**DEKRA Certification, Inc.**
405 Glenn Dr. Suite 12,
Sterling, VA 20164
United States of America

DEKRA

ACCREDITED
Test Lab
Cert 2764.01

FCC LISTED, REGISTRATION NUMBER: 2764.01

ISED LISTED REGISTRATION NUMBER: 23595-1

Test report No:
2370ERM.002A1

# Test report

## REFERENCE STANDARD:
## USA FCC Part 22
## CANADA ISED RSS-132

| | |
|---|---|
| Identification of item tested | Module |
| Trademark | Continental Automotive Systems, Inc. |
| Model and /or type reference | WT50NA02 |
| Other identification of the product | FCC ID: LHJ-WT50NA02<br>IC: 2807E-WT50NA02 |
| Features | Module supporting LTE, WCDMA and GSM Cellular Technologies |
| Manufacturer | Continental Automotive Systems, Inc.<br>21440 W. Lake Cook Rd, Deer Park, IL 60010, U.S.A. |
| Test method requested, standard | USA FCC Part 22 10-1-18 Edition<br>CANADA IC RSS-132 Issue 3, Jan. 2013.<br>Measurement Guidance 971168 D01 v02r02 for certification of Licensed Digital Transmitters.<br>ANSI C63.26 – 2015. |
| Summary | IN COMPLIANCE |
| Approved by (name / position & signature) | Domingo Galvez<br>EMC&RF Lab Manager<br>Digitally signed by Domingo Galvez<br>DN: cn=Domingo Galvez, o=DEKRA Certification Inc., ou=Regulatory Lab, email=dgalvez@dekra.com, c=US<br>Date: 2019.08.26 12:59:43 -04'00' |
| Date of issue | 08-26-2019 |
| Report template No | FDT08_21 |

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# Competences and guarantees

DEKRA Certification Inc. is a testing laboratory accredited by A2LA (The American Association for Laboratory Accreditation), to perform the tests indicated in the Certificate 2764.01.

DEKRA Certification Inc. is a testing laboratory competent to carry out the tests described in this report.

To assure the traceability to other national and international laboratories, DEKRA Certification Inc. has a calibration and maintenance program for its measurement equipment.

DEKRA Certification Inc. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Certification at the time of performance of the test.

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The results presented in this Test Report apply only to the particular item under test established in this document.

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# General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Certification Inc.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Certification Inc. and the Accreditation Bodies.

# Uncertainty

Uncertainty (factor k=2) was calculated according to the DEKRA Certification internal document PODT000.

| Frequency (MHz) | U(k=2) | Units |
|---|---|---|
| 30-180 | 3.82 | dB |
| 180-1000 | 2.61 | dB |
| 1000-18000 | 2.92 | dB |
| 18000-40000 | 2.15 | dB |

# Data provided by the client

Module supporting LTE, WCDMA and GSM Cellular Technologies.

DEKRA declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

# Usage of samples

Samples undergoing test have been selected by: The client.

Sample S/01 is composed of the following elements:

| Control Nº | Description | Model | Serial Nº | Date of reception |
|---|---|---|---|---|
| 2370.07 | CAT 11 Module Designation NA | WT50NA02 | 015433000004487 | 5/21/2019 |
| 2370.03 | Antenna_LTE dipole | SPDA24700/2700 | - | 5/08/2019 |
| 2370.04 | Antenna_LTE dipole | SPDA24700/2700 | - | 5/08/2019 |
| 2370.05 | Power cable | - | - | 5/08/2019 |

1. Sample S/01 was used for the following test(s):

   All conducted and radiated tests indicated in appendix A.

# Test sample description

| | | | | | | |
|---|---|---|---|---|---|---|
| Ports…… : | Port name and description | Cable | | | | |
| | | Specified length [m] | Attached during test | Shielded | | |
| | No Data Provided | | ☐ | ☐ | | |
| | | | ☐ | ☐ | | |
| | | | ☐ | ☐ | | |
| | | | ☐ | ☐ | | |
| | | | ☐ | ☐ | | |
| Supplementary information to the ports…… : | No Data Provided | | | | | |
| Rated power supply .....: | Voltage and Frequency | Reference poles | | | | |
| | | L1 | L2 | L3 | N | PE |
| | ☐ AC: 230Vac / 50Hz. | ☐ | ☐ | ☐ | ☐ | ☐ |
| | ☐ AC: | ☐ | ☐ | ☐ | ☐ | ☐ |
| | ☒ DC:13.4 V | | | | | |
| | ☐ DC: | | | | | |
| Rated Power .....: | No Data Provided | | | | | |
| Clock frequencies .....: | No Data Provided | | | | | |
| Other parameters.....: | No Data Provided | | | | | |
| Software version .....: | OTP_2.48 | | | | | |
| Hardware version.....: | P3 | | | | | |
| Dimensions in cm (L x W x D) ....: | No Data Provided | | | | | |
| Mounting position.....: | ☐ Table top equipment | | | | | |
| | ☐ Wall/Ceiling mounted equipment | | | | | |
| | ☐ Floor standing equipment | | | | | |
| | ☐ Hand-held equipment | | | | | |
| | ☐ Other: | | | | | |
| Modules/parts .....: | Module/parts of test item | Type | Manufacturer | | | |
| | No Data provided | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| | | | |
|---|---|---|---|
| Accessories (not part of the test item) .....: | Description | Type | Manufacturer |
| | | | |
| Documents as provided by the applicant.....: | Description | File name | Issue date |
| | Equipment declaration data | FDT30_15_Declaration_Equipment_Data_Continental_WT50NA02_signed | 2019-06-17 |

**Copy of marking plate:**

# Identification of the client

Continental Automotive Systems, Inc.

21440 W. Lake Cook Rd, Deer Park, IL 60010, U.S.A.

# Testing period and place

| | |
|---|---|
| **Test Location** | DEKRA Certification, Inc. |
| **Date (start)** | 05-22-2019 |
| **Date (finish)** | 06-06-2019 |

# Document history

| Report number | Date | Description |
|---|---|---|
| 2370ERM.002 | 06-16-2019 | First release |
| 2370ERM.002A1 | 08-26-2019 | Second release |

# Modifications to the reference test report

It was introduced the following modifications in respect to the test report number 2370ERM.002A1 related with the same samples, in the next clauses and sub-clauses:

| Clauses/ Sub-Clauses | Modification | Justification |
|---|---|---|
| Description of Test Conditions/ Page 14 | GPRS nominal bandwidth specified was changed from 300KHz to 200KHz | To represent nominal channel bandwidth properly |

# Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

| | |
|---|---|
| Temperature | Min. = 15 ºC<br>Max. = 35 ºC |
| Relative humidity | Min. = 30 %<br>Max. = 75 % |
| Air pressure | Min. = 860 mbar<br>Max. = 1060 mbar |

In the semi anechoic chamber, the following limits were not exceeded during the test.

| | |
|---|---|
| Temperature | Min. = 15 ºC<br>Max. = 35 ºC |
| Relative humidity | Min. = 30 %<br>Max. = 75 % |
| Air pressure | Min. = 860 mbar<br>Max. = 1060 mbar |

In the chamber for conducted measurements, the following limits were not exceeded during the test:

| | |
|---|---|
| Temperature | Min. = 15 ºC<br>Max. = 35 ºC |
| Relative humidity | Min. = 30 %<br>Max. = 60 % |
| Air pressure | Min. = 860 mbar<br>Max. = 1060 mbar |

# Remarks and comments

The tests have been performed by the technical personnel: Sravani Gollamudi and Poojitha Bhattu.

# Testing verdicts

| | |
|---|---|
| Not applicable : | N/A |
| Pass : | P |
| Fail : | F |
| Not measured : | N/M |

# Summary

| FCC PART 22 / IC RSS-132 PARAGRAPH | | | | | |
|---|---|---|---|---|---|
| **Report Section** | **FCC Spec Clause** | **RSS Spec Clause** | **Test Description** | **Verdict** | **Remark** |
| A.1 | §2.1046 and §22.913 | RSS-132 Clause 5.4 | RF Output power | P | N/A |
| A.2 | §2.1047 | RSS-132 Clause 5.2 | Modulation characteristics | P | N/A |
| A.3 | §2.1055 and §22.355 | RSS-132 Clause 5.3 | Frequency stability | P | N/A |
| A.4 | §2.1049 | RSS-132 Clause 5.1 | Occupied Bandwidth | P | N/A |
| A.5 | §2.1051 and §22.917 | RSS-132 Clause 5.5 | Spurious emissions at antenna terminals | P | N/A |
| A.6 | §22.917 | RSS-132 Clause 5.5 | Spurious emissions at antenna terminals at Block edges | P | N/A |
| A.7 | §2.1053 and §22.917 | RSS-132 Clause 5.5 | Radiated emissions | P | N/A |
| Supplementary information and remarks: N/A | | | | | |

# List of equipment used during the test

Conducted Measurements

| CONTROL NUMBER | DESCRIPTION | LAST CALIBRATION | NEXT CALIBRATION |
|---|---|---|---|
| 1039 | Signal analyzer Rohde & Schwarz FSV40 | 2018/10 | 2020/10 |
| 1149 | Wideband Radio Communication Tester Rohde & Schwarz CMW 500 | 2018/07 | 2020/07 |
| 1041 | EMI Test Receiver Rohde & Schwarz ESR 7 | 2017/04 | 2019/08 |
| 101 | Climatic chamber Espec | 2019/10 | 2020/10 |

Radiated Measurements

| CONTROL NUMBER | DESCRIPTION | LAST CALIBRATION | NEXT CALIBRATION |
|---|---|---|---|
| 1179 | Semi anechoic Absorber Lined Chamber Frankonia SAC 3 plus “L” | N/A | N/A |
| 1064 | BiconicalLog antenna ETS LINDGREN 3142E | 2017/03 | 2020/03 |
| 1057 | Double-ridge Waveguide Horn antenna 1-18 GHz | 2017/03 | 2020/03 |
| 1012 | Spectrum analyzer Rohde & Schwarz ESR26 | 2018/09 | 2020/09 |
| 1039 | Spectrum analyzer Rohde & Schwarz FSV40 | 2018/10 | 2020/10 |
| 1015,1017, 1019, 1020 | Rohde & Schwarz EMC32 software | N/A | N/A |

# Appendix A: Test Results for

## FCC Part 22/ IC RSS-132

# Appendix A Content

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# PRODUCT INFORMATION

The following information is provided by the client

| Information | Description |
|---|---|
| Modulation | LTE: QPSK, QAM<br>2G: GPRS, EDGE<br>3G: WCDMA |
| Maximum RF Output Power | LTE: 23 dBm<br>2G: 32.5 dBm<br>3G: 23.5 dBm |
| Operation mode: | |
| - Operating Frequency Range | LTE: Band 5<br>2G: 850 MHz<br>3G: Band V |
| - Nominal Channel Bandwidth | LTE Band 5: 1.4/ 3/ 5/ 10 MHz |
| Extreme operating conditions | |
| - Temperature range | $T_{nom}$ = +15 to + 35<br>$T_{min}$ = -30<br>$T_{max}$ = +50 |
| Antenna type | External Antenna. |
| Antenna gain | 2 dBi |
| Nominal Voltage | |
| - Supply Voltage | 12 Vdc |
| - Type of power source | DC voltage from power supply. |

# DESCRIPTION OF TEST CONDITIONS

The worst case was found when positioned as the table below. Following channel(s) was (were selected for the final test as listed below:

<table>
<tr><th>TEST CONDITIONS</th><th>DESCRIPTION</th></tr>
<tr><td>TC#01<br>LTE Band 5</td><td>
<u>Power supply (V):</u><br>
$V_{nominal}$ = 12 Vdc<br><br>
<u>Test Frequencies for Conducted tests:</u><br>
<u>1.4 MHz Bandwidth</u>:<br>
-Lowest Channel: 20407 (824.7 MHZ)<br>
-Middle Channel: 20525 (836.5 MHz)<br>
-Highest Channel: 20643 (848.3 MHz)<br>
<u>3 MHz Bandwidth</u>:<br>
-Lowest Channel: 20415 (825.5 MHZ)<br>
-Middle Channel: 20525 (836.5 MHz)<br>
-Highest Channel: 20635 (847.5 MHz)<br>
<u>5 MHz Bandwidth</u>:<br>
-Lowest Channel: 20425 (826.5 MHZ)<br>
-Middle Channel: 20525 (836.5 MHz)<br>
-Highest Channel: 20625 (846.5 MHz)<br>
<u>10 MHz Bandwidth</u>:<br>
-Lowest Channel: 20450 (829 MHZ)<br>
-Middle Channel: 20525 (836.5 MHz)<br>
-Highest Channel: 20600 (844 MHz)<br><br>
<u>Test Frequencies for Radiated tests:</u>
<table>
<tr><th>Available Frequencies</th><th>Tested Frequency</th><th>Channel Bandwidth</th><th>Modulation</th><th>Mode</th></tr>
<tr><td>824 to 849 MHz</td><td>826.5 MHz<br>836.5 MHz<br>846.5 MHz</td><td>5 MHz</td><td>QPSK</td><td>1 RB</td></tr>
</table>
Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case found in QPSK modulation.
</td></tr>
</table>

<table>
<tr><th>TEST CONDITIONS</th><th>DESCRIPTION</th></tr>
<tr><td>TC#02<br>2G Band 850</td><td>
<u>Power supply (V):</u><br>
$V_{nominal}$ = 12 Vdc<br><br>
<u>Test Frequencies for Conducted tests:</u><br>
<u>GPRS/EDGE</u>:<br>
-Lowest Channel: 128 (824.2 MHz)<br>
-Middle Channel: 190 (836.6 MHz)<br>
-Highest Channel: 251 (848.8 MHz)<br><br>
<u>Test Frequencies for Radiated tests:</u><br>
<table>
<tr><th>Available Frequencies</th><th>Tested Frequency</th><th>Channel Bandwidth</th><th>Modulation</th></tr>
<tr><td>824 to 849 MHz</td><td>824.2 MHz<br>836.6 MHz<br>848.8 MHz</td><td>200 KHz</td><td>GPRS</td></tr>
</table>
Note: This device was tested under all modulations. The worst case found in GPRS modulation.
</td></tr>
<tr><td>TC#03<br>3G Band V</td><td>
<u>Power supply (V):</u><br>
$V_{nominal}$ = 12 Vdc<br>
<u>Test Frequencies for Conducted tests:</u><br>
<u>WCDMA:</u><br>
-Lowest Channel: 4132 (826.4 MHz)<br>
-Middle Channel: 4182 (836.4 MHz)<br>
-Highest Channel: 4233 (846.6 MHz)<br>
<u>Test Frequencies for Radiated tests:</u><br>
<table>
<tr><th>Available Frequencies</th><th>Tested Frequency</th><th>Channel Bandwidth</th><th>Modulation</th></tr>
<tr><td>824 to 849 MHz</td><td>826.4 MHz<br>836.4 MHz<br>846.6 MHz</td><td>5 MHz</td><td>WCDMA</td></tr>
</table>
Note: This device was tested under all modulations. The worst case found in WCDMA modulation.
</td></tr>
</table>

## TEST A.1: RF OUTPUT POWER

| LIMITS: | Product standard: | FCC Part 22 / IC RSS-132 |
|---|---|---|
| | Test standard: | FCC §2.1046 and §22.913 / RSS-132 Clause 5.4 |

LIMITS

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

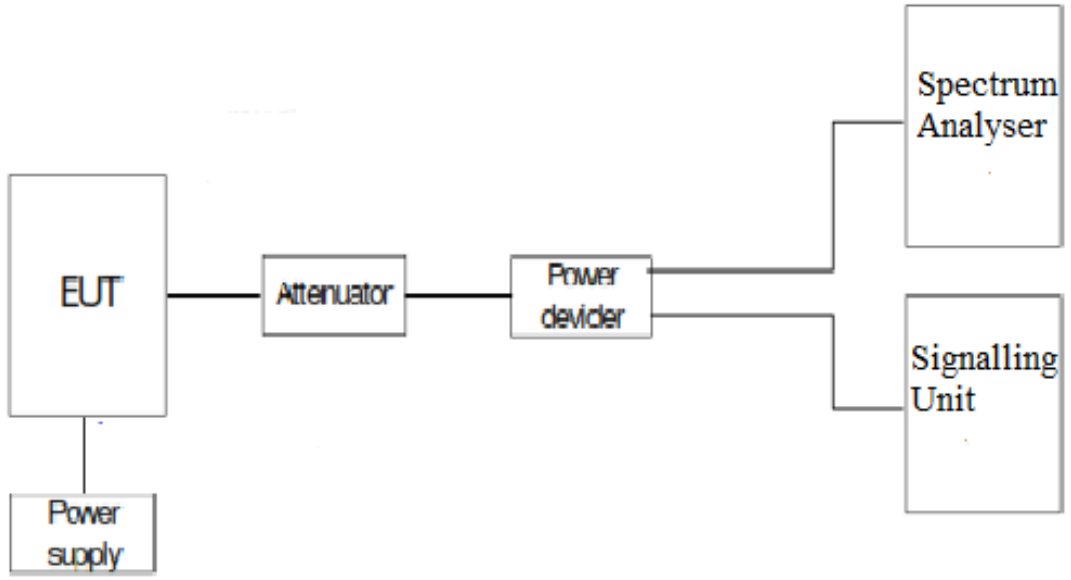
The peak-to-average ratio (PAR) of the transmission shall not exceed 13 dB.

RSS-132 Clause 5.4

The transmitter output power shall be measured in terms of average power. The equivalent isotropically radiated power (e.i.r.p.) for mobile equipment shall not exceed 11.5 watts. Refer to SRSP-503 for base station e.i.r.p. limits.

In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.

**TEST SETUP**



| | |
|---|---|
| **TESTED SAMPLES:** | S/01 |
| **TESTED CONDITIONS MODES:** | TC#01 |
| **TEST RESULTS:** | PASS |

LTE QPSK AND 16QAM MODULATION. Bandwidth = 1.4 MHz

| Channel | Average power at antenna port (dBm) | Maximum declared antenna gain (dBi) | Maximum E.I.R.P. average power (dBm) | PAPR (dB) |
|---|---|---|---|---|
| Lowest | 22.75 | 2.0 | 24.75 | 5.01 |
| Middle | 22.95 | 2.0 | 24.95 | 5.51 |
| Highest | 22.65 | 2.0 | 24.65 | 5.13 |
| Measurement uncertainty (dB) | | | <±0.95 | |

LTE QPSK AND 16QAM MODULATION. Bandwidth = 3 MHz

| Channel | Average power at antenna port (dBm) | Maximum declared antenna gain (dBi) | Maximum E.I.R.P. average power (dBm) | PAPR (dB) |
|---|---|---|---|---|
| Lowest | 22.77 | 2.0 | 24.77 | 5.10 |
| Middle | 23.02 | 2.0 | 25.02 | 5.04 |
| Highest | 22.68 | 2.0 | 24.68 | 4.41 |
| Measurement uncertainty (dB) | | | <±0.95 | |

LTE QPSK AND 16QAM MODULATION. Bandwidth = 5 MHz

| Channel | Average power at antenna port (dBm) | Maximum declared antenna gain (dBi) | Maximum E.I.R.P. average power (dBm) | PAPR (dB) |
|---|---|---|---|---|
| Lowest | 22.87 | 2.0 | 24.87 | 4.75 |
| Middle | 23.08 | 2.0 | 25.08 | 4.99 |
| Highest | 22.74 | 2.0 | 24.74 | 4.64 |
| Measurement uncertainty (dB) | | | <±0.95 | |

LTE QPSK AND 16QAM MODULATION. Bandwidth = 10 MHz

| Channel | Average power at antenna port (dBm) | Maximum declared antenna gain (dBi) | Maximum E.I.R.P. average power (dBm) | PAPR (dB) |
|---|---|---|---|---|
| Lowest | 22.98 | 2.0 | 24.98 | 4.70 |
| Middle | 23.01 | 2.0 | 25.01 | 4.70 |
| Highest | 22.88 | 2.0 | 24.88 | 5.30 |
| Measurement uncertainty (dB) | | | <±0.95 | |

## TEST RESULTS (Cont):

| BANDWIDTH (MHz) | CHANNEL FREQUENCY (MHz) | MODULATION | RB SIZE | RB OFFSET | AVERAGE POWER (dBm) | PAPR (dB) |
|---|---|---|---|---|---|---|
| 1.4 | Low 20407 824.7 | QPSK | 1 | 0 | 22.66 | 4.23 |
| | | | 1 | 5 | 22.71 | |
| | | | 3 | 0 | 22.7 | |
| | | | 3 | 2 | 22.75 | |
| | | | 6 | 0 | 21.67 | |
| | | 16-QAM | 1 | 0 | 22.03 | 5.01 |
| | | | 1 | 5 | 22.04 | |
| | | | 3 | 0 | 21.8 | |
| | | | 3 | 2 | 21.86 | |
| | | | 6 | 0 | 20.75 | |
| | Middle 20525 836.5 | QPSK | 1 | 0 | 22.73 | 4.41 |
| | | | 1 | 5 | 22.91 | |
| | | | 3 | 0 | 22.91 | |
| | | | 3 | 2 | 22.95 | |
| | | | 6 | 0 | 21.91 | |
| | | 16-QAM | 1 | 0 | 22.18 | 5.51 |
| | | | 1 | 5 | 22.11 | |
| | | | 3 | 0 | 22.06 | |
| | | | 3 | 2 | 22.08 | |
| | | | 6 | 0 | 20.99 | |
| | High 20643 848.3 | QPSK | 1 | 0 | 22.6 | 4.2 |
| | | | 1 | 5 | 22.59 | |
| | | | 3 | 0 | 22.63 | |
| | | | 3 | 2 | 22.65 | |
| | | | 6 | 0 | 21.6 | |
| | | 16-QAM | 1 | 0 | 21.73 | 5.13 |
| | | | 1 | 5 | 21.79 | |
| | | | 3 | 0 | 21.66 | |
| | | | 3 | 2 | 21.75 | |
| | | | 6 | 0 | 20.67 | |

## TEST RESULTS (Cont):

| BANDWIDTH (MHz) | CHANNEL FREQUENCY (MHz) | MODULATION | RB SIZE | RB OFFSET | AVERAGE POWER (dBm) | PAPR (dB) |
|---|---|---|---|---|---|---|
| 3 | Low 20415 825.5 | QPSK | 1 | 0 | 22.7 | 4.03 |
| | | | 1 | 14 | 22.77 | |
| | | | 8 | 0 | 21.78 | |
| | | | 8 | 7 | 21.84 | |
| | | | 15 | 0 | 21.77 | |
| | | 16-QAM | 1 | 0 | 21.95 | 5.10 |
| | | | 1 | 14 | 21.98 | |
| | | | 8 | 0 | 20.83 | |
| | | | 8 | 7 | 20.89 | |
| | | | 15 | 0 | 20.77 | |
| | Middle 20525 836.5 | QPSK | 1 | 0 | 23.02 | 4.23 |
| | | | 1 | 14 | 22.96 | |
| | | | 8 | 0 | 21.98 | |
| | | | 8 | 7 | 21.97 | |
| | | | 15 | 0 | 22.01 | |
| | | 16-QAM | 1 | 0 | 22.25 | 5.04 |
| | | | 1 | 14 | 22.2 | |
| | | | 8 | 0 | 21.07 | |
| | | | 8 | 7 | 21.03 | |
| | | | 15 | 0 | 21.04 | |
| | High 20635 847.5 | QPSK | 1 | 0 | 22.68 | 3.62 |
| | | | 1 | 14 | 22.65 | |
| | | | 8 | 0 | 21.71 | |
| | | | 8 | 7 | 21.72 | |
| | | | 15 | 0 | 21.7 | |
| | | 16-QAM | 1 | 0 | 21.85 | 4.41 |
| | | | 1 | 14 | 21.83 | |
| | | | 8 | 0 | 20.74 | |
| | | | 8 | 7 | 20.75 | |
| | | | 15 | 0 | 20.71 | |

## TEST RESULTS (Cont):

| BANDWIDTH (MHz) | CHANNEL FREQUENCY (MHz) | MODULATION | RB SIZE | RB OFFSET | AVERAGE POWER (dBm) | PAPR (dB) |
|---|---|---|---|---|---|---|
| 5 | Low 20425 826.5 | QPSK | 1 | 0 | 22.77 | 4.06 |
| | | | 1 | 12 | 22.86 | |
| | | | 1 | 24 | 22.87 | |
| | | | 12 | 0 | 21.8 | |
| | | | 12 | 11 | 21.87 | |
| | | | 25 | 0 | 21.89 | |
| | | 16-QAM | 1 | 0 | 21.85 | 4.75 |
| | | | 1 | 12 | 22.01 | |
| | | | 1 | 24 | 21.99 | |
| | | | 12 | 0 | 20.84 | |
| | | | 12 | 11 | 20.94 | |
| | | | 25 | 0 | 20.93 | |
| | Middle 20525 836.5 | QPSK | 1 | 0 | 23.08 | 4.06 |
| | | | 1 | 12 | 22.97 | |
| | | | 1 | 24 | 22.97 | |
| | | | 12 | 0 | 22.02 | |
| | | | 12 | 11 | 21.99 | |
| | | | 25 | 0 | 22.03 | |
| | | 16-QAM | 1 | 0 | 22.2 | 4.99 |
| | | | 1 | 12 | 22.02 | |
| | | | 1 | 24 | 22.2 | |
| | | | 12 | 0 | 21.1 | |
| | | | 12 | 11 | 21.03 | |
| | | | 25 | 0 | 21.05 | |
| | High 20625 846.5 | QPSK | 1 | 0 | 22.74 | 3.71 |
| | | | 1 | 12 | 22.7 | |
| | | | 1 | 24 | 22.68 | |
| | | | 12 | 0 | 21.74 | |
| | | | 12 | 11 | 21.75 | |
| | | | 25 | 0 | 21.73 | |
| | | 16-QAM | 1 | 0 | 21.92 | 4.64 |
| | | | 1 | 12 | 21.98 | |
| | | | 1 | 24 | 21.93 | |
| | | | 12 | 0 | 20.77 | |
| | | | 12 | 11 | 20.76 | |
| | | | 25 | 0 | 20.71 | |

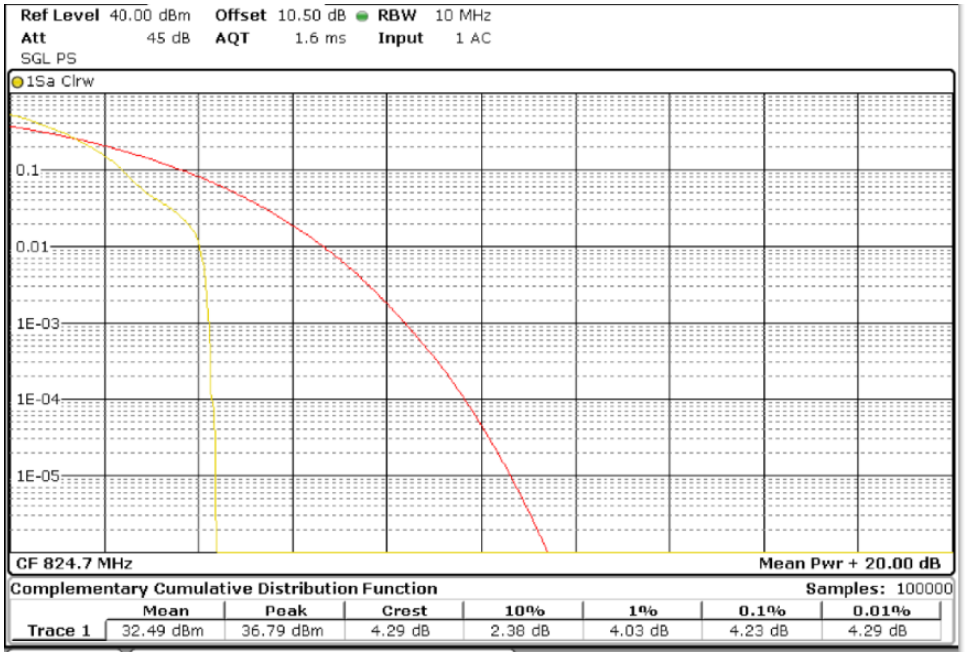
**TEST RESULTS (Cont):**

| BANDWIDTH (MHz) | CHANNEL FREQUENCY (MHz) | MODULATION | RB SIZE | RB OFFSET | AVERAGE POWER (dBm) | PAPR (dB) |
|---|---|---|---|---|---|---|
| 10 | Low 20450 829 | QPSK | 1 | 0 | 22.73 | 3.94 |
| | | | 1 | 24 | 22.82 | |
| | | | 1 | 49 | 22.98 | |
| | | | 25 | 0 | 21.88 | |
| | | | 25 | 24 | 21.94 | |
| | | | 50 | 0 | 21.88 | |
| | | 16-QAM | 1 | 0 | 21.9 | 4.70 |
| | | | 1 | 24 | 21.94 | |
| | | | 1 | 49 | 22.18 | |
| | | | 25 | 0 | 20.91 | |
| | | | 25 | 24 | 21.02 | |
| | | | 50 | 0 | 20.91 | |
| | Middle 20525 836.5 | QPSK | 1 | 0 | 22.94 | 3.80 |
| | | | 1 | 24 | 23.01 | |
| | | | 1 | 49 | 22.99 | |
| | | | 25 | 0 | 22.05 | |
| | | | 25 | 24 | 22.01 | |
| | | | 50 | 0 | 22.02 | |
| | | 16-QAM | 1 | 0 | 21.98 | 4.70 |
| | | | 1 | 24 | 22.24 | |
| | | | 1 | 49 | 22.11 | |
| | | | 25 | 0 | 21.04 | |
| | | | 25 | 24 | 21.02 | |
| | | | 50 | 0 | 21.03 | |
| | High 20600 844 | QPSK | 1 | 0 | 22.88 | 4.32 |
| | | | 1 | 24 | 22.73 | |
| | | | 1 | 49 | 22.68 | |
| | | | 25 | 0 | 21.74 | |
| | | | 25 | 24 | 21.71 | |
| | | | 50 | 0 | 21.76 | |
| | | 16-QAM | 1 | 0 | 22.11 | 5.30 |
| | | | 1 | 24 | 21.87 | |
| | | | 1 | 49 | 21.92 | |
| | | | 25 | 0 | 20.77 | |
| | | | 25 | 24 | 20.77 | |
| | | | 50 | 0 | 20.78 | |

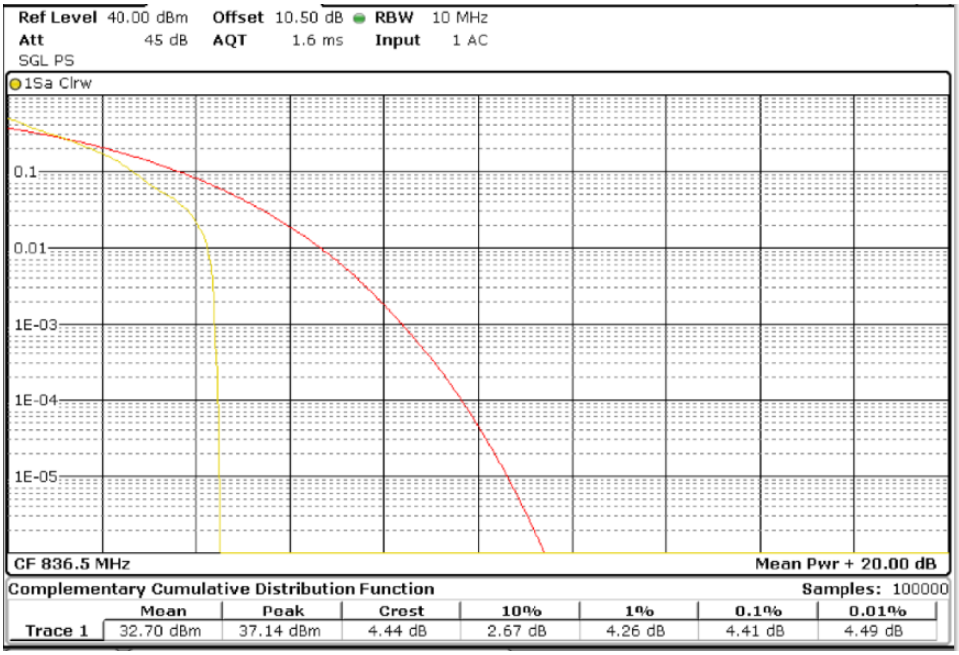
| TEST RESULTS (Cont): | |
|---|---|

PAPR
Bandwidth = 1.4 MHz. Modulation QPSK. RB Size: 1. RB Offset: 0.

Lowest channel

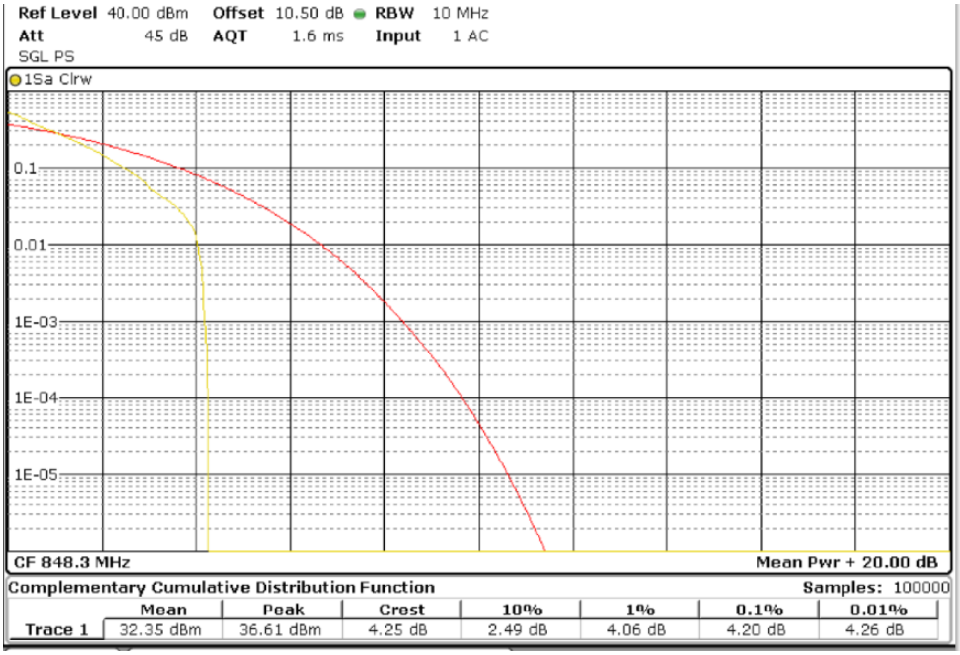



Middle channel



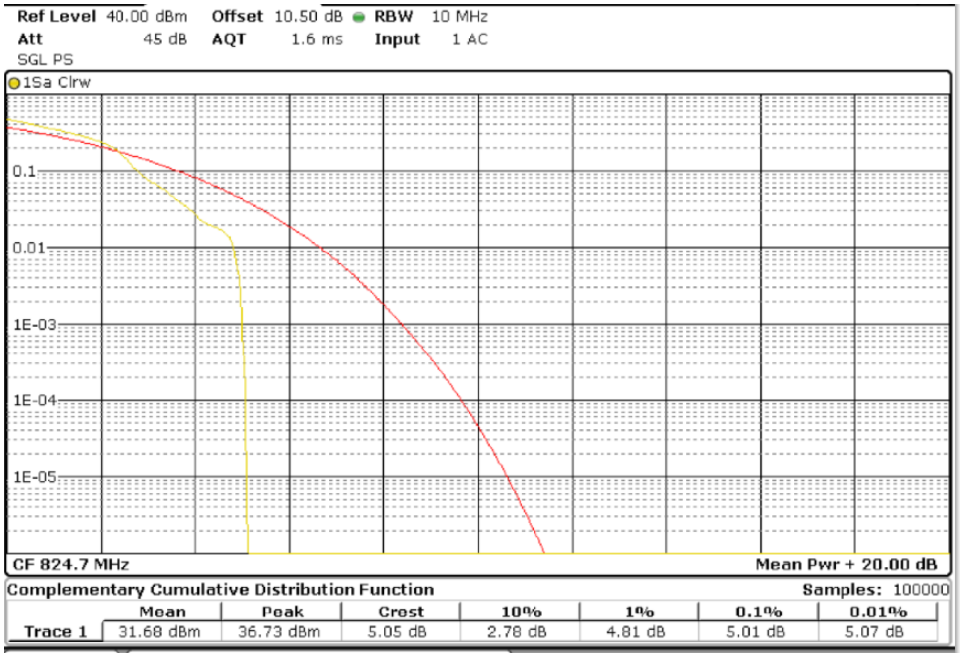
| TEST RESULTS (Cont): | |
|---|---|

Highest channel



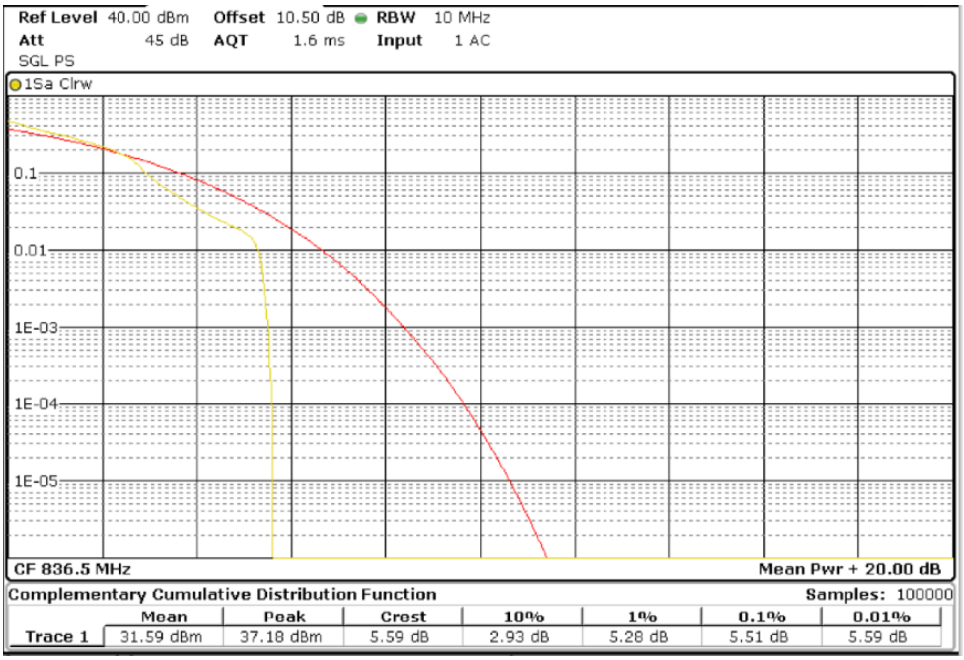

PAPR
Bandwidth = 1.4 MHz. Modulation 16QAM. RB Size: 1. RB Offset: 0.

Lowest channel

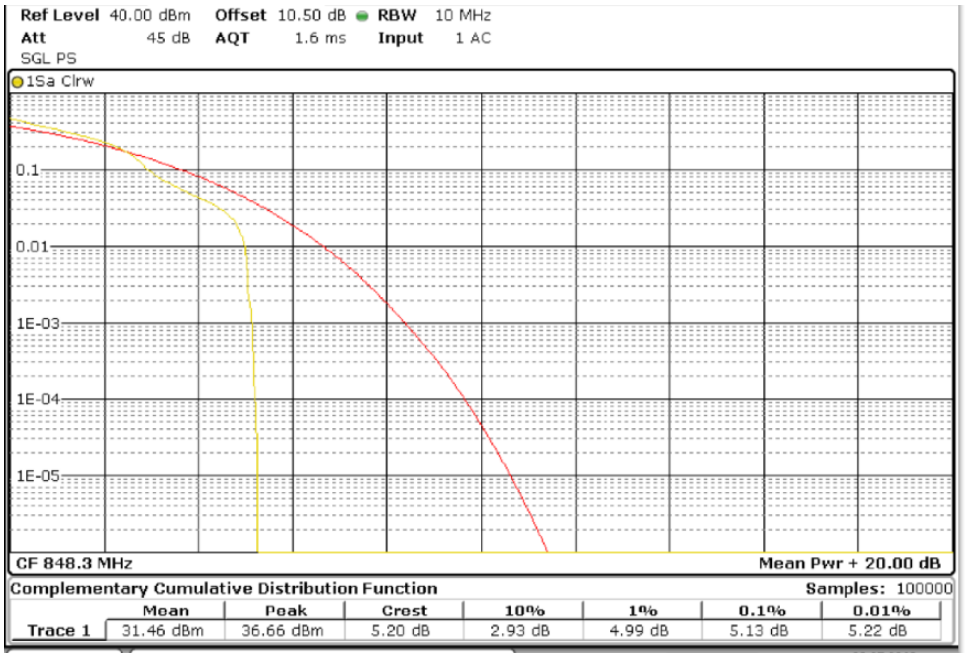


| TEST RESULTS (Cont): | |
|---|---|

Middle channel



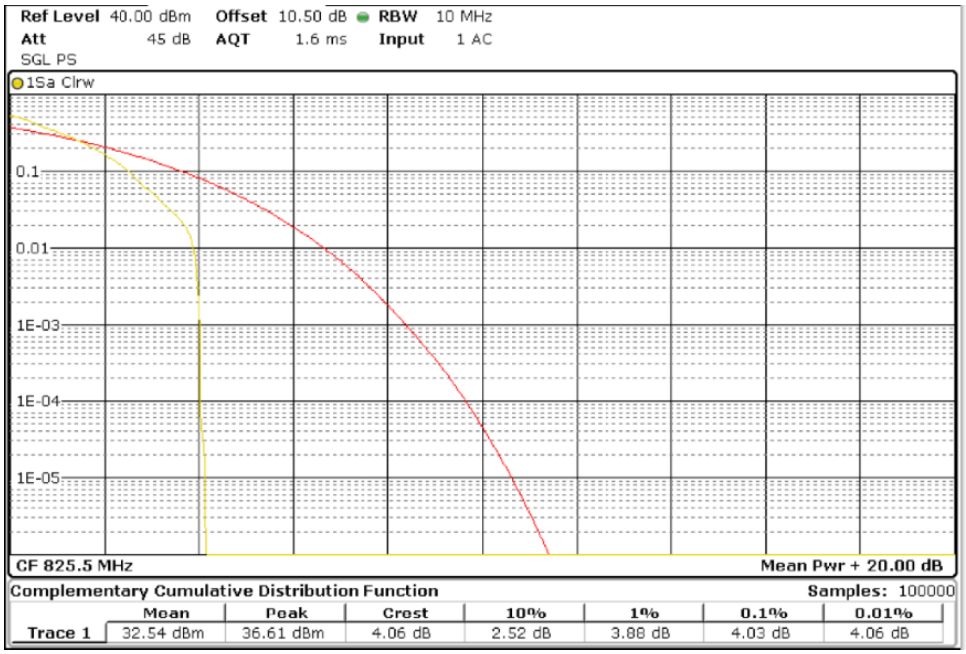

Highest channel



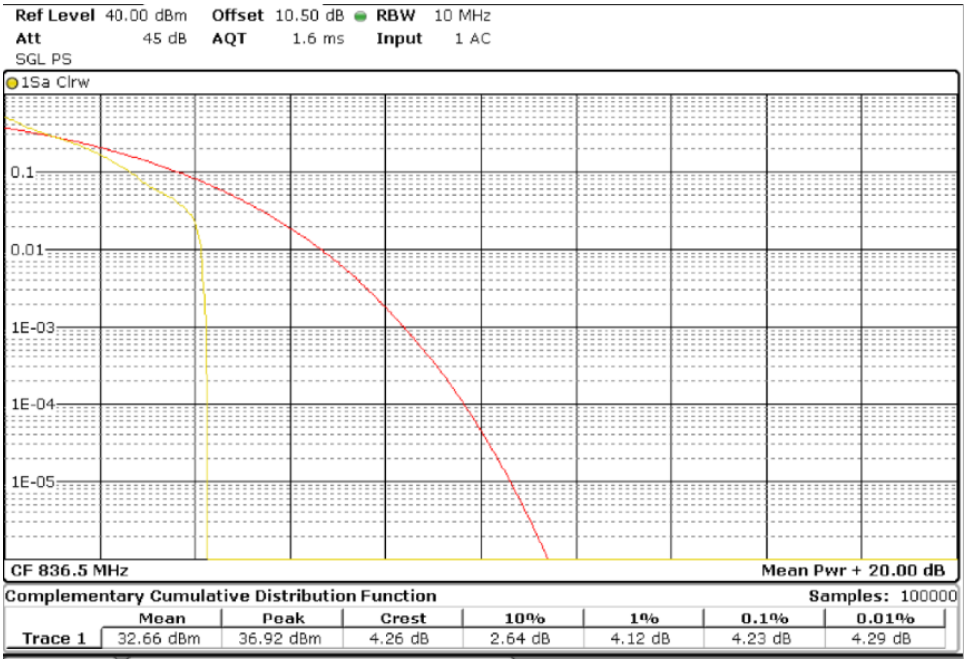
| TEST RESULTS (Cont): | |
|---|---|

PAPR
Bandwidth = 3 MHz. Modulation QPSK. RB Size: 1. RB Offset: 0.

Lowest channel

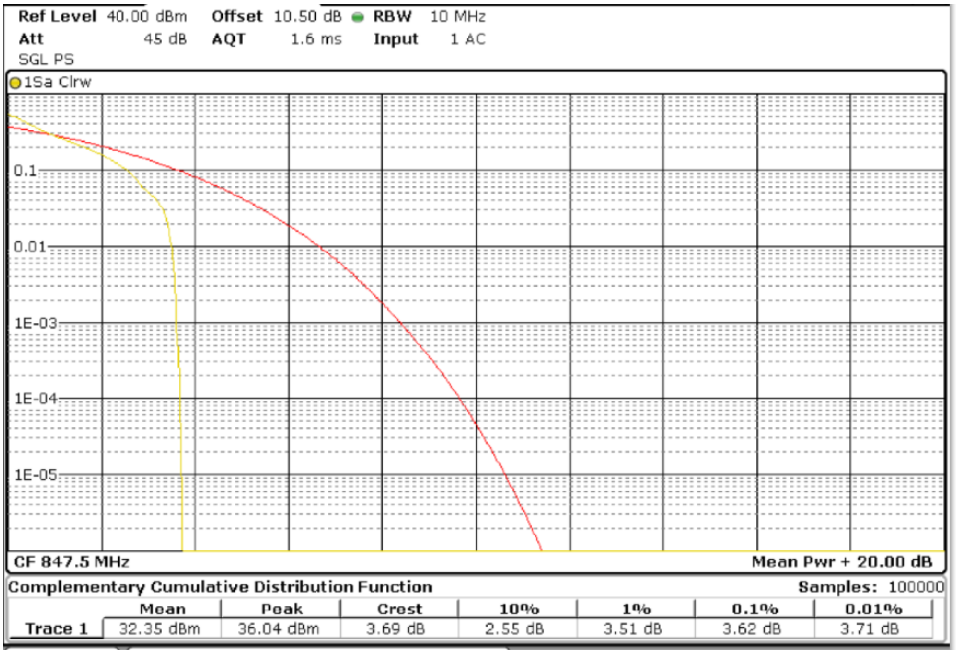



Middle channel



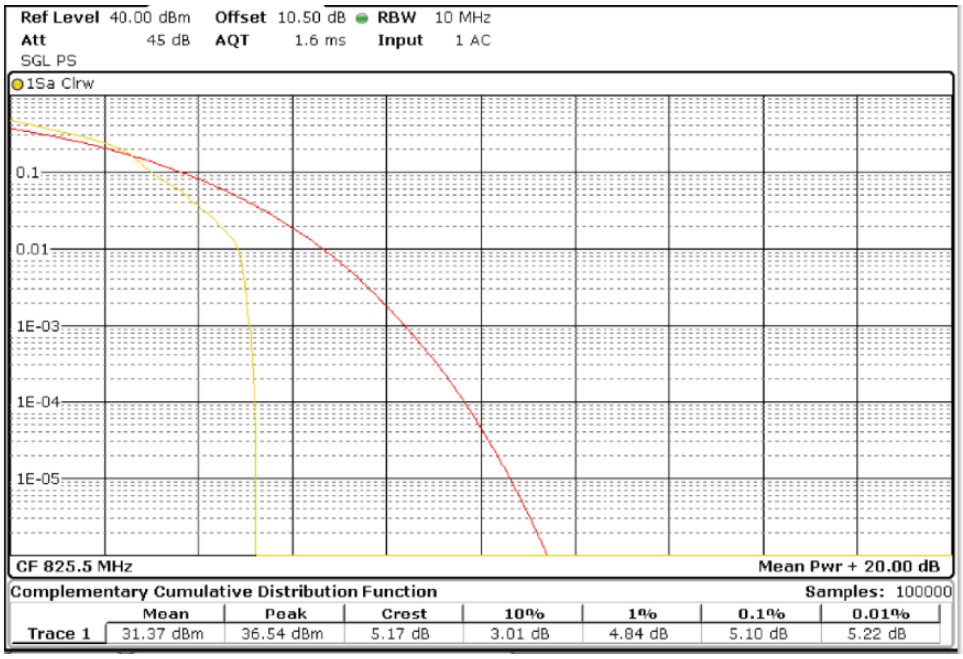
| TEST RESULTS (Cont): | |
|---|---|

Highest channel



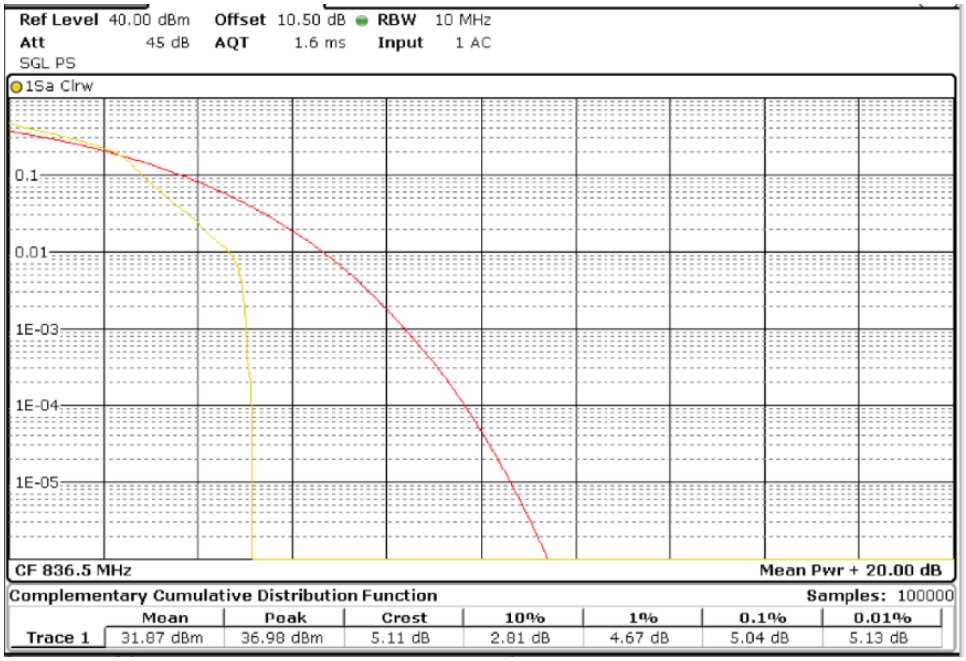

PAPR
Bandwidth = 3 MHz. Modulation 16QAM. RB Size: 1. RB Offset: 0.

Lowest channel

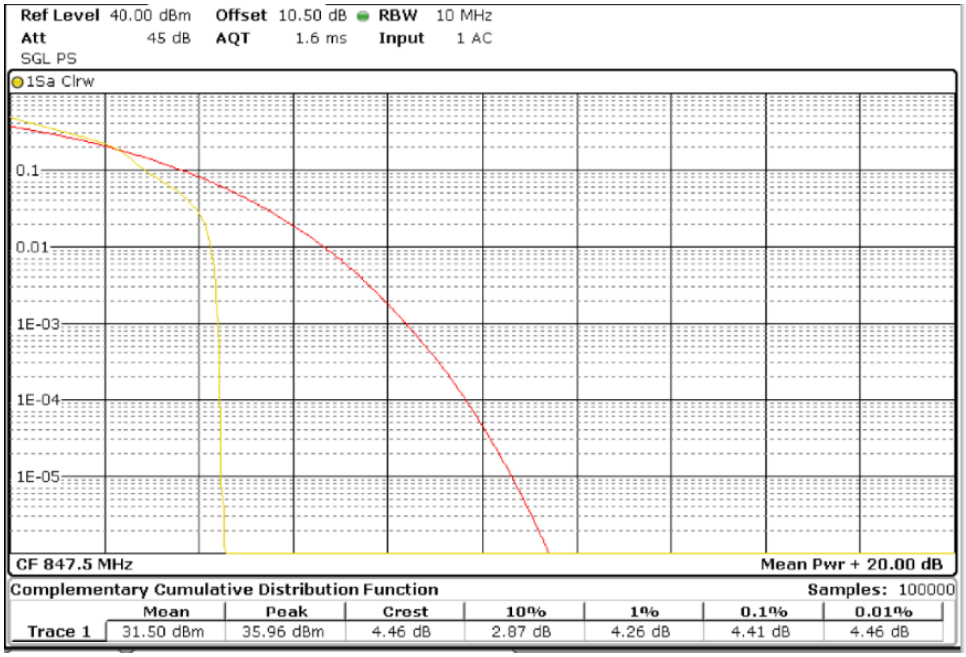


| TEST RESULTS (Cont): | |
|---|---|

Middle channel



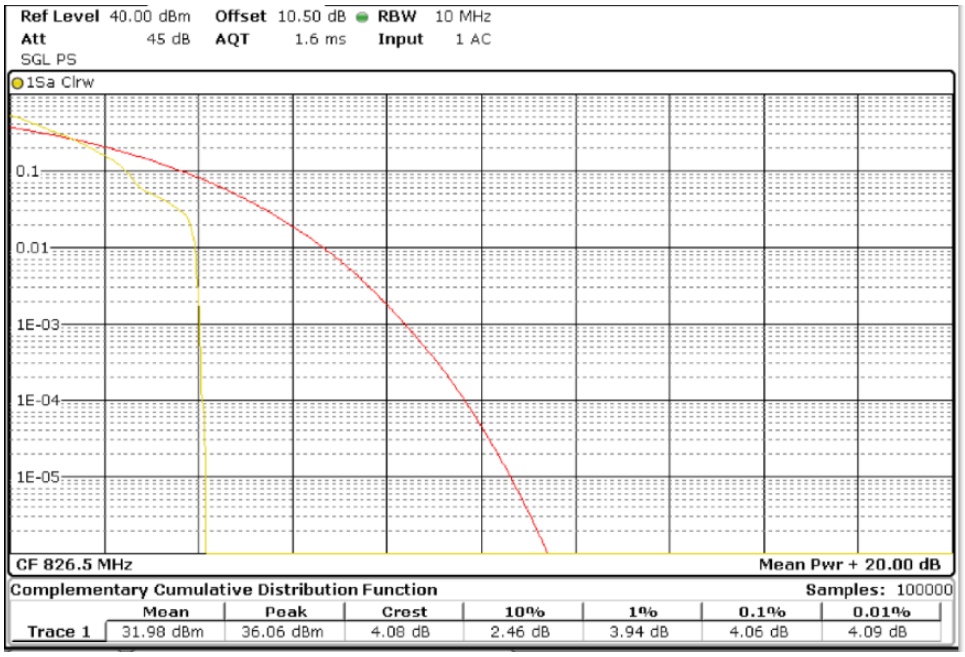

Highest channel



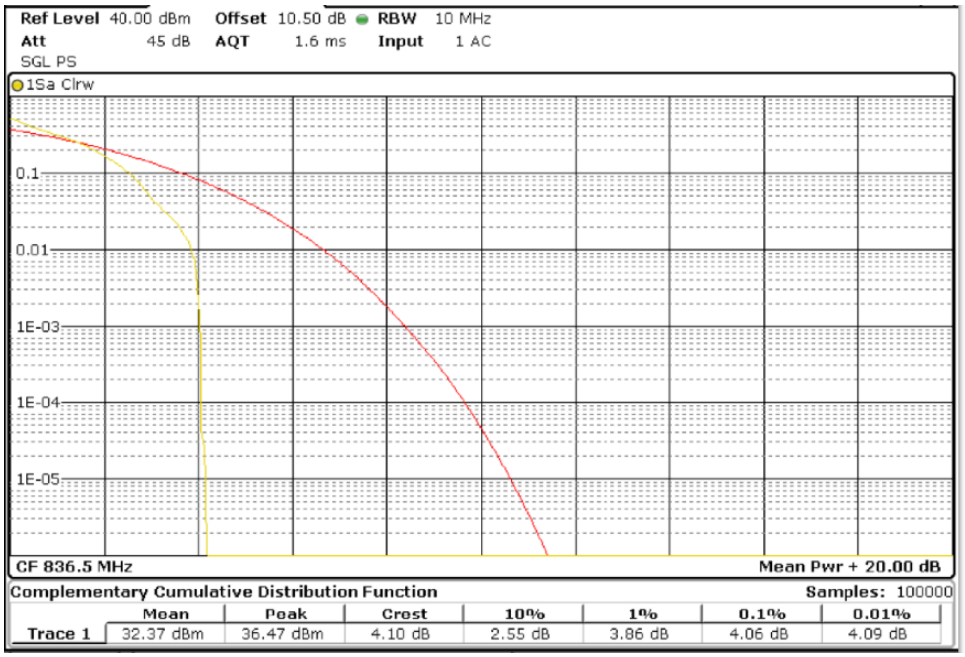
| TEST RESULTS (Cont): | |
|---|---|

PAPR
Bandwidth = 5 MHz Modulation QPSK. RB Size: 1. RB Offset: 0.

Lowest channel

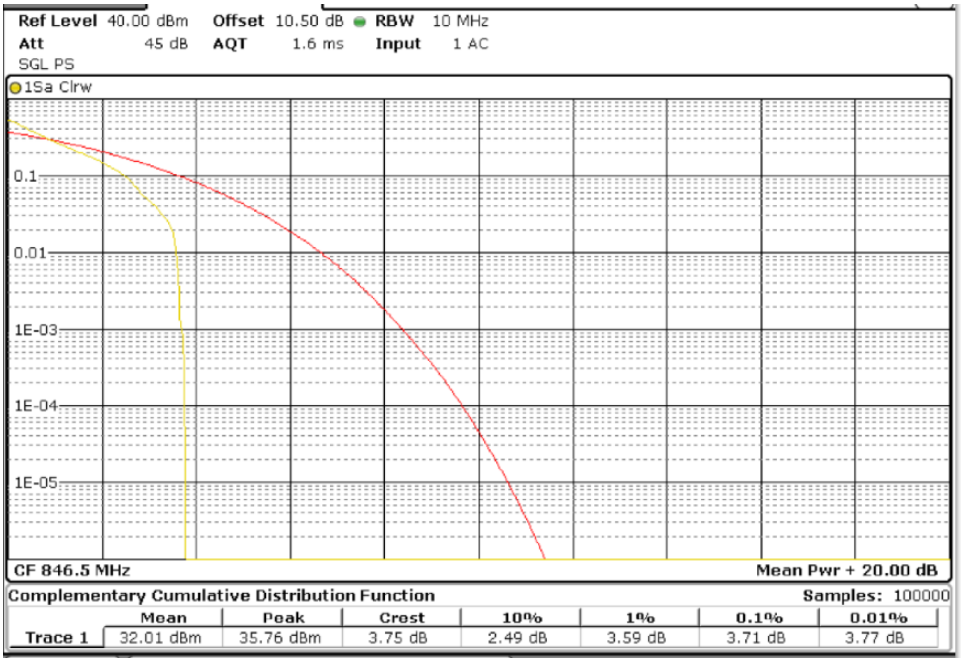



Middle channel



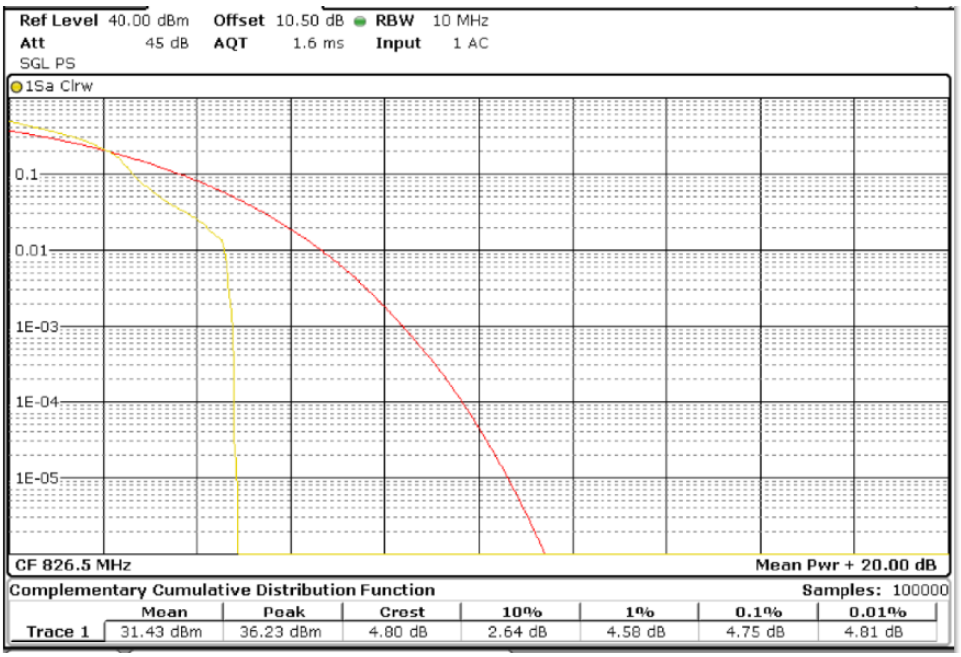
| TEST RESULTS (Cont): | |
|---|---|

Highest channel



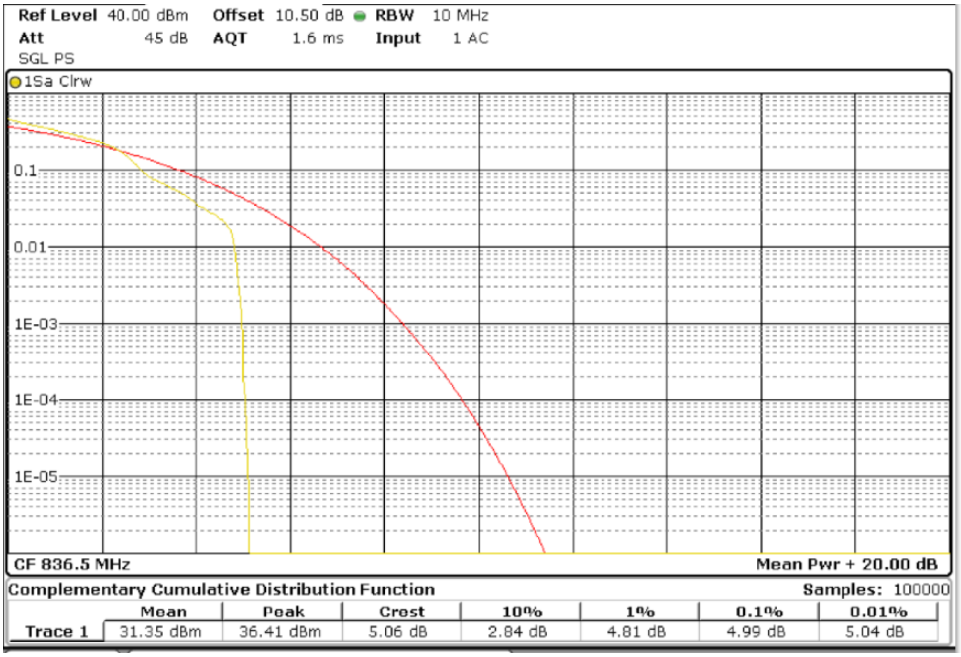

Bandwidth = 5 MHz Modulation 16QAM. RB Size: 1. RB Offset: 0.

Lowest channel

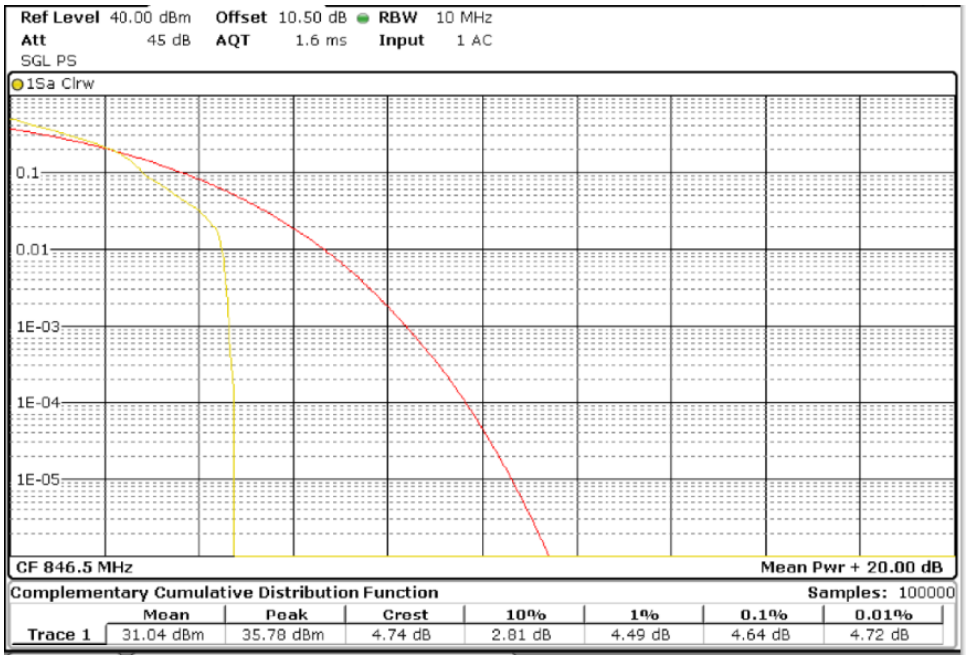


| TEST RESULTS (Cont): | |
|---|---|

Middle channel



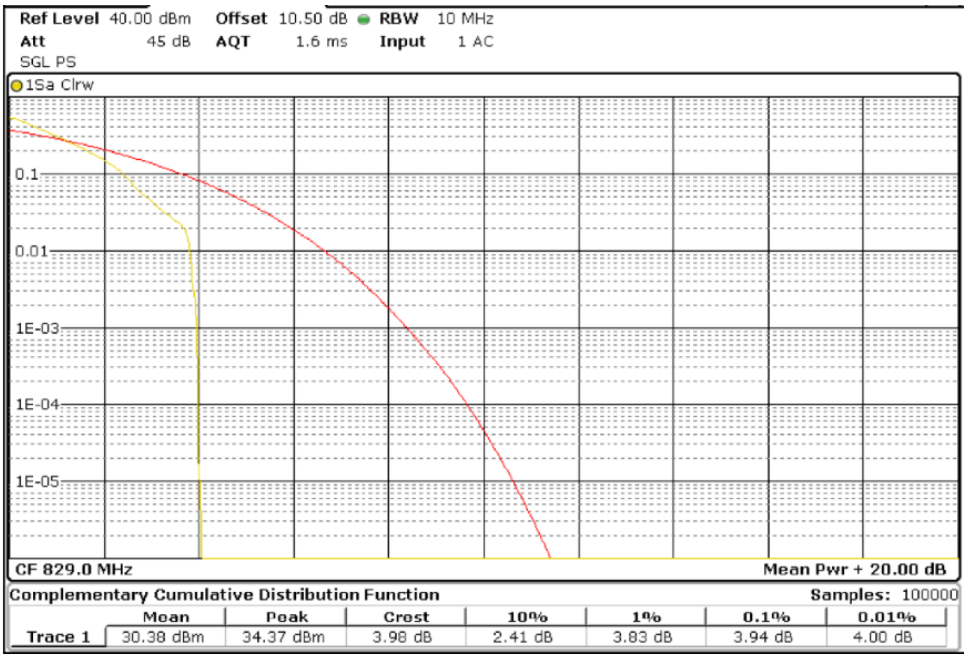

Highest channel



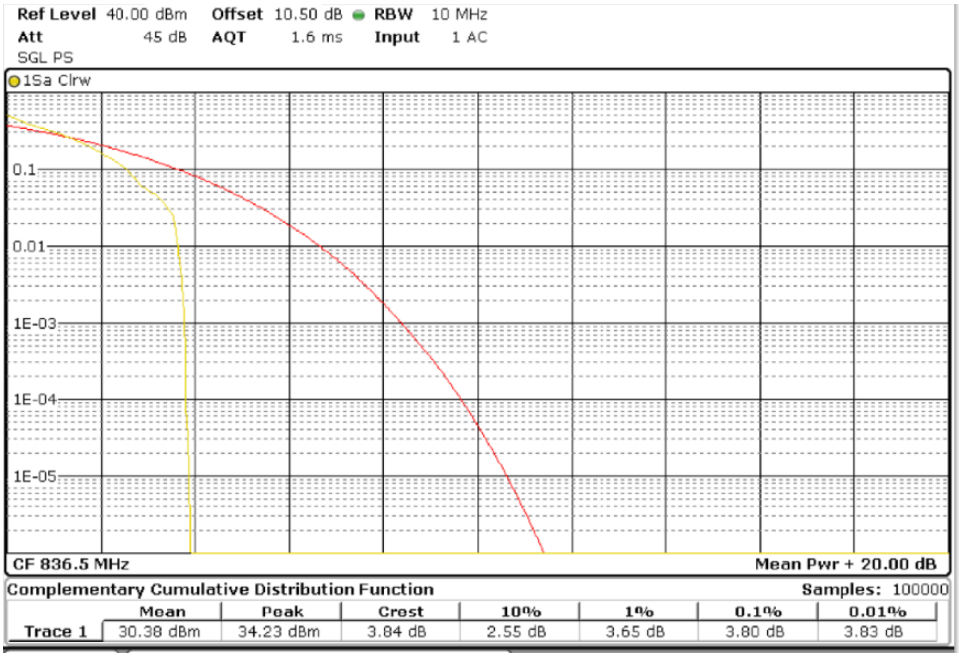
| TEST RESULTS (Cont): | |
|---|---|

Bandwidth = 10 MHz Modulation QPSK. RB Size: 1. RB Offset: 0.

Lowest channel

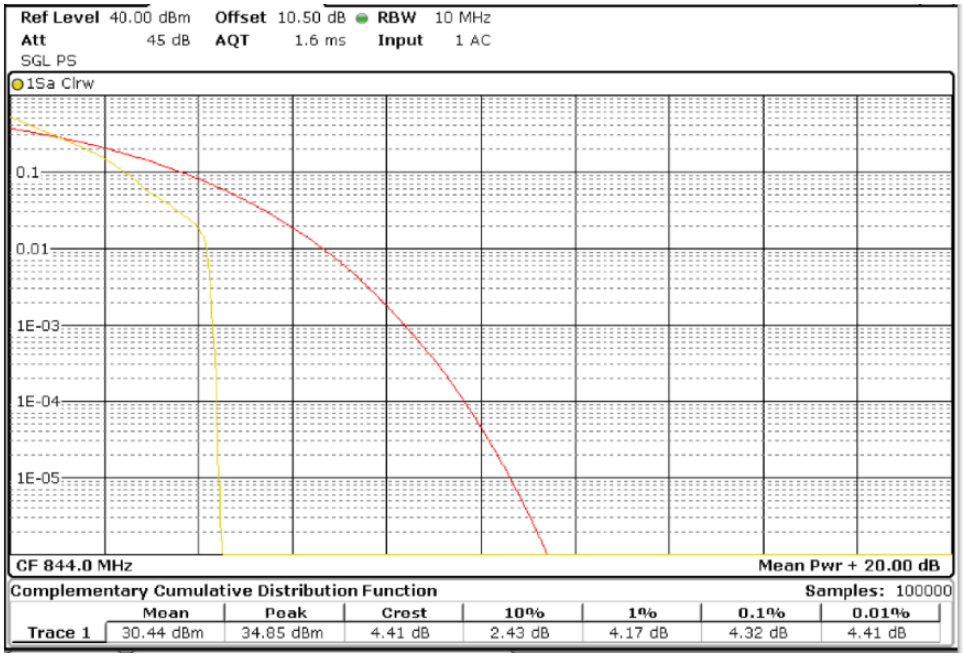



Middle channel



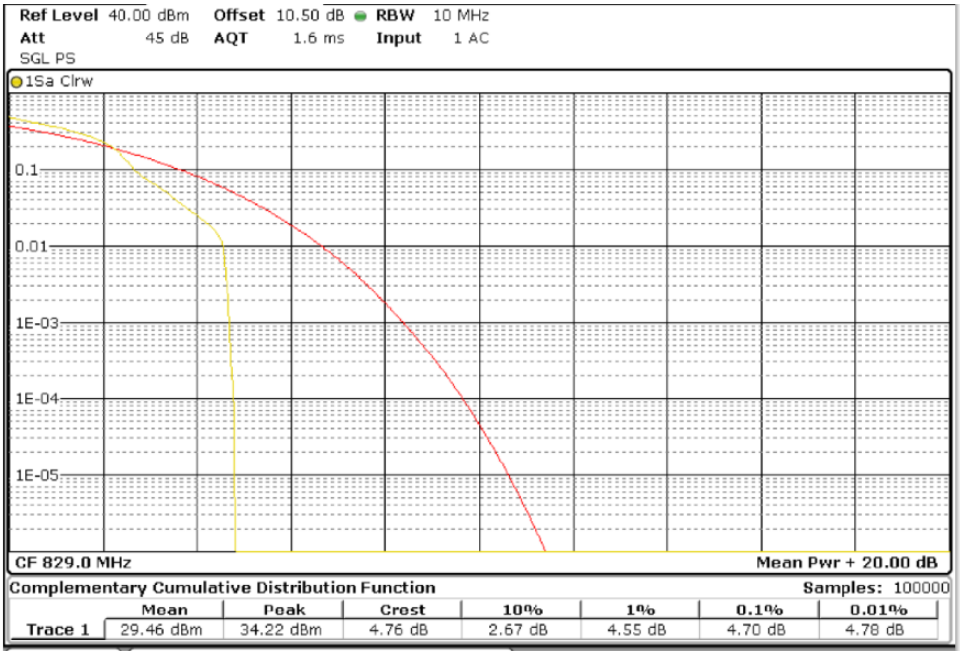
| TEST RESULTS (Cont): | |
|---|---|

Highest channel



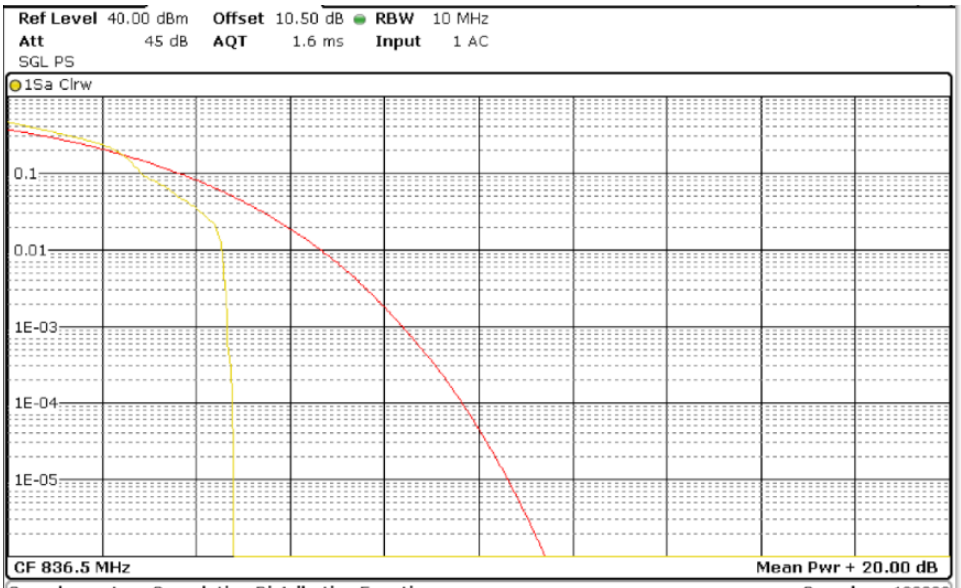

Bandwidth = 10 MHz Modulation 16QAM. RB Size: 1. RB Offset: 0.

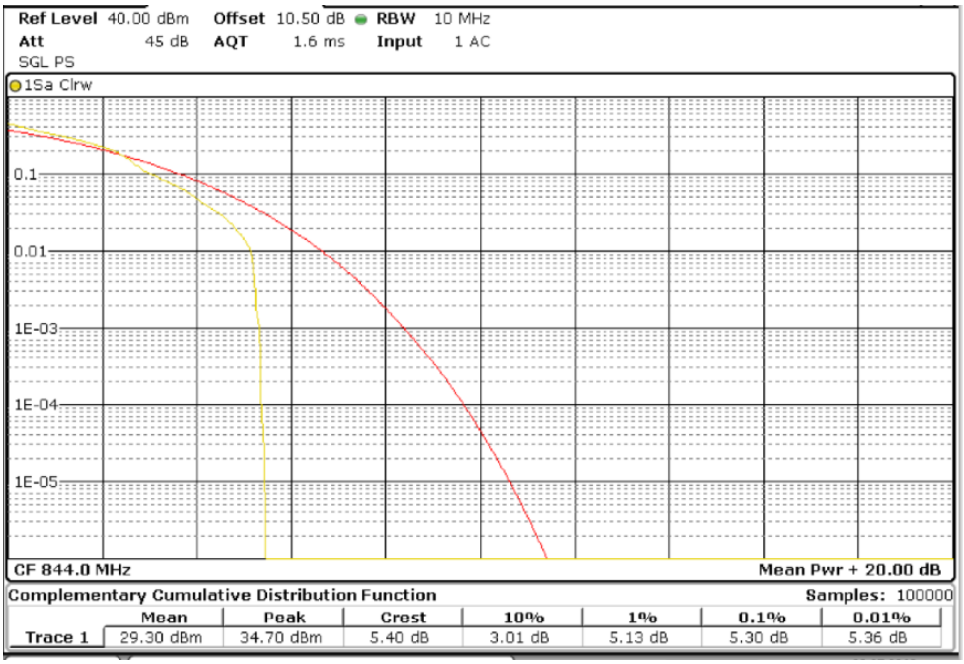
Lowest channel



| TEST RESULTS (Cont): | |
|---|---|

Middle channel




Highest channel