

# APPENDIX REPORT

|                 |                 |                     |              |
|-----------------|-----------------|---------------------|--------------|
| Project No.     | SHT2206096801EW | Radio Specification | GSM          |
| Test sample No. | YPHT22060968002 | Model No.           | S301A        |
| Start test date | 2022/7/7        | Finish date         | 2022/7/7     |
| Temperature     | 25.2℃           | Humidity            | 35%          |
| Test Engineer   | Tiancheng.Huang | Auditor             | Xiaodong Zhu |

| Appendix clause | Test item                              | Result |
|-----------------|----------------------------------------|--------|
| A               | Conducted Output Power                 | PASS   |
| B               | Peak-to-Average Ratio                  | PASS   |
| C               | 26 dB Bandwidth and Occupied Bandwidth | PASS   |
| D               | Band edge                              | PASS   |
| E               | Conducted Spurious Emission            | PASS   |
| F               | Frequency Stability                    | PASS   |
| G               | ERP and EIRP                           | PASS   |

## 8.1 Appendix A: Conducted Output Power

### Test Result

| Band    | Channel | PCL | Power(dBm) | Limit(dBm) | Verdict |
|---------|---------|-----|------------|------------|---------|
| GSM850  | 128     | 5   | 32.38      | 38.5       | PASS    |
| GSM850  | 190     | 5   | 32.56      | 38.5       | PASS    |
| GSM850  | 251     | 5   | 32.36      | 38.5       | PASS    |
| GSM1900 | 512     | 0   | 29.17      | 33         | PASS    |
| GSM1900 | 661     | 0   | 28.98      | 33         | PASS    |
| GSM1900 | 810     | 0   | 28.50      | 33         | PASS    |

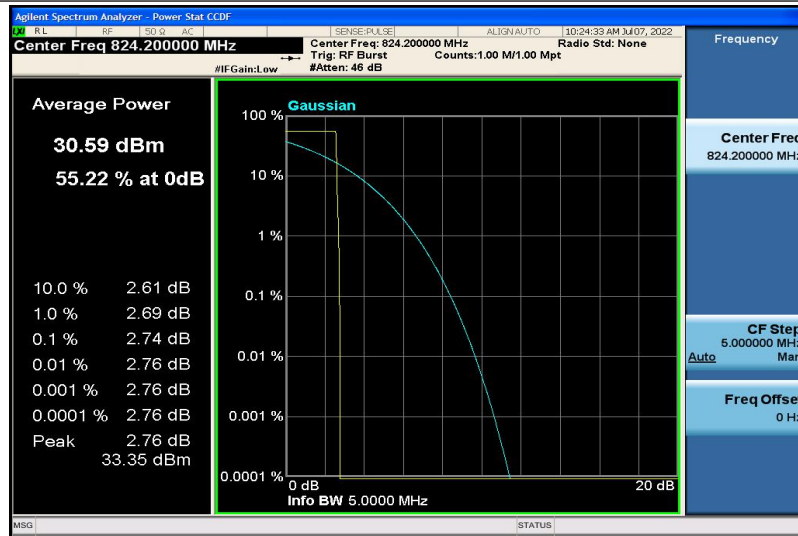
| Band     | Channel | PCL | Slot | Power(dBm) | Limit(dBm) | Verdict |
|----------|---------|-----|------|------------|------------|---------|
| GPRS850  | 128     | 5   | 1    | 32.35      | 38.5       | PASS    |
| GPRS850  | 128     | 5   | 2    | 30.47      | 38.5       | PASS    |
| GPRS850  | 128     | 5   | 3    | 28.57      | 38.5       | PASS    |
| GPRS850  | 128     | 5   | 4    | 25.97      | 38.5       | PASS    |
| GPRS850  | 190     | 5   | 1    | 32.45      | 38.5       | PASS    |
| GPRS850  | 190     | 5   | 2    | 30.68      | 38.5       | PASS    |
| GPRS850  | 190     | 5   | 3    | 28.55      | 38.5       | PASS    |
| GPRS850  | 190     | 5   | 4    | 26.20      | 38.5       | PASS    |
| GPRS850  | 251     | 5   | 1    | 32.28      | 38.5       | PASS    |
| GPRS850  | 251     | 5   | 2    | 30.58      | 38.5       | PASS    |
| GPRS850  | 251     | 5   | 3    | 28.48      | 38.5       | PASS    |
| GPRS850  | 251     | 5   | 4    | 26.15      | 38.5       | PASS    |
| GPRS1900 | 512     | 0   | 1    | 29.05      | 33         | PASS    |
| GPRS1900 | 512     | 0   | 2    | 27.63      | 33         | PASS    |
| GPRS1900 | 512     | 0   | 3    | 26.00      | 33         | PASS    |
| GPRS1900 | 512     | 0   | 4    | 23.85      | 33         | PASS    |
| GPRS1900 | 661     | 0   | 1    | 28.68      | 33         | PASS    |
| GPRS1900 | 661     | 0   | 2    | 27.26      | 33         | PASS    |
| GPRS1900 | 661     | 0   | 3    | 25.57      | 33         | PASS    |
| GPRS1900 | 661     | 0   | 4    | 23.36      | 33         | PASS    |
| GPRS1900 | 810     | 0   | 1    | 28.15      | 33         | PASS    |
| GPRS1900 | 810     | 0   | 2    | 26.63      | 33         | PASS    |
| GPRS1900 | 810     | 0   | 3    | 24.88      | 33         | PASS    |
| GPRS1900 | 810     | 0   | 4    | 22.64      | 33         | PASS    |

## 8.2 Appendix B: Peak-to-Average Ratio

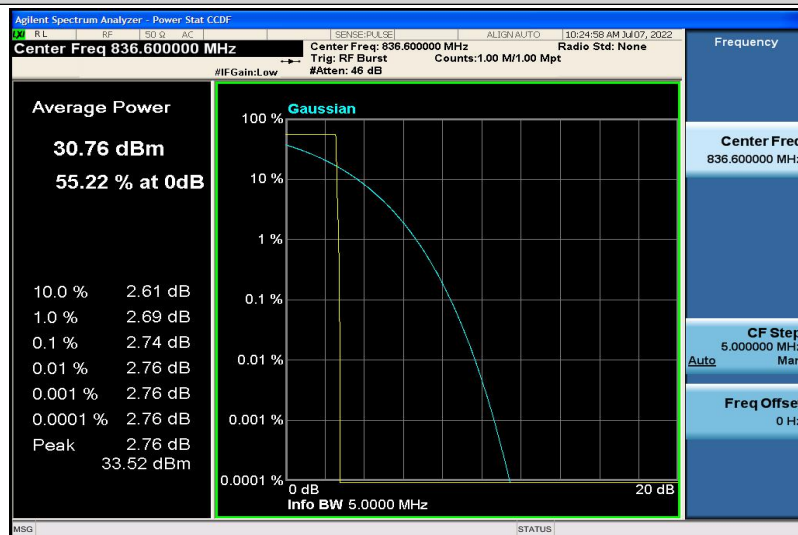
### Test Result

| Band     | Channel | Peak-to-Average Ratio(dB) | Limit(dBm) | Verdict |
|----------|---------|---------------------------|------------|---------|
| GSM850   | 128     | 2.74                      | 13         | PASS    |
| GSM850   | 190     | 2.74                      | 13         | PASS    |
| GSM850   | 251     | 2.73                      | 13         | PASS    |
| GPRS850  | 128     | 2.72                      | 13         | PASS    |
| GPRS850  | 190     | 2.72                      | 13         | PASS    |
| GPRS850  | 251     | 2.72                      | 13         | PASS    |
| GSM1900  | 512     | 2.72                      | 13         | PASS    |
| GSM1900  | 661     | 2.75                      | 13         | PASS    |
| GSM1900  | 810     | 2.76                      | 13         | PASS    |
| GPRS1900 | 512     | 2.72                      | 13         | PASS    |
| GPRS1900 | 661     | 2.74                      | 13         | PASS    |
| GPRS1900 | 810     | 2.76                      | 13         | PASS    |

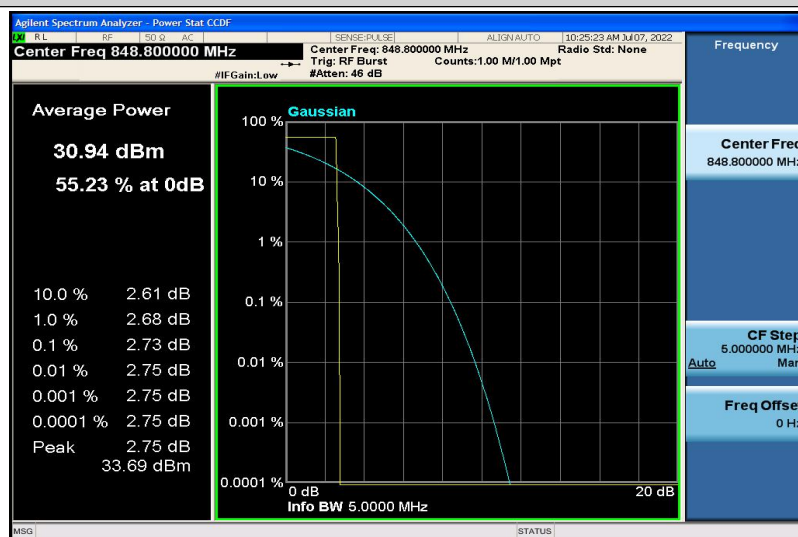
## Test Graphs



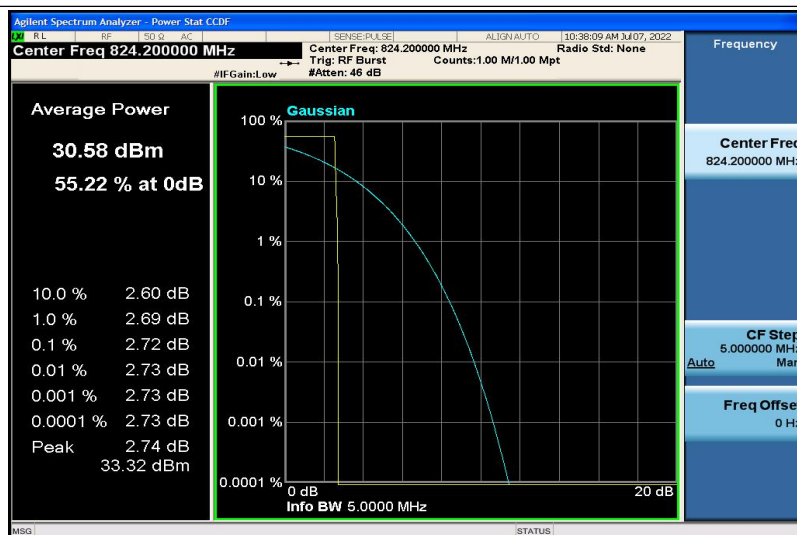
GSM850-128



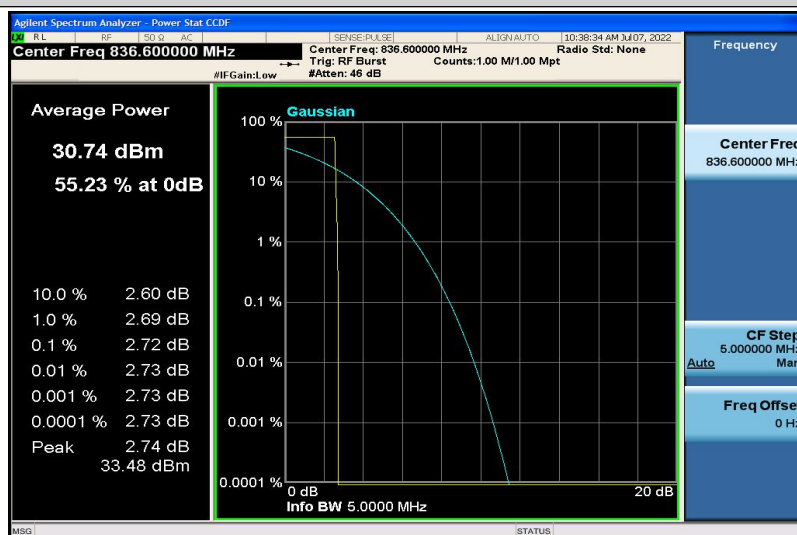
GSM850-190



GSM850-251



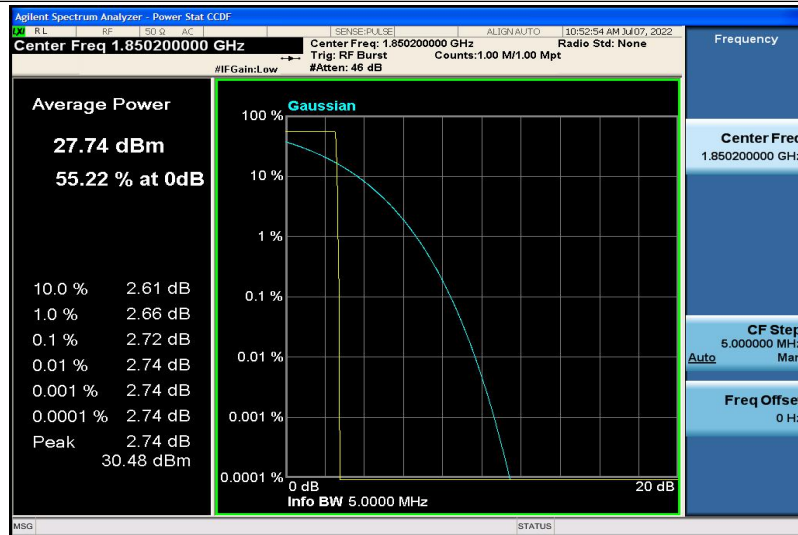
GPRS850-128



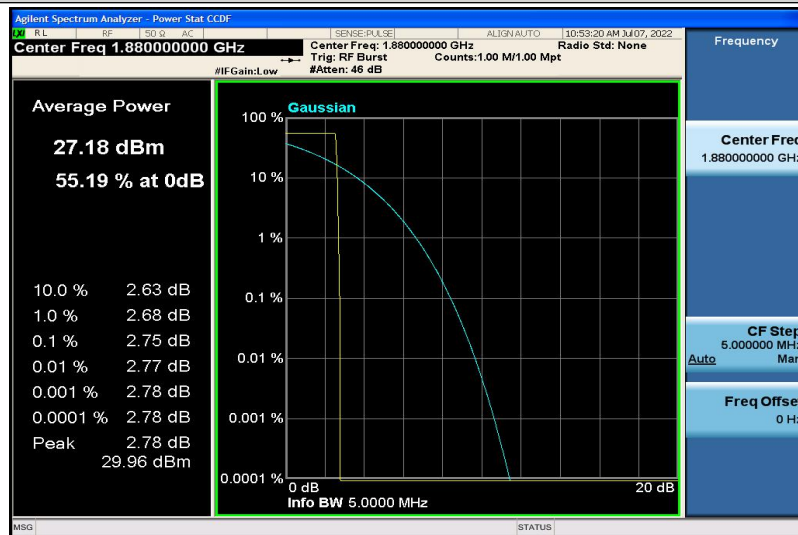
GPRS850-190



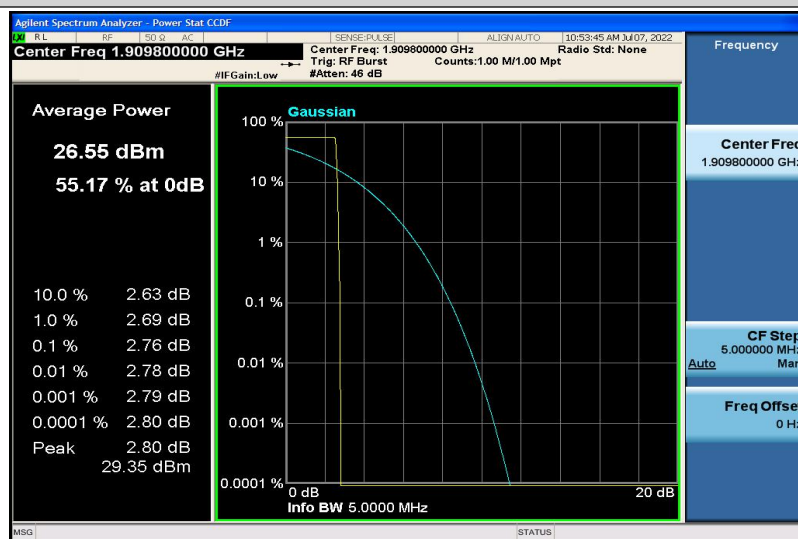
GPRS850-251



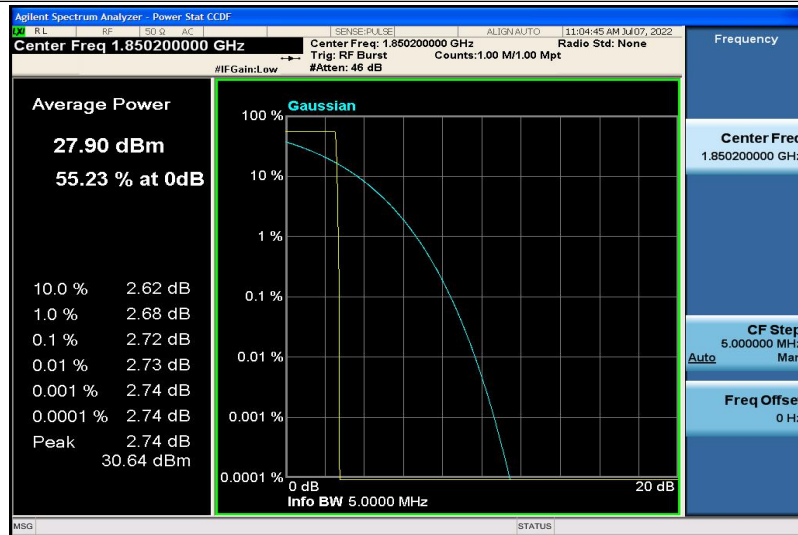
GSM1900-512



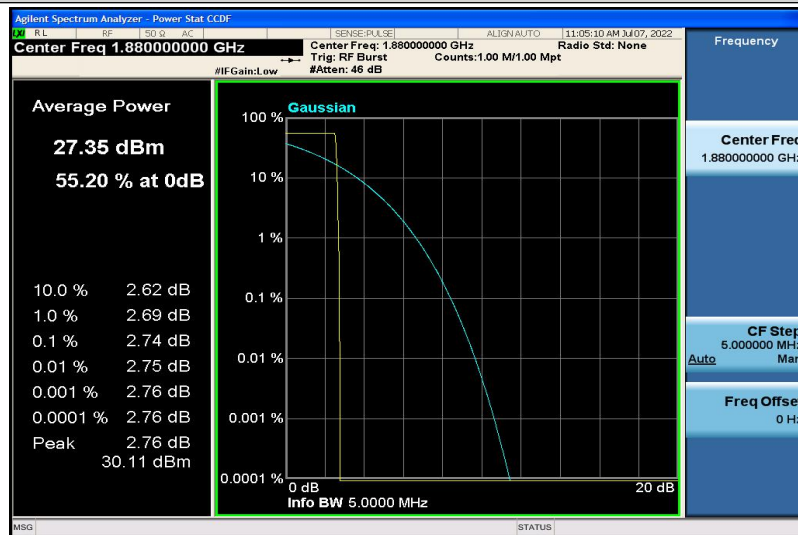
GSM1900-661



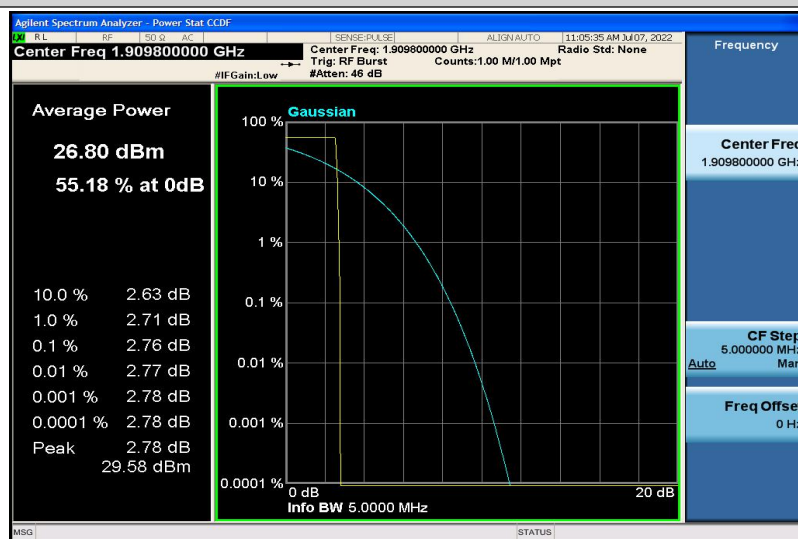
GSM1900-810



GPRS1900-512



GPRS1900-661



GPRS1900-810

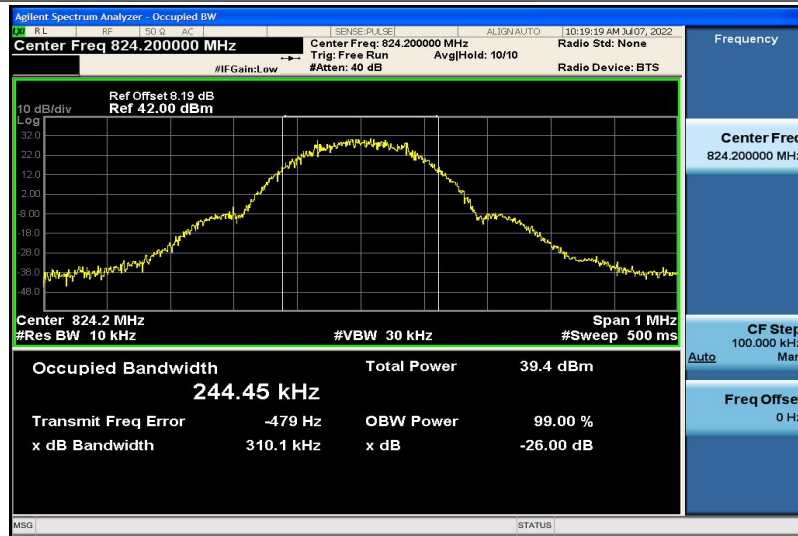


### 8.3 Appendix C: 26dB Bandwidth and Occupied Bandwidth

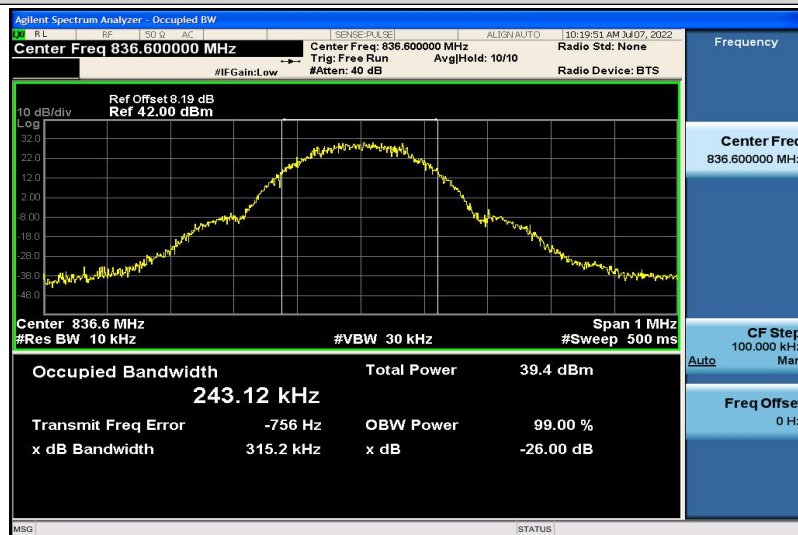
#### Test Result

| Band     | Channel | Occupied Bandwidth<br>(kHz) | 26dB Bandwidth<br>(kHz) | Limit(kHz) | Verdict |
|----------|---------|-----------------------------|-------------------------|------------|---------|
| GSM850   | 128     | 244.45                      | 310.1                   | ---        | PASS    |
| GSM850   | 190     | 243.12                      | 315.2                   | ---        | PASS    |
| GSM850   | 251     | 245.16                      | 312.7                   | ---        | PASS    |
| GPRS850  | 128     | 246.18                      | 317.7                   | ---        | PASS    |
| GPRS850  | 190     | 243.09                      | 314.8                   | ---        | PASS    |
| GPRS850  | 251     | 244.56                      | 311.7                   | ---        | PASS    |
| GSM1900  | 512     | 242.75                      | 313.5                   | ---        | PASS    |
| GSM1900  | 661     | 244.43                      | 316.0                   | ---        | PASS    |
| GSM1900  | 810     | 244.07                      | 314.4                   | ---        | PASS    |
| GPRS1900 | 512     | 243.94                      | 313.6                   | ---        | PASS    |
| GPRS1900 | 661     | 245.48                      | 315.0                   | ---        | PASS    |
| GPRS1900 | 810     | 244.24                      | 315.9                   | ---        | PASS    |

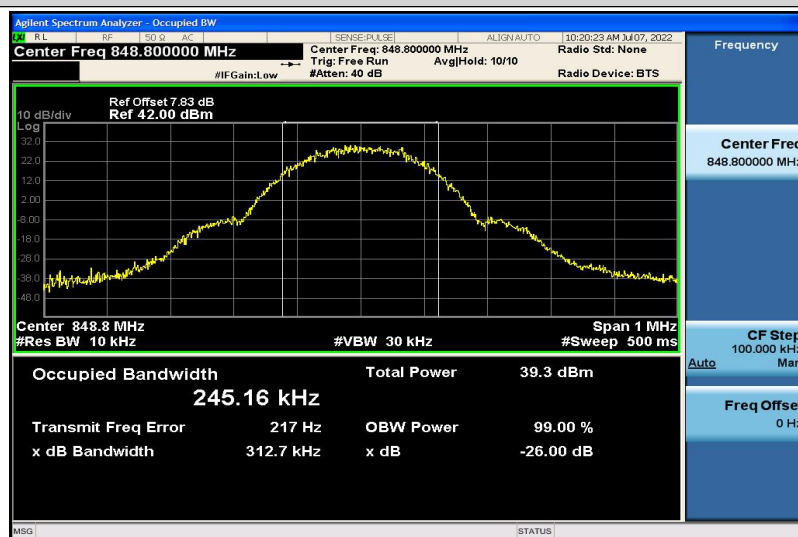
## Test Graphs



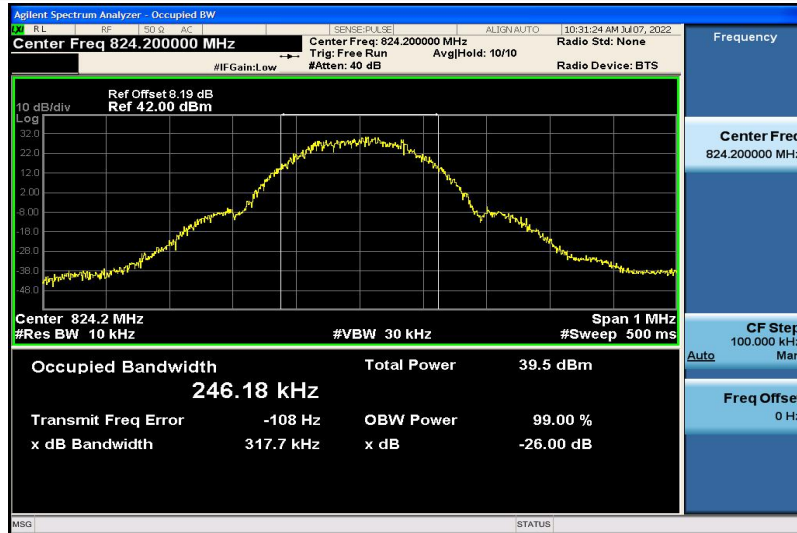
GSM850-128



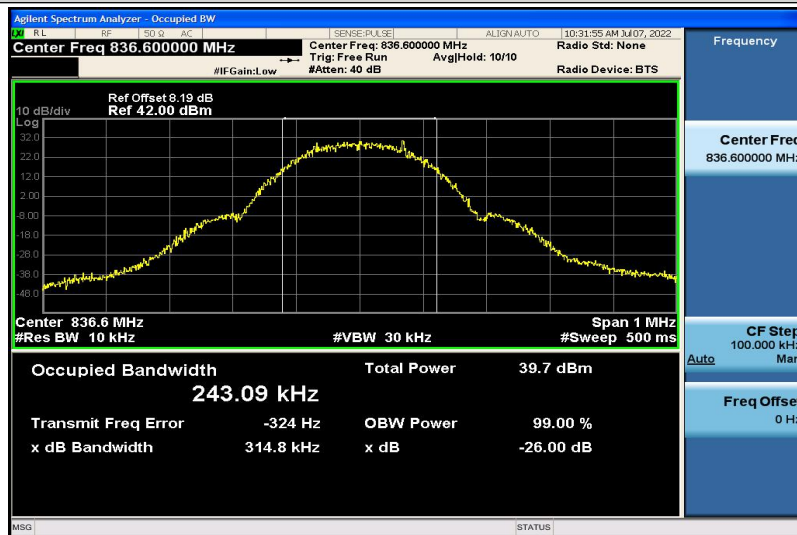
GSM850-190



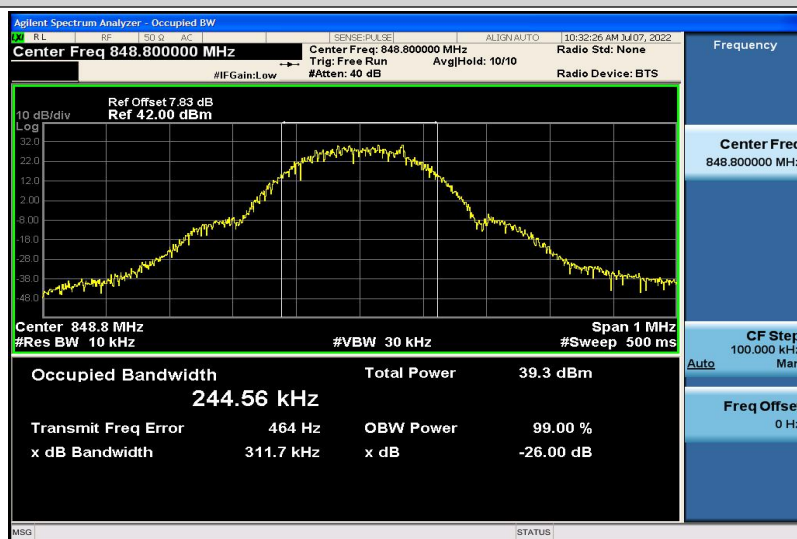
GSM850-251



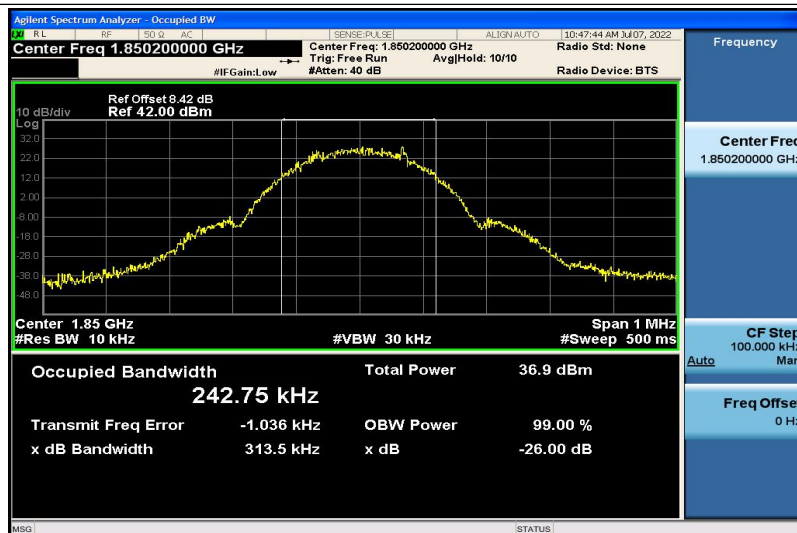
GPRS850-128



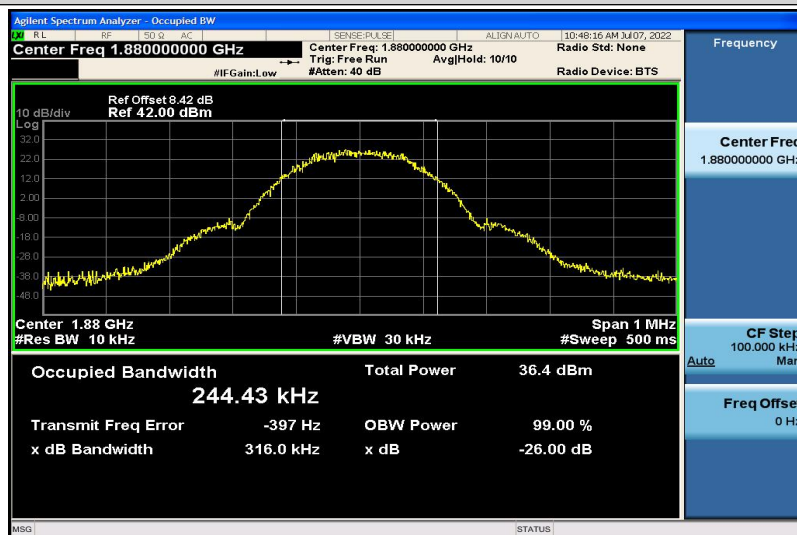
GPRS850-190



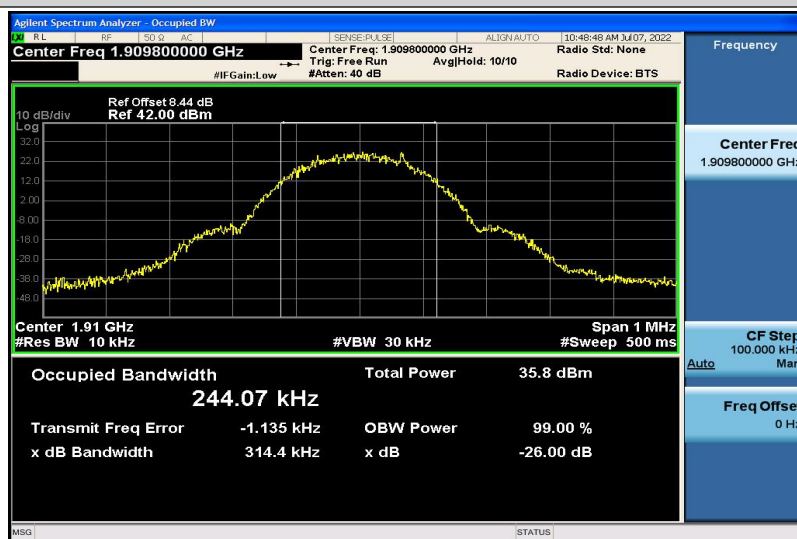
GPRS850-251



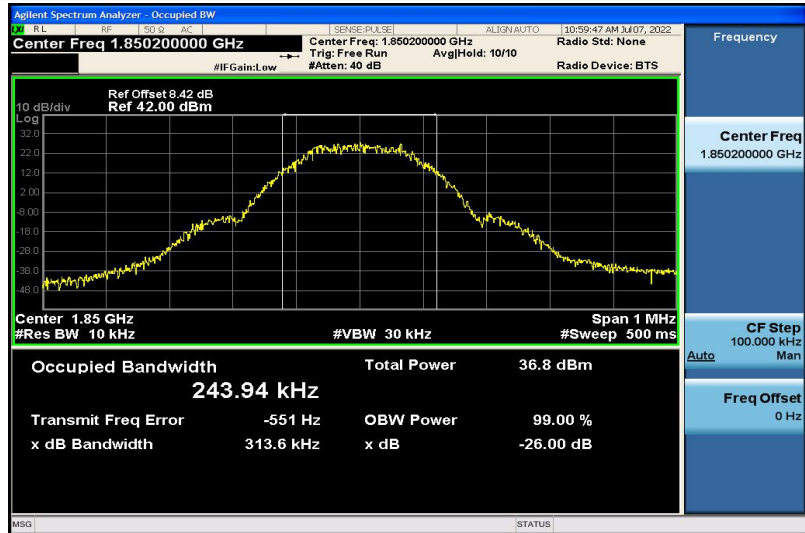
GSM1900-512



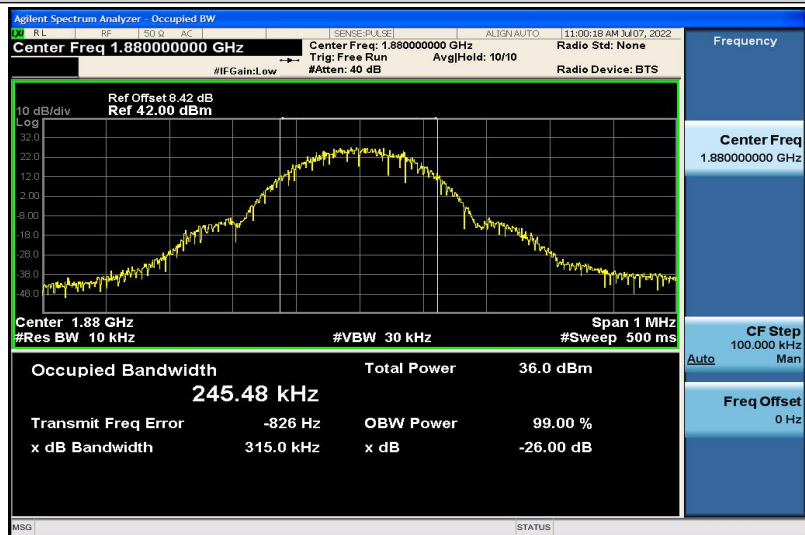
GSM1900-661



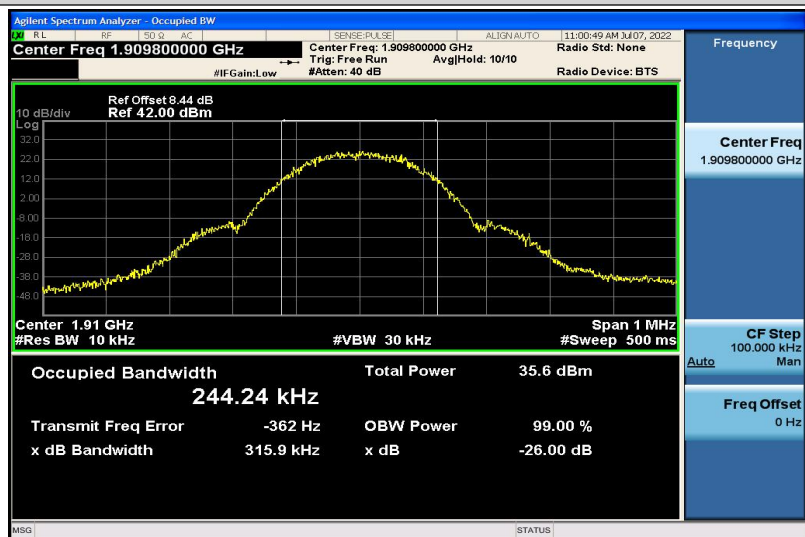
GSM1900-810



## GPRS1900-512



## GPRS1900-661



## GPRS1900-810

## 8.4 Appendix D: Band Edge

### Test Result

| Band     | Channel | Value(dBm) | Limit(dBm) | Verdict |
|----------|---------|------------|------------|---------|
| GSM850   | 128     | -27.77     | -13        | PASS    |
| GSM850   | 251     | -25.82     | -13        | PASS    |
| GPRS850  | 128     | -27.55     | -13        | PASS    |
| GPRS850  | 251     | -26.78     | -13        | PASS    |
| GSM1900  | 512     | -29.51     | -13        | PASS    |
| GSM1900  | 810     | -29.88     | -13        | PASS    |
| GPRS1900 | 512     | -29.35     | -13        | PASS    |
| GPRS1900 | 810     | -29.93     | -13        | PASS    |

Agilent Spectrum Analyzer - Swept SA

[F] R.L. [dB] 150.00 [dB] AC [SENSE:PUSE] [ALPHA AUTO] 10:21:10 AM 3/07, 2022  
**Center Freq 824.000000 MHz** #Avg Type: RMS  
 PNO: Wide Trg: Free Run #Atten: 40 dB  
 IF Gain: Low

Ref Offset 8.19 dB  
 Ref 30.00 dBm  
 Mkr1 823.978 MHz  
 -27.77 dBm

10 dB/div  
 Log  
 20.0  
 10.0  
 0.00  
 -10.0  
 -20.0  
 -30.0  
 -40.0  
 -50.0  
 -60.0

Center 824.0000 MHz  
 #Res BW 3.0 kHz  
 #VBW 10 kHz  
 #Sweep 100.0 ms (1001 pts)  
 Span 1.000 MHz

Frequency  
 Auto Tune  
 Center Freq  
 824.00000 MHz  
 Start Freq  
 823.50000 MHz  
 Stop Freq  
 824.50000 MHz  
 CF Step  
 100.00 kHz  
 Auto  
 Freq Offset  
 0 Hz

Agilent Spectrum Analyzer - Sweep SA

10 dB/div F0: 849.000000 MHz SENSE: PULSE ALK: F/AUTO 10:21:49 AM 3/07, 2022

Center Freq 849.000000 MHz PNO: Wide Trig: Free Run #Avg Type: RMS TRACE 1: 2 3 4 5 TYPE: AAAAAAAAAA IF Gain: Low #Atten: 40 dB DET: AAAAAA

Ref Offset 7.93 dB Ref 30.00 dBm

Mkr1 849.022 MHz -25.82 dBm

10 dB/div Log

Center 849.0000 MHz #Res BW 3.0 kHz #VBW 10 kHz #Sweep 100.0 ms (1001 pts) Span 1.000 MHz

Auto Tune

Center Freq 849.000000 MHz

Start Freq 849.500000 MHz

Stop Freq 849.500000 MHz

CF Step 100.000 kHz

Auto

Freq Offset 0 Hz

Agilent Spectrum Analyzer - Swept SA

RL REF SLO ADI SENSE:PULSE ALIGN:AUTO 10:33:14 AM Jul 07, 2022

**Center Freq 824.000000 MHz**

PNO: Wide IF Gain: Low Trig: Free Run #Avg Type: RMS TRACE R W W W W W W W W W TYPE A A A A A A DET

#Res BW 3.0 kHz #VBW 10 kHz #Sweep 100.0 ms (1001 pts)

Ref Offset 8.19 dB Ref 30.00 dBm

Mkr1 823.983 MHz -27.55 dBm

Frequency Auto Tune

Center Freq 824.000000 MHz

Start Freq 823.500000 MHz

Stop Freq 824.500000 MHz

CF Step 100.000 MHz

Auto Manual

Freq Offset 0 Hz

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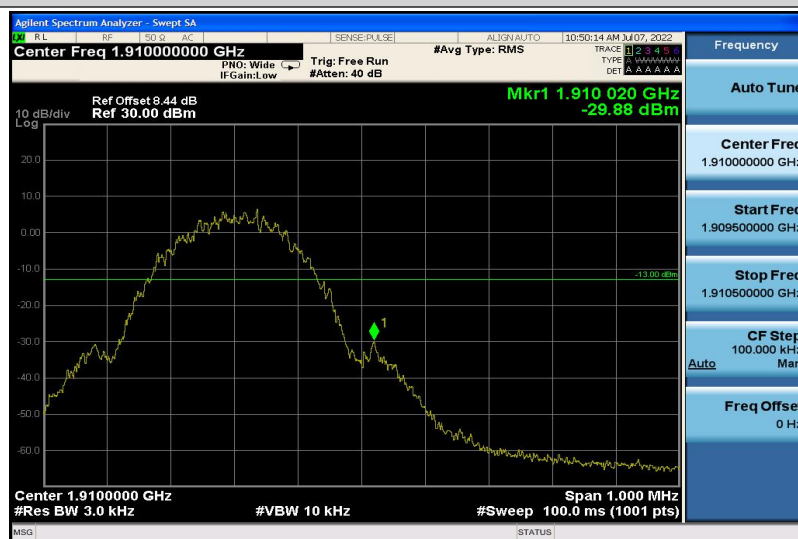




GPRS850-251



GSM1900-512

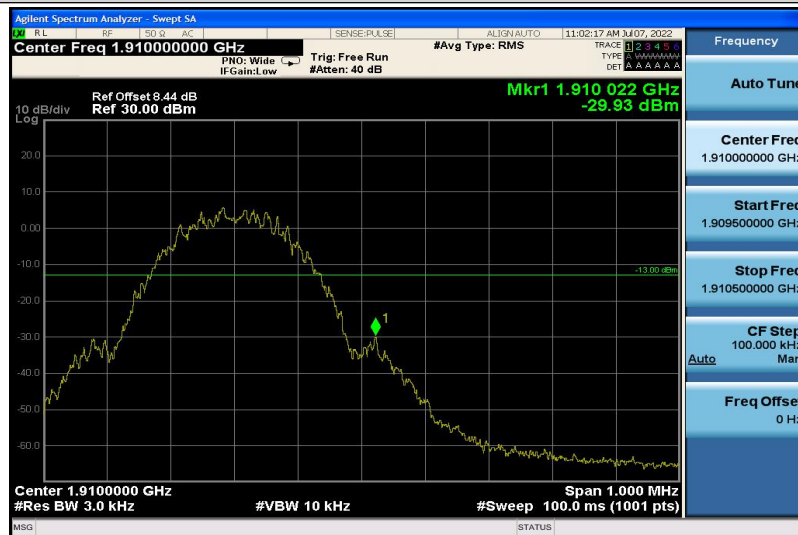


GSM1900-810





GPRS1900-512



GPRS1900-810

## 8.5 Appendix E: Conducted Spurious Emission

### Test Result

| Band     | Channel | Frequency Range(Mhz) | Value(dBm) | Limit(dBm) | Verdict |
|----------|---------|----------------------|------------|------------|---------|
| GSM850   | 128     | 30~1000              | -40.59     | -13        | PASS    |
| GSM850   | 128     | 1000~10000           | -26.23     | -13        | PASS    |
| GSM850   | 190     | 30~1000              | -40.82     | -13        | PASS    |
| GSM850   | 190     | 1000~10000           | -26.40     | -13        | PASS    |
| GSM850   | 251     | 30~1000              | -39.98     | -13        | PASS    |
| GSM850   | 251     | 1000~10000           | -26.01     | -13        | PASS    |
| GPRS850  | 128     | 30~1000              | -40.66     | -13        | PASS    |
| GPRS850  | 128     | 1000~10000           | -25.93     | -13        | PASS    |
| GPRS850  | 190     | 30~1000              | -40.67     | -13        | PASS    |
| GPRS850  | 190     | 1000~10000           | -25.88     | -13        | PASS    |
| GPRS850  | 251     | 30~1000              | -40.52     | -13        | PASS    |
| GPRS850  | 251     | 1000~10000           | -26.02     | -13        | PASS    |
| GSM1900  | 512     | 30~1000              | -41.23     | -13        | PASS    |
| GSM1900  | 512     | 1000~20000           | -19.27     | -13        | PASS    |
| GSM1900  | 661     | 30~1000              | -40.80     | -13        | PASS    |
| GSM1900  | 661     | 1000~20000           | -19.22     | -13        | PASS    |
| GSM1900  | 810     | 30~1000              | -40.53     | -13        | PASS    |
| GSM1900  | 810     | 1000~20000           | -19.83     | -13        | PASS    |
| GPRS1900 | 512     | 30~1000              | -41.03     | -13        | PASS    |
| GPRS1900 | 512     | 1000~20000           | -19.28     | -13        | PASS    |
| GPRS1900 | 661     | 30~1000              | -40.64     | -13        | PASS    |
| GPRS1900 | 661     | 1000~20000           | -19.87     | -13        | PASS    |
| GPRS1900 | 810     | 30~1000              | -40.94     | -13        | PASS    |
| GPRS1900 | 810     | 1000~20000           | -19.88     | -13        | PASS    |