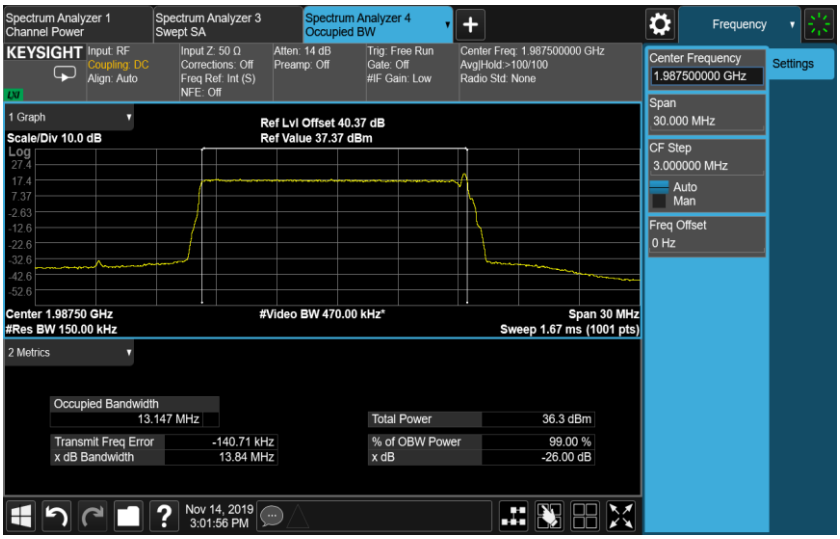
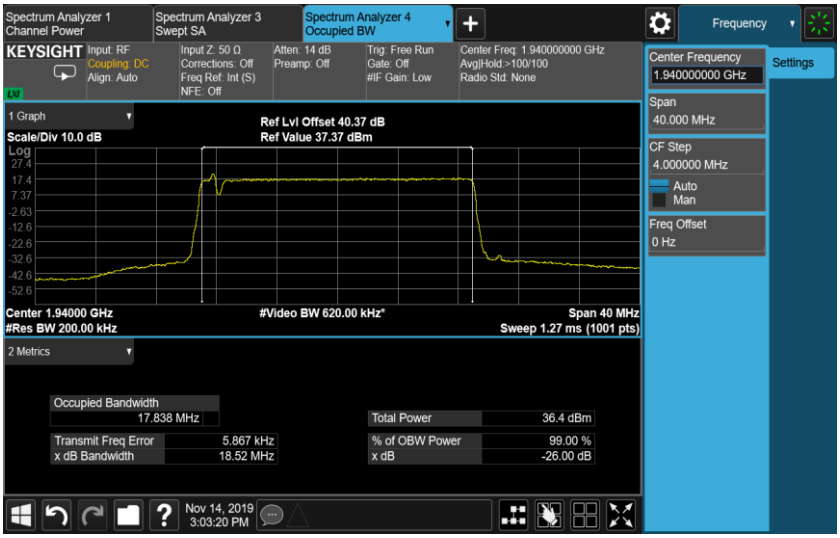
Port A, QPSK/15.0MHz Channel Position M

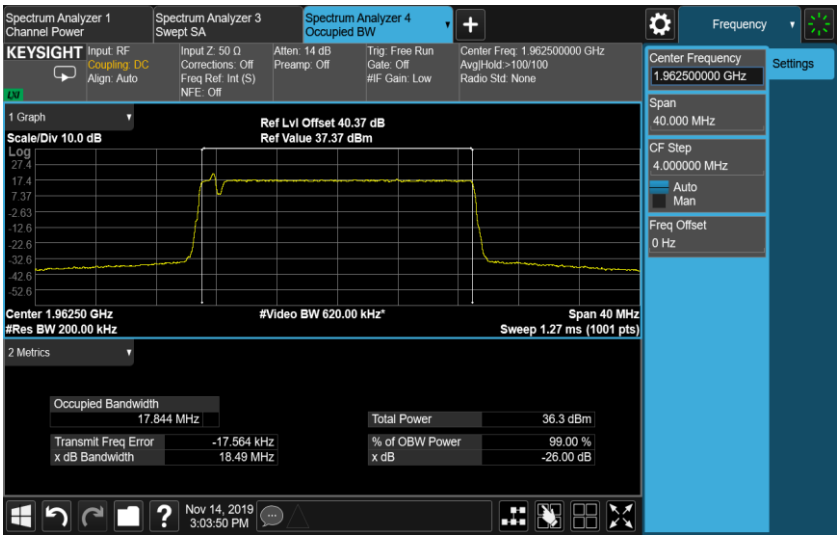
Port A, QPSK/15.0MHz Channel Position T



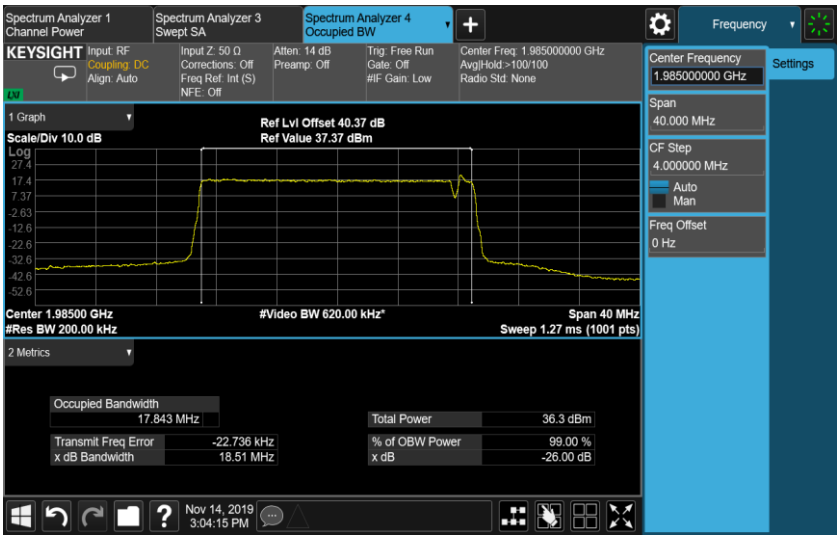
Port A, QPSK/20.0MHz Channel Position B



Port A, QPSK/20.0MHz Channel Position M



Port A, QPSK/20.0MHz Channel Position T



Configuration NB-IoT-GuardBand-1C

-26dBc Occupied Bandwidth

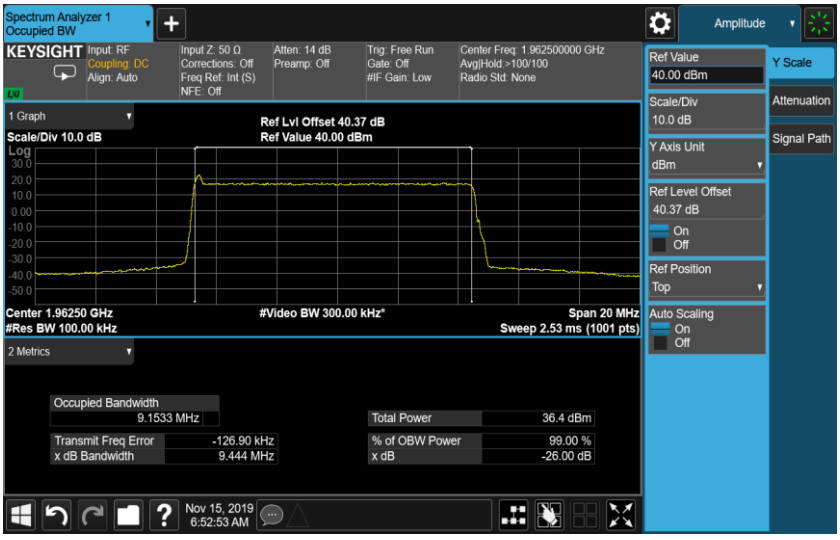
Modulation	Occupied Bandwidth (MHz)		
	Channel position B	Channel position M	Channel position T
QPSK/10.0M	9.460	9.444	9.468
QPSK/15.0M	14.150	14.140	14.170
QPSK/20.0M	18.710	18.700	18.740

99% Occupied Bandwidth

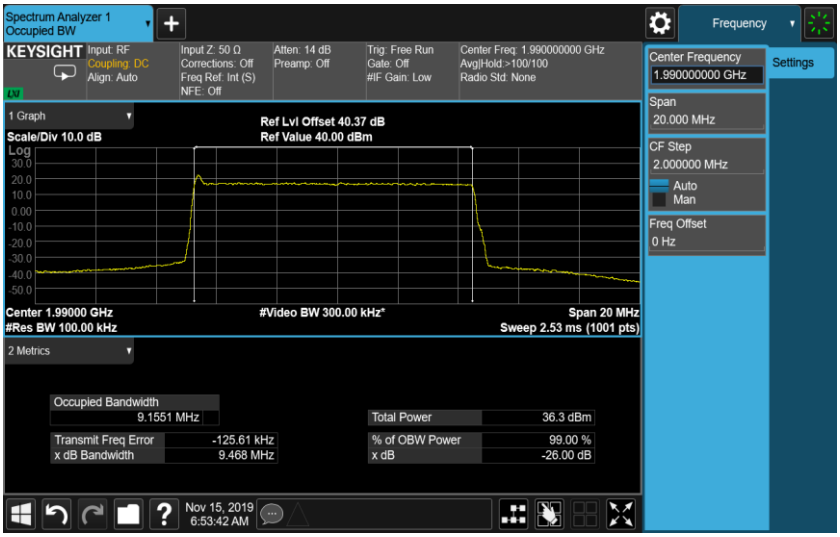
Modulation	Occupied Bandwidth (MHz)		
	Channel position B	Channel position M	Channel position B
QPSK/10.0M	9.1557	9.1533	9.1551
QPSK/15.0M	13.696	13.696	13.706
QPSK/20.0M	18.151	18.134	18.140

Port A, QPSK/10.0MHz Channel Position B

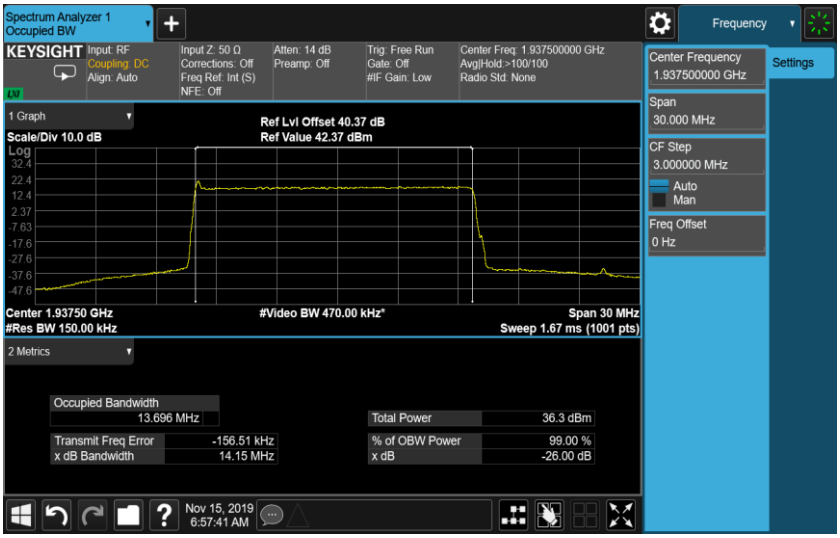
Port A, QPSK/10.0MHz Channel Position M



Port A, QPSK/10.0MHz Channel Position T

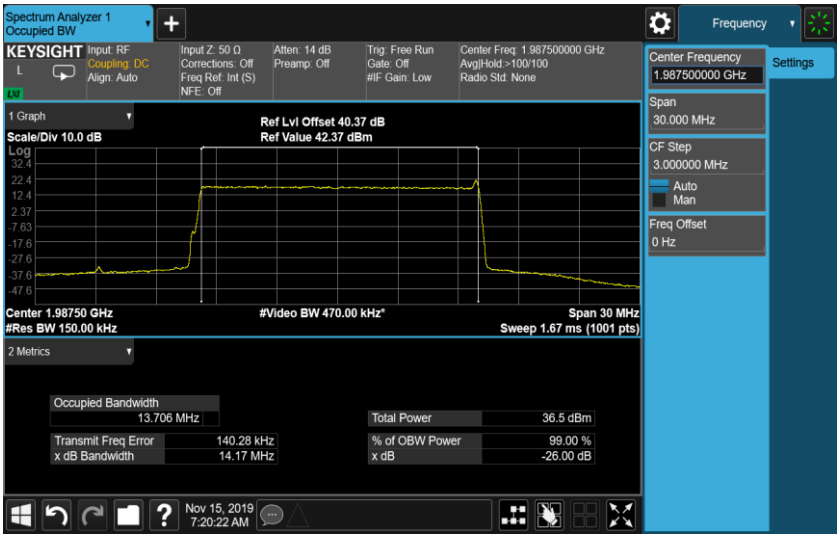


Port A, QPSK/15.0MHz Channel Position B

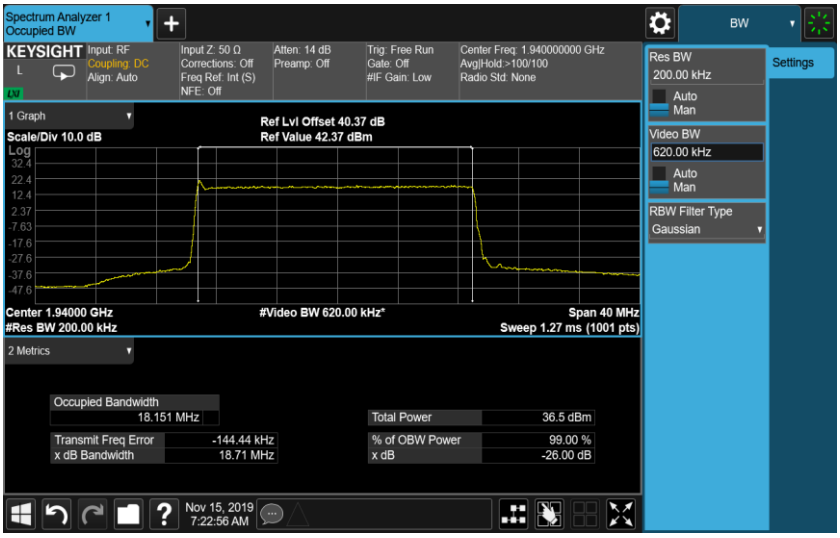


Port A, QPSK/15.0MHz Channel Position M

Port A, QPSK/15.0MHz Channel Position T

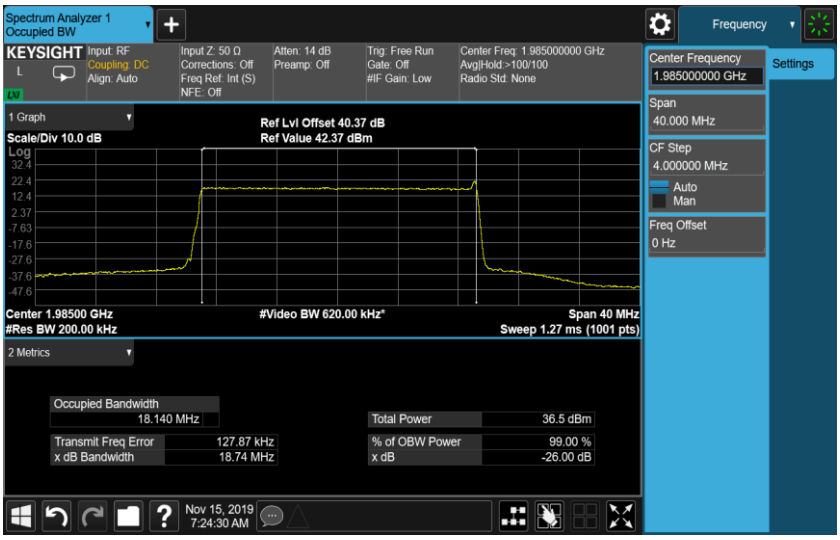


Port A, QPSK/20.0MHz Channel Position B



Port A, QPSK/20.0MHz Channel Position M

Port A, QPSK/20.0MHz Channel Position T



A.3 Spurious Emissions at Band Edge

A.3.1 Reference

FCC CFR 47 Part 2, Clause 2.1051
FCC CFR 47 Part 24, Clause 24.238 (b)
RSS-133, Clause 6.5

A.3.2 Method of measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10log(P) dB.

For MIMO mode configurations, the limit was adjusted with a correction of -6.02dB [10Log4] by using the Measure and Add 10Log(N) dB technique according to FCC KDB 662911 D01 Multiple Transmitter Output accounting for simultaneous transmission from antenna ports RF A,B,C and D.

According to FCC rules, in the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed and a RBW of 1MHz for measurements of emissions > 1MHz away from the band edges. Spectrum analyzer detector was set as RMS.
The limit was adjusted with -13.01dB [10Log(50/1000)] to compensate for the reduce measurement bandwidth 50KHz for emission more than 1MHz away from the band edges. For MIMO mode, the limit of -32.03dBm was used for emission more than 1MHz away from the band edges. For Non-MIMO mode, the limit of -26.01dBm was used for emission more than 1MHz away from the band edges.

A.3.3 Measurement limit

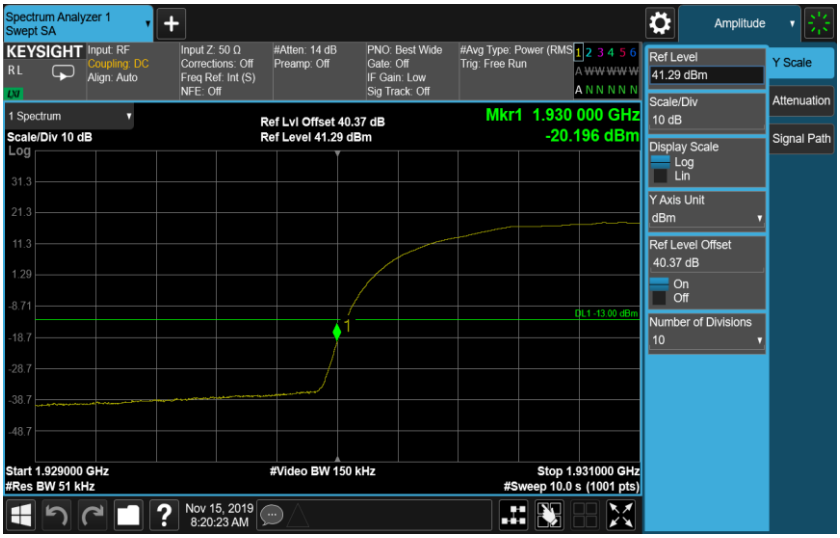
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10log(P) dB.

A.3.4 Measurement result

Configuration WCDMA-1C-BE, QPSK

Modulation	Band Edge Frequency	Channel Bandwidth	RBW (KHz)	Limit (dBm)
QPSK	Channel Position B 1930MHz	5.0MHz	51	-13
	Channel Position T 1995MHz	5.0MHz	51	-13

Port A , Channel Position B, QPSK

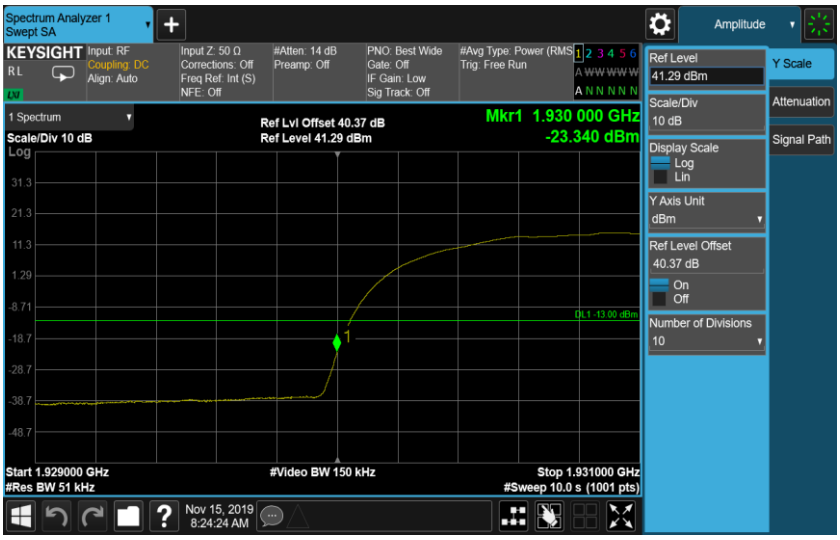


Port A , Channel Position T, QPSK

Configuration WCDMA-2C-BE

Modulation	Band Edge Frequency	Channel Bandwidth	RBW (KHz)	Limit (dBm)
QPSK	Channel Position B 1930MHz	5.0MHz	51	-13
	Channel Position T 1995MHz	5.0MHz	51	-13

Port A , Channel Position B, QPSK

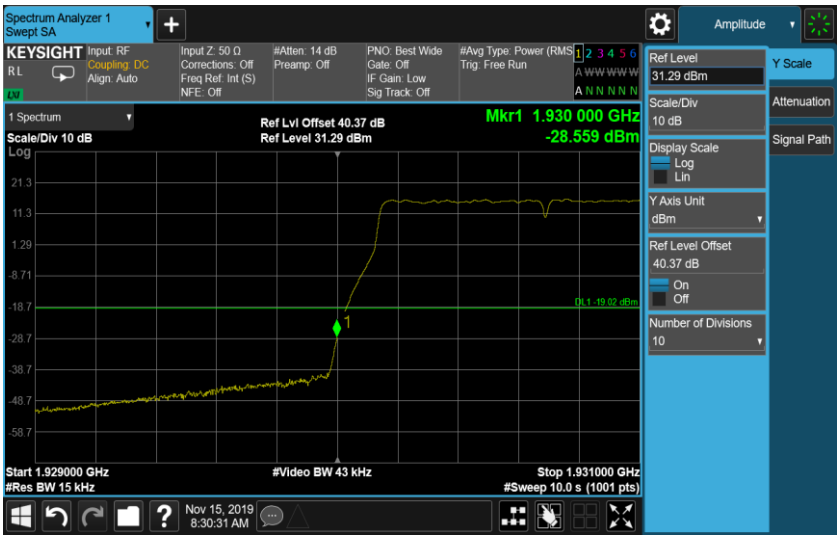


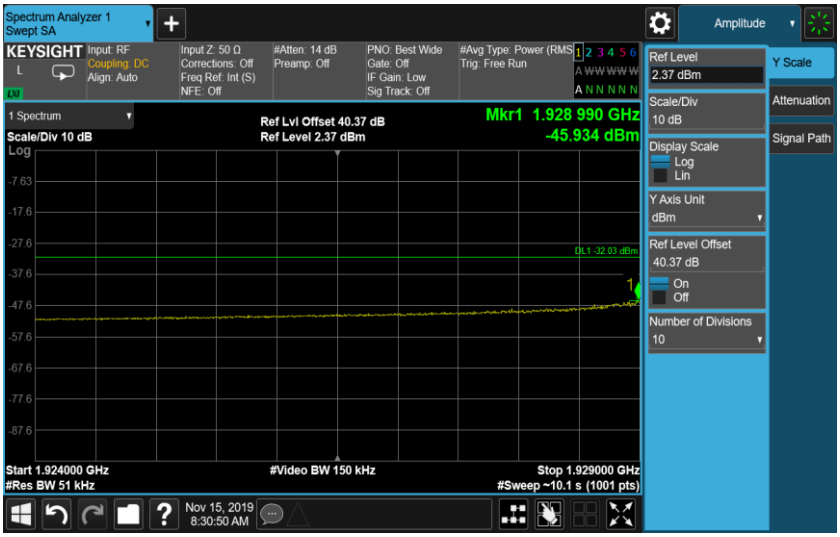
Port A , Channel Position T, QPSK

Configuration LTE-MIMO-1C, QPSK

Band Edge Frequency	Channel Bandwidth	RBW(KHz)	Limit(dBm)
Channel Position B 1930MHz	1.4 MHz	14	-19.02
	3.0MHz	30	-19.02
	5.0 MHz	51	-19.02
	10.0 MHz	100	-19.02
	15.0 MHz	150	-19.02
	20.0 MHz	200	-19.02
Channel Position T 1995.0MHz	1.4 MHz	14	-19.02
	3.0MHz	30	-19.02
	5.0 MHz	51	-19.02
	10.0 MHz	100	-19.02
	15.0 MHz	150	-19.02
	20.0 MHz	200	-19.02

Port A , Channel Position B, 1.4MHz



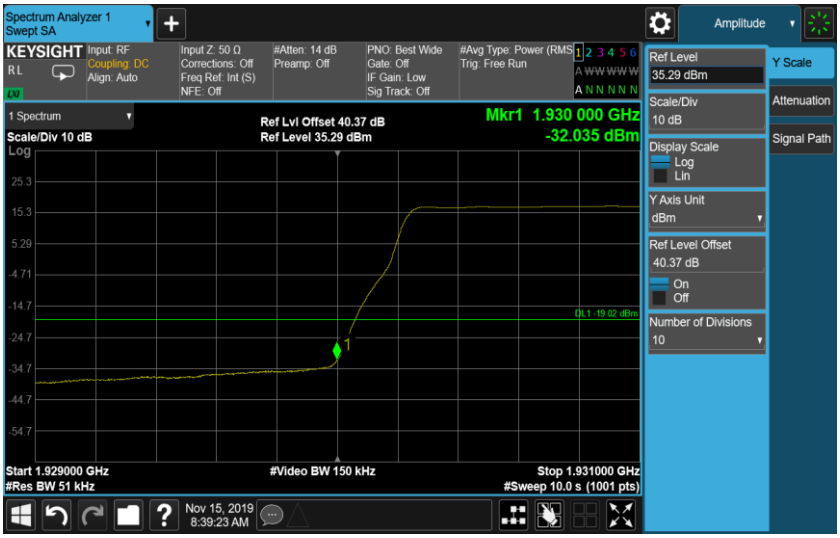


Port A , Channel Position T, 1.4MHz

Port A , Channel Position B, 3.0MHz

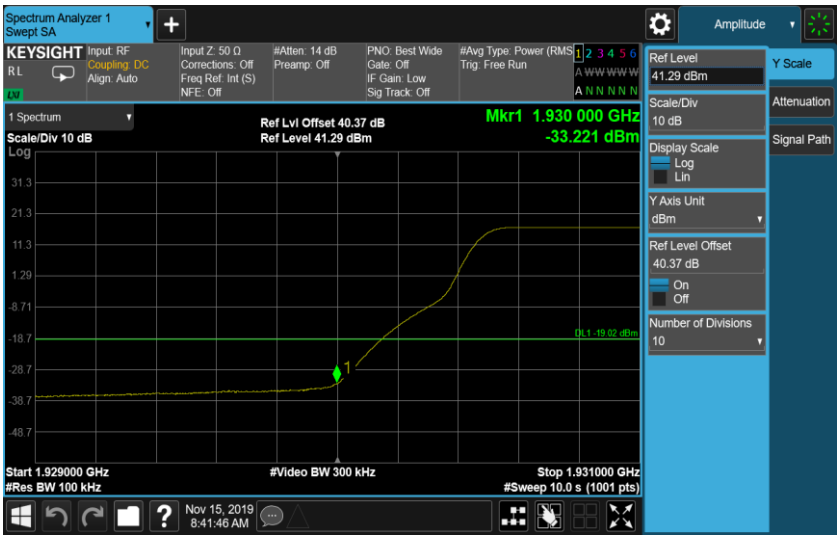
Port A , Channel Position T, 3.0MHz

Port A , Channel Position B, 5.0MHz



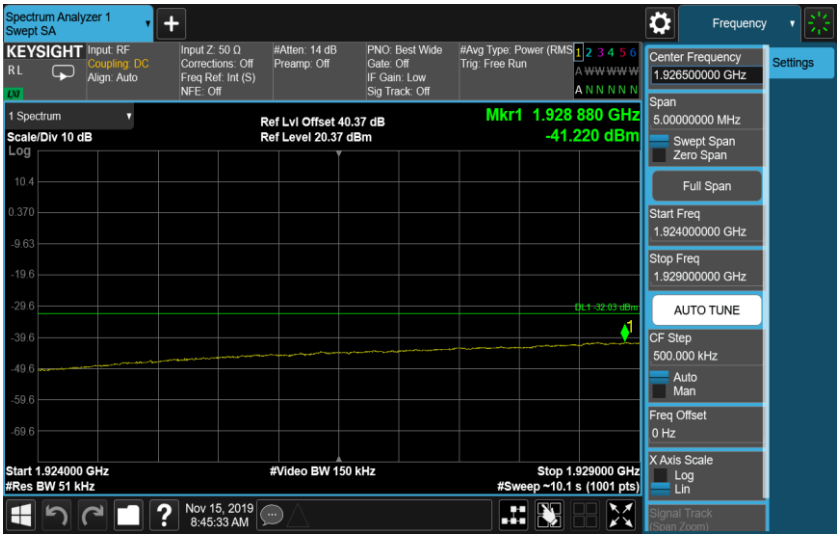
Port A , Channel Position T, 5.0MHz

Port A , Channel Position B, 10.0MHz

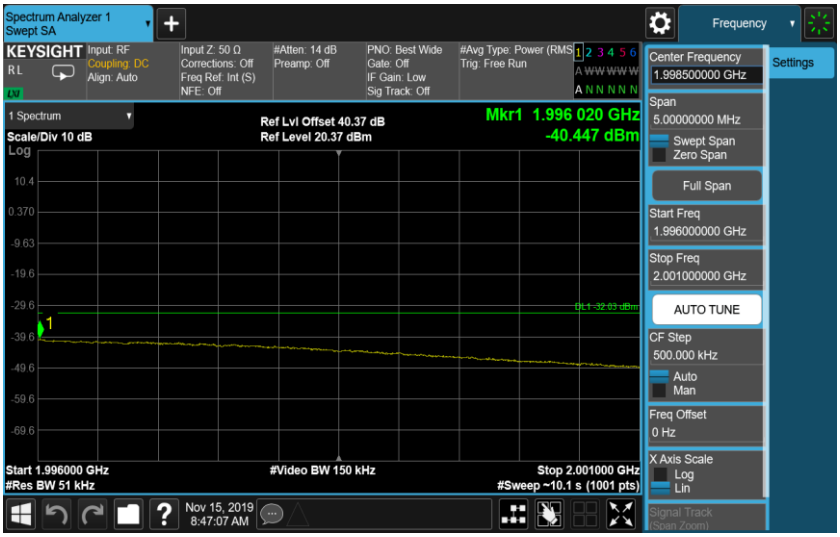


Port A , Channel Position T, 10.0MHz

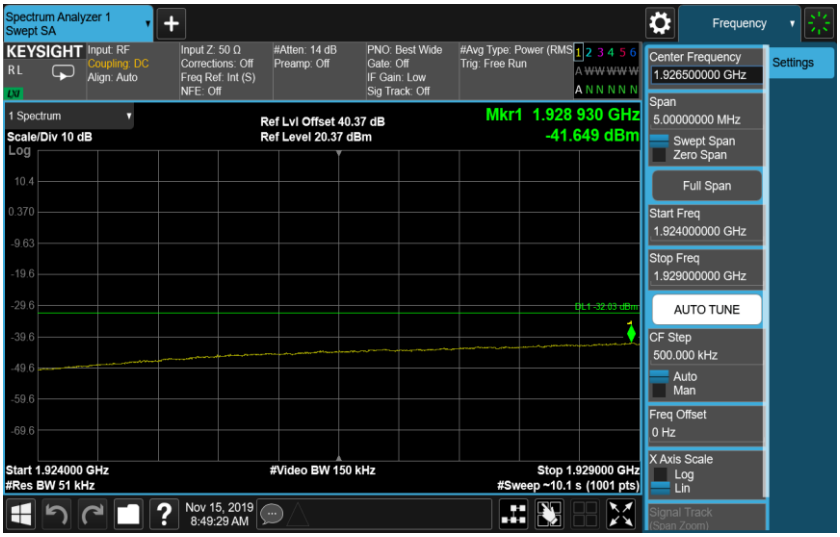
Port A , Channel Position B, 15.0MHz



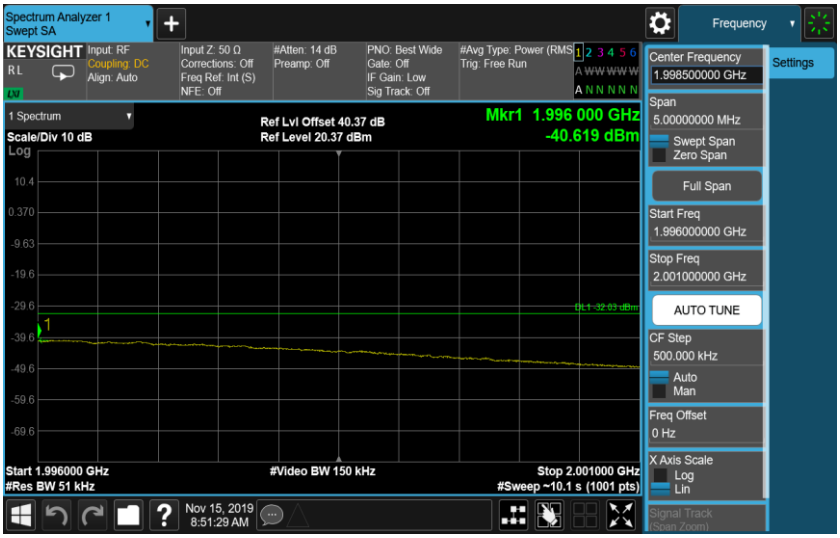
Port A , Channel Position T, 15.0MHz



Port A , Channel Position B, 20.0MHz



Port A , Channel Position T, 20.0MHz



Configuration LTE-MIMO-2C-BE, QPSK

Band Edge Frequency	Channel Bandwidth	RBW(KHz)	Limit(dBm)
Channel Position B 1930MHz	1.4 MHz	14	-19.02
	3.0 MHz	30	-19.02
	5.0 MHz	51	-19.02
	10.0 MHz	100	-19.02
	15.0 MHz	150	-19.02
	20.0 MHz	200	-19.02
Channel Position T 1995MHz	1.4 MHz	14	-19.02
	3.0 MHz	30	-19.02
	5.0 MHz	51	-19.02
	10.0 MHz	100	-19.02
	15.0 MHz	150	-19.02
	20.0 MHz	200	-19.02

Port A , Channel Position B, 1.4MHz