TEST REPORT

FCC CA_41C Test for SM-X528U
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2502-FC024

DATE OF ISSUE
February 10, 2025

Tested by
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Applicant	**SAMSUNG Electronics Co., Ltd.** 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Product Name Model Name	Tablet SM-X528U
Date of Test	January 02, 2025 ~ February 07, 2025
FCC ID	A3LSMX528U
Location of Test	■ Permanent Testing Lab ☐ On Site Testing (Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea)
FCC Classification:	PCS Licensed Transmitter (PCB)
Test Standard Used	FCC Rule Part: § 27
Test Results	PASS

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	February 10, 2025	Initial Release

Notice

Content
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)
The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated. The test results have only been applied with the test methods required by the standard(s).
The laboratory is not accredited for the test results marked *. Information provided by the applicant is marked **. Test results provided by external providers are marked ***.
When confirmation of authenticity of this test report is required, please contact www.hct.co.kr
The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

CONTENTS

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:	A3LSMX528U
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§ 27
EUT Type:	Tablet
Model(s):	SM-X528U
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:	January 02, 2025 ~ February 07, 2025
Serial number:	Radiated : R32XC00A68K Conducted : R32XC00A9JV
LTE CA :	CA 41C (Uplink)

1.1. MAXIMUM OUTPUT POWER

Mode (PCC+SCC)	Tx Frequency (MHz)	Modulation	Emission Designator	EIRP	
				Max. Power (dBm)	Max. Power (W)
5 MHz + 20 MHz	2499.3 - 2680.0	QPSK	23M0G7D	24.00	0.251
		16QAM	22M9W7D	23.10	0.204
		64QAM	22M9W7D	23.07	0.203
		256QAM	22M8W7D	22.91	0.195
10 MHz + 15 MHz	2501.3 - 2682.5	QPSK	23M2G7D	26.87	0.486
		16QAM	23M1W7D	27.05	0.507
		64QAM	23M1W7D	27.00	0.501
		256QAM	23M1W7D	26.88	0.488
10 MHz + 20 MHz	2501.5 - 2680.0	QPSK	27M8G7D	26.78	0.476
		16QAM	27M8W7D	26.99	0.500
		64QAM	27M8W7D	26.94	0.494
		256QAM	27M7W7D	26.81	0.480
15 MHz + 10 MHz	2503.5 - 2684.7	QPSK	23M2G7D	26.57	0.454
		16QAM	23M2W7D	26.79	0.478
		64QAM	23M3W7D	26.78	0.476
		256QAM	23M2W7D	26.64	0.461
15 MHz + 15 MHz	2503.5 - 2682.5	QPSK	28M4G7D	26.62	0.459
		16QAM	28M4W7D	26.83	0.482
		64QAM	28M4W7D	26.80	0.479
		256QAM	28M4W7D	26.66	0.463
15 MHz + 20 MHz	2503.8 - 2680.0	QPSK	32M7G7D	26.59	0.456
		16QAM	32M6W7D	26.81	0.480
		64QAM	32M7W7D	26.79	0.478
		256QAM	32M6W7D	26.67	0.465
20 MHz + 5 MHz	2506.0 - 2686.7	QPSK	23M0G7D	23.92	0.247
		16QAM	22M9W7D	23.51	0.224
		64QAM	22M9W7D	23.48	0.223
		256QAM	22M9W7D	23.34	0.216
20 MHz + 10 MHz	2506.0 - 2684.5	QPSK	27M8G7D	26.90	0.490
		16QAM	27M8W7D	27.12	0.515
		64QAM	27M8W7D	27.08	0.511
		256QAM	27M8W7D	26.95	0.495
20 MHz + 15 MHz	2506.0 - 2682.2	QPSK	32M7G7D	26.88	0.488
		16QAM	32M7W7D	27.10	0.513
		64QAM	32M6W7D	27.07	0.509
		256QAM	32M8W7D	26.94	0.494
20 MHz + 20 MHz	2506.0 - 2680.0	QPSK	37M7G7D	26.92	0.492
		16QAM	37M5W7D	27.13	0.516
		64QAM	37M7W7D	27.09	0.512
		256QAM	37M6W7D	26.95	0.495

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

Please refer to the [3G] Test Report.

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, Republic 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	- N/A (See SAR Report)
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
Radiated Power	- ANSI C63.26-2015 – Section 5.2.4.4 - KDB 971168 D01 v03r01 – Section 5.8
Radiated Spurious and Harmonic Emissions	- ANSI C63.26-2015 – Section 5.5.3 - KDB 971168 D01 v03r01 – Section 5.8

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.

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.

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;

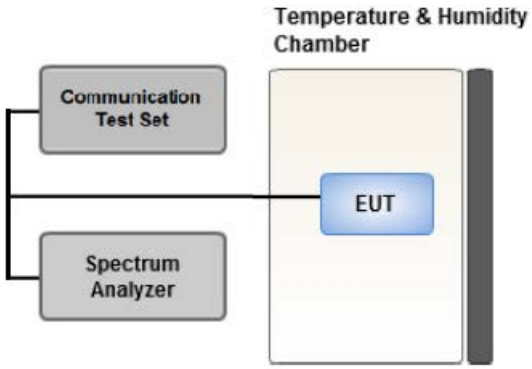
$$\text{Result}_{(dBm)} = \text{Pg}_{(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dBi)}$$

   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)

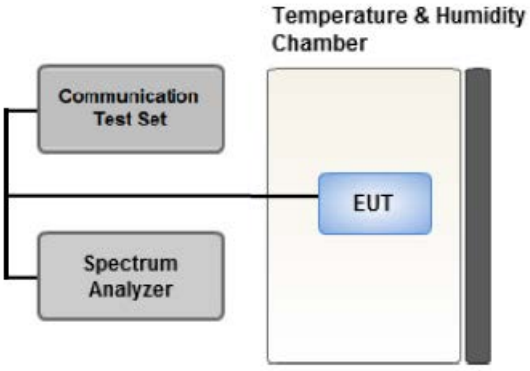
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW ≥ 3 × RBW.

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.



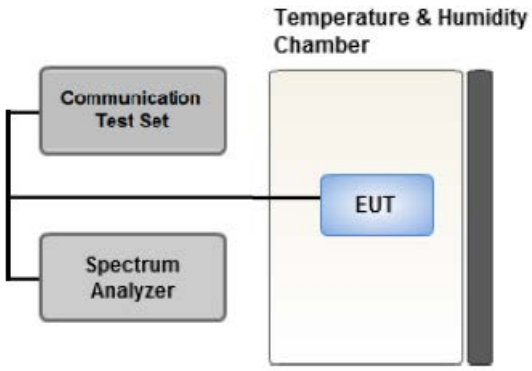
Test setup

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.

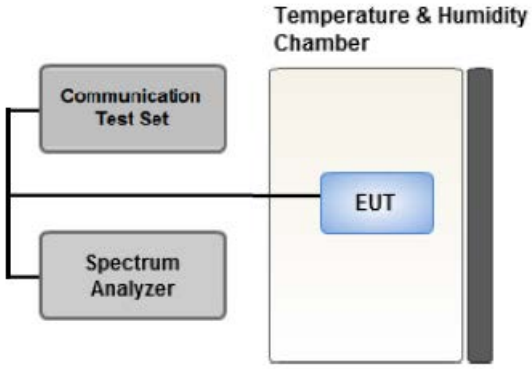
All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

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 BAND 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

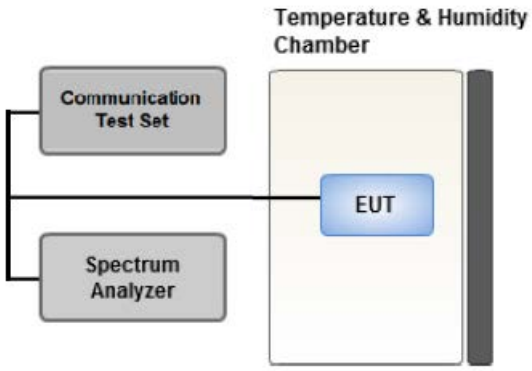
1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW > 1 % of the emission bandwidth
4. VBW > 3 x RBW
5. Detector = RMS
6. Number of sweep points ≥ 2 x Span/RBW
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
RF Switching System	Switch box(1.2 G HPF+LNA)	HCT CO., LTD.,	F1L1	11/11/2025	Annual
RF Switching System	Switch box(3.3 G HPF+LNA)	HCT CO., LTD.,	F1L2	11/11/2025	Annual
RF Switching System	Switch box(LNA)	HCT CO., LTD.,	F1L4	11/11/2025	Annual
RF Switching System	Switch box(6 G HPF+LNA)	HCT CO., LTD.,	F1L7	11/11/2025	Annual
Power Amplifier	CBL18265035	CERNEX	22966	11/07/2025	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/26/2025	Annual
Power Splitter(DC ~ 26.5 GHz)	11667B	Hewlett Packard	5001	04/17/2025	Annual
DC Power Supply	E3632A	Agilent	MY40010147	08/06/2025	Annual
Dipole Antenna	UHAP	Schwarzbeck	01274	03/10/2026	Biennial
Dipole Antenna	UHAP	Schwarzbeck	01288	08/07/2026	Biennial
Chamber	SU-642	ESPEC	93008124	02/19/2025	Annual
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	147	08/17/2025	Biennial
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	9120D-1298	09/11/2025	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	09/20/2026	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	03/28/2025	Biennial
Signal Analyzer(10 Hz ~ 26.5 GHz)	N9020A	Agilent	MY52090906	04/19/2025	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/17/2025	Annual
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	REOHDE & SCHWARZ	100931	08/06/2025	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/05/2025	Annual
Loop Antenna(9 kHz ~ 30 MHz)	FMZB1513	Schwarzbeck	1513-333	03/07/2026	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	895	08/28/2026	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	1135	08/19/2026	Biennial
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262094331	11/13/2025	Annual
Radio Communication Test Station	MT8000A	Anritsu Corp.	6272613402	08/28/2025	Annual
SIGNAL GENERATOR (100 kHz ~ 40 GHz)	SMB100A	REOHDE & SCHWARZ	177633	07/26/2025	Annual
Signal Analyzer(5 Hz ~ 40.0 GHz)	N9030B	KEYSIGHT	MY55480167	05/17/2025	Annual
Signal & Spectrum Analyzer (2 Hz~67 GHz)	FSW67	REOHDE & SCHWARZ	101736	05/23/2025	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 (±kHz)
Occupied Bandwidth	95 (Confidence level about 95 %, k=2)
Frequency stability	28 (Confidence level about 95 %, k=2)

Parameter	Expanded Uncertainty (±dB)
Block Edge	0.70 (Confidence level about 95 %, k=2)
Conducted Spurious Emissions	1.18 (Confidence level about 95 %, k=2)
Peak- to- Average Ratio	0.68 (Confidence level about 95 %, k=2)
Radiated Power	4.74 (Confidence level about 95 %, k=2)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.36 (Confidence level about 95 %, k=2)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.70 (Confidence level about 95 %, k=2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.52 (Confidence level about 95 %, k=2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.66 (Confidence level about 95 %, k=2)
Radiated Disturbance (Above 40 GHz)	5.58 (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	PASS
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. All simultaneous transmission scenarios of operation were investigated, and the test results showed no additional significant emissions relative to the least restrictive limit were observed.
   Therefore, only the worst case(stand-alone) results were reported
6. All 3 channels(low/mid/high) of conducted power and radiated power were investigated and the worst case channel results are reported.
7. All power classes were tested, and the results were reported for the worst case PC2.

[Worst case]

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	16-QAM	Low	10	2501.5	39705	1	49	20	2515.9	39849	1	0
		Mid	20	2588.1	40571	1	99	10	2602.5	40715	1	0
		High	20	2670.1	41391	1	99	10	2684.5	41535	1	0
		Low	10	2501.5	39705	1	0	20	2515.9	39849	1	99
		Mid	20	2588.1	40571	1	0	10	2602.5	40715	1	49
		High	20	2670.1	41391	1	0	10	2684.5	41535	1	49
		Low	15	2503.5	39725	75	0	10	2515.5	39845	50	0
		Mid	15	2588.1	40571	75	0	10	2600.1	40691	50	0
		High	15	2672.7	41417	75	0	10	2684.7	41537	50	0
		Low	20	2506.0	39750	100	0	20	2525.8	39948	100	0
		Mid	20	2583.1	40521	100	0	20	2602.9	40719	100	0
		High	20	2660.2	41292	100	0	20	2680.0	41490	100	0
Radiated Spurious Emissions	16-QAM	Low	20	2506.0	39750	1	99	20	2525.8	39948	1	0
		Mid	20	2583.1	40521	1	99	20	2602.9	40719	1	0
		High	20	2660.2	41292	1	99	20	2680.0	41490	1	0

[Worst case]

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

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	23.07
	10	2501.3	39703	1	49	15	2513.3	39823	1	0	25.29
	10	***2501.5***	***39705***	***1***	***49***	***20***	***2515.9***	***39849***	***1***	***0***	***26.21***
	15	2503.5	39725	1	74	10	2515.5	39845	1	0	25.92
	15	2503.5	39725	1	74	15	2518.5	39875	1	0	25.33
	15	2503.8	39728	1	74	20	2520.9	39899	1	0	26.12
	20	2506.0	39750	1	99	5	2517.7	39867	1	0	23.03
	20	2506.0	39750	1	99	10	2520.4	39894	1	0	26.07
	20	2506.0	39750	1	99	15	2523.1	39921	1	0	25.30
	20	2506.0	39750	1	99	20	2525.8	39948	1	0	25.30
Mid	5	2583.8	40528	1	24	20	2595.5	40645	1	0	21.97
	10	2585.9	40549	1	49	15	2597.9	40669	1	0	25.20
	10	2583.6	40526	1	49	20	2598.0	40670	1	0	25.98
	15	2588.1	40571	1	74	10	2600.1	40691	1	0	26.14
	15	2585.5	40545	1	74	15	2600.5	40695	1	0	25.27
	15	2583.3	40523	1	74	20	2600.4	40694	1	0	26.04
	20	2590.5	40595	1	99	5	2602.2	40712	1	0	23.19
	20	***2588.1***	***40571***	***1***	***99***	***10***	***2602.5***	***40715***	***1***	***0***	***26.19***
	20	2585.6	40546	1	99	15	2602.7	40717	1	0	25.25
	20	2583.1	40521	1	99	20	2602.9	40719	1	0	25.26
High	5	2668.3	41373	1	24	20	2680.0	41490	1	0	22.08
	10	2670.5	41395	1	49	15	2682.5	41515	1	0	25.18
	10	2665.6	41346	1	49	20	2680.0	41490	1	0	25.14
	15	2672.7	41417	1	74	10	2684.7	41537	1	0	25.22
	15	2667.5	41365	1	74	15	2682.5	41515	1	0	25.26
	15	2662.9	41319	1	74	20	2680.0	41490	1	0	25.20
	20	2675.0	41440	1	99	5	2686.7	41557	1	0	23.02
	20	***2670.1***	***41391***	***1***	***99***	***10***	***2684.5***	***41535***	***1***	***0***	***26.07***
	20	2665.1	41341	1	99	15	2682.2	41512	1	0	25.21
	20	2660.2	41292	1	99	20	2680.0	41490	1	0	25.48

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	22.44
	10	2501.3	39703	50	0	15	2513.3	39823	75	0	26.32
	10	2501.5	39705	50	0	20	2515.9	39849	100	0	22.27
	15	***2503.5***	***39725***	***75***	***0***	***10***	***2515.5***	***39845***	***50***	***0***	***26.33***
	15	2503.5	39725	75	0	15	2518.5	39875	75	0	22.35
	15	2503.8	39728	75	0	20	2520.9	39899	100	0	21.49
	20	2506.0	39750	100	0	5	2517.7	39867	25	0	23.20
	20	2506.0	39750	100	0	10	2520.4	39894	50	0	22.24
	20	2506.0	39750	100	0	15	2523.1	39921	75	0	21.40
	20	2506.0	39750	100	0	20	2525.8	39948	100	0	22.38
Mid	5	2583.8	40528	25	0	20	2595.5	40645	100	0	22.18
	10	2585.9	40549	50	0	15	2597.9	40669	75	0	25.27
	10	2583.6	40526	50	0	20	2598.0	40670	100	0	22.03
	15	***2588.1***	***40571***	***75***	***0***	***10***	***2600.1***	***40691***	***50***	***0***	***26.19***
	15	2585.5	40545	75	0	15	2600.5	40695	75	0	21.27
	15	2583.3	40523	75	0	20	2600.4	40694	100	0	22.14
	20	2590.5	40595	100	0	5	2602.2	40712	25	0	22.43
	20	2588.1	40571	100	0	10	2602.5	40715	50	0	21.37
	20	2585.6	40546	100	0	15	2602.7	40717	75	0	21.37
	20	2583.1	40521	100	0	20	2602.9	40719	100	0	22.28
High	5	2668.3	41373	25	0	20	2680.0	41490	100	0	23.12
	10	2670.5	41395	50	0	15	2682.5	41515	75	0	26.12
	10	2665.6	41346	50	0	20	2680.0	41490	100	0	21.26
	15	***2672.7***	***41417***	***75***	***0***	***10***	***2684.7***	***41537***	***50***	***0***	***26.13***
	15	2667.5	41365	75	0	15	2682.5	41515	75	0	21.34
	15	2662.9	41319	75	0	20	2680.0	41490	100	0	22.22
	20	2675.0	41440	100	0	5	2686.7	41557	25	0	23.15
	20	2670.1	41391	100	0	10	2684.5	41535	50	0	22.17
	20	2665.1	41341	100	0	15	2682.2	41512	75	0	21.37
	20	2660.2	41292	100	0	20	2680.0	41490	100	0	23.17

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	10	2501.5	39705	1	49	20	2515.9	39849	1	0	26.90
Mid	20	2588.1	40571	1	99	10	2602.5	40715	1	0	26.89
High	20	2670.1	41391	1	99	10	2684.5	41535	1	0	26.71
Low	15	2503.5	39725	75	0	10	2515.5	39845	50	0	26.48
Mid	15	2588.1	40571	75	0	10	2600.1	40691	50	0	26.32
High	15	2672.7	41417	75	0	10	2684.7	41537	50	0	26.22

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	10	2501.5	39705	1	49	20	2515.9	39849	1	0	26.47
Mid	20	2588.1	40571	1	99	10	2602.5	40715	1	0	26.41
High	20	2670.1	41391	1	99	10	2684.5	41535	1	0	26.21
Low	15	2503.5	39725	75	0	10	2515.5	39845	50	0	26.45
Mid	15	2588.1	40571	75	0	10	2600.1	40691	50	0	26.30
High	15	2672.7	41417	75	0	10	2684.7	41537	50	0	26.20

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	10	2501.5	39705	1	49	20	2515.9	39849	1	0	26.45
Mid	20	2588.1	40571	1	99	10	2602.5	40715	1	0	26.40
High	20	2670.1	41391	1	99	10	2684.5	41535	1	0	26.17
Low	15	2503.5	39725	75	0	10	2515.5	39845	50	0	26.41
Mid	15	2588.1	40571	75	0	10	2600.1	40691	50	0	26.29
High	15	2672.7	41417	75	0	10	2684.7	41537	50	0	26.16

Note:

Modulation : 256QAM

8.2 Equivalent Isotropic Radiated Power

	PCC			SCC			Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol.	E.I.R.P	
	BW [MHz]	Channel	RB/ Offset	BW [MHz]	Channel	RB/ Offset						W	dBm
Low	5	39683	25/0	20	39800	100/0	-21.75	15.27	10.70	2.51	H	0.222	23.46
	10	39703	50/0	15	39823	75/0	-18.34	18.68	10.70	2.51	H	0.486	26.87
	10	39705	50/0	20	39849	100/0	-18.39	18.59	10.70	2.51	H	0.476	26.78
	15	39725	75/0	10	39845	50/0	-18.60	18.38	10.70	2.51	H	0.454	26.57
	15	39725	75/0	15	39875	75/0	-18.55	18.43	10.70	2.51	H	0.459	26.62
	15	39728	75/0	20	39899	100/0	-18.58	18.40	10.70	2.51	H	0.456	26.59
	20	39750	100/0	5	39867	25/0	-21.25	15.73	10.70	2.51	H	0.247	23.92
	20	39750	100/0	10	39894	50/0	-18.23	18.72	10.70	2.53	H	0.490	26.90
	20	39750	100/0	15	39921	75/0	-18.25	18.70	10.70	2.53	H	0.488	26.88
	20	***39750***	***100/0***	***20***	***39948***	***100/0***	***-18.21***	***18.74***	***10.70***	***2.52***	***H***	***0.492***	***26.92***
Mid	5	40528	25/0	20	40645	100/0	-21.45	15.96	10.62	2.58	H	0.251	24.00
	10	40549	50/0	15	40669	75/0	-19.08	18.33	10.62	2.58	H	0.434	26.37
	10	40526	50/0	20	40670	100/0	-19.10	18.31	10.62	2.58	H	0.432	26.35
	15	40571	75/0	10	40691	50/0	-19.17	18.26	10.61	2.55	H	0.429	26.32
	15	40545	75/0	15	40695	75/0	-19.02	18.41	10.61	2.55	H	0.444	26.47
	15	40523	75/0	20	40694	100/0	-19.10	18.31	10.62	2.58	H	0.432	26.35
	20	40595	100/0	5	40712	25/0	-22.21	15.22	10.61	2.55	H	0.213	23.28
	20	40571	100/0	10	40715	50/0	-18.98	18.45	10.61	2.55	H	0.448	26.51
	20	40546	100/0	15	40717	75/0	-19.11	18.32	10.61	2.55	H	0.435	26.38
	20	***40521***	***100/0***	***20***	***40719***	***100/0***	***-18.92***	***18.51***	***10.61***	***2.55***	***H***	***0.454***	***26.57***
High	5	41373	25/0	20	41490	100/0	-24.88	13.06	10.75	2.62	H	0.132	21.19
	10	41395	50/0	15	41515	75/0	-21.79	16.15	10.75	2.62	H	0.268	24.28
	10	41346	50/0	20	41490	100/0	-21.76	16.18	10.75	2.62	H	0.270	24.31
	15	41417	75/0	10	41537	50/0	-22.19	15.79	10.76	2.61	H	0.248	23.94
	15	41365	75/0	15	41515	75/0	-21.85	16.09	10.75	2.62	H	0.264	24.22
	15	41319	75/0	20	41490	100/0	-21.65	16.24	10.74	2.62	H	0.273	24.36
	20	41440	100/0	5	41557	25/0	-24.65	13.33	10.76	2.61	H	0.141	21.48
	20	41391	100/0	10	41535	50/0	-21.69	16.29	10.76	2.61	H	0.278	24.44
	20	41341	100/0	15	41512	75/0	-21.30	16.64	10.75	2.62	H	0.300	24.77
	20	***41292***	***100/0***	***20***	***41490***	***100/0***	***-21.15***	***16.74***	***10.74***	***2.62***	***H***	***0.306***	***24.86***

Note:

1. Modulation : QPSK

2. Limit : < 2 Watts

PCC			SCC			Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol.	E.I.R.P	
BW [MHz]	Channel	RB/ Offset	BW [MHz]	Channel	RB/ Offset						W	dBm
5	39683	25/0	20	39800	100/0	-22.11	14.91	10.70	2.51	H	0.204	23.10
10	39703	50/0	15	39823	75/0	-18.16	18.86	10.70	2.51	H	0.507	27.05
10	39705	50/0	20	39849	100/0	-18.18	18.80	10.70	2.51	H	0.500	26.99
15	39725	75/0	10	39845	50/0	-18.38	18.60	10.70	2.51	H	0.478	26.79
15	39725	75/0	15	39875	75/0	-18.34	18.64	10.70	2.51	H	0.482	26.83
15	39728	75/0	20	39899	100/0	-18.36	18.62	10.70	2.51	H	0.480	26.81
20	39750	100/0	5	39867	25/0	-21.66	15.32	10.70	2.51	H	0.224	23.51
20	39750	100/0	10	39894	50/0	-18.01	18.94	10.70	2.53	H	0.515	27.12
20	39750	100/0	15	39921	75/0	-18.03	18.92	10.70	2.53	H	0.513	27.10
20	39750	100/0	20	39948	100/0	-18.00	18.95	10.70	2.52	H	0.516	27.13
20	40521	100/0	20	40719	100/0	-18.69	18.74	10.61	2.55	H	0.479	26.80
20	41292	100/0	20	41490	100/0	-20.97	16.92	10.74	2.62	H	0.319	25.04

Note:

1. Modulation : 16QAM

2. Limit : < 2 Watts

PCC			SCC			Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol.	E.I.R.P	
BW [MHz]	Channel	RB/ Offset	BW [MHz]	Channel	RB/ Offset						W	dBm
5	39683	25/0	20	39800	100/0	-22.14	14.88	10.70	2.51	H	0.203	23.07
10	39703	50/0	15	39823	75/0	-18.21	18.81	10.70	2.51	H	0.501	27.00
10	39705	50/0	20	39849	100/0	-18.23	18.75	10.70	2.51	H	0.494	26.94
15	39725	75/0	10	39845	50/0	-18.39	18.59	10.70	2.51	H	0.476	26.78
15	39725	75/0	15	39875	75/0	-18.37	18.61	10.70	2.51	H	0.479	26.80
15	39728	75/0	20	39899	100/0	-18.38	18.60	10.70	2.51	H	0.478	26.79
20	39750	100/0	5	39867	25/0	-21.69	15.29	10.70	2.51	H	0.223	23.48
20	39750	100/0	10	39894	50/0	-18.05	18.90	10.70	2.53	H	0.511	27.08
20	39750	100/0	15	39921	75/0	-18.06	18.89	10.70	2.53	H	0.509	27.07
20	39750	100/0	20	39948	100/0	-18.04	18.91	10.70	2.52	H	0.512	27.09
20	40521	100/0	20	40719	100/0	-18.74	18.69	10.61	2.55	H	0.473	26.75
20	41292	100/0	20	41490	100/0	-21.07	16.82	10.74	2.62	H	0.312	24.94

Note:

1. Modulation : 64QAM

2. Limit : < 2 Watts

PCC			SCC			Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol.	E.I.R.P	
BW [MHz]	Channel	RB/ Offset	BW [MHz]	Channel	RB/ Offset						W	dBm
5	39683	25/0	20	39800	100/0	-22.30	14.72	10.70	2.51	H	0.195	22.91
10	39703	50/0	15	39823	75/0	-18.33	18.69	10.70	2.51	H	0.488	26.88
10	39705	50/0	20	39849	100/0	-18.36	18.62	10.70	2.51	H	0.480	26.81
15	39725	75/0	10	39845	50/0	-18.53	18.45	10.70	2.51	H	0.461	26.64
15	39725	75/0	15	39875	75/0	-18.51	18.47	10.70	2.51	H	0.463	26.66
15	39728	75/0	20	39899	100/0	-18.50	18.48	10.70	2.51	H	0.465	26.67
20	39750	100/0	5	39867	25/0	-21.83	15.15	10.70	2.51	H	0.216	23.34
20	39750	100/0	10	39894	50/0	-18.18	18.77	10.70	2.53	H	0.495	26.95
20	39750	100/0	15	39921	75/0	-18.19	18.76	10.70	2.53	H	0.494	26.94
20	39750	100/0	20	39948	100/0	-18.18	18.77	10.70	2.52	H	0.495	26.95
20	40521	100/0	20	40719	100/0	-18.85	18.58	10.61	2.55	H	0.461	26.64
20	41292	100/0	20	41490	100/0	-21.12	16.77	10.74	2.62	H	0.308	24.89

Note:

1. Modulation : 256 QAM

2. Limit : < 2 Watts

8.3 Conducted Spurious Emissions

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	10	39705	2501.5	1/49	20	39849	2515.9	1/0	3.9981	31.955	-64.16	-32.21
Mid	20	40571	2588.1	1/99	10	40715	2602.5	1/0	7.9960	32.570	-64.22	-31.65
High	20	41391	2670.1	1/99	10	41535	2684.5	1/0	4.9751	31.955	-62.89	-30.94
Low	10	39705	2501.5	1/0	20	39849	2515.9	1/99	8.8136	32.570	-64.15	-31.58
Mid	20	40571	2588.1	1/0	10	40715	2602.5	1/49	8.9731	32.570	-64.33	-31.76
High	20	41391	2670.1	1/0	10	41535	2684.5	1/49	8.3749	32.570	-63.40	-30.83
Low	15	39725	2503.5	75/0	10	39845	2515.5	50/0	7.7767	32.570	-64.60	-32.03
Mid	15	40571	2588.1	75/0	10	40691	2600.1	50/0	3.7388	31.955	-62.92	-30.97
High	15	41417	2672.7	75/0	10	41537	2684.7	50/0	9.0329	32.570	-63.97	-31.40
Low	20	39750	2506.0	100/0	20	39948	2525.8	100/0	5.9821	32.570	-64.27	-31.70
Mid	20	40521	2583.1	100/0	20	40719	2602.9	100/0	8.8634	32.570	-63.69	-31.12
High	20	41292	2660.2	100/0	20	41490	2680.0	100/0	5.2343	32.570	-64.64	-32.07

Note:

1. Modulation : See Section 8.

2. Duty Cycle factor already applied on the factor.

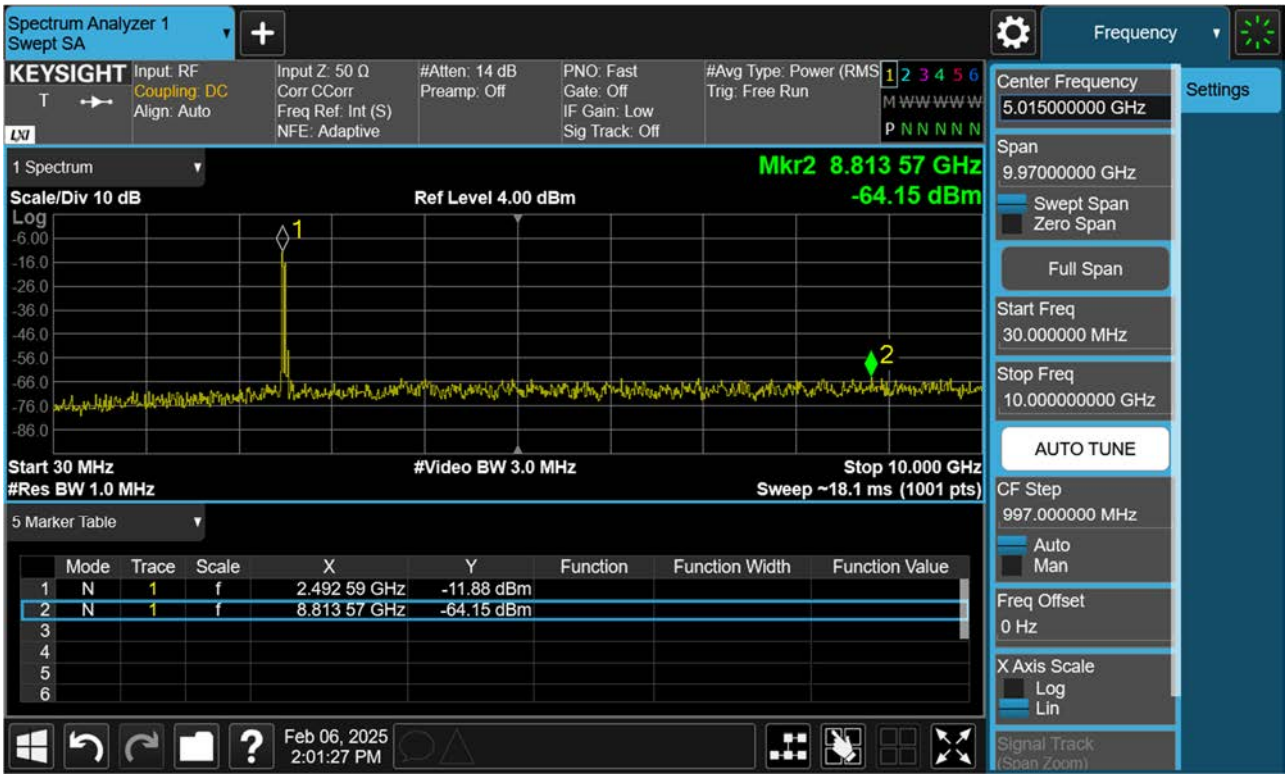
- Duty Cycle factor(dB) = 3.979
- Factor(dB) = Duty Cycle factor + Cable Loss + Ext. Attenuator + Power Splitter
- Result(dBm) = Measurement Maximum Data (dBm) + Factor

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(26.5)	34.110

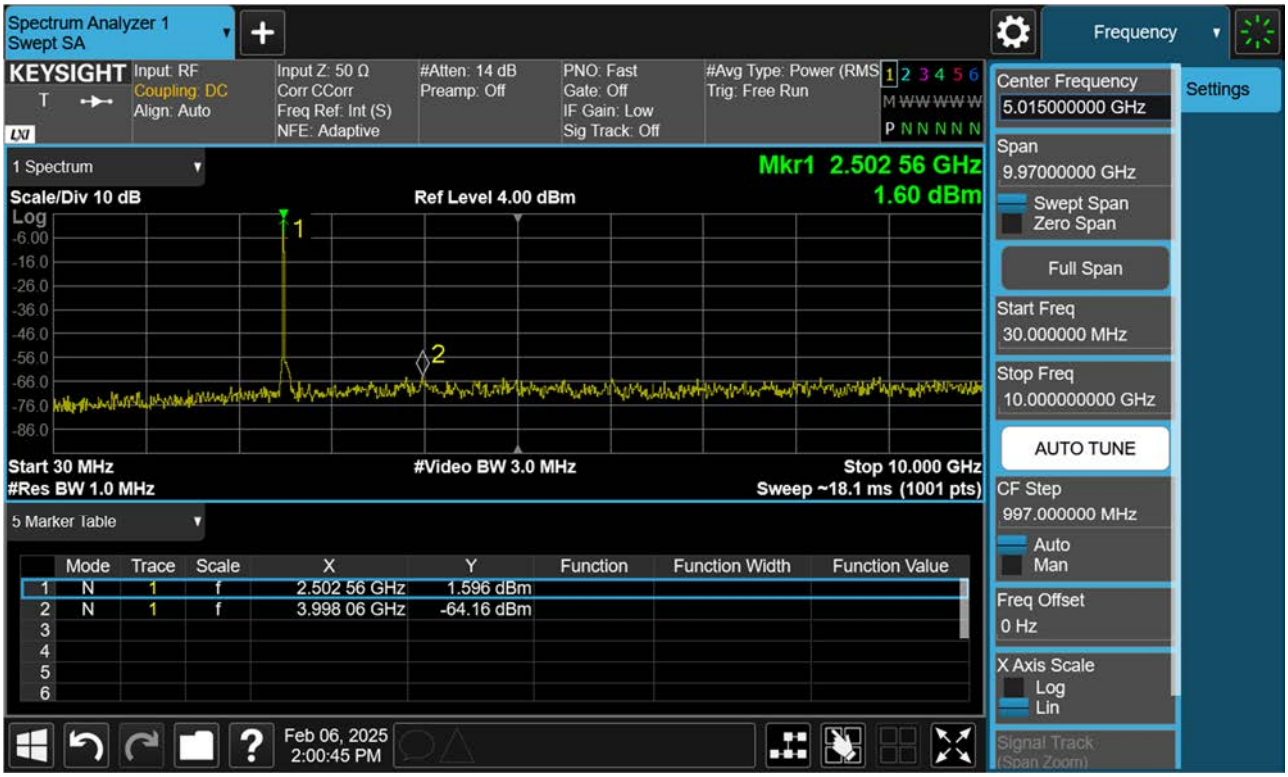
3. Limit : -25.0 dBm

Frequency Range : 30 MHz ~ 10 GHz

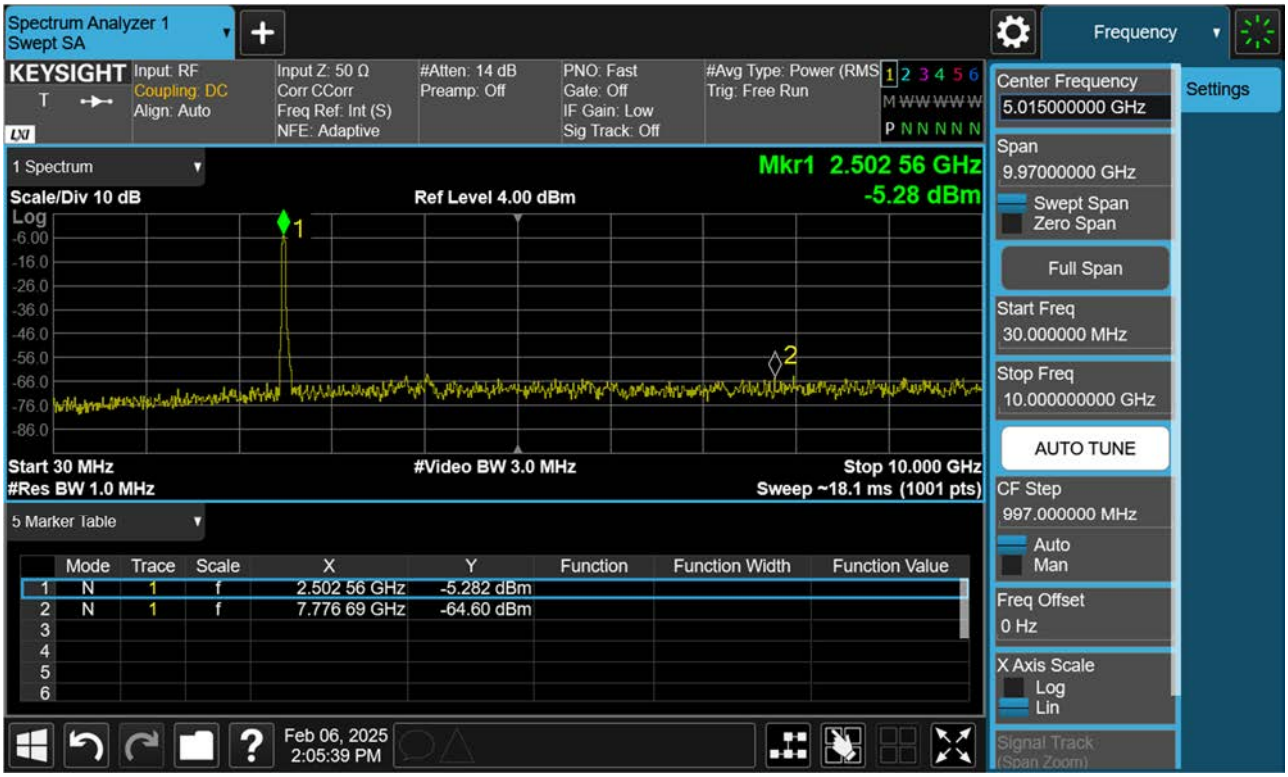
PCC 10 M 39705 RB 1,0 SCC 20 M 39849 RB 1,99



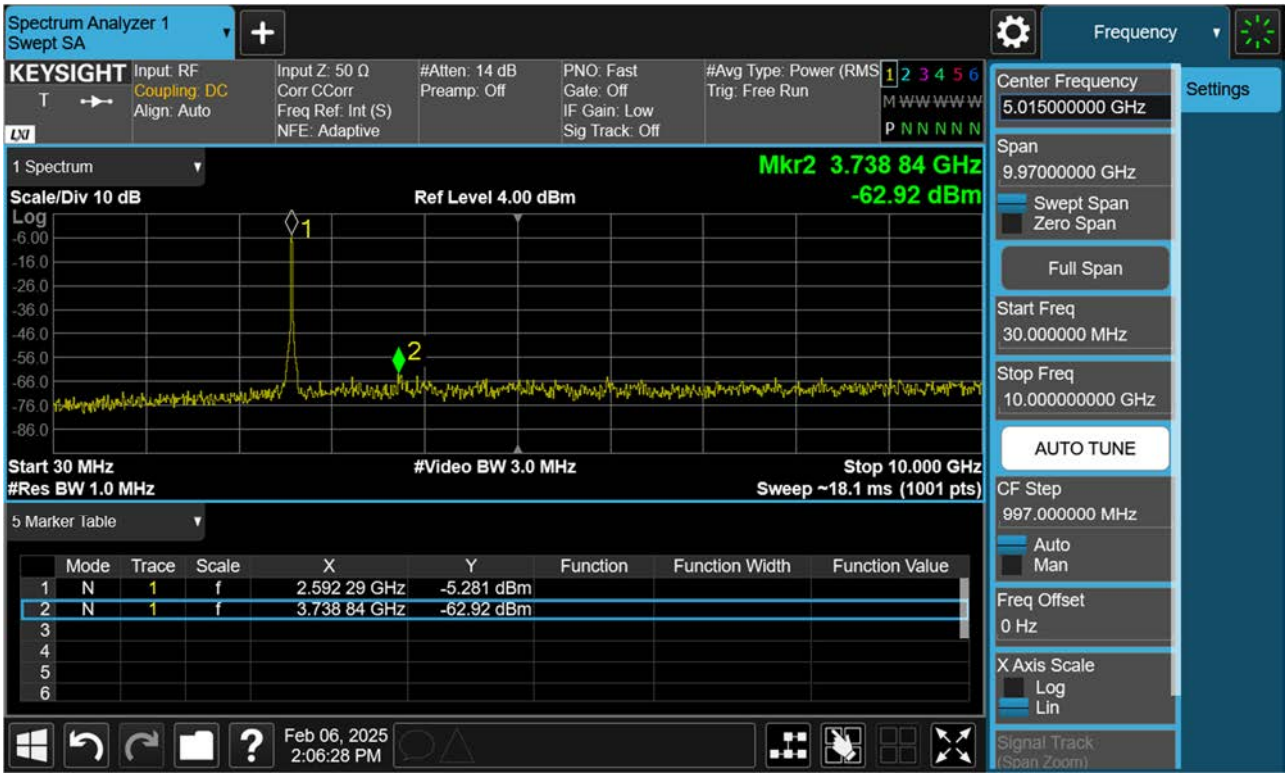
PCC 10 M 39705 RB 1,49 SCC 20 M 39849 RB 1,0



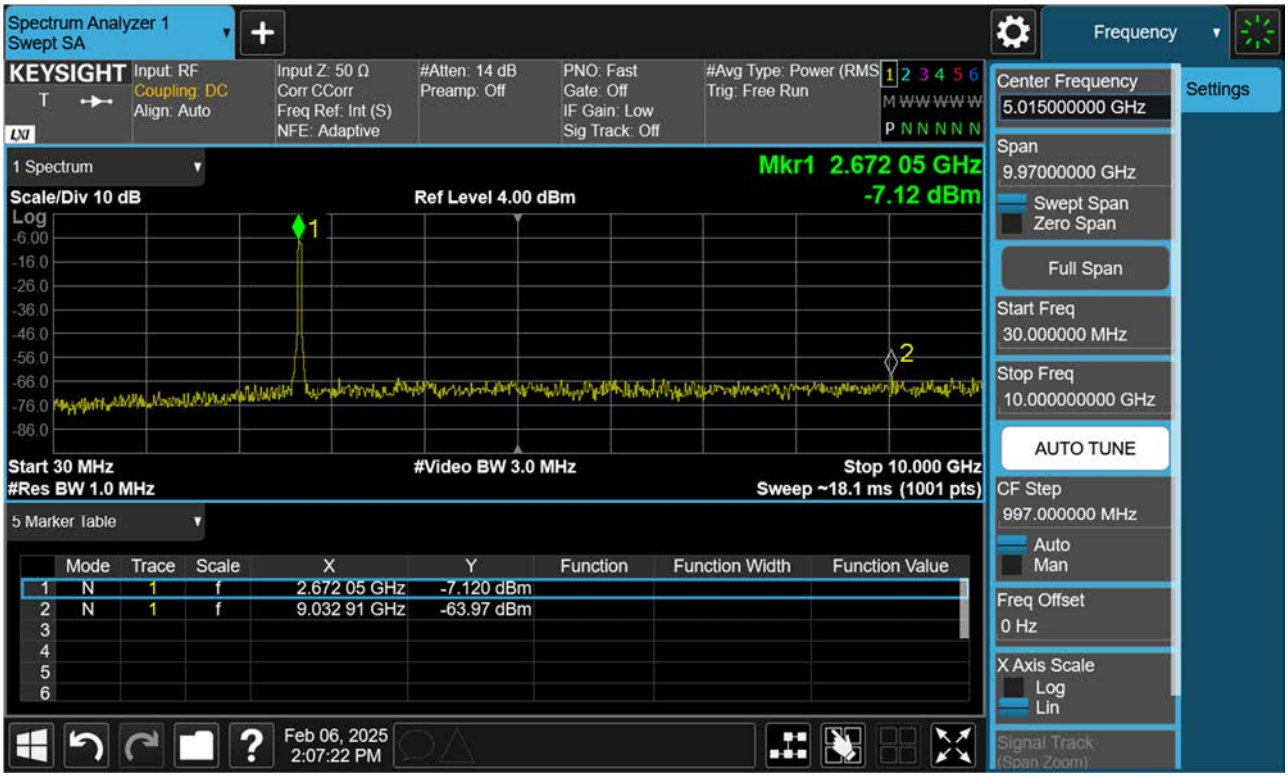
PCC 15 M 39725 RB 75,0 SCC 10 M 39845 RB 50,0



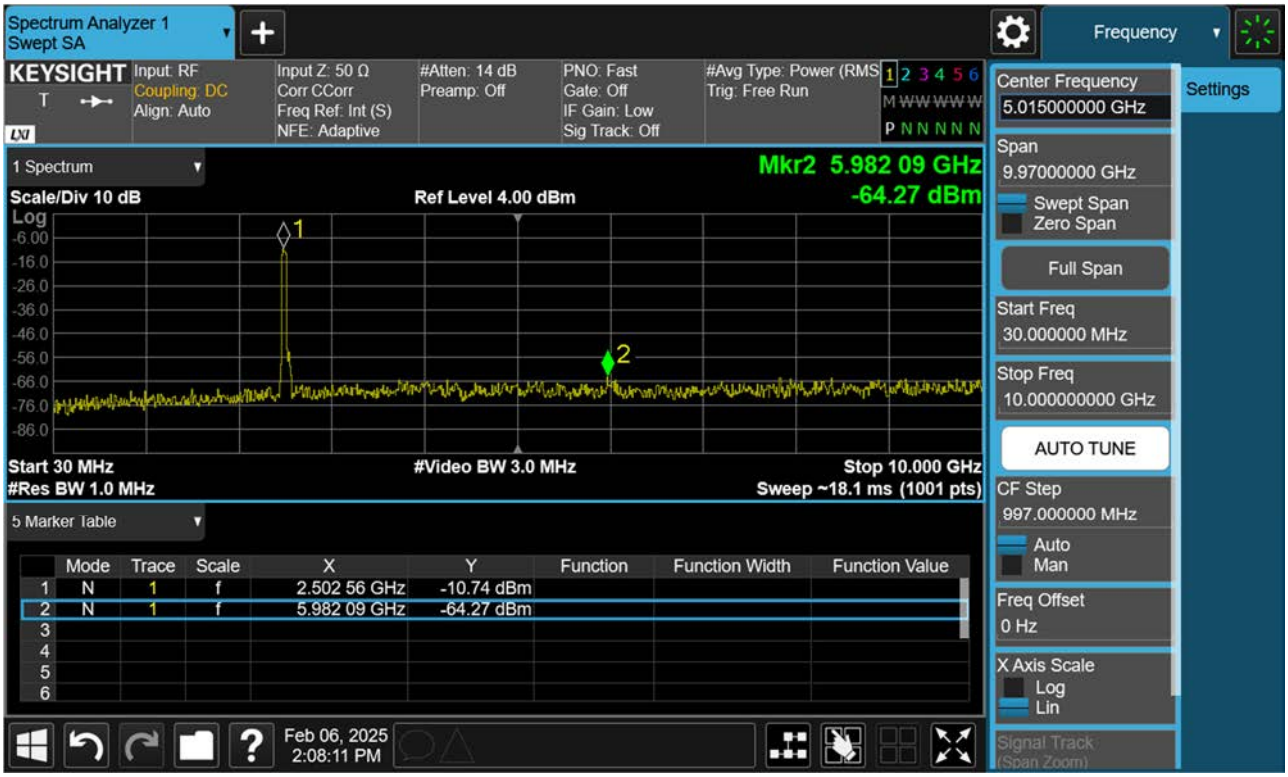
PCC 15 M 40571 RB 75,0 SCC 10 M 40691 RB 50,0



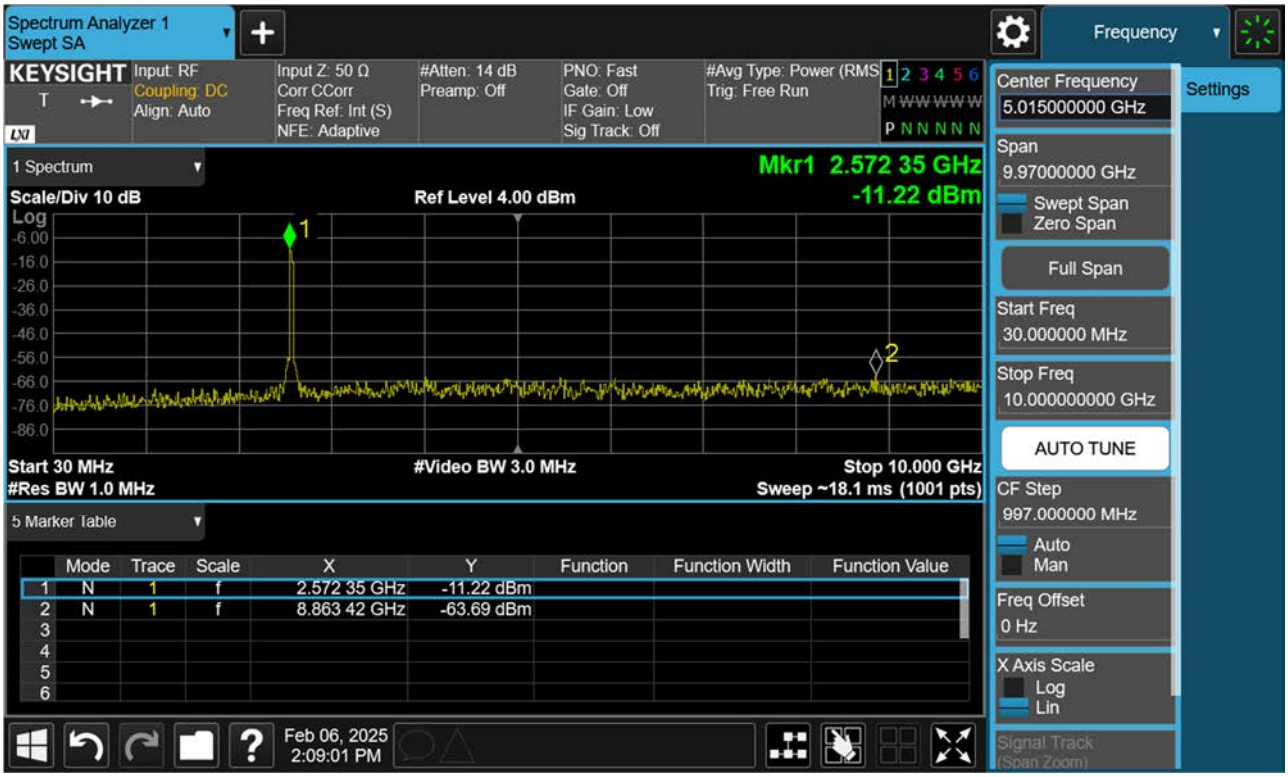
PCC 15 M 41417 RB 75,0 SCC 10 M 41537 RB 50,0



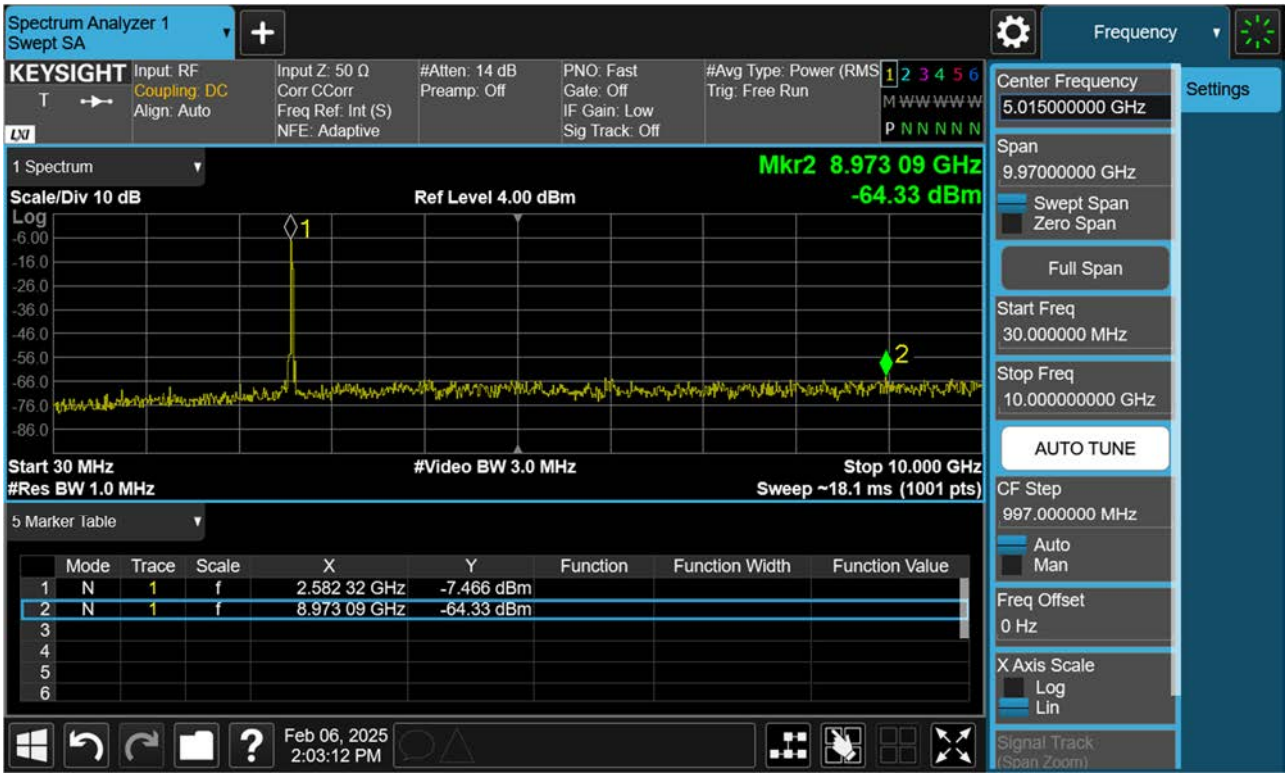
PCC 20 M 39750 RB 100,0 SCC 20 M 39948 RB 100,0



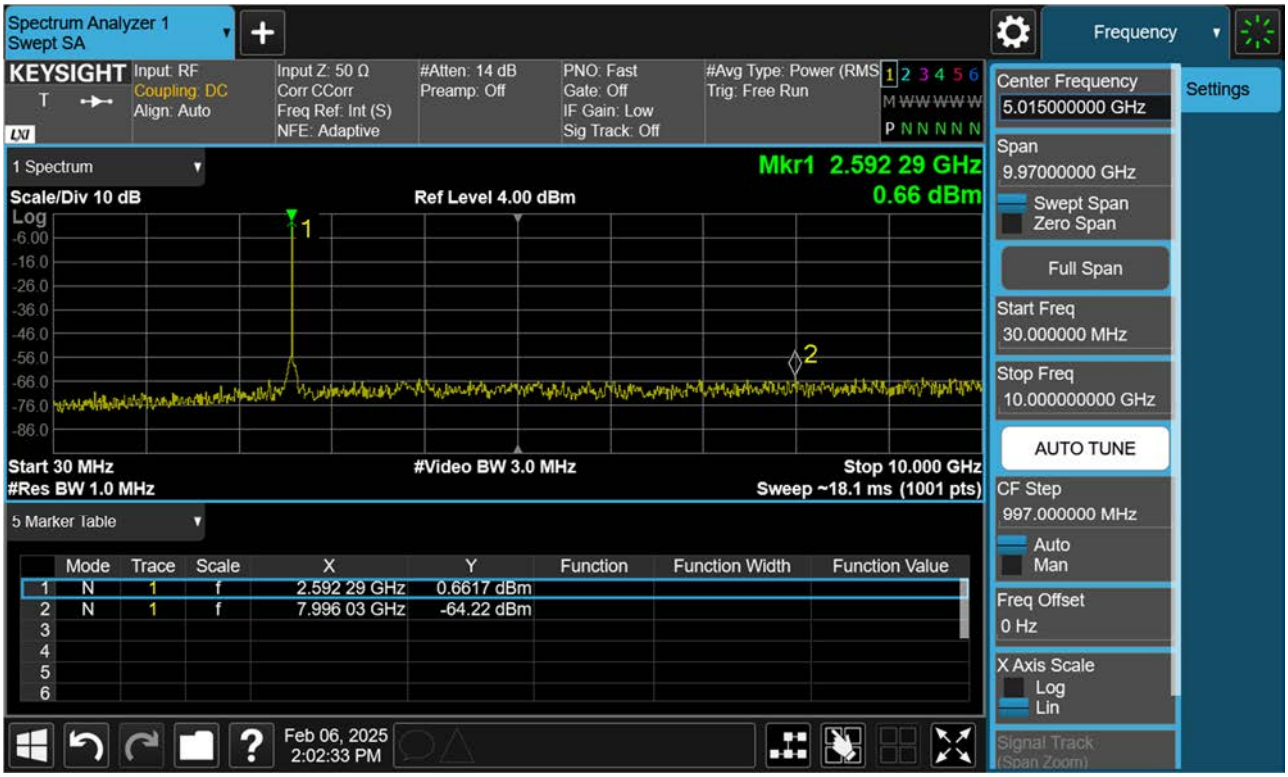
PCC 20 M 40521 RB 100,0 SCC 20 M 40719 RB 100,0



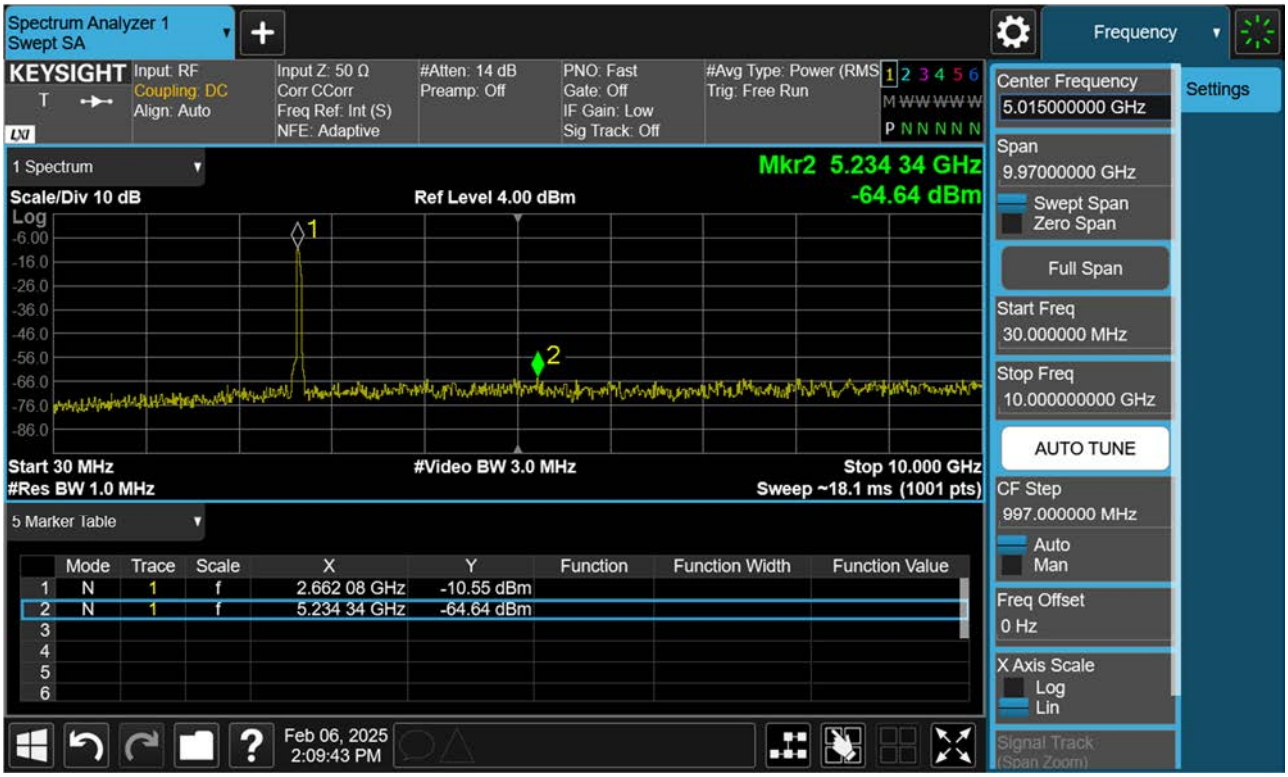
PCC 20 M 40571 RB 1,0 SCC 10 M 40715 RB 1,49



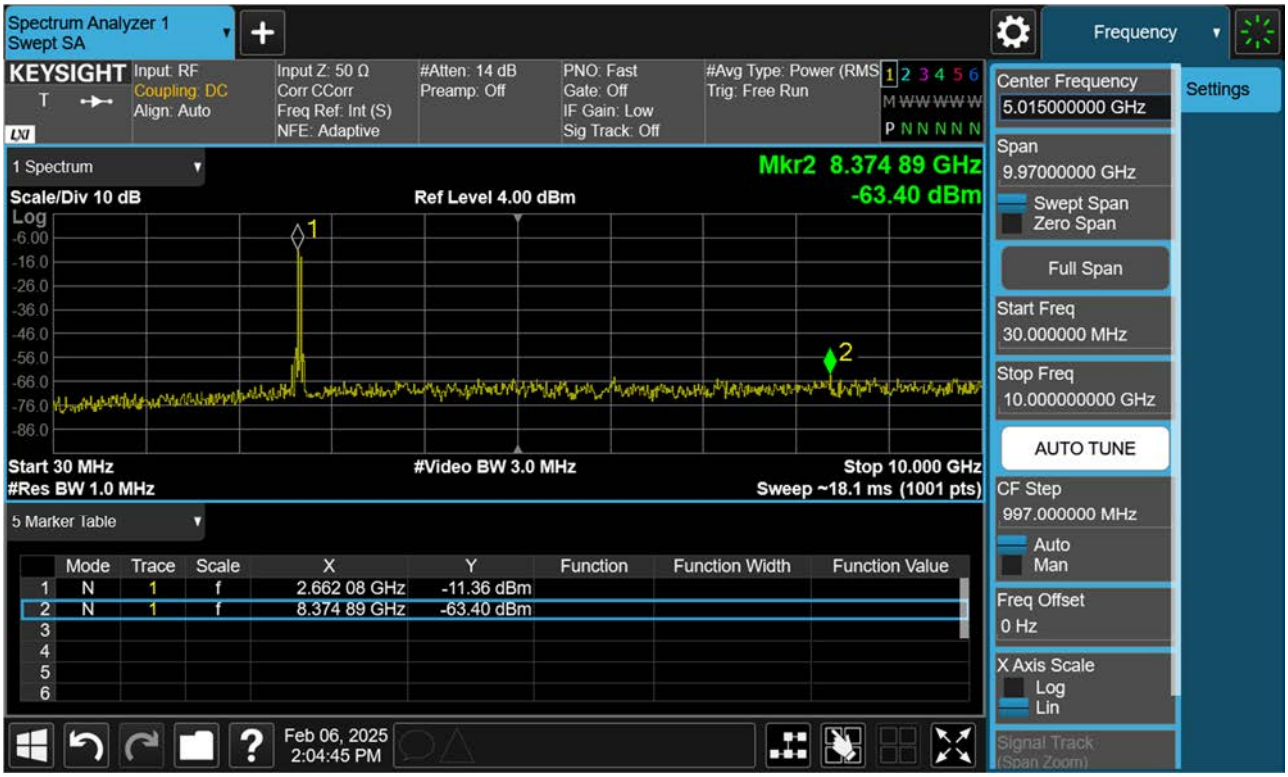
PCC 20 M 40571 RB 1,99 SCC 10 M 40715 RB 1,0



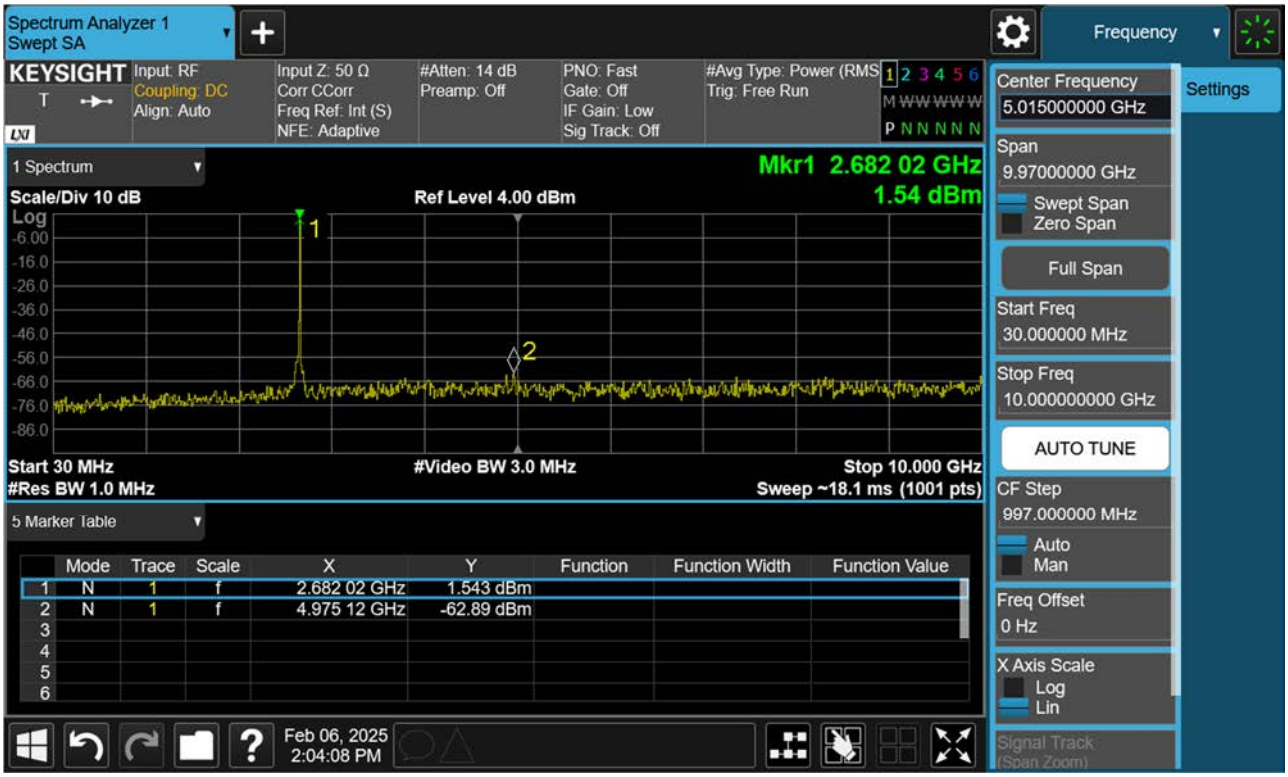
PCC 20 M 41292 RB 100,0 SCC 20 M 41490 RB 100,0



PCC 20 M 41391 RB 1,0 SCC 10 M 41535 RB 1,49

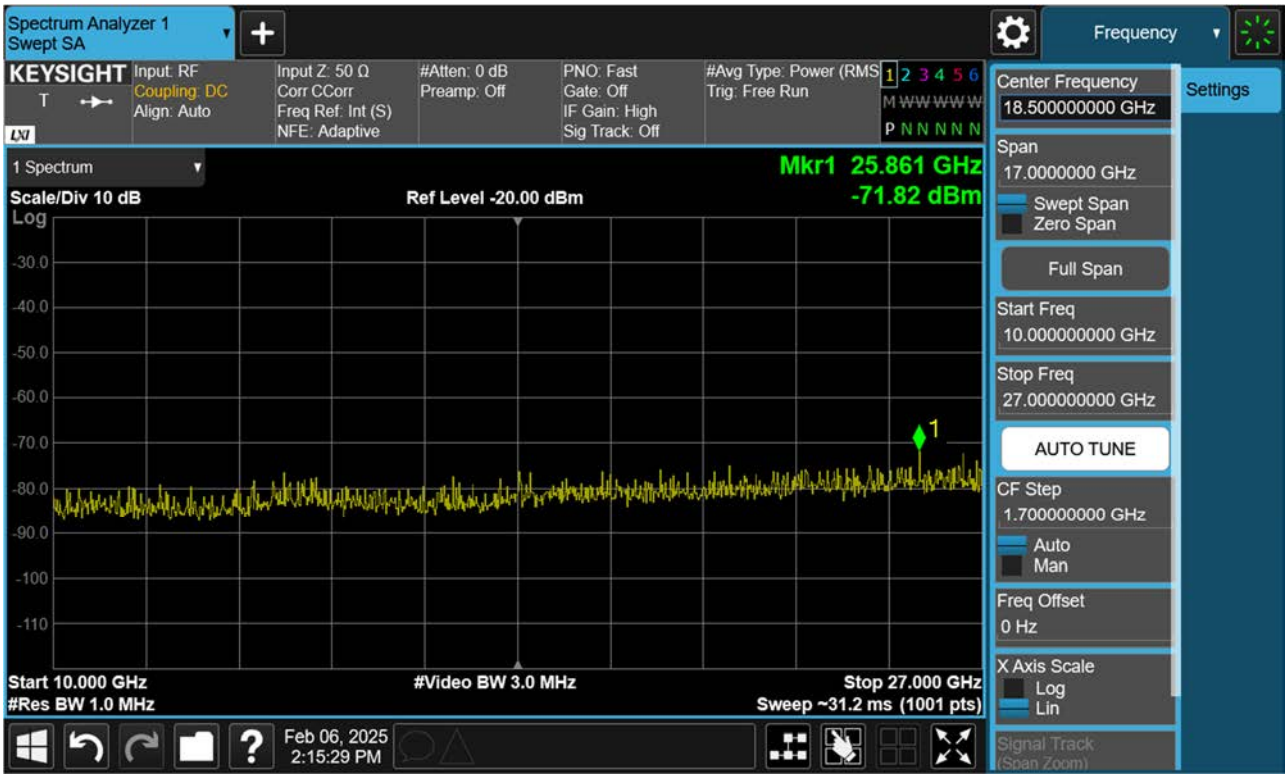


PCC 20 M 41391 RB 1,99 SCC 10 M 41535 RB 1,0

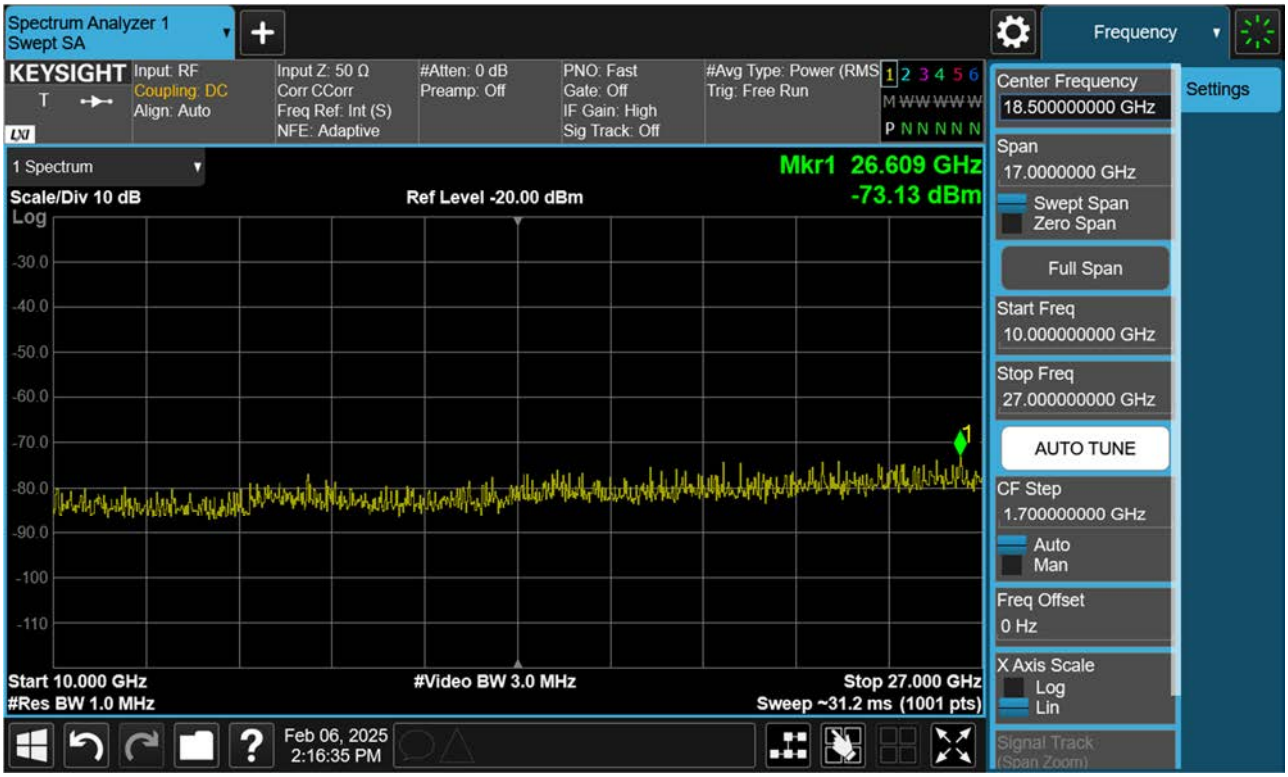


Frequency Range : above 10 GHz

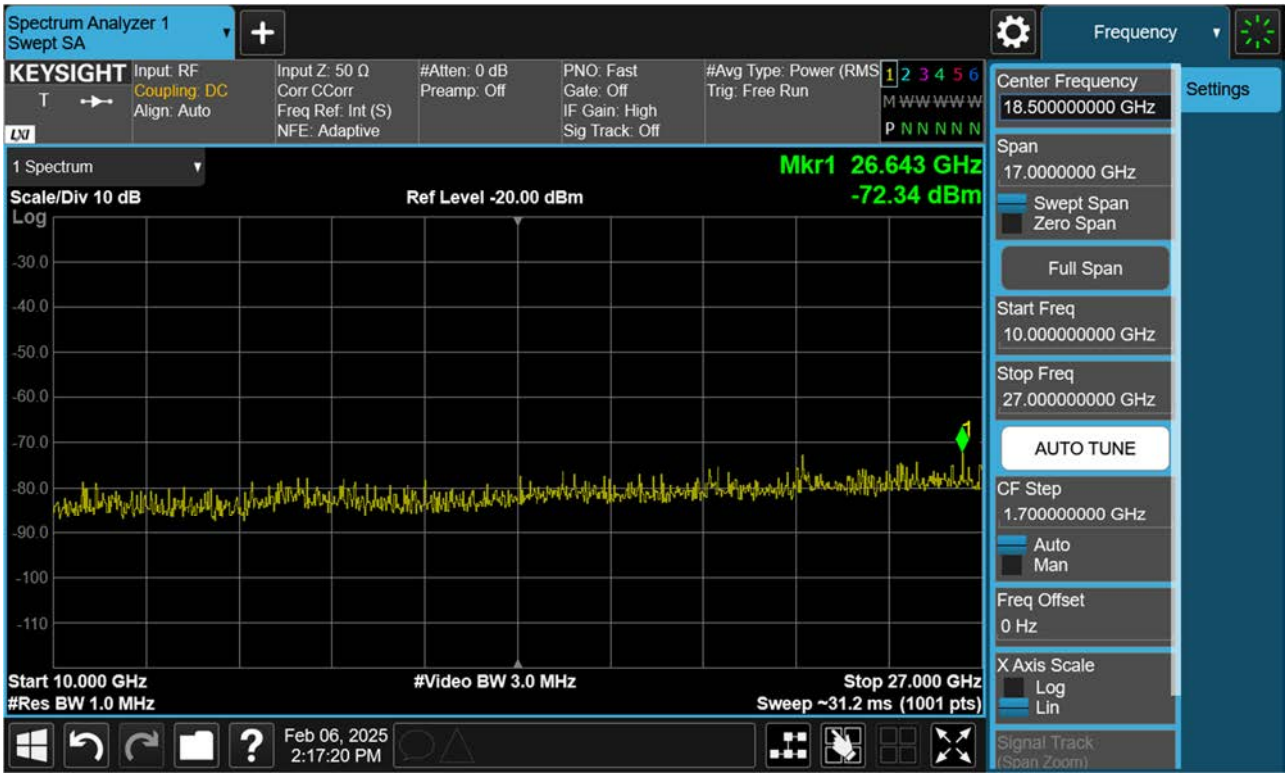
PCC 10 M 39705 RB 1,0 SCC 20 M 39849 RB 1,99



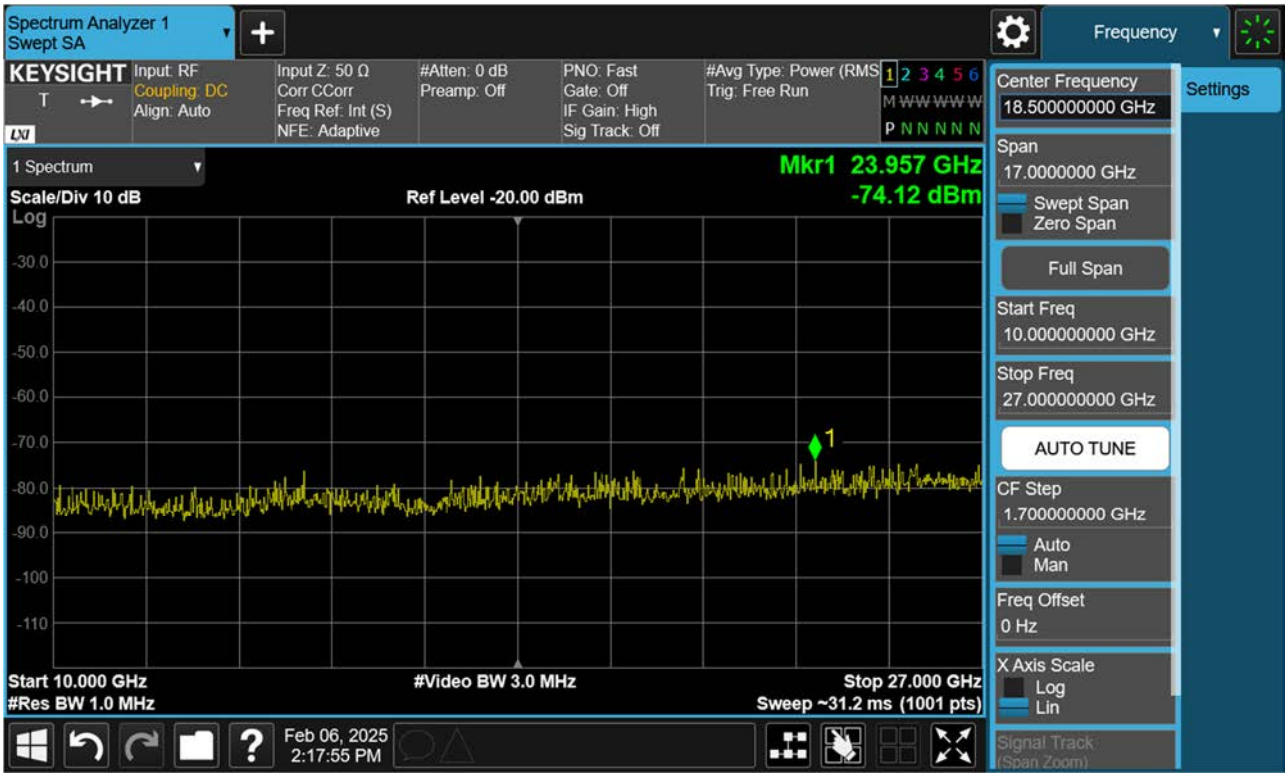
PCC 10 M 39705 RB 1,49 SCC 20 M 39849 RB 1,0



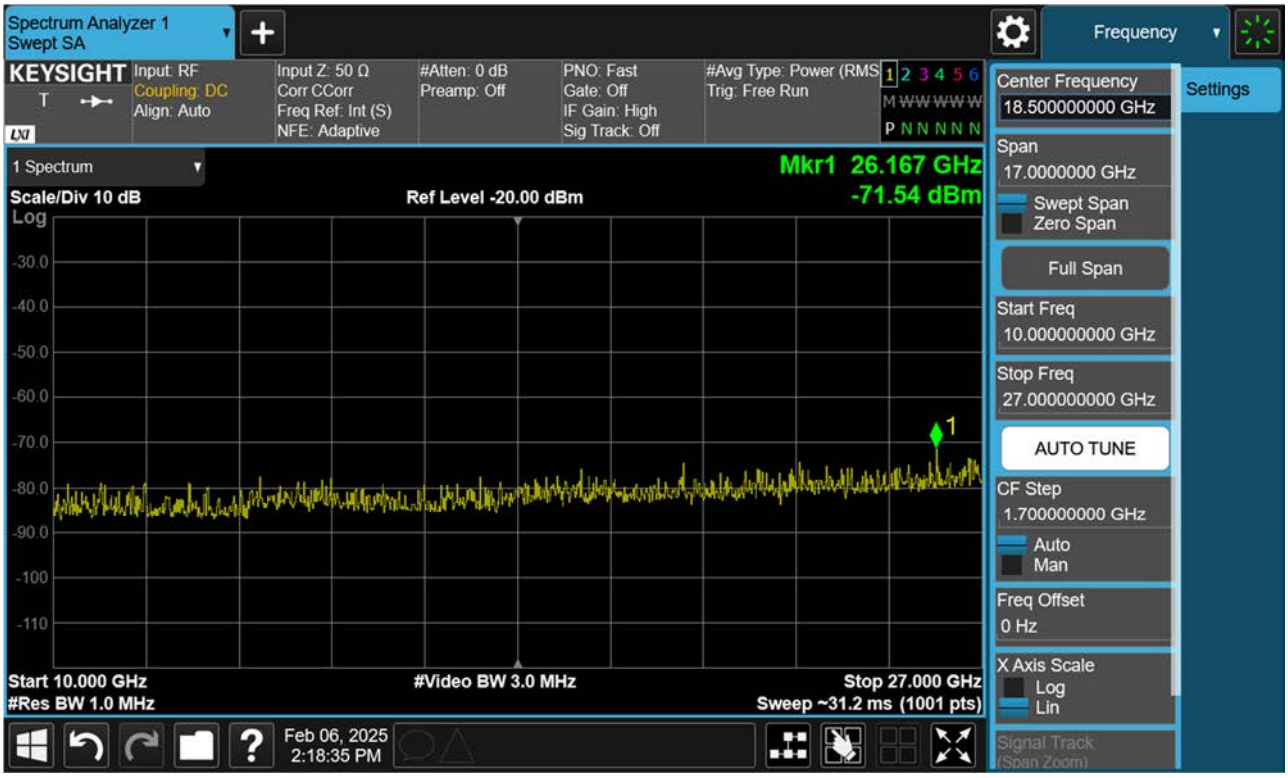
PCC 15 M 39725 RB 75,0 SCC 10 M 39845 RB 50,0



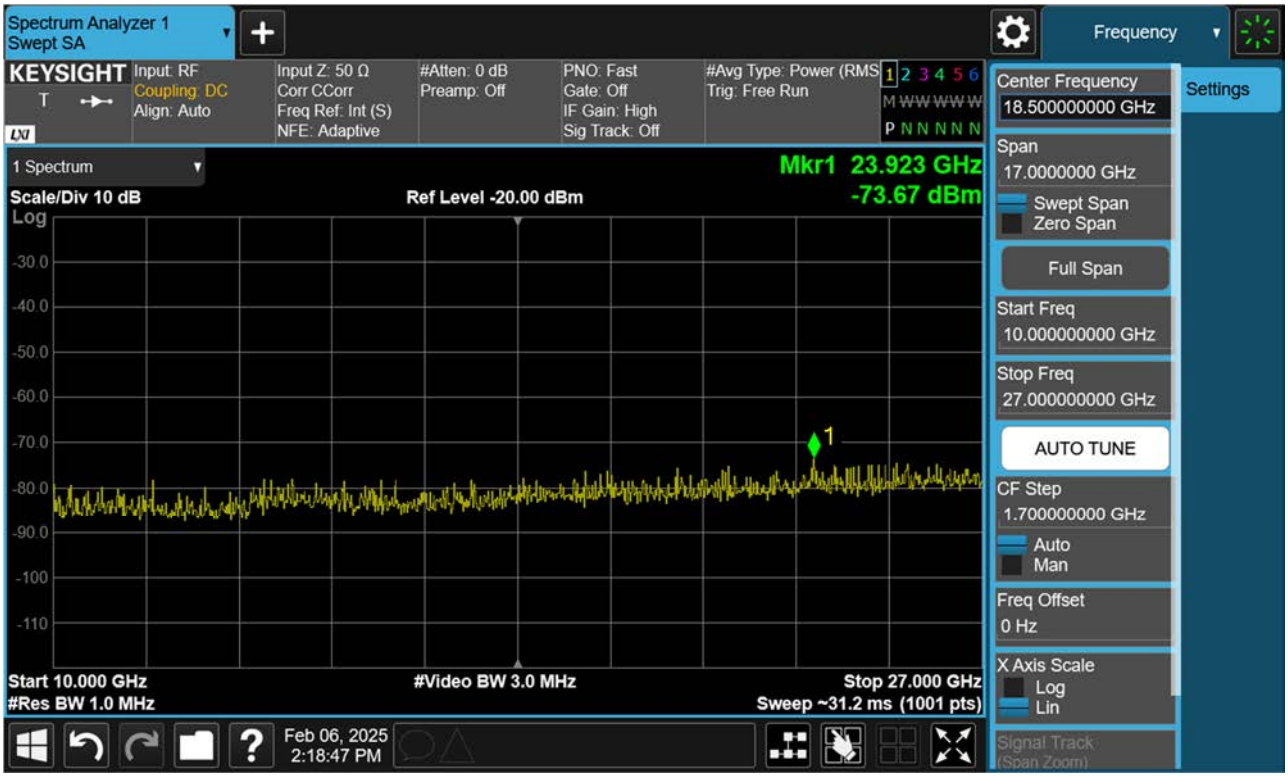
PCC 15 M 40571 RB 75,0 SCC 10 M 40691 RB 50,0



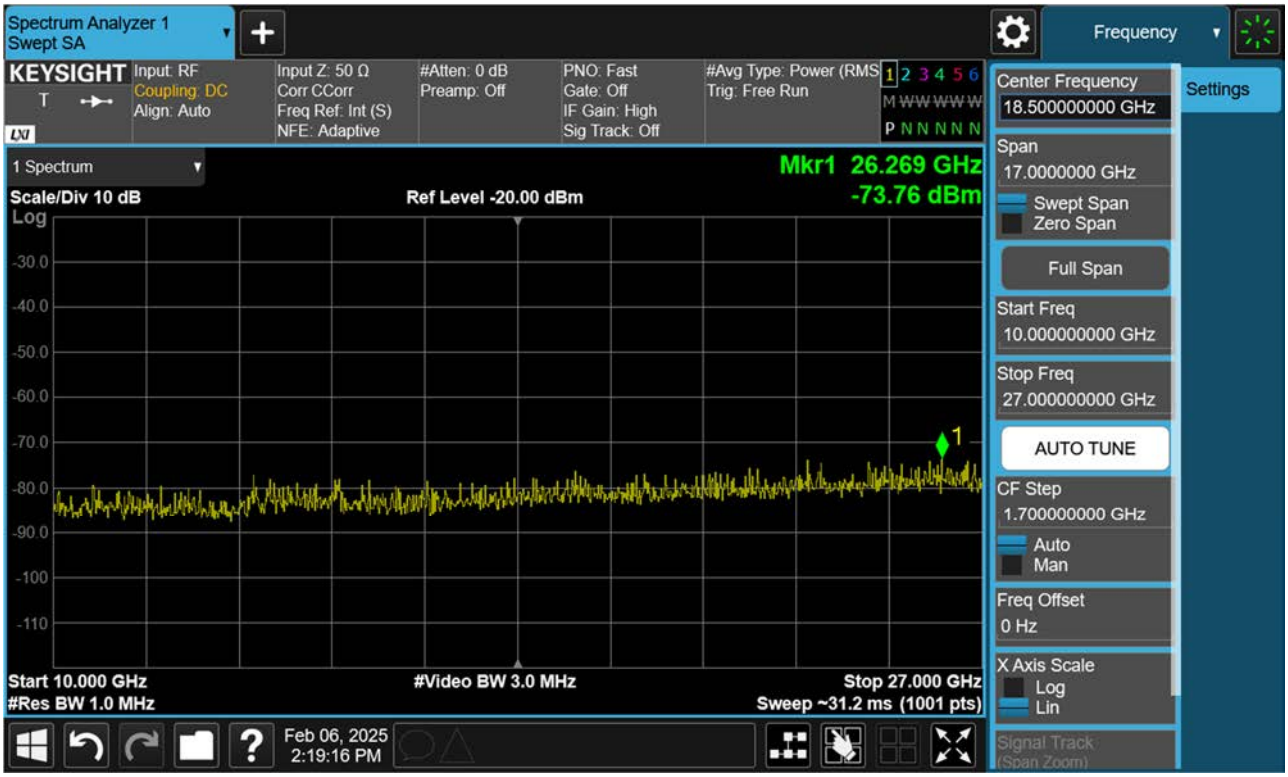
PCC 15 M 41417 RB 75,0 SCC 10 M 41537 RB 50,0



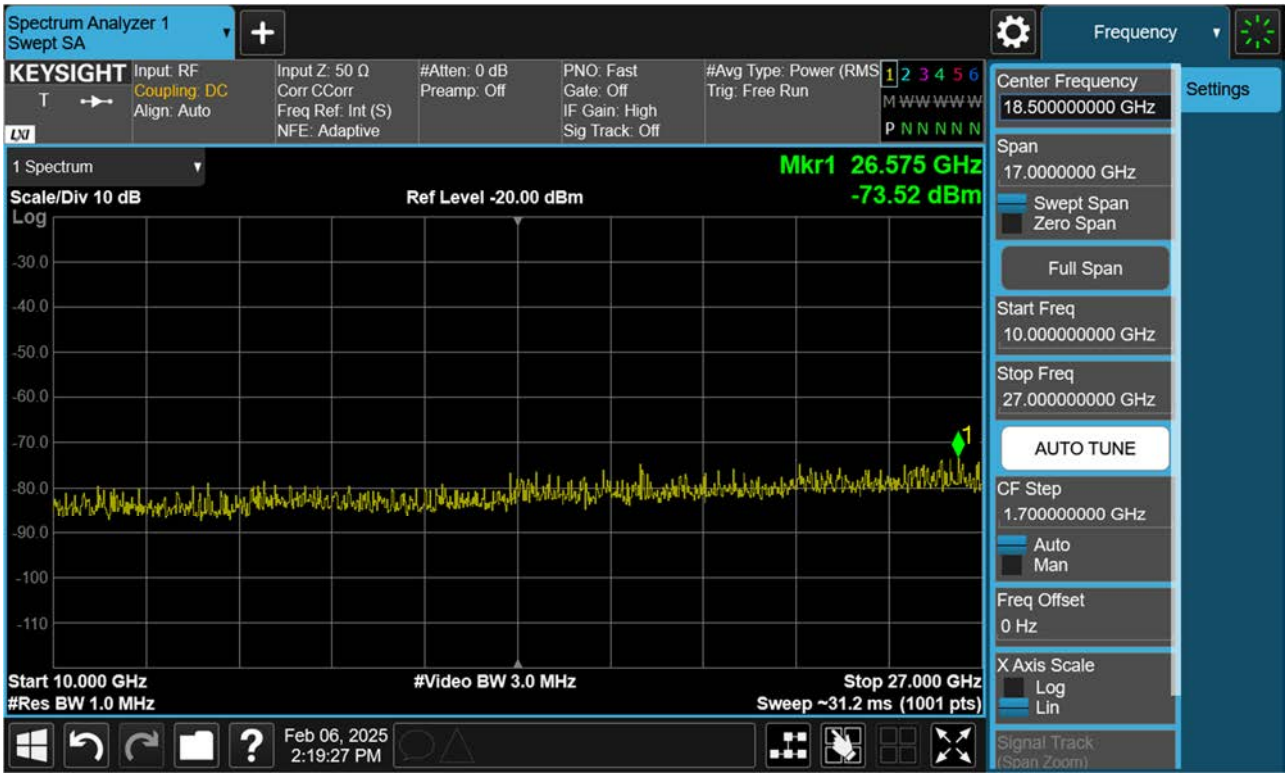
PCC 20 M 39750 RB 100,0 SCC 20 M 39948 RB 100,0



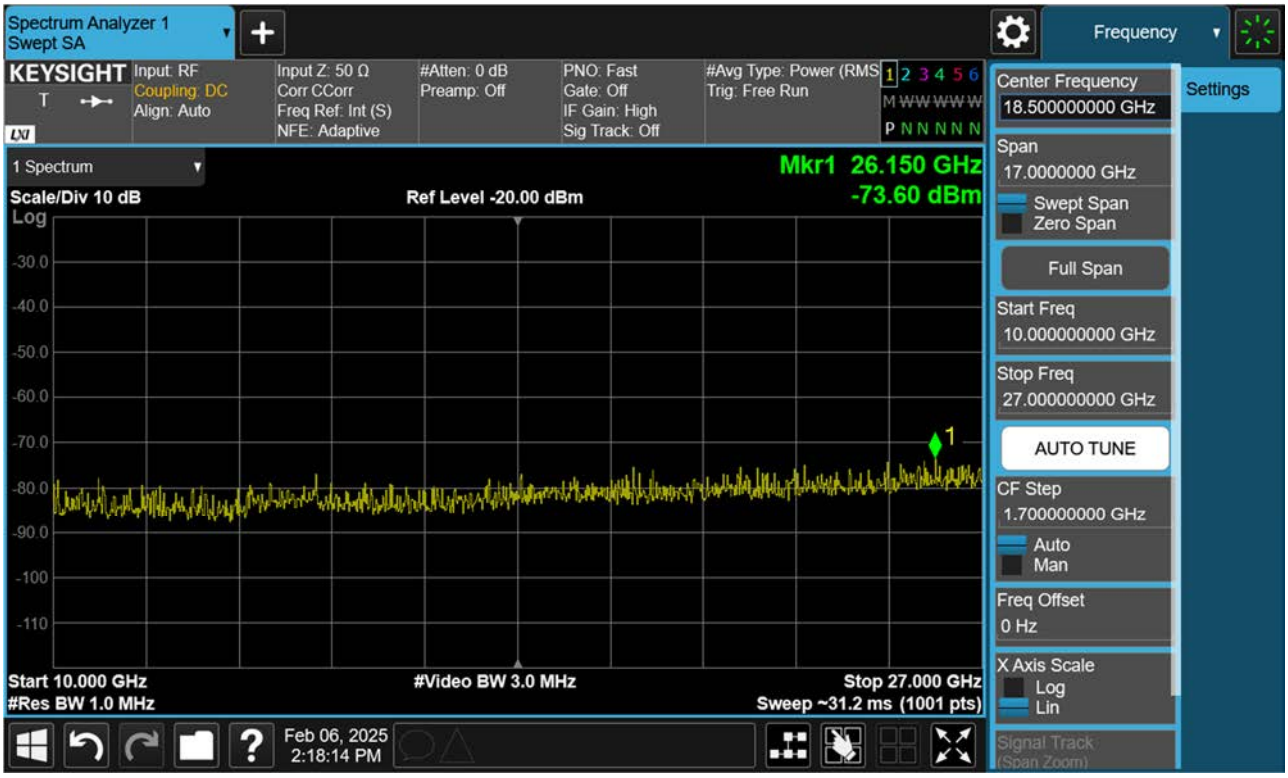
PCC 20 M 40521 RB 100,0 SCC 20 M 40719 RB 100,0



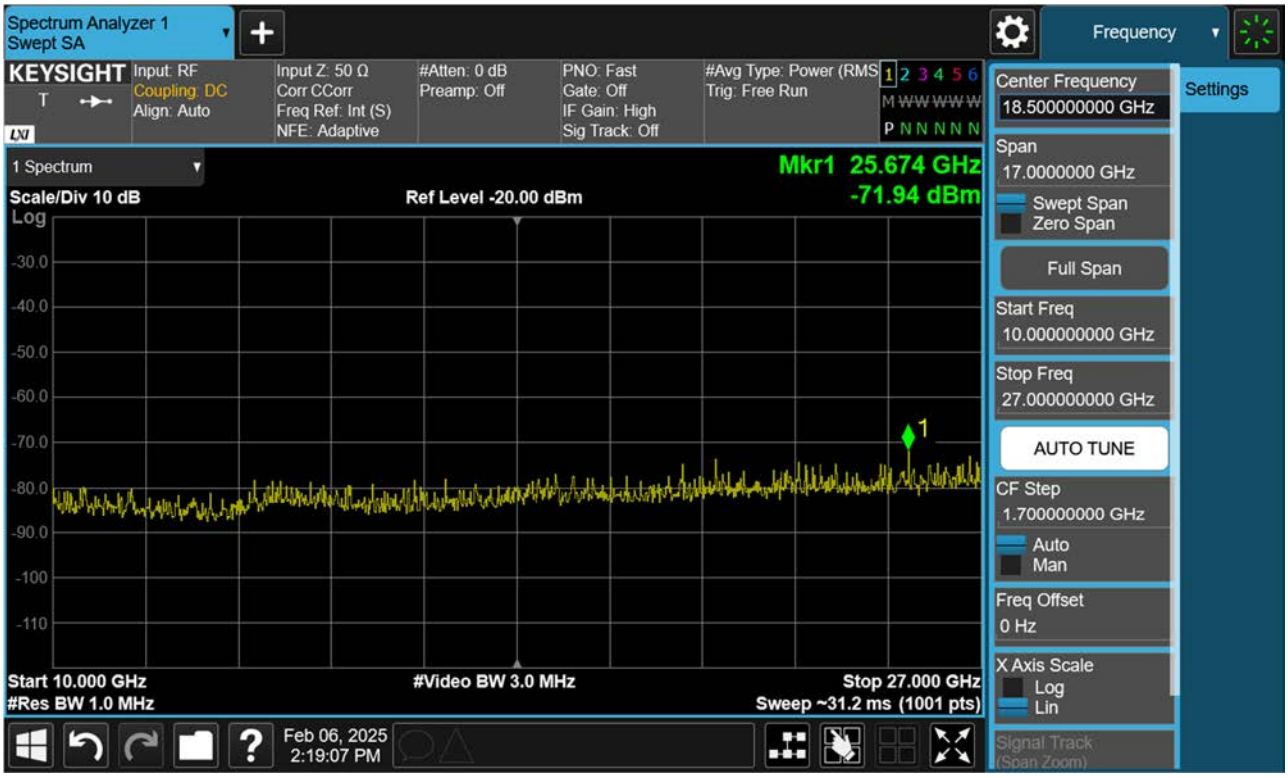
PCC 20 M 40571 RB 1,0 SCC 10 M 40715 RB 1,49



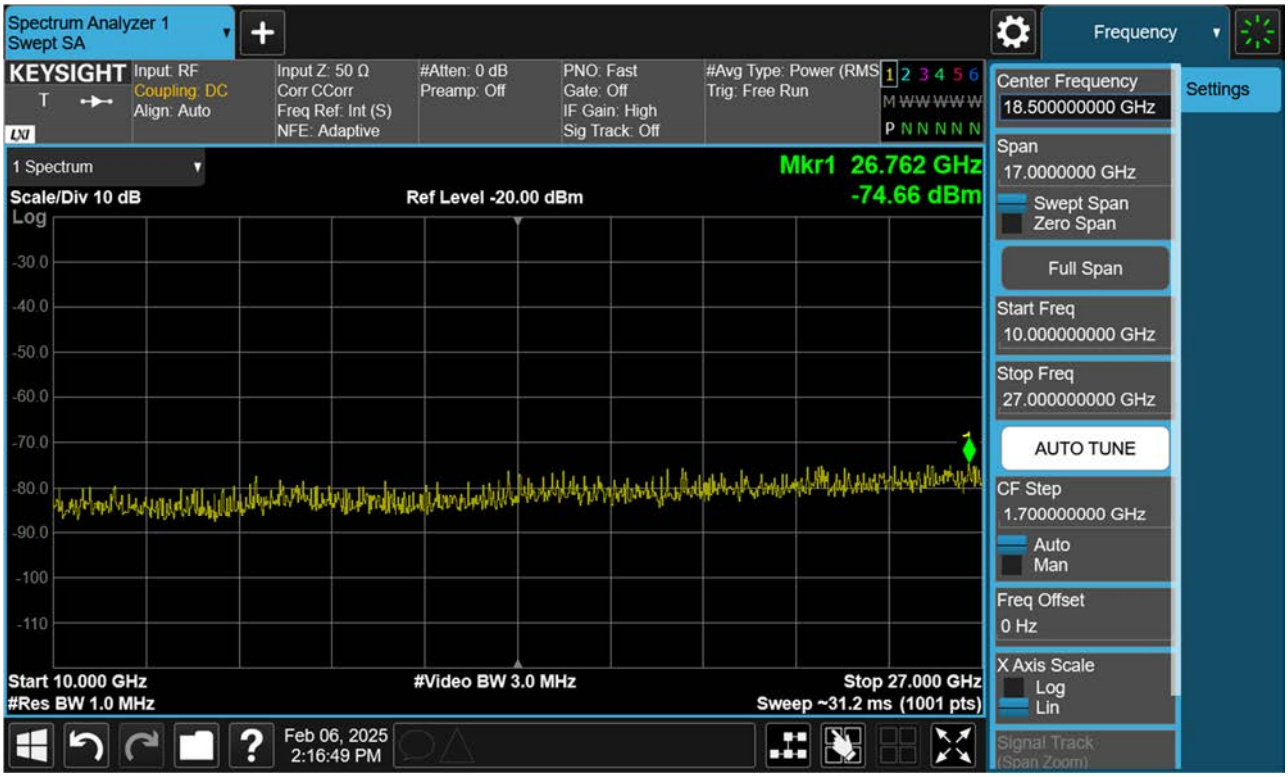
PCC 20 M 40571 RB 1,99 SCC 10 M 40715 RB 1,0



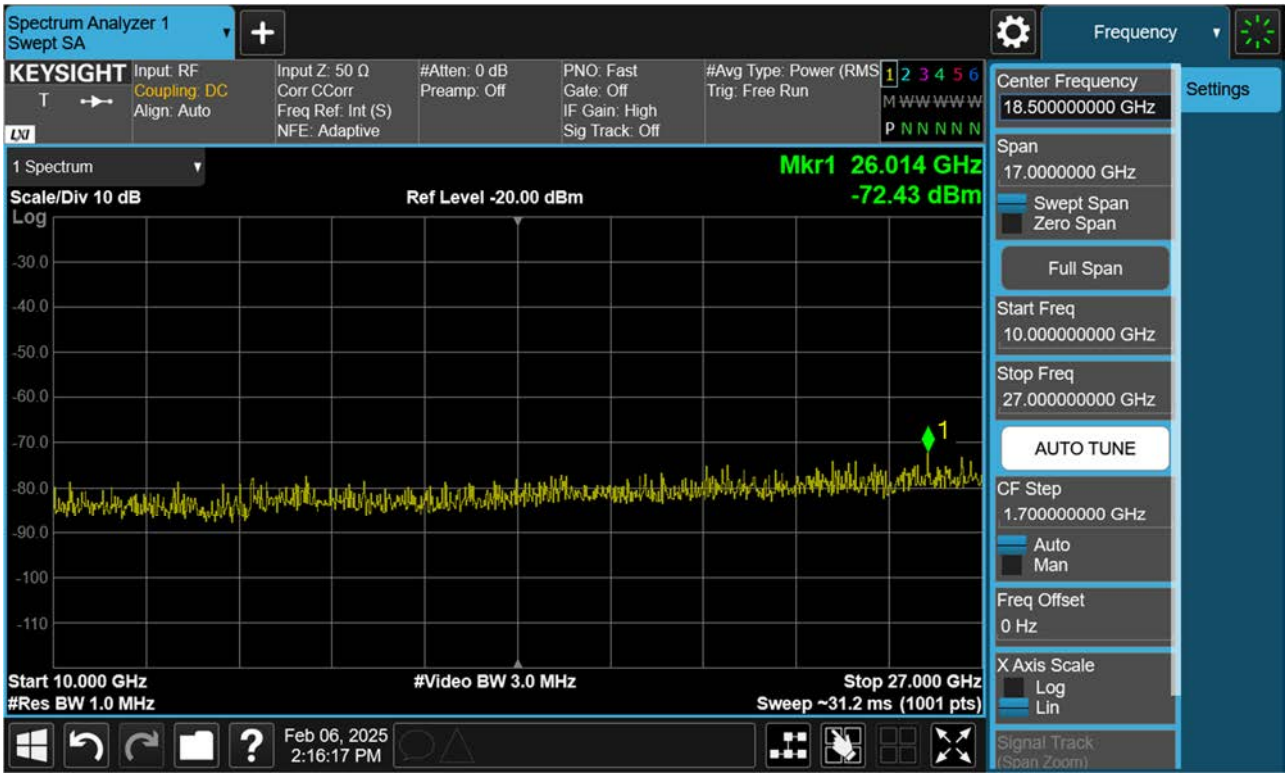
PCC 20 M 41292 RB 100,0 SCC 20 M 41490 RB 100,0



PCC 20 M 41391 RB 1,0 SCC 10 M 41535 RB 1,49

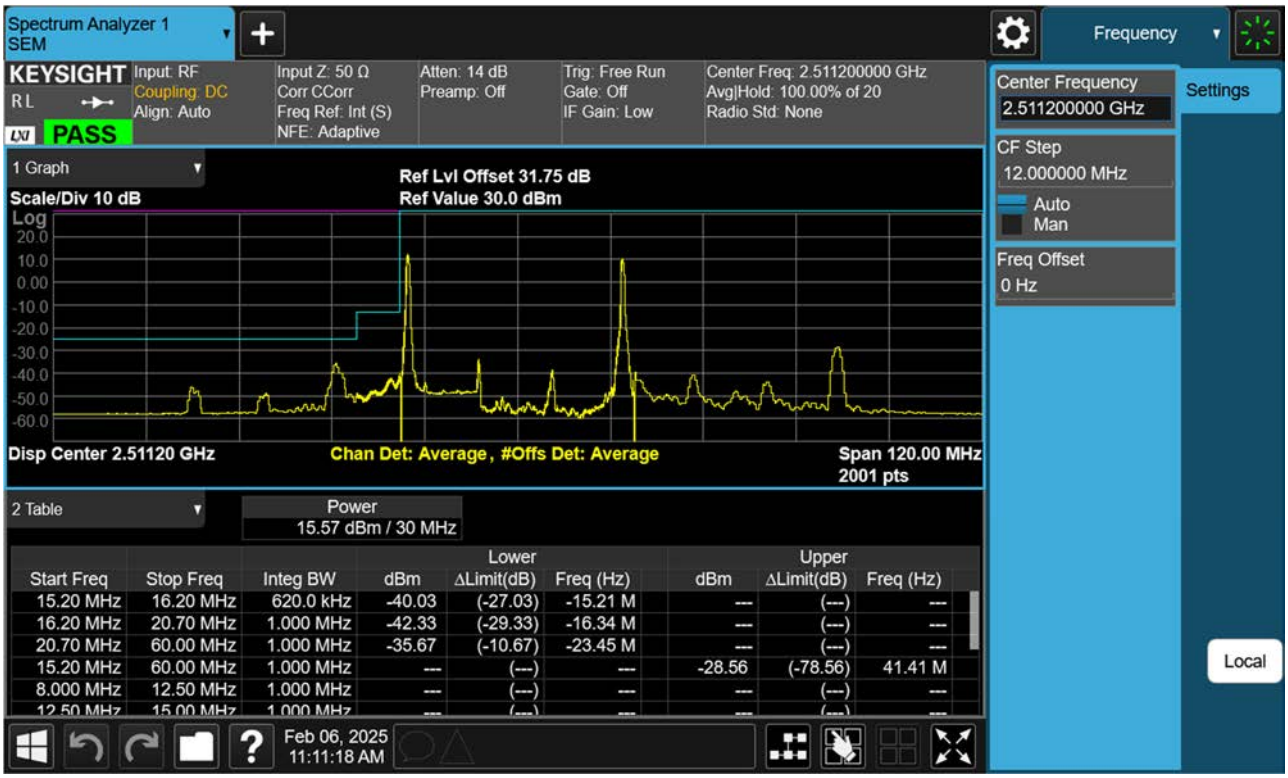


PCC 20 M 41391 RB 1,99 SCC 10 M 41535 RB 1,0

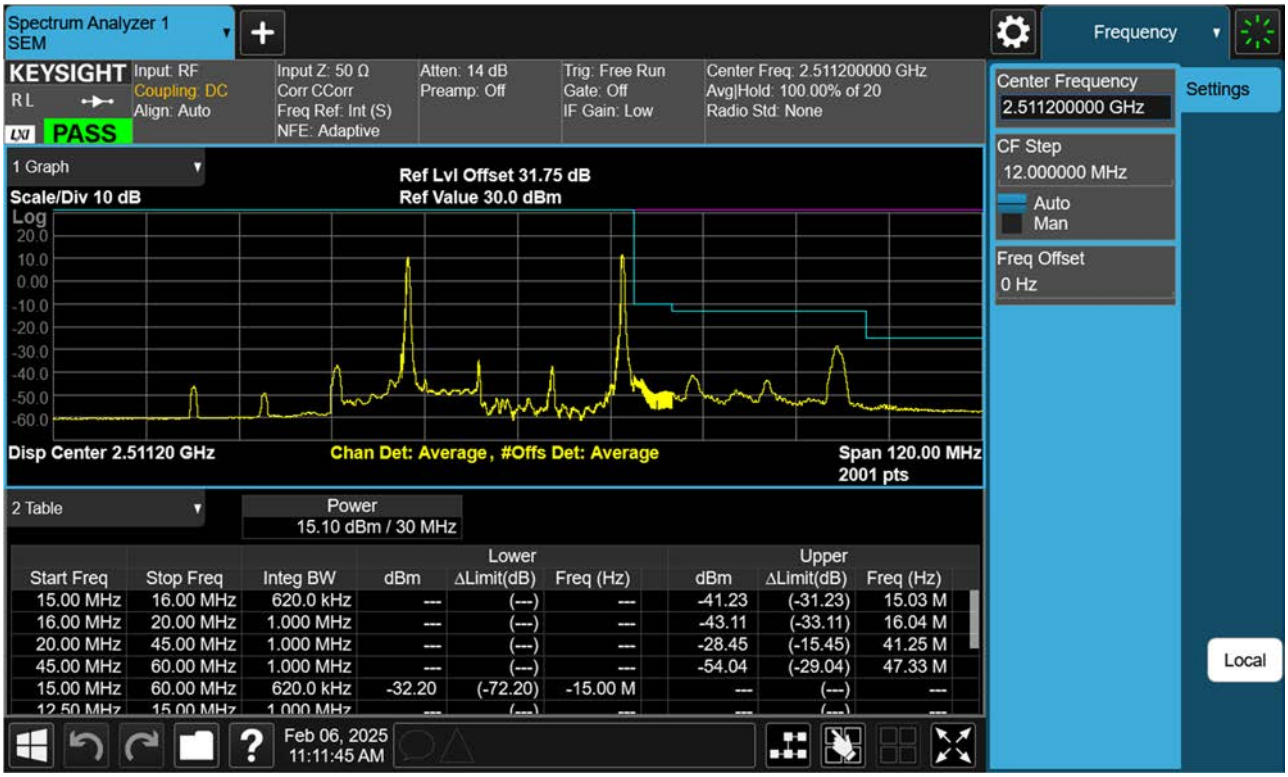


8.4 Channel Edge

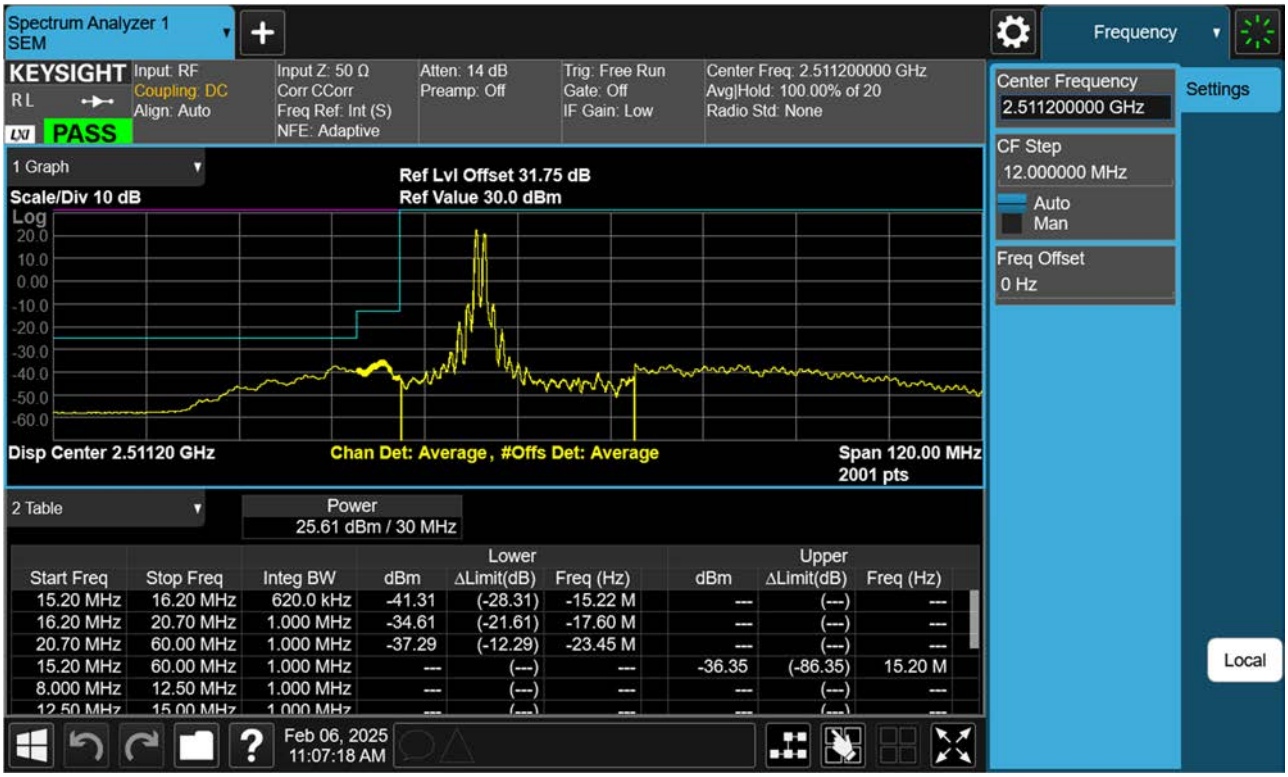
PCC 10 MHz Ch39705 RB1 Offset0, SCC 20 MHz Ch39849 RB1 Offset99-1



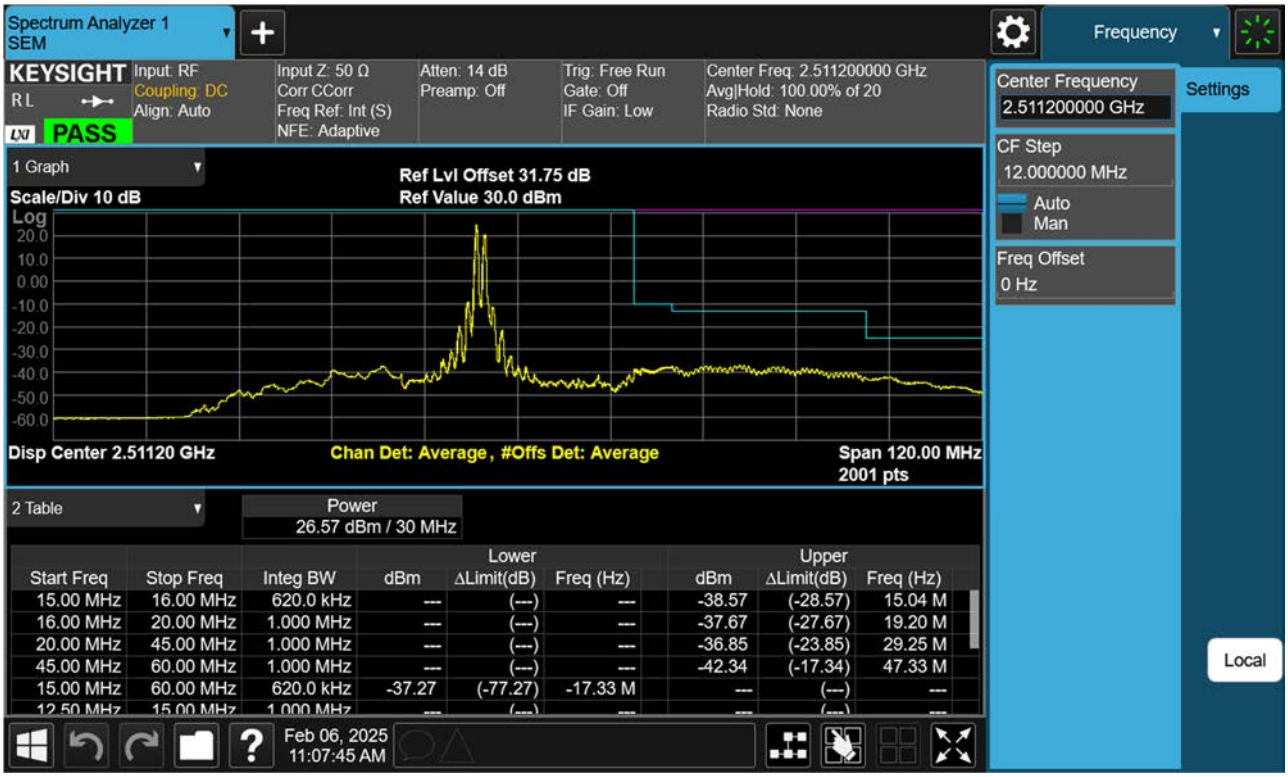
PCC 10 MHz Ch39705 RB1 Offset0, SCC 20 MHz Ch39849 RB1 Offset99-2



PCC 10 MHz Ch39705 RB1 Offset49, SCC 20 MHz Ch39849 RB1 Offset0-1



PCC 10 MHz Ch39705 RB1 Offset49, SCC 20 MHz Ch39849 RB1 Offset0-2



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 15 MHz Ch40571 RB75 Offset0, SCC 10 MHz Ch40691 RB50 Offset0

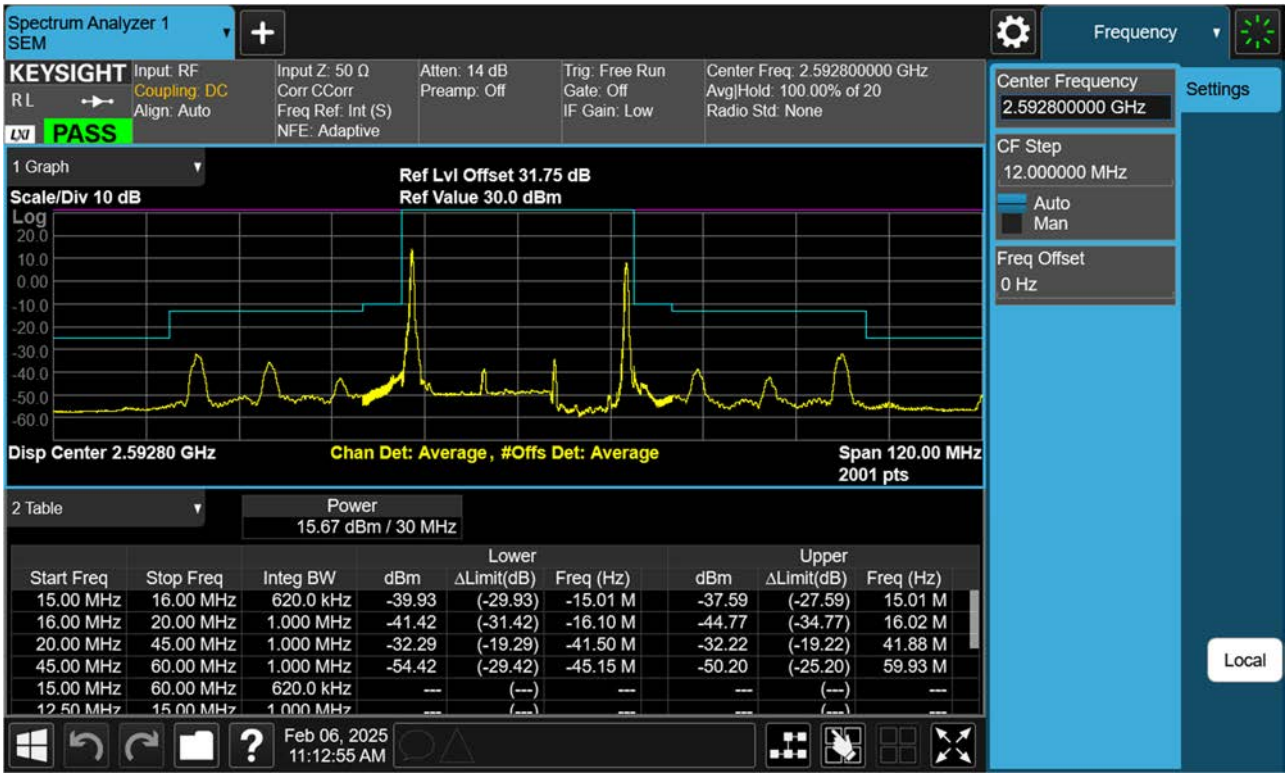
PCC 15 MHz Ch41417 RB75 Offset0, SCC 10 MHz Ch41537 RB50 Offset0

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

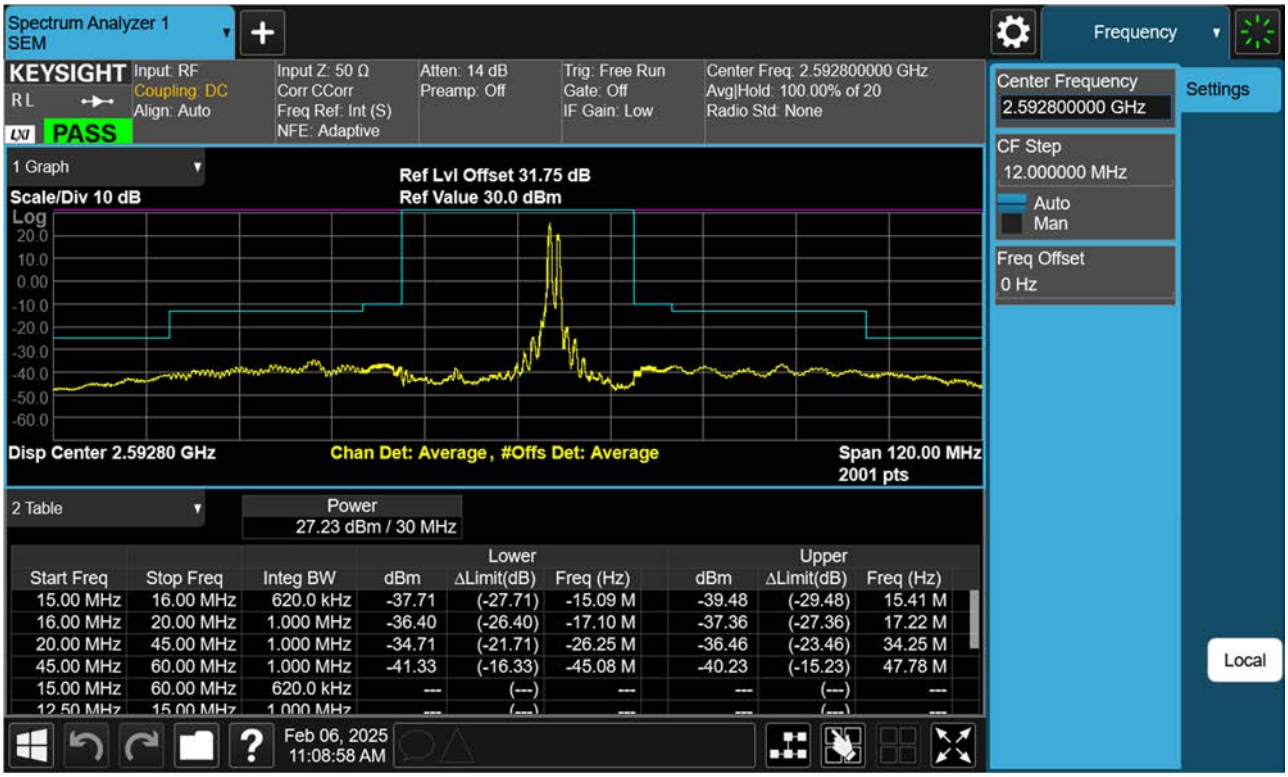
PCC 20 MHz Ch39750 RB100 Offset0, SCC 20 MHz Ch39948 RB100 Offset0-2

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

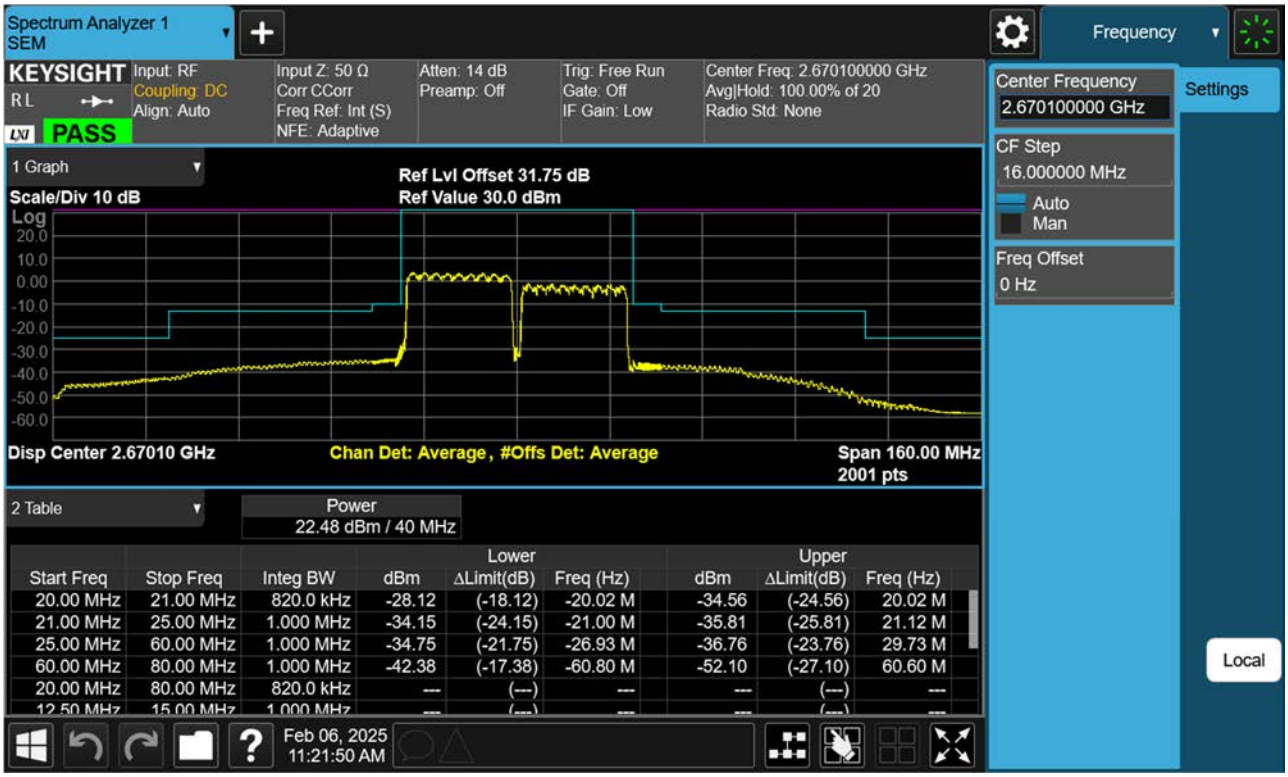
PCC 20 MHz Ch40571 RB1 Offset0, SCC 10 MHz Ch40715 RB1 Offset49



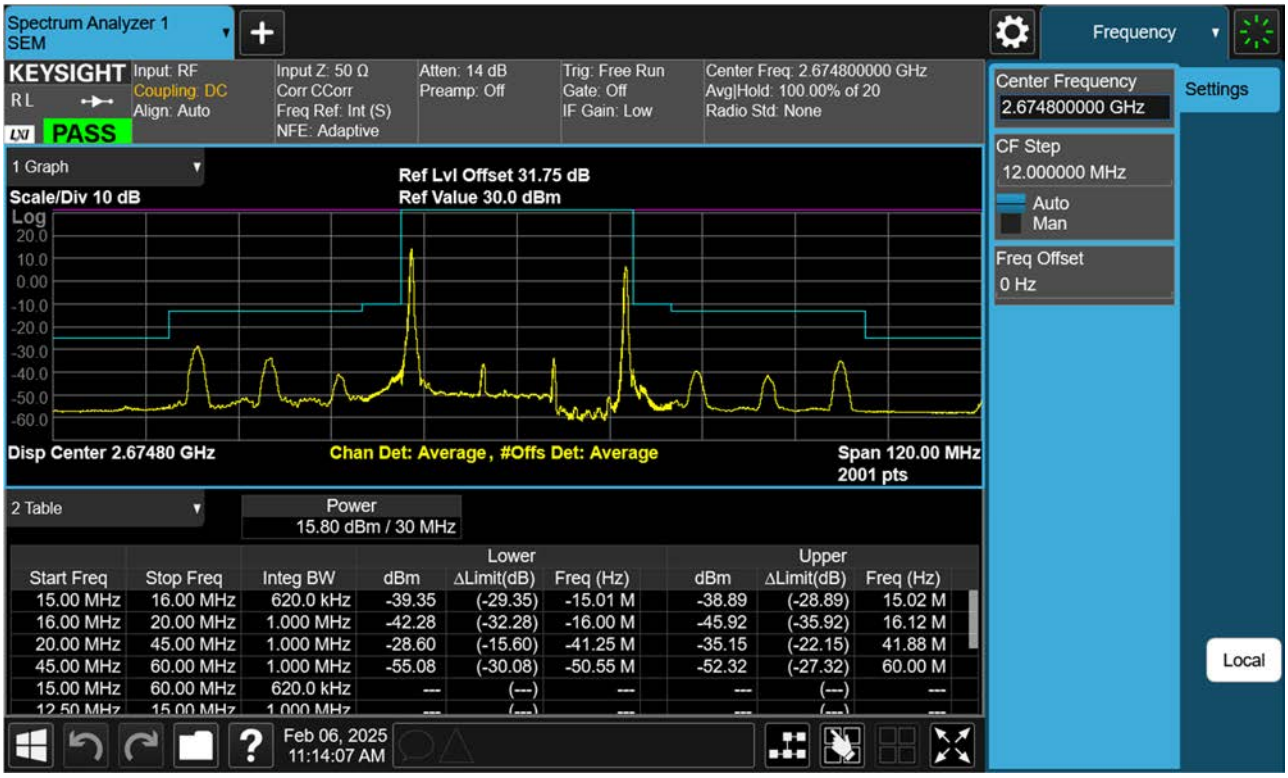
PCC 20 MHz Ch40571 RB1 Offset99, SCC 10 MHz Ch40715 RB1 Offset0



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



PCC 20 MHz Ch41391 RB1 Offset0, SCC 10 MHz Ch41535 RB1 Offset49



PCC 20 MHz Ch41391 RB1 Offset99, SCC 10 MHz Ch41535 RB1 Offset0

8.5 Frequency Stability / Variation Of Ambient Temperature

▣ 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 :	3.860	VDC
▣ LIMIT:	Emission must remain in band	

Voltage (%)	Power (VDC)	Temp. (°C)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.860	+20(Ref)	0.0001	-0.0037	2499.29994	2511.00366
100 %		-30	-0.0037	-0.0110	2499.30375	2511.01099
100 %		-20	-0.0034	-0.0065	2499.30341	2511.00655
100 %		-10	-0.0079	-0.0119	2499.30786	2511.01185
100 %		0	-0.0025	-0.0073	2499.30252	2511.00730
100 %		10	-0.0085	-0.0110	2499.30854	2511.01097
100 %		30	-0.0028	-0.0088	2499.30277	2511.00882
100 %		40	-0.0072	-0.0069	2499.30716	2511.00688
100 %		50	-0.0055	-0.0059	2499.30554	2511.00589
Batt. Endpoint	3.400	20	-0.0022	-0.0030	2499.30218	2511.00303

▣ 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 : 3.860 VDC
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.860	+20(Ref)	0.0012	-0.0068	2501.49884	2515.90676
100 %		-30	-0.0022	-0.0092	2501.50225	2515.90919
100 %		-20	-0.0084	-0.0092	2501.50841	2515.90925
100 %		-10	-0.0052	-0.0103	2501.50516	2515.91025
100 %		0	-0.0034	0.0011	2501.50342	2515.89890
100 %		10	-0.0090	-0.0072	2501.50904	2515.90717
100 %		30	-0.0055	-0.0094	2501.50547	2515.90942
100 %		40	-0.0060	-0.0011	2501.50596	2515.90108
100 %		50	-0.0080	-0.0025	2501.50804	2515.90249
Batt. Endpoint	3.400	20	-0.0081	-0.0085	2501.50808	2515.90853

▣ 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 : 3.860 VDC
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.860	+20(Ref)	-0.0067	-0.0101	2503.80674	2520.91006
100 %		-30	0.0015	-0.0023	2503.79855	2520.90229
100 %		-20	-0.0067	-0.0047	2503.80671	2520.90475
100 %		-10	0.0000	-0.0124	2503.79996	2520.91235
100 %		0	-0.0101	-0.0038	2503.81012	2520.90380
100 %		10	-0.0050	-0.0087	2503.80504	2520.90867
100 %		30	-0.0106	-0.0051	2503.81057	2520.90512
100 %		40	-0.0089	-0.0049	2503.80886	2520.90488
100 %		50	-0.0042	-0.0062	2503.80424	2520.90619
Batt. Endpoint	3.400	20	-0.0076	-0.0080	2503.80758	2520.90803

▣ 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 : 3.860 VDC
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.860	+20(Ref)	-0.0031	-0.0070	2506.00314	2525.80696
100 %		-30	-0.0020	-0.0029	2506.00205	2525.80289
100 %		-20	-0.0071	-0.0029	2506.00711	2525.80295
100 %		-10	-0.0042	-0.0098	2506.00416	2525.80975
100 %		0	-0.0035	-0.0008	2506.00352	2525.80080
100 %		10	-0.0040	-0.0048	2506.00404	2525.80477
100 %		30	-0.0047	-0.0056	2506.00467	2525.80562
100 %		40	-0.0011	-0.0009	2506.00106	2525.80088
100 %		50	-0.0099	-0.0035	2506.00994	2525.80349
Batt. Endpoint	3.400	20	-0.0065	-0.0029	2506.00648	2525.80293

▣ 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 : 3.860 VDC
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.860	+20(Ref)	-0.0050	-0.0085	2668.30504	2680.00846
100 %		-30	0.0008	-0.0095	2668.29925	2680.00949
100 %		-20	-0.0080	-0.0011	2668.30801	2680.00115
100 %		-10	-0.0077	-0.0106	2668.30766	2680.01055
100 %		0	-0.0045	-0.0007	2668.30452	2680.00070
100 %		10	-0.0056	-0.0034	2668.30564	2680.00337
100 %		30	-0.0086	-0.0057	2668.30857	2680.00572
100 %		40	-0.0013	-0.0049	2668.30126	2680.00488
100 %		50	-0.0076	-0.0084	2668.30764	2680.00839
Batt. Endpoint	3.400	20	-0.0025	-0.0028	2668.30248	2680.00283

▣ 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 : 3.860 VDC
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.860	+20(Ref)	-0.0078	-0.0007	2665.60784	2680.00066
100 %		-30	0.0016	-0.0110	2665.59845	2680.01099
100 %		-20	-0.0081	-0.0042	2665.60811	2680.00425
100 %		-10	-0.0027	-0.0074	2665.60266	2680.00735
100 %		0	-0.0047	-0.0007	2665.60472	2680.00070
100 %		10	-0.0075	-0.0119	2665.60754	2680.01187
100 %		30	-0.0072	-0.0033	2665.60717	2680.00332
100 %		40	-0.0049	-0.0041	2665.60486	2680.00408
100 %		50	-0.0063	-0.0036	2665.60634	2680.00359
Batt. Endpoint	3.400	20	-0.0086	-0.0031	2665.60858	2680.00313

▣ 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 : 3.860 VDC
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.860	+20(Ref)	-0.0066	-0.0079	2662.90664	2680.00786
100 %		-30	-0.0013	-0.0110	2662.90135	2680.01099
100 %		-20	-0.0093	-0.0050	2662.90931	2680.00505
100 %		-10	-0.0025	-0.0093	2662.90246	2680.00925
100 %		0	-0.0028	0.0016	2662.90282	2679.99840
100 %		10	-0.0014	-0.0116	2662.90144	2680.01157
100 %		30	-0.0029	-0.0010	2662.90287	2680.00102
100 %		40	-0.0040	-0.0019	2662.90396	2680.00188
100 %		50	-0.0091	-0.0038	2662.90914	2680.00379
Batt. Endpoint	3.400	20	-0.0018	-0.0073	2662.90178	2680.00733

▣ 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 : 3.860 MHz
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.860	+20(Ref)	-0.0059	-0.0075	2660.20594	2680.00746
100 %		-30	-0.0019	-0.0114	2660.20195	2680.01139
100 %		-20	-0.0025	-0.0059	2660.20251	2680.00595
100 %		-10	0.0009	-0.0060	2660.19906	2680.00595
100 %		0	-0.0092	-0.0028	2660.20922	2680.00280
100 %		10	-0.0015	-0.0093	2660.20154	2680.00927
100 %		30	-0.0104	-0.0094	2660.21037	2680.00942
100 %		40	-0.0014	-0.0051	2660.20136	2680.00508
100 %		50	-0.0110	-0.0038	2660.21104	2680.00379
Batt. Endpoint	3.400	20	-0.0074	-0.0048	2660.20738	2680.00483

8.6 Radiated Spurious Emissions

- ▣ 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	-42.24	12.55	-66.35	3.67	H	-57.47
7 547.70	-42.54	11.15	-58.04	4.63	V	-51.52
10 063.60	-45.06	10.66	-54.97	5.48	H	-49.79

▣ PCC Channel : 40521 (2583.1 MHz)

▣ PCC BW(MHz) : 20

▣ PCC RB/ RB Offset : 1/ 99

▣ SCC Channel : 40719 (2602.9 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)
5 186.00	-35.15	12.45	-58.97	3.80	V	-50.32
7 779.00	-39.56	11.55	-54.87	4.70	V	-48.02
10 372.00	-45.66	10.52	-54.15	5.55	H	-49.18

▣ PCC Channel : 41292 (2660.2 MHz)

▣ PCC BW(MHz) : 20

▣ PCC RB/ RB Offset : 1/ 99

▣ SCC Channel : 41490 (2680.0 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)
5 340.20	-24.31	13.22	-49.33	3.80	H	-39.91
8 010.30	-26.92	10.92	-39.31	4.77	V	-33.16
10 680.40	-38.74	10.63	-47.53	5.71	H	-42.61

8.7 Occupied Bandwidth

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	22.954
10	40549	2585.9	QPSK	50/0	15	40669	2597.9	QPSK	75/0	23.191
10	40526	2583.6	QPSK	50/0	20	40670	2598	QPSK	100/0	27.783
15	40571	2588.1	QPSK	75/0	10	40691	2600.1	QPSK	50/0	23.186
15	40545	2585.5	QPSK	75/0	15	40695	2600.5	QPSK	75/0	28.373
15	40523	2583.3	QPSK	75/0	20	40694	2600.4	QPSK	100/0	32.737
20	40595	2590.5	QPSK	100/0	5	40712	2602.2	QPSK	25/0	22.970
20	40571	2588.1	QPSK	100/0	10	40715	2602.5	QPSK	50/0	27.787
20	40546	2585.6	QPSK	100/0	15	40717	2602.7	QPSK	75/0	32.738
20	40521	2583.1	QPSK	100/0	20	40719	2602.9	QPSK	100/0	37.664

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	22.908
10	40549	2585.9	16QAM	50/0	15	40669	2597.9	16QAM	75/0	23.113
10	40526	2583.6	16QAM	50/0	20	40670	2598	16QAM	100/0	27.793
15	40571	2588.1	16QAM	75/0	10	40691	2600.1	16QAM	50/0	23.153
15	40545	2585.5	16QAM	75/0	15	40695	2600.5	16QAM	75/0	28.385
15	40523	2583.3	16QAM	75/0	20	40694	2600.4	16QAM	100/0	32.636
20	40595	2590.5	16QAM	100/0	5	40712	2602.2	16QAM	25/0	22.928
20	40571	2588.1	16QAM	100/0	10	40715	2602.5	16QAM	50/0	27.829
20	40546	2585.6	16QAM	100/0	15	40717	2602.7	16QAM	75/0	32.732
20	40521	2583.1	16QAM	100/0	20	40719	2602.9	16QAM	100/0	37.522

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	22.852
10	40549	2585.9	64QAM	50/0	15	40669	2597.9	64QAM	75/0	23.120
10	40526	2583.6	64QAM	50/0	20	40670	2598	64QAM	100/0	27.821
15	40571	2588.1	64QAM	75/0	10	40691	2600.1	64QAM	50/0	23.264
15	40545	2585.5	64QAM	75/0	15	40695	2600.5	64QAM	75/0	28.351
15	40523	2583.3	64QAM	75/0	20	40694	2600.4	64QAM	100/0	32.672
20	40595	2590.5	64QAM	100/0	5	40712	2602.2	64QAM	25/0	22.910
20	40571	2588.1	64QAM	100/0	10	40715	2602.5	64QAM	50/0	27.746
20	40546	2585.6	64QAM	100/0	15	40717	2602.7	64QAM	75/0	32.611
20	40521	2583.1	64QAM	100/0	20	40719	2602.9	64QAM	100/0	37.698

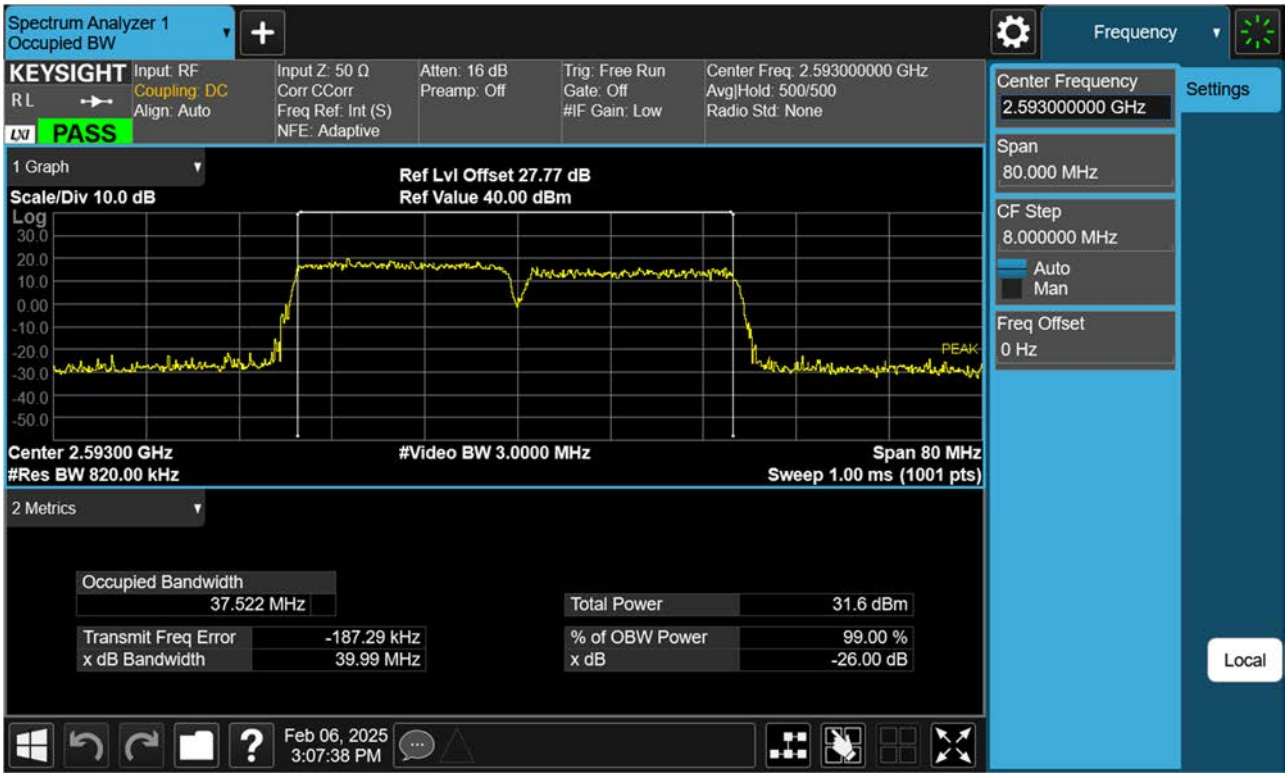
PCC					SCC					Data (MHz)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	40528	2583.8	256QAM	25/0	20	40645	2595.5	256QAM	100/0	22.787
10	40549	2585.9	256QAM	50/0	15	40669	2597.9	256QAM	75/0	23.098
10	40526	2583.6	256QAM	50/0	20	40670	2598	256QAM	100/0	27.703
15	40571	2588.1	256QAM	75/0	10	40691	2600.1	256QAM	50/0	23.203
15	40545	2585.5	256QAM	75/0	15	40695	2600.5	256QAM	75/0	28.358
15	40523	2583.3	256QAM	75/0	20	40694	2600.4	256QAM	100/0	32.613
20	40595	2590.5	256QAM	100/0	5	40712	2602.2	256QAM	25/0	22.904
20	40571	2588.1	256QAM	100/0	10	40715	2602.5	256QAM	50/0	27.783
20	40546	2585.6	256QAM	100/0	15	40717	2602.7	256QAM	75/0	32.761
H	40521	2583.1	256QAM	100/0	20	40719	2602.9	256QAM	100/0	37.573

Note:

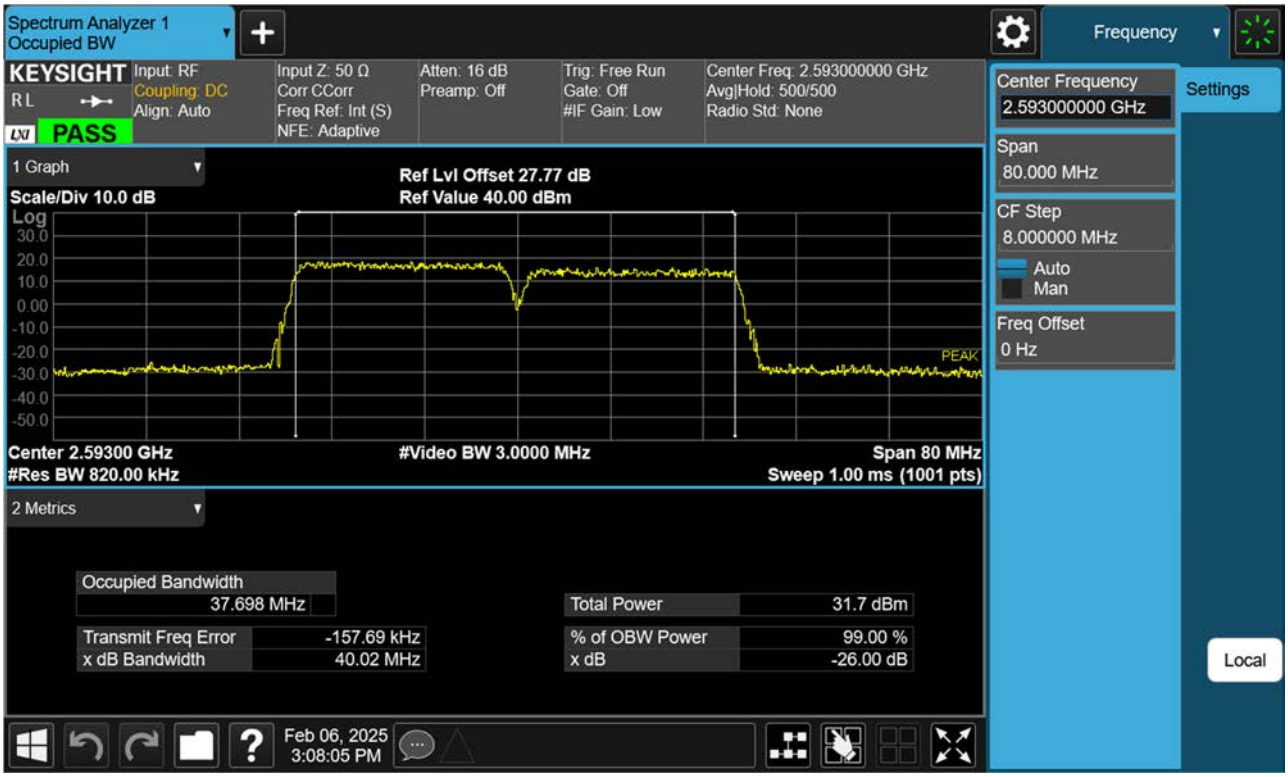
In order to simplify the report, attached plots were only Max.Bandwidth(20+20)

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

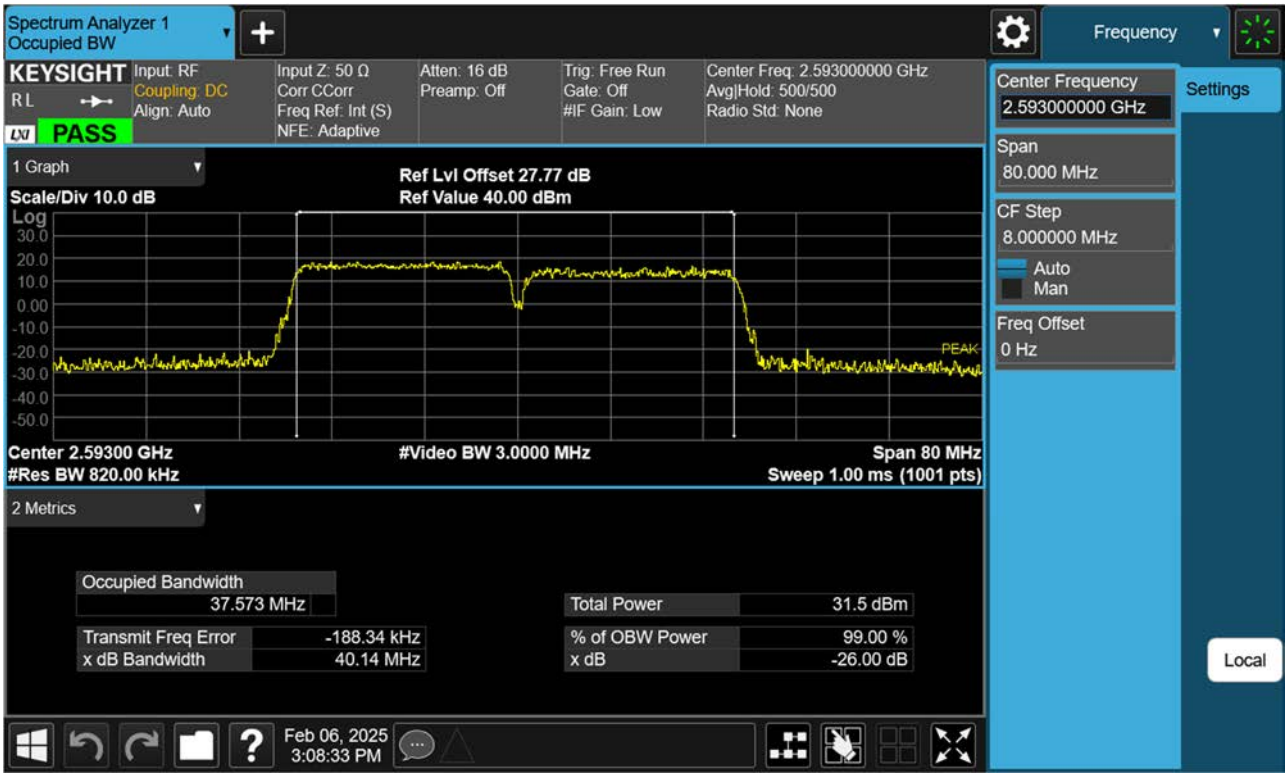
PCC 20 MHz Ch40521 RB100 Offset0, SCC 20 MHz Ch40719 RB100 Offset0_(16QAM)



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

PCC					SCC					Data (dB)
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	6.55
10	40549	2585.9	QPSK	50/0	15	40669	2597.9	QPSK	75/0	6.33
10	40526	2583.6	QPSK	50/0	20	40670	2598	QPSK	100/0	6.57
15	40571	2588.1	QPSK	75/0	10	40691	2600.1	QPSK	50/0	6.31
15	40545	2585.5	QPSK	75/0	15	40695	2600.5	QPSK	75/0	7.26
15	40523	2583.3	QPSK	75/0	20	40694	2600.4	QPSK	100/0	6.60
20	40595	2590.5	QPSK	100/0	5	40712	2602.2	QPSK	25/0	6.53
20	40571	2588.1	QPSK	100/0	10	40715	2602.5	QPSK	50/0	6.52
20	40546	2585.6	QPSK	100/0	15	40717	2602.7	QPSK	75/0	6.52
20	40521	2583.1	QPSK	100/0	20	40719	2602.9	QPSK	100/0	7.40

PCC					SCC					Data (dB)
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	7.12
10	40549	2585.9	16QAM	50/0	15	40669	2597.9	16QAM	75/0	6.67
10	40526	2583.6	16QAM	50/0	20	40670	2598	16QAM	100/0	7.09
15	40571	2588.1	16QAM	75/0	10	40691	2600.1	16QAM	50/0	6.66
15	40545	2585.5	16QAM	75/0	15	40695	2600.5	16QAM	75/0	8.10
15	40523	2583.3	16QAM	75/0	20	40694	2600.4	16QAM	100/0	7.07
20	40595	2590.5	16QAM	100/0	5	40712	2602.2	16QAM	25/0	7.21
20	40571	2588.1	16QAM	100/0	10	40715	2602.5	16QAM	50/0	7.10
20	40546	2585.6	16QAM	100/0	15	40717	2602.7	16QAM	75/0	7.09
20	40521	2583.1	16QAM	100/0	20	40719	2602.9	16QAM	100/0	8.18

PCC					SCC					Data (dB)
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	7.16
10	40549	2585.9	64QAM	50/0	15	40669	2597.9	64QAM	75/0	6.73
10	40526	2583.6	64QAM	50/0	20	40670	2598	64QAM	100/0	7.14
15	40571	2588.1	64QAM	75/0	10	40691	2600.1	64QAM	50/0	6.94
15	40545	2585.5	64QAM	75/0	15	40695	2600.5	64QAM	75/0	7.18
15	40523	2583.3	64QAM	75/0	20	40694	2600.4	64QAM	100/0	7.09
20	40595	2590.5	64QAM	100/0	5	40712	2602.2	64QAM	25/0	7.29
20	40571	2588.1	64QAM	100/0	10	40715	2602.5	64QAM	50/0	7.13
20	40546	2585.6	64QAM	100/0	15	40717	2602.7	64QAM	75/0	7.13
20	40521	2583.1	64QAM	100/0	20	40719	2602.9	64QAM	100/0	7.31

PCC					SCC					Data (dB)
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	7.17
10	40549	2585.9	256QAM	50/0	15	40669	2597.9	256QAM	75/0	6.81
10	40526	2583.6	256QAM	50/0	20	40670	2598	256QAM	100/0	7.24
15	40571	2588.1	256QAM	75/0	10	40691	2600.1	256QAM	50/0	6.74
15	40545	2585.5	256QAM	75/0	15	40695	2600.5	256QAM	75/0	8.43
15	40523	2583.3	256QAM	75/0	20	40694	2600.4	256QAM	100/0	7.21
20	40595	2590.5	256QAM	100/0	5	40712	2602.2	256QAM	25/0	7.29
20	40571	2588.1	256QAM	100/0	10	40715	2602.5	256QAM	50/0	7.15
20	40546	2585.6	256QAM	100/0	15	40717	2602.7	256QAM	75/0	7.19
H	40521	2583.1	256QAM	100/0	20	40719	2602.9	256QAM	100/0	7.13

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-2502-FC024-P