SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 10MHz, 16dBi

XMit 2022.02.07.0

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

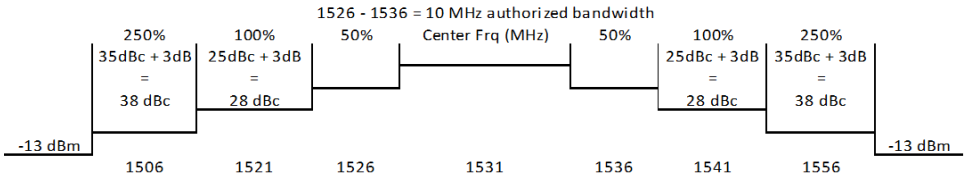
Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXK	2021-09-13	2022-09-13
Block - DC	Fairview Microwave	SD3235-2148	ANF	2022-05-27	2023-05-27
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN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

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.

SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 10MHz, 16dBi

element

TbtTx 2022.05.02.0 XMit 2022.02.07.0

EUT:	TR44KA Base Station			**Work Order:**	MASY0006
Serial Number:	SV2146TR44KA000001			**Date:**	9-Aug-22
Customer:	Mavenir Systems, Inc			**Temperature:**	20.7 °C
Attendees:	None			**Humidity:**	55.4% RH
Project:	None			**Barometric Pres.:**	1020 mbar
Tested by:	Brandon Hobbs	**Power:**	48 VDC	**Job Site:**	TX09

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 16 dBi antenna gain (Final software value set to 29) . 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 configurations were used.

DEVIATIONS FROM TEST STANDARD

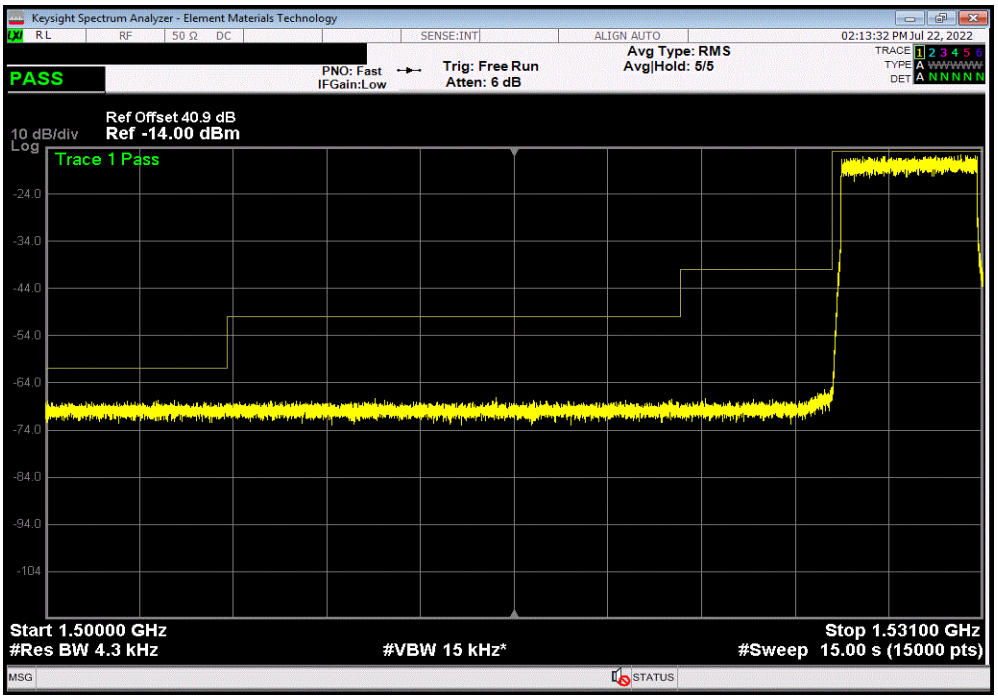
None

Configuration #	1	Signature

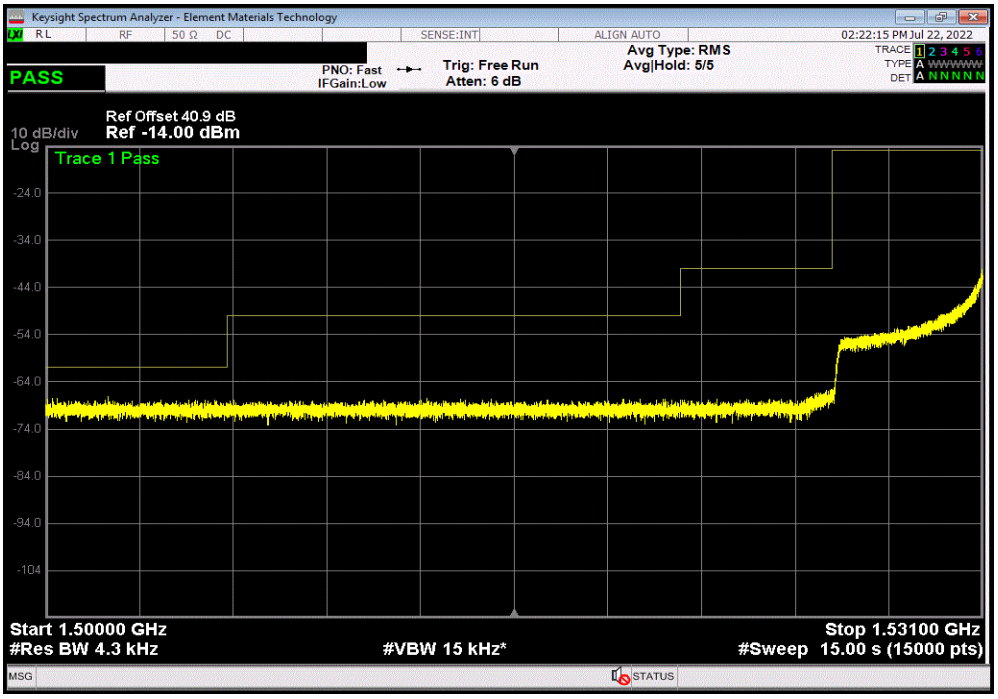
	From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
5G NR, Band n24, SCS 15kHz					
10 MHz Bandwidth					
QPSK Modulation					
Low Side Channel 1531 MHz					
25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
25 RB/27 Offset	> 20	See Graph	> 20	See Graph	Pass
52 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
High Side Channel 1531 MHz					
25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
25 RB/27 Offset	> 20	See Graph	> 20	See Graph	Pass
52 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
16-QAM Modulation					
Low Side Channel 1531 MHz					
25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
25 RB/27 Offset	> 20	See Graph	> 20	See Graph	Pass
52 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
High Side Channel 1531 MHz					
25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
25 RB/27 Offset	> 20	See Graph	> 20	See Graph	Pass
52 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
64-QAM Modulation					
Low Side Channel 1531 MHz					
25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
25 RB/27 Offset	> 20	See Graph	> 20	See Graph	Pass
52 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
High Side Channel 1531 MHz					
25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
25 RB/27 Offset	> 20	See Graph	> 20	See Graph	Pass
52 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
256-QAM Modulation					
Low Side Channel 1531 MHz					
25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
25 RB/27 Offset	> 20	See Graph	> 20	See Graph	Pass
52 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
High Side Channel 1531 MHz					
25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
25 RB/27 Offset	> 20	See Graph	> 20	See Graph	Pass
52 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass

SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 10MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, QPSK Modulation, Low Side Channel 1531 MHz, 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, QPSK Modulation, Low Side Channel 1531 MHz, 25 RB/27 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 10MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, QPSK Modulation, Low Side Channel 1531 MHz, 52 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
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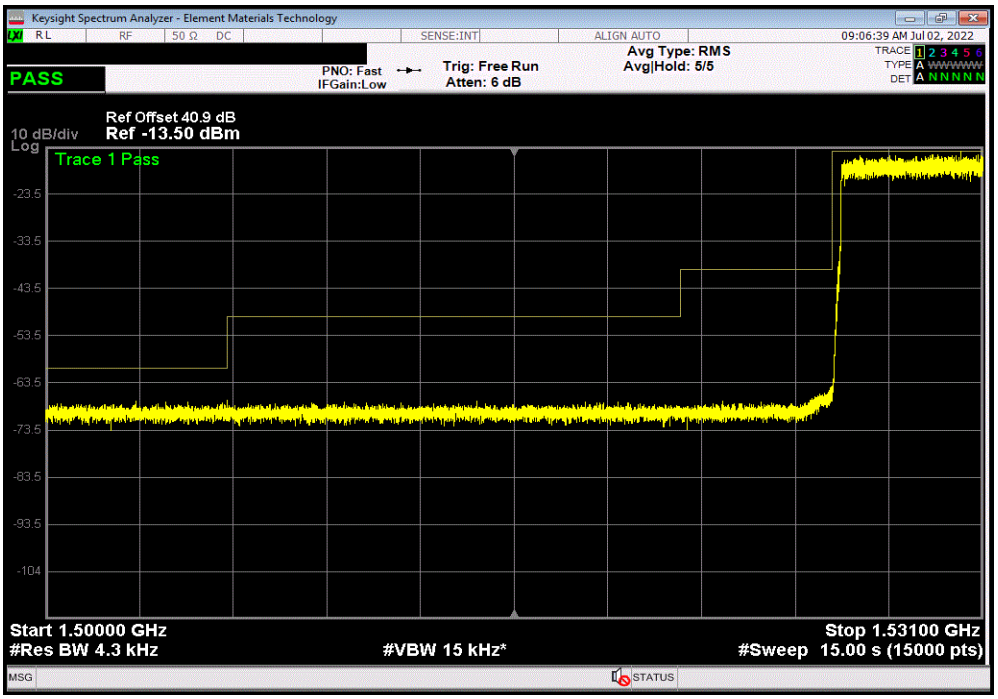

5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, QPSK Modulation, High Side Channel 1531 MHz, 25 RB/0 Offset						
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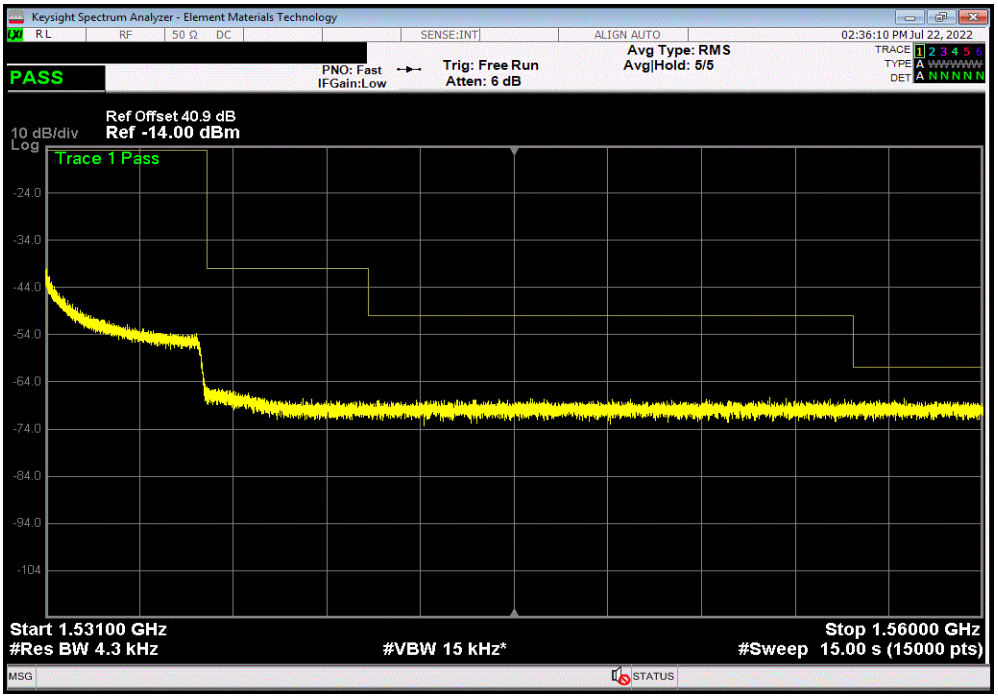

SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 10MHz, 16dBi

element

TbtTx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, QPSK Modulation, High Side Channel 1531 MHz, 25 RB/27 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
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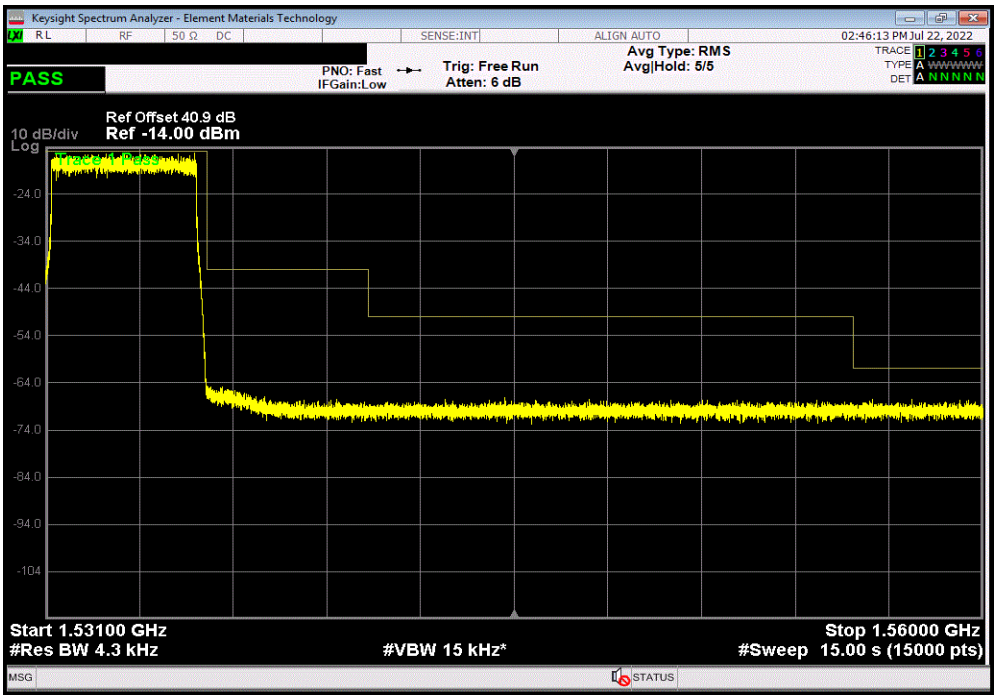
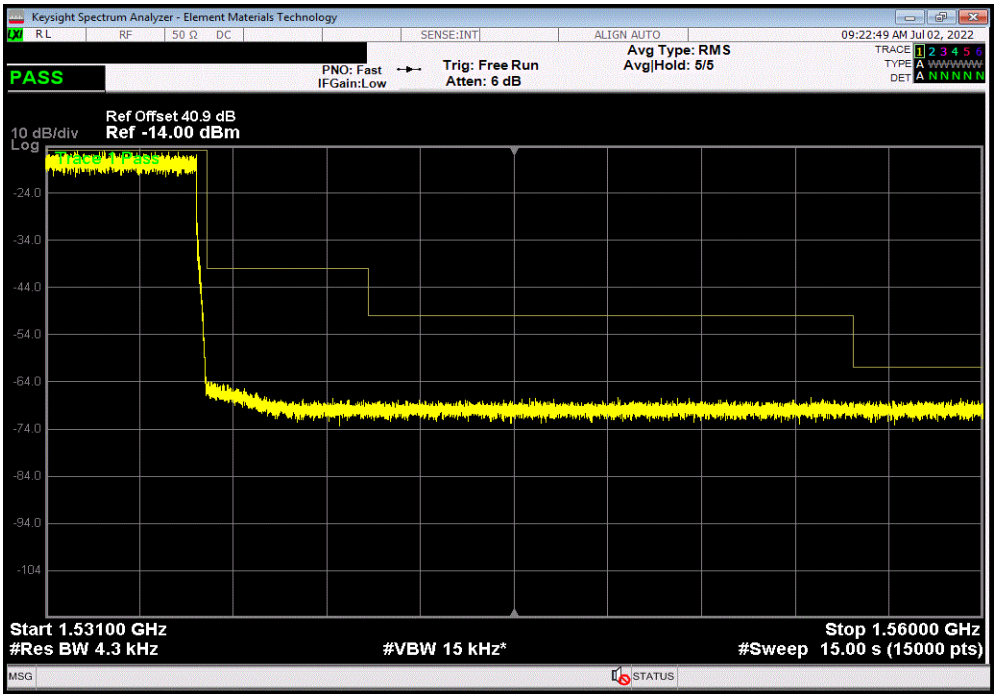
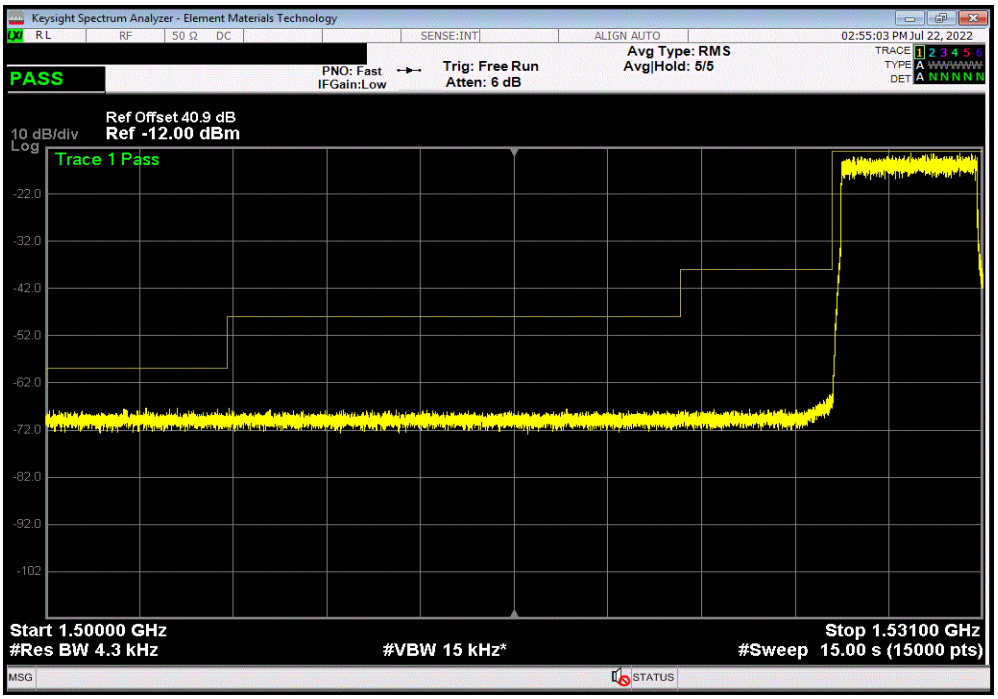


5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, QPSK Modulation, High Side Channel 1531 MHz, 52 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

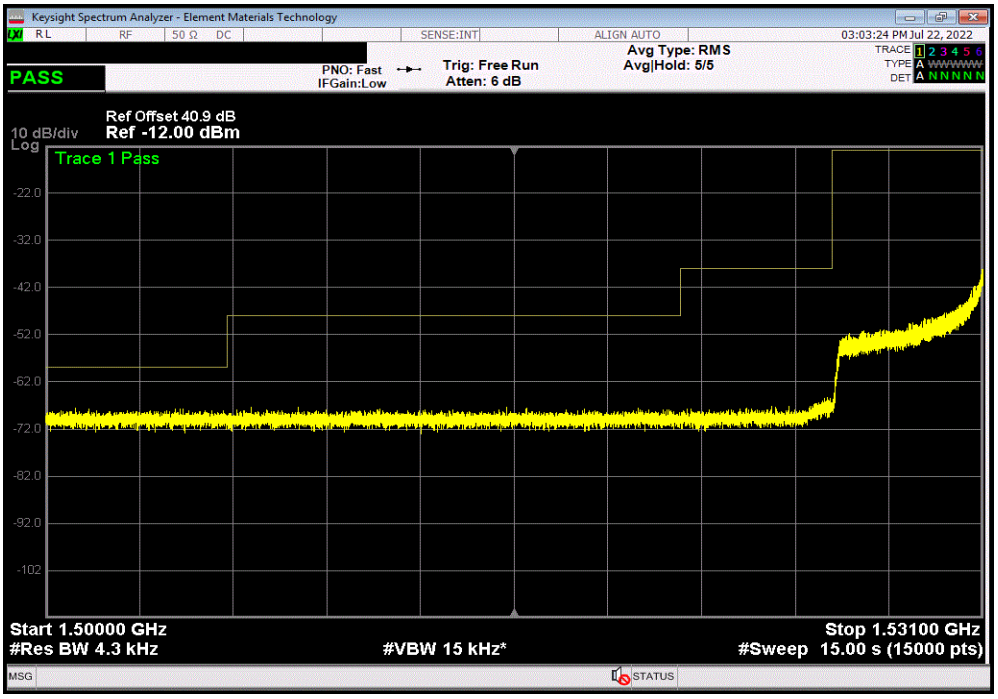


SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 10MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, 16-QAM Modulation, Low Side Channel 1531 MHz, 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, 16-QAM Modulation, Low Side Channel 1531 MHz, 25 RB/27 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 10MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, 16-QAM Modulation, Low Side Channel 1531 MHz, 52 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
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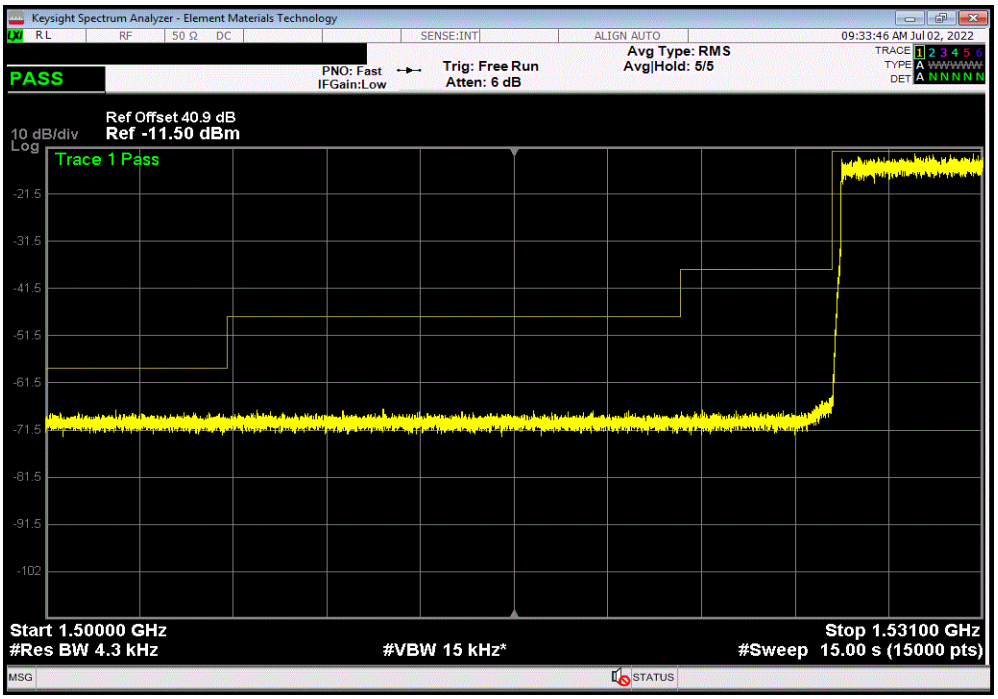
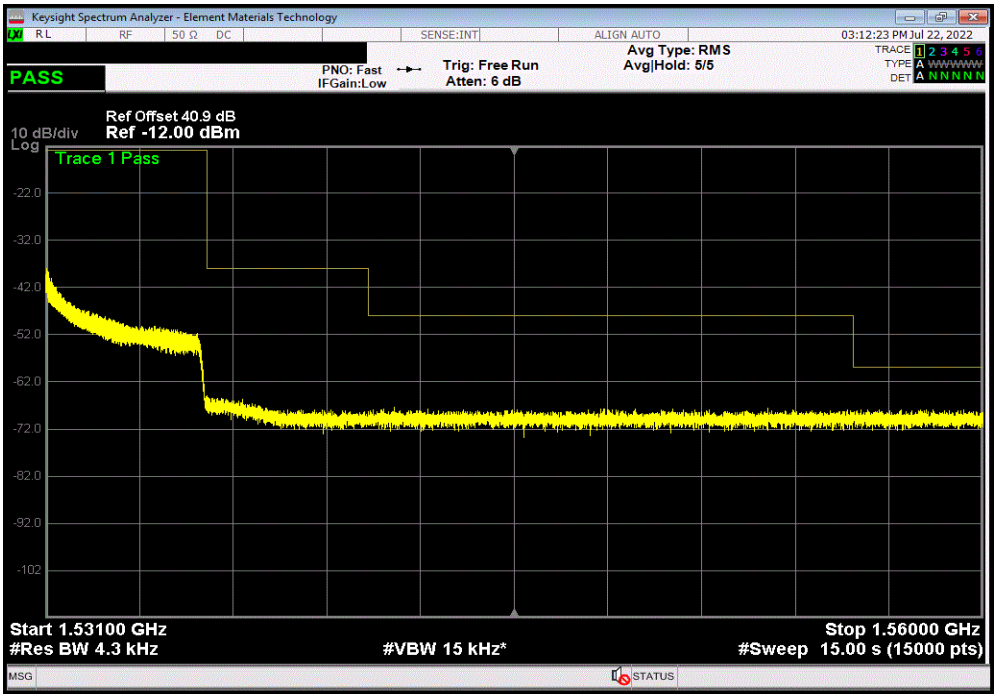
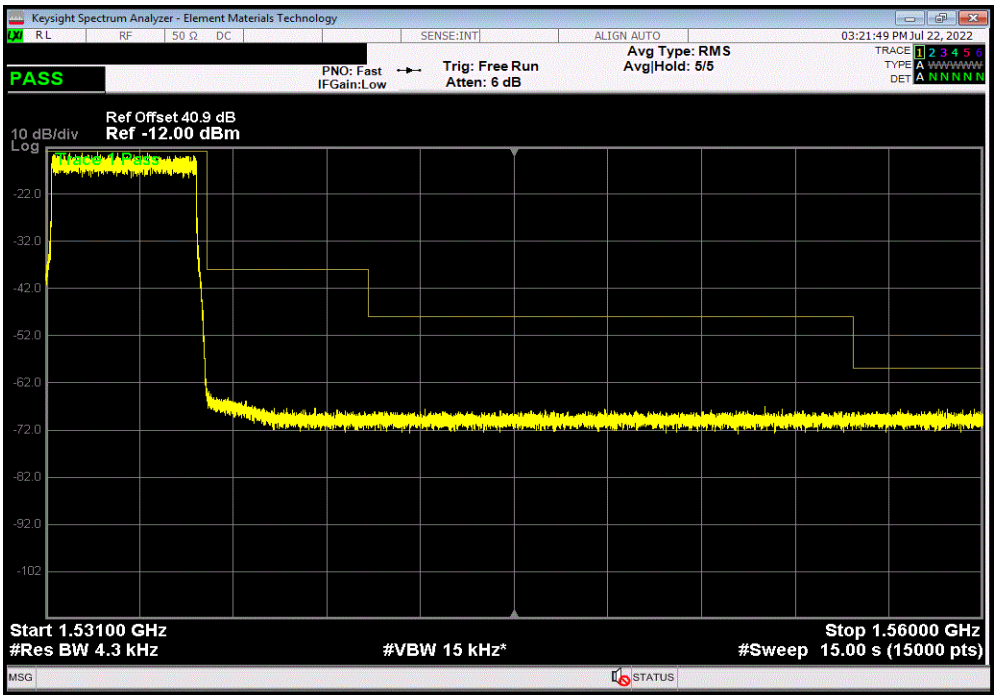


5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, 16-QAM Modulation, High Side Channel 1531 MHz, 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 10MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, 16-QAM Modulation, High Side Channel 1531 MHz, 25 RB/27 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, 16-QAM Modulation, High Side Channel 1531 MHz, 52 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
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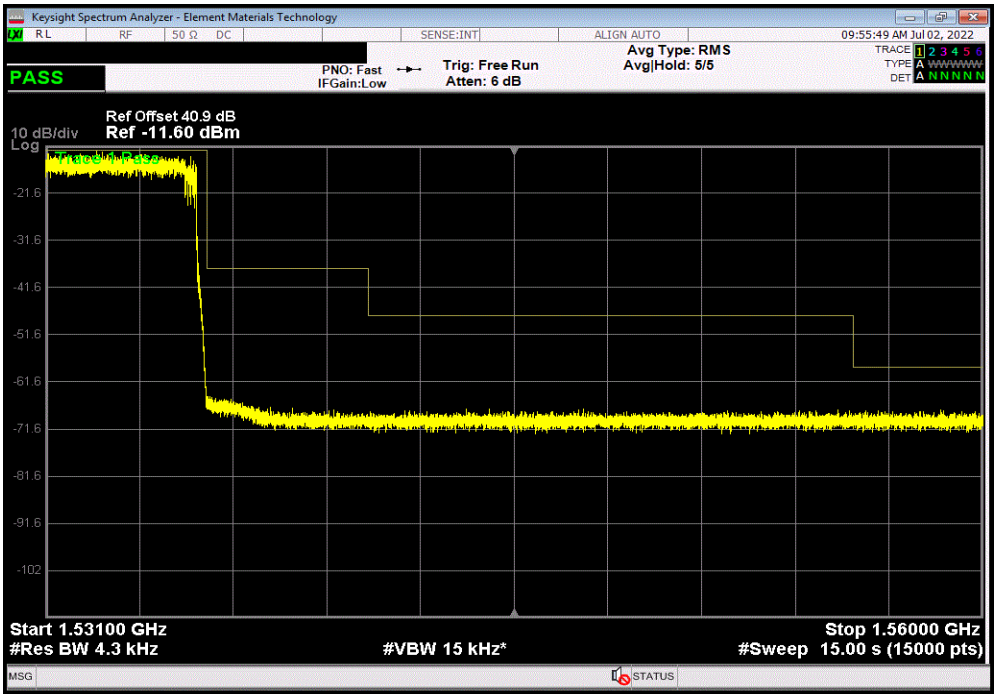
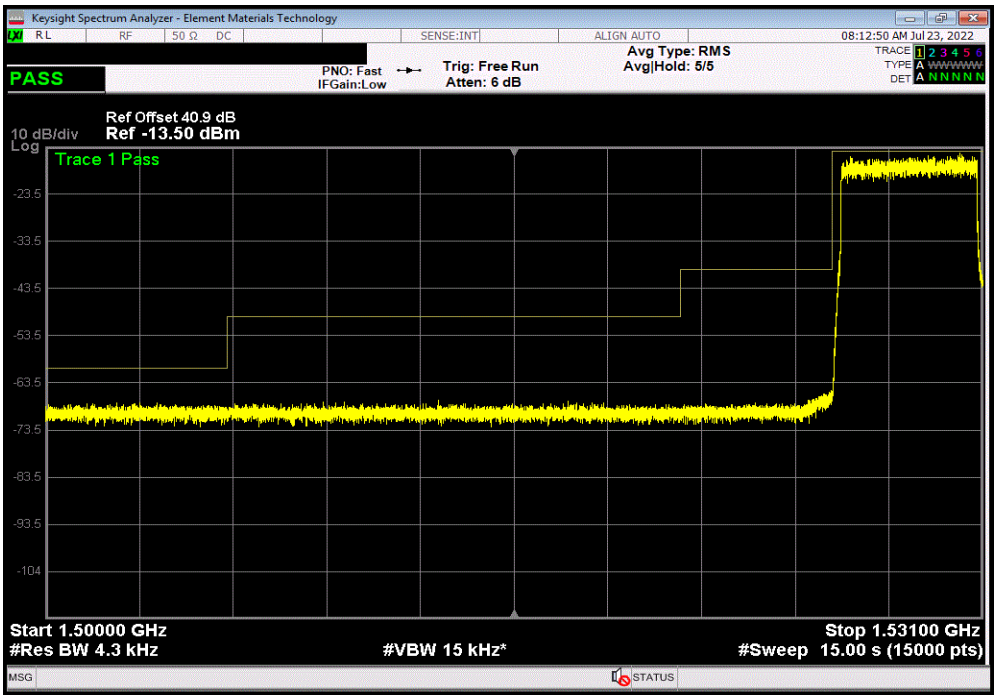
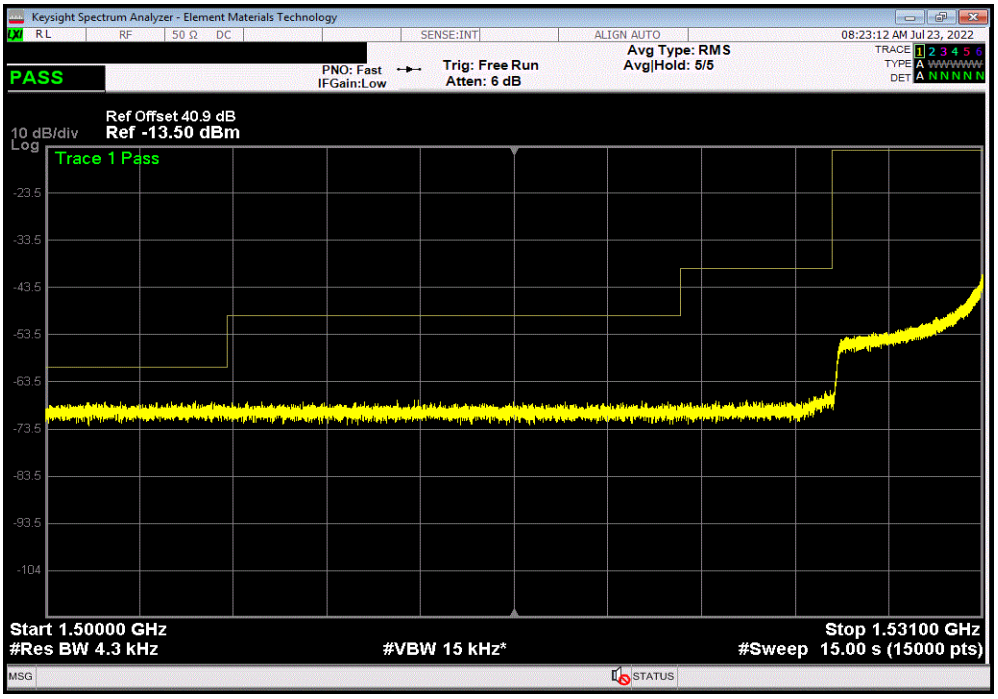


SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 10MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, 64-QAM Modulation, Low Side Channel 1531 MHz, 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

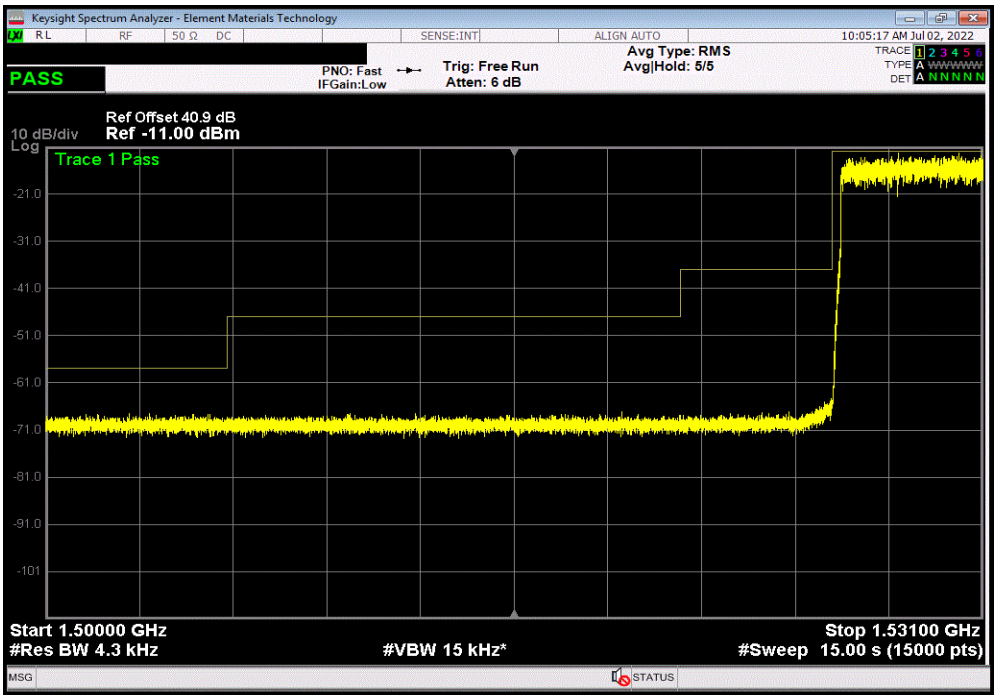


5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, 64-QAM Modulation, Low Side Channel 1531 MHz, 25 RB/27 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

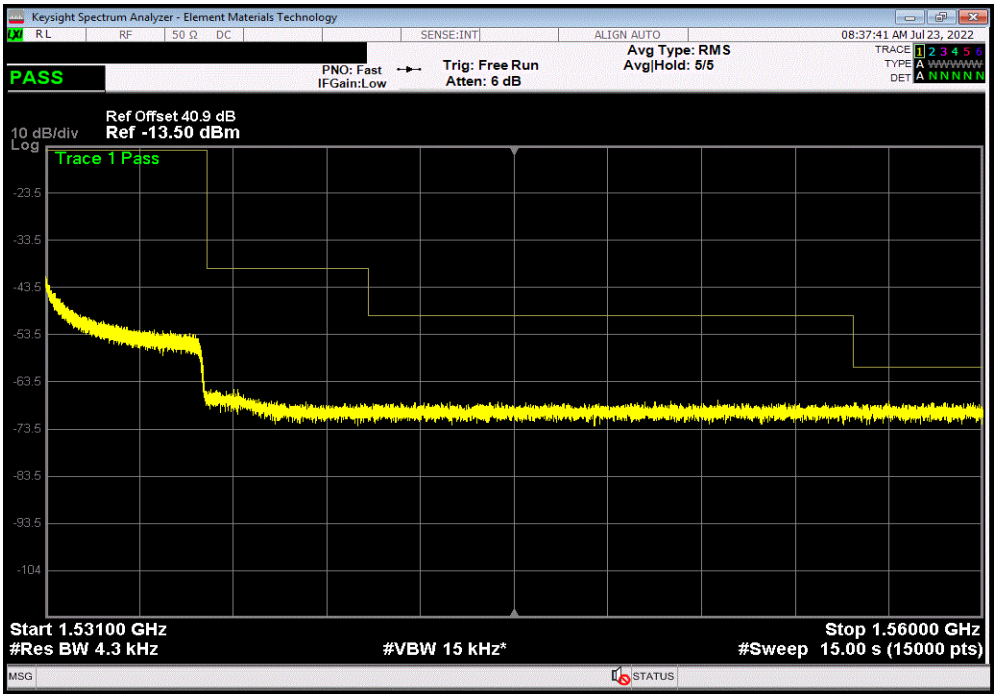


SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 10MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, 64-QAM Modulation, Low Side Channel 1531 MHz, 52 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

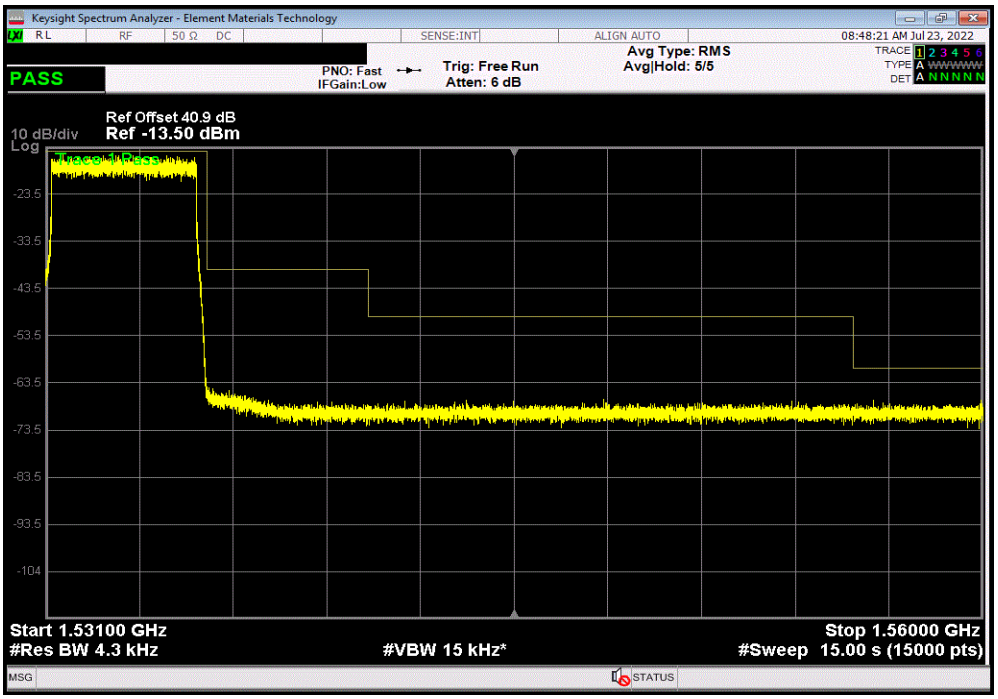


5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, 64-QAM Modulation, High Side Channel 1531 MHz, 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

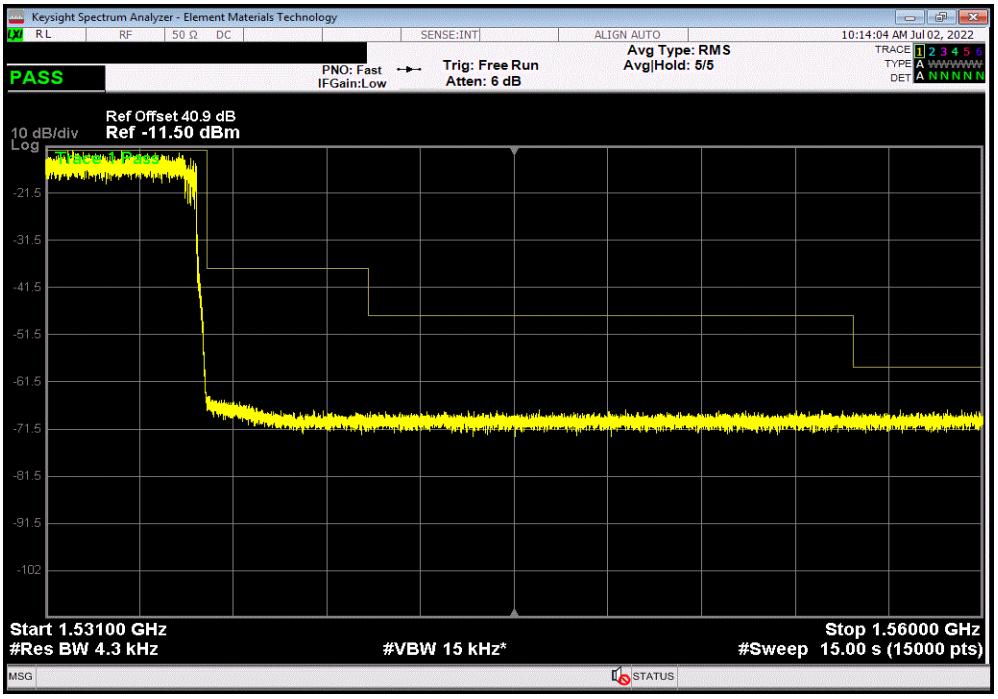


SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 10MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, 64-QAM Modulation, High Side Channel 1531 MHz, 25 RB/27 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

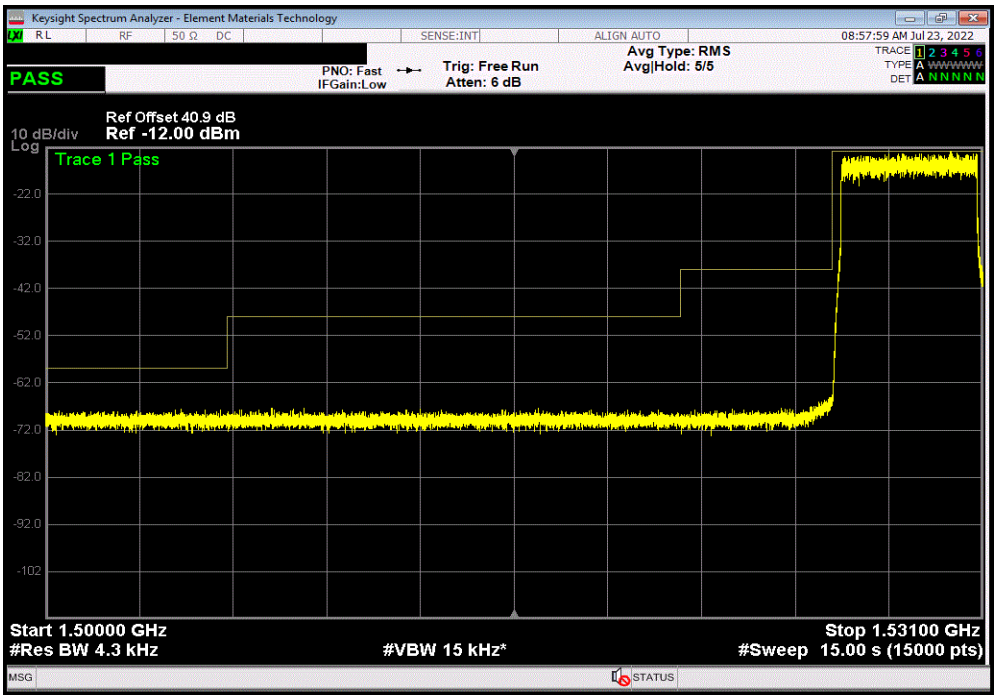


5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, 64-QAM Modulation, High Side Channel 1531 MHz, 52 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

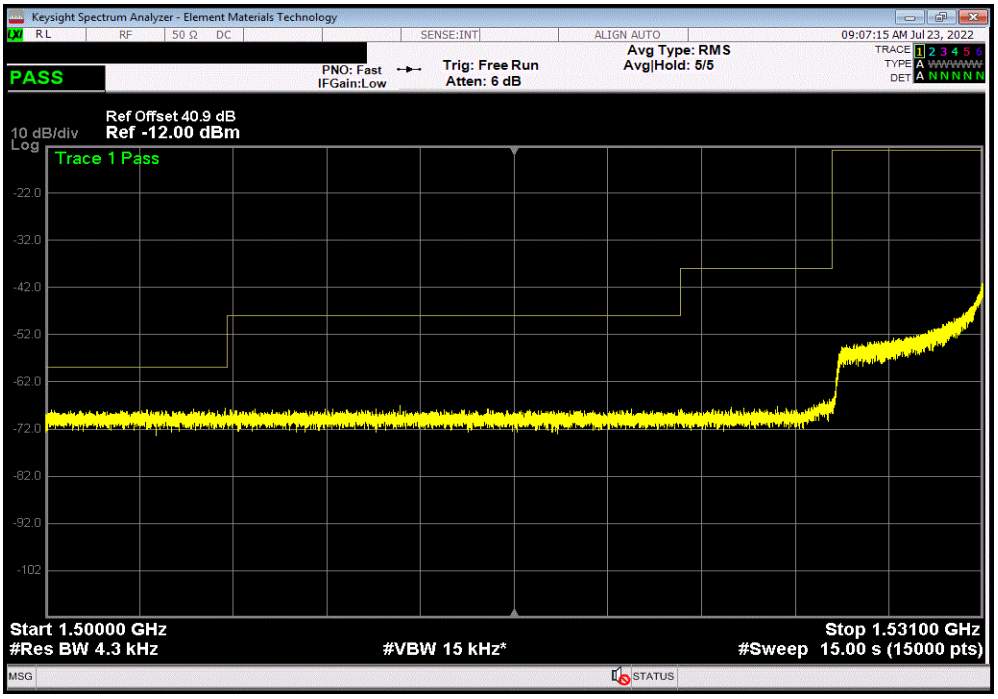


SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 10MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, 256-QAM Modulation, Low Side Channel 1531 MHz, 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

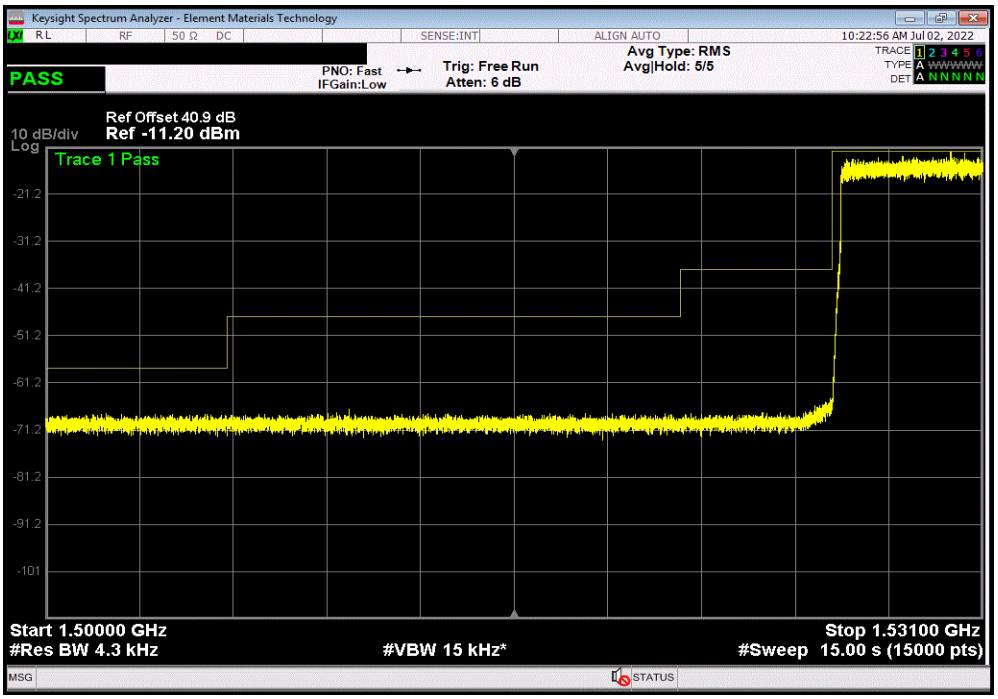


5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, 256-QAM Modulation, Low Side Channel 1531 MHz, 25 RB/27 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

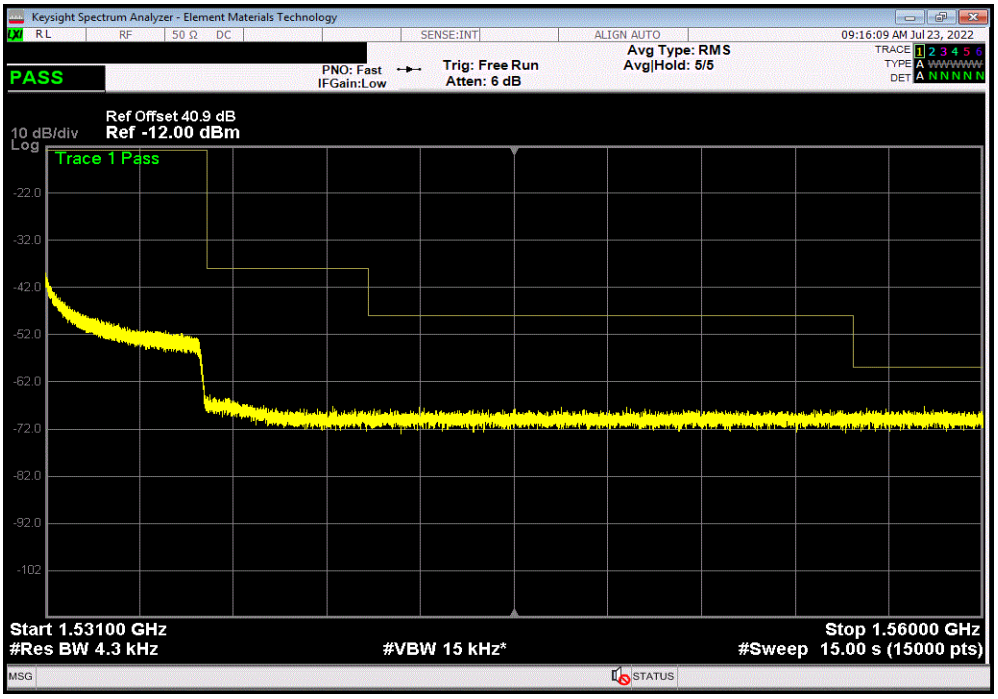


SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 10MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, 256-QAM Modulation, Low Side Channel 1531 MHz, 52 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, 256-QAM Modulation, High Side Channel 1531 MHz, 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 10MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, 256-QAM Modulation, High Side Channel 1531 MHz, 25 RB/27 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
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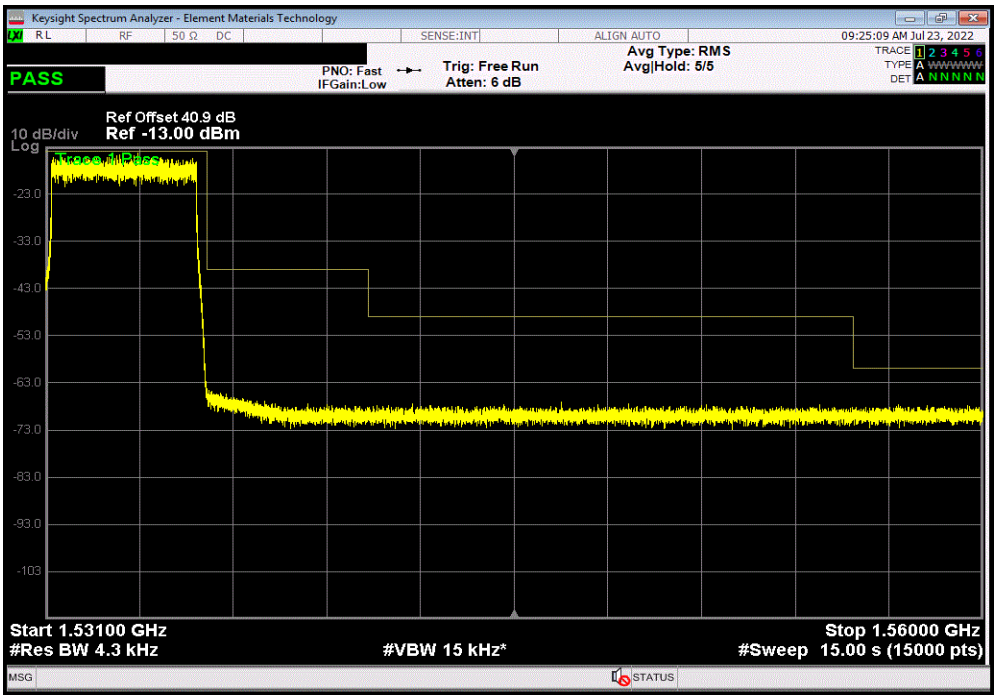

5G NR, Band n24, SCS 15kHz, 10 MHz Bandwidth, 256-QAM Modulation, High Side Channel 1531 MHz, 52 RB/0 Offset						
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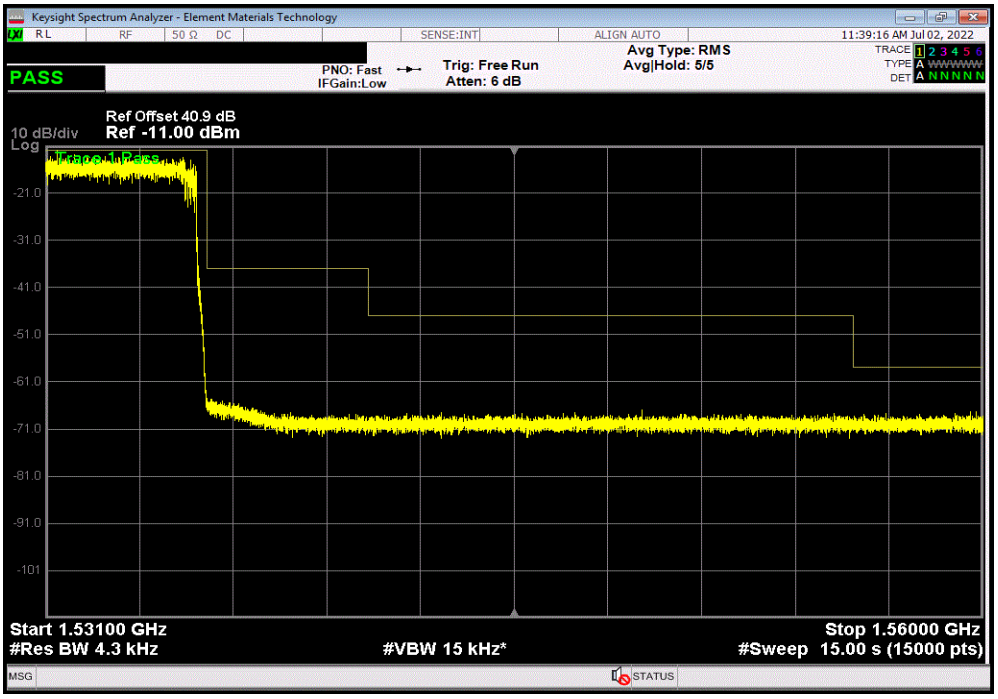

SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 3dBi

element

XMit 2022.02.07.0

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.

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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

TEST DESCRIPTION

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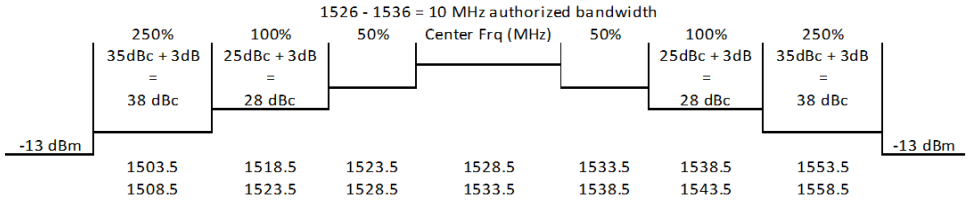
The emission mask defined by 25.202 (f) for 10 MHz authorized bandwidth terrestrial devices is shown on each plot. The 0 dB reference for the mask is the measured output power of the modulated carrier at that frequency.

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.

SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 3dBi

element

TNTx 2022.05.02.0 XMit 2022.07.0

EUT:	TR44KA Base Station			**Work Order:**	MASY0006
Serial Number:	SV2146TR44KA000001			**Date:**	9-Aug-22
Customer:	Mavenir Systems, Inc			**Temperature:**	20.8 °C
Attendees:	None			**Humidity:**	55.6% RH
Project:	None			**Barometric Pres.:**	1021 mbar
Tested by:	Brandon Hobbs	**Power:**	48 VDC	**Job Site:**	TX09

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 dBi antenna gain (Final software value set to 42) . Per KDB 662911 D01 single antanna port testing with [10 log (Nant)] added to the relative limits. The single available Resource Block / Offset configuration was use.

DEVIATIONS FROM TEST STANDARD

None

Configuration #	1	*Signature*

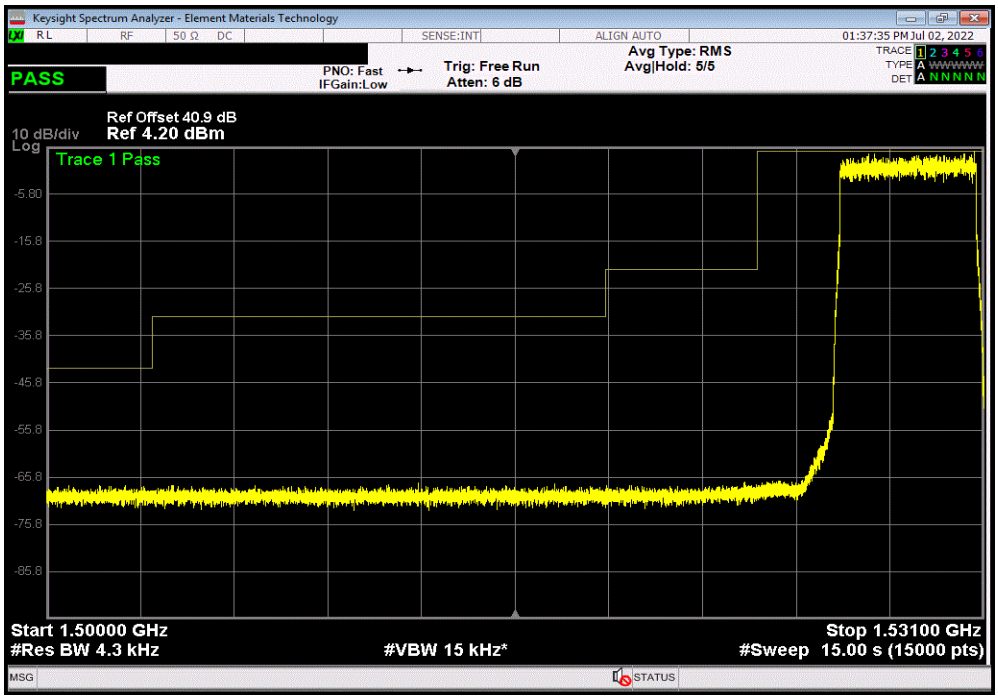
	From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
5G NR, Band n24, SCS 15kHz					
5 MHz Bandwidth					
QPSK Modulation					
Low Channel 1528.5 MHz					
Lower Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
Higher Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
High Channel 1533.5 MHz					
Lower Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
Higher Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
16-QAM Modulation					
Low Channel 1528.5 MHz					
Lower Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
Higher Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
High Channel 1533.5 MHz					
Lower Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
Higher Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
64-QAM Modulation					
Low Channel 1528.5 MHz					
Lower Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
Higher Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
High Channel 1533.5 MHz					
Lower Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
Higher Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
256-QAM Modulation					
Low Channel 1528.5 MHz					
Lower Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
Higher Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
High Channel 1533.5 MHz					
Lower Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
Higher Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass

SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 3dBi

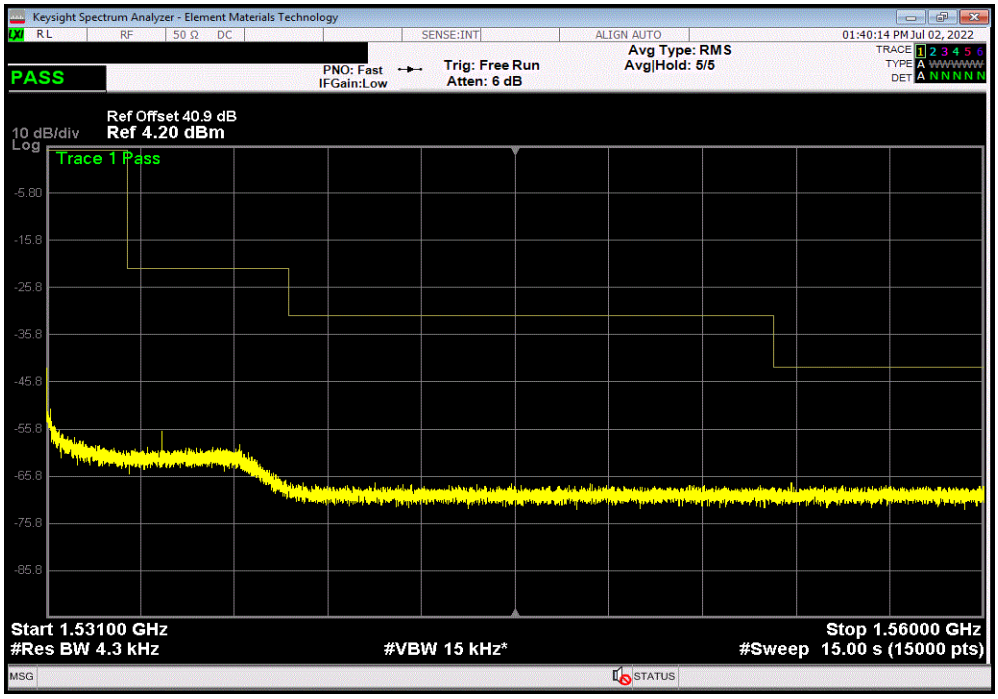
element

TbtTx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, QPSK Modulation, Low Channel 1528.5 MHz, Lower Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



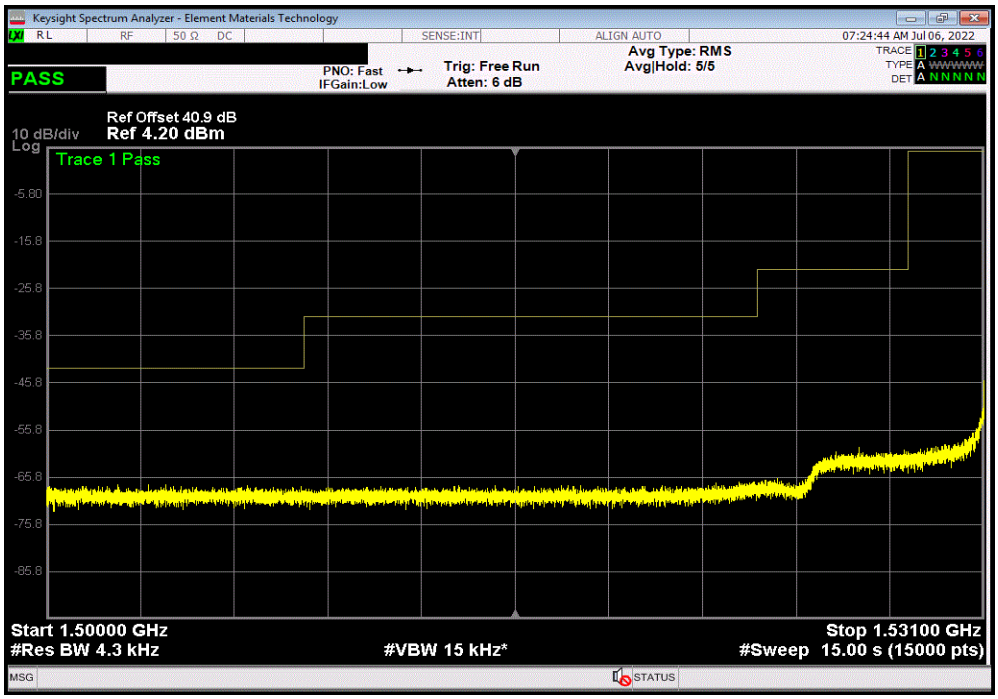
5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, QPSK Modulation, Low Channel 1528.5 MHz, Higher Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 3dBi

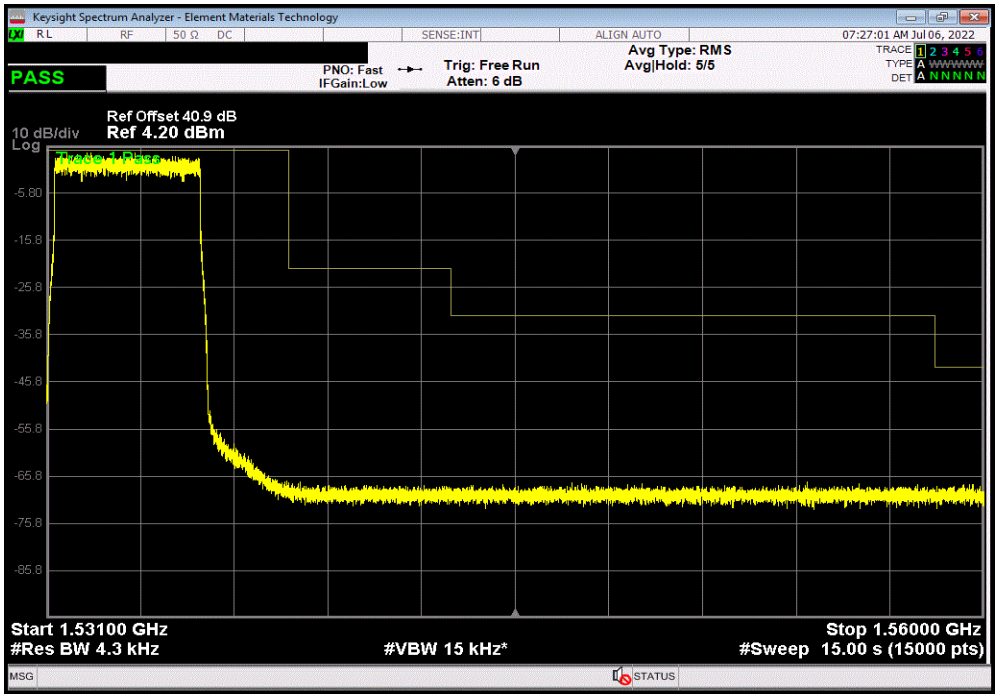
5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, QPSK Modulation, High Channel 1533.5 MHz, Lower Side 25 RB/0 Offset

		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, QPSK Modulation, High Channel 1533.5 MHz, Higher Side 25 RB/0 Offset

		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

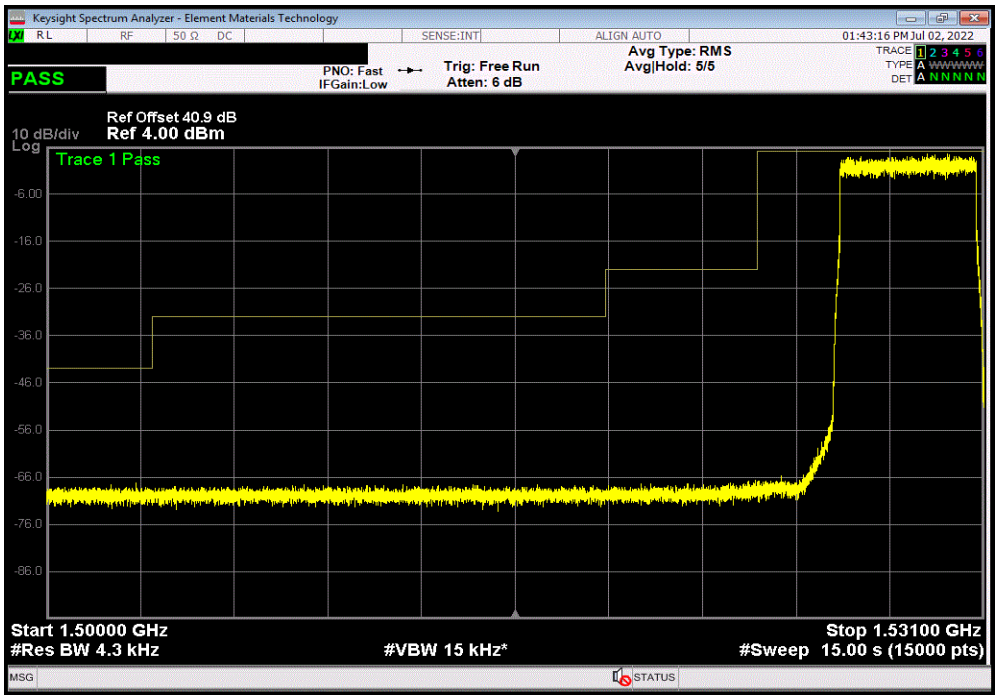


SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 3dBi

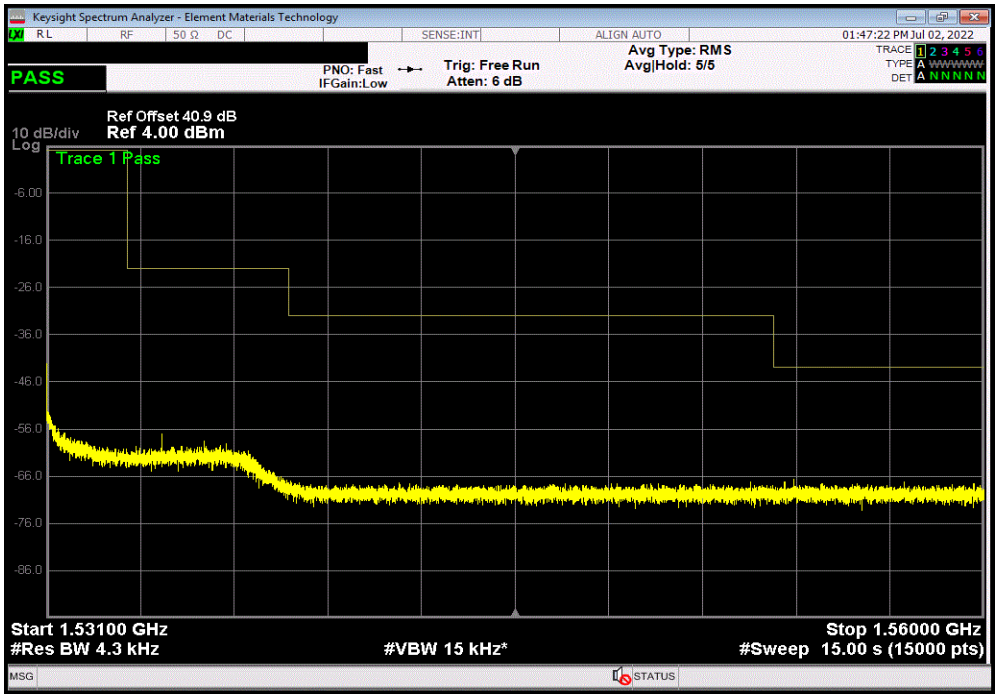
element

TbtTx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 16-QAM Modulation, Low Channel 1528.5 MHz, Lower Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 16-QAM Modulation, Low Channel 1528.5 MHz, Higher Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

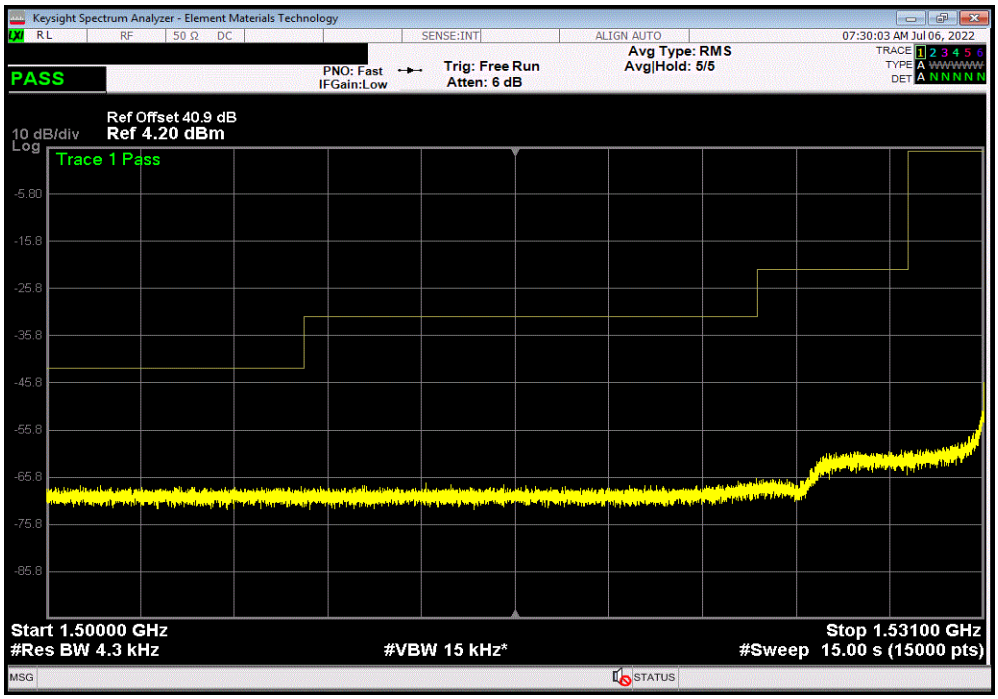


SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 3dBi

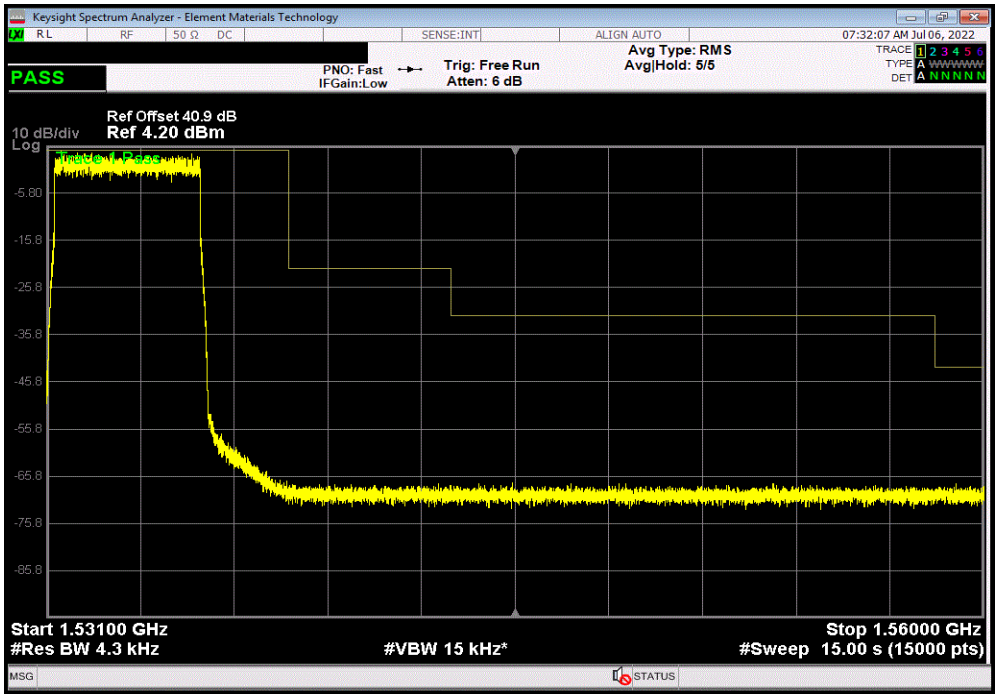
element

TbtTx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 16-QAM Modulation, High Channel 1533.5 MHz, Lower Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



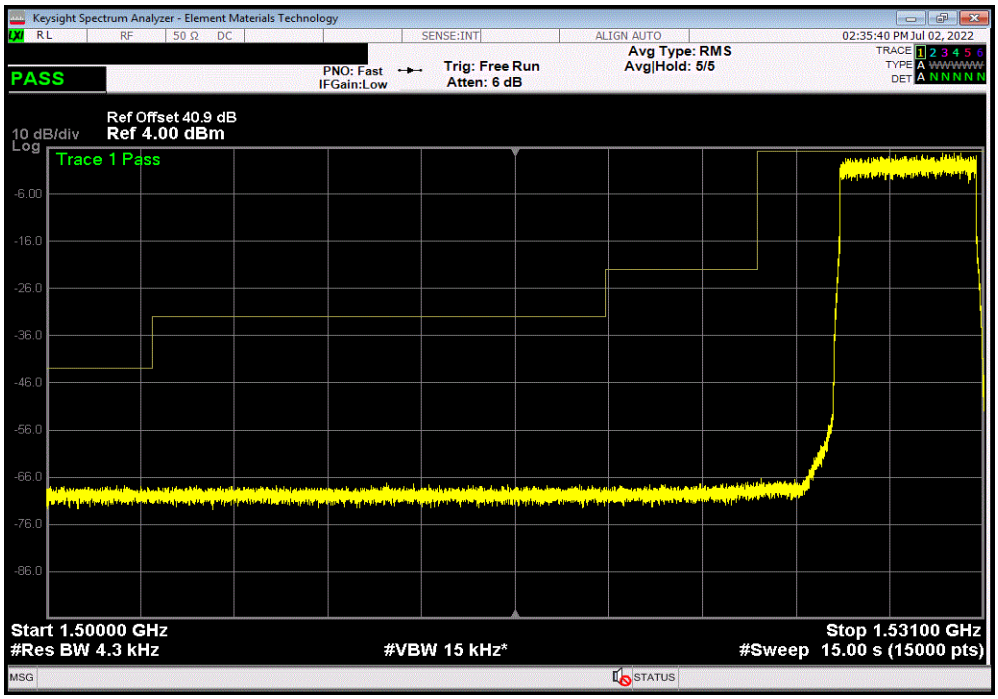
5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 16-QAM Modulation, High Channel 1533.5 MHz, Higher Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 3dBi

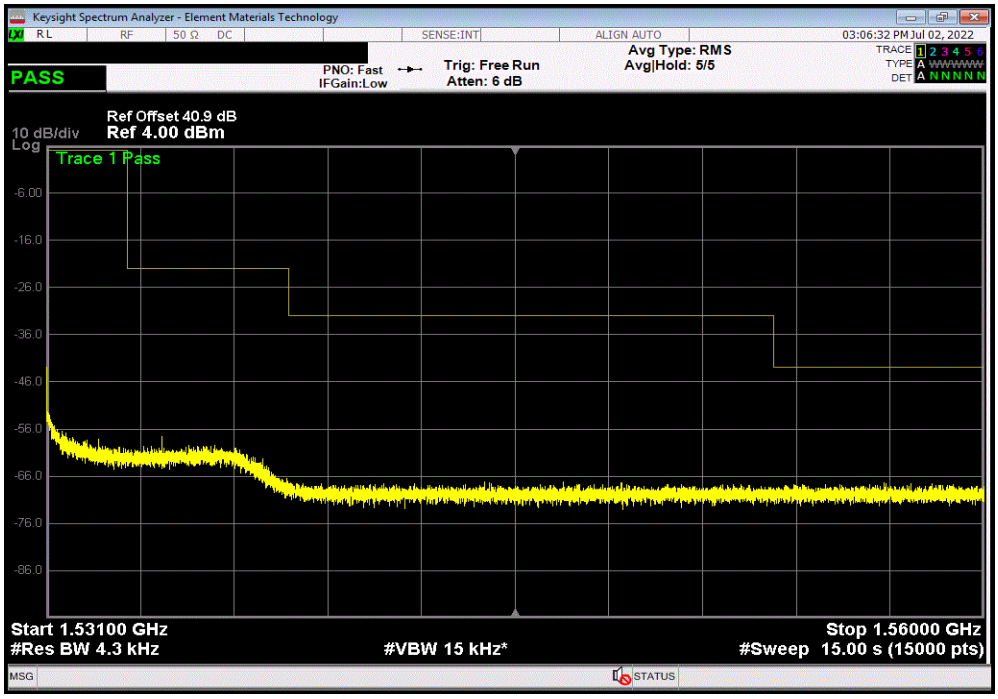
5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 64-QAM Modulation, Low Channel 1528.5 MHz, Lower Side 25 RB/0 Offset

		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 64-QAM Modulation, Low Channel 1528.5 MHz, Higher Side 25 RB/0 Offset

		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

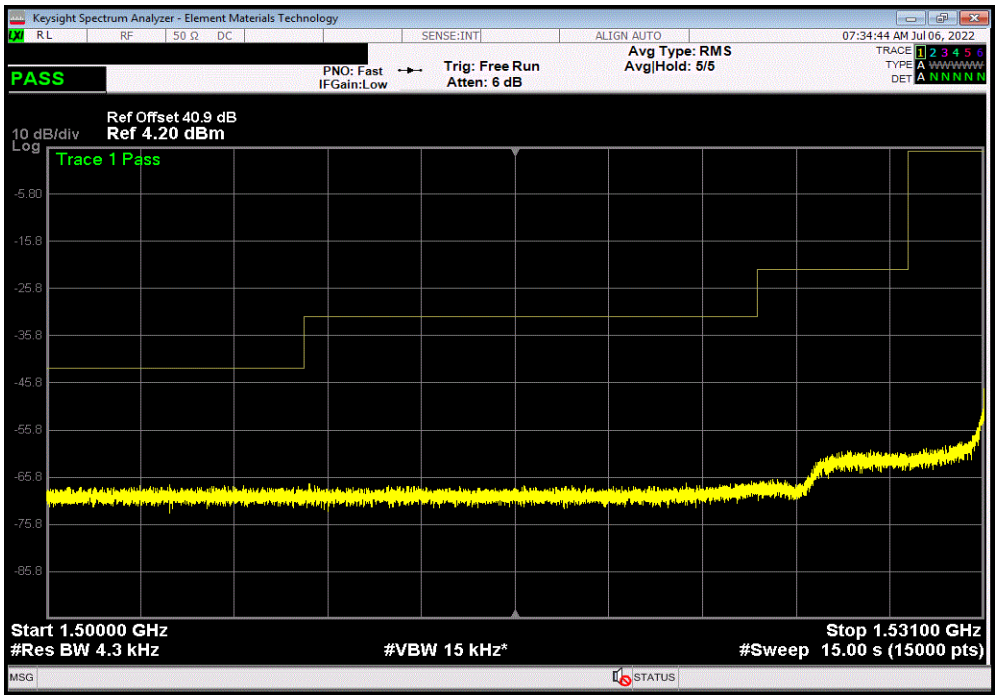


SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 3dBi

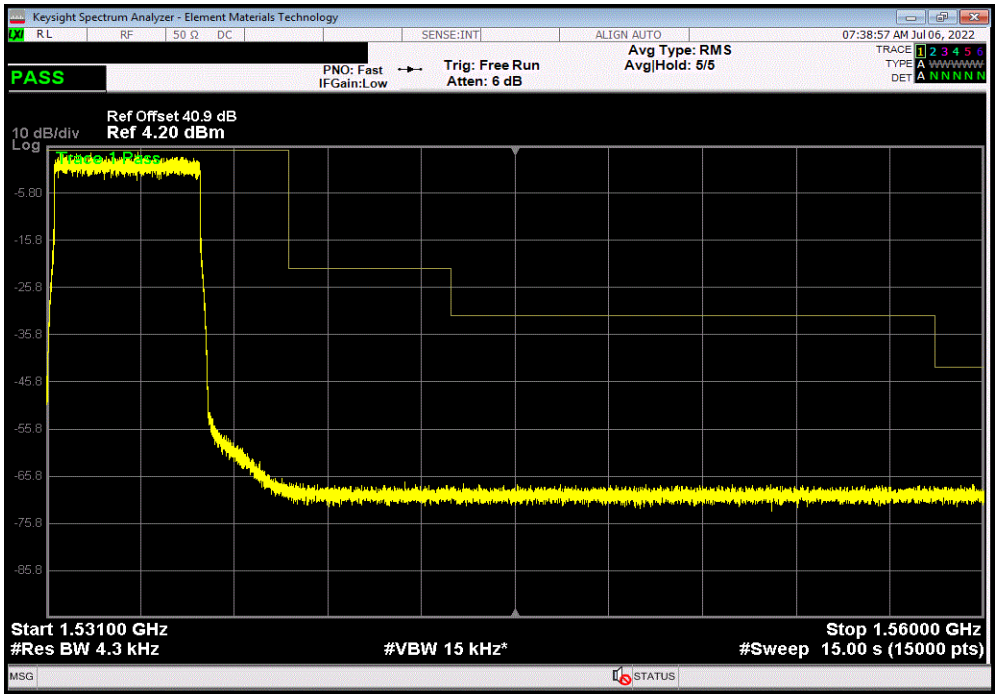
element

TbtTx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 64-QAM Modulation, High Channel 1533.5 MHz, Lower Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

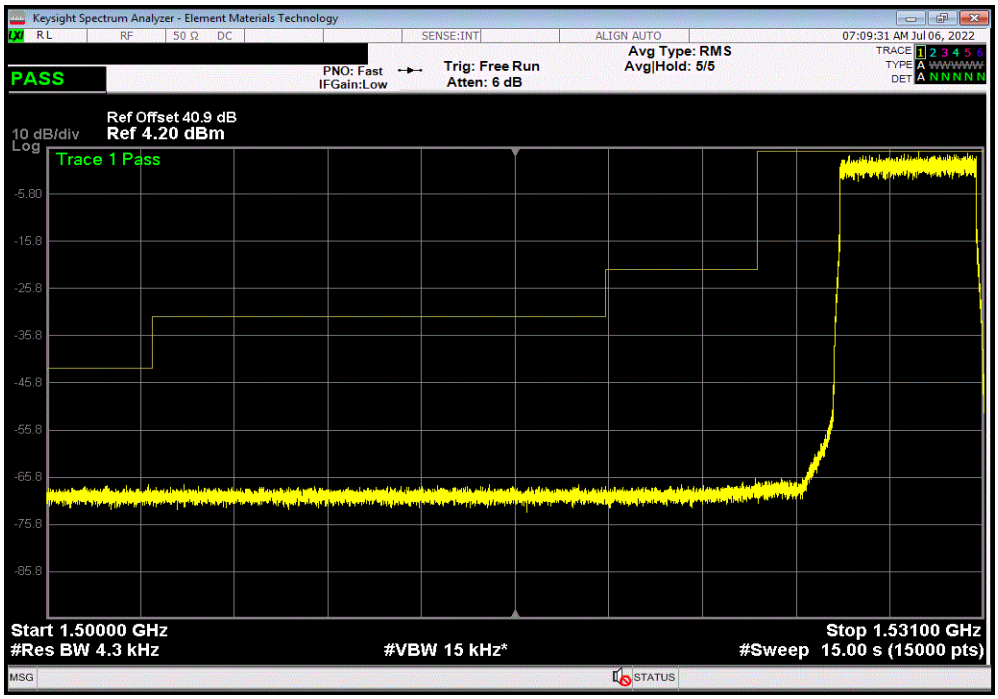


5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 64-QAM Modulation, High Channel 1533.5 MHz, Higher Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

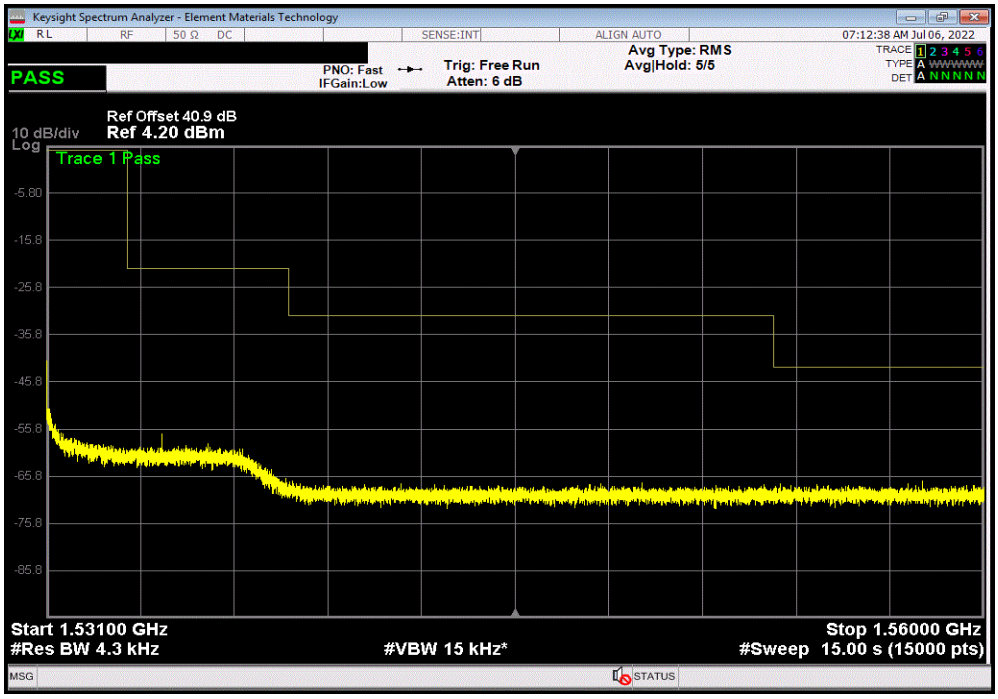


SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 3dBi

5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 256-QAM Modulation, Low Channel 1528.5 MHz, Lower Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

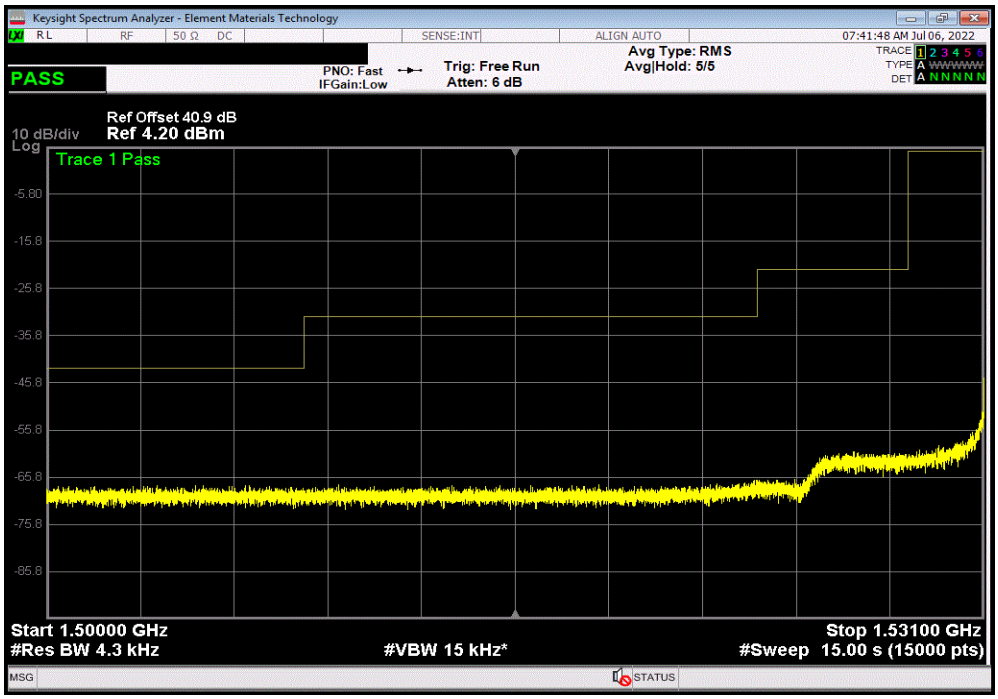


5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 256-QAM Modulation, Low Channel 1528.5 MHz, Higher Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

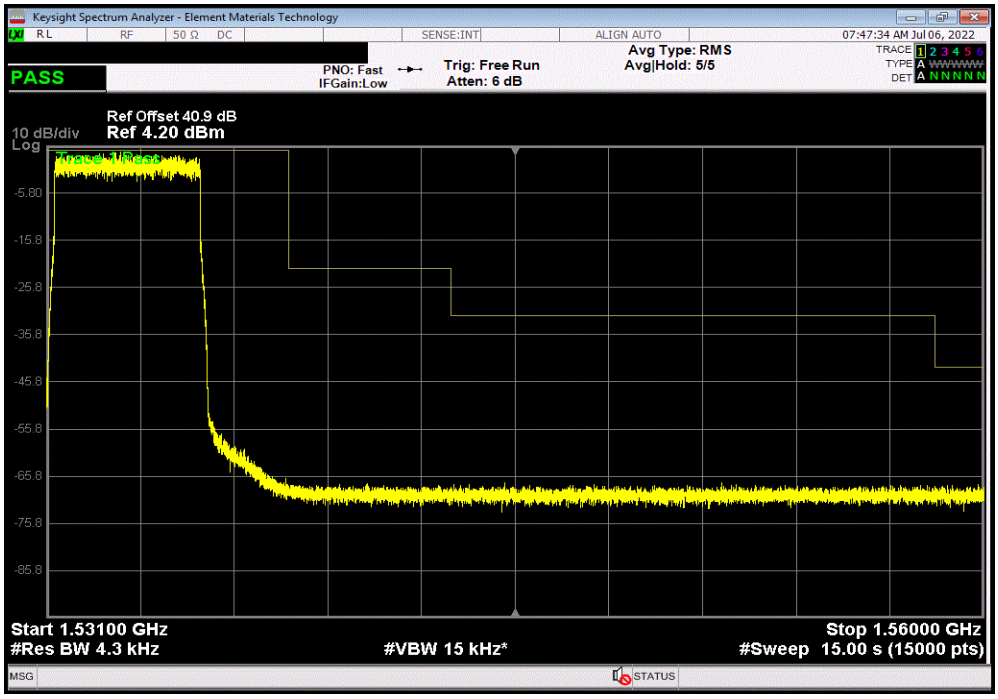


SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 3dBi

5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 256-QAM Modulation, High Channel 1533.5 MHz, Lower Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 256-QAM Modulation, High Channel 1533.5 MHz, Higher Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 16dBi

XMit 2022.02.07.0

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

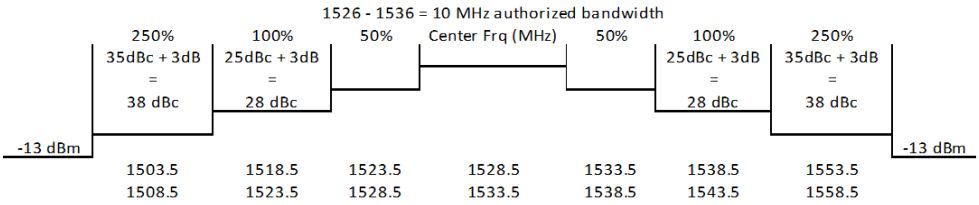
Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	2022-01-19	2023-01-19
Block - DC	Fairview Microwave	SD3235-2148	ANF	2022-05-27	2023-05-27
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXK	2021-09-13	2022-09-13
Generator - Signal	Agilent	N5173B	TIW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

SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 16dBi

element

TbtTx 2022.05.02.0 XMit 2022.02.07.0

EUT:	TR44KA Base Station			**Work Order:**	MASY0006
Serial Number:	SV2146TR44KA000001			**Date:**	9-Aug-22
Customer:	Mavenir Systems, Inc			**Temperature:**	21.3 °C
Attendees:	None			**Humidity:**	54.7% RH
Project:	None			**Barometric Pres.:**	1020 mbar
Tested by:	Brandon Hobbs	**Power:**	48 VDC	**Job Site:**	TX09

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 16 dBi antenna gain (Final software value set to 29) . Per KDB 662911 D01 single antanna port testing with [10 log (Nant)] added to the relative limits. The single available Resource Block / Offset configuration was used.

DEVIATIONS FROM TEST STANDARD

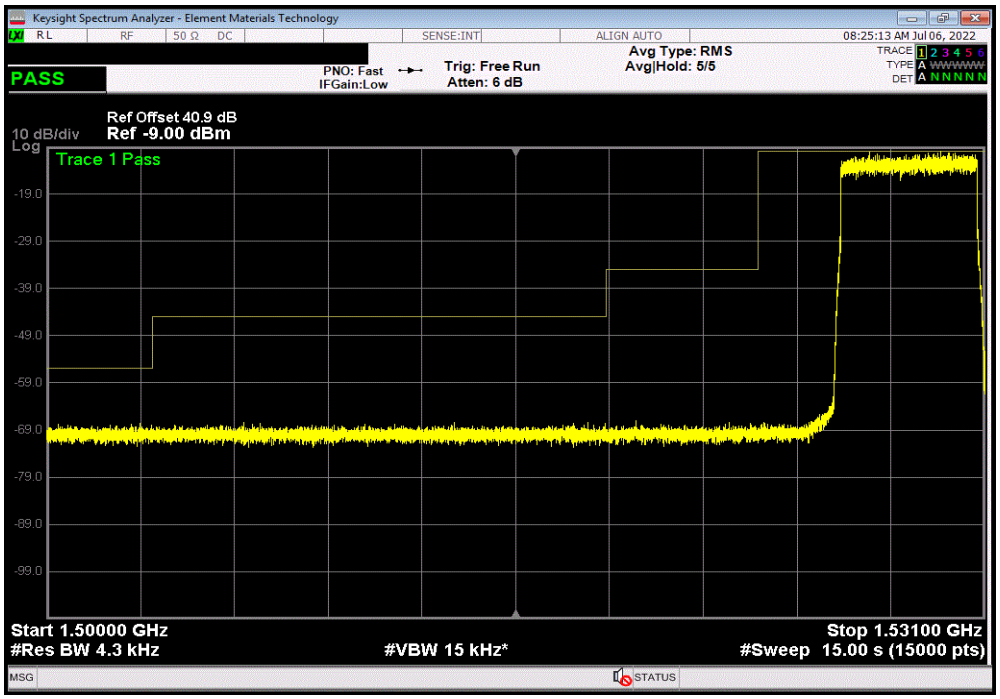
None

Configuration #	1	Signature

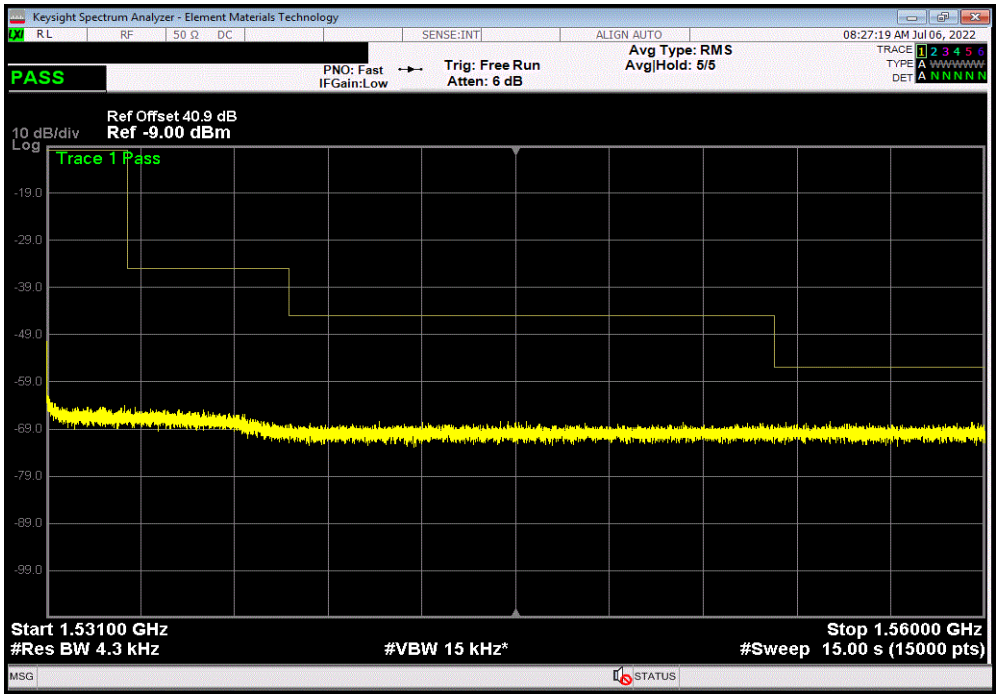
	From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
5G NR, Band n24, SCS 15kHz					
5 MHz Bandwidth					
QPSK Modulation					
Low Channel 1528.5 MHz					
Lower Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
Higher Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
High Channel 1533.5 MHz					
Lower Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
Higher Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
16-QAM Modulation					
Low Channel 1528.5 MHz					
Lower Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
Higher Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
High Channel 1533.5 MHz					
Lower Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
Higher Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
64-QAM Modulation					
Low Channel 1528.5 MHz					
Lower Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
Higher Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
High Channel 1533.5 MHz					
Lower Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
Higher Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
256-QAM Modulation					
Low Channel 1528.5 MHz					
Lower Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
Higher Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
High Channel 1533.5 MHz					
Lower Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass
Higher Side 25 RB/0 Offset	> 20	See Graph	> 20	See Graph	Pass

SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, QPSK Modulation, Low Channel 1528.5 MHz, Lower Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

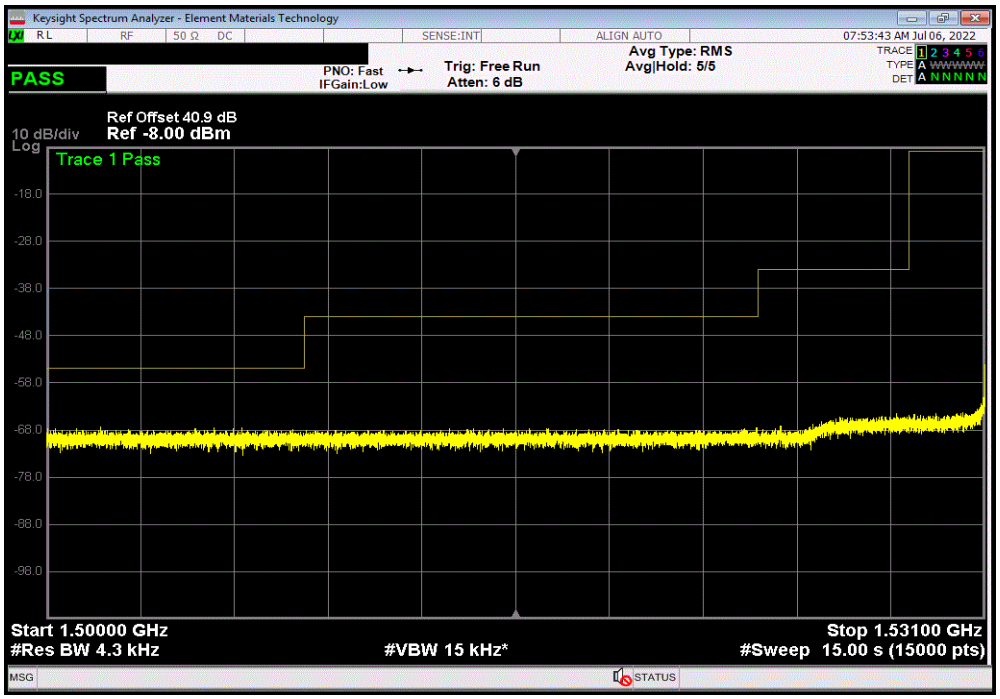


5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, QPSK Modulation, Low Channel 1528.5 MHz, Higher Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

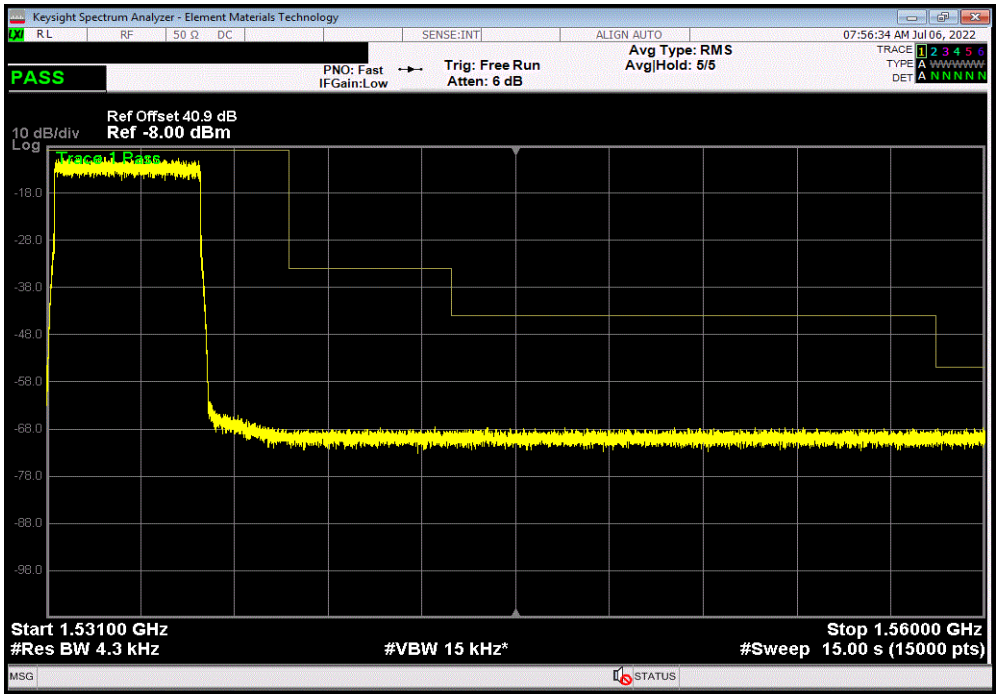


SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, QPSK Modulation, High Channel 1533.5 MHz, Lower Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

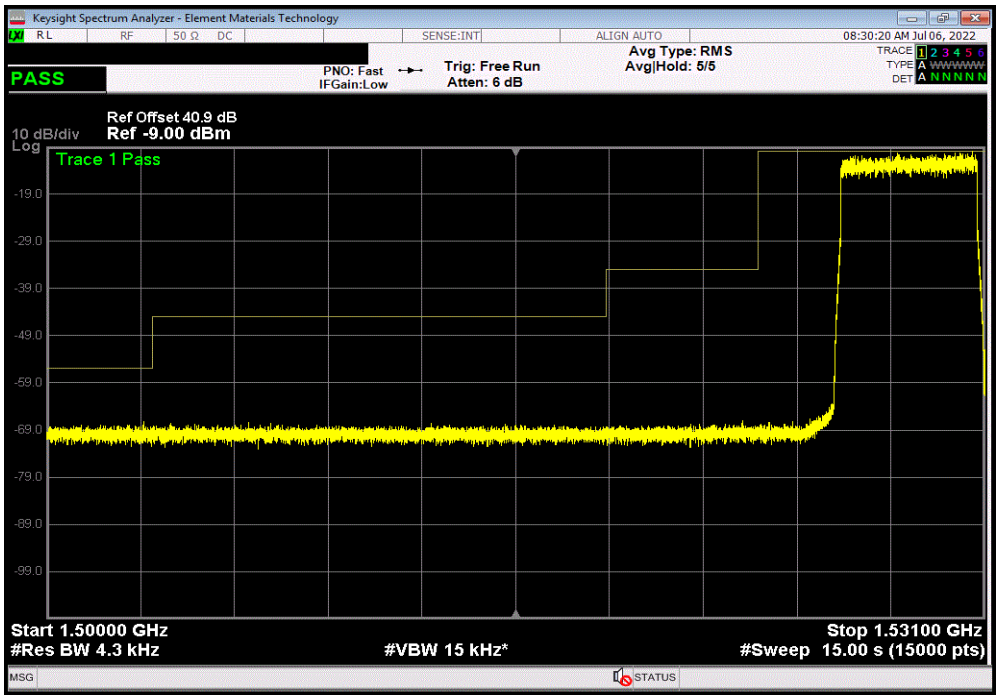


5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, QPSK Modulation, High Channel 1533.5 MHz, Higher Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

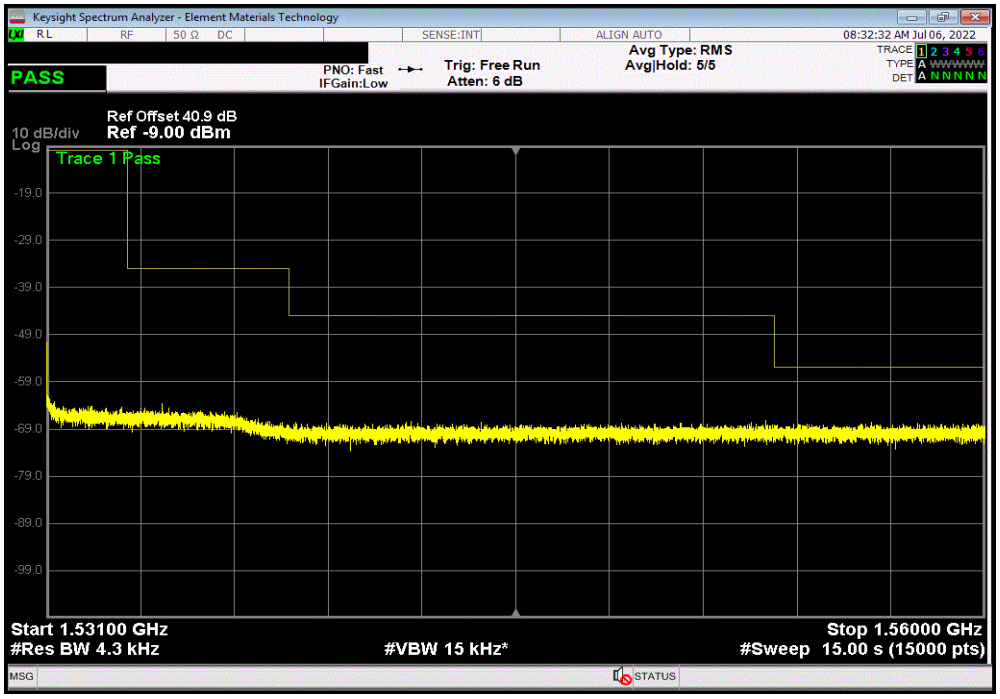


SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 16-QAM Modulation, Low Channel 1528.5 MHz, Lower Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

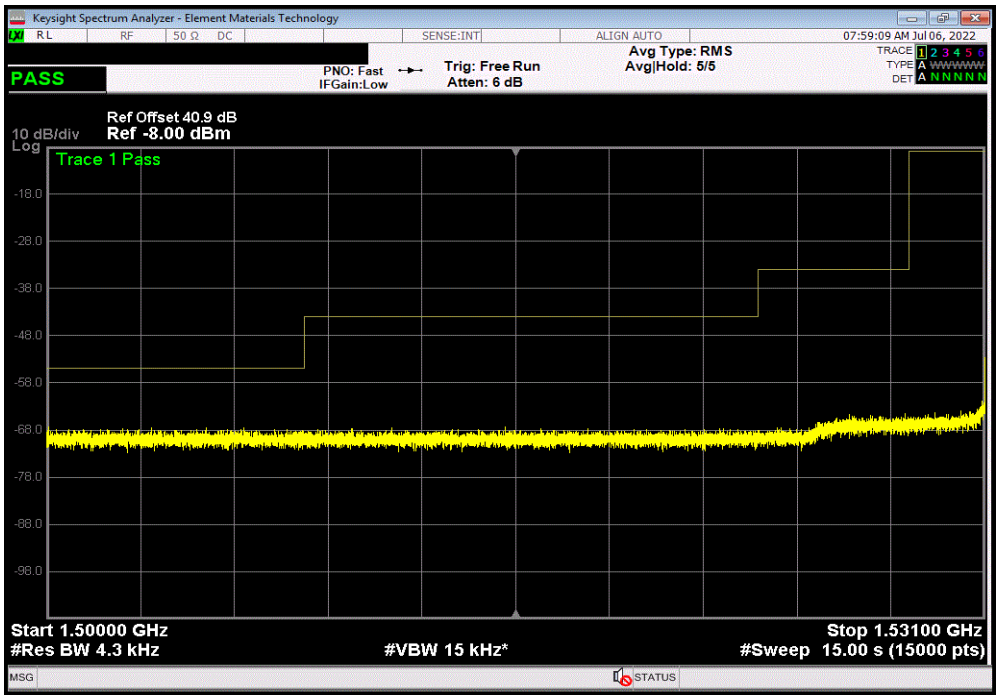


5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 16-QAM Modulation, Low Channel 1528.5 MHz, Higher Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

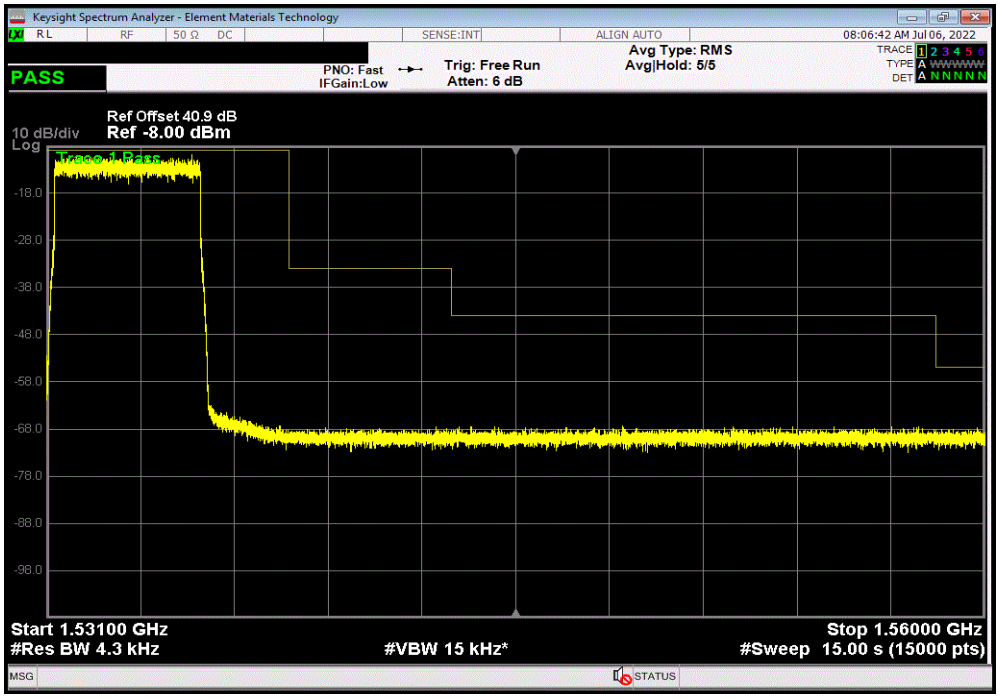


SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 16-QAM Modulation, High Channel 1533.5 MHz, Lower Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

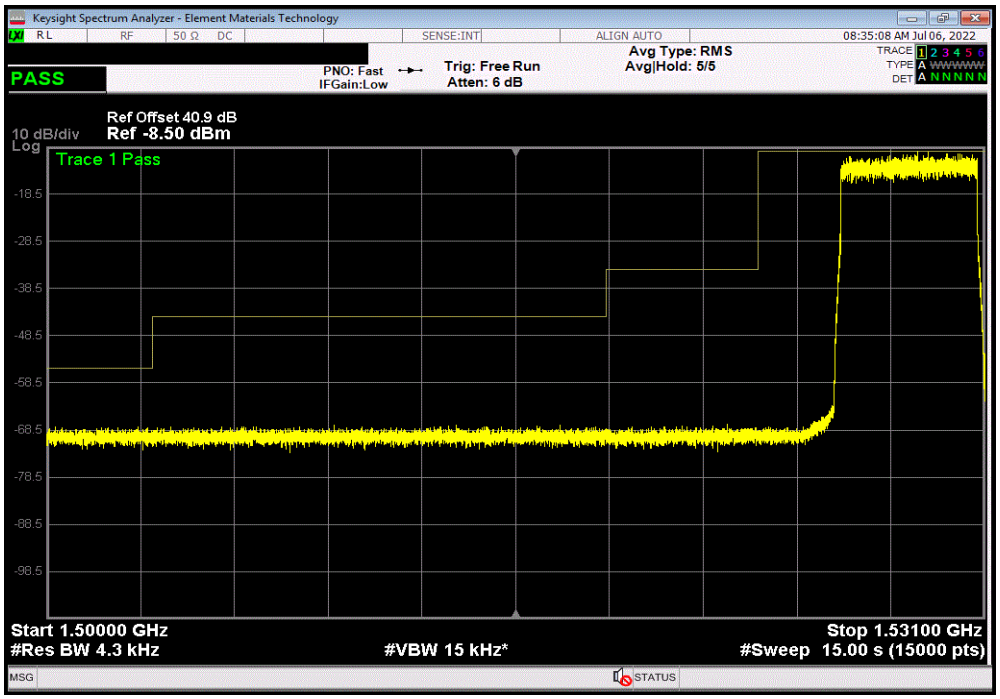


5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 16-QAM Modulation, High Channel 1533.5 MHz, Higher Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

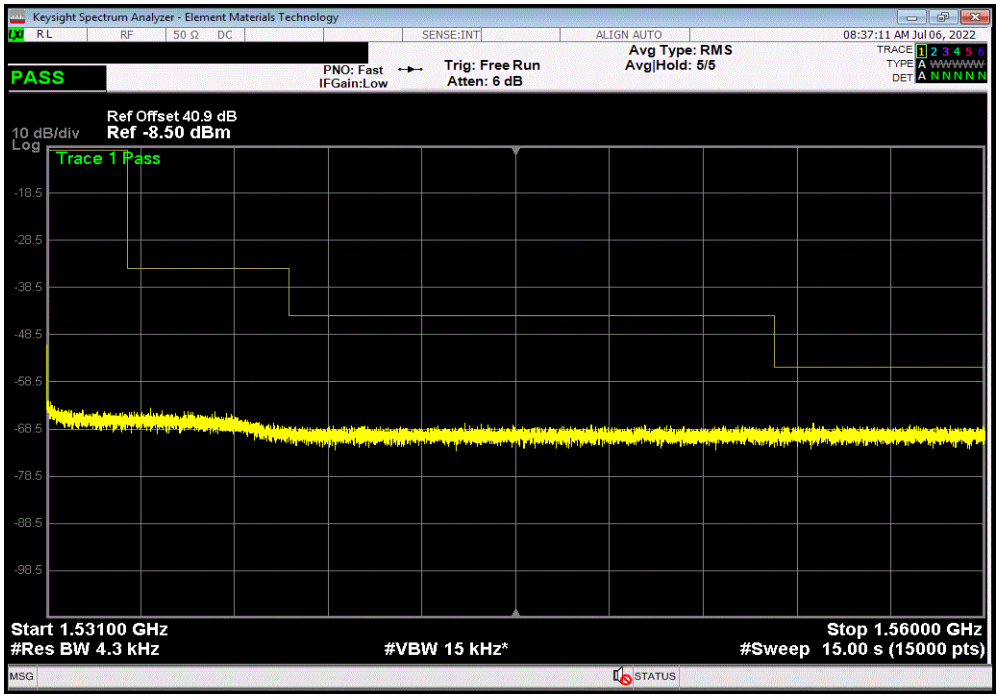


SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 64-QAM Modulation, Low Channel 1528.5 MHz, Lower Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

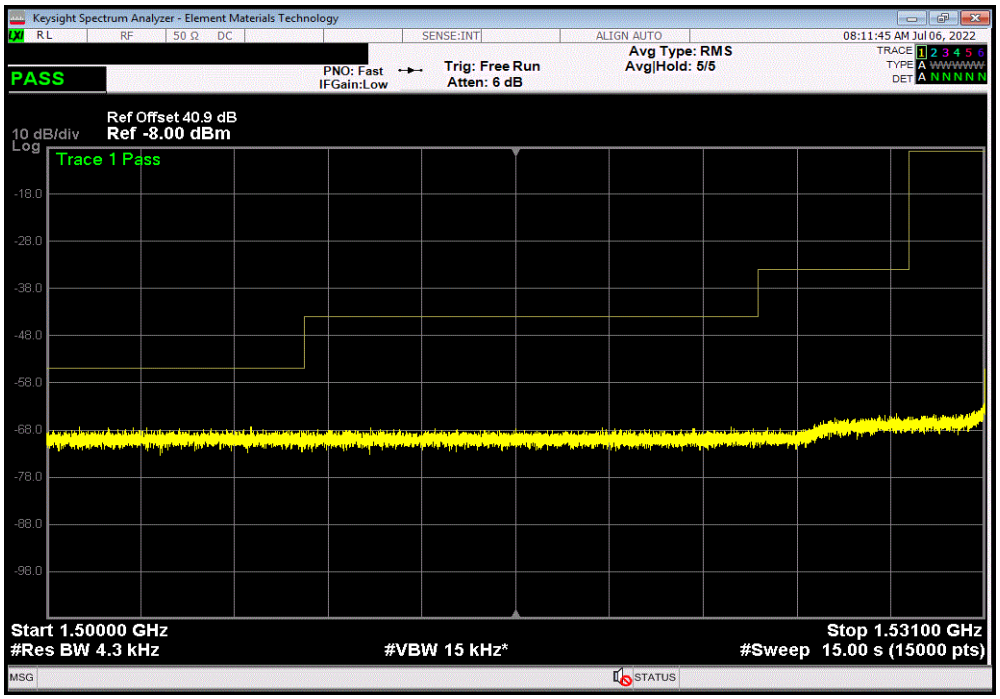


5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 64-QAM Modulation, Low Channel 1528.5 MHz, Higher Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

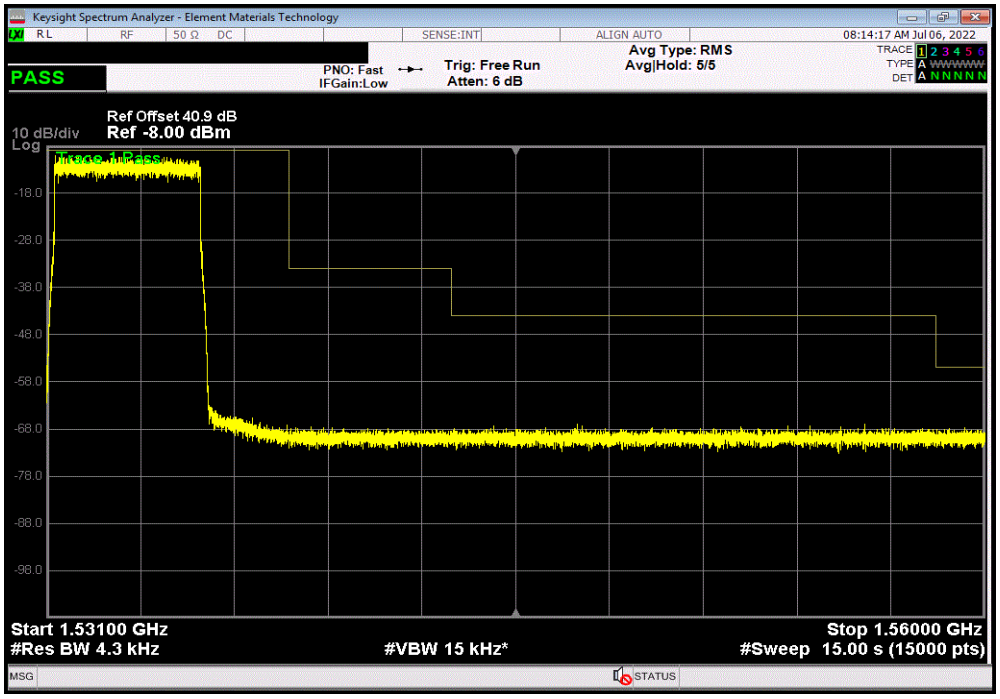


SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 64-QAM Modulation, High Channel 1533.5 MHz, Lower Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

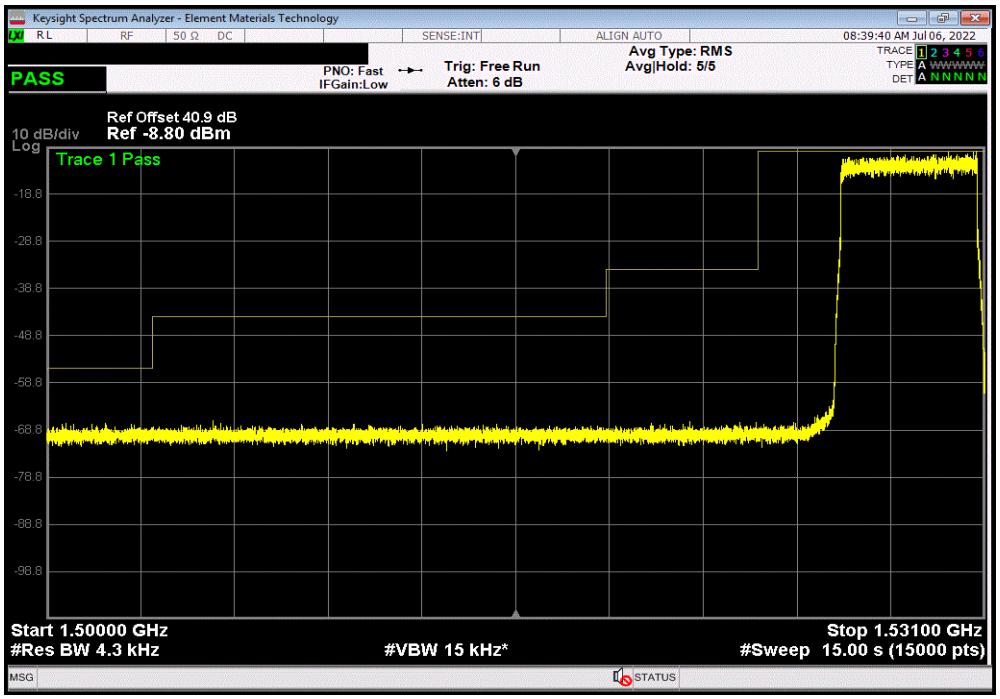


5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 64-QAM Modulation, High Channel 1533.5 MHz, Higher Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

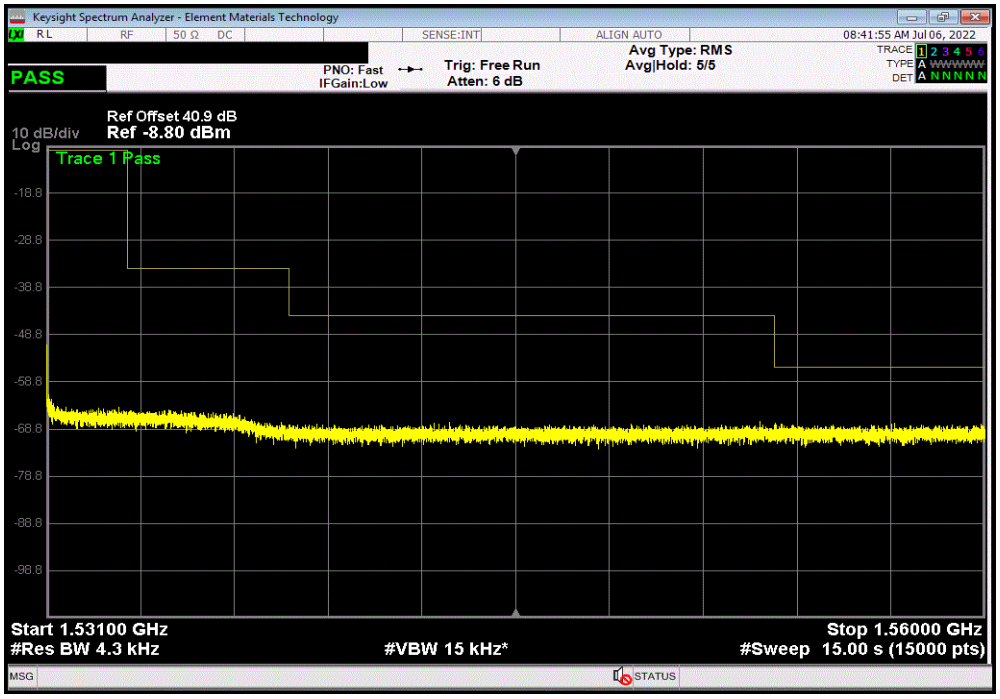


SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 256-QAM Modulation, Low Channel 1528.5 MHz, Lower Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass

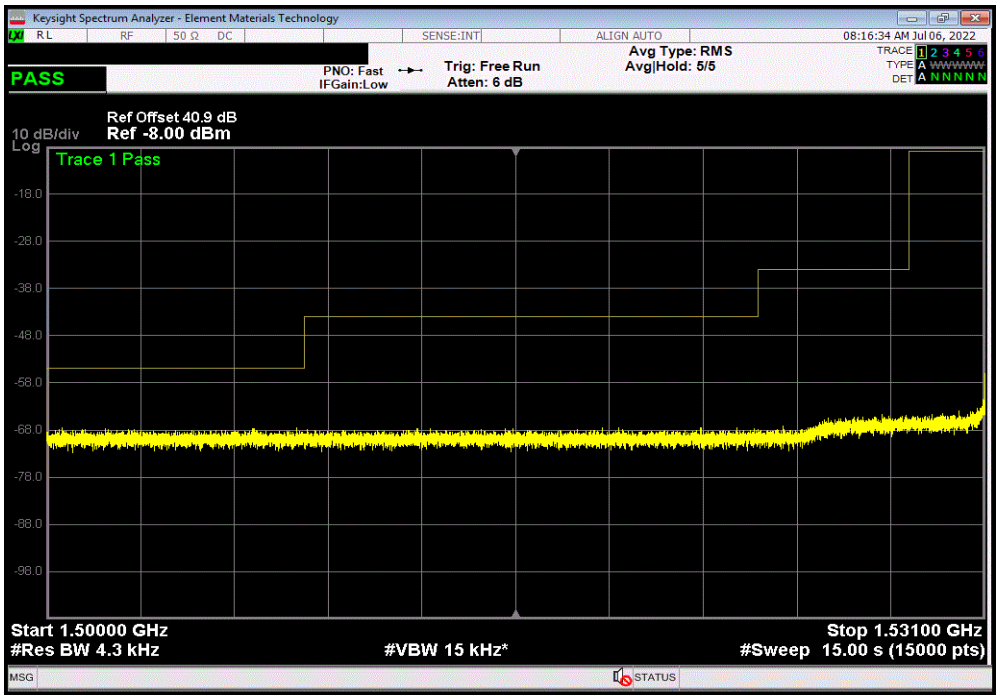
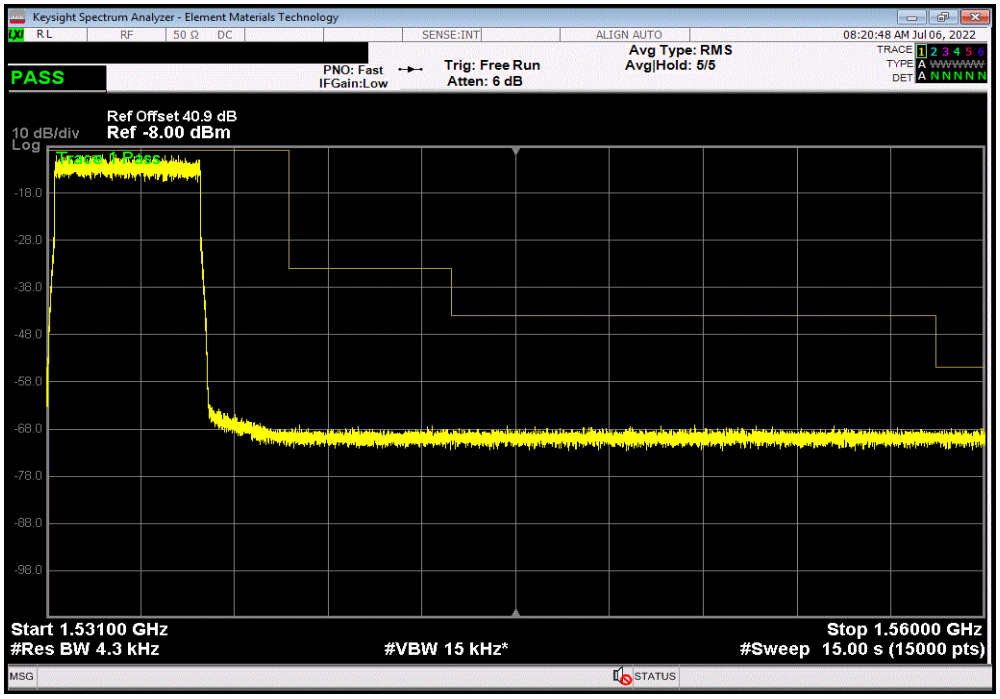


5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 256-QAM Modulation, Low Channel 1528.5 MHz, Higher Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



SPURIOUS EMISSION AT THE ANTENNA TERMINALS - EMISSION MASK - 5MHz, 16dBi

5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 256-QAM Modulation, High Channel 1533.5 MHz, Lower Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass



5G NR, Band n24, SCS 15kHz, 5 MHz Bandwidth, 256-QAM Modulation, High Channel 1533.5 MHz, Higher Side 25 RB/0 Offset						
		From 38 dBc Limit Value (dBc)	Limit 38 dBc	From 28 dBc Limit Value (dBc)	Limit 28 dBc	Result
		> 20	See Graph	> 20	See Graph	Pass