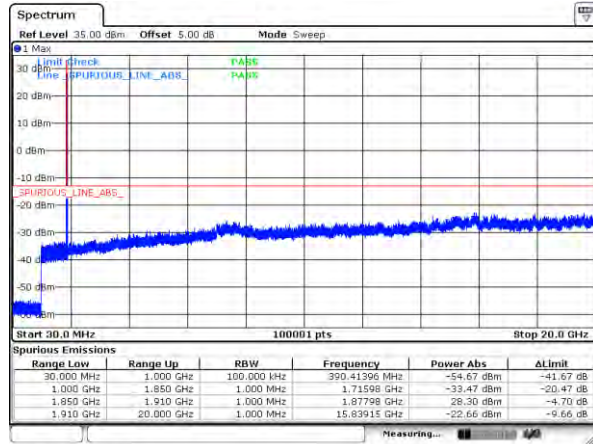
Date: 22 SEP 2018 00:41:34

Band2\_3M\_CH18900\_QPSK\_1RB0



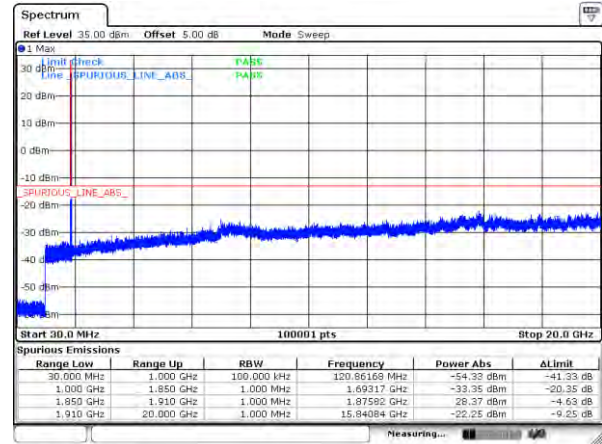
Date: 22 SEP 2018 00:39:39

Band2\_5M\_CH18900\_QPSK\_1RB0



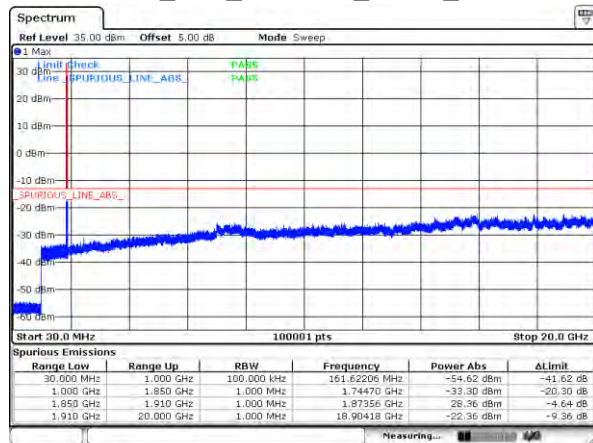
Date: 22 SEP 2018 00:38:30

Band2\_10M\_CH18900\_QPSK\_1RB0



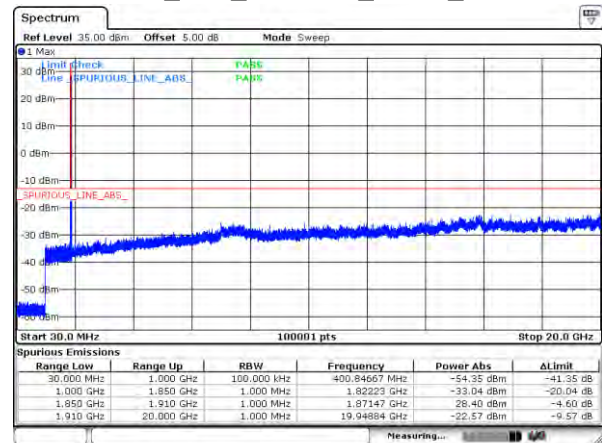
Date: 22 SEP 2018 00:37:29

Band2\_15M\_CH18900\_QPSK\_1RB0



Date: 22 SEP 2018 00:34:15

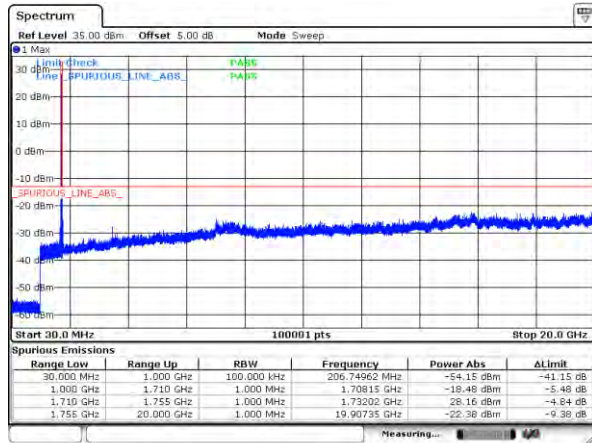
Band2\_20M\_CH18900\_QPSK\_1RB0



Date: 22 SEP 2018 00:36:00

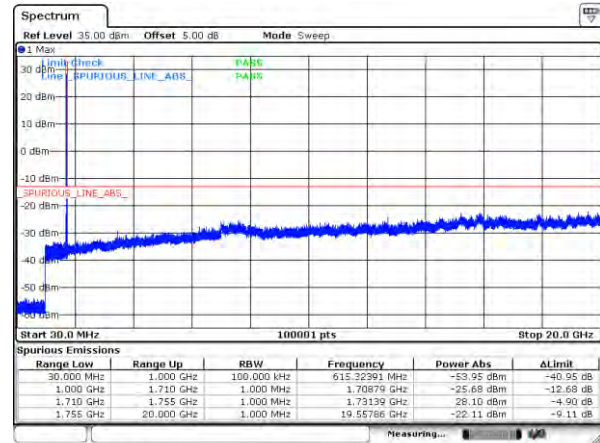
|              |                              |           |        |
|--------------|------------------------------|-----------|--------|
| Product      | ML865C1-NA                   |           |        |
| Test Item    | Conducted Spurious Emissions |           |        |
| Test Mode    | Mode 2: LTE_CAT. M1_Band 4   |           |        |
| Date of Test | 2018/09/22                   | Test Site | SR10-H |

Band4\_1.4M\_CH20175\_QPSK\_1RB0



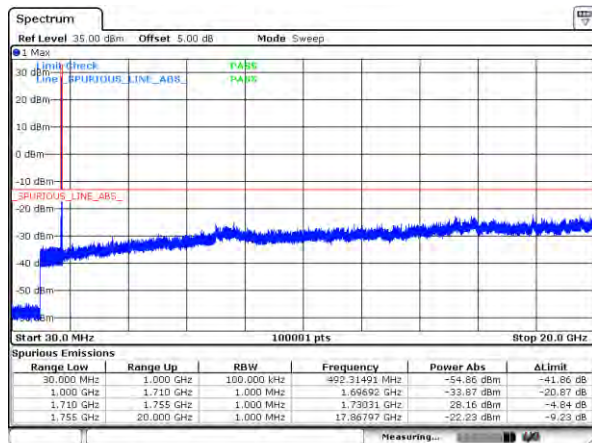
Date: 22 SEP 2018 00:46:01

Band4\_3M\_CH20175\_QPSK\_1RB0



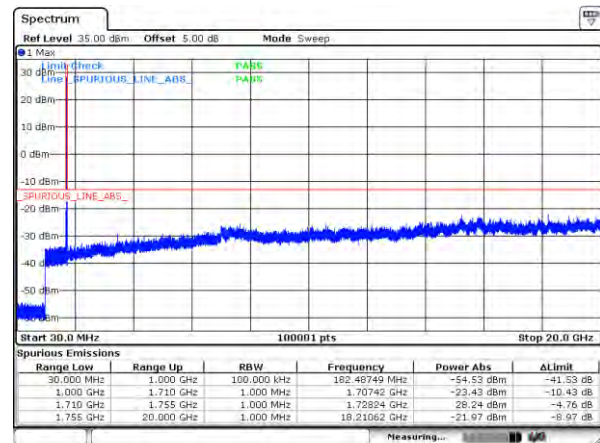
Date: 22 SEP 2018 00:48:14

Band4\_5M\_CH20175\_QPSK\_1RB0



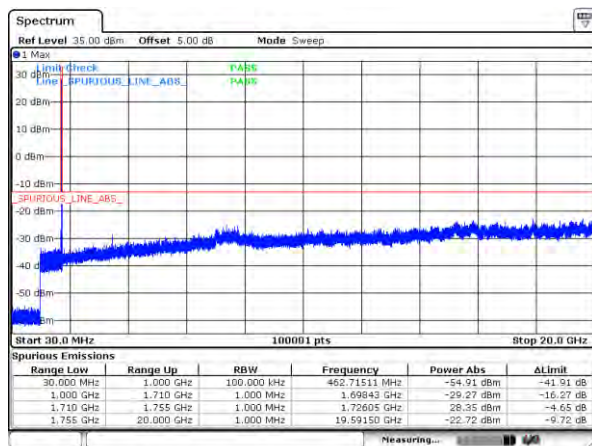
Date: 22 SEP 2018 00:50:06

Band4\_10M\_CH20175\_QPSK\_1RB0



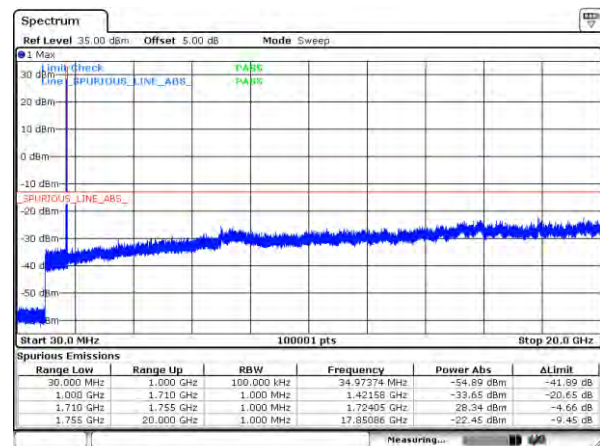
Date: 22 SEP 2018 00:51:10

Band4\_15M\_CH20175\_QPSK\_1RB0



Date: 22 SEP 2018 00:53:08

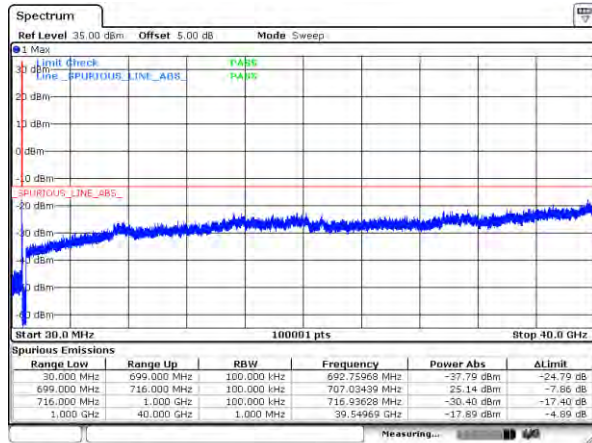
Band4\_20M\_CH20175\_QPSK\_1RB0



Date: 22 SEP 2018 00:54:02

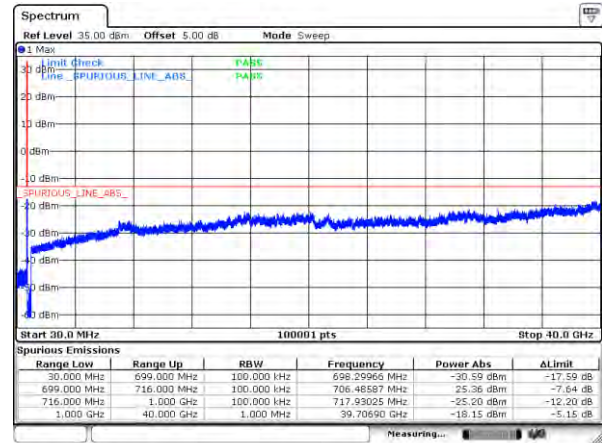
|              |                              |           |        |
|--------------|------------------------------|-----------|--------|
| Product      | ML865C1-NA                   |           |        |
| Test Item    | Conducted Spurious Emissions |           |        |
| Test Mode    | Mode 3: LTE_CAT. M1_Band 12  |           |        |
| Date of Test | 2018/09/22                   | Test Site | SR10-H |

Band12\_1.4M\_CH23095\_QPSK\_1RB0



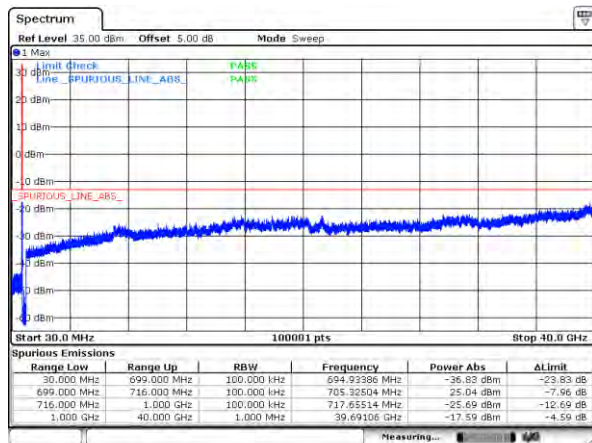
Date: 22 SEP 2018 01:28:00

Band12\_3M\_CH23095\_QPSK\_1RB0



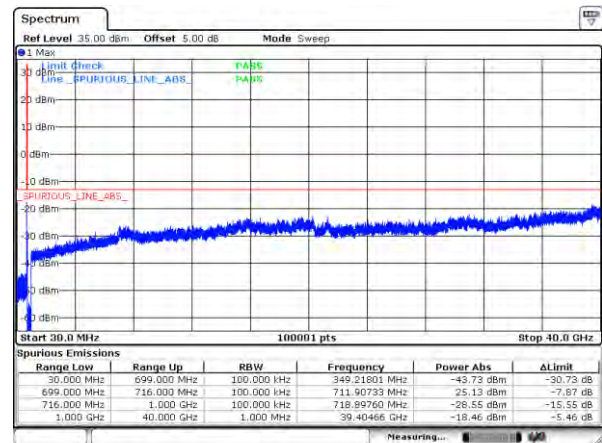
Date: 22 SEP 2018 01:24:25

Band12\_5M\_CH23095\_QPSK\_1RB0



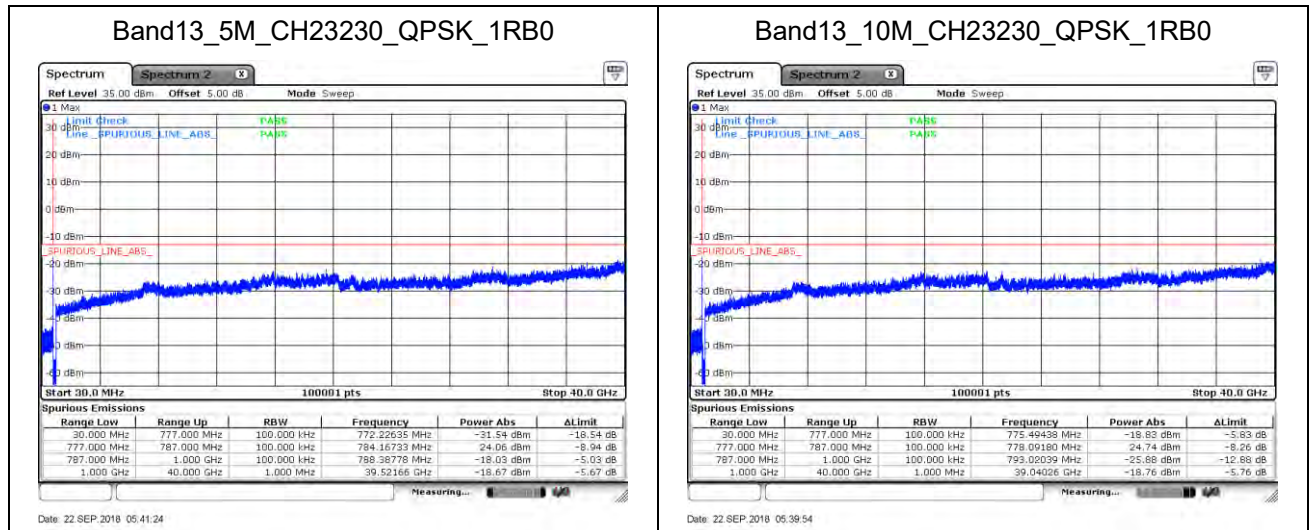
Date: 22 SEP 2018 01:29:24

Band12\_10M\_CH23095\_QPSK\_1RB0



Date: 22 SEP 2018 01:30:15

|              |                              |           |        |
|--------------|------------------------------|-----------|--------|
| Product      | ML865C1-NA                   |           |        |
| Test Item    | Conducted Spurious Emissions |           |        |
| Test Mode    | Mode 4: LTE_CAT. M1_Band 13  |           |        |
| Date of Test | 2018/09/22                   | Test Site | SR10-H |



|              |                             |           |       |
|--------------|-----------------------------|-----------|-------|
| Product      | ML865C1-NA                  |           |       |
| Test Item    | Radiated Spurious Emissions |           |       |
| Test Mode    | Mode 1: LTE_CAT. M1_Band 2  |           |       |
| Date of Test | 2018/09/22                  | Test Site | CB4-H |

| Frequency<br>(MHz)                  | SA<br>Reading<br>(dBm) | Ant.Pol.<br>(H/V) | SG Reading<br>(dBm) | Cable<br>Loss<br>(dB) | Gain<br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|-------------------------------------|------------------------|-------------------|---------------------|-----------------------|---------------|---------------|----------------|----------------|
| CAT-M1_Band2_1.4M_CH18900_QPSK_1RB0 |                        |                   |                     |                       |               |               |                |                |
| 3760.00                             | -62.430                | H                 | -63.907             | 4.335                 | 11.832        | -56.410       | -13            | -43.410        |
| 5640.00                             | -59.360                | H                 | -57.535             | 5.235                 | 12.900        | -49.870       | -13            | -36.870        |
| 3760.00                             | -63.630                | V                 | -65.337             | 4.335                 | 11.832        | -57.840       | -13            | -44.840        |
| 5640.00                             | -50.810                | V                 | -49.725             | 5.235                 | 12.900        | -42.060       | -13            | -29.060        |
| CAT-M1_Band2_3M_CH18900_QPSK_1RB0   |                        |                   |                     |                       |               |               |                |                |
| 3760.00                             | -61.880                | H                 | -63.357             | 4.335                 | 11.832        | -55.860       | -13            | -42.860        |
| 5640.00                             | -59.170                | H                 | -57.345             | 5.235                 | 12.900        | -49.680       | -13            | -36.680        |
| 3760.00                             | -63.460                | V                 | -65.167             | 4.335                 | 11.832        | -57.670       | -13            | -44.670        |
| 5640.00                             | -50.550                | V                 | -49.465             | 5.235                 | 12.900        | -41.800       | -13            | -28.800        |
| CAT-M1_Band2_5M_CH18900_QPSK_1RB0   |                        |                   |                     |                       |               |               |                |                |
| 3760.00                             | -62.100                | H                 | -63.577             | 4.335                 | 11.832        | -56.080       | -13            | -43.080        |
| 5640.00                             | -59.840                | H                 | -58.015             | 5.235                 | 12.900        | -50.350       | -13            | -37.350        |
| 3760.00                             | -63.030                | V                 | -64.737             | 4.335                 | 11.832        | -57.240       | -13            | -44.240        |
| 5640.00                             | -51.250                | V                 | -50.165             | 5.235                 | 12.900        | -42.500       | -13            | -29.500        |
| CAT-M1_Band2_10M_CH18900_QPSK_1RB0  |                        |                   |                     |                       |               |               |                |                |
| 3760.00                             | -62.460                | H                 | -63.937             | 4.335                 | 11.832        | -56.440       | -13            | -43.440        |
| 5640.00                             | -59.930                | H                 | -58.105             | 5.235                 | 12.900        | -50.440       | -13            | -37.440        |
| 3760.00                             | -62.540                | V                 | -64.247             | 4.335                 | 11.832        | -56.750       | -13            | -43.750        |
| 5640.00                             | -51.130                | V                 | -50.045             | 5.235                 | 12.900        | -42.380       | -13            | -29.380        |
| CAT-M1_Band2_15M_CH18900_QPSK_1RB0  |                        |                   |                     |                       |               |               |                |                |
| 3760.00                             | -61.820                | H                 | -63.297             | 4.335                 | 11.832        | -55.800       | -13            | -42.800        |
| 5640.00                             | -58.980                | H                 | -57.155             | 5.235                 | 12.900        | -49.490       | -13            | -36.490        |
| 3760.00                             | -62.580                | V                 | -64.287             | 4.335                 | 11.832        | -56.790       | -13            | -43.790        |
| 5640.00                             | -51.710                | V                 | -50.625             | 5.235                 | 12.900        | -42.960       | -13            | -29.960        |
| CAT-M1_Band2_20M_CH18900_QPSK_1RB0  |                        |                   |                     |                       |               |               |                |                |
| 3760.00                             | -61.380                | H                 | -62.857             | 4.335                 | 11.832        | -55.360       | -13            | -42.360        |
| 5640.00                             | -59.330                | H                 | -57.505             | 5.235                 | 12.900        | -49.840       | -13            | -36.840        |
| 3760.00                             | -63.090                | V                 | -64.797             | 4.335                 | 11.832        | -57.300       | -13            | -44.300        |
| 5640.00                             | -52.110                | V                 | -51.025             | 5.235                 | 12.900        | -43.360       | -13            | -30.360        |

|              |                             |           |       |
|--------------|-----------------------------|-----------|-------|
| Product      | ML865C1-NA                  |           |       |
| Test Item    | Radiated Spurious Emissions |           |       |
| Test Mode    | Mode 2: LTE_CAT. M1_Band 4  |           |       |
| Date of Test | 2018/09/22                  | Test Site | CB4-H |

| Frequency (MHz)                     | SA Reading (dBm) | Ant.Pol. (H/V) | SG Reading (dBm) | Cable Loss (dB) | Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) |
|-------------------------------------|------------------|----------------|------------------|-----------------|------------|------------|-------------|-------------|
| CAT-M1_Band4_1.4M_CH20175_QPSK_1RB0 |                  |                |                  |                 |            |            |             |             |
| 3465.00                             | -61.910          | H              | -63.899          | 4.090           | 12.209     | -55.780    | -13         | -42.780     |
| 5197.50                             | -58.610          | H              | -57.362          | 5.094           | 12.356     | -50.100    | -13         | -37.100     |
| 3465.00                             | -61.760          | V              | -63.979          | 4.090           | 12.209     | -55.860    | -13         | -42.860     |
| 5197.50                             | -57.490          | V              | -56.792          | 5.094           | 12.356     | -49.530    | -13         | -36.530     |
| CAT-M1_Band4_3M_CH20175_QPSK_1RB0   |                  |                |                  |                 |            |            |             |             |
| 3465.00                             | -61.680          | H              | -63.669          | 4.090           | 12.209     | -55.550    | -13         | -42.550     |
| 5197.50                             | -58.740          | H              | -57.492          | 5.094           | 12.356     | -50.230    | -13         | -37.230     |
| 3465.00                             | -61.550          | V              | -63.769          | 4.090           | 12.209     | -55.650    | -13         | -42.650     |
| 5197.50                             | -57.780          | V              | -57.082          | 5.094           | 12.356     | -49.820    | -13         | -36.820     |
| CAT-M1_Band4_5M_CH20175_QPSK_1RB0   |                  |                |                  |                 |            |            |             |             |
| 3465.00                             | -61.970          | H              | -63.959          | 4.090           | 12.209     | -55.840    | -13         | -42.840     |
| 5197.50                             | -58.360          | H              | -57.112          | 5.094           | 12.356     | -49.850    | -13         | -36.850     |
| 3465.00                             | -62.120          | V              | -64.339          | 4.090           | 12.209     | -56.220    | -13         | -43.220     |
| 5197.50                             | -57.660          | V              | -56.962          | 5.094           | 12.356     | -49.700    | -13         | -36.700     |
| CAT-M1_Band4_10M_CH20175_QPSK_1RB0  |                  |                |                  |                 |            |            |             |             |
| 3465.00                             | -61.810          | H              | -63.799          | 4.090           | 12.209     | -55.680    | -13         | -42.680     |
| 5197.50                             | -58.230          | H              | -56.982          | 5.094           | 12.356     | -49.720    | -13         | -36.720     |
| 3465.00                             | -61.350          | V              | -63.569          | 4.090           | 12.209     | -55.450    | -13         | -42.450     |
| 5197.50                             | -58.320          | V              | -57.622          | 5.094           | 12.356     | -50.360    | -13         | -37.360     |
| CAT-M1_Band4_15M_CH20175_QPSK_1RB0  |                  |                |                  |                 |            |            |             |             |
| 3465.00                             | -61.430          | H              | -63.419          | 4.090           | 12.209     | -55.300    | -13         | -42.300     |
| 5197.50                             | -58.970          | H              | -57.722          | 5.094           | 12.356     | -50.460    | -13         | -37.460     |
| 3465.00                             | -61.750          | V              | -63.969          | 4.090           | 12.209     | -55.850    | -13         | -42.850     |
| 5197.50                             | -57.660          | V              | -56.962          | 5.094           | 12.356     | -49.700    | -13         | -36.700     |
| CAT-M1_Band4_20M_CH20175_QPSK_1RB0  |                  |                |                  |                 |            |            |             |             |
| 3465.00                             | -61.430          | H              | -63.419          | 4.090           | 12.209     | -55.300    | -13         | -42.300     |
| 5197.50                             | -58.210          | H              | -56.962          | 5.094           | 12.356     | -49.700    | -13         | -36.700     |
| 3465.00                             | -62.230          | V              | -64.449          | 4.090           | 12.209     | -56.330    | -13         | -43.330     |
| 5197.50                             | -57.190          | V              | -56.492          | 5.094           | 12.356     | -49.230    | -13         | -36.230     |

|              |                             |           |       |
|--------------|-----------------------------|-----------|-------|
| Product      | ML865C1-NA                  |           |       |
| Test Item    | Radiated Spurious Emissions |           |       |
| Test Mode    | Mode 3: LTE_CAT. M1_Band 12 |           |       |
| Date of Test | 2018/09/22                  | Test Site | CB4-H |

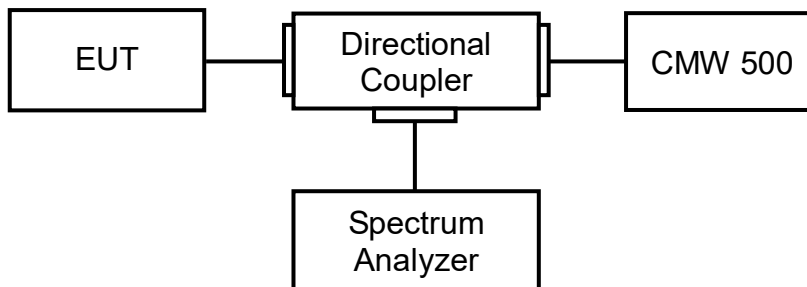
| Frequency<br>(MHz)                   | SA<br>Reading<br>(dBm) | Ant.Pol.<br>(H/V) | SG Reading<br>(dBm) | Cable<br>Loss<br>(dB) | Gain<br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|--------------------------------------|------------------------|-------------------|---------------------|-----------------------|---------------|---------------|----------------|----------------|
| CAT-M1_Band12_1.4M_CH23095_QPSK_1RB0 |                        |                   |                     |                       |               |               |                |                |
| 1415.00                              | -57.530                | H                 | -60.647             | 2.585                 | 7.892         | -55.340       | -13            | -42.340        |
| 2122.50                              | -54.150                | H                 | -58.191             | 3.195                 | 9.996         | -51.390       | -13            | -38.390        |
| 1415.00                              | -58.000                | V                 | -60.927             | 2.585                 | 7.892         | -55.620       | -13            | -42.620        |
| 2122.50                              | -54.370                | V                 | -58.431             | 3.195                 | 9.996         | -51.630       | -13            | -38.630        |
| CAT-M1_Band12_3M_CH23095_QPSK_1RB0   |                        |                   |                     |                       |               |               |                |                |
| 1415.00                              | -57.730                | H                 | -60.847             | 2.585                 | 7.892         | -55.540       | -13            | -42.540        |
| 2122.50                              | -52.420                | H                 | -56.461             | 3.195                 | 9.996         | -49.660       | -13            | -36.660        |
| 1415.00                              | -57.730                | V                 | -60.657             | 2.585                 | 7.892         | -55.350       | -13            | -42.350        |
| 2122.50                              | -53.990                | V                 | -58.051             | 3.195                 | 9.996         | -51.250       | -13            | -38.250        |
| CAT-M1_Band12_5M_CH23095_QPSK_1RB0   |                        |                   |                     |                       |               |               |                |                |
| 1415.00                              | -57.820                | H                 | -60.937             | 2.585                 | 7.892         | -55.630       | -13            | -42.630        |
| 2122.50                              | -54.580                | H                 | -58.621             | 3.195                 | 9.996         | -51.820       | -13            | -38.820        |
| 1415.00                              | -61.020                | V                 | -63.947             | 2.585                 | 7.892         | -58.640       | -13            | -45.640        |
| 2122.50                              | -51.980                | V                 | -56.041             | 3.195                 | 9.996         | -49.240       | -13            | -36.240        |
| CAT-M1_Band12_10M_CH23095_QPSK_1RB0  |                        |                   |                     |                       |               |               |                |                |
| 1415.00                              | -59.080                | H                 | -62.197             | 2.585                 | 7.892         | -56.890       | -13            | -43.890        |
| 2122.50                              | -52.340                | H                 | -56.381             | 3.195                 | 9.996         | -49.580       | -13            | -36.580        |
| 1415.00                              | -58.500                | V                 | -61.427             | 2.585                 | 7.892         | -56.120       | -13            | -43.120        |
| 2122.50                              | -52.300                | V                 | -56.361             | 3.195                 | 9.996         | -49.560       | -13            | -36.560        |

|              |                             |           |       |
|--------------|-----------------------------|-----------|-------|
| Product      | ML865C1-NA                  |           |       |
| Test Item    | Radiated Spurious Emissions |           |       |
| Test Mode    | Mode 4: LTE_CAT. M1_Band 13 |           |       |
| Date of Test | 2018/09/22                  | Test Site | CB4-H |

| Frequency<br>(MHz)                  | SA<br>Reading<br>(dBm) | Ant.Pol.<br>(H/V) | SG Reading<br>(dBm) | Cable<br>Loss<br>(dB) | Gain<br>(dBi) | EIRP<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|-------------------------------------|------------------------|-------------------|---------------------|-----------------------|---------------|---------------|----------------|----------------|
| CAT-M1_Band12_5M_CH23095_QPSK_1RB0  |                        |                   |                     |                       |               |               |                |                |
| 1564.00                             | -57.090                | H                 | -60.429             | 2.713                 | 8.492         | -54.650       | -13            | -41.650        |
| 2346.00                             | -57.830                | H                 | -61.714             | 3.349                 | 10.354        | -54.710       | -13            | -41.710        |
| 1564.00                             | -58.100                | V                 | -61.419             | 2.713                 | 8.492         | -55.640       | -13            | -42.640        |
| 2346.00                             | -56.200                | V                 | -60.144             | 3.349                 | 10.354        | -53.140       | -13            | -40.140        |
| CAT-M1_Band12_10M_CH23095_QPSK_1RB0 |                        |                   |                     |                       |               |               |                |                |
| 1564.00                             | -55.730                | H                 | -59.069             | 2.713                 | 8.492         | -53.290       | -13            | -40.290        |
| 2346.00                             | -56.710                | H                 | -60.594             | 3.349                 | 10.354        | -53.590       | -13            | -40.590        |
| 1564.00                             | -56.940                | V                 | -60.259             | 2.713                 | 8.492         | -54.480       | -13            | -41.480        |
| 2346.00                             | -56.390                | V                 | -60.334             | 3.349                 | 10.354        | -53.330       | -13            | -40.330        |

## 7. Spurious Emissions at Antenna Terminals

### 7.1. Test Setup



### 7.2. Test Procedure

- Place the EUT on a bench and set it in transmitting mode.
- Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMW500 by a Directional Couple.
- EUT Communicate with CMW500, then select a channel for testing.
- Add a correction factor to the display of spectrum, and then test.
- The resolution bandwidth of the spectrum analyzer was set at 1 MHz, sufficient scans were taken to show the out of band Emission if any up to 10th harmonic.

### 7.3. Test Method

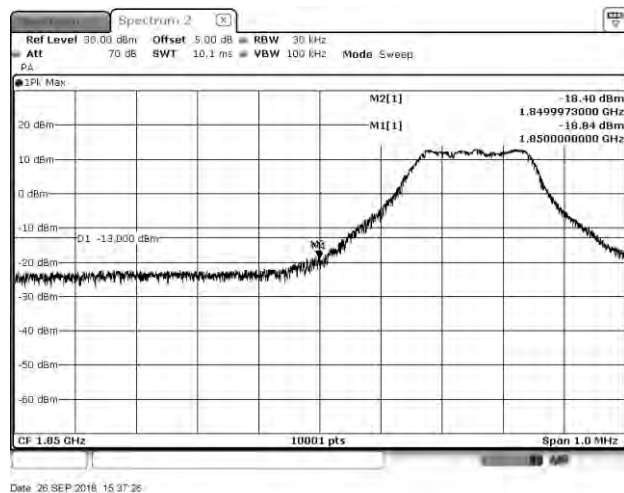
KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 6.1

ANSI C63.26: 2015 Sub-clause 5.7

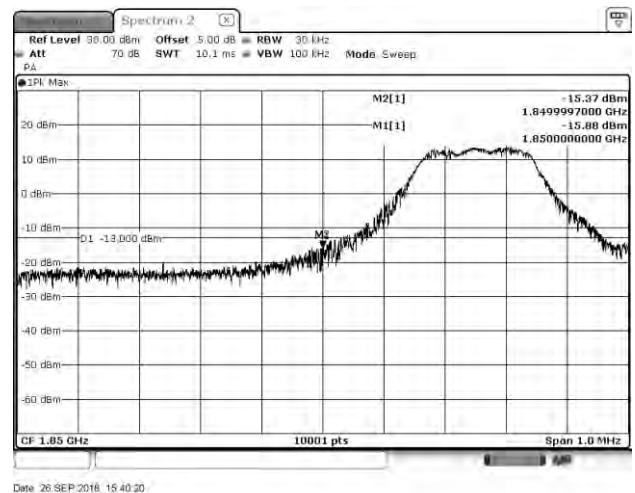
## 7.4. Test Result

|              |                                         |           |        |
|--------------|-----------------------------------------|-----------|--------|
| Product      | ML865C1-NA                              |           |        |
| Test Item    | Spurious Emissions at Antenna Terminals |           |        |
| Test Mode    | Mode 1: LTE_CAT. M1_Band 2              |           |        |
| Date of Test | 2018/09/26                              | Test Site | SR10-H |

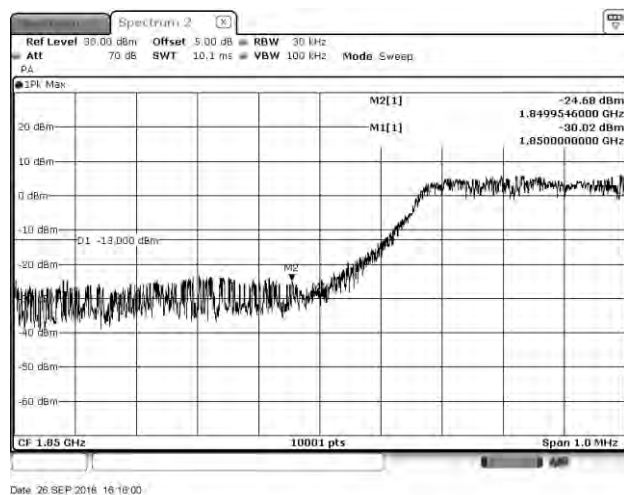
Cat M1\_Band 2\_ 1.4M\_CH18607\_QPSK\_1RB0



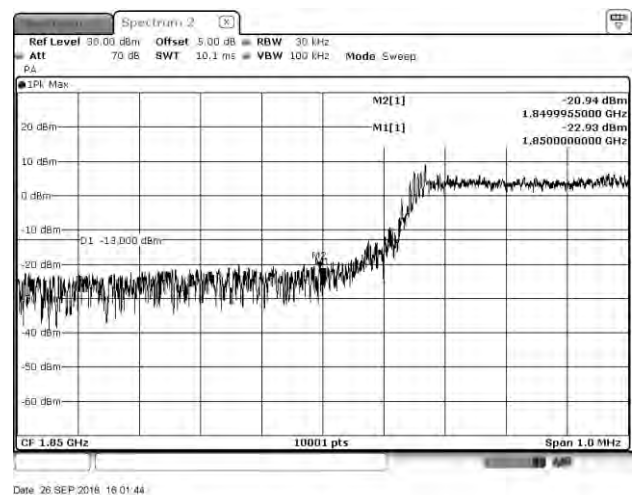
Cat M1\_Band 2\_ 1.4M\_CH18607\_16QAM\_1RB0



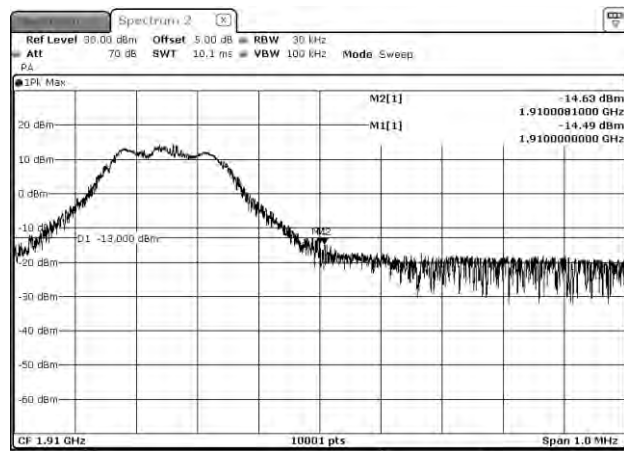
Cat M1\_Band 2\_ 1.4M\_CH18607\_QPSK\_6RB0



Cat M1\_Band 2\_ 1.4M\_CH18607\_16QAM\_5RB0

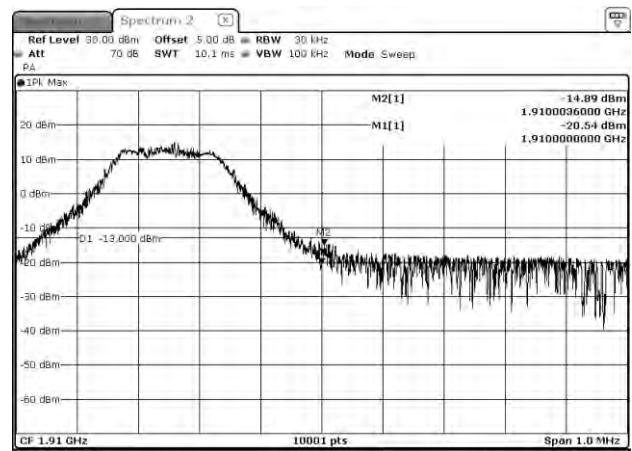


Cat M1\_Band 2\_ 1.4M\_CH19193\_QPSK\_1RB0



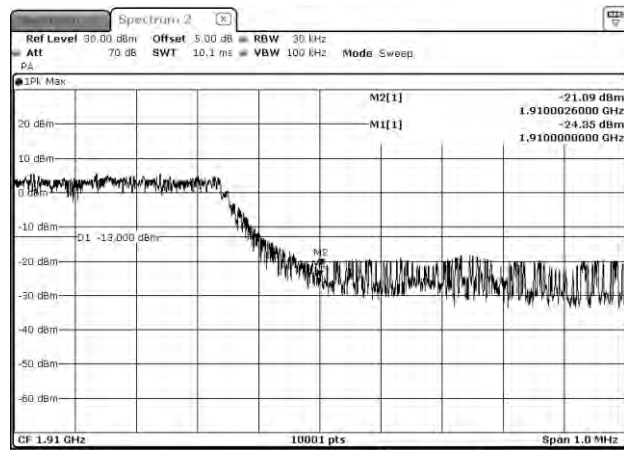
Date: 26 SEP 2016 16:27:57

Cat M1\_Band 2\_ 1.4M\_CH19193\_16QAM\_1RB5



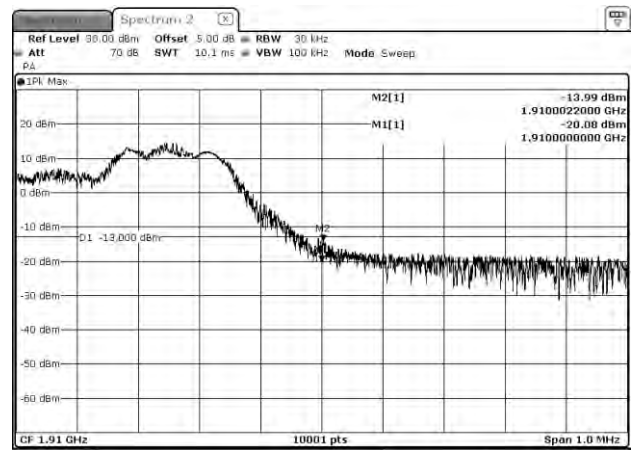
Date: 26 SEP 2016 16:26:32

Cat M1\_Band 2\_ 1.4M\_CH19193\_QPSK\_6RB0



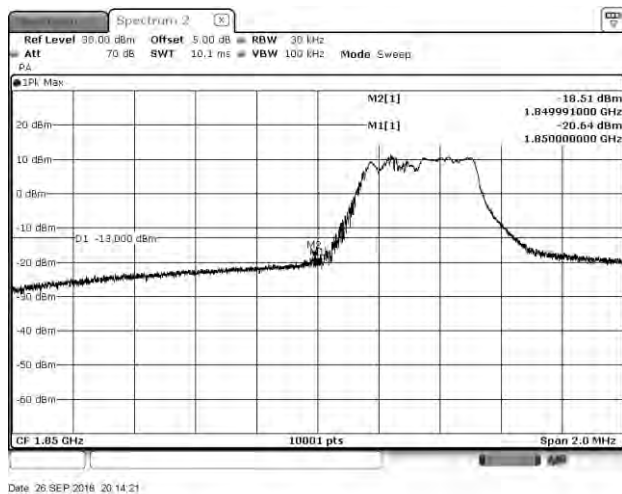
Date: 26 SEP 2016 16:22:13

Cat M1\_Band 2\_ 1.4M\_CH19193\_16QAM\_5RB1

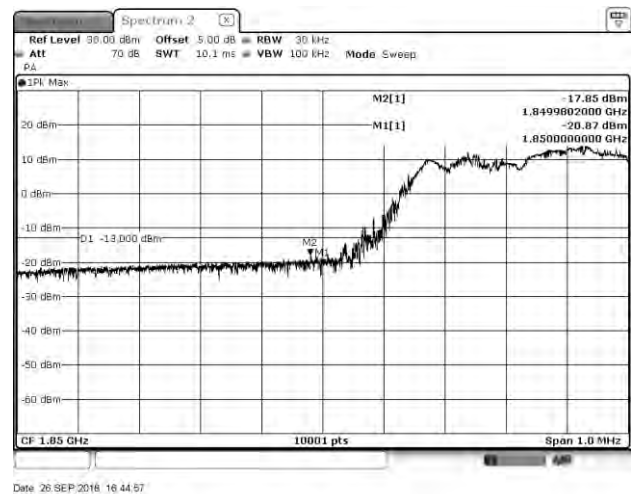


Date: 26 SEP 2016 16:25:05

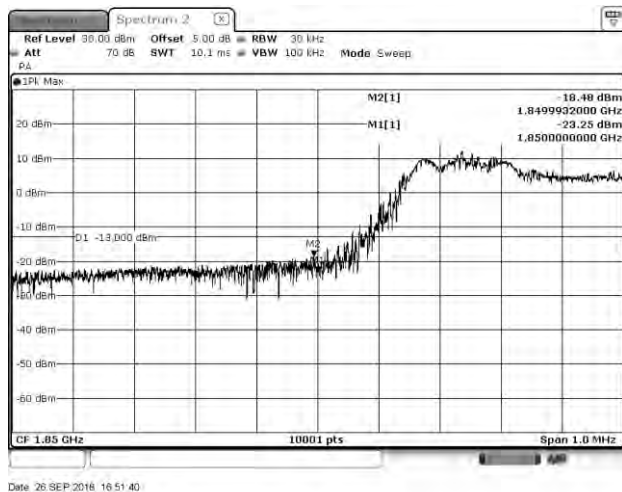
Cat M1\_Band 2\_ 3M\_CH18615\_QPSK\_1RB0



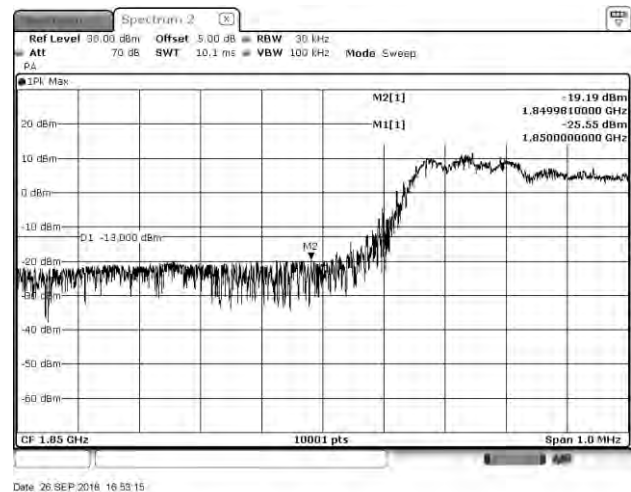
Cat M1\_Band 2\_ 3M\_CH18615\_16QAM\_1RB0



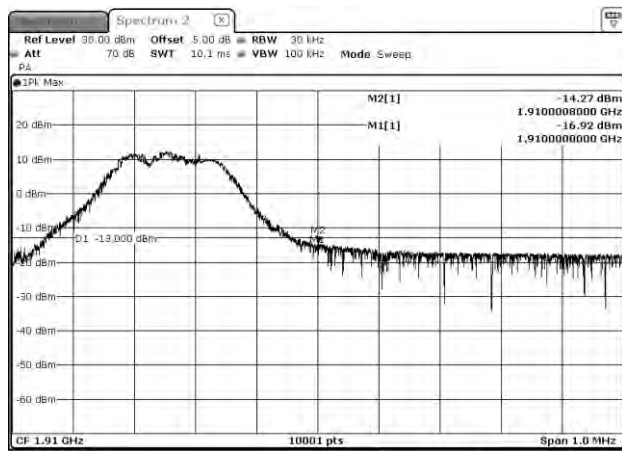
Cat M1\_Band 2\_ 3M\_CH18615\_QPSK\_6RB0



Cat M1\_Band 2\_ 3M\_CH18615\_16QAM\_5RB0

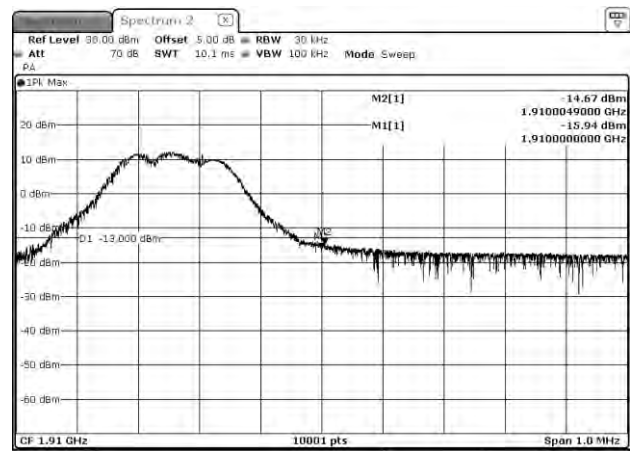


Cat M1\_Band 2\_3M\_CH19185\_QPSK\_1RB0



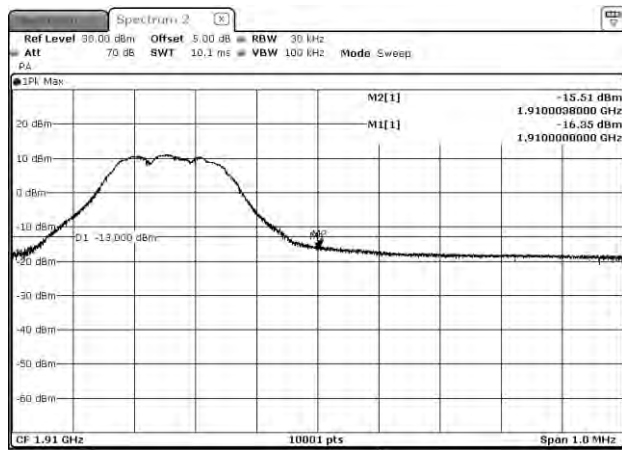
Date: 26 SEP 2016 17:01:45

Cat M1\_Band 2\_3M\_CH19185\_16QAM\_1RB5



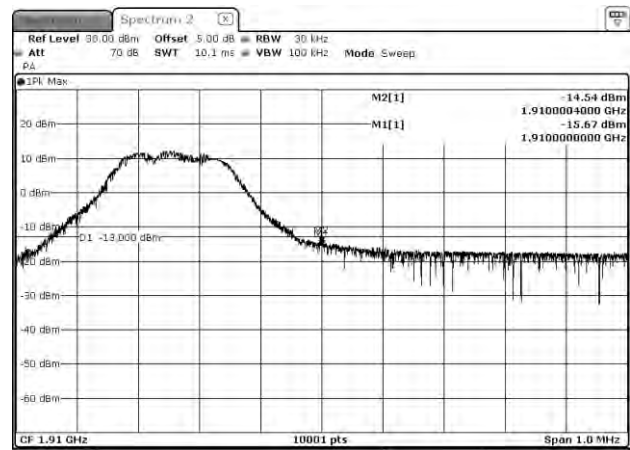
Date: 26 SEP 2016 16:58:45

Cat M1\_Band 2\_3M\_CH19185\_QPSK\_6RB0



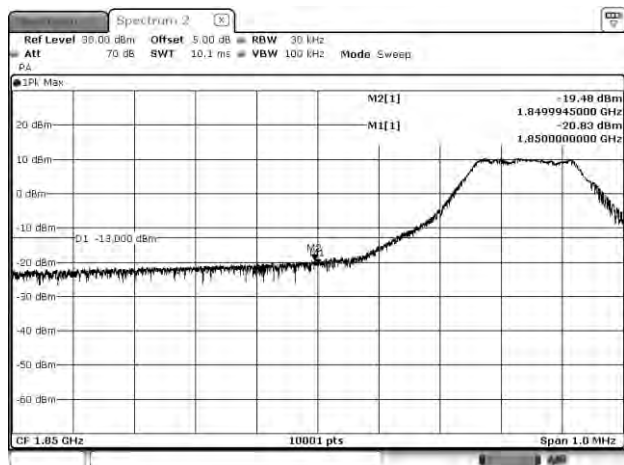
Date: 26 SEP 2016 17:11:30

Cat M1\_Band 2\_3M\_CH19185\_16QAM\_5RB1



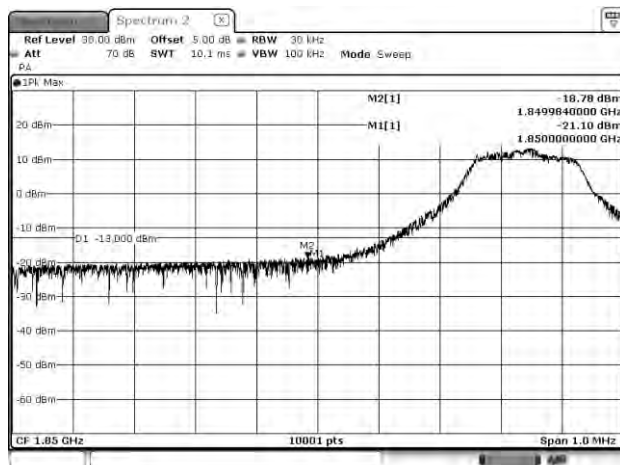
Date: 26 SEP 2016 17:00:21

Cat M1\_Band 2\_5M\_CH18625\_QPSK\_1RB0



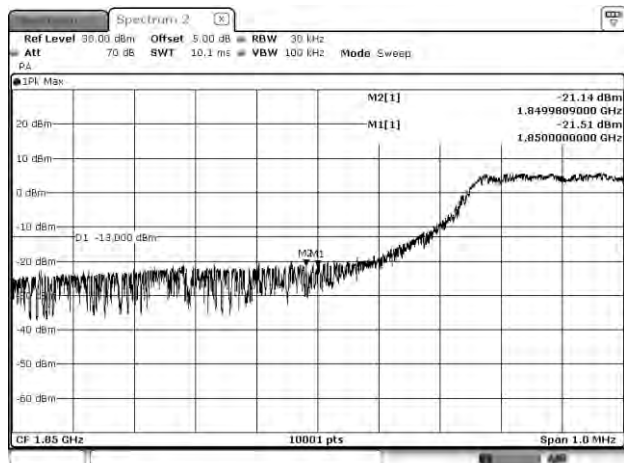
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Cat M1\_Band 2\_5M\_CH18625\_16QAM\_1RB0



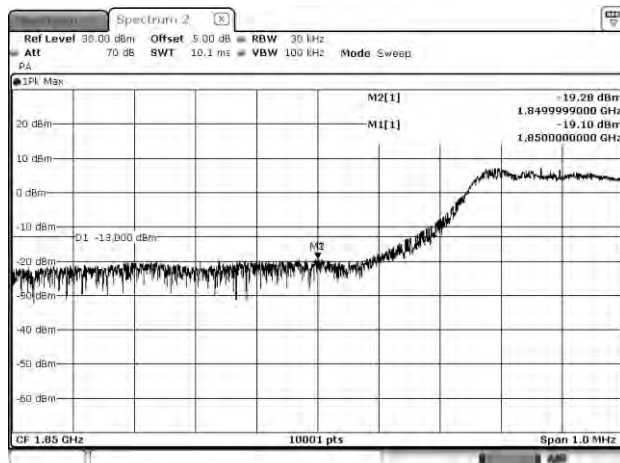
Date: 26 SEP 2016 17:18:07

Cat M1\_Band 2\_5M\_CH18625\_QPSK\_6RB0



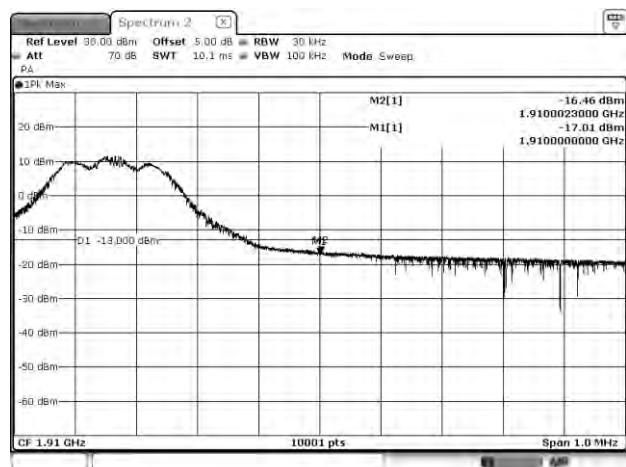
Date: 26 SEP 2016 17:27:02

Cat M1\_Band 2\_5M\_CH18625\_16QAM\_5RB0



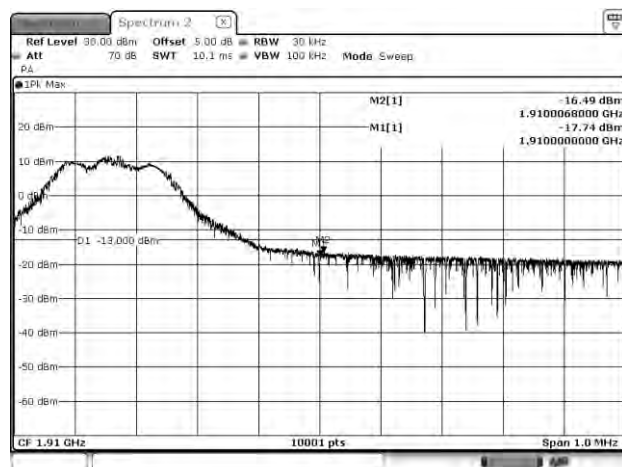
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Cat M1\_Band 2\_5M\_CH19175\_QPSK\_1RB0



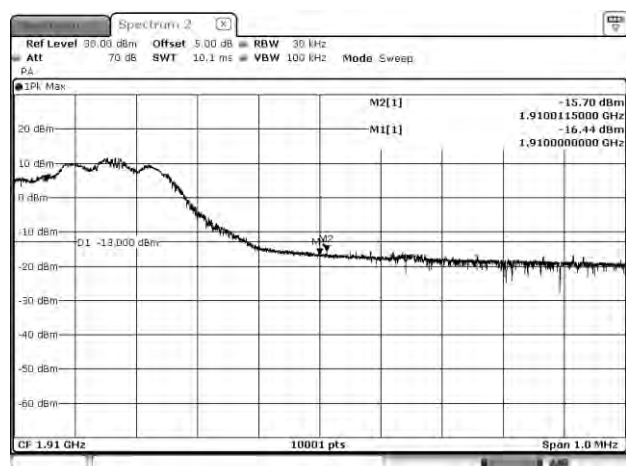
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Cat M1\_Band 2\_5M\_CH19175\_16QAM\_1RB5



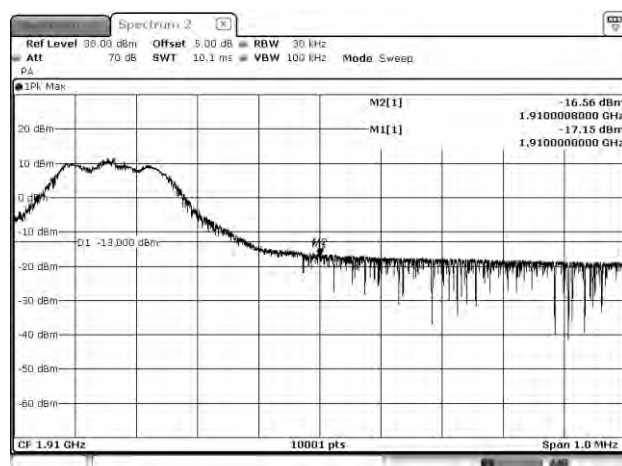
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Cat M1\_Band 2\_5M\_CH19175\_QPSK\_6RB0



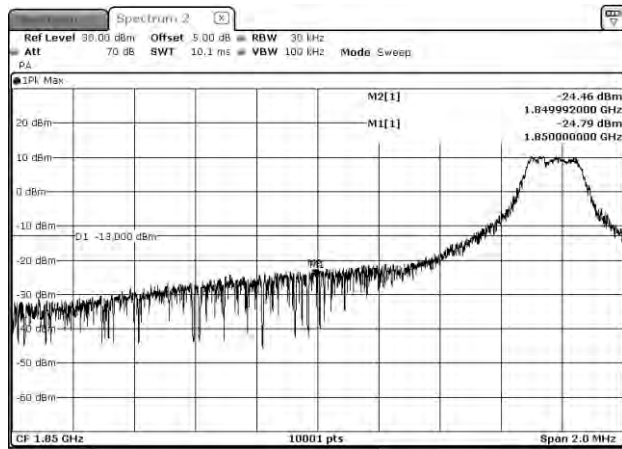
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Cat M1\_Band 2\_5M\_CH19175\_16QAM\_5RB1



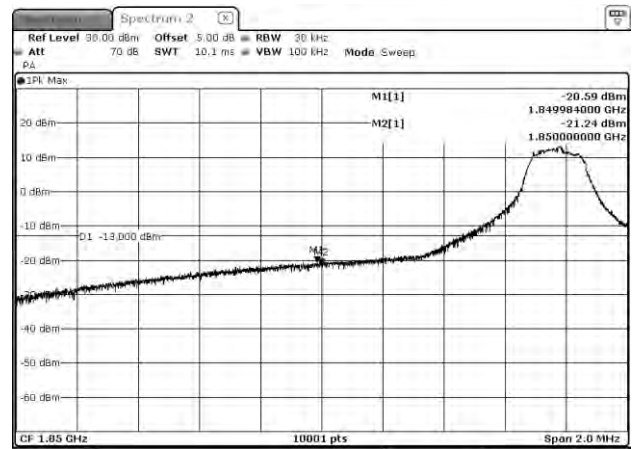
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Cat M1\_Band 2\_ 10M\_CH18650\_QPSK\_1RB0



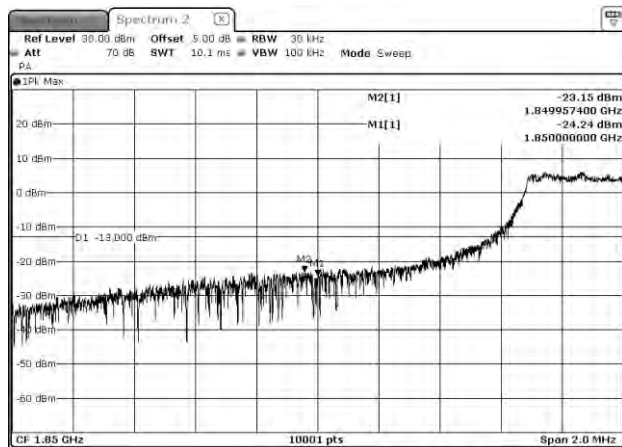
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Cat M1\_Band 2\_ 10M\_CH18650\_QPSK\_1RB0



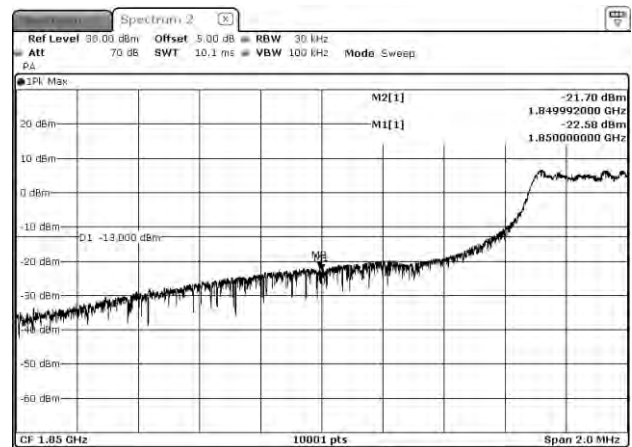
Date: 26 SEP 2016 17:58:36

Cat M1\_Band 2\_ 10M\_CH18650\_QPSK\_6RB0



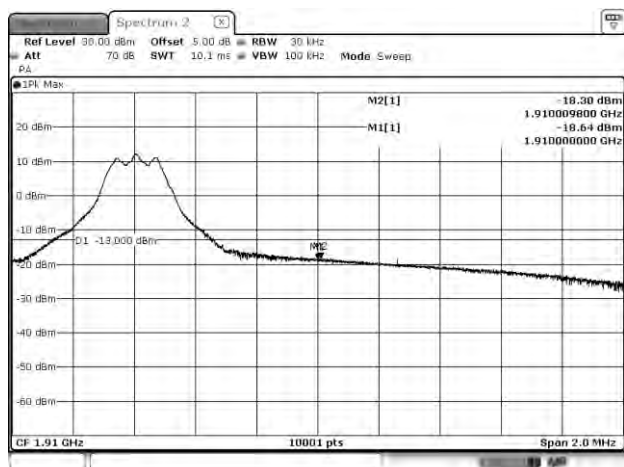
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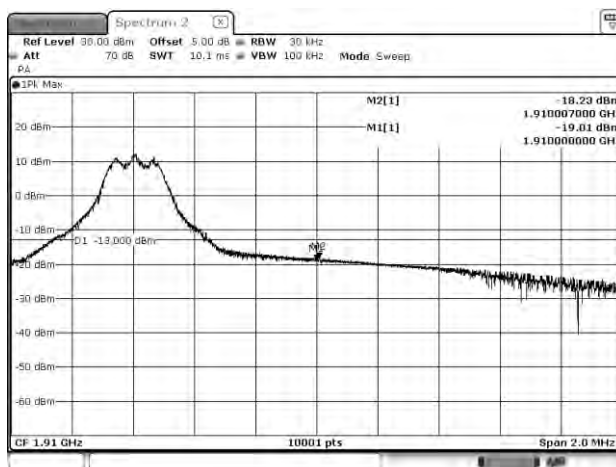
Date: 26 SEP 2016 18:01:18

Cat M1\_Band 2\_ 10M\_CH19150\_QPSK\_1RB0



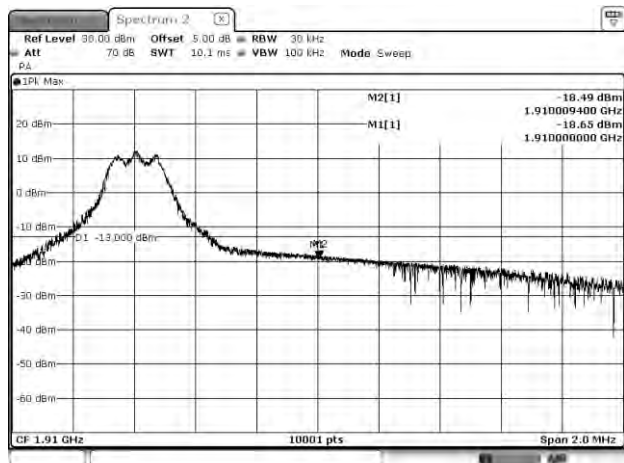
Date: 26 SEP 2018 18:30:49

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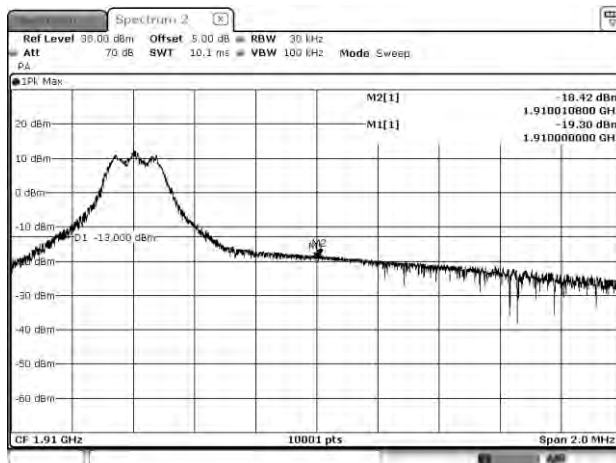
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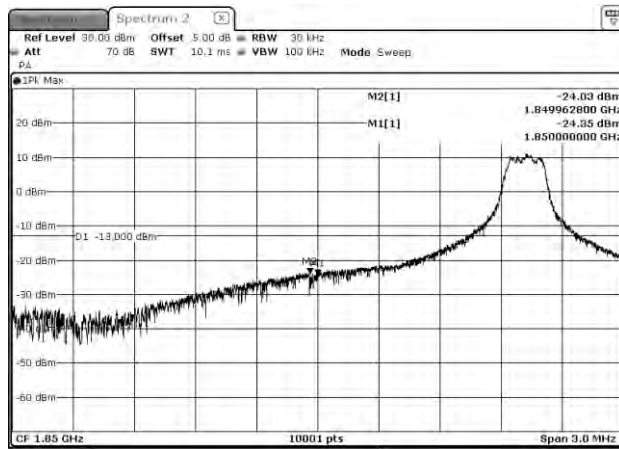
Date: 26 SEP 2018 18:33:13

Cat M1\_Band 2\_ 10M\_CH19150\_16QAM\_5RB1



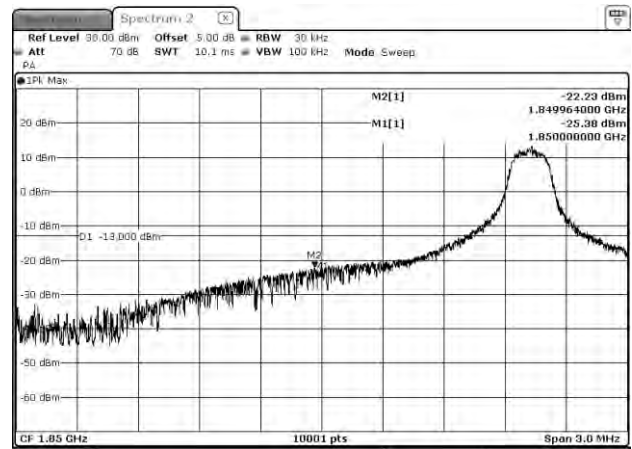
Date: 26 SEP 2018 18:17:08

Cat M1\_Band 2\_ 15M\_CH18675\_QPSK\_1RB0



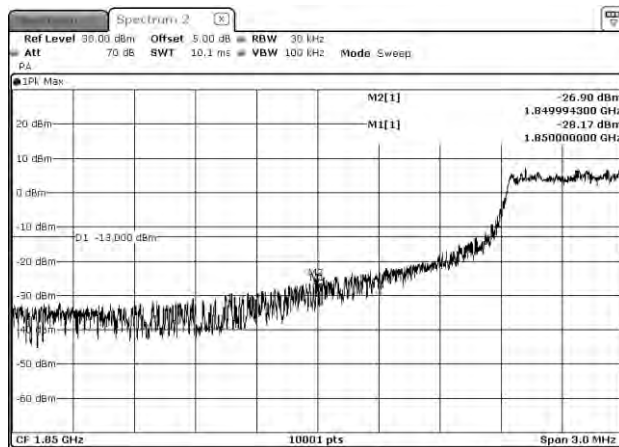
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Cat M1\_Band 2\_ 15M\_CH18675\_16QAM\_1RB0



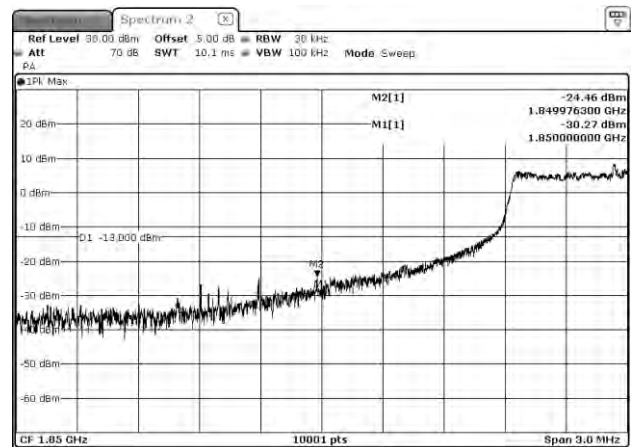
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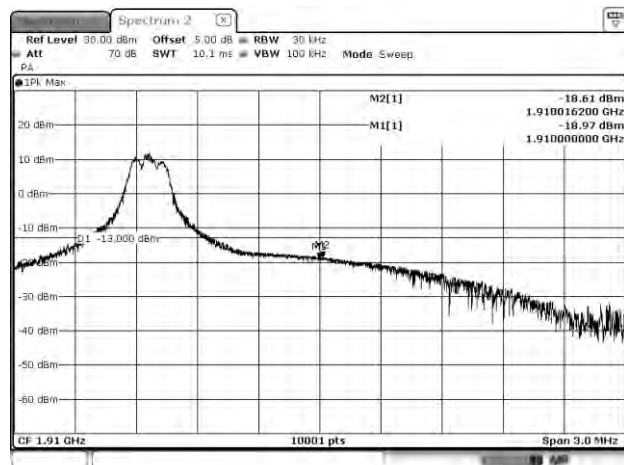
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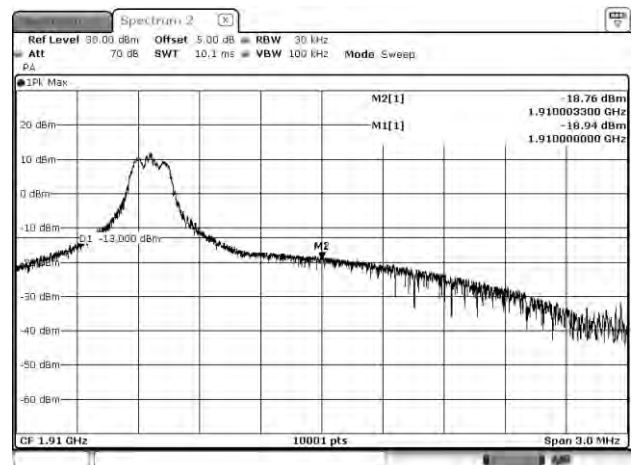
Date: 26 SEP 2018 18:38:08

Cat M1\_Band 2\_ 15M\_CH19125\_QPSK\_1RB0



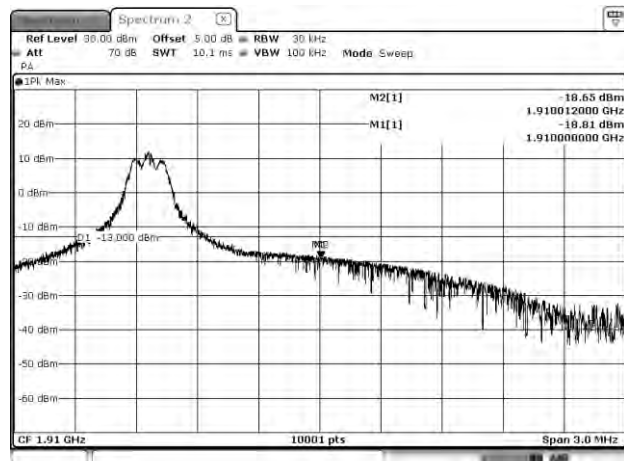
Date: 26 SEP 2018 18:54:13

Cat M1\_Band 2\_ 15M\_CH19125\_16QAM\_1RB5



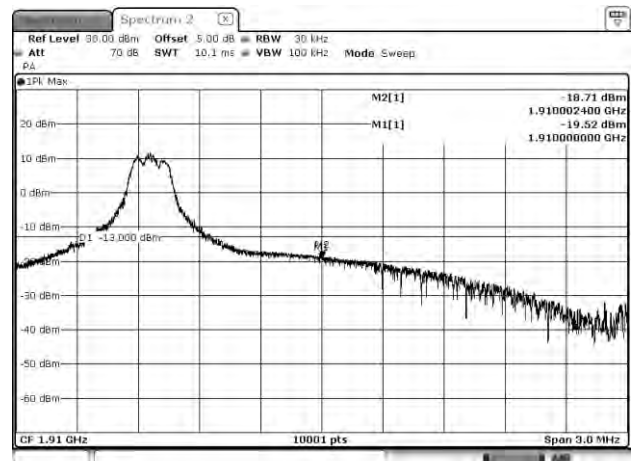
Date: 26 SEP 2018 18:49:30

Cat M1\_Band 2\_ 15M\_CH19125\_QPSK\_6RB0



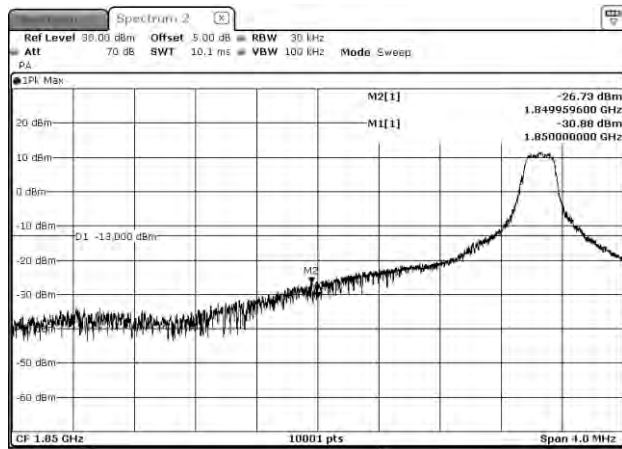
Date: 26 SEP 2018 18:55:33

Cat M1\_Band 2\_ 15M\_CH19125\_16QAM\_5RB1



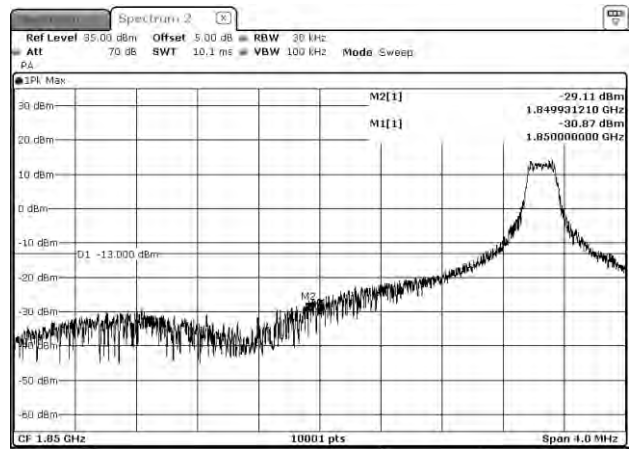
Date: 26 SEP 2018 18:51:29

Cat M1\_Band 2\_20M\_CH18700\_QPSK\_1RB0



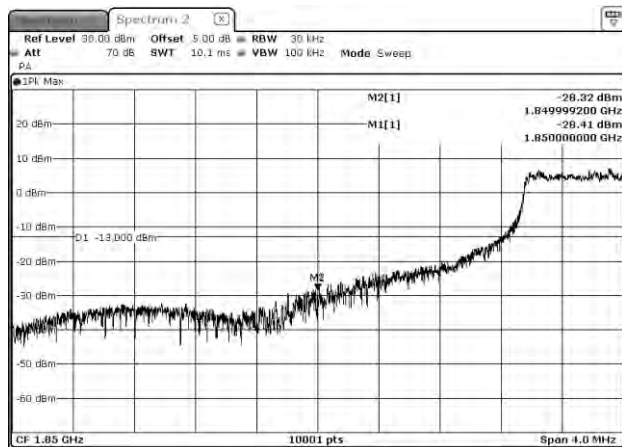
Date: 26 SEP 2016 15:04:04

Cat M1\_Band 2\_20M\_CH18700\_16QAM\_1RB0



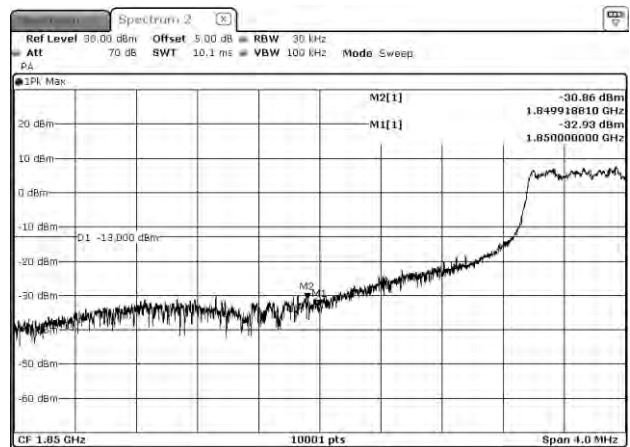
Date: 26 SEP 2016 11:19:21

Cat M1\_Band 2\_20M\_CH18700\_QPSK\_6RB0



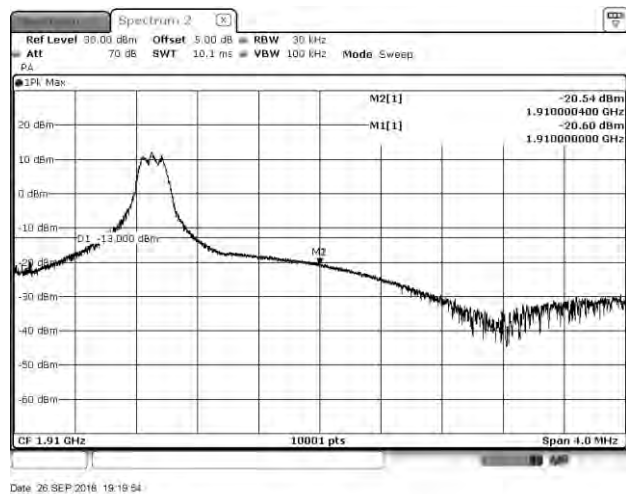
Date: 26 SEP 2016 15:05:44

Cat M1\_Band 2\_20M\_CH18700\_16QAM\_5RB0

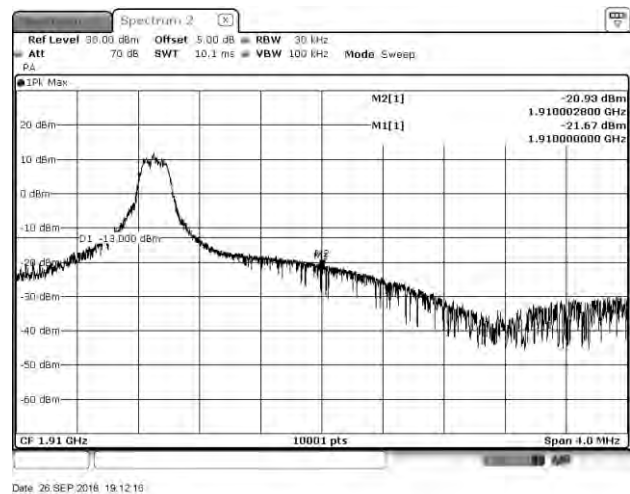


Date: 26 SEP 2016 15:01:19

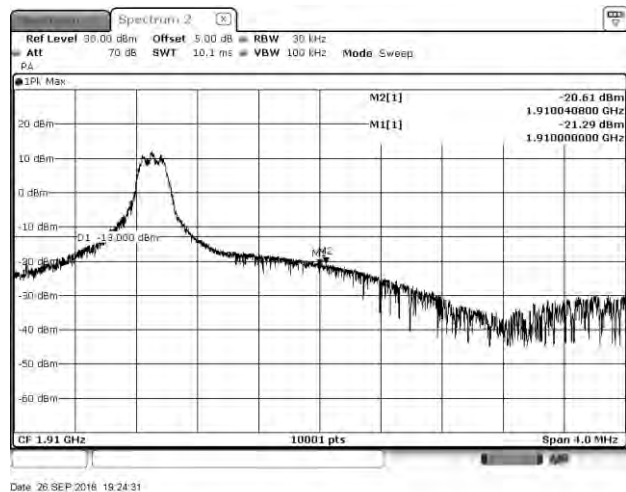
Cat M1\_Band 2\_20M\_CH19100\_QPSK\_1RB0



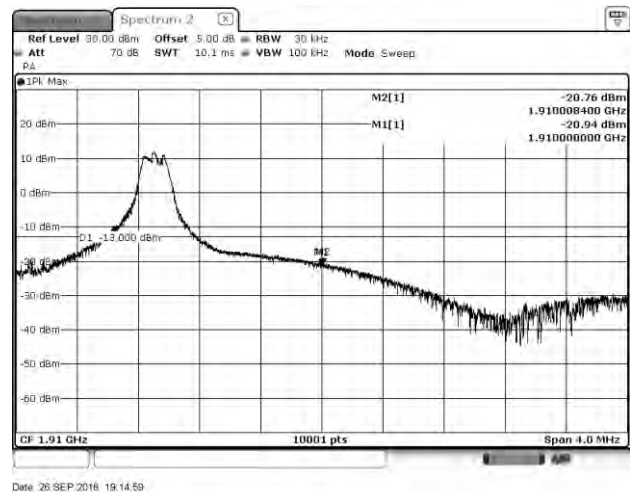
Cat M1\_Band 2\_20M\_CH19100\_16QAM\_1RB5



Cat M1\_Band 2\_20M\_CH19100\_QPSK\_6RB0

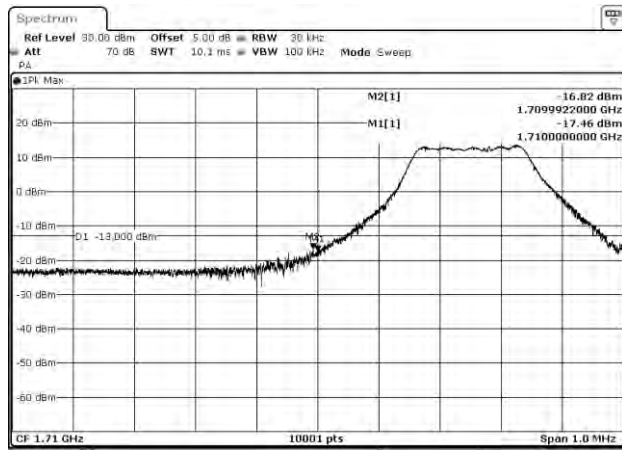


Cat M1\_Band 2\_20M\_CH19100\_16QAM\_5RB1



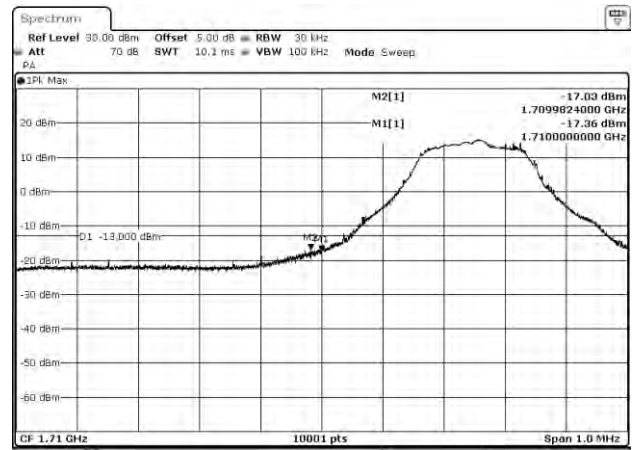
|              |                                         |           |        |
|--------------|-----------------------------------------|-----------|--------|
| Product      | ML865C1-NA                              |           |        |
| Test Item    | Spurious Emissions at Antenna Terminals |           |        |
| Test Mode    | Mode 2: LTE_CAT. M1_Band 4              |           |        |
| Date of Test | 2018/09/26                              | Test Site | SR10-H |

Cat M1\_Band 4\_ 1.4M\_CH19957\_QPSK\_1RB0



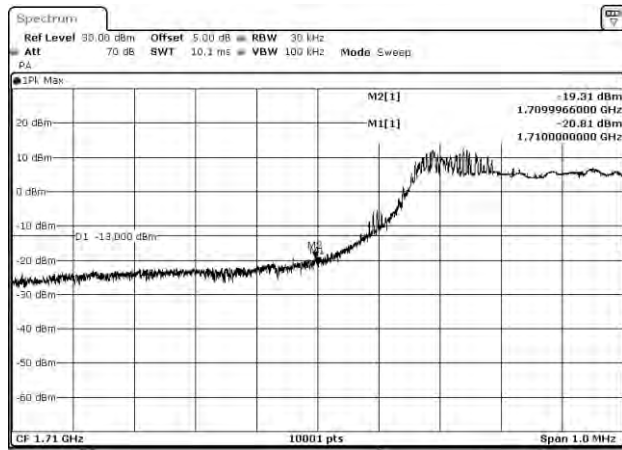
Date: 26 SEP 2018 05:45:19

Cat M1\_Band 4\_ 1.4M\_CH19957\_16QAM\_1RB0



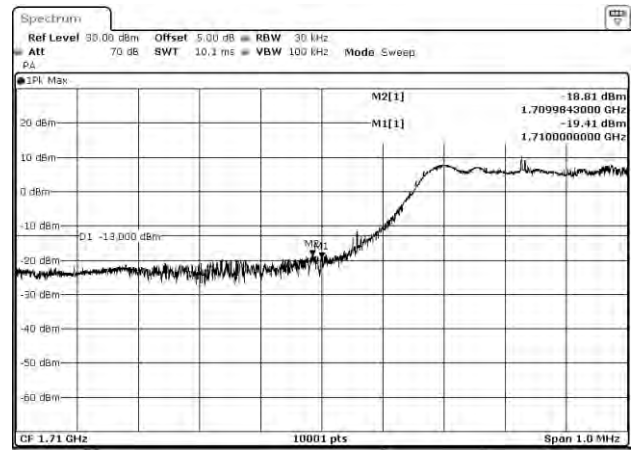
Date: 26 SEP 2018 05:58:45

Cat M1\_Band 4\_ 1.4M\_CH19957\_QPSK\_6RB0



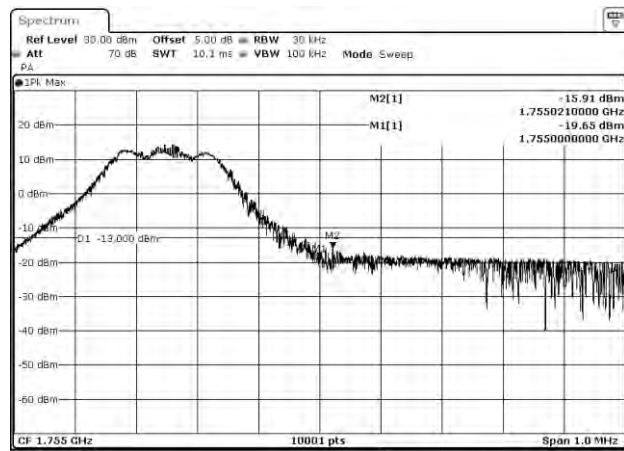
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Cat M1\_Band 4\_ 1.4M\_CH19957\_16QAM\_5RB0

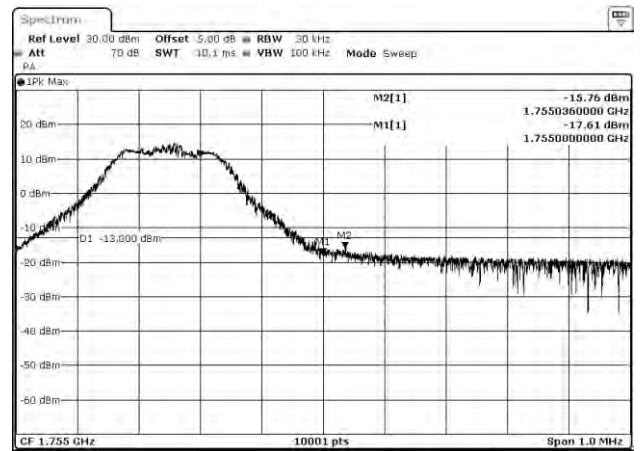


Date: 26 SEP 2018 06:02:49

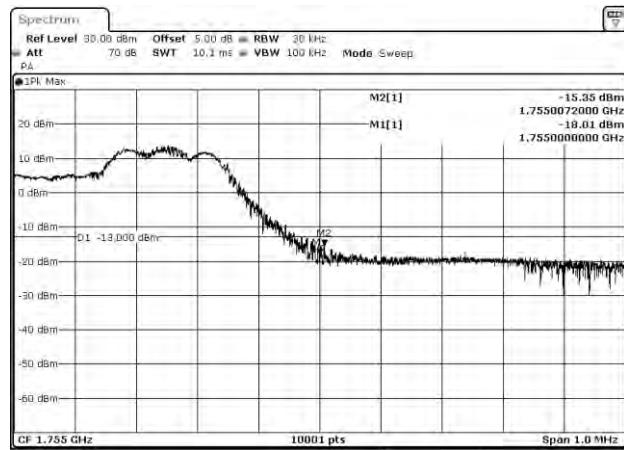
Cat M1\_Band 4\_ 1.4M\_CH20393\_QPSK\_1RB0



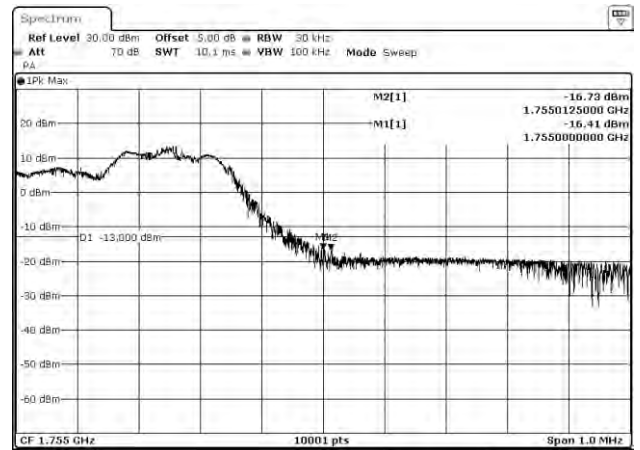
Cat M1\_Band 4\_ 1.4M\_CH20393\_16QAM\_1RB5



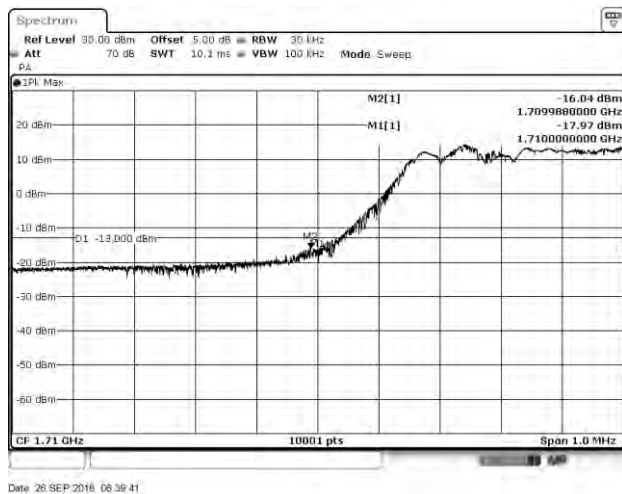
Cat M1\_Band 4\_ 1.4M\_CH20393\_QPSK\_6RB0



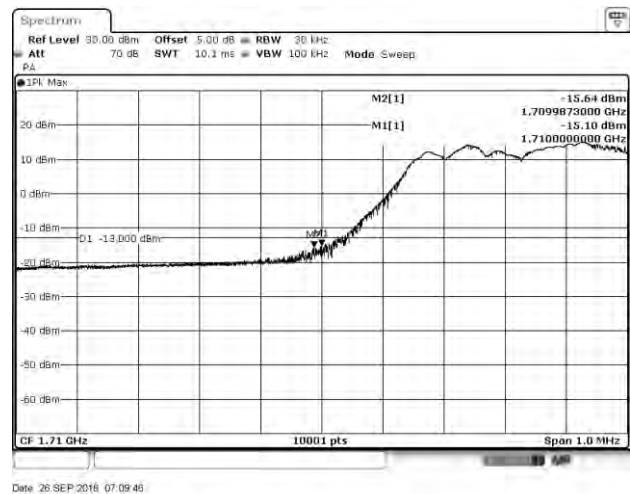
Cat M1\_Band 4\_ 1.4M\_CH20393\_16QAM\_5RB1



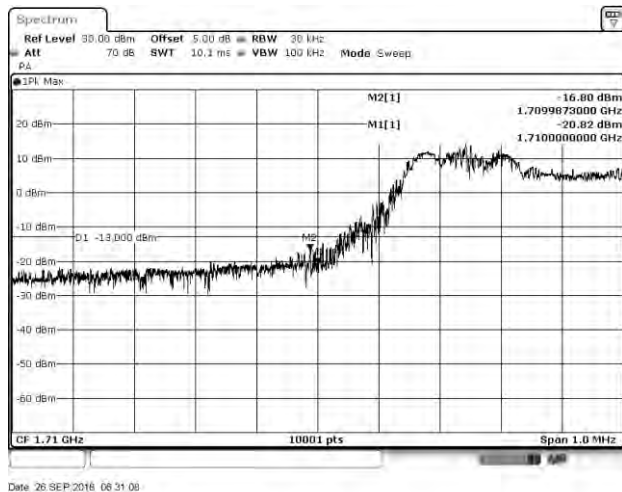
Cat M1\_Band 4\_ 3M\_CH19965\_QPSK\_1RB0



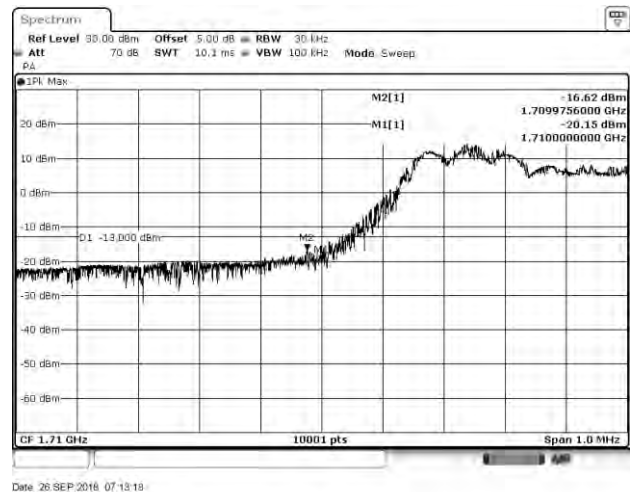
Cat M1\_Band 4\_ 3M\_CH19965\_16QAM\_1RB0



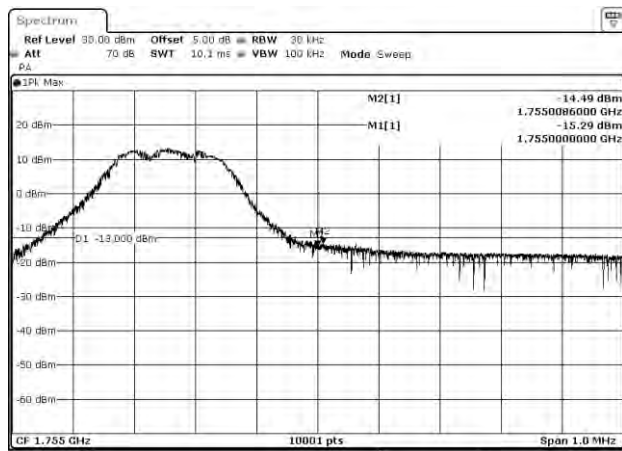
Cat M1\_Band 4\_ 3M\_CH19965\_QPSK\_6RB0



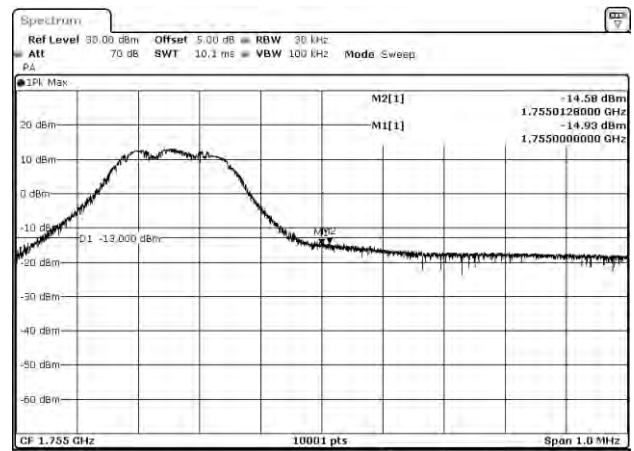
Cat M1\_Band 4\_ 3M\_CH19965\_16QAM\_5RB0



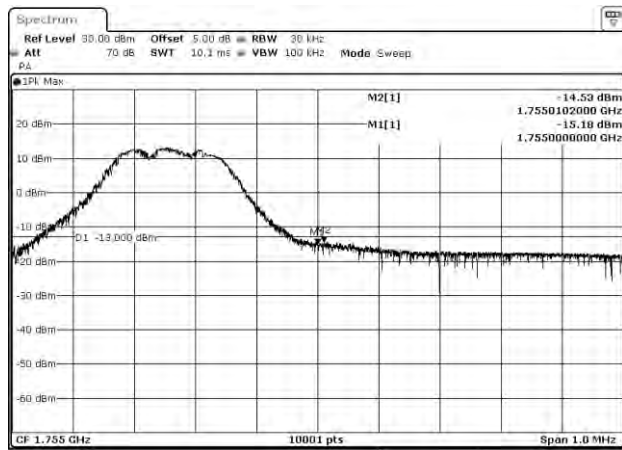
Cat M1\_Band 4\_ 3M\_CH20385\_QPSK\_1RB0



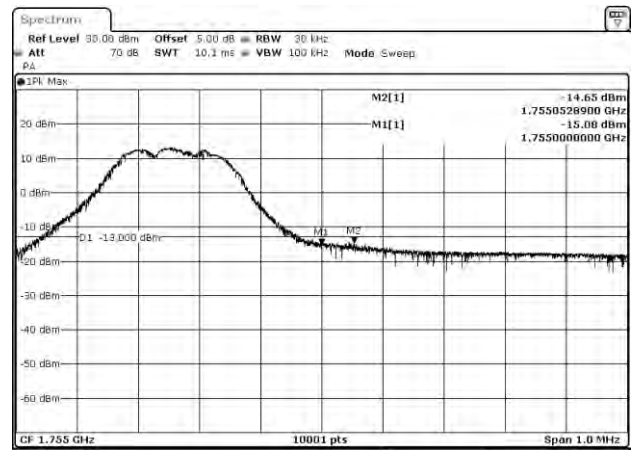
Cat M1\_Band 4\_ 3M\_CH20385\_16QAM\_1RB5



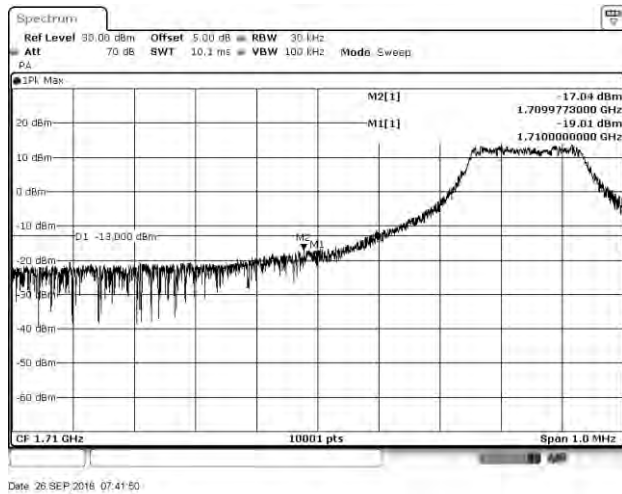
Cat M1\_Band 4\_ 3M\_CH20385\_QPSK\_6RB0



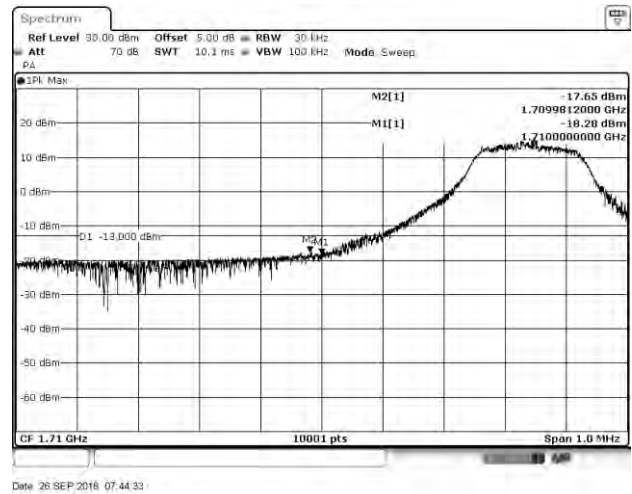
Cat M1\_Band 4\_ 3M\_CH20385\_16QAM\_5RB1



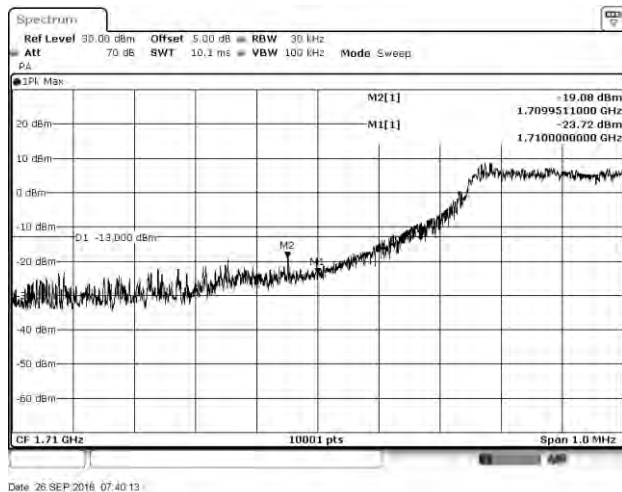
Cat M1\_Band 4\_5M\_CH19975\_QPSK\_1RB0



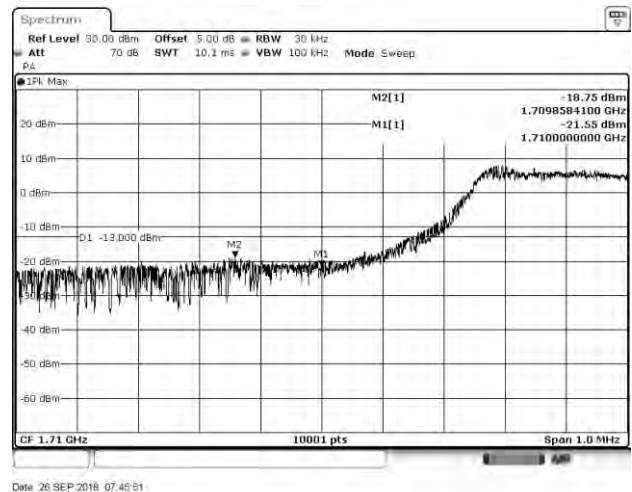
Cat M1\_Band 4\_5M\_CH19975\_16QAM\_1RB0



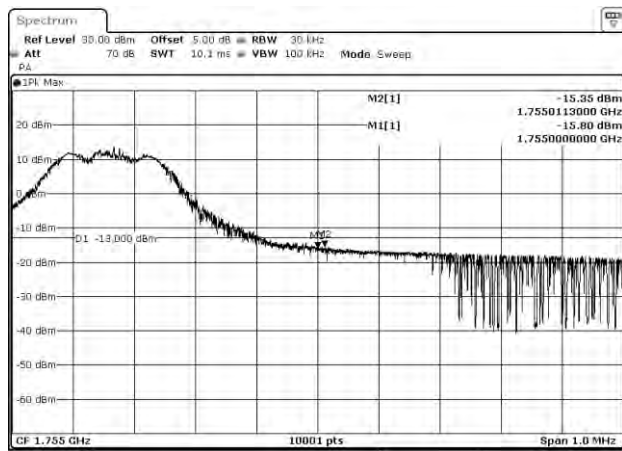
Cat M1\_Band 4\_5M\_CH19975\_QPSK\_6RB0



Cat M1\_Band 4\_5M\_CH19975\_16QAM\_5RB0

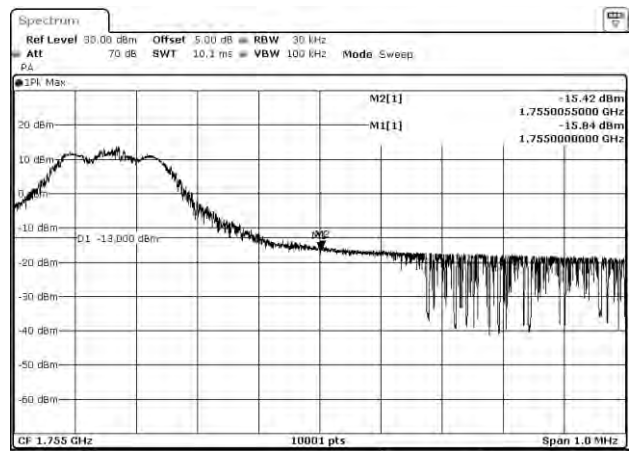


Cat M1\_Band 4\_5M\_CH20375\_QPSK\_1RB0



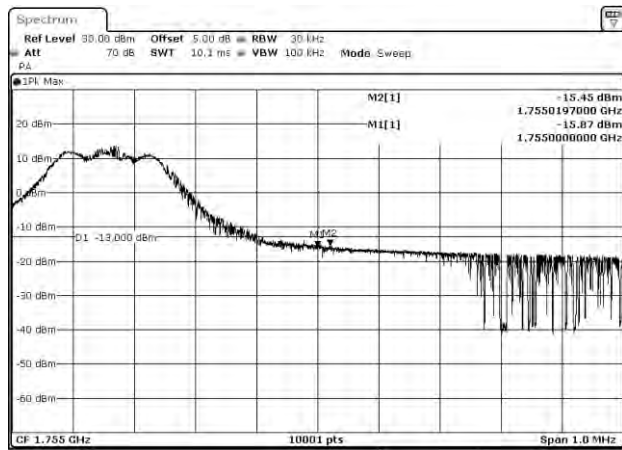
Date: 26 SEP 2016 07:52:49

Cat M1\_Band 4\_CH20375\_16QAM\_1RB5



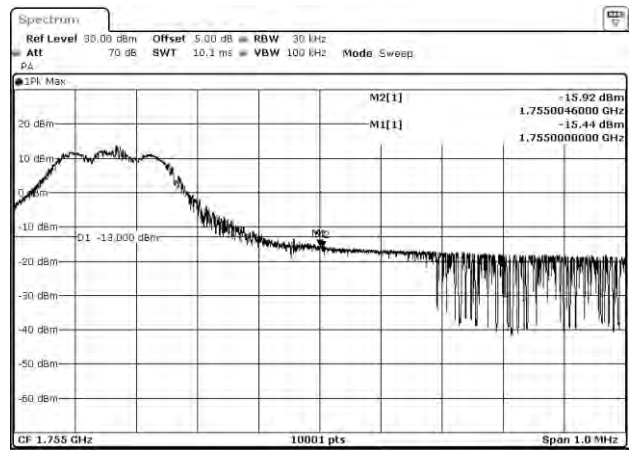
Date: 26 SEP 2016 07:54:20

Cat M1\_Band 4\_5M\_CH20375\_QPSK\_6RB0



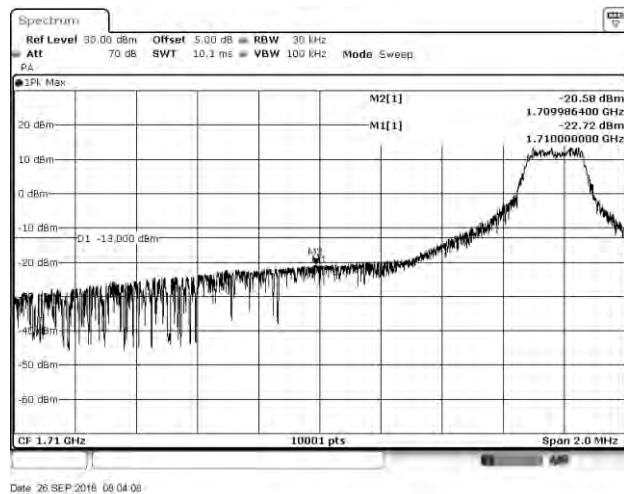
Date: 26 SEP 2016 07:51:14

Cat M1\_Band 4\_CH20375\_16QAM\_5RB1

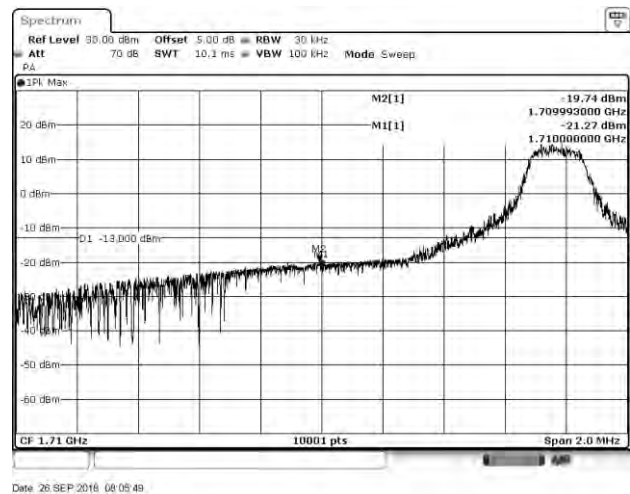


Date: 26 SEP 2016 07:55:40

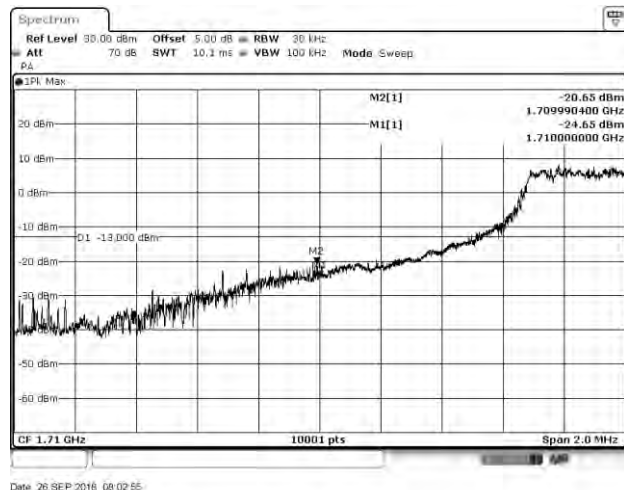
Cat M1\_Band 4\_ 10M\_CH20000\_QPSK\_1RB0



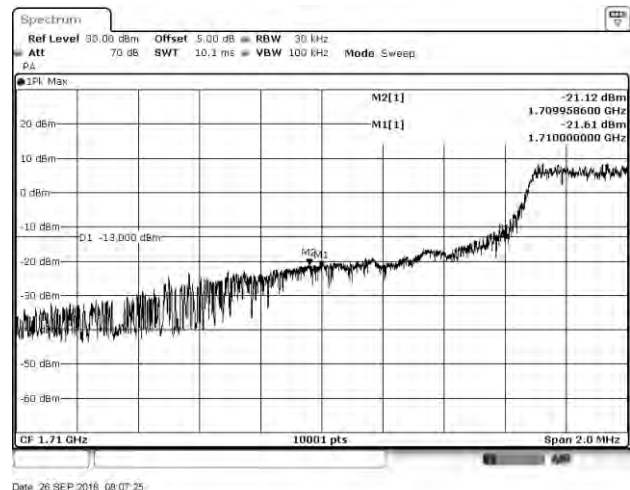
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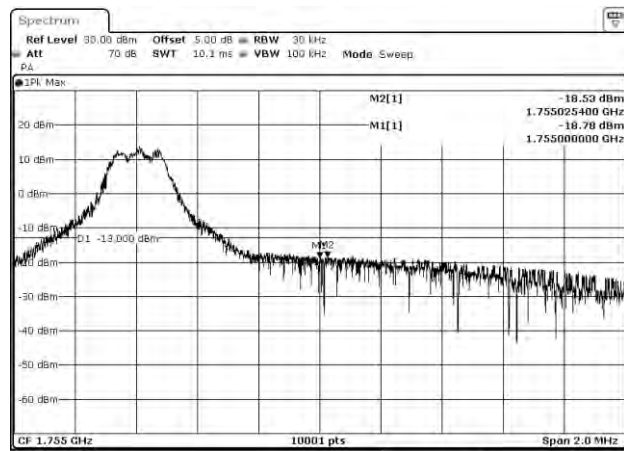
Cat M1\_Band 4\_ 10M\_CH20000\_QPSK\_6RB0



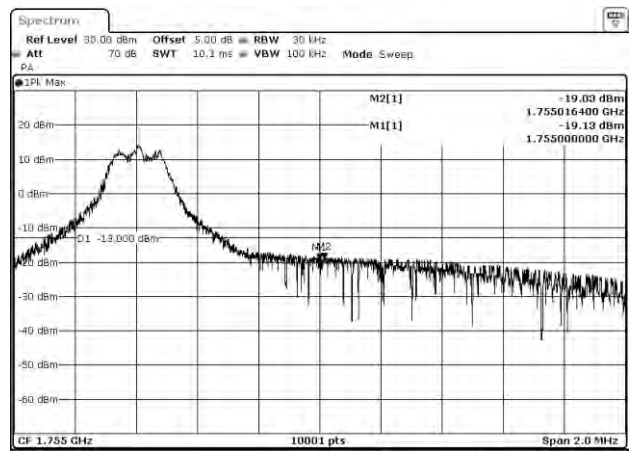
Cat M1\_Band 4\_ 10M\_CH20000\_16QAM\_5RB0



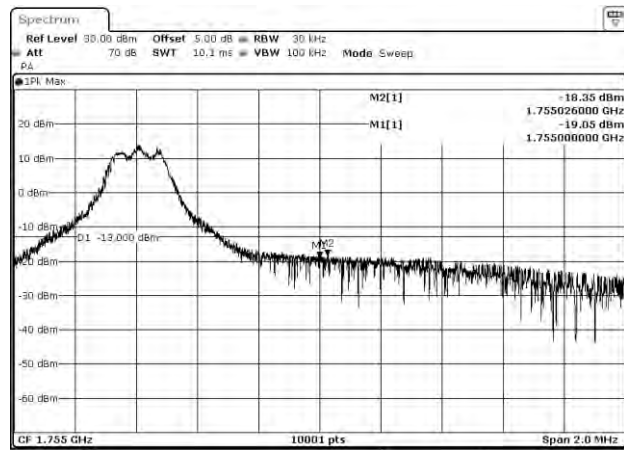
Cat M1\_Band 4\_ 10M\_CH20350\_QPSK\_1RB0



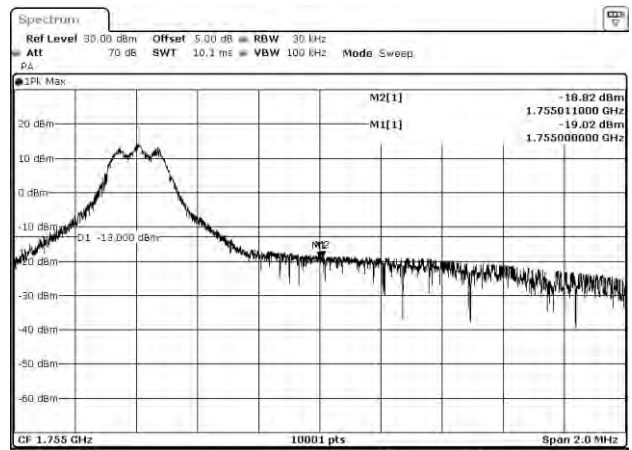
Cat M1\_Band 4\_ 10M\_CH20350\_16QAM\_1RB5



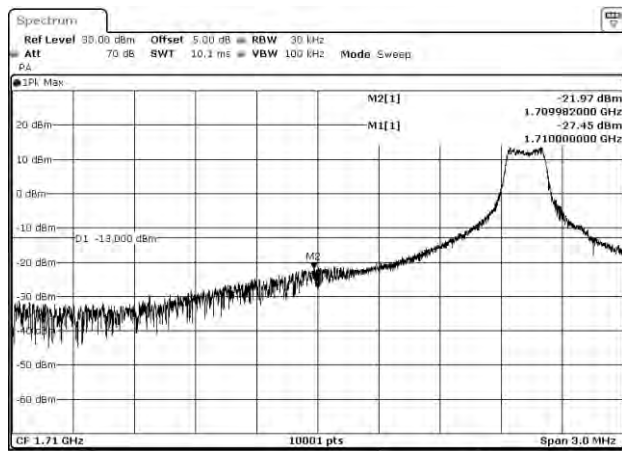
Cat M1\_Band 4\_ 10M\_CH20350\_QPSK\_6RB0



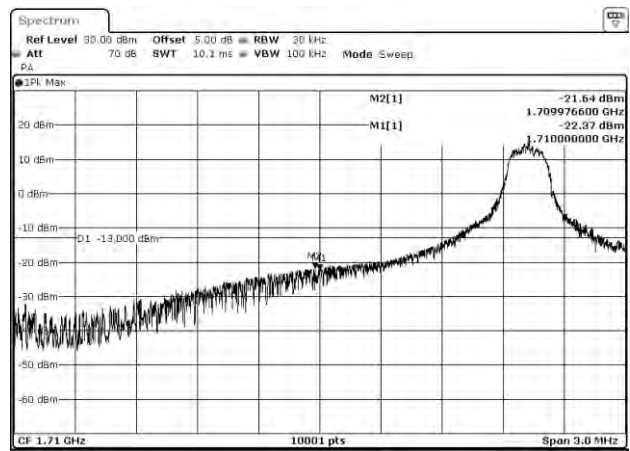
Cat M1\_Band 4\_ 10M\_CH20350\_16QAM\_5RB1



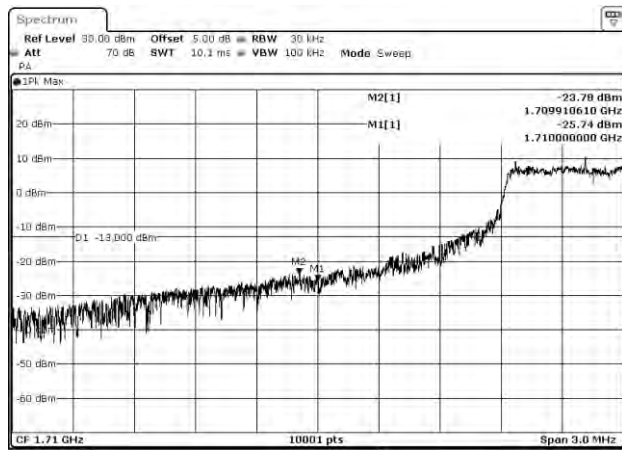
Cat M1\_Band 4\_ 15M\_CH20025\_QPSK\_1RB0



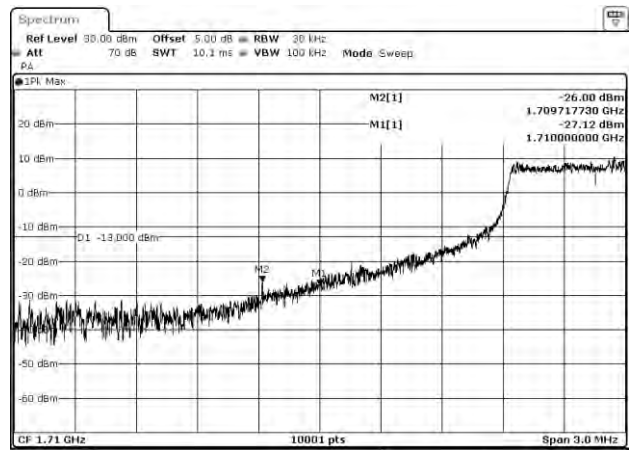
Cat M1\_Band 4\_ 15M\_CH20025\_16QAM\_1RB0



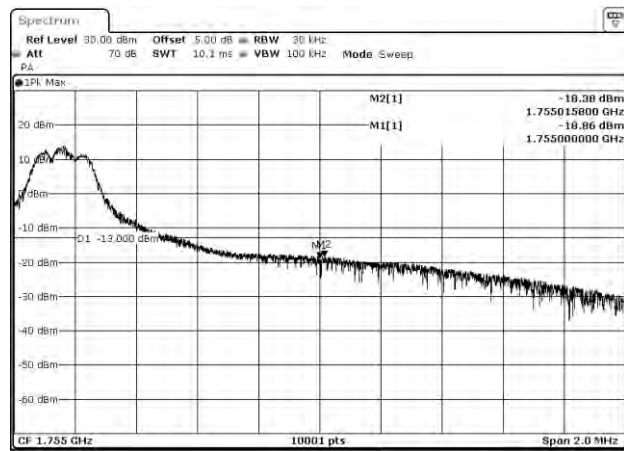
Cat M1\_Band 4\_ 5M\_CH20025\_QPSK\_6RB0



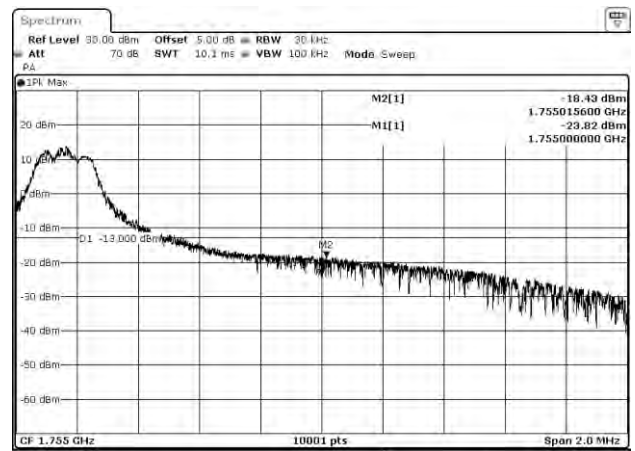
Cat M1\_Band 4\_ 15M\_CH20025\_16QAM\_5RB0



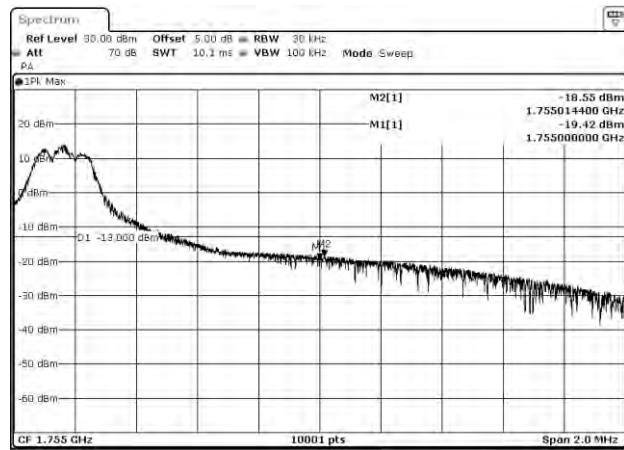
Cat M1\_Band 4\_ 15M\_CH20325\_QPSK\_1RB0



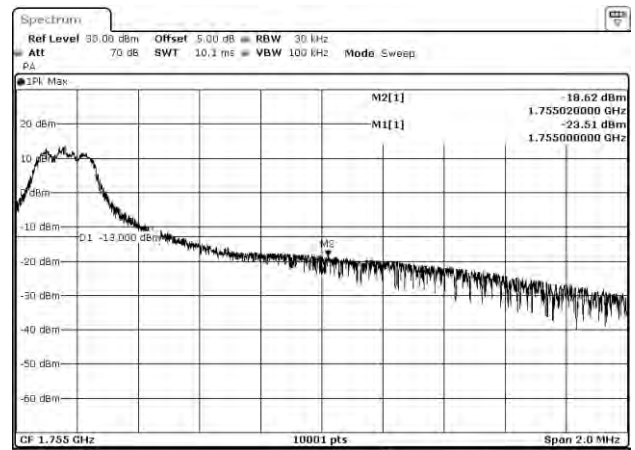
Cat M1\_Band 4\_ 15M\_CH20325\_16QAM\_1RB5



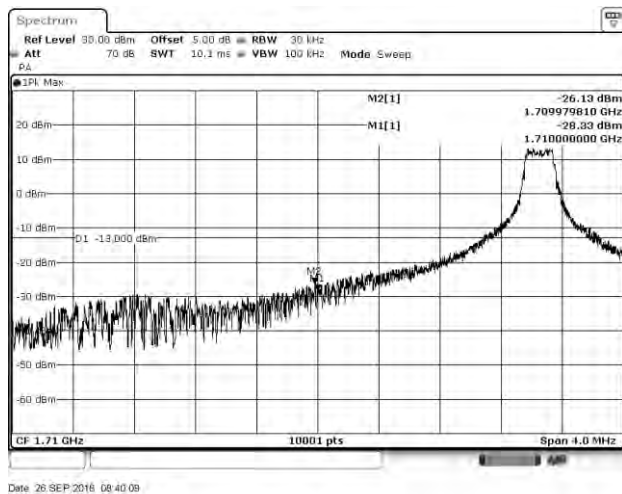
Cat M1\_Band 4\_ 15M\_CH20325\_QPSK\_6RB0



Cat M1\_Band 4\_ 15M\_CH20325\_16QAM\_5RB1

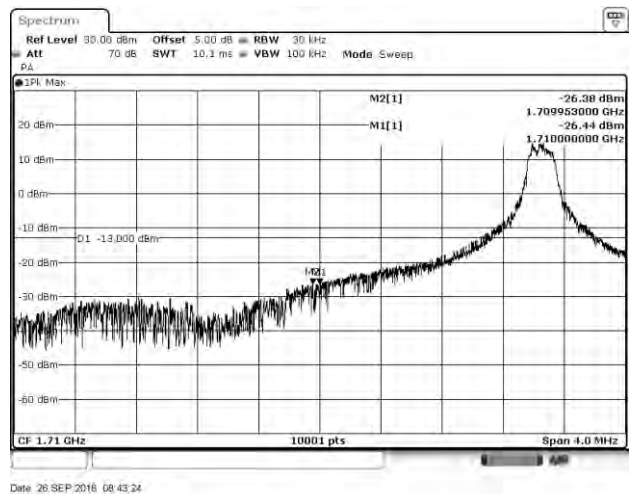


Cat M1\_Band 4\_20M\_CH20025\_QPSK\_1RB0



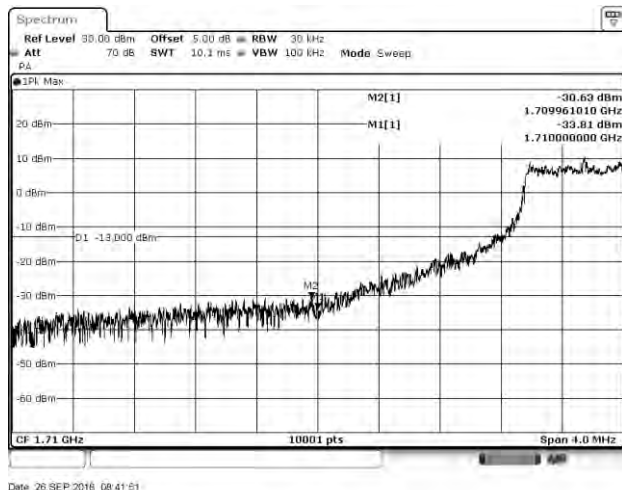
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Cat M1\_Band 4\_20M\_CH20050\_16QAM\_1RB0



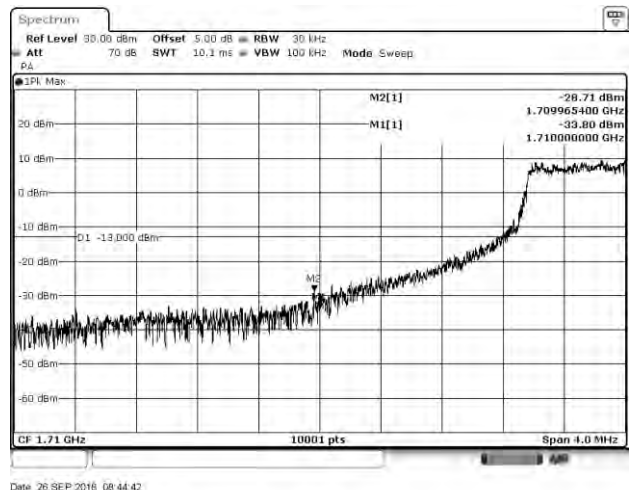
Date: 26 SEP 2016 08:43:24

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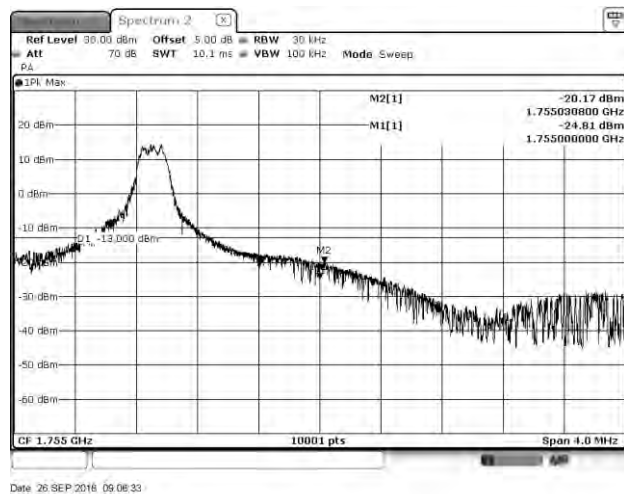
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Cat M1\_Band 4\_20M\_CH20050\_16QAM\_5RB0

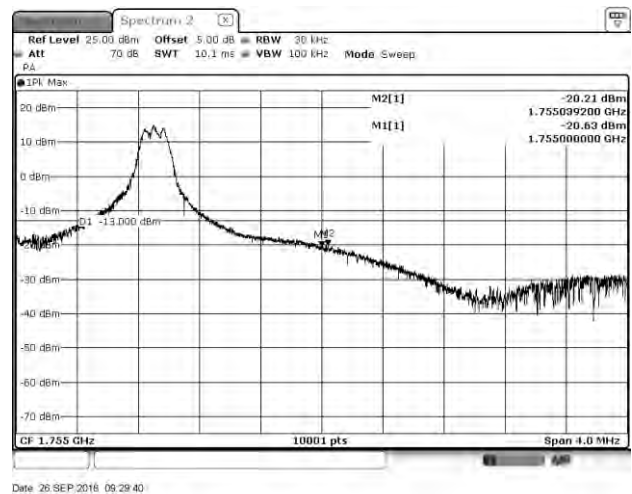


Date: 26 SEP 2016 08:44:42

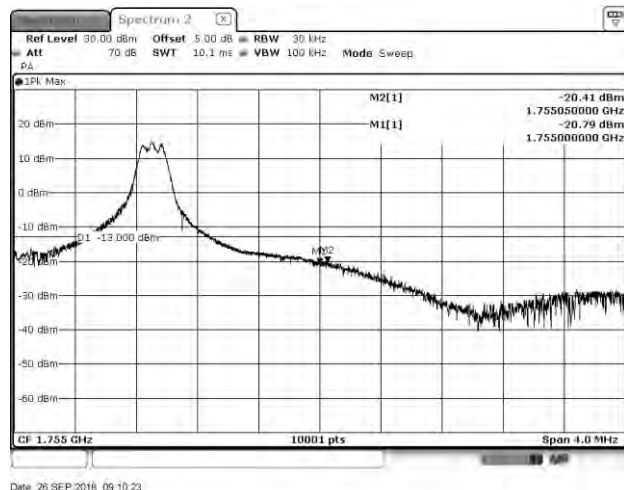
Cat M1\_Band 4\_20M\_CH20300\_QPSK\_1RB0



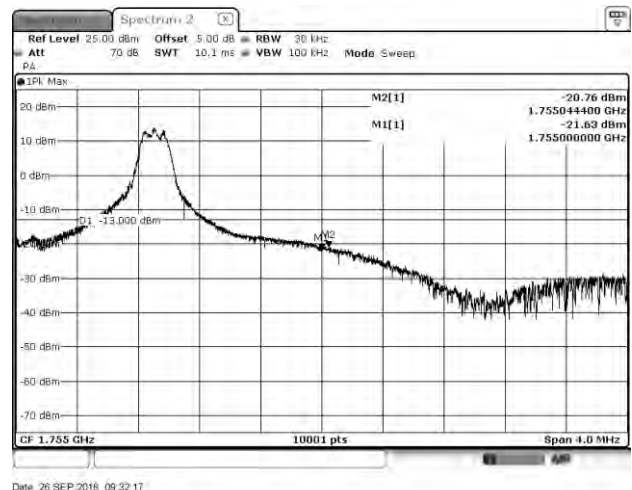
Cat M1\_Band 4\_20M\_CH20300\_16QAM\_1RB5



Cat M1\_Band 4\_20M\_CH20300\_QPSK\_6RB0

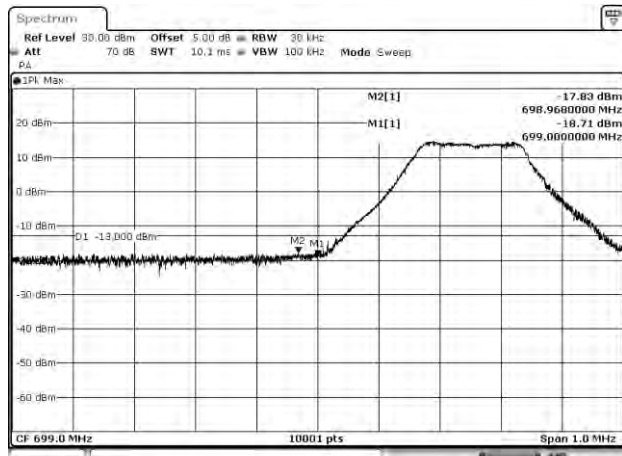


Cat M1\_Band 4\_20M\_CH20300\_16QAM\_5RB1



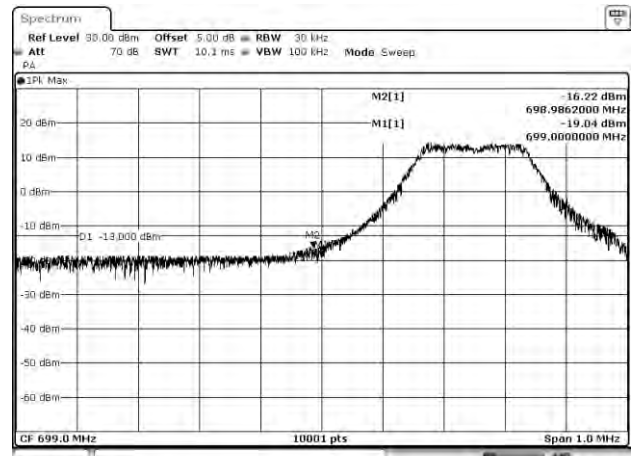
|              |                                         |           |        |
|--------------|-----------------------------------------|-----------|--------|
| Product      | ML865C1-NA                              |           |        |
| Test Item    | Spurious Emissions at Antenna Terminals |           |        |
| Test Mode    | Mode 3: LTE_CAT. M1_Band 12             |           |        |
| Date of Test | 2018/09/26                              | Test Site | SR10-H |

Cat M1\_Band 12\_ 1.4M\_CH23017\_QPSK\_1RB0



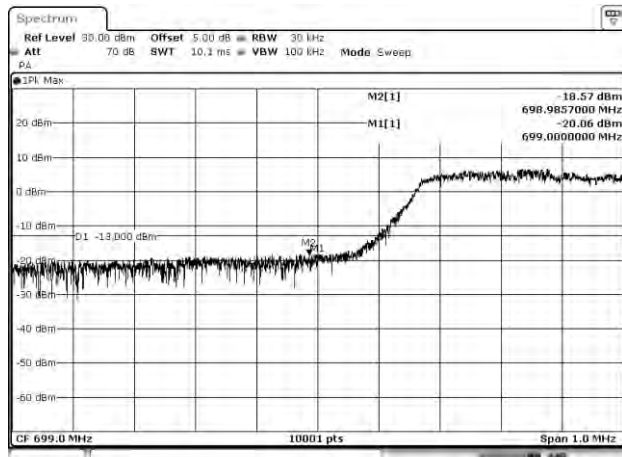
Date 26 SEP 2018 02:13:03

Cat M1\_Band 12\_ 1.4M\_CH23017\_16QAM\_1RB0



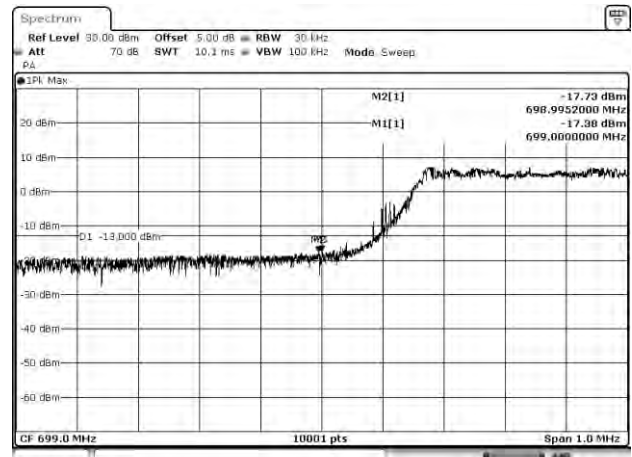
Date 26 SEP 2018 02:32:25

Cat M1\_Band 12\_ 1.4M\_CH23017\_QPSK\_6RB0



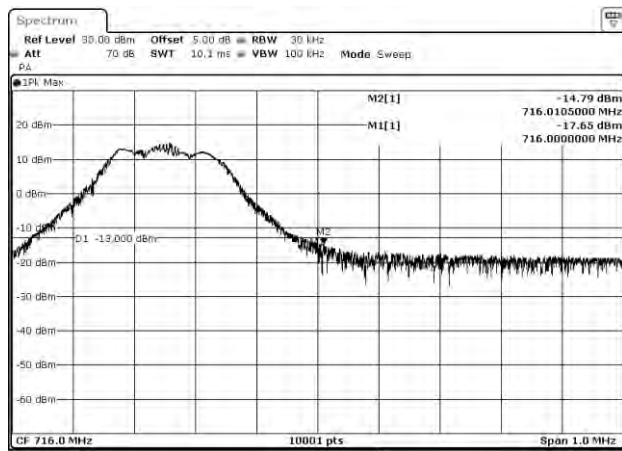
Date 26 SEP 2018 02:19:10

Cat M1\_Band 12\_ 1.4M\_CH23017\_16QAM\_5RB0



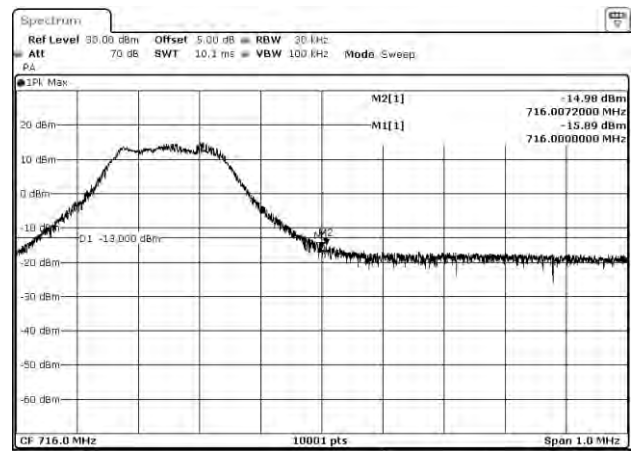
Date 26 SEP 2018 02:34:12

Cat M1\_Band 12\_ 1.4M\_CH23173\_QPSK\_1RB0



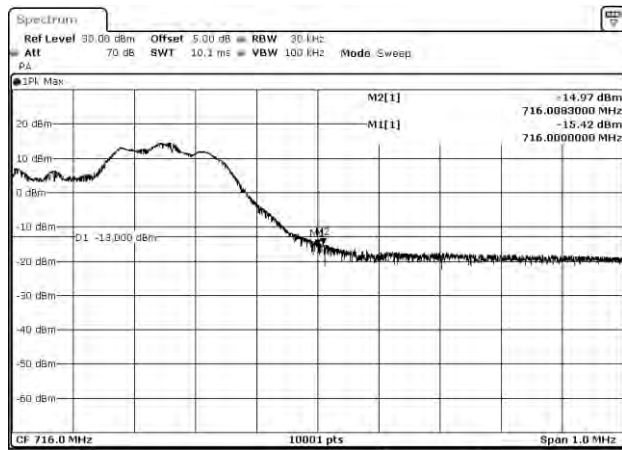
Date: 26 SEP 2016 02:43:01

Cat M1\_Band 12\_ 1.4M\_CH23173\_16QAM\_1RB5



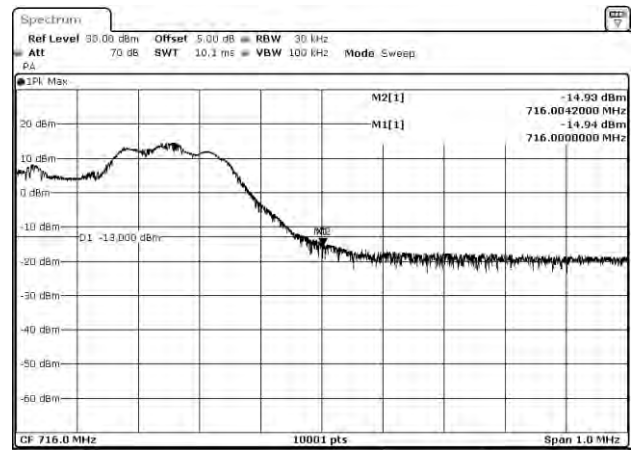
Date: 26 SEP 2016 02:45:28

Cat M1\_Band 12\_ 1.4M\_CH23173\_QPSK\_6RB0



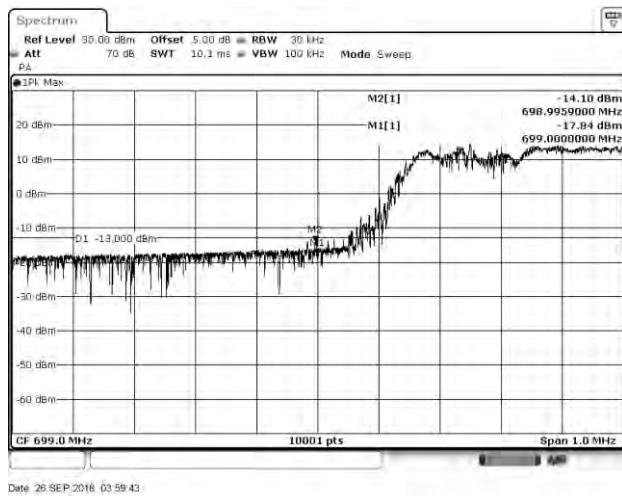
Date: 26 SEP 2016 02:40:52

Cat M1\_Band 12\_ 1.4M\_CH23173\_16QAM\_5RB1

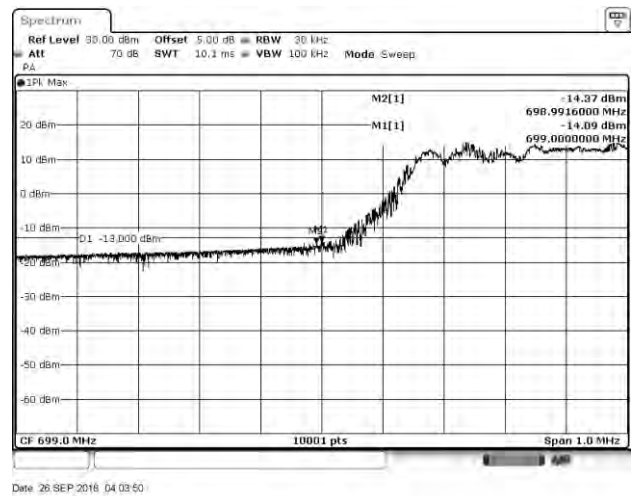


Date: 26 SEP 2016 02:58:30

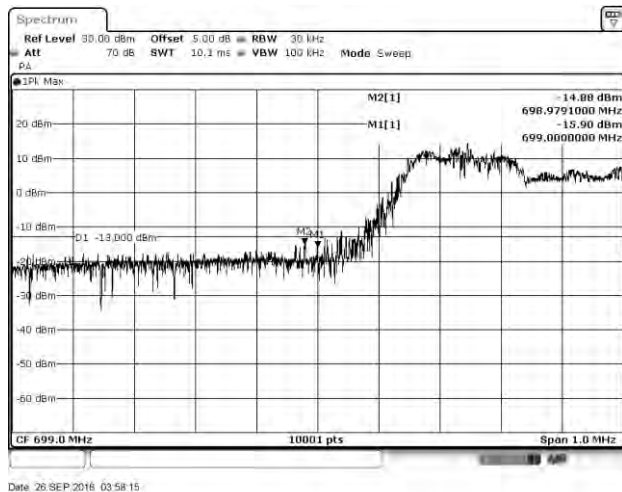
Cat M1\_Band 12\_ 3M\_CH23025\_QPSK\_1RB0



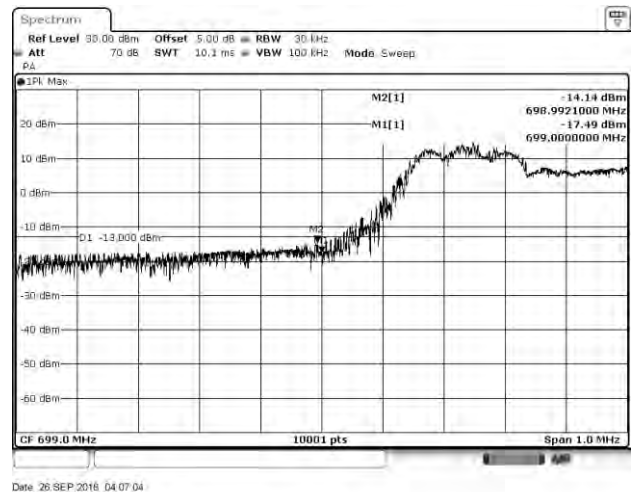
Cat M1\_Band 12\_ 3M\_CH23025\_16QAM\_1RB0



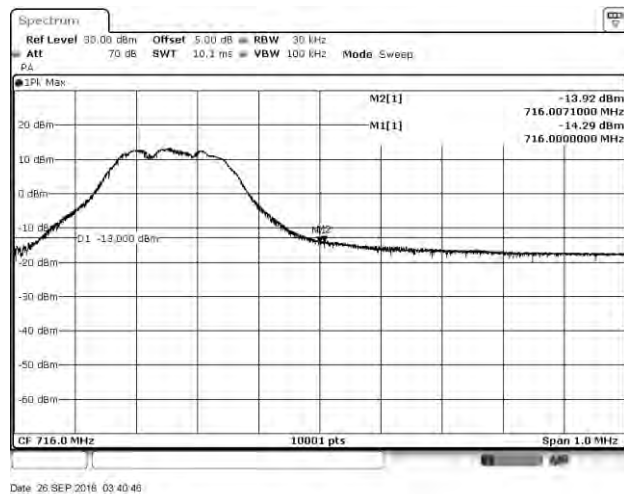
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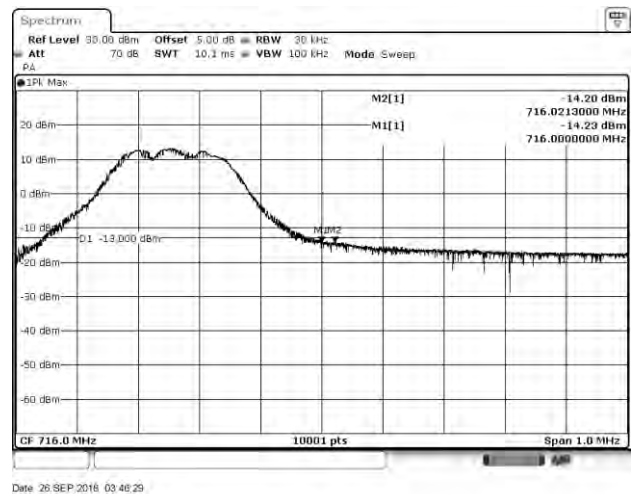
Cat M1\_Band 12\_ 3M\_CH23025\_16QAM\_5RB0



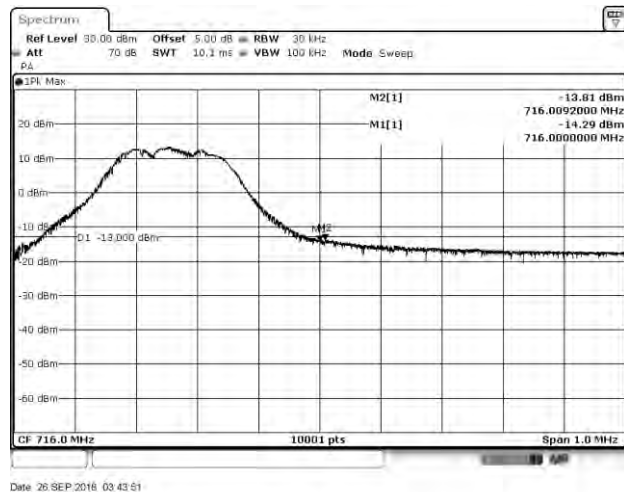
Cat M1\_Band 12\_ 3M\_CH23165\_QPSK\_1RB0



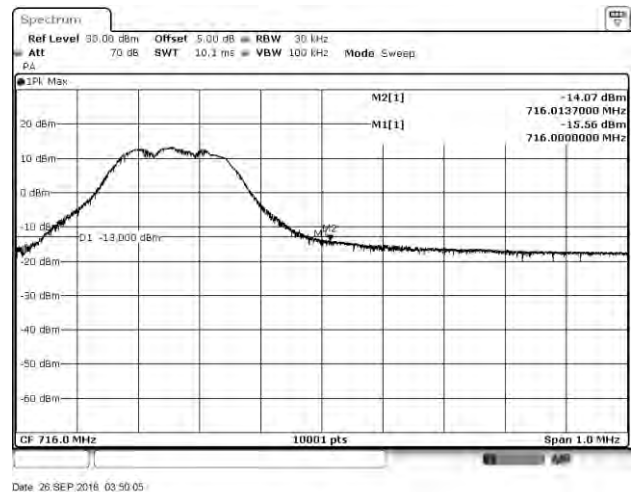
Cat M1\_Band 12\_ 3M\_CH23165\_16QAM\_1RB5



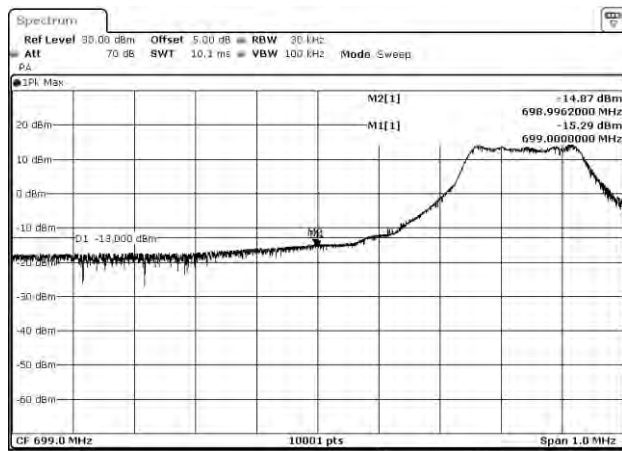
Cat M1\_Band 12\_ 3M\_CH23165\_QPSK\_6RB0



Cat M1\_Band 12\_ 3M\_CH23165\_16QAM\_5RB1

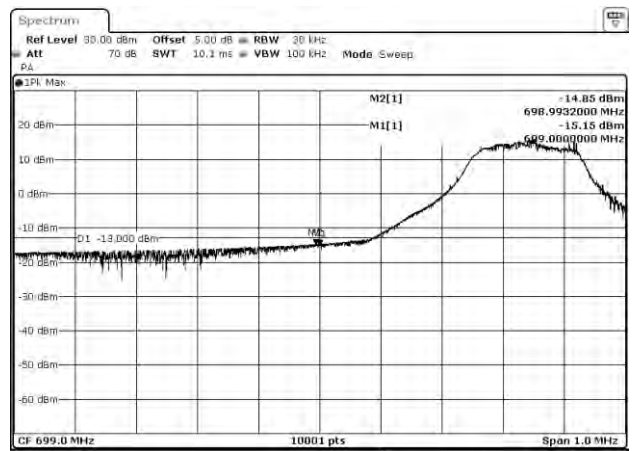


Cat M1\_Band 12\_ 5M\_CH23035\_QPSK\_1RB0



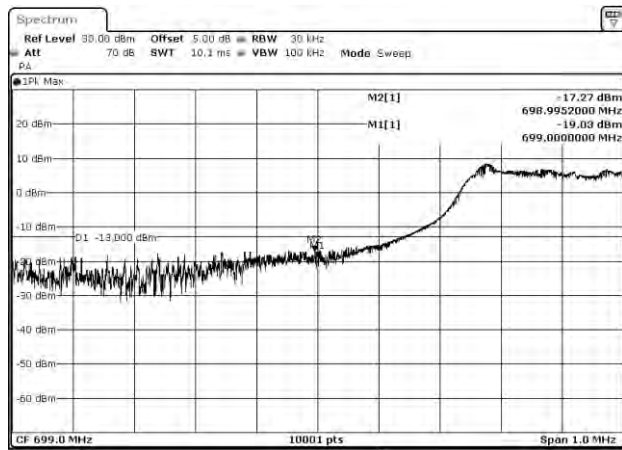
Date: 26 SEP 2016 04:18:29

Cat M1\_Band 12\_ 5M\_CH23035\_16QAM\_1RB0



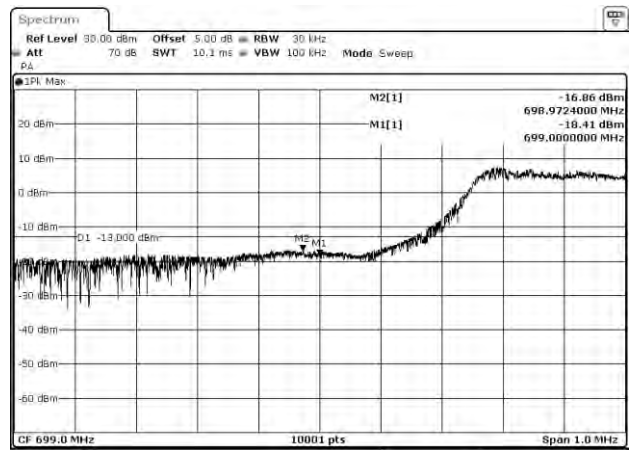
Date: 26 SEP 2016 04:24:03

Cat M1\_Band 12\_ 5M\_CH23035\_QPSK\_6RB0



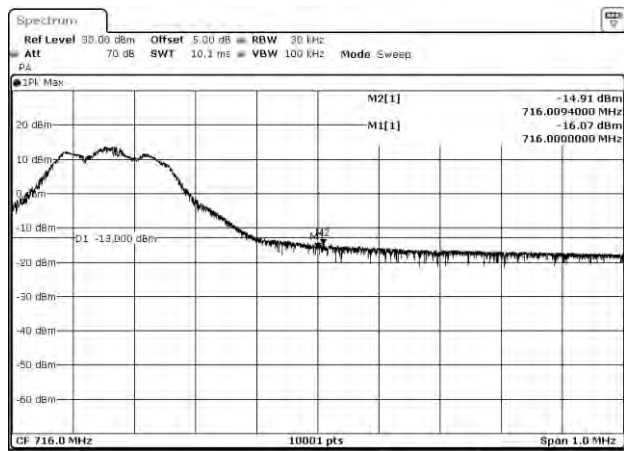
Date: 26 SEP 2016 04:12:59

Cat M1\_Band 12\_ 5M\_CH23035\_16QAM\_5RB0



Date: 26 SEP 2016 04:26:51

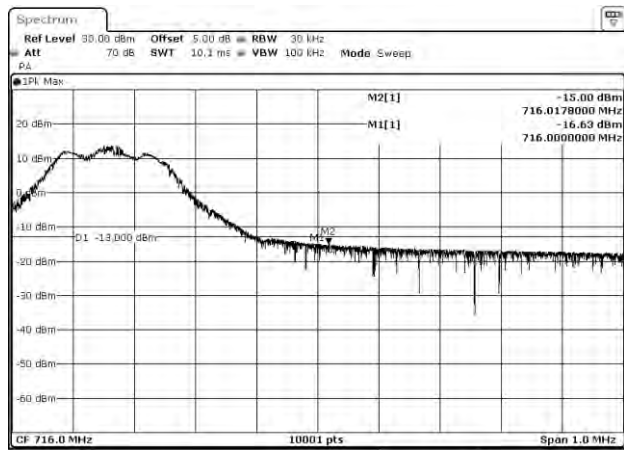
Cat M1\_Band 12\_ 5M\_CH23155\_QPSK\_1RB0



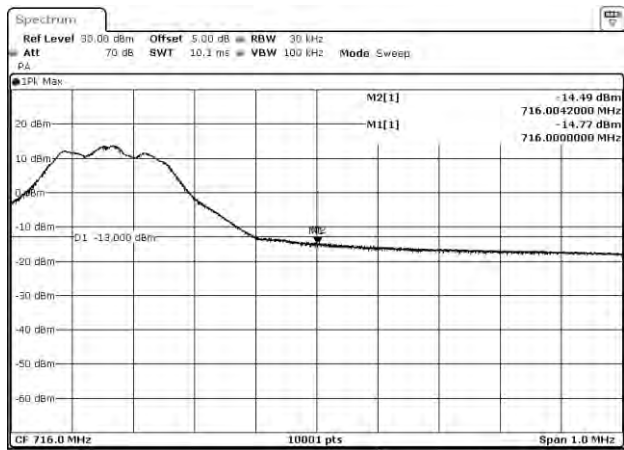
Cat M1\_Band 12\_ 5M\_CH23155\_16QAM\_1RB5



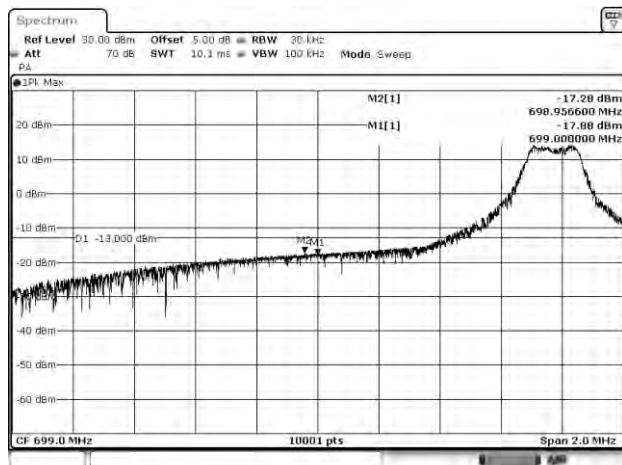
Cat M1\_Band 12\_ 5M\_CH23155\_QPSK\_6RB0



Cat M1\_Band 12\_ 5M\_CH23155\_16QAM\_5RB1

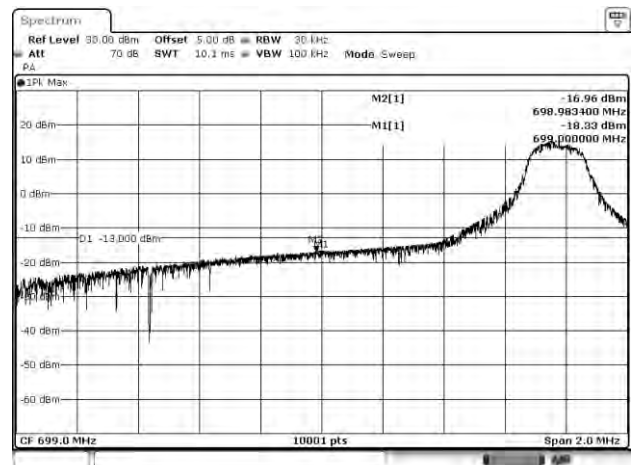


Cat M1\_Band 12\_ 10M\_CH23060\_QPSK\_1RB0



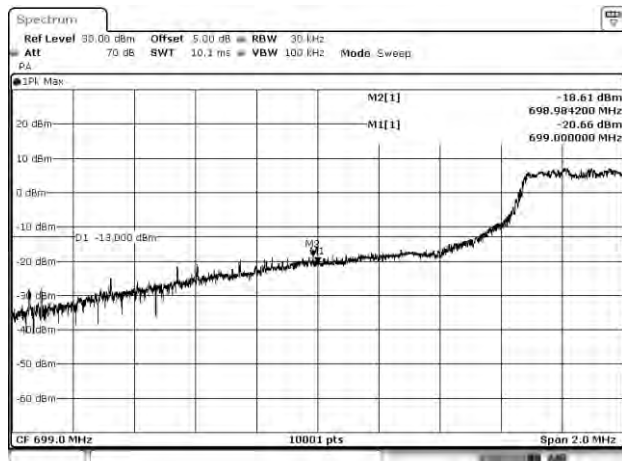
Date: 26 SEP 2016 05:17:10

Cat M1\_Band 12\_ 10M\_CH23060\_16QAM\_1RB0



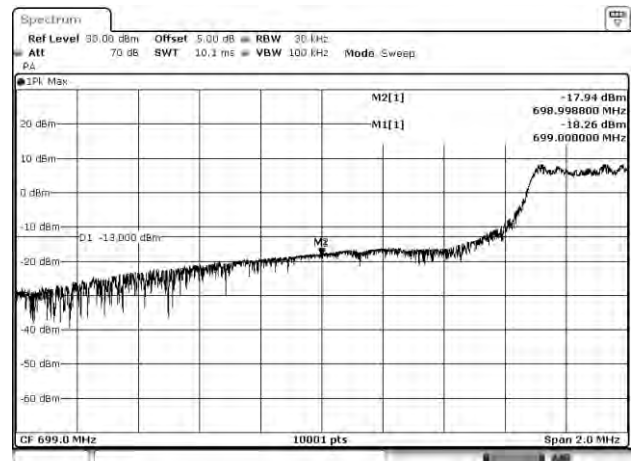
Date: 26 SEP 2016 05:23:30

Cat M1\_Band 12\_ 10M\_CH23060\_QPSK\_6RB0



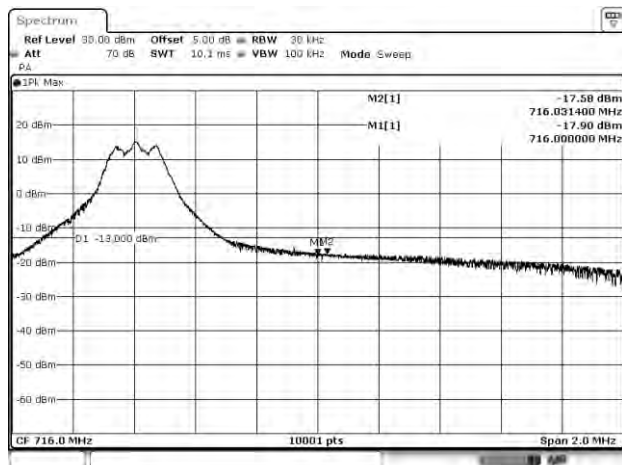
Date: 26 SEP 2016 05:21:07

Cat M1\_Band 12\_ 10M\_CH23060\_16QAM\_5RB0

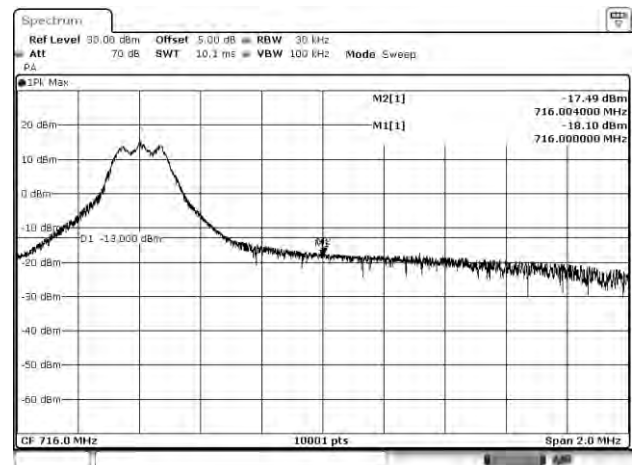


Date: 26 SEP 2016 05:26:47

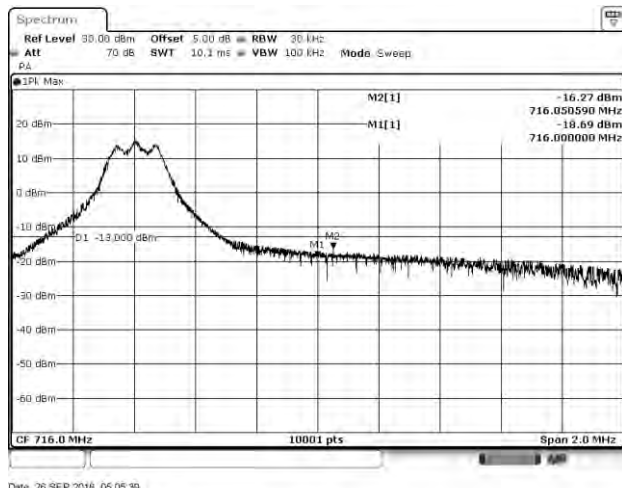
Cat M1\_Band 12\_ 10M\_CH23130\_QPSK\_1RB0



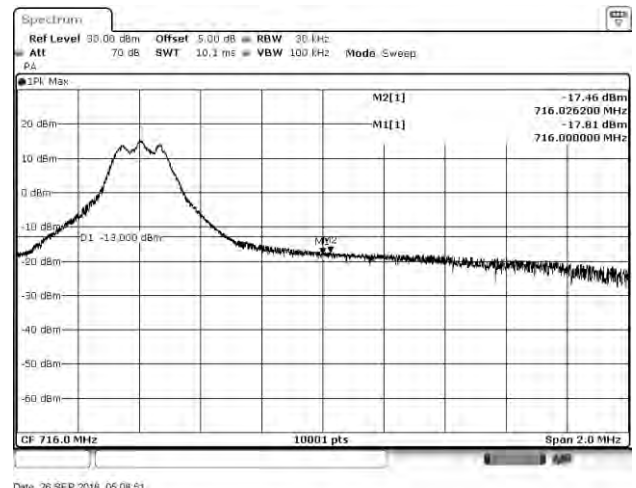
Cat M1\_Band 12\_ 10M\_CH23130\_16QAM\_1RB5



Cat M1\_Band 12\_ 10M\_CH23130\_QPSK\_6RB0

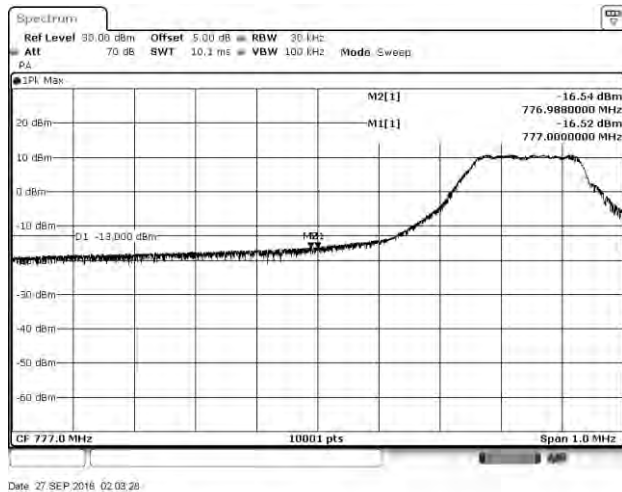


Cat M1\_Band 12\_ 10M\_CH23130\_16QAM\_5RB1

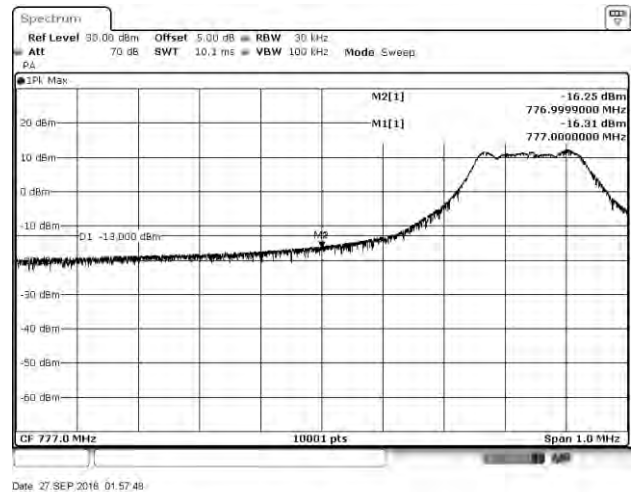


|              |                                         |           |        |
|--------------|-----------------------------------------|-----------|--------|
| Product      | ML865C1-NA                              |           |        |
| Test Item    | Spurious Emissions at Antenna Terminals |           |        |
| Test Mode    | Mode 4: LTE_CAT. M1_Band 13             |           |        |
| Date of Test | 2018/09/27                              | Test Site | SR10-H |

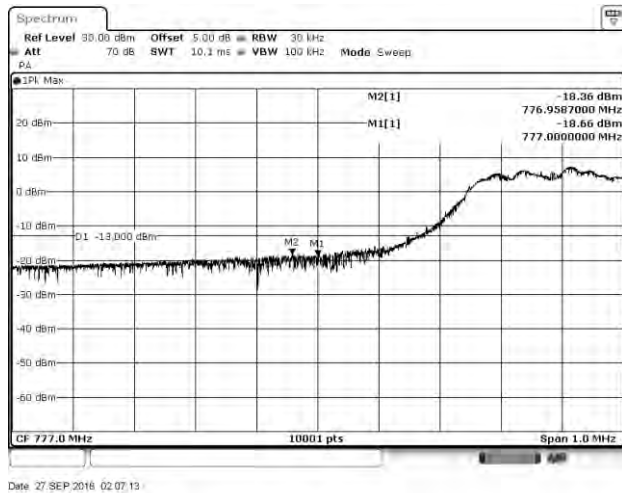
Cat M1\_Band 13\_ 5M\_CH23205\_QPSK\_1RB0



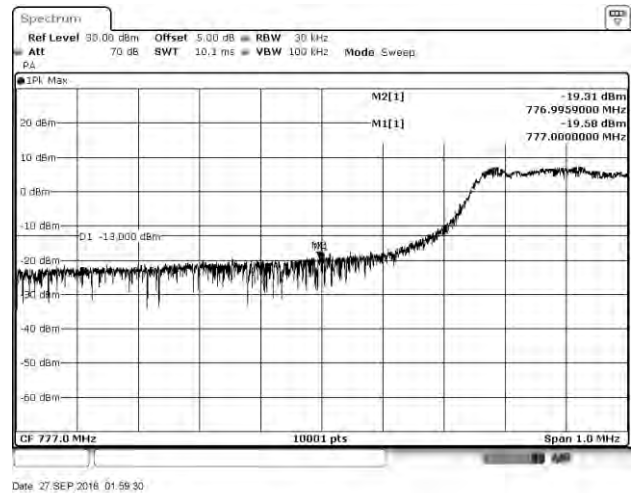
Cat M1\_Band 13\_ 5M\_CH23205\_16QAM\_1RB0



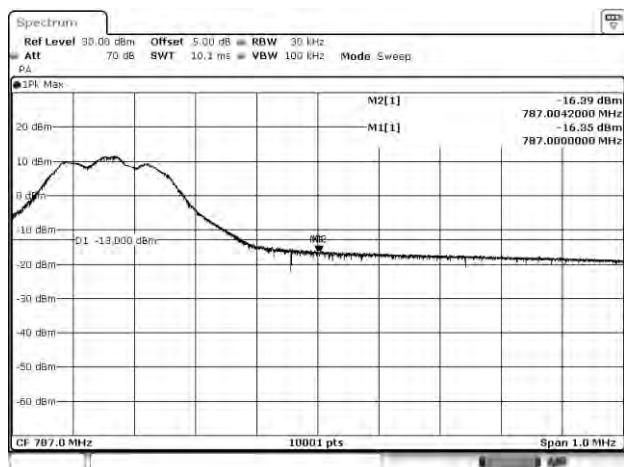
Cat M1\_Band 13\_ 5M\_CH23205\_QPSK\_6RB0



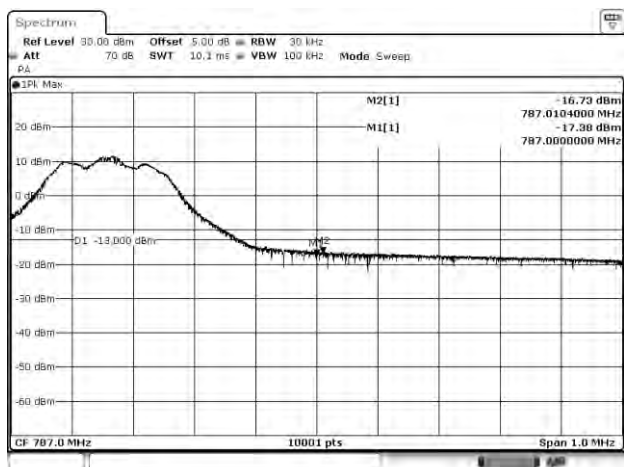
Cat M1\_Band 13\_ 5M\_CH23205\_16QAM\_5RB0



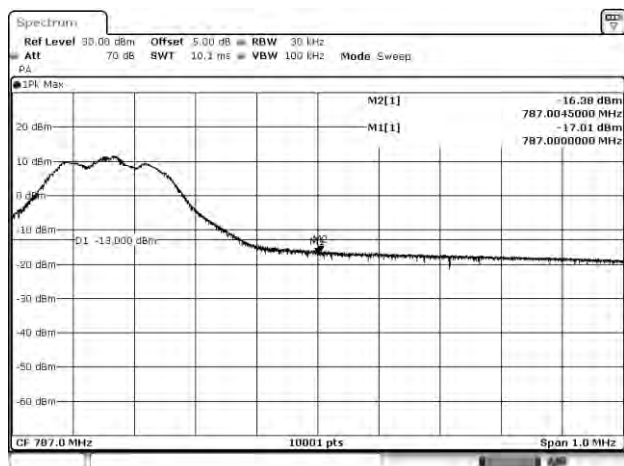
Cat M1\_Band 13\_ 5M\_CH23255\_QPSK\_1RB0



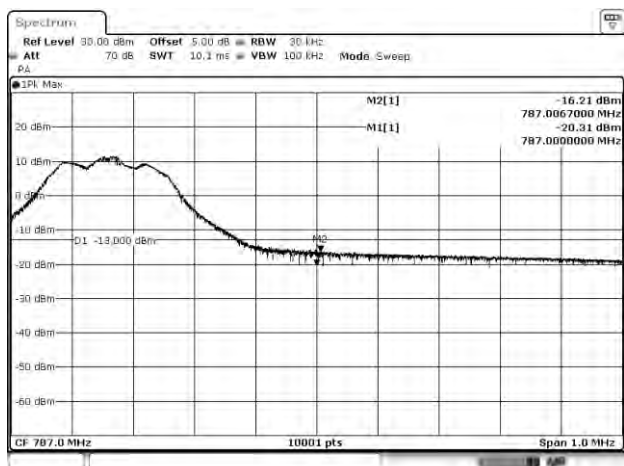
Cat M1\_Band 13\_ 5M\_CH23255\_16QAM\_1RB5

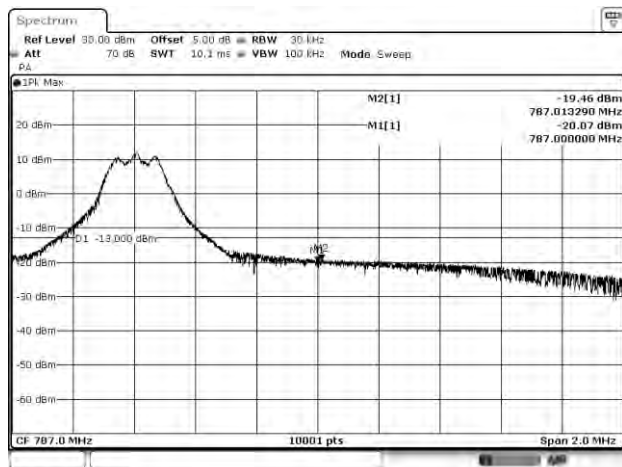


Cat M1\_Band 13\_ 5M\_CH23255\_QPSK\_6RB0

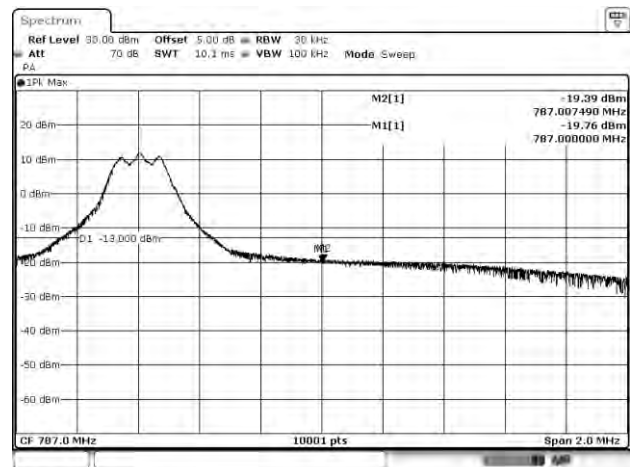


Cat M1\_Band 13\_ 5M\_CH23255\_16QAM\_5RB1

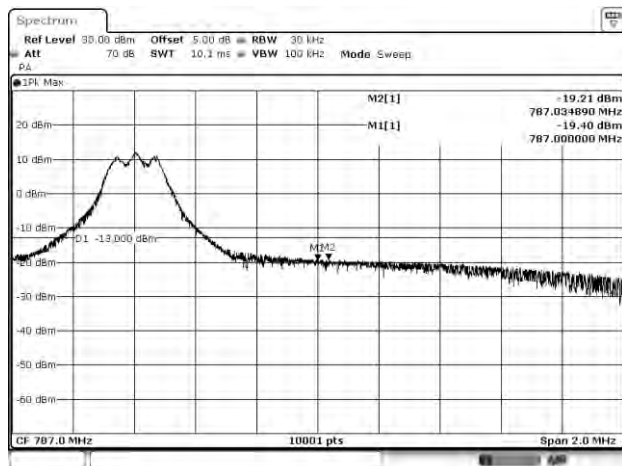


Cat M1\_Band 13\_  
0M\_CH23230\_QPSK\_1RB0\_high

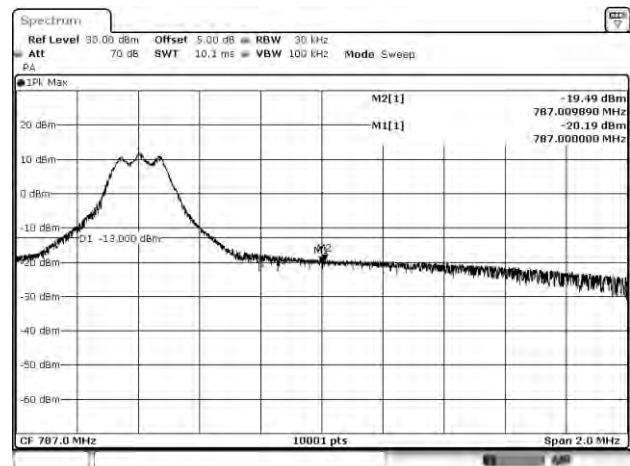
Date: 27 SEP 2018 02:32:31

Cat M1\_Band 13\_  
10M\_CH23230\_16QAM\_1RB5\_high

Date: 27 SEP 2018 02:41:20

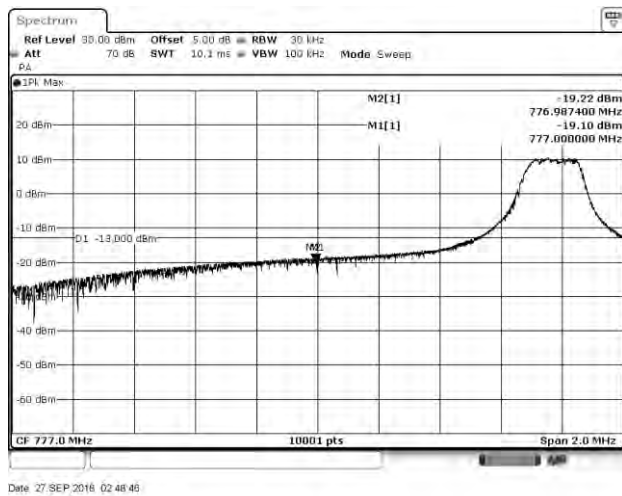
Cat M1\_Band 13\_  
10M\_CH23230\_QPSK\_6RB0\_high

Date: 27 SEP 2018 02:29:28

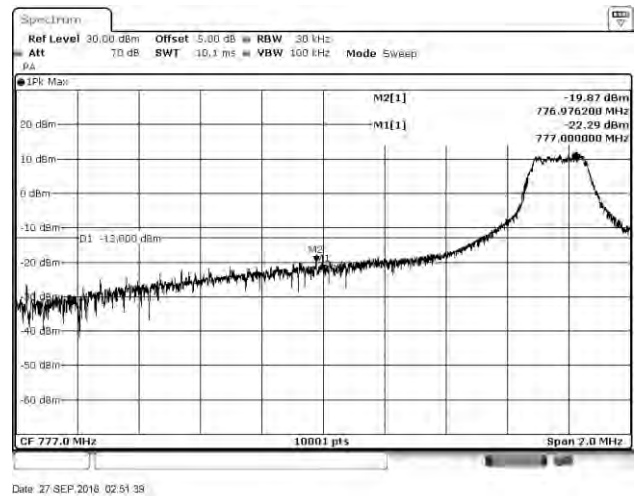
Cat M1\_Band 13\_  
10M\_CH23230\_16QAM\_5RB1\_high

Date: 27 SEP 2018 02:38:25

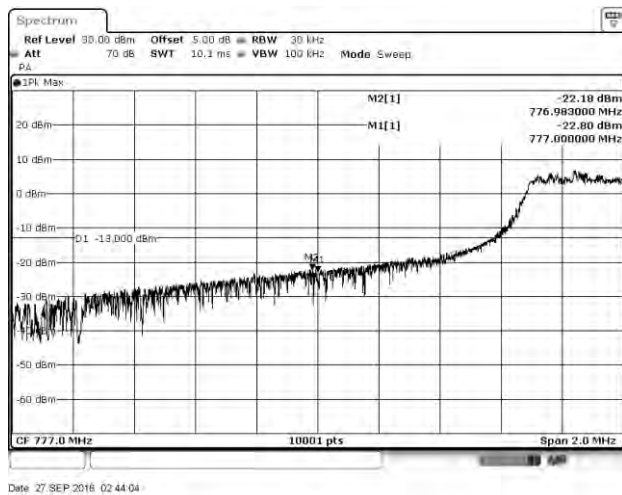
Cat M1\_Band 13\_  
10M\_CH23230\_QPSK\_1RB0\_low



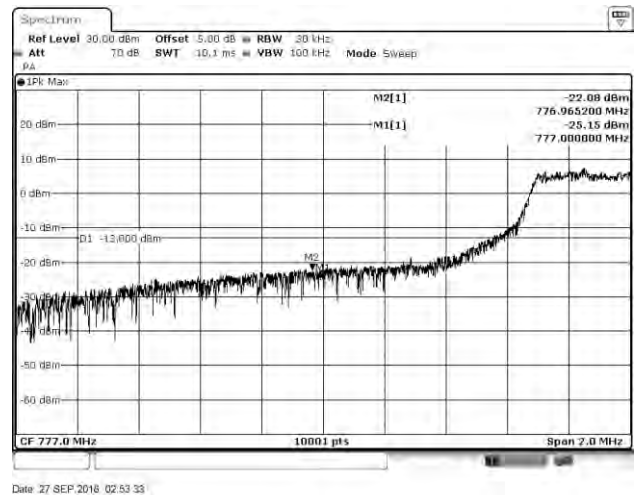
Cat M1\_Band 13\_  
10M\_CH23230\_16QAM\_1RB0\_low



Cat M1\_Band 13\_  
10M\_CH23230\_QPSK\_6RB0\_low

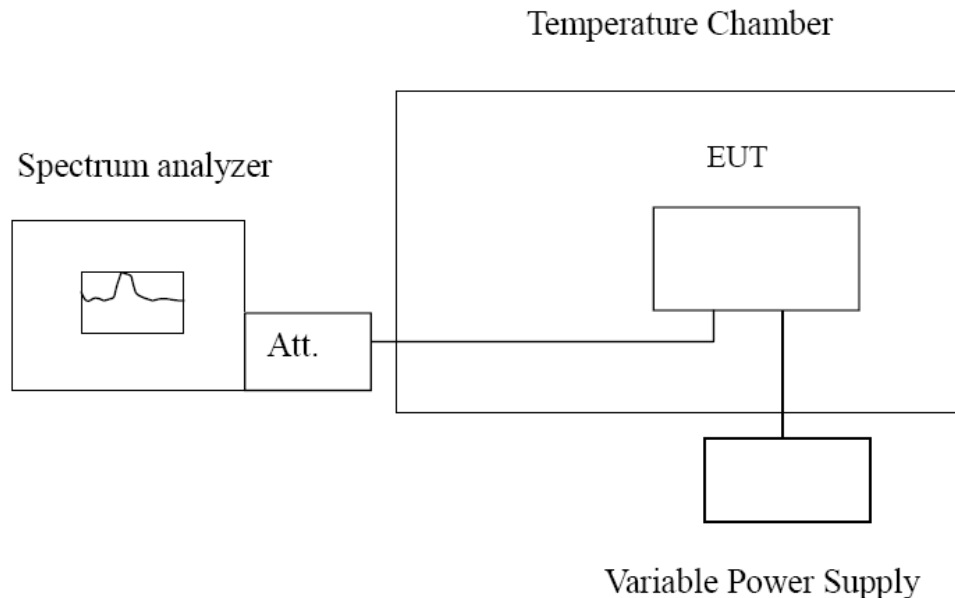


Cat M1\_Band 13\_  
10M\_CH23230\_16QAM\_5RB0\_low



## 8. Frequency Stability

### 8.1. Test Setup



### 8.2. Test Procedure

#### Frequency Stability Under Temperature Variations:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

#### Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. Reduce the input voltage to specify extreme voltage variation ( $\pm 15\%$ ) and endpoint, record the maximum frequency change.

### 8.3. Test Method

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 9  
ANSI C63.26: 2015 Sub-clause 5.6

#### 8.4. Test Result

|              |                                                            |           |        |
|--------------|------------------------------------------------------------|-----------|--------|
| Product      | ML865C1-NA                                                 |           |        |
| Test Item    | Frequency Stability Under Temperature & Voltage Variations |           |        |
| Test Mode    | Mode 1: LTE_CAT. M1_Band 2                                 |           |        |
| Date of Test | 2018/09/26                                                 | Test Site | SR10-H |

CAT M1 Band 2-QPSK\_1860MHz

Voltage

| Voltage (VAC) | Frequency Error(Hz) | Frequency Error(ppm) |
|---------------|---------------------|----------------------|
| 4.2           | -22                 | 0.0121               |
| 3.8           | 3                   | -0.0014              |
| 3.4           | 12                  | -0.0062              |

Temperature

| TEMPERATURE | Frequency Error(Hz) | Frequency Error (ppm) |
|-------------|---------------------|-----------------------|
| -30         | -7                  | 0.0040                |
| -20         | -27                 | 0.0148                |
| -10         | -16                 | 0.0089                |
| 0           | -3                  | 0.0019                |
| 10          | 3                   | -0.0014               |
| 20          | -11                 | 0.0062                |
| 30          | -3                  | 0.0019                |
| 40          | -10                 | 0.0056                |
| 50          | -13                 | 0.0072                |

## CAT M1 Band 2-QPSK\_1880MHz

## Voltage

| Voltage (VAC) | Frequency Error(Hz) | Frequency Error(ppm) |
|---------------|---------------------|----------------------|
| 4.2           | 4                   | -0.0020              |
| 3.8           | -14                 | 0.0076               |
| 3.4           | -26                 | 0.0140               |

## Temperature

| TEMPERATURE | Frequency Error(Hz) | Frequency Error (ppm) |
|-------------|---------------------|-----------------------|
| -30         | 7                   | -0.0036               |
| -20         | 1                   | -0.0004               |
| -10         | -15                 | 0.0081                |
| 0           | -1                  | 0.0007                |
| 10          | -3                  | 0.0018                |
| 20          | -10                 | 0.0055                |
| 30          | 2                   | -0.0009               |
| 40          | -27                 | 0.0145                |
| 50          | 2                   | -0.0009               |

## CAT M1 Band 2-QPSK\_1900MHz

## Voltage

| Voltage (VAC) | Frequency Error(Hz) | Frequency Error(ppm) |
|---------------|---------------------|----------------------|
| 4.2           | -27                 | 0.0140               |
| 3.8           | -16                 | 0.0082               |
| 3.4           | -20                 | 0.0103               |

## Temperature

| TEMPERATURE | Frequency Error(Hz) | Frequency Error (ppm) |
|-------------|---------------------|-----------------------|
| -30         | -20                 | 0.0103                |
| -20         | 1                   | -0.0007               |
| -10         | 13                  | -0.0071               |
| 0           | 18                  | -0.0097               |
| 10          | -25                 | 0.0129                |
| 20          | -7                  | 0.0035                |
| 30          | -10                 | 0.0050                |
| 40          | 14                  | -0.0076               |
| 50          | 6                   | -0.0034               |

|              |                                                            |           |        |
|--------------|------------------------------------------------------------|-----------|--------|
| Product      | ML865C1-NA                                                 |           |        |
| Test Item    | Frequency Stability Under Temperature & Voltage Variations |           |        |
| Test Mode    | Mode 2: LTE_CAT. M1_Band 4                                 |           |        |
| Date of Test | 2018/09/26                                                 | Test Site | SR10-H |

## CAT M1 Band 4-QPSK\_1720MHz

## Voltage

| Voltage (VAC) | Frequency Error(Hz) | Frequency Error(ppm) |
|---------------|---------------------|----------------------|
| 4.2           | -4                  | 0.0026               |
| 3.8           | 11                  | -0.0061              |
| 3.4           | -19                 | 0.0113               |

## Temperature

| TEMPERATURE | Frequency Error(Hz) | Frequency Error (ppm) |
|-------------|---------------------|-----------------------|
| -30         | 4                   | -0.0021               |
| -20         | -31                 | 0.0183                |
| -10         | -12                 | 0.0072                |
| 0           | -29                 | 0.0171                |
| 10          | -3                  | 0.0020                |
| 20          | -11                 | 0.0067                |
| 30          | 2                   | -0.0009               |
| 40          | -17                 | 0.0102                |
| 50          | -30                 | 0.0177                |

## CAT M1 Band 4-QPSK\_1732.5MHz

## Voltage

| Voltage (VAC) | Frequency Error(Hz) | Frequency Error(ppm) |
|---------------|---------------------|----------------------|
| 4.2           | 14                  | -0.0079              |
| 3.8           | -12                 | 0.0071               |
| 3.4           | -25                 | 0.0146               |

## Temperature

| TEMPERATURE | Frequency Error(Hz) | Frequency Error (ppm) |
|-------------|---------------------|-----------------------|
| -30         | -10                 | 0.0060                |
| -20         | 12                  | -0.0067               |
| -10         | 13                  | -0.0073               |
| 0           | 12                  | -0.0067               |
| 10          | 0                   | 0.0002                |
| 20          | -10                 | 0.0060                |
| 30          | -12                 | 0.0071                |
| 40          | -4                  | 0.0025                |
| 50          | -8                  | 0.0048                |
| 50          | 13                  | -0.0077               |

## CAT M1 Band 4-QPSK\_1745MHz

## Voltage

| Voltage (VAC) | Frequency Error(Hz) | Frequency Error(ppm) |
|---------------|---------------------|----------------------|
| 4.2           | 11                  | -0.0065              |
| 3.8           | 6                   | -0.0037              |
| 3.4           | -5                  | 0.0026               |

## Temperature

| TEMPERATURE | Frequency Error(Hz) | Frequency Error (ppm) |
|-------------|---------------------|-----------------------|
| -30         | -1                  | 0.0003                |
| -20         | 9                   | -0.0054               |
| -10         | 17                  | -0.0100               |
| 0           | -22                 | 0.0124                |
| 10          | -20                 | 0.0112                |
| 20          | -7                  | 0.0038                |
| 30          | 13                  | -0.0077               |
| 40          | -1                  | 0.0003                |
| 50          | 13                  | -0.0077               |

|              |                                                            |           |        |
|--------------|------------------------------------------------------------|-----------|--------|
| Product      | ML865C1-NA                                                 |           |        |
| Test Item    | Frequency Stability Under Temperature & Voltage Variations |           |        |
| Test Mode    | Mode 3: LTE_CAT. M1_Band 12                                |           |        |
| Date of Test | 2018/09/26                                                 | Test Site | SR10-H |

## CAT M1 Band 12-QPSK\_704MHz

## Voltage

| Voltage (VAC) | Frequency Error(Hz) | Frequency Error(ppm) |
|---------------|---------------------|----------------------|
| 4.2           | -7                  | 0.0106               |
| 3.8           | 2                   | -0.0022              |
| 3.4           | -20                 | 0.0291               |

## Temperature

| TEMPERATURE | Frequency Error(Hz) | Frequency Error (ppm) |
|-------------|---------------------|-----------------------|
| -30         | -15                 | 0.0220                |
| -20         | -18                 | 0.0262                |
| -10         | -6                  | 0.0092                |
| 0           | 3                   | -0.0036               |
| 10          | -21                 | 0.0305                |
| 20          | -11                 | 0.0163                |
| 30          | -21                 | 0.0305                |
| 40          | 5                   | -0.0064               |
| 50          | -7                  | 0.0106                |

## CAT M1 Band 12-QPSK\_707.5MHz

## Voltage

| Voltage (VAC) | Frequency Error(Hz) | Frequency Error(ppm) |
|---------------|---------------------|----------------------|
| 4.2           | 10                  | -0.0137              |
| 3.8           | -3                  | 0.0047               |
| 3.4           | -20                 | 0.0287               |

## Temperature

| TEMPERATURE | Frequency Error(Hz) | Frequency Error (ppm) |
|-------------|---------------------|-----------------------|
| -30         | 3                   | -0.0038               |
| -20         | -26                 | 0.0372                |
| -10         | -16                 | 0.0231                |
| 0           | -8                  | 0.0118                |
| 10          | -26                 | 0.0372                |
| 20          | -10                 | 0.0146                |
| 30          | -20                 | 0.0287                |
| 40          | -14                 | 0.0202                |
| 50          | -28                 | 0.0400                |

## CAT M1 Band 12-QPSK\_711MHz

## Voltage

| Voltage (VAC) | Frequency Error(Hz) | Frequency Error(ppm) |
|---------------|---------------------|----------------------|
| 4.2           | -1                  | 0.0008               |
| 3.8           | -9                  | 0.0121               |
| 3.4           | 17                  | -0.0245              |

## Temperature

| TEMPERATURE | Frequency Error(Hz) | Frequency Error (ppm) |
|-------------|---------------------|-----------------------|
| -30         | -10                 | 0.0135                |
| -20         | -8                  | 0.0107                |
| -10         | -11                 | 0.0149                |
| 0           | -9                  | 0.0121                |
| 10          | -23                 | 0.0318                |
| 20          | -7                  | 0.0093                |
| 30          | 16                  | -0.0231               |
| 40          | 11                  | -0.0161               |
| 50          | -17                 | 0.0233                |

|              |                                                            |           |        |
|--------------|------------------------------------------------------------|-----------|--------|
| Product      | ML865C1-NA                                                 |           |        |
| Test Item    | Frequency Stability Under Temperature & Voltage Variations |           |        |
| Test Mode    | Mode 4: LTE_CAT. M1_Band 13                                |           |        |
| Date of Test | 2018/09/26                                                 | Test Site | SR10-H |

## CAT M1 Band 13-QPSK\_779.5MHz

## Voltage

| Voltage (VAC) | Frequency Error(Hz) | Frequency Error(ppm) |
|---------------|---------------------|----------------------|
| 4.2           | 12                  | -0.0148              |
| 3.8           | -31                 | 0.0404               |
| 3.4           | -27                 | 0.0352               |

## Temperature

| TEMPERATURE | Frequency Error(Hz) | Frequency Error (ppm) |
|-------------|---------------------|-----------------------|
| -30         | 3                   | -0.0033               |
| -20         | -1                  | 0.0019                |
| -10         | -31                 | 0.0404                |
| 0           | 11                  | -0.0135               |
| 10          | -15                 | 0.0198                |
| 20          | -11                 | 0.0147                |
| 30          | 9                   | -0.0109               |
| 40          | -21                 | 0.0275                |
| 50          | -14                 | 0.0186                |

## CAT M1 Band 13-QPSK\_782MHz

## Voltage

| Voltage (VAC) | Frequency Error(Hz) | Frequency Error(ppm) |
|---------------|---------------------|----------------------|
| 4.2           | -12                 | 0.0158               |
| 3.8           | -6                  | 0.0081               |
| 3.4           | 8                   | -0.0098              |

## Temperature

| TEMPERATURE | Frequency Error(Hz) | Frequency Error (ppm) |
|-------------|---------------------|-----------------------|
| -30         | -10                 | 0.0132                |
| -20         | -12                 | 0.0158                |
| -10         | 13                  | -0.0162               |
| 0           | -4                  | 0.0055                |
| 10          | 11                  | -0.0137               |
| 20          | -10                 | 0.0132                |
| 30          | -2                  | 0.0030                |
| 40          | -14                 | 0.0183                |
| 50          | 4                   | -0.0047               |

## CAT M1 Band 13-QPSK\_784.5MHz

## Voltage

| Voltage (VAC) | Frequency Error(Hz) | Frequency Error(ppm) |
|---------------|---------------------|----------------------|
| 4.2           | 6                   | -0.0082              |
| 3.8           | -21                 | 0.0262               |
| 3.4           | -16                 | 0.0199               |

## Temperature

| TEMPERATURE | Frequency Error(Hz) | Frequency Error (ppm) |
|-------------|---------------------|-----------------------|
| -30         | -3                  | 0.0033                |
| -20         | -25                 | 0.0313                |
| -10         | -26                 | 0.0326                |
| 0           | 11                  | -0.0146               |
| 10          | -12                 | 0.0148                |
| 20          | -7                  | 0.0084                |
| 30          | 6                   | -0.0082               |
| 40          | 16                  | -0.0209               |
| 50          | -3                  | 0.0033                |