74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA
TEL: +82-31-645-6300 FAX: +82-31-645-6401

FCC Carrier Aggregation REPORT

Certification

Applicant Name:
SAMSUNG Electronics Co., Ltd.

Address:
129, Samsung-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16677, Rep. of Korea

Date of Issue:
May 09, 2023

Location:
HCT CO., LTD.,
74, Seoicheon-ro 578beon-gil, Majang-myeon,
Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA

Report No.: HCT-RF-2305-FC032

FCC ID:	**A3LSMX818U**
APPLICANT:	**SAMSUNG Electronics Co., Ltd.**

Model(s):	SM-X818U
EUT Type:	Tablet
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§27, §2

The measurements shown in this report were made in accordance with the procedures specified in CFR47 section §2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.
HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)

Mode (PCC+SCC)	Tx Frequency (MHz)	Modulation	Emission Designator	EIRP	
				Max. Power (dBm)	Max. Power (W)
5 MHz + 20 MHz (PC2)	2499.3 - 2680.0	QPSK	22M8G7D	26.26	0.423
		16QAM	22M9W7D	25.14	0.327
		64QAM	22M8W7D	24.55	0.285
		256QAM	22M8W7D	21.81	0.152
10 MHz + 15 MHz (PC2)	2501.3 - 2682.5	QPSK	23M1G7D	26.62	0.459
		16QAM	23M1W7D	25.45	0.351
		64QAM	23M1W7D	25.05	0.320
		256QAM	23M2W7D	21.90	0.155
10 MHz + 20 MHz (PC2)	2501.5 - 2680.0	QPSK	27M7G7D	26.18	0.415
		16QAM	27M8W7D	22.84	0.192
		64QAM	27M7W7D	22.83	0.192
		256QAM	27M8W7D	21.91	0.155
15 MHz + 10 MHz (PC2)	2503.5 - 2684.7	QPSK	23M1G7D	26.53	0.450
		16QAM	23M1W7D	25.37	0.344
		64QAM	23M1W7D	24.86	0.306
		256QAM	23M2W7D	21.84	0.153
15 MHz + 15 MHz (PC2)	2503.5 - 2682.5	QPSK	28M5G7D	26.65	0.462
		16QAM	28M4W7D	25.36	0.344
		64QAM	28M4W7D	24.85	0.305
		256QAM	28M5W7D	21.67	0.147
15 MHz + 20 MHz (PC2)	2503.8 - 2680.0	QPSK	32M7G7D	26.58	0.455
		16QAM	32M6W7D	25.26	0.336
		64QAM	32M7W7D	24.83	0.304
		256QAM	32M7W7D	21.62	0.145
20 MHz + 5 MHz (PC2)	2506.0 - 2686.7	QPSK	22M9G7D	26.05	0.403
		16QAM	23M0W7D	25.67	0.369
		64QAM	22M9W7D	25.39	0.346
		256QAM	22M9W7D	22.30	0.170
20 MHz + 10 MHz (PC2)	2506.0 - 2684.5	QPSK	27M7G7D	26.17	0.414
		16QAM	27M8W7D	25.87	0.386
		64QAM	27M8W7D	25.32	0.340
		256QAM	27M8W7D	22.32	0.171
20 MHz + 15 MHz (PC2)	2506.0 - 2682.2	QPSK	32M7G7D	26.83	0.482
		16QAM	32M6W7D	25.71	0.372
		64QAM	32M7W7D	25.42	0.348
		256QAM	32M6W7D	22.22	0.167
20 MHz + 20 MHz (PC2)	2506.0 - 2680.0	QPSK	37M6G7D	26.92	0.492
		16QAM	37M6W7D	25.61	0.364
		64QAM	37M7W7D	25.12	0.325
		256QAM	37M6W7D	22.19	0.166

REVIEWED BY

Report prepared by : Jae Mun Do
Engineer of Telecommunication Testing Center

Report approved by : Jong Seok Lee
Manager of Telecommunication Testing Center

This test results were applied only to the test methods required by the standard.

This laboratory is not accredited for the test results marked *.
The above Test Report is the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA. (HCT Accreditation No.: KT197)

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2305-FC032	May 09, 2023	- First Approval Report

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.

Table of Contents

REVIEWED BY 3
1. GENERAL INFORMATION 6
2. INTRODUCTION 7
2.1. DESCRIPTION OF EUT 7
2.2. MEASURING INSTRUMENT CALIBRATION 7
2.3. TEST FACILITY 7
3. DESCRIPTION OF TESTS 8
3.1 TEST PROCEDURE 8
3.2 RADIATED POWER 9
3.3 RADIATED SPURIOUS EMISSIONS 10
3.4 PEAK- TO- AVERAGE RATIO 11
3.5 OCCUPIED BANDWIDTH. 13
3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL 14
3.7 CHANNEL EDGE 15
3.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE 17
4. LIST OF TEST EQUIPMENT 18
5. MEASUREMENT UNCERTAINTY 19
6. SUMMARY OF TEST RESULTS 20
7. SAMPLE CALCULATION 21
8. TEST DATA 23
8.1 Conducted Power 26
8.1.1 PC2 26
8.2 Equivalent Isotropic Radiated Power 29
8.2.1 PC2 29
8.3 Conducted Spurious Emissions 32
8.3.1 PC2 32
8.4 Channel Edge 57
8.4.1 PC2 57
8.5 Frequency Stability / Variation Of Ambient Temperature 73
8.5.1 PC2 73
8.6 Radiated Spurious Emissions 81
8.6.1 PC2 81
8.7 Occupied Bandwidth 84
8.7.1 PC2 84
8.8 Peak- to- Average Ratio 90
8.8.1 PC2 90
9. ANNEX A_ TEST SETUP PHOTO 96

MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	SAMSUNG Electronics Co., Ltd.
Address:	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
FCC ID:	A3LSMX818U
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§27, §2
EUT Type:	Tablet
Model(s):	SM-X818U
Tx Frequency:	2499.3 - 2680.0: 5 MHz+20 MHz 2501.3 - 2682.5: 10 MHz+15 MHz 2501.5 - 2680.0: 10 MHz+20 MHz 2503.5 - 2684.7: 15 MHz+10 MHz 2503.5 - 2682.5: 15 MHz+15 MHz 2503.8 - 2680.0: 15 MHz+20 MHz 2506.0 - 2686.7: 20 MHz+5 MHz 2506.0 - 2684.5: 20 MHz+10 MHz 2506.0 - 2682.2: 20 MHz+15 MHz 2506.0 - 2680.0: 20 MHz+20 MHz
Date(s) of Tests:	March 13, 2023 ~ May 03, 2023
Serial number:	Radiated: R32W2003H3M Conducted: R32W2003JJD
LTE CA :	CA 41C(Uplink)

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

The EUT was a Tablet with UMTS and LTE, Sub6.

It also supports IEEE 802.11 a/b/g/n/ac/ax (20/40/80/160 MHz),WIFI 6E AIT, Keyboard, S-pen, mmWave.

2.2. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

2.3. TEST FACILITY

The Fully-anechoic chamber and conducted measurement facility used to collect the radiated data are located at the **74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA.**

3. DESCRIPTION OF TESTS

3.1 TEST PROCEDURE

Test Description	Test Procedure Used
Occupied Bandwidth	- KDB 971168 D01 v03r01 – Section 4.3 - ANSI C63.26-2015 – Section 5.4.4
Channel Edge	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Spurious and Harmonic Emissions at Antenna Terminal	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Conducted Output Power	- KDB 971168 D01 v03r01 - Section 5.2.4 - ANSI C63.26-2015 - Section 5.2.1 & 5.2.4.2
Peak- to- Average Ratio	- KDB 971168 D01 v03r01 – Section 5.7 - ANSI C63.26-2015 – Section 5.2.3.4
Frequency stability	- ANSI C63.26-2015 – Section 5.6
Effective Radiated Power/ Effective Isotropic Radiated Power	- KDB 971168 D01 v03r01 – Section 5.2 & 5.8 - ANSI/TIA-603-E-2016 – Section 2.2.17
Radiated Spurious and Harmonic Emissions	- KDB 971168 D01 v03r01 – Section 6.2 - ANSI/TIA-603-E-2016 – Section 2.2.12

3.2 RADIATED POWER

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

The equipment under test is placed on a non-conductive table 3-meters away from the receive antenna in accordance with ANSI/TIA-603-E-2016 Clause 2.2.17.

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5 % of the expected OBW, not to exceed 1 MHz
3. VBW ≥ 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points > 2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

Test Note

1. The turntable is rotated through 360 degrees, and the receiving antenna scans in order to determine the level of the maximized emission.
2. A half wave dipole is then substituted in place of the EUT. For emissions above 1 GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated.

   The power is calculated by the following formula;

$$P_{d\ (dBm)} = Pg_{\ (dBm)} - \text{cable loss}_{\ (dB)} + \text{antenna gain}_{\ (dB)}$$

   Where: P_{d} is the dipole equivalent power and P_{g} is the generator output power into the substitution antenna.

3. The maximum value is calculated by adding the forward power to the calibrated source plus its appropriate gain value. These steps are repeated with the receiving antenna in both vertical and horizontal polarization. the difference between the gain of the horn and an isotropic antenna are taken into consideration
4. The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.
5. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

3.3 RADIATED SPURIOUS EMISSIONS

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

Radiated Spurious Emission Measurements at 3 meters by Substitution Method according to ANSI/TIA-603-E-2016.

Test Settings

1. RBW = 100 kHz for emissions below 1 GHz and 1 MHz for emissions above 1 GHz
2. VBW ≥ 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points > 2 x span / RBW
5. Detector = Peak
6. Trace mode = Max Hold
7. The trace was allowed to stabilize
8. Test channel : Low/ Middle/ High
9. Frequency range : We are performed all frequency to 10^{th} harmonics from 9 kHz.

Test Note

1. Measurements value show only up to 3 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
2. The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the test data
3. For spurious emissions above 1 GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated.
   The spurious emissions is calculated by the following formula;

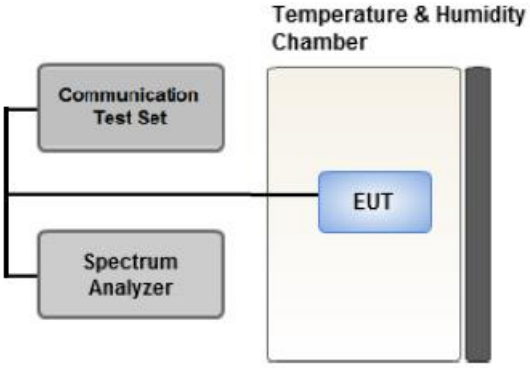
$$\text{Result}_{(dBm)} = \text{Pg}_{(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dBi)}$$

   Where: P_g is the generator output power into the substitution antenna.

   If the fundamental frequency is below 1 GHz, RF output power has been converted to EIRP.

$$\text{EIRP}_{(dBm)} = \text{ERP}_{(dBm)} + 2.15$$

3.4 PEAK- TO- AVERAGE RATIO



Test setup

① CCDF Procedure for PAPR

Test Settings

1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Set the measurement interval as follows:
   .- for continuous transmissions, set to 1 ms,
   .- or burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.
4. Record the maximum PAPR level associated with a probability of 0.1 %.

② **Alternate Procedure for PAPR**

Use one of the procedures presented in 5.2(ANSI C63.26-2015) to measure the total peak power and record as as P_{Pk}. Use one of the applicable procedures presented 5.2(ANSI C63.26-2015) to measure the total average power and record as P_{Avg}. Determine the P.A.R. from:

$$P.A.R_{(dB)} = P_{Pk(dBm)} - P_{Avg(dBm)} \quad (P_{Avg} = \text{Average Power} + \text{Duty cycle Factor})$$

Test Settings(Peak Power)

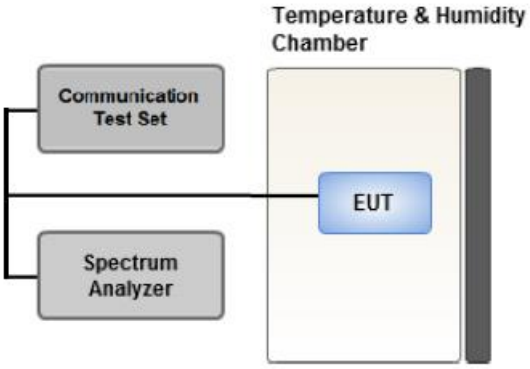
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW ≥ 3 × RBW.

1. Set the RBW ≥ OBW.
2. Set VBW ≥ 3 × RBW.
3. Set span ≥ 2 × OBW.
4. Sweep time ≥ 10 × (number of points in sweep) × (transmission symbol period).
5. Detector = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the peak amplitude level.

Test Settings(Average Power)

1. Set span to 2 × to 3 × the OBW.
2. Set RBW ≥ OBW.
3. Set VBW ≥ 3 × RBW.
4. Set number of measurement points in sweep ≥ 2 × span / RBW.
5. Sweep time:
   Set ≥ [10 × (number of points in sweep) × (transmission period)] for single sweep (automation-compatible) measurement. The transmission period is the (on + off) time.
6. Detector = power averaging (rms).
7. Set sweep trigger to “free run.”
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. (To accurately determine the average power over the on and off period of the transmitter, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.)
9. Use the peak marker function to determine the maximum amplitude level.
10. Add [10 log (1/duty cycle)] to the measured maximum power level to compute the average power during continuous transmission. For example, add [10 log (1/0.25)] = 6 dB if the duty cycle is a constant 25 %.

3.5 OCCUPIED BANDWIDTH.



Test setup

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

The EUT makes a call to the communication simulator.

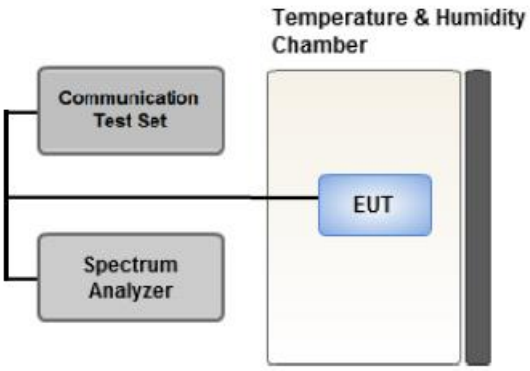
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99 % occupied bandwidth and the 26 dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5 % of the expected OBW
3. VBW ≥ 3 x RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5 % of the 99 % occupied bandwidth observed in Step 7

3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL



Test setup

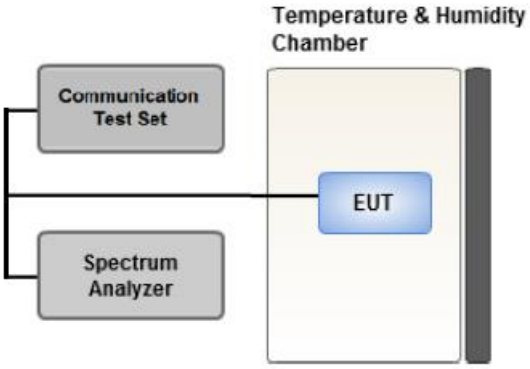
Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Settings

1. RBW = 1 MHz
2. VBW ≥ 3 MHz
3. Detector = Peak
4. Trace Mode = max hold
5. Sweep time = auto
6. Number of points in sweep ≥ 2 x Span / RBW

3.7 CHANNEL EDGE



Test setup

Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Settings

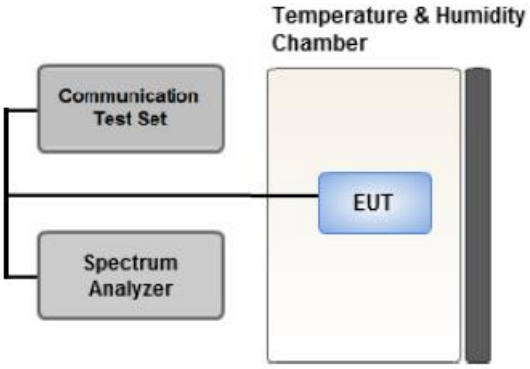
1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. Within 1 MHz of the channel edge the RBW should be 2 % of EBW, then 1 MHz after that.
4. VBW > 3 x RBW
5. Detector = RMS
6. Number of sweep points ≥ 2 x Span/RBW
7. Trace mode = trace average
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Test Notes

1. The attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge,
2. 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge.
3. 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge.
4. The attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz.
5. 55 + 10 log (P) dB at or below 2490.5 MHz.
6. X is the greater of 6 MHz or the actual emission bandwidth
7. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer

Where Margin < 1 dB the emission level is either corrected by 10 log(1 MHz/ RB) or the emission is integrated over a 1 MHz bandwidth to determine the final result. When using the integration method the integration window is either centered on the emission or, for emissions at the band edge, centered by an offset of 500 kHz from the block edge so that the integration window is the 1 MHz adjacent to the block edge.

3.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE



Test setup

Test Overview

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015.

The frequency stability of the transmitter is measured by:

1. Temperature:

   The temperature is varied from -30 °C to +50 °C in 10 °C increments using an environmental chamber.

2. Primary Supply Voltage:

   .- Unless otherwise specified, vary primary supply voltage from 85 % to 115 % of the nominal value for other than hand carried battery equipment.

   .- For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20 °C to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10 °C intervals ranging from -30 °C to +50 °C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

4. LIST OF TEST EQUIPMENT

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
H.P.F	FBSR-02B(WHK1.2/15 G-10EF)	T&M SYSTEM	-	01/19/2024	Annual
H.P.F	FBSR-02B(WHK3.3/18 G-10EF)	T&M SYSTEM	-	01/19/2024	Annual
Power Splitter(DC ~ 26.5 GHz)	11667B	Hewlett Packard	5001	04/19/2024	Annual
DC Power Supply	E3632A	Agilent	MY40010147	06/21/2023	Annual
Dipole Antenna	UHAP	Schwarzbeck	557	03/09/2025	Biennial
Dipole Antenna	UHAP	Schwarzbeck	558	03/09/2025	Biennial
Chamber	SU-642	ESPEC	93008124	02/22/2024	Annual
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	147	08/30/2023	Biennial
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	9120D-1298	09/15/2023	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	09/29/2024	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	03/28/2025	Biennial
Signal Analyzer(10 Hz ~ 26.5 GHz)	N9020A	Agilent	MY52090906	04/20/2024	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/19/2024	Annual
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	REOHDE & SCHWARZ	100931	08/29/2023	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/18/2023	Annual
Loop Antenna(9 kHz ~ 30 MHz)	FMZB1513	Schwarzbeck	1513-333	03/17/2024	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	895	08/16/2024	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	1135	03/21/2024	Biennial
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262094331	12/01/2023	Annual
Wideband Radio Communication Tester	MT8820C	Anritsu Corp.	6201026545	01/05/2024	Annual
SIGNAL GENERATOR (100 kHz ~ 40 GHz)	SMB100A	REOHDE & SCHWARZ	177633	07/05/2023	Annual
Signal Analyzer(5 Hz ~ 40.0 GHz)	N9030B	KEYSIGHT	MY55480167	05/30/2023	Annual
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.,	-	-	-

Note:

1. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
2. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2017).

5. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4:2014. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95 % level of confidence. The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty (±dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.90 (Confidence level about 95 %, k=2)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.14 (Confidence level about 95 %, k=2)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.82 (Confidence level about 95 %, k=2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.74 (Confidence level about 95 %, k=2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.76 (Confidence level about 95 %, k=2)
Radiated Disturbance (Above 40 GHz)	5.52 (Confidence level about 95 %, k=2)

6. SUMMARY OF TEST RESULTS

6.1 Test Condition : Conducted Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Occupied Bandwidth	§2.1049	N/A	PASS
Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§2.1051, §27.53(m)(4)	■ < 40 + 10log10 (P[Watts]) at Channel edges ■ < 43 + 10log10 (P[Watts]) between 5 and X MHz from Channel edges ■ < 55 + 10log10 (P[Watts]) beyond X MHz beyond from Channel edges ■ < 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz	PASS
Conducted Output Power	§2.1046	N/A	See Note1
Peak- to- Average Ratio	§27.50(d)(5)	< 13 dB	PASS
Frequency stability / variation of ambient temperature	§2.1055, §27.54	Emission must remain in band	PASS

6.2 Test Condition : Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Equivalent Isotropic Radiated Power	§27.50(h)(2)	< 2 Watts max. EIRP	PASS
Radiated Spurious and Harmonic Emissions	§2.1053, §27.53(m)(4)	< 55 + 10log10 (P[Watts])	PASS

7. SAMPLE CALCULATION

7.1 ERP Sample Calculation

Ch./ Freq.		Measured Level(dBm)	Substitute Level(dBm)	Ant. Gain (dBd)	C.L	Pol.	ERP	
channel	Freq.(MHz)						W	dBm
128	824.20	-21.37	38.40	-10.61	0.95	H	0.483	26.84

ERP = Substitute LEVEL(dBm) + Ant. Gain – CL(Cable Loss)

1) The EUT mounted on a non-conductive turntable is 2.5 meter above test site ground level.

2) During the test , the turn table is rotated until the maximum signal is found.

3) Record the field strength meter's level.

4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.

5) Increase the signal generator output till the field strength meter's level is equal to the item (3).

6) The signal generator output level with Ant. Gain and cable loss are the rating of effective radiated power.

7.2 EIRP Sample Calculation

Ch./ Freq.		Measured Level(dBm)	Substitute Level(dBm)	Ant. Gain (dBi)	C.L	Pol.	EIRP	
channel	Freq.(MHz)						W	dBm
20175	1,732.50	-15.75	18.45	9.90	1.76	H	0.456	26.59

EIRP = Substitute LEVEL(dBm) + Ant. Gain – CL(Cable Loss)

1) The EUT mounted on a non-conductive turntable is 2.5 meter above test site ground level.

2) During the test , the turn table is rotated until the maximum signal is found.

3) Record the field strength meter's level.

4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.

5) Increase the signal generator output till the field strength meter's level is equal to the item (3).

6) The signal generator output level with Ant. Gain and cable loss are the rating of equivalent isotropic radiated power.

7.3. Emission Designator

GSM Emission Designator

Emission Designator = 249KGXW

GSM BW = 249 kHz

G = Phase Modulation

X = Cases not otherwise covered

W = Combination (Audio/Data)

EDGE Emission Designator

Emission Designator = 249KG7W

GSM BW = 249 kHz

G = Phase Modulation

7 = Quantized/Digital Info

W = Combination (Audio/Data)

WCDMA Emission Designator

Emission Designator = 4M17F9W

WCDMA BW = 4.17 MHz

F = Frequency Modulation

9 = Composite Digital Info

W = Combination (Audio/Data)

QPSK Modulation

Emission Designator = 4M48G7D

LTE BW = 4.48 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data transmission; telemetry; telecommand

QAM Modulation

Emission Designator = 4M48W7D

LTE BW = 4.48 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data transmission; telemetry; telecommand

8. TEST DATA

Test Overview

The EUT is set up to transmit two contiguous LTE channels. The power level of both carriers and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Note

1. All tests were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth.
2. Channel bandwidth is shown in the tables below based only on the channel bandwidths that were supported in this device.

Channel Bandwidth (PCC)	Channel Bandwidth (SCC)	Maximum aggregated bandwidth (MHz)
5	20	25
10	15	25
10	20	30
15	10	25
15	15	30
15	20	35
20	5	25
20	10	30
20	15	35
20	20	40

3. All modes of operation were investigated and the worst case configuration results are reported in this section.
   Please refer to the table below.
   - Worst case(Conducted Spurious Emissions, Channel Edge)
     : We have selected higher of the Conduction Output Power.
   - Worst case(Radiated Spurious Emissions) : We have selected higher of the EIRP.
   - Worst case(OBW, PAR, Frequency stability)
     : All modes of operation were investigated and the worst case configuration results are reported.
4. All modes of operation were investigated and the worst case configuration results are reported.
   Mode : Stand alone, Stand alone + External accessories (Earphone, AC adapter, etc)
   Worst case : Stand alone
5. We were performed the RSE test in condition of co-location.
   Mode : Stand alone, Simultaneous transmission scenarios
   Worst case : Stand alone
6. All power classes were tested, and the results were reported for the worst case PC2.
7. All 3 channels(low/mid/high) of conducted power and radiated power were investigated
   and the worst case channel results are reported.

[Worst case_PC2]

Test Description	Mod	Operating frequency	PCC					SCC				
			BW (MHz)	Freq. (MHz)	Ch.	RB	RB Offset	BW (MHz)	Freq. (MHz)	Ch.	RB	RB Offset
Conducted Spurious Emissions/ Channel Edge	QPSK	Low	20	2506.0	39750	1	99	20	2525.8	39948	1	0
	QPSK	Mid	5	2583.8	40528	1	24	20	2595.5	40645	1	0
	QPSK	High	20	2675.0	41440	1	99	5	2686.7	41557	1	0
	QPSK	Low	20	2506.0	39750	1	0	20	2525.8	39948	1	99
	QPSK	Mid	5	2583.8	40528	1	0	20	2595.5	40645	1	99
	QPSK	High	20	2675.0	41440	1	0	5	2686.7	41557	1	24
	QPSK	Low	15	2503.5	39725	75	0	10	2515.5	39845	50	0
	QPSK	Mid	10	2583.6	40526	50	0	20	2598.0	40670	100	0
	QPSK	High	20	2675.0	41440	100	0	5	2686.7	41557	25	0
	QPSK	Low	20	2506.0	39750	100	0	20	2525.8	39948	100	0
	QPSK	Mid	20	2583.1	40521	100	0	20	2602.9	40719	100	0
	QPSK	High	20	2660.2	41292	100	0	20	2680.0	41490	100	0
Radiated Spurious Emissions	QPSK	Low	20	2506.0	39750	1	99	20	2525.8	39948	1	0
	QPSK	Mid	5	2583.8	40528	1	24	20	2595.5	40645	1	0
	QPSK	High	15	2667.5	41365	1	74	15	2682.5	41515	1	0

[Worst case_PC2]

Test Description	Mod	Operating frequency	PCC					SCC				
			BW (MHz)	Freq. (MHz)	Ch.	RB	RB Offset	BW (MHz)	Freq. (MHz)	Ch.	RB	RB Offset
OBW, PAR	QPSK, 16QAM, 64QAM 256QAM	Mid	5	2583.8	40528	25	0	20	2595.5	40645	100	0
			10	2585.9	40549	50	0	15	2597.9	40669	75	0
			10	2583.6	40526	50	0	20	2598.0	40670	100	0
			15	2588.1	40571	75	0	10	2600.1	40691	50	0
			15	2585.5	40545	75	0	15	2600.5	40695	75	0
			15	2583.3	40523	75	0	20	2600.4	40694	100	0
			20	2590.5	40595	100	0	5	2602.2	40712	25	0
			20	2588.1	40571	100	0	10	2602.5	40715	50	0
			20	2585.6	40546	100	0	15	2602.7	40717	75	0
			20	2583.1	40521	100	0	20	2602.9	40719	100	0
Frequency stability	QPSK	Low	5	2499.3	39683	25	0	20	2511.0	39800	100	0
			10	2501.5	39705	50	0	20	2515.9	39849	100	0
			15	2503.8	39728	75	0	20	2520.9	39899	100	0
			20	2506.0	39750	100	0	20	2525.8	39948	100	0
		High	5	2668.3	41373	25	0	20	2680.0	41490	100	0
			10	2665.6	41346	50	0	20	2680.0	41490	100	0
			15	2662.9	41319	75	0	20	2680.0	41490	100	0
			20	2660.2	41292	100	0	20	2680.0	41490	100	0

8.1 Conducted Power

8.1.1 PC2

Operating frequency	PCC					SCC					Conducted. Power [dBm]
	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	
Low	5	2499.3	39683	1	24	20	2511.0	39800	1	0	22.30
	10	2501.3	39703	1	49	15	2513.3	39823	1	0	25.80
	10	2501.5	39705	1	49	20	2515.9	39849	1	0	21.91
	15	2503.5	39725	1	74	10	2515.5	39845	1	0	25.93
	15	2503.5	39725	1	74	15	2518.5	39875	1	0	25.95
	15	2503.8	39728	1	74	20	2520.9	39899	1	0	25.96
	20	2506.0	39750	1	99	5	2517.7	39867	1	0	25.09
	20	2506.0	39750	1	99	10	2520.4	39894	1	0	25.06
	20	2506.0	39750	1	99	15	2523.1	39921	1	0	26.01
	20	***2506.0***	***39750***	***1***	***99***	***20***	***2525.8***	***39948***	***1***	***0***	***26.05***
Mid	***5***	***2583.8***	***40528***	***1***	***24***	***20***	***2595.5***	***40645***	***1***	***0***	***25.61***
	10	2585.9	40549	1	49	15	2597.9	40669	1	0	25.54
	10	2583.6	40526	1	49	20	2598.0	40670	1	0	25.53
	15	2588.1	40571	1	74	10	2600.1	40691	1	0	25.50
	15	2585.5	40545	1	74	15	2600.5	40695	1	0	25.53
	15	2583.3	40523	1	74	20	2600.4	40694	1	0	25.52
	20	2590.5	40595	1	99	5	2602.2	40712	1	0	25.52
	20	2588.1	40571	1	99	10	2602.5	40715	1	0	25.47
	20	2585.6	40546	1	99	15	2602.7	40717	1	0	25.50
	20	2583.1	40521	1	99	20	2602.9	40719	1	0	25.51
High	5	2668.3	41373	1	24	20	2680.0	41490	1	0	25.73
	10	2670.5	41395	1	49	15	2682.5	41515	1	0	25.74
	10	2665.6	41346	1	49	20	2680.0	41490	1	0	25.68
	15	2672.7	41417	1	74	10	2684.7	41537	1	0	25.83
	15	2667.5	41365	1	74	15	2682.5	41515	1	0	25.74
	15	2662.9	41319	1	74	20	2680.0	41490	1	0	25.63
	20	***2675.0***	***41440***	***1***	***99***	***5***	***2686.7***	***41557***	***1***	***0***	***25.91***
	20	2670.1	41391	1	99	10	2684.5	41535	1	0	25.79
	20	2665.1	41341	1	99	15	2682.2	41512	1	0	25.73
	20	2660.2	41292	1	99	20	2680.0	41490	1	0	25.63

Note:

Modulation : QPSK(1RB)

Operating frequency	PCC					SCC					Conducted. Power [dBm]
	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	
Low	5	2499.3	39683	25	0	20	2511.0	39800	100	0	22.41
	10	2501.3	39703	50	0	15	2513.3	39823	75	0	23.95
	10	2501.5	39705	50	0	20	2515.9	39849	100	0	21.99
	15	***2503.5***	***39725***	***75***	***0***	***10***	***2515.5***	***39845***	***50***	***0***	***24.06***
	15	2503.5	39725	75	0	15	2518.5	39875	75	0	22.02
	15	2503.8	39728	75	0	20	2520.9	39899	100	0	22.52
	20	2506.0	39750	100	0	5	2517.7	39867	25	0	24.00
	20	2506.0	39750	100	0	10	2520.4	39894	50	0	22.02
	20	2506.0	39750	100	0	15	2523.1	39921	75	0	22.50
	20	2506.0	39750	100	0	20	2525.8	39948	100	0	22.52
Mid	5	2583.8	40528	25	0	20	2595.5	40645	100	0	23.75
	10	2585.9	40549	50	0	15	2597.9	40669	75	0	23.75
	10	***2583.6***	***40526***	***50***	***0***	***20***	***2598.0***	***40670***	***100***	***0***	***23.77***
	15	2588.1	40571	75	0	10	2600.1	40691	50	0	23.70
	15	2585.5	40545	75	0	15	2600.5	40695	75	0	23.74
	15	2583.3	40523	75	0	20	2600.4	40694	100	0	23.76
	20	2590.5	40595	100	0	5	2602.2	40712	25	0	23.72
	20	2588.1	40571	100	0	10	2602.5	40715	50	0	23.73
	20	2585.6	40546	100	0	15	2602.7	40717	75	0	23.75
	20	2583.1	40521	100	0	20	2602.9	40719	100	0	23.76
High	5	2668.3	41373	25	0	20	2680.0	41490	100	0	23.78
	10	2670.5	41395	50	0	15	2682.5	41515	75	0	23.83
	10	2665.6	41346	50	0	20	2680.0	41490	100	0	23.76
	15	2672.7	41417	75	0	10	2684.7	41537	50	0	23.86
	15	2667.5	41365	75	0	15	2682.5	41515	75	0	23.78
	15	2662.9	41319	75	0	20	2680.0	41490	100	0	23.71
	20	***2675.0***	***41440***	***100***	***0***	***5***	***2686.7***	***41557***	***25***	***0***	***23.91***
	20	2670.1	41391	100	0	10	2684.5	41535	50	0	23.80
	20	2665.1	41341	100	0	15	2682.2	41512	75	0	23.72
	20	2660.2	41292	100	0	20	2680.0	41490	100	0	23.67

Note:

Modulation : QPSK(Full RB)

Operating frequency	PCC					SCC					Conducted. Power [dBm]
	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	
Low	20	2506.0	39750	1	99	20	2525.8	39948	1	0	25.17
Mid	5	2583.8	40528	1	24	20	2595.5	40645	1	0	24.72
High	20	2675.0	41440	1	99	5	2686.7	41557	1	0	25.07
Low	15	2503.5	39725	75	0	10	2515.5	39845	50	0	23.06
Mid	10	2583.6	40526	50	0	20	2598.0	40670	100	0	22.80
High	20	2675.0	41440	100	0	5	2686.7	41557	25	0	22.97

Note:

Modulation : 16QAM

Operating frequency	PCC					SCC					Conducted. Power [dBm]
	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	
Low	20	2506.0	39750	1	99	20	2525.8	39948	1	0	24.55
Mid	5	2583.8	40528	1	24	20	2595.5	40645	1	0	23.82
High	20	2675.0	41440	1	99	5	2686.7	41557	1	0	22.55
Low	15	2503.5	39725	75	0	10	2515.5	39845	50	0	23.00
Mid	10	2583.6	40526	50	0	20	2598.0	40670	100	0	22.78
High	20	2675.0	41440	100	0	5	2686.7	41557	25	0	22.51

Note:

Modulation : 64QAM

Operating frequency	PCC					SCC					Conducted. Power [dBm]
	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	
Low	20	2506.0	39750	1	99	20	2525.8	39948	1	0	21.50
Mid	5	2583.8	40528	1	24	20	2595.5	40645	1	0	21.08
High	20	2675.0	41440	1	99	5	2686.7	41557	1	0	21.37
Low	15	2503.5	39725	75	0	10	2515.5	39845	50	0	21.08
Mid	10	2583.6	40526	50	0	20	2598.0	40670	100	0	20.83
High	20	2675.0	41440	100	0	5	2686.7	41557	25	0	20.94

Note:

Modulation : 256QAM

8.2 Equivalent Isotropic Radiated Power

8.2.1 PC2

	PCC			SCC			Measured	Substitute	Ant.			E.I.R.P	
	BW [MHz]	Channel	RB/ Offset	BW [MHz]	Channel	RB/ Offset	Level (dBm)	Level (dBm)	Gain (dBi)	C.L	Pol.	W	dBm
Low	5	39683	25/0	20	39800	100/0	-21.73	14.96	10.70	2.48	H	0.208	23.18
	10	39703	50/0	15	39823	75/0	-18.28	18.41	10.70	2.49	H	0.459	26.62
	10	39705	50/0	20	39849	100/0	-21.80	14.89	10.70	2.49	H	0.204	23.10
	15	39725	75/0	10	39845	50/0	-18.37	18.32	10.70	2.49	H	0.450	26.53
	15	39725	75/0	15	39875	75/0	-18.25	18.44	10.70	2.49	H	0.462	26.65
	15	39728	75/0	20	39899	100/0	-18.32	18.37	10.70	2.49	H	0.455	26.58
	20	39750	100/0	5	39867	25/0	-18.85	17.84	10.70	2.49	H	0.403	26.05
	20	39750	100/0	10	39894	50/0	-18.73	17.96	10.70	2.49	H	0.414	26.17
	20	39750	100/0	15	39921	75/0	-18.02	18.64	10.70	2.51	H	0.482	26.83
	20	***39750***	***100/0***	***20***	***39948***	***100/0***	***-17.93***	***18.73***	***10.70***	***2.51***	***H***	***0.492***	***26.92***
Mid	***5***	***40528***	***25/0***	***20***	***40645***	***100/0***	***-18.47***	***18.17***	***10.62***	***2.53***	***H***	***0.423***	***26.26***
	10	40549	50/0	15	40669	75/0	-18.70	17.94	10.62	2.53	H	0.401	26.03
	10	40526	50/0	20	40670	100/0	-18.55	18.09	10.62	2.53	H	0.415	26.18
	15	40571	75/0	10	40691	50/0	-18.61	18.03	10.61	2.51	H	0.410	26.13
	15	40545	75/0	15	40695	75/0	-18.89	17.75	10.62	2.53	H	0.384	25.84
	15	40523	75/0	20	40694	100/0	-18.63	18.01	10.62	2.53	H	0.407	26.10
	20	40595	100/0	5	40712	25/0	-18.83	17.81	10.61	2.51	H	0.390	25.91
	20	40571	100/0	10	40715	50/0	-18.81	17.83	10.61	2.51	H	0.391	25.93
	20	40546	100/0	15	40717	75/0	-18.72	17.92	10.61	2.51	H	0.400	26.02
	20	40521	100/0	20	40719	100/0	-18.63	18.01	10.62	2.53	H	0.407	26.10
High	5	41373	25/0	20	41490	100/0	-20.51	16.77	10.75	2.64	H	0.308	24.88
	10	41395	50/0	15	41515	75/0	-20.44	16.84	10.75	2.64	H	0.313	24.95
	10	41346	50/0	20	41490	100/0	-20.41	16.79	10.74	2.64	H	0.308	24.89
	15	41417	75/0	10	41537	50/0	-20.73	16.62	10.76	2.63	H	0.298	24.75
	15	***41365***	***75/0***	***15***	***41515***	***75/0***	***-20.43***	***16.85***	***10.75***	***2.64***	***H***	***0.313***	***24.96***
	15	41319	75/0	20	41490	100/0	-20.45	16.75	10.74	2.64	H	0.305	24.85
	20	41440	100/0	5	41557	25/0	-20.33	17.08	10.70	2.63	H	0.327	25.15
	20	41391	100/0	10	41535	50/0	-20.60	16.68	10.75	2.64	H	0.301	24.79
	20	41341	100/0	15	41512	75/0	-20.46	16.82	10.75	2.64	H	0.311	24.93
	20	41292	100/0	20	41490	100/0	-20.38	16.82	10.74	2.64	H	0.310	24.92

Note:

1. Modulation : QPSK
2. Limit : < 2 Watts

PCC			SCC			Measured	Substitute	Ant.			E.I.R.P	
BW [MHz]	Channel	RB/ Offset	BW [MHz]	Channel	RB/ Offset	Level (dBm)	Level (dBm)	Gain (dBi)	C.L	Pol.	W	dBm
5	39683	25/0	20	39800	100/0	-21.95	14.74	10.70	2.48	H	0.198	22.96
10	39703	50/0	15	39823	75/0	-19.45	17.24	10.70	2.49	H	0.351	25.45
10	39705	50/0	20	39849	100/0	-22.07	14.62	10.70	2.49	H	0.192	22.84
15	39725	75/0	10	39845	50/0	-19.53	17.16	10.70	2.49	H	0.344	25.37
15	39725	75/0	15	39875	75/0	-19.54	17.15	10.70	2.49	H	0.344	25.36
15	39728	75/0	20	39899	100/0	-19.64	17.05	10.70	2.49	H	0.336	25.26
20	39750	100/0	5	39867	25/0	-19.23	17.46	10.70	2.49	H	0.369	25.67
20	39750	100/0	10	39894	50/0	-19.03	17.66	10.70	2.49	H	0.386	25.87
20	39750	100/0	15	39921	75/0	-19.14	17.52	10.70	2.51	H	0.372	25.71
20	39750	100/0	20	39948	100/0	-19.24	17.42	10.70	2.51	H	0.364	25.61
5	40528	25/0	20	40645	100/0	-19.59	17.05	10.62	2.53	H	0.327	25.14
15	41365	75/0	15	41515	75/0	-21.73	15.55	10.75	2.64	H	0.232	23.66

Note:

1. Modulation : 16QAM

2. Limit : < 2 Watts

PCC			SCC			Measured	Substitute	Ant.			E.I.R.P	
BW [MHz]	Channel	RB/ Offset	BW [MHz]	Channel	RB/ Offset	Level (dBm)	Level (dBm)	Gain (dBi)	C.L	Pol.	W	dBm
5	39683	25/0	20	39800	100/0	-22.06	14.63	10.70	2.48	H	0.193	22.85
10	39703	50/0	15	39823	75/0	-19.85	16.84	10.70	2.49	H	0.320	25.05
10	39705	50/0	20	39849	100/0	-22.06	14.63	10.70	2.49	H	0.192	22.83
15	39725	75/0	10	39845	50/0	-20.04	16.65	10.70	2.49	H	0.306	24.86
15	39725	75/0	15	39875	75/0	-20.05	16.64	10.70	2.49	H	0.305	24.85
15	39728	75/0	20	39899	100/0	-20.07	16.62	10.70	2.49	H	0.304	24.83
20	39750	100/0	5	39867	25/0	-19.51	17.18	10.70	2.49	H	0.346	25.39
20	39750	100/0	10	39894	50/0	-19.58	17.11	10.70	2.49	H	0.340	25.32
20	39750	100/0	15	39921	75/0	-19.43	17.23	10.70	2.51	H	0.348	25.42
20	39750	100/0	20	39948	100/0	-19.73	16.93	10.70	2.51	H	0.325	25.12
5	40528	25/0	20	40645	100/0	-20.18	16.46	10.62	2.53	H	0.285	24.55
15	41365	75/0	15	41515	75/0	-22.14	15.14	10.75	2.64	H	0.211	23.25

Note:

1. Modulation : 64QAM

2. Limit : < 2 Watts

PCC			SCC			Measured	Substitute	Ant.			E.I.R.P	
BW [MHz]	Channel	RB/ Offset	BW [MHz]	Channel	RB/ Offset	Level (dBm)	Level (dBm)	Gain (dBi)	C.L	Pol.	W	dBm
5	39683	25/0	20	39800	100/0	-23.10	13.59	10.70	2.48	H	0.152	21.81
10	39703	50/0	15	39823	75/0	-23.00	13.69	10.70	2.49	H	0.155	21.90
10	39705	50/0	20	39849	100/0	-22.99	13.70	10.70	2.49	H	0.155	21.91
15	39725	75/0	10	39845	50/0	-23.06	13.63	10.70	2.49	H	0.153	21.84
15	39725	75/0	15	39875	75/0	-23.23	13.46	10.70	2.49	H	0.147	21.67
15	39728	75/0	20	39899	100/0	-23.28	13.41	10.70	2.49	H	0.145	21.62
20	39750	100/0	5	39867	25/0	-22.60	14.09	10.70	2.49	H	0.170	22.30
20	39750	100/0	10	39894	50/0	-22.58	14.11	10.70	2.49	H	0.171	22.32
20	39750	100/0	15	39921	75/0	-22.63	14.03	10.70	2.51	H	0.167	22.22
20	39750	100/0	20	39948	100/0	-22.66	14.00	10.70	2.51	H	0.166	22.19
5	40528	25/0	20	40645	100/0	-23.11	13.53	10.62	2.53	H	0.145	21.62
15	41365	75/0	15	41515	75/0	-25.28	12.00	10.75	2.64	H	0.103	20.11

Note:

1. Modulation : 256QAM

2. Limit : < 2 Watts

8.3 Conducted Spurious Emissions

8.3.1 PC2

Operating frequency	PCC				SCC				Measurement Maximum Frequency (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)
	BW [MHz]	Ch.	Freq. (MHz)	RB/ Offset	BW [MHz]	Ch.	Freq. (MHz)	RB/ Offset				
Low	20	39750	2506.0	1/99	20	39948	2525.8	1/0	3.7488	31.955	-76.403	-44.45
Mid	5	40528	2583.8	1/24	20	40645	2595.5	1/0	9.7014	32.570	-75.255	-42.69
High	20	41440	2675.0	1/99	5	41557	2686.7	1/0	4.9013	31.955	-73.943	-41.99
Low	20	39750	2506.0	1/0	20	39948	2525.8	1/99	8.2752	32.570	-75.500	-42.93
Mid	5	40528	2583.8	1/0	20	40645	2595.5	1/99	7.9601	32.570	-75.773	-43.20
High	20	41440	2675.0	1/0	5	41557	2686.7	1/24	5.1860	32.570	-74.640	-42.07
Low	15	39725	2503.5	75/0	10	39845	2515.5	50/0	3.6930	31.955	-71.368	-39.41
Mid	10	40526	2583.6	50/0	20	40670	2598.0	100/0	9.6780	32.570	-76.716	-44.15
High	20	41440	2675.0	100/0	5	41557	2686.7	25/0	8.8594	32.570	-74.798	-42.23
Low	20	39750	2506.0	100/0	20	39948	2525.8	100/0	9.9616	32.570	-76.037	-43.47
Mid	20	40521	2583.1	100/0	20	40719	2602.9	100/0	9.1471	32.570	-76.144	-43.57
High	20	41292	2660.2	100/0	20	41490	2680.0	100/0	5.9975	32.570	-75.045	-42.48

Note:

1. Modulation : QPSK

2. Duty Cycle factor already applied on the factor.

   - Duty Cycle factor(dB) = 3.979

   - Factor(dB) = Duty Cycle factor + Cable Loss + Ext. Attenuator + Power Splitter

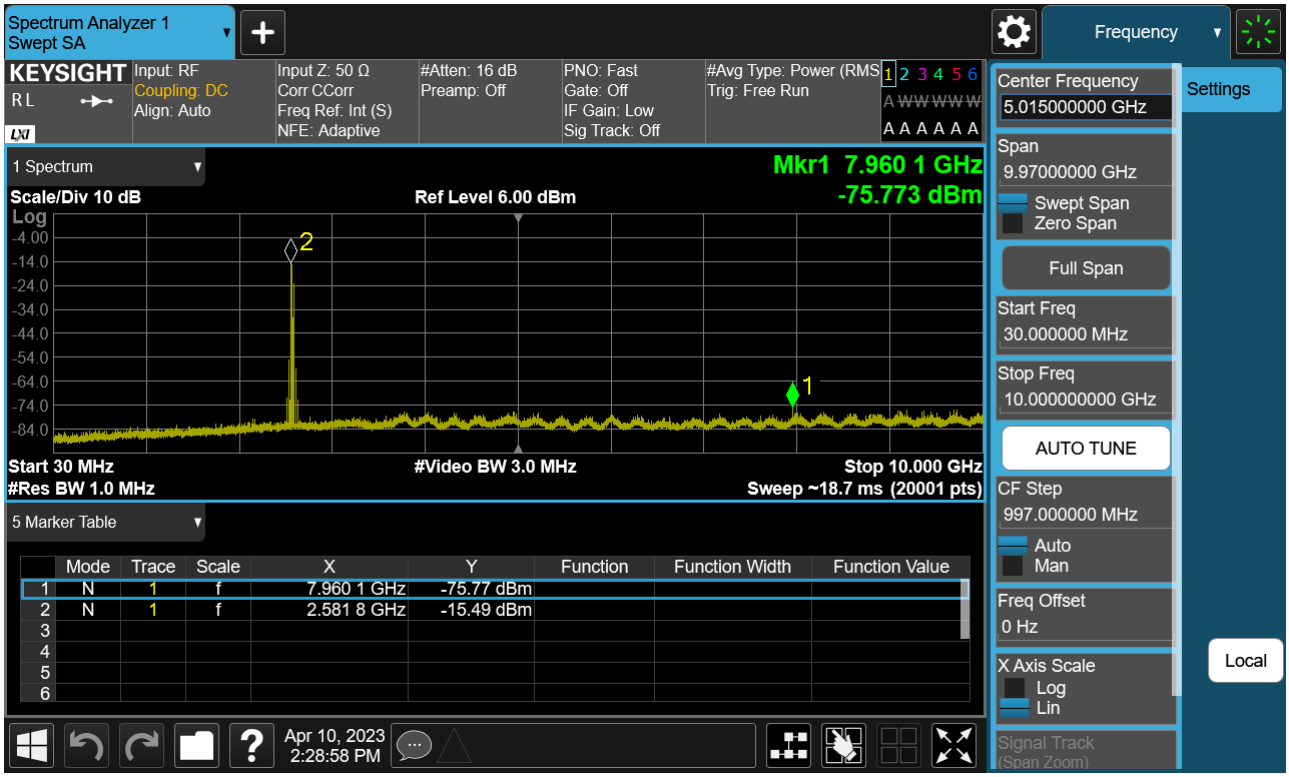
   - Result(dBm) = Measurement Maximum Data (dBm) + Factor

Frequency Range (GHz)	Factor [dB]
0.03 – 1	29.249
1 – 5	31.955
5 – 10	32.570
10 – 15	33.095
15 – 20	33.468
Above 20	34.110

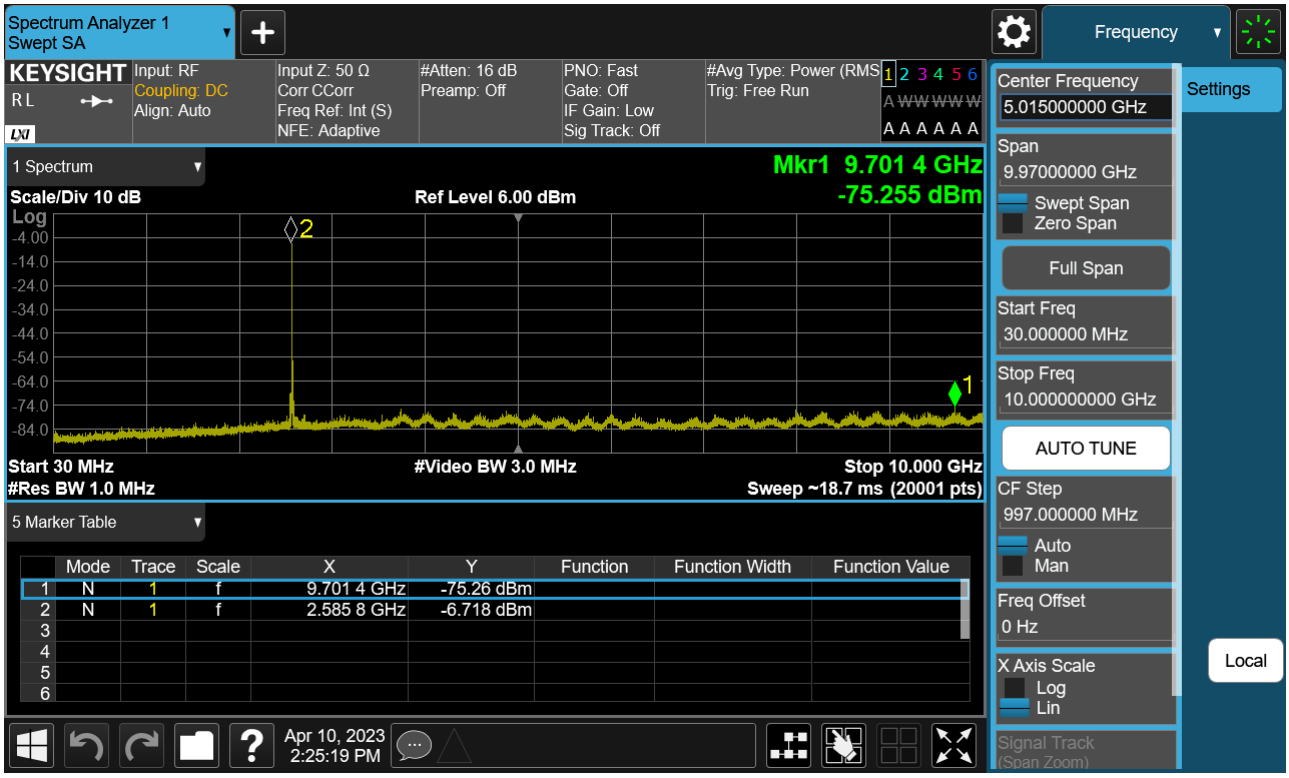
3. Limit : -25.0 dBm

Frequency Range : 30 MHz ~ 10 GHz

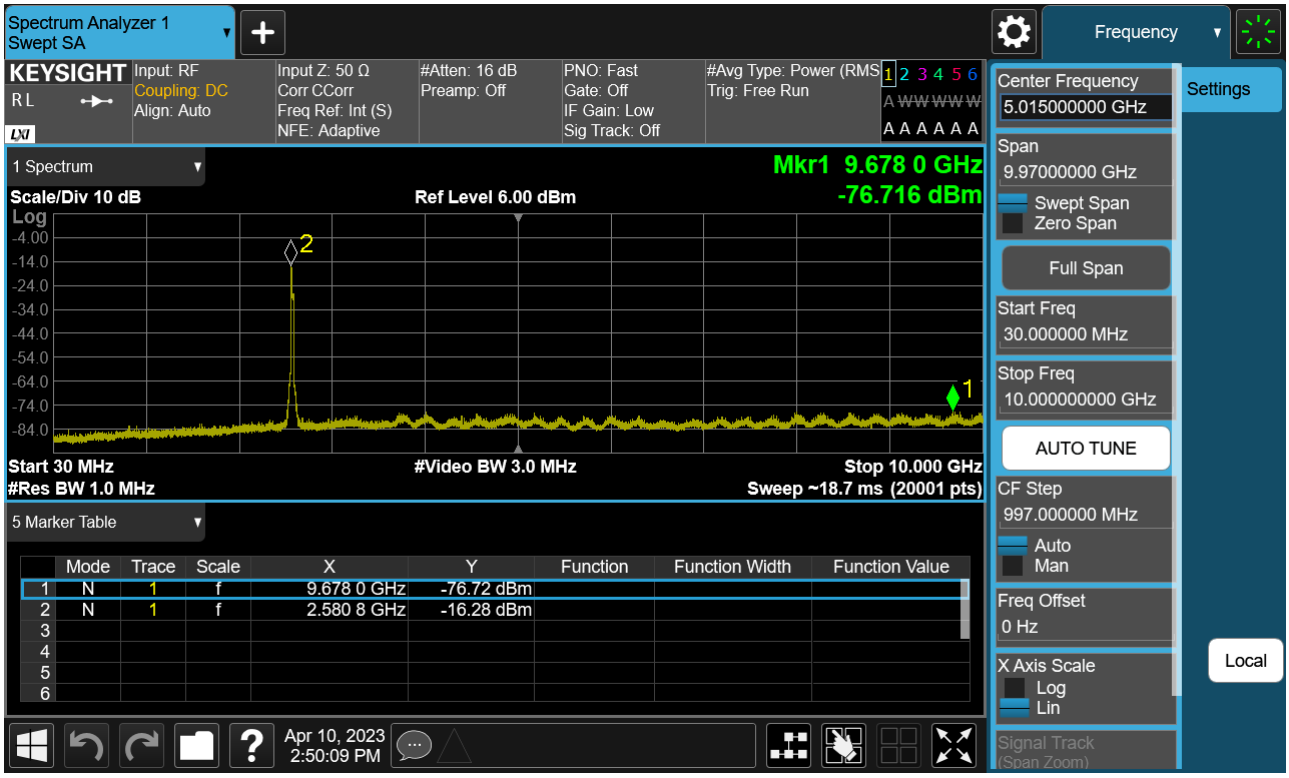
PCC 5 MHz Ch40528 RB1 Offset0 SCC 20 MHz Ch40645 RB1 Offset99



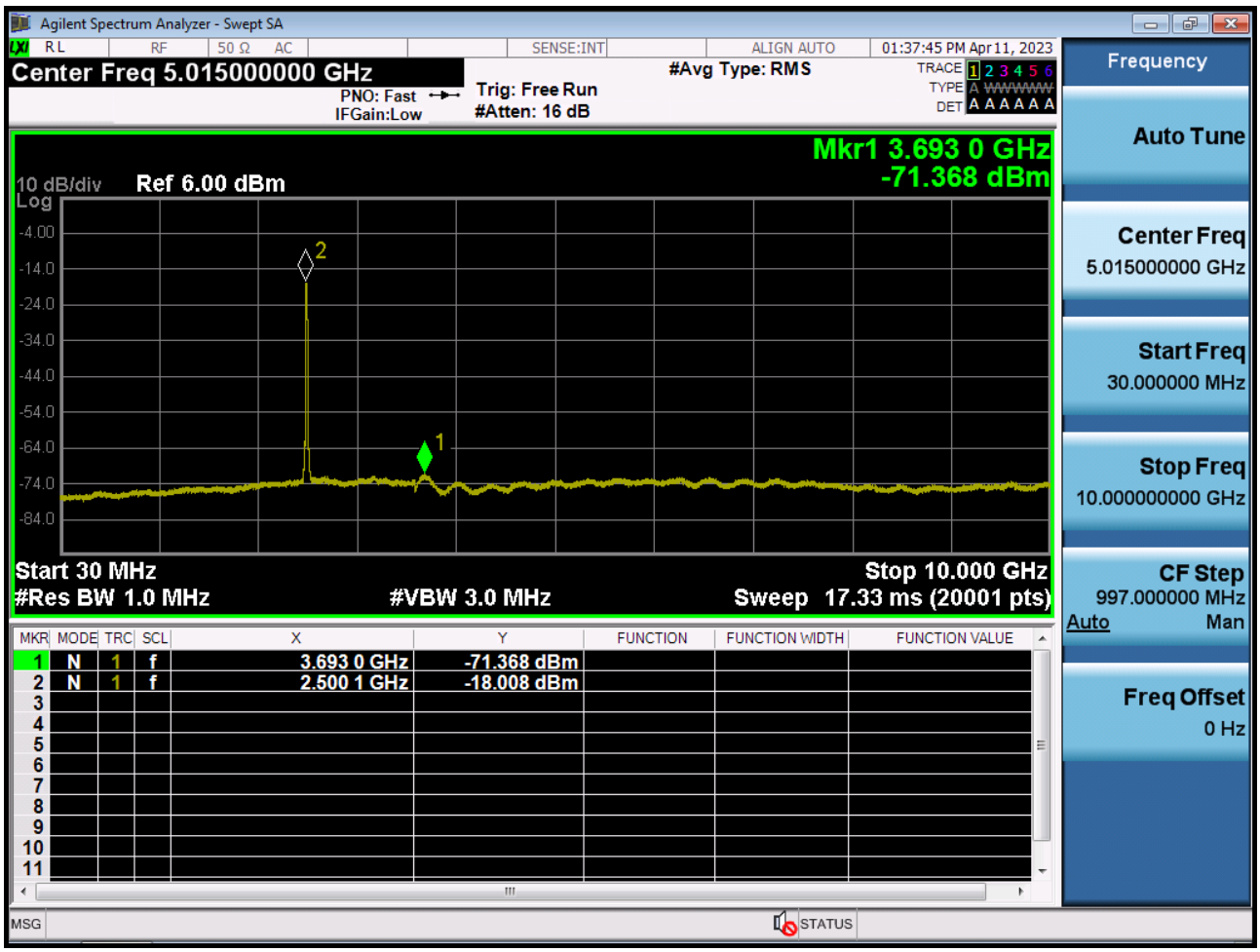
PCC 5 MHz Ch40528 RB1 Offset24 SCC 20 MHz Ch40645 RB1 Offset0



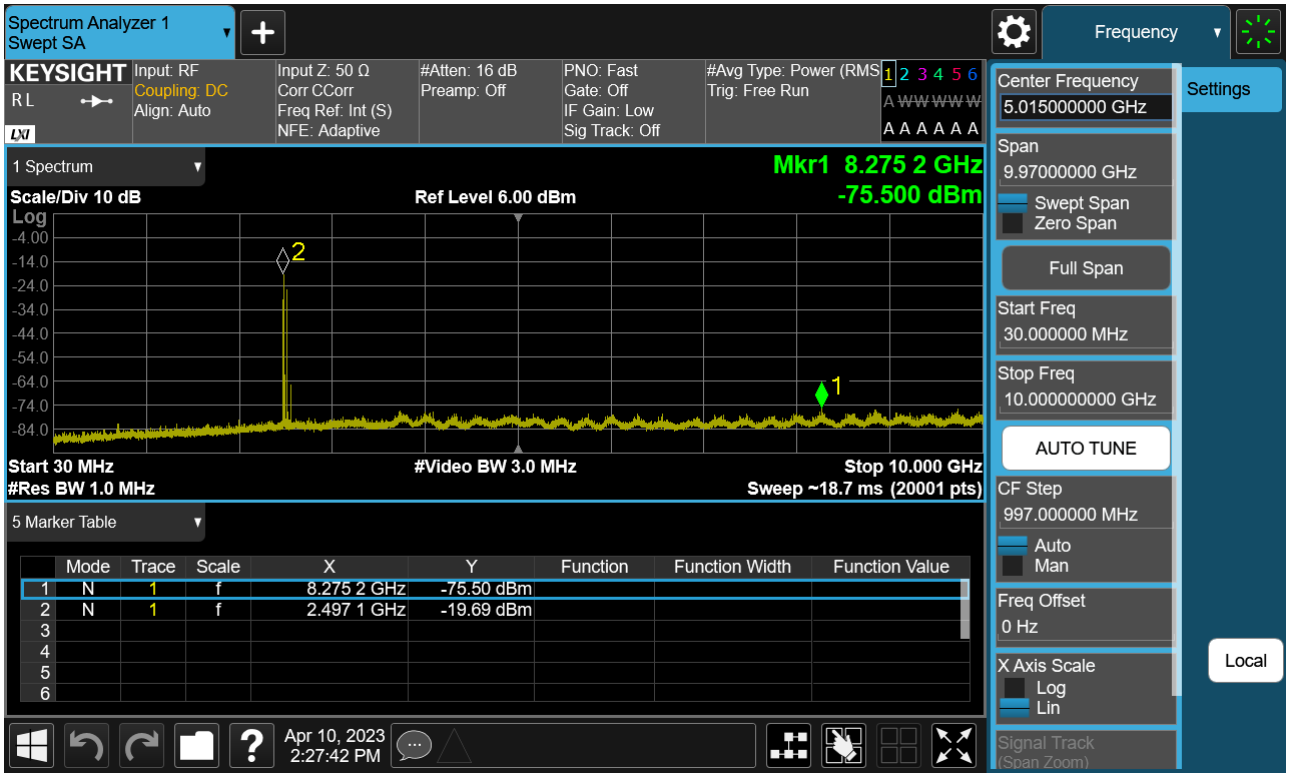
PCC 10 MHz Ch40526 RB50 Offset0 SCC 20 MHz Ch40670 RB100 Offset0



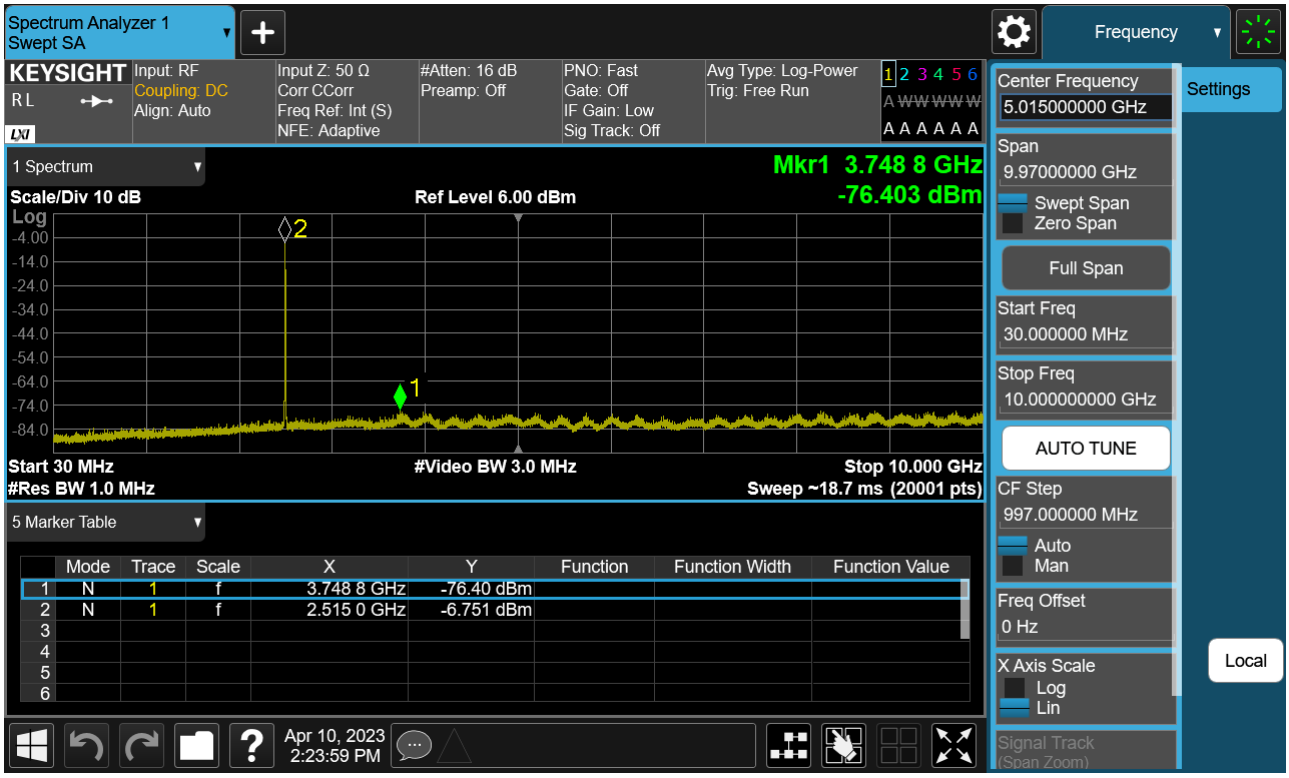
PCC 15 MHz Ch39725 RB100 Offset0 SCC 10 MHz Ch39845 RB25 Offset0



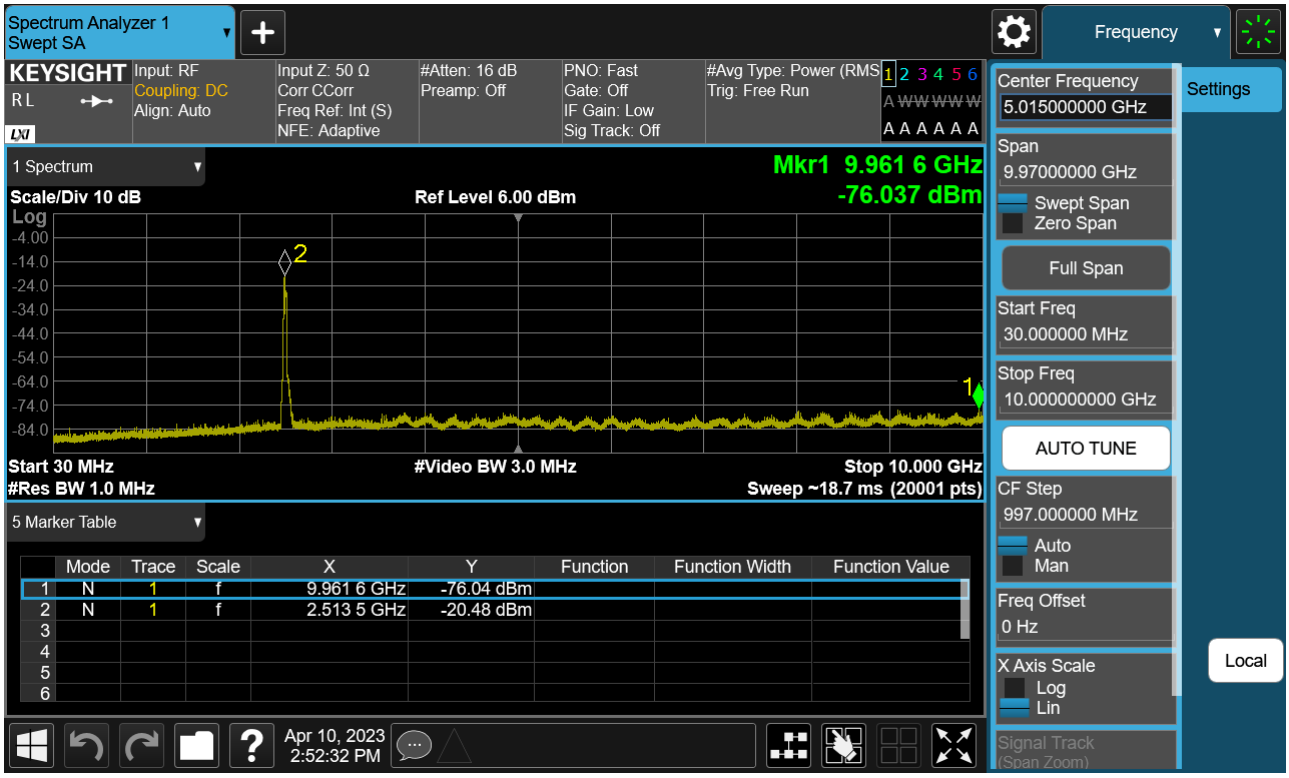
PCC 20 MHz Ch39750 RB1 Offset0 SCC 20 MHz Ch39948 RB1 Offset99



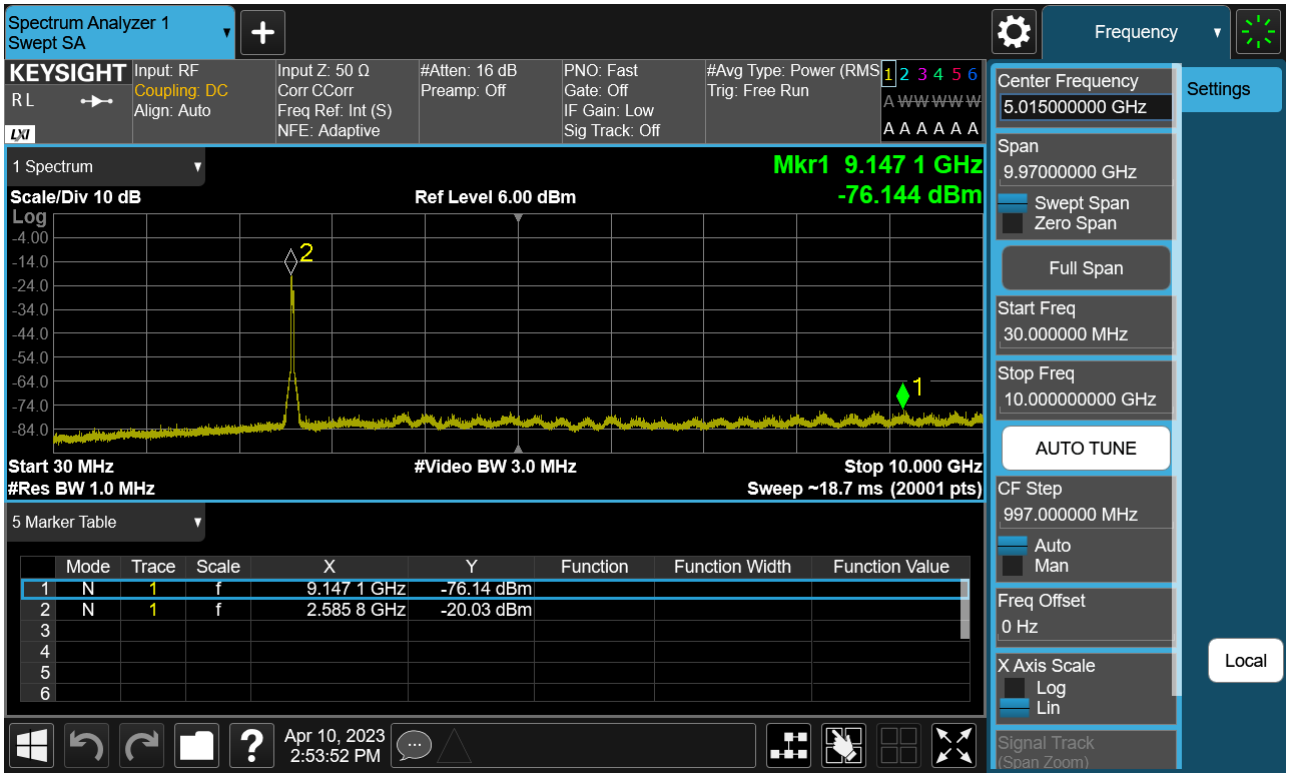
PCC 20 MHz Ch39750 RB1 Offset99 SCC 20 MHz Ch39948 RB1 Offset0



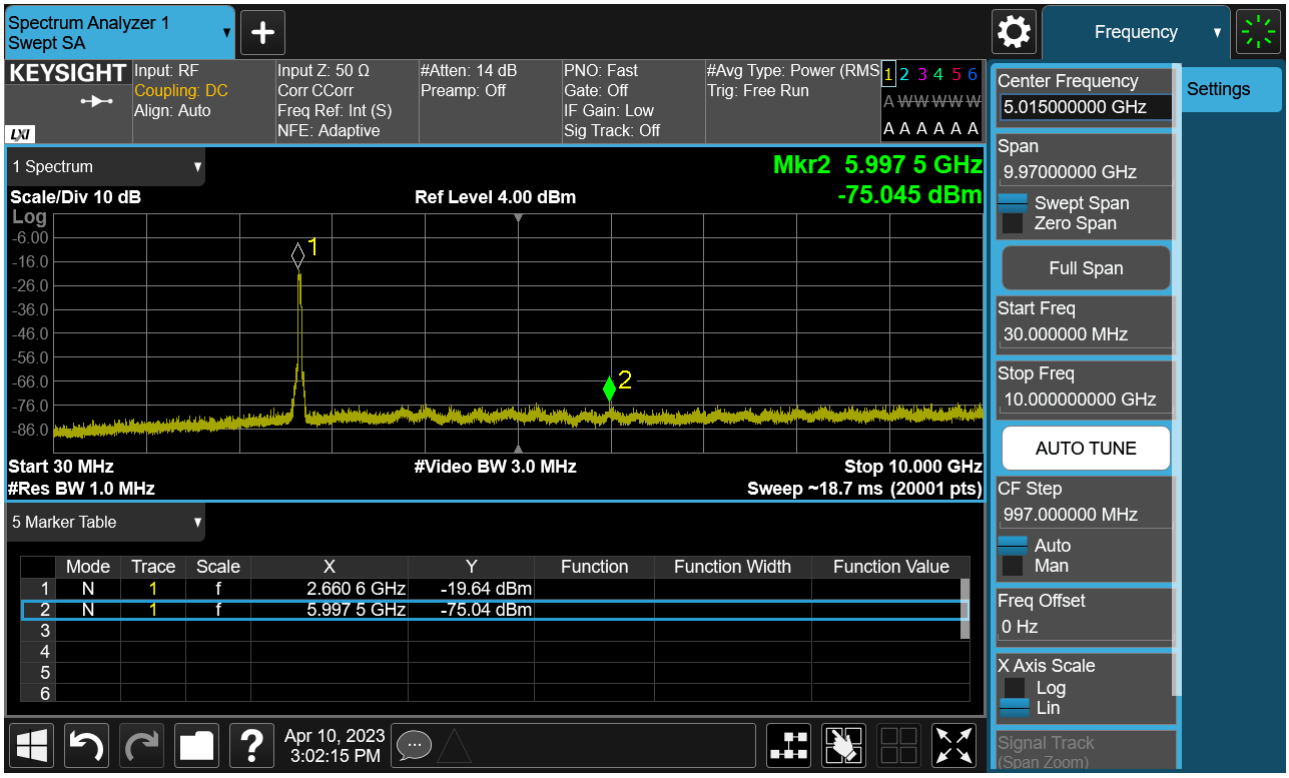
PCC 20 MHz Ch39750 RB100 Offset0 SCC 20 MHz Ch39948 RB100 Offset0



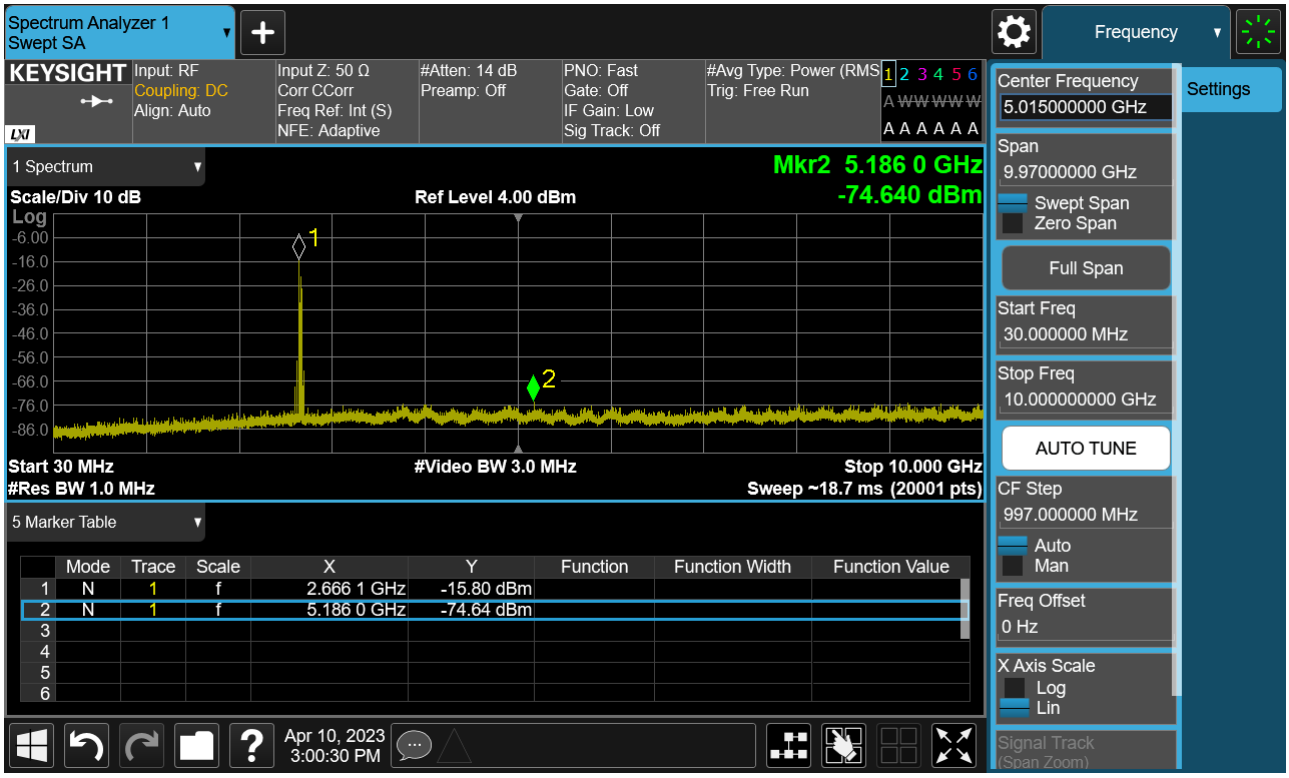
PCC 20 MHz Ch40521 RB100 Offset0 SCC 20 MHz Ch40719 RB100 Offset0



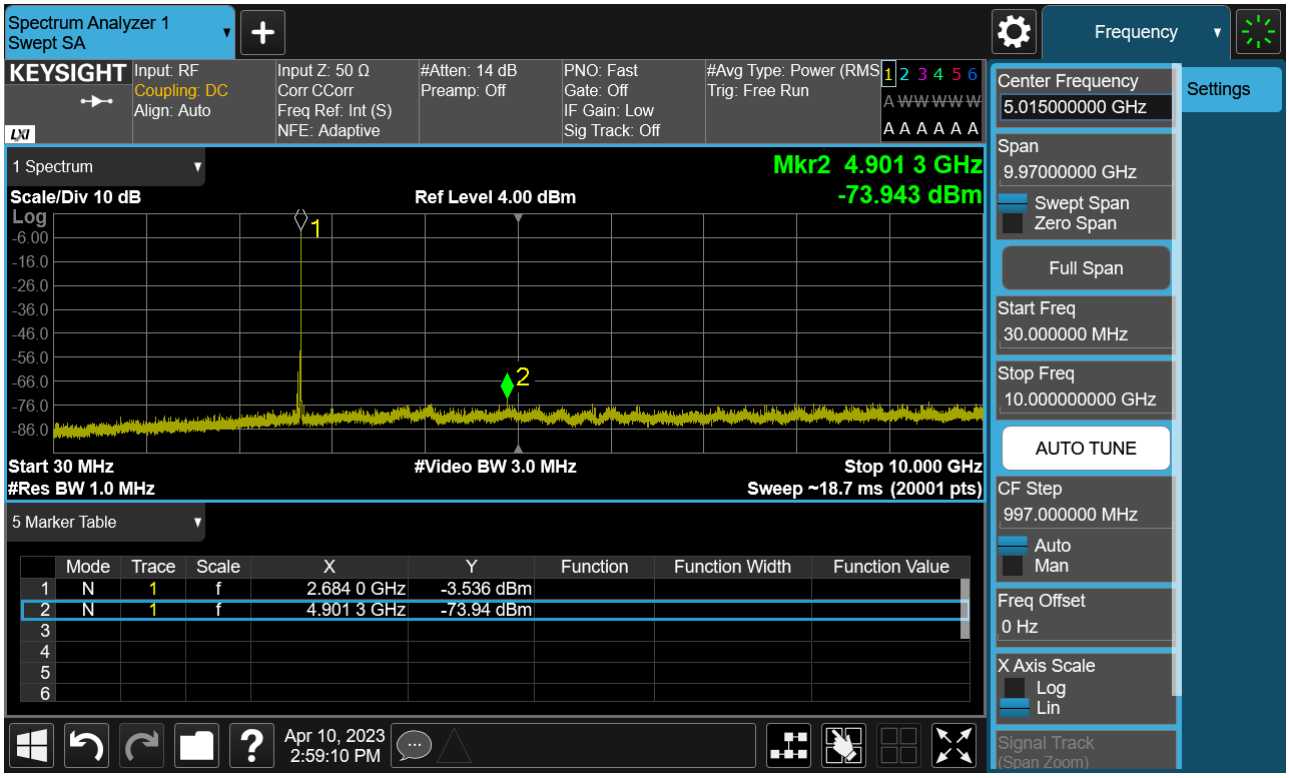
PCC 20 MHz Ch41292 RB100 Offset0 SCC 20 MHz Ch41490 RB100 Offset0



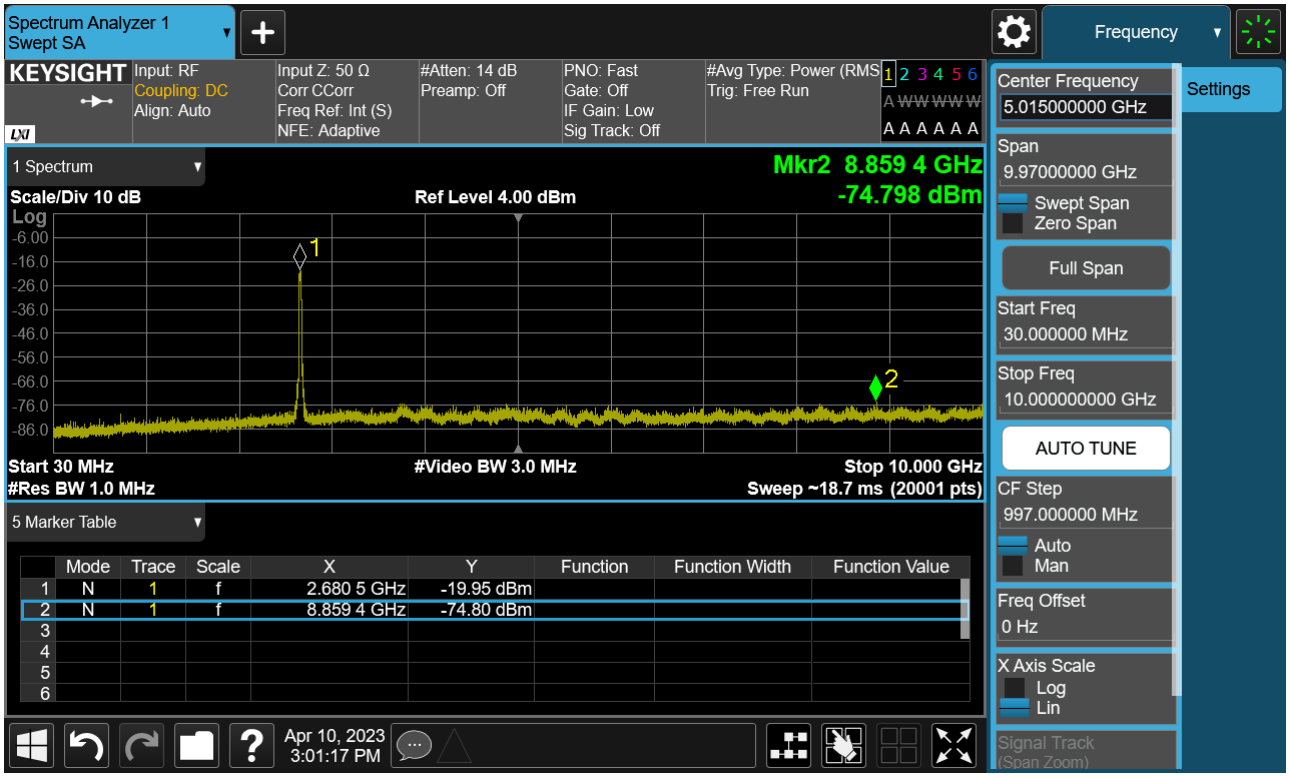
PCC 20 MHz Ch41440 RB1 Offset0 SCC 5 MHz Ch41557 RB1 Offset24



PCC 20 MHz Ch41440 RB1 Offset99 SCC 5 MHz Ch41557 RB1 Offset0

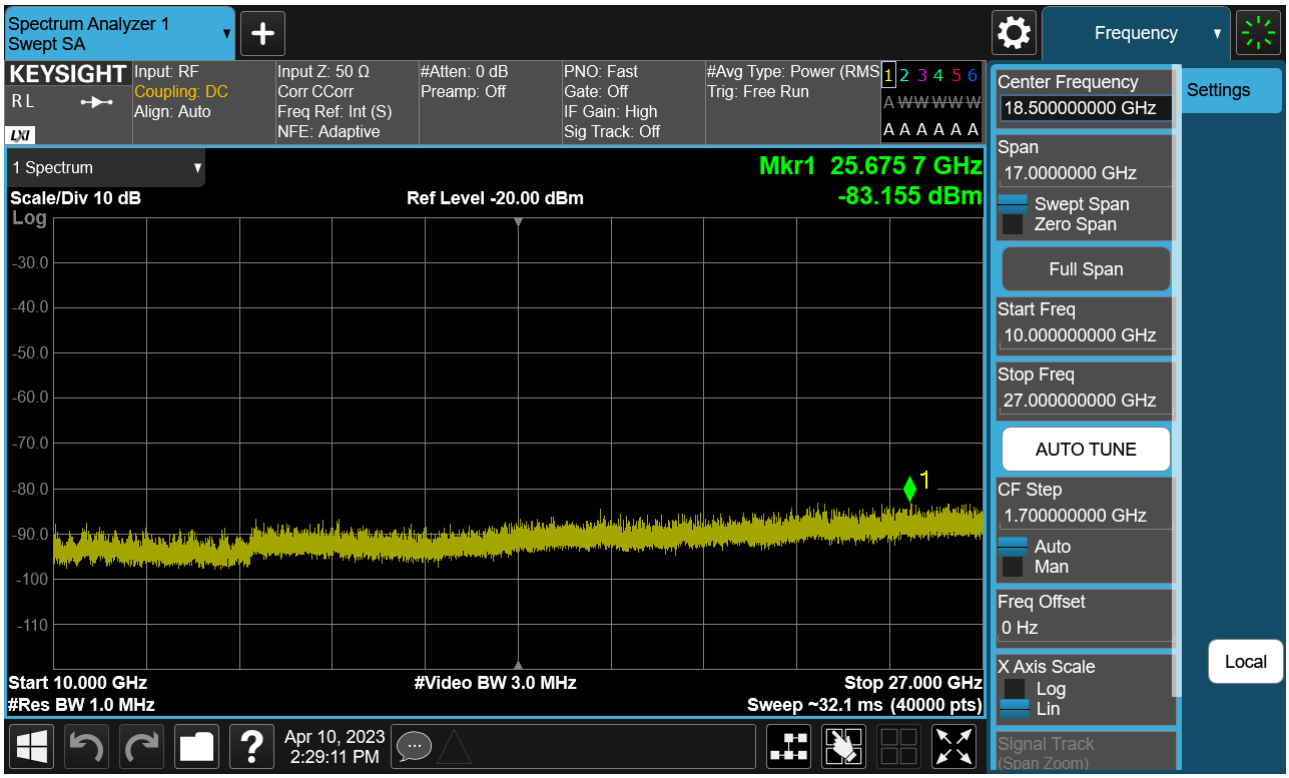


PCC 20 MHz Ch41440 RB100 Offset0 SCC 5 MHz Ch41557 RB25 Offset0

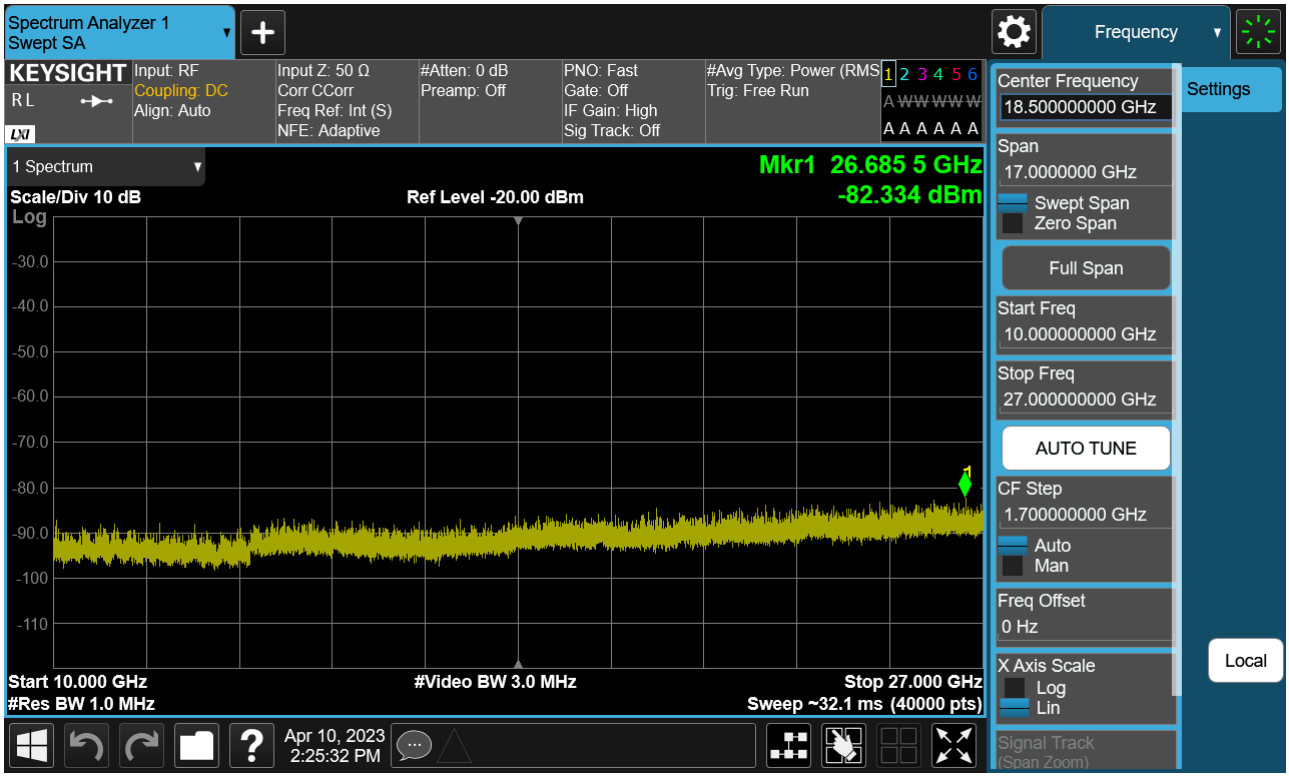


Frequency Range : 10 GHz ~ 26.5 GHz

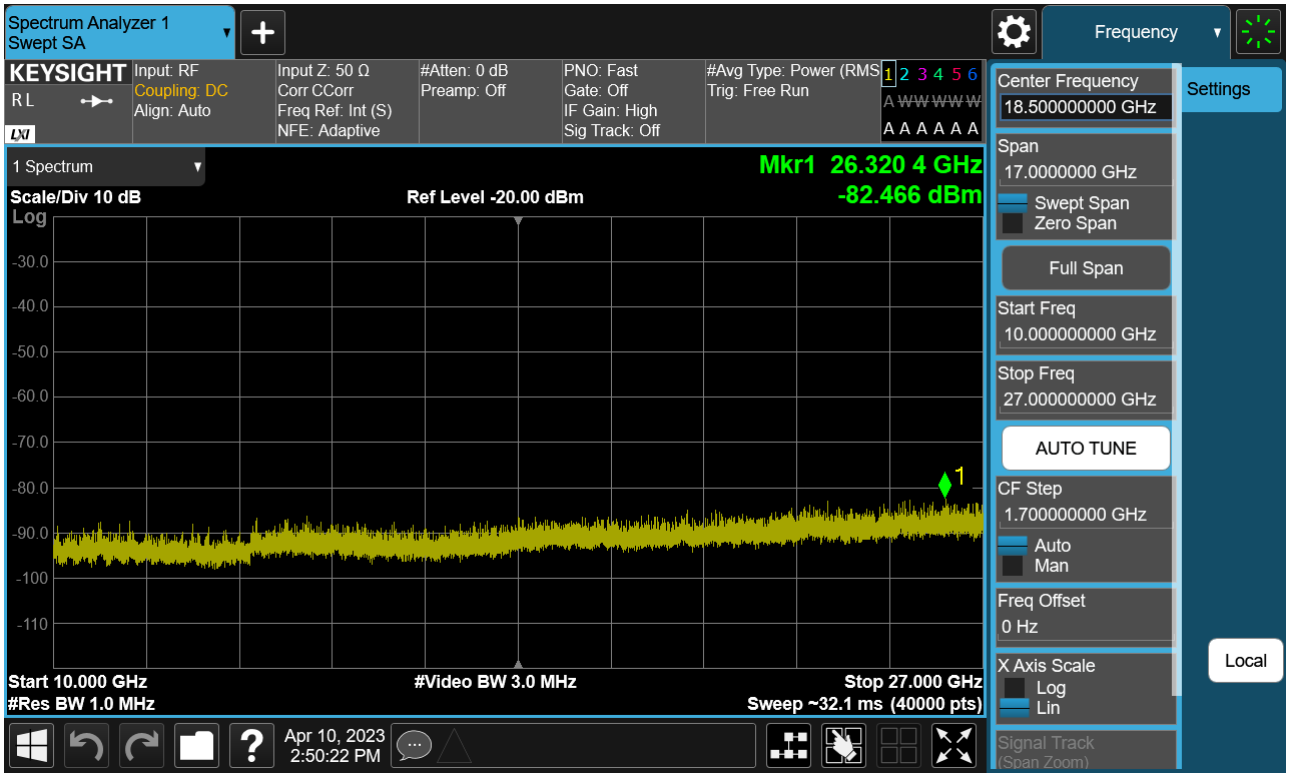
PCC 5 MHz Ch40528 RB1 Offset0, SCC 20 MHz Ch40645 RB1 Offset99



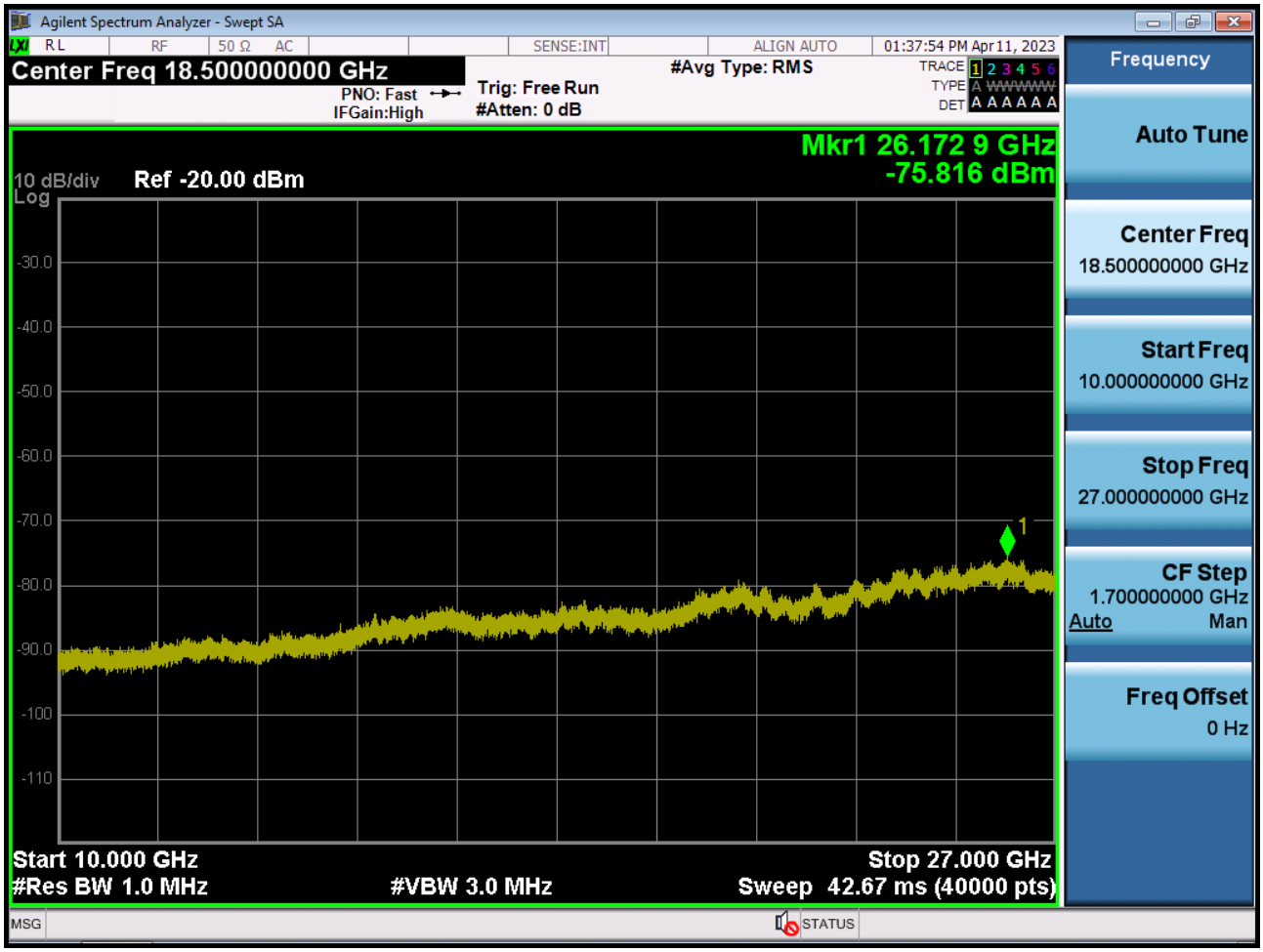
PCC 5 MHz Ch40528 RB1 Offset24, SCC 20 MHz Ch40645 RB1 Offset0



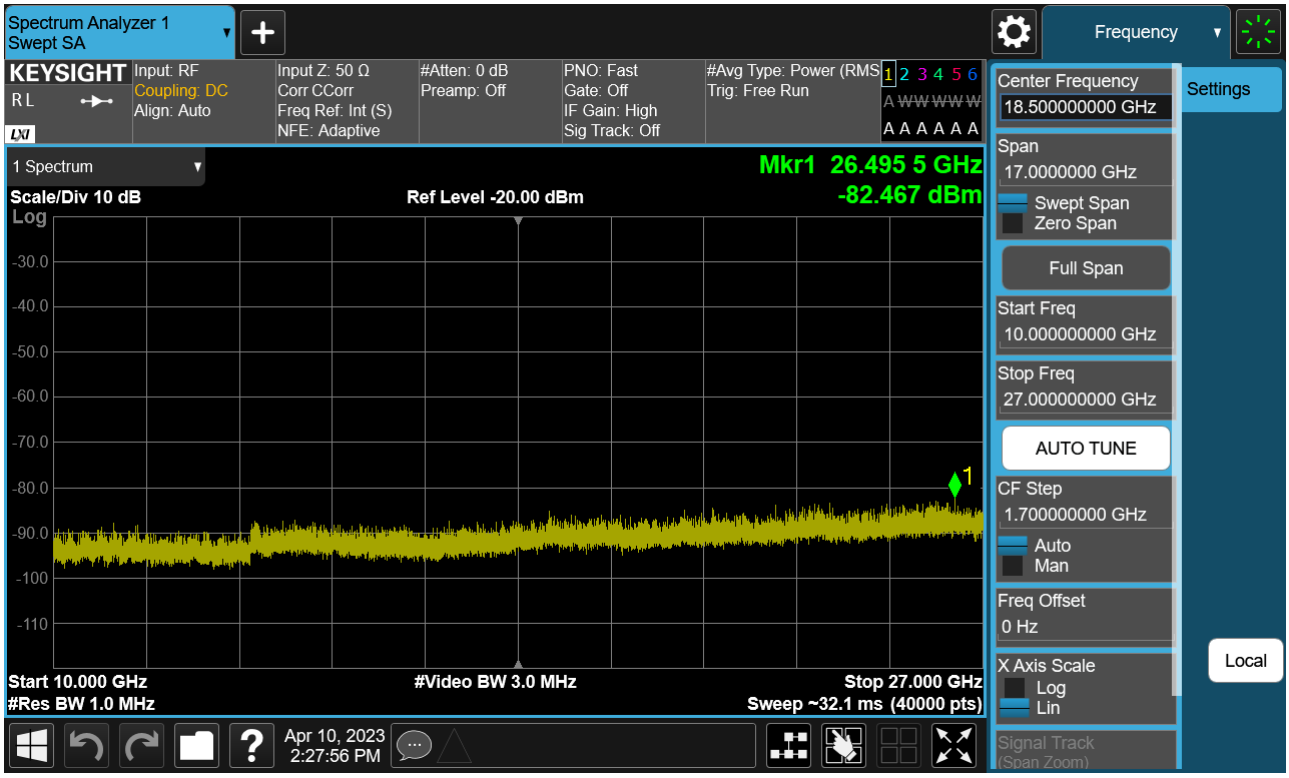
PCC 10 MHz Ch40526 RB50 Offset0, SCC 20 MHz Ch40670 RB100 Offset0



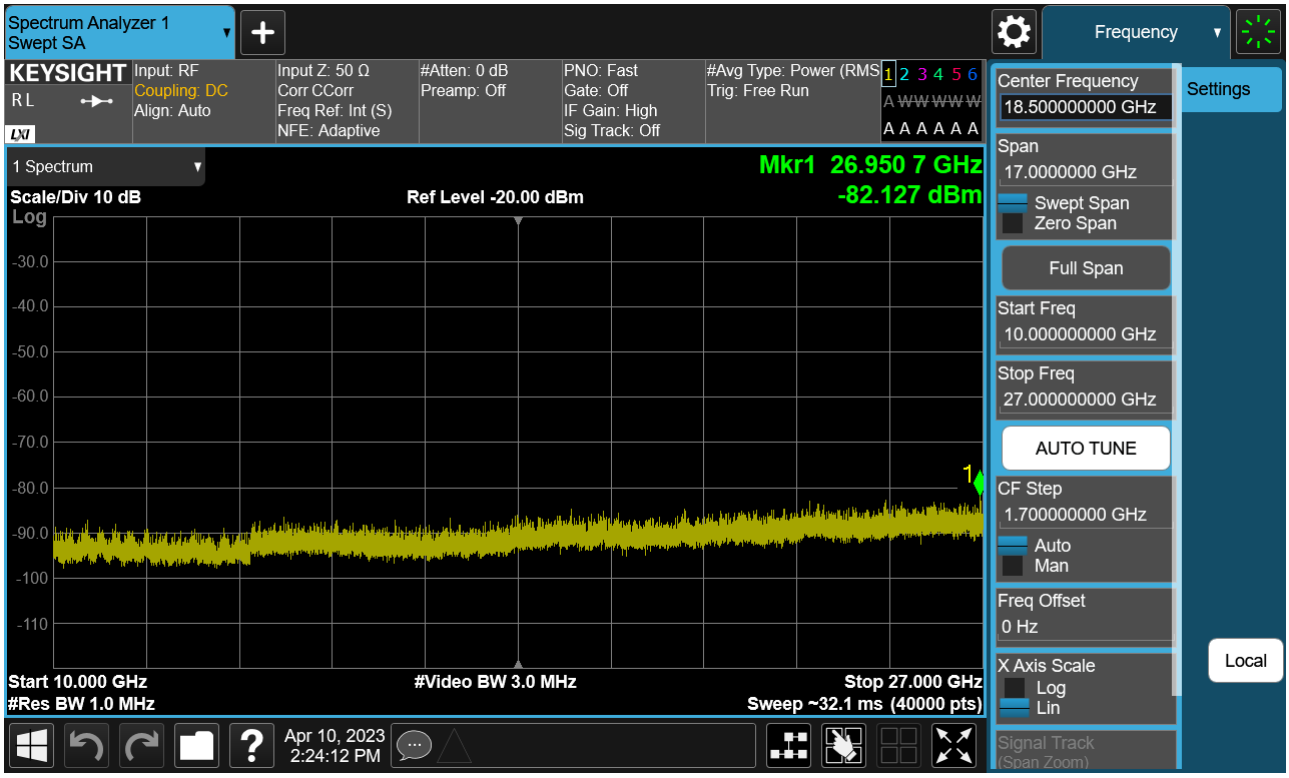
PCC 15 MHz Ch39725 RB100 Offset0, SCC 10 MHz Ch39845 RB25 Offset0



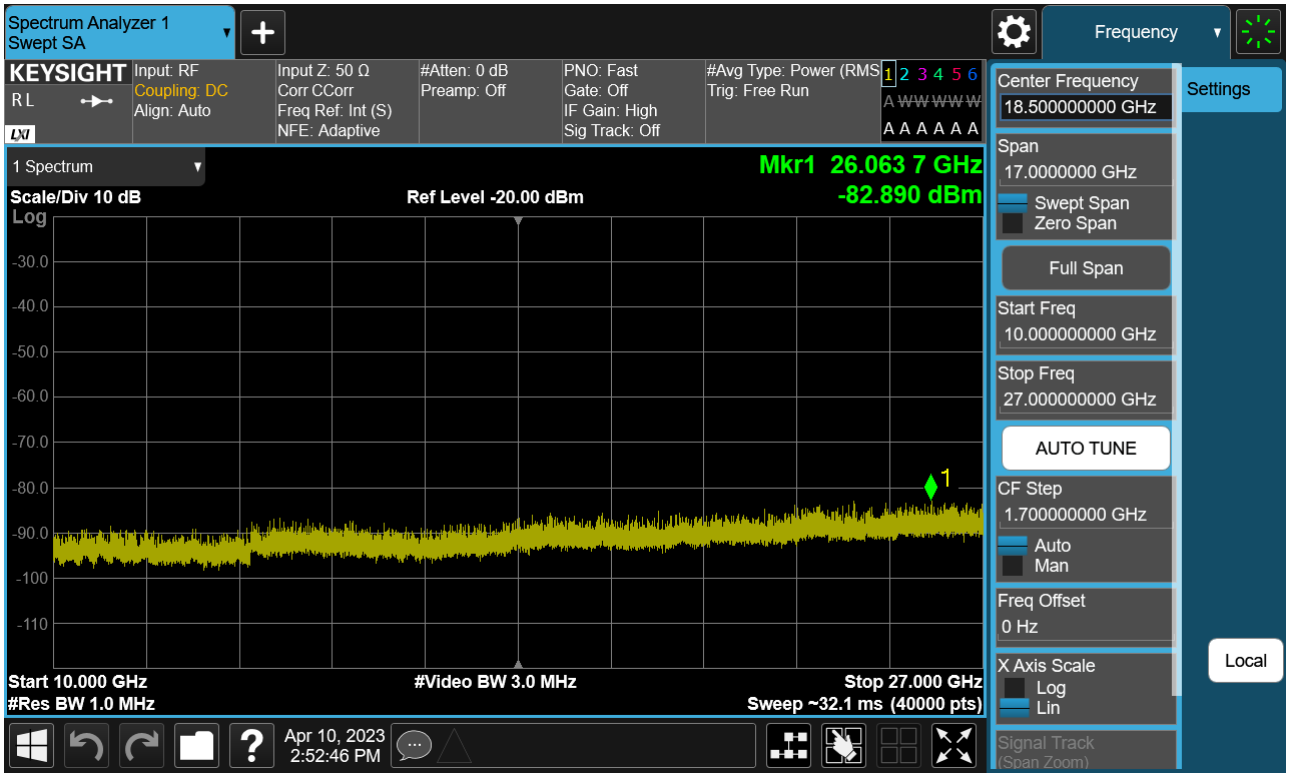
PCC 20 MHz Ch39750 RB1 Offset0, SCC 20 MHz Ch39948 RB1 Offset99



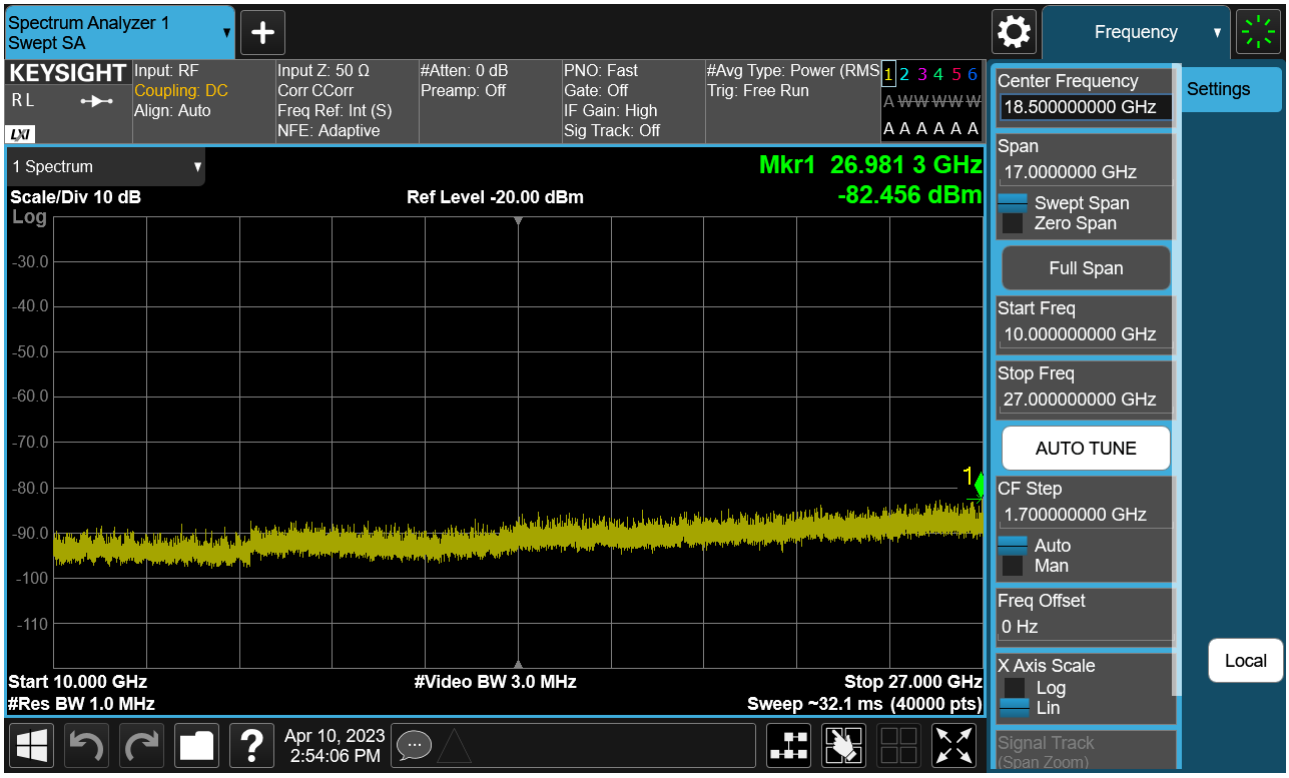
PCC 20 MHz Ch39750 RB1 Offset99, SCC 20 MHz Ch39948 RB1 Offset0



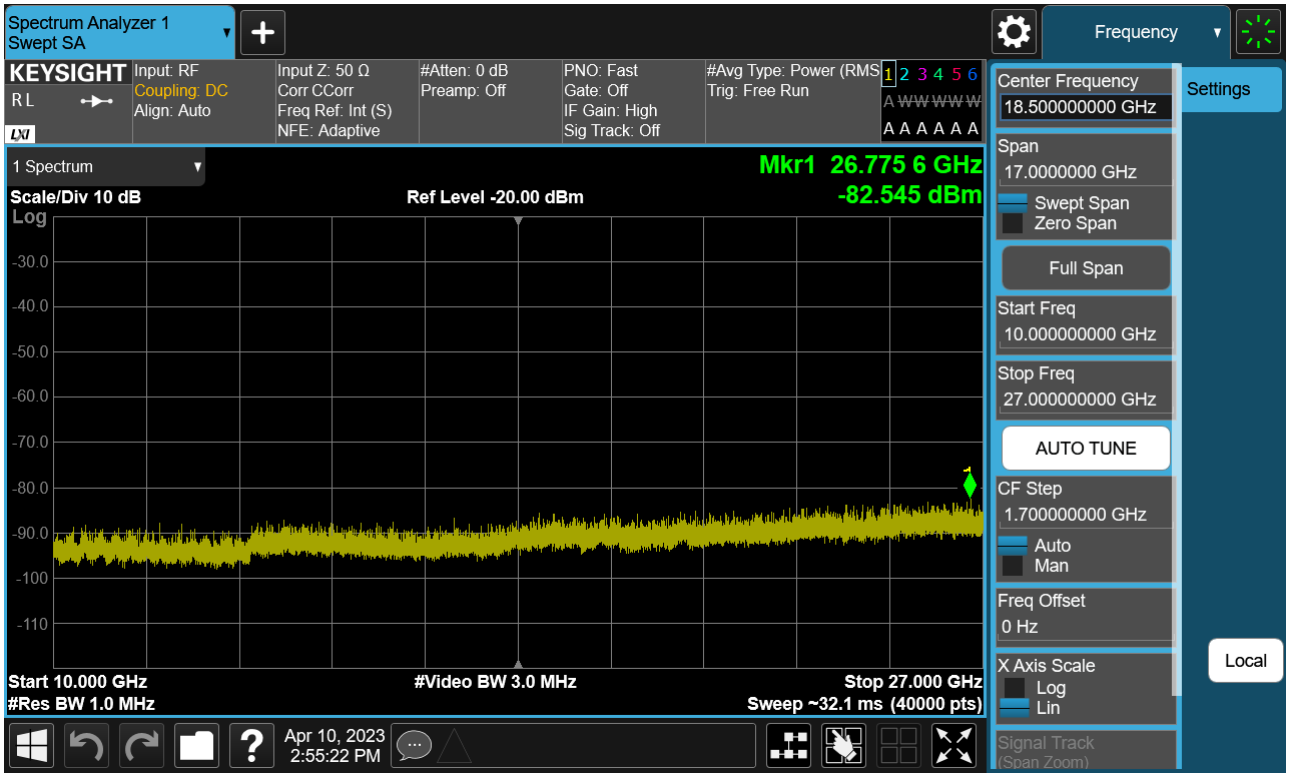
PCC 20 MHz Ch39750 RB100 Offset0, SCC 20 MHz Ch39948 RB100 Offset0



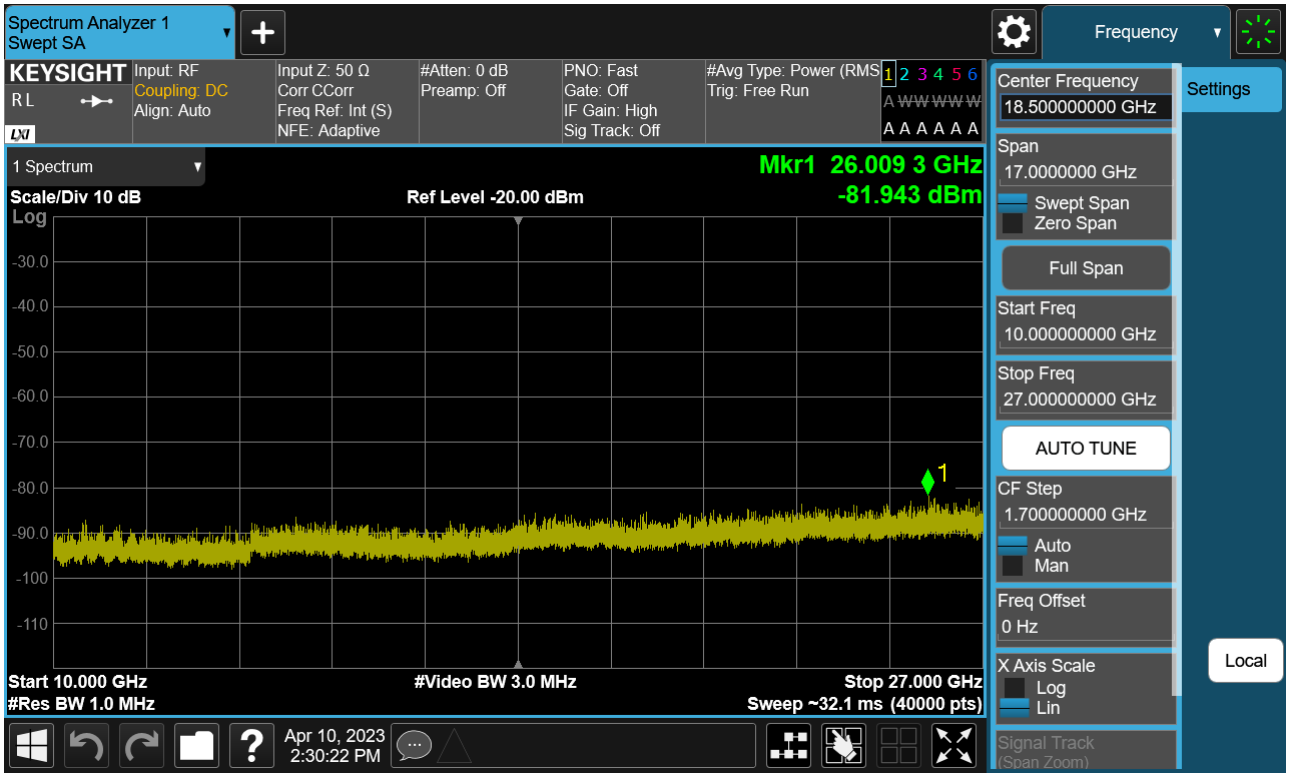
PCC 20 MHz Ch40521 RB100 Offset0, SCC 20 MHz Ch40719 RB100 Offset0



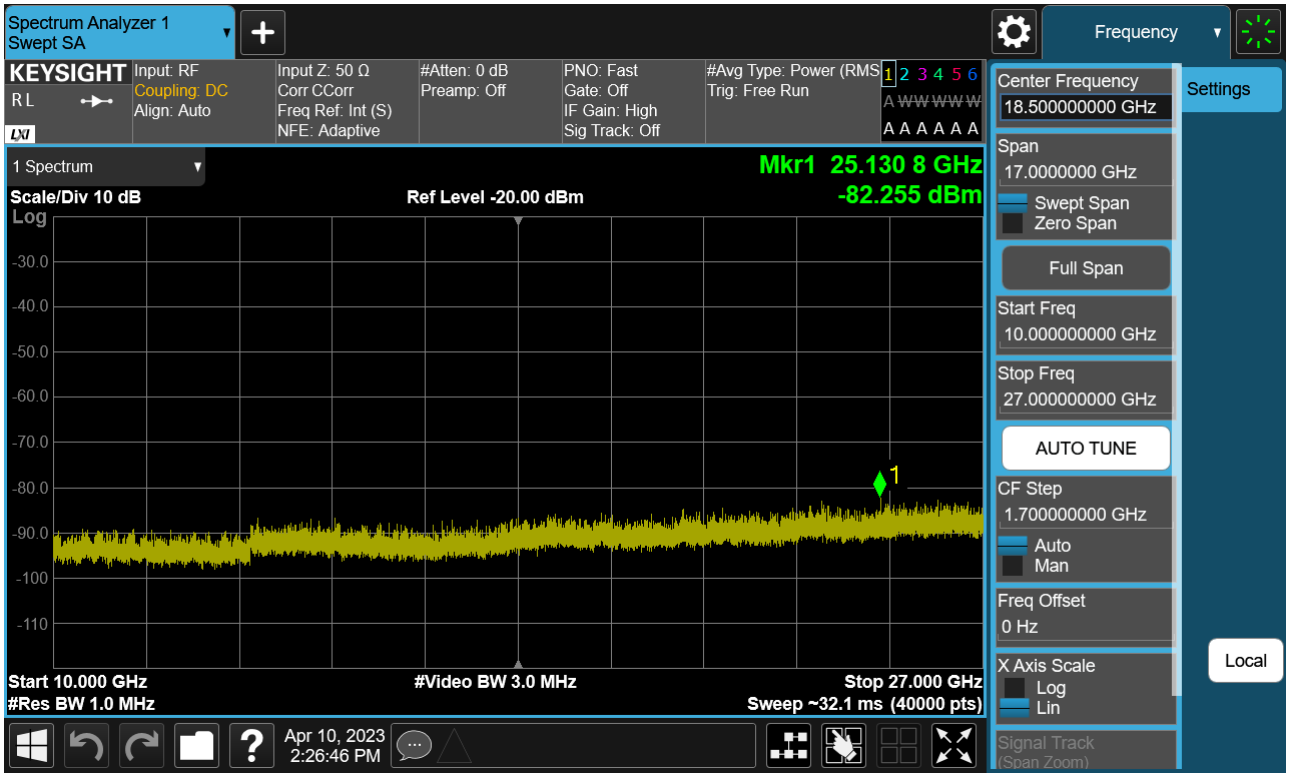
PCC 20 MHz Ch41292 RB100 Offset0, SCC 20 MHz Ch41490 RB100 Offset0



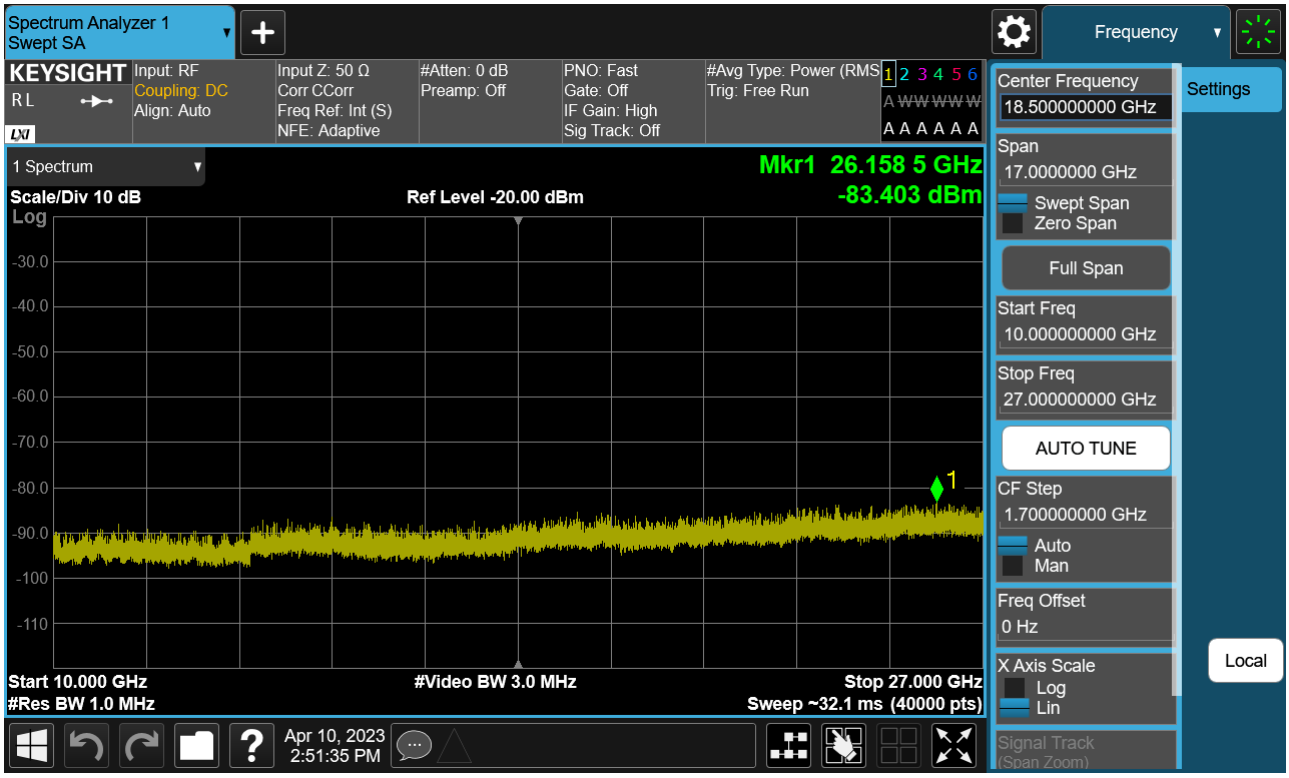
PCC 20 MHz Ch41440 RB1 Offset0, SCC 5 MHz Ch41557 RB1 Offset24



PCC 20 MHz Ch41440 RB1 Offset99, SCC 5 MHz Ch41557 RB1 Offset0



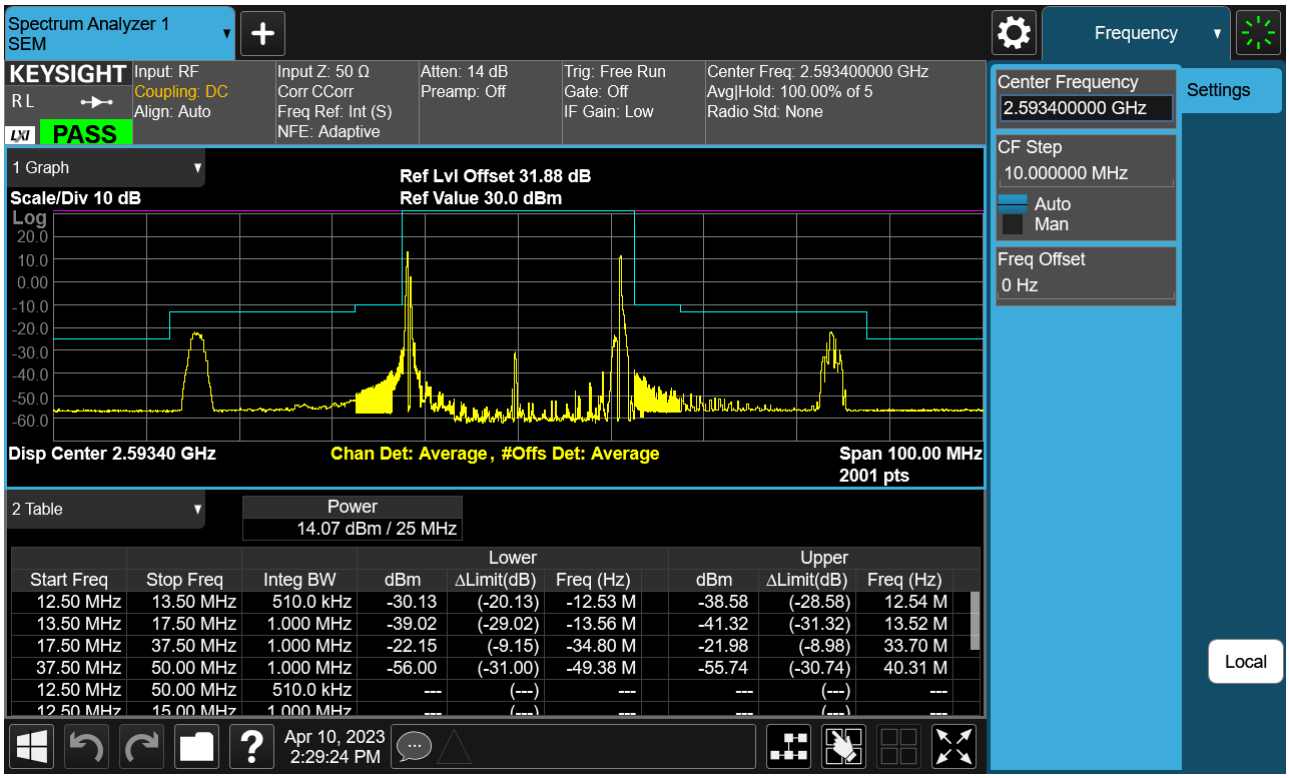
PCC 20 MHz Ch41440 RB100 Offset0, SCC 5 MHz Ch41557 RB25 Offset0



8.4 Channel Edge

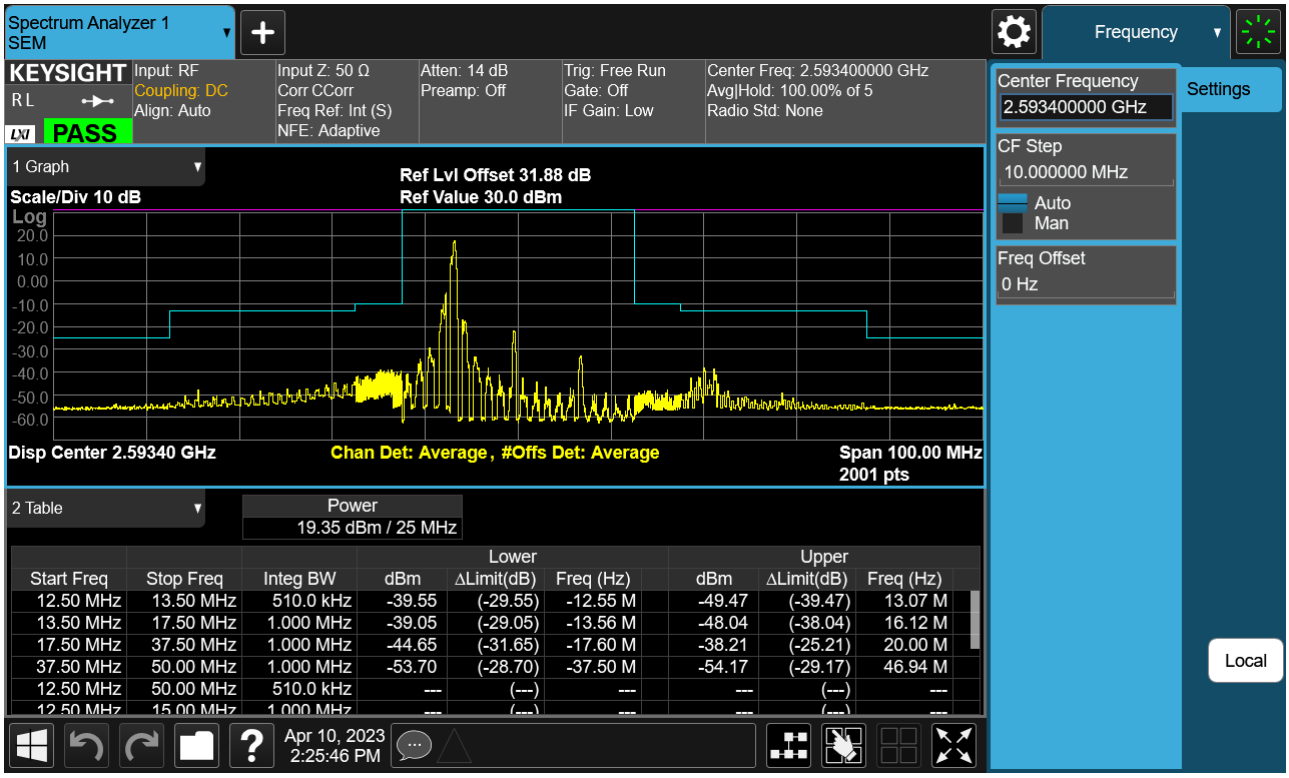
8.4.1 PC2

PCC 5 MHz Ch40528 RB1 Offset0, SCC 20 MHz Ch40645 RB1 Offset99

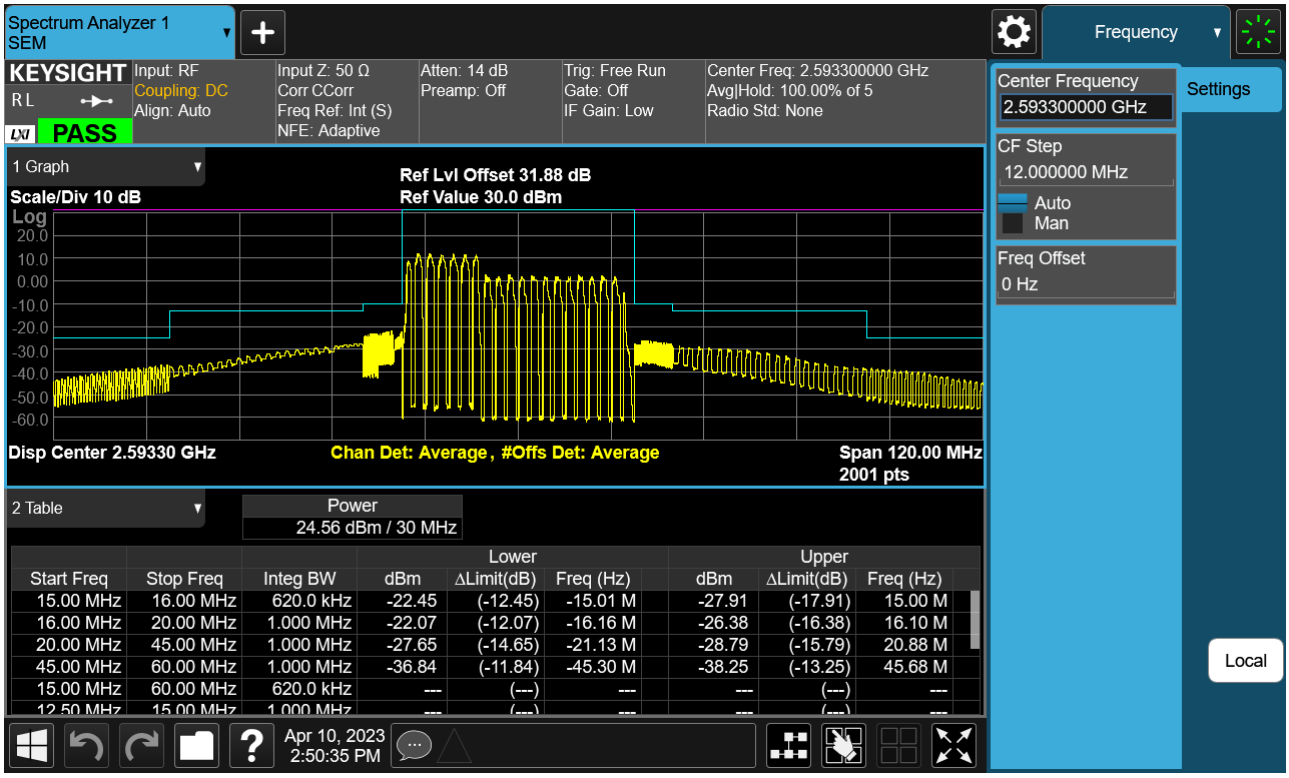


			Lower			Upper		
Start Freq	Stop Freq	Integ BW	dBm	ΔLimit(dB)	Freq (Hz)	dBm	ΔLimit(dB)	Freq (Hz)
12.50 MHz	13.50 MHz	510.0 kHz	-30.13	(-20.13)	-12.53 M	-38.58	(-28.58)	12.54 M
13.50 MHz	17.50 MHz	1.000 MHz	-39.02	(-29.02)	-13.56 M	-41.32	(-31.32)	13.52 M
17.50 MHz	37.50 MHz	1.000 MHz	-22.15	(-9.15)	-34.80 M	-21.98	(-8.98)	33.70 M
37.50 MHz	50.00 MHz	1.000 MHz	-56.00	(-31.00)	-49.38 M	-55.74	(-30.74)	40.31 M
12.50 MHz	50.00 MHz	510.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

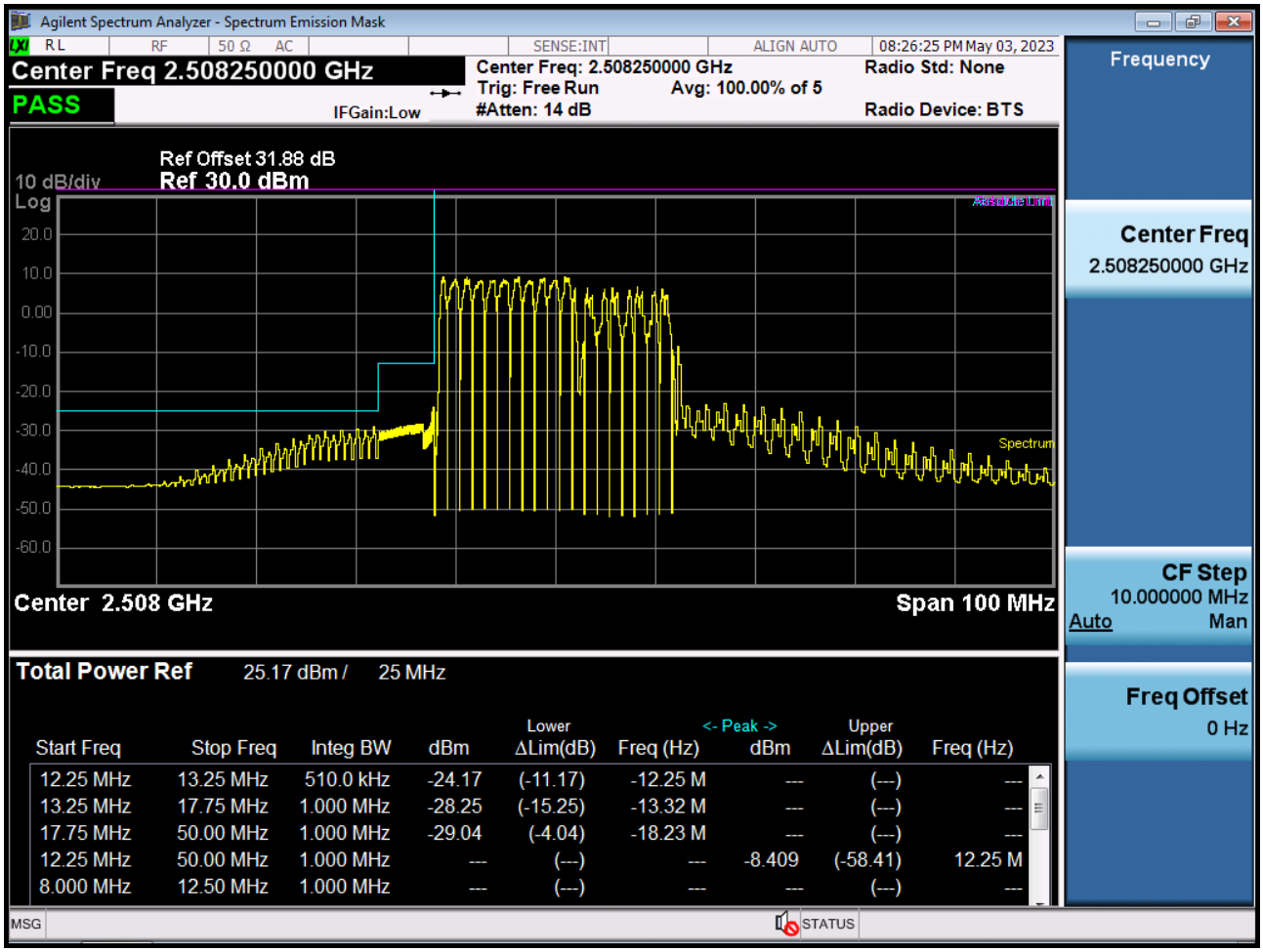
PCC 5 MHz Ch40528 RB1 Offset24, SCC 20 MHz Ch40645 RB1 Offset0



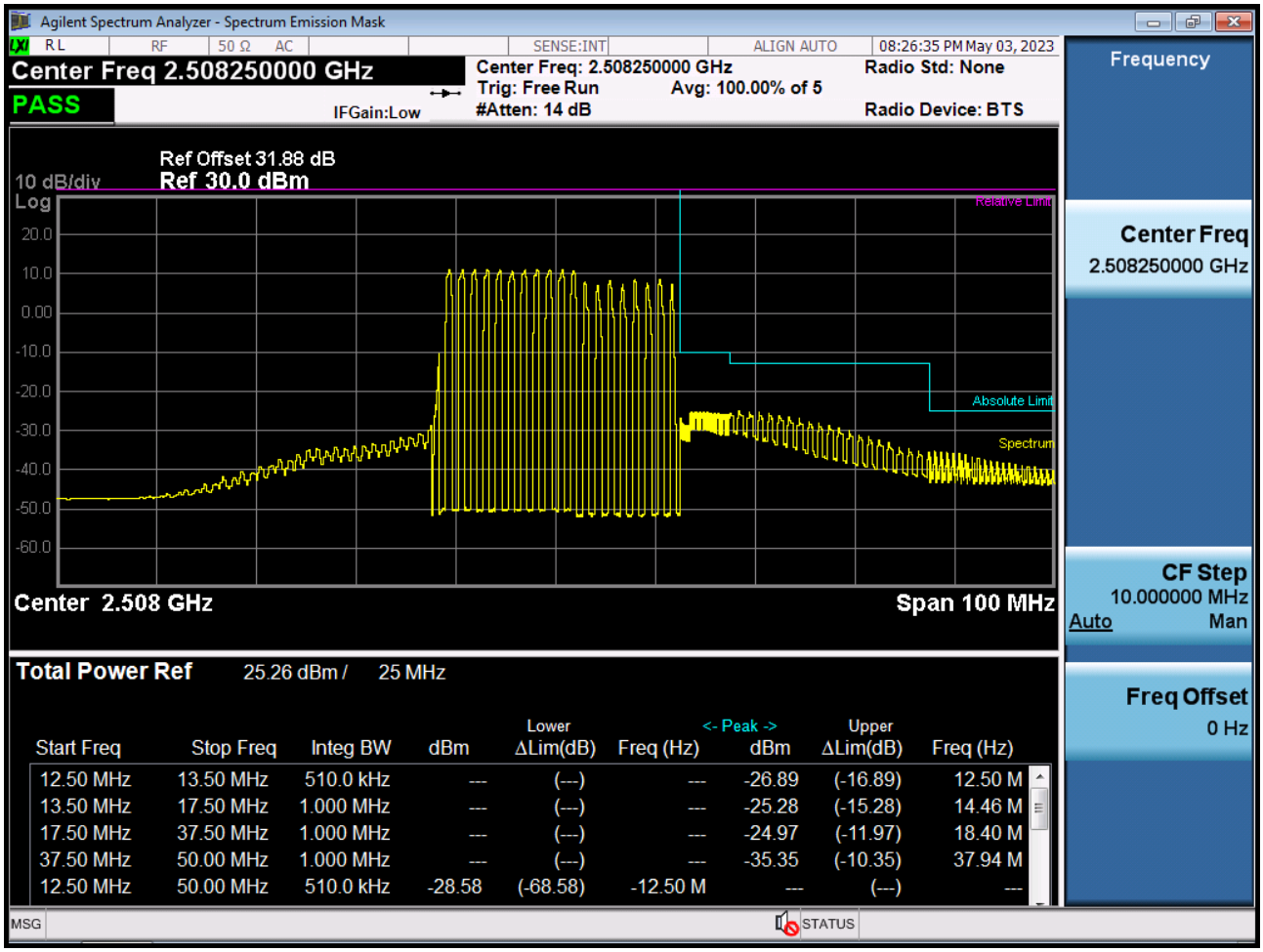
PCC 10 MHz Ch40526 RB50 Offset0, SCC 20 MHz Ch40670 RB100 Offset0



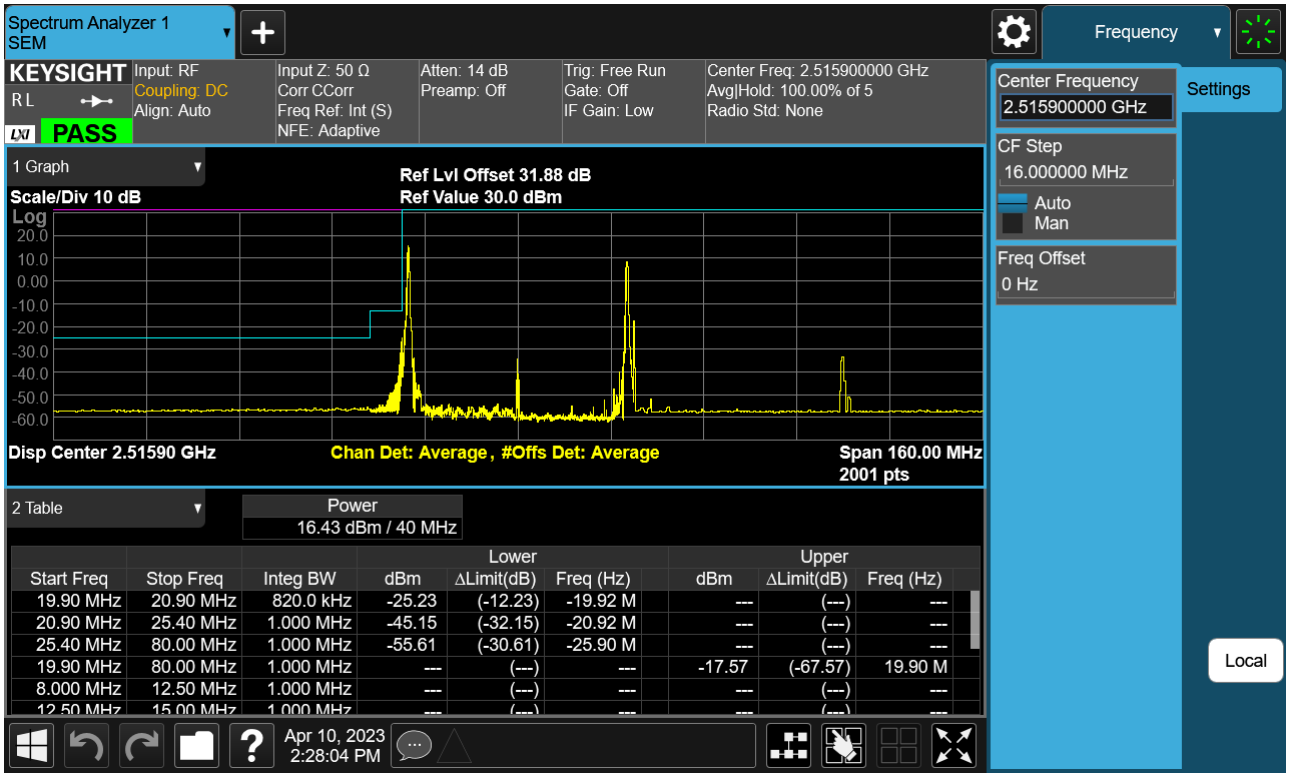
PCC 15 MHz Ch39725 RB75 Offset0, SCC 10 MHz Ch39845 RB50 Offset0-1



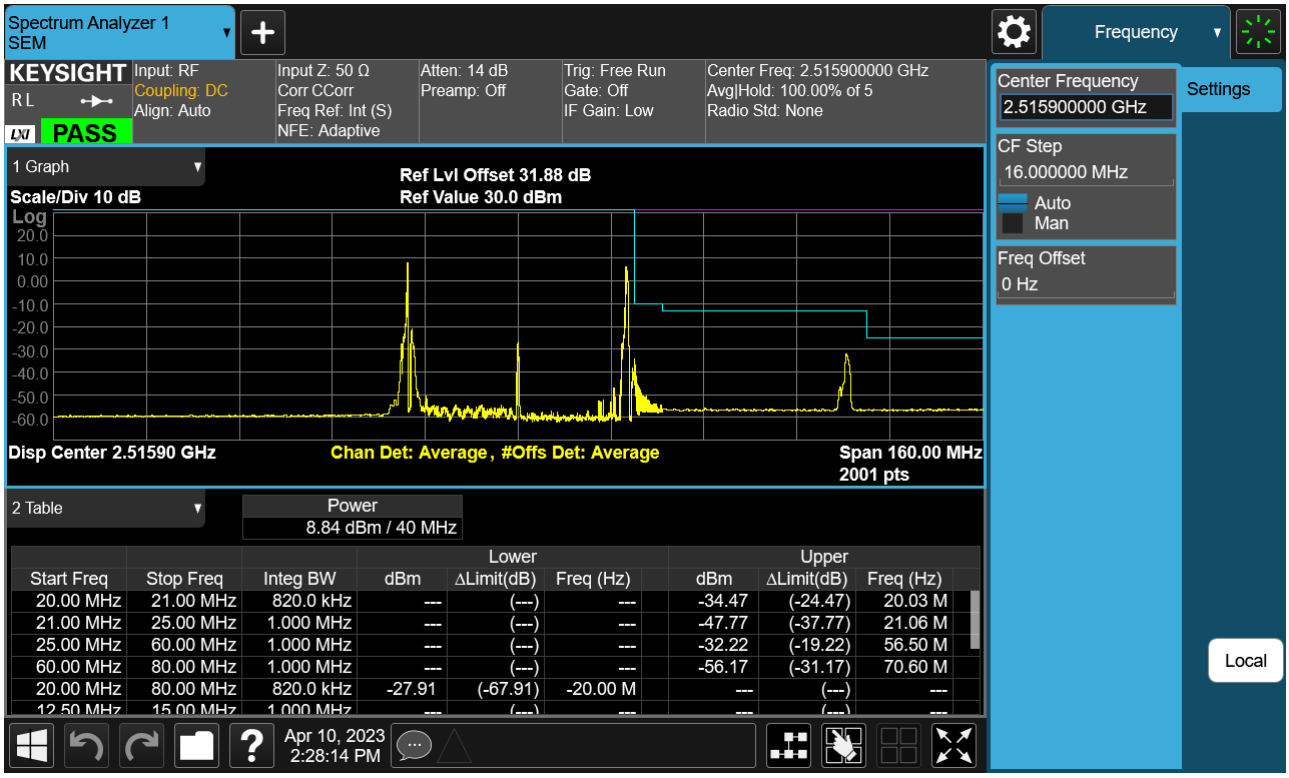
PCC 15 MHz Ch39725 RB75 Offset0, SCC 10 MHz Ch39845 RB50 Offset0-2



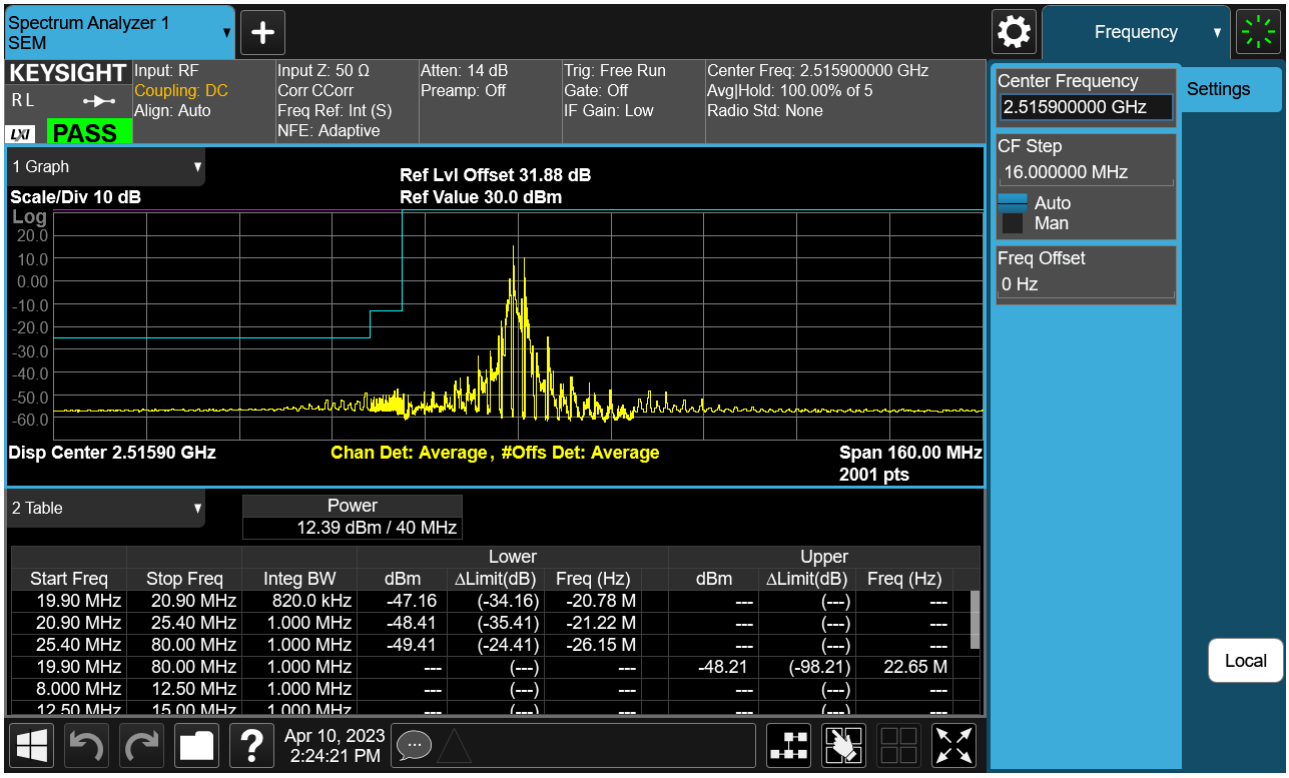
PCC 20 MHz Ch39750 RB1 Offset0, SCC 20 MHz Ch39948 RB1 Offset99-1



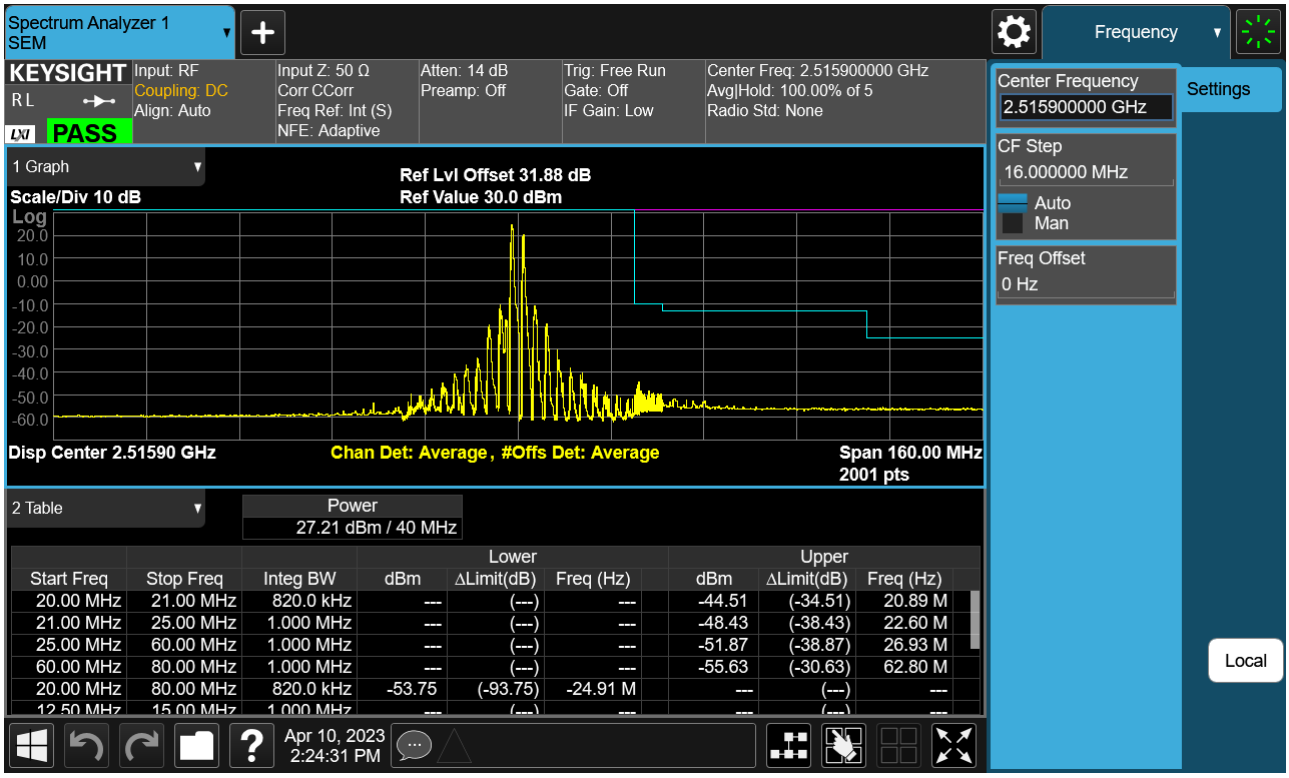
PCC 20 MHz Ch39750 RB1 Offset0, SCC 20 MHz Ch39948 RB1 Offset99-2



PCC 20 MHz Ch39750 RB1 Offset99, SCC 20 MHz Ch39948 RB1 Offset0-1



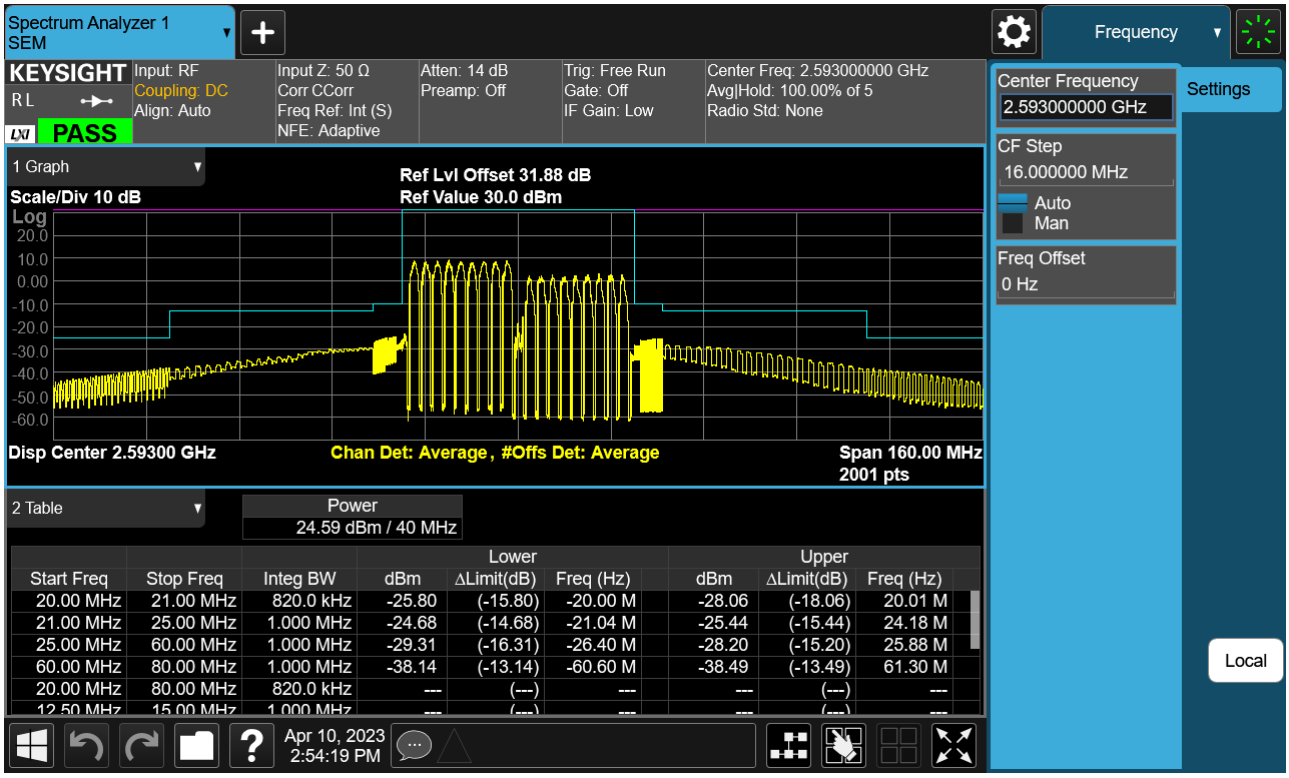
PCC 20 MHz Ch39750 RB1 Offset99, SCC 20 MHz Ch39948 RB1 Offset0-2



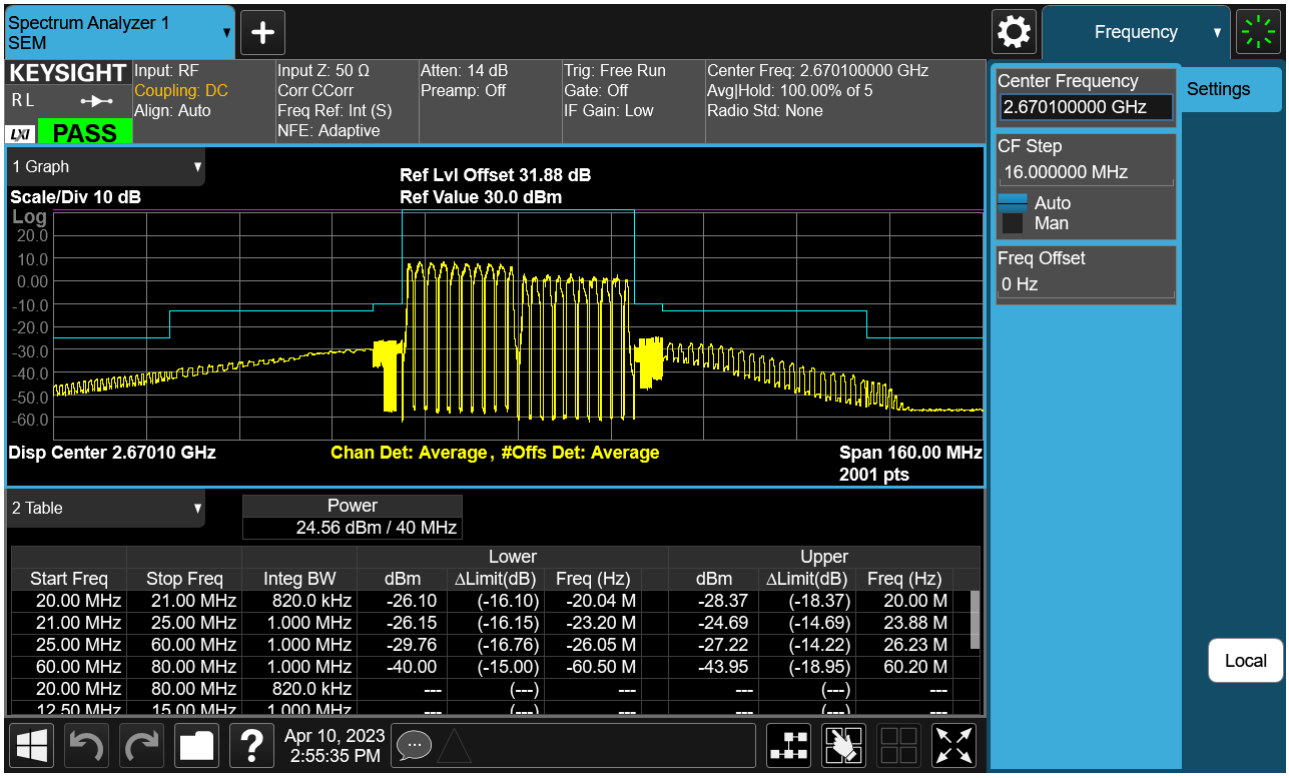
PCC 20 MHz Ch39750 RB100 Offset0, SCC 20 MHz Ch39948 RB100 Offset0-1

PCC 20 MHz Ch39750 RB100 Offset0, SCC 20 MHz Ch39948 RB100 Offset0-2

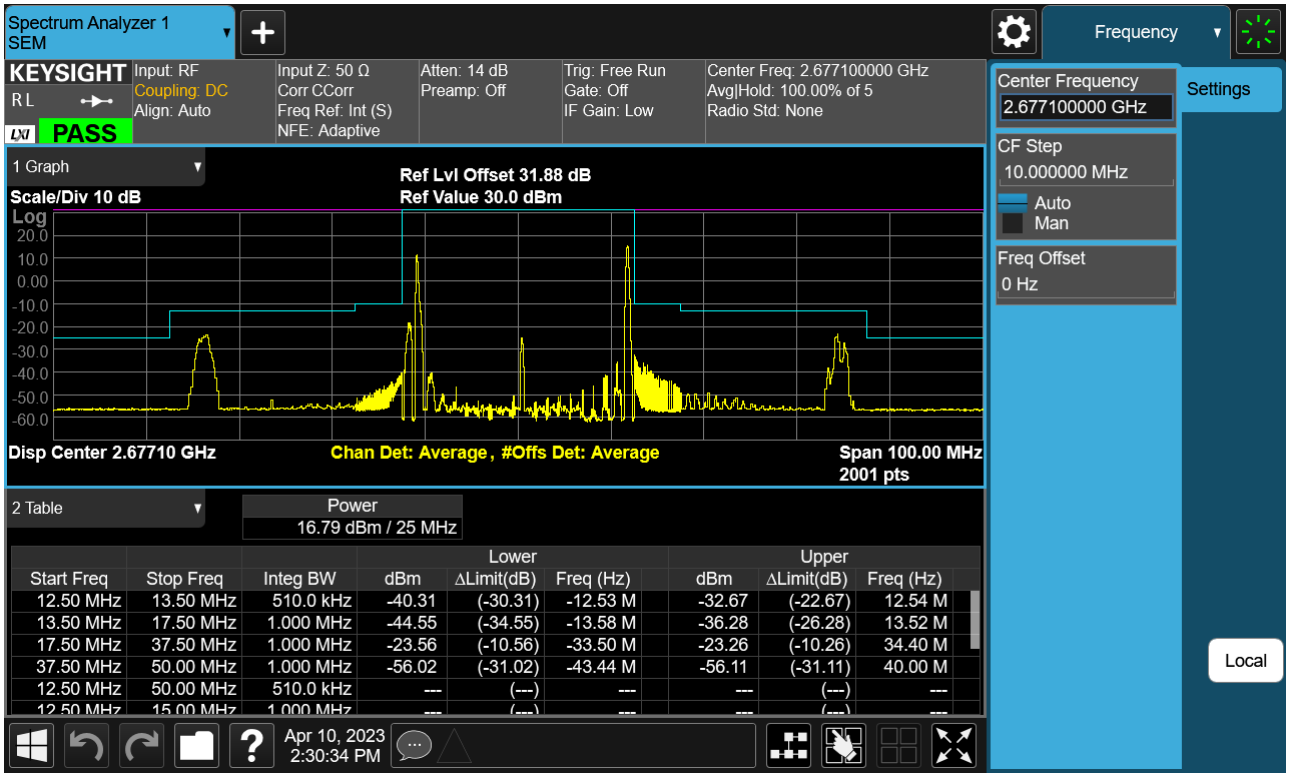
PCC 20 MHz Ch40521 RB100 Offset0, SCC 20 MHz Ch40719 RB100 Offset0



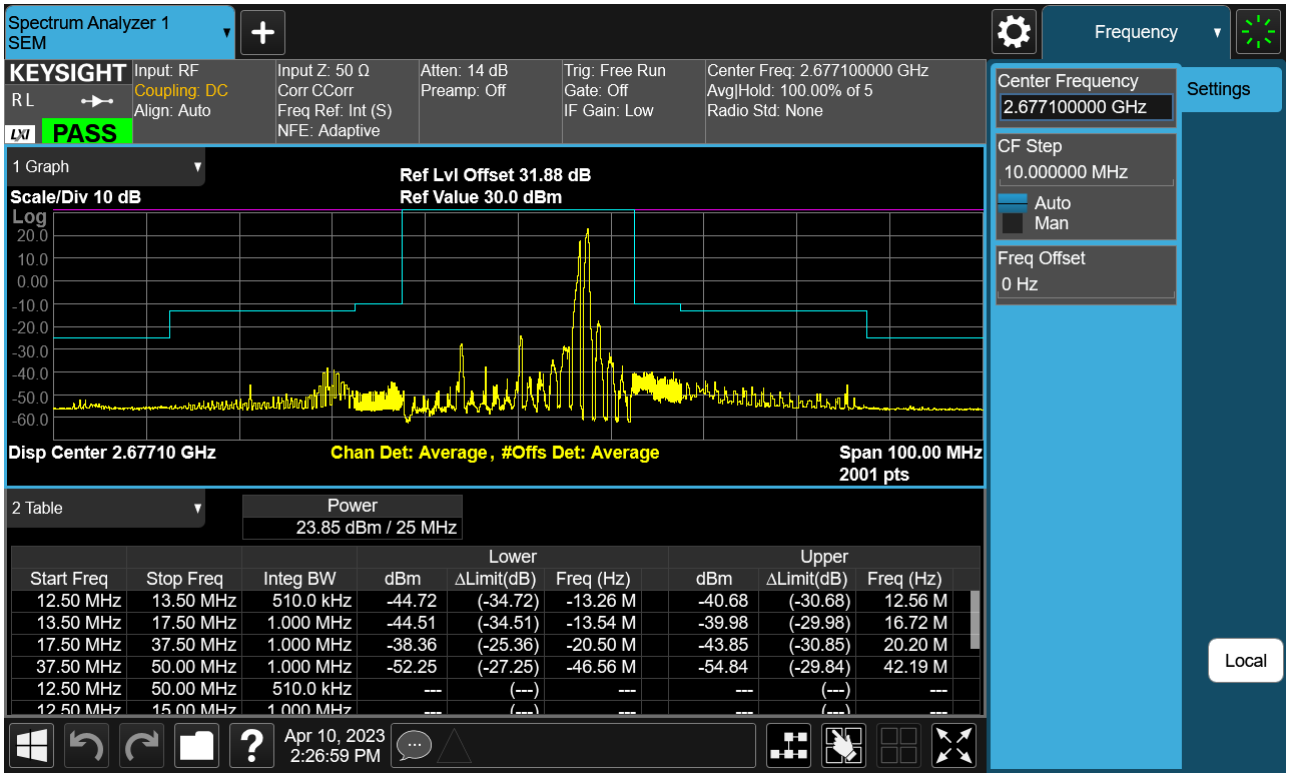
PCC 20 MHz Ch41292 RB100 Offset0, SCC 20 MHz Ch41490 RB100 Offset0



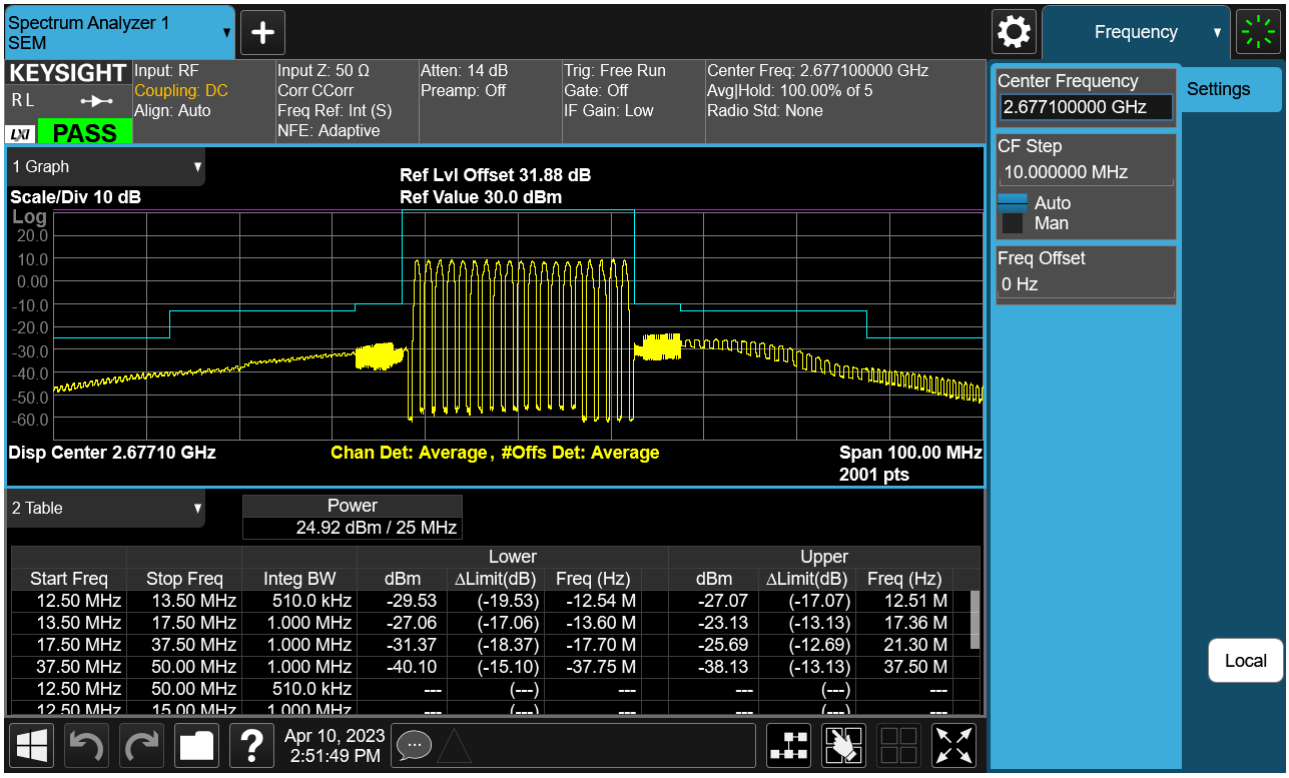
PCC 20 MHz Ch41440 RB1 Offset0, SCC 5 MHz Ch41557 RB1 Offset24



PCC 20 MHz Ch41440 RB1 Offset99, SCC 5 MHz Ch41557 RB1 Offset0



PCC 20 MHz Ch41440 RB100 Offset0, SCC 5 MHz Ch41557 RB25 Offset0



8.5 Frequency Stability / Variation Of Ambient Temperature

8.5.1 PC2

▣ PCC Channel:	39683	
▣ PCC Frequency:	2499.3	MHz
▣ PCC BandWidth:	5	MHz
▣ SCC Channel:	39800	
▣ SCC Frequency:	2511.0	MHz
▣ SCC BandWidth:	20	MHz
▣ Voltage :	3.880	VDC
▣ LIMIT:	Emission must remain in band	

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.009	-0.022	2499.29995	2510.99992
100 %		-30	-0.007	0.000	2499.29998	2510.99992
100 %		-20	0.007	-0.002	2499.29995	2510.99991
100 %		-10	-0.013	-0.013	2499.29994	2510.99992
100 %		0	-0.002	-0.010	2499.29999	2510.99992
100 %		10	-0.010	0.008	2499.29993	2511.00001
100 %		30	-0.004	0.001	2499.29998	2511.00000
100 %		40	-0.006	-0.004	2499.29997	2510.99992
100 %		50	-0.007	-0.003	2499.29997	2510.99995
Batt. Endpoint	3.400	20	-0.005	0.013	2499.29999	2510.99998

▣ PCC Channel: 39705
▣ PCC Frequency: 2501.5 MHz
▣ PCC BandWidth: 10 MHz
▣ SCC Channel: 39849
▣ SCC Frequency: 2515.9 MHz
▣ SCC BandWidth: 20 MHz
▣ Voltage : 3.880 VDC
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.014	-0.016	2501.49995	2515.89988
100 %		-30	-0.010	-0.003	2501.49994	2515.89992
100 %		-20	0.002	-0.004	2501.49995	2515.89993
100 %		-10	-0.020	-0.004	2501.49991	2515.89994
100 %		0	-0.002	-0.007	2501.49991	2515.89992
100 %		10	-0.009	0.008	2501.49994	2515.89995
100 %		30	-0.001	0.000	2501.49995	2515.90001
100 %		40	-0.013	-0.002	2501.49989	2515.89992
100 %		50	-0.004	0.000	2501.49999	2515.89993
Batt. Endpoint	3.400	20	-0.008	0.004	2501.49998	2515.90002

▣ PCC Channel: 39728
▣ PCC Frequency: 2503.8 MHz
▣ PCC BandWidth: 15 MHz
▣ SCC Channel: 39899
▣ SCC Frequency: 2520.9 MHz
▣ SCC BandWidth: 20 MHz
▣ Voltage : 3.880 VDC
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.008	-0.019	2503.79995	2520.89987
100 %		-30	-0.009	-0.008	2503.79997	2520.89993
100 %		-20	0.000	-0.003	2503.80002	2520.89997
100 %		-10	-0.017	-0.012	2503.79995	2520.89989
100 %		0	0.000	-0.004	2503.79997	2520.89990
100 %		10	-0.011	0.009	2503.79990	2520.89994
100 %		30	0.003	0.001	2503.79992	2520.89999
100 %		40	-0.007	-0.001	2503.79989	2520.89996
100 %		50	0.000	0.001	2503.80000	2520.89992
Batt. Endpoint	3.400	20	0.000	0.007	2503.79992	2520.90000

▣ PCC Channel: 39750
▣ PCC Frequency: 2506.0 MHz
▣ PCC BandWidth: 20 MHz
▣ SCC Channel: 39948
▣ SCC Frequency: 2525.8 MHz
▣ SCC BandWidth: 20 MHz
▣ Voltage : 3.880 VDC
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.011	-0.014	2505.99992	2525.79997
100 %		-30	-0.009	-0.008	2505.99995	2525.79995
100 %		-20	0.006	-0.007	2505.99996	2525.79996
100 %		-10	-0.019	-0.011	2505.99997	2525.79991
100 %		0	0.000	-0.001	2506.00000	2525.79993
100 %		10	-0.015	0.001	2505.99997	2525.80000
100 %		30	0.004	0.005	2505.99995	2525.79995
100 %		40	-0.008	0.000	2505.99991	2525.79996
100 %		50	-0.007	-0.001	2505.99991	2525.80000
Batt. Endpoint	3.400	20	-0.003	0.011	2505.99999	2525.79997

▣ PCC Channel: 41373
▣ PCC Frequency: 2668.3 MHz
▣ PCC BandWidth: 5 MHz
▣ SCC Channel: 41490
▣ SCC Frequency: 2680.0 MHz
▣ SCC BandWidth: 20 MHz
▣ Voltage : 3.880 VDC
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.005	-0.017	2668.29998	2679.99991
100 %		-30	-0.014	-0.008	2668.29990	2679.99993
100 %		-20	-0.001	0.000	2668.29996	2679.99999
100 %		-10	-0.012	-0.008	2668.29989	2679.99995
100 %		0	-0.005	-0.001	2668.29991	2679.99999
100 %		10	-0.009	0.000	2668.29989	2680.00001
100 %		30	-0.003	-0.002	2668.29998	2679.99994
100 %		40	-0.007	0.004	2668.29996	2680.00001
100 %		50	-0.006	0.000	2668.29994	2679.99996
Batt. Endpoint	3.400	20	-0.007	0.010	2668.29992	2680.00001

▣ PCC Channel: 41346
▣ PCC Frequency: 2665.6 MHz
▣ PCC BandWidth: 10 MHz
▣ SCC Channel: 41490
▣ SCC Frequency: 2680.0 MHz
▣ SCC BandWidth: 20 MHz
▣ Voltage : 3.880 VDC
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.004	-0.019	2665.59989	2679.99996
100 %		-30	-0.013	-0.008	2665.59997	2679.99999
100 %		-20	0.001	-0.005	2665.59997	2679.99991
100 %		-10	-0.022	-0.010	2665.59994	2679.99990
100 %		0	-0.008	0.000	2665.59993	2680.00000
100 %		10	-0.012	0.002	2665.59997	2680.00001
100 %		30	0.001	0.005	2665.59999	2679.99999
100 %		40	-0.014	-0.002	2665.59989	2679.99992
100 %		50	-0.002	-0.002	2665.59997	2679.99994
Batt. Endpoint	3.400	20	-0.001	0.008	2665.60000	2679.99997

▣ PCC Channel: 41319
▣ PCC Frequency: 2662.9 MHz
▣ PCC BandWidth: 15 MHz
▣ SCC Channel: 41490
▣ SCC Frequency: 2680.0 MHz
▣ SCC BandWidth: 20 MHz
▣ Voltage : 3.880 VDC
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.011	-0.020	2662.89997	2679.99995
100 %		-30	-0.012	-0.006	2662.89998	2679.99991
100 %		-20	0.004	0.000	2662.89995	2680.00000
100 %		-10	-0.020	-0.005	2662.89997	2679.99992
100 %		0	-0.003	-0.002	2662.89994	2679.99991
100 %		10	-0.013	0.004	2662.89994	2679.99997
100 %		30	0.002	0.002	2662.89996	2679.99994
100 %		40	-0.005	-0.004	2662.89995	2680.00000
100 %		50	0.001	-0.004	2662.90000	2679.99994
Batt. Endpoint	3.400	20	0.000	0.013	2662.89999	2680.00002

▣ PCC Channel: 41292

▣ PCC Frequency: 2660.2 MHz

▣ PCC BandWidth: 20 MHz

▣ SCC Channel: 41490

▣ SCC Frequency: 2680.0 MHz

▣ SCC BandWidth: 20 MHz

▣ Voltage : 3.880 MHz

▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.011	-0.021	2660.19999	2679.99991
100 %		-30	-0.007	-0.004	2660.19992	2679.99993
100 %		-20	0.004	-0.004	2660.19998	2679.99996
100 %		-10	-0.019	-0.005	2660.19990	2679.99999
100 %		0	0.001	-0.005	2660.19991	2679.99993
100 %		10	-0.015	0.005	2660.19991	2679.99993
100 %		30	0.004	-0.002	2660.19996	2679.99995
100 %		40	-0.005	0.001	2660.19996	2679.99997
100 %		50	-0.001	0.001	2660.19999	2679.99995
Batt. Endpoint	3.400	20	0.001	0.009	2660.19995	2679.99995

8.6 Radiated Spurious Emissions

8.6.1 PC2

▣ PCC Channel : 39750 (2506.0 MHz)

▣ PCC BW(MHz) : 20

▣ PCC RB/ RB Offset : 1/ 99

▣ SCC Channel : 39948 (2525.8 MHz)

▣ SCC BW(MHz) : 20

▣ SCC RB/ RB Offset : 1/ 0

▣ DISTANCE: 1 meters

▣ LIMIT: -25.0 dBm

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)
5 031.80	-52.18	12.54	-61.93	3.70	H	-53.09
7 547.70	-45.70	10.90	-46.61	4.59	H	-40.30
10 063.60	-58.84	11.32	-54.25	5.49	V	-48.42

▣ PCC Channel : 40528 (2583.8 MHz)

▣ PCC BW(MHz) : 5

▣ PCC RB/ RB Offset : 1/ 24

▣ SCC Channel : 40645 (2595.5 MHz)

▣ SCC BW(MHz) : 20

▣ SCC RB/ RB Offset : 1/ 0

▣ DISTANCE: 1 meters

▣ LIMIT: -25.0 dBm

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)
5 179.30	-52.16	12.42	-61.20	3.73	V	-52.51
7 768.95	-50.50	11.40	-50.14	4.68	V	-43.42
10 358.60	-53.28	11.40	-47.56	5.62	V	-41.78

▣ PCC Channel : 41365 (2667.5 MHz)

▣ PCC BW(MHz) : 15

▣ PCC RB/ RB Offset : 1/ 74

▣ SCC Channel : 41515 (2682.5 MHz)

▣ SCC BW(MHz) : 15

▣ SCC RB/ RB Offset : 1/ 0

▣ DISTANCE: 1 meters

▣ LIMIT: -25.0 dBm

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)
5 350.00	-51.70	13.00	-60.96	3.78	V	-51.74
8 025.00	-53.85	10.85	-52.47	4.77	V	-46.39
10 700.00	-57.93	11.30	-52.76	5.90	V	-47.36

8.7 Occupied Bandwidth

8.7.1 PC2

PCC					SCC					Data (MHz)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	40528	2583.8	QPSK	25/ 0	20	40645	2595.5	QPSK	100/ 0	22.840
10	40549	2585.9	QPSK	50/ 0	15	40669	2597.9	QPSK	75/ 0	23.092
10	40526	2583.6	QPSK	50/ 0	20	40670	2598.0	QPSK	100/ 0	27.703
15	40571	2588.1	QPSK	75/ 0	10	40691	2600.1	QPSK	50/ 0	23.102
15	40545	2585.5	QPSK	75/ 0	15	40695	2600.5	QPSK	75/ 0	28.445
15	40523	2583.3	QPSK	75/ 0	20	40694	2600.4	QPSK	100/ 0	32.665
20	40595	2590.5	QPSK	100/ 0	5	40712	2602.2	QPSK	25/ 0	22.886
20	40571	2588.1	QPSK	100/ 0	10	40715	2602.5	QPSK	50/ 0	27.717
20	40546	2585.6	QPSK	100/ 0	15	40717	2602.7	QPSK	75/ 0	32.687
20	40521	2583.1	QPSK	100/ 0	20	40719	2602.9	QPSK	100/ 0	37.622

PCC					SCC					Data (MHz)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	40528	2583.8	16QAM	25/ 0	20	40645	2595.5	16QAM	100/ 0	22.882
10	40549	2585.9	16QAM	50/ 0	15	40669	2597.9	16QAM	75/ 0	23.092
10	40526	2583.6	16QAM	50/ 0	20	40670	2598.0	16QAM	100/ 0	27.810
15	40571	2588.1	16QAM	75/ 0	10	40691	2600.1	16QAM	50/ 0	23.133
15	40545	2585.5	16QAM	75/ 0	15	40695	2600.5	16QAM	75/ 0	28.363
15	40523	2583.3	16QAM	75/ 0	20	40694	2600.4	16QAM	100/ 0	32.628
20	40595	2590.5	16QAM	100/ 0	5	40712	2602.2	16QAM	25/ 0	22.958
20	40571	2588.1	16QAM	100/ 0	10	40715	2602.5	16QAM	50/ 0	27.817
20	40546	2585.6	16QAM	100/ 0	15	40717	2602.7	16QAM	75/ 0	32.619
20	40521	2583.1	16QAM	100/ 0	20	40719	2602.9	16QAM	100/ 0	37.563

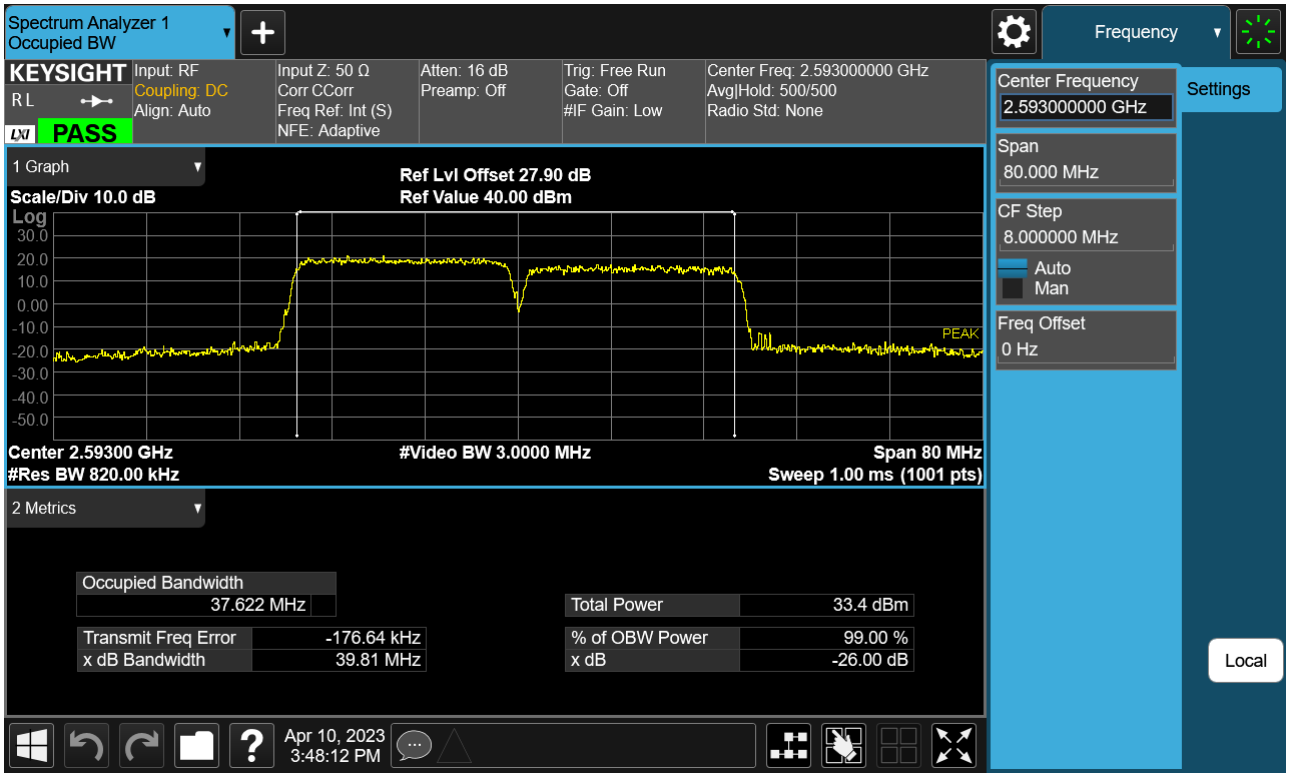
PCC					SCC					Data (MHz)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	40528	2583.8	64QAM	25/ 0	20	40645	2595.5	64QAM	100/ 0	22.789
10	40549	2585.9	64QAM	50/ 0	15	40669	2597.9	64QAM	75/ 0	23.053
10	40526	2583.6	64QAM	50/ 0	20	40670	2598.0	64QAM	100/ 0	27.720
15	40571	2588.1	64QAM	75/ 0	10	40691	2600.1	64QAM	50/ 0	23.130
15	40545	2585.5	64QAM	75/ 0	15	40695	2600.5	64QAM	75/ 0	28.441
15	40523	2583.3	64QAM	75/ 0	20	40694	2600.4	64QAM	100/ 0	32.692
20	40595	2590.5	64QAM	100/ 0	5	40712	2602.2	64QAM	25/ 0	22.920
20	40571	2588.1	64QAM	100/ 0	10	40715	2602.5	64QAM	50/ 0	27.803
20	40546	2585.6	64QAM	100/ 0	15	40717	2602.7	64QAM	75/ 0	32.650
20	40521	2583.1	64QAM	100/ 0	20	40719	2602.9	64QAM	100/ 0	37.720

PCC					SCC					Data (MHz)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	40528	2583.8	256QAM	25/ 0	20	40645	2595.5	256QAM	100/ 0	22.834
10	40549	2585.9	256QAM	50/ 0	15	40669	2597.9	256QAM	75/ 0	23.170
10	40526	2583.6	256QAM	50/ 0	20	40670	2598.0	256QAM	100/ 0	27.765
15	40571	2588.1	256QAM	75/ 0	10	40691	2600.1	256QAM	50/ 0	23.165
15	40545	2585.5	256QAM	75/ 0	15	40695	2600.5	256QAM	75/ 0	28.453
15	40523	2583.3	256QAM	75/ 0	20	40694	2600.4	256QAM	100/ 0	32.658
20	40595	2590.5	256QAM	100/ 0	5	40712	2602.2	256QAM	25/ 0	22.929
20	40571	2588.1	256QAM	100/ 0	10	40715	2602.5	256QAM	50/ 0	27.810
20	40546	2585.6	256QAM	100/ 0	15	40717	2602.7	256QAM	75/ 0	32.614
20	40521	2583.1	256QAM	100/ 0	20	40719	2602.9	256QAM	100/ 0	37.571

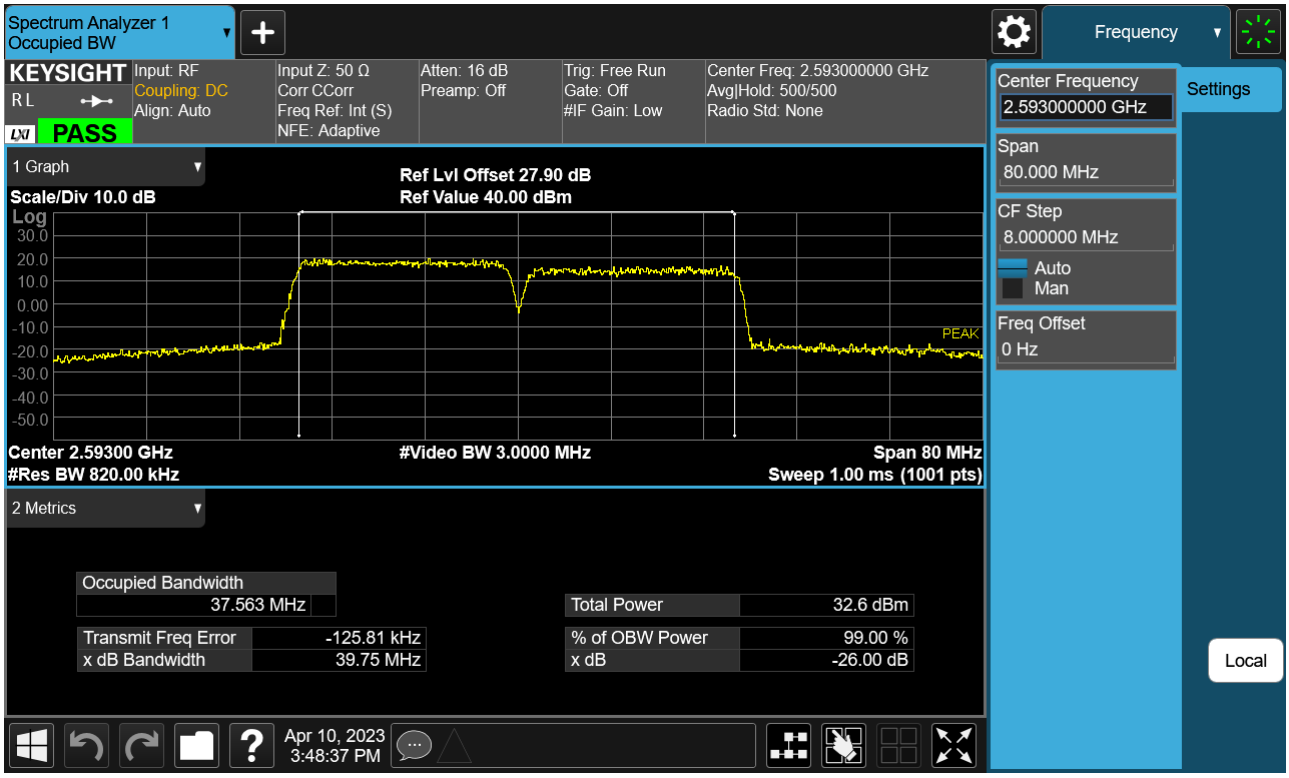
Note:

In order to simplify the report, attached plots were only Max.Bandwidth(20+20)

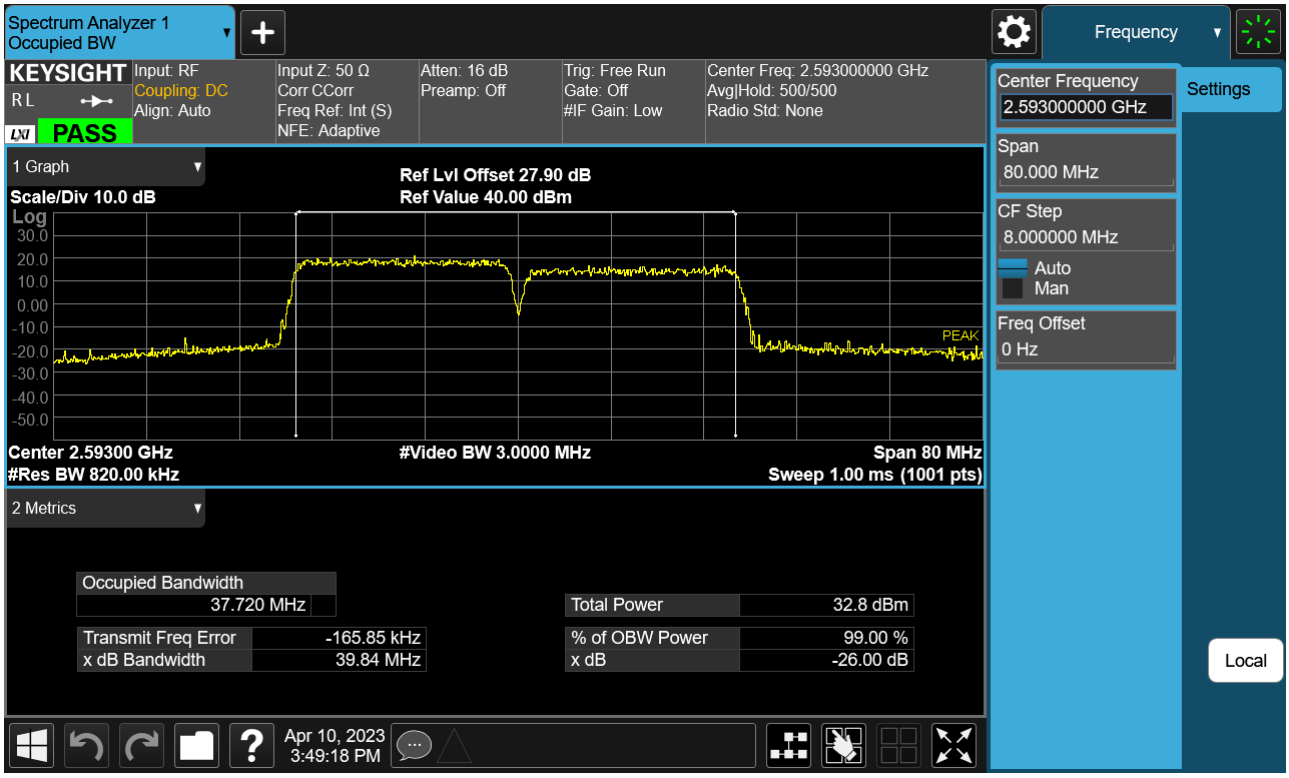
PCC 20 MHz Ch40521 RB100 Offset0, SCC 20 MHz Ch40719 RB100 Offset0_(QPSK)



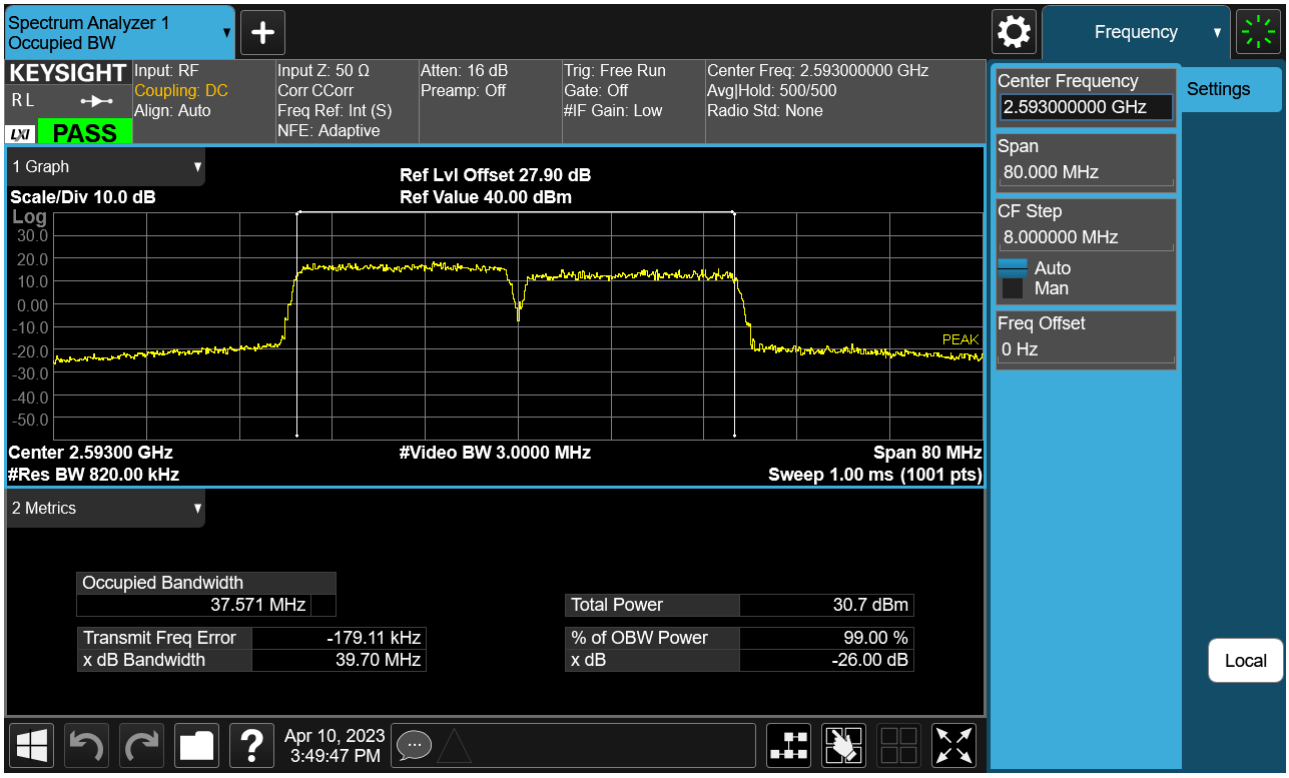
PCC 20 MHz Ch40521 RB100 Offset0, SCC 20 MHz Ch40719 RB100 Offset0_(16QAM)



PCC 20 MHz Ch40521 RB100 Offset0, SCC 20 MHz Ch40719 RB100 Offset0_(64QAM)



PCC 20 MHz Ch40521 RB100 Offset0, SCC 20 MHz Ch40719 RB100 Offset0_(256QAM)



8.8 Peak- to- Average Ratio

8.8.1 PC2

PCC					SCC					Data (dBm)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	40528	2583.8	QPSK	25/ 0	20	40645	2595.5	QPSK	100/ 0	6.40
10	40549	2585.9	QPSK	50/ 0	15	40669	2597.9	QPSK	75/ 0	6.48
10	40526	2583.6	QPSK	50/ 0	20	40670	2598.0	QPSK	100/ 0	6.49
15	40571	2588.1	QPSK	75/ 0	10	40691	2600.1	QPSK	50/ 0	6.41
15	40545	2585.5	QPSK	75/ 0	15	40695	2600.5	QPSK	75/ 0	6.50
15	40523	2583.3	QPSK	75/ 0	20	40694	2600.4	QPSK	100/ 0	6.39
20	40595	2590.5	QPSK	100/ 0	5	40712	2602.2	QPSK	25/ 0	6.43
20	40571	2588.1	QPSK	100/ 0	10	40715	2602.5	QPSK	50/ 0	6.46
20	40546	2585.6	QPSK	100/ 0	15	40717	2602.7	QPSK	75/ 0	6.39
20	40521	2583.1	QPSK	100/ 0	20	40719	2602.9	QPSK	100/ 0	6.69

PCC					SCC					Data (dBm)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	40528	2583.8	16QAM	25/ 0	20	40645	2595.5	16QAM	100/ 0	7.07
10	40549	2585.9	16QAM	50/ 0	15	40669	2597.9	16QAM	75/ 0	7.06
10	40526	2583.6	16QAM	50/ 0	20	40670	2598.0	16QAM	100/ 0	7.13
15	40571	2588.1	16QAM	75/ 0	10	40691	2600.1	16QAM	50/ 0	7.05
15	40545	2585.5	16QAM	75/ 0	15	40695	2600.5	16QAM	75/ 0	7.13
15	40523	2583.3	16QAM	75/ 0	20	40694	2600.4	16QAM	100/ 0	7.10
20	40595	2590.5	16QAM	100/ 0	5	40712	2602.2	16QAM	25/ 0	7.12
20	40571	2588.1	16QAM	100/ 0	10	40715	2602.5	16QAM	50/ 0	7.11
20	40546	2585.6	16QAM	100/ 0	15	40717	2602.7	16QAM	75/ 0	7.10
20	40521	2583.1	16QAM	100/ 0	20	40719	2602.9	16QAM	100/ 0	7.21

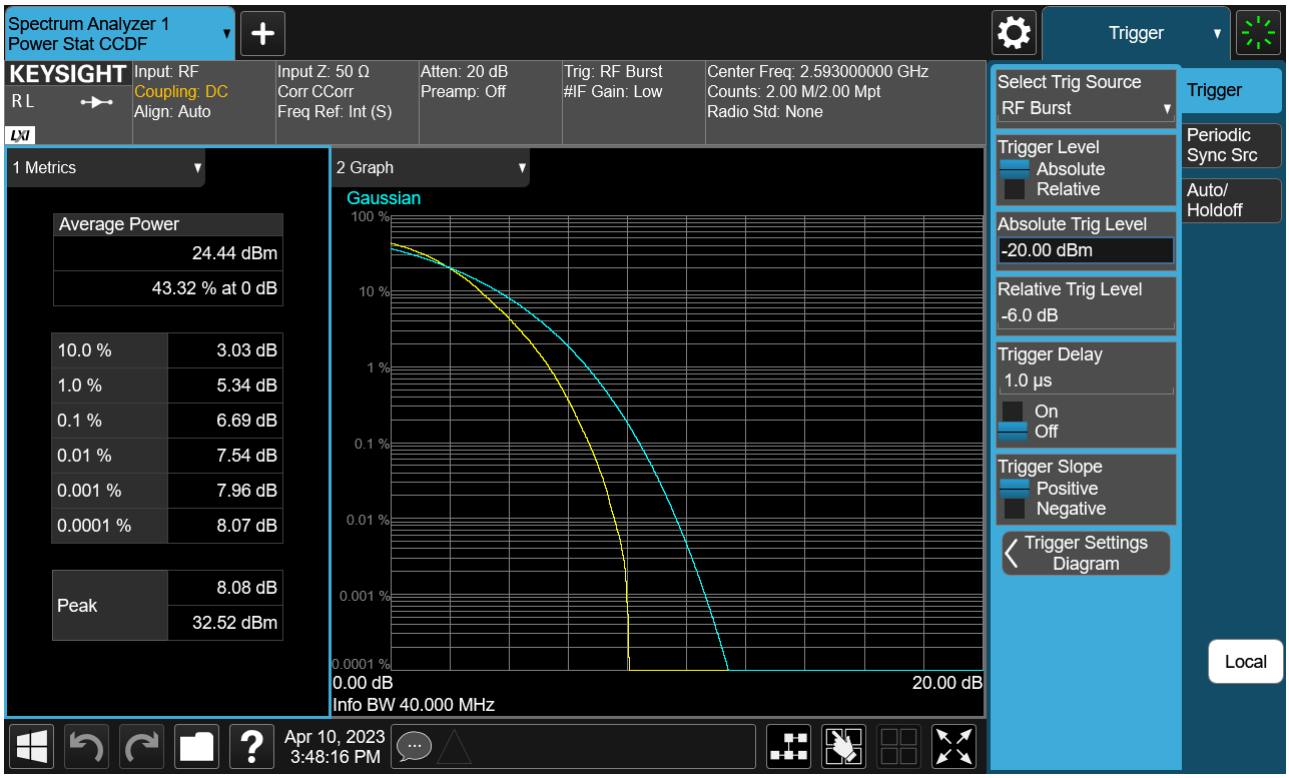
PCC					SCC					Data (dBm)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	40528	2583.8	64QAM	25/ 0	20	40645	2595.5	64QAM	100/ 0	7.24
10	40549	2585.9	64QAM	50/ 0	15	40669	2597.9	64QAM	75/ 0	7.27
10	40526	2583.6	64QAM	50/ 0	20	40670	2598.0	64QAM	100/ 0	7.23
15	40571	2588.1	64QAM	75/ 0	10	40691	2600.1	64QAM	50/ 0	7.27
15	40545	2585.5	64QAM	75/ 0	15	40695	2600.5	64QAM	75/ 0	7.25
15	40523	2583.3	64QAM	75/ 0	20	40694	2600.4	64QAM	100/ 0	7.22
20	40595	2590.5	64QAM	100/ 0	5	40712	2602.2	64QAM	25/ 0	7.28
20	40571	2588.1	64QAM	100/ 0	10	40715	2602.5	64QAM	50/ 0	7.23
20	40546	2585.6	64QAM	100/ 0	15	40717	2602.7	64QAM	75/ 0	7.24
20	40521	2583.1	64QAM	100/ 0	20	40719	2602.9	64QAM	100/ 0	7.25

PCC					SCC					Data (dBm)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	40528	2583.8	256QAM	25/ 0	20	40645	2595.5	256QAM	100/ 0	7.42
10	40549	2585.9	256QAM	50/ 0	15	40669	2597.9	256QAM	75/ 0	7.42
10	40526	2583.6	256QAM	50/ 0	20	40670	2598.0	256QAM	100/ 0	7.46
15	40571	2588.1	256QAM	75/ 0	10	40691	2600.1	256QAM	50/ 0	7.43
15	40545	2585.5	256QAM	75/ 0	15	40695	2600.5	256QAM	75/ 0	7.46
15	40523	2583.3	256QAM	75/ 0	20	40694	2600.4	256QAM	100/ 0	7.44
20	40595	2590.5	256QAM	100/ 0	5	40712	2602.2	256QAM	25/ 0	7.44
20	40571	2588.1	256QAM	100/ 0	10	40715	2602.5	256QAM	50/ 0	7.41
20	40546	2585.6	256QAM	100/ 0	15	40717	2602.7	256QAM	75/ 0	7.44
20	40521	2583.1	256QAM	100/ 0	20	40719	2602.9	256QAM	100/ 0	7.57

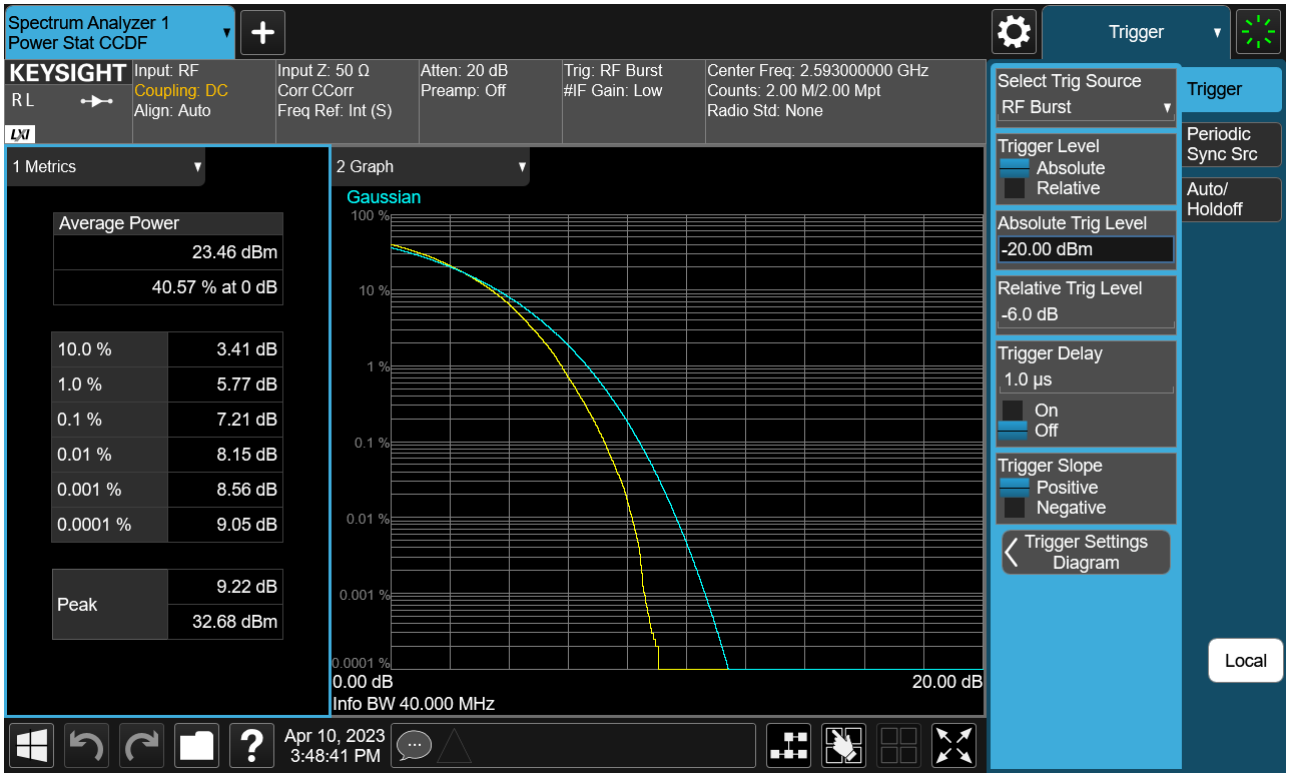
Note:

In order to simplify the report, attached plots were only Max.Bandwidth(20+20)

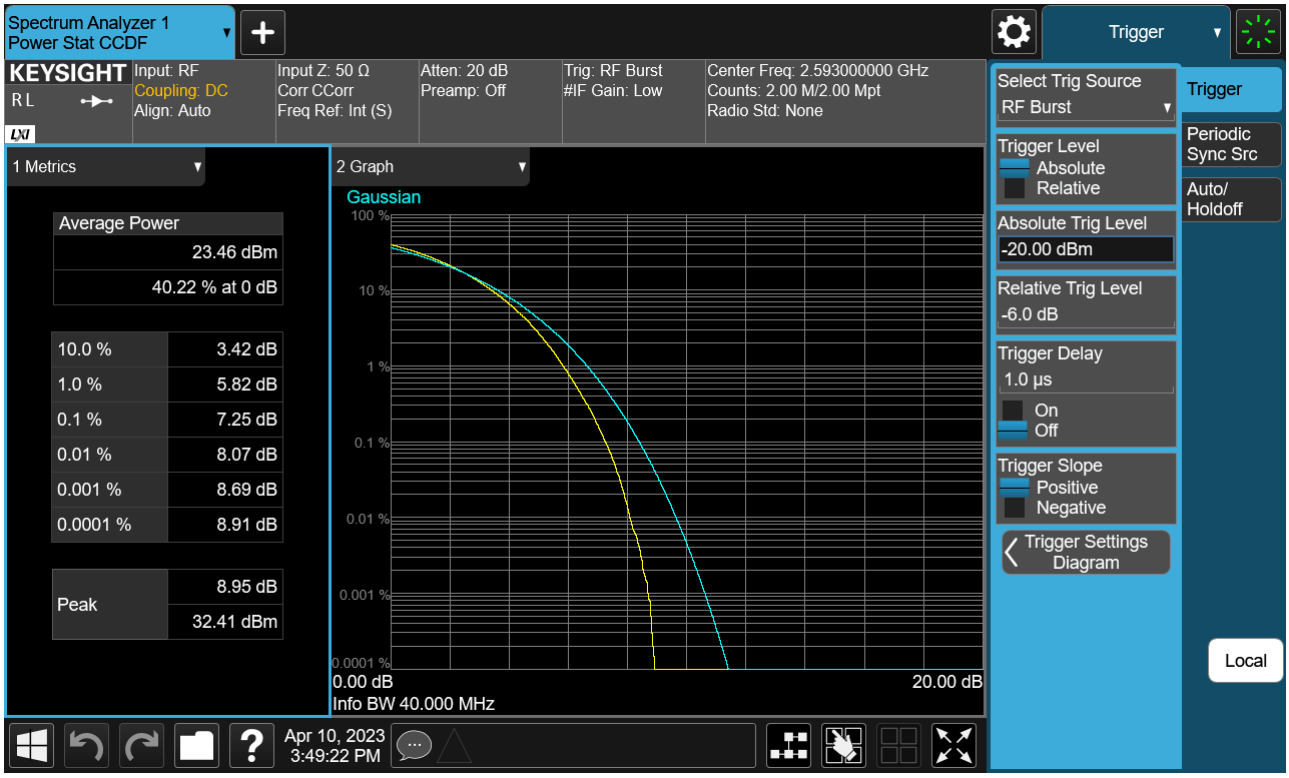
PCC 20 MHz Ch40521 RB100 Offset0, SCC 20 MHz Ch40719 RB100 Offset0_(QPSK)



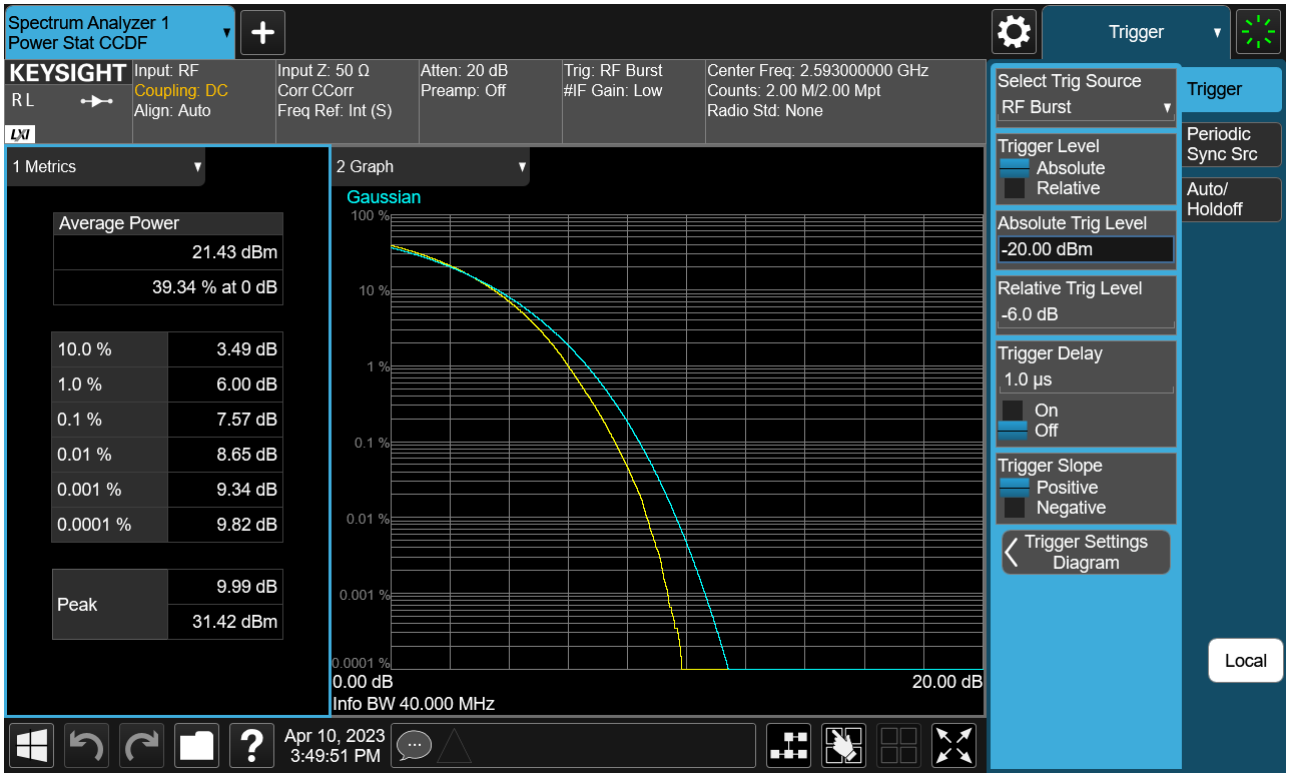
PCC 20 MHz Ch40521 RB100 Offset0, SCC 20 MHz Ch40719 RB100 Offset0_(16QAM)



PCC 20 MHz Ch40521 RB100 Offset0, SCC 20 MHz Ch40719 RB100 Offset0_(64QAM)



PCC 20 MHz Ch40521 RB100 Offset0, SCC 20 MHz Ch40719 RB100 Offset0_(256QAM)



9. ANNEX A_ TEST SETUP PHOTO

Please refer to test setup photo file no. as follows;

No.	Description
1	HCT-RF-2305-FC032-P