

OCCUPIED BANDWIDTH - 4 PORT MODE



XMIT 2020.03.25.0

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
Block - DC	Fairview Microwave	SD3379	AMM	21-Sep-20	21-Sep-21
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	27-Feb-20	27-Feb-21
Generator - Signal	Agilent	N5173B	TIW	17-Jul-20	17-Jul-23

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The method in section 5.4 of ANSI C63.26 was used to make this measurement. The spectrum analyzer settings were as follows:

- RBW is 1% - 5% of the occupied bandwidth
- VBW is $\geq 3x$ the RBW
- Peak Detector was used
- Trace max hold was used

The occupied bandwidth was measured with the EUT configured in the modes called out in the data sheets.

FCC 27.53(h)(3) defines the 26dB emission bandwidth requirement.

RSS GEN Section 6.6 defines the 99% emission bandwidth requirement.

RF conducted emissions testing was performed on one port. The FRIJ antenna ports are essentially electrically identical (RF power variation between antenna ports 1 thru 4 is small) and port 1 was selected to perform the testing under this effort as allowed by ANSI C63.26-2015 paragraphs 5.2.5.3, 5.7.2i and 6.4.

AWS Band 1 Emissions Designators:

AWS Band 1 (2110MHz to 2155MHz) Emission Designators									
Channel Bandwidth	Radio Channel	5G-NR: QPSK		5G-NR: 16-QAM		5G-NR: 64-QAM		5G-NR: 256-QAM	
		FCC	IC	FCC	IC	FCC	IC	FCC	IC
5 MHz	Low	N/A	N/A	N/A	N/A	N/A	N/A	4M85G7W	4M48G7W
	Mid	4M88G7W	4M50G7W	4M89G7W	4M53G7W	4M86G7W	4M49G7W	4M86G7W	4M48G7W
	High	N/A	N/A	N/A	N/A	N/A	N/A	4M85G7W	4M48G7W
10 MHz	Low	N/A	N/A	N/A	N/A	N/A	N/A	9M94G7W	9M31G7W
	Mid	9M90G7W	9M32G7W	9M87G7W	9M24G7W	9M93G7W	9M32G7W	9M95G7W	9M31G7W
	High	N/A	N/A	N/A	N/A	N/A	N/A	9M93G7W	9M29G7W
15 MHz	Low	N/A	N/A	N/A	N/A	N/A	N/A	14M88G7W	14M12G7W
	Mid	14M96G7W	14M15G7W	14M93G7W	14M17G7W	14M89G7W	14M13G7W	14M85G7W	14M10G7W
	High	N/A	N/A	N/A	N/A	N/A	N/A	14M89G7W	14M13G7W
20 MHz	Low	N/A	N/A	N/A	N/A	N/A	N/A	20M07G7W	18M94G7W
	Mid	20M04G7W	18M94G7W	20M03G7W	19M04G7W	19M99G7W	18M95G7W	20M05G7W	18M97G7W
	High	N/A	N/A	N/A	N/A	N/A	N/A	19M99G7W	18M95G7W

Note: FCC based on 26db emission bandwidth; IC based on 99% emission bandwidth

OCCUPIED BANDWIDTH - 4 PORT MODE



TkTx 2020.10.20.0 BETA XMt 2020.03.25.0

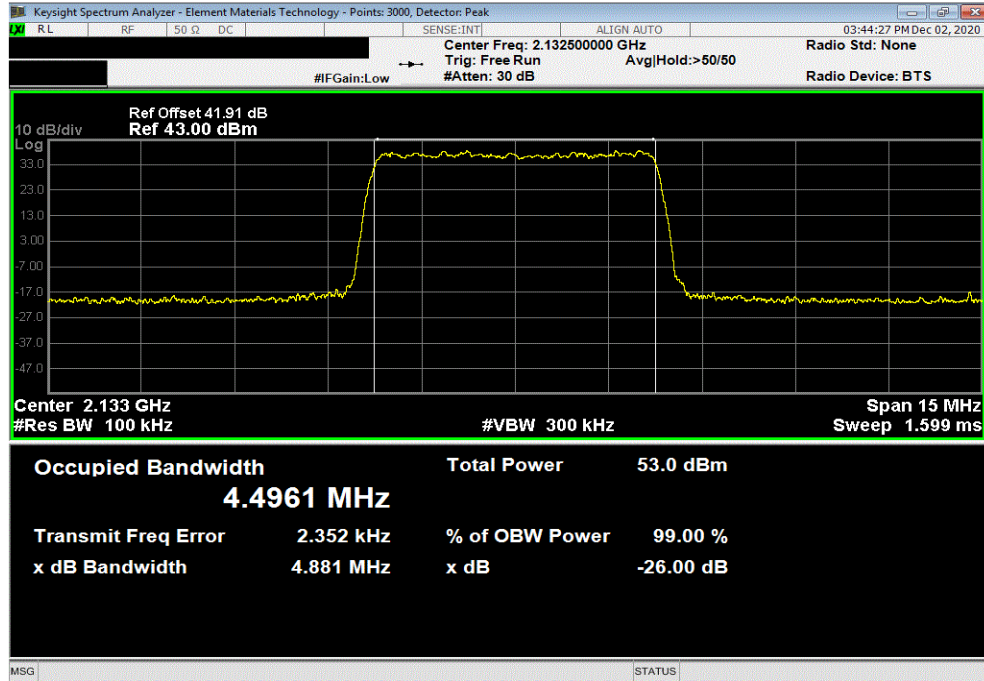
EUT: FRIG (C2PC FCC/ISED Approval for 5G)		Work Order: NOKI0025	
Serial Number: RY142309120		Date: 3-Dec-20	
Customer: Nokia Solutions and Networks		Temperature: 23.3 °C	
Attendees: Mitchell Hill, John Rattanavong		Humidity: 28.6% RH	
Project: None		Barometric Pres.: 1028 mbar	
Tested by: Brandon Hobbs		Power: 54 VDC	
Job Site: TX05			
TEST SPECIFICATIONS		Test Method	
FCC 27:2020		ANSI C63.26:2015	
RSS-Gen:2019		RSS-Gen:2019	
COMMENTS			
All measurement path losses were accounted for in the reference level offset including any attenuators, filters and DC blocks. AWS Band 1 carriers are enabled at maximum power (MIMO 4x4, 30 watts/carrier). The occupied bandwidth was measured for a single carrier over the carrier channel bandwidth on port 1.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature 	
		Value 99%	Value 26dB
		Limit	Result
30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz			
5 MHz Bandwidth			
QPSK Modulation			
Mid Channel 2132.5 MHz		4.496 MHz	4.881 MHz
		Within Band	Pass
16-QAM Modulation			
Mid Channel 2132.5 MHz		4.53 MHz	4.885 MHz
		Within Band	Pass
64-QAM Modulation			
Mid Channel 2132.5 MHz		4.49 MHz	4.857 MHz
		Within Band	Pass
256-QAM Modulation			
Low Channel 2112.5 MHz		4.478 MHz	4.852 MHz
		Within Band	Pass
Mid Channel 2132.5 MHz		4.484 MHz	4.858 MHz
		Within Band	Pass
High Channel 2152.5 MHz		4.478 MHz	4.854 MHz
		Within Band	Pass
10 MHz Bandwidth			
QPSK Modulation			
Mid Channel 2132.5 MHz		9.317 MHz	9.901 MHz
		Within Band	Pass
16-QAM Modulation			
Mid Channel 2132.5 MHz		9.241 MHz	9.865 MHz
		Within Band	Pass
64-QAM Modulation			
Mid Channel 2132.5 MHz		9.322 MHz	9.929 MHz
		Within Band	Pass
256-QAM Modulation			
Low Channel 2115 MHz		9.307 MHz	9.942 MHz
		Within Band	Pass
Mid Channel 2132.5 MHz		9.308 MHz	9.947 MHz
		Within Band	Pass
High Channel 2150 MHz		9.29 MHz	9.925 MHz
		Within Band	Pass
15 MHz Bandwidth			
QPSK Modulation			
Mid Channel 2132.5 MHz		14.145 MHz	14.957 MHz
		Within Band	Pass
16-QAM Modulation			
Mid Channel 2132.5 MHz		14.172 MHz	14.928 MHz
		Within Band	Pass
64-QAM Modulation			
Mid Channel 2132.5 MHz		14.127 MHz	14.889 MHz
		Within Band	Pass
256-QAM Modulation			
Low Channel 2117.5 MHz		14.124 MHz	14.88 MHz
		Within Band	Pass
Mid Channel 2132.5 MHz		14.103 MHz	14.853 MHz
		Within Band	Pass
High Channel 2147.5 MHz		14.126 MHz	14.885 MHz
		Within Band	Pass
20 MHz Bandwidth			
QPSK Modulation			
Mid Channel 2132.5 MHz		18.942 MHz	20.035 MHz
		Within Band	Pass
16-QAM Modulation			
Mid Channel 2132.5 MHz		19.035 MHz	20.034 MHz
		Within Band	Pass
64-QAM Modulation			
Mid Channel 2132.5 MHz		18.947 MHz	19.986 MHz
		Within Band	Pass
256-QAM Modulation			
Low Channel 2120 MHz		18.944 MHz	20.067 MHz
		Within Band	Pass
Mid Channel 2132.5 MHz		18.966 MHz	20.046 MHz
		Within Band	Pass
High Channel 2145 MHz		18.945 MHz	19.985 MHz
		Within Band	Pass

OCCUPIED BANDWIDTH - 4 PORT MODE

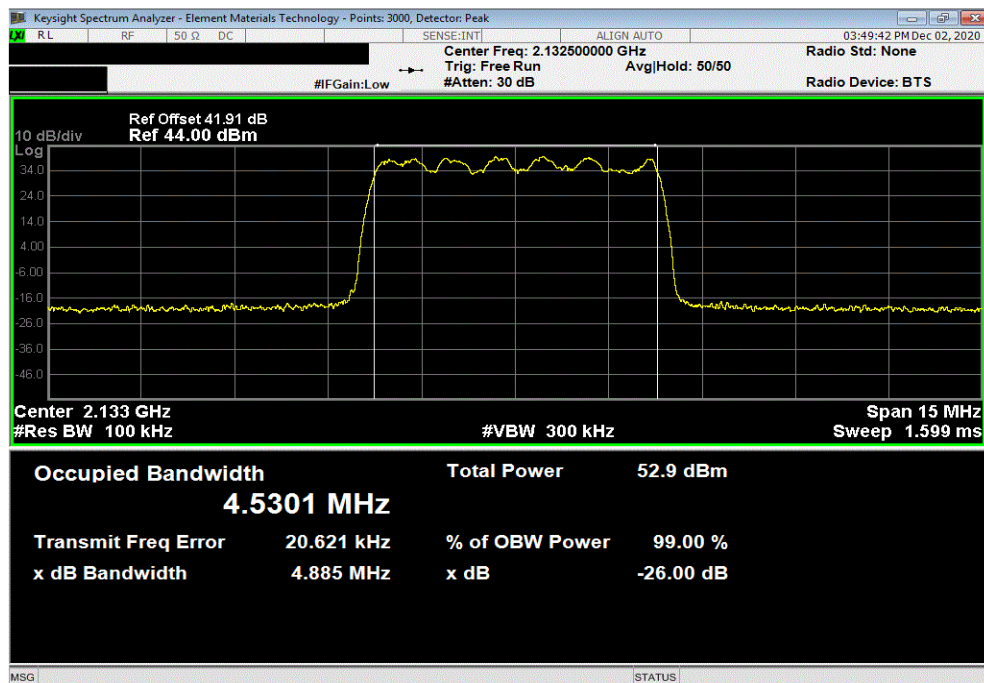


TbTx 2020.10.20.0 BETA XMit 2020.03.25.0

30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 5 MHz Bandwidth , QPSK Modulation, Mid Channel 2132.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			4.496 MHz	4.881 MHz	Within Band	Pass	



30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 5 MHz Bandwidth , 16-QAM Modulation, Mid Channel 2132.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			4.53 MHz	4.885 MHz	Within Band	Pass	

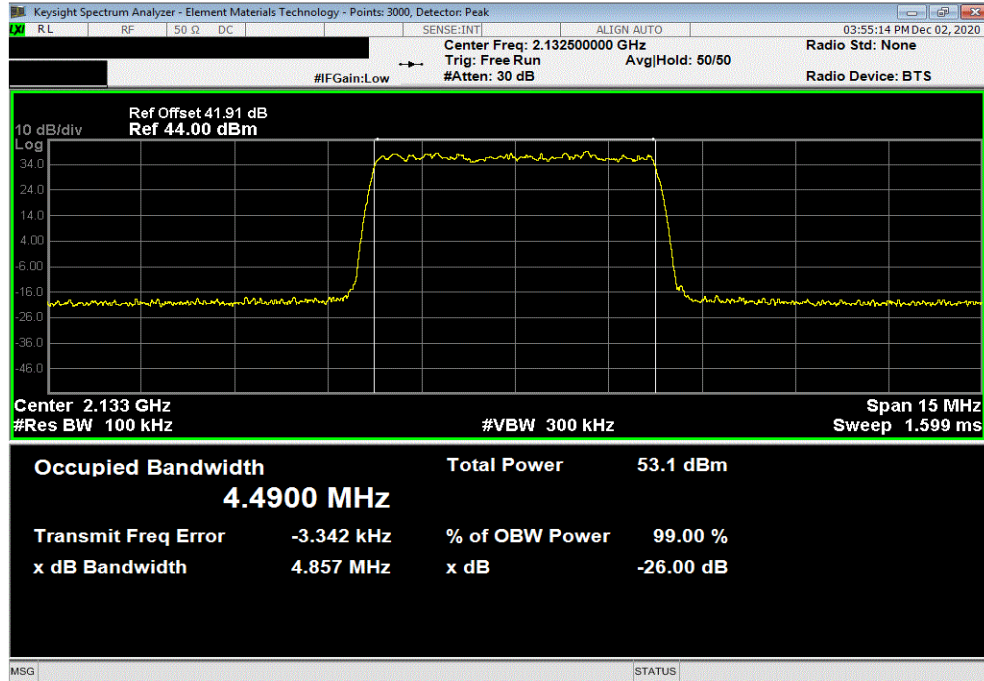


OCCUPIED BANDWIDTH - 4 PORT MODE

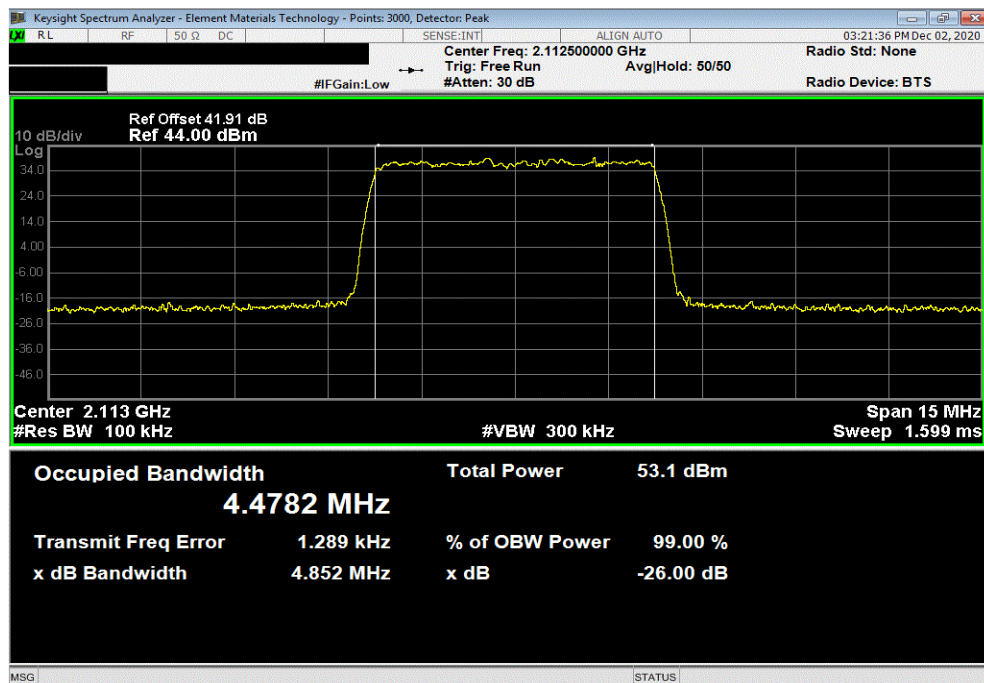


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 5 MHz Bandwidth , 64-QAM Modulation, Mid Channel 2132.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			4.49 MHz	4.857 MHz	Within Band	Pass	



30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 5 MHz Bandwidth , 256-QAM Modulation, Low Channel 2112.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			4.478 MHz	4.852 MHz	Within Band	Pass	

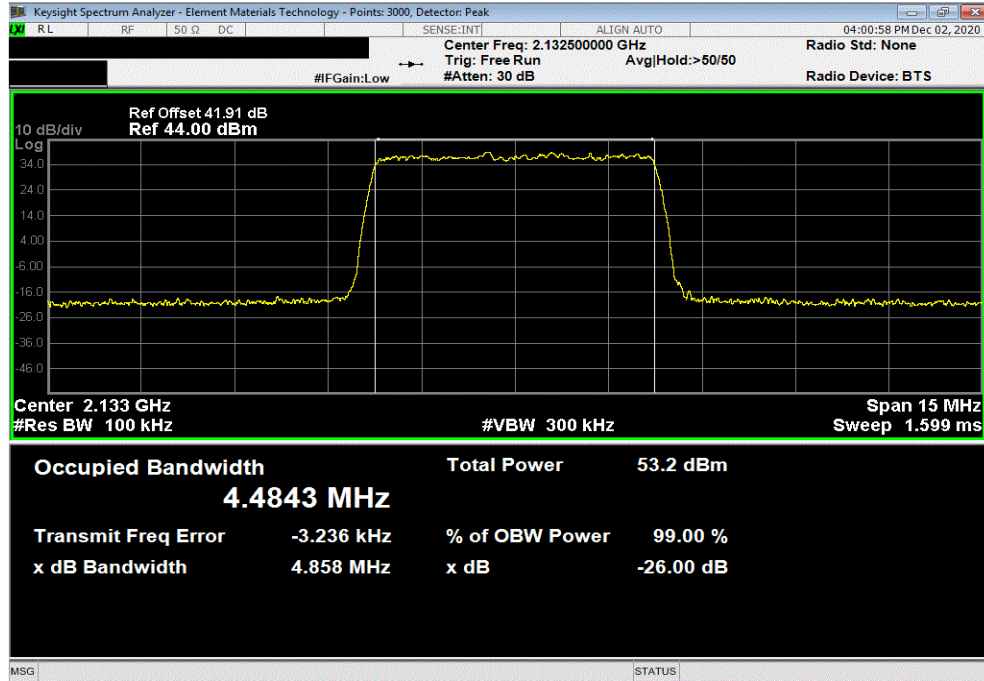


OCCUPIED BANDWIDTH - 4 PORT MODE

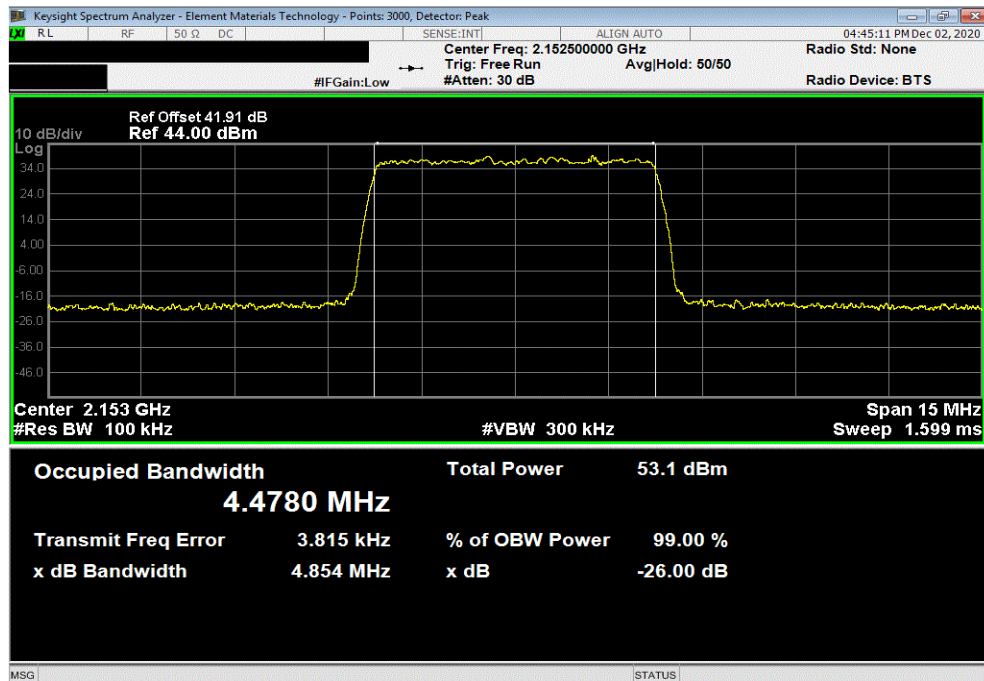


TbTx 2020.10.20.0 BETA XMt 2020.03.25.0

30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 5 MHz Bandwidth , 256-QAM Modulation, Mid Channel 2132.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			4.484 MHz	4.858 MHz	Within Band	Pass	



30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 5 MHz Bandwidth , 256-QAM Modulation, High Channel 2152.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			4.478 MHz	4.854 MHz	Within Band	Pass	

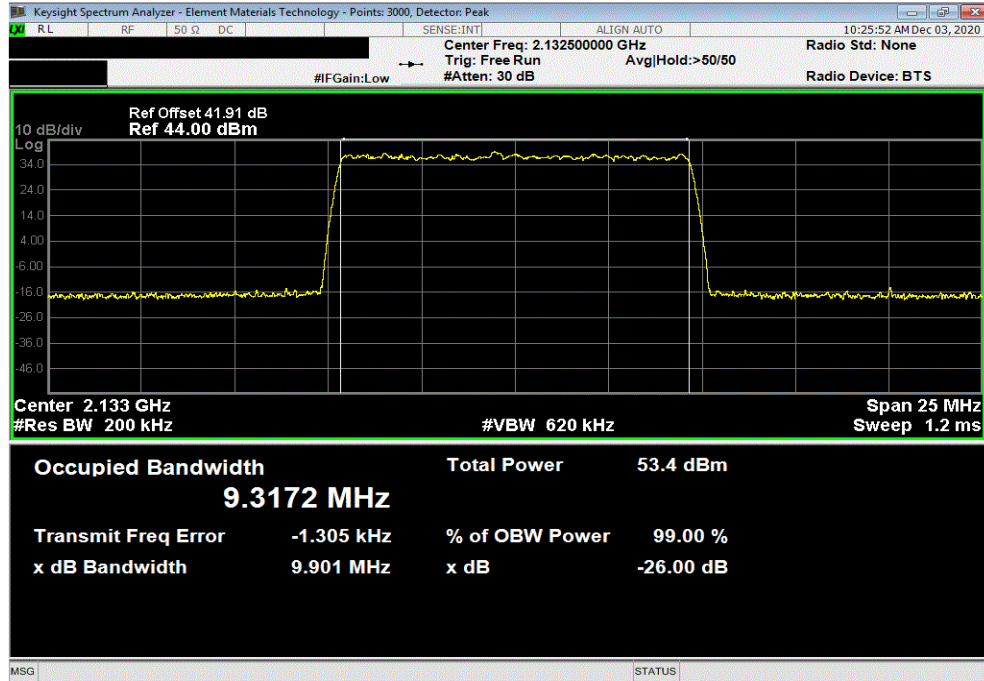


OCCUPIED BANDWIDTH - 4 PORT MODE

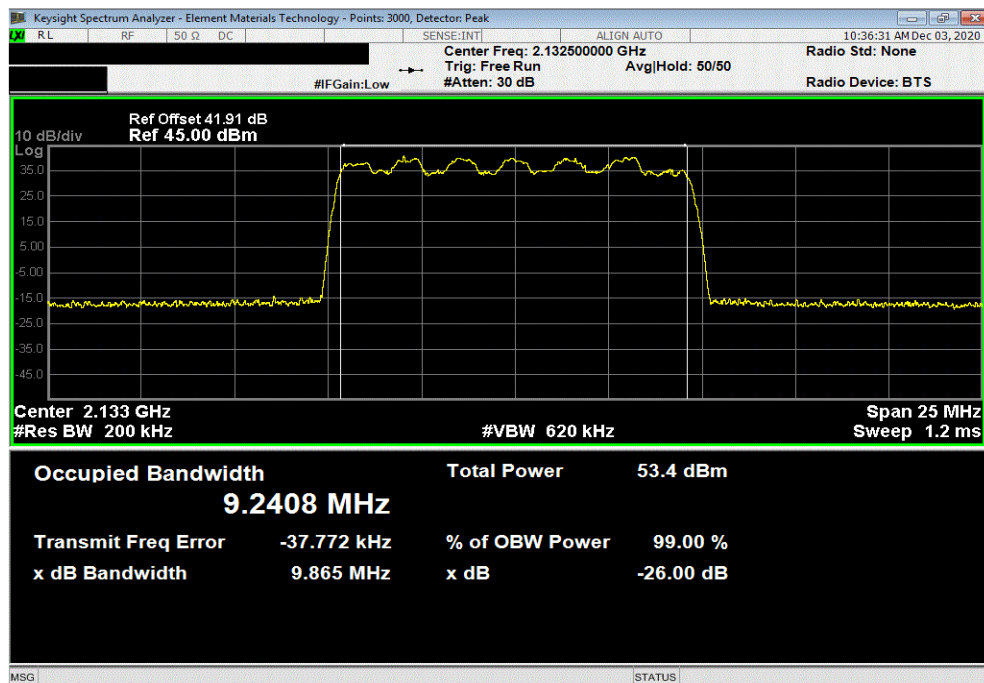


TbTx 2020.10.20.0 BETA XMit 2020.03.25.0

30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 10 MHz Bandwidth, QPSK Modulation, Mid Channel 2132.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			9.317 MHz	9.901 MHz	Within Band	Pass	



30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 10 MHz Bandwidth, 16-QAM Modulation, Mid Channel 2132.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			9.241 MHz	9.865 MHz	Within Band	Pass	

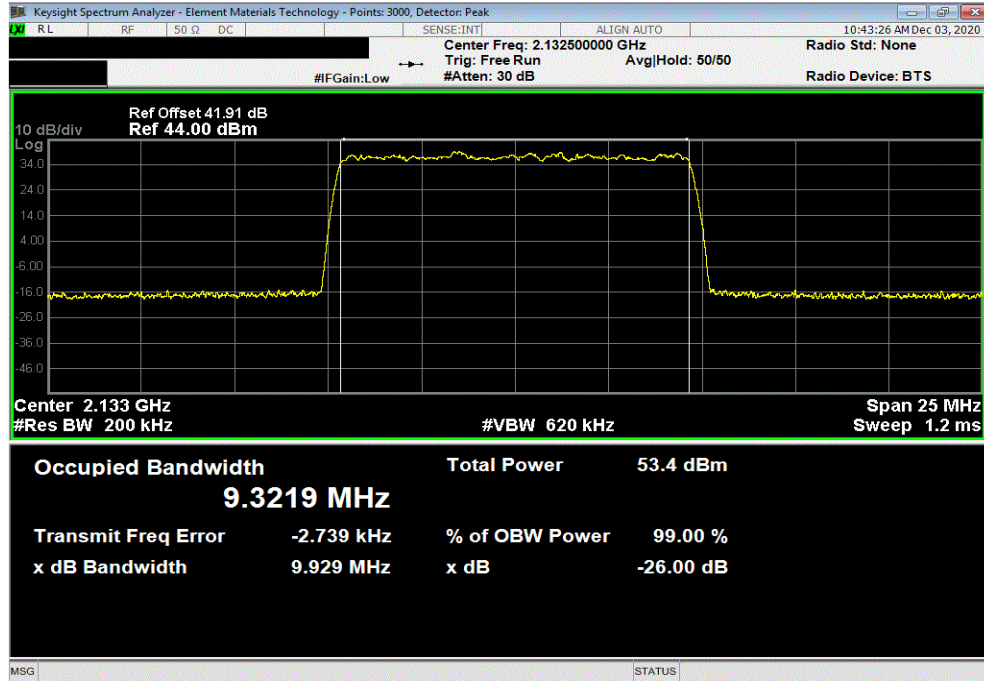


OCCUPIED BANDWIDTH - 4 PORT MODE

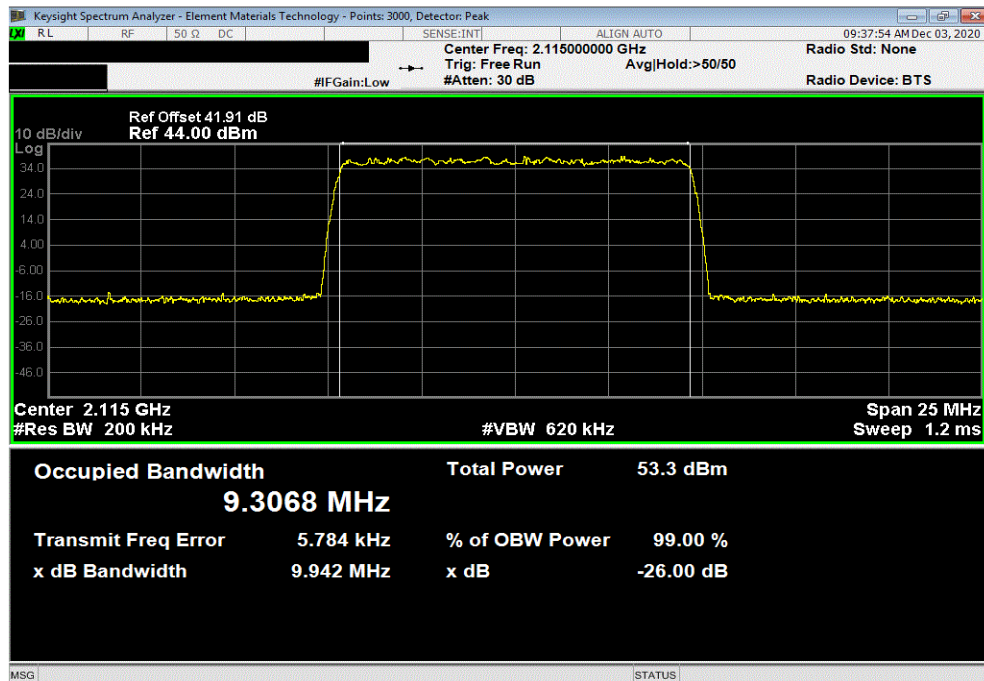


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 10 MHz Bandwidth, 64-QAM Modulation, Mid Channel 2132.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			9.322 MHz	9.929 MHz	Within Band	Pass	



30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 10 MHz Bandwidth, 256-QAM Modulation, Low Channel 2115 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			9.307 MHz	9.942 MHz	Within Band	Pass	

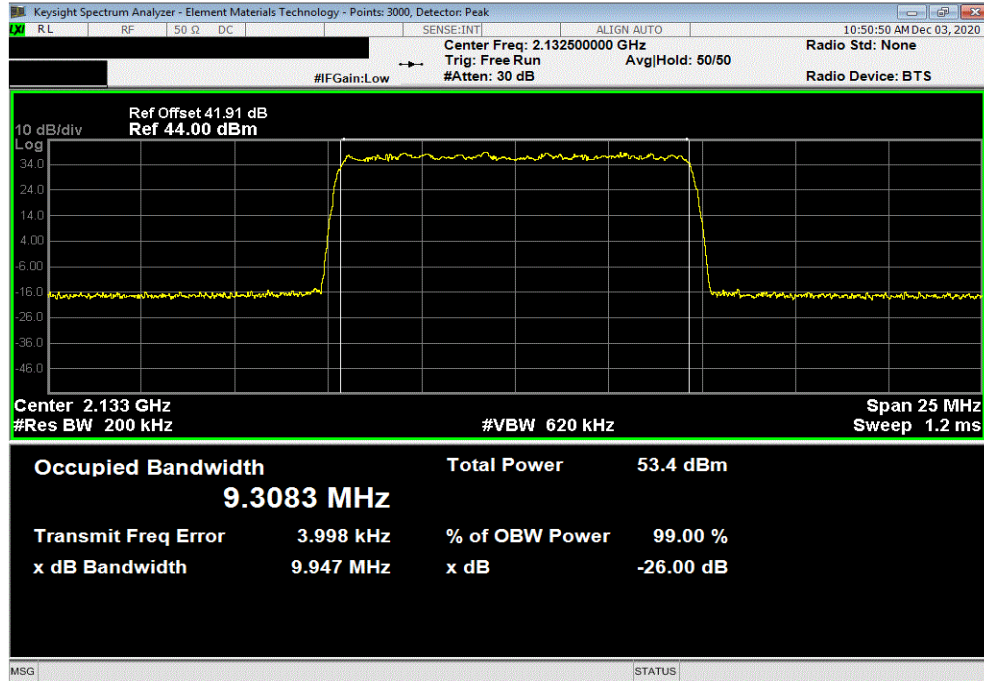


OCCUPIED BANDWIDTH - 4 PORT MODE

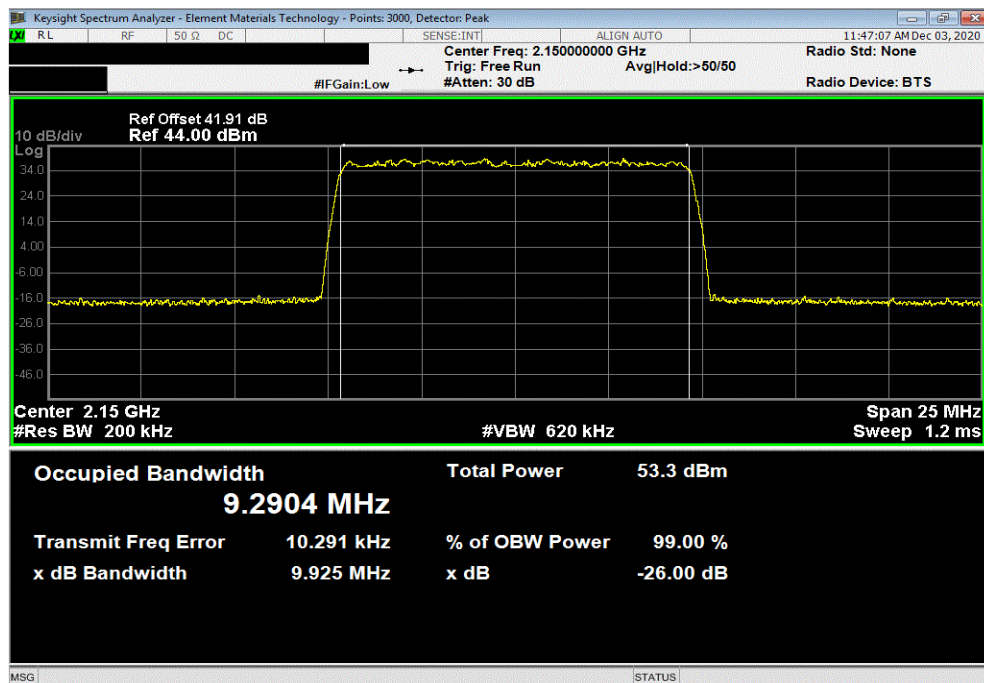


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 10 MHz Bandwidth, 256-QAM Modulation, Mid Channel 2132.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			9.308 MHz	9.947 MHz	Within Band	Pass	



30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 10 MHz Bandwidth, 256-QAM Modulation, High Channel 2150 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			9.29 MHz	9.925 MHz	Within Band	Pass	

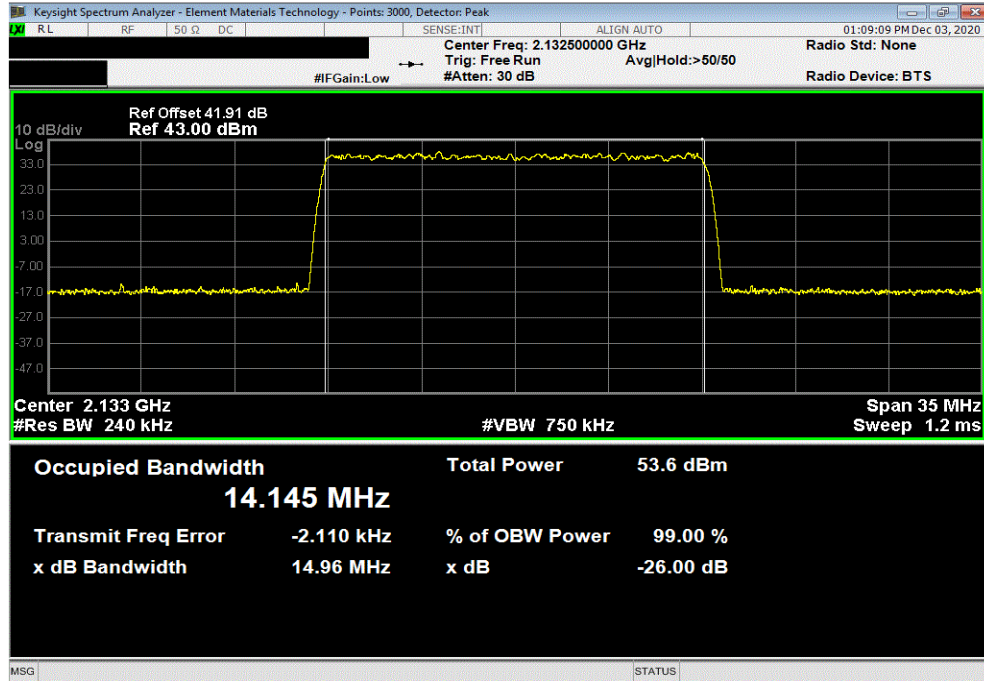


OCCUPIED BANDWIDTH - 4 PORT MODE

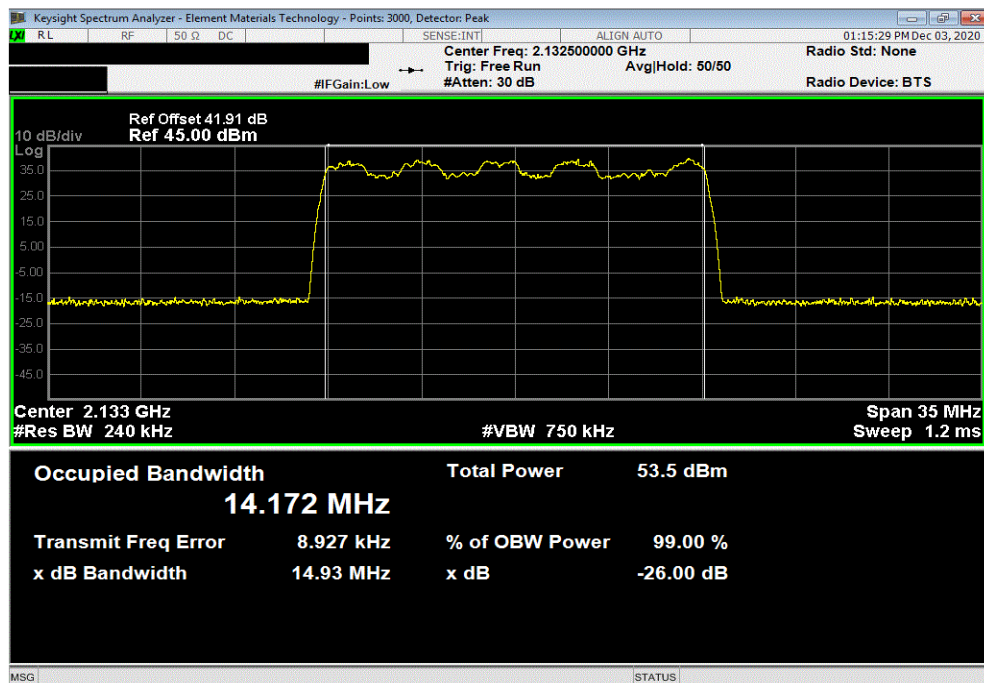


TbTx 2020.10.20.0 BETA XMt 2020.03.25.0

30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 15 MHz Bandwidth, QPSK Modulation, Mid Channel 2132.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			14.145 MHz	14.957 MHz	Within Band	Pass	



30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 15 MHz Bandwidth, 16-QAM Modulation, Mid Channel 2132.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			14.172 MHz	14.928 MHz	Within Band	Pass	

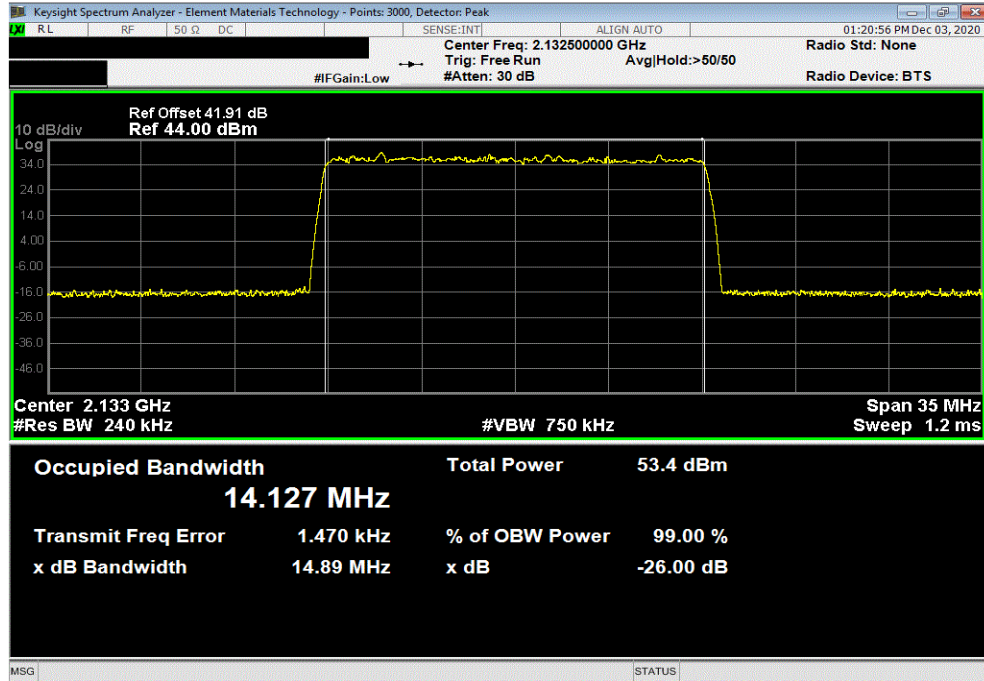


OCCUPIED BANDWIDTH - 4 PORT MODE

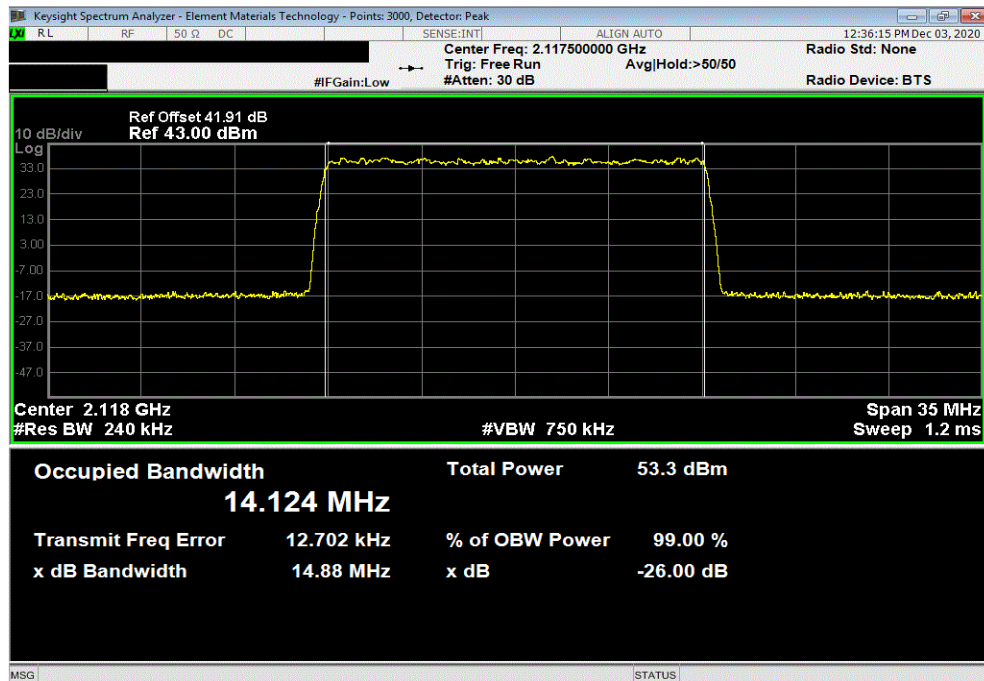


TbTx 2020.10.20.0 BETA XMt 2020.03.25.0

30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 15 MHz Bandwidth , 64-QAM Modulation, Mid Channel 2132.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			14.127 MHz	14.889 MHz	Within Band	Pass	



30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 15 MHz Bandwidth , 256-QAM Modulation, Low Channel 2117.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			14.124 MHz	14.88 MHz	Within Band	Pass	

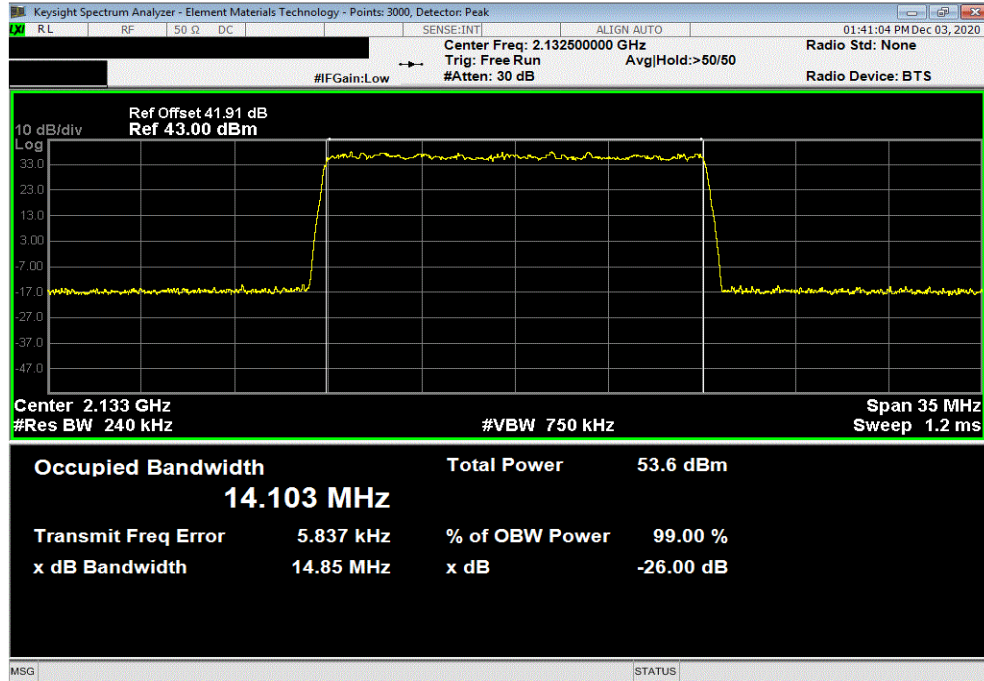


OCCUPIED BANDWIDTH - 4 PORT MODE

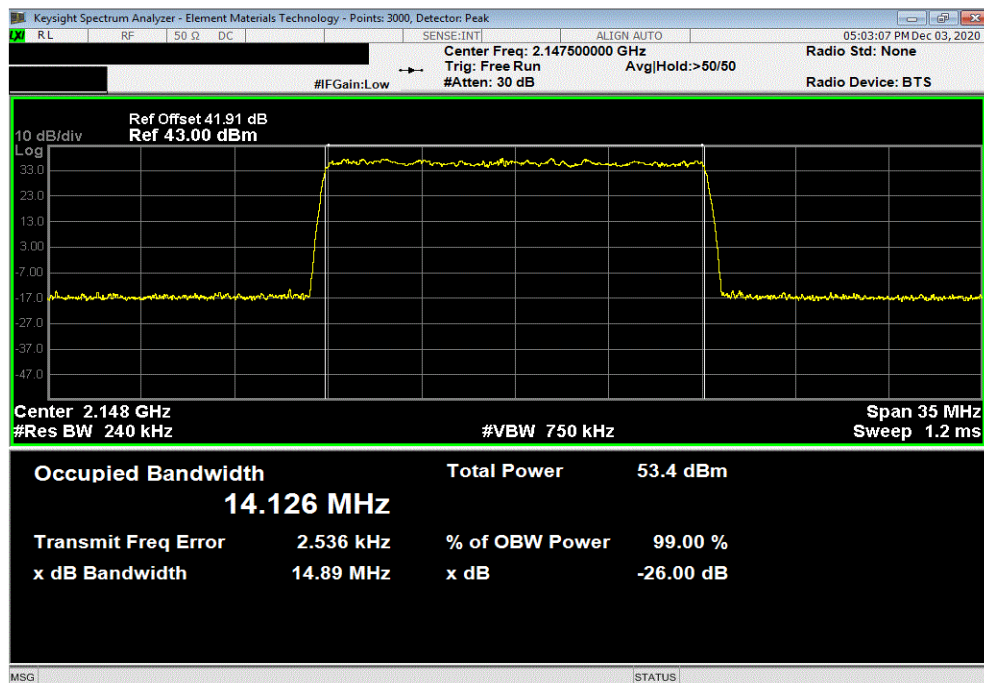


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 15 MHz Bandwidth, 256-QAM Modulation, Mid Channel 2132.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			14.103 MHz	14.853 MHz	Within Band	Pass	



30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 15 MHz Bandwidth, 256-QAM Modulation, High Channel 2147.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			14.126 MHz	14.885 MHz	Within Band	Pass	

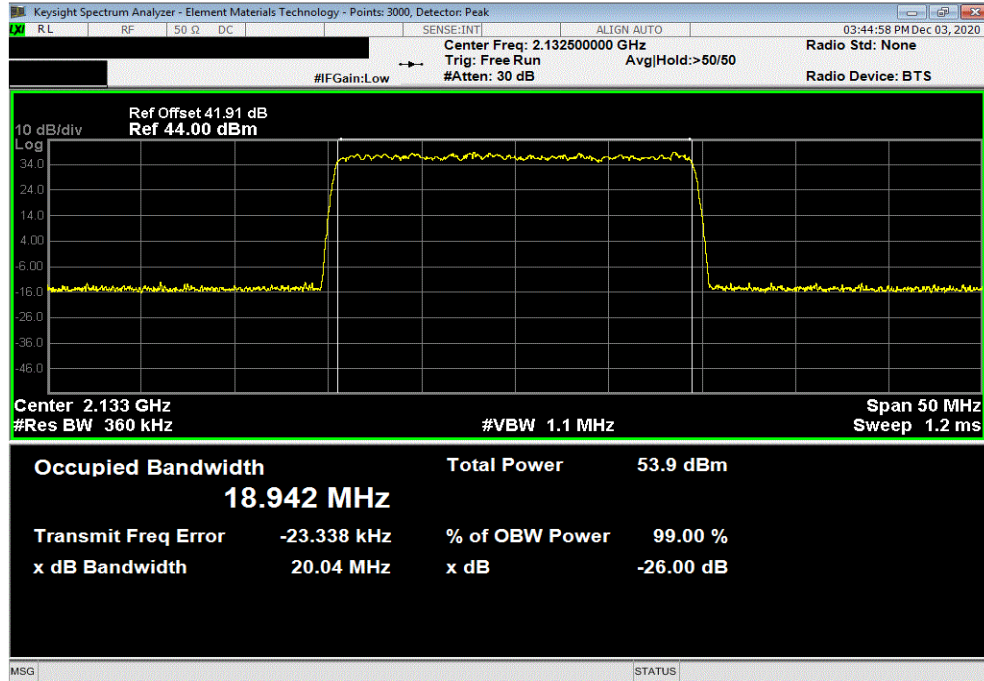


OCCUPIED BANDWIDTH - 4 PORT MODE

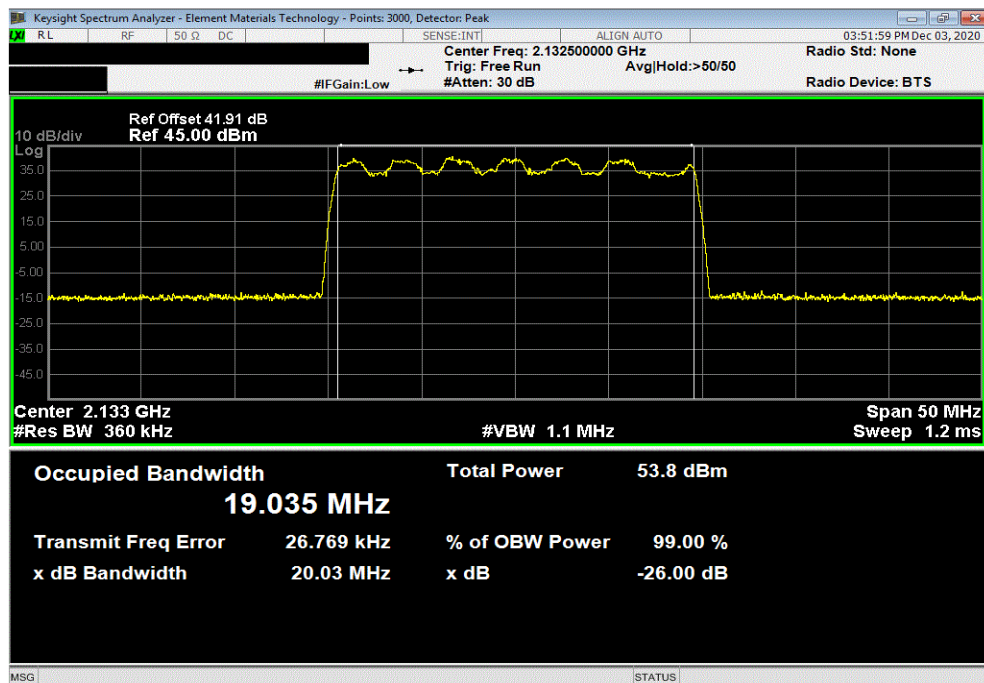


TbTx 2020.10.20.0 BETA XMit 2020.03.25.0

30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 20 MHz Bandwidth, QPSK Modulation, Mid Channel 2132.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			18.942 MHz	20.035 MHz	Within Band	Pass	



30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 20 MHz Bandwidth, 16-QAM Modulation, Mid Channel 2132.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			19.035 MHz	20.034 MHz	Within Band	Pass	

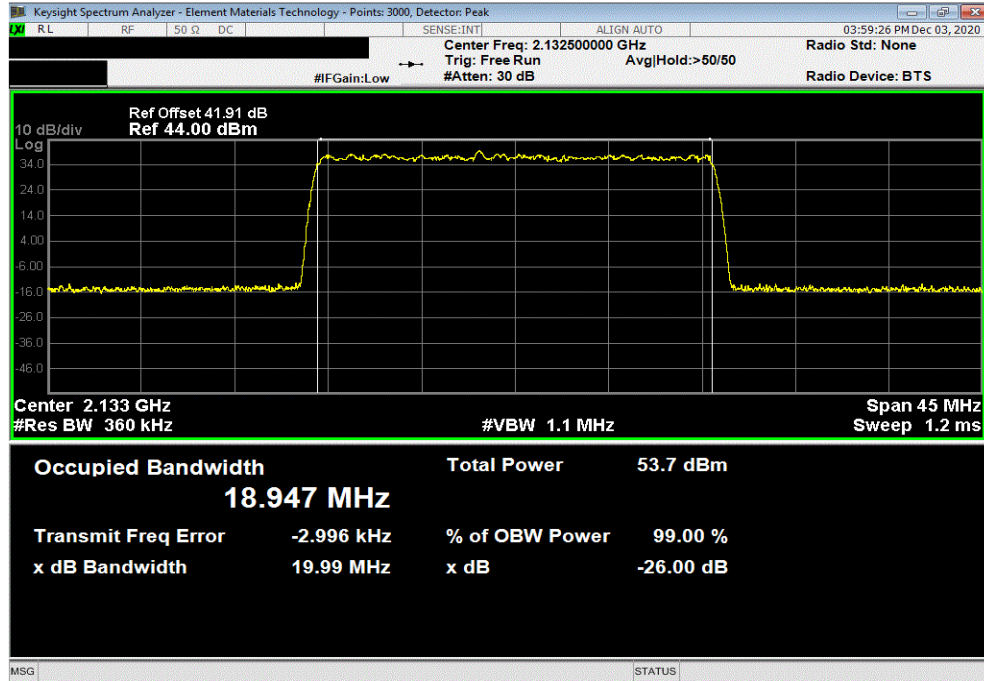


OCCUPIED BANDWIDTH - 4 PORT MODE

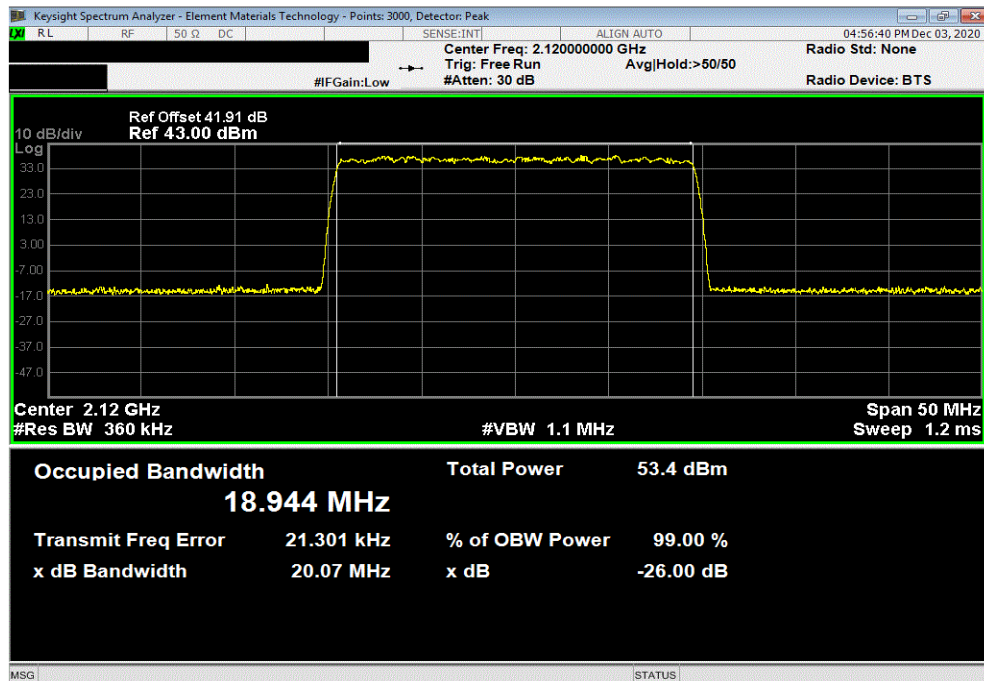


TbTx 2020.10.20.0 BETA XMIT 2020.03.25.0

30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 20 MHz Bandwidth, 64-QAM Modulation, Mid Channel 2132.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			18.947 MHz	19.986 MHz	Within Band	Pass	



30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 20 MHz Bandwidth, 256-QAM Modulation, Low Channel 2120 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			18.944 MHz	20.067 MHz	Within Band	Pass	

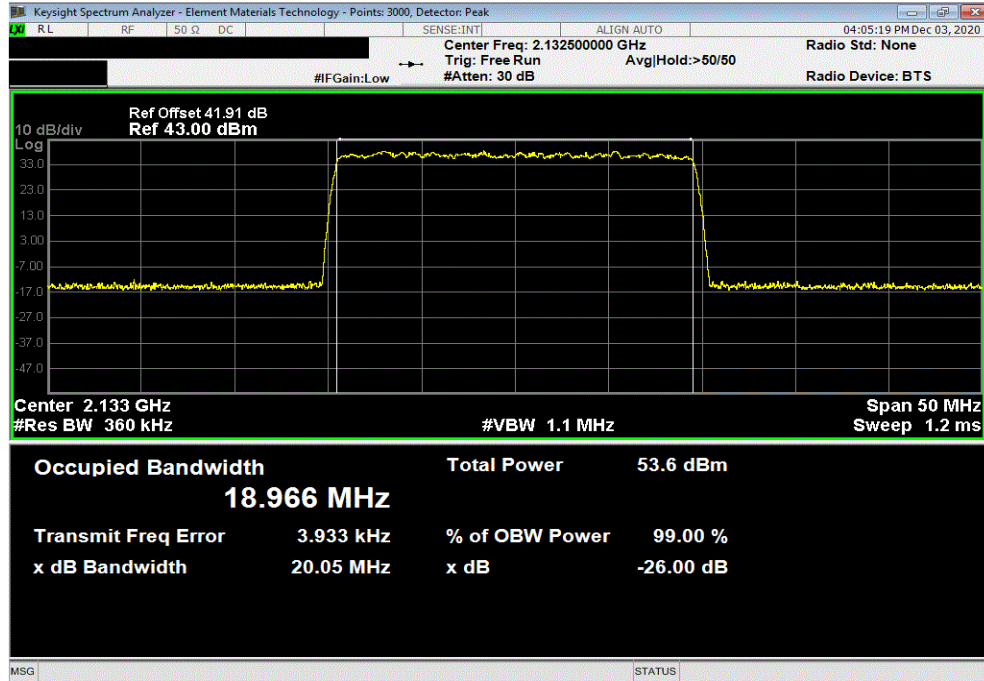


OCCUPIED BANDWIDTH - 4 PORT MODE

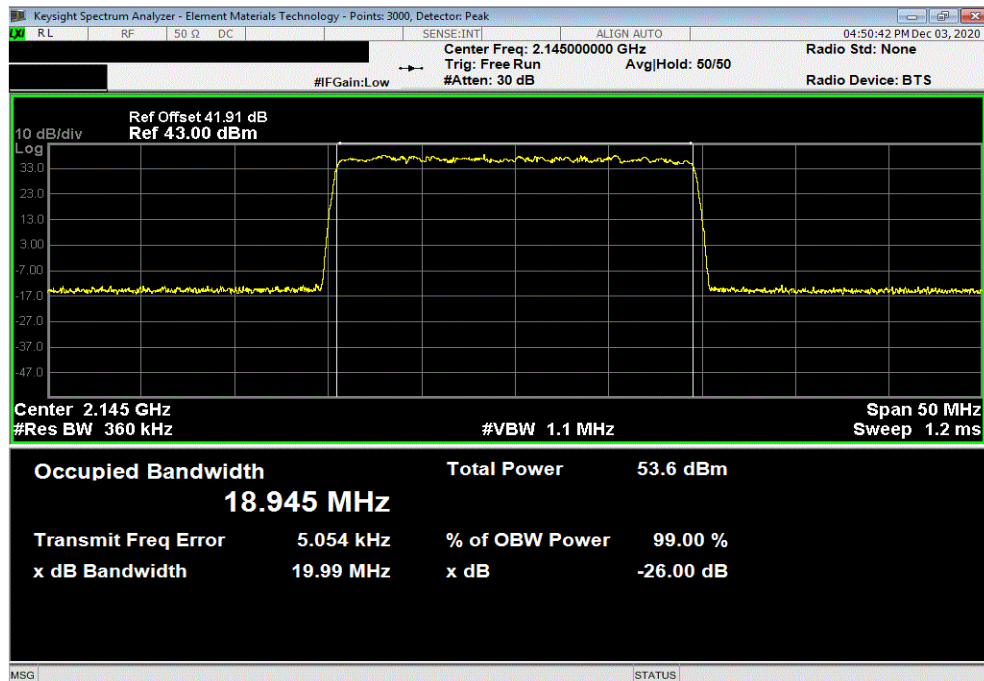


TbTx 2020.10.20.0 BETA XMt 2020.03.25.0

30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 20 MHz Bandwidth, 256-QAM Modulation, Mid Channel 2132.5 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			18.966 MHz	20.046 MHz	Within Band	Pass	



30 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 20 MHz Bandwidth, 256-QAM Modulation, High Channel 2145 MHz							
			Value	Value	Limit	Result	
			0.99	26dB			
			18.945 MHz	19.985 MHz	Within Band	Pass	



OUTPUT POWER - 2 PORT MODE



XMIT 2020.03.25.0

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
Block - DC	Fairview Microwave	SD3379	AMM	21-Sep-20	21-Sep-21
Generator - Signal	Agilent	N5173B	TIW	17-Jul-20	17-Jul-23

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The fundamental emission output power (maximum average conducted output power) was measured using the channels and modes as called out on the following data sheets. The transmit power was set to its default maximum.

The method in section 5.2.4.4 of ANSI C63.26 was used to make the measurement. This method uses trace averaging across ON and OFF times of the EUT transmissions in the spectrum analyzer channel power function using an RMS detector. Following the measurement a duty cycle correction was applied by adding $[10 \log (1 / D)]$, where D is the duty cycle, to the measured power to compute the average power during the actual transmission times.

RF conducted emissions testing was performed on one port. The FRIG antenna ports are essentially electrically identical (RF power variation between antenna ports 1 and 3 is small) and port 1 was selected to perform the testing under this effort as allowed by ANSI C63.26-2015 paragraphs 5.2.5.3, 5.7.2i and 6.4. The total average transmit power for two port MIMO operation was determined per ANSI C63.26-2015 paragraph 6.4.3.1.

OUTPUT POWER - 2 PORT MODE



TbTx 2020.10.20.0 BETA XMR 2020.03.25.0

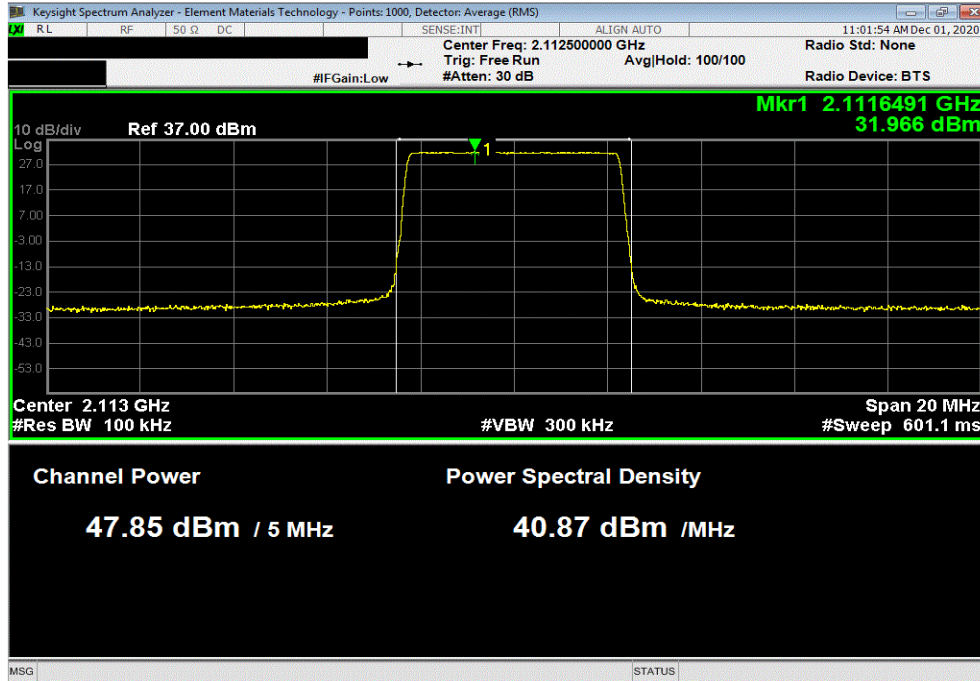
EUT:	FRIG (C2PC FCC/ISED Approval for 5G)		Work Order:		NOKI0025	
Serial Number:	RY142309120		Date:		2-Dec-20	
Customer:	Nokia Solutions and Networks		Temperature:		24.2 °C	
Attendees:	Mitchell Hill, John Rattanavong		Humidity:		29.2% RH	
Project:	None		Barometric Pres.:		1021 mbar	
Tested by:	Brandon Hobbs	Power:	54 VDC	Job Site:		TX05
TEST SPECIFICATIONS			Test Method			
FCC 27:2020			ANSI C63.26:2015			
RSS-139:2015			RSS-139:2015			
COMMENTS						
All measurement path losses were accounted for in the reference level offset including any attenuators, filters and DC blocks. AWS Band 1 carriers are enabled at maximum power (60 watts/carrier). The output power was measured for a single carrier over the carrier channel bandwidth on port 1. The total output power for multiport (2x2 MIMO) operation was determined based upon ANSI 63.26 clauses 6.4.3.1 and 6.4.3.2.4 (10 log Nout). The total output power for two port operation is single port power + 3dB [i.e. 10log(2)].						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	2	Signature 				
		Initial Value	Duty Cycle	Single Port	Two Port (2x2 MIMO)	
		dBm/Carrier BW		dBm/Carrier BW	dBm/Carrier BW	
60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz						
5 MHz Bandwidth						
QPSK Modulation						
Low Channel 2112.5 MHz		47.855	0	47.86	50.86	
Mid Channel 2132.5 MHz		47.851	0	47.85	50.85	
High Channel 2152.5 MHz		47.855	0	47.86	50.86	
16-QAM Modulation						
Low Channel 2112.5 MHz		47.705	0	47.71	50.71	
Mid Channel 2132.5 MHz		47.715	0	47.72	50.72	
High Channel 2152.5 MHz		47.782	0	47.78	50.78	
64-QAM Modulation						
Low Channel 2112.5 MHz		47.865	0	47.87	50.87	
Mid Channel 2132.5 MHz		47.886	0	47.89	50.89	
High Channel 2152.5 MHz		47.905	0	47.91	50.91	
256-QAM Modulation						
Low Channel 2112.5 MHz		47.795	0	47.80	50.80	
Mid Channel 2132.5 MHz		47.815	0	47.82	50.82	
High Channel 2152.5 MHz		47.768	0	47.77	50.77	
10 MHz Bandwidth						
QPSK Modulation						
Low Channel 2115 MHz		47.826	0	47.83	50.83	
Mid Channel 2132.5 MHz		47.897	0	47.90	50.90	
High Channel 2150 MHz		47.868	0	47.87	50.87	
16-QAM Modulation						
Low Channel 2115 MHz		47.727	0	47.73	50.73	
Mid Channel 2132.5 MHz		47.875	0	47.88	50.88	
High Channel 2150 MHz		47.758	0	47.76	50.76	
64-QAM Modulation						
Low Channel 2115 MHz		47.810	0	47.81	50.81	
Mid Channel 2132.5 MHz		48.020	0	48.02	51.02	
High Channel 2150 MHz		47.801	0	47.80	50.80	
256-QAM Modulation						
Low Channel 2115 MHz		47.750	0	47.75	50.75	
Mid Channel 2132.5 MHz		47.933	0	47.93	50.93	
High Channel 2150 MHz		47.738	0	47.74	50.74	
15 MHz Bandwidth						
QPSK Modulation						
Low Channel 2117.5 MHz		47.758	0	47.76	50.76	
Mid Channel 2132.5 MHz		47.923	0	47.92	50.92	
High Channel 2147.5 MHz		47.836	0	47.84	50.84	
16-QAM Modulation						
Low Channel 2117.5 MHz		47.643	0	47.64	50.64	
Mid Channel 2132.5 MHz		47.822	0	47.82	50.82	
High Channel 2147.5 MHz		47.714	0	47.71	50.71	
64-QAM Modulation						
Low Channel 2117.5 MHz		47.691	0	47.69	50.69	
Mid Channel 2132.5 MHz		47.878	0	47.88	50.88	
High Channel 2147.5 MHz		47.849	0	47.85	50.85	
256-QAM Modulation						
Low Channel 2117.5 MHz		47.701	0	47.70	50.70	
Mid Channel 2132.5 MHz		47.912	0	47.91	50.91	
High Channel 2147.5 MHz		47.842	0	47.84	50.84	
20 MHz Bandwidth						
QPSK Modulation						
Low Channel 2120 MHz		47.774	0	47.77	50.77	
Mid Channel 2132.5 MHz		47.982	0	47.98	50.98	
High Channel 2145 MHz		47.878	0	47.88	50.88	
16-QAM Modulation						
Low Channel 2120 MHz		47.723	0	47.72	50.72	
Mid Channel 2132.5 MHz		47.921	0	47.92	50.92	
High Channel 2145 MHz		47.825	0	47.83	50.83	
64-QAM Modulation						
Low Channel 2120 MHz		47.819	0	47.82	50.82	
Mid Channel 2132.5 MHz		47.922	0	47.92	50.92	
High Channel 2145 MHz		47.987	0	47.99	50.99	
256-QAM Modulation						
Low Channel 2120 MHz		47.822	0	47.82	50.82	
Mid Channel 2132.5 MHz		47.923	0	47.92	50.92	
High Channel 2145 MHz		47.955	0	47.96	50.96	

OUTPUT POWER - 2 PORT MODE

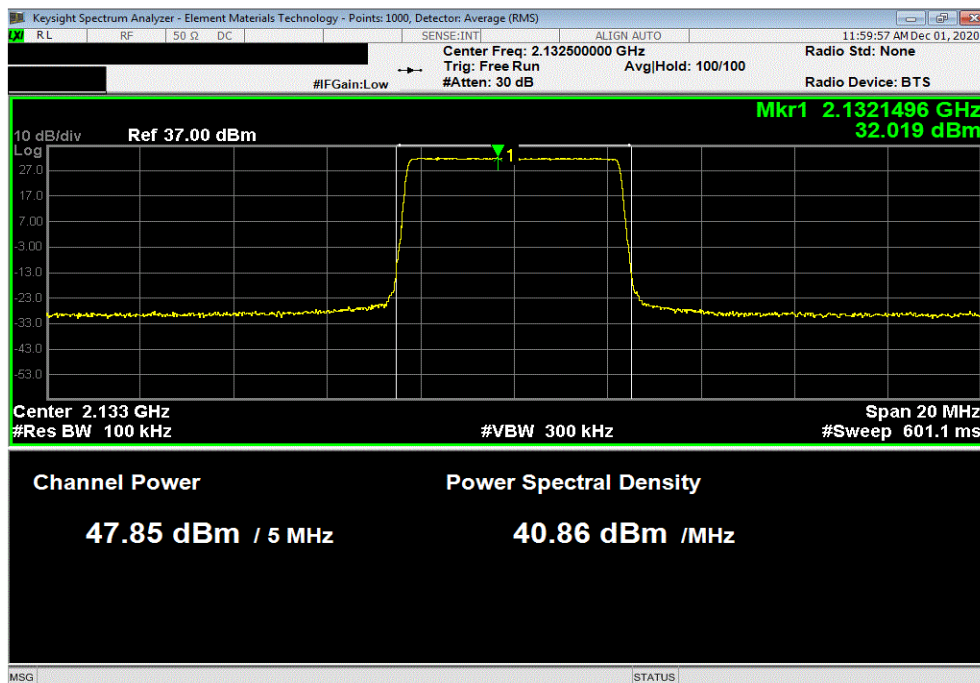


TbTt 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 5 MHz Bandwidth, QPSK Modulation, Low Channel 2112.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.855		0		47.9		50.9



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 5 MHz Bandwidth, QPSK Modulation, Mid Channel 2132.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.851		0		47.9		50.9

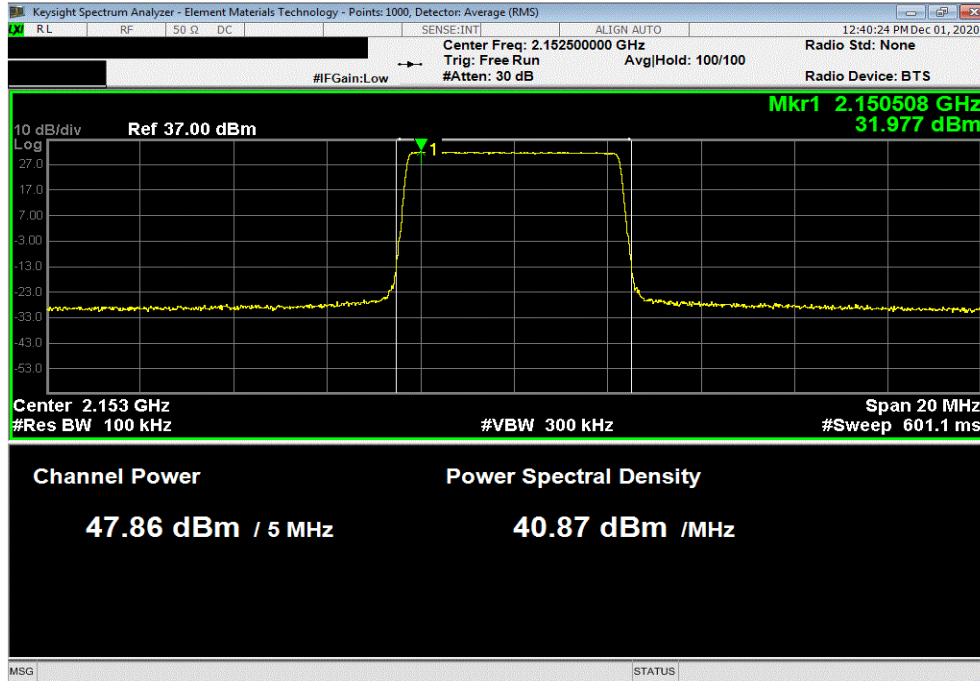


OUTPUT POWER - 2 PORT MODE

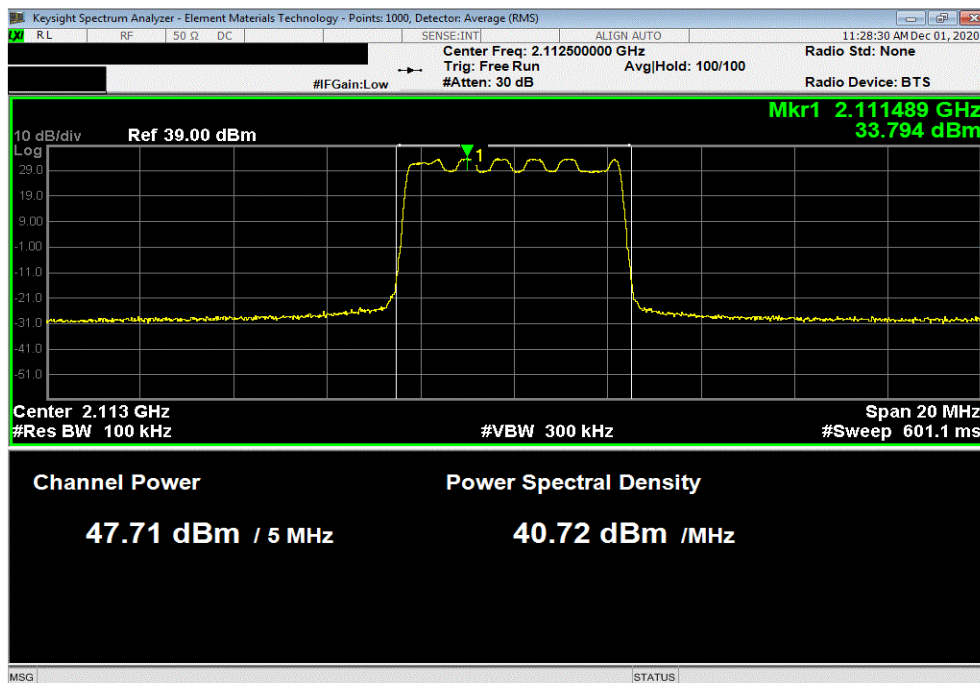


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 5 MHz Bandwidth, QPSK Modulation, High Channel 2152.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.855		0		47.9		50.9



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 5 MHz Bandwidth, 16-QAM Modulation, Low Channel 2112.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.705		0		47.7		50.7

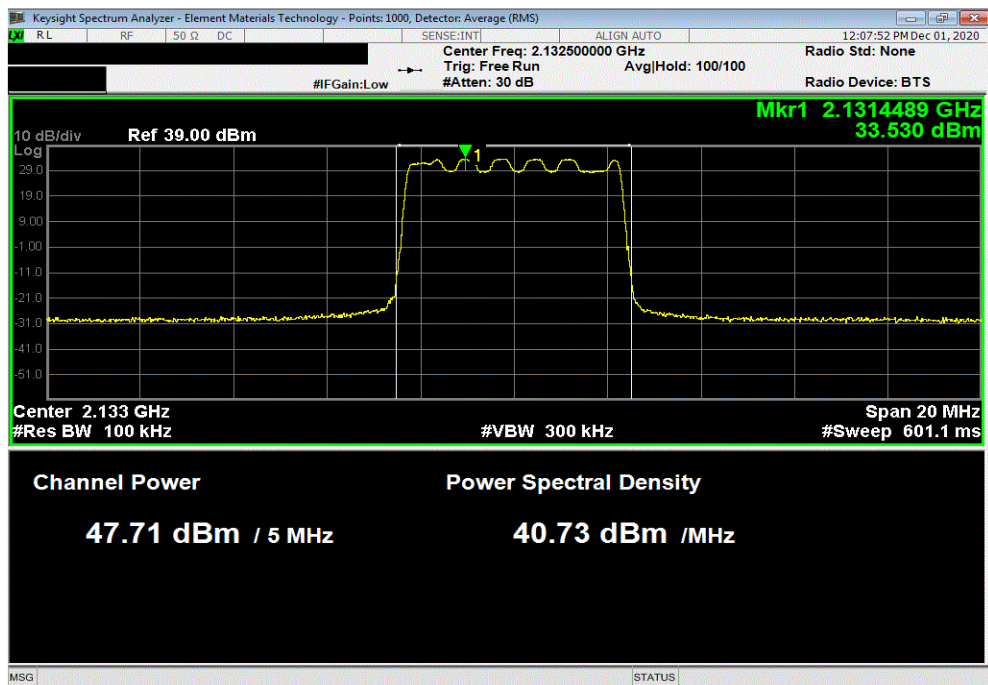


OUTPUT POWER - 2 PORT MODE

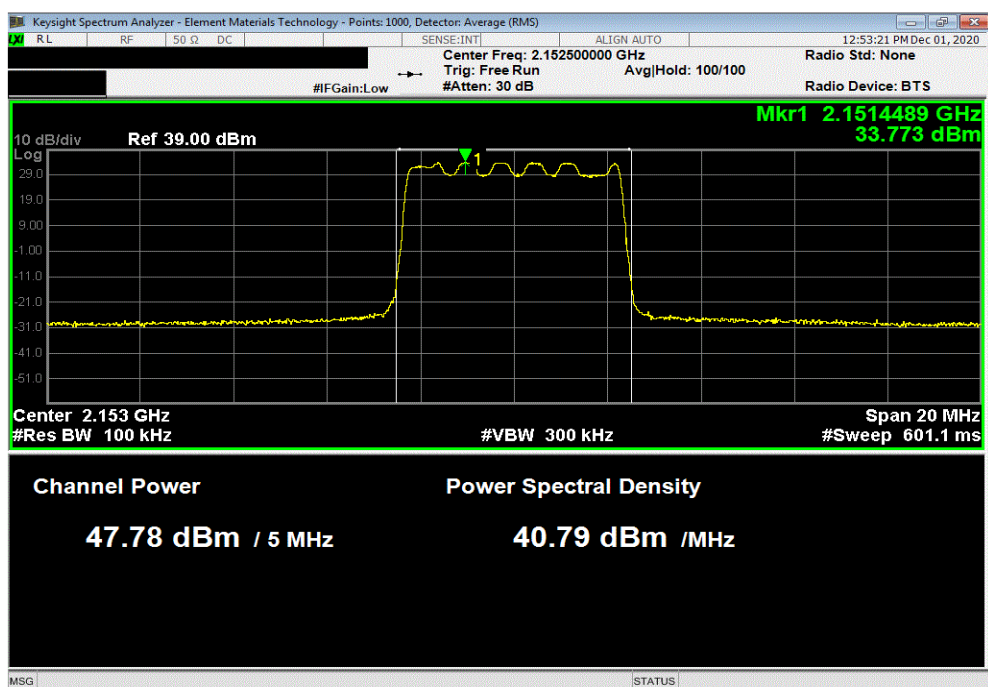


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 5 MHz Bandwidth, 16-QAM Modulation, Mid Channel 2132.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.715		0		47.7		50.7



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 5 MHz Bandwidth, 16-QAM Modulation, High Channel 2152.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.782		0		47.8		50.8

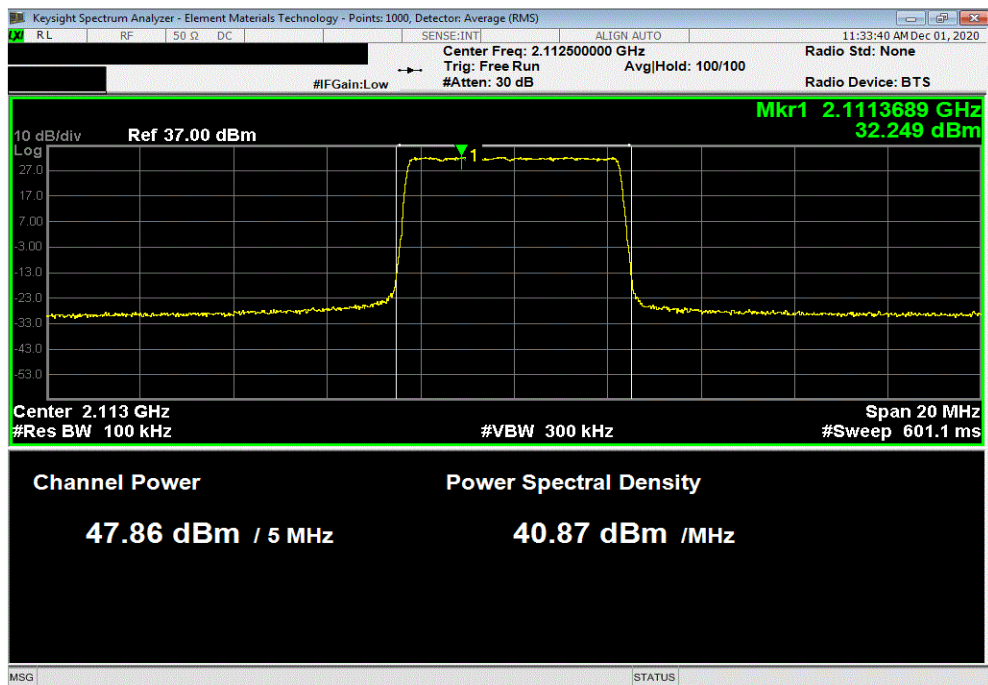


OUTPUT POWER - 2 PORT MODE

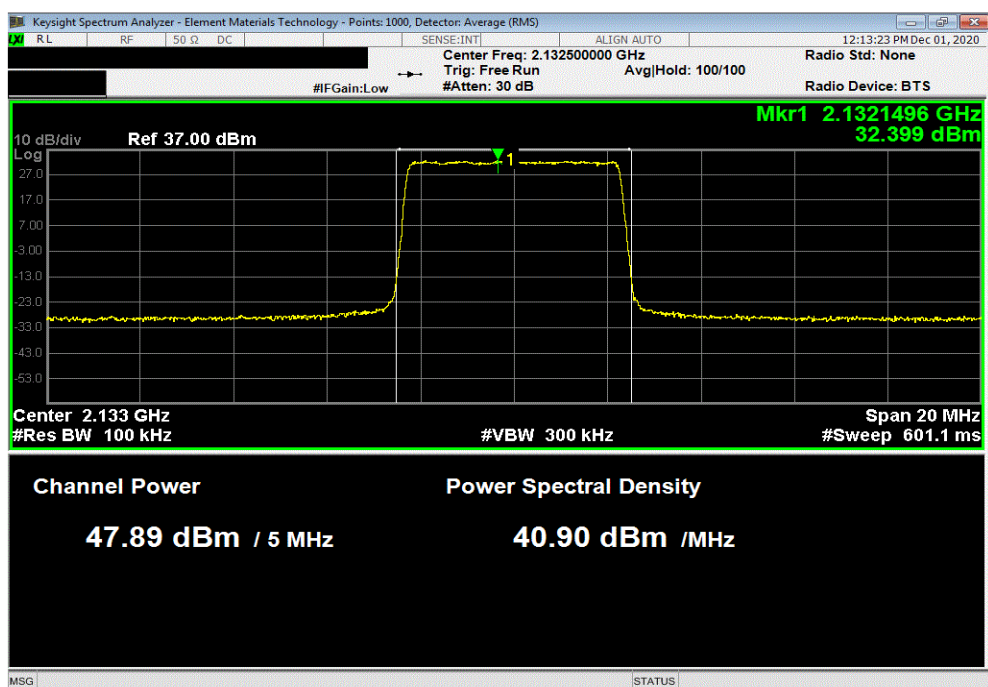


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 5 MHz Bandwidth, 64-QAM Modulation, Low Channel 2112.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.865		0		47.9		50.9



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 5 MHz Bandwidth, 64-QAM Modulation, Mid Channel 2132.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.886		0		47.9		50.9

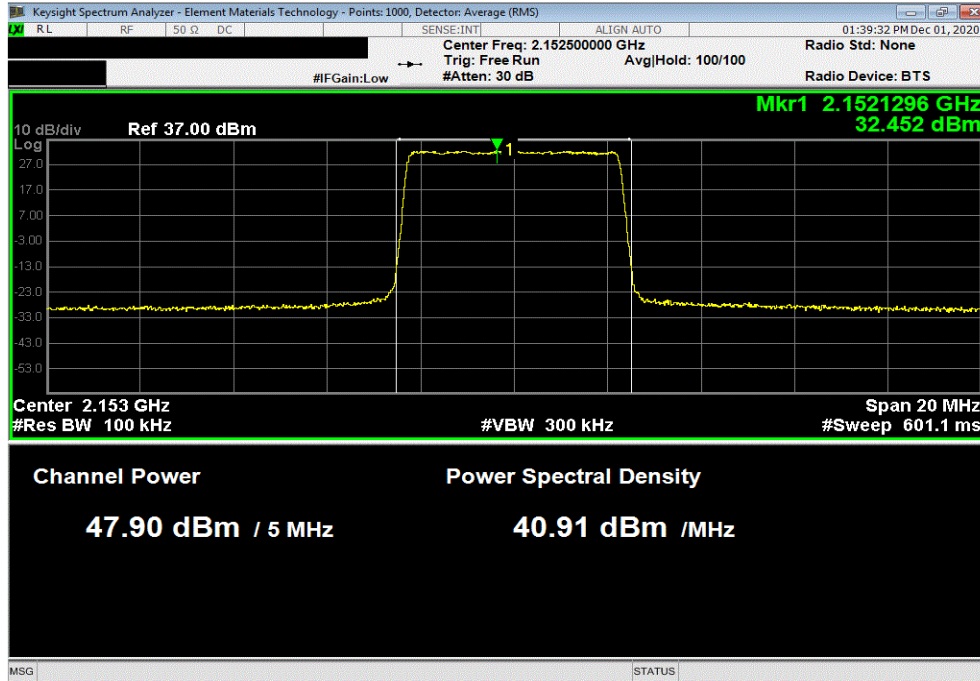


OUTPUT POWER - 2 PORT MODE

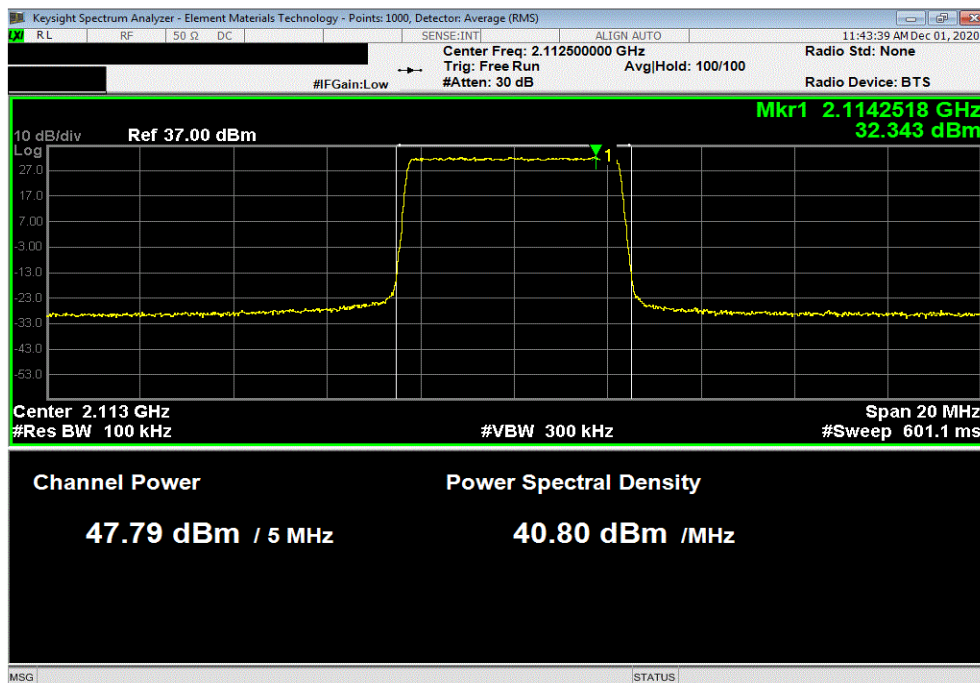


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 5 MHz Bandwidth , 64-QAM Modulation, High Channel 2152.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.905		0		47.9		50.9



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 5 MHz Bandwidth , 256-QAM Modulation, Low Channel 2112.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.795		0		47.8		50.8

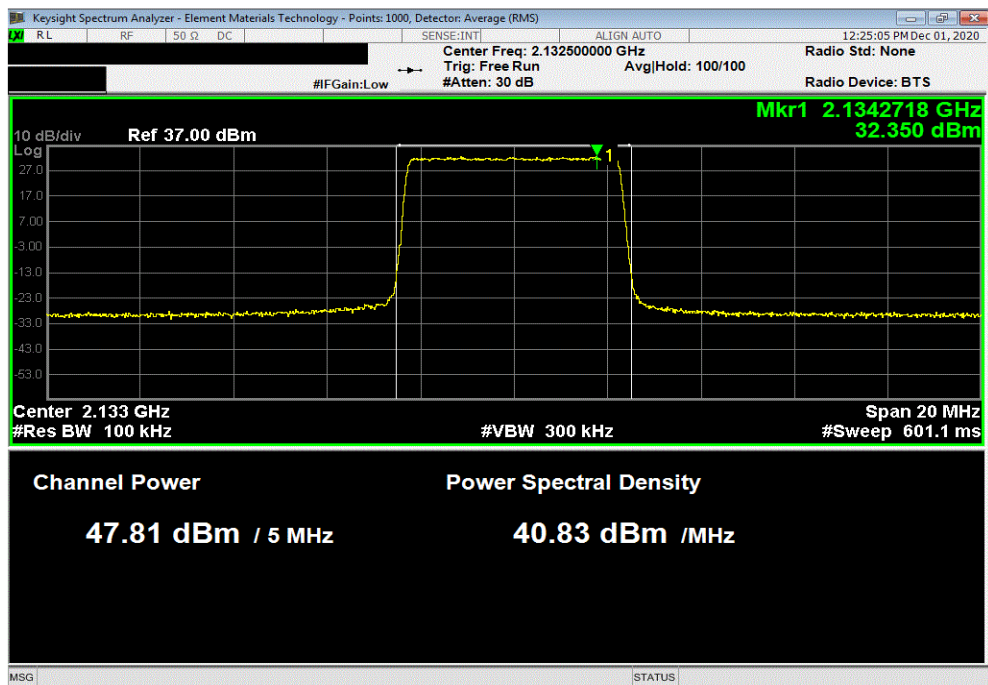


OUTPUT POWER - 2 PORT MODE

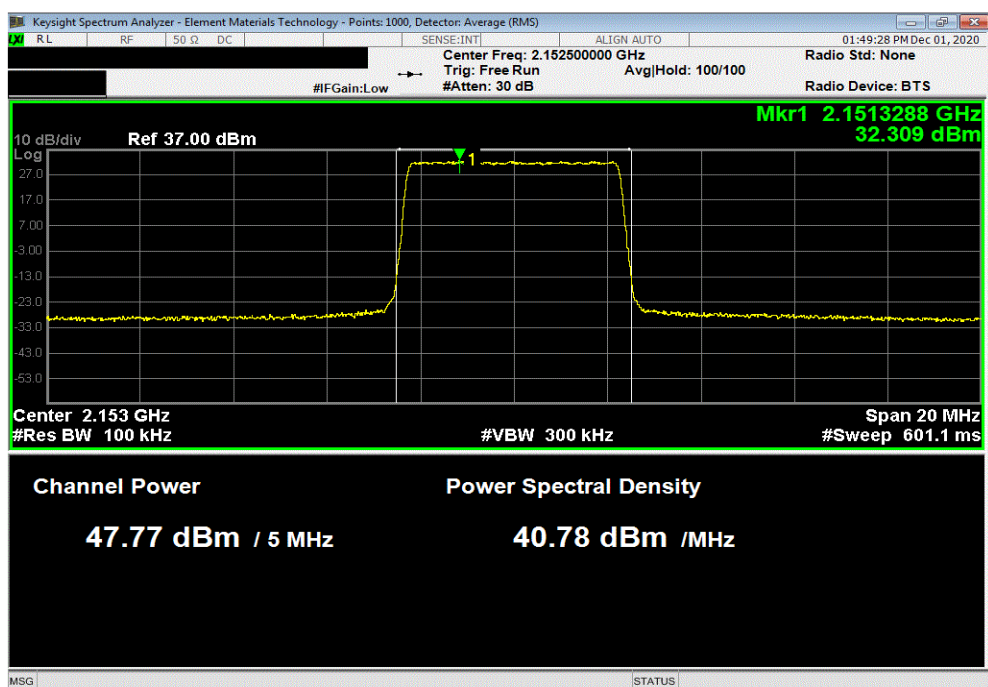


TbTx 2020.10.20.0 BETA XMi 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 5 MHz Bandwidth , 256-QAM Modulation, Mid Channel 2132.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.815		0		47.8		50.8



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 5 MHz Bandwidth , 256-QAM Modulation, High Channel 2152.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.768		0		47.8		50.8

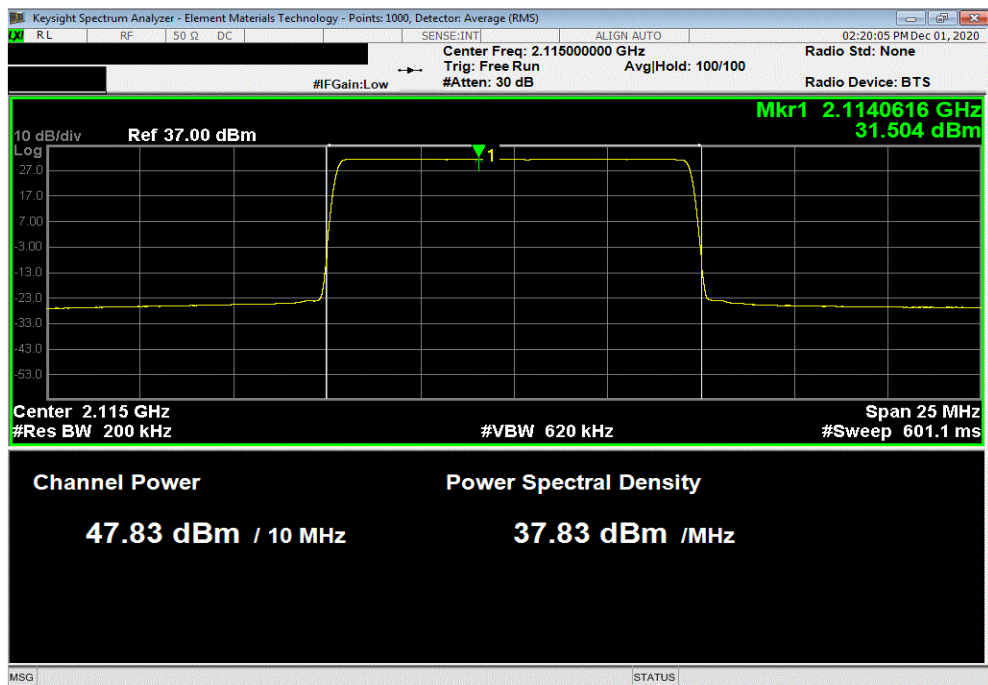


OUTPUT POWER - 2 PORT MODE

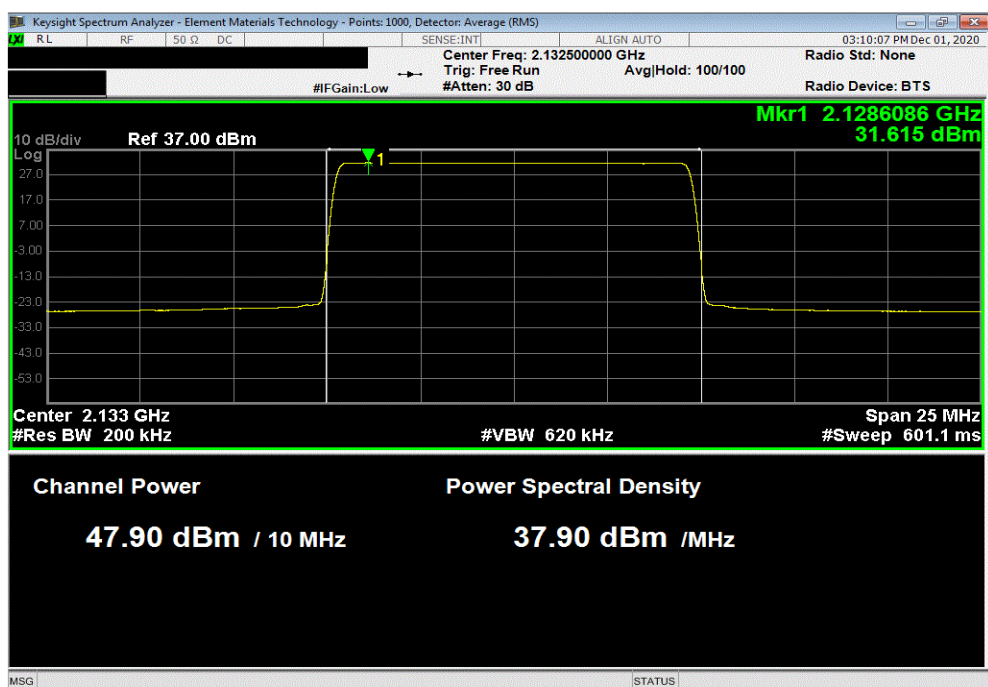


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 10 MHz Bandwidth, QPSK Modulation, Low Channel 2115 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.826		0		47.8		50.8



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 10 MHz Bandwidth, QPSK Modulation, Mid Channel 2132.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.897		0		47.9		50.9

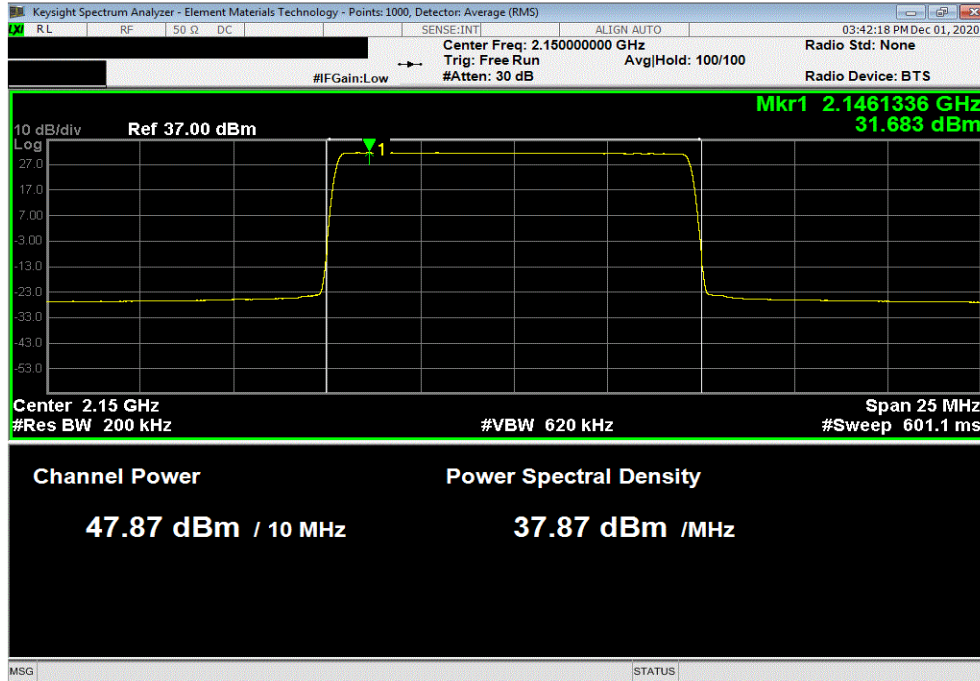


OUTPUT POWER - 2 PORT MODE

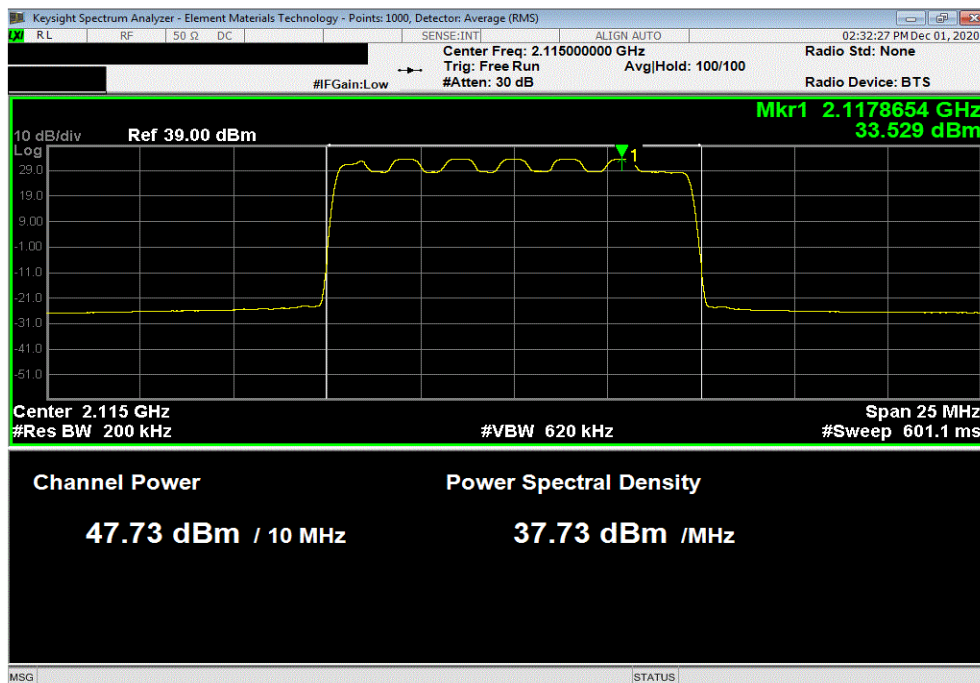


TbTt 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 10 MHz Bandwidth, QPSK Modulation, High Channel 2150 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.868		0		47.9		50.9



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 10 MHz Bandwidth, 16-QAM Modulation, Low Channel 2115 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.727		0		47.7		50.7

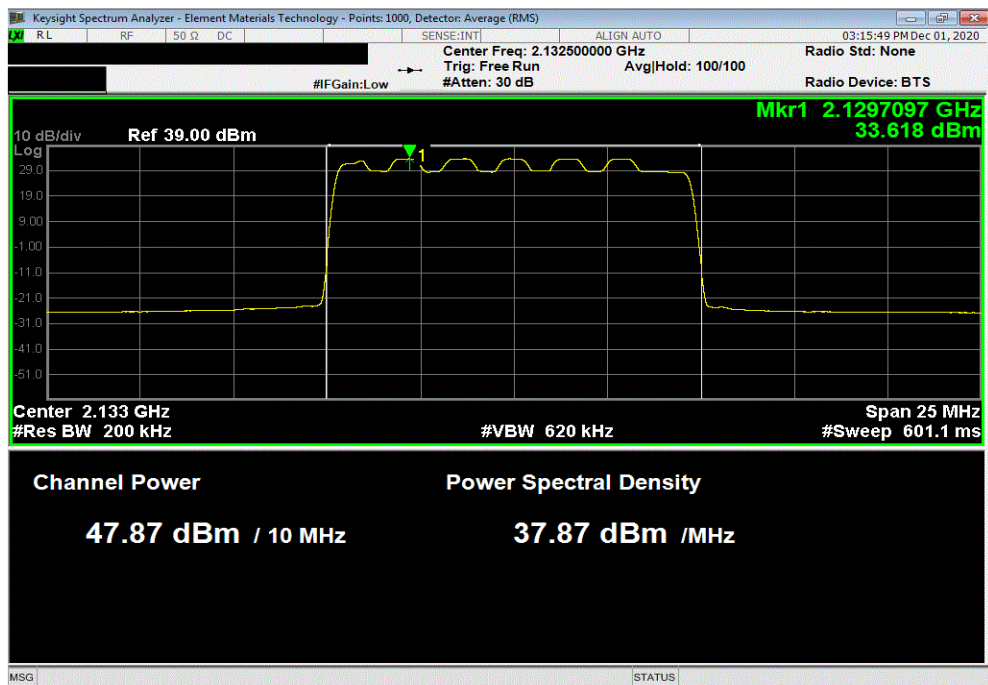


OUTPUT POWER - 2 PORT MODE

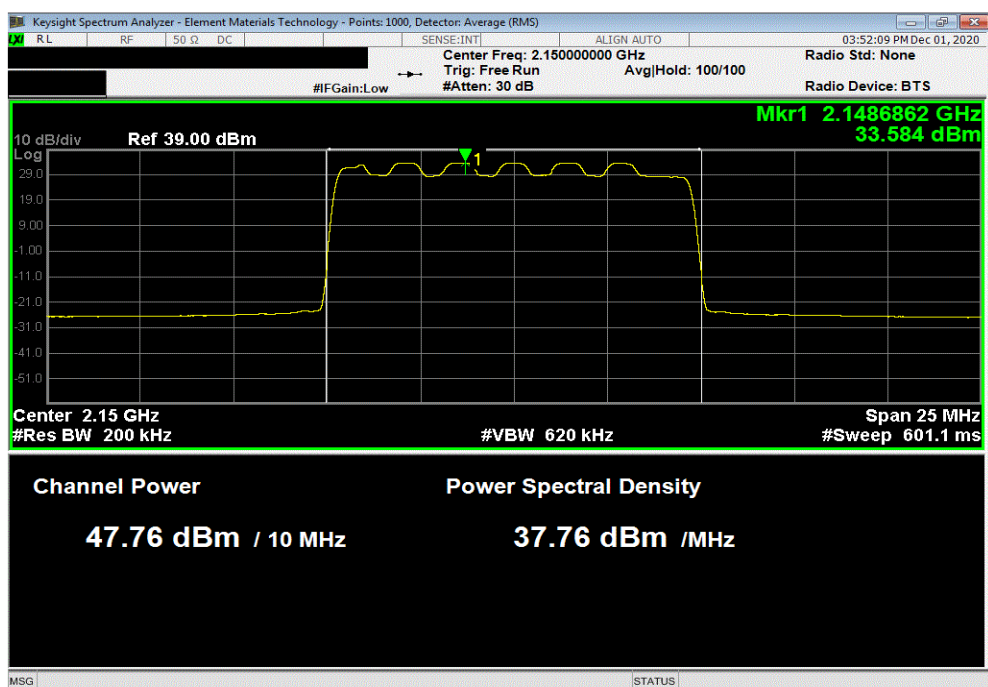


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 10 MHz Bandwidth, 16-QAM Modulation, Mid Channel 2132.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.875		0		47.9		50.9



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 10 MHz Bandwidth, 16-QAM Modulation, High Channel 2150 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.758		0		47.8		50.8

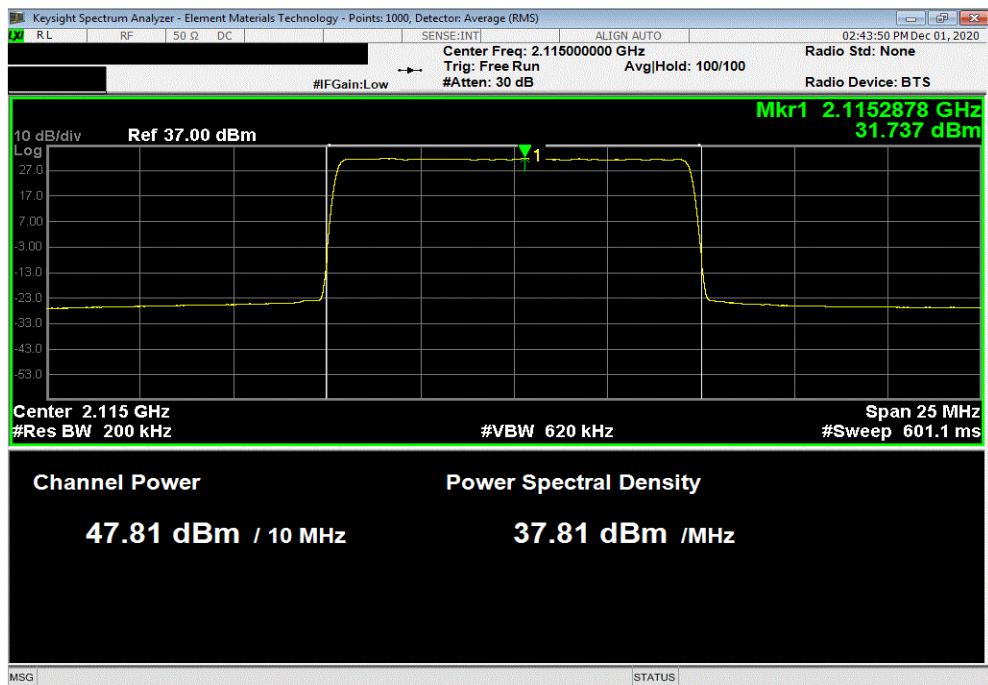


OUTPUT POWER - 2 PORT MODE

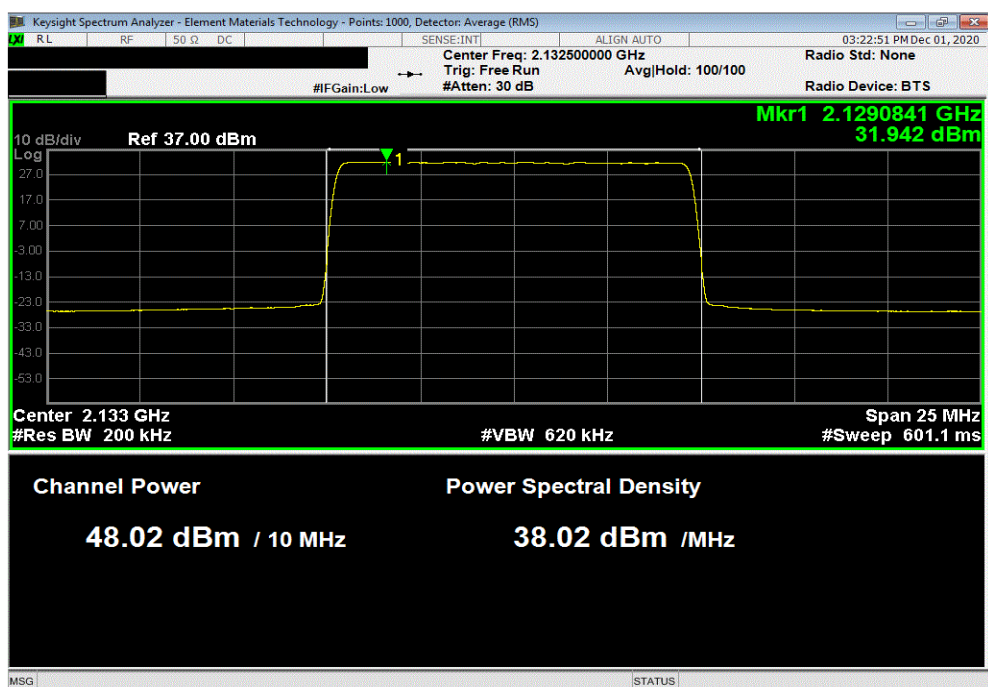


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 10 MHz Bandwidth, 64-QAM Modulation, Low Channel 2115 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.81		0		47.8		50.8



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 10 MHz Bandwidth, 64-QAM Modulation, Mid Channel 2132.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
48.02		0		48.0		51.0

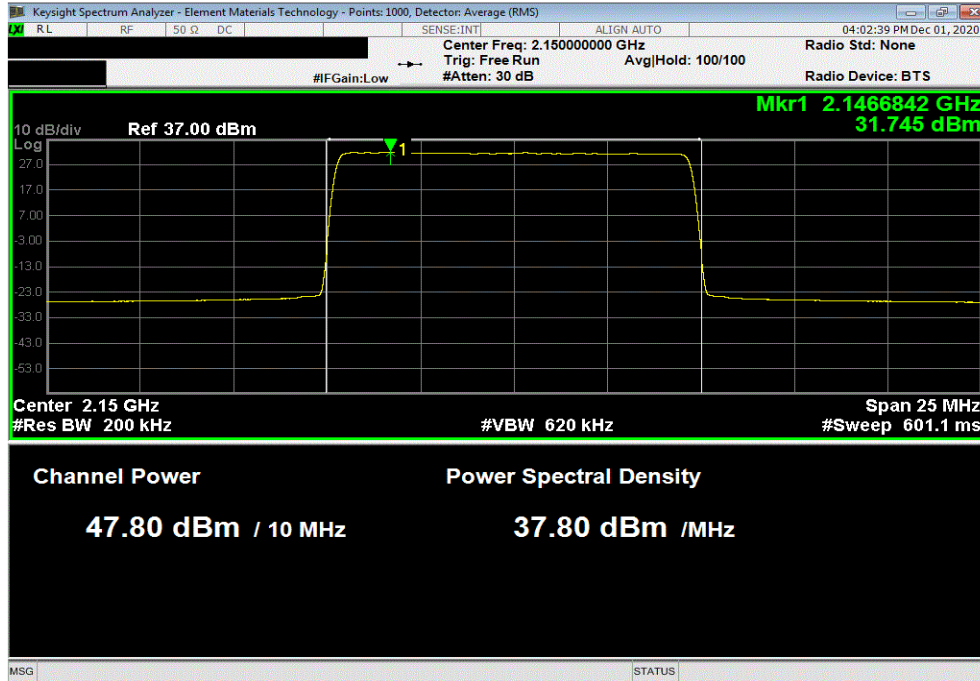


OUTPUT POWER - 2 PORT MODE

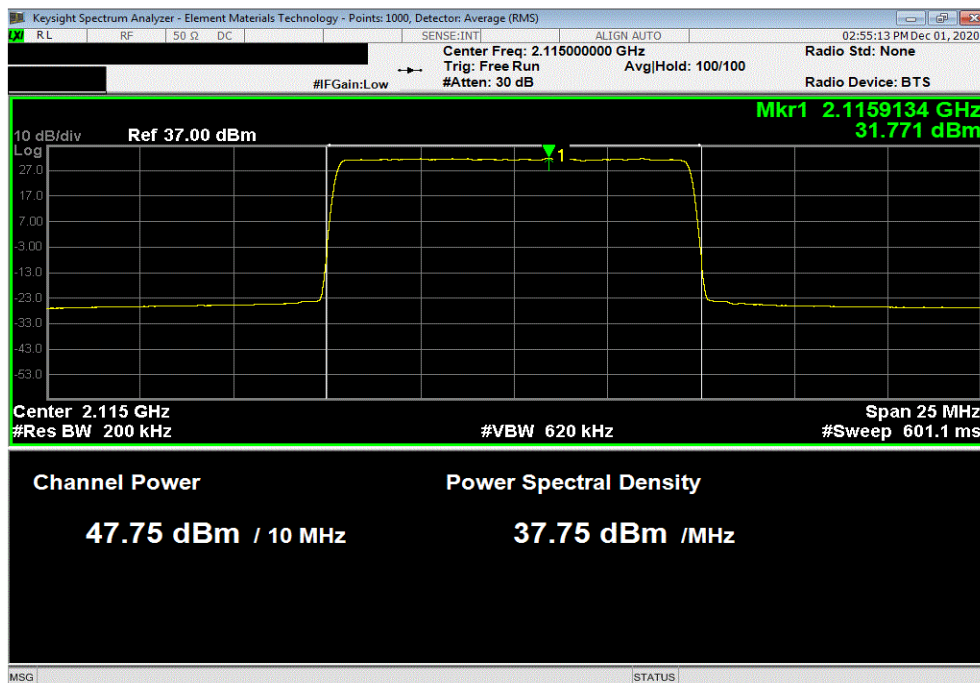


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 10 MHz Bandwidth, 64-QAM Modulation, High Channel 2150 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.801		0		47.8		50.8



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 10 MHz Bandwidth, 256-QAM Modulation, Low Channel 2115 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.75		0		47.8		50.8

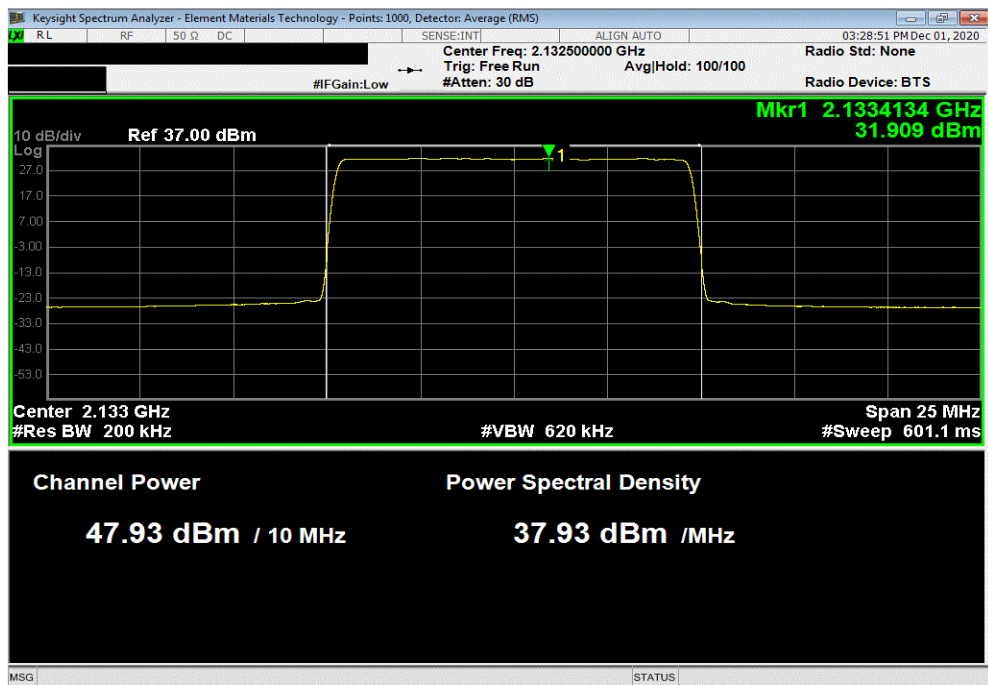


OUTPUT POWER - 2 PORT MODE

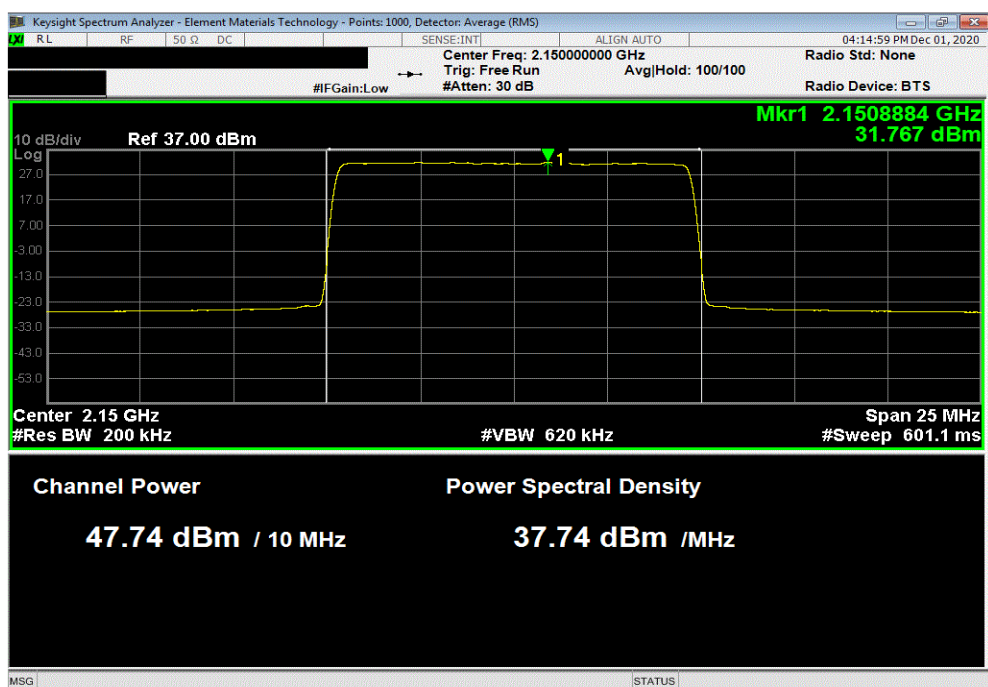


TbTx 2020.10.20.0 BETA XMi 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 10 MHz Bandwidth, 256-QAM Modulation, Mid Channel 2132.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.933		0		47.9		50.9



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 10 MHz Bandwidth, 256-QAM Modulation, High Channel 2150 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.738		0		47.7		50.7

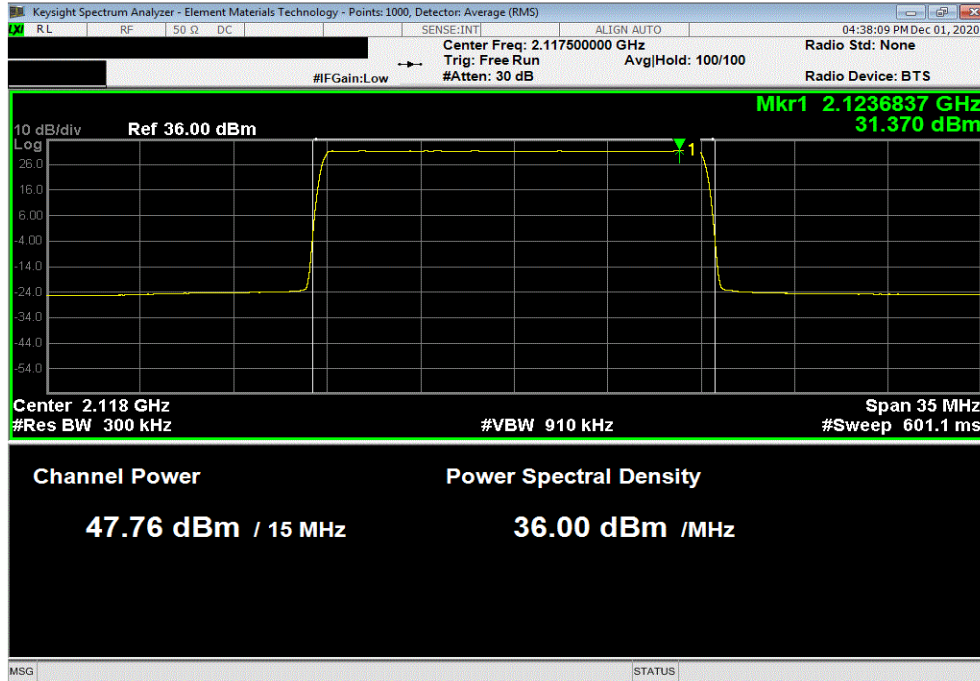


OUTPUT POWER - 2 PORT MODE

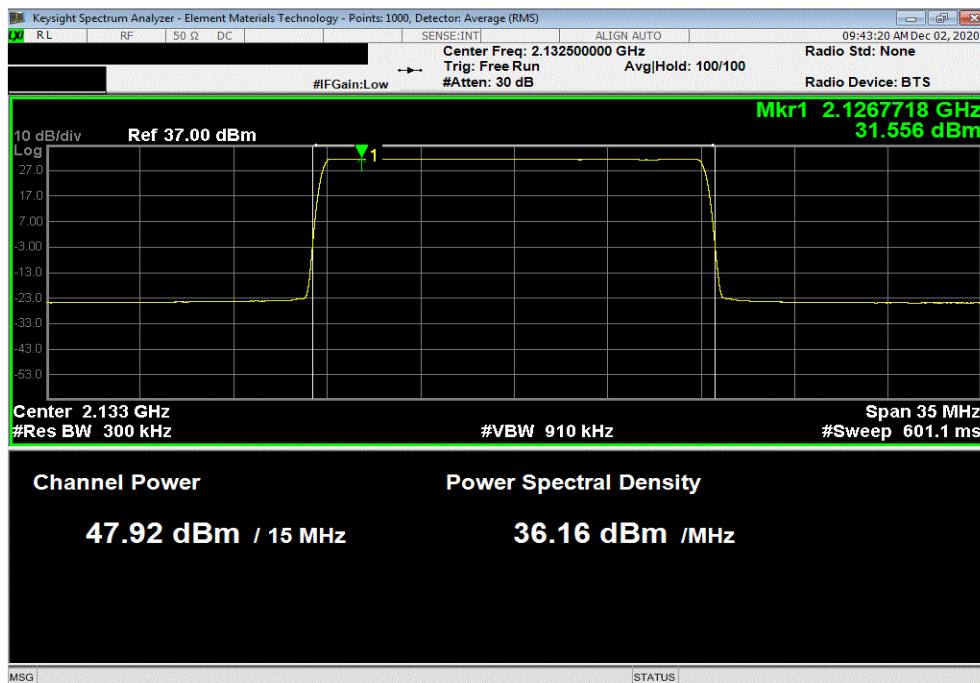


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 15 MHz Bandwidth, QPSK Modulation, Low Channel 2117.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.758		0		47.8		50.8



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 15 MHz Bandwidth, QPSK Modulation, Mid Channel 2132.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.923		0		47.9		50.9

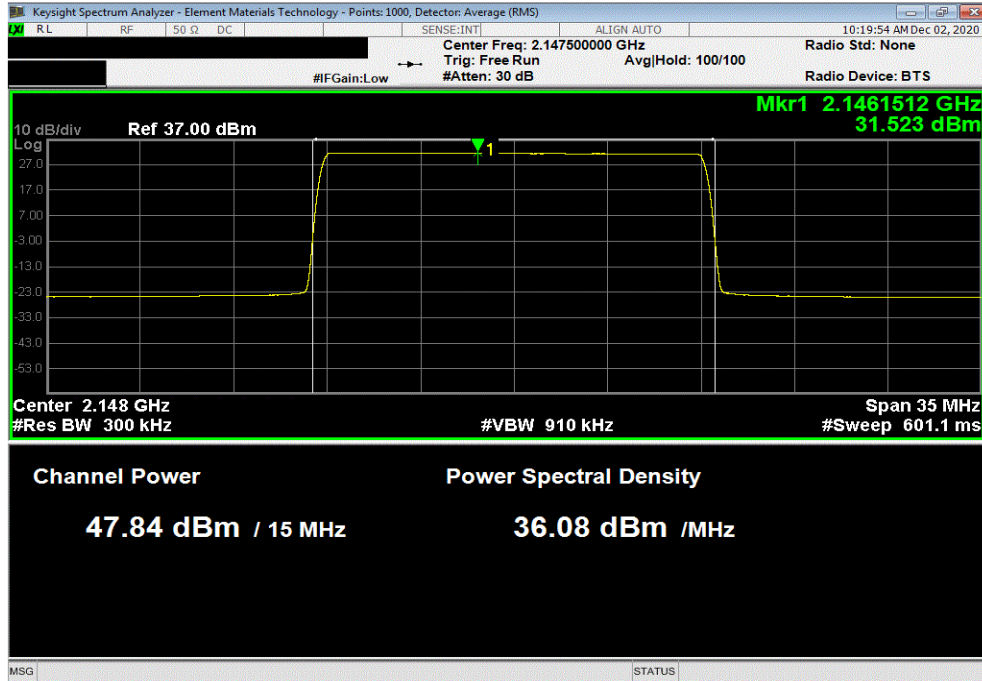


OUTPUT POWER - 2 PORT MODE

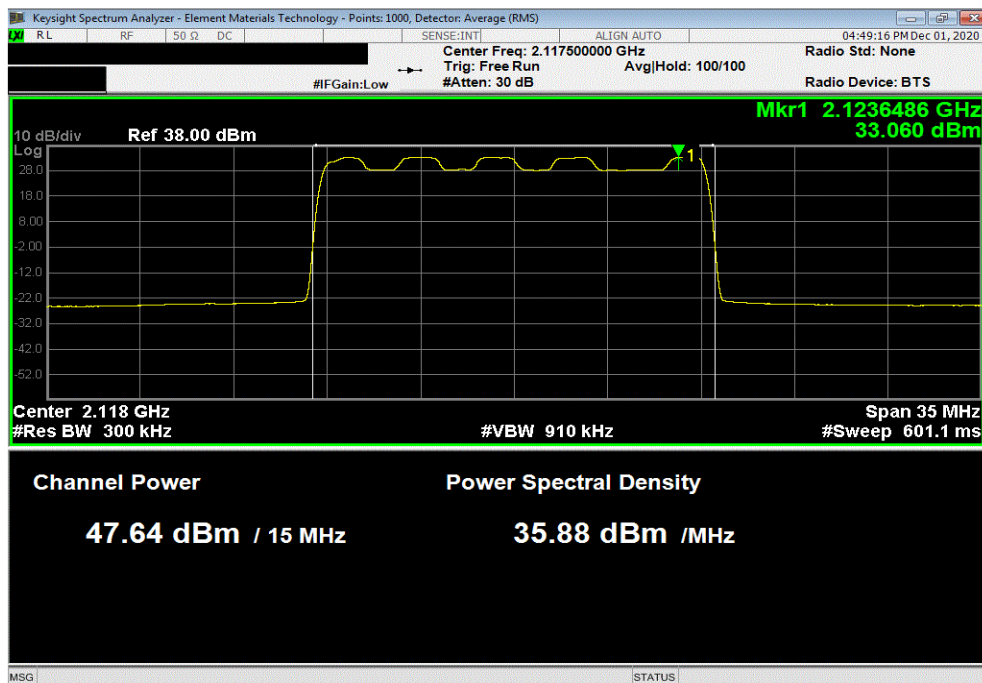


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 15 MHz Bandwidth, QPSK Modulation, High Channel 2147.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.836		0		47.8		50.8



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 15 MHz Bandwidth, 16-QAM Modulation, Low Channel 2117.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.643		0		47.6		50.6

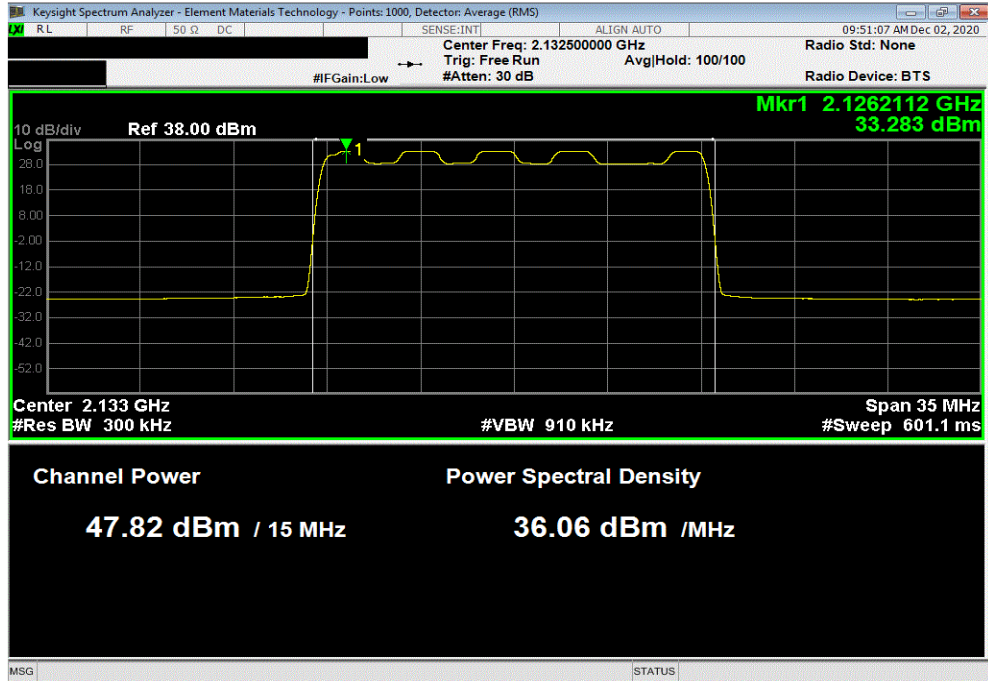


OUTPUT POWER - 2 PORT MODE

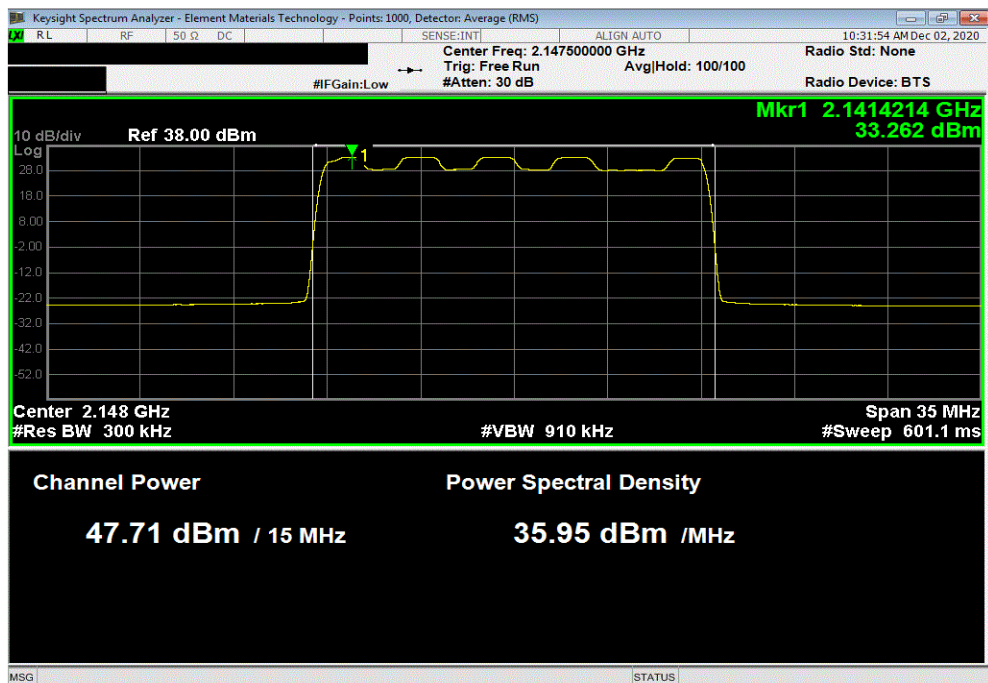


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 15 MHz Bandwidth, 16-QAM Modulation, Mid Channel 2132.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.822		0		47.8		50.8



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 15 MHz Bandwidth, 16-QAM Modulation, High Channel 2147.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.714		0		47.7		50.7

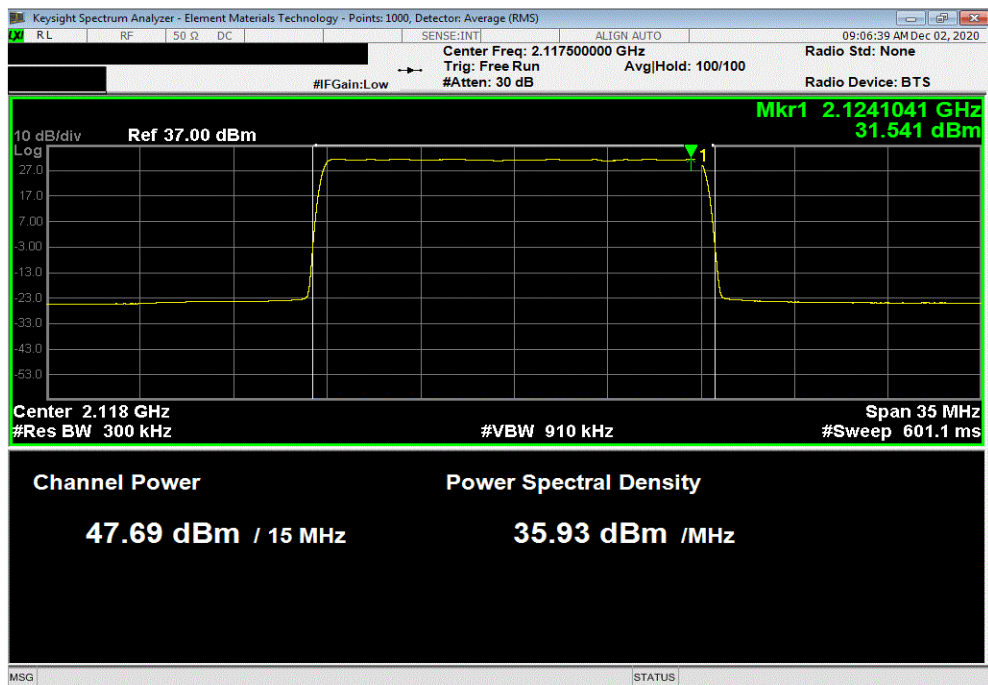


OUTPUT POWER - 2 PORT MODE

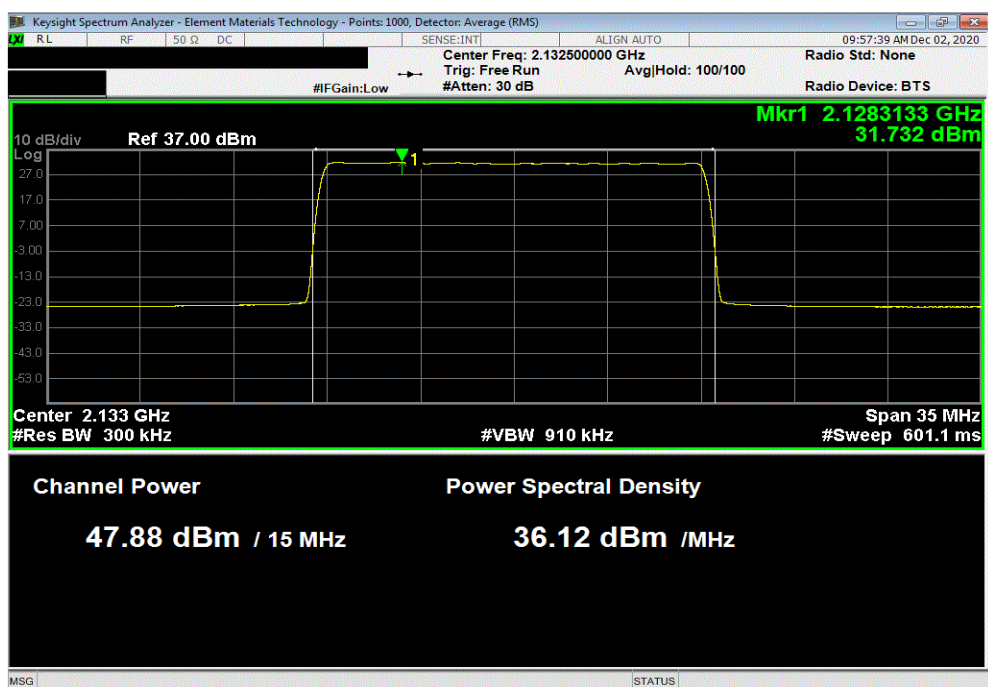


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 15 MHz Bandwidth, 64-QAM Modulation, Low Channel 2117.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.691		0		47.7		50.7



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 15 MHz Bandwidth, 64-QAM Modulation, Mid Channel 2132.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.878		0		47.9		50.9

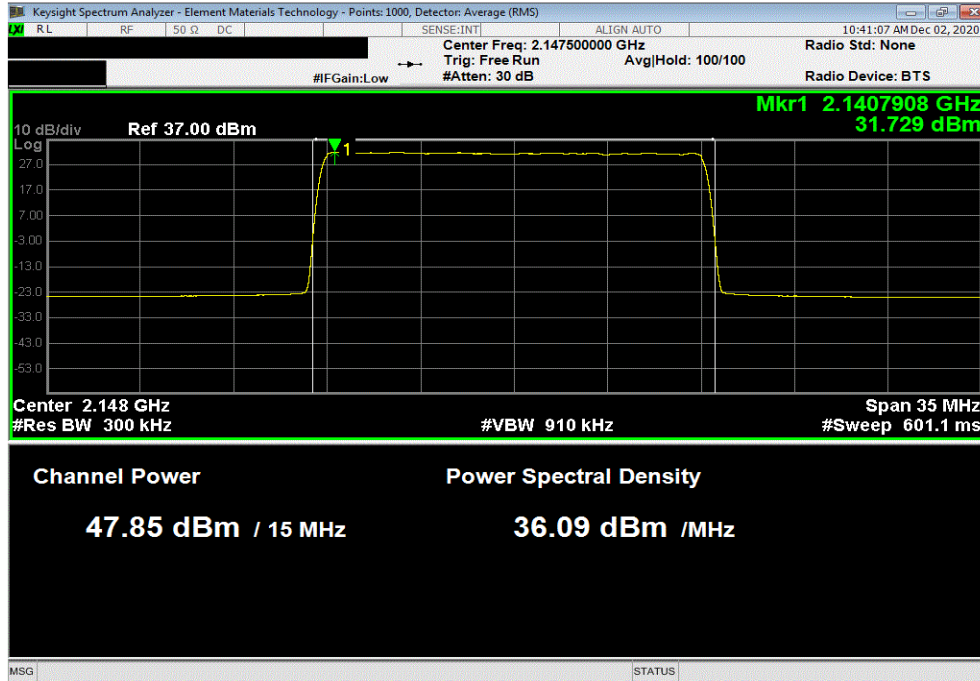


OUTPUT POWER - 2 PORT MODE

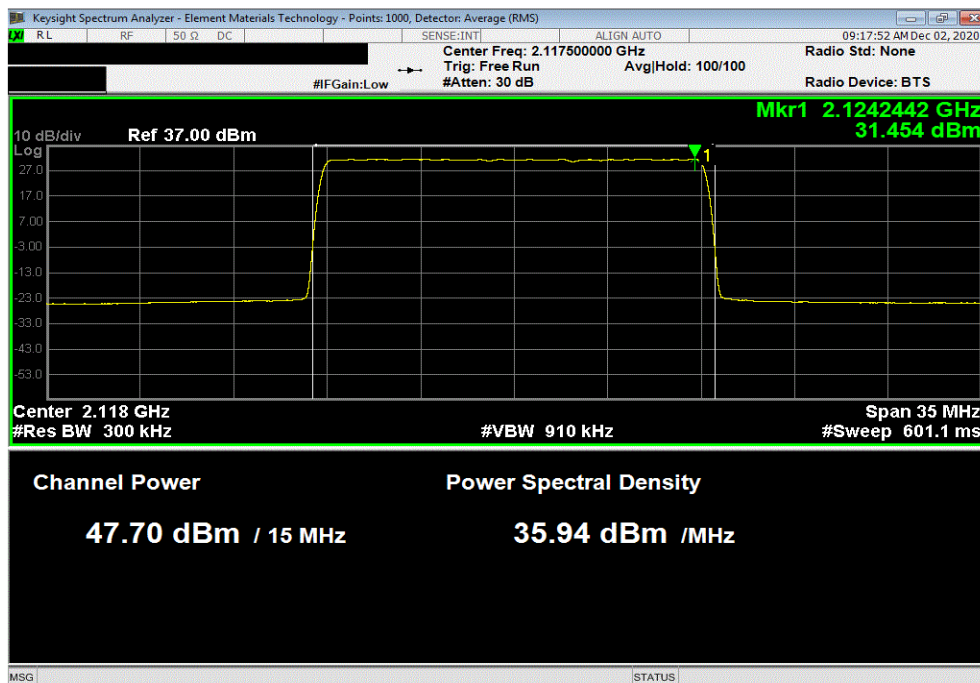


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 15 MHz Bandwidth, 64-QAM Modulation, High Channel 2147.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.849		0		47.8		50.8



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 15 MHz Bandwidth, 256-QAM Modulation, Low Channel 2117.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.701		0		47.7		50.7

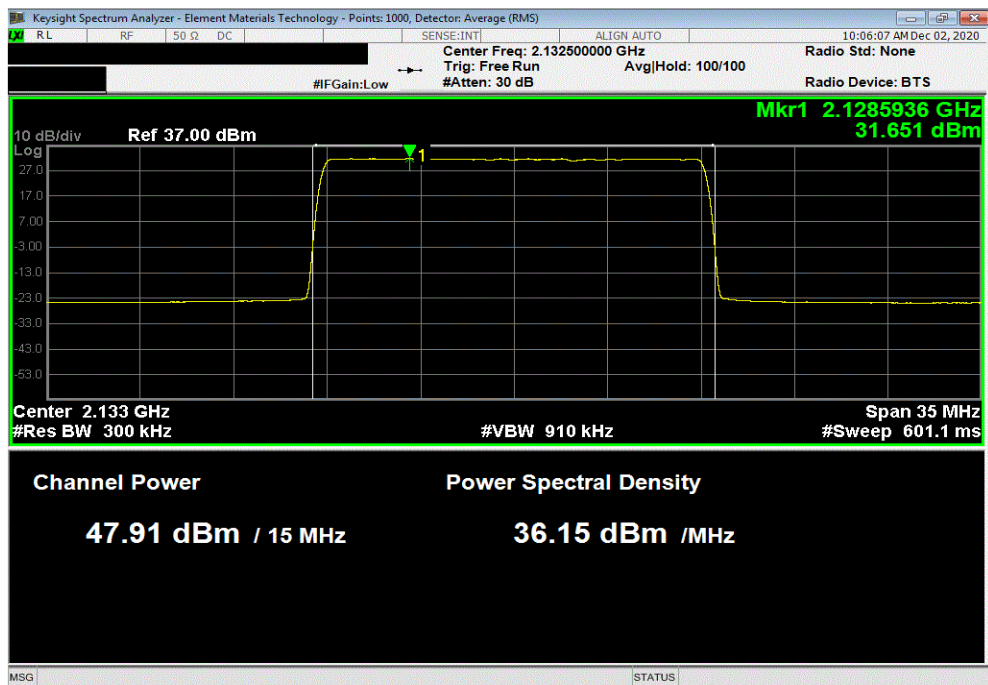


OUTPUT POWER - 2 PORT MODE

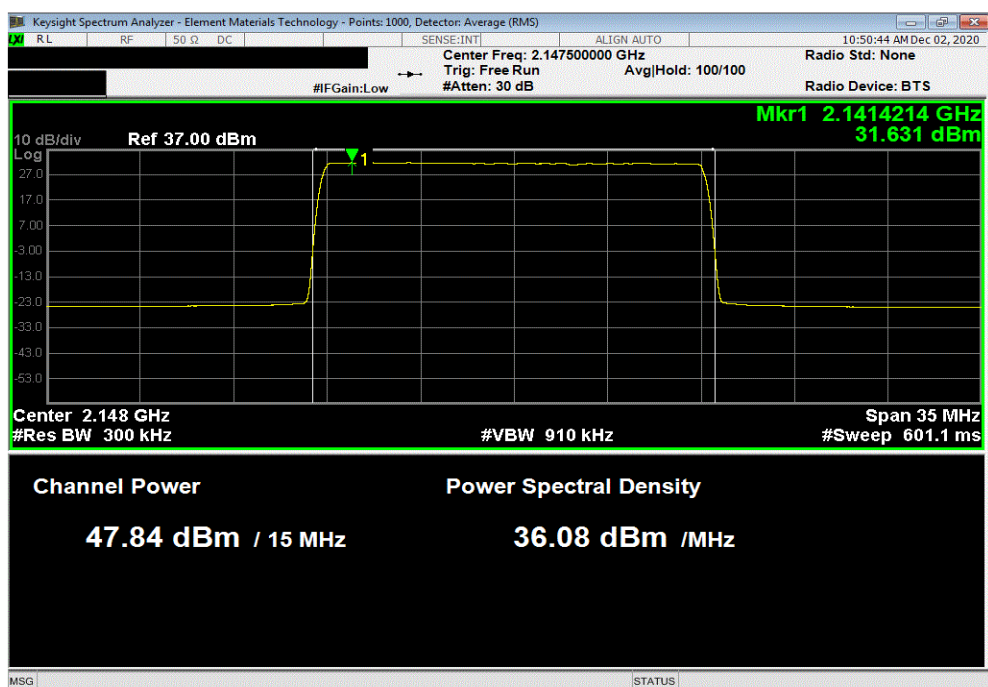


TbTx 2020.10.20.0 BETA XMi 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 15 MHz Bandwidth, 256-QAM Modulation, Mid Channel 2132.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.912		0		47.9		50.9



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 15 MHz Bandwidth, 256-QAM Modulation, High Channel 2147.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.842		0		47.8		50.8

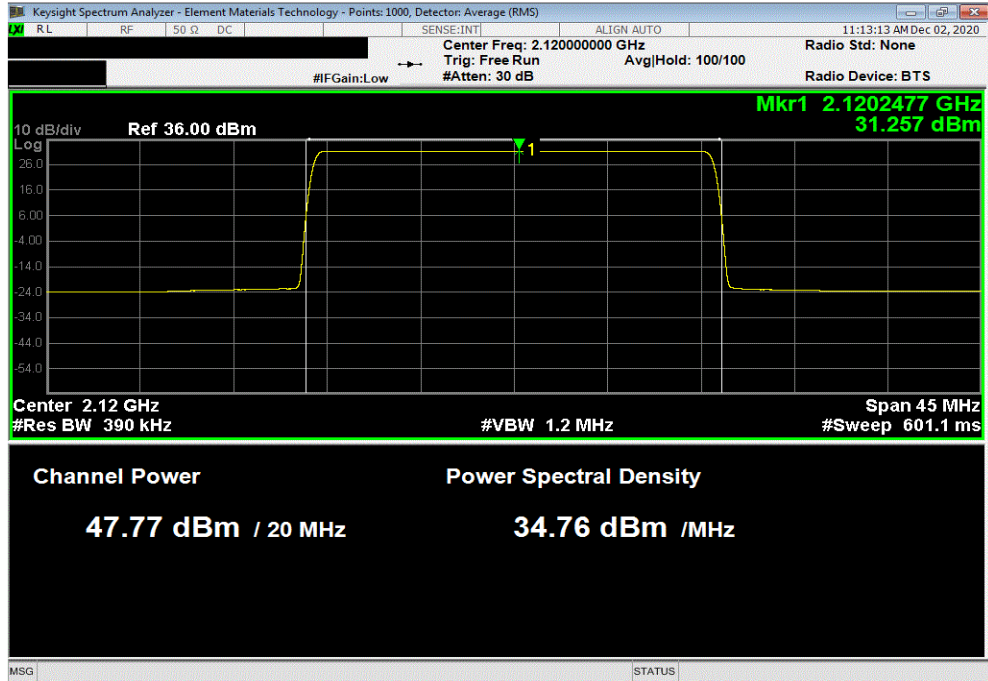


OUTPUT POWER - 2 PORT MODE

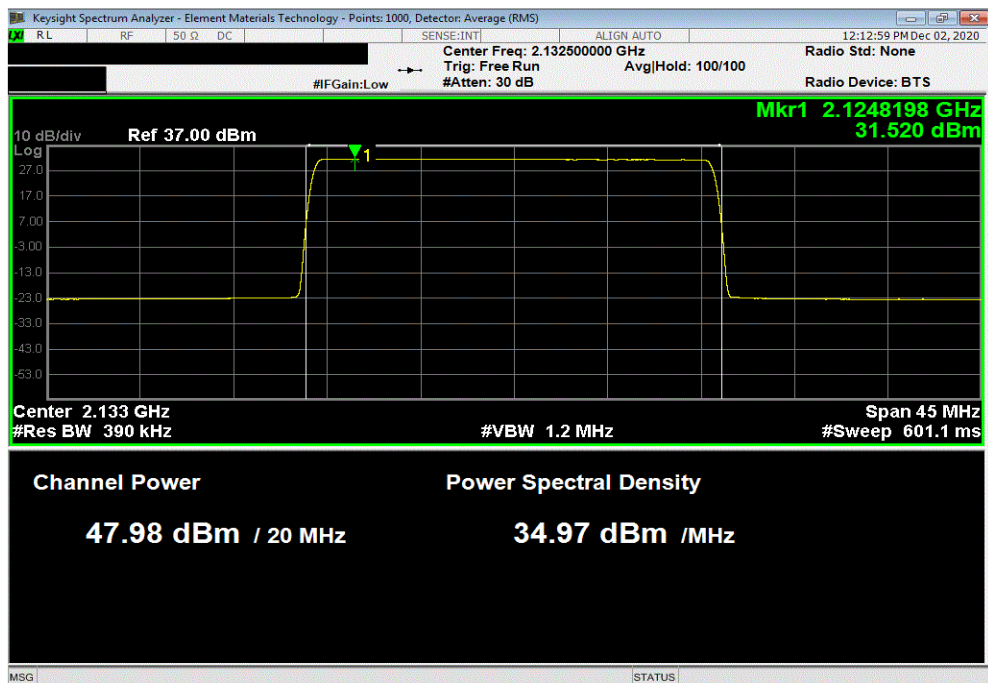


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 20 MHz Bandwidth, QPSK Modulation, Low Channel 2120 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.774		0		47.8		50.8



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 20 MHz Bandwidth, QPSK Modulation, Mid Channel 2132.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.982		0		48.0		51.0

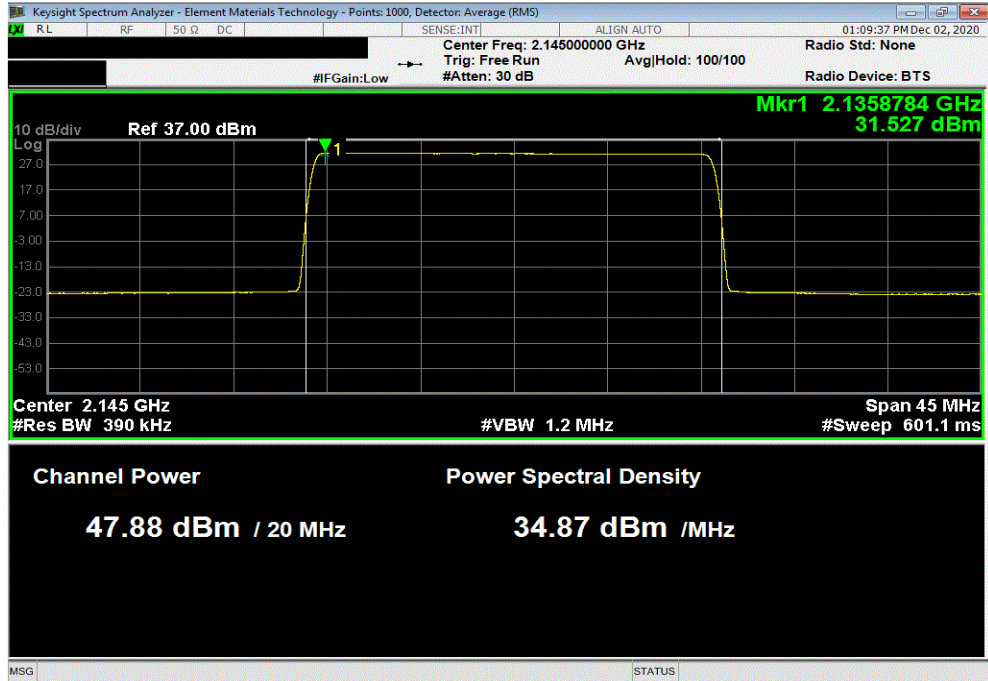


OUTPUT POWER - 2 PORT MODE

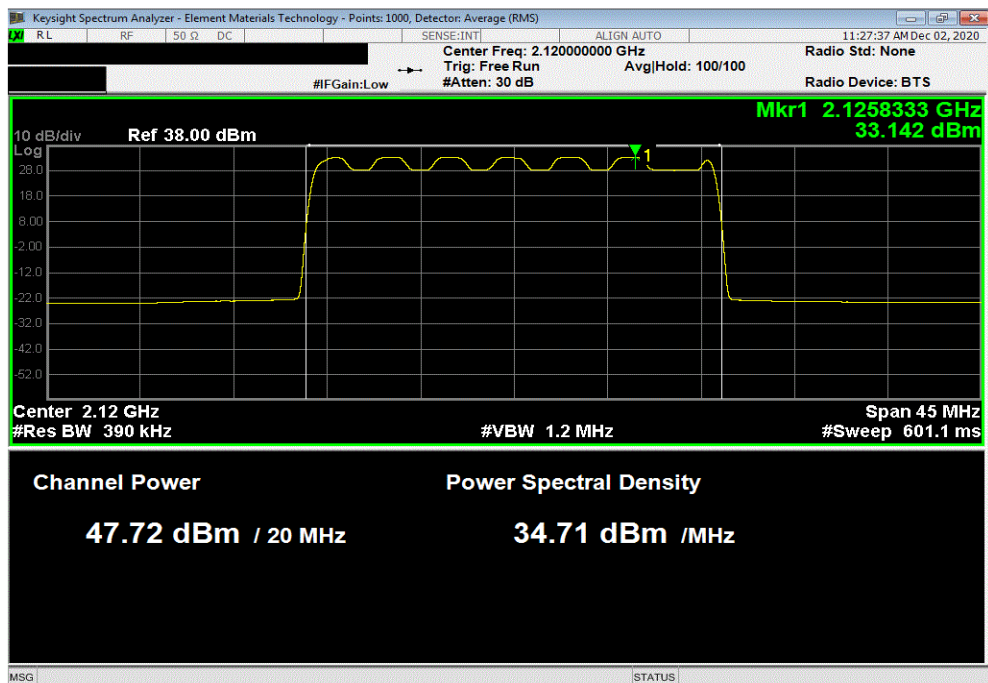


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 20 MHz Bandwidth, QPSK Modulation, High Channel 2145 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.878		0		47.9		50.9



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 20 MHz Bandwidth, 16-QAM Modulation, Low Channel 2120 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.723		0		47.7		50.7

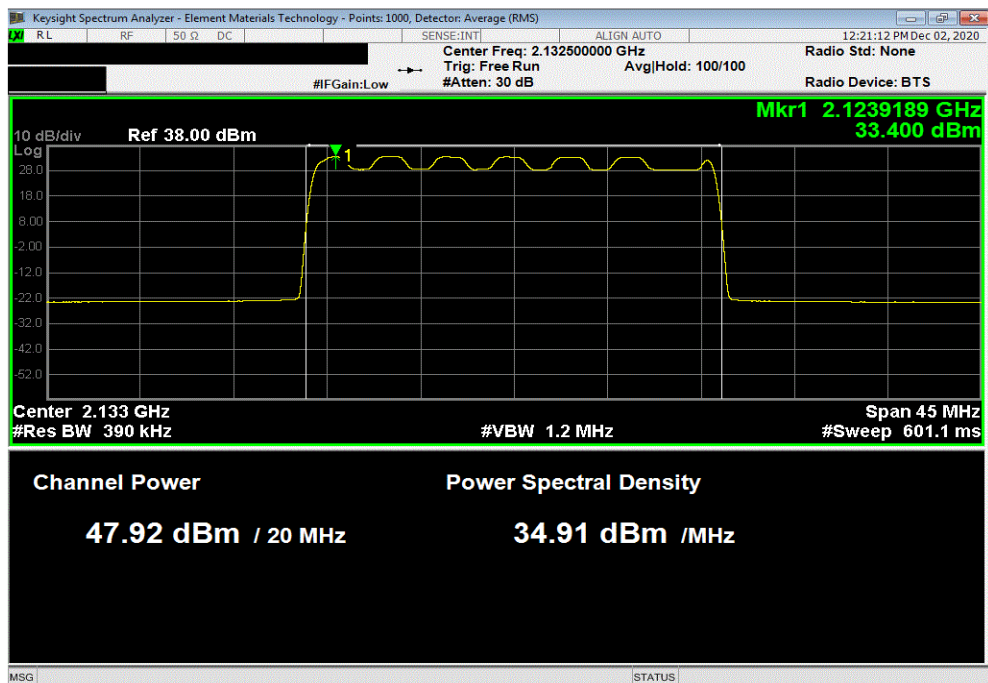


OUTPUT POWER - 2 PORT MODE

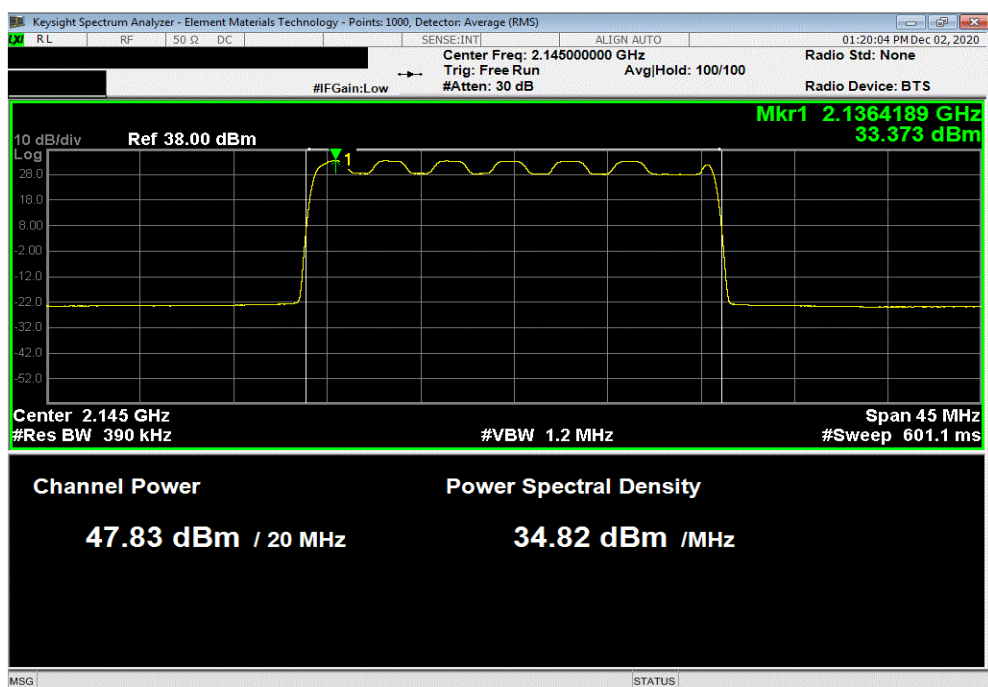


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 20 MHz Bandwidth, 16-QAM Modulation, Mid Channel 2132.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.921		0		47.9		50.9



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 20 MHz Bandwidth, 16-QAM Modulation, High Channel 2145 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.825		0		47.8		50.8

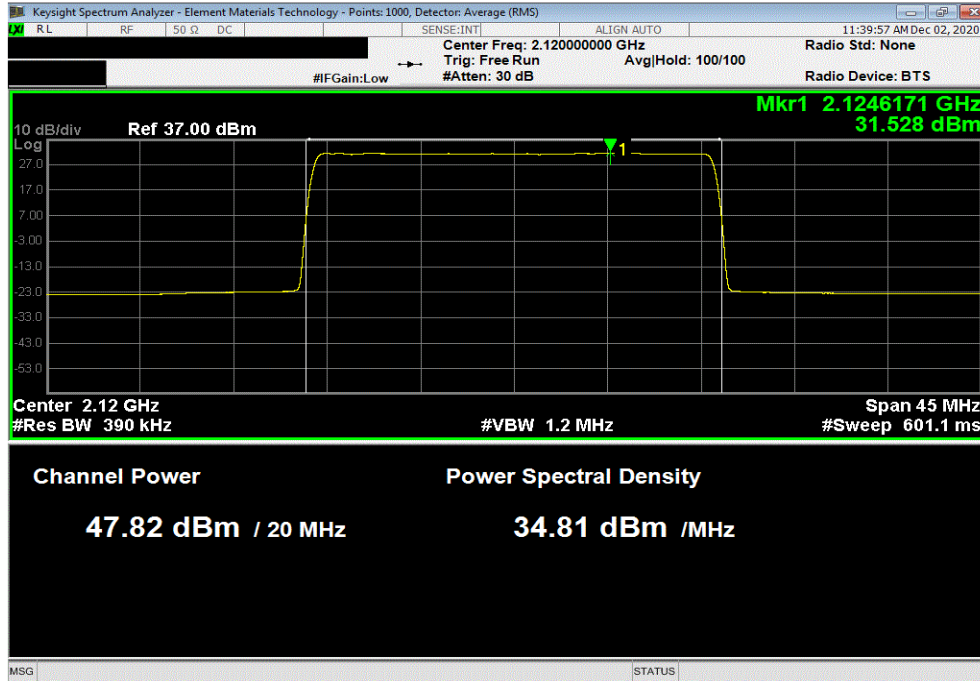


OUTPUT POWER - 2 PORT MODE

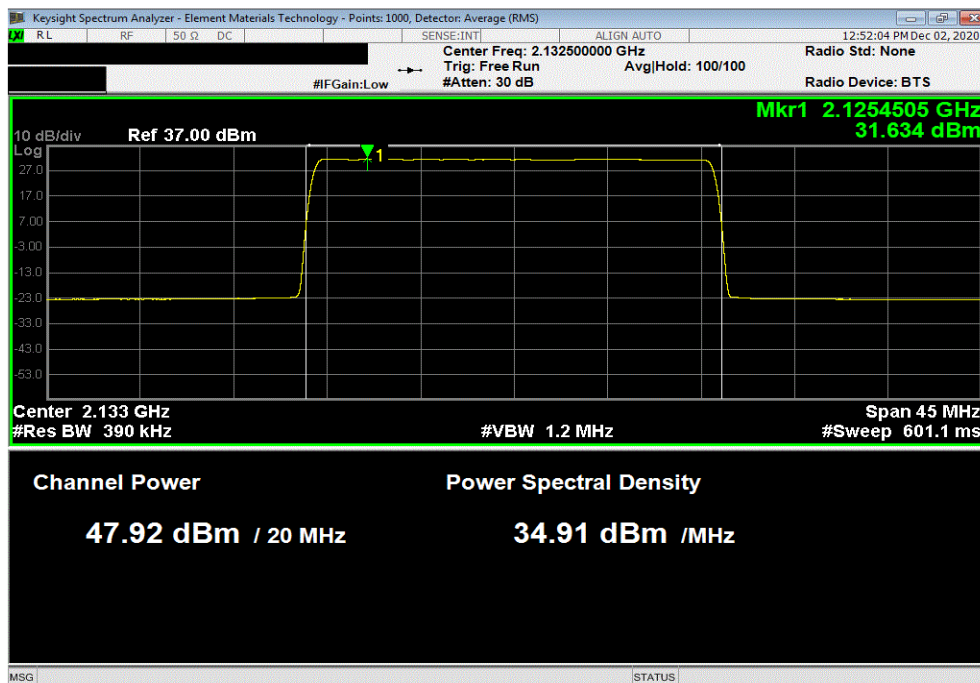


TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 20 MHz Bandwidth, 64-QAM Modulation, Low Channel 2120 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.819		0		47.8		50.8



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 20 MHz Bandwidth, 64-QAM Modulation, Mid Channel 2132.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.922		0		47.9		50.9

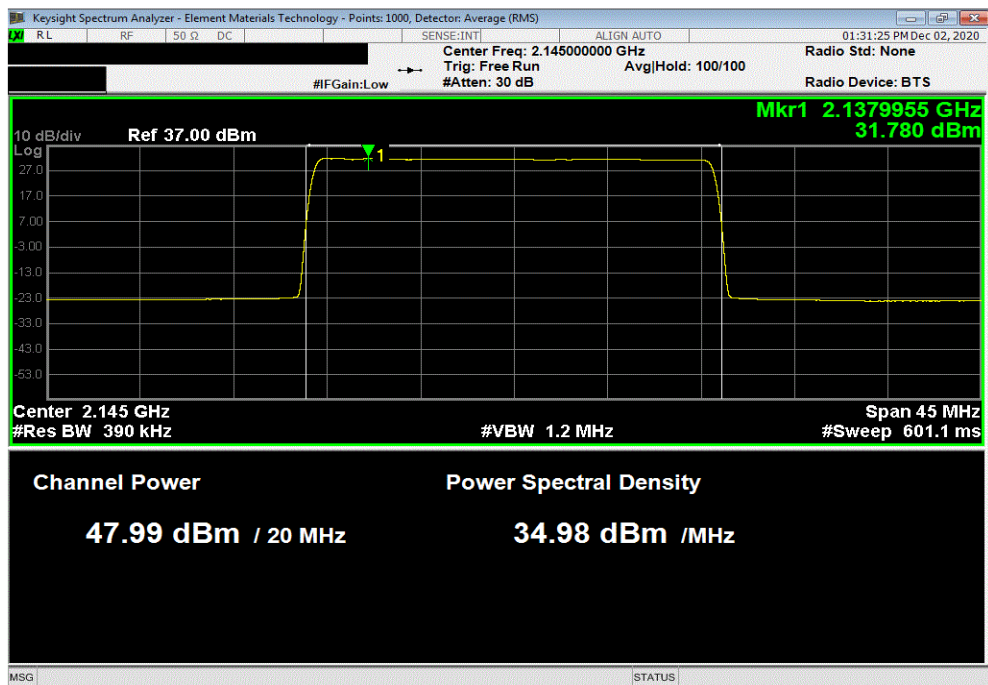


OUTPUT POWER - 2 PORT MODE

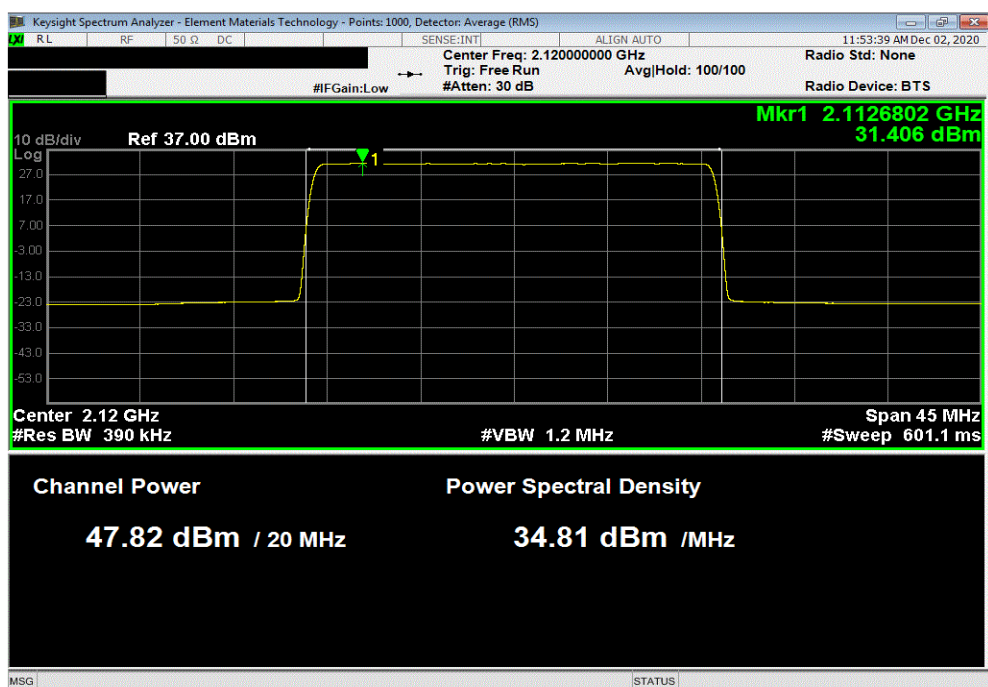


TbTx 2020.10.20.0 BETA XMi 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 20 MHz Bandwidth, 64-QAM Modulation, High Channel 2145 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.987		0		48.0		51.0



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 20 MHz Bandwidth, 256-QAM Modulation, Low Channel 2120 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.822		0		47.8		50.8

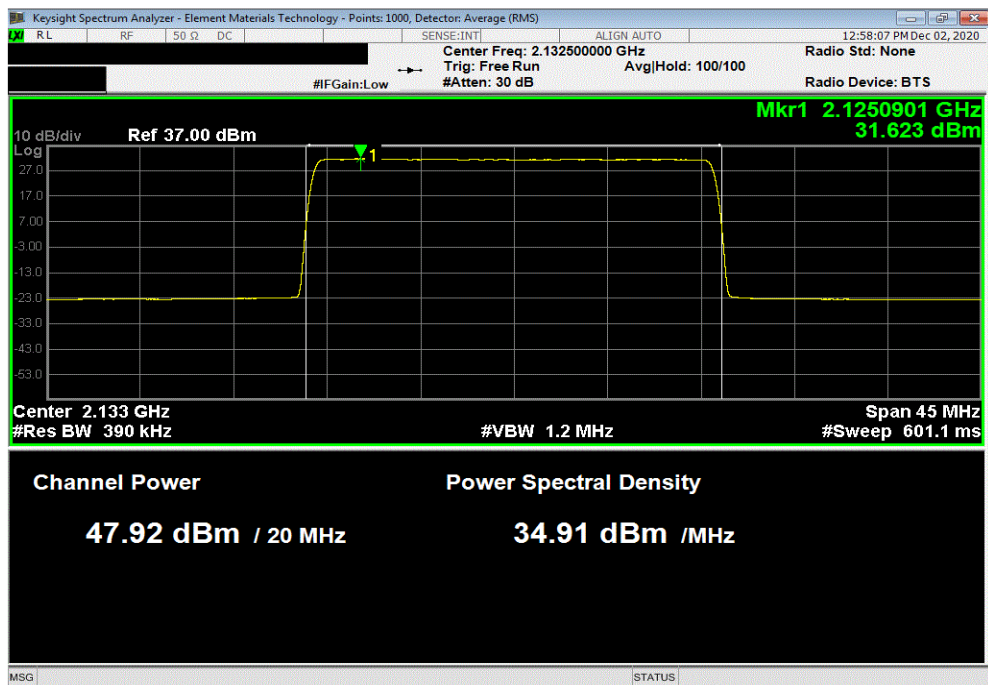


OUTPUT POWER - 2 PORT MODE



TbTx 2020.10.20.0 BETA XMI 2020.03.25.0

60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 20 MHz Bandwidth, 256-QAM Modulation, Mid Channel 2132.5 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.923		0		47.9		50.9



60 Watt Port 1, Band 1, 2110 MHz - 2155 MHz, 20 MHz Bandwidth, 256-QAM Modulation, High Channel 2145 MHz						
Initial Value		Duty Cycle		Single Port		Two Port (2x2 MIMO)
dBm/Carrier BW				dBm/Carrier BW		dBm/Carrier BW
47.955		0		48.0		51.0

