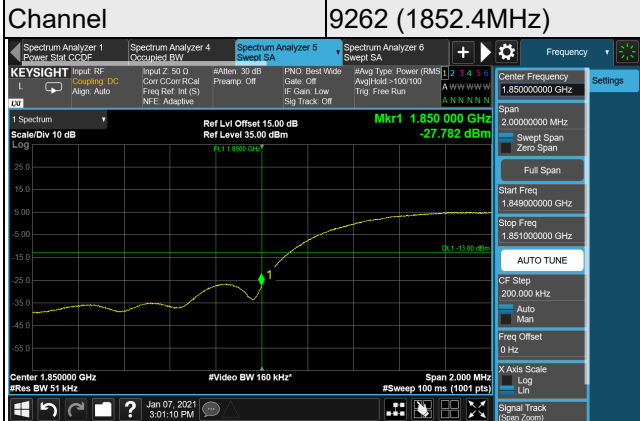


### WCDMA



### HSDPA

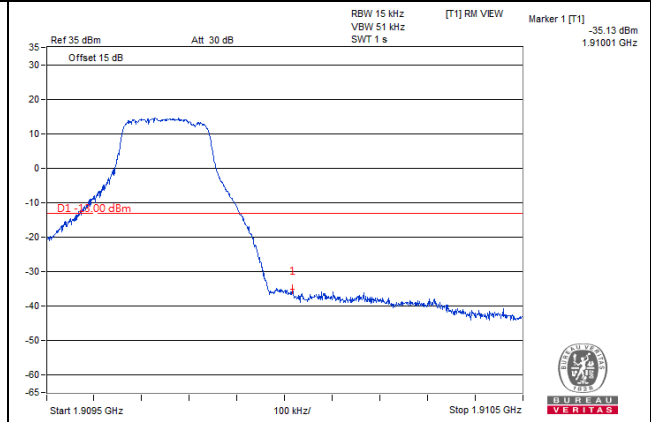
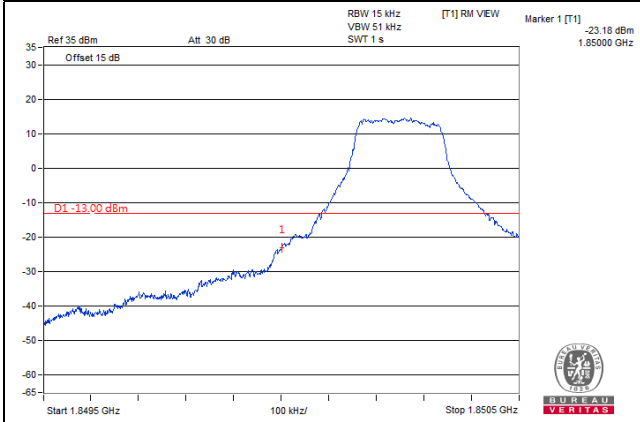


### HSUPA

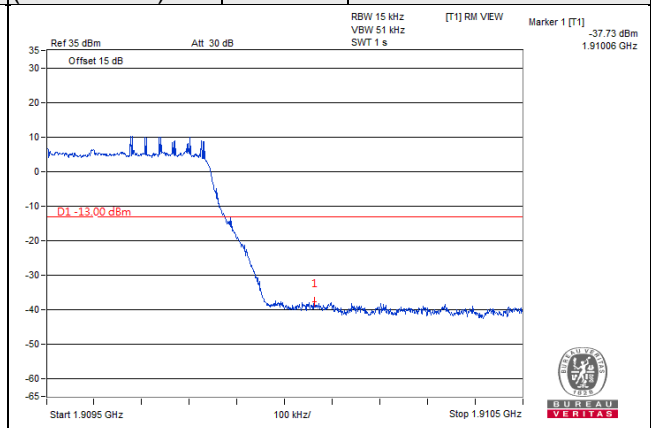
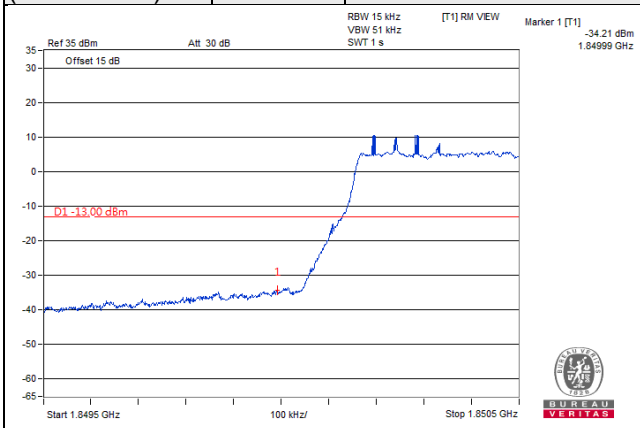


LTE Band 2, Channel Bandwidth 1.4MHz

Channel 18607 (1850.7MHz)	QPSK	1 RB / 0 RB Offset	Channel 19193 (1909.3MHz)	QPSK	1 RB / 5 RB Offset
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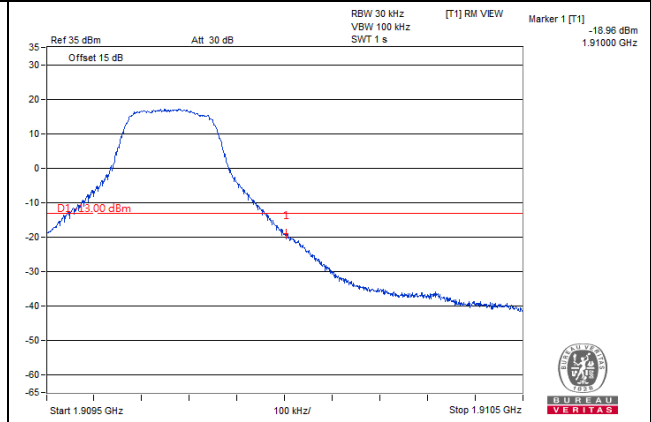
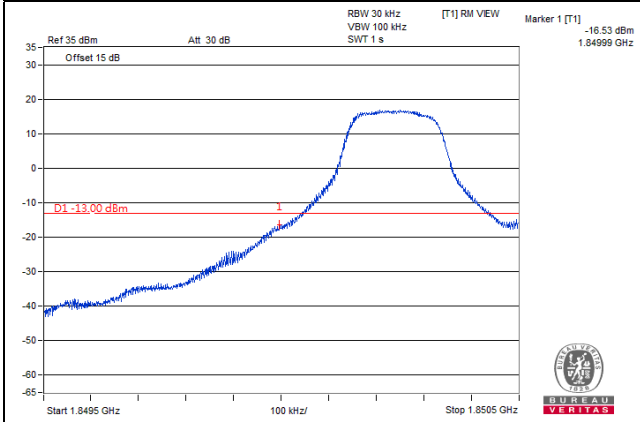


Channel 18607 (1850.7MHz)	QPSK	6 RB / 0 RB Offset	Channel 19193 (1909.3MHz)	QPSK	6 RB / 0 RB Offset
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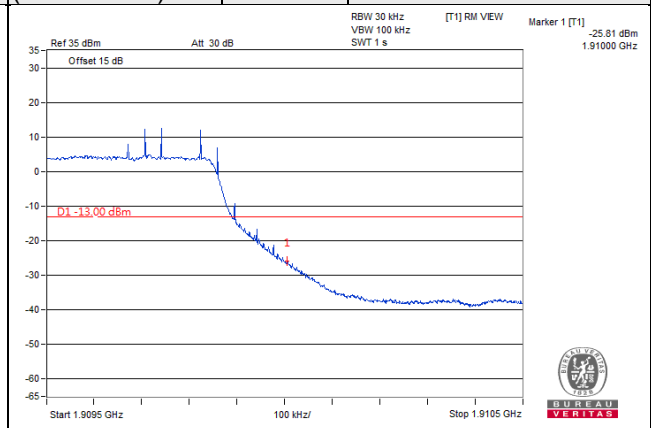
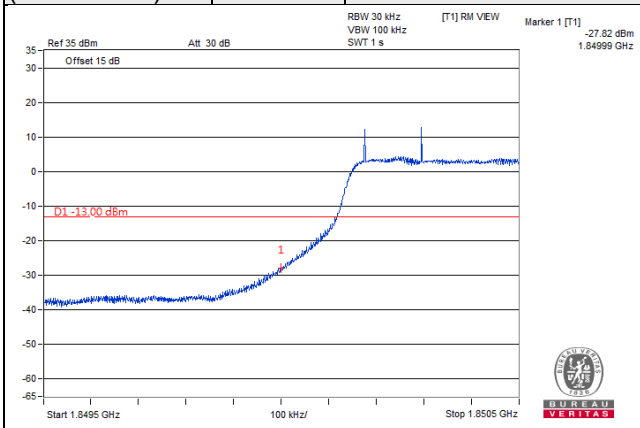


**LTE Band 2, Channel Bandwidth 3MHz**

<b>Channel 18615 (1851.5MHz)</b>	<b>QPSK</b>	<b>1 RB / 0 RB Offset</b>	<b>Channel 19185 (1908.5MHz)</b>	<b>QPSK</b>	<b>1 RB / 14 RB Offset</b>
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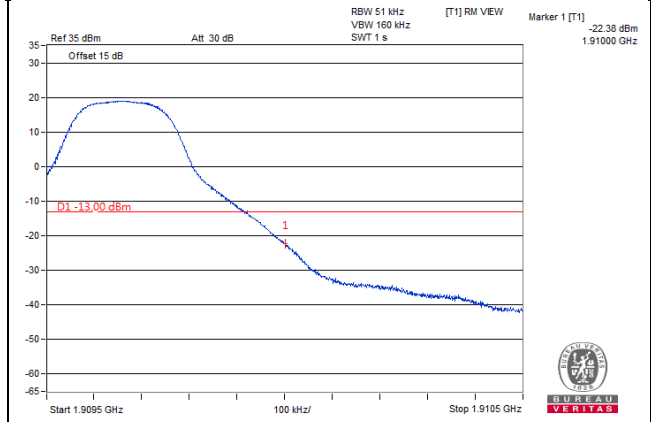
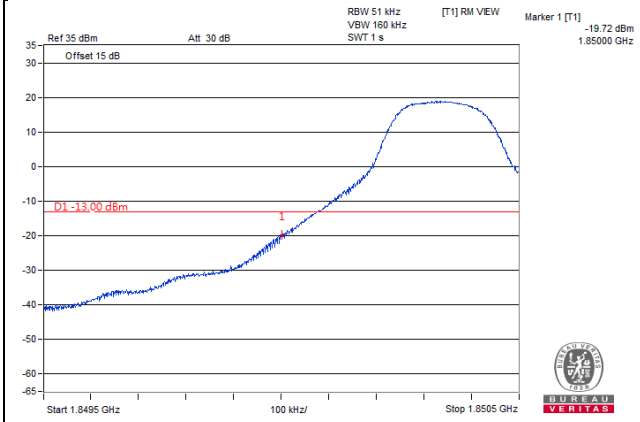


<b>Channel 18615 (1851.5MHz)</b>	<b>QPSK</b>	<b>15 RB / 0 RB Offset</b>	<b>Channel 19185 (1908.5MHz)</b>	<b>QPSK</b>	<b>15 RB / 0 RB Offset</b>
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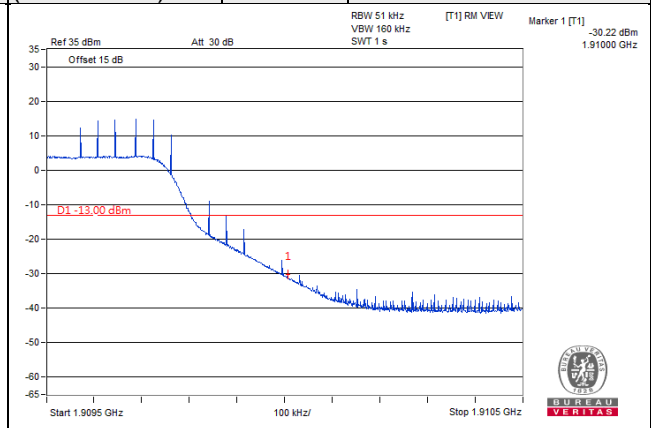
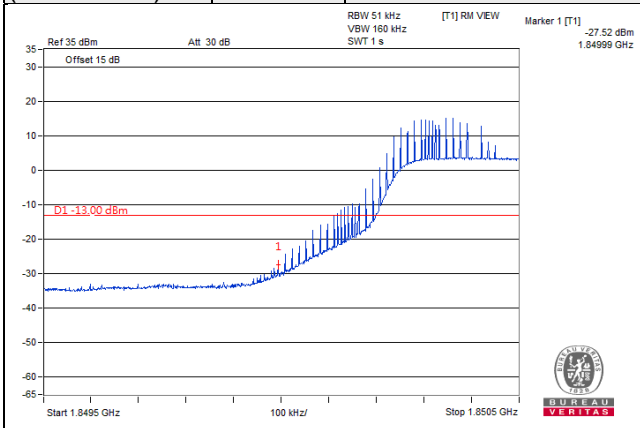


**LTE Band 2, Channel Bandwidth 5MHz**

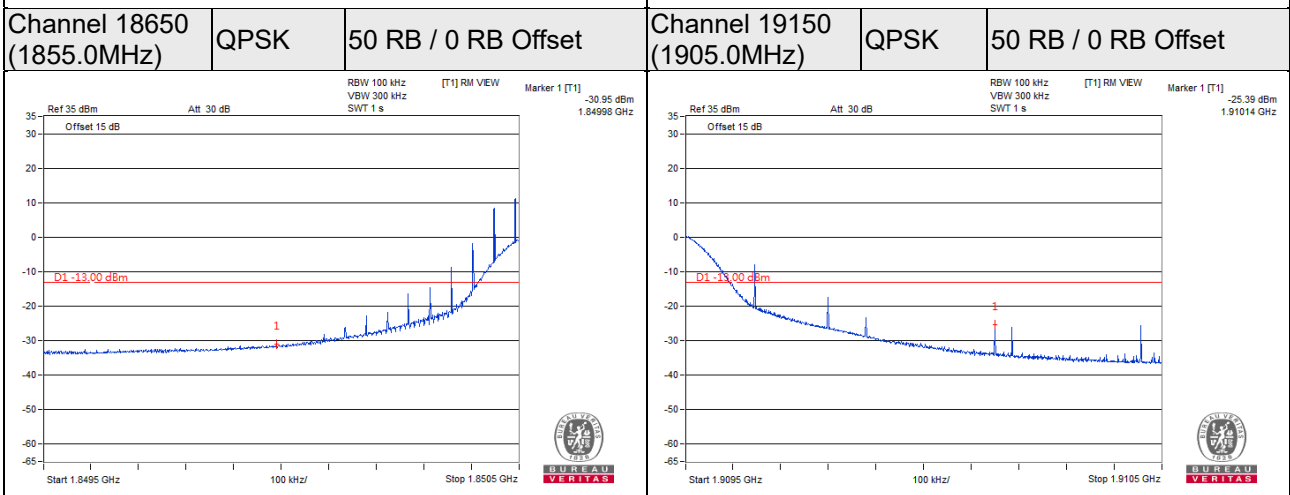
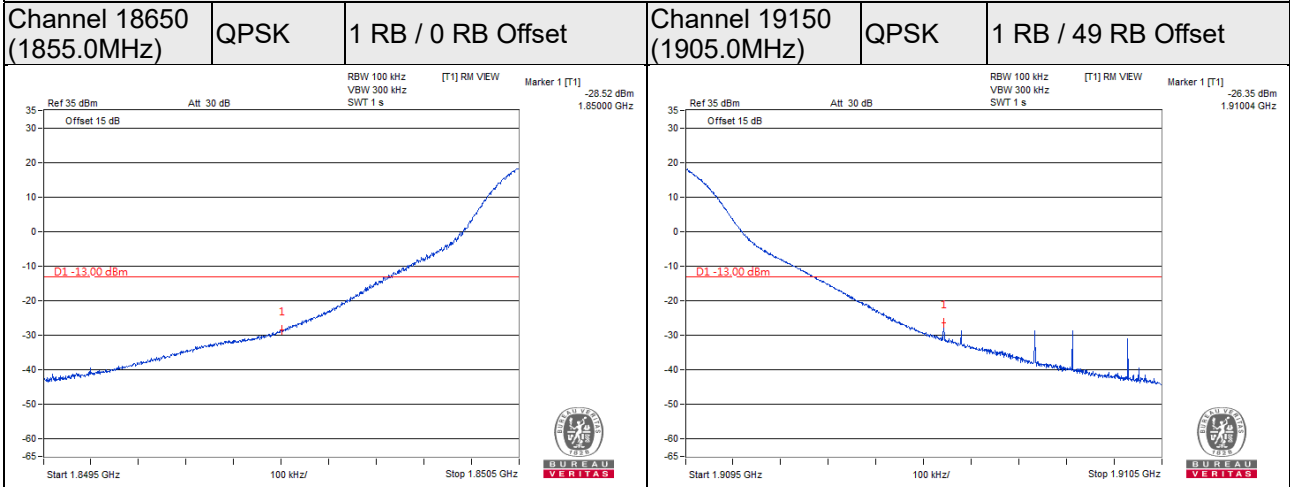
<b>Channel 18625 (1852.5MHz)</b>	<b>QPSK</b>	<b>1 RB / 0 RB Offset</b>	<b>Channel 19175 (1907.5MHz)</b>	<b>QPSK</b>	<b>1 RB / 24 RB Offset</b>
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<b>Channel 18625 (1852.5MHz)</b>	<b>QPSK</b>	<b>25 RB / 0 RB Offset</b>	<b>Channel 19175 (1907.5MHz)</b>	<b>QPSK</b>	<b>25 RB / 0 RB Offset</b>
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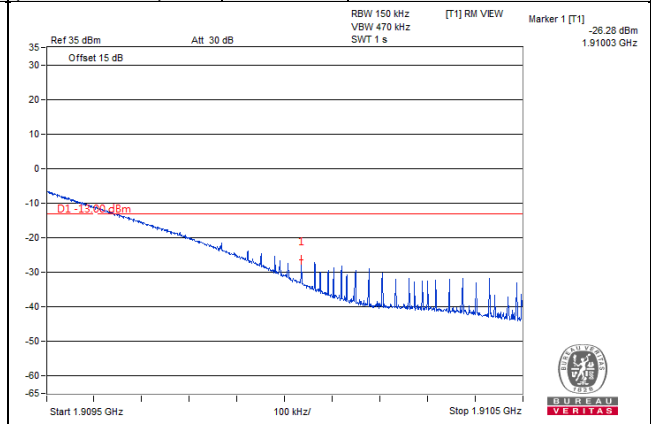
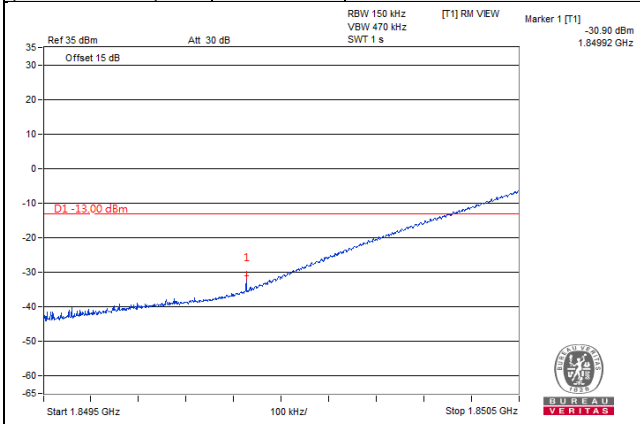


**LTE Band 2, Channel Bandwidth 10MHz**

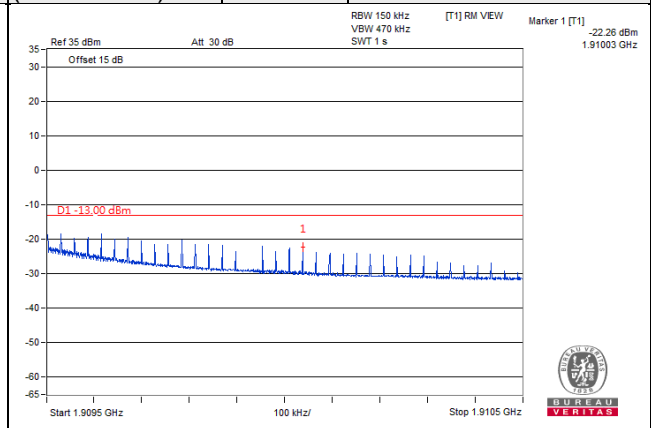
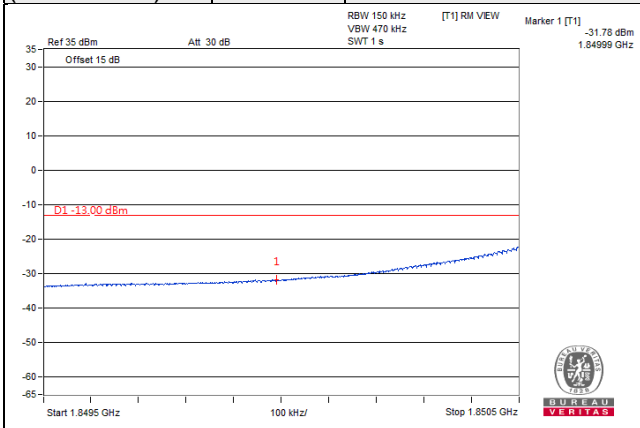


**LTE Band 2, Channel Bandwidth 15MHz**

<b>Channel 18675 (1857.5MHz)</b>	<b>QPSK</b>	<b>1 RB / 0 RB Offset</b>	<b>Channel 19125 (1902.5MHz)</b>	<b>QPSK</b>	<b>1 RB / 74 RB Offset</b>
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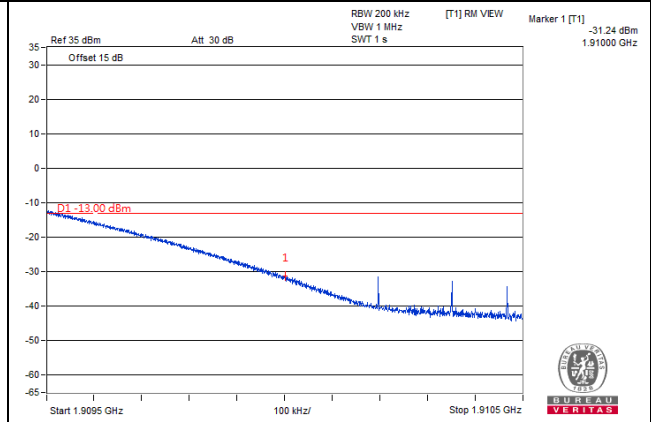
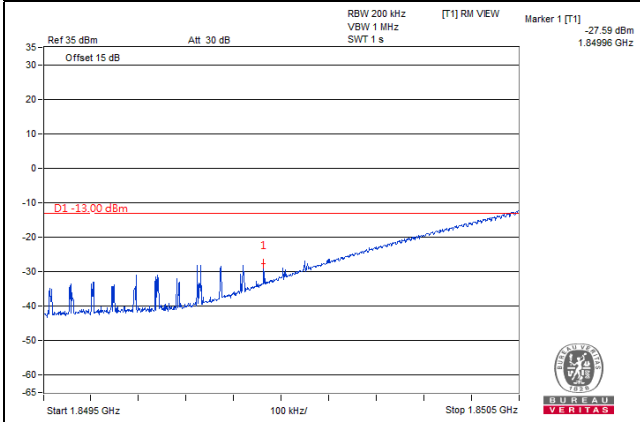


<b>Channel 18675 (1857.5MHz)</b>	<b>QPSK</b>	<b>75 RB / 0 RB Offset</b>	<b>Channel 19125 (1902.5MHz)</b>	<b>QPSK</b>	<b>75 RB / 0 RB Offset</b>
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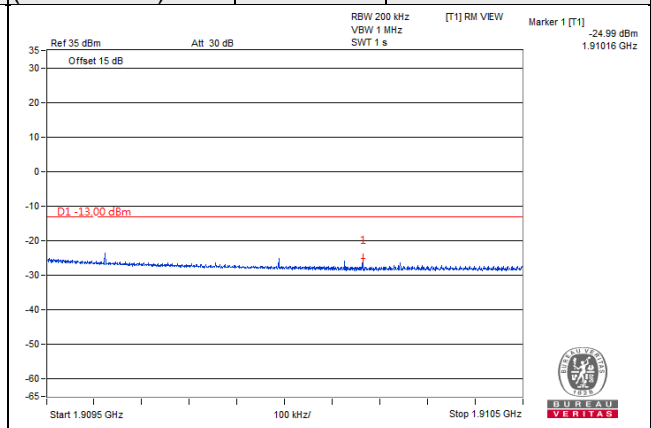
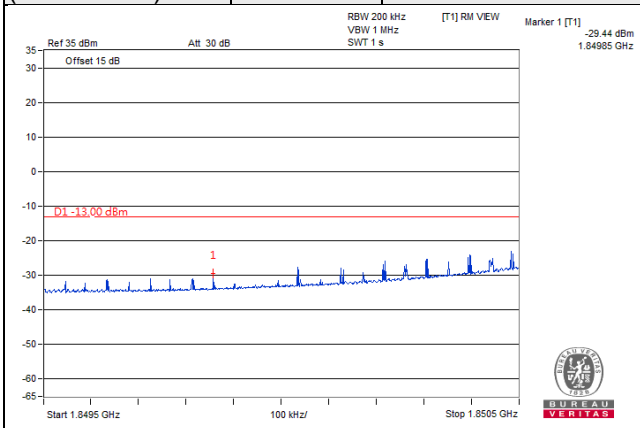


LTE Band 2, Channel Bandwidth 20MHz

Channel 18700 (1860.0MHz)	QPSK	1 RB / 0 RB Offset	Channel 19100 (1900.0MHz)	QPSK	1 RB / 99 RB Offset
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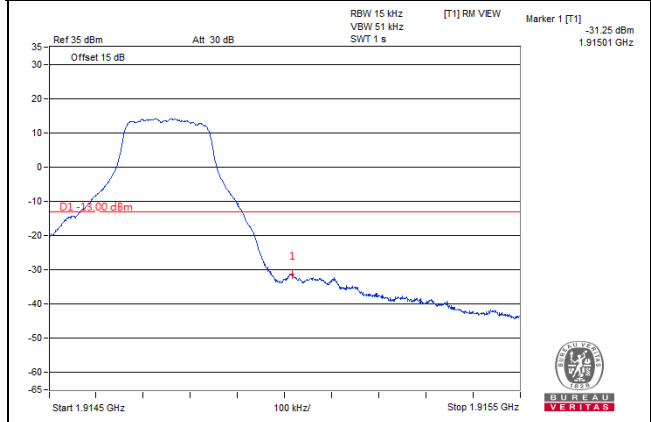
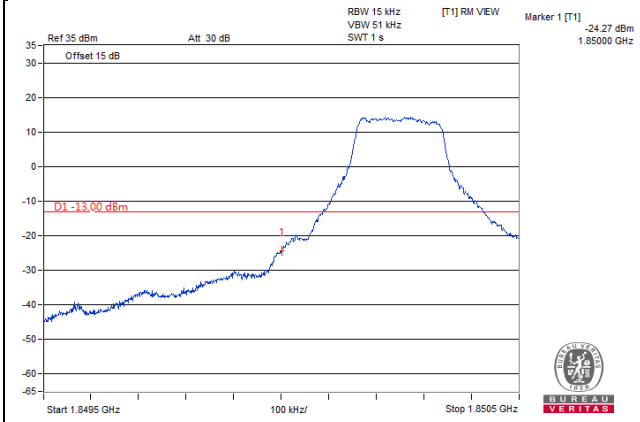


Channel 18700 (1860.0MHz)	QPSK	100 RB / 0 RB Offset	Channel 19100 (1900.0MHz)	QPSK	100 RB / 0 RB Offset
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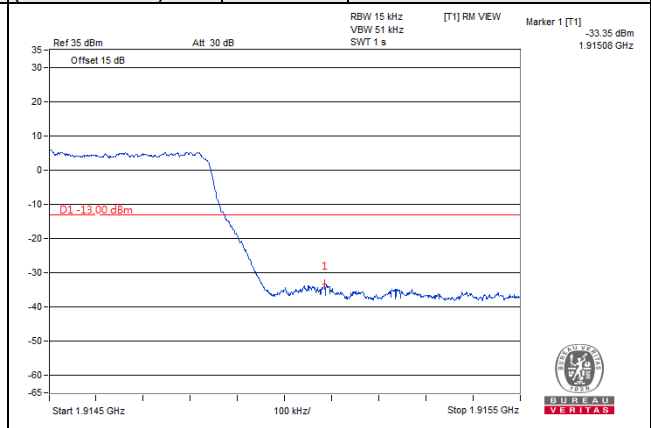
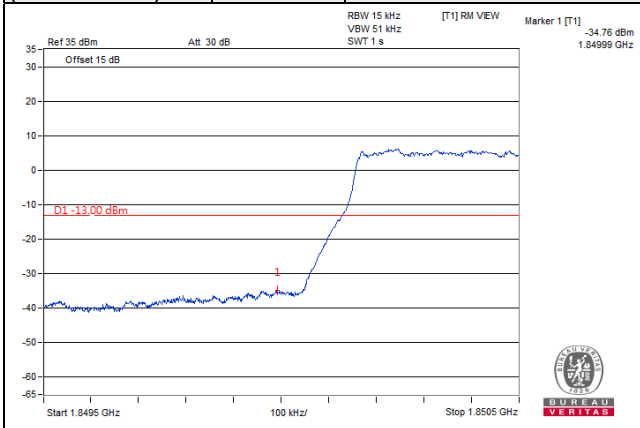


LTE Band 25, Channel Bandwidth 1.4MHz

Channel 26047 (1850.7MHz)	QPSK	1 RB / 0 RB Offset	Channel 26683 (1914.3MHz)	QPSK	1 RB / 5 RB Offset
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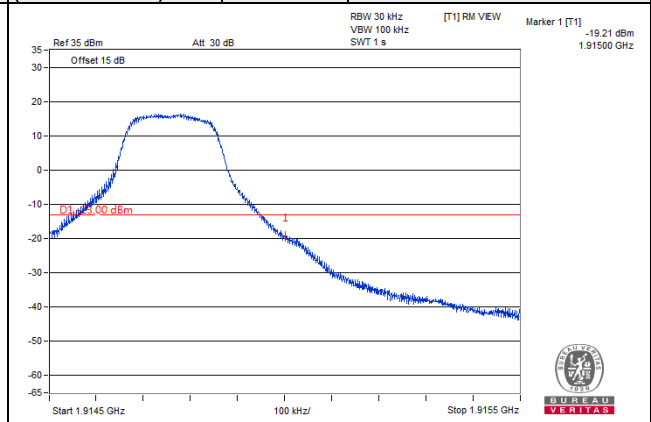
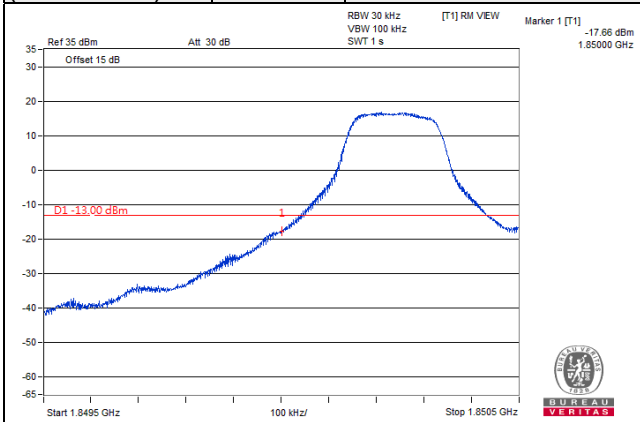
Channel 26047 (1850.7MHz)	QPSK	6 RB / 0 RB Offset	Channel 26683 (1914.3MHz)	QPSK	6 RB / 0 RB Offset
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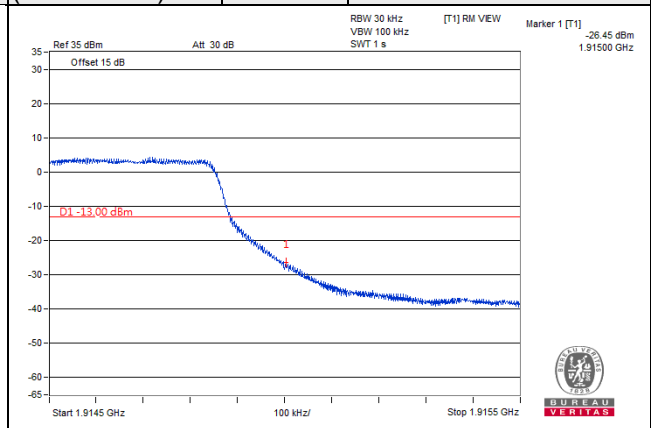
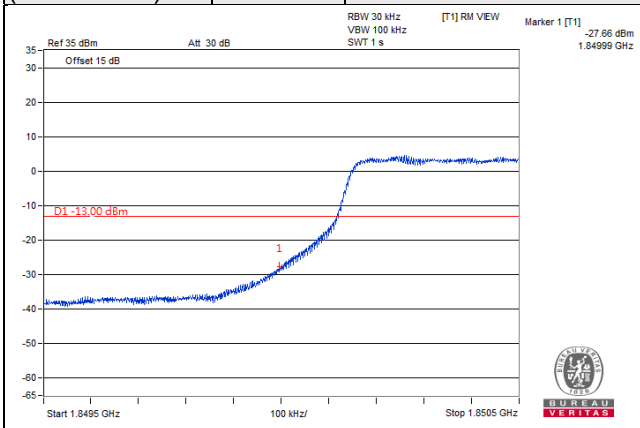


LTE Band 25, Channel Bandwidth 3MHz

Channel 26055 (1851.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 26675 (1913.5MHz)	QPSK	1 RB / 14 RB Offset
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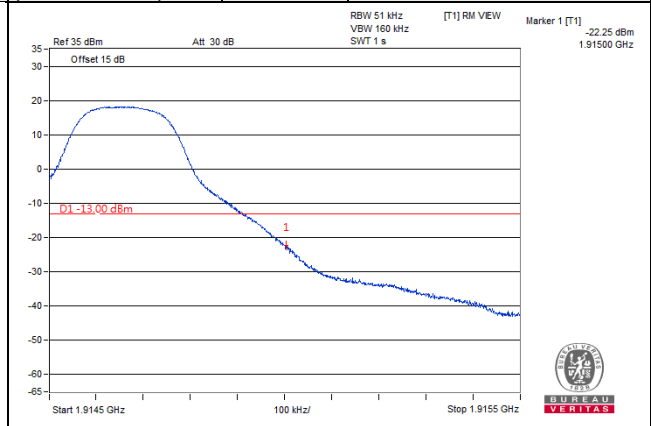
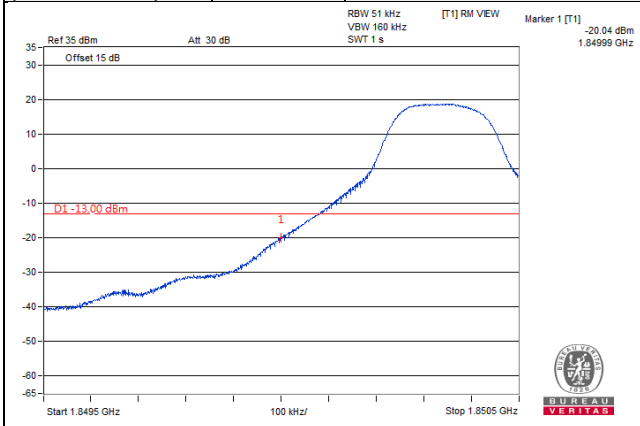


Channel 26055 (1851.5MHz)	QPSK	15 RB / 0 RB Offset	Channel 26675 (1913.5MHz)	QPSK	15 RB / 0 RB Offset
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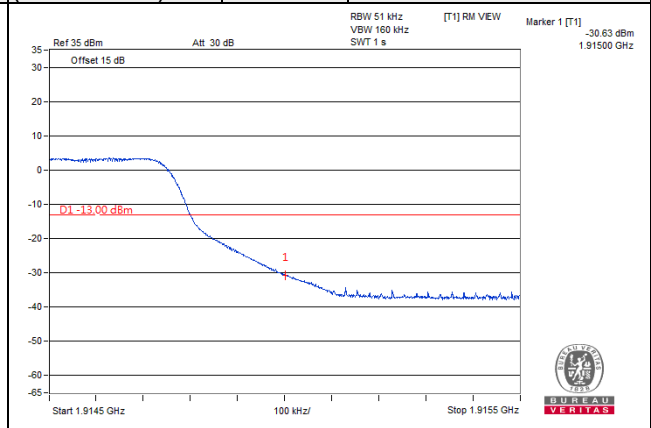
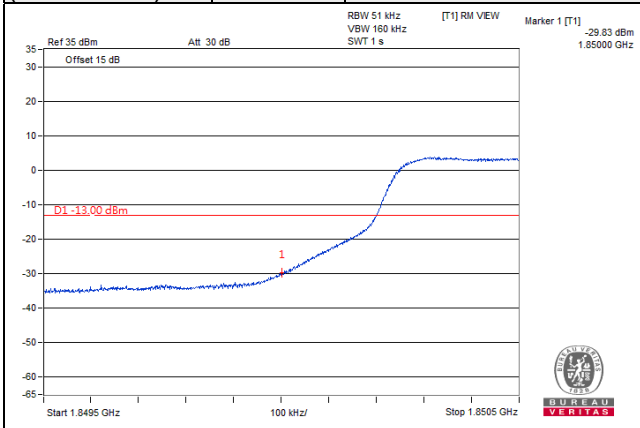


**LTE Band 25, Channel Bandwidth 5MHz**

<b>Channel 26065 (1852.5MHz)</b>	<b>QPSK</b>	<b>1 RB / 0 RB Offset</b>	<b>Channel 26665 (1912.5MHz)</b>	<b>QPSK</b>	<b>1 RB / 24 RB Offset</b>
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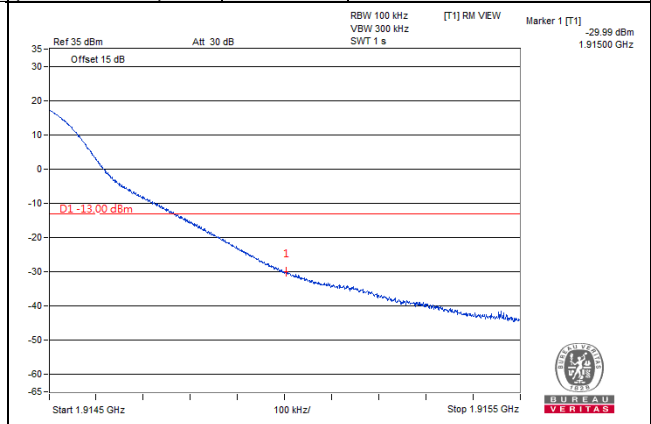
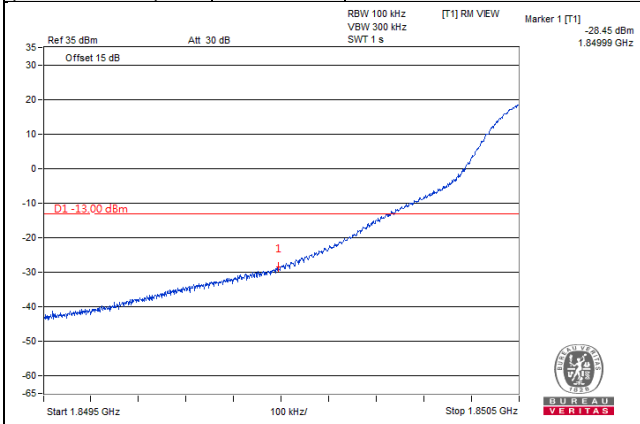


<b>Channel 26065 (1852.5MHz)</b>	<b>QPSK</b>	<b>25 RB / 0 RB Offset</b>	<b>Channel 26665 (1912.5MHz)</b>	<b>QPSK</b>	<b>25 RB / 0 RB Offset</b>
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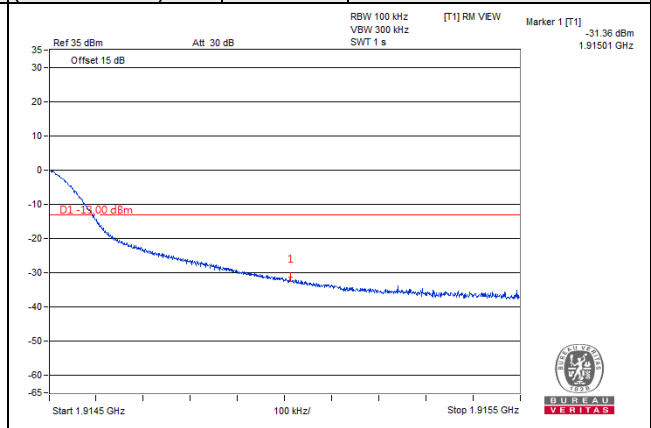
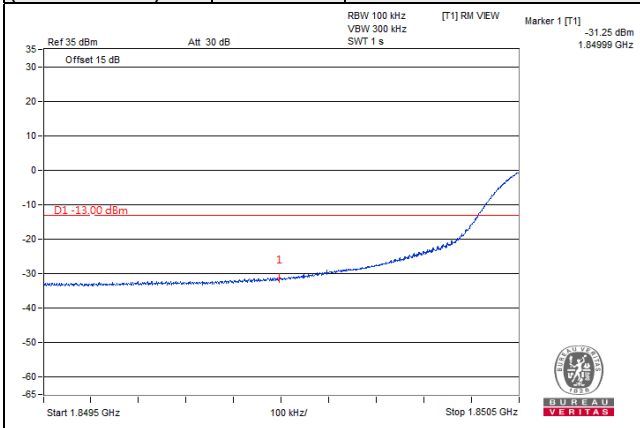


LTE Band 25, Channel Bandwidth 10MHz

Channel 26090 (1855.0MHz)	QPSK	1 RB / 0 RB Offset	Channel 26640 (1910.0MHz)	QPSK	1 RB / 49 RB Offset
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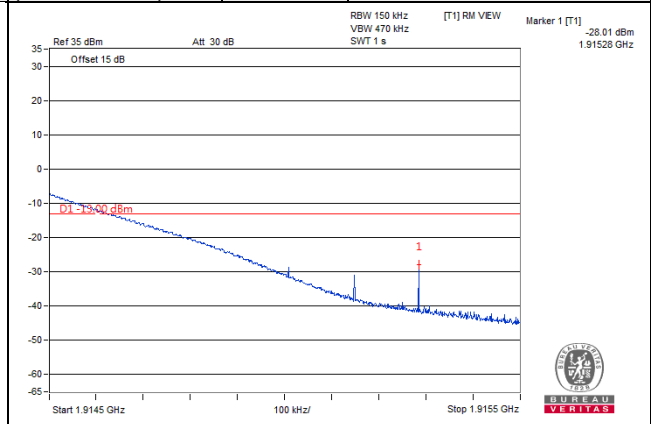
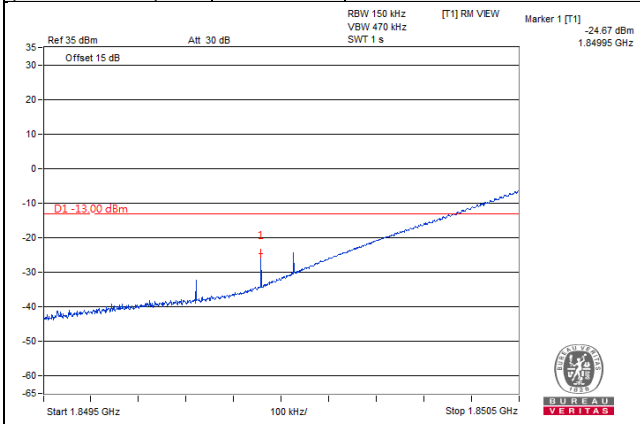


Channel 26090 (1855.0MHz)	QPSK	50 RB / 0 RB Offset	Channel 26640 (1910.0MHz)	QPSK	50 RB / 0 RB Offset
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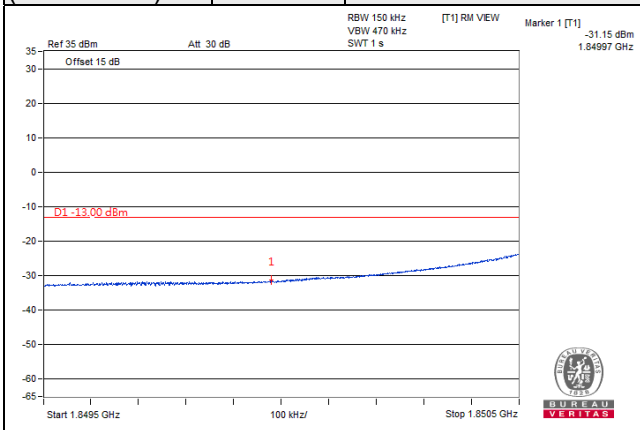


LTE Band 25, Channel Bandwidth 15MHz

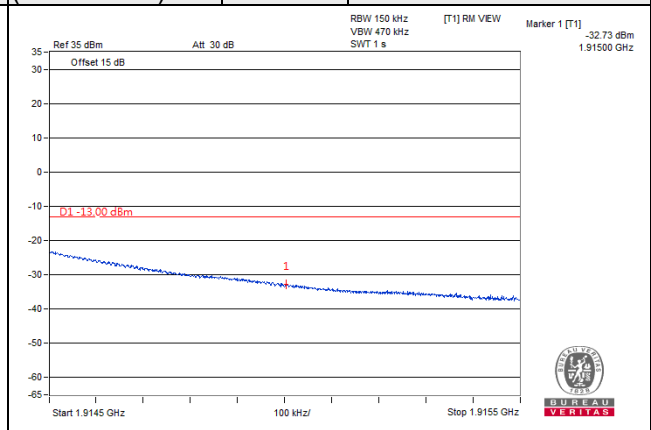
Channel 26115 (1857.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 26615 (1907.5MHz)	QPSK	1 RB / 74 RB Offset
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Channel 26115 (1857.5MHz)	QPSK	75 RB / 0 RB Offset
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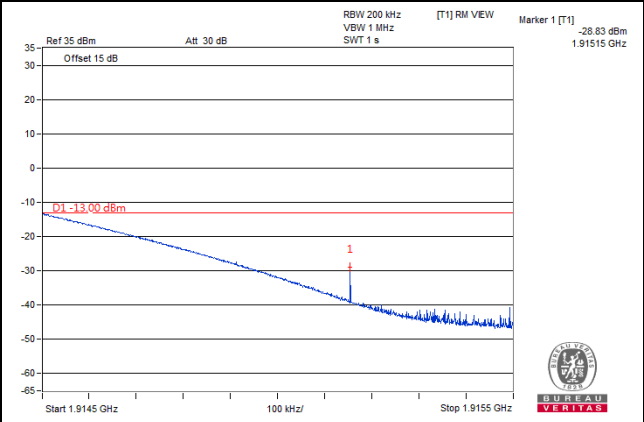
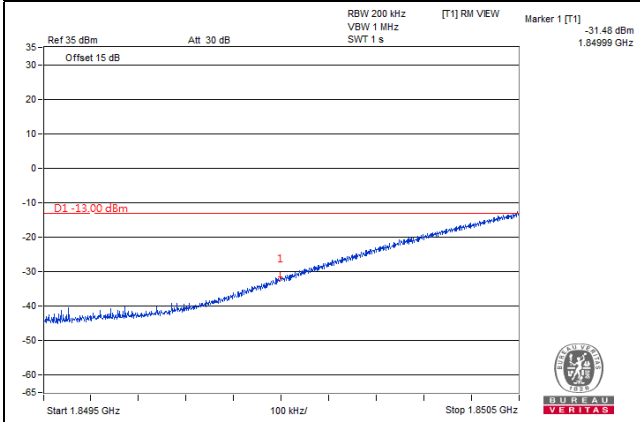


Channel 26615 (1907.5MHz)	QPSK	75 RB / 0 RB Offset
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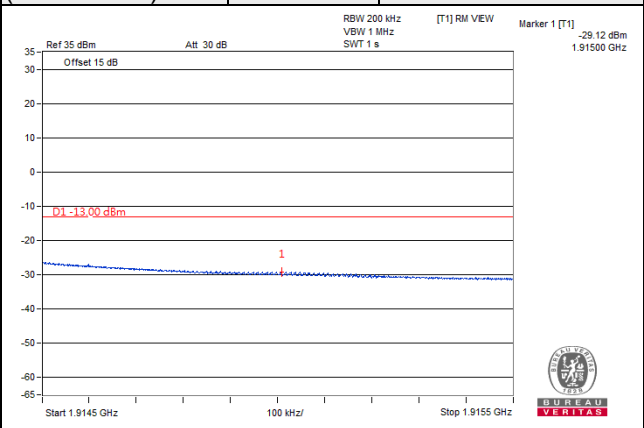
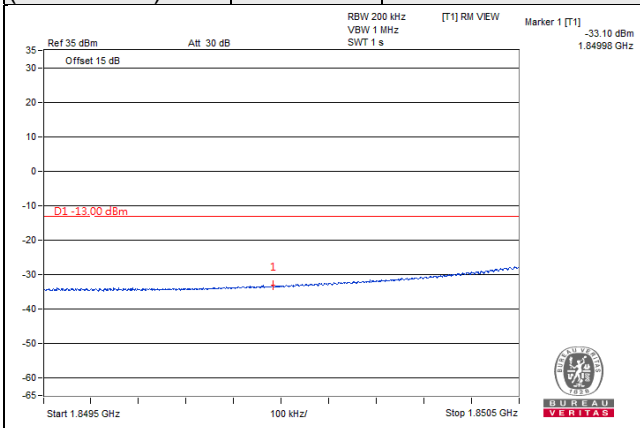


LTE Band 25, Channel Bandwidth 20MHz

Channel 26140 (1860.0MHz)	QPSK	1 RB / 0 RB Offset	Channel 26590 (1905.0MHz)	QPSK	1 RB / 99 RB Offset
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Channel 26140 (1860.0MHz)	QPSK	100 RB / 0 RB Offset	Channel 26590 (1905.0MHz)	QPSK	100 RB / 0 RB Offset
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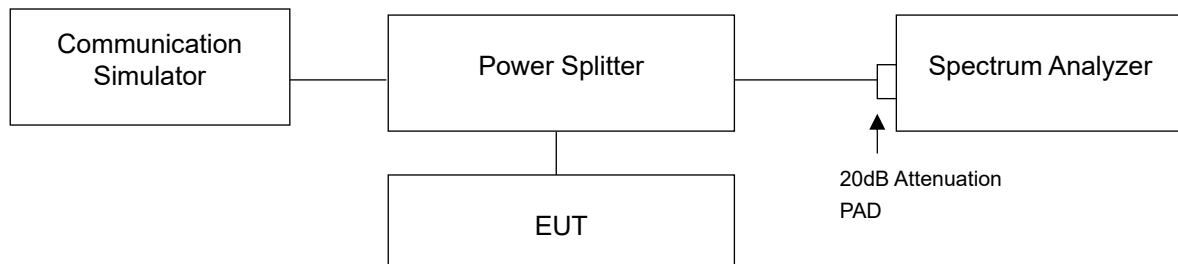


## 4.6 Peak to Average Ratio

### 4.6.1 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

### 4.6.2 Test Setup

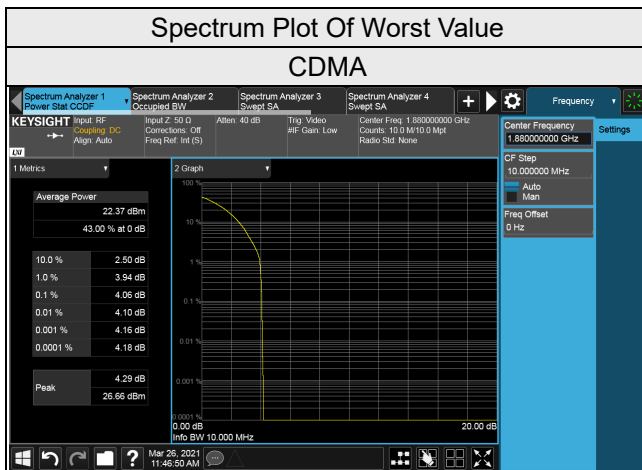


### 4.6.3 Test Procedures

- Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Record the maximum PAPR level associated with a probability of 0.1%.

#### 4.6.4 Test Results

Channel	Frequency (MHz)	Peak To Average Ratio (dB)
		CDMA
25	1851.25	4.02
600	1880.00	4.06
1175	1908.75	3.80

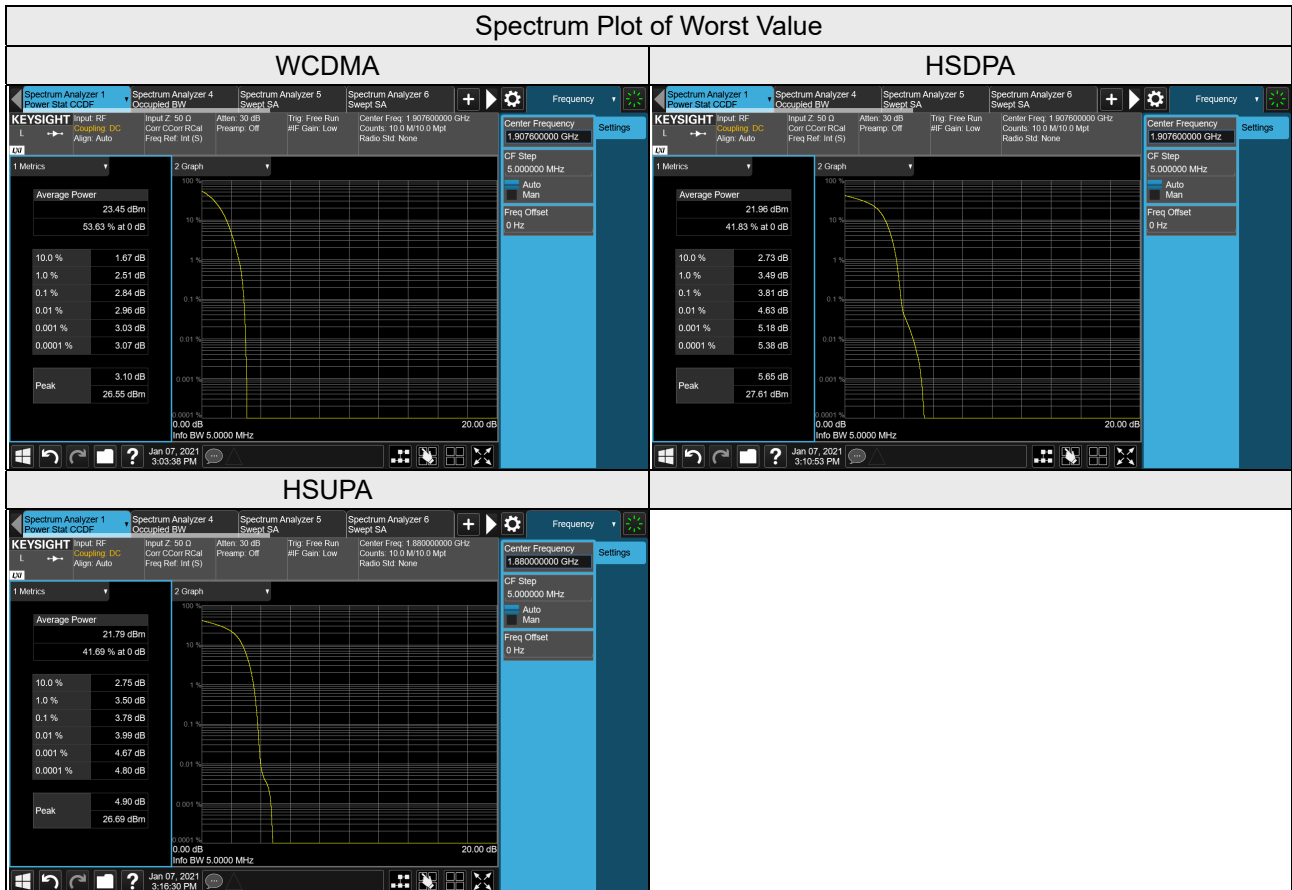


Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		GSM	GPRS	EDGE
512	1850.2	2.61	3.97	3.96
661	1880.0	2.64	3.91	3.93
810	1909.8	2.64	3.95	3.95





Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		WCDMA	HSDPA	HSUPA
9262	1852.4	2.88	3.78	3.77
9400	1880.0	2.88	3.79	3.78
9538	1907.6	2.84	3.81	3.76



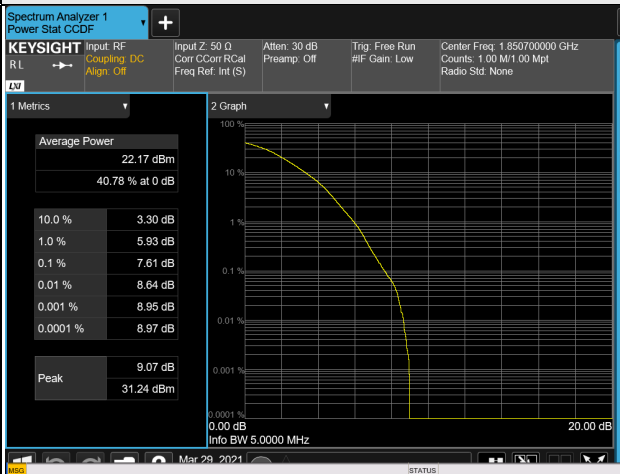
LTE Band 2, Channel Bandwidth 1.4MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
18607	1850.7	4.31	5.76	6.95	7.61
18900	1880.0	4.19	5.83	7.26	7.34
19193	1909.3	3.86	4.80	6.67	6.73
LTE Band 2, Channel Bandwidth 3MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
18615	1851.5	4.07	5.69	7.27	7.71
18900	1880.0	3.95	5.70	7.07	7.25
19185	1908.5	3.72	4.81	6.94	7.01
LTE Band 2, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
18625	1852.5	4.08	5.65	7.61	7.76
18900	1880.0	3.98	5.72	6.78	7.46
19175	1907.5	3.72	4.77	6.13	7.14
LTE Band 2, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
18650	1855.0	4.19	5.58	6.94	8.19
18900	1880.0	4.11	5.37	6.83	7.90
19150	1905.0	3.66	4.40	6.06	7.20
LTE Band 2, Channel Bandwidth 15MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
18675	1857.5	4.03	5.70	6.99	7.58
18900	1880.0	3.86	5.45	6.61	7.66
19125	1902.5	3.59	4.46	6.05	7.13

LTE Band 2, Channel Bandwidth 20MHz

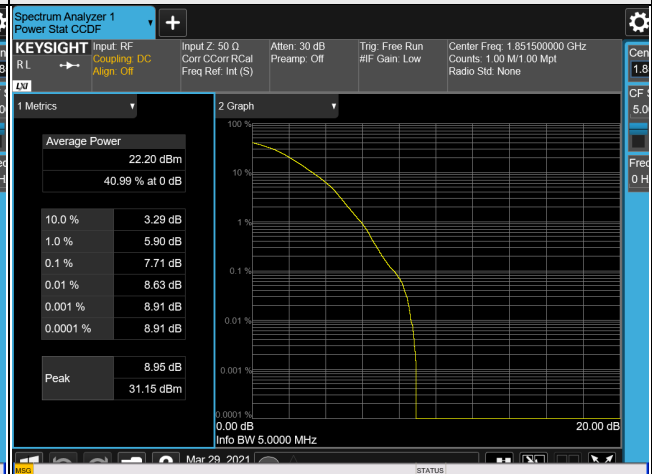
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
18700	1860.0	3.94	5.61	8.42	7.72
18900	1880.0	3.82	5.27	8.46	7.52
19100	1900.0	3.65	5.06	8.42	6.65

### Spectrum Plot of Worst Value

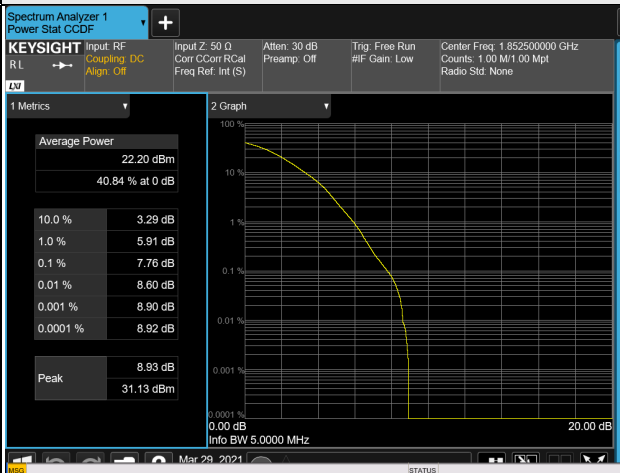
#### 1.4MHz / 256QAM



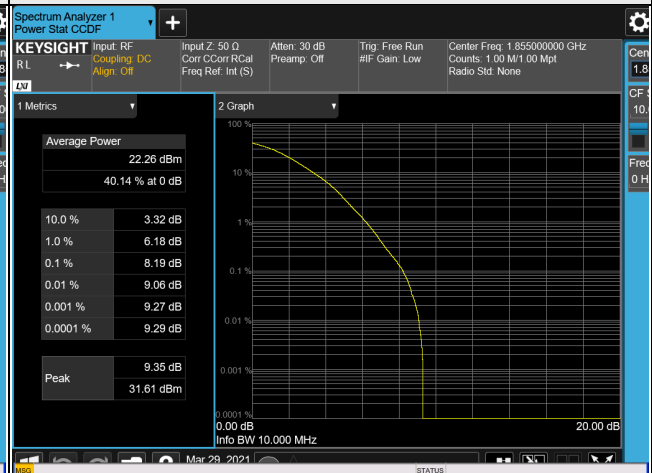
#### 3MHz / 256QAM



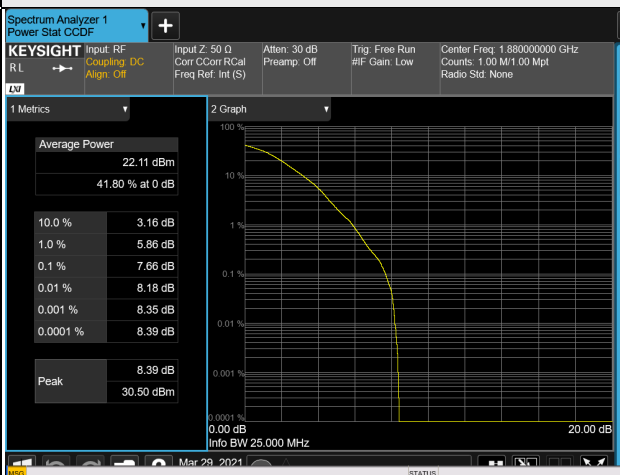
#### 5MHz / 256QAM



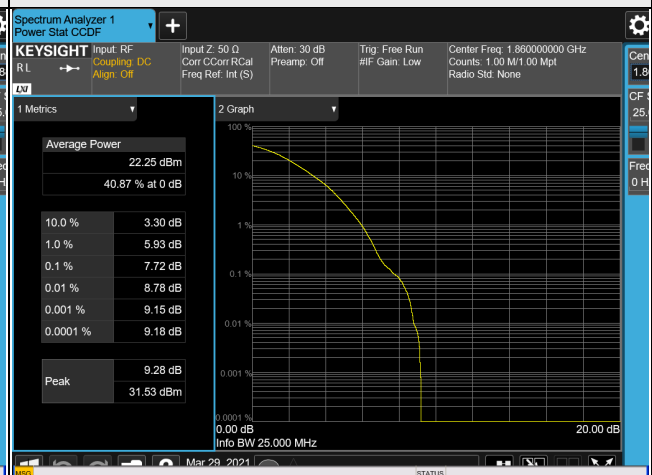
#### 10MHz / 256QAM



#### 15MHz / 256QAM



#### 20MHz / 256QAM



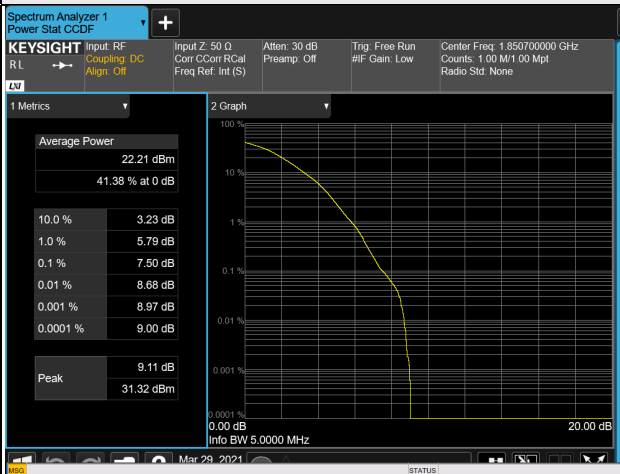
LTE Band 25, Channel Bandwidth 1.4MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
26047	1850.7	4.29	5.19	6.29	7.50
26365	1882.5	4.23	5.67	7.41	7.26
26683	1914.3	3.40	4.11	6.08	6.86
LTE Band 25, Channel Bandwidth 3MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
26055	1851.5	4.06	5.18	6.22	7.75
26365	1882.5	3.96	5.66	6.82	7.54
26675	1913.5	3.37	4.09	6.03	6.91
LTE Band 25, Channel Bandwidth 5MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
26065	1852.5	4.08	5.05	6.20	7.82
26365	1882.5	3.99	5.58	6.74	7.62
26665	1912.5	3.55	4.37	6.10	7.09
LTE Band 25, Channel Bandwidth 10MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
26090	1855.0	4.18	5.01	6.54	7.78
26365	1882.5	4.24	5.23	6.83	8.03
26640	1910.0	3.76	4.66	6.17	7.40
LTE Band 25, Channel Bandwidth 15MHz					
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
26115	1857.5	4.00	5.19	6.31	7.99
26365	1882.5	3.99	5.41	6.59	7.67
26615	1907.5	3.54	4.31	6.10	7.23

LTE Band 25, Channel Bandwidth 20MHz

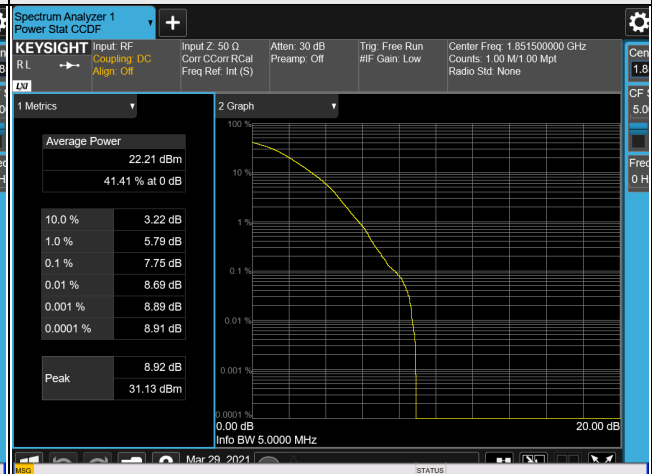
Channel	Frequency (MHz)	Peak To Average Ratio (dB)			
		QPSK	16QAM	64QAM	256QAM
26140	1860.0	3.89	5.17	6.26	8.36
26365	1882.5	4.00	5.37	6.59	7.86
26590	1905.0	3.59	4.56	6.05	6.75

### Spectrum Plot of Worst Value

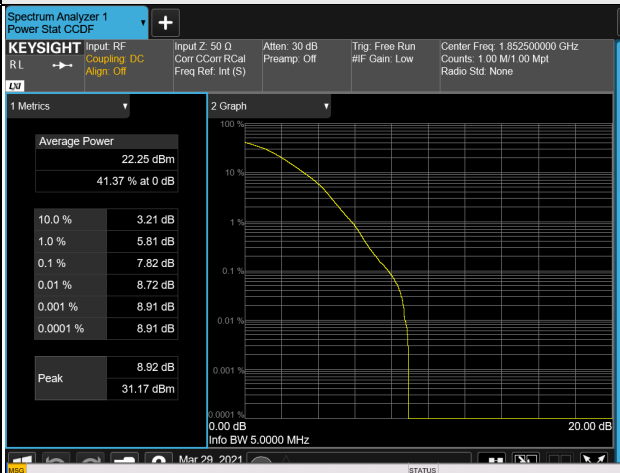
1.4MHz / 256QAM



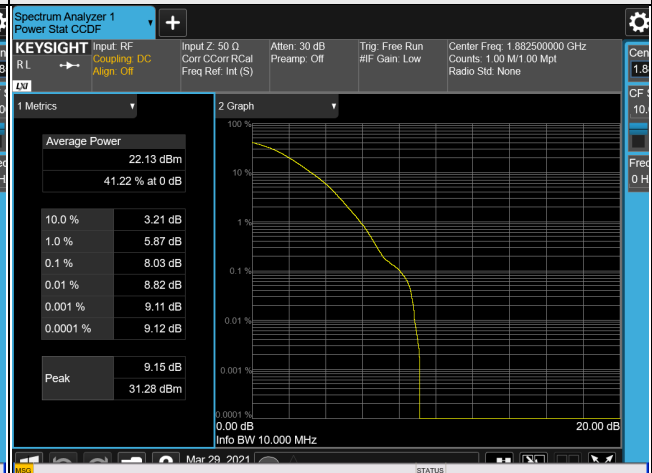
3MHz / 256QAM



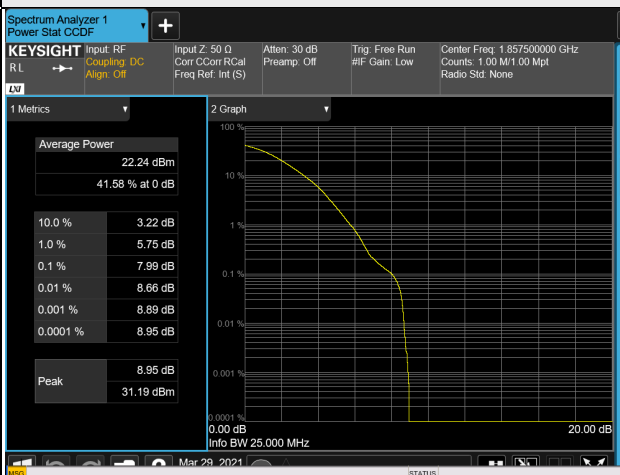
5MHz / 256QAM



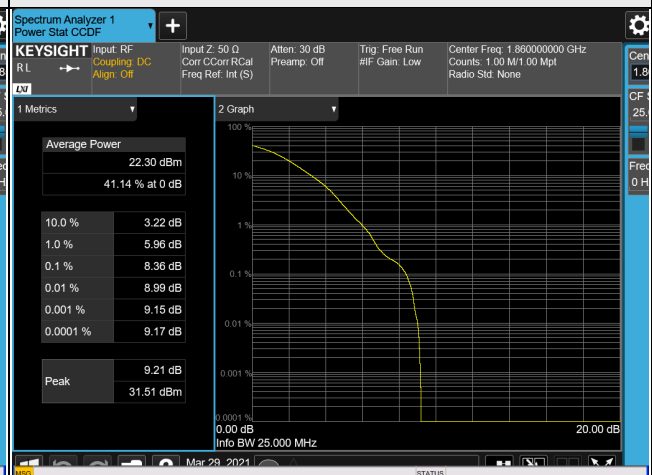
10MHz / 256QAM



15MHz / 256QAM



20MHz / 256QAM

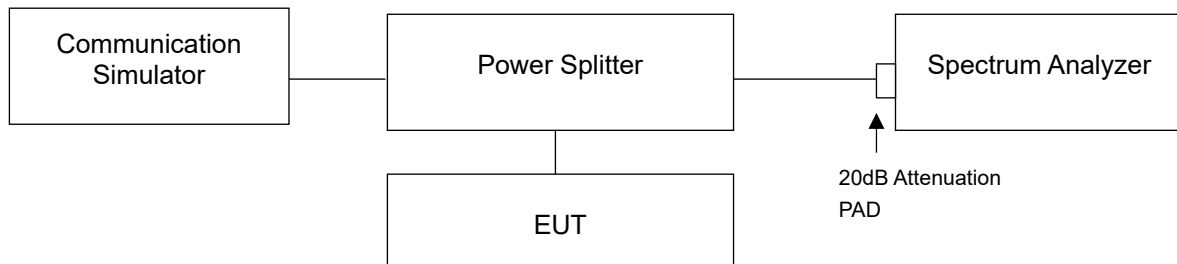


## 4.7 Conducted Spurious Emissions

### 4.7.1 Limits of Conducted Spurious Emissions Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to  $-13\text{dBm}$ .

### 4.7.2 Test Setup

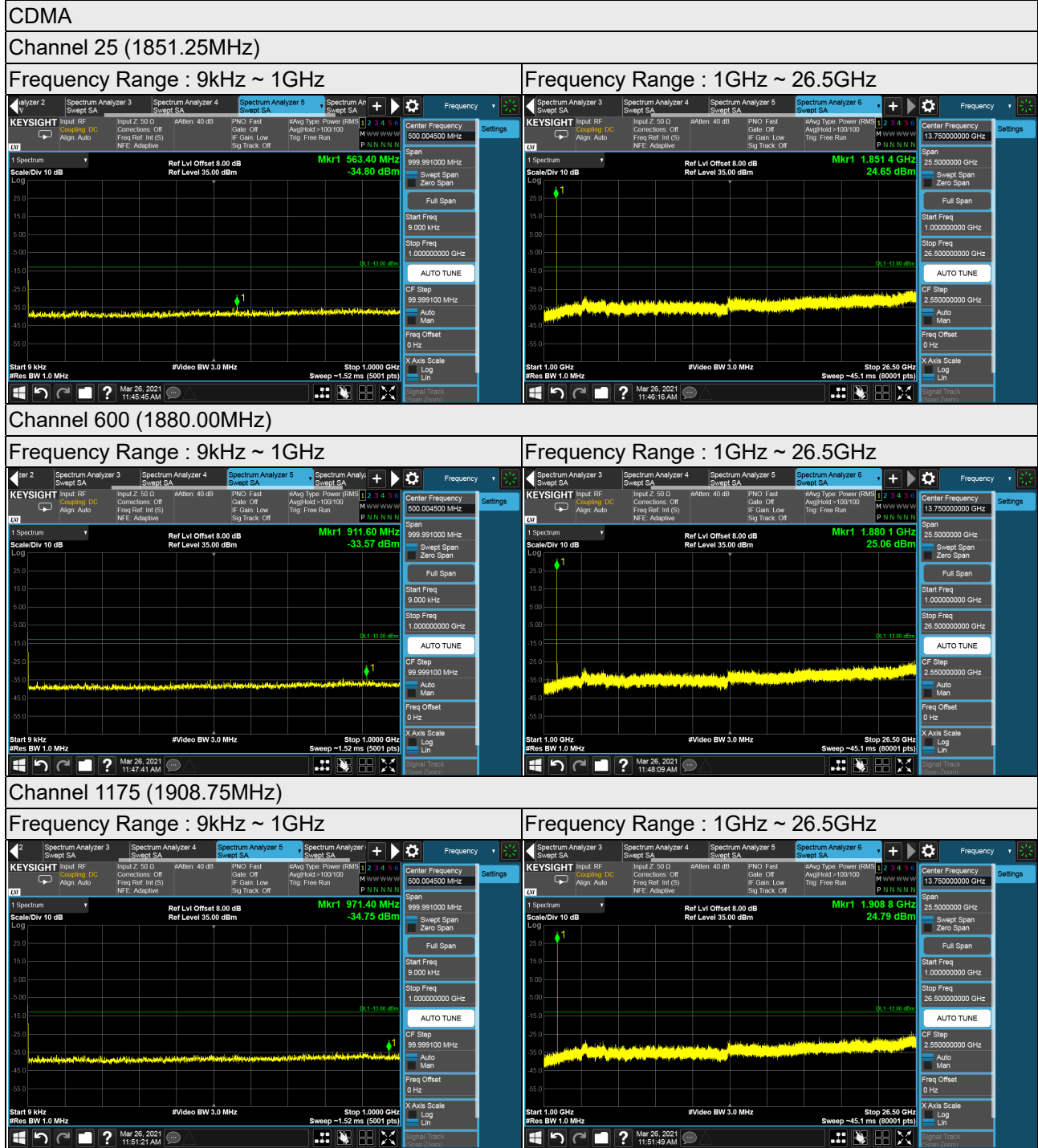


### 4.7.3 Test Procedure

- The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9kHz to 20GHz / 26.5GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz are used for conducted emission measurement.



### 4.7.4 Test Results

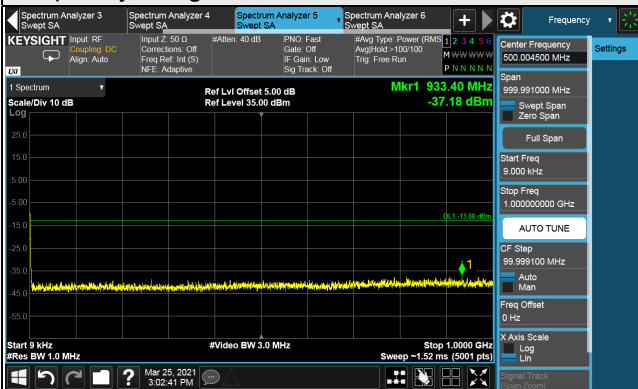


\*The 9kHz signal over the limit is from Spectrum.

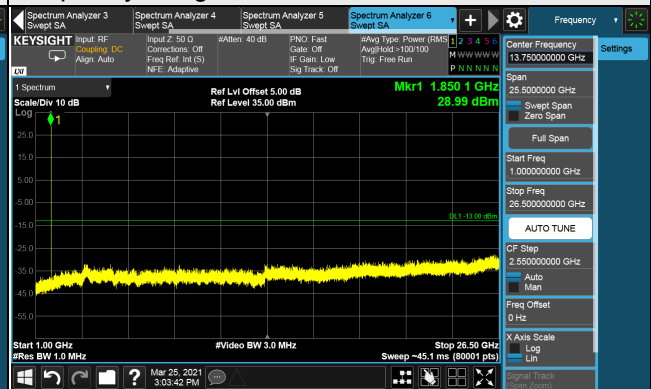
**GSM**

**Channel 512 (1850.2MHz)**

**Frequency Range : 9kHz ~ 1GHz**

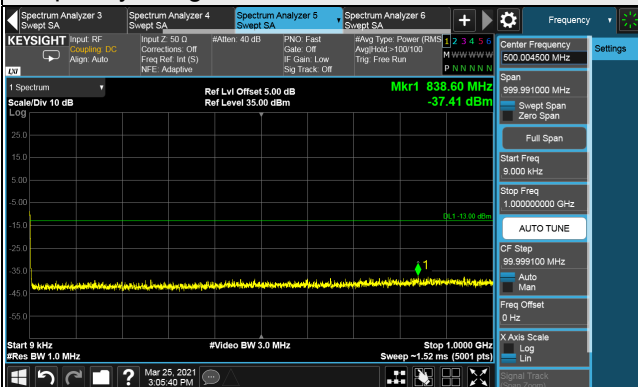


**Frequency Range : 1GHz ~ 26.5GHz**

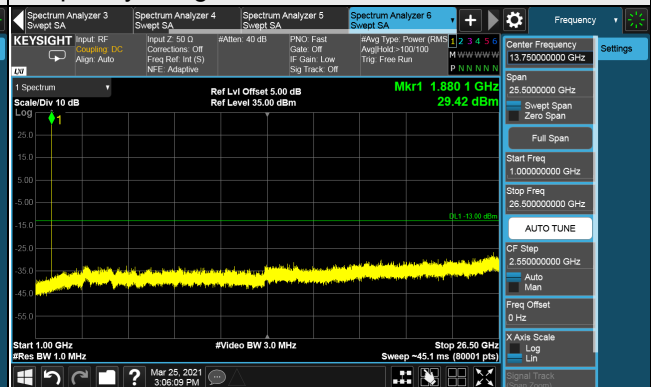


**Channel 661 (1880.0MHz)**

**Frequency Range : 9kHz ~ 1GHz**

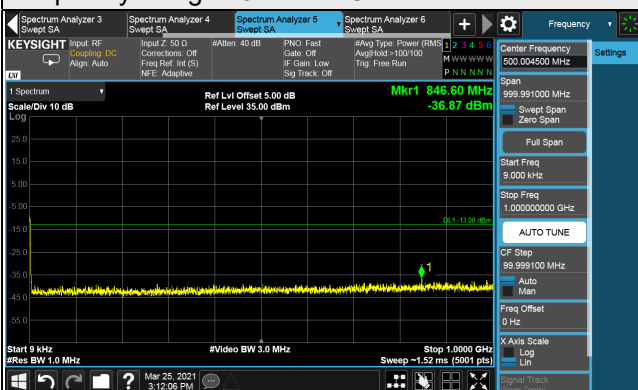


**Frequency Range : 1GHz ~ 26.5GHz**

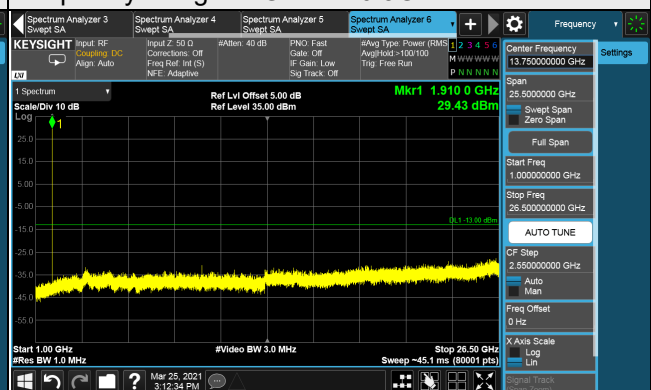


**Channel 810 (1909.8MHz)**

**Frequency Range : 9kHz ~ 1GHz**



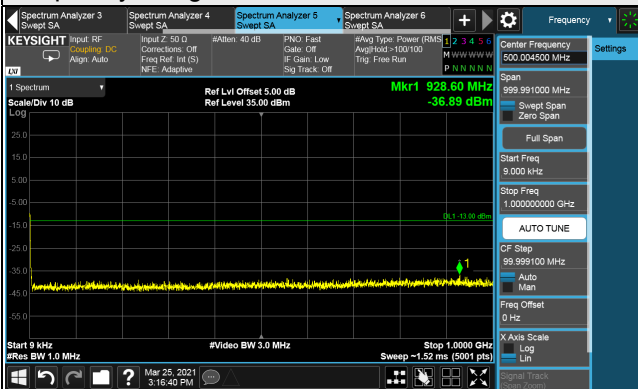
**Frequency Range : 1GHz ~ 26.5GHz**



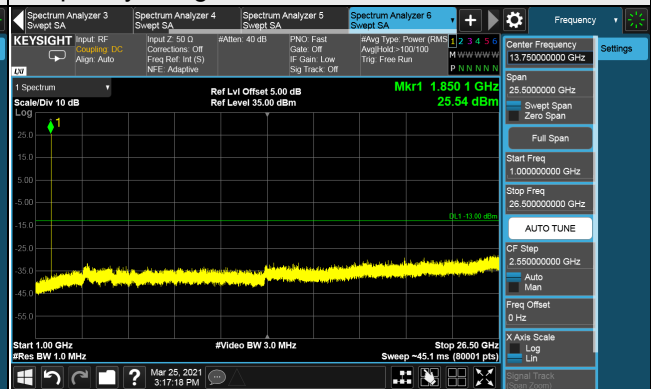
GPRS

Channel 512 (1850.2MHz)

Frequency Range : 9kHz ~ 1GHz

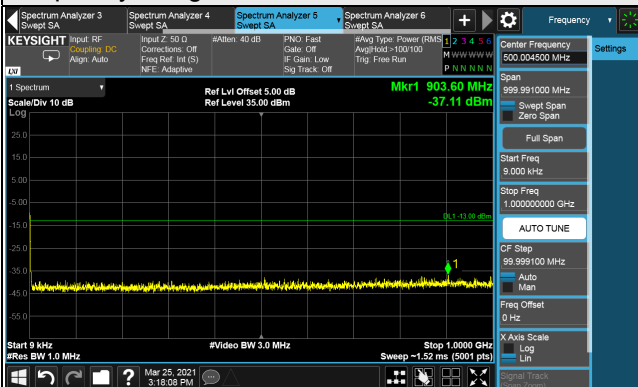


Frequency Range : 1GHz ~ 26.5GHz

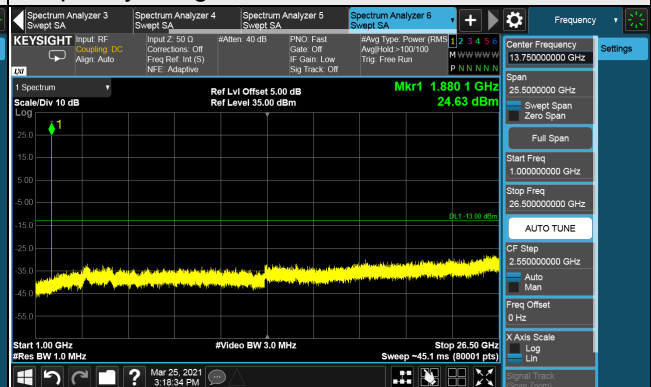


Channel 661 (1880.0MHz)

Frequency Range : 9kHz ~ 1GHz

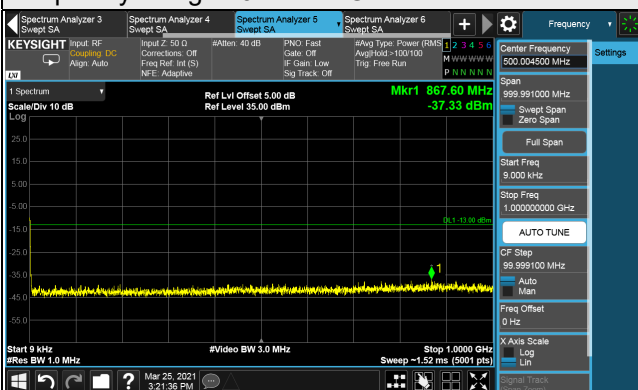


Frequency Range : 1GHz ~ 26.5GHz

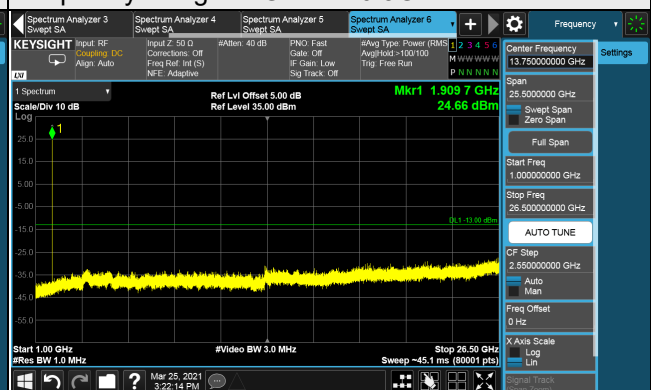


Channel 810 (1909.8MHz)

Frequency Range : 9kHz ~ 1GHz



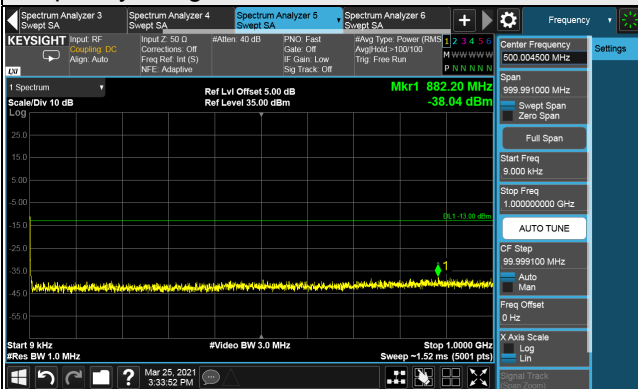
Frequency Range : 1GHz ~ 26.5GHz



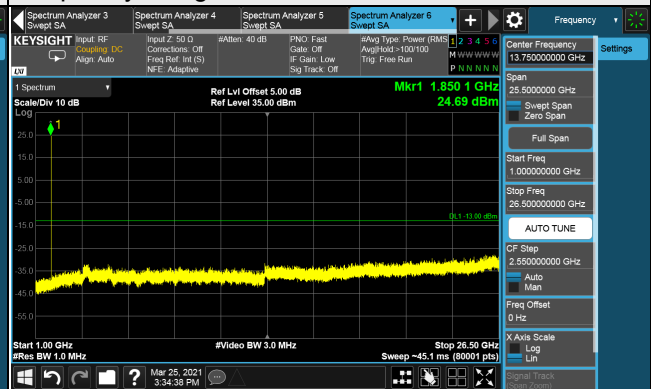
EDGE

Channel 512 (1850.2MHz)

Frequency Range : 9kHz ~ 1GHz

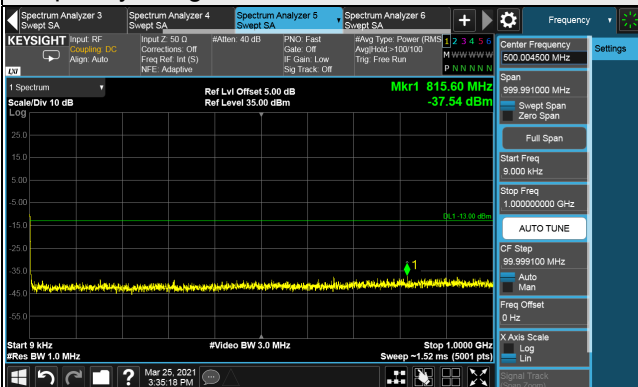


Frequency Range : 1GHz ~ 26.5GHz

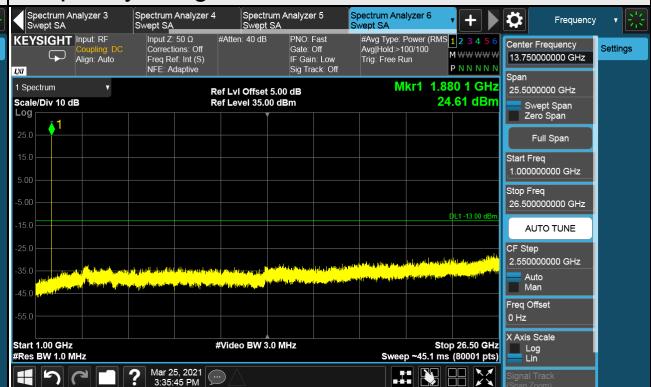


Channel 661 (1880.0MHz)

Frequency Range : 9kHz ~ 1GHz

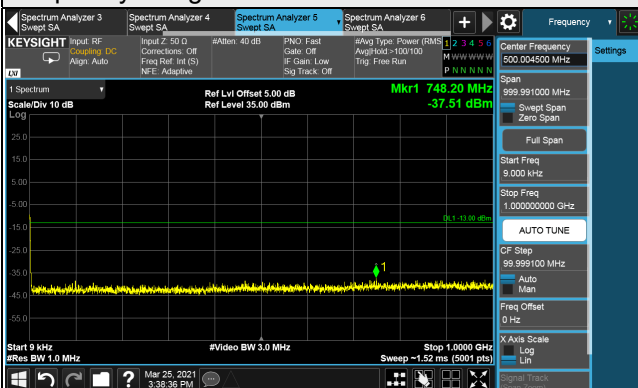


Frequency Range : 1GHz ~ 26.5GHz

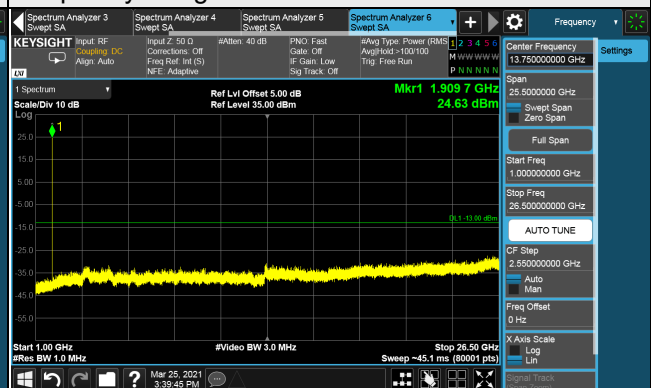


Channel 810 (1909.8MHz)

Frequency Range : 9kHz ~ 1GHz



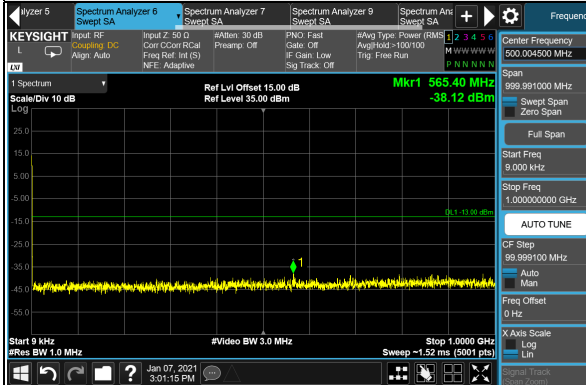
Frequency Range : 1GHz ~ 26.5GHz



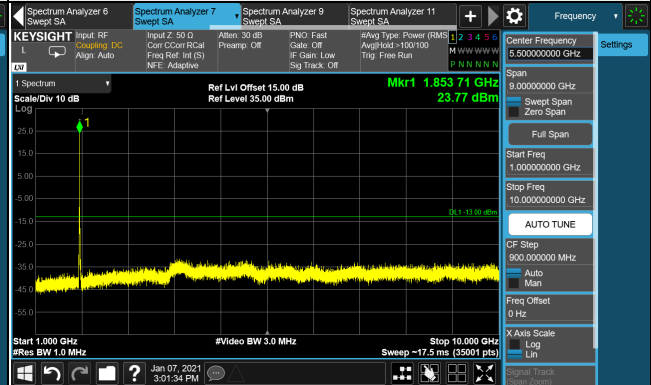
WCDMA

Channel 9262 (1852.4MHz)

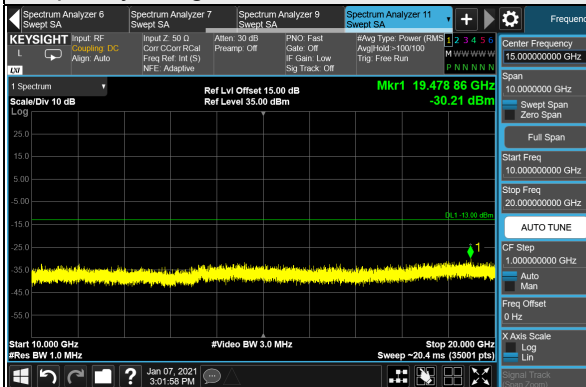
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz

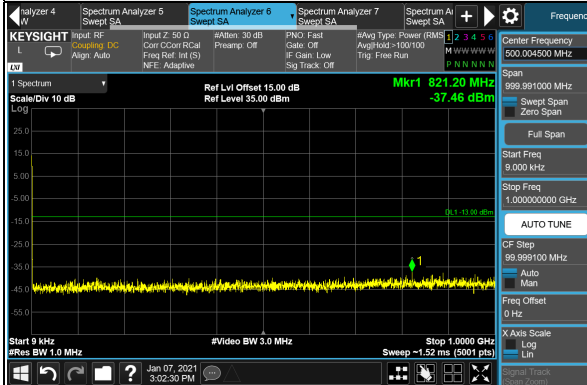


\*The 9kHz signal over the limit is from Spectrum.

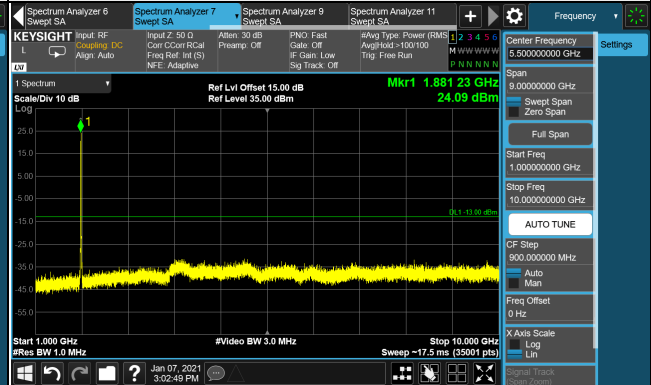
WCDMA

Channel 9400 (1880.0MHz)

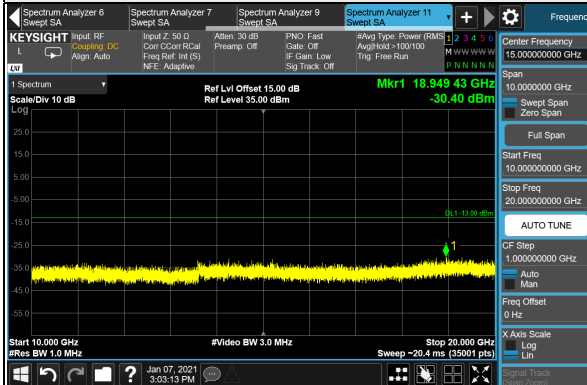
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz

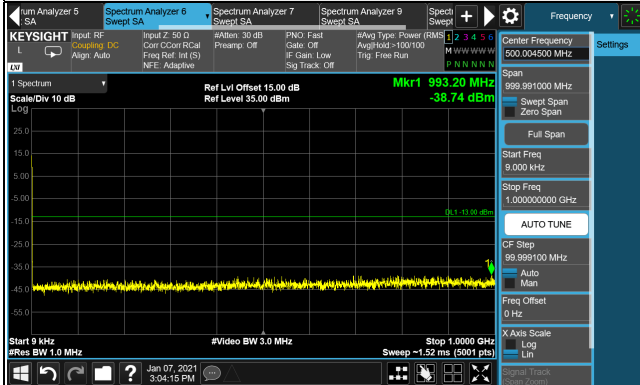


\*The 9kHz signal over the limit is from Spectrum.

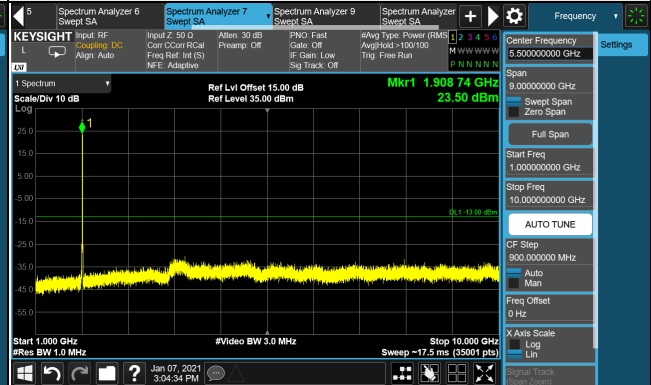
WCDMA

Channel 9538 (1907.6MHz)

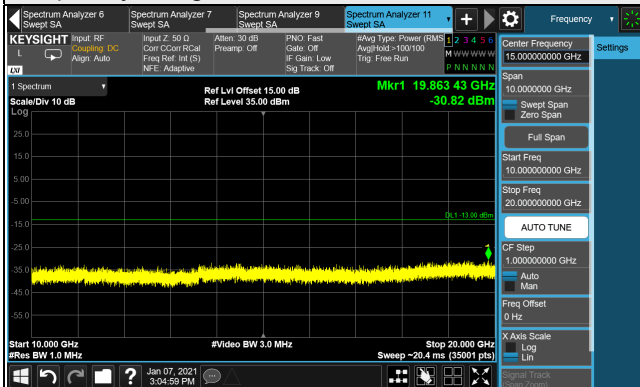
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz

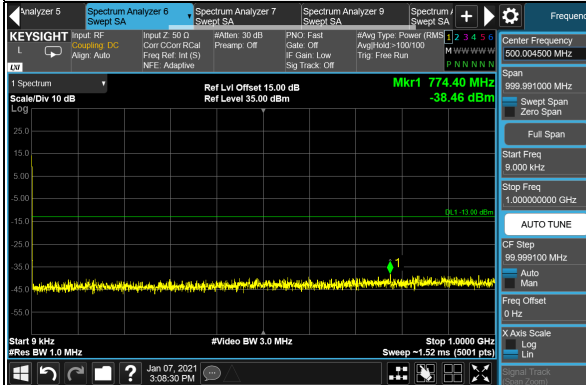


\*The 9kHz signal over the limit is from Spectrum.

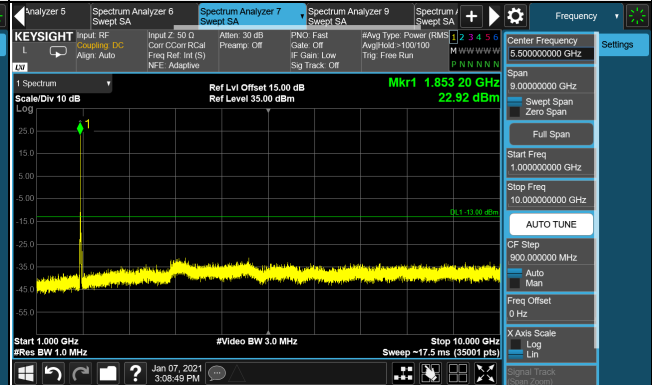
# HSDPA

Channel 9262 (1852.4MHz)

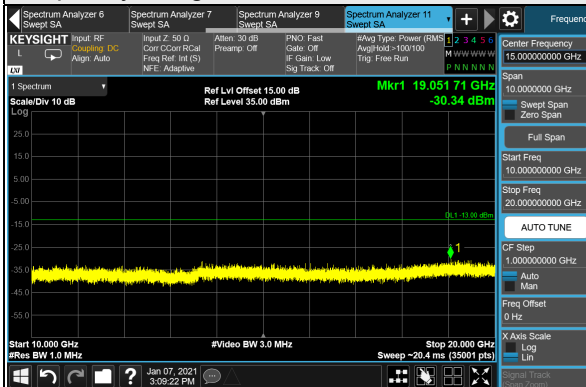
Frequency Range : 9kHz ~ 1GHz



Frequency Range : 1GHz ~ 10GHz



Frequency Range : 10GHz ~ 20GHz



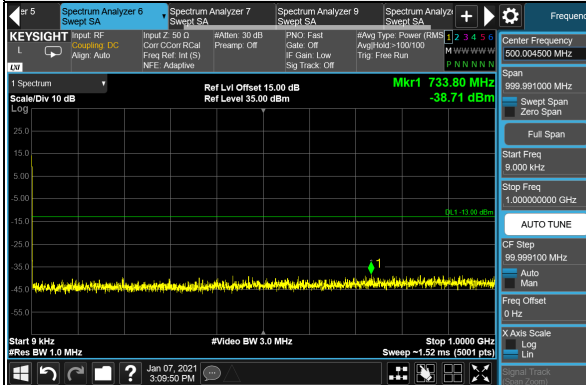
\*The 9kHz signal over the limit is from Spectrum.



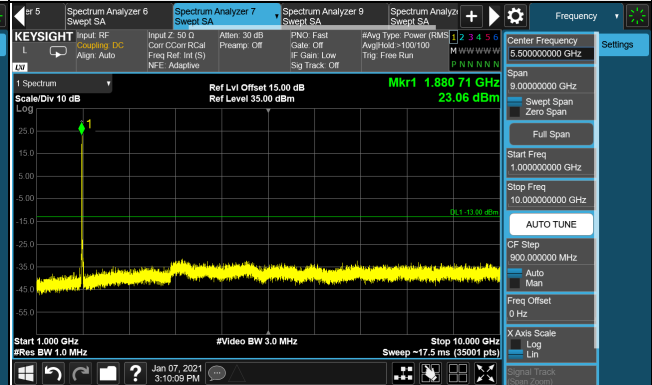
# HSDPA

## Channel 9400 (1880.0MHz)

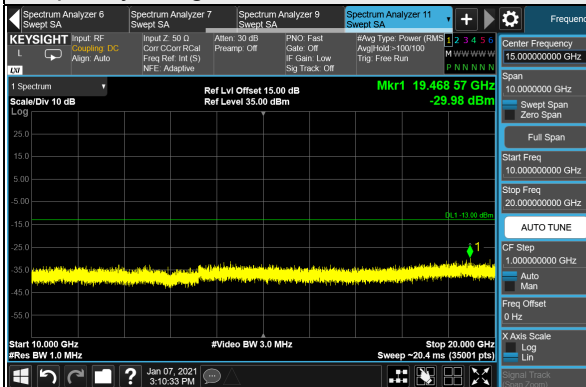
### Frequency Range : 9kHz ~ 1GHz



### Frequency Range : 1GHz ~ 10GHz



### Frequency Range : 10GHz ~ 20GHz

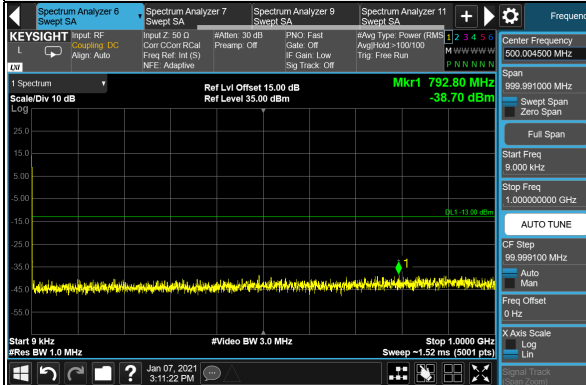


\*The 9kHz signal over the limit is from Spectrum.

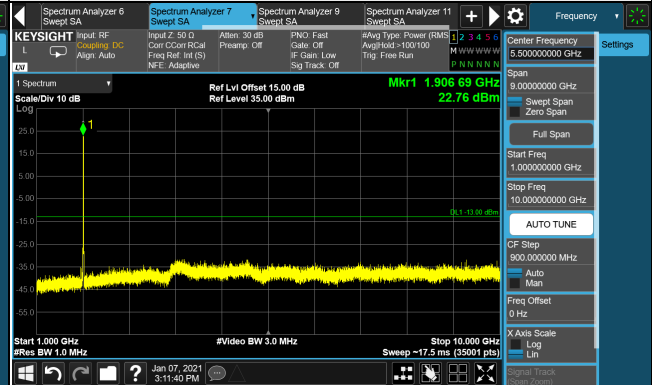
# HSDPA

## Channel 9538 (1907.6MHz)

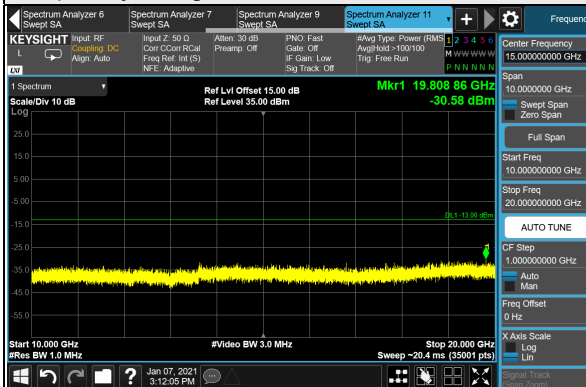
### Frequency Range : 9kHz ~ 1GHz



### Frequency Range : 1GHz ~ 10GHz



### Frequency Range : 10GHz ~ 20GHz

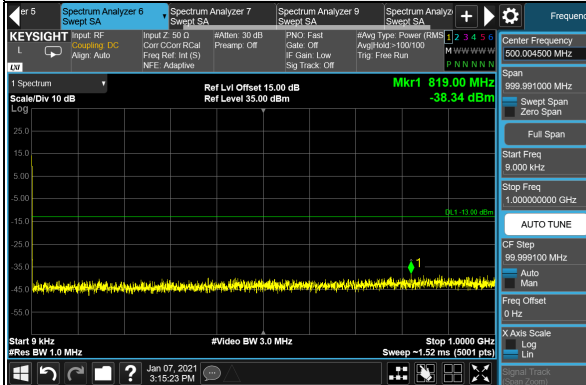


\*The 9kHz signal over the limit is from Spectrum.

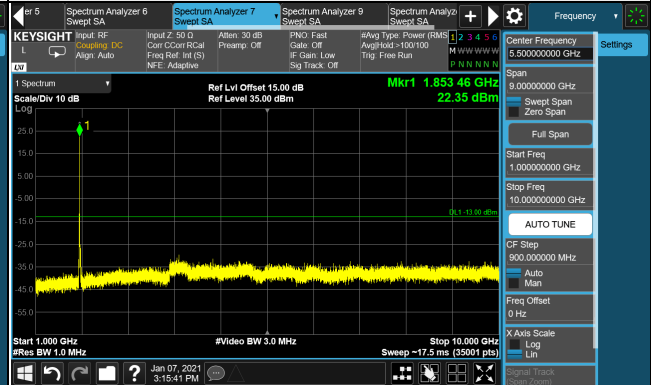
# HSUPA

## Channel 9262 (1852.4MHz)

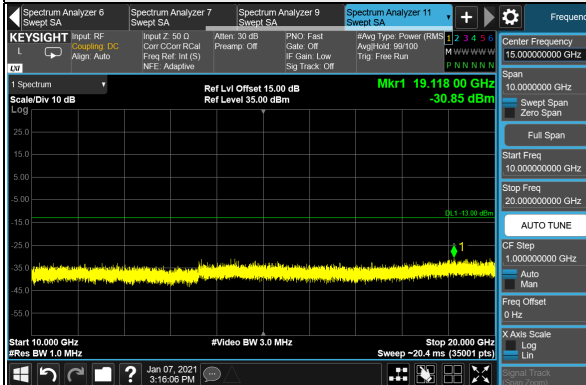
### Frequency Range : 9kHz ~ 1GHz



### Frequency Range : 1GHz ~ 10GHz



### Frequency Range : 10GHz ~ 20GHz



\*The 9kHz signal over the limit is from Spectrum.