

# Annex A.2 Peak to Average Ratio

# 1. WCDMA\_Band5

## 1.1. WCDMA Peak to Average Ratio\_Part22-24-27(NTNV)(Channel:4132)

Center Frequency(MHz)	PAR Percent (%)	PAR (dB)	Upper Limit (dB)	Verdict
826.4	0.1	3.05	13	Pass

**General Purpose RF Measurement - V3.5.110 - Base V 3.5.137**

Power Spectrum FFT Spectrum IQ Recorder IQ vs. Slot EPS

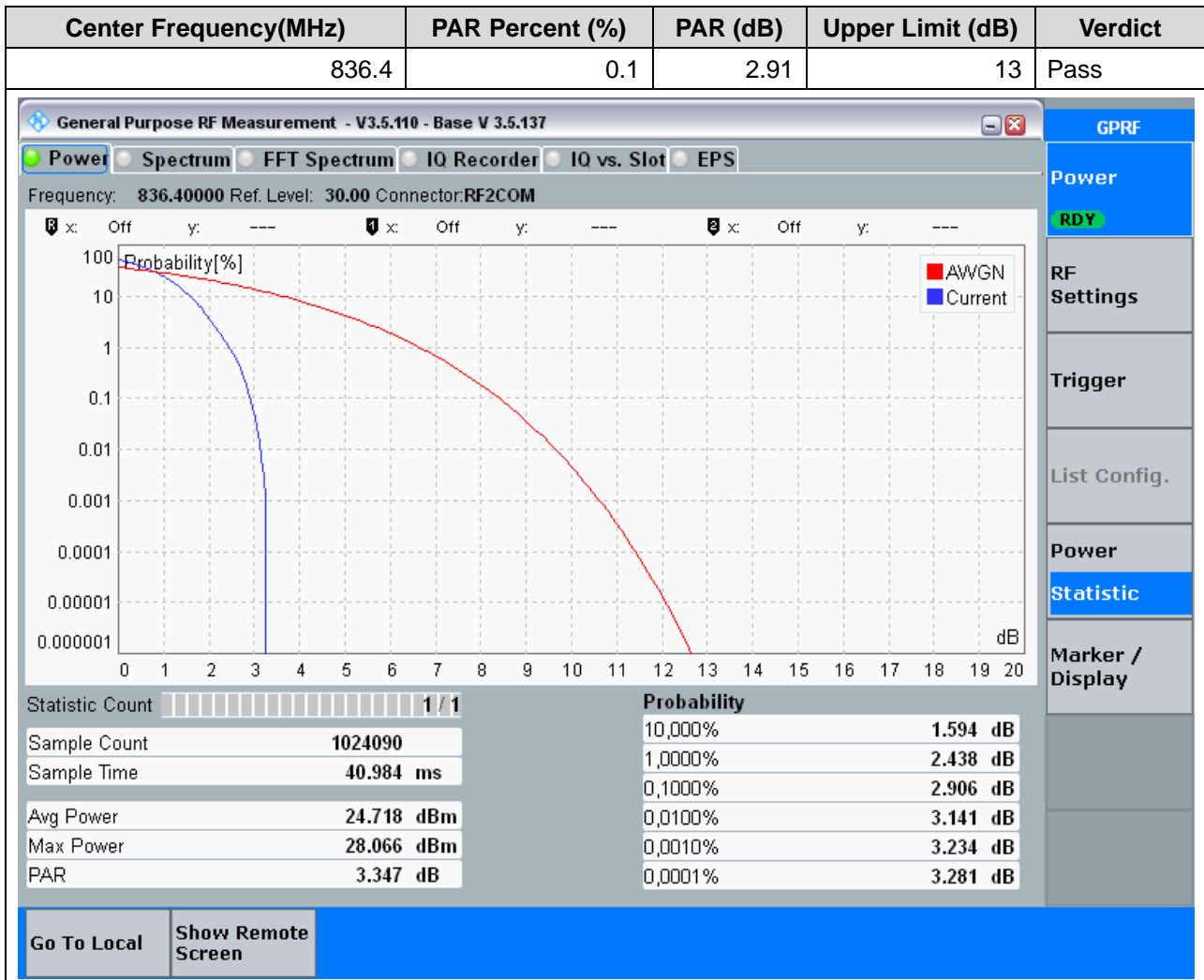
Frequency: 826.40000 Ref. Level: 30.00 Connector:RF2COM

Statistic Count	Sample Count	Sample Time	Avg Power	Max Power	PAR
1 / 1	998714	39.968 ms	24.740 dBm	28.229 dBm	3.489 dB

Probability	Value
10,000%	1.641 dB
1,0000%	2.531 dB
0,1000%	3.047 dB
0,0100%	3.234 dB
0,0010%	3.375 dB
0,0001%	3.469 dB

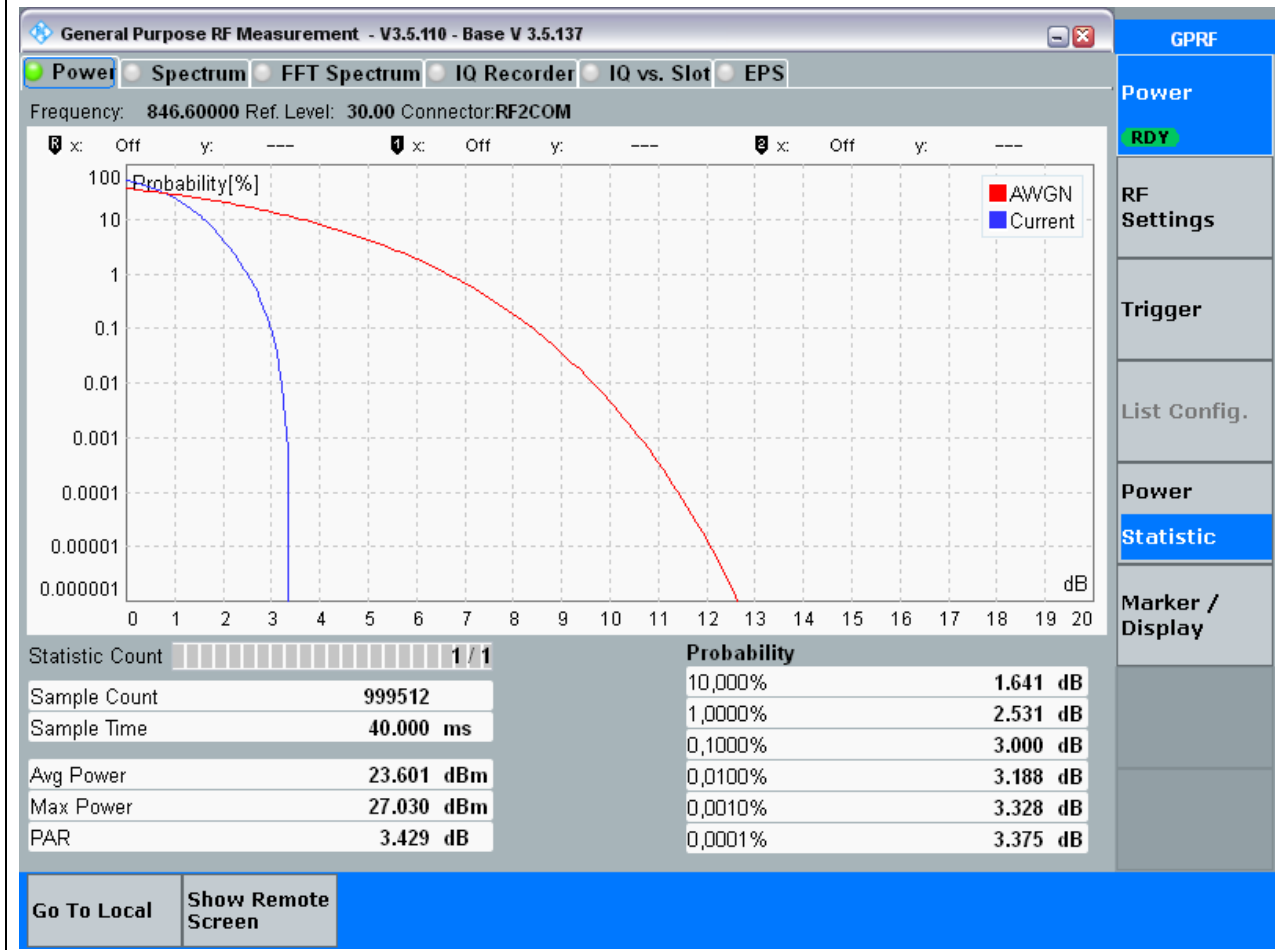
Go To Local Show Remote Screen

## 1.2. WCDMA Peak to Average Ratio\_Part22-24-27(NTNV)(Channel:4182)



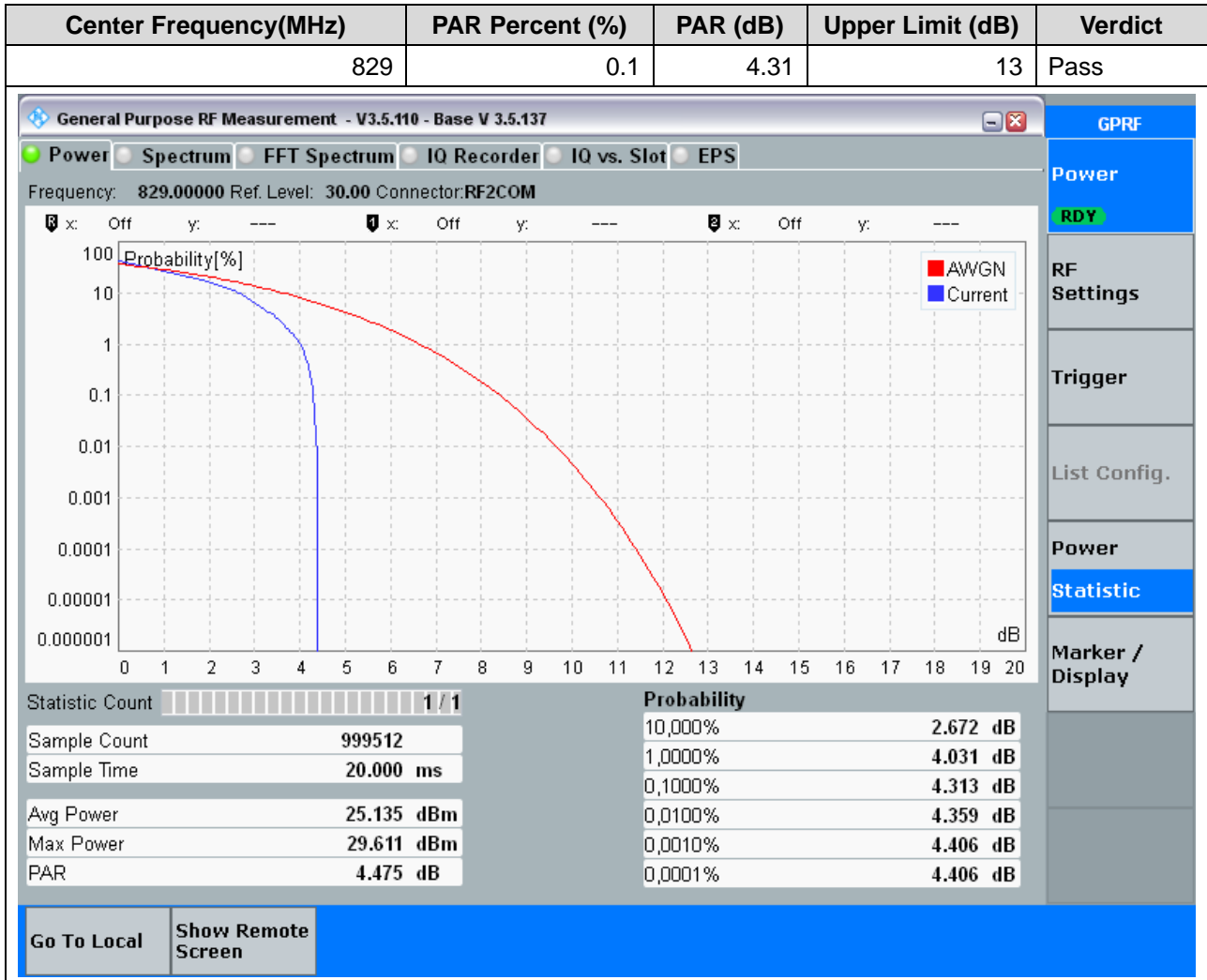
### 1.3. WCDMA Peak to Average Ratio\_Part22-24-27(NTNV)(Channel:4233)

Center Frequency(MHz)	PAR Percent (%)	PAR (dB)	Upper Limit (dB)	Verdict
846.6	0.1	3	13	Pass

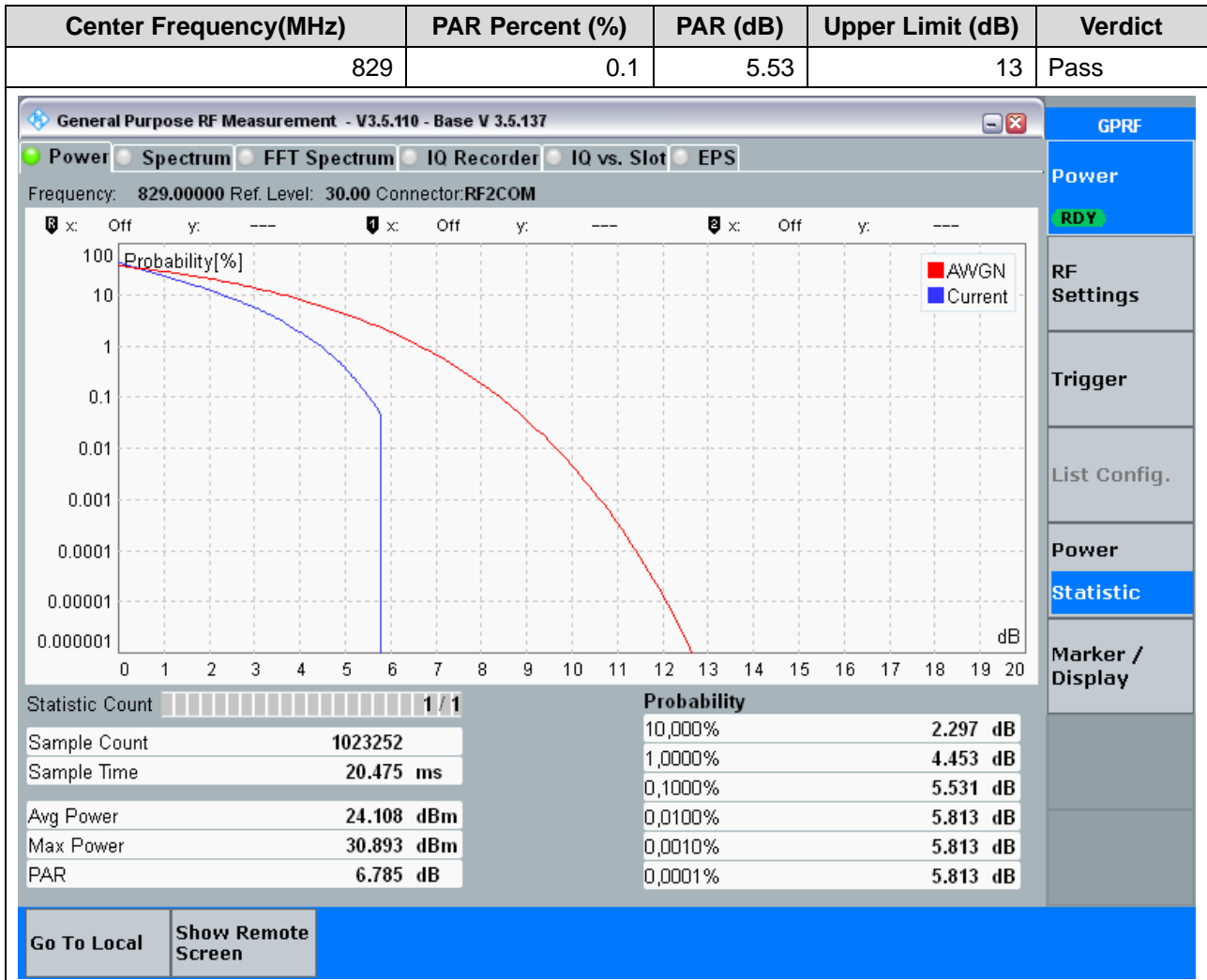


## 2. LTE\_Band5

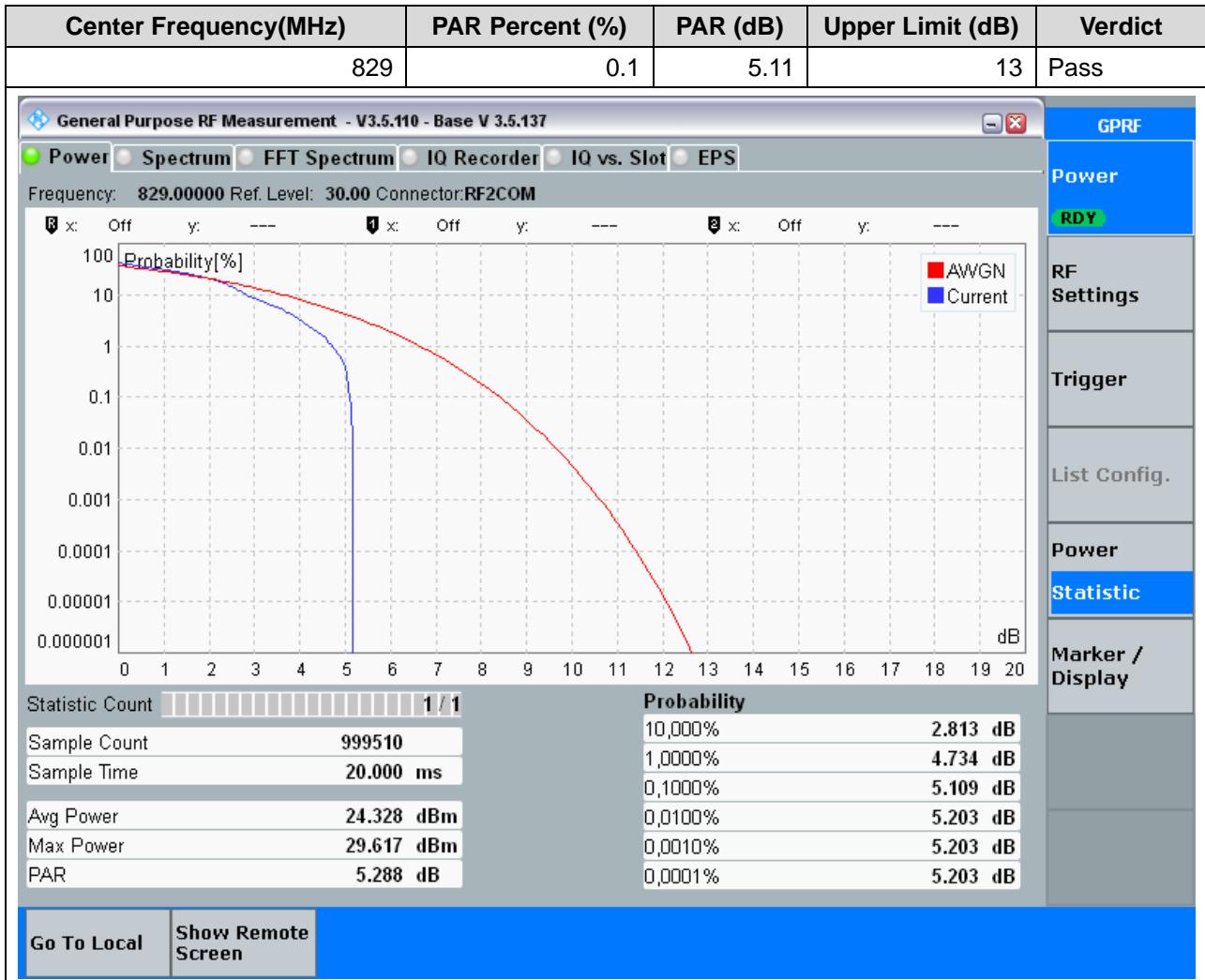
### 2.1. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:1, Channel:20450, Bandwidth:10, Modulation:QPSK, RB Number: 1, RB Position:LOW)



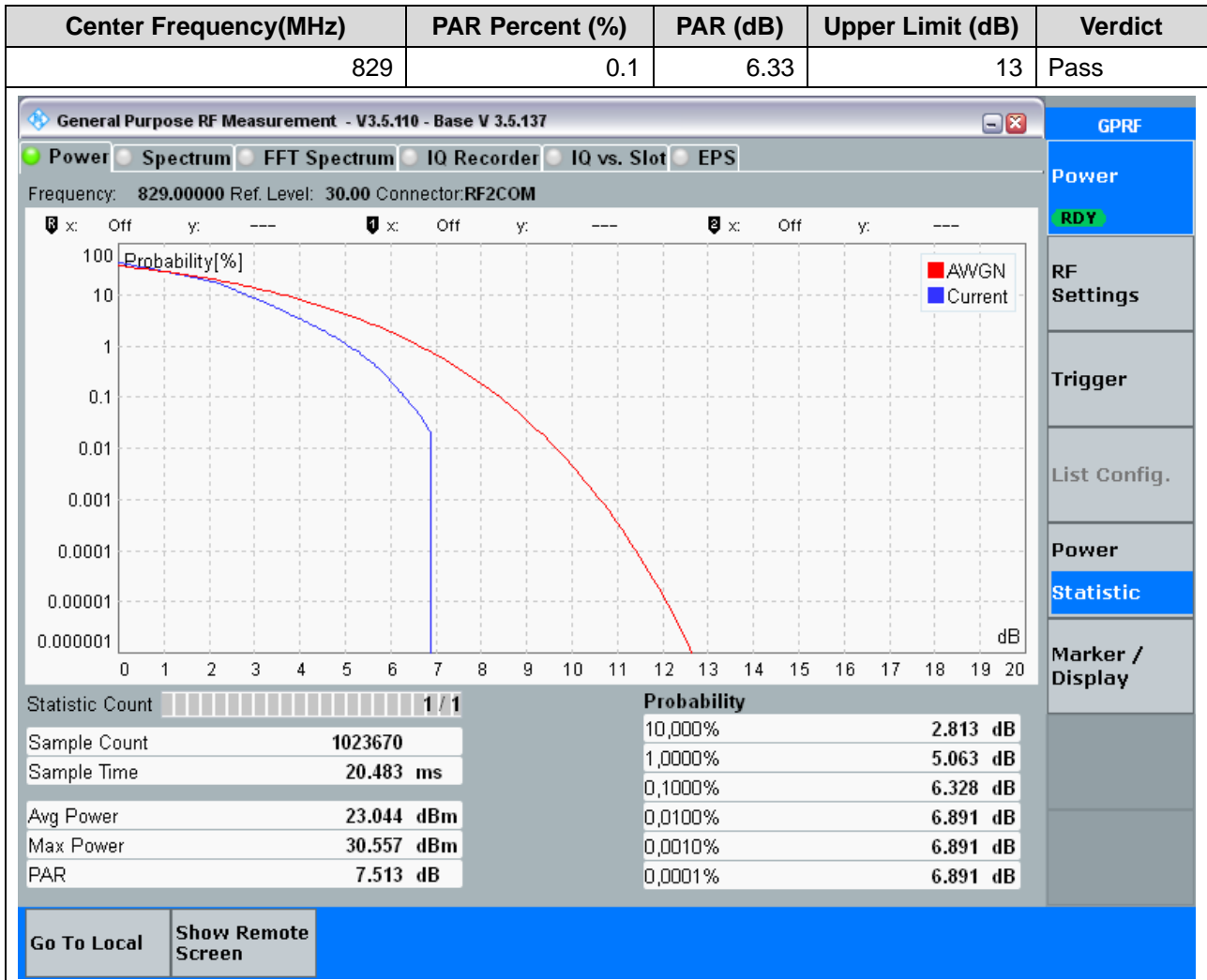
**2.2. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:2, Channel:20450, Bandwidth:10, Modulation:QPSK, RB Number: 50, RB Position:LOW)**



### 2.3. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:3, Channel:20450, Bandwidth:10, Modulation:Q16, RB Number: 1, RB Position:LOW)

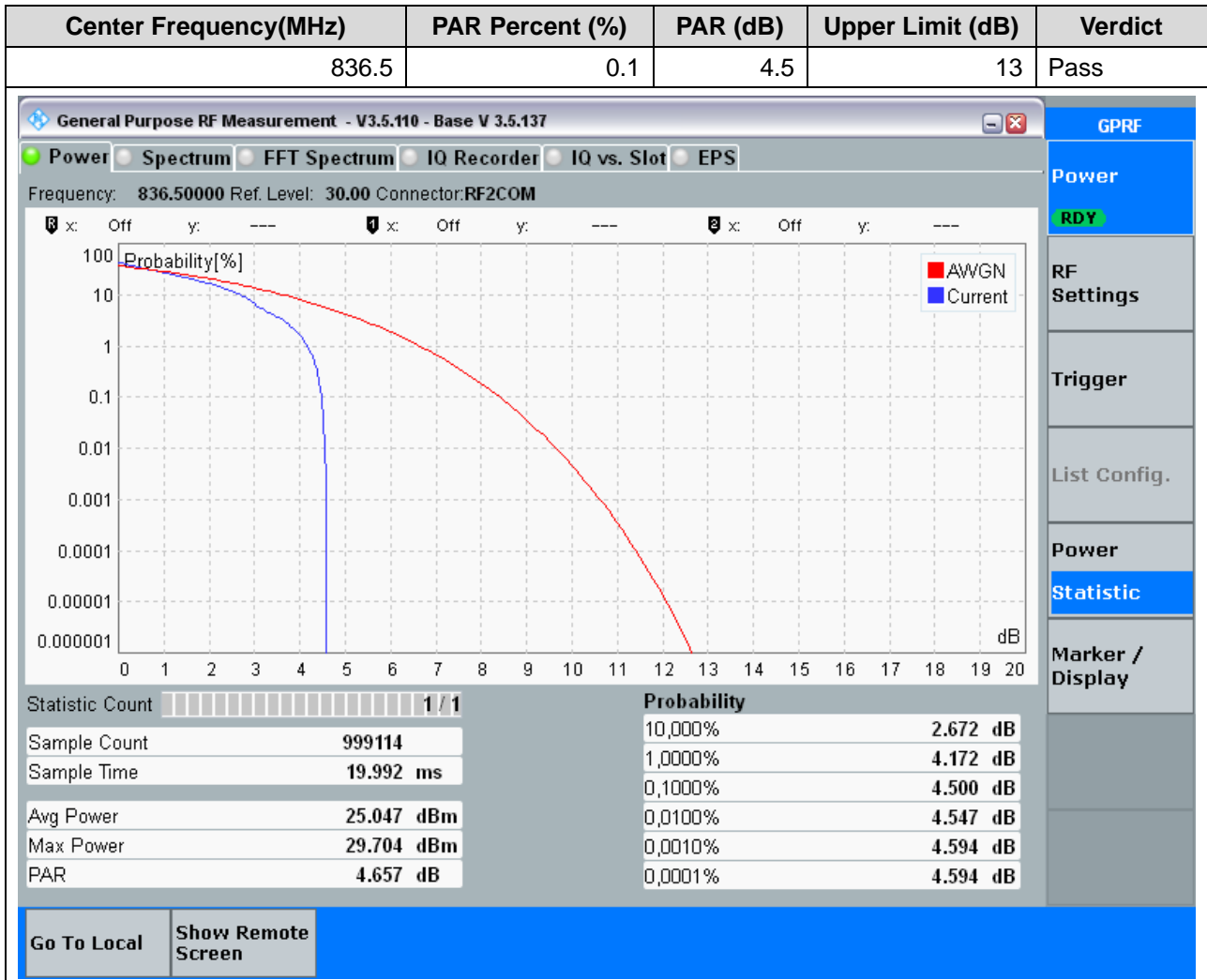


**2.4. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:4, Channel:20450, Bandwidth:10, Modulation:Q16, RB Number: 50, RB Position:LOW)**

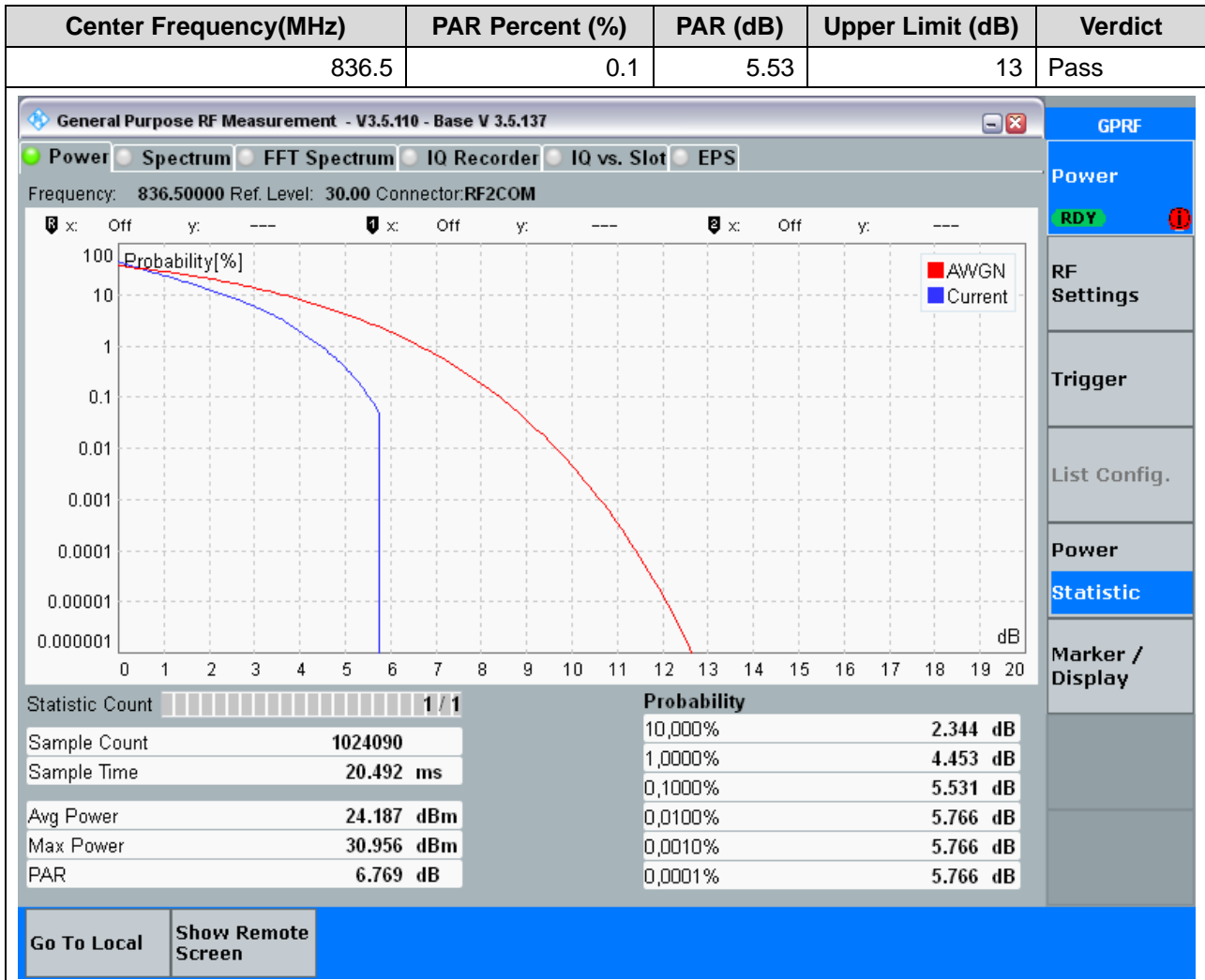




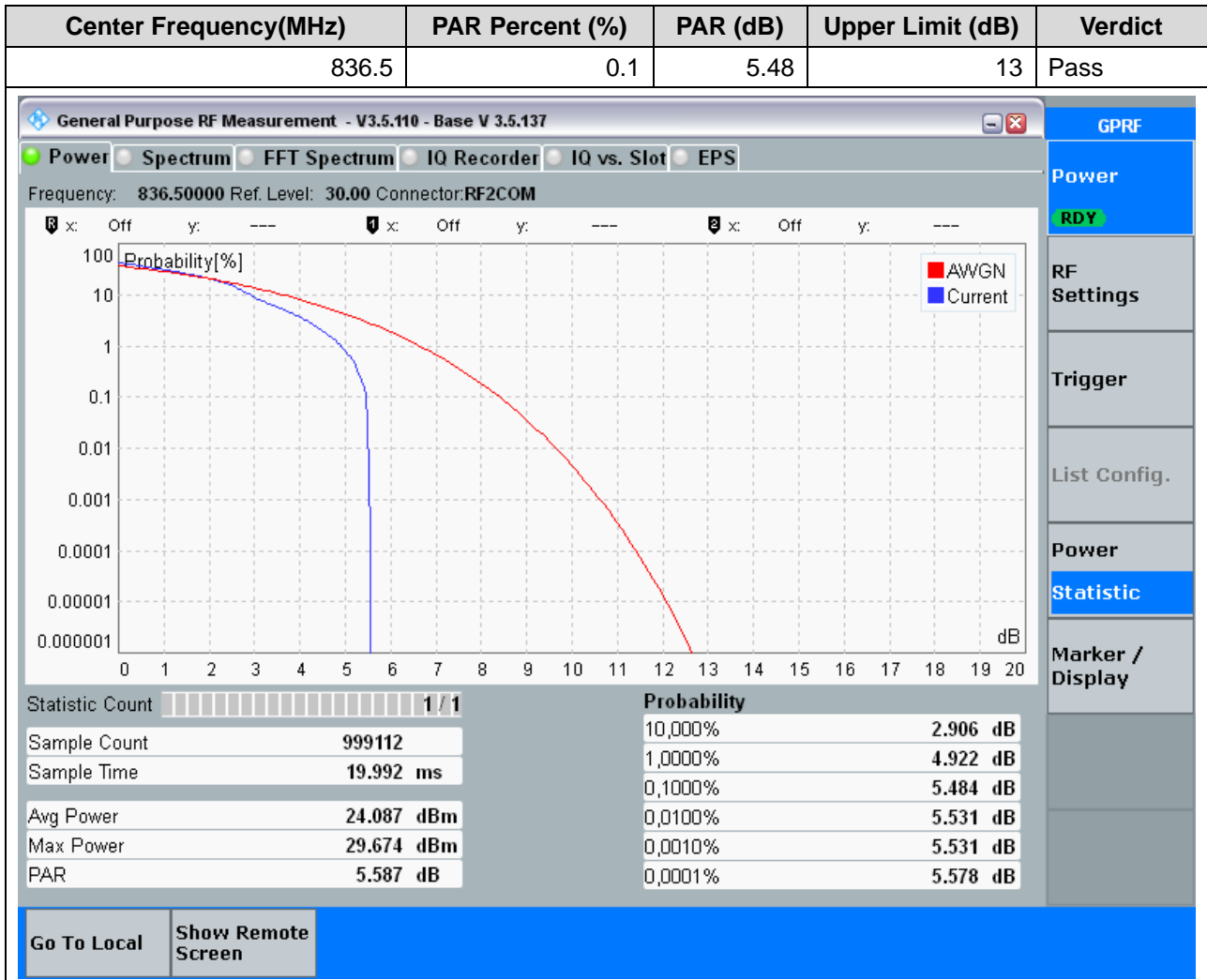
**2.5. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:5, Channel:20525, Bandwidth:10, Modulation:QPSK, RB Number: 1, RB Position:LOW)**



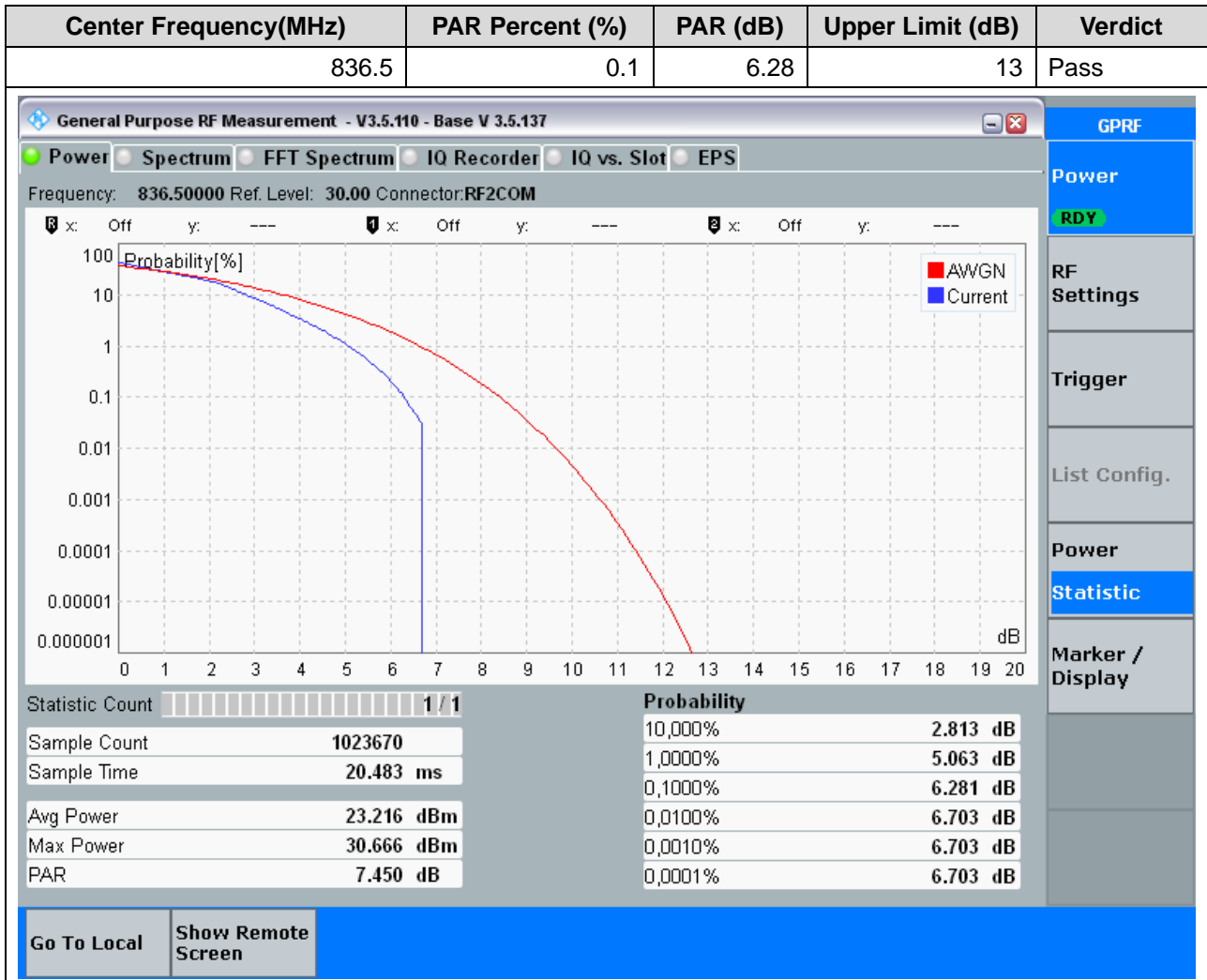
## 2.6. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:6, Channel:20525, Bandwidth:10, Modulation:QPSK, RB Number: 50, RB Position:LOW)



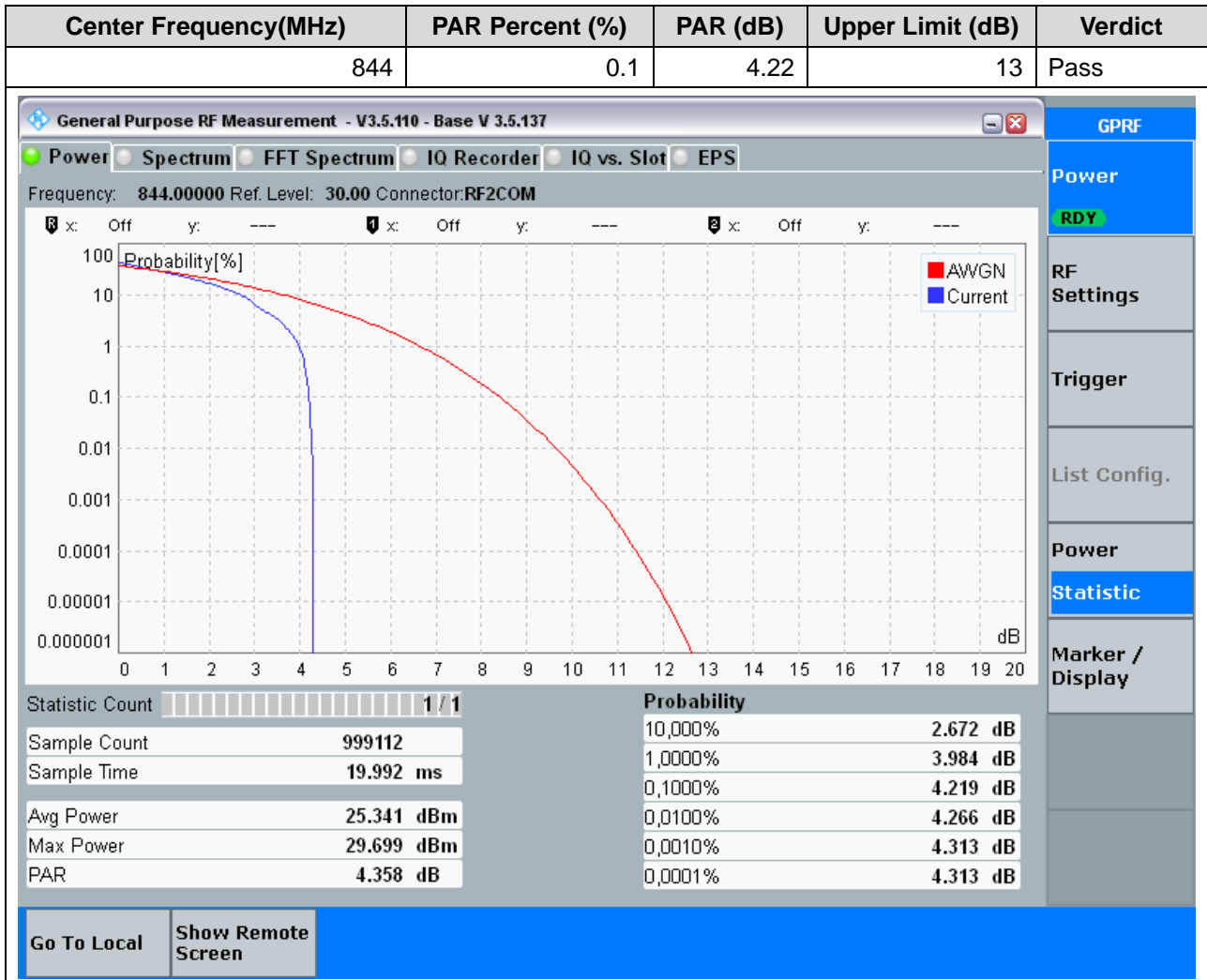
**2.7. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:7, Channel:20525, Bandwidth:10, Modulation:Q16, RB Number: 1, RB Position:LOW)**



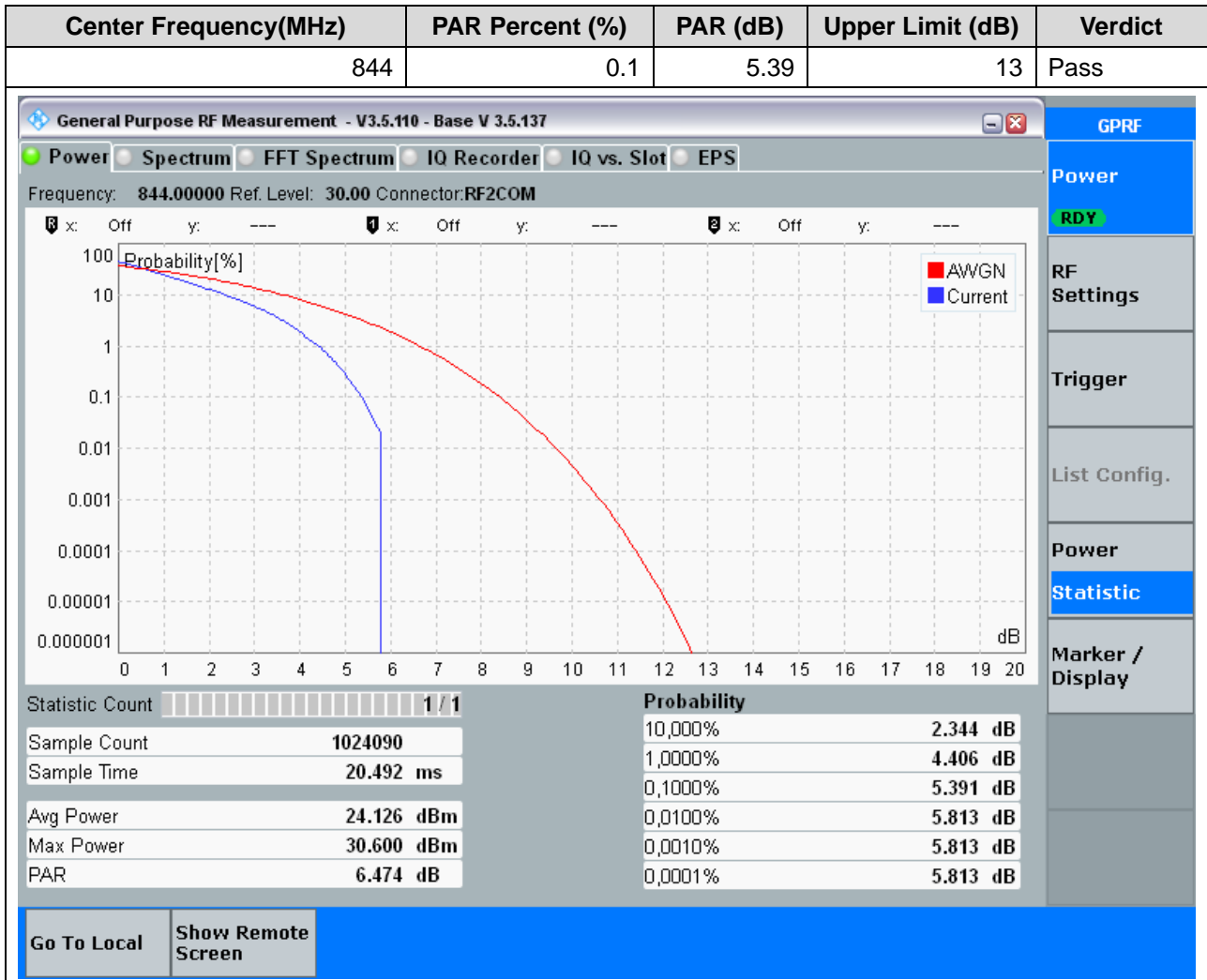
**2.8. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:8, Channel:20525, Bandwidth:10, Modulation:Q16, RB Number: 50, RB Position:LOW)**



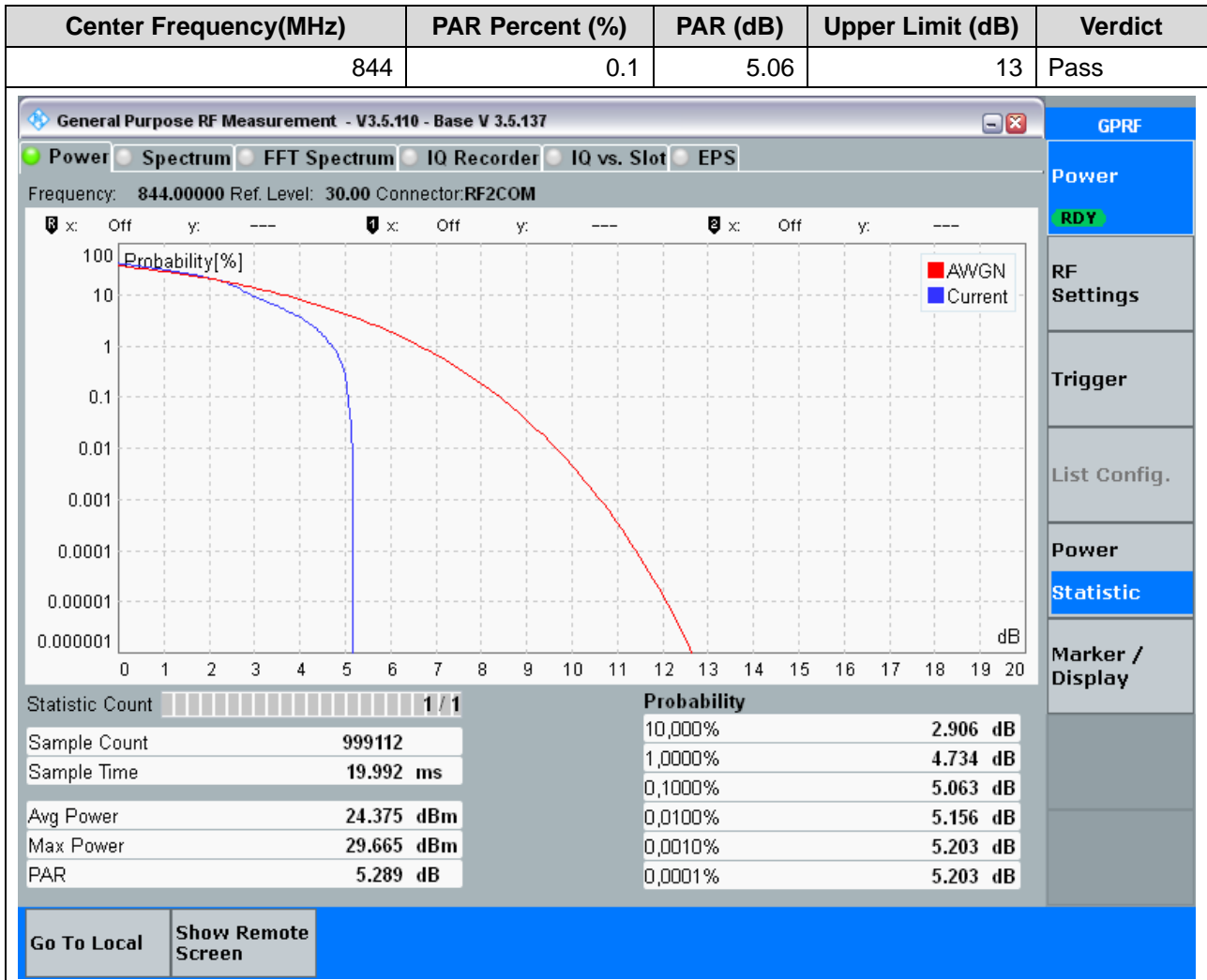
**2.9. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:9, Channel:20600, Bandwidth:10, Modulation:QPSK, RB Number: 1, RB Position:LOW)**



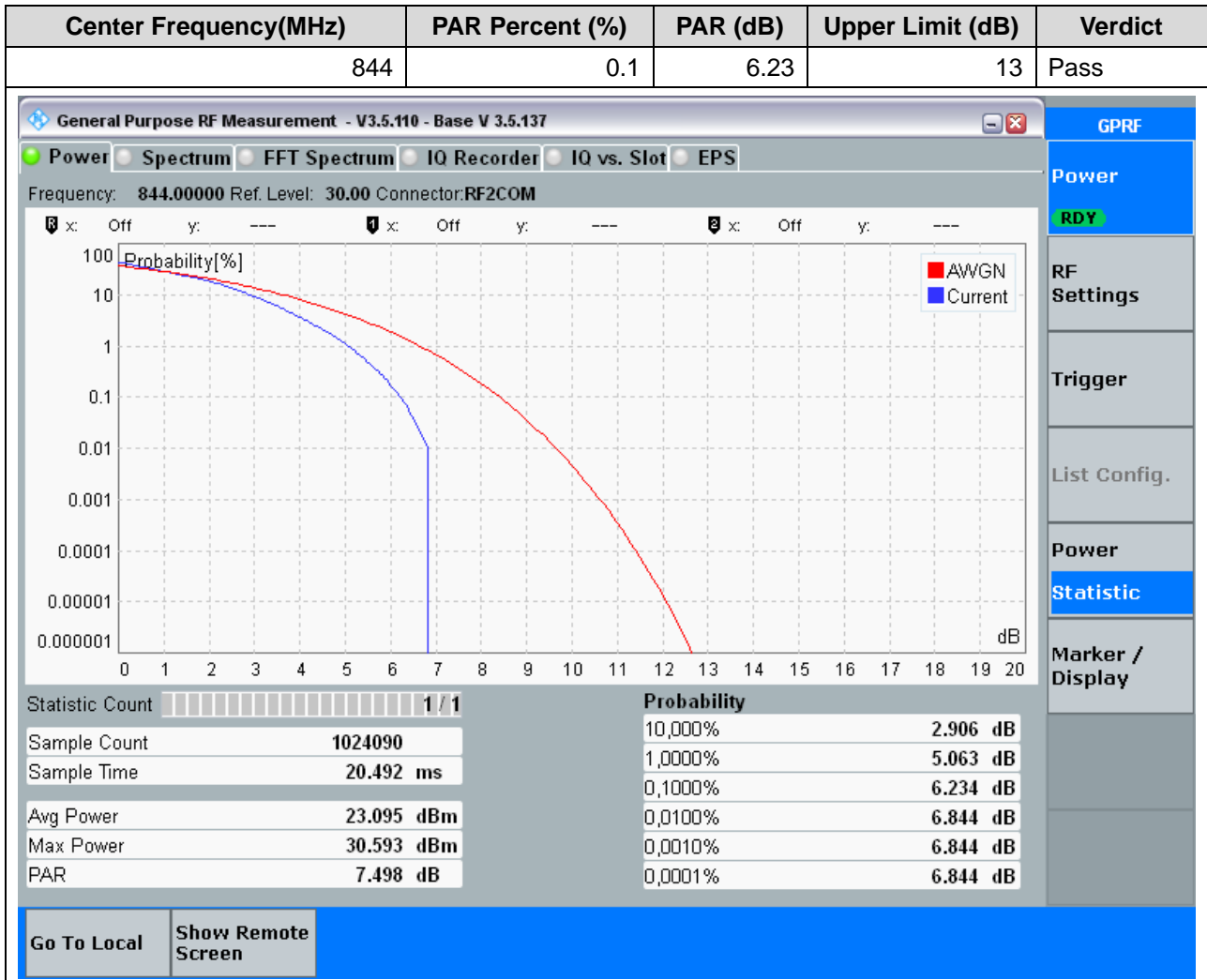
**2.10. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:10, Channel:20600, Bandwidth:10, Modulation:QPSK, RB Number: 50, RB Position:LOW)**



**2.11. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:11, Channel:20600, Bandwidth:10, Modulation:Q16, RB Number: 1, RB Position:LOW)**



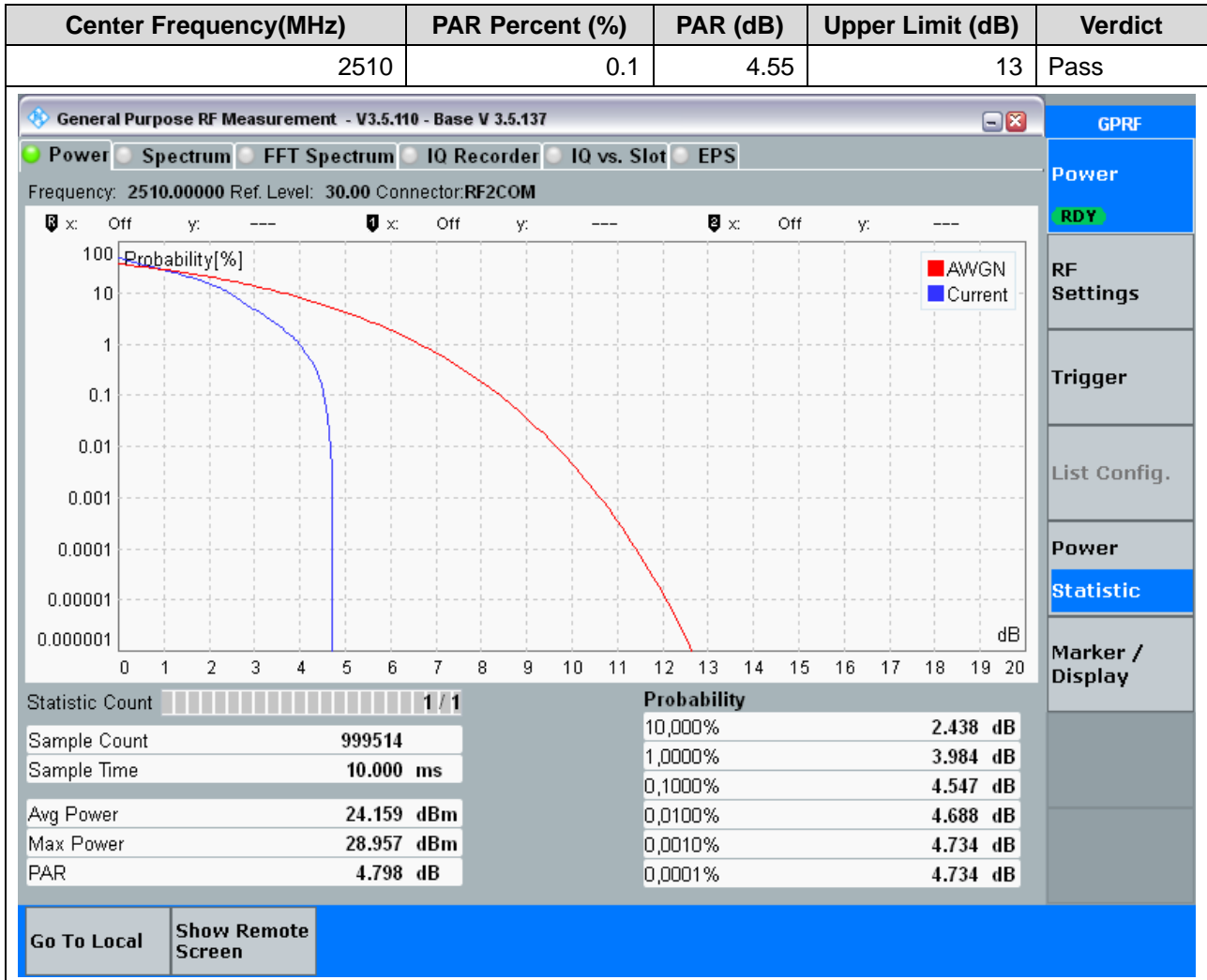
**2.12. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:12, Channel:20600, Bandwidth:10, Modulation:Q16, RB Number: 50, RB Position:LOW)**



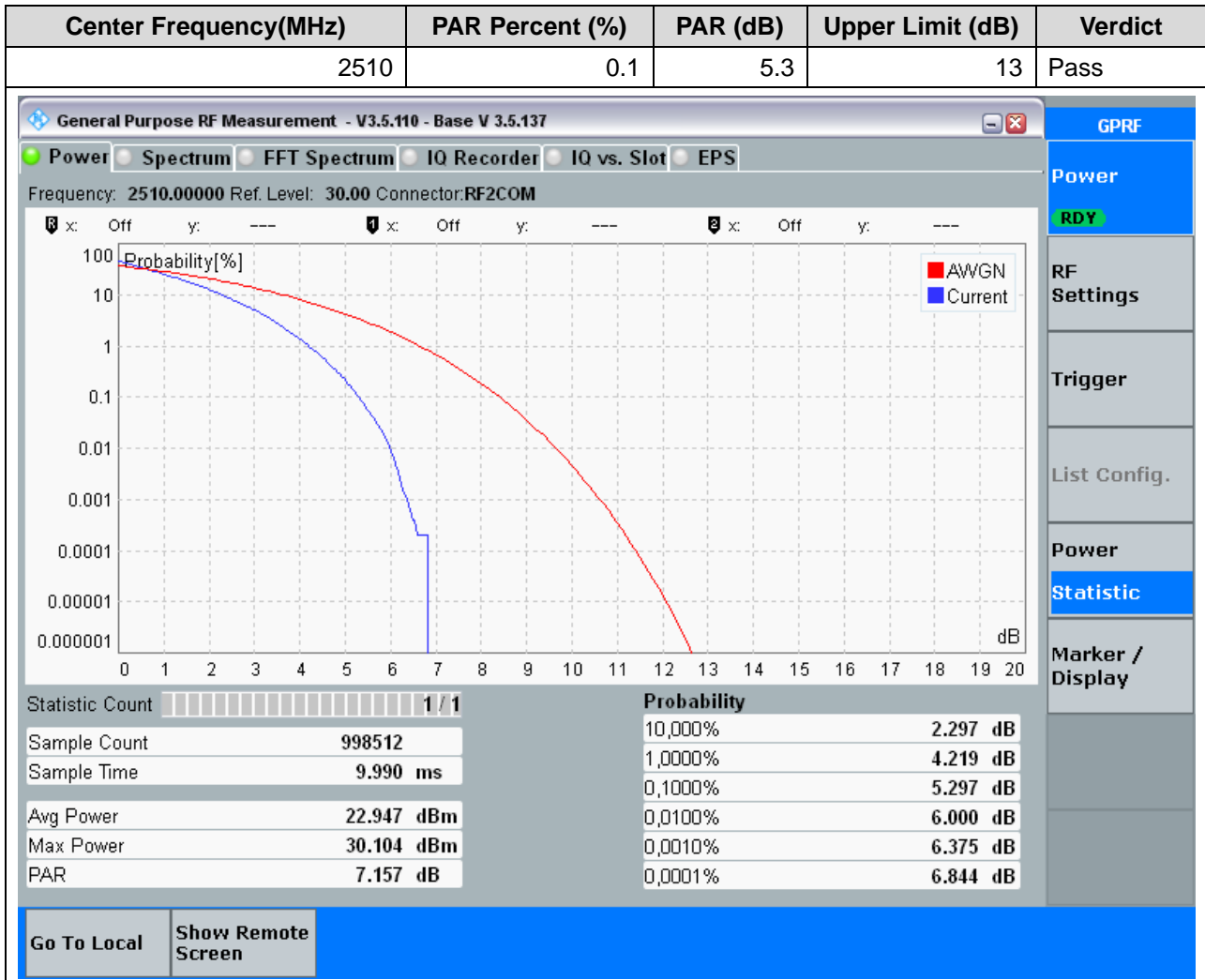


### 3. LTE\_Band7

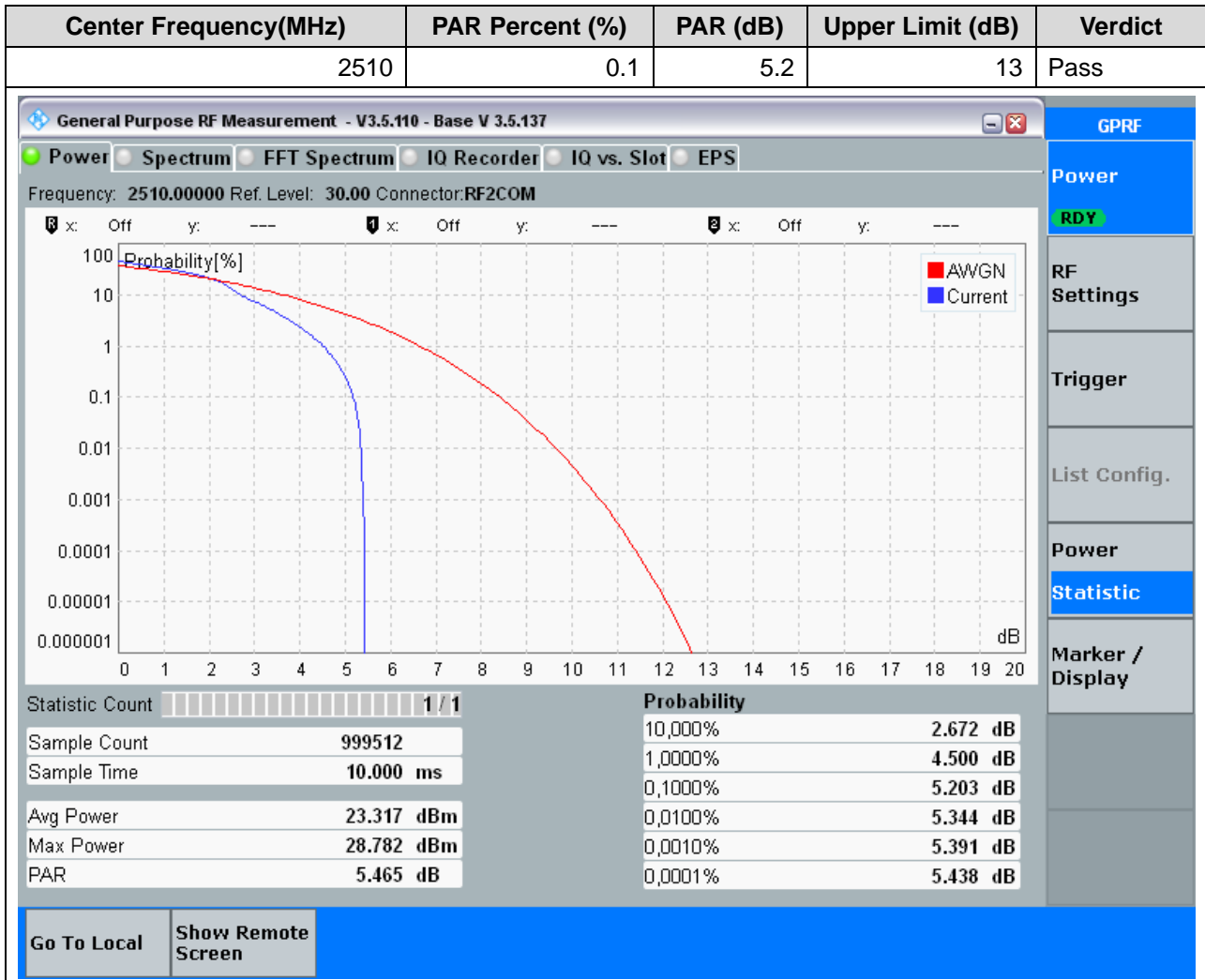
#### 3.1. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:1, Channel:20850, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)



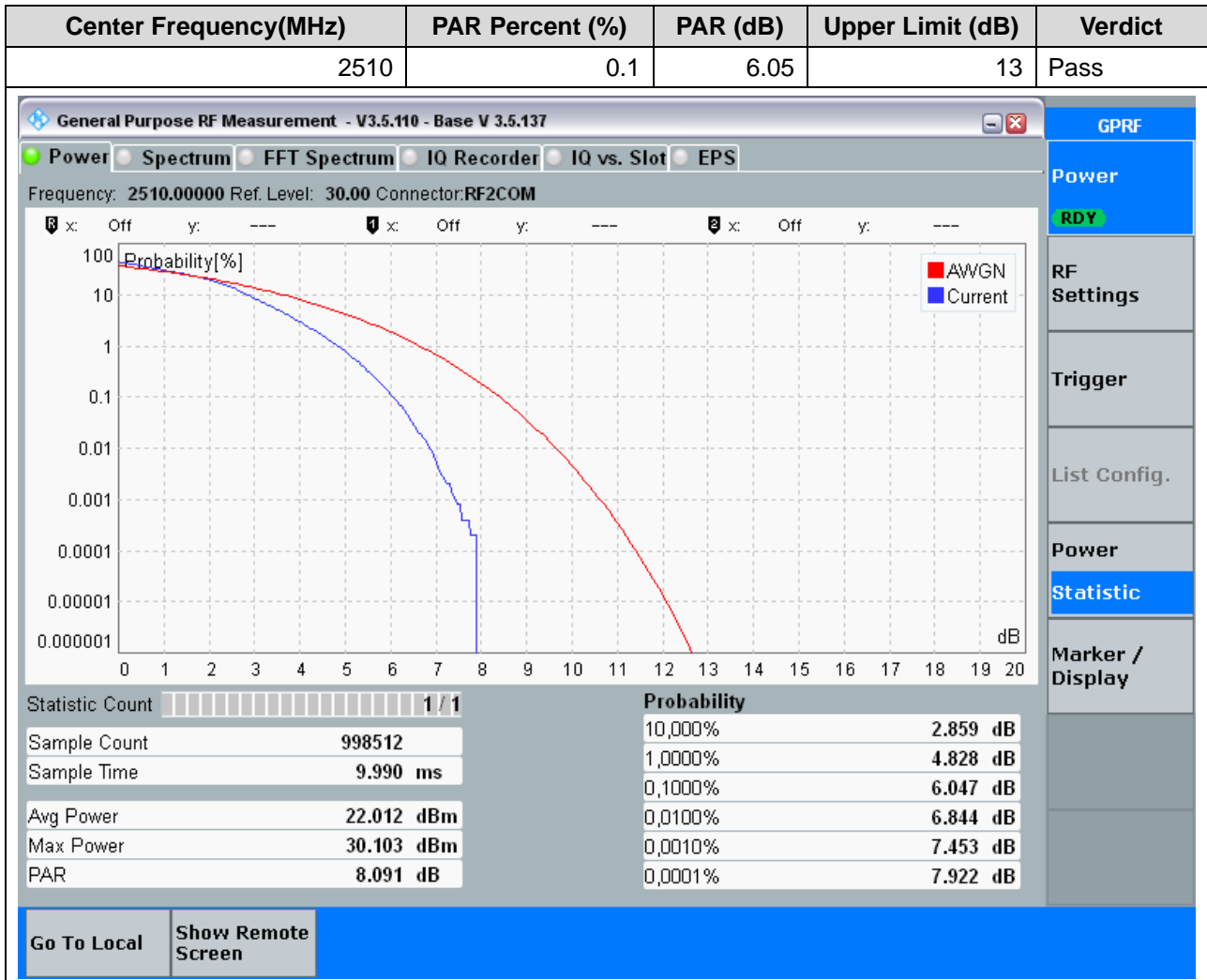
### 3.2. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:2, Channel:20850, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)



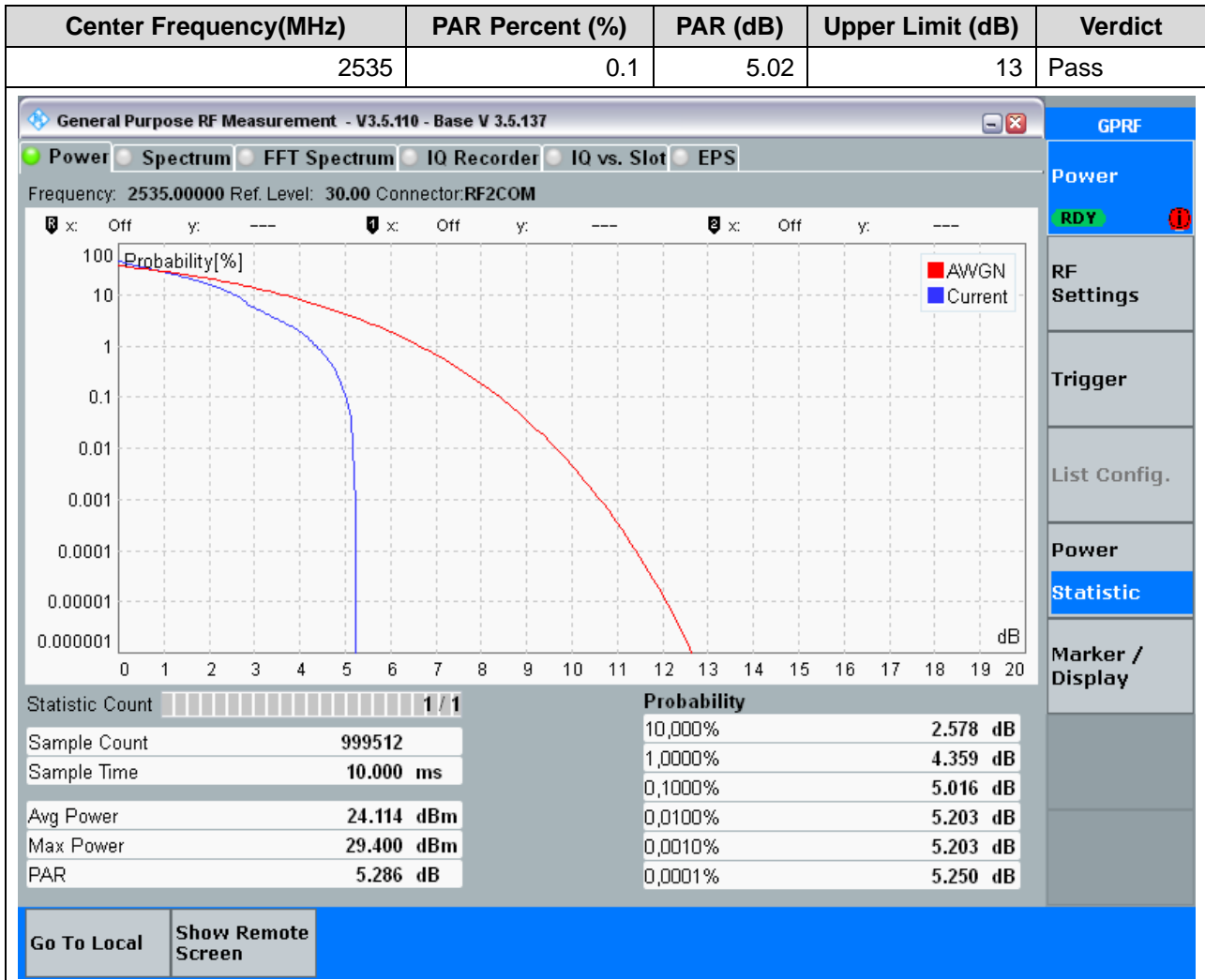
### 3.3. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:3, Channel:20850, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)



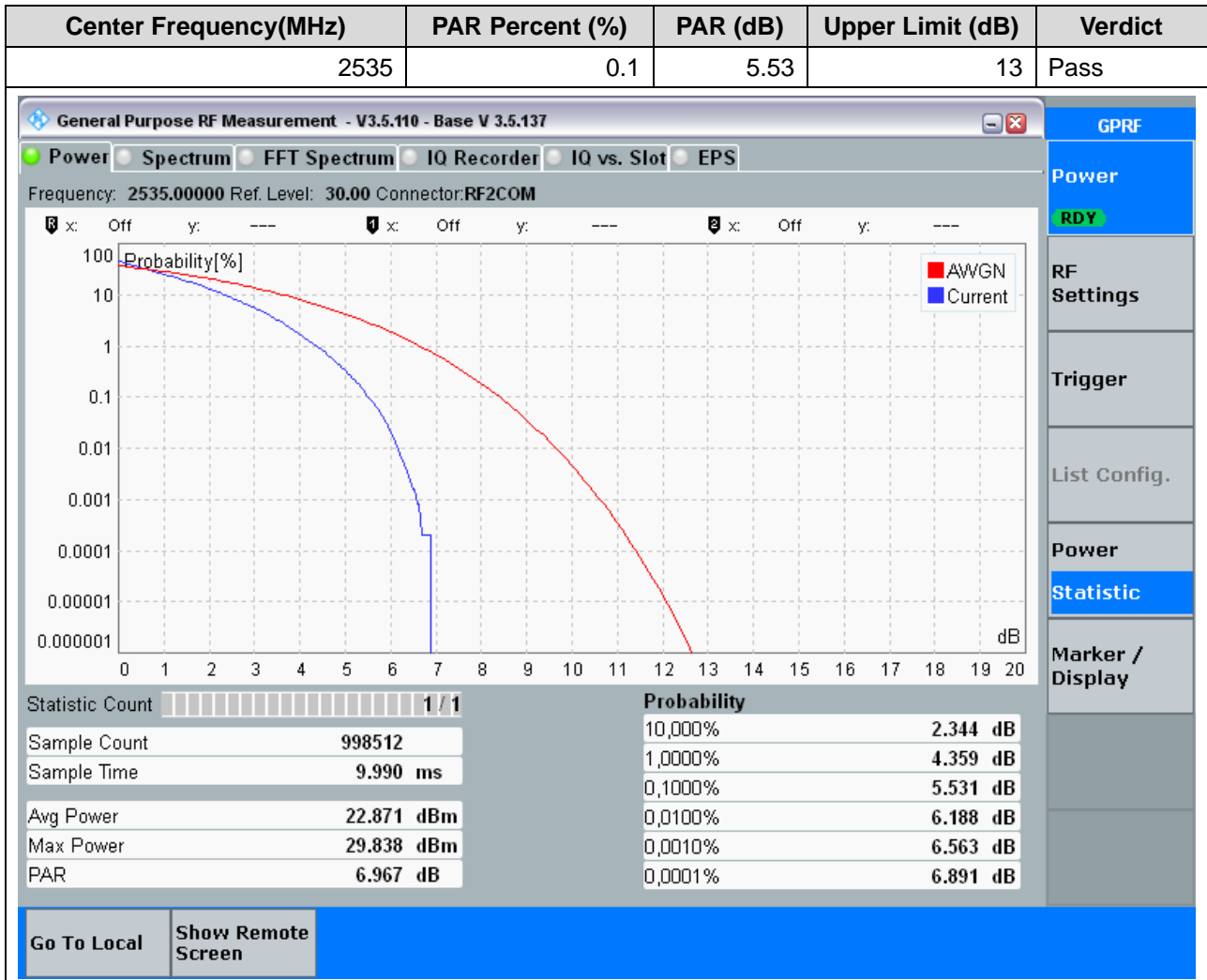
### 3.4. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:4, Channel:20850, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)



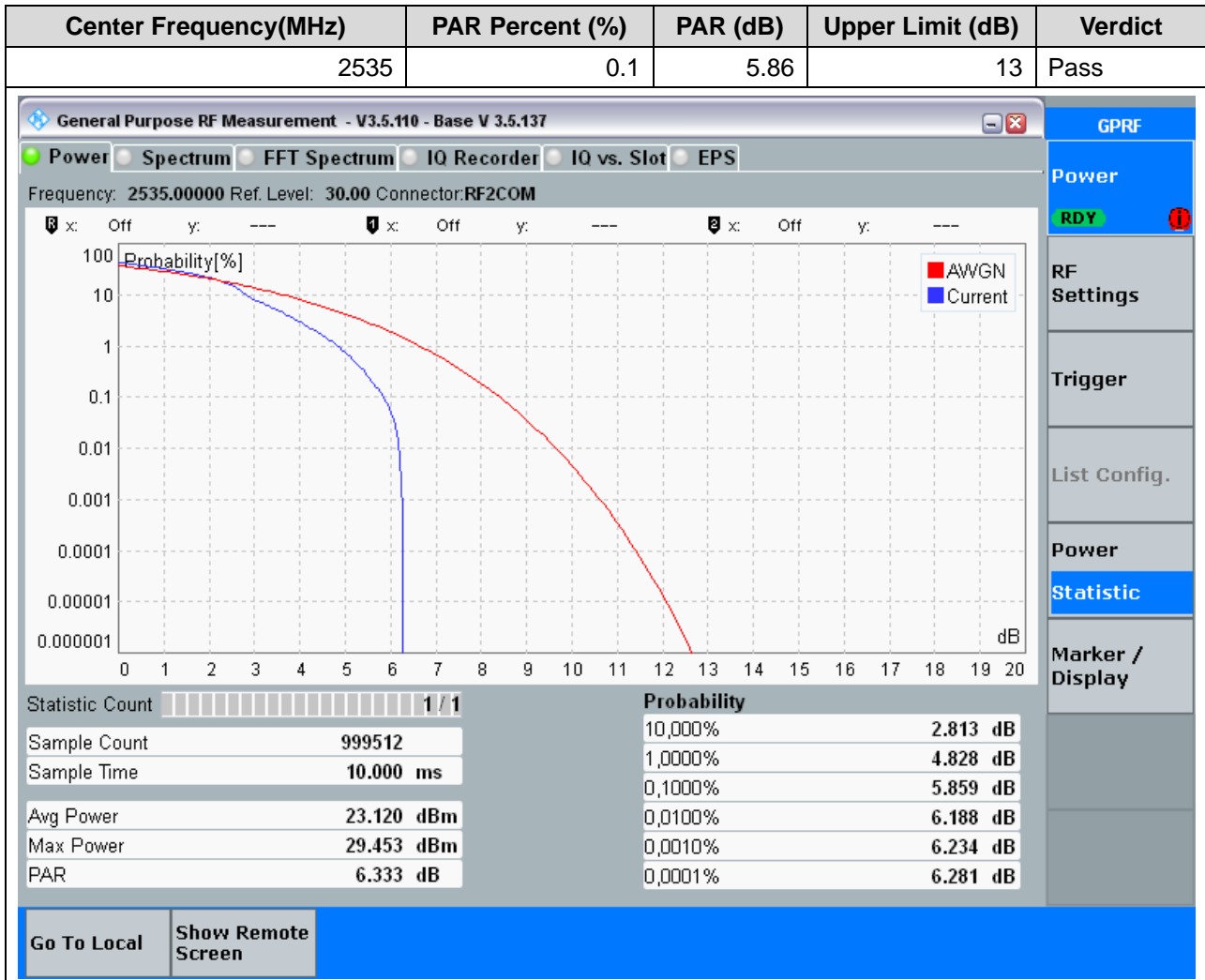
### 3.5. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:5, Channel:21100, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)



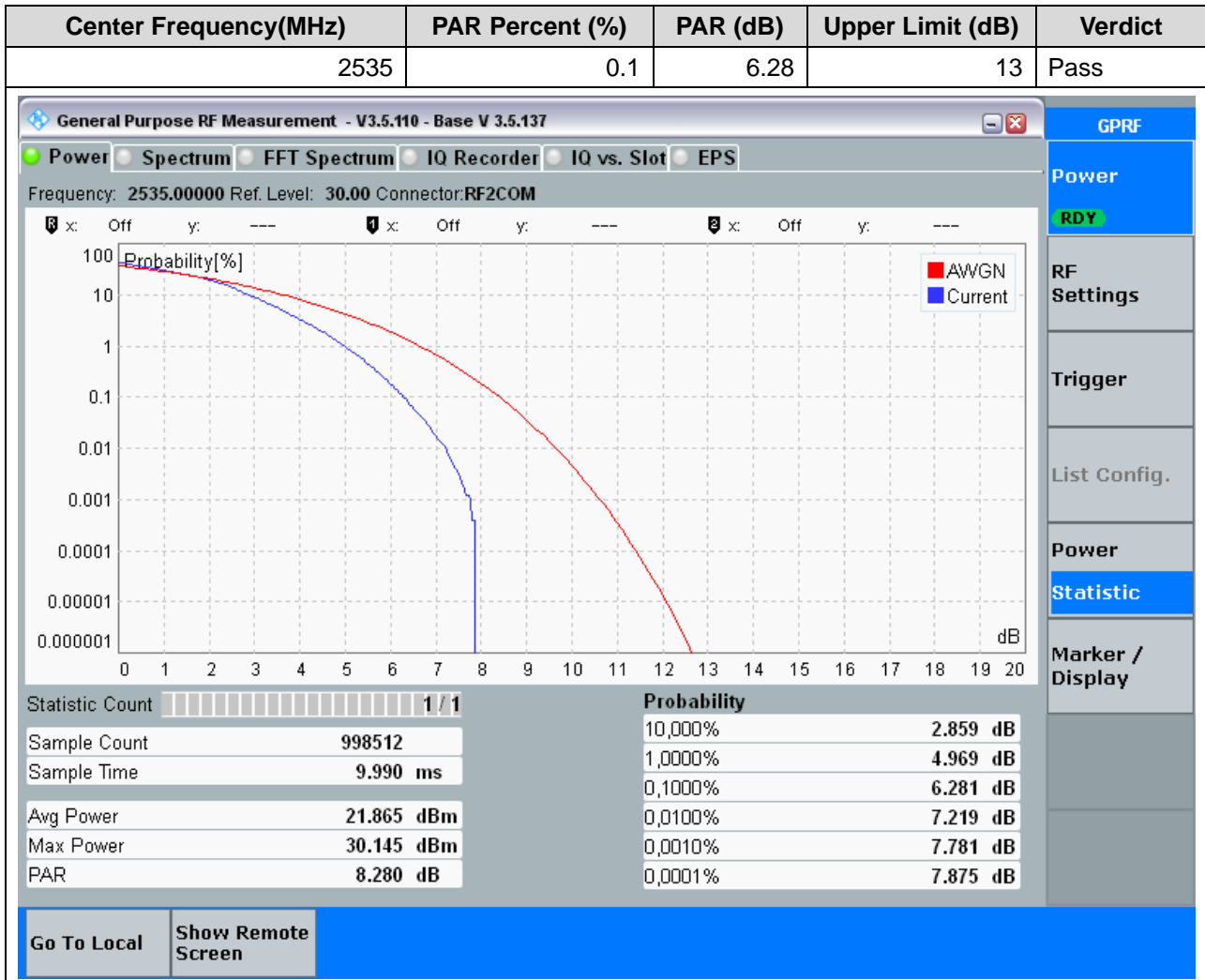
### 3.6. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:6, Channel:21100, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)



### 3.7. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:7, Channel:21100, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)

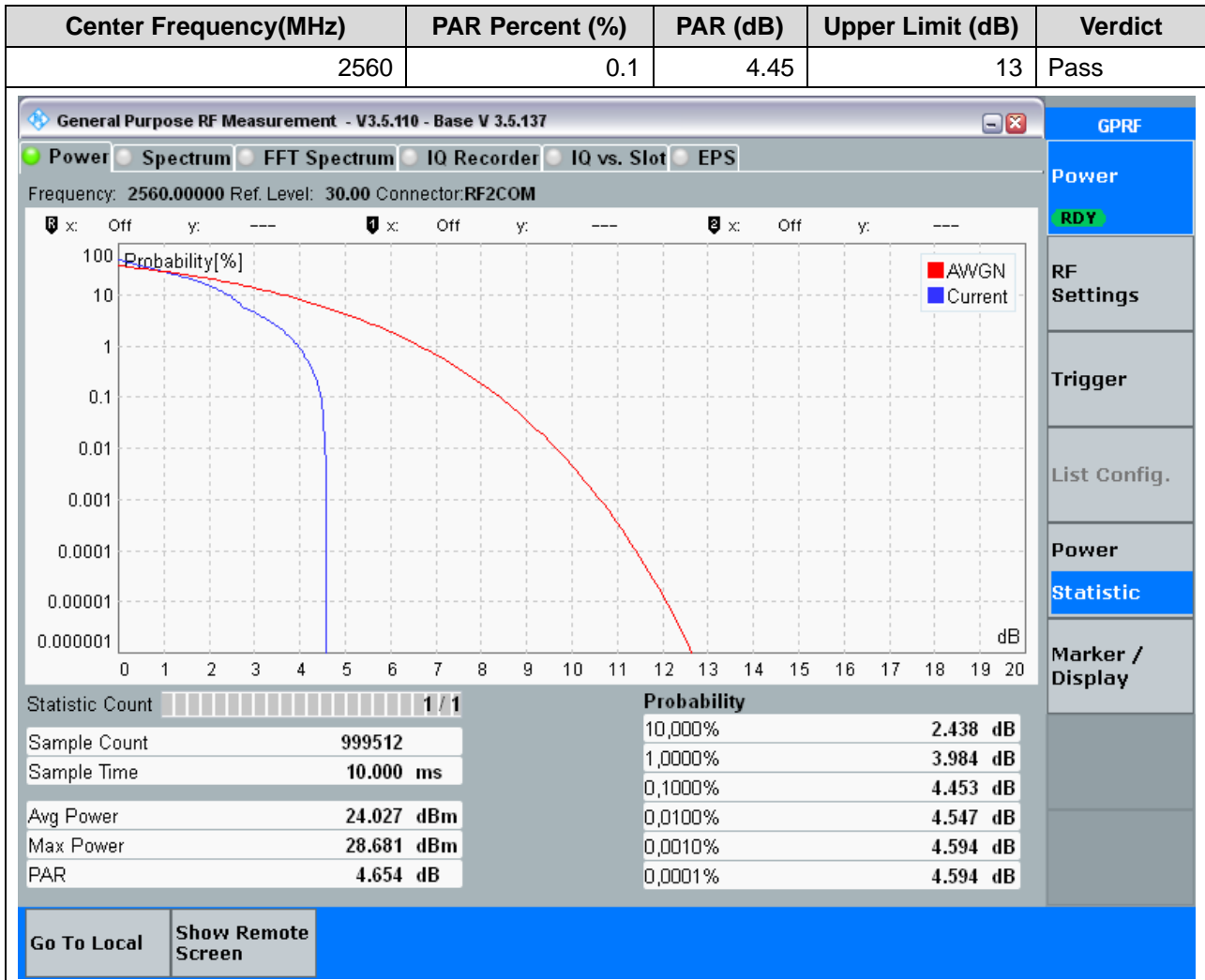


### 3.8. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:8, Channel:21100, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)

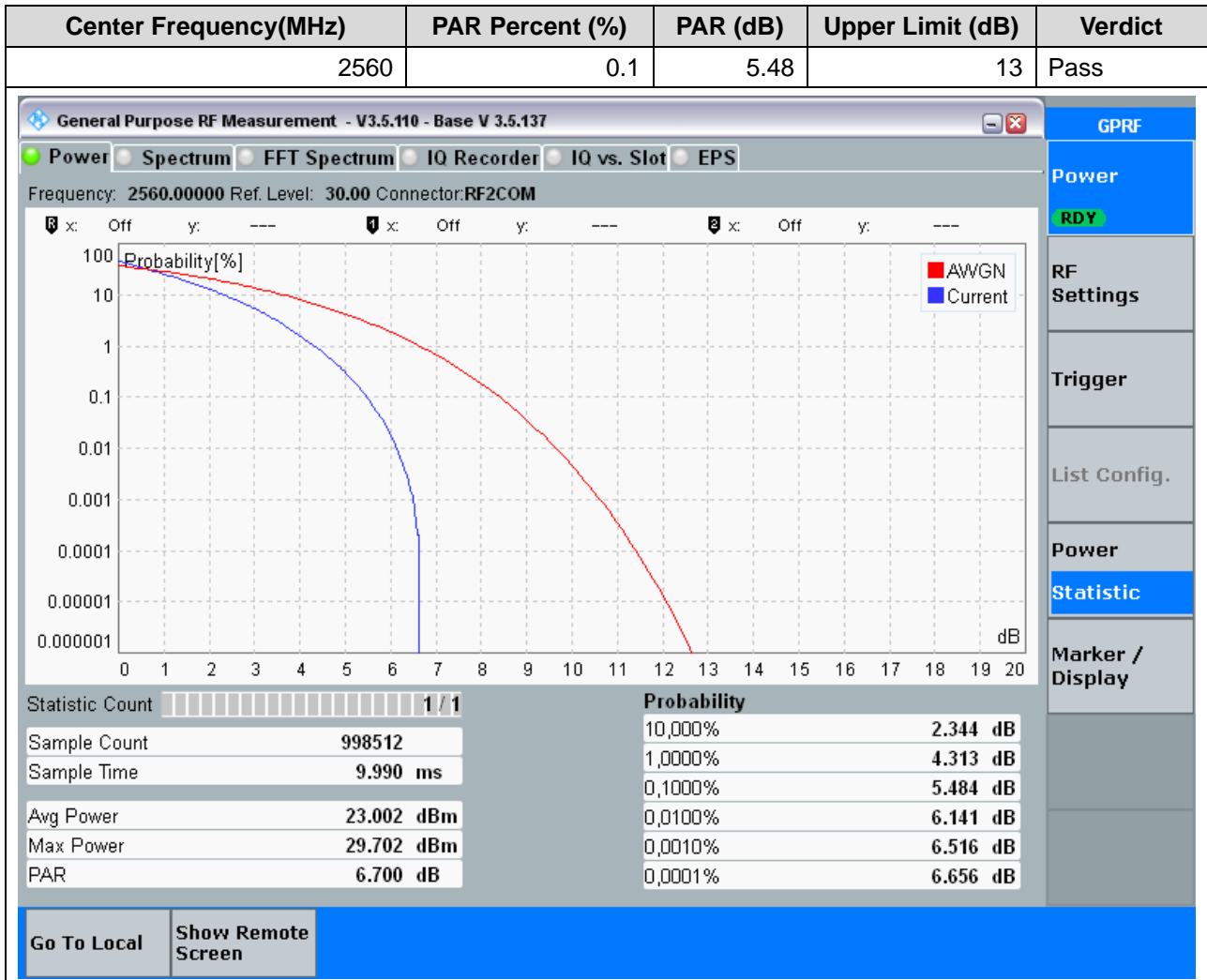




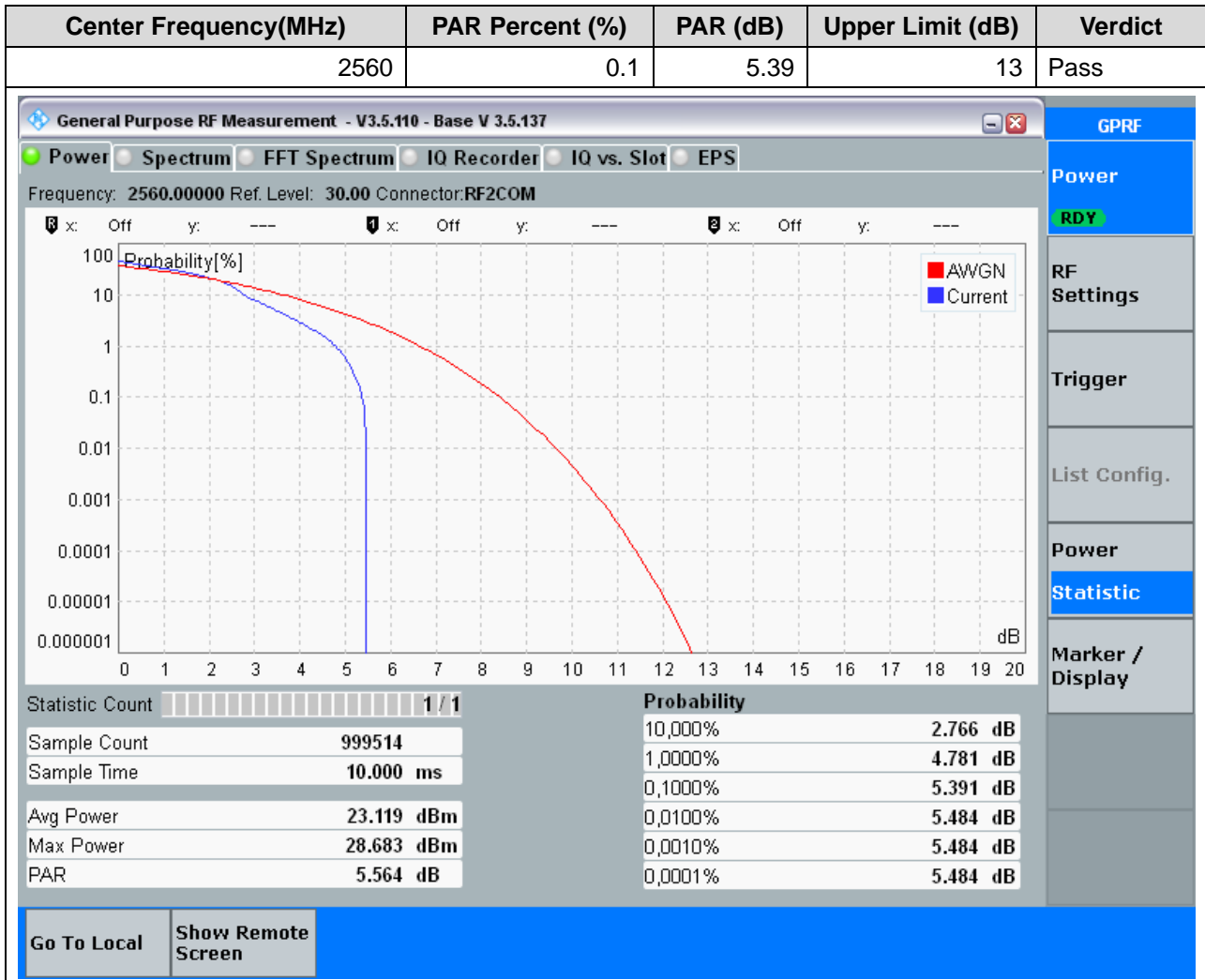
### 3.9. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:9, Channel:21350, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)



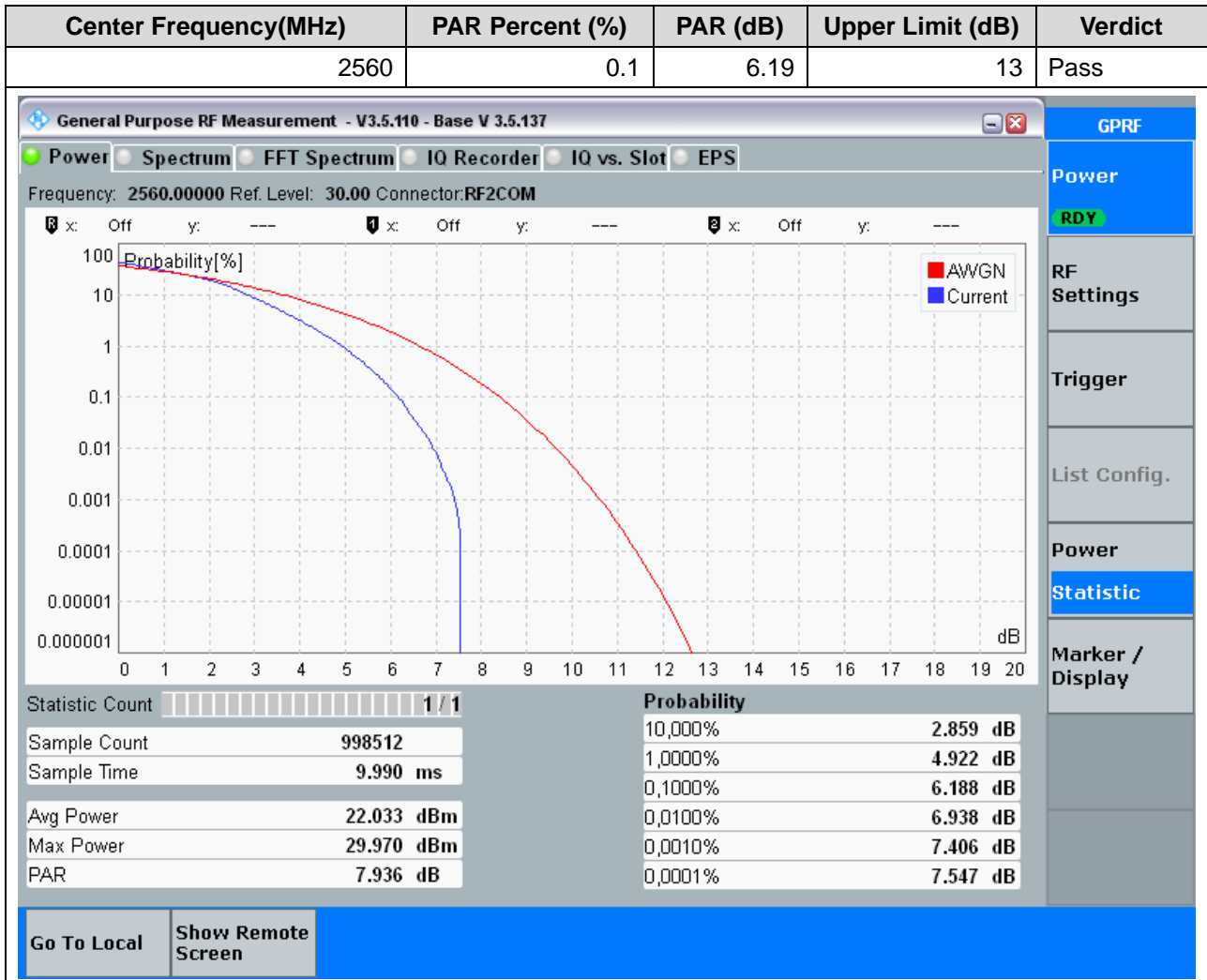
### 3.10. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:10, Channel:21350, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)



### 3.11. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:11, Channel:21350, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)

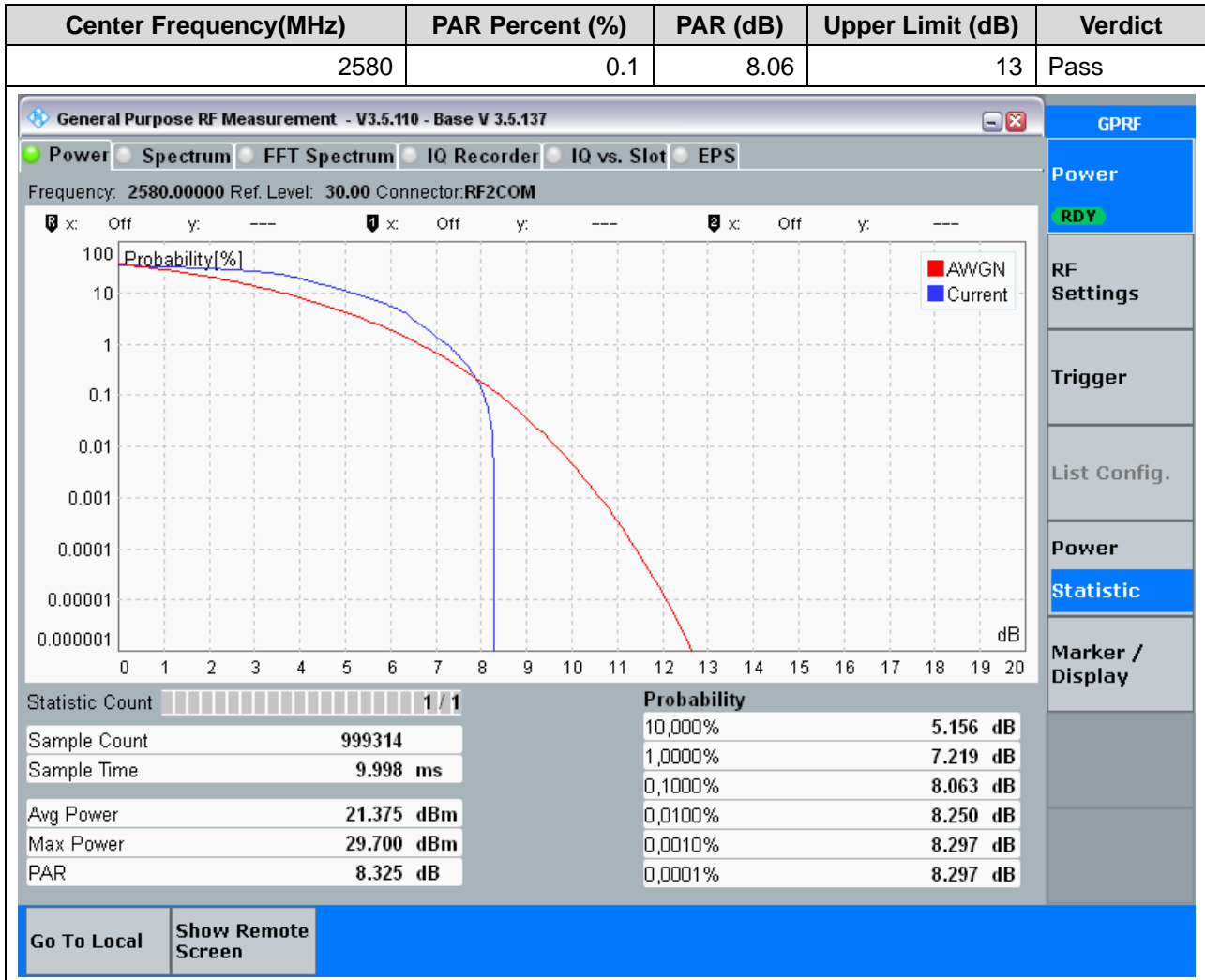


### 3.12. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:12, Channel:21350, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)

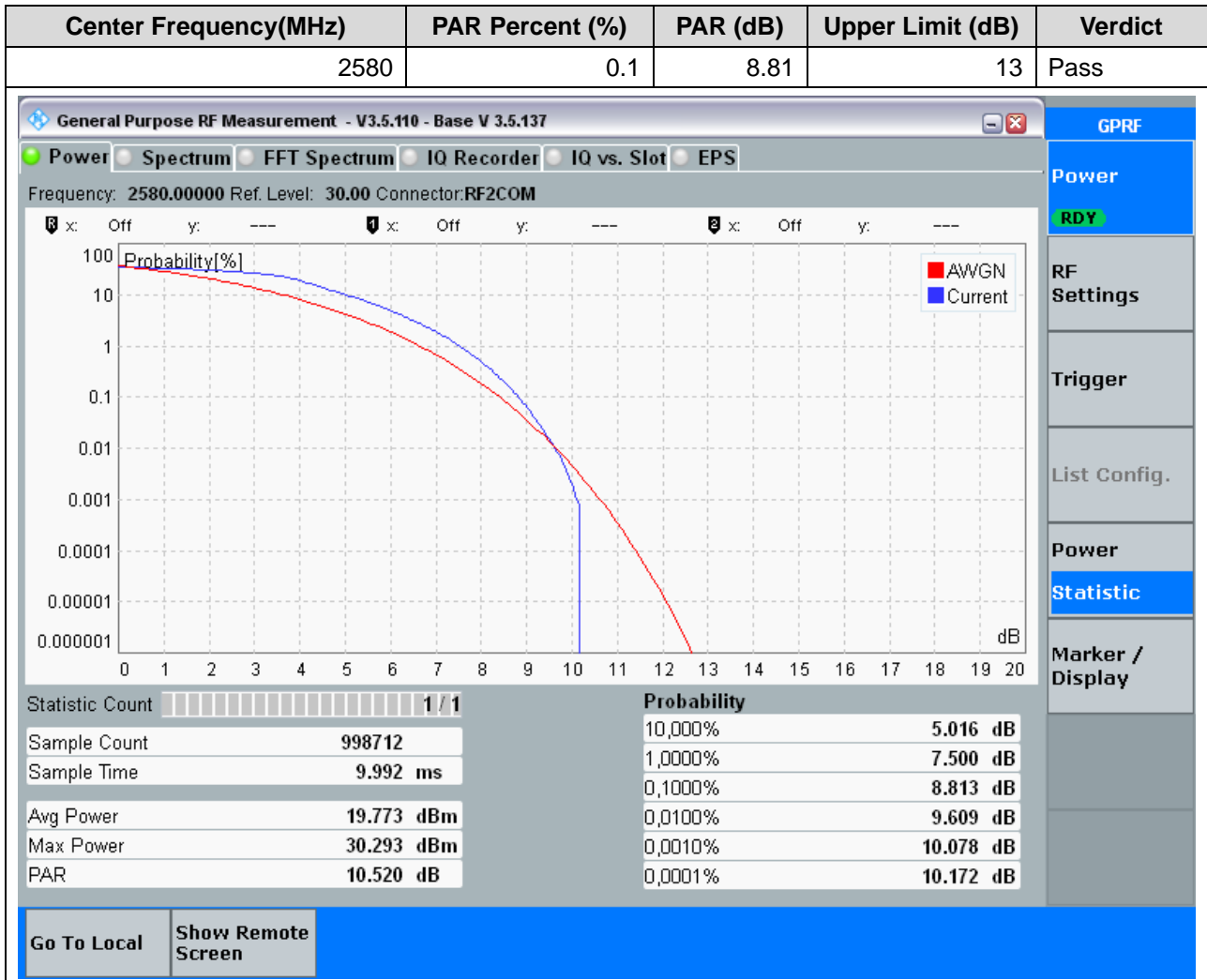


## 4. LTE\_Band38

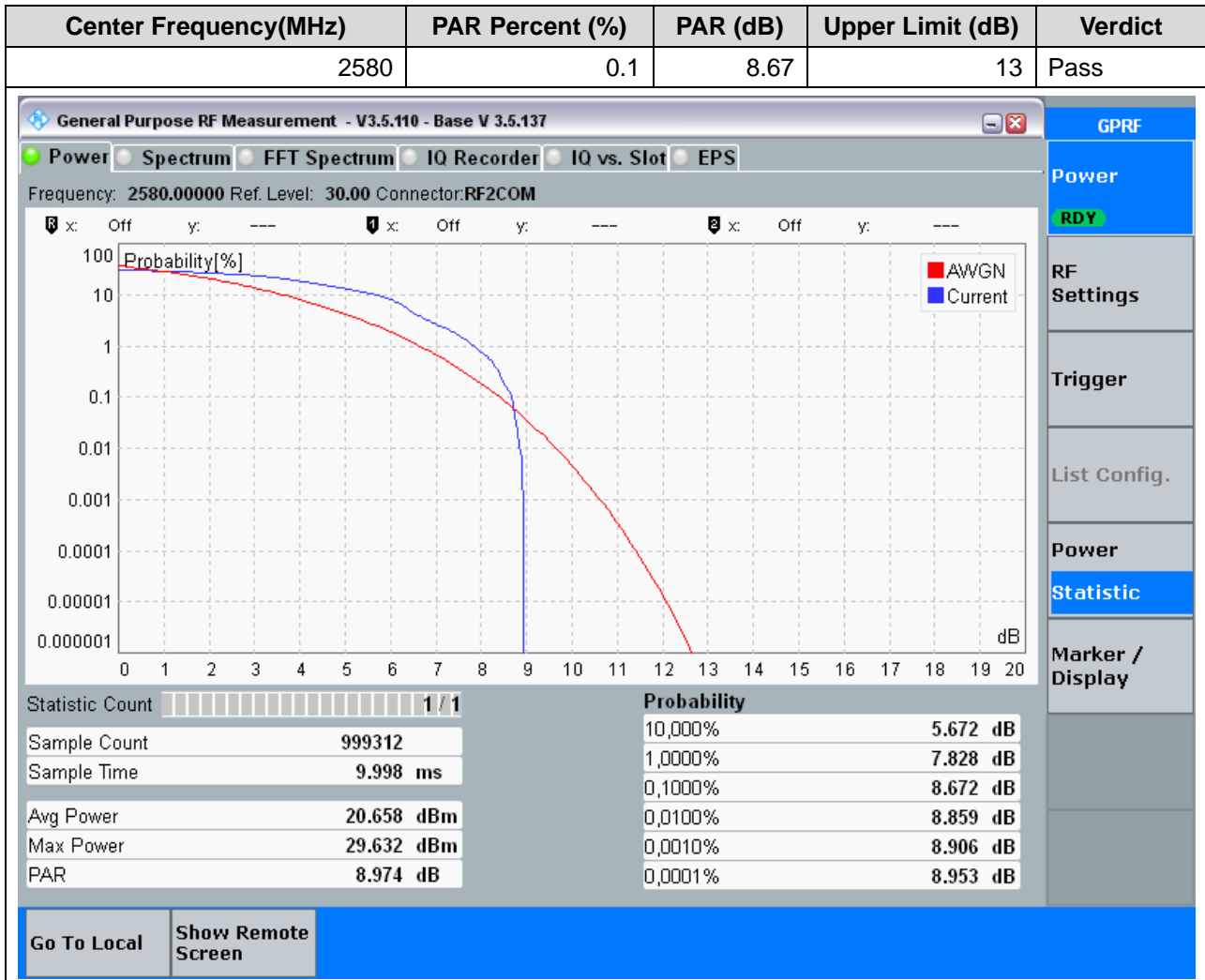
### 4.1. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:1, Channel:37850, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)



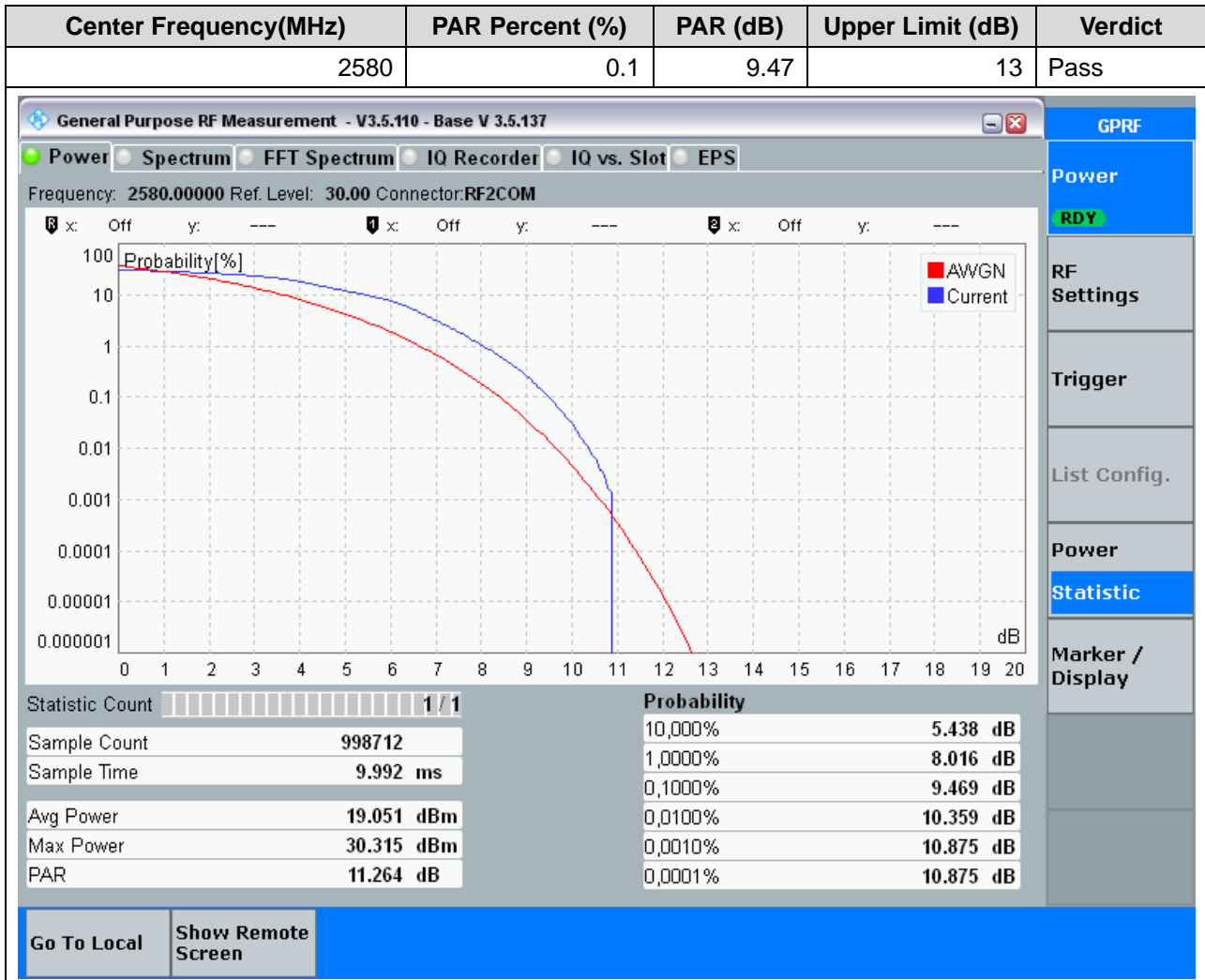
**4.2. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:2, Channel:37850, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)**



### 4.3. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:3, Channel:37850, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)

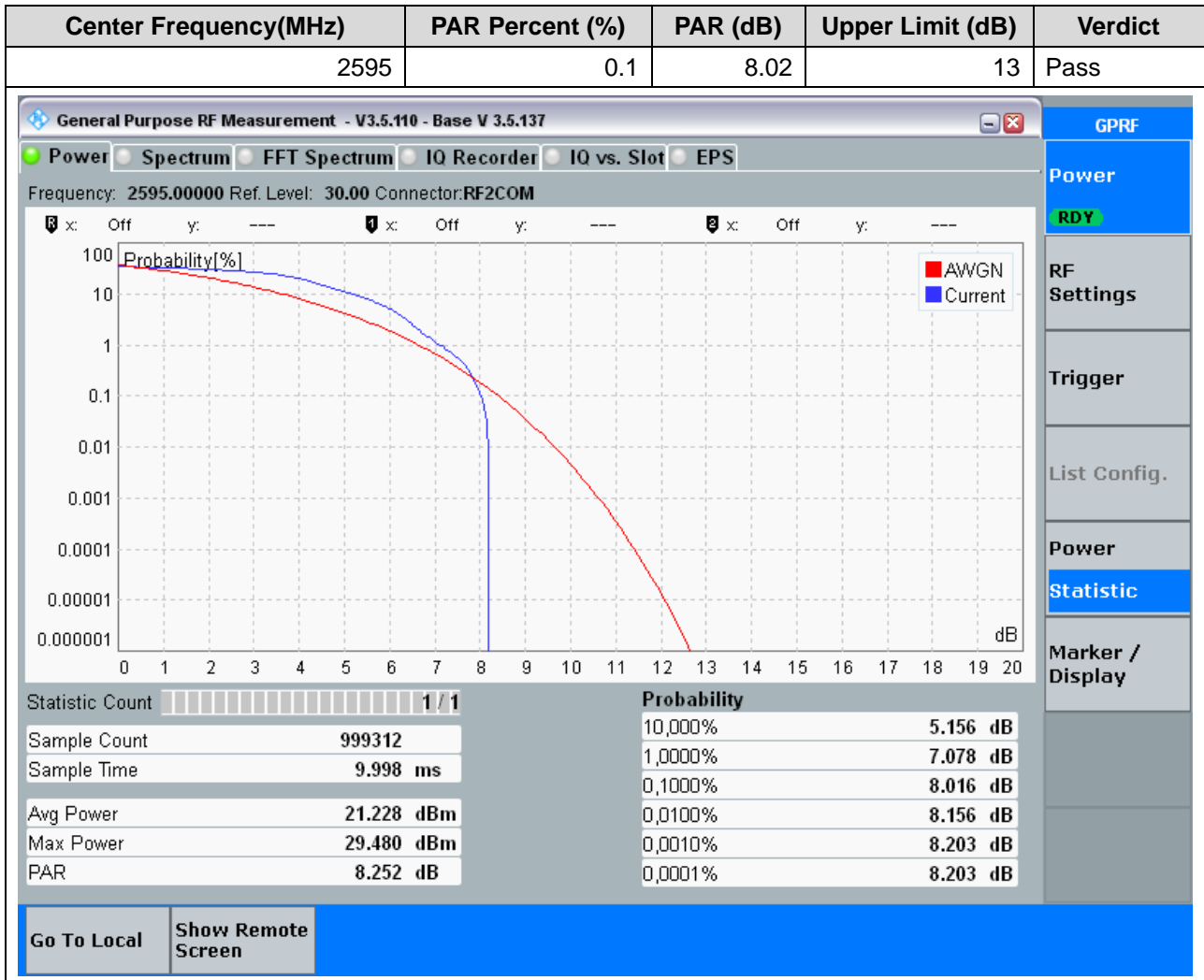


#### 4.4. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:4, Channel:37850, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)

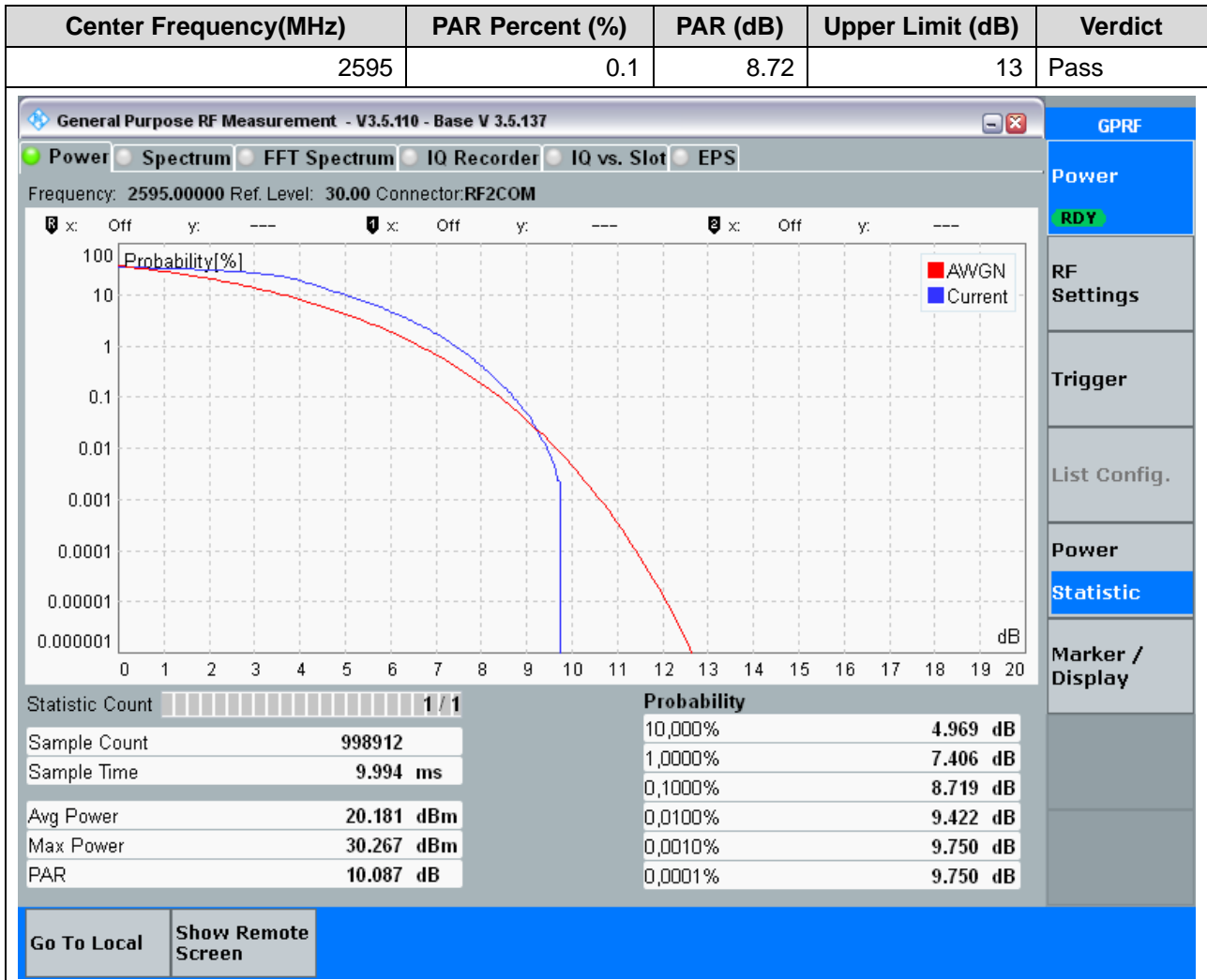




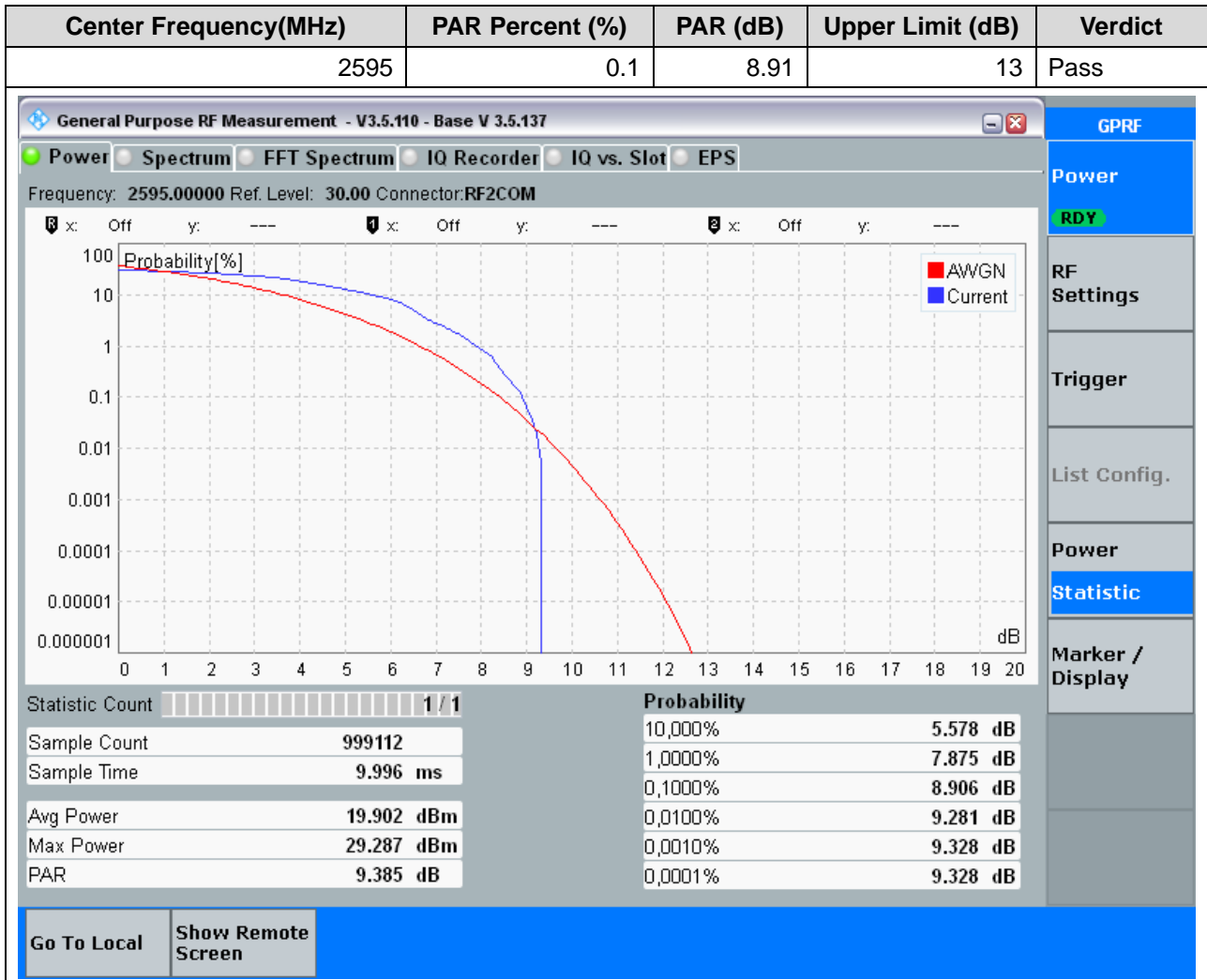
**4.5. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:5, Channel:38000, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)**



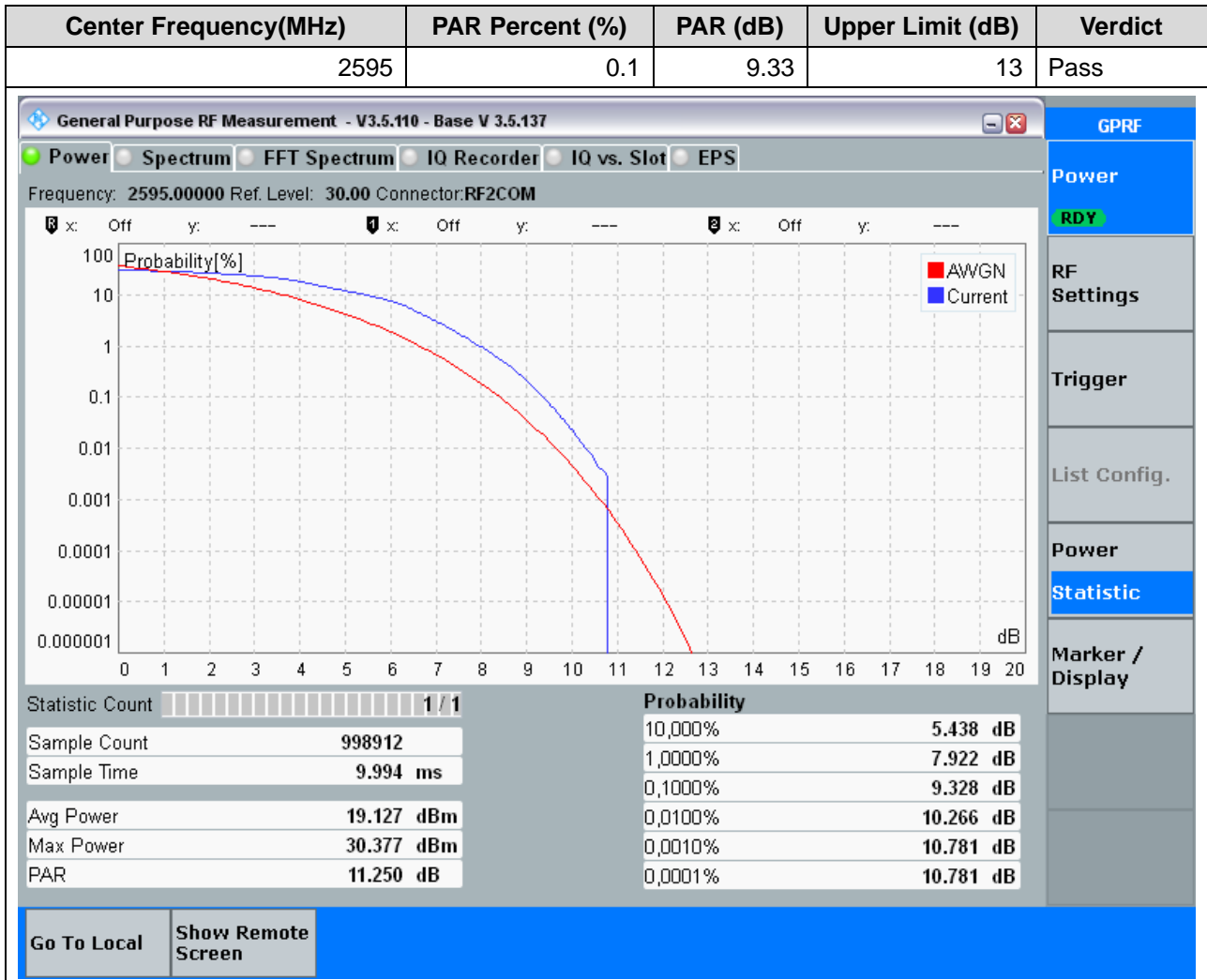
**4.6. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:6, Channel:38000, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)**



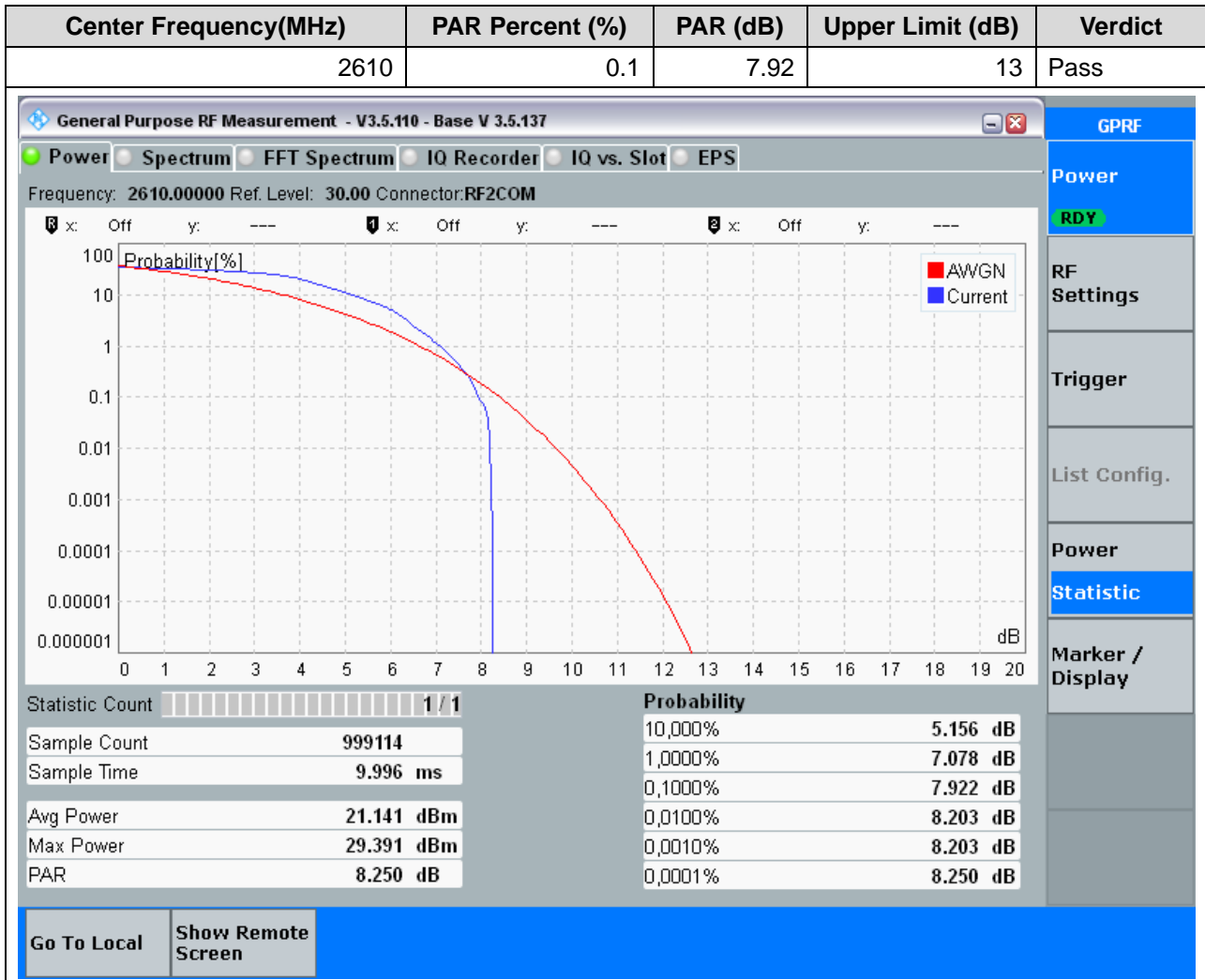
**4.7. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:7, Channel:38000, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)**



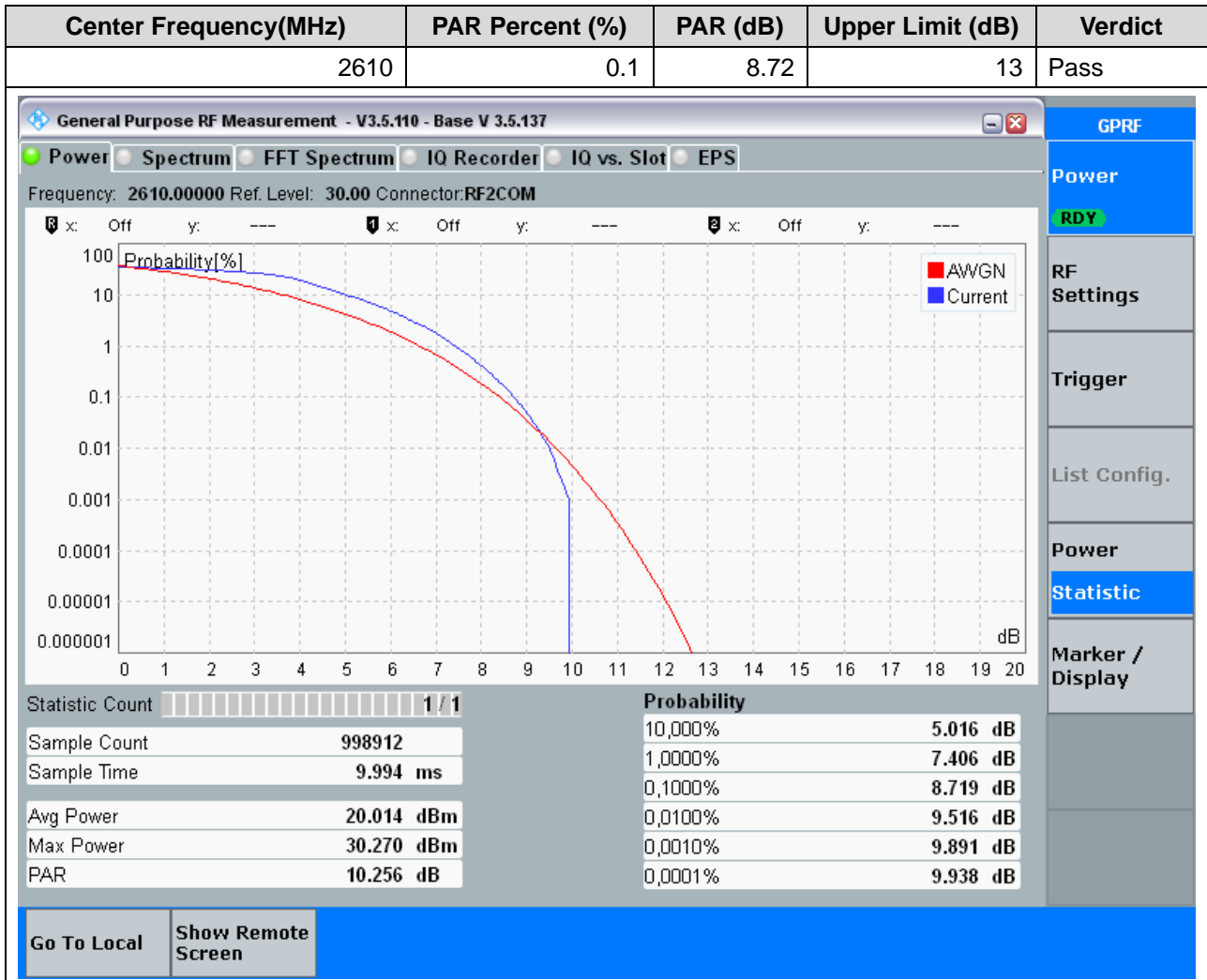
**4.8. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:8, Channel:38000, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)**



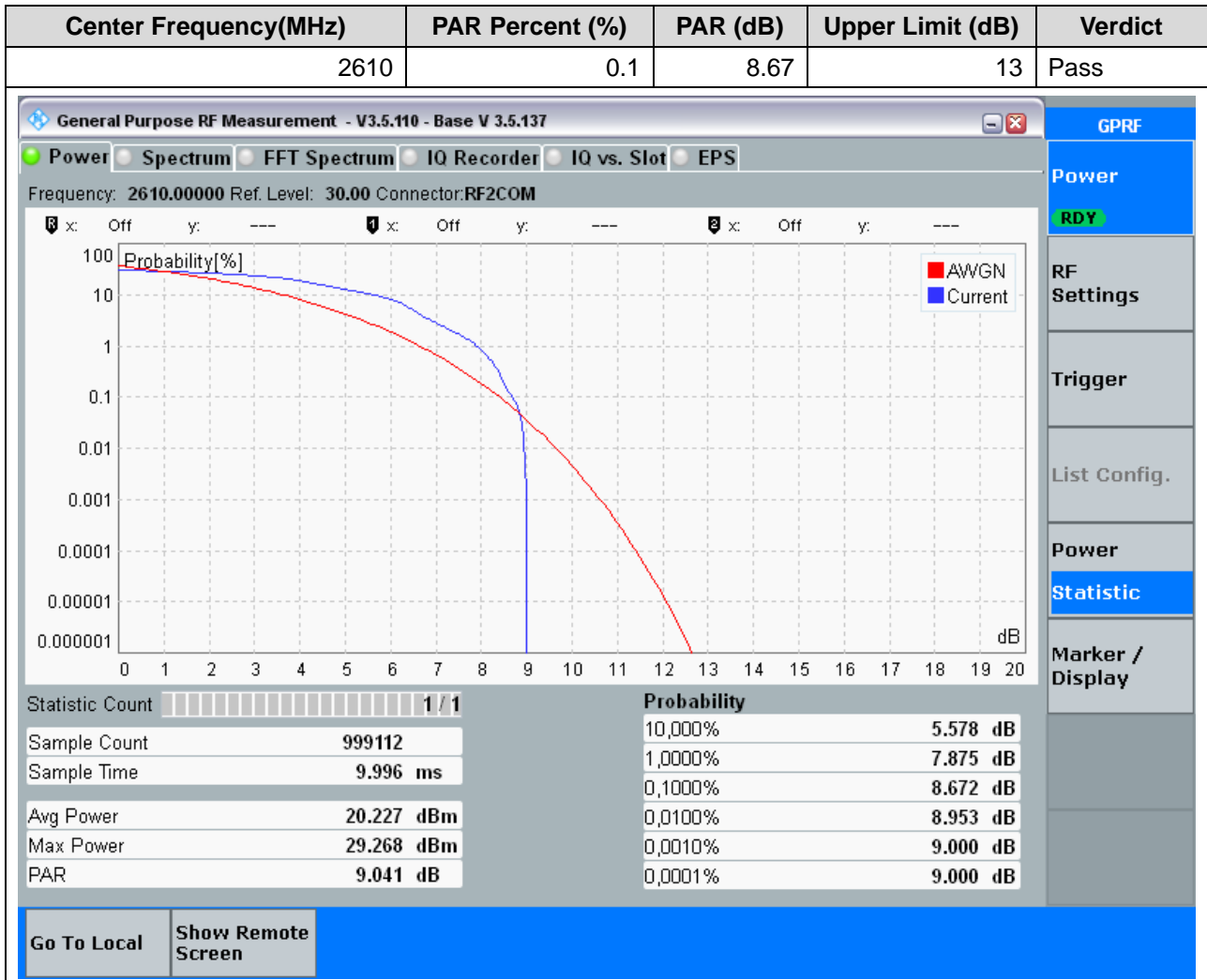
**4.9. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:9, Channel:38150, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)**



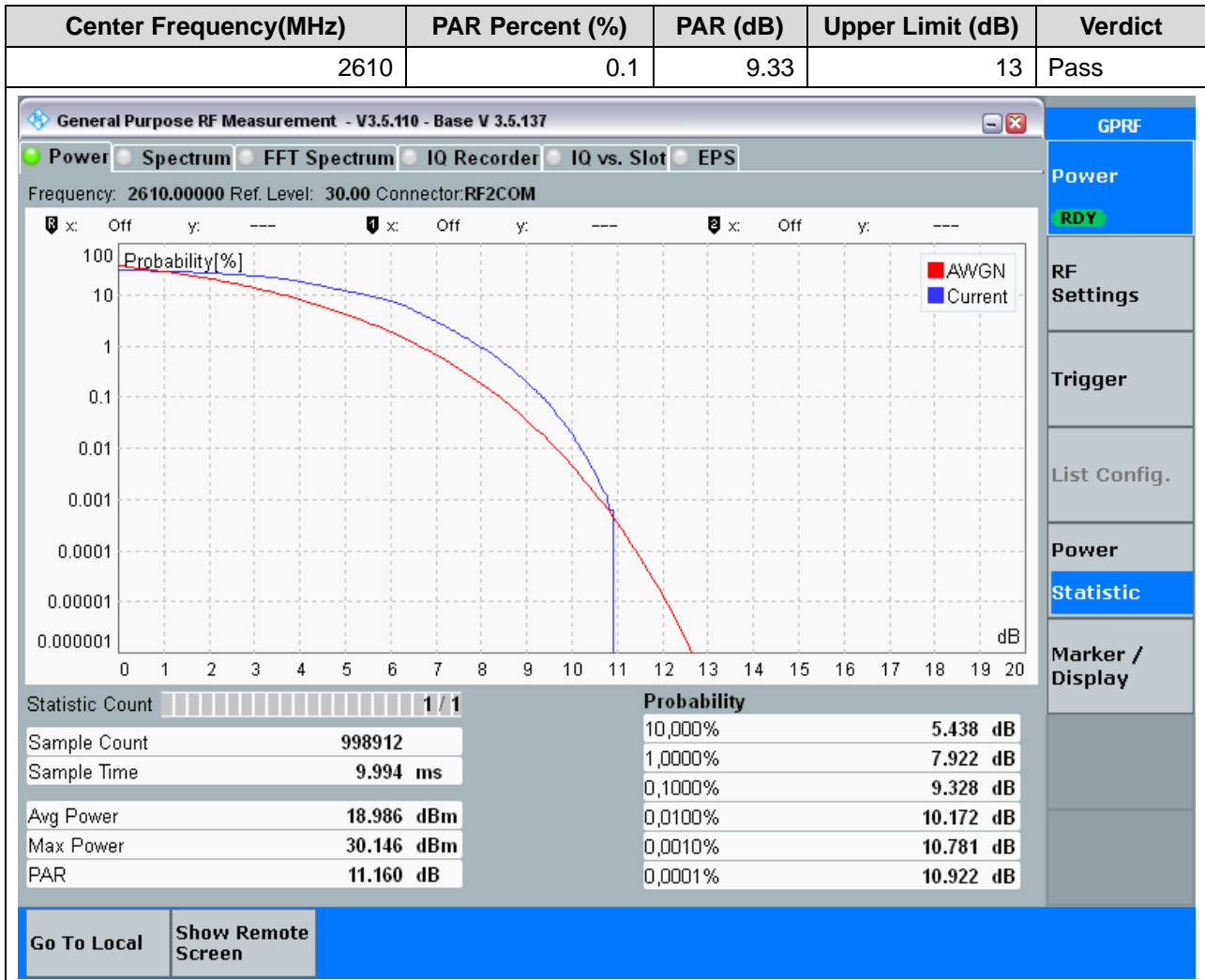
**4.10. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:10, Channel:38150, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)**



**4.11. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:11, Channel:38150, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)**



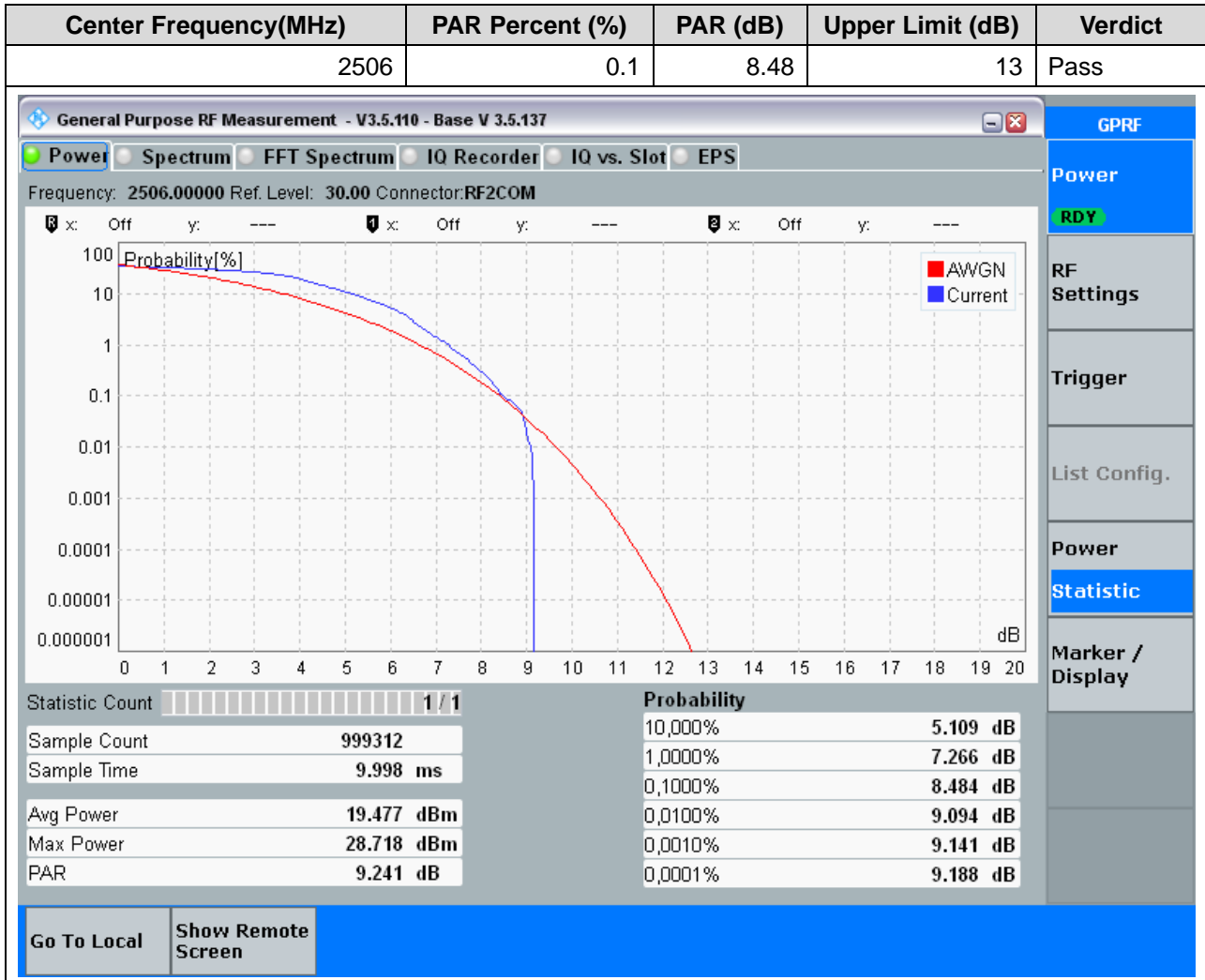
**4.12. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:12, Channel:38150, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)**



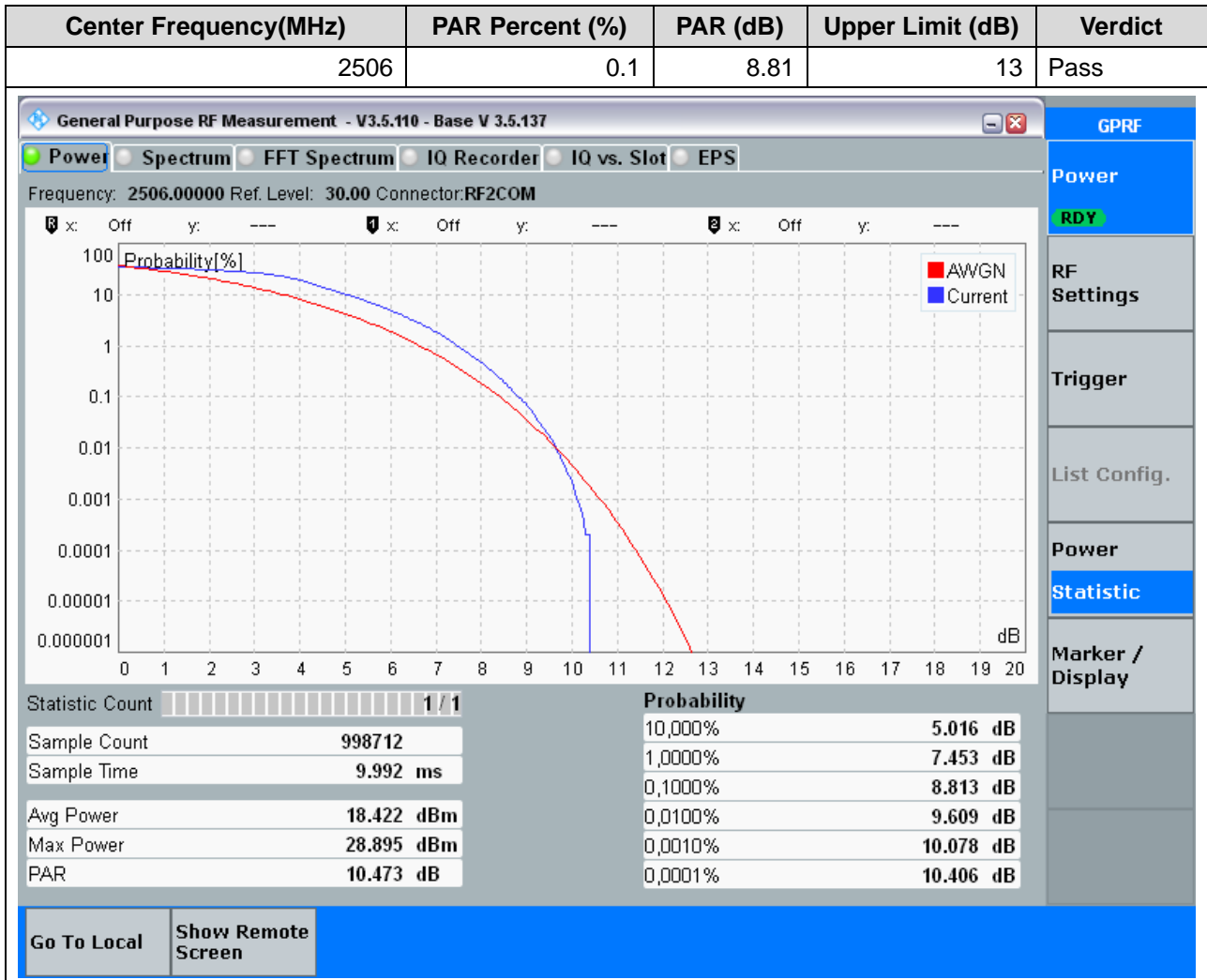


## 5. LTE\_Band41 full

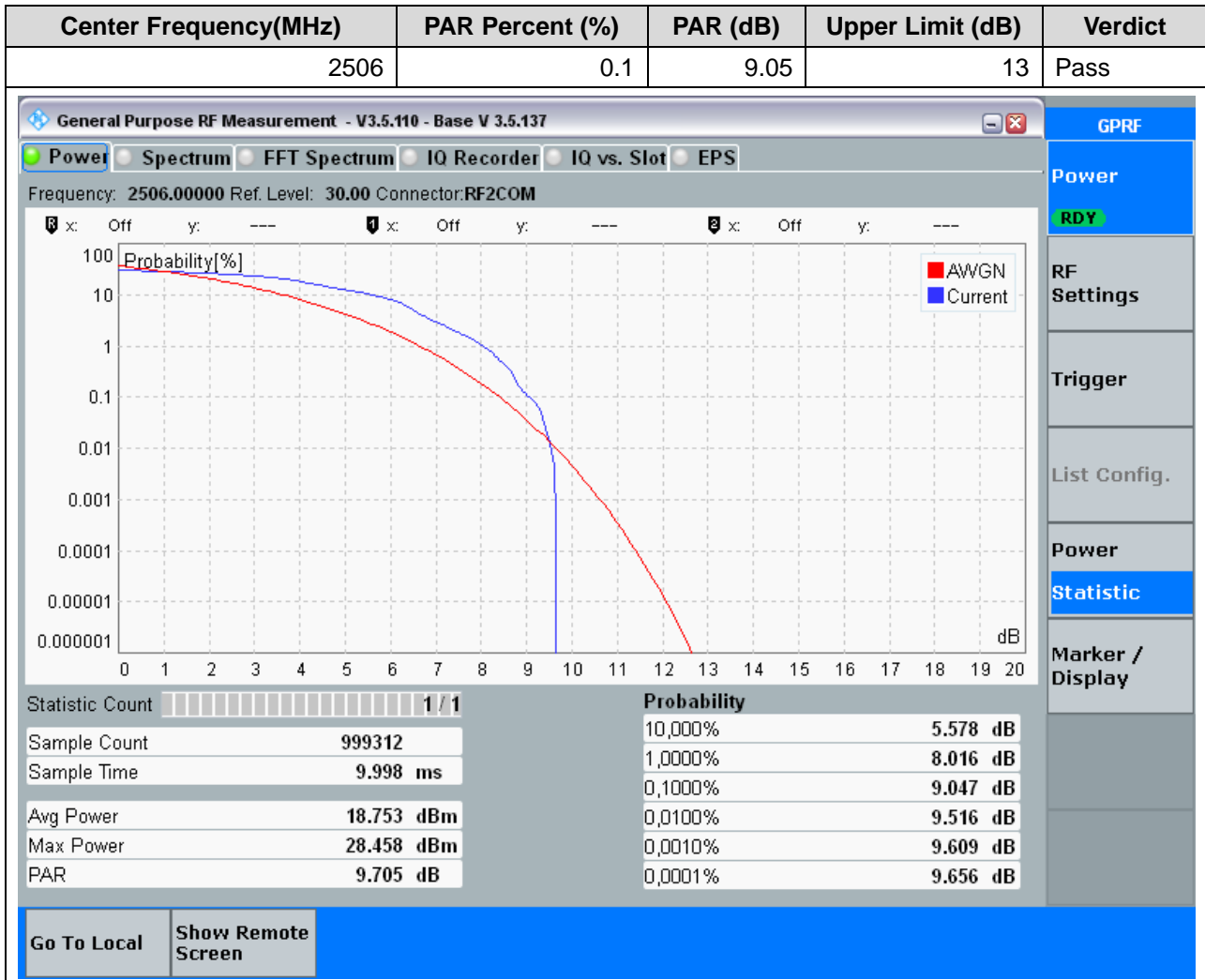
### 5.1. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:1, Channel:39750, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)



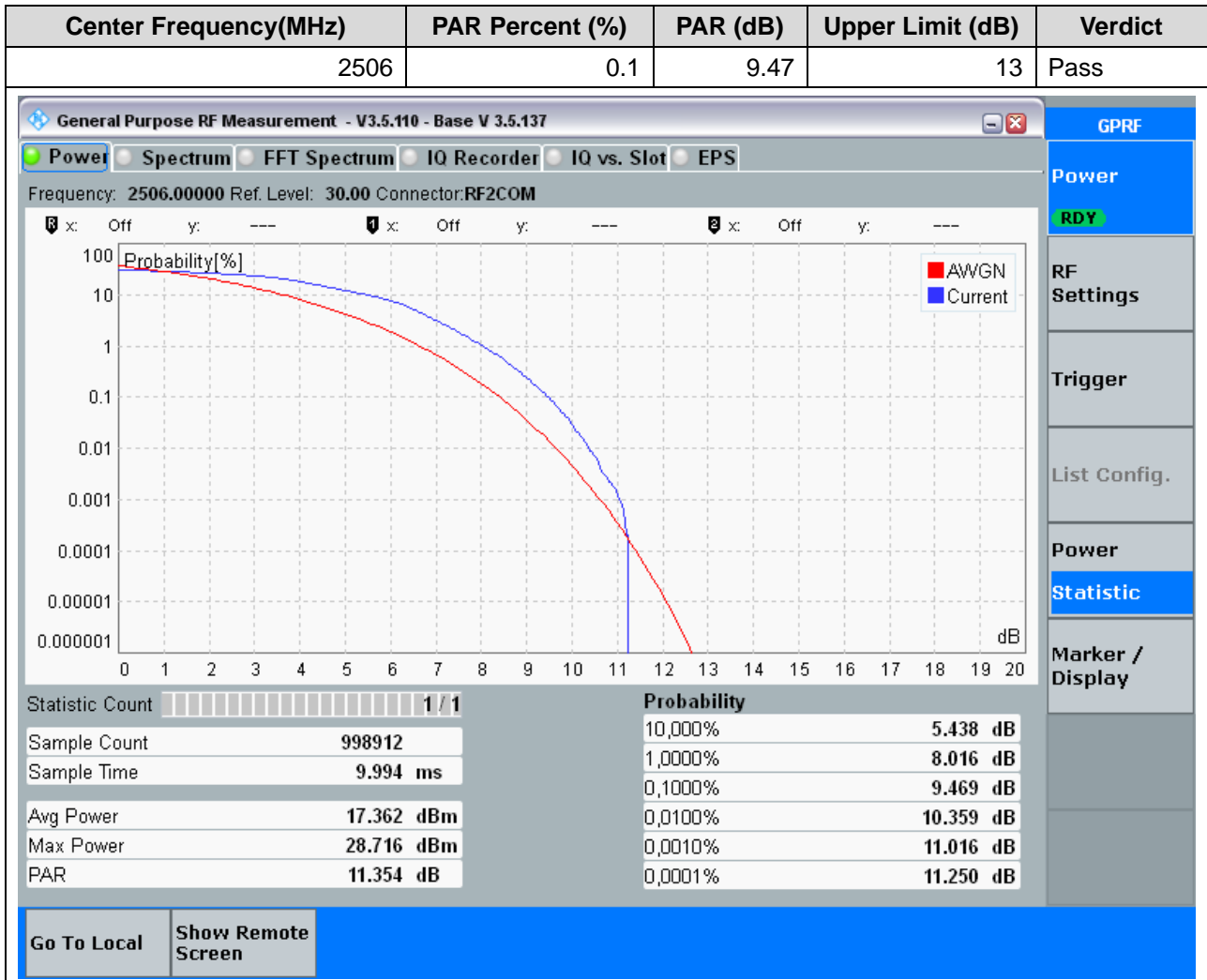
**5.2. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:2, Channel:39750, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)**



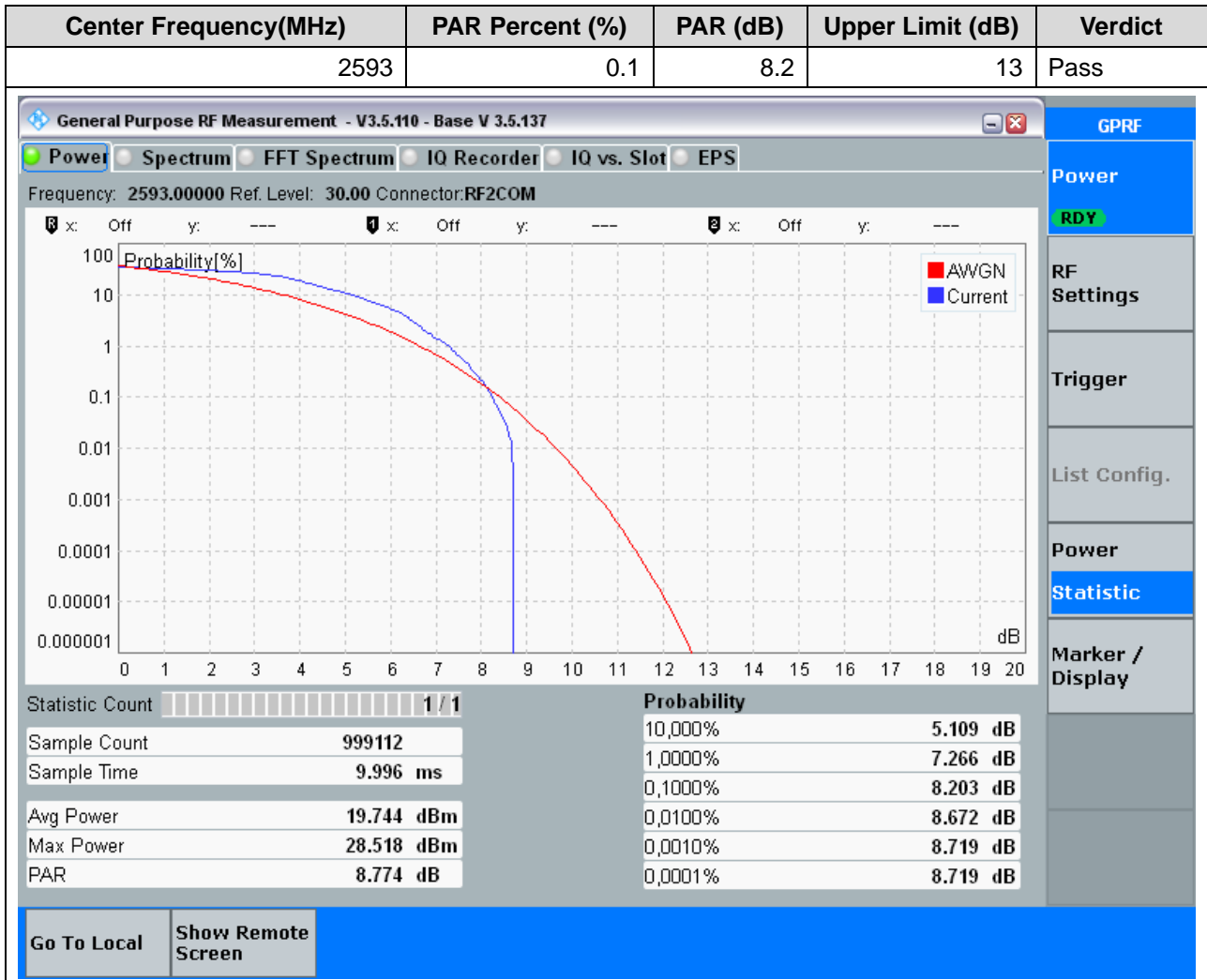
### 5.3. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:3, Channel:39750, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)



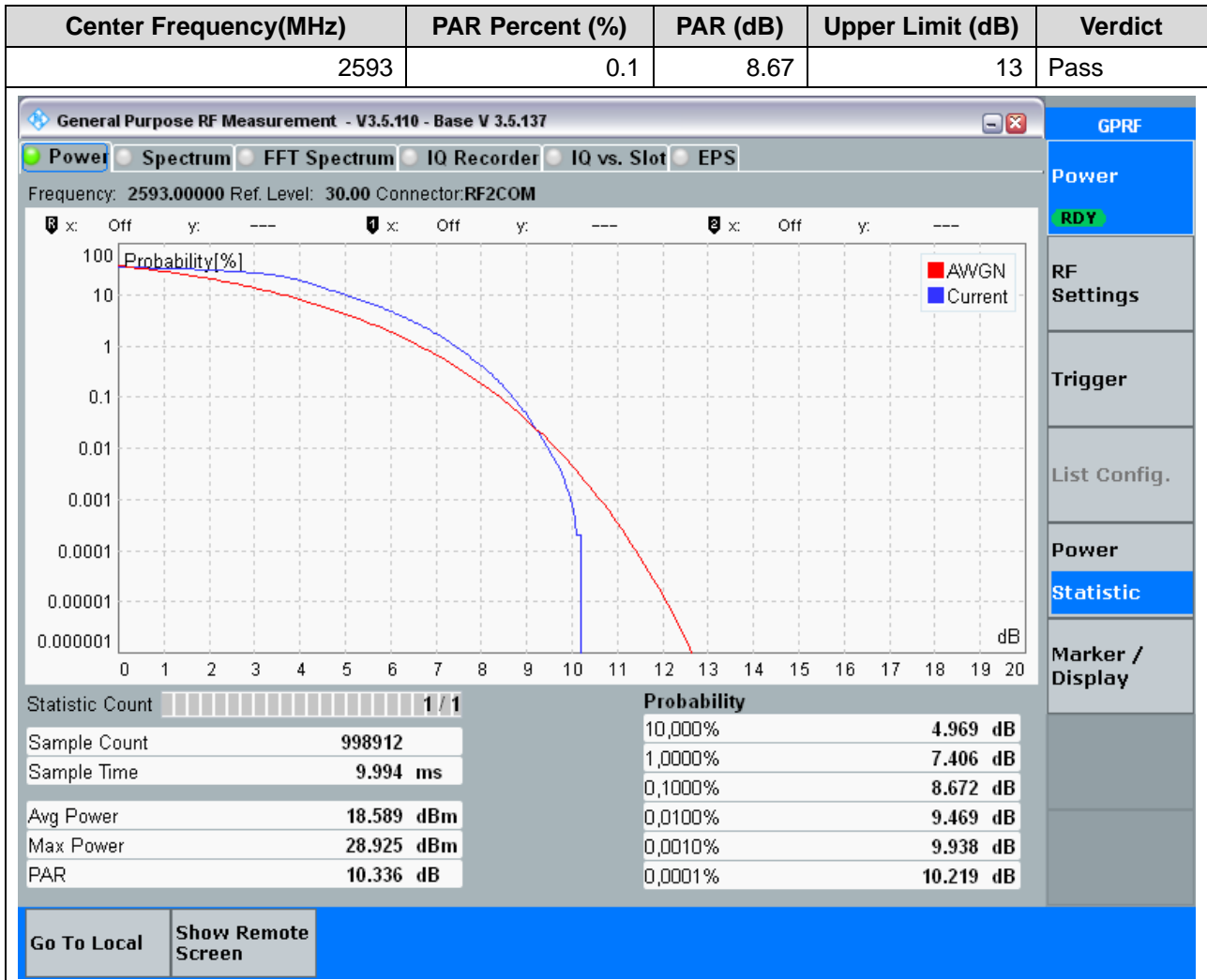
**5.4. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:4, Channel:39750, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)**



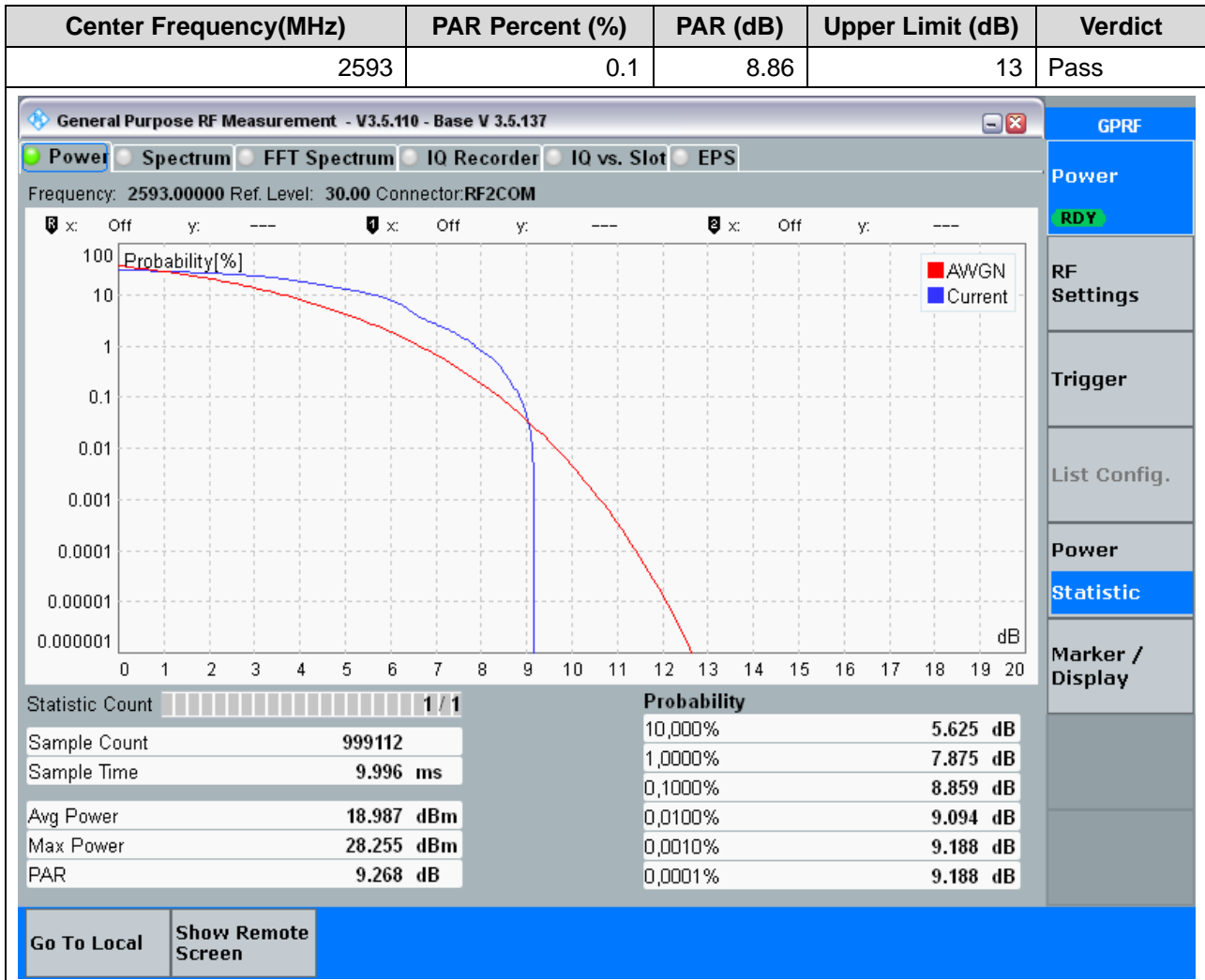
**5.5. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:5, Channel:40620, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)**



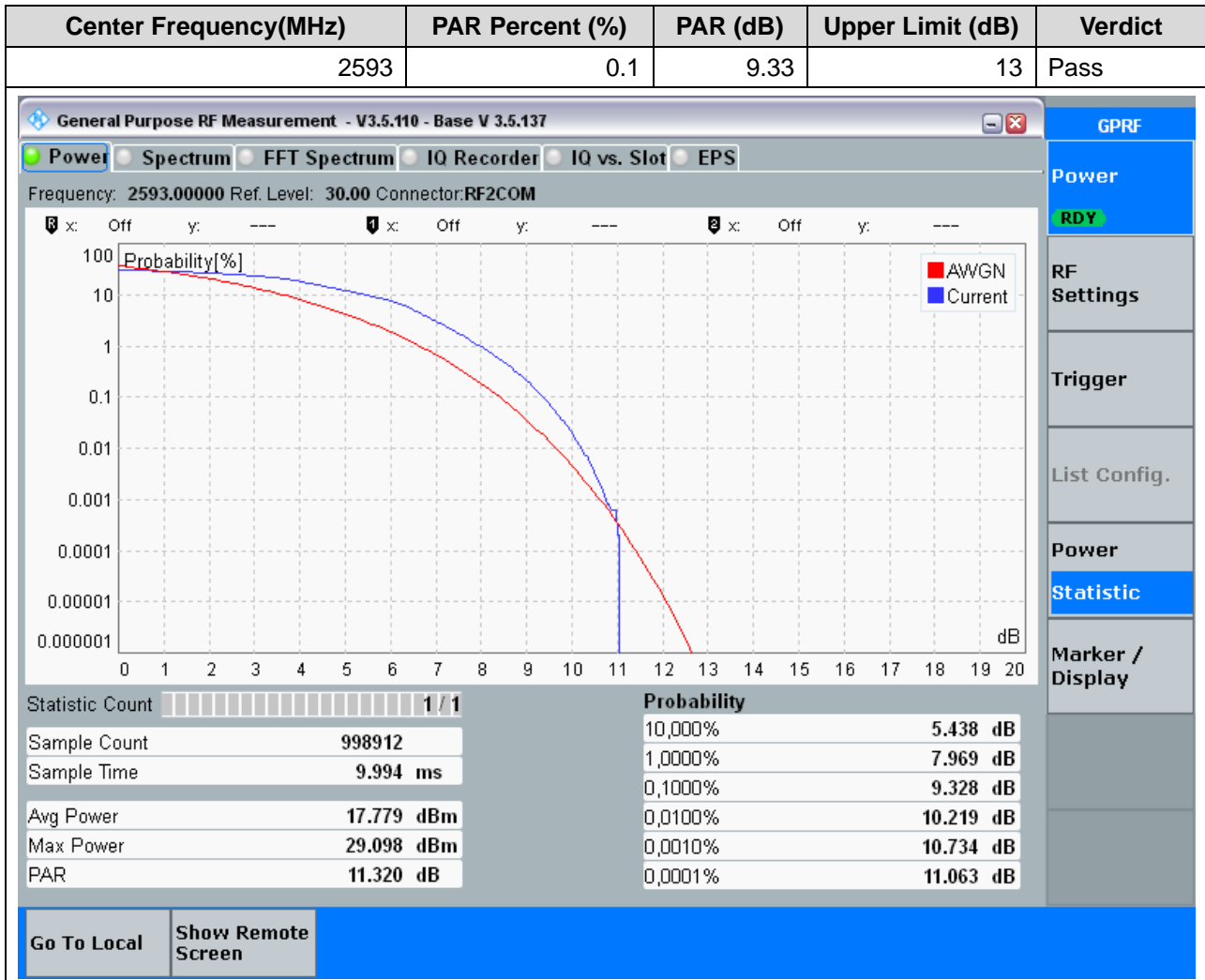
**5.6. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:6, Channel:40620, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)**



**5.7. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:7, Channel:40620, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)**

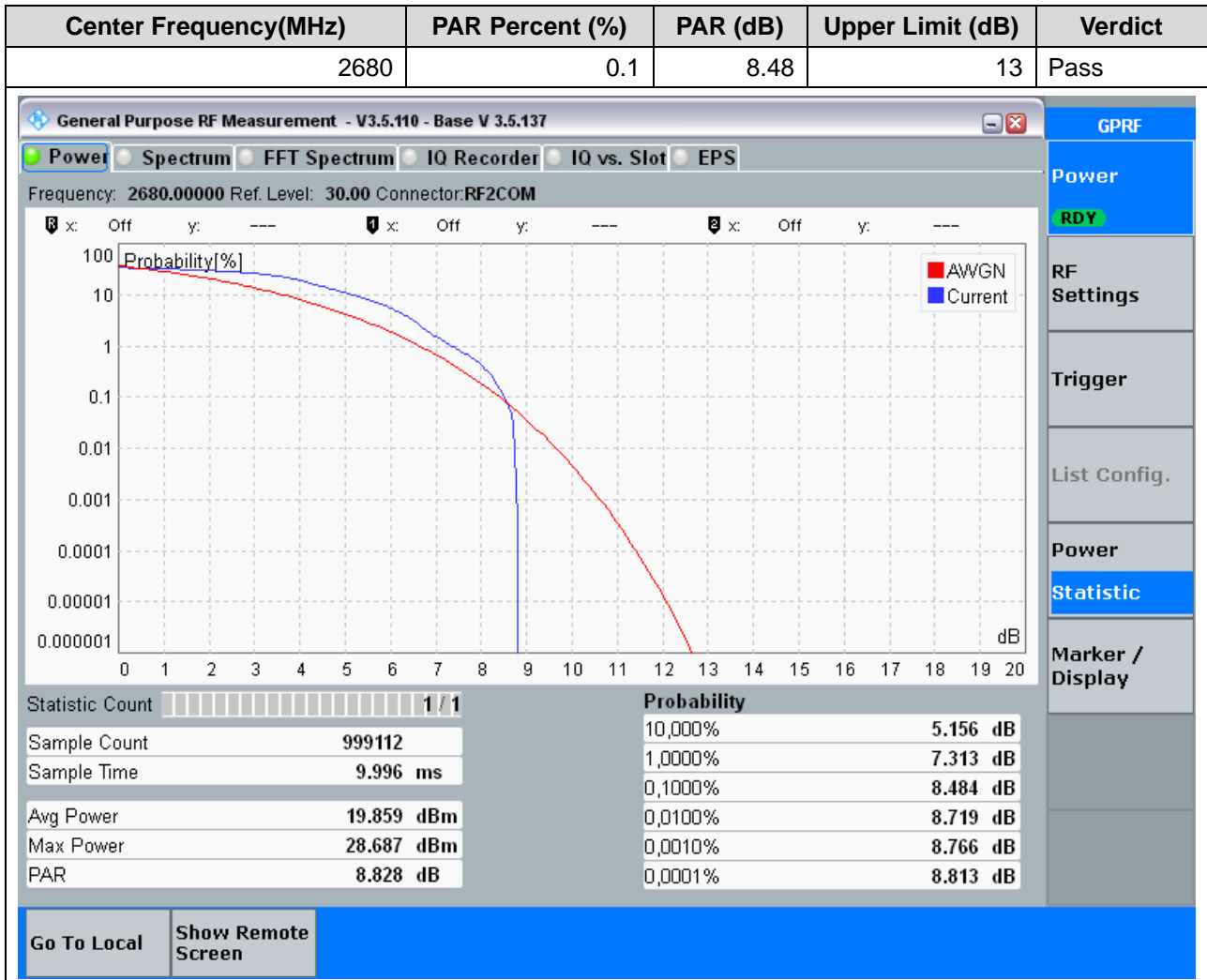


**5.8. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:8, Channel:40620, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)**

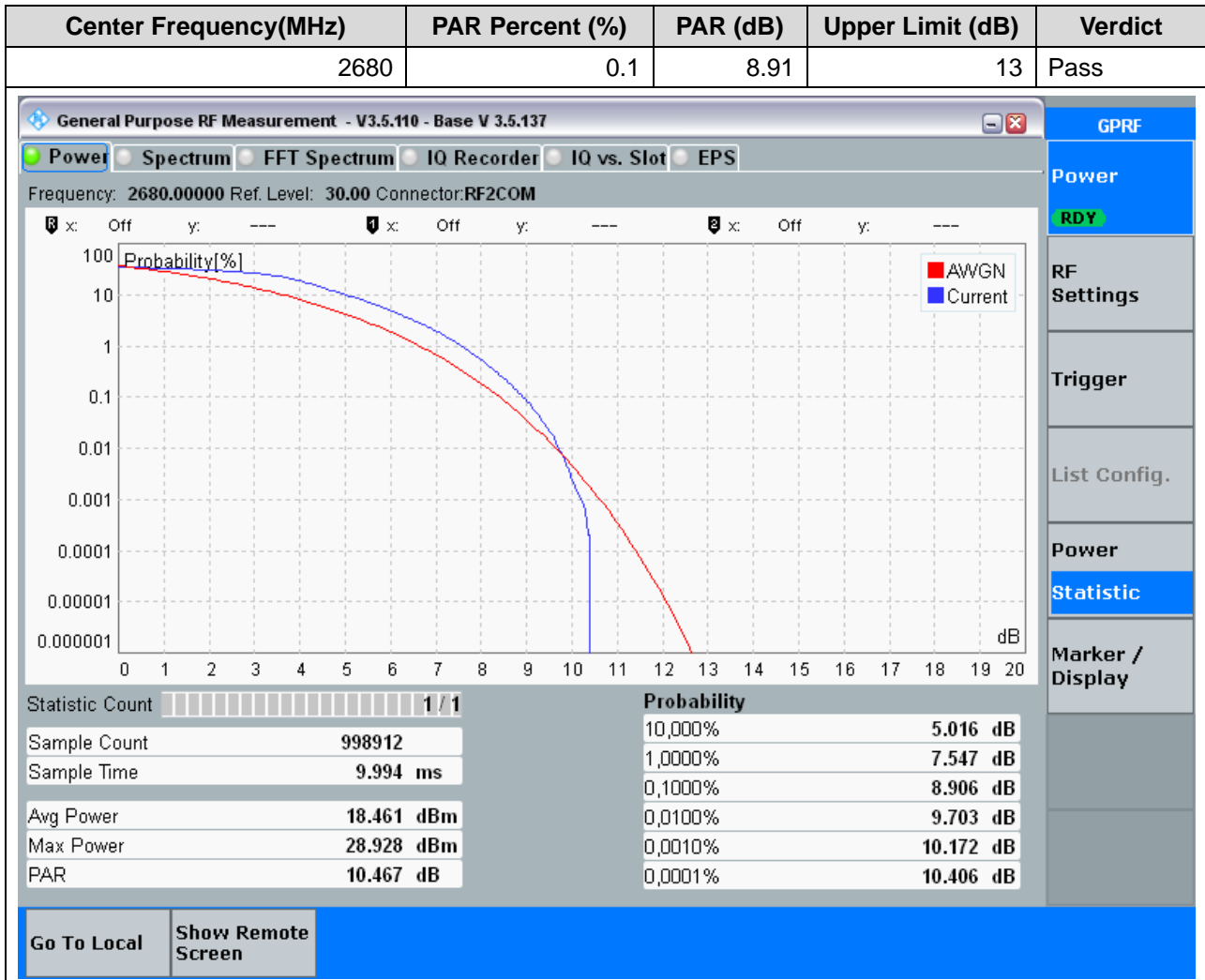




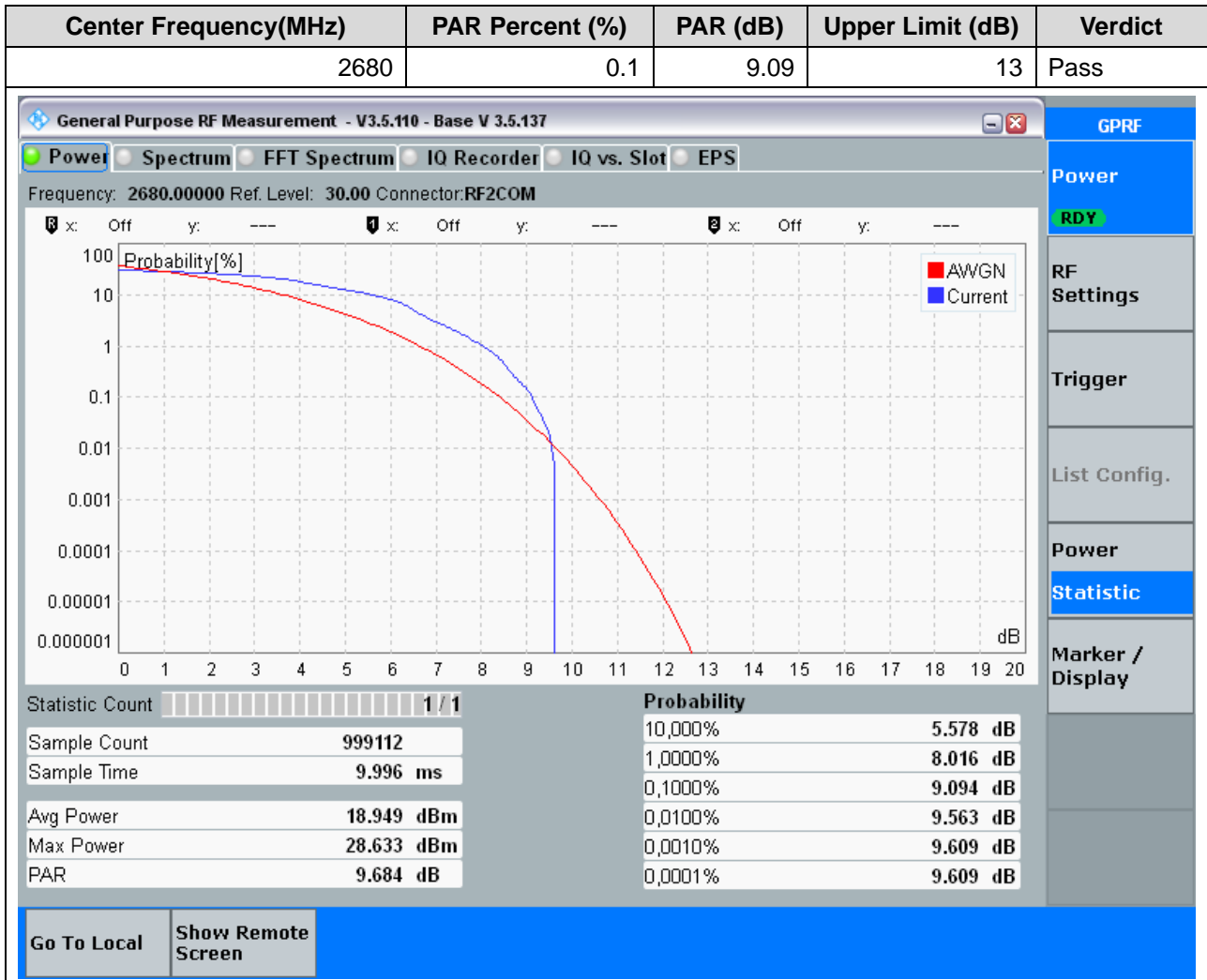
**5.9. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:9, Channel:41490, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)**



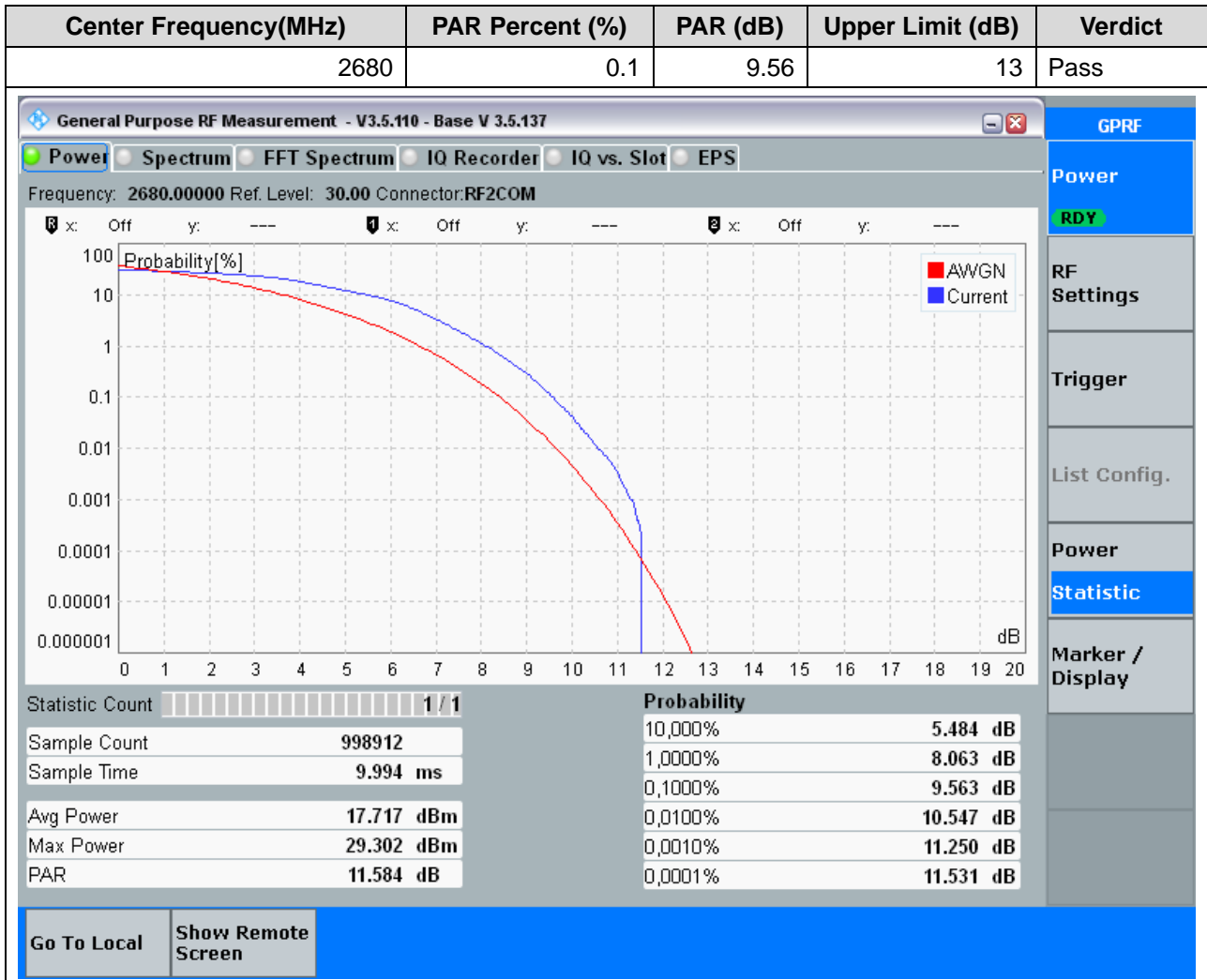
**5.10. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:10, Channel:41490, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)**



**5.11. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:11, Channel:41490, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)**

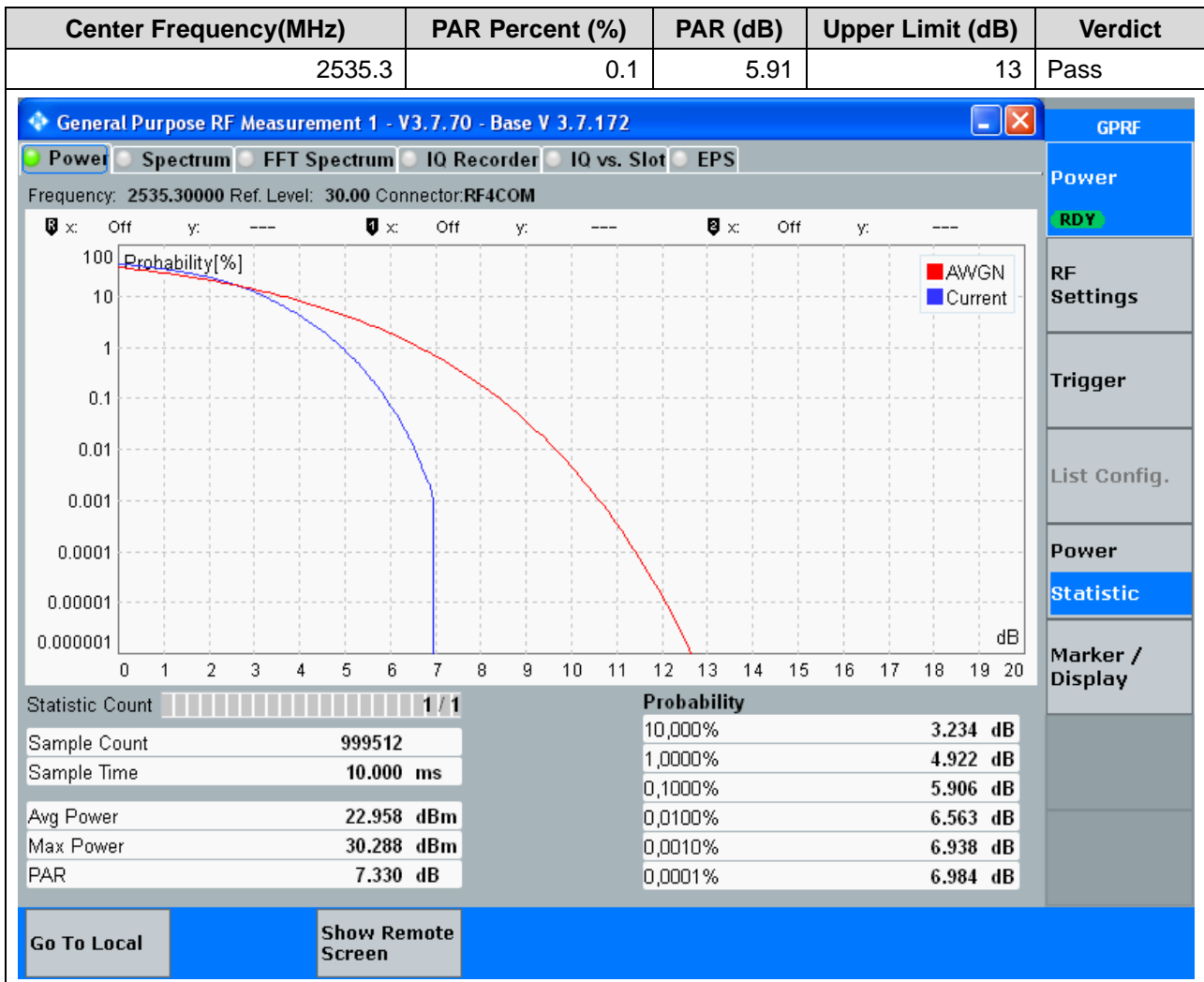


**5.12. LTE Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:12, Channel:41490, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)**

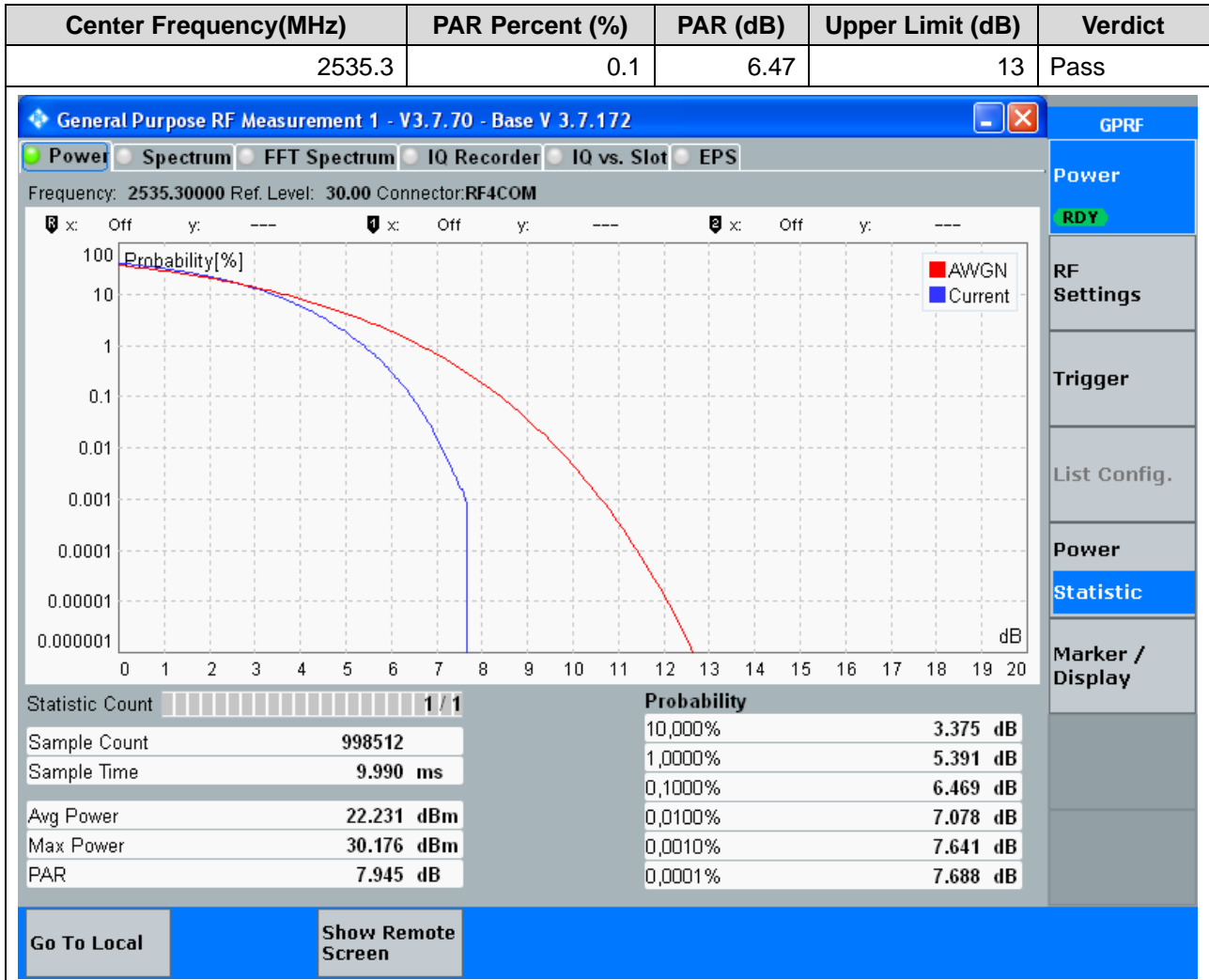


## 6. CA\_7C

6.1. LTE-A Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:1, Channel:21006|21150, Bandwidth:10|20MHz, Modulation:QPSK, RB Number:Full|Full, RB Position:Low|Low)



**6.2. LTE-A Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:2, Channel:21006|21150, Bandwidth:10|20MHz, Modulation:16QAM, RB Number:Full|Full, RB Position:Low|Low)**



**6.3. LTE-A Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:3, Channel:21051|21195, Bandwidth:20|10MHz, Modulation:QPSK, RB Number:Full|Full, RB Position:Low|Low)**

Center Frequency(MHz)	PAR Percent (%)	PAR (dB)	Upper Limit (dB)	Verdict
2534.8	0.1	6	13	Pass

**General Purpose RF Measurement 1 - V3.7.70 - Base V 3.7.172**

Power Spectrum FFT Spectrum IQ Recorder IQ vs. Slot EPS

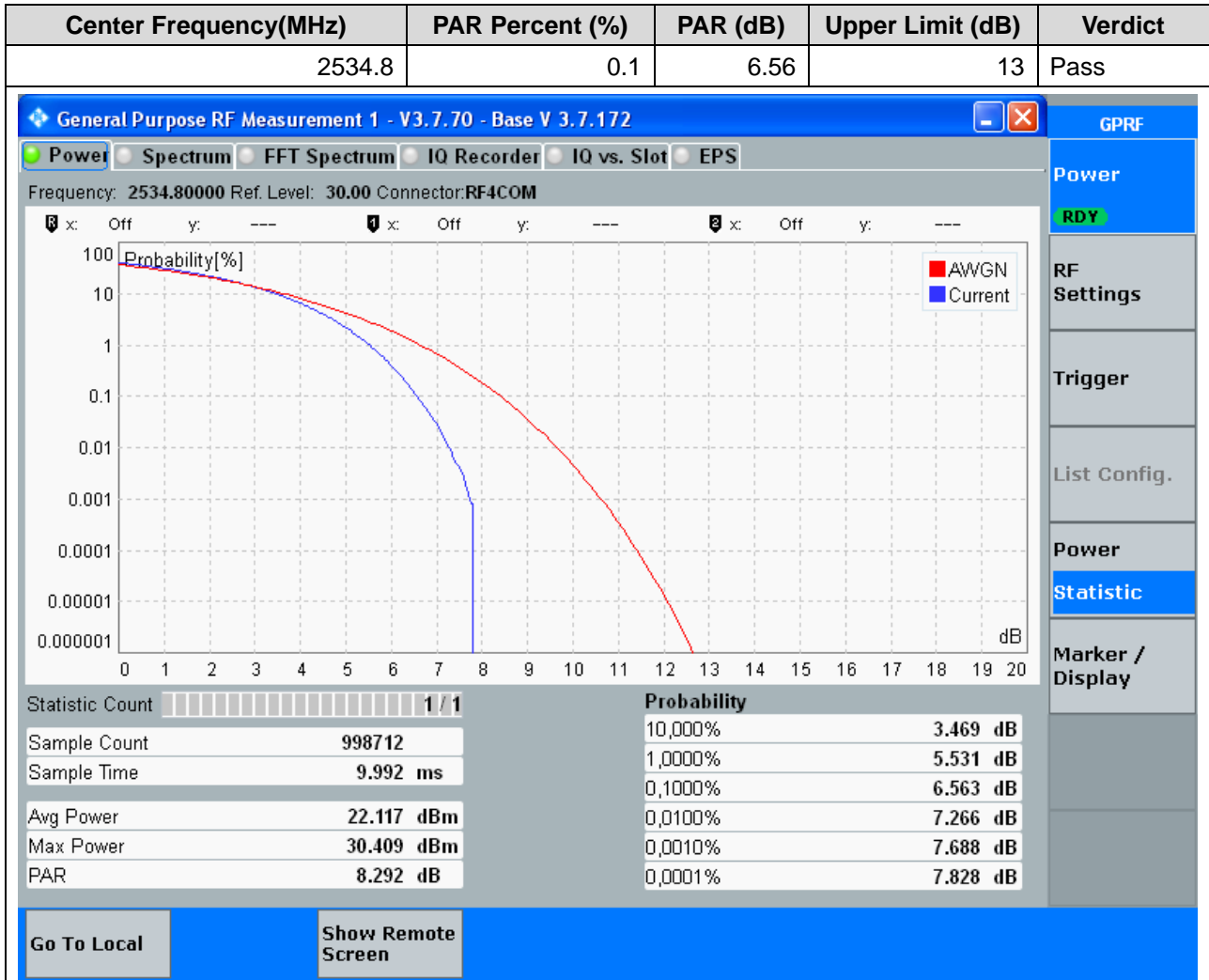
Frequency: 2534.80000 Ref. Level: 30.00 Connector:RF4COM

Statistic Count	Sample Count	Sample Time	Avg Power	Max Power	PAR
1 / 1	999512	10.000 ms	23.005 dBm	30.223 dBm	7.219 dB

Probability	Value
10,000%	3.281 dB
1,0000%	5.016 dB
0,1000%	6.000 dB
0,0100%	6.656 dB
0,0010%	6.938 dB
0,0001%	6.938 dB

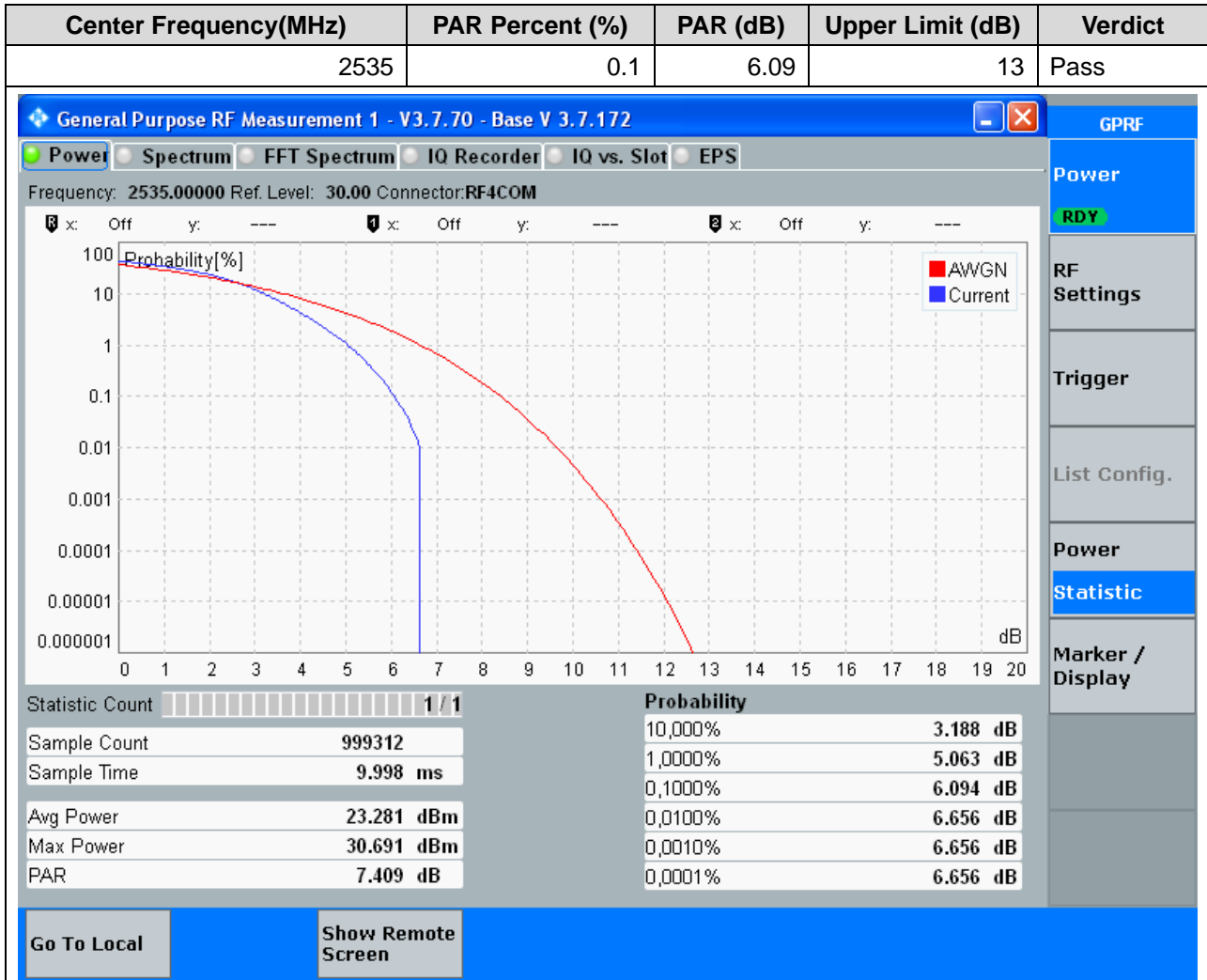
Go To Local Show Remote Screen

**6.4. LTE-A Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:4,  
Channel:21051|21195, Bandwidth:20|10MHz, Modulation:16QAM, RB  
Number:Full|Full, RB Position:Low|Low)**

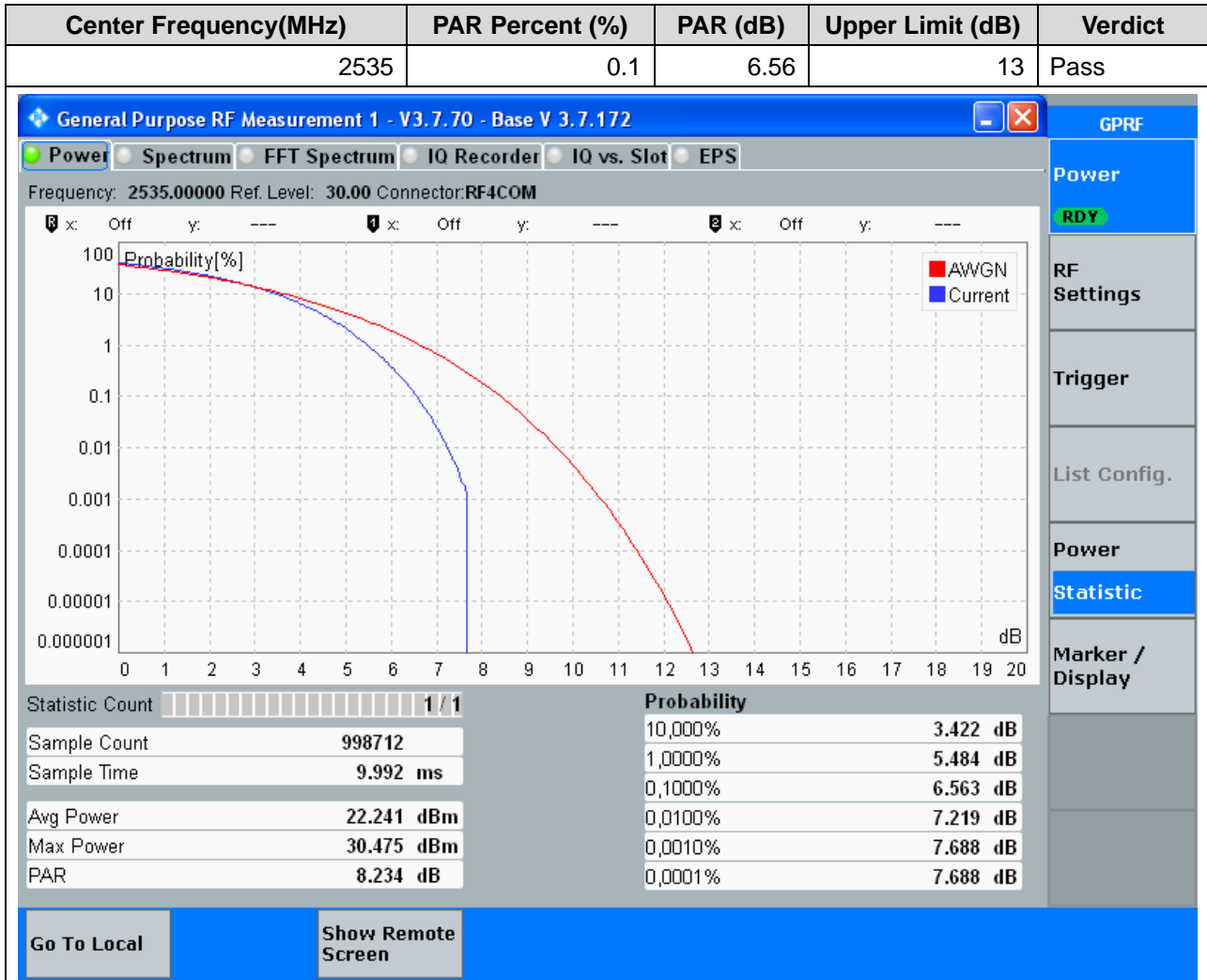




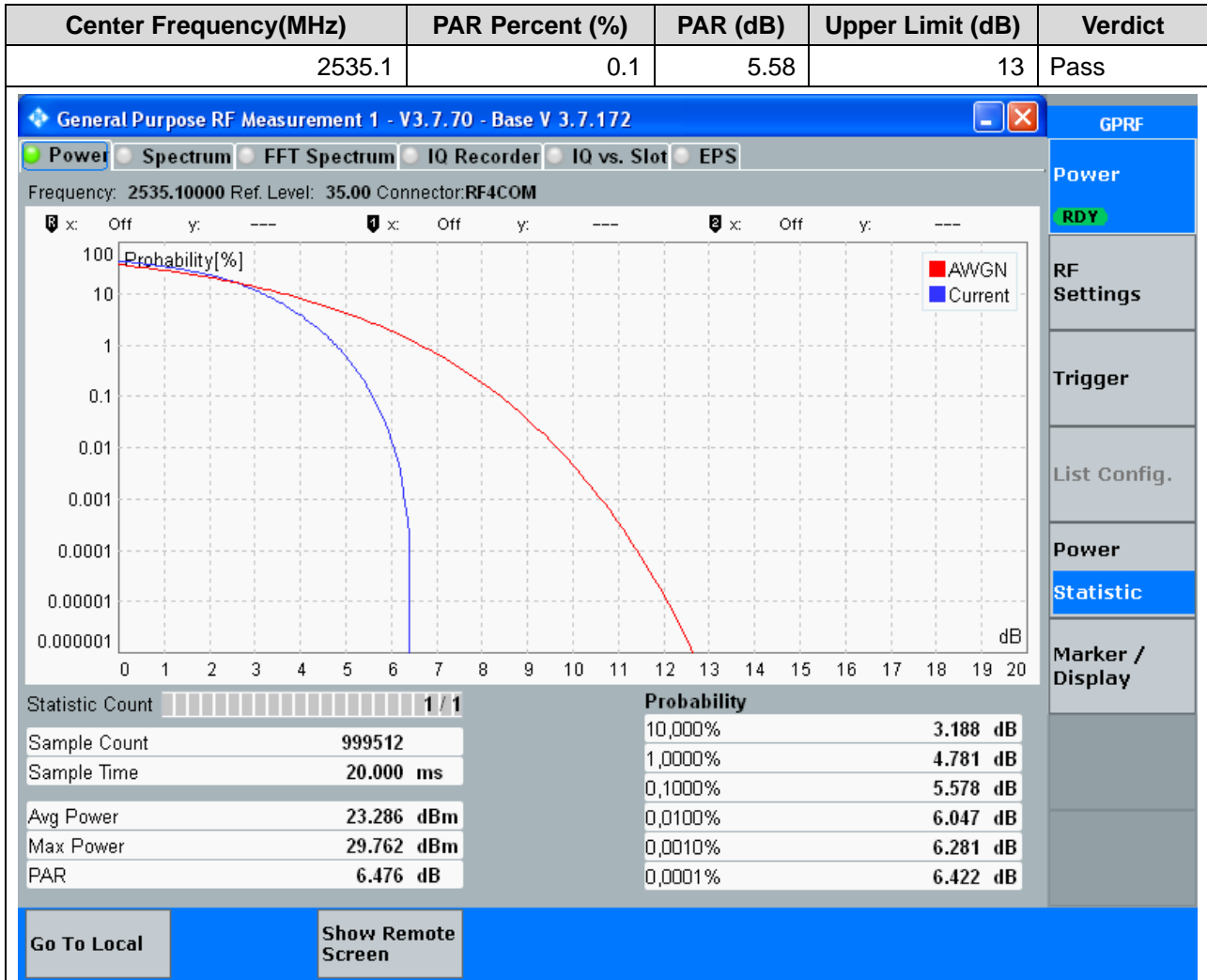
**6.5. LTE-A Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:5,  
Channel:21025|21175, Bandwidth:15|15MHz, Modulation:QPSK, RB  
Number:Full|Full, RB Position:Low|Low)**



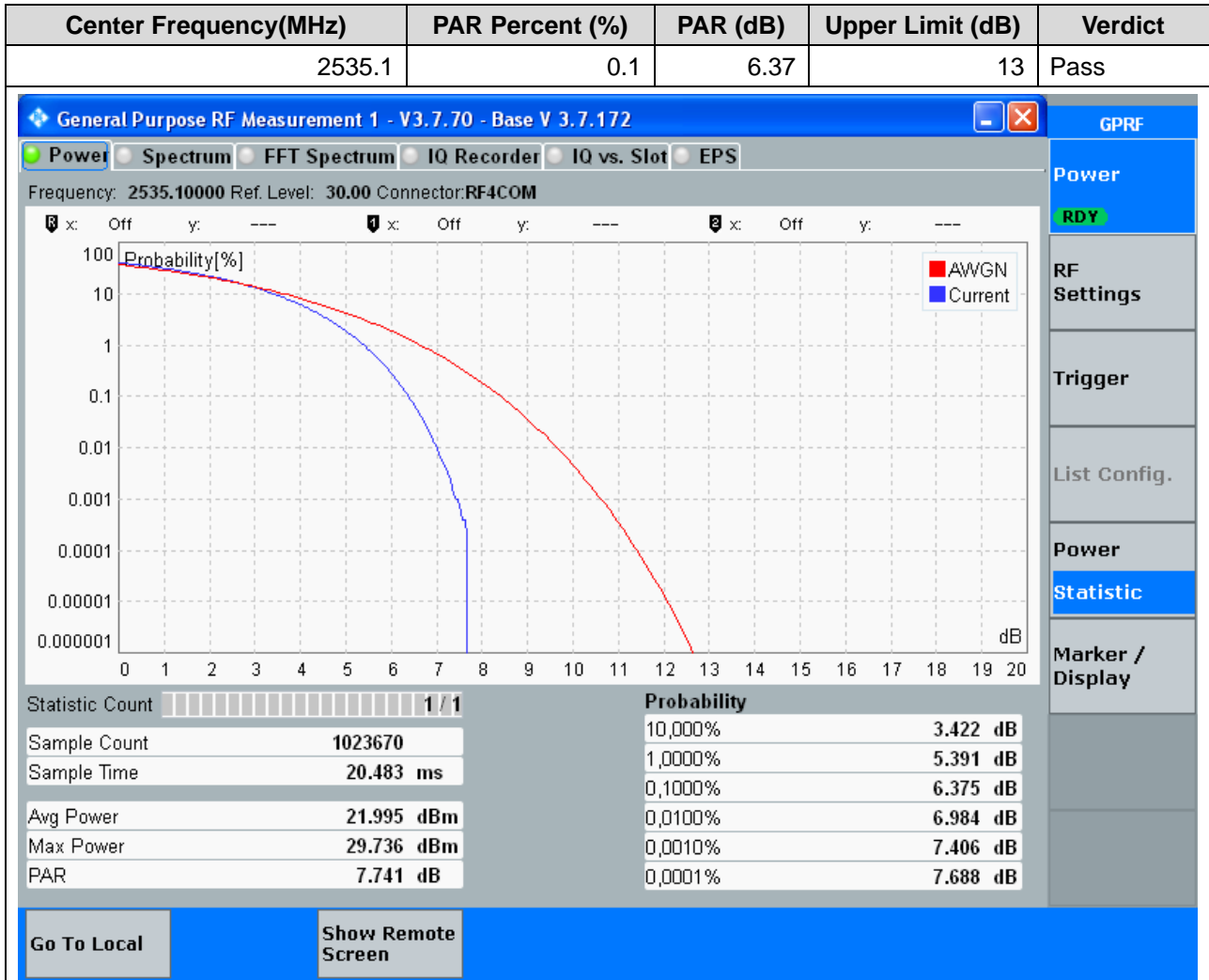
**6.6. LTE-A Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:6,  
Channel:21025|21175, Bandwidth:15|15MHz, Modulation:16QAM, RB  
Number:Full|Full, RB Position:Low|Low)**



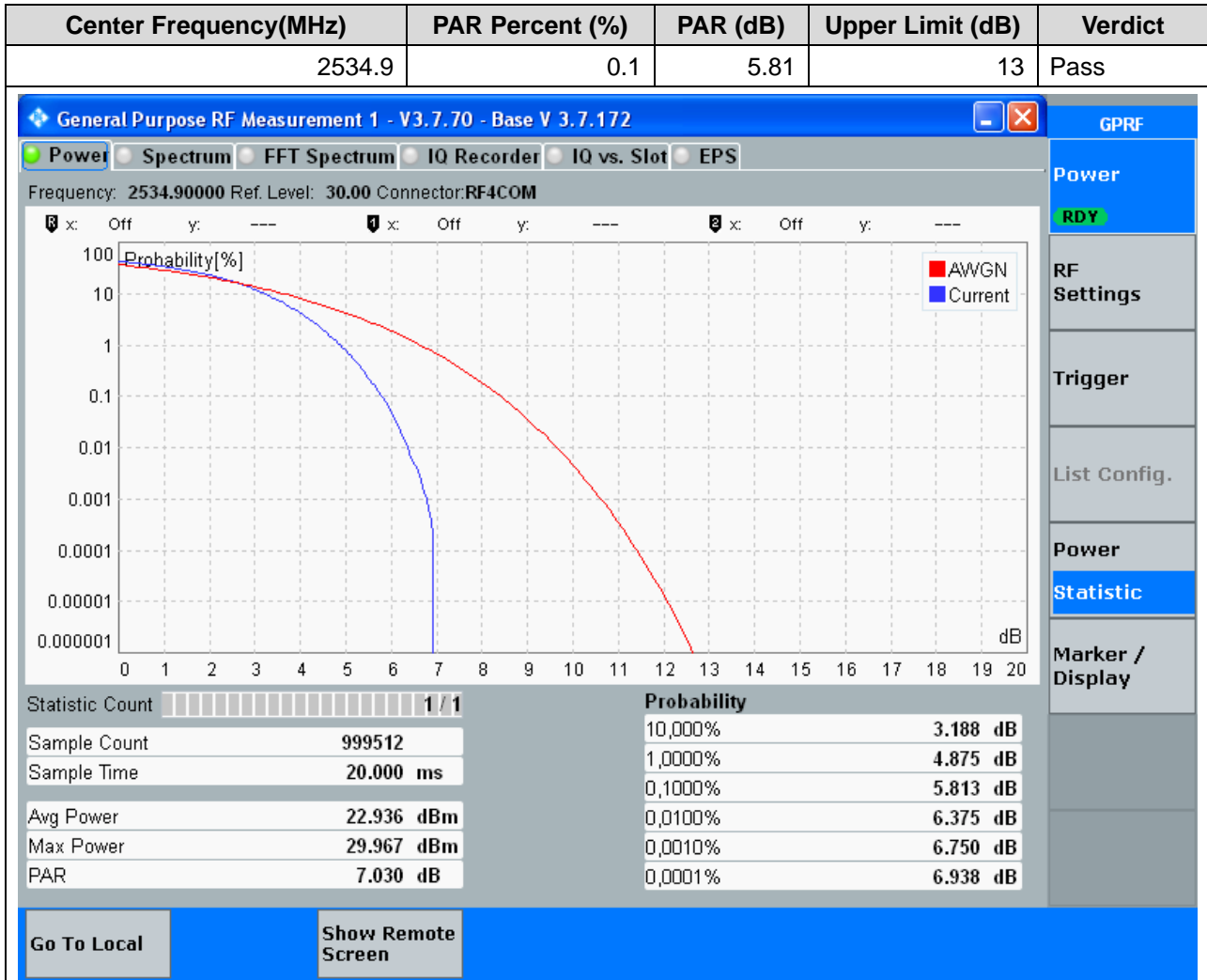
**6.7. LTE-A Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:7,  
Channel:21003|21174, Bandwidth:15|20MHz, Modulation:QPSK, RB  
Number:Full|Full, RB Position:Low|Low)**



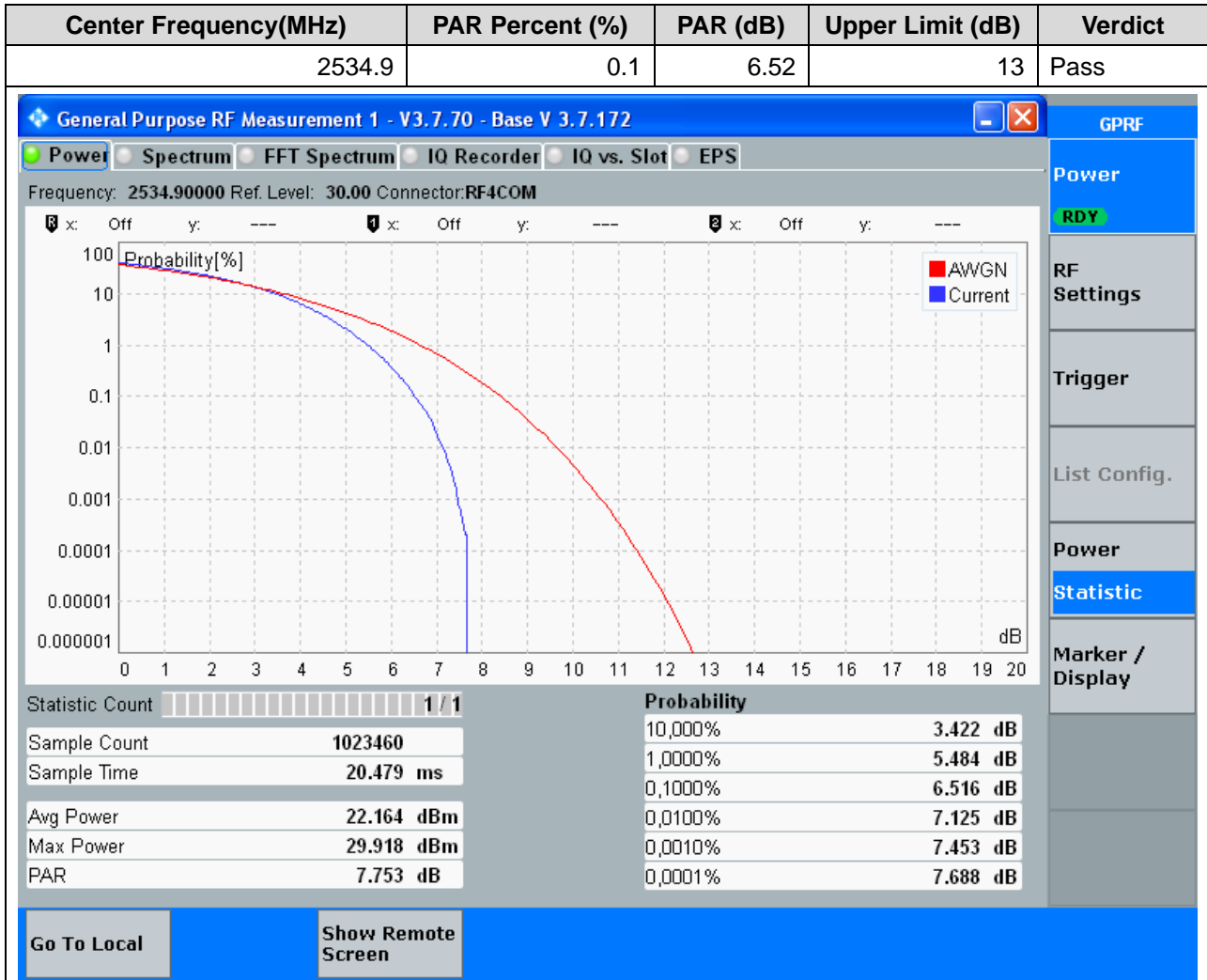
**6.8. LTE-A Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:8, Channel:21003|21174, Bandwidth:15|20MHz, Modulation:16QAM, RB Number:Full|Full, RB Position:Low|Low)**



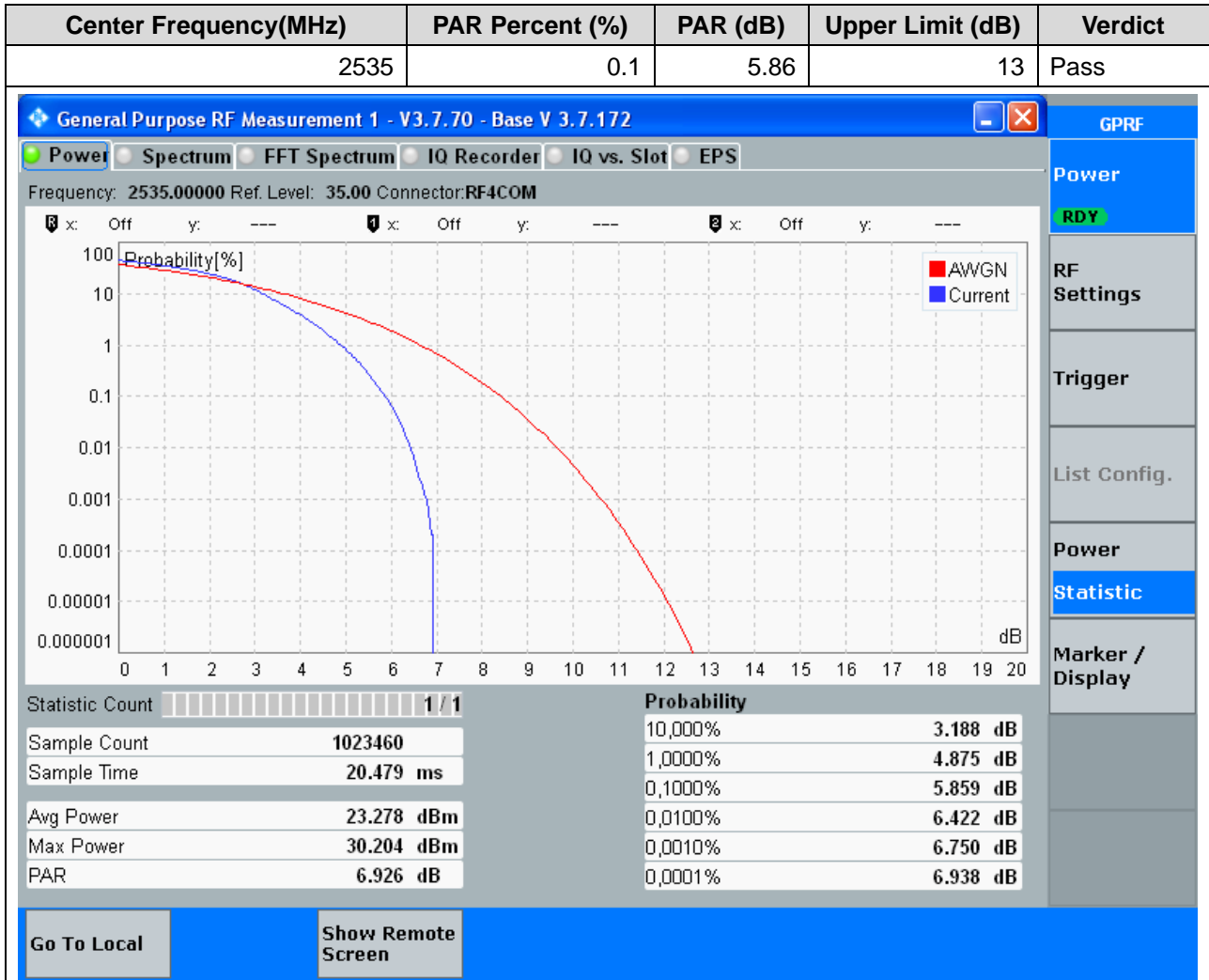
**6.9. LTE-A Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:9,  
Channel:21026|21197, Bandwidth:20|15MHz, Modulation:QPSK, RB  
Number:Full|Full, RB Position:Low|Low)**



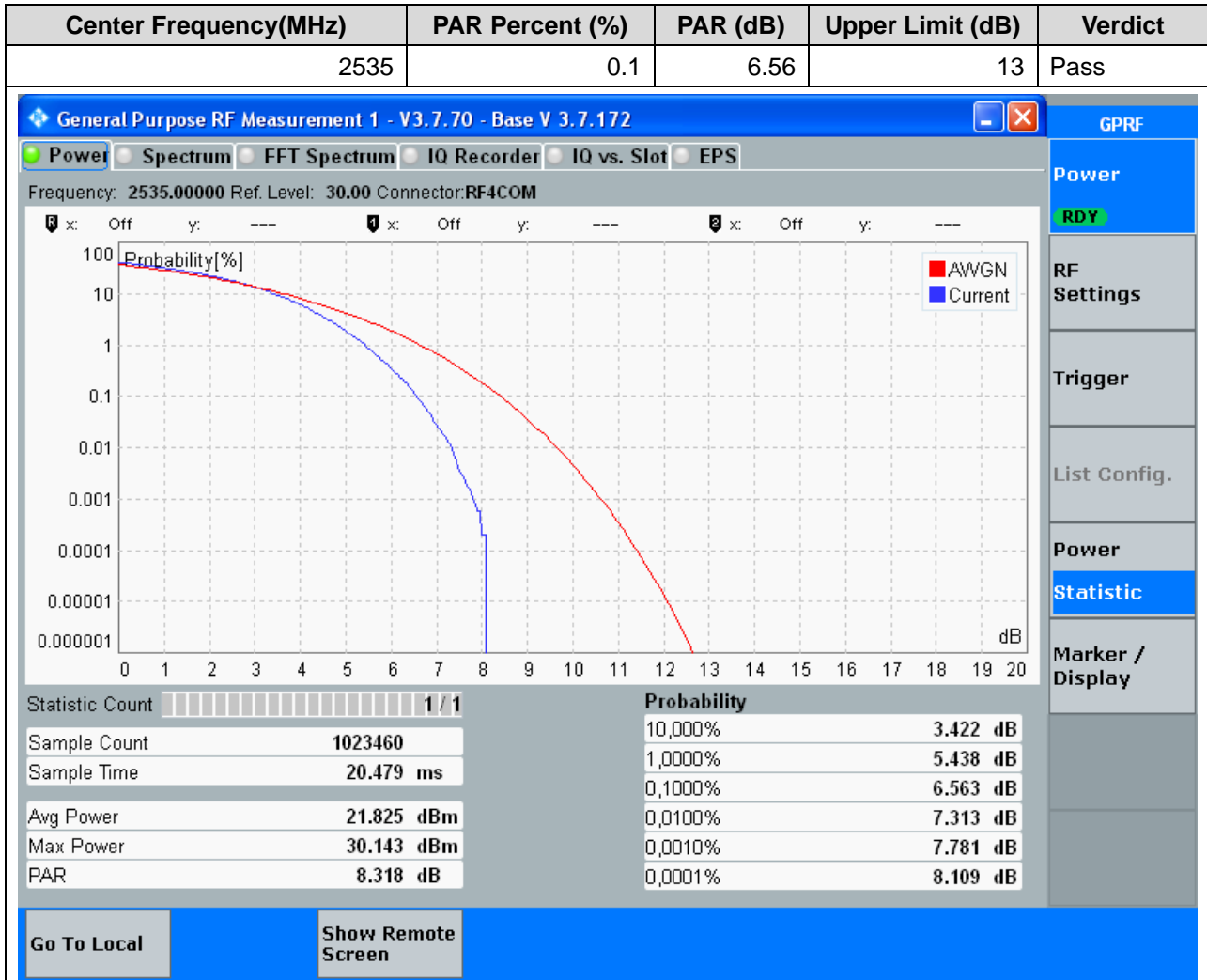
**6.10. LTE-A Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:10, Channel:21026|21197, Bandwidth:20|15MHz, Modulation:16QAM, RB Number:Full|Full, RB Position:Low|Low)**



**6.11. LTE-A Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:11, Channel:21001|21199, Bandwidth:20|20MHz, Modulation:QPSK, RB Number:Full|Full, RB Position:Low|Low)**



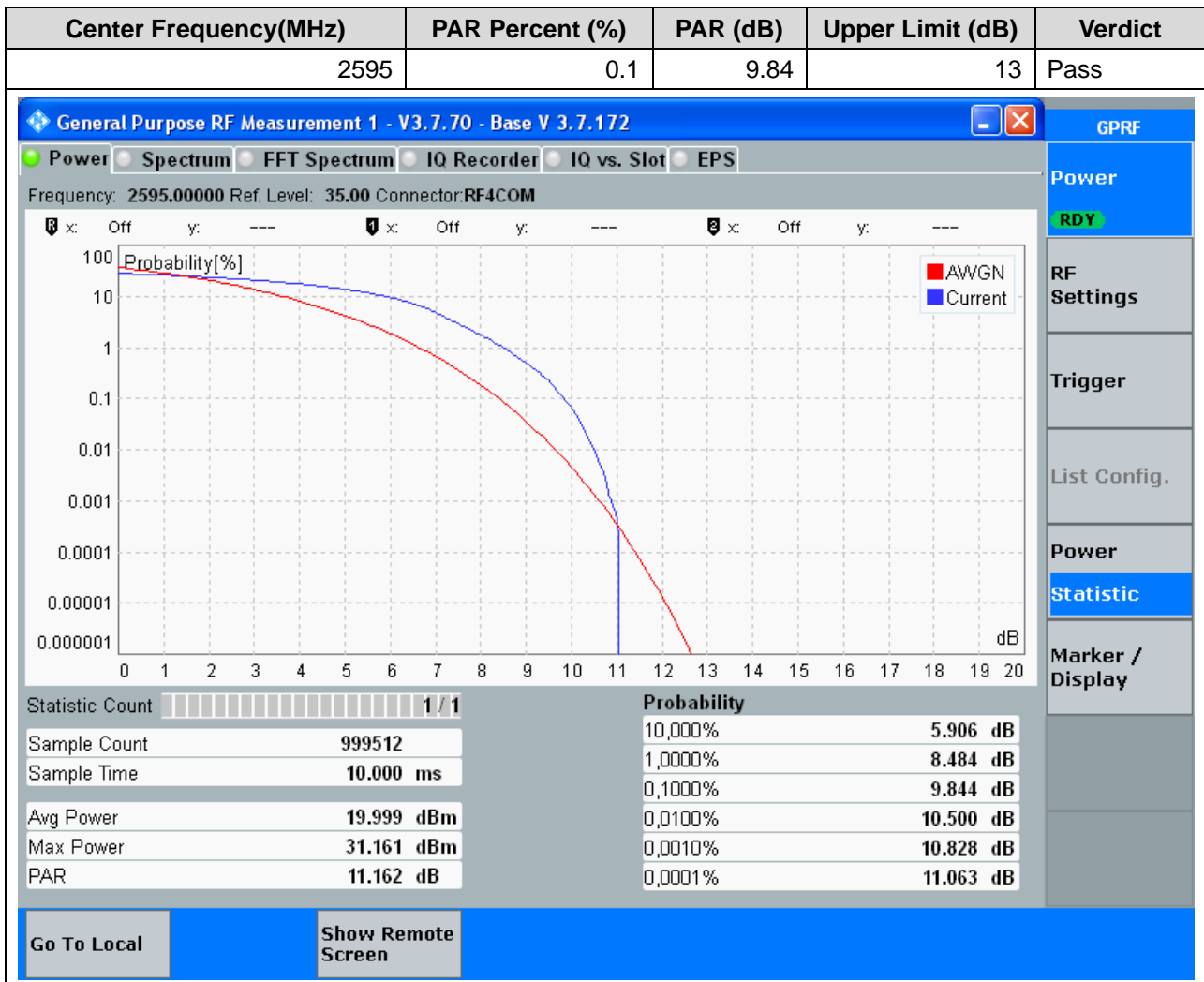
**6.12. LTE-A Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:12, Channel:21001|21199, Bandwidth:20|20MHz, Modulation:16QAM, RB Number:Full|Full, RB Position:Low|Low)**



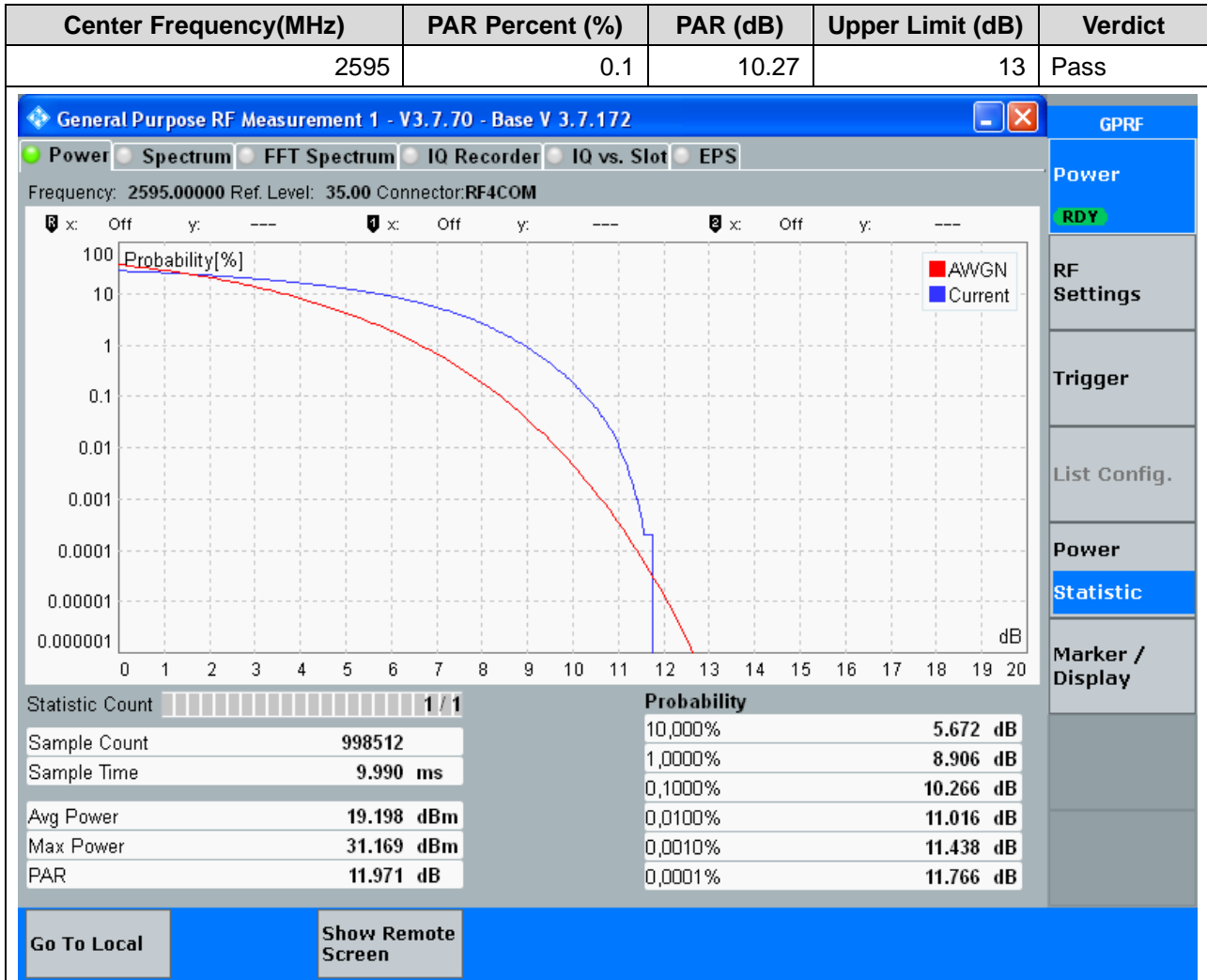


## 7. CA\_38C

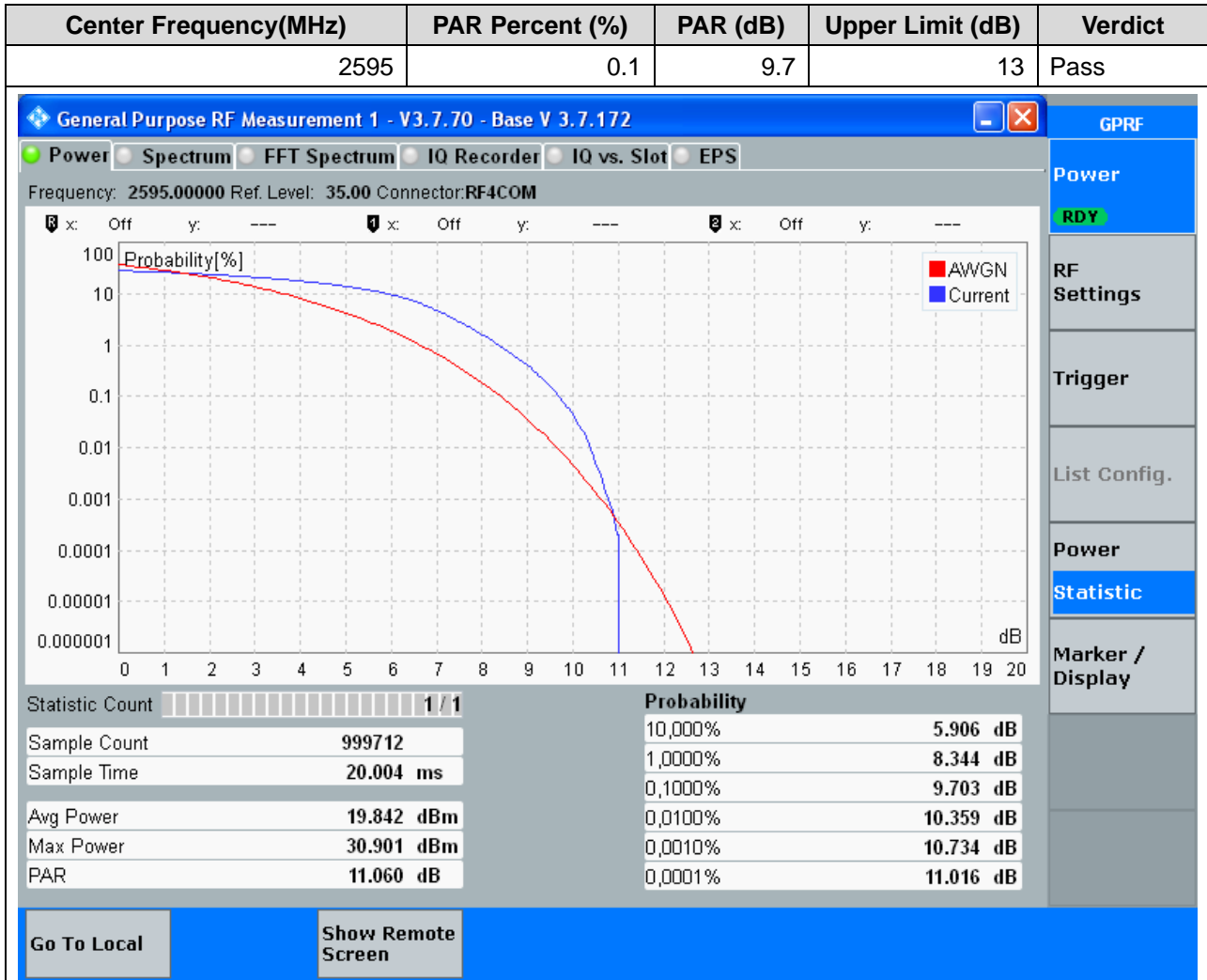
7.1. LTE-A Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:1, Channel:37925|38075, Bandwidth:15|15MHz, Modulation:QPSK, RB Number:Full|Full, RB Position:Low|Low)



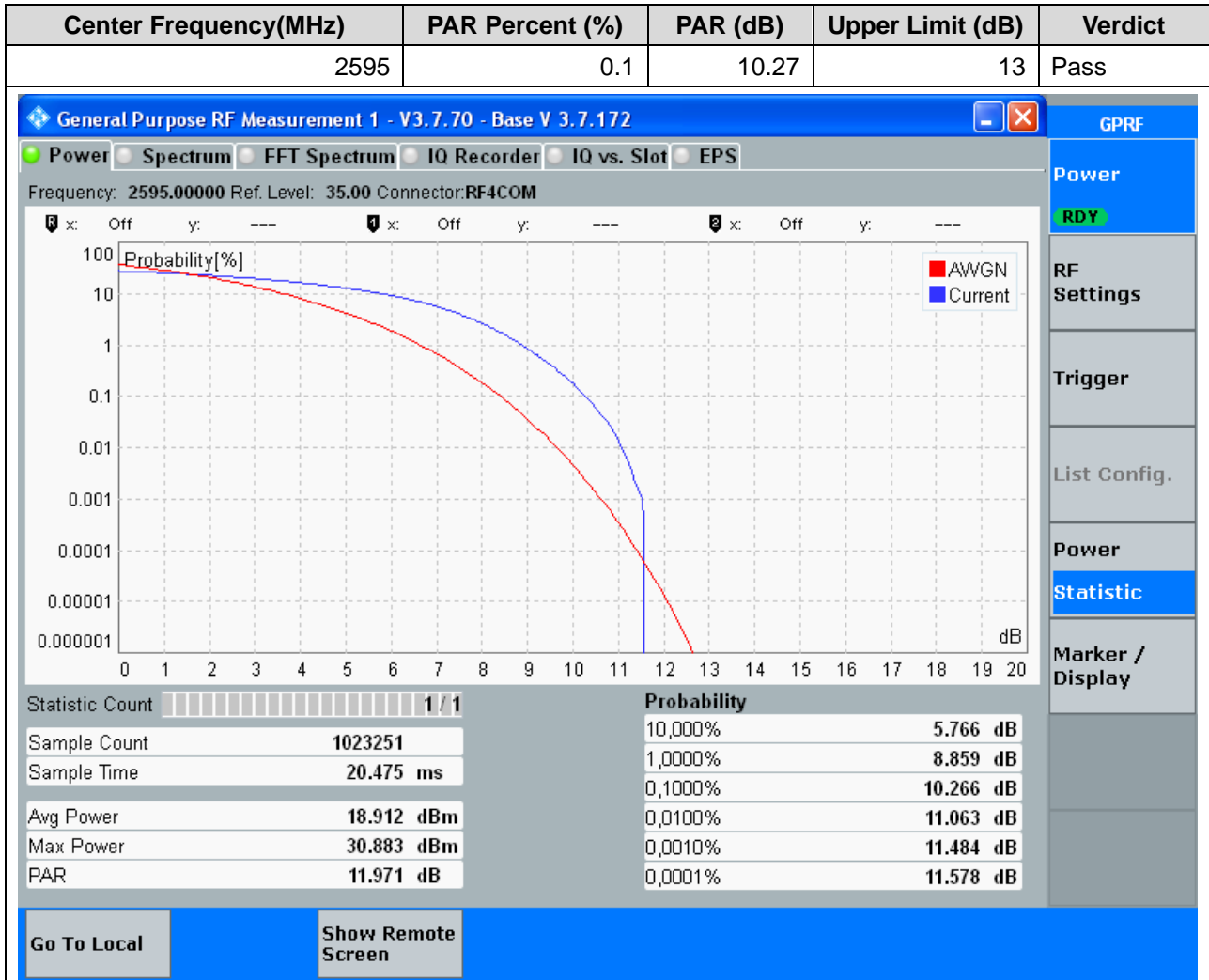
**7.2. LTE-A Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:2,  
Channel:37925|38075, Bandwidth:15|15MHz, Modulation:16QAM, RB  
Number:Full|Full, RB Position:Low|Low)**



**7.3. LTE-A Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:3,  
Channel:37901|38099, Bandwidth:20|20MHz, Modulation:QPSK, RB  
Number:Full|Full, RB Position:Low|Low)**



**7.4. LTE-A Peak to Average Ratio\_Part22-24-27(NTNV)(Subtest:4,  
Channel:37901|38099, Bandwidth:20|20MHz, Modulation:16QAM, RB  
Number:Full|Full, RB Position:Low|Low)**



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