



XMI 2020.03.25.0

PEAK TO AVERAGE POWER (PAPR)

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	Agilent	N9010A	AFL	27-Feb-20	27-Feb-21
Generator - Signal	Agilent	N5173B	TIW	5-Jul-17	5-Jul-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 13 dB.

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 RSS-130 section 4.6, 27.50(d)(2), the PAPR limit shall not exceed 13 dB for more than the ANSI described 0.1% of the time.

RF conducted emissions testing was performed only on one port. The testing was performed on the same version of hardware (AHBOA) as the original certification test. The AHBOA antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in the original certification testing) and antenna port 1 was selected to perform the testing under this effort as allowed by ANSI C63.26-2015 paragraph 5.7.2i.

PEAK TO AVERAGE POWER (PAPR)



TxDx 2020.06.06.0 BETA XMt 2020.03.25.0

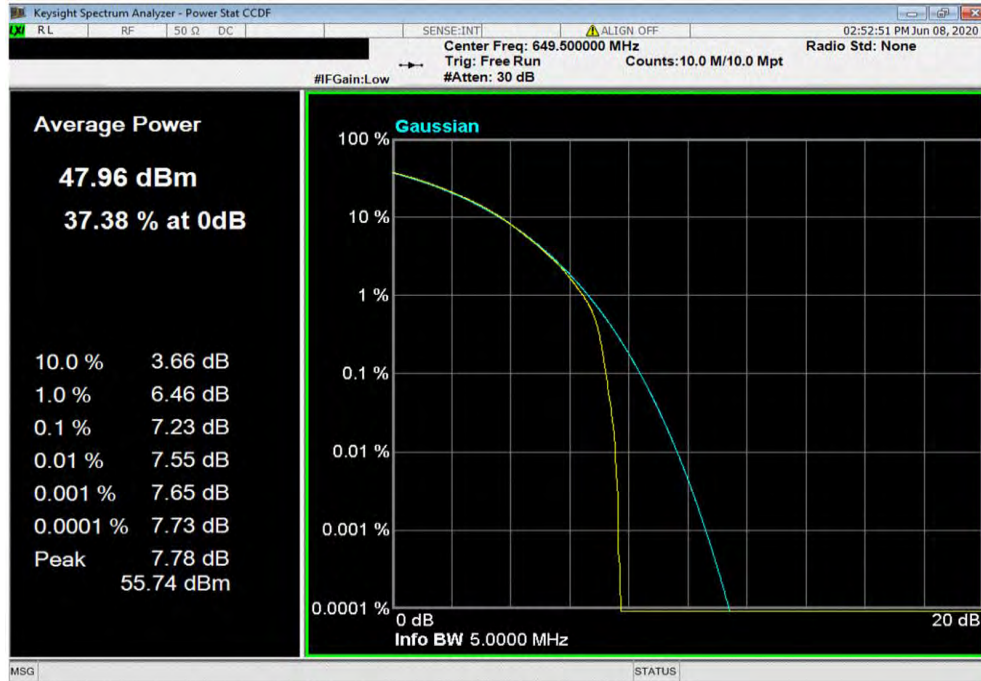
EUT: Airscale Base Transceiver Station Remote Radio Head Model AHBOA		Work Order: NOKI0017			
Serial Number: BL1943X1001		Date: 9-Jun-20			
Customer: Nokia Solutions and Networks		Temperature: 23 °C			
Attendees: Mitchell Hill, John Rattanaovong		Humidity: 39% RH			
Project: None		Barometric Pres.: 1023 mbar			
Tested by: Brandon Hobbs	Power: 54 VDC	Job Site: TX05			
TEST SPECIFICATIONS					
FCC 27:2020		Test Method: ANSI C63.26:2015			
RSS-130:2019		RSS-130:2019			
COMMENTS					
All measurement path losses were accounted for in the reference level offset including any attenuators, filters and DC blocks. The carrier power was set to maximum for all testing.					
DEVIATIONS FROM TEST STANDARD					
None					
Configuration #	2				
			Value	Limit	Results
			0.1% (dB)	< dB	
Port 1, Band 71, 617 MHz - 652 MHz					
5 MHz Bandwidth					
QPSK Modulation					
	Low Channel, 619.5 MHz		7.23	13	Pass
	Mid Channel, 634.5 MHz		7.18	13	Pass
	High Channel, 649.5 MHz		7.28	13	Pass
16-QAM Modulation					
	Low Channel, 619.5 MHz		7.41	13	Pass
	Mid Channel, 634.5 MHz		7.34	13	Pass
	High Channel, 649.5 MHz		7.42	13	Pass
64-QAM Modulation					
	Low Channel, 619.5 MHz		7.18	13	Pass
	Mid Channel, 634.5 MHz		7.15	13	Pass
	High Channel, 649.5 MHz		7.23	13	Pass
256-QAM Modulation					
	Low Channel, 619.5 MHz		7.29	13	Pass
	Mid Channel, 634.5 MHz		7.25	13	Pass
	High Channel, 649.5 MHz		7.26	13	Pass
10 MHz Bandwidth					
QPSK Modulation					
	Low Channel, 622 MHz		7.47	13	Pass
	Mid Channel, 634.5 MHz		7.18	13	Pass
	High Channel, 647 MHz		7.40	13	Pass
16-QAM Modulation					
	Low Channel, 622 MHz		7.52	13	Pass
	Mid Channel, 634.5 MHz		7.33	13	Pass
	High Channel, 647 MHz		7.50	13	Pass
64-QAM Modulation					
	Low Channel, 622 MHz		7.43	13	Pass
	Mid Channel, 634.5 MHz		7.19	13	Pass
	High Channel, 647 MHz		7.36	13	Pass
256-QAM Modulation					
	Low Channel, 622 MHz		7.47	13	Pass
	Mid Channel, 634.5 MHz		7.27	13	Pass
	High Channel, 647 MHz		7.47	13	Pass
15 MHz Bandwidth					
QPSK Modulation					
	Low Channel, 624.5 MHz		7.54	13	Pass
	Mid Channel, 634.5 MHz		7.17	13	Pass
	High Channel, 644.5 MHz		7.55	13	Pass
16-QAM Modulation					
	Low Channel, 624.5 MHz		7.64	13	Pass
	Mid Channel, 634.5 MHz		7.24	13	Pass
	High Channel, 644.5 MHz		7.66	13	Pass
64-QAM Modulation					
	Low Channel, 624.5 MHz		7.37	13	Pass
	Mid Channel, 634.5 MHz		7.16	13	Pass
	High Channel, 644.5 MHz		7.47	13	Pass
256-QAM Modulation					
	Low Channel, 624.5 MHz		7.41	13	Pass
	Mid Channel, 634.5 MHz		7.16	13	Pass
	High Channel, 644.5 MHz		7.58	13	Pass
20 MHz Bandwidth					
QPSK Modulation					
	Low Channel, 627 MHz		7.55	13	Pass
	Mid Channel, 634.5 MHz		7.10	13	Pass
	High Channel, 642 MHz		7.66	13	Pass
16-QAM Modulation					
	Low Channel, 627 MHz		7.57	13	Pass
	Mid Channel, 634.5 MHz		7.17	13	Pass
	High Channel, 642 MHz		7.63	13	Pass
64-QAM Modulation					
	Low Channel, 627 MHz		7.50	13	Pass
	Mid Channel, 634.5 MHz		7.10	13	Pass
	High Channel, 642 MHz		7.58	13	Pass
256-QAM Modulation					
	Low Channel, 627 MHz		7.43	13	Pass
	Mid Channel, 634.5 MHz		7.10	13	Pass
	High Channel, 642 MHz		7.62	13	Pass

PEAK TO AVERAGE POWER (PAPR)

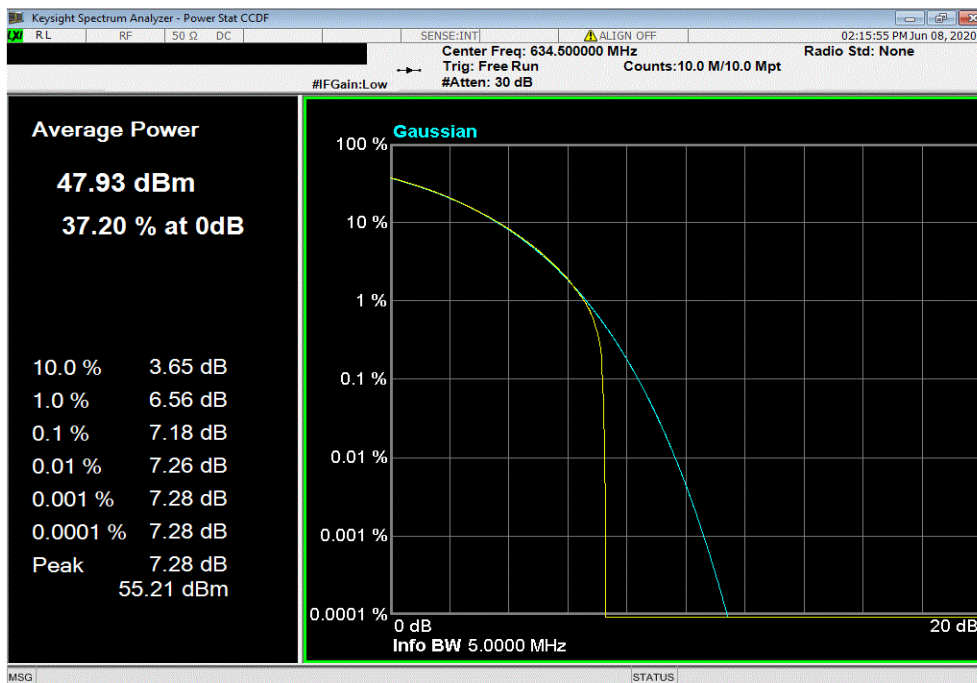


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Port 1, Band 71, 617 MHz - 652 MHz, 5 MHz Bandwidth, QPSK Modulation, Low Channel, 619.5 MHz			
	Value	Limit	Results
	0.1% (dB)	< dB	
	7.23	13	Pass



Port 1, Band 71, 617 MHz - 652 MHz, 5 MHz Bandwidth, QPSK Modulation, Mid Channel, 634.5 MHz			
	Value	Limit	Results
	0.1% (dB)	< dB	
	7.18	13	Pass

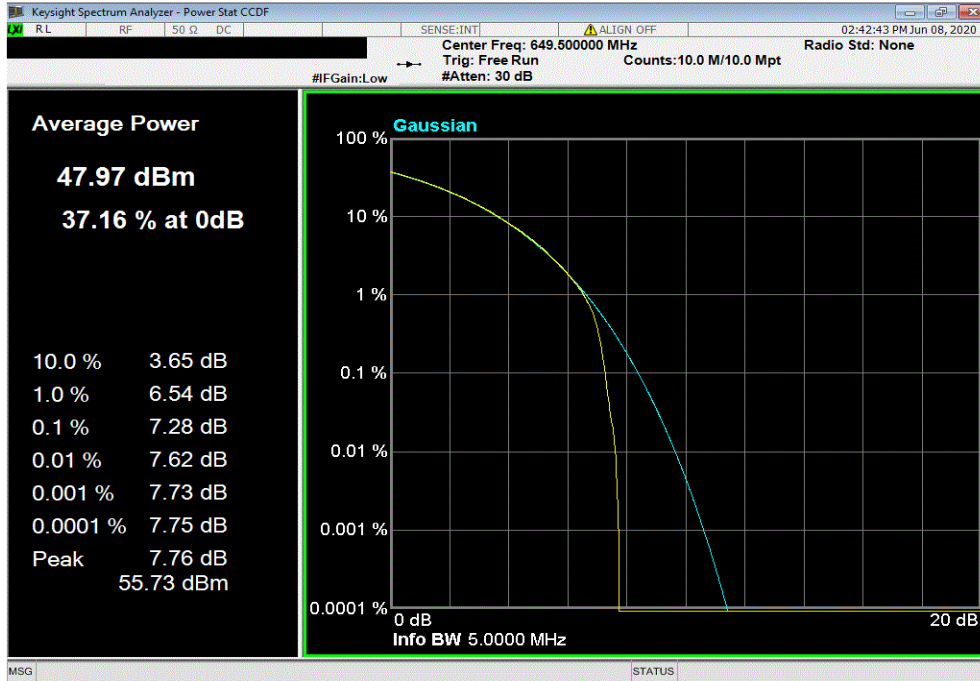


PEAK TO AVERAGE POWER (PAPR)

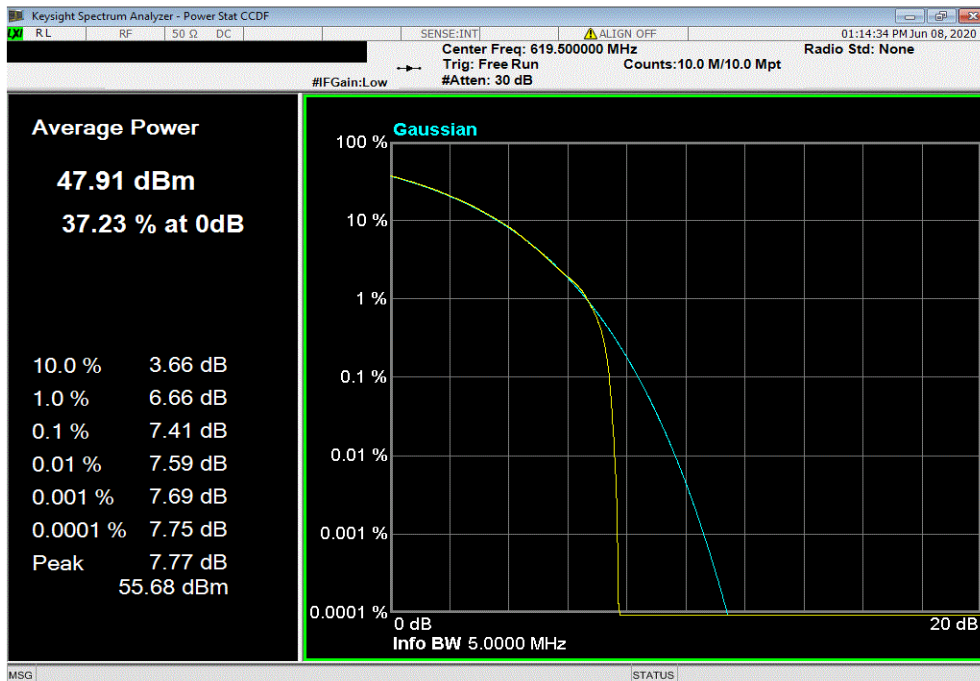


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Port 1, Band 71, 617 MHz - 652 MHz, 5 MHz Bandwidth, QPSK Modulation, High Channel, 649.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.28	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 5 MHz Bandwidth, 16-QAM Modulation, Low Channel, 619.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.41	13	Pass			

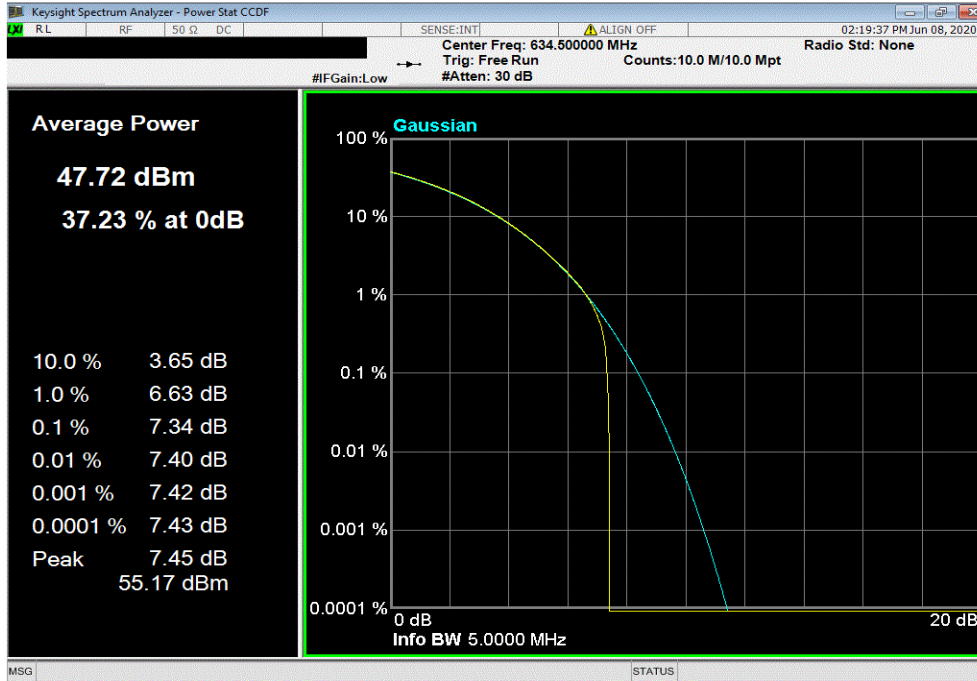


PEAK TO AVERAGE POWER (PAPR)

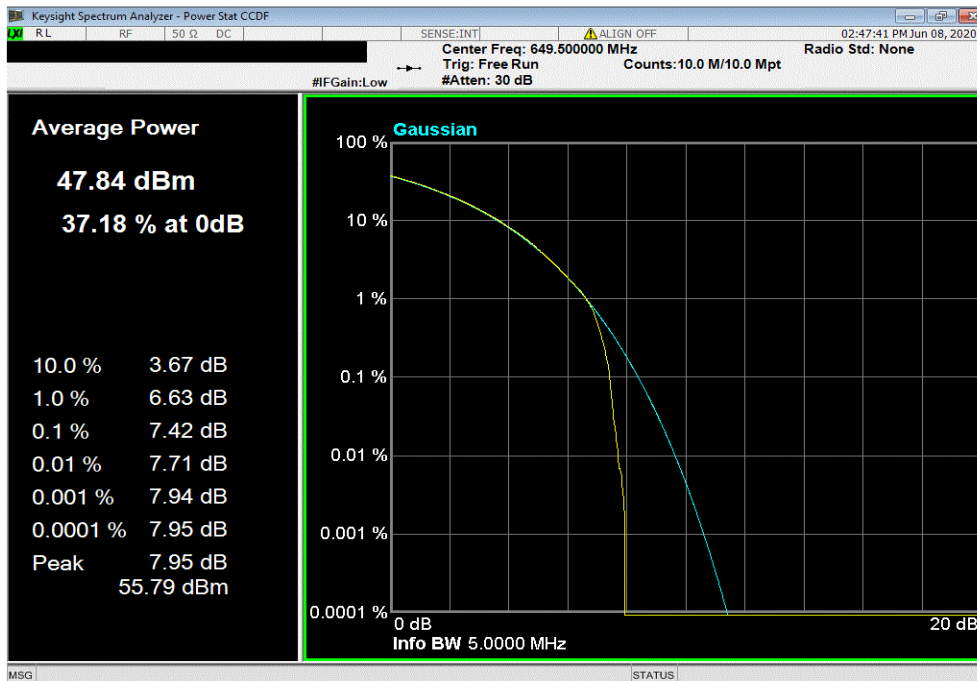


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Port 1, Band 71, 617 MHz - 652 MHz, 5 MHz Bandwidth, 16-QAM Modulation, Mid Channel, 634.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.34	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 5 MHz Bandwidth, 16-QAM Modulation, High Channel, 649.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.42	13	Pass			

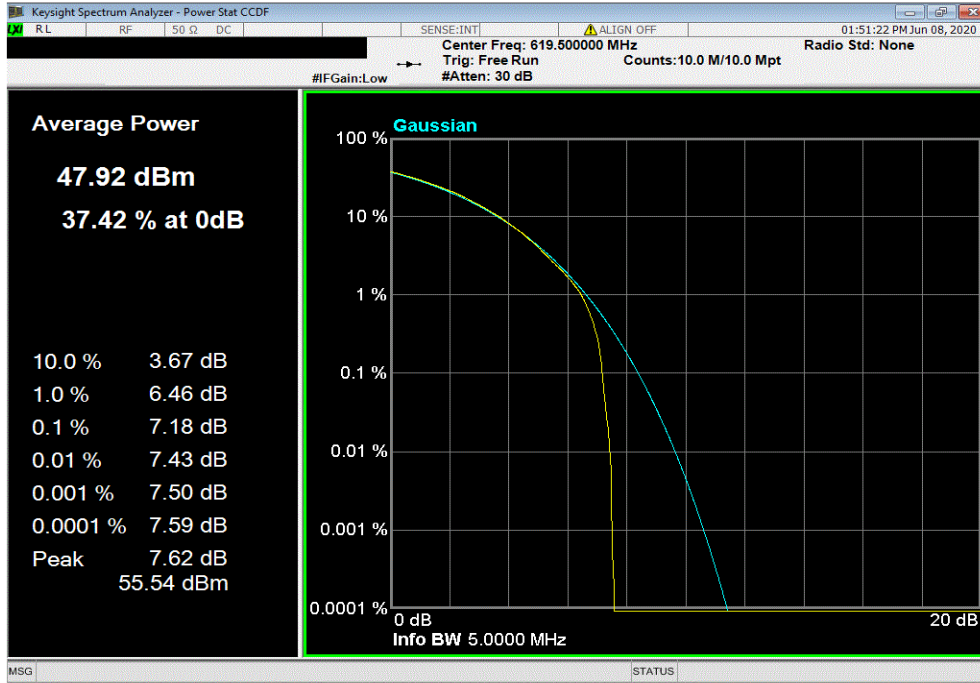


PEAK TO AVERAGE POWER (PAPR)

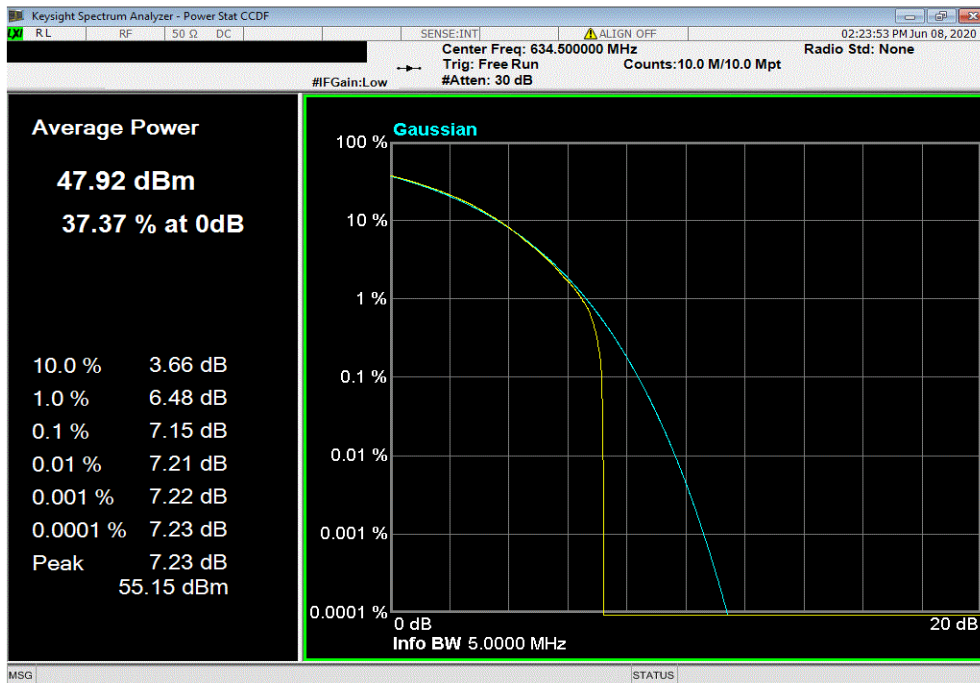


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Port 1, Band 71, 617 MHz - 652 MHz, 5 MHz Bandwidth, 64-QAM Modulation, Low Channel, 619.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.18	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 5 MHz Bandwidth, 64-QAM Modulation, Mid Channel, 634.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.15	13	Pass			

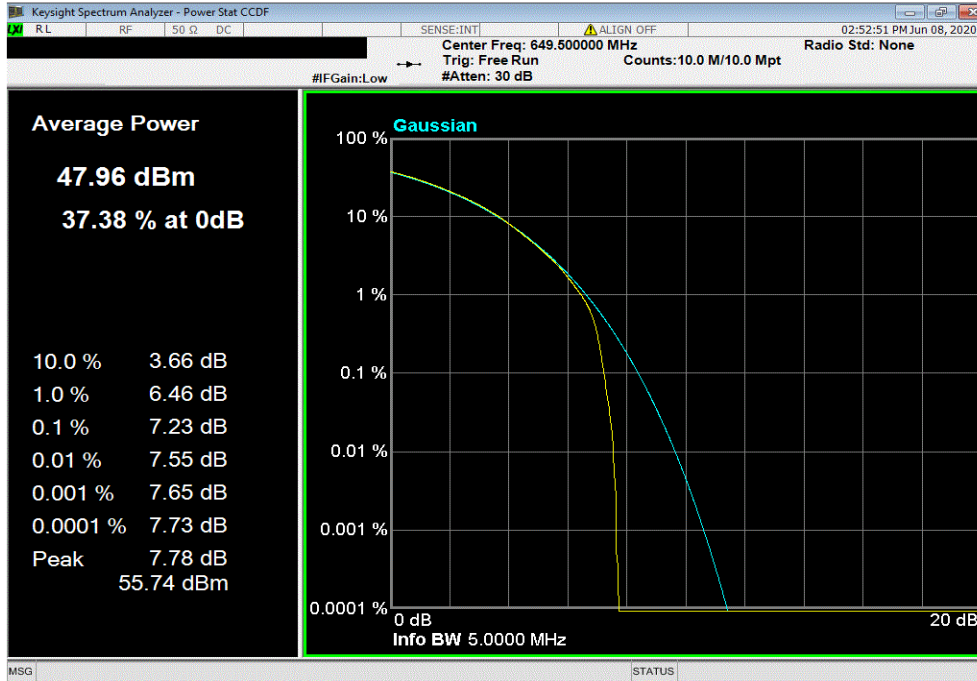


PEAK TO AVERAGE POWER (PAPR)

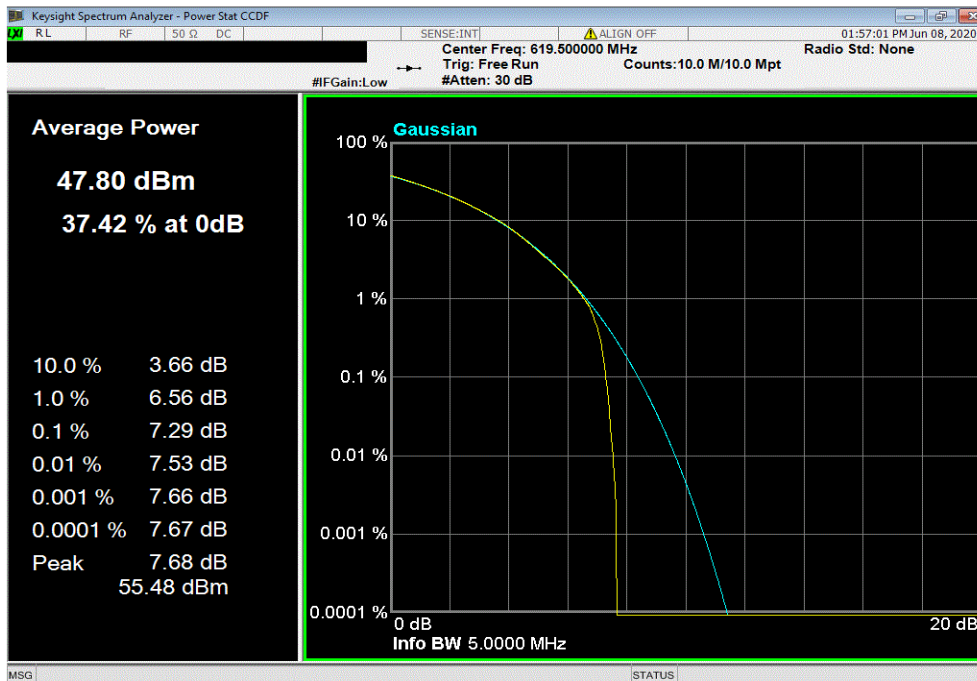


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Port 1, Band 71, 617 MHz - 652 MHz, 5 MHz Bandwidth, 64-QAM Modulation, High Channel, 649.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.23	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 5 MHz Bandwidth, 256-QAM Modulation, Low Channel, 619.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.29	13	Pass			

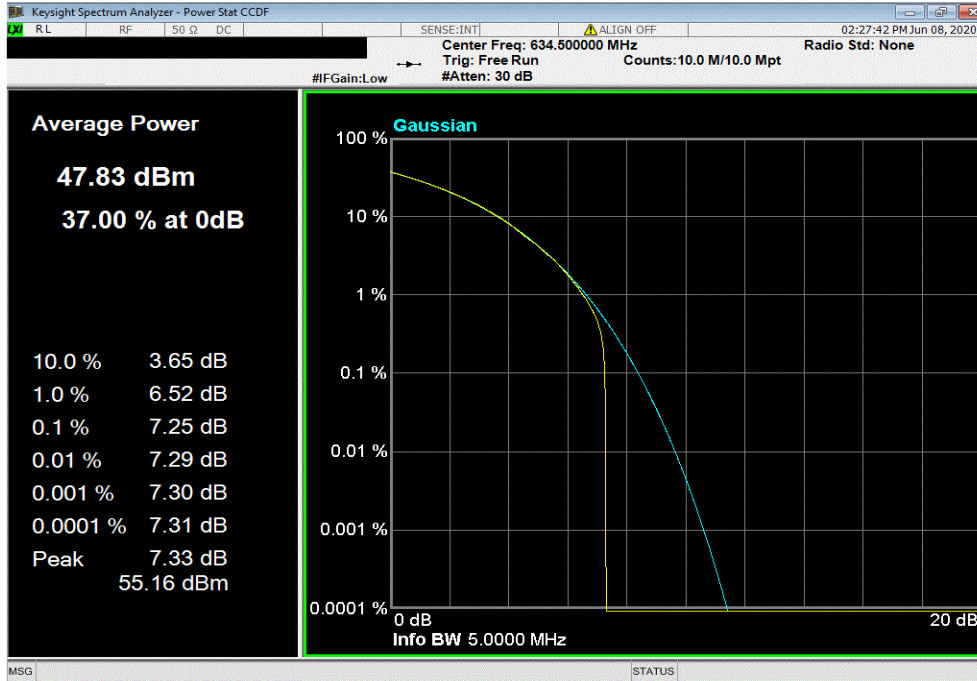


PEAK TO AVERAGE POWER (PAPR)

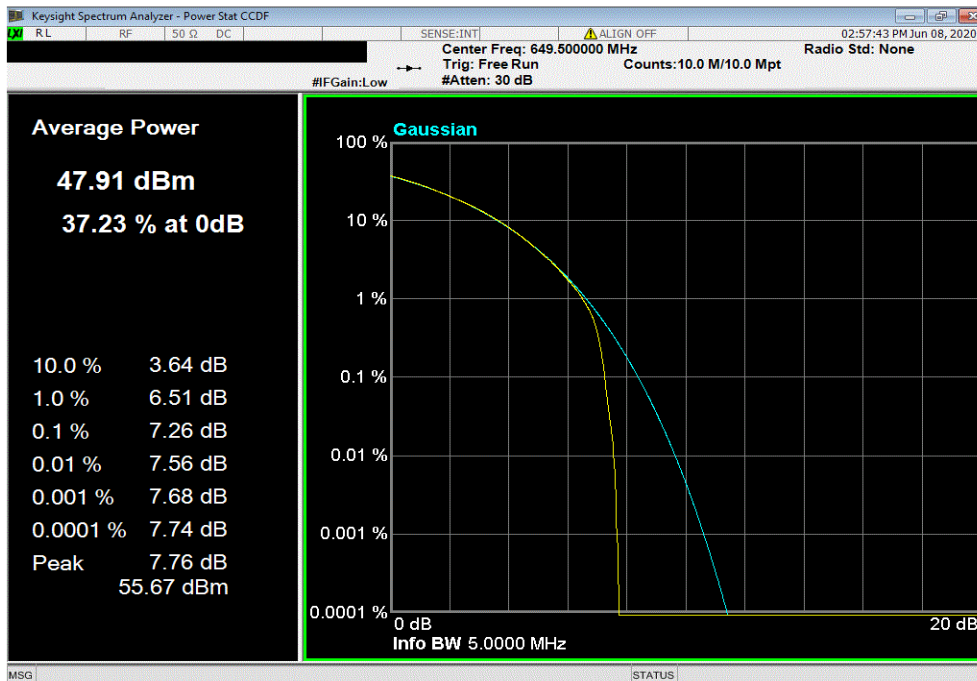


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Port 1, Band 71, 617 MHz - 652 MHz, 5 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 634.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.25	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 5 MHz Bandwidth, 256-QAM Modulation, High Channel, 649.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.26	13	Pass			

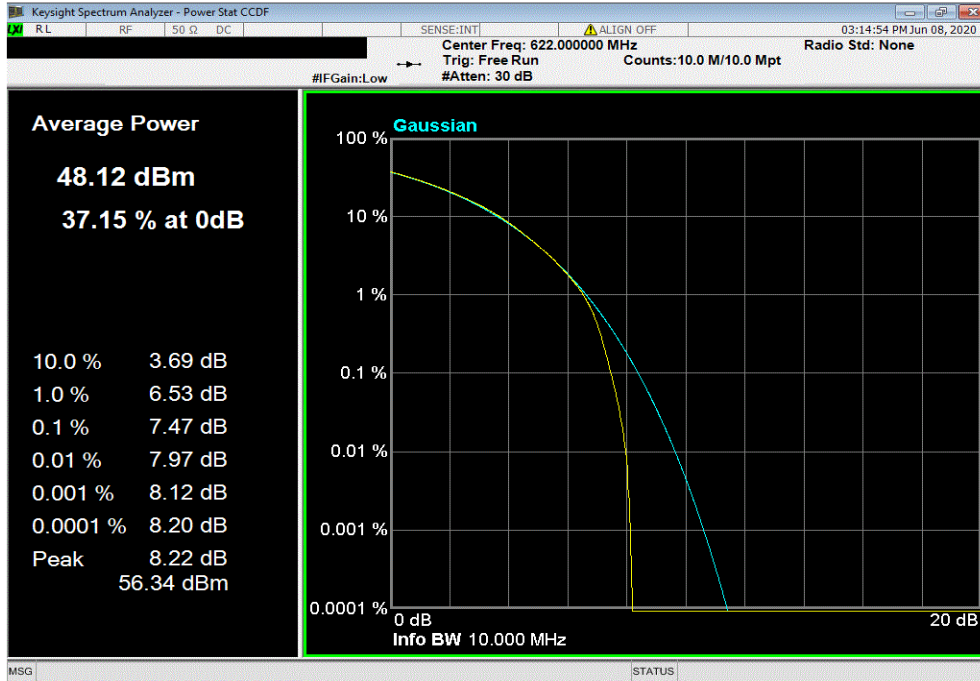


PEAK TO AVERAGE POWER (PAPR)

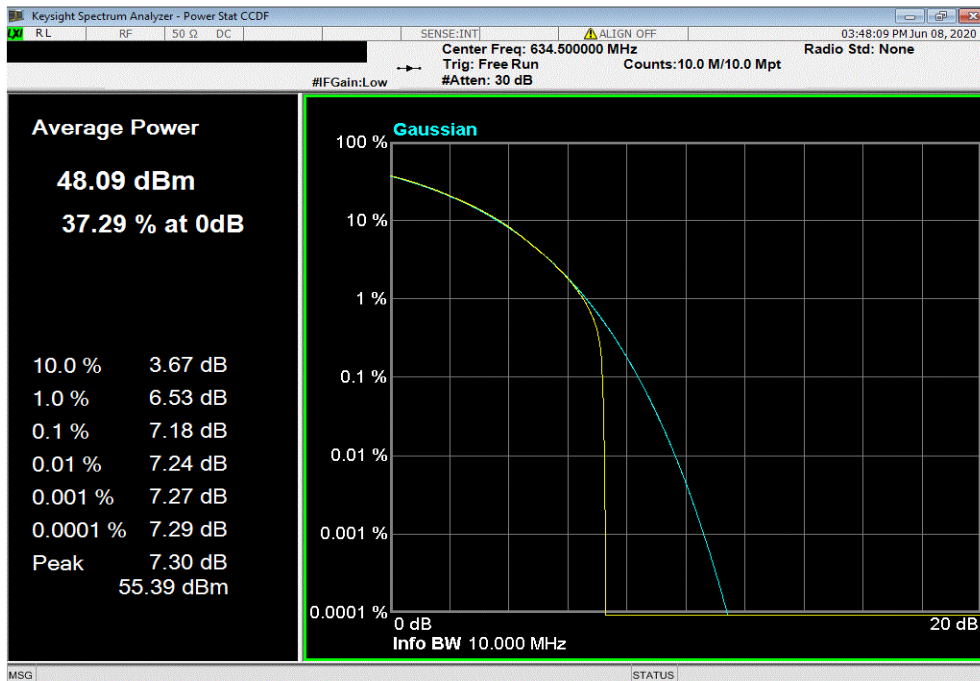


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Port 1, Band 71, 617 MHz - 652 MHz, 10 MHz Bandwidth, QPSK Modulation, Low Channel, 622 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.47	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 10 MHz Bandwidth, QPSK Modulation, Mid Channel, 634.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.18	13	Pass			

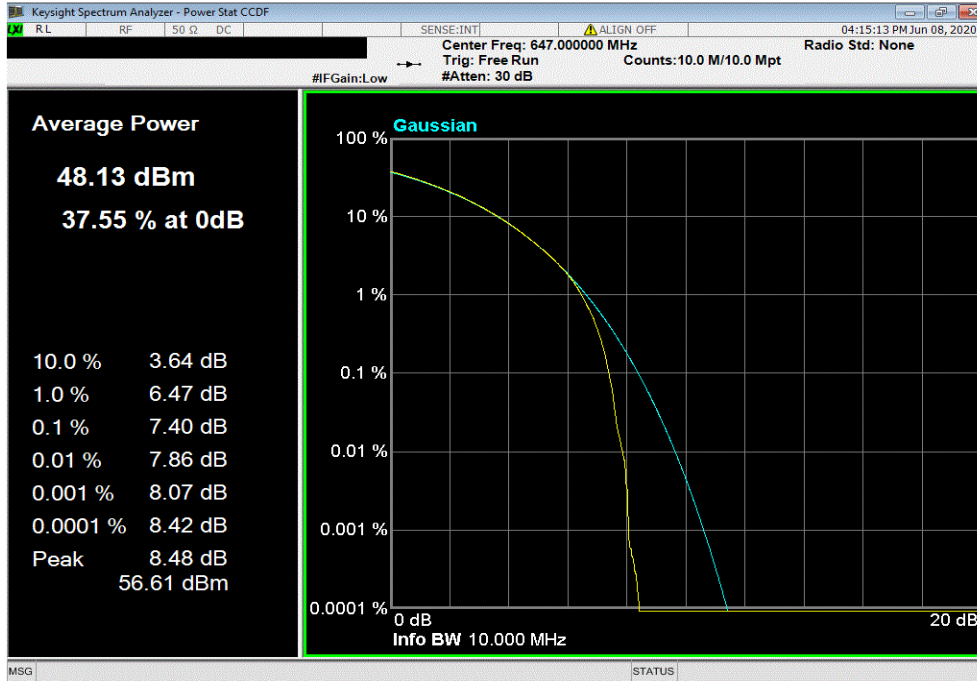


PEAK TO AVERAGE POWER (PAPR)

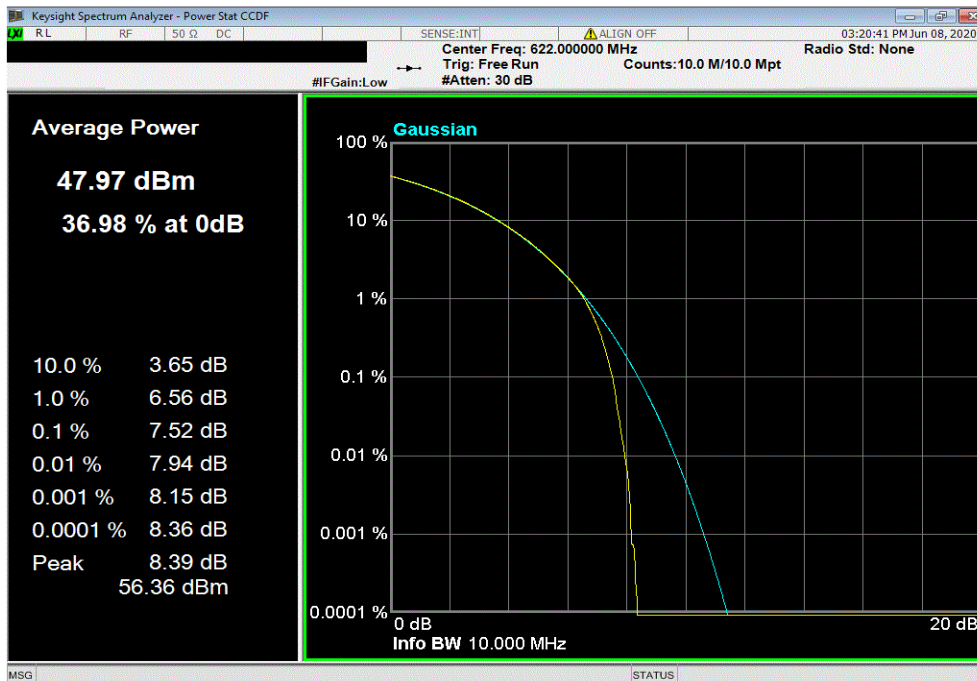


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Port 1, Band 71, 617 MHz - 652 MHz, 10 MHz Bandwidth, QPSK Modulation, High Channel, 647 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.4	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 10 MHz Bandwidth, 16-QAM Modulation, Low Channel, 622 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.52	13	Pass			

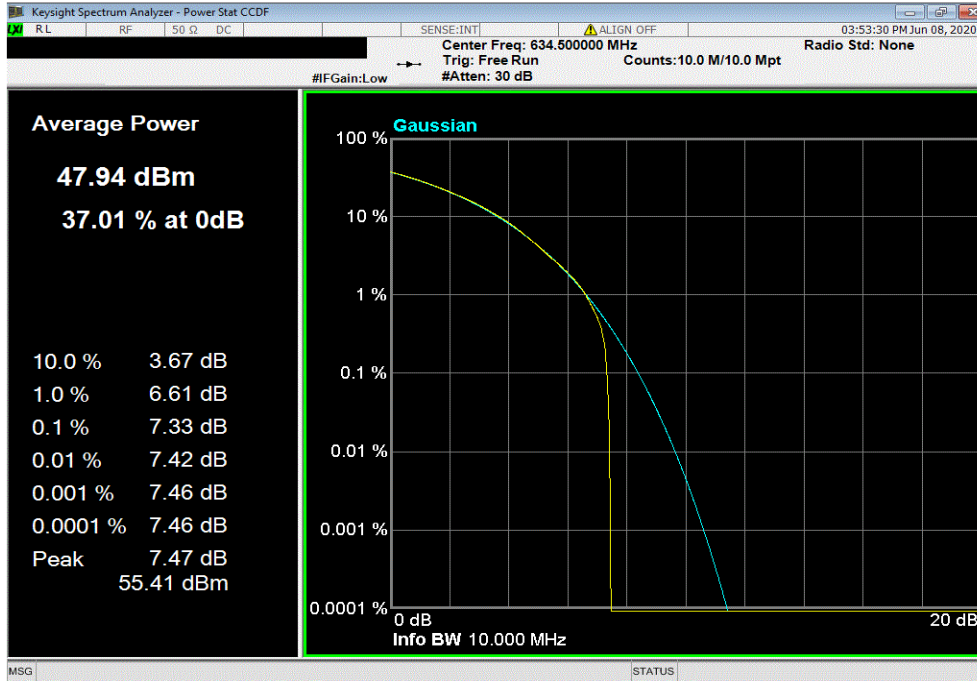


PEAK TO AVERAGE POWER (PAPR)

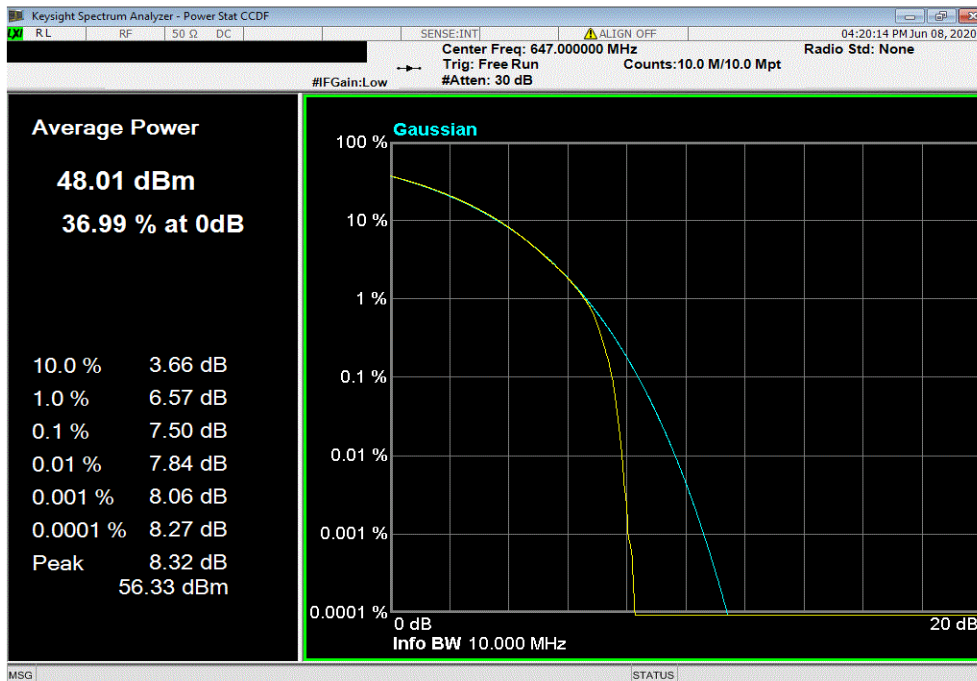


TMTX 2020.06.08.0 BETA XMI 2020.03.25.0

Port 1, Band 71, 617 MHz - 652 MHz, 10 MHz Bandwidth, 16-QAM Modulation, Mid Channel, 634.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.33	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 10 MHz Bandwidth, 16-QAM Modulation, High Channel, 647 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.5	13	Pass			

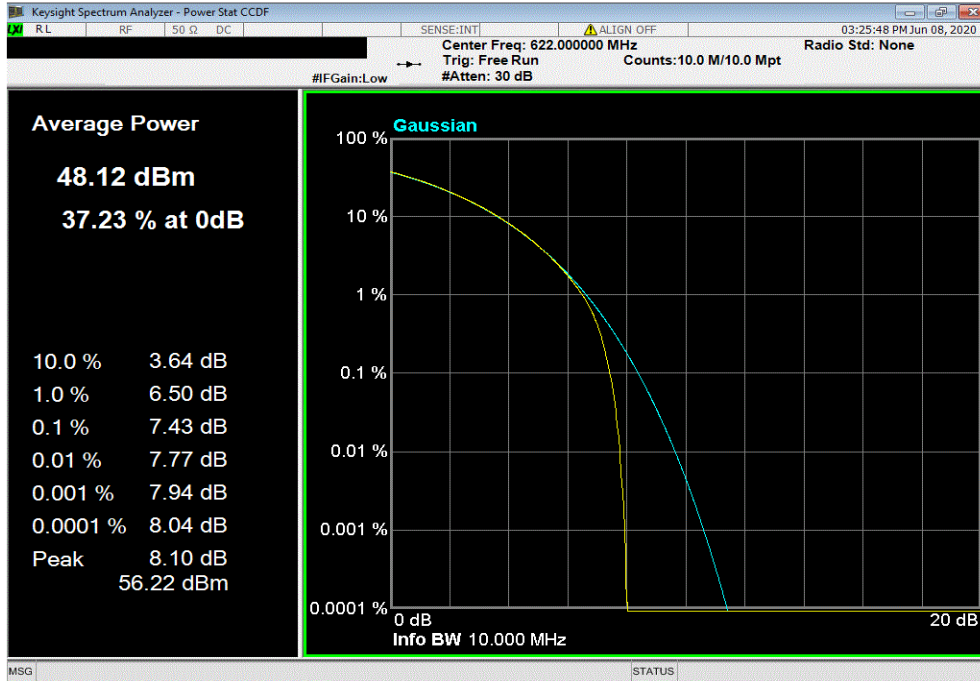


PEAK TO AVERAGE POWER (PAPR)

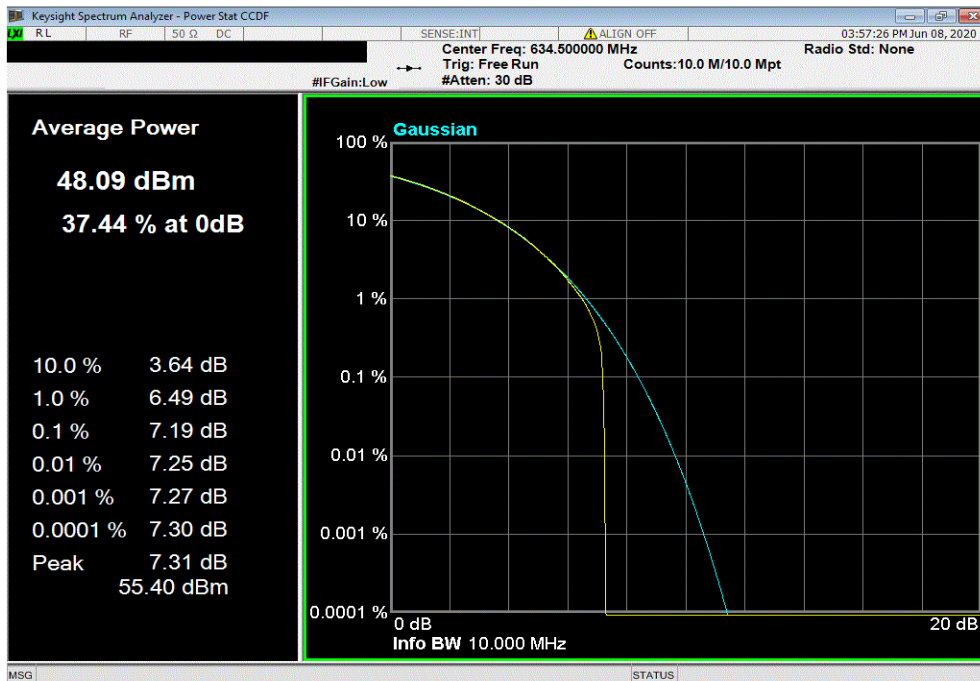


TMTX 2020.06.08.0 BETA XMt 2020.03.25.0

Port 1, Band 71, 617 MHz - 652 MHz, 10 MHz Bandwidth, 64-QAM Modulation, Low Channel, 622 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.43	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 10 MHz Bandwidth, 64-QAM Modulation, Mid Channel, 634.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.19	13	Pass			

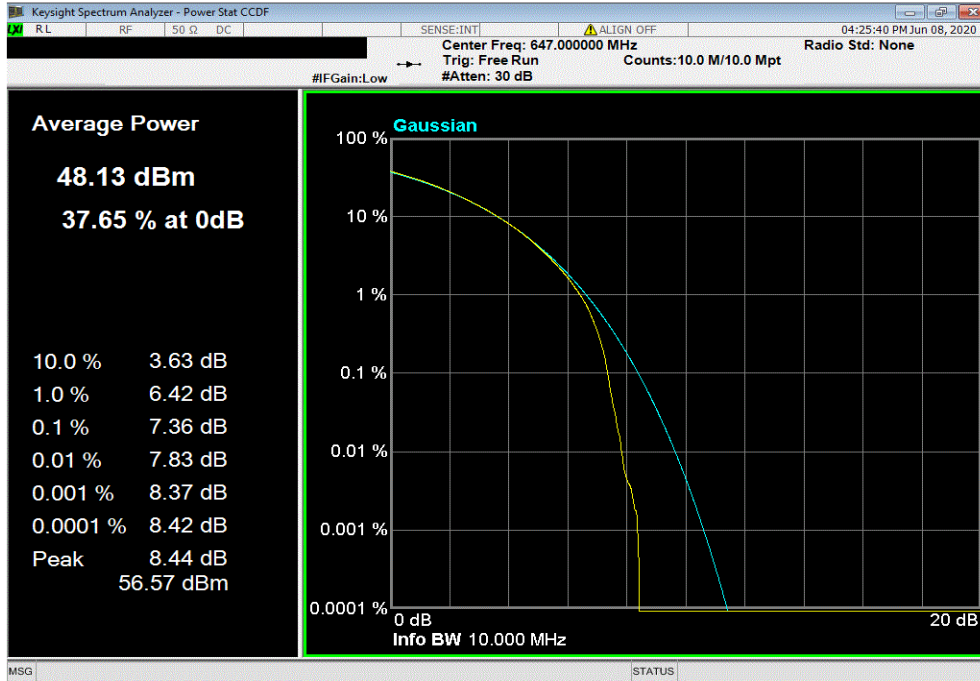


PEAK TO AVERAGE POWER (PAPR)

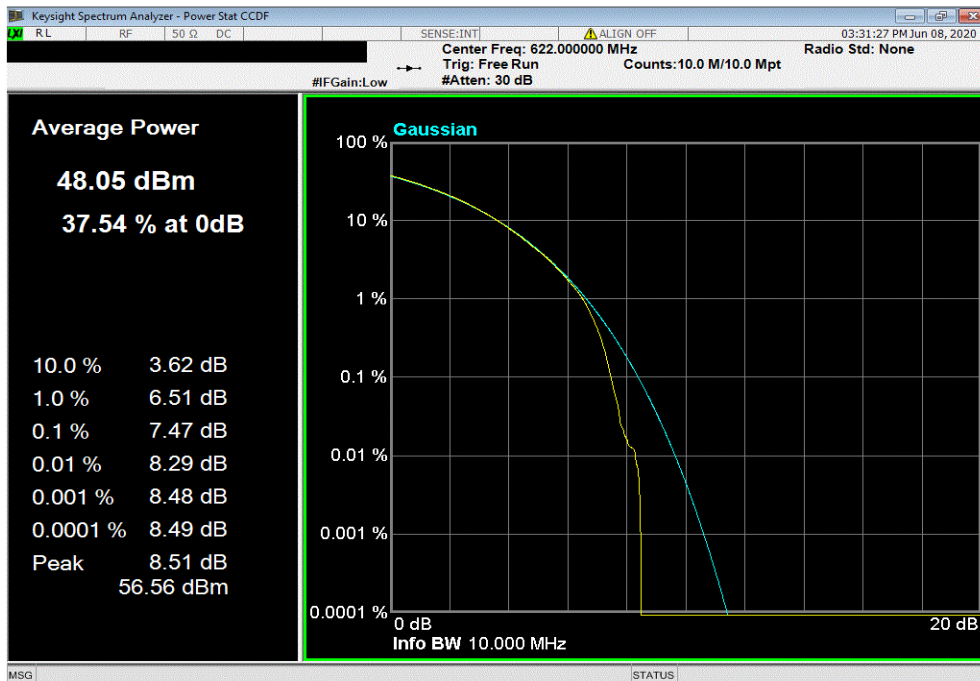


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Port 1, Band 71, 617 MHz - 652 MHz, 10 MHz Bandwidth, 64-QAM Modulation, High Channel, 647 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.36	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 10 MHz Bandwidth, 256-QAM Modulation, Low Channel, 622 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.47	13	Pass			

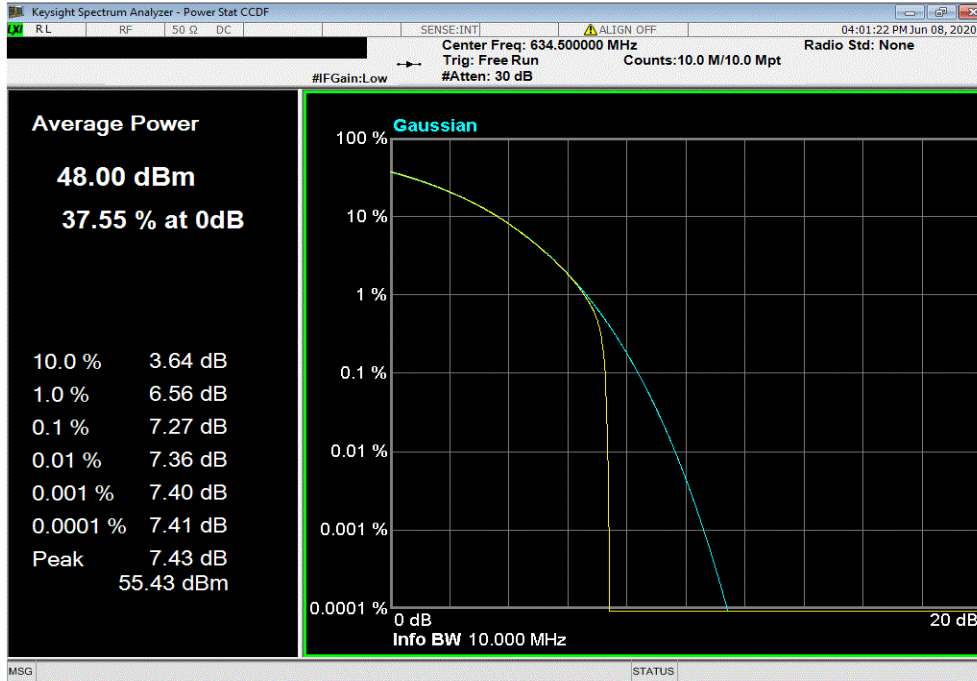


PEAK TO AVERAGE POWER (PAPR)

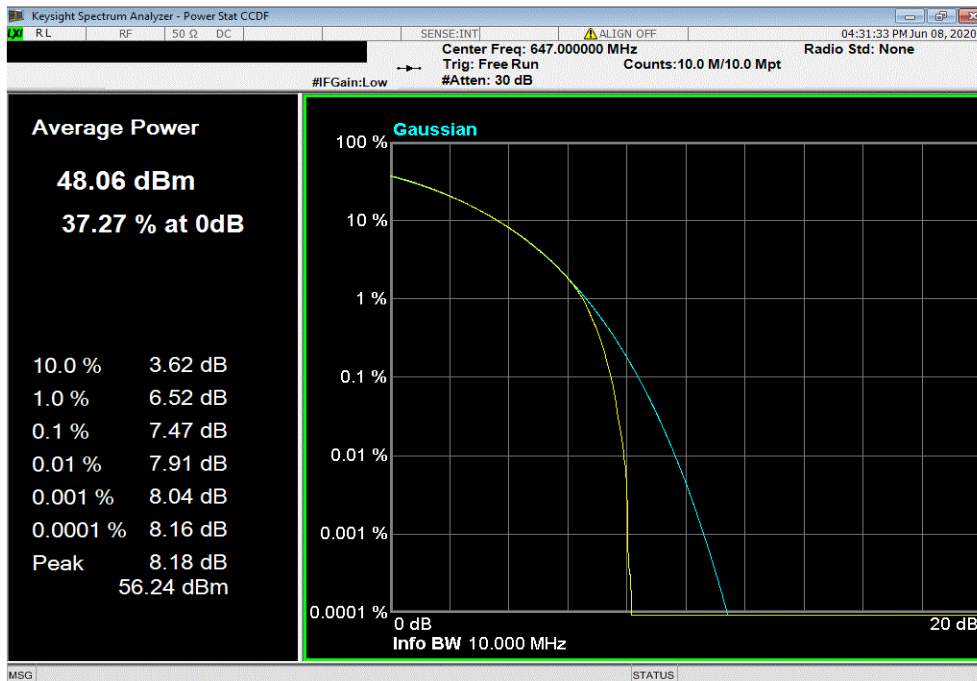


TMTX 2020.06.08.0 BETA XMI 2020.03.25.0

Port 1, Band 71, 617 MHz - 652 MHz, 10 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 634.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.27	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 10 MHz Bandwidth, 256-QAM Modulation, High Channel, 647 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.47	13	Pass			

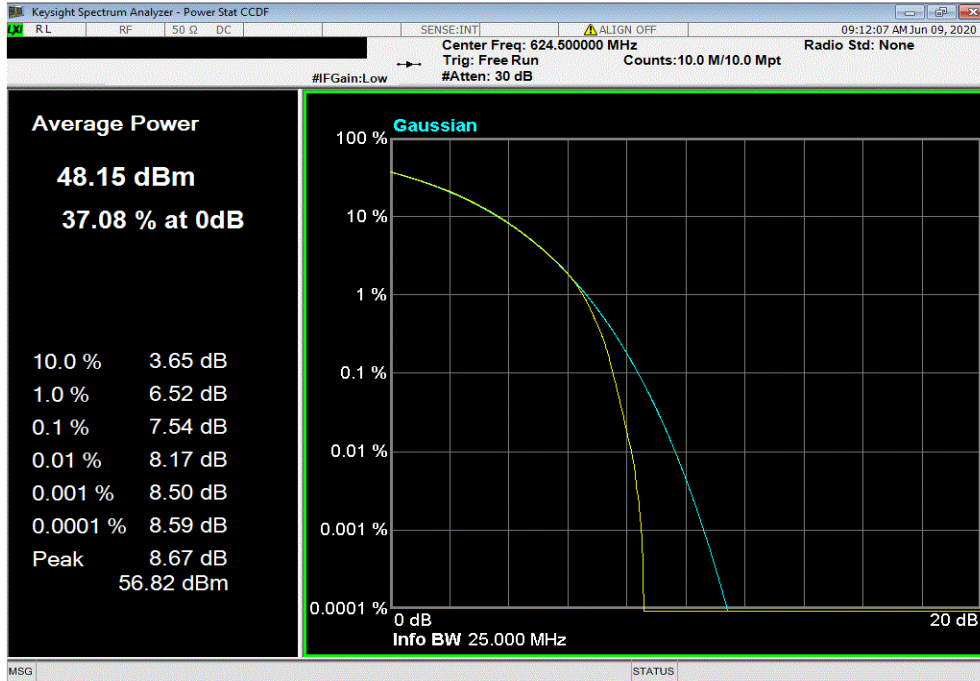


PEAK TO AVERAGE POWER (PAPR)

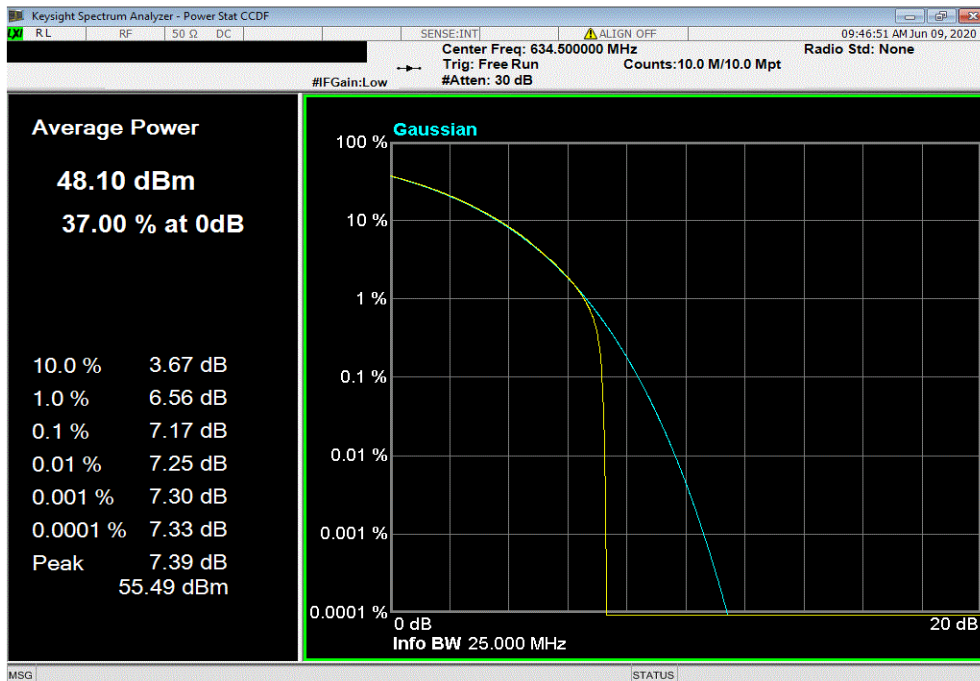


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Port 1, Band 71, 617 MHz - 652 MHz, 15 MHz Bandwidth, QPSK Modulation, Low Channel, 624.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.54	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 15 MHz Bandwidth, QPSK Modulation, Mid Channel, 634.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.17	13	Pass			

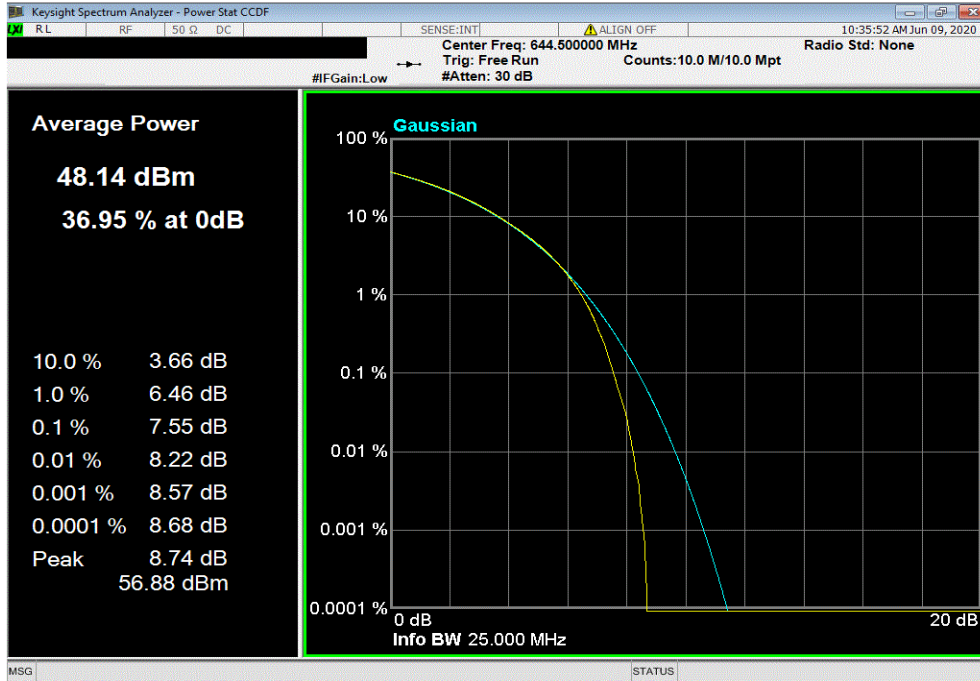


PEAK TO AVERAGE POWER (PAPR)

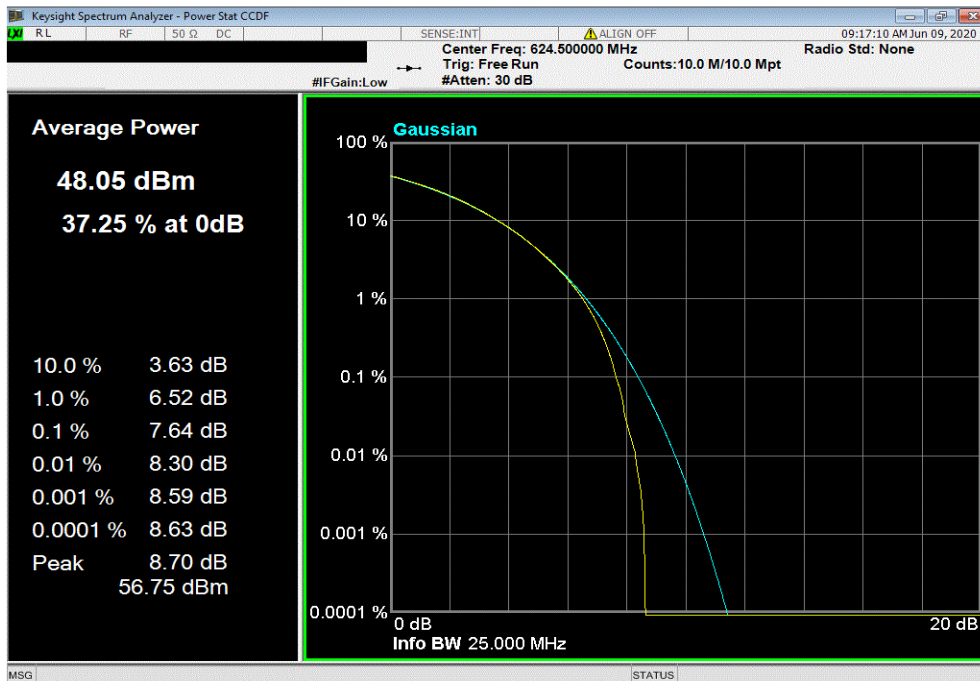


TMTX 2020.06.08.0 BETA XMI 2020.03.25.0

Port 1, Band 71, 617 MHz - 652 MHz, 15 MHz Bandwidth, QPSK Modulation, High Channel, 644.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.55	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 15 MHz Bandwidth, 16-QAM Modulation, Low Channel, 624.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.64	13	Pass			

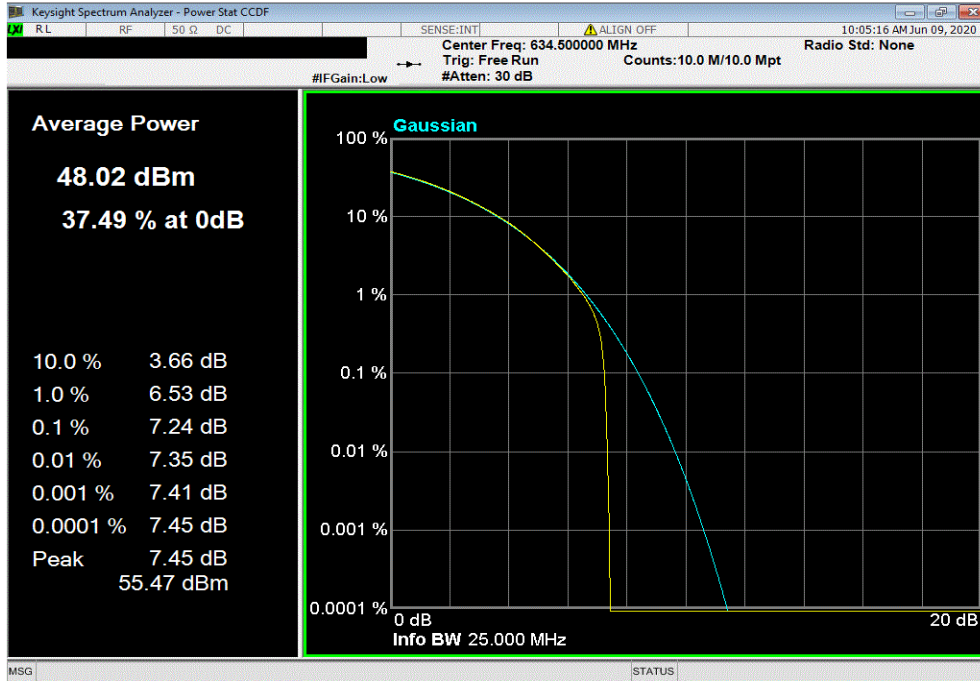


PEAK TO AVERAGE POWER (PAPR)

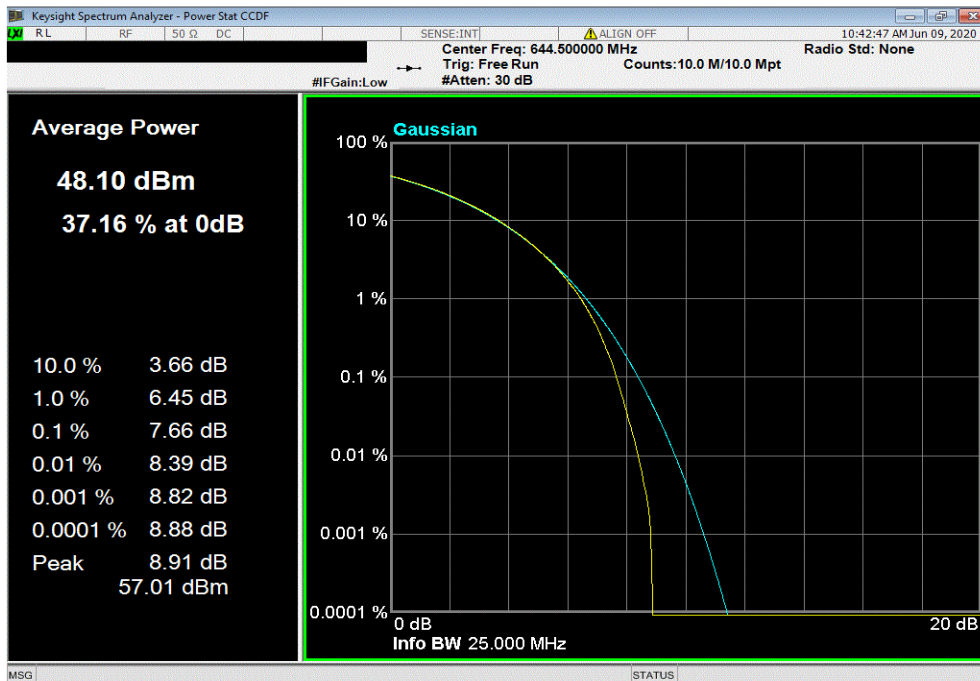


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Port 1, Band 71, 617 MHz - 652 MHz, 15 MHz Bandwidth, 16-QAM Modulation, Mid Channel, 634.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.24	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 15 MHz Bandwidth, 16-QAM Modulation, High Channel, 644.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.66	13	Pass			

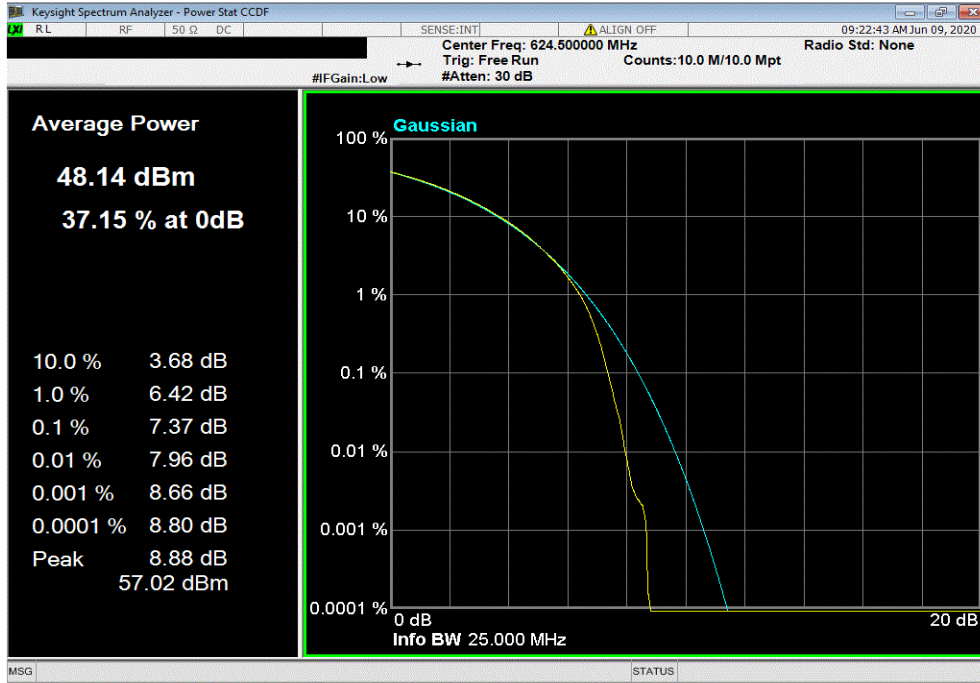


PEAK TO AVERAGE POWER (PAPR)

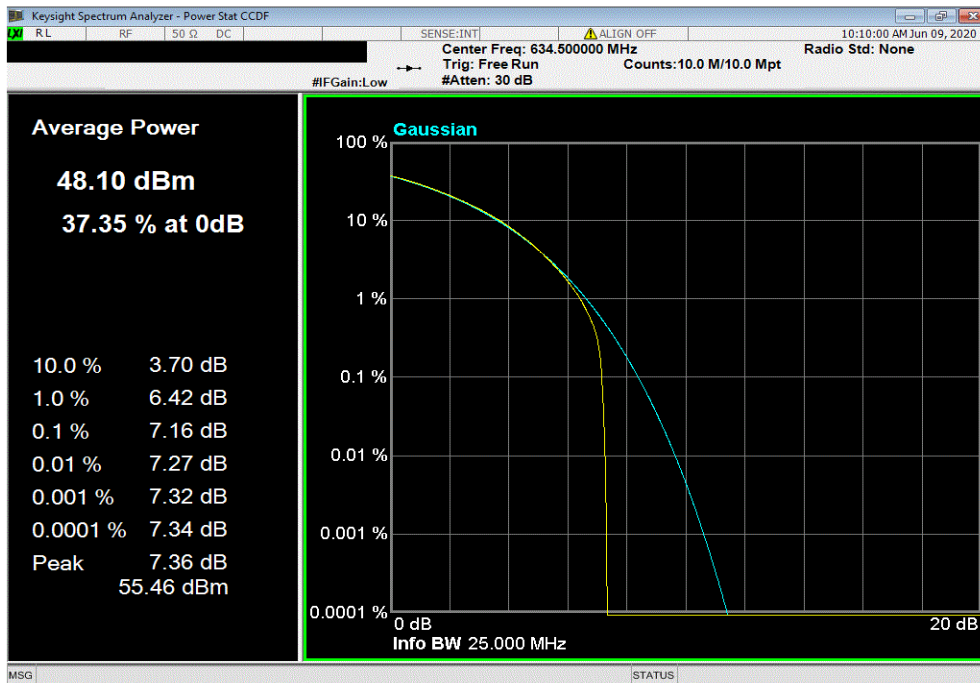


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Port 1, Band 71, 617 MHz - 652 MHz, 15 MHz Bandwidth, 64-QAM Modulation, Low Channel, 624.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.37	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 15 MHz Bandwidth, 64-QAM Modulation, Mid Channel, 634.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.16	13	Pass			

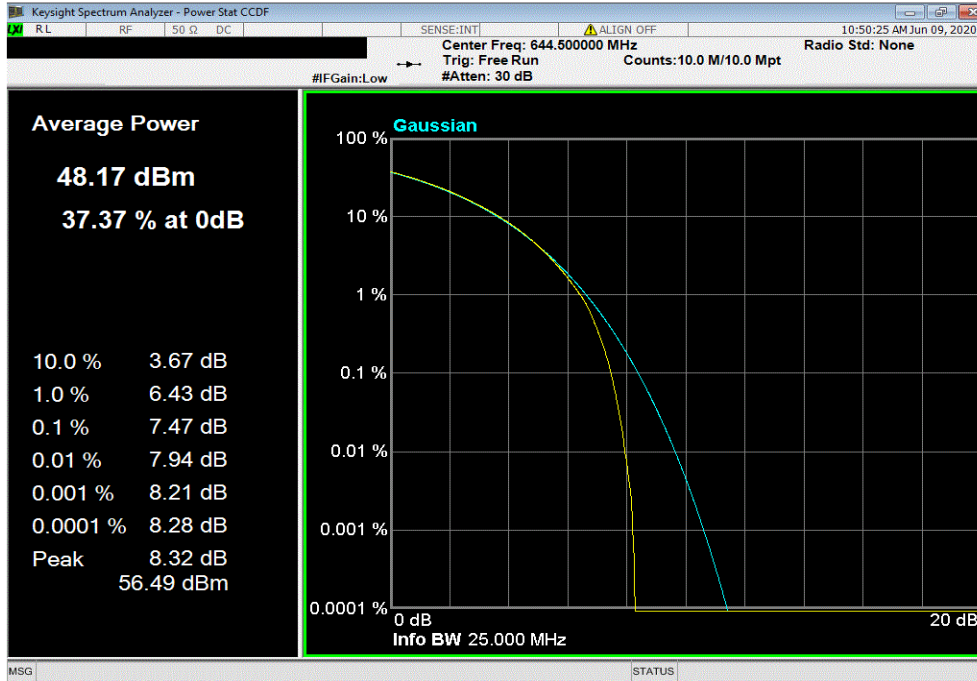


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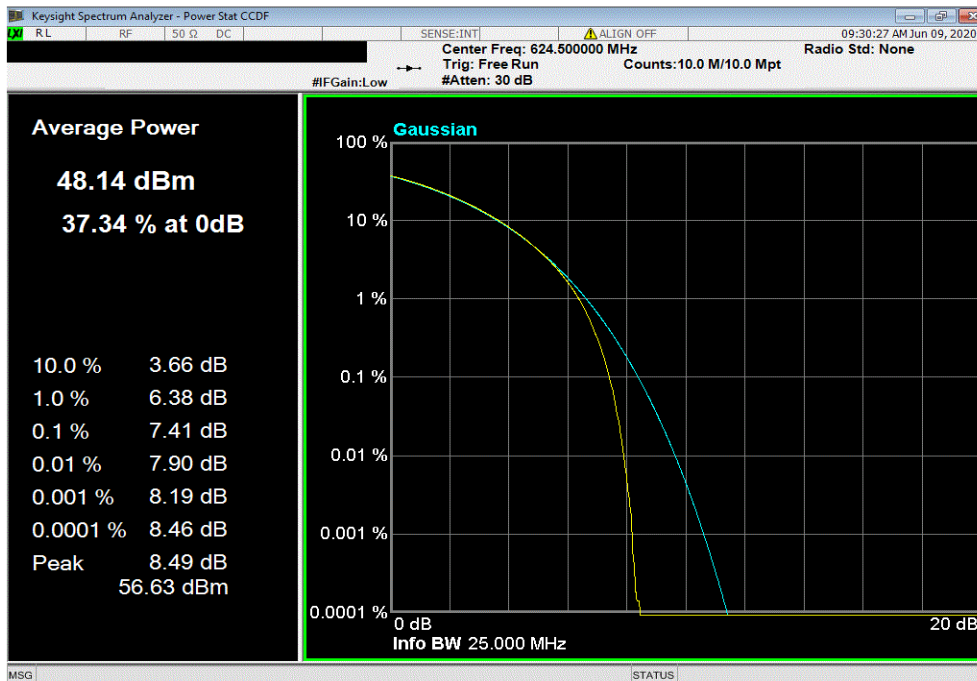


TMTX 2020.06.08.0 BETA XMI 2020.03.25.0

Port 1, Band 71, 617 MHz - 652 MHz, 15 MHz Bandwidth, 64-QAM Modulation, High Channel, 644.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.47	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 15 MHz Bandwidth, 256-QAM Modulation, Low Channel, 624.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.41	13	Pass			

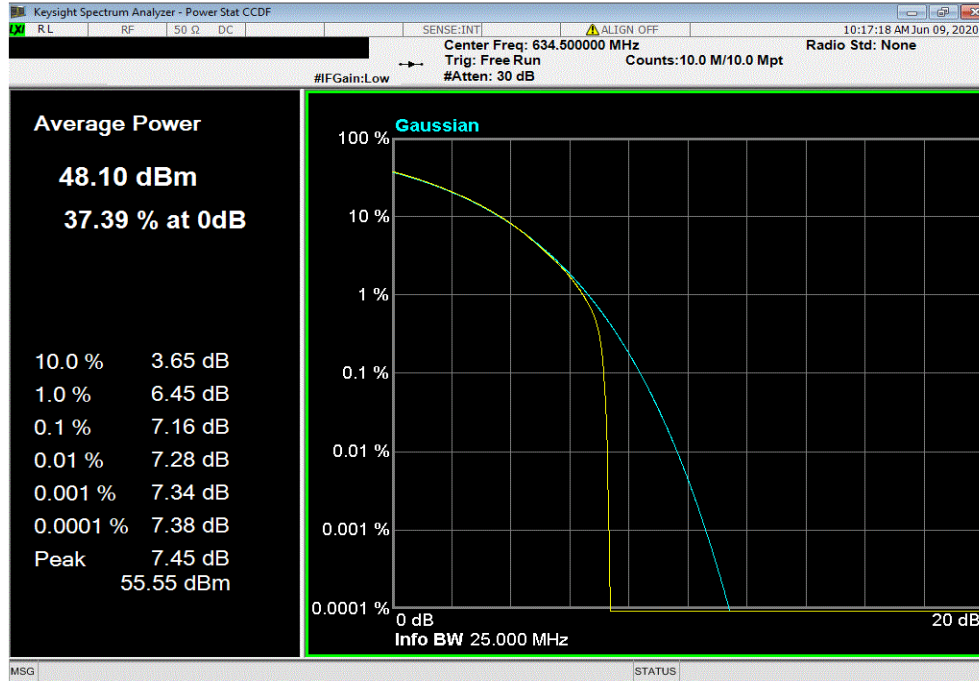


PEAK TO AVERAGE POWER (PAPR)

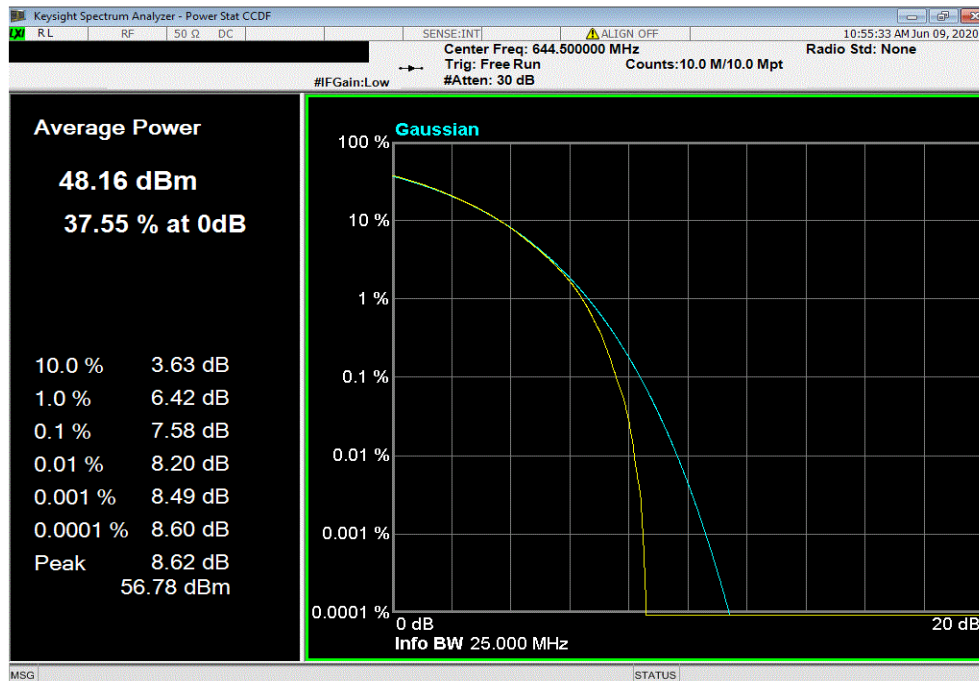


TMTX 2020.06.08.0 BETA XMI 2020.03.25.0

Port 1, Band 71, 617 MHz - 652 MHz, 15 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 634.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.16	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 15 MHz Bandwidth, 256-QAM Modulation, High Channel, 644.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.58	13	Pass			

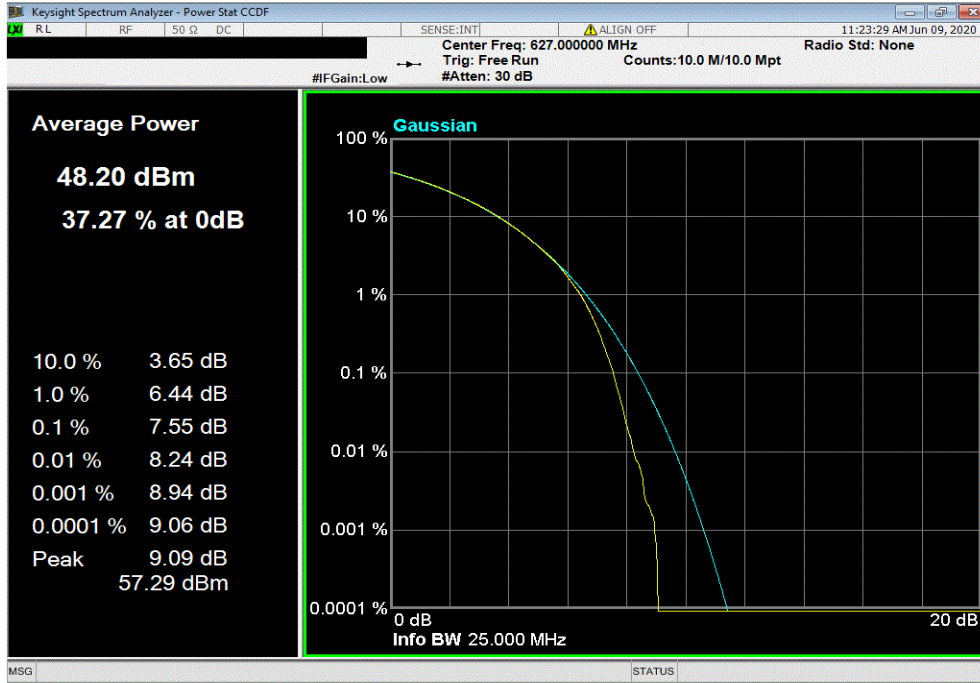


PEAK TO AVERAGE POWER (PAPR)

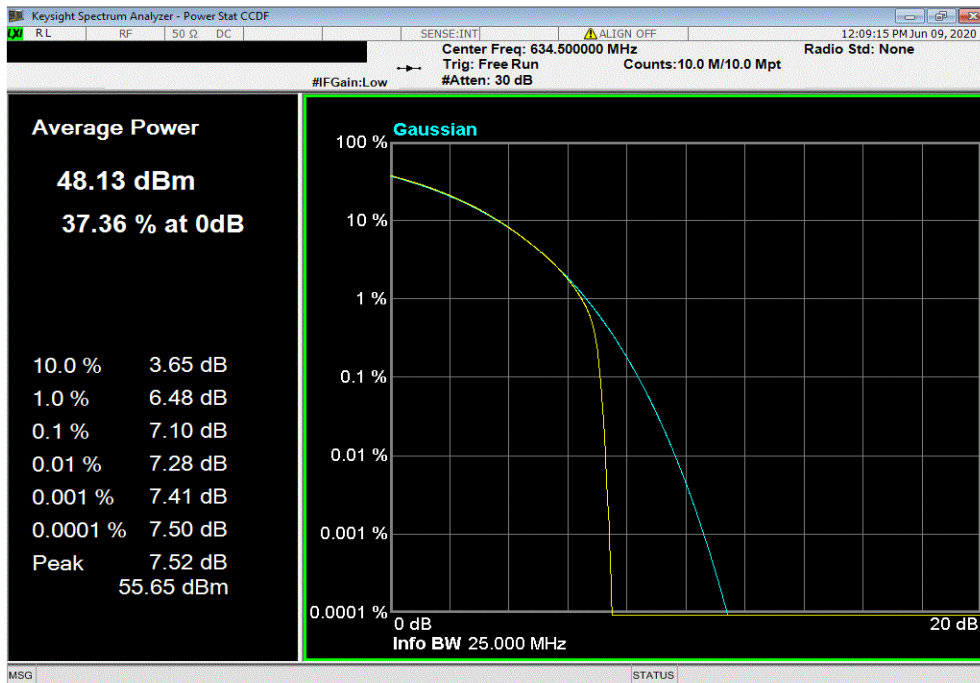


TMTX 2020.06.08.0 BETA XMI 2020.03.25.0

Port 1, Band 71, 617 MHz - 652 MHz, 20 MHz Bandwidth, QPSK Modulation, Low Channel, 627 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.55	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 20 MHz Bandwidth, QPSK Modulation, Mid Channel, 634.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.1	13	Pass			

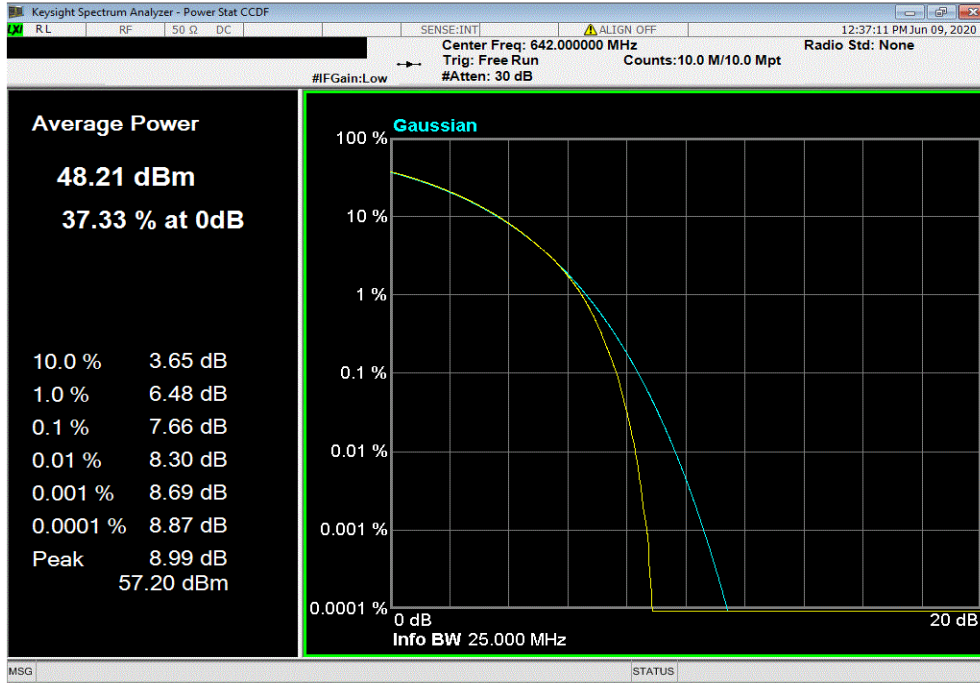


PEAK TO AVERAGE POWER (PAPR)

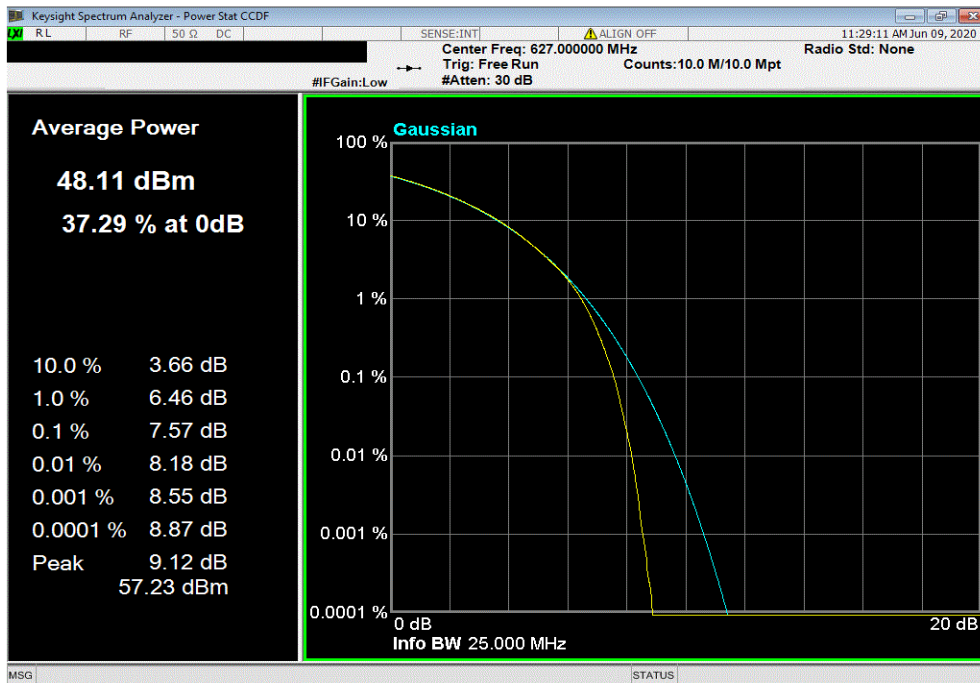


TMTX 2020.06.08.0 BETA XMI 2020.03.25.0

Port 1, Band 71, 617 MHz - 652 MHz, 20 MHz Bandwidth, QPSK Modulation, High Channel, 642 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.66	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 20 MHz Bandwidth, 16-QAM Modulation, Low Channel, 627 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.57	13	Pass			

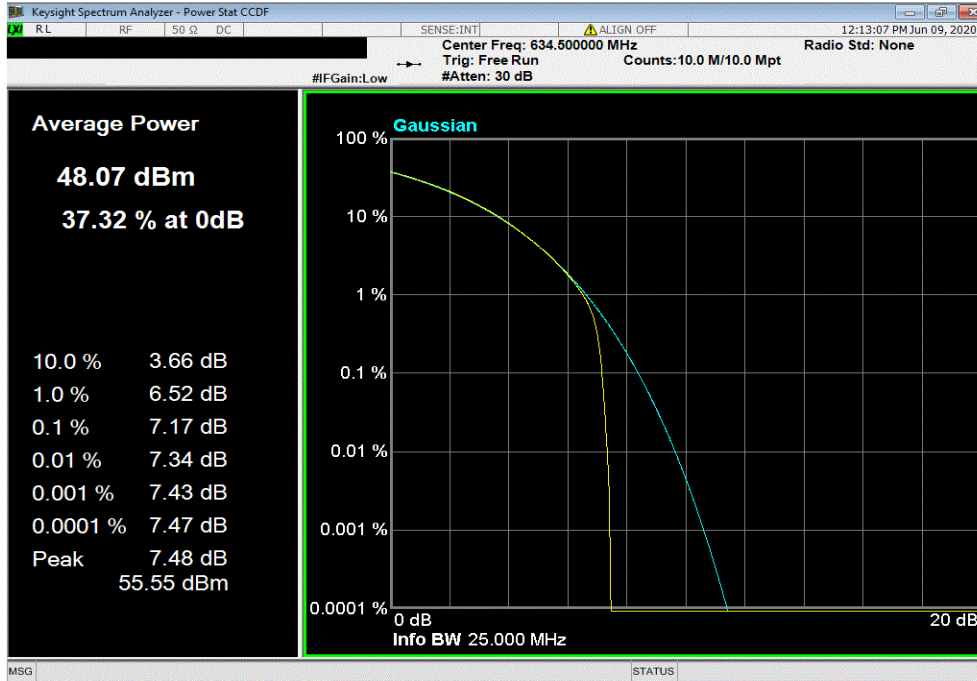


PEAK TO AVERAGE POWER (PAPR)

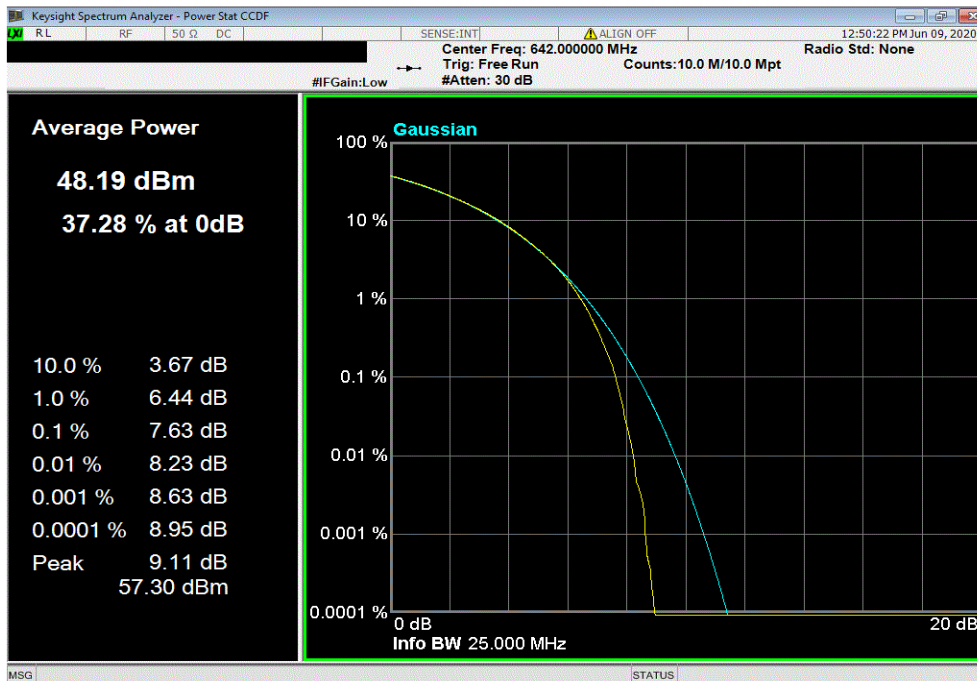


TMTX 2020.06.08.0 BETA XMI 2020.03.25.0

Port 1, Band 71, 617 MHz - 652 MHz, 20 MHz Bandwidth, 16-QAM Modulation, Mid Channel, 634.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.17	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 20 MHz Bandwidth, 16-QAM Modulation, High Channel, 642 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.63	13	Pass			

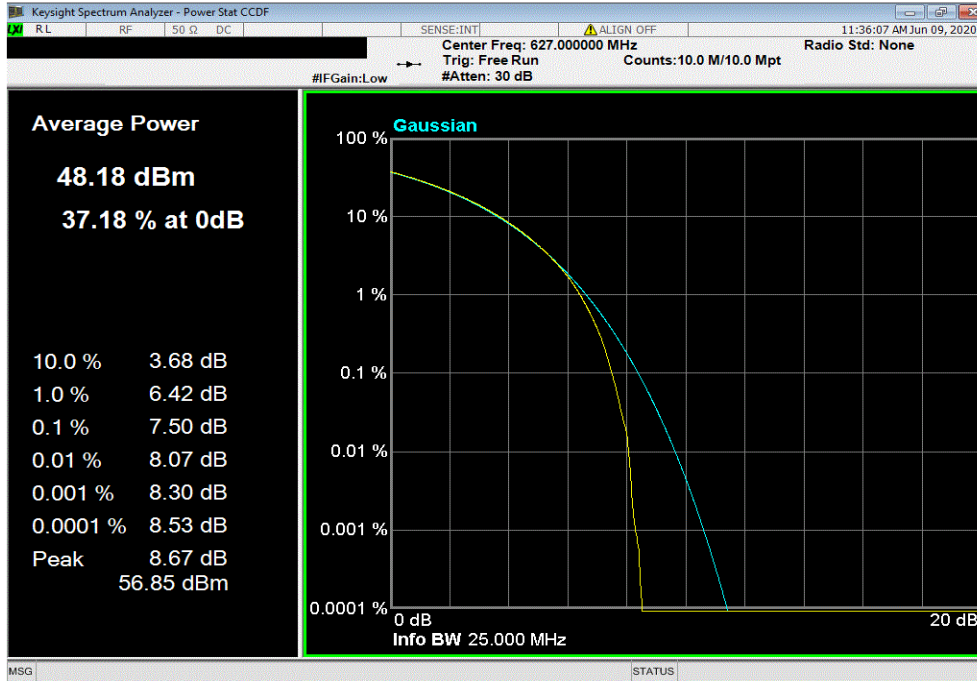


PEAK TO AVERAGE POWER (PAPR)

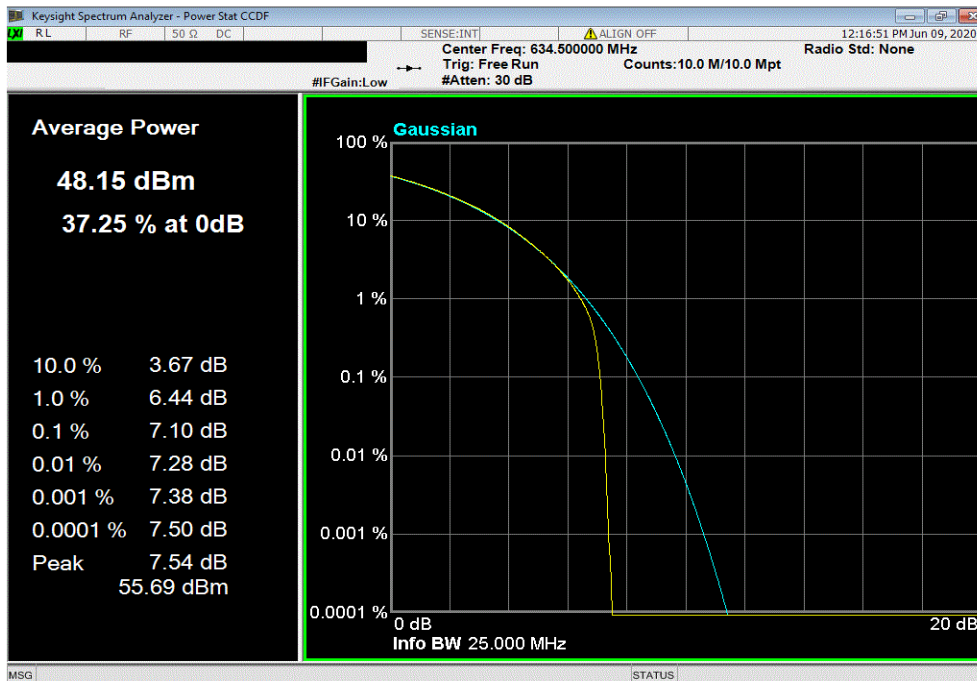


TMTX 2020.06.08.0 BETA XMI 2020.03.25.0

Port 1, Band 71, 617 MHz - 652 MHz, 20 MHz Bandwidth, 64-QAM Modulation, Low Channel, 627 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.5	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 20 MHz Bandwidth, 64-QAM Modulation, Mid Channel, 634.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.1	13	Pass			

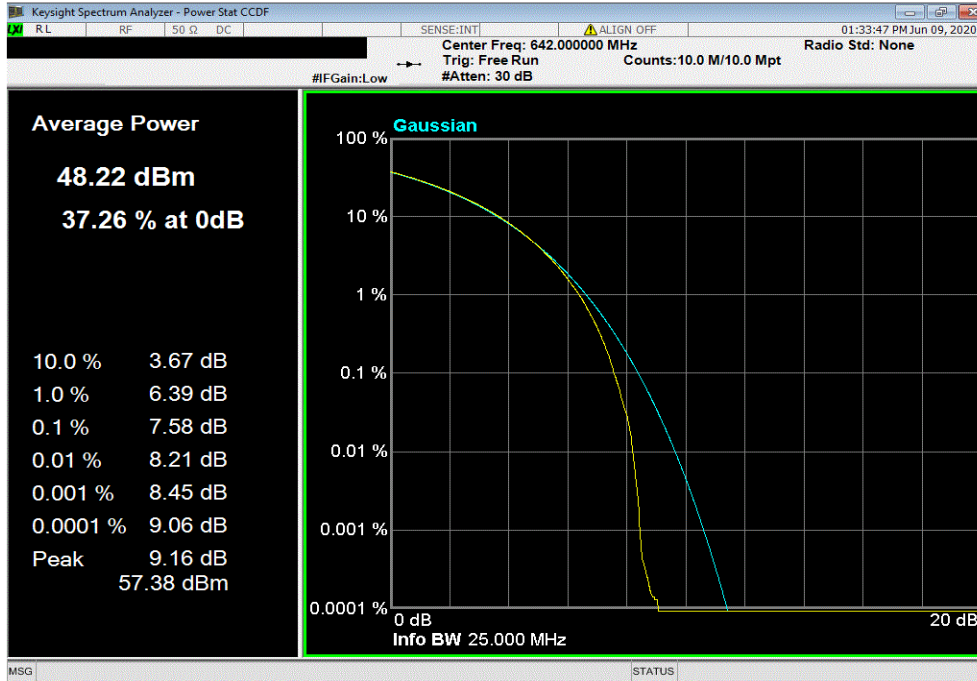


PEAK TO AVERAGE POWER (PAPR)

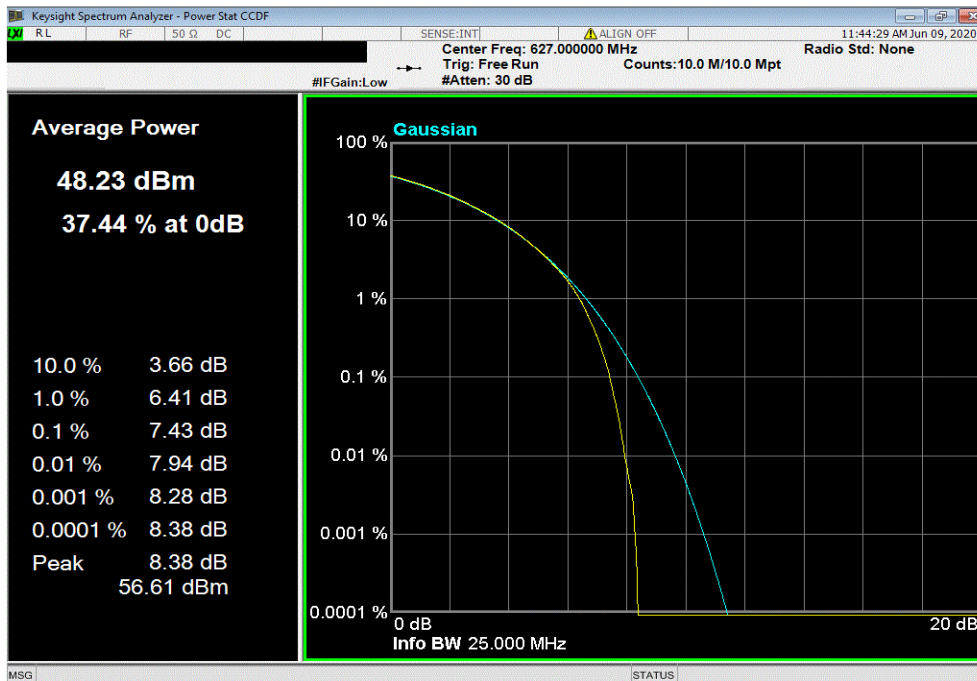


TMTX 2020.06.08.0 BETA XMI 2020.03.25.0

Port 1, Band 71, 617 MHz - 652 MHz, 20 MHz Bandwidth, 64-QAM Modulation, High Channel, 642 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.58	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 20 MHz Bandwidth, 256-QAM Modulation, Low Channel, 627 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.43	13	Pass			

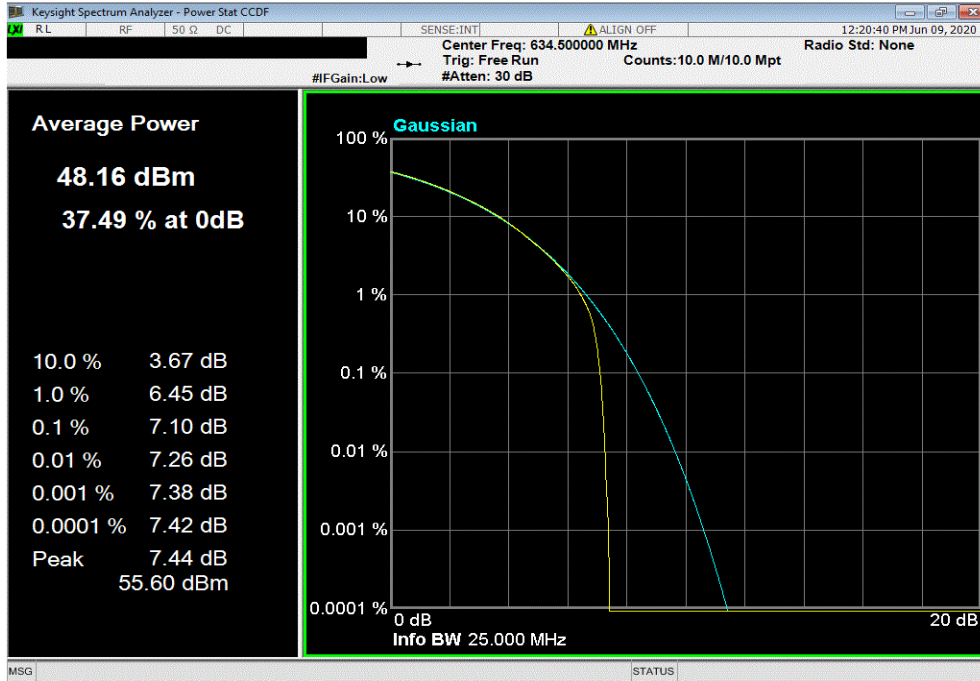


PEAK TO AVERAGE POWER (PAPR)



TMTX 2020.06.08.0 BETA XMI 2020.03.25.0

Port 1, Band 71, 617 MHz - 652 MHz, 20 MHz Bandwidth, 256-QAM Modulation, Mid Channel, 634.5 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.1	13	Pass			



Port 1, Band 71, 617 MHz - 652 MHz, 20 MHz Bandwidth, 256-QAM Modulation, High Channel, 642 MHz						
	Value	Limit	Results			
	0.1% (dB)	< dB				
	7.62	13	Pass			

