TEST REPORT

FCC CA_48C Test for SM-X528U
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2502-FC025-R1

DATE OF ISSUE
February 18, 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:	Citizens Band End User Devices (CBE)
Test Standard Used	FCC Rule Part: § 96
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
1	February 18, 2025	Revised the FCC Classification. (page 2, 5)

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:	Citizens Band End User Devices (CBE)
FCC Rule Part(s):	§ 96
EUT Type:	Tablet
Model(s):	SM-X528U
Tx Frequency:	3553.3 - 3690.0: 5 MHz+20 MHz 3555.5 - 3690.0: 10 MHz+20 MHz 3557.8 - 3690.0: 15 MHz+20 MHz 3560.0 - 3696.7: 20 MHz+5 MHz 3560.0 - 3694.5: 20 MHz+10 MHz 3560.0 - 3692.2: 20 MHz+15 MHz 3560.0 - 3690.0: 20 MHz+20 MHz
Date(s) of Tests:	January 02, 2025 ~ February 07, 2025
Serial number:	Radiated : R32XC00A61F Conducted : R32XC00A9JV
LTE CA :	CA 48C (Uplink)

1.1. MAXIMUM OUTPUT POWER

Mode (PCC+SCC)	Tx Frequency (MHz)	Modulation	Emission Designator	EIRP	
				Max. Power (dBm/10 MHz)	Max. Power (W)
5 MHz+20 MHz	3553.3 - 3690.0	QPSK	22M8G7D	16.30	0.043
		16QAM	22M9W7D	16.59	0.046
		64QAM	22M8W7D	16.53	0.045
		256QAM	22M9W7D	16.38	0.043
10 MHz+20 MHz	3555.5 - 3690.0	QPSK	27M6G7D	16.18	0.041
		16QAM	27M6W7D	16.50	0.045
		64QAM	27M5W7D	16.45	0.044
		256QAM	27M7W7D	16.32	0.043
15 MHz+20 MHz	3557.8 - 3690.0	QPSK	32M6G7D	16.36	0.043
		16QAM	32M5W7D	16.62	0.046
		64QAM	32M5W7D	16.59	0.046
		256QAM	32M6W7D	16.43	0.044
20 MHz+5 MHz	3560.0 - 3696.7	QPSK	23M0G7D	17.30	0.054
		16QAM	22M7W7D	17.51	0.056
		64QAM	22M9W7D	17.47	0.056
		256QAM	22M7W7D	17.30	0.054
20 MHz+10 MHz	3560.0 - 3694.5	QPSK	27M7G7D	16.38	0.043
		16QAM	27M8W7D	16.59	0.046
		64QAM	27M8W7D	16.54	0.045
		256QAM	27M8W7D	16.40	0.044
20 MHz+15 MHz	3560.0 - 3692.2	QPSK	32M7G7D	16.30	0.043
		16QAM	32M6W7D	16.60	0.046
		64QAM	32M5W7D	16.54	0.045
		256QAM	32M6W7D	16.41	0.044
20 MHz+20 MHz	3560.0 - 3690.0	QPSK	37M5G7D	17.59	0.057
		16QAM	37M4W7D	17.91	0.062
		64QAM	37M4W7D	17.86	0.061
		256QAM	37M6W7D	17.71	0.059

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/ ACLR	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7 - KDB 940660 D01 v01
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
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;

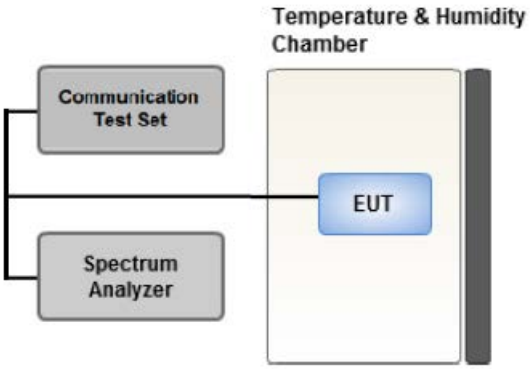
$$\text{Result}_{(dBm)} = \text{Pg}_{(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dBi)}$$

   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)

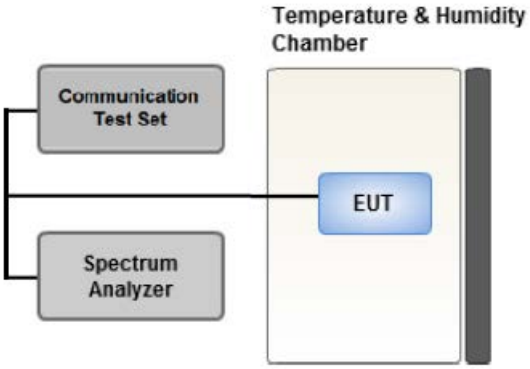
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW ≥ 3 × RBW.

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.



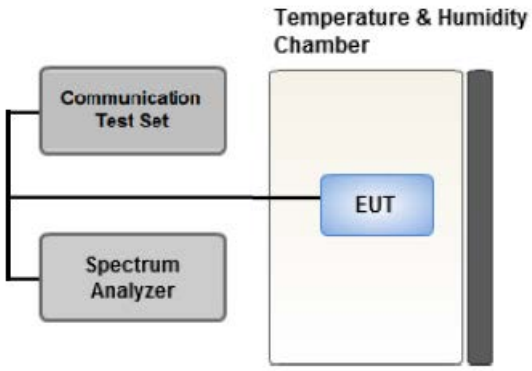
Test setup

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.

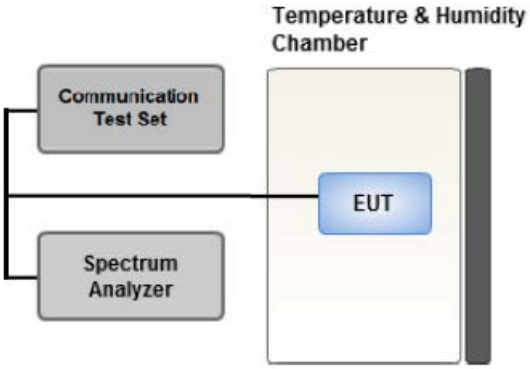
All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

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 = RMS
4. Trace Mode = trace average
5. Sweep time = auto
6. Number of points in sweep ≥ 2 x Span / RBW

3.7 CHANNEL EDGE



Test setup

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

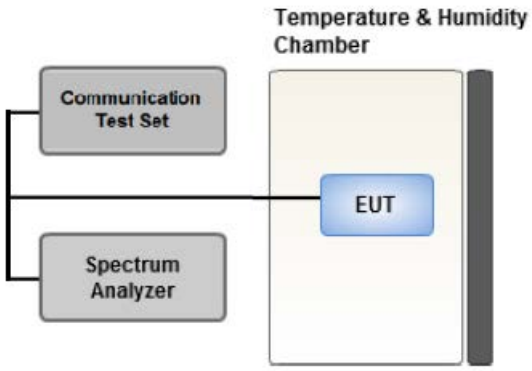
Test Notes

The conducted power of any emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed －13 dBm/MHz within 0-10 megahertz above the upper SAS-assigned channel edge and within 0-10 megahertz below the lower SAS-assigned channel edge. At all frequencies greater than 10 megahertz above the upper SAS assigned channel edge and less than 10 MHz below the lower SAS assigned channel edge, the conducted power of any emission shall not exceed －25 dBm/MHz.

The conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40 dBm/Mhz

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:

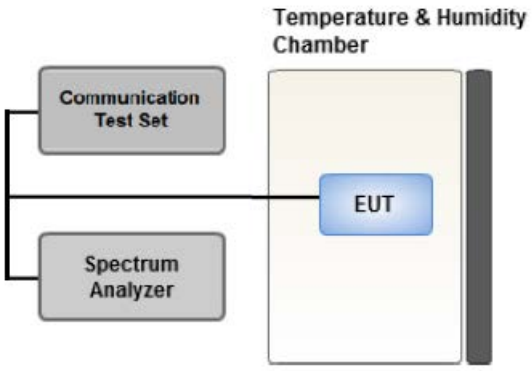
   .- Unless otherwise specified, vary primary supply voltage from 85 % to 115 % of the nominal value for other than hand carried battery equipment.

   .- 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.

3.9 Adjacent Channel Leakage Ratio



Test setup

Test Settings

1. Use ACP measurement function of Spectrum analyzer to measure adjacent channel leakage ratio
2. Integ BW = Assigned channel bandwidth
5. Detector = RMS
6. Number of sweep points ≥ 2 x Span/RBW
7. Trace mode = trace average
8. Sweep time = 1 s
9. The trace was allowed to stabilize

Test Notes

the Adjacent Channel Leakage Ratio for End User Devices shall be at least 30 dB.

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
Channel Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§ 2.1051, § 96.41(e)	■ -13 dBm/Mhz at frequencies within 0-10 MHz of channel edge ■ -25 dBm/MHz at frequencies greater than 10 MHz above and below channel edge ■ -40 dBm/MHz at frequencies below 3530 MHz and above 3720 MHz	PASS
Adjacent Channel Leakage Ratio	§ 96.41(e)	At least 30 dB.	PASS
Conducted Output Power	§ 2.1046	N/A	PASS
Frequency stability / variation of ambient temperature	§ 2.1055,	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	§ 96.41(b)	23 dBm/10 MHz	PASS
Radiated Spurious and Harmonic Emissions	§ 2.1053, § 96.41(e)	-40 dBm/MHz	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	20	35
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, Keyboard, 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.

[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	16QAM	Low	20	3560.0	55340	1	99	20	3579.8	55538	1	0
		Mid	20	3615.1	55891	1	99	20	3634.9	56089	1	0
		High	20	3670.2	56442	1	99	20	3690.0	56640	1	0
		Low	20	3560.0	55340	1	0	20	3579.8	55538	1	99
		Mid	20	3615.1	55891	1	0	20	3634.9	56089	1	99
		High	20	3670.2	56442	1	0	20	3690.0	56640	1	99
		Low	10	3555.5	55295	50	0	20	3569.9	55439	100	0
		Mid	10	3615.6	55896	50	0	20	3630.0	56040	100	0
		High	20	3675.1	56491	100	0	15	3692.2	56662	75	0
		Low	20	3560.0	55340	100	0	20	3579.8	55538	100	0
		Mid	20	3615.1	55891	100	0	20	3634.9	56089	100	0
		High	20	3670.2	56442	100	0	20	3690.0	56640	100	0
Radiated Spurious Emissions	16QAM	Low	20	3560.0	55340	1	99	20	3579.8	55538	1	0
		Mid	20	3615.1	55891	1	99	20	3634.9	56089	1	0
		High	20	3670.2	56442	1	99	20	3690.0	56640	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	3615.8	55898	25	0	20	3627.5	56015	100	0
			10	3615.6	55896	50	0	20	3630.0	56040	100	0
			15	3615.3	55893	75	0	20	3632.4	56064	100	0
			20	3622.5	55965	100	0	5	3634.2	56082	25	0
			20	3620.1	55941	100	0	10	3634.5	56085	50	0
			20	3617.6	55916	100	0	15	3634.7	56087	75	0
			20	3615.1	55891	100	0	20	3634.9	56089	100	0
Frequency stability	QPSK	Low	5	3553.3	55273	25	0	20	3565.0	55390	100	0
			10	3555.5	55295	50	0	20	3569.9	55439	100	0
			15	3557.8	55318	75	0	20	3574.9	55489	50	0
			20	3560.0	55340	100	0	20	3579.8	55538	100	0
		High	5	3678.3	56523	25	0	20	3690.0	56640	100	0
			10	3675.6	56496	50	0	20	3690.0	56640	100	0
			15	3672.9	56469	75	0	20	3690.0	56640	50	0
			20	3670.2	56442	100	0	20	3690.0	56640	100	0

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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	3553.3	55273	1	24	20	3565.0	55390	1	0	18.25
	10	3555.5	55295	1	49	20	3569.9	55439	1	0	17.78
	15	3557.8	55318	1	74	20	3574.9	55489	1	0	16.76
	20	3560.0	55340	1	99	5	3571.7	55457	1	0	18.53
	20	3560.0	55340	1	99	10	3574.4	55484	1	0	16.65
	20	3560.0	55340	1	99	15	3577.1	55511	1	0	16.62
	20	***3560.0***	***55340***	***1***	***99***	***20***	***3579.8***	***55538***	***1***	***0***	***19.14***
Mid	5	3615.8	55898	1	24	20	3627.5	56015	1	0	18.12
	10	3615.6	55896	1	49	20	3630.0	56040	1	0	16.77
	15	3615.3	55893	1	74	20	3632.4	56064	1	0	16.84
	20	3622.5	55965	1	99	5	3634.2	56082	1	0	18.86
	20	3620.1	55941	1	99	10	3634.5	56085	1	0	17.85
	20	3617.6	55916	1	99	15	3634.7	56087	1	0	16.86
	20	***3615.1***	***55891***	***1***	***99***	***20***	***3634.9***	***56089***	***1***	***0***	***19.38***
High	5	3678.3	56523	1	24	20	3690.0	56640	1	0	18.42
	10	3675.6	56496	1	49	20	3690.0	56640	1	0	17.04
	15	3672.9	56469	1	74	20	3690.0	56640	1	0	17.05
	20	3685.0	56590	1	99	5	3696.7	56707	1	0	18.70
	20	3680.1	56541	1	99	10	3694.5	56685	1	0	16.76
	20	3675.1	56491	1	99	15	3692.2	56662	1	0	17.79
	20	***3670.2***	***56442***	***1***	***99***	***20***	***3690.0***	***56640***	***1***	***0***	***19.52***

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	3553.3	55273	25	0	20	3565.0	55390	100	0	11.87
	10	***3555.5***	***55295***	***50***	***0***	***20***	***3569.9***	***55439***	***100***	***0***	***12.80***
	15	3557.8	55318	75	0	20	3574.9	55489	100	0	12.66
	20	3560.0	55340	100	0	5	3571.7	55457	25	0	11.72
	20	3560.0	55340	100	0	10	3574.4	55484	50	0	11.77
	20	3560.0	55340	100	0	15	3577.1	55511	75	0	11.68
	20	3560.0	55340	100	0	20	3579.8	55538	100	0	12.54
Mid	5	3615.8	55898	25	0	20	3627.5	56015	100	0	11.02
	10	***3615.6***	***55896***	***50***	***0***	***20***	***3630.0***	***56040***	***100***	***0***	***13.15***
	15	3615.3	55893	75	0	20	3632.4	56064	100	0	12.09
	20	3622.5	55965	100	0	5	3634.2	56082	25	0	11.13
	20	3620.1	55941	100	0	10	3634.5	56085	50	0	12.14
	20	3617.6	55916	100	0	15	3634.7	56087	75	0	12.10
	20	3615.1	55891	100	0	20	3634.9	56089	100	0	12.09
High	5	3678.3	56523	25	0	20	3690.0	56640	100	0	10.92
	10	3675.6	56496	50	0	20	3690.0	56640	100	0	12.84
	15	3672.9	56469	75	0	20	3690.0	56640	100	0	11.92
	20	3685.0	56590	100	0	5	3696.7	56707	25	0	11.82
	20	3680.1	56541	100	0	10	3694.5	56685	50	0	12.82
	20	***3675.1***	***56491***	***100***	***0***	***15***	***3692.2***	***56662***	***75***	***0***	***12.85***
	20	3670.2	56442	100	0	20	3690.0	56640	100	0	11.91

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	3560.0	55340	1	99	20	3579.8	55538	1	0	19.81
Mid	20	3615.1	55891	1	99	20	3634.9	56089	1	0	20.04
High	20	3670.2	56442	1	99	20	3690.0	56640	1	0	20.20
Low	10	3555.5	55295	50	0	20	3569.9	55439	100	0	12.91
Mid	10	3615.6	55896	50	0	20	3630.0	56040	100	0	13.25
High	20	3675.1	56491	100	0	15	3692.2	56662	75	0	13.04

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	3560.0	55340	1	99	20	3579.8	55538	1	0	19.31
Mid	20	3615.1	55891	1	99	20	3634.9	56089	1	0	19.51
High	20	3670.2	56442	1	99	20	3690.0	56640	1	0	19.70
Low	10	3555.5	55295	50	0	20	3569.9	55439	100	0	12.90
Mid	10	3615.6	55896	50	0	20	3630.0	56040	100	0	13.21
High	20	3675.1	56491	100	0	15	3692.2	56662	75	0	13.01

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	3560.0	55340	1	99	20	3579.8	55538	1	0	19.25
Mid	20	3615.1	55891	1	99	20	3634.9	56089	1	0	19.48
High	20	3670.2	56442	1	99	20	3690.0	56640	1	0	19.63
Low	10	3555.5	55295	50	0	20	3569.9	55439	100	0	12.86
Mid	10	3615.6	55896	50	0	20	3630.0	56040	100	0	13.19
High	20	3675.1	56491	100	0	15	3692.2	56662	75	0	12.99

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/ 10 MHz
Low	5	55273	1/24	20	55390	1/0	-32.06	7.01	12.38	3.09	H	0.043	16.30
	10	55295	1/49	20	55439	1/0	-32.18	6.89	12.38	3.09	H	0.041	16.18
	15	55318	1/74	20	55489	1/0	-32.05	7.08	12.37	3.09	H	0.043	16.36
	20	55340	1/99	5	55457	1/0	-31.19	7.94	12.37	3.09	H	0.053	17.22
	20	55340	1/99	10	55484	1/0	-32.10	7.03	12.37	3.09	H	0.043	16.31
	20	55340	1/99	15	55511	1/0	-32.20	7.00	12.36	3.09	H	0.042	16.27
	20	***55340***	***1/99***	***20***	***55538***	***1/0***	***-30.88***	***8.32***	***12.36***	***3.09***	***H***	***0.057***	***17.59***
Mid	5	55898	1/24	20	56015	1/0	-32.45	6.89	12.26	3.14	H	0.040	16.01
	10	55896	1/49	20	56040	1/0	-32.59	6.75	12.26	3.14	H	0.039	15.87
	15	55893	1/74	20	56064	1/0	-32.48	6.88	12.25	3.13	H	0.040	16.00
	20	55965	1/99	5	56082	1/0	-31.18	8.18	12.25	3.13	H	0.054	17.30
	20	55941	1/99	10	56085	1/0	-32.10	7.26	12.25	3.13	H	0.043	16.38
	20	55916	1/99	15	56087	1/0	-32.18	7.18	12.25	3.13	H	0.043	16.30
	20	***55891***	***1/99***	***20***	***56089***	***1/0***	***-31.04***	***8.32***	***12.25***	***3.13***	***H***	***0.055***	***17.44***
High	5	56523	1/24	20	56640	1/0	-32.63	6.82	12.27	3.10	H	0.040	16.00
	10	56496	1/49	20	56640	1/0	-32.84	6.61	12.27	3.10	H	0.038	15.79
	15	56469	1/74	20	56640	1/0	-32.86	6.64	12.26	3.11	H	0.038	15.80
	20	56590	1/99	5	56707	1/0	-31.53	7.87	12.28	3.08	H	0.051	17.07
	20	56541	1/99	10	56685	1/0	-32.61	6.84	12.27	3.10	H	0.040	16.02
	20	56491	1/99	15	56662	1/0	-32.55	6.90	12.27	3.10	H	0.041	16.08
	20	***56442***	***1/99***	***20***	***56640***	***1/0***	***-31.58***	***7.93***	***12.26***	***3.11***	***H***	***0.051***	***17.08***

Note:

1. Modulation : QPSK
2. Limit : < 23 dBm/10 MHz

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/ 10 MHz
5	55273	1/24	20	55390	1/0	-31.77	7.30	12.38	3.09	H	0.046	16.59
10	55295	1/49	20	55439	1/0	-31.86	7.21	12.38	3.09	H	0.045	16.50
15	55318	1/74	20	55489	1/0	-31.79	7.34	12.37	3.09	H	0.046	16.62
20	55340	1/99	5	55457	1/0	-30.90	8.23	12.37	3.09	H	0.056	17.51
20	55340	1/99	10	55484	1/0	-31.82	7.31	12.37	3.09	H	0.046	16.59
20	55340	1/99	15	55511	1/0	-31.87	7.33	12.36	3.09	H	0.046	16.60
20	55340	1/99	20	55538	1/0	-30.56	8.64	12.36	3.09	H	0.062	17.91
20	55891	1/99	20	56089	1/0	-30.73	8.63	12.25	3.13	H	0.060	17.75
20	56442	1/99	20	56640	1/0	-31.28	8.23	12.26	3.11	H	0.055	17.38

Note:

1. Modulation : 16QAM

2. Limit : < 23 dBm/10 MHz

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/ 10 MHz
5	55273	1/24	20	55390	1/0	-31.83	7.24	12.38	3.09	H	0.045	16.53
10	55295	1/49	20	55439	1/0	-31.91	7.16	12.38	3.09	H	0.044	16.45
15	55318	1/74	20	55489	1/0	-31.82	7.31	12.37	3.09	H	0.046	16.59
20	55340	1/99	5	55457	1/0	-30.94	8.19	12.37	3.09	H	0.056	17.47
20	55340	1/99	10	55484	1/0	-31.87	7.26	12.37	3.09	H	0.045	16.54
20	55340	1/99	15	55511	1/0	-31.93	7.27	12.36	3.09	H	0.045	16.54
20	55340	1/99	20	55538	1/0	-30.61	8.59	12.36	3.09	H	0.061	17.86
20	55891	1/99	20	56089	1/0	-30.78	8.58	12.25	3.13	H	0.059	17.70
20	56442	1/99	20	56640	1/0	-31.31	8.20	12.26	3.11	H	0.054	17.35

Note:

1. Modulation : 64QAM

2. Limit : < 23 dBm/10 MHz

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/ 10 MHz
5	55273	1/24	20	55390	1/0	-31.98	7.09	12.38	3.09	H	0.043	16.38
10	55295	1/49	20	55439	1/0	-32.04	7.03	12.38	3.09	H	0.043	16.32
15	55318	1/74	20	55489	1/0	-31.98	7.15	12.37	3.09	H	0.044	16.43
20	55340	1/99	5	55457	1/0	-31.11	8.02	12.37	3.09	H	0.054	17.30
20	55340	1/99	10	55484	1/0	-32.01	7.12	12.37	3.09	H	0.044	16.40
20	55340	1/99	15	55511	1/0	-32.06	7.14	12.36	3.09	H	0.044	16.41
20	55340	1/99	20	55538	1/0	-30.76	8.44	12.36	3.09	H	0.059	17.71
20	55891	1/99	20	56089	1/0	-30.90	8.46	12.25	3.13	H	0.057	17.58
20	56442	1/99	20	56640	1/0	-31.47	8.03	12.26	3.11	H	0.052	17.19

Note:

1. Modulation : 256QAM

2. Limit : < 23 dBm/10 MHz

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	20	55340	3560.0	1/99	20	55538	3579.8	1/0	36.1670	34.110	-83.38	-49.27
Mid	20	55891	3615.1	1/99	20	56089	3634.9	1/0	36.1775	34.110	-83.46	-49.35
High	20	56442	3670.2	1/99	20	56640	3690.0	1/0	36.1840	34.110	-83.35	-49.24
Low	20	55340	3560.0	1/0	20	55538	3579.8	1/99	36.1790	34.110	-84.26	-50.15
Mid	20	55891	3615.1	1/0	20	56089	3634.9	1/99	36.1760	34.110	-84.41	-50.30
High	20	56442	3670.2	1/0	20	56640	3690.0	1/99	36.1635	34.110	-84.77	-50.66
Low	10	55295	3555.5	50/0	20	55439	3569.9	100/0	36.1770	34.110	-84.68	-50.57
Mid	10	55896	3615.6	50/0	20	56040	3630.0	100/0	36.1885	34.110	-84.51	-50.40
High	20	56491	3675.1	100/0	15	56662	3692.2	75/0	36.1645	34.110	-84.42	-50.31
Low	20	55340	3560.0	100/0	20	55538	3579.8	100/0	36.1670	34.110	-84.41	-50.30
Mid	20	55891	3615.1	100/0	20	56089	3634.9	100/0	36.1735	34.110	-84.41	-50.30
High	20	56442	3670.2	100/0	20	56640	3690.0	100/0	36.1585	34.110	-84.64	-50.53

Note:

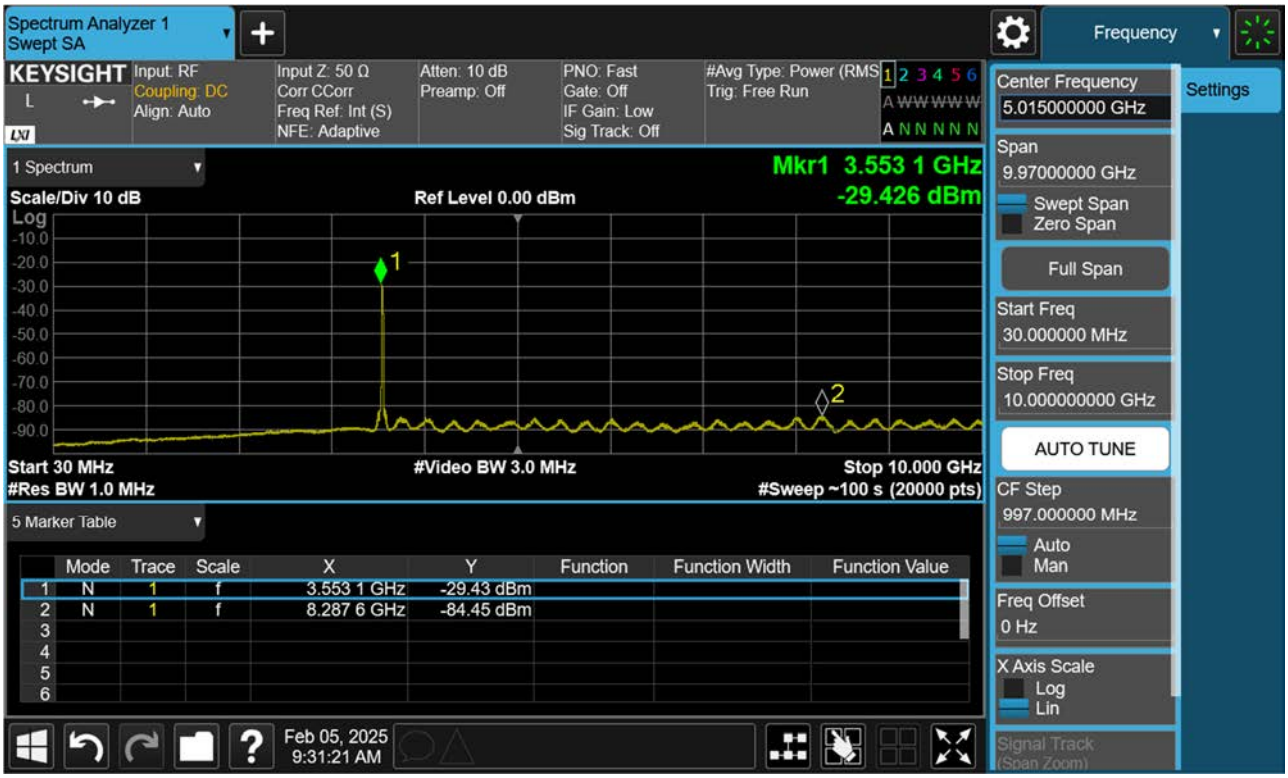
1. Modulation : 16QAM
2. Duty Cycle factor already applied on the factor.
   - Duty Cycle factor(dB) = 3.979
3. Factor(dB) = Cable Loss + Ext. Attenuator + Power Splitter+ Duty Cycle factor(dB)
4. Factors for frequency :

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

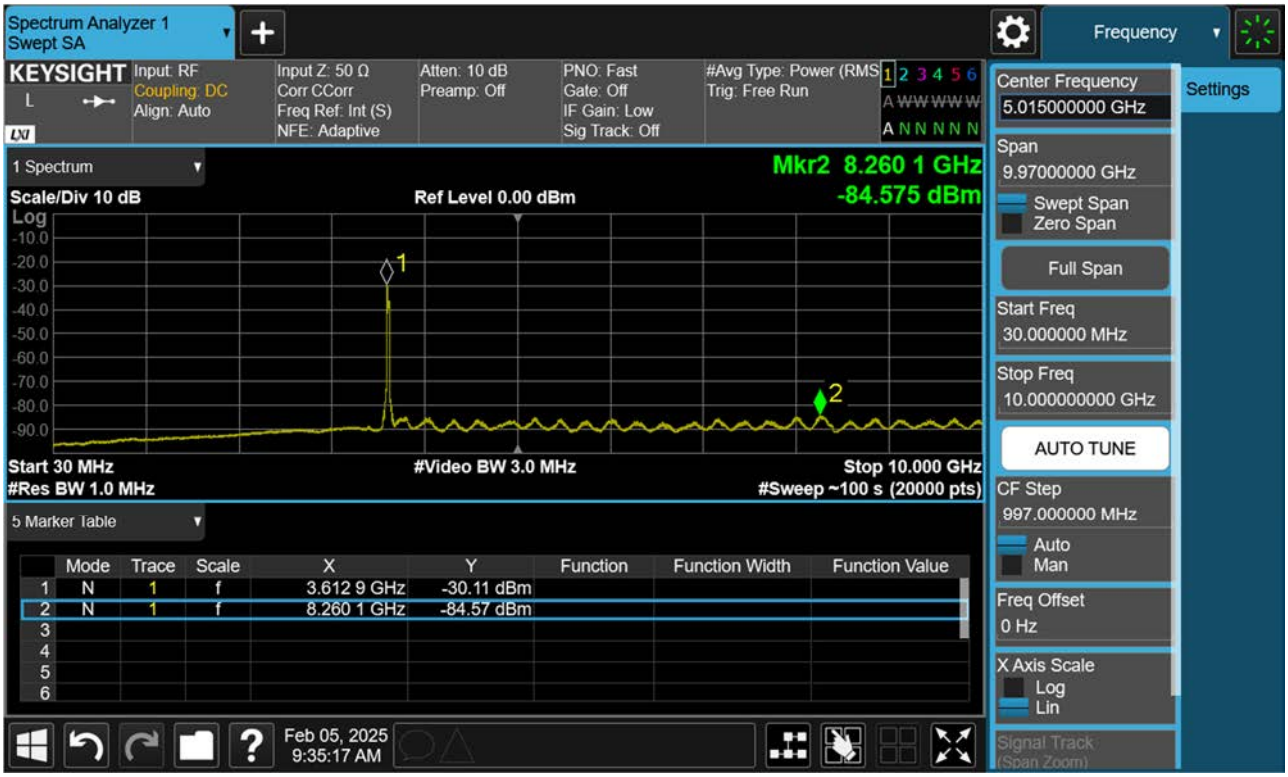
5. Limit : -40.0 dBm

Frequency Range : 30 MHz ~ 10 GHz

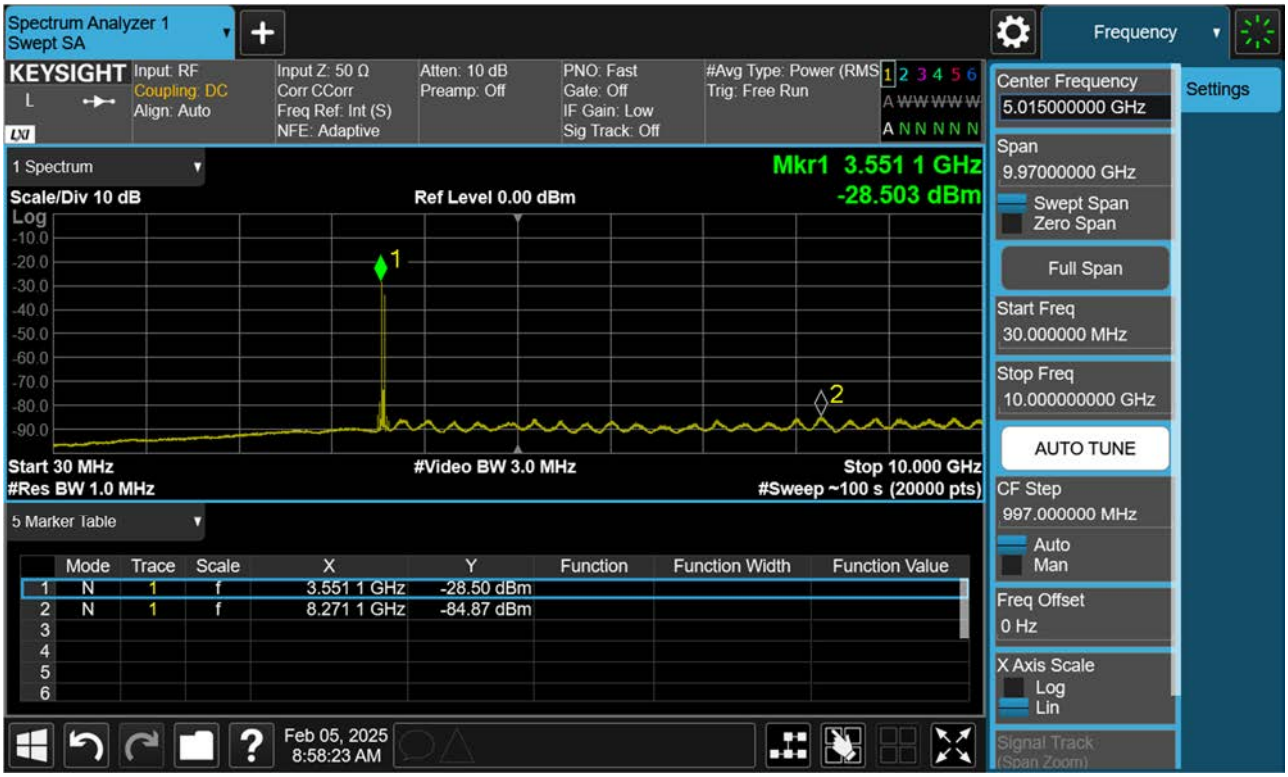
PCC 10 M 55295 RB 50,0 SCC 20 M 55439 RB 100,0



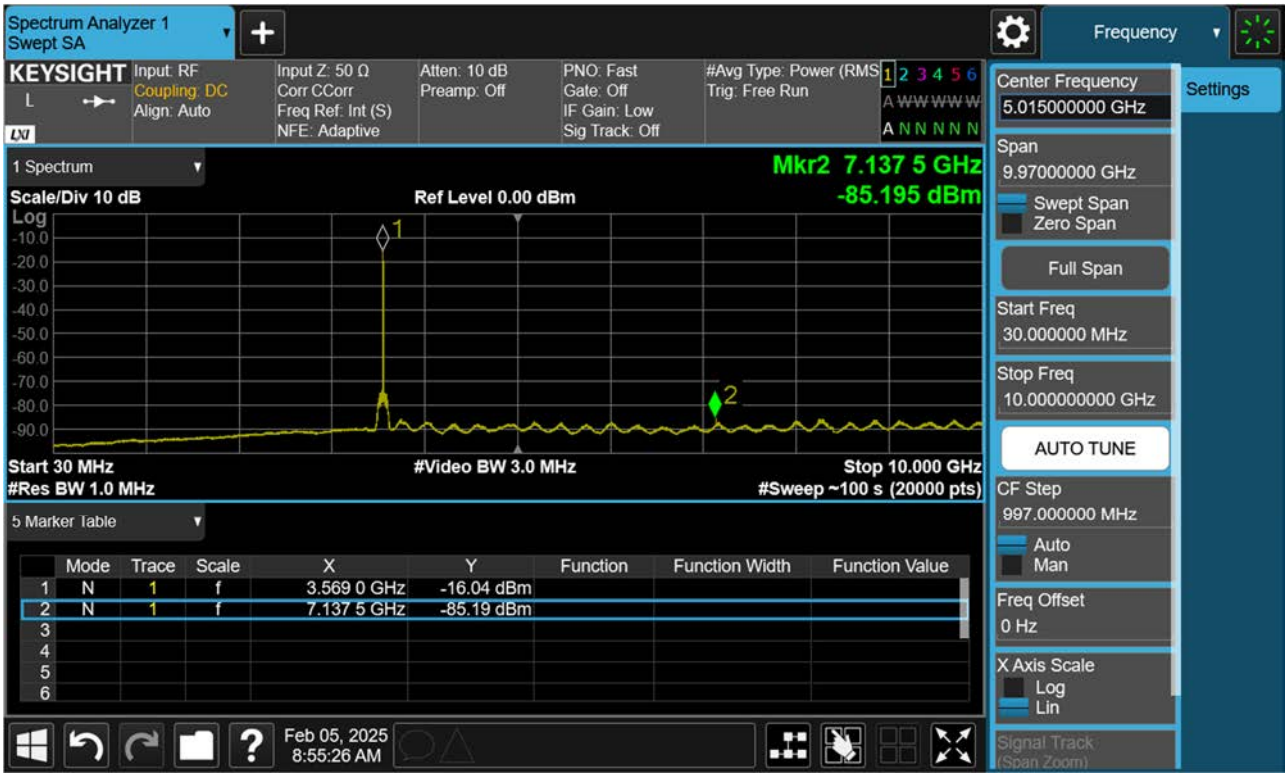
PCC 10 M 55896 RB 50,0 SCC 20 M 56040 RB 100,0



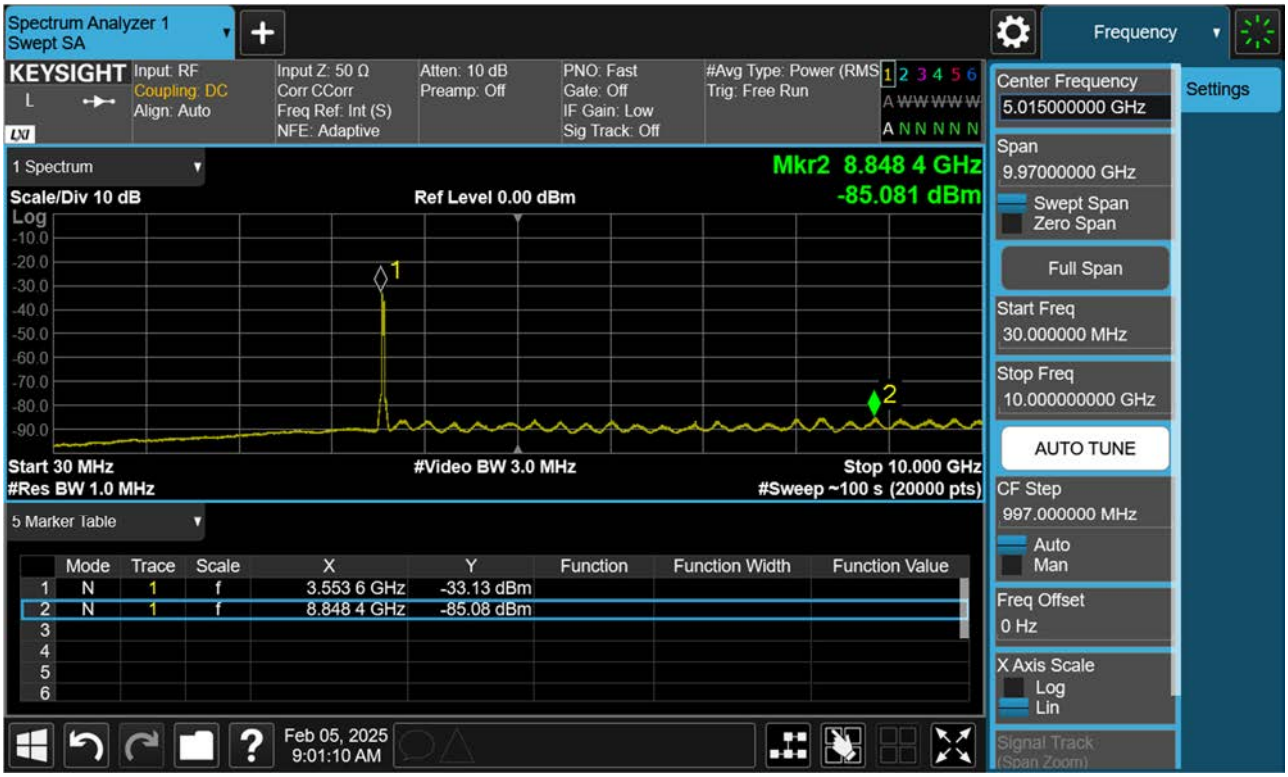
PCC 20 M 55340 RB 1,0 SCC 20 M 55538 RB 1,99



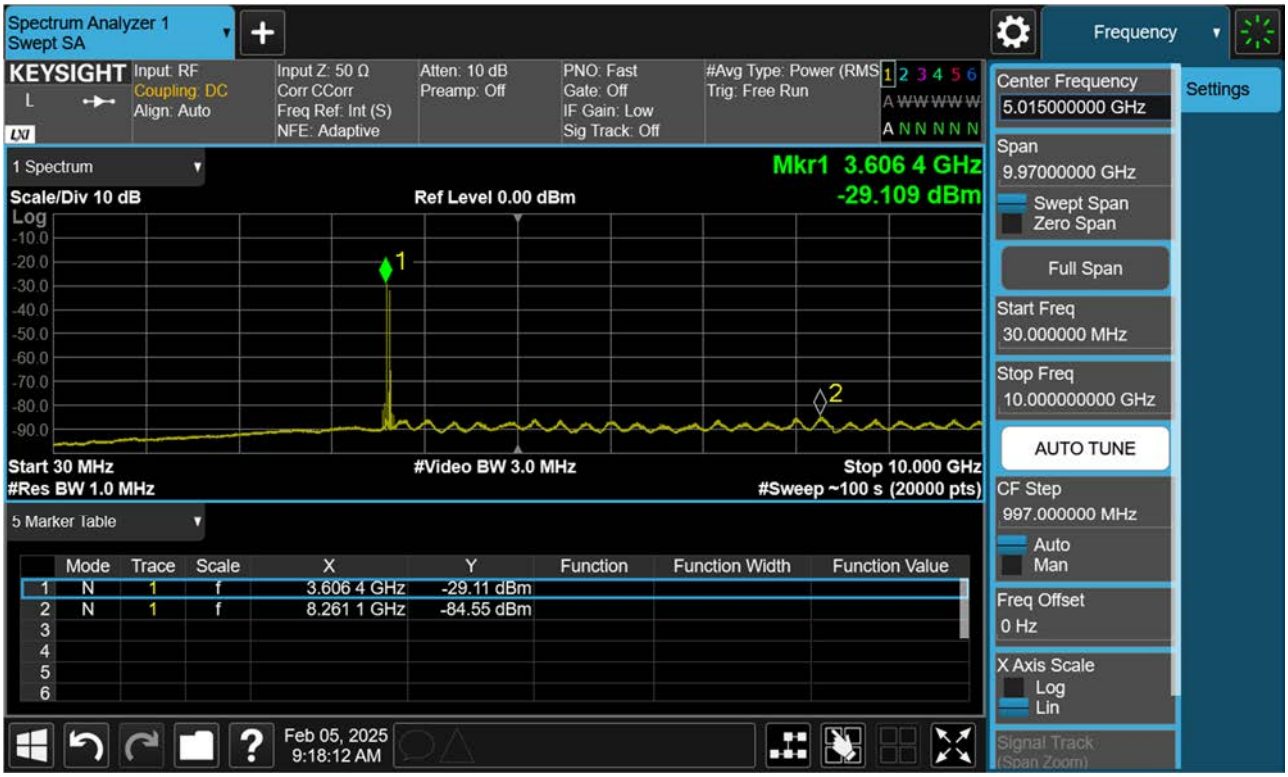
PCC 20 M 55340 RB 1,99 SCC 20 M 55538 RB 1,0



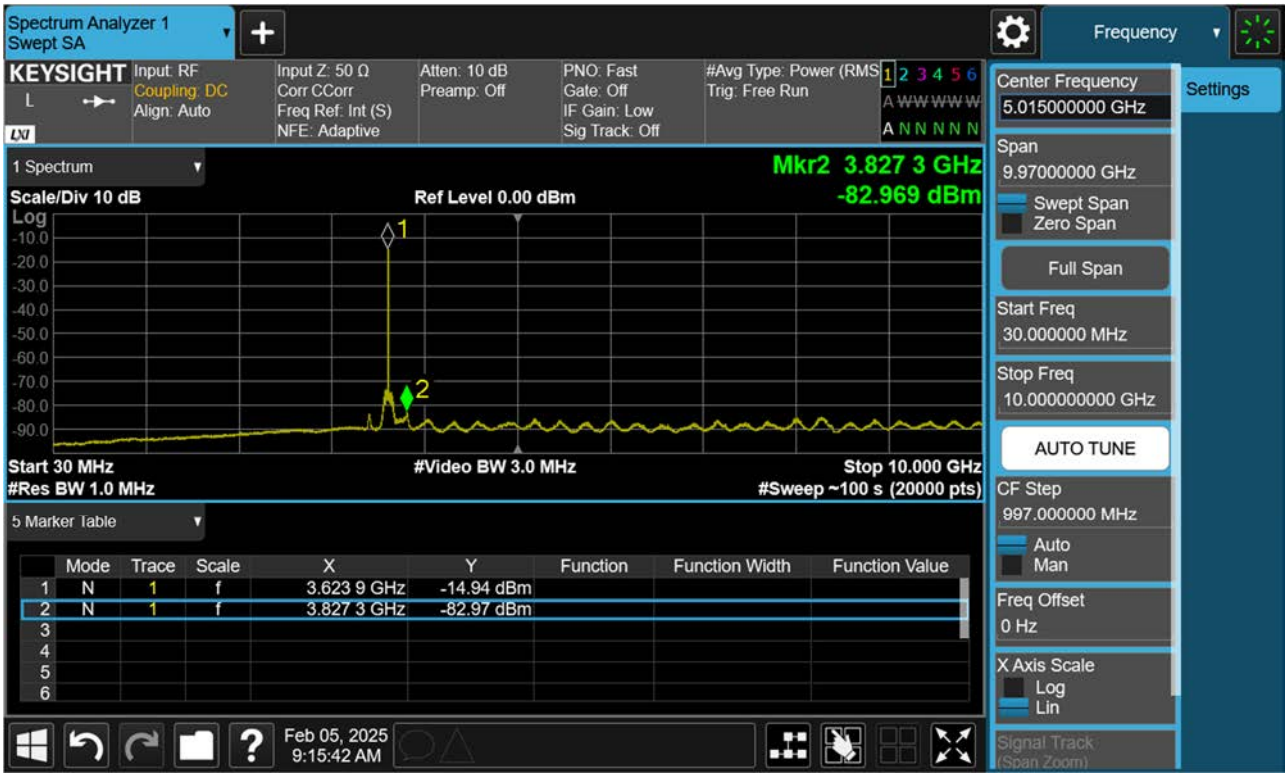
PCC 20 M 55340 RB 100,0 SCC 20 M 55538 RB 100,0



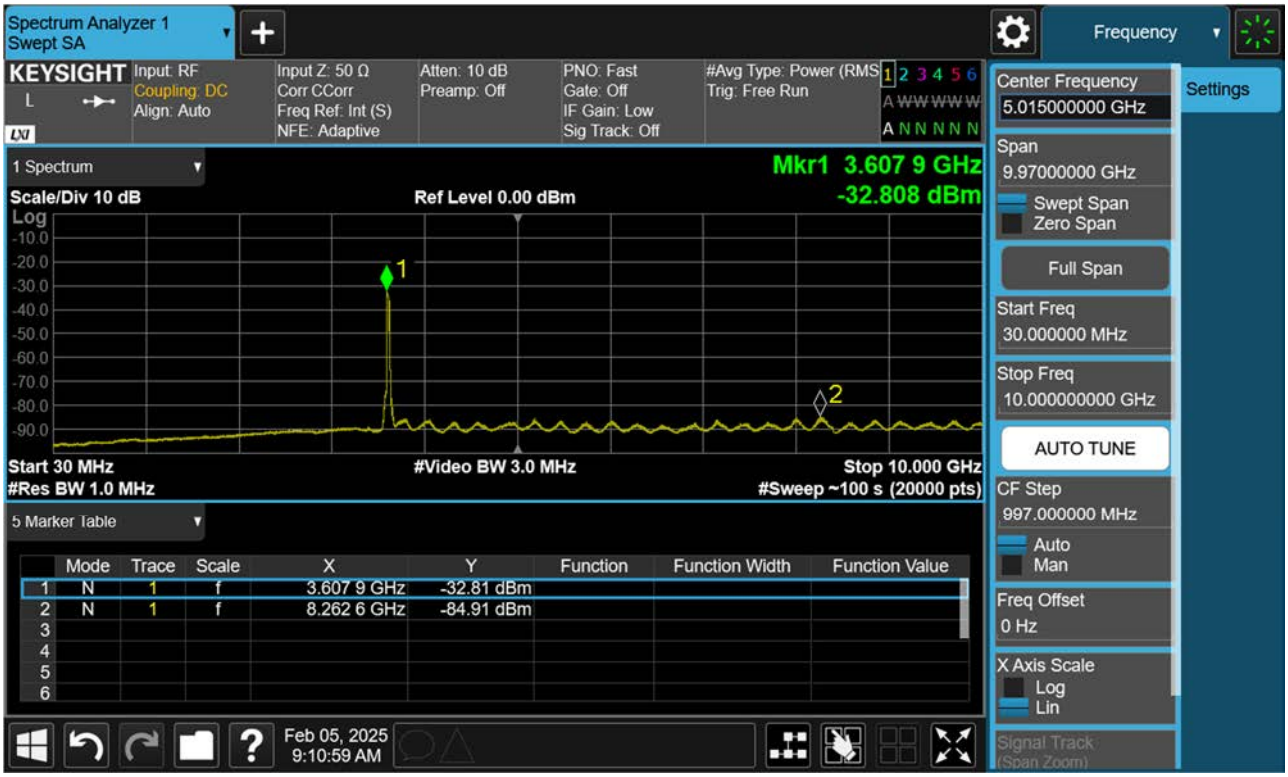
PCC 20 M 55891 RB 1,0 SCC 20 M 56089 RB 1,99



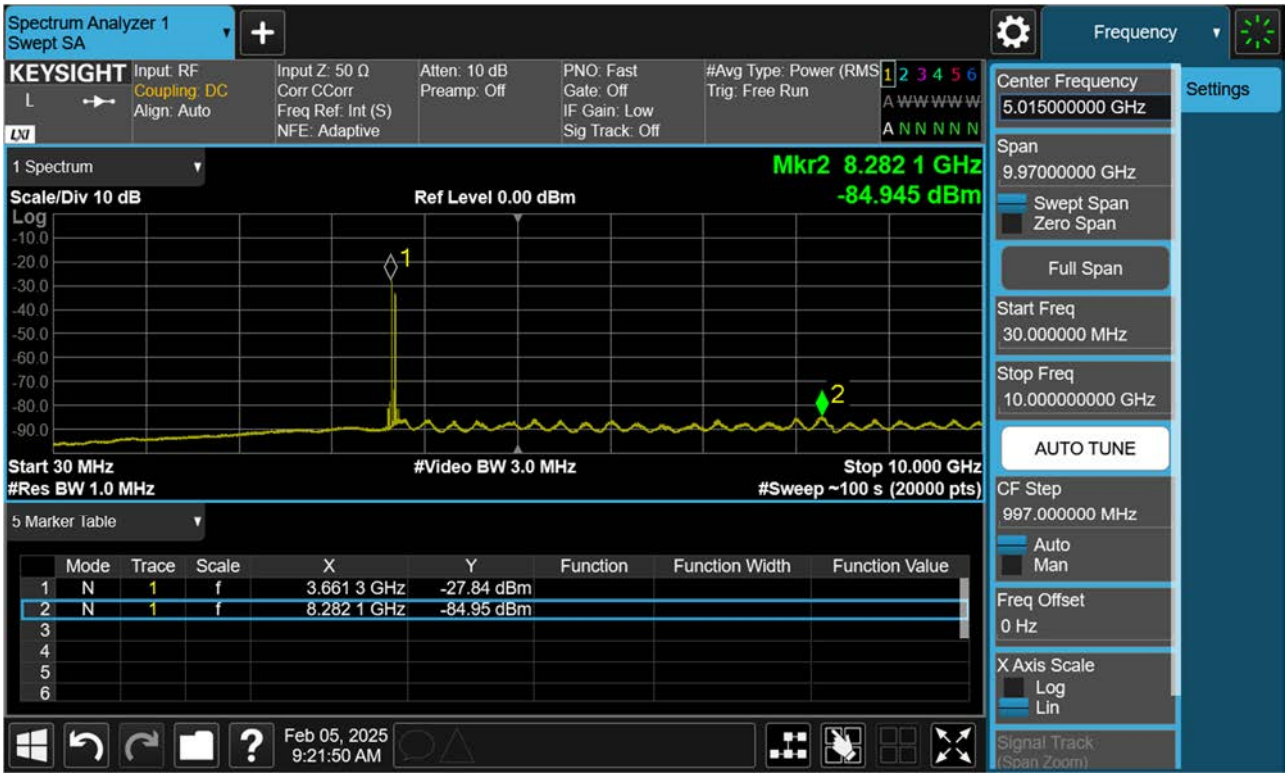
PCC 20 M 55891 RB 1,99 SCC 20 M 56089 RB 1,0



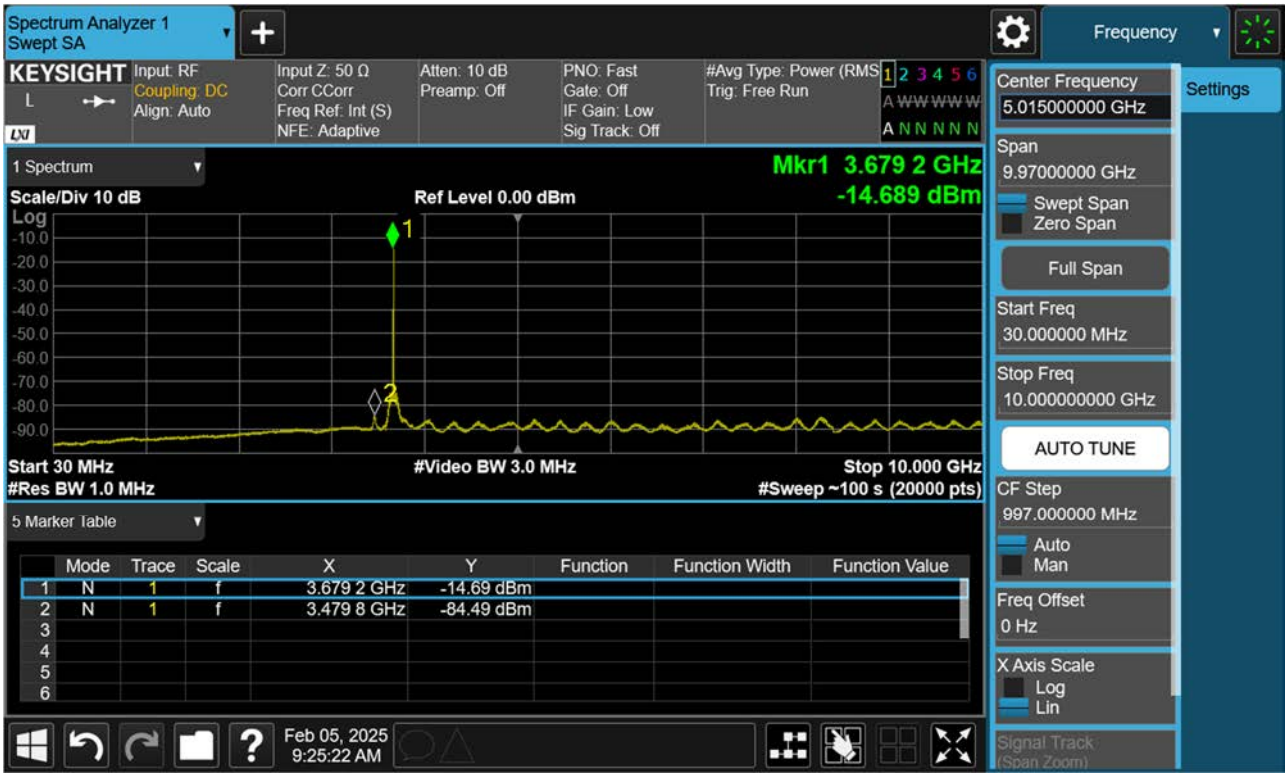
PCC 20 M 55891 RB 100,0 SCC 20 M 56089 RB 100,0



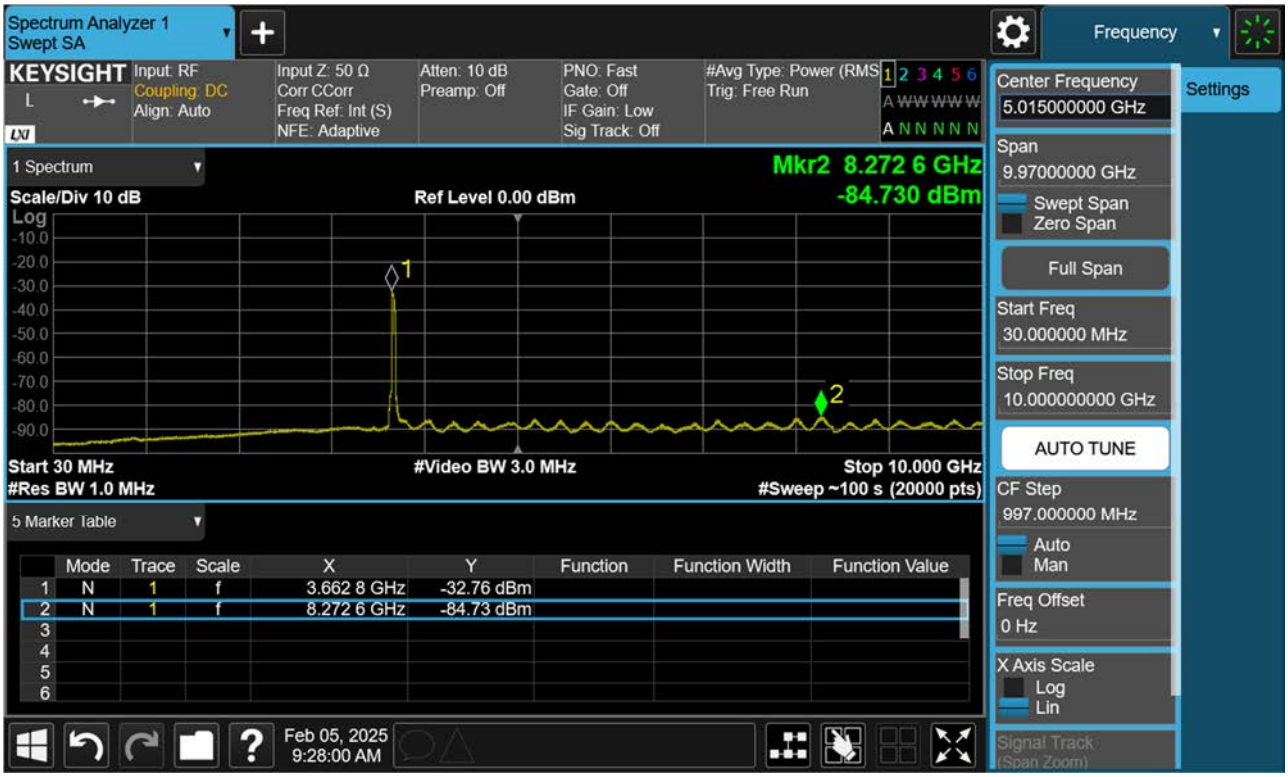
PCC 20 M 56442 RB 1,0 SCC 20 M 56640 RB 1,99



PCC 20 M 56442 RB 1,99 SCC 20 M 56640 RB 1,0



PCC 20 M 56442 RB 100,0 SCC 20 M 56640 RB 100,0



PCC 20 M 56491 RB 100,0 SCC 15 M 56662 RB 75,0

Frequency Range : 10 GHz ~ 37 GHz

PCC 20 M 56491 RB 100,0 SCC 15 M 56662 RB 75,0

PCC 10 M 55896 RB 50,0 SCC 20 M 56040 RB 100,0

PCC 20 M 55340 RB 1,0 SCC 20 M 55538 RB 1,99

PCC 20 M 55340 RB 1,99 SCC 20 M 55538 RB 1,0

PCC 20 M 55340 RB 100,0 SCC 20 M 55538 RB 100,0

PCC 20 M 55891 RB 1,0 SCC 20 M 56089 RB 1,99

PCC 20 M 55891 RB 1,99 SCC 20 M 56089 RB 1,0

PCC 20 M 55891 RB 100,0 SCC 20 M 56089 RB 100,0

PCC 20 M 56442 RB 1,0 SCC 20 M 56640 RB 1,99

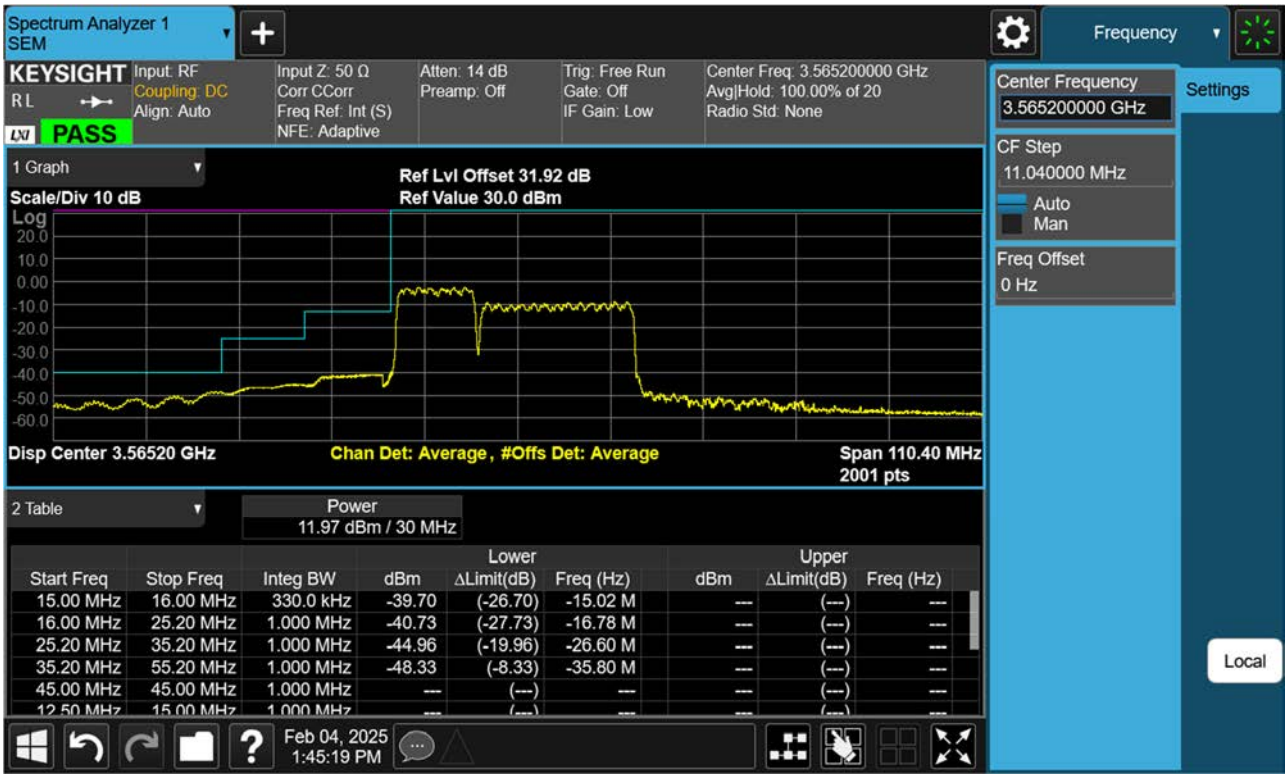
PCC 20 M 56442 RB 1,99 SCC 20 M 56640 RB 1,0

PCC 20 M 56442 RB 100,0 SCC 20 M 56640 RB 100,0

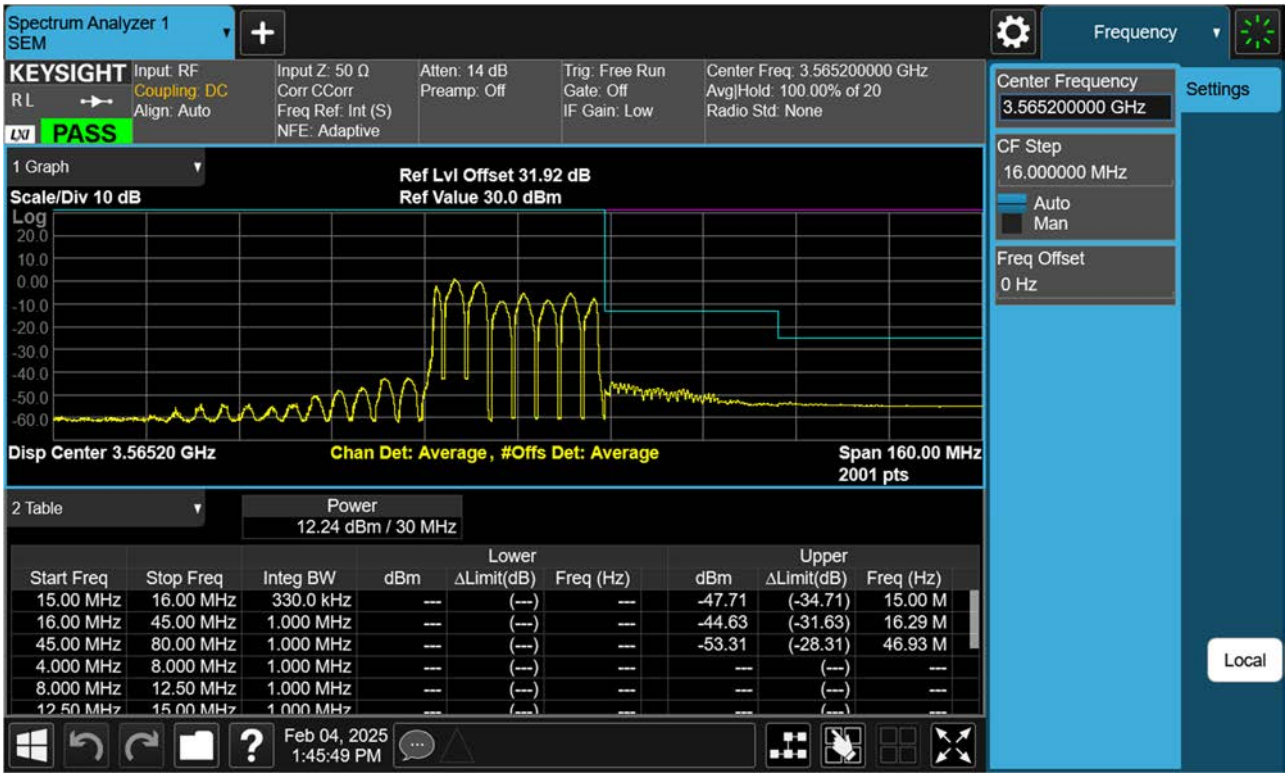
PCC 20 M 56491 RB 100,0 SCC 15 M 56662 RB 75,0

8.4 Channel Edge

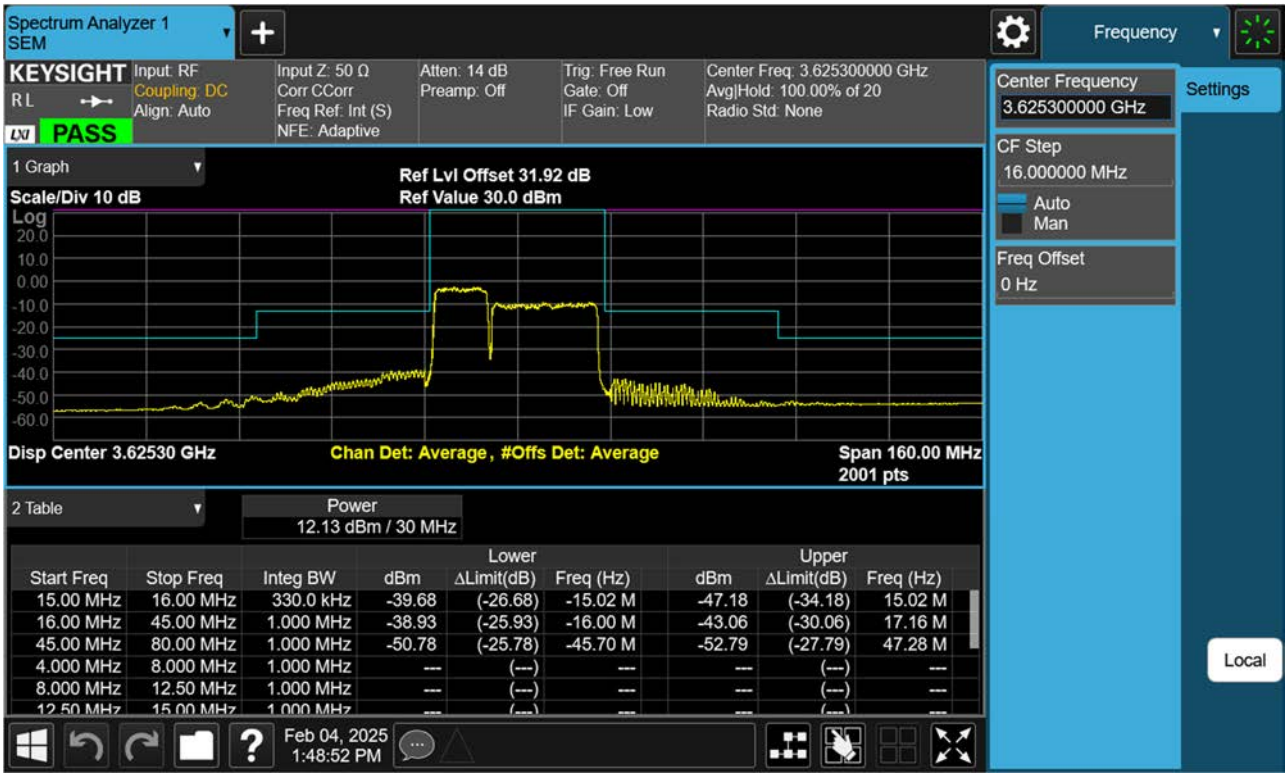
PCC 10 MHz Ch55295 RB50 Offset0, SCC 20 MHz Ch55439 RB100 Offset0-1



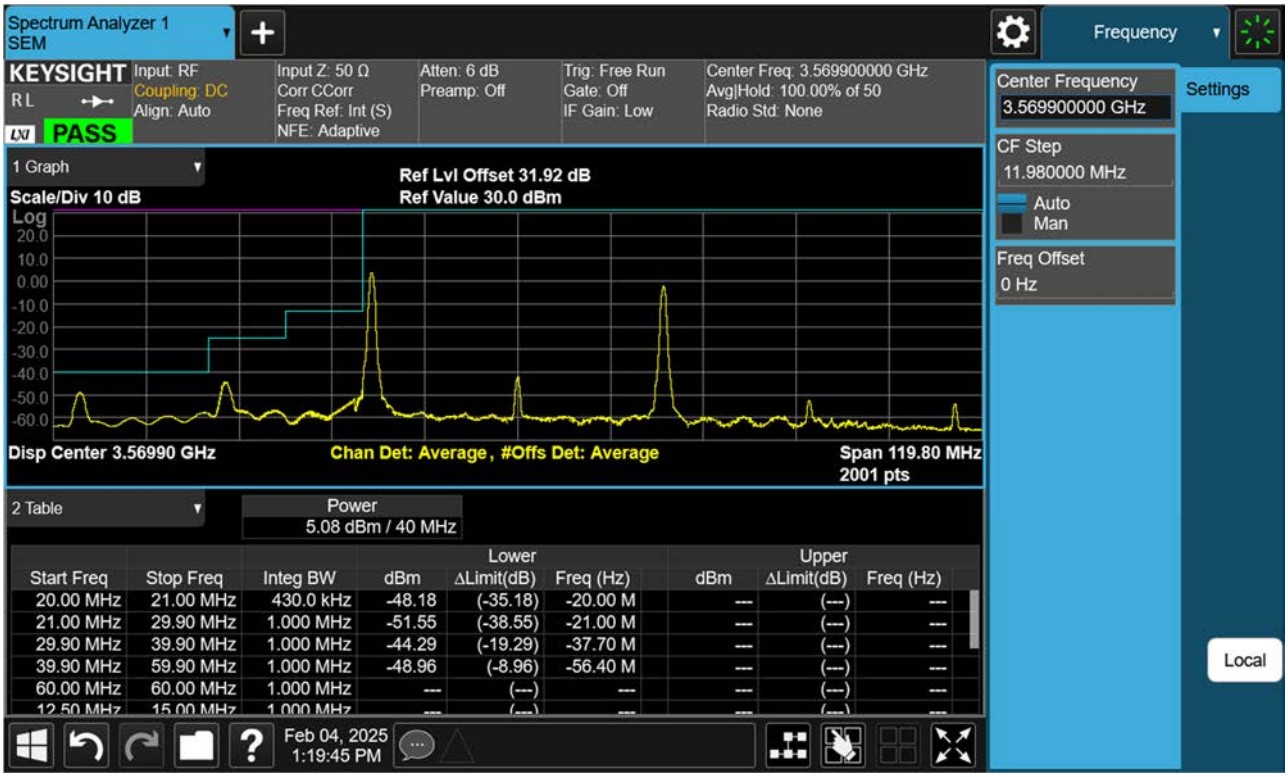
PCC 10 MHz Ch55295 RB50 Offset0, SCC 20 MHz Ch55439 RB100 Offset0-2



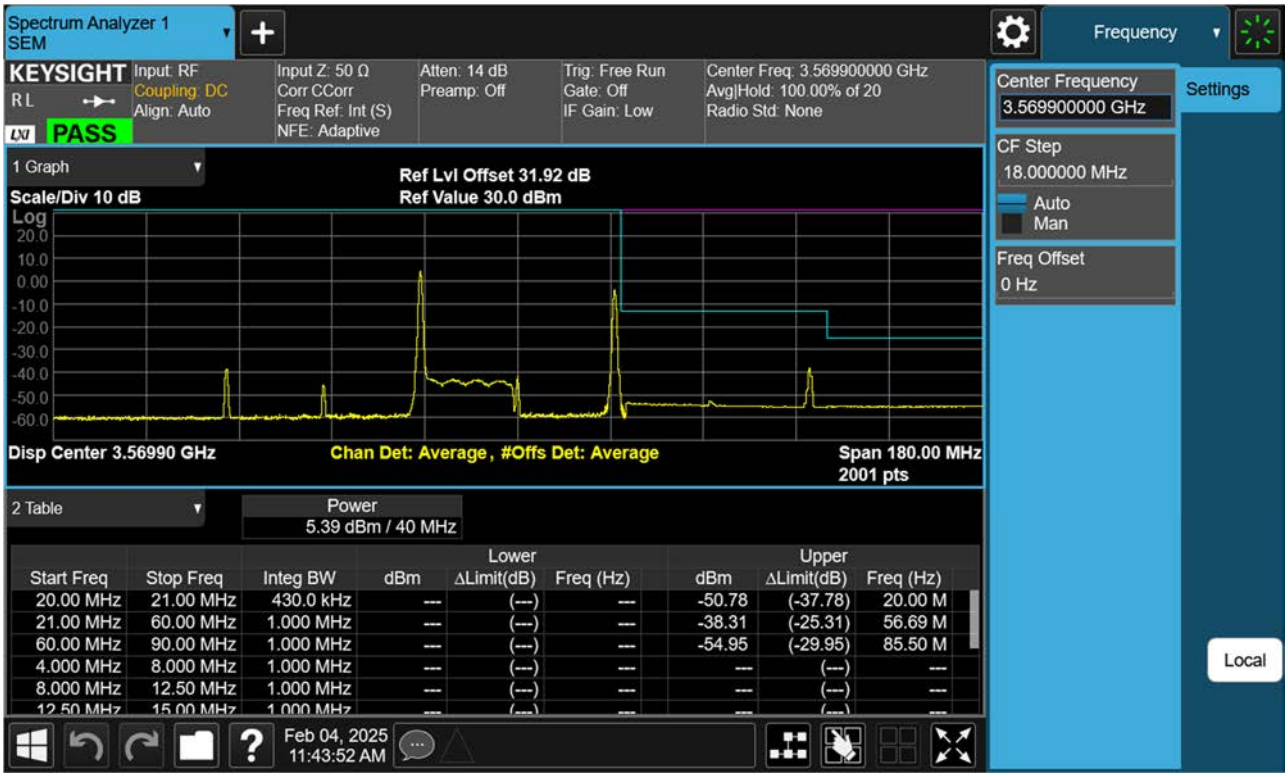
PCC 10 MHz Ch55896 RB50 Offset0, SCC 20 MHz Ch56040 RB100 Offset0



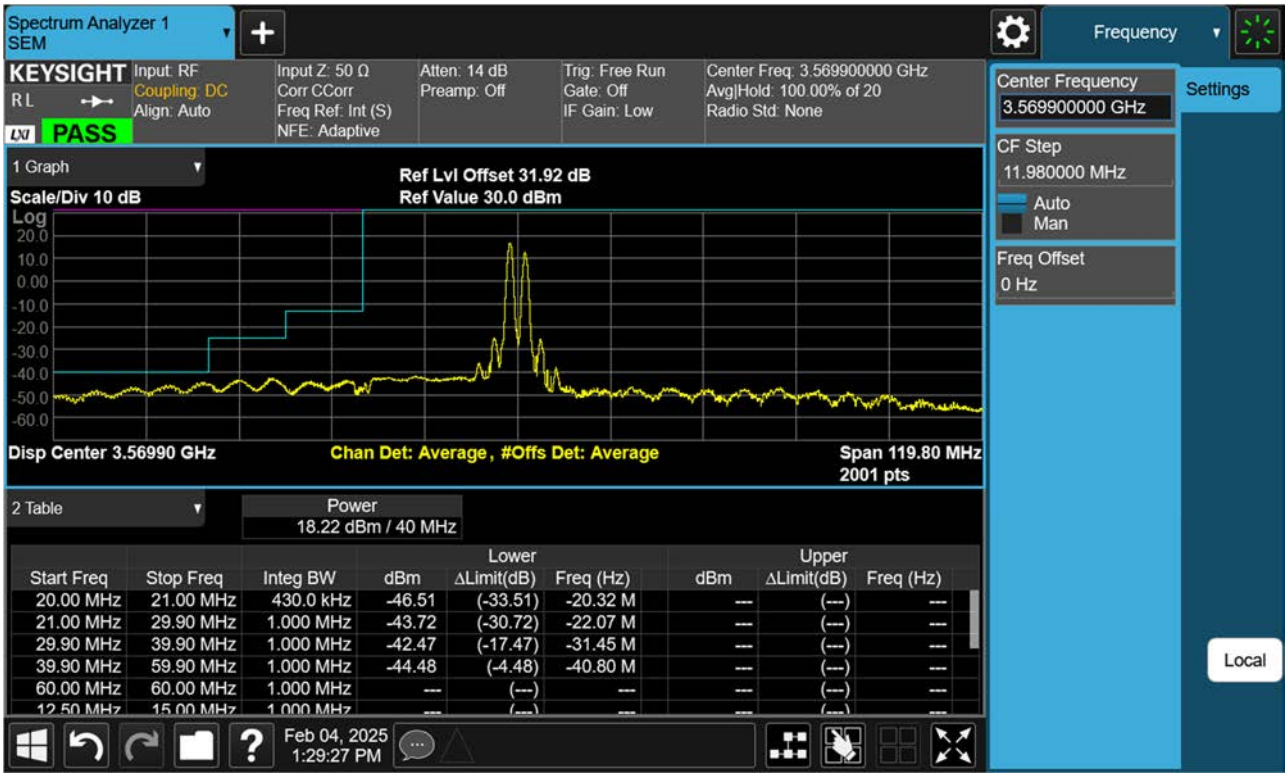
PCC 20 MHz Ch55340 RB1 Offset0, SCC 20 MHz Ch55538 RB1 Offset99-1



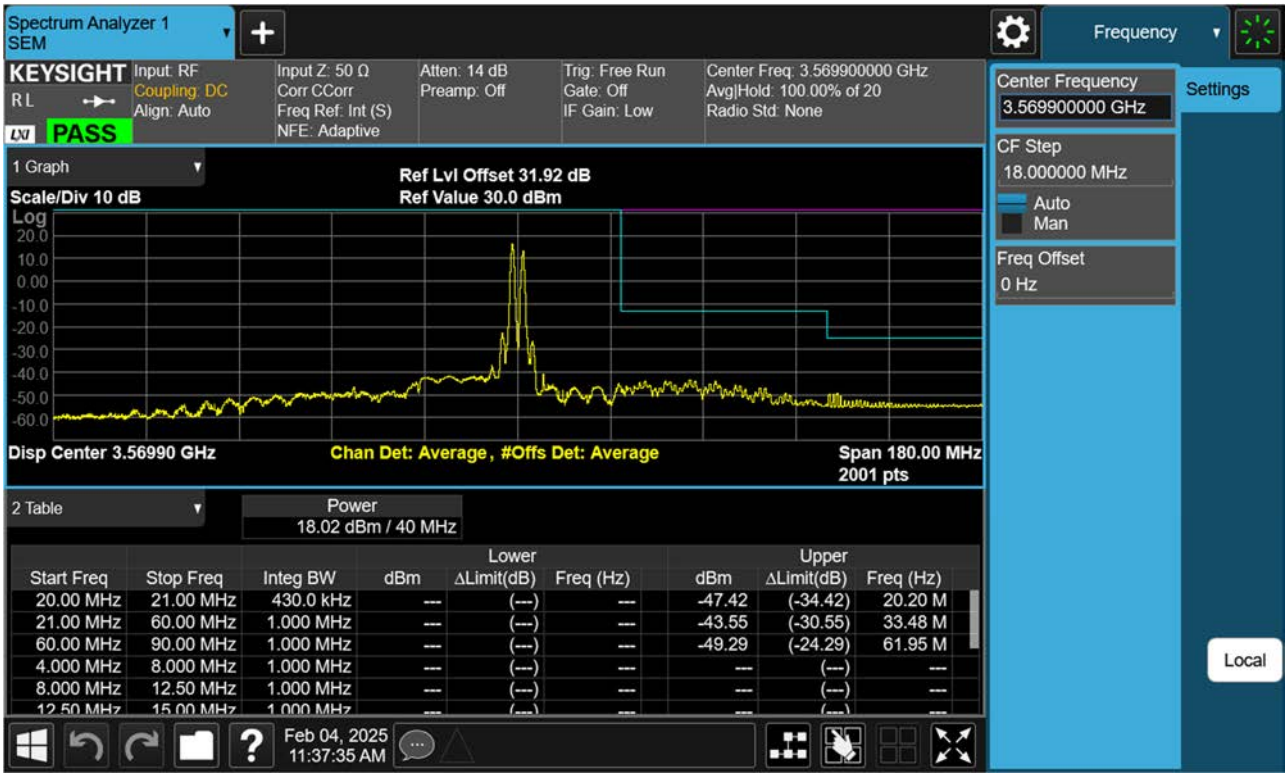
PCC 20 MHz Ch55340 RB1 Offset0, SCC 20 MHz Ch55538 RB1 Offset99-2



PCC 20 MHz Ch55340 RB1 Offset99, SCC 20 MHz Ch55538 RB1 Offset0-1



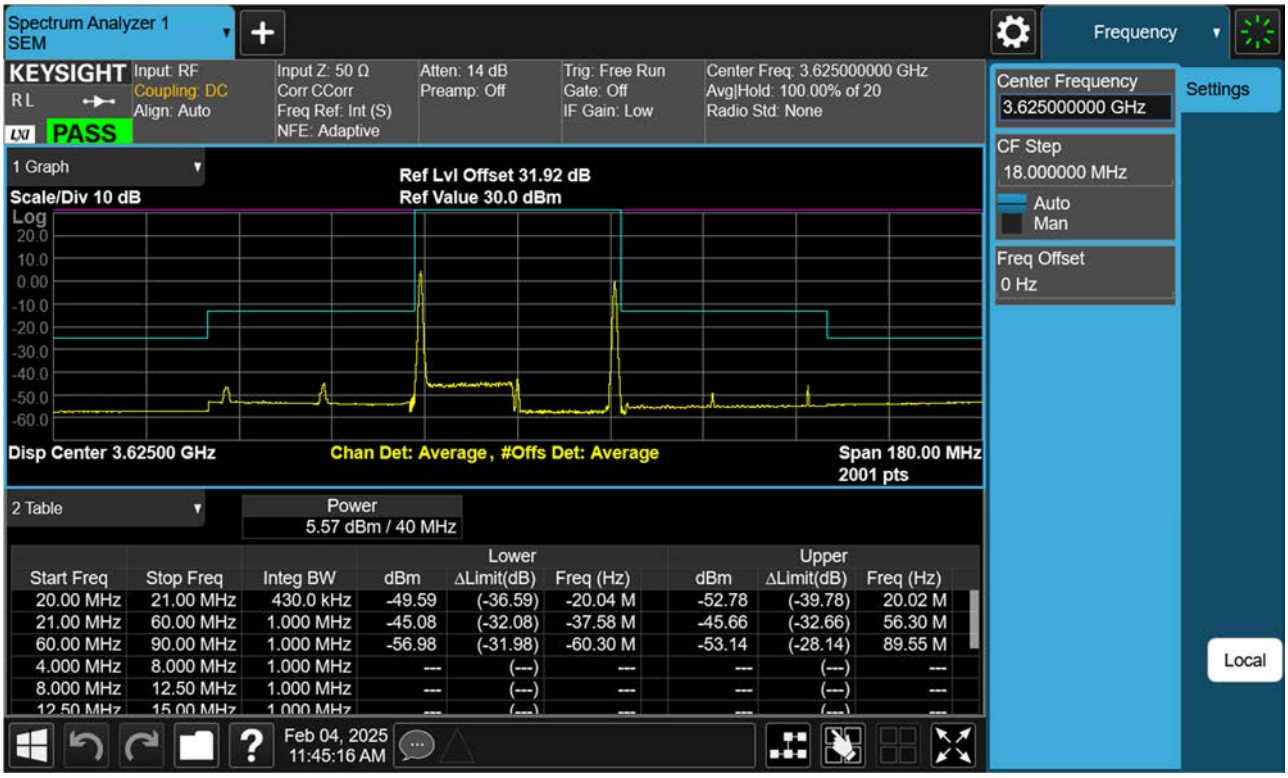
PCC 20 MHz Ch55340 RB1 Offset99, SCC 20 MHz Ch55538 RB1 Offset0-2



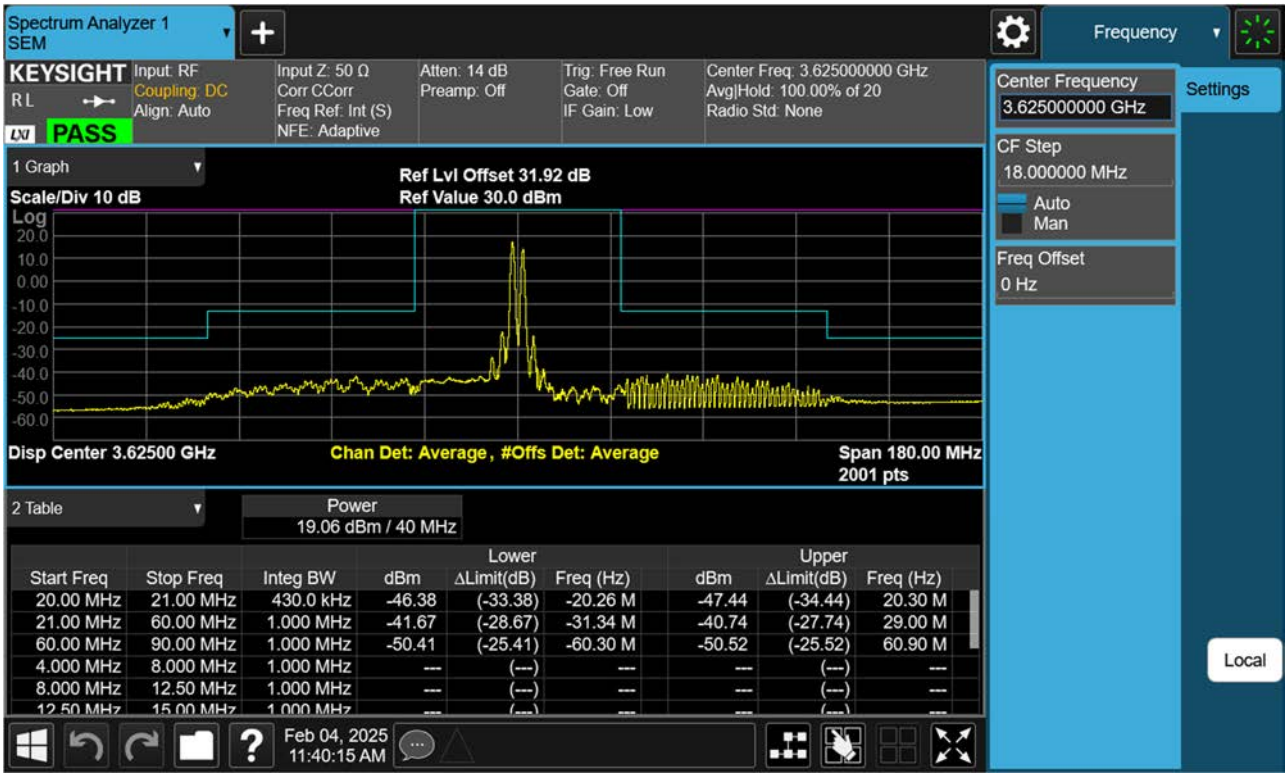
PCC 20 MHz Ch55340 RB100 Offset0, SCC 20 MHz Ch55538 RB100 Offset0-1

PCC 20 MHz Ch55340 RB100 Offset0, SCC 20 MHz Ch55538 RB100 Offset0-2

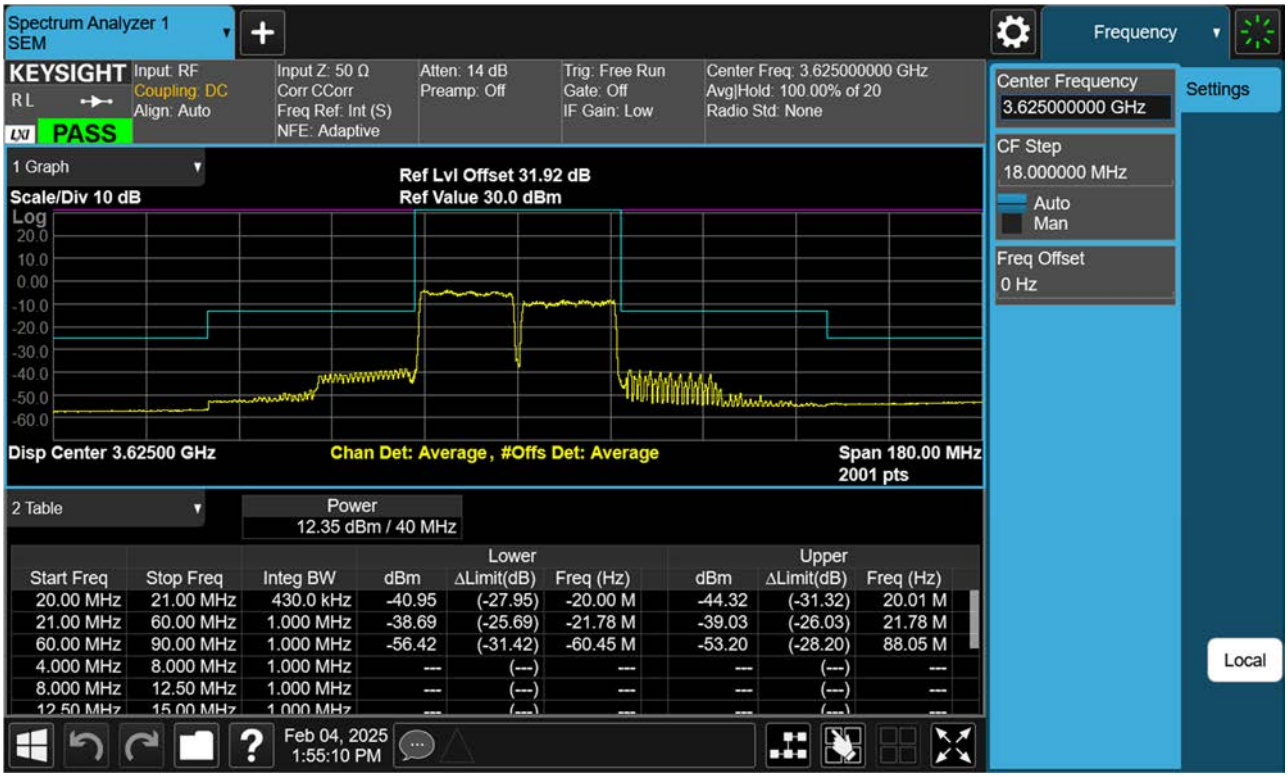
PCC 20 MHz Ch55891 RB1 Offset0, SCC 20 MHz Ch56089 RB1 Offset99



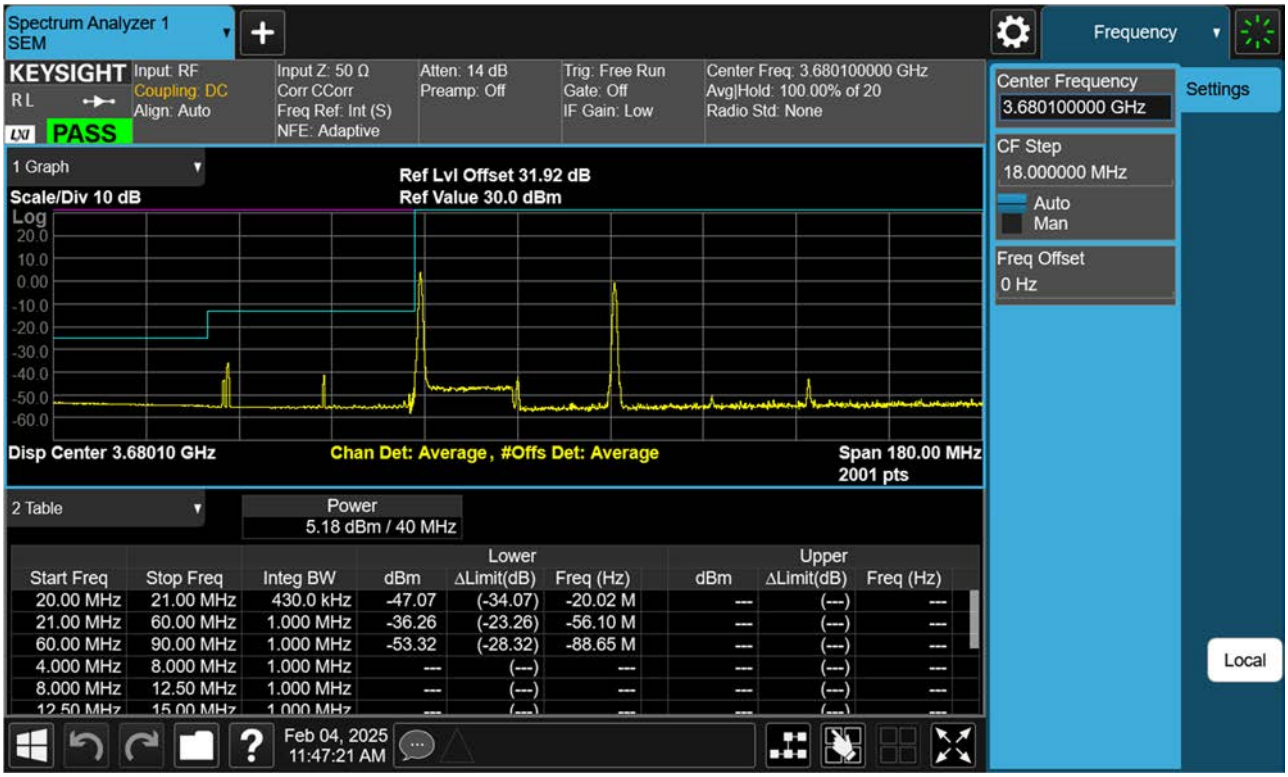
PCC 20 MHz Ch55891 RB1 Offset99, SCC 20 MHz Ch56089 RB1 Offset0



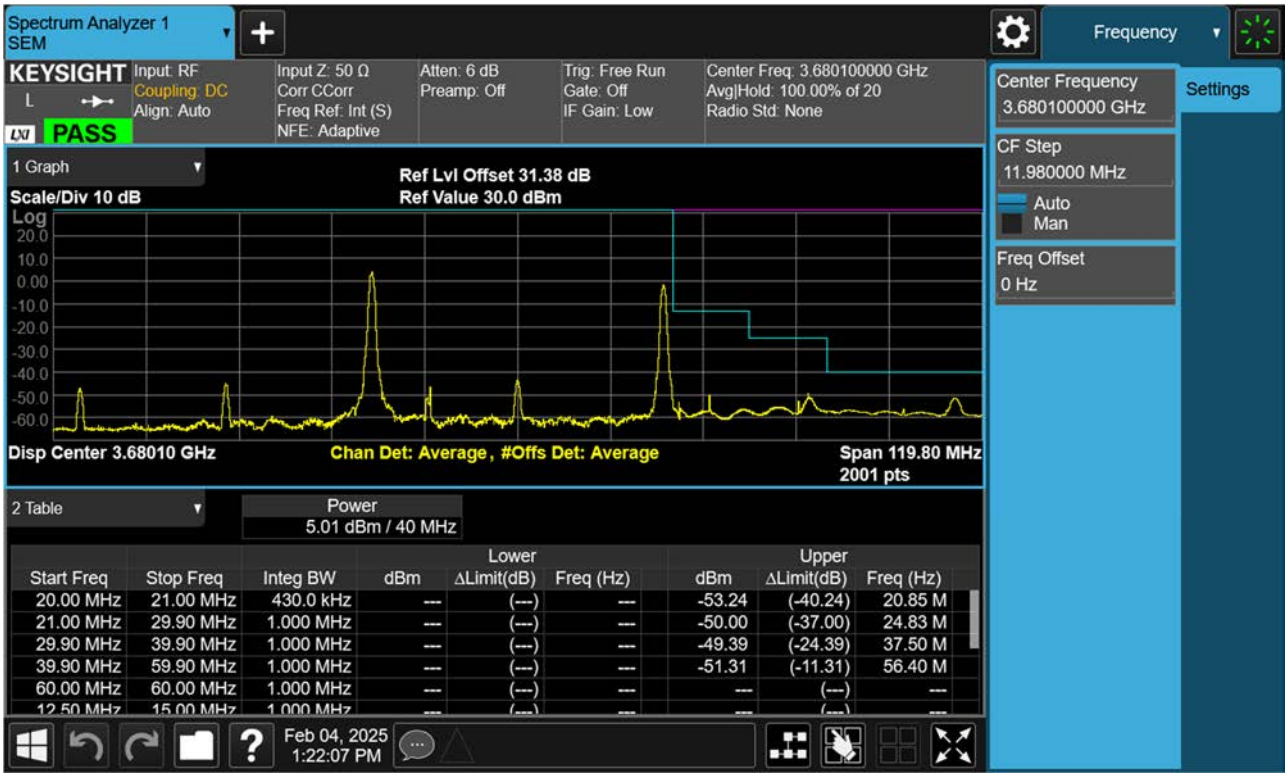
PCC 20 MHz Ch55891 RB100 Offset0, SCC 20 MHz Ch56089 RB100 Offset0



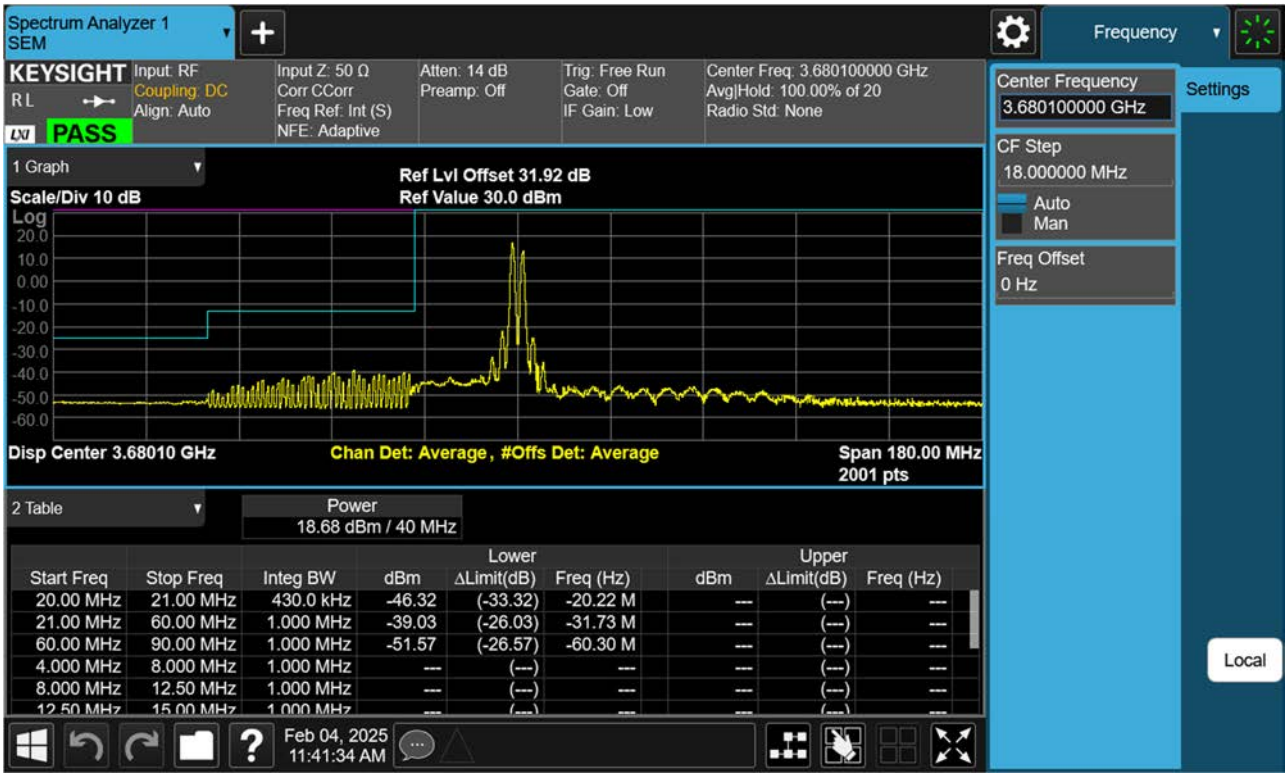
PCC 20 MHz Ch56442 RB1 Offset0, SCC 20 MHz Ch56640 RB1 Offset99-1



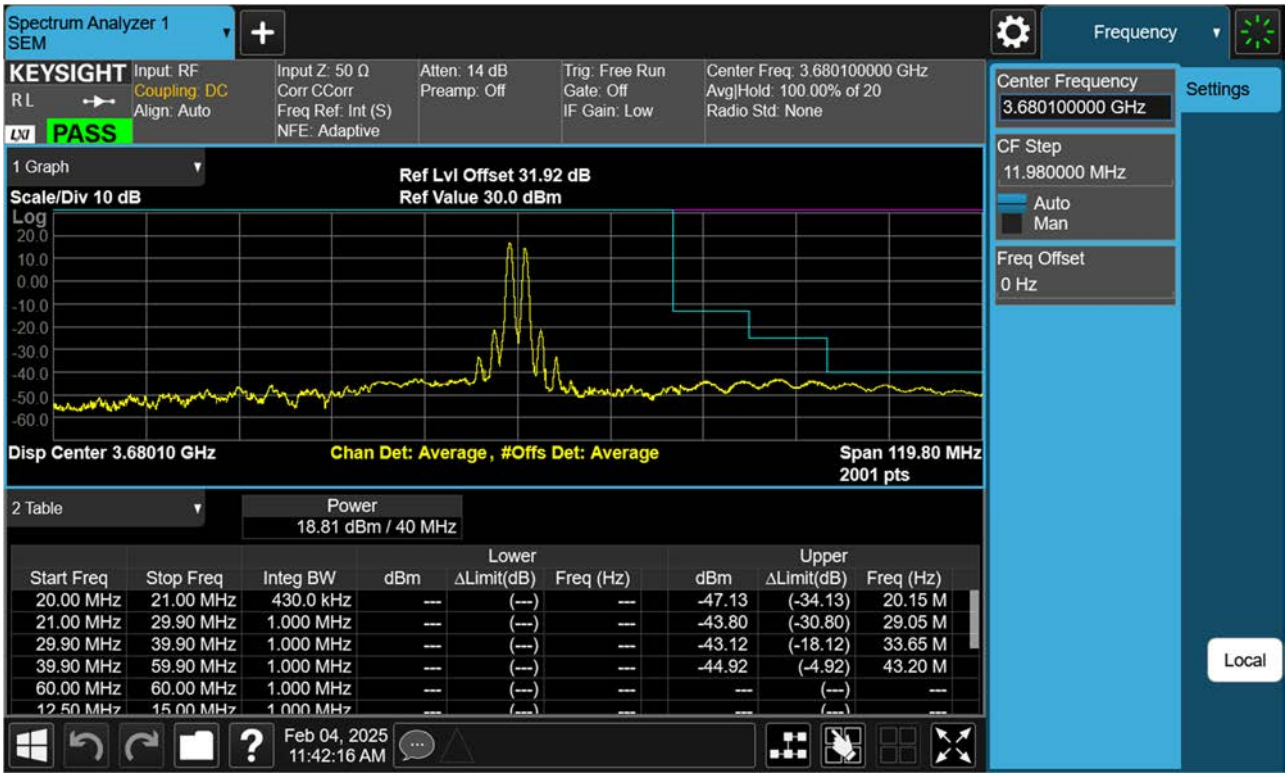
PCC 20 MHz Ch56442 RB1 Offset0, SCC 20 MHz Ch56640 RB1 Offset99-2



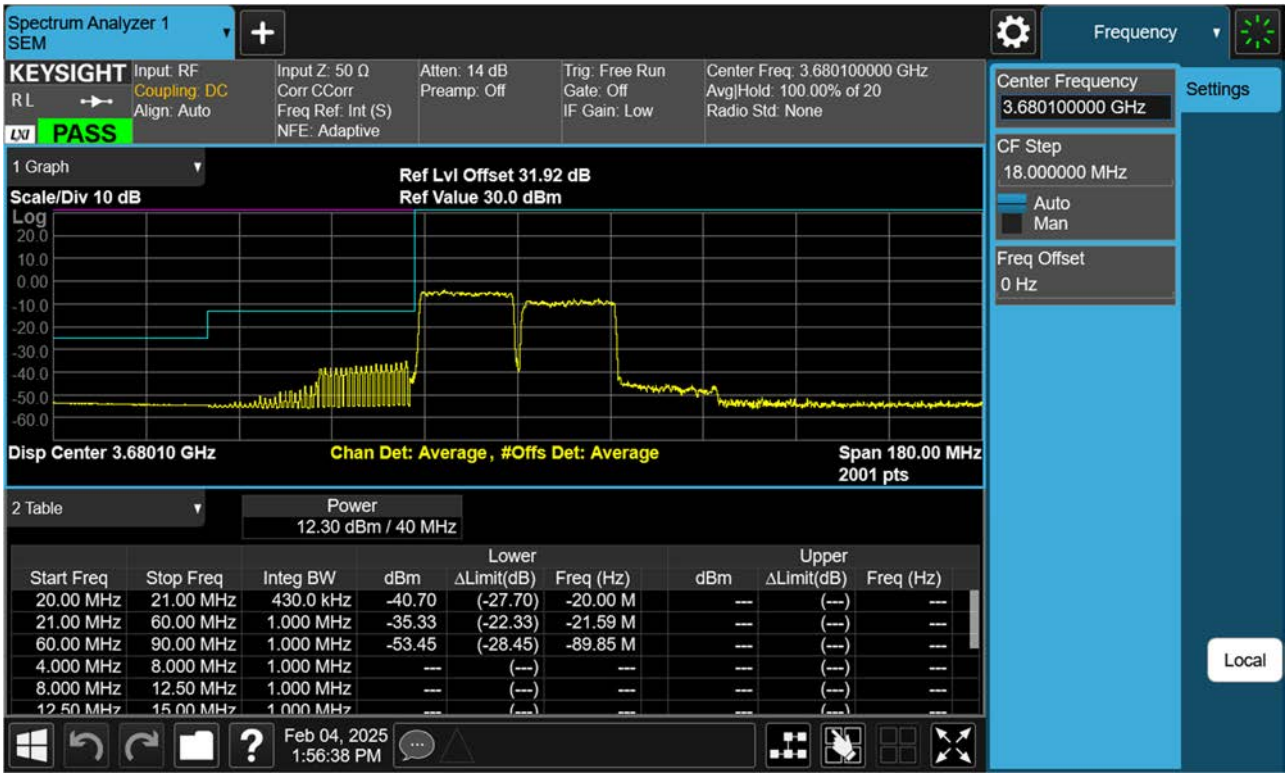
PCC 20 MHz Ch56442 RB1 Offset99, SCC 20 MHz Ch56640 RB1 Offset0-1



PCC 20 MHz Ch56442 RB1 Offset99, SCC 20 MHz Ch56640 RB1 Offset0-2

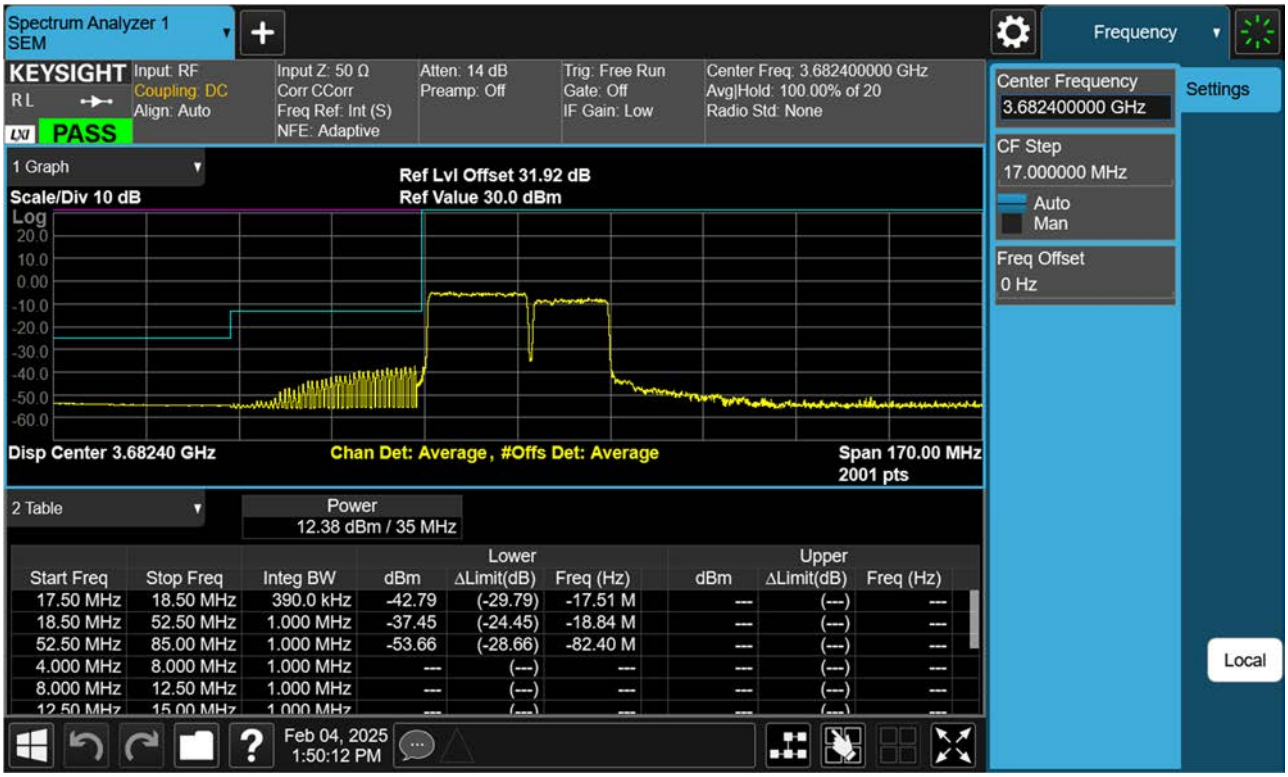


PCC 20 MHz Ch56442 RB100 Offset0, SCC 20 MHz Ch56640 RB100 Offset0-1



PCC 20 MHz Ch56442 RB100 Offset0, SCC 20 MHz Ch56640 RB100 Offset0-2

PCC 20 MHz Ch56491 RB100 Offset0, SCC 15 MHz Ch56662 RB75 Offset0-1



PCC 20 MHz Ch56491 RB100 Offset0, SCC 15 MHz Ch56662 RB75 Offset0-2

8.5 Frequency Stability / Variation Of Ambient Temperature

▣ PCC Channel:	55273	
▣ PCC Frequency:	3553.3	MHz
▣ PCC BandWidth:	5	MHz
▣ SCC Channel:	55390	
▣ SCC Frequency:	3565.0	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)	-0.0054	-0.0083	3553.30544	3565.00826
100 %		-30	0.0001	-0.0087	3553.29995	3565.00869
100 %		-20	-0.0032	-0.0052	3553.30321	3565.00525
100 %		-10	-0.0067	-0.0040	3553.30666	3565.00395
100 %		0	-0.0028	-0.0060	3553.30282	3565.00600
100 %		10	-0.0102	-0.0124	3553.31024	3565.01237
100 %		30	-0.0076	-0.0104	3553.30757	3565.01042
100 %		40	-0.0081	-0.0035	3553.30806	3565.00348
100 %		50	-0.0035	-0.0066	3553.30354	3565.00659
Batt. Endpoint	3.400	20	0.0004	-0.0041	3553.29958	3565.00413

▣ PCC Channel: 55295
▣ PCC Frequency: 3555.5 MHz
▣ PCC BandWidth: 10 MHz
▣ SCC Channel: 55439
▣ SCC Frequency: 3569.9 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)	-0.0063	-0.0096	3555.50634	3569.90956
100 %		-30	-0.0027	-0.0052	3555.50275	3569.90519
100 %		-20	-0.0085	-0.0064	3555.50851	3569.90645
100 %		-10	-0.0088	-0.0079	3555.50876	3569.90785
100 %		0	-0.0020	-0.0045	3555.50202	3569.90450
100 %		10	-0.0098	-0.0062	3555.50984	3569.90617
100 %		30	-0.0087	-0.0066	3555.50867	3569.90662
100 %		40	-0.0003	-0.0034	3555.50026	3569.90338
100 %		50	-0.0095	-0.0013	3555.50954	3569.90129
Batt. Endpoint	3.400	20	-0.0012	-0.0095	3555.50118	3569.90953

▣ PCC Channel: 55318
▣ PCC Frequency: 3557.8 MHz
▣ PCC BandWidth: 15 MHz
▣ SCC Channel: 55489
▣ SCC Frequency: 3574.9 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)	-0.0002	-0.0010	3557.80024	3574.90096
100 %		-30	-0.0023	-0.0100	3557.80235	3574.90999
100 %		-20	-0.0050	-0.0036	3557.80501	3574.90365
100 %		-10	-0.0076	-0.0045	3557.80756	3574.90445
100 %		0	-0.0013	-0.0020	3557.80132	3574.90200
100 %		10	-0.0074	-0.0036	3557.80744	3574.90357
100 %		30	-0.0022	-0.0080	3557.80217	3574.90802
100 %		40	0.0005	-0.0060	3557.79946	3574.90598
100 %		50	-0.0055	-0.0059	3557.80554	3574.90589
Batt. Endpoint	3.400	20	-0.0028	-0.0099	3557.80278	3574.90993

▣ PCC Channel: 55340
▣ PCC Frequency: 3560.0 MHz
▣ PCC BandWidth: 20 MHz
▣ SCC Channel: 55538
▣ SCC Frequency: 3579.8 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)	0.0009	-0.0068	3559.99914	3579.80676
100 %		-30	-0.0009	-0.0070	3560.00095	3579.80699
100 %		-20	-0.0030	-0.0052	3560.00301	3579.80525
100 %		-10	0.0005	-0.0125	3559.99946	3579.81245
100 %		0	-0.0036	-0.0066	3560.00362	3579.80660
100 %		10	-0.0106	-0.0108	3560.01064	3579.81077
100 %		30	-0.0040	-0.0107	3560.00397	3579.81072
100 %		40	-0.0062	-0.0084	3560.00616	3579.80838
100 %		50	-0.0111	-0.0036	3560.01114	3579.80359
Batt. Endpoint	3.400	20	-0.0087	-0.0081	3560.00868	3579.80813

▣ PCC Channel: 56523
▣ PCC Frequency: 3678.3 MHz
▣ PCC BandWidth: 5 MHz
▣ SCC Channel: 56640
▣ SCC Frequency: 3690.0 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)	-0.0010	-0.0054	3678.30104	3690.00536
100 %		-30	-0.0065	-0.0022	3678.30655	3690.00219
100 %		-20	-0.0030	-0.0038	3678.30301	3690.00385
100 %		-10	-0.0076	-0.0055	3678.30756	3690.00545
100 %		0	-0.0094	-0.0048	3678.30942	3690.00480
100 %		10	-0.0043	-0.0109	3678.30434	3690.01087
100 %		30	-0.0090	-0.0068	3678.30897	3690.00682
100 %		40	-0.0042	-0.0044	3678.30416	3690.00438
100 %		50	-0.0016	-0.0036	3678.30164	3690.00359
Batt. Endpoint	3.400	20	-0.0005	-0.0023	3678.30048	3690.00233

▣ PCC Channel: 56496
▣ PCC Frequency: 3675.6 MHz
▣ PCC BandWidth: 10 MHz
▣ SCC Channel: 56640
▣ SCC Frequency: 3690.0 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)	-0.0046	-0.0069	3675.60464	3690.00686
100 %		-30	-0.0010	-0.0069	3675.60105	3690.00689
100 %		-20	-0.0074	-0.0059	3675.60741	3690.00595
100 %		-10	-0.0053	-0.0120	3675.60526	3690.01195
100 %		0	-0.0033	-0.0006	3675.60332	3690.00060
100 %		10	-0.0057	-0.0105	3675.60574	3690.01047
100 %		30	-0.0079	-0.0063	3675.60787	3690.00632
100 %		40	-0.0065	0.0003	3675.60646	3689.99968
100 %		50	-0.0043	-0.0077	3675.60434	3690.00769
Batt. Endpoint	3.400	20	-0.0091	-0.0032	3675.60908	3690.00323

▣ PCC Channel:	56469	
▣ PCC Frequency:	3672.9	MHz
▣ PCC BandWidth:	15	MHz
▣ SCC Channel:	56640	
▣ SCC Frequency:	3690.0	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)	-0.0013	-0.0008	3672.90134	3690.00076
100 %		-30	-0.0057	-0.0103	3672.90575	3690.01029
100 %		-20	-0.0079	-0.0107	3672.90791	3690.01075
100 %		-10	-0.0081	-0.0044	3672.90806	3690.00435
100 %		0	-0.0021	-0.0041	3672.90212	3690.00410
100 %		10	-0.0101	-0.0051	3672.91014	3690.00507
100 %		30	-0.0051	-0.0069	3672.90507	3690.00692
100 %		40	-0.0050	-0.0085	3672.90496	3690.00848
100 %		50	-0.0064	-0.0076	3672.90644	3690.00759
Batt. Endpoint	3.400	20	-0.0089	-0.0095	3672.90888	3690.00953

▣ PCC Channel: 56442
▣ PCC Frequency: 3670.2 MHz
▣ PCC BandWidth: 20 MHz
▣ SCC Channel: 56640
▣ SCC Frequency: 3690.0 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)	-0.0076	-0.0071	3670.20764	3690.00706
100 %		-30	-0.0030	-0.0094	3670.20305	3690.00939
100 %		-20	-0.0032	-0.0028	3670.20321	3690.00285
100 %		-10	-0.0026	-0.0067	3670.20256	3690.00665
100 %		0	-0.0080	-0.0065	3670.20802	3690.00650
100 %		10	-0.0086	-0.0045	3670.20864	3690.00447
100 %		30	-0.0041	-0.0057	3670.20407	3690.00572
100 %		40	-0.0075	-0.0011	3670.20746	3690.00108
100 %		50	-0.0096	-0.0053	3670.20964	3690.00529
Batt. Endpoint	3.400	20	0.0002	-0.0021	3670.19978	3690.00213

8.6 Radiated Spurious Emissions

- ▣ PCC Channel : 55340 (3560.0 MHz)
- ▣ PCC BW(MHz) : 20
- ▣ PCC RB/ RB Offset : 1/ 99
- ▣ SCC Channel : 55538 (3579.8 MHz)
- ▣ SCC BW(MHz) : 20
- ▣ SCC RB/ RB Offset : 1/ 0
- ▣ DISTANCE: 1 meters
- ▣ LIMIT: -40.0 dBm

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)	Detector
7 139.80	-34.30	11.07	-50.25	4.48	H	-43.66	Peak
10 709.70	-40.34	10.67	-49.14	5.65	V	-44.12	Peak
14 279.60	-45.00	11.59	-48.21	6.57	V	-43.19	Peak

▣ PCC Channel : 55891 (3615.1 MHz)

▣ PCC BW(MHz) : 20

▣ PCC RB/ RB Offset : 1/ 99

▣ SCC Channel : 56089 (3634.9 MHz)

▣ SCC BW(MHz) : 20

▣ SCC RB/ RB Offset : 1/ 0

▣ DISTANCE: 1 meters

▣ LIMIT: -40.0 dBm

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)	Detector
7 250.00	-34.67	10.99	-51.27	4.53	H	-44.81	Peak
10 875.00	-39.84	10.43	-48.23	5.82	H	-43.62	Peak
14 500.00	-45.02	11.52	-49.42	6.69	V	-44.59	Peak

▣ PCC Channel : 56442 (3670.2 MHz)

▣ PCC BW(MHz) : 20

▣ PCC RB/ RB Offset : 1/ 99

▣ SCC Channel : 56640 (3690.0 MHz)

▣ SCC BW(MHz) : 20

▣ SCC RB/ RB Offset : 1/ 0

▣ DISTANCE: 1 meters

▣ LIMIT: -40.0 dBm

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)	Detector
7 360.20	-39.73	10.94	-55.90	4.59	V	-49.55	Peak
11 040.30	-39.86	10.61	-48.13	5.73	H	-43.25	Average
14 720.40	-44.73	11.56	-50.42	6.71	V	-45.57	Peak

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	55898	3615.8	QPSK	25/0	20	56015	3627.5	QPSK	100/0	22.770
10	55896	3615.6	QPSK	50/0	20	56040	3630	QPSK	100/0	27.555
15	55893	3615.3	QPSK	75/0	20	56064	3632.4	QPSK	100/0	32.545
20	55965	3622.5	QPSK	100/0	5	56082	3634.2	QPSK	25/0	22.963
20	55941	3620.1	QPSK	100/0	10	56085	3634.5	QPSK	50/0	27.739
20	55916	3617.6	QPSK	100/0	15	56087	3634.7	QPSK	75/0	32.733
20	55891	3615.1	QPSK	100/0	20	56089	3634.9	QPSK	100/0	37.498

PCC					SCC					Data (MHz)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	55898	3615.8	16QAM	25/0	20	56015	3627.5	16QAM	100/0	22.856
10	55896	3615.6	16QAM	50/0	20	56040	3630	16QAM	100/0	27.618
15	55893	3615.3	16QAM	75/0	20	56064	3632.4	16QAM	100/0	32.528
20	55965	3622.5	16QAM	100/0	5	56082	3634.2	16QAM	25/0	22.712
20	55941	3620.1	16QAM	100/0	10	56085	3634.5	16QAM	50/0	27.810
20	55916	3617.6	16QAM	100/0	15	56087	3634.7	16QAM	75/0	32.562
20	55891	3615.1	16QAM	100/0	20	56089	3634.9	16QAM	100/0	37.388

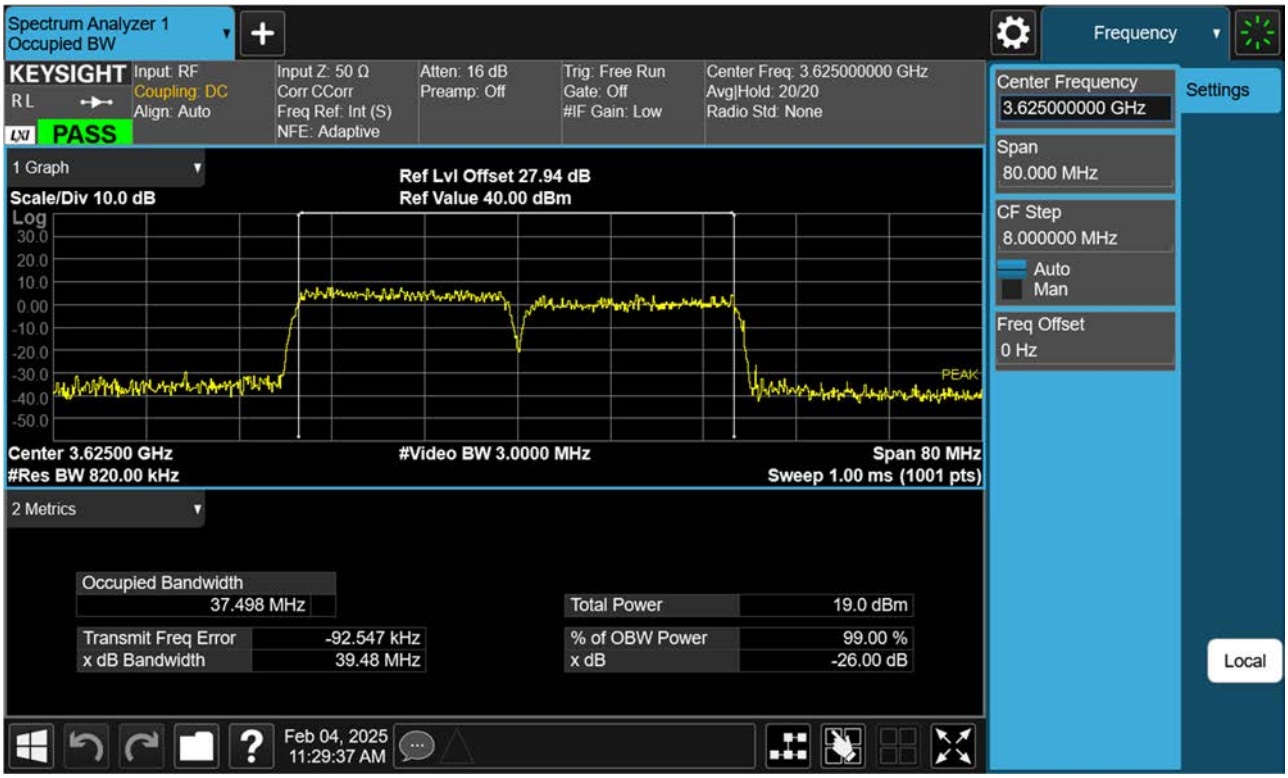
PCC					SCC					Data (MHz)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	55898	3615.8	64QAM	25/0	20	56015	3627.5	64QAM	100/0	22.786
10	55896	3615.6	64QAM	50/0	20	56040	3630	64QAM	100/0	27.544
15	55893	3615.3	64QAM	75/0	20	56064	3632.4	64QAM	100/0	32.451
20	55965	3622.5	64QAM	100/0	5	56082	3634.2	64QAM	25/0	22.876
20	55941	3620.1	64QAM	100/0	10	56085	3634.5	64QAM	50/0	27.746
20	55916	3617.6	64QAM	100/0	15	56087	3634.7	64QAM	75/0	32.496
20	55891	3615.1	64QAM	100/0	20	56089	3634.9	64QAM	100/0	37.357

PCC					SCC					Data (MHz)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	55898	3615.8	256QAM	25/0	20	56015	3627.5	256QAM	100/0	22.895
10	55896	3615.6	256QAM	50/0	20	56040	3630	256QAM	100/0	27.713
15	55893	3615.3	256QAM	75/0	20	56064	3632.4	256QAM	100/0	32.606
20	55965	3622.5	256QAM	100/0	5	56082	3634.2	256QAM	25/0	22.731
20	55941	3620.1	256QAM	100/0	10	56085	3634.5	256QAM	50/0	27.798
20	55916	3617.6	256QAM	100/0	15	56087	3634.7	256QAM	75/0	32.611
20	55891	3615.1	256QAM	100/0	20	56089	3634.9	256QAM	100/0	37.557

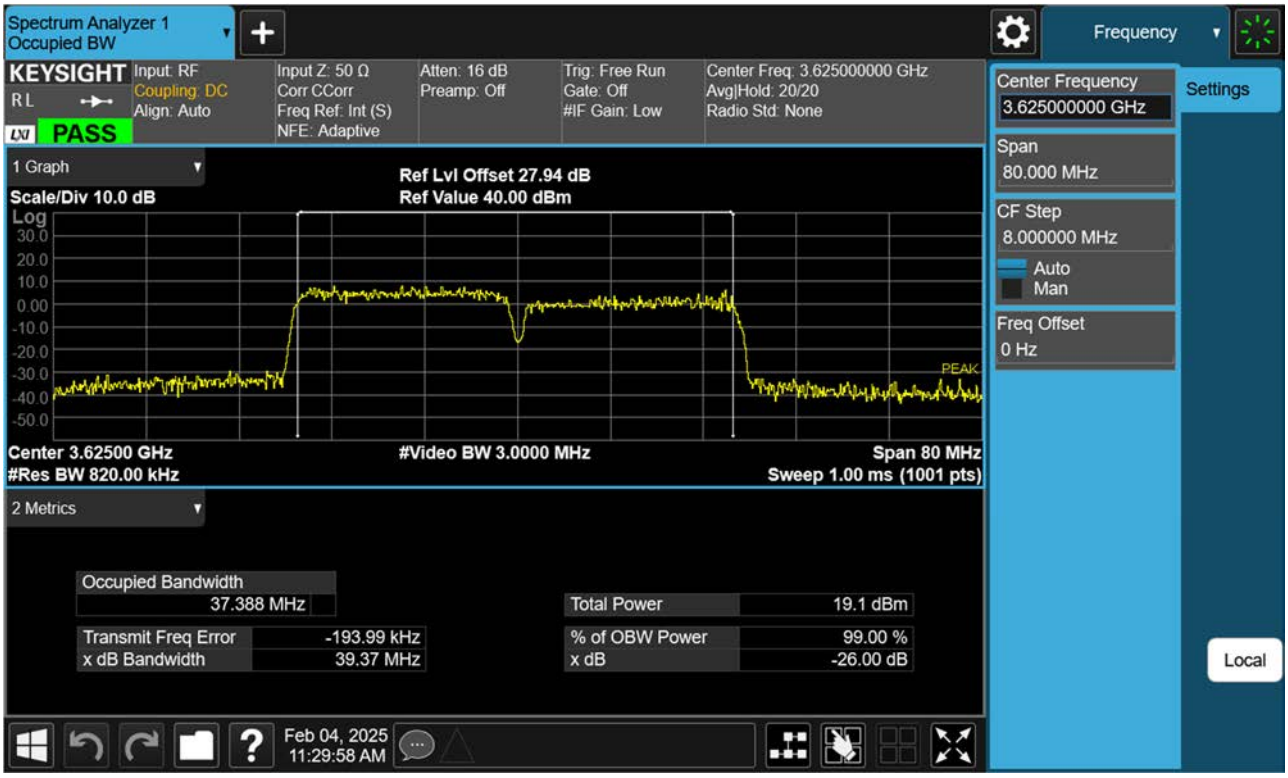
Note:

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

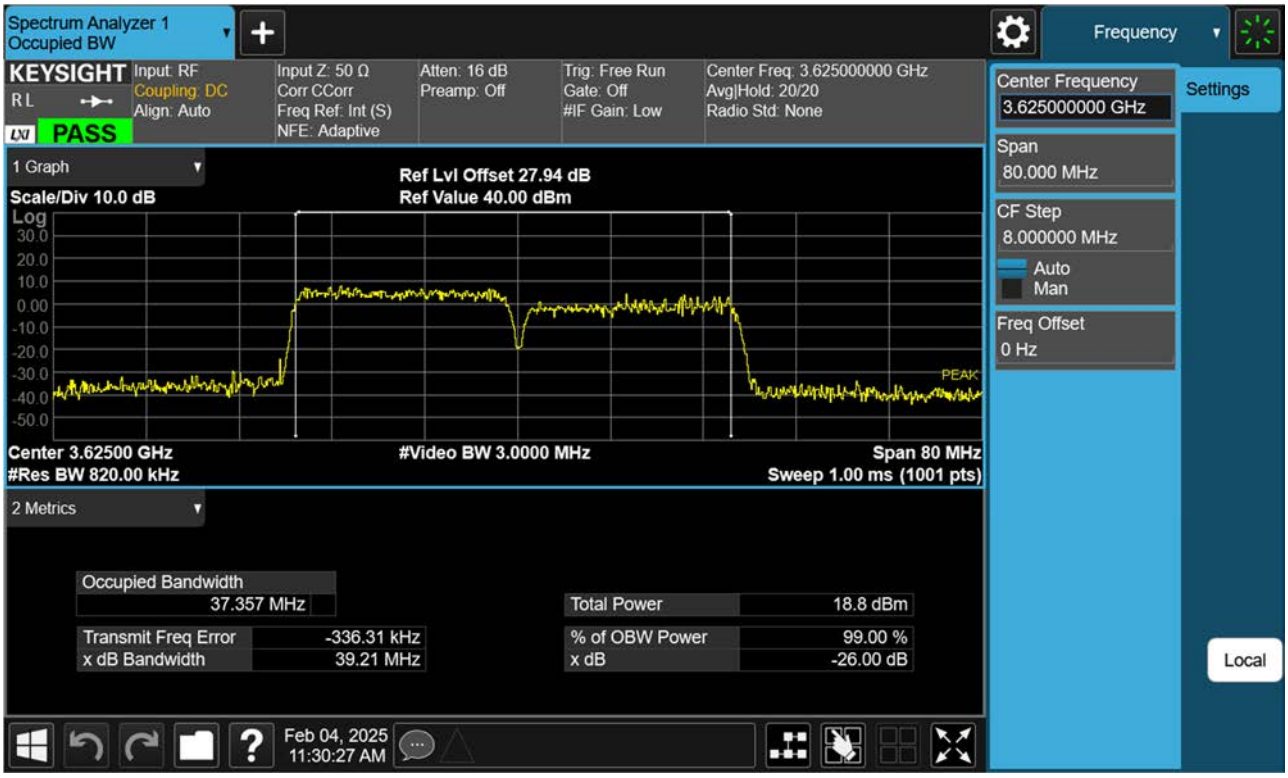
PCC 20 MHz Ch55891 RB100 Offset0, SCC 20 MHz Ch56089 RB100 Offset0_(QPSK)



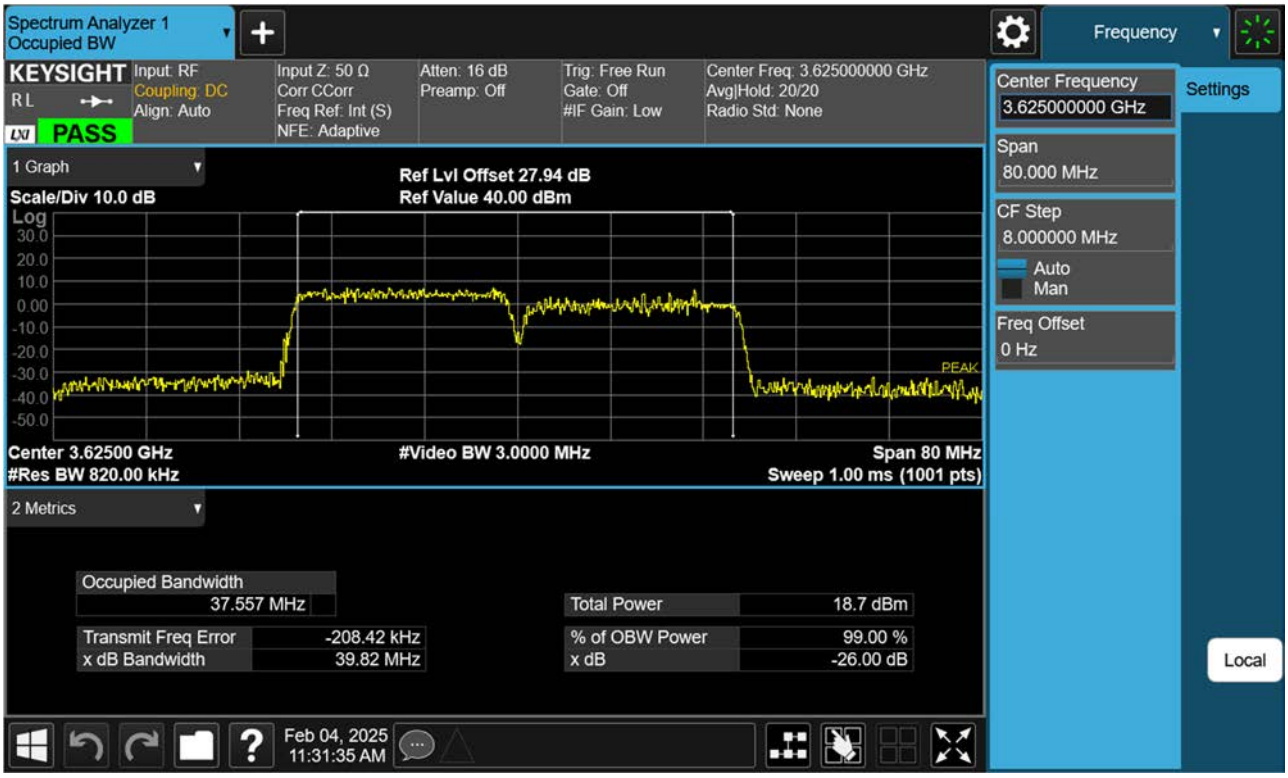
PCC 20 MHz Ch55891 RB100 Offset0, SCC 20 MHz Ch56089 RB100 Offset0_(16QAM)



PCC 20 MHz Ch55891 RB100 Offset0, SCC 20 MHz Ch56089 RB100 Offset0_(64QAM)



PCC 20 MHz Ch55891 RB100 Offset0, SCC 20 MHz Ch56089 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	55898	3615.8	QPSK	25/0	20	56015	3627.5	QPSK	100/0	6.60
10	55896	3615.6	QPSK	50/0	20	56040	3630	QPSK	100/0	6.75
15	55893	3615.3	QPSK	75/0	20	56064	3632.4	QPSK	100/0	6.57
20	55965	3622.5	QPSK	100/0	5	56082	3634.2	QPSK	25/0	6.35
20	55941	3620.1	QPSK	100/0	10	56085	3634.5	QPSK	50/0	6.27
20	55916	3617.6	QPSK	100/0	15	56087	3634.7	QPSK	75/0	6.26
20	55891	3615.1	QPSK	100/0	20	56089	3634.9	QPSK	100/0	7.06

PCC					SCC					Data (dB)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	55898	3615.8	16QAM	25/0	20	56015	3627.5	16QAM	100/0	7.41
10	55896	3615.6	16QAM	50/0	20	56040	3630	16QAM	100/0	7.05
15	55893	3615.3	16QAM	75/0	20	56064	3632.4	16QAM	100/0	7.45
20	55965	3622.5	16QAM	100/0	5	56082	3634.2	16QAM	25/0	7.03
20	55941	3620.1	16QAM	100/0	10	56085	3634.5	16QAM	50/0	7.19
20	55916	3617.6	16QAM	100/0	15	56087	3634.7	16QAM	75/0	7.34
20	55891	3615.1	16QAM	100/0	20	56089	3634.9	16QAM	100/0	8.14

PCC					SCC					Data (dB)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	55898	3615.8	64QAM	25/0	20	56015	3627.5	64QAM	100/0	7.23
10	55896	3615.6	64QAM	50/0	20	56040	3630	64QAM	100/0	7.17
15	55893	3615.3	64QAM	75/0	20	56064	3632.4	64QAM	100/0	6.84
20	55965	3622.5	64QAM	100/0	5	56082	3634.2	64QAM	25/0	7.10
20	55941	3620.1	64QAM	100/0	10	56085	3634.5	64QAM	50/0	7.07
20	55916	3617.6	64QAM	100/0	15	56087	3634.7	64QAM	75/0	7.06
20	55891	3615.1	64QAM	100/0	20	56089	3634.9	64QAM	100/0	7.41

PCC					SCC					Data (dB)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	55898	3615.8	256QAM	25/0	20	56015	3627.5	256QAM	100/0	7.28
10	55896	3615.6	256QAM	50/0	20	56040	3630	256QAM	100/0	7.42
15	55893	3615.3	256QAM	75/0	20	56064	3632.4	256QAM	100/0	7.76
20	55965	3622.5	256QAM	100/0	5	56082	3634.2	256QAM	25/0	7.24
20	55941	3620.1	256QAM	100/0	10	56085	3634.5	256QAM	50/0	7.05
20	55916	3617.6	256QAM	100/0	15	56087	3634.7	256QAM	75/0	7.25
20	55891	3615.1	256QAM	100/0	20	56089	3634.9	256QAM	100/0	8.56

Note:

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

PCC 20 MHz Ch55891 RB100 Offset0, SCC 20 MHz Ch56089 RB100 Offset0_(QPSK)

PCC 20 MHz Ch55891 RB100 Offset0, SCC 20 MHz Ch56089 RB100 Offset0_(16QAM)

PCC 20 MHz Ch55891 RB100 Offset0, SCC 20 MHz Ch56089 RB100 Offset0_(64QAM)

PCC 20 MHz Ch55891 RB100 Offset0, SCC 20 MHz Ch56089 RB100 Offset0_(256QAM)

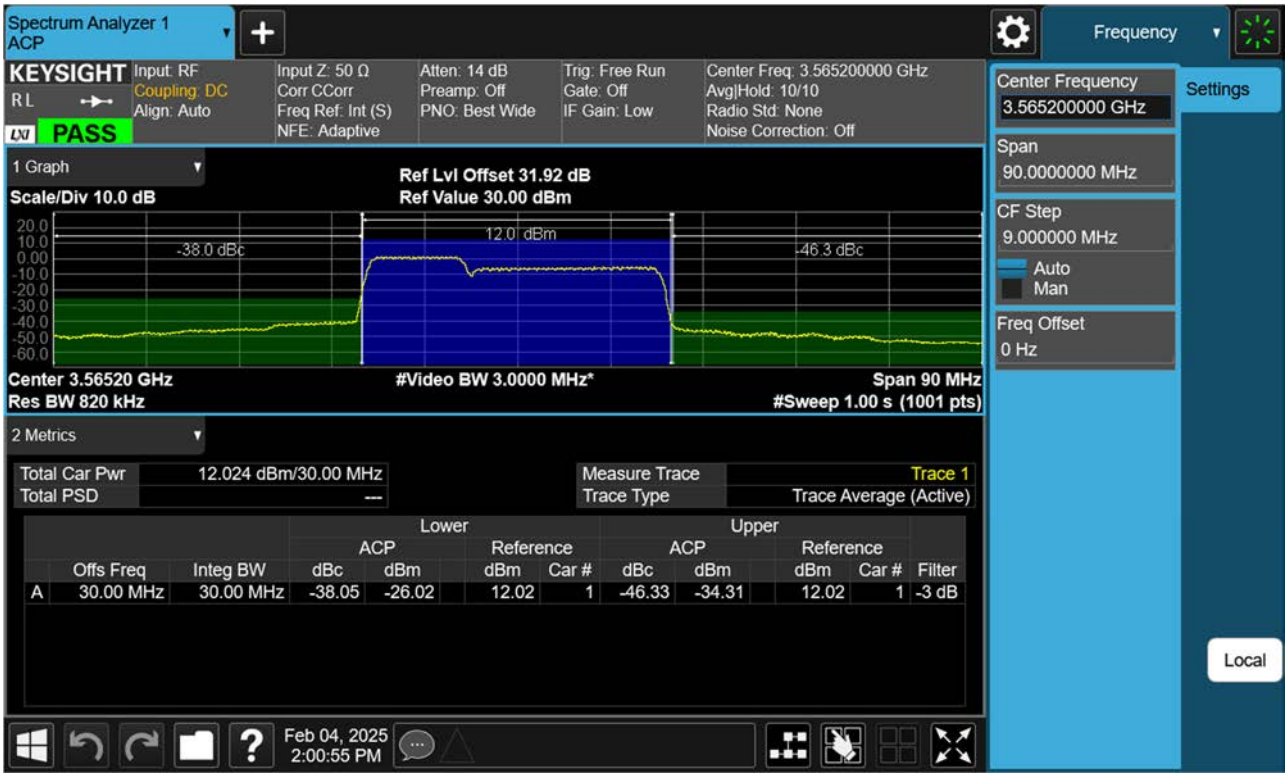
8.9 Adjacent Channel Leakage Ratio(ACLR)

Operating frequency	PCC				SCC				Adjacent Channel Leakage Ratio(dB)	
	BW [MHz]	Ch.	Freq. (MHz)	RB/ Offset	BW [MHz]	Ch.	Freq. (MHz)	RB/ Offset	Lower Side	Upper Side
Low	10	55295	3555.5	50/0	20	55439	3569.9	100/0	-38.05	-46.33
Mid	10	55896	3615.6	50/0	20	56040	3630.0	100/0	-37.73	-46.31
Low	20	55340	3560.0	100/0	20	55538	3579.8	100/0	-38.05	-41.53
Mid	20	55891	3615.1	100/0	20	56089	3634.9	100/0	-38.72	-41.88
High	20	56442	3670.2	100/0	20	56640	3690.0	100/0	-38.57	-41.04
High	20	56491	3675.1	100/0	15	56662	3692.2	75/0	-42.21	-40.35
Limit (dB)									ACLR > 30 dB	ACLR > 30 dB

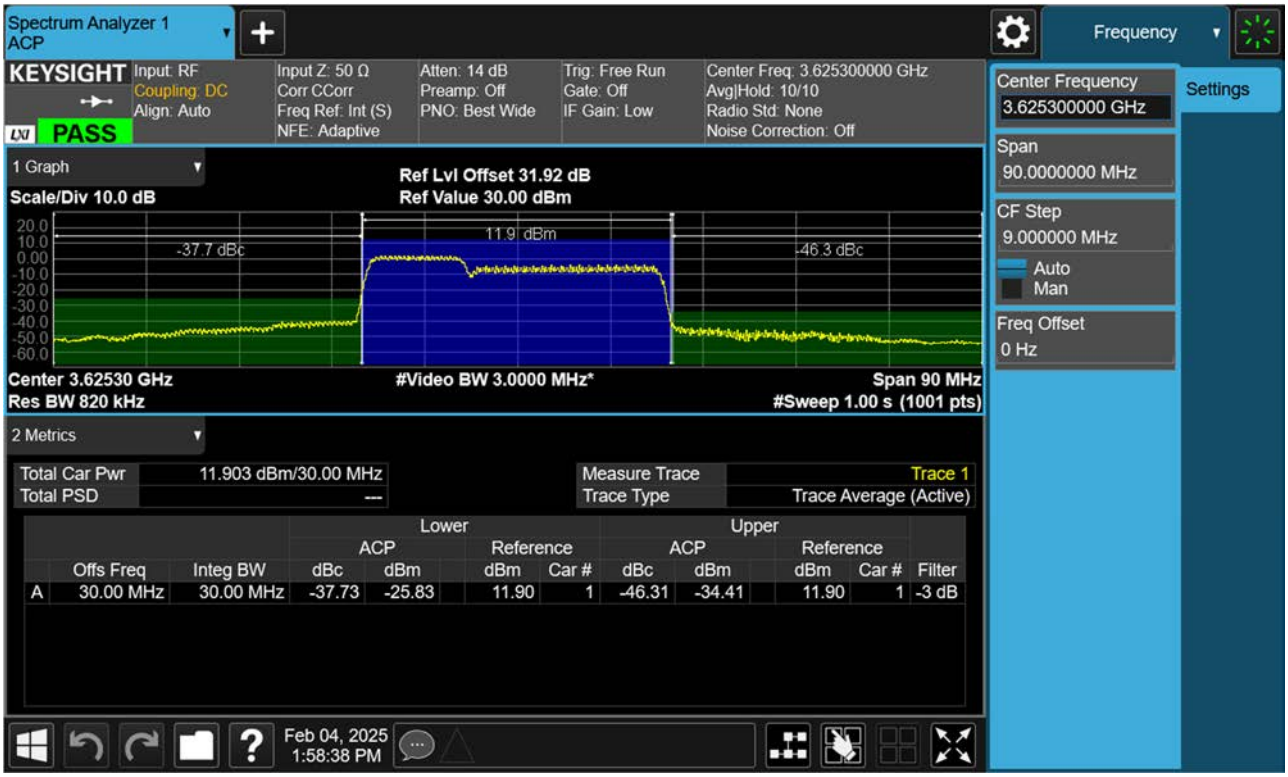
Note:

1. Modulation : 16QAM
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

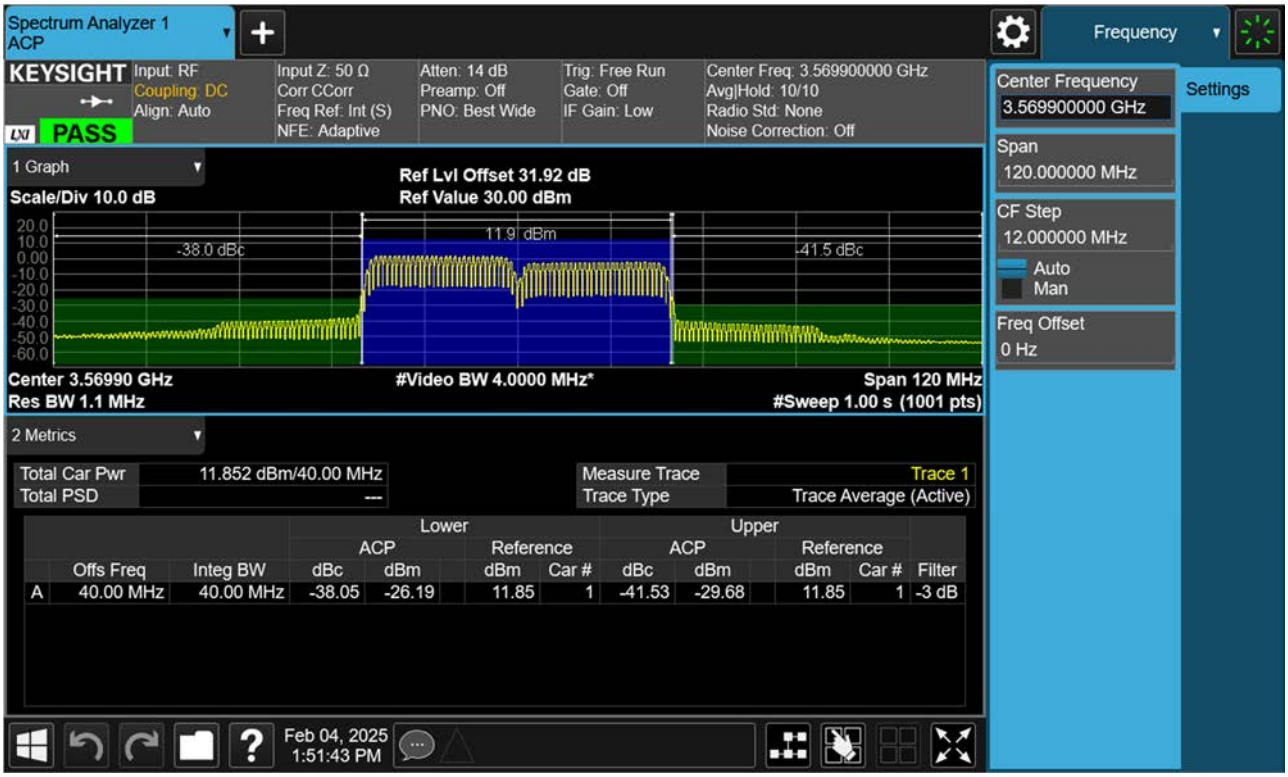
PCC 10 MHz Ch55295 RB50 Offset0, SCC 20 MHz Ch55439 RB100 Offset0



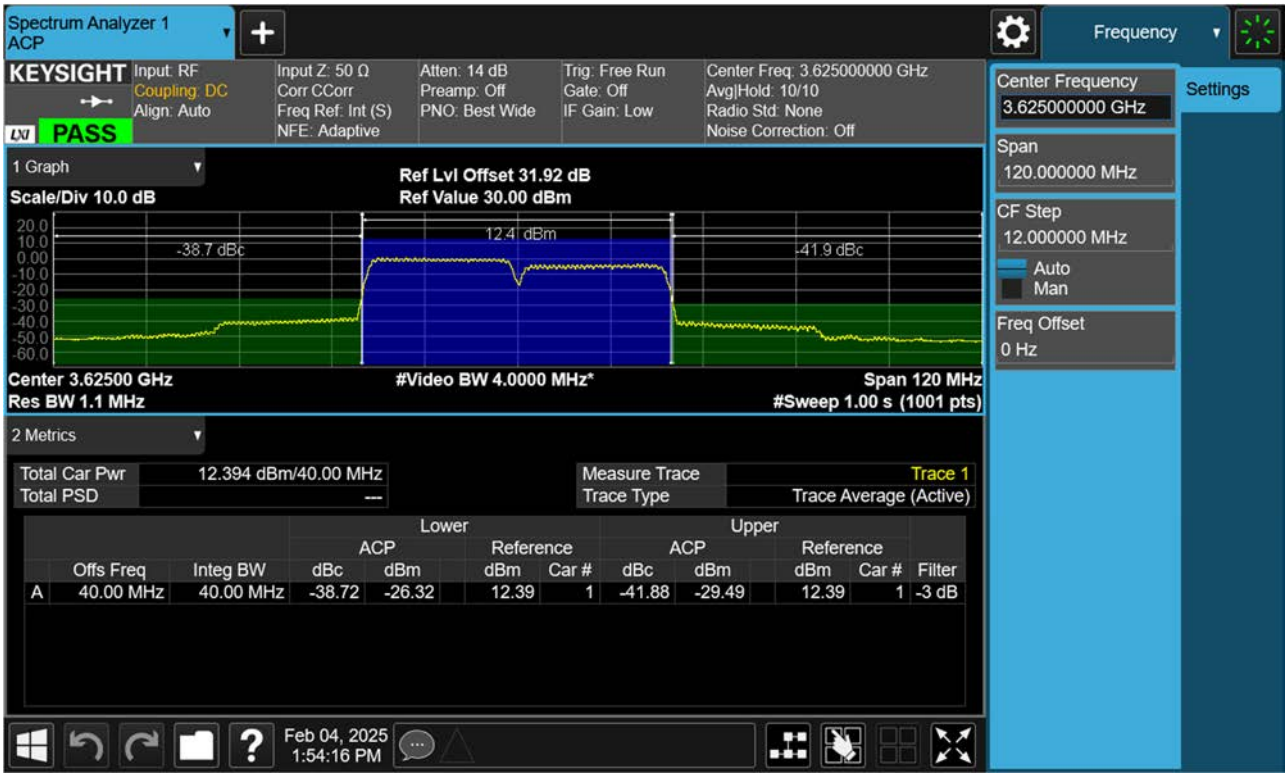
PCC 10 MHz Ch55896 RB50 Offset0, SCC 20 MHz Ch56040 RB100 Offset0



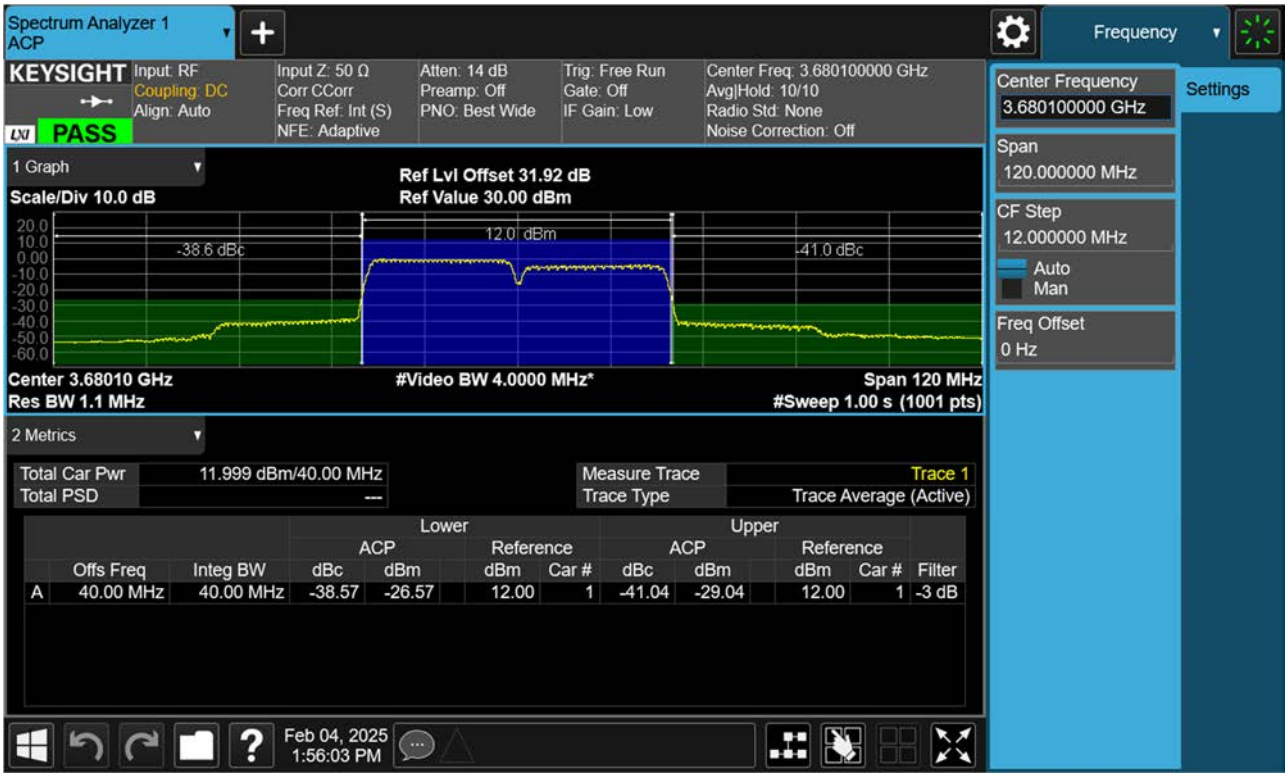
PCC 20 MHz Ch55340 RB100 Offset0, SCC 20 MHz Ch55538 RB100 Offset0



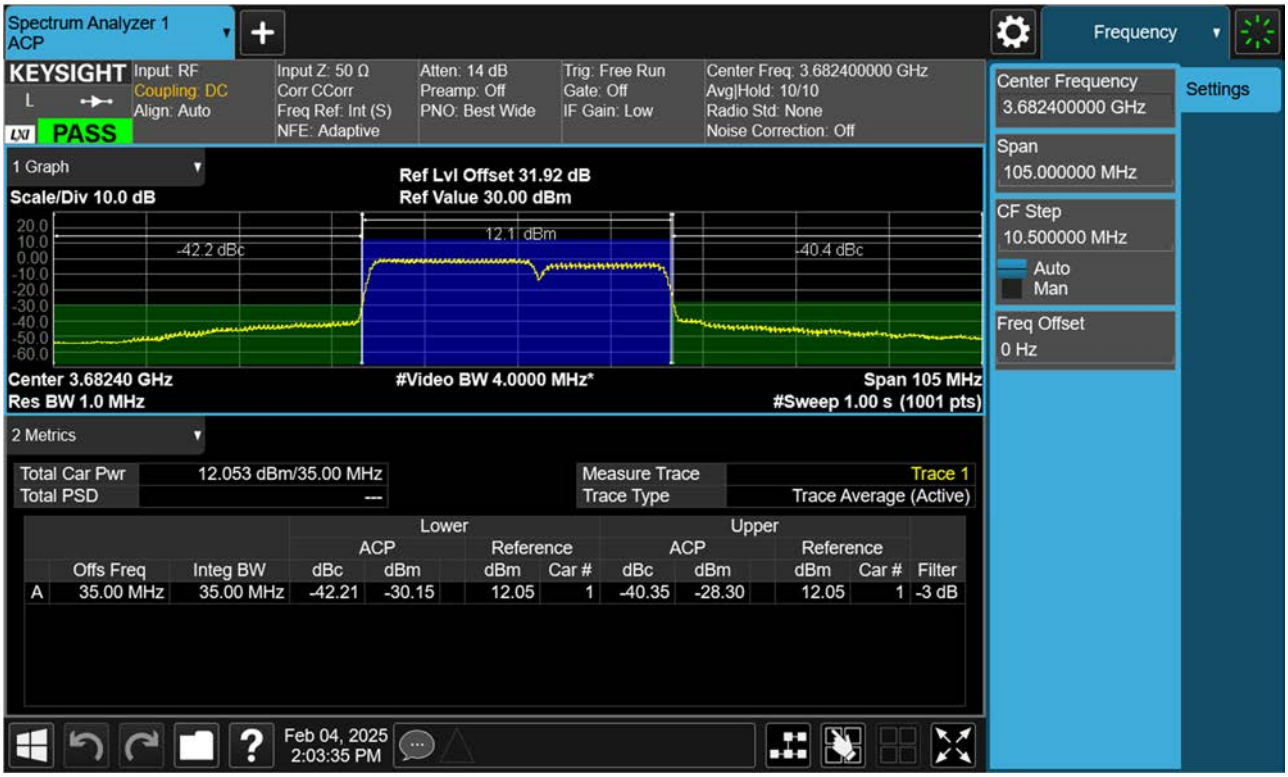
PCC 20 MHz Ch55891 RB100 Offset0, SCC 20 MHz Ch56089 RB100 Offset0



PCC 20 MHz Ch56442 RB100 Offset0, SCC 20 MHz Ch56640 RB100 Offset0



PCC 20 MHz Ch56491 RB100 Offset0, SCC 15 MHz Ch56662 RB75 Offset0



9. ANNEX A_ TEST SETUP PHOTO

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

No.	Description
1	HCT-RF-2502-FC025-P