SPURIOUS CONDUCTED EMISSIONS

XMit 2019.09.05

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	Keysight	N5171B-506	TEW	2-May-18	2-May-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	19-Mar-19	19-Mar-20
Generator - Signal	Agilent	E8257D	TGU	15-Feb-18	15-Feb-21

TEST DESCRIPTION

The spurious RF conducted emissions were measured with the EUT set to the middle channel. The EUT was transmitting at the data rate(s) and bandwidths listed in the datasheet. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

Two separate tests were carried out:
1. Band 13 carriers enabled at maximum power (60 Watts/carrier) with Band 71 carriers not enabled.
2. Band 71 carriers enabled at maximum power (60 Watts/carrier) with Band 71 carriers not enabled.

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

Band 71: Per FCC section 27.53(g), 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. FCC 27.53(g) requires a >100 kHz measurement bandwidth for emissions 100 kHz outside of the RRH operating frequency range.

Band 13:
Per FCC section 27.53(c), 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. FCC section 27.53(c) requires a >100 kHz measurement bandwidth for emissions 100 kHz outside of the RRH operating frequency range.

Per section 27.53(f), for the frequency range 1559-1610 MHz the EIRP limit is -70dBW/MHz for wideband signals and -80dBW for discrete emissions of bandwidths less than 700Hz. This equates to an EIRP of -40dBm/MHz for wideband emissions and -50dBm/MHz for discrete emissions. The limit is adjusted to -46 dBm [-40 dBm -10 log (4)] for wideband signals and -56dBm [-50 dBm -10 log (4)] for discrete emissions per FCC KDB 662911D01 v02r01 because the BTS may operate as a 4 port MIMO transmitter.

SPURIOUS CONDUCTED EMISSIONS

element

XMit 2019.09.05

EUT:	AHBOA Remote Radio Head (RRH)			**Work Order:**	NOKI0003
Serial Number:	BL1934X1001			**Date:**	23-Oct-19
Customer:	Nokia Solutions and Networks			**Temperature:**	22.5 °C
Attendees:	John Rattanavong, Mitchell Hill			**Humidity:**	38.4% RH
Project:	None			**Barometric Pres.:**	1018 mbar
Tested by:	Jonathan Kiefer	**Power:**	48VDC	**Job Site:**	TX09

TEST SPECIFICATIONS	**Test Method**
FCC 27:2019	ANSI C63.26:2015

COMMENTS

Tested on highest power antenna port (Port 1). EUT is operated at 100% duty cycle. All modulation types were tested for the LTE5 channel bandwidths. Insignificant changes were observed between the conducted emission levels of the different LTE5 modulation types. Only 256QAM was tested on the other LTE channel bandwidths (LTE10, LTE 15, LTE20).

DEVIATIONS FROM TEST STANDARD

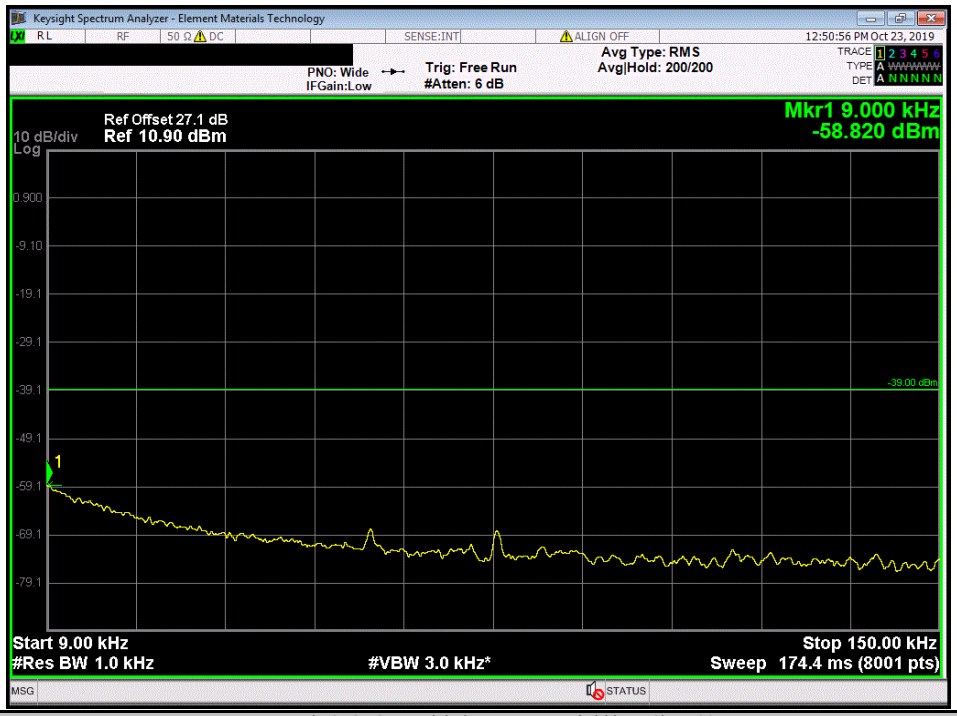
None

Configuration #	**1, 2, 3**	*Signature* Jonathan Kiefer

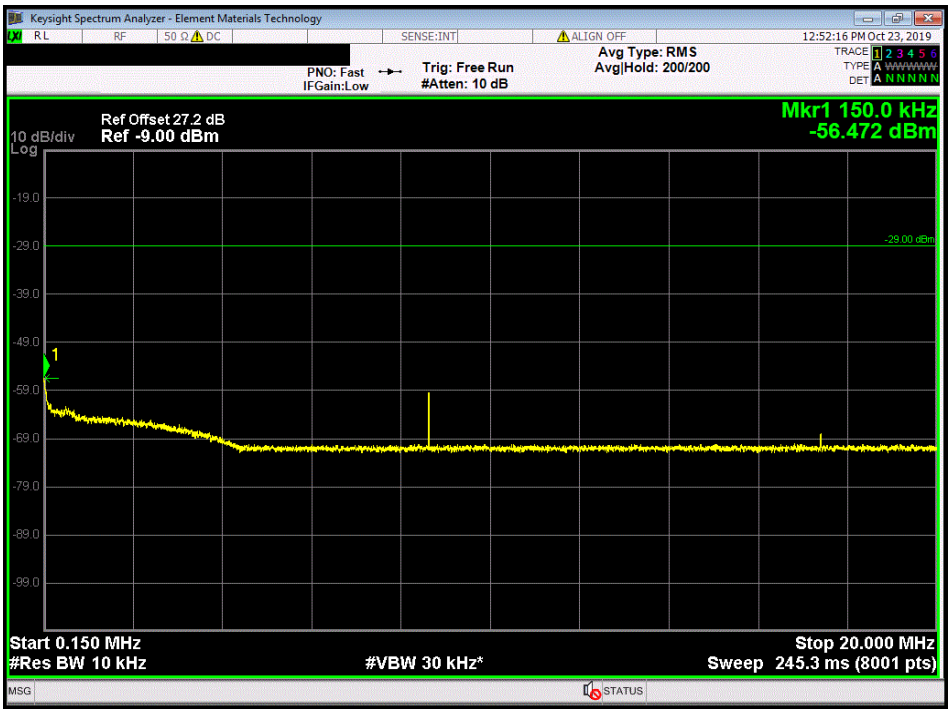
		Value (dBm)	Limit (dBm)	Result
Band 13				
	QPSK Modulation			
	LTE5 Bandwidth			
	9kHz-150kHz	-58.52	-39	Pass
	150kHz-20MHz	-56.472	-29	Pass
	20MHz-600MHz	-33	-19	Pass
	600MHz-800MHz	-37.379	-19	Pass
	800MHz-1.2GHz	-33.901	-19	Pass
	1.2GHz-8GHz	-33.693	-19	Pass
	1559MHz-1610MHz	-59.327	-46	Pass
	16QAM Modulation			
	LTE5 Bandwidth			
	9kHz-150kHz	-58.935	-39	Pass
	150kHz-20MHz	-56.154	-29	Pass
	20MHz-600MHz	-33.526	-19	Pass
	600MHz-800MHz	-37.861	-19	Pass
	800MHz-1.2GHz	-34.228	-19	Pass
	1.2GHz-8GHz	-33.691	-19	Pass
	1559MHz-1610MHz	-58.476	-46	Pass
	64QAM Modulation			
	LTE5 Bandwidth			
	9kHz-150kHz	-59.242	-39	Pass
	150kHz-20MHz	-56.56	-29	Pass
	20MHz-600MHz	-32.998	-19	Pass
	600MHz-800MHz	-37.543	-19	Pass
	800MHz-1.2GHz	-33.737	-19	Pass
	1.2GHz-8GHz	-32.756	-19	Pass
	1559MHz-1610MHz	-58.531	-46	Pass
	256QAM Modulation			
	LTE5 Bandwidth			
	9kHz-150kHz	-58.817	-39	Pass
	150kHz-20MHz	-56.248	-29	Pass
	20MHz-600MHz	-33.171	-19	Pass
	600MHz-800MHz	-37.419	-19	Pass
	800MHz-1.2GHz	-33.628	-19	Pass
	1.2GHz-8GHz	-32.695	-19	Pass
	1559MHz-1610MHz	-58.119	-46	Pass
	LTE10 Bandwdith			
	9kHz-150kHz	-58.76	-39	Pass
	150kHz-20MHz	-56.077	-29	Pass
	20MHz-600MHz	-32.73	-19	Pass
	600MHz-800MHz	-37.674	-19	Pass
	800MHz-1.2GHz	-34.483	-19	Pass
	1.2GHz-8GHz	-34.833	-19	Pass
	1559MHz-1610MHz	-59.713	-46	Pass
Band 71				
	QPSK Modulation			
	LTE5 Bandwidth			
	9kHz-150kHz	-58.491	-39	Pass
	150kHz-20MHz	-56.532	-29	Pass
	20MHz-600MHz	-32.956	-19	Pass
	600MHz-800MHz	-36.504	-19	Pass
	800MHz-1.2GHz	-34.351	-19	Pass
	1.2GHz-8GHz	-29.003	-19	Pass
	16QAM Modulation			
	LTE5 Bandwidth			
	9kHz-150kHz	-59.093	-39	Pass
	150kHz-20MHz	-56.525	-29	Pass
	20MHz-600MHz	-32.546	-19	Pass
	600MHz-800MHz	-37.096	-19	Pass
	800MHz-1.2GHz	-34.337	-19	Pass
	1.2GHz-8GHz	-28.415	-19	Pass
	64QAM Modulation			
	LTE5 Bandwidth			
	9kHz-150kHz	-58.856	-39	Pass
	150kHz-20MHz	-56.158	-29	Pass
	20MHz-600MHz	-32.808	-19	Pass
	600MHz-800MHz	-36.992	-19	Pass
	800MHz-1.2GHz	-34.315	-19	Pass
	1.2GHz-8GHz	-28.301	-19	Pass
	256QAM Modulation			
	LTE5 Bandwidth			
	9kHz-150kHz	-58.837	-39	Pass
	150kHz-20MHz	-56.083	-29	Pass
	20MHz-600MHz	-32.533	-19	Pass
	600MHz-800MHz	-37.204	-19	Pass

800MHz-1.2GHz	-34.592	-19	Pass
1.2GHz-8GHz	-29.649	-19	Pass
LTE10 Bandwdith			
9kHz-150kHz	-58.85	-39	Pass
150kHz-20MHz	-56.871	-29	Pass
20MHz-600MHz	-33.401	-29	Pass
600MHz-800MHz	-36.947	-19	Pass
800MHz-1.2GHz	-34.085	-19	Pass
1.2GHz-8GHz	-32.345	-19	Pass
LTE15 Bandwidth			
9kHz-150kHz	-58.256	-39	Pass
150kHz-20MHz	-56.257	-29	Pass
20MHz-600MHz	-32.348	-19	Pass
600MHz-800MHz	-36.733	-19	Pass
800MHz-1.2GHz	-34.704	-19	Pass
1.2GHz-8GHz	-33.457	-19	Pass
LTE20 Bandwidth			
9kHz-150kHz	-59.056	-39	Pass
150kHz-20MHz	-56.663	-29	Pass
20MHz-600MHz	-32.753	-19	Pass
600MHz-800MHz	-37.071	-19	Pass
800MHz-1.2GHz	-34.37	-19	Pass
1.2GHz-8GHz	-35.108	-19	Pass

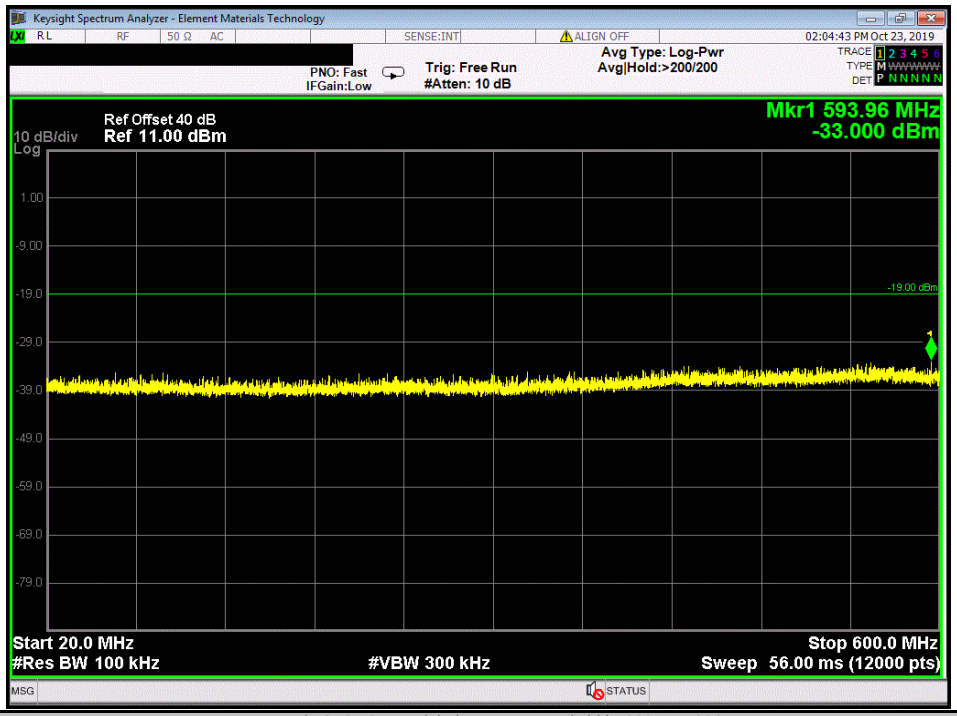
Band 13, QPSK Modulation, LTE5 Bandwidth, 9kHz-150kHz							
					Value (dBm)	Limit (dBm)	Result
					-58.52	-39	Pass



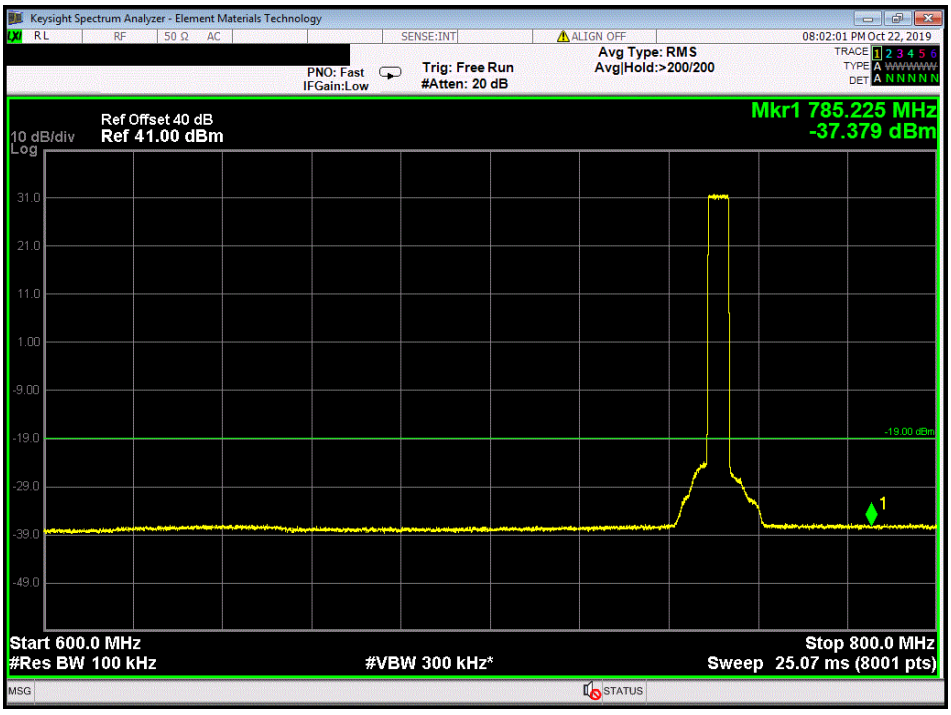
Band 13, QPSK Modulation, LTE5 Bandwidth, 150kHz-20MHz							
					Value (dBm)	Limit (dBm)	Result
					-56.472	-29	Pass



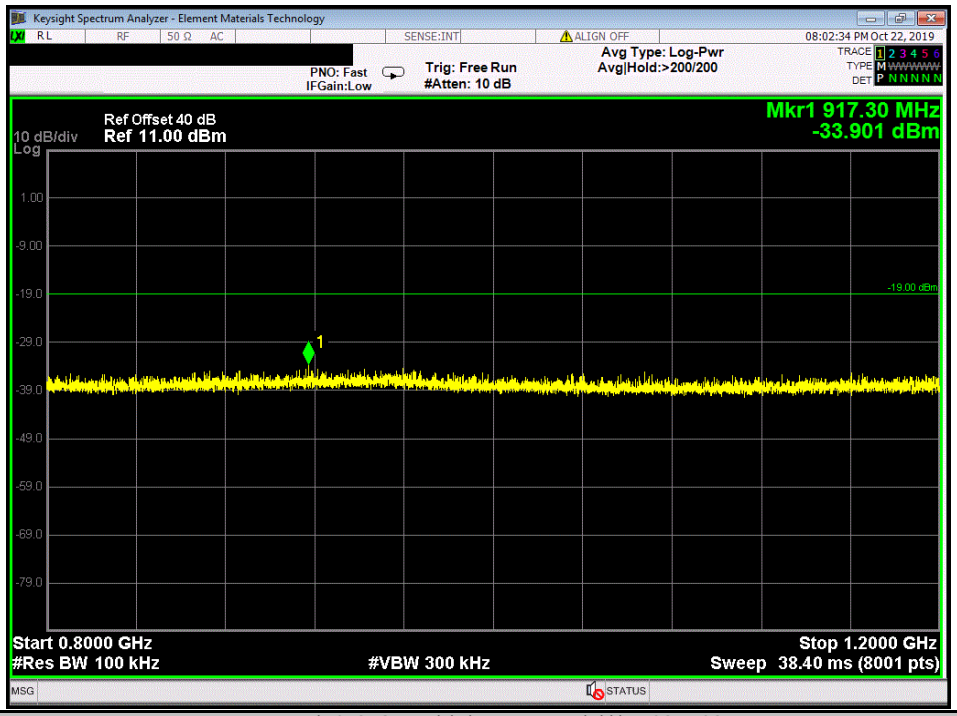
Band 13, QPSK Modulation, LTE5 Bandwidth, 20MHz-600MHz							
					Value (dBm)	Limit (dBm)	Result
					-33	-19	Pass



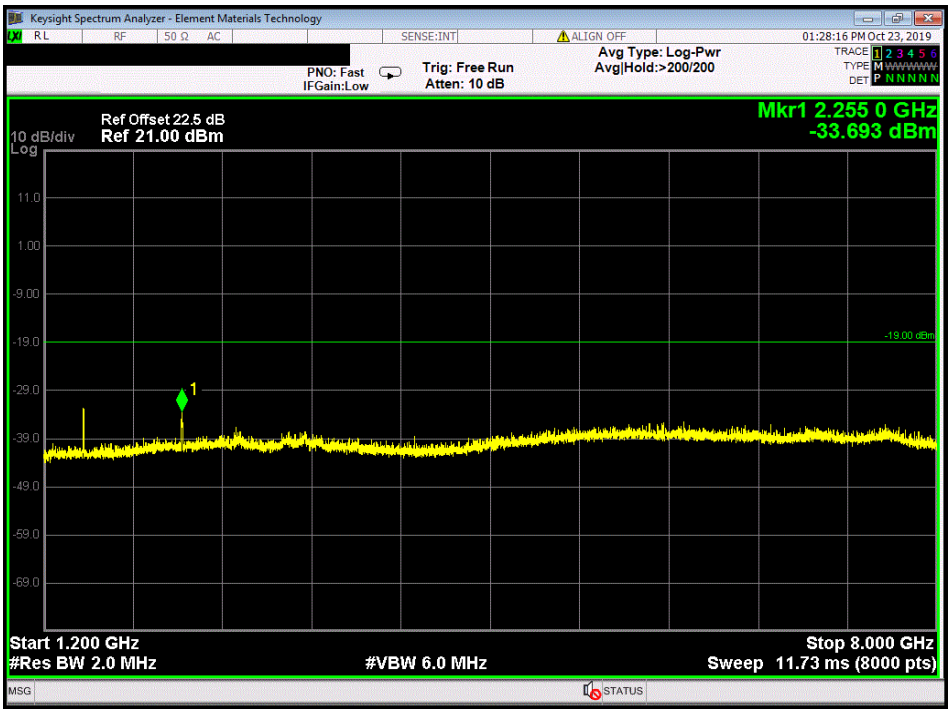
Band 13, QPSK Modulation, LTE5 Bandwidth, 600MHz-800MHz							
					Value (dBm)	Limit (dBm)	Result
					-37.379	-19	Pass



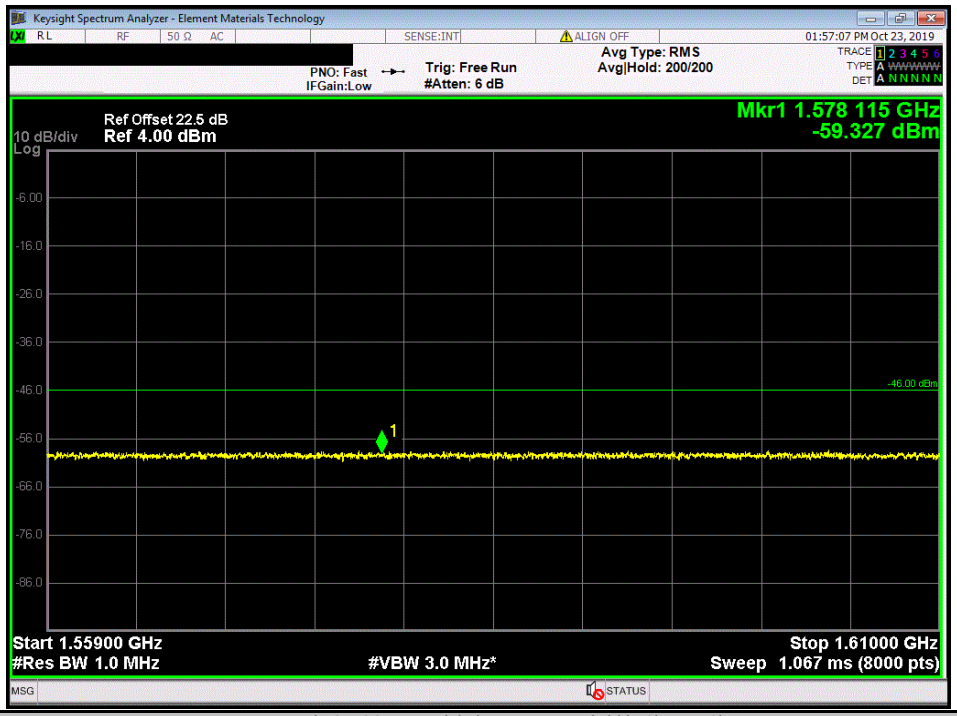
Band 13, QPSK Modulation, LTE5 Bandwidth, 800MHz-1.2GHz							
					Value (dBm)	Limit (dBm)	Result
					-33.901	-19	Pass



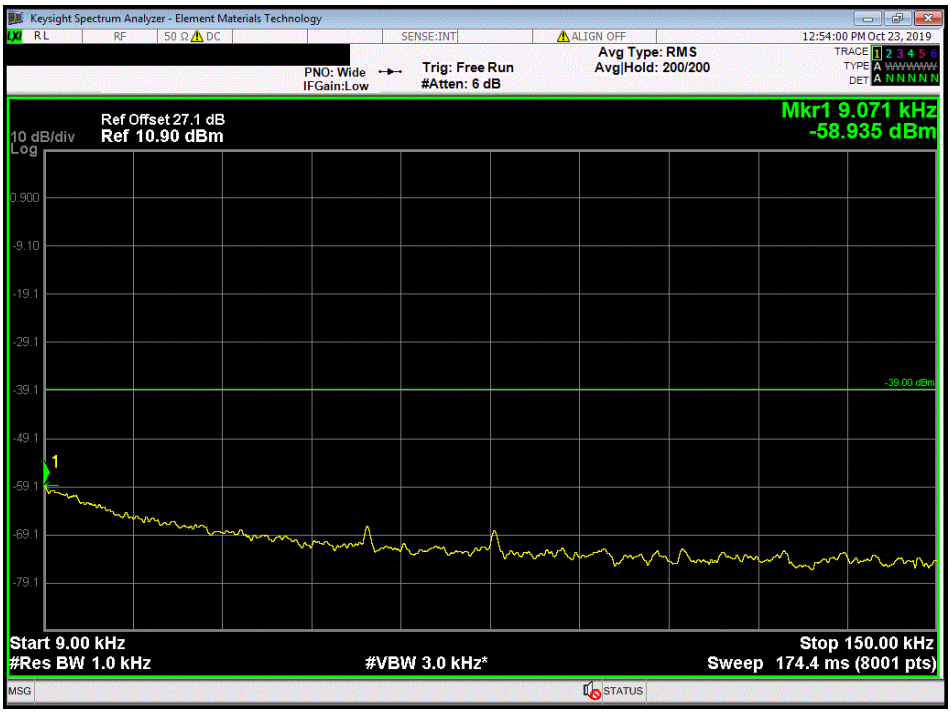
Band 13, QPSK Modulation, LTE5 Bandwidth, 1.2GHz-8GHz							
					Value (dBm)	Limit (dBm)	Result
					-33.693	-19	Pass



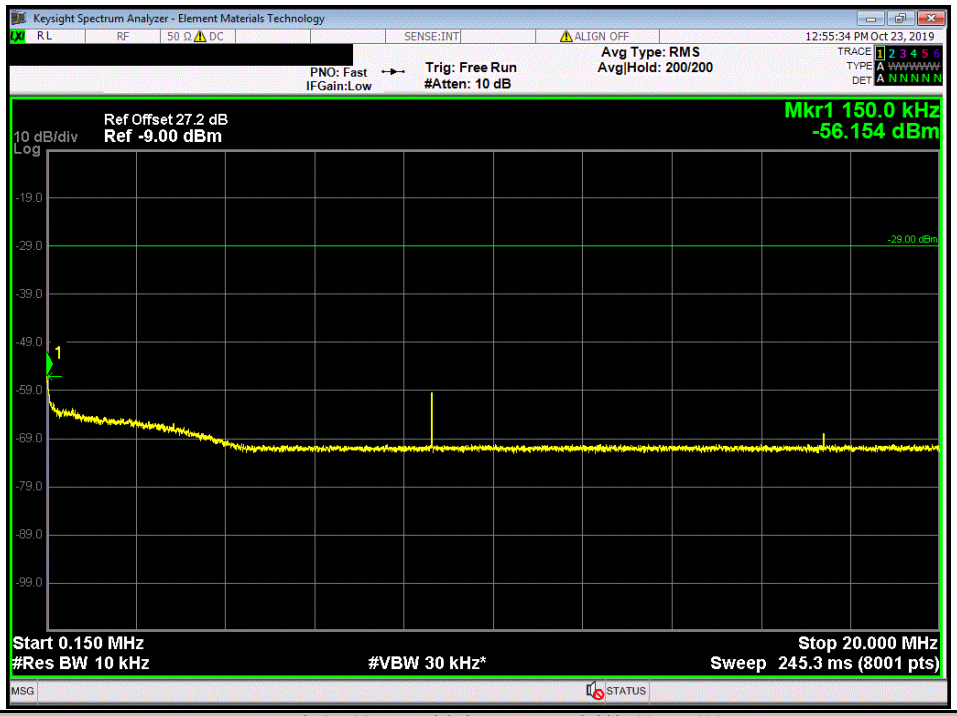
Band 13, QPSK Modulation, LTE5 Bandwidth, 1559MHz-1610MHz						
				Value (dBm)	Limit (dBm)	Result
				-59.327	-46	Pass



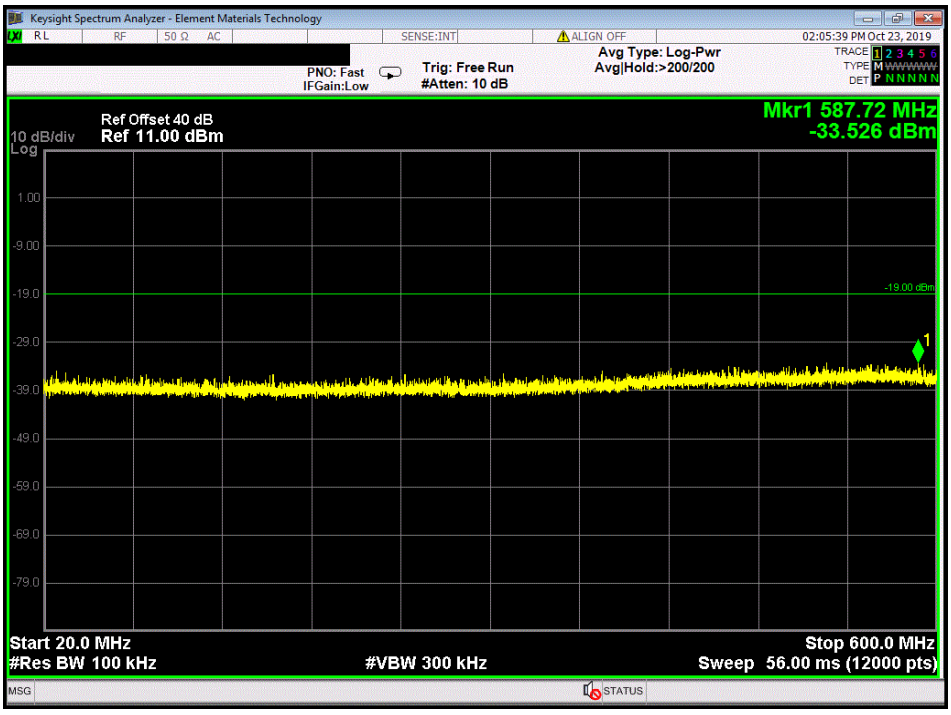
Band 13, 16QAM Modulation, LTE5 Bandwidth, 9kHz-150kHz						
				Value (dBm)	Limit (dBm)	Result
				-58.935	-39	Pass



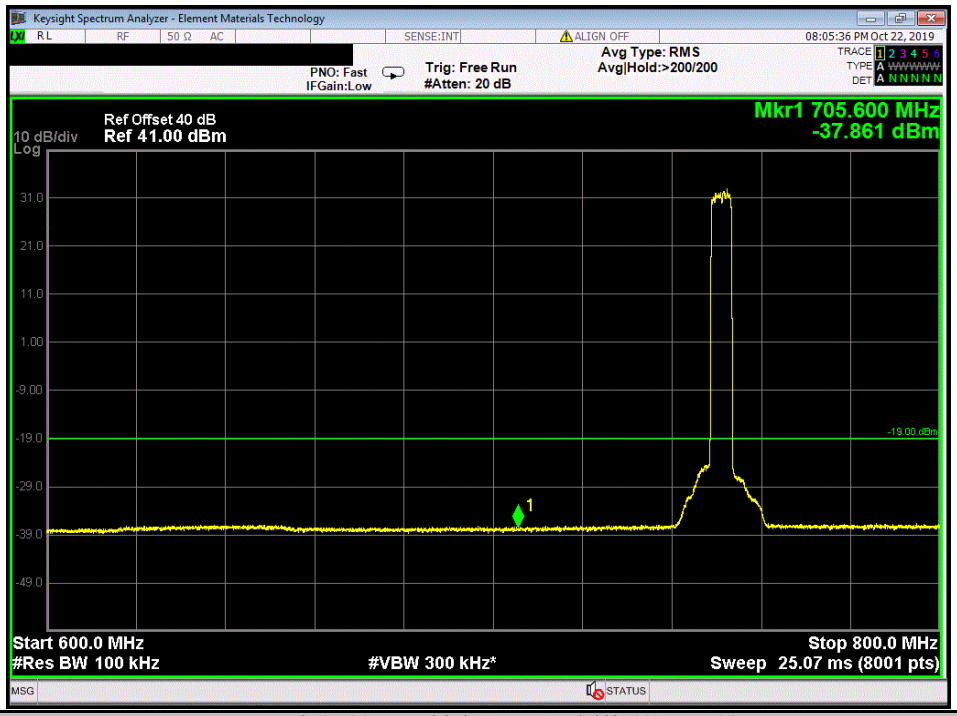
Band 13, 16QAM Modulation, LTE5 Bandwidth, 150kHz-20MHz							
					Value (dBm)	Limit (dBm)	Result
					-56.154	-29	Pass



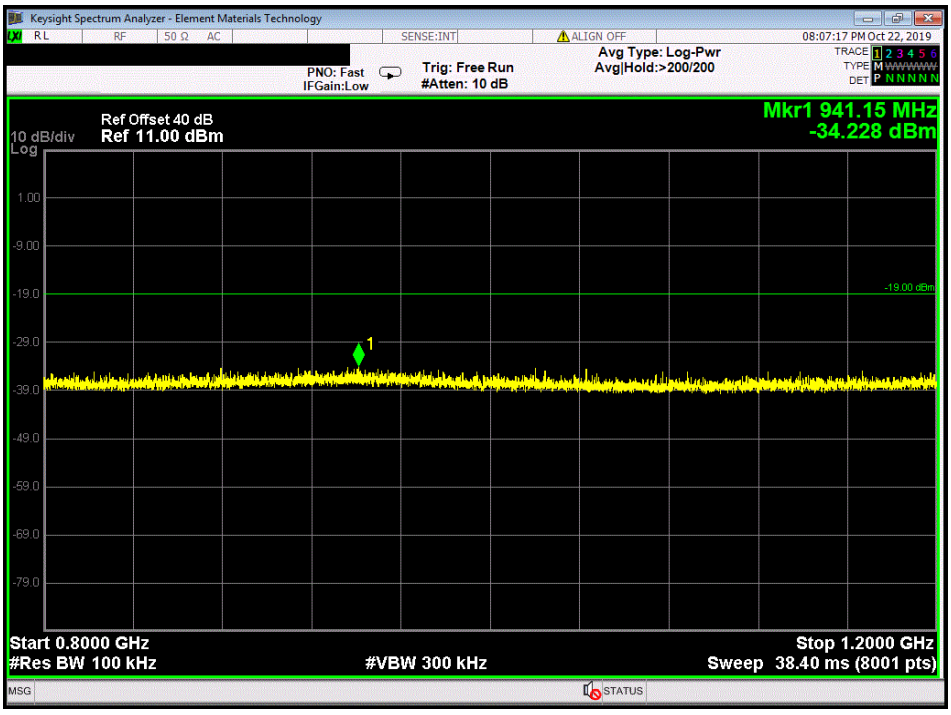
Band 13, 16QAM Modulation, LTE5 Bandwidth, 20MHz-600MHz							
					Value (dBm)	Limit (dBm)	Result
					-33.526	-19	Pass



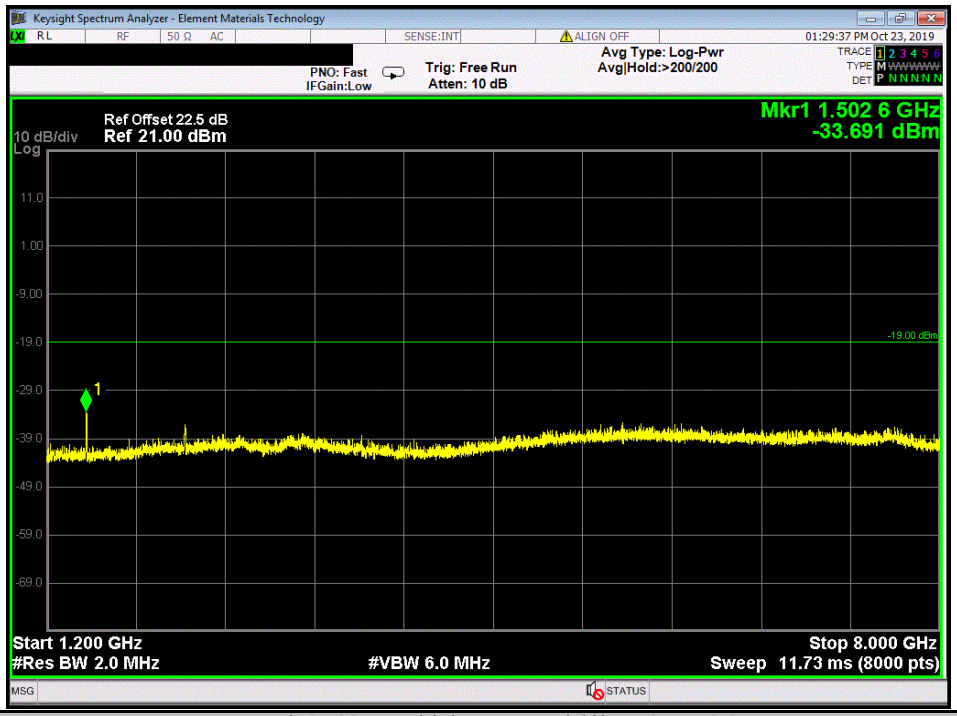
Band 13, 16QAM Modulation, LTE5 Bandwidth, 600MHz-800MHz							
					Value (dBm)	Limit (dBm)	Result
					-37.861	-19	Pass



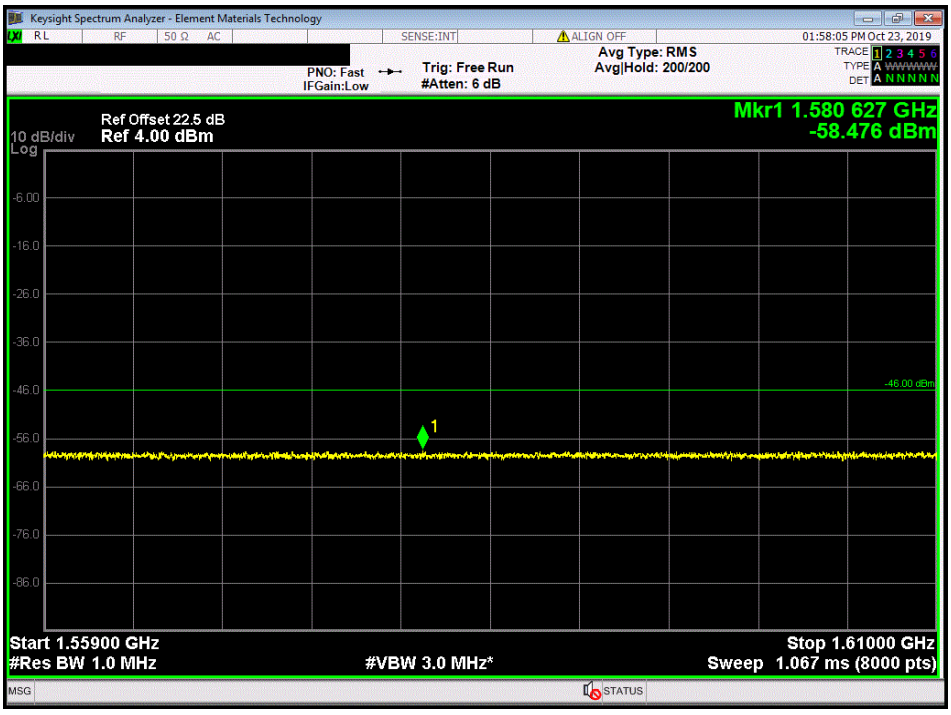
Band 13, 16QAM Modulation, LTE5 Bandwidth, 800MHz-1.2GHz							
					Value (dBm)	Limit (dBm)	Result
					-34.228	-19	Pass



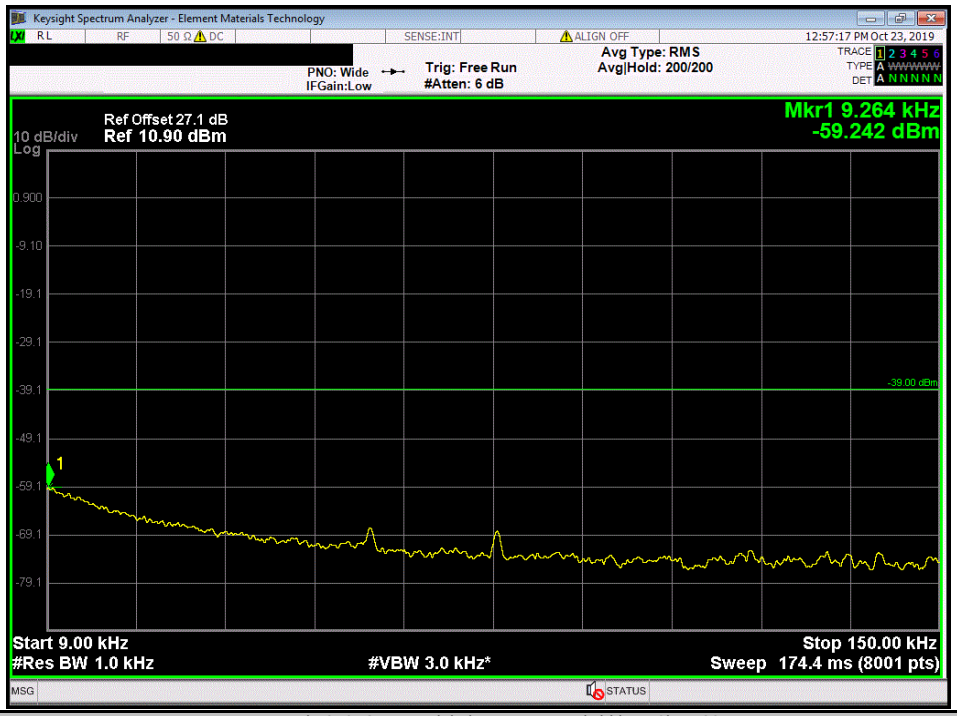
Band 13, 16QAM Modulation, LTE5 Bandwidth, 1.2GHz-8GHz							
					Value (dBm)	Limit (dBm)	Result
					-33.691	-19	Pass



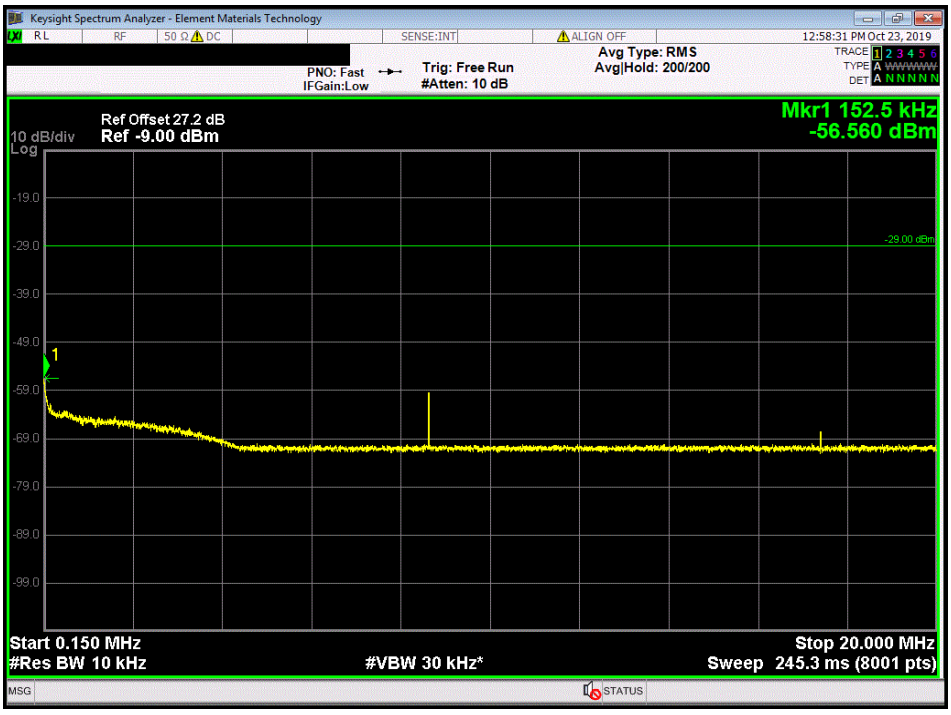
Band 13, 16QAM Modulation, LTE5 Bandwidth, 1559MHz-1610MHz							
					Value (dBm)	Limit (dBm)	Result
					-58.476	-46	Pass



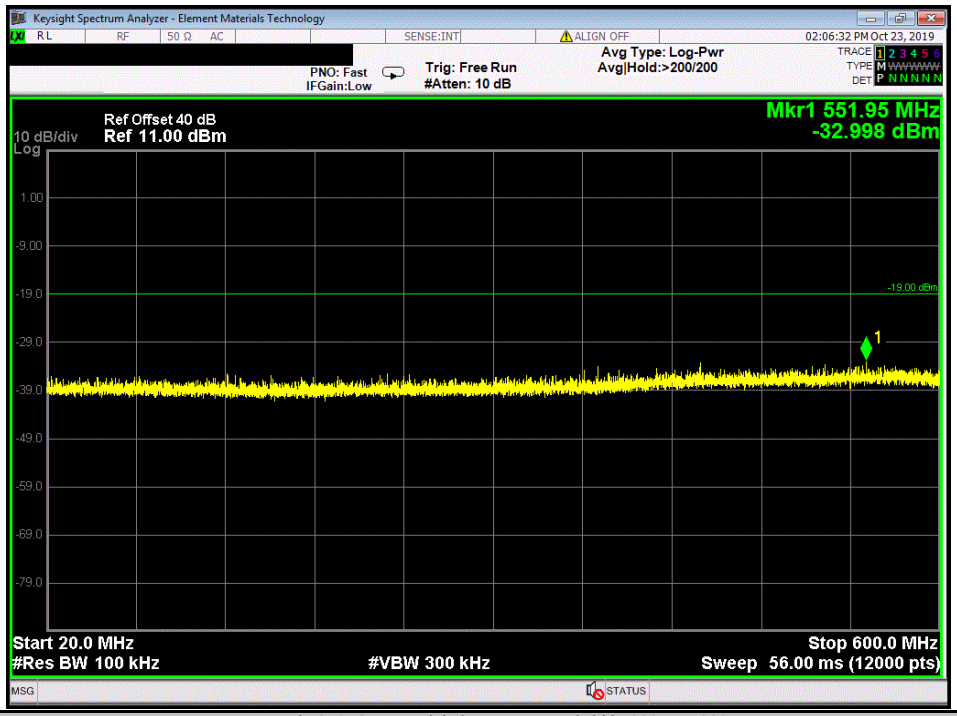
Band 13, 64QAM Modulation, LTE5 Bandwidth, 9kHz-150kHz							
					Value (dBm)	Limit (dBm)	Result
					-59.242	-39	Pass



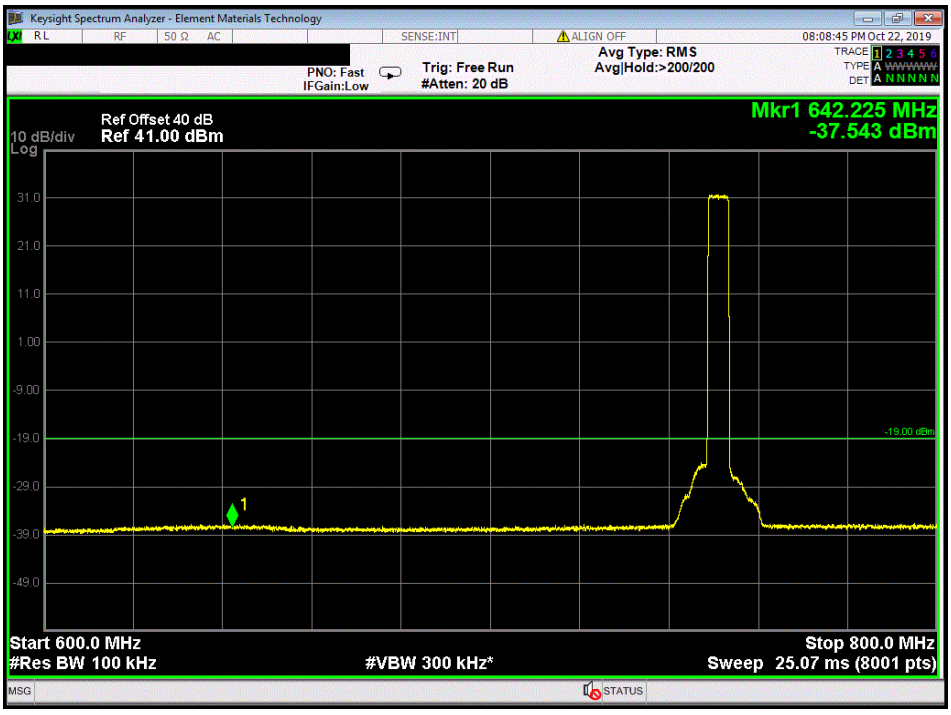
Band 13, 64QAM Modulation, LTE5 Bandwidth, 150kHz-20MHz							
					Value (dBm)	Limit (dBm)	Result
					-56.56	-29	Pass



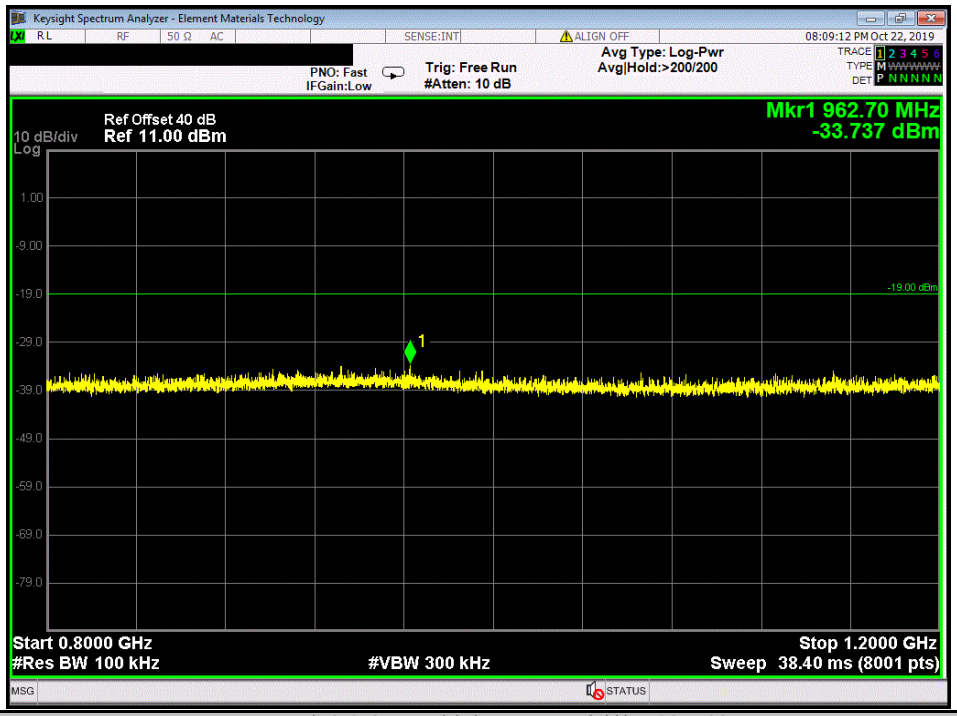
Band 13, 64QAM Modulation, LTE5 Bandwidth, 20MHz-600MHz							
					Value (dBm)	Limit (dBm)	Result
					-32.998	-19	Pass



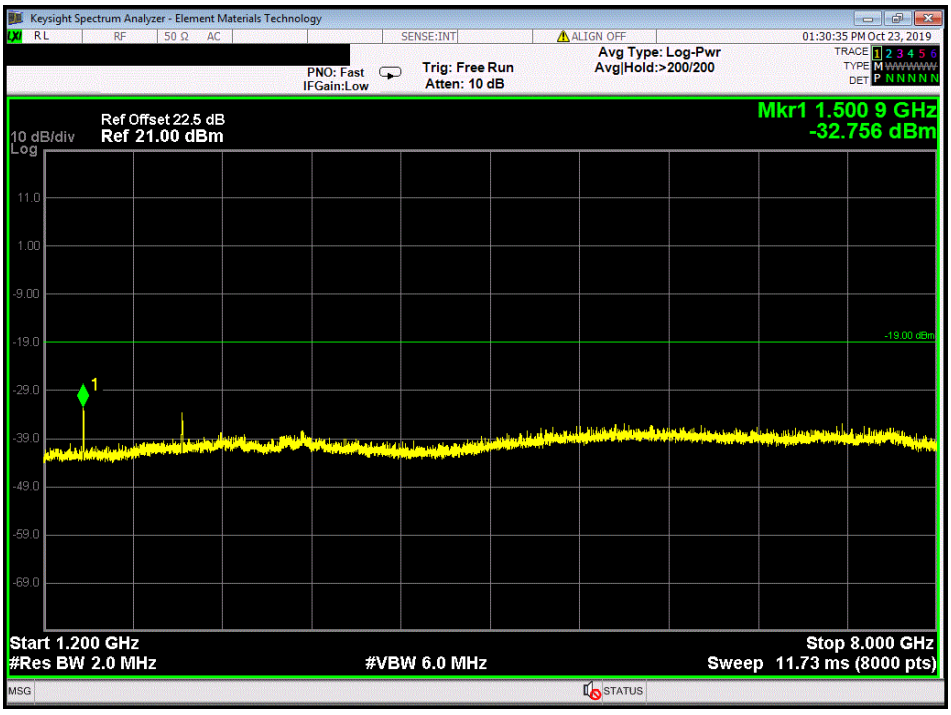
Band 13, 64QAM Modulation, LTE5 Bandwidth, 600MHz-800MHz							
					Value (dBm)	Limit (dBm)	Result
					-37.543	-19	Pass



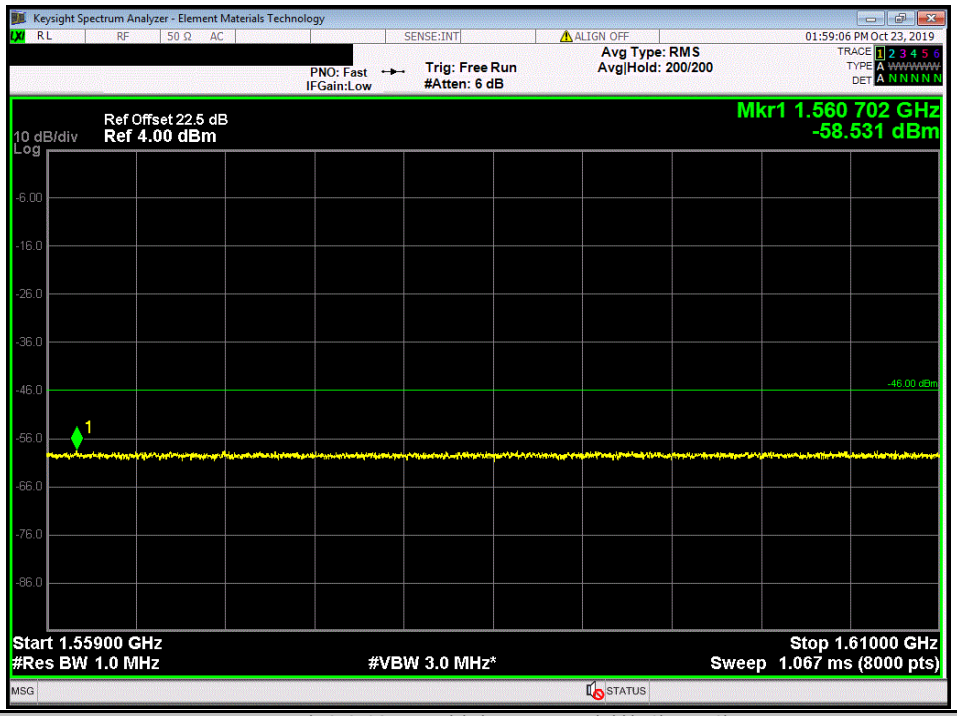
Band 13, 64QAM Modulation, LTE5 Bandwidth, 800MHz-1.2GHz						
				Value (dBm)	Limit (dBm)	Result
				-33.737	-19	Pass



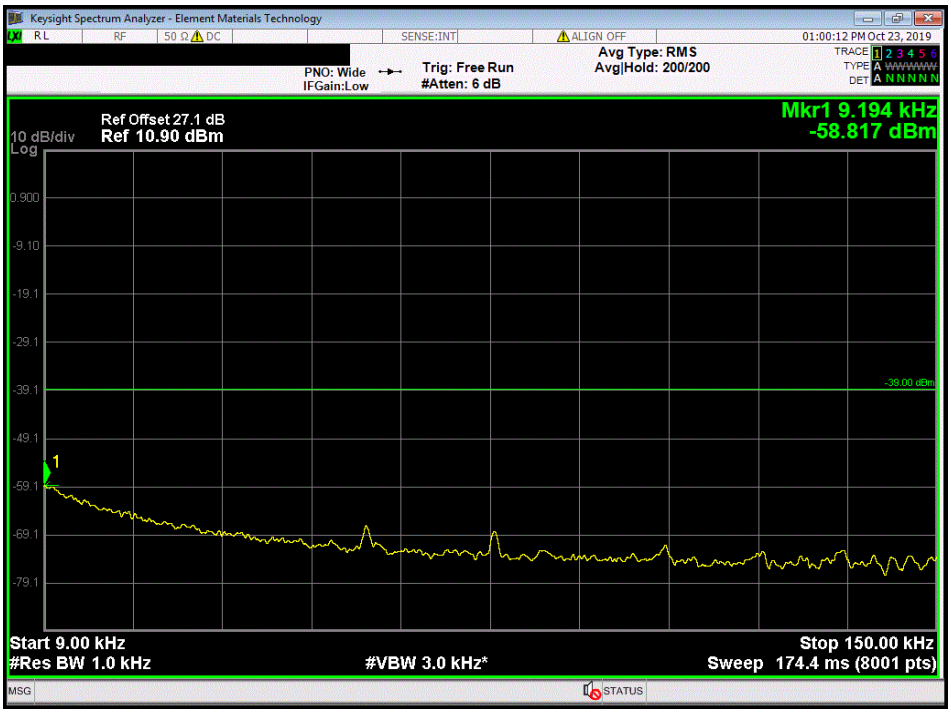
Band 13, 64QAM Modulation, LTE5 Bandwidth, 1.2GHz-8GHz						
				Value (dBm)	Limit (dBm)	Result
				-32.756	-19	Pass



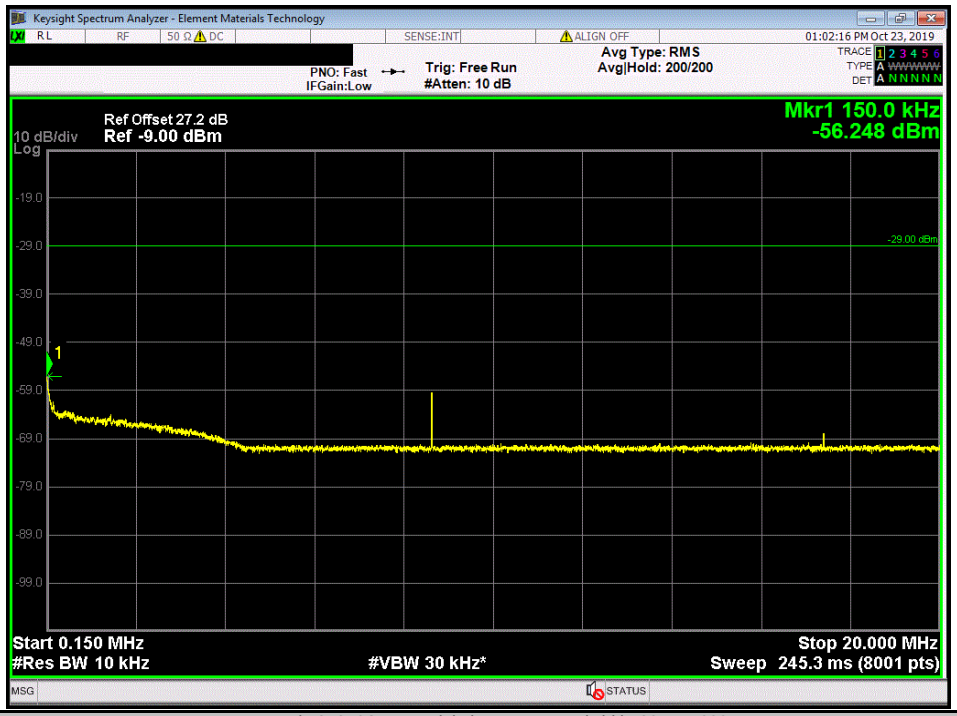
Band 13, 64QAM Modulation, LTE5 Bandwidth, 1559MHz-1610MHz							
					Value (dBm)	Limit (dBm)	Result
					-58.531	-46	Pass



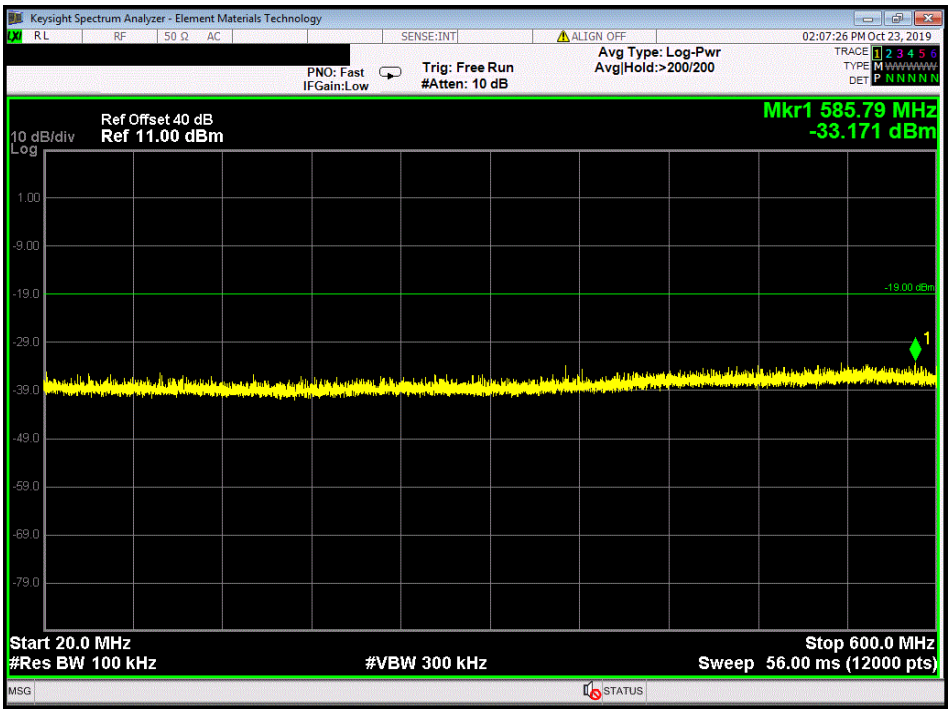
Band 13, 256QAM Modulation, LTE5 Bandwidth, 9kHz-150kHz							
					Value (dBm)	Limit (dBm)	Result
					-58.817	-39	Pass



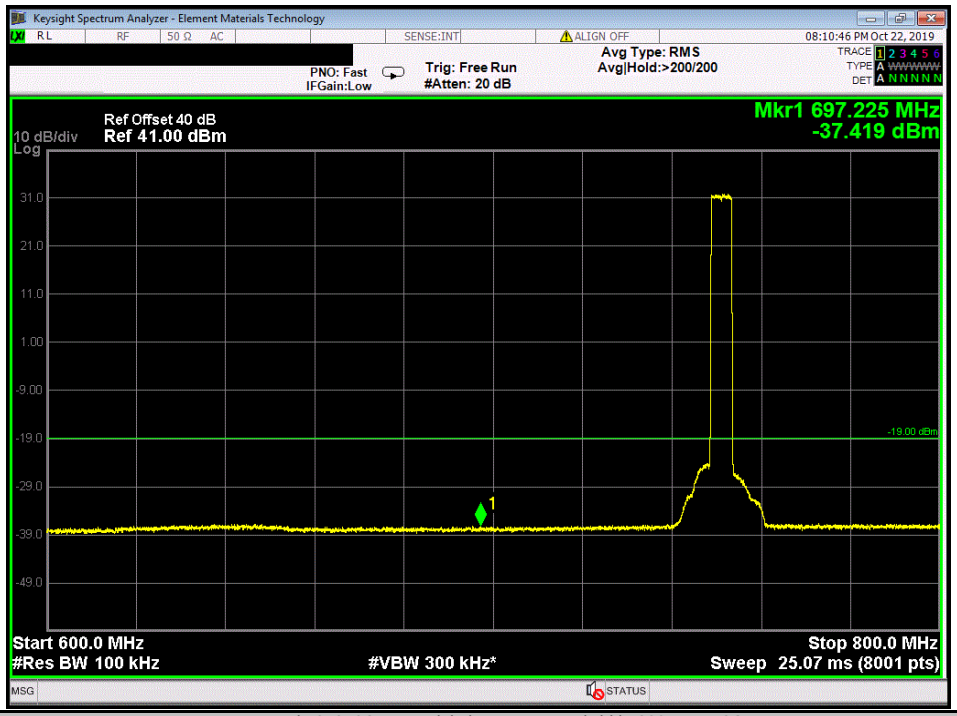
Band 13, 256QAM Modulation, LTE5 Bandwidth, 150kHz-20MHz							
					Value (dBm)	Limit (dBm)	Result
					-56.248	-29	Pass



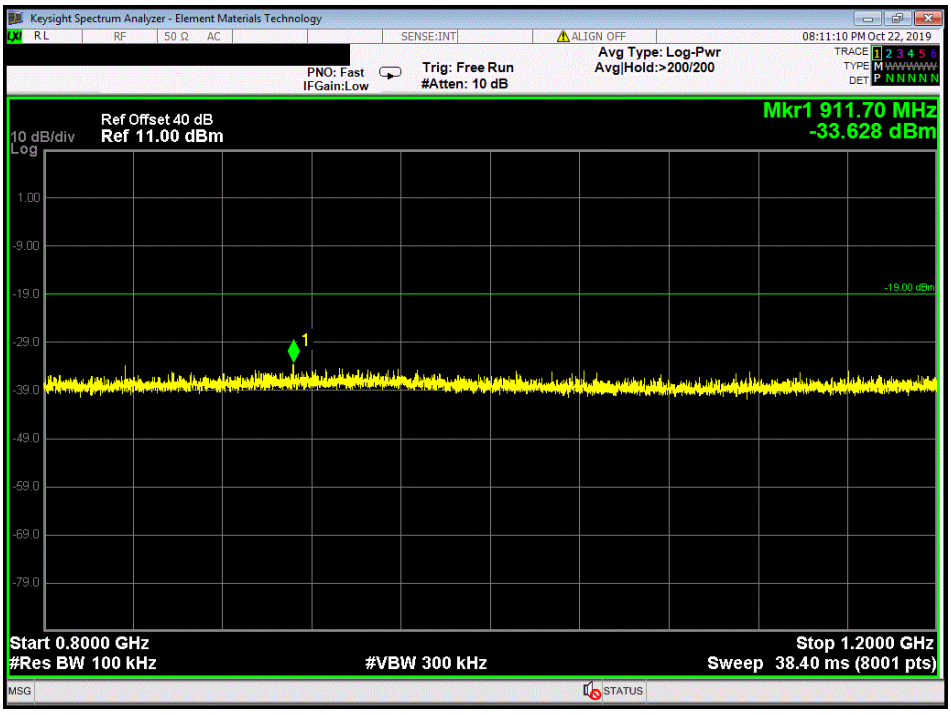
Band 13, 256QAM Modulation, LTE5 Bandwidth, 20MHz-600MHz							
					Value (dBm)	Limit (dBm)	Result
					-33.171	-19	Pass



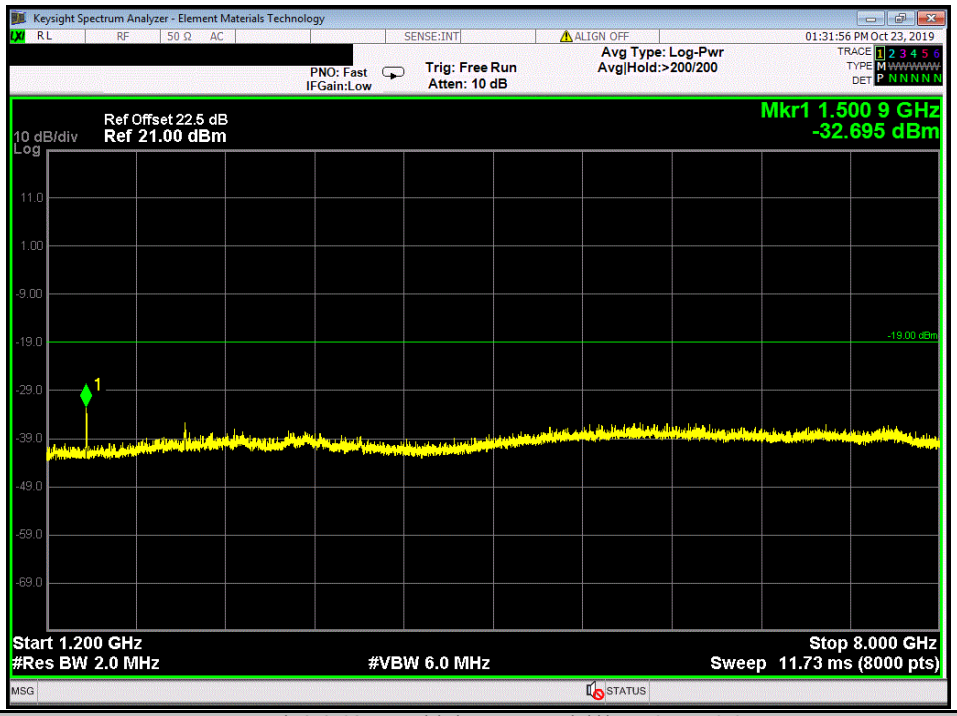
Band 13, 256QAM Modulation, LTE5 Bandwidth, 600MHz-800MHz							
					Value (dBm)	Limit (dBm)	Result
					-37.419	-19	Pass



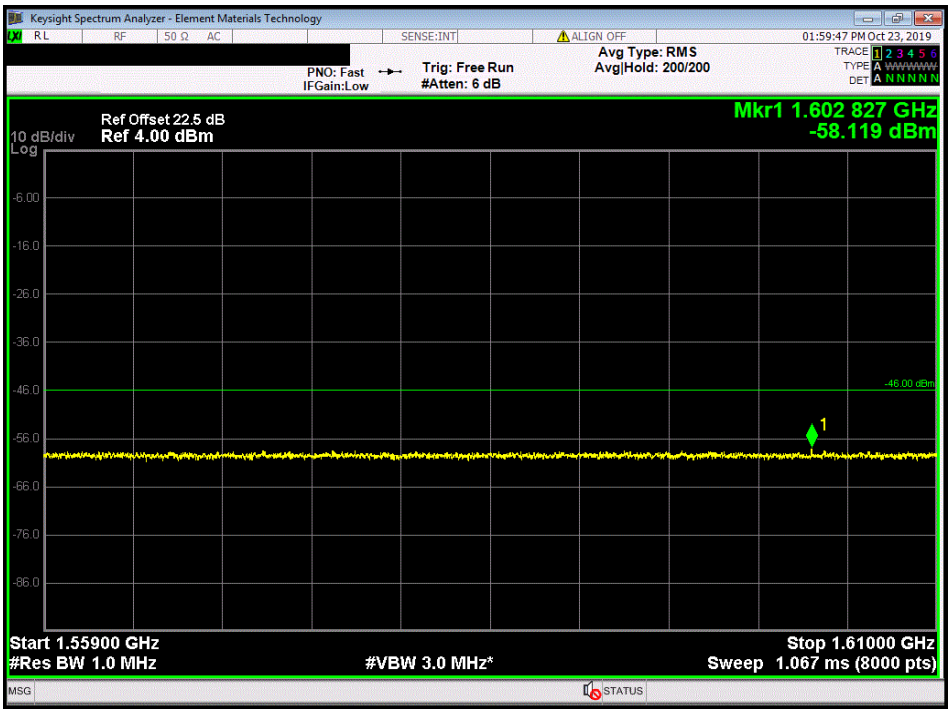
Band 13, 256QAM Modulation, LTE5 Bandwidth, 800MHz-1.2GHz							
					Value (dBm)	Limit (dBm)	Result
					-33.628	-19	Pass



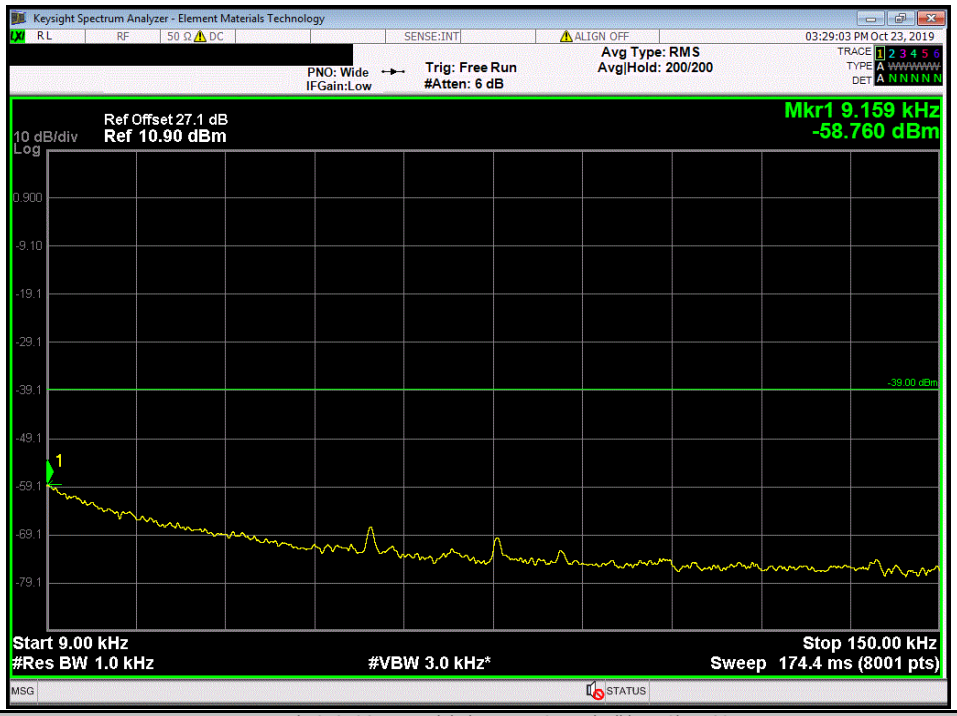
Band 13, 256QAM Modulation, LTE5 Bandwidth, 1.2GHz-8GHz							
					Value (dBm)	Limit (dBm)	Result
					-32.695	-19	Pass



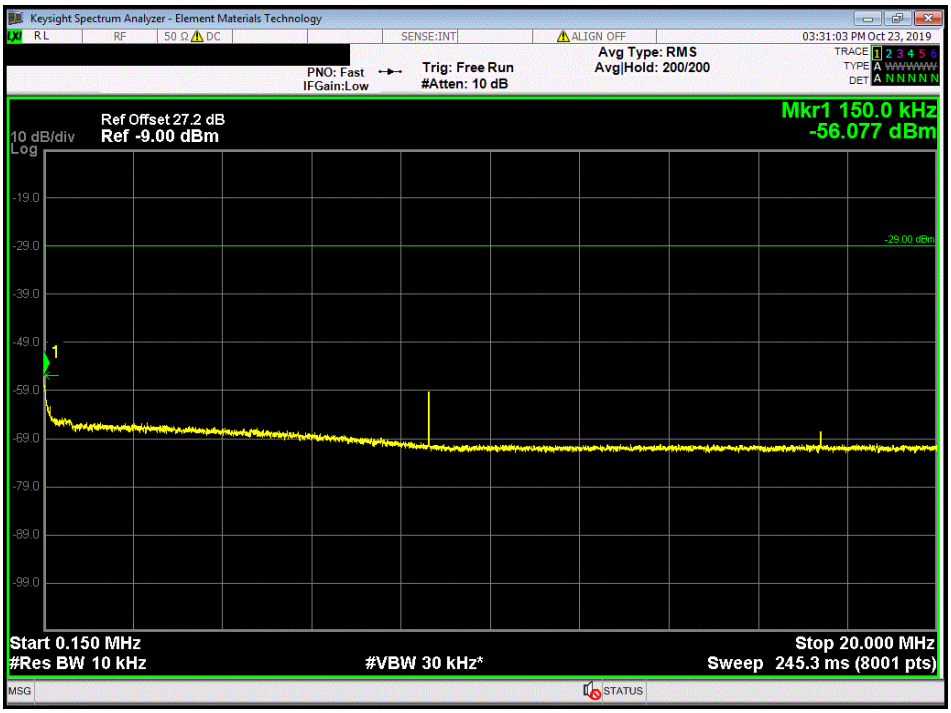
Band 13, 256QAM Modulation, LTE5 Bandwidth, 1559MHz-1610MHz							
					Value (dBm)	Limit (dBm)	Result
					-58.119	-46	Pass



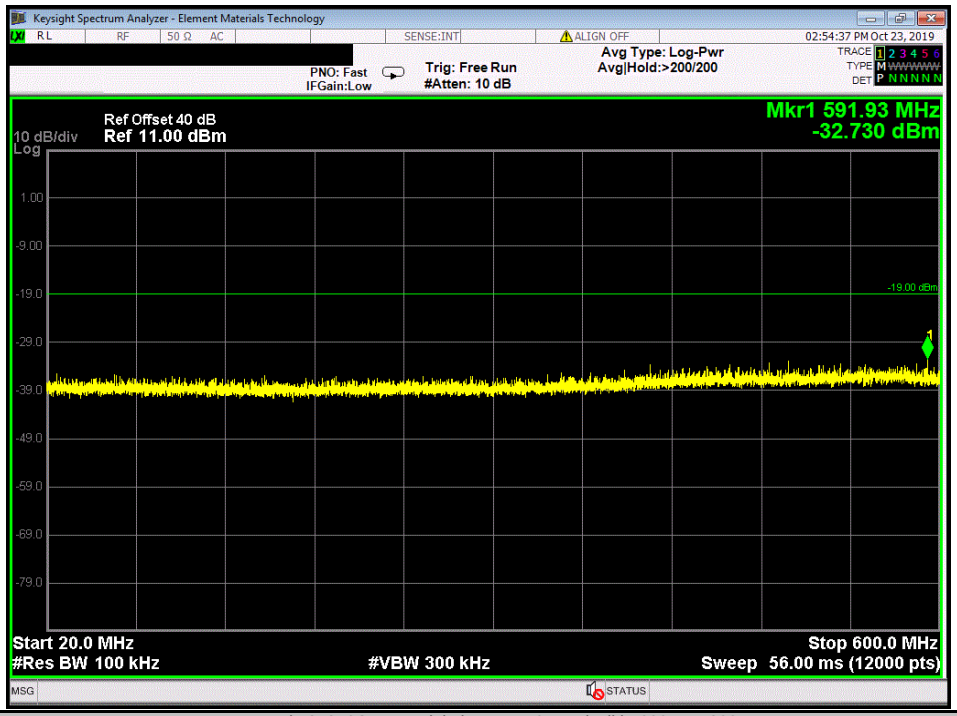
Band 13, 256QAM Modulation, LTE10 Bandwdith, 9kHz-150kHz							
					Value (dBm)	Limit (dBm)	Result
					-58.76	-39	Pass



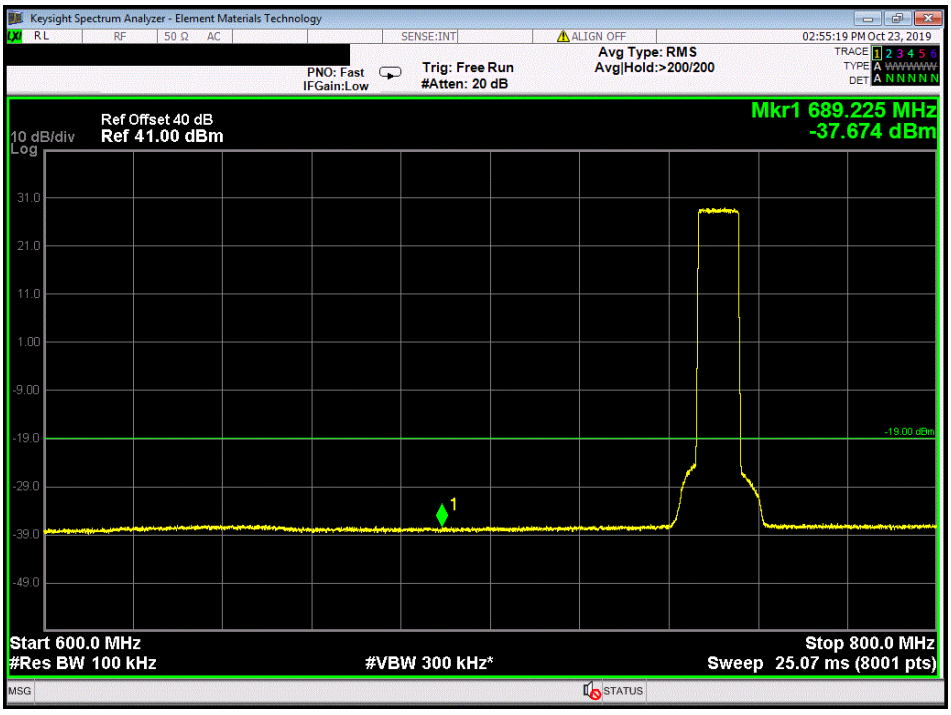
Band 13, 256QAM Modulation, LTE10 Bandwdith, 150kHz-20MHz							
					Value (dBm)	Limit (dBm)	Result
					-56.077	-29	Pass



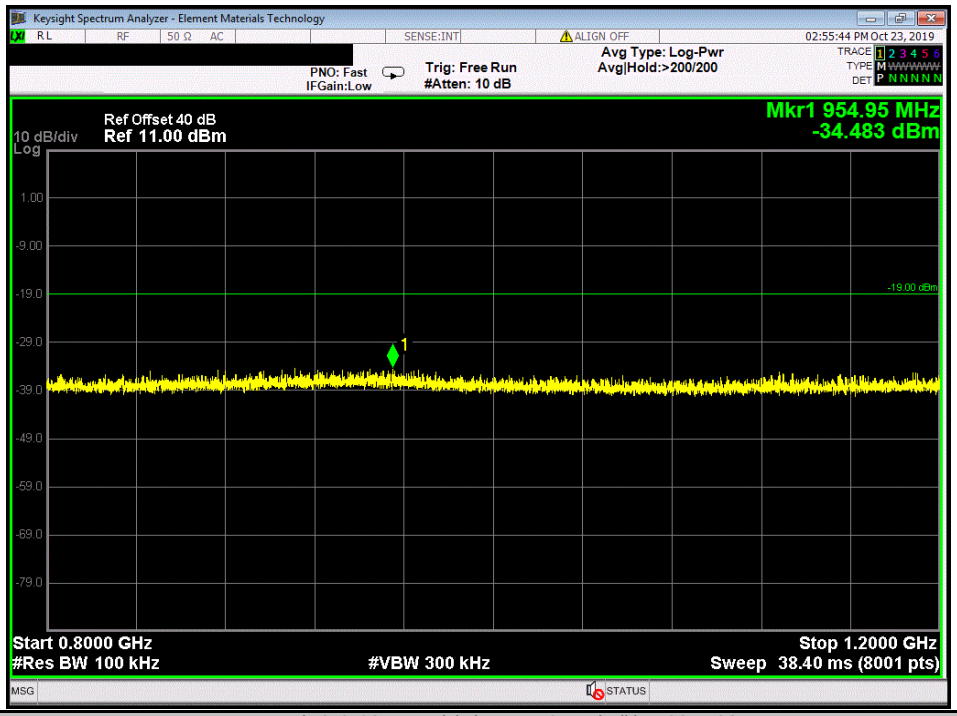
Band 13, 256QAM Modulation, LTE10 Bandwdith, 20MHz-600MHz						
				Value (dBm)	Limit (dBm)	Result
				-32.73	-19	Pass



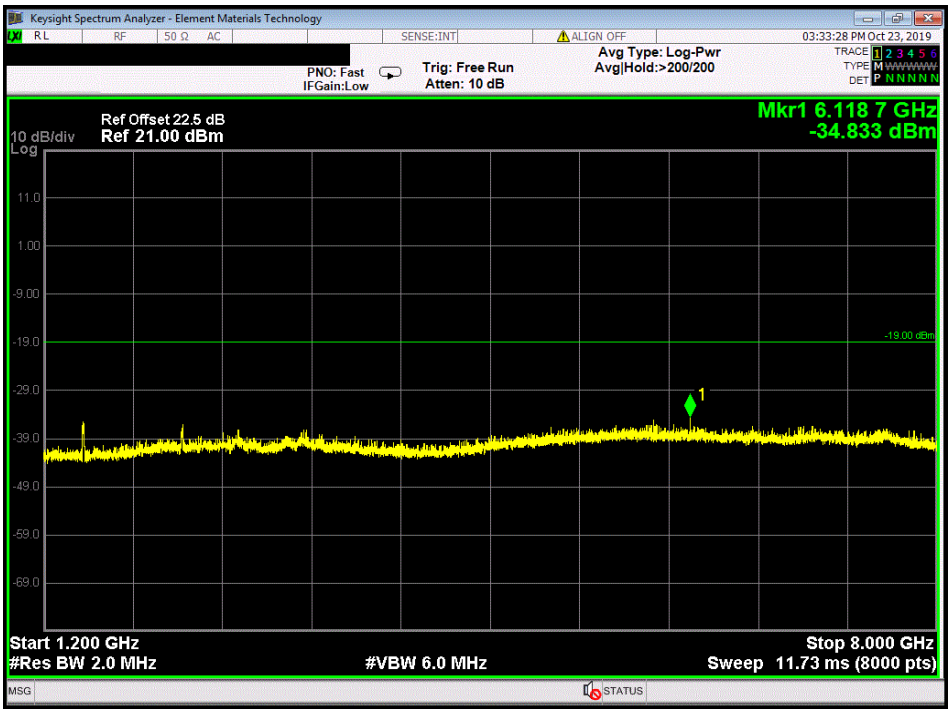
Band 13, 256QAM Modulation, LTE10 Bandwdith, 600MHz-800MHz						
				Value (dBm)	Limit (dBm)	Result
				-37.674	-19	Pass



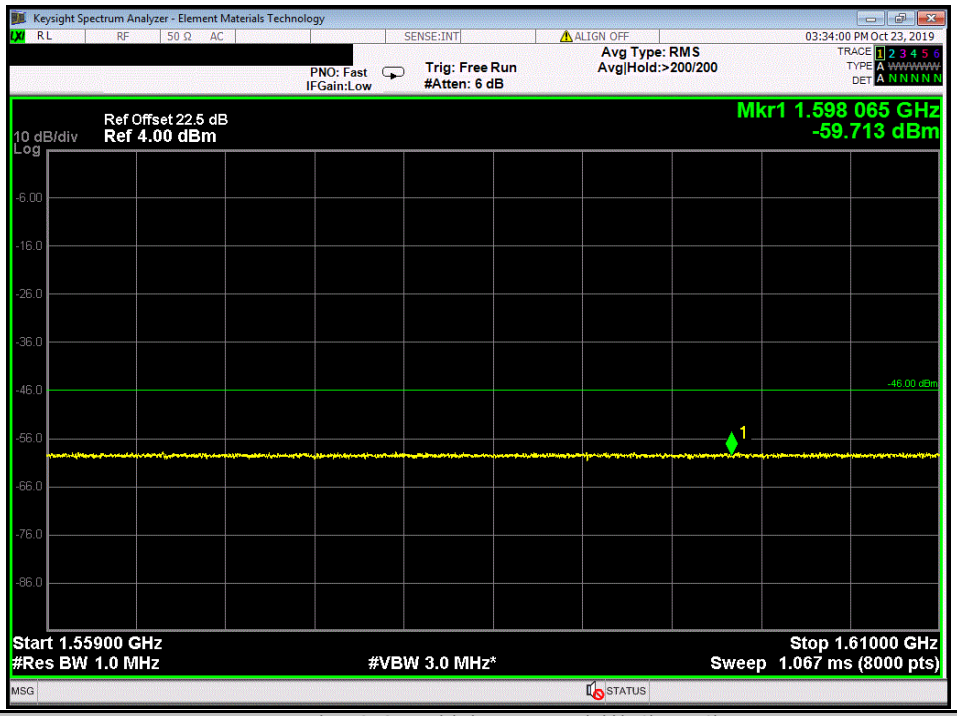
Band 13, 256QAM Modulation, LTE10 Bandwdith, 800MHz-1.2GHz							
					Value (dBm)	Limit (dBm)	Result
					-34.483	-19	Pass



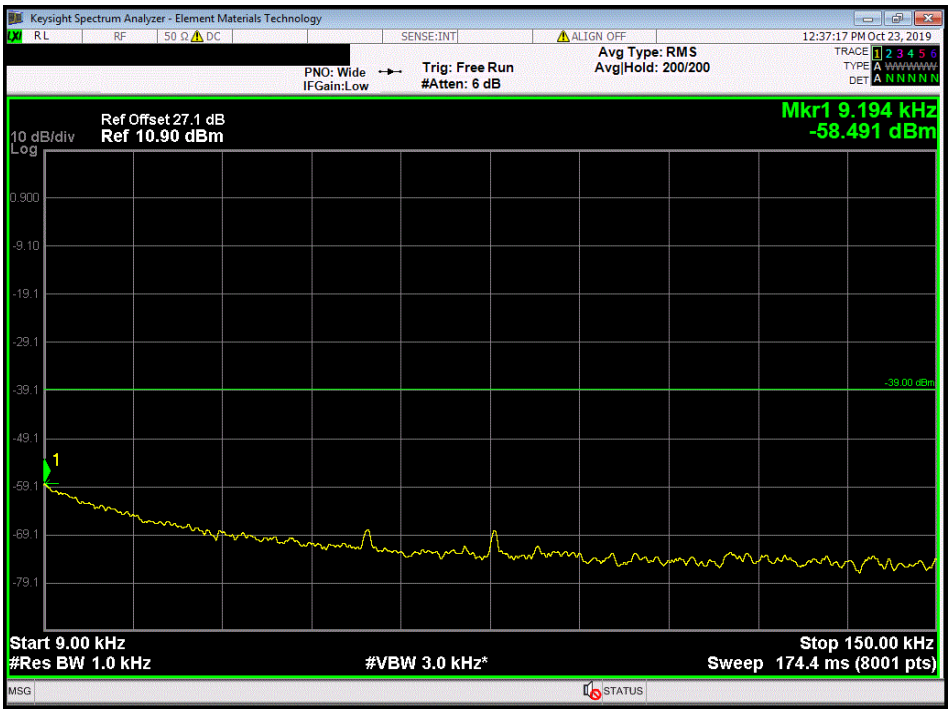
Band 13, 256QAM Modulation, LTE10 Bandwdith, 1.2GHz-8GHz							
					Value (dBm)	Limit (dBm)	Result
					-34.833	-19	Pass



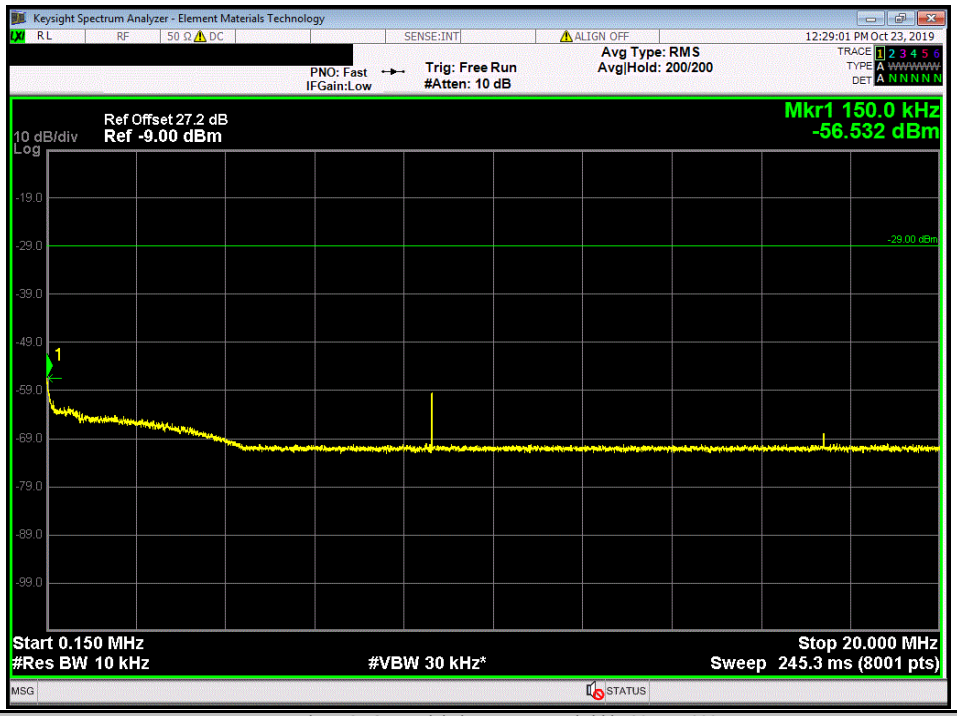
Band 13, 256QAM Modulation, LTE10 Bandwdith, 1559MHz-1610MHz						
				Value (dBm)	Limit (dBm)	Result
				-59.713	-46	Pass



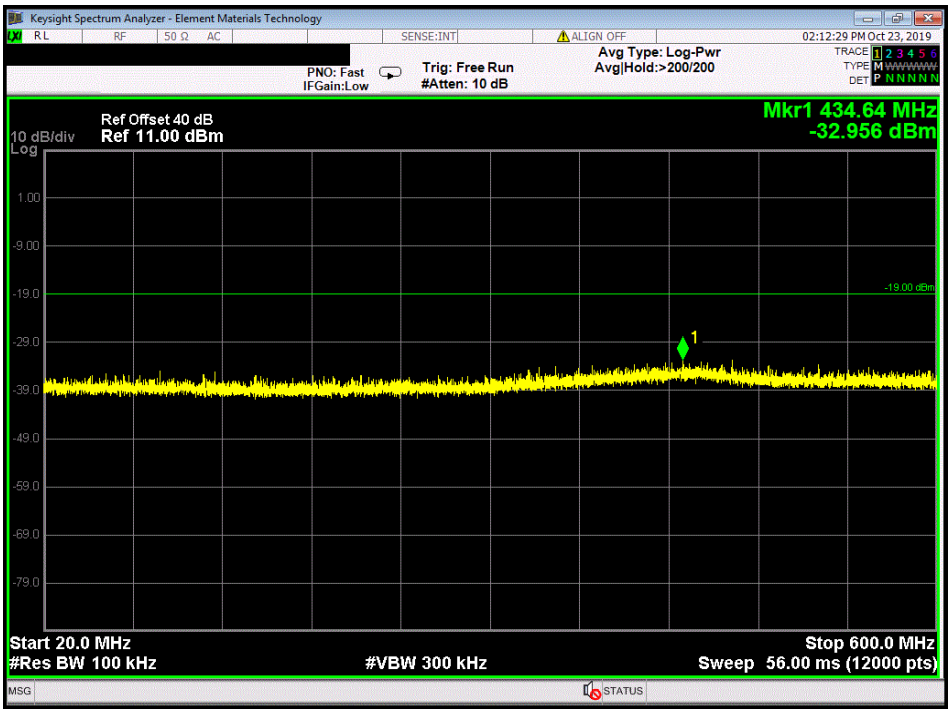
Band 71, QPSK Modulation, LTE5 Bandwidth, 9kHz-150kHz						
				Value (dBm)	Limit (dBm)	Result
				-58.491	-39	Pass



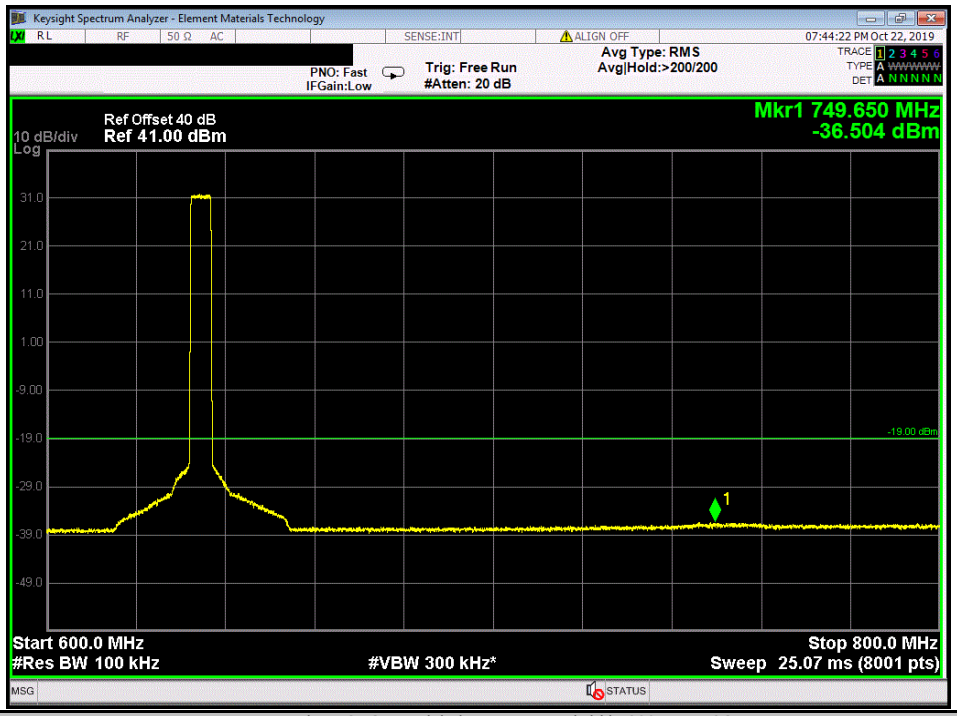
Band 71, QPSK Modulation, LTE5 Bandwidth, 150kHz-20MHz							
					Value (dBm)	Limit (dBm)	Result
					-56.532	-29	Pass



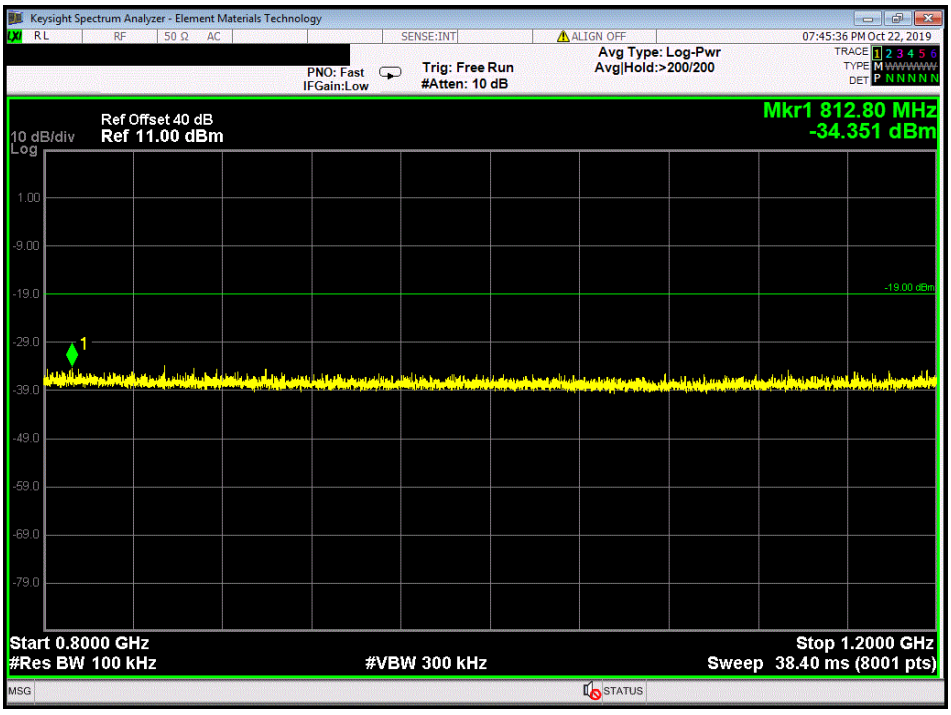
Band 71, QPSK Modulation, LTE5 Bandwidth, 20MHz-600MHz							
					Value (dBm)	Limit (dBm)	Result
					-32.956	-19	Pass



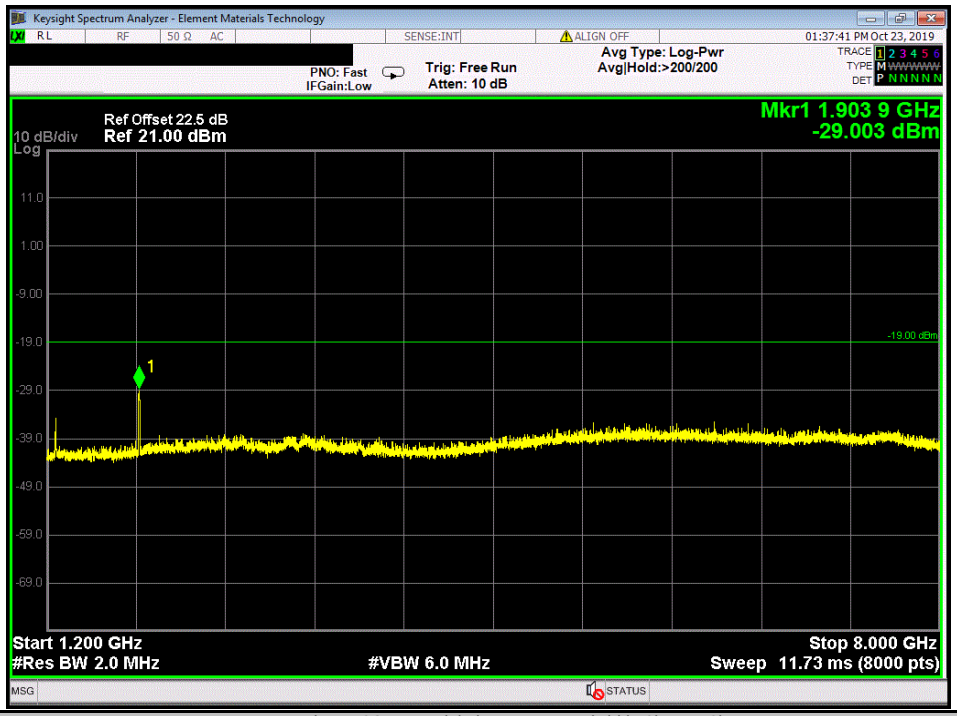
Band 71, QPSK Modulation, LTE5 Bandwidth, 600MHz-800MHz							
					Value (dBm)	Limit (dBm)	Result
					-36.504	-19	Pass



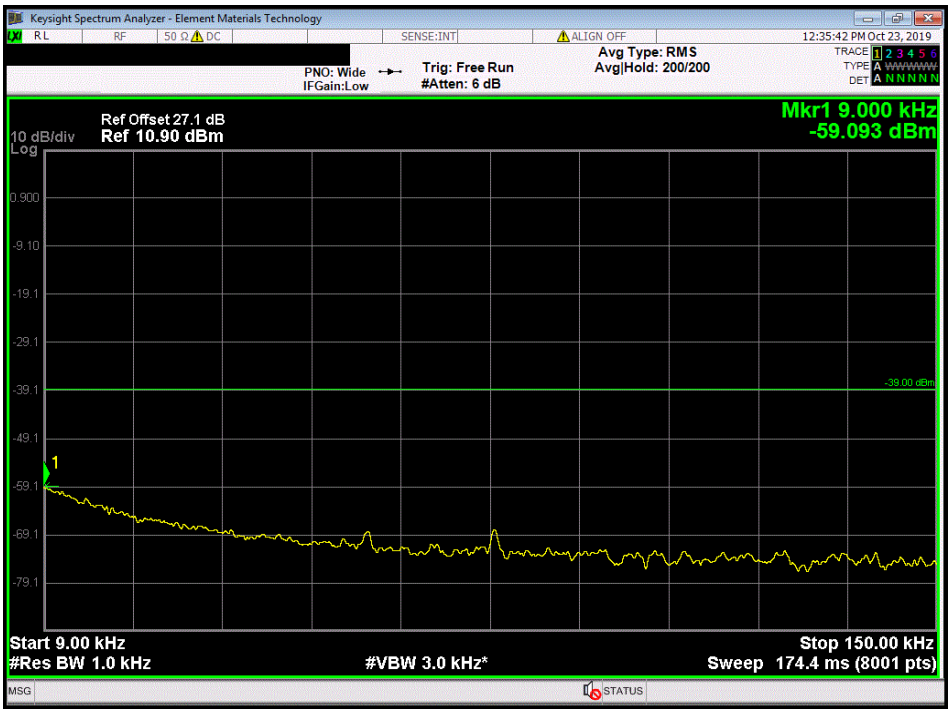
Band 71, QPSK Modulation, LTE5 Bandwidth, 800MHz-1.2GHz							
					Value (dBm)	Limit (dBm)	Result
					-34.351	-19	Pass



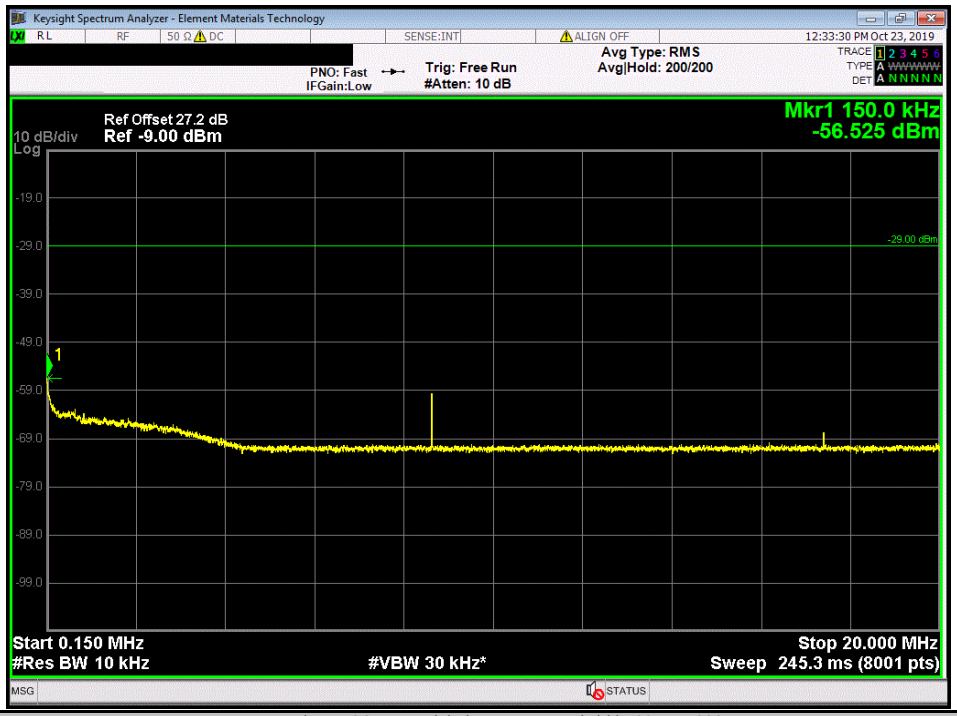
Band 71, QPSK Modulation, LTE5 Bandwidth, 1.2GHz-8GHz							
					Value (dBm)	Limit (dBm)	Result
					-29.003	-19	Pass



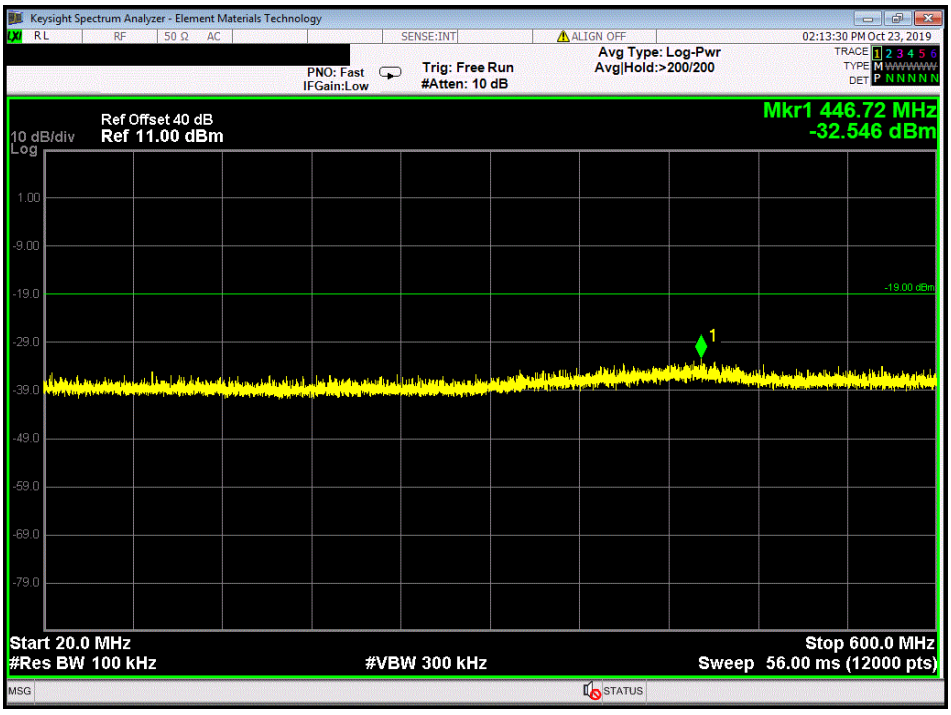
Band 71, 16QAM Modulation, LTE5 Bandwidth, 9kHz-150kHz							
					Value (dBm)	Limit (dBm)	Result
					-59.093	-39	Pass



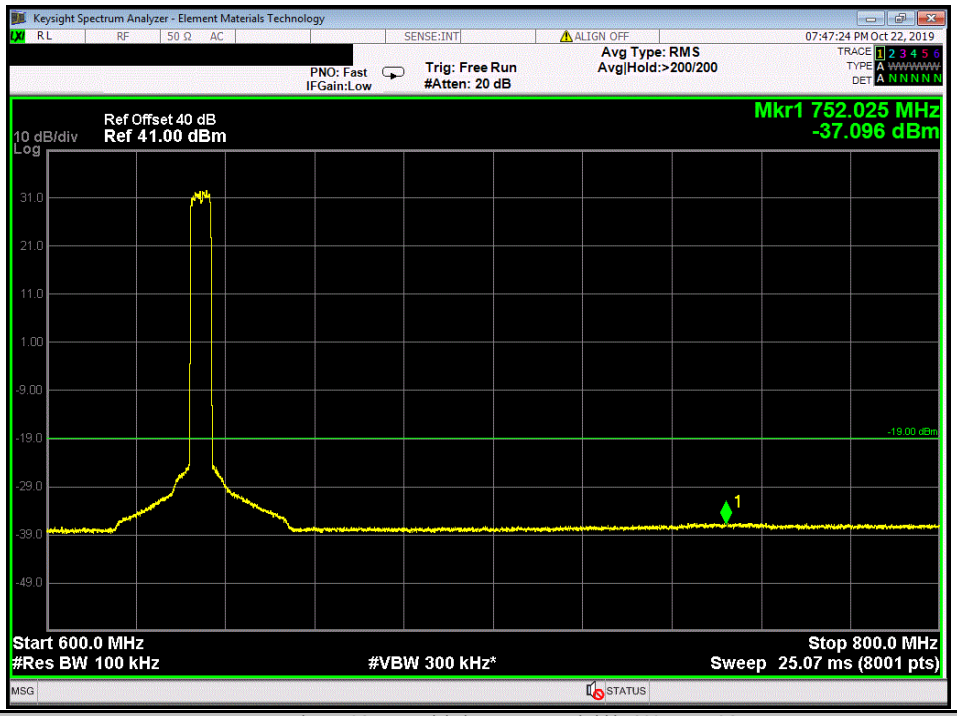
Band 71, 16QAM Modulation, LTE5 Bandwidth, 150kHz-20MHz							
					Value (dBm)	Limit (dBm)	Result
					-56.525	-29	Pass



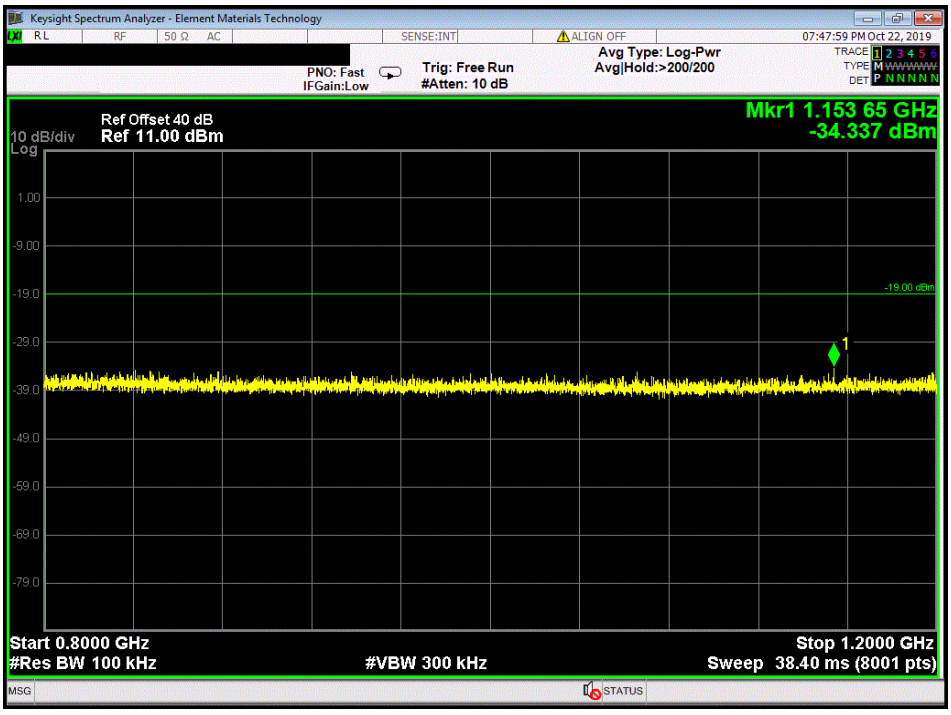
Band 71, 16QAM Modulation, LTE5 Bandwidth, 20MHz-600MHz							
					Value (dBm)	Limit (dBm)	Result
					-32.546	-19	Pass



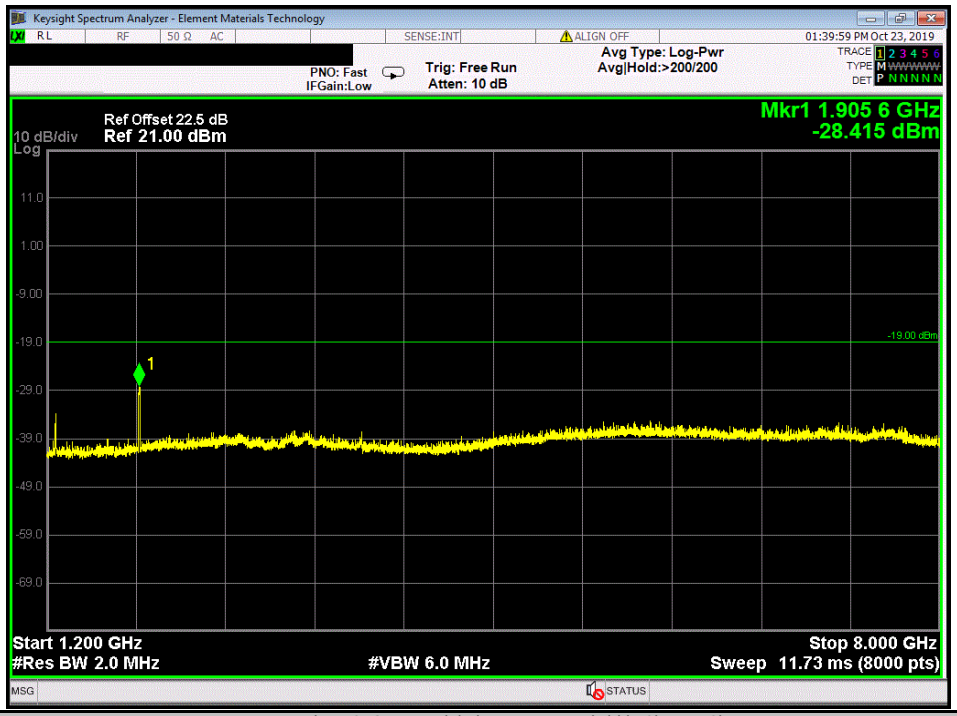
Band 71, 16QAM Modulation, LTE5 Bandwidth, 600MHz-800MHz							
					Value (dBm)	Limit (dBm)	Result
					-37.096	-19	Pass



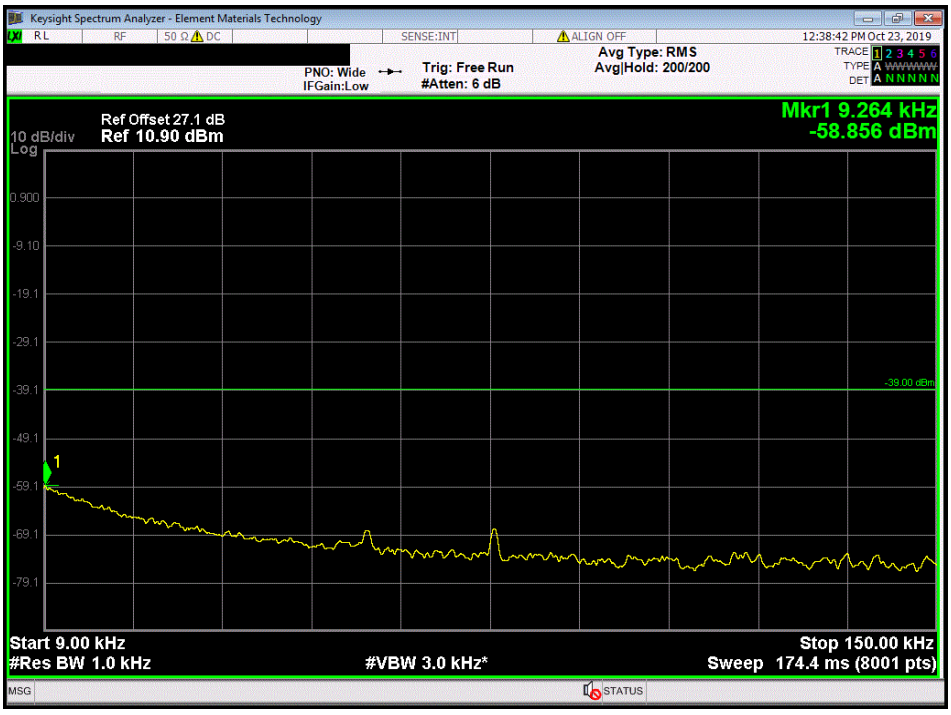
Band 71, 16QAM Modulation, LTE5 Bandwidth, 800MHz-1.2GHz							
					Value (dBm)	Limit (dBm)	Result
					-34.337	-19	Pass



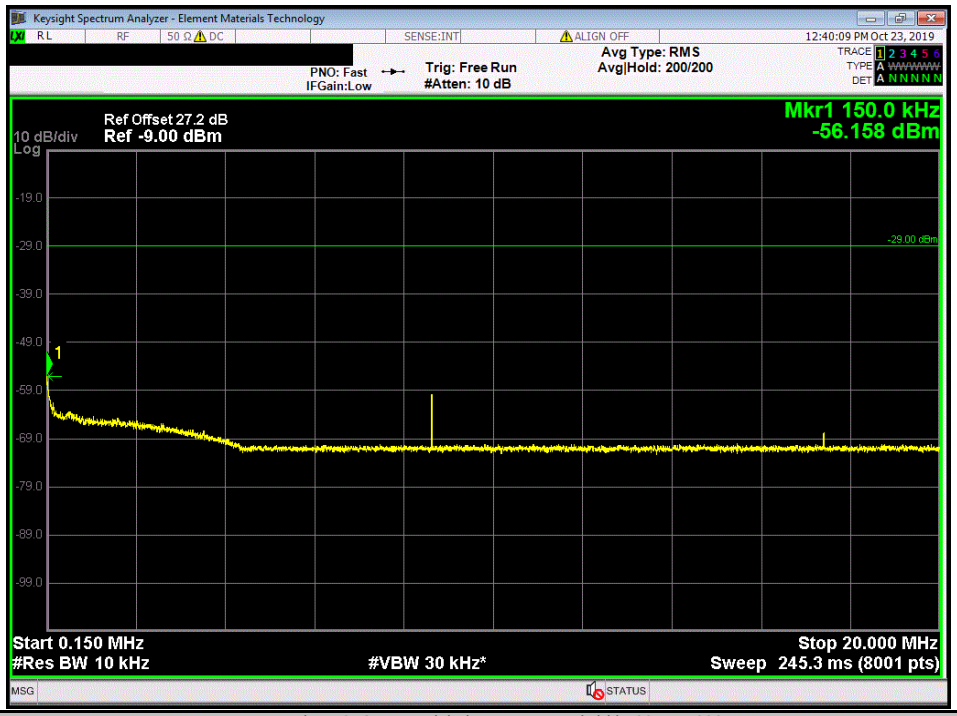
Band 71, 16QAM Modulation, LTE5 Bandwidth, 1.2GHz-8GHz							
					Value (dBm)	Limit (dBm)	Result
					-28.415	-19	Pass



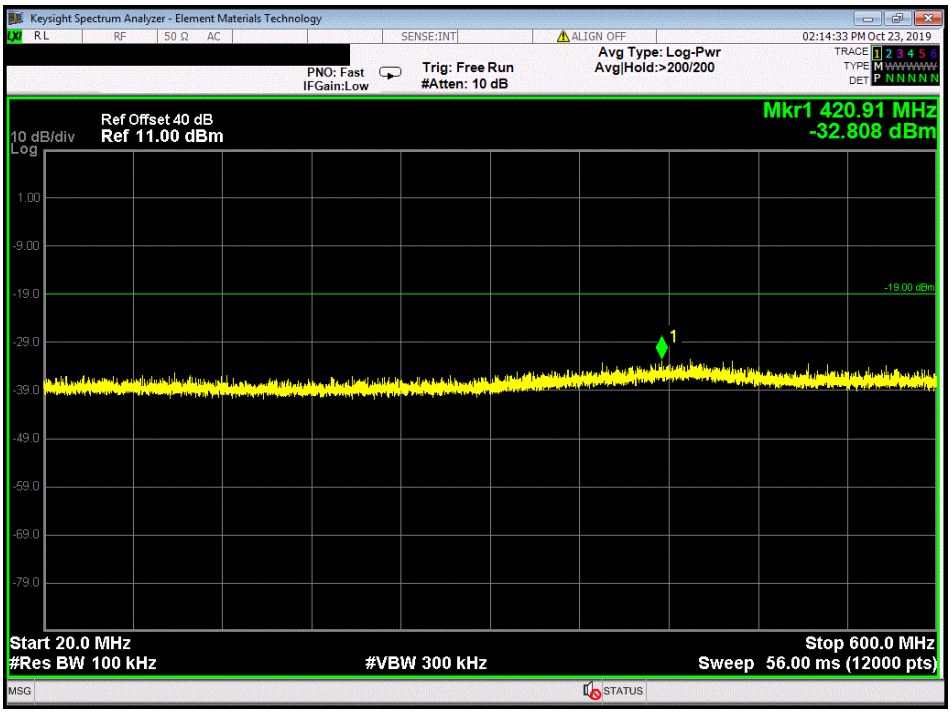
Band 71, 64QAM Modulation, LTE5 Bandwidth, 9kHz-150kHz							
					Value (dBm)	Limit (dBm)	Result
					-58.856	-39	Pass



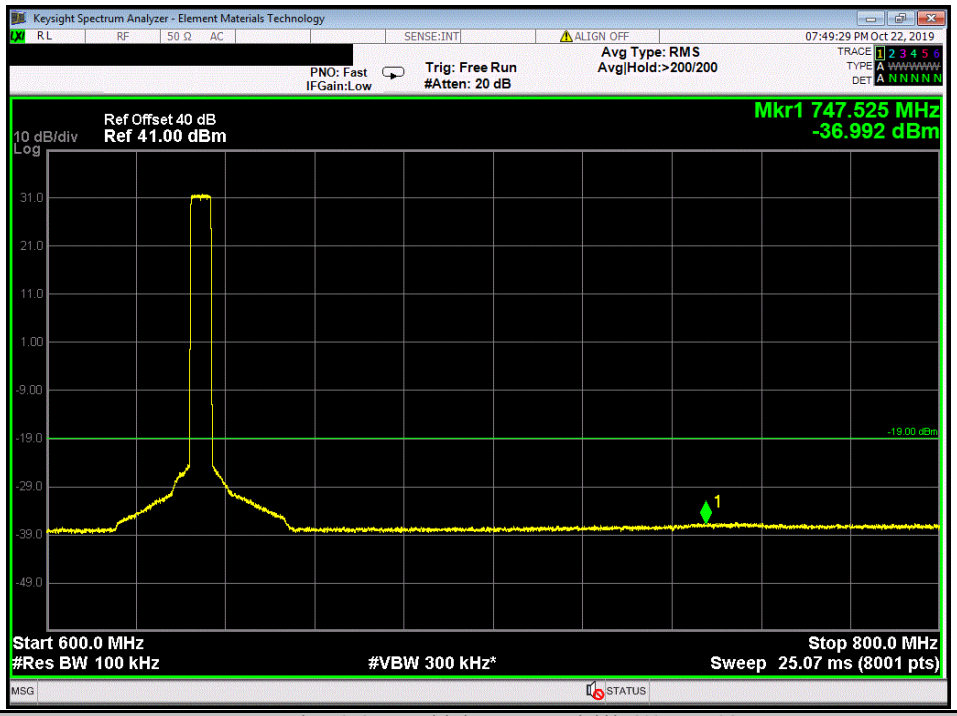
Band 71, 64QAM Modulation, LTE5 Bandwidth, 150kHz-20MHz							
					Value (dBm)	Limit (dBm)	Result
					-56.158	-29	Pass



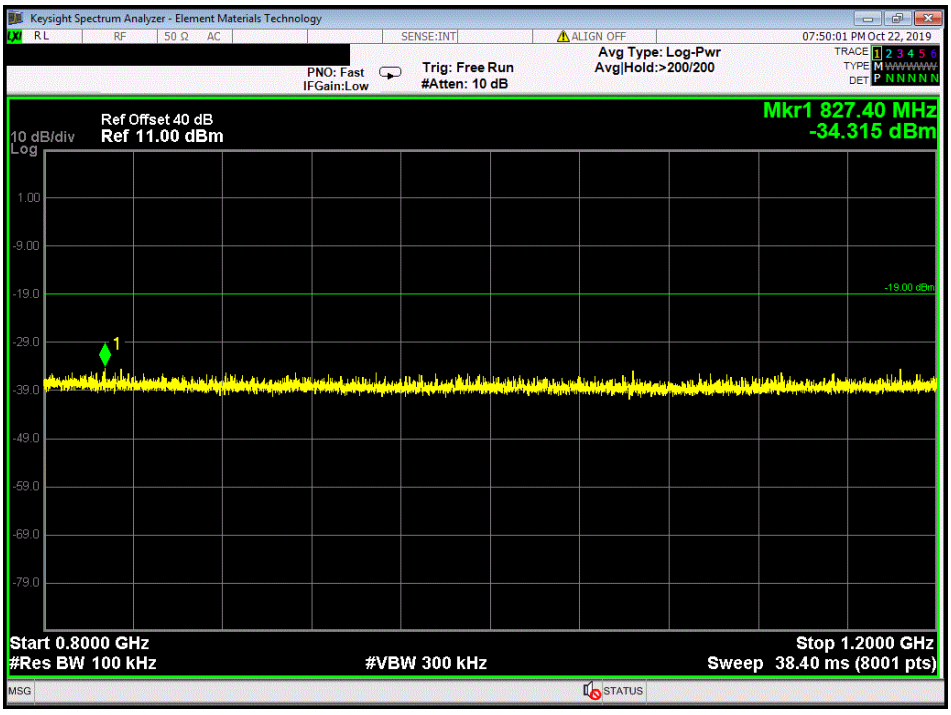
Band 71, 64QAM Modulation, LTE5 Bandwidth, 20MHz-600MHz							
					Value (dBm)	Limit (dBm)	Result
					-32.808	-19	Pass



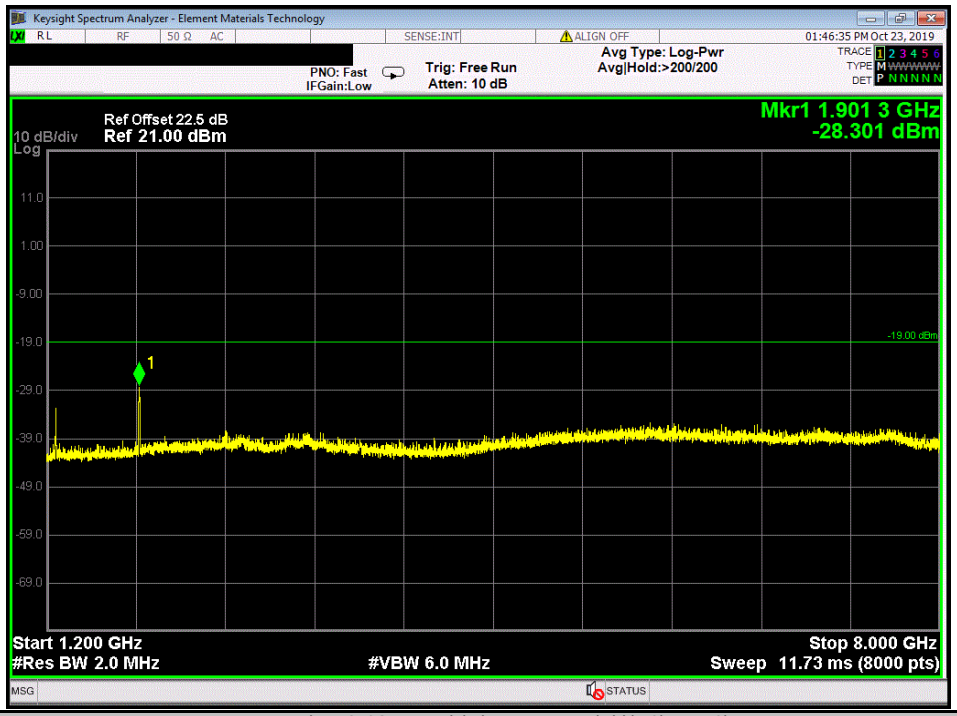
Band 71, 64QAM Modulation, LTE5 Bandwidth, 600MHz-800MHz							
					Value (dBm)	Limit (dBm)	Result
					-36.992	-19	Pass



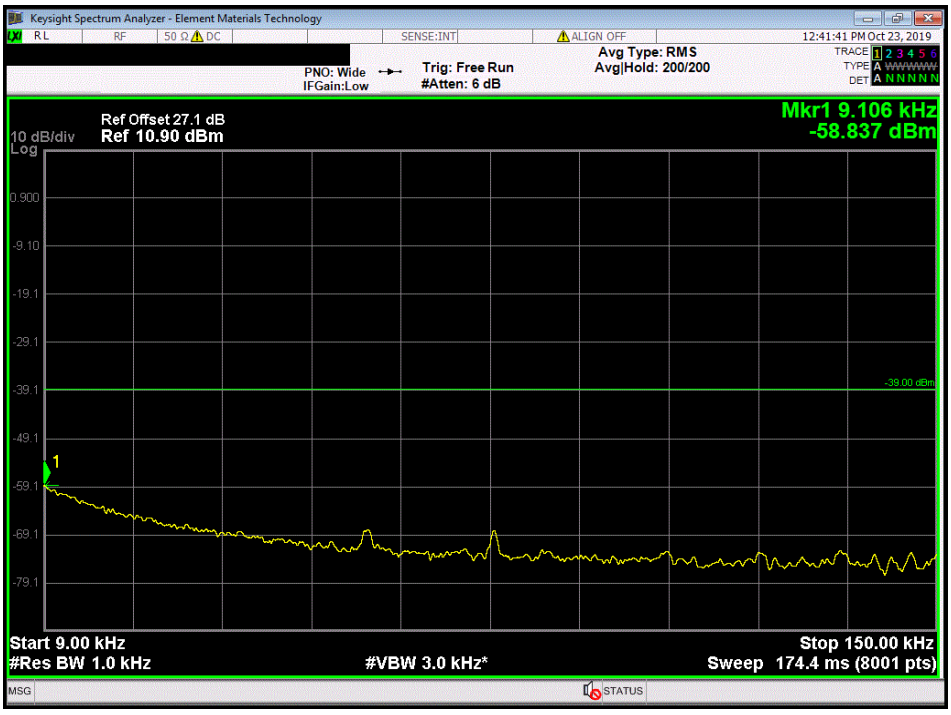
Band 71, 64QAM Modulation, LTE5 Bandwidth, 800MHz-1.2GHz							
					Value (dBm)	Limit (dBm)	Result
					-34.315	-19	Pass



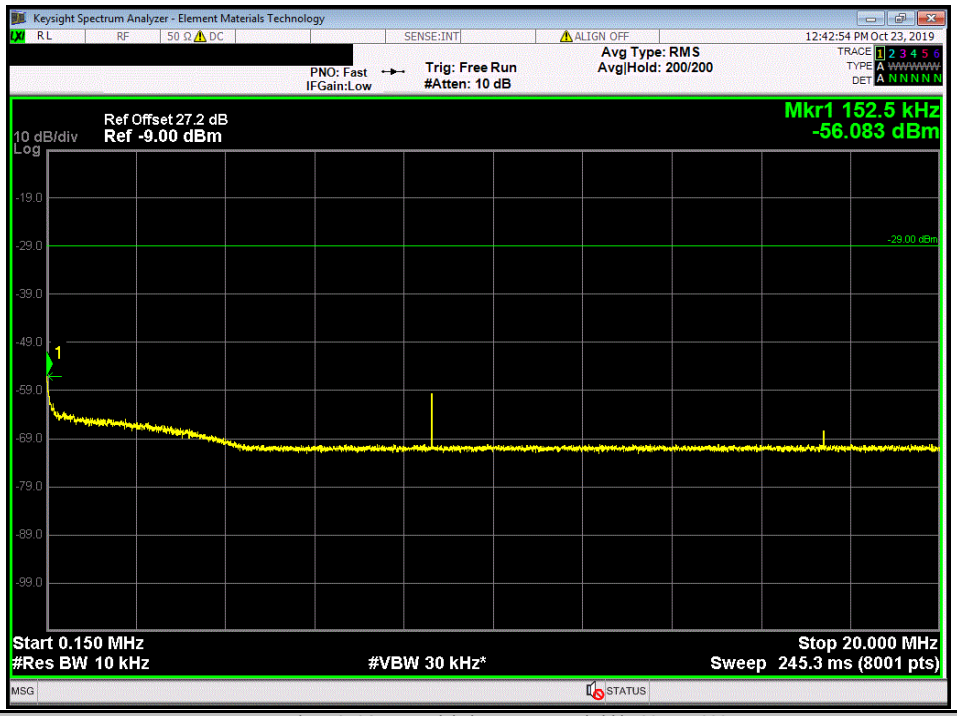
Band 71, 64QAM Modulation, LTE5 Bandwidth, 1.2GHz-8GHz							
					Value (dBm)	Limit (dBm)	Result
					-28.301	-19	Pass



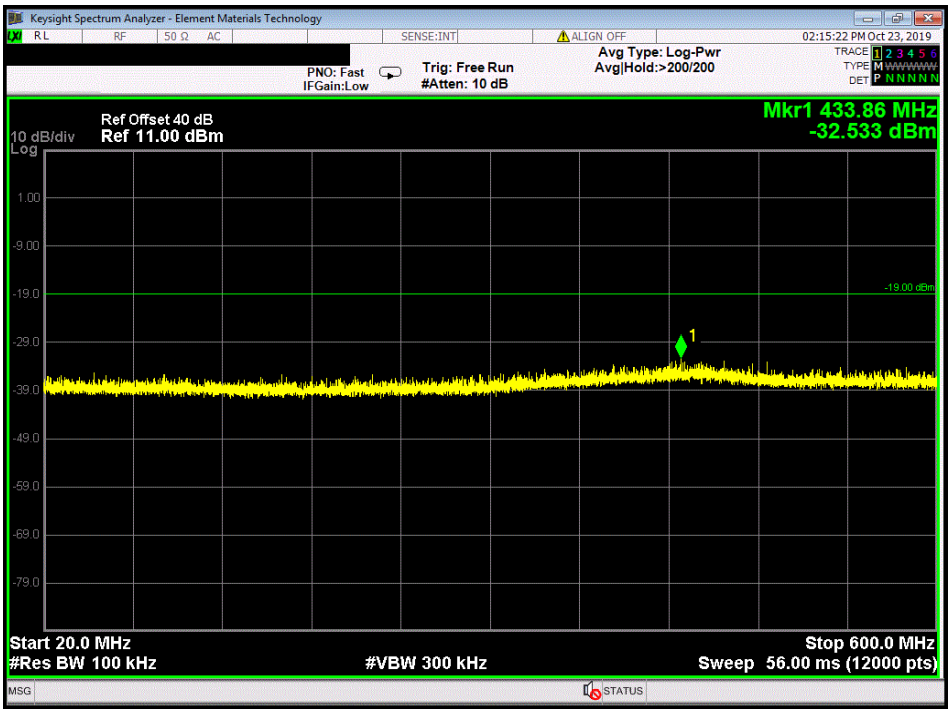
Band 71, 256QAM Modulation, LTE5 Bandwidth, 9kHz-150kHz							
					Value (dBm)	Limit (dBm)	Result
					-58.837	-39	Pass



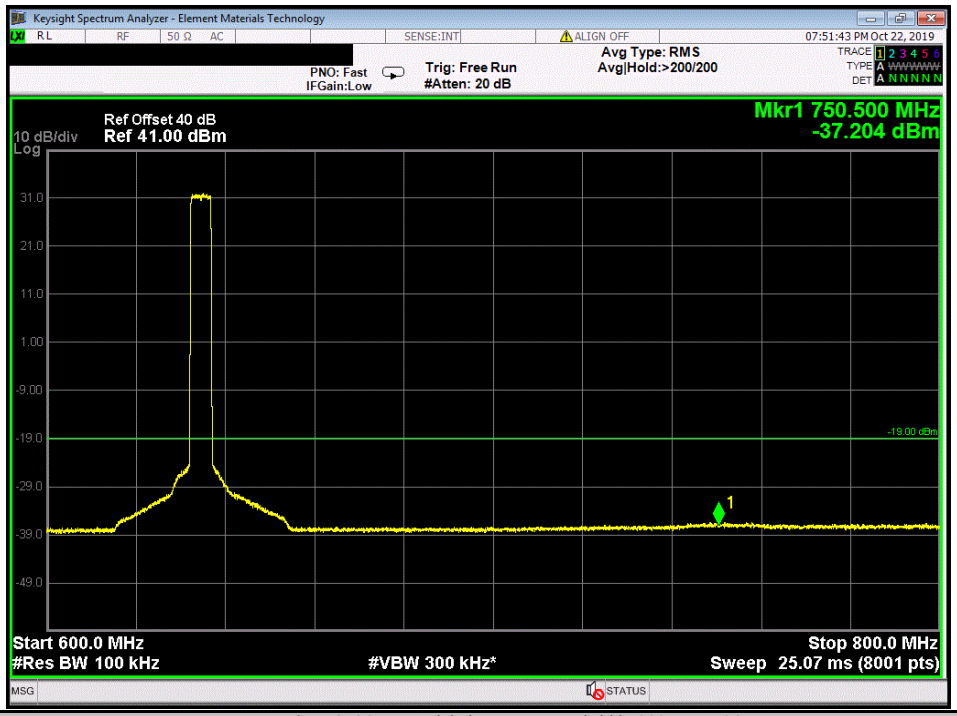
Band 71, 256QAM Modulation, LTE5 Bandwidth, 150kHz-20MHz							
					Value (dBm)	Limit (dBm)	Result
					-56.083	-29	Pass



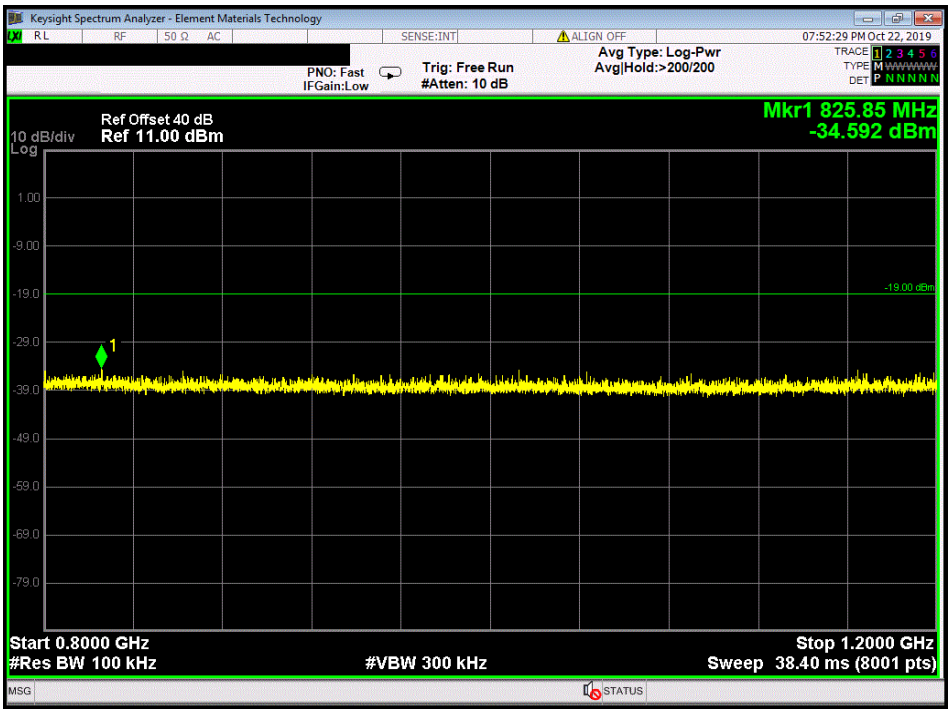
Band 71, 256QAM Modulation, LTE5 Bandwidth, 20MHz-600MHz							
					Value (dBm)	Limit (dBm)	Result
					-32.533	-19	Pass



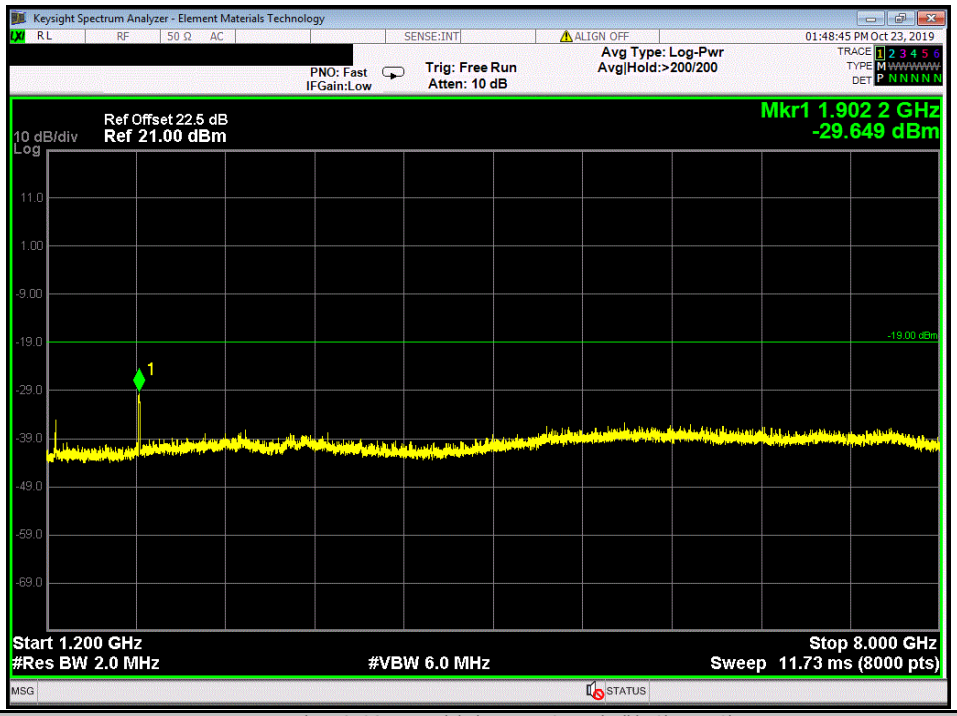
Band 71, 256QAM Modulation, LTE5 Bandwidth, 600MHz-800MHz							
					Value (dBm)	Limit (dBm)	Result
					-37.204	-19	Pass



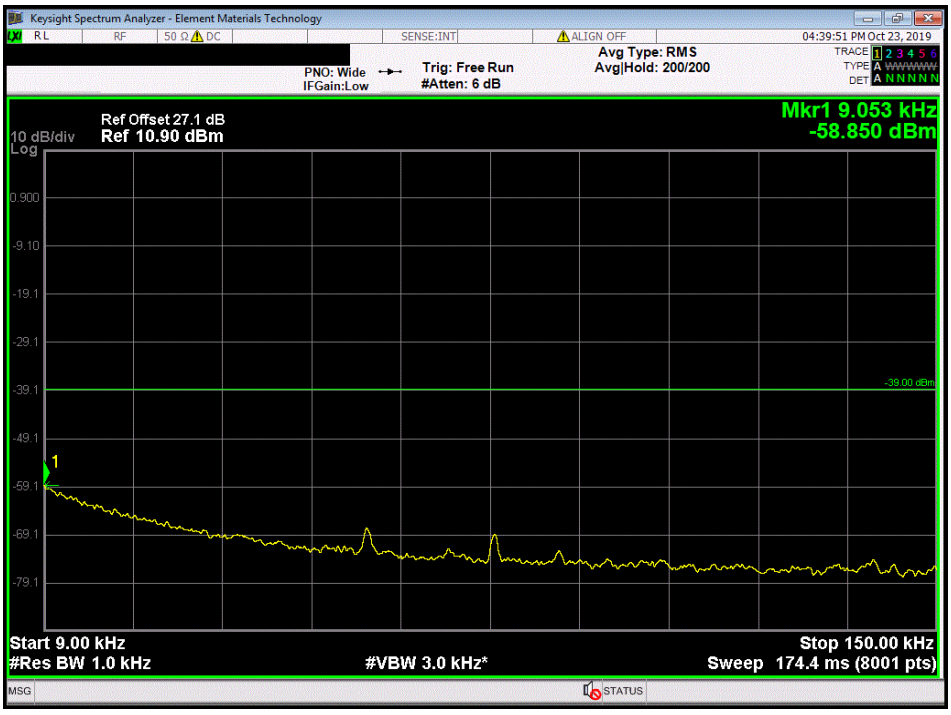
Band 71, 256QAM Modulation, LTE5 Bandwidth, 800MHz-1.2GHz							
					Value (dBm)	Limit (dBm)	Result
					-34.592	-19	Pass



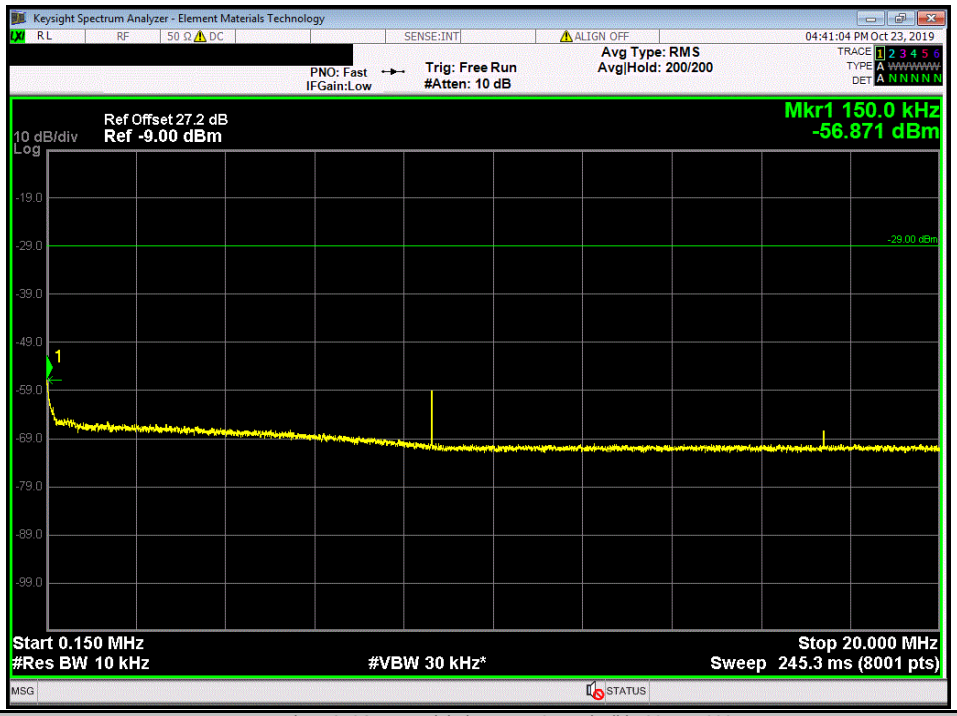
Band 71, 256QAM Modulation, LTE5 Bandwidth, 1.2GHz-8GHz							
					Value (dBm)	Limit (dBm)	Result
					-29.649	-19	Pass



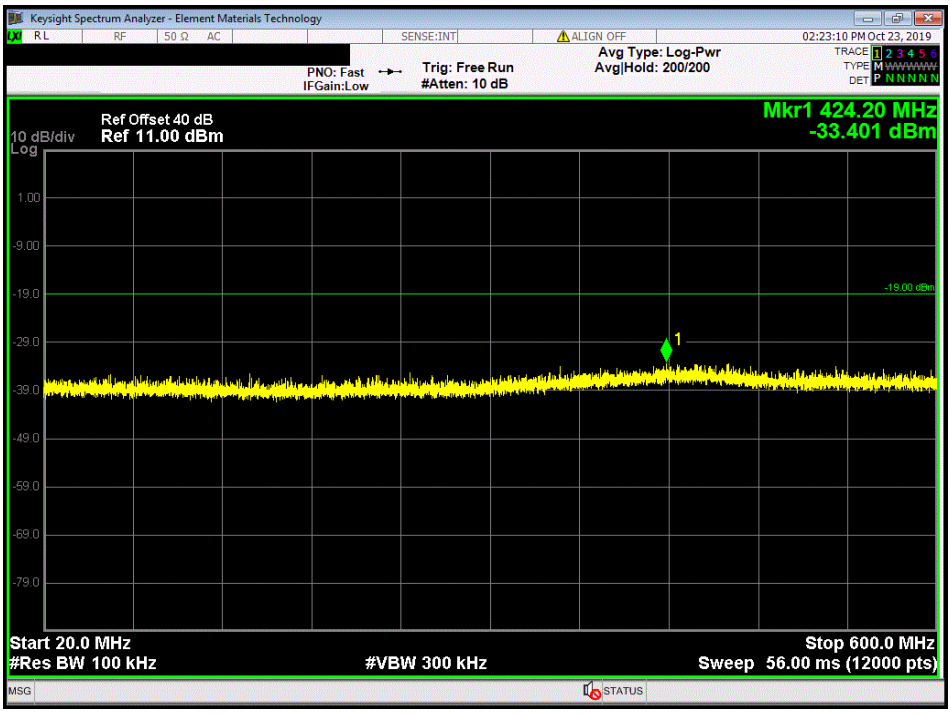
Band 71, 256QAM Modulation, LTE10 Bandwdith, 9kHz-150kHz							
					Value (dBm)	Limit (dBm)	Result
					-58.85	-39	Pass



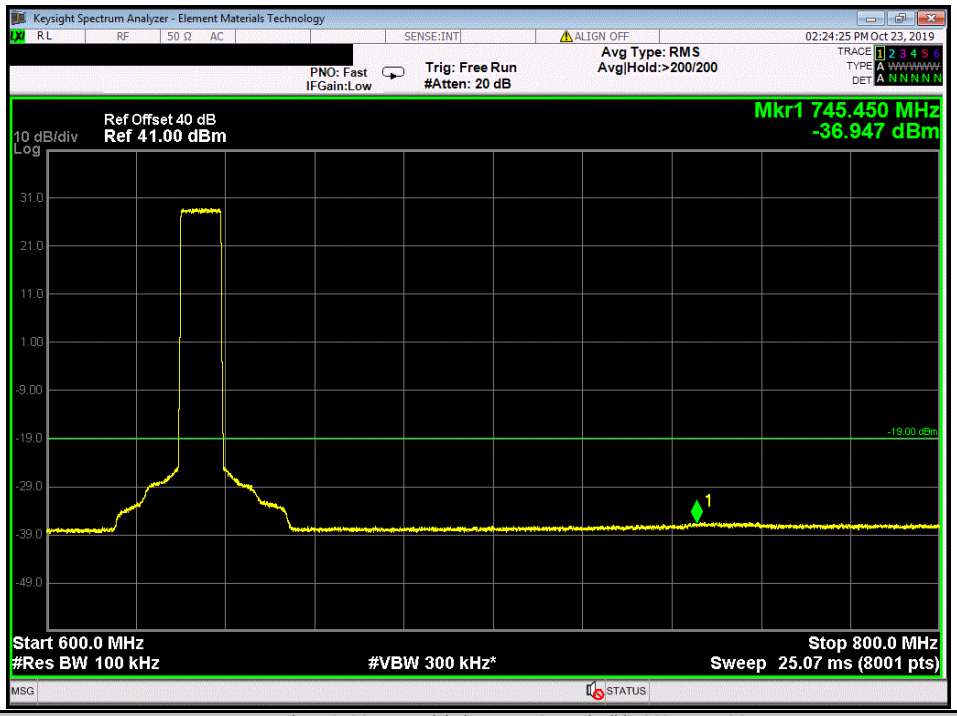
Band 71, 256QAM Modulation, LTE10 Bandwdith, 150kHz-20MHz							
					Value (dBm)	Limit (dBm)	Result
					-56.871	-29	Pass



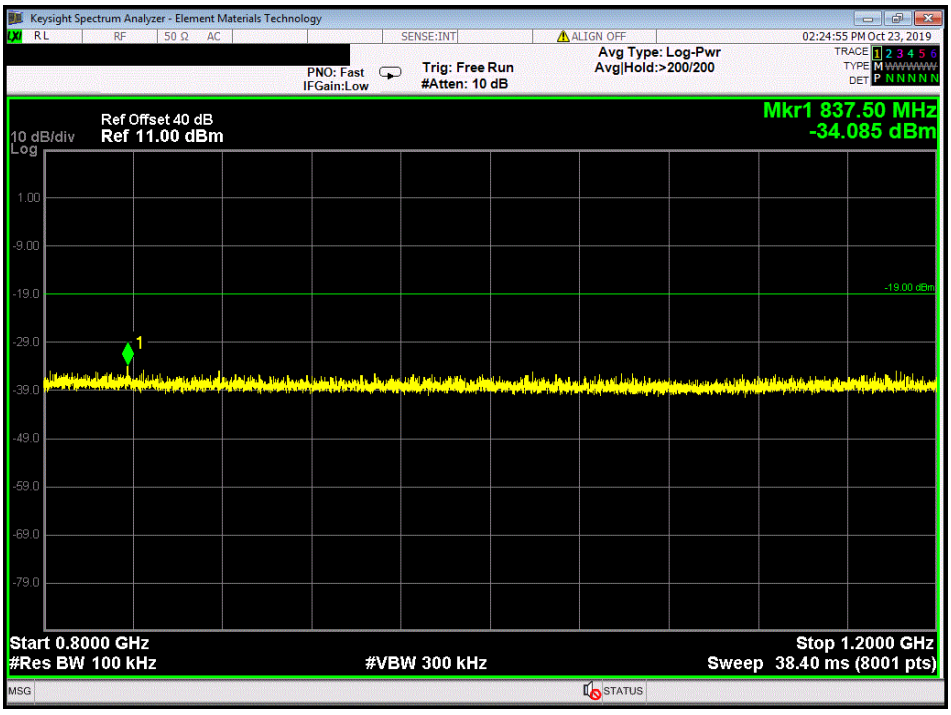
Band 71, 256QAM Modulation, LTE10 Bandwdith, 20MHz-600MHz							
					Value (dBm)	Limit (dBm)	Result
					-33.401	-29	Pass



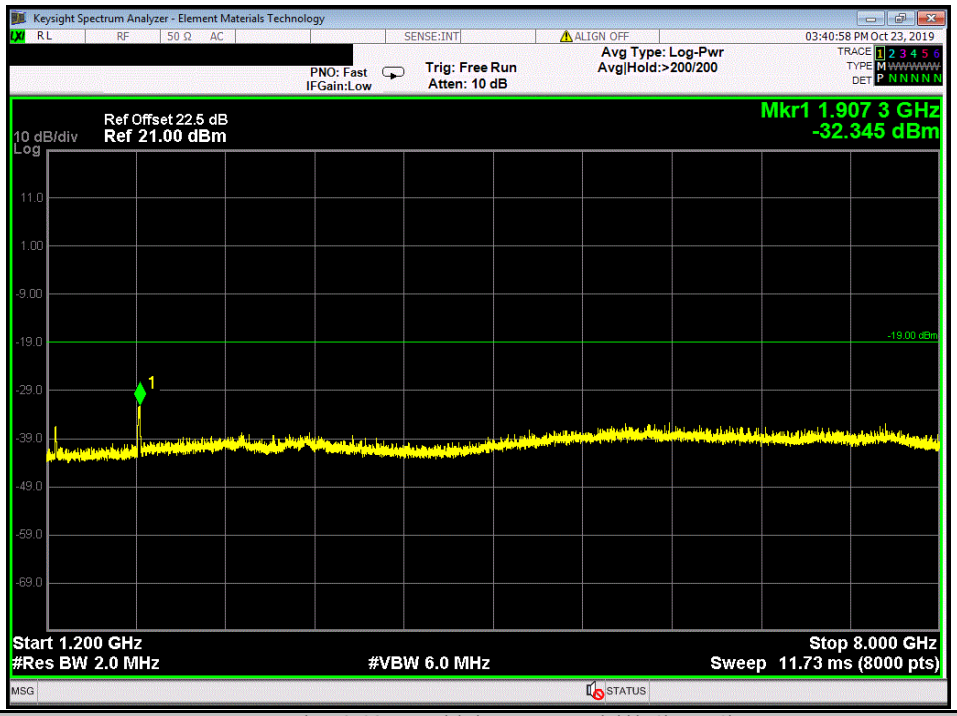
Band 71, 256QAM Modulation, LTE10 Bandwdith, 600MHz-800MHz							
					Value (dBm)	Limit (dBm)	Result
					-36.947	-19	Pass



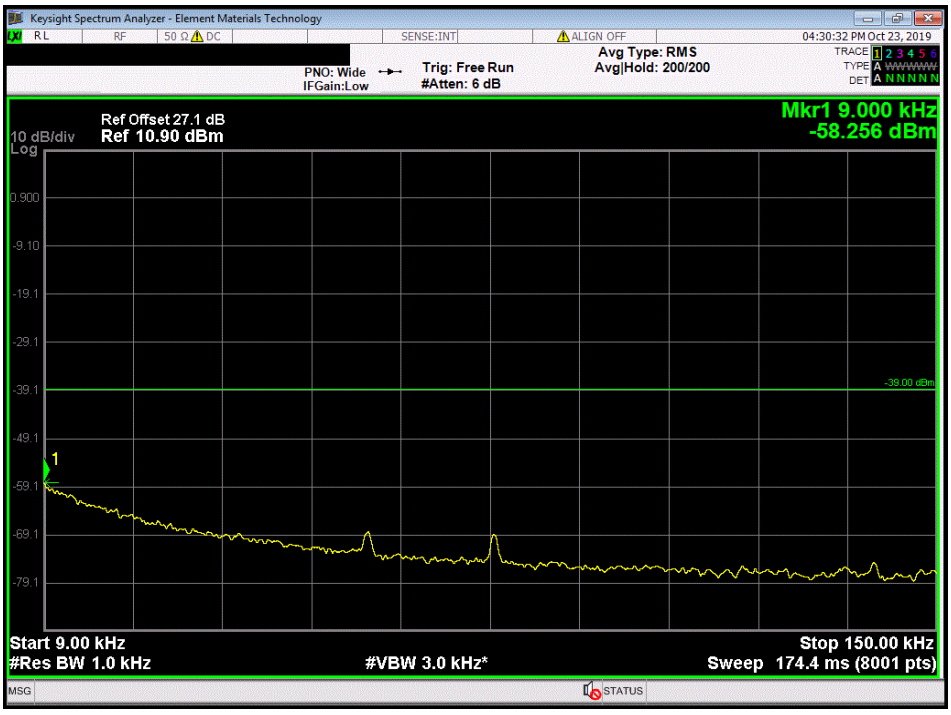
Band 71, 256QAM Modulation, LTE10 Bandwdith, 800MHz-1.2GHz							
					Value (dBm)	Limit (dBm)	Result
					-34.085	-19	Pass



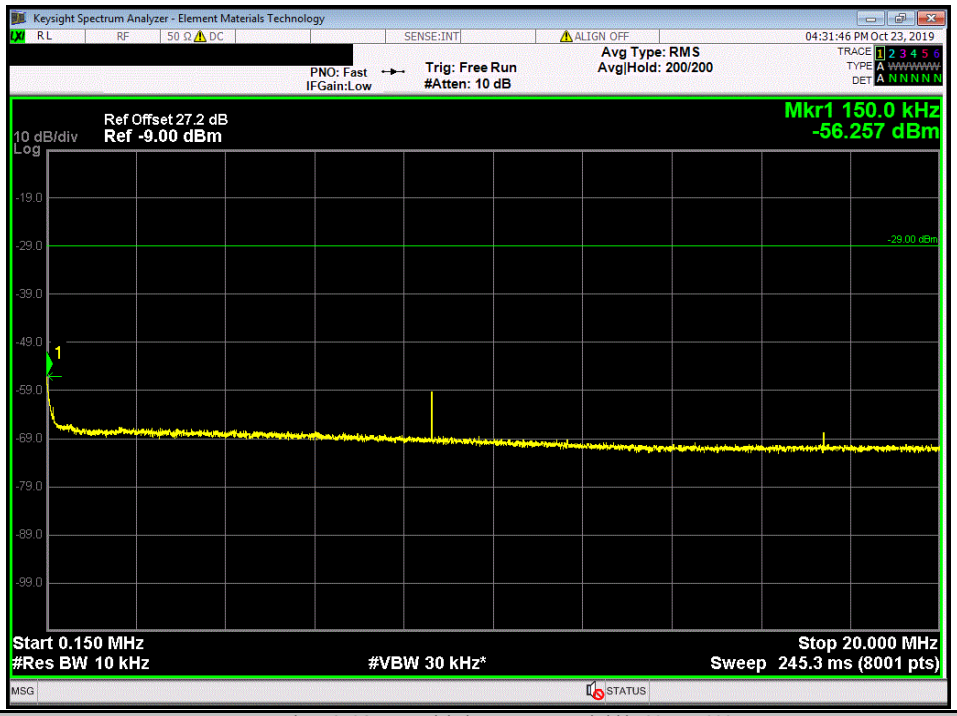
Band 71, 256QAM Modulation, LTE10 Bandwdith, 1.2GHz-8GHz							
					Value (dBm)	Limit (dBm)	Result
					-32.345	-19	Pass



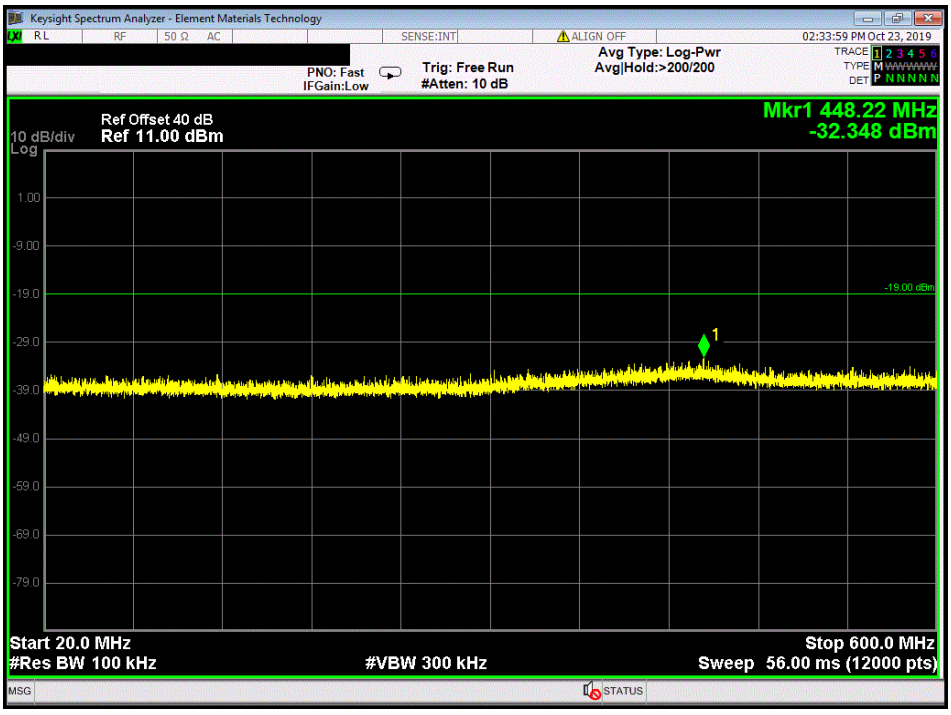
Band 71, 256QAM Modulation, LTE15 Bandwidth, 9kHz-150kHz							
					Value (dBm)	Limit (dBm)	Result
					-58.256	-39	Pass



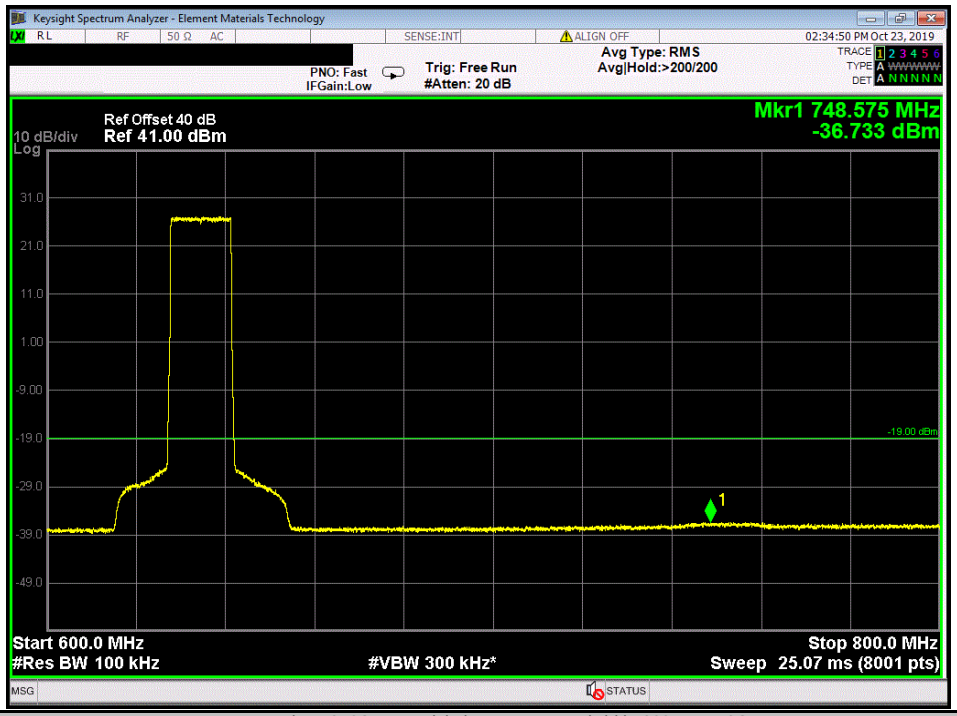
Band 71, 256QAM Modulation, LTE15 Bandwidth, 150kHz-20MHz							
					Value (dBm)	Limit (dBm)	Result
					-56.257	-29	Pass



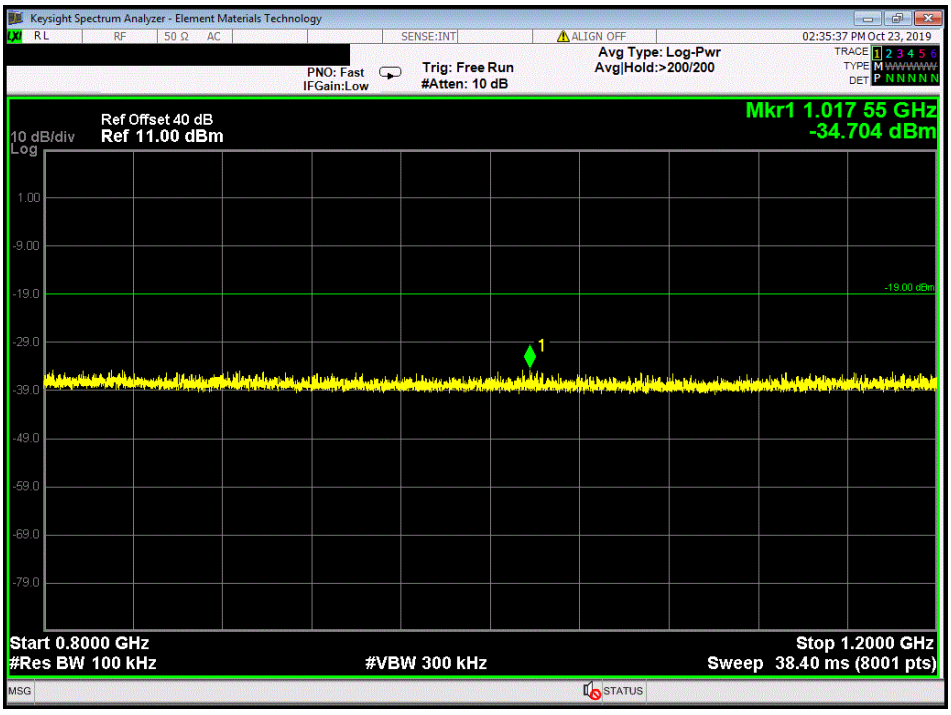
Band 71, 256QAM Modulation, LTE15 Bandwidth, 20MHz-600MHz							
					Value (dBm)	Limit (dBm)	Result
					-32.348	-19	Pass



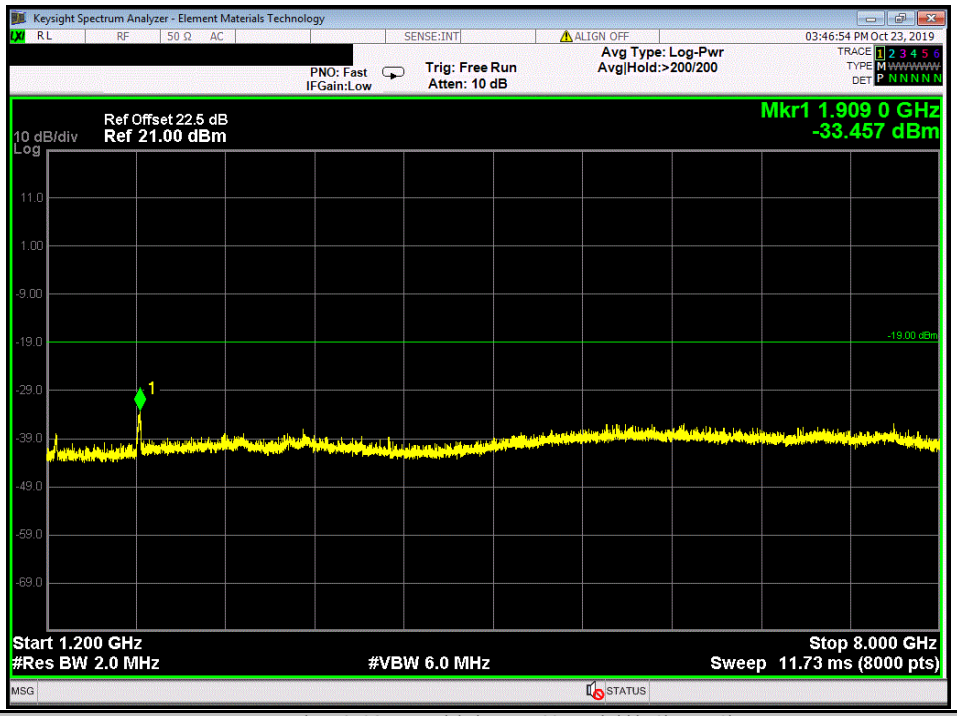
Band 71, 256QAM Modulation, LTE15 Bandwidth, 600MHz-800MHz							
					Value (dBm)	Limit (dBm)	Result
					-36.733	-19	Pass



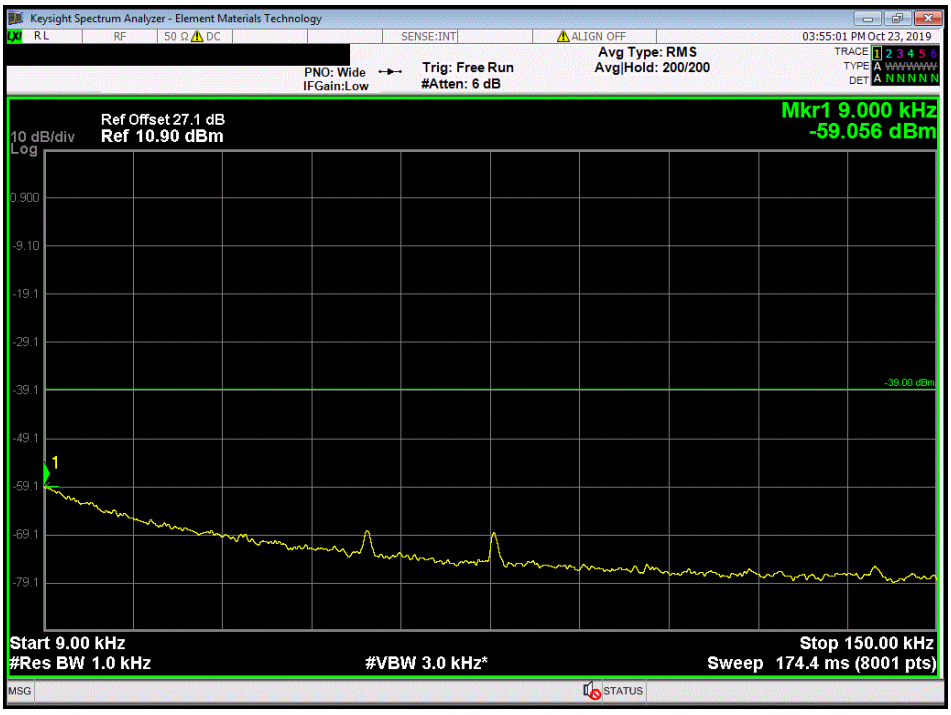
Band 71, 256QAM Modulation, LTE15 Bandwidth, 800MHz-1.2GHz							
					Value (dBm)	Limit (dBm)	Result
					-34.704	-19	Pass



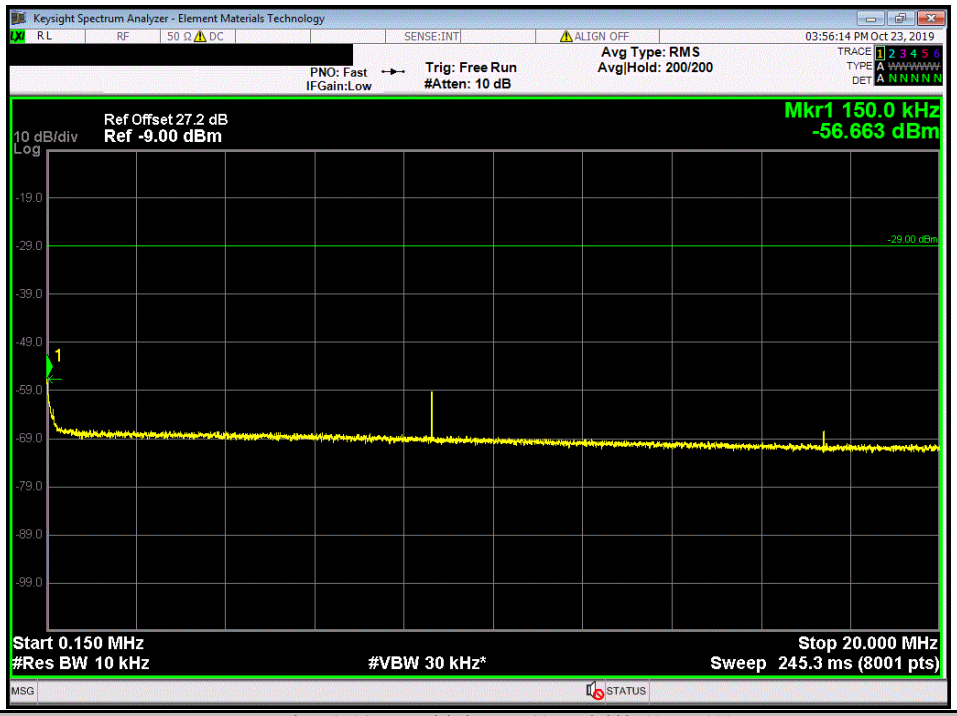
Band 71, 256QAM Modulation, LTE15 Bandwidth, 1.2GHz-8GHz							
					Value (dBm)	Limit (dBm)	Result
					-33.457	-19	Pass



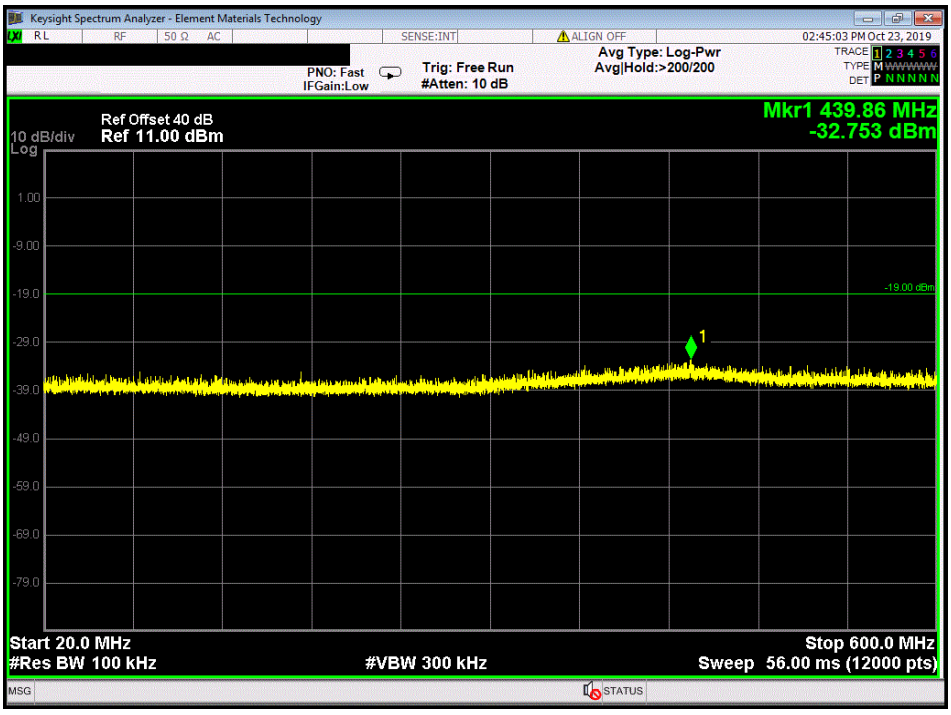
Band 71, 256QAM Modulation, LTE20 Bandwidth, 9kHz-150kHz							
					Value (dBm)	Limit (dBm)	Result
					-59.056	-39	Pass



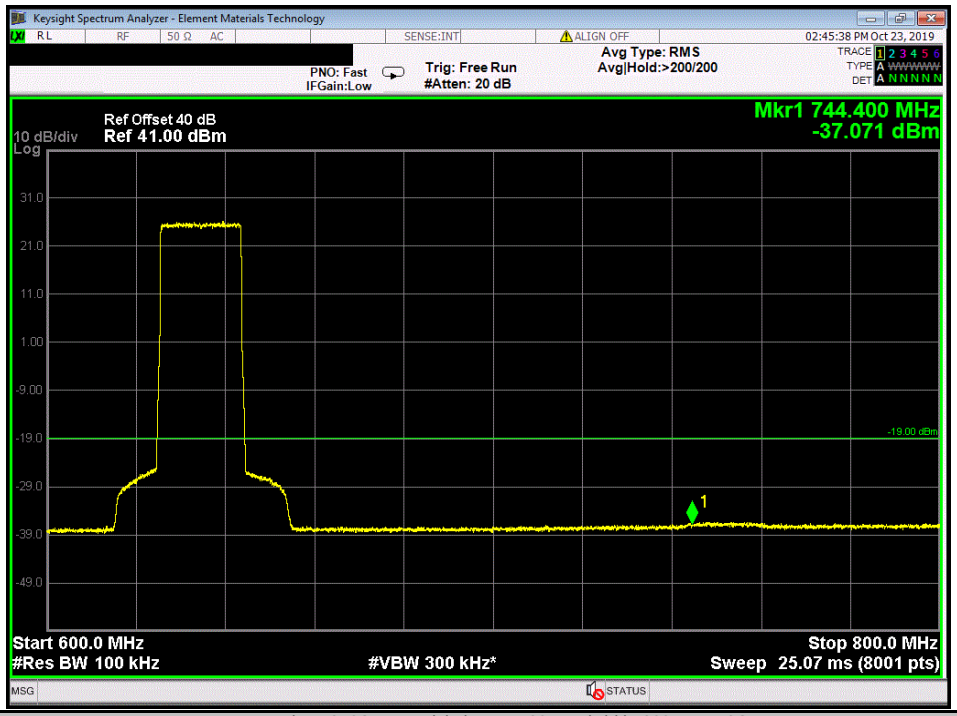
Band 71, 256QAM Modulation, LTE20 Bandwidth, 150kHz-20MHz						
				Value (dBm)	Limit (dBm)	Result
				-56.663	-29	Pass



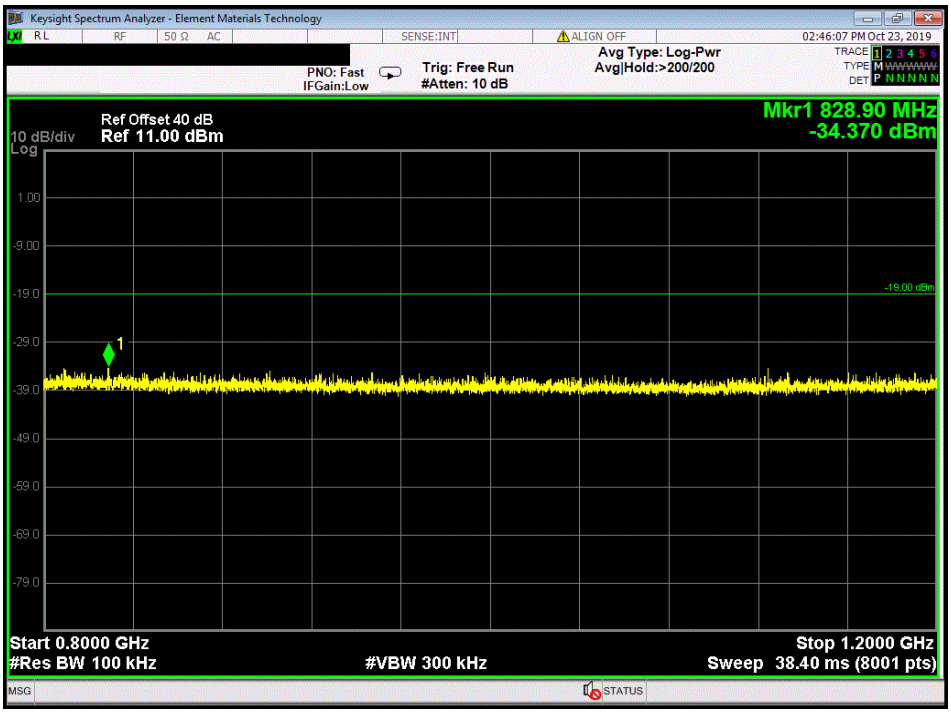
Band 71, 256QAM Modulation, LTE20 Bandwidth, 20MHz-600MHz						
				Value (dBm)	Limit (dBm)	Result
				-32.753	-19	Pass



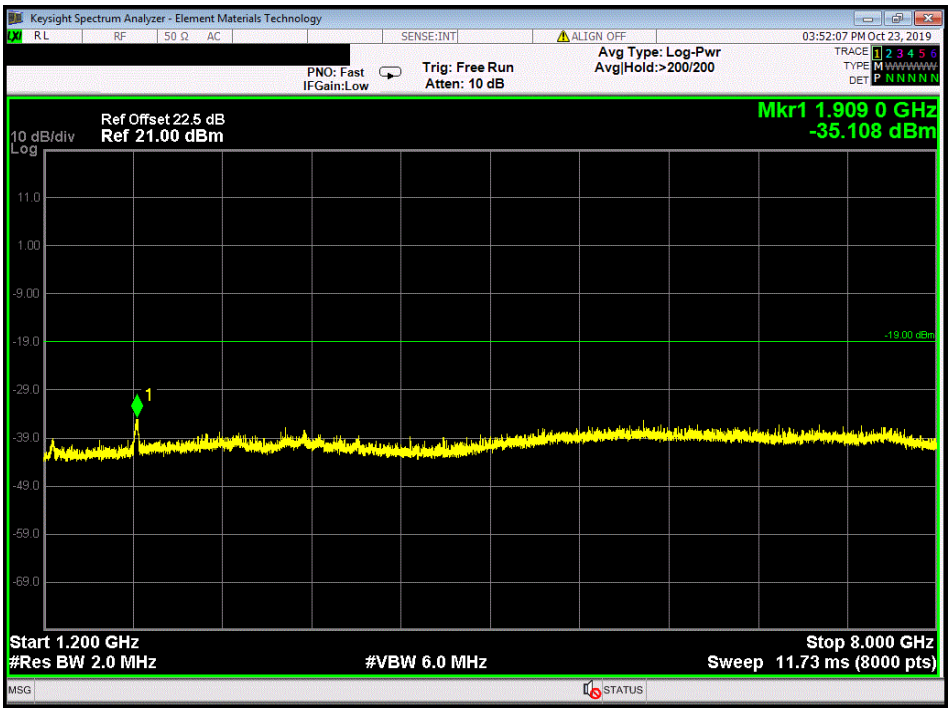
Band 71, 256QAM Modulation, LTE20 Bandwidth, 600MHz-800MHz							
					Value (dBm)	Limit (dBm)	Result
					-37.071	-19	Pass



Band 71, 256QAM Modulation, LTE20 Bandwidth, 800MHz-1.2GHz							
					Value (dBm)	Limit (dBm)	Result
					-34.37	-19	Pass



Band 71, 256QAM Modulation, LTE20 Bandwidth, 1.2GHz-8GHz						
				Value (dBm)	Limit (dBm)	Result
				-35.108	-19	Pass



SPURIOUS CONDUCTED EMISSIONS

XMit 2019.09.05

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	Keysight	N5171B-506	TEW	2-May-18	2-May-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	19-Mar-19	19-Mar-20
Generator - Signal	Agilent	E8257D	TGU	15-Feb-18	15-Feb-21

TEST DESCRIPTION

The spurious RF conducted emissions were measured with the EUT set for multiband multicarrier transmission (Low, Mid and High for Band 71; Mid for Band 13). The EUT was transmitting at the data rate(s) and bandwidths listed in the datasheet. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.
The device was configurd to enable both Band 13 & Band 71 carriers simultaneously (30Watts/carrier).

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

Band 71: Per FCC section 27.53(g), 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. FCC 27.53(g) requires a >100 kHz measurement bandwidth for emissions 100 kHz outside of the RRH operating frequency range.

Band 13: Per FCC section 27.53(c), 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. FCC section 27.53(c) requires a >100 kHz measurement bandwidth for emissions 100 kHz outside of the RRH operating frequency range.

Per section 27.53(f), for the frequency range 1559-1610 MHz the EIRP limit is -70dBW/MHz for wideband signals and -80dBW for discrete emissions of bandwidths less than 700Hz. This equates to an EIRP of -40dBm/MHz for wideband emissions and -50dBm/MHz for discrete emissions. The limit is adjusted to -46 dBm [-40 dBm -10 log (4)] for wideband signals and -56dBm [-50 dBm -10 log (4)] for discrete emissions per FCC KDB 662911D01 v02r01 because the BTS may operate as a 4 port MIMO transmitter.

SPURIOUS CONDUCTED EMISSIONS

XMit 2019.09.05

EUT:	AHBOA Remote Radio Head (RRH)			**Work Order:**	NOKI0003
Serial Number:	BL1934X1001			**Date:**	28-Oct-19
Customer:	Nokia Solutions and Networks			**Temperature:**	22.5 °C
Attendees:	John Rattanavong, Mitchell Hill			**Humidity:**	50.3% RH
Project:	None			**Barometric Pres.:**	1019 mbar
Tested by:	Jonathan Kiefer	**Power:**	48VDC	**Job Site:**	TX03

TEST SPECIFICATIONS	Test Method
FCC 27:2019	ANSI C63.26:2015

COMMENTS

Tested on highest power antenna port (Port 1). EUT is operated at 100% duty cycle. Spurious conducted emissions measurements were made for a Band 71/Band 13 multiband multicarrier test case for the 256QAM modulation type. Three Band 71/Band 13 LTE5 carriers (based upon KDB 971168 D03v01) were enabled using two carriers (with minimum spacing between carrier frequencies) at the Band 71 lower band edge [619.5MHz and 624.5MHz] and a third carrier with maximum spacing between the other two carrier frequencies [753.5MHz] at the Band 13 upper band edge.

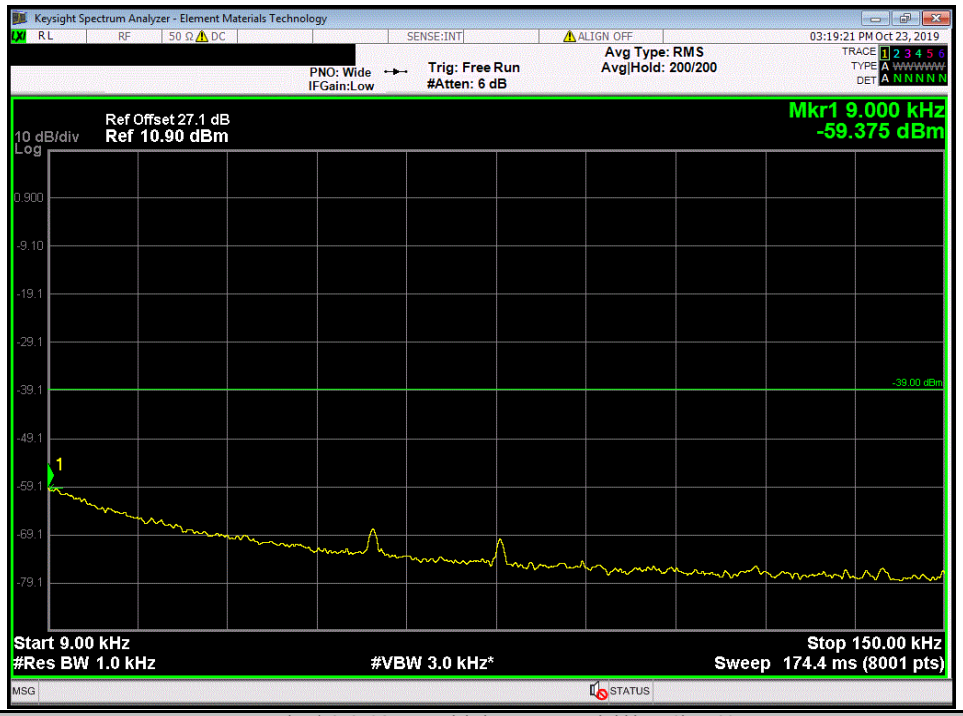
DEVIATIONS FROM TEST STANDARD

None

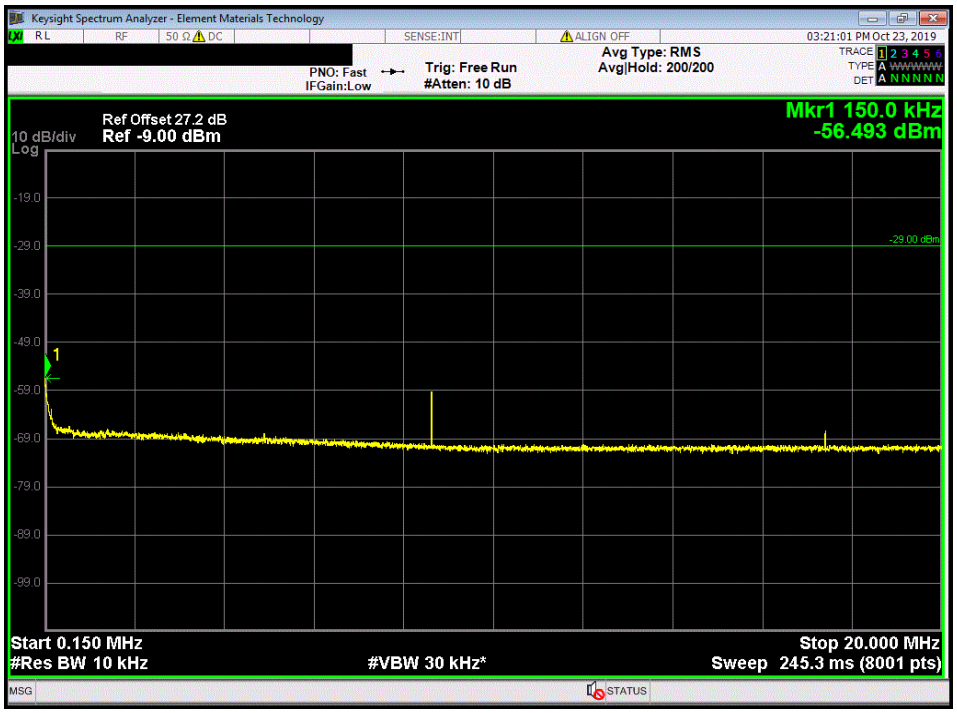
Configuration #	1, 2, 3	Signature	Jonathan Kiefer

		Value (dBm)	Limit (dBm)	Result
Band 71/13				
256QAM Modulation				
LTE5 Bandwidth				
	9kHz-150kHz	-59.375	-39	Pass
	150kHz-20MHz	-56.493	-29	Pass
	20MHz-600MHz	-28.586	-19	Pass
	600MHz-800MHz	-37.116	-19	Pass
	800MHz-1.2GHz	-31.896	-19	Pass
	1.2GHz-8GHz	-35.433	-19	Pass
	1559MHz-1610MHz	-59.293	-46	Pass

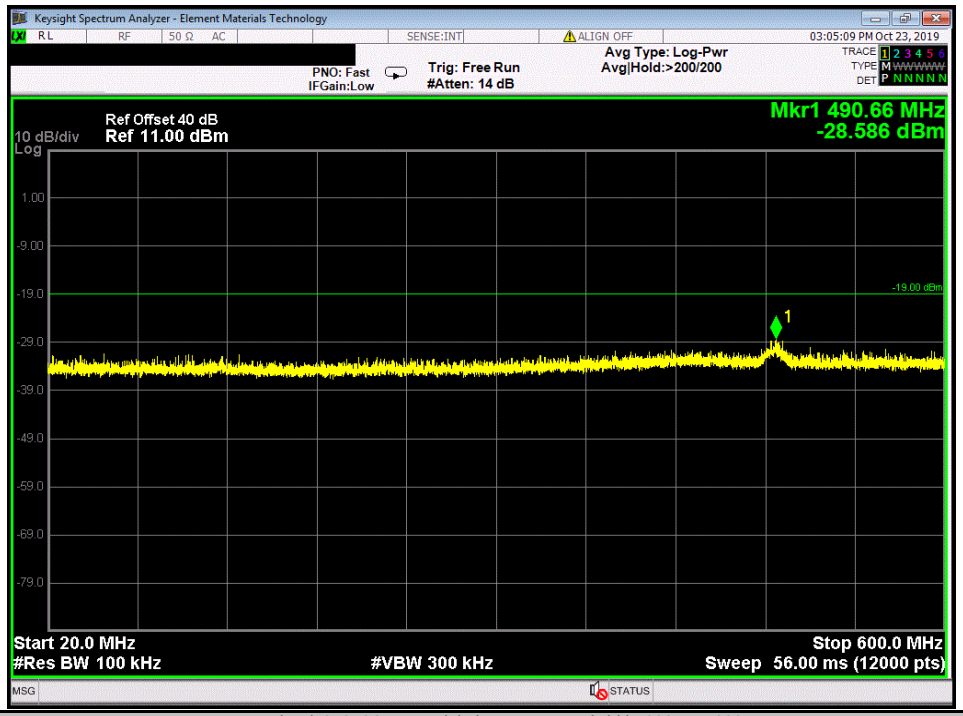
Band 71/13, 256QAM Modulation, LTE5 Bandwidth, 9kHz-150kHz							
					Value (dBm)	Limit (dBm)	Result
					-59.375	-39	Pass



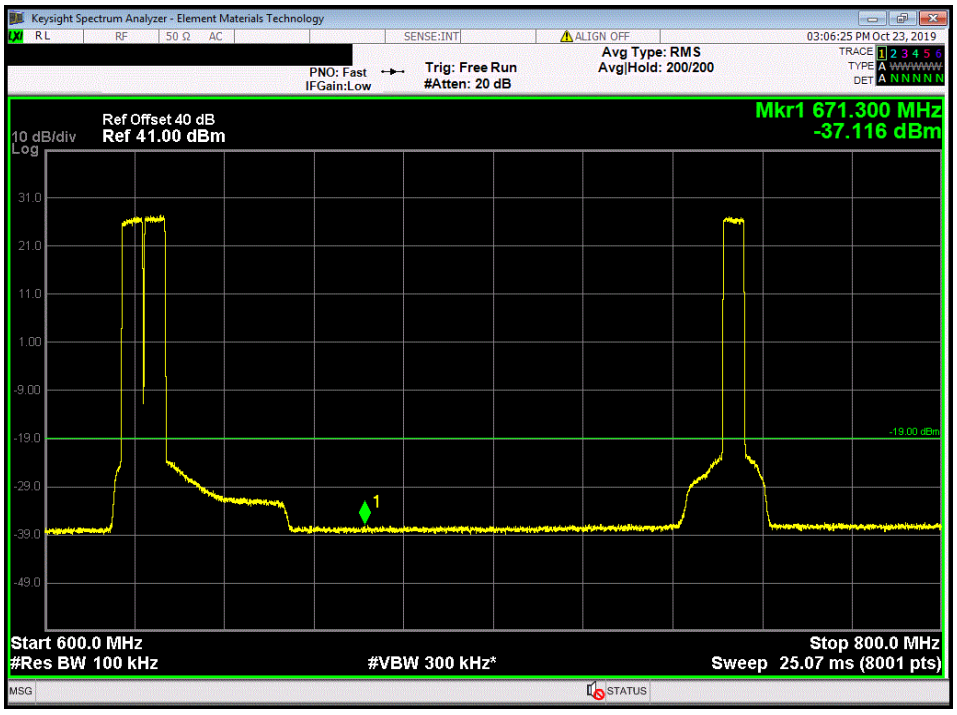
Band 71/13, 256QAM Modulation, LTE5 Bandwidth, 150kHz-20MHz							
					Value (dBm)	Limit (dBm)	Result
					-56.493	-29	Pass



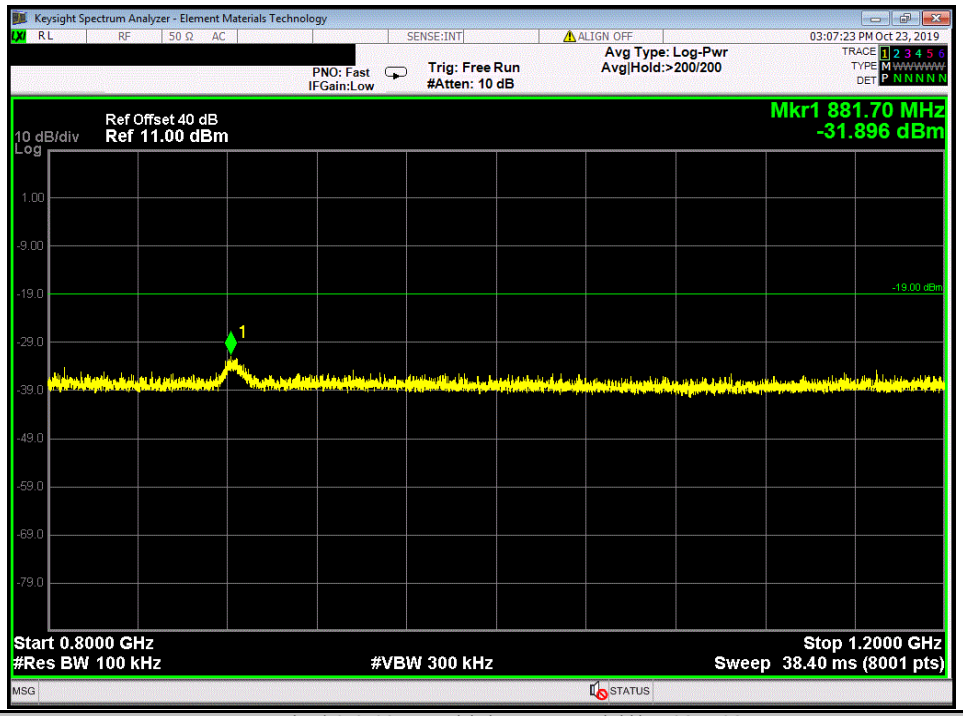
Band 71/13, 256QAM Modulation, LTE5 Bandwidth, 20MHz-600MHz						
				Value (dBm)	Limit (dBm)	Result
				-28.586	-19	Pass



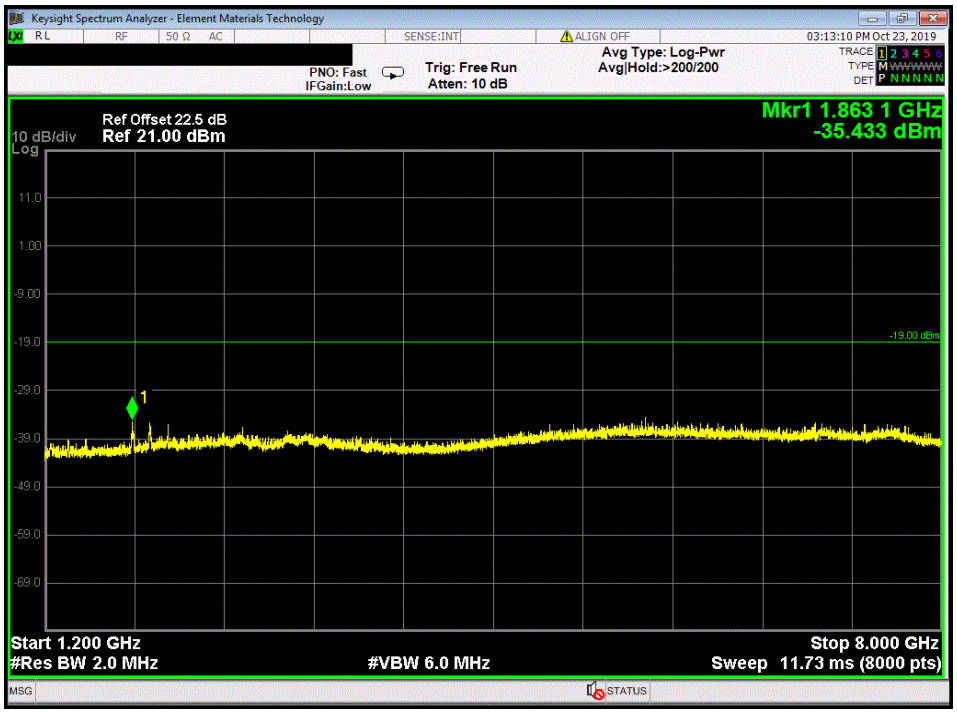
Band 71/13, 256QAM Modulation, LTE5 Bandwidth, 600MHz-800MHz						
				Value (dBm)	Limit (dBm)	Result
				-37.116	-19	Pass



Band 71/13, 256QAM Modulation, LTE5 Bandwidth, 800MHz-1.2GHz						
				Value (dBm)	Limit (dBm)	Result
				-31.896	-19	Pass



Band 71/13, 256QAM Modulation, LTE5 Bandwidth, 1.2GHz-8GHz						
				Value (dBm)	Limit (dBm)	Result
				-35.433	-19	Pass



Band 71/13, 256QAM Modulation, LTE5 Bandwidth, 1559MHz-1610MHz						
				Value (dBm)	Limit (dBm)	Result
				-59.293	-46	Pass