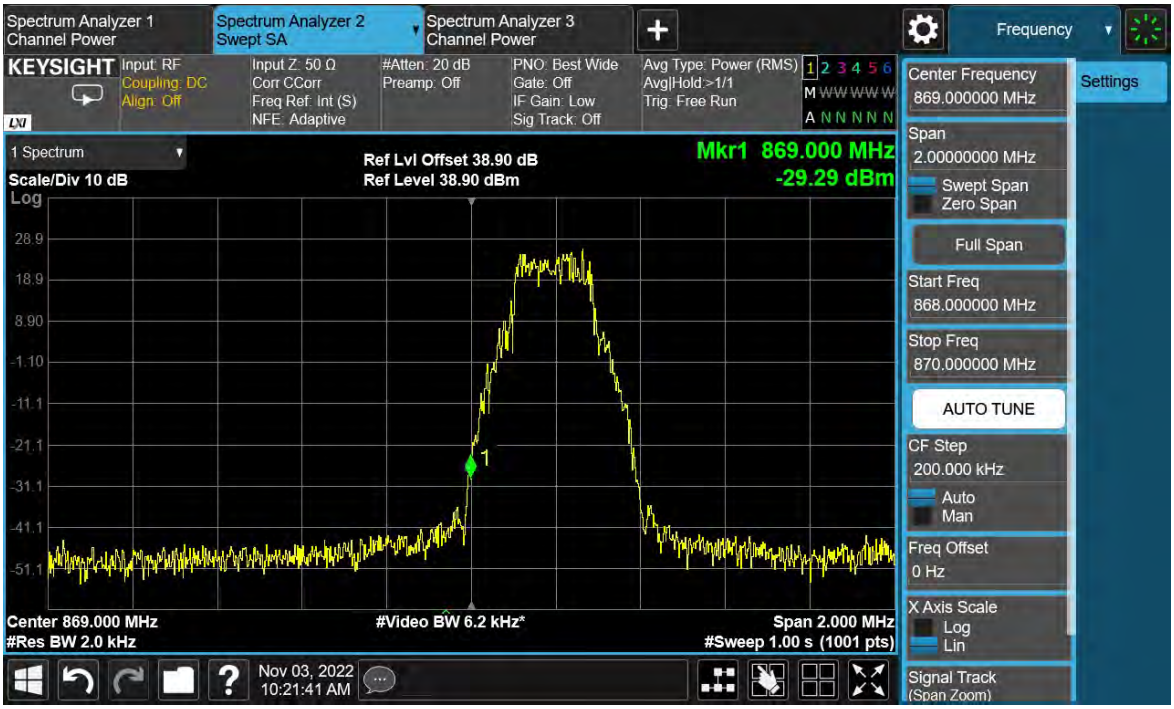
TEST REPORT

SA+L+W-MC-2-UE

Antenna Port	Channel Position	SA & L Modulation	SA Carrier BW (MHz)	L Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	0.2	3	2	-19.02
D	T	QPSK	0.2	3	30	-19.02

Channel Position B



Channel Position T

TEST REPORT

LTE+GSM-MC-1-UE

Antenna Port	Channel Position	LTE & GSM Modulation	LTE Carrier BW (MHz)	GSM Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	1.4	0.2	15	-19.02
D	T	QPSK	1.4	0.2	2	-13.00

Channel Position B

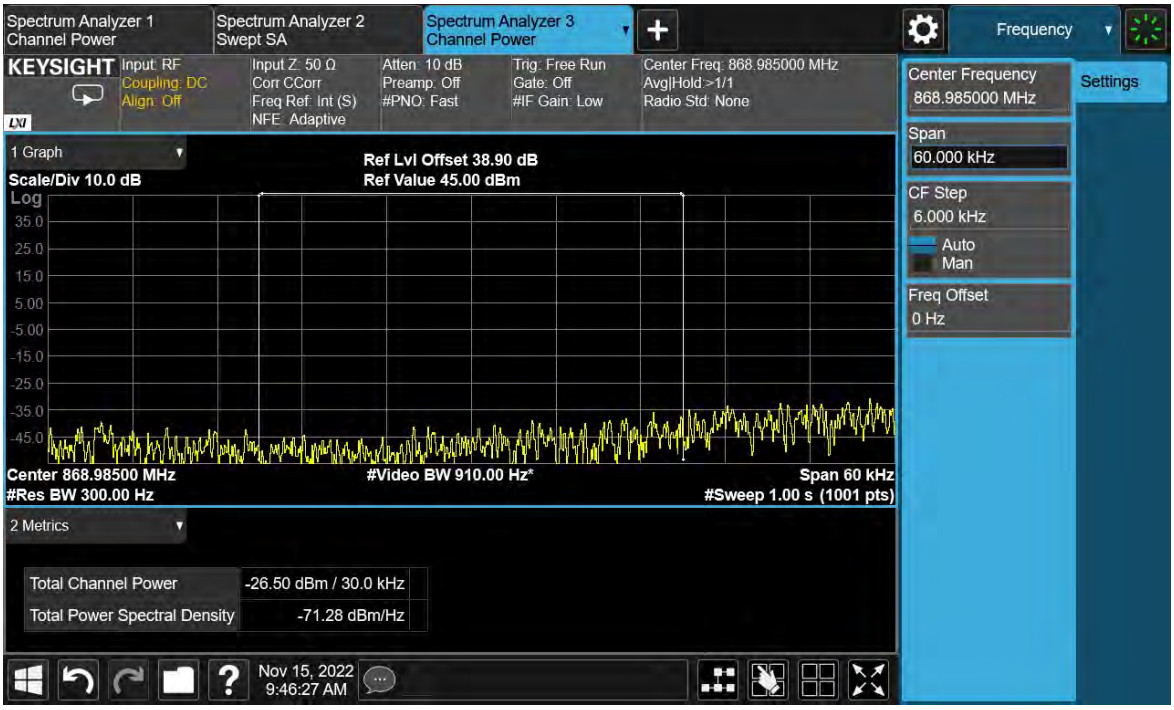
Channel Position T

TEST REPORT

LTE+GSM-MC-1-UE

Antenna Port	Channel Position	LTE & GSM Modulation	LTE Carrier BW (MHz)	GSM Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	3	0.2	30	-19.02
D	T	QPSK	3	0.2	2	-13.00

Channel Position B



TEST REPORT

Channel Position T

LTE+GSM-MC-1-UE

Antenna Port	Channel Position	LTE & GSM Modulation	LTE Carrier BW (MHz)	GSM Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	5	0.2	51	-19.02
D	T	QPSK	5	0.2	2	-13.00

Channel Position B

TEST REPORT

Channel Position T

LTE+GSM-MC-1-UE

Antenna Port	Channel Position	LTE & GSM Modulation	LTE Carrier BW (MHz)	GSM Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	20	0.2	200	-19.02
D	T	QPSK	20	0.2	2	-13.00

Channel Position B

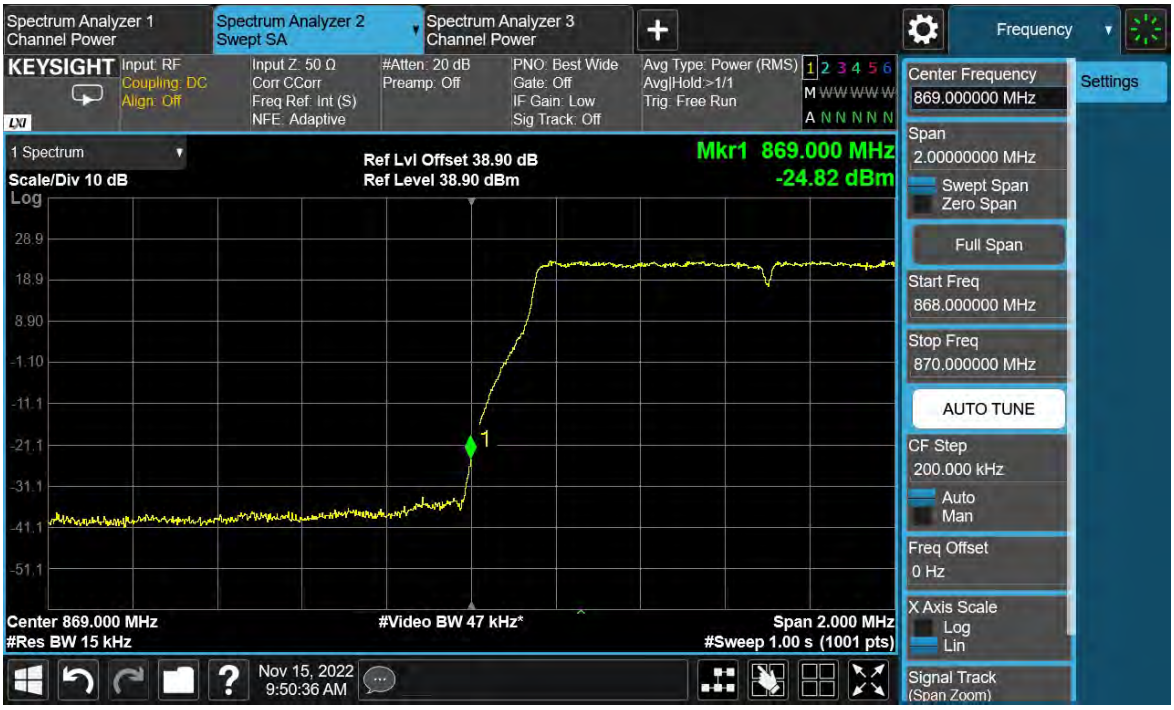
TEST REPORT

Channel Position T

LTE+GSM-MC-2-UE

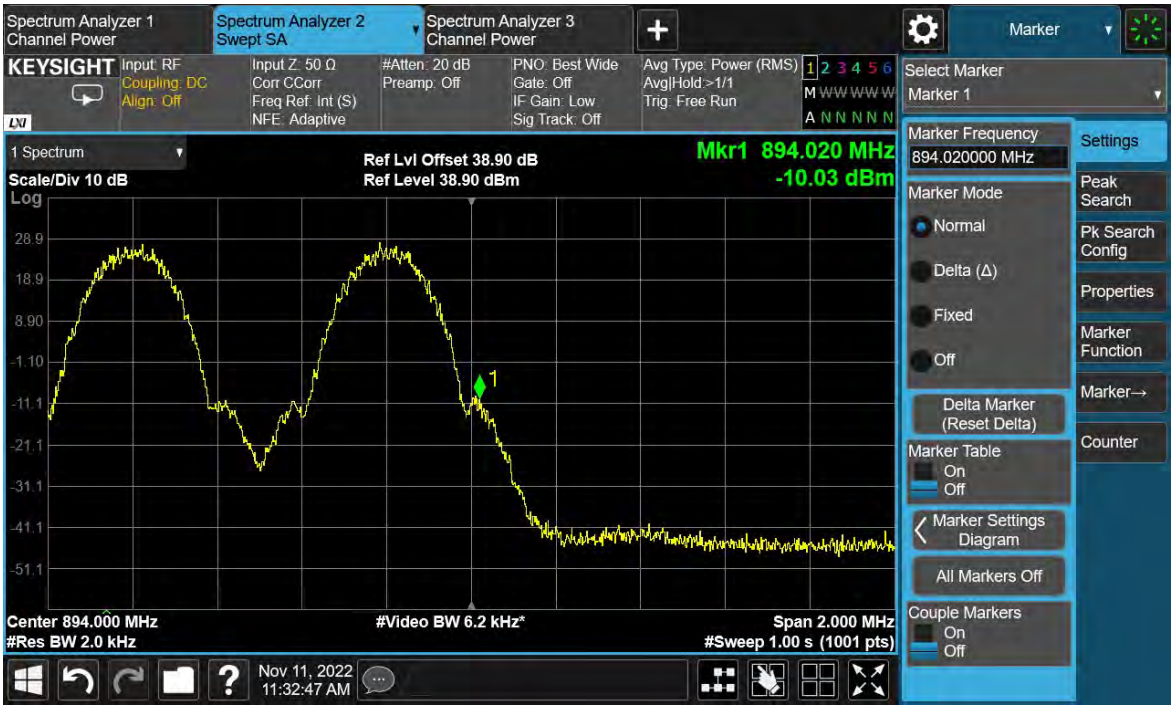
Antenna Port	Channel Position	LTE & GSM Modulation	LTE Carrier BW (MHz)	GSM Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	1.4	0.2	15	-19.02
D	T	QPSK	1.4	0.2	2	-13.00

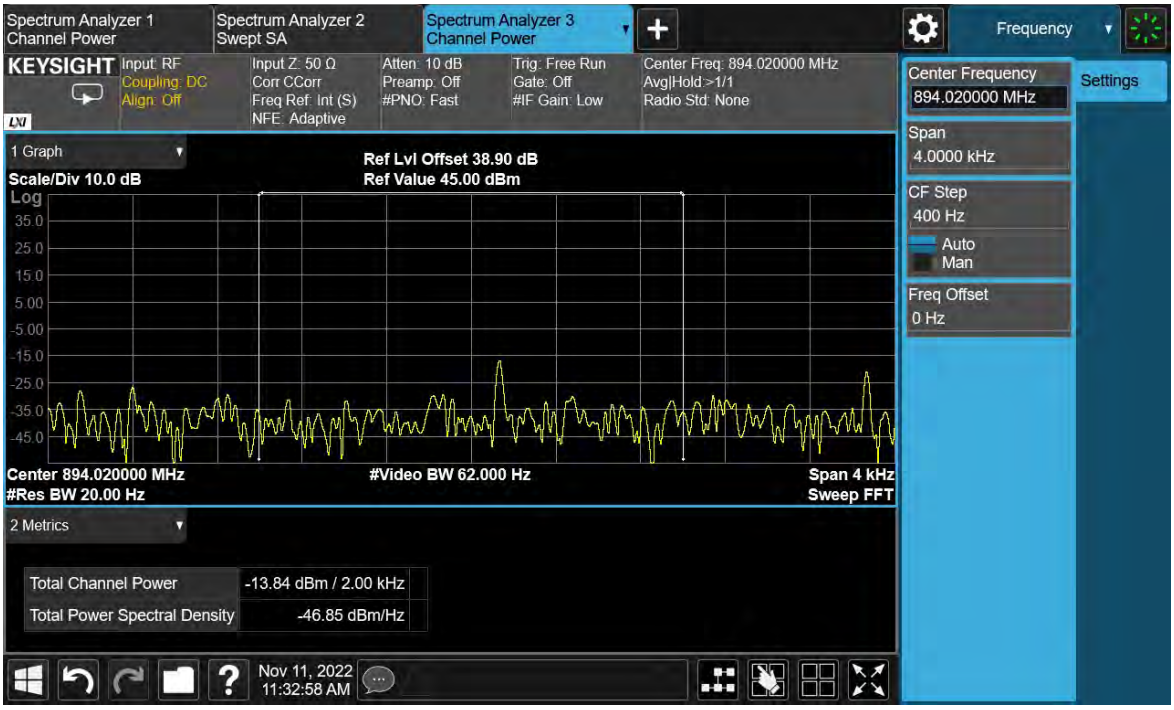
Channel Position B



TEST REPORT

Channel Position T





TEST REPORT

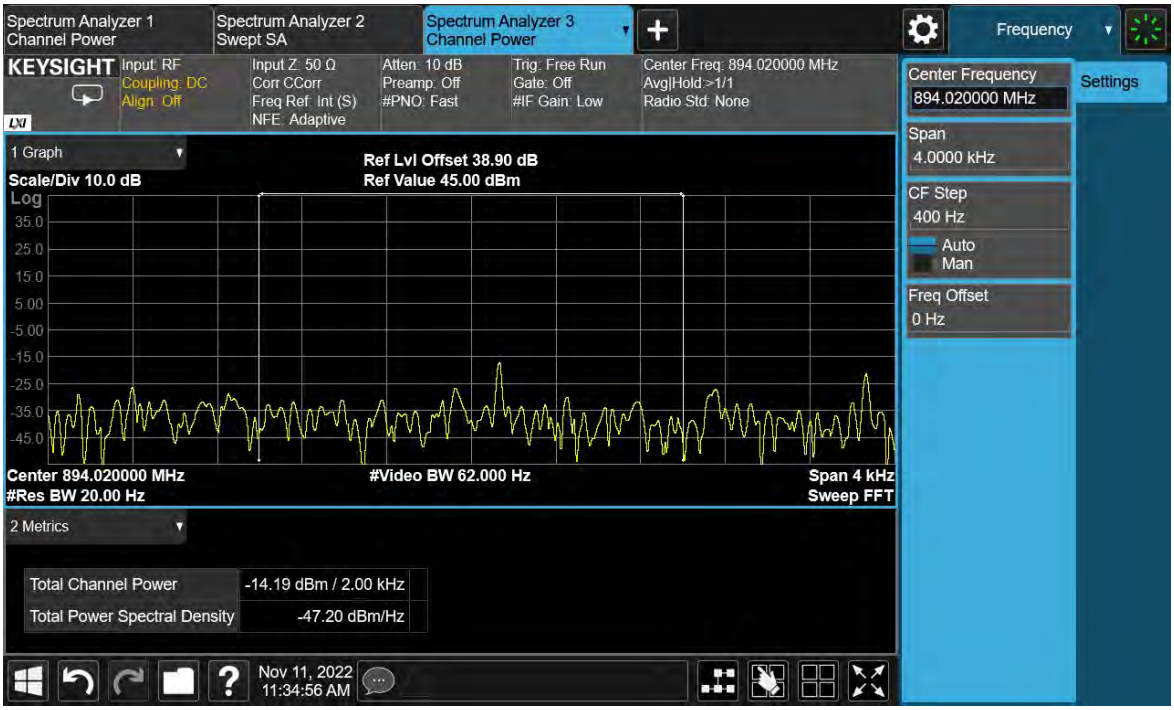
LTE+GSM-MC-2-UE

Antenna Port	Channel Position	LTE & GSM Modulation	LTE Carrier BW (MHz)	GSM Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	3	0.2	30	-19.02
D	T	QPSK	3	0.2	2	-13.00

Channel Position B

Channel Position T

TEST REPORT



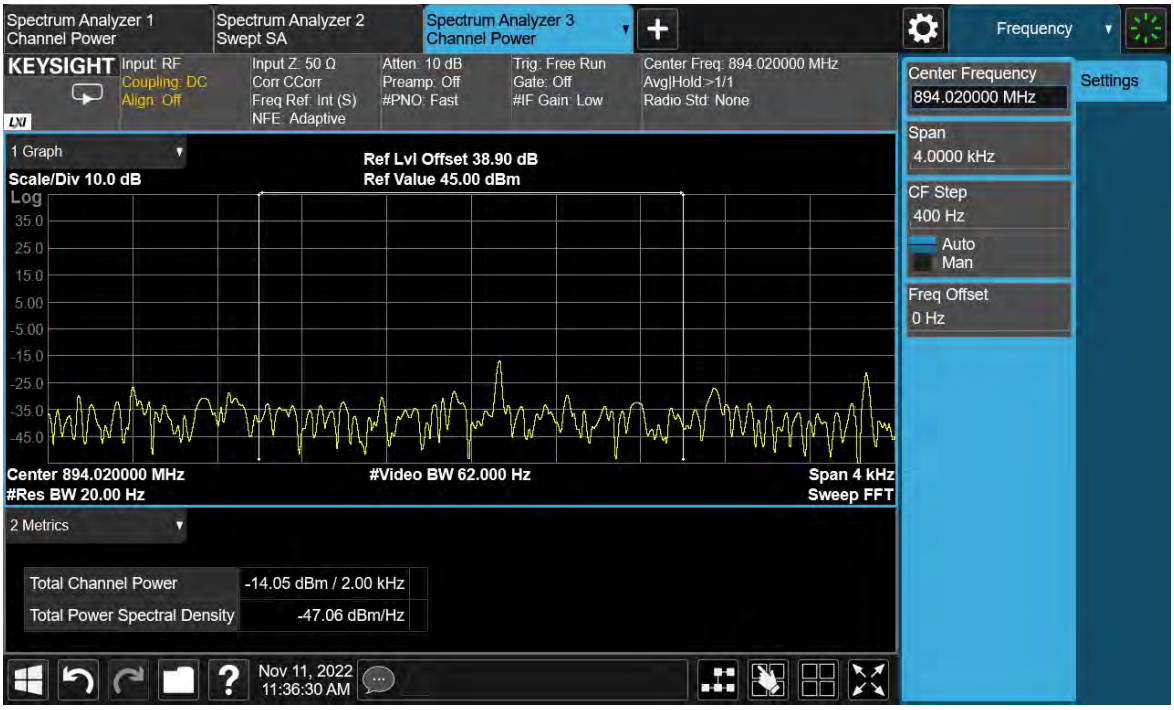
LTE+GSM-MC-2-UE

Antenna Port	Channel Position	LTE & GSM Modulation	LTE Carrier BW (MHz)	GSM Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	5	0.2	51	-19.02
D	T	QPSK	5	0.2	2	-13.00

Channel Position B

TEST REPORT

Channel Position T

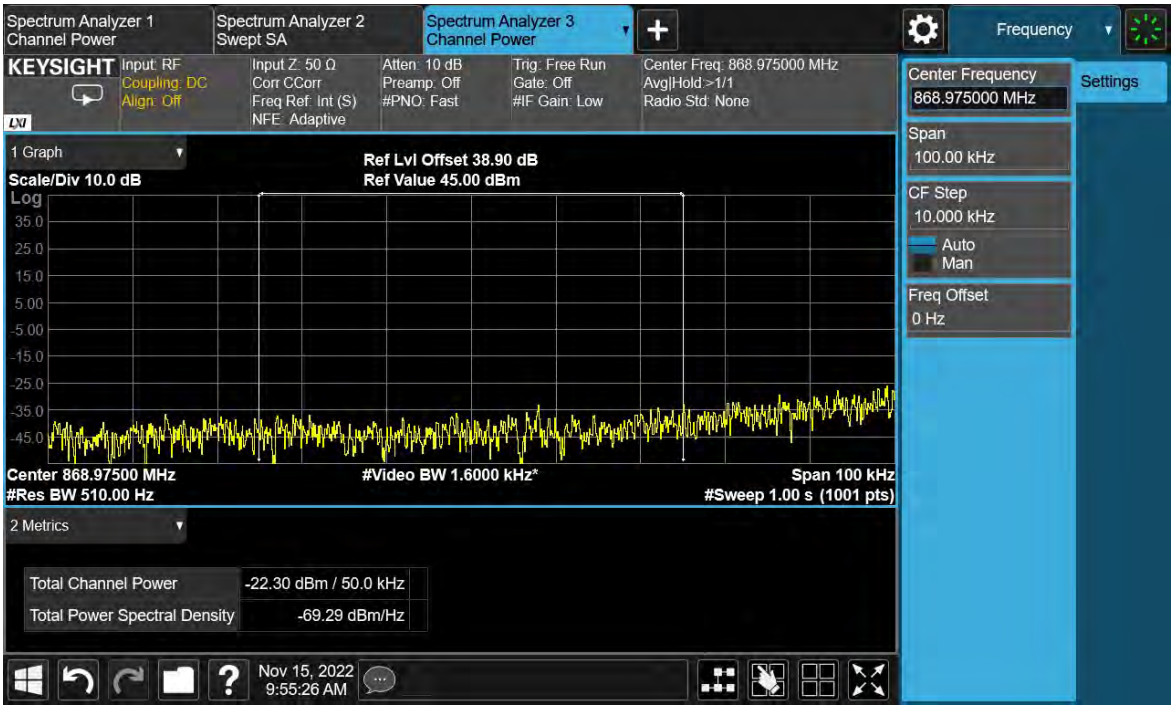


TEST REPORT

W+GSM-MC-1-UE

Antenna Port	Channel Position	W & GSM Modulation	W Carrier BW (MHz)	GSM Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	5	0.2	51	-19.02
D	T	QPSK	5	0.2	2	-13.00

Channel Position B



TEST REPORT

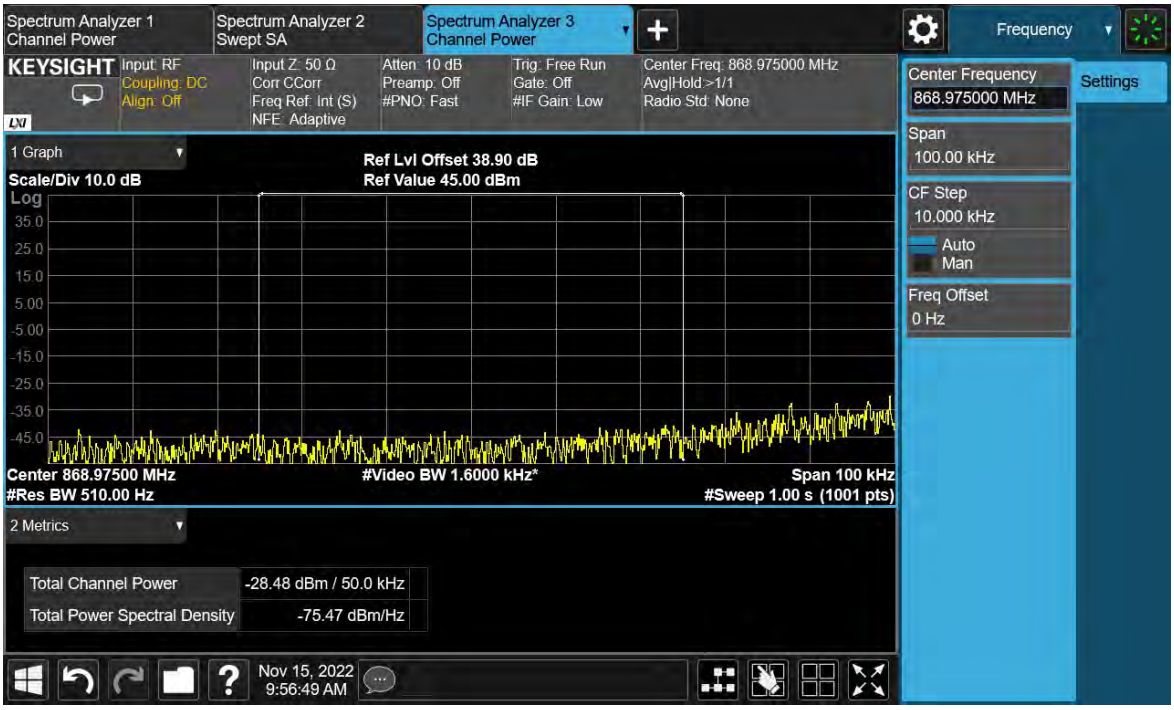
Channel Position T

W+GSM-MC-2-UE

Antenna Port	Channel Position	W & GSM Modulation	W Carrier BW (MHz)	GSM Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	5	0.2	51	-19.02
D	T	QPSK	5	0.2	2	-13.00

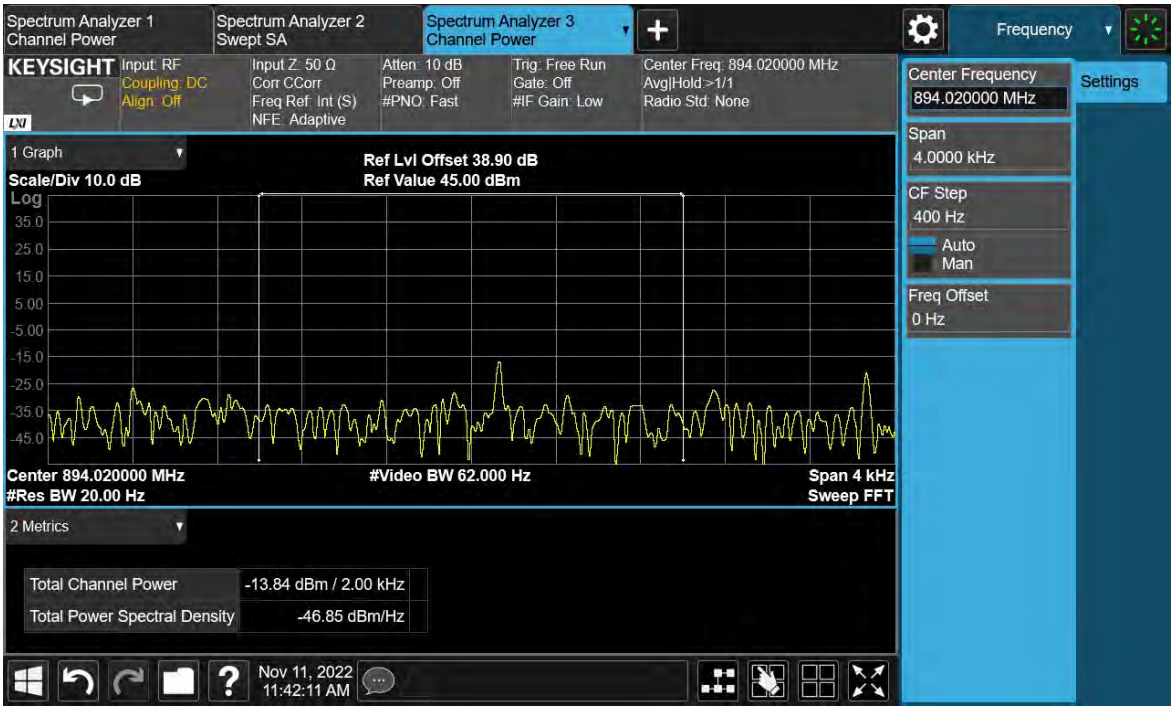
Channel Position B

TEST REPORT



Channel Position T

TEST REPORT

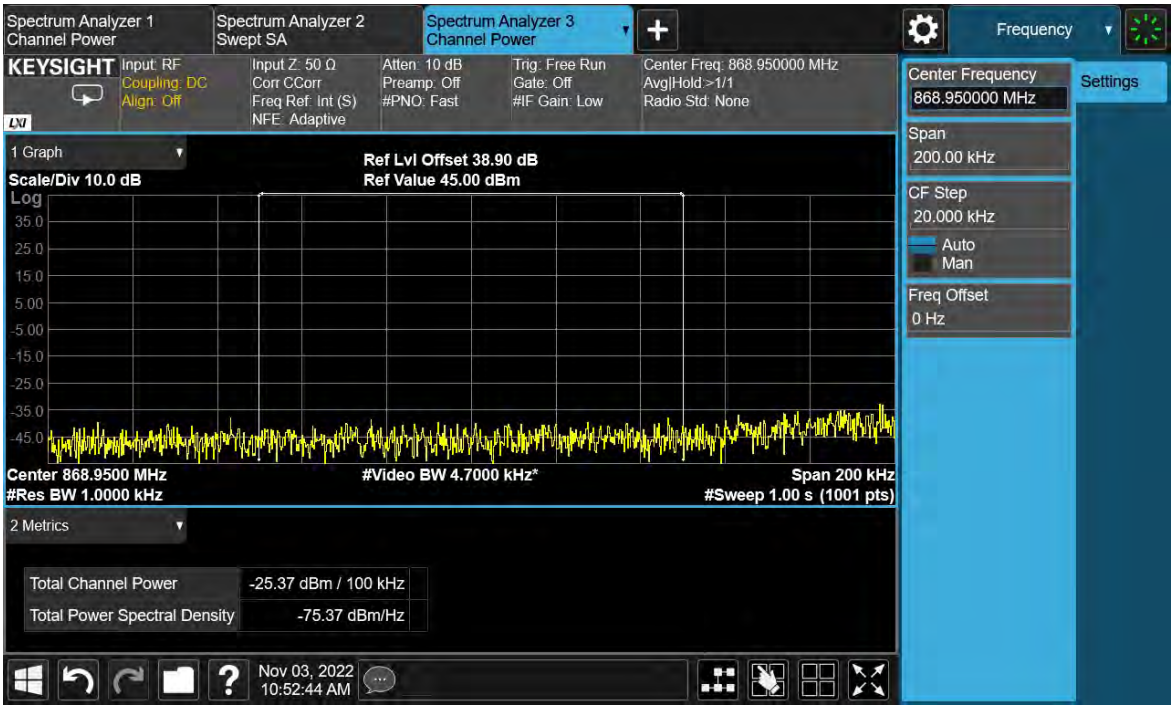


NR ESS IB-1C-UE

Antenna Port	Channel Position	Modulation	Carrier Bandwidth (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	10	100	-19.02
D	T	QPSK	10	100	-19.02

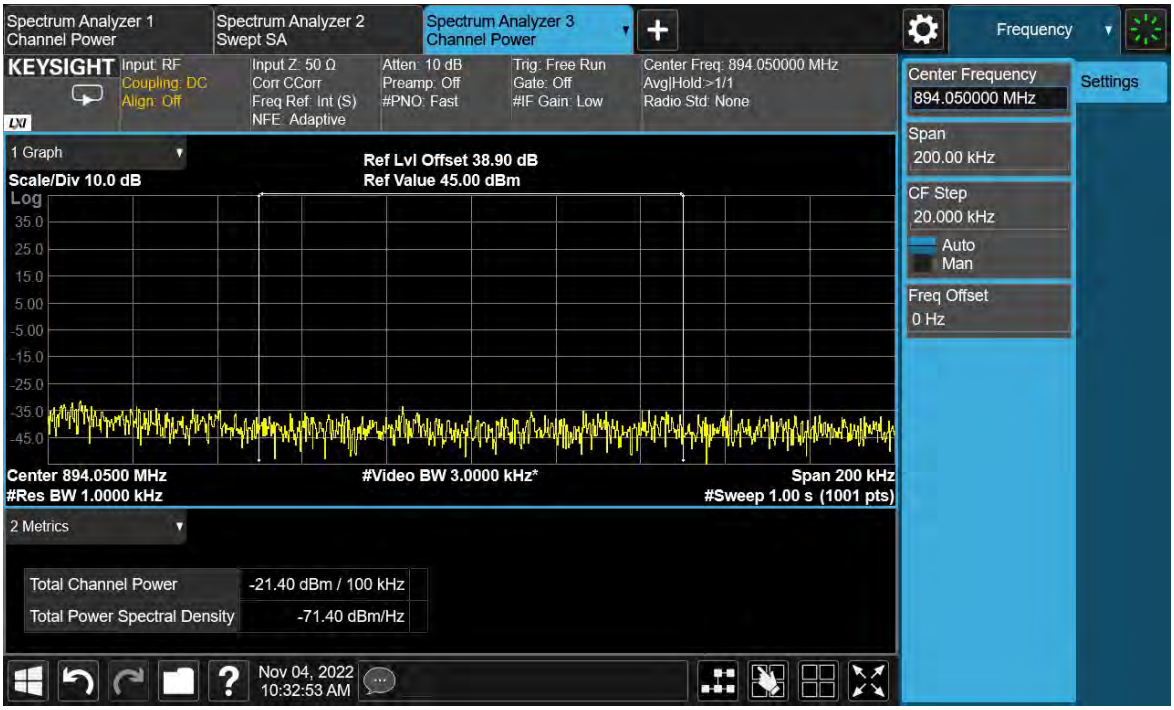
Channel Position B

TEST REPORT



Channel Position T

TEST REPORT

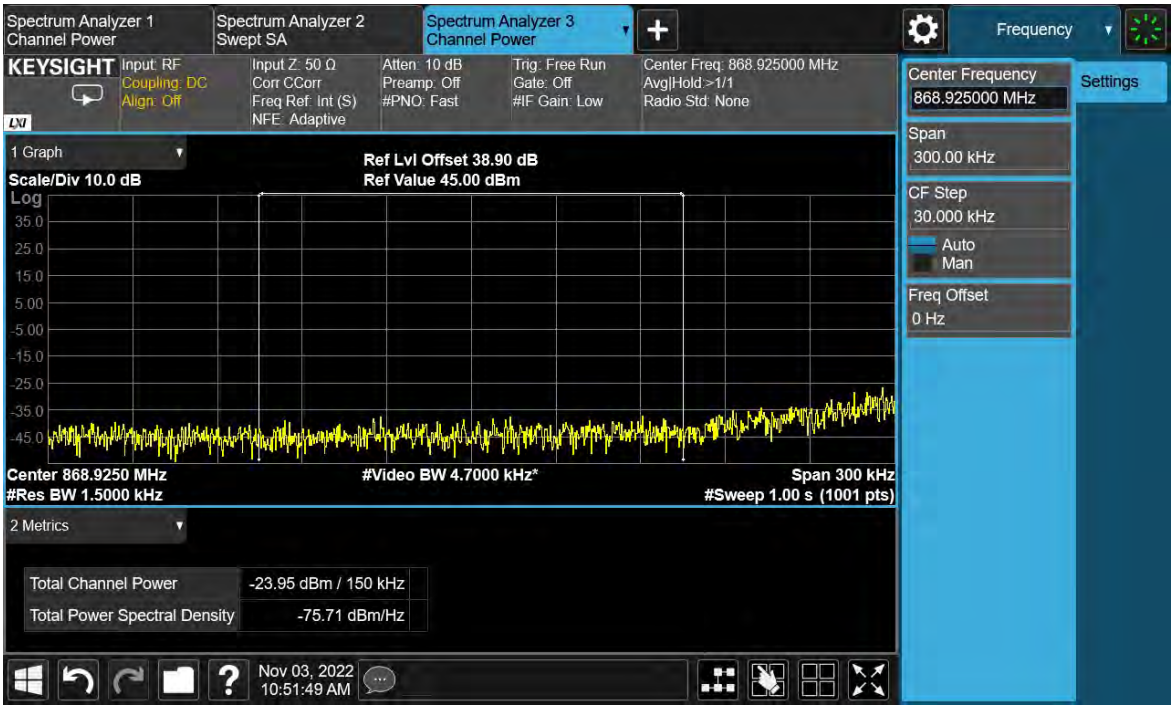


NR ESS IB-1C-UE

Antenna Port	Channel Position	Modulation	Carrier Bandwidth (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	15	150	-19.02
D	T	QPSK	15	150	-19.02

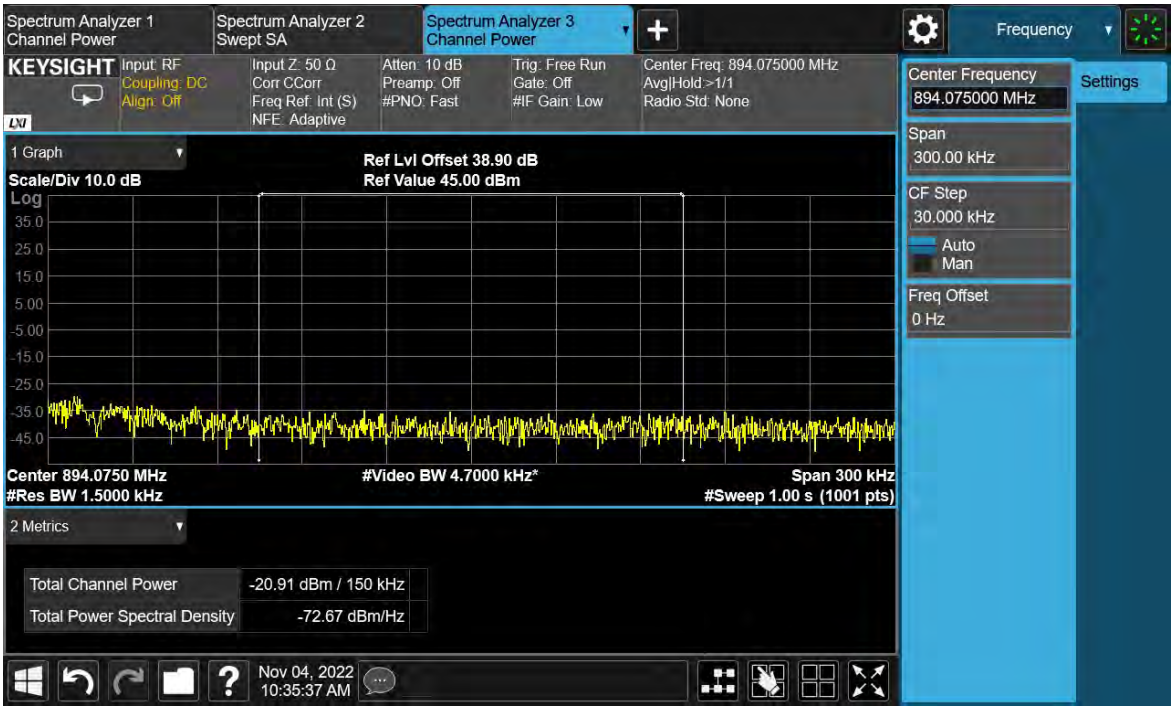
Channel Position B

TEST REPORT



Channel Position T

TEST REPORT



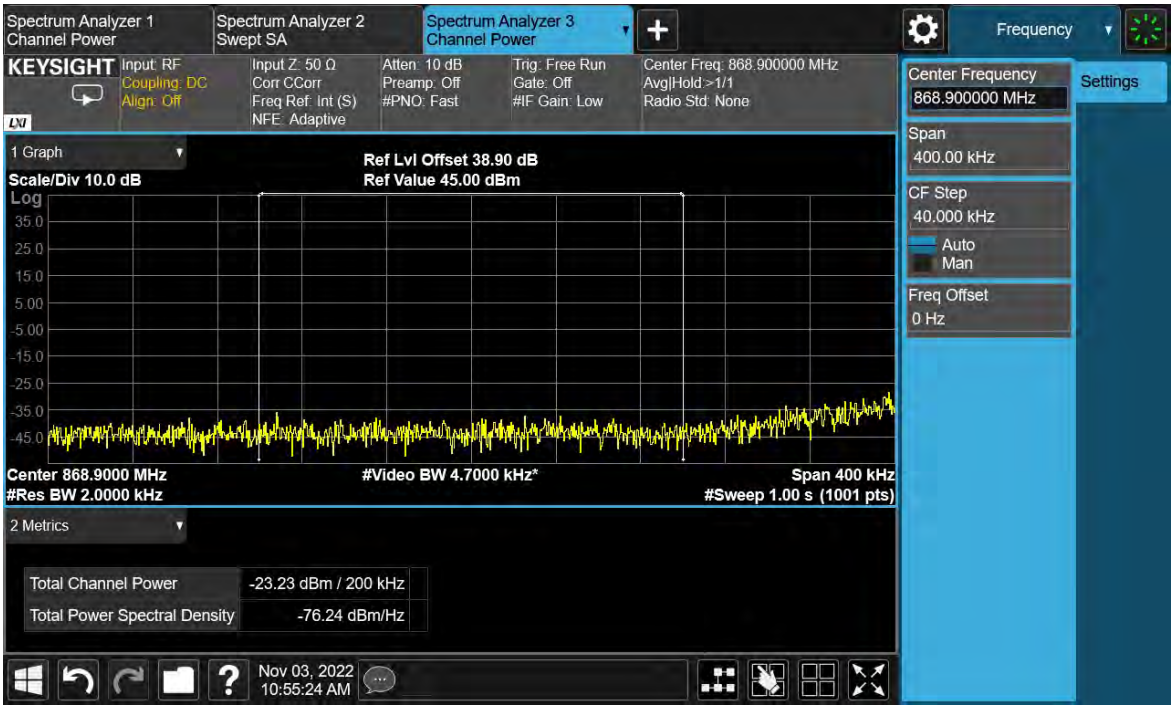
NR ESS IB-1C-UE

Antenna Port	Channel Position	Modulation	Carrier Bandwidth (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	20	200	-19.02
D	T	QPSK	20	200	-19.02

Channel Position B

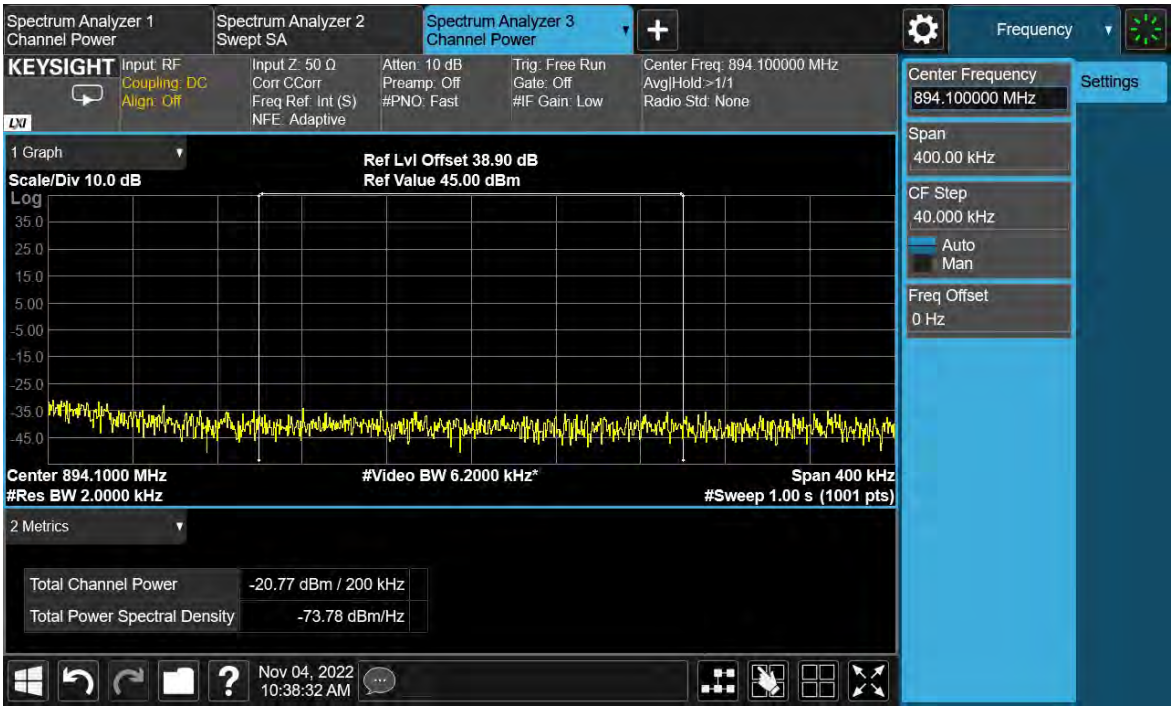
Total Quality. Assured.

TEST REPORT



Channel Position T

TEST REPORT



G+L+NR-MC-1-UE

Antenna Port	Channel Position	L & NR Modulation	L Carrier BW (MHz)	NR Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	1.4	5	2	-13.00
D	T	QPSK	1.4	5	51	-19.02

Channel Position B

TEST REPORT

Channel Position T

G+L+NR-MC-1-UE

Antenna Port	Channel Position	L & NR Modulation	L Carrier BW (MHz)	NR Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	5	5	2	-13.00
D	T	QPSK	5	5	51	-19.02

Channel Position B

TEST REPORT

Channel Position T

G+L+NR-MC-1-UE

Antenna Port	Channel Position	L & NR Modulation	L Carrier BW (MHz)	NR Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	3	10	2	-13.00
D	T	QPSK	3	10	100	-19.02

Channel Position B

TEST REPORT

Channel Position T

G+L+NR-MC-1-UE

Antenna Port	Channel Position	L & NR Modulation	L Carrier BW (MHz)	NR Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	10	10	2	-13.00
D	T	QPSK	10	10	100	-19.02

Channel Position B

TEST REPORT

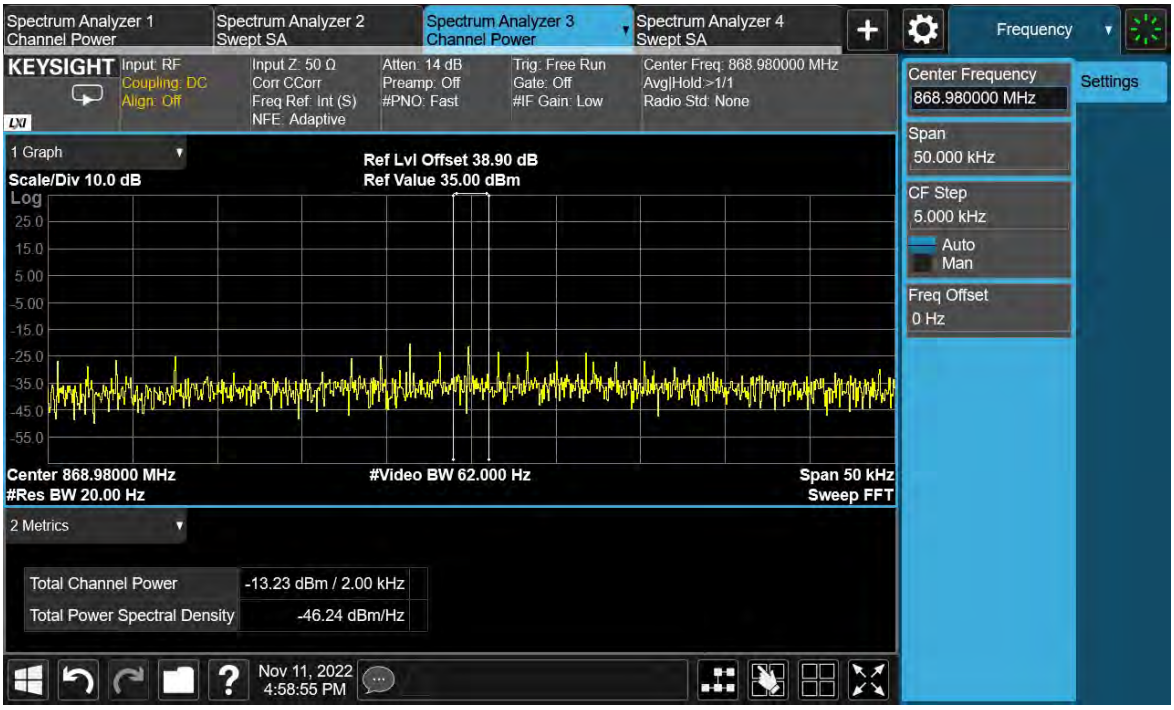
Channel Position T

G+L+NR-MC-2-UE

Antenna Port	Channel Position	L & NR Modulation	L Carrier BW (MHz)	NR Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	1.4	5	2	-13.00
D	T	QPSK	1.4	5	51	-19.02

Channel Position B

TEST REPORT



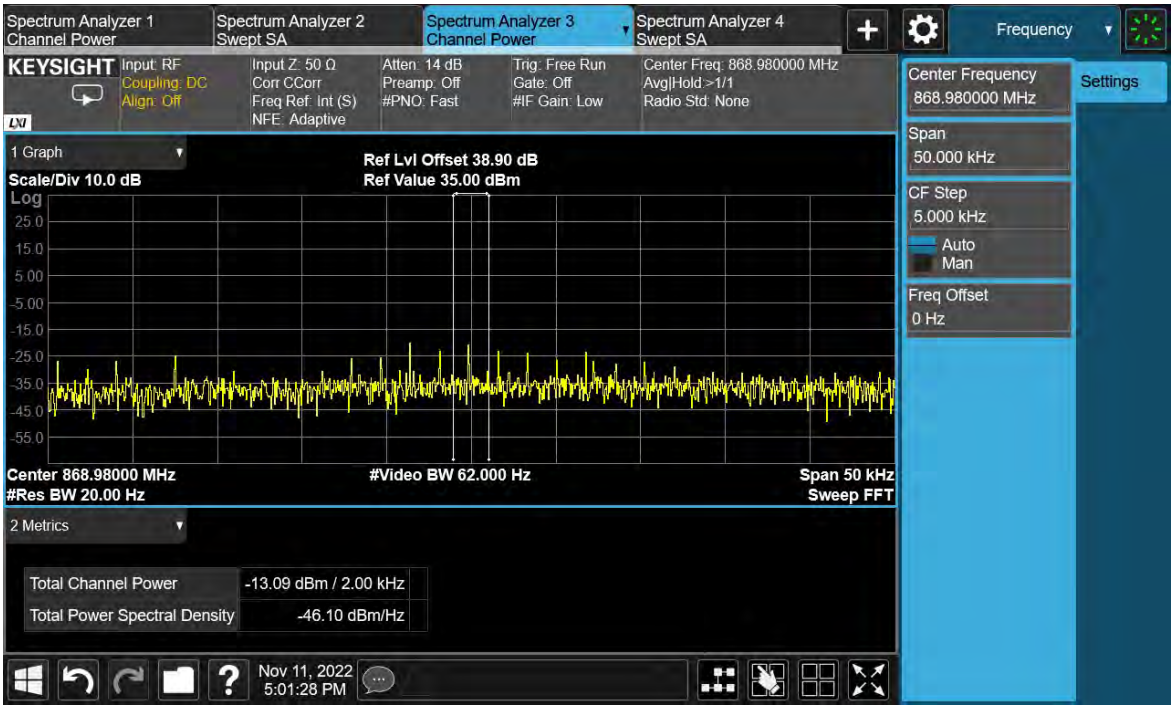
Channel Position T

TEST REPORT

G+L+NR-MC-2-UE

Antenna Port	Channel Position	L & NR Modulation	L Carrier BW (MHz)	NR Carrier BW (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	5	5	2	-13.00
D	T	QPSK	5	5	51	-19.02

Channel Position B



TEST REPORT

Channel Position T

6 Conducted Unwanted Emission

Test result: **Pass**

6.1 Limit

After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10 p (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

6.2 Measurement Procedure

In accordance with FCC rules, 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 + 10 log(P) dB.

The spurious emissions from the antenna terminal were measured. The transmitter output power was attenuated using an attenuator and the frequency spectrum investigated from 9kHz to 9GHz. The resolution bandwidth of 1MHz was employed for frequency band 9kHz to 9GHz. The spectrum analyzer detector was set to RMS.

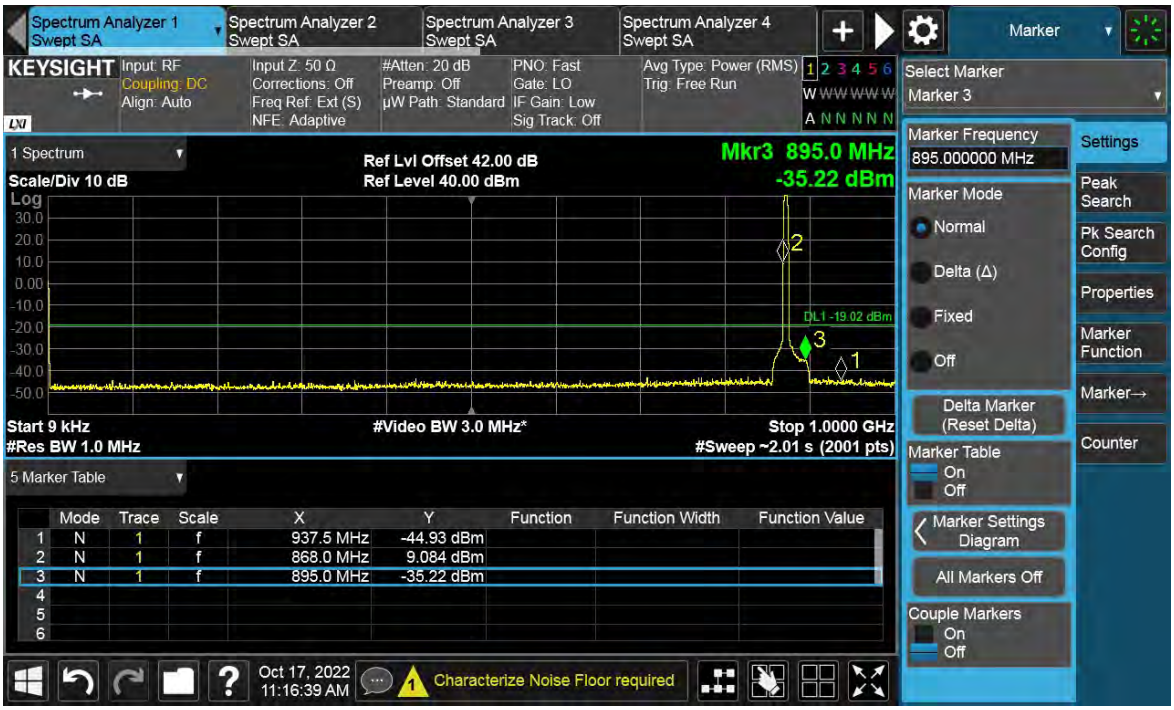
For MIMO mode configurations, the limit was adjusted with a correction of -6.02dB [10Log(1/4)] by using the Measure and Add 10Log(N) dB technique according to KDB 662911 D01 Multiple Transmitter Output accounting for simultaneous transmission from antenna ports. Then the limit was adjusted to -19.02dBm. For GSM which do not support MIMO, the limit is 13dBm.

6.3 Measurement result

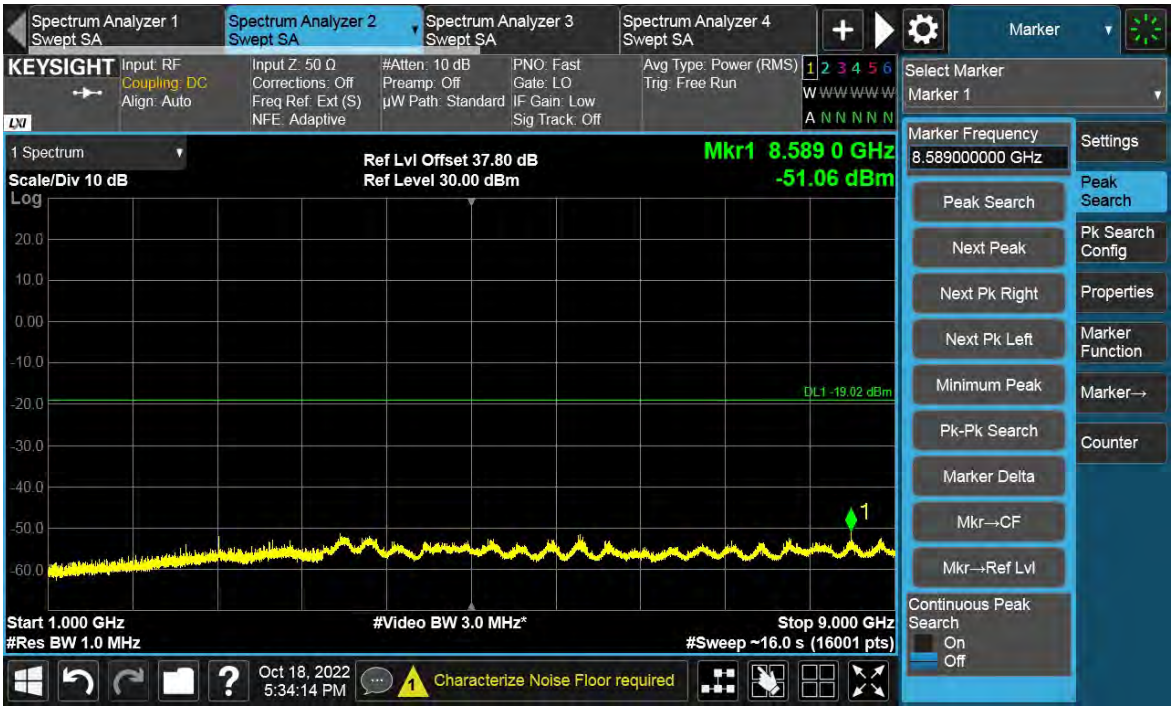
W-1C-UE

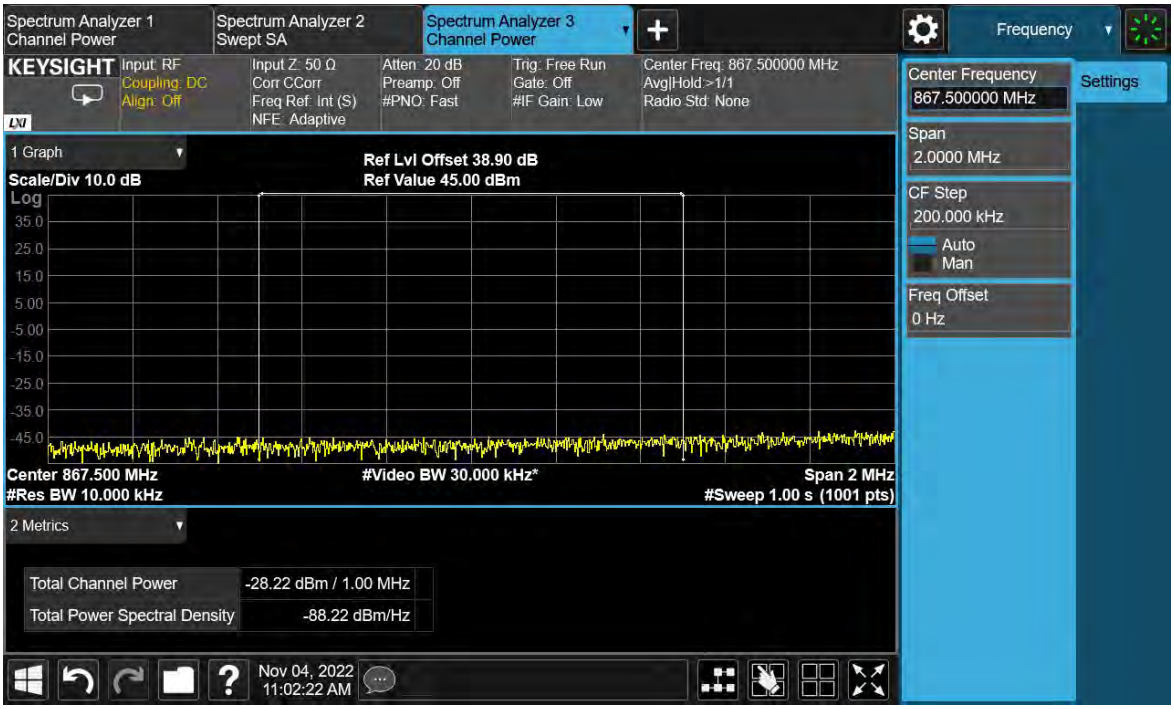
Antenna Port	Channel Position	Modulation	Carrier Bandwidth (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	5	1000	-19.02
D	T	QPSK	5	1000	-19.02

Channel Position B



TEST REPORT

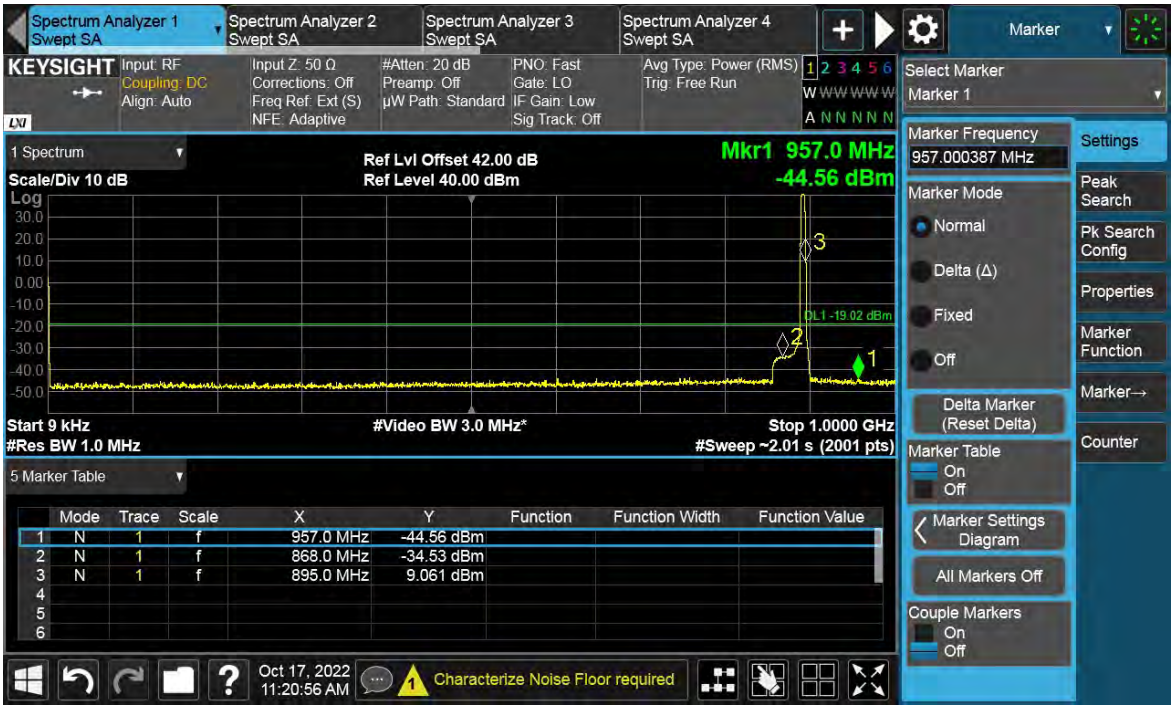

Spectrum Analyzer 1 Swept SA
Spectrum Analyzer 2 Swept SA
Spectrum Analyzer 3 Swept SA
Spectrum Analyzer 4 Swept SA
Marker
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Ext (S)
NFE: Adaptive
#Atten: 10 dB
Preamp: Off
μW Path: Standard
PNO: Fast
Gate: LO
IF Gain: Low
Sig Track: Off
Avg Type: Power (RMS)
Trig: Free Run
Select Marker
Marker 1
1 Spectrum
Ref Lvl Offset 37.80 dB
Ref Level 30.00 dBm
Mkr1 8.589 0 GHz
-51.06 dBm
Scale/Div 10 dB
Log
DL1 -19.02 dBm
Start 1.000 GHz
#Res BW 1.0 MHz
#Video BW 3.0 MHz*
Stop 9.000 GHz
#Sweep ~16.0 s (16001 pts)
Marker Frequency
8.589000000 GHz
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Minimum Peak
Pk-Pk Search
Marker Delta
Mkr→CF
Mkr→Ref Lvl
Continuous Peak Search
On
Off
Settings
Peak Search
Pk Search Config
Properties
Marker Function
Marker→
Counter
Oct 18, 2022
5:34:14 PM
Characterize Noise Floor required

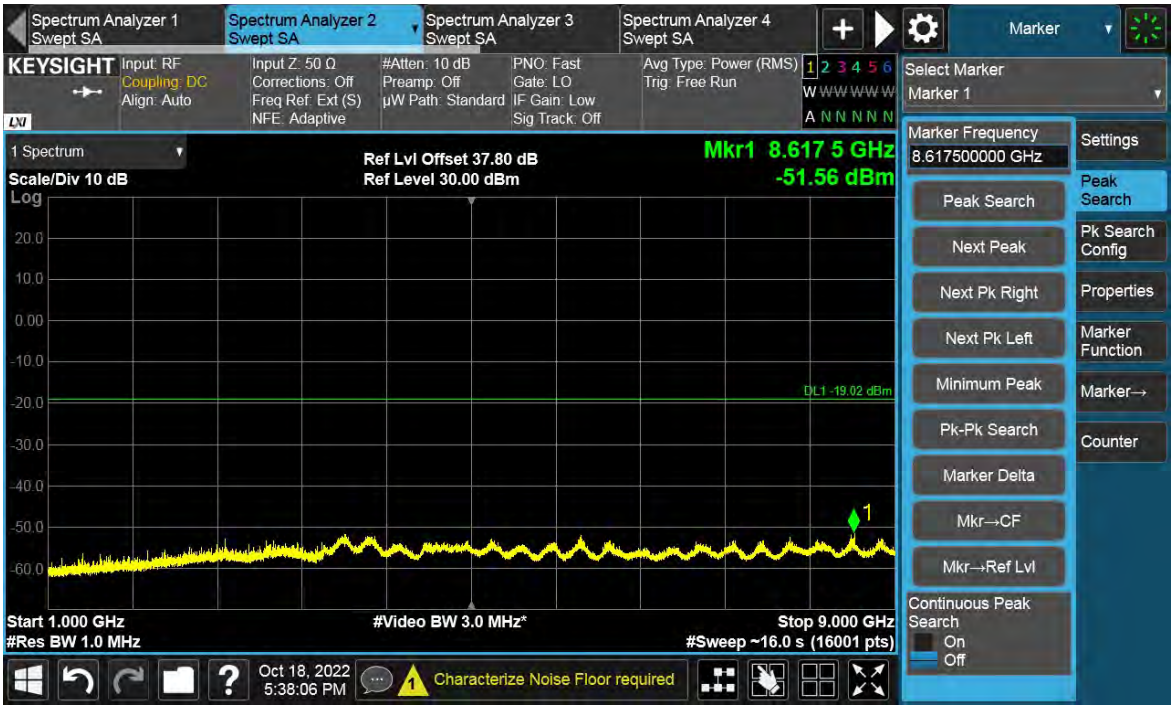

Spectrum Analyzer 1 Channel Power
Spectrum Analyzer 2 Swept SA
Spectrum Analyzer 3 Channel Power
Frequency
KEYSIGHT
Input: RF
Coupling: DC
Align: Off
Input Z: 50 Ω
Corr CCorr
Freq Ref: Int (S)
NFE: Adaptive
Atten: 20 dB
Preamp: Off
#PNO: Fast
#IF Gain: Low
Trig: Free Run
Gate: Off
Center Freq: 867.500000 MHz
Avg|Hold:>1/1
Radio Std: None
1 Graph
Ref Lvl Offset 38.90 dB
Ref Value 45.00 dBm
Scale/Div 10.0 dB
Log
Center 867.500 MHz
#Res BW 10.000 kHz
#Video BW 30.000 kHz*
Span 2 MHz
#Sweep 1.00 s (1001 pts)
2 Metrics
Total Channel Power
-28.22 dBm / 1.00 MHz
Total Power Spectral Density
-88.22 dBm/Hz
Center Frequency
867.500000 MHz
Span
2.0000 MHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
Settings
Nov 04, 2022
11:02:22 AM

Total Quality. Assured.

TEST REPORT

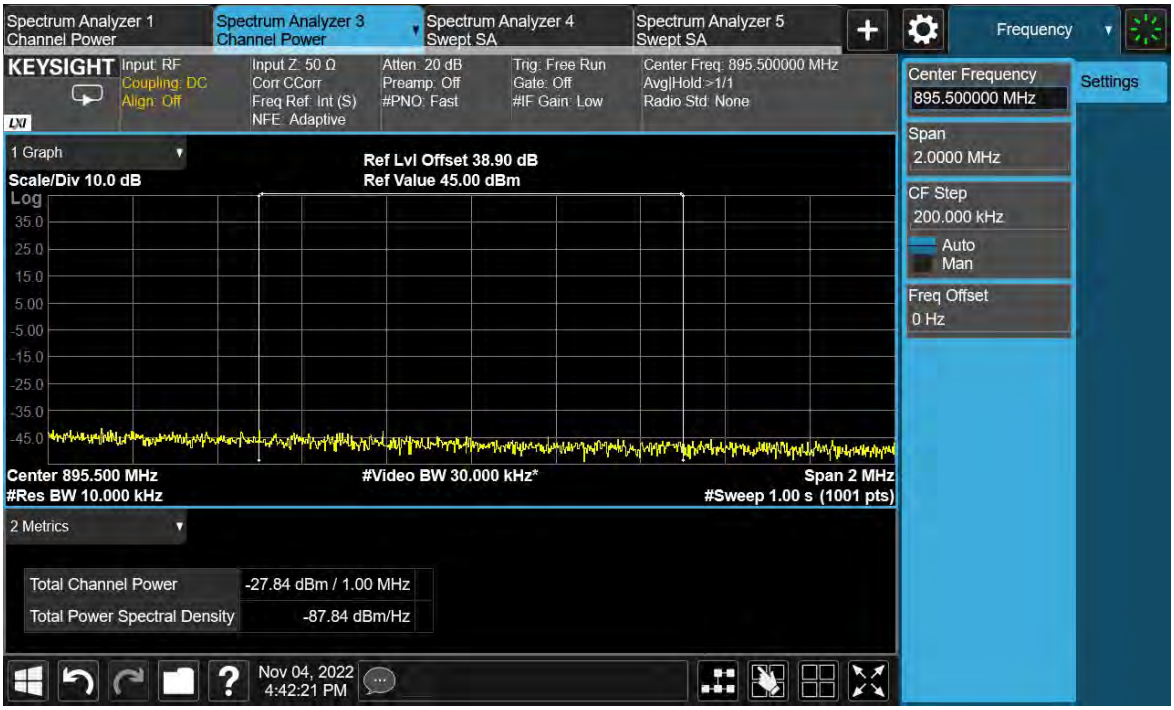
Channel Position T





Total Quality. Assured.

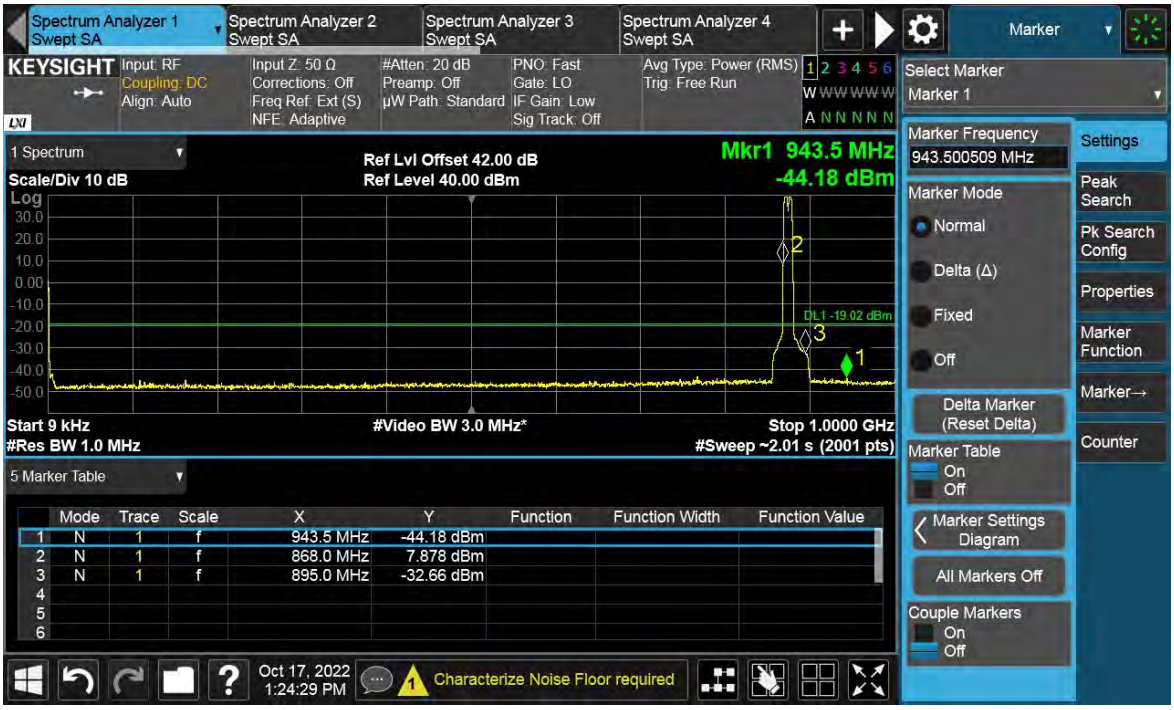
TEST REPORT



W-2C-UE

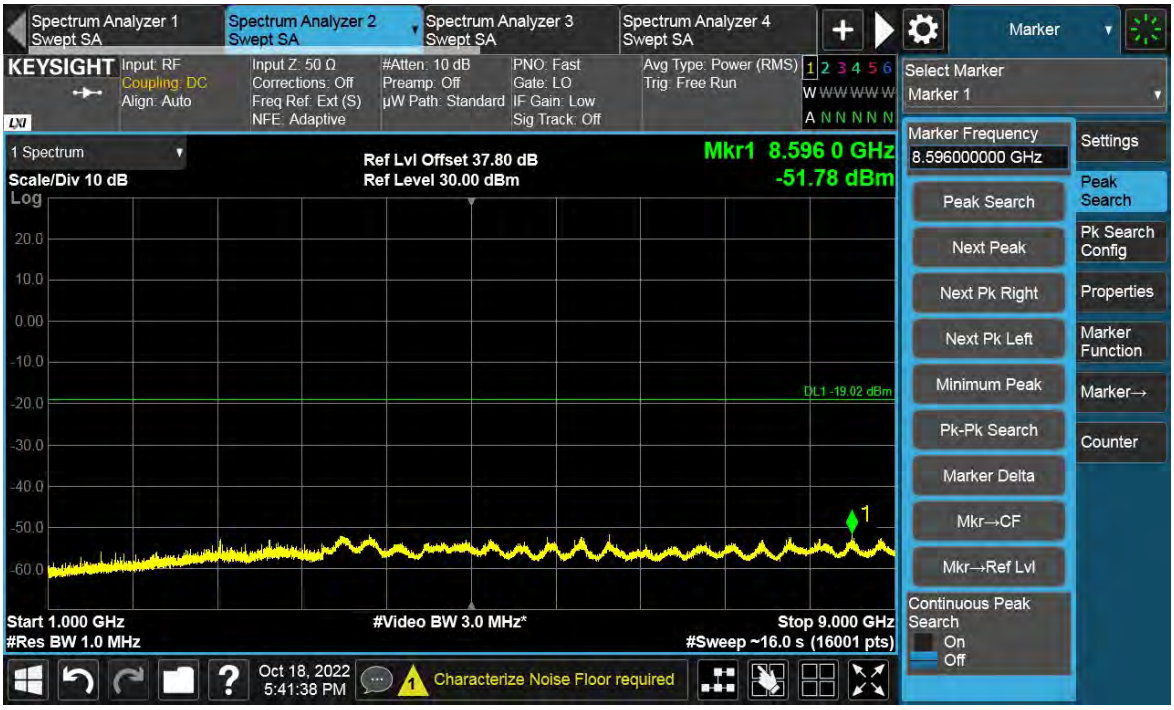
Antenna Port	Channel Position	Modulation	Carrier Bandwidth (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	5	1000	-19.02
D	T	QPSK	5	1000	-19.02

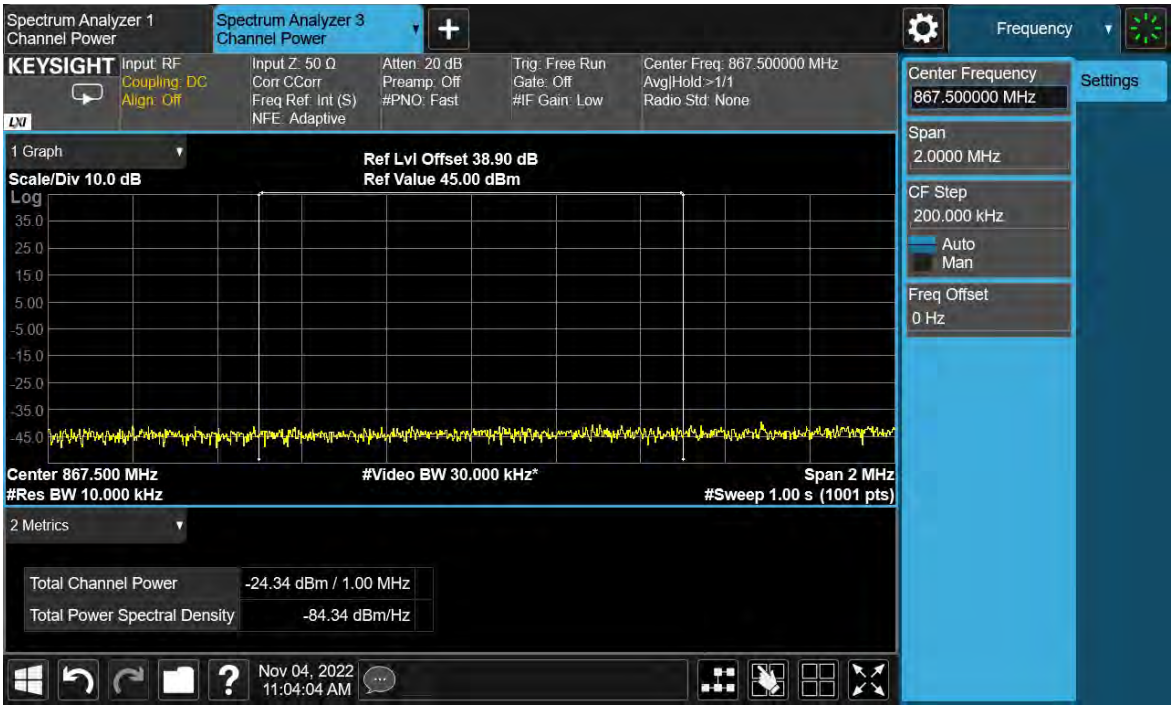
Channel Position B



Total Quality. Assured.

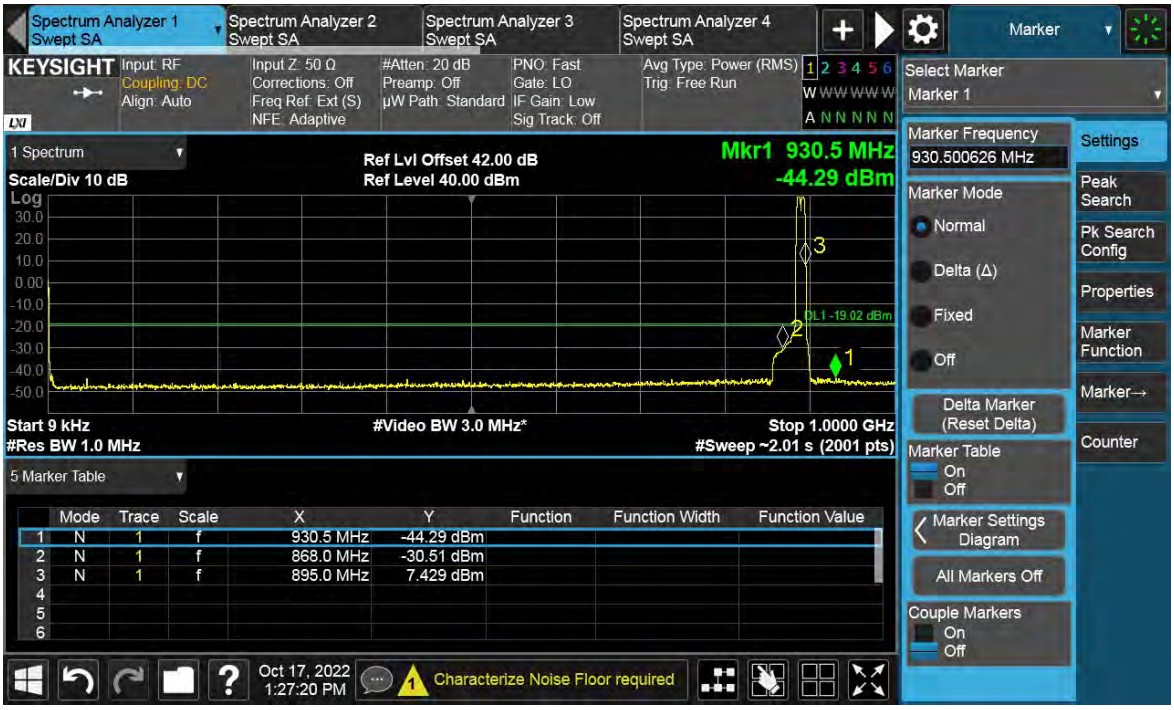
TEST REPORT

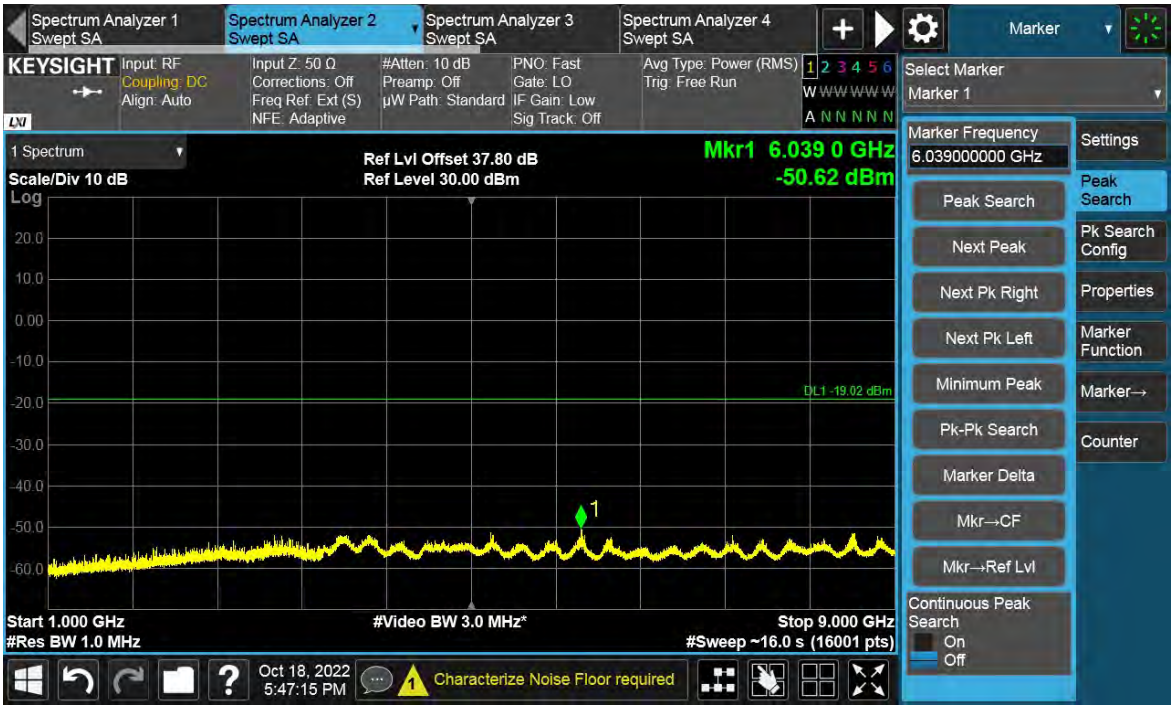




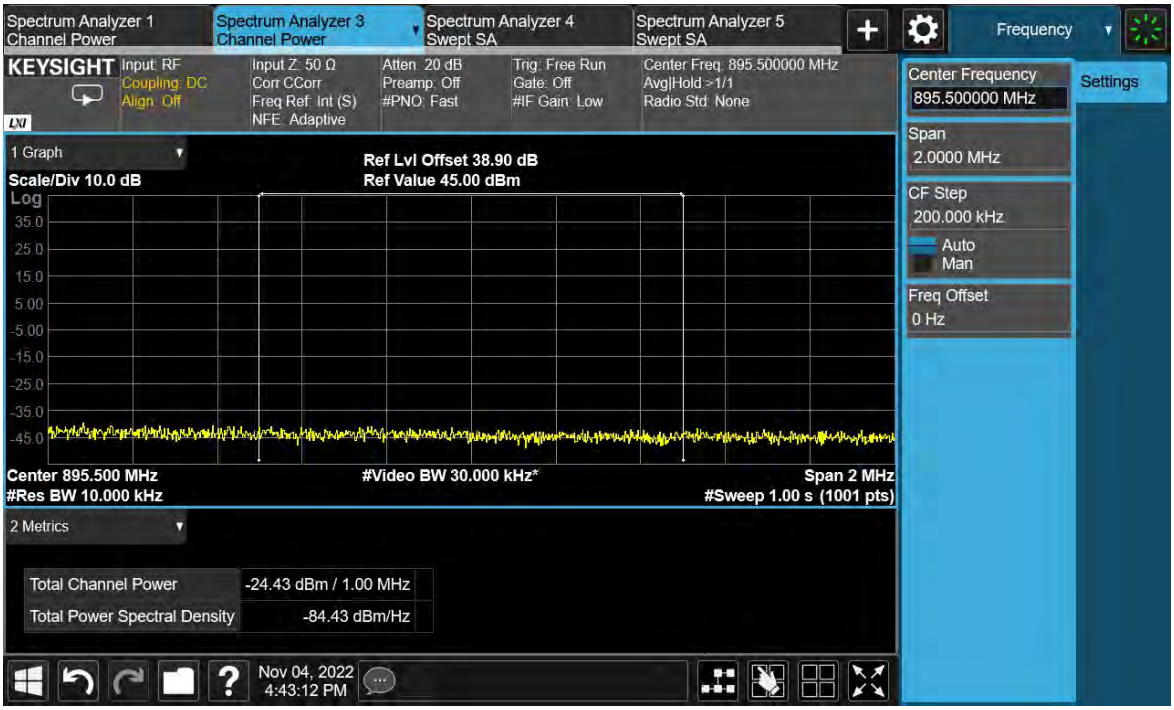
TEST REPORT

Channel Position T





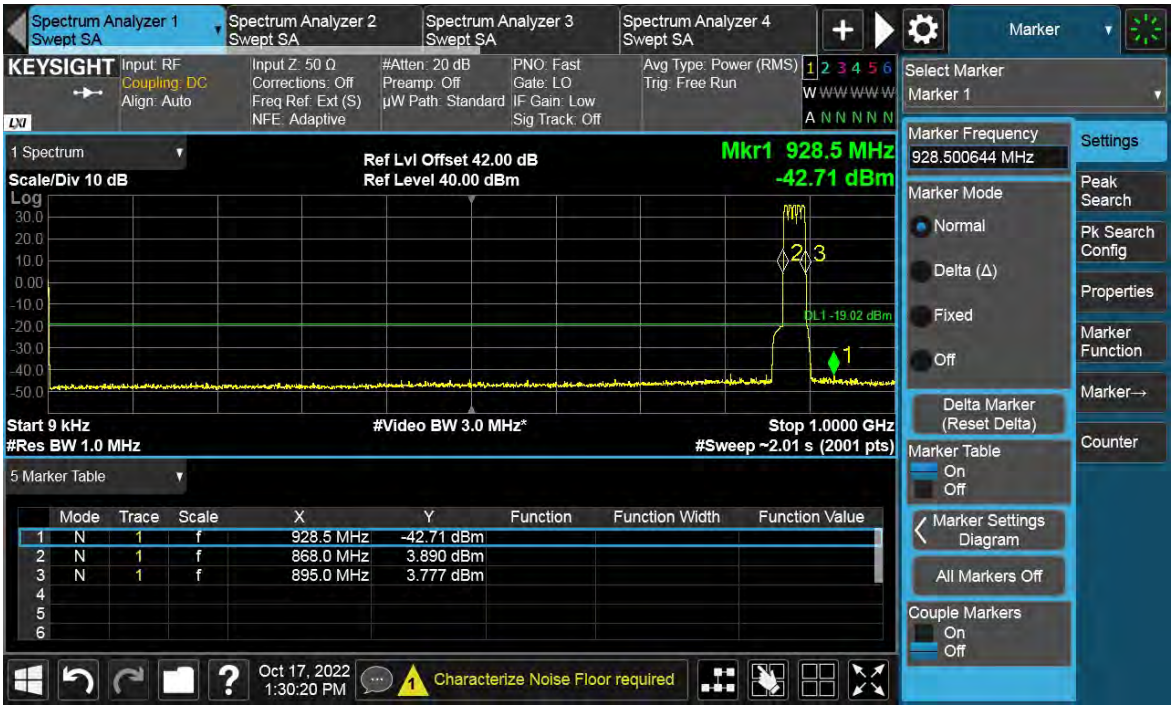
TEST REPORT



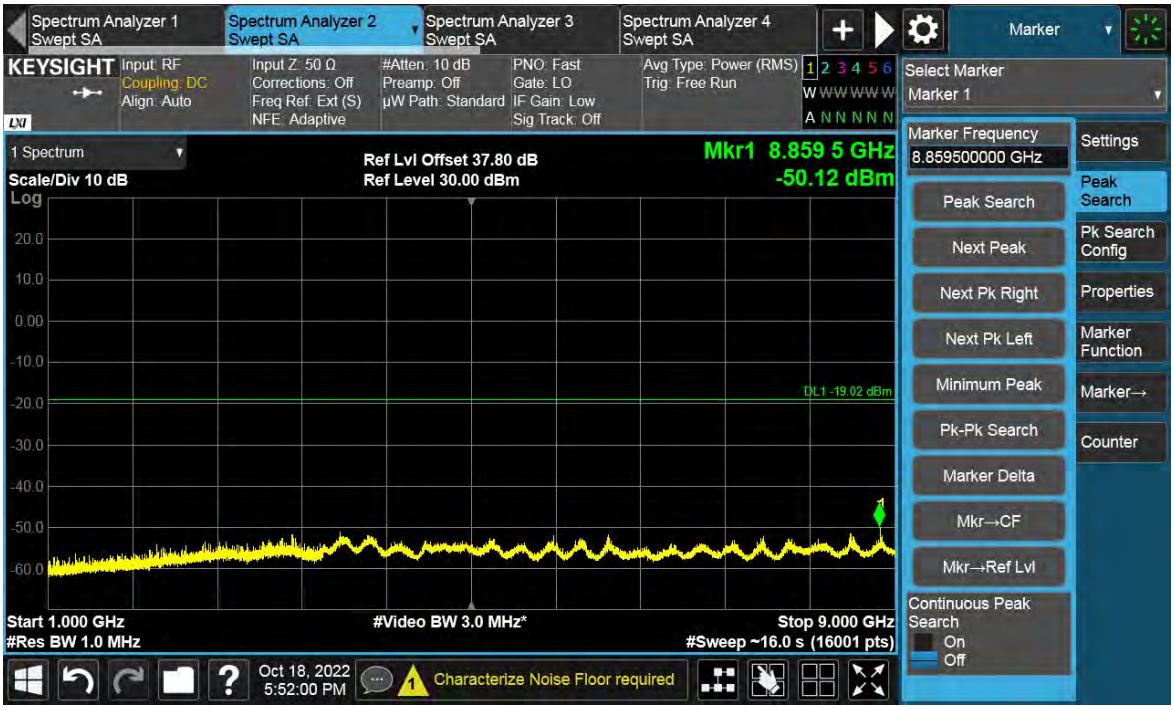
W-5C-UE

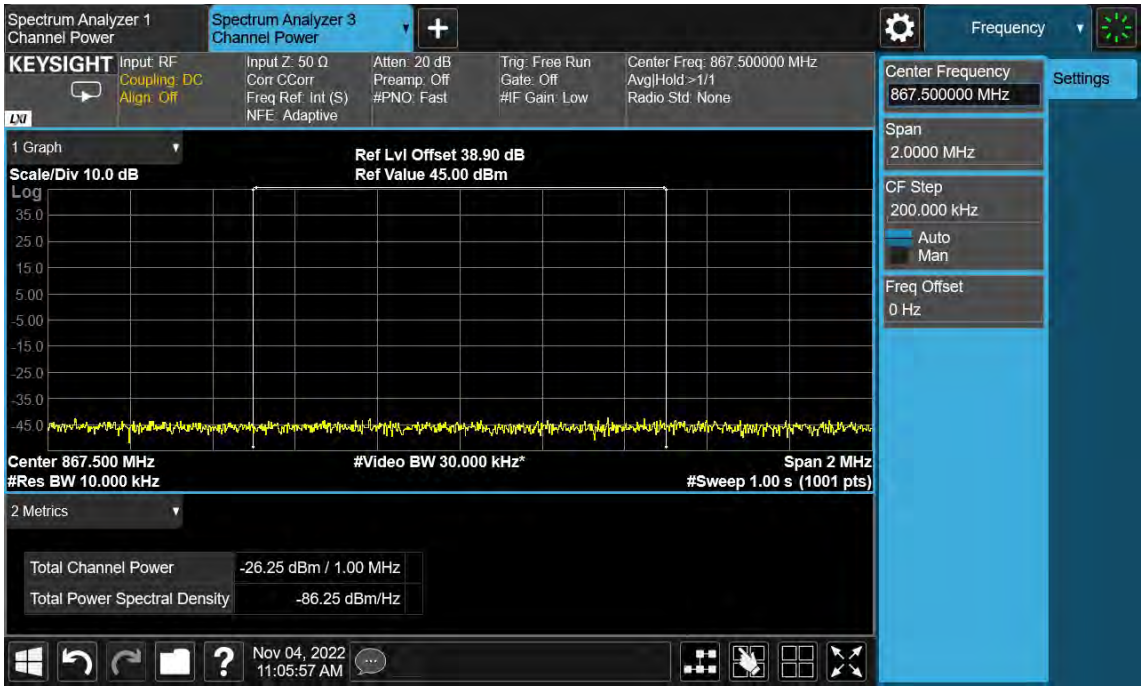
Antenna Port	Channel Position	Modulation	Carrier Bandwidth (MHz)	RBW (kHz)	Limit (dBm)
D	M	QPSK	5	1000	-19.02

Channel Position M

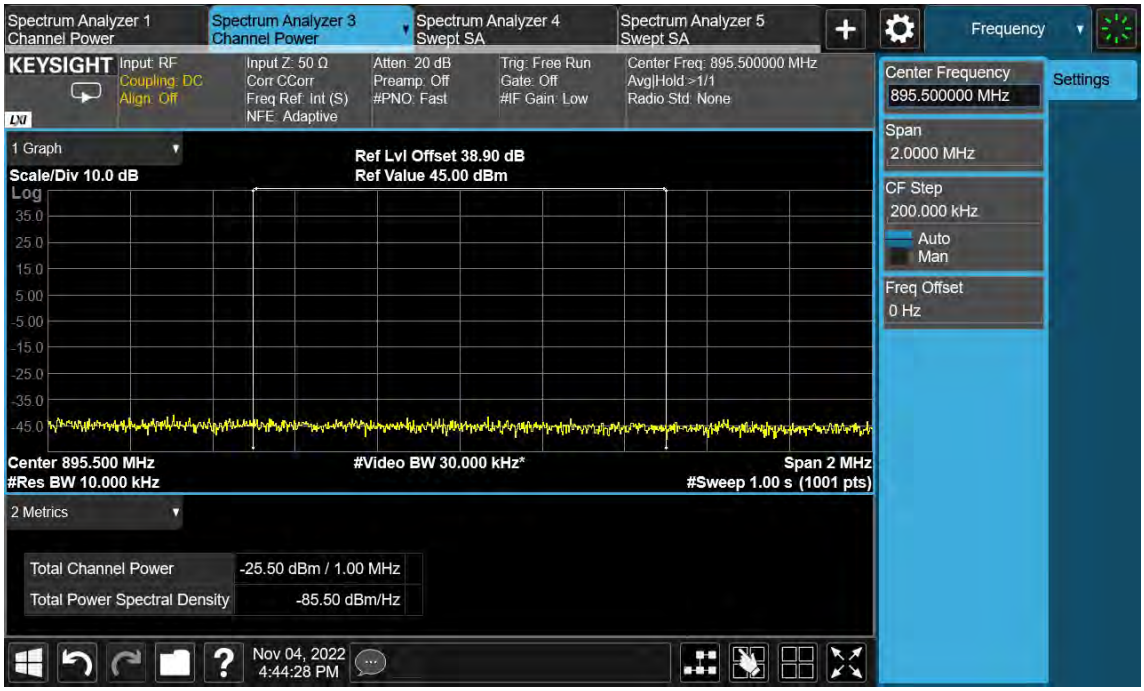


TEST REPORT


Spectrum Analyzer 1 Swept SA
Spectrum Analyzer 2 Swept SA
Spectrum Analyzer 3 Swept SA
Spectrum Analyzer 4 Swept SA
Marker
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Ext (S)
NFE: Adaptive
#Atten: 10 dB
Preamp: Off
μW Path: Standard
PNO: Fast
Gate: LO
IF Gain: Low
Sig Track: Off
Avg Type: Power (RMS)
Trig: Free Run
Select Marker
Marker 1
1 Spectrum
Scale/Div 10 dB
Ref Lvl Offset 37.80 dB
Ref Level 30.00 dBm
Mkr1 8.859 5 GHz
-50.12 dBm
DL1 -19.02 dBm
Start 1.000 GHz
#Res BW 1.0 MHz
#Video BW 3.0 MHz*
Stop 9.000 GHz
#Sweep ~16.0 s (16001 pts)
Marker Frequency
8.859500000 GHz
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Minimum Peak
Pk-Pk Search
Marker Delta
Mkr→CF
Mkr→Ref Lvl
Continuous Peak Search
On
Off
Settings
Peak Search
Pk Search Config
Properties
Marker Function
Marker→
Counter
Oct 18, 2022
5:52:00 PM
Characterize Noise Floor required


Spectrum Analyzer 1 Channel Power
Spectrum Analyzer 3 Channel Power
Frequency
KEYSIGHT
Input: RF
Coupling: DC
Align: Off
Input Z: 50 Ω
Corr CCorr
Freq Ref: Int (S)
NFE: Adaptive
Atten: 20 dB
Preamp: Off
#PNO: Fast
Trig: Free Run
Gate: Off
#IF Gain: Low
Center Freq: 867.500000 MHz
Avg|Hold:>1/1
Radio Std: None
1 Graph
Scale/Div 10.0 dB
Ref Lvl Offset 38.90 dB
Ref Value 45.00 dBm
Center 867.500 MHz
#Res BW 10.000 kHz
#Video BW 30.000 kHz*
Span 2 MHz
#Sweep 1.00 s (1001 pts)
2 Metrics
Total Channel Power
-26.25 dBm / 1.00 MHz
Total Power Spectral Density
-86.25 dBm/Hz
Center Frequency
867.500000 MHz
Span
2.0000 MHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
Settings
Nov 04, 2022
11:05:57 AM

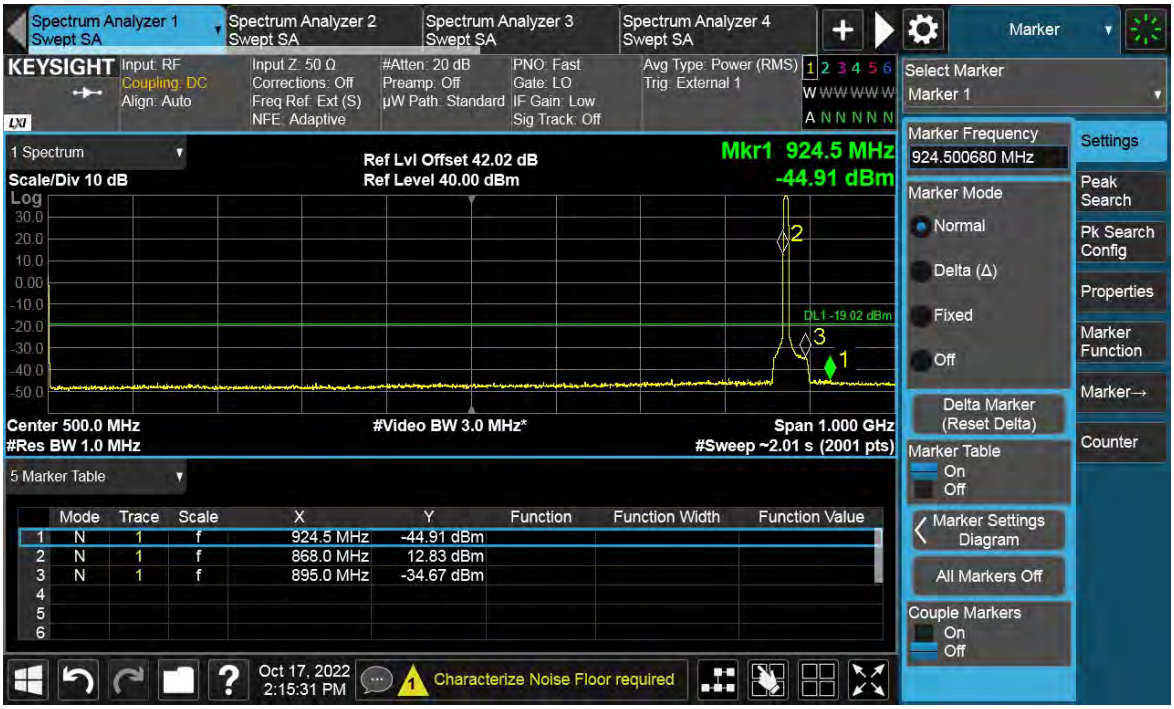
TEST REPORT



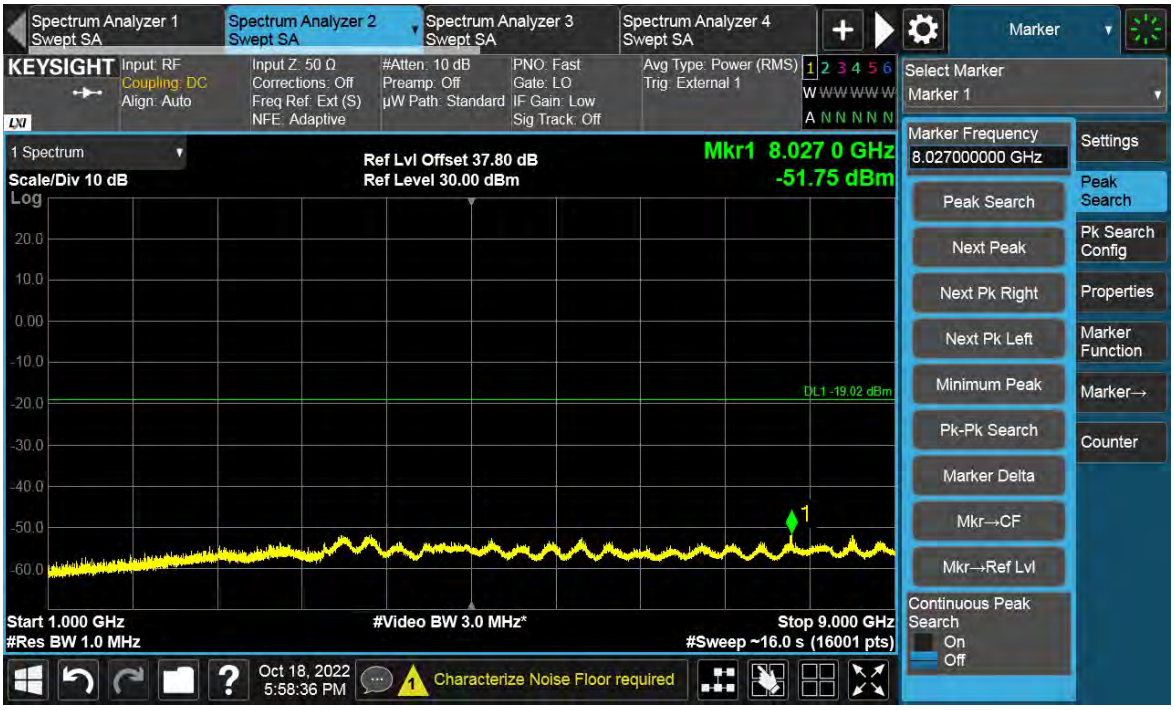
NR-1C-UE

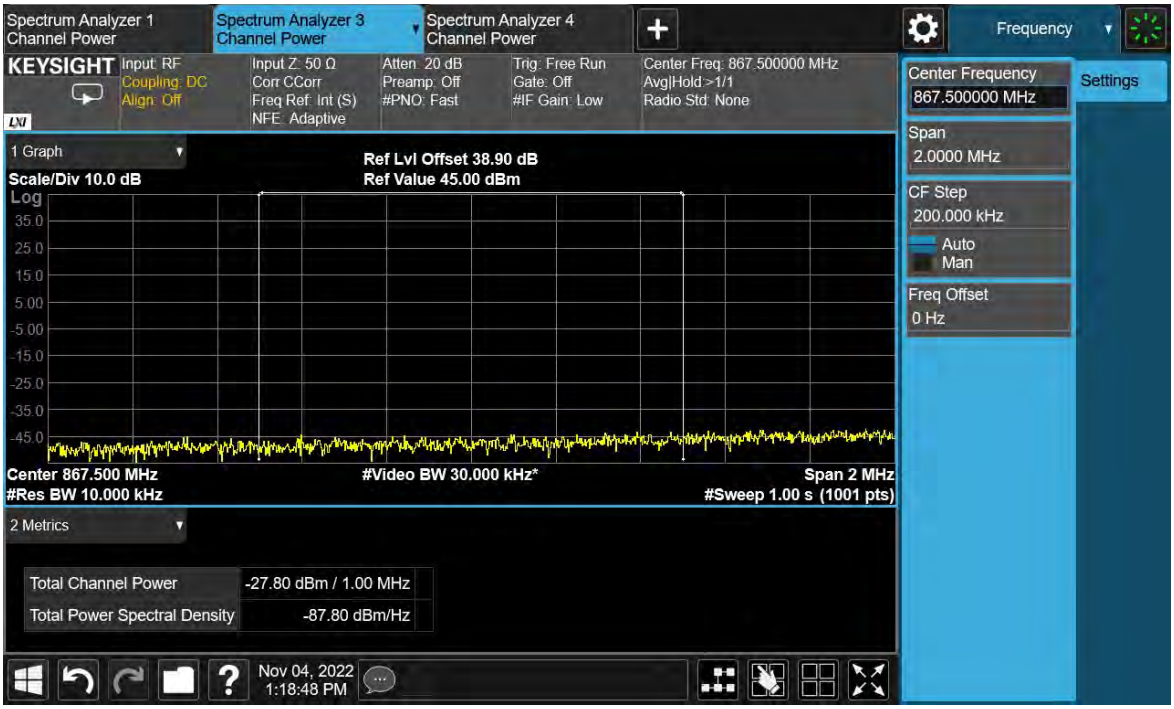
Antenna Port	Channel Position	Modulation	Carrier Bandwidth (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	5	1000	-19.02
D	T	QPSK	5	1000	-19.02

Channel Position B



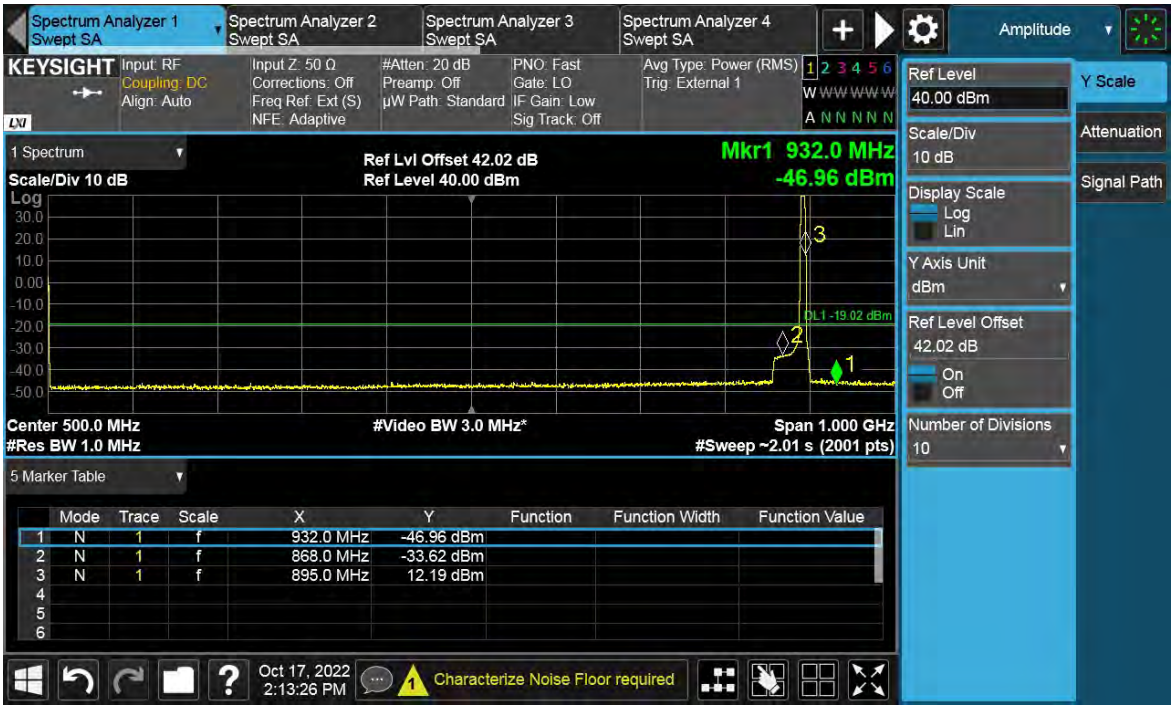
TEST REPORT

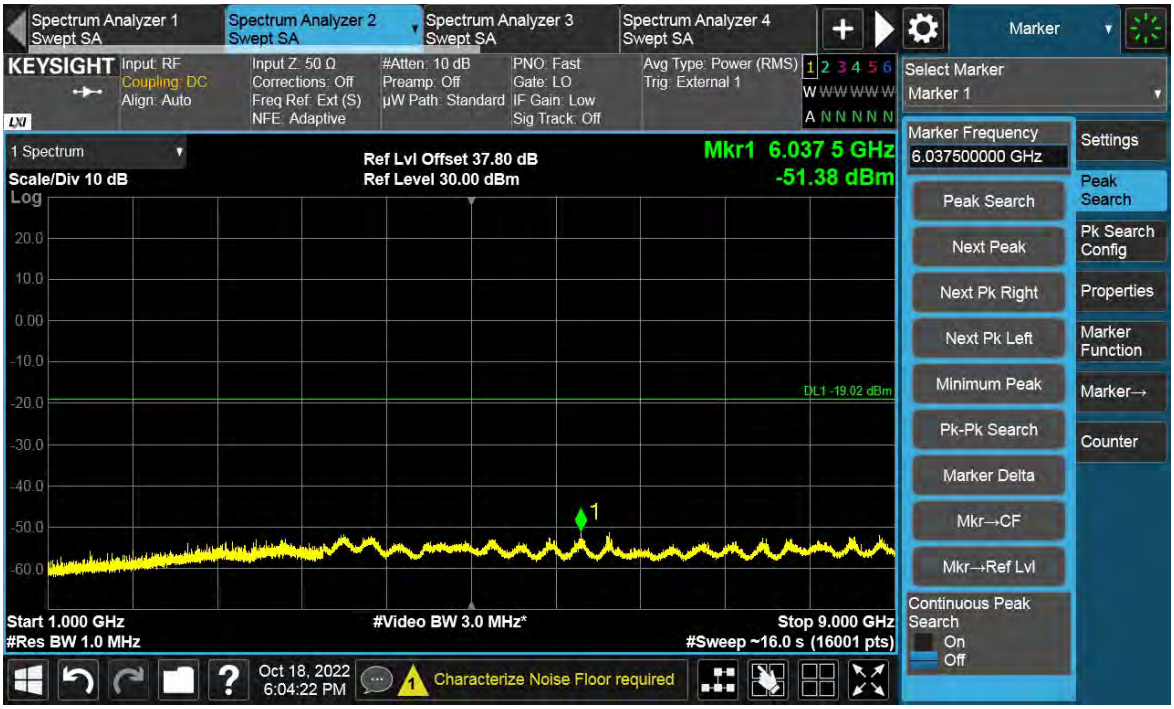

Spectrum Analyzer 1 Swept SA
Spectrum Analyzer 2 Swept SA
Spectrum Analyzer 3 Swept SA
Spectrum Analyzer 4 Swept SA
Marker
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corrections: Off
Freq Ref: Ext (S)
NFE: Adaptive
#Atten: 10 dB
Preamp: Off
µW Path: Standard
PNO: Fast
Gate: LO
IF Gain: Low
Sig Track: Off
Avg Type: Power (RMS)
Trig: External 1
Select Marker
Marker 1
1 Spectrum
Ref Lvl Offset 37.80 dB
Ref Level 30.00 dBm
Mkr1 8.027 0 GHz
-51.75 dBm
Scale/Div 10 dB
Log
DL1 -19.02 dBm
Start 1.000 GHz
#Res BW 1.0 MHz
#Video BW 3.0 MHz*
Stop 9.000 GHz
#Sweep ~16.0 s (16001 pts)
Marker Frequency
8.027000000 GHz
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Minimum Peak
Pk-Pk Search
Marker Delta
Mkr→CF
Mkr→Ref Lvl
Continuous Peak Search
On
Off
Settings
Peak Search
Pk Search Config
Properties
Marker Function
Marker→
Counter
Oct 18, 2022
5:58:36 PM
Characterize Noise Floor required


Spectrum Analyzer 1 Channel Power
Spectrum Analyzer 3 Channel Power
Spectrum Analyzer 4 Channel Power
Frequency
KEYSIGHT
Input: RF
Coupling: DC
Align: Off
Input Z: 50 Ω
Corr CCorr
Freq Ref: Int (S)
NFE: Adaptive
Atten: 20 dB
Preamp: Off
#PNO: Fast
Trig: Free Run
Gate: Off
#IF Gain: Low
Center Freq: 867.500000 MHz
Avg|Hold:>1/1
Radio Std: None
1 Graph
Ref Lvl Offset 38.90 dB
Ref Value 45.00 dBm
Scale/Div 10.0 dB
Log
Center 867.500 MHz
#Res BW 10.000 kHz
#Video BW 30.000 kHz*
Span 2 MHz
#Sweep 1.00 s (1001 pts)
2 Metrics
Total Channel Power
-27.80 dBm / 1.00 MHz
Total Power Spectral Density
-87.80 dBm/Hz
Center Frequency
867.500000 MHz
Span
2.0000 MHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
Settings
Nov 04, 2022
1:18:48 PM

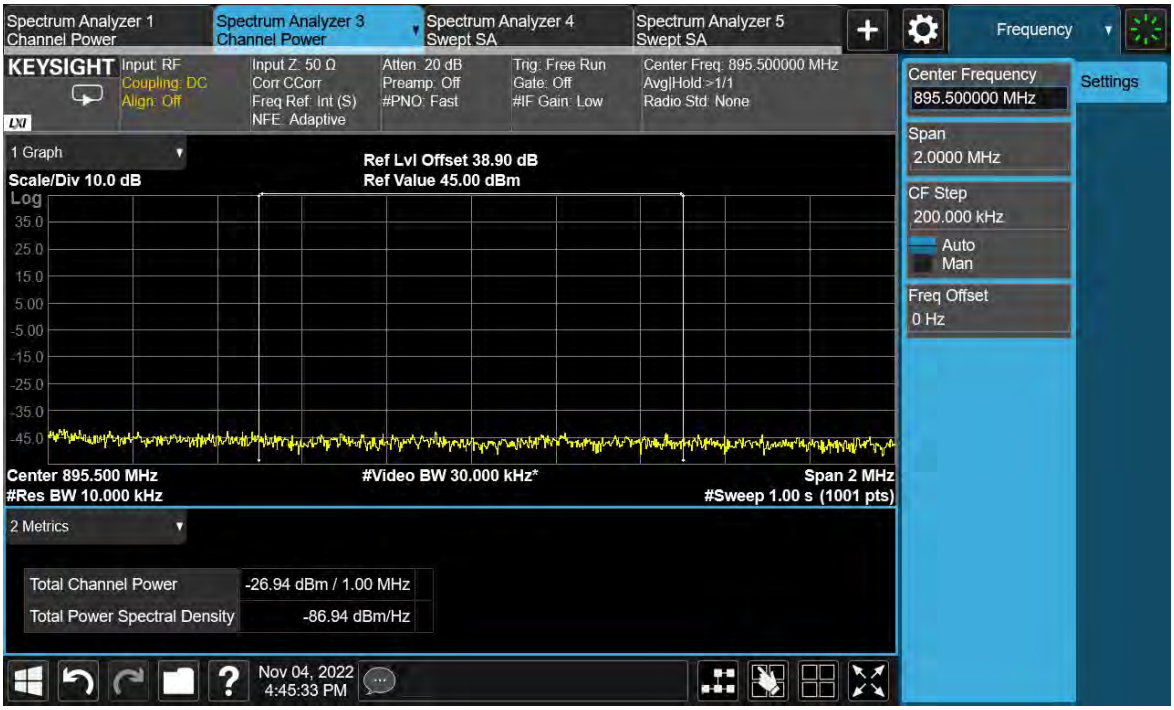
TEST REPORT

Channel Position T





TEST REPORT



NR-1C-UE

Antenna Port	Channel Position	Modulation	Carrier Bandwidth (MHz)	RBW (kHz)	Limit (dBm)
D	B	QPSK	10	1000	-19.02
D	T	QPSK	10	1000	-19.02

Channel Position B