

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	AFN	2022-01-19	2023-01-19
Block - DC	Fairview Microwave	SD3235-2148	ANF	2022-05-27	2023-05-27
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXK	2021-09-13	2022-09-13
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in the available band. The channels closest to the band edges were selected. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

Per FCC Part 25.253(b), the power of any emission outside of the authorized operating frequency range cannot exceed the band edge limit of -57.9 dBW/MHz converted to -27.9 dBm/MHz. The Remote Radio Head (RRH) may operate as a 4 port MIMO transmitter with transmitter outputs connected to two cross-polarized antennas [two transmitter outputs are connected to (+) radiators and two transmitter outputs are connected to (-) radiators]. The limit is adjusted to -30.9 dBm [-27.9 dBm-10 log (2)] per FCC KDB 662911D01 v02r01, ANSI C63.26-2015 section 6.4.6.3 b)2) and KDB 662911 D02v01 page 3 example (2) since the transmitter outputs to each antenna are 90 degree-phase shifted relative to each other (cross-polarized radiators).

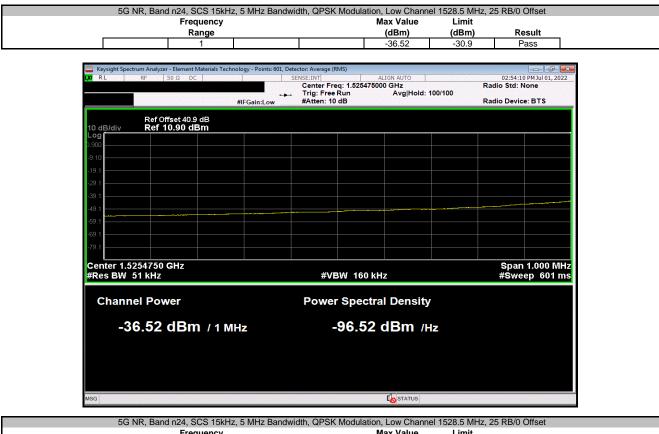
Per FCC ANSI C63.26-2015 section 5.7.2 the first and second frequency ranges use the integration method across the full measurement bandwidth.

RF conducted emissions testing was performed only on one port. The RRH antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown during output power testing) and antenna port 3 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.



EUT:				TbtTx 2022.05.02.0	XMit 2022
	TR44KA Base Station		Work Order:		
	SV2146TR44KA000001			9-Aug-22	
	Mavenir Systems, Inc		Temperature:		
Attendees:			Humidity:		
Project:			Barometric Pres.:		
	Brandon Hobbs	Power: 48 VDC	Job Site:	FX09	
ST SPECIFICATI	IONS	Test Method			1
C 25:2022		ANSI C63.26:2015			
OMMENTS					
	losses were accounted for: cables, attenuators, adapters, I	Chlock and notab filter. The DA sain was adjusted for a	2dBi entenne (Finel esttwere value of 42). The	initial limit was a	diveted to 20
	0 log (2)] per FCC KDB 662911D01 v02r01, ANSI C63.26-201		imple (2) since the transmitter outputs to each	antenna are 90 de	gree-pnase
ifted relative to e	each other (cross-polarized radiators). The single available F	esource Block / Offset configuration was used.			
VIATIONS FROM	I TEST STANDARD				
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		7 1.			
onfiguration #	1	Fittal			
	Signature	7 ~			
		Frequency	Max Value	Limit	
		Range	(dBm)	(dBm)	Result
NR, Band n24, S					
	5 MHz Bandwidth				
	QPSK Modulation				
	Low Channel 1528.5 MHz				
	25 RB/0 Offset	1	-36.5	-30.9	Pass
	25 RB/0 Offset	2	-42.0	-30.9	Pass
	25 RB/0 Offset	3	-41.5	-30.9	Pass
	High Channel 1533.5 MHz				
	25 RB/0 Offset	1	-33.9	-30.9	Pass
	25 RB/0 Offset	2	-39.7	-30.9	Pass
	25 RB/0 Offset	3	-40.8	-30.9	Pass
	16-QAM Modulation				
	Low Channel 1528.5 MHz				
	25 RB/0 Offset	1	-36.4	-30.9	Pass
	25 RB/0 Offset	2	-42.0	-30.9	Pass
	25 RB/0 Offset	3	-41.5	-30.9	Pass
	High Channel 1533.5 MHz				
	25 RB/0 Offset	1	-34.7	-30.9	Pass
	25 RB/0 Offset	2	-39.7	-30.9	Pass
	25 RB/0 Offset	3	-40.7	-30.9	Pass
	64-QAM Modulation				
	Low Channel 1528.5 MHz				
	25 RB/0 Offset	1	-36.8	-30.9	Pass
	25 RB/0 Offset	2	-42.0	-30.9	Pass
	25 RB/0 Offset	3	-41.5	-30.9	Pass
	High Channel 1533.5 MHz				
	25 RB/0 Offset	1	-34.5	-30.9	Pass
	25 RB/0 Offset	2	-39.8	-30.9	Pass
	25 RB/0 Offset	3	-40.7	-30.9	Pass
	256-QAM Modulation				
	Low Channel 1528.5 MHz				
	25 RB/0 Offset	1	-36.8	-30.9	Pass
	25 RB/0 Offset	2	-42.0	-30.9	Pass
		0	-41.5	-30.9	Pass
	25 RB/0 Offset	3			
		3			
	25 RB/0 Offset	3	-34.3	-30.9	Pass
	25 RB/0 Offset High Channel 1533.5 MHz				Pass Pass





Frequency		Max Value	Limit	
 Range		(dBm)	(dBm)	Result
2		-42.00	-30.9	Pass

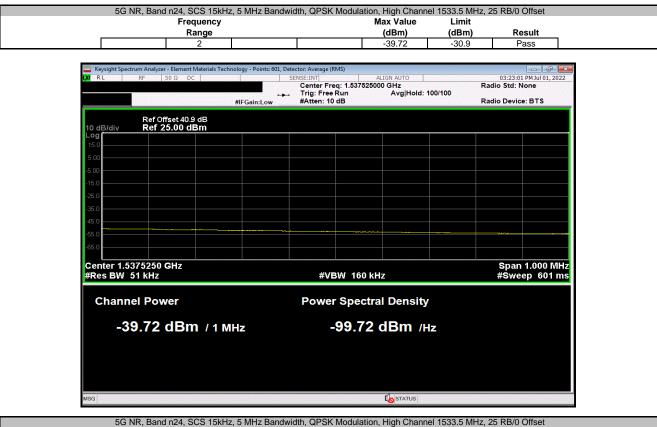
	nent Materials Technology - Points: 601, De			
RL RF 50 Ω	DC	SENSE:INT Center Freq: 1.524475	ALIGN AUTO	02:56:02 PM Jul 01, 202 Radio Std: None
	₩IFGain:Low	(Charles) - and a been and the solid provided in the state of the stat	Avg Hold: 100/100	Radio Device: BTS
Ref Offset dB/div Ref 10.90				
9				
10				
.1				
1				
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.1				
1				
.1				
enter 1.5244750 GHz				Span 1.000 MH
tes BW 51 kHz		#VBW 160 k	Hz	#Śweep 601 m
Channel Power		Power Spect	al Density	
-42.00 dE	3m / 1 MHz	-102.0		
			STATUS	



	Frequency Range	Iz, 5 MHz Bandwidth, QPSK Modul	Max Value (dBm)	Limit (dBm)	Result
	3		-41.53	-30.9	Pass
Wassight Coastaum	Analyzer - Element Materials Tecl	han han i			
Keysight spectrum		SENSE:INT	ALIGN AUTO Avg Type:	OMS	02:58:09 PM Jul 01, 2022 TRACE 1 2 3 4 5 (
		PNO: Fast +++ Trig: Free Run IFGain:Low Atten: 10 dB	Avg Hold: 1	00/100	TYPE A WWWW DET A NNNN
10 dB/div Re	f Offset 40.9 dB f 40.90 dBm			M	r1 1.523 98 GHz -41.533 dBm
Log					
30.9					
20.9					
10.9					
0.900					
-9.10					
-19.1					
×10.1					
-29.1					DL1 -30.90 dBm
-39.1					1
-49.1					
Start 1.50400		#\/B\A(2.0 MH-*		#Swoor	Stop 1.523975 GHz
		#VBW 3.0 MHz*	STATUS	#Sweep	Stop 1.523975 GHz 601.0 ms (601 pts)
#Res BW 1.0 ^{MSG}	MHz			-	o 601.0 ms (601 pts)
#Res BW 1.0 ^{MSG}	MIHz , Band n24, SCS 15kH Frequency	#VBW 3.0 MHz*	ation, High Channe Max Value	el 1533.5 MHz Limit	, 25 RB/0 Offset
#Res BW 1.0	MHz , Band n24, SCS 15kH		ation, High Channe	el 1533.5 MHz	o 601.0 ms (601 pts)
#Res BW 1.0 MSG 5G NR,	MHz , Band n24, SCS 15kH Frequency Range 1	Iz, 5 MHz Bandwidth, QPSK Modul	ation, High Channe Max Value (dBm)	el 1533.5 MHz Limit (dBm)	, 25 RB/0 Offset Result Pass
#Res BW 1.0 MSG 5G NR,	MHz , Band n24, SCS 15kH Frequency Range 1 Analyzer - Element Materials Tecl	Iz, 5 MHz Bandwidth, QPSK Modul hnology - Points: 601, Detector: Average (RMS)	ation, High Channe Max Value (dBm) -33.88	el 1533.5 MHz Limit (dBm) -30.9	, 25 RB/0 Offset Result Pass 03:21:08 PM Jul 01, 2022
#Res BW 1.0	MHz , Band n24, SCS 15kH Frequency Range 1 Analyzer - Element Materials Tecl	Iz, 5 MHz Bandwidth, QPSK Moduli hnology - Points 601, Detector Average (RMS) SENSE:INT Center Freq: 1.536 →	ation, High Channe Max Value (dBm) -33.88	el 1533.5 MHz Limit (dBm) -30.9	0 601.0 ms (601 pts) , 25 RB/0 Offset Result Pass 03:21:08 PM Jul 01, 2022 Radio Std: None
#Res BW 1.0 MSG 5G NR, Keysight Spectrum () RL RJ	MHz Band n24, SCS 15kH Frequency Range 1 Analyzer - Element Materials Tecl F 50 Ω DC	Iz, 5 MHz Bandwidth, QPSK Modul hnology - Points: 601, Detector: Average (RMS) SENSE: INT Center Freq: 1.536	ation, High Channe Max Value (dBm) -33.88	el 1533.5 MHz Limit (dBm) -30.9	, 25 RB/0 Offset Result Pass 03:21:08 PM Jul 01, 2022
#Res BW 1.0	MHz , Band n24, SCS 15kH Frequency Range 1 Analyzer - Element Materials Tecl	Iz, 5 MHz Bandwidth, QPSK Moduli hnology - Points 601, Detector Average (RMS) SENSE:INT Center Freq: 1.536 →	ation, High Channe Max Value (dBm) -33.88	el 1533.5 MHz Limit (dBm) -30.9	0 601.0 ms (601 pts) , 25 RB/0 Offset Result Pass 03:21:08 PM Jul 01, 2022 Radio Std: None
#Res BW 1.0 MSG 5G NR, 5G NR, (M RL R/ 10 dB/div Log 1900	MHz Band n24, SCS 15kH Frequency Range 1 Analyzer - Element Materials Tecl F 50 Ω DC	Iz, 5 MHz Bandwidth, QPSK Moduli hnology - Points 601, Detector Average (RMS) SENSE:INT Center Freq: 1.536 →	ation, High Channe Max Value (dBm) -33.88	el 1533.5 MHz Limit (dBm) -30.9	0 601.0 ms (601 pts) , 25 RB/0 Offset Result Pass 03:21:08 PM Jul 01, 2022 Radio Std: None
#Res BW 1.0 MSG 5G NR, Keysight Spectrum ()// RL R/ 10 dB/div Log	MHz Band n24, SCS 15kH Frequency Range 1 Analyzer - Element Materials Tecl F 50 Ω DC	Iz, 5 MHz Bandwidth, QPSK Moduli hnology - Points 601, Detector Average (RMS) SENSE:INT Center Freq: 1.536 →	ation, High Channe Max Value (dBm) -33.88	el 1533.5 MHz Limit (dBm) -30.9	0 601.0 ms (601 pts) , 25 RB/0 Offset Result Pass 03:21:08 PM Jul 01, 2022 Radio Std: None
#Res BW 1.0 1 MSG 5G NR, 5G NR, Keysight Spectrum (X) RL RJ 10 dB/djv Log	MHz Band n24, SCS 15kH Frequency Range 1 Analyzer - Element Materials Tecl F 50 Ω DC	Iz, 5 MHz Bandwidth, QPSK Moduli hnology - Points 601, Detector Average (RMS) SENSE:INT Center Freq: 1.536 →	ation, High Channe Max Value (dBm) -33.88	el 1533.5 MHz Limit (dBm) -30.9	0 601.0 ms (601 pts) , 25 RB/0 Offset Result Pass 03:21:08 PM Jul 01, 2022 Radio Std: None
#Res BW 1.0 1 MSG 5G NR, 5G NR, 10 dB/div Log	MHz Band n24, SCS 15kH Frequency Range 1 Analyzer - Element Materials Tecl F 50 Ω DC	Iz, 5 MHz Bandwidth, QPSK Moduli hnology - Points 601, Detector Average (RMS) SENSE:INT Center Freq: 1.536 →	ation, High Channe Max Value (dBm) -33.88	el 1533.5 MHz Limit (dBm) -30.9	0 601.0 ms (601 pts) , 25 RB/0 Offset Result Pass 03:21:08 PM Jul 01, 2022 Radio Std: None
#Res BW 1.0 1 MSG 5G NR, 5G NR, Keysight Spectrum (X) RL RJ 10 dB/djv Log	MHz Band n24, SCS 15kH Frequency Range 1 Analyzer - Element Materials Tecl F 50 Ω DC	Iz, 5 MHz Bandwidth, QPSK Moduli hnology - Points 601, Detector Average (RMS) SENSE:INT Center Freq: 1.536 →	ation, High Channe Max Value (dBm) -33.88	el 1533.5 MHz Limit (dBm) -30.9	0 601.0 ms (601 pts) , 25 RB/0 Offset Result Pass 03:21:08 PM Jul 01, 2022 Radio Std: None
#Res BW 1.0 MSG 5G NR, Comparison Comparison MSG SG NR, Comparison Comparison MSG SG NR, Comparison Comparison Comparison Comparison Solution	MHz Band n24, SCS 15kH Frequency Range 1 Analyzer - Element Materials Tecl F 50 Ω DC	Iz, 5 MHz Bandwidth, QPSK Moduli hnology - Points 601, Detector Average (RMS) SENSE:INT Center Freq: 1.536	ation, High Channe Max Value (dBm) -33.88	el 1533.5 MHz Limit (dBm) -30.9	0 601.0 ms (601 pts) , 25 RB/0 Offset Result Pass 03:21:08 PM Jul 01, 2022 Radio Std: None
#Res BW 1.0 MSG 5G NR, SG NR, IO dB/div Log 10 dB/div 29:00 -9:10 -19:1 -29:1 -39:1 -49:1 -59:1 -79:1	MHz Band n24, SCS 15kH Frequency Range 1 Analyzer - Element Materials Tecl F 50 Ω DC Ref Offset 40.9 dB Ref 10.90 dBm	Iz, 5 MHz Bandwidth, QPSK Moduli hnology - Points 601, Detector Average (RMS) SENSE:INT Center Freq: 1.536	ation, High Channe Max Value (dBm) -33.88	el 1533.5 MHz Limit (dBm) -30.9	, 25 RB/0 Offset Result Pass 03:21:06 PMJul 01, 2022 Radio Device: BTS
#Res BW 1.0 Msg 5G NR, SG NR, Wsg Keysight Spectrum X RL N 10 dB/div 0.900 9.900 9.10 1.91 -29.1 -39.1 -69.1	MHz Band n24, SCS 15kH Frequency Range 1 Analyzer - Element Materials Tecl F S0 Ω DC Ref Offset 40.9 dB Ref 10.90 dBm 5250 GHz	Iz, 5 MHz Bandwidth, QPSK Moduli hnology - Points 601, Detector Average (RMS) SENSE:INT Center Freq: 1.536	ation, High Channe Max Value (dBm) -33.88	el 1533.5 MHz Limit (dBm) -30.9	0 601.0 ms (601 pts) , 25 RB/0 Offset Result Pass 03:21:08 PM Jul 01, 2022 Radio Std: None
#Res BW 1.0 1 MISG 5G NR, 5G NR, 10 dB/div 0 dB/div 0 dB/div 0 dB/div 10 dB/	MHz Band n24, SCS 15kH Frequency Range 1 Analyzer - Element Materials Tecl F 50 Ω DC Ref Offrset 40.9 dB Ref 10.90 dBm 52550 GHz KHz	Iz, 5 MHz Bandwidth, QPSK Modul hnology - Points: 601, Detector: Average (RMS) SENSE:INT Free Run #IFGain:Low #Atten: 10 dB #Atten: 10 dB #VBW 16	ation, High Channe Max Value (dBm) -33.88	el 1533.5 MHz Limit (dBm) -30.9	, 25 RB/0 Offset Result Pass 03:21:08 PM Jul 01, 2022 Radio Device: BTS Span 1.000 MHz

STATUS

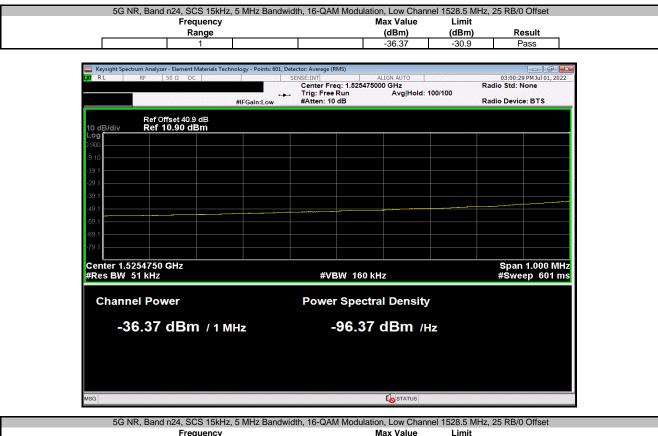




	,	Frequency	,	,	Max Value	Limit	
_		Range			(dBm)	(dBm)	Result
ſ		3			-40.77	-30.9	Pass

RL	RF 50 Ω DC	echnology	ENSE:INT	ALIGN AUTO	03:24:46 PM Jul 01, 2022
		PNO: Fast +++ IFGain:Low	Trig: Free Run Atten: 10 dB	Avg Type: RMS Avg Hold: 100/100	TRACE 1 2 3 4 5 TYPE A WWW DET A NNNN
) dB/div	Ref Offset 40.9 dB Ref 40.90 dBm				Mkr1 1.538 03 GH -40.774 dBr
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).9					
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10					
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1					DL1-30.90 d
.1					
9.1					
	8025 GHz 1.0 MHz	#VB)	V 3.0 MHz*	#\$	Stop 1.558000 GF weep 601.0 ms (601 pt
	The Mill2	#909			weep oo no ma (oo i pi





Frequency		Max Value	Limit	
 Range		(dBm)	(dBm)	Result
2		-41.97	-30.9	Pass

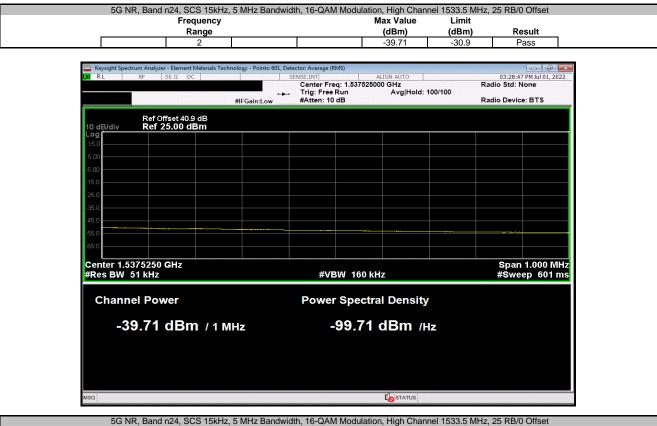
		als Technology - Points: 601, Det			
RL	RF 50 Ω DC	S	ENSE:INT	ALIGN AUTO	03:03:10 PM Jul 01, 202
		++- #IFGain:Low	Center Freq: 1.524475 Trig: Free Run #Atten: 10 dB	000 GHz Avg Hold: 100/100	Radio Std: None Radio Device: BTS
dB/div	Ref Offset 40.9 dB Ref 10.90 dBm				
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nter 1.52 es BW 5	244750 GHz 51 kHz		#VBW 160 k	:Hz	Span 1.000 M⊦ #Sweep 601 m
Channe	el Power		Power Spect	al Density	
-41.97 dBm / 1 мнz			-102.0		
				I STATUS	



1 3 41.48 -30.9 Pass 1 1 1 41.48 -30.9 Pass 1 1 1 20.4 00.4 00.4 00.4 00.4 1		Frequency	MHz Bandwidth, 16-QAN	Max Value	e Limit	
Projekt Spectrum Analyzer Binnent Materials Technology Example 1 Autom Value Autom Valu		Range 3		(dBm) -41.48	(dBm) -30.9	Result Pass
ALL av bit	•					
Pice Faith With Mater. 10 all Ang Type: RMS Angledic: 100100 Mith 1:523.944 0 gB/dvl Ref 40.90 dBm Mith 1:523.944 41.479 c 0 gB/dvl Ref 40.90 dBm Mith 1:523.944 41.479 c 0 gB/dvl Ref 40.90 dBm Mith 1:523.944 41.479 c 0 gB/dvl Ref 40.90 dBm Mith 1:523.944 41.479 c 0 gB/dvl Ref 40.90 dBm GB/dvl GB/dvl GB/dvl 0 gB/dvl Ref 40.90 dBm GB/dvl GB/dvl GB/dvl GB/dvl 0 gB/dvl GB/dvl GB/dvl GB/dvl GB/dvl GB/dvl GB/dvl 0 gB/dvl						
MkT 11.523 94.4 0 <t< td=""><td></td><td>50.52 DC</td><td></td><td>Avg T</td><td>vpe: RMS</td><td>TRACE 1 2 3 4</td></t<>		50.52 DC		Avg T	vpe: RMS	TRACE 1 2 3 4
Mkr1 1,523 94, 4, 41,479 c 0 gB/dt Ref 0ffset 40.9 dB 0 gB/dt Ref 0ffset 40.9 dB <td></td> <td></td> <td></td> <td>Run Avg Ho dB</td> <td>old: 100/100</td> <td></td>				Run Avg Ho dB	old: 100/100	
0 GR/dtv Ref 40.90 d/Bm 41.479 c 0 GR/dtv Ref 40.90 d/Bm 41.479 c <td>D-606</td> <td></td> <td></td> <td></td> <td>N</td> <td>lkr1 1.523 94 GH</td>	D-606				N	lkr1 1.523 94 GH
33	B/div Ref 40	0.90 dBm				-41.479 dBi
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200 200 200 200 200 200 200 200	5					
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301 Image: Stop 1.523975 Start 1.504000 GHz #VBW 3.0 MHz* Res BW 1.0 MHz #VBW 3.0 MHz* Start 1.504000 GHz Wax Value Limit GBm) (dBm) Range (dBm) (dBm) Range (dBm) (dBm) Range (dBm) (dBm) Range (dBm) (dBm) (dBm) Range (dBm) (dBm) (dBm) (dBm) Range (dBm) (dBm) (dBm) (dBm) (dBm) Ratio Std: None Trig: Free Run Auton Auton (dSdt) Ratio Device: BTS Ref Offset 40.9 dB Mathematical and						
301 Image: Stop 1.523975 Start 1.504000 GHz #VBW 3.0 MHz* Res BW 1.0 MHz #VBW 3.0 MHz* Start 1.504000 GHz Wax Value Limit GBm) (dBm) Range (dBm) (dBm) Range (dBm) (dBm) Range (dBm) (dBm) Range (dBm) (dBm) (dBm) Range (dBm) (dBm) (dBm) (dBm) Range (dBm) (dBm) (dBm) (dBm) (dBm) Ratio Std: None Trig: Free Run Auton Auton (dSdt) Ratio Device: BTS Ref Offset 40.9 dB Mathematical and						
start 1.504000 GHz res BW 1.0 MHz #VBW 3.0 MHz* Stop 1.523975 res BW 1.0 MHz #VBW 3.0 MHz* #Sweep 601.0 ms (601 SG NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 16-QAM Modulation, High Channel 1533.5 MHz, 25 RB/0 Offset Frequency Max Value Limit Range (dBm) (dBm) Result Range (dBm) (dBm) Result Result34.71 - 30.9 Pass Result34.71 - 30.9 Pass Result34.7130.9 Pass Result34.7130.	و المحد ال					
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start 1.504000 GHz Res BW 1.0 MHz #VBW 3.0 MHz* Stop 1.523975 Res BW 1.0 MHz #VBW 3.0 MHz* Stop 601.0 ms (601 SG NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 16-QAM Modulation, High Channel 1533.5 MHz, 25 RB/0 Offset Frequency Range (dBm) (dBm) Result (dBm) (dBm) Result 1 -34.71 -30.9 Pass Reysight Spectrum Analyzer - Bement Materials Technology - Points 60, Detector Average (RMS) RL RF 50 Q OC SENSE:INT ALIGN AUTO R03:26:58 FM/J/01 Redio Std: None FF GaintLow Freq: 1.53652000 GHz Radio Std: None Ref Offset 40.9 dB Ref Offset 40.9 dB Center 1.5365250 GHz Span Low						
Start 1.504000 GHz Stop 1.523975 Res BW 1.0 MHz #VBW 3.0 MHz* #Sweep 601.0 ms (601 SG Stop 1.523975 SG Stop 1.52305						
Res BW 1.0 MHz #VBW 3.0 MHz* #Sweep 601.0 ms (601 sq Image Image Image 5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 16-QAM Modulation, High Channel 1533.5 MHz, 25 RB/0 Offset Result Range (dBm) (dBm) Result 1 -34.71 -30.9 Pass Keysight Spectrum Analyzer - Element Materials Technology - Points: 601, Detector: Average (RMS) Image 03:26:58 PMJ/01 RL RF 50 Q DC SEMSE:INT ALIGN AUTO 03:26:58 PMJ/01 Rdio DC SEMSE:INT Freq: 1.53655000 GHz Radio Device: BTS Radio Device: BTS 0 GG/div Ref Offset 40.9 dB Image Image Image Image 0 GG/div Ref Offset 40.9 dB Image Image Image Image Image Image 0 Image Im						
Res BW 1.0 MHz #VBW 3.0 MHz* #Sweep 601.0 ms (601 sq Image Image Image 5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 16-QAM Modulation, High Channel 1533.5 MHz, 25 RB/0 Offset Result Range (dBm) (dBm) Result 1 -34.71 -30.9 Pass Keysight Spectrum Analyzer - Element Materials Technology - Points: 601, Detector: Average (RMS) Image 03:26:58 PMJ/01 RL RF 50 Q DC SEMSE:INT ALIGN AUTO 03:26:58 PMJ/01 Rdio DC SEMSE:INT Freq: 1.53655000 GHz Radio Device: BTS Radio Device: BTS 0 GG/div Ref Offset 40.9 dB Image Image Image Image 0 GG/div Ref Offset 40.9 dB Image Image Image Image Image Image 0 Image Im						
SG NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 16-QAM Modulation, High Channel 1533.5 MHz, 25 RB/0 Offset Frequency Max Value Limit Range (dBm) (dBm) (dBm) Result Augn Auton Center Freq: 1.53852500 GHz Radio Std: None Radio Device: BTS Ref Offset 40.9 dB Ref 10.90 dBm Set 10.90						Stop 1.523975 GH
SG NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 16-QAM Modulation, High Channel 1533.5 MHz, 25 RB/0 Offset Frequency Range (dBm) (dBm) Result Imit -34.71 -30.9 Pass Ref 50 Q DC SENSE:IMT ALIGN AUTO 03:26:58 PMJul 01 Imit Center Freq: 1.536525000 GHz Radio Std: None Radio Std: None Imit Imit Imit Avg Hold: 100/100 Radio Device: BTS Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit Imit <td< td=""><td>es BW 1.0 MH</td><td>z</td><td>#VBW 3.0 MHz</td><td></td><td></td><td>ep 601.0 ms (601 pt</td></td<>	es BW 1.0 MH	z	#VBW 3.0 MHz			ep 601.0 ms (601 pt
Frequency Range Max Value (dBm) Limit (dBm) Result 1 -34.71 -30.9 Pass				LO STATU	s	
Range (dBm) (dBm) Result 1 -34.71 -30.9 Pass keysight Spectrum Analyzer - Element Materials Technology - Points: 601, Detector: Average (RMS) 03:26:58 PM Jul 01 RL RF 50 Ω DC SENSE: INT ALIGN AUTO 03:26:58 PM Jul 01 #IF Gain:Low #IFGain:Low #Atten: 10 dB Radio Std: None Radio Device: BTS Ref Offset 40.9 dB Ref 10.90 dBm Image: Context Freq: 1.53652500 GHz Radio Device: BTS 0 dB/div Ref 10.90 dBm Image: Context Freq: Imag	5G NR, Ban	nd n24, SCS 15kHz, 5 I	MHz Bandwidth, 16-QAM	1 Modulation, High C	hannel 1533.5 M	Hz, 25 RB/0 Offset
1 -34.71 -30.9 Pass keysight Spectrum Analyzer - Element Materials Technology - Points: 601, Detector: Average (RMS) Image: Center Freq: 1.536525000 GHz Radio Stc: None RL RF 50 Ω DC SENSE:INT ALIGN AUTO 03:26:58 PMJal 01 Center Freq: 1.536525000 GHz Radio Stc: None Radio Stc: None Radio Device: BTS 0 dB/div Ref 10.90 dBm Image: Center Freq: 1.53652500 GHz Radio Device: BTS 900 Image: Center Freq: 1.53652500 GHz Image: Center Freq: 1.53652500 GHz Radio Device: BTS 910 Image: Center Freq: 1.53652500 GHz						
Keysight Spectrum Analyzer - Element Materials Technology - Points: 601, Detector: Average (RMS) 03:26:38 PMJuli0 RL RF 50 Ω DC SENSE:INT ALIGN AUTO 03:26:38 PMJuli0 Center Freq: 1.538525000 GHz Radio Std: None Radio Std: None #IFGain:Low #Atten: 10 dB Avg Hold: 100/100 Radio Device: BTS Od D/div Ref Offset 40.9 dB 03:26:38 PMJuli0 03:26:38 PMJuli0 01 #IFGain:Low #Atten: 10 dB Radio Device: BTS 03/0 0 0 0 0 04 04 04 04 04 03/0 0 0 0 0 0 04 0 0 0 0 0 0 03/0 0 0 0 0 0 0 0 04 0						
RL RF 50 Ω DC SENSE:INT ALION AUTO 03:26:58 PM Jul 01 Center Freq: 1.53652500 GHz Radio Std: None #Atten: 10 dB Avg Hold: 100/100 Radio Device: BTS 0dB/div Ref Offset 40.9 dB Ref 10.90 dBm Image: Sense: Sense: Image: Image: Sense: Image: Image:				54.71	50.5	1 435
Center 1.53652500 GHz Radio Std: None Avg Hold: 100/100 #FGain:Low #Atten: 10 dB Ref Offset 40.9 dB Ref 10.90 dBm	eysight Spectrum Analy					
Ref Offset 40.9 dB Avg Hold: 100/100 Radio Device: BTS 0 dB/div Ref Offset 40.9 dB Image: Control of the set of		50 Ω DC				
Ref Offset 40.9 dB O dE/div Ref 10.90 dBm • 00 • 01 • 01 • 01 • 01 • 01 • 01 • 01 • 01 • 02 • 01 • 01 • 01 • 01 • 01 • 02 • 01	RL RF					
O dB/div Ref 10.90 dBm 900 </td <td>R L RF</td> <td>#1</td> <td></td> <td></td> <td>old: 100/100</td> <td>Radio Device: BTS</td>	R L RF	#1			old: 100/100	Radio Device: BTS
					old: 100/100	Radio Device: BTS
9.10	Ref dB/div Ref	f Offset 40.9 dB			old: 100/100	Radio Device: BTS
19.1 1 1 1 1 19.2 1 1 1 1 19.1 1 1 1 <t< td=""><td>dB/div Ref</td><td>f Offset 40.9 dB</td><td></td><td></td><td>əld: 100/100</td><td>Radio Device: BTS</td></t<>	dB/div Ref	f Offset 40.9 dB			əld: 100/100	Radio Device: BTS
291	dB/div Ref	f Offset 40.9 dB			əld: 100/100	Radio Device: BTS
49.1	Ref dB/div Ref	f Offset 40.9 dB			əld: 100/100	Radio Device: BTS
49.1	Ref dB/div Ref	f Offset 40.9 dB			ld: 100/100	Radio Device: BTS
59.1 59.1 79.1 59.1 Center 1,5365250 GHz Span 1.000	Ref dB/div Ref	f Offset 40.9 dB			Jd: 100/100	Radio Device: BTS
79.1 Span 1.000	Błdiv Ref	f Offset 40.9 dB			Jd: 100/100	Radio Device: BTS
Center 1.5365250 GHz Span 1.000	dB/div Ref	f Offset 40.9 dB			Jd: 100/100	Radio Device: BTS
Center 1.5365250 GHz Span 1.000 PRes BW 51 kHz #VBW 160 kHz #Sweep 60	dB/div Ref	f Offset 40.9 dB			Id: 100/100	Radio Device: BTS
Res BW 51 kHz #VBW 160 kHz #Sweep 60	dB/div Ref	f Offset 40.9 dB			Id: 100/100	Radio Device: BTS
	Bi/div Ref	f Offset 40.9 dB f 10.90 dBm				
	dB/div Ref	f 0ffset 40.9 dB f 10.90 dBm	FGain:Low #Atten: 10	dB		Radio Device: BTS
Channel Power Power Spectral Density	Ref dB/div Ref	f 0ffset 40.9 dB f 10.90 dBm	FGain:Low #Atten: 10	aB		Span 1.000 MH

STATUS

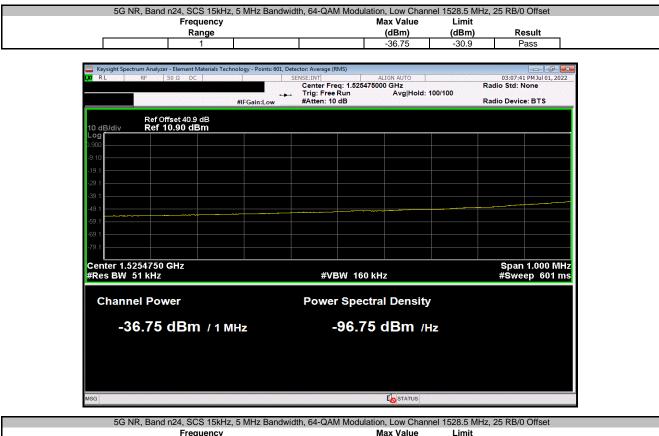




5G NR, Band i	n24, SCS 15kHz,	5 MHz Bandwidt	n, 16-QAM Modu	lation, High Chan	nel 1533.5 MHz,	25 RB/0 Offset
	Frequency			Max Value	Limit	
	Range			(dBm)	(dBm)	Result
	3			-40.72	-30.9	Pass

RL RF 50 Ω DC	S	ENSE:INT	ALIGN AUTO	03:30:32 PM Jul 0	1,2022
	PNO: Fast ↔→ IFGain:Low	Trig: Free Run Atten: 10 dB	Avg Type: RMS Avg Hold: 100/100	TRACE TYPE A DET A	2 3 4 5
Ref Offset 40.9 dB 0 dB/div Ref 40.90 dBm				Mkr1 1.538 03 -40.720	GH dBr
30.9					
0.9					
00					
10					
9.1					
.1					30.90 d
.1					
9.1					
art 1.538025 GHz				Stop 1.55800	0 GH
Res BW 1.0 MHz	#VBV	V 3.0 MHz*	#	Sweep 601.0 ms (60	1 pt





	Frequency		Max Value	Limit	
	Range		(dBm)	(dBm)	Result
	2		-42.00	-30.9	Pass

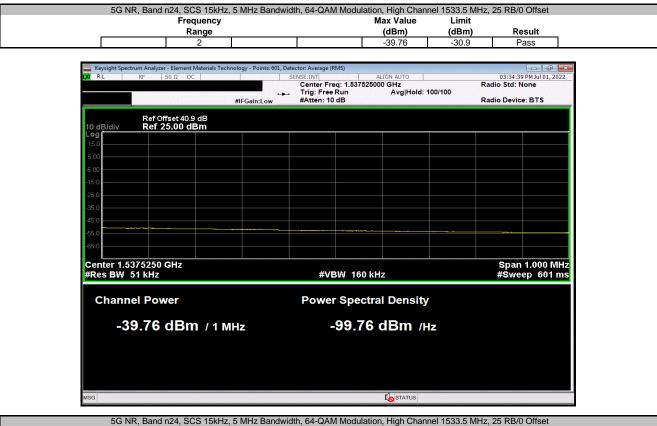
	ement Materials Technology - Points: 601, D			
RL RF 50 Ω	2 DC	SENSE:INT	ALIGN AUTO	03:09:49 PM Jul 01, 202
	↔ #IFGain:Low	Center Freq: 1.524475 → Trig: Free Run #Atten: 10 dB	000 GHz Avg Hold: 100/100	Radio Std: None Radio Device: BTS
Ref Offset dB/div Ref 10.9				
9				
-				
1				
1				
1				
1				
1				
1				
1				
enter 1.5244750 GH	Z	#3/D3M 4601		Span 1.000 MH
es BW/51 kHz		#VBW 160 k	#Śweep 601 n	
Channel Power	r	Power Spect	ral Density	
40.00 -11	D	400.0		
-42.00 al	Bm / 1 MHz	-102.0	dBm /Hz	
			STATUS	



		quency				Max Value	Limit	z, 25 RB/0 Offset
	R	ange 3			1	(dBm) -41.53	(dBm) -30.9	Result Pass
1	I	J		1	I	-+1.00	-30.9	1 055
Keysight Spectrum			ogy					
(XI RL RF	F 50 Ω D0	C		SENSE:INT		ALIGN AUTO Avg Type:	RMS	03:11:32 PM Jul 01, 2022 TRACE 1 2 3 4 5
			PNO: Fast ↔ FGain:Low	Trig: Free Atten: 10 d	Run dB	Avg Hold:	100/100	TYPE A WWWW DET A N N N N
Ref	f Offset 40.9 dl	в					M	kr1 1.523 98 GH
10 dB/div Rel	f 40.90 dBn	n		,				-41.525 dBn
30.9								
20.9								
10.9								
0.900								
-9.10								
3.10								
-19.1								
-29.1								DI 1 - 30 - 20 - 18
-39.1								
-49.1								
Start 1.504000							,,	Stop 1.523975 GH
#Res BW 1.0 I	WIHZ		#V	BW 3.0 MHz	•	STATUS	#Swee	o 601.0 ms (601 pts
MSG						SIAIUS		
MSG								
			MHz Bandv	vidth, 64-QAN	1 Modula			Iz, 25 RB/0 Offset
	Free	quency	MHz Bandv	vidth, 64-QAN	1 Modula	tion, High Char Max Value (dBm)	nel 1533.5 M⊢ Limit (dBm)	Iz, 25 RB/0 Offset Result
	Free		MHz Bandv	vidth, 64-QAM	1 Modula	Max Value	Limit	
5G NR, E	Free R	quency ange 1				Max Value (dBm)	Limit (dBm)	Result Pass
5G NR, E	Free R Analyzer - Element	quency ange 1 Materials Technolo		Detector: Average (R SENSE:INT	MS)	Max Value (dBm) -34.46	Limit (dBm) -30.9	Result Pass 03:32:56 PM Jul 01, 2022
5G NR, E	Free R Analyzer - Element	quency ange 1 Materials Technolo	ogy - Points: 601,	Detector: Average (R SENSE:INT Center Fre Trig: Free	MS) q: 1.53652 Run	Max Value (dBm) -34.46	Limit (dBm) -30.9	Result Pass 03:32:56 PM Jul 01, 2022 Radio Std: None
5G NR, E	Free R Analyzer - Element F 50 Ω D(quency ange 1 Materials Technolo C #		Detector: Average (R SENSE:INT Center Fre	MS) q: 1.53652 Run	Max Value (dBm) -34.46	Limit (dBm) -30.9	Result Pass 03:32:56 PM Jul 01, 2022
5G NR, E	Free R Analyzer - Element	quency ange 1 Materials Technolic #	ogy - Points: 601,	Detector: Average (R SENSE:INT Center Fre Trig: Free	MS) q: 1.53652 Run	Max Value (dBm) -34.46	Limit (dBm) -30.9	Result Pass 03:32:56 PM Jul 01, 2022 Radio Std: None
5G NR, E	Free R Analyzer - Element F 50 Ω D0 Ref Offset 40.9	quency ange 1 Materials Technolic #	ogy - Points: 601,	Detector: Average (R SENSE:INT Center Fre Trig: Free	MS) q: 1.53652 Run	Max Value (dBm) -34.46	Limit (dBm) -30.9	Result Pass 03:32:56 PM Jul 01, 2022 Radio Std: None
5G NR, E	Free R Analyzer - Element F 50 Ω D0 Ref Offset 40.9	quency ange 1 Materials Technolic #	ogy - Points: 601,	Detector: Average (R SENSE:INT Center Fre Trig: Free	MS) q: 1.53652 Run	Max Value (dBm) -34.46	Limit (dBm) -30.9	Result Pass 03:32:56 PM Jul 01, 2022 Radio Std: None
5G NR, E	Free R Analyzer - Element F 50 Ω D0 Ref Offset 40.9	quency ange 1 Materials Technolic #	ogy - Points: 601,	Detector: Average (R SENSE:INT Center Fre Trig: Free	MS) q: 1.53652 Run	Max Value (dBm) -34.46	Limit (dBm) -30.9	Result Pass 03:32:56 PM Jul 01, 2022 Radio Std: None
5G NR, E	Free R Analyzer - Element F 50 Ω D0 Ref Offset 40.9	quency ange 1 Materials Technolic #	ogy - Points: 601,	Detector: Average (R SENSE:INT Center Fre Trig: Free	MS) q: 1.53652 Run	Max Value (dBm) -34.46	Limit (dBm) -30.9	Result Pass 03:32:56 PM Jul 01, 2022 Radio Std: None
5G NR, E	Free R Analyzer - Element F 50 Ω D0 Ref Offset 40.9	quency ange 1 Materials Technolic #	ogy - Points: 601,	Detector: Average (R SENSE:INT Center Fre Trig: Free	MS) q: 1.53652 Run	Max Value (dBm) -34.46	Limit (dBm) -30.9	Result Pass 03:32:56 PM Jul 01, 2022 Radio Std: None
5G NR, E	Free R Analyzer - Element F 50 Ω D0 Ref Offset 40.9	quency ange 1 Materials Technolic #	ogy - Points: 601,	Detector: Average (R SENSE:INT Center Fre Trig: Free	MS) q: 1.53652 Run	Max Value (dBm) -34.46	Limit (dBm) -30.9	Result Pass 03:32:56 PM Jul 01, 2022 Radio Std: None
5G NR, E	Free R Analyzer - Element F 50 Ω D0 Ref Offset 40.9	quency ange 1 Materials Technolic #	ogy - Points: 601,	Detector: Average (R SENSE:INT Center Fre Trig: Free	MS) q: 1.53652 Run	Max Value (dBm) -34.46	Limit (dBm) -30.9	Result Pass 03:32:56 PM Jul 01, 2022 Radio Std: None
SG NR, E Image: Keysight Spectrum, Im	Analyzer - Element	quency ange 1 Materials Technolic #	ogy - Points: 601,	Detector: Average (R SENSE:INT Center Fre Trig: Free	MS) q: 1.53652 Run	Max Value (dBm) -34.46	Limit (dBm) -30.9	Result Pass 03:32:56 PM Jul 01, 2022 Radio Std: None

Channel Power Power Spectral Density -34.46 dBm / 1 MHz -94.46 dBm /Hz

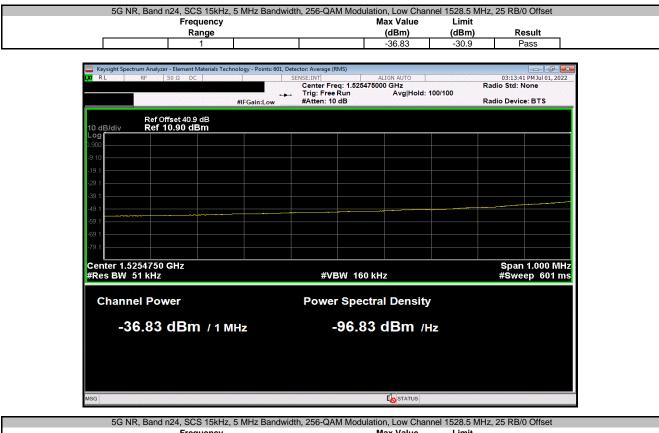




	5G NR, Band I	n24, SCS 15kHz,	5 MHz Bandwidt	n, 64-QAM Modu	lation, High Chan	nel 1533.5 MHz,	25 RB/0 Offset
		Frequency			Max Value	Limit	
		Range			(dBm)	(dBm)	Result
Γ		3			-40.71	-30.9	Pass

RL RF 50 Ω DC		ENSE:INT	ALIGN AUTO	03:36:31 PM Jul 01, 2022
	PNO: Fast +++ IFGain:Low	Trig: Free Run Atten: 10 dB	Avg Type: RMS Avg Hold: 100/100	TRACE 1 2 3 4 5 TYPE A WWW DET A NNNN
Ref Offset 40.9 dB 0 dB/div Ref 40.90 dBm				Mkr1 1.538 03 GH -40.707 dBr
		Ĭ		
.9				
).9				
.9				
10				
.1				
.1				DL1 -30.90 d
1				
0.1				
art 1.538025 GHz Res BW 1.0 MHz	#VBV	V 3.0 MHz*	#Sv	Stop 1.558000 GH veep 601.0 ms (601 pt
3			STATUS	





	Frequency	 Max Value	Limit	,
	Range	(dBm)	(dBm)	Result
	2	-42.00	-30.9	Pass

	RF 50 Ω DC	#IFGain:Low	SENSE:INT Center Freq: 1.52447 → Trig: Free Run #Atten: 10 dB	ALIGN AUTO 5000 GHz Avg Hold: 100/100	03:15:22 PM Jul 01, 202 Radio Std: None Radio Device: BTS			
dB/div	Ref Offset 40.9 dB Ref 10.90 dBm							
9								
0								
1								
1								
nter 1.5 es BW	244750 GHz 51 kHz		#VBW 160	Span 1.000 Mł #Sweep 601 n				
Chann	el Power		Power Spect	ral Density				
-42.00 dBm / 1 мнz			-102.0	D dBm /Hz				
			L STATUS					



Aggint Spectrum Analyzer - Bennett Material, Technology Control Control Control Control Control Control Con		Frequency				Value Bm)		Beault
Norged Spectrum Advance Terment Material Technology Autor with Comparison Output Spectrum Advance Technology Output Spectrum Advance Techno		Range	Γ				(dBm) -30.9	Result Pass
RL ss 50.0 DC ISSUE (International Control of the	1	Ŭ		1			00.0	1 400
PNC: Fast If GaminLow Trig: Free Run Atter: 10 db Avg Type: FMS AvgIHdd: 100100 Trice: Existing AvgIHdd: 100100 Ref 40.90 dBm Mkr1 1,523 87 GHz -41.501 dBm Mkr1 1,523 87 GHz -41.501 dBm 0 Image: Comparison of the second of th				CENCE-INT	ALIGN			
Ref Offset 40.9 dBm Mkr1 1.523 97 GHz 41.501 dBm 41.501 dBm 41.501 dBm 45.501 dBm 41.501 dBm 45.501 dBm 41.501 dBm 45.501 dBm 41.501 dBm 45.501 dBm 42.501 dBm 45.501 dBm 530 NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 256-OAM Modulatin, High Channel 1533.5 MHz, 25 RB/0 Offset		30.32 0C				Avg Type: F	MS	TRACE 1 2 3 4 5
Alt, Sol dem -41, Sol dem -4				Atten: 10 dB		Avginoid. I		
30 31<	Ref 10 dB/div Ref	Offset 40.9 dB * 40.90 dBm					Mkr	
and a second sec	Log			Ť				
and a second sec	30.9							
and a second sec	20.9							
and a								
10 1 1 1 1 10 1 1 1 1 1 10 1<	10.9							
start 1.504000 GH2 tart 1.50400	0.900							
start 1.504000 GH2 tart 1.50400	-9.10							
a1 a1 a1 a1 a1 a34.32 a30.9 Pass a2 a2 a30.9 Pass a2 a2 a30.9 Pass a3 a2 a30.9 Pass a2 a2 a2 a30.9 Pass a3 a2 a30.9 Pass a30.9 Pass a4 a4 a4								
start 1.504000 GHz Res BW 1.0 MHz tart 1.504000 GHz Res BW 1.0 MHz #VBW 3.0 MHz* #VBW 3.0 MHz* #VBW 3.0 MHz* #VBW 3.0 MHz* #VBW 3.0 MHz* #VBW 3.0 MHz* #VBW 3.0 MHz* #Sweep 601.0 ms (601 pts) #Contracts Stop 1.523975 GHz #Sweep 601.0 ms (601 pts) To tracts Stop 1.523975 GHz #Sweep 601.0 ms (601 pts) To tracts Stop 1.523975 GHz #Sweep 601.0 ms (601 pts) Stop 1.523975 GHz #Sweep 601.0 ms (601 pts) To tracts Stop 1.523975 GHz #Sweep 601.0 ms (601 pts) #Contracts Radio Starts None #EfGain:Low #FGain:Low #FGain:Low #Go for first 40.9 dB Stop 1.523975 GHz Stop 1.523975	-19.1							
and a	-29.1							DL1 -30.90 dB
and a	-39.1							
Stop 1.523975 GHz #Sweep 601.0 ms (601 pts) G Stop 1.523975 GHz #Sweep 601.0 ms (601 pts) G Stop 1.523975 GHz #Sweep 601.0 ms (601 pts) G Stop 1.523975 GHz Stop 1.5223975 GHz Stop 1.52 Center Freq: 1.53652500 GHz Ref Offset 40.9 dB GE/GIV Ref 0.90 dBm GE/GIV Stop 2.52 Stop 2.52 Stop 2.52 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
Res BW 1.0 MHz #VBW 3.0 MHz* #Sweep 601.0 ms (601 pts) G Costarus 5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 256-QAM Modulation, High Channel 1533.5 MHz, 25 RB/0 Offset Frequency Max Value Limit Range (dBm) (dBm) Result 1 -34.32 -30.9 Pass RL RF 50.0 DC SENS: INT ALIGN AUTO 03:39:10 PM:Jd 01, 2022 RL RF 50.0 DC SENS: INT ALIGN AUTO 03:39:10 PM:Jd 01, 2022 Rdio Std: None #IFGain:Low #Atten: 10 dB Radio Device: BTS Rdio Device: BTS Radio Device: BTS Radio Device: BTS 01 G G G G 03 G G G G G 04 Ref Offset 40.9 dB G G G G G 03 G G G G G G G 04 G G G G G G G G 04 G G G G G <t< td=""><td>-49.1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	-49.1							
G SG NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 256-QAM Modulation, High Channel 1533.5 MHz, 25 RB/0 Offset Frequency Max Value Limit Range (dBm) (dBm) Result 1 -34.32 -30.9 Pass Keysight Spectrum Analyzer - Element Materials Technology - Points 601, Detector: Average (RMS) RE SS Q DC SENSE: INT ALIGN AUTO 03.39:10 PMJul01, 2022 Radio Std: None #IFGain:Low #IFGain:Low #Gef Offset 40.9 dB Set Offset 40.9 dB Set Offset 40.9 dB Startus Content Freq: 1.53652500 GHz Ref Offset 40.9 dB Startus Span 1.000 MHz	Start 1.504000	GHz		k			S	top 1.523975 GH
5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 256-QAM Modulation, High Channel 1533.5 MHz, 25 RB/0 Offset Frequency Max Value Limit Range (dBm) (dBm) Result 1 -34.32 -30.9 Pass Revisith Spectrum Analyzer - Element Materials Technology - Points: 601, Detector: Average (RMS) Colstain		ЛНz	#VB	W 3.0 MHz*	1		#Sweep	601.0 ms (601 pts
Frequency Max Value Limit Range (dBm) (dBm) Result 1 -34.32 -30.9 Pass Keysight Spectrum Analyzer - Element Materials Technology - Points: 601, Detector: Average (RMS) Constraints Constraints RL RF 50 Ω DC SENSE::INT ALIGN AUTO 03:39:10 PM Jul 01, 2022 RL RF 50 Ω DC SENSE::INT ALIGN AUTO 03:39:10 PM Jul 01, 2022 Radio Std: None Trig: Freq: 1.5385255000 GHz Radio Std: None Radio Device: BTS Max Value #IFGain:Low #Atten: 10 dB Radio Device: BTS Radio Device: BTS	MSG				ų	STATUS		
Range (dBm) (dBm) Result 1 -34.32 -30.9 Pass Keysight Spectrum Analyzer - Element Materials Technology - Points: 601, Detector: Average (RMS) Image: Center Freq: 1.536525000 GHz Radio Std: None RL RF 50 Q DC SENSE: INT ALIGN AUTO 03:39:10 PMJul 01, 2022 RL RF 50 Q DC SENSE: INT ALIGN AUTO 03:39:10 PMJul 01, 2022 RL RF 50 Q DC SENSE: INT ALIGN AUTO 03:39:10 PMJul 01, 2022 RL RF 50 Q DC SENSE: INT ALIGN AUTO 03:39:10 PMJul 01, 2022 RL RF 50 Q DC SENSE: INT ALIGN AUTO Radio Device: BTS Ref Offset 40.9 dB Ref 10.90 dBm Image: Ref				th 256-0AM				
1 -34.32 -30.9 Pass Keysight Spectrum Analyzer - Element Materials Technology - Points: 601, Detector: Average (RMS) 0339:10 PM Jul 01, 2022 RL RF 50 Ω C SENSE:INT ALIGN AUTO 0339:10 PM Jul 01, 2022 Ref Offset 40.9 dB Free Run Avg Hold: 100/100 Radio Device: BTS 02 Ref 0ffset 40.9 dB Genter Freq: 1.53652500 GHz Radio Device: BTS 04 Ref 10.90 dBm Genter Freq: 1.53652500 GHz Radio Device: BTS 03 Genter Freq: 1.5365250 GHz Span 1.000 MHz	5G NR, B		5 MHz Bandwid					, 25 RB/0 Offset
RL RF 50 Ω DC SENSE:INT ALION AUTO 0339:10 PMJul 01, 2022 Center Freq: 1.53662000 GHz Radio Std: None Radio Std: None Radio Device: BTS Ref Offset 40.9 dB Ref 10.90 dBm Ref 10.90 dBm Ref 10.90 dBm 010 010 010 010 010 010 010 010 010 010 010 010 010 010	5G NR, B	Frequency	5 MHz Bandwid		Max	Value	Limit	
RL RF 50 Ω SENSE:INT ALIEN AUTO 0339:10 PMJul 01, 2022 Center Freq: 1.536625000 GHz Radio Std: None Radio Std: None Radio Device: BTS Ref Offset 40.9 dB Ref 10.90 dBm Gamma Gamma Gamma Gamma 10	5G NR, B	Frequency Range	5 MHz Bandwic		Max (d	Value Bm)	Limit (dBm)	Result
Ref Offset 40.9 dB Ref Offset 40.9 dB 0 dB/div Ref Offset 40.9 dB 0 dB/div Ref 10.90 dB		Frequency Range 1			Max (d -3	Value Bm)	Limit (dBm)	Result Pass
Ref Offset 40.9 dB Od B/div Ref 10.90 dBm Og Image: Comparison of the second		Frequency Range 1 Analyzer - Element Materials Tech	nnology - Points: 601, De	etector: Average (RMS) SENSE:INT	Max (d -3	Value Bm) 4.32	Limit (dBm) -30.9	Result Pass
enter 1.5365250 GHz Span 1.000 MHz		Frequency Range 1 Analyzer - Element Materials Tech	anology - Points: 601, De	tector: Average (RMS) SENSE:INT Center Freq: Trig: Free Ru	Max (d -3 ALIGN 1.536525000 G	Value Bm) 4.32	Limit (dBm) -30.9 Ra	Result Pass 03:39:10 PMJul 01, 2022 dio Std: None
Image: Control of the second secon	Keysight Spectrum A	Frequency Range 1 Analyzer - Element Materials Tech 50 Ω DC	anology - Points: 601, De	tector: Average (RMS) SENSE:INT Center Freq: Trig: Free Ru	Max (d -3 ALIGN 1.536525000 G	Value Bm) 4.32	Limit (dBm) -30.9 Ra	Result Pass 03:39:10 PMJul 01, 2022 dio Std: None
9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1	Keysight Spectrum A XX RL RF	Frequency Range 1 Analyzer - Element Materials Tech 50 Ω DC	anology - Points: 601, De	tector: Average (RMS) SENSE:INT Center Freq: Trig: Free Ru	Max (d -3 ALIGN 1.536525000 G	Value Bm) 4.32	Limit (dBm) -30.9 Ra	Result Pass 03:39:10 PMJul 01, 2022 dio Std: None
enter 1.5365250 GHz Span 1.000 MHz	Keysight Spectrum A	Frequency Range 1 Analyzer - Element Materials Tech 50 Ω DC	anology - Points: 601, De	tector: Average (RMS) SENSE:INT Center Freq: Trig: Free Ru	Max (d -3 ALIGN 1.536525000 G	Value Bm) 4.32	Limit (dBm) -30.9 Ra	Result Pass 03:39:10 PMJul 01, 2022 dio Std: None
9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1	Keysight Spectrum A CM RL RF 10 dB/div F Log 9.00 9.10	Frequency Range 1 Analyzer - Element Materials Tech 50 Ω DC	anology - Points: 601, De	tector: Average (RMS) SENSE:INT Center Freq: Trig: Free Ru	Max (d -3 ALIGN 1.536525000 G	Value Bm) 4.32	Limit (dBm) -30.9 Ra	Result Pass 03:39:10 PMJul 01, 2022 dio Std: None
9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1 9.1	Keysight Spectrum A CM RL RF 10 dB/div F Log	Frequency Range 1 Analyzer - Element Materials Tech 50 Ω DC	anology - Points: 601, De	tector: Average (RMS) SENSE:INT Center Freq: Trig: Free Ru	Max (d -3 ALIGN 1.536525000 G	Value Bm) 4.32	Limit (dBm) -30.9 Ra	Result Pass 03:39:10 PMJul 01, 2022 dio Std: None
9.1 9.1 enter 1.5365250 GHz Span 1.000 MHz	Keysight Spectrum A RL RF 10 dB/div F 0.00 9.10 -19.1 -29.1	Frequency Range 1 Analyzer - Element Materials Tech 50 Ω DC	anology - Points: 601, De	tector: Average (RMS) SENSE:INT Center Freq: Trig: Free Ru	Max (d -3 ALIGN 1.536525000 G	Value Bm) 4.32	Limit (dBm) -30.9 Ra	Result Pass 03:39:10 PMJul 01, 2022 dio Std: None
9.1 enter 1.5365250 GHz Span 1.000 MHz	Keysight Spectrum A CM RL RF 10 dB/div F Log 9.00 9.10	Frequency Range 1 Analyzer - Element Materials Tech 50 Ω DC	anology - Points: 601, De	tector: Average (RMS) SENSE:INT Center Freq: Trig: Free Ru	Max (d -3 ALIGN 1.536525000 G	Value Bm) 4.32	Limit (dBm) -30.9 Ra	Result Pass 03:39:10 PMJul 01, 2022 dio Std: None
enter 1.5365250 GHz Span 1.000 MHz	Keysight Spectrum A RL RF 10 dB/div F 1900 9,10 -19,1 -29,1 -39,1	Frequency Range 1 Analyzer - Element Materials Tech 50 Ω DC	anology - Points: 601, De	tector: Average (RMS) SENSE:INT Center Freq: Trig: Free Ru	Max (d -3 ALIGN 1.536525000 G	Value Bm) 4.32	Limit (dBm) -30.9 Ra	Result Pass 03:39:10 PMJul 01, 2022 dio Std: None
	Keysight Spectrum A R L RF 10 dB/div F 1900 9,10 -19,1 -29,1 -39,1 -49,1	Frequency Range 1 Analyzer - Element Materials Tech 50 Ω DC	anology - Points: 601, De	tector: Average (RMS) SENSE:INT Center Freq: Trig: Free Ru	Max (d -3 ALIGN 1.536525000 G	Value Bm) 4.32	Limit (dBm) -30.9 Ra	Result Pass 03:39:10 PMJul 01, 2022 dio Std: None
	Keysight Spectrum A Keysight Spectrum A R L RF 10 dB/div F 10 dB/div -9.10 -19.1 -29.1 -39.1 -49.1 -59.1	Frequency Range 1 Analyzer - Element Materials Tech 50 Ω DC	anology - Points: 601, De	tector: Average (RMS) SENSE:INT Center Freq: Trig: Free Ru	Max (d -3 ALIGN 1.536525000 G	Value Bm) 4.32	Limit (dBm) -30.9 Ra	Result Pass 03:39:10 PMJul 01, 2022 dio Std: None

Power Spectral Density

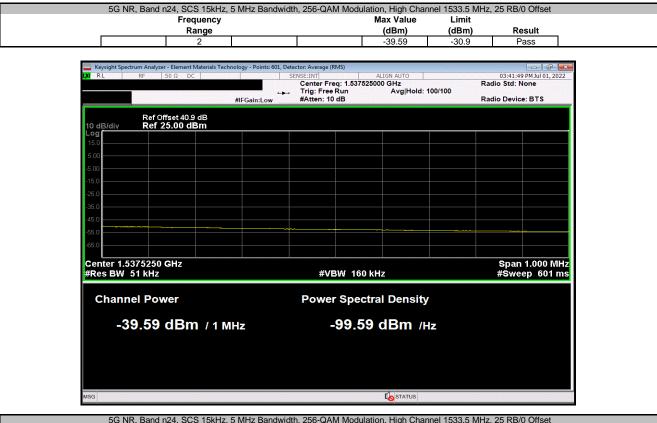
STATUS

Channel Power

-34.32 dBm / 1 MHz

-94.32 dBm /Hz





5G NR, Band n	24, SCS 15kHz,	5 MHz Bandwidth	i, 256-QAM Modu	ulation, High Char	nnel 1533.5 MHz,	25 RB/0 Offset	
	Frequency			Max Value	Limit		
	Range			(dBm)	(dBm)	Result	
	3			-40.67	-30.9	Pass	

RL RF 50 Ω DC	S	ENSE:INT	ALIGN AUTO	03:43:	55 PM Jul 01, 2022
	PNO: Fast ↔→ IFGain:Low	Trig: Free Run Atten: 10 dB	Avg Type: RMS Avg Hold: 100/10		TYPE A WWWW DET A NNNN
Ref Offset 40.9 dB dB/div Ref 40.90 dBm				Mkr1 1.5 -40	38 03 GH).673 dBr
0.9		Ĭ			
.9					
00					
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.1					DL1 -30.90 dl
.1					
.1					
art 1.538025 GHz tes BW 1.0 MHz	#VBV	V 3.0 MHz*		Stop 1. #Sweep 601.0	558000 GF
		1-010-111112	STATUS	"onroop 001.0	ne (sor pe



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	SD3235-2148	ANF	2022-05-27	2023-05-27
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	2022-01-19	2023-01-19
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXK	2021-09-13	2022-09-13

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in the available band. The channels closest to the band edges were selected. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

Per FCC Part 25.253(b), the power of any emission outside of the authorized operating frequency range cannot exceed the band edge limit of -57.9 dBW/MHz converted to -27.9 dBm/MHz. The Remote Radio Head (RRH) may operate as a 4 port MIMO transmitter with transmitter outputs connected to two cross-polarized antennas [two transmitter outputs are connected to (+) radiators and two transmitter outputs are connected to (-) radiators]. The limit is adjusted to -30.9 dBm [-27.9 dBm -10 log (2)] per FCC KDB 662911D01 v02r01, ANSI C63.26-2015 section 6.4.6.3 b)2) and KDB 662911 D02v01 page 3 example (2) since the transmitter outputs to each antenna are 90 degree-phase shifted relative to each other (cross-polarized radiators).

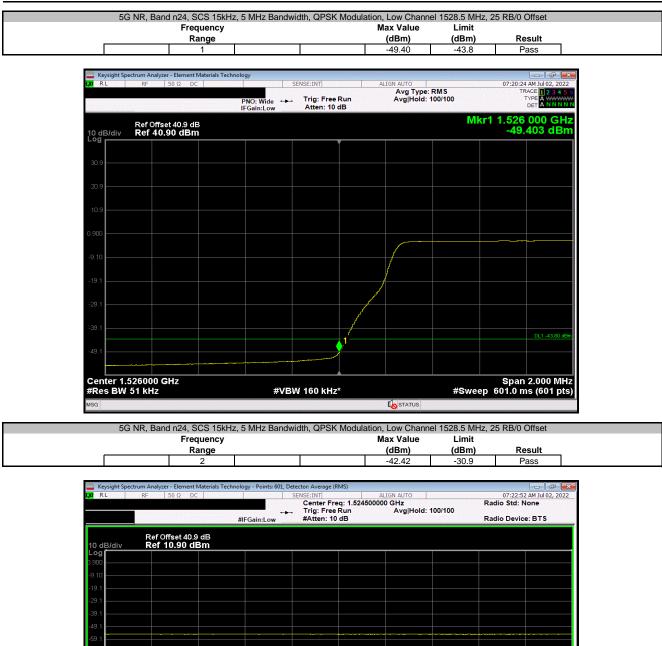
Per FCC ANSI C63.26-2015 section 4.2.3 and 5.7.2 the first frequency range uses the limit correction factor of: 10 log [(reference bandwidth) / (resolution or measurement bandwidth)] = 10^{*} log (1W/51K) = 12.9dB limit correction (RBW can be no smaller than 1% of the OBW or roughly 50kHz), and section 5.7.2 specifically allows for the second frequency range integration across the full measurement bandwidth.

RF conducted emissions testing was performed only on one port. The RRH antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown during output power testing) and antenna port 3 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.



				TbfTx 2022.05.02.0	XMit 202
	TR44KA Base Station		Work Order: M		
	SV2146TR44KA000001			0-Aug-22	
	Mavenir Systems, Inc		Temperature: 2		
Attendees:			Humidity: 5		
Project:			Barometric Pres.: 1		
	Brandon Hobbs	Power: 48 VDC	Job Site: T	X09	
EST SPECIFICATI	ONS	Test Method			
CC 25:2022		ANSI C63.26:2015			
OMMENTS					
	losses were accounted for: cables, attenuators, adapters,	DC block and notch filter. The PA gain was adju	isted for a 16dBi antenna (Final software value of 29). The	initial limit was	adjusted to -
) log (2)] per FCC KDB 662911D01 v02r01, ANSI C63.26-201				
	ach other (cross-polarized radiators). The single available			interina are so de	gree phase
		Resource block / onset configuration was used			
	I TEST STANDARD				
one					
onfiguration #	1	7-1-1			
	Signature	7			
		Frequency	Max Value	Limit	<u> </u>
		Range	(dBm)	(dBm)	Result
G NR, Band n24, S					
	5 MHz Bandwidth				
	QPSK Modulation				
	Low Channel 1528.5 MHz			10.0	
	25 RB/0 Offset	1	-49.4	-43.8	Pass
	25 RB/0 Offset	2	-42.4	-30.9	Pass
	25 RB/0 Offset	3	-42.0	-30.9	Pass
	High Channel 1533.5 MHz				
	25 RB/0 Offset	1	-48.8	-43.8	Pass
	25 RB/0 Offset	2	-41.9	-30.9	Pass
	25 RB/0 Offset	3	-41.8	-30.9	Pass
	16-QAM Modulation				
	Low Channel 1528.5 MHz				
	25 RB/0 Offset	1	-49.7	-43.8	Pass
	25 RB/0 Offset	2	-42.5	-30.9	Pass
	25 RB/0 Offset	3	-42.0	-30.9	Pass
	High Channel 1533.5 MHz				
	25 RB/0 Offset	1	-48.8	-43.8	Pass
	25 RB/0 Offset	2	-41.9	-30.9	Pass
	25 RB/0 Offset	3	-41.8	-30.9	Pass
	64-QAM Modulation				
	Low Channel 1528.5 MHz				
	25 RB/0 Offset	1	-49.6	-43.8	Pass
	25 RB/0 Offset	2	-42.5	-30.9	Pass
	25 RB/0 Offset	3	-42.0	-30.9	Pass
	High Channel 1533.5 MHz				
	25 RB/0 Offset	1	-49.1	-43.8	Pass
	25 RB/0 Offset	2	-42.0	-30.9	Pass
	25 RB/0 Offset	3	-41.8	-30.9	Pass
	256-QAM Modulation				
	Low Channel 1528.5 MHz				
	25 RB/0 Offset	1	-49.7	-43.8	Pass
	25 RB/0 Offset	2	-42.5	-30.9	Pass
	20 118/0 011001		-42.0	-30.9	Pass
	25 RB/0 Offset	3	-42.0		
		3	-42.0		
	25 RB/0 Offset	1	-48.9	-43.8	Pass
	25 RB/0 Offset High Channel 1533.5 MHz				Pass Pass





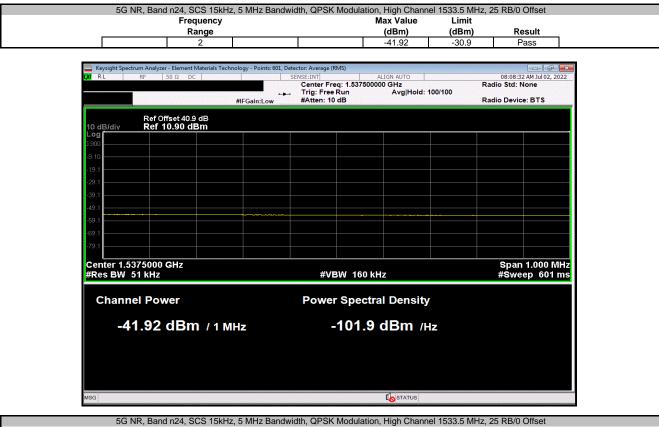
59.1		
Center 1.5245000 GHz #Res BW 51 kHz	#VBW 160 kHz	Span 1.000 M⊦ #Sweep 601 m
Channel Power	Power Spectral Density	
-42.42 dBm / 1 MHz	-102.4 dBm /Hz	
56	STATUS	



Freque			Max Value	Limit	Result
Rang 3	je	1	(dBm) -41.95	(dBm) -30.9	Pass
5			-41.95	-30.9	F d 55
Keysight Spectrum Analyzer - Element Mate	rials Technology			सन् भाग भाग भाग भाग ग	
X RL RF 50Ω DC	5	ENSE:INT	ALIGN AUTO		07:34:56 AM Jul 02, 2022
	PNO: Fast +++ IFGain:Low	Trig: Free Run Atten: 10 dB	Avg Type: F Avg Hold: 1	RM S 00/100	TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNNN
Ref Offset 40.9 dB 10 dB/div Ref 40.90 dBm				Mkr	1 1.523 97 GHz -41.953 dBm
Log		Ť			
30.9					
20.9					
20.9					
10.9					
0.900					
0.900					
-9.10					
-19.1					
-10.1					
-29.1					DL1 -30.90 dBm
-39.1					1
-49.1					
Start 1.50400 GHz #Res BW 1.0 MHz	#VB\	N 3.0 MHz*		#Sweep	Stop 1.52400 GHz 601.0 ms (601 pts)
MSG					
5G NR, Band n24, SCS	15kHz, 5 MHz Bandwi	idth, QPSK Modula	tion, High Channe	l 1533.5 MHz. 2	5 RB/0 Offset
Freque	ency		Max Value	Limit	
Rang 1	je		(dBm) -48.83	(dBm) -43.8	Result Pass

Keysight Spectrum Analyzer - Element Materials	Technology SENSE:INT	ALIGN AUTO	
KC RF 3032 DC	PNO: Wide ++ Trig: Free Run IFGain:Low Atten: 10 dB	Avg Type: RMS Avg Hold: 100/100	08:06:02 AM Jul 02, 2022 TRACE 1 2 3 4 5 TYPE A WWWW DET A NNNN
Ref Offset 40.9 dB 10 dB/div Ref 40.90 dBm		N	lkr1 1.536 000 GHz -48.827 dBm
30.9			
20.9			
10.9			
.900			
9.10			
19.1			
29.1			
49.1	1		DL1 -43.80 dBr
Start 1.535000 GHz #Res BW 51 kHz	#VBW 160 kHz*	#Sw	Stop 1.537000 GHz eep 601.0 ms (601 pts
ISG		STATUS	





,	Frequency	, o mi iz Danamati, Qi	 Max Value	Limit	
	Range		(dBm)	(dBm)	Result
	3		-41.76	-30.9	Pass

RL	RF 50 Ω DC		SENSE:INT	ALIGN AUTO	08:10:37 AM Jul 02, 20
		PNO: Fast ↔→→ IFGain:Low	Trig: Free Run Atten: 10 dB	Avg Type: RMS Avg Hold: 100/100	TRACE 1 2 3 4 TYPE A WWW DET A N N
) dB/div	Ref Offset 40.9 dB Ref 40.90 dBm				Mkr1 1.538 00 GI -41.758 dB
29					
0.9					
D.9					
0.9					
00					
10					
10					
9.1					
9.1					DL1 -50.90
1					
9.1 -					
9.1					
	800 GHz 1.0 MHz	#VB	W 3.0 MHz*		Stop 1.55800 G #Sweep 601.0 ms (601 p
G				STATUS	





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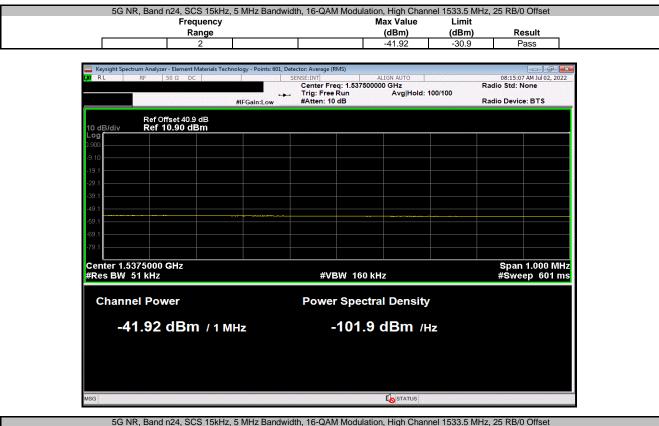
 <t



	Frequency			Max Value	Limit	
	Range			(dBm)	(dBm)	Result
	3			-41.98	-30.9	Pass
Kaurisht Spectrum An	alyzer - Element Materials Tech	nalamı				
Keysight Spectrum An	50 Ω DC	inology	SENSE:INT	ALIGN AUTO		07:49:27 AM Jul 02, 2022
		PNO: Fast ← IFGain:Low	➡ Trig: Free Run Atten: 10 dB	Avg Type: Avg Hold: 1		TRACE 1 2 3 4 5 TYPE A DET A NNNN
Ref C 10 dB/div Ref •)ffset 40.9 dB 40.90 dBm				Mk	r1 1.523 97 GH -41.984 dBr
Log			The second secon			
30.9						
00.0						
20.9						
10.9						
0.900						
-9,10						
0.10						
-19.1						
-29.1						DL1 -30.90 dB
-39.1						
-49.1						
Start 1.50400 G						Stop 1.52400 GH
#Res BW 1.0 M		#V	/BW 3.0 MHz*		#Sweep	601.0 ms (601 pts
MSG				STATUS	-	
5G NR, Ba		, 5 MHz Band	width, 16-QAM Modu			, 25 RB/0 Offset
	Frequency Range			Max Value (dBm)	Limit (dBm)	Result
	1			-48.83	-43.8	Pass

RL RF 50 Ω DC	als Technology	ENSE:INT	ALIGN AUTO	08:13:2	1 AM Jul 02, 2022
	PNO: Wide ↔→ IFGain:Low	Trig: Free Run Atten: 10 dB	Avg Type: RMS Avg Hold: 100/100	T	RACE 1 2 3 4 5 TYPE A DET A NNNN
Ref Offset 40.9 dB 0 dB/div Ref 40.90 dBm				Mkr1 1.536 -48	000 GH .830 dBr
-9		Ĭ			
20.9					
0.9					
.10					
9.1					
9.1					
9.1					DL1 -43.80 dB
9.1					041-45130 db
tart 1.535000 GHz Res BW 51 kHz	#VBV	√ 160 kHz*		Stop 1.5 ≸Sweep 601.0 r	537000 GH ns (601 pt
G			STATUS		





5G NR, Band r	n24, SCS 15kHz,	5 MHz Bandwidt	h, 16-QAM Modu	lation, High Chan	nel 1533.5 MHz,	25 RB/0 Offset	
	Frequency			Max Value	Limit		
	Range			(dBm)	(dBm)	Result	
	3			-41.78	-30.9	Pass	

RL RF 50 Ω DC	ials Technology	ENSE:INT	ALIGN AUTO	08:17:08 AM Jul 02, 2022
	PNO: Fast +++ IFGain:Low	Trig: Free Run Atten: 10 dB	Avg Type: RMS Avg Hold: 100/100	TRACE 1 2 3 4 5 TYPE A WWWW DET A N N N N
Ref Offset 40.9 dB dB/div Ref 40.90 dBm				Mkr1 1.538 00 GH -41.776 dBr
		Ĭ		
.9				
).9				
10				
9.1				
.1				DL1 -30.90 d
1				
{				
3.1				
art 1.53800 GHz Res BW 1.0 MHz	#VB\	A 3.0 MHz*	#Sy	Stop 1.55800 GF veep 601.0 ms (601 pt
			STATUS	eele ne ne ne teel pr





#VBW 160 kHz

Power Spectral Density

-102.5 dBm /Hz

STATUS

Center 1.5245000 GHz #Res BW 51 kHz

Channel Power

-42.48 dBm / 1 MHz

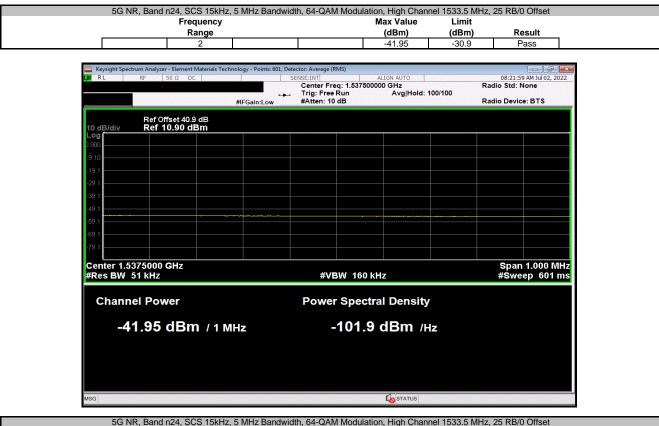
Span 1.000 MHz #Sweep 601 ms



	Frequency			Max Value	Limit	
r	Range			(dBm)	(dBm)	Result
	3			-41.95	-30.9	Pass
M Kausiaht Spectrum Appl	zer - Element Materials Tecl	halom				
Keysight Spectrum Analy	50 Ω DC	ninology	SENSE:INT	ALIGN AUTO		07:55:36 AM Jul 02, 202
		PNO: Fast ↔ IFGain:Low		Avg Type: Avg Hold: 1		TRACE 1 2 3 4 5 TYPE A WWWW DET A N N N N
Ref Off 10 dB/div Ref 40	set 40.9 dB 0.90 dBm				Mki	1 1.523 97 GH -41.953 dBr
Log			T T			
20.0						
30.9						
20.9						
10.9						
0.900						
-9.10						
-9.10						
-19.1						
-29.1						DL1 -30.90 d8
-39.1						
-49.1						
Start 1.50400 GH						Stop 1.52400 GH
#Res BW 1.0 MH	2	#VE	3W 3.0 MHz*	E lesure-	#Sweep	601.0 ms (601 pt
MSG				STATUS		
5G NR, Ban		, 5 MHz Bandw	idth, 64-QAM Modu			, 25 RB/0 Offset
	Frequency			Max Value	Limit	
(Range 1	1		(dBm) -49.07	(dBm) -43.8	Result Pass

RL	RF 50 Ω	ent Materials T		SENSE:INT	ALIGN AUTO	08:1	9:12 AM Jul 02, 202
			PNO: Wide ↔ IFGain:Low		Avg Type: RMS Avg Hold: 100/10		TRACE 1 2 3 4 5 TYPE A WWW DET A NNNN
) dB/div	Ref Offset 40.9 Ref 40.90 di	dB Bm				Mkr1 1.5	36 000 GH 9.072 dBi
0.9				Ĭ			
D.9							
).9							
10							
.1							
.1							
0.1				1			DL1 -43.80 d
9.1							
art 1.53 Res BW	5000 GHz 51 kHz		#VB	W 160 kHz*		Stop [/] #Sweep 601.0	I.537000 GH) ms (601 pt
G					STATUS	-	

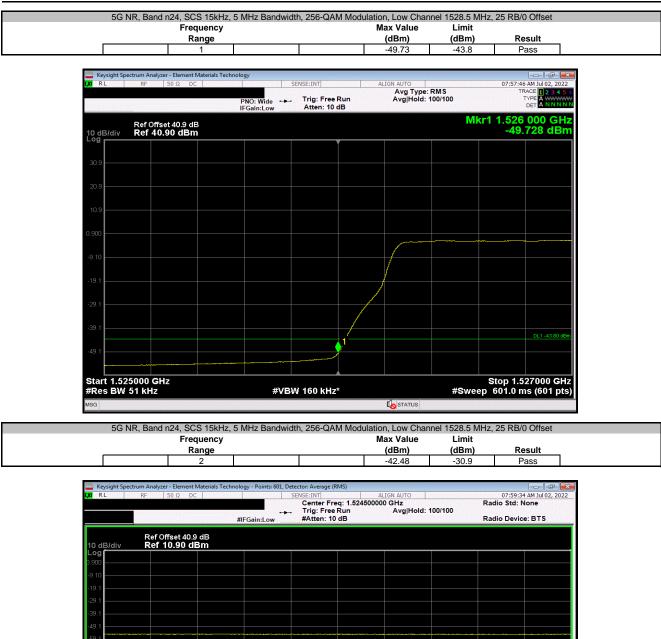




5G NR, Band i	n24, SCS 15kHz,	5 MHz Bandwidt	h, 64-QAM Modu	lation, High Chan	nel 1533.5 MHz,	25 RB/0 Offset
	Frequency			Max Value	Limit	
	Range			(dBm)	(dBm)	Result
	3			-41.79	-30.9	Pass

RL	RF 50 Ω DC	Technology S	ENSE:INT	ALIGN AUTO	08:24:07 AM Jul 02, 2022
		PNO: Fast +++ IFGain:Low	Trig: Free Run Atten: 10 dB	Avg Type: RMS Avg Hold: 100/100	TRACE 12345 TYPE A WWW DET A NNNN
) dB/div	Ref Offset 40.9 dB Ref 40.90 dBm				Mkr1 1.538 00 GH -41.788 dBr
-			Ĭ		
).9					
).9					
).9					
10					
.1					
.1					Di 1 -30 90 vi
1					
*					
3.1					
	800 GHz 1.0 MHz	#\/B)	• 3.0 MHz*	#51	Stop 1.55800 GH veep 601.0 ms (601 pt
3				STATUS	





#VBW 160 kHz

Power Spectral Density

-102.5 dBm /Hz

STATUS

Center 1.5245000 GHz #Res BW 51 kHz

Channel Power

-42.48 dBm / 1 MHz

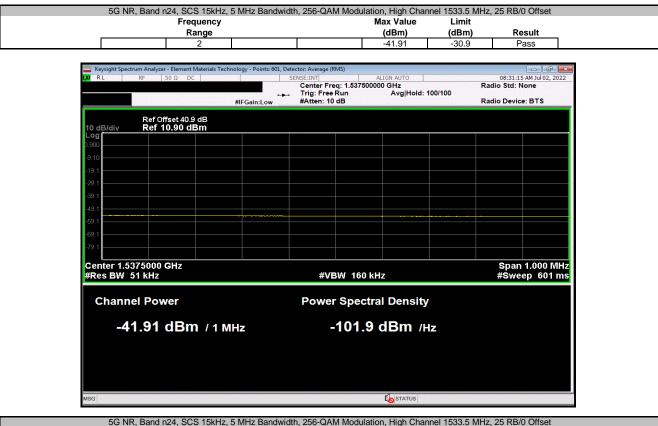
Span 1.000 MHz #Sweep 601 ms



	Frequency			Max Value	Limit	Deset	
	Range 3			(dBm) -41.95	(dBm) -30.9	Result Pass	
	3			-41.95	-30.9	Pass	
- Kausiaht Saastaum Anal	yzer - Element Materials Tec	haalaa.					~
	50 Ω DC		ENSE:INT	ALIGN AUTO		08:01:25 AM Jul 02, 20	22
		PNO: Fast ↔→→ IFGain:Low	Trig: Free Run Atten: 10 dB	Avg Type: F Avg Hold: 1		TRACE 1 2 3 4 TYPE A WWW DET A N N N	56 WW NN
10 dB/div Ref 4	fset 40.9 dB 0.90 dBm				Mkı	1 1.523 87 GF -41.948 dB	
Log			Ť				
30.9							
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-39.1							
							Ť.
-49.1							
Start 1.50400 GH #Res BW 1.0 MH		#\/B\/	V 3.0 MHz*		#Sween	Stop 1.52400 Gi 601.0 ms (601 p	Hz
MSG		#VBV		STATUS	"oweep	oo no ma (oo r p	
				No IAIUS			
5G NR, Ban	d n24, SCS 15kHz,	, 5 MHz Bandwidt	h, 256-QAM Modu	lation, High Chan	nel 1533.5 MHz	, 25 RB/0 Offset	
	Frequency			Max Value	Limit		
	Range			(dBm)	(dBm)	Result	

Keysight Spectrum Analyzer - Element Mater		enver well				
RL RF 50Ω DC	50 Ω DC SENSE:INT		ALIGN AUTO Avg Type: RM		08:29:02 AM Jul 02, 2022 TRACE 1 2 3 4 5	
	PNO: Wide ↔ IFGain:Low	. Trig: Free Run Atten: 10 dB	Avg Type: RM Avg Hold: 100/	100	DET A WWWW	
Ref Offset 40.9 dB 0 dB/div Ref 40.90 dBm				Mkr1 1.5 ⊸	36 000 GH 48.924 dBr	
		ľ				
30.9						
20.9						
10.9						
900						
3.10						
9.1						
.9.1						
.1					DL1 -43.80 dB	
tart 1.535000 GHz				Stop #Sweep 601.	1.537000 GH	
Res BW 51 kHz	#VB	W 160 kHz*		#Sweep 601.	0 ms (601 pts	
SG			STATUS		and the second second	





5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 256-QAM Modula				ulation, High Char	nnel 1533.5 MHz,	25 RB/0 Offset
Frequency			Max Value	Limit		
	Range			(dBm)	(dBm)	Result
	3			-41.76	-30.9	Pass

RL RF 50 Ω DC	S	ENSE:INT	ALIGN AUTO	08:33:26 AM Jul 02, 2022			
	PNO: Fast +++ IFGain:Low	Trig: Free Run Atten: 10 dB	Avg Type: RMS Avg Hold: 100/100	TRACE 1 2 3 4 5 TYPE A WWWW DET A NNNN			
Ref Offset 40.9 dB 0 dB/div Ref 40.90 dBm				Mkr1 1.538 00 GH -41.756 dBn			
		Ĭ					
30.9							
0.9							
0.9							
00							
10							
9.1							
3.1				DL1 -30.90 d			
1							
3.1 							
9.1							
tart 1.53800 GHz Res BW 1.0 MHz	#VBV	V 3.0 MHz*	#\$	Stop 1.55800 GH weep 601.0 ms (601 pt			
G	"vb.						



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

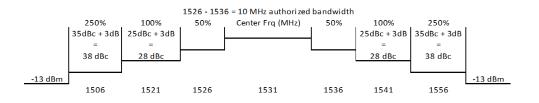
Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	2022-01-19	2023-01-19
Block - DC	Fairview Microwave	SD3235-2148	ANF	2022-05-27	2023-05-27
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXK	2021-09-13	2022-09-13
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17

TEST DESCRIPTION

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

The emission mask defined by 25.202 (f) for 10 MHz authorized bandwidth terrestrial devices is shown on each plot. The 0 dB reference for the mask is the measured output power of the modulated carrier at that frequency.

The relative limits were adjusted by 3 [10 log (2)] per FCC KDB 662911D01 v02r01, ANSI C63.26-2015 section 6.4.6.3 b)2) and KDB 662911 D02v01 page 3 example (2) since the transmitter outputs to each antenna are 90 degree-phase shifted relative to each other (cross-polarized radiators).



A 40 dB external attenuator was used. The attenuator and coaxial cable loss were compensated in the spectrum analyzer. A 4 kHz resolution bandwidth while using a RMS average detector.

RF conducted emissions testing was performed only on one port. The Remote Radio Head (RRH) antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown during output power testing) and antenna port 3 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.



EUT: TR44KA Base Station Work Order: MASY0006 Serial Number: SV2146TR44KA000001 Date: 9-Aug-22 Custome: Mavenit Systems, Inc Temperature: 21.1 °C Attendees: None Humidity: 55% RH Project: None Barometric Pres.: 1019 mbar Test by: Brandon Hobbs Job Site: TX09 TEST SPECIFICATIONS Test Method Test Method	
Customer: Mavenir Systems, Inc Temperature: 21.1 °C Attendees: None Humidity: 55% RH Project: None Barometric Pres.: 1019 mbar Tested by: Brandon Hobbs Power: 48 VDC Job Site: TX09 TEST SPECIFICATIONS Test Method Test Method TX09	
Attendees: None Humidity: 55% RH Project: None Barometric Press: 1019 mbar Tested by: Brandon Hobbs Power: 48 VDC Job Site: TX09 TEST SPECIFICATIONS Test Method Test Method Test Method	
Project: IO19 mbar Tested by: Brandon Hobbs Power: 48 VDC Job Site: TX09 TEST SPECIFICATIONS Test Method Test Method Test Method Test Method	
Tested by: Brandon Hobbs Power: 48 VDC Job Site: TX09 TEST SPECIFICATIONS Test Method Test Method </td <td></td>	
TEST SPECIFICATIONS Test Method	
FCC 25:2022 ANSI C63.26:2015	
COMMENTS	
All conducted path losses were accounted for: cables, attenuators, adapters and DC block. The emission mask was normalized to the fundamental before capture. The PA Gain was set for a 3 (
software value set to 42). Per KDB 662911 D01 single antanna port testing with [10 log (Nant)] added to the relative limits. The Widest and Narrowest available Resource Block / Offset configura	tions were used.
DEVIATIONS FROM TEST STANDARD	
None	
Configuration # 1	
Signature	
Signature 2 From 38 dBc Limit Limit From 28 dBc Limit Limit	
Value (dBc) 38 dBc Value (dBc) 28 dBc	
56 NR. Band n24. SCS 15kHz Variue (uBC) 28 UBC Variue (UBC) 28 UBC	Result
10 Hrs Banduite, See Tantz 10 Hrz Bandwidth	
OPSK Modulation	
Low Side Channel 1531 MHz	
25 RB/O Offset >20 See Graph > 20 See Graph	ph Pass
25 RB/27 Offset >20 See Graph > 20 See Graph	
52 Rb 2 0 See Graph > 20 See Graph >	
High Side Channel 1531 MHz	1033
25 RB/0 Offset > 20 See Graph > 20 See Graph	ph Pass
25 RB/27 Offset >20 See Graph > 20 See Graph	
52 Rb/L Offset > 20 See Graph > 20 See Graph	
16-QAM Modulation	1833
Low Side Channel 1531 MHz	
25 RB/0 Offset > 20 See Graph > 20 See Graph	ph Pass
25 RB/27 Offset > 20 See Graph > 20 See Graph	
52 RB/L Offiset > 20 See Graph > 20 See Gra	
High Side Channel 1531 MHz	1 435
25 RM/O Offset >20 See Graph > 20 See Graph	ph Pass
25 RB/27 Offset > 20 See Graph > 20 See Graph	
52 RB/2 Offset >20 See Graph > 20 Se	
64-QAM Modulation	
Low Side Channel 1531 MHz	
25 RB/0 Offset > 20 See Graph > 20 See Graph	ph Pass
25 RB/27 Offset >20 See Graph > 20 See Graph	
52 RB/0 Offset >20 See Graph > 20 Se	
High Side Channel 1531 MHz	1 400
25 RB/0 Offset > 20 See Graph > 20 See Graph	ph Pass
25 RB/27 Offset > 20 See Graph > 20 See Gra	
52 RB/0 Offset >20 See Graph > 20 See Graph	
256-QAM Modulation	
Low Side Channel 1531 MHz	
25 RB/0 Offset > 20 See Graph > 20 See Graph	ph Pass
25 RB/27 Offset > 20 See Graph > 20 See Gra	
52 RB/0 Offset > 20 See Graph > 20 See Graph	1 400
52 RB/0 Offset > 20 See Graph > 20 See Gra High Side Channel 1531 MHz	
High Side Channel 1531 MHz	ph Pass
High Side Channel 1531 MHz > 20 See Graph > 20 See Graph 25 RB/0 Offset > 20 See Graph > 20 See Graph	
High Side Channel 1531 MHz	ph Pass



