



HUAWEI

RF Report for ELE-L04m

Public

Appendix for test report

1 Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band(LTE)	Test Mode	Test Band width	Test Channel	PCC Test RB	SCC Test RB	Measured [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
CA_7C	LTE/T M1	15+15	LCH	1 # 0	0 # 0	22.74	22.72	33	PASS
				partial RBs # 0	0 # 0	22.7	22.68	33	PASS
				full RBs # 0	0 # 0	21.57	21.55	33	PASS
				full RBs # 0	full RBs # 0	21.84	21.82	33	PASS
			MCH	1 # 0	0 # 0	22.79	22.77	33	PASS
				partial RBs # 0	0 # 0	22.74	22.72	33	PASS
				full RBs # 0	0 # 0	21.7	21.68	33	PASS
				full RBs # 0	full RBs # 0	21.77	21.75	33	PASS
			HCH	1 # 0	0 # 0	22.94	22.92	33	PASS
				partial RBs # 0	0 # 0	22.79	22.77	33	PASS
				full RBs # 0	0 # 0	21.97	21.95	33	PASS
				full RBs # 0	full RBs # 0	21.99	21.97	33	PASS
			20+20	LCH	1 # 0	0 # 0	23	22.98	33



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Test Band(LTE)	Test Mode	Test Band width	Test Chann el	PCC Test RB	SCC Test RB	Measu red [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
				partial RBs # 0	0 # 0	22.95	22.93	33	PASS
				full RBs # 0	0 # 0	21.64	21.62	33	PASS
				full RBs # 0	full RBs # 0	19.39	19.37	33	PASS
				1 # 0	0 # 0	22.73	22.71	33	PASS
			MCH	partial RBs # 0	0 # 0	22.84	22.82	33	PASS
				full RBs # 0	0 # 0	21.52	21.5	33	PASS
				full RBs # 0	full RBs # 0	19.17	19.15	33	PASS
				1 # 0	0 # 0	23.01	22.99	33	PASS
			HCH	partial RBs # 0	0 # 0	22.99	22.97	33	PASS
				full RBs # 0	0 # 0	21.63	21.61	33	PASS
				full RBs # 0	full RBs # 0	19.31	19.29	33	PASS
				1 # 0	0 # 0	21.82	21.8	33	PASS
	LTE/T M2	15+15	LCH	partial RBs # 0	0 # 0	21.63	21.61	33	PASS
				full RBs # 0	0 # 0	20.63	20.61	33	PASS
				full RBs # 0	full RBs # 0	20.76	20.74	33	PASS



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Test Band(LTE)	Test Mode	Test Band width	Test Chann el	PCC Test RB	SCC Test RB	Measu red [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
			MCH	1 # 0	0 # 0	22.12	22.1	33	PASS
				partial RBs # 0	0 # 0	21.85	21.83	33	PASS
				full RBs # 0	0 # 0	20.72	20.7	33	PASS
				full RBs # 0	full RBs # 0	20.73	20.71	33	PASS
			HCH	1 # 0	0 # 0	22.2	22.18	33	PASS
				partial RBs # 0	0 # 0	21.82	21.8	33	PASS
				full RBs # 0	0 # 0	20.9	20.88	33	PASS
				full RBs # 0	full RBs # 0	20.86	20.84	33	PASS
			LCH	1 # 0	0 # 0	22.61	22.59	33	PASS
				partial RBs # 0	0 # 0	21.99	21.97	33	PASS
				full RBs # 0	0 # 0	20.59	20.57	33	PASS
				full RBs # 0	full RBs # 0	18.22	18.2	33	PASS
			MCH	1 # 0	0 # 0	22.43	22.41	33	PASS
				partial RBs # 0	0 # 0	21.83	21.81	33	PASS
				full RBs # 0	0 # 0	20.52	20.5	33	PASS



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Test Band(LTE)	Test Mode	Test Band width	Test Channel	PCC Test RB	SCC Test RB	Measured [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
HCH			HCH	full RBs # 0	full RBs # 0	18.09	18.07	33	PASS
				1 # 0	0 # 0	22.53	22.51	33	PASS
				partial RBs # 0	0 # 0	22.04	22.02	33	PASS
				full RBs # 0	0 # 0	20.67	20.65	33	PASS
				full RBs # 0	full RBs # 0	18.27	18.25	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:

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

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

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

SET Sweep time = 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_7C	LTE/TM 1	15+15	LCH	1 # 0	0 # 0	4.66	13	PASS
				partial RBs # 0	0 # 0	5.41	13	PASS
				full RBs # 0	0 # 0	6.23	13	PASS
				full RBs # 0	full RBs # 0	6.83	13	PASS
			MCH	1 # 0	0 # 0	4.54	13	PASS
				partial RBs # 0	0 # 0	5.27	13	PASS
				full RBs # 0	0 # 0	6.50	13	PASS
				full RBs # 0	full RBs # 0	6.87	13	PASS
			HCH	1 # 0	0 # 0	4.89	13	PASS
				partial RBs # 0	0 # 0	5.68	13	PASS
				full RBs # 0	0 # 0	6.28	13	PASS
				full RBs # 0	full RBs # 0	6.71	13	PASS
			20+20	LCH	1 # 0	0 # 0	4.69	13



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Test Band(LTE)	Test Mode	Test Bandwidth	Test Channel	PCC Test RB	SCC Test RB	Measured [dBm]	Limit [dBm]	Verdict
			MCH	partial RBs # 0	0 # 0	5.37	13	PASS
				full RBs # 0	0 # 0	6.09	13	PASS
				full RBs # 0	full RBs # 0	6.64	13	PASS
				1 # 0	0 # 0	4.59	13	PASS
				partial RBs # 0	0 # 0	5.34	13	PASS
				full RBs # 0	0 # 0	6.38	13	PASS
			HCH	full RBs # 0	full RBs # 0	6.79	13	PASS
				1 # 0	0 # 0	4.36	13	PASS
				partial RBs # 0	0 # 0	5.06	13	PASS
				full RBs # 0	0 # 0	6.49	13	PASS
				full RBs # 0	full RBs # 0	6.92	13	PASS
LTE/TM 2	15+15	LCH	1 # 0	0 # 0	5.18	13	PASS	
			partial RBs # 0	0 # 0	5.87	13	PASS	
			full RBs # 0	0 # 0	7.40	13	PASS	
			full RBs # 0	full RBs # 0	7.63	13	PASS	



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Test Band(LTE)	Test Mode	Test Bandwidth	Test Channel	PCC Test RB	SCC Test RB	Measured [dBm]	Limit [dBm]	Verdict
			MCH	1 # 0	0 # 0	5.11	13	PASS
				partial RBs # 0	0 # 0	6.23	13	PASS
				full RBs # 0	0 # 0	7.05	13	PASS
				full RBs # 0	full RBs # 0	7.52	13	PASS
			HCH	1 # 0	0 # 0	5.47	13	PASS
				partial RBs # 0	0 # 0	6.63	13	PASS
				full RBs # 0	0 # 0	6.85	13	PASS
				full RBs # 0	full RBs # 0	7.46	13	PASS
			LCH	1 # 0	0 # 0	5.42	13	PASS
				partial RBs # 0	0 # 0	5.77	13	PASS
				full RBs # 0	0 # 0	6.94	13	PASS
				full RBs # 0	full RBs # 0	7.61	13	PASS
			MCH	1 # 0	0 # 0	5.58	13	PASS
				partial RBs # 0	0 # 0	6.06	13	PASS
				full RBs # 0	0 # 0	6.99	13	PASS



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Test Band(LTE)	Test Mode	Test Bandwidth	Test Channel	PCC Test RB	SCC Test RB	Measured [dBm]	Limit [dBm]	Verdict
		HCH		full RBs # 0	full RBs # 0	7.59	13	PASS
			1 # 0	0 # 0	5.03	13	PASS	
			partial RBs # 0	0 # 0	6.13	13	PASS	
			full RBs # 0	0 # 0	6.85	13	PASS	
			full RBs # 0	full RBs # 0	7.51	13	PASS	

3Appendix_C: Modulation Characteristics

Part I - Test Plots

3.1 For LTE

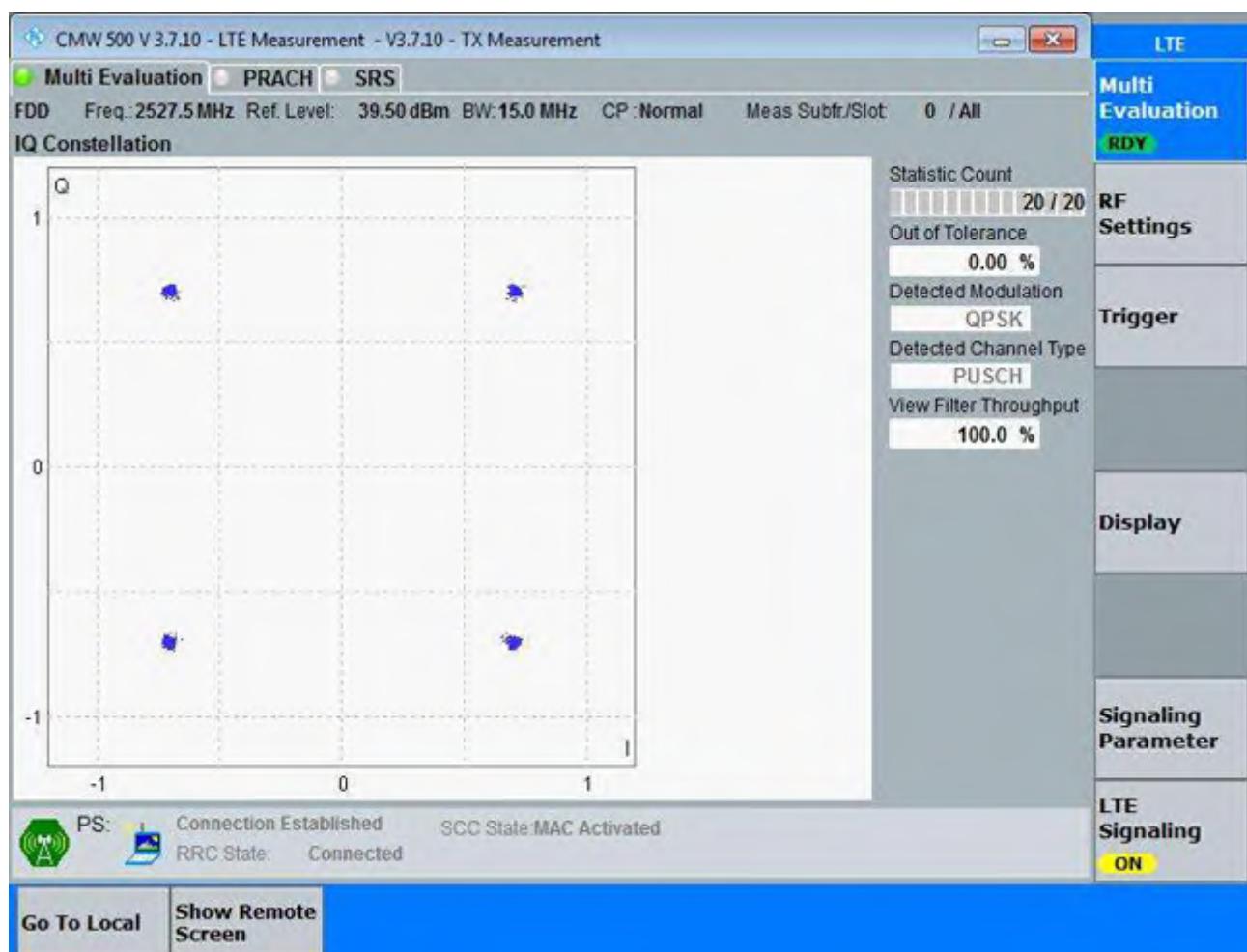
3.1.1 Test Band = CA_7C

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

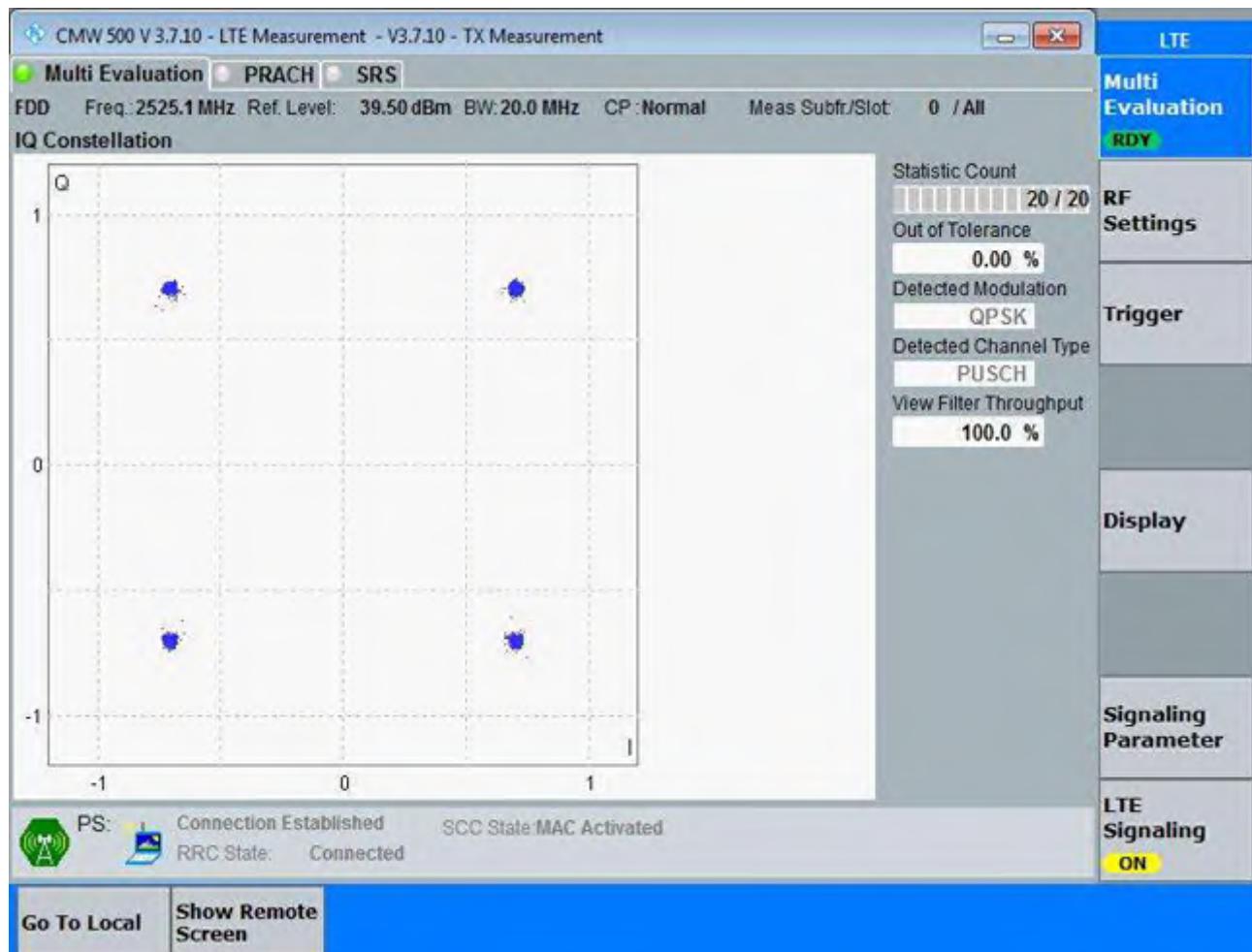
3.1.1.1.1.1.1 PCC Test RB = full RBs & SCC Test RB = full RBs



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

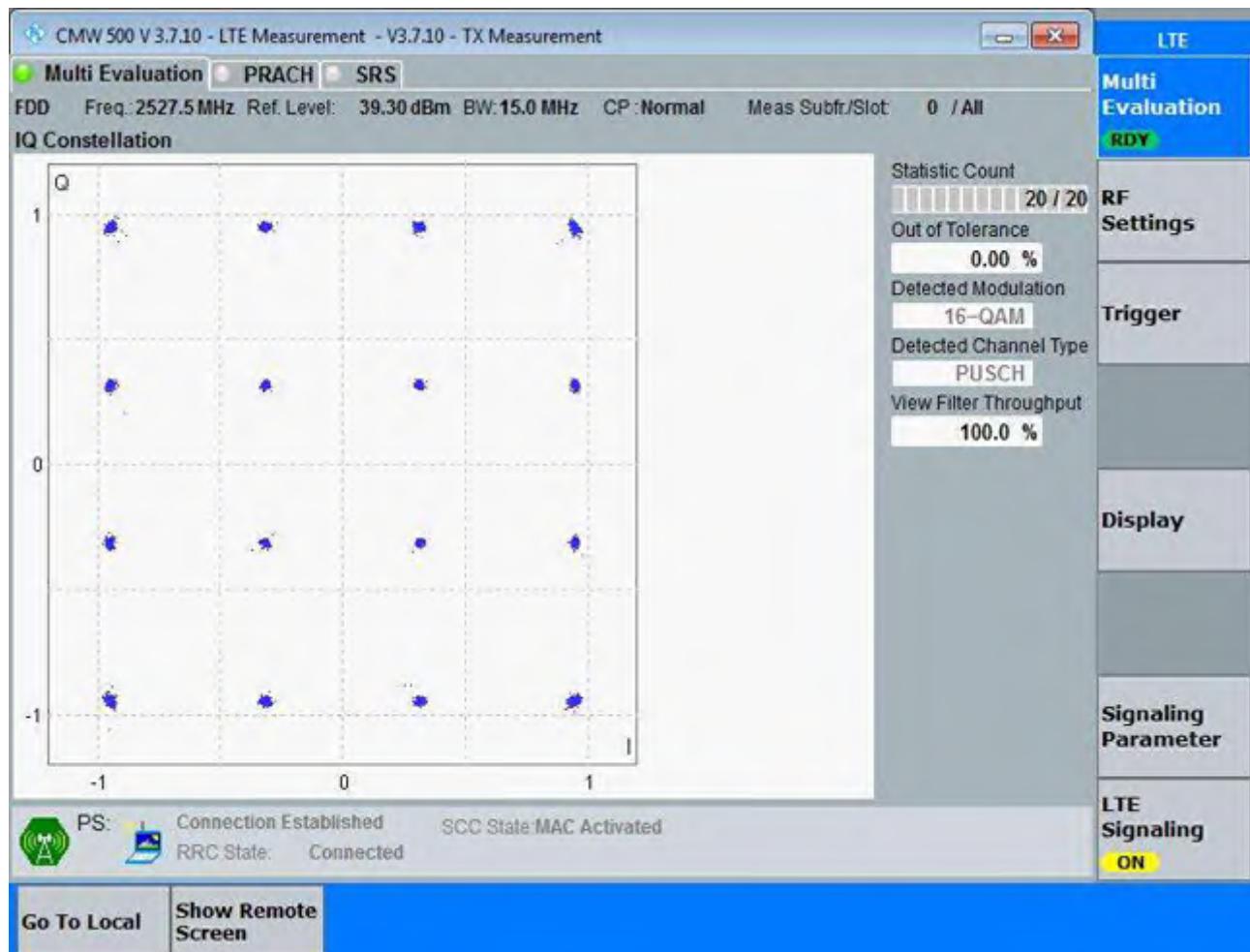


3.1.1.2 Test Mode = LTE/TM2

3.1.1.2.1 Test Bandwidth = 15+15

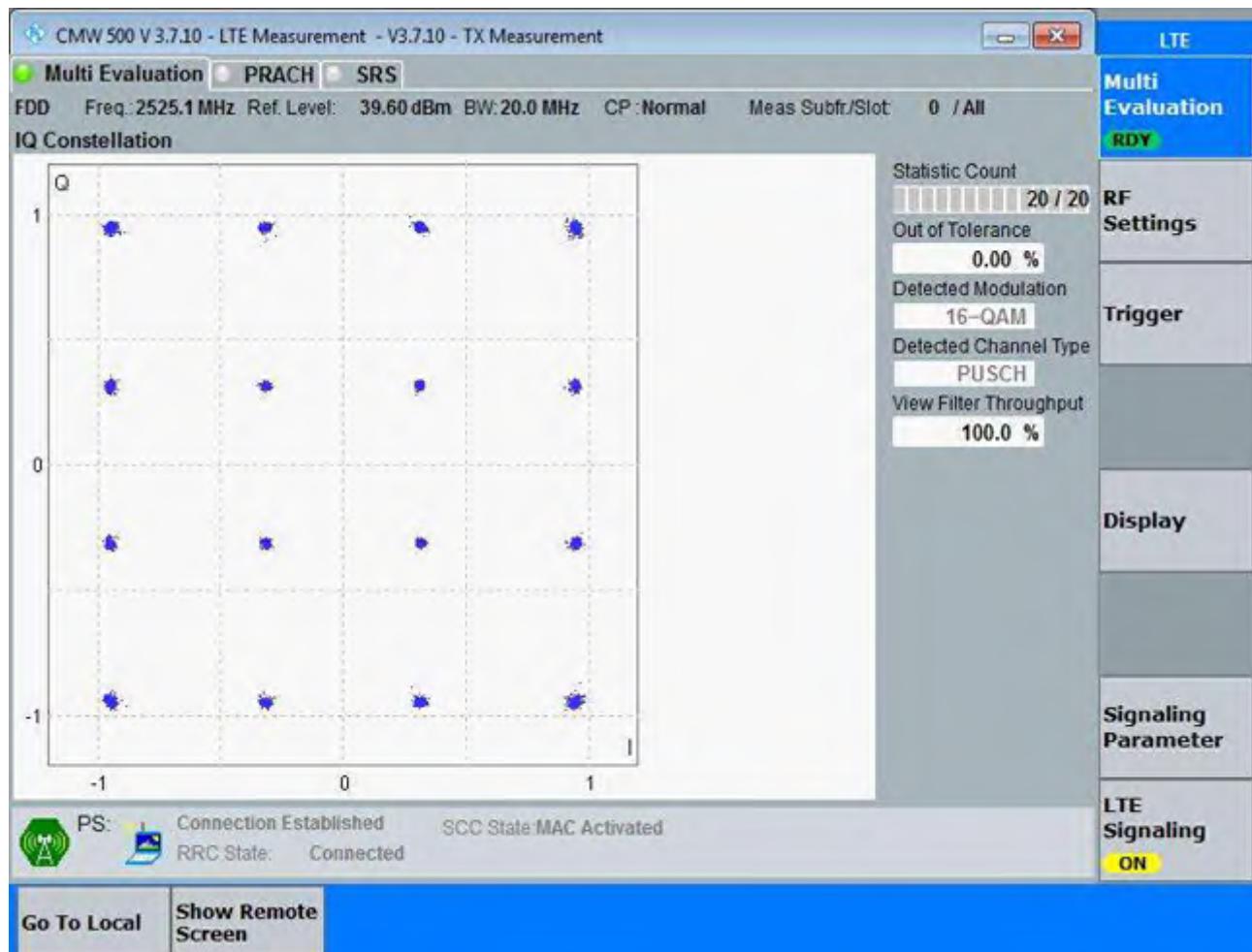
3.1.1.2.1.1 Test Channel = MCH

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 Band width [MHz]	Emission Band width [MHz]	Verdict
CA_7C	LTE/TM1	15+15	LCH	full RBs # 0	full RBs # 0	28.92	31.27	PASS
			MCH	full RBs # 0	full RBs # 0	29.01	31.39	PASS
			HCH	full RBs # 0	full RBs # 0	28.97	31.31	PASS
		20+20	LCH	full RBs # 0	full RBs # 0	38.48	41.35	PASS
			MCH	full RBs # 0	full RBs # 0	38.45	41.34	PASS
			HCH	full RBs # 0	full RBs # 0	38.46	41.39	PASS
	LTE/TM2	15+15	LCH	full RBs # 0	full RBs # 0	28.89	31.25	PASS
			MCH	full RBs # 0	full RBs # 0	29.02	31.28	PASS
			HCH	full RBs # 0	full RBs # 0	28.95	31.16	PASS
		20+20	LCH	full RBs # 0	full RBs # 0	38.44	41.47	PASS
			MCH	full RBs # 0	full RBs # 0	38.42	41.39	PASS
			HCH	full RBs # 0	full RBs # 0	38.40	41.34	PASS

Part II - Test Plots

4.1 For LTE

4.1.1 Test Band = CA_7C

4.1.1.1 Test Mode = LTE/TM1

4.1.1.1.1 Test Bandwidth = 15+15

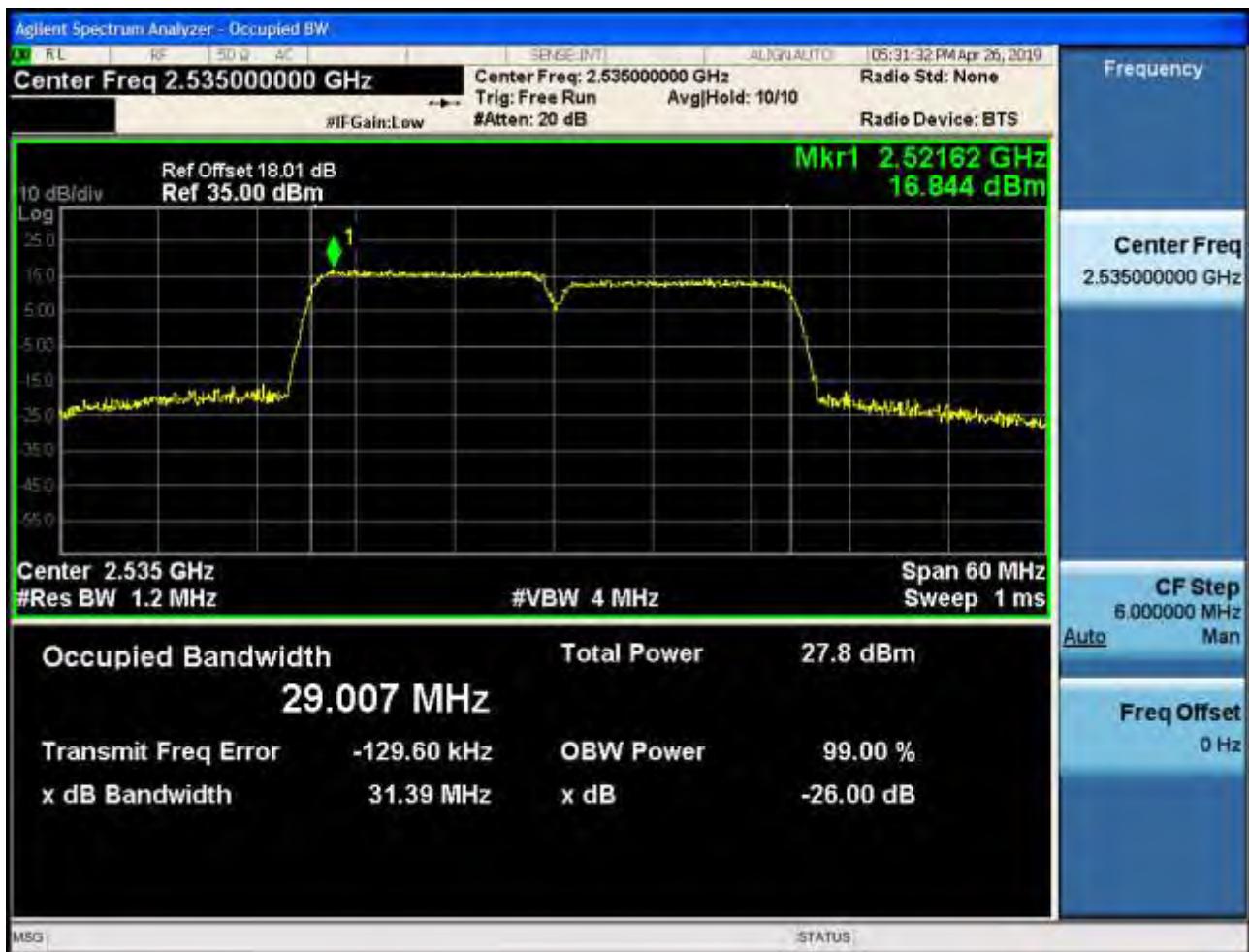
4.1.1.1.1.1 Test Channel = LCH

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

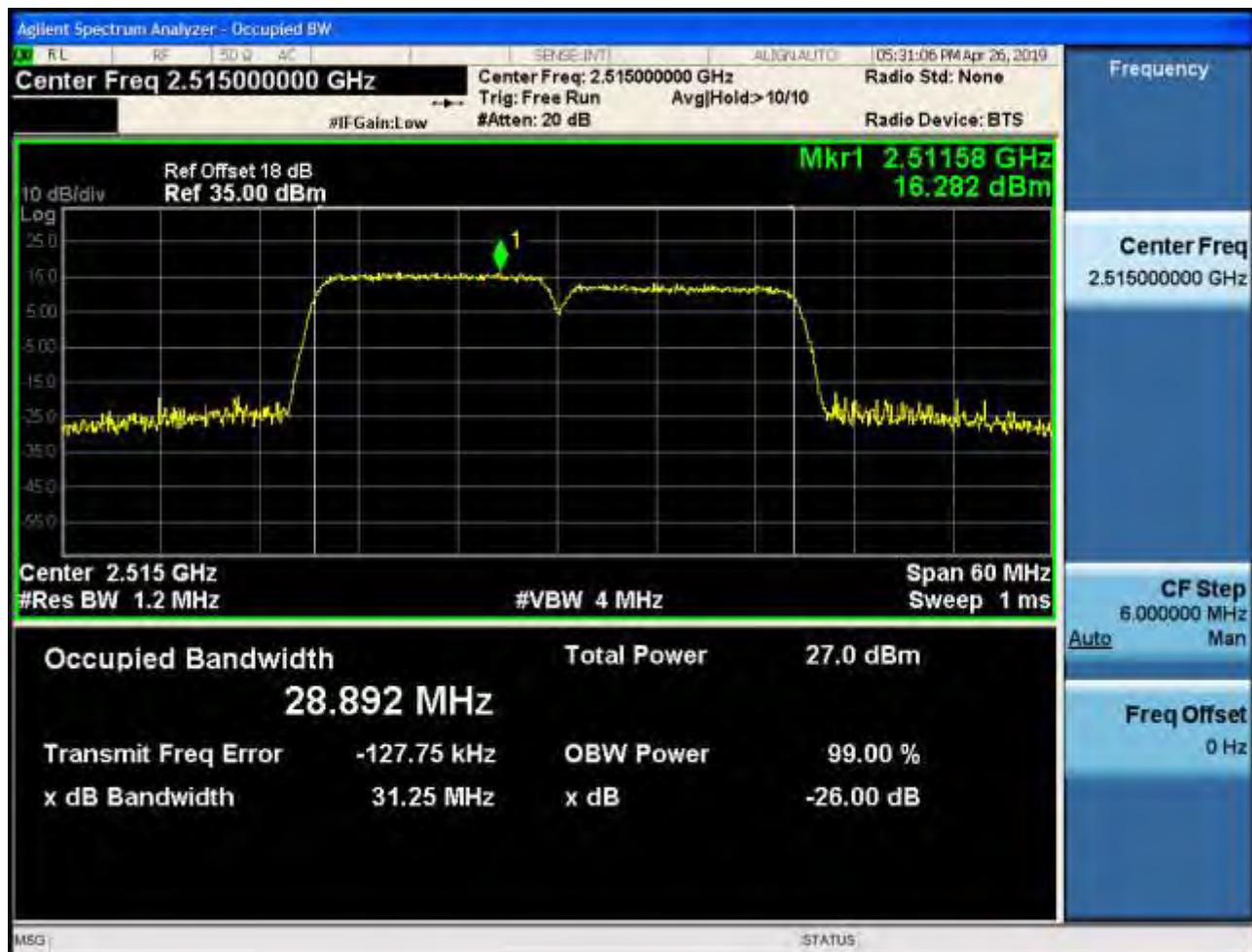


4.1.1.1 Test Mode = LTE/TM2

4.1.1.1.1 Test Bandwidth = 15+15

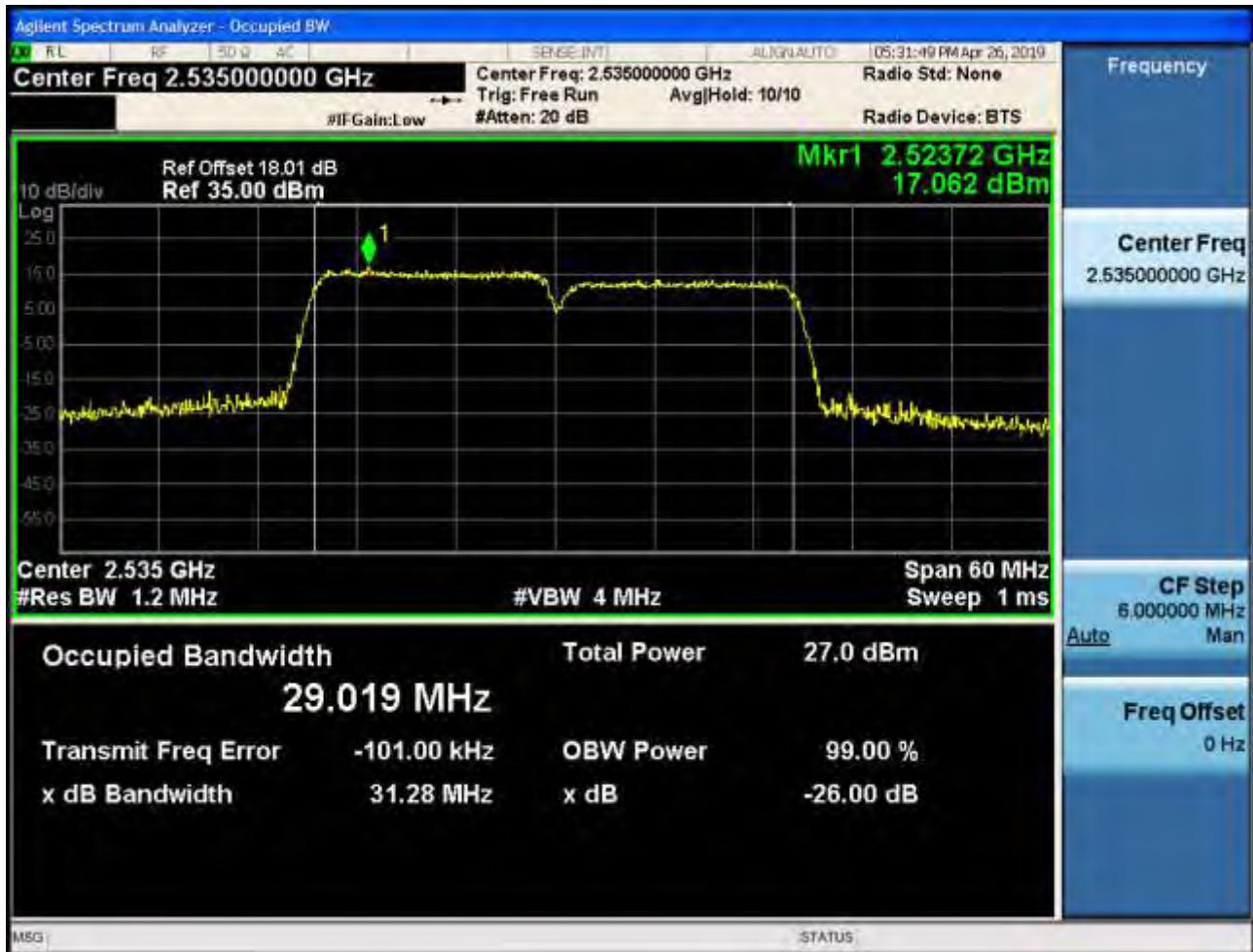
4.1.1.1.1.1 Test Channel = LCH

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



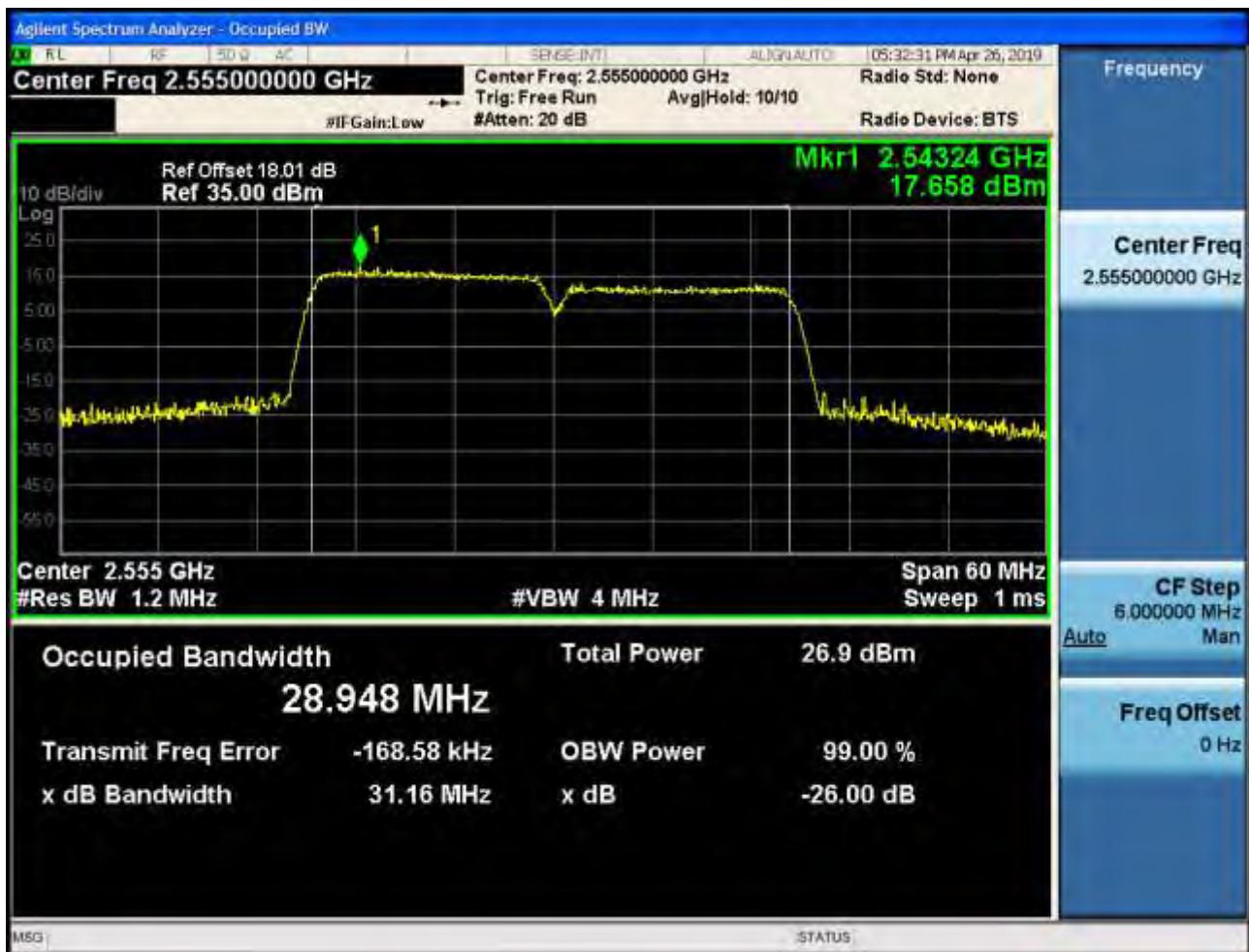
4.1.1.1.1.2 Test Channel = MCH

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_7C

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

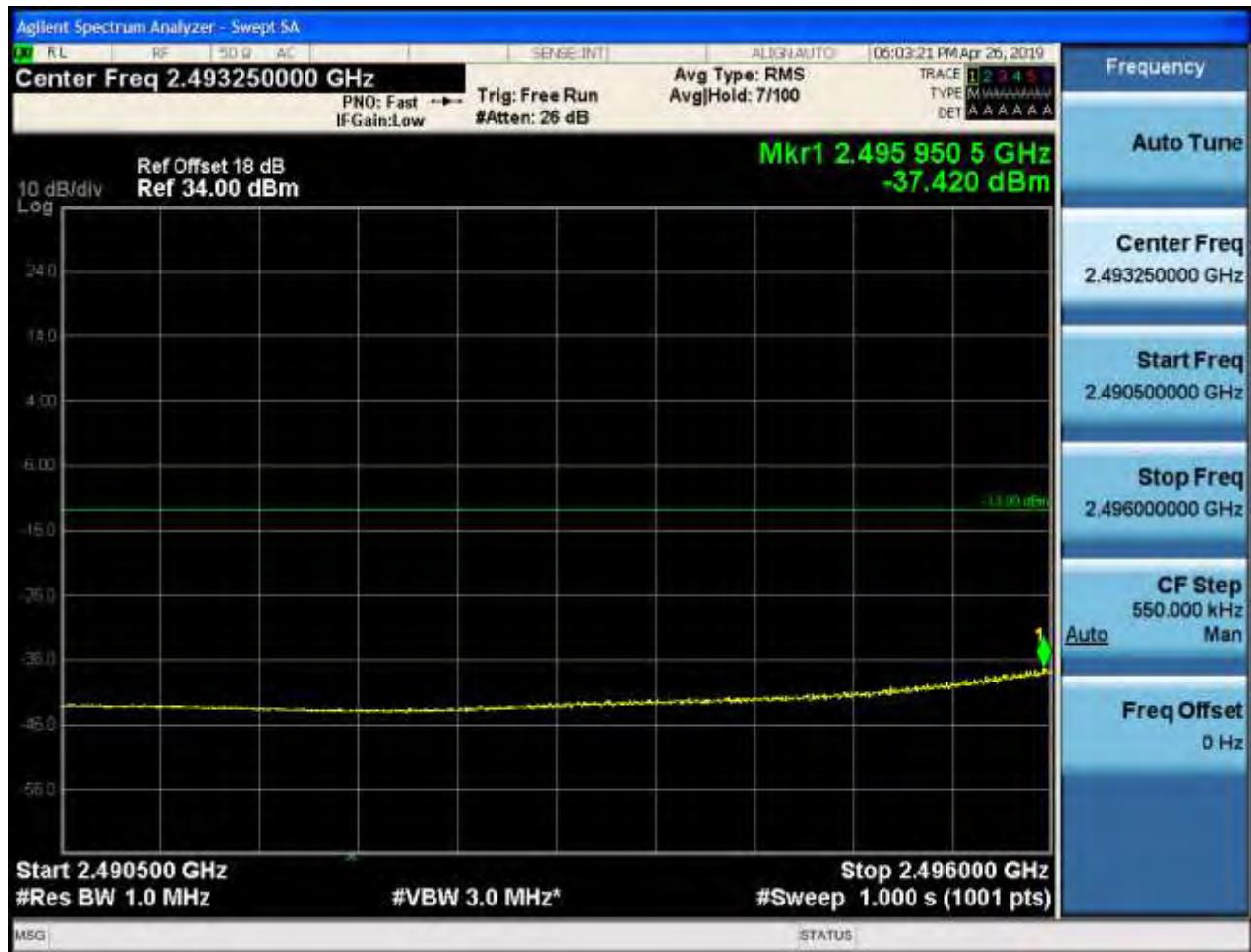
5.1.1.1.1.1.1 PCC Test RB = 1 # 0 & SCC Test RB = 0

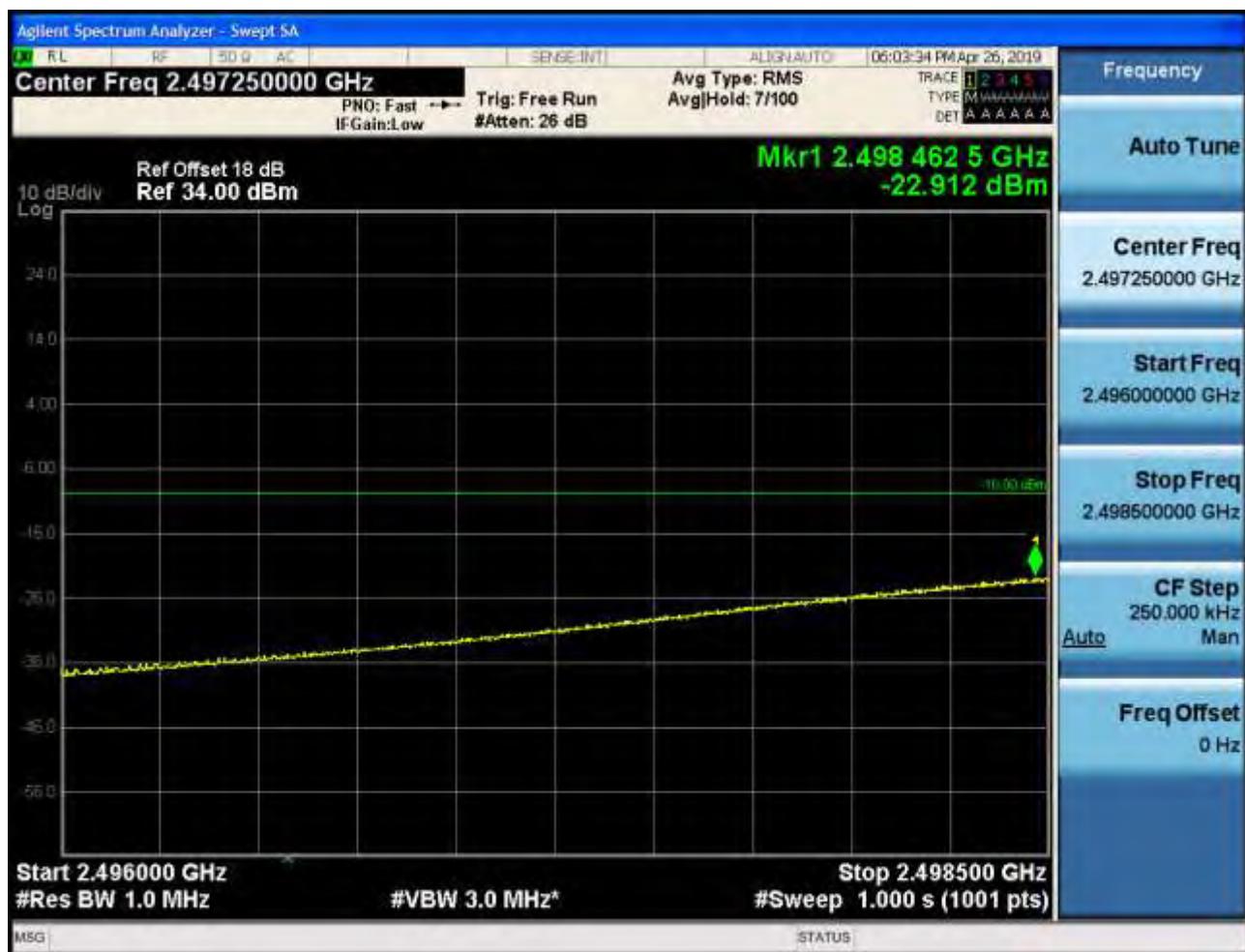






5.1.1.1.1.2 PCC Test RB = partial RBs #0 & SCC Test RB = 0

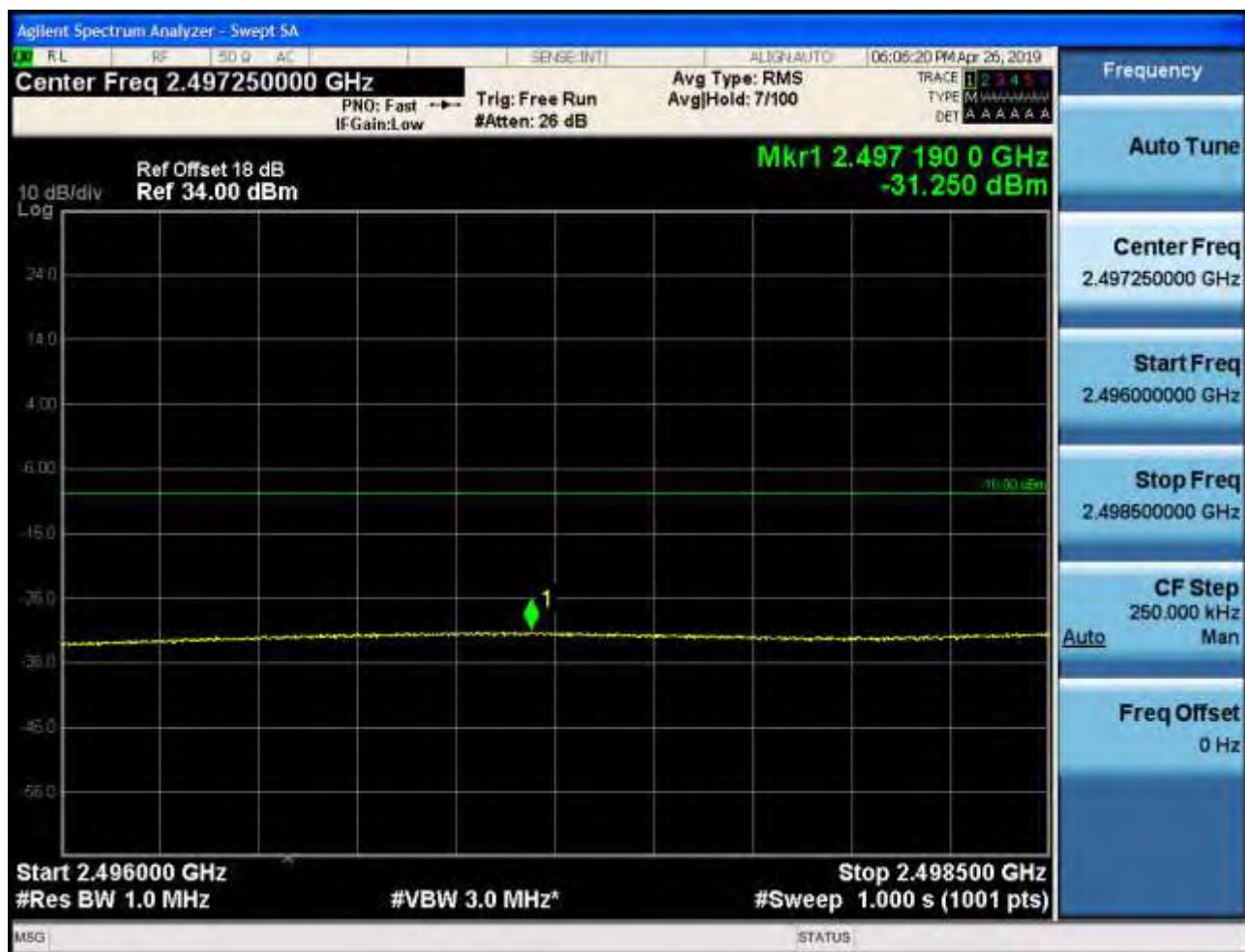






5.1.1.1.1.3 PCC Test RB = full RBs & SCC Test RB = 0







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

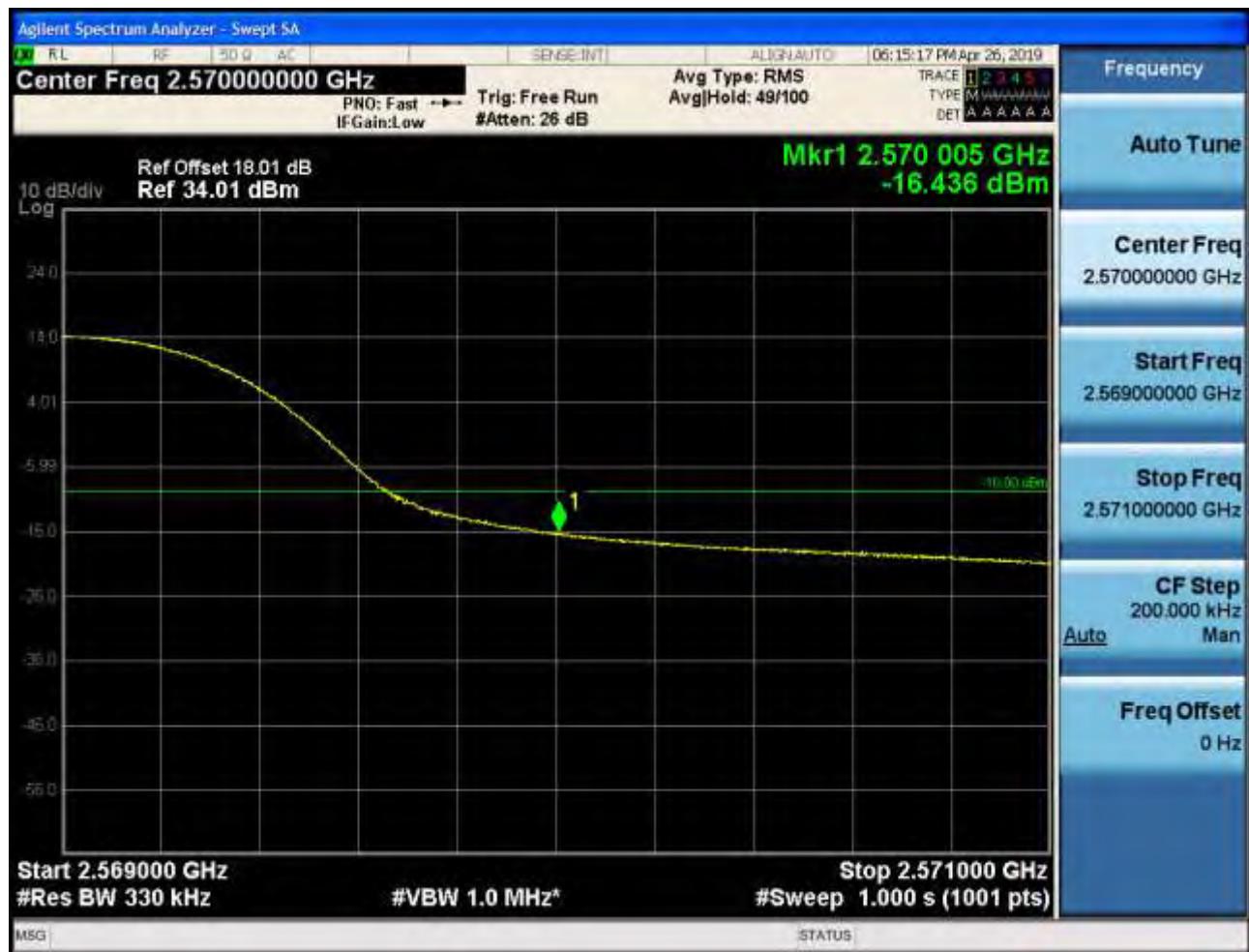
5.1.1.1.2.1 PCC Test RB = 0 & SCC Test RB = 1 # max







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

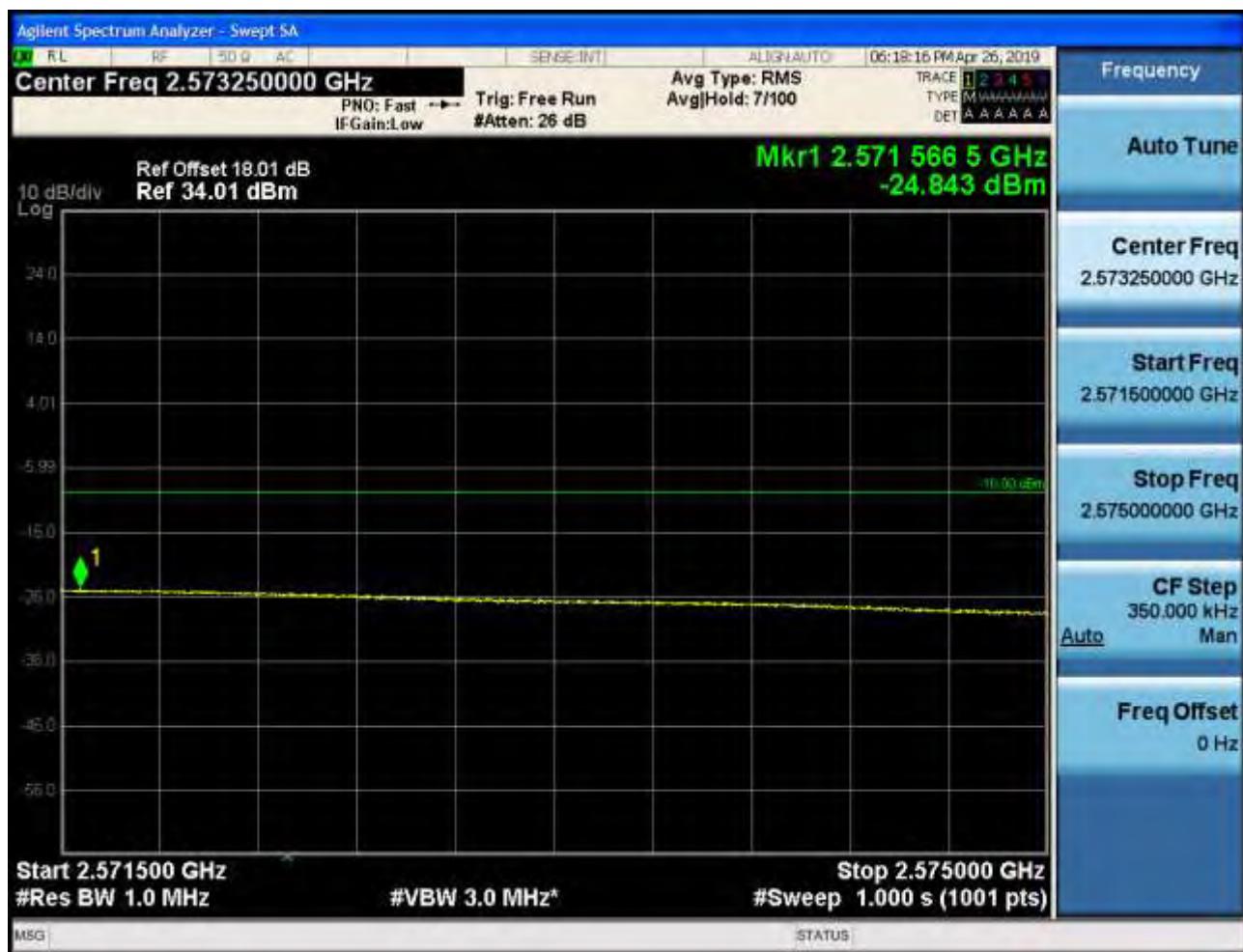






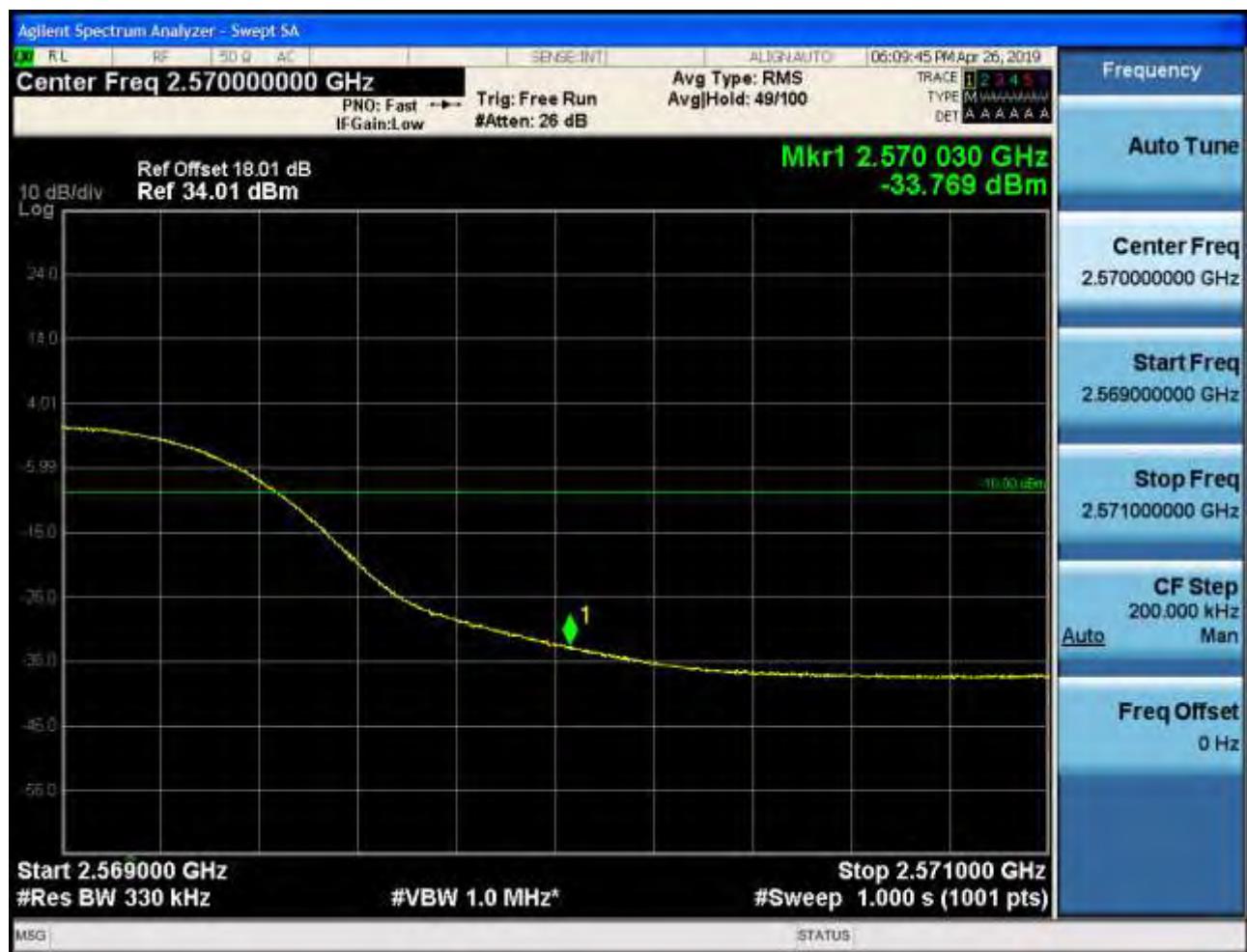
5.1.1.1.2.3 PCC Test RB = 0 & SCC Test RB = full RBs

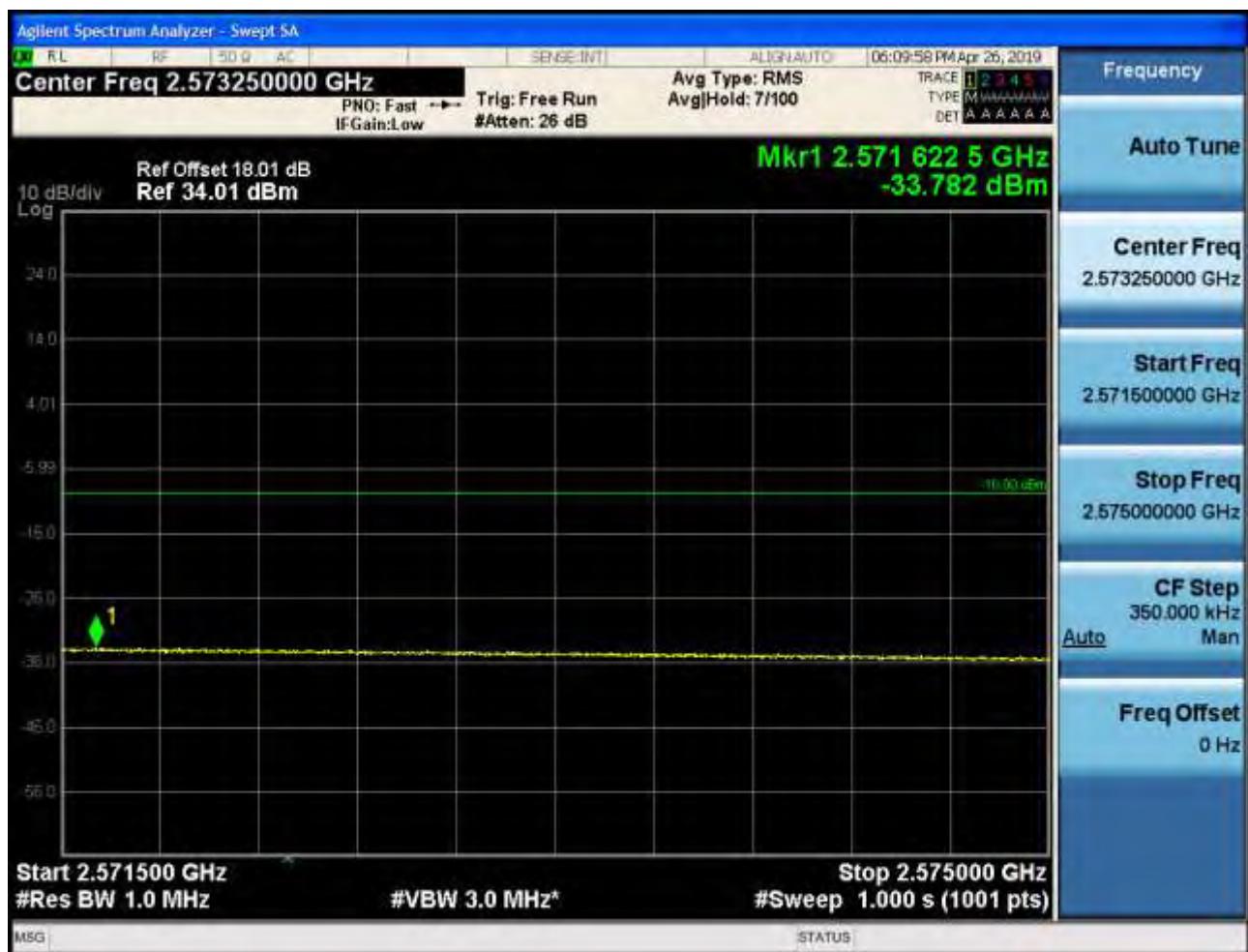






5.1.1.1.2.4 PCC Test RB = full RBs & SCC Test RB = full RBs







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

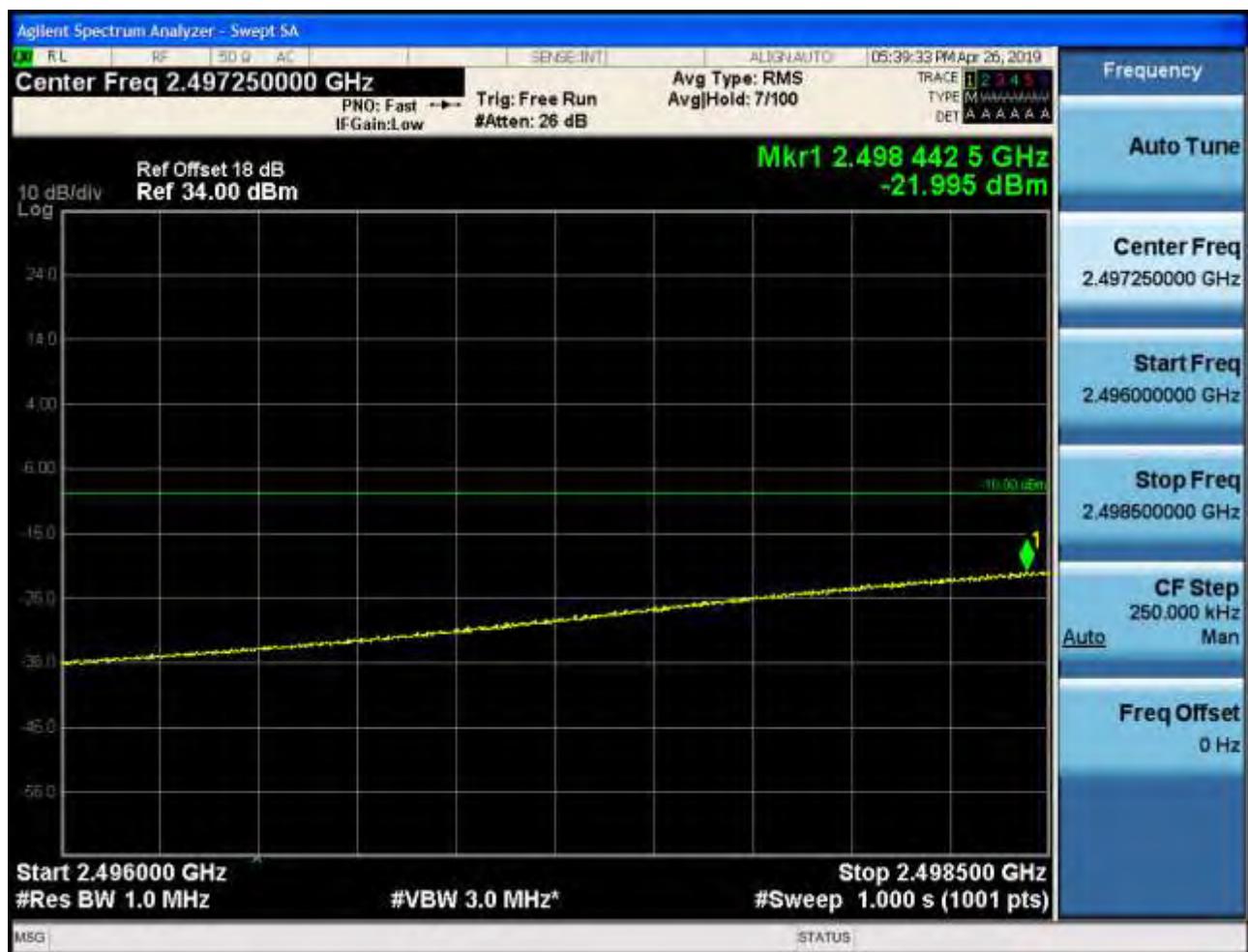






5.1.1.1.2.1.2 PCC Test RB = partial RBs #0 & SCC Test RB = 0







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







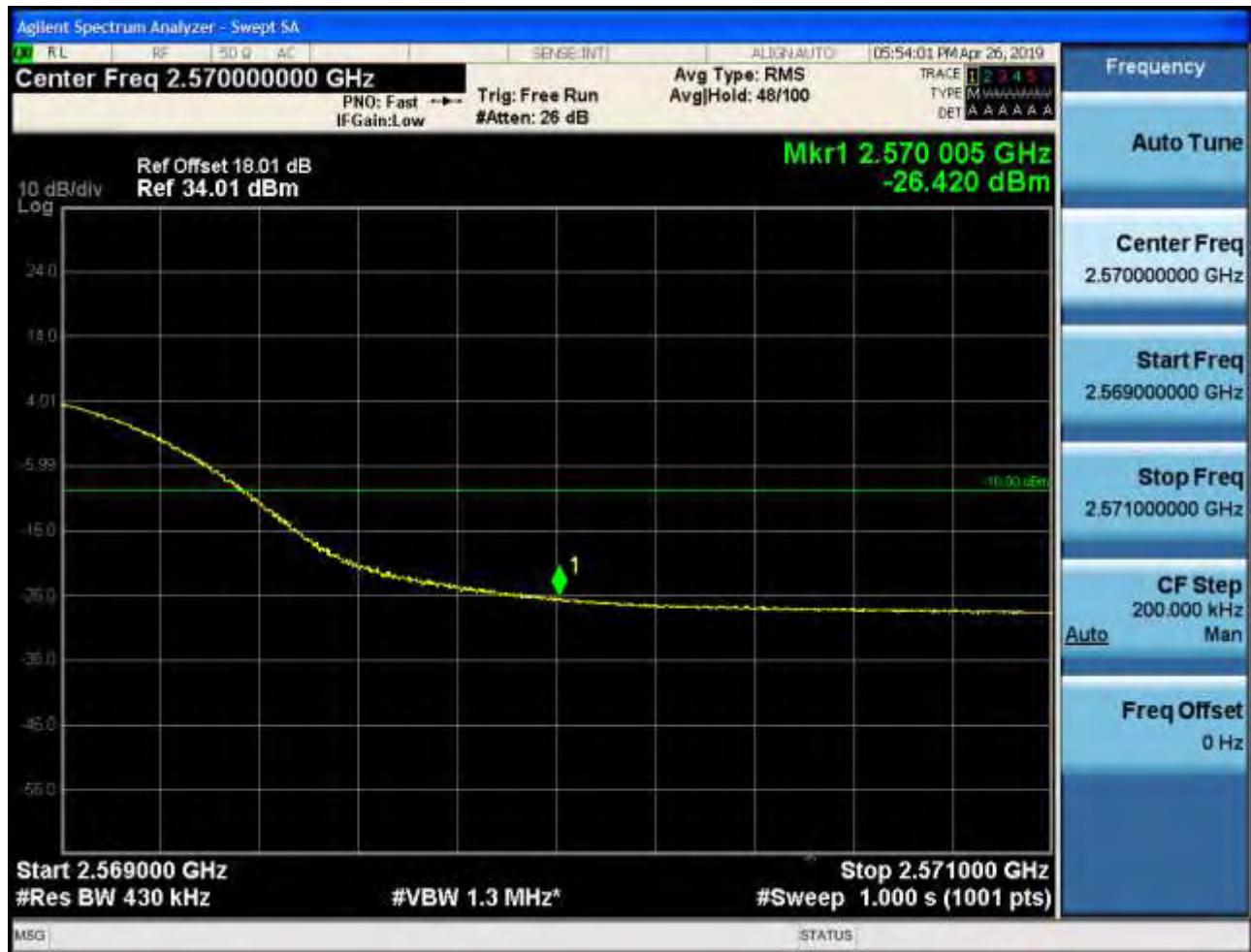
5.1.1.1.2.2.2 PCC Test RB = 0 & SCC Test RB = partial RBs #max

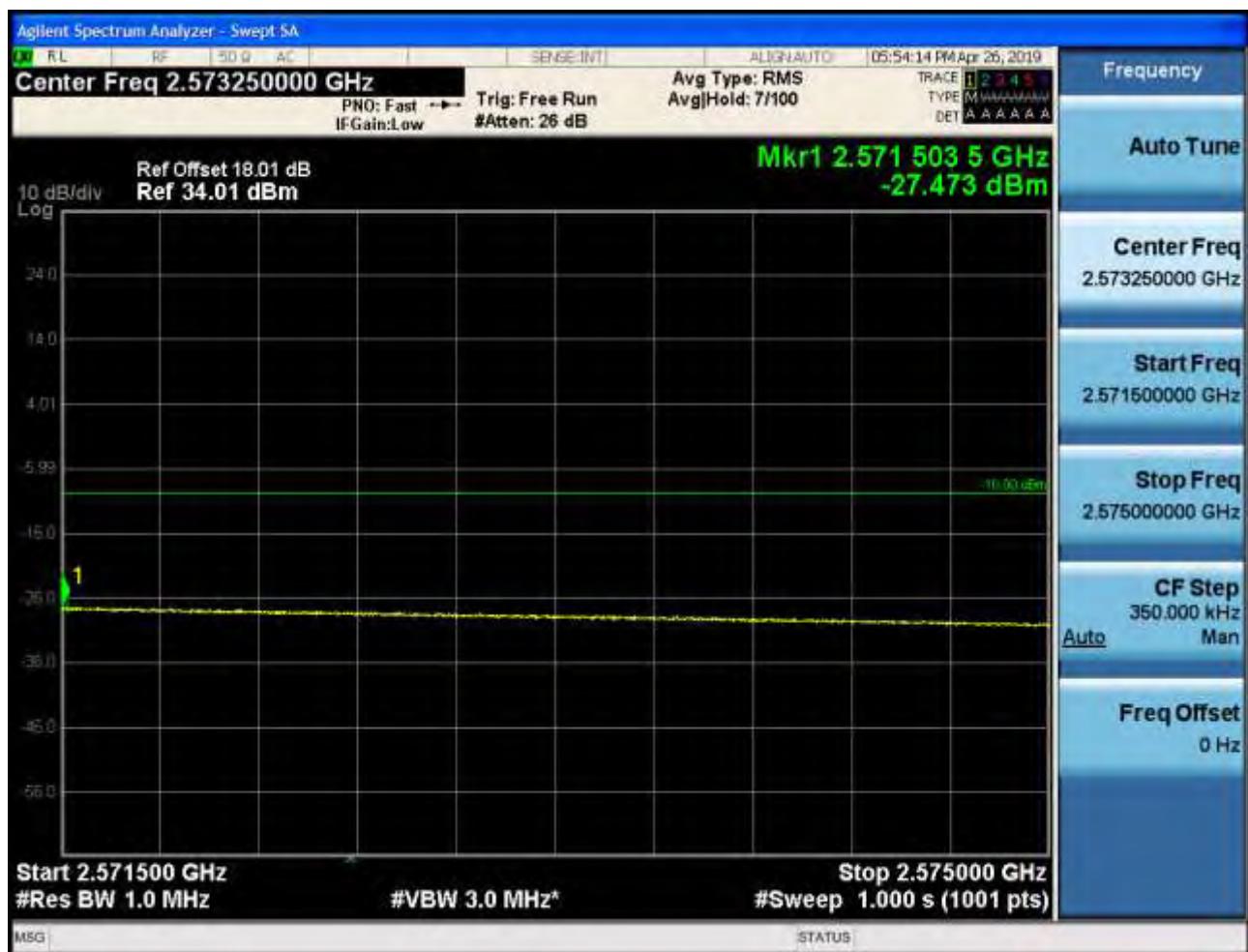






5.1.1.1.2.2.3 PCC Test RB = 0 & SCC Test RB = full RBs







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

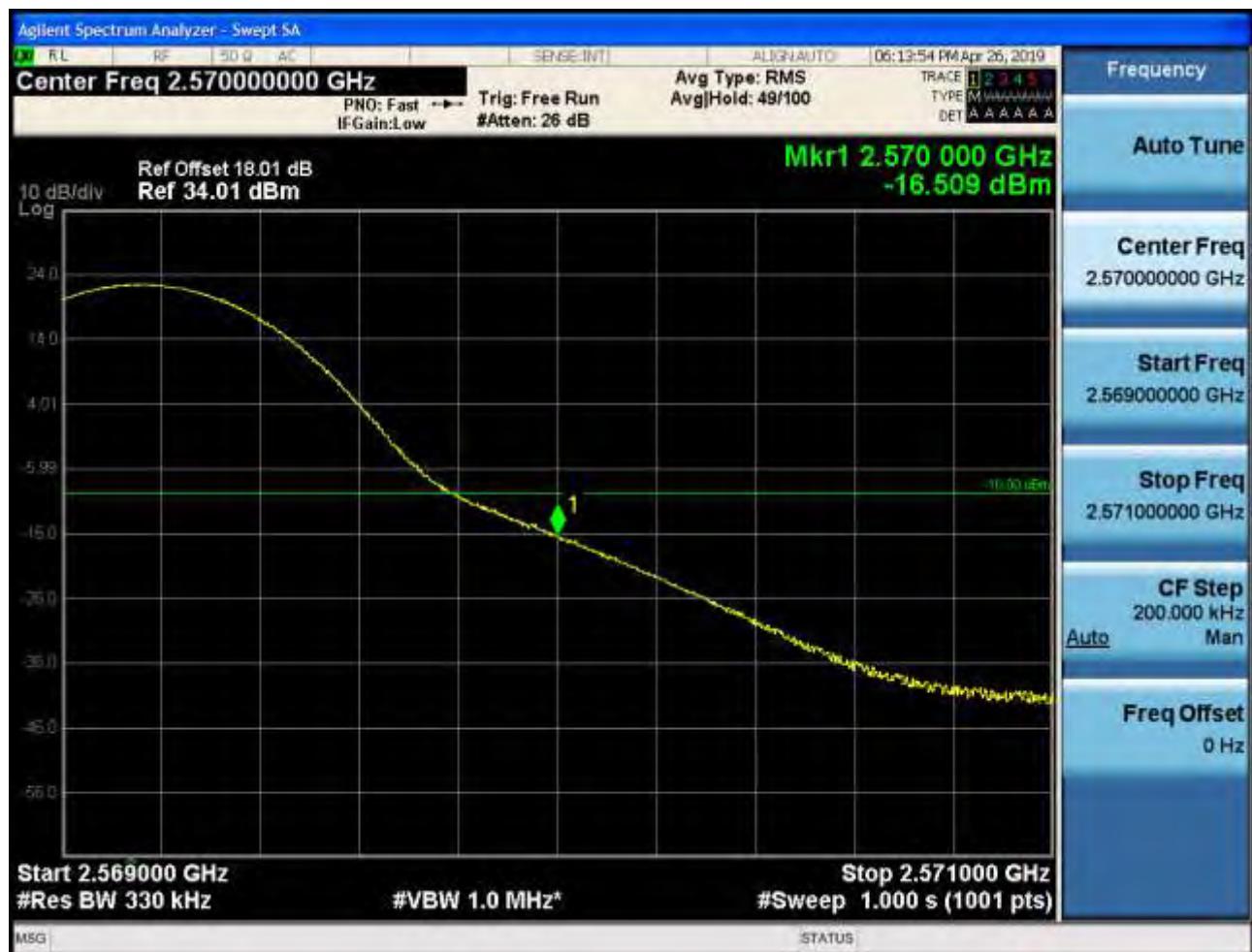






5.1.1.2.1.2 Test Channel = HCH

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







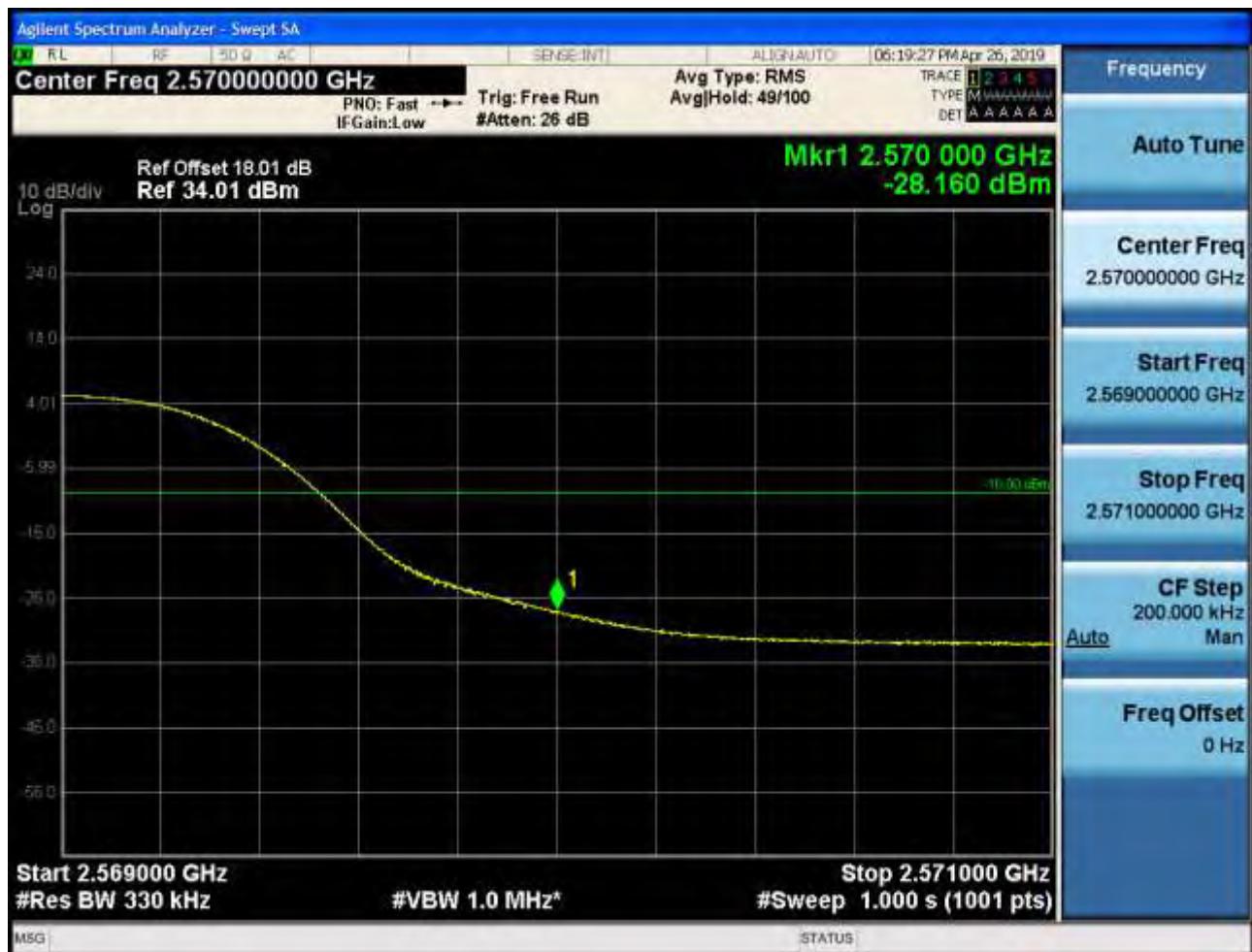
5.1.1.2.1.2.2 PCC Test RB = 0 & SCC Test RB = partial RBs #max

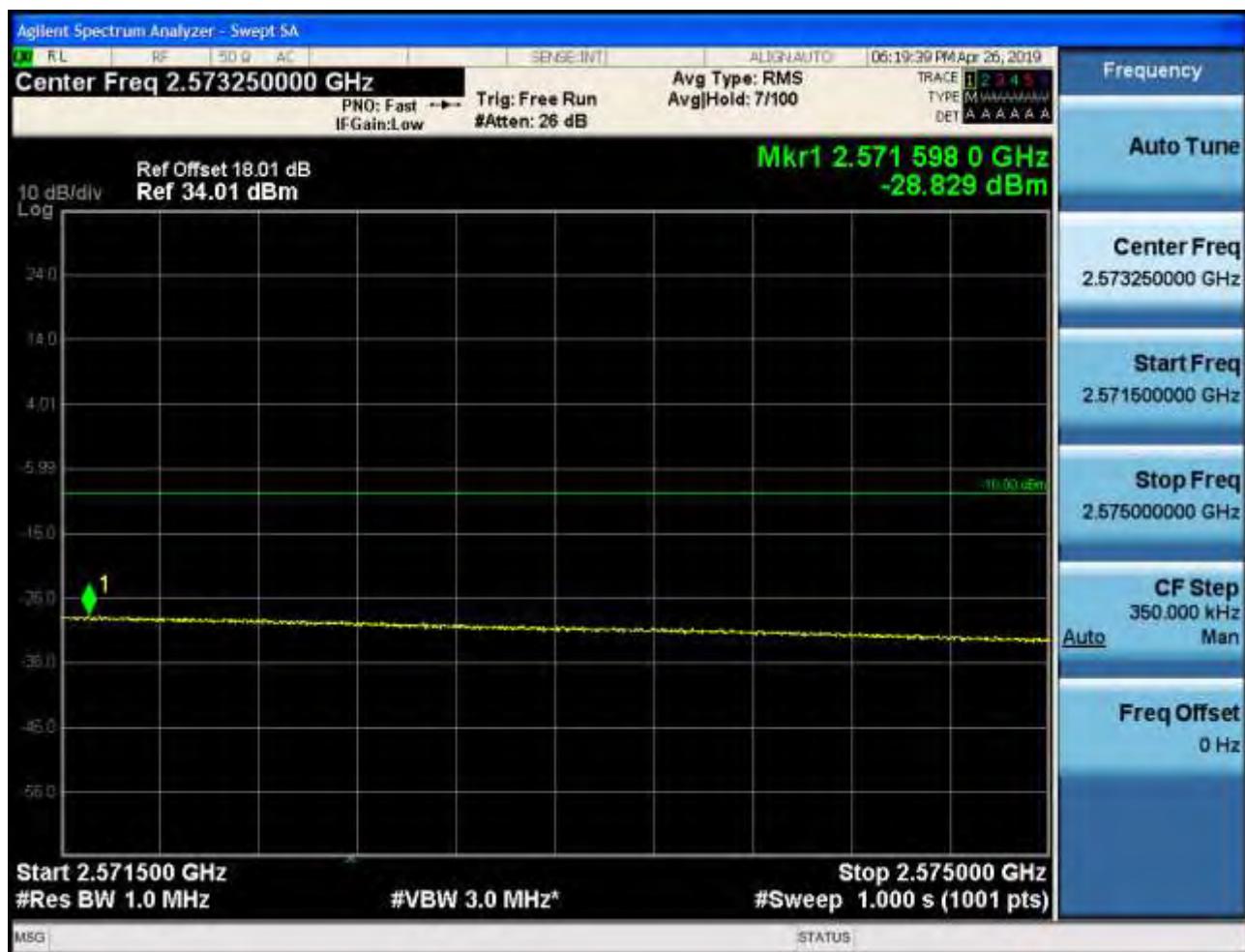






5.1.1.2.1.2.3 PCC Test RB = 0 & SCC Test RB = full RBs







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



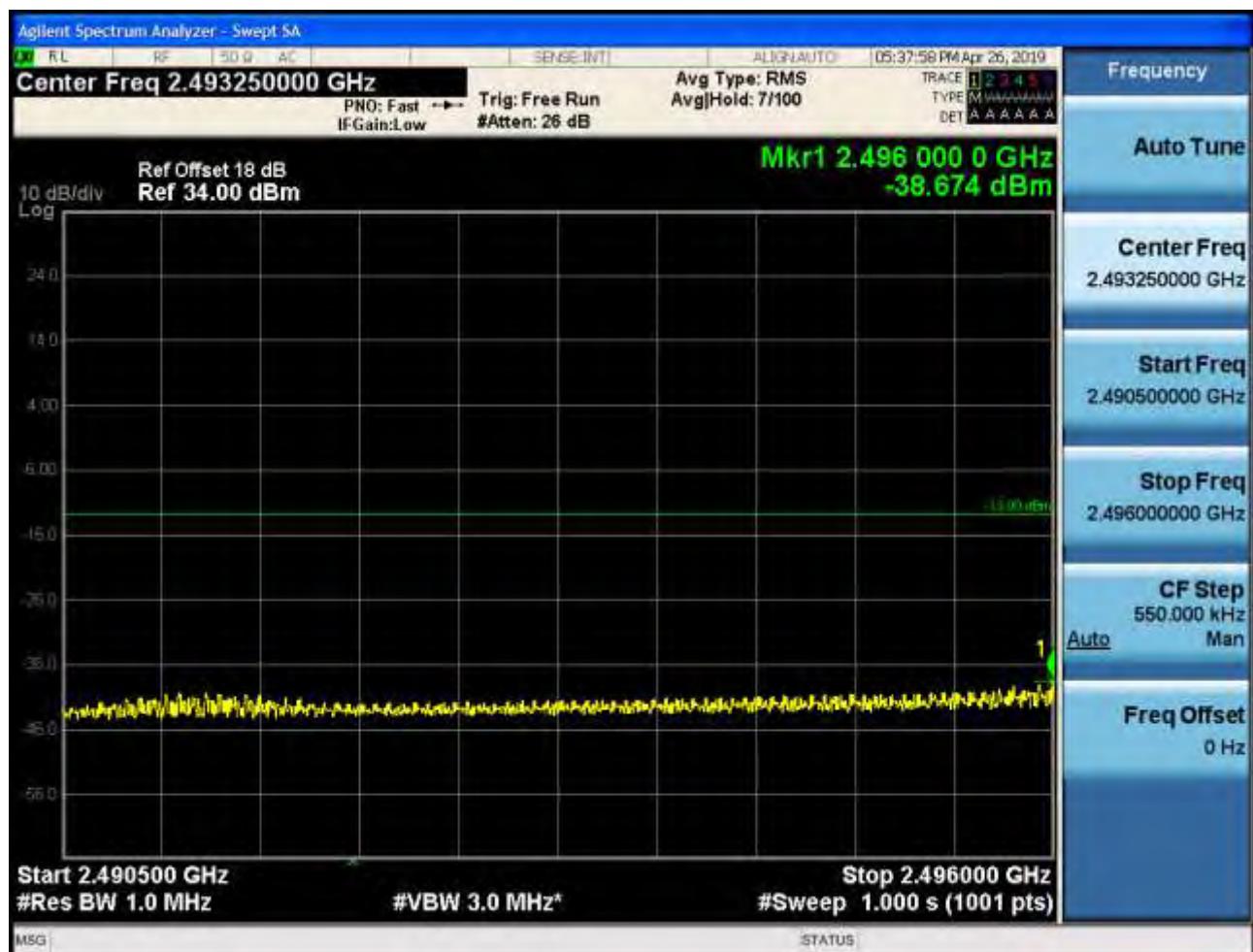


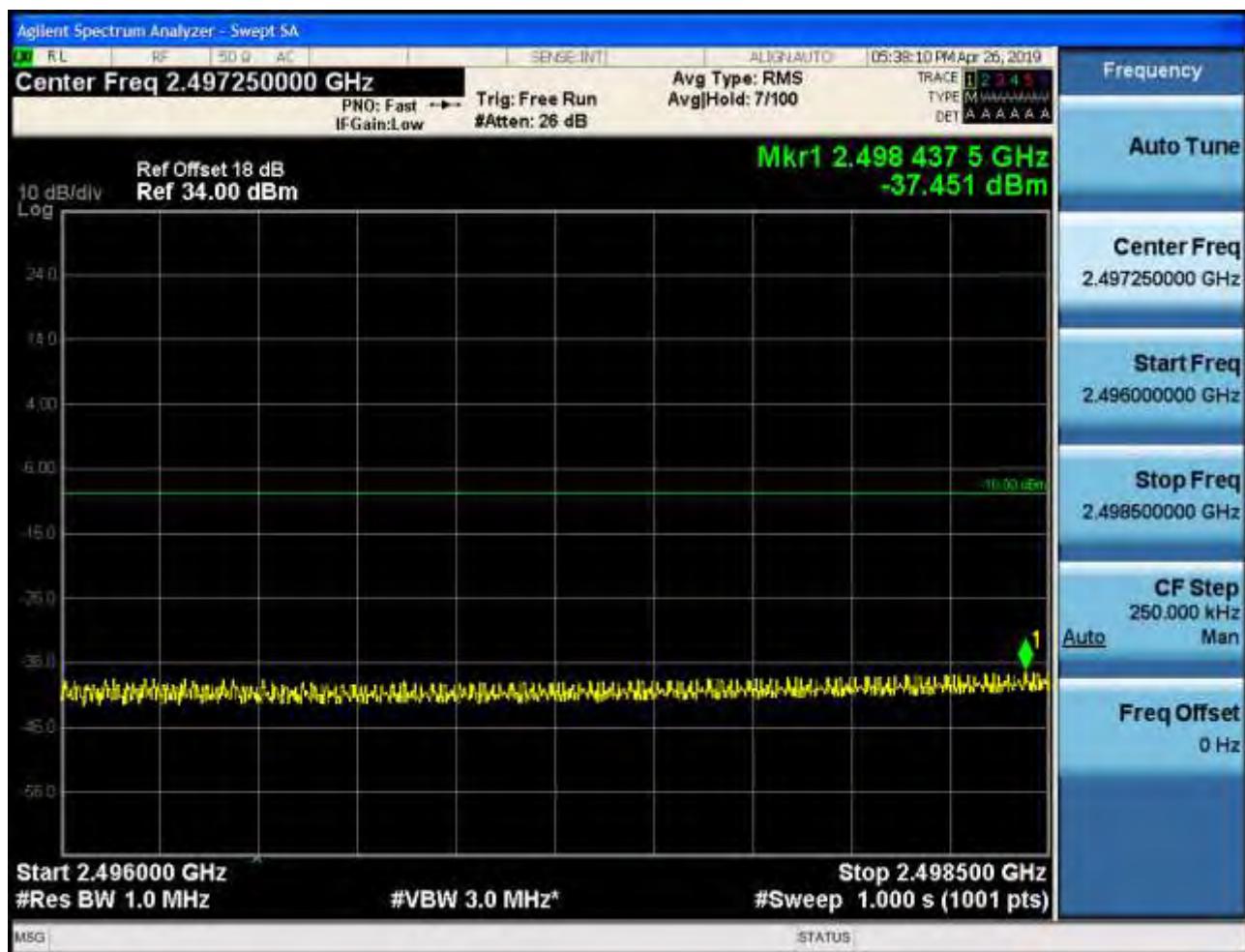


5.1.1.2.2 Test Bandwidth = 20+20

5.1.1.2.2.1 Test Channel = LCH

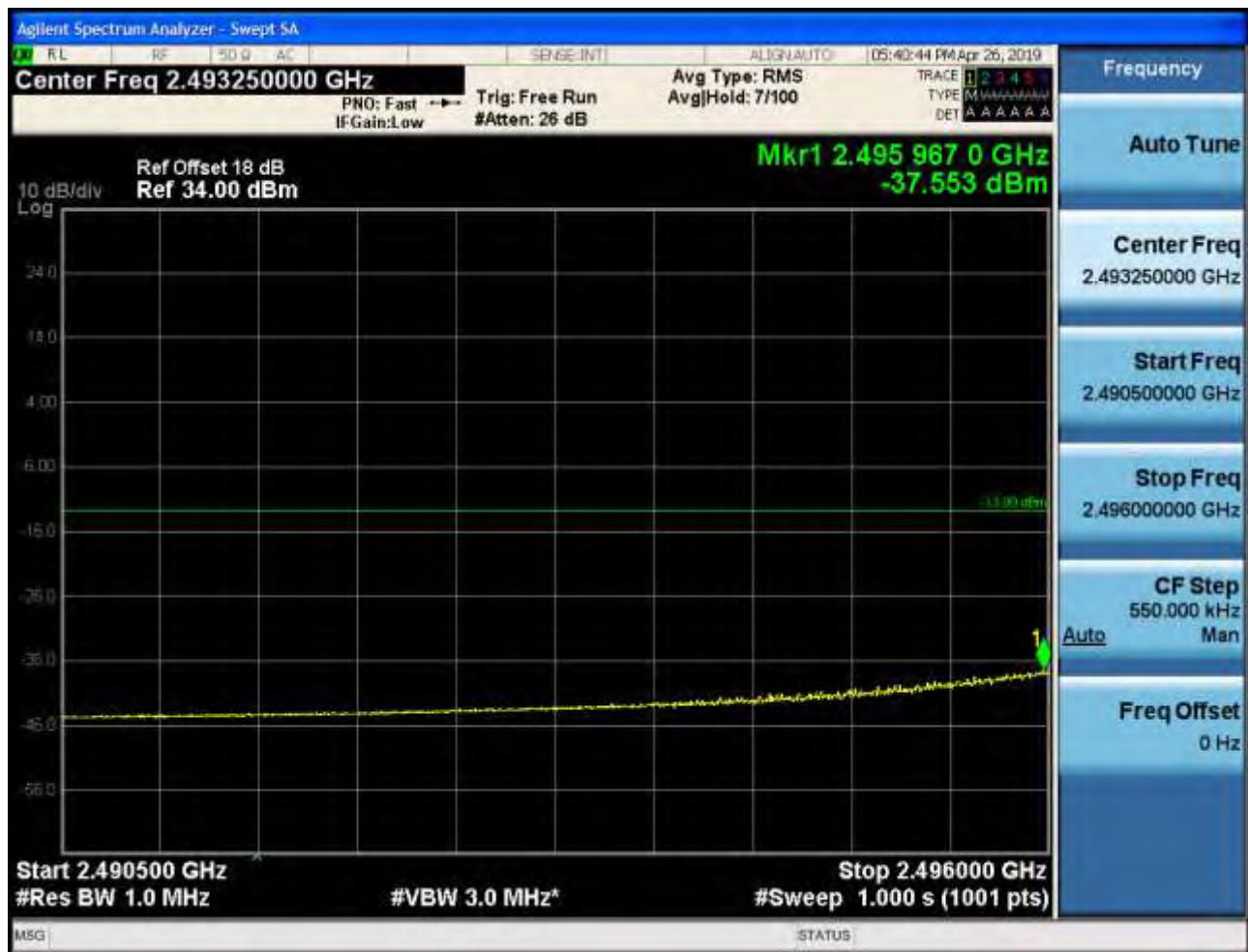
5.1.1.2.2.1.1 PCC Test RB = 1 # 0 & SCC Test RB = 0

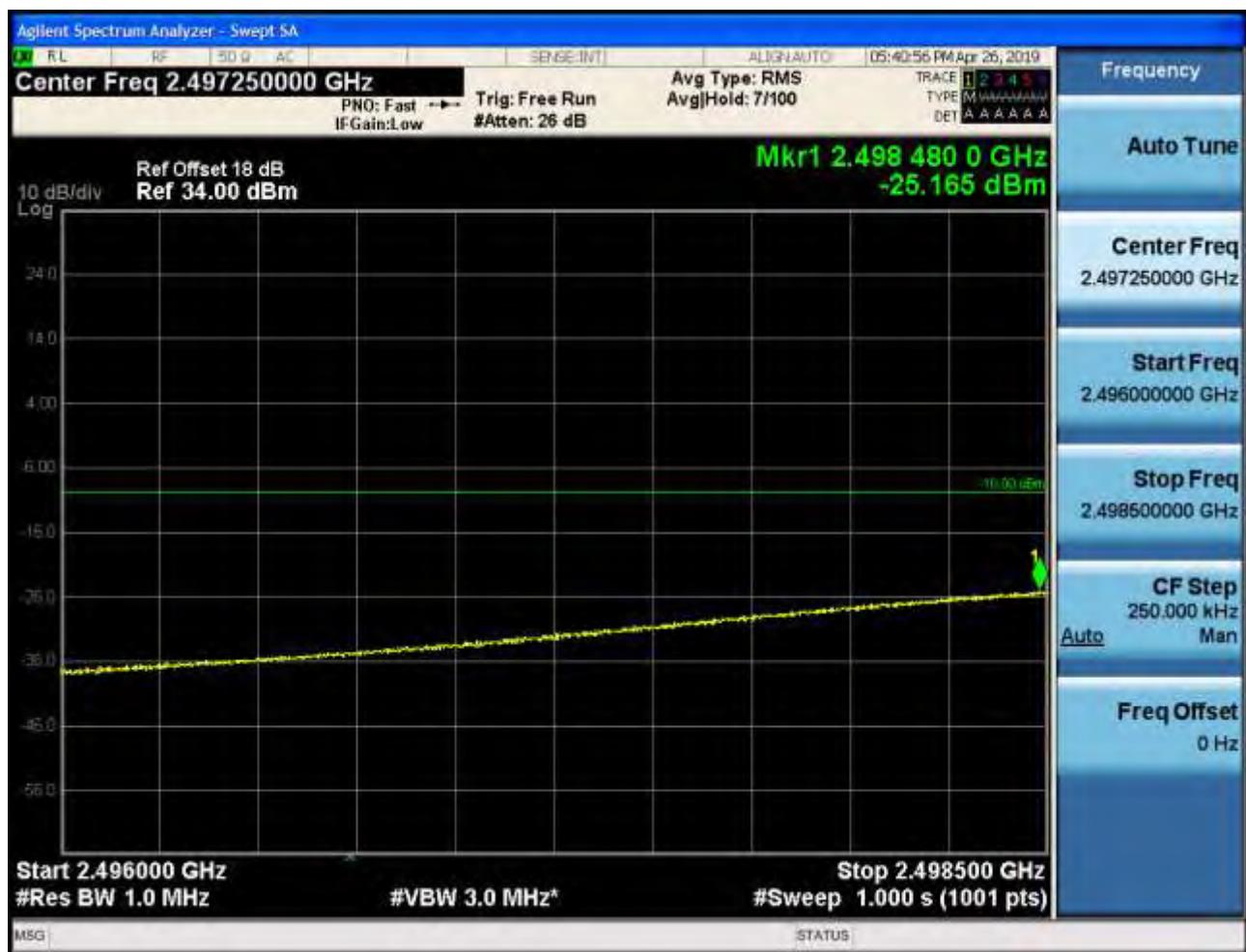






5.1.1.2.2.1.2 PCC Test RB = partial RBs #0 & SCC Test RB = 0







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

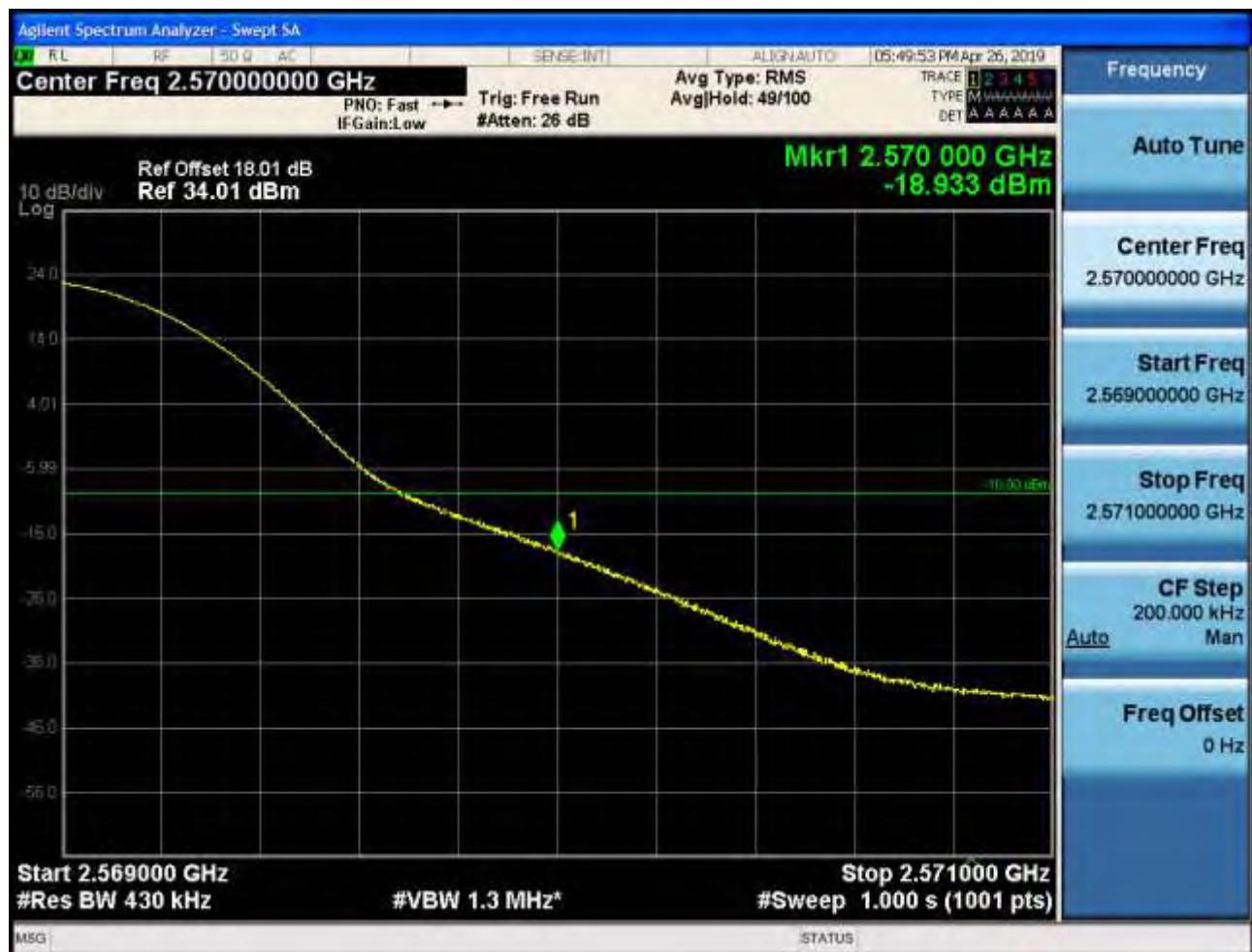


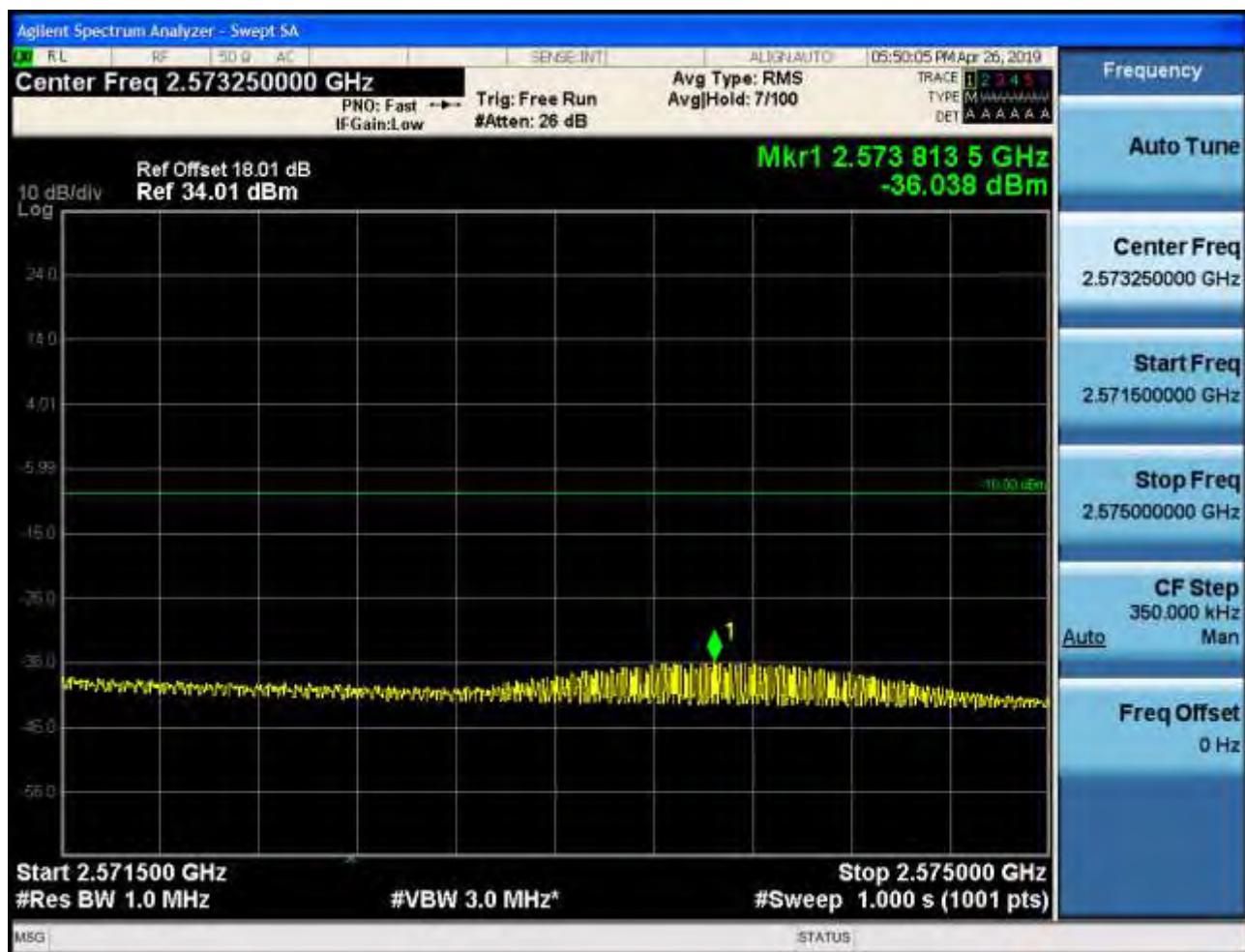


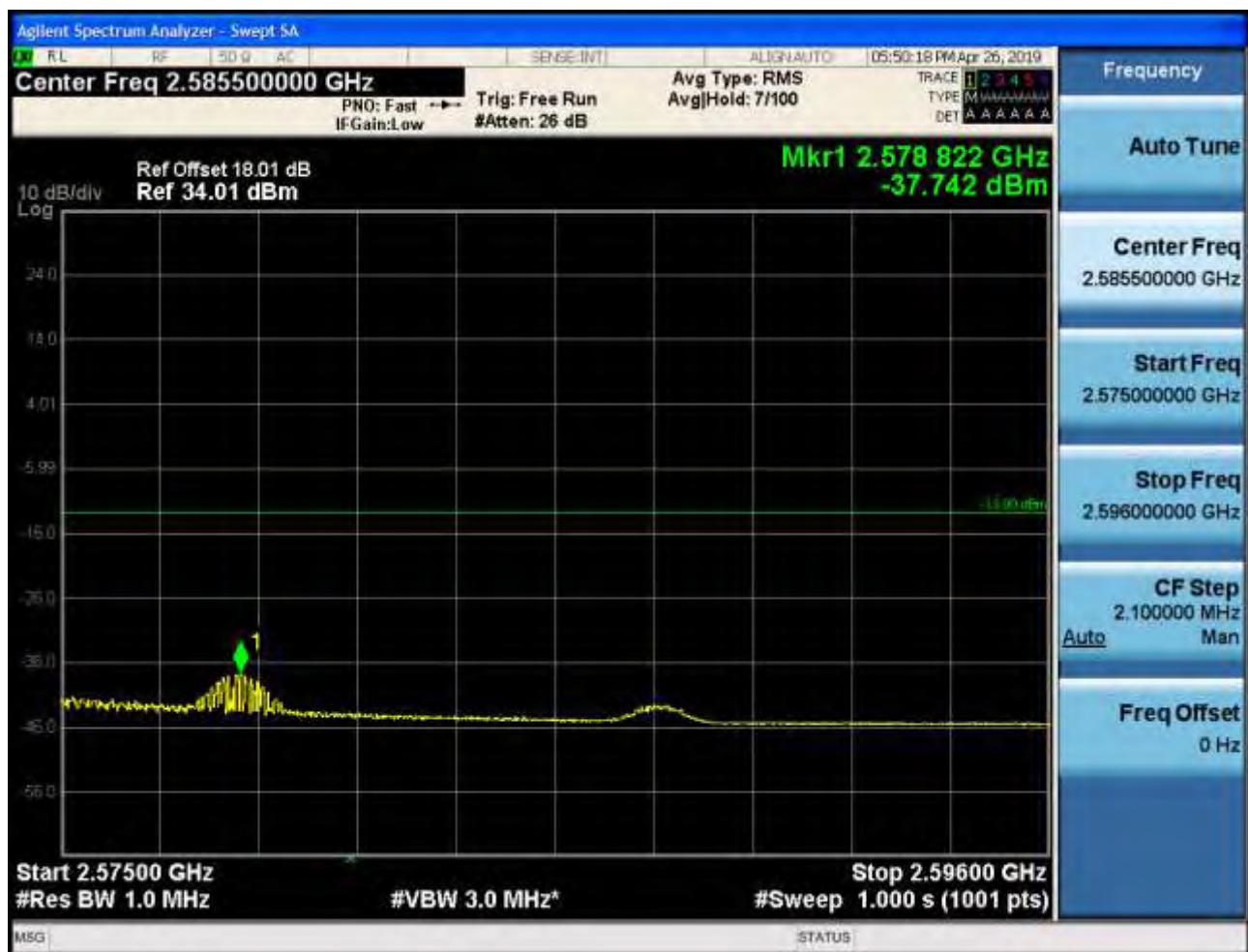


5.1.1.2.2.2 Test Channel = HCH

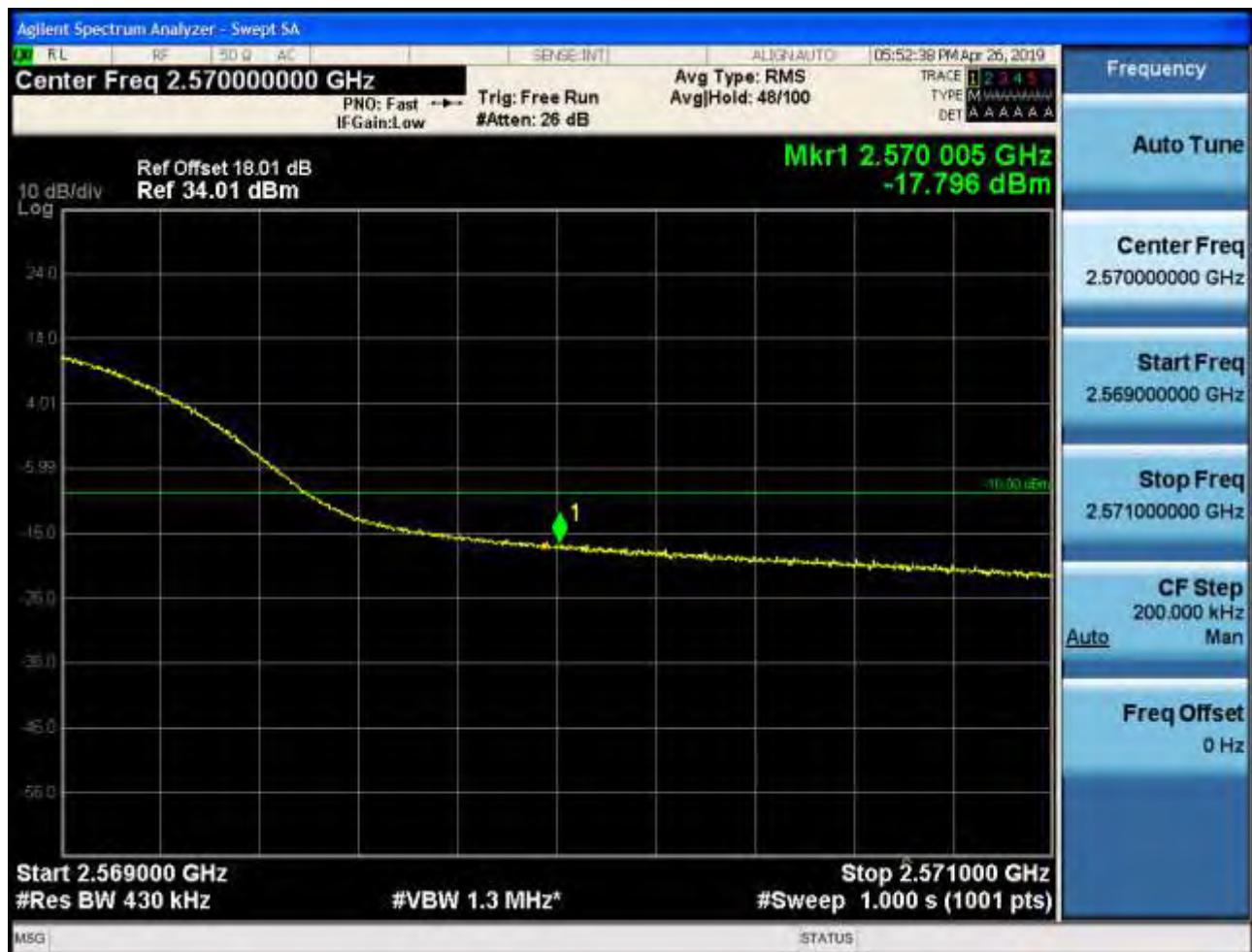
5.1.1.2.2.2.1 PCC Test RB = 0 & SCC Test RB = 1 # max



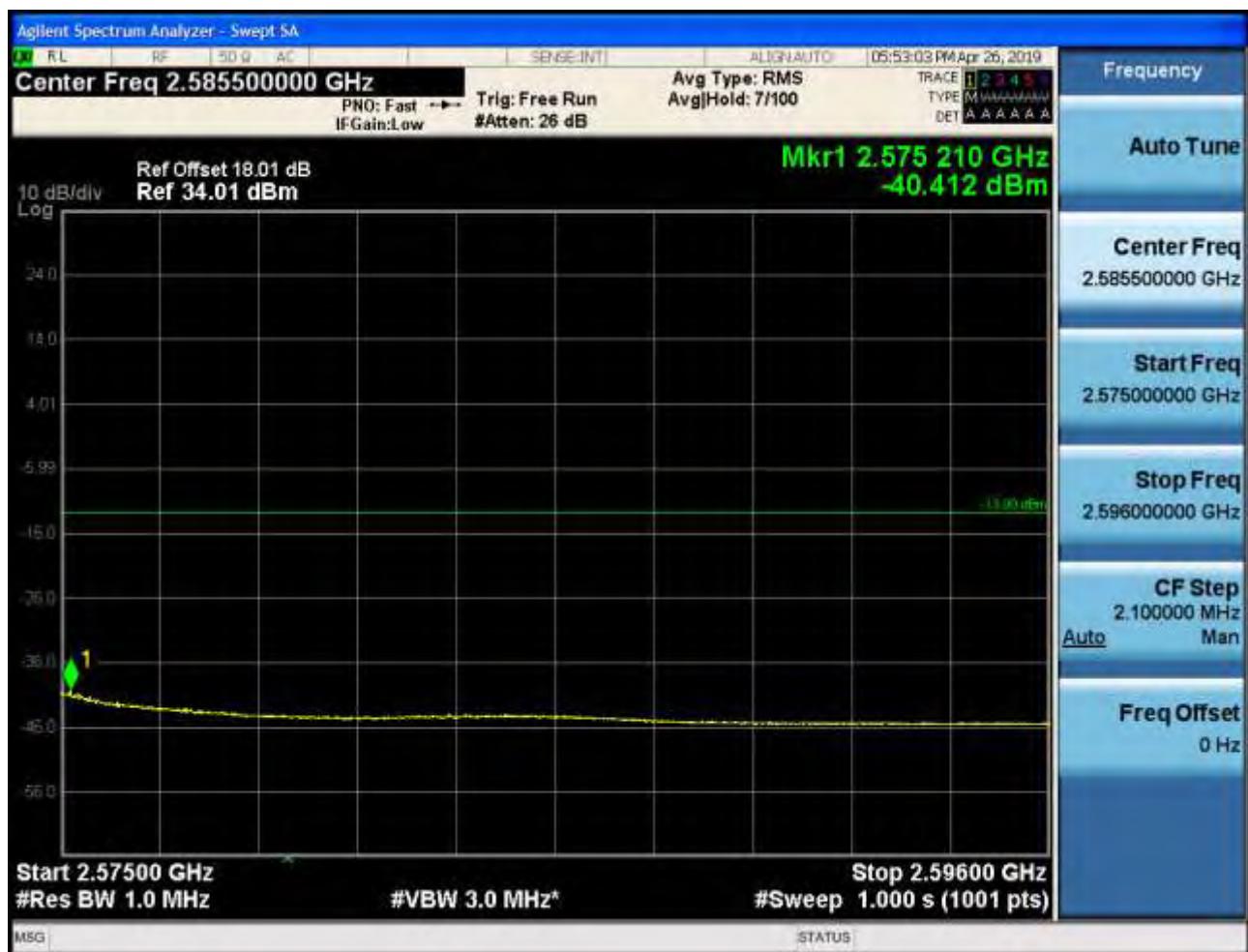




5.1.1.2.2.2 PCC Test RB = 0 & SCC Test RB = partial RBs #max







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_7C

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







6.1.1.1.2 Test Channel = MCH

6.1.1.1.2.1 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



