



Appendix for test report

1Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band (LTE)	Test Mode	Test Bandwidth	Test Channel	PCC Test RB	SCC Test RB	Measured [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
CA_41C	LTE/TM1	15+15	LCH	1 # 0	0 # 0	23.31	23.41	33	PASS
				partial RBs # 0	0 # 0	23.35	23.45	33	PASS
				full RBs # 0	0 # 0	22.40	22.50	33	PASS
				full RBs # 0	full RBs # 0	21.61	21.71	33	PASS
			MCH	1 # 0	0 # 0	23.31	23.41	33	PASS
				partial RBs # 0	0 # 0	23.35	23.45	33	PASS
				full RBs # 0	0 # 0	22.35	22.45	33	PASS
				full RBs # 0	full RBs # 0	21.30	21.40	33	PASS
			HCH	1 # 0	0 # 0	23.40	23.50	33	PASS
				partial RBs # 0	0 # 0	23.34	23.44	33	PASS
				full RBs # 0	0 # 0	22.39	22.49	33	PASS
				full RBs # 0	full RBs # 0	21.31	21.41	33	PASS
		20+20	LCH	1 # 0	0 # 0	23.41	23.51	33	PASS
				partial RBs # 0	0 # 0	23.38	23.48	33	PASS

Test Band (LTE)	Test Mode	Test Bandwidth	Test Channel	PCC Test RB	SCC Test RB	Measured [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
				full RBs # 0	0 # 0	22.41	22.51	33	PASS
				full RBs # 0	full RBs # 0	21.62	21.72	33	PASS
			MCH	1 # 0	0 # 0	23.45	23.55	33	PASS
				partial RBs # 0	0 # 0	23.33	23.43	33	PASS
				full RBs # 0	0 # 0	22.40	22.50	33	PASS
				full RBs # 0	full RBs # 0	21.27	21.37	33	PASS
			HCH	1 # 0	0 # 0	23.41	23.51	33	PASS
				partial RBs # 0	0 # 0	23.16	23.26	33	PASS
				full RBs # 0	0 # 0	22.29	22.39	33	PASS
				full RBs # 0	full RBs # 0	21.23	21.33	33	PASS
	LTE/TM2	15+15	LCH	1 # 0	0 # 0	22.95	23.05	33	PASS
				partial RBs # 0	0 # 0	22.49	22.59	33	PASS
				full RBs # 0	0 # 0	21.47	21.57	33	PASS
				full RBs # 0	full RBs # 0	20.50	20.60	33	PASS
			MCH	1 # 0	0 # 0	22.98	23.08	33	PASS
				partial RBs # 0	0 # 0	22.38	22.48	33	PASS
				full RBs # 0	0 # 0	21.40	21.50	33	PASS

Test Band (LTE)	Test Mode	Test Bandwidth	Test Channel	PCC Test RB	SCC Test RB	Measured [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
				full RBs # 0	full RBs # 0	20.29	20.39	33	PASS
			HCH	1 # 0	0 # 0	22.76	22.86	33	PASS
				partial RBs # 0	0 # 0	22.50	22.60	33	PASS
				full RBs # 0	0 # 0	21.40	21.50	33	PASS
				full RBs # 0	full RBs # 0	20.41	20.51	33	PASS
		20+20	LCH	1 # 0	0 # 0	23.06	23.16	33	PASS
				partial RBs # 0	0 # 0	22.54	22.64	33	PASS
				full RBs # 0	0 # 0	21.43	21.53	33	PASS
				full RBs # 0	full RBs # 0	20.58	20.68	33	PASS
			MCH	1 # 0	0 # 0	23.04	23.14	33	PASS
				partial RBs # 0	0 # 0	22.43	22.53	33	PASS
				full RBs # 0	0 # 0	21.43	21.53	33	PASS
				full RBs # 0	full RBs # 0	20.38	20.48	33	PASS
			HCH	1 # 0	0 # 0	23.11	23.21	33	PASS
				partial RBs # 0	0 # 0	22.33	22.43	33	PASS
				full RBs # 0	0 # 0	21.27	21.37	33	PASS
				full RBs # 0	full RBs # 0	20.32	20.42	33	PASS

Note1:

a, For getting the ERP (Efficient Radiated Power) or EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

$$\text{ERP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

$$\text{EIRP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBi]}$$

b, SGP = Signal Generator Level

Note2:

$$\text{SET Span} = 1.5 * \text{OBW}$$

$$\text{SET RBW} = 1\% \text{ of the OBW, not to exceed 1MHz}$$

$$\text{SET VBW} \geq 3 * \text{RBW}$$

$$\text{SET Sweep time} = \text{auto - couple.}$$

Detector: RMS

2Appendix_B: Peak-to-Average Ratio

Part I - Test Results

Test Band (LTE)	Test Mode	Test Bandwidth	Test Channel	PCC Test RB	SCC Test RB	Measured [dBm]	Limit [dBm]	Verdict
CA_41C	LTE/TM1	15+15	LCH	1 # 0	0 # 0	3.39	13	PASS
				partial RBs # 0	0 # 0	3.97	13	PASS
				full RBs # 0	0 # 0	6.13	13	PASS
				full RBs # 0	full RBs # 0	6.09	13	PASS
			MCH	1 # 0	0 # 0	3.43	13	PASS
				partial RBs # 0	0 # 0	4.07	13	PASS
				full RBs # 0	0 # 0	5.95	13	PASS
				full RBs # 0	full RBs # 0	6.14	13	PASS
			HCH	1 # 0	0 # 0	3.43	13	PASS
				partial RBs # 0	0 # 0	3.99	13	PASS
				full RBs # 0	0 # 0	5.91	13	PASS
				full RBs # 0	full RBs # 0	6.18	13	PASS
		20+20	LCH	1 # 0	0 # 0	3.37	13	PASS
				partial RBs # 0	0 # 0	3.97	13	PASS
				full RBs # 0	0 # 0	5.74	13	PASS

Test Band (LTE)	Test Mode	Test Bandwidth	Test Channel	PCC Test RB	SCC Test RB	Measured [dBm]	Limit [dBm]	Verdict
				full RBs # 0	full RBs # 0	5.82	13	PASS
			MCH	1 # 0	0 # 0	3.46	13	PASS
				partial RBs # 0	0 # 0	4.05	13	PASS
				full RBs # 0	0 # 0	5.80	13	PASS
				full RBs # 0	full RBs # 0	5.67	13	PASS
				full RBs # 0	full RBs # 0	5.67	13	PASS
			HCH	1 # 0	0 # 0	3.44	13	PASS
				partial RBs # 0	0 # 0	4.05	13	PASS
				full RBs # 0	0 # 0	5.78	13	PASS
				full RBs # 0	full RBs # 0	5.97	13	PASS
	LTE/TM2	15+15	LCH	1 # 0	0 # 0	4.59	13	PASS
				partial RBs # 0	0 # 0	5.47	13	PASS
				full RBs # 0	0 # 0	6.79	13	PASS
				full RBs # 0	full RBs # 0	6.85	13	PASS
			MCH	1 # 0	0 # 0	4.64	13	PASS
				partial RBs # 0	0 # 0	5.62	13	PASS
				full RBs # 0	0 # 0	6.71	13	PASS
				full RBs # 0	full RBs # 0	6.93	13	PASS

Test Band (LTE)	Test Mode	Test Bandwidth	Test Channel	PCC Test RB	SCC Test RB	Measured [dBm]	Limit [dBm]	Verdict
			HCH	1 # 0	0 # 0	4.71	13	PASS
				partial RBs # 0	0 # 0	5.49	13	PASS
				full RBs # 0	0 # 0	6.79	13	PASS
				full RBs # 0	full RBs # 0	6.98	13	PASS
			LCH	1 # 0	0 # 0	4.43	13	PASS
				partial RBs # 0	0 # 0	5.46	13	PASS
				full RBs # 0	0 # 0	6.79	13	PASS
				full RBs # 0	full RBs # 0	6.81	13	PASS
		20+20	MCH	1 # 0	0 # 0	4.88	13	PASS
				partial RBs # 0	0 # 0	5.56	13	PASS
				full RBs # 0	0 # 0	6.81	13	PASS
				full RBs # 0	full RBs # 0	6.88	13	PASS
			HCH	1 # 0	0 # 0	4.39	13	PASS
				partial RBs # 0	0 # 0	5.51	13	PASS
				full RBs # 0	0 # 0	6.47	13	PASS
				full RBs # 0	full RBs # 0	6.70	13	PASS

3Appendix_C: Modulation Characteristics

Part I - Test Plots

3.1 For LTE

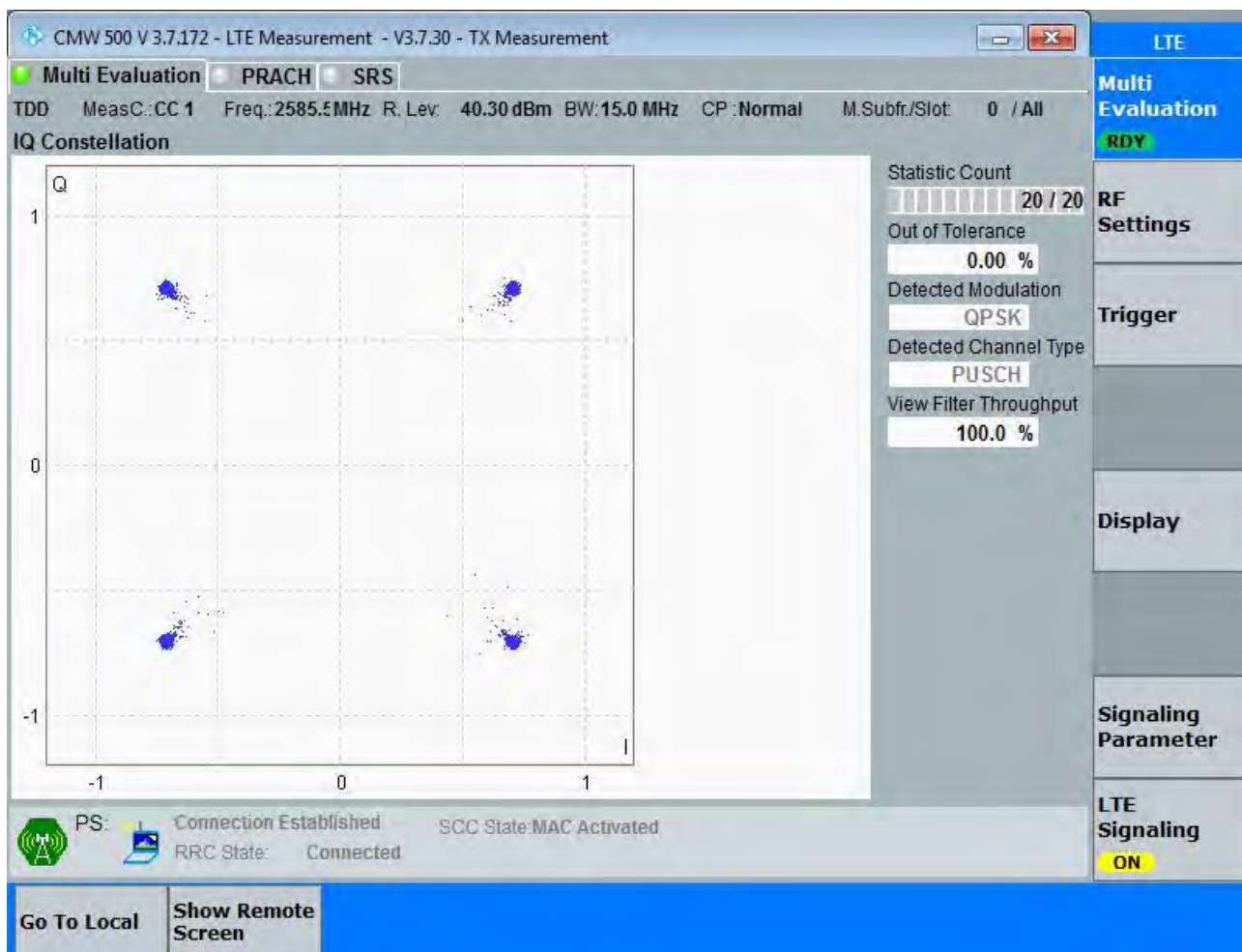
3.1.1 Test Band = CA_41C

3.1.1.1 Test Mode = LTE/TM1

3.1.1.1.1 Test Bandwidth = 15+15

3.1.1.1.1.1 Test Channel = MCH

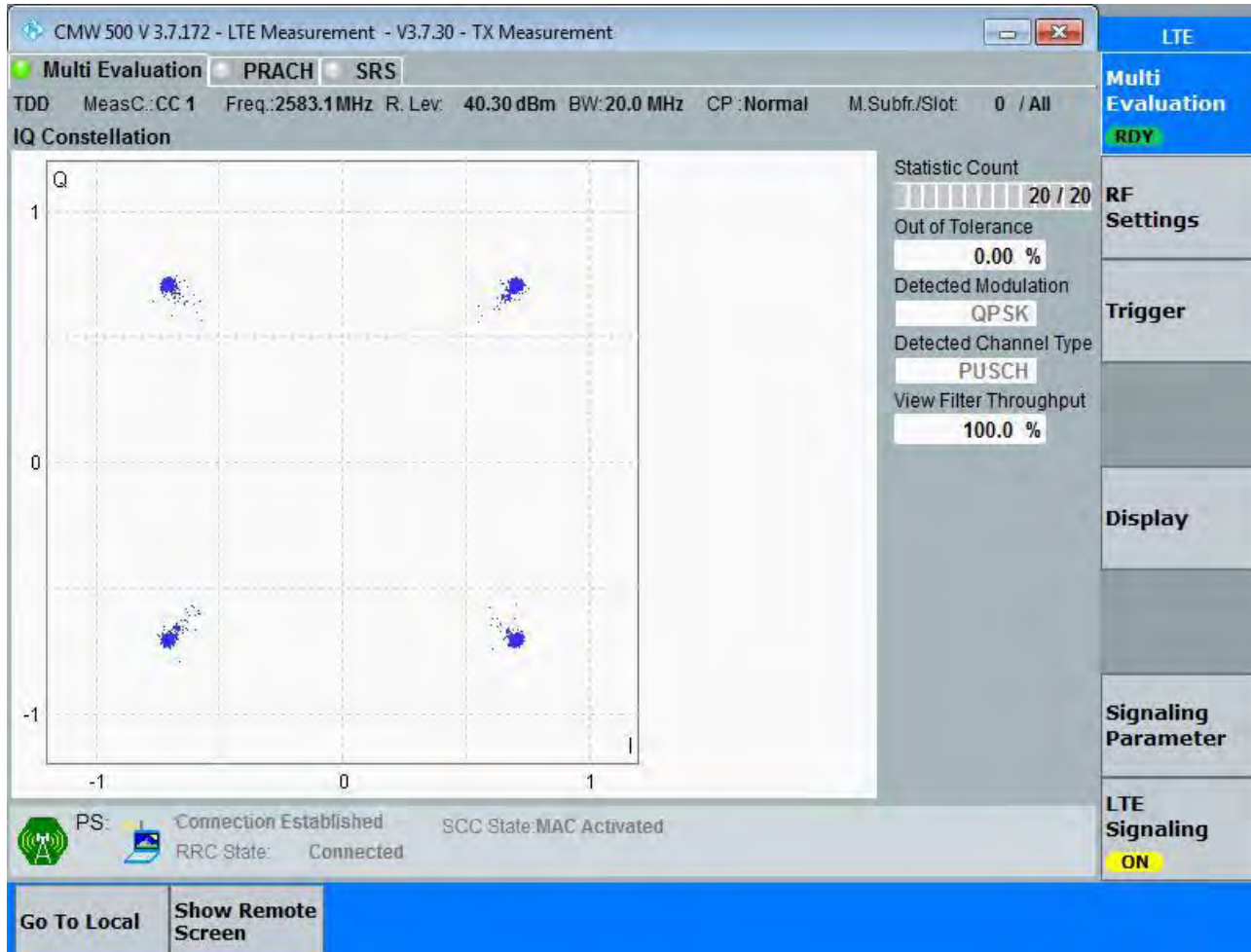
3.1.1.1.1.1.1 PCC Test RB = full RBs & SCC Test RB = full RBs



3.1.1.1.2 Test Bandwidth = 20+20

3.1.1.1.2.1 Test Channel = MCH

3.1.1.1.2.1.1 PCC Test RB = full RBs & SCC Test RB = full RBs

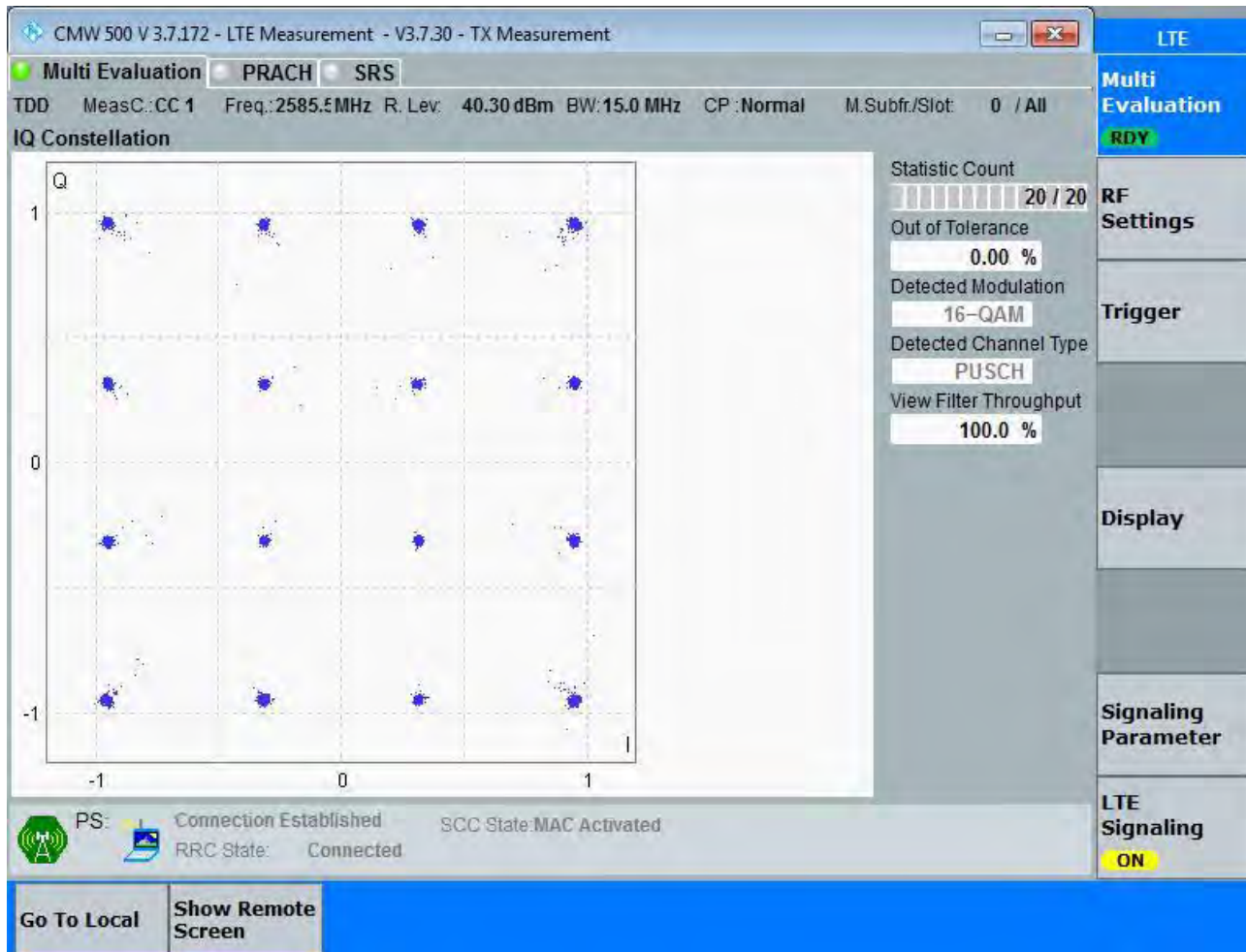


3.1.1.2 Test Mode = LTE/TM2

3.1.1.2.1 Test Bandwidth = 15+15

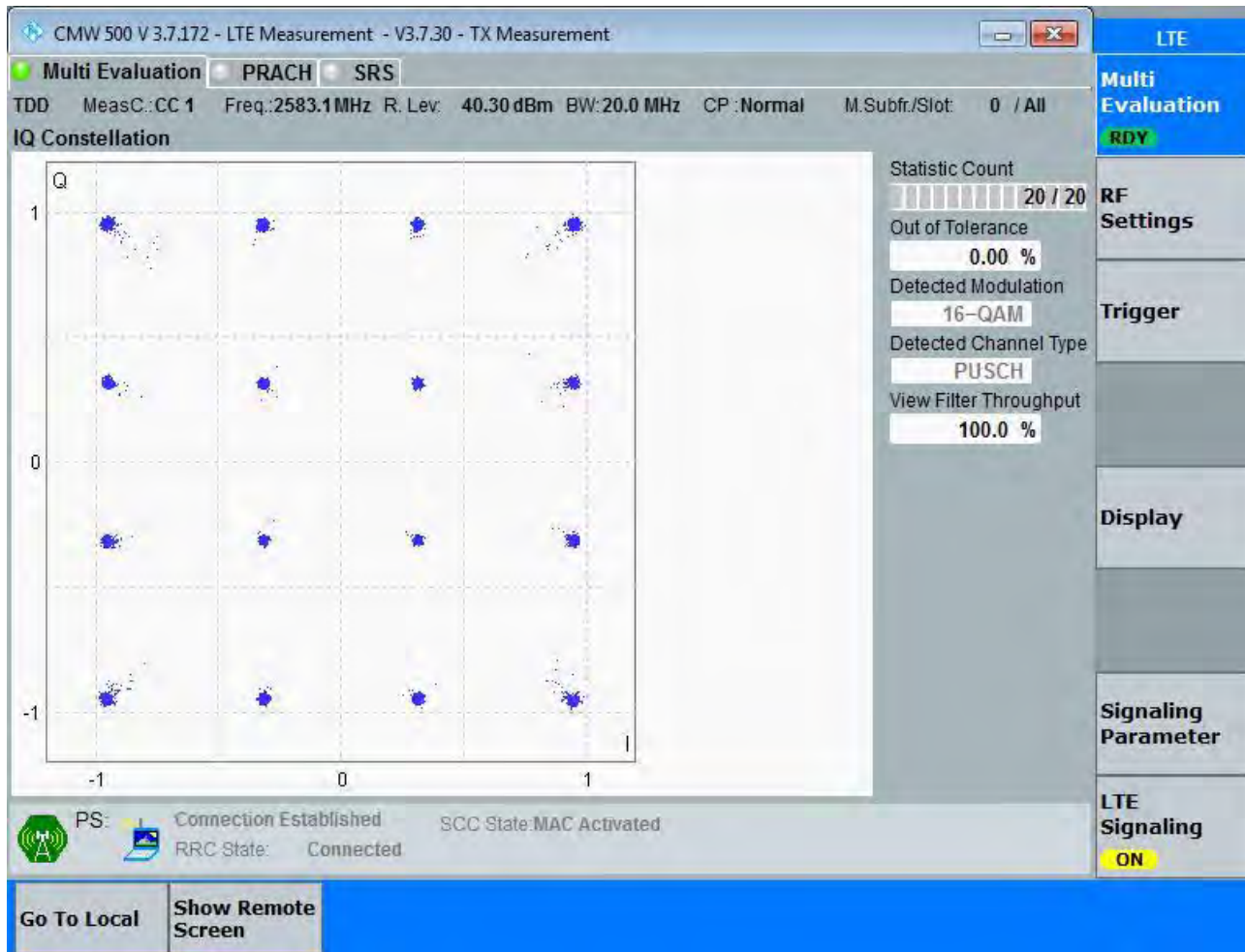
3.1.1.2.1.1 Test Channel = MCH

3.1.1.2.1.1.1 PCC Test RB = full RBs & SCC Test RB = full RBs



3.1.1.2.2 Test Bandwidth = 20+20

3.1.1.2.2.1.1 PCC Test RB = full RBs & SCC Test RB = full RBs



4Appendix_D: Bandwidth

Part I - Test Results

Test Band (LTE)	Test Mode	Test Band width	Test Channel	PCC Test RB	SCC Test RB	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
CA_41C	LTE/TM1	15+15	LCH	full RBs # 0	full RBs # 0	28.74	31.00	PASS
			MCH	full RBs # 0	full RBs # 0	28.76	33.77	PASS
			HCH	full RBs # 0	full RBs # 0	28.68	33.95	PASS
		20+20	LCH	full RBs # 0	full RBs # 0	38.30	42.40	PASS
			MCH	full RBs # 0	full RBs # 0	38.21	42.23	PASS
			HCH	full RBs # 0	full RBs # 0	38.26	41.48	PASS
	LTE/TM2	15+15	LCH	full RBs # 0	full RBs # 0	28.85	31.72	PASS
			MCH	full RBs # 0	full RBs # 0	28.78	30.95	PASS
			HCH	full RBs # 0	full RBs # 0	28.75	31.24	PASS
		20+20	LCH	full RBs # 0	full RBs # 0	38.32	41.35	PASS
			MCH	full RBs # 0	full RBs # 0	38.29	42.28	PASS
			HCH	full RBs # 0	full RBs # 0	38.46	41.19	PASS

Part II - Test Plots

4.1 For LTE

4.1.1 Test Band = CA_41C

4.1.1.1 Test Mode = LTE/TM1

4.1.1.1.1 Test Bandwidth = 15+15

4.1.1.1.1.1 Test Channel = LCH

4.1.1.1.1.1.1 PCC Test RB = full RBs & SCC Test RB = full RBs



4.1.1.1.1.2 Test Channel = MCH

4.1.1.1.1.2.1 PCC Test RB = full RBs & SCC Test RB = full RBs



4.1.1.1.1.3 Test Channel = HCH

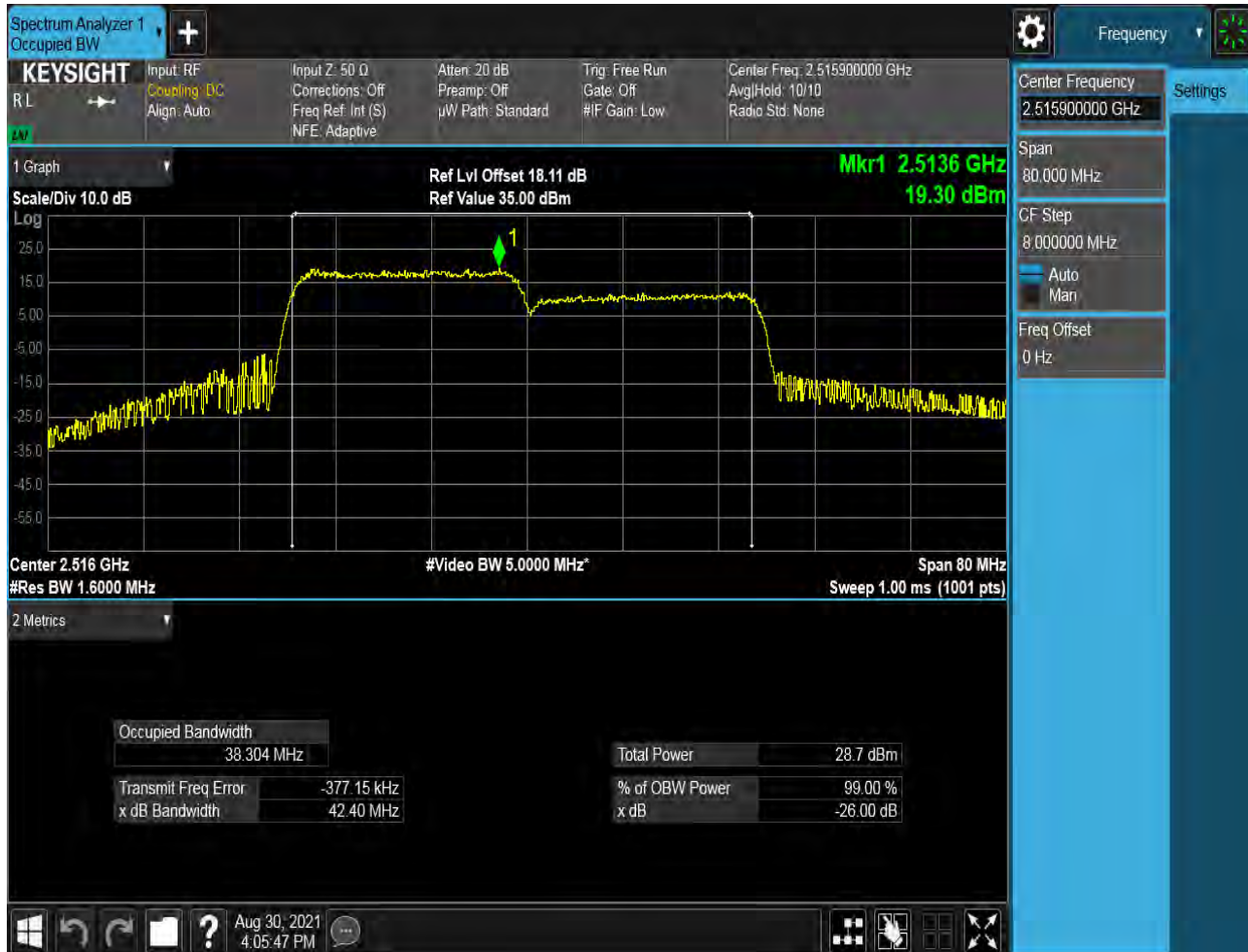
4.1.1.1.1.3.1 PCC Test RB = full RBs & SCC Test RB = full RBs



4.1.1.1.2 Test Bandwidth = 20+20

4.1.1.1.2.1 Test Channel = LCH

4.1.1.1.2.1.1 PCC Test RB = full RBs & SCC Test RB = full RBs



4.1.1.1.2.2 Test Channel = MCH

4.1.1.1.2.2.1 PCC Test RB = full RBs & SCC Test RB = full RBs



4.1.1.1.2.3 Test Channel = HCH

4.1.1.1.2.3.1 PCC Test RB = full RBs & SCC Test RB = full RBs



4.1.1.1 Test Mode = LTE/TM2

4.1.1.1.1 Test Bandwidth = 15+15

4.1.1.1.1.1 Test Channel = LCH

4.1.1.1.1.1.1 PCC Test RB = full RBs & SCC Test RB = full RBs



4.1.1.1.1.2 Test Channel = MCH

4.1.1.1.1.2.1 PCC Test RB = full RBs & SCC Test RB = full RBs



4.1.1.1.1.3 Test Channel = HCH

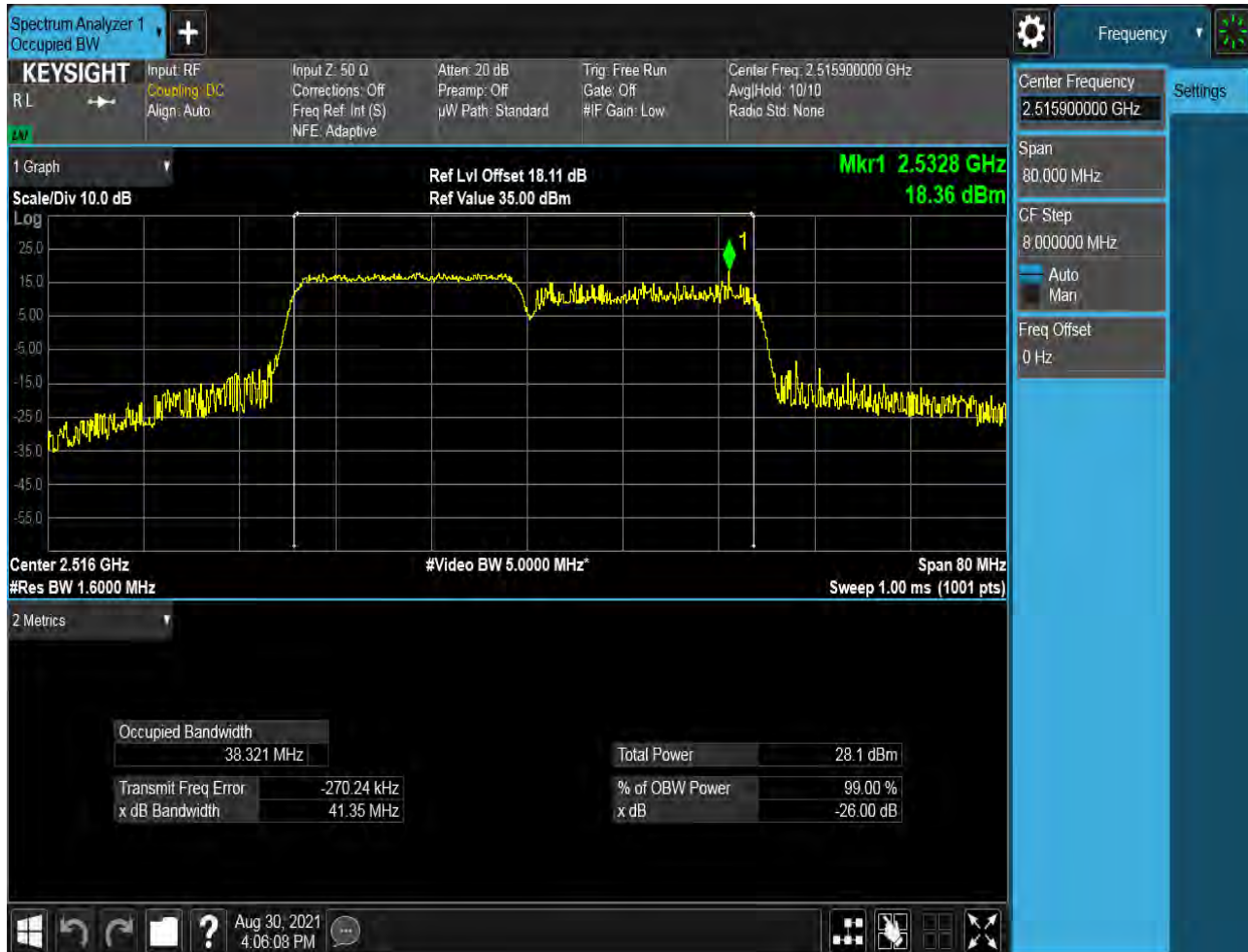
4.1.1.1.1.3.1 PCC Test RB = full RBs & SCC Test RB = full RBs



4.1.1.1.2 Test Bandwidth = 20+20

4.1.1.1.2.1 Test Channel = LCH

4.1.1.1.2.1.1 PCC Test RB = full RBs & SCC Test RB = full RBs



4.1.1.1.2.2 Test Channel = MCH

4.1.1.1.2.2.1 PCC Test RB = full RBs & SCC Test RB = full RBs



4.1.1.1.2.3 Test Channel = HCH

4.1.1.1.2.3.1 PCC Test RB = full RBs & SCC Test RB = full RBs



5Appendix_E: Band Edges Compliance

Part I - Test Plots

5.1 For LTE

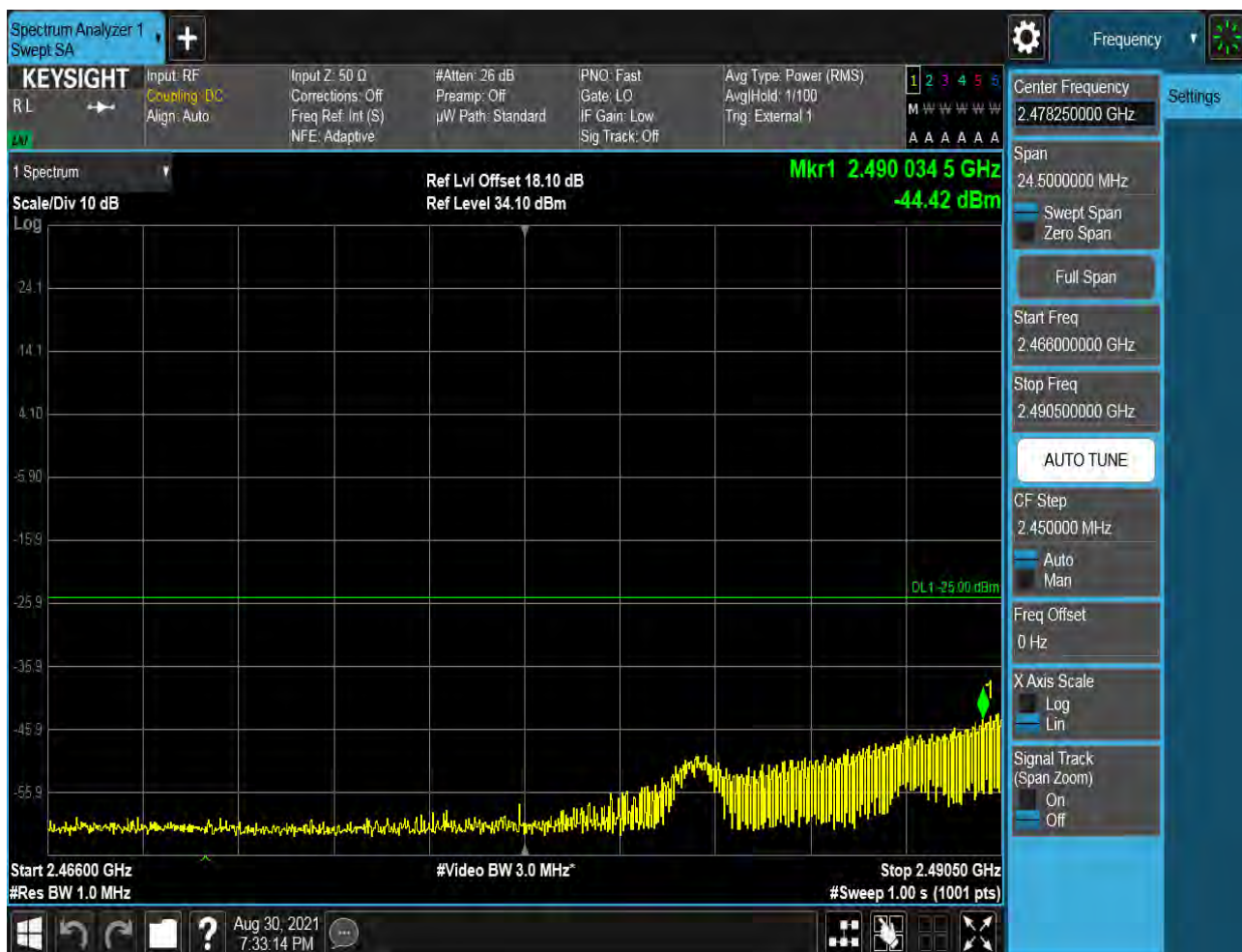
5.1.1 Test Band = CA_41C

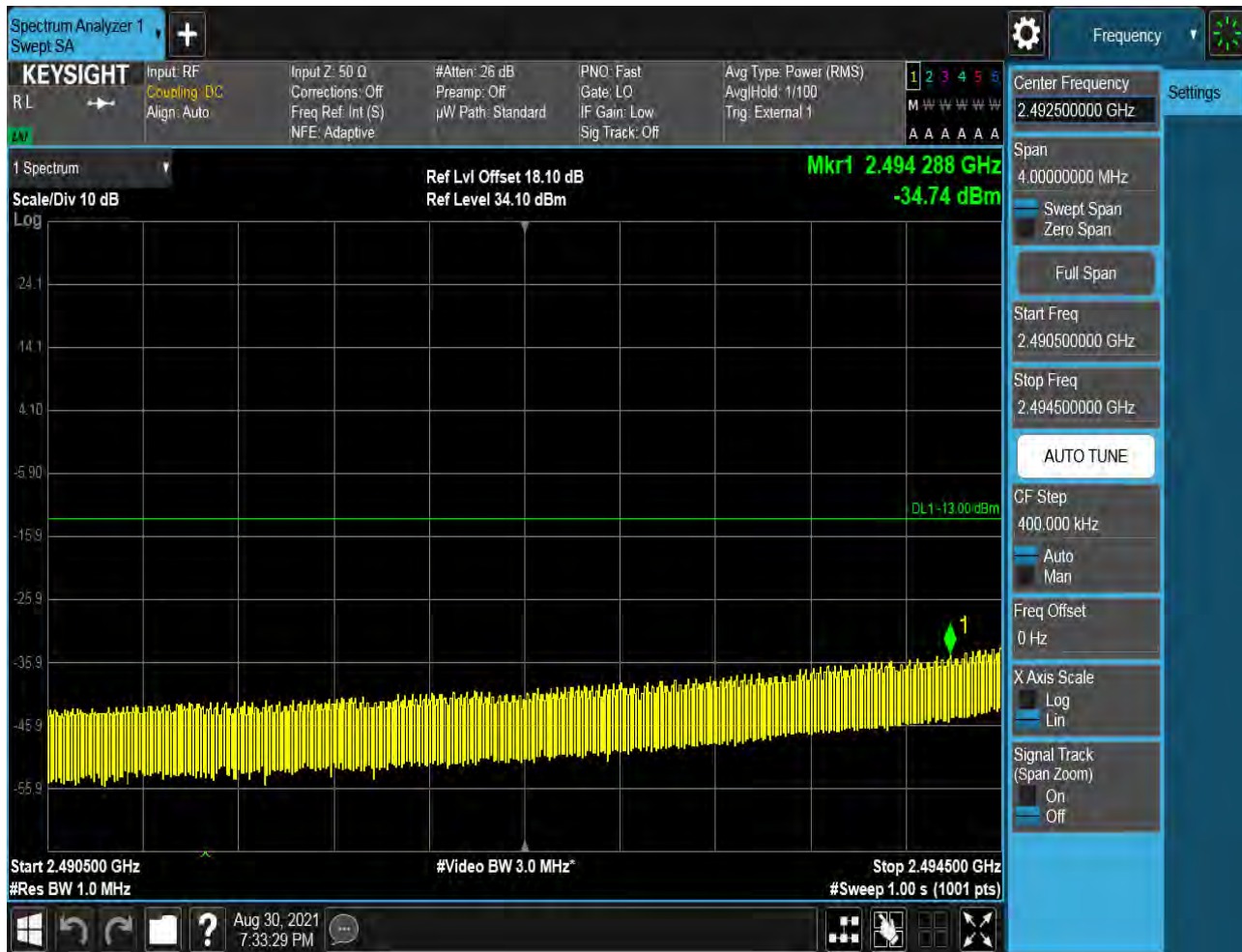
5.1.1.1 Test Mode = LTE/TM1

5.1.1.1.1 Test Bandwidth = 15+15

5.1.1.1.1.1 Test Channel = LCH

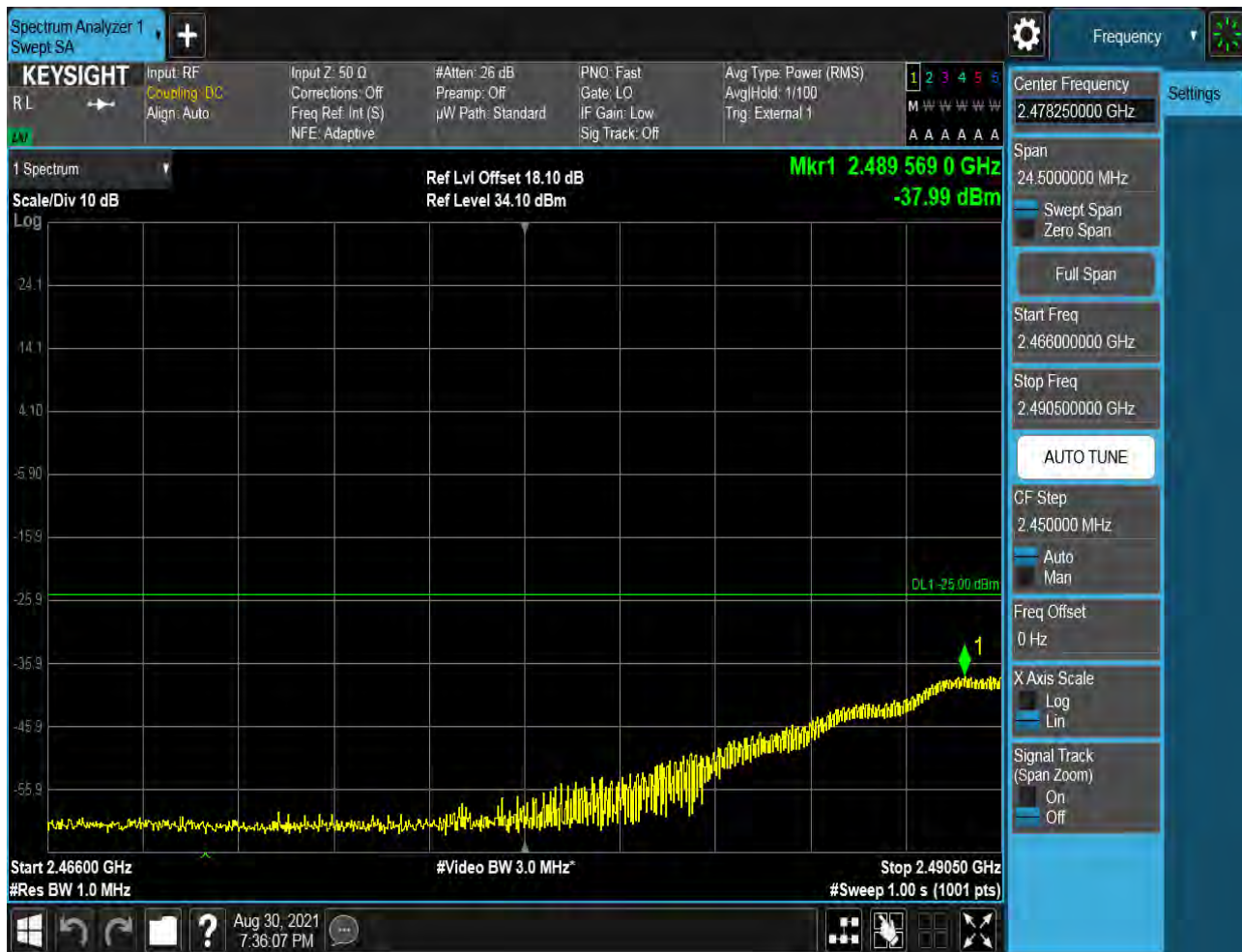
5.1.1.1.1.1.1 PCC Test RB = 1 # 0 & SCC Test RB = 0







5.1.1.1.1.2 PCC Test RB = partial RBs #0 & SCC Test RB = 0







5.1.1.1.1.3 PCC Test RB = full RBs & SCC Test RB = 0







5.1.1.1.1.4 PCC Test RB = full RBs & SCC Test RB = full RBs



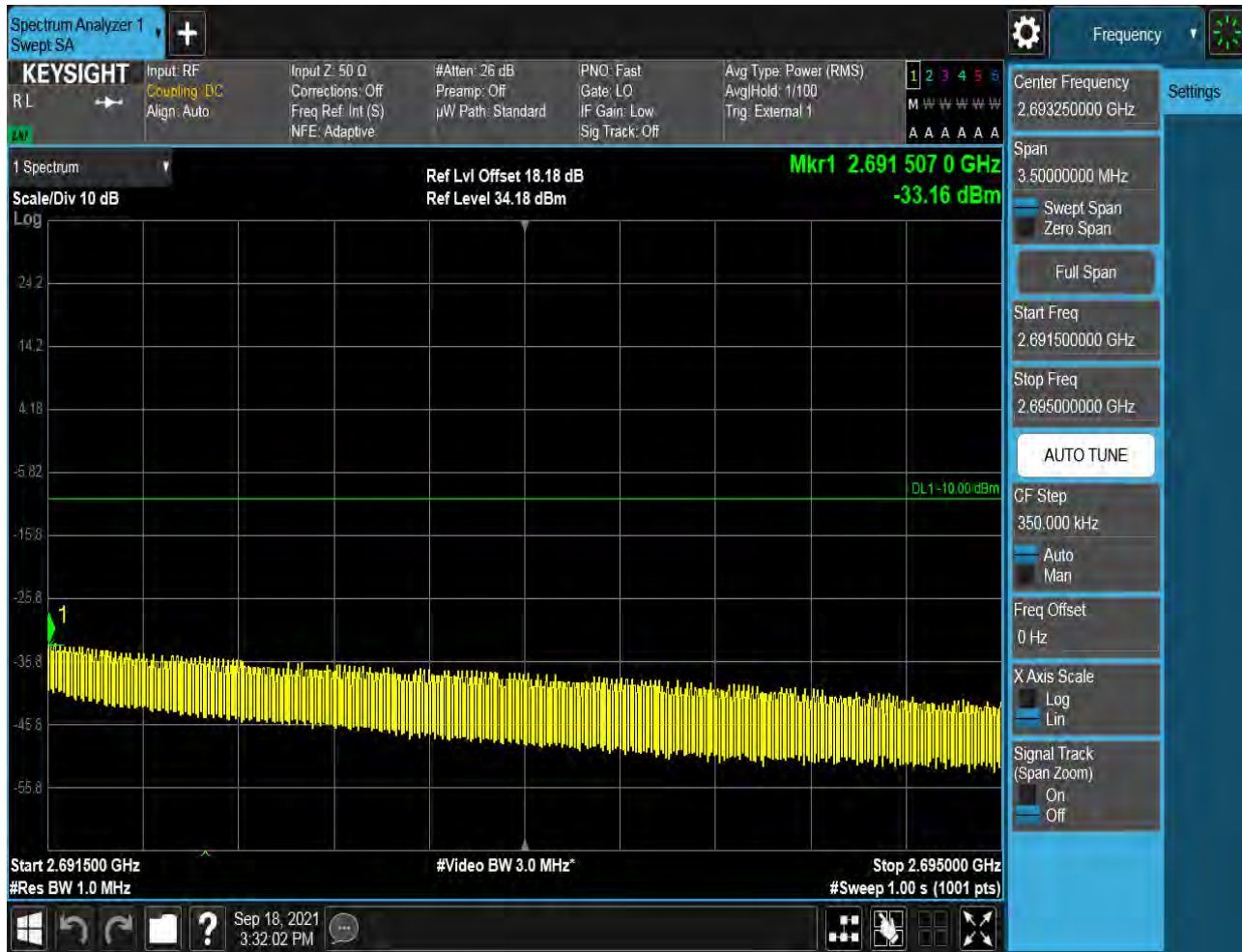


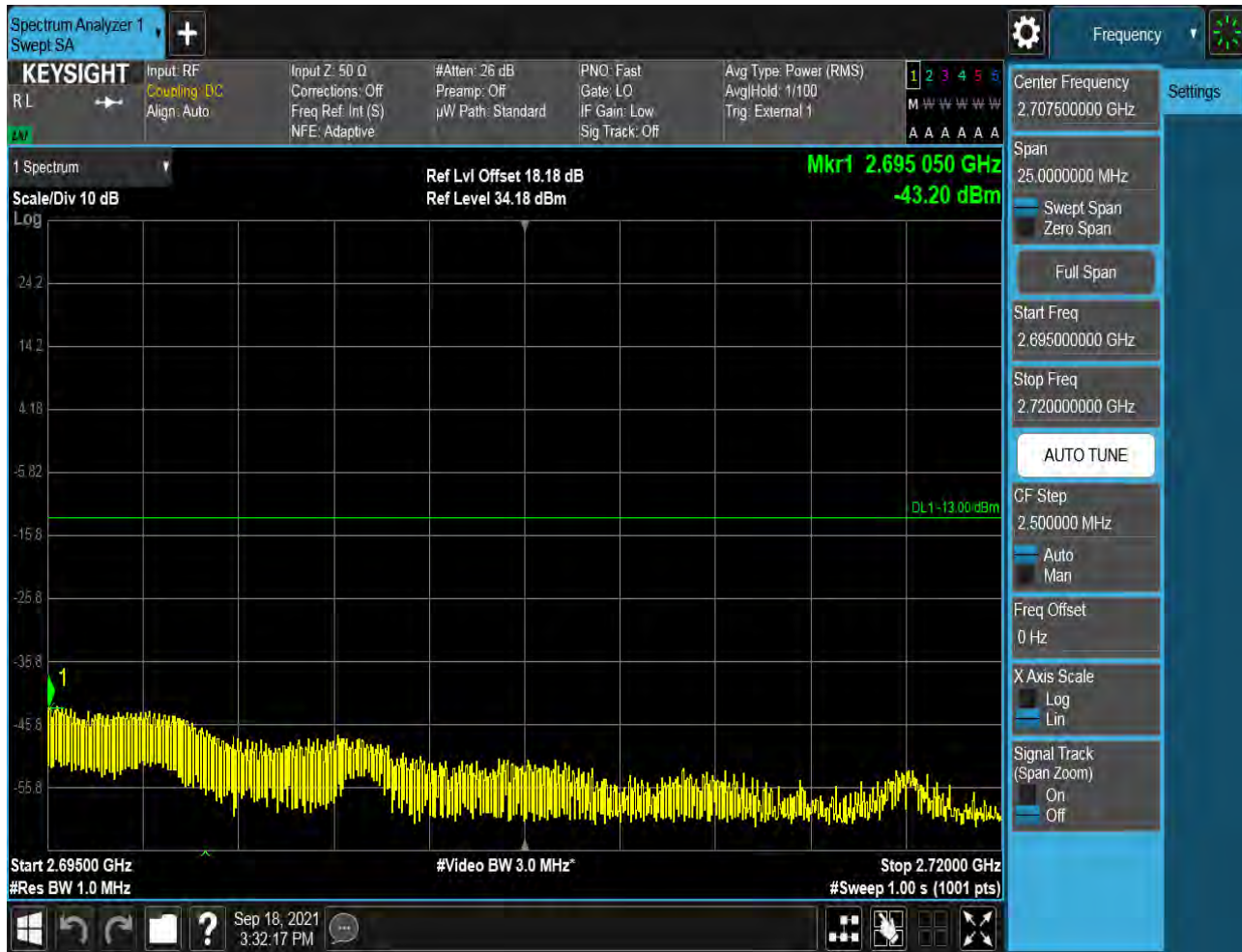


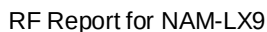
5.1.1.1.1.2 Test Channel = HCH

5.1.1.1.1.2.1 PCC Test RB = 0 & SCC Test RB = 1 # max









KEYSIGHT Spectrum Analyzer 1 Swept SA

Input: RF
Coupling: DC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
NFE: Adaptive

#Atten: 26 dB
Preamp: Off
 μ W Path: Standard

PNO: Best Wide
Gate: LO
IF Gain: Low
Sig Track: Off

Avg Type: Power (RMS)
Avg/Hold: 7/100
Trig: External 1

1 2 3 4 5 6
M W W W W W
A A A A A A

Center Frequency
2.690000000 GHz

Span
2.000000000 MHz

Swept Span
Zero Span

Full Span

Start Freq
2.689000000 GHz

Stop Freq
2.691000000 GHz

AUTO TUNE

CF Step
200.000 kHz

Auto
Man

Freq Offset
0 Hz

X Axis Scale
Log
Lin

Signal Track
(Span Zoom)
On
Off

1 Spectrum
Scale/Div 10 dB
Log

Ref Lvl Offset 18.18 dB
Ref Level 34.18 dBm

Mkr1 2.690 005 GHz
-20.19 dBm

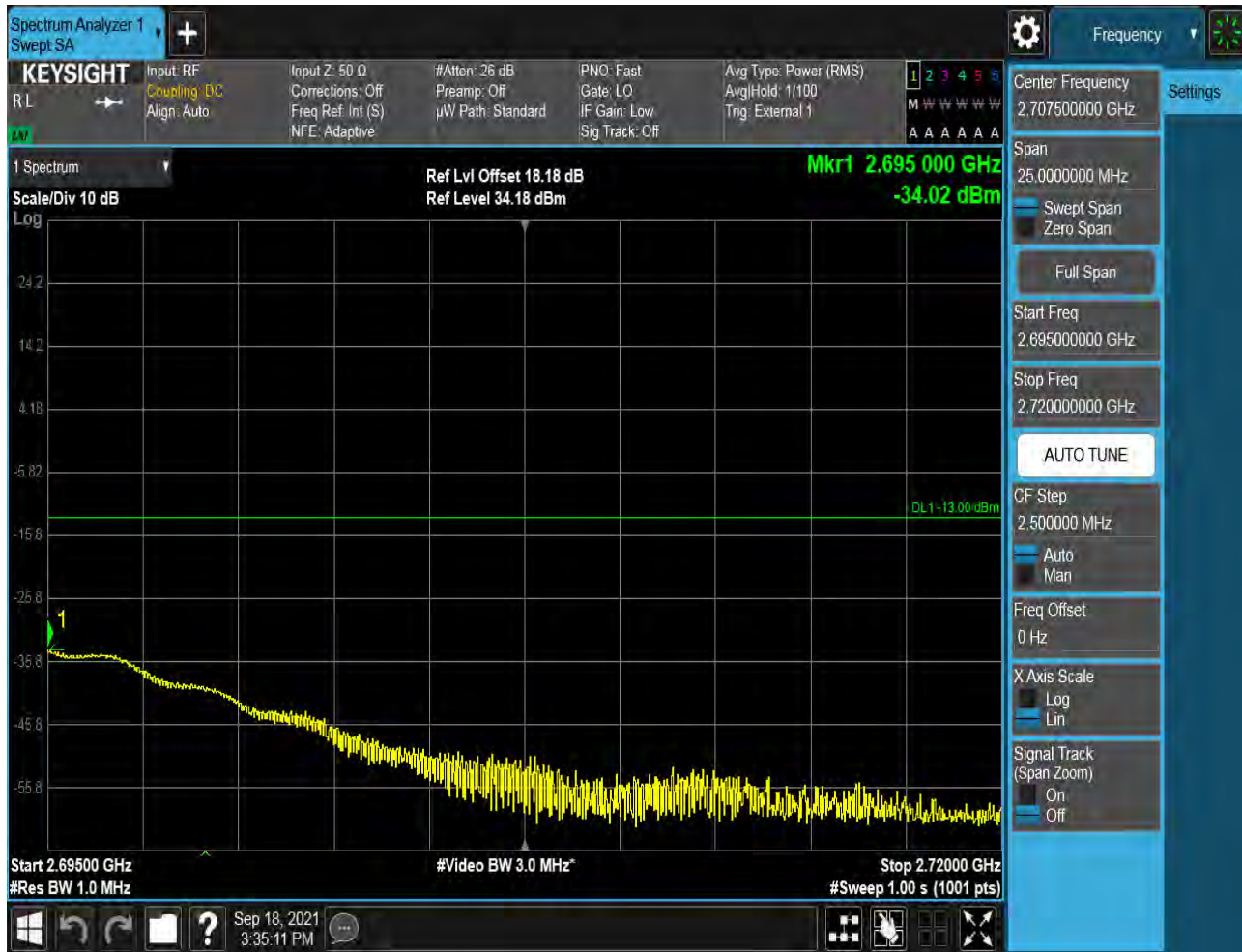
DL1 -10.00 dBm

Start 2.689000 GHz
#Res BW 330 kHz

#Video BW 1.2 MHz

Stop 2.691000 GHz
#Sweep 1.00 s (1001 pts)





5.1.1.1.1.2.3 PCC Test RB = 0 & SCC Test RB = full RBs







5.1.1.1.1.2.4 PCC Test RB = full RBs & SCC Test RB = full RBs



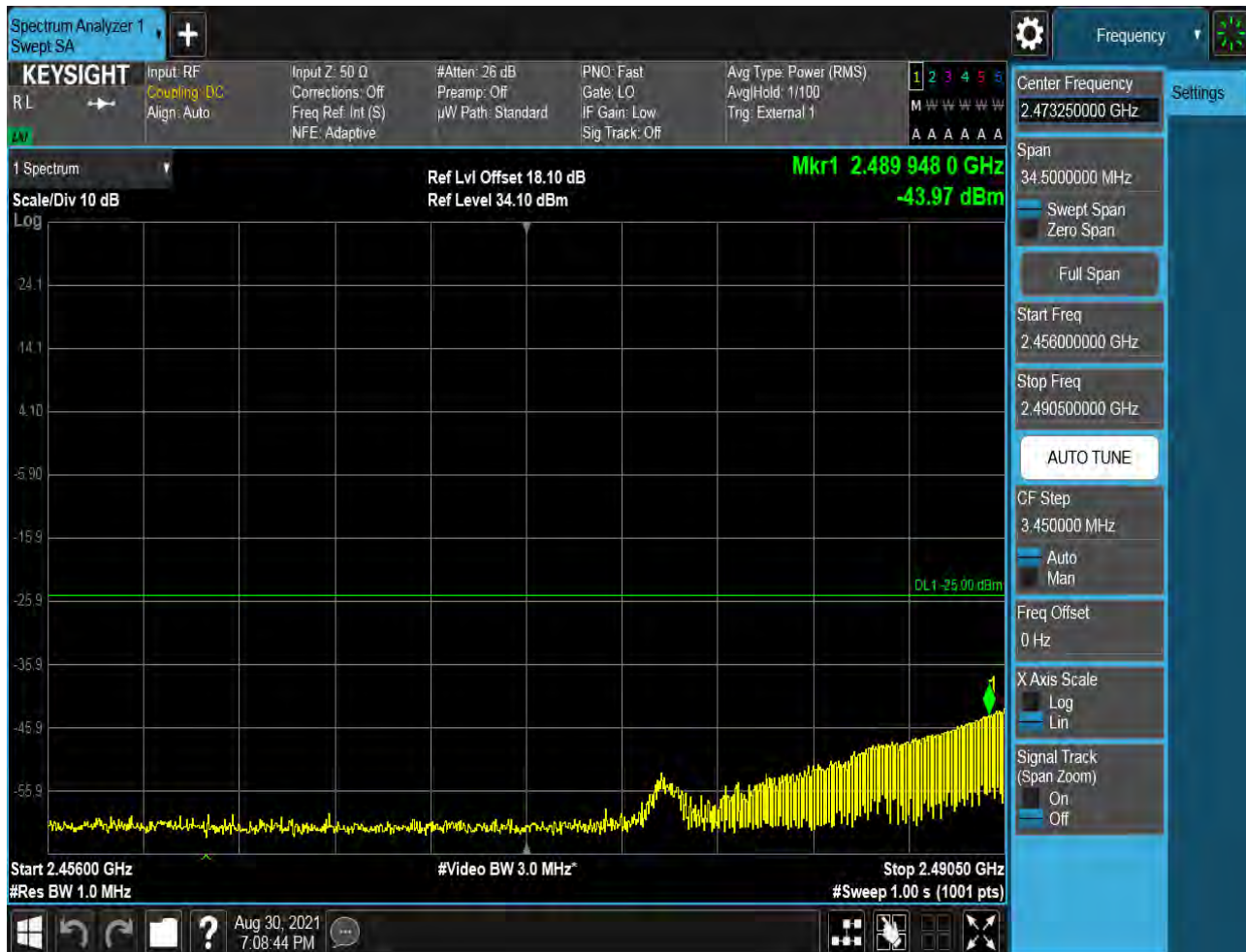


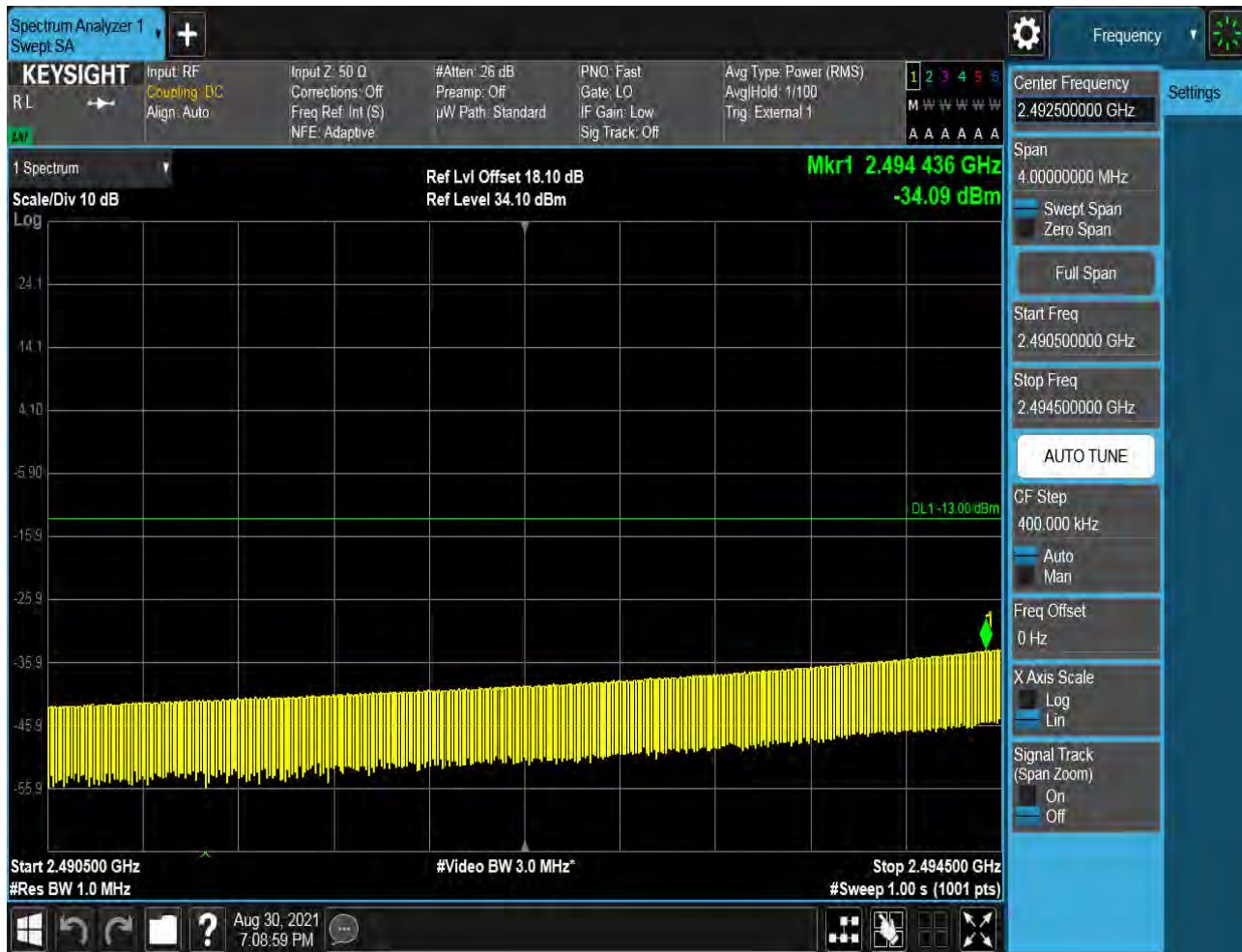


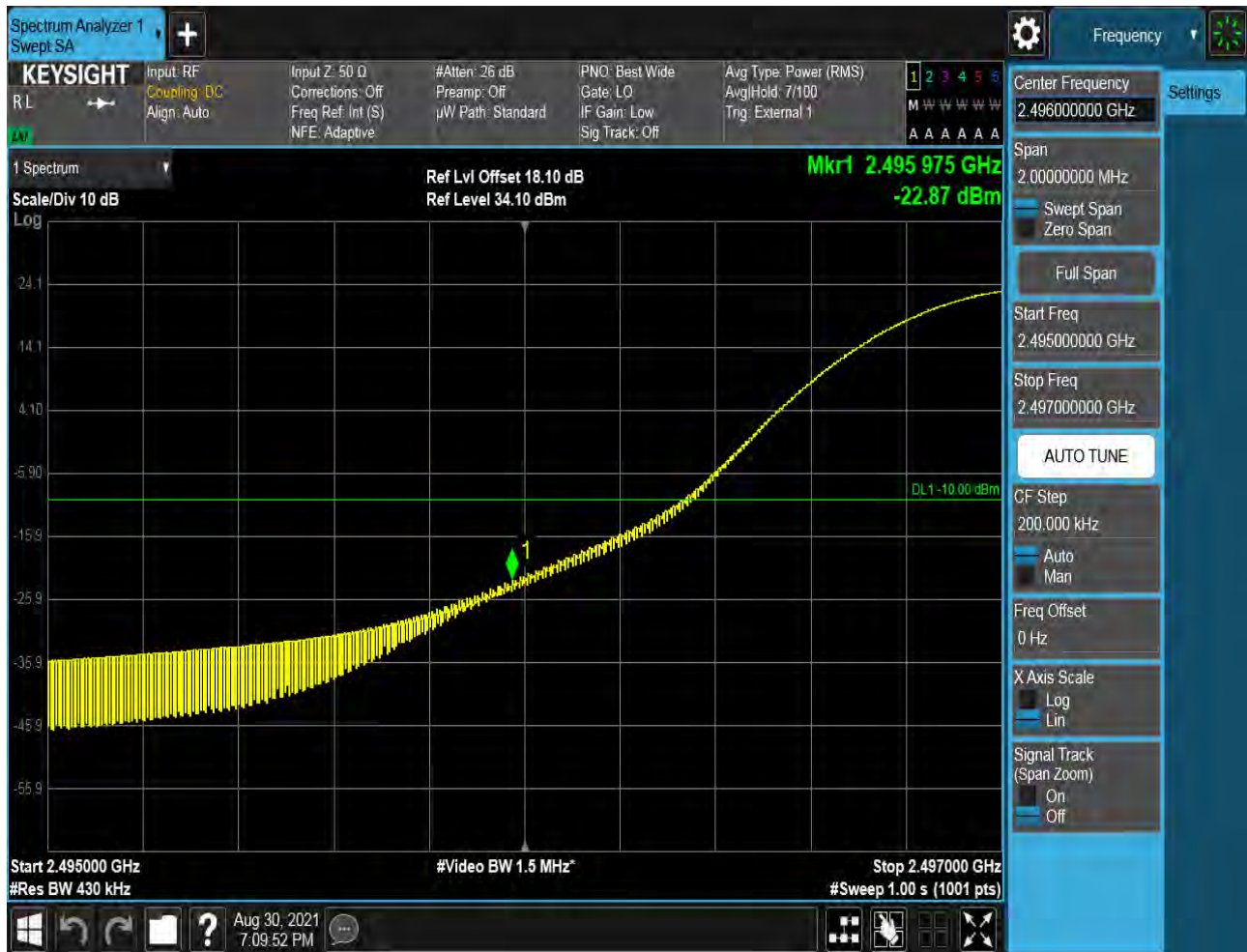
5.1.1.1.2 Test Bandwidth = 20+20

5.1.1.1.2.1 Test Channel = LCH

5.1.1.1.2.1.1 PCC Test RB = 1 # 0 & SCC Test RB = 0







5.1.1.1.2.1.2 PCC Test RB = partial RBs #0 & SCC Test RB = 0







5.1.1.1.2.1.3 PCC Test RB = full RBs & SCC Test RB = 0



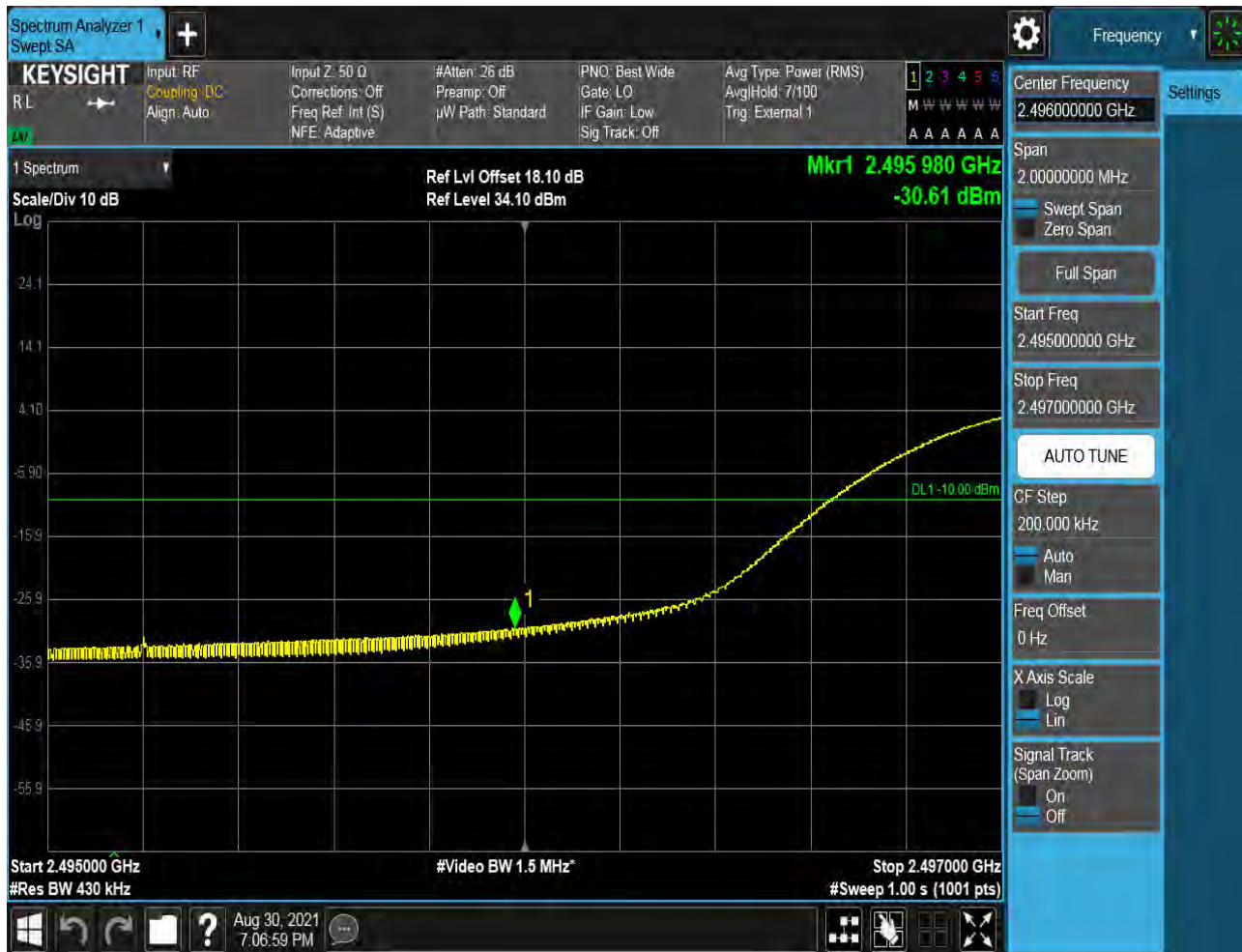




5.1.1.1.2.1.4 PCC Test RB = full RBs & SCC Test RB = full RBs



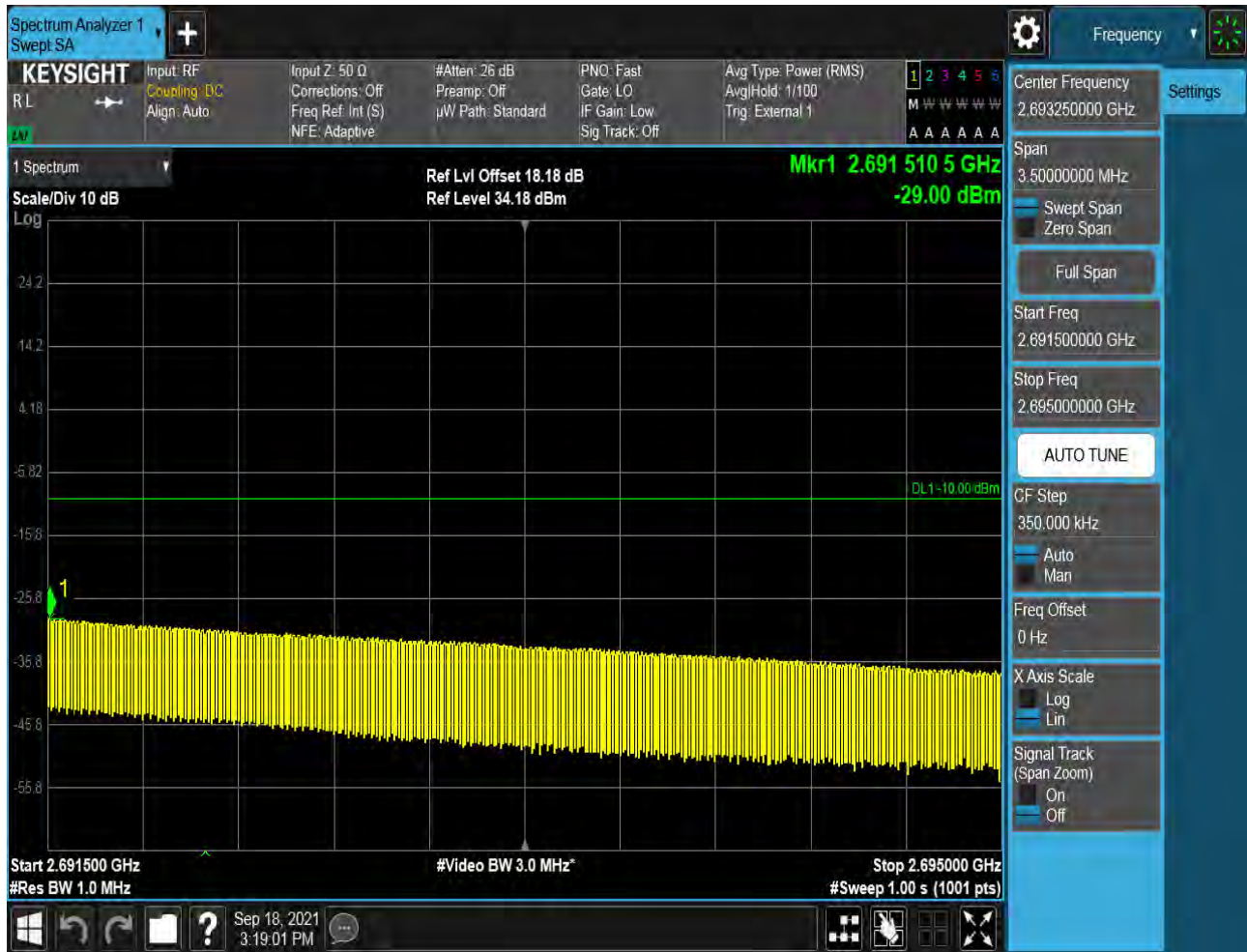


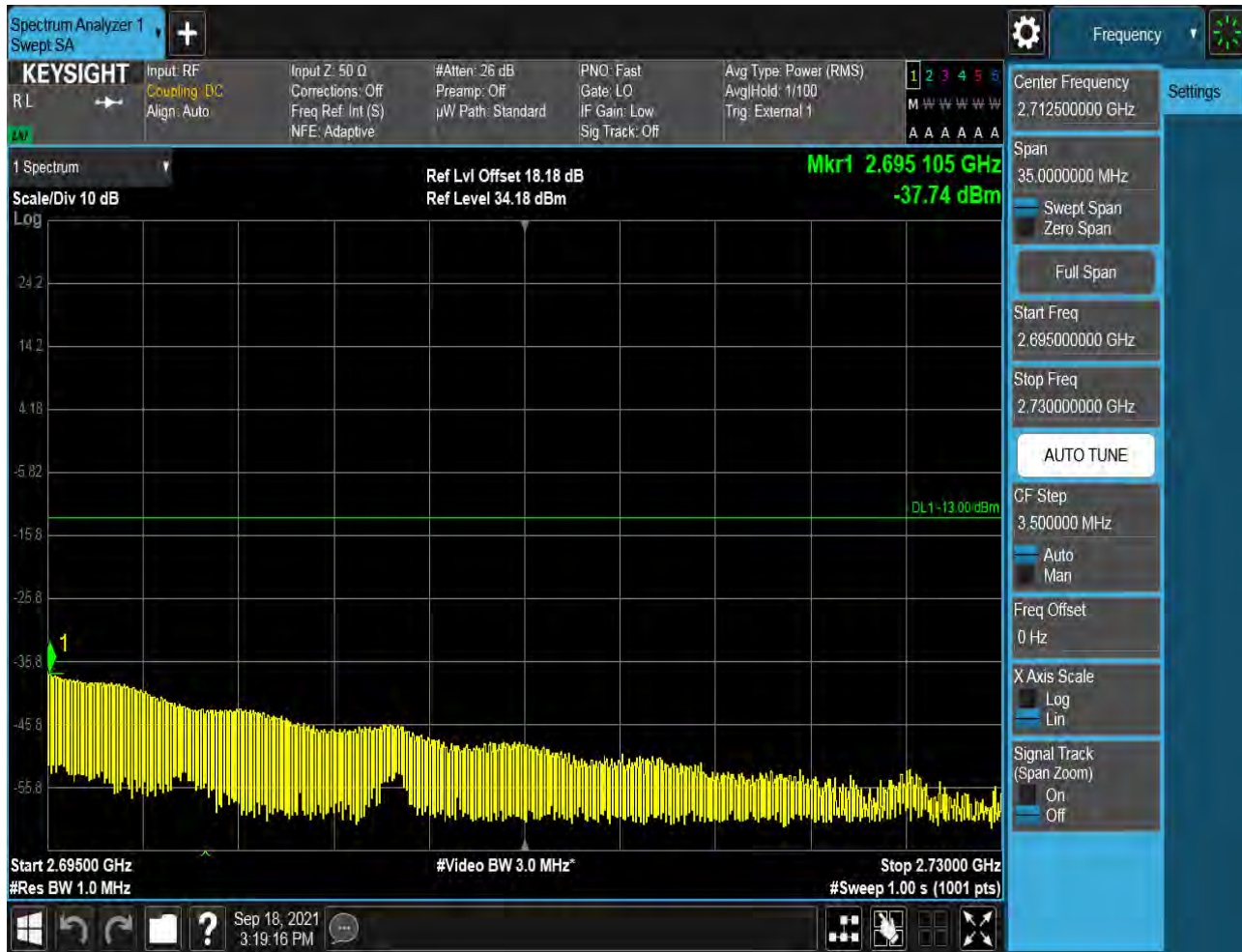


5.1.1.1.2.2 Test Channel = HCH

5.1.1.1.2.2.1 PCC Test RB = 0 & SCC Test RB = 1 # max



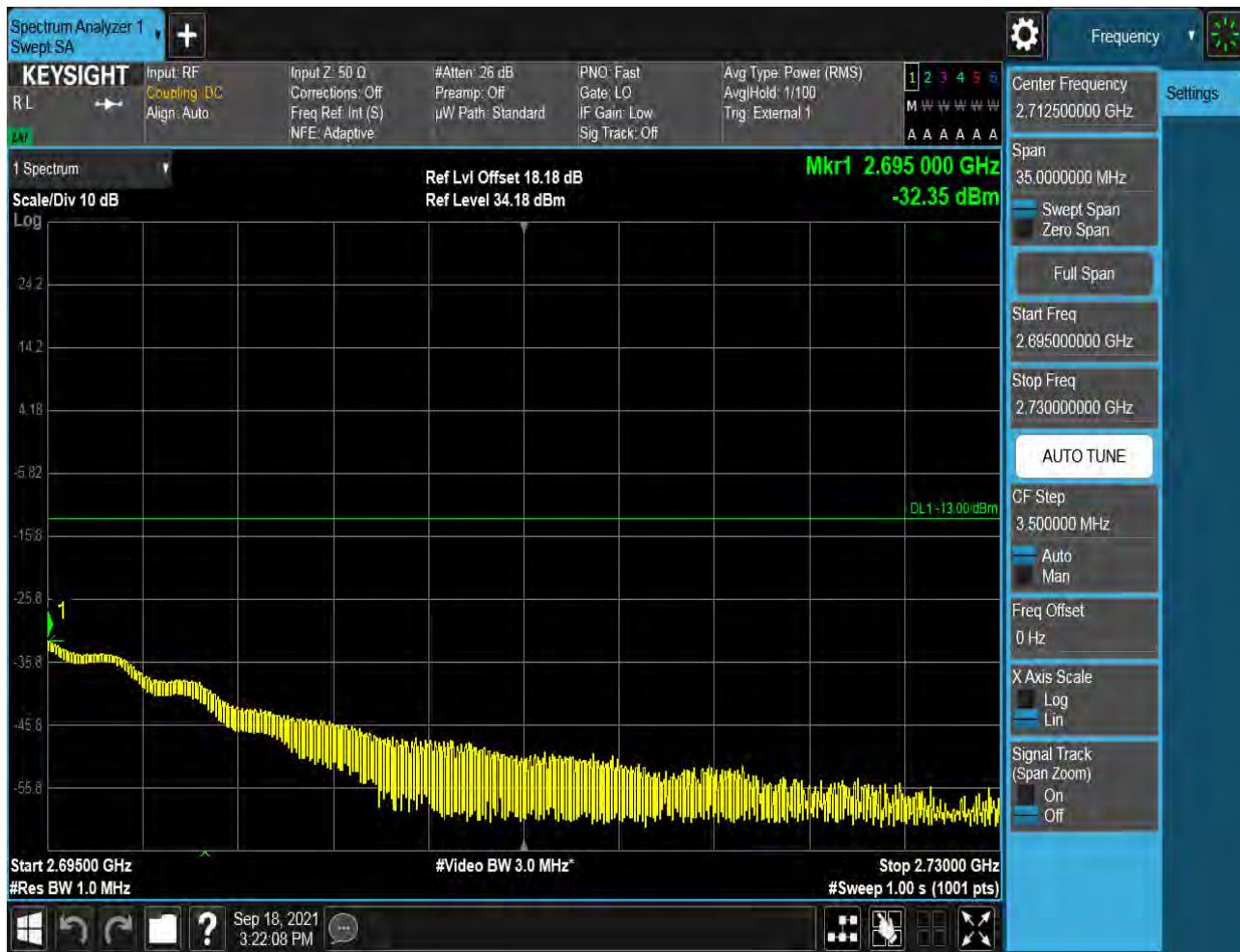




5.1.1.1.2.2.2 PCC Test RB = 0 & SCC Test RB = partial RBs #max







5.1.1.1.2.2.3 PCC Test RB = 0 & SCC Test RB = full RBs







5.1.1.1.2.2.4 PCC Test RB = full RBs & SCC Test RB = full RBs







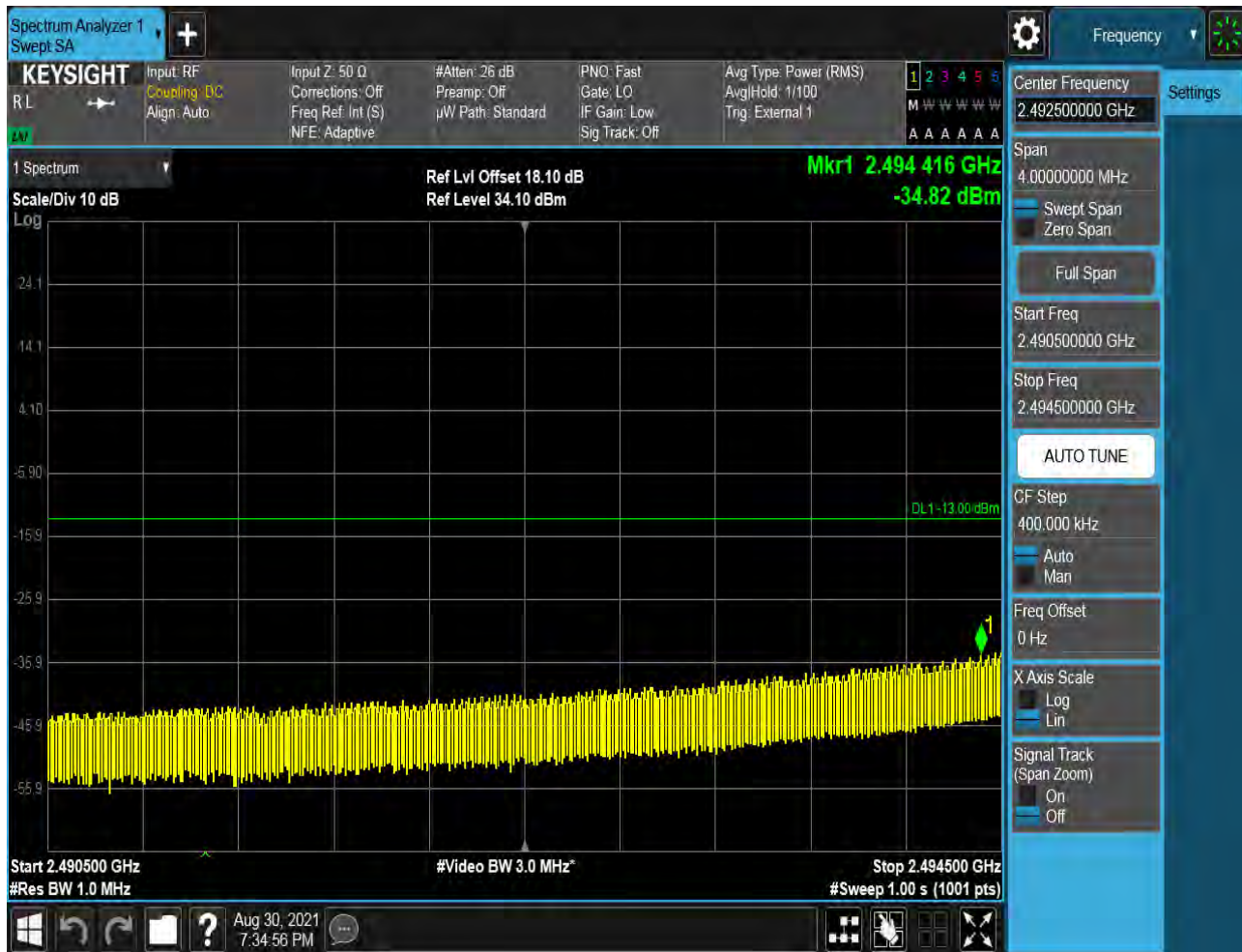
5.1.1.2 Test Mode = LTE/TM2

5.1.1.2.1 Test Bandwidth = 15+15

5.1.1.2.1.1 Test Channel = LCH

5.1.1.2.1.1.1 PCC Test RB = 1 # 0 & SCC Test RB = 0







5.1.1.2.1.1.2 PCC Test RB = partial RBs #0 & SCC Test RB = 0







5.1.1.2.1.1.3 PCC Test RB = full RBs & SCC Test RB = 0







5.1.1.2.1.1.4 PCC Test RB = full RBs & SCC Test RB = full RBs



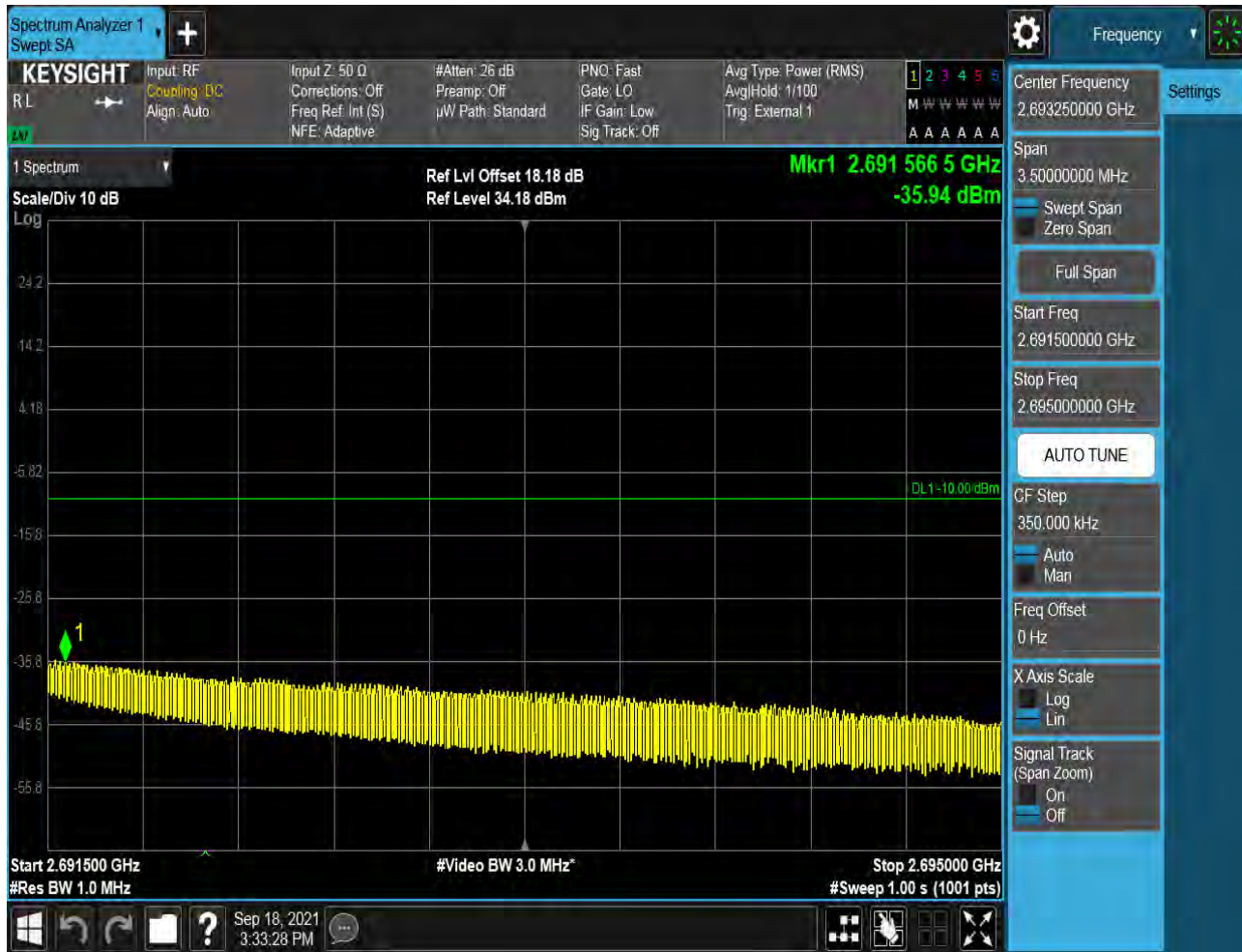


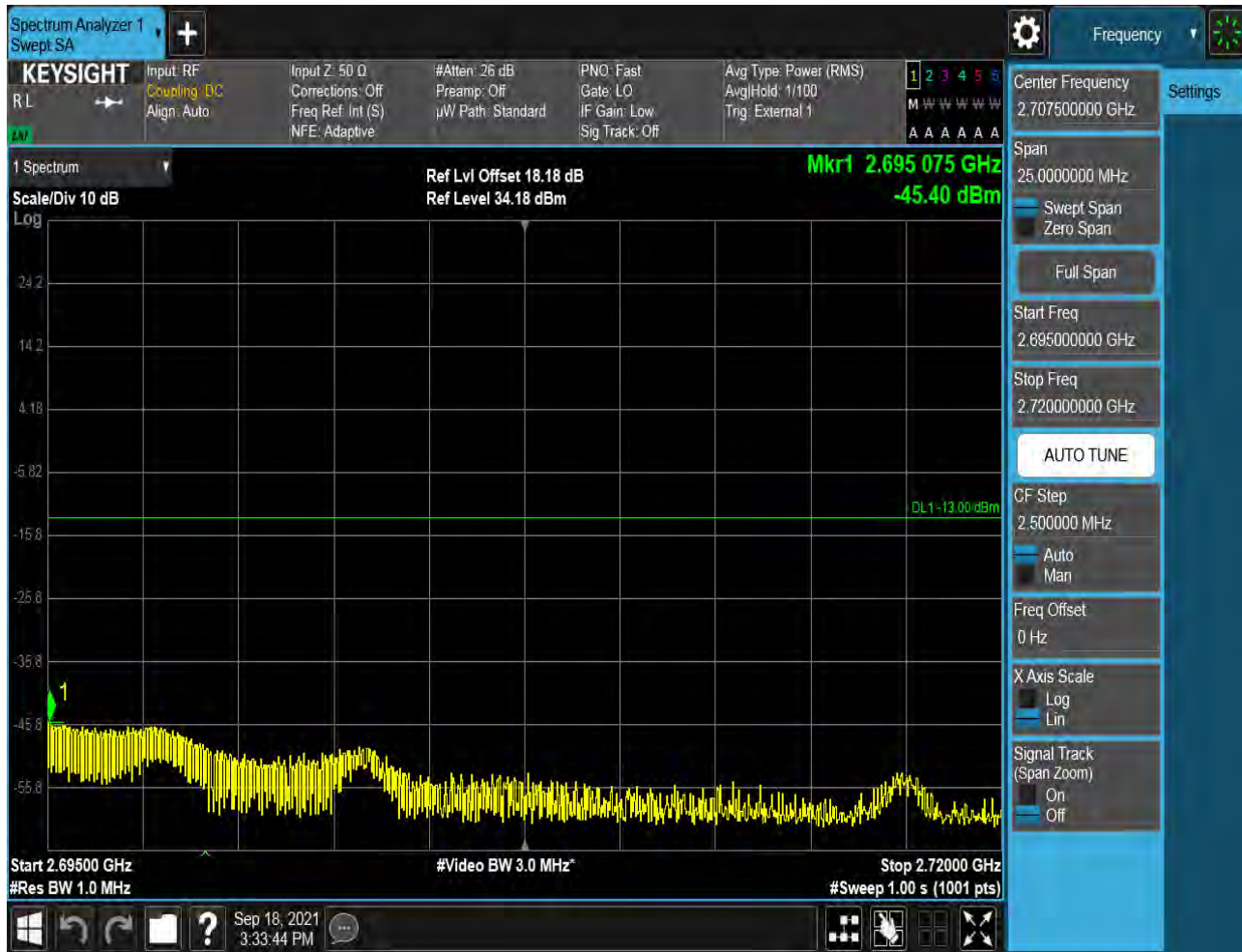


5.1.1.2.1.2 Test Channel = HCH

5.1.1.2.1.2.1 PCC Test RB = 0 & SCC Test RB = 1 # max



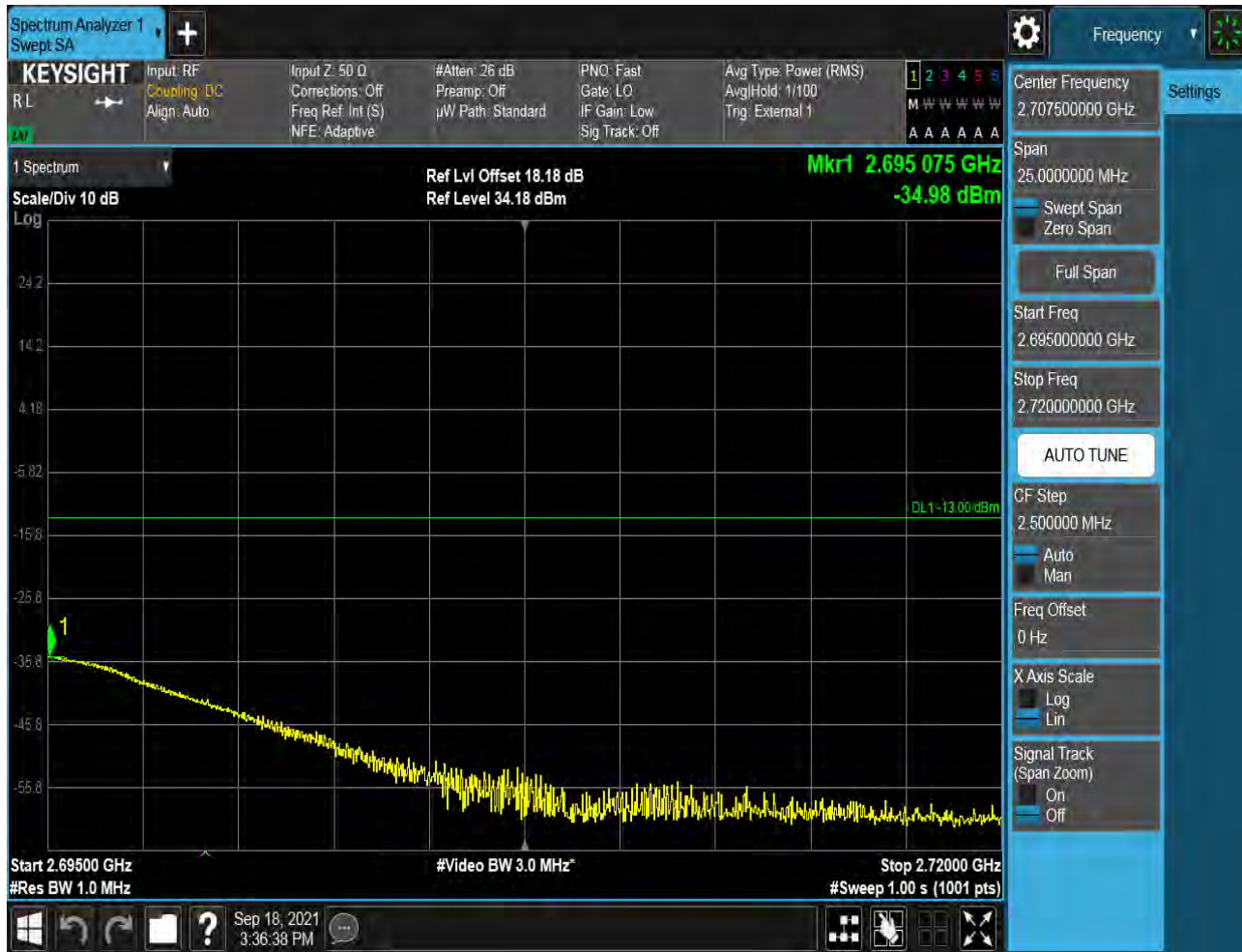




5.1.1.2.1.2.2 PCC Test RB = 0 & SCC Test RB = partial RBs #max







5.1.1.2.1.2.3 PCC Test RB = 0 & SCC Test RB = full RBs







5.1.1.2.1.2.4 PCC Test RB = full RBs & SCC Test RB = full RBs





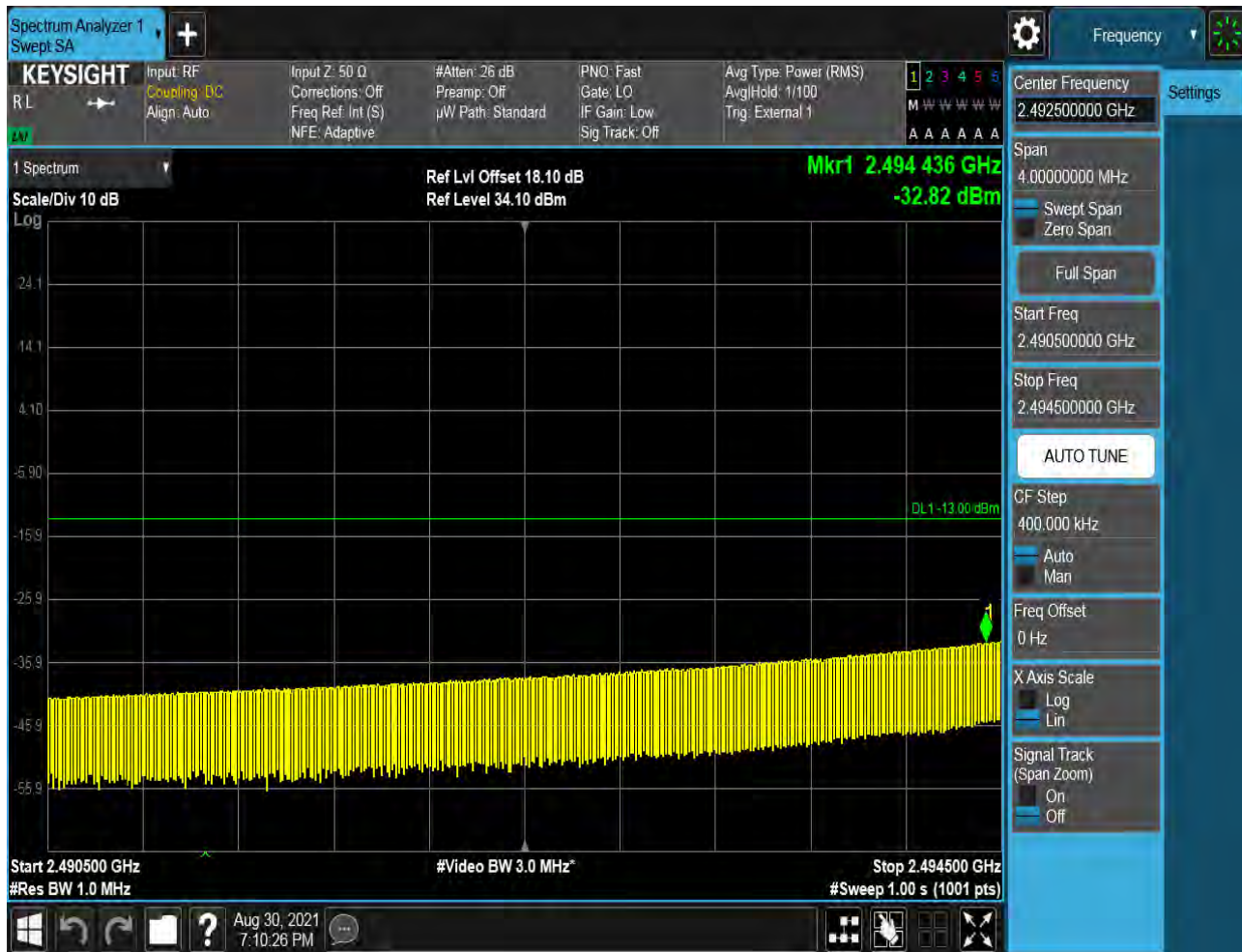


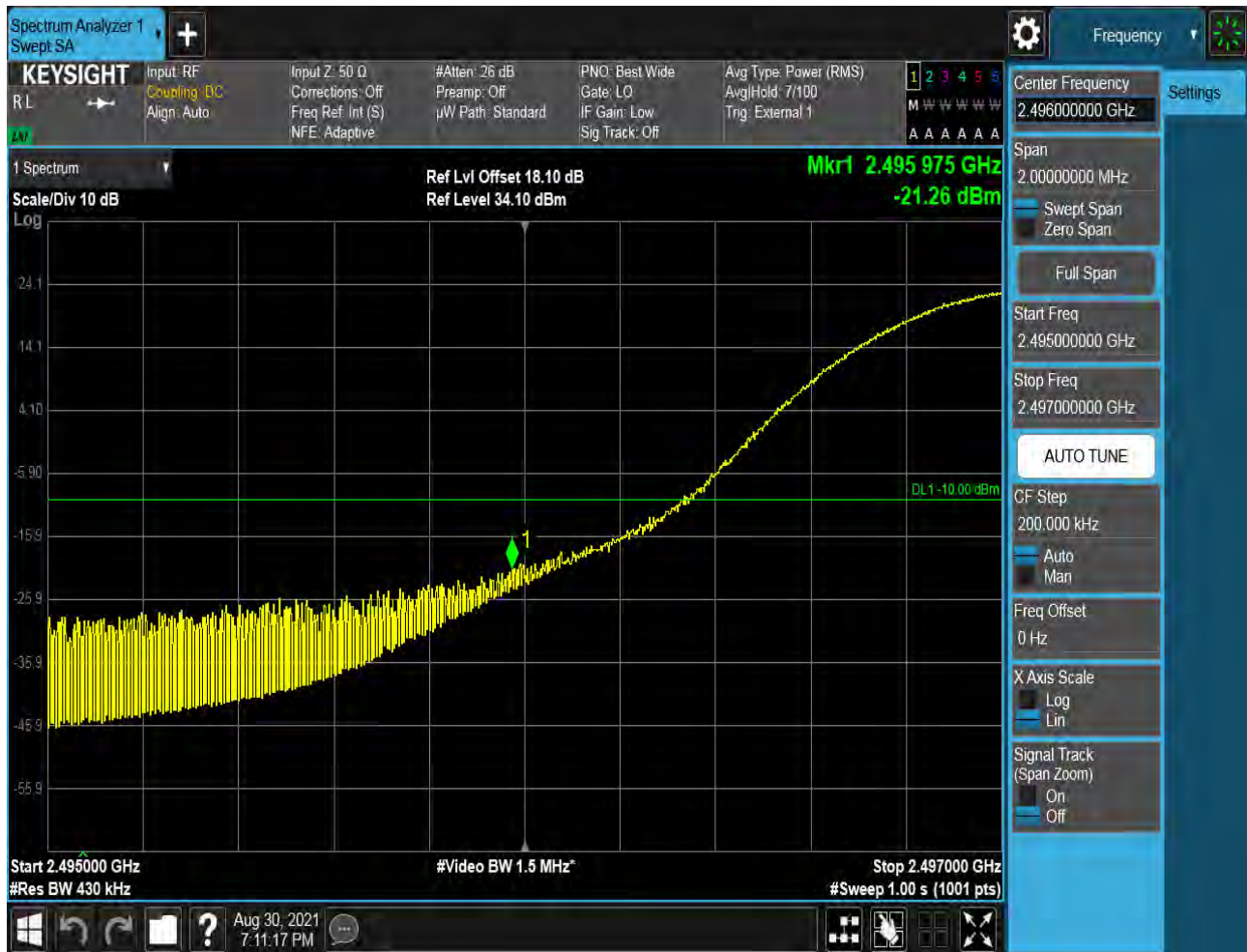
5.1.1.2.2 Test Bandwidth = 20+20

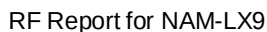
5.1.1.2.2.1 Test Channel = LCH

5.1.1.2.2.1.1 PCC Test RB = 1 # 0 & SCC Test RB = 0









Keysight Spectrum Analyzer 1
Swept SA

KEYSIGHT
RL →

Input: RF
Coupling: DC
Align: Auto

Input Z: 50 Ω
Corrections: Off
Freq Ref: Int (S)
NFE: Adaptive

#Atten: 26 dB
Preamp: Off
μW Path: Standard

PNO: Fast
Gate: LO
IF Gain: Low
Sig Track: Off

Avg Type: Power (RMS)
Avg Hold: 1/100
Trig: External 1

1 2 3 4 5 6
M W W W W W
A A A A A A

Center Frequency
2.473250000 GHz

Span
34.50000000 MHz

Swept Span
Zero Span

Full Span

Start Freq
2.456000000 GHz

Stop Freq
2.490500000 GHz

AUTO TUNE

CF Step
3.450000 MHz

Auto
Man

Freq Offset
0 Hz

X Axis Scale
Log
Lin

Signal Track
(Span Zoom)
On
Off

1 Spectrum
Scale/Div 10 dB
Log

Ref Lvl Offset 18.10 dB
Ref Level 34.10 dBm

Mkr1 2.489 775 5 GHz
-39.67 dBm

24.1
14.1
4.10
-6.90
-15.9
-25.9
-35.9
-45.9
-55.9

Start 2.45600 GHz
#Res BW 1.0 MHz

#Video BW 3.0 MHz*

Stop 2.49050 GHz
#Sweep 1.00 s (1001 pts)

Aug 30, 2021
7:13:03 PM





5.1.1.2.2.1.3 PCC Test RB = full RBs & SCC Test RB = 0







5.1.1.2.2.1.4 PCC Test RB = full RBs & SCC Test RB = full RBs



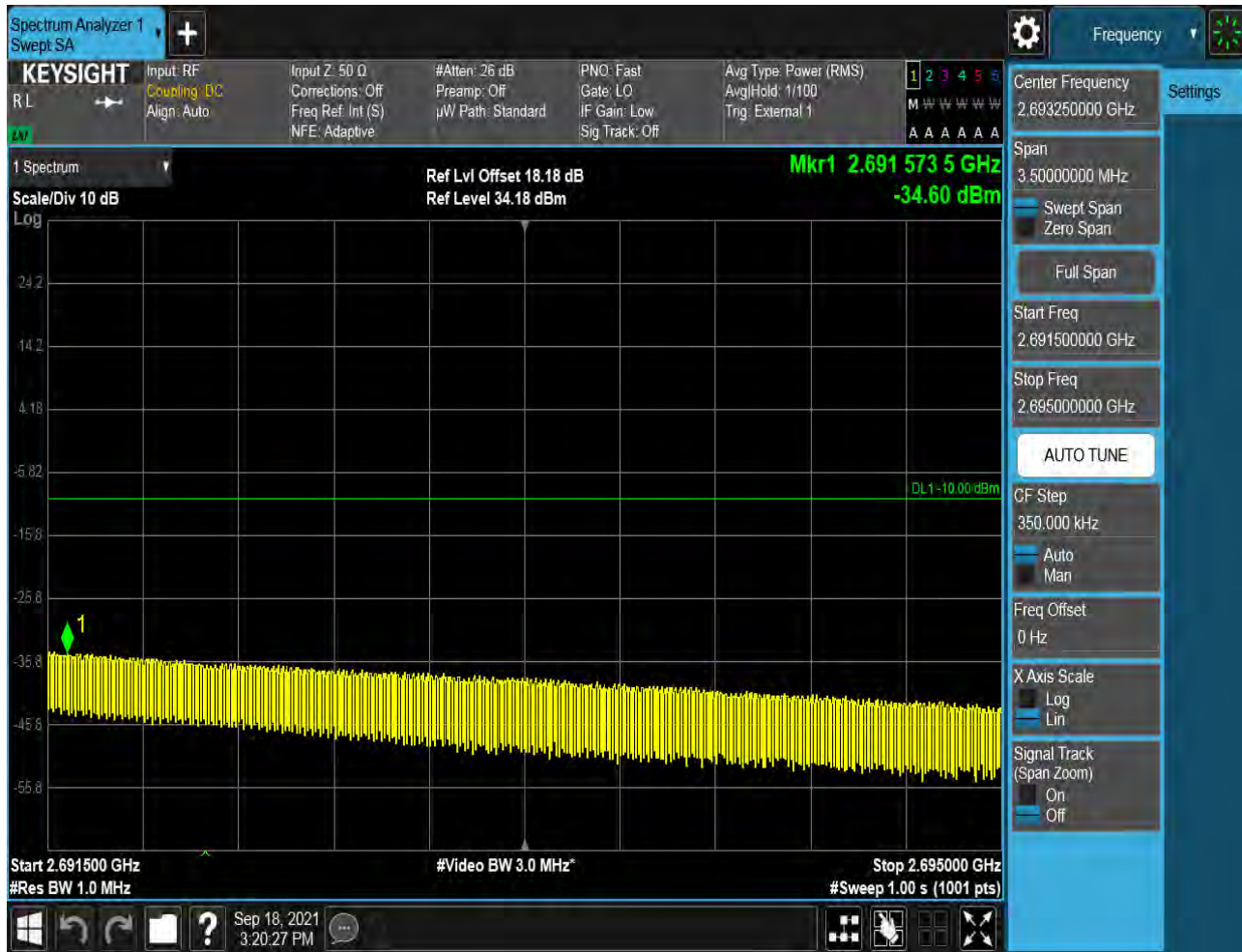


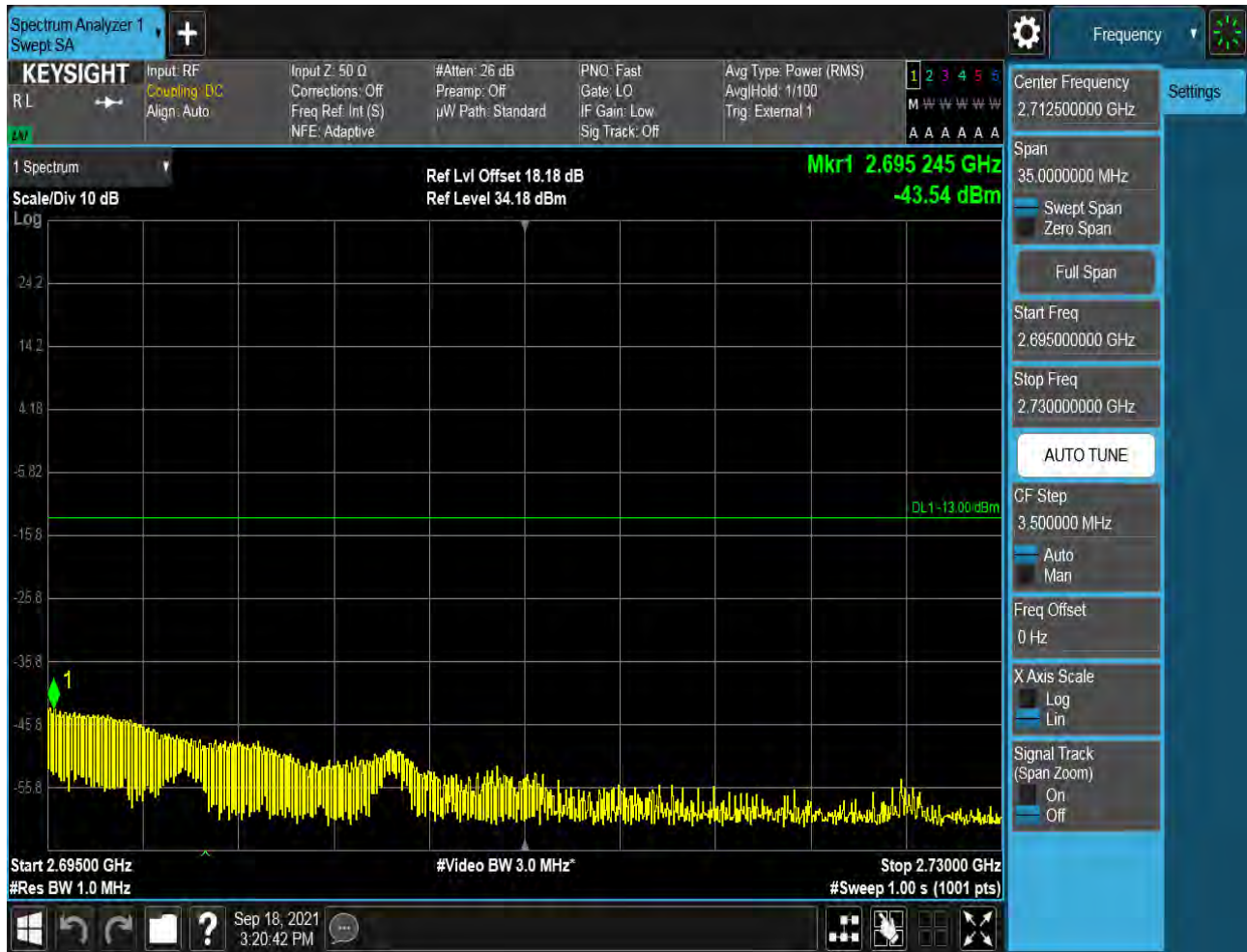


5.1.1.2.2.2 Test Channel = HCH

5.1.1.2.2.2.1 PCC Test RB = 0 & SCC Test RB = 1 # max







5.1.1.2.2.2.2 PCC Test RB = 0 & SCC Test RB = partial RBs #max







5.1.1.2.2.2.3 PCC Test RB = 0 & SCC Test RB = full RBs







5.1.1.2.2.2.4 PCC Test RB = full RBs & SCC Test RB = full RBs







6Appendix_F: Spurious Emission at Antenna Terminal

NOTE: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of $< RBW/2$ so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = $k * (Span / RBW)$ " with k between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

Part I - Test Plots

6.1 For LTE

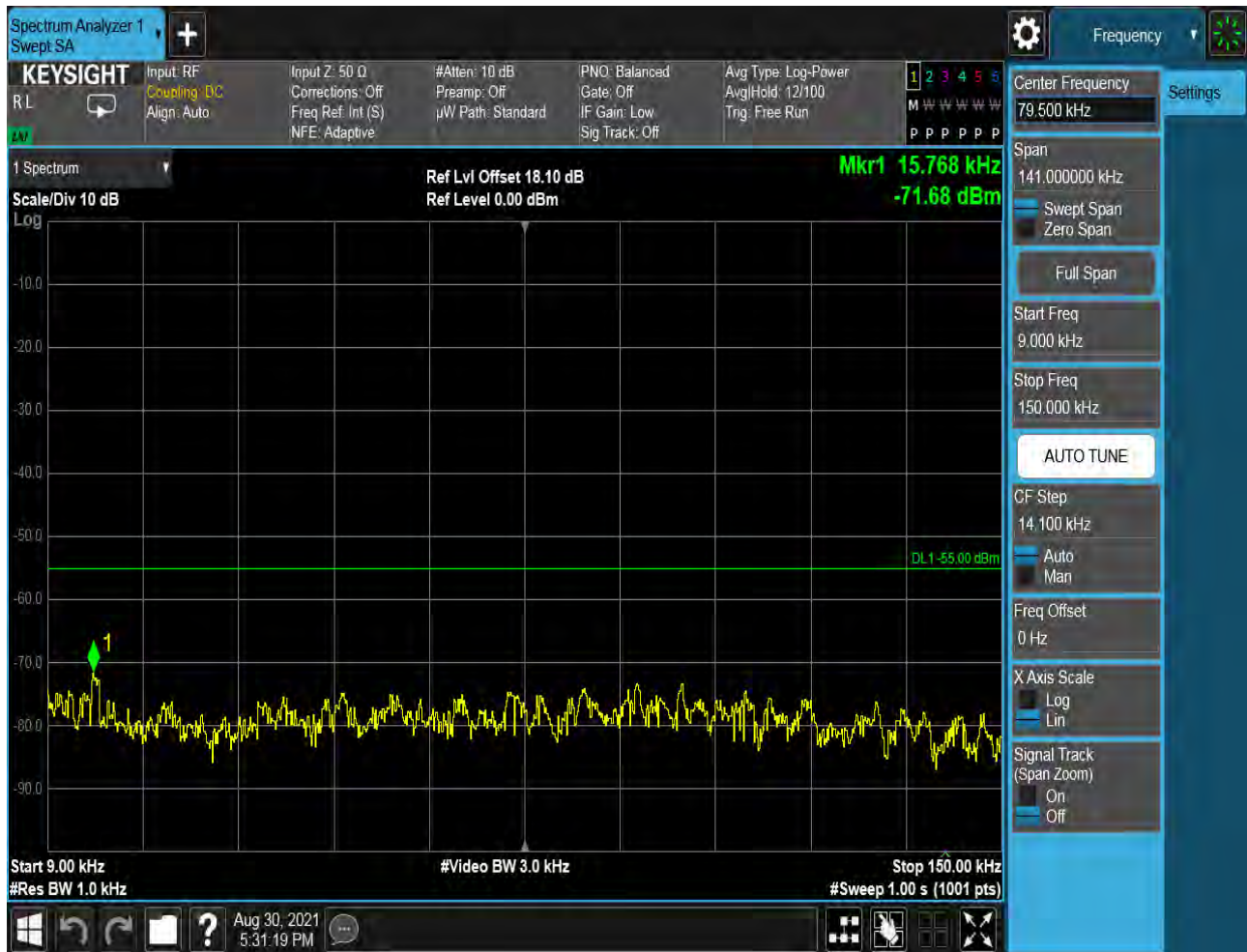
6.1.1 Test Band = CA_41C

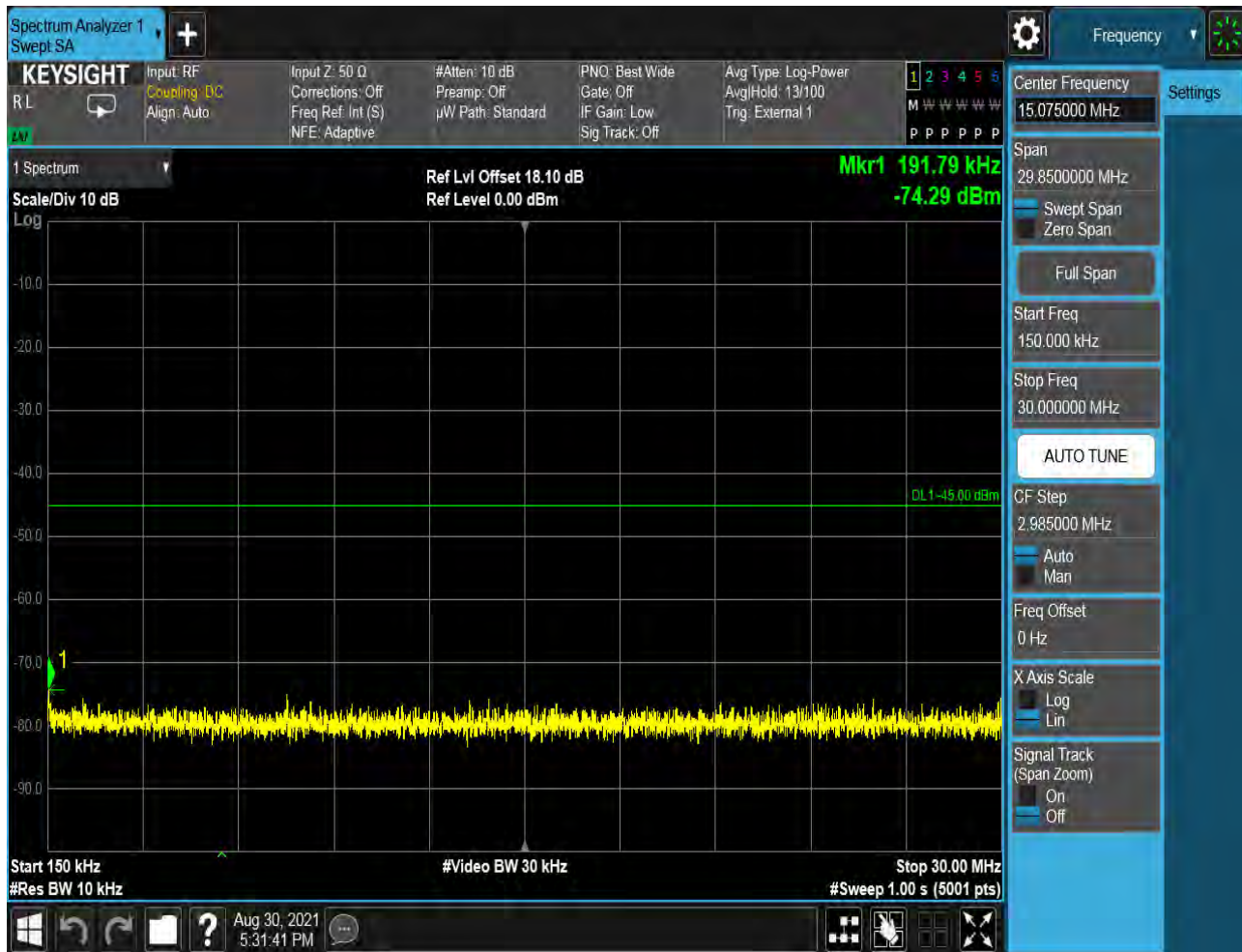
6.1.1.1 Test Mode = LTE/TM1

6.1.1.1.1 Test Bandwidth = 15+15

6.1.1.1.1.1 Test Channel = LCH

6.1.1.1.1.1.1 PCC Test RB = 1 # 0 & SCC Test RB = 0

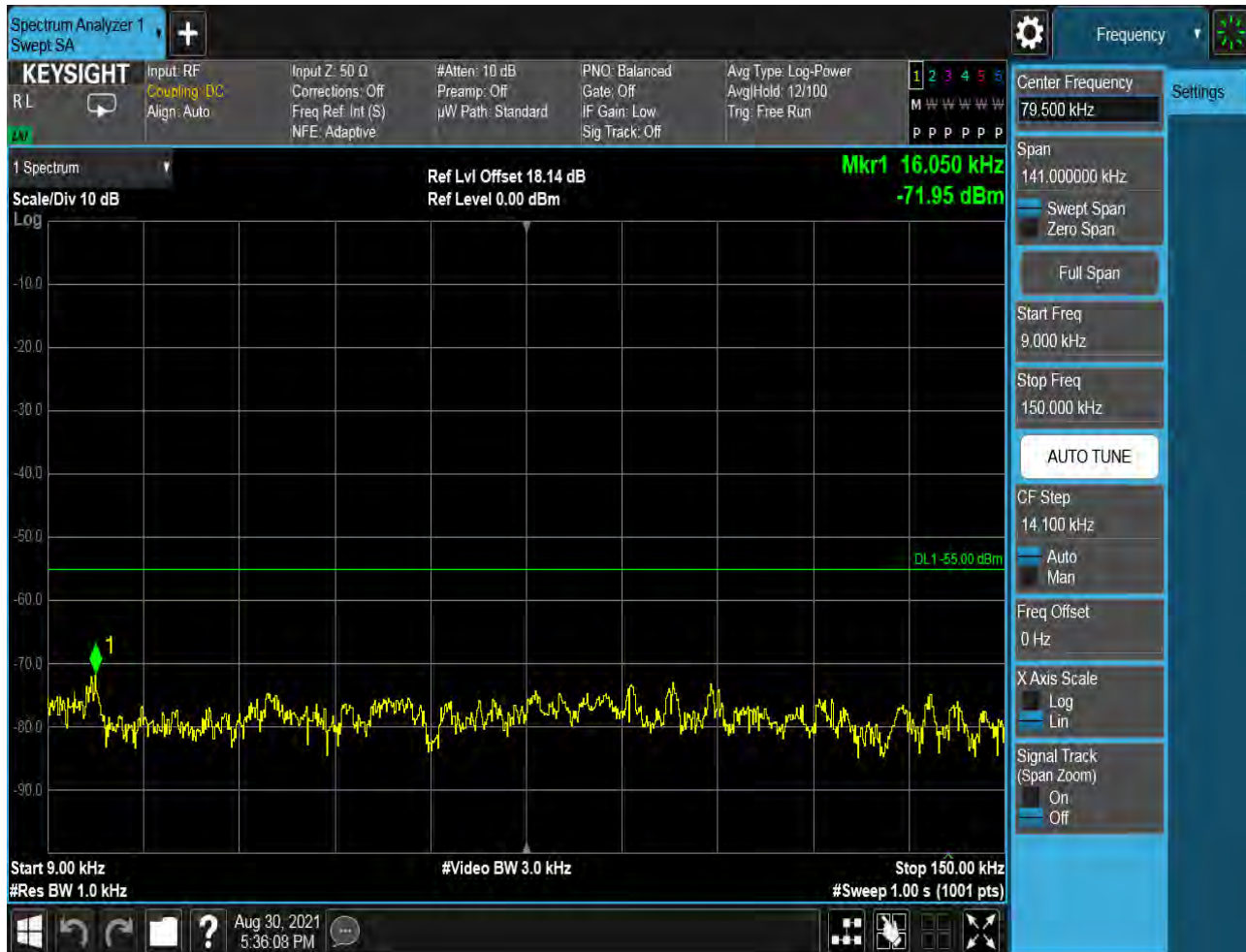


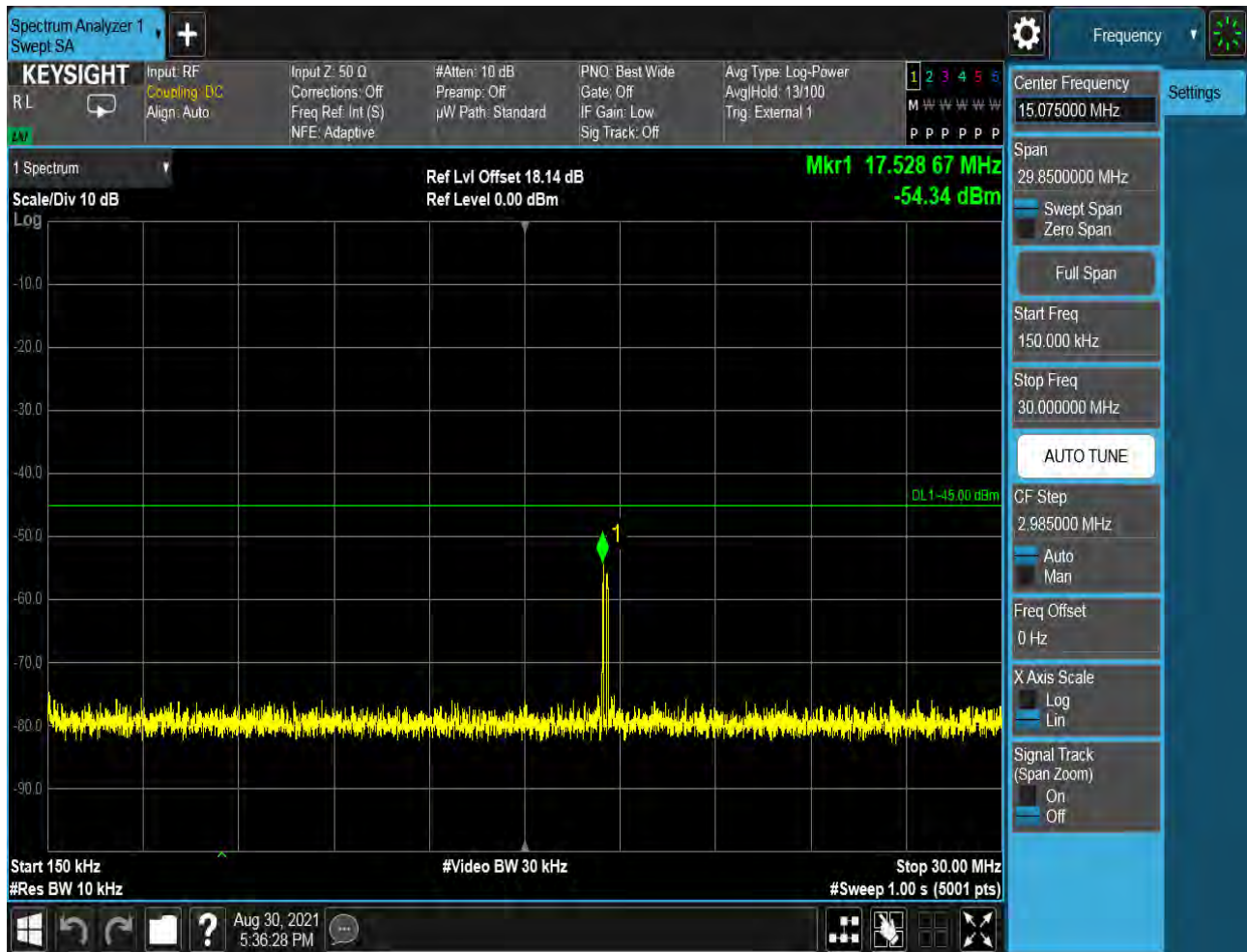


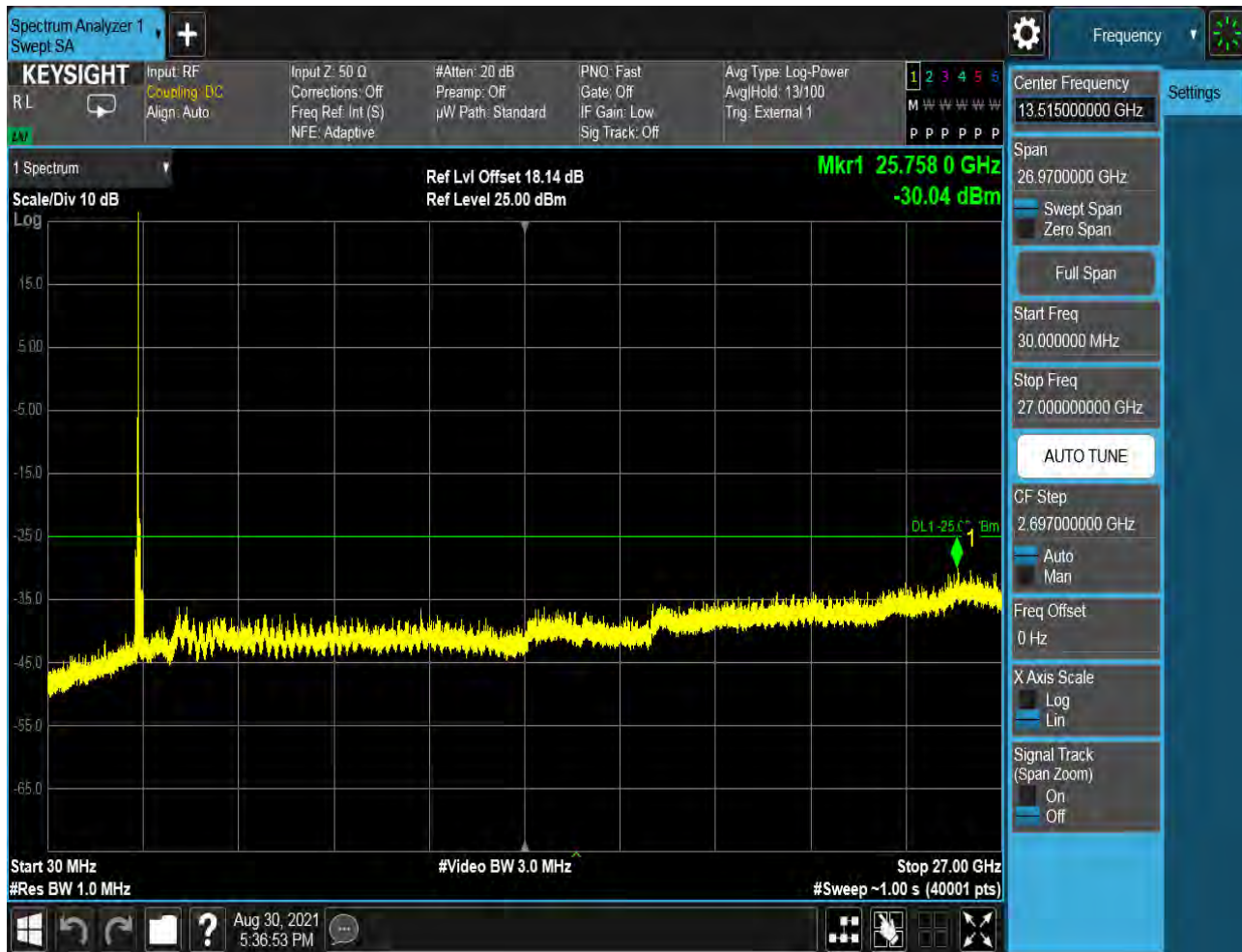


6.1.1.1.1.2 Test Channel = MCH

6.1.1.1.1.2.1 PCC Test RB = 1 # 0 & SCC Test RB = 0

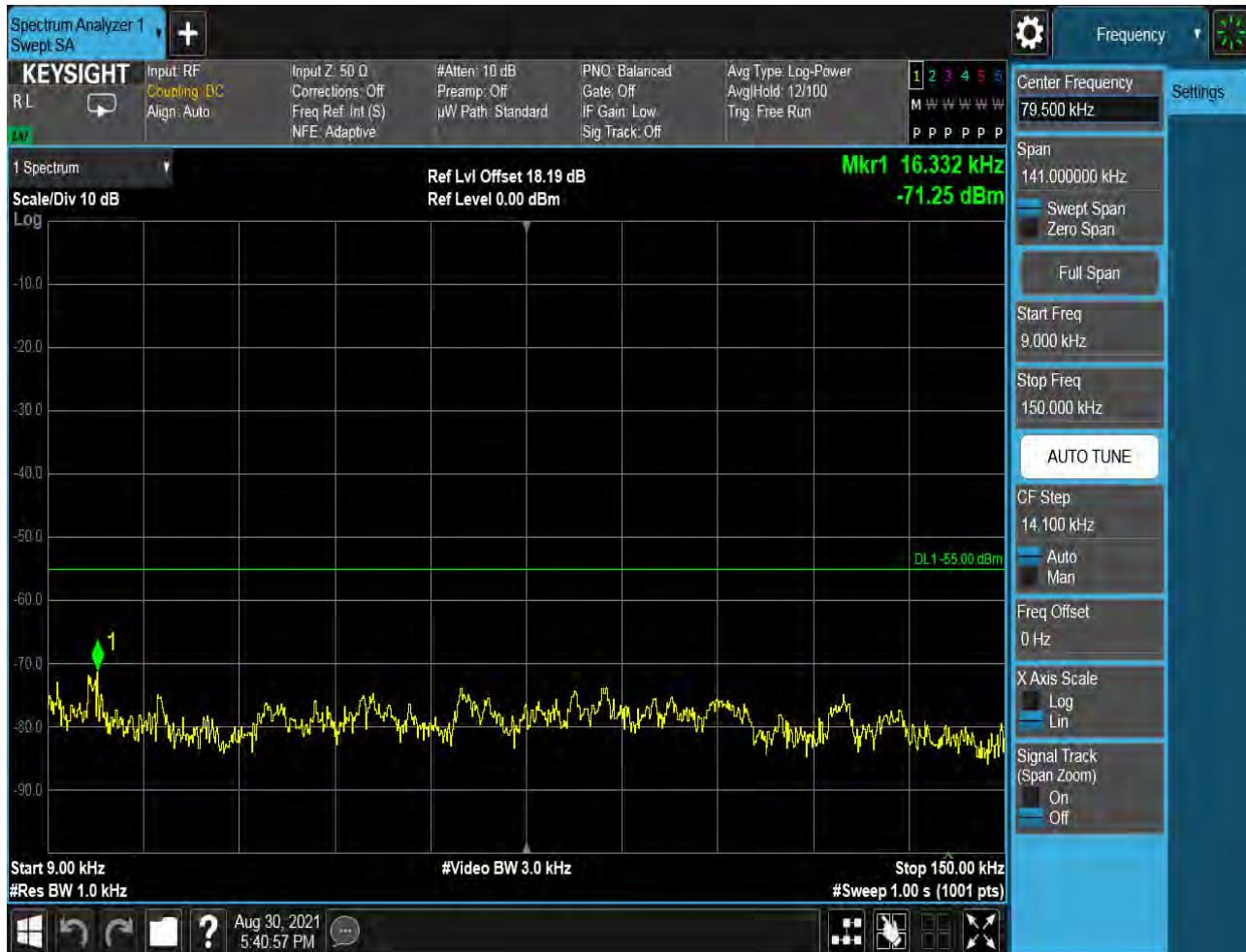


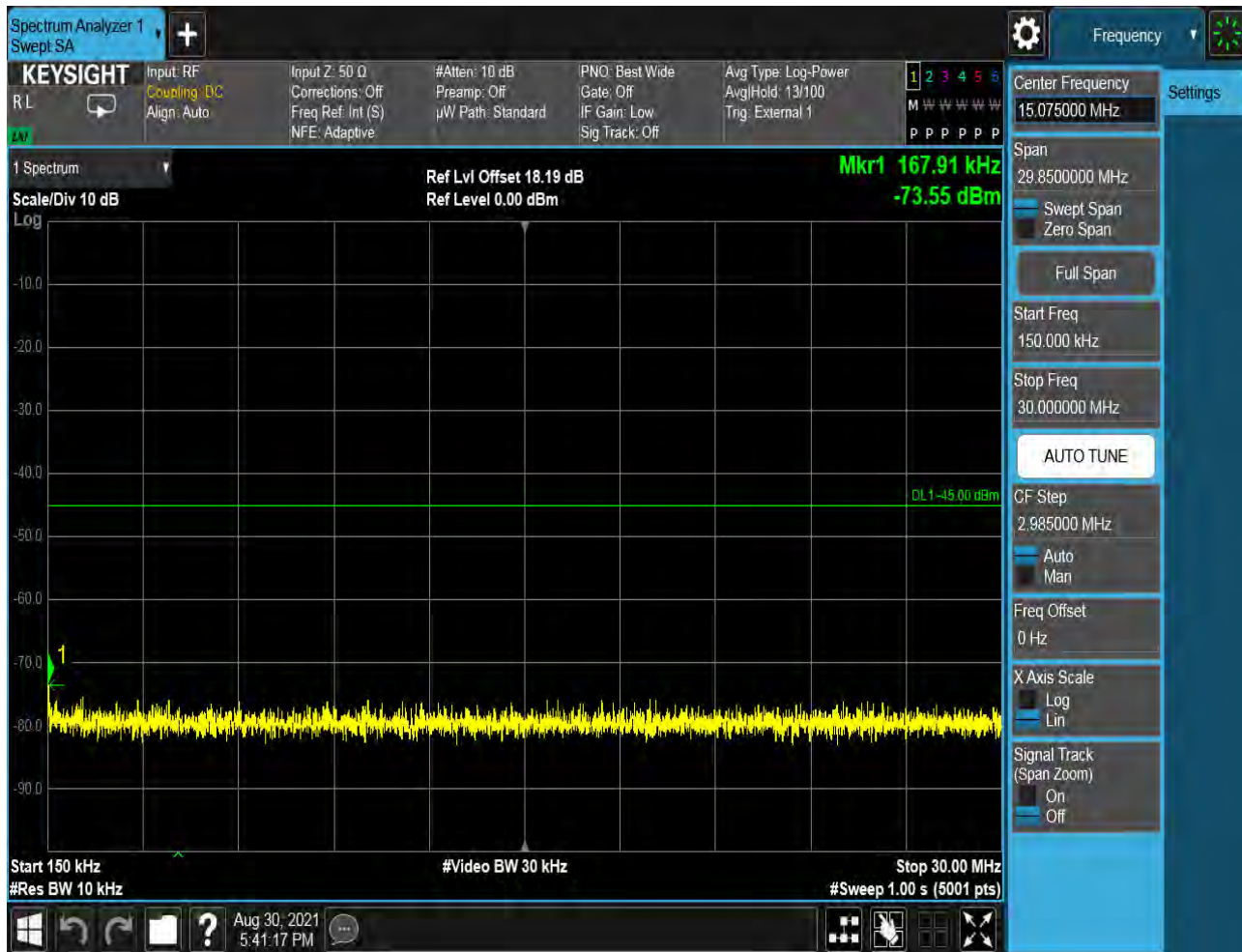




6.1.1.1.1.3 Test Channel = HCH

6.1.1.1.1.3.1 PCC Test RB = 1 # 0 & SCC Test RB = 0







6.2.1.1.2 Test Bandwidth = 20+20

6.2.1.1.2.1 Test Channel = LCH

6.1.1.1.2.1.1 PCC Test RB = 1 # 0 & SCC Test RB = 0

