

# PEAK TO AVERAGE POWER (CCDF) BAND 66a



XMit 2019.09.05

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

## TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	19-Mar-19	19-Mar-20
Generator - Signal	Keysight	N5171B-506	TEW	2-May-18	2-May-21

## TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

Because the conducted Output Power was measured using a RMS Average detector, the Peak to Average Power Ratio (PAPR) was measured to show that the maximum peak-max-hold spectrum to the maximum of the average spectrum does not exceed the rule part defined limit.


The PAPR measurement method is described in ANSI C63.26 section 5.2.3.4.  
The PAPR was measured using the CCDF function of the spectrum analyzer.

Per 27.50(d)(5), RSS-139 section 6.5, and RSS-170 section 5.3.1, the PAPR limit shall not exceed 13 dB for more than the ANSI described 0.1% of the time.

# PEAK TO AVERAGE POWER (CCDF) BAND 66a



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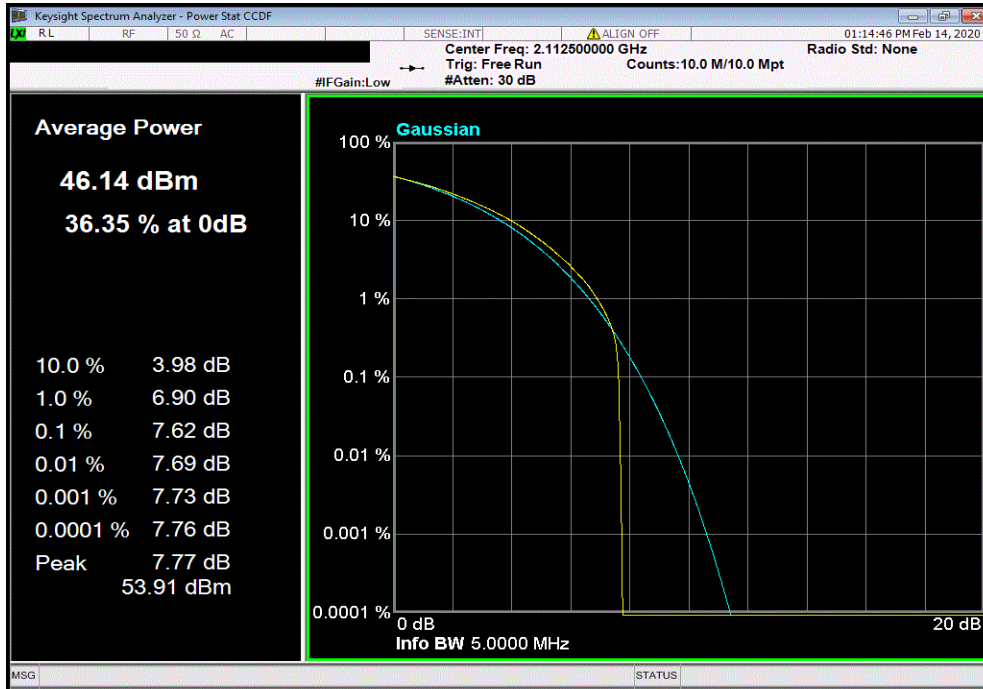
EUT: AHFIA		Work Order: NOKI0008	
Serial Number: K9174623559		Date: 14-Feb-20	
Customer: Nokia of America Corporation		Temperature: 22.2 °C	
Attendees: Mitch Hill, John Rattanaovong		Humidity: 25.4% RH	
Project: None		Barometric Pres.: 1027 mbar	
Tested by: Brandon Hobbs		Power: 54VDC	
		Job Site: TX09	
TEST SPECIFICATIONS			
FCC 27:2020		Test Method	
RSS-139:2015, RSS-170:2015		ANSI C63.26:2015	
		RSS-139:2015	
COMMENTS			
All measurement path losses were accounted for in the reference level offset including any attenuators, filters and DC blocks. All measurement path losses were accounted for in the reference level offset including any attenuators, filters and DC blocks. The data was taken using the highest output power port which was found in the original client provided test report.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature 	
		PAPR Value (dB)	PAPR Limit (dB) Results
Band 66a (Single Carrier) Port 4			
QPSK			
5 MHz	Low Channel, 2112.5 MHz	7.62	13 Pass
	Mid Channel, 2145 MHz	7.63	13 Pass
	High Channel, 2177.5 MHz	7.61	13 Pass
10 MHz	Low Channel, 2115 MHz	7.71	13 Pass
	Mid Channel, 2145 MHz	7.70	13 Pass
	High Channel, 2175 MHz	7.70	13 Pass
15 MHz	Low Channel, 2117.5 MHz	7.73	13 Pass
	Mid Channel, 2145 MHz	7.76	13 Pass
	High Channel, 2172.5 MHz	7.73	13 Pass
20 MHz	Low Channel, 2120 MHz	7.66	13 Pass
	Mid Channel, 2145 MHz	7.60	13 Pass
	High Channel, 2170 MHz	7.68	13 Pass
16-QAM			
5 MHz	Low Channel, 2112.5 MHz	7.60	13 Pass
	Mid Channel, 2145 MHz	7.61	13 Pass
	High Channel, 2177.5 MHz	7.61	13 Pass
10 MHz	Low Channel, 2115 MHz	7.71	13 Pass
	Mid Channel, 2145 MHz	7.69	13 Pass
	High Channel, 2175 MHz	7.69	13 Pass
15 MHz	Low Channel, 2117.5 MHz	7.73	13 Pass
	Mid Channel, 2145 MHz	7.68	13 Pass
	High Channel, 2172.5 MHz	7.71	13 Pass
20 MHz	Low Channel, 2120 MHz	7.69	13 Pass
	Mid Channel, 2145 MHz	7.63	13 Pass
	High Channel, 2170 MHz	7.70	13 Pass
64-QAM			
5 MHz	Low Channel, 2112.5 MHz	7.68	13 Pass
	Mid Channel, 2145 MHz	7.69	13 Pass
	High Channel, 2177.5 MHz	7.68	13 Pass
10 MHz	Low Channel, 2115 MHz	7.71	13 Pass
	Mid Channel, 2145 MHz	7.70	13 Pass
	High Channel, 2175 MHz	7.71	13 Pass
15 MHz	Low Channel, 2117.5 MHz	7.67	13 Pass
	Mid Channel, 2145 MHz	7.66	13 Pass
	High Channel, 2172.5 MHz	7.71	13 Pass
20 MHz	Low Channel, 2120 MHz	7.64	13 Pass
	Mid Channel, 2145 MHz	7.59	13 Pass
	High Channel, 2170 MHz	7.65	13 Pass
256-QAM			
5 MHz	Low Channel, 2112.5 MHz	7.65	13 Pass
	Mid Channel, 2145 MHz	7.65	13 Pass
	High Channel, 2177.5 MHz	7.64	13 Pass
10 MHz	Low Channel, 2115 MHz	7.74	13 Pass
	Mid Channel, 2145 MHz	7.71	13 Pass
	High Channel, 2175 MHz	7.72	13 Pass
15 MHz	Low Channel, 2117.5 MHz	7.70	13 Pass
	Mid Channel, 2145 MHz	7.70	13 Pass
	High Channel, 2172.5 MHz	7.75	13 Pass
20 MHz	Low Channel, 2120 MHz	7.69	13 Pass
	Mid Channel, 2145 MHz	7.63	13 Pass
	High Channel, 2170 MHz	7.70	13 Pass

# PEAK TO AVERAGE POWER (CCDF) BAND 66a

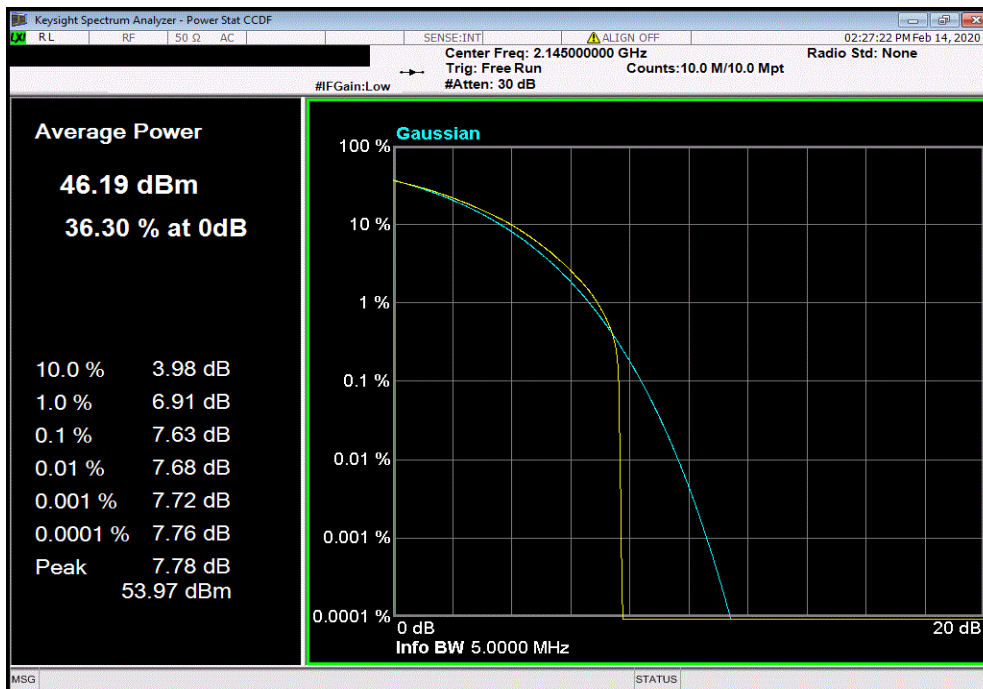


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Band 66a (Single Carrier) Port 4, QPSK, 5 MHz, Low Channel, 2112.5 MHz						
		PAPR Value (dB)	PAPR Limit (dB)	Results		
		7.62	13	Pass		



Band 66a (Single Carrier) Port 4, QPSK, 5 MHz, Mid Channel, 2145 MHz						
		PAPR Value (dB)	PAPR Limit (dB)	Results		
		7.63	13	Pass		

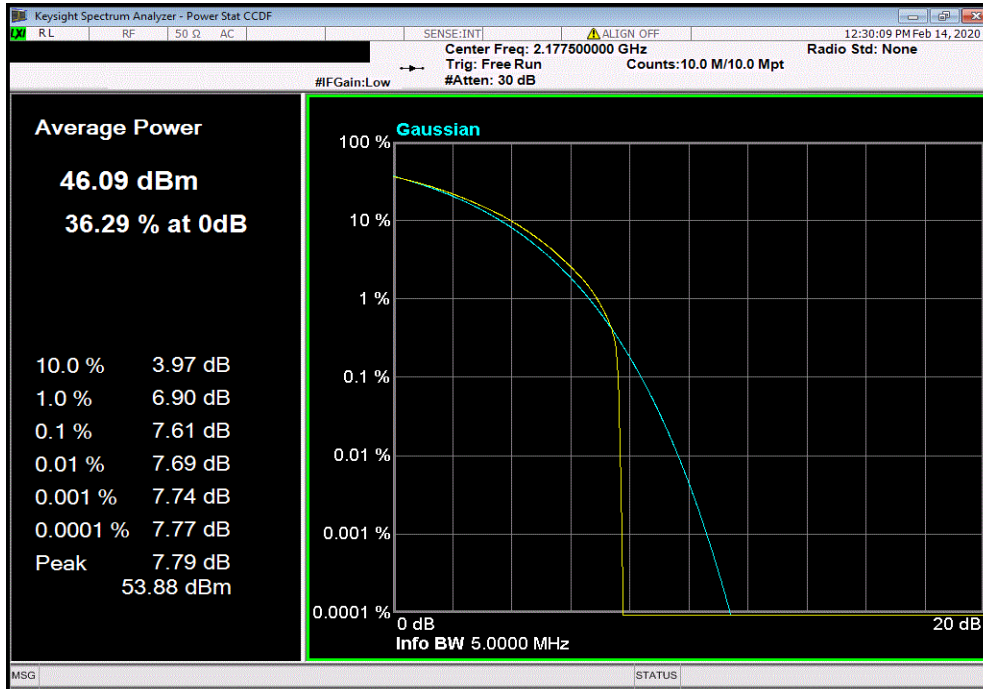


# PEAK TO AVERAGE POWER (CCDF) BAND 66a

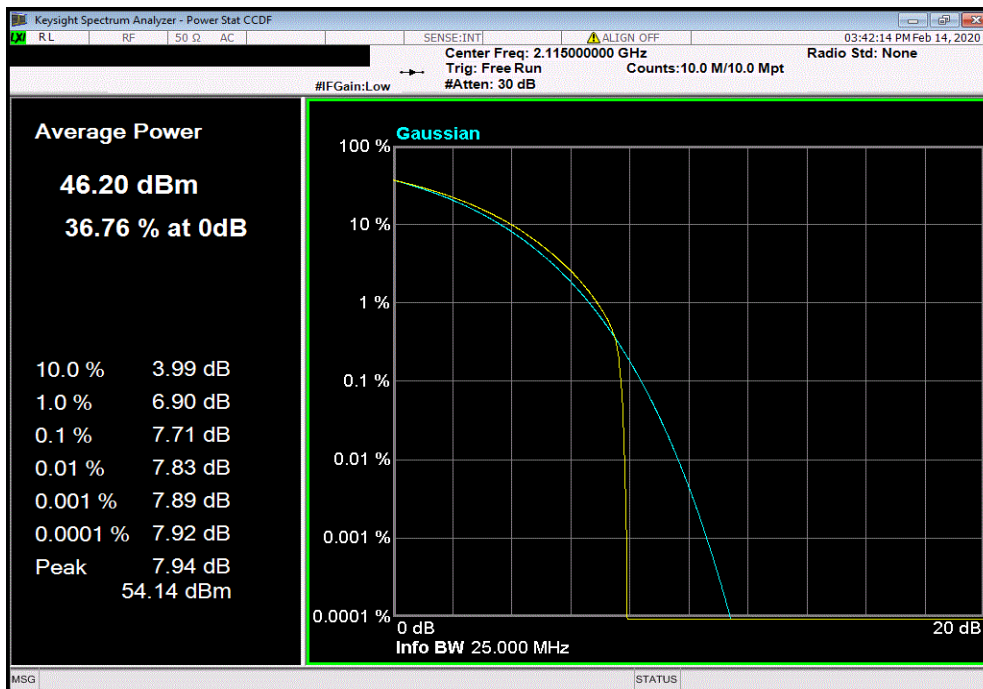


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Band 66a (Single Carrier) Port 4, QPSK, 5 MHz, High Channel, 2177.5 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.61	13	Pass			



Band 66a (Single Carrier) Port 4, QPSK, 10 MHz, Low Channel, 2115 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.71	13	Pass			

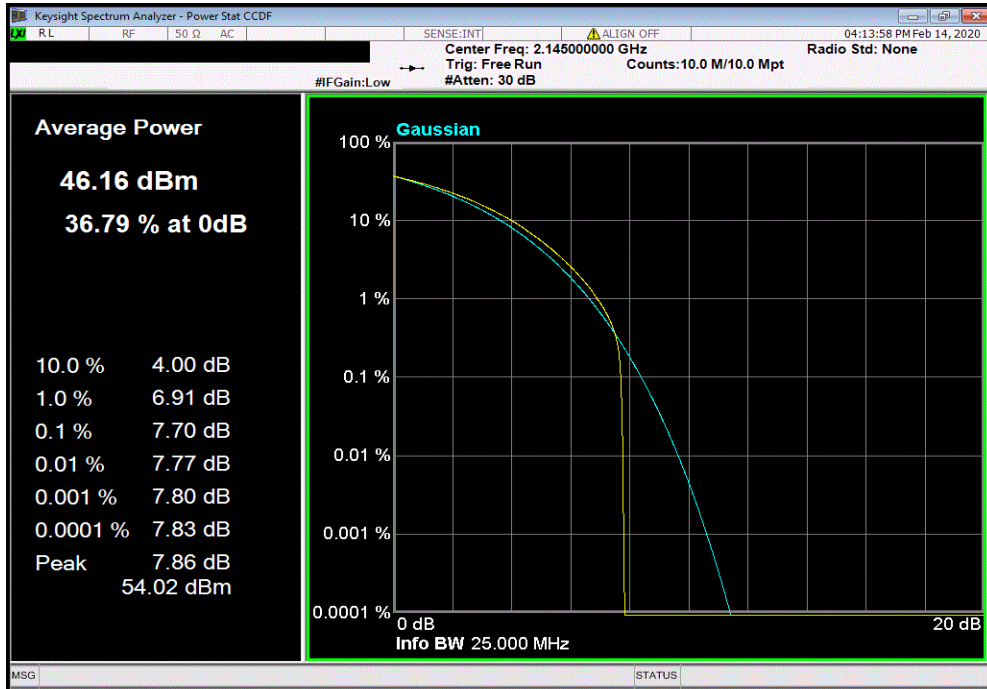


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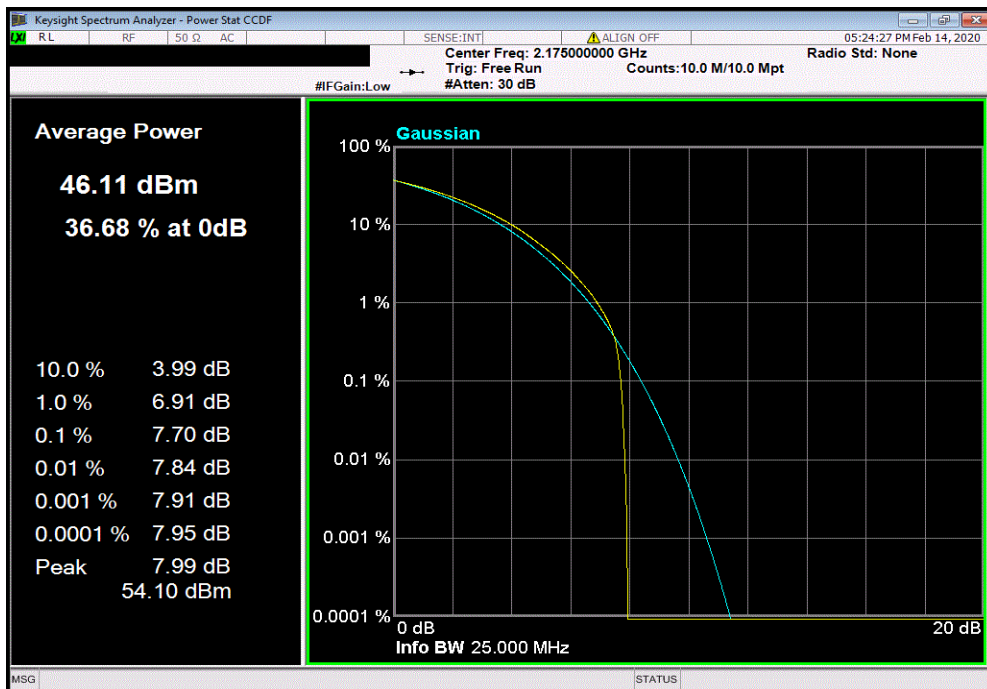


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Band 66a (Single Carrier) Port 4, QPSK, 10 MHz, Mid Channel, 2145 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.7	13	Pass		



Band 66a (Single Carrier) Port 4, QPSK, 10 MHz, High Channel, 2175 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.7	13	Pass		

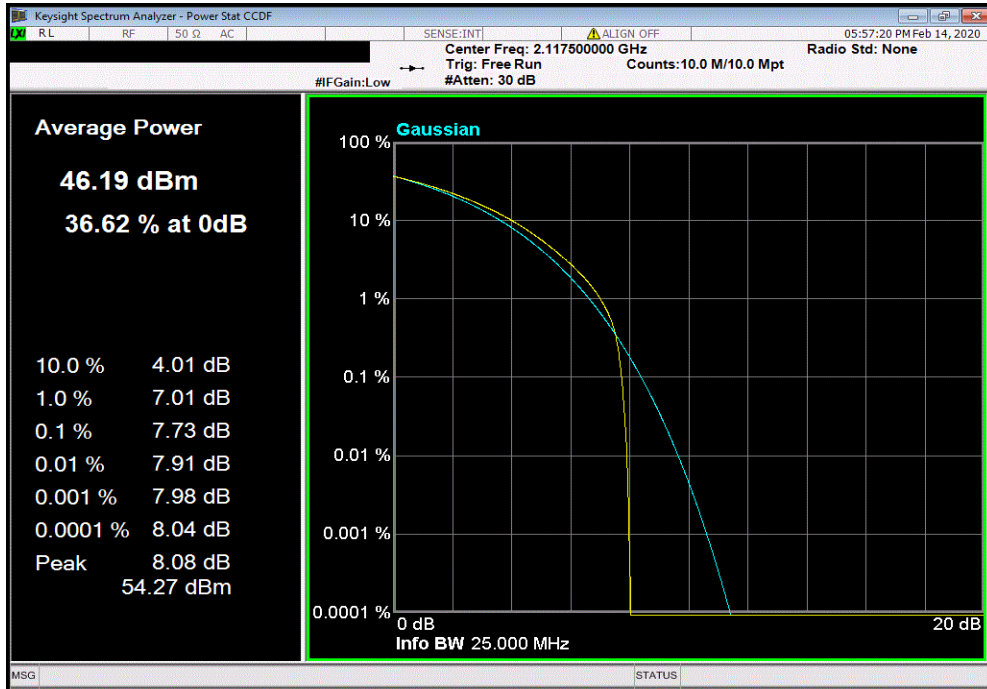


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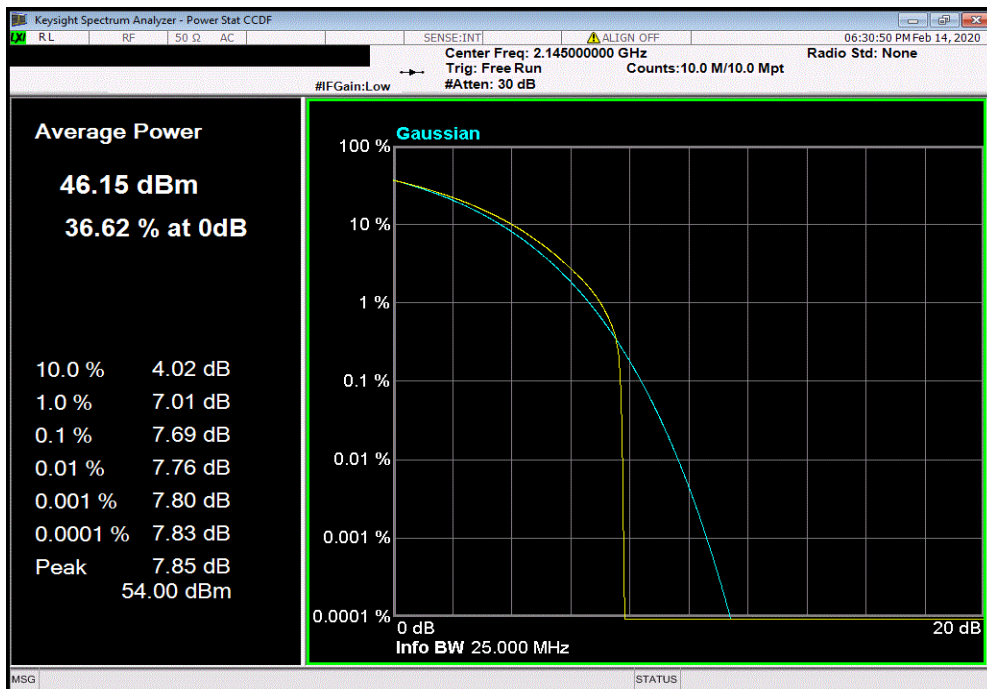


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Band 66a (Single Carrier) Port 4, QPSK, 15 MHz, Low Channel, 2117.5 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.73	13	Pass		



Band 66a (Single Carrier) Port 4, QPSK, 15 MHz, Mid Channel, 2145 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.76	13	Pass		



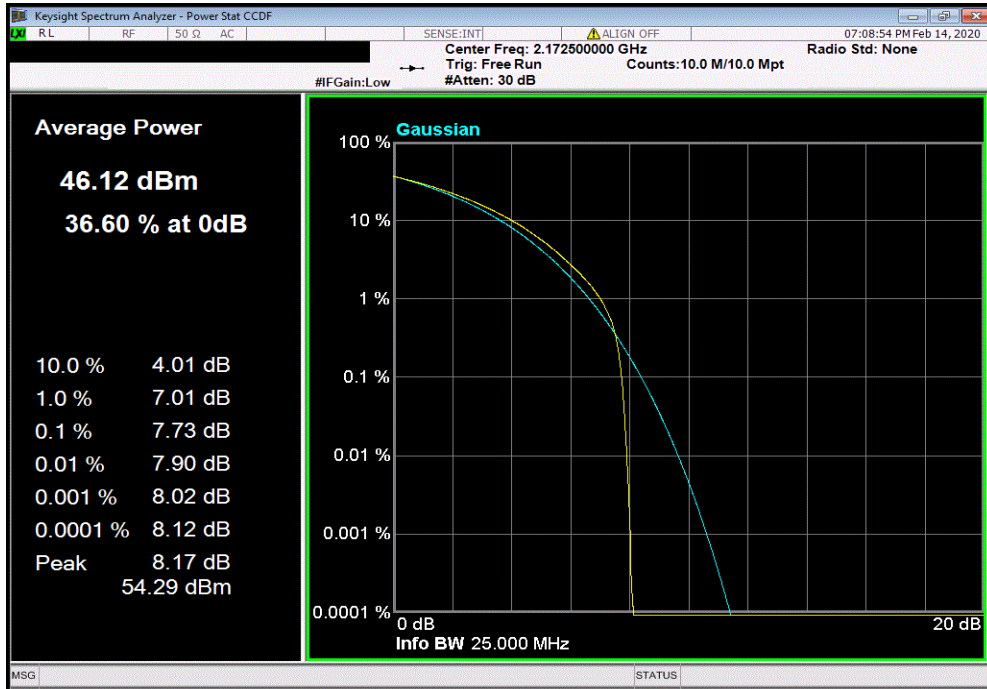


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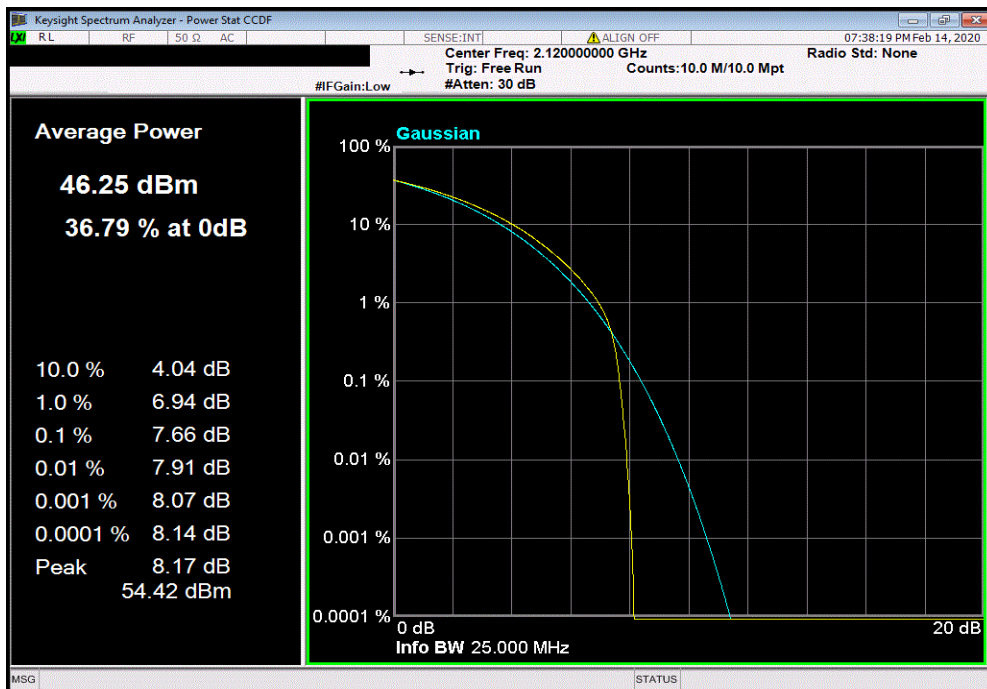


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Band 66a (Single Carrier) Port 4, QPSK, 15 MHz, High Channel, 2172.5 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.73	13	Pass		



Band 66a (Single Carrier) Port 4, QPSK, 20 MHz, Low Channel, 2120 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.66	13	Pass		

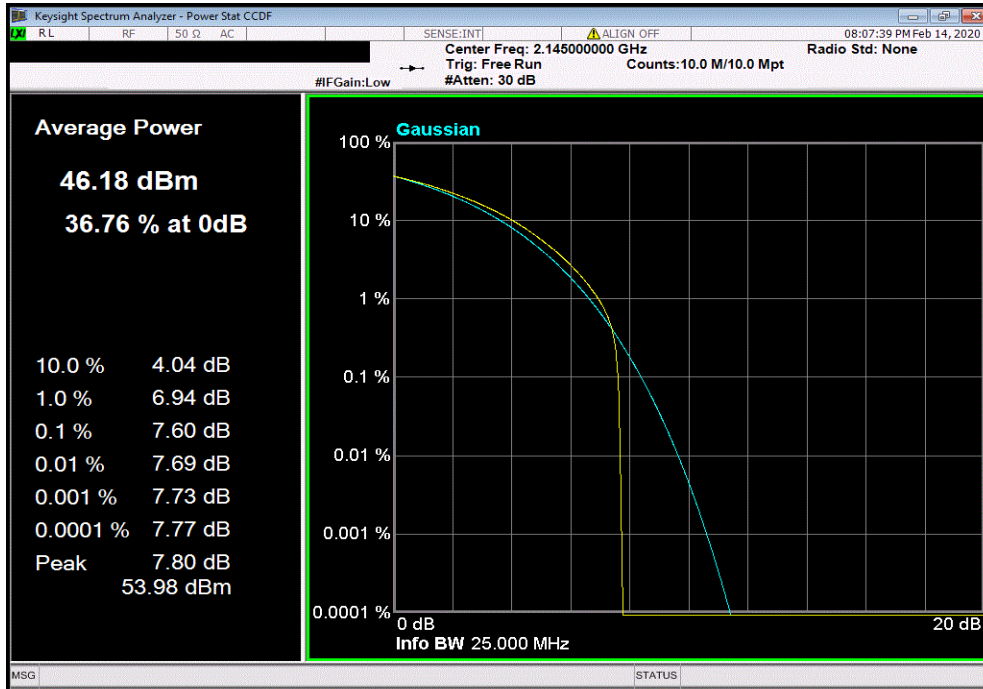


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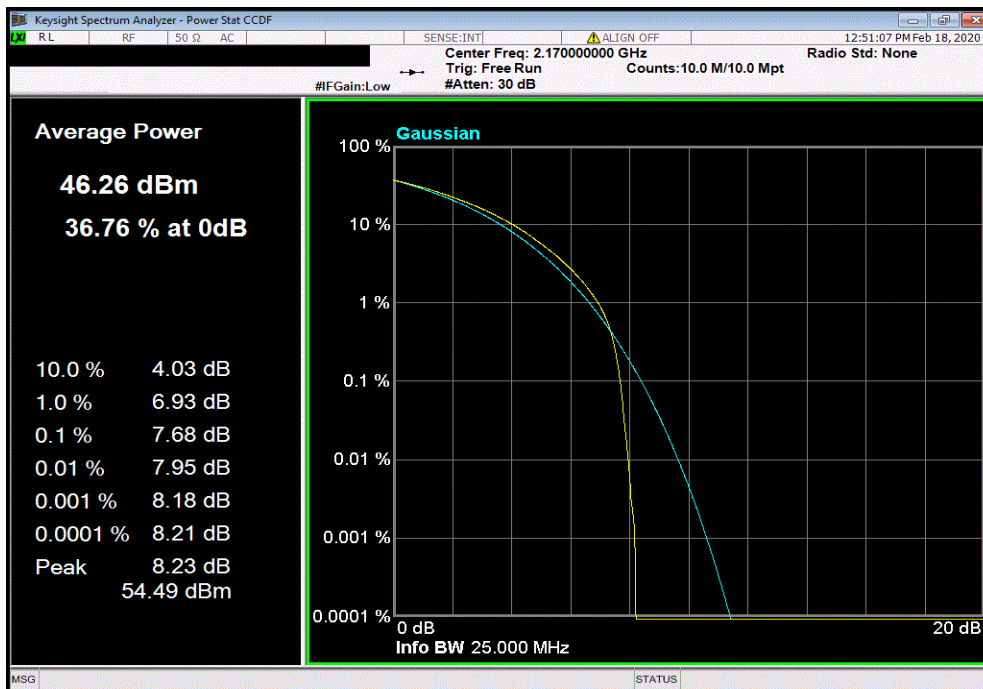


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Band 66a (Single Carrier) Port 4, QPSK, 20 MHz, Mid Channel, 2145 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.6	13	Pass			



Band 66a (Single Carrier) Port 4, QPSK, 20 MHz, High Channel, 2170 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.68	13	Pass			



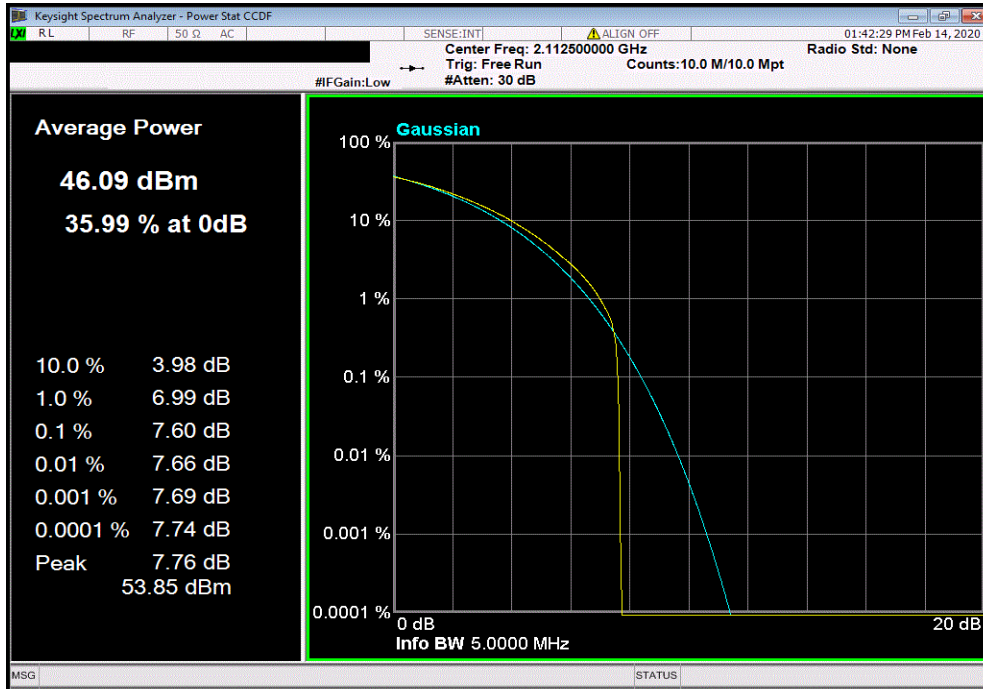


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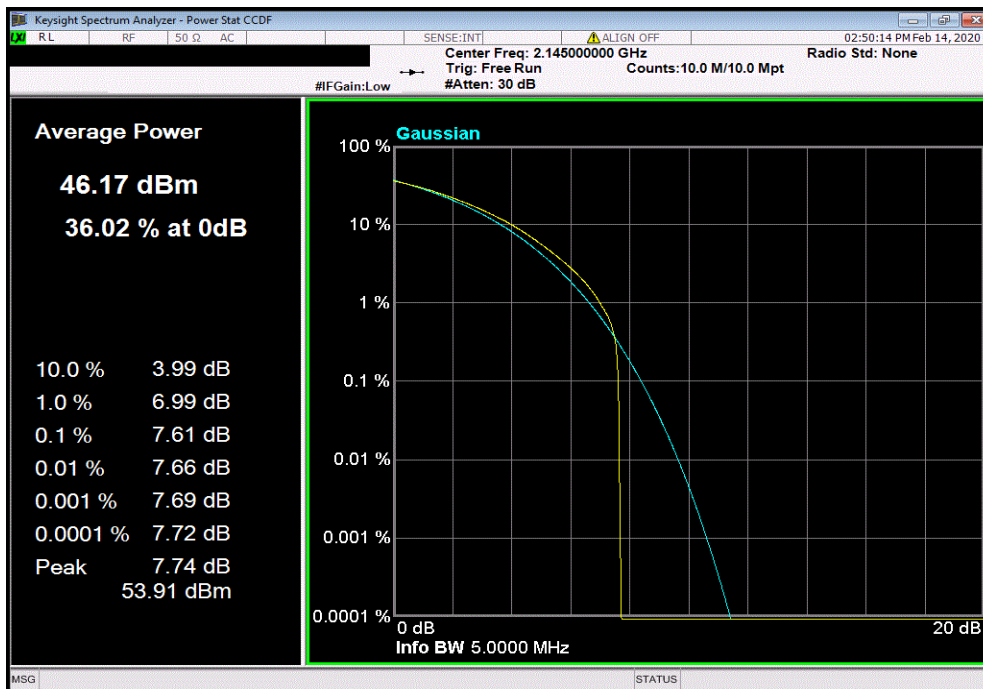


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Band 66a (Single Carrier) Port 4, 16-QAM, 5 MHz, Low Channel, 2112.5 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.6	13	Pass			



Band 66a (Single Carrier) Port 4, 16-QAM, 5 MHz, Mid Channel, 2145 MHz						
	PAPR Value (dB)	PAPR Limit (dB)	Results			
	7.61	13	Pass			

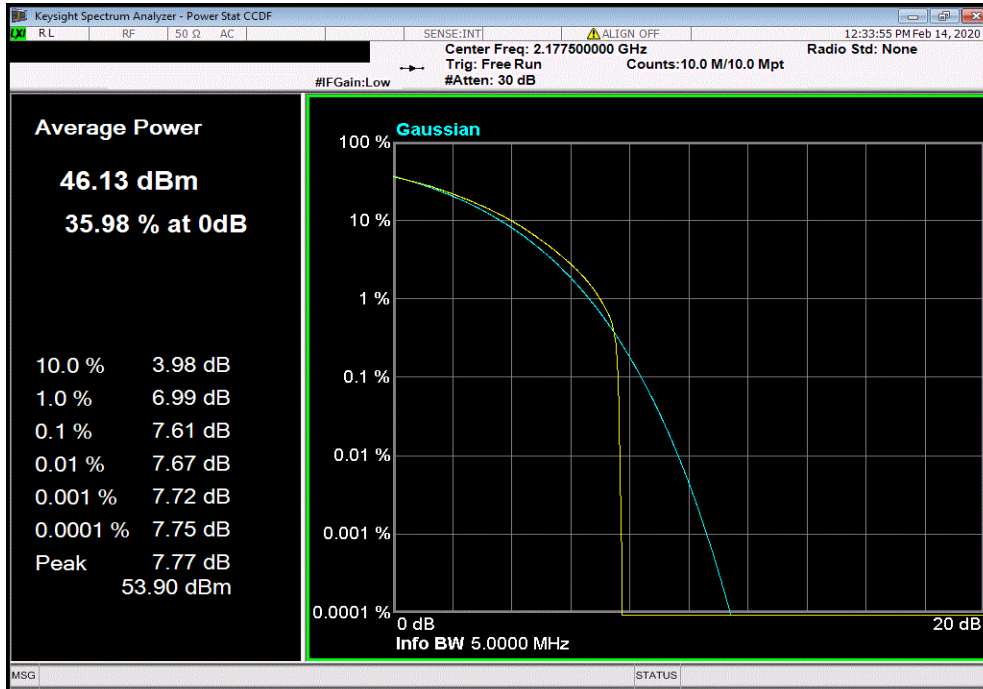


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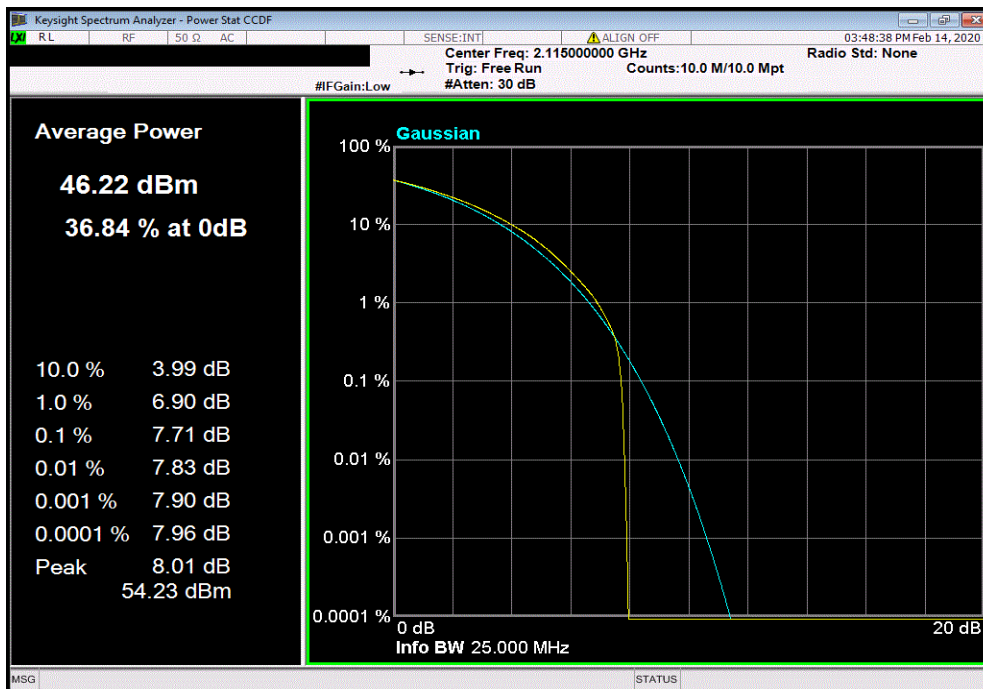


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Band 66a (Single Carrier) Port 4, 16-QAM, 5 MHz, High Channel, 2177.5 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.61	13	Pass		



Band 66a (Single Carrier) Port 4, 16-QAM, 10 MHz, Low Channel, 2115 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.71	13	Pass		

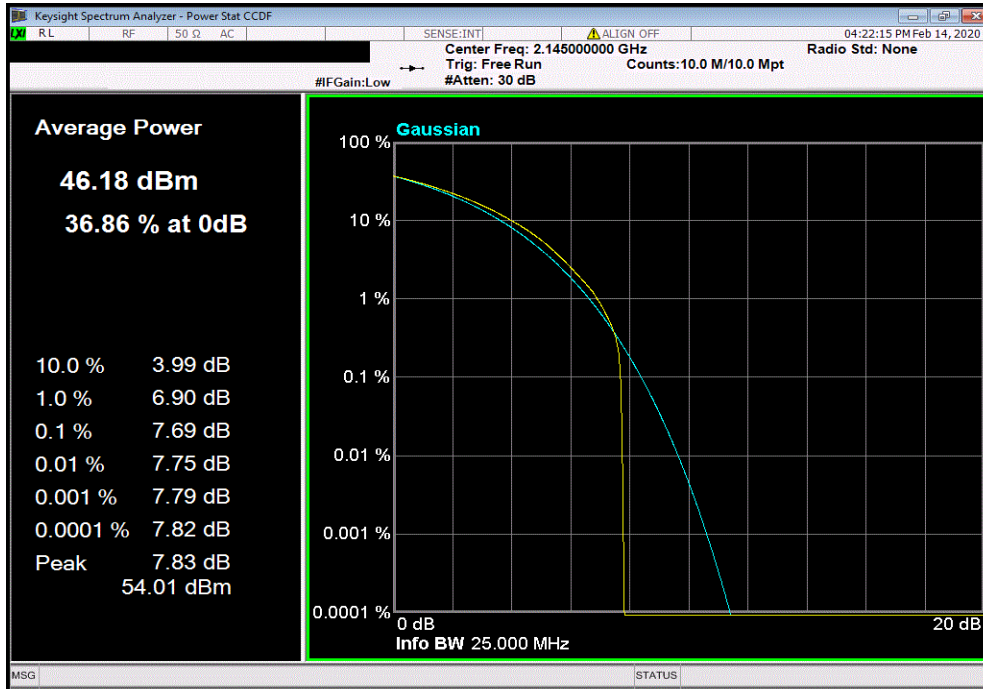


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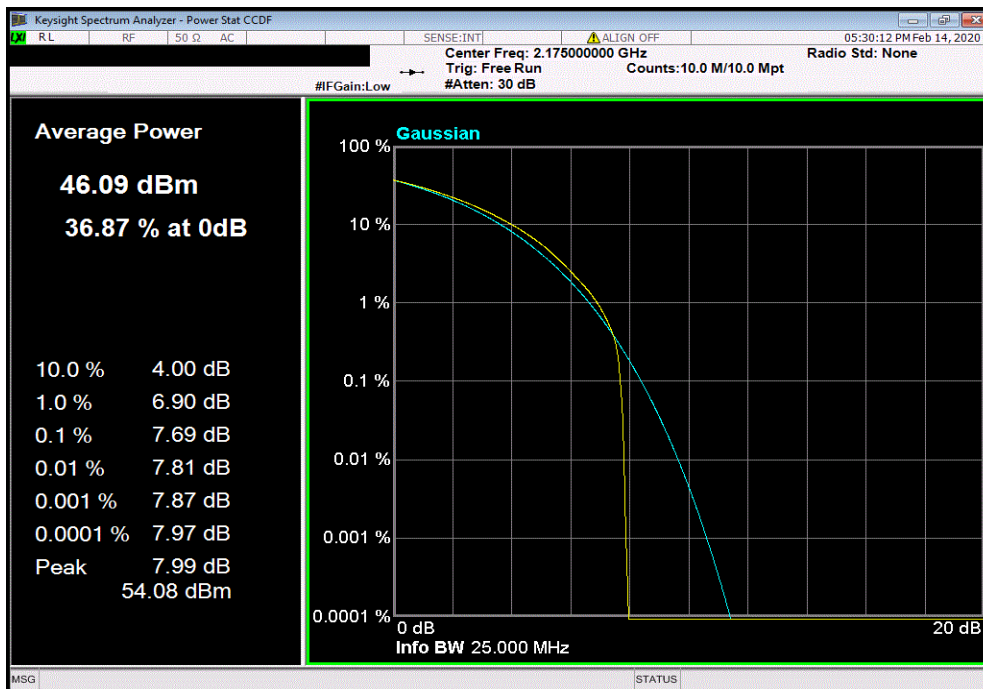


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Band 66a (Single Carrier) Port 4, 16-QAM, 10 MHz, Mid Channel, 2145 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.69	13	Pass		



Band 66a (Single Carrier) Port 4, 16-QAM, 10 MHz, High Channel, 2175 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.69	13	Pass		

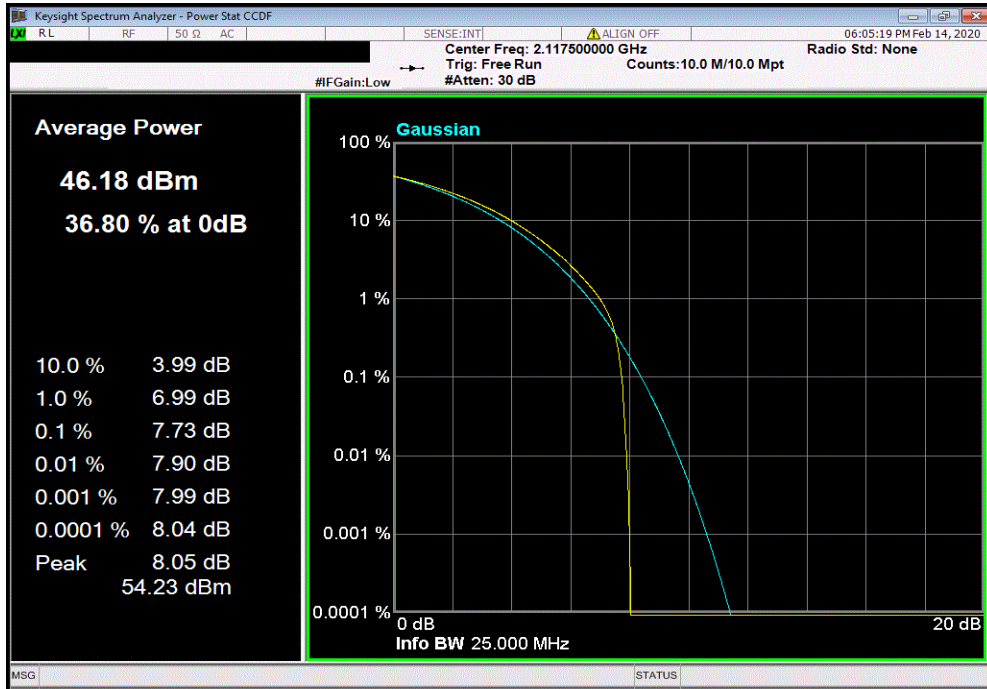


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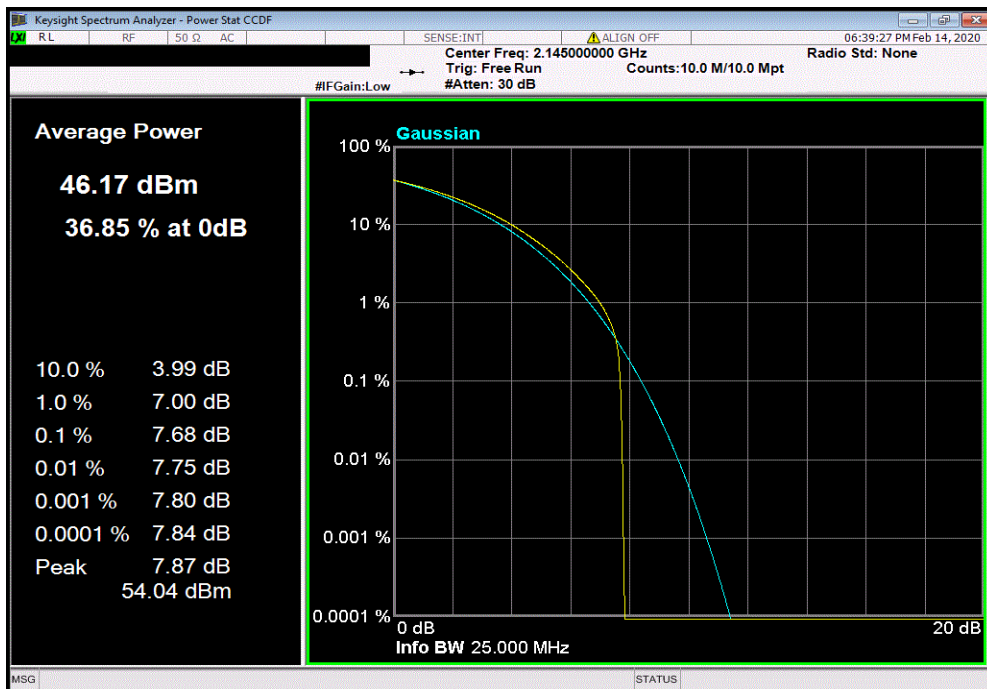


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Band 66a (Single Carrier) Port 4, 16-QAM, 15 MHz, Low Channel, 2117.5 MHz						
		PAPR Value (dB)	PAPR Limit (dB)	Results		
		7.73	13	Pass		



Band 66a (Single Carrier) Port 4, 16-QAM, 15 MHz, Mid Channel, 2145 MHz						
		PAPR Value (dB)	PAPR Limit (dB)	Results		
		7.68	13	Pass		

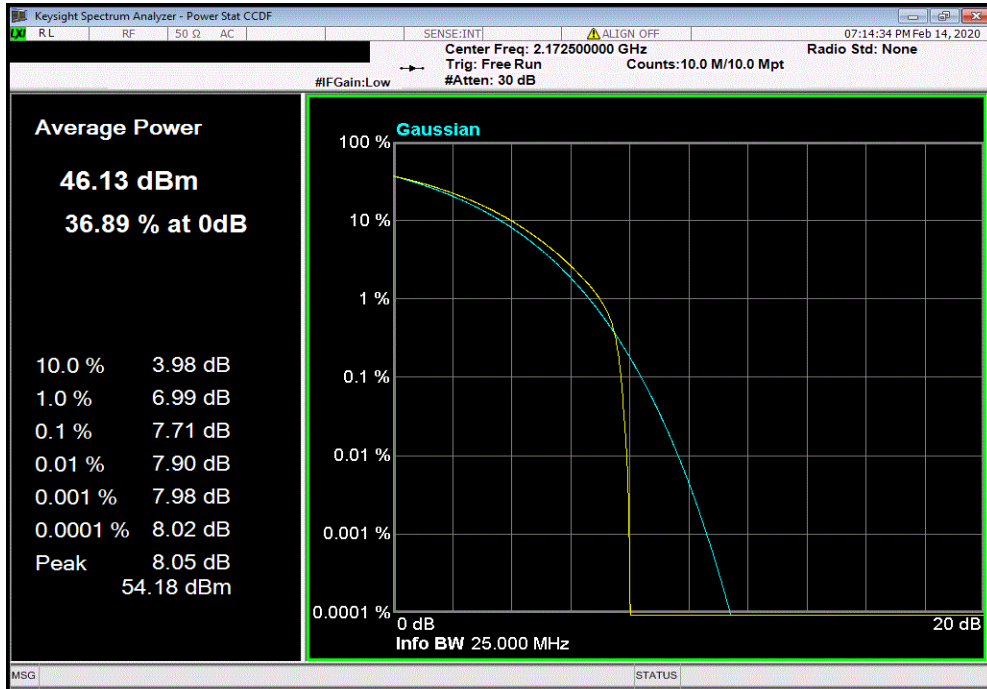


# PEAK TO AVERAGE POWER (CCDF) BAND 66a

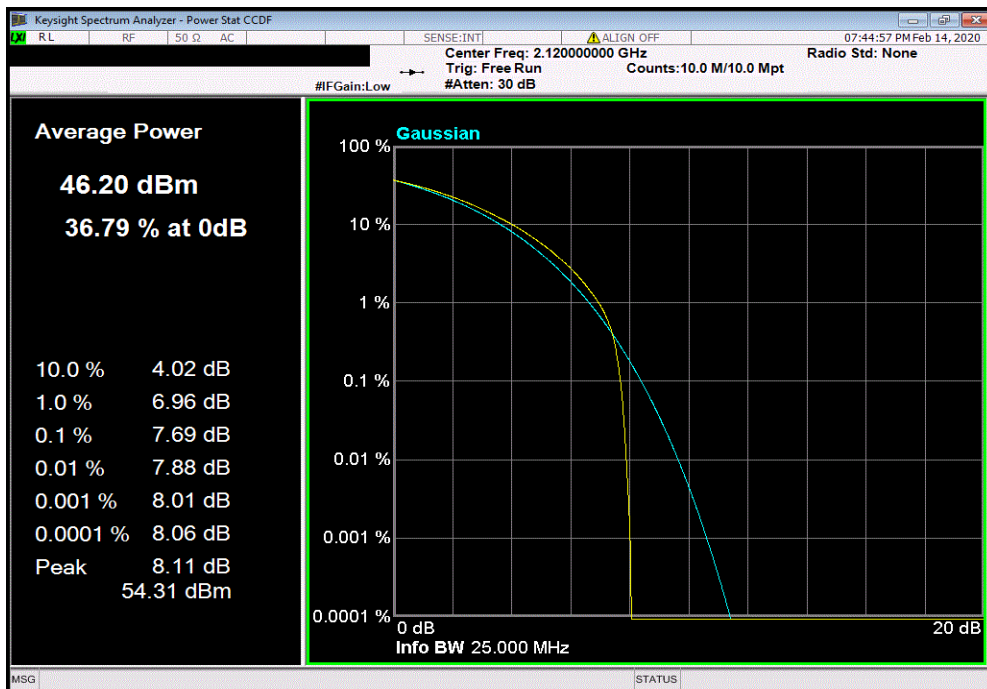


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Band 66a (Single Carrier) Port 4, 16-QAM, 15 MHz, High Channel, 2172.5 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.71	13	Pass		



Band 66a (Single Carrier) Port 4, 16-QAM, 20 MHz, Low Channel, 2120 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.69	13	Pass		



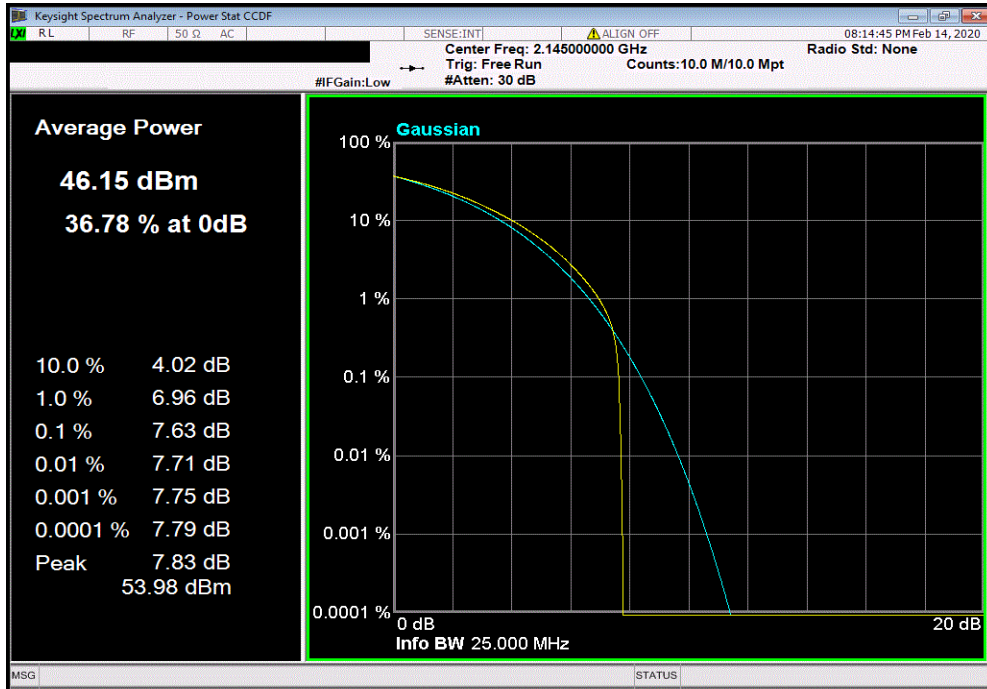


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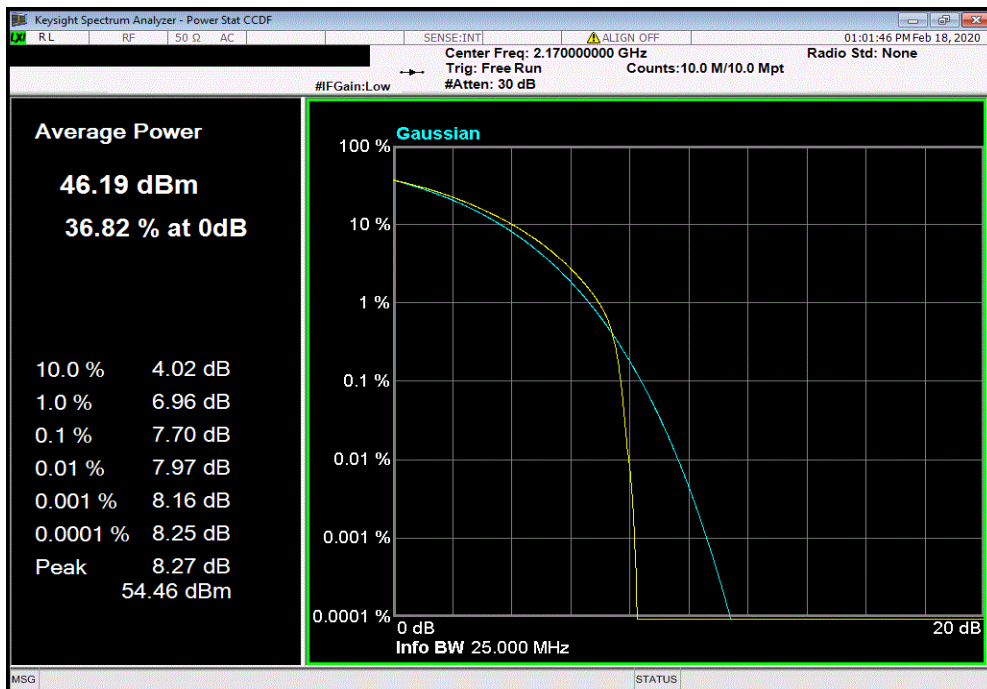


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Band 66a (Single Carrier) Port 4, 16-QAM, 20 MHz, Mid Channel, 2145 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.63	13	Pass		



Band 66a (Single Carrier) Port 4, 16-QAM, 20 MHz, High Channel, 2170 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.7	13	Pass		



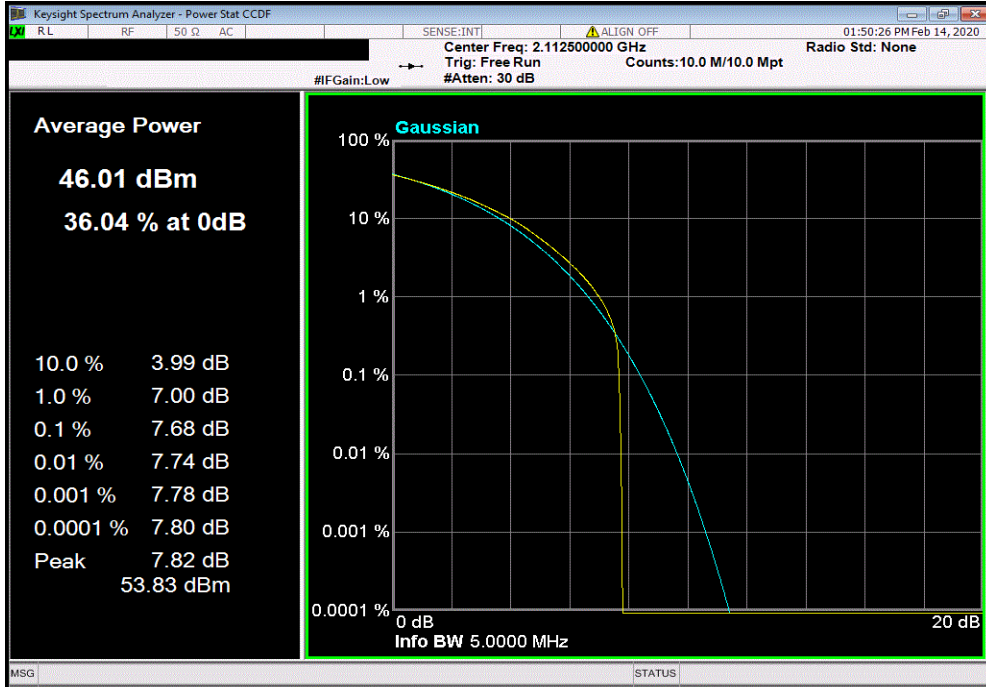


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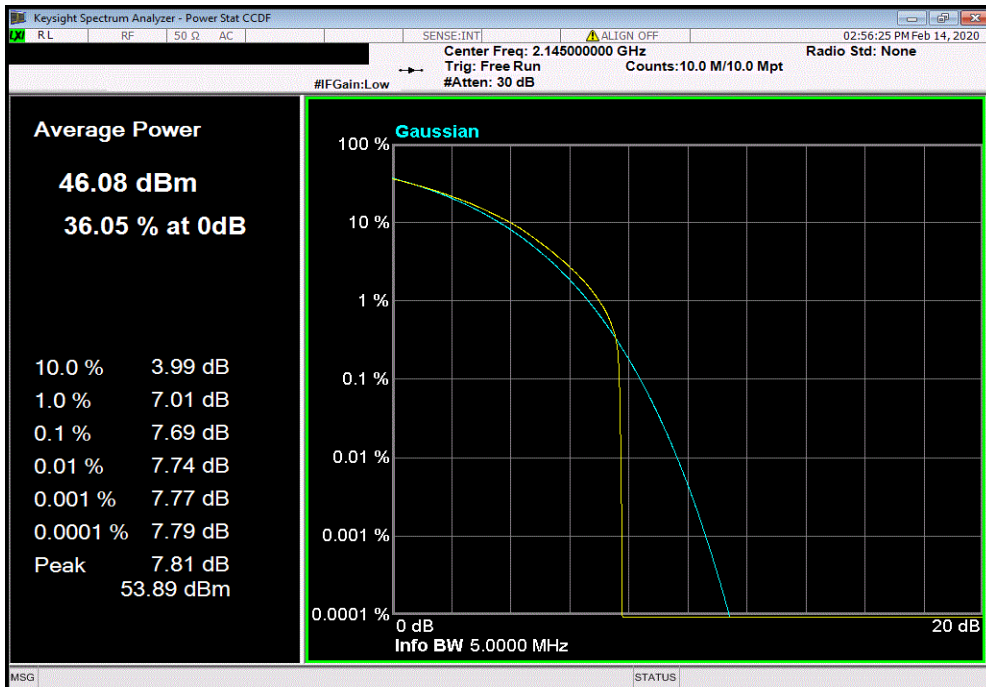


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Band 66a (Single Carrier) Port 4, 64-QAM, 5 MHz, Low Channel, 2112.5 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.68	13	Pass		



Band 66a (Single Carrier) Port 4, 64-QAM, 5 MHz, Mid Channel, 2145 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.69	13	Pass		

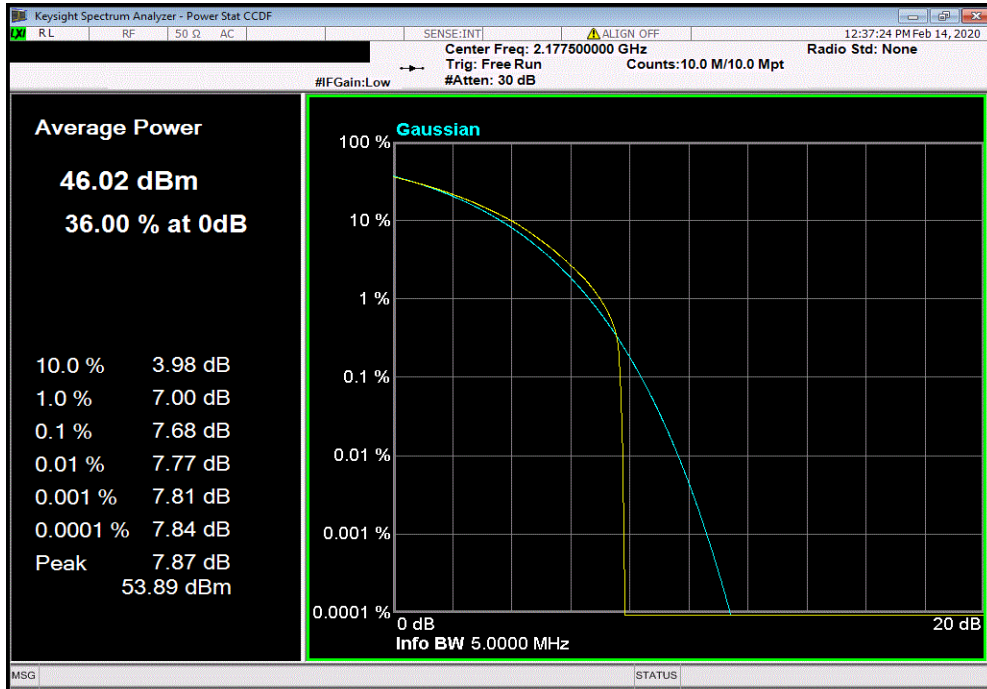


# PEAK TO AVERAGE POWER (CCDF) BAND 66a

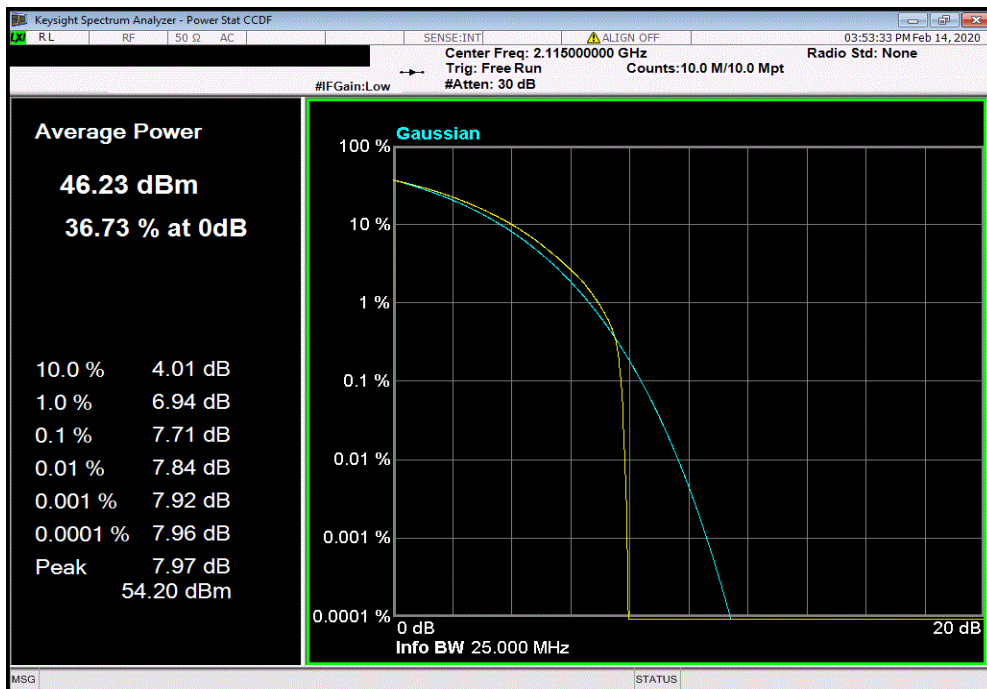


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Band 66a (Single Carrier) Port 4, 64-QAM, 5 MHz, High Channel, 2177.5 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.68	13	Pass		



Band 66a (Single Carrier) Port 4, 64-QAM, 10 MHz, Low Channel, 2115 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.71	13	Pass		

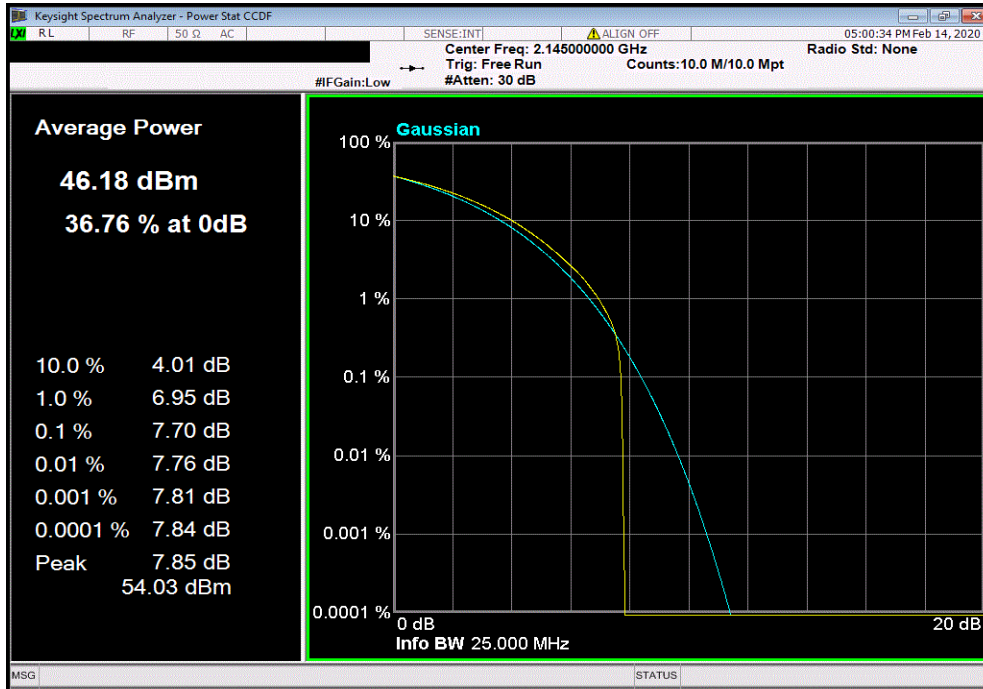


# PEAK TO AVERAGE POWER (CCDF) BAND 66a

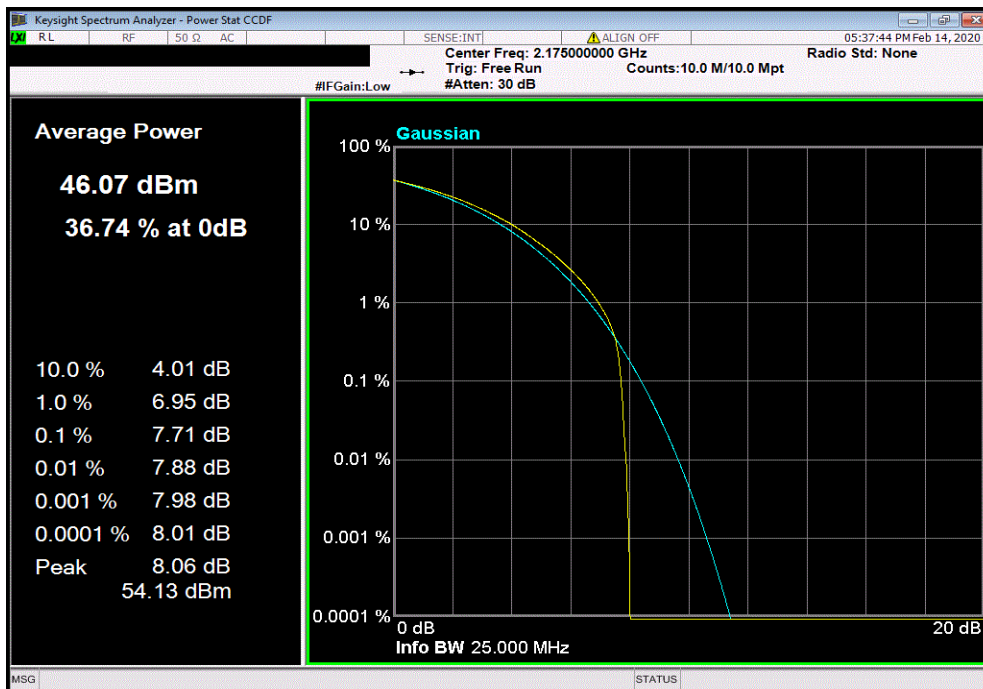


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Band 66a (Single Carrier) Port 4, 64-QAM, 10 MHz, Mid Channel, 2145 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.7	13	Pass		



Band 66a (Single Carrier) Port 4, 64-QAM, 10 MHz, High Channel, 2175 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.71	13	Pass		

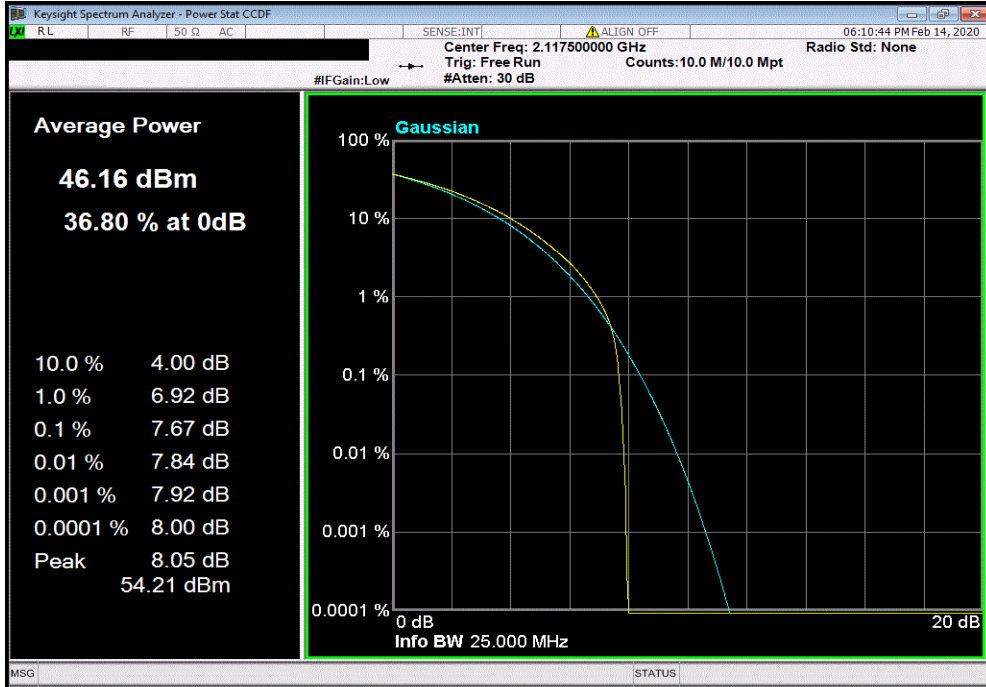


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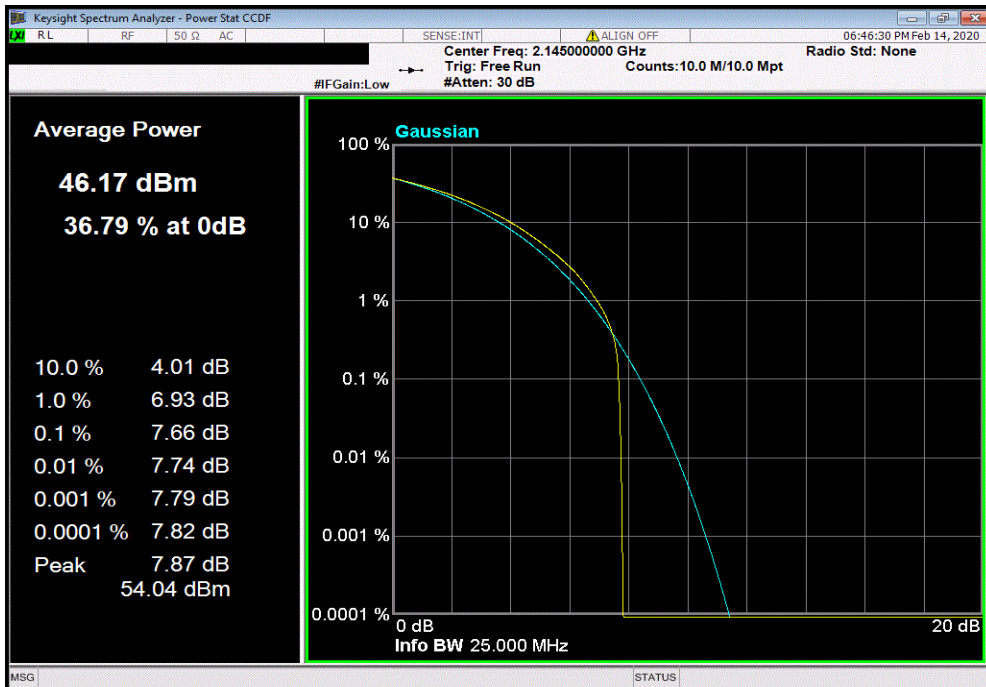


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Band 66a (Single Carrier) Port 4, 64-QAM, 15 MHz, Low Channel, 2117.5 MHz						
		PAPR Value (dB)	PAPR Limit (dB)	Results		
		7.67	13	Pass		



Band 66a (Single Carrier) Port 4, 64-QAM, 15 MHz, Mid Channel, 2145 MHz						
		PAPR Value (dB)	PAPR Limit (dB)	Results		
		7.66	13	Pass		

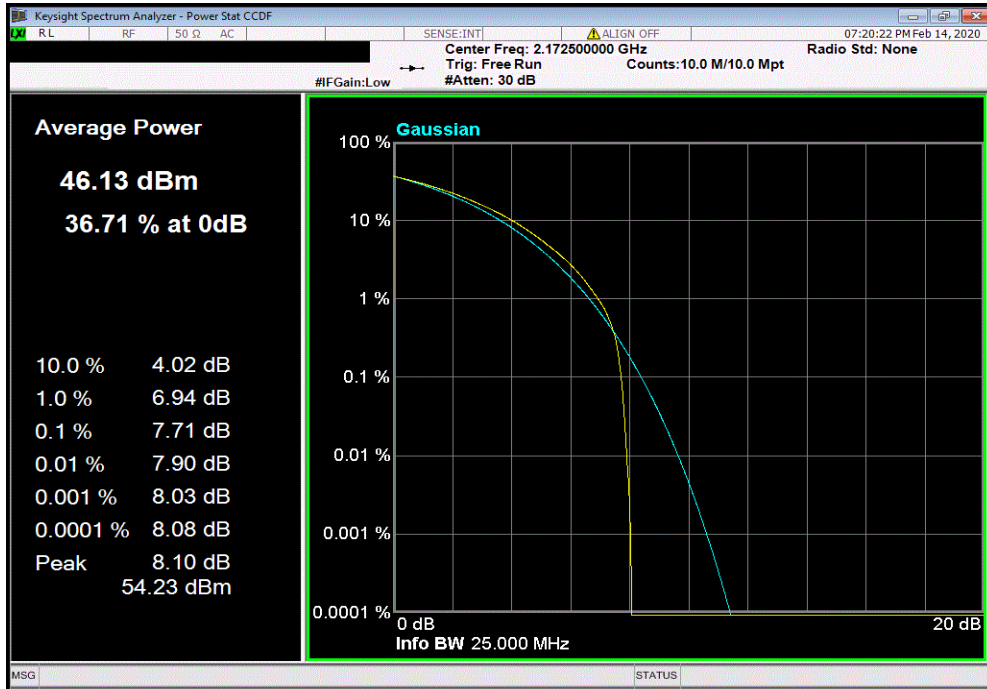


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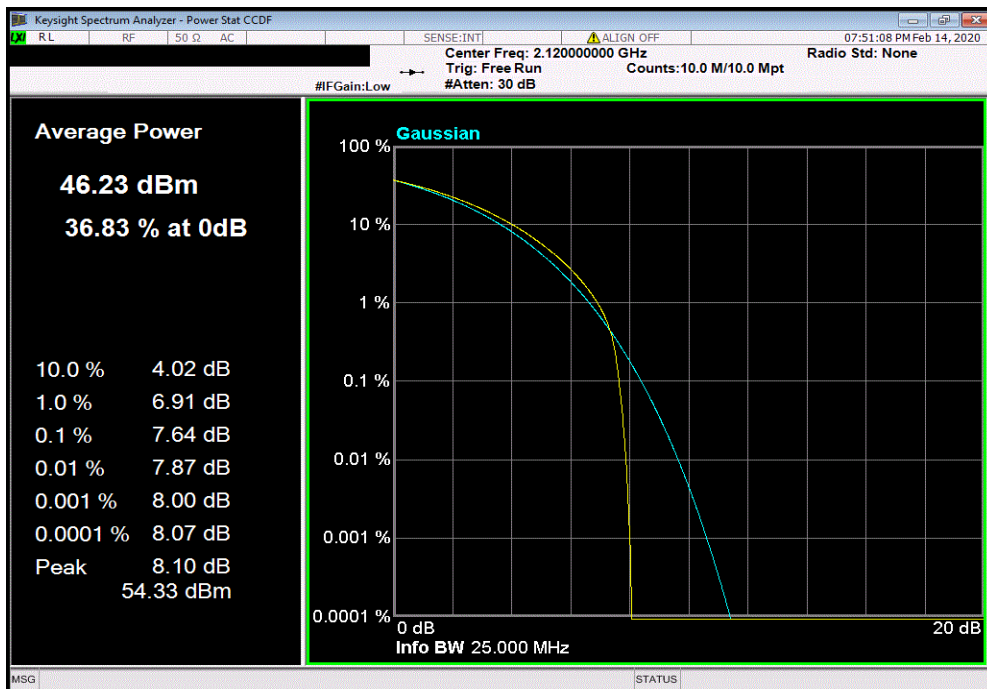


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Band 66a (Single Carrier) Port 4, 64-QAM, 15 MHz, High Channel, 2172.5 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.71	13	Pass		



Band 66a (Single Carrier) Port 4, 64-QAM, 20 MHz, Low Channel, 2120 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.64	13	Pass		



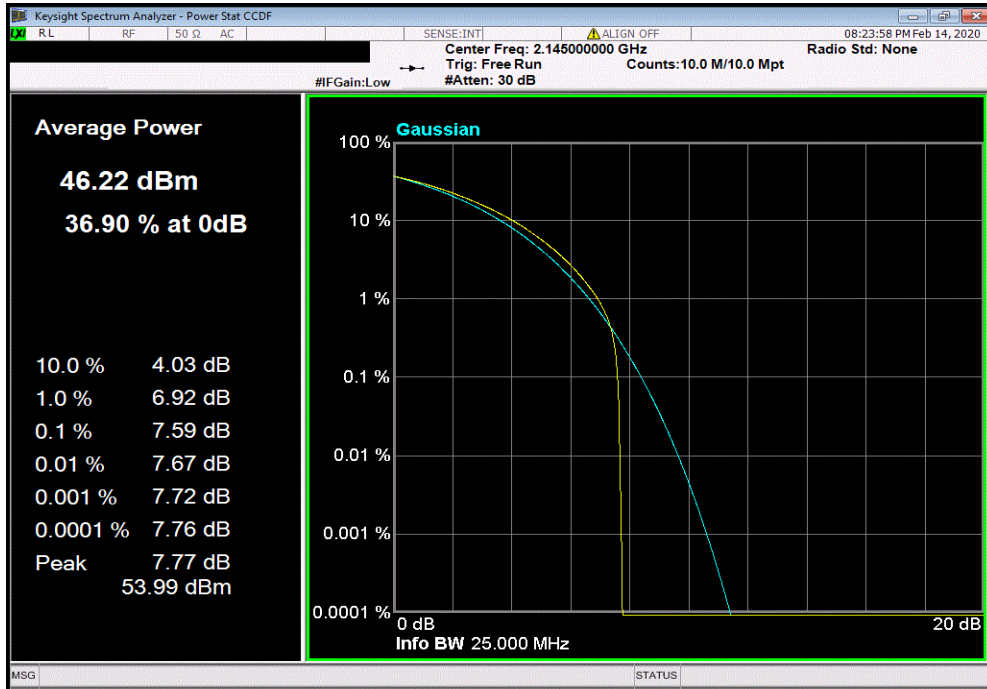


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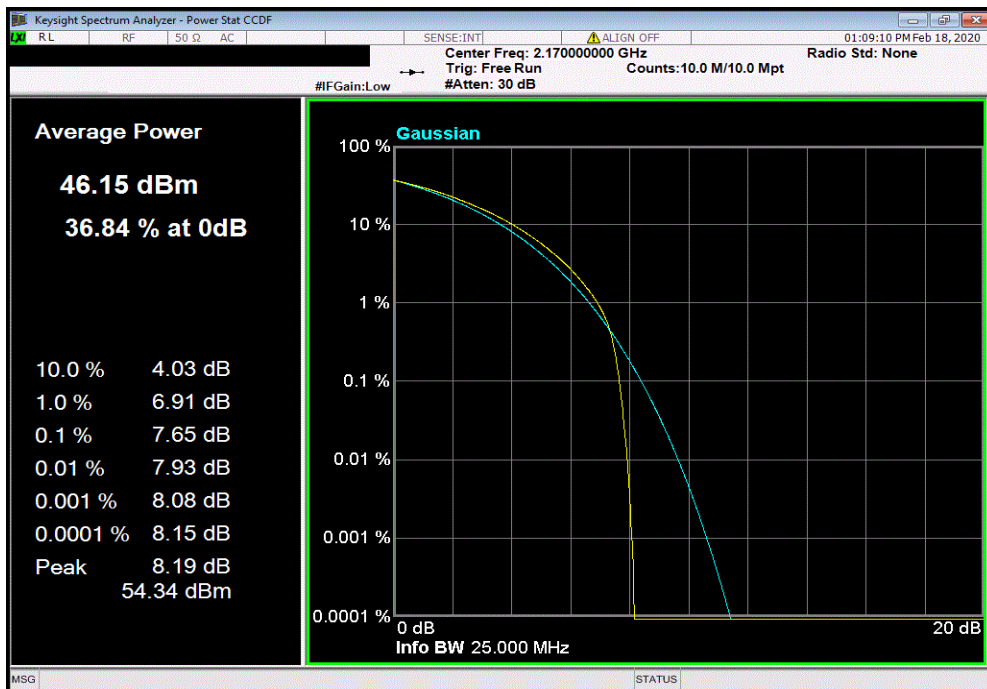


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Band 66a (Single Carrier) Port 4, 64-QAM, 20 MHz, Mid Channel, 2145 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.59	13	Pass		



Band 66a (Single Carrier) Port 4, 64-QAM, 20 MHz, High Channel, 2170 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.65	13	Pass		



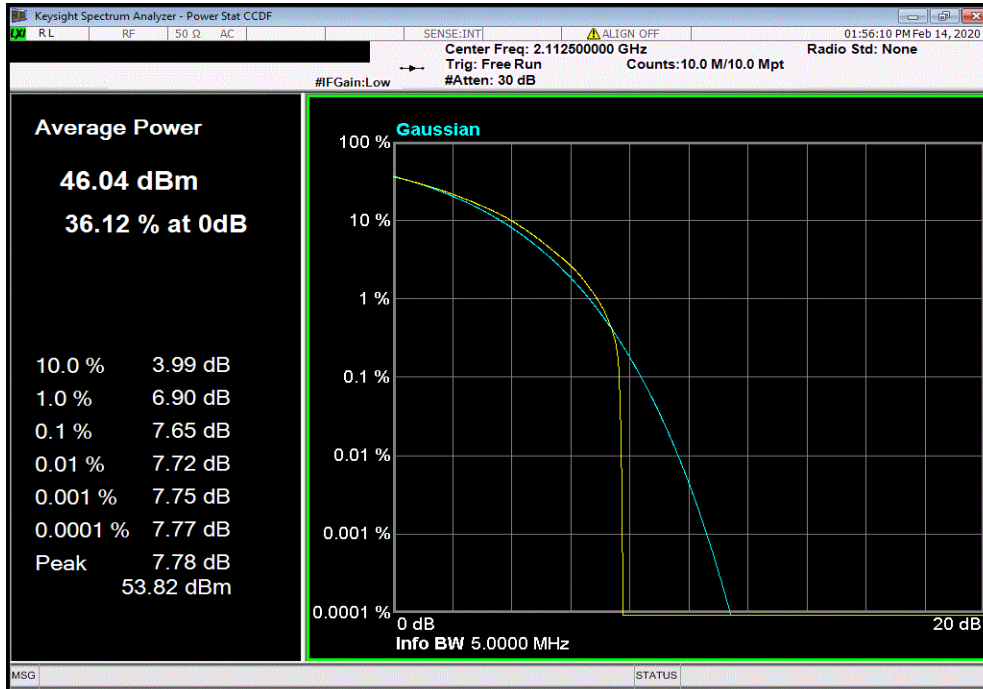


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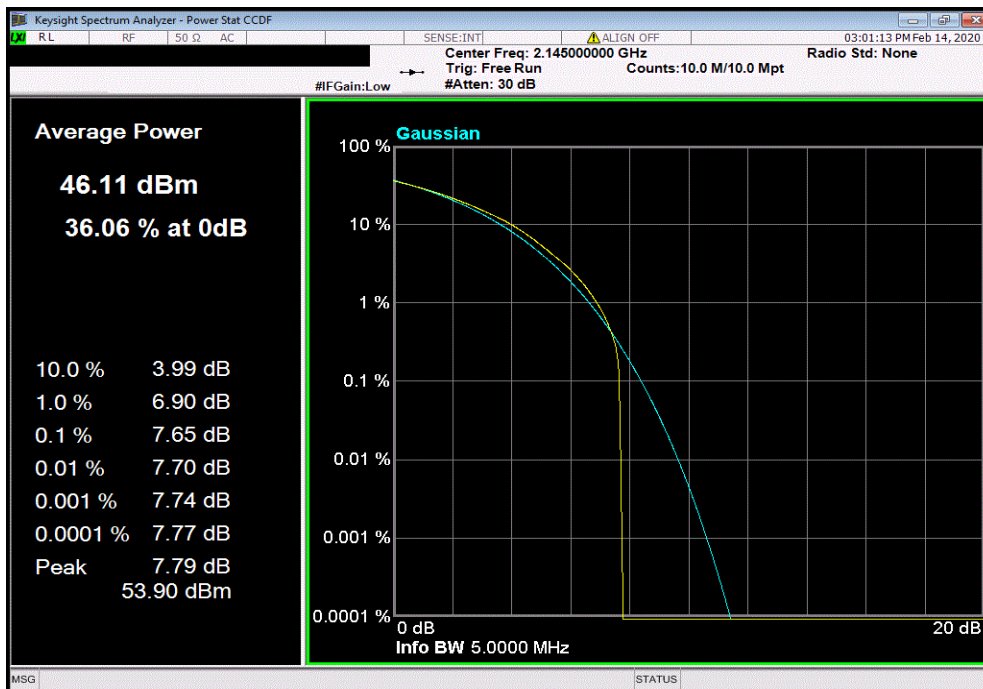


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Band 66a (Single Carrier) Port 4, 256-QAM, 5 MHz, Low Channel, 2112.5 MHz						
		PAPR Value (dB)	PAPR Limit (dB)	Results		
		7.65	13	Pass		



Band 66a (Single Carrier) Port 4, 256-QAM, 5 MHz, Mid Channel, 2145 MHz						
		PAPR Value (dB)	PAPR Limit (dB)	Results		
		7.65	13	Pass		

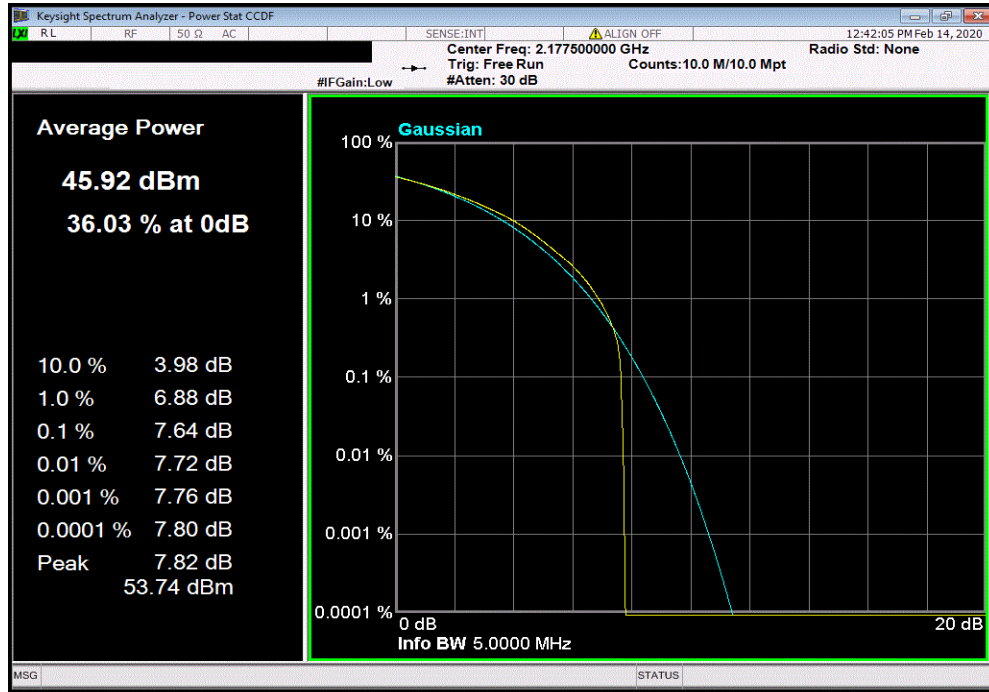


# PEAK TO AVERAGE POWER (CCDF) BAND 66a

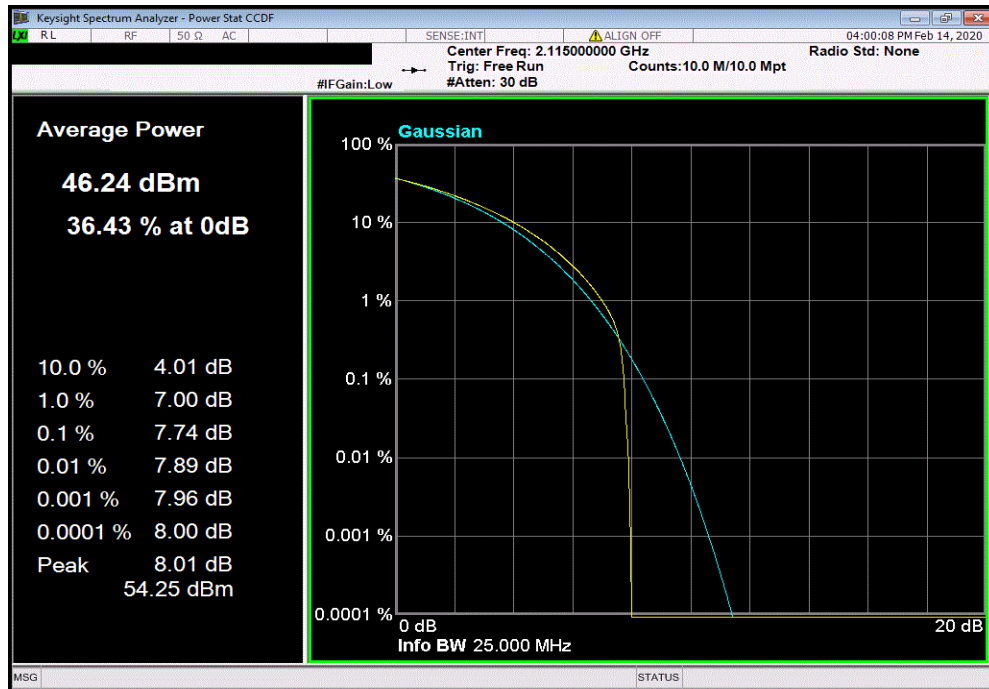


TbTx 2019.08.30.0 XMI 2019.09.05

Band 66a (Single Carrier) Port 4, 256-QAM, 5 MHz, High Channel, 2177.5 MHz						
		PAPR Value (dB)	PAPR Limit (dB)	Results		
		7.64	13	Pass		



Band 66a (Single Carrier) Port 4, 256-QAM, 10 MHz, Low Channel, 2115 MHz						
		PAPR Value (dB)	PAPR Limit (dB)	Results		
		7.74	13	Pass		

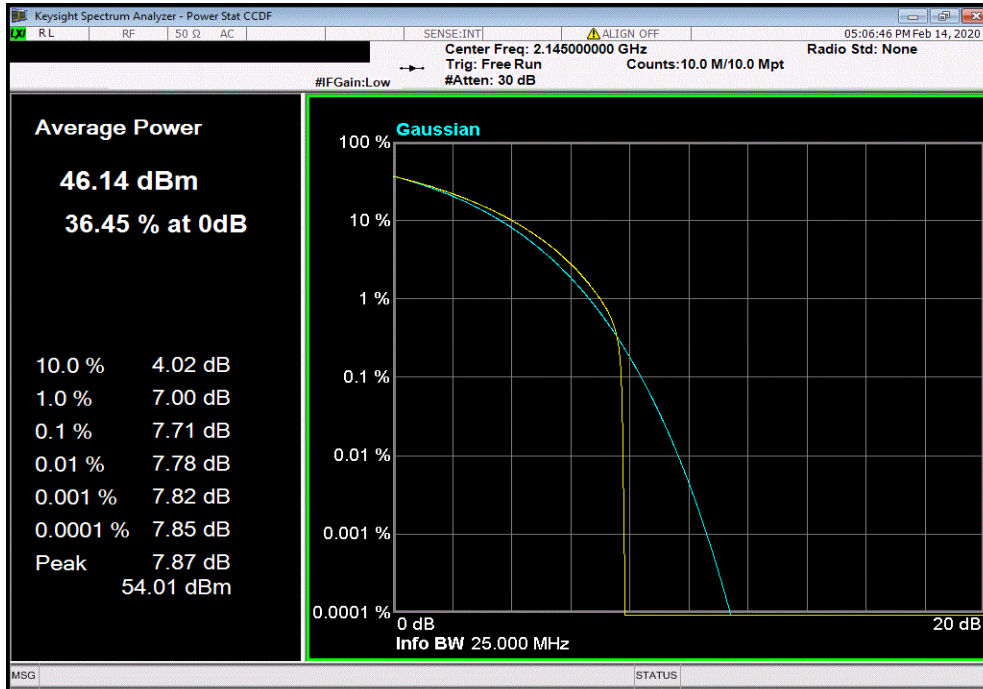


# PEAK TO AVERAGE POWER (CCDF) BAND 66a

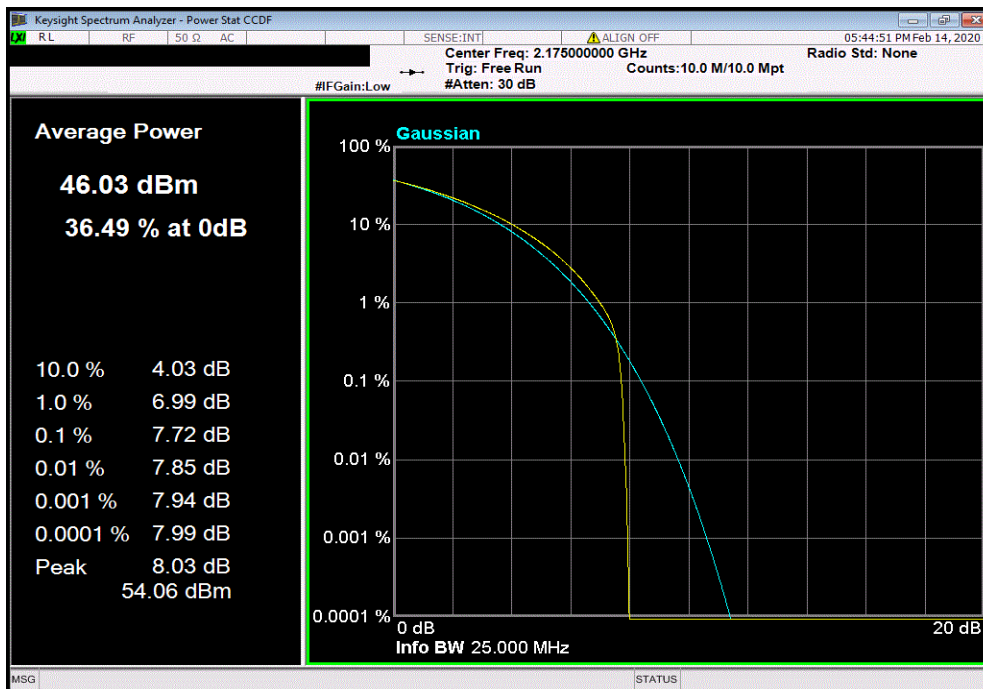


TbTx 2019.08.30.0 XMI 2019.09.05

Band 66a (Single Carrier) Port 4, 256-QAM, 10 MHz, Mid Channel, 2145 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.71	13	Pass		



Band 66a (Single Carrier) Port 4, 256-QAM, 10 MHz, High Channel, 2175 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.72	13	Pass		

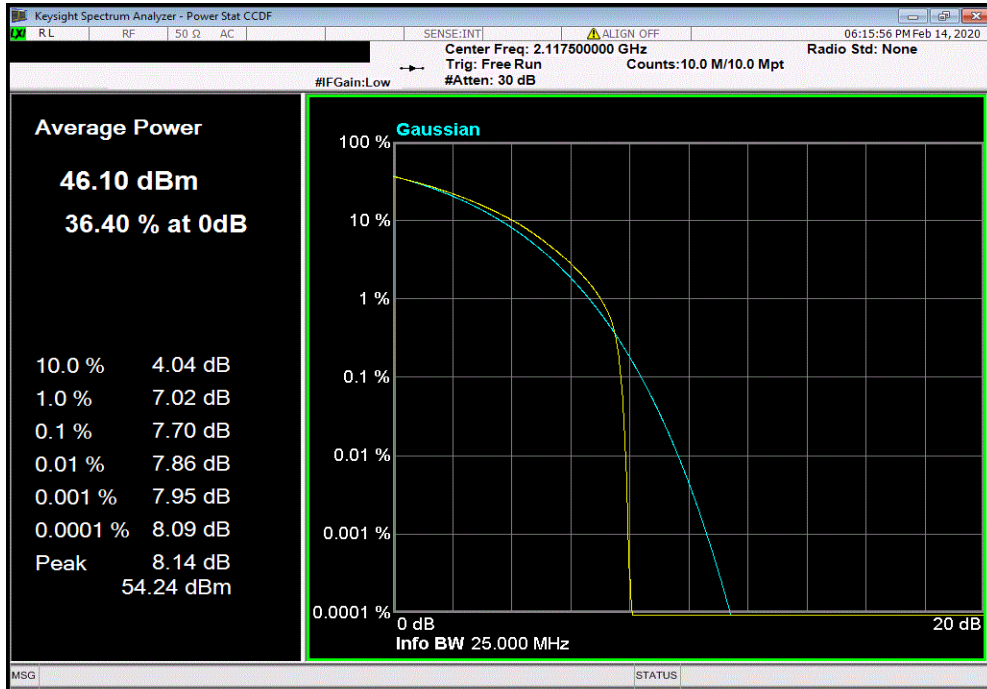


# PEAK TO AVERAGE POWER (CCDF) BAND 66a

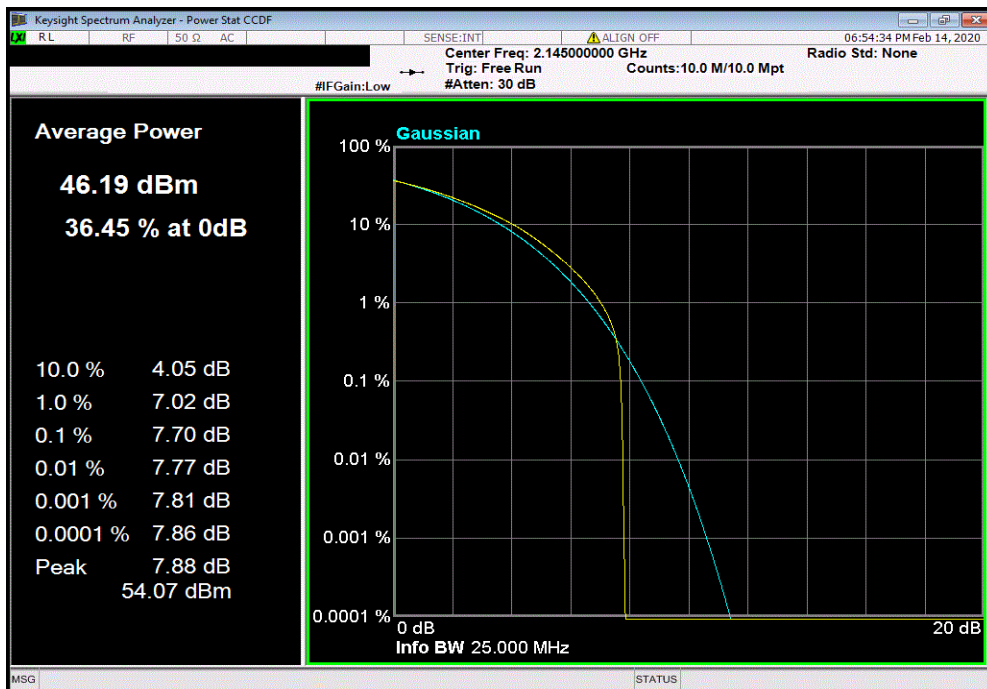


TbTx 2019.08.30.0 XMI 2019.09.05

Band 66a (Single Carrier) Port 4, 256-QAM, 15 MHz, Low Channel, 2117.5 MHz						
		PAPR Value (dB)	PAPR Limit (dB)	Results		
		7.7	13	Pass		



Band 66a (Single Carrier) Port 4, 256-QAM, 15 MHz, Mid Channel, 2145 MHz						
		PAPR Value (dB)	PAPR Limit (dB)	Results		
		7.7	13	Pass		

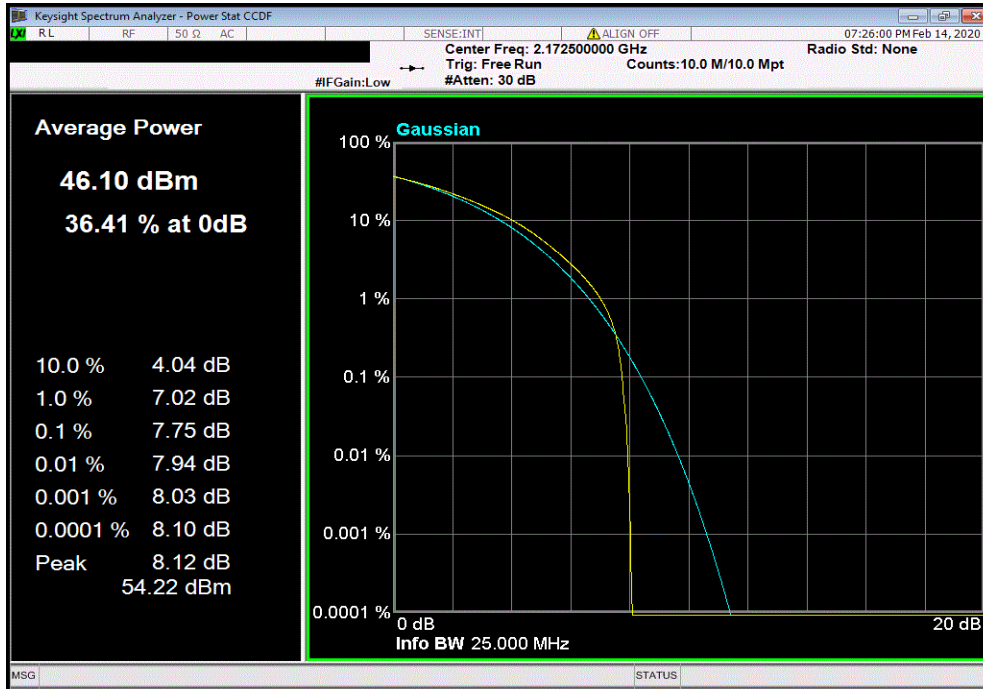


# PEAK TO AVERAGE POWER (CCDF) BAND 66a

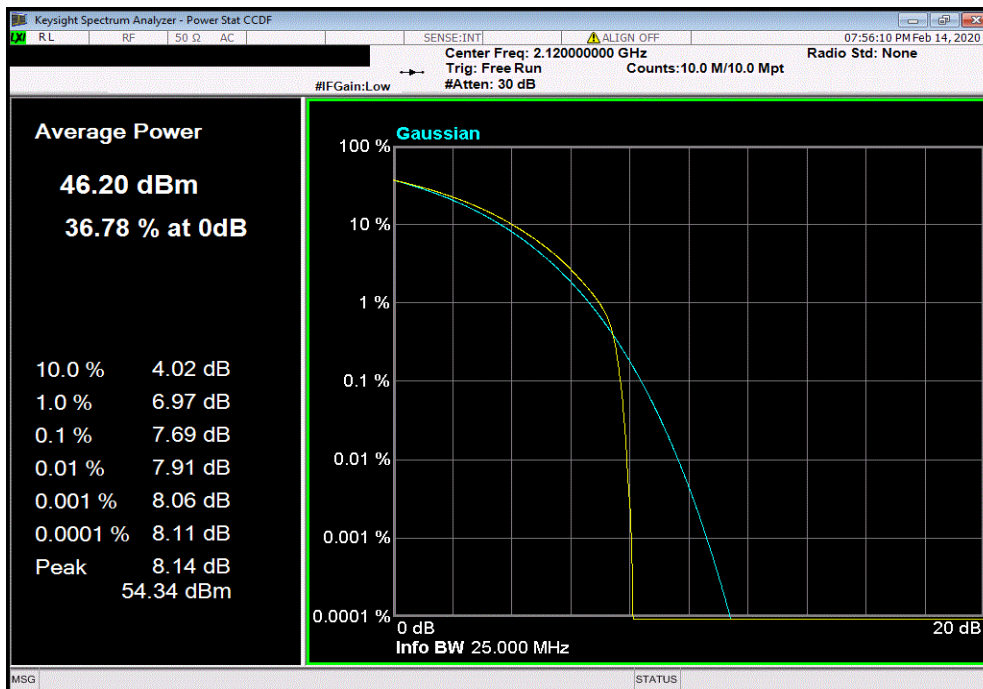


TbTx 2019.08.30.0 XMI 2019.09.05

Band 66a (Single Carrier) Port 4, 256-QAM, 15 MHz, High Channel, 2172.5 MHz						
		PAPR Value (dB)	PAPR Limit (dB)	Results		
		7.75	13	Pass		



Band 66a (Single Carrier) Port 4, 256-QAM, 20 MHz, Low Channel, 2120 MHz						
		PAPR Value (dB)	PAPR Limit (dB)	Results		
		7.69	13	Pass		



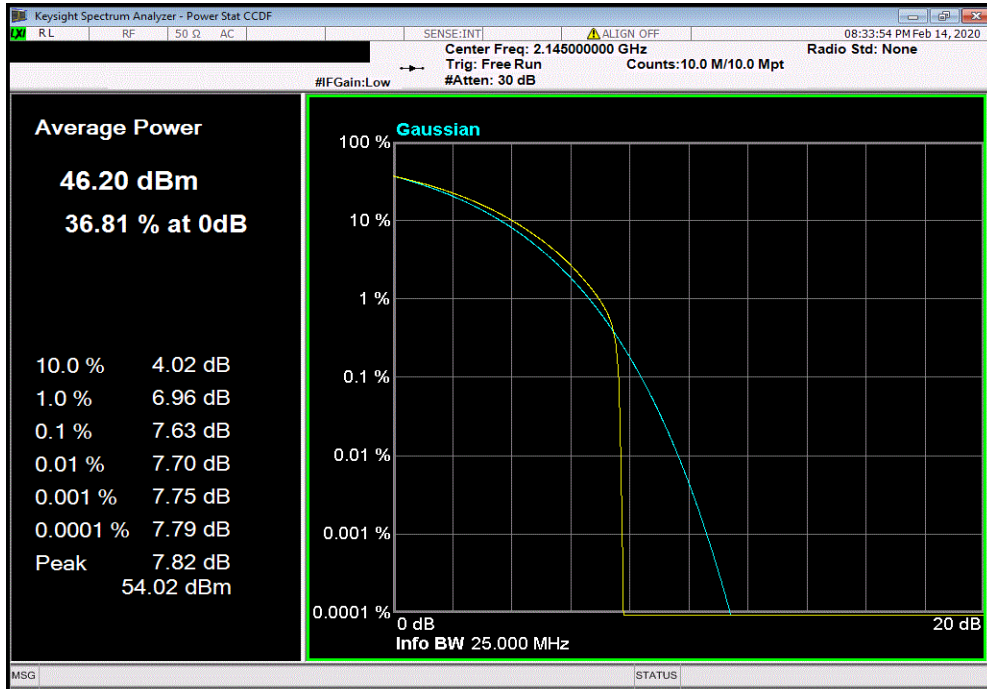


# PEAK TO AVERAGE POWER (CCDF) BAND 66a



TbTx 2019.08.30.0 XMI 2019.09.05

Band 66a (Single Carrier) Port 4, 256-QAM, 20 MHz, Mid Channel, 2145 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.63	13	Pass		



Band 66a (Single Carrier) Port 4, 256-QAM, 20 MHz, High Channel, 2170 MHz						
		PAPR	PAPR	Results		
		Value (dB)	Limit (dB)			
		7.7	13	Pass		

