

## EXHIBIT A. Peak to Average Ratio

### 1. WCDMA\_Band2

#### 1.1. WCDMA Peak to Average Ratio(NTNV)(Channel:9262)





## 1.3. WCDMA Peak to Average Ratio(NTNV)(Channel:9538)



## WCDMA\_Band5

### 2.1. WCDMA Peak to Average Ratio(NTNV)(Channel:4132)



## 2.2. WCDMA Peak to Average Ratio(NTNV)(Channel:4182)



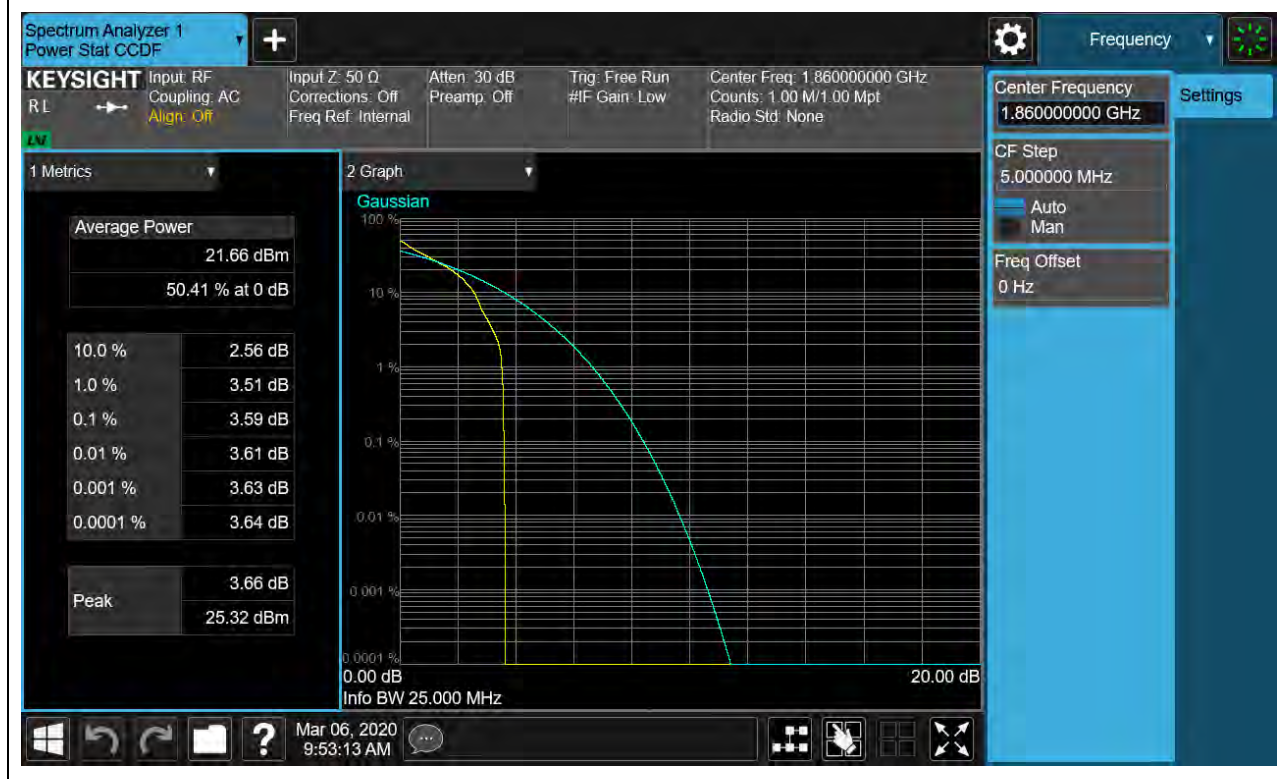
### 2.3. WCDMA Peak to Average Ratio(NTNV)(Channel:4233)



## 2. LTE\_Band2

### 2.1. LTE Peak to Average Ratio(NTNV)(Subtest:1, Channel:18700, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)

| Center Frequency(MHz) | PAR Percent (%) | PAR (dB) | Upper Limit (dB) | Verdict |
|-----------------------|-----------------|----------|------------------|---------|
| 1860                  | 0.1             | 3.59     | 13               | Pass    |



## 2.2. LTE Peak to Average Ratio(NTNV)(Subtest:2, Channel:18700, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)



## 2.3. LTE Peak to Average Ratio(NTNV)(Subtest:3, Channel:18700, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)



## 2.4. LTE Peak to Average Ratio(NTNV)(Subtest:4, Channel:18700, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)



## 2.5. LTE Peak to Average Ratio(NTNV)(Subtest:5, Channel:18900, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)



## 2.6. LTE Peak to Average Ratio(NTNV)(Subtest:6, Channel:18900, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)



## 2.7. LTE Peak to Average Ratio(NTNV)(Subtest:7, Channel:18900, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)



## 2.8. LTE Peak to Average Ratio(NTNV)(Subtest:8, Channel:18900, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)



## 2.9. LTE Peak to Average Ratio(NTNV)(Subtest:9, Channel:19100, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)



**2.10. LTE Peak to Average Ratio(NTNV)(Subtest:10, Channel:19100, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)**



## 2.11. LTE Peak to Average Ratio(NTNV)(Subtest:11, Channel:19100, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)



## 2.12. LTE Peak to Average Ratio(NTNV)(Subtest:12, Channel:19100, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)



### 3. LTE\_Band4

#### 3.1. LTE Peak to Average Ratio(NTNV)(Subtest:1, Channel:20050, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)



### 3.2. LTE Peak to Average Ratio(NTNV)(Subtest:2, Channel:20050, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)



### 3.3. LTE Peak to Average Ratio(NTNV)(Subtest:3, Channel:20050, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)



### 3.4. LTE Peak to Average Ratio(NTNV)(Subtest:4, Channel:20050, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)



### 3.5. LTE Peak to Average Ratio(NTNV)(Subtest:5, Channel:20175, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)



### 3.6. LTE Peak to Average Ratio(NTNV)(Subtest:6, Channel:20175, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)



### 3.7. LTE Peak to Average Ratio(NTNV)(Subtest:7, Channel:20175, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)



### 3.8. LTE Peak to Average Ratio(NTNV)(Subtest:8, Channel:20175, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)



## 3.9. LTE Peak to Average Ratio(NTNV)(Subtest:9, Channel:20300, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)



## 3.10. LTE Peak to Average Ratio(NTNV)(Subtest:10, Channel:20300, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)



### 3.11. LTE Peak to Average Ratio(NTNV)(Subtest:11, Channel:20300, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)



### 3.12. LTE Peak to Average Ratio(NTNV)(Subtest:12, Channel:20300, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)



## 4. LTE\_Band5

### 4.1. LTE Peak to Average Ratio(NTNV)(Subtest:1, Channel:20450, Bandwidth:10, Modulation:QPSK, RB Number: 1, RB Position:LOW)

| Center Frequency(MHz) | PAR Percent (%) | PAR (dB) | Upper Limit (dB) | Verdict |
|-----------------------|-----------------|----------|------------------|---------|
| 829                   | 0.1             | 3.59     | 13               | Pass    |



## 4.2. LTE Peak to Average Ratio(NTNV)(Subtest:2, Channel:20450, Bandwidth:10, Modulation:QPSK, RB Number: 50, RB Position:LOW)



## 4.3. LTE Peak to Average Ratio(NTNV)(Subtest:3, Channel:20450, Bandwidth:10, Modulation:Q16, RB Number: 1, RB Position:LOW)



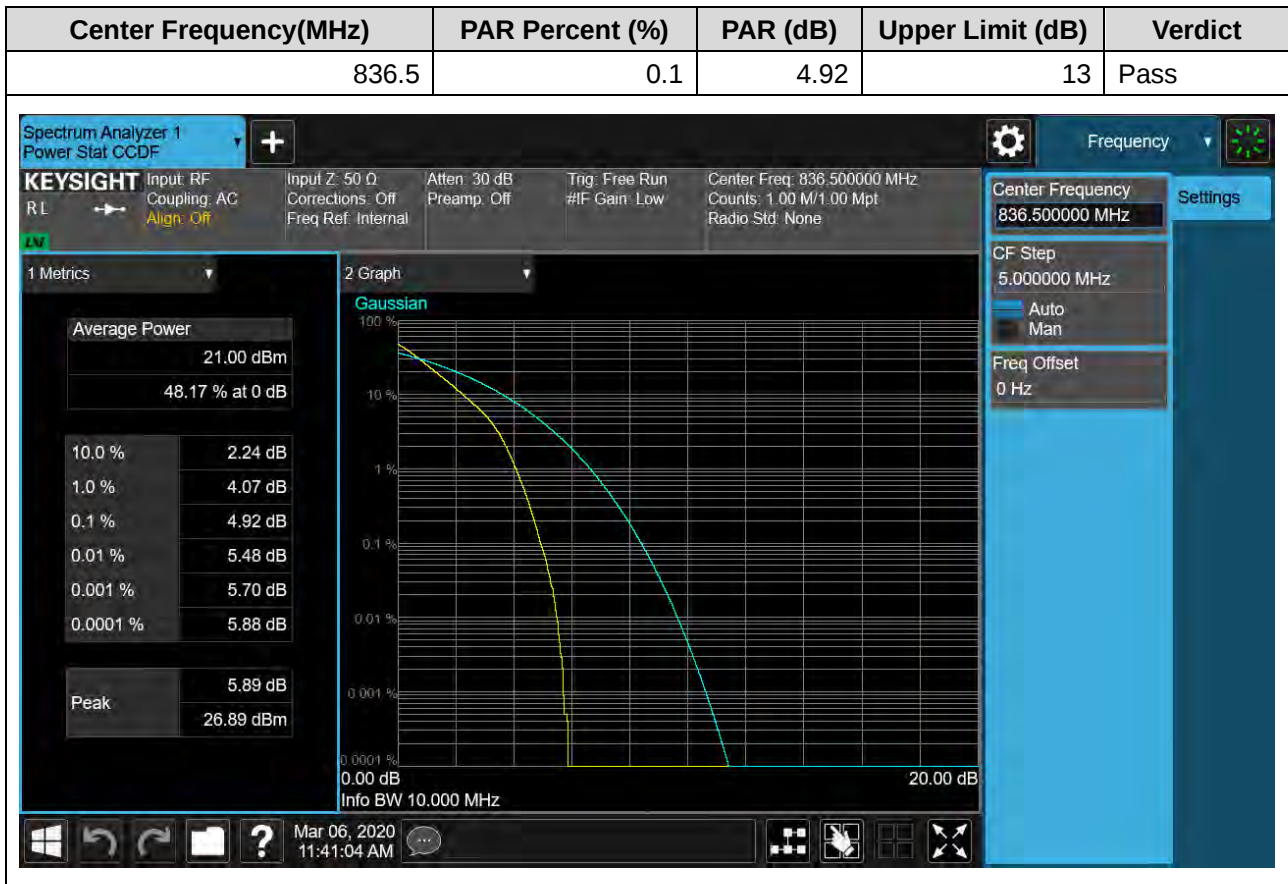
## 4.4. LTE Peak to Average Ratio(NTNV)(Subtest:4, Channel:20450, Bandwidth:10, Modulation:Q16, RB Number: 50, RB Position:LOW)



#### 4.5. LTE Peak to Average Ratio(NTNV)(Subtest:5, Channel:20525, Bandwidth:10, Modulation:QPSK, RB Number: 1, RB Position:LOW)



**4.6. LTE Peak to Average Ratio(NTNV)(Subtest:6, Channel:20525, Bandwidth:10, Modulation:QPSK, RB Number: 50, RB Position:LOW)**



## 4.7. LTE Peak to Average Ratio(NTNV)(Subtest:7, Channel:20525, Bandwidth:10, Modulation:Q16, RB Number: 1, RB Position:LOW)



## 4.8. LTE Peak to Average Ratio(NTNV)(Subtest:8, Channel:20525, Bandwidth:10, Modulation:Q16, RB Number: 50, RB Position:LOW)



## 4.9. LTE Peak to Average Ratio(NTNV)(Subtest:9, Channel:20600, Bandwidth:10, Modulation:QPSK, RB Number: 1, RB Position:LOW)



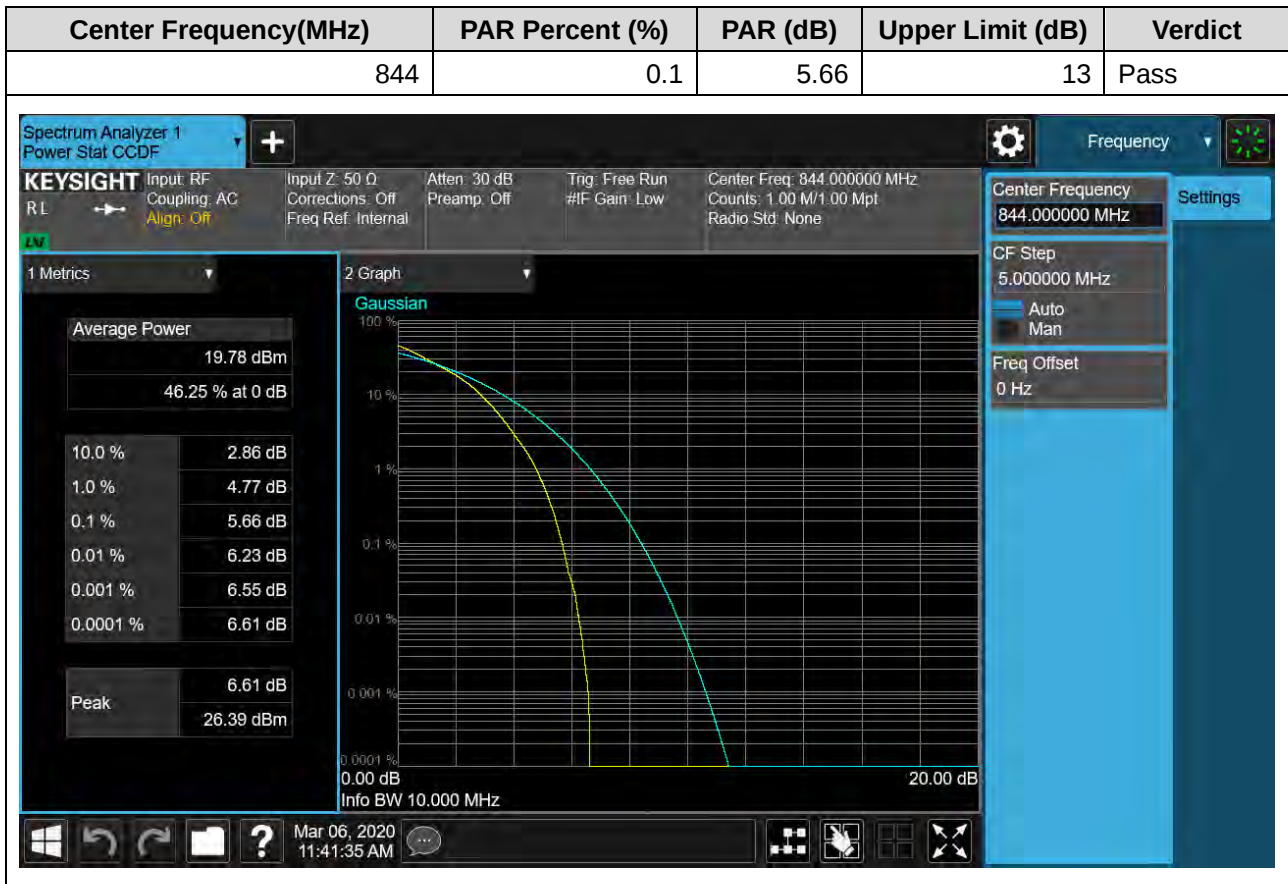
## 4.10. LTE Peak to Average Ratio(NTNV)(Subtest:10, Channel:20600, Bandwidth:10, Modulation:QPSK, RB Number: 50, RB Position:LOW)



## 4.11. LTE Peak to Average Ratio(NTNV)(Subtest:11, Channel:20600, Bandwidth:10, Modulation:Q16, RB Number: 1, RB Position:LOW)



**4.12. LTE Peak to Average Ratio(NTNV)(Subtest:12, Channel:20600, Bandwidth:10, Modulation:Q16, RB Number: 50, RB Position:LOW)**



END

## 5. LTE\_Band7

### 5.1. LTE Peak to Average Ratio(NTNV)(Subtest:1, Channel:20850, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)



## 5.2. LTE Peak to Average Ratio(NTNV)(Subtest:2, Channel:20850, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)



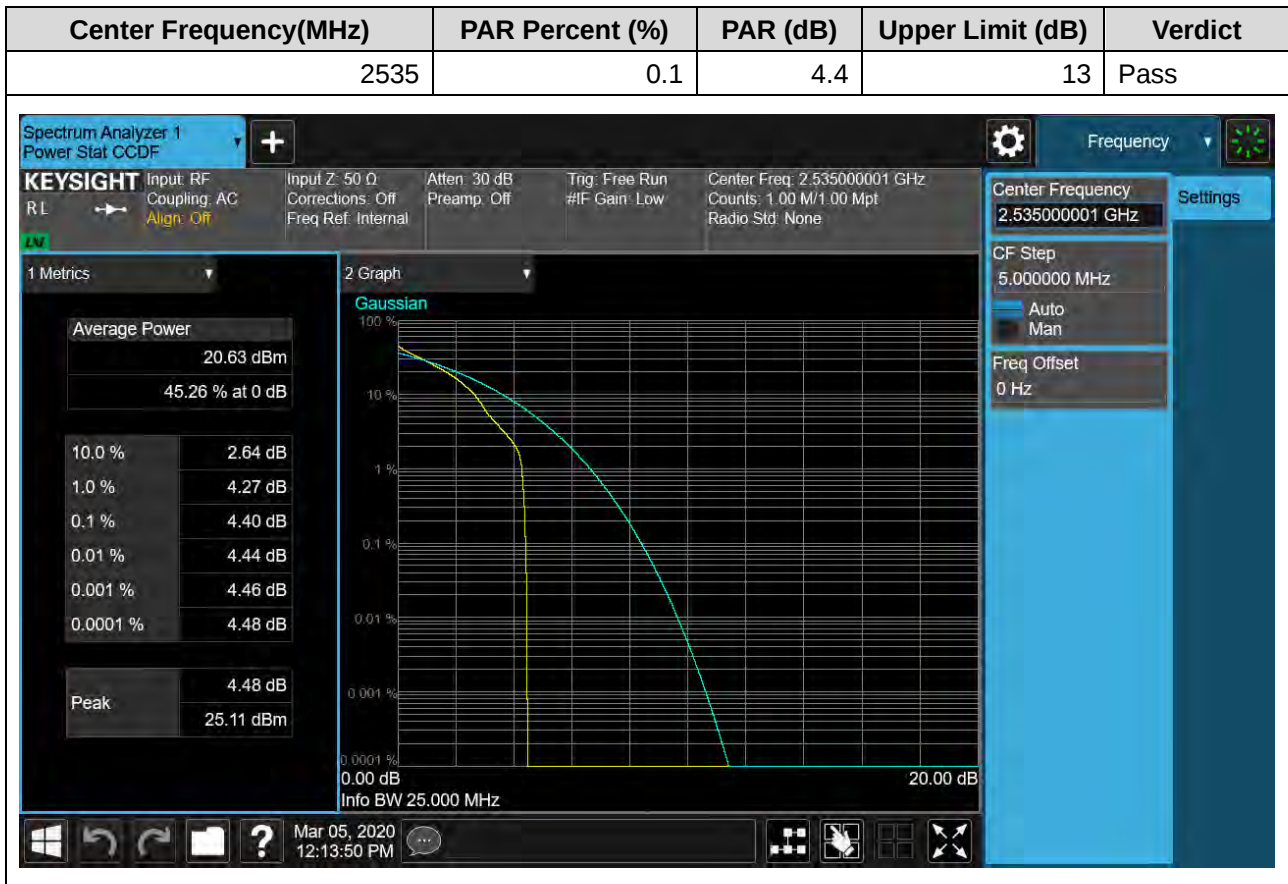
### 5.3. LTE Peak to Average Ratio(NTNV)(Subtest:3, Channel:20850, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)



## 5.4. LTE Peak to Average Ratio(NTNV)(Subtest:4, Channel:20850, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)



**5.5. LTE Peak to Average Ratio(NTNV)(Subtest:5, Channel:21100, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)**



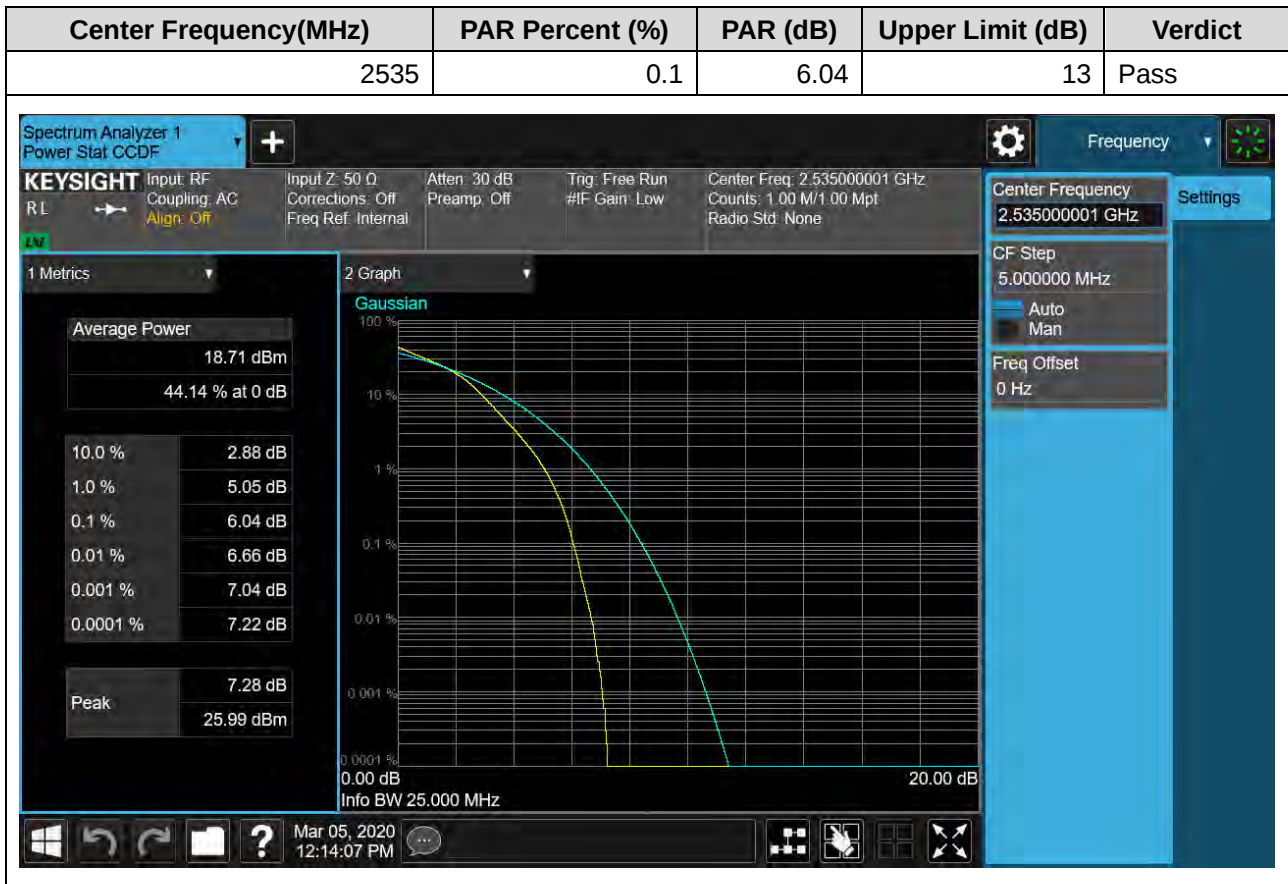
**5.6. LTE Peak to Average Ratio(NTNV)(Subtest:6, Channel:21100, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)**



### 5.7. LTE Peak to Average Ratio(NTNV)(Subtest:7, Channel:21100, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)



**5.8. LTE Peak to Average Ratio(NTNV)(Subtest:8, Channel:21100, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)**



### 5.9. LTE Peak to Average Ratio(NTNV)(Subtest:9, Channel:21350, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)



## 5.10. LTE Peak to Average Ratio(NTNV)(Subtest:10, Channel:21350, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)



## 5.11. LTE Peak to Average Ratio(NTNV)(Subtest:11, Channel:21350, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)



## 5.12. LTE Peak to Average Ratio(NTNV)(Subtest:12, Channel:21350, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)



## 6. LTE\_Band12

### 6.1. LTE Peak to Average Ratio(NTNV)(Subtest:1, Channel:23060, Bandwidth:10, Modulation:QPSK, RB Number: 1, RB Position:LOW)



## 6.2. LTE Peak to Average Ratio(NTNV)(Subtest:2, Channel:23060, Bandwidth:10, Modulation:QPSK, RB Number: 50, RB Position:LOW)



### 6.3. LTE Peak to Average Ratio(NTNV)(Subtest:3, Channel:23060, Bandwidth:10, Modulation:Q16, RB Number: 1, RB Position:LOW)



#### 6.4. LTE Peak to Average Ratio(NTNV)(Subtest:4, Channel:23060, Bandwidth:10, Modulation:Q16, RB Number: 50, RB Position:LOW)



## 6.5. LTE Peak to Average Ratio(NTNV)(Subtest:5, Channel:23095, Bandwidth:10, Modulation:QPSK, RB Number: 1, RB Position:LOW)



**6.6. LTE Peak to Average Ratio(NTNV)(Subtest:6, Channel:23095, Bandwidth:10, Modulation:QPSK, RB Number: 50, RB Position:LOW)**



**6.7. LTE Peak to Average Ratio(NTNV)(Subtest:7, Channel:23095, Bandwidth:10, Modulation:Q16, RB Number: 1, RB Position:LOW)**



## 6.8. LTE Peak to Average Ratio(NTNV)(Subtest:8, Channel:23095, Bandwidth:10, Modulation:Q16, RB Number: 50, RB Position:LOW)



## 6.9. LTE Peak to Average Ratio(NTNV)(Subtest:9, Channel:23130, Bandwidth:10, Modulation:QPSK, RB Number: 1, RB Position:LOW)



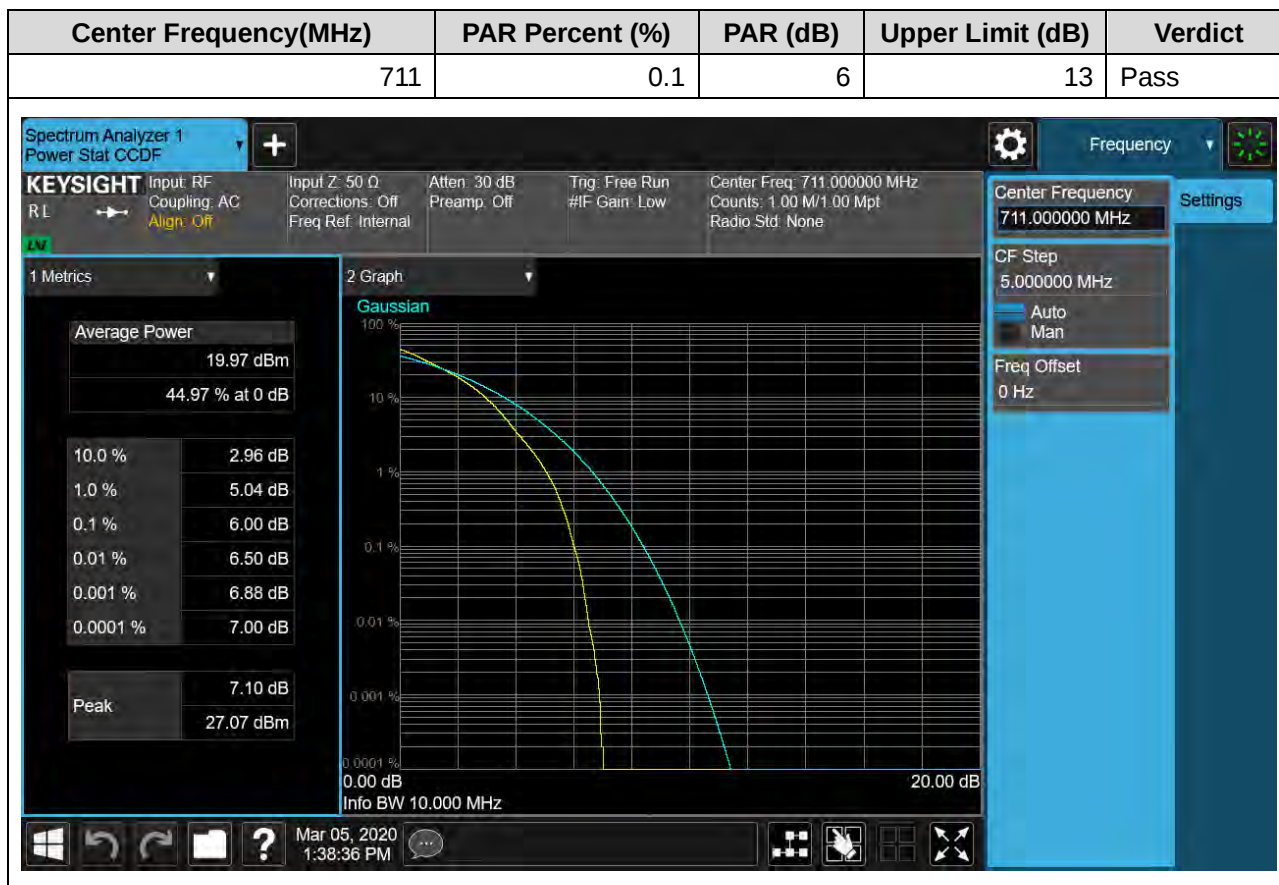
## 6.10. LTE Peak to Average Ratio(NTNV)(Subtest:10, Channel:23130, Bandwidth:10, Modulation:QPSK, RB Number: 50, RB Position:LOW)



## 6.11. LTE Peak to Average Ratio(NTNV)(Subtest:11, Channel:23130, Bandwidth:10, Modulation:Q16, RB Number: 1, RB Position:LOW)



## 6.12. LTE Peak to Average Ratio(NTNV)(Subtest:12, Channel:23130, Bandwidth:10, Modulation:Q16, RB Number: 50, RB Position:LOW)



## 7. LTE\_Band13

### 7.1. LTE Peak to Average Ratio(NTNV)(Subtest:1, Channel:23230, Bandwidth:10, Modulation:QPSK, RB Number: 1, RB Position:LOW)

| Center Frequency(MHz) | PAR Percent (%) | PAR (dB) | Upper Limit (dB) | Verdict |
|-----------------------|-----------------|----------|------------------|---------|
| 782                   | 0.1             | 4.41     | 13               | Pass    |



## 7.2. LTE Peak to Average Ratio(NTNV)(Subtest:2, Channel:23230, Bandwidth:10, Modulation:QPSK, RB Number: 50, RB Position:LOW)



## 7.3. LTE Peak to Average Ratio(NTNV)(Subtest:3, Channel:23230, Bandwidth:10, Modulation:Q16, RB Number: 1, RB Position:LOW)



## 7.4. LTE Peak to Average Ratio(NTNV)(Subtest:4, Channel:23230, Bandwidth:10, Modulation:Q16, RB Number: 50, RB Position:LOW)



## 8. LTE\_Band17

### 8.1. LTE Peak to Average Ratio(NTNV)(Subtest:1, Channel:23780, Bandwidth:10, Modulation:QPSK, RB Number: 1, RB Position:LOW)

| Center Frequency(MHz) | PAR Percent (%) | PAR (dB) | Upper Limit (dB) | Verdict |
|-----------------------|-----------------|----------|------------------|---------|
| 709                   | 0.1             | 4.16     | 13               | Pass    |



## 8.2. LTE Peak to Average Ratio(NTNV)(Subtest:2, Channel:23780, Bandwidth:10, Modulation:QPSK, RB Number: 50, RB Position:LOW)



### 8.3. LTE Peak to Average Ratio(NTNV)(Subtest:3, Channel:23780, Bandwidth:10, Modulation:Q16, RB Number: 1, RB Position:LOW)



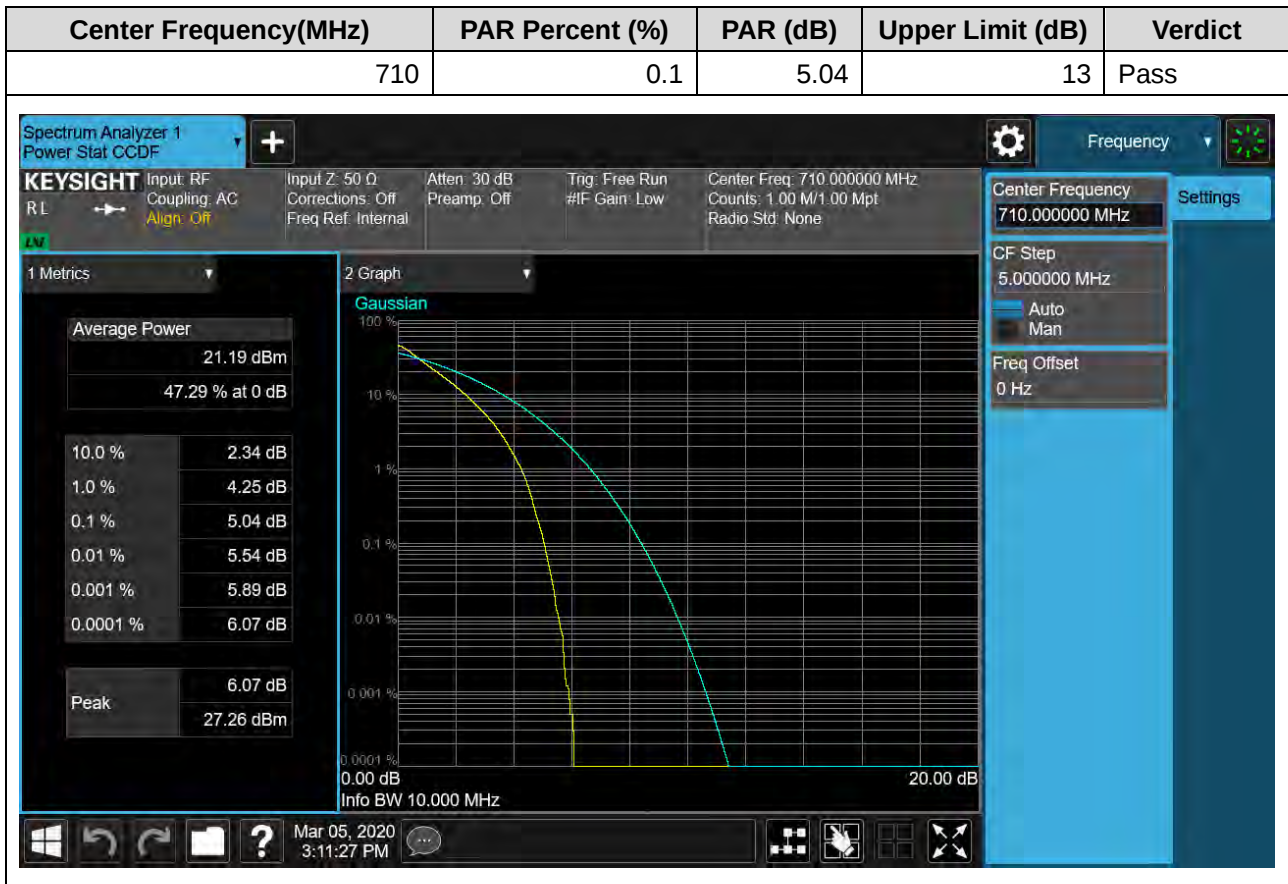
## 8.4. LTE Peak to Average Ratio(NTNV)(Subtest:4, Channel:23780, Bandwidth:10, Modulation:Q16, RB Number: 50, RB Position:LOW)



## 8.5. LTE Peak to Average Ratio(NTNV)(Subtest:5, Channel:23790, Bandwidth:10, Modulation:QPSK, RB Number: 1, RB Position:LOW)



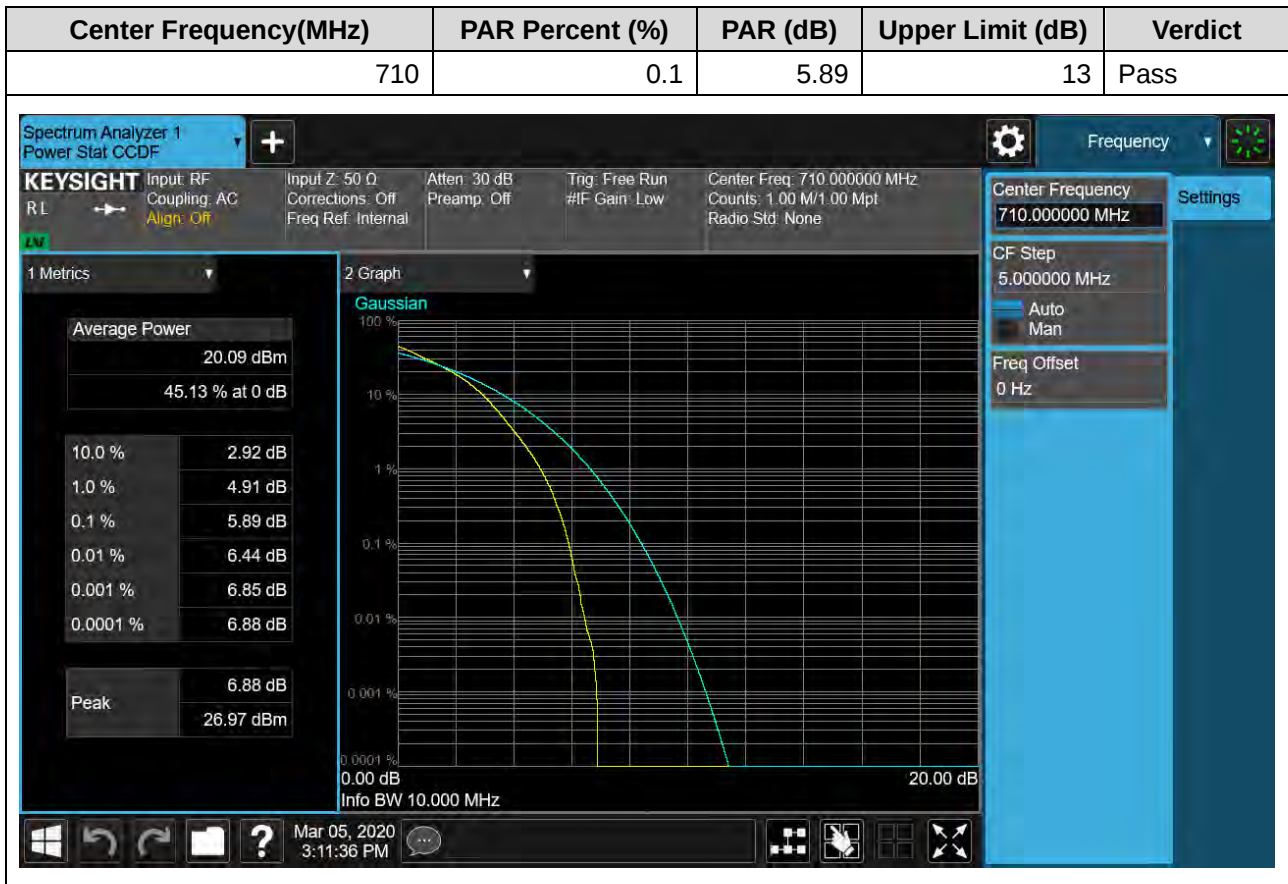
## 8.6. LTE Peak to Average Ratio(NTNV)(Subtest:6, Channel:23790, Bandwidth:10, Modulation:QPSK, RB Number: 50, RB Position:LOW)



### 8.7. LTE Peak to Average Ratio(NTNV)(Subtest:7, Channel:23790, Bandwidth:10, Modulation:Q16, RB Number: 1, RB Position:LOW)



**8.8. LTE Peak to Average Ratio(NTNV)(Subtest:8, Channel:23790, Bandwidth:10, Modulation:Q16, RB Number: 50, RB Position:LOW)**



## 8.9. LTE Peak to Average Ratio(NTNV)(Subtest:9, Channel:23800, Bandwidth:10, Modulation:QPSK, RB Number: 1, RB Position:LOW)



## 8.10. LTE Peak to Average Ratio(NTNV)(Subtest:10, Channel:23800, Bandwidth:10, Modulation:QPSK, RB Number: 50, RB Position:LOW)



## 8.11. LTE Peak to Average Ratio(NTNV)(Subtest:11, Channel:23800, Bandwidth:10, Modulation:Q16, RB Number: 1, RB Position:LOW)



## 8.12. LTE Peak to Average Ratio(NTNV)(Subtest:12, Channel:23800, Bandwidth:10, Modulation:Q16, RB Number: 50, RB Position:LOW)



## 9. LTE\_Band25

### 9.1. LTE Peak to Average Ratio(NTNV)(Subtest:1, Channel:26140, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)

| Center Frequency(MHz) | PAR Percent (%) | PAR (dB) | Upper Limit (dB) | Verdict |
|-----------------------|-----------------|----------|------------------|---------|
| 1860                  | 0.1             | 3.67     | 13               | Pass    |



## 9.2. LTE Peak to Average Ratio(NTNV)(Subtest:2, Channel:26140, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)



### 9.3. LTE Peak to Average Ratio(NTNV)(Subtest:3, Channel:26140, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)



#### 9.4. LTE Peak to Average Ratio(NTNV)(Subtest:4, Channel:26140, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)



**9.5. LTE Peak to Average Ratio(NTNV)(Subtest:5, Channel:26365, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)**



**9.6. LTE Peak to Average Ratio(NTNV)(Subtest:6, Channel:26365, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)**



**9.7. LTE Peak to Average Ratio(NTNV)(Subtest:7, Channel:26365, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)**



**9.8. LTE Peak to Average Ratio(NTNV)(Subtest:8, Channel:26365, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)**



**9.9. LTE Peak to Average Ratio(NTNV)(Subtest:9, Channel:26590, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)**



**9.10. LTE Peak to Average Ratio(NTNV)(Subtest:10, Channel:26590, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)**



## 9.11. LTE Peak to Average Ratio(NTNV)(Subtest:11, Channel:26590, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)



## 9.12. LTE Peak to Average Ratio(NTNV)(Subtest:12, Channel:26590, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)

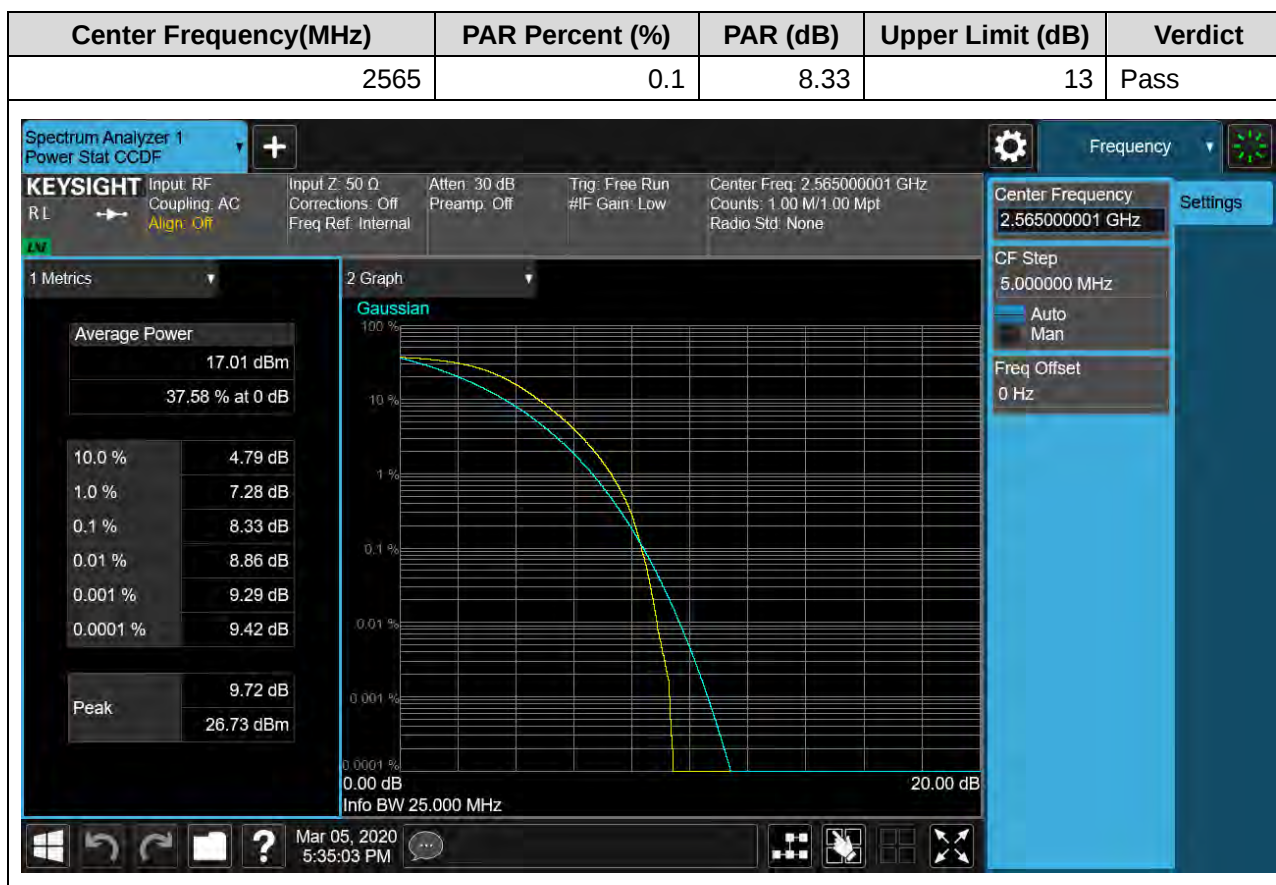


## 10. LTE\_Band41 100M

10.1. LTE Peak to Average Ratio(NTNV)(Subtest:1, Channel:40340, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)



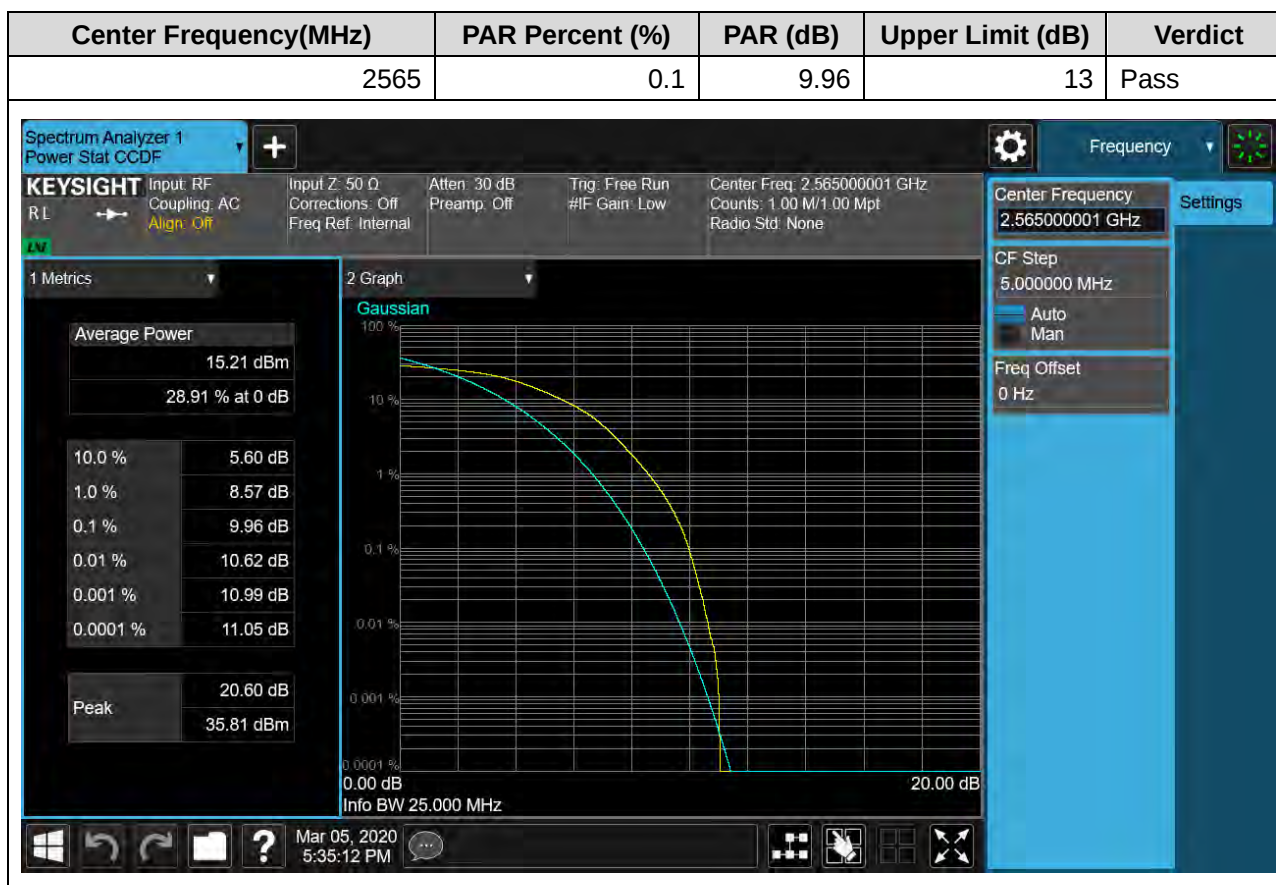
## 10.2. LTE Peak to Average Ratio(NTNV)(Subtest:2, Channel:40340, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)



### 10.3. LTE Peak to Average Ratio(NTNV)(Subtest:3, Channel:40340, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)



#### 10.4. LTE Peak to Average Ratio(NTNV)(Subtest:4, Channel:40340, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)



# 10.5. LTE Peak to Average Ratio(NTNV)(Subtest:5, Channel:40740, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)



# 10.6. LTE Peak to Average Ratio(NTNV)(Subtest:6, Channel:40740, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)



## 10.7. LTE Peak to Average Ratio(NTNV)(Subtest:7, Channel:40740, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)



# 10.8. LTE Peak to Average Ratio(NTNV)(Subtest:8, Channel:40740, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)



# 10.9. LTE Peak to Average Ratio(NTNV)(Subtest:9, Channel:41140, Bandwidth:20, Modulation:QPSK, RB Number: 1, RB Position:LOW)



# 10.10. LTE Peak to Average Ratio(NTNV)(Subtest:10, Channel:41140, Bandwidth:20, Modulation:QPSK, RB Number: 100, RB Position:LOW)



## 10.11. LTE Peak to Average Ratio(NTNV)(Subtest:11, Channel:41140, Bandwidth:20, Modulation:Q16, RB Number: 1, RB Position:LOW)



**10.12. LTE Peak to Average Ratio(NTNV)(Subtest:12, Channel:41140, Bandwidth:20, Modulation:Q16, RB Number: 100, RB Position:LOW)**

