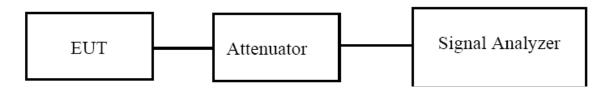




9. 26dB & 6dB & 99% Emission Bandwidth

9.1 Block Diagram Of Test Setup



9.2 Limit

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth. (6dB bandwidth)>500kHz

9.3 Test Procedure

a) Set RBW = approximately 1% of the emission bandwidth.

- b) Set the VBW > RBW.
- c) Detector = Peak.

d) Trace mode = max hold.

e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

The following procedure shall be used for measuring (99 %) power bandwidth:

- 1. Set center frequency to the nominal EUT channel center frequency.
- 2. Set span = 1.5 times to 5.0 times the OBW.
- 3. Set \dot{RBW} = 1 % to 5 % of the OBW

4. Set VBW ≥ 3 · RBW

5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.

6. Use the 99 % power bandwidth function of the instrument (if available).

7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

6dB

- 1. Set RBW = 100 kHz.
- 2. Set the video bandwidth (VBW) \ge 3 x RBW.
- 3. Detector = Peak.
- 4. Trace mode = max hold.
- 5. Sweep = auto couple.



6. Allow the trace to stabilize.

7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

9.4 EUT Operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

9.5 Test Result

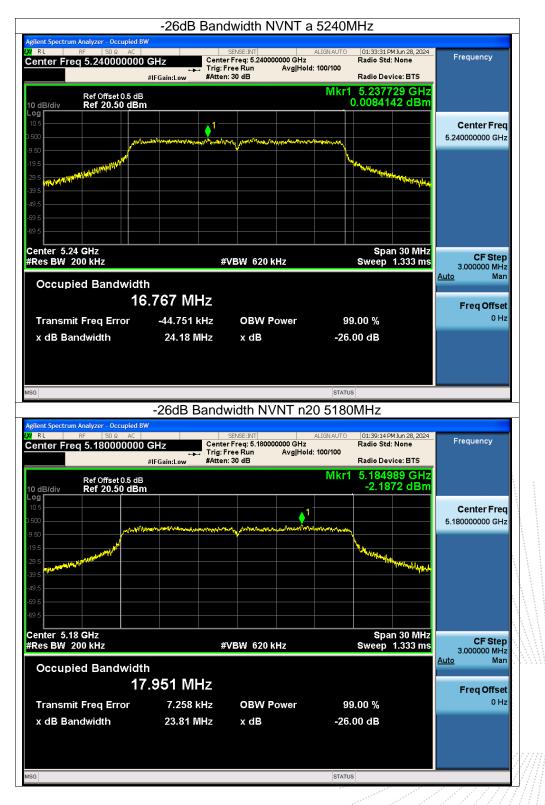
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	(5180-5240MHz)		

Condition	Mode	Frequency (MHz)	99% bandwidth (MHz)	26dB bandwidth (MHz)	Result
NVNT	а	5180	16.755	23.624	Pass
NVNT	а	5200	16.761	23.348	Pass
NVNT	а	5240	16.764	24.184	Pass
NVNT	n20	5180	17.915	23.81	Pass
NVNT	n20	5200	17.929	24.921	Pass
NVNT	n20	5240	17.916	24.793	Pass
NVNT	n40	5190	36.559	46.83	Pass
NVNT	n40	5230	36.493	47.67	Pass
NVNT	ac20	5180	17.838	25.766	Pass
NVNT	ac20	5200	17.869	24.851	Pass
NVNT	ac20	5240	17.863	25.123	Pass
NVNT	ac40	5190	36.496	47.923	Pass
NVNT	ac40	5230	36.503	47.401	Pass
NVNT	ax20	5180	19.104	24.008	Pass
NVNT	ax20	5200	19.085	24.746	Pass
NVNT	ax20	5240	19.078	25.179	Pass
NVNT	ax40	5190	37.908	45.522	Pass
NVNT	ax40	5230	37.881	44.73	Pass

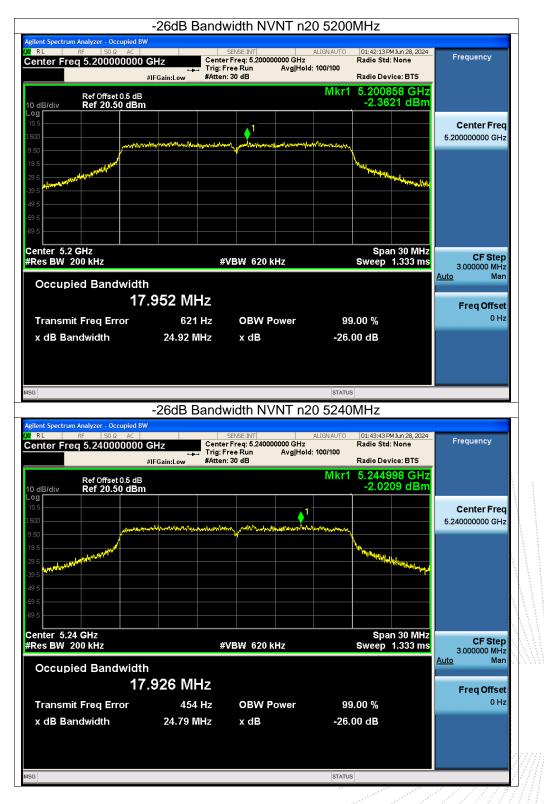


	Test Graphs			
		a 5180MHz		
/				
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			and the second	
			nan 30 MHz	
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. / 28 IVIHZ -18.485 kHz	OBW Power	99,00 %		Freq Offset 0 Hz
23.62 MHz	x dB			
		STATUS		
-26dB Band	dwidth NVNT a			
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			Martin Berlinson Anna Martin	
			pan 30 MHz	CF Step
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.780 MHz	OBW Power x dB	99.00 % -26.00 dB		the second s
.780 MHz -32.866 kHz				the second s
	-26dB Band	-26dB Bandwidth NVNT a SENSE:INT GHz Center Free Run Avg Hol #Atten: 30 dB #VBW 620 kHz .728 MHz -18.485 kHz OBW Power 23.62 MHz x dB -26dB Bandwidth NVNT a SENSE:INT Center Free Run Avg Hol Trig: Free Run Avg Hol SENSE:INT Center Free Run Avg Hol Matten: 30 dB	-26dB Bandwidth NVNT a 5180MHz SHz Center Freq: 5, 18000000 GHz Radio GHz Trig: Free Run Avg Hold: 100/100 Radio #Atten: 30 dB Stress Stres	-26dB Bandwidth NVNT a 5180MHz SH2 GHz Trig: Free Kin AvgHold: 100/100 Radio Ski: None Radio Ski: None Radio Ski: None Radio Ski: None Radio Ski: None Radio Device: BTS Mkr1 5.18 GHz -9.1340 dBm #VBW 620 kHz Span 30 MHz Sweep 1.333 ms 7.28 MHz -18.485 kHz OBW Power 99.00 % 23.62 MHz x dB -26.00 dB STATUS -26dB Bandwidth NVNT a 5200MHz Status -26dB Bandwidth NVNT a 5200MHz Status Mkr1 5.205004 GHz AugHold: 100/100 Radio Ski: None Radio Device: BTS Mkr1 5.205004 GHz -0.015346 dBm Mkr1 5.205004 GHz -0.015346 dBm

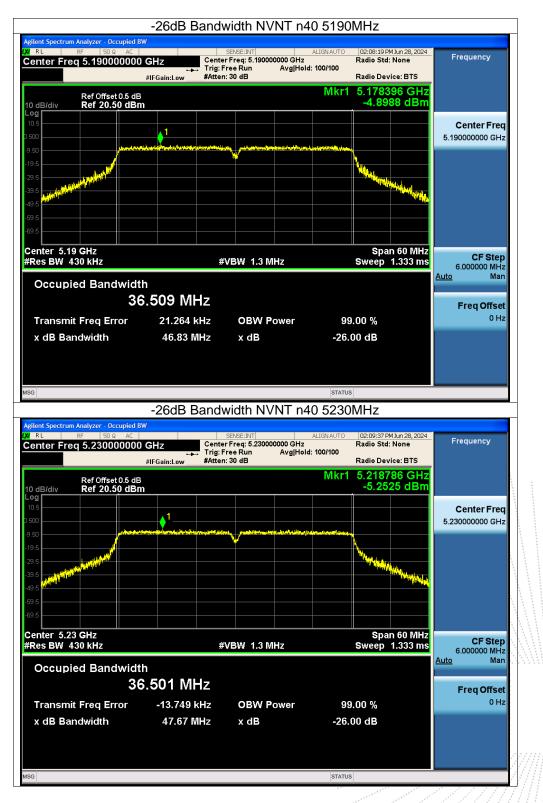




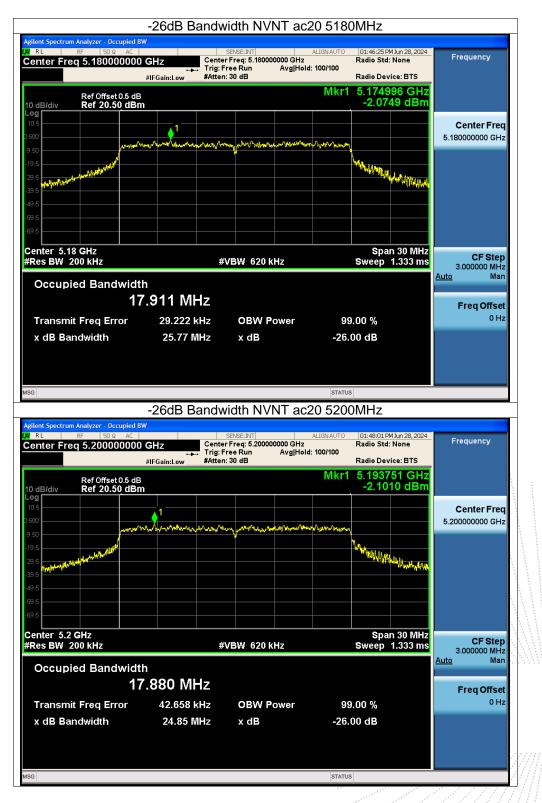




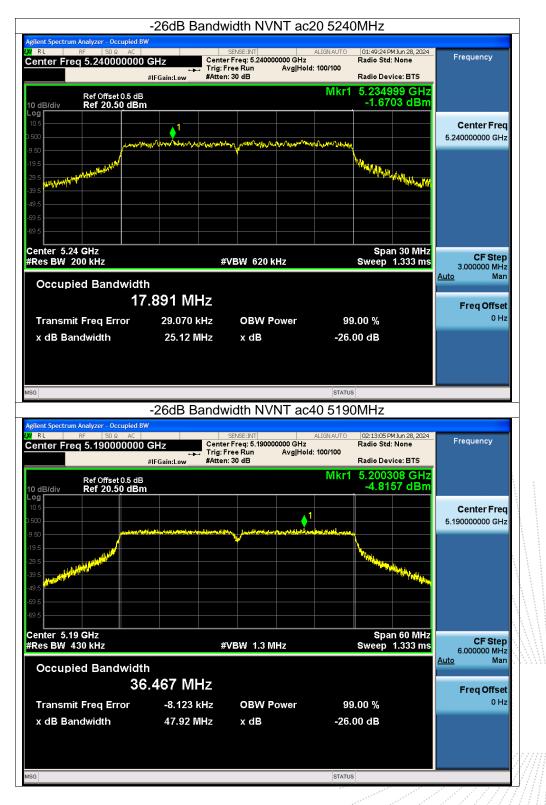




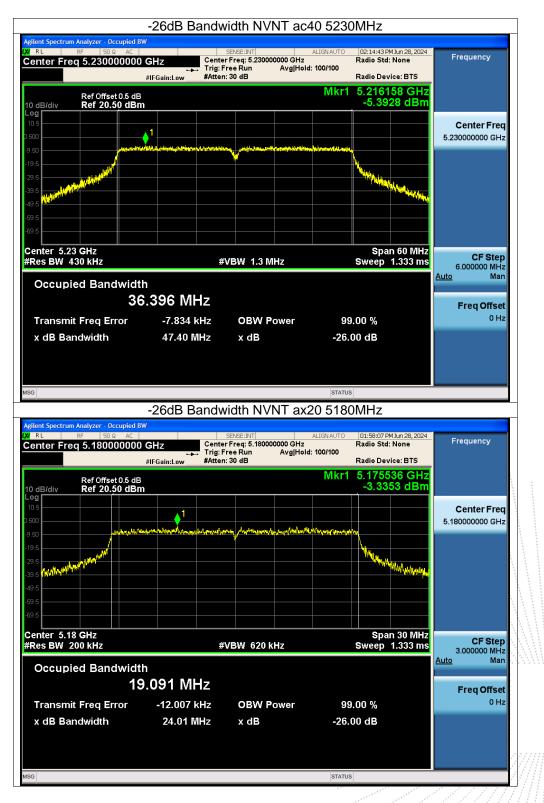




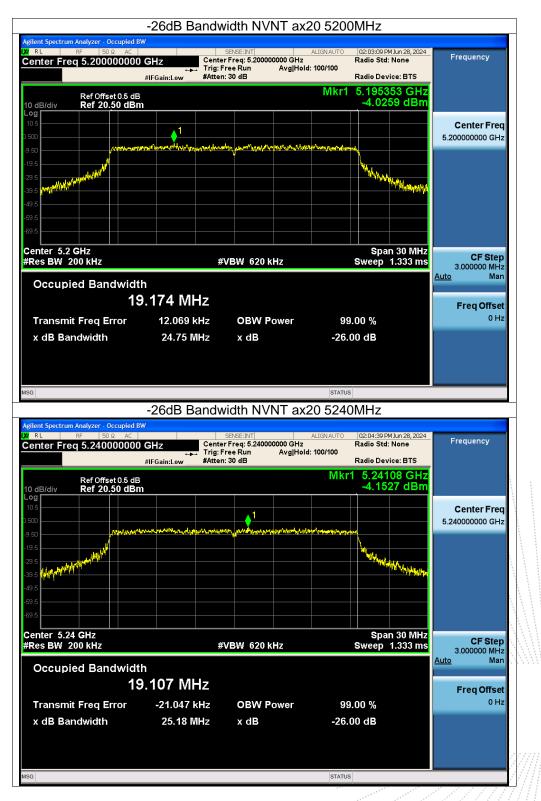




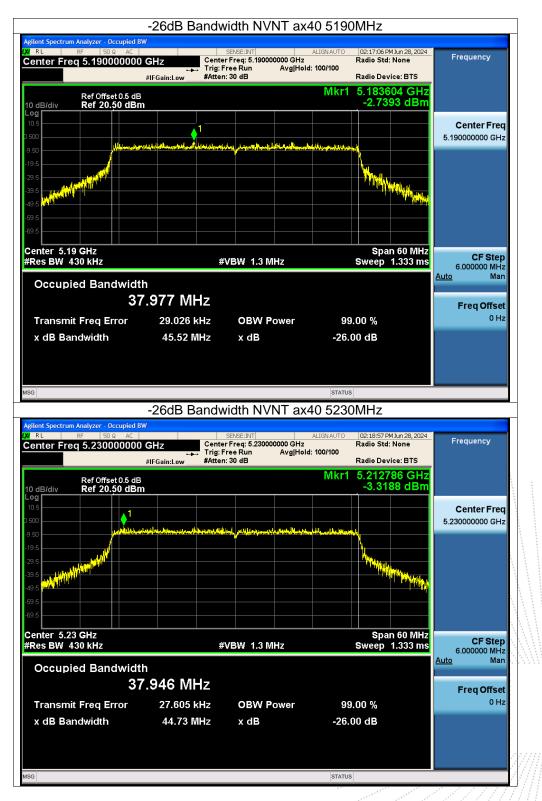








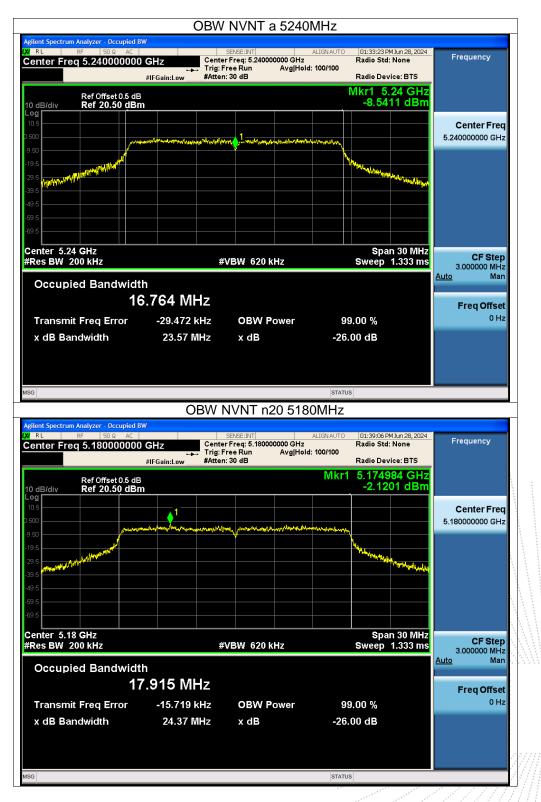




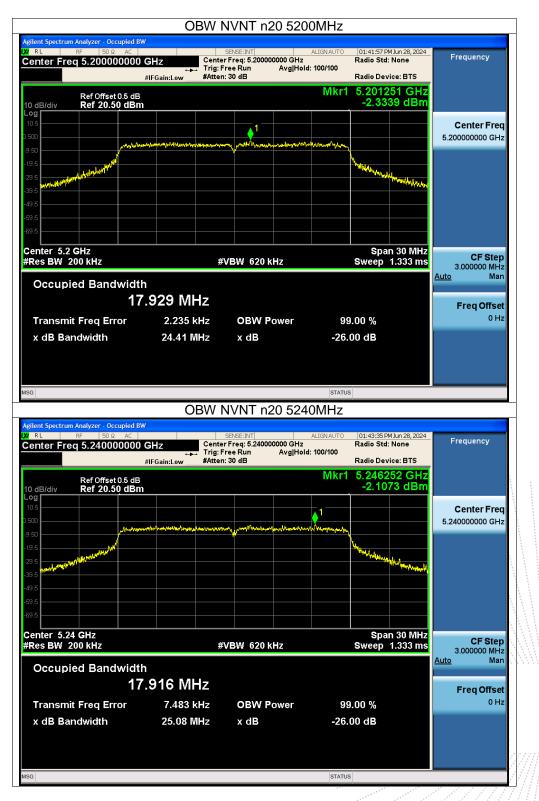


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Z Center Trig: Fi	r Freq: 5.180000000 GHz ree Run Avg Hold:	Radio Std: None : 100/100	Frequency
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		Radio Device: BTS	
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′61 МН Z -11.578 кНz	OBW Power	Sweep 1.333 n 99.00 %	S CF Step 3.000000 MHz <u>Auto</u> Man Freq Offset
	23.94 MHz OBW	-11.118 kHz OBW Power 23.94 MHz x dB OBW NVNT a 5200 Center Free; 5.200000000 GHz Trig: Free Run Avg Hold Gain:Low Atten: 30 dB	#VBW 620 kHz Span 30 MH #VBW 620 kHz Span 30 MH Syseep 1.333 m '55 MHz -11.118 kHz OBW Power 99.00 % 23.94 MHz x dB -26.00 dB Status OBW NVNT a 5200MHz 01:31:54 FMJun 28,20 4z Center Freq: 5.20000000 GHz Radio Std: None 4z Center Freq: 5.20000000 GHz Radio Std: None Atten: 30 dB Mkr1 5.201248 GH 0.10908 dB1 0.10908 dB1

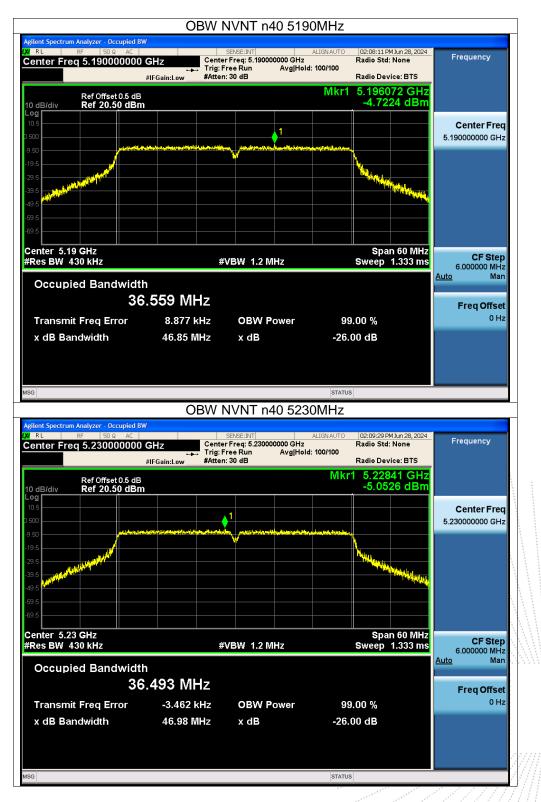




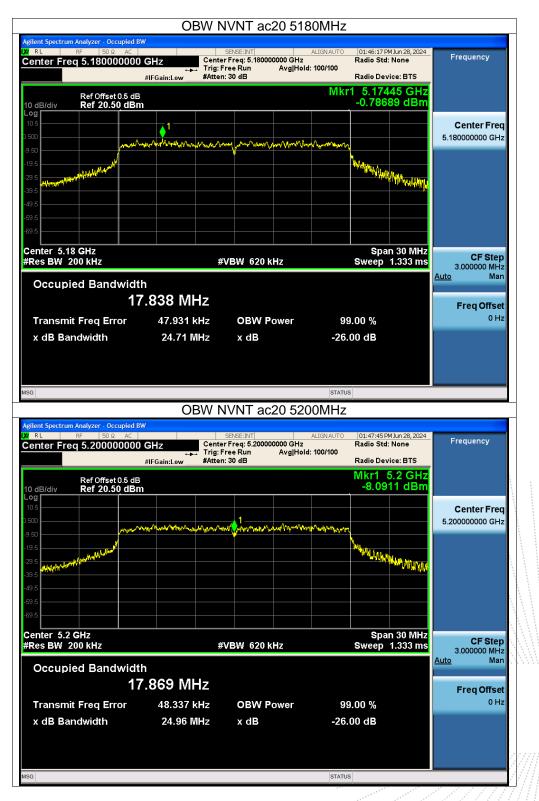








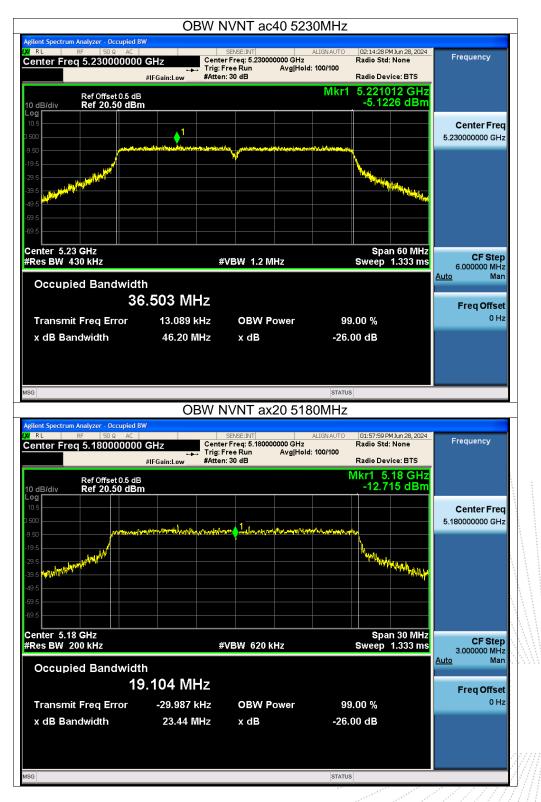




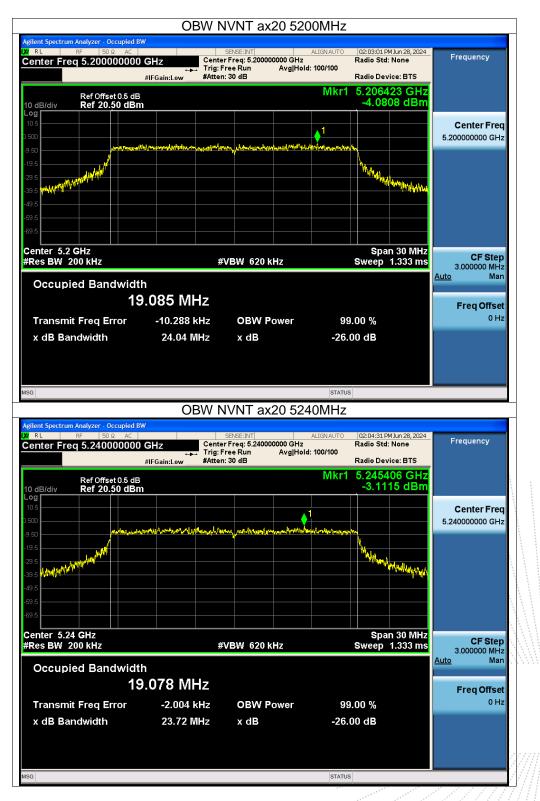




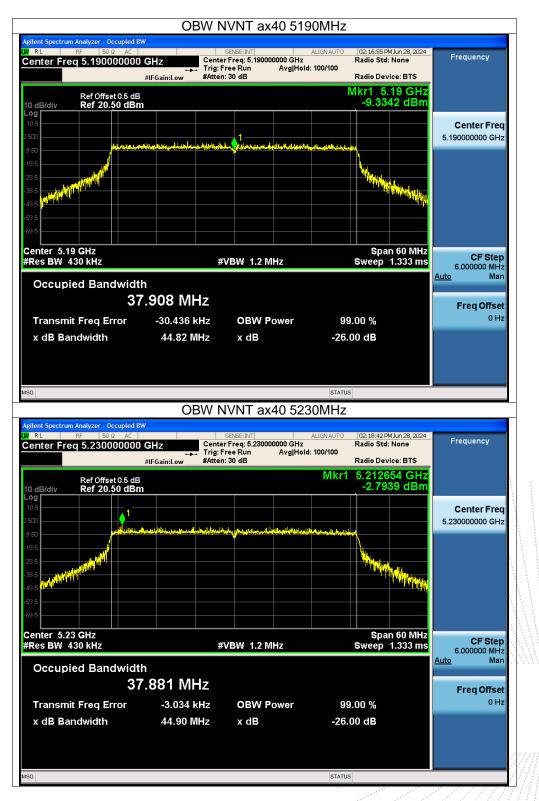














Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	(5745-5825MHz)		

Condition	Mode	Frequency (MHz)	99% bandwidth (MHz)	-6dB bandwidth (MHz)	Limit -6dB bandwidth (MHz)	Result
NVNT	а	5745	16.75	16.325	0.5	Pass
NVNT	а	5785	16.717	16.361	0.5	Pass
NVNT	а	5825	16.737	16.333	0.5	Pass
NVNT	n20	5745	17.962	17.615	0.5	Pass
NVNT	n20	5785	17.925	17.606	0.5	Pass
NVNT	n20	5825	17.946	17.593	0.5	Pass
NVNT	n40	5755	36.506	36.302	0.5	Pass
NVNT	n40	5795	36.46	36.328	0.5	Pass
NVNT	ac20	5745	17.904	17.565	0.5	Pass
NVNT	ac20	5785	17.933	17.577	0.5	Pass
NVNT	ac20	5825	17.931	17.583	0.5	Pass
NVNT	ac40	5755	36.534	36.299	0.5	Pass
NVNT	ac40	5795	36.494	36.322	0.5	Pass
NVNT	ax20	5745	17.948	17.597	0.5	Pass
NVNT	ax20	5785	17.936	17.599	0.5	Pass
NVNT	ax20	5825	17.952	17.585	0.5	Pass
NVNT	ax40	5755	37.894	38.042	0.5	Pass
NVNT	ax40	5795	37.903	37.818	0.5	Pass

Page: 79 of 174



	-6dB Band	Test Graphs	5745MHz	
ilent Spectrum Analyzer - Occupied BV				
RL RF 50 Ω AC enter Freq 5.745000000	GHz Cente	SENSE:INT er Freq: 5.745000000 GHz Free Run Avg Hold:	ALIGN AUTO 02:57:34 PM Jun 28, Radio Std: None 100/100	Frequency
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enter 5.745 GHz			Span 30 N	
Res BW 100 kHz	#	VBW 300 kHz	Sweep 3.333	3.000000 MHz
Occupied Bandwidth	า			<u>Auto</u> Man
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x dB Bandwidth	16.33 MHz	x dB	-6.00 dB	
	10.00 10112		0.00 48	
6			STATUS	
3	-6dB Band	width NVNT a s		
ilent Spectrum Analyzer - Occupied BV	V		5785MHz	
	GHz Cente	SENSE:INT .	ALIGN AUTO 03:03:54 PM Jun 28, Radio Std: None	2024 Frequency
ilent Spectrum Analyzer - Occupied BV RL RF 50Ω AC	GHz Cente	SENSE:INT	ALIGN AUTO 03:03:54 PM Jun 28, Radio Std: None	Frequency
ilent Spectrum Analyzer - Occupied BV RL RF 50 Ω AC enter Freq 5.785000000 Ref Offset 0.5 dB	GHz Cente #IFGain:Low #Atter	SENSE:INT er Freq: 5.785000000 GHz Free Run Avg Hold:	ALIGN AUTO 100/100 Radio Std: None Radio Device: BT: Mkr1 5.786272 G	Frequency S
ilent Spectrum Analyzer - Occupied BV RL RF 50 Q AC enter Freq 5.785000000 Ref Offset 0.5 dB Ref 20.50 dBm	GHz Cente #IFGain:Low #Atter	SENSE:INT er Freq: 5.785000000 GHz Free Run Avg Hold:	ALIGNAUTO 03:03:54 PM Jun 28, Radio Std: None Radio Device: BT:	Frequency S
RL RF 1500 AC enter Freq 5.785000000 Ref Offset 0.5 dB Ref 20.50 dBm	GHz Cente #IFGain:Low #Atter	SENSE:INT er Freq: 5.785000000 GHz Free Run Avg Hold:	ALIGN AUTO 100/100 Radio Std: None Radio Device: BT: Mkr1 5.786272 G	Frequency s HZ Bm
RL RF 1500 AC enter Freq 5.785000000 Ref Offset 0.5 dB Ref 20.50 dBm	GHz Cente HIFGain:Low #Atter	SENSE:INT rFreq: 5.78500000 GHz Free Run Avg Hold: n: 30 dB	5785MHz ALIGNAUTO 03:03:54 PM.Jun 28, 100/100 Radio Std: None Radio Device: BT: Mkr1 5.786272 G -3.7562 di	Frequency s HZ Bm
RE RE 150 AC enter Freq 5.785000000 Ref Offset 0.5 dB Ref 20.50 dBm	GHz Cente #IFGain:Low #Atter	SENSE:INT er Freq: 5.785000000 GHz Free Run Avg Hold:	5785MHz ALIGNAUTO 03:03:54 PM.Jun 28, 100/100 Radio Std: None Radio Device: BT: Mkr1 5.786272 G -3.7562 di	s S B Center Freq
RL RF 1500 AC enter Freq 5.785000000 Ref Offset 0.5 dB Ref 20.50 dBm	GHz Cente HIFGain:Low #Atter	SENSE:INT rFreq: 5.78500000 GHz Free Run Avg Hold: n: 30 dB	5785MHz ALIGNAUTO 03:03:54 PM.Jun 28, 100/100 Radio Std: None Radio Device: BT: Mkr1 5.786272 G -3.7562 di	s S B Center Freq
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RE Spectrum Analyzer - Occupied BY RL RF 150 Ω AC enter Freq 5.785000000 Ref Offset 0.5 dB Ref 20.50 dBm 99 95 50 50 51 52 52 53 54 55 55 55 55 55 55 55 55 55	GHz Cente HIFGain:Low #Atter	SENSE:INT rFreq: 5.78500000 GHz Free Run Avg Hold: n: 30 dB	5785MHz ALIGNAUTO 03:03:54 PM.Jun 28, 100/100 Radio Std: None Radio Device: BT: Mkr1 5.786272 G -3.7562 di	s S B Center Freq
Ref Offset 0.5 dB enter Freq 5.785000000 Ref Offset 0.5 dB 0 dB/div Ref 20.50 dBm 9.5	GHz Cente HIFGain:Low #Atter	SENSE:INT rFreq: 5.78500000 GHz Free Run Avg Hold: n: 30 dB	5785MHz ALIGNAUTO 03:03:54 PM.Jun 28, 100/100 Radio Std: None Radio Device: BT: Mkr1 5.786272 G -3.7562 di	s S B Center Freq
Ref Offset 0.5 dB Ref 20.50 dB/div Ref 2	GHz Cente HIFGain:Low #Atter	SENSE:INT rFreq: 5.78500000 GHz Free Run Avg Hold: n: 30 dB	5785MHz ALIGNAUTO 03:03:54 PM.Jun 28, 100/100 Radio Std: None Radio Device: BT: Mkr1 5.786272 G -3.7562 di	s S B Center Freq
RL RF 150 2 AC enter Freq 5.785000000	GHZ Cente Trigs: Atter #IFGain:Low	SENSE:INT	5785MHz ALIGNAUTO 100/100 Radio Std: None Radio Device: BT: Children Control C	S HZ S Center Freq 5.785000000 GHz HZ AHZ
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RL RF 150 2 AC enter Freq 5.785000000	GHz Center #IFGain:Low #Atter	SENSE:INT	5785MHz ALIGNAUTO 100/100 Radio Std: None Radio Device: BT: Children Control C	S HZ S HZ Center Freq 5.785000000 GHz HZ CF Step
Ient Spectrum Analyzer - Occupied BY RL RF 150 2 AC enter Freq 5.785000000 Ref Offset 0.5 dB Ref 20.50 dBm 9 0 dB/div Ref 20.50 dBm 9 0 dB/div Ref 20.50 dBm 9 0 dB/div 8 0 dB/div 8	GHz Center #IFGain:Low #Atter	SENSE:INT	5785MHz ALIGNAUTO 100/100 Radio Std: None Radio Device: BT: Children Control C	AHz AHz Center Freq 5.785000000 GHz 3.000000 MHz Auto Man
RL RF 000 AC Provided BW RL RF 1000 AC Provided BW REF 1000 AC Provided BW RF 100 AC Provided BW 1000 AC Provided BW	GHZ #IFGain:Low Atter	SENSE:INT Avg Hold:	5785MHz ALIGNAUTO 100/100 Radio Std: None Radio Device: BT Mkr1 5.786272 G -3.7562 dl -3.7562 d	AHz AHz Center Freq 5.785000000 GHz 3.000000 MHz Auto Man
Ref Offset 0.5 dB Ref 20.50 dBm and a state of the state of the state of the state of the	GHz #IFGain:Low GHZ Terris Atter Atter Atter Atter Atter Atter Atter Atter Atter Atter Atter Atter Atter 	SENSE:INT r Free Run Avg Hold: n: 30 dB 1 1 1 1 1 1 1 1 1 1 1 1 1	5785MHz ALIGN AUTO 100/100 Radio Std: None Radio Device: BT: Mkr1 5.786272 G -3.7562 dl Span 30 M Sweep 3.333	S HZ Bm Center Freq 5.785000000 GHz AHZ S CF Step 3.000000 MHz Auto Man Freq Offset
RL RF 000 AC Provided BW RL RF 1000 AC Provided BW REF 1000 AC Provided BW RF 100 AC Provided BW 1000 AC Provided BW	GHZ #IFGain:Low Atter	SENSE:INT Avg Hold:	5785MHz ALIGNAUTO 100/100 Radio Std: None Radio Device: BT Mkr1 5.786272 G -3.7562 dl -3.7562 d	SHZ SM AHZ MHZ MHZ MHZ MHZ MHZ MHZ MHZ MHZ MHZ M
Ref Offset 0.5 dB Ref 20.50 dBm and a state of the state of the state of the state of the	GHz #IFGain:Low GHZ Terris Atter Atter Atter Atter Atter Atter Atter Atter Atter Atter Atter Atter Atter 	SENSE:INT r Free Run Avg Hold: n: 30 dB 1 1 1 1 1 1 1 1 1 1 1 1 1	5785MHz ALIGN AUTO 100/100 Radio Std: None Radio Device: BT: Mkr1 5.786272 G -3.7562 dl Span 30 M Sweep 3.333	S HZ Bm Center Freq 5.785000000 GHz AHZ S CF Step 3.000000 MHz Auto Man Freq Offset