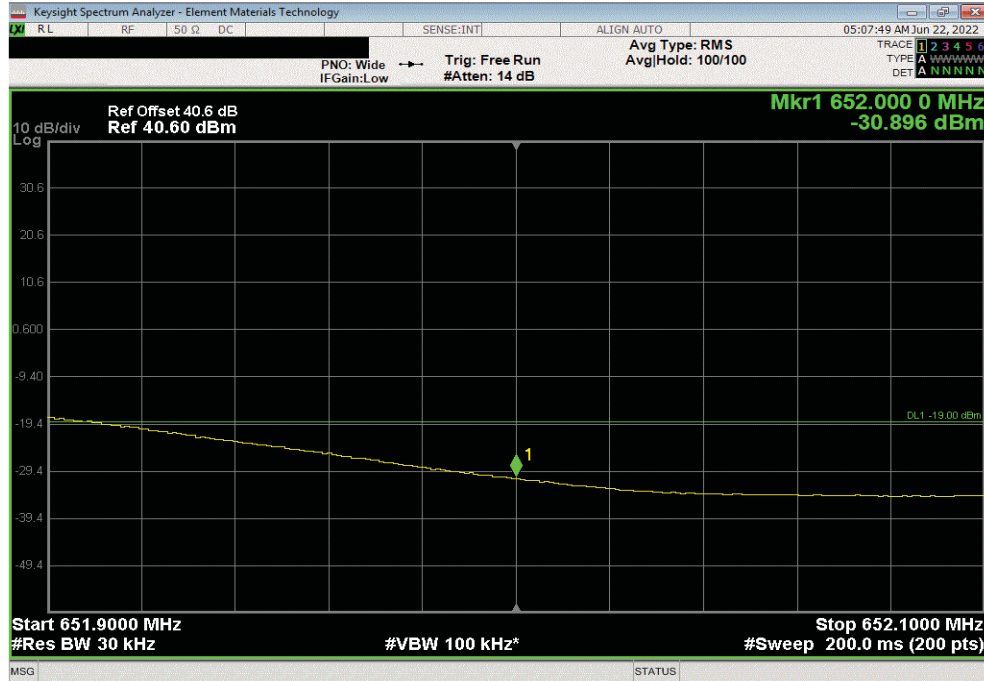


BAND EDGE COMPLIANCE - BAND n71

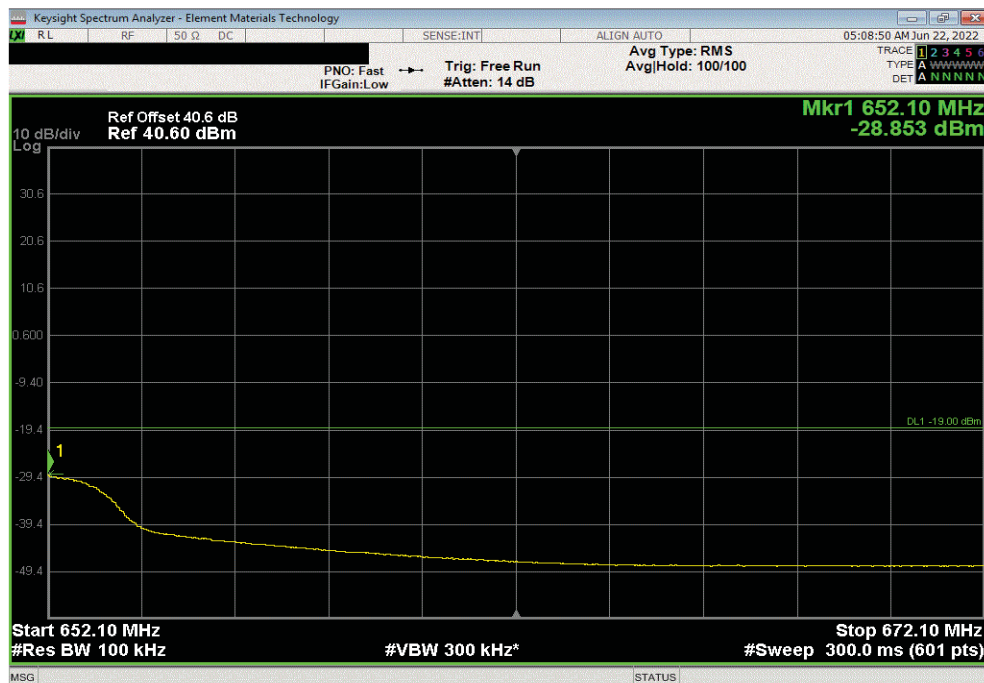


TbTx 2022.05.02.0 XMit 2022.02.07.0

Port 1, 5G NR, Band 71, 617 MHz - 652 MHz, 15 MHz Bandwidth, 256-QAM Modulation, High Ch. 644.5 MHz						
Frequency Range		Max Value (dBm)		Limit < (dBm)		Result
1		-30.9		-19		Pass



Port 1, 5G NR, Band 71, 617 MHz - 652 MHz, 15 MHz Bandwidth, 256-QAM Modulation, High Ch. 644.5 MHz						
Frequency Range		Max Value (dBm)		Limit < (dBm)		Result
2		-28.85		-19		Pass

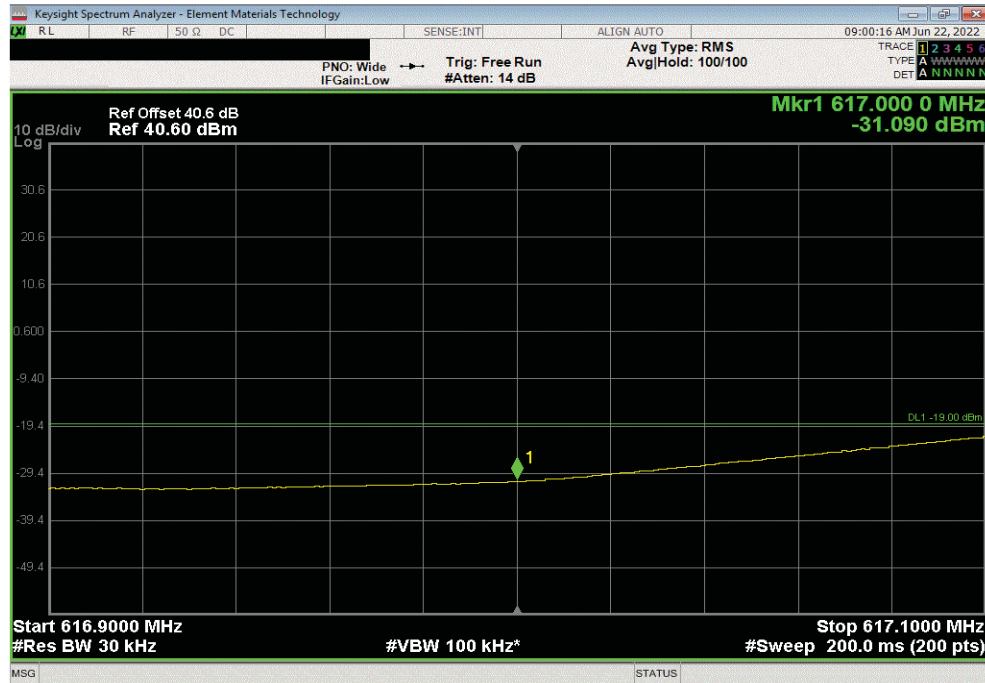


BAND EDGE COMPLIANCE - BAND n71

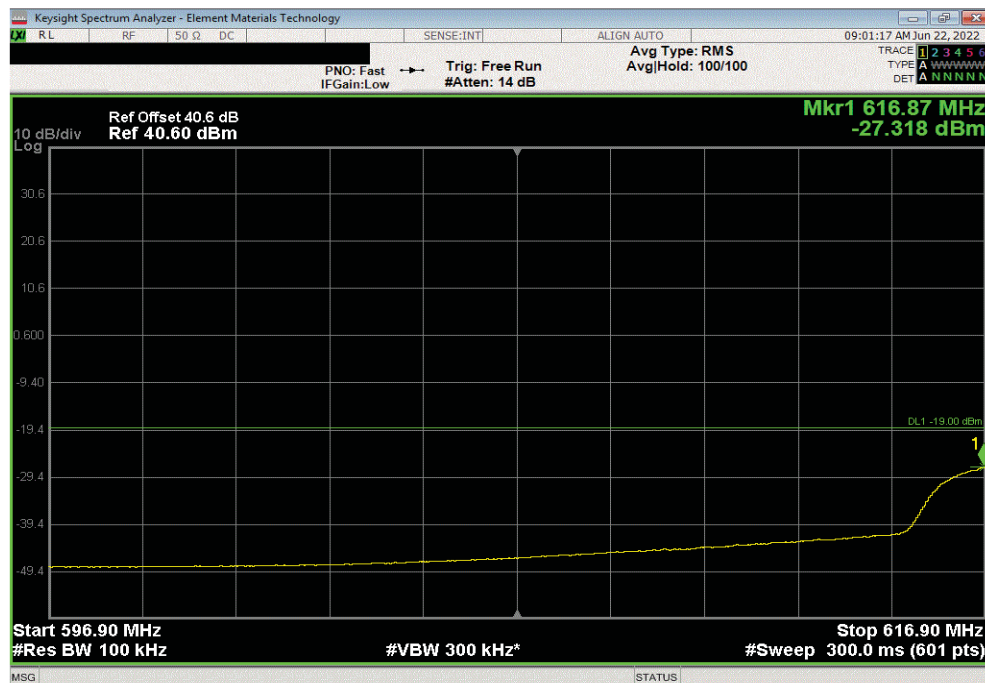


TbTtx 2022.05.02.0 XMit 2022.02.07.0

Port 1, 5G NR, Band 71, 617 MHz - 652 MHz, 20 MHz Bandwidth, 256-QAM Modulation, Low Ch. 627 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
1	-31.09	-19	Pass			



Port 1, 5G NR, Band 71, 617 MHz - 652 MHz, 20 MHz Bandwidth, 256-QAM Modulation, Low Ch. 627 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
2	-27.32	-19	Pass			

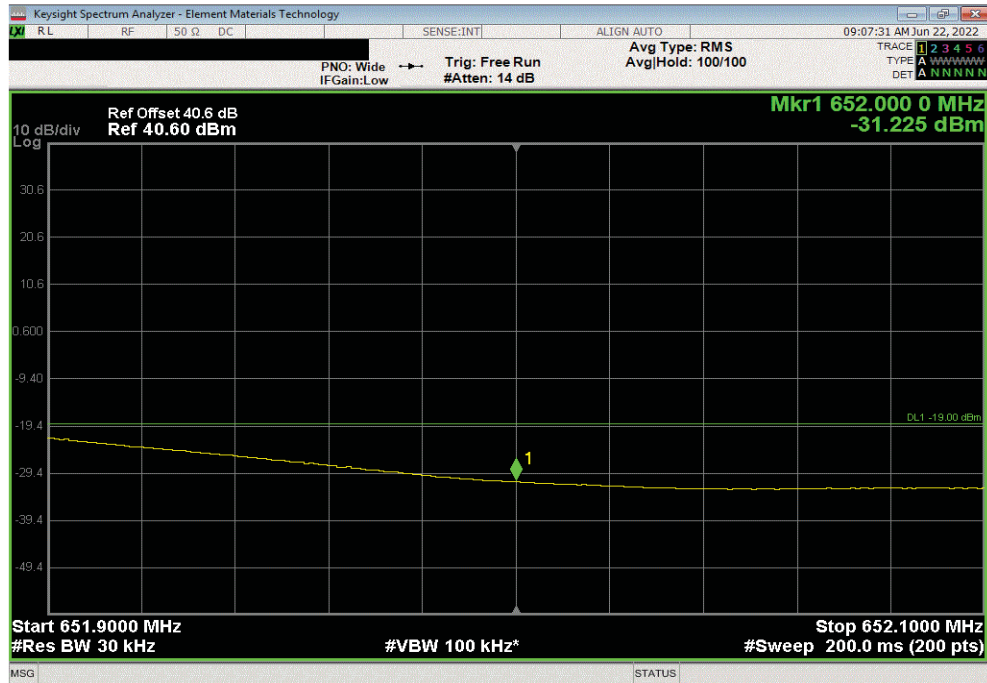


BAND EDGE COMPLIANCE - BAND n71

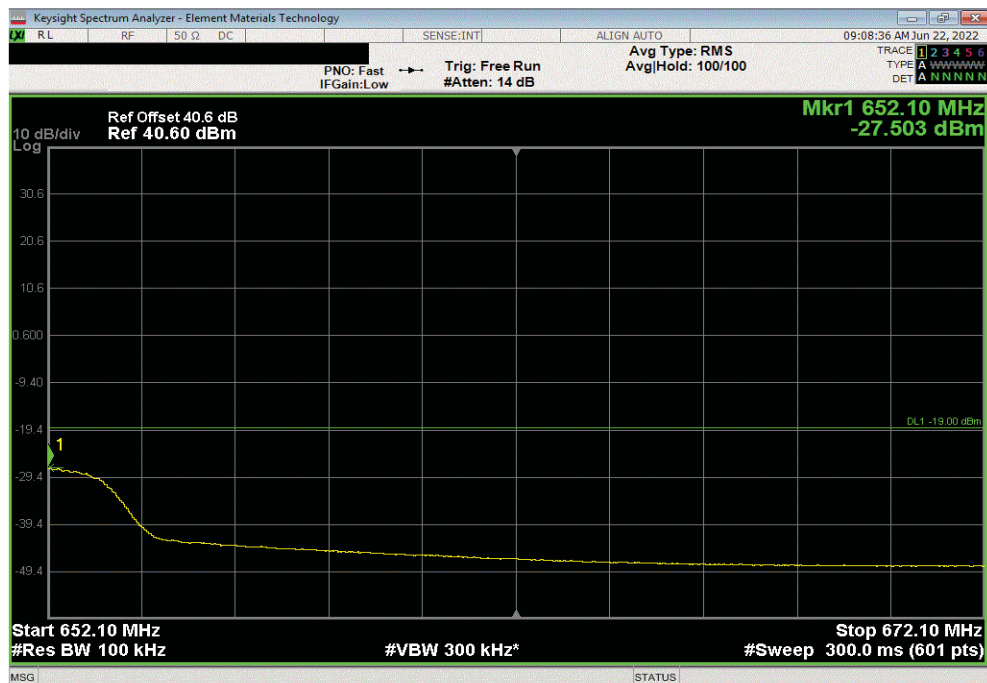


TbTtx 2022.05.02.0 XMit 2022.02.07.0

Port 1, 5G NR, Band 71, 617 MHz - 652 MHz, 20 MHz Bandwidth, 256-QAM Modulation, High Ch. 642 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
1	-31.23	-19	Pass			



Port 1, 5G NR, Band 71, 617 MHz - 652 MHz, 20 MHz Bandwidth, 256-QAM Modulation, High Ch. 642 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
2	-27.5	-19	Pass			



BAND EDGE COMPLIANCE - BAND n85



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
Block - DC	Fairview Microwave	SD3239	ANE	2022-03-02	2023-03-02
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17

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.

All limits were adjusted by a factor of $[-10 \cdot \log(4)]$ dB to account for the device operation as a 4 port MIMO transmitter, as per FCC KDB 622911.

Per section 27.53(g) and RSS 130 4.7, the power of any emission outside of the authorized operating frequency range cannot exceed -13 dBm. The limit is adjusted to -19 dBm $[-13 \text{ dBm} - 10 \log(4)]$ per FCC KDB 662911D01 v02r01 because the BTS may operate as a 4 port MIMO transmitter.

Per FCC 27.53(g) and RSS 130 4.7 requires a >100 kHz measurement bandwidth for emissions 100 kHz outside of the RRH operating frequency range. FCC 27.53(g) and RSS 130 4.7 requires a >30 kHz measurement bandwidth for emissions between 100 kHz outside of the RRH operating frequency range and band edge of the operating frequency range.

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

BAND EDGE COMPLIANCE - BAND n85



TstTx 2022.06.03.0 XMit 2022.02.07.0

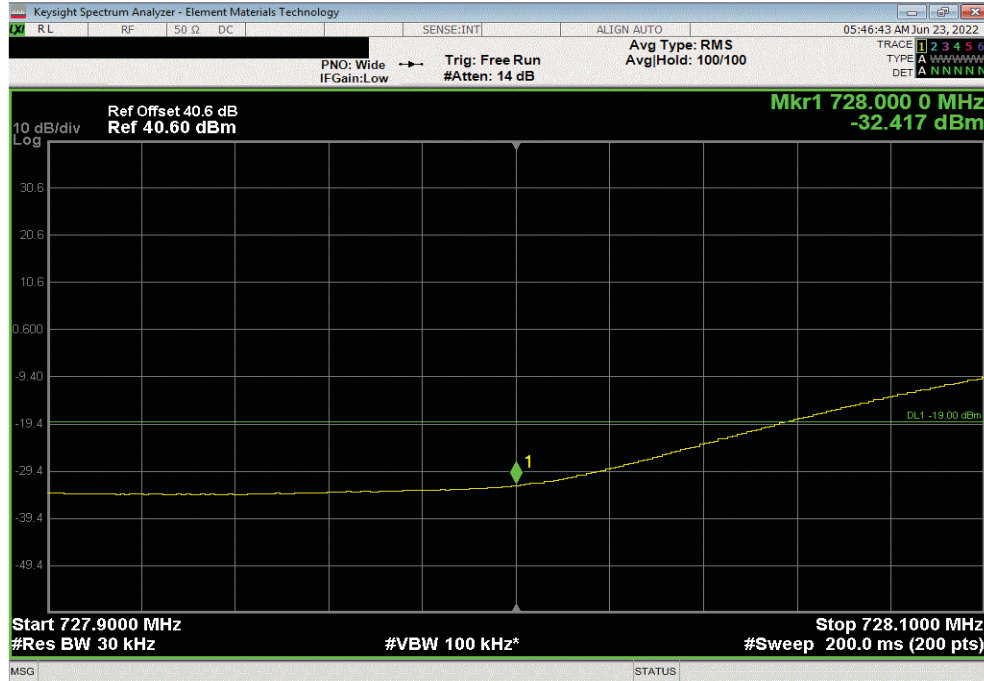
EUT: AHLOB (FCC/ISED)		Work Order: NOKI0042	
Serial Number: YK220900026		Date: 22-Jun-22	
Customer: Nokia Solutions and Networks		Temperature: 21.4 °C	
Attendees: David Le, John Rattanavong		Humidity: 51.6% RH	
Project: None		Barometric Pres.: 1021 mbar	
Tested by: Brandon Hobbs	Power: 54 VDC	Job Site: TX07	
TEST SPECIFICATIONS			
FCC 27:2022		Test Method	
RSS-130 Issue 2:2019		ANSI C63.26:2015	
COMMENTS			
All losses in the measurement path were accounted for: attenuators, cables, DC block and filter when in use. The carriers were enabled at maximum power.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	2	Signature	
		Frequency Range	Max Value (dBm)
			Limit < (dBm)
			Result
Port 1, 5G NR, Band n85, 728 MHz - 746 MHz			
5 MHz Bandwidth			
256-QAM Modulation			
	Low Ch. 730.5 MHz	1	-32.4
	Low Ch. 730.5 MHz	2	-29.2
	High Ch. 743.5 MHz	1	-32.0
	High Ch. 743.5 MHz	2	-28.0
10 MHz Bandwidth			
256-QAM Modulation			
	Low Ch. 733 MHz	1	-29.2
	Low Ch. 733 MHz	2	-27.5
	High Ch. 741 MHz	1	-29.9
	High Ch. 741 MHz	2	-28.9
15 MHz Bandwidth			
QPSK Modulation			
	Low Ch. 735.5 MHz	1	-30.1
	Low Ch. 735.5 MHz	2	-28.2
	High Ch. 738.5 MHz	1	-31.1
	High Ch. 738.5 MHz	2	-29.2
16-QAM Modulation			
	Low Ch. 735.5 MHz	1	-30.4
	Low Ch. 735.5 MHz	2	-29.0
	High Ch. 738.5 MHz	1	-30.3
	High Ch. 738.5 MHz	2	-29.5
64-QAM Modulation			
	Low Ch. 735.5 MHz	1	-29.7
	Low Ch. 735.5 MHz	2	-28.1
	High Ch. 738.5 MHz	1	-31.0
	High Ch. 738.5 MHz	2	-29.3
256-QAM Modulation			
	Low Ch. 735.5 MHz	1	-30.0
	Low Ch. 735.5 MHz	2	-28.3
	High Ch. 738.5 MHz	1	-30.8
	High Ch. 738.5 MHz	2	-29.5

BAND EDGE COMPLIANCE - BAND n85

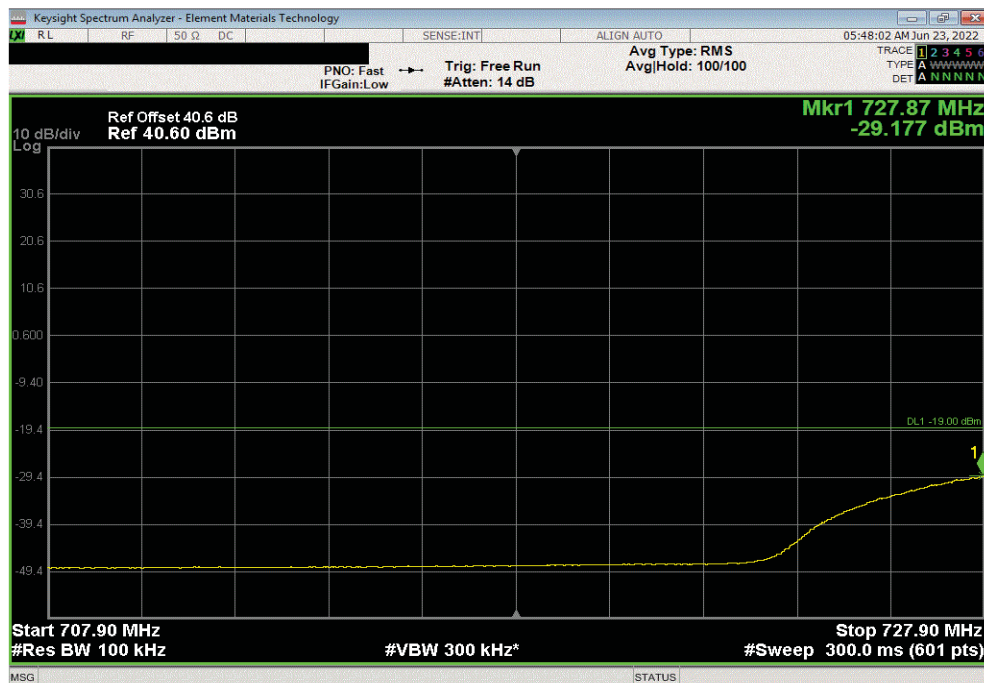


TbTtx 2022.06.03.0 XMit 2022.02.07.0

Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 5 MHz Bandwidth, 256-QAM Modulation, Low Ch. 730.5 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
1	-32.42	-19	Pass			



Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 5 MHz Bandwidth, 256-QAM Modulation, Low Ch. 730.5 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
2	-29.18	-19	Pass			

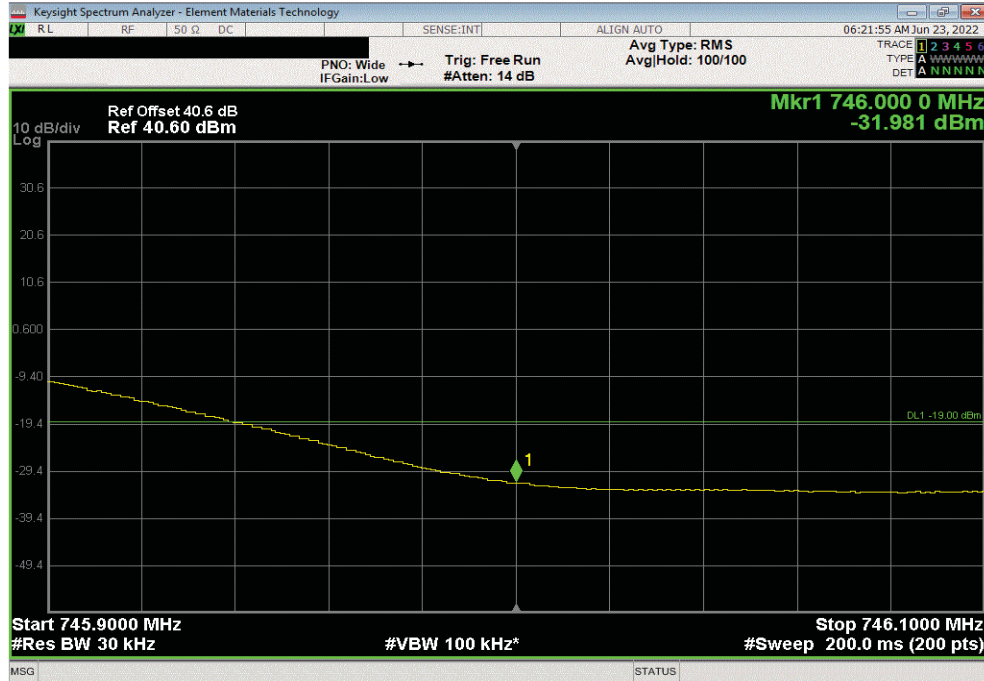


BAND EDGE COMPLIANCE - BAND n85

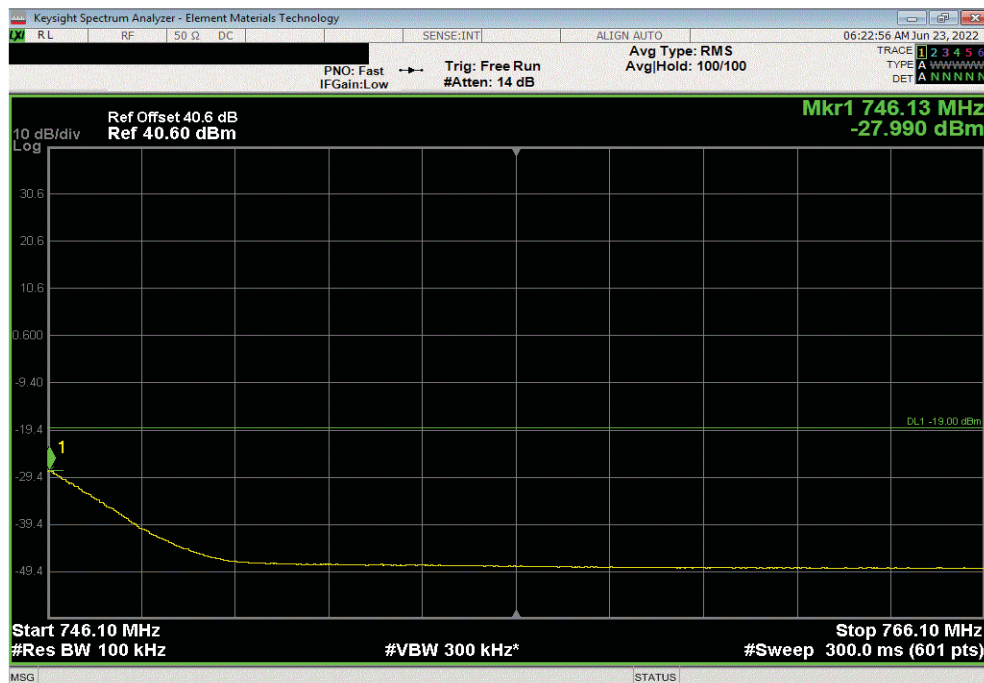


TbTtx 2022.06.03.0 XMIT 2022.02.07.0

Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 5 MHz Bandwidth, 256-QAM Modulation, High Ch. 743.5 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
1	-31.98	-19	Pass			



Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 5 MHz Bandwidth, 256-QAM Modulation, High Ch. 743.5 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
2	-27.99	-19	Pass			

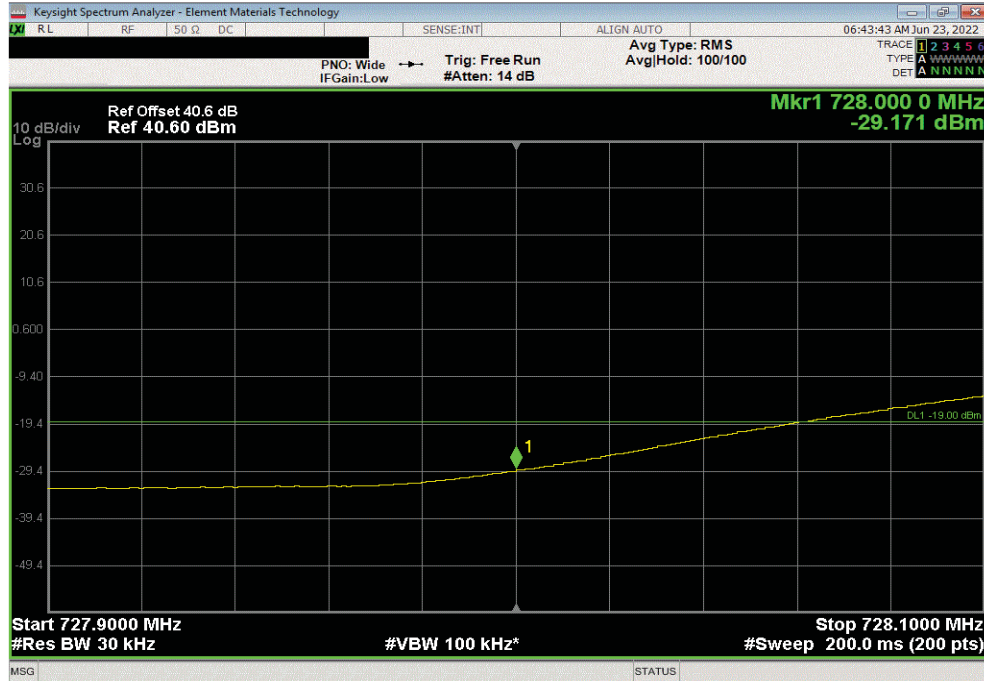


BAND EDGE COMPLIANCE - BAND n85

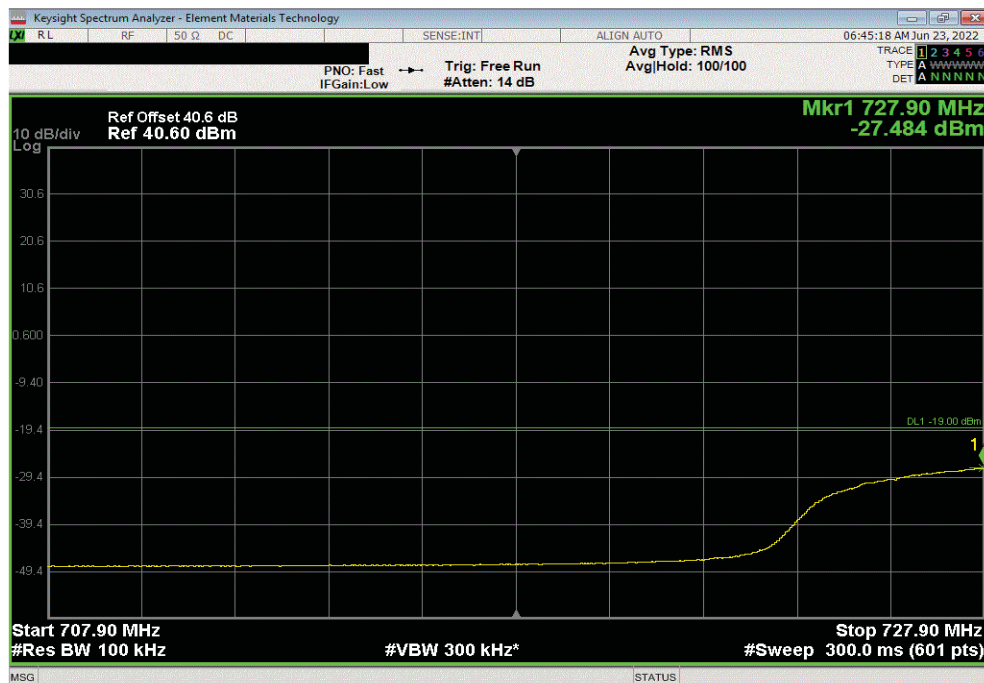


TbTtx 2022.06.03.0 XMit 2022.02.07.0

Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 10 MHz Bandwidth, 256-QAM Modulation, Low Ch. 733 MHz						
Frequency Range		Max Value (dBm)		Limit < (dBm)	Result	
1		-29.17		-19	Pass	



Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 10 MHz Bandwidth, 256-QAM Modulation, Low Ch. 733 MHz						
Frequency Range		Max Value (dBm)		Limit < (dBm)	Result	
2		-27.48		-19	Pass	

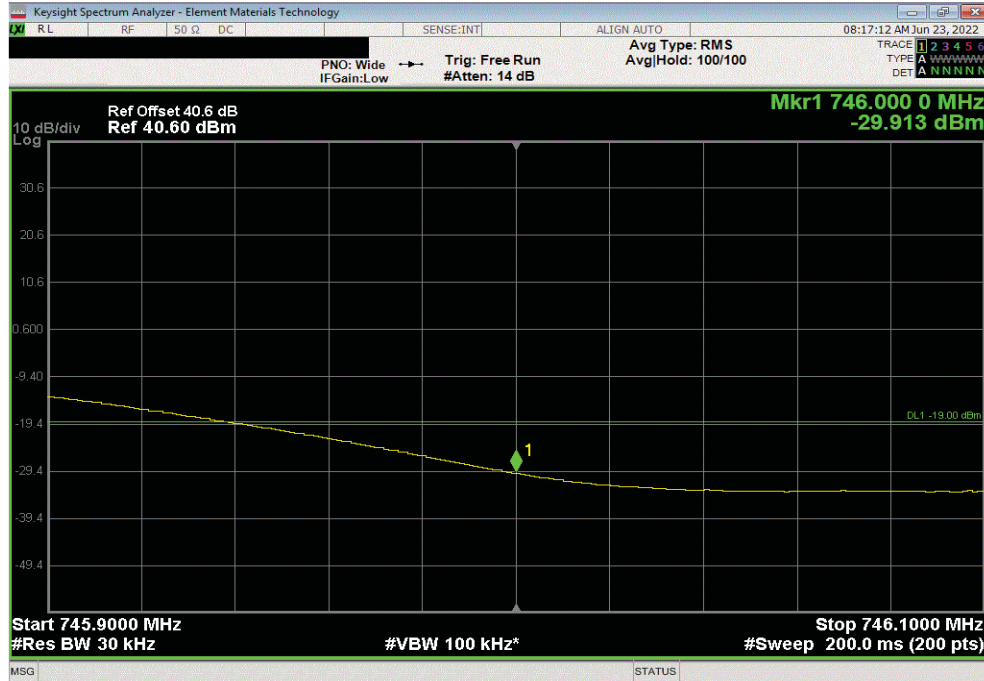


BAND EDGE COMPLIANCE - BAND n85

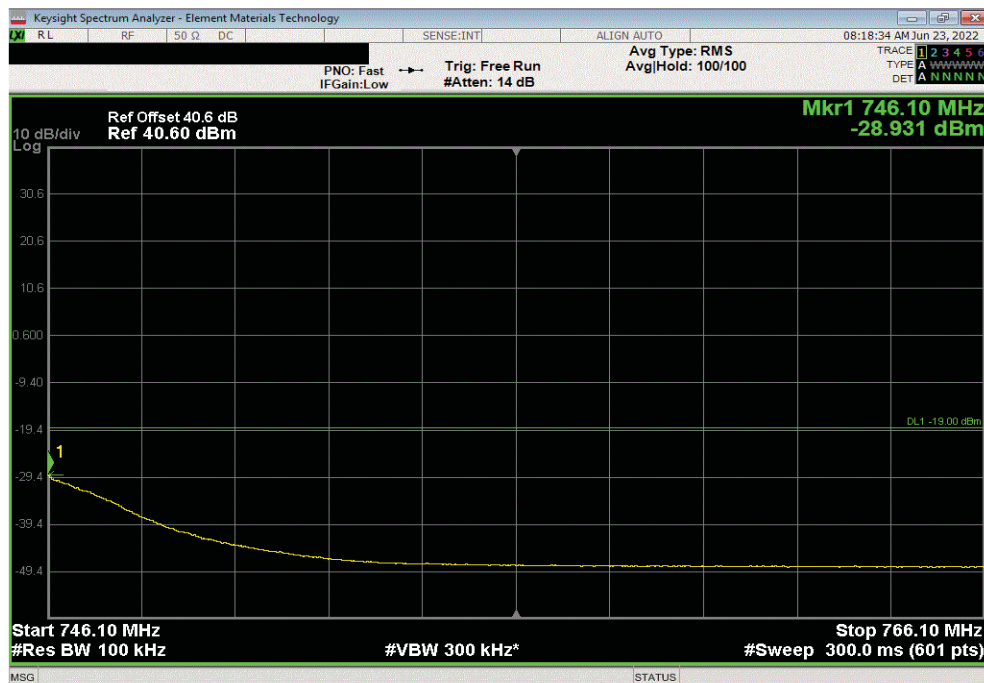


TbTtx 2022.06.03.0 XMit 2022.02.07.0

Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 10 MHz Bandwidth, 256-QAM Modulation, High Ch. 741 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
1	-29.91	-19	Pass			



Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 10 MHz Bandwidth, 256-QAM Modulation, High Ch. 741 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
2	-28.93	-19	Pass			

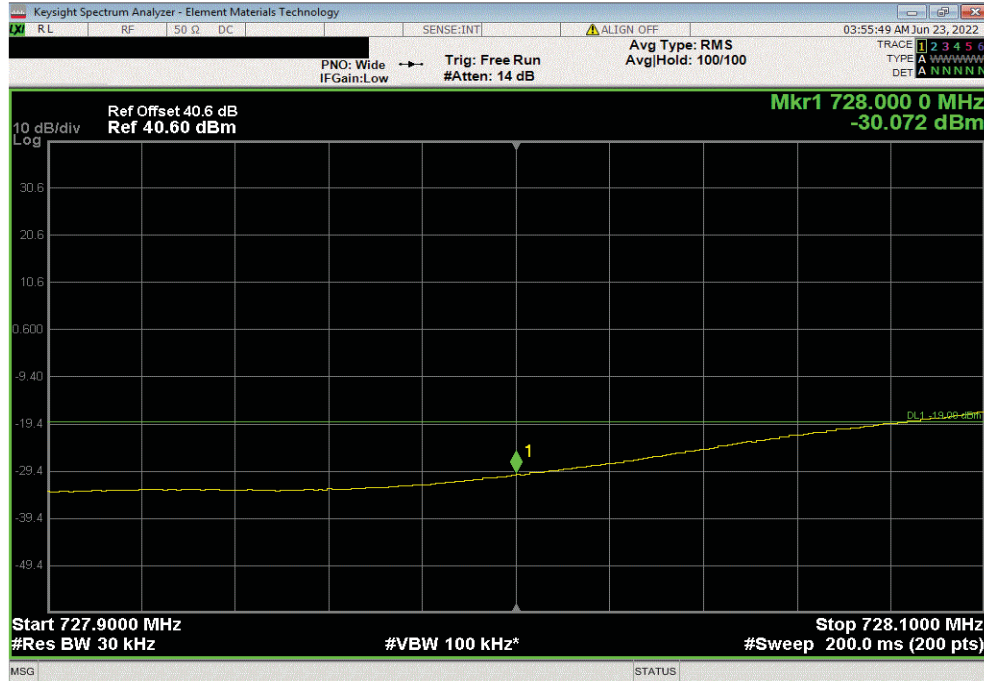


BAND EDGE COMPLIANCE - BAND n85

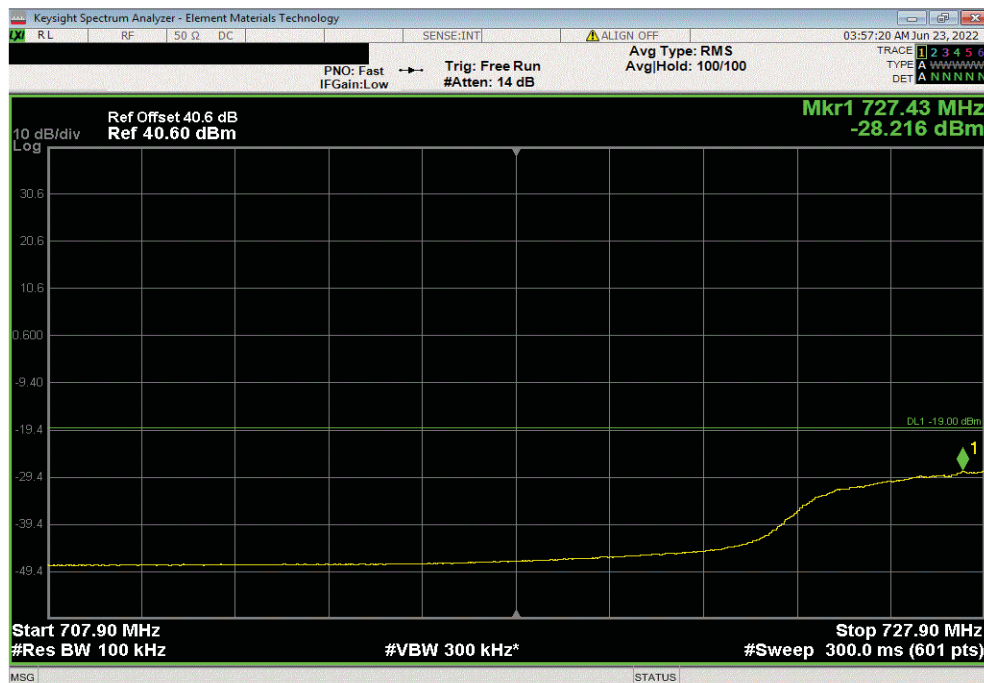


TbTtx 2022.06.03.0 XMit 2022.02.07.0

Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 15 MHz Bandwidth, QPSK Modulation, Low Ch. 735.5 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
1	-30.07	-19	Pass			



Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 15 MHz Bandwidth, QPSK Modulation, Low Ch. 735.5 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
2	-28.22	-19	Pass			

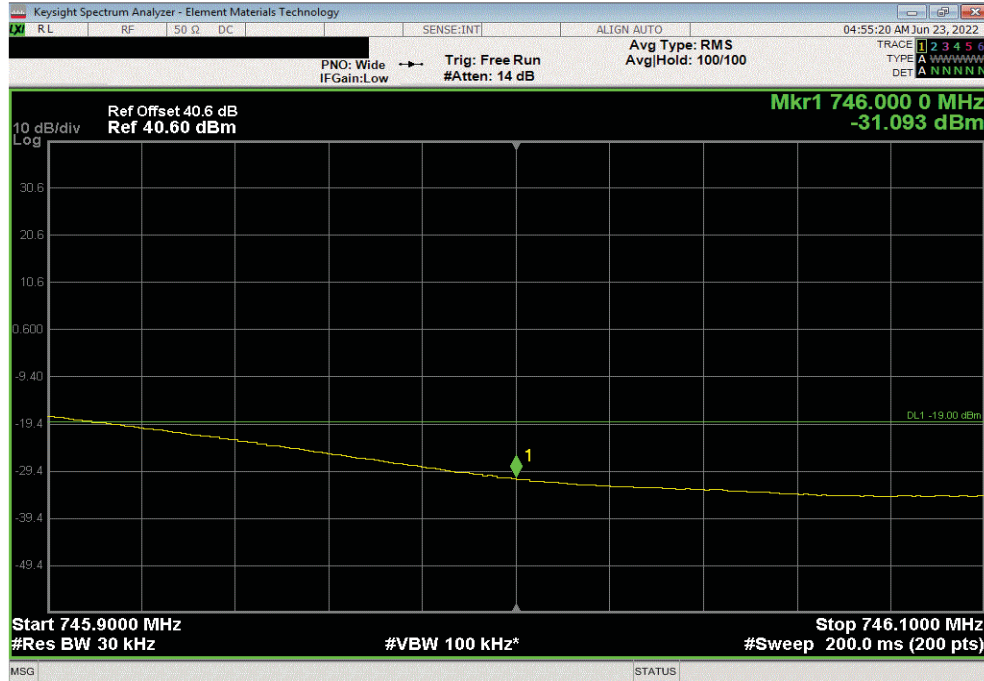


BAND EDGE COMPLIANCE - BAND n85

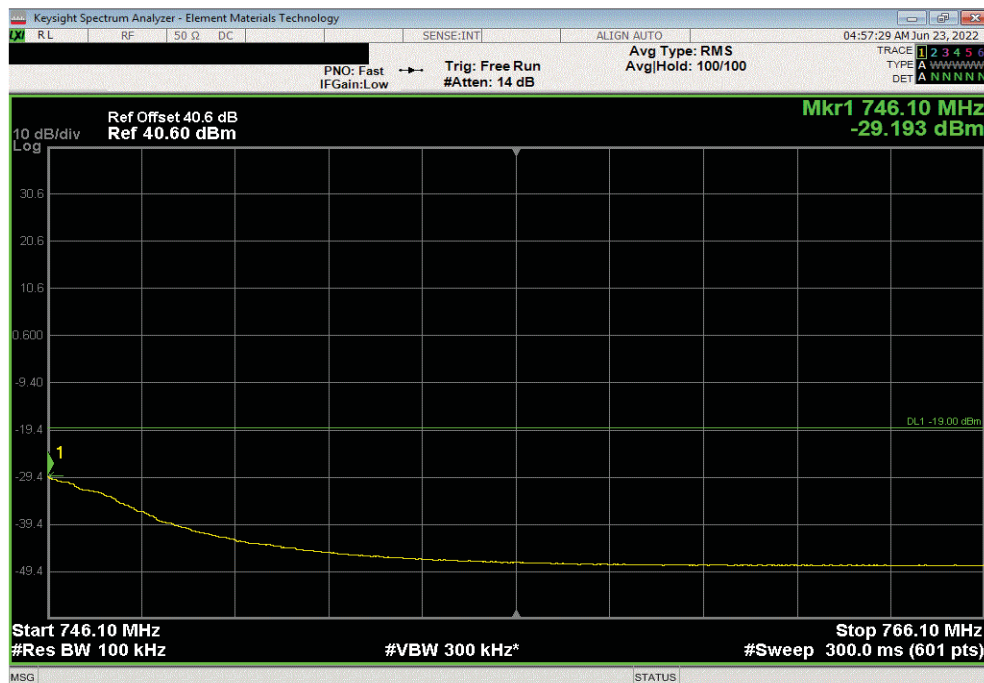


TbTtx 2022.06.03.0 XMit 2022.02.07.0

Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 15 MHz Bandwidth, QPSK Modulation, High Ch. 738.5 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
1	-31.09	-19	Pass			



Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 15 MHz Bandwidth, QPSK Modulation, High Ch. 738.5 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
2	-29.19	-19	Pass			

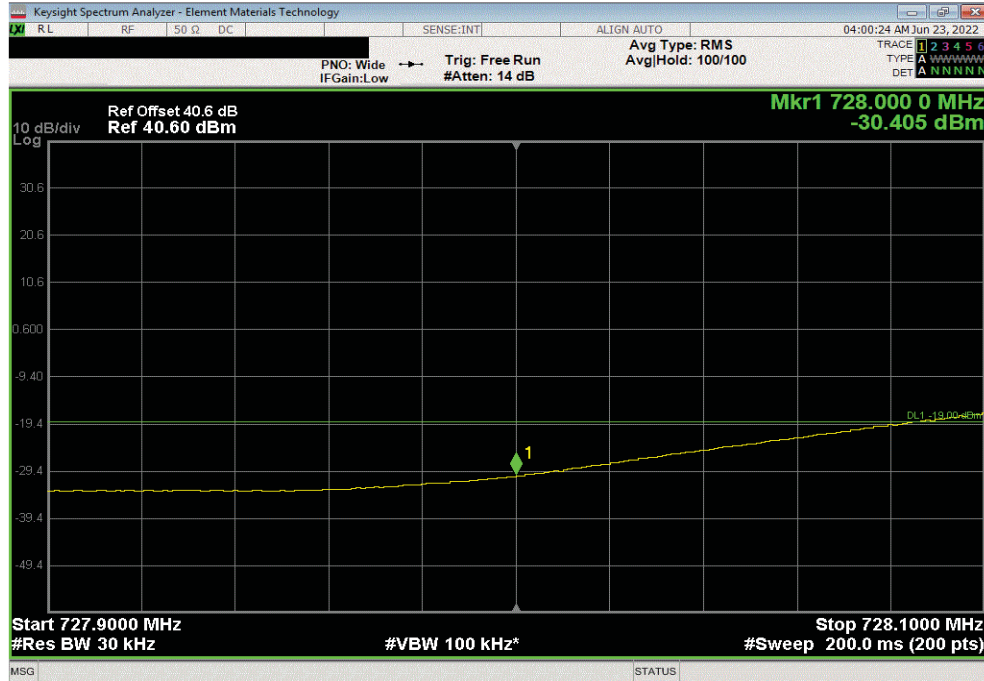


BAND EDGE COMPLIANCE - BAND n85

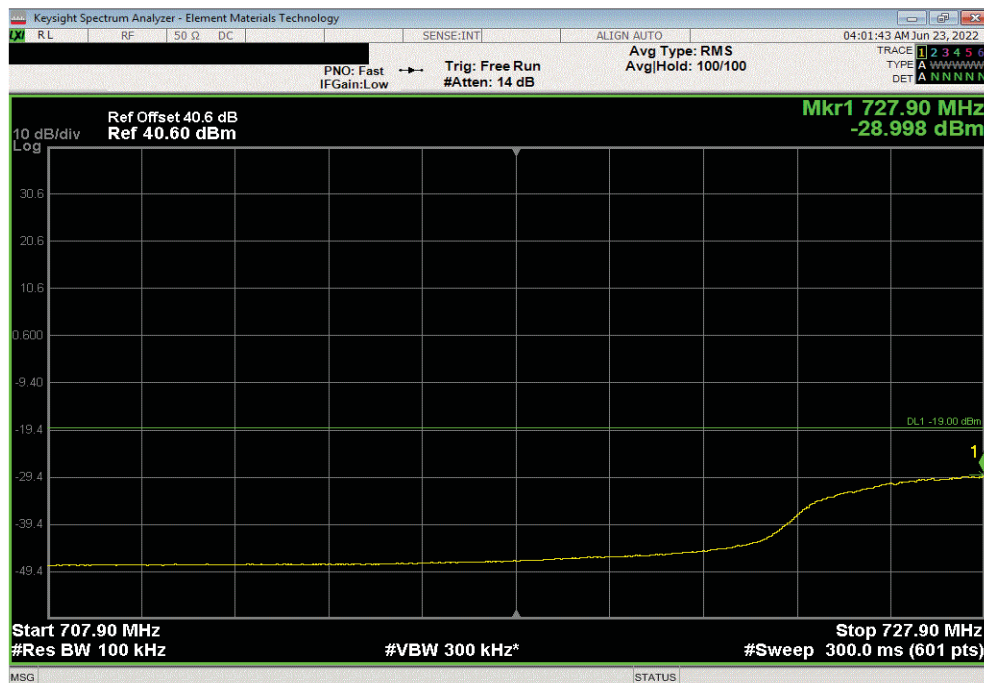


TbTtx 2022.06.03.0 XMit 2022.02.07.0

Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 15 MHz Bandwidth, 16-QAM Modulation, Low Ch. 735.5 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
1	-30.41	-19	Pass			



Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 15 MHz Bandwidth, 16-QAM Modulation, Low Ch. 735.5 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
2	-29	-19	Pass			



BAND EDGE COMPLIANCE - BAND n85

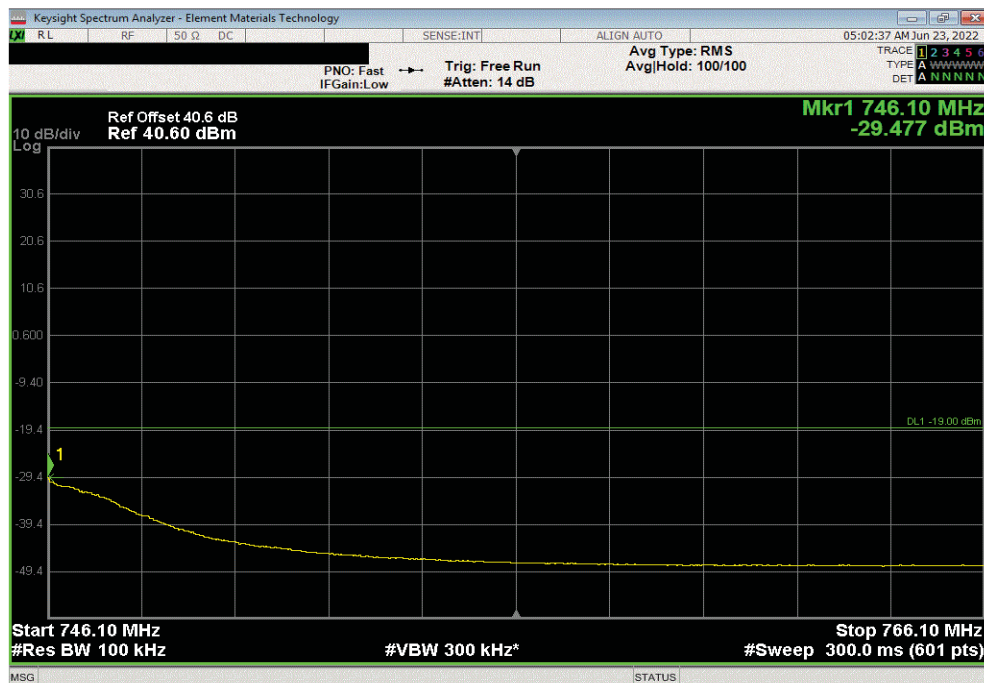


TbTx 2022.06.03.0 XbTx 2022.02.07.0

Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 15 MHz Bandwidth, 16-QAM Modulation, High Ch. 738.5 MHz						
Frequency Range		Max Value (dBm)		Limit < (dBm)		Result
1		-30.25		-19		Pass



Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 15 MHz Bandwidth, 16-QAM Modulation, High Ch. 738.5 MHz						
Frequency Range		Max Value (dBm)		Limit < (dBm)		Result
2		-29.48		-19		Pass

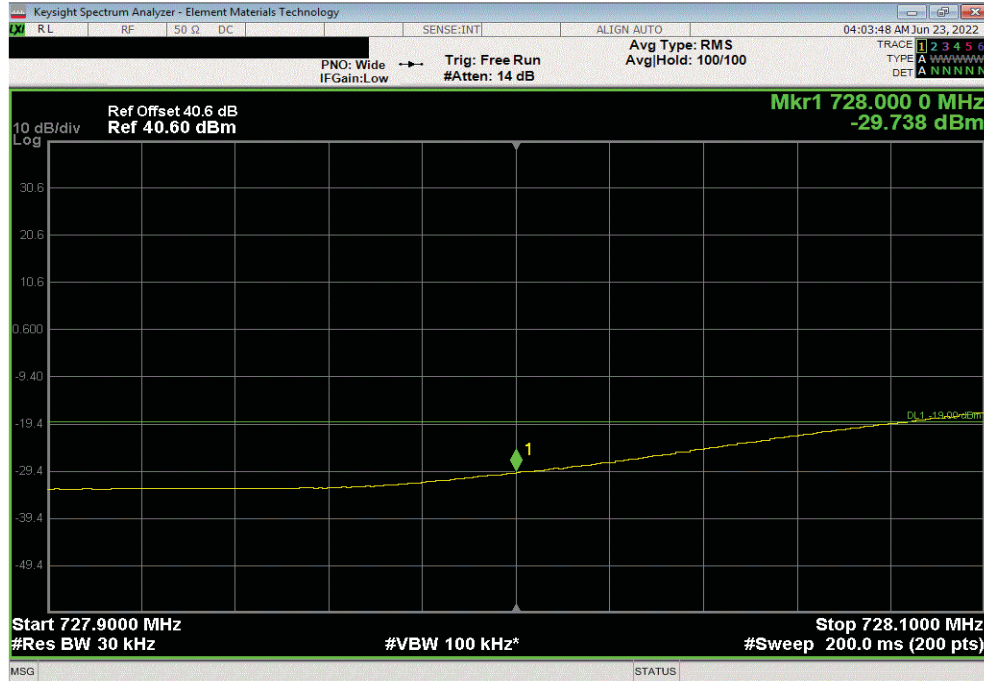


BAND EDGE COMPLIANCE - BAND n85

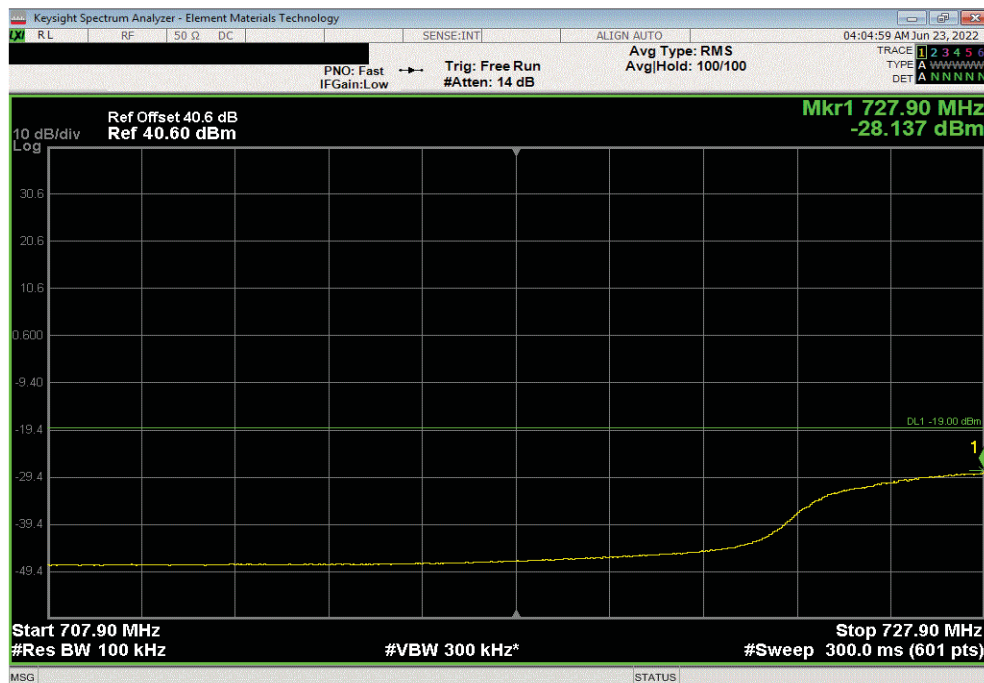


TbTtx 2022.06.03.0 XMit 2022.02.07.0

Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 15 MHz Bandwidth, 64-QAM Modulation, Low Ch. 735.5 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
1	-29.74	-19	Pass			



Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 15 MHz Bandwidth, 64-QAM Modulation, Low Ch. 735.5 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
2	-28.14	-19	Pass			

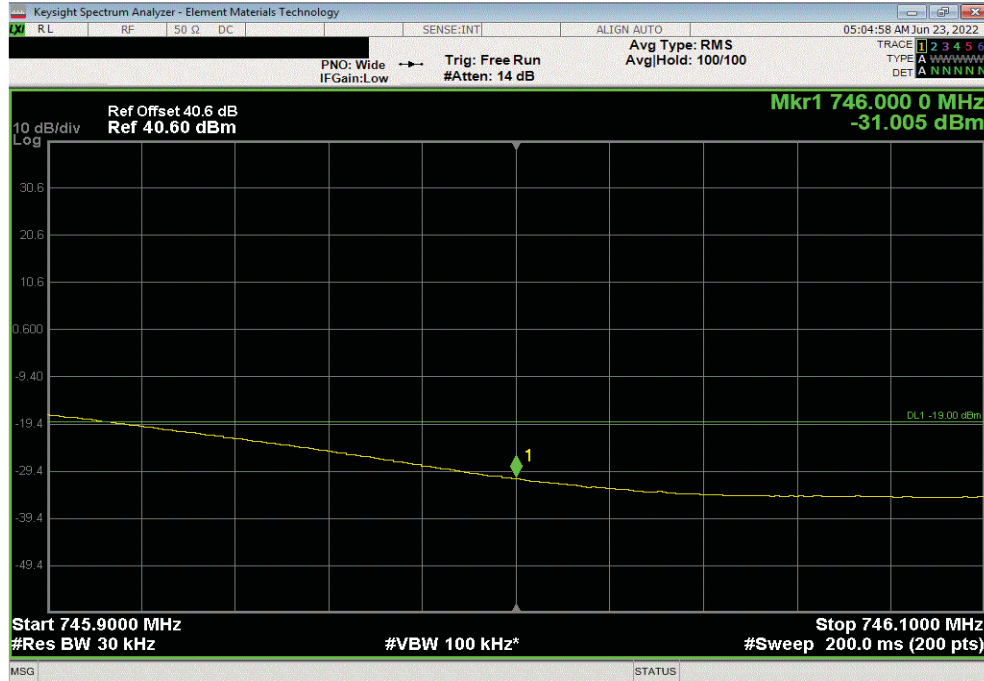


BAND EDGE COMPLIANCE - BAND n85

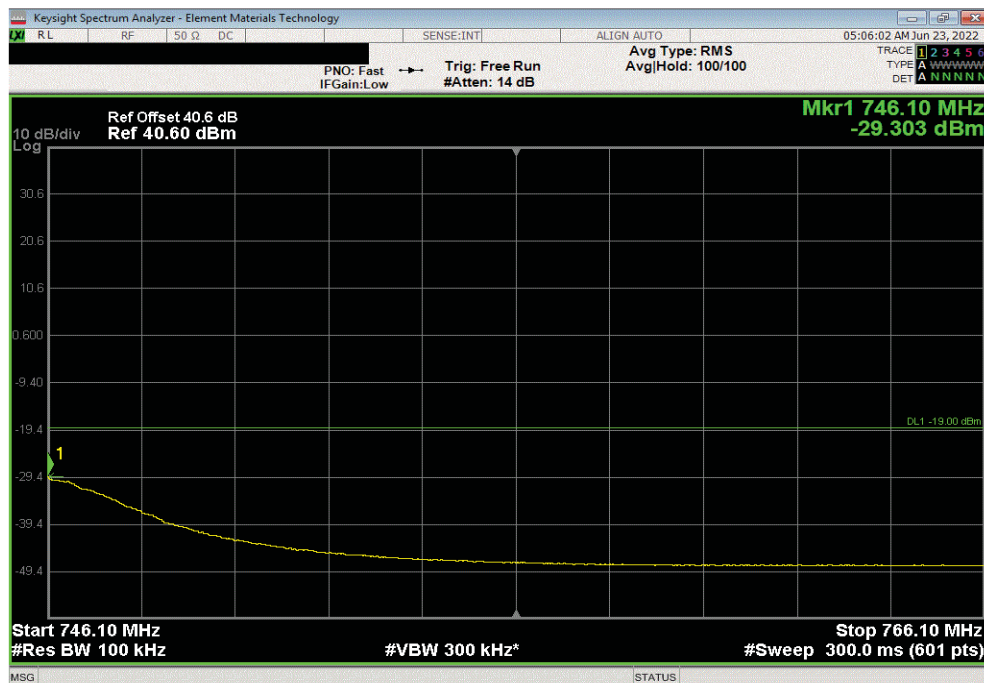


TbTx 2022.06.03.0 XbTx 2022.02.07.0

Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 15 MHz Bandwidth, 64-QAM Modulation, High Ch. 738.5 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
1	-31.01	-19	Pass			



Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 15 MHz Bandwidth, 64-QAM Modulation, High Ch. 738.5 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
2	-29.3	-19	Pass			

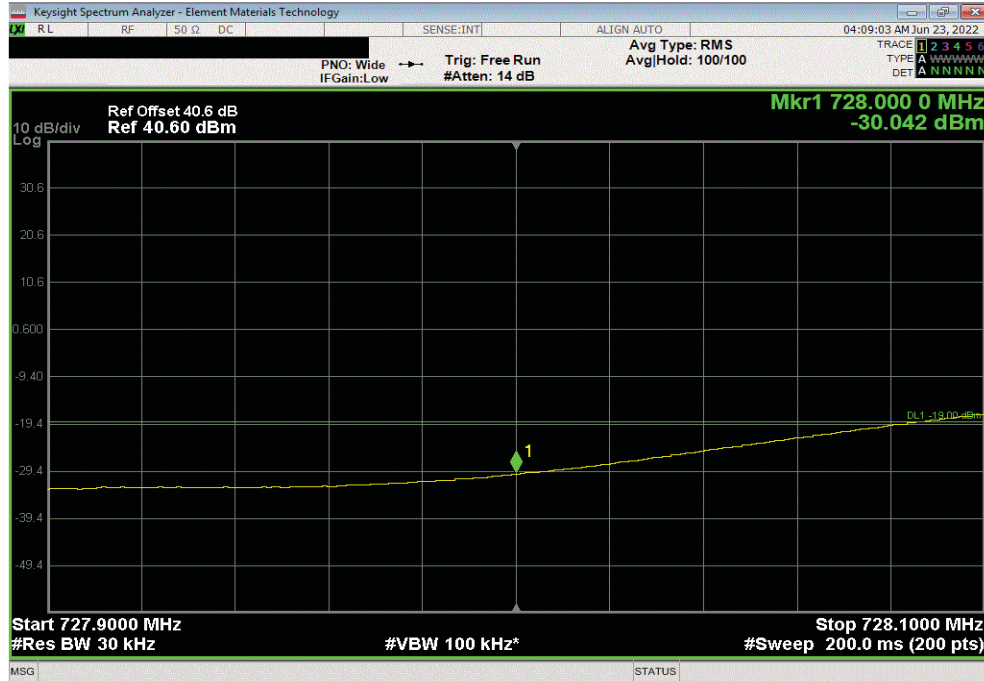


BAND EDGE COMPLIANCE - BAND n85

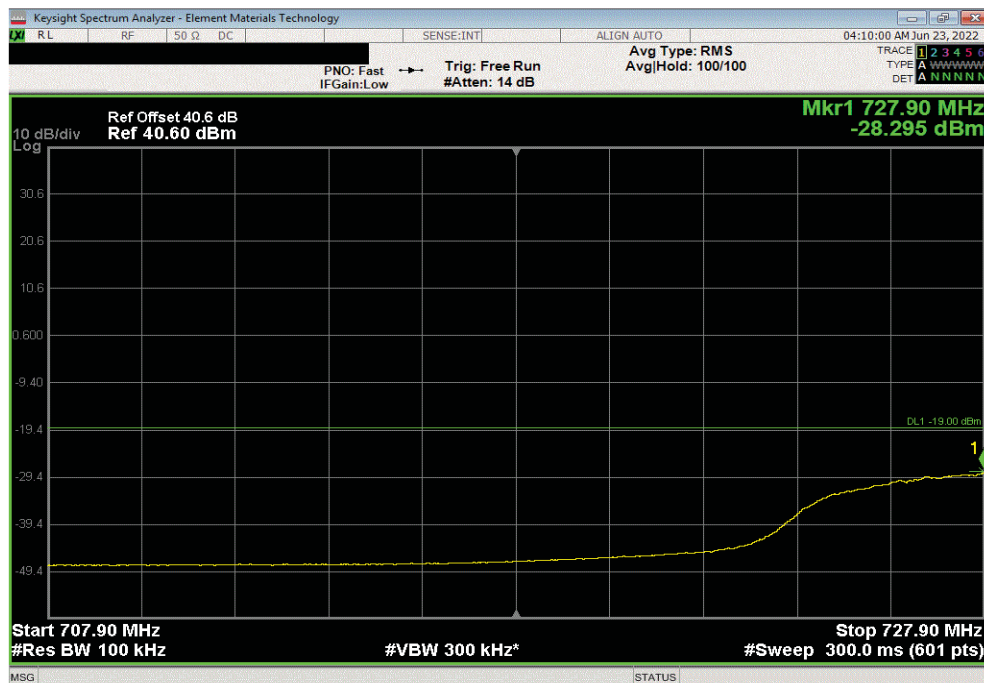


TbTtx 2022.06.03.0 XMit 2022.02.07.0

Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 15 MHz Bandwidth, 256-QAM Modulation, Low Ch. 735.5 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
1	-30.04	-19	Pass			



Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 15 MHz Bandwidth, 256-QAM Modulation, Low Ch. 735.5 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
2	-28.3	-19	Pass			

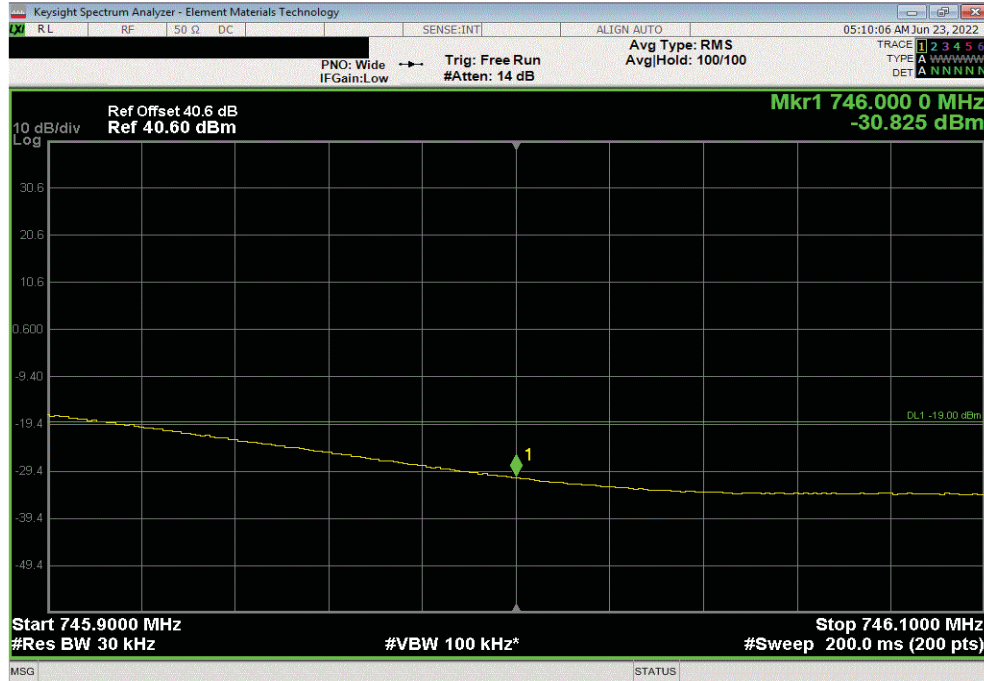


BAND EDGE COMPLIANCE - BAND n85

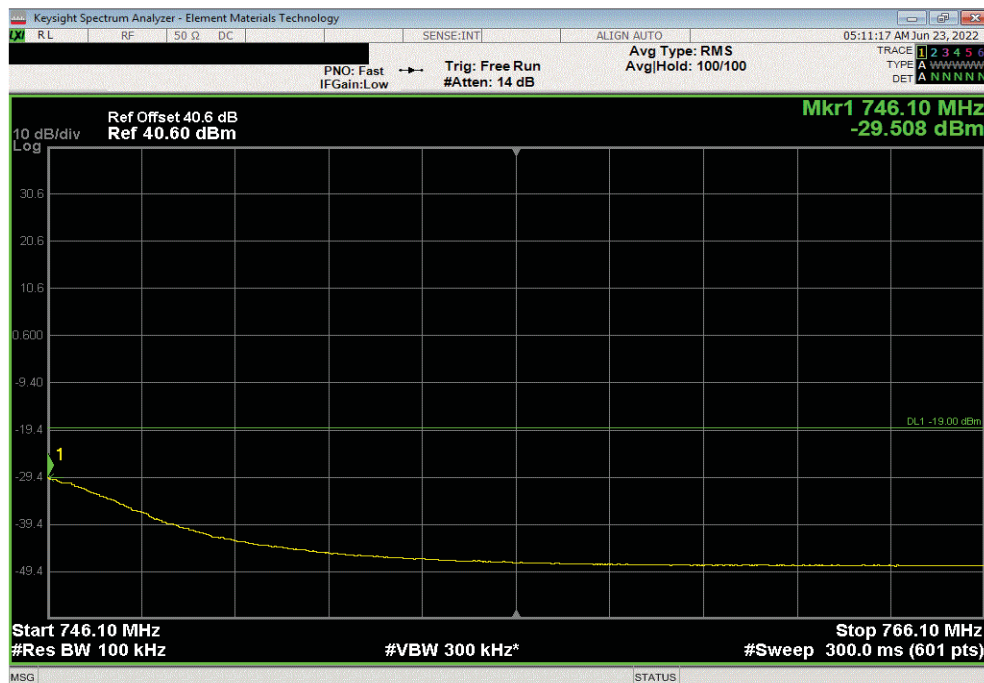


TbTtx 2022.06.03.0 XMit 2022.02.07.0

Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 15 MHz Bandwidth, 256-QAM Modulation, High Ch. 738.5 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
1	-30.83	-19	Pass			



Port 1, 5G NR, Band n85, 728 MHz - 746 MHz, 15 MHz Bandwidth, 256-QAM Modulation, High Ch. 738.5 MHz						
Frequency Range	Max Value (dBm)	Limit < (dBm)	Result			
2	-29.51	-19	Pass			



SPURIOUS CONDUCTED EMISSIONS - MULTIBAND MULTCARRIER



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
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17
Block - DC	Fairview Microwave	SD3239	ANE	2022-03-02	2023-03-02

TEST DESCRIPTION

The antenna port spurious emissions were measured at the RF output terminal of the EUT through 3 different attenuation configurations which continues through to the RF input of the spectrum analyzer. Analyzer plots utilizing a resolution bandwidth called out by the client's test plan were made for each modulation type from 9 KHz to 8 GHz. The conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, were investigated to ensure they were less than the limits also called out by the client's test plan shown below.

The measurement methods are detailed in KDB 971168 D01v03 section 6 and ANSI C63.26-2015.

Per FCC 2.1057(a)(1) and RSS Gen 6.13, the upper level of measurement is the 10th harmonic of the highest fundamental frequency.

These measurements are for frequency band after the first 100 kHz bands immediately outside and adjacent to the frequency block.

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

Multicarrier test cases have been developed as shown below:

Notes: Max port power (80watts) is shared between Bands n71/n85)

Multi-Carrier Test Case 1): 3GPP Band n71 Multicarrier In the Band n71 _ Three NR5 carriers using two carriers (with minimum spacing between carrier frequencies) at the lower band edge (619.5 & 624.5MHz) and a third carrier with maximum spacing between the other two carrier frequencies (649.5MHz) at the upper band edge. The NR 5MHz channel bandwidth was selected to maximize carrier power spectral density. The carriers are operated at maximum power for a total port power of 80 watts (~26.6W/Band n71 carriers). 3GPP Band n85 carrier is not enable.

Multi-Carrier Test Case 2): 3GPP Band n71 Multicarrier: In the Band n71 _ One NR 20MHz carriers and one NR 15MHz carriers (with minimum spacing between carrier frequencies) at the lower band edge (627.0 & 644.5MHz). The largest channel bandwidth is selected to maximize carrier OBW. The carriers are operated at maximum power for a total port power of 80 watts (~40W/Band n71 carriers). 3GPP Band n85 carrier is not enable.

Multi-Carrier Test Case 3): 3GPP Band n85 Multicarrier In the Band n85 _ Two NR5 carriers using two carriers (with maximum spacing between carrier frequencies) at the lower band edge (730.5MHz) and a second carrier at maximum spacing at the upper band edge (743.5MHz). The NR5 channel bandwidth was selected to maximize carrier power spectral density. The carriers are operated at maximum power for a total port power of 80 watts (~40W/Band n85 carrier). 3GPP Band n71 carrier is not enable.

Multi-Carrier Test Case 4): 3GPP Band n71 and Band n85 Multicarrier Multiband: Three NR 5MHz carriers using two carriers (with minimum spacing between carrier frequencies) at the Band n71 lower band edge (619.5 & 624.5MHz) and a third carrier with maximum spacing between the other two carrier frequencies (743.5MHz) at the Band n85 upper band edge. The smallest channel bandwidth was selected to maximize carrier power spectral density. The carriers were operated at maximum power (~26.6/ Band n71 carrier and ~26.6W Band n85 carrier) for a total port power of 80 watts.

Per section 27.53(g) and RSS 130 4.7, the power of any emission outside of the authorized operating frequency range cannot exceed -13 dBm. The limit is adjusted to -19 dBm [-13 dBm -10 log (4)] per FCC KDB 662911D01 v02r01 because the BTS may operate as a 4 port MIMO transmitter.

The limit for the 9kHz to 150kHz frequency range was adjusted to -39dBm to correct for a spectrum analyzer RBW of 1kHz versus required RBW of 100kHz [i.e.: -39dBm = -19dBm -10log(100kHz/1kHz)]. The limit for the 150kHz to 20MHz frequency range was adjusted to -29dBm to correct for a spectrum analyzer RBW of 10kHz versus required RBW of 100kHz [i.e.: -29dBm = -19dBm -10log(100kHz/10kHz)]. The required limit of -19dBm with a RBW of > 100kHz was used for all other frequency ranges.

SPURIOUS CONDUCTED EMISSIONS - MULTIBAND MULTCARRIER



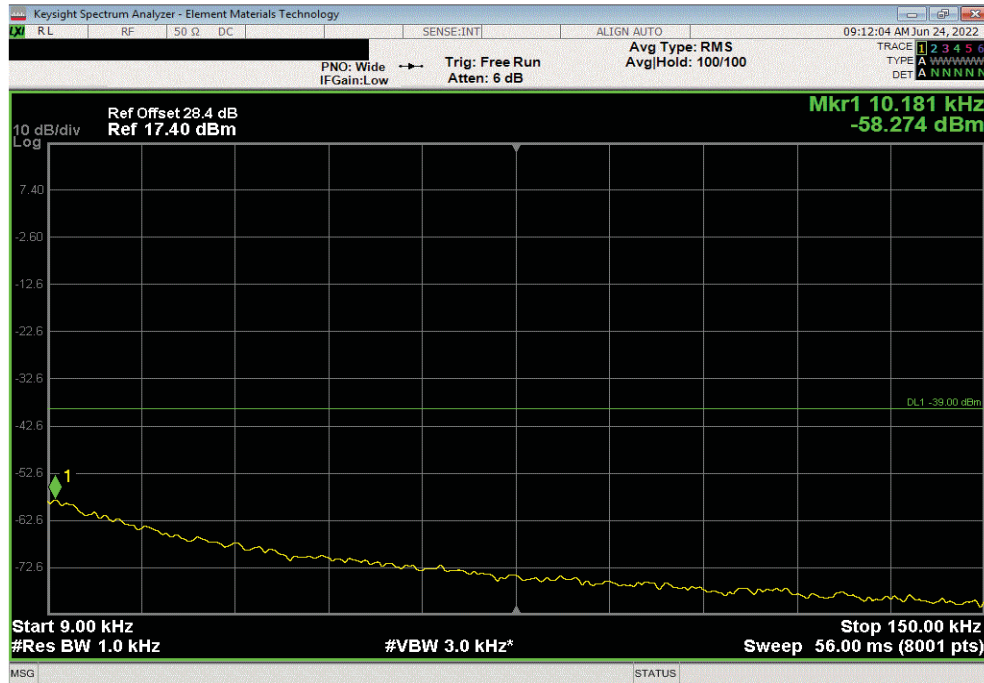
EUT: AHLOB (FCC/ISED)		Work Order: NOKI0042	
Serial Number: YK220900026		Date: 24-Jun-22	
Customer: Nokia Solutions and Networks		Temperature: 20.9 °C	
Attendees: David Le, John Rattanaovong		Humidity: 53.4% RH	
Project: None		Barometric Pres.: 1017 mbar	
Tested by: Brandon Hobbs		Job Site: TX07	
Power: 54 VDC		Test Method	
FCC 27-2022		ANSI C63.26.2015	
RSS-130 Issue 2:2019		ANSI C63.26.2015	
COMMENTS			
All measurement path losses were accounted for in the reference level offset including any attenuators, filters and DC blocks. P5G NR Band n71 / Band n85 carriers were operating at maximum power in each applicable test case to achieve a total port power of 80 watts. The following is the output power measurements at the radio's single output port.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	1,2,3	Signature	
		Frequency Range	Measured Freq (MHz)
			Max Value (dBm)
			Limit < (dBm)
			Result
5G NR, Multicarrier Multiband			
Port 1			
QPSK Modulation			
Test Case 1: Band n71 NR5 (3 Carriers: 619.5 MHz, 624.5 MHz, 649.5 MHz)		9 kHz - 150 kHz	0.01
Test Case 1: Band n71 NR5 (3 Carriers: 619.5 MHz, 624.5 MHz, 649.5 MHz)		150 kHz - 20 MHz	0.15
Test Case 1: Band n71 NR5 (3 Carriers: 619.5 MHz, 624.5 MHz, 649.5 MHz)		20 MHz - 1.2 GHz	739.25
Test Case 1: Band n71 NR5 (3 Carriers: 619.5 MHz, 624.5 MHz, 649.5 MHz)		1.2 GHz - 8 GHz	3989.36
Test Case 2: Band n71 NR15 (Single Carriers: 644.5 MHz), Band n71 NR20 (Single Carrier: 627 MHz)		9 kHz - 150 kHz	0.01
Test Case 2: Band n71 NR15 (Single Carriers: 644.5 MHz), Band n71 NR20 (Single Carrier: 627 MHz)		150 kHz - 20 MHz	0.15
Test Case 2: Band n71 NR15 (Single Carriers: 644.5 MHz), Band n71 NR20 (Single Carrier: 627 MHz)		20 MHz - 1.2 GHz	746.41
Test Case 2: Band n71 NR15 (Single Carriers: 644.5 MHz), Band n71 NR20 (Single Carrier: 627 MHz)		1.2 GHz - 8 GHz	4022
Test Case 3: Band n85 NR5 (2 Carriers: 730.5 MHz, 743.5 MHz)		9 kHz - 150 kHz	0.01
Test Case 3: Band n85 NR5 (2 Carriers: 730.5 MHz, 743.5 MHz)		150 kHz - 20 MHz	0.15
Test Case 3: Band n85 NR5 (2 Carriers: 730.5 MHz, 743.5 MHz)		20 MHz - 1.2 GHz	912
Test Case 3: Band n85 NR5 (2 Carriers: 730.5 MHz, 743.5 MHz)		1.2 GHz - 8 GHz	4017.47
Test Case 4: Band n71 NR5 (2 Carriers: 619.5 MHz, 624.5 MHz), Band n85 NR5 (Single Carrier: 743.5 MHz)		9 kHz - 150 kHz	0.01
Test Case 4: Band n71 NR5 (2 Carriers: 619.5 MHz, 624.5 MHz), Band n85 NR5 (Single Carrier: 743.5 MHz)		150 kHz - 20 MHz	0.15
Test Case 4: Band n71 NR5 (2 Carriers: 619.5 MHz, 624.5 MHz), Band n85 NR5 (Single Carrier: 743.5 MHz)		20 MHz - 1.2 GHz	898.59
Test Case 4: Band n71 NR5 (2 Carriers: 619.5 MHz, 624.5 MHz), Band n85 NR5 (Single Carrier: 743.5 MHz)		1.2 GHz - 8 GHz	4012.93

SPURIOUS CONDUCTED EMISSIONS - MULTIBAND MULTICARRIER

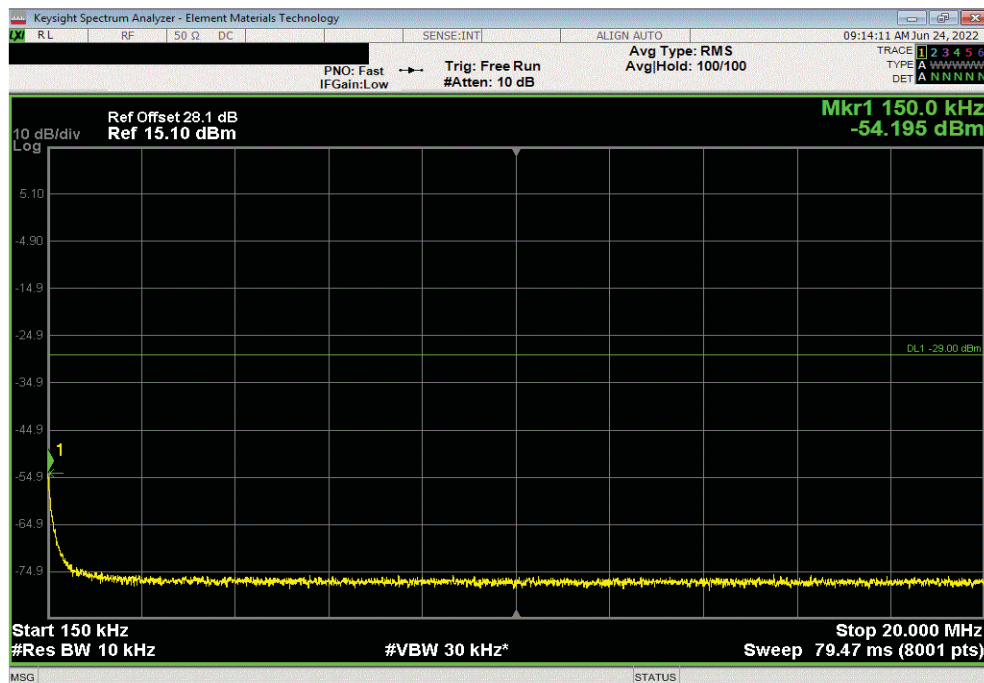


TbTx 2022.05.02.0 XbTx 2022.02.07.0

5G NR, Multicarrier Multiband, Port 1, QPSK Modulation, Test Case 1: Band n71 NR5 (3 Carriers: 619.5 MHz, 624.5 MHz, 649.5 MHz)					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
9 kHz - 150 kHz	0.01	-58.27	-39	Pass	



5G NR, Multicarrier Multiband, Port 1, QPSK Modulation, Test Case 1: Band n71 NR5 (3 Carriers: 619.5 MHz, 624.5 MHz, 649.5 MHz)					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
150 kHz - 20 MHz	0.15	-54.2	-29	Pass	



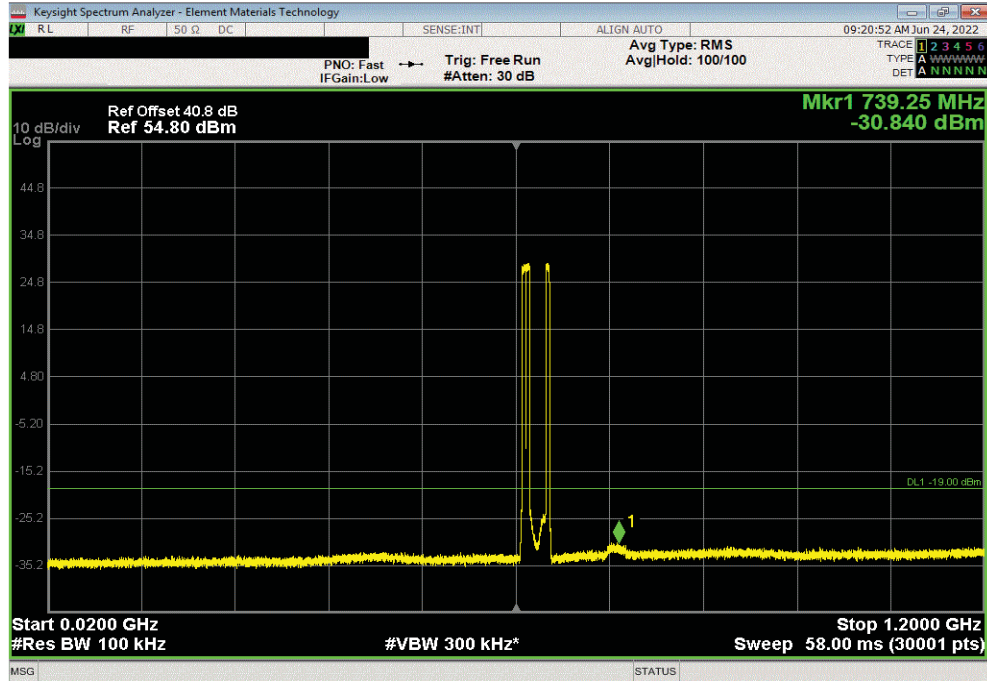
SPURIOUS CONDUCTED EMISSIONS - MULTIBAND MULTICARRIER



TbTtx 2022.05.02.0 XMit 2022.02.07.0

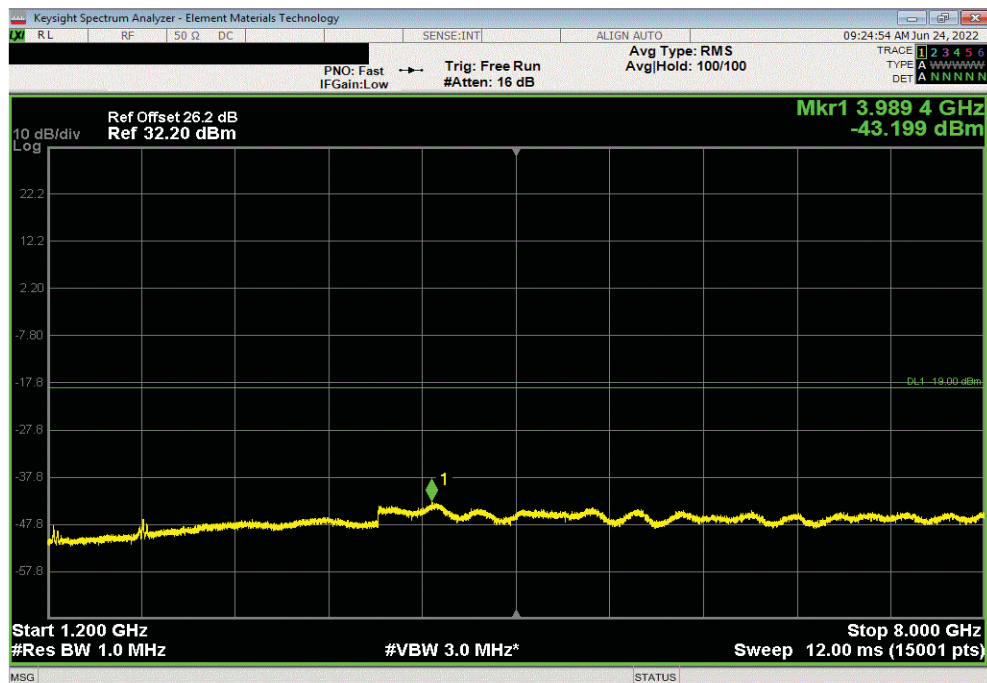
5G NR, Multicarrier Multiband, Port 1, QPSK Modulation, Test Case 1: Band n71 NR5 (3 Carriers: 619.5 MHz, 624.5 MHz, 649.5 MHz)

Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
20 MHz - 1.2 GHz	739.25	-30.84	-19	Pass



5G NR, Multicarrier Multiband, Port 1, QPSK Modulation, Test Case 1: Band n71 NR5 (3 Carriers: 619.5 MHz, 624.5 MHz, 649.5 MHz)

Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
1.2 GHz - 8 GHz	3989.36	-43.2	-19	Pass

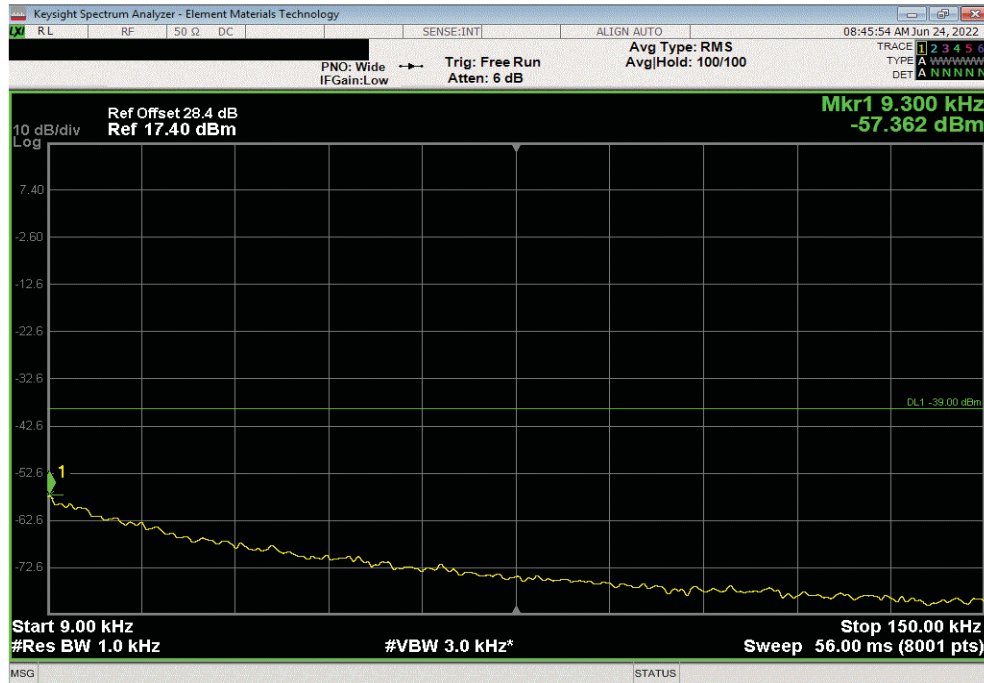


SPURIOUS CONDUCTED EMISSIONS - MULTIBAND MULTICARRIER

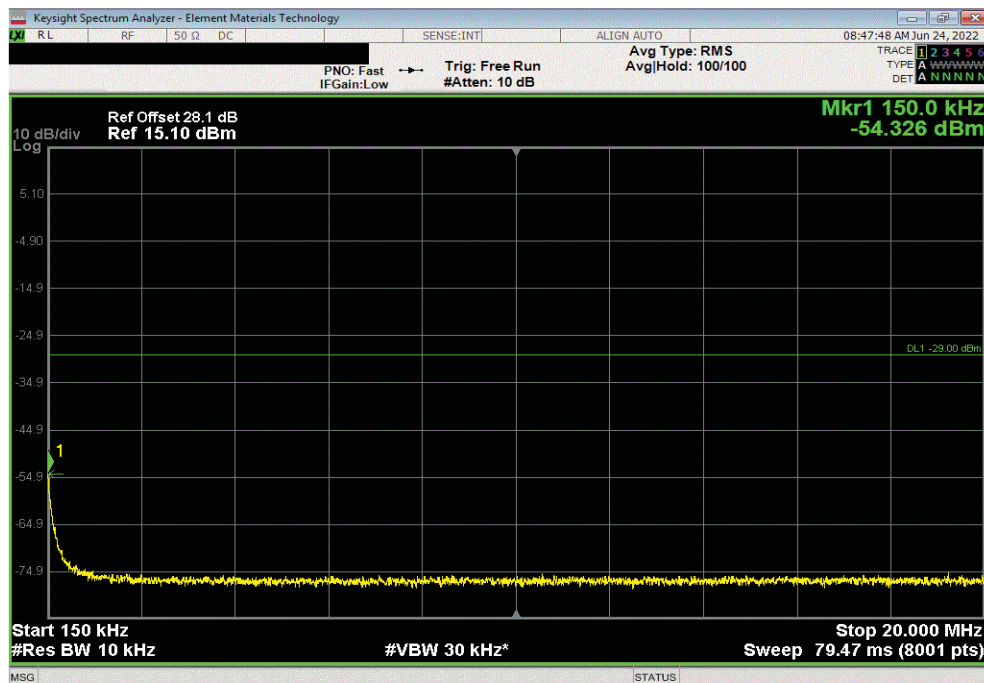


TbTtx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Multicarrier Multiband, Port 1, QPSK Modulation, Test Case 2: Band n71 NR15 (Single Carriers: 644.5 MHz), Band n71 NR20 (Single Carrier: 627 MHz)					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
9 kHz - 150 kHz	0.01	-57.36	-39	Pass	



5G NR, Multicarrier Multiband, Port 1, QPSK Modulation, Test Case 2: Band n71 NR15 (Single Carriers: 644.5 MHz), Band n71 NR20 (Single Carrier: 627 MHz)					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
150 kHz - 20 MHz	0.15	-54.33	-29	Pass	



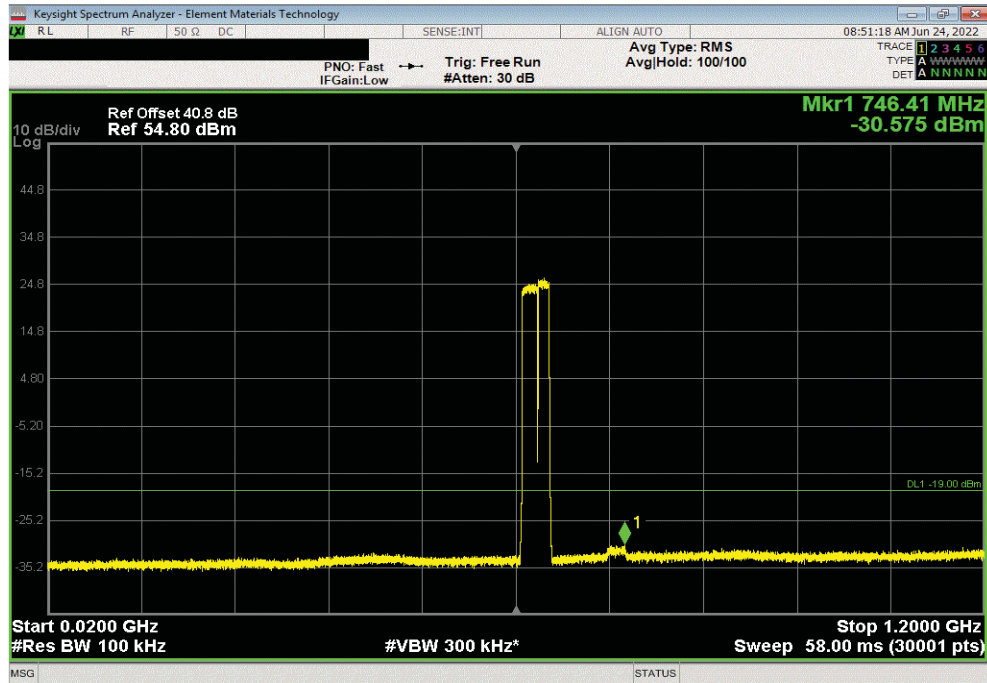
SPURIOUS CONDUCTED EMISSIONS - MULTIBAND MULTICARRIER



TbTtx 2022.05.02.0 XMit 2022.02.07.0

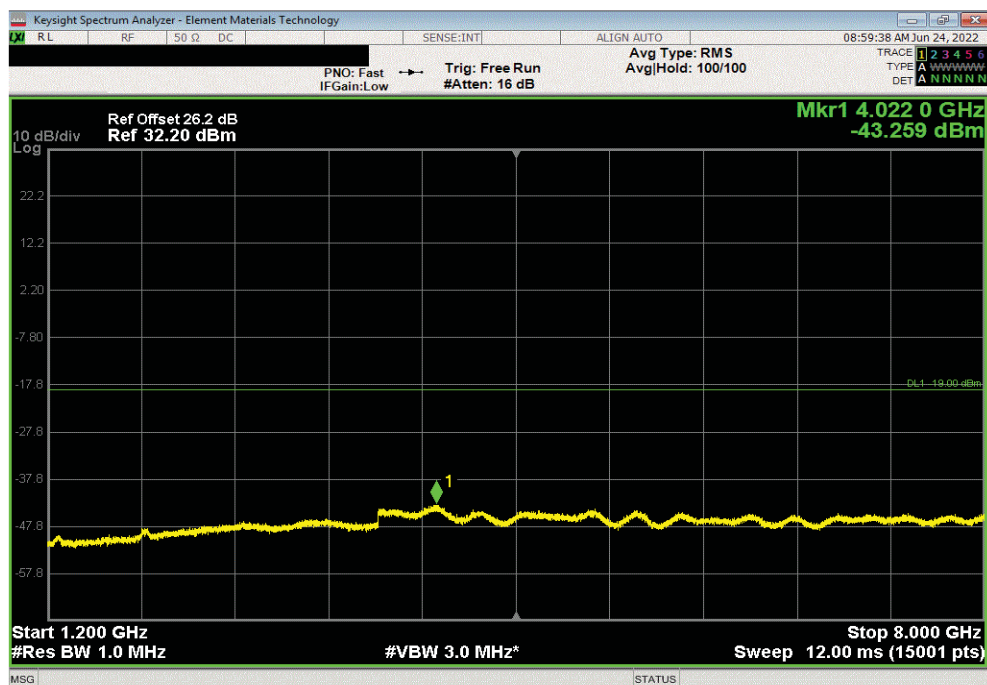
5G NR, Multicarrier Multiband, Port 1, QPSK Modulation, Test Case 2: Band n71 NR15 (Single Carriers: 644.5 MHz), Band n71 NR20 (Single Carrier: 627 MHz)

Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
20 MHz - 1.2 GHz	746.41	-30.58	-19	Pass



5G NR, Multicarrier Multiband, Port 1, QPSK Modulation, Test Case 2: Band n71 NR15 (Single Carriers: 644.5 MHz), Band n71 NR20 (Single Carrier: 627 MHz)

Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
1.2 GHz - 8 GHz	4022	-43.26	-19	Pass



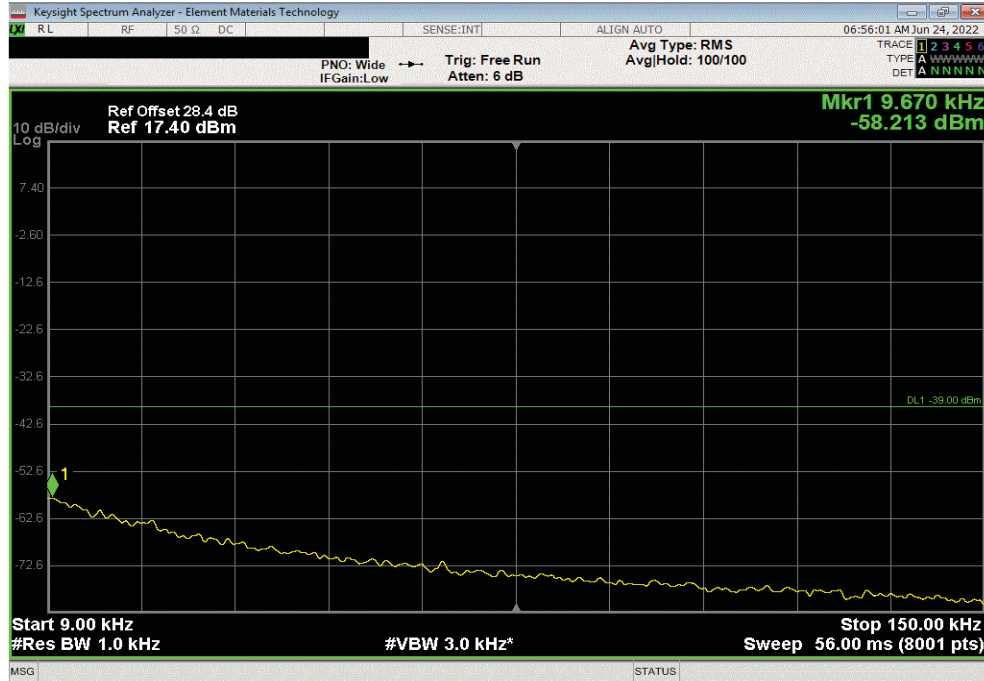
SPURIOUS CONDUCTED EMISSIONS - MULTIBAND MULTICARRIER



TbTtx 2022.05.02.0 XMit 2022.02.07.0

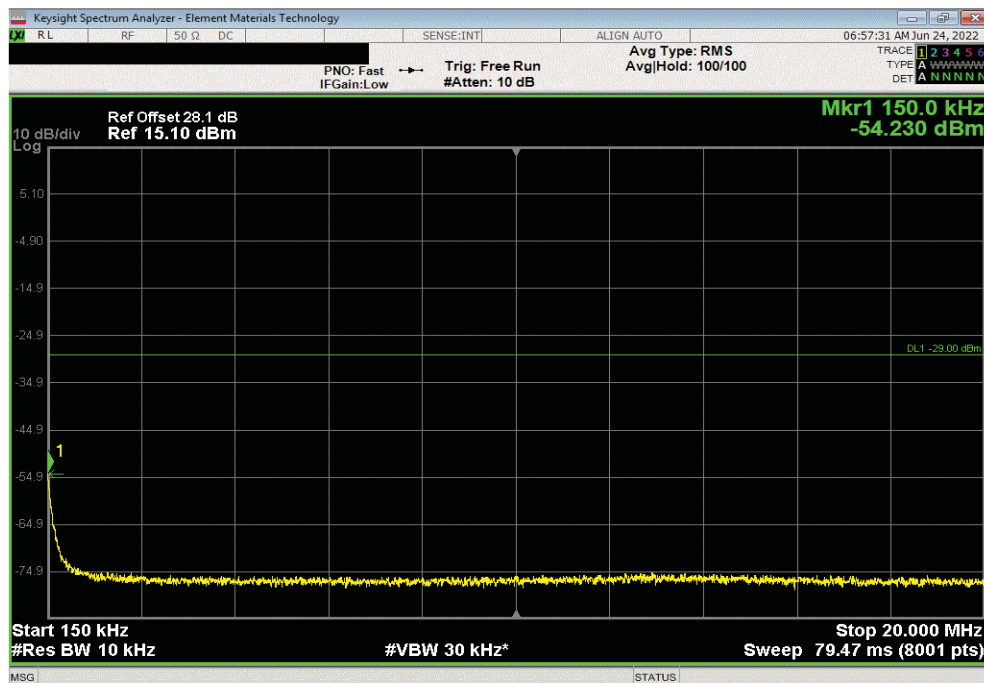
5G NR, Multicarrier Multiband, Port 1, QPSK Modulation, Test Case 3: Band n85 NR5 (2 Carriers: 730.5 MHz, 743.5 MHz)

Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
9 kHz - 150 kHz	0.01	-58.21	-39	Pass



5G NR, Multicarrier Multiband, Port 1, QPSK Modulation, Test Case 3: Band n85 NR5 (2 Carriers: 730.5 MHz, 743.5 MHz)

Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
150 kHz - 20 MHz	0.15	-54.23	-29	Pass



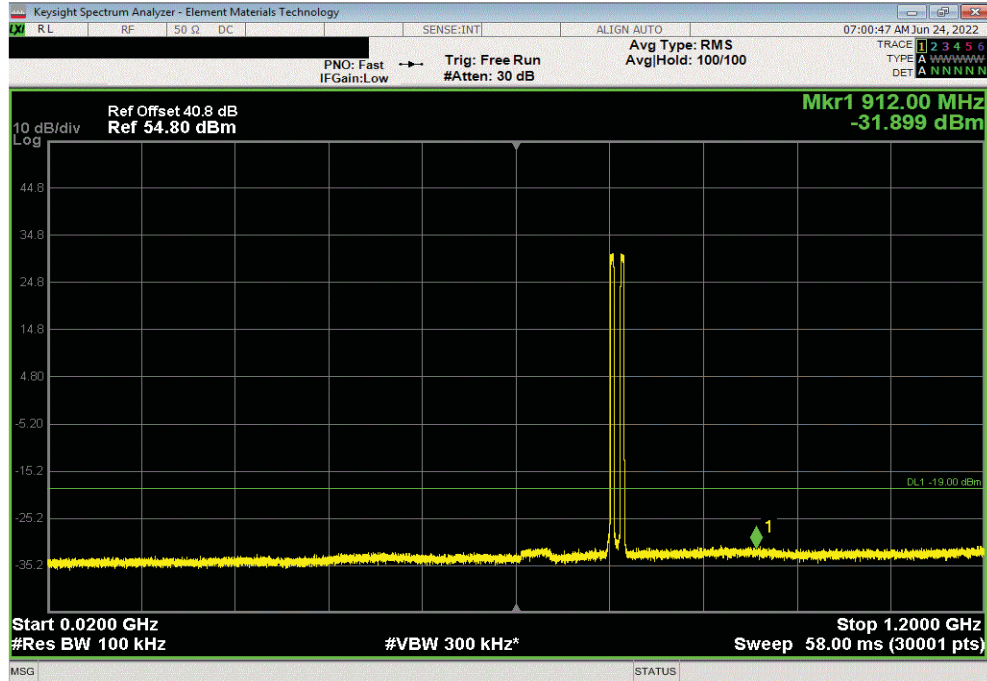
SPURIOUS CONDUCTED EMISSIONS - MULTIBAND MULTICARRIER



TbTtx 2022.05.02.0 XMit 2022.02.07.0

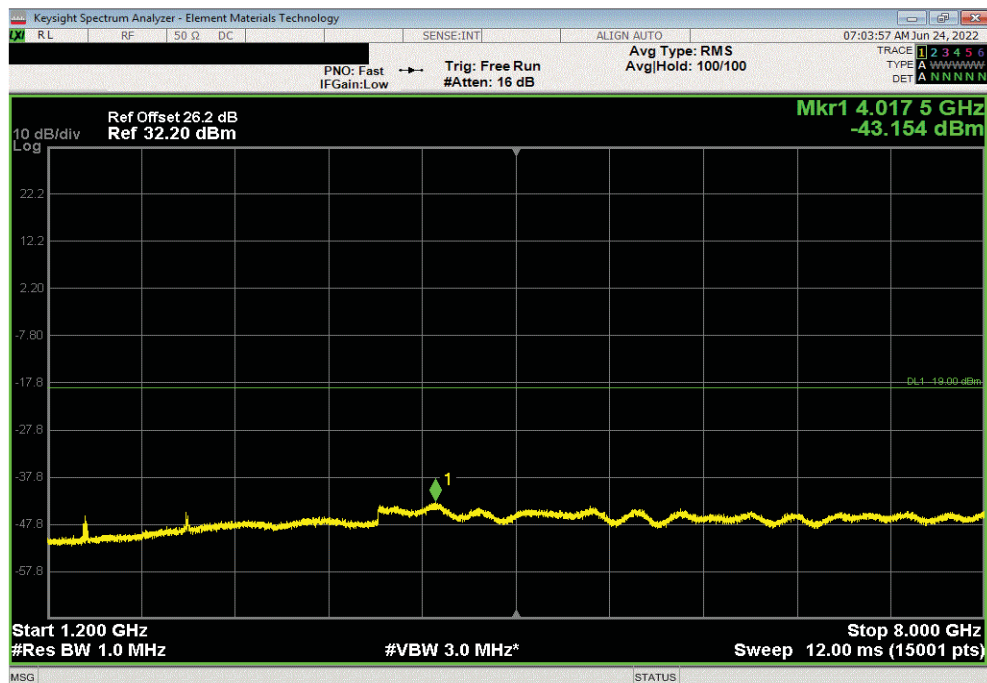
5G NR, Multicarrier Multiband, Port 1, QPSK Modulation, Test Case 3: Band n85 NR5 (2 Carriers: 730.5 MHz, 743.5 MHz)

Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
20 MHz - 1.2 GHz	912	-31.9	-19	Pass



5G NR, Multicarrier Multiband, Port 1, QPSK Modulation, Test Case 3: Band n85 NR5 (2 Carriers: 730.5 MHz, 743.5 MHz)

Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
1.2 GHz - 8 GHz	4017.47	-43.15	-19	Pass

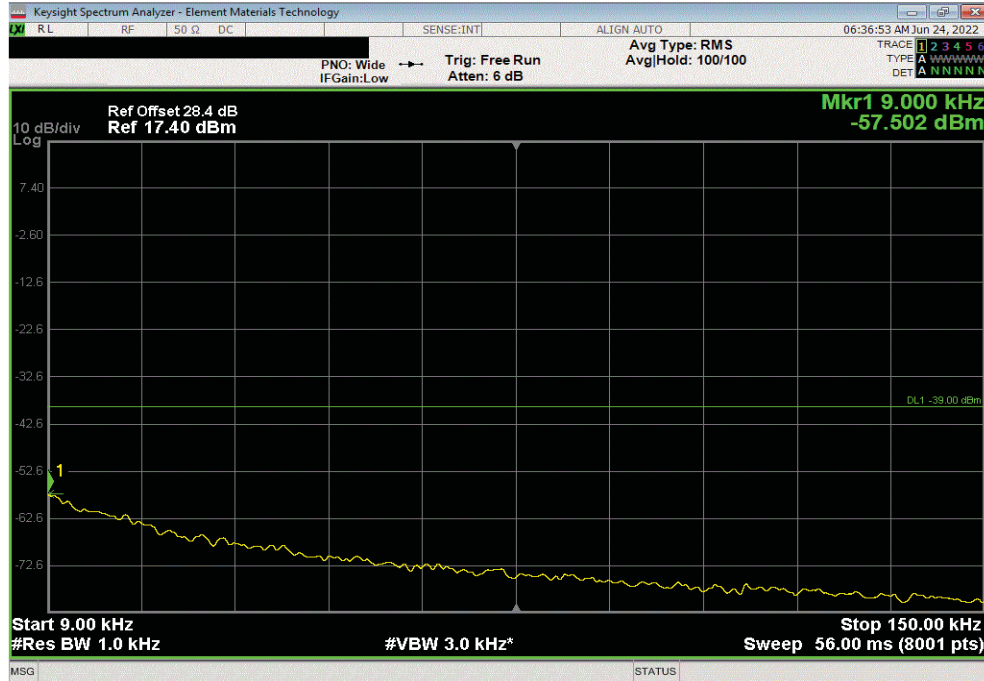


SPURIOUS CONDUCTED EMISSIONS - MULTIBAND MULTICARRIER

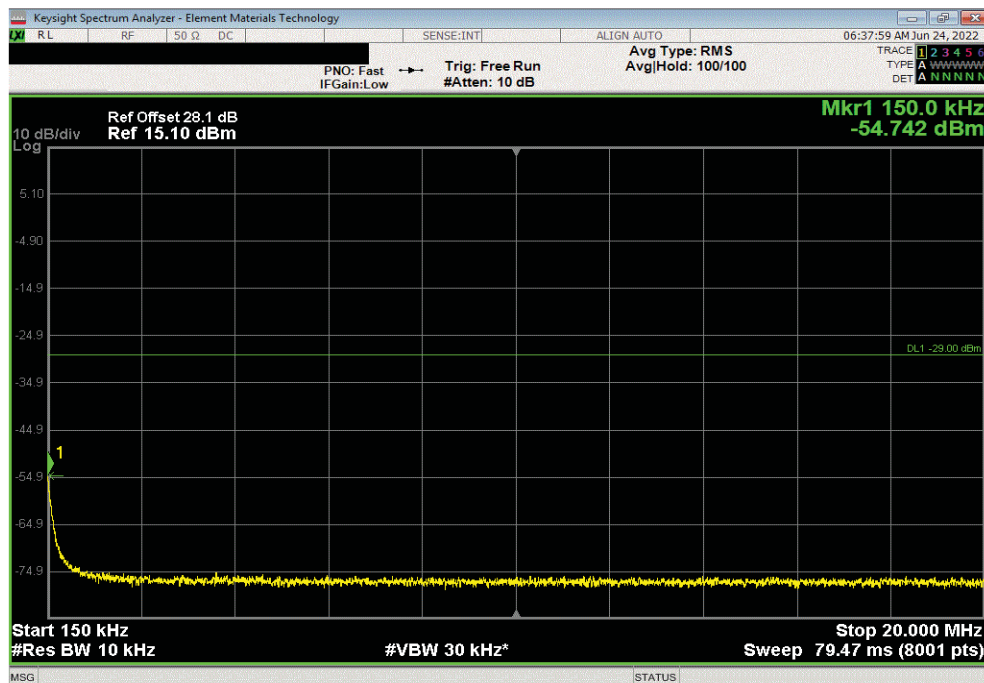


TbTx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Multicarrier Multiband, Port 1, QPSK Modulation, Test Case 4: Band n71 NR5 (2 Carriers: 619.5 MHz, 624.5 MHz), Band n85 NR5 (Single Carrier: 743.5 MHz)					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
9 kHz - 150 kHz	0.01	-57.5	-39	Pass	



5G NR, Multicarrier Multiband, Port 1, QPSK Modulation, Test Case 4: Band n71 NR5 (2 Carriers: 619.5 MHz, 624.5 MHz), Band n85 NR5 (Single Carrier: 743.5 MHz)					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
150 kHz - 20 MHz	0.15	-54.74	-29	Pass	

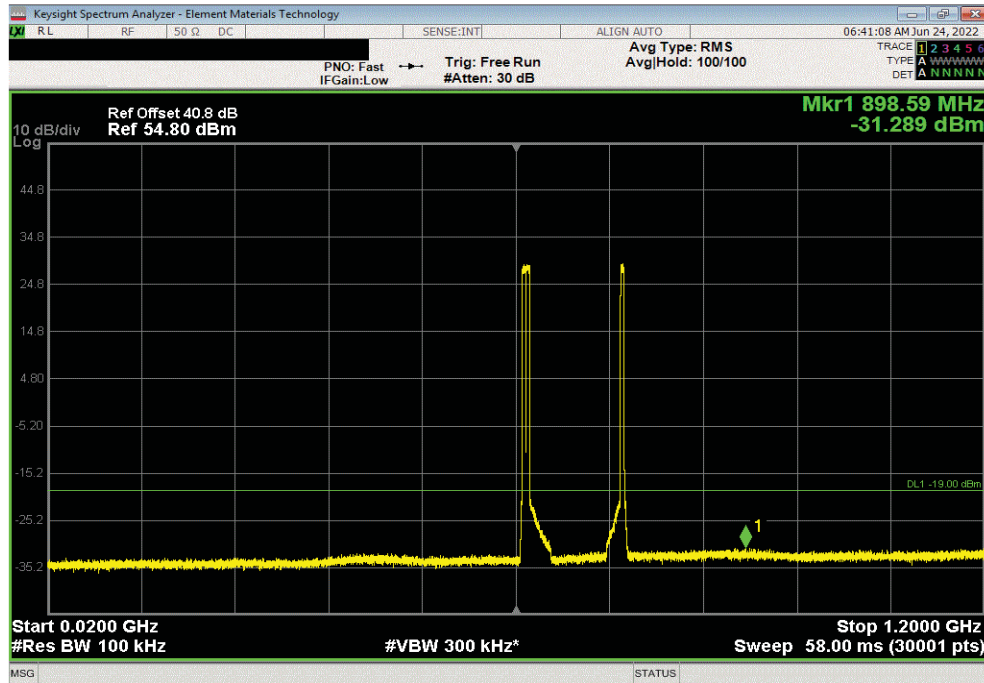


SPURIOUS CONDUCTED EMISSIONS - MULTIBAND MULTICARRIER

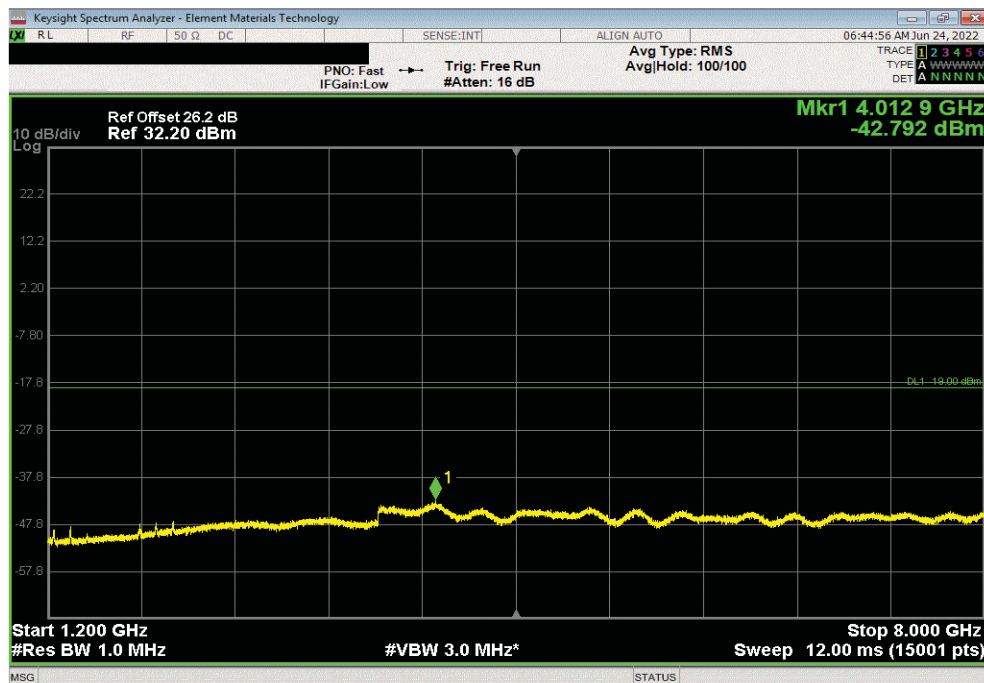


TbTtx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Multicarrier Multiband, Port 1, QPSK Modulation, Test Case 4: Band n71 NR5 (2 Carriers: 619.5 MHz, 624.5 MHz), Band n85 NR5 (Single Carrier: 743.5 MHz)					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
20 MHz - 1.2 GHz	898.59	-31.29	-19	Pass	



5G NR, Multicarrier Multiband, Port 1, QPSK Modulation, Test Case 4: Band n71 NR5 (2 Carriers: 619.5 MHz, 624.5 MHz), Band n85 NR5 (Single Carrier: 743.5 MHz)					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
1.2 GHz - 8 GHz	4012.93	-42.79	-19	Pass	



SPURIOUS CONDUCTED EMISSIONS - BAND n71



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	SD3239	ANE	2022-03-02	2023-03-02
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17

TEST DESCRIPTION

The antenna port spurious emissions were measured at the RF output terminal of the EUT through 3 different attenuation configurations which continues through to the RF input of the spectrum analyzer. Analyzer plots utilizing a resolution bandwidth called out by the client's test plan were made for each modulation type from 9 KHz to 8 GHz. The conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, were investigated to ensure they were less than the limits also called out by the client's test plan shown below.

The measurement methods are detailed in KDB 971168 D01v03 section 6 and ANSI C63.26-2015.

Per FCC 2.1057(a)(1) and RSS Gen 6.13, the upper level of measurement is the 10th harmonic of the highest fundamental frequency.

These measurements are for the frequency band after the first 100 kHz bands immediately outside and adjacent to the frequency block.

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

Per section 27.53(g) and RSS 130 4.7, the power of any emission outside of the authorized operating frequency range cannot exceed -13 dBm. The limit is adjusted to -19 dBm $[-13 \text{ dBm} - 10 \log(4)]$ per FCC KDB 662911D01 v02r01 because the BTS may operate as a 4 port MIMO transmitter.

The limit for the 9kHz to 150kHz frequency range was adjusted to -39dBm to correct for a spectrum analyzer RBW of 1kHz versus required RBW of 100kHz [i.e.: $-39\text{dBm} = -19\text{dBm} - 10\log(100\text{kHz}/1\text{kHz})$]. The limit for the 150kHz to 20MHz frequency range was adjusted to -29dBm to correct for a spectrum analyzer RBW of 10kHz versus required RBW of 100kHz [i.e.: $-29\text{dBm} = -19\text{dBm} - 10\log(100\text{kHz}/10\text{kHz})$]. The required limit of -19dBm with a RBW of > 100kHz was used for all other frequency ranges. (See ANSI C63.26-2015 paragraph 5.7.2a for details on the Limit/RBW scaling method)

SPURIOUS CONDUCTED EMISSIONS - BAND n71



TbTt 2022.05.02.0 XMI 2022.02.07.0

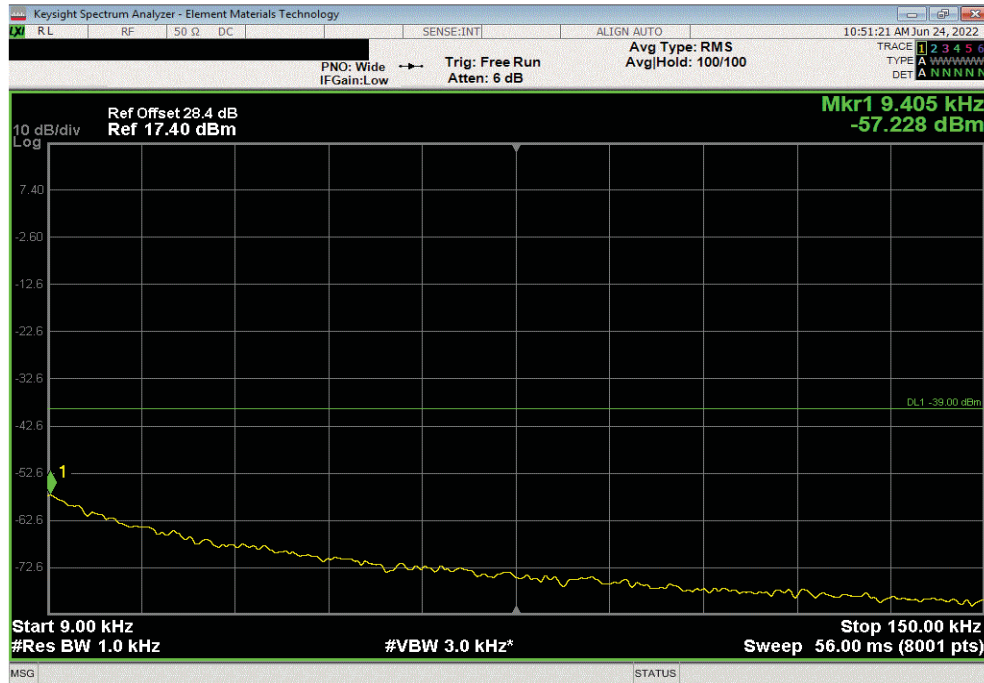
EUT: AHLOB (FCC/ISED)		Work Order: NOKI0042				
Serial Number: YK220900026		Date: 24-Jun-22				
Customer: Nokia Solutions and Networks		Temperature: 20.8 °C				
Attendees: David Le, John Rattanavong		Humidity: 63.3% RH				
Project: None		Barometric Pres.: 1017 mbar				
Tested by: Brandon Hobbs		Job Site: TX07				
Power: 54 VDC						
TEST SPECIFICATIONS		Test Method				
FCC 27:2022		ANSI C63.26:2015				
RSS-130 Issue 2:2019		ANSI C63.26:2015				
COMMENTS						
All losses in the measurement path were accounted for: attenuators, cables, DC block and filter when in use. The carriers are enabled at maximum power. The port power is at maximum (80W).						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	1, 2, 3	Signature 				
		Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
5G NR, Band n71, 617 MHz - 652 MHz						
Port 1						
QPSK Modulation						
	Band n71 NR15 80W Mid Ch. 634.5 MHz	9 kHz - 150 kHz	0.01	-57.2	-39	Pass
	Band n71 NR15 80W Mid Ch. 634.5 MHz	150 kHz - 20 MHz	0.15	-54.1	-29	Pass
	Band n71 NR15 80W Mid Ch. 634.5 MHz	20 MHz - 1.2 GHz	737.32	-30.5	-19	Pass
	Band n71 NR15 80W Mid Ch. 634.5 MHz	1.2 GHz - 8 GHz	3992.53	-43.7	-19	Pass
16-QAM Modulation						
	Band n71 NR15 80W Mid Ch. 634.5 MHz	9 kHz - 150 kHz	0.01	-57.6	-39	Pass
	Band n71 NR15 80W Mid Ch. 634.5 MHz	150 kHz - 20 MHz	0.15	-54.7	-29	Pass
	Band n71 NR15 80W Mid Ch. 634.5 MHz	20 MHz - 1.2 GHz	741.29	-31.5	-19	Pass
	Band n71 NR15 80W Mid Ch. 634.5 MHz	1.2 GHz - 8 GHz	4024.27	-43.3	-19	Pass
64-QAM Modulation						
	Band n71 NR15 80W Mid Ch. 634.5 MHz	9 kHz - 150 kHz	0.01	-57.5	-39	Pass
	Band n71 NR15 80W Mid Ch. 634.5 MHz	150 kHz - 20 MHz	0.15	-53.9	-29	Pass
	Band n71 NR15 80W Mid Ch. 634.5 MHz	20 MHz - 1.2 GHz	737.32	-30.7	-19	Pass
	Band n71 NR15 80W Mid Ch. 634.5 MHz	1.2 GHz - 8 GHz	4019.73	-43.2	-19	Pass
256-QAM Modulation						
	Band n71 NR5 40W Mid Ch. 634.5 MHz + Band n85 NR5 40W (Single Carrier)	9 kHz - 150 kHz	0.01	-58.6	-39	Pass
	Band n71 NR5 40W Mid Ch. 634.5 MHz + Band n85 NR5 40W (Single Carrier)	150 kHz - 20 MHz	0.15	-54.2	-29	Pass
	Band n71 NR5 40W Mid Ch. 634.5 MHz + Band n85 NR5 40W (Single Carrier)	20 MHz - 1.2 GHz	900.08	-32.0	-19	Pass
	Band n71 NR5 40W Mid Ch. 634.5 MHz + Band n85 NR5 40W (Single Carrier)	1.2 GHz - 8 GHz	4017.47	-43.0	-19	Pass
	Band n71 NR10 60W Mid Ch. 634.5 MHz + Band n85 NR5 20W (Single Carrier)	9 kHz - 150 kHz	0.01	-57.7	-39	Pass
	Band n71 NR10 60W Mid Ch. 634.5 MHz + Band n85 NR5 20W (Single Carrier)	150 kHz - 20 MHz	0.15	-54.8	-29	Pass
	Band n71 NR10 60W Mid Ch. 634.5 MHz + Band n85 NR5 20W (Single Carrier)	20 MHz - 1.2 GHz	924.94	-31.9	-19	Pass
	Band n71 NR10 60W Mid Ch. 634.5 MHz + Band n85 NR5 20W (Single Carrier)	1.2 GHz - 8 GHz	4003.87	-43.1	-19	Pass
	Band n71 NR15 80W Mid Ch. 634.5 MHz	9 kHz - 150 kHz	0.01	-57.4	-39	Pass
	Band n71 NR15 80W Mid Ch. 634.5 MHz	150 kHz - 20 MHz	0.15	-54.2	-29	Pass
	Band n71 NR15 80W Mid Ch. 634.5 MHz	20 MHz - 1.2 GHz	737.32	-31.4	-19	Pass
	Band n71 NR15 80W Mid Ch. 634.5 MHz	1.2 GHz - 8 GHz	4017.47	-43.1	-19	Pass
	Band n71 NR20 80W Mid Ch. 634.5 MHz	9 kHz - 150 kHz	0.01	-57.8	-39	Pass
	Band n71 NR20 80W Mid Ch. 634.5 MHz	150 kHz - 20 MHz	0.16	-54.8	-29	Pass
	Band n71 NR20 80W Mid Ch. 634.5 MHz	20 MHz - 1.2 GHz	747.59	-31.4	-19	Pass
	Band n71 NR20 80W Mid Ch. 634.5 MHz	1.2 GHz - 8 GHz	4021.55	-43.1	-19	Pass

SPURIOUS CONDUCTED EMISSIONS - BAND n71

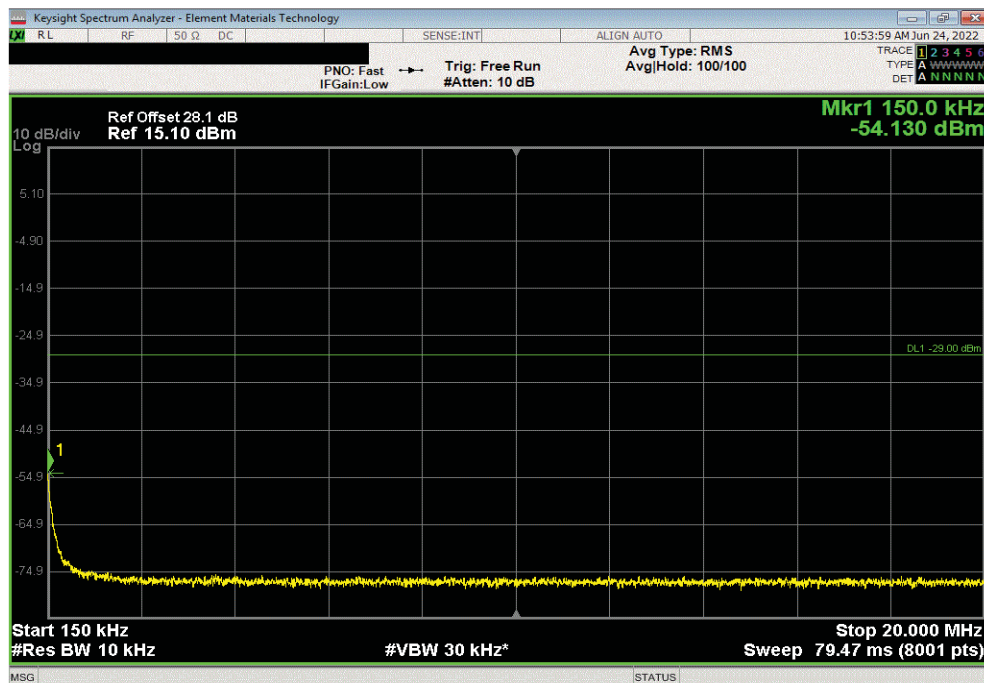


TbTx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n71, 617 MHz - 652 MHz, Port 1, QPSK Modulation, Band n71 NR15 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
9 kHz - 150 kHz	0.01	-57.23	-39	Pass	



5G NR, Band n71, 617 MHz - 652 MHz, Port 1, QPSK Modulation, Band n71 NR15 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
150 kHz - 20 MHz	0.15	-54.13	-29	Pass	

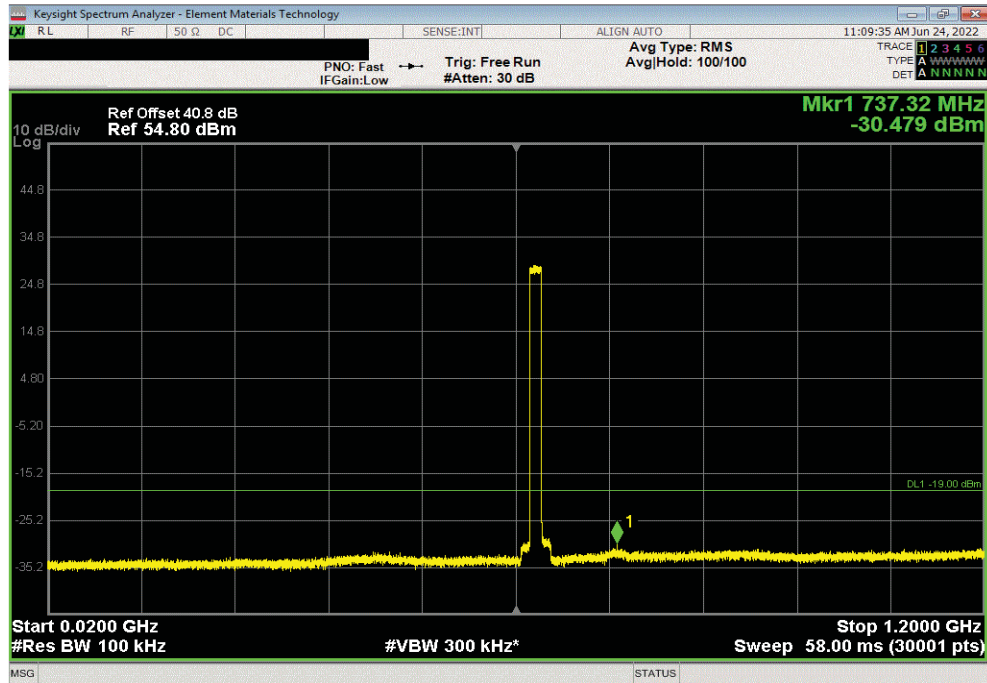


SPURIOUS CONDUCTED EMISSIONS - BAND n71

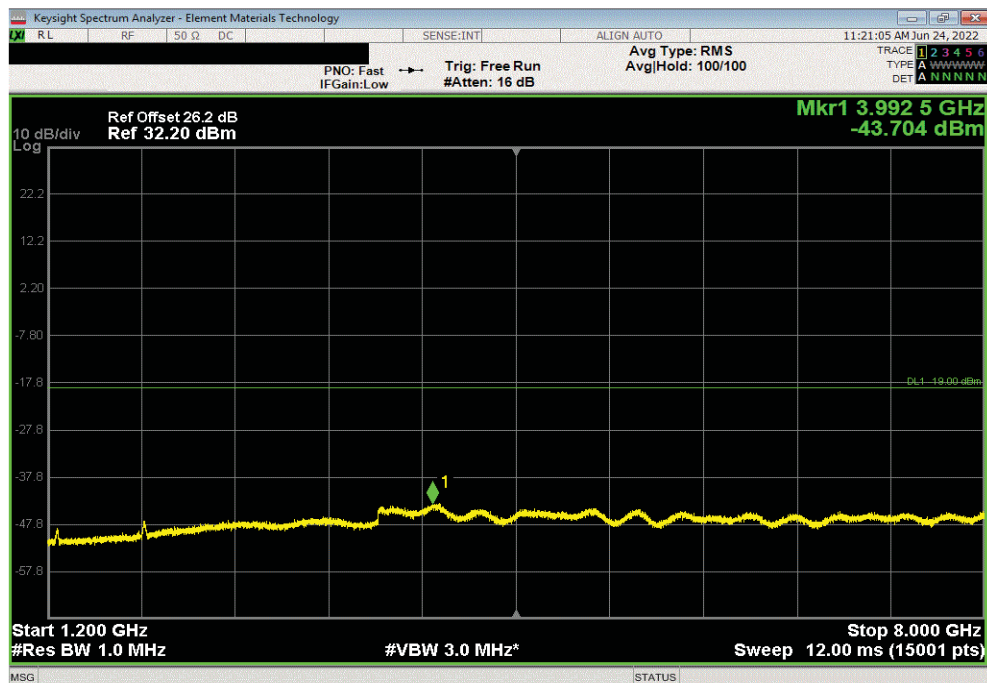


TbTx 2022.05.02.0 XMt 2022.02.07.0

5G NR, Band n71, 617 MHz - 652 MHz, Port 1, QPSK Modulation, Band n71 NR15 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
20 MHz - 1.2 GHz	737.32	-30.48	-19	Pass	



5G NR, Band n71, 617 MHz - 652 MHz, Port 1, QPSK Modulation, Band n71 NR15 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
1.2 GHz - 8 GHz	3992.53	-43.7	-19	Pass	

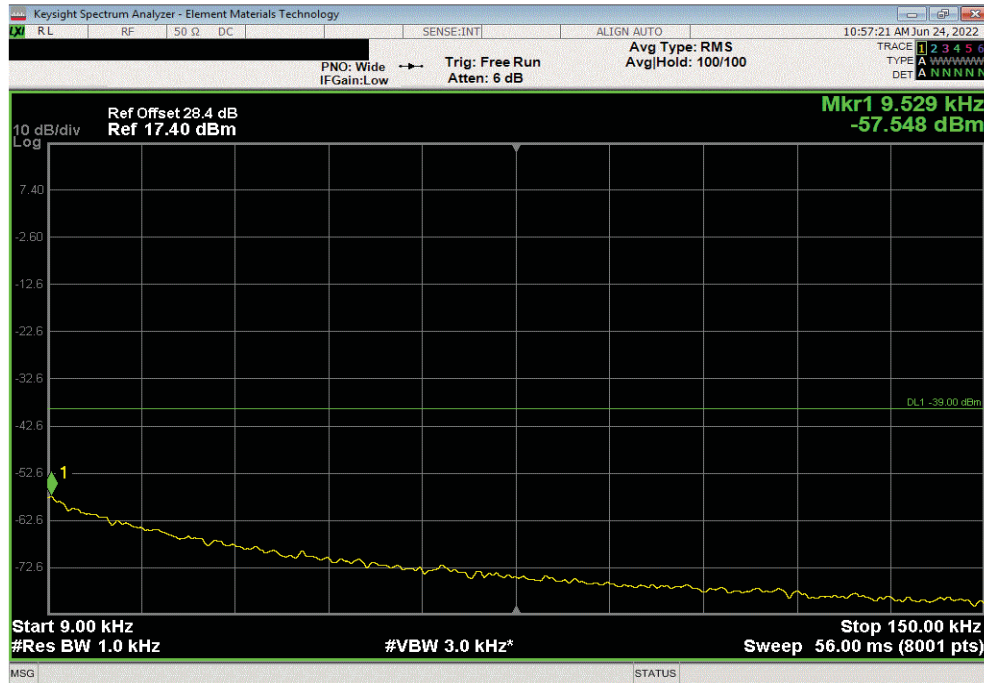


SPURIOUS CONDUCTED EMISSIONS - BAND n71

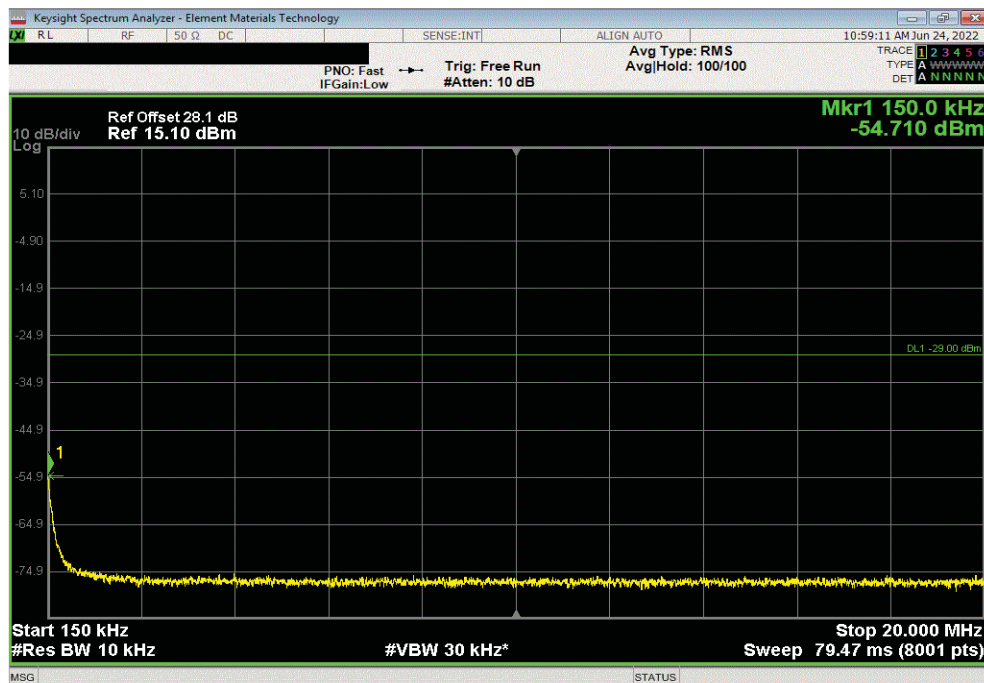


TbTx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 16-QAM Modulation, Band n71 NR15 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
9 kHz - 150 kHz	0.01	-57.55	-39	Pass	



5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 16-QAM Modulation, Band n71 NR15 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
150 kHz - 20 MHz	0.15	-54.71	-29	Pass	

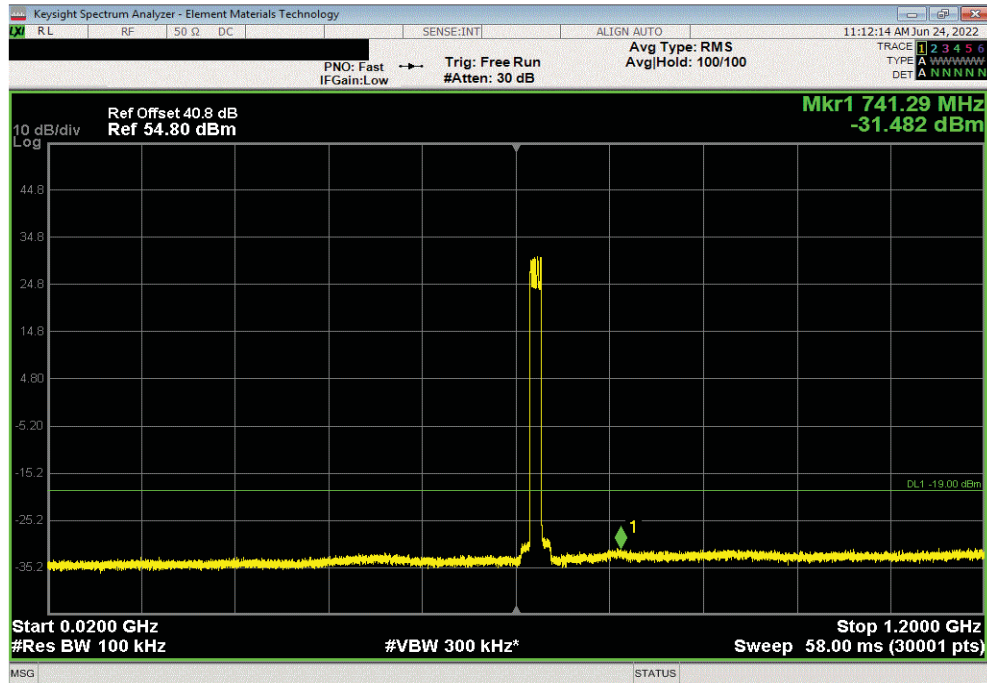


SPURIOUS CONDUCTED EMISSIONS - BAND n71

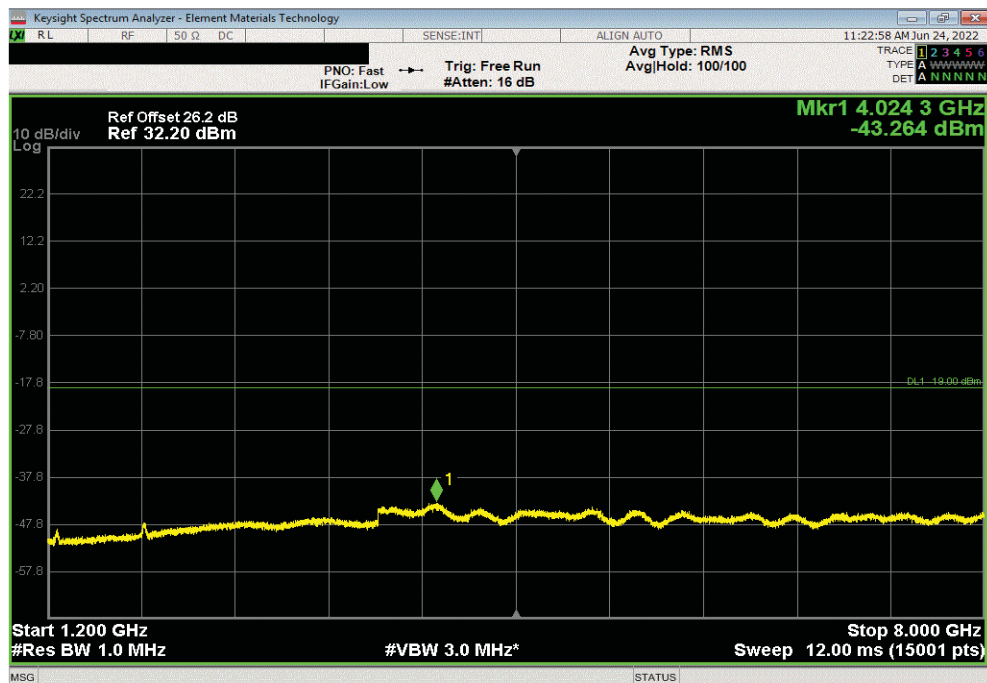


TbTx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 16-QAM Modulation, Band n71 NR15 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
20 MHz - 1.2 GHz	741.29	-31.48	-19	Pass	



5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 16-QAM Modulation, Band n71 NR15 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
1.2 GHz - 8 GHz	4024.27	-43.26	-19	Pass	

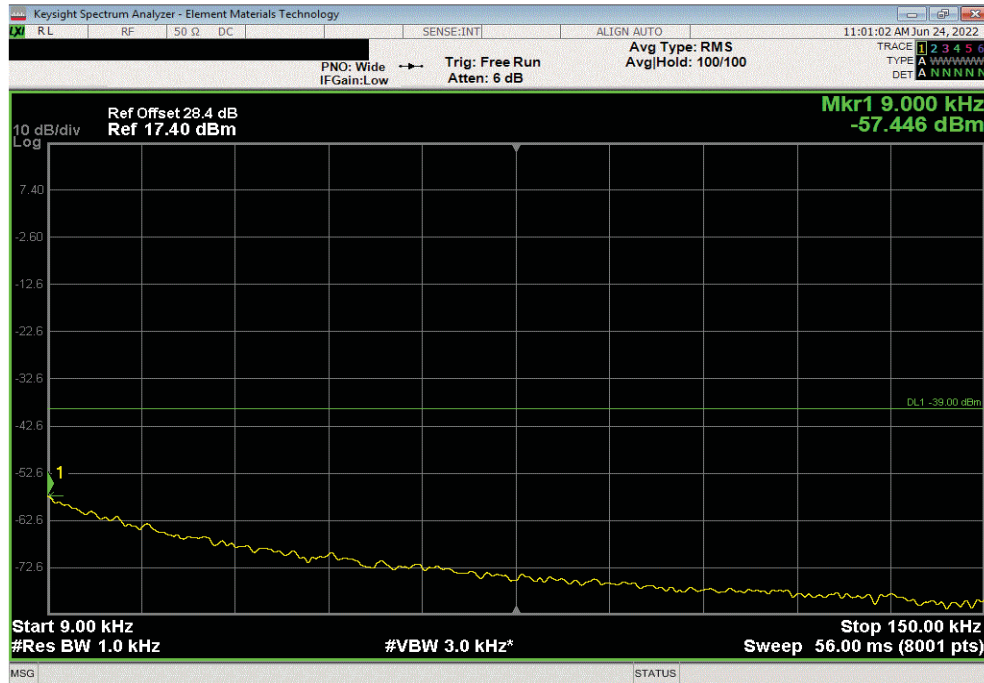


SPURIOUS CONDUCTED EMISSIONS - BAND n71

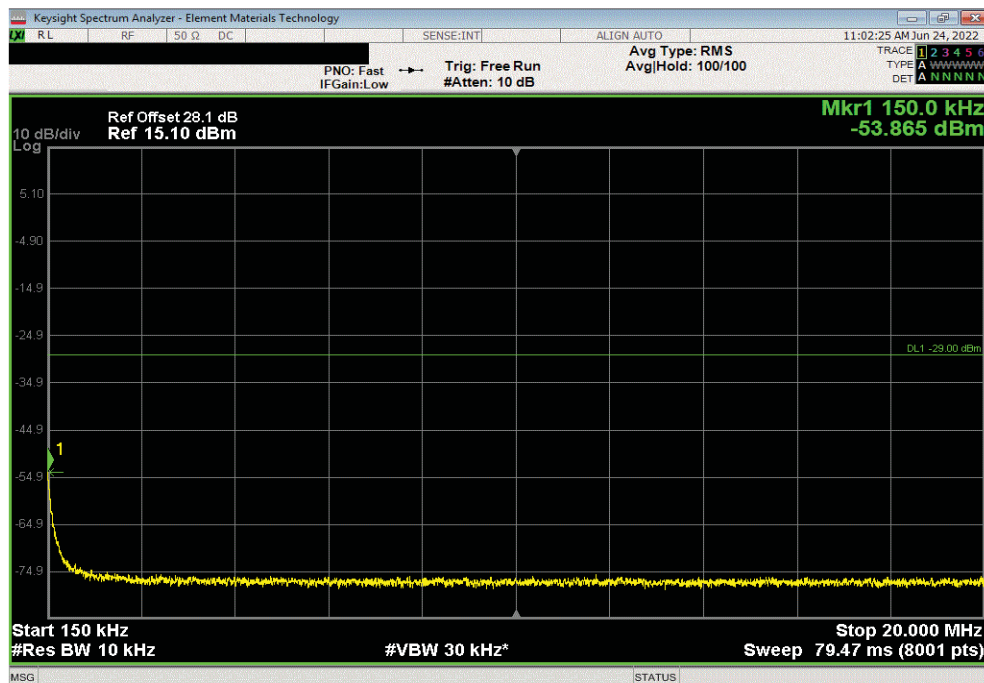


TbTtx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 64-QAM Modulation, Band n71 NR15 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
9 kHz - 150 kHz	0.01	-57.45	-39	Pass	



5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 64-QAM Modulation, Band n71 NR15 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
150 kHz - 20 MHz	0.15	-53.87	-29	Pass	

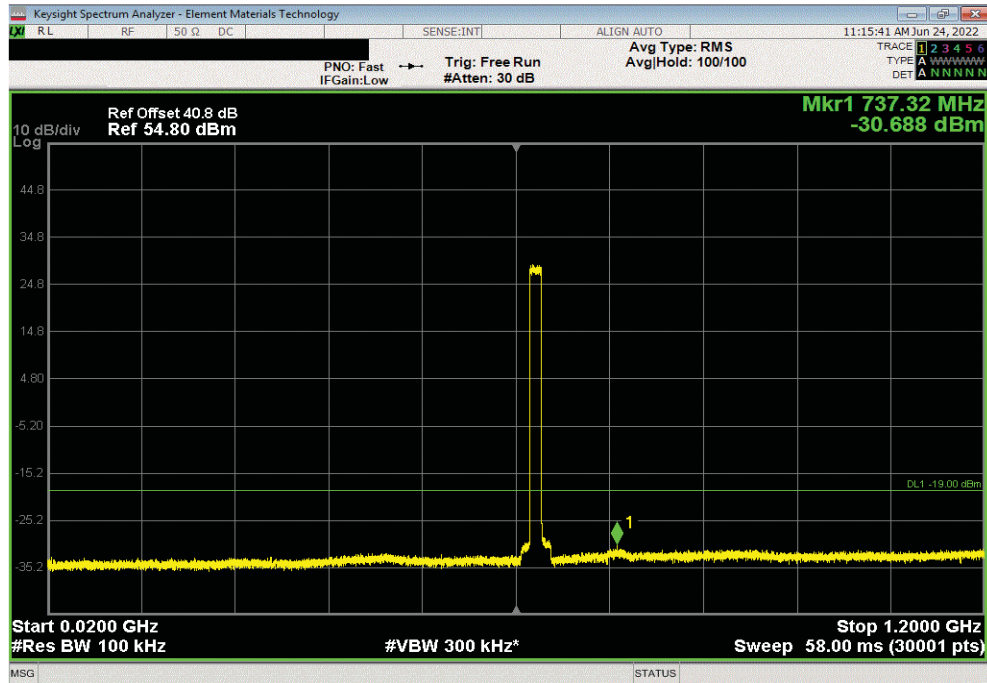


SPURIOUS CONDUCTED EMISSIONS - BAND n71

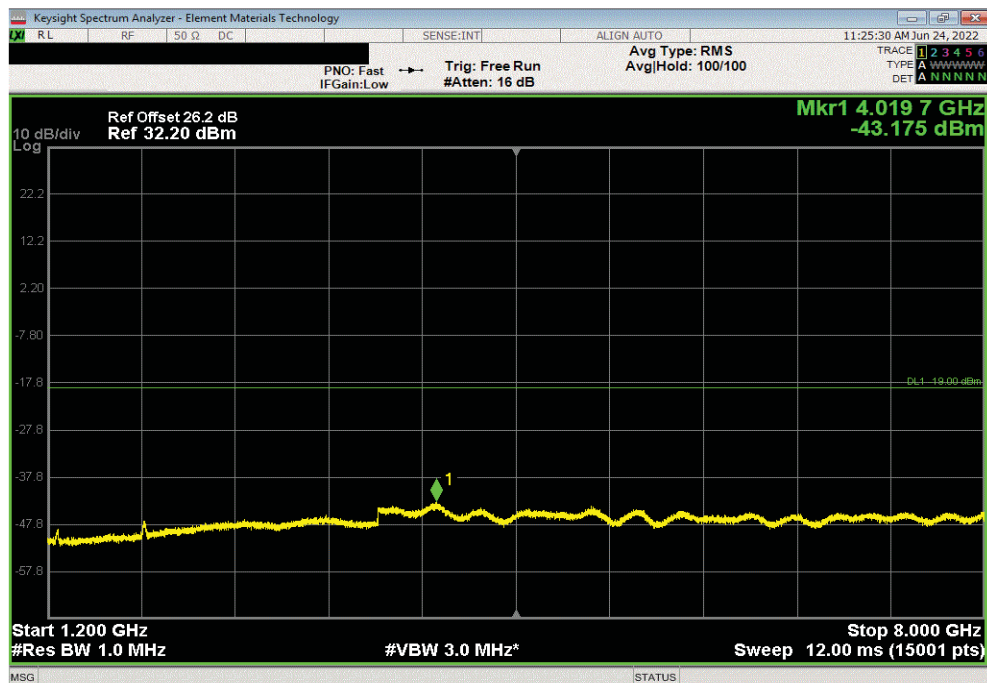


TbTx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 64-QAM Modulation, Band n71 NR15 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
20 MHz - 1.2 GHz	737.32	-30.69	-19	Pass	



5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 64-QAM Modulation, Band n71 NR15 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
1.2 GHz - 8 GHz	4019.73	-43.18	-19	Pass	



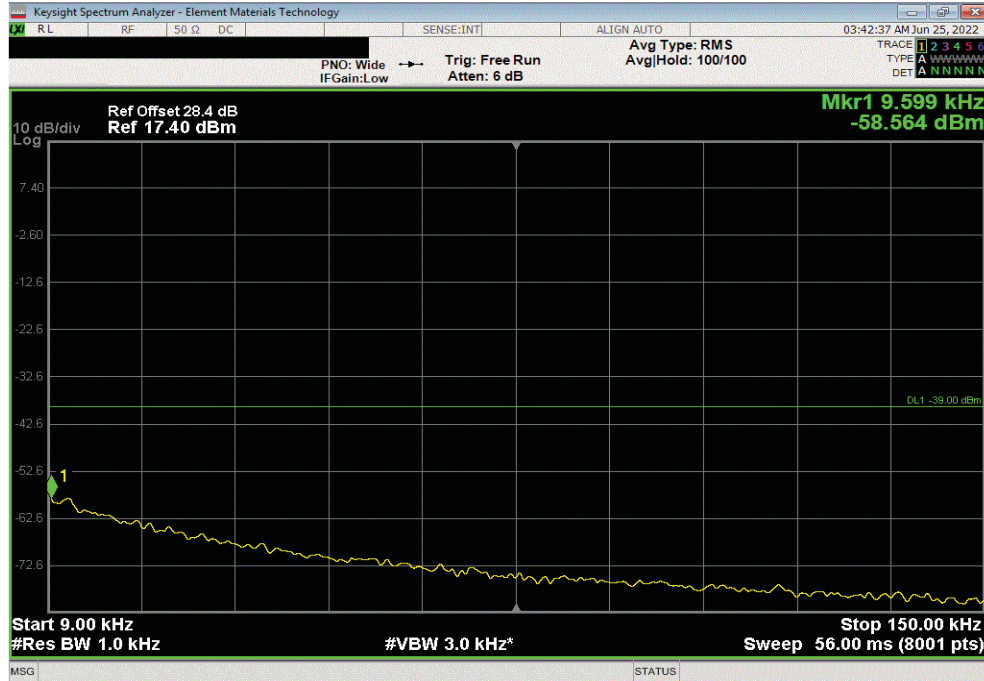
SPURIOUS CONDUCTED EMISSIONS - BAND n71



TbTx 2022.05.02.0 XbTx 2022.02.07.0

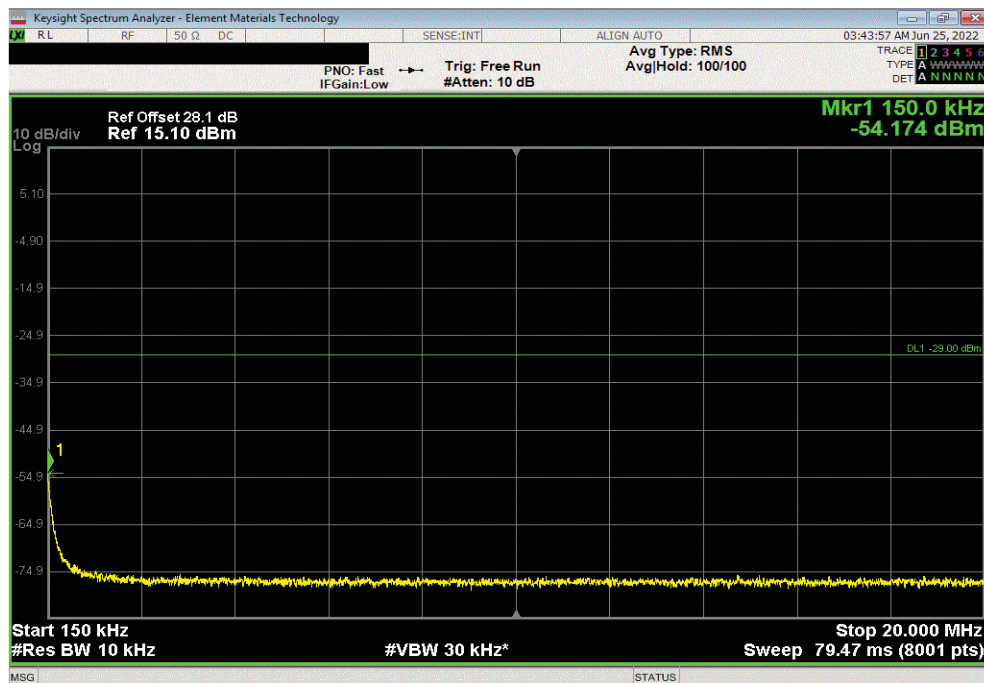
5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 256-QAM Modulation, Band n71 NR5 40W Mid Ch. 634.5 MHz + Band n85 NR5 40W (Single Carrier)

Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
9 kHz - 150 kHz	0.01	-58.56	-39	Pass



5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 256-QAM Modulation, Band n71 NR5 40W Mid Ch. 634.5 MHz + Band n85 NR5 40W (Single Carrier)

Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
150 kHz - 20 MHz	0.15	-54.17	-29	Pass



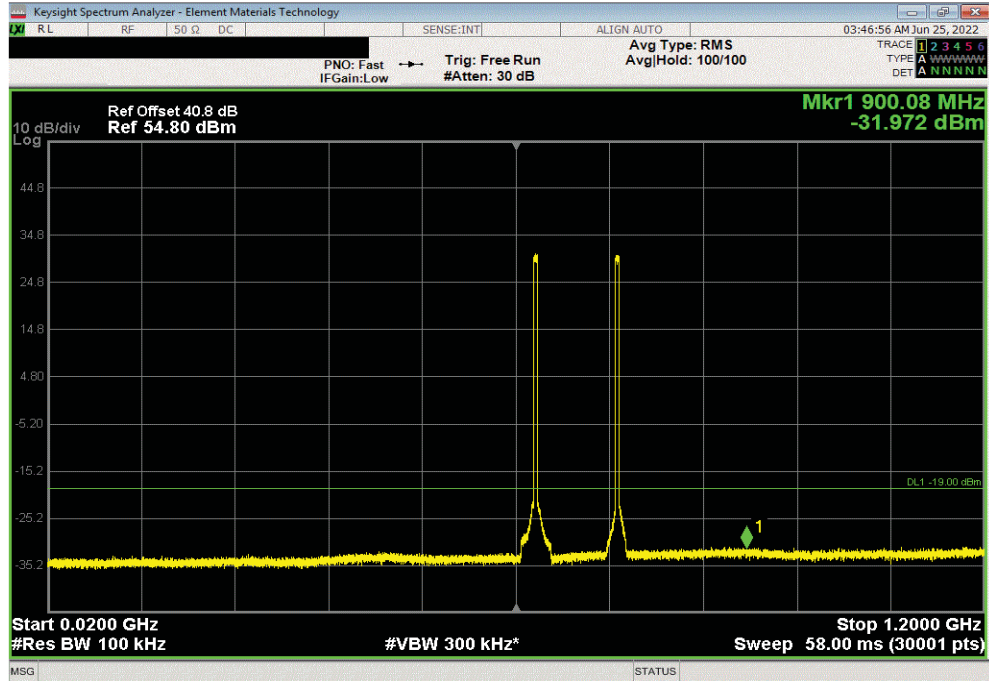
SPURIOUS CONDUCTED EMISSIONS - BAND n71



TbTtX 2022.05.02.0 XMt 2022.02.07.0

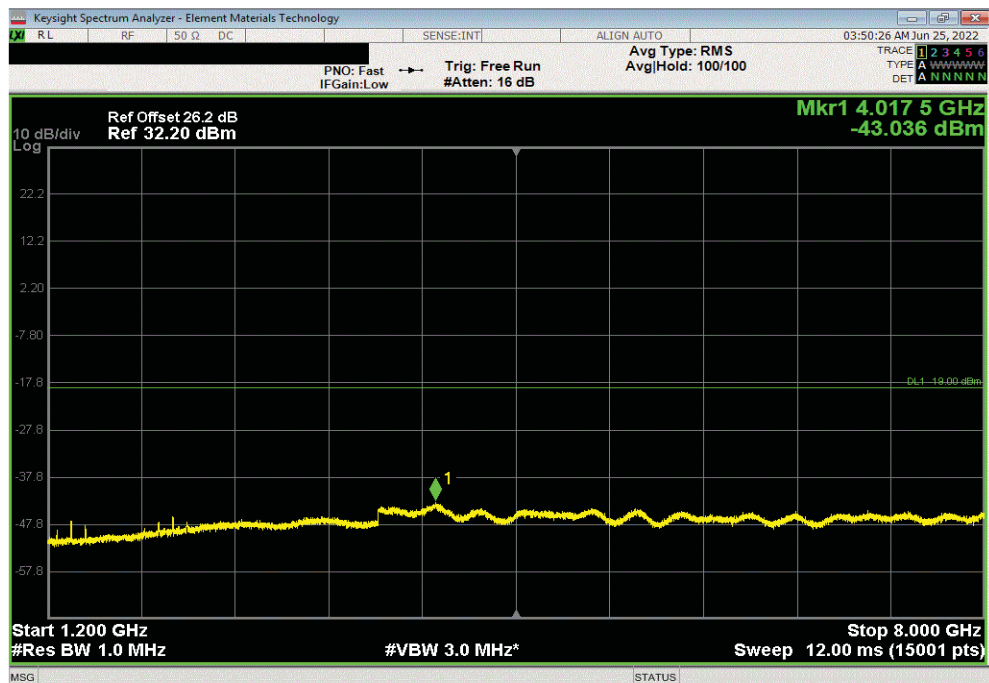
5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 256-QAM Modulation, Band n71 NR5 40W Mid Ch. 634.5 MHz + Band n85 NR5 40W (Single Carrier)

Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
20 MHz - 1.2 GHz	900.08	-31.97	-19	Pass



5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 256-QAM Modulation, Band n71 NR5 40W Mid Ch. 634.5 MHz + Band n85 NR5 40W (Single Carrier)

Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
1.2 GHz - 8 GHz	4017.47	-43.04	-19	Pass

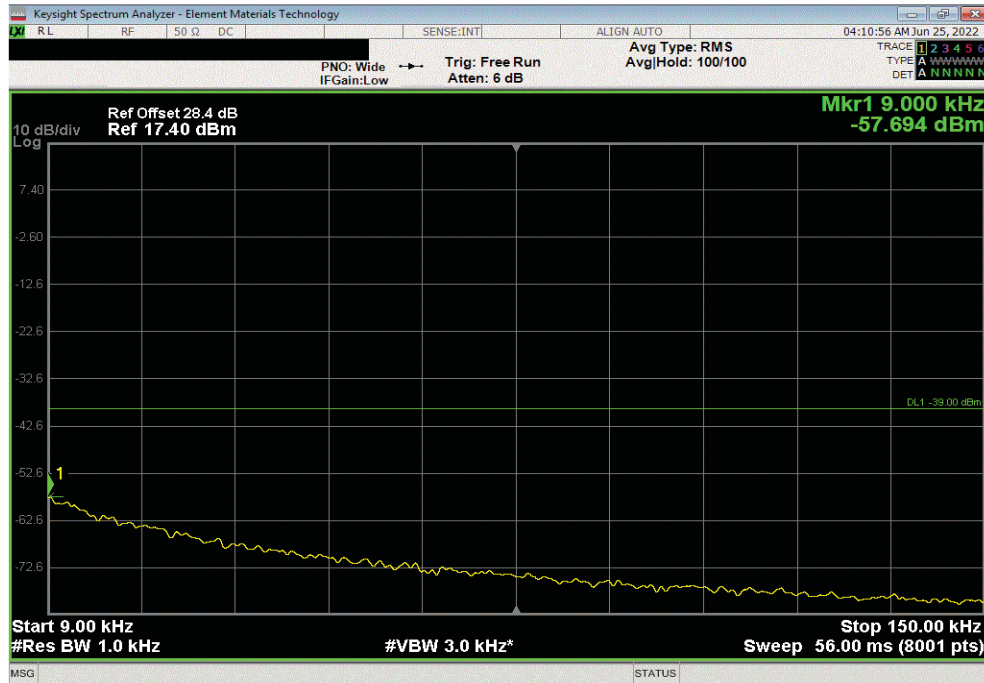


SPURIOUS CONDUCTED EMISSIONS - BAND n71

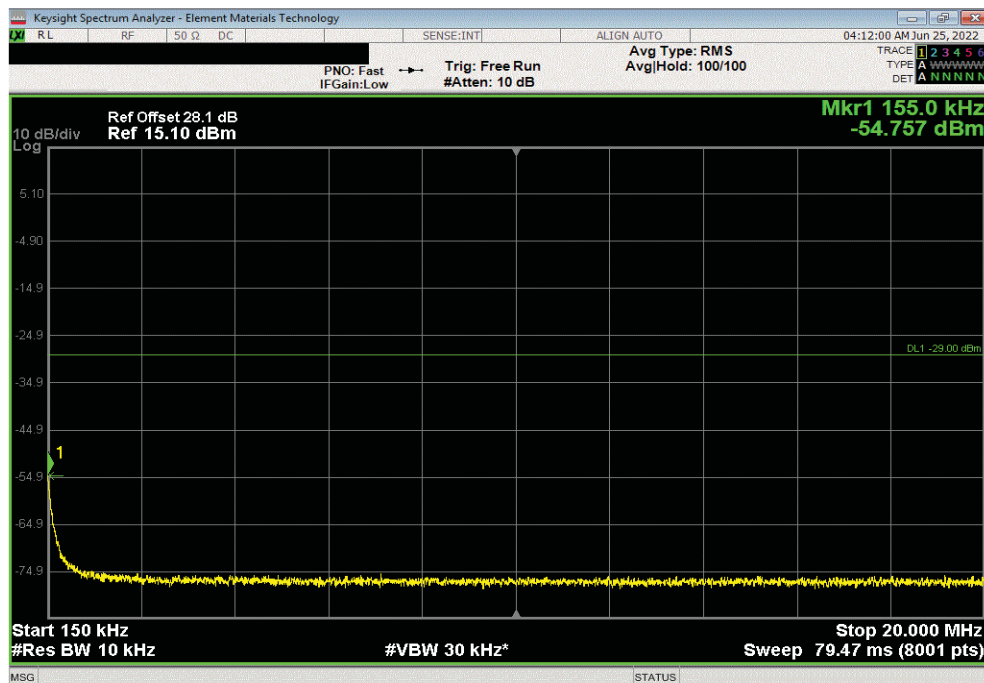


TbTx 2022.05.02.0 XbTx 2022.02.07.0

5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 256-QAM Modulation, Band n71 NR10 60W Mid Ch. 634.5 MHz + Band n85 NR5 20W (Single Carrier)					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
9 kHz - 150 kHz	0.01	-57.69	-39	Pass	



5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 256-QAM Modulation, Band n71 NR10 60W Mid Ch. 634.5 MHz + Band n85 NR5 20W (Single Carrier)					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
150 kHz - 20 MHz	0.15	-54.76	-29	Pass	



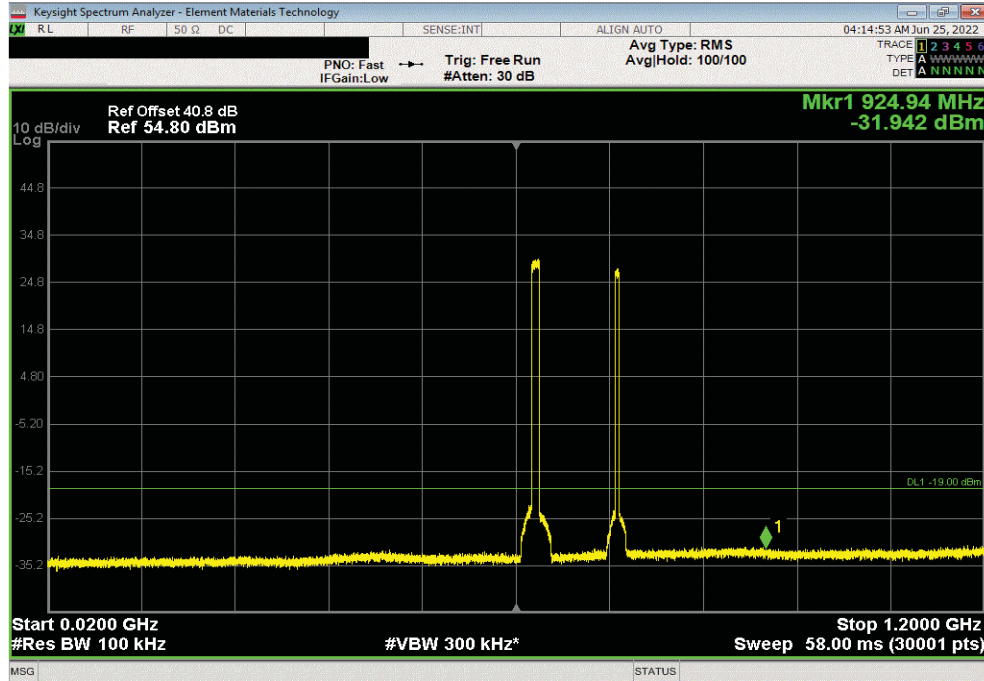
SPURIOUS CONDUCTED EMISSIONS - BAND n71



TbTtx 2022.05.02.0 XMit 2022.02.07.0

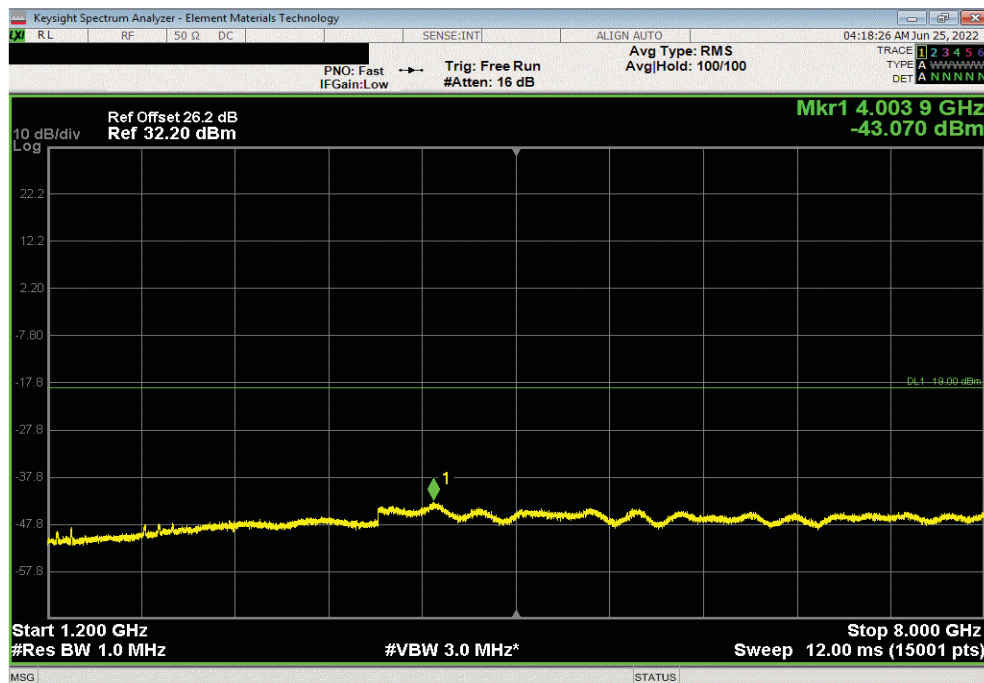
5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 256-QAM Modulation, Band n71 NR10 60W Mid Ch. 634.5 MHz + Band n85 NR5 20W (Single Carrier)

Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
20 MHz - 1.2 GHz	924.94	-31.94	-19	Pass



5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 256-QAM Modulation, Band n71 NR10 60W Mid Ch. 634.5 MHz + Band n85 NR5 20W (Single Carrier)

Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
1.2 GHz - 8 GHz	4003.87	-43.07	-19	Pass

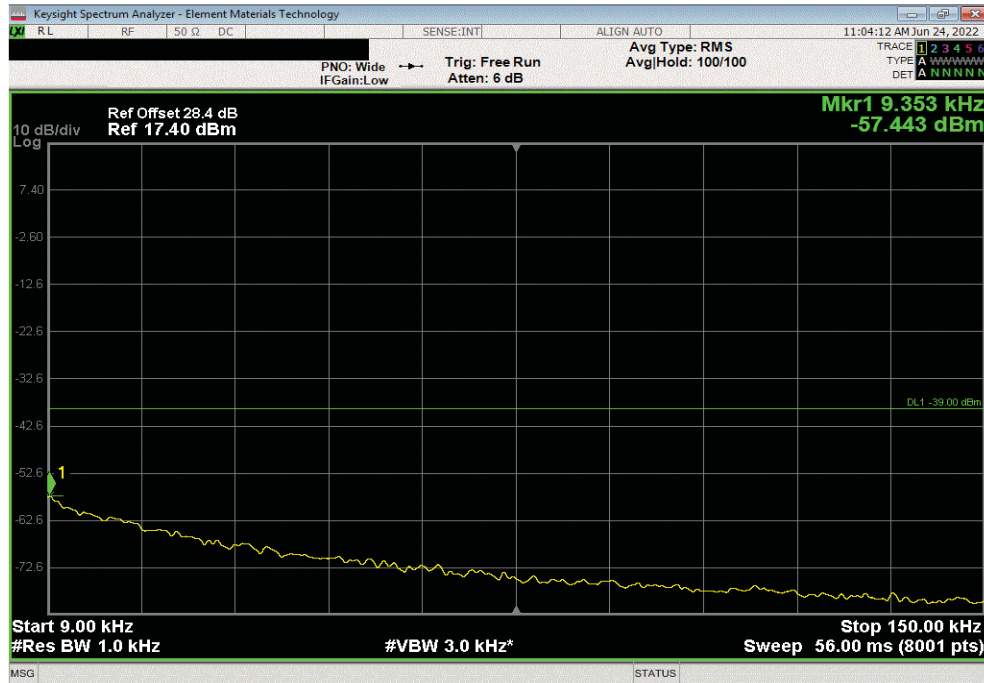


SPURIOUS CONDUCTED EMISSIONS - BAND n71

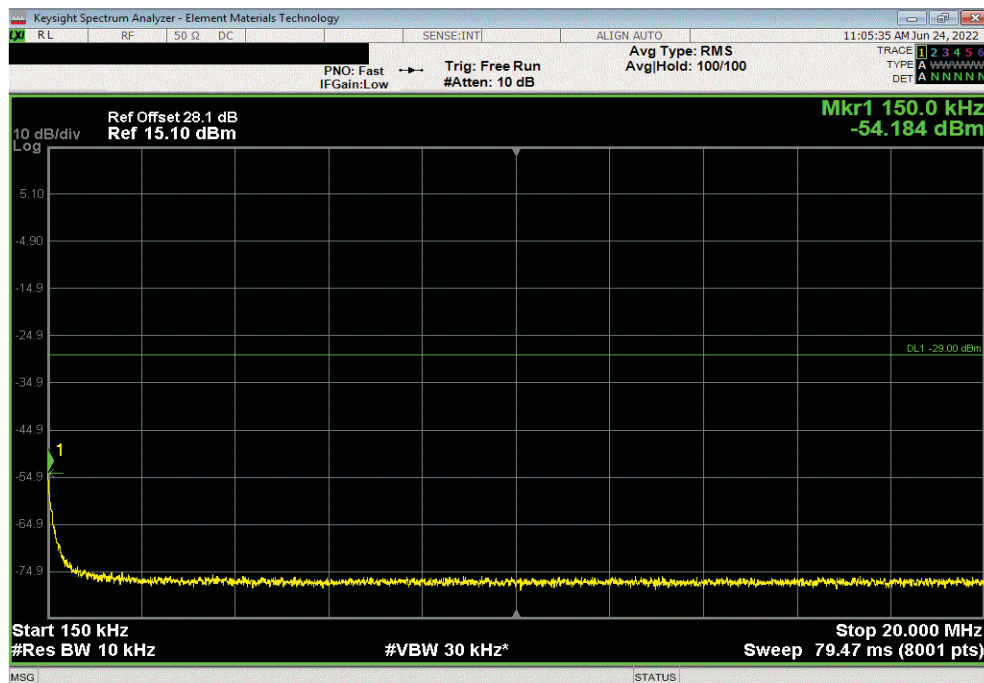


TbTtx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 256-QAM Modulation, Band n71 NR15 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
9 kHz - 150 kHz	0.01	-57.44	-39	Pass	



5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 256-QAM Modulation, Band n71 NR15 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
150 kHz - 20 MHz	0.15	-54.18	-29	Pass	

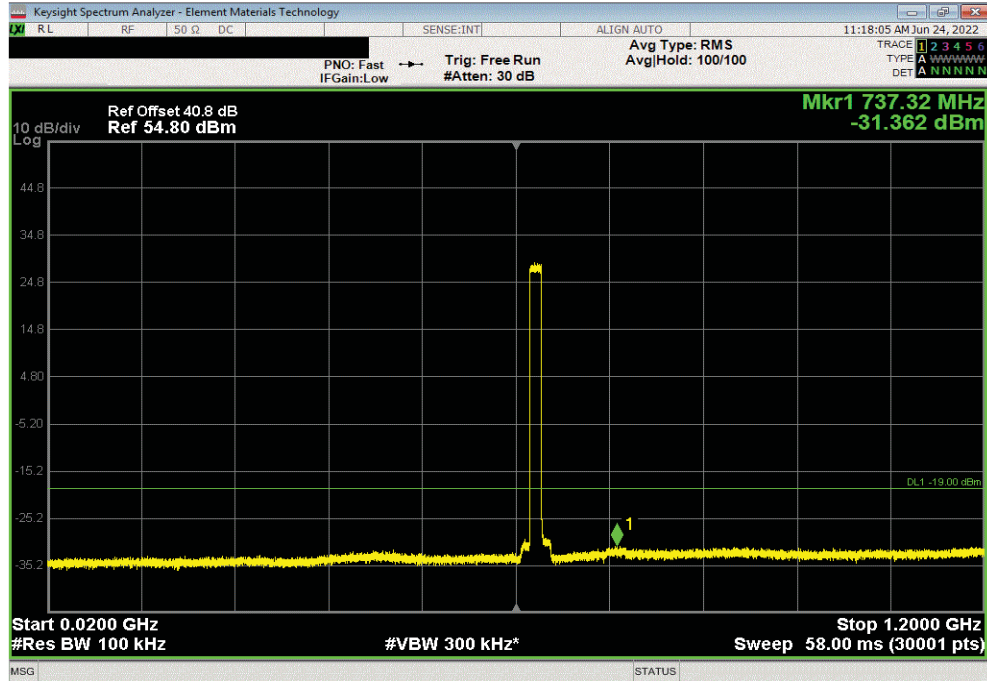


SPURIOUS CONDUCTED EMISSIONS - BAND n71

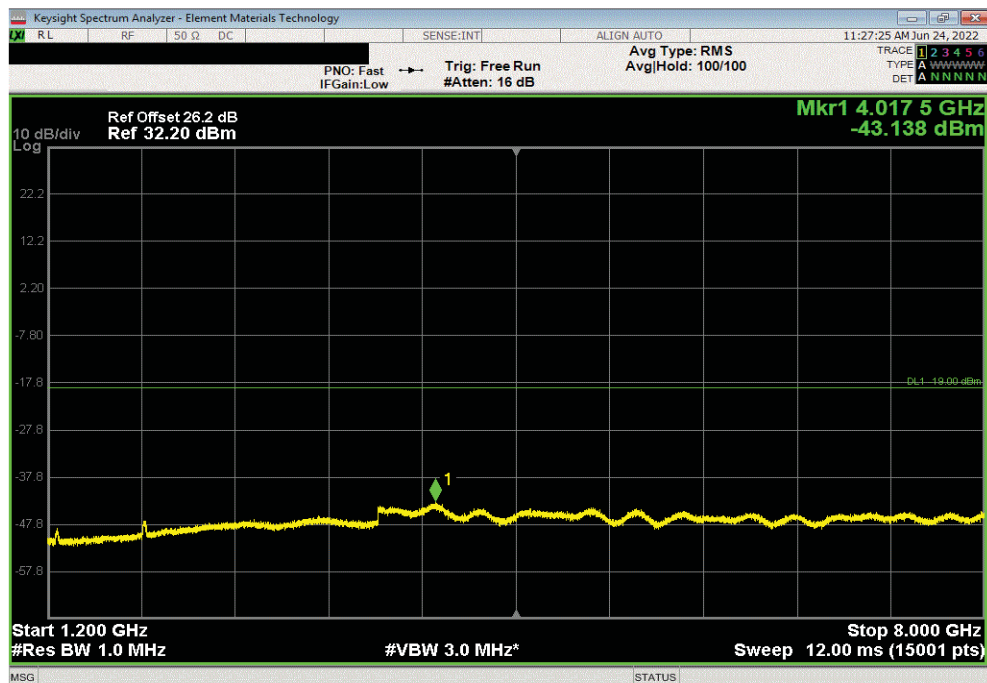


TbTtx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 256-QAM Modulation, Band n71 NR15 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
20 MHz - 1.2 GHz	737.32	-31.36	-19	Pass	



5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 256-QAM Modulation, Band n71 NR15 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
1.2 GHz - 8 GHz	4017.47	-43.14	-19	Pass	

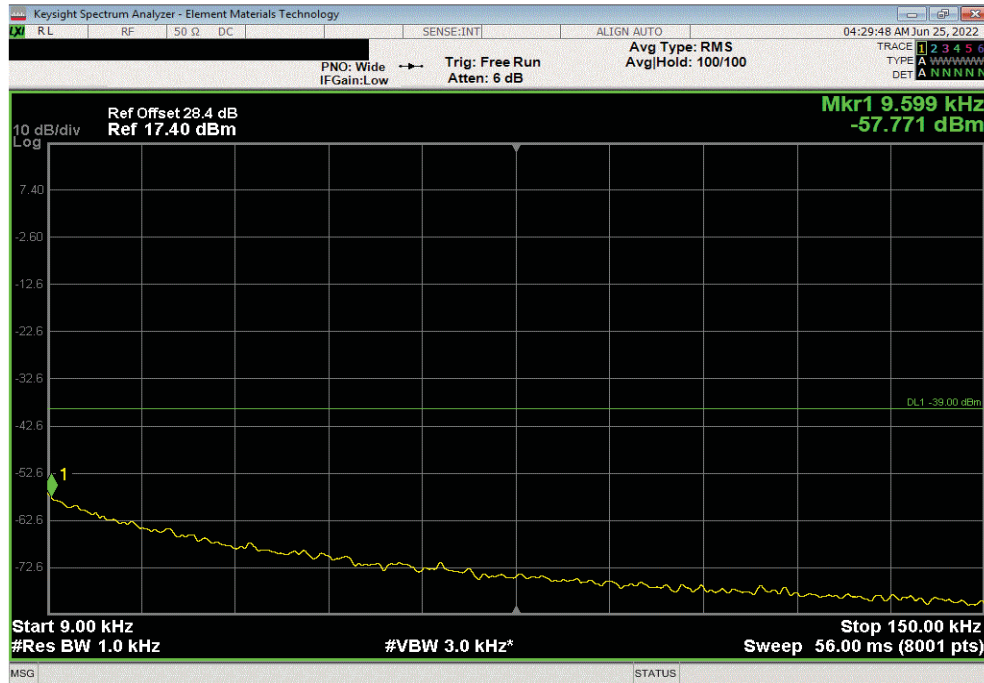


SPURIOUS CONDUCTED EMISSIONS - BAND n71

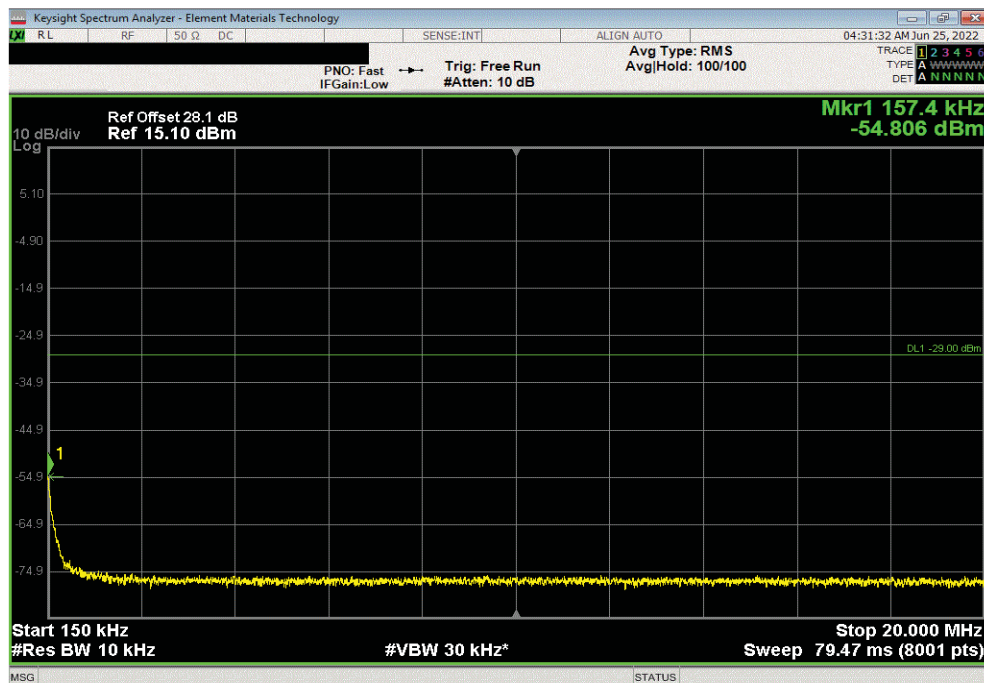


TbTtx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 256-QAM Modulation, Band n71 NR20 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
9 kHz - 150 kHz	0.01	-57.77	-39	Pass	



5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 256-QAM Modulation, Band n71 NR20 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
150 kHz - 20 MHz	0.16	-54.81	-29	Pass	

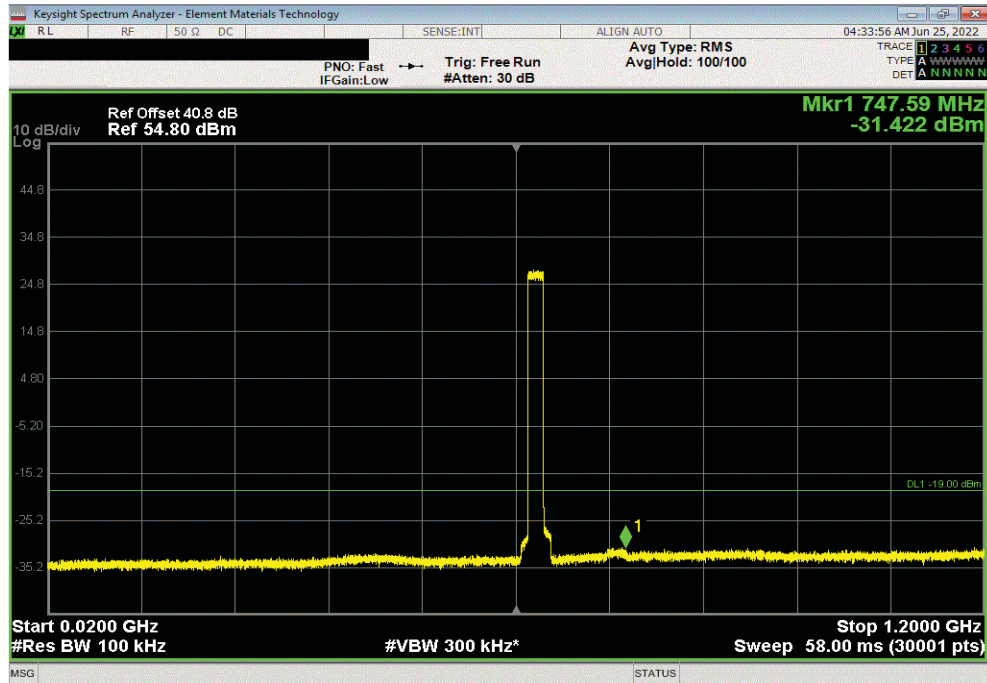


SPURIOUS CONDUCTED EMISSIONS - BAND n71

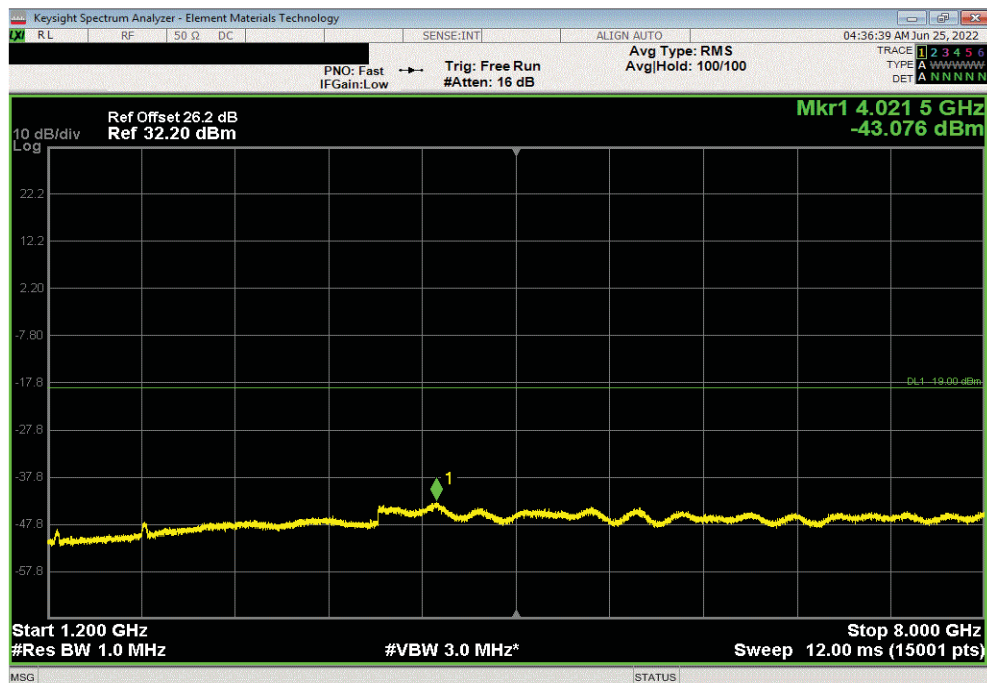


TbTx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 256-QAM Modulation, Band n71 NR20 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
20 MHz - 1.2 GHz	747.59	-31.42	-19	Pass	



5G NR, Band n71, 617 MHz - 652 MHz, Port 1, 256-QAM Modulation, Band n71 NR20 80W Mid Ch. 634.5 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
1.2 GHz - 8 GHz	4021.55	-43.08	-19	Pass	



SPURIOUS CONDUCTED EMISSIONS - BAND n85



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
Block - DC	Fairview Microwave	SD3239	ANE	2022-03-02	2023-03-02
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17

TEST DESCRIPTION

The antenna port spurious emissions were measured at the RF output terminal of the EUT through 3 different attenuation configurations which continues through to the RF input of the spectrum analyzer. Analyzer plots utilizing a resolution bandwidth called out by the client's test plan were made for each modulation type from 9 KHz to 8 GHz. The conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, were investigated to ensure they were less than the limits also called out by the client's test plan shown below.

The measurement methods are detailed in KDB 971168 D01v03 section 6 and ANSI C63.26-2015.

Per FCC 2.1057(a)(1) and RSS Gen 6.13, the upper level of measurement is the 10th harmonic of the highest fundamental frequency.

These measurements are for the frequency band after the first 100 kHz bands immediately outside and adjacent to the frequency block.

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

Per section 27.53(g) and RSS 130 4.7, the power of any emission outside of the authorized operating frequency range cannot exceed -13 dBm. The limit is adjusted to -19 dBm $[-13 \text{ dBm} - 10 \log(4)]$ per FCC KDB 662911D01 v02r01 because the BTS may operate as a 4 port MIMO transmitter.

The limit for the 9kHz to 150kHz frequency range was adjusted to -39dBm to correct for a spectrum analyzer RBW of 1kHz versus required RBW of 100kHz [i.e.: $-39\text{dBm} = -19\text{dBm} - 10\log(100\text{kHz}/1\text{kHz})$]. The limit for the 150kHz to 20MHz frequency range was adjusted to -29dBm to correct for a spectrum analyzer RBW of 10kHz versus required RBW of 100kHz [i.e.: $-29\text{dBm} = -19\text{dBm} - 10\log(100\text{kHz}/10\text{kHz})$]. The required limit of -19dBm with a RBW of > 100kHz was used for all other frequency ranges. (See ANSI C63.26-2015 paragraph 5.7.2a for details on the Limit/RBW scaling method)

SPURIOUS CONDUCTED EMISSIONS - BAND n85



TSTx 2022 06.02.0 XMI 2022 02 07.0

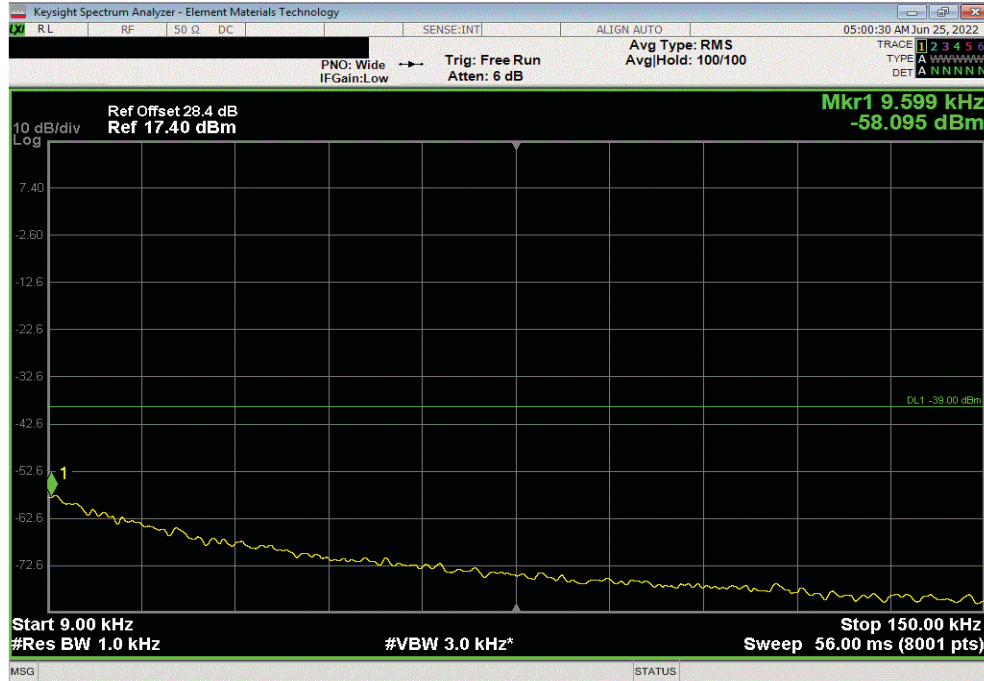
EUT: AHLOB (FCC/ISED)		Work Order: NOKI0042				
Serial Number: YK220900026		Date: 24-Jun-22				
Customer: Nokia Solutions and Networks		Temperature: 20.8 °C				
Attendees: David Le, John Rattanavong		Humidity: 53.3% RH				
Project: None		Barometric Pres.: 1017 mbar				
Tested by: Brandon Hobbs		Power: 54 VDC	Job Site: TX07			
TEST SPECIFICATIONS		Test Method				
FCC 27:2022		ANSI C63.26:2015				
RSS-130 Issue 2:2019		ANSI C63.26:2015				
COMMENTS						
All losses in the measurement path were accounted for: attenuators, cables, DC block and filter when in use. The carriers are enabled at maximum power. The port power is at maximum (80W).						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	1, 2, 3	Signature 				
		Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
5G NR, Band n85, 728 MHz - 746 MHz						
Port 1						
QPSK Modulation						
Band n85 NR15 80W Mid Ch. 737 MHz		9 kHz - 150 kHz	0.01	-58.1	-39	Pass
Band n85 NR15 80W Mid Ch. 737 MHz		150 kHz - 20 MHz	0.15	-55.0	-29	Pass
Band n85 NR15 80W Mid Ch. 737 MHz		20 MHz - 1.2 GHz	910.51	-31.6	-19	Pass
Band n85 NR15 80W Mid Ch. 737 MHz		1.2 GHz - 8 GHz	4015.65	-43.1	-19	Pass
16-QAM Modulation						
Band n85 NR15 80W Mid Ch. 737 MHz		9 kHz - 150 kHz	0.01	-57.4	-39	Pass
Band n85 NR15 80W Mid Ch. 737 MHz		150 kHz - 20 MHz	0.15	-54.1	-29	Pass
Band n85 NR15 80W Mid Ch. 737 MHz		20 MHz - 1.2 GHz	927.66	-31.7	-19	Pass
Band n85 NR15 80W Mid Ch. 737 MHz		1.2 GHz - 8 GHz	4026.08	-43.3	-19	Pass
64-QAM Modulation						
Band n85 NR15 80W Mid Ch. 737 MHz		9 kHz - 150 kHz	0.01	-56.9	-39	Pass
Band n85 NR15 80W Mid Ch. 737 MHz		150 kHz - 20 MHz	0.15	-54.8	-29	Pass
Band n85 NR15 80W Mid Ch. 737 MHz		20 MHz - 1.2 GHz	905.04	-31.7	-19	Pass
Band n85 NR15 80W Mid Ch. 737 MHz		1.2 GHz - 8 GHz	4008.85	-43.2	-19	Pass
256-QAM Modulation						
Band n85 NR10 60W Mid Ch. 737 MHz + Band n71 NR5 20W (Single Carrier)		9 kHz - 150 kHz	0.01	-56.2	-39	Pass
Band n85 NR10 60W Mid Ch. 737 MHz + Band n71 NR5 20W (Single Carrier)		150 kHz - 20 MHz	0.15	-54.8	-29	Pass
Band n85 NR10 60W Mid Ch. 737 MHz + Band n71 NR5 20W (Single Carrier)		20 MHz - 1.2 GHz	923.92	-32.1	-19	Pass
Band n85 NR10 60W Mid Ch. 737 MHz + Band n71 NR5 20W (Single Carrier)		1.2 GHz - 8 GHz	4010.67	-43.3	-19	Pass
Band n85 NR15 80W Mid Ch. 737 MHz		9 kHz - 150 kHz	0.01	-57.9	-39	Pass
Band n85 NR15 80W Mid Ch. 737 MHz		150 kHz - 20 MHz	0.15	-54.8	-29	Pass
Band n85 NR15 80W Mid Ch. 737 MHz		20 MHz - 1.2 GHz	900.28	-31.8	-19	Pass
Band n85 NR15 80W Mid Ch. 737 MHz		1.2 GHz - 8 GHz	4051.01	-43.4	-19	Pass

SPURIOUS CONDUCTED EMISSIONS - BAND n85

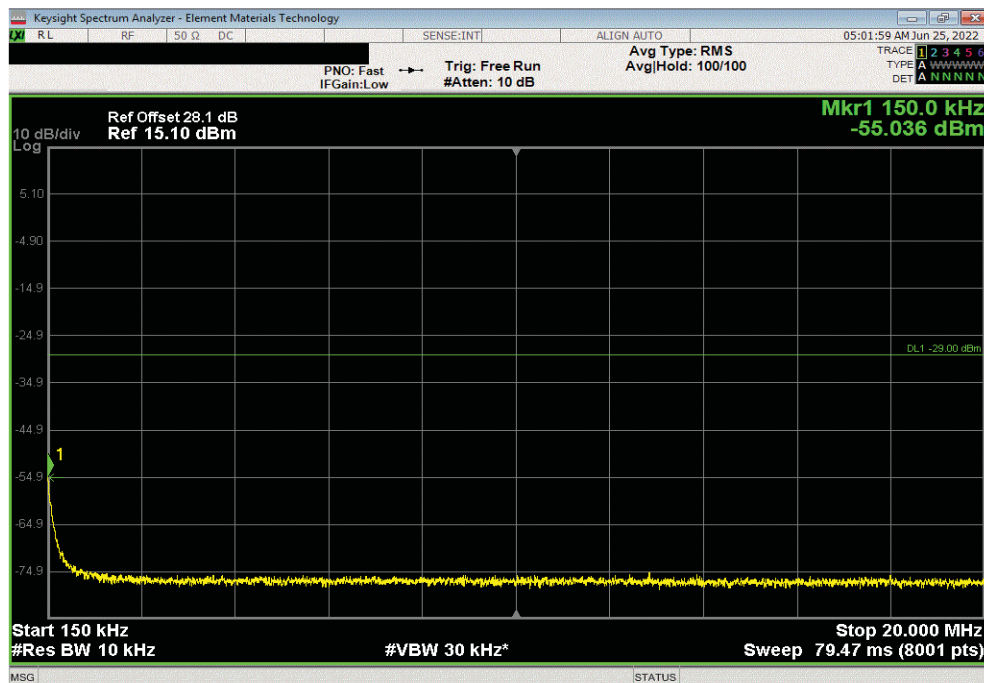


TbTtx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n85, 728 MHz - 746 MHz, Port 1, QPSK Modulation, Band n85 NR15 80W Mid Ch. 737 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
9 kHz - 150 kHz	0.01	-58.1	-39	Pass	



5G NR, Band n85, 728 MHz - 746 MHz, Port 1, QPSK Modulation, Band n85 NR15 80W Mid Ch. 737 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
150 kHz - 20 MHz	0.15	-55.04	-29	Pass	

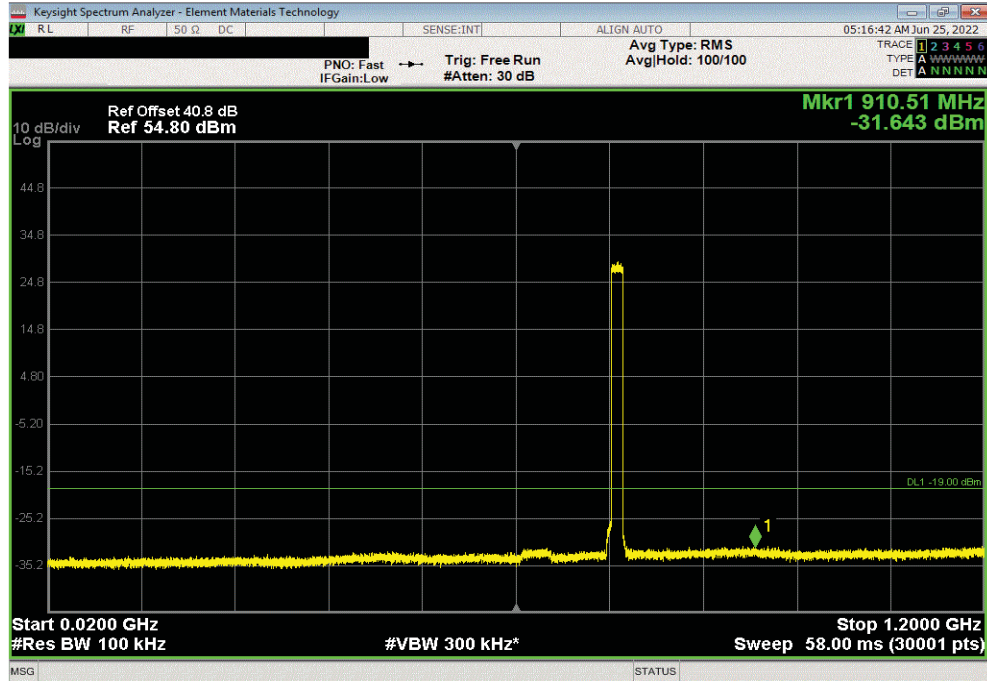


SPURIOUS CONDUCTED EMISSIONS - BAND n85

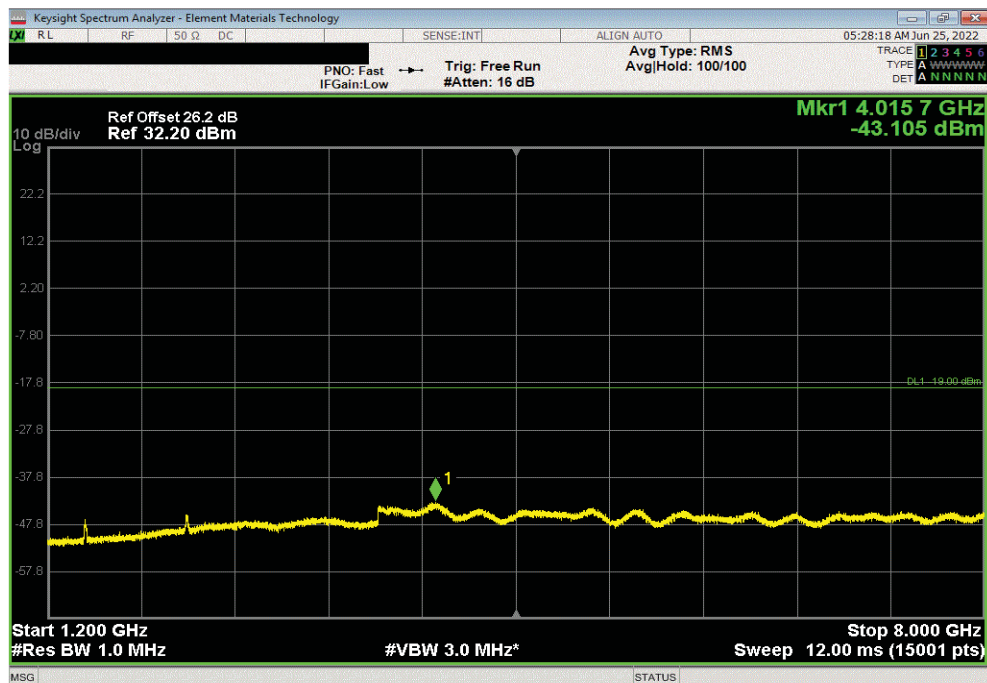


TbTx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n85, 728 MHz - 746 MHz, Port 1, QPSK Modulation, Band n85 NR15 80W Mid Ch. 737 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
20 MHz - 1.2 GHz	910.51	-31.64	-19	Pass	



5G NR, Band n85, 728 MHz - 746 MHz, Port 1, QPSK Modulation, Band n85 NR15 80W Mid Ch. 737 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
1.2 GHz - 8 GHz	4015.65	-43.11	-19	Pass	

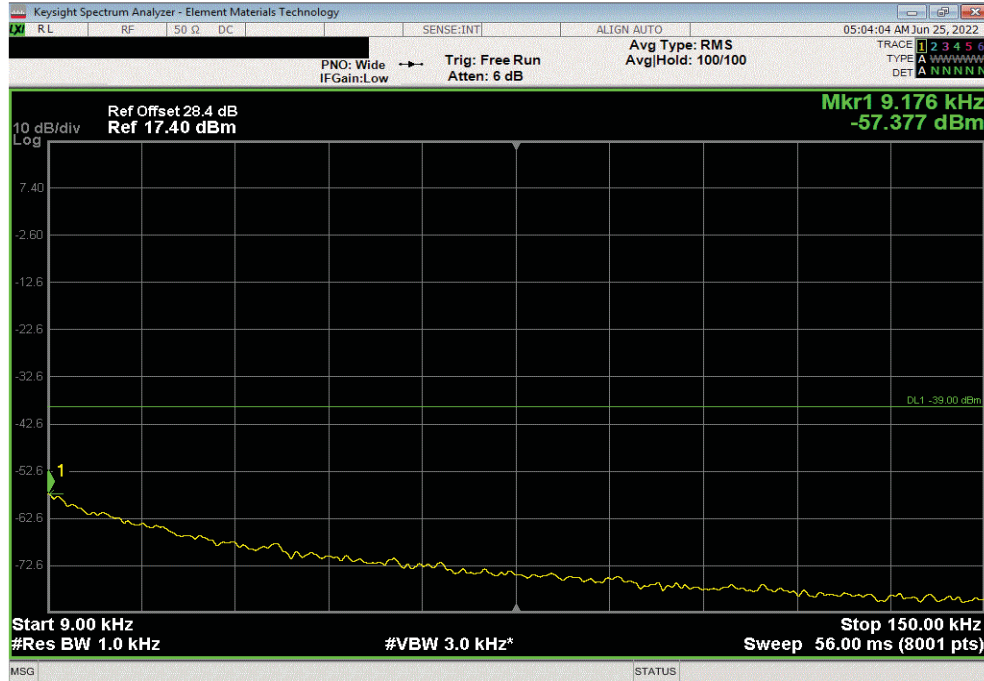


SPURIOUS CONDUCTED EMISSIONS - BAND n85

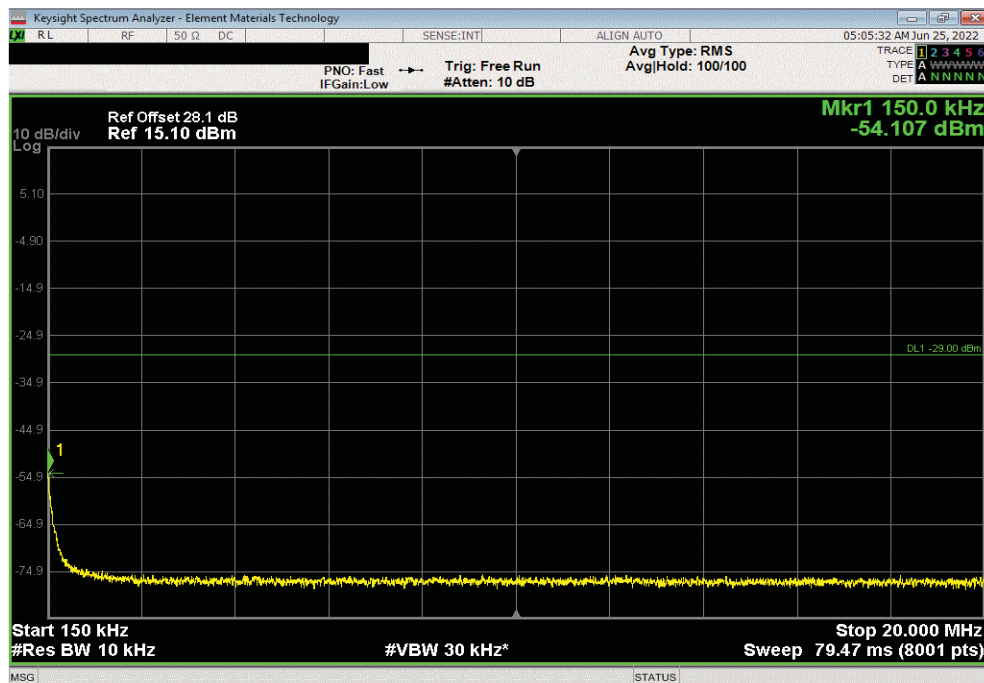


TbTtx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n85, 728 MHz - 746 MHz, Port 1, 16-QAM Modulation, Band n85 NR15 80W Mid Ch. 737 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
9 kHz - 150 kHz	0.01	-57.38	-39	Pass	



5G NR, Band n85, 728 MHz - 746 MHz, Port 1, 16-QAM Modulation, Band n85 NR15 80W Mid Ch. 737 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
150 kHz - 20 MHz	0.15	-54.11	-29	Pass	

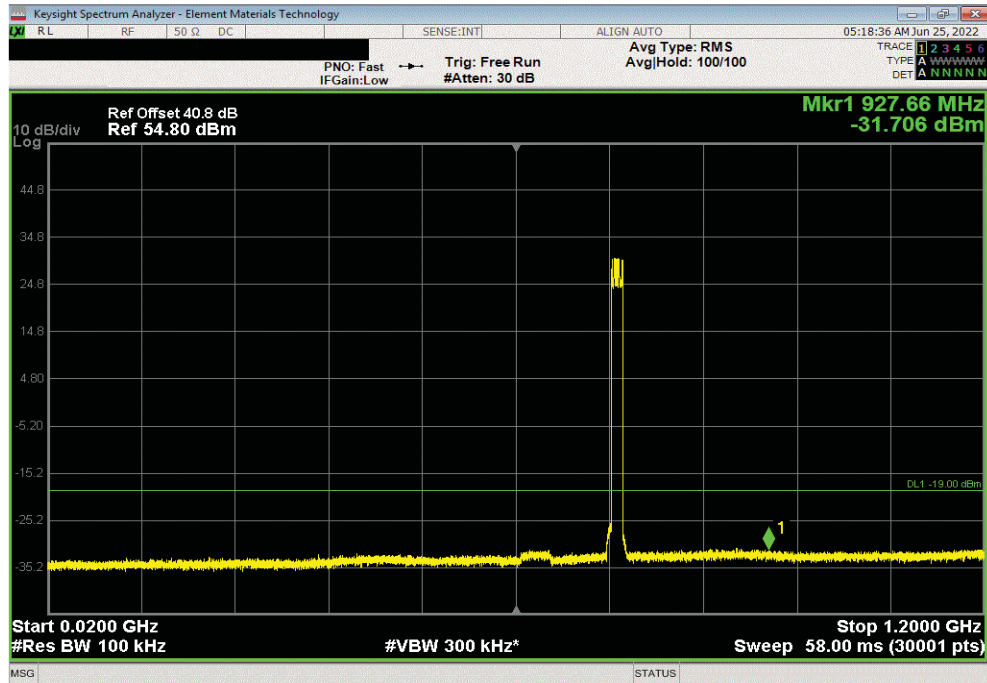


SPURIOUS CONDUCTED EMISSIONS - BAND n85

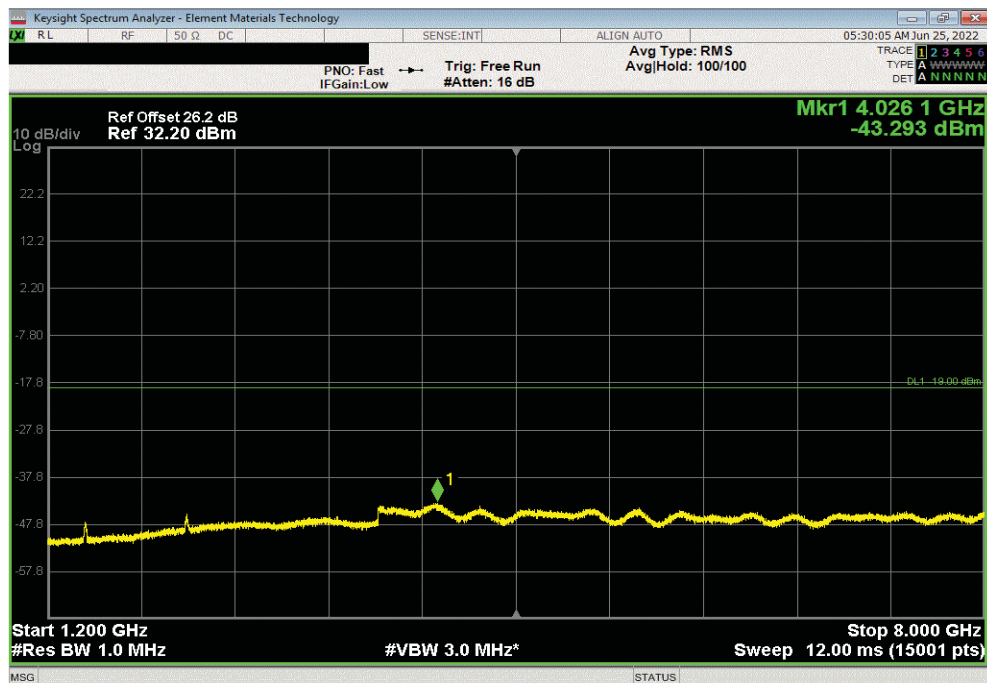


TbTx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n85, 728 MHz - 746 MHz, Port 1, 16-QAM Modulation, Band n85 NR15 80W Mid Ch. 737 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
20 MHz - 1.2 GHz	927.66	-31.71	-19	Pass	



5G NR, Band n85, 728 MHz - 746 MHz, Port 1, 16-QAM Modulation, Band n85 NR15 80W Mid Ch. 737 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
1.2 GHz - 8 GHz	4026.08	-43.29	-19	Pass	

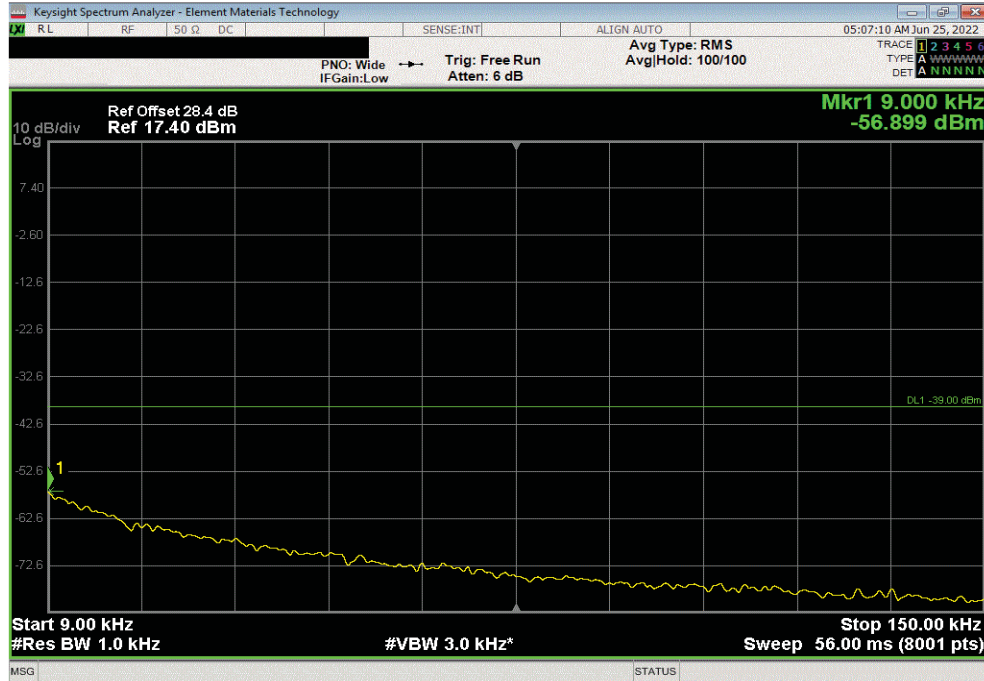


SPURIOUS CONDUCTED EMISSIONS - BAND n85

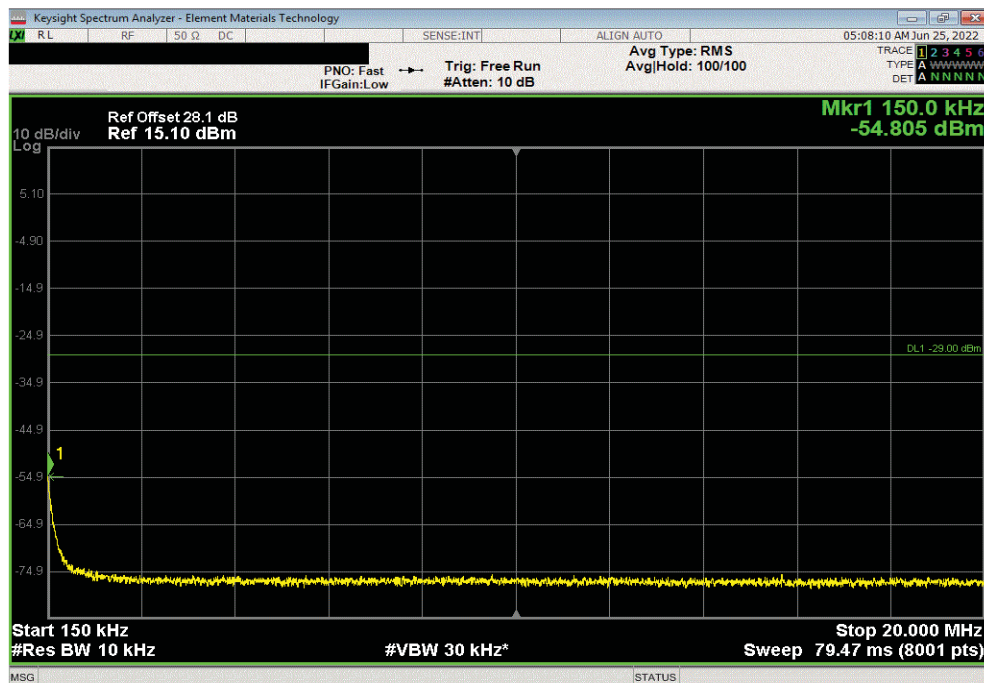


TbTtx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n85, 728 MHz - 746 MHz, Port 1, 64-QAM Modulation, Band n85 NR15 80W Mid Ch. 737 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
9 kHz - 150 kHz	0.01	-56.9	-39	Pass	



5G NR, Band n85, 728 MHz - 746 MHz, Port 1, 64-QAM Modulation, Band n85 NR15 80W Mid Ch. 737 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
150 kHz - 20 MHz	0.15	-54.81	-29	Pass	

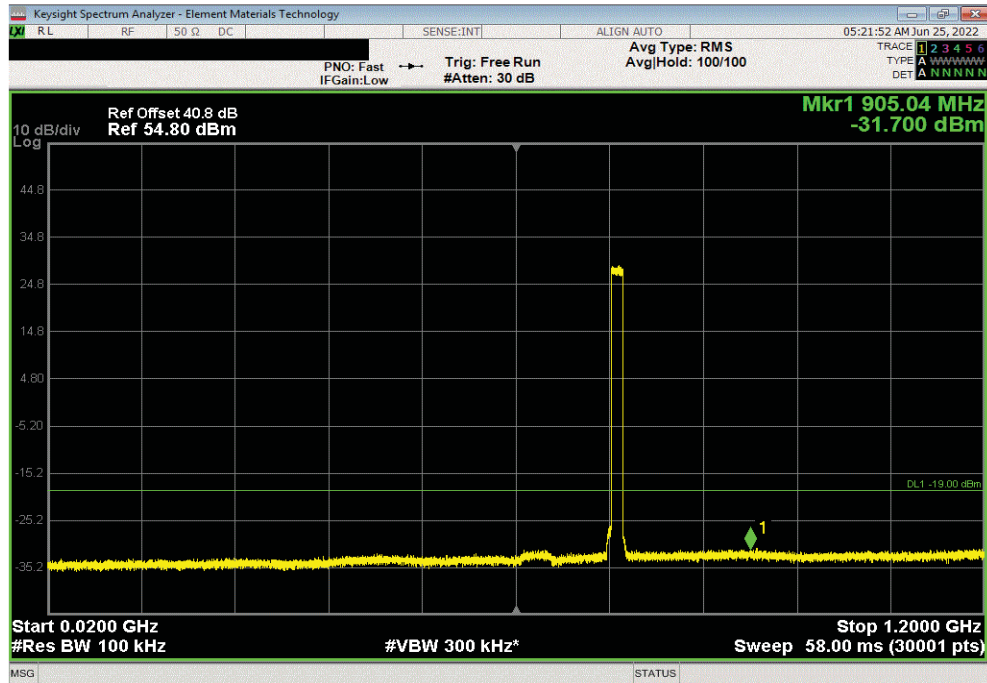


SPURIOUS CONDUCTED EMISSIONS - BAND n85

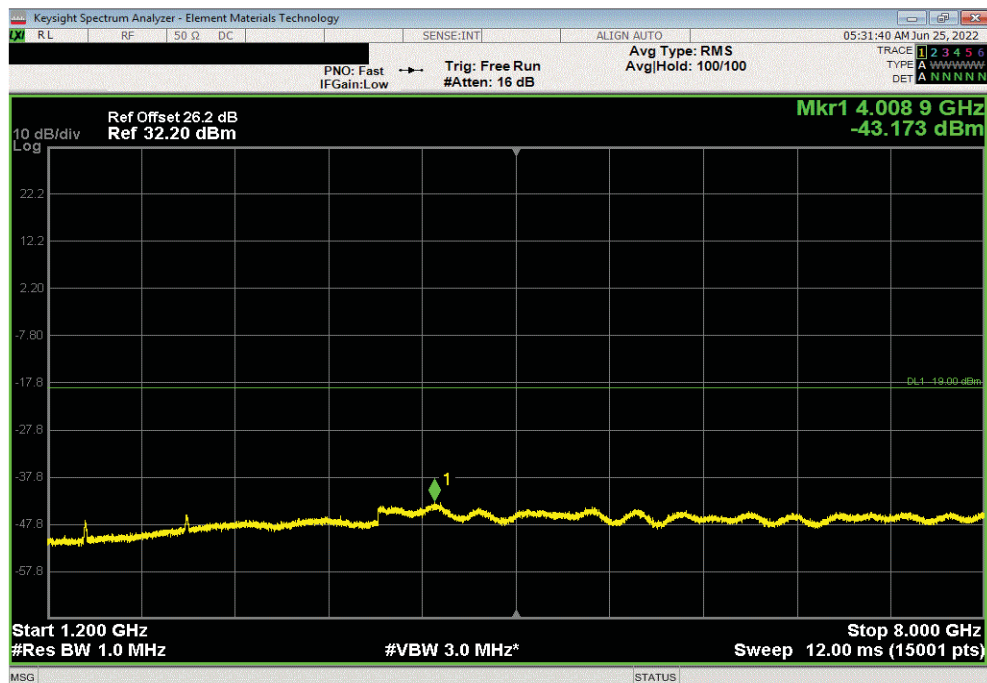


TbTtx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n85, 728 MHz - 746 MHz, Port 1, 64-QAM Modulation, Band n85 NR15 80W Mid Ch. 737 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
20 MHz - 1.2 GHz	905.04	-31.7	-19	Pass	



5G NR, Band n85, 728 MHz - 746 MHz, Port 1, 64-QAM Modulation, Band n85 NR15 80W Mid Ch. 737 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
1.2 GHz - 8 GHz	4008.85	-43.17	-19	Pass	



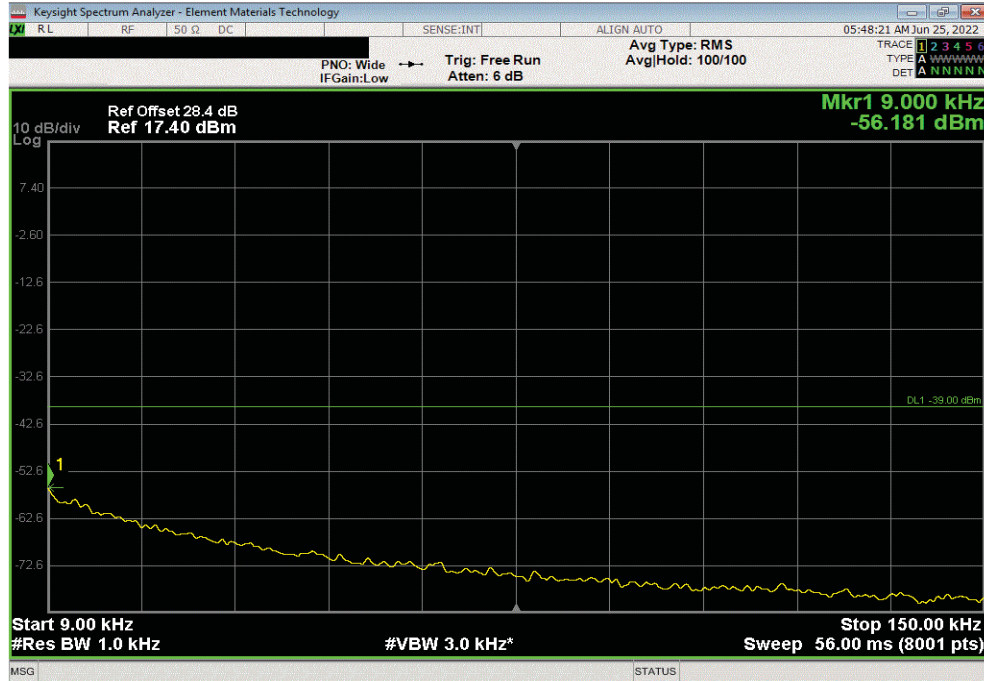
SPURIOUS CONDUCTED EMISSIONS - BAND n85



TbTtx 2022.05.02.0 XMit 2022.02.07.0

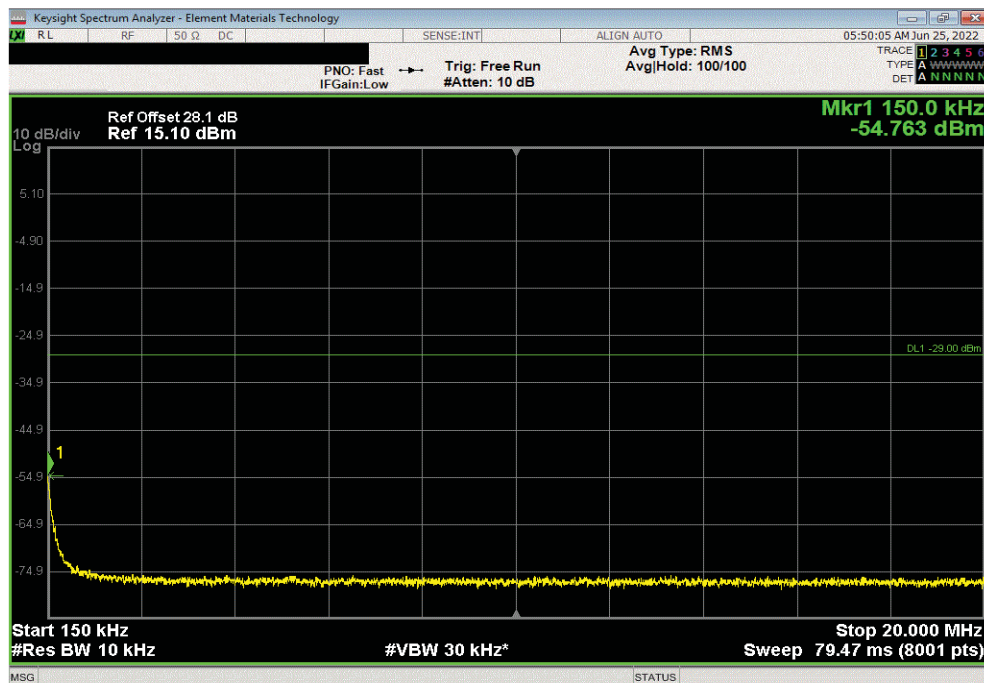
5G NR, Band n85, 728 MHz - 746 MHz, Port 1, 256-QAM Modulation, Band n85 NR10 60W Mid Ch. 737 MHz + Band n71 NR5 20W (Single Carrier)

Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
9 kHz - 150 kHz	0.01	-56.18	-39	Pass



5G NR, Band n85, 728 MHz - 746 MHz, Port 1, 256-QAM Modulation, Band n85 NR10 60W Mid Ch. 737 MHz + Band n71 NR5 20W (Single Carrier)

Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
150 kHz - 20 MHz	0.15	-54.76	-29	Pass



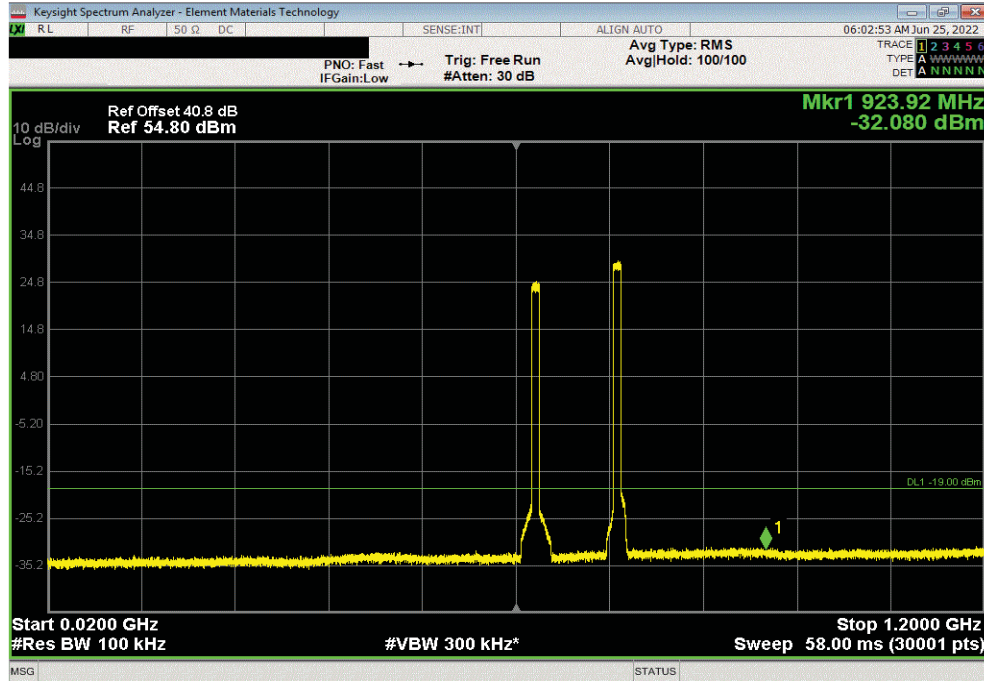
SPURIOUS CONDUCTED EMISSIONS - BAND n85



TbTtx 2022.05.02.0 XMit 2022.02.07.0

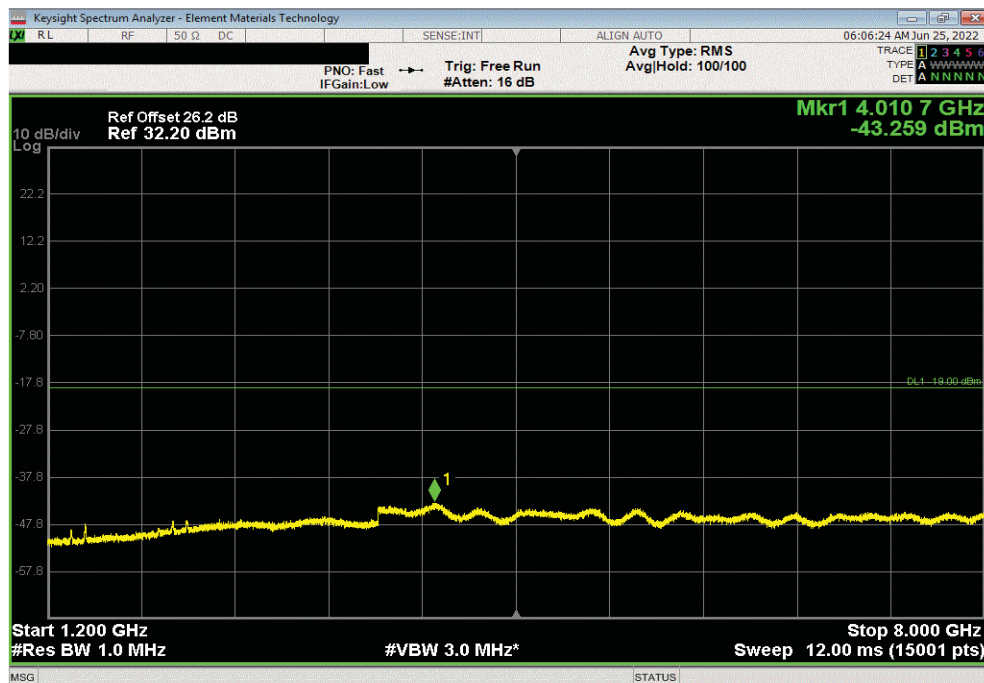
5G NR, Band n85, 728 MHz - 746 MHz, Port 1, 256-QAM Modulation, Band n85 NR10 60W Mid Ch. 737 MHz + Band n71 NR5 20W (Single Carrier)

Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
20 MHz - 1.2 GHz	923.92	-32.08	-19	Pass



5G NR, Band n85, 728 MHz - 746 MHz, Port 1, 256-QAM Modulation, Band n85 NR10 60W Mid Ch. 737 MHz + Band n71 NR5 20W (Single Carrier)

Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result
1.2 GHz - 8 GHz	4010.67	-43.26	-19	Pass

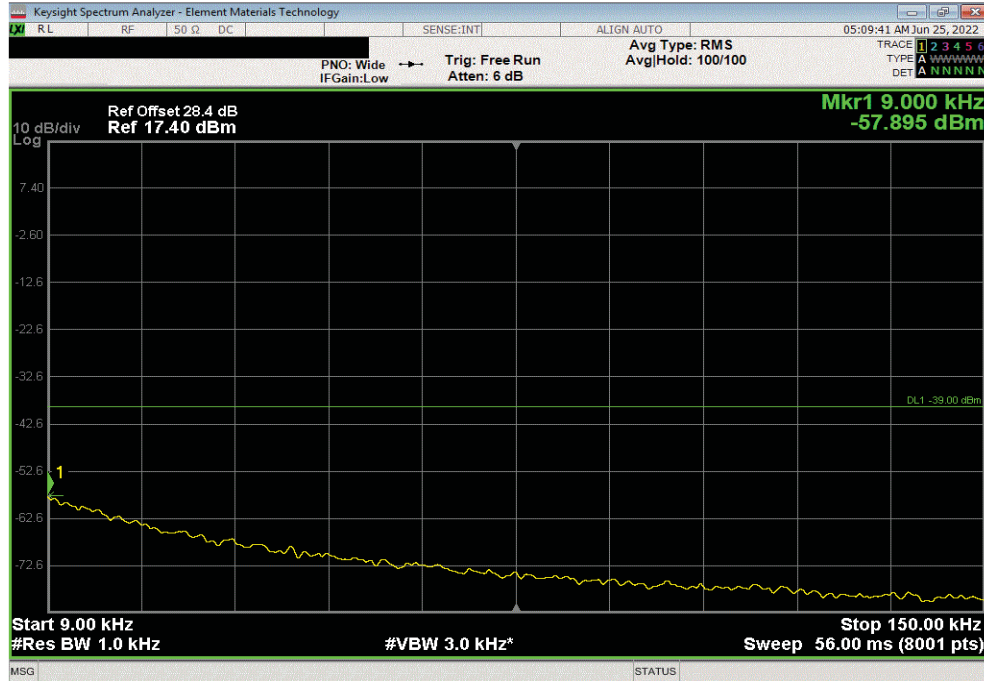


SPURIOUS CONDUCTED EMISSIONS - BAND n85

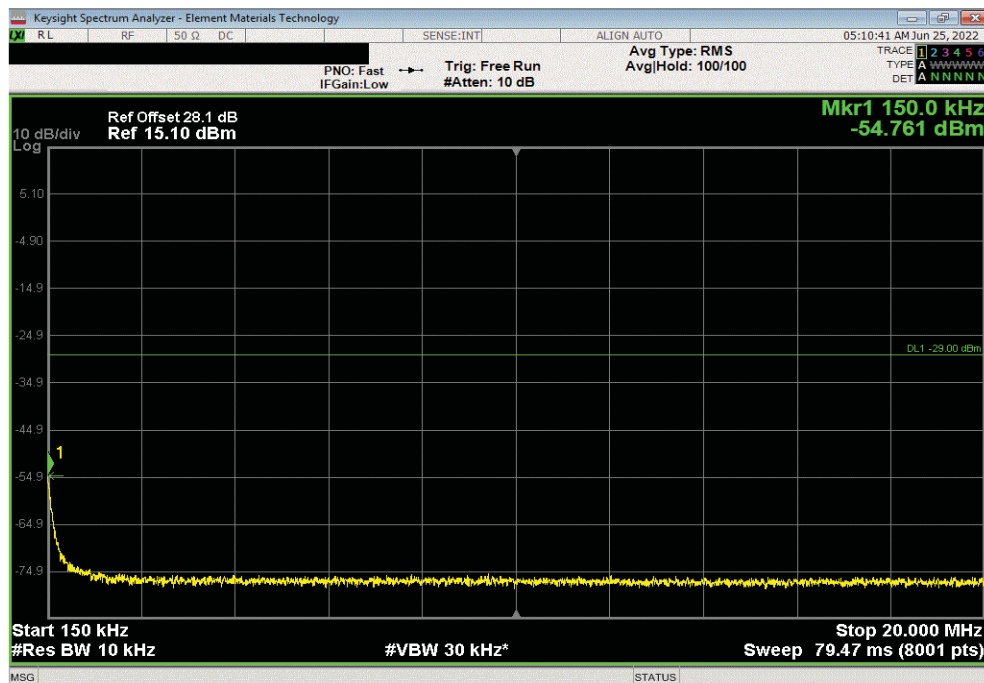


TbTtx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n85, 728 MHz - 746 MHz, Port 1, 256-QAM Modulation, Band n85 NR15 80W Mid Ch. 737 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
9 kHz - 150 kHz	0.01	-57.9	-39	Pass	



5G NR, Band n85, 728 MHz - 746 MHz, Port 1, 256-QAM Modulation, Band n85 NR15 80W Mid Ch. 737 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
150 kHz - 20 MHz	0.15	-54.76	-29	Pass	

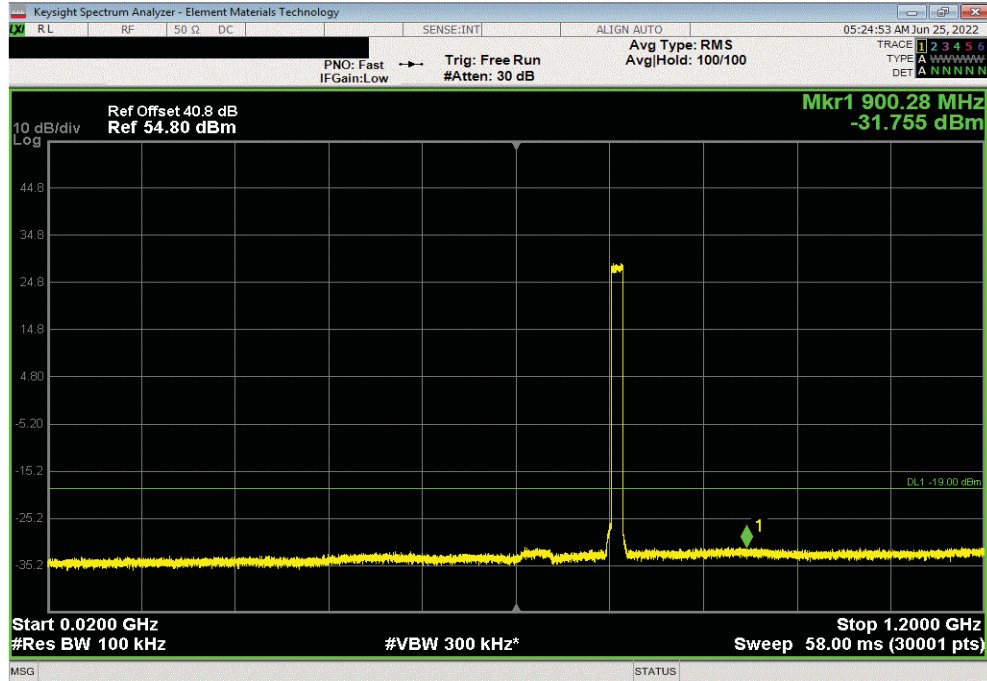


SPURIOUS CONDUCTED EMISSIONS - BAND n85

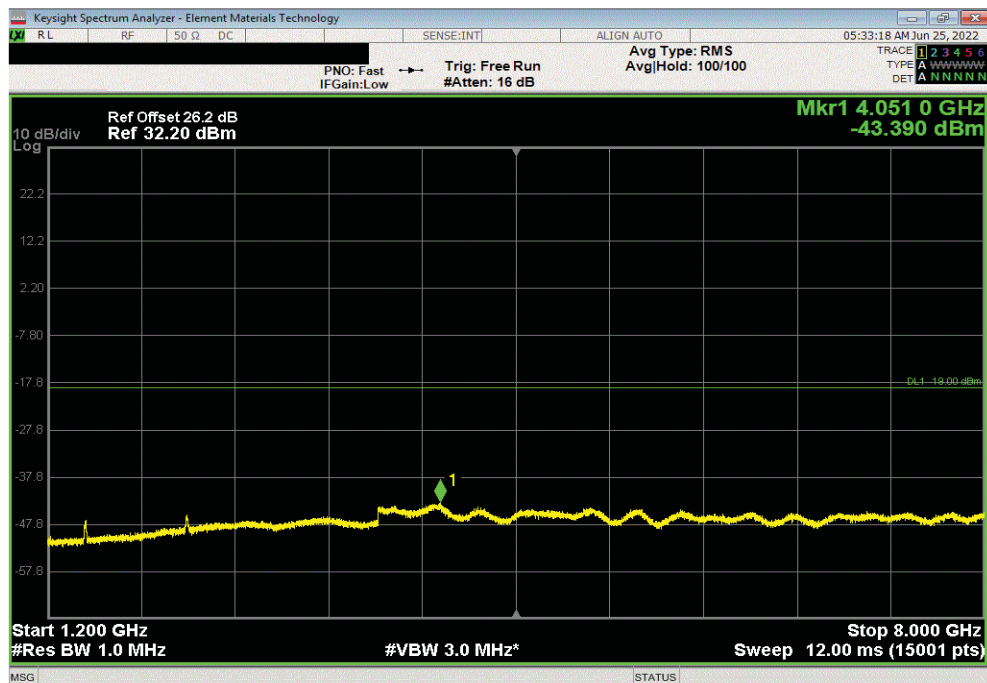


TbTx 2022.05.02.0 XMit 2022.02.07.0

5G NR, Band n85, 728 MHz - 746 MHz, Port 1, 256-QAM Modulation, Band n85 NR15 80W Mid Ch. 737 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
20 MHz - 1.2 GHz	900.28	-31.76	-19	Pass	



5G NR, Band n85, 728 MHz - 746 MHz, Port 1, 256-QAM Modulation, Band n85 NR15 80W Mid Ch. 737 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBm)	Limit < (dBm)	Result	
1.2 GHz - 8 GHz	4051.01	-43.39	-19	Pass	



SPURIOUS RADIATED EMISSIONS

TEST DESCRIPTION

At an approved test site, the transmitter was placed on a remotely controlled turntable, and the measurement antenna was placed 3 meters from the transmitter. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axes. The turntable azimuth was varied to maximize the level of spurious emissions. The height of the measurement antenna was also varied from 1 to 4 meters. A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity. The amplitude and frequency of the highest emissions was noted.

The transmitter was then replaced with a $\frac{1}{2}$ wave dipole that was successively tuned to each of the highest spurious emissions for emissions below 1 GHz, and a horn antenna for emissions above 1 GHz. A signal generator was connected to the dipole (horn antenna for frequencies above 1 GHz), and its output was adjusted to match the level previously noted for each frequency. The output of the signal generator was recorded, and by factoring in the cable loss to the antenna and its gain, the power (dBm) was determined for each radiated spurious emission.

Two radiated emission test configurations (with the RRH fan assembly) were used to prove compliance for the 3GPP Band n71 and the 3GPP Band n85 frequency bands. The 3GPP Band n71 and the 3GPP Band n85 transmitters were enabled at maximum power on all four ports for this test. The bottom, middle and top frequency channels for each band were enabled. The carrier configurations for the radiated emission testing are provided in the tables below.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2022-03-22	2023-03-22
Antenna - Biconilog	Teseq	CBL 6141B	AYD	2022-03-01	2024-03-01
Filter - Low Pass	Micro-Tronics	LPM50004	HHV	2021-07-27	2022-07-27
Amplifier - Pre-Amplifier	Fairview Microwave	FMAM63001	PAS	2022-04-19	2023-04-19
Cable	Northwest EMC	RE 9kHz - 1GHz	TXB	2022-06-10	2023-06-10
Antenna - Double Ridge	ETS Lindgren	3115	AJL	2020-10-20	2022-10-20
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAJ	2022-04-19	2023-04-19
Cable	Northwest EMC	1-8.2 GHz	TXC	2022-04-19	2023-04-19

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	5.1 dB	-5.1 dB

FREQUENCY RANGE INVESTIGATED

30 MHz TO 8.2 GHz

POWER INVESTIGATED

54 VDC

CONFIGURATIONS INVESTIGATED

NOKI0042-4

MODES INVESTIGATED

Band n71/n85 NR5 Carriers & Multi Mode SFP
Band n71/n85 NR15 Carriers & Single Mode SFP

SPURIOUS RADIATED EMISSIONS

Frequency Band	Antenna Port	RF BW	EARFCN	Transmit Frequency	Carrier Power
Band n71	1	5 MHz	123900 (Bottom Channel)	619.5 MHz	40 Watts
Band n71	2	5 MHz	129900 (Top Channel)	649.5 MHz	40 Watts
Band n71	3	5 MHz	123900 (Bottom Channel)	619.5 MHz	40 Watts
Band n71	4	5 MHz	129900 (Top Channel)	649.5 MHz	40 Watts
Band n85	1	5 MHz	146100 (Bottom Channel)	730.5 MHz	40 Watts
Band n85	2	5 MHz	148700 (Top Channel)	743.5 MHz	40 Watts
Band n85	3	5 MHz	146100 (Bottom Channel)	730.5 MHz	40 Watts
Band n85	4	5 MHz	148700 (Top Channel)	743.5 MHz	40 Watts

Band n71/Band n85 NR5 Carriers (Highest PSD Carriers) _ RRH configured with Multi Mode SFP

Frequency Band	Antenna Port	RF BW	EARFCN	Transmit Frequency	Carrier Power
Band n71	1	15 MHz	126900 (Middle Channel)	634.5 MHz	80 Watts
Band n85	2	15 MHz	147400 (Middle Channel)	737 MHz	80 Watts
Band n71	3	15 MHz	126900 (Middle Channel)	634.5 MHz	80 Watts
Band n85	4	15 MHz	147400 (Middle Channel)	737 MHz	80 Watts

Band n71/Band n85 NR15 (Highest Power Carriers) _ RRH configured with Single Mode SFP

SPURIOUS RADIATED EMISSIONS

EUT:	AHLOB (FCC/ISED)	Work Order:	NOKI0042
Serial Number:	See Configuration	Date:	2022-06-28
Customer:	Nokia of America Corporation	Temperature:	21.4°C
Attendees:	David Le, John Rattanaovong	Relative Humidity:	52.9%
Customer Project:	None	Bar. Pressure (PMSL):	1025 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	54 VDC	Configuration:	NOKI0042-4

TEST SPECIFICATIONS

Specification:	Method:
FCC 27.53:2022	ANSI C63.26:2015
RSS-130 Issue 2:2019, RSS GEN	ANSI C63.26:2015

TEST PARAMETERS

Run #:	15	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)
--------	----	--------------------	---	---------------------	-----------

COMMENTS

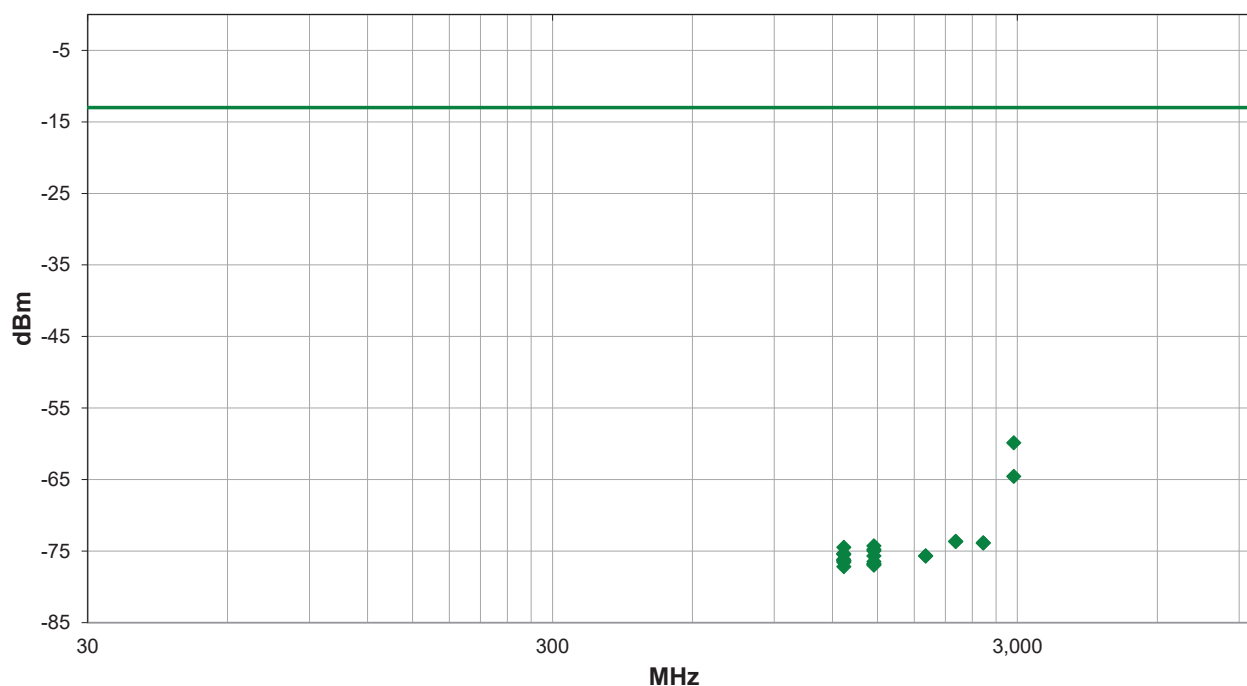
Band n71 and Band n85 NR 15MHz (80W/carrier). QPSK, 16QAM, 64QAM, and 256QAM
--

EUT OPERATING MODES

Band n71/n85 NR15 Carriers & Single Mode SFP
--

DEVIATIONS FROM TEST STANDARD

None



Run #: 15

PK AV QP

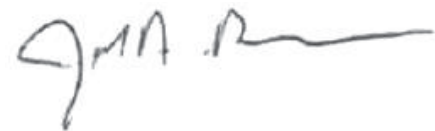
SPURIOUS RADIATED EMISSIONS

RESULTS - Run #15

Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/Transducer Type	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
2949.117	2.58	350.0	Horz	AV	1.0E-9	-59.9	-13.0	-46.9	n85, mid ch, QPSK
2949.117	1.52	10.0	Vert	AV	348.4E-12	-64.6	-13.0	-51.6	n85, mid ch, QPSK
2212.458	1.5	213.0	Horz	AV	42.9E-12	-73.7	-13.0	-60.7	n85, mid ch, QPSK
2212.133	1.5	154.0	Vert	AV	42.9E-12	-73.7	-13.0	-60.7	n85, mid ch, QPSK
2535.508	1.5	0.0	Horz	AV	40.9E-12	-73.9	-13.0	-60.9	n71, mid ch, QPSK
2535.583	1.93	213.0	Vert	AV	40.9E-12	-73.9	-13.0	-60.9	n71, mid ch, QPSK
1474.575	4.0	104.0	Horz	AV	37.3E-12	-74.3	-13.0	-61.3	n85, mid ch, 16QAM
1270.017	1.04	355.0	Vert	AV	35.6E-12	-74.5	-13.0	-61.5	n71, mid ch, 64QAM
1474.517	2.82	60.0	Vert	AV	33.3E-12	-74.8	-13.0	-61.8	n85, mid ch, 16QAM
1474.575	1.5	58.0	Horz	AV	31.8E-12	-75.0	-13.0	-62.0	n85, mid ch, QPSK
1269.883	3.64	336.0	Vert	AV	29.0E-12	-75.4	-13.0	-62.4	n71, mid ch, 16QAM
1270.042	2.07	268.0	Horz	AV	28.3E-12	-75.5	-13.0	-62.5	n71, mid ch, QPSK
1474.567	3.33	169.0	Horz	AV	27.0E-12	-75.7	-13.0	-62.7	n85, mid ch, 64QAM
1905.883	3.01	241.0	Horz	AV	27.0E-12	-75.7	-13.0	-62.7	n71, mid ch, QPSK
1905.992	1.07	287.0	Vert	AV	27.0E-12	-75.7	-13.0	-62.7	n71, mid ch, QPSK
1269.833	1.59	304.0	Vert	AV	24.1E-12	-76.2	-13.0	-63.2	n71, mid ch, 256QAM
1270.008	1.93	104.0	Horz	AV	23.0E-12	-76.4	-13.0	-63.4	n71, mid ch, 16QAM
1270.683	3.32	10.0	Horz	AV	23.0E-12	-76.4	-13.0	-63.4	n71, mid ch, 64QAM
1474.483	1.64	281.0	Horz	AV	22.5E-12	-76.5	-13.0	-63.5	n85, mid ch, 256QAM
1270.017	3.82	360.0	Vert	AV	22.0E-12	-76.6	-13.0	-63.6	n71, mid ch, QPSK
1474.542	1.5	79.0	Vert	AV	21.0E-12	-76.8	-13.0	-63.8	n85, mid ch, 64QAM
1474.517	1.5	226.0	Vert	AV	20.5E-12	-76.9	-13.0	-63.9	n85, mid ch, QPSK
1474.425	2.89	210.0	Vert	AV	20.0E-12	-77.0	-13.0	-64.0	n85, mid ch, 256QAM
1270.175	3.0	165.0	Horz	AV	19.1E-12	-77.2	-13.0	-64.2	n71, mid ch, 256QAM

CONCLUSION

Pass



Tested By

SPURIOUS RADIATED EMISSIONS

EUT:	AHLOB (FCC/ISED)	Work Order:	NOKI0042
Serial Number:	See Configuration	Date:	2022-06-28
Customer:	Nokia of America Corporation	Temperature:	21.4°C
Attendees:	David Le, John Rattanaovong	Relative Humidity:	52.9%
Customer Project:	None	Bar. Pressure (PMSL):	1025 mb
Tested By:	Jarrod Brenden	Job Site:	TX02
Power:	54 VDC	Configuration:	NOKI0042-4

TEST SPECIFICATIONS

Specification:	Method:
FCC 27.53:2022	ANSI C63.26:2015
RSS-130 Issue 2:2019, RSS GEN	ANSI C63.26:2015

TEST PARAMETERS

Run #:	16	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)
--------	----	--------------------	---	---------------------	-----------

COMMENTS

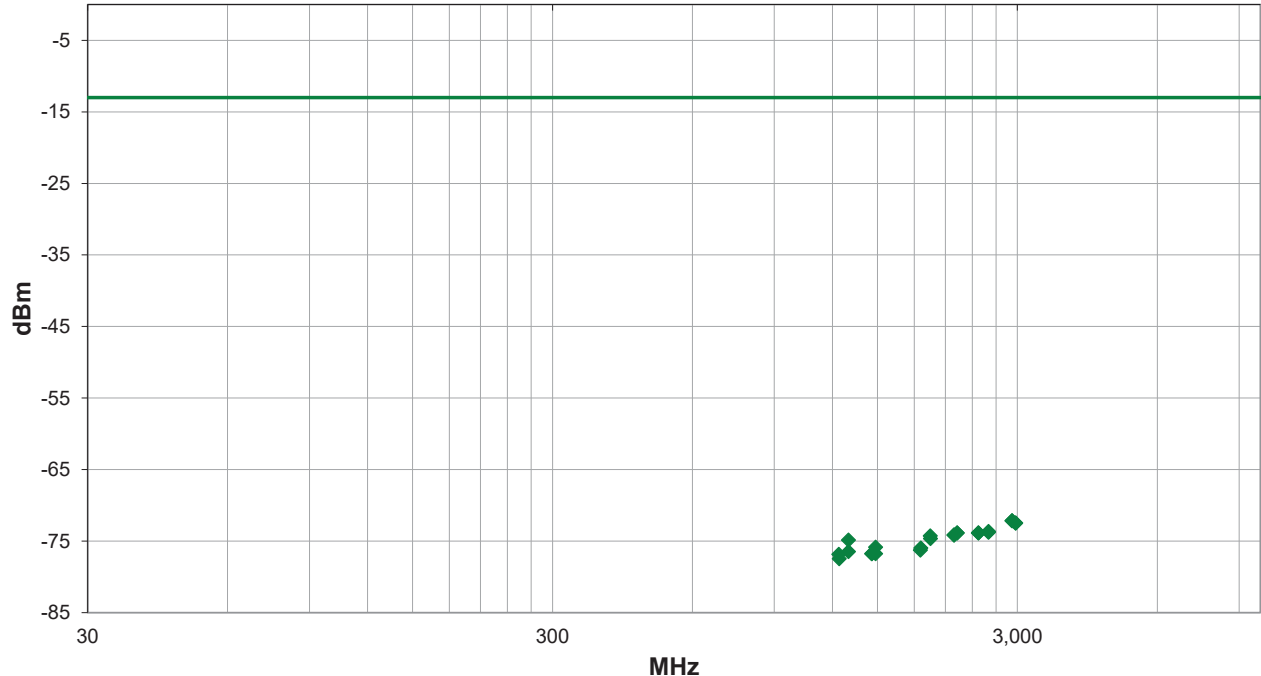
Band n71 and Band n85 NR 5MHz (40W/carrier)

EUT OPERATING MODES

Band n71/n85 NR5 Carriers & Multi Mode SFP

DEVIATIONS FROM TEST STANDARD

None



Run #: 16

PK AV QP

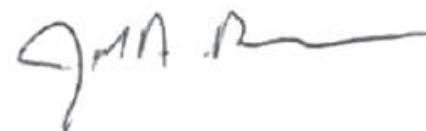
SPURIOUS RADIATED EMISSIONS

RESULTS - Run #16

Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/Transducer Type	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
2922.450	1.45	53.0	Horz	AV	60.5E-12	-72.2	-13.0	-59.2	n85, low ch, QPSK
2922.350	1.5	283.0	Vert	AV	60.5E-12	-72.2	-13.0	-59.2	n85, low ch, QPSK
2976.492	2.75	164.0	Horz	AV	56.5E-12	-72.5	-13.0	-59.5	n85, high ch, QPSK
2976.392	1.5	126.0	Vert	AV	56.5E-12	-72.5	-13.0	-59.5	n85, high ch, QPSK
2600.475	1.5	358.0	Horz	AV	42.9E-12	-73.7	-13.0	-60.7	n71, high ch, QPSK
2600.458	2.84	129.0	Vert	AV	41.9E-12	-73.8	-13.0	-60.8	n71, high ch, QPSK
2475.567	1.21	340.0	Horz	AV	40.9E-12	-73.9	-13.0	-60.9	n71, low ch, QPSK
2475.667	1.5	72.0	Vert	AV	40.9E-12	-73.9	-13.0	-60.9	n71, low ch, QPSK
2228.000	3.05	341.0	Horz	AV	40.9E-12	-73.9	-13.0	-60.9	n85, high ch, QPSK
2228.042	1.5	79.0	Vert	AV	40.9E-12	-73.9	-13.0	-60.9	n85, high ch, QPSK
2193.992	2.25	241.0	Horz	AV	38.2E-12	-74.2	-13.0	-61.2	n85, low ch, QPSK
2193.908	1.5	55.0	Vert	AV	38.2E-12	-74.2	-13.0	-61.2	n85, low ch, QPSK
1950.025	1.5	86.0	Horz	AV	37.3E-12	-74.3	-13.0	-61.3	n71, high ch, QPSK
1951.000	2.45	186.0	Vert	AV	34.0E-12	-74.7	-13.0	-61.7	n71, high ch, QPSK
1299.858	1.58	360.0	Vert	AV	32.5E-12	-74.9	-13.0	-61.9	n71, high ch, QPSK
1487.108	1.37	102.0	Horz	AV	25.8E-12	-75.9	-13.0	-62.9	n85, high ch, QPSK
1859.992	1.5	1.0	Vert	AV	25.2E-12	-76.0	-13.0	-63.0	n71, low ch, QPSK
1856.017	1.5	198.0	Horz	AV	23.6E-12	-76.3	-13.0	-63.3	n71, low ch, QPSK
1299.642	2.05	274.0	Horz	AV	22.5E-12	-76.5	-13.0	-63.5	n71, high ch, QPSK
1460.025	1.5	238.0	Horz	AV	21.0E-12	-76.8	-13.0	-63.8	n85, low ch, QPSK
1459.892	1.5	0.0	Vert	AV	21.0E-12	-76.8	-13.0	-63.8	n85, low ch, QPSK
1487.408	3.04	58.0	Vert	AV	21.0E-12	-76.8	-13.0	-63.8	n85, high ch, QPSK
1239.617	1.5	287.0	Horz	AV	20.5E-12	-76.9	-13.0	-63.9	n71, low ch, QPSK
1241.500	1.5	249.0	Vert	AV	17.9E-12	-77.5	-13.0	-64.5	n71, low ch, QPSK

CONCLUSION

Pass



Tested By

End of Test Report