

# FCC Measurement/Technical Report on

## PSR 7/8 B

## Cellular Repeater

FCC ID: XS5-PSR78B

IC: 2237E-PSR78B

**Test Report Reference:** MDE\_BVNBG\_1903\_FCC01\_rev2

**Test Laboratory:**

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Note:

The following test results relate only to the devices specified in this document. This report shall not be reproduced in parts without the written approval of the test laboratory.

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## Applied Standards and Test Summary

### 1.1 APPLIED STANDARDS

Prepared in accordance with the requirements of FCC Rules and Regulations as listed in 47 CFR Ch.1 Parts 2 and 90, (10/1/18 Edition). The following subparts are applicable to the results in this test report.

Part 2, Subpart J - Equipment Authorization Procedures, Certification

Part 90; Private Land Mobile Radio Services

Subpart R - Regulations Governing the Licensing and Use of Frequencies in the 763-775 and 793-805 MHz Bands

90.542 - Broadband transmitting power limits

90.543 - Emission limitations

Subpart S – Regulations Governing Licensing and Use of Frequencies in the 806-824, 851-869, 896-901, And 935-940 MHz Bands

§ 90.635 – Limitations on power and antenna height

§ 90.691 – Emission mask requirements for EA-based systems

Subpart I – General Technical Standards

§ 90.213 – Frequency Stability

§ 90.219 – Use of signal boosters

The tests were selected and performed with reference to:

- FCC Public Notice 935210 applying "Signal Boosters Basic Certification Requirements" 935210 D02 v04r02, 2019-04-15.
- FCC Public Notice 935210 applying "Measurement guidance for industrial and non-consumer signal booster, repeater and amplifier devices" 935210 D05 v01r03, 2019-04-15.
- FCC Public Notice 971168 applying "Measurement guidance for certification of licensed digital transmitters" 971168 D01 v03r01, 2018-04-09
- ANSI C63.26: 2015

#### **Summary Test Results:**

**The EUT complied with all performed tests as listed in chapter 1.3 Measurement Summary / Signatures.**

## 1.2 FCC-ISED CORRELATION TABLE

### **Correlation of measurement requirements for Industrial Signal Booster from FCC and ISED Canada**

#### **Band 14 (758 MHz – 768 MHz)**

<b>Measurement</b>	<b>FCC reference</b>	<b>ISED reference</b>
Effective radiated power, mean output power and zone enhancer gain	§2.1046 §90.542 KDB 935210 D05 v01r03: 3.5	RSS-GEN Issue 5, 6.12 RSS-140 Issue 1, 4.3 SRSP-540, Issue 7, 5.1.1 RSS-131, Issue 3, 6.2
Peak to Average Ratio	-	RSS 140 Issue 1: 4.3
Occupied bandwidth Input-versus-output spectrum	§2.1049 KDB 935210 D05 v01r03: 3.4	RSS-GEN Issue 5, 6.7 RSS-131, Issue 3, 6.6
Conducted spurious Emission at Antenna Terminal	§2.1051 §90.543	RSS-GEN Issue 5, 6.13 RSS-140 Issue 1, 4.4 RSS-131, Issue 3, 6.5
Out-of-band emissions limits/Intermodulation	§2.1051 §90.213 KDB 935210 D05 v01r03: 3.6	RSS-GEN Issue 5, 6.13 RSS-140 Issue 1, 4.4 RSS-131, Issue 3, 6.3
Frequency stability	§2.1055	RSS-GEN Issue 5, 6.11 RSS-140 Issue 1, 4.2 RSS-131, Issue 3, 6.6
Field strength of spurious radiation	§2.1053 §90.543	RSS-GEN Issue 5, 6.13 RSS-140 Issue 1, 4.4 RSS-131, Issue 3, 6.5
Out-of-band rejection	KDB 935210 D05 v01r03: 3.3	RSS-131, Issue 3, 6.2.1
Noise figure	§90.219	RSS-131, Issue 3, 6.4

## 1.3 MEASUREMENT SUMMARY / SIGNATURES

### Band 758 MHz – 768 MHz (Downlink) / 788 MHz – 798 MHz (Uplink)

#### 47 CFR CHAPTER I FCC PART 90 Subpart R/I [Base Stations/Repeater]

**§2.1046, §90.542 (a),  
KDB 935210 D02 II (p)(4)**

Effective Radiated Power, mean output power and zone enhancer gain  
The measurement was performed according to ANSI C63.26, KDB 935210 D05 v01r03: 3.5

**Final Result**

#### OP-Mode

Frequency Band, Direction, Input Power, Signal Type	<b>Setup</b>	<b>FCC</b>	<b>IC</b>
Band 758 MHz – 768 MHz, RF downlink, 0.3 dB < AGC, CW	S01_AA01	Passed	Passed
Band 788 MHz – 798 MHz, RF uplink, 0.3 dB < AGC, CW	S01_AA01	Passed	Passed
Band 758 MHz – 768 MHz, RF downlink, 3 dB > AGC, CW	S01_AA01	Passed	Passed
Band 788 MHz – 798 MHz, RF uplink, 3 dB > AGC, CW	S01_AA01	Passed	Passed

#### 47 CFR CHAPTER I FCC PART 90 Subpart R/I [Base Stations/Repeater]

Peak to Average Ratio

The measurement was performed according to ANSI C63.26

**Final Result**

#### OP-Mode

Frequency Band, Direction, Input Power, Signal Type	<b>Setup</b>	<b>FCC</b>	<b>IC</b>
Band 758 MHz – 768 MHz, RF downlink, 0.3 dB < AGC, 5M00G7D	S01_AA01	Passed	Passed
Band 788 MHz – 798 MHz, RF uplink, 0.3 dB < AGC, 5M00G7D	S01_AA01	Passed	Passed
Band 758 MHz – 768 MHz, RF downlink, 3 dB > AGC, 5M00G7D	S01_AA01	Passed	Passed
Band 788 MHz – 798 MHz, RF uplink, 3 dB > AGC, 5M00G7D	S01_AA01	Passed	Passed

#### 47 CFR CHAPTER I FCC PART 90 Subpart R/I [Base Stations/Repeater]

**§2.1049,  
KDB 935210 D02 II (p)(3)**

Occupied Bandwidth / Input-versus-output Spectrum

The measurement was performed according to ANSI C63.26, KDB 935210 D05 v01r03: 3.4

**Final Result**

#### OP-Mode

Frequency Band, Direction, Input Power, Signal Type	<b>Setup</b>	<b>FCC</b>	<b>IC</b>
Band 758 MHz – 768 MHz, RF downlink, 0.3 dB < AGC, 5M00G7D	S01_AA01	Performed	Passed
Band 788 MHz – 798 MHz, RF uplink, 0.3 dB < AGC, 5M00G7D	S01_AA01	Performed	Passed
Band 758 MHz – 768 MHz, RF downlink, 3 dB > AGC, 5M00G7D	S01_AA01	Performed	Passed
Band 788 MHz – 798 MHz, RF uplink, 3 dB > AGC, 5M00G7D	S01_AA01	Performed	Passed

**47 CFR CHAPTER I FCC PART 90 Subpart R/I  
[Base Stations/Repeater]**
**§2.1051, §90.543**

Conducted spurious emissions at antenna terminals  
The measurement was performed according to ANSI C63.26

**Final Result**
**OP-Mode**

Frequency Band, Test Frequency, Direction, Signal Type  
Band 758 MHz – 768 MHz, high, RF downlink, CW  
Band 788 MHz – 798 MHz, high, RF uplink, CW  
Band 758 MHz – 768 MHz, low, RF downlink, CW  
Band 788 MHz – 798 MHz, low, RF uplink, CW  
Band 758 MHz – 768 MHz, mid, RF downlink, CW  
Band 788 MHz – 798 MHz, mid, RF uplink, CW

**Setup**
**FCC**
**IC**

S01\_AA01

Passed<sup>1)</sup>Passed<sup>1)</sup>

S01\_AA01

Passed<sup>1)</sup>Passed<sup>1)</sup>

S01\_AA01

Passed<sup>1)</sup>Passed<sup>1)</sup>

S01\_AA01

Passed<sup>1)</sup>Passed<sup>1)</sup>

S01\_AA01

Passed<sup>1)</sup>Passed<sup>1)</sup>
**47 CFR CHAPTER I FCC PART 90 Subpart R/I  
[Base Stations/Repeater]**
**§2.1053, §90.543  
KDB 935210 D02 II (p)(3)**

Out-of-band emission limits / Intermodulation

The measurement was performed according to ANSI C63.26, KDB 935210 D05 v01r03: 3.6

**Final Result**
**OP-Mode**

Frequency Band, Number of signals, Direction, Input Power,  
Signal Type  
Band 758 MHz – 768 MHz, 2, RF downlink, 0.3 dB < AGC, CW  
Band 788 MHz – 798 MHz, 2, RF uplink, 0.3 dB < AGC, CW  
Band 758 MHz – 768 MHz, 2, RF downlink, 3 dB > AGC, CW  
Band 788 MHz – 798 MHz, 2, RF uplink, 3 dB > AGC, CW

**Setup**
**FCC**
**IC**

S01\_AA01

Passed

Passed

S01\_AA01

Passed

Passed

S01\_AA01

Passed

Passed

S01\_AA01

Passed

Passed

**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**
**KDB 935210 D02 II (p)(2)**

Out-of-band rejection

The measurement was performed according to ANSI C63.26

**Final Result**
**OP-Mode**

Frequency Band, Direction  
Band 758 MHz – 768 MHz, RF downlink  
Band 788 MHz – 798 MHz, RF uplink

**Setup**
**FCC**
**IC**

S01\_AA01

Passed

Passed

S01\_AA01

Passed

Passed

**47 CFR CHAPTER I FCC PART 90 Subpart R/I  
[Base Stations/Repeater]**
**§90.219(d)(6)(ii)/(iii), (e)(3)**

Noise figure

The measurement was performed according to ANSI C63.26

**Final Result**
**OP-Mode**

Frequency Band, Direction, Test Step  
Band 758 MHz – 768 MHz, RF downlink, passband  
Band 788 MHz – 798 MHz, RF uplink, passband

**Setup**
**FCC**
**IC**

S01\_AA01

Passed

Passed

S01\_AA01

Passed

Passed

**47 CFR CHAPTER I FCC PART 90 Subpart R/I**  
**[Base Stations/Repeater]**

**§2.1053, §90.543**

Field strength of spurious radiation

The measurement was performed according to ANSI C63.26

**Final Result**

**OP-Mode**

Frequency Band, Test Frequency, Direction  
Band 758 MHz – 768 MHz, high, RF downlink  
Band 788 MHz – 798 MHz, high, RF uplink  
Band 758 MHz – 768 MHz, low, RF downlink  
Band 788 MHz – 798 MHz, low, RF uplink  
Band 758 MHz – 768 MHz, mid, RF downlink  
Band 788 MHz – 798 MHz, mid, RF uplink

<b>Setup</b>	<b>FCC</b>	<b>IC</b>
S01_AA01	Passed	Passed

## **Band 769 MHz – 775 MHz (Downlink) / 799 MHz – 805 MHz (Uplink)**

# **47 CFR CHAPTER I FCC PART 90 Subpart R/I [Base Stations/Repeater]**

**§2.1046, §90.541 (a), §90.635  
(a), §09.531 (b)(3)(4)  
KDB 935210 D02 II (p)(4)**

Effective Radiated Power, mean output power and zone enhancer gain  
The measurement was performed according to ANSI C63.26, KDB  
935210 D05 v01r03: 3.5

## **Final Result**

<b>OP-Mode</b>	<b>Setup</b>	<b>FCC</b>	<b>IC</b>
Frequency Band, Direction, Input Power, Signal Type			
Band 769 MHz – 775 MHz, RF downlink, 0.3 dB < AGC, CW	S01_AA01	Passed	Passed
Band 799 MHz – 805 MHz, RF uplink, 0.3 dB < AGC, CW	S01_AA01	Passed	Passed
Band 769 MHz – 775 MHz, RF downlink, 3 dB > AGC, CW	S01_AA01	Passed	Passed
Band 799 MHz – 805 MHz, RF uplink, 3 dB > AGC, CW	S01_AA01	Passed	Passed

## **47 CFR CHAPTER I FCC PART 90 Subpart R/I [Base Stations/Repeater]**

## Peak to Average Ratio

The measurement was performed according to ANSI C63.26

## Final Result

<b>OP-Mode</b>		<b>Setup</b>	<b>FCC</b>	<b>IC</b>
Frequency Band, Direction, Input Power, Signal Type				
Band 769 MHz – 775 MHz, RF downlink, 0.3 dB < AGC, 4K00F3E	S01_AA01	Passed	Passed	
Band 799 MHz – 805 MHz, RF uplink, 0.3 dB < AGC, 4K00F3E	S01_AA01	Passed	Passed	
Band 769 MHz – 775 MHz, RF downlink, 0.3 dB < AGC, 11K3F3E	S01_AA01	Passed	Passed	
Band 799 MHz – 805 MHz, RF uplink, 0.3 dB < AGC, 11K3F3E	S01_AA01	Passed	Passed	
Band 769 MHz – 775 MHz, RF downlink, 0.3 dB < AGC, 8K10F1D	S01_AA01	Passed	Passed	
Band 799 MHz – 805 MHz, RF uplink, 0.3 dB < AGC, 8K10F1D	S01_AA01	Passed	Passed	
Band 769 MHz – 775 MHz, RF downlink, 0.3 dB < AGC, 9K80D7W	S01_AA01	Passed	Passed	
Band 799 MHz – 805 MHz, RF uplink, 0.3 dB < AGC, 9K80D7W	S01_AA01	Passed	Passed	
Band 769 MHz – 775 MHz, RF downlink, 0.3 dB < AGC, 16K0F3E	S01_AA01	Passed	Passed	
Band 799 MHz – 805 MHz, RF uplink, 0.3 dB < AGC, 16K0F3E	S01_AA01	Passed	Passed	
Band 769 MHz – 775 MHz, RF downlink, 3 dB > AGC, 4K00F3E	S01_AA01	Passed	Passed	
Band 799 MHz – 805 MHz, RF uplink, 3 dB > AGC, 4K00F3E	S01_AA01	Passed	Passed	
Band 769 MHz – 775 MHz, RF downlink, 3 dB > AGC, 11K3F3E	S01_AA01	Passed	Passed	
Band 799 MHz – 805 MHz, RF uplink, 3 dB > AGC, 11K3F3E	S01_AA01	Passed	Passed	
Band 769 MHz – 775 MHz, RF downlink, 3 dB > AGC, 8K10F1D	S01_AA01	Passed	Passed	
Band 799 MHz – 805 MHz, RF uplink, 3 dB > AGC, 8K10F1D	S01_AA01	Passed	Passed	
Band 769 MHz – 775 MHz, RF downlink, 3 dB > AGC, 9K80D7W	S01_AA01	Passed	Passed	
Band 799 MHz – 805 MHz, RF uplink, 3 dB > AGC, 9K80D7W	S01_AA01	Passed	Passed	
Band 769 MHz – 775 MHz, RF downlink, 3 dB > AGC, 16K0F3E	S01_AA01	Passed	Passed	
Band 799 MHz – 805 MHz, RF uplink, 3 dB > AGC, 16K0F3E	S01_AA01	Passed	Passed	

**47 CFR CHAPTER I FCC PART 90 Subpart R/I**  
**[Base Stations/Repeater]**
**§2.1049,**  
**KDB 935210 D02 II (p)(3)**

Occupied Bandwidth / Input-versus-output Spectrum

The measurement was performed according to ANSI C63.26, KDB 935210 D05 v01r03: 3.4

**Final Result**
**OP-Mode**

Frequency Band, Direction, Input Power, Signal Type

	<b>Setup</b>	<b>FCC</b>	<b>IC</b>
Band 769 MHz – 775 MHz, RF downlink, 0.3 dB < AGC, 4K00F3E	S01_AA01	Performed	Passed
Band 799 MHz – 805 MHz, RF uplink, 0.3 dB < AGC, 4K00F3E	S01_AA01	Performed	Passed
Band 769 MHz – 775 MHz, RF downlink, 0.3 dB < AGC, 11K3F3E	S01_AA01	Performed	Passed
Band 799 MHz – 805 MHz, RF uplink, 0.3 dB < AGC, 11K3F3E	S01_AA01	Performed	Passed
Band 769 MHz – 775 MHz, RF downlink, 0.3 dB < AGC, 8K10F1D	S01_AA01	Performed	Passed
Band 799 MHz – 805 MHz, RF uplink, 0.3 dB < AGC, 8K10F1D	S01_AA01	Performed	Passed
Band 769 MHz – 775 MHz, RF downlink, 0.3 dB < AGC, 9K80D7W	S01_AA01	Performed	Passed
Band 799 MHz – 805 MHz, RF uplink, 0.3 dB < AGC, 9K80D7W	S01_AA01	Performed	Passed
Band 769 MHz – 775 MHz, RF downlink, 0.3 dB < AGC, 16K0F3E	S01_AA01	Performed	Passed
Band 799 MHz – 805 MHz, RF uplink, 0.3 dB < AGC, 16K0F3E	S01_AA01	Performed	Passed
Band 769 MHz – 775 MHz, RF downlink, 3 dB > AGC, 4K00F3E	S01_AA01	Performed	Passed
Band 799 MHz – 805 MHz, RF uplink, 3 dB > AGC, 4K00F3E	S01_AA01	Performed	Passed
Band 769 MHz – 775 MHz, RF downlink, 3 dB > AGC, 11K3F3E	S01_AA01	Performed	Passed
Band 799 MHz – 805 MHz, RF uplink, 3 dB > AGC, 11K3F3E	S01_AA01	Performed	Passed
Band 769 MHz – 775 MHz, RF downlink, 3 dB > AGC, 8K10F1D	S01_AA01	Performed	Passed
Band 799 MHz – 805 MHz, RF uplink, 3 dB > AGC, 8K10F1D	S01_AA01	Performed	Passed
Band 769 MHz – 775 MHz, RF downlink, 3 dB > AGC, 9K80D7W	S01_AA01	Performed	Passed
Band 799 MHz – 805 MHz, RF uplink, 3 dB > AGC, 9K80D7W	S01_AA01	Performed	Passed
Band 769 MHz – 775 MHz, RF downlink, 3 dB > AGC, 16K0F3E	S01_AA01	Performed	Passed
Band 799 MHz – 805 MHz, RF uplink, 3 dB > AGC, 16K0F3E	S01_AA01	Performed	Passed

**47 CFR CHAPTER I FCC PART 90 Subpart R/I**  
**[Base Stations/Repeater]**
**§2.1051, §90.543**

Conducted spurious emissions at antenna terminals

The measurement was performed according to ANSI C63.26

**Final Result**
**OP-Mode**

Frequency Band, Test Frequency, Direction, Signal Type

	<b>Setup</b>	<b>FCC</b>	<b>IC</b>
Band 769 MHz – 775 MHz, high, RF downlink, CW	S01_AA01	Passed <sup>(1)</sup>	Passed <sup>(1)</sup>
Band 799 MHz – 805 MHz, high, RF uplink, CW	S01_AA01	Passed <sup>(1)</sup>	Passed <sup>(1)</sup>
Band 769 MHz – 775 MHz, low, RF downlink, CW	S01_AA01	Passed <sup>(1)</sup>	Passed <sup>(1)</sup>
Band 799 MHz – 805 MHz, low, RF uplink, CW	S01_AA01	Passed <sup>(1)</sup>	Passed <sup>(1)</sup>
Band 769 MHz – 775 MHz, mid, RF downlink, CW	S01_AA01	Passed <sup>(1)</sup>	Passed <sup>(1)</sup>
Band 799 MHz – 805 MHz, mid, RF uplink, CW	S01_AA01	Passed <sup>(1)</sup>	Passed <sup>(1)</sup>

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**47 CFR CHAPTER I FCC PART 90 Subpart R/I  
[Base Stations/Repeater]**
**§2.1053, §90.543  
KDB 935210 D02 II (p)(3)**


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Out-of-band emission limits / Intermodulation

The measurement was performed according to ANSI C63.26, KDB 935210 D05 v01r03: 3.6

**Final Result****OP-Mode**

Frequency Band, Number of signals, Direction, Input Power, Signal Type

Band 769 MHz – 775 MHz, 2, RF downlink, 0.3 dB &lt; AGC, CW

**Setup****FCC****IC**

S01\_AA01

Passed

Passed

Band 799 MHz – 805 MHz, 2, RF uplink, 0.3 dB &lt; AGC, CW

S01\_AA01

Passed

Passed

Band 769 MHz – 775 MHz, 2, RF downlink, 3 dB &gt; AGC, CW

S01\_AA01

Passed

Passed

Band 799 MHz – 805 MHz, 2, RF uplink, 3 dB &gt; AGC, CW

S01\_AA01

Passed

Passed

---

**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**
**KDB 935210 D02 II (p)(2)**


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Out-of-band rejection

The measurement was performed according to ANSI C63.26

**Final Result****OP-Mode**

Frequency Band, Direction

Band 769 MHz – 775 MHz, RF downlink

**Setup****FCC****IC**

S01\_AA01

Passed

Passed

Band 799 MHz – 805 MHz, RF uplink

S01\_AA01

Passed

Passed

---

**47 CFR CHAPTER I FCC PART 90 Subpart R/I  
[Base Stations/Repeater]**
**§90.219(d)(6)(ii)/(iii), (e)(3)**


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Noise figure

The measurement was performed according to ANSI C63.26

**Final Result****OP-Mode**

Frequency Band, Direction, Test Step

Band 769 MHz – 775 MHz, RF downlink, passband

**Setup****FCC****IC**

S01\_AA01

Passed

Passed

Band 799 MHz – 805 MHz, RF uplink, passband

S01\_AA01

Passed

Passed

---

**47 CFR CHAPTER I FCC PART 90 Subpart R/I  
[Base Stations/Repeater]**
**§2.1053, §90.543**


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Field strength of spurious radiation

The measurement was performed according to ANSI C63.26

**Final Result****OP-Mode**

Frequency Band, Test Frequency, Direction

Band 769 MHz – 775 MHz, high, RF downlink

**Setup****FCC****IC**

S01\_AA01

Passed

Passed

Band 799 MHz – 805 MHz, high, RF uplink

S01\_AA01

Passed

Passed

Band 769 MHz – 775 MHz, low, RF downlink

S01\_AA01

Passed

Passed

Band 799 MHz – 805 MHz, low, RF uplink

S01\_AA01

Passed

Passed

Band 769 MHz – 775 MHz, mid, RF downlink

S01\_AA01

Passed

Passed

Band 799 MHz – 805 MHz, mid, RF uplink

S01\_AA01

Passed

Passed

**Band 851 MHz – 854 MHz (Downlink) / 806 MHz – 809 MHz (Uplink)**
**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**
**§2.1046, §90.635 (a),  
KDB 935210 D02 II (p)(4)**

Effective Radiated Power, mean output power and zone enhancer gain

The measurement was performed according to ANSI C63.26, KDB  
935210 D05 v01r03: 3.5

**Final Result**
**OP-Mode**

Frequency Band, Direction, Input Power, Signal Type

Band 851 MHz – 854 MHz, RF downlink, 0.3 dB < AGC, CW	S01_AA01	Passed	Passed
Band 806 MHz – 809 MHz, RF uplink, 0.3 dB < AGC, CW	S01_AA01	Passed	Passed
Band 851 MHz – 854 MHz, RF downlink, 3 dB > AGC, CW	S01_AA01	Passed	Passed
Band 806 MHz – 809 MHz, RF uplink, 3 dB > AGC, CW	S01_AA01	Passed	Passed

**Setup**
**FCC**
**IC**
**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**

Peak to Average Ratio

The measurement was performed according to ANSI C63.26

**Final Result**
**OP-Mode**

Frequency Band, Direction, Input Power, Signal Type

Band 851 MHz – 854 MHz, RF downlink, 0.3 dB < AGC, 4K00F3E	S01_AA01	Passed	Passed
Band 806 MHz – 809 MHz, RF uplink, 0.3 dB < AGC, 4K00F3E	S01_AA01	Passed	Passed
Band 851 MHz – 854 MHz, RF downlink, 0.3 dB < AGC, 11K3F3E	S01_AA01	Passed	Passed
Band 806 MHz – 809 MHz, RF uplink, 0.3 dB < AGC, 11K3F3E	S01_AA01	Passed	Passed
Band 851 MHz – 854 MHz, RF downlink, 0.3 dB < AGC, 8K10F1D	S01_AA01	Passed	Passed
Band 806 MHz – 809 MHz, RF uplink, 0.3 dB < AGC, 8K10F1D	S01_AA01	Passed	Passed
Band 851 MHz – 854 MHz, RF downlink, 0.3 dB < AGC, 9K80D7W	S01_AA01	Passed	Passed
Band 806 MHz – 809 MHz, RF uplink, 0.3 dB < AGC, 9K80D7W	S01_AA01	Passed	Passed
Band 851 MHz – 854 MHz, RF downlink, 3 dB > AGC, 4K00F3E	S01_AA01	Passed	Passed
Band 806 MHz – 809 MHz, RF uplink, 3 dB > AGC, 4K00F3E	S01_AA01	Passed	Passed
Band 851 MHz – 854 MHz, RF downlink, 3 dB > AGC, 11K3F3E	S01_AA01	Passed	Passed
Band 806 MHz – 809 MHz, RF uplink, 3 dB > AGC, 11K3F3E	S01_AA01	Passed	Passed
Band 851 MHz – 854 MHz, RF downlink, 3 dB > AGC, 8K10F1D	S01_AA01	Passed	Passed
Band 806 MHz – 809 MHz, RF uplink, 3 dB > AGC, 8K10F1D	S01_AA01	Passed	Passed
Band 851 MHz – 854 MHz, RF downlink, 3 dB > AGC, 9K80D7W	S01_AA01	Passed	Passed
Band 806 MHz – 809 MHz, RF uplink, 3 dB > AGC, 9K80D7W	S01_AA01	Passed	Passed

**Setup**
**FCC**
**IC**

**47 CFR CHAPTER I FCC PART 90 Subpart R/I  
[Base Stations/Repeater]**
**§2.1049,  
KDB 935210 D02 II (p)(3)**

Occupied Bandwidth / Input-versus-output Spectrum

The measurement was performed according to ANSI C63.26, KDB 935210 D05 v01r03: 3.4

**Final Result**
**OP-Mode**

Frequency Band, Direction, Input Power, Signal Type

	<b>Setup</b>	<b>FCC</b>	<b>IC</b>
Band 851 MHz – 854 MHz, RF downlink, 0.3 dB < AGC, 4K00F3E	S01_AA01	Performed	Passed
Band 806 MHz – 809 MHz, RF uplink, 0.3 dB < AGC, 4K00F3E	S01_AA01	Performed	Passed
Band 851 MHz – 854 MHz, RF downlink, 0.3 dB < AGC, 11K3F3E	S01_AA01	Performed	Passed
Band 806 MHz – 809 MHz, RF uplink, 0.3 dB < AGC, 11K3F3E	S01_AA01	Performed	Passed
Band 851 MHz – 854 MHz, RF downlink, 0.3 dB < AGC, 8K10F1D	S01_AA01	Performed	Passed
Band 806 MHz – 809 MHz, RF uplink, 0.3 dB < AGC, 8K10F1D	S01_AA01	Performed	Passed
Band 851 MHz – 854 MHz, RF downlink, 0.3 dB < AGC, 9K80D7W	S01_AA01	Performed	Passed
Band 806 MHz – 809 MHz, RF uplink, 0.3 dB < AGC, 9K80D7W	S01_AA01	Performed	Passed
Band 851 MHz – 854 MHz, RF downlink, 3 dB > AGC, 4K00F3E	S01_AA01	Performed	Passed
Band 806 MHz – 809 MHz, RF uplink, 3 dB > AGC, 4K00F3E	S01_AA01	Performed	Passed
Band 851 MHz – 854 MHz, RF downlink, 3 dB > AGC, 11K3F3E	S01_AA01	Performed	Passed
Band 806 MHz – 809 MHz, RF uplink, 3 dB > AGC, 11K3F3E	S01_AA01	Performed	Passed
Band 851 MHz – 854 MHz, RF downlink, 3 dB > AGC, 8K10F1D	S01_AA01	Performed	Passed
Band 806 MHz – 809 MHz, RF uplink, 3 dB > AGC, 8K10F1D	S01_AA01	Performed	Passed
Band 851 MHz – 854 MHz, RF downlink, 3 dB > AGC, 9K80D7W	S01_AA01	Performed	Passed
Band 806 MHz – 809 MHz, RF uplink, 3 dB > AGC, 9K80D7W	S01_AA01	Performed	Passed

**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**
**§2.1051, §90.691 (a)(2)**

Conducted spurious emissions at antenna terminals

The measurement was performed according to ANSI C63.26

**Final Result**
**OP-Mode**

Frequency Band, Test Frequency, Direction, Signal Type

	<b>Setup</b>	<b>FCC</b>	<b>IC</b>
Band 851 MHz – 854 MHz, high, RF downlink, CW	S01_AA01	Passed	Passed
Band 806 MHz – 809 MHz, high, RF uplink, CW	S01_AA01	Passed	Passed
Band 851 MHz – 854 MHz, low, RF downlink, CW	S01_AA01	Passed	Passed
Band 806 MHz – 809 MHz, low, RF uplink, CW	S01_AA01	Passed	Passed
Band 851 MHz – 854 MHz, mid, RF downlink, CW	S01_AA01	Passed	Passed
Band 806 MHz – 809 MHz, mid, RF uplink, CW	S01_AA01	Passed	Passed

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**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**
**§2.1053, §90.691 (a)(2)  
KDB 935210 D02 II (p)(3)**


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Out-of-band emission limits / Intermodulation

The measurement was performed according to ANSI C63.26, KDB 935210 D05 v01r03: 3.6

**Final Result****OP-Mode**

Frequency Band, Number of signals, Direction, Input Power, Signal Type

Band 851 MHz – 854 MHz, 2, RF downlink, 0.3 dB &lt; AGC, CW

**Setup****FCC****IC**

S01\_AA01

Passed

Passed

Band 806 MHz – 809 MHz, 2, RF uplink, 0.3 dB &lt; AGC, CW

S01\_AA01

Passed

Passed

Band 851 MHz – 854 MHz, 2, RF downlink, 3 dB &gt; AGC, CW

S01\_AA01

Passed

Passed

Band 806 MHz – 809 MHz, 2, RF uplink, 3 dB &gt; AGC, CW

S01\_AA01

Passed

Passed

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**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**
**KDB 935210 D02 II (p)(2)**


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Out-of-band rejection

The measurement was performed according to ANSI C63.26

**Final Result****OP-Mode**

Frequency Band, Direction

Band 851 MHz – 854 MHz, RF downlink

**Setup****FCC****IC**

S01\_AA01

Passed

Passed

Band 806 MHz – 809 MHz, RF uplink

S01\_AA01

Passed

Passed

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**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**
**§90.219(d)(6)(ii)/(iii), (e)(3)**


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Noise figure

The measurement was performed according to ANSI C63.26

**Final Result****OP-Mode**

Frequency Band, Direction, Test Step

Band 851 MHz – 854 MHz, RF downlink, passband

**Setup****FCC****IC**

S01\_AA01

Passed

Passed

Band 806 MHz – 809 MHz, RF uplink, passband

S01\_AA01

Passed

Passed

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**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**
**§2.1053, §90.691 (a)(2)**


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Field strength of spurious radiation

The measurement was performed according to ANSI C63.26

**Final Result****OP-Mode**

Frequency Band, Test Frequency, Direction

Band 851 MHz – 854 MHz, high, RF downlink

**Setup****FCC****IC**

S01\_AA01

Passed

Passed

Band 806 MHz – 809 MHz, high, RF uplink

S01\_AA01

Passed

Passed

Band 851 MHz – 854 MHz, low, RF downlink

S01\_AA01

Passed

Passed

Band 806 MHz – 809 MHz, low, RF uplink

S01\_AA01

Passed

Passed

Band 851 MHz – 854 MHz, mid, RF downlink

S01\_AA01

Passed

Passed

Band 806 MHz – 809 MHz, mid, RF uplink

S01\_AA01

Passed

Passed

**Band 854 MHz – 862 MHz (Downlink) / 809 MHz – 817 MHz (Uplink)**
**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**
**§2.1046, §90.635 (a),  
KDB 935210 D02 II (p)(4)**

Effective Radiated Power, mean output power and zone enhancer gain

The measurement was performed according to ANSI C63.26, KDB 935210 D05 v01r03: 3.5

**Final Result**
**OP-Mode**

Frequency Band, Direction, Input Power, Signal Type

Band 854 MHz – 862 MHz, RF downlink, 0.3 dB < AGC, CW	S01_AA01	Passed	Passed
Band 809 MHz – 817 MHz, RF uplink, 0.3 dB < AGC, CW	S01_AA01	Passed	Passed
Band 854 MHz – 862 MHz, RF downlink, 3 dB > AGC, CW	S01_AA01	Passed	Passed
Band 809 MHz – 817 MHz, RF uplink, 3 dB > AGC, CW	S01_AA01	Passed	Passed

**Setup**
**FCC**
**IC**
**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**

Peak to Average Ratio

The measurement was performed according to ANSI C63.26

**Final Result**
**OP-Mode**

Frequency Band, Direction, Input Power, Signal Type

Band 854 MHz – 862 MHz, RF downlink, 0.3 dB < AGC, 4K00F3E	S01_AA01	Passed	Passed
Band 809 MHz – 817 MHz, RF uplink, 0.3 dB < AGC, 4K00F3E	S01_AA01	Passed	Passed
Band 854 MHz – 862 MHz, RF downlink, 0.3 dB < AGC, 11K3F3E	S01_AA01	Passed	Passed
Band 809 MHz – 817 MHz, RF uplink, 0.3 dB < AGC, 11K3F3E	S01_AA01	Passed	Passed
Band 854 MHz – 862 MHz, RF downlink, 0.3 dB < AGC, 8K10F1D	S01_AA01	Passed	Passed
Band 809 MHz – 817 MHz, RF uplink, 0.3 dB < AGC, 8K10F1D	S01_AA01	Passed	Passed
Band 854 MHz – 862 MHz, RF downlink, 0.3 dB < AGC, 9K80D7W	S01_AA01	Passed	Passed
Band 809 MHz – 817 MHz, RF uplink, 0.3 dB < AGC, 9K80D7W	S01_AA01	Passed	Passed
Band 854 MHz – 862 MHz, RF downlink, 3 dB > AGC, 4K00F3E	S01_AA01	Passed	Passed
Band 809 MHz – 817 MHz, RF uplink, 3 dB > AGC, 4K00F3E	S01_AA01	Passed	Passed
Band 854 MHz – 862 MHz, RF downlink, 3 dB > AGC, 11K3F3E	S01_AA01	Passed	Passed
Band 809 MHz – 817 MHz, RF uplink, 3 dB > AGC, 11K3F3E	S01_AA01	Passed	Passed
Band 854 MHz – 862 MHz, RF downlink, 3 dB > AGC, 8K10F1D	S01_AA01	Passed	Passed
Band 809 MHz – 817 MHz, RF uplink, 3 dB > AGC, 8K10F1D	S01_AA01	Passed	Passed
Band 854 MHz – 862 MHz, RF downlink, 3 dB > AGC, 9K80D7W	S01_AA01	Passed	Passed
Band 809 MHz – 817 MHz, RF uplink, 3 dB > AGC, 9K80D7W	S01_AA01	Passed	Passed

**Setup**
**FCC**
**IC**

**47 CFR CHAPTER I FCC PART 90 Subpart R/I**  
**[Base Stations/Repeater]**
**§2.1049,**  
**KDB 935210 D02 II (p)(3)**

Occupied Bandwidth / Input-versus-output Spectrum

The measurement was performed according to ANSI C63.26, KDB 935210 D05 v01r03: 3.4

**Final Result**
**OP-Mode**

Frequency Band, Direction, Input Power, Signal Type

	<b>Setup</b>	<b>FCC</b>	<b>IC</b>
Band 854 MHz – 862 MHz, RF downlink, 0.3 dB < AGC, 4K00F3E	S01_AA01	Performed	Passed
Band 809 MHz – 817 MHz, RF uplink, 0.3 dB < AGC, 4K00F3E	S01_AA01	Performed	Passed
Band 854 MHz – 862 MHz, RF downlink, 0.3 dB < AGC, 11K3F3E	S01_AA01	Performed	Passed
Band 809 MHz – 817 MHz, RF uplink, 0.3 dB < AGC, 11K3F3E	S01_AA01	Performed	Passed
Band 854 MHz – 862 MHz, RF downlink, 0.3 dB < AGC, 8K10F1D	S01_AA01	Performed	Passed
Band 809 MHz – 817 MHz, RF uplink, 0.3 dB < AGC, 8K10F1D	S01_AA01	Performed	Passed
Band 854 MHz – 862 MHz, RF downlink, 0.3 dB < AGC, 9K80D7W	S01_AA01	Performed	Passed
Band 809 MHz – 817 MHz, RF uplink, 0.3 dB < AGC, 9K80D7W	S01_AA01	Performed	Passed
Band 854 MHz – 862 MHz, RF downlink, 3 dB > AGC, 4K00F3E	S01_AA01	Performed	Passed
Band 809 MHz – 817 MHz, RF uplink, 3 dB > AGC, 4K00F3E	S01_AA01	Performed	Passed
Band 854 MHz – 862 MHz, RF downlink, 3 dB > AGC, 11K3F3E	S01_AA01	Performed	Passed
Band 809 MHz – 817 MHz, RF uplink, 3 dB > AGC, 11K3F3E	S01_AA01	Performed	Passed
Band 854 MHz – 862 MHz, RF downlink, 3 dB > AGC, 8K10F1D	S01_AA01	Performed	Passed
Band 809 MHz – 817 MHz, RF uplink, 3 dB > AGC, 8K10F1D	S01_AA01	Performed	Passed
Band 854 MHz – 862 MHz, RF downlink, 3 dB > AGC, 9K80D7W	S01_AA01	Performed	Passed
Band 809 MHz – 817 MHz, RF uplink, 3 dB > AGC, 9K80D7W	S01_AA01	Performed	Passed

**47 CFR CHAPTER I FCC PART 90 Subpart S/I**  
**[Base Stations/Repeater]**
**§2.1051, §90.691 (a)(2)**

Conducted spurious emissions at antenna terminals

The measurement was performed according to ANSI C63.26

**Final Result**
**OP-Mode**

Frequency Band, Test Frequency, Direction, Signal Type

	<b>Setup</b>	<b>FCC</b>	<b>IC</b>
Band 854 MHz – 862 MHz, high, RF downlink, CW	S01_AA01	Passed	Passed
Band 809 MHz – 817 MHz, high, RF uplink, CW	S01_AA01	Passed	Passed
Band 854 MHz – 862 MHz, low, RF downlink, CW	S01_AA01	Passed	Passed
Band 809 MHz – 817 MHz, low, RF uplink, CW	S01_AA01	Passed	Passed
Band 854 MHz – 862 MHz, mid, RF downlink, CW	S01_AA01	Passed	Passed
Band 809 MHz – 817 MHz, mid, RF uplink, CW	S01_AA01	Passed	Passed

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**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**
**§2.1053, §90.691 (a)(2)  
KDB 935210 D02 II (p)(3)**


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Out-of-band emission limits / Intermodulation

The measurement was performed according to ANSI C63.26, KDB 935210 D05 v01r03: 3.6

**Final Result****OP-Mode**

Frequency Band, Number of signals, Direction, Input Power, Signal Type

Band 854 MHz – 862 MHz, 2, RF downlink, 0.3 dB &lt; AGC, CW

**Setup****FCC****IC**

S01\_AA01

Passed

Passed

Band 809 MHz – 817 MHz, 2, RF uplink, 0.3 dB &lt; AGC, CW

S01\_AA01

Passed

Passed

Band 854 MHz – 862 MHz, 2, RF downlink, 3 dB &gt; AGC, CW

S01\_AA01

Passed

Passed

Band 809 MHz – 817 MHz, 2, RF uplink, 3 dB &gt; AGC, CW

S01\_AA01

Passed

Passed

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**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**
**KDB 935210 D02 II (p)(2)**


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Out-of-band rejection

The measurement was performed according to ANSI C63.26

**Final Result****OP-Mode**

Frequency Band, Direction

Band 854 MHz – 862 MHz, RF downlink

**Setup****FCC****IC**

S01\_AA01

Passed

Passed

Band 809 MHz – 817 MHz, RF uplink

S01\_AA01

Passed

Passed

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**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**
**§90.219(d)(6)(ii)/(iii), (e)(3)**


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Noise figure

The measurement was performed according to ANSI C63.26

**Final Result****OP-Mode**

Frequency Band, Direction, Test Step

Band 854 MHz – 862 MHz, RF downlink, passband

**Setup****FCC****IC**

S01\_AA01

Passed

Passed

Band 809 MHz – 817 MHz, RF uplink, passband

S01\_AA01

Passed

Passed

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**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**
**§2.1053, §90.691 (a)(2)**


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Field strength of spurious radiation

The measurement was performed according to ANSI C63.26

**Final Result****OP-Mode**

Frequency Band, Test Frequency, Direction

Band 854 MHz – 862 MHz, high, RF downlink

**Setup****FCC****IC**

S01\_AA01

Passed

Passed

Band 809 MHz – 817 MHz, high, RF uplink

S01\_AA01

Passed

Passed

Band 854 MHz – 862 MHz, low, RF downlink

S01\_AA01

Passed

Passed

Band 809 MHz – 817 MHz, low, RF uplink

S01\_AA01

Passed

Passed

Band 854 MHz – 862 MHz, mid, RF downlink

S01\_AA01

Passed

Passed

Band 809 MHz – 817 MHz, mid, RF uplink

S01\_AA01

Passed

Passed

**Band 862 MHz – 869 MHz (Downlink) / 817 MHz – 824 MHz (Uplink)**
**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**
**§2.1046, §90.635 (a),  
KDB 935210 D02 II (p)(4)**

Effective Radiated Power, mean output power and zone enhancer gain

The measurement was performed according to ANSI C63.26, KDB 935210 D05 v01r03: 3.5

**Final Result**
**OP-Mode**

Frequency Band, Direction, Input Power, Signal Type

Band 862 MHz – 869 MHz, RF downlink, 0.3 dB < AGC, CW	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, RF uplink, 0.3 dB < AGC, CW	S01_AA01	Passed	Passed
Band 862 MHz – 869 MHz, RF downlink, 3 dB > AGC, CW	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, RF uplink, 3 dB > AGC, CW	S01_AA01	Passed	Passed

**Setup**
**FCC**
**IC**
**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**

Peak to Average Ratio

The measurement was performed according to ANSI C63.26

**Final Result**
**OP-Mode**

Frequency Band, Direction, Input Power, Signal Type

Band 862 MHz – 869 MHz, RF downlink, 0.3 dB < AGC, 4K00F3E	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, RF uplink, 0.3 dB < AGC, 4K00F3E	S01_AA01	Passed	Passed
Band 862 MHz – 869 MHz, RF downlink, 0.3 dB < AGC, 11K3F3E	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, RF uplink, 0.3 dB < AGC, 11K3F3E	S01_AA01	Passed	Passed
Band 862 MHz – 869 MHz, RF downlink, 0.3 dB < AGC, 8K10F1D	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, RF uplink, 0.3 dB < AGC, 8K10F1D	S01_AA01	Passed	Passed
Band 862 MHz – 869 MHz, RF downlink, 0.3 dB < AGC, 9K80D7W	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, RF uplink, 0.3 dB < AGC, 9K80D7W	S01_AA01	Passed	Passed
Band 862 MHz – 869 MHz, RF downlink, 0.3 dB < AGC, 16K0F3E	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, RF uplink, 0.3 dB < AGC, 16K0F3E	S01_AA01	Passed	Passed
Band 862 MHz – 869 MHz, RF downlink, 3 dB > AGC, 4K00F3E	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, RF uplink, 3 dB > AGC, 4K00F3E	S01_AA01	Passed	Passed
Band 862 MHz – 869 MHz, RF downlink, 3 dB > AGC, 11K3F3E	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, RF uplink, 3 dB > AGC, 11K3F3E	S01_AA01	Passed	Passed
Band 862 MHz – 869 MHz, RF downlink, 3 dB > AGC, 8K10F1D	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, RF uplink, 3 dB > AGC, 8K10F1D	S01_AA01	Passed	Passed
Band 862 MHz – 869 MHz, RF downlink, 3 dB > AGC, 9K80D7W	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, RF uplink, 3 dB > AGC, 9K80D7W	S01_AA01	Passed	Passed
Band 862 MHz – 869 MHz, RF downlink, 3 dB > AGC, 16K0F3E	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, RF uplink, 3 dB > AGC, 16K0F3E	S01_AA01	Passed	Passed

**47 CFR CHAPTER I FCC PART 90 Subpart R/I**  
**[Base Stations/Repeater]**
**§2.1049,**  
**KDB 935210 D02 II (p)(3)**

Occupied Bandwidth / Input-versus-output Spectrum

The measurement was performed according to ANSI C63.26, KDB 935210 D05 v01r03: 3.4

**Final Result**
**OP-Mode**

Frequency Band, Direction, Input Power, Signal Type

	<b>Setup</b>	<b>FCC</b>	<b>IC</b>
Band 862 MHz – 869 MHz, RF downlink, 0.3 dB < AGC, 4K00F3E	S01_AA01	Performed	Passed
Band 817 MHz – 824 MHz, RF uplink, 0.3 dB < AGC, 4K00F3E	S01_AA01	Performed	Passed
Band 862 MHz – 869 MHz, RF downlink, 0.3 dB < AGC, 11K3F3E	S01_AA01	Performed	Passed
Band 817 MHz – 824 MHz, RF uplink, 0.3 dB < AGC, 11K3F3E	S01_AA01	Performed	Passed
Band 862 MHz – 869 MHz, RF downlink, 0.3 dB < AGC, 8K10F1D	S01_AA01	Performed	Passed
Band 817 MHz – 824 MHz, RF uplink, 0.3 dB < AGC, 8K10F1D	S01_AA01	Performed	Passed
Band 862 MHz – 869 MHz, RF downlink, 0.3 dB < AGC, 9K80D7W	S01_AA01	Performed	Passed
Band 817 MHz – 824 MHz, RF uplink, 0.3 dB < AGC, 9K80D7W	S01_AA01	Performed	Passed
Band 862 MHz – 869 MHz, RF downlink, 0.3 dB < AGC, 16K0F3E	S01_AA01	Performed	Passed
Band 817 MHz – 824 MHz, RF uplink, 0.3 dB < AGC, 16K0F3E	S01_AA01	Performed	Passed
Band 862 MHz – 869 MHz, RF downlink, 3 dB > AGC, 4K00F3E	S01_AA01	Performed	Passed
Band 817 MHz – 824 MHz, RF uplink, 3 dB > AGC, 4K00F3E	S01_AA01	Performed	Passed
Band 862 MHz – 869 MHz, RF downlink, 3 dB > AGC, 11K3F3E	S01_AA01	Performed	Passed
Band 817 MHz – 824 MHz, RF uplink, 3 dB > AGC, 11K3F3E	S01_AA01	Performed	Passed
Band 862 MHz – 869 MHz, RF downlink, 3 dB > AGC, 8K10F1D	S01_AA01	Performed	Passed
Band 817 MHz – 824 MHz, RF uplink, 3 dB > AGC, 8K10F1D	S01_AA01	Performed	Passed
Band 862 MHz – 869 MHz, RF downlink, 3 dB > AGC, 9K80D7W	S01_AA01	Performed	Passed
Band 817 MHz – 824 MHz, RF uplink, 3 dB > AGC, 9K80D7W	S01_AA01	Performed	Passed
Band 862 MHz – 869 MHz, RF downlink, 3 dB > AGC, 16K0F3E	S01_AA01	Performed	Passed
Band 817 MHz – 824 MHz, RF uplink, 3 dB > AGC, 16K0F3E	S01_AA01	Performed	Passed

**47 CFR CHAPTER I FCC PART 90 Subpart S/I**  
**[Base Stations/Repeater]**
**§2.1051, §90.691 (a)(2)**

Conducted spurious emissions at antenna terminals

The measurement was performed according to ANSI C63.26

**Final Result**
**OP-Mode**

Frequency Band, Test Frequency, Direction, Signal Type

	<b>Setup</b>	<b>FCC</b>	<b>IC</b>
Band 862 MHz – 869 MHz, high, RF downlink, CW	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, high, RF uplink, CW	S01_AA01	Passed	Passed
Band 862 MHz – 869 MHz, low, RF downlink, CW	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, low, RF uplink, CW	S01_AA01	Passed	Passed
Band 862 MHz – 869 MHz, mid, RF downlink, CW	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, mid, RF uplink, CW	S01_AA01	Passed	Passed

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**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**
**§2.1053, §90.691 (a)(2)  
KDB 935210 D02 II (p)(3)**


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Out-of-band emission limits / Intermodulation

The measurement was performed according to ANSI C63.26, KDB 935210 D05 v01r03: 3.6

**Final Result****OP-Mode**

Frequency Band, Number of signals, Direction, Input Power, Signal Type

Band 862 MHz – 869 MHz, 2, RF downlink, 0.3 dB < AGC, CW	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, 2, RF uplink, 0.3 dB < AGC, CW	S01_AA01	Passed	Passed
Band 862 MHz – 869 MHz, 2, RF downlink, 3 dB > AGC, CW	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, 2, RF uplink, 3 dB > AGC, CW	S01_AA01	Passed	Passed

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**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**
**KDB 935210 D02 II (p)(2)**

Out-of-band rejection

The measurement was performed according to ANSI C63.26

**Final Result****OP-Mode**

Frequency Band, Direction

Band 862 MHz – 869 MHz, RF downlink	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, RF uplink	S01_AA01	Passed	Passed

---

**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**
**§90.219(d)(6)(ii)/(iii), (e)(3)**

Noise figure

The measurement was performed according to ANSI C63.26

**Final Result****OP-Mode**

Frequency Band, Direction, Test Step

Band 862 MHz – 869 MHz, RF downlink, passband	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, RF uplink, passband	S01_AA01	Passed	Passed

---

**47 CFR CHAPTER I FCC PART 90 Subpart S/I  
[Base Stations/Repeater]**
**§2.1053, §90.691 (a)(2)**

Field strength of spurious radiation

The measurement was performed according to ANSI C63.26

**Final Result****OP-Mode**

Frequency Band, Test Frequency, Direction

Band 862 MHz – 869 MHz, high, RF downlink	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, high, RF uplink	S01_AA01	Passed	Passed
Band 862 MHz – 869 MHz, low, RF downlink	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, low, RF uplink	S01_AA01	Passed	Passed
Band 862 MHz – 869 MHz, mid, RF downlink	S01_AA01	Passed	Passed
Band 817 MHz – 824 MHz, mid, RF uplink	S01_AA01	Passed	Passed

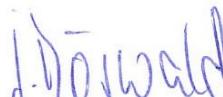
- 1) Final noise level of repeater for bands 769-775, 799-805 measured with reduced amplifier gain.

The test case frequency stability was not performed, since the EUT is not equipped with signal processing capabilities.

Report version control			
Version	Release date	Change Description	Version validity
initial	2019-09-19	--	invalid
rev1	2019-10-24	Added sample calculation p.31 Added comment for noise in pass band test case on this page and removed respective chapter. Added plots with 10 dB reduction in amplification for bands 769-775 and 799-805	invalid
rev2	2019-11-06	Noise figure results added	valid



(responsible for accreditation scope)  
Dipl.-Ing. Marco Kullik



(responsible for testing and report)  
B.Sc. Jens Dörwald



7 layers GmbH, Borsigstr. 11  
40880 Ratingen, Germany  
Phone +49 (0)2102 749 0

## 2 ADMINISTRATIVE DATA

### 2.1 TESTING LABORATORY

Company Name: 7layers GmbH  
Address: Borsigstr. 11  
40880 Ratingen  
Germany

The test facility is accredited by the following accreditation organisation:

Laboratory accreditation no: DAkkS D-PL-12140-01-00  
FCC Designation Number: DE0015  
FCC Test Firm Registration: 929146  
ISED CAB Identifier DE0007; ISED#:3699A  
Responsible for accreditation scope: Dipl.-Ing. Marco Kullik  
Report Template Version: 2019-03-11

### 2.2 PROJECT DATA

Responsible for testing and report: B.Sc. Jens Dörwald  
Employees who performed the tests: documented internally at 7Layers  
Date of Report: 2019-11-06  
Testing Period: 2019-06-25 to 2019-09-16

### 2.3 APPLICANT DATA

Company Name: Commscope  
Andrew Wireless Systems GmbH  
Address: Industriering 10  
86675 Buchdorf  
Germany  
Contact Person: Mr. Frank Futter

### 2.4 MANUFACTURER DATA

Company Name: please see applicant data  
Address:

Contact Person:

### 3 TEST OBJECT DATA

#### 3.1 GENERAL EUT DESCRIPTION

Kind of Device product description	Cellular Repeater
Product name	Cellular Repeater
Type	PSR 7/8 B
<b>Declared EUT data by the supplier</b>	
General Product Description	The EUT is an industrial signal booster supporting the following: Downlink / Uplink Band 758-768 MHz / 788-798 MHz Band 769-775 MHz / 799-805 MHz Band 851-854 MHz / 806-809 MHz Band 854-862 MHz / 809-817 MHz Band 862-869 MHz / 817-824 MHz
Booster Type	Industrial Signal Booster
Voltage Type	AC
Voltage Level	88 – 264 V, 47 – 63 Hz
Maximum Output Donor Port [Uplink]	Band 788-798 MHz: 27.0 dBm Band 799-805 MHz: 27.9 dBm Band 806-809 MHz: 26.7 dBm Band 809-817 MHz: 27.3 dBm Band 817-824 MHz: 27.4 dBm
Maximum Output Server Port [Downlink]	Band 758-768 MHz: 27.8 dBm Band 769-775 MHz: 32.2 dBm Band 851-854 MHz: 32.7 dBm Band 854-862 MHz: 27.4 dBm Band 862-869 MHz: 33.1 dBm
Maximum Gain [Uplink]	Band 788-798 MHz: 88.1 dB Band 799-805 MHz: 89.7 dB Band 806-809 MHz: 88.6 dB Band 809-817 MHz: 89.4 dB Band 817-824 MHz: 88.5 dB
Maximum Gain [Downlink]	Band 758-768 MHz: 89.9 dB Band 769-775 MHz: 89.5 dB Band 851-854 MHz: 89.0 dB Band 854-862 MHz: 89.1 dB Band 862-869 MHz: 89.2 dB

**The main components of the EUT are listed and described in chapter 3.2 EUT Main components.**

### 3.2 EUT MAIN COMPONENTS

<b>Sample Name</b>	<b>Sample Code</b>	<b>Description</b>
EUT A	DE1277013aa01	FCC sample
<b>Sample Parameter</b>	<b>Value</b>	
Serial Number	190405BA001	
HW Version	7831851-0001	
SW Version	SW V01.00.00.44	
Comment	-	

NOTE: The short description is used to simplify the identification of the EUT in this test report.

### 3.3 ANCILLARY EQUIPMENT

For the purposes of this test report, ancillary equipment is defined as equipment which is used in conjunction with the EUT to provide operational and control features to the EUT. It is necessary to configure the system in a typical fashion, as a customer would normally use it. But nevertheless Ancillary Equipment can influence the test results.

<b>Device</b>	<b>Details (Manufacturer, Type Model, OUT Code)</b>	<b>Description</b>
-	-	-

### 3.4 AUXILIARY EQUIPMENT

For the purposes of this test report, auxiliary equipment is defined as equipment which is used temporarily to enable operational and control features especially used for the tests of the EUT which is not used during normal operation or equipment that is used during the tests in combination with the EUT but is not subject of this test report. It is necessary to configure the system in a typical fashion, as a customer would normally use it. But nevertheless Auxiliary Equipment can influence the test results.

<b>Device</b>	<b>Details (Manufacturer, HW, SW, S/N)</b>	<b>Description</b>
-	-	-

### 3.5 EUT SETUPS

This chapter describes the combination of EUTs and equipment used for testing. The rationale for selecting the EUTs, ancillary and auxiliary equipment and interconnecting cables, is to test a representative configuration meeting the requirements of the referenced standards.

<b>Setup</b>	<b>Combination of EUTs</b>	<b>Description and Rationale</b>
S01_AA01	EUT A	Setup for all tests

### 3.6 OPERATING MODES

This chapter describes the operating modes of the EUTs used for testing.

#### 3.6.1 TEST CHANNELS

<b>Band [MHz]</b>	<b>Direction</b>	<b>Lower Frequency Band Edge [MHz]</b>	<b>Upper Frequency Band Edge [MHz]</b>	<b>Center Frequency [MHz]</b>	<b>Port</b>
758 - 768	downlink	760.5000	765.5000	763.0000	Donor
769 - 775	downlink	769.0125	774.9875	772.0000	Donor
851 - 854	downlink	851.0125	853.9875	852.5000	Donor
854 - 862	downlink	854.0125	861.9875	858.0000	Donor
862 - 869	downlink	862.0125	868.9875	865.5000	Donor
788 - 798	uplink	790.5000	795.5000	793.0000	ANT
799 - 805	uplink	799.0125	804.9875	802.0000	ANT
806 - 809	uplink	806.0125	808.9875	807.5000	ANT
809 - 817	uplink	809.0125	816.9875	813.0000	ANT
817 - 824	uplink	817.0125	823.9875	820.5000	ANT

### 3.6.2 AUTOMATIC GAIN CONTROL LEVELS

Downlink

<b>AGC Levels</b>							
<b>Band [MHz]</b>	<b>Direction</b>	<b>Emission Designator</b>	<b>AGC Start Pin [dBm]</b>	<b>AGC Start Pin -0.3 dB [dBm]</b>	<b>AGC Start Pin +3 dB [dBm]</b>	<b>Frequency [MHz]</b>	<b>Frequency</b>
758 - 768	downlink	CW	-57.4	-57.7	-54.4	763.0000	$f_m$
758 - 768	downlink	CW	-57.2	-57.5	-54.2	760.5000	$f_{low}$
758 - 768	downlink	CW	-57.6	-57.0	-54.6	765.5000	$f_{high}$
758 - 768	downlink	CW	-57.4	-57.7	-54.4	767.2496	$f_0$
769 - 775	downlink	CW	-56.2	-56.5	-53.2	772.0000	$f_m$
769 - 775	downlink	CW	-56.6	-56.9	-53.6	769.0125	$f_{low}$
769 - 775	downlink	CW	-56.0	-56.3	-53.0	774.9875	$f_{high}$
769 - 775	downlink	CW	-57.2	-57.5	-54.2	769.3000	$f_0$
851 - 854	downlink	CW	-56.0	-56.3	-53.0	852.5000	$f_m$
851 - 854	downlink	CW	-55.2	-55.5	-52.2	851.0125	$f_{low}$
851 - 854	downlink	CW	-56.4	-56.7	-53.4	853.9875	$f_{high}$
851 - 854	downlink	CW	-56.4	-56.7	-53.4	853.7325	$f_0$
854 - 862	downlink	CW	-55.8	-56.1	-52.8	858.0000	$f_m$
854 - 862	downlink	CW	-56.2	-56.5	-53.2	854.0125	$f_{low}$
854 - 862	downlink	CW	-56.0	-56.3	-53.0	861.9875	$f_{high}$
854 - 862	downlink	CW	-56.2	-56.5	-53.2	859.2465	$f_0$
862 - 869	downlink	CW	-55.8	-56.1	-52.8	865.5000	$f_m$
862 - 869	downlink	CW	-56.0	-56.3	-53.0	862.0125	$f_{low}$
862 - 869	downlink	CW	-55.2	-55.5	-52.2	868.9875	$f_{high}$
862 - 869	downlink	CW	-56.2	-56.5	-53.2	863.4002	$f_0$

## Uplink

<b>AGC Levels</b>							
<b>Band [MHz]</b>	<b>Direction</b>	<b>Emission Designator</b>	<b>AGC Start Pin [dBm]</b>	<b>AGC Start Pin -0.3 dB [dBm]</b>	<b>AGC Start Pin +3 dB [dBm]</b>	<b>Frequency [MHz]</b>	<b>Frequency</b>
788 – 798	uplink	CW	-60.8	-61.1	-57.8	793.0000	$f_m$
788 – 798	uplink	CW	-61.0	-61.3	-58.0	790.5000	$f_{low}$
788 – 798	uplink	CW	-60.2	-60.5	-57.2	795.5000	$f_{high}$
788 – 798	uplink	CW	-60.8	-61.1	-57.8	792.0051	$f_0$
799 – 805	uplink	CW	-60.8	-61.1	-57.8	802,0000	$f_m$
799 – 805	uplink	CW	-61.8	-62.1	-58.8	799,0125	$f_{low}$
799 – 805	uplink	CW	-60.4	-60.7	-57.4	804,9875	$f_{high}$
799 – 805	uplink	CW	-61.8	-62.1	-58.8	799,6992	$f_0$
806 – 809	uplink	CW	-61.4	-61.7	-58.4	807,5000	$f_m$
806 – 809	uplink	CW	-61.0	-61.3	-58.0	806,0125	$f_{low}$
806 – 809	uplink	CW	-61.4	-61.7	-58.4	808,9875	$f_{high}$
806 – 809	uplink	CW	-61.8	-62.1	-58.8	808,2521	$f_0$
809 – 817	uplink	CW	-61.2	-61.5	-58.2	813,0000	$f_m$
809 – 817	uplink	CW	-61.6	-61.9	-58.6	809,0125	$f_{low}$
809 – 817	uplink	CW	-61.4	-61.7	-58.4	816,9875	$f_{high}$
809 – 817	uplink	CW	-61.8	-62.1	-58.8	816,0467	$f_0$
817 - 824	uplink	CW	-60.8	-61.1	-57.8	820,5000	$f_m$
817 - 824	uplink	CW	-61.4	-61.7	-58.4	817,0125	$f_{low}$
817 - 824	uplink	CW	-61.2	-61.5	-58.2	823,9875	$f_{high}$
817 - 824	uplink	CW	-61.2	-61.5	-58.2	823,9020	$f_0$

## 3.7 PRODUCT LABELLING

### 3.7.1 FCC ID LABEL

Please refer to the documentation of the applicant.

### 3.7.2 LOCATION OF THE LABEL ON THE EUT

Please refer to the documentation of the applicant.

## 4 TEST RESULTS

### 4.1 EFFECTIVE RADIATED POWER, MEAN OUTPUT POWER AND ZONE ENHANCER GAIN

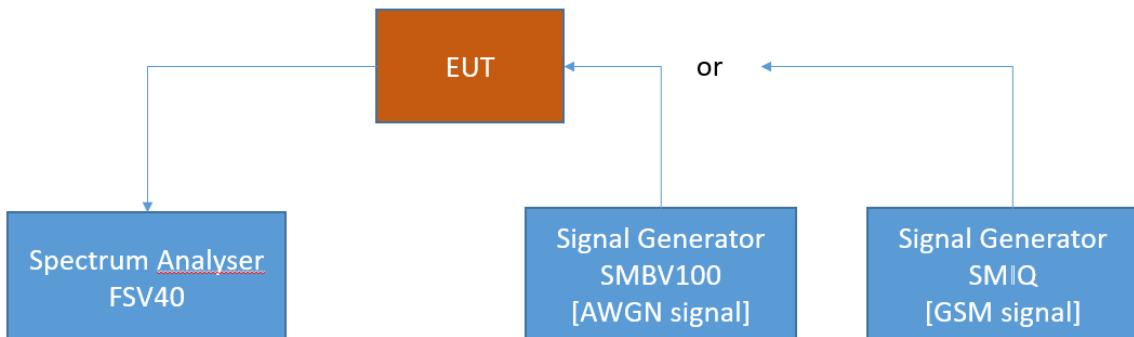
Standard      FCC Part 90, §90.635, §90.542

**The test was performed according to:**  
ANSI C63.26, KDB 935210 D05 v01r03: 3.5

#### 4.1.1 TEST DESCRIPTION

This test case is intended to demonstrate compliance to the signal booster power and gain limits and requirements for industrial signal boosters.

The EUT was connected to the test setup according to the following diagram:



FCC Part 22/24/27/90 Industrial signal booster – Test Setup; RF Output Power / Gain

The attenuation of the measuring and stimulus path are known for each measured frequency and are considered.

The Spectrum Analyzer settings can be directly found in the measurement diagrams.

#### 4.1.2 TEST REQUIREMENTS / LIMITS

##### FCC Part 90

###### §90.219 (d)(3)(i)

The output power capability of a signal booster must be designed for deployments providing a radiated power not exceeding 5 Watts ERP for each retransmitted channel.

##### KDB 935210 D02

#### V. PART 90 SIGNAL BOOSTER SPECIFIC REQUIREMENTS

(j) Other provisions for part 90 boosters in specific bands and/or for specific conditions.

(1) Equipment authorizations to support both Section 90.219 and higher power operations. For devices that support output power higher than the 5 W ERP limit of Section 90.219, and are intended for marketing and subsequent US non-federal (FCC) station operations both within and outside the scope of the Section 90.219 authorization and deployment framework,<sup>8</sup> for equipment authorization purposes the following provisions apply.

(i) For equipment to be certified as acceptable for Section 90.219(b) operations, B9A and B9B Form 731 applications must contain test data, install/operating instructions, etc., specifically for the Section 90.219(e) requirements, along with the usual Sections 2.911(c), 2.1033(c), 90.203, and associated contents requirements. In addition, the B9A or B9B application must contain test data, install/operating instructions, etc., for other intended and supported maximum output powers and maximum emissions end-use configurations.

(ii) Per the usual OET practice, the highest output powers for each emission mode are listed on Form 731 line entries. It is preferred, however not required, that the Section 90.219 associated emission modes (reflecting maximum 5 W ERP) are also separately listed on the Form 731 line entries. A grant comment should be applied that specific station authorizations are required for equipment operations exceeding Section 90.219 conditions.

##### Band 26 / 27 (862 MHz – 869 MHz)

###### § 90.635

(a) The effective radiated power and antenna height for base stations may not exceed 1 kilowatt (30 dBw) and 304 m. (1,000 ft.) above average terrain (AAT), respectively, or the equivalent thereof as determined from the Table. These are maximum values, and applicants will be required to justify power levels and antenna heights requested.

##### Band 14 (758 MHz – 768 MHz)

###### §90.542 (a)(3)

(a) The following power limits apply to the 758-768/788-798 MHz band:

(3) Fixed and base stations transmitting a signal in the 758-768 MHz band with an emission bandwidth greater than 1 MHz must not exceed an ERP of 1000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts/MHz ERP accordance with Table 3 of this section.

#### 4.1.3 TEST PROTOCOL

**Band 758 MHz – 768 MHz, downlink**

Emission Designator	Input Power	Frequency $f_0$ [MHz]	Input Power [dBm]	Maximum Average Output Power [dBm]	Limit Average Output Power [dBm]	Margin to Limit [dB]	Gain [dB]
CW	0.3 dB < AGC	767.2496	-57.5	32.4	60.0	27.6	89.9
CW	3 dB > AGC	767.2496	-54.4	32.2	60.0	27.8	86.6

**Band 769 MHz – 775 MHz, downlink**

Emission Designator	Input Power	Frequency $f_0$ [MHz]	Input Power [dBm]	Maximum Average Output Power [dBm]	Limit Average Output Power [dBm]	Margin to Limit [dB]	Gain [dB]
CW	0.3 dB < AGC	769.3000	-57.5	32.0	33.0	1.0	89.5
CW	3 dB > AGC	769.3000	-54.2	32.2	33.0	0.8	86.6

**Band 851 MHz – 854 MHz, downlink**

Emission Designator	Input Power	Frequency $f_0$ [MHz]	Input Power [dBm]	Maximum Average Output Power [dBm]	Limit Average Output Power [dBm]	Margin to Limit [dB]	Gain [dB]
CW	0.3 dB < AGC	853.7325	-56.7	32.3	60.0	27.7	89.0
CW	3 dB > AGC	853.7325	-53.4	32.7	60.0	27.3	86.1

**Band 854 MHz – 862 MHz, downlink**

Emission Designator	Input Power	Frequency $f_0$ [MHz]	Input Power [dBm]	Maximum Average Output Power [dBm]	Limit Average Output Power [dBm]	Margin to Limit [dB]	Gain [dB]
CW	0.3 dB < AGC	859.2465	-56.5	32.6	60.0	27.4	89.1
CW	3 dB > AGC	859.2465	-53.2	33.0	60.0	27.0	86.2

**Band 862 MHz – 869 MHz, downlink**

Emission Designator	Input Power	Frequency $f_0$ [MHz]	Input Power [dBm]	Maximum Average Output Power [dBm]	Limit Average Output Power [dBm]	Margin to Limit [dB]	Gain [dB]
CW	0.3 dB < AGC	863.4002	-56.5	32.7	60.0	27.3	89.2
CW	3 dB > AGC	863.4002	-53.2	33.1	60.0	26.9	86.3

<b>Band 788 MHz – 798 MHz, uplink</b>							
<b>Emission Designator</b>	<b>Input Power</b>	<b>Frequency <math>f_0</math> [MHz]</b>	<b>Input Power [dBm]</b>	<b>Maximum Average Output Power [dBm]</b>	<b>Limit Average Output Power [dBm]</b>	<b>Margin to Limit [dB]</b>	<b>Gain [dB]</b>
CW	0.3 dB < AGC	792.0051	-61.1	27.0	60.0	33.0	88.1
CW	3 dB > AGC	792.0051	-57.8	26.8	60.0	33.2	84.6

<b>Band 799 MHz – 805 MHz, uplink</b>							
<b>Emission Designator</b>	<b>Input Power</b>	<b>Frequency <math>f_0</math> [MHz]</b>	<b>Input Power [dBm]</b>	<b>Maximum Average Output Power [dBm]</b>	<b>Limit Average Output Power [dBm]</b>	<b>Margin to Limit [dB]</b>	<b>Gain [dB]</b>
CW	0.3 dB < AGC	799.6992	-62.1	27.6	33.0	5.4	89.7
CW	3 dB > AGC	799.6992	-58.8	27.9	33.0	5.1	86.7

<b>Band 806 MHz – 809 MHz, uplink</b>							
<b>Emission Designator</b>	<b>Input Power</b>	<b>Frequency <math>f_0</math> [MHz]</b>	<b>Input Power [dBm]</b>	<b>Maximum Average Output Power [dBm]</b>	<b>Limit Average Output Power [dBm]</b>	<b>Margin to Limit [dB]</b>	<b>Gain [dB]</b>
CW	0.3 dB < AGC	808.2561	-62.1	26.5	60.0	33.5	88.6
CW	3 dB > AGC	808.2561	-58.8	26.7	60.0	33.3	85.5

<b>Band 809 MHz – 817 MHz, uplink</b>							
<b>Emission Designator</b>	<b>Input Power</b>	<b>Frequency <math>f_0</math> [MHz]</b>	<b>Input Power [dBm]</b>	<b>Maximum Average Output Power [dBm]</b>	<b>Limit Average Output Power [dBm]</b>	<b>Margin to Limit [dB]</b>	<b>Gain [dB]</b>
CW	0.3 dB < AGC	816.0467	-62.1	27.3	60.0	32.7	89.4
CW	3 dB > AGC	816.0467	-58.8	26.6	60.0	33.4	85.4

<b>Band 817 MHz – 824 MHz, uplink</b>							
<b>Emission Designator</b>	<b>Input Power</b>	<b>Frequency <math>f_0</math> [MHz]</b>	<b>Input Power [dBm]</b>	<b>Maximum Average Output Power [dBm]</b>	<b>Limit Average Output Power [dBm]</b>	<b>Margin to Limit [dB]</b>	<b>Gain [dB]</b>
CW	0.3 dB < AGC	823.9020	-61.5	27.0	60.0	33.0	88.5
CW	3 dB > AGC	823.9020	-58.2	27.4	60.0	32.6	85.6

Remark: Please see next sub-clause for the measurement plot.

**Sample calculation for output power 2 W**

The conducted output power of the DUT can be 33 dBm (2 W) in the band 758 – 768 MHz.  
This output power of 2 W (conducted) can be transformed to maximum 5 W per channel ERP by using appropriate antenna equipment.

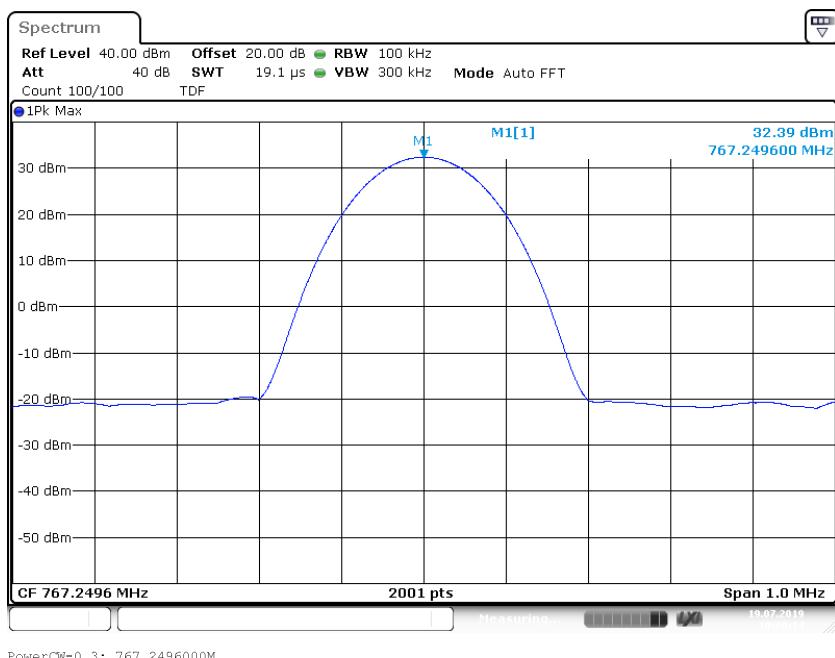
For example:

Feeder cable loss + antenna gain: 0 dBd

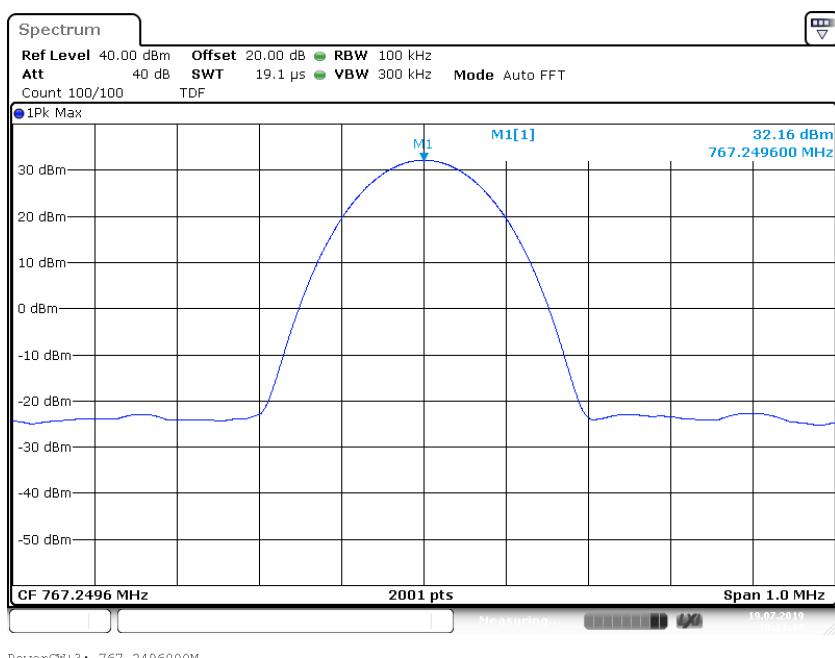
$$33 \text{ dBm (2 W)} + (4 \text{ dBd}) = 37 \text{ dBm (5 W) ERP}$$

#### 4.1.4 MEASUREMENT PLOT (SHOWING THE HIGHEST VALUE, "WORST CASE")

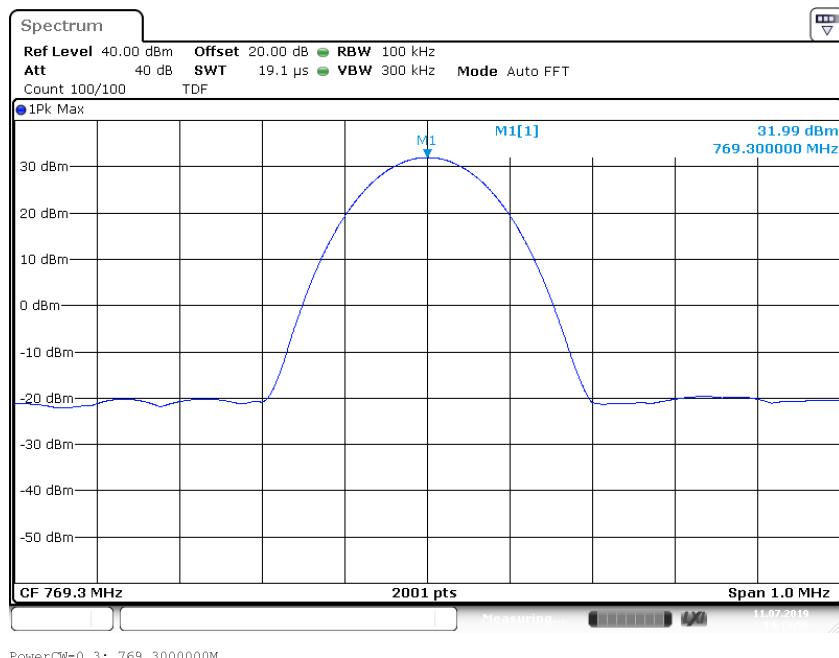
Frequency Band = 758 MHz – 768 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, CW at  $f_0$



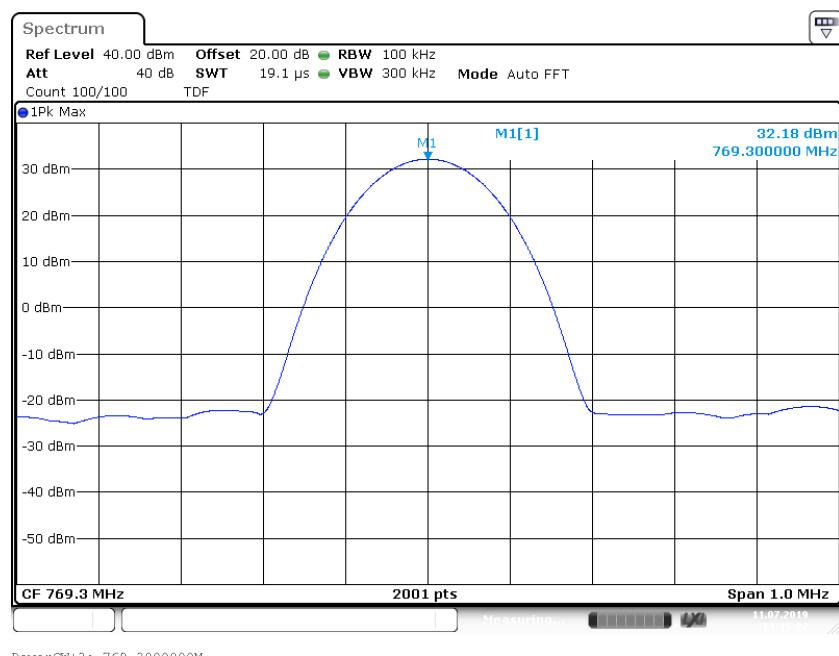
Frequency Band = 758 MHz – 768 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC, CW at  $f_0$



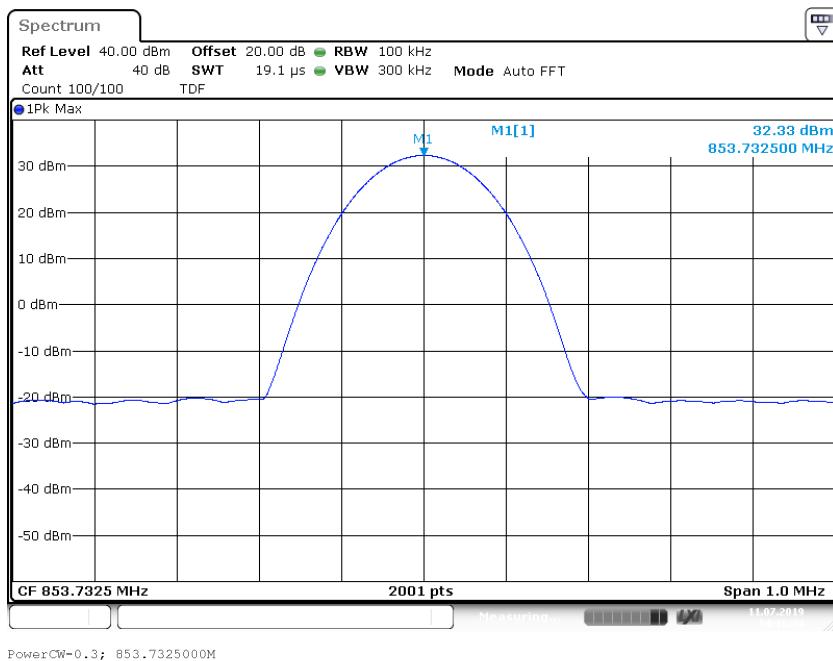
Frequency Band = 769 MHz – 775 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, CW at  $f_0$



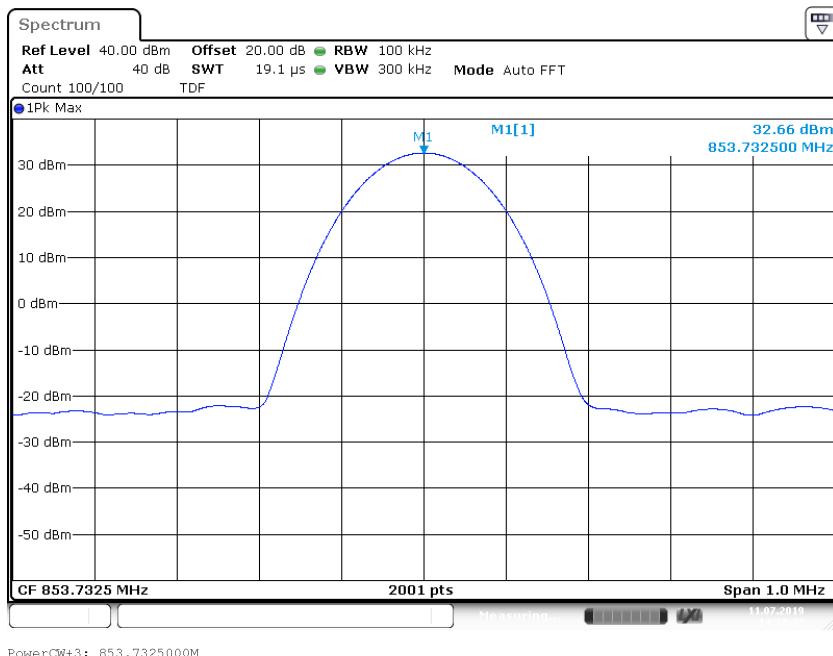
Frequency Band = 769 MHz – 775 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC, CW at  $f_0$



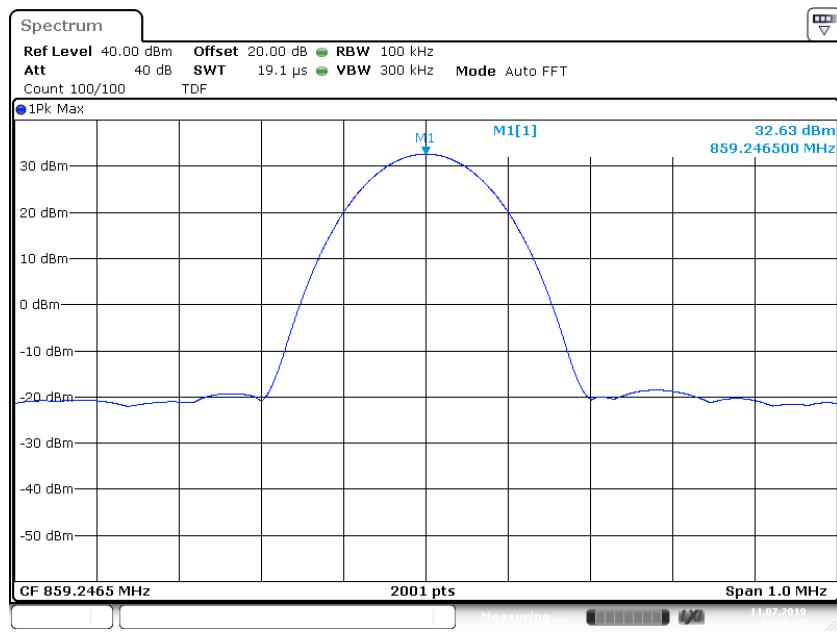
Frequency Band = 851 MHz – 854 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, CW at  $f_0$



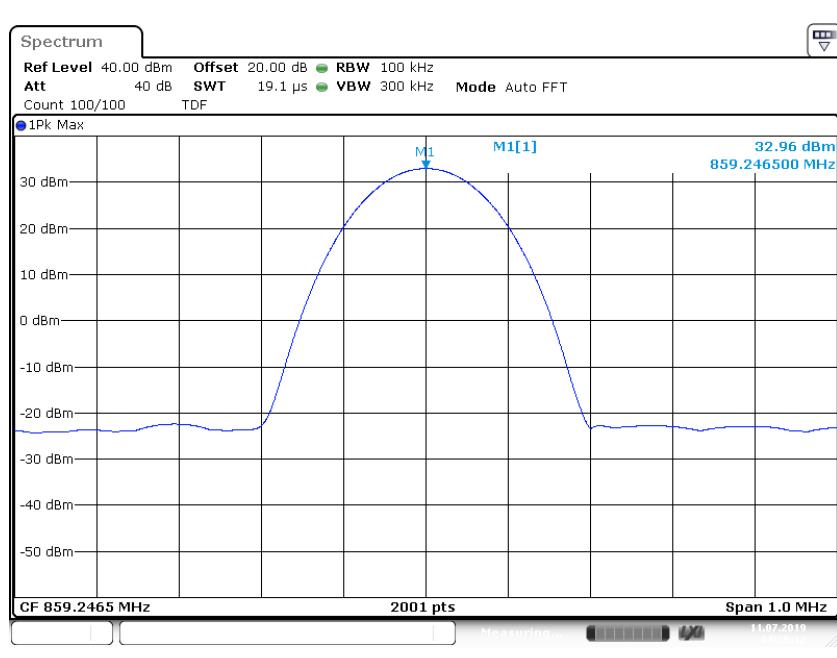
Frequency Band = 851 MHz – 854 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC, CW at  $f_0$



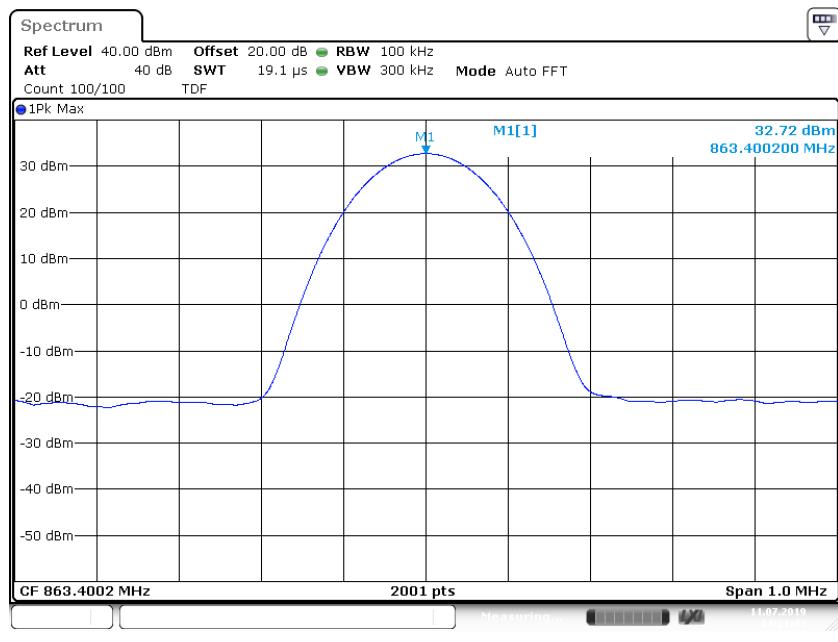
Frequency Band = 854 MHz – 862 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, CW at  $f_0$



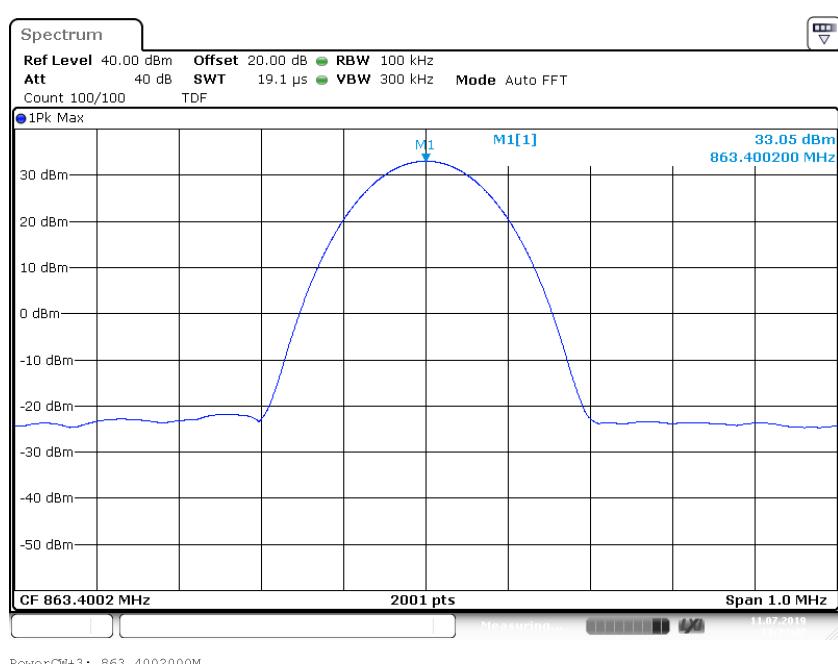
Frequency Band = 854 MHz – 862 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC, CW at  $f_0$



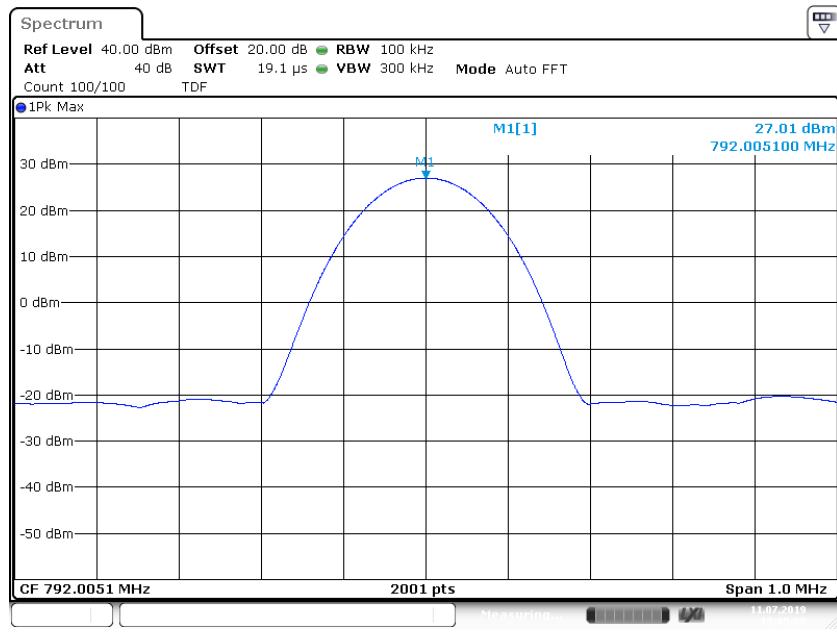
Frequency Band = 862 MHz – 869 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, CW at  $f_0$



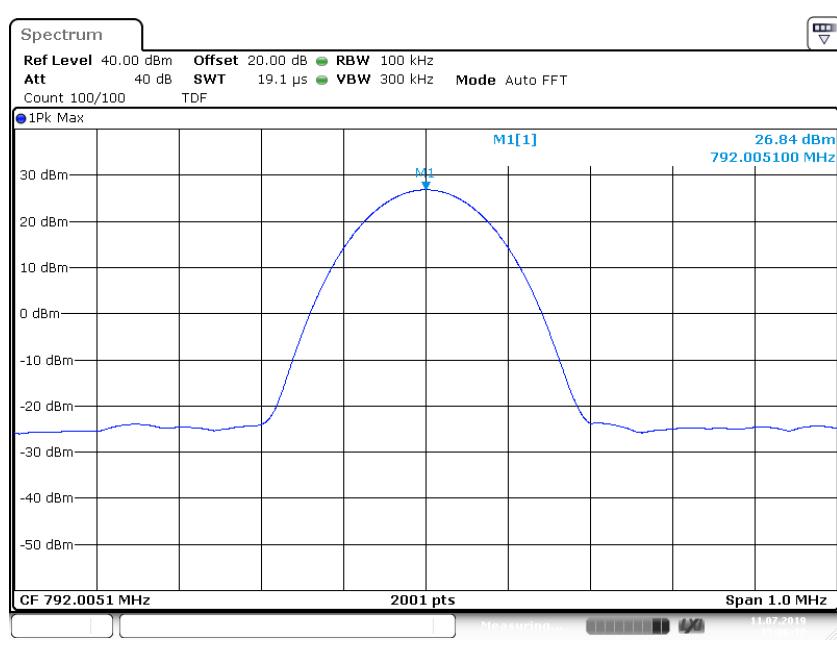
Frequency Band = 862 MHz – 869 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC, CW at  $f_0$



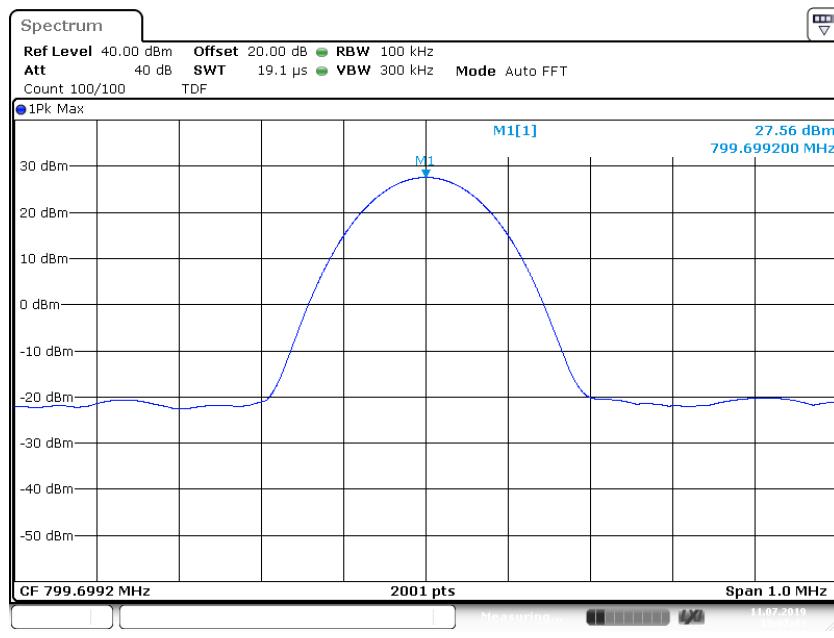
Frequency Band = 788 MHz – 798 MHz, Direction = RF uplink,  
Input Power = 0.3 dB < AGC, CW at  $f_0$



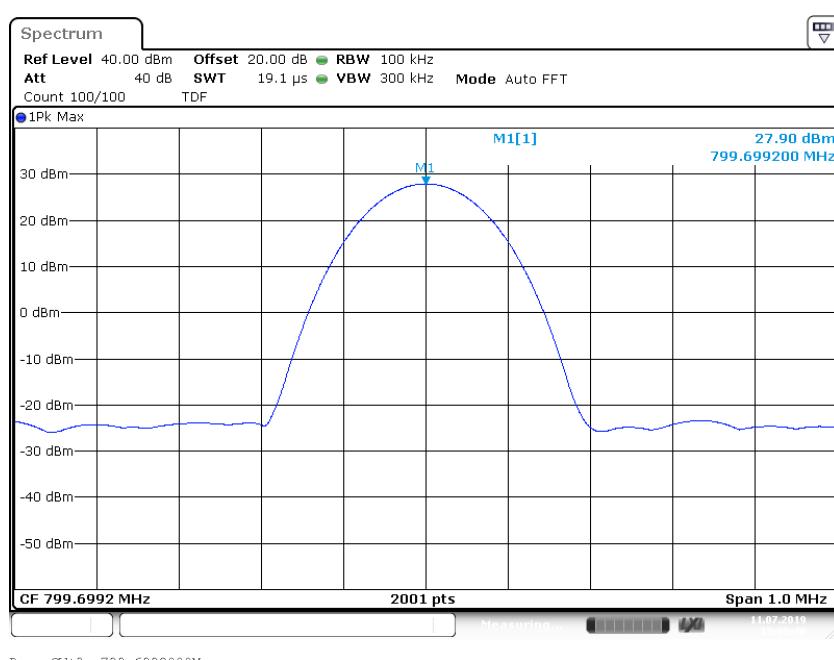
Frequency Band = 788 MHz – 798 MHz, Direction = RF uplink,  
Input Power = 3 dB > AGC, CW at  $f_0$



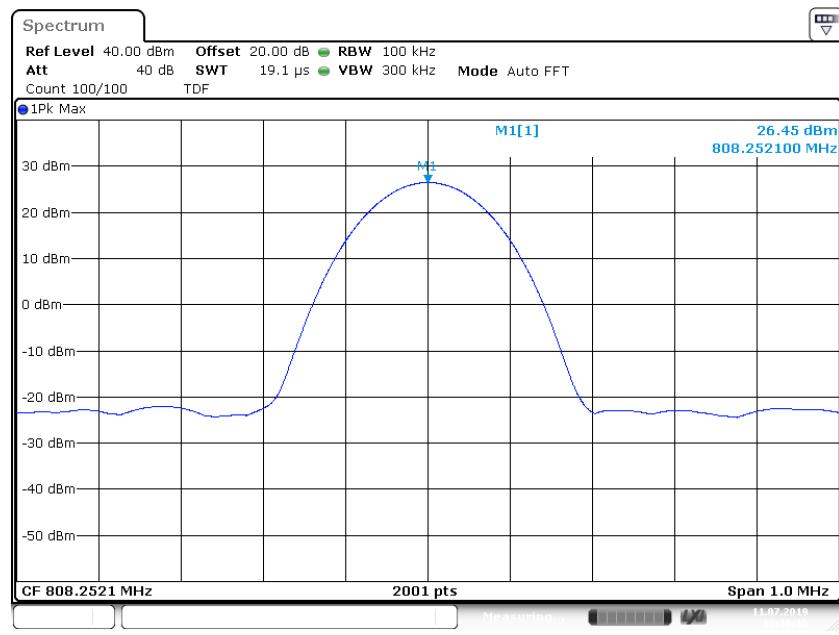
Frequency Band = 799 MHz – 805 MHz, Direction = RF uplink,  
Input Power = 0.3 dB < AGC, CW at  $f_0$



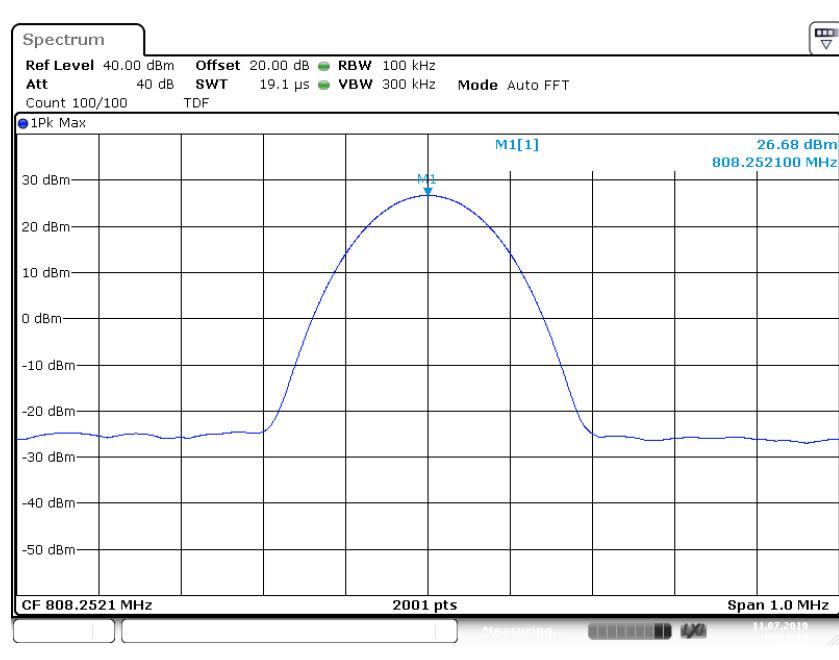
Frequency Band = 799 MHz – 805 MHz, Direction = RF uplink,  
Input Power = 3 dB > AGC, CW at  $f_0$



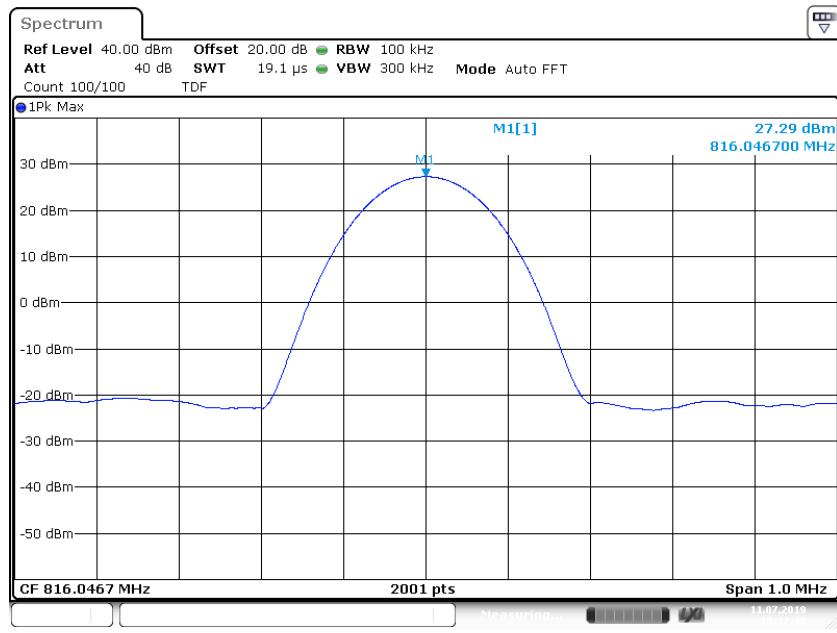
Frequency Band = 806 MHz – 809 MHz, Direction = RF uplink,  
Input Power = 0.3 dB < AGC, CW at  $f_0$



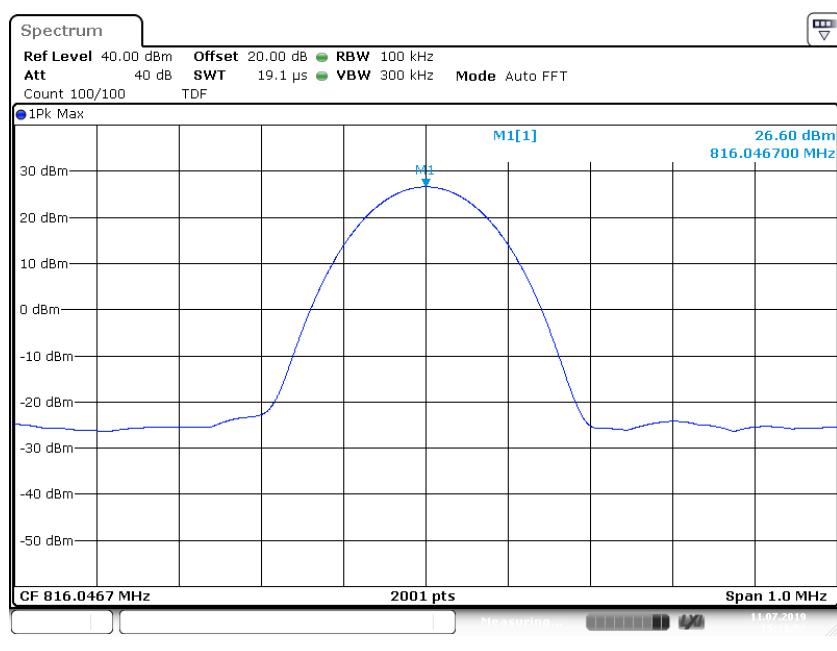
Frequency Band = 806 MHz – 809 MHz, Direction = RF uplink,  
Input Power = 3 dB > AGC, CW at  $f_0$



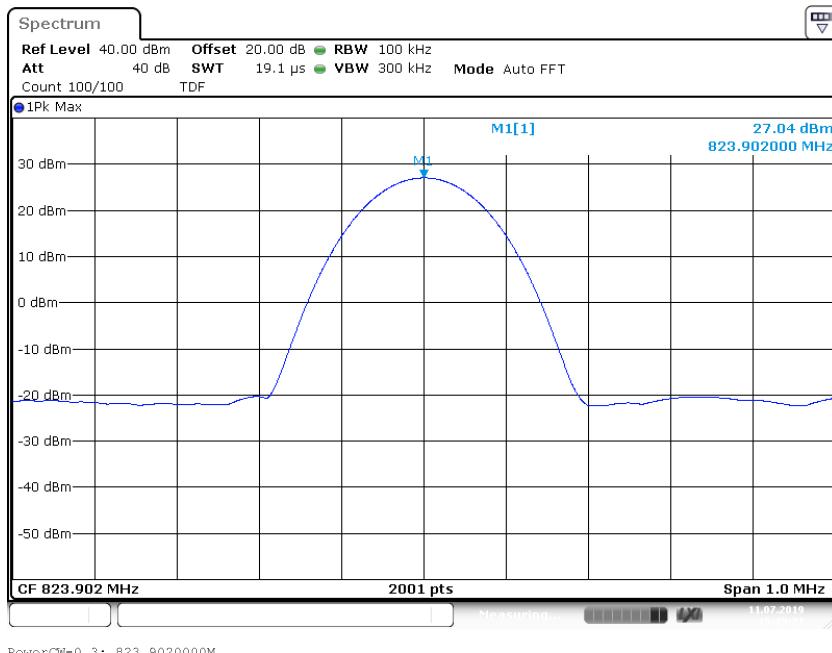
Frequency Band = 809 MHz – 817 MHz, Direction = RF uplink,  
Input Power = 0.3 dB < AGC, CW at  $f_0$



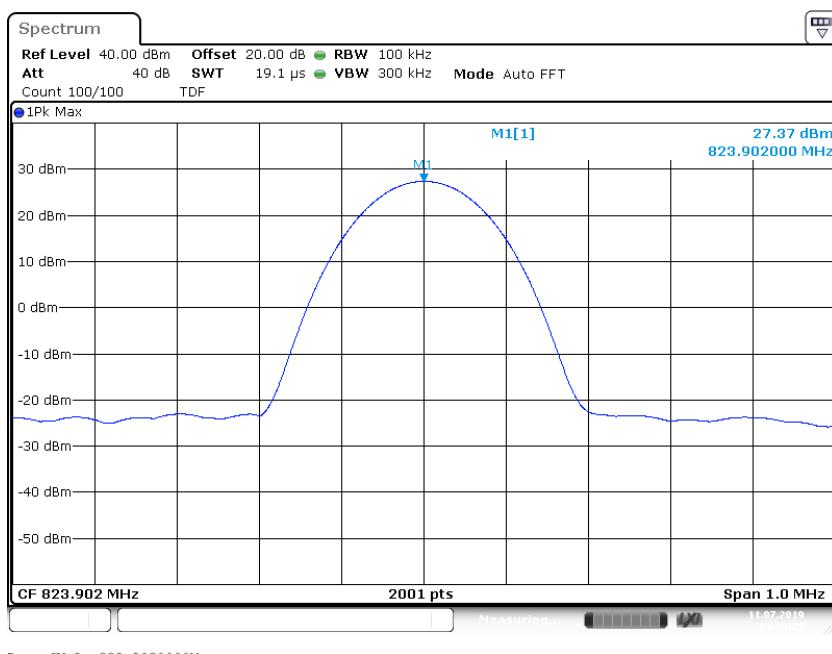
Frequency Band = 809 MHz – 817 MHz, Direction = RF uplink,  
Input Power = 3 dB > AGC, CW at  $f_0$



Frequency Band = 817 MHz – 824 MHz, Direction = RF uplink,  
Input Power = 0.3 dB < AGC, CW at  $f_0$



Frequency Band = 817 MHz – 824 MHz, Direction = RF uplink,  
Input Power = 3 dB > AGC, CW at  $f_0$



#### 4.1.5 TEST EQUIPMENT USED

- FCC cond. Test Lab, BV Nbg

## 4.2 PEAK TO AVERAGE RATIO

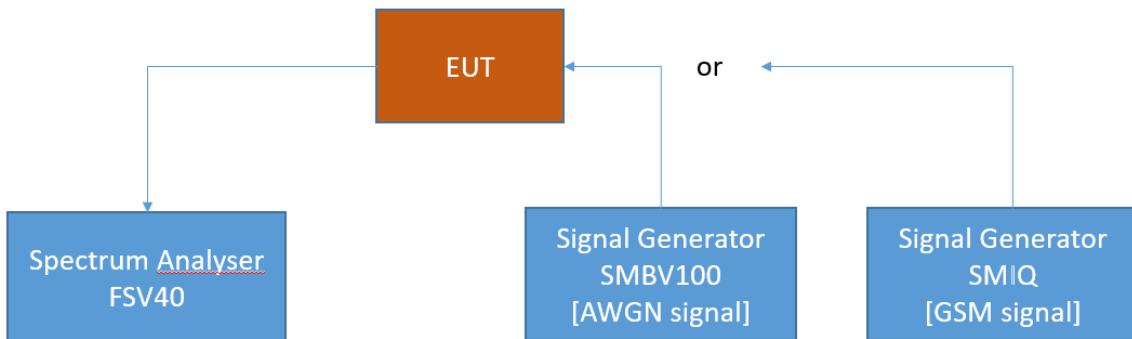
Standard -

**The test was performed according to:**  
ANSI C63.26

### 4.2.1 TEST DESCRIPTION

This test case is intended to demonstrate compliance to the signal booster power and gain limits and requirements for industrial signal boosters.

The EUT was connected to the test setup according to the following diagram:



FCC Part 22/24/27/90 Industrial signal booster – Test Setup; RF Output Power / Gain

The attenuation of the measuring and stimulus path are known for each measured frequency and are considered.

The Spectrum Analyzer settings can be directly found in the measurement diagrams.

### 4.2.2 TEST REQUIREMENTS / LIMITS

There is no requirement for the Peak-to-Average value in the applicable rule parts.

#### 4.2.3 TEST PROTOCOL

<b>Band 758 MHz – 768 MHz, downlink</b>						
<b>Emission Designator</b>	<b>Input Power</b>	<b>Frequency [MHz]</b>	<b>Input Power [dBm]</b>	<b>PAPR [dB]</b>	<b>Limit PAPR [dB] *)</b>	<b>Margin to Limit [dB]</b>
5M00G7D	0.3 dB < AGC	760.5000	-57.5	8.1	13.0	4.9
5M00G7D	3 dB > AGC	763.0000	-54.4	8.2	13.0	4.8

<b>Band 769 MHz – 775 MHz, downlink</b>						
<b>Emission Designator</b>	<b>Input Power</b>	<b>Frequency [MHz]</b>	<b>Input Power [dBm]</b>	<b>PAPR [dB]</b>	<b>Limit PAPR [dB] *)</b>	<b>Margin to Limit [dB]</b>
4K00F3E	0.3 dB < AGC	769.0125	-56.9	0.3	13.0	12.7
4K00F3E	3 dB > AGC	769.0125	-53.6	0.3	13.0	12.7
11K3F3E	0.3 dB < AGC	769.0125	-56.9	0.3	13.0	12.7
11K3F3E	3 dB > AGC	772.0000	-53.2	0.3	13.0	12.7
8K10F1D	0.3 dB < AGC	769.3000	-57.5	0.2	13.0	12.8
8K10F1D	3 dB > AGC	774.9875	-53.0	0.2	13.0	12.8
9K80D7W	0.3 dB < AGC	772.0000	-56.5	2.4	13.0	10.6
9K80D7W	3 dB > AGC	769.0125	-53.6	2.4	13.0	10.6
16K0F3E	0.3 dB < AGC	772.0000	-56.5	0.4	13.0	12.6
16K0F3E	3 dB > AGC	774.9875	-53.0	0.4	13.0	12.6

<b>Band 851 MHz – 854 MHz, downlink</b>						
<b>Emission Designator</b>	<b>Input Power</b>	<b>Frequency [MHz]</b>	<b>Input Power [dBm]</b>	<b>PAPR [dB]</b>	<b>Limit PAPR [dB] *)</b>	<b>Margin to Limit [dB]</b>
4K00F3E	0.3 dB < AGC	851.0125	-55.5	0.3	13.0	12.7
4K00F3E	3 dB > AGC	852.5000	-53.0	0.2	13.0	12.8
11K3F3E	0.3 dB < AGC	851.0125	-55.5	0.3	13.0	12.7
11K3F3E	3 dB > AGC	852.5000	-53.0	0.2	13.0	12.8
8K10F1D	0.3 dB < AGC	851.0125	-55.5	0.2	13.0	12.8
8K10F1D	3 dB > AGC	851.0125	-52.2	0.2	13.0	12.8
9K80D7W	0.3 dB < AGC	852.5000	-56.3	2.4	13.0	10.6
9K80D7W	3 dB > AGC	852.5000	-53.0	2.4	13.0	10.6

**Band 854 MHz – 862 MHz, downlink**

Emission Designator	Input Power	Frequency [MHz]	Input Power [dBm]	PAPR [dB]	Limit PAPR [dB] *)	Margin to Limit [dB]
4K00F3E	0.3 dB < AGC	858.0000	-56.1	0.3	13.0	12.7
4K00F3E	3 dB > AGC	854.0125	-53.2	0.3	13.0	12.7
11K3F3E	0.3 dB < AGC	859.2465	-56.5	0.3	13.0	12.7
11K3F3E	3 dB > AGC	858.0000	-52.8	0.3	13.0	12.7
8K10F1D	0.3 dB < AGC	858.0000	-56.1	0.2	13.0	12.8
8K10F1D	3 dB > AGC	858.0000	-52.8	0.2	13.0	12.8
9K80D7W	0.3 dB < AGC	858.0000	-56.1	2.4	13.0	10.6
9K80D7W	3 dB > AGC	859.2465	-53.2	2.4	13.0	10.6

**Band 862 MHz – 869 MHz, downlink**

Emission Designator	Input Power	Frequency [MHz]	Input Power [dBm]	PAPR [dB]	Limit PAPR [dB] *)	Margin to Limit [dB]
4K00F3E	0.3 dB < AGC	865.5000	-56.1	0.3	13.0	12.7
4K00F3E	3 dB > AGC	868.9875	-52.2	0.3	13.0	12.7
11K3F3E	0.3 dB < AGC	865.5000	-56.1	0.3	13.0	12.7
11K3F3E	3 dB > AGC	868.9875	-52.2	0.3	13.0	12.7
8K10F1D	0.3 dB < AGC	868.9875	-55.5	0.2	13.0	12.8
8K10F1D	3 dB > AGC	863.4002	-53.2	0.2	13.0	12.8
9K80D7W	0.3 dB < AGC	863.4002	-56.5	2.4	13.0	10.6
9K80D7W	3 dB > AGC	863.4002	-53.2	2.4	13.0	10.6
16K0F3E	0.3 dB < AGC	863.4002	-56.5	0.4	13.0	12.6
16K0F3E	3 dB > AGC	868.9875	-52.2	0.4	13.0	12.6

**Band 788 MHz – 798 MHz, uplink**

Emission Designator	Input Power	Frequency [MHz]	Input Power [dBm]	PAPR [dB]	Limit PAPR [dB] *)	Margin to Limit [dB]
5M00G7D	0.3 dB < AGC	795.5000	-60.5	8.7	13.0	4.3
5M00G7D	3 dB > AGC	792.0051	-57.8	8.7	13.0	4.3

**Band 799 MHz – 805 MHz, uplink**

Emission Designator	Input Power	Frequency [MHz]	Input Power [dBm]	PAPR [dB]	Limit PAPR [dB] *)	Margin to Limit [dB]
4K00F3E	0.3 dB < AGC	804.9875	-60.7	0.3	13.0	12.7
4K00F3E	3 dB > AGC	804.9875	-57.4	0.3	13.0	12.7
11K3F3E	0.3 dB < AGC	799.0125	-62.1	0.3	13.0	12.7
11K3F3E	3 dB > AGC	802.0000	-57.8	0.3	13.0	12.7
8K10F1D	0.3 dB < AGC	804.9875	-60.7	0.2	13.0	12.8
8K10F1D	3 dB > AGC	802.0000	-57.8	0.2	13.0	12.8
9K80D7W	0.3 dB < AGC	802.0000	-61.1	2.4	13.0	10.6
9K80D7W	3 dB > AGC	802.0000	-57.8	2.4	13.0	10.6
16K0F3E	0.3 dB < AGC	802.0000	-61.1	0.4	13.0	12.6
16K0F3E	3 dB > AGC	799.0125	-58.8	0.4	13.0	12.6

**Band 806 MHz – 809 MHz, uplink**

Emission Designator	Input Power	Frequency [MHz]	Input Power [dBm]	PAPR [dB]	Limit PAPR [dB] *)	Margin to Limit [dB]
4K00F3E	0.3 dB < AGC	808.2521	-62.1	0.3	13.0	12.7
4K00F3E	3 dB > AGC	807.5000	-58.4	0.7	13.0	12.3
11K3F3E	0.3 dB < AGC	806.0125	-61.3	0.3	13.0	12.7
11K3F3E	3 dB > AGC	807.5000	-58.4	0.7	13.0	12.3
8K10F1D	0.3 dB < AGC	808.9875	-61.7	0.2	13.0	12.8
8K10F1D	3 dB > AGC	807.5000	-58.4	0.6	13.0	12.4
9K80D7W	0.3 dB < AGC	808.9875	-61.7	2.6	13.0	10.4
9K80D7W	3 dB > AGC	806.0125	-58.0	3.0	13.0	10.0

**Band 809 MHz – 817 MHz, uplink**

<b>Emission Designator</b>	<b>Input Power</b>	<b>Frequency [MHz]</b>	<b>Input Power [dBm]</b>	<b>PAPR [dB]</b>	<b>Limit PAPR [dB] *)</b>	<b>Margin to Limit [dB]</b>
4K00F3E	0.3 dB < AGC	809.0125	-61.9	0.3	13.0	12.7
4K00F3E	3 dB > AGC	813.0000	-58.2	0.7	13.0	12.3
11K3F3E	0.3 dB < AGC	809.0125	-61.9	0.3	13.0	12.7
11K3F3E	3 dB > AGC	813.0000	-58.2	0.7	13.0	12.3
8K10F1D	0.3 dB < AGC	809.0125	-61.9	0.2	13.0	12.8
8K10F1D	3 dB > AGC	813.0000	-58.2	0.6	13.0	12.4
9K80D7W	0.3 dB < AGC	813.0000	-61.5	2.5	13.0	10.5
9K80D7W	3 dB > AGC	809.0125	-58.6	2.7	13.0	10.3

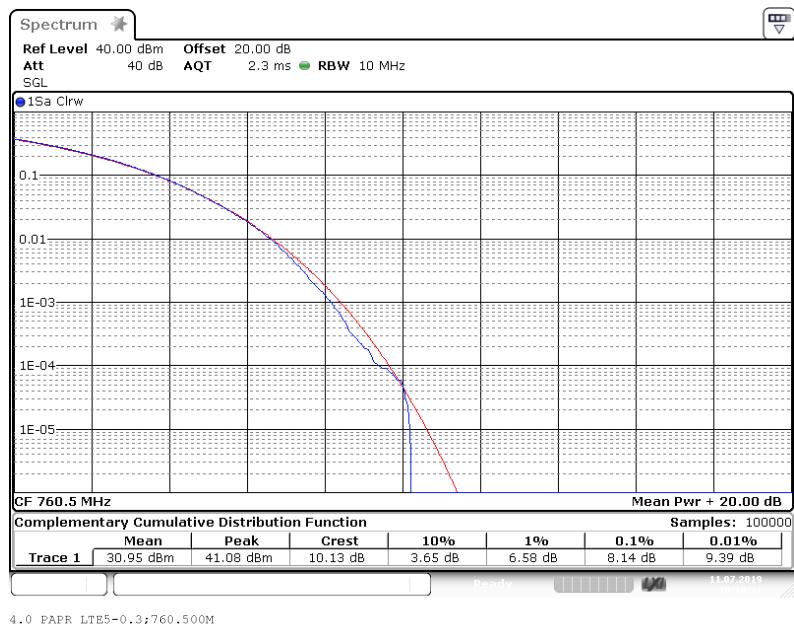
**Band 817 MHz – 824 MHz, uplink**

<b>Emission Designator</b>	<b>Input Power</b>	<b>Frequency [MHz]</b>	<b>Input Power [dBm]</b>	<b>PAPR [dB]</b>	<b>Limit PAPR [dB] *)</b>	<b>Marg in to Limit [dB]</b>
4K00F3E	0.3 dB < AGC	817.0125	-61.7	0.2	13.0	12.8
4K00F3E	3 dB > AGC	817.0125	-58.4	0.3	13.0	12.7
11K3F3E	0.3 dB < AGC	820.5000	-61.1	0.3	13.0	12.7
11K3F3E	3 dB > AGC	817.0125	-58.4	0.3	13.0	12.7
8K10F1D	0.3 dB < AGC	823.9020	-61.5	0.2	13.0	12.8
8K10F1D	3 dB > AGC	817.0125	-58.4	0.2	13.0	12.8
9K80D7W	0.3 dB < AGC	817.0125	-61.7	2.4	13.0	10.6
9K80D7W	3 dB > AGC	820.5000	-57.8	2.7	13.0	10.3
16K0F3E	0.3 dB < AGC	817.0125	-61.7	0.3	13.0	12.7
16K0F3E	3 dB > AGC	817.0125	-58.4	0.3	13.0	12.7

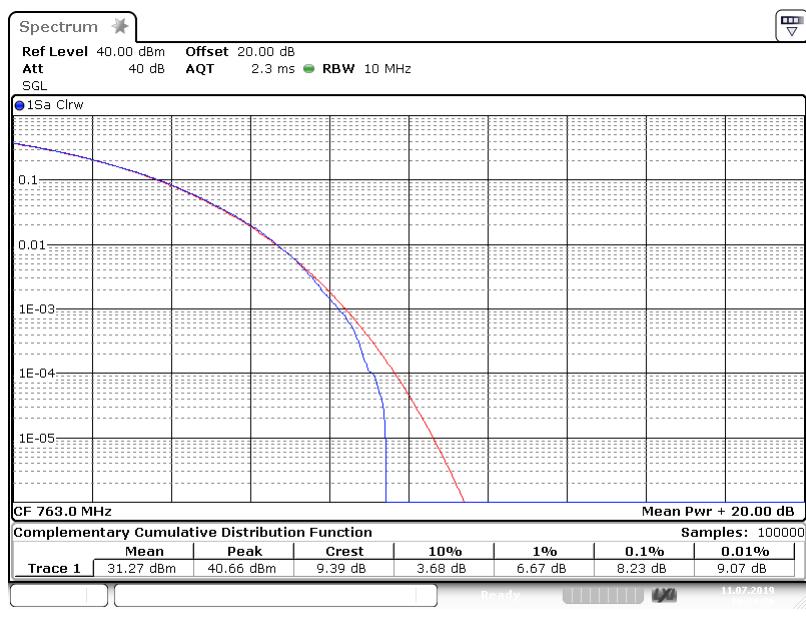
Remark: \*) Limit only for comparison purposes, no Part 90 requirement  
Please see next sub-clause for the measurement plot.

#### 4.2.4 MEASUREMENT PLOT (SHOWING THE HIGHEST VALUE, "WORST CASE")

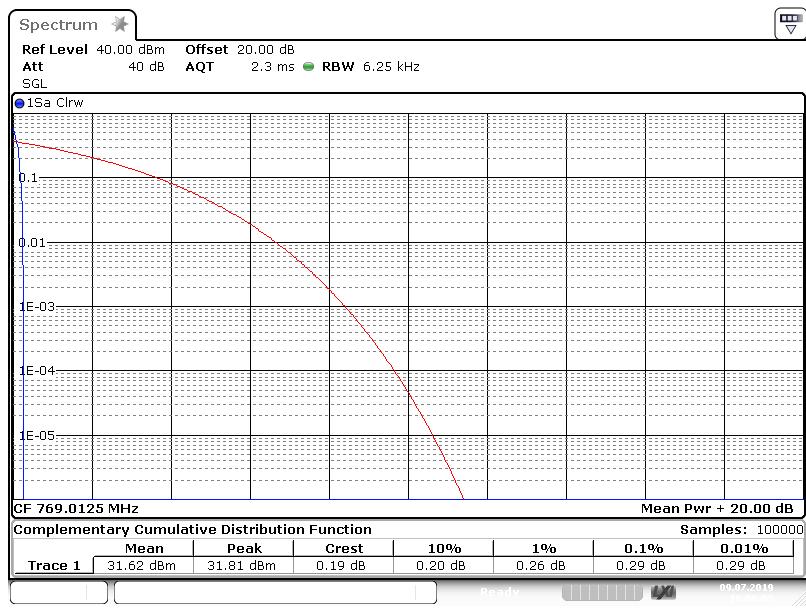
Frequency Band = 758 MHz – 768 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 5M00G7D



Frequency Band = 758 MHz – 768 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 5M00G7D

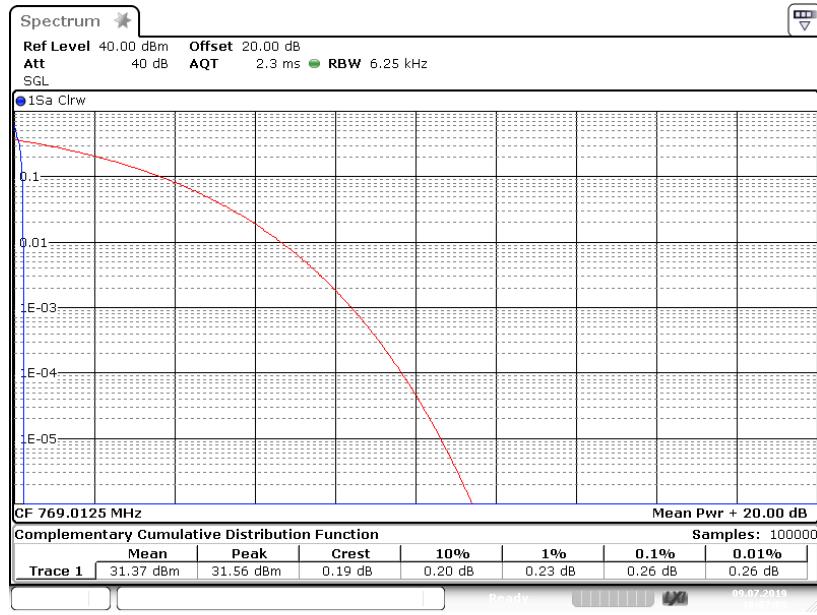


Frequency Band = 769 MHz – 775 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 4K00F3E



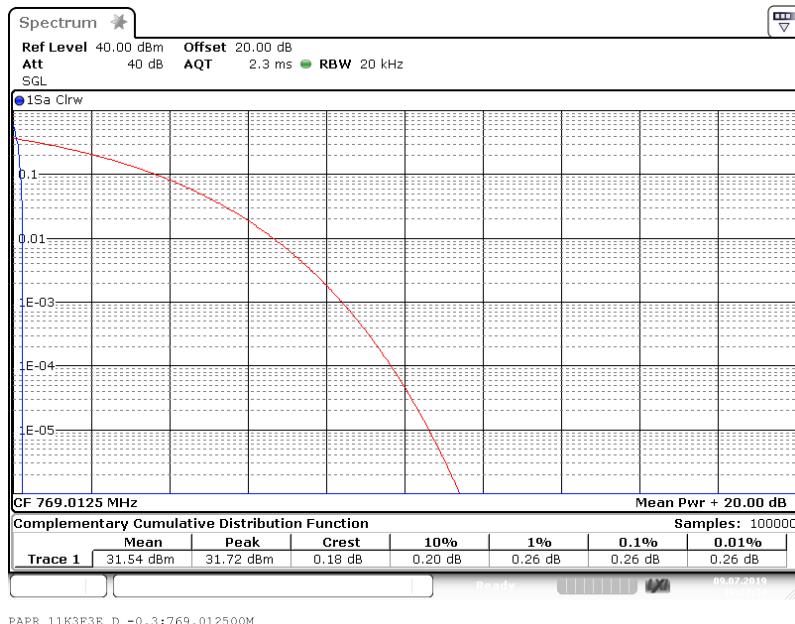
PAPR 4K00F3E\_E -0.3;769.012500M

Frequency Band = 769 MHz – 775 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 4K00F3E

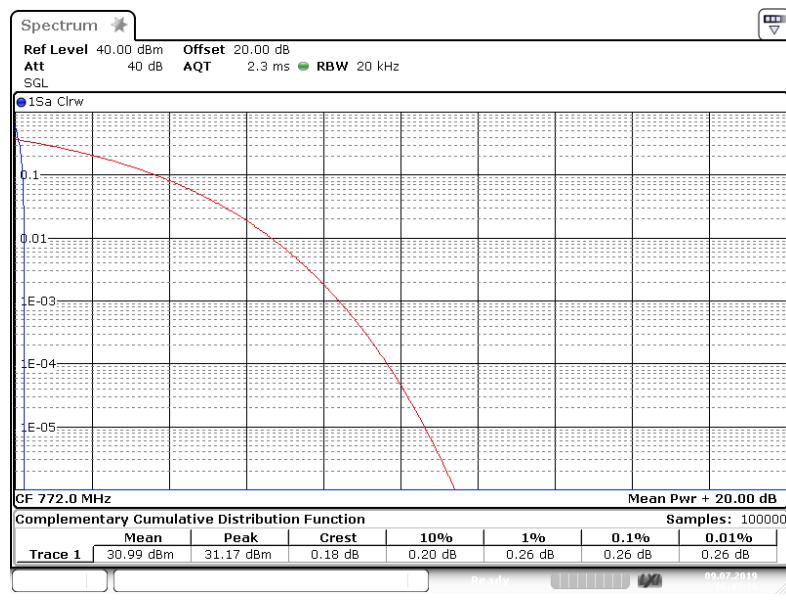


PAPR 4K00F3E\_E +3;769.012500M

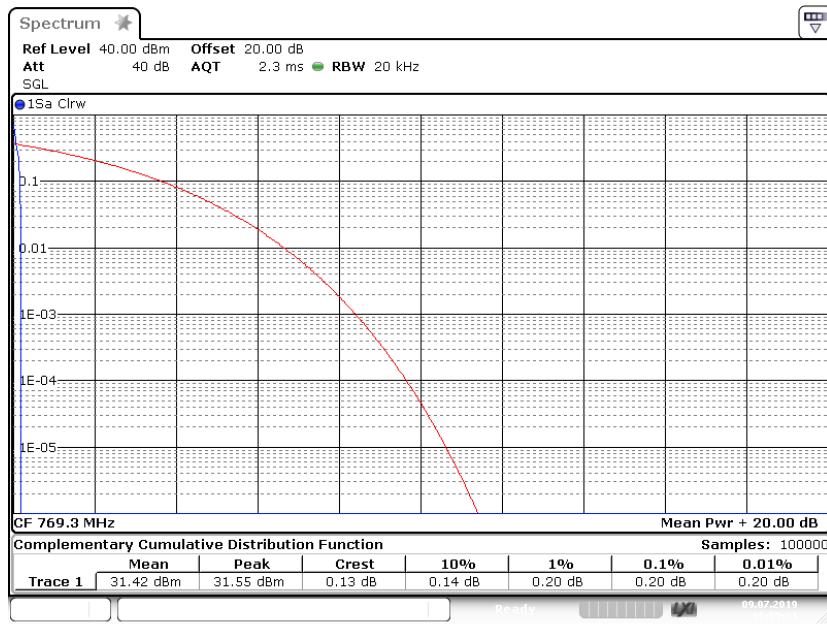
Frequency Band = 769 MHz – 775 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 11K3F3E



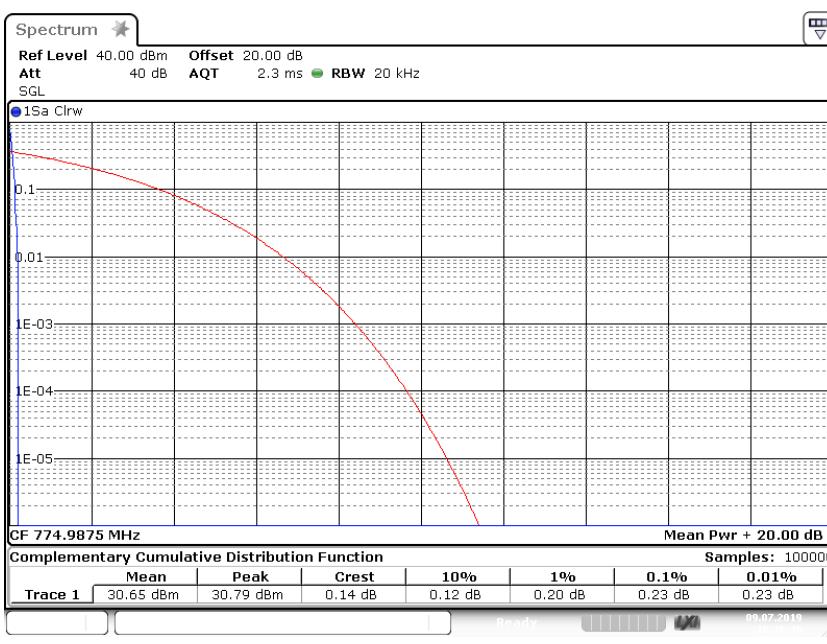
Frequency Band = 769 MHz – 775 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 11K3F3E



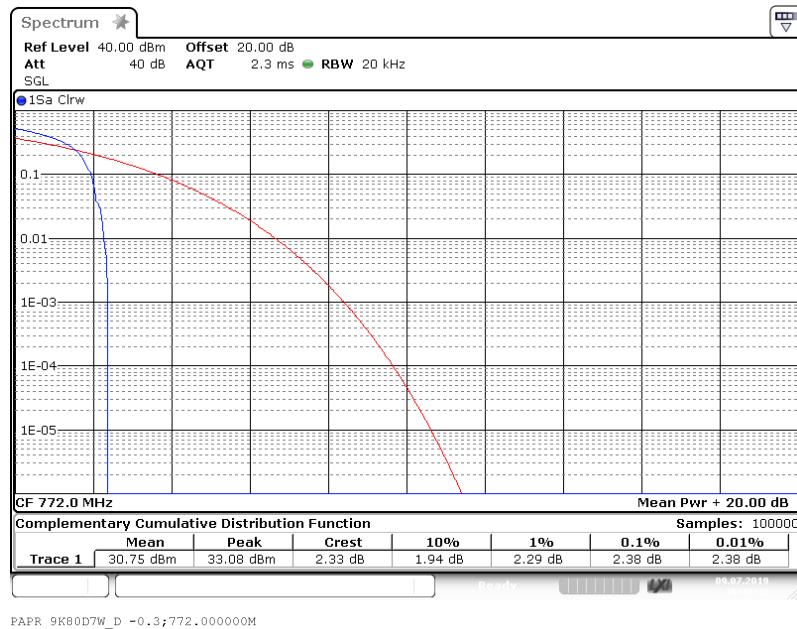
Frequency Band = 769 MHz – 775 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 8K10F1D



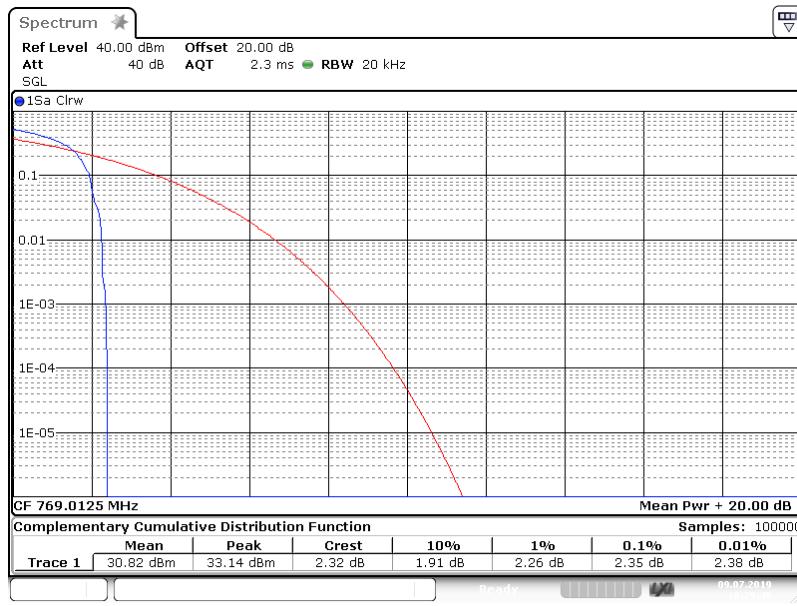
Frequency Band = 769 MHz – 775 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 8K10F1D



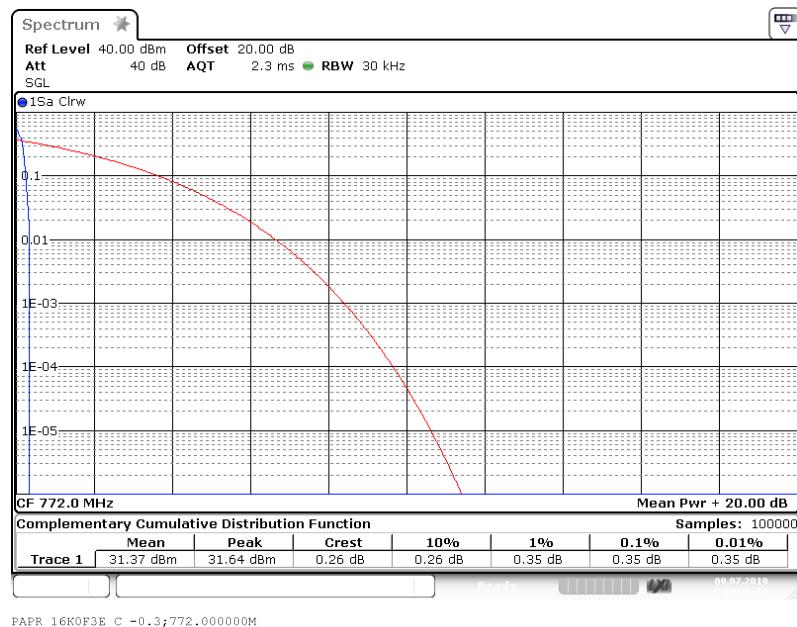
Frequency Band = 769 MHz – 775 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 9K80D7W



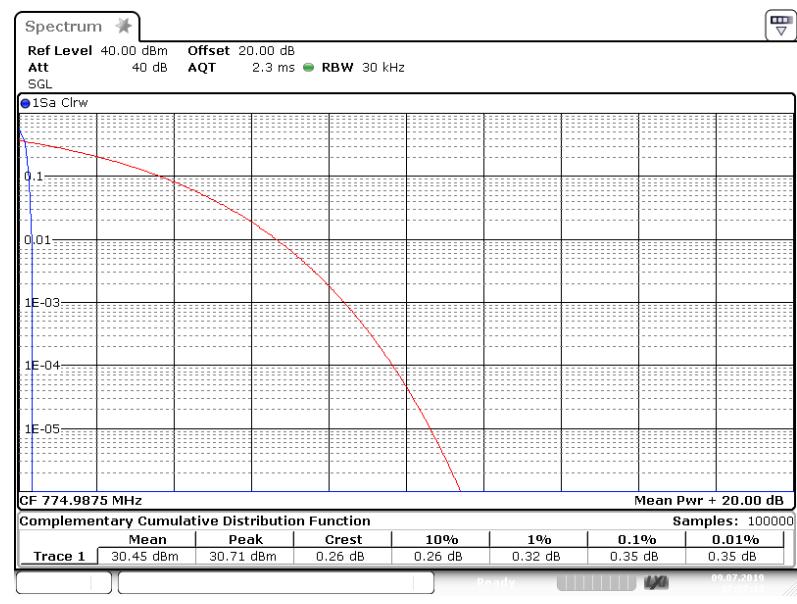
Frequency Band = 769 MHz – 775 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 9K80D7W



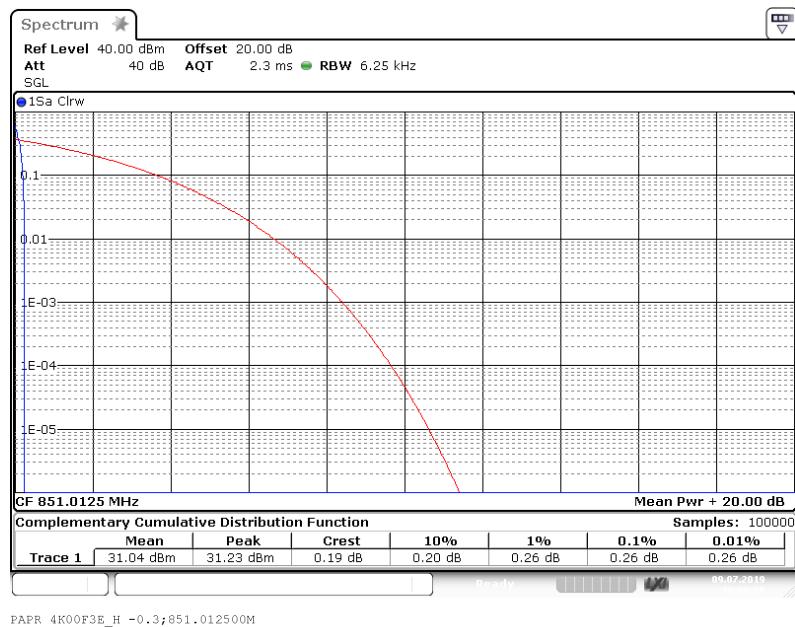
Frequency Band = 769 MHz – 775 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 16K0F3E



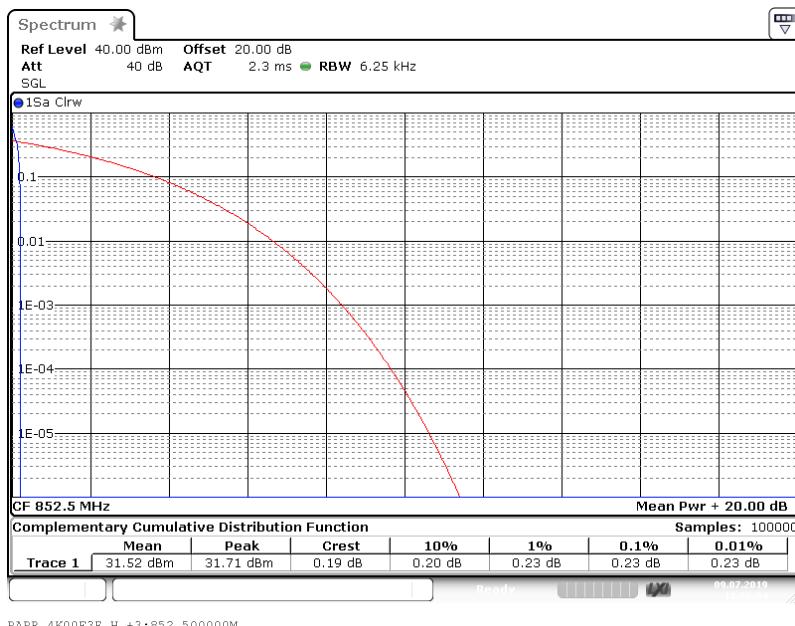
Frequency Band = 769 MHz – 775 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 16K0F3E



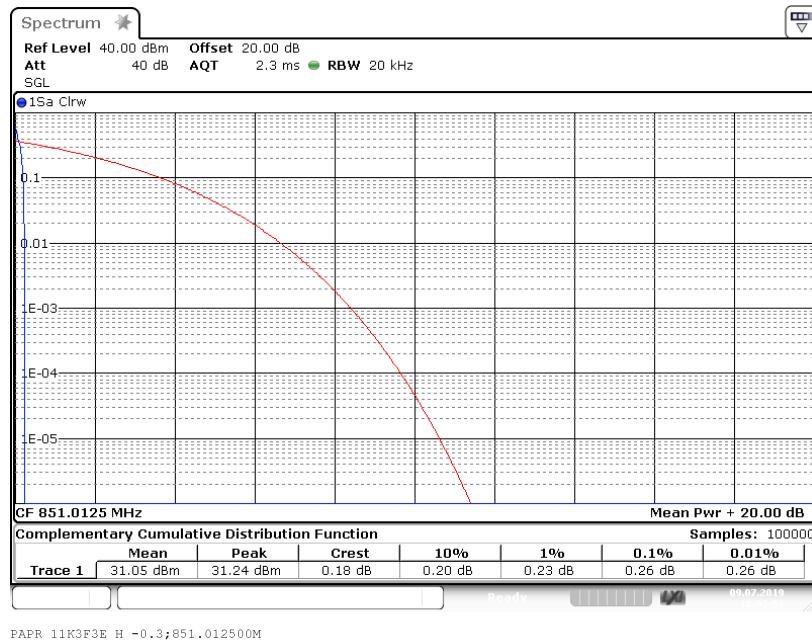
Frequency Band = 851 MHz – 854 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 4K00F3E



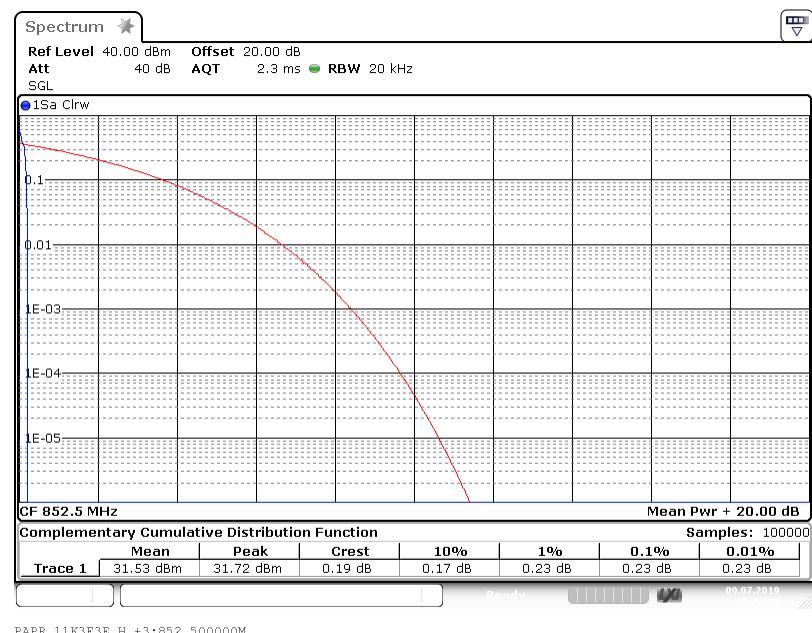
Frequency Band = 851 MHz – 854 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 4K00F3E



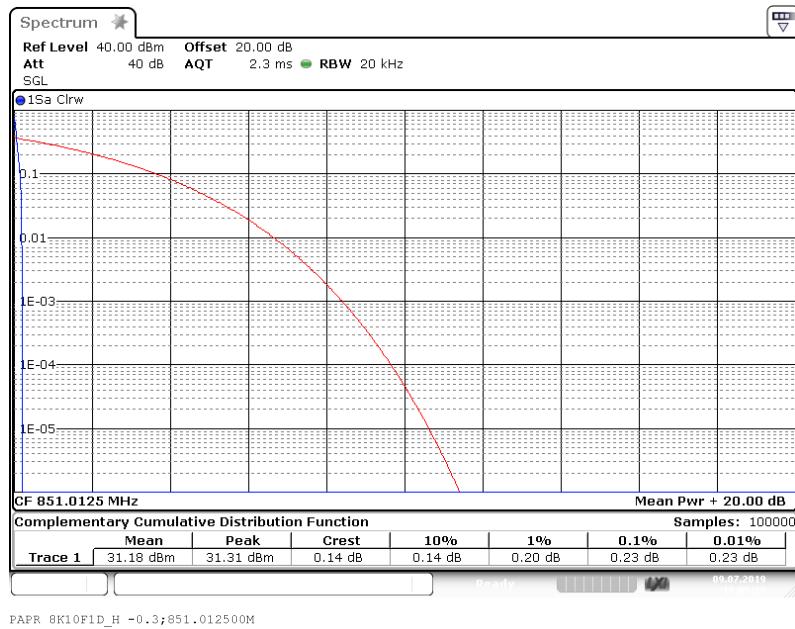
Frequency Band = 851 MHz – 854 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 11K3F3E



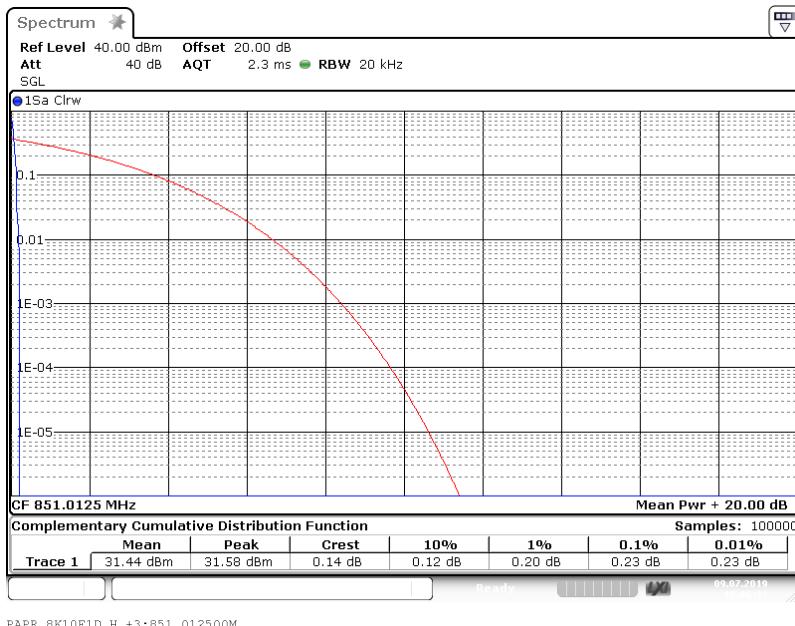
Frequency Band = 851 MHz – 854 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 11K3F3E



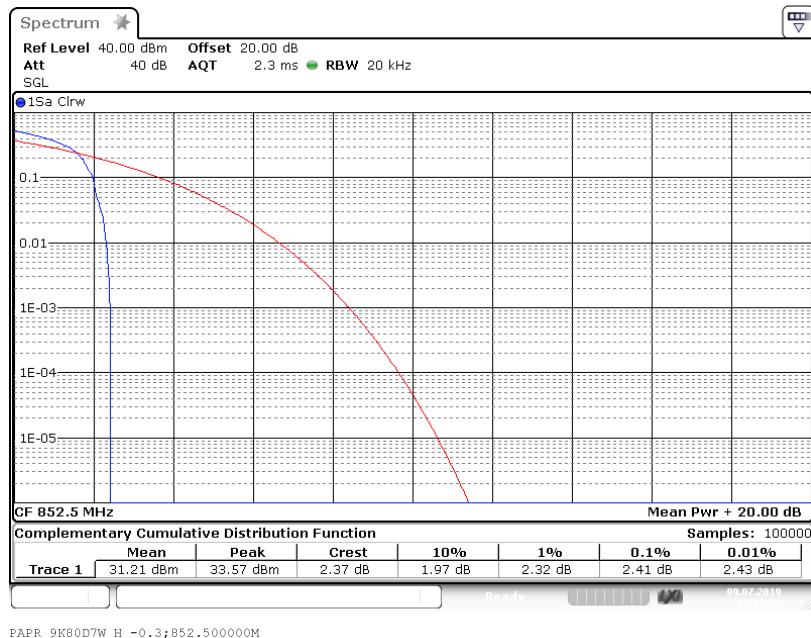
Frequency Band = 851 MHz – 854 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 8K10F1D



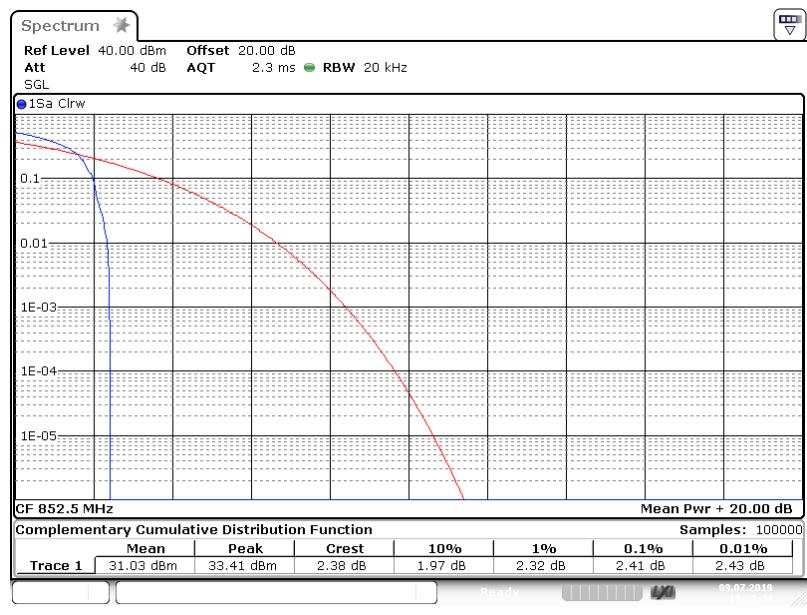
Frequency Band = 851 MHz – 854 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 8K10F1D



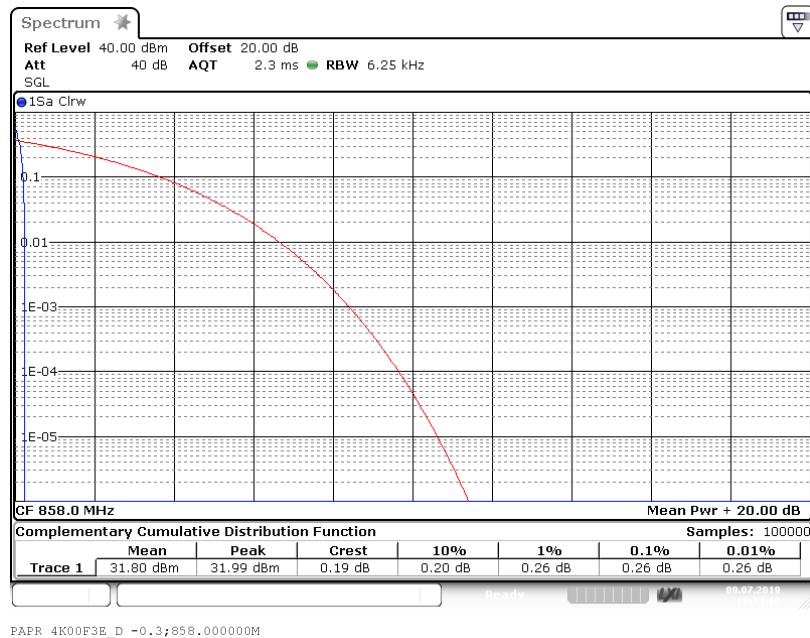
Frequency Band = 851 MHz – 854 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 9K80D7W



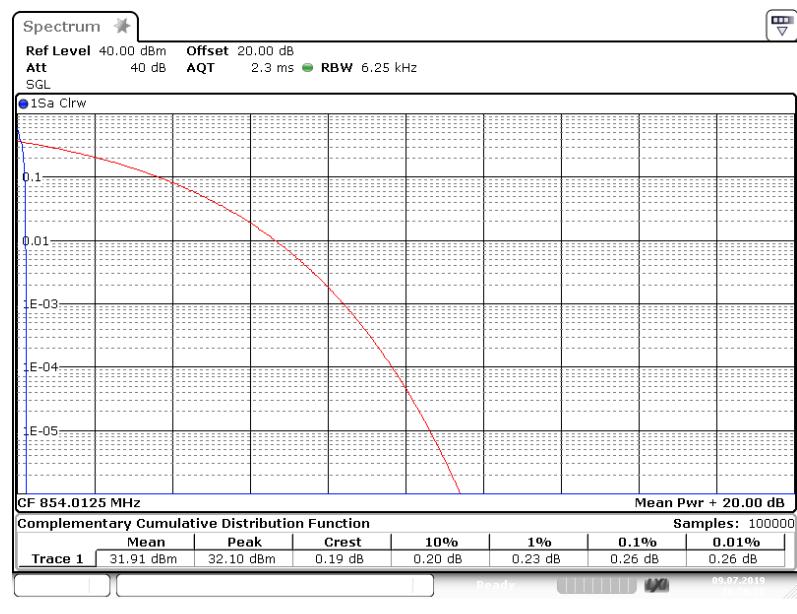
Frequency Band = 851 MHz – 854 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 9K80D7W



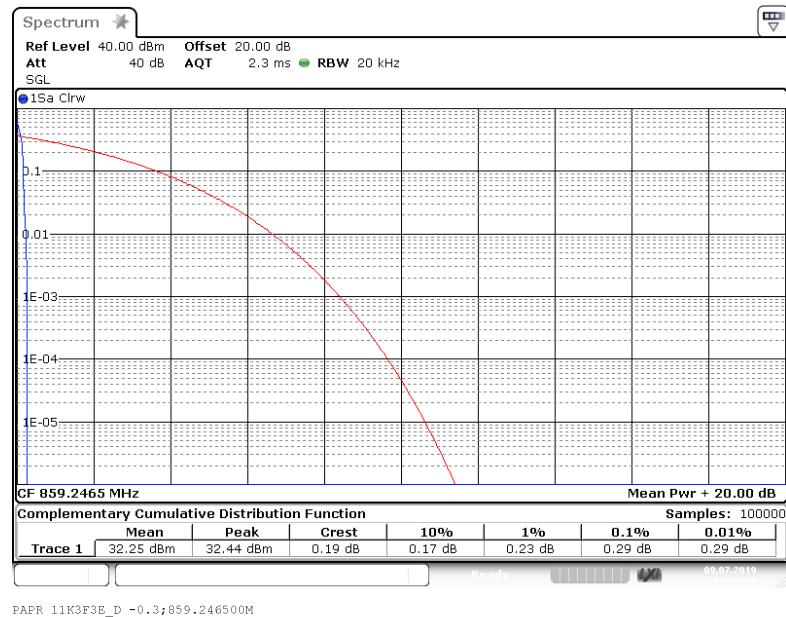
Frequency Band = 854 MHz – 862 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 4K00F3E



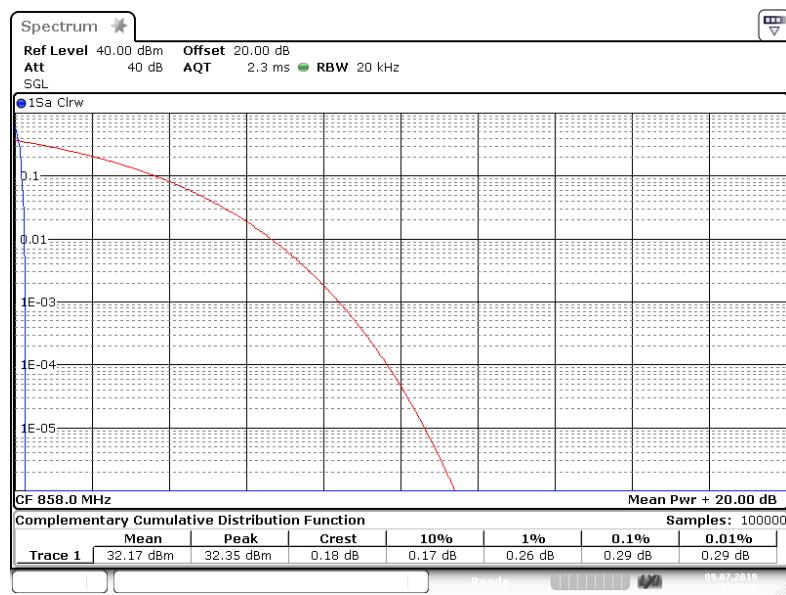
Frequency Band = 854 MHz – 862 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 4K00F3E



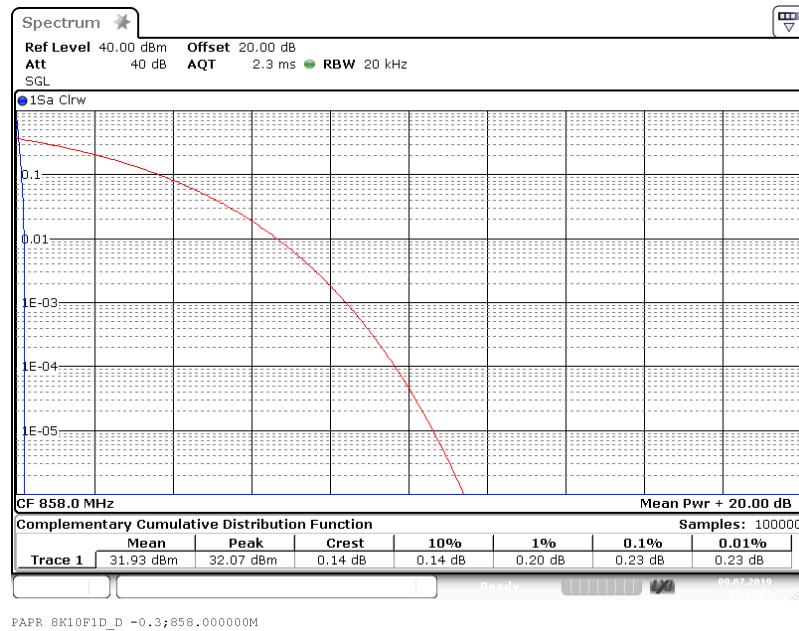
Frequency Band = 854 MHz – 862 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 11K3F3E



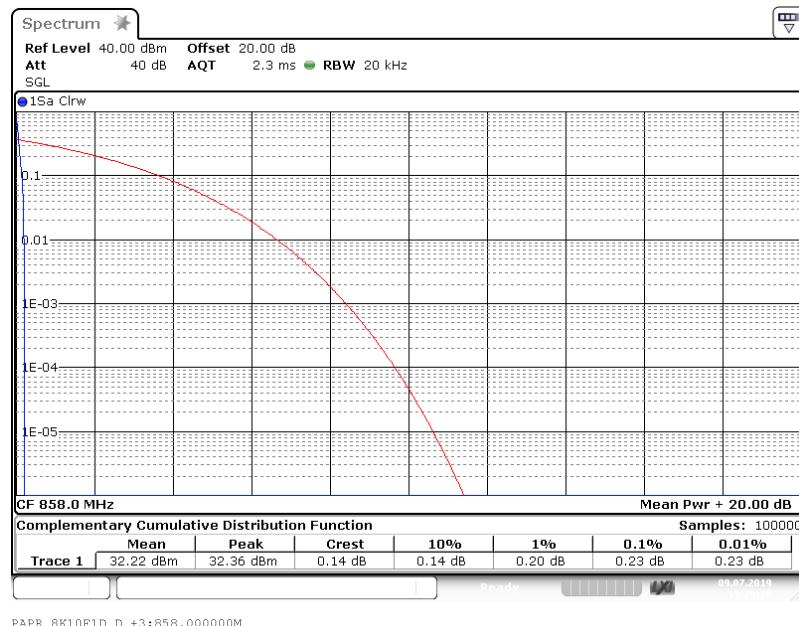
Frequency Band = 854 MHz – 862 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 11K3F3E



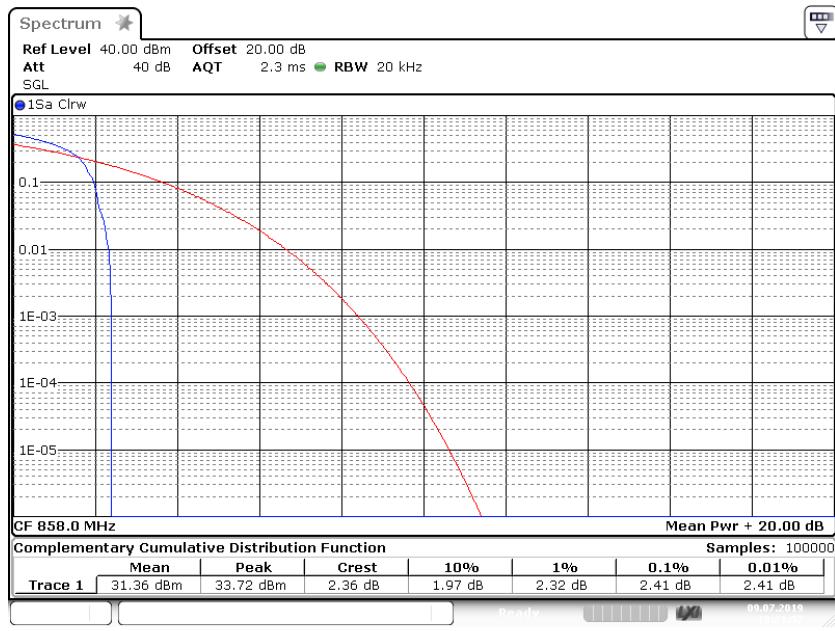
Frequency Band = 854 MHz – 862 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 8K10F1D



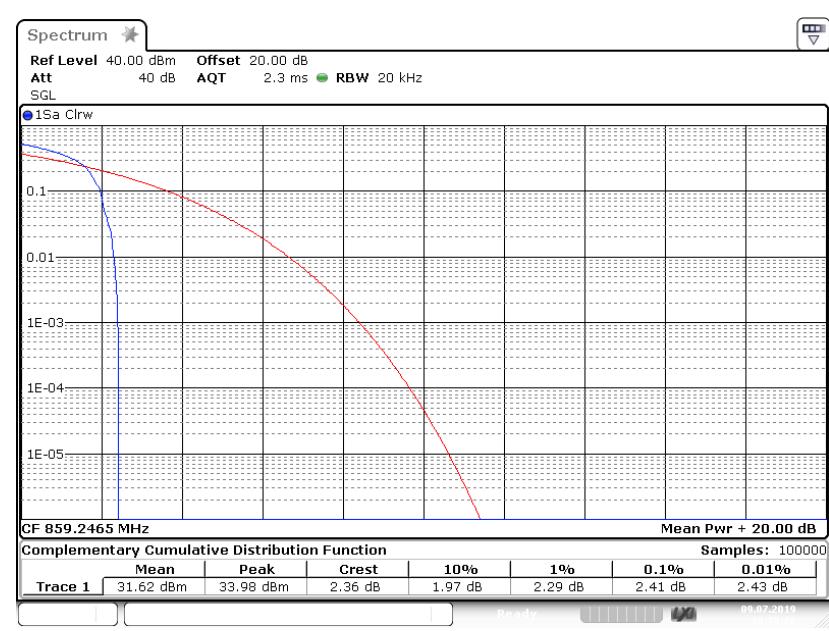
Frequency Band = 854 MHz – 862 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 8K10F1D



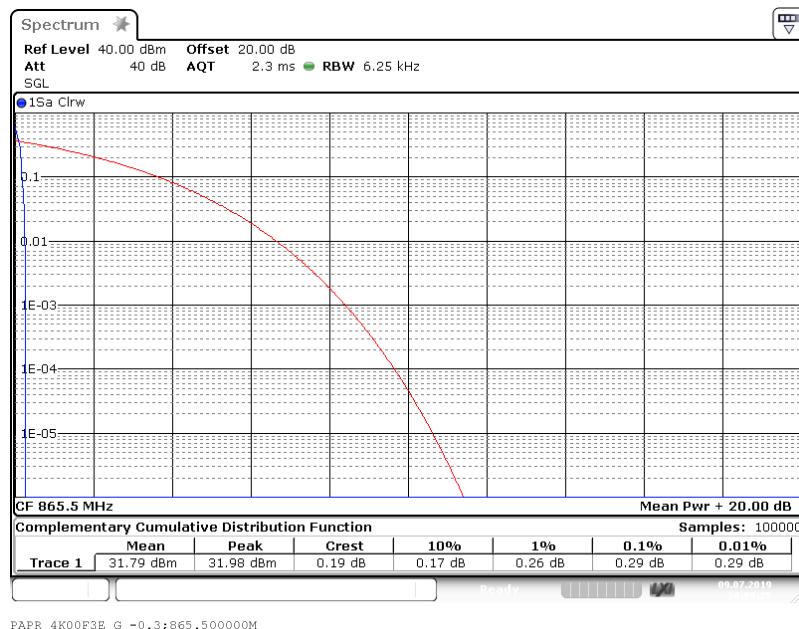
Frequency Band = 854 MHz – 862 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 9K80D7W



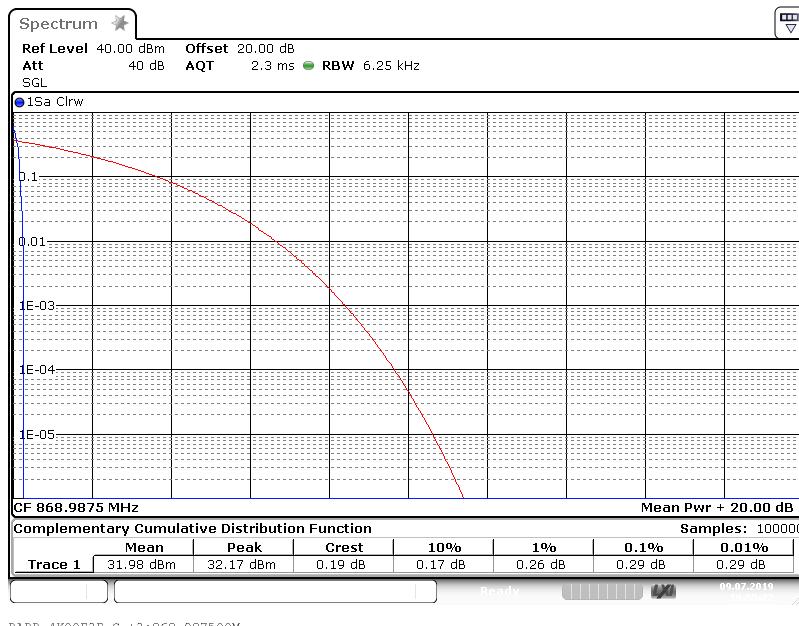
Frequency Band = 854 MHz – 862 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 9K80D7W



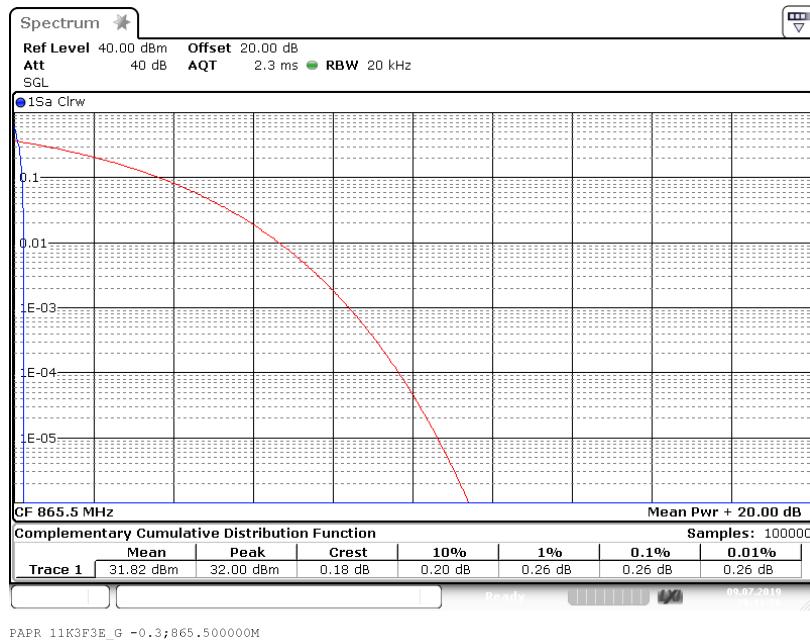
Frequency Band = 862 MHz – 869 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 4K00F3E



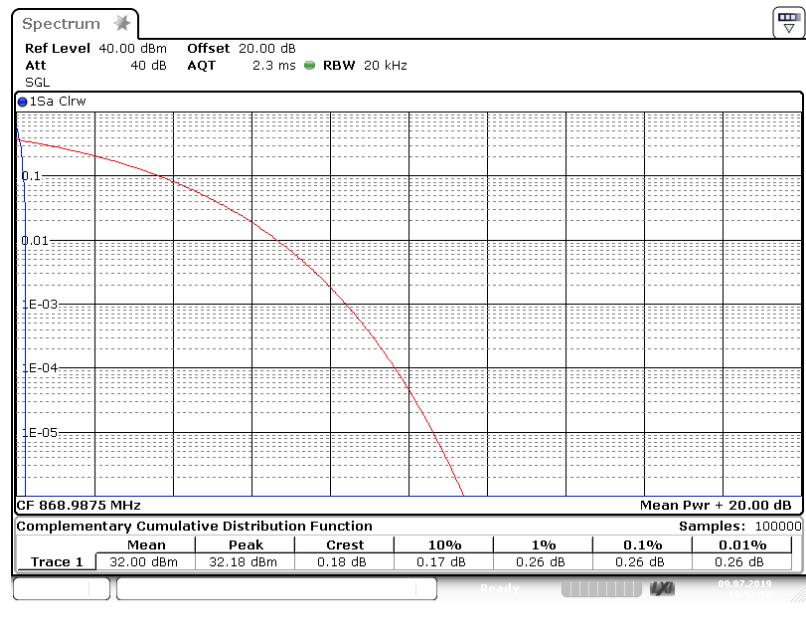
Frequency Band = 862 MHz – 869 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 4K00F3E



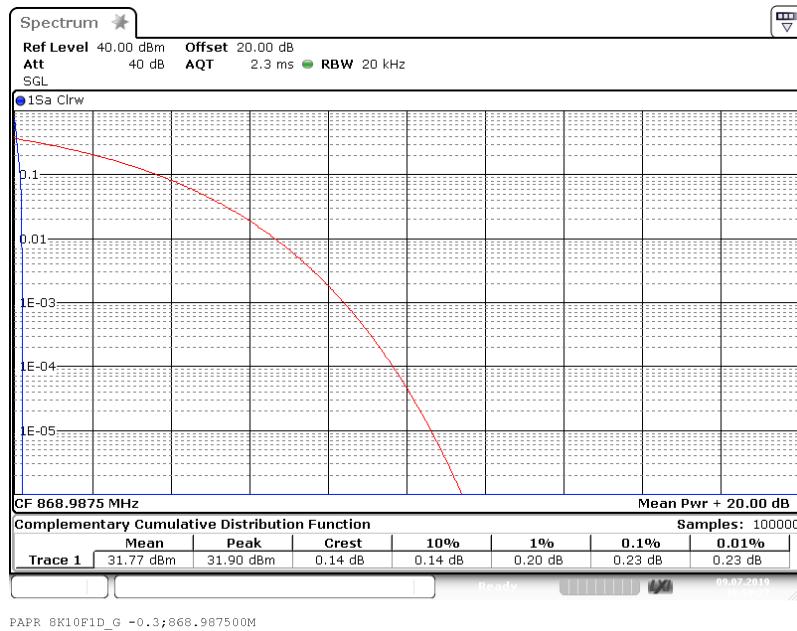
Frequency Band = 862 MHz – 869 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 11K3F3E



Frequency Band = 862 MHz – 869 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 11K3F3E



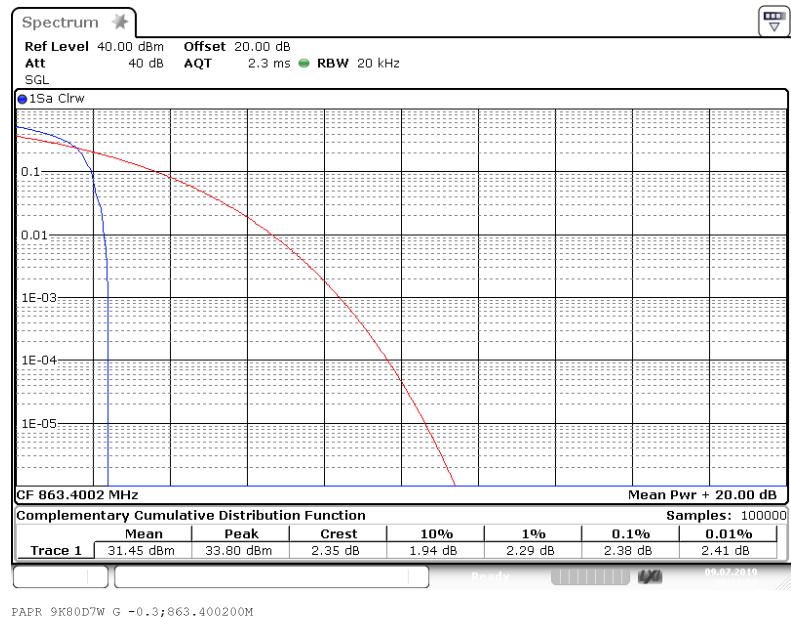
Frequency Band = 862 MHz – 869 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 8K10F1D



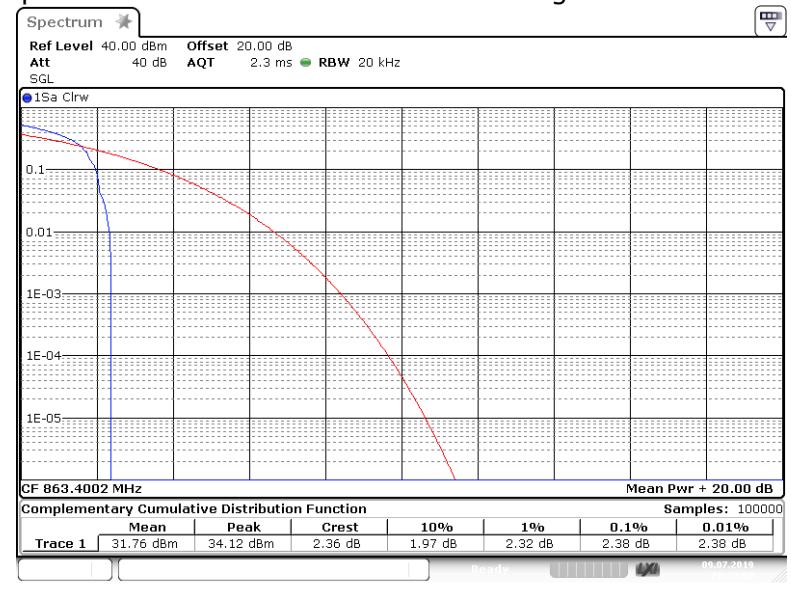
Frequency Band = 862 MHz – 869 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 8K10F1D



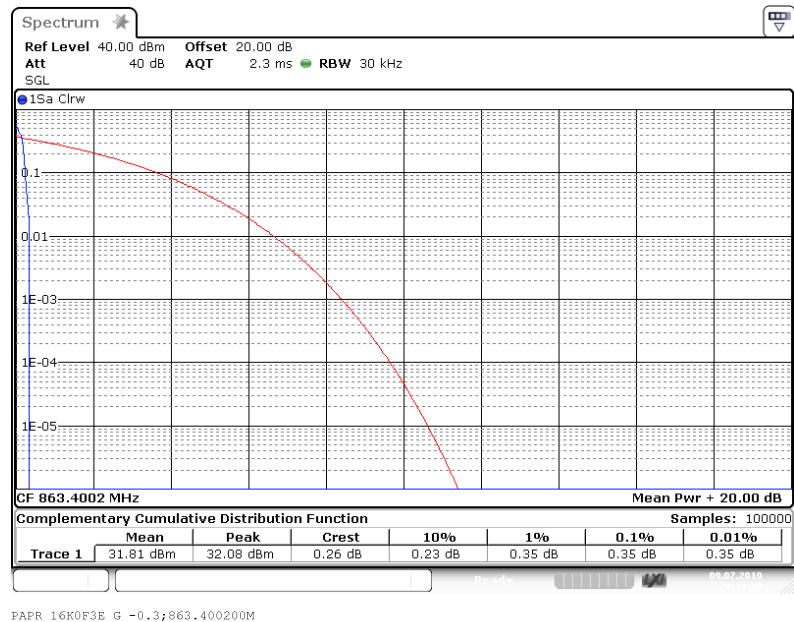
Frequency Band = 862 MHz – 869 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 9K80D7W



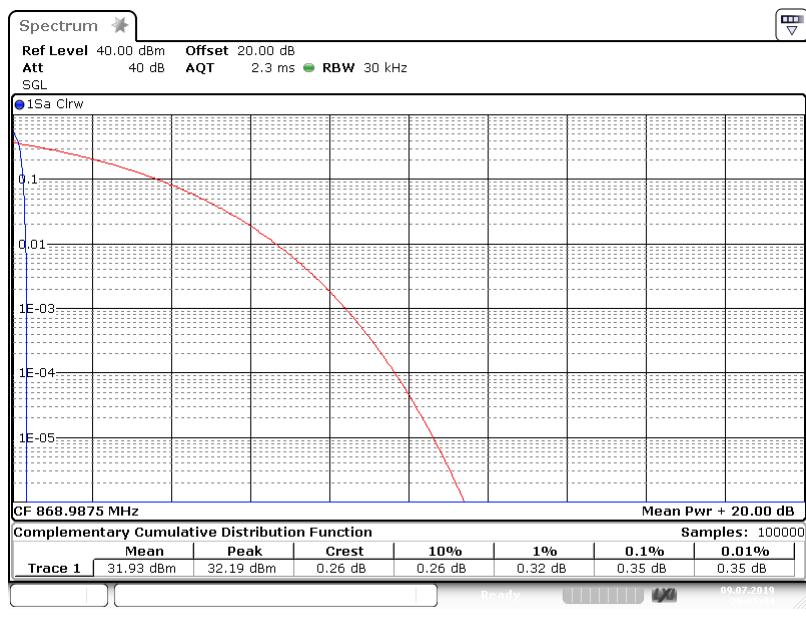
Frequency Band = 862 MHz – 869 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 9K80D7W



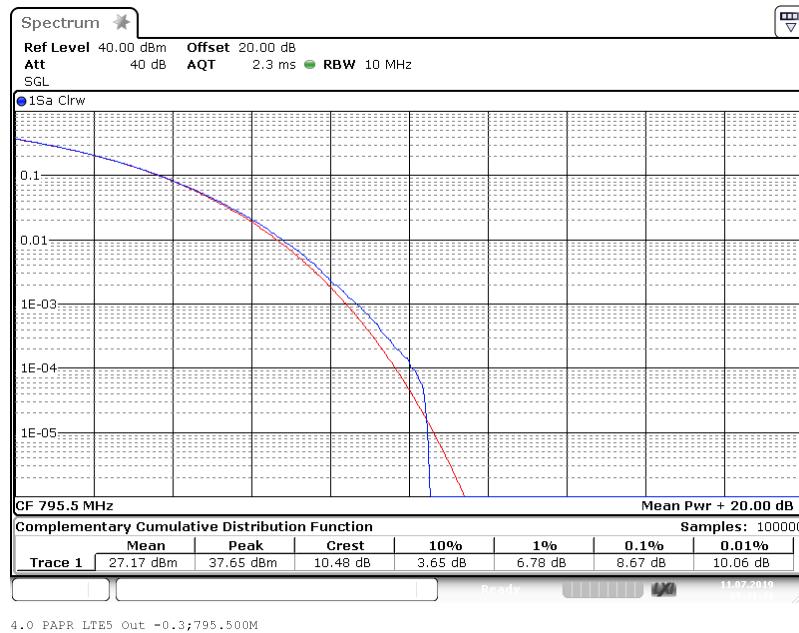
Frequency Band = 862 MHz – 869 MHz, Direction = RF downlink,  
Input Power = 0.3 dB < AGC, Emission Designator = 16K0F3E



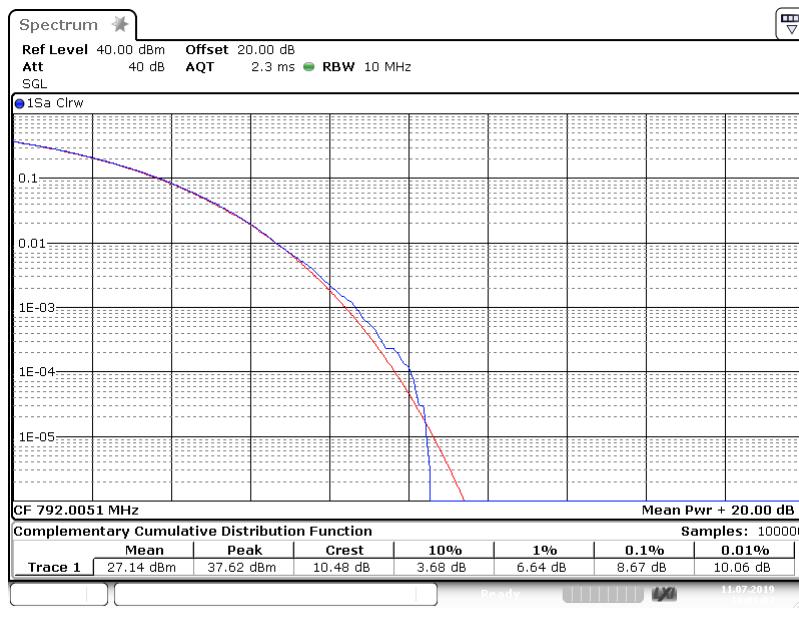
Frequency Band = 862 MHz – 869 MHz, Direction = RF downlink,  
Input Power = 3 dB > AGC Emission Designator = 16K0F3E



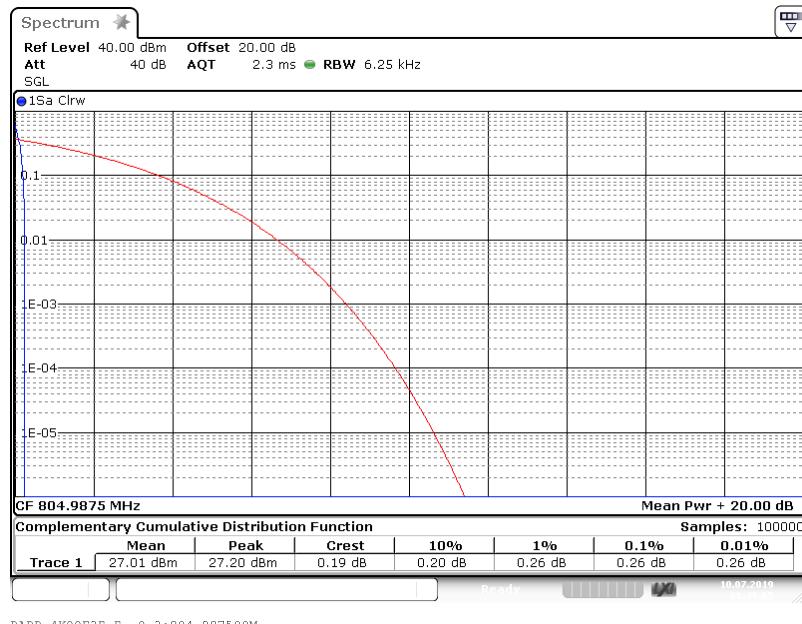
Frequency Band = 788 MHz – 798 MHz, Direction = RF uplink,  
Input Power = 0.3 dB < AGC, Emission Designator = 5M00G7D



Frequency Band = 788 MHz – 798 MHz, Direction = RF uplink,  
Input Power = 3 dB > AGC Emission Designator = 5M00G7D



Frequency Band = 799 MHz – 805 MHz, Direction = RF uplink,  
Input Power = 0.3 dB < AGC, Emission Designator = 4K00F3E



Frequency Band = 799 MHz – 805 MHz, Direction = RF uplink,  
Input Power = 3 dB > AGC Emission Designator = 4K00F3E

