

TEST REPORT

FCC ULCA 48C Test for SM-A276U
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2604-FC035

DATE OF ISSUE
April 23, 2026

Tested by
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TEST REPORT

REPORT NO.

HCT-RF-2604-FC035

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April 23, 2026

Additional Model

SM-A276U1, SM-S276V

Applicant

SAMSUNG Electronics Co., Ltd.

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

Product Name

Mobile Phone

Model Name

SM-A276U

Date of Test

March 11, 2026 ~ April 22, 2026

FCC ID

A3LSMA276U

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	April 23, 2026	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

1. GENERAL INFORMATION	5
1.1. MAXIMUM OUTPUT POWER.....	6
2. INTRODUCTION	7
2.1. DESCRIPTION OF EUT	7
2.2. MEASURING INSTRUMENT CALIBRATION	7
2.3. TEST FACILITY	7
2.4. EQUIPMENT.....	7
3. DESCRIPTION OF TESTS	8
3.1 TEST PROCEDURE.....	8
3.2 RADIATED POWER.....	9
3.3 RADIATED SPURIOUS EMISSIONS.....	10
3.4 PEAK- TO- AVERAGE RATIO	12
3.5 OCCUPIED BANDWIDTH.....	13
3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL	14
3.7 CHANNEL EDGE.....	15
3.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE	16
3.9 Adjacent Channel Leakage Ratio	17
4. LIST OF TEST EQUIPMENT.....	18
5. MEASUREMENT UNCERTAINTY	19
6. SUMMARY OF TEST RESULTS	20
7. SAMPLE CALCULATION.....	21
8. TEST DATA.....	23
8.1 Conducted Power	26
8.2 Equivalent Isotropic Radiated Power.....	29
8.3 Conducted Spurious Emissions.....	32
8.4 Channel Edge.....	57
8.5 Frequency Stability / Variation Of Ambient Temperature.....	77
8.6 Radiated Spurious Emissions	85
8.7 Occupied Bandwidth	88
8.8 Peak- to- Average Ratio.....	94
8.9 Adjacent Channel Leakage Ratio(ACLR)	100
9. ANNEX A_ TEST SETUP PHOTO	107

MEASUREMENT REPORT

1. GENERAL INFORMATION

Model(s):	SM-A276U
Additional Model(s)	SM-A276U1, SM-S276V
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
Serial number:	Radiated : R3GL30N9KDA Conducted : R37L300WFXL
LTE CA :	CA 48C (Uplink)
Antenna Information	Please refer to the Antenna Specification document.

1.1. MAXIMUM OUTPUT POWER

Mode (PCC+SCC)	Tx Frequency (MHz)	Modulation	Emission Designator	EIRP	
				Max. Power (W)	Max. Power (dBm)
5 MHz+20 MHz	3553.3 - 3690.0	QPSK	22M8G7D	0.063	17.98
		16QAM	22M8W7D	0.070	18.44
		64QAM	22M7W7D	0.059	17.74
		256QAM	22M7W7D	0.032	15.03
10 MHz+20 MHz	3555.5 - 3690.0	QPSK	27M7G7D	0.074	18.68
		16QAM	27M6W7D	0.075	18.76
		64QAM	27M4W7D	0.062	17.91
		256QAM	27M4W7D	0.032	15.05
15 MHz+20 MHz	3557.8 - 3690.0	QPSK	32M5G7D	0.072	18.60
		16QAM	32M6W7D	0.085	19.27
		64QAM	32M4W7D	0.064	18.07
		256QAM	32M6W7D	0.031	14.90
20 MHz+5 MHz	3560.0 - 3696.7	QPSK	22M9G7D	0.065	18.14
		16QAM	23M0W7D	0.069	18.36
		64QAM	22M8W7D	0.063	18.01
		256QAM	22M9W7D	0.031	14.92
20 MHz+10 MHz	3560.0 - 3694.5	QPSK	27M7G7D	0.070	18.46
		16QAM	27M9W7D	0.077	18.89
		64QAM	27M6W7D	0.064	18.03
		256QAM	27M7W7D	0.032	15.00
20 MHz+15 MHz	3560.0 - 3692.2	QPSK	32M5G7D	0.082	19.14
		16QAM	32M6W7D	0.087	19.42
		64QAM	32M4W7D	0.065	18.13
		256QAM	32M3W7D	0.033	15.12
20 MHz+20 MHz	3560.0 - 3690.0	QPSK	37M3G7D	0.076	18.81
		16QAM	37M2W7D	0.085	19.31
		64QAM	37M2W7D	0.059	17.75
		256QAM	37M6W7D	0.033	15.22

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

Please refer to the [2G3G] 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.

Detailed description of test facility was submitted to the Commission and accepted dated February 26, 2026 (Registration Number: KR0032).

2.4. EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to ANSI/USEMCSC C63.2-2023, "American National Standard for Specifications of Electromagnetic Interference and Field Strength Measuring Instrumentation in the Frequency Range 9 kHz to 40 GHz".

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 $\geq$ 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;

$$P_d \text{ (dBm)} = P_g \text{ (dBm)} - \text{cable loss (dB)} + \text{antenna gain (dB)}$$

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)

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

Test Settings (2)

1. RBW = 100 kHz for emissions below 1 GHz and 1 MHz for emissions above 1 GHz
2. VBW $\geq$ 3 x RBW
3. No. of sweep points > 2 x span / RBW
4. Detector = RMS
5. Trace mode = trace average
6. Sweep time > (Number of points in sweep x Transmitter period)
7. Test channel : Low/ Middle/ High
8. Frequency range : We are performed all frequency to 10th 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;

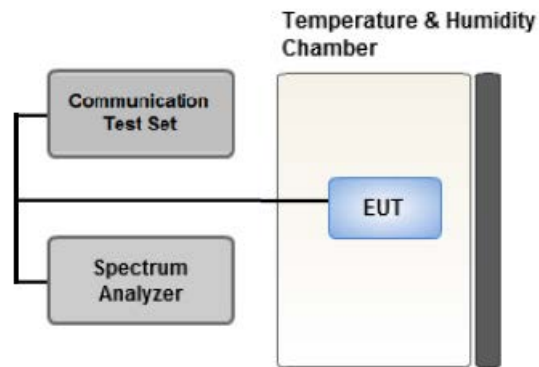
$$\text{Result}_{(\text{dBm})} = P_{g(\text{dBm})} - \text{cable loss}_{(\text{dB})} + \text{antenna gain}_{(\text{dBi})}$$

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.

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

3.4 PEAK- TO- AVERAGE RATIO



Test setup

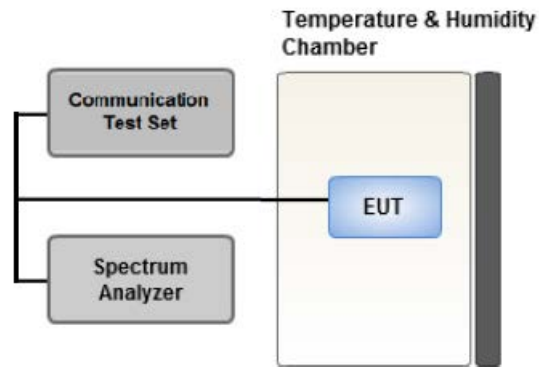
Test Settings

1. Set resolution/measurement bandwidth $\geq$ 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 %.

Test Notes

1. This test was performed using the spectrum analyzer's CCDF function.

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.

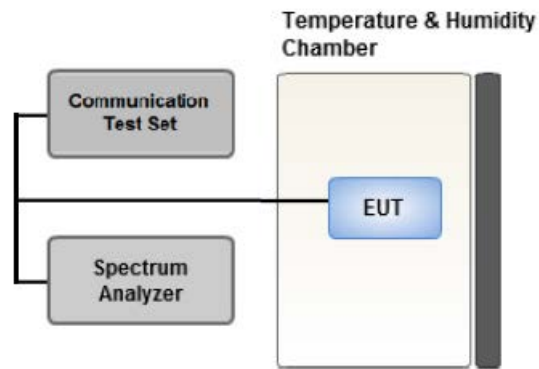
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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 $\geq 3 \times$ 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.

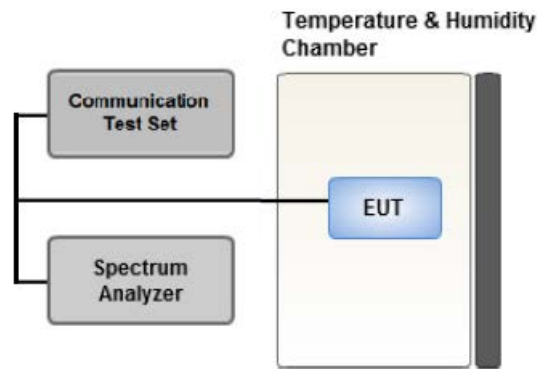
All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

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 $\geq$ 3 MHz
3. Detector = RMS
4. Trace Mode = trace average
5. Sweep time $>$ (Number of points in sweep $\times$ Transmitter period)
6. Number of points in sweep $\geq 2 \times \text{Span} / \text{RBW}$

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 $\geq 2 \times \text{Span/RBW}$
7. Trace mode = trace average
8. Sweep Time > (Number of Points) $\times$ (Symbol Period)
9. The trace was allowed to stabilize

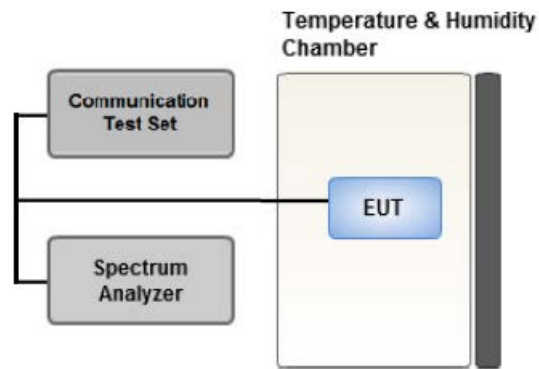
Test Notes

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 $10 \log(1 \text{ MHz}/\text{RB})$ 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.

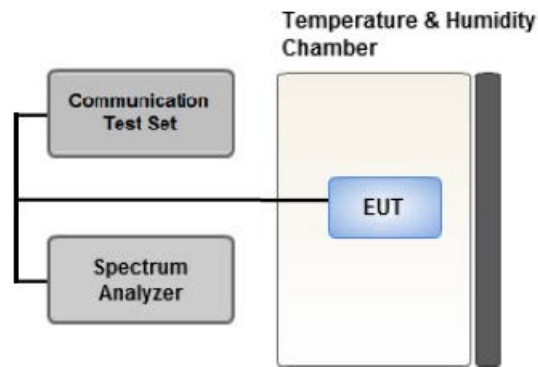
2. Primary Supply Voltage:

- . - 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 $\geq 2 \times \text{Span/RBW}$
7. Trace mode = trace average
8. Sweep time = Sweep time > Number of points in sweep $\times$ Transmitter period
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	Manufacture	Serial No.	Due to Calibration	Calibration Interval
RF Switching System	input 1 + 1.2G HPF+LNA	HCT CO., LTD.	F1L1	12/17/2026	Annual
RF Switching System	input 1 + 3.3 G HPF+LNA	HCT CO., LTD.	F1L2	12/17/2026	Annual
RF Switching System	input 1 + LNA	HCT CO., LTD.	F1L4	12/17/2026	Annual
RF Switching System	Input 2 + 6G HPF + LNA	HCT CO., LTD.	F1L7	12/17/2026	Annual
Broadband LNA	CBL18265035	CERNEX	22966	10/21/2026	Annual
Broadband LNA	CBL26405040	CERNEX	25956	02/09/2027	Annual
Power Splitter	11667B	Hewlett Packard	5001	04/01/2027	Annual
DC Power Supply	E3632A	Agilent	MY40010147	07/29/2026	Annual
Dipole Antenna	UHAP	Schwarzbeck	01274	03/05/2028	Biennial
Dipole Antenna	UHAP	Schwarzbeck	01288	08/07/2026	Biennial
Chamber	SU-642	ESPEC	93008124	02/04/2027	Annual
Horn Antenna	BBHA 9120D	Schwarzbeck	147	08/07/2027	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	9120D-1298	08/27/2027	Biennial
Horn Antenna	BBHA 9170	Schwarzbeck	BBHA9170342	09/20/2026	Biennial
Horn Antenna	BBHA 9170	Schwarzbeck	BBHA9170124	03/23/2027	Biennial
MXA SIGNAL ANALYZER	N9020A	Agilent	MY52090906	04/08/2027	Annual
20dB ATTENUATOR	8493C	HP	15233	12/10/2026	Annual
Spectrum Analyzer	FSV40	ROHDE & SCHWARZ	100931	07/28/2026	Annual
Wireless Communications Set	E5515C	Agilent	MY48360800	07/29/2026	Annual
Loop Antenna	FMZB1513	Schwarzbeck	1513-333	06/23/2027	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	00895	08/28/2026	Biennial
Trilog Broadband Antenna	VULB9168	SCHWARZBECK MESS- ELEKTRONIK	01135	08/19/2026	Biennial
Radio Communication Analyzer	MT8821C	Anritsu.	6262094331	11/24/2026	Annual
Radio Communication Test Station	MT8000A	Anritsu.	6272613402	08/18/2026	Annual
SIGNAL GENERATOR	SMB100A	ROHDE & SCHWARZ	177633	07/22/2026	Annual
Signal Analyzer	N9030B	KEYSIGHT	MY55480167	05/14/2026	Annual
SIGNAL ANALYZER	FSW67	ROHDE & SCHWARZ	101736	05/27/2026	Annual
Automation Software	FCC 2G/3G/4G Conducted	HCT CO., LTD	-	-	-
Automation Software	FCC NR Conducted	HCT CO., LTD	-	-	-
Automation Software	FCC LTE Radiated	HCT CO., LTD	-	-	-
Automation Software	FCC NR Radiated	HCT CO., LTD	-	-	-

Note:

- Equipment whose calibration due date was updated during the test period was not used between the previous due date and the update. All reported measurements were performed using equipment within valid calibration.
- Especially, all antenna for measurement is calibrated in accordance with the requirements of ANSI C63.5-2017.

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 ($\pm$ kHz)
Occupied Bandwidth	95 (Confidence level about 95 %, $k=2$)
Frequency stability	28 (Confidence level about 95 %, $k=2$)

Parameter	Expanded Uncertainty ($\pm$ kHz)
Block Edge	0.70 (Confidence level about 95 %, $k=2$)
Conducted Spurious Emissions	1.11 (Confidence level about 95 %, $k=2$)
Peak- to- Average Ratio	0.73 (Confidence level about 95 %, $k=2$)
Radiated Power	4.74 (Confidence level about 95 %, $k=2$)
Adjacent Channel Leakage Ratio(ACLR)	0.68 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.54 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.74 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.80 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.86 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (Above 40 GHz)	5.44 (Confidence level about 95 %, $k=2$)

6. SUMMARY OF TEST RESULTS

-. The decision rule applies 'simple acceptance'

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, § 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
Peak- to- Average Ratio	§ 96.41	< 13 dB	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

$$\text{ERP} = \text{Substitute LEVEL(dBm)} + \text{Ant. Gain} - \text{CL(Cable Loss)}$$

- 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

$$\text{EIRP} = \text{Substitute LEVEL(dBm)} + \text{Ant. Gain} - \text{CL(Cable Loss)}$$

- 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, BandEdge)
: 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, ACLR)
: 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.

[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/ Band 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	5	3615.8	55898	25	0	20	3627.5	56015	100	0
		High	10	3675.6	56496	50	0	20	3690.0	56640	100	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	3617.6	55916	1	99	15	3634.7	56087	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	16QAM	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
ACLR	16QAM	Low Mid High	5	3615.8	55898	25	0	20	3627.5	56015	100	0
			10	3555.5	55295	50	0	20	3569.9	55439	100	0
			15	3675.6	56496	75	0	20	3690.0	56640	100	0
			20	3560.0	55340	100	0	20	3579.8	55538	100	0
			20	3615.1	55891	100	0	20	3634.9	56089	100	0
			20	3670.2	56442	100	0	20	3690.0	56640	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	3553.3	55273	1	24	20	3565.0	55390	1	0	16.60
	10	3555.5	55295	1	49	20	3569.9	55439	1	0	15.96
	15	3557.8	55318	1	74	20	3574.9	55489	1	0	15.90
	20	3560.0	55340	1	99	5	3571.7	55457	1	0	16.91
	20	3560.0	55340	1	99	10	3574.4	55484	1	0	15.87
	20	3560.0	55340	1	99	15	3577.1	55511	1	0	15.78
	20	3560.0	55340	1	99	20	3579.8	55538	1	0	17.33
Mid	5	3615.8	55898	1	24	20	3627.5	56015	1	0	19.20
	10	3615.6	55896	1	49	20	3630.0	56040	1	0	19.62
	15	3615.3	55893	1	74	20	3632.4	56064	1	0	20.00
	20	3622.5	55965	1	99	5	3634.2	56082	1	0	19.00
	20	3620.1	55941	1	99	10	3634.5	56085	1	0	19.55
	20	3617.6	55916	1	99	15	3634.7	56087	1	0	19.98
	20	3615.1	55891	1	99	20	3634.9	56089	1	0	20.01
High	5	3678.3	56523	1	24	20	3690.0	56640	1	0	16.03
	10	3675.6	56496	1	49	20	3690.0	56640	1	0	15.41
	15	3672.9	56469	1	74	20	3690.0	56640	1	0	15.38
	20	3685.0	56590	1	99	5	3696.7	56707	1	0	16.66
	20	3680.1	56541	1	99	10	3694.5	56685	1	0	15.57
	20	3675.1	56491	1	99	15	3692.2	56662	1	0	15.45
	20	3670.2	56442	1	99	20	3690.0	56640	1	0	16.87

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	10.17
	10	3555.5	55295	50	0	20	3569.9	55439	100	0	11.14
	15	3557.8	55318	75	0	20	3574.9	55489	100	0	11.08
	20	3560.0	55340	100	0	5	3571.7	55457	25	0	10.02
	20	3560.0	55340	100	0	10	3574.4	55484	50	0	11.04
	20	3560.0	55340	100	0	15	3577.1	55511	75	0	11.07
	20	3560.0	55340	100	0	20	3579.8	55538	100	0	11.05
Mid	5	3615.8	55898	25	0	20	3627.5	56015	100	0	17.33
	10	3615.6	55896	50	0	20	3630.0	56040	100	0	16.81
	15	3615.3	55893	75	0	20	3632.4	56064	100	0	16.84
	20	3622.5	55965	100	0	5	3634.2	56082	25	0	17.18
	20	3620.1	55941	100	0	10	3634.5	56085	50	0	16.71
	20	3617.6	55916	100	0	15	3634.7	56087	75	0	16.80
	20	3615.1	55891	100	0	20	3634.9	56089	100	0	16.84
High	5	3678.3	56523	25	0	20	3690.0	56640	100	0	9.54
	10	3675.6	56496	50	0	20	3690.0	56640	100	0	10.52
	15	3672.9	56469	75	0	20	3690.0	56640	100	0	10.43
	20	3685.0	56590	100	0	5	3696.7	56707	25	0	9.57
	20	3680.1	56541	100	0	10	3694.5	56685	50	0	10.52
	20	3675.1	56491	100	0	15	3692.2	56662	75	0	10.46
	20	3670.2	56442	100	0	20	3690.0	56640	100	0	10.40

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	17.94
Mid	20	3615.1	55891	1	99	20	3634.9	56089	1	0	20.53
High	20	3670.2	56442	1	99	20	3690.0	56640	1	0	17.40
Low	10	3555.5	55295	50	0	20	3569.9	55439	100	0	11.15
Mid	5	3615.8	55898	25	0	20	3627.5	56015	100	0	17.35
High	10	3675.6	56496	50	0	20	3690.0	56640	100	0	10.54

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	17.71
Mid	20	3615.1	55891	1	99	20	3634.9	56089	1	0	19.23
High	20	3670.2	56442	1	99	20	3690.0	56640	1	0	17.29
Low	10	3555.5	55295	50	0	20	3569.9	55439	100	0	11.11
Mid	5	3615.8	55898	25	0	20	3627.5	56015	100	0	17.29
High	10	3675.6	56496	50	0	20	3690.0	56640	100	0	10.50

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	17.11
Mid	20	3615.1	55891	1	99	20	3634.9	56089	1	0	16.13
High	20	3670.2	56442	1	99	20	3690.0	56640	1	0	16.42
Low	10	3555.5	55295	50	0	20	3569.9	55439	100	0	11.10
Mid	5	3615.8	55898	25	0	20	3627.5	56015	100	0	16.28
High	10	3675.6	56496	50	0	20	3690.0	56640	100	0	10.48

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	55273	1/24	20	55390	1/0	-34.30	4.47	12.38	3.09	H	0.024	13.76
	10	55295	1/49	20	55439	1/0	-35.17	3.60	12.38	3.09	H	0.019	12.89
	15	55318	1/74	20	55489	1/0	-34.95	3.92	12.37	3.09	H	0.021	13.20
	20	55340	1/99	5	55457	1/0	-34.02	4.85	12.37	3.09	H	0.026	14.13
	20	55340	1/99	10	55484	1/0	-35.29	3.69	12.36	3.09	H	0.020	12.96
	20	55340	1/99	15	55511	1/0	-35.02	3.96	12.36	3.09	H	0.021	13.23
	20	55340	1/99	20	55538	1/0	-33.89	5.09	12.36	3.09	H	0.027	14.36
Mid	5	55898	1/24	20	56015	1/0	-30.34	8.86	12.26	3.14	H	0.063	17.98
	10	55896	1/49	20	56040	1/0	-29.64	9.56	12.26	3.14	H	0.074	18.68
	15	55893	1/74	20	56064	1/0	-29.72	9.48	12.26	3.14	H	0.072	18.60
	20	55965	1/99	5	56082	1/0	-30.13	9.02	12.24	3.12	H	0.065	18.14
	20	55941	1/99	10	56085	1/0	-29.81	9.34	12.24	3.12	H	0.070	18.46
	20	55916	1/99	15	56087	1/0	-29.16	10.02	12.25	3.13	H	0.082	19.14
	20	55891	1/99	20	56089	1/0	-29.49	9.69	12.25	3.13	H	0.076	18.81
High	5	56523	1/24	20	56640	1/0	-34.23	5.05	12.27	3.10	H	0.026	14.22
	10	56496	1/49	20	56640	1/0	-34.81	4.49	12.26	3.11	H	0.023	13.64
	15	56469	1/74	20	56640	1/0	-34.73	4.57	12.26	3.11	H	0.024	13.72
	20	56590	1/99	5	56707	1/0	-33.51	5.75	12.28	3.08	H	0.031	14.95
	20	56541	1/99	10	56685	1/0	-35.26	4.00	12.28	3.08	H	0.021	13.20
	20	56491	1/99	15	56662	1/0	-35.27	4.03	12.26	3.11	H	0.021	13.18
	20	56442	1/99	20	56640	1/0	-33.03	6.27	12.26	3.11	H	0.035	15.42

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
Low	5	55273	1/24	20	55390	1/0	-34.26	4.51	12.38	3.09	H	0.024	13.80
	10	55295	1/49	20	55439	1/0	-34.28	4.49	12.38	3.09	H	0.024	13.78
	15	55318	1/74	20	55489	1/0	-34.50	4.37	12.37	3.09	H	0.023	13.65
	20	55340	1/99	5	55457	1/0	-33.68	5.19	12.37	3.09	H	0.028	14.47
	20	55340	1/99	10	55484	1/0	-34.42	4.56	12.36	3.09	H	0.024	13.83
	20	55340	1/99	15	55511	1/0	-34.33	4.65	12.36	3.09	H	0.025	13.92
	20	55340	1/99	20	55538	1/0	-33.05	5.93	12.36	3.09	H	0.033	15.20
Mid	5	55898	1/24	20	56015	1/0	-29.88	9.32	12.26	3.14	H	0.070	18.44
	10	55896	1/49	20	56040	1/0	-29.56	9.64	12.26	3.14	H	0.075	18.76
	15	55893	1/74	20	56064	1/0	-29.05	10.15	12.26	3.14	H	0.085	19.27
	20	55965	1/99	5	56082	1/0	-29.91	9.24	12.24	3.12	H	0.069	18.36
	20	55941	1/99	10	56085	1/0	-29.38	9.77	12.24	3.12	H	0.077	18.89
	20	55916	1/99	15	56087	1/0	-28.88	10.30	12.25	3.13	H	0.087	19.42
	20	55891	1/99	20	56089	1/0	-28.99	10.19	12.25	3.13	H	0.085	19.31
High	5	56523	1/24	20	56640	1/0	-33.31	5.97	12.27	3.10	H	0.033	15.14
	10	56496	1/49	20	56640	1/0	-34.24	5.06	12.26	3.11	H	0.026	14.21
	15	56469	1/74	20	56640	1/0	-34.65	4.65	12.26	3.11	H	0.024	13.80
	20	56590	1/99	5	56707	1/0	-33.64	5.62	12.28	3.08	H	0.030	14.82
	20	56541	1/99	10	56685	1/0	-34.34	4.92	12.28	3.08	H	0.026	14.12
	20	56491	1/99	15	56662	1/0	-34.37	4.93	12.26	3.11	H	0.026	14.08
	20	56442	1/99	20	56640	1/0	-32.54	6.76	12.26	3.11	H	0.039	15.91

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
20	55340	1/99	20	55538	1/0	-33.50	5.48	12.36	3.09	H	0.030	14.75
5	55898	1/24	20	56015	1/0	-30.58	8.62	12.26	3.14	H	0.059	17.74
10	55896	1/49	20	56040	1/0	-30.41	8.79	12.26	3.14	H	0.062	17.91
15	55893	1/74	20	56064	1/0	-30.25	8.95	12.26	3.14	H	0.064	18.07
20	55965	1/99	5	56082	1/0	-30.26	8.89	12.24	3.12	H	0.063	18.01
20	55941	1/99	10	56085	1/0	-30.24	8.91	12.24	3.12	H	0.064	18.03
20	55916	1/99	15	56087	1/0	-30.17	9.01	12.25	3.13	H	0.065	18.13
20	55891	1/99	20	56089	1/0	-30.55	8.63	12.25	3.13	H	0.060	17.75
20	56442	1/99	20	56640	1/0	-33.50	5.80	12.26	3.11	H	0.031	14.95

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
20	55340	1/99	20	55538	1/0	-33.66	5.32	12.36	3.09	H	0.029	14.59
5	55898	1/24	20	56015	1/0	-33.29	5.91	12.26	3.14	H	0.032	15.03
10	55896	1/49	20	56040	1/0	-33.27	5.93	12.26	3.14	H	0.032	15.05
15	55893	1/74	20	56064	1/0	-33.42	5.78	12.26	3.14	H	0.031	14.90
20	55965	1/99	5	56082	1/0	-33.35	5.80	12.24	3.12	H	0.031	14.92
20	55941	1/99	10	56085	1/0	-33.27	5.88	12.24	3.12	H	0.032	15.00
20	55916	1/99	15	56087	1/0	-33.18	6.00	12.25	3.13	H	0.033	15.12
20	55891	1/99	20	56089	1/0	-33.69	5.49	12.25	3.13	H	0.029	14.61
20	56442	1/99	20	56640	1/0	-33.23	6.07	12.26	3.11	H	0.033	15.22

Note:

1. Modulation : 256QAM
2. Limit : < 23 dBm / 10 MHz

8.3 Conducted Spurious Emissions

Operating frequency	PCC				SCC				Measurement	Factor (dB)	Measurement	Result (dBm)
	BW [MHz]	Ch.	Freq. (MHz)	RB/ Offset	BW [MHz]	Ch.	Freq. (MHz)	RB/ Offset	Maximum Frequency (GHz)		Maximum Data (dBm)	
Low	20	55340	3560.0	1/99	20	55538	3579.8	1/0	3.9258	27.976	-73.83	-45.86
Mid	20	55891	3615.1	1/99	20	56089	3634.9	1/0	3.9313	27.976	-73.09	-45.11
High	20	56442	3670.2	1/99	20	56640	3690.0	1/0	3.9093	27.976	-73.51	-45.54
Low	20	55340	3560.0	1/0	20	55538	3579.8	1/99	3.9153	27.976	-73.95	-45.97
Mid	20	55891	3615.1	1/0	20	56089	3634.9	1/99	3.9188	27.976	-73.88	-45.90
High	20	56442	3670.2	1/0	20	56640	3690.0	1/99	3.9198	27.976	-73.94	-45.96
Low	10	55295	3555.5	50/0	20	55439	3569.9	100/0	3.9188	27.976	-73.93	-45.96
Mid	5	55898	3615.8	25/0	20	56015	3627.5	100/0	3.9238	27.976	-73.76	-45.78
High	10	56496	3675.6	50/0	20	56640	3690.0	100/0	3.9183	27.976	-73.85	-45.88
Low	20	55340	3560.0	100/0	20	55538	3579.8	100/0	3.9228	27.976	-73.85	-45.88
Mid	20	55891	3615.1	100/0	20	56089	3634.9	100/0	3.9163	27.976	-73.84	-45.86
High	20	56442	3670.2	100/0	20	56640	3690.0	100/0	3.9208	27.976	-73.85	-45.87

Note:

1. Modulation : 16QAM
2. Result (dBm) = Measurement Maximum Data (dBm) + Factor (dB)
3. Factor (dB) = Cable Loss + Attenuator + Power Splitter

Frequency Range (GHz)	Factor [dB]
0.03 – 1	25.270
1 – 5	27.976
5 – 10	28.591
10 – 15	29.116
15 – 20	29.489
Above 20(26.5)	30.131

4. Limit : -40.0 dBm

Frequency Range : 30 MHz ~ 10 GHz

PCC 5MHz Ch55898 RB25 Offset0 SCC 20MHz Ch56015 RB100 Offset0



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



PCC 10MHz Ch56496 RB50 Offset0 SCC 20MHz Ch56640 RB100 Offset0



PCC 20MHz Ch55340 RB1 Offset0 SCC 20MHz Ch55538 RB1 Offset99



PCC 20MHz Ch55340 RB1 Offset99 SCC 20MHz Ch55538 RB1 Offset0



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



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



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



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



PCC 20MHz Ch56442 RB1 Offset0 SCC 20MHz Ch56640 RB1 Offset99



PCC 20MHz Ch56442 RB1 Offset99 SCC 20MHz Ch56640 RB1 Offset0



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



Frequency Range : 10 GHz ~ 37 GHz

PCC 5MHz Ch55898 RB25 Offset0, SCC 20MHz Ch56015 RB100 Offset0



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



PCC 10MHz Ch56496 RB50 Offset0, SCC 20MHz Ch56640 RB100 Offset0



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



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



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



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



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



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



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



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

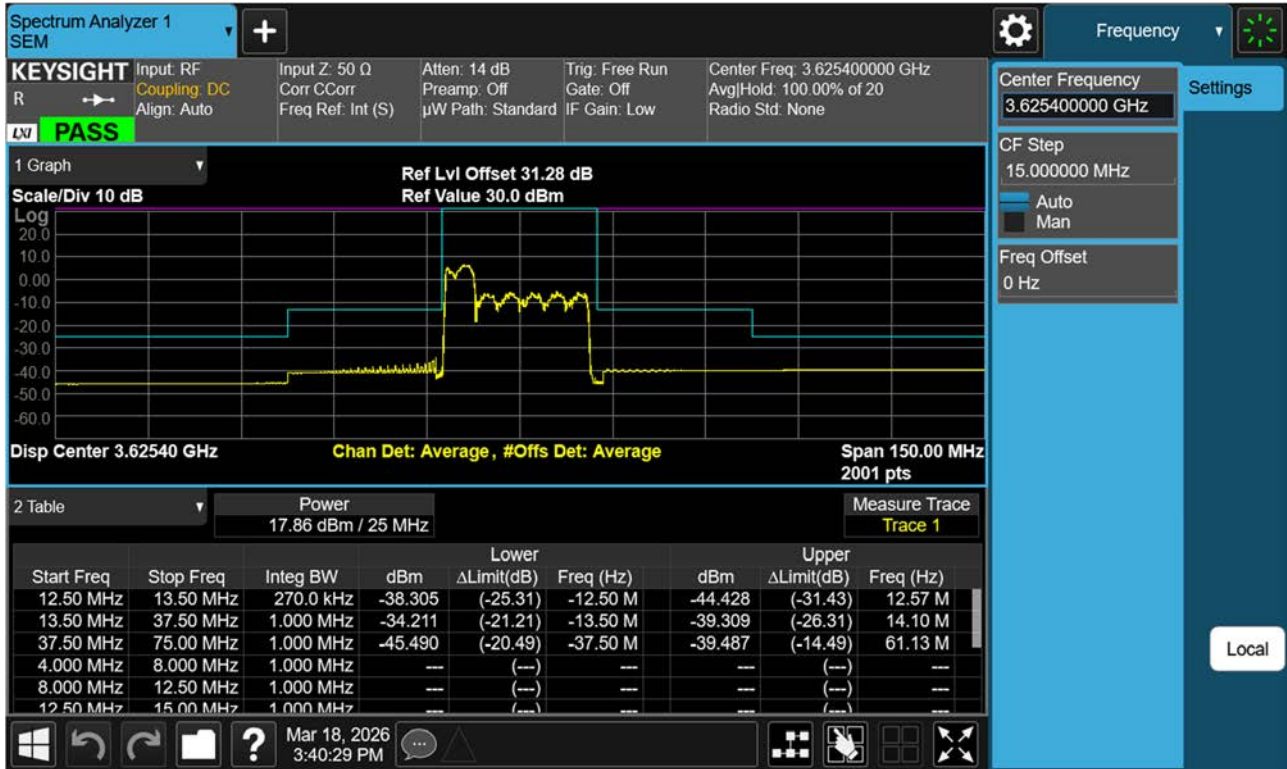


PCC 20MHz Ch56442 RB100 Offset0, SCC 20MHz Ch56640 RB100 Offset0

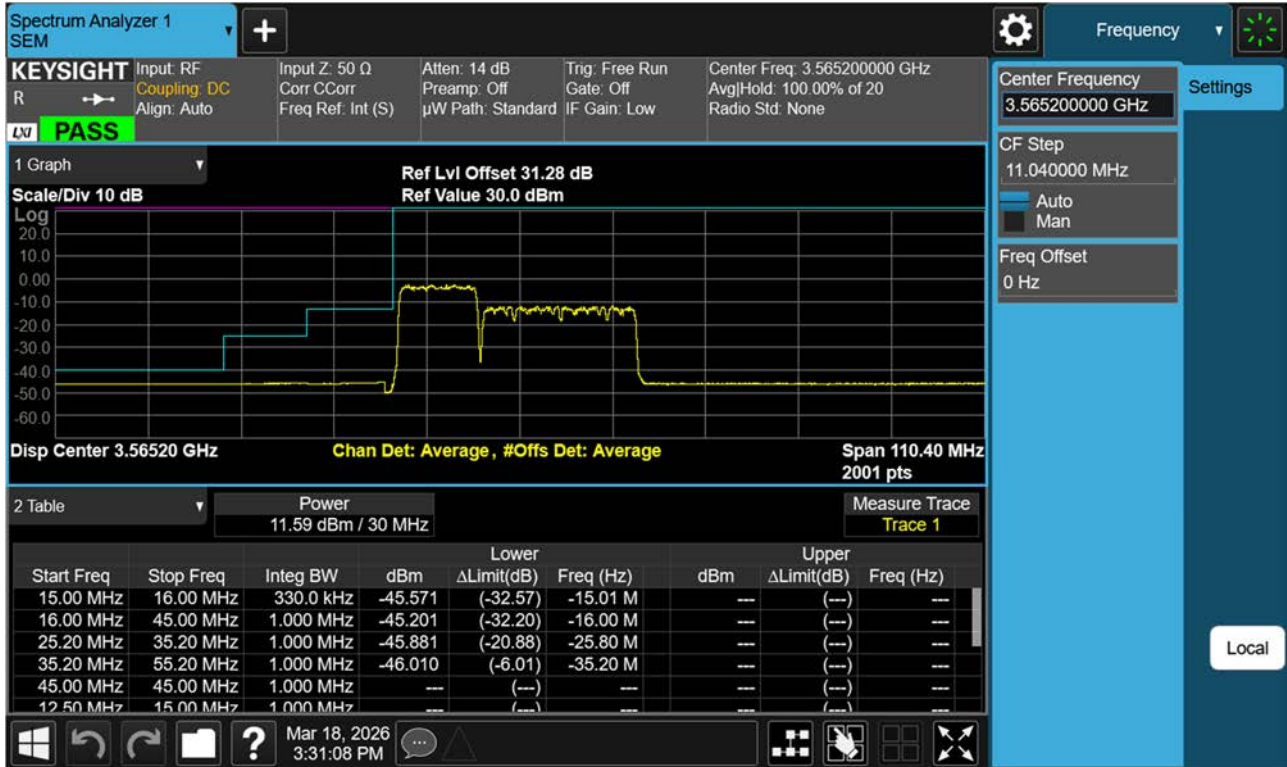


8.4 Channel Edge

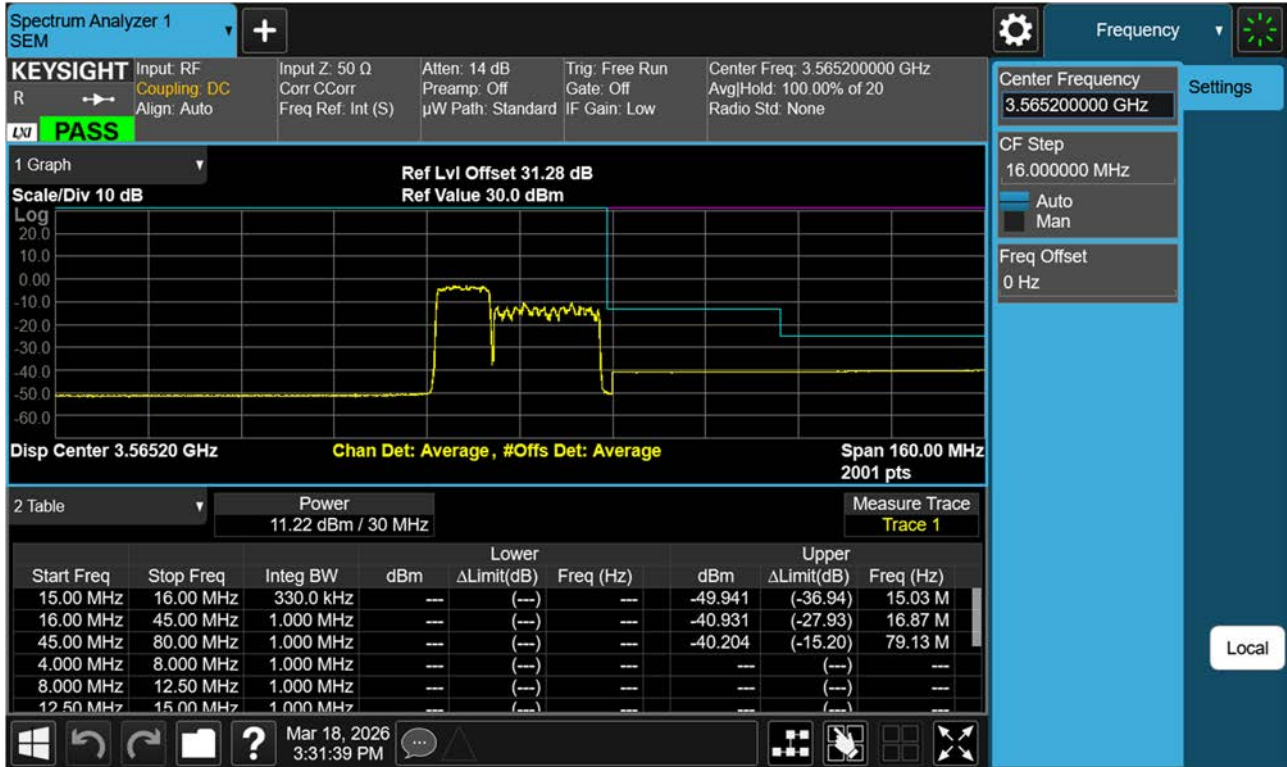
PCC 5MHz Ch55898 RB25 Offset0, SCC 20MHz Ch56015 RB100 Offset0



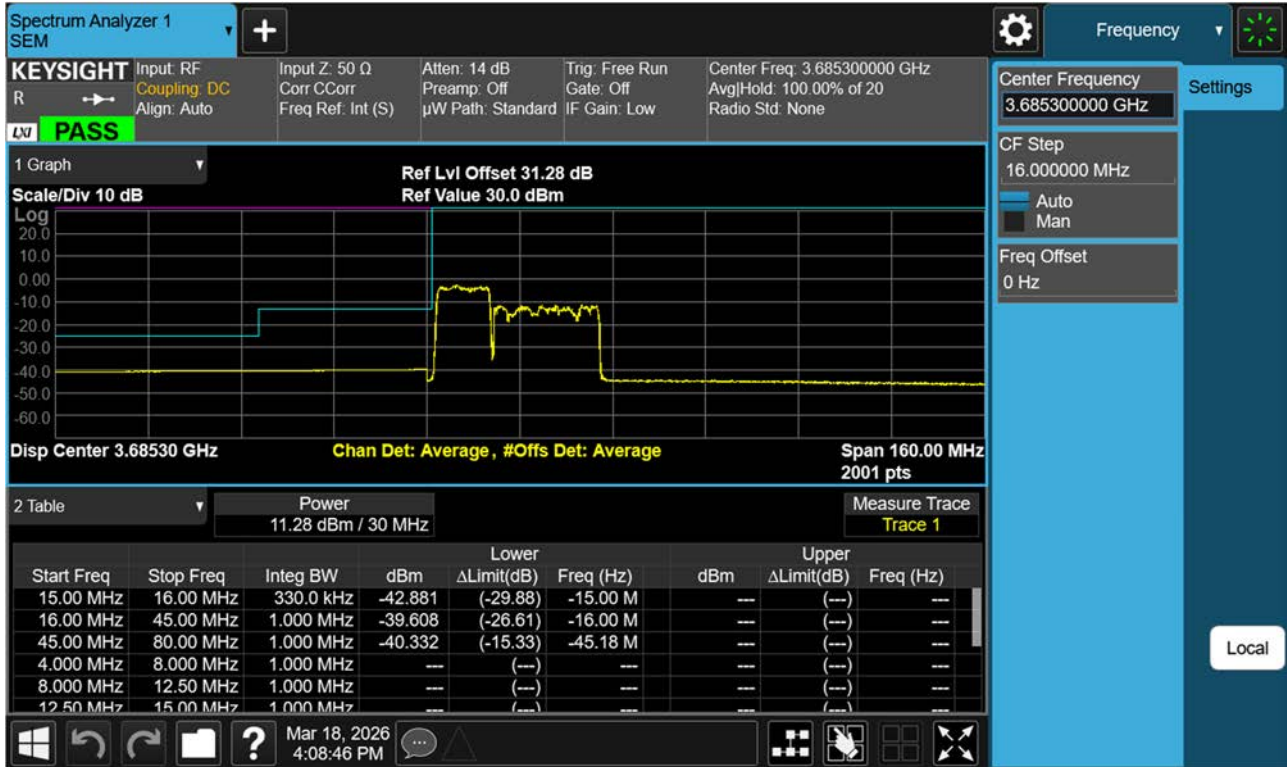
PCC 10MHz Ch55295 RB50 Offset0, SCC 20MHz Ch55439 RB100 Offset0-1



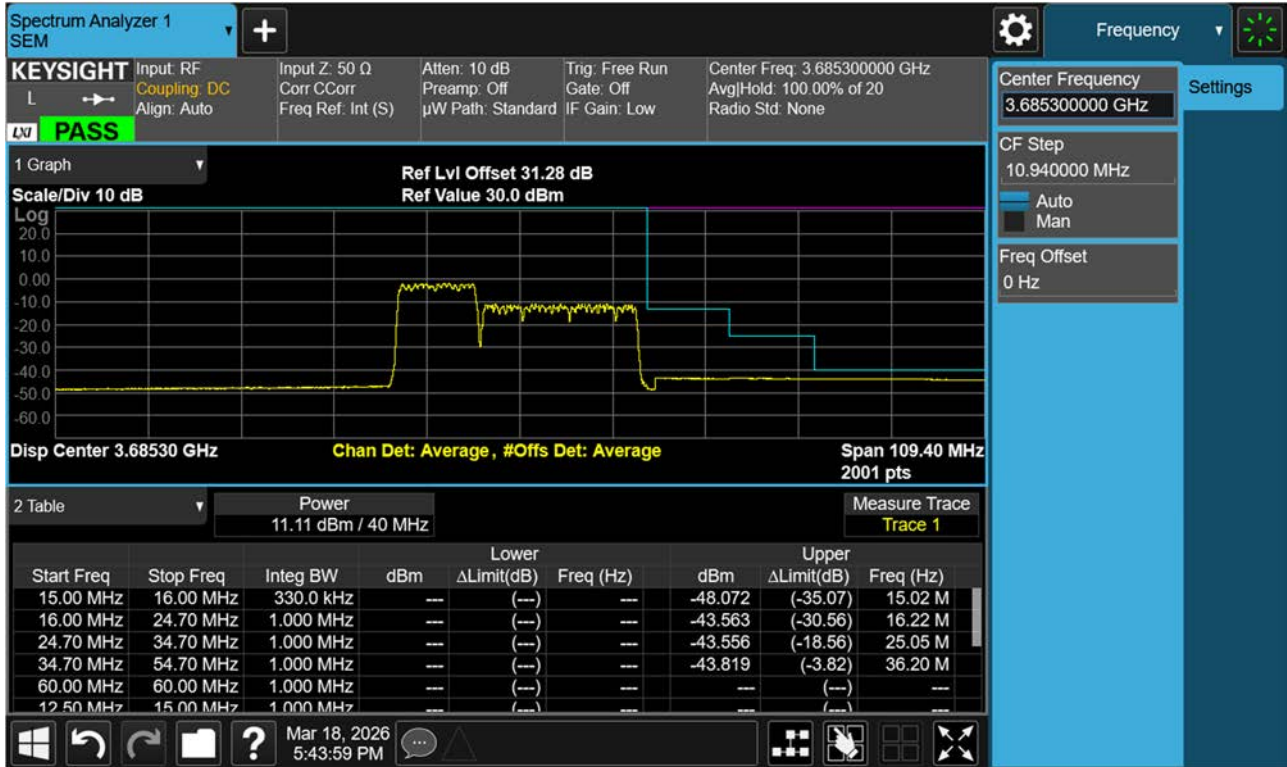
PCC 10MHz Ch55295 RB50 Offset0, SCC 20MHz Ch55439 RB100 Offset0-2



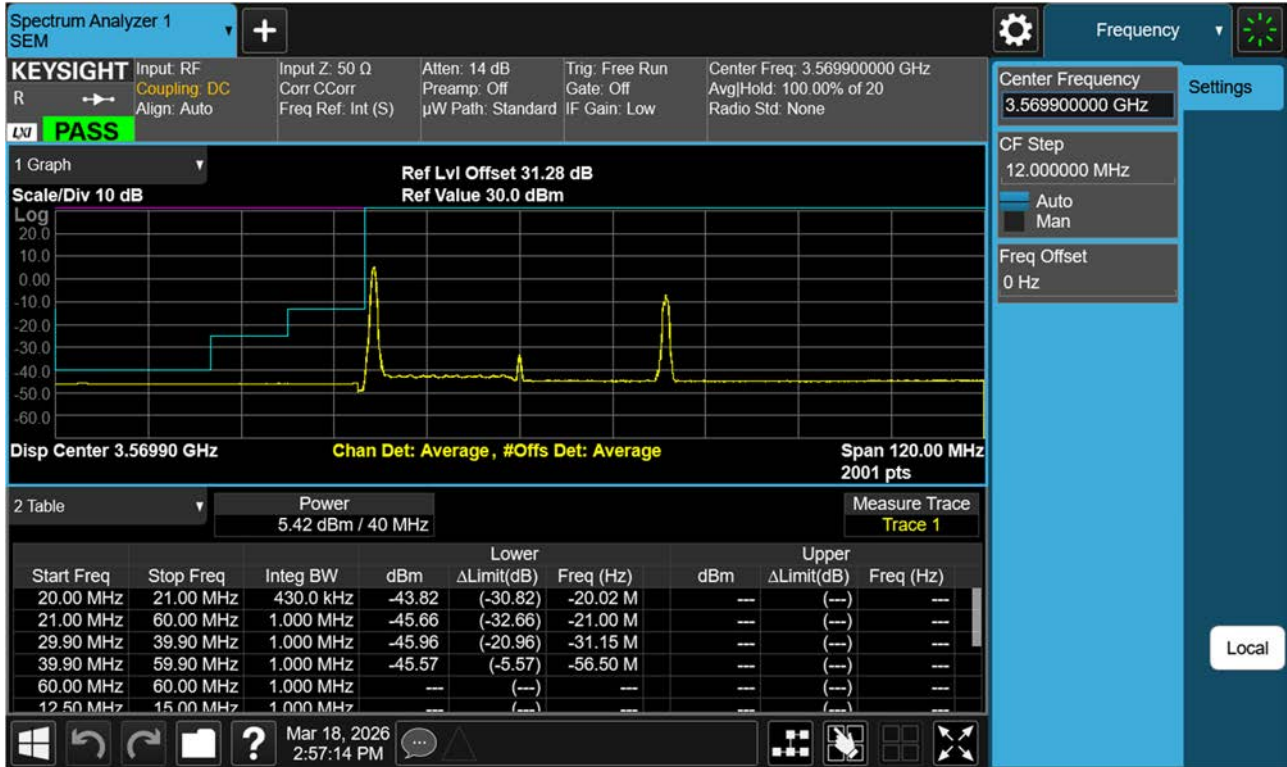
PCC 10MHz Ch56496 RB50 Offset0, SCC 20MHz Ch56640 RB100 Offset0-1



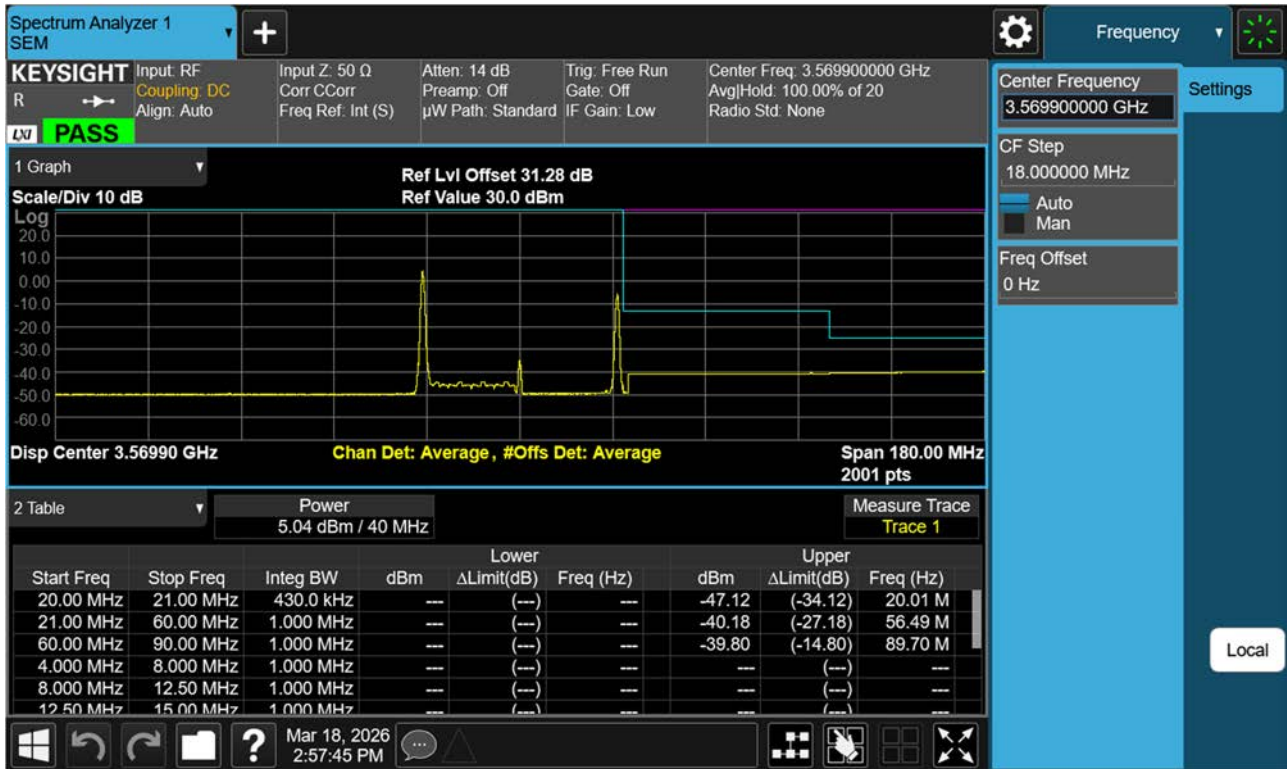
PCC 10MHz Ch56496 RB50 Offset0, SCC 20MHz Ch56640 RB100 Offset0-2



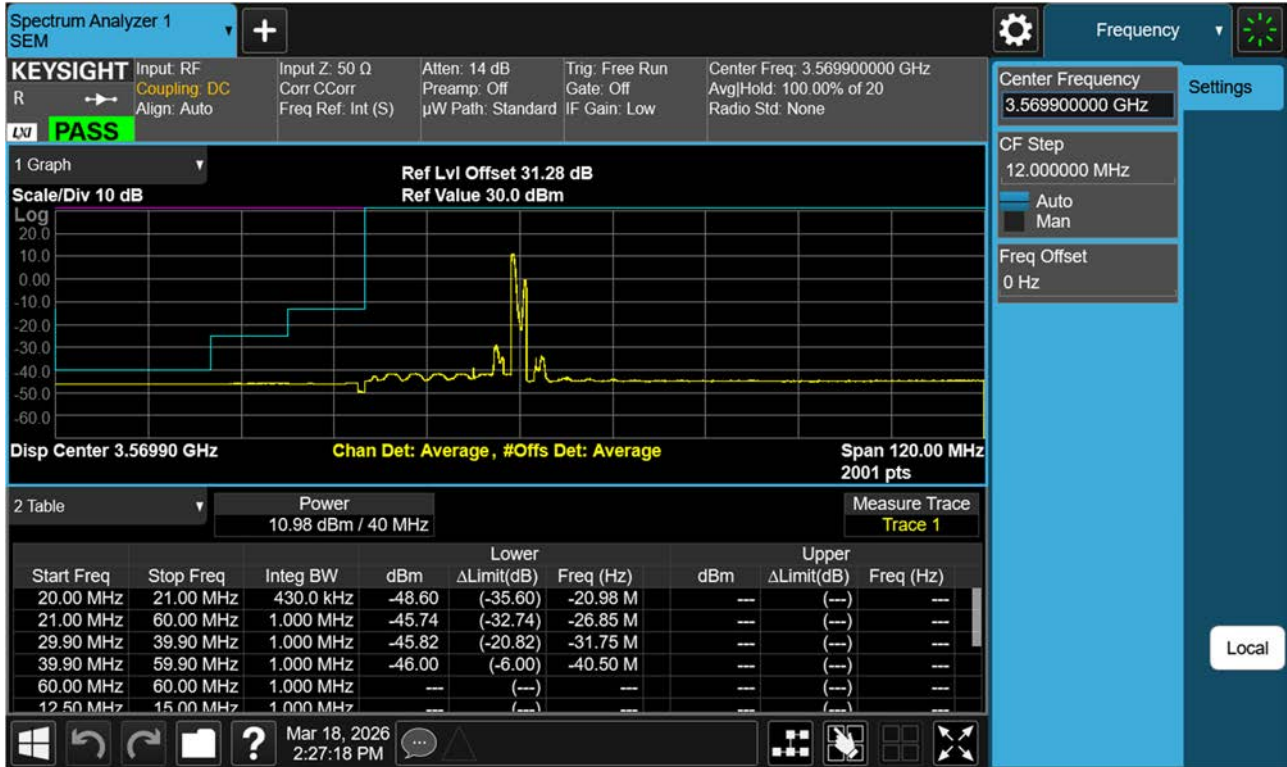
PCC 20MHz Ch55340 RB1 Offset0, SCC 20MHz Ch55538 RB1 Offset99-1



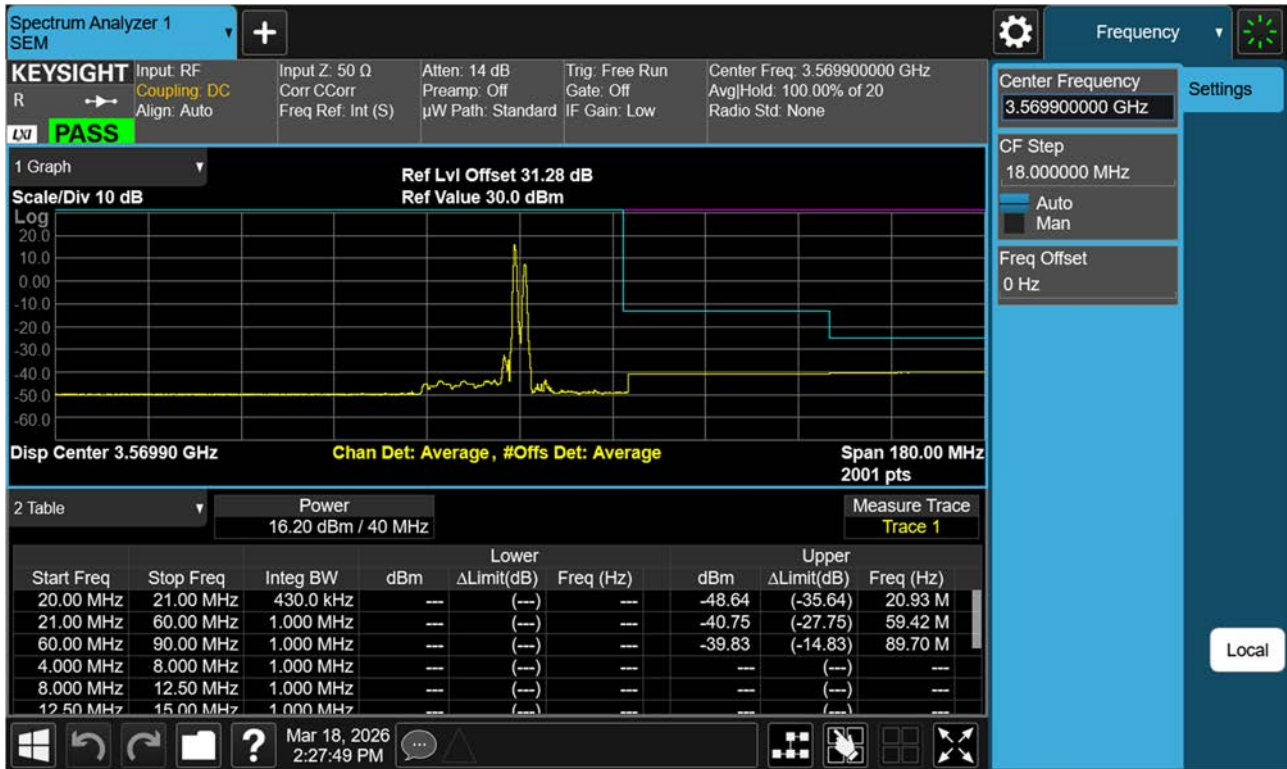
PCC 20MHz Ch55340 RB1 Offset0, SCC 20MHz Ch55538 RB1 Offset99-2



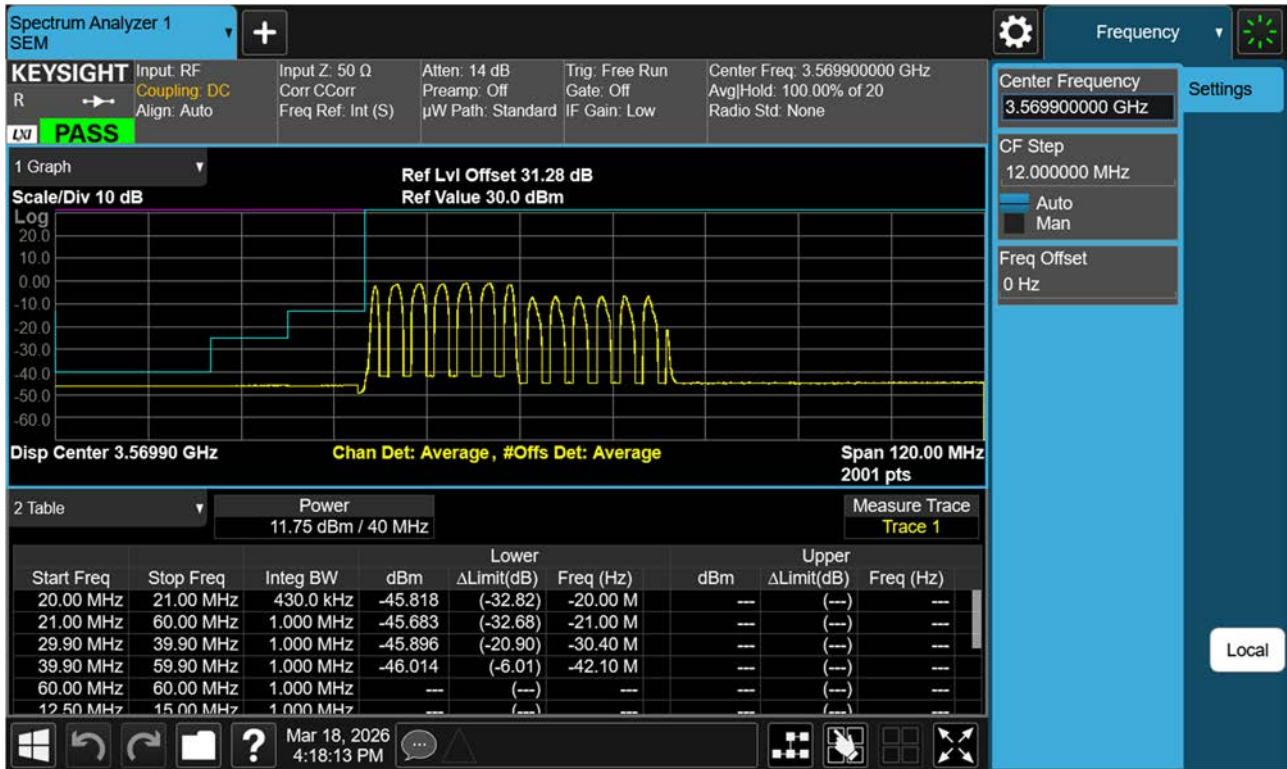
PCC 20MHz Ch55340 RB1 Offset99, SCC 20MHz Ch55538 RB1 Offset0-1



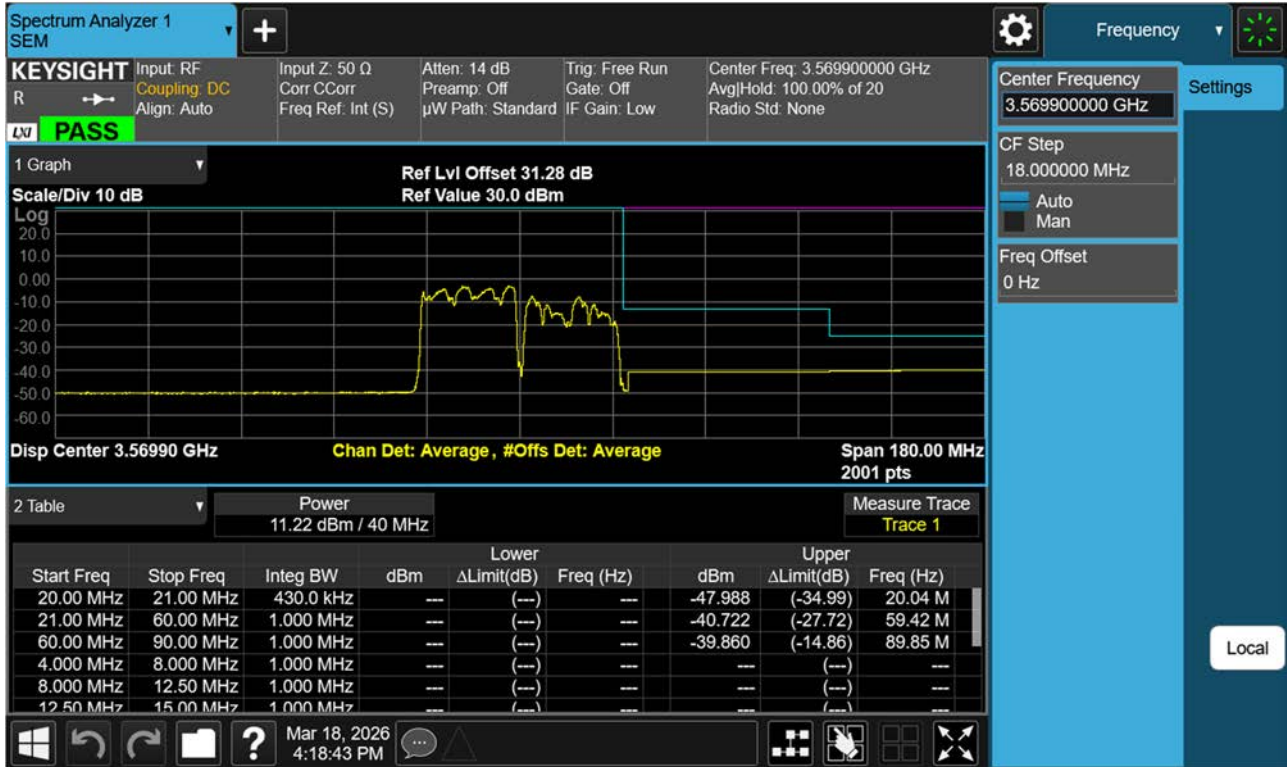
PCC 20MHz Ch55340 RB1 Offset99, SCC 20MHz Ch55538 RB1 Offset0-2



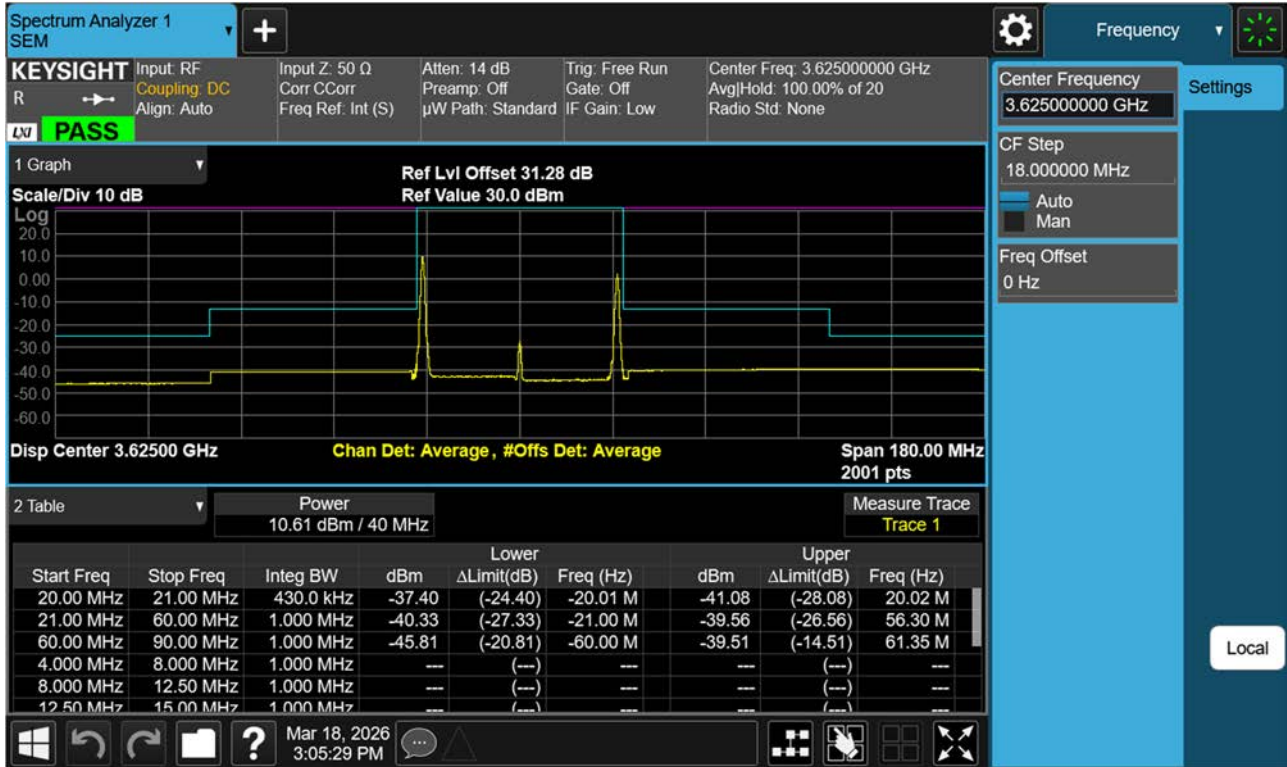
PCC 20MHz Ch55340 RB100 Offset0, SCC 20MHz Ch55538 RB100 Offset0-1



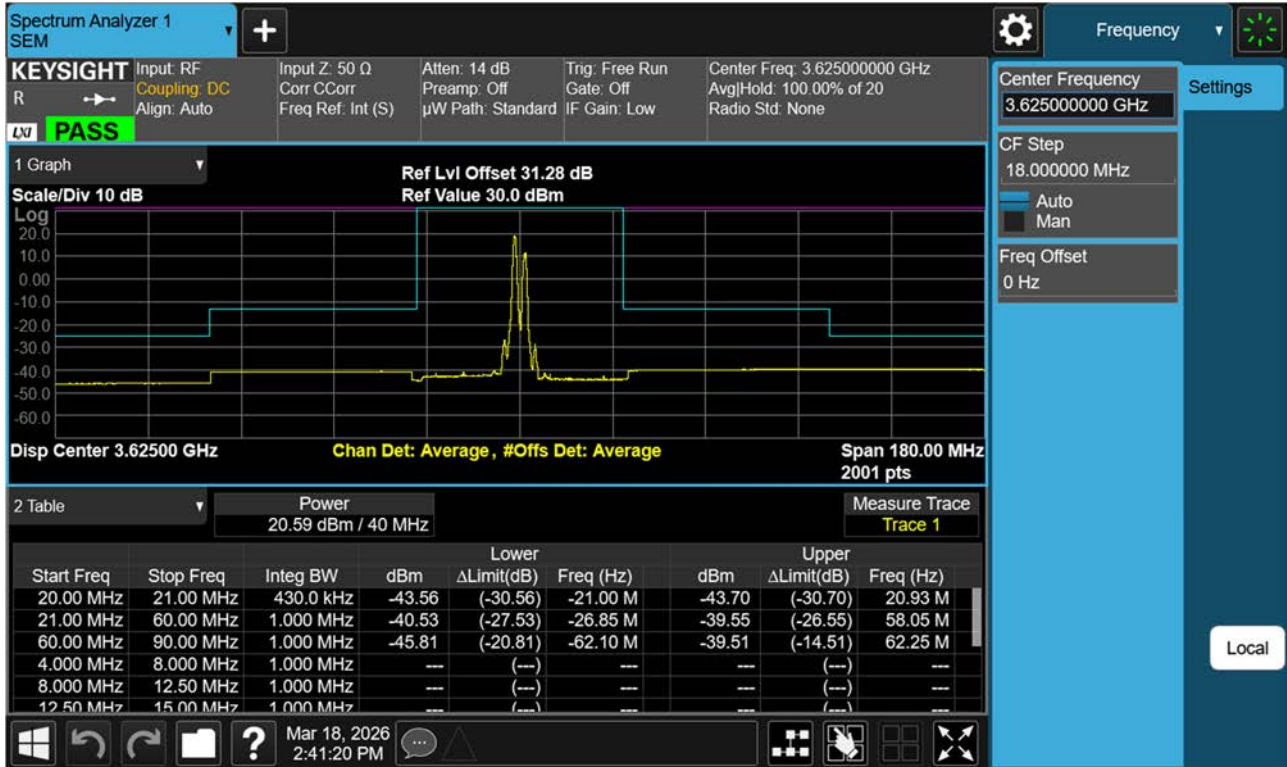
PCC 20MHz Ch55340 RB100 Offset0, SCC 20MHz Ch55538 RB100 Offset0-2



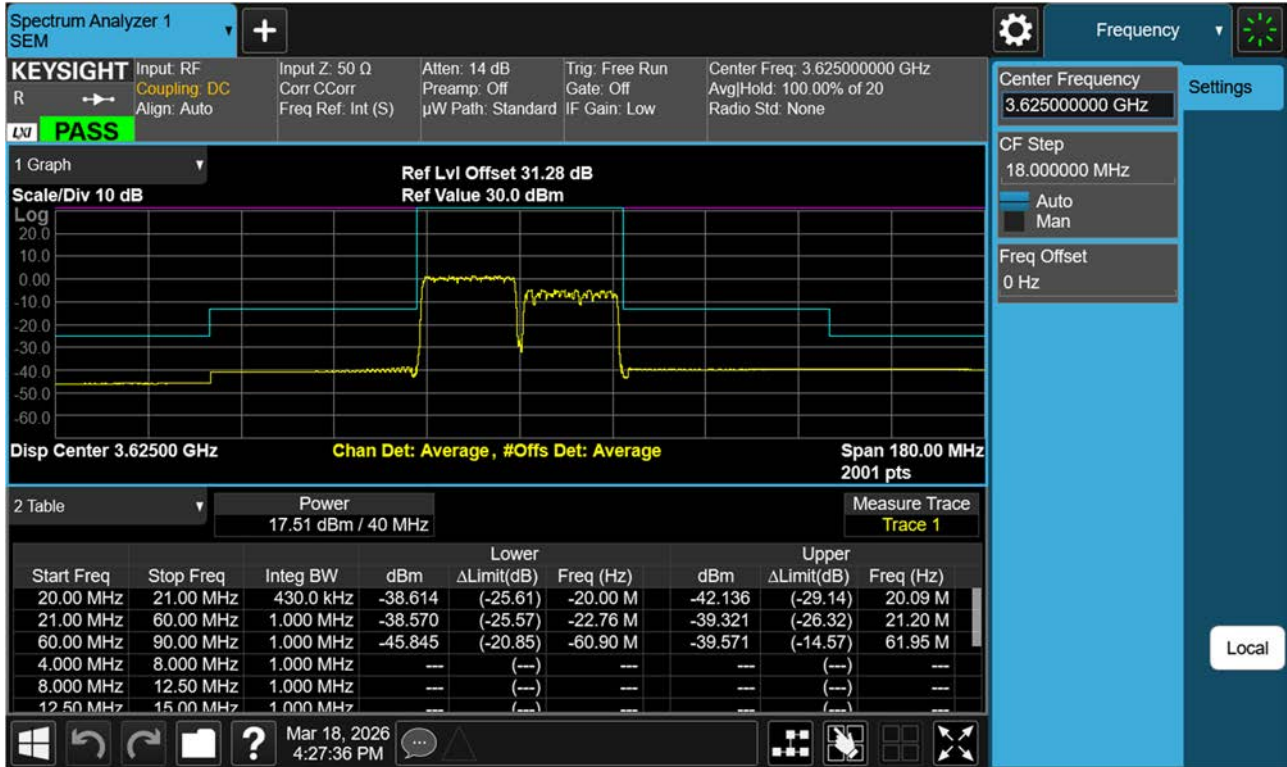
PCC 20MHz Ch55891 RB1 Offset0, SCC 20MHz Ch56089 RB1 Offset99



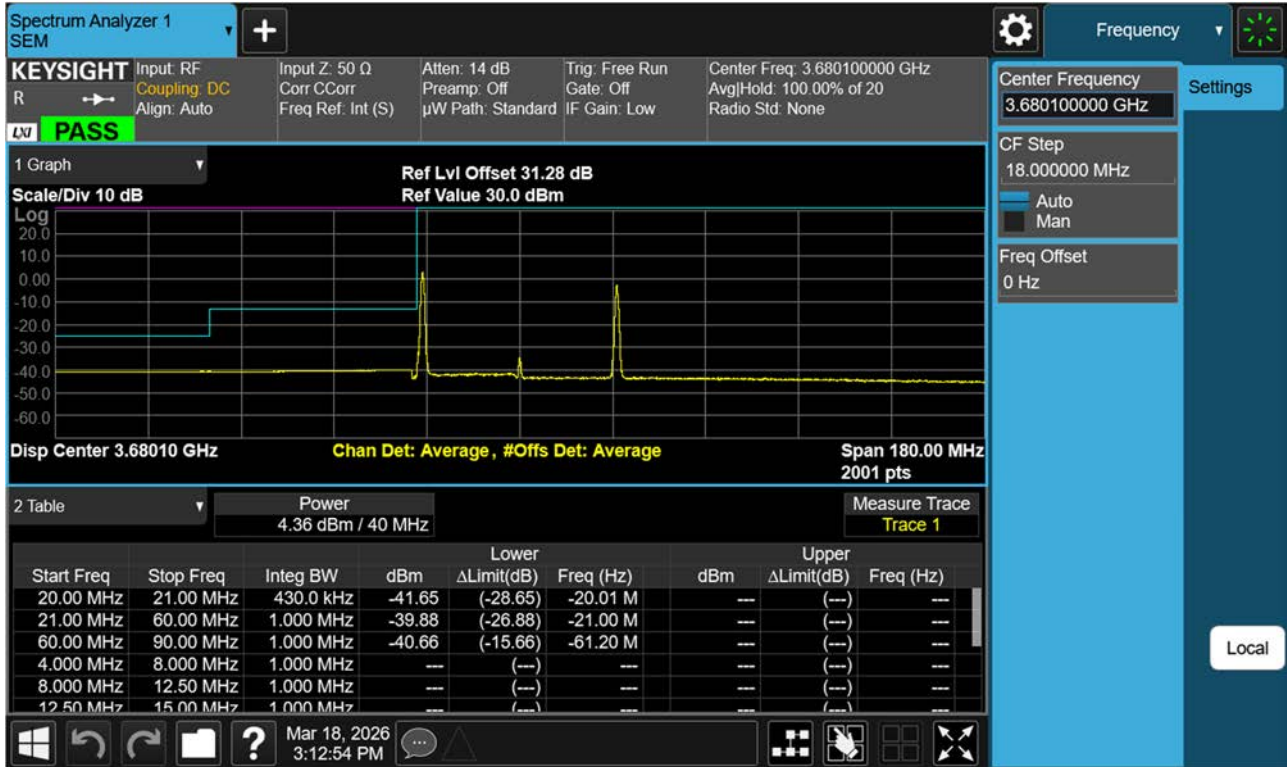
PCC 20MHz Ch55891 RB1 Offset99, SCC 20MHz Ch56089 RB1 Offset0



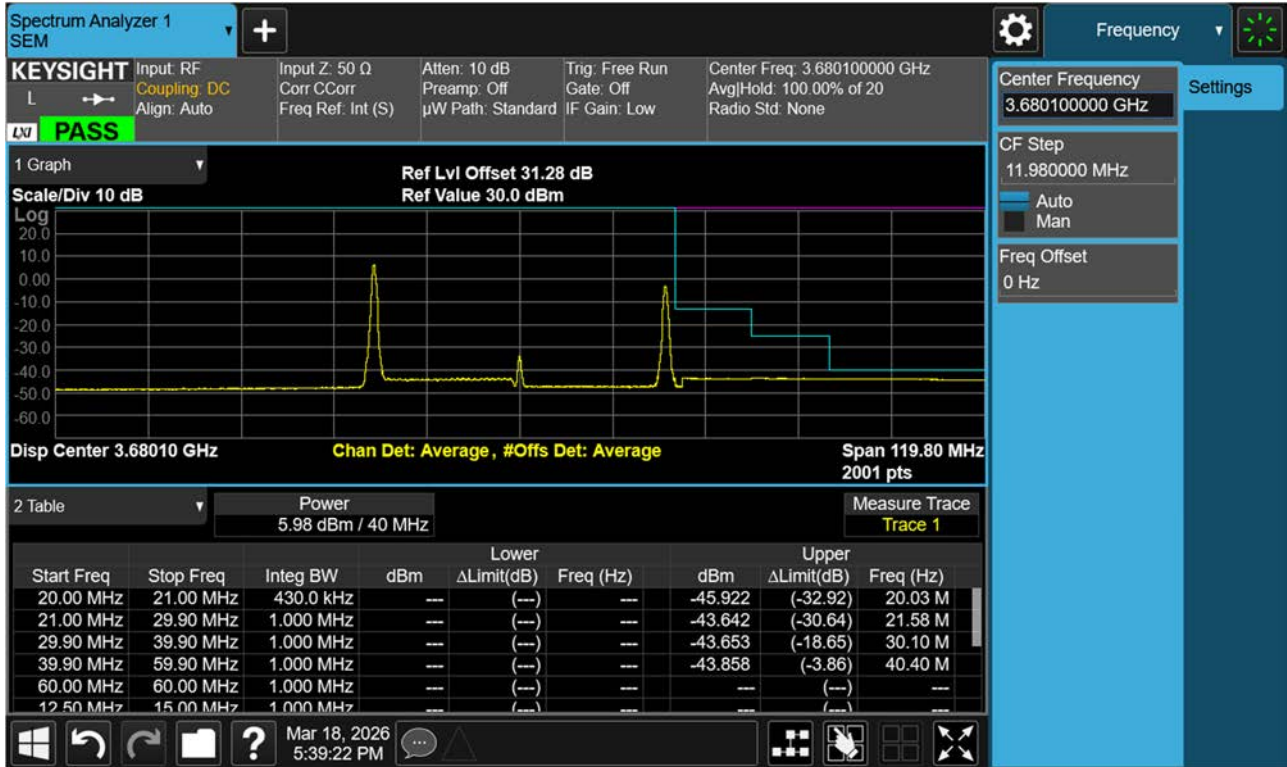
PCC 20MHz Ch55891 RB100 Offset0, SCC 20MHz Ch56089 RB100 Offset0



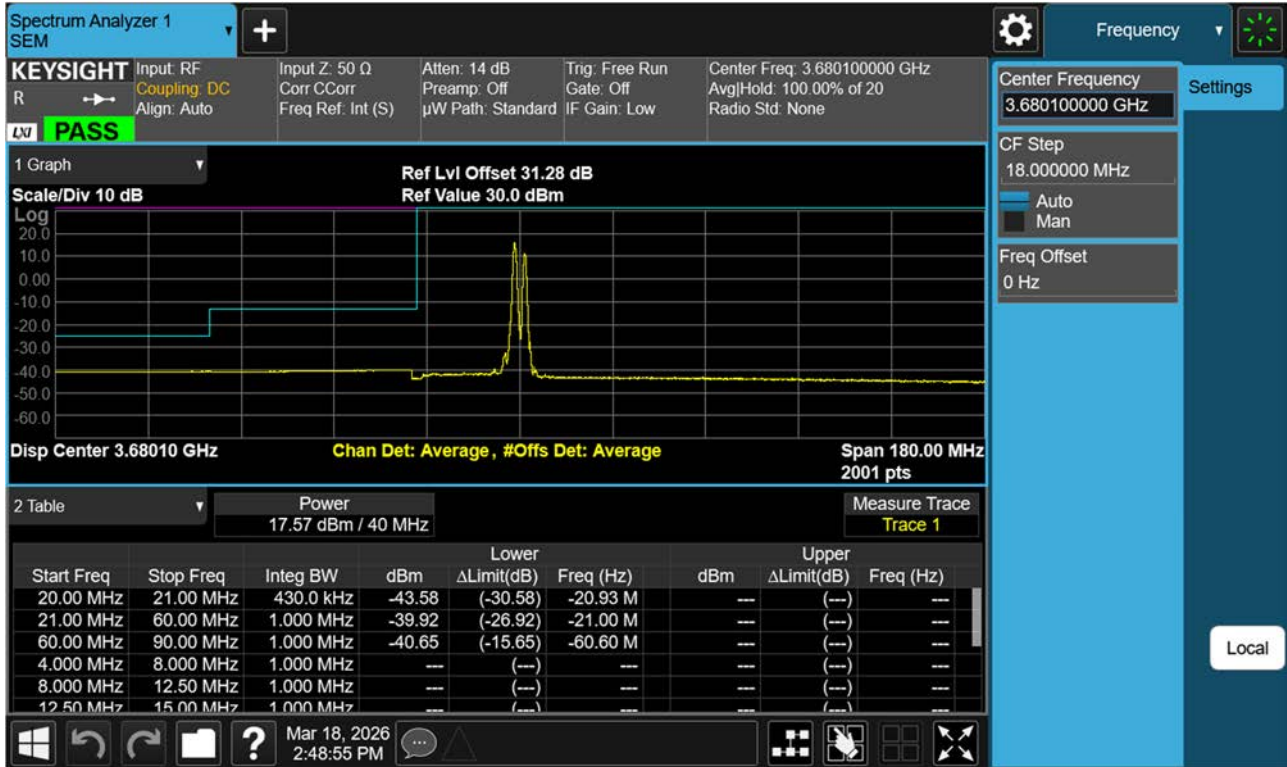
PCC 20MHz Ch56442 RB1 Offset0, SCC 20MHz Ch56640 RB1 Offset99-1



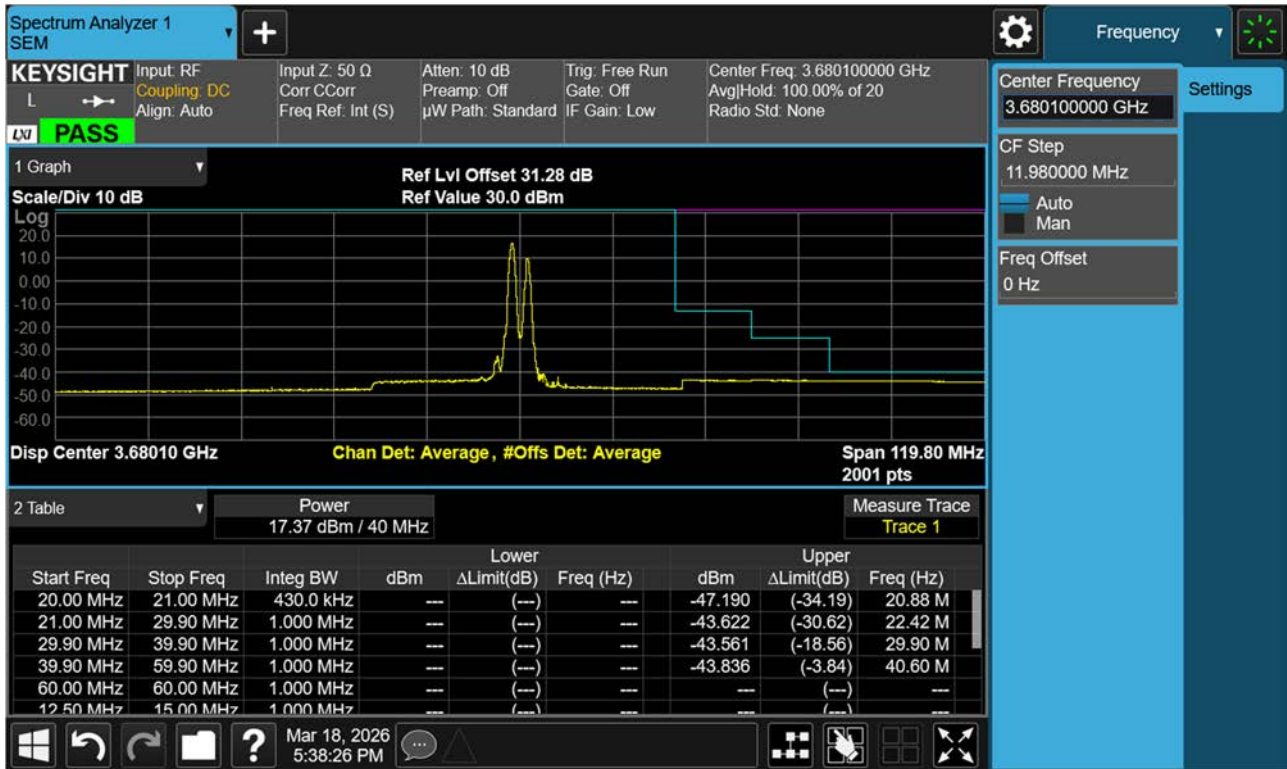
PCC 20MHz Ch56442 RB1 Offset0, SCC 20MHz Ch56640 RB1 Offset99-2



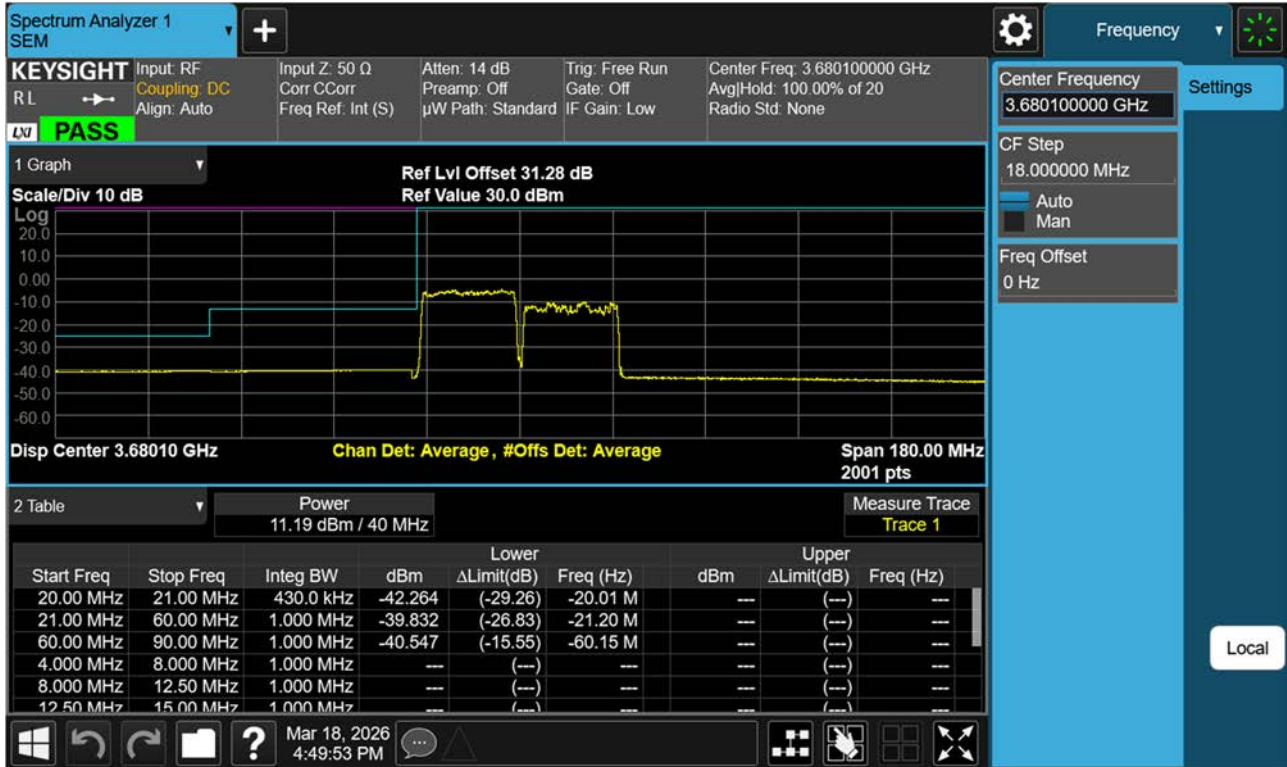
PCC 20MHz Ch56442 RB1 Offset99, SCC 20MHz Ch56640 RB1 Offset0-1



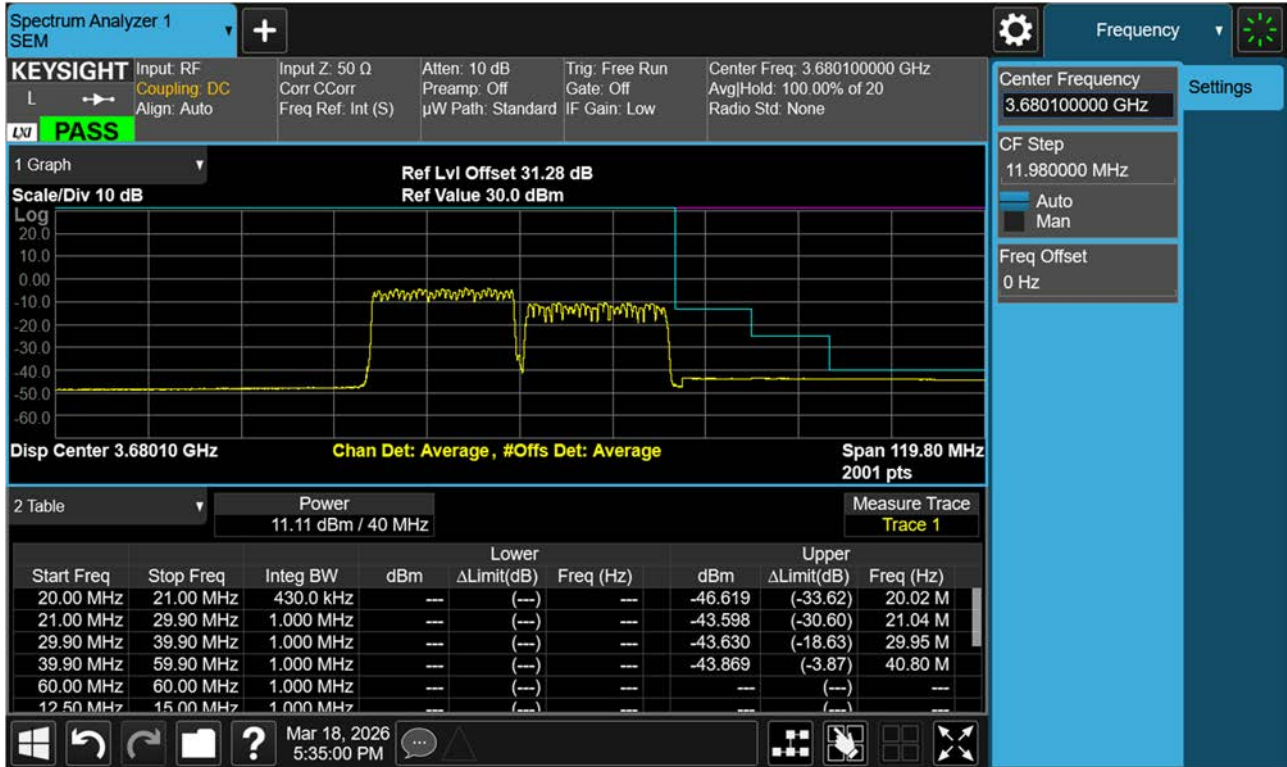
PCC 20MHz Ch56442 RB1 Offset99, SCC 20MHz Ch56640 RB1 Offset0-2



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



PCC 20MHz Ch56442 RB100 Offset0, SCC 20MHz Ch56640 RB100 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 :	3.880	VDC
▣ LIMIT:	Emission must remain in band	

Voltage (%)	Power (VDC)	Temp. (°C)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.0081	-0.0095	3553.30814	3565.00946
100 %		-30	-0.0062	-0.0026	3553.30625	3565.00259
100 %		-20	-0.0091	-0.0100	3553.30911	3565.01005
100 %		-10	-0.0076	-0.0086	3553.30756	3565.00855
100 %		0	-0.0044	-0.0058	3553.30442	3565.00580
100 %		10	-0.0020	-0.0047	3553.30204	3565.00467
100 %		30	-0.0092	-0.0107	3553.30917	3565.01072
100 %		40	-0.0053	-0.0026	3553.30526	3565.00258
100 %		50	-0.0034	-0.0014	3553.30344	3565.00139
Batt. Endpoint	3.300	20	-0.0047	-0.0091	3553.30468	3565.00913

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

Voltage (%)	Power (VDC)	Temp. (°C)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.0073	-0.0071	3555.50734	3569.90706
100 %		-30	-0.0008	-0.0067	3555.50085	3569.90669
100 %		-20	-0.0097	-0.0086	3555.50971	3569.90865
100 %		-10	-0.0034	-0.0098	3555.50336	3569.90975
100 %		0	-0.0053	0.0015	3555.50532	3569.89850
100 %		10	-0.0107	-0.0062	3555.51074	3569.90617
100 %		30	-0.0103	-0.0043	3555.51027	3569.90432
100 %		40	0.0001	0.0004	3555.49986	3569.89958
100 %		50	-0.0021	-0.0021	3555.50214	3569.90209
Batt. Endpoint	3.300	20	-0.0052	-0.0030	3555.50518	3569.90303

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

Voltage (%)	Power (VDC)	Temp. (°C)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.0066	-0.0068	3557.80664	3574.90676
100 %		-30	-0.0031	-0.0023	3557.80315	3574.90229
100 %		-20	-0.0055	-0.0085	3557.80551	3574.90855
100 %		-10	-0.0083	-0.0028	3557.80826	3574.90275
100 %		0	-0.0079	0.0000	3557.80792	3574.90000
100 %		10	-0.0058	-0.0080	3557.80584	3574.90797
100 %		30	-0.0071	-0.0091	3557.80707	3574.90912
100 %		40	-0.0016	-0.0044	3557.80156	3574.90438
100 %		50	-0.0024	-0.0047	3557.80244	3574.90469
Batt. Endpoint	3.300	20	-0.0049	-0.0108	3557.80488	3574.91083

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

Voltage (%)	Power (VDC)	Temp. (°C)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.0040	-0.0102	3560.00404	3579.81016
100 %		-30	-0.0028	-0.0113	3560.00285	3579.81129
100 %		-20	-0.0090	-0.0025	3560.00901	3579.80255
100 %		-10	-0.0063	-0.0102	3560.00626	3579.81015
100 %		0	-0.0077	-0.0067	3560.00772	3579.80670
100 %		10	-0.0068	-0.0098	3560.00684	3579.80977
100 %		30	-0.0038	-0.0021	3560.00377	3579.80212
100 %		40	-0.0082	-0.0075	3560.00816	3579.80748
100 %		50	-0.0055	-0.0038	3560.00554	3579.80379
Batt. Endpoint	3.300	20	-0.0044	-0.0083	3560.00438	3579.80833

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

Voltage (%)	Power (VDC)	Temp. (°C)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.0068	-0.0029	3678.30684	3690.00286
100 %		-30	0.0015	-0.0038	3678.29855	3690.00379
100 %		-20	-0.0013	-0.0017	3678.30131	3690.00175
100 %		-10	-0.0068	-0.0032	3678.30676	3690.00315
100 %		0	-0.0043	-0.0022	3678.30432	3690.00220
100 %		10	-0.0112	-0.0057	3678.31124	3690.00567
100 %		30	-0.0101	-0.0015	3678.31007	3690.00152
100 %		40	-0.0006	-0.0034	3678.30056	3690.00338
100 %		50	-0.0086	-0.0076	3678.30864	3690.00759
Batt. Endpoint	3.300	20	-0.0023	-0.0101	3678.30228	3690.01013

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

Voltage (%)	Power (VDC)	Temp. (°C)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.0047	-0.0009	3675.60474	3690.00086
100 %		-30	0.0031	-0.0032	3675.59695	3690.00319
100 %		-20	-0.0061	-0.0062	3675.60611	3690.00625
100 %		-10	-0.0088	-0.0100	3675.60876	3690.00995
100 %		0	-0.0011	-0.0008	3675.60112	3690.00080
100 %		10	-0.0043	-0.0052	3675.60434	3690.00517
100 %		30	-0.0082	-0.0021	3675.60817	3690.00212
100 %		40	-0.0044	0.0008	3675.60436	3689.99918
100 %		50	-0.0101	-0.0062	3675.61014	3690.00619
Batt. Endpoint	3.300	20	-0.0091	-0.0111	3675.60908	3690.01113

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

Voltage (%)	Power (VDC)	Temp. (°C)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	0.0013	-0.0047	3672.89874	3690.00466
100 %		-30	0.0002	-0.0067	3672.89985	3690.00669
100 %		-20	-0.0008	-0.0015	3672.90081	3690.00155
100 %		-10	0.0007	-0.0046	3672.89926	3690.00455
100 %		0	-0.0045	-0.0043	3672.90452	3690.00430
100 %		10	-0.0053	-0.0077	3672.90534	3690.00767
100 %		30	-0.0070	-0.0103	3672.90697	3690.01032
100 %		40	-0.0034	-0.0009	3672.90336	3690.00088
100 %		50	-0.0065	-0.0047	3672.90654	3690.00469
Batt. Endpoint	3.300	20	-0.0029	-0.0019	3672.90288	3690.00193

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

Voltage (%)	Power (VDC)	Temp. (°C)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.0019	-0.0009	3670.20194	3690.00086
100 %		-30	-0.0030	-0.0025	3670.20305	3690.00249
100 %		-20	-0.0074	-0.0064	3670.20741	3690.00645
100 %		-10	-0.0047	-0.0092	3670.20466	3690.00915
100 %		0	-0.0102	-0.0063	3670.21022	3690.00630
100 %		10	-0.0051	-0.0052	3670.20514	3690.00517
100 %		30	-0.0023	-0.0031	3670.20227	3690.00312
100 %		40	-0.0040	-0.0071	3670.20396	3690.00708
100 %		50	-0.0108	-0.0035	3670.21084	3690.00349
Batt. Endpoint	3.300	20	-0.0019	-0.0038	3670.20188	3690.00383

8.6 Radiated Spurious Emissions

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

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)
7 139.80	-43.99	11.26	-58.13	4.48	V	-51.35
	-43.16		-57.30		H	-50.52
10 709.70	-47.22	10.92	-56.79	5.65	V	-51.52
	-47.20		-56.77		H	-51.50
14 279.60	-47.52	11.80	-52.51	6.57	V	-47.28
	-47.88		-52.87		H	-47.64

▣ PCC Channel :	<u>55916 (3617.6 MHz)</u>
▣ PCC BW(MHz) :	<u>20</u>
▣ PCC RB/ RB Offset :	<u>1/99</u>
▣ SCC Channel :	<u>56087 (3634.7 MHz)</u>
▣ SCC BW(MHz) :	15
▣ SCC RB/ RB Offset :	<u>1/0</u>
▣ DISTANCE:	<u>1 meters</u>
▣ LIMIT:	<u>-40.0 dBm</u>

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)
7 252.30	-39.67	11.18	-54.60	4.53	V	-47.95
	-40.58		-55.51		H	-48.86
10 878.45	-44.77	10.60	-54.17	5.82	V	-49.39
	-44.95		-54.35		H	-49.57
14 504.60	-45.65	11.61	-51.22	6.68	V	-46.29
	-47.39		-52.96		H	-48.03

☐ 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)
7 360.20	-44.84	11.16	-59.88	4.59	V	-53.31
	-43.14		-58.18		H	-51.61
11 040.30	-45.92	10.93	-55.05	5.73	V	-49.85
	-46.30		-55.43		H	-50.23
14 720.40	-47.39	11.66	-54.27	6.71	V	-49.32
	-47.02		-53.90		H	-48.95

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	22.773
10	55896	3615.6	QPSK	50/0	20	56040	3630	QPSK	100/0	27.651
15	55893	3615.3	QPSK	75/0	20	56064	3632.4	QPSK	100/0	32.501
20	55965	3622.5	QPSK	100/0	5	56082	3634.2	QPSK	25/0	22.858
20	55941	3620.1	QPSK	100/0	10	56085	3634.5	QPSK	50/0	27.725
20	55916	3617.6	QPSK	100/0	15	56087	3634.7	QPSK	75/0	32.473
20	55891	3615.1	QPSK	100/0	20	56089	3634.9	QPSK	100/0	37.273

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	22.823
10	55896	3615.6	16QAM	50/0	20	56040	3630	16QAM	100/0	27.595
15	55893	3615.3	16QAM	75/0	20	56064	3632.4	16QAM	100/0	32.638
20	55965	3622.5	16QAM	100/0	5	56082	3634.2	16QAM	25/0	23.032
20	55941	3620.1	16QAM	100/0	10	56085	3634.5	16QAM	50/0	27.866
20	55916	3617.6	16QAM	100/0	15	56087	3634.7	16QAM	75/0	32.577
20	55891	3615.1	16QAM	100/0	20	56089	3634.9	16QAM	100/0	37.213

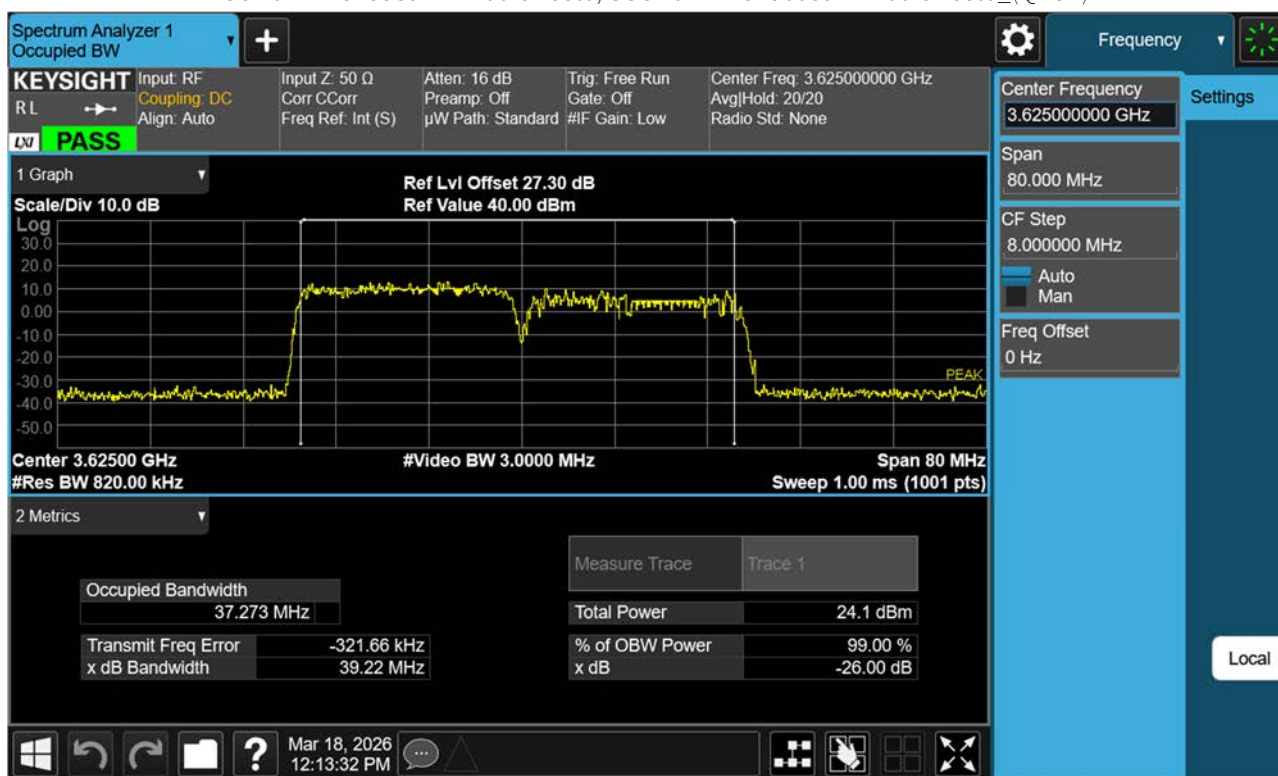
PCC					SCC					Data (MHz)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	55898	3615.8	64QAM	25/0	20	56015	3627.5	64QAM	100/0	22.677
10	55896	3615.6	64QAM	50/0	20	56040	3630	64QAM	100/0	27.440
15	55893	3615.3	64QAM	75/0	20	56064	3632.4	64QAM	100/0	32.398
20	55965	3622.5	64QAM	100/0	5	56082	3634.2	64QAM	25/0	22.779
20	55941	3620.1	64QAM	100/0	10	56085	3634.5	64QAM	50/0	27.598
20	55916	3617.6	64QAM	100/0	15	56087	3634.7	64QAM	75/0	32.372
20	55891	3615.1	64QAM	100/0	20	56089	3634.9	64QAM	100/0	37.239

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	22.723
10	55896	3615.6	256QAM	50/0	20	56040	3630	256QAM	100/0	27.351
15	55893	3615.3	256QAM	75/0	20	56064	3632.4	256QAM	100/0	32.553
20	55965	3622.5	256QAM	100/0	5	56082	3634.2	256QAM	25/0	22.925
20	55941	3620.1	256QAM	100/0	10	56085	3634.5	256QAM	50/0	27.662
20	55916	3617.6	256QAM	100/0	15	56087	3634.7	256QAM	75/0	32.315
20	55891	3615.1	256QAM	100/0	20	56089	3634.9	256QAM	100/0	37.642

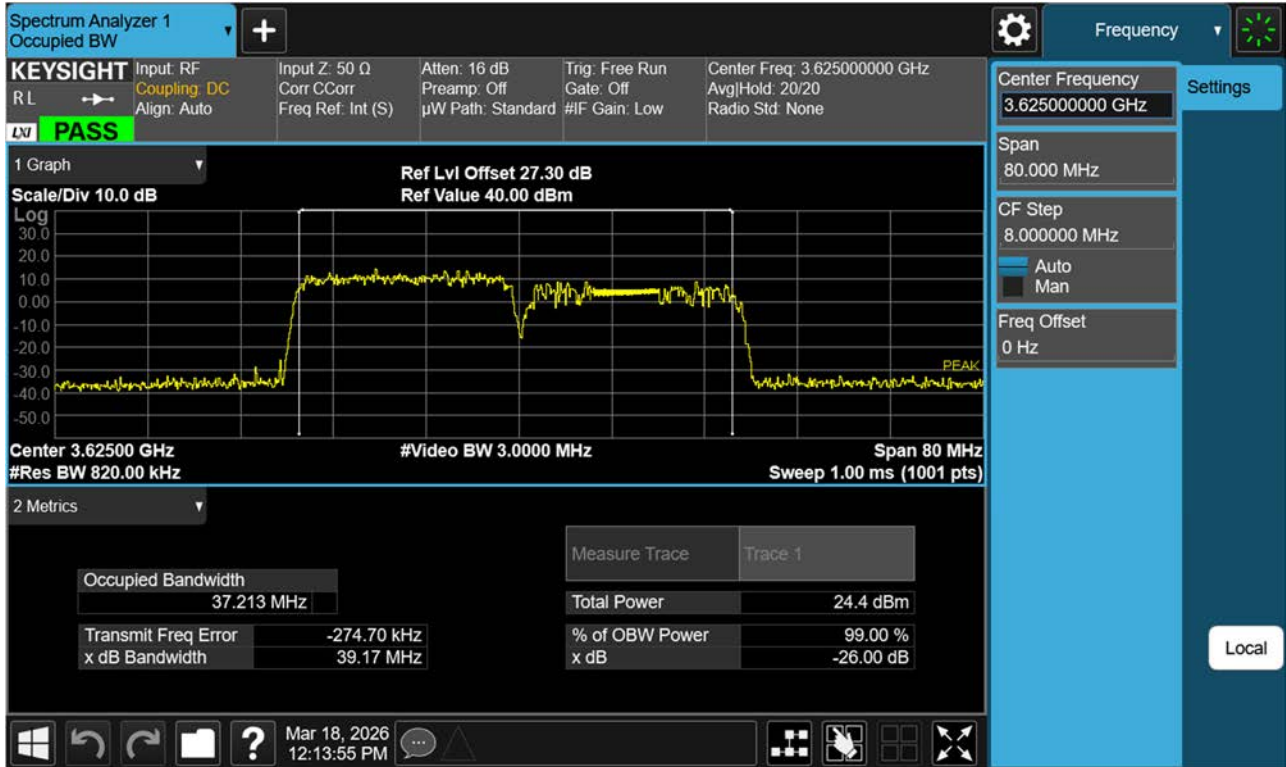
Note:

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

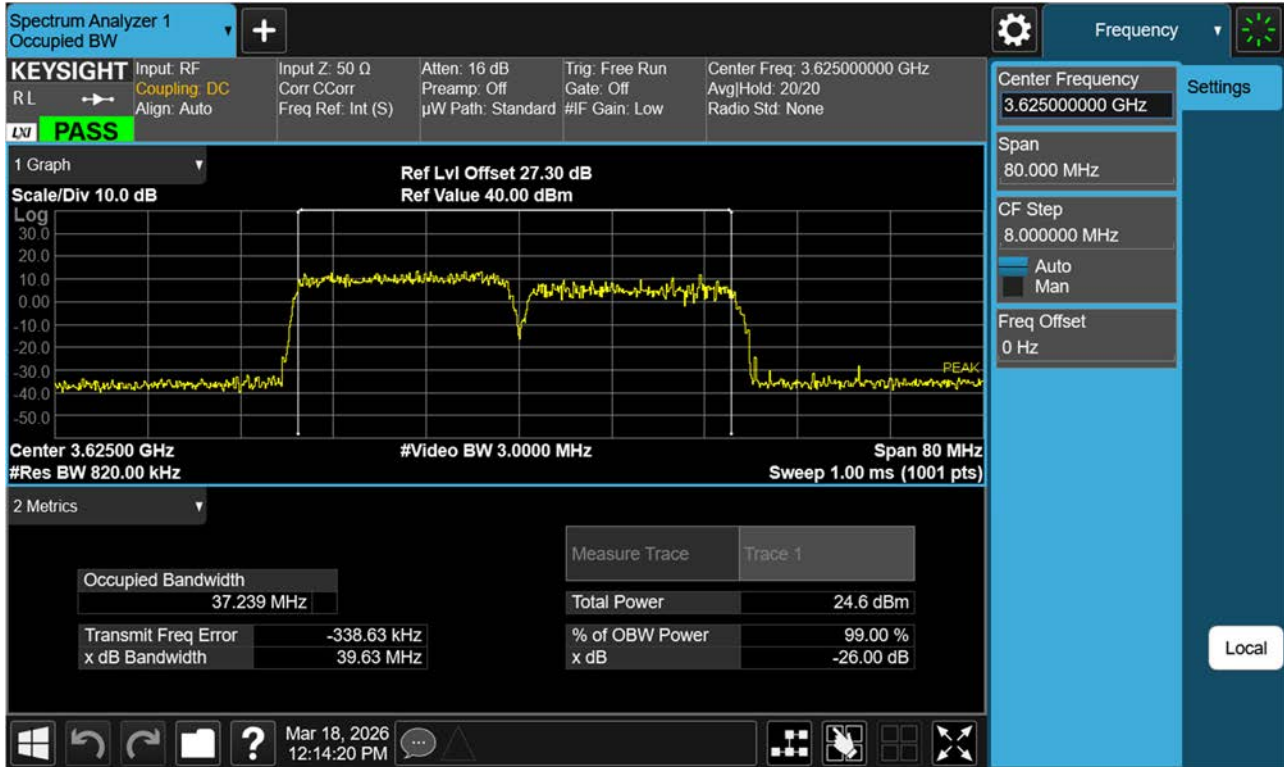
PCC 20MHz Ch55891 RB100 Offset0, SCC 20MHz Ch56089 RB100 Offset0_(QPSK)



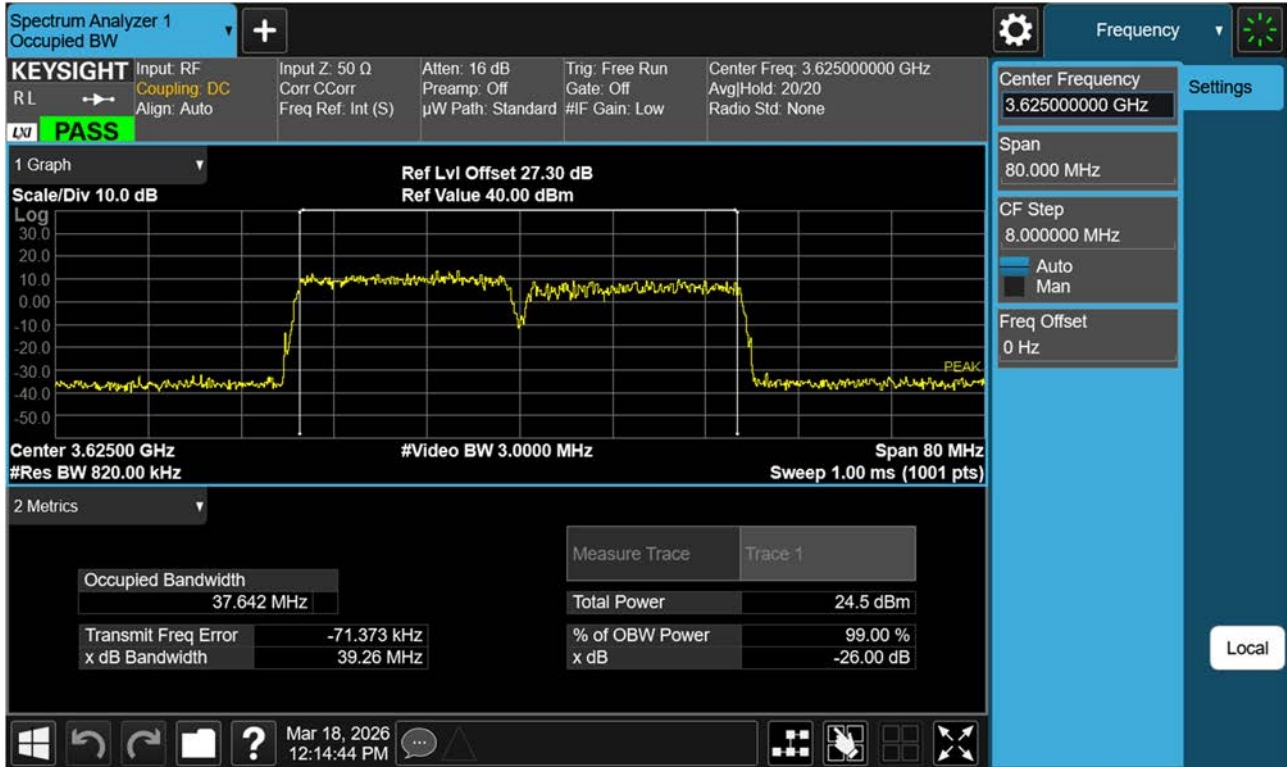
PCC 20 MHz Ch55891 RB100 Offset0, SCC 20 MHz Ch56089 RB100 Offset0_(16QAM)



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)	Limit (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	6.43	13.00
10	55896	3615.6	QPSK	50/0	20	56040	3630	QPSK	100/0	6.59	
15	55893	3615.3	QPSK	75/0	20	56064	3632.4	QPSK	100/0	6.52	
20	55965	3622.5	QPSK	100/0	5	56082	3634.2	QPSK	25/0	6.21	
20	55941	3620.1	QPSK	100/0	10	56085	3634.5	QPSK	50/0	6.38	
20	55916	3617.6	QPSK	100/0	15	56087	3634.7	QPSK	75/0	6.24	
20	55891	3615.1	QPSK	100/0	20	56089	3634.9	QPSK	100/0	6.50	

PCC					SCC					Data (dB)	Limit (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	7.23	13.00
10	55896	3615.6	16QAM	50/0	20	56040	3630	16QAM	100/0	7.55	
15	55893	3615.3	16QAM	75/0	20	56064	3632.4	16QAM	100/0	7.30	
20	55965	3622.5	16QAM	100/0	5	56082	3634.2	16QAM	25/0	7.13	
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	7.17	
20	55891	3615.1	16QAM	100/0	20	56089	3634.9	16QAM	100/0	7.07	

PCC					SCC					Data (dB)	Limit (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	7.10	13.00
10	55896	3615.6	64QAM	50/0	20	56040	3630	64QAM	100/0	7.50	
15	55893	3615.3	64QAM	75/0	20	56064	3632.4	64QAM	100/0	7.18	
20	55965	3622.5	64QAM	100/0	5	56082	3634.2	64QAM	25/0	7.21	
20	55941	3620.1	64QAM	100/0	10	56085	3634.5	64QAM	50/0	7.12	
20	55916	3617.6	64QAM	100/0	15	56087	3634.7	64QAM	75/0	7.11	
20	55891	3615.1	64QAM	100/0	20	56089	3634.9	64QAM	100/0	7.06	

PCC					SCC					Data (dB)	Limit (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	7.68	13.00
10	55896	3615.6	256QAM	50/0	20	56040	3630	256QAM	100/0	7.17	
15	55893	3615.3	256QAM	75/0	20	56064	3632.4	256QAM	100/0	7.42	
20	55965	3622.5	256QAM	100/0	5	56082	3634.2	256QAM	25/0	7.49	
20	55941	3620.1	256QAM	100/0	10	56085	3634.5	256QAM	50/0	7.24	
20	55916	3617.6	256QAM	100/0	15	56087	3634.7	256QAM	75/0	7.49	
20	55891	3615.1	256QAM	100/0	20	56089	3634.9	256QAM	100/0	7.45	

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)



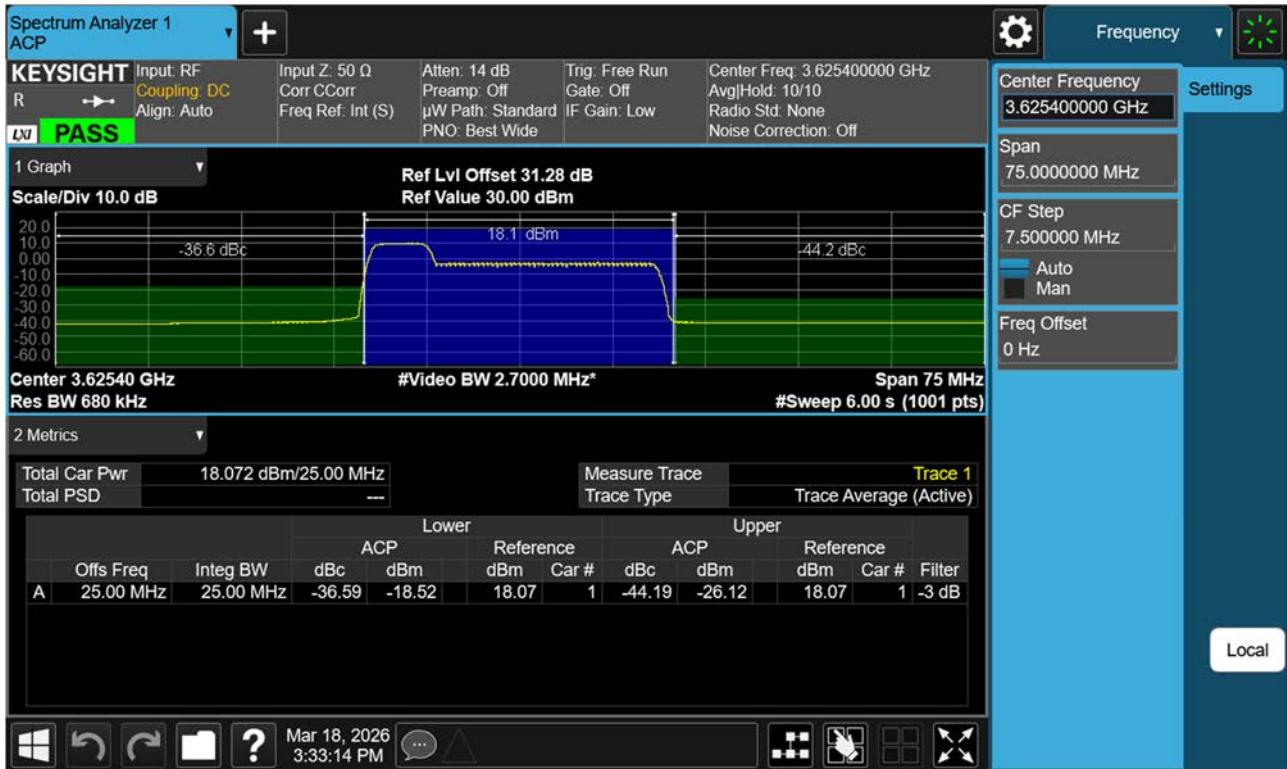
8.9 Adjacent Channel Leakage Ratio(ACLR)

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	5	55898	3615.8	25/0	20	56015	3627.5	100/0	36.59	44.19
Mid	10	55295	3555.5	50/0	20	55439	3569.9	100/0	36.08	38.10
High	10	56496	3675.6	50/0	20	56640	3690.0	100/0	35.20	36.64
Low	20	55340	3560.0	100/0	20	55538	3579.8	100/0	36.09	36.77
Mid	20	55891	3615.1	100/0	20	56089	3634.9	100/0	39.59	40.99
High	20	56442	3670.2	100/0	20	56640	3690.0	100/0	35.06	35.19
Limit (dB)									ACLR > 30 dB	ACLR > 30 dB

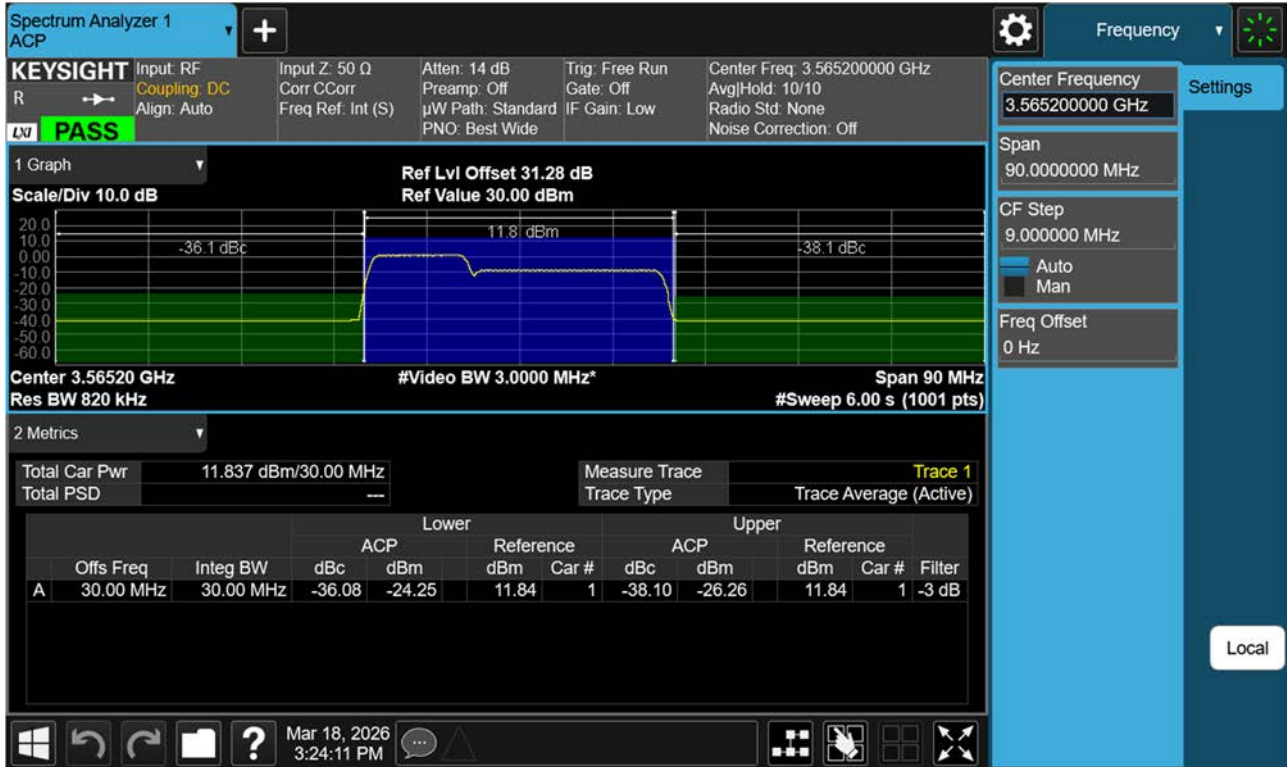
Note:

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

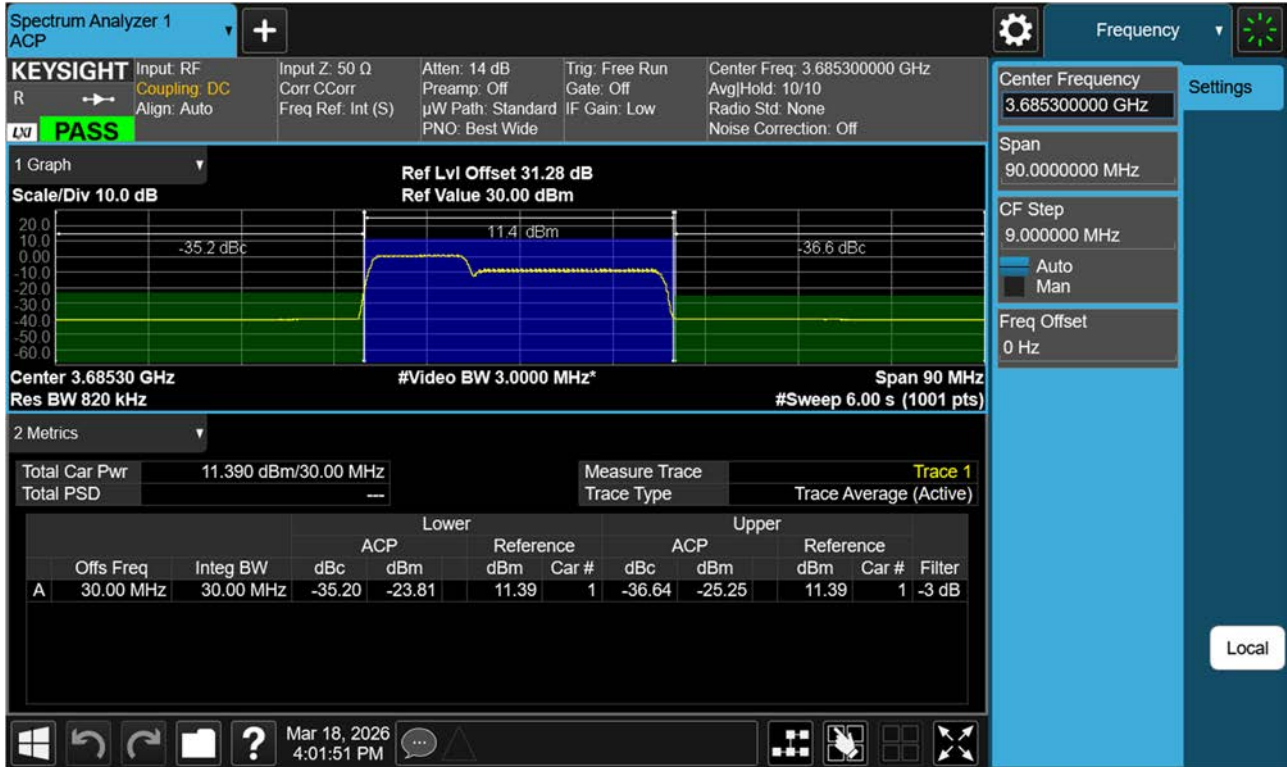
PCC 5 MHz Ch55898 RB25 Offset0, SCC 20MHz Ch56015 RB100 Offset0



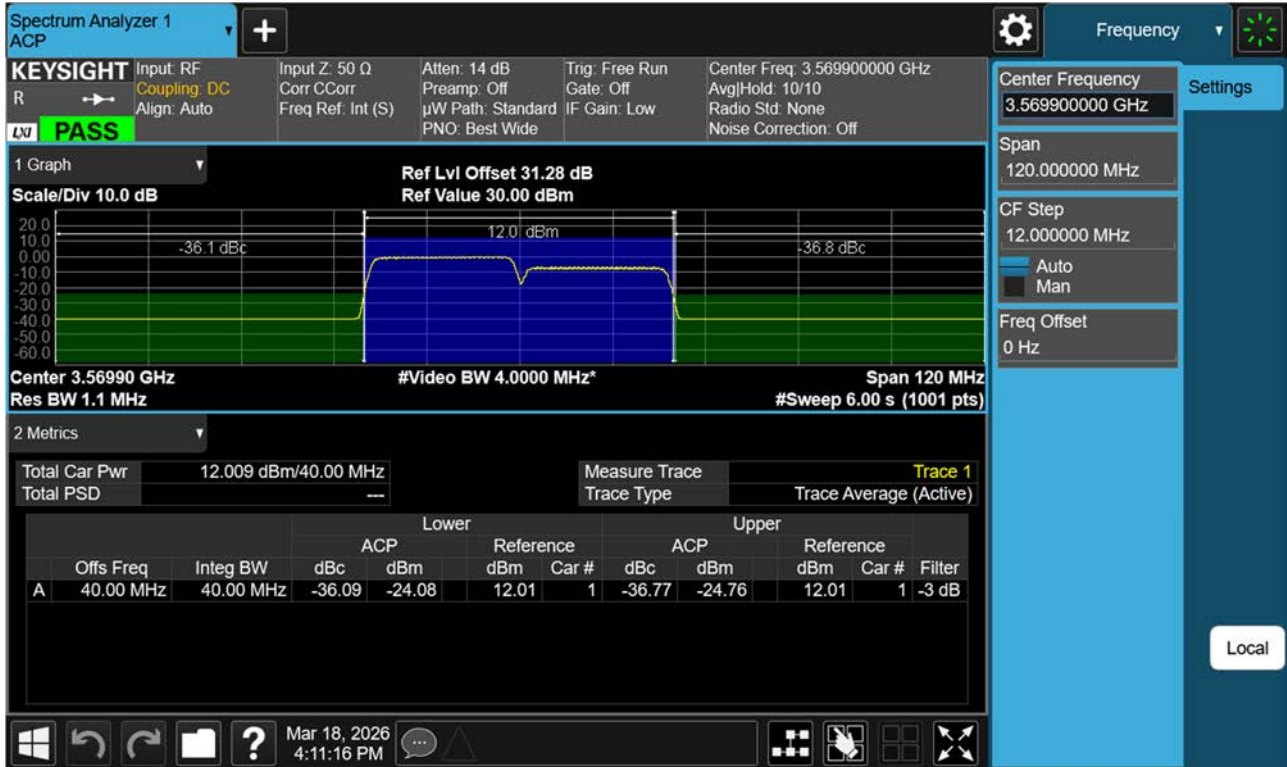
PCC 10MHz Ch55295 RB50 Offset0, SCC 20MHz Ch55439 RB100 Offset0



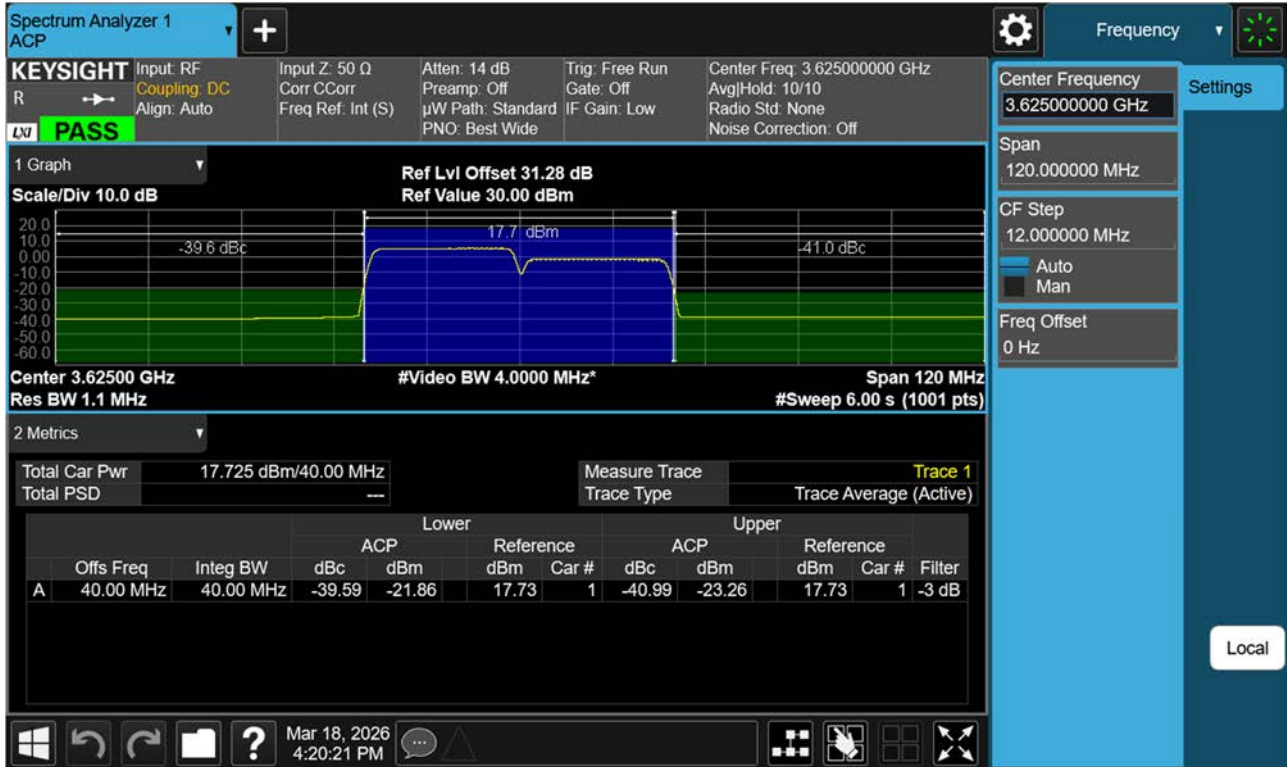
PCC 10MHz Ch56496 RB50 Offset0, SCC 20MHz Ch56640 RB100 Offset0



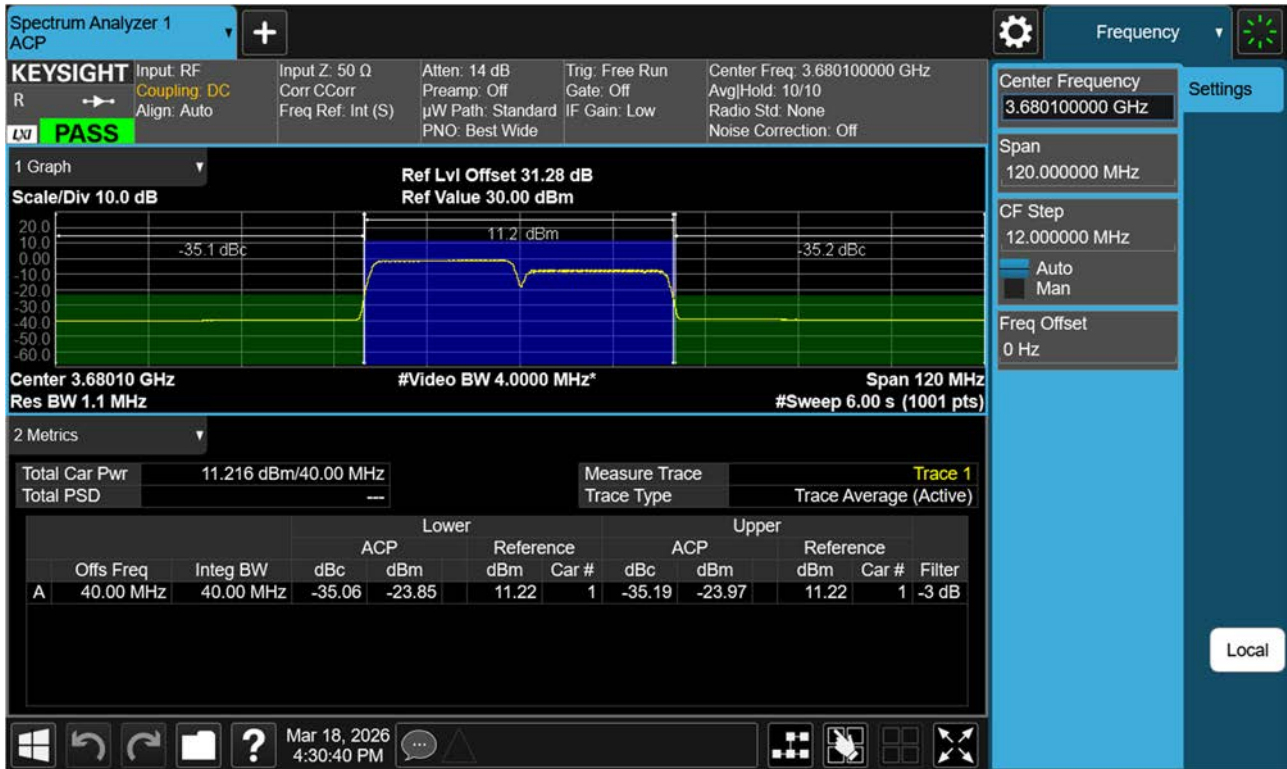
PCC 20MHz Ch55340 RB100 Offset0, SCC 20MHz Ch55538 RB100 Offset0



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



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



9. ANNEX A_ TEST SETUP PHOTO

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

No.	Description
1	HCT-RF-2604-FC035-P