

TEST REPORT

FCC CA_66C Test for SM-X528U
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2502-FC027

DATE OF ISSUE
February 10, 2025

Tested by
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Applicant**SAMSUNG Electronics Co., Ltd.**

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

Product Name

Tablet

Model Name

SM-X528U

Date of Test

January 02, 2025 ~ February 07, 2025

FCC ID

A3LSMX528U

Location of Test

☒ Permanent Testing Lab ☐ On Site Testing

(Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea)

FCC Classification:

PCS Licensed Transmitter (PCB)

Test Standard Used

FCC Rule Part: § 27

Test Results

PASS

REVISION HISTORY

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

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

Notice

Content

The measurements shown in this report were made in accordance with the procedures specified in CFR47 section § 2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998, 21 U.S. C. 853(a)

The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated.

The test results have only been applied with the test methods required by the standard(s).

The laboratory is not accredited for the test results marked *.

Information provided by the applicant is marked **.

Test results provided by external providers are marked ***.

When confirmation of authenticity of this test report is required, please contact www.hct.co.kr

The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

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MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	SAMSUNG Electronics Co., Ltd.
Address:	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
FCC ID:	A3LSMX528U
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§ 27
EUT Type:	Tablet
Model(s):	SM-X528U
Tx Frequency:	1715.3 - 1772.5: 10 MHz+15 MHz 1717.5 - 1774.7: 15 MHz+10 MHz 1715.5 - 1770.0: 10 MHz+20 MHz 1720.0 - 1774.5: 20 MHz+10 MHz 1717.5 - 1772.5: 15 MHz+15 MHz 1717.8 - 1770.0: 15 MHz+20 MHz 1720.0 - 1772.2: 20 MHz+15 MHz 1720.0 - 1776.7: 20 MHz+5 MHz 1713.3 - 1770.0: 5 MHz+20 MHz 1720.0 - 1770.0: 20 MHz+20 MHz
Date(s) of Tests:	January 02, 2025 ~ February 07, 2025
Serial number:	Radiated : R32XC00A68K Conducted : R32XC00A9JV
LTE CA :	CA 66C (Uplink)

1.1. MAXIMUM OUTPUT POWER

Mode (PCC+SCC)	Tx Frequency (MHz)	Modulation	Emission Designator	EIRP	
				Max. Power (dBm)	Max. Power (W)
10 MHz+15 MHz	1715.3 - 1772.5	QPSK	23M2G7D	26.02	0.400
		16QAM	23M2W7D	25.37	0.344
		64QAM	23M2W7D	23.26	0.212
		256QAM	23M2W7D	21.11	0.129
15 MHz+10 MHz	1717.5 - 1774.7	QPSK	23M2G7D	26.01	0.399
		16QAM	23M2W7D	25.33	0.341
		64QAM	23M1W7D	23.25	0.211
		256QAM	23M2W7D	21.00	0.126
10 MHz+20 MHz	1715.5 - 1770.0	QPSK	27M8G7D	26.06	0.404
		16QAM	27M9W7D	25.40	0.347
		64QAM	27M7W7D	23.27	0.212
		256QAM	27M8W7D	21.18	0.131
20 MHz+10 MHz	1720.0 - 1774.5	QPSK	27M8G7D	25.95	0.394
		16QAM	27M8W7D	25.24	0.334
		64QAM	27M8W7D	23.10	0.204
		256QAM	27M9W7D	21.02	0.126
15 MHz+15 MHz	1717.5 - 1772.5	QPSK	28M5G7D	25.81	0.381
		16QAM	28M5W7D	25.14	0.327
		64QAM	28M4W7D	23.00	0.200
		256QAM	28M4W7D	20.94	0.124
15 MHz+20 MHz	1717.8 - 1770.0	QPSK	32M8G7D	26.01	0.399
		16QAM	32M8W7D	25.35	0.343
		64QAM	32M7W7D	23.30	0.214
		256QAM	32M7W7D	21.08	0.128
20 MHz+15 MHz	1720.0 - 1772.2	QPSK	32M8G7D	25.93	0.392
		16QAM	32M8W7D	25.32	0.340
		64QAM	32M7W7D	23.29	0.213
		256QAM	32M7W7D	21.00	0.126
20 MHz+5 MHz	1720.0 - 1776.7	QPSK	23M0G7D	25.87	0.386
		16QAM	23M0W7D	25.30	0.339
		64QAM	23M0W7D	23.16	0.207
		256QAM	22M9W7D	20.97	0.125
5 MHz+20 MHz	1713.3 - 1770.0	QPSK	22M9G7D	25.90	0.389
		16QAM	23M0W7D	25.27	0.337
		64QAM	22M8W7D	23.18	0.208
		256QAM	22M9W7D	20.95	0.124
20 MHz+20 MHz	1720.0 - 1770.0	QPSK	37M6G7D	25.94	0.393
		16QAM	37M7W7D	25.27	0.337
		64QAM	37M7W7D	23.22	0.210
		256QAM	37M8W7D	21.00	0.126

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
Band Edge	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Spurious and Harmonic Emissions at Antenna Terminal	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Conducted Output Power	- KDB 971168 D01 v03r01 - Section 5.2.4 - ANSI C63.26-2015 - Section 5.2.1 & 5.2.4.2
Peak- to- Average Ratio	- KDB 971168 D01 v03r01 – Section 5.7 - ANSI C63.26-2015 – Section 5.2.3.4
Frequency stability	- ANSI C63.26-2015 – Section 5.6
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. RBW = 100 kHz for emissions below 1 GHz and 1 MHz for emissions above 1 GHz
2. VBW $\geq$ 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 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;

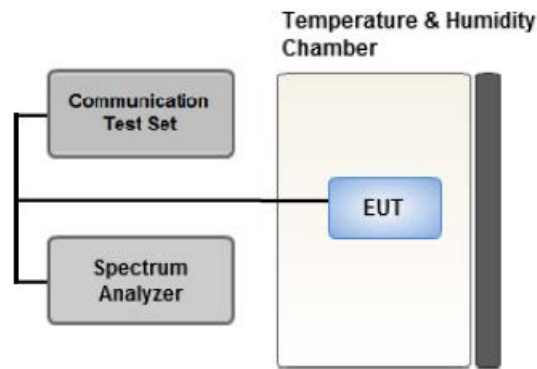
$$\text{Result}_{(\text{dBm})} = P_{\text{g}}_{(\text{dBm})} - \text{cable loss}_{(\text{dB})} + \text{antenna gain}_{(\text{dBi})}$$

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

① CCDF Procedure for PAPR

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 %.

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 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)

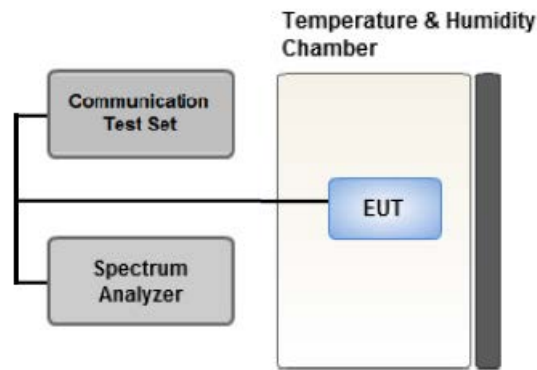
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW $\geq 3 \times$ RBW.

1. Set the RBW $\geq$ OBW.
2. Set VBW $\geq 3 \times$ RBW.
3. Set span $\geq 2 \times$ OBW.
4. Sweep time $\geq 10 \times$ (number of points in sweep) $\times$ (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 $2 \times$ to $3 \times$ the OBW.
2. Set RBW $\geq$ OBW.
3. Set VBW $\geq 3 \times$ RBW.
4. Set number of measurement points in sweep $\geq 2 \times$ span / RBW.
5. Sweep time:
Set $\geq [10 \times (\text{number of points in sweep}) \times (\text{transmission period})]$ 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 $[10 \log (1/\text{duty cycle})]$ to the measured maximum power level to compute the average power during continuous transmission. For example, add $[10 \log (1/0.25)] = 6 \text{ dB}$ 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.

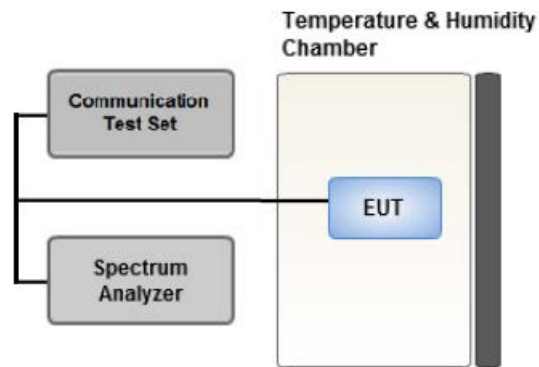
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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 $\geq 3 \times$ 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.

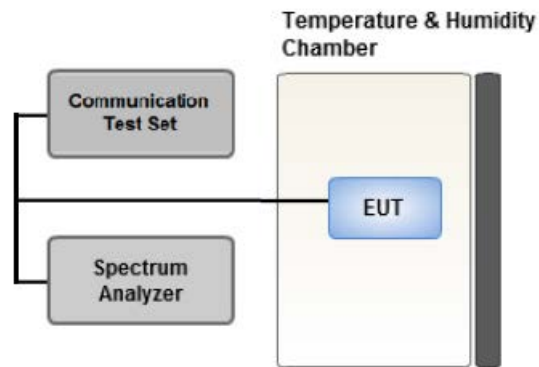
All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

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 = Peak
4. Trace Mode = Max Hold
5. Sweep time = auto
6. Number of points in sweep $\geq$ 2 x Span / RBW

3.7 BAND EDGE



Test setup

Test Overview

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

Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW > 1 % of the emission bandwidth
4. VBW > 3 x RBW
5. Detector = RMS
6. Number of sweep points $\geq 2 \times \text{Span/RBW}$
7. Trace mode = trace average
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Test Notes

According to FCC 22.917, 24.238, 27.53 specified that power of any emission outside of The authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

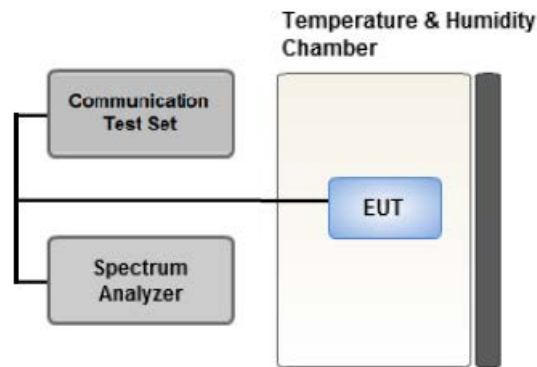
In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

All measurements were done at 2 channels(low and high operational frequency range.)

The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

Where $\text{Margin} < 1$ 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.

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:

- Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
- 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 ($\pm$ kHz)
Occupied Bandwidth	95 (Confidence level about 95 %, $k=2$)
Frequency stability	28 (Confidence level about 95 %, $k=2$)

Parameter	Expanded Uncertainty ($\pm$ dB)
Block Edge	0.70 (Confidence level about 95 %, $k=2$)
Conducted Spurious Emissions	1.18 (Confidence level about 95 %, $k=2$)
Peak- to- Average Ratio	0.68 (Confidence level about 95 %, $k=2$)
Radiated Power	4.74 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.36 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.70 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.52 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.66 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (Above 40 GHz)	5.58 (Confidence level about 95 %, $k=2$)

6. SUMMARY OF TEST RESULTS

6.1 Test Condition: Conducted Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Occupied Bandwidth	§ 2.1049	N/A	PASS
Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§ 2.1051, § 27.53(h)	$< 43 + 10\log_{10} (P[\text{Watts}])$ at Band Edge and for all out-of-band emissions	PASS
Conducted Output Power	§ 2.1046	N/A	PASS
Peak- to- Average Ratio	§ 27.50(d)(5)	$< 13 \text{ dB}$	PASS
Frequency stability / variation of ambient temperature	§ 2.1055, § 27.54	Emission must remain in band	PASS

6.2 Test Condition: Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Equivalent Isotropic Radiated Power	§ 27.50(d)(4)	$< 1 \text{ Watts max. EIRP}$	PASS
Radiated Spurious and Harmonic Emissions	§ 2.1053, § 27.53(h)	$< 43 + 10\log_{10} (P[\text{Watts}])$ for all out-of band emissions	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)
10	15	25
15	10	25
10	20	30
20	10	30
15	15	30
15	20	35
20	15	35
20	5	25
5	20	25
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, Band 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/ Band Edge	QPSK	Low	20	1720.0	132072	1	99	5	1731.7	132189	1	0
		Mid	5	1745.8	132330	1	24	20	1757.5	132447	1	0
		High	20	1765.0	132522	1	99	5	1776.7	132639	1	0
		Low	20	1720.0	132072	1	0	5	1731.7	132189	1	24
		Mid	5	1745.8	132330	1	0	20	1757.5	132447	1	99
		High	20	1765.0	132522	1	0	5	1776.7	132639	1	24
		Low	20	1720.0	132072	100	0	5	1731.7	132189	25	0
		Mid	5	1745.8	132330	25	0	20	1757.5	132447	100	0
		High	20	1765.0	132522	100	0	5	1776.7	132639	25	0
		Low	20	1720.0	132072	100	0	20	1739.8	132270	100	0
		Mid	20	1745.1	132323	100	0	20	1764.9	132521	100	0
		High	20	1750.2	132374	100	0	20	1770.0	132572	100	0
Radiated Spurious Emissions	QPSK	Low	10	1715.5	132027	1	49	20	1729.9	132171	1	0
		Mid	10	1745.6	132328	1	49	20	1760.0	132472	1	0
		High	20	1750.2	132374	1	99	20	1770.0	132572	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	10	1747.9	132351	50	0	15	1759.9	132471	75	0
			15	1750.1	132373	75	0	10	1762.1	132493	50	0
			10	1745.6	132328	50	0	20	1760.0	132472	100	0
			20	1750.1	132373	100	0	10	1764.5	132517	50	0
			15	1747.5	132347	75	0	15	1762.5	132497	75	0
			15	1745.3	132325	75	0	20	1762.4	132496	100	0
			20	1747.6	132348	100	0	15	1764.7	132519	75	0
			20	1752.5	132397	100	0	5	1764.2	132514	25	0
			5	1745.8	132330	25	0	20	1757.5	132447	100	0
			20	1745.1	132323	100	0	20	1764.9	132521	100	0
Frequency stability	QPSK	Low	5	1713.3	132005	25	0	20	1725.0	132122	100	0
			10	1715.3	132025	50	0	15	1727.3	132145	75	0
			15	1717.5	132047	75	0	10	1729.5	132167	50	0
			20	1720.0	132072	100	0	20	1739.8	132270	100	0
		High	5	1758.3	132455	25	0	20	1770.0	132572	100	0
			10	1772.5	132597	50	0	15	1784.5	132717	75	0
			15	1762.7	132499	75	0	10	1774.7	132619	50	0
			20	1750.2	132374	100	0	20	1770.0	132572	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	10	1715.3	132025	1	49	15	1727.3	132145	1	0	24.12
	15	1717.5	132047	1	74	10	1729.5	132167	1	0	24.46
	10	1715.5	132027	1	49	20	1729.9	132171	1	0	23.87
	20	1720.0	132072	1	99	10	1734.4	132216	1	0	24.72
	15	1717.5	132047	1	74	15	1732.5	132197	1	0	24.26
	15	1717.8	132050	1	74	20	1734.9	132221	1	0	24.51
	20	1720.0	132072	1	99	15	1737.1	132243	1	0	24.59
	20	1720.0	132072	1	99	5	1731.7	132189	1	0	24.76
	5	1713.3	132005	1	24	20	1725.0	132122	1	0	24.37
	20	1720.0	132072	1	99	20	1739.8	132270	1	0	23.66
Mid	10	1747.9	132351	1	49	15	1759.9	132471	1	0	24.40
	15	1750.1	132373	1	74	10	1762.1	132493	1	0	24.03
	10	1745.6	132328	1	49	20	1760.0	132472	1	0	24.49
	20	1750.1	132373	1	99	10	1764.5	132517	1	0	24.39
	15	1747.5	132347	1	74	15	1762.5	132497	1	0	24.04
	15	1745.3	132325	1	74	20	1762.4	132496	1	0	24.35
	20	1747.6	132348	1	99	15	1764.7	132519	1	0	24.44
	20	1752.5	132397	1	99	5	1764.2	132514	1	0	24.47
	5	1745.8	132330	1	24	20	1757.5	132447	1	0	24.62
	20	1745.1	132323	1	99	20	1764.9	132521	1	0	24.20
High	10	1760.5	132477	1	49	15	1772.5	132597	1	0	24.23
	15	1762.7	132499	1	74	10	1774.7	132619	1	0	24.17
	10	1755.6	132428	1	49	20	1770.0	132572	1	0	24.15
	20	1760.1	132473	1	99	10	1774.5	132617	1	0	24.44
	15	1757.5	132447	1	74	15	1772.5	132597	1	0	24.25
	15	1752.9	132401	1	74	20	1770.0	132572	1	0	24.32
	20	1755.1	132423	1	99	15	1772.2	132594	1	0	24.45
	20	1765.0	132522	1	99	5	1776.7	132639	1	0	24.48
	5	1758.3	132455	1	24	20	1770.0	132572	1	0	24.09
	20	1750.2	132374	1	99	20	1770.0	132572	1	0	24.05

Note:

Modulation : QPSK(1RB)

Operating frequency	PCC					SCC					Conducted.
	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Power [dBm]
Low	10	1715.3	132025	50	0	15	1727.3	132145	75	0	22.30
	15	1717.5	132047	75	0	10	1729.5	132167	50	0	22.13
	10	1715.5	132027	50	0	20	1729.9	132171	100	0	22.19
	20	1720.0	132072	100	0	10	1734.4	132216	50	0	21.55
	15	1717.5	132047	75	0	15	1732.5	132197	75	0	21.98
	15	1717.8	132050	75	0	20	1734.9	132221	100	0	22.37
	20	1720.0	132072	100	0	15	1737.1	132243	75	0	22.53
	20	1720.0	132072	100	0	5	1731.7	132189	25	0	22.59
	5	1713.3	132005	25	0	20	1725.0	132122	100	0	21.58
	20	1720.0	132072	100	0	20	1739.8	132270	100	0	22.43
Mid	10	1747.9	132351	50	0	15	1759.9	132471	75	0	22.46
	15	1750.1	132373	75	0	10	1762.1	132493	50	0	22.07
	10	1745.6	132328	50	0	20	1760.0	132472	100	0	22.59
	20	1750.1	132373	100	0	10	1764.5	132517	50	0	21.98
	15	1747.5	132347	75	0	15	1762.5	132497	75	0	22.27
	15	1745.3	132325	75	0	20	1762.4	132496	100	0	22.41
	20	1747.6	132348	100	0	15	1764.7	132519	75	0	22.15
	20	1752.5	132397	100	0	5	1764.2	132514	25	0	22.22
	5	1745.8	132330	25	0	20	1757.5	132447	100	0	22.86
	20	1745.1	132323	100	0	20	1764.9	132521	100	0	22.05
High	10	1760.5	132477	50	0	15	1772.5	132597	75	0	22.02
	15	1762.7	132499	75	0	10	1774.7	132619	50	0	22.15
	10	1755.6	132428	50	0	20	1770.0	132572	100	0	22.14
	20	1760.1	132473	100	0	10	1774.5	132617	50	0	22.31
	15	1757.5	132447	75	0	15	1772.5	132597	75	0	22.15
	15	1752.9	132401	75	0	20	1770.0	132572	100	0	22.23
	20	1755.1	132423	100	0	15	1772.2	132594	75	0	22.14
	20	1765.0	132522	100	0	5	1776.7	132639	25	0	22.37
	5	1758.3	132455	25	0	20	1770.0	132572	100	0	22.27
	20	1750.2	132374	100	0	20	1770.0	132572	100	0	21.97

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	1720.0	132072	1	99	5	1731.7	132189	1	0	23.98
Mid	5	1745.8	132330	1	24	20	1757.5	132447	1	0	23.97
High	20	1765.0	132522	1	99	5	1776.7	132639	1	0	23.91
Low	20	1720.0	132072	100	0	5	1731.7	132189	25	0	21.61
Mid	5	1745.8	132330	25	0	20	1757.5	132447	100	0	21.94
High	20	1765.0	132522	100	0	5	1776.7	132639	25	0	21.43

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	1720.0	132072	1	99	5	1731.7	132189	1	0	22.21
Mid	5	1745.8	132330	1	24	20	1757.5	132447	1	0	22.01
High	20	1765.0	132522	1	99	5	1776.7	132639	1	0	21.73
Low	20	1720.0	132072	100	0	5	1731.7	132189	25	0	21.55
Mid	5	1745.8	132330	25	0	20	1757.5	132447	100	0	21.88
High	20	1765.0	132522	100	0	5	1776.7	132639	25	0	21.34

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	1720.0	132072	1	99	5	1731.7	132189	1	0	19.94
Mid	5	1745.8	132330	1	24	20	1757.5	132447	1	0	19.82
High	20	1765.0	132522	1	99	5	1776.7	132639	1	0	19.50
Low	20	1720.0	132072	100	0	5	1731.7	132189	25	0	19.49
Mid	5	1745.8	132330	25	0	20	1757.5	132447	100	0	19.81
High	20	1765.0	132522	100	0	5	1776.7	132639	25	0	19.30

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	10	132025	1/49	15	132145	1/0	-16.16	17.26	10.08	2.06	H	0.337	25.28
	15	132047	1/74	10	132167	1/0	-16.07	17.36	10.10	2.07	H	0.346	25.39
	10	132027	1/49	20	132171	1/0	-16.00	17.42	10.08	2.06	H	0.350	25.44
	20	132072	1/99	10	132216	1/0	-16.18	17.25	10.10	2.07	H	0.337	25.28
	15	132047	1/74	15	132197	1/0	-16.06	17.37	10.10	2.07	H	0.347	25.40
	15	132050	1/74	20	132221	1/0	-16.06	17.37	10.10	2.07	H	0.347	25.40
	20	132072	1/99	15	132243	1/0	-16.19	17.28	10.12	2.08	H	0.340	25.32
	20	132072	1/99	5	132189	1/0	-16.48	16.95	10.10	2.07	H	0.315	24.98
	5	132005	1/24	20	132122	1/0	-16.12	17.30	10.08	2.06	H	0.340	25.32
	20	132072	1/99	20	132270	1/0	-16.16	17.31	10.12	2.08	H	0.343	25.35
Mid	10	132025	1/49	15	132471	1/0	-15.64	17.89	10.21	2.08	H	0.400	26.02
	15	132047	1/74	10	132493	1/0	-15.65	17.88	10.21	2.08	H	0.399	26.01
	10	132027	1/49	20	132472	1/0	-15.60	17.93	10.21	2.08	H	0.404	26.06
	20	132072	1/99	10	132517	1/0	-15.71	17.82	10.21	2.08	H	0.394	25.95
	15	132047	1/74	15	132497	1/0	-15.85	17.68	10.21	2.08	H	0.381	25.81
	15	132050	1/74	20	132496	1/0	-15.65	17.88	10.21	2.08	H	0.399	26.01
	20	132072	1/99	15	132519	1/0	-15.73	17.80	10.21	2.08	H	0.392	25.93
	20	132072	1/99	5	132514	1/0	-15.84	17.74	10.22	2.09	H	0.386	25.87
	5	132005	1/24	20	132447	1/0	-15.72	17.77	10.20	2.07	H	0.389	25.90
	20	132072	1/99	20	132521	1/0	-15.82	17.71	10.21	2.08	H	0.384	25.84
High	10	132025	1/49	15	132597	1/0	-15.96	17.68	10.23	2.09	H	0.382	25.82
	15	132047	1/74	10	132619	1/0	-16.07	17.63	10.24	2.09	H	0.378	25.78
	10	132027	1/49	20	132572	1/0	-15.80	17.78	10.22	2.09	H	0.390	25.91
	20	132072	1/99	10	132617	1/0	-16.20	17.44	10.23	2.09	H	0.361	25.58
	15	132047	1/74	15	132597	1/0	-15.97	17.67	10.23	2.09	H	0.381	25.81
	15	132050	1/74	20	132572	1/0	-15.81	17.77	10.22	2.09	H	0.389	25.90
	20	132072	1/99	15	132594	1/0	-16.01	17.63	10.23	2.09	H	0.378	25.77
	20	132072	1/99	5	132639	1/0	-16.34	17.36	10.24	2.09	H	0.356	25.51
	5	132005	1/24	20	132572	1/0	-15.88	17.76	10.23	2.09	H	0.389	25.90
	20	132072	1/99	20	132572	1/0	-15.77	17.81	10.22	2.09	H	0.393	25.94

Note:

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

PCC			SCC			Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol.	E.I.R.P	
BW [MHz]	Channel	RB/Offset	BW [MHz]	Channel	RB/Offset						W	dBm
10	132027	1/49	20	132171	1/0	-16.72	16.70	10.08	2.06	H	0.296	24.72
10	132025	1/49	15	132471	1/0	-16.29	17.24	10.21	2.08	H	0.344	25.37
15	132047	1/74	10	132493	1/0	-16.33	17.20	10.21	2.08	H	0.341	25.33
10	132027	1/49	20	132472	1/0	-16.26	17.27	10.21	2.08	H	0.347	25.40
20	132072	1/99	10	132517	1/0	-16.42	17.11	10.21	2.08	H	0.334	25.24
15	132047	1/74	15	132497	1/0	-16.52	17.01	10.21	2.08	H	0.327	25.14
15	132050	1/74	20	132496	1/0	-16.31	17.22	10.21	2.08	H	0.343	25.35
20	132072	1/99	15	132519	1/0	-16.34	17.19	10.21	2.08	H	0.340	25.32
20	132072	1/99	5	132514	1/0	-16.41	17.17	10.22	2.09	H	0.339	25.30
5	132005	1/24	20	132447	1/0	-16.35	17.14	10.20	2.07	H	0.337	25.27
20	132072	1/99	20	132521	1/0	-16.58	16.95	10.21	2.08	H	0.322	25.08
20	132072	1/99	20	132572	1/0	-16.44	17.14	10.22	2.09	H	0.337	25.27

Note:

1. Modulation : 16QAM
2. Limit : < 1 Watts

PCC			SCC			Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol.	E.I.R.P	
BW [MHz]	Channel	RB/Offset	BW [MHz]	Channel	RB/Offset						W	dBm
10	132027	1/49	20	132171	1/0	-18.85	14.57	10.08	2.06	H	0.182	22.59
10	132025	1/49	15	132471	1/0	-18.40	15.13	10.21	2.08	H	0.212	23.26
15	132047	1/74	10	132493	1/0	-18.41	15.12	10.21	2.08	H	0.211	23.25
10	132027	1/49	20	132472	1/0	-18.39	15.14	10.21	2.08	H	0.212	23.27
20	132072	1/99	10	132517	1/0	-18.56	14.97	10.21	2.08	H	0.204	23.10
15	132047	1/74	15	132497	1/0	-18.66	14.87	10.21	2.08	H	0.200	23.00
15	132050	1/74	20	132496	1/0	-18.36	15.17	10.21	2.08	H	0.214	23.30
20	132072	1/99	15	132519	1/0	-18.37	15.16	10.21	2.08	H	0.213	23.29
20	132072	1/99	5	132514	1/0	-18.55	15.03	10.22	2.09	H	0.207	23.16
5	132005	1/24	20	132447	1/0	-18.44	15.05	10.20	2.07	H	0.208	23.18
20	132072	1/99	20	132521	1/0	-18.60	14.93	10.21	2.08	H	0.202	23.06
20	132072	1/99	20	132572	1/0	-18.49	15.09	10.22	2.09	H	0.210	23.22

Note:

1. Modulation : 64QAM
2. Limit : < 1 Watts

PCC			SCC			Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol.	E.I.R.P	
BW [MHz]	Channel	RB/ Offset	BW [MHz]	Channel	RB/ Offset						W	dBm
10	132027	1/49	20	132171	1/0	-21.03	12.39	10.08	2.06	H	0.110	20.41
10	132025	1/49	15	132471	1/0	-20.55	12.98	10.21	2.08	H	0.129	21.11
15	132047	1/74	10	132493	1/0	-20.66	12.87	10.21	2.08	H	0.126	21.00
10	132027	1/49	20	132472	1/0	-20.48	13.05	10.21	2.08	H	0.131	21.18
20	132072	1/99	10	132517	1/0	-20.64	12.89	10.21	2.08	H	0.126	21.02
15	132047	1/74	15	132497	1/0	-20.72	12.81	10.21	2.08	H	0.124	20.94
15	132050	1/74	20	132496	1/0	-20.58	12.95	10.21	2.08	H	0.128	21.08
20	132072	1/99	15	132519	1/0	-20.66	12.87	10.21	2.08	H	0.126	21.00
20	132072	1/99	5	132514	1/0	-20.74	12.84	10.22	2.09	H	0.125	20.97
5	132005	1/24	20	132447	1/0	-20.67	12.82	10.20	2.07	H	0.124	20.95
20	132072	1/99	20	132521	1/0	-20.66	12.87	10.21	2.08	H	0.126	21.00
20	132072	1/99	20	132572	1/0	-20.80	12.78	10.22	2.09	H	0.123	20.91

Note:

1. Modulation : 256QAM
2. Limit : < 1 Watts

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	132072	1720.0	1/99	5	132189	1731.7	1/0	2.1237	27.976	-62.65	-34.67
Mid	5	132330	1745.8	1/24	20	132447	1757.5	1/0	4.9153	27.976	-63.82	-35.84
High	20	132522	1765.0	1/99	5	132639	1776.7	1/0	2.1736	27.976	-61.86	-33.88
Low	20	132072	1720.0	1/0	5	132189	1731.7	1/24	2.1137	27.976	-62.26	-34.28
Mid	5	132330	1745.8	1/0	20	132447	1757.5	1/99	9.1027	28.591	-63.72	-35.13
High	20	132522	1765.0	1/0	5	132639	1776.7	1/24	2.1636	27.976	-62.72	-34.74
Low	20	132072	1720.0	100/0	5	132189	1731.7	25/0	2.1237	27.976	-62.45	-34.47
Mid	5	132330	1745.8	25/0	20	132447	1757.5	100/0	9.1825	28.591	-62.61	-34.02
High	20	132522	1765.0	100/0	5	132639	1776.7	25/0	2.1636	27.976	-60.72	-32.74
Low	20	132072	1720.0	100/0	20	132270	1739.8	100/0	3.8485	27.976	-62.44	-34.46
Mid	20	132323	1745.1	100/0	20	132521	1764.9	100/0	8.6441	28.591	-64.19	-35.60
High	20	132374	1750.2	100/0	20	132572	1770.0	100/0	9.0828	28.591	-63.46	-34.87

Note:

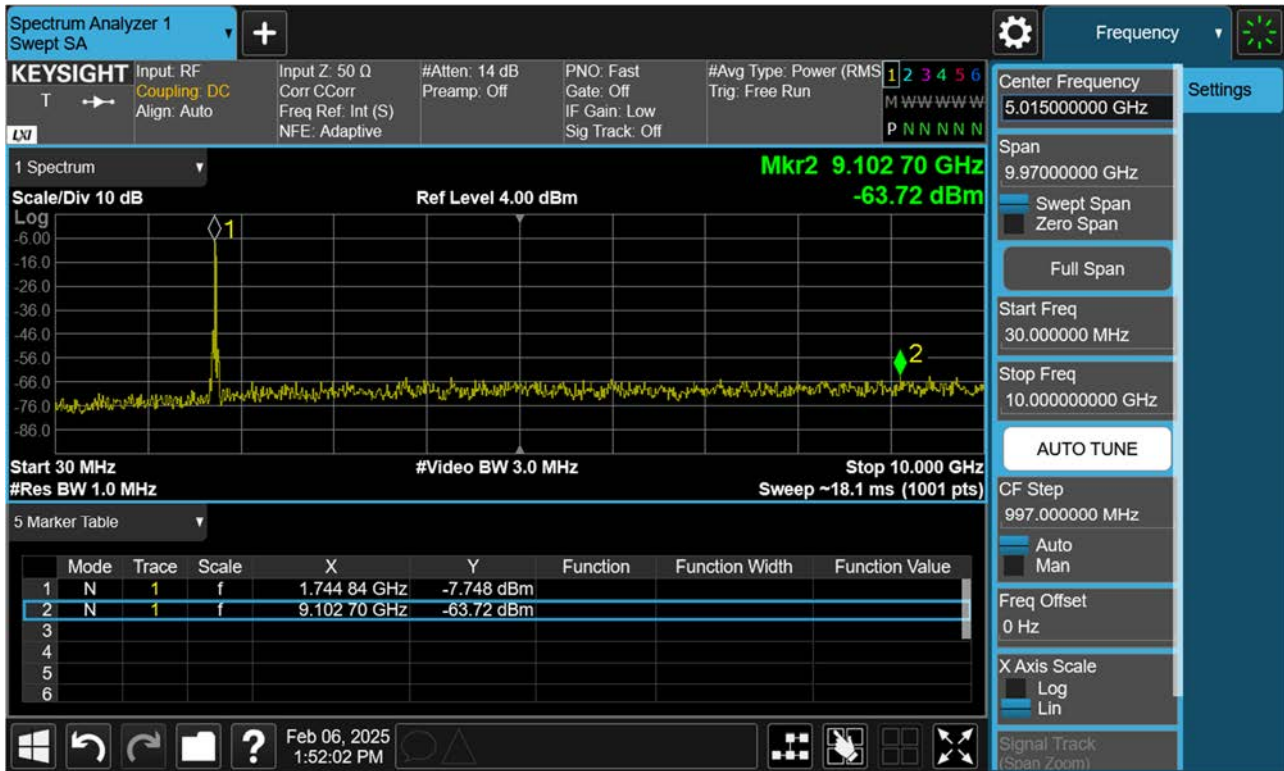
1. Modulation : QPSK
2. Factor(dB) = Cable Loss + Ext. Attenuator + Power Splitter
3. Factors for frequency :

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

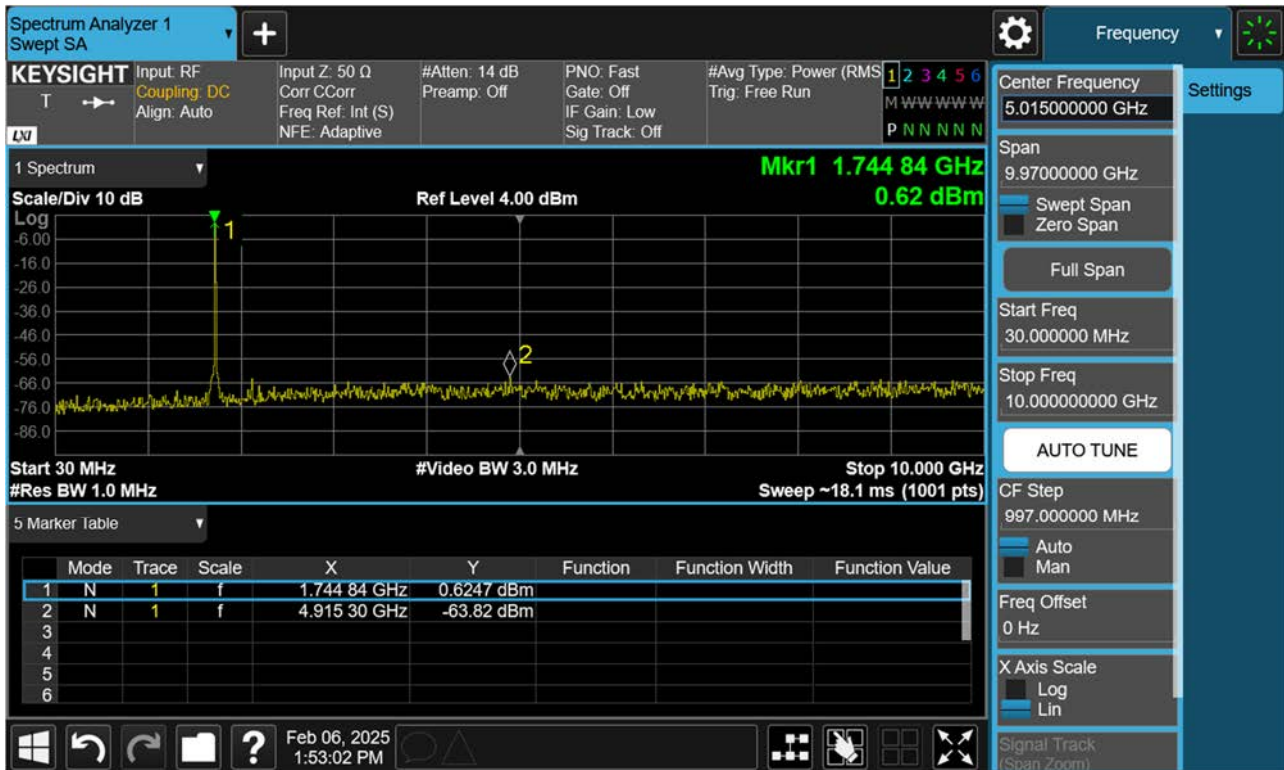
4. Limit : -13.0 dBm

Frequency Range : 30 MHz ~ 10 GHz

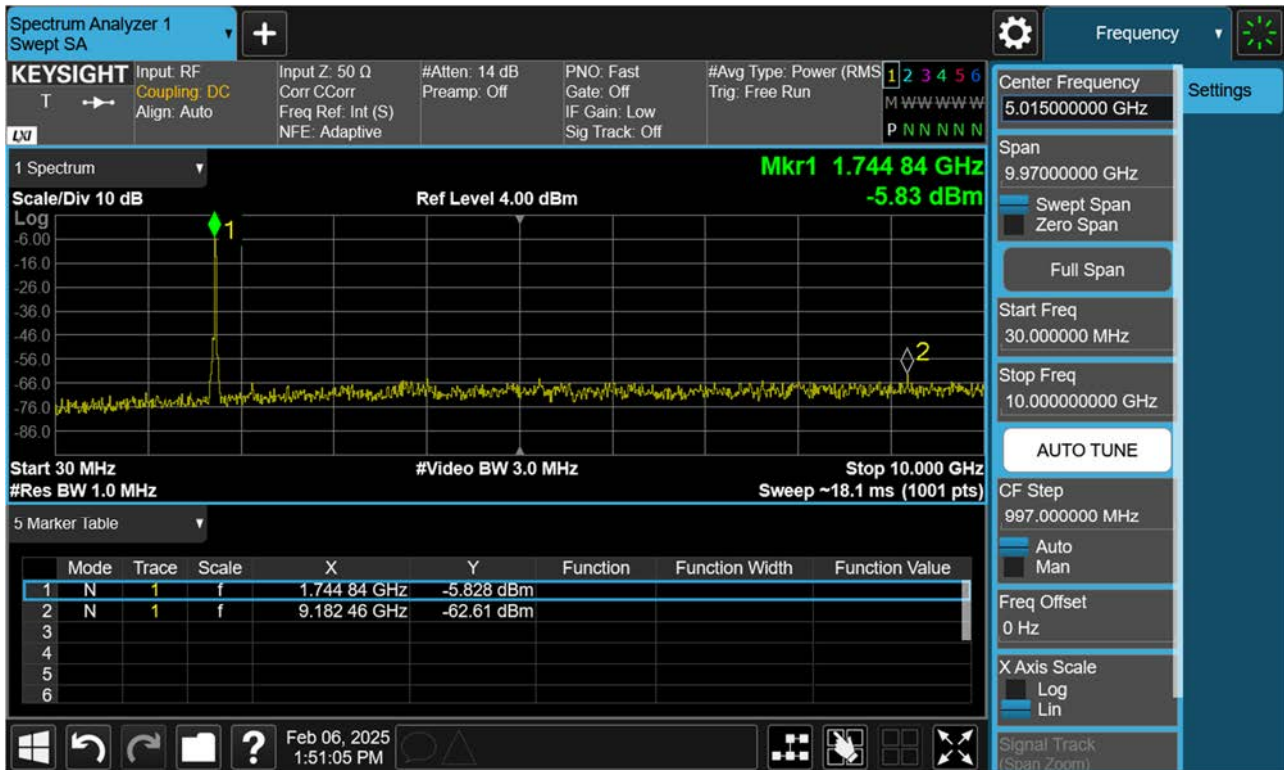
PCC 5 M 132330 RB 1,0 SCC 20 M 132447 RB 1,99



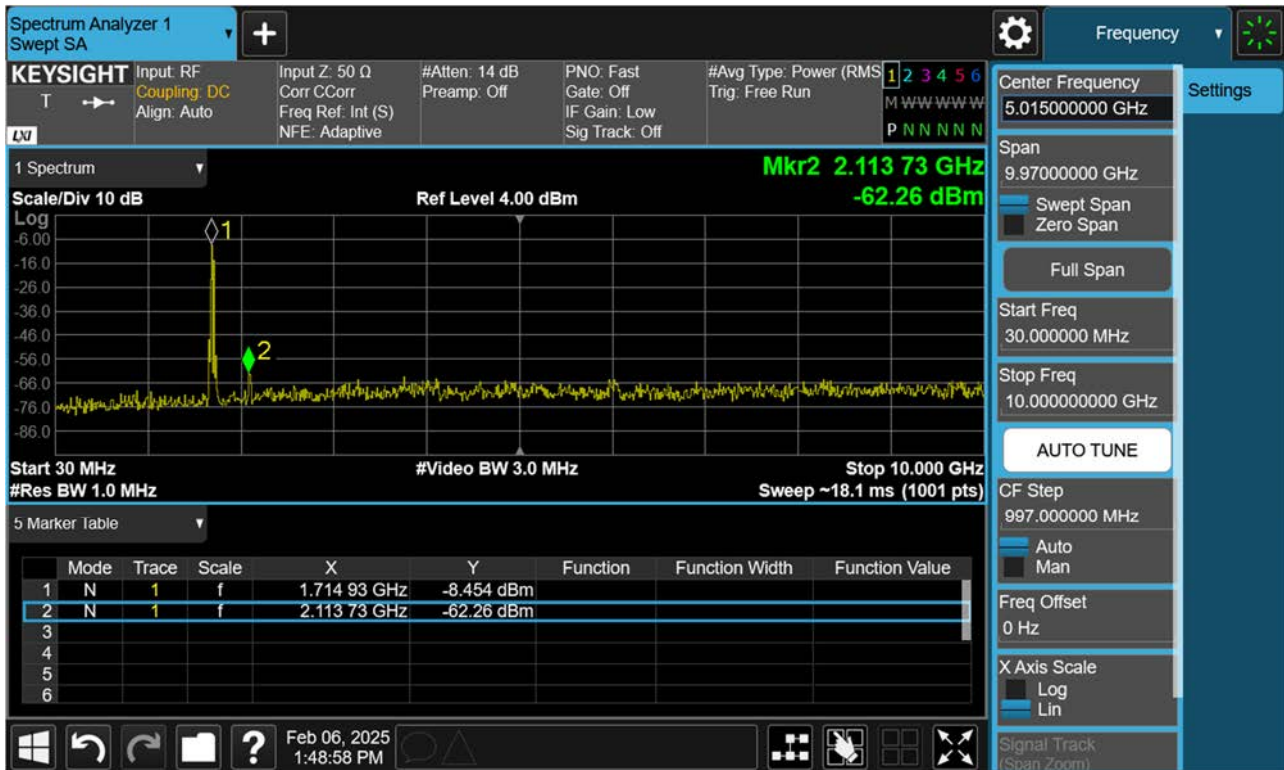
PCC 5 M 132330 RB 1,24 SCC 20 M 132447 RB 1,0



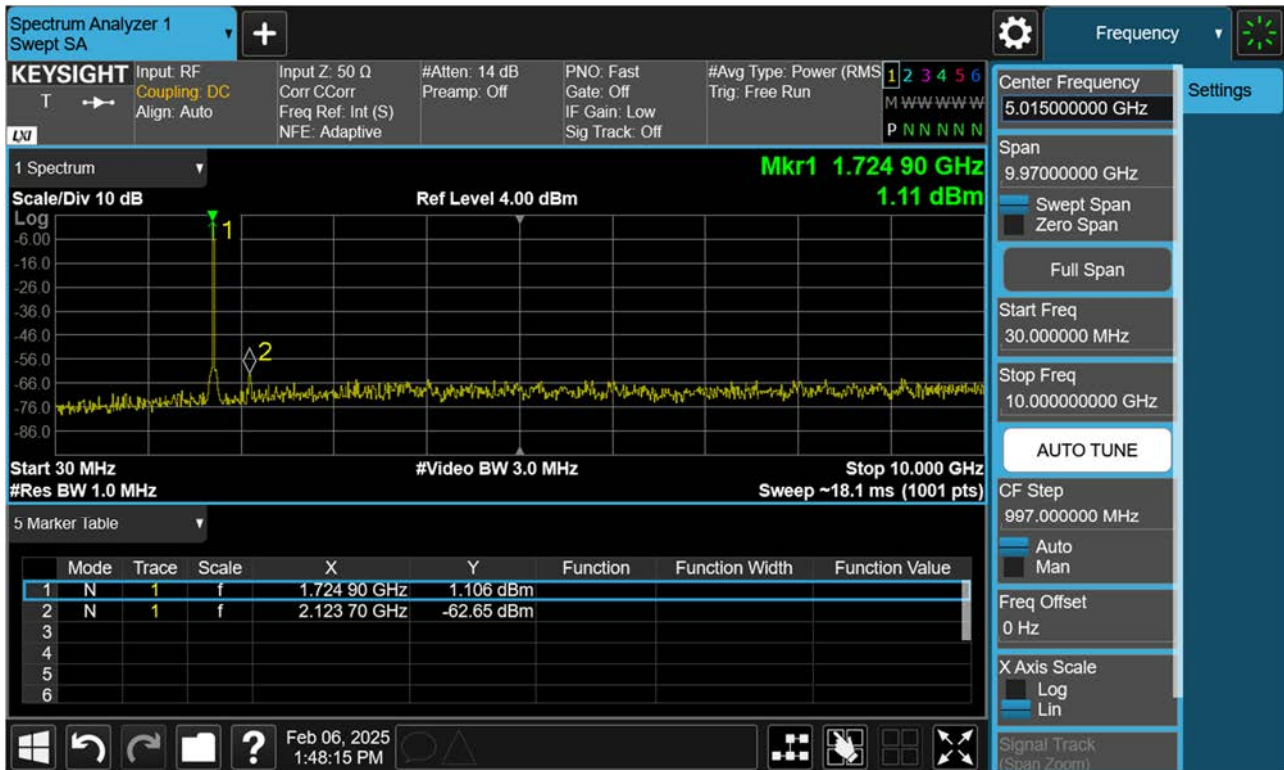
PCC 5 M 132330 RB 25,0 SCC 20 M 132447 RB 100,0



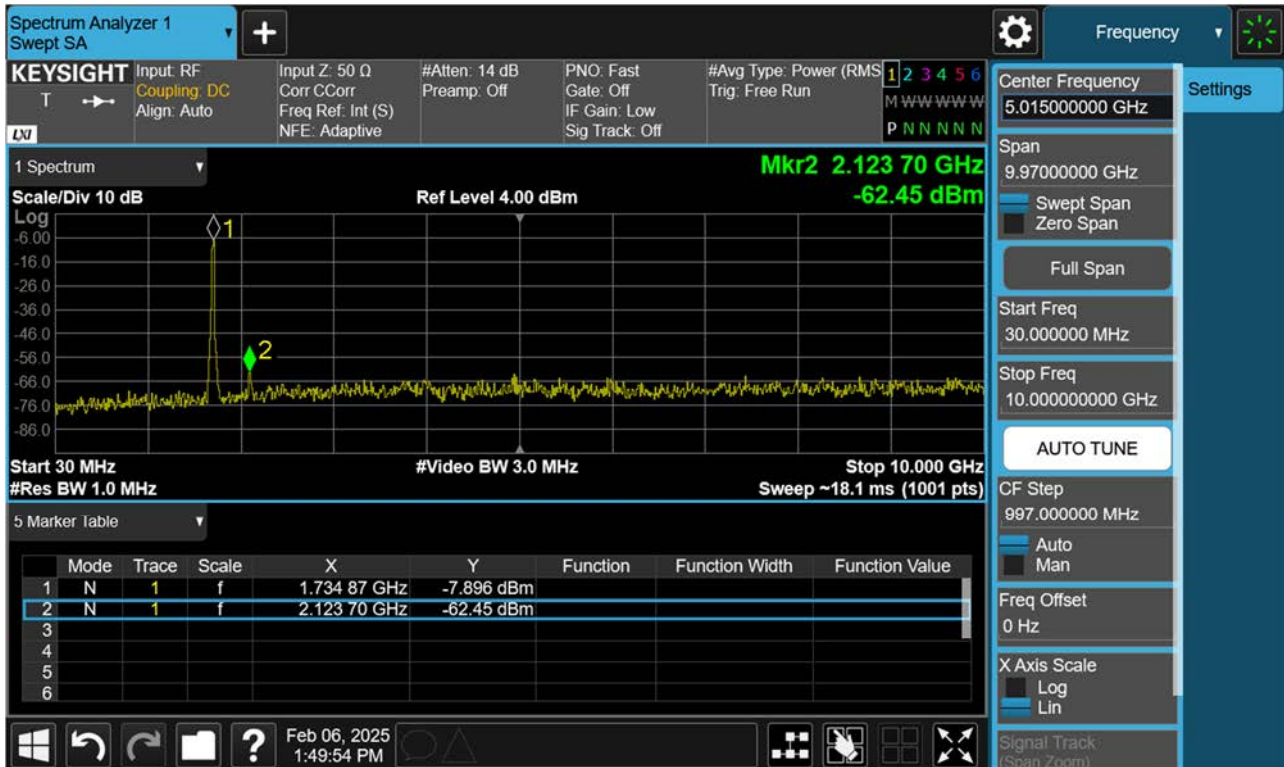
PCC 20 M 132072 RB 1,0 SCC 5 M 132189 RB 1,24



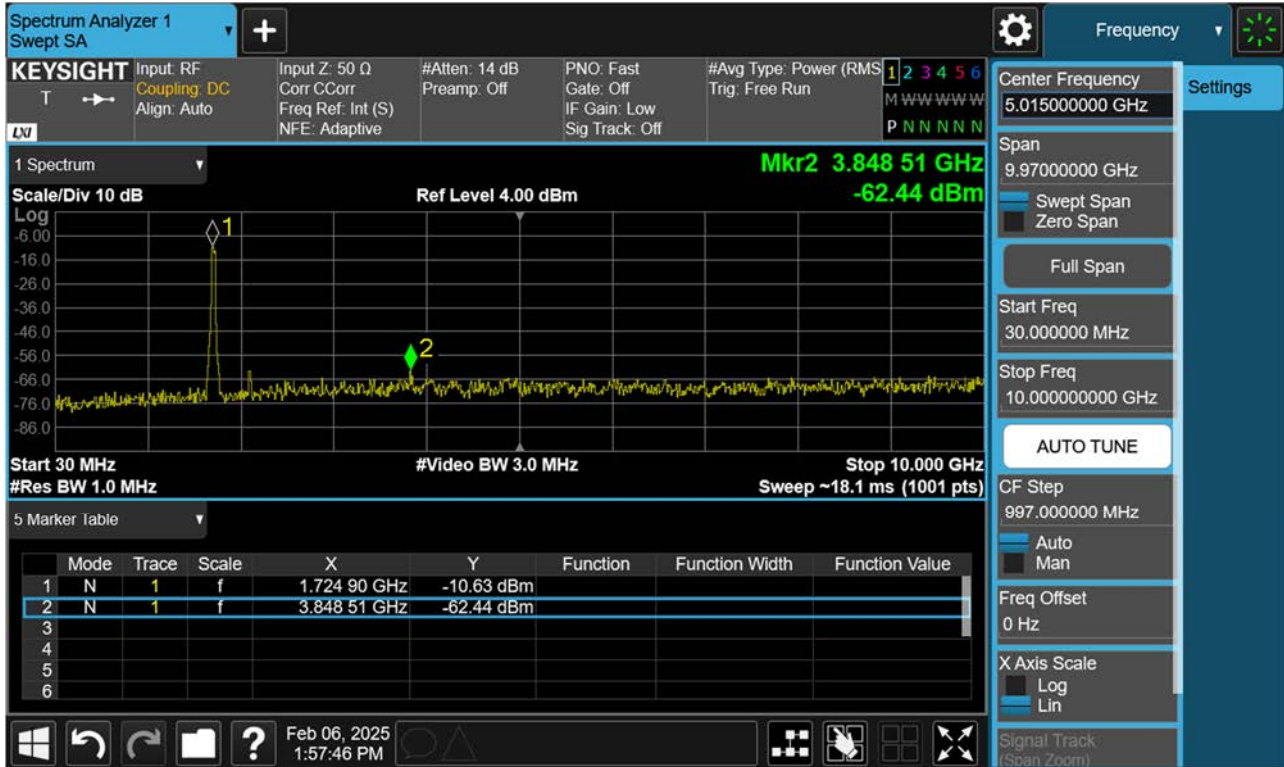
PCC 20 M 132072 RB 1,99 SCC 5 M 132189 RB 1,0



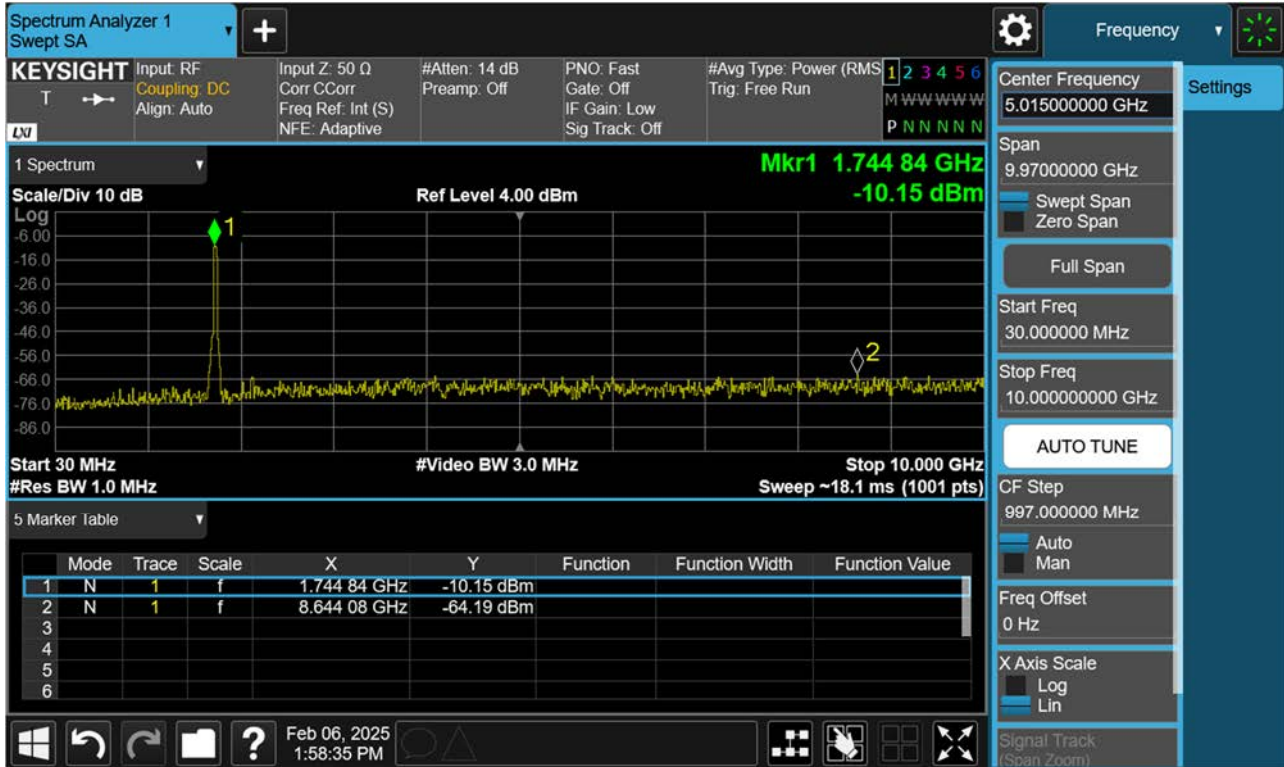
PCC 20 M 132072 RB 100,0 SCC 5 M 132189 RB 25,0



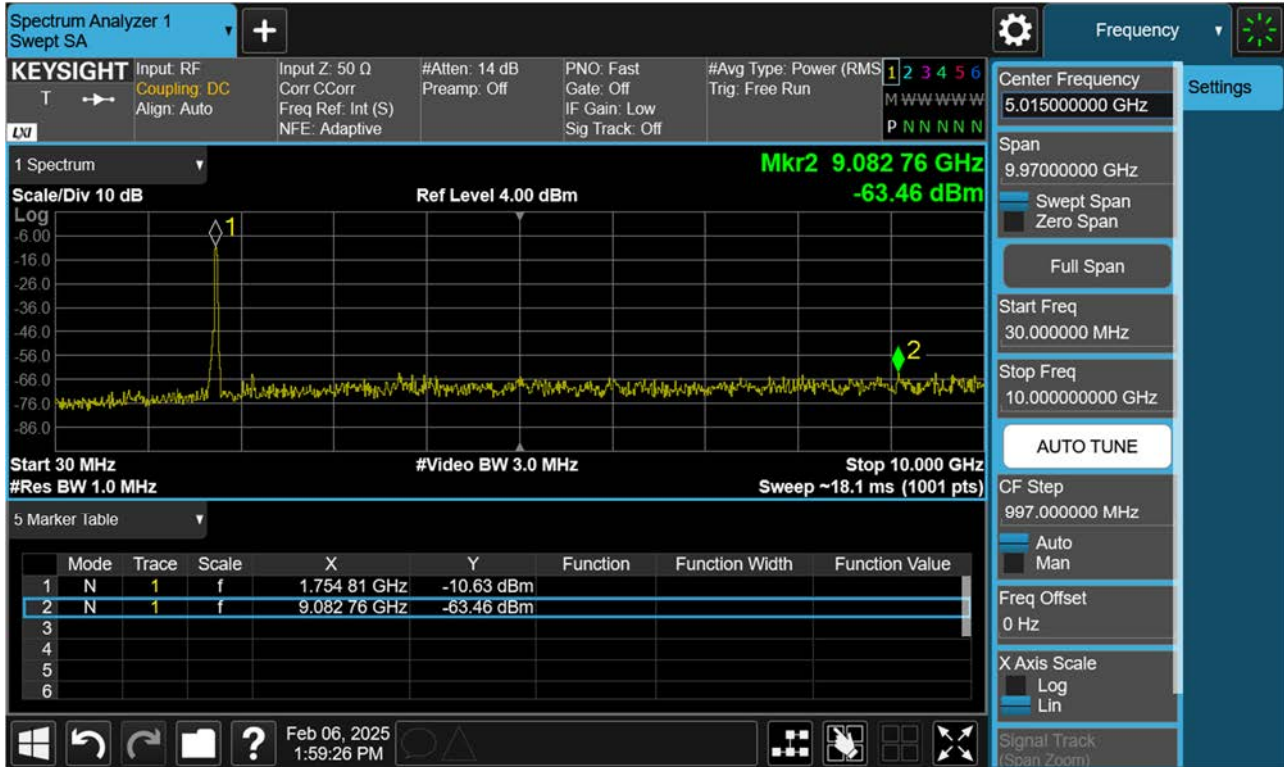
PCC 20 M 132072 RB 100,0 SCC 20 M 132270 RB 100,0



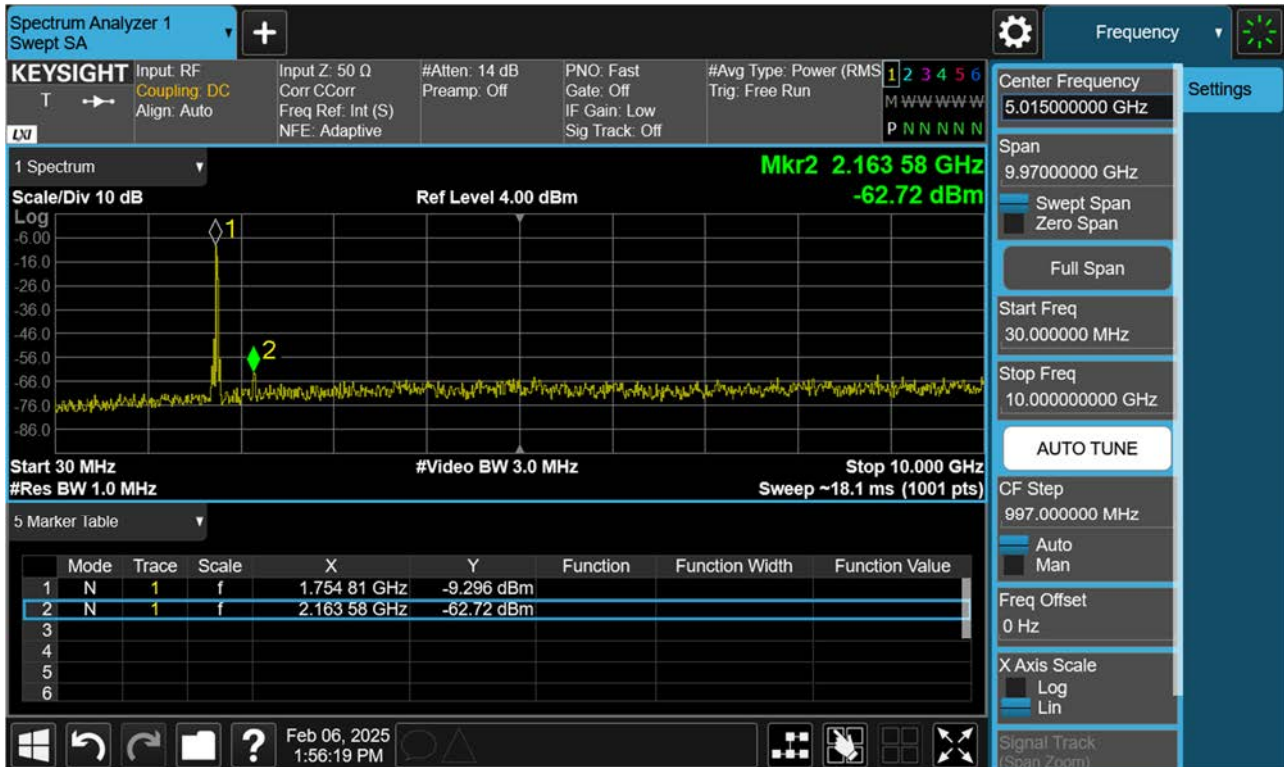
PCC 20 M 132323 RB 100,0 SCC 20 M 132521 RB 100,0



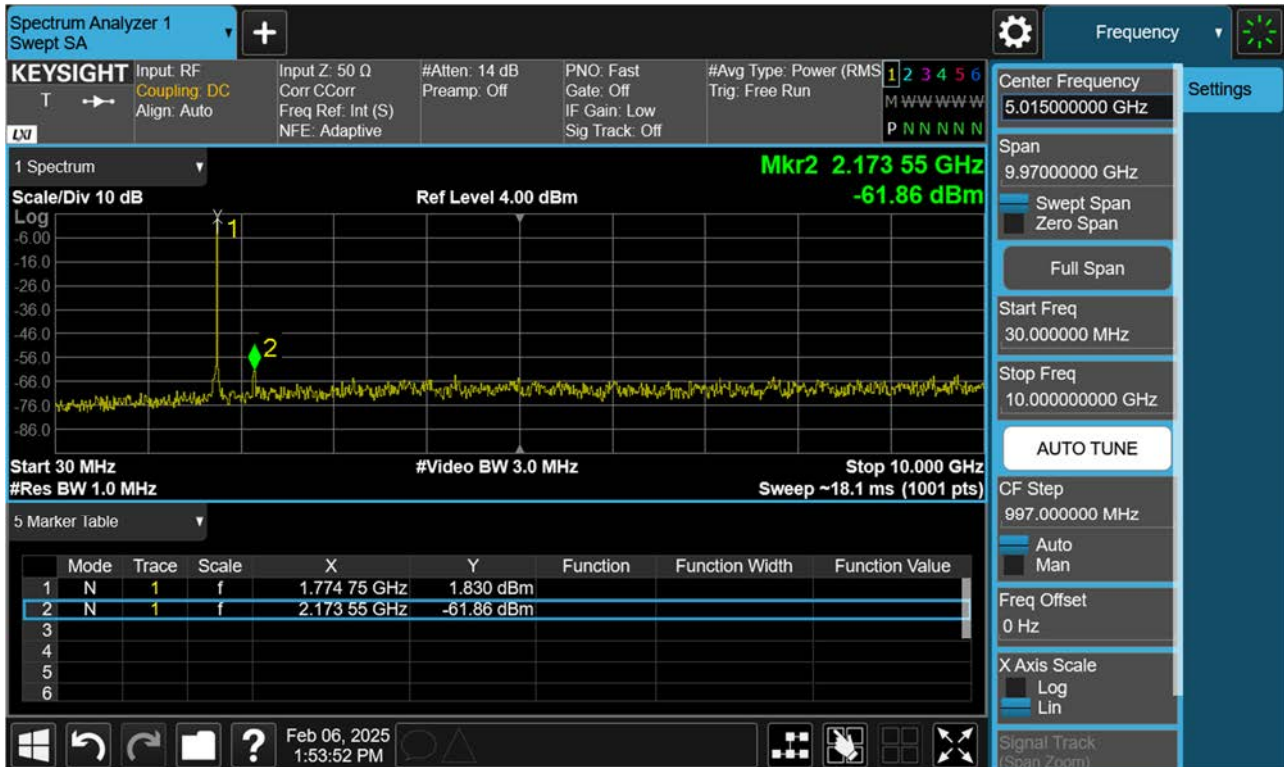
PCC 20 M 132374 RB 100,0 SCC 20 M 132572 RB 100,0



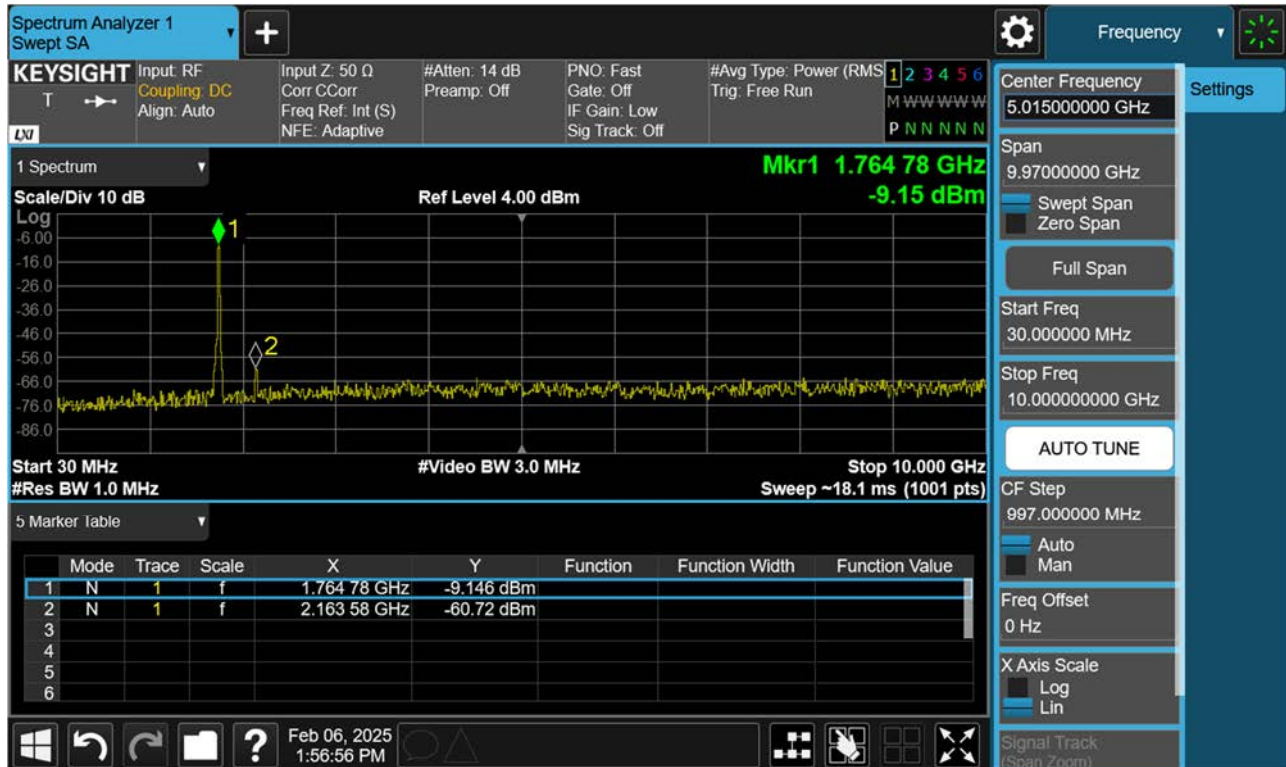
PCC 20 M 132522 RB 1,0 SCC 5 M 132639 RB 1,24



PCC 20 M 132522 RB 1,99 SCC 5 M 132639 RB 1,0

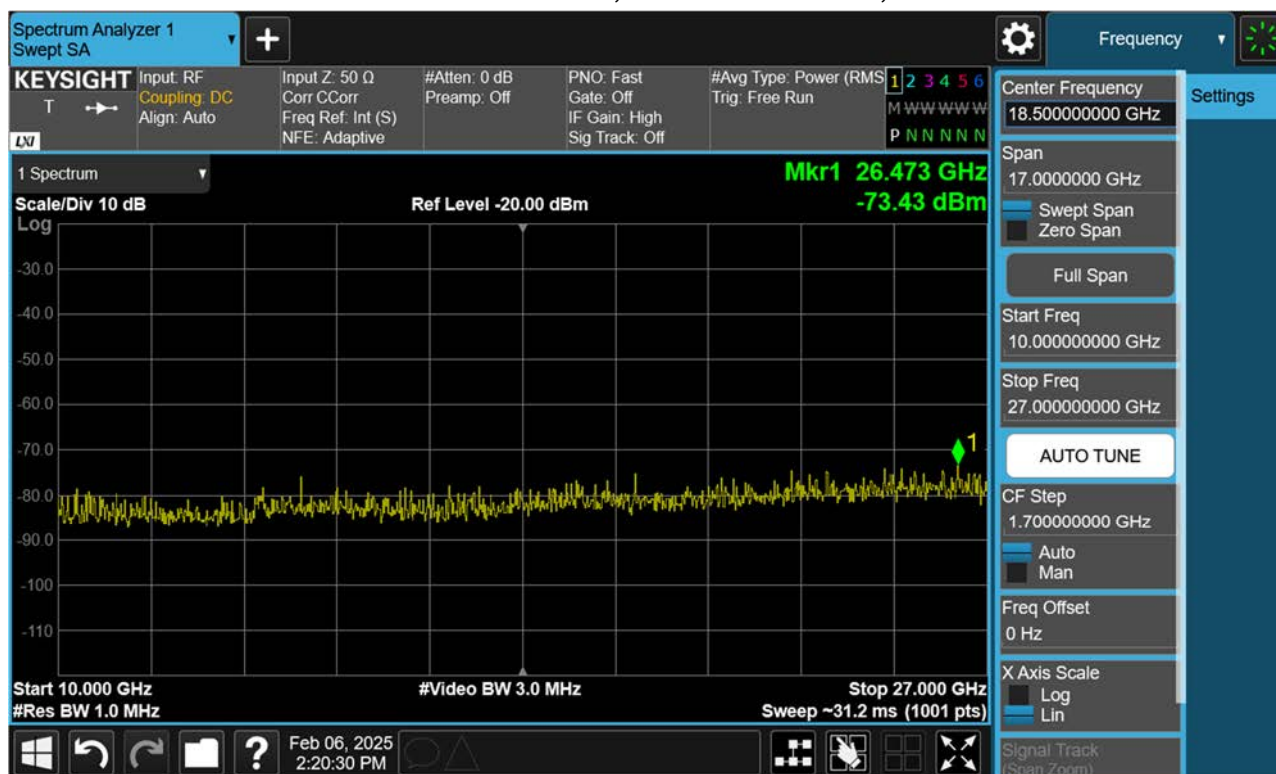


PCC 20 M 132522 RB 100,0 SCC 5 M 132639 RB 25,0

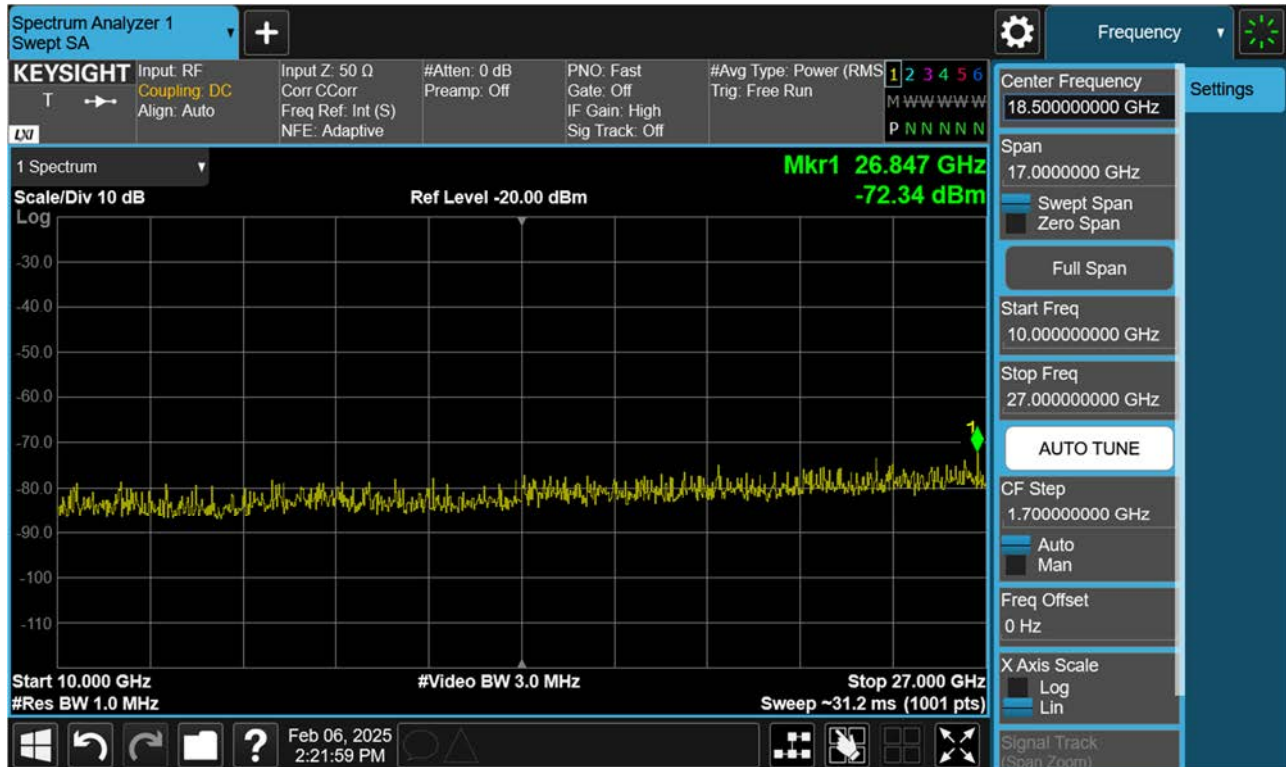


Frequency Range : 10 GHz ~ 26.5GHz

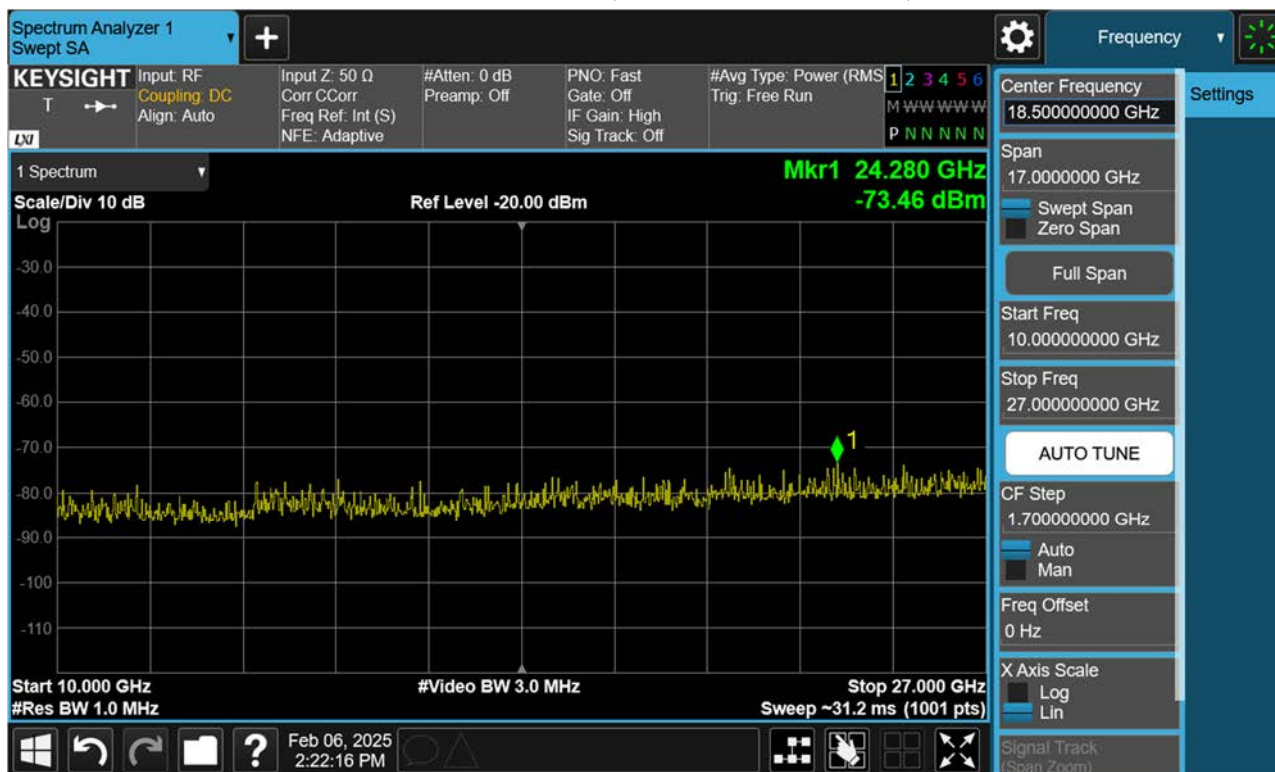
PCC 5 M 132330 RB 1,0 SCC 20 M 132447 RB 1,99



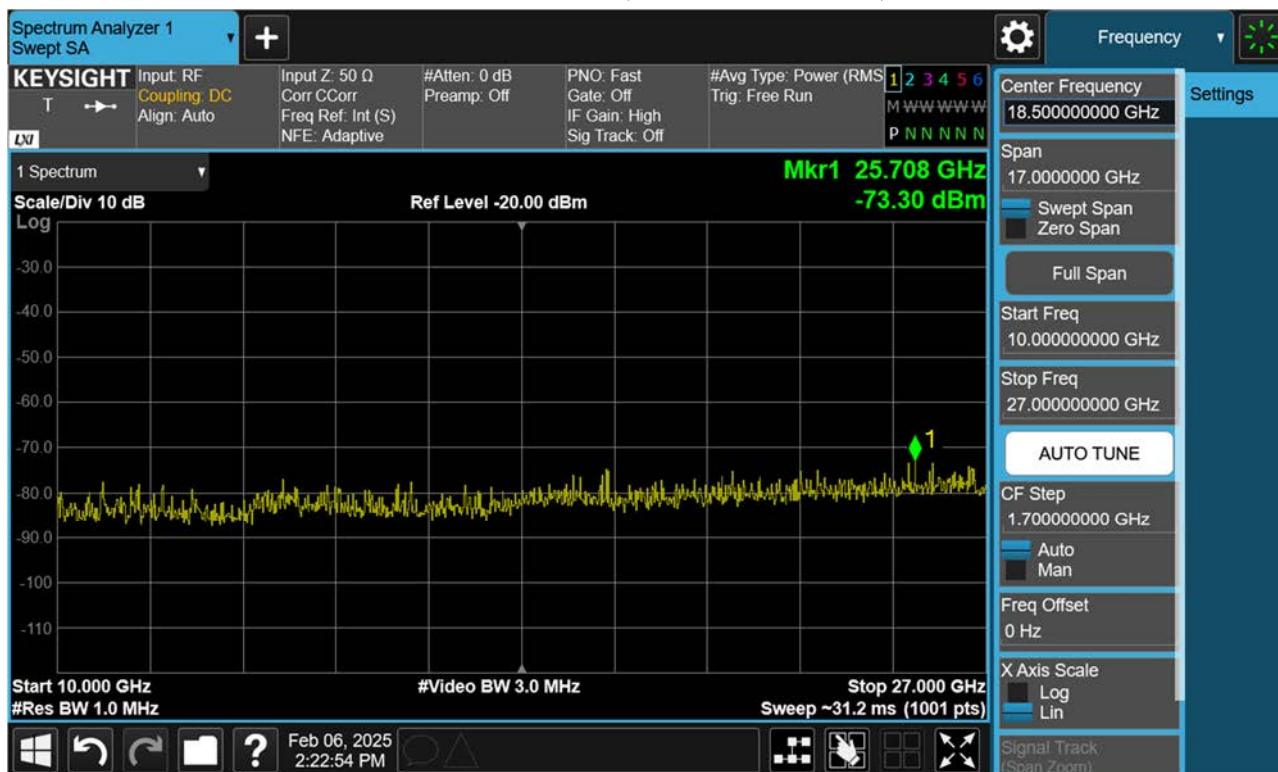
PCC 5 M 132330 RB 1,24 SCC 20 M 132447 RB 1,0



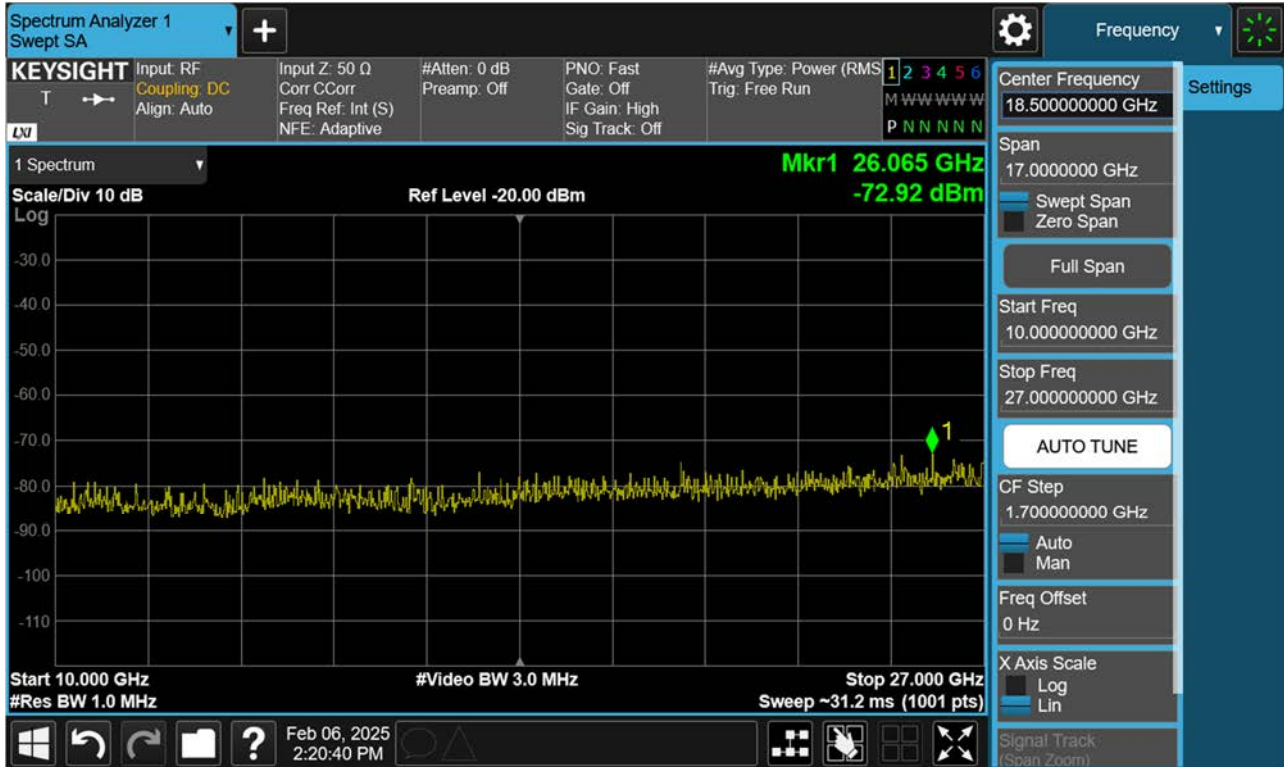
PCC 5 M 132330 RB 25,0 SCC 20 M 132447 RB 100,0



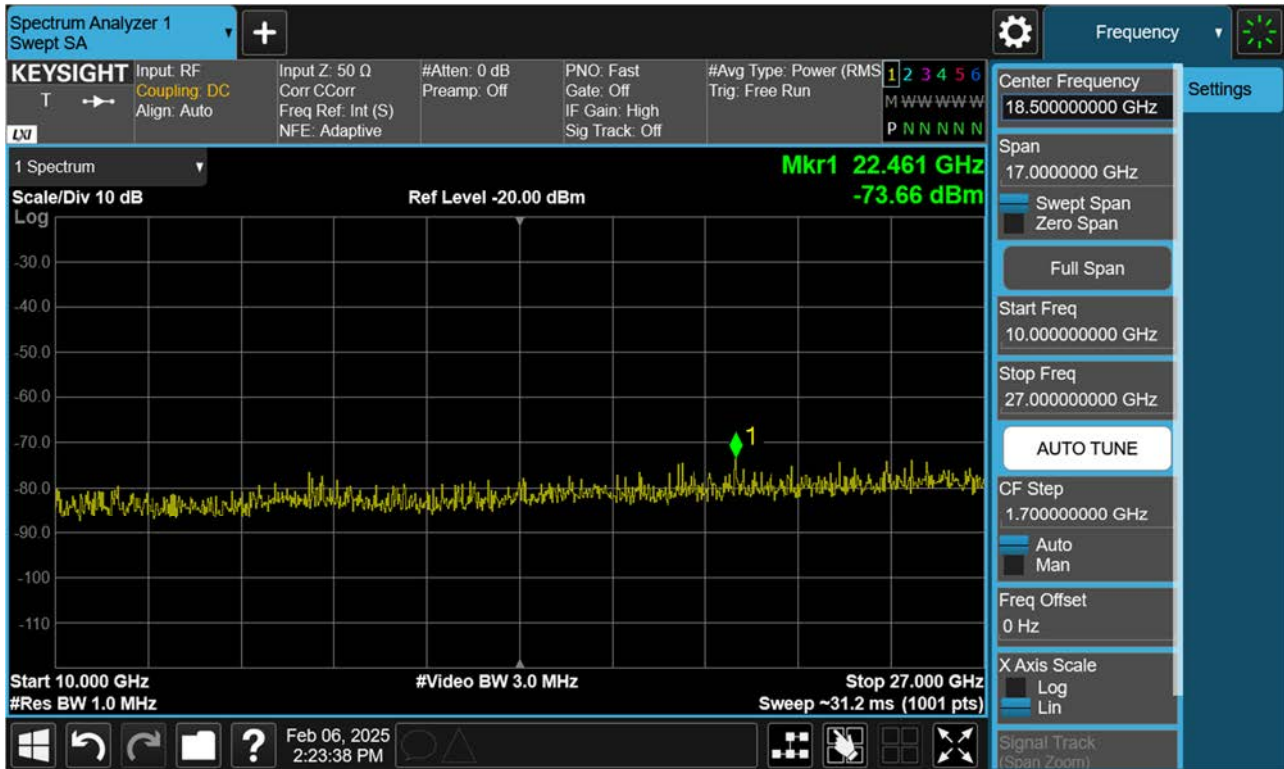
PCC 20 M 132072 RB 1,0 SCC 5 M 132189 RB 1,24



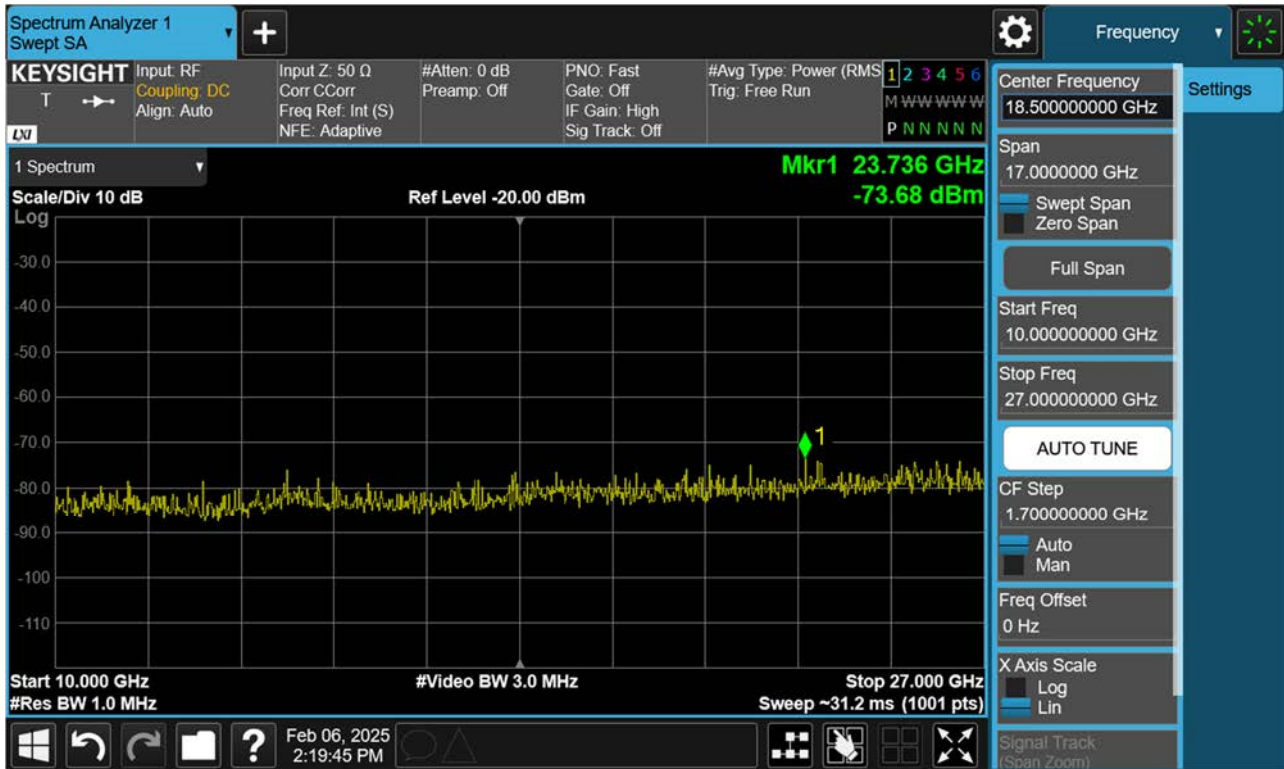
PCC 20 M 132072 RB 1,99 SCC 5 M 132189 RB 1,0



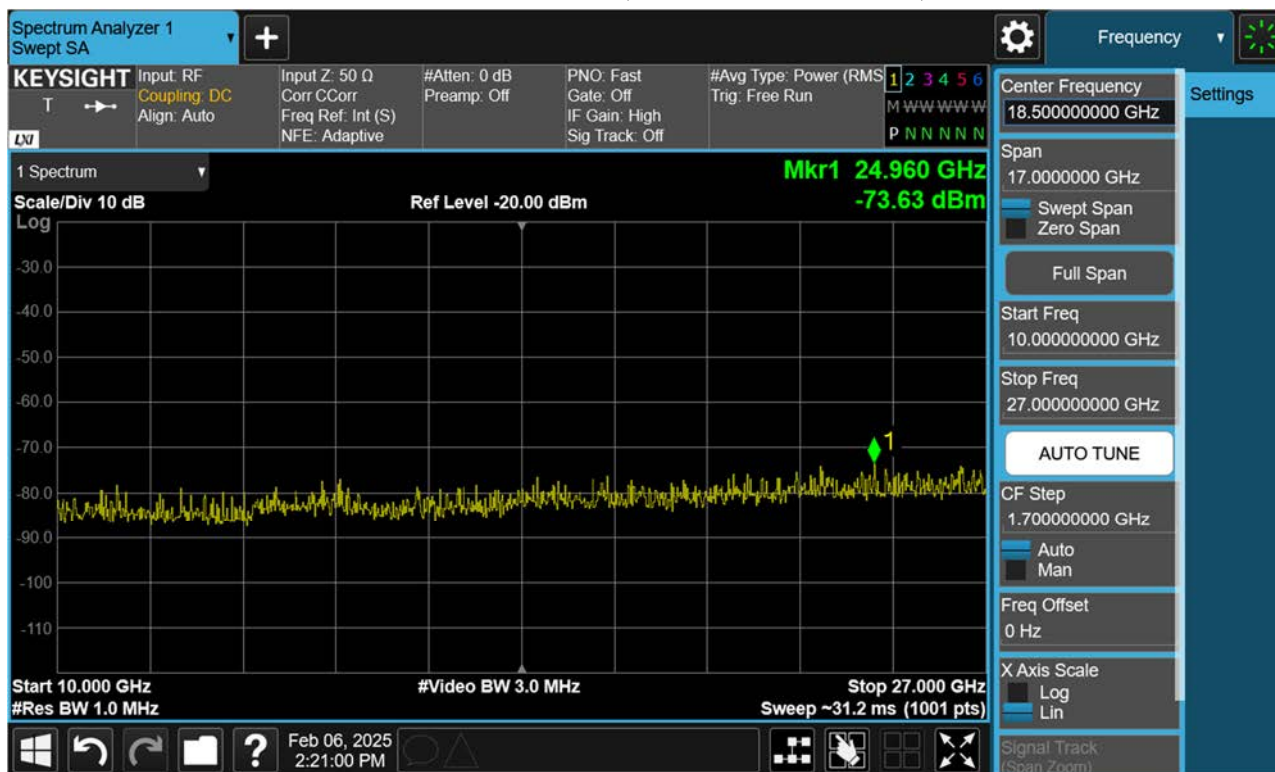
PCC 20 M 132072 RB 100,0 SCC 5 M 132189 RB 25,0



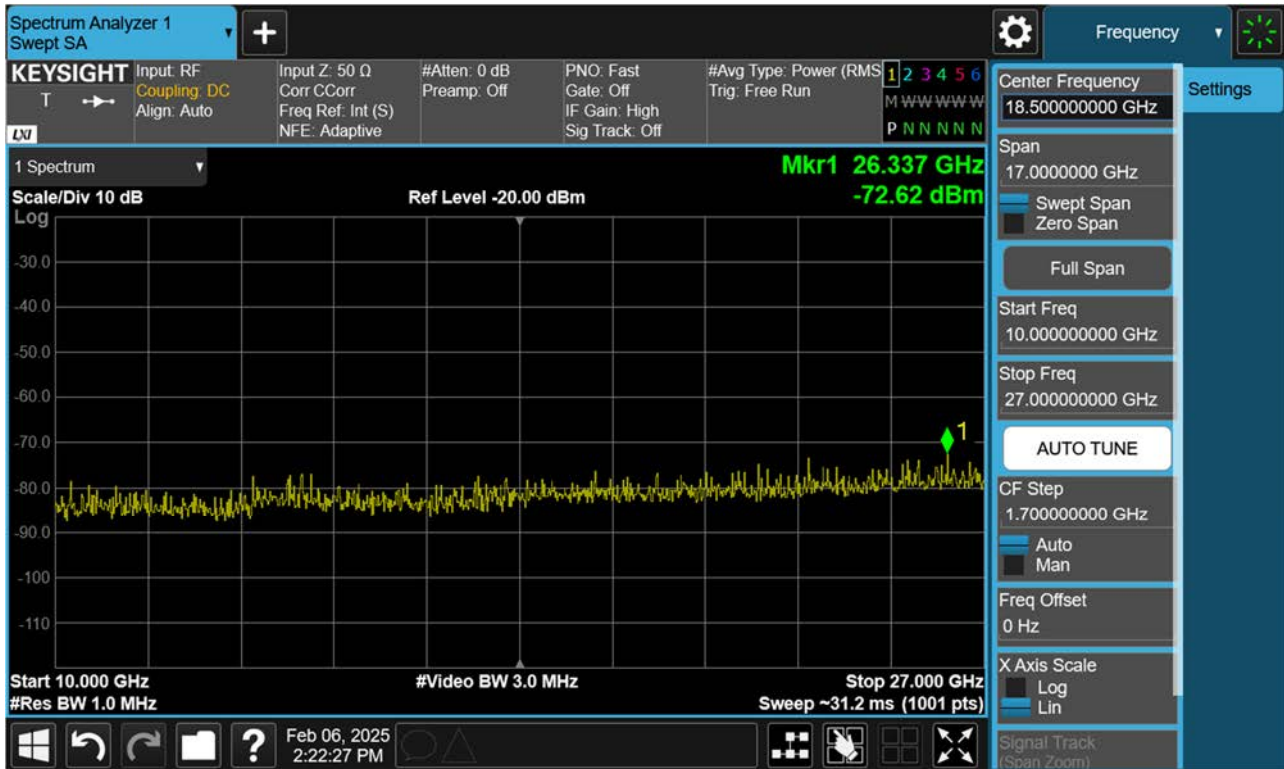
PCC 20 M 132072 RB 100,0 SCC 20 M 132270 RB 100,0



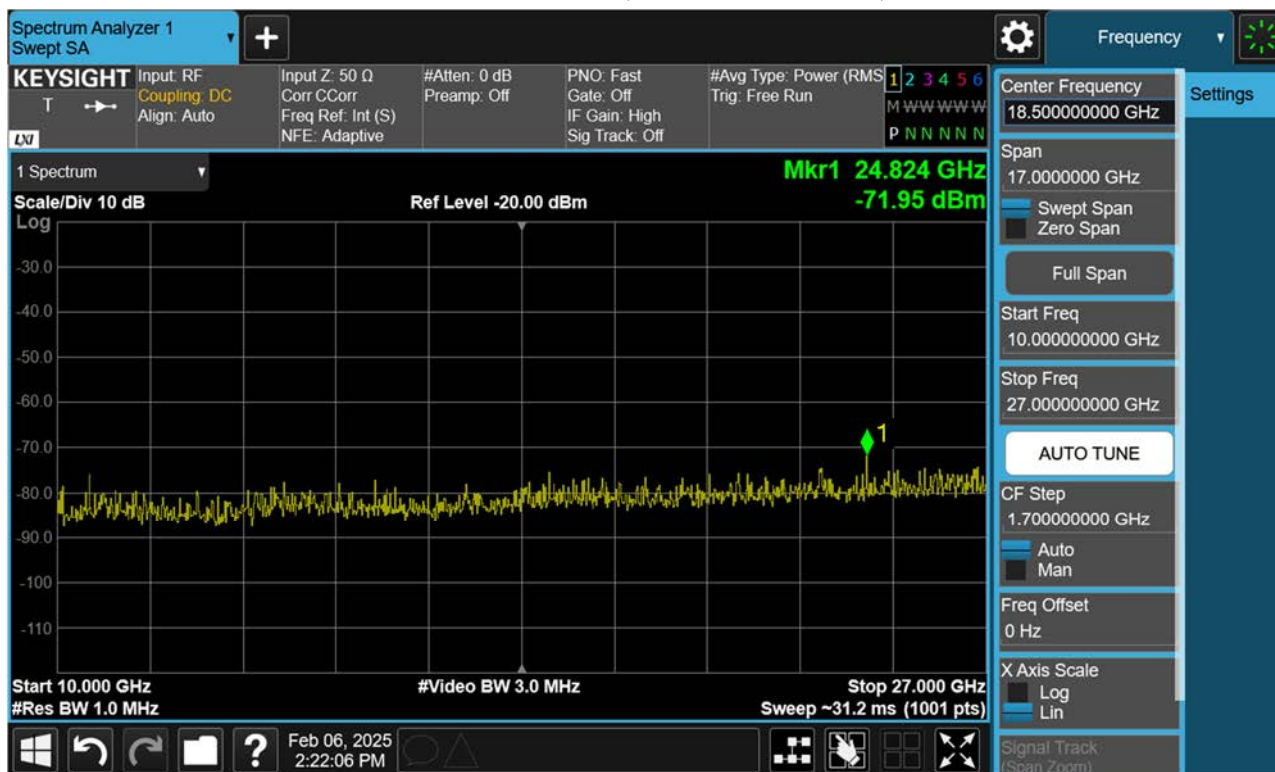
PCC 20 M 132323 RB 100,0 SCC 20 M 132521 RB 100,0



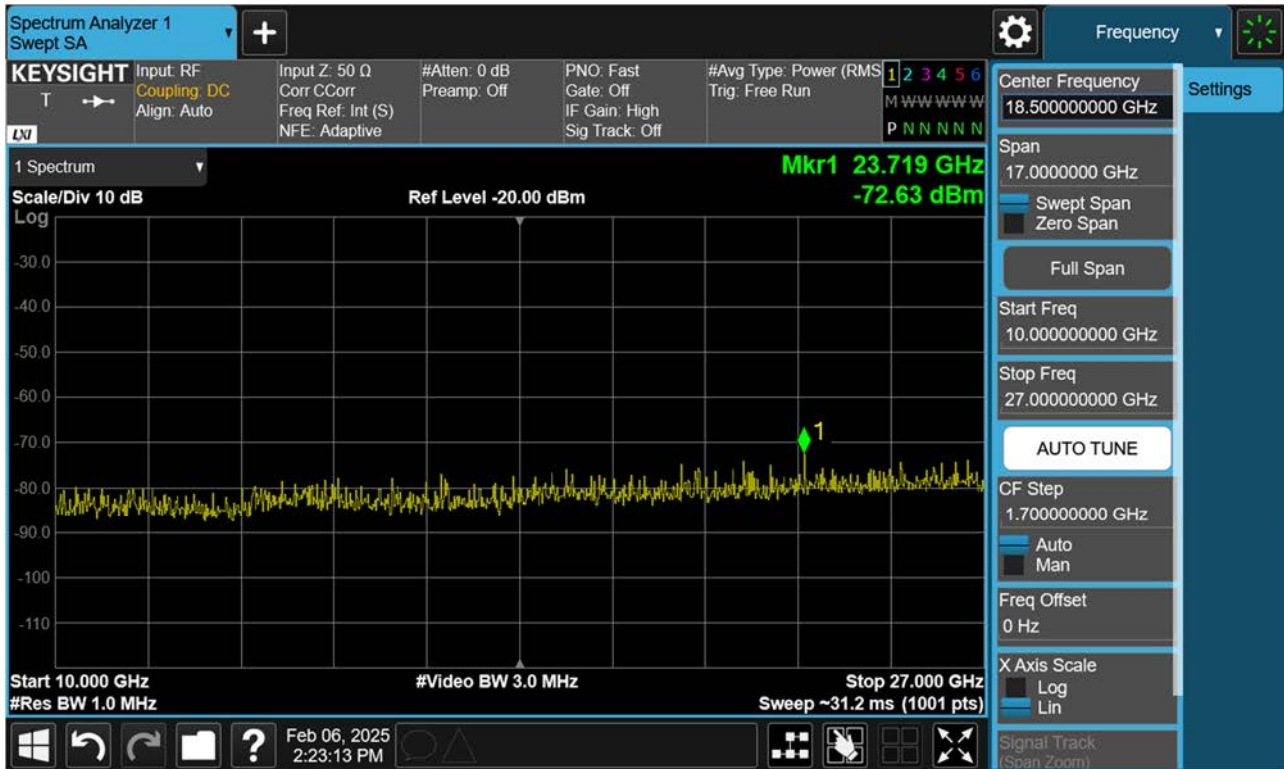
PCC 20 M 132374 RB 100,0 SCC 20 M 132572 RB 100,0



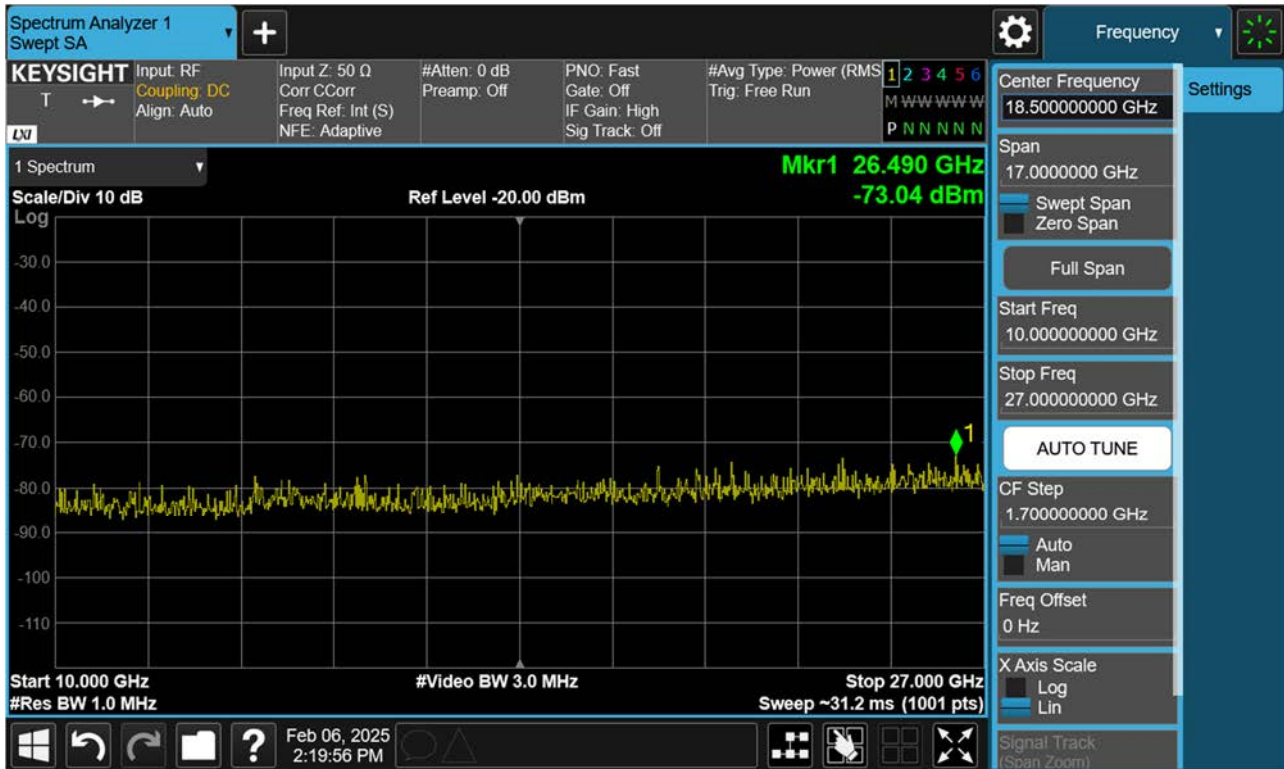
PCC 20 M 132522 RB 1,0 SCC 5 M 132639 RB 1,24



PCC 20 M 132522 RB 1,99 SCC 5 M 132639 RB 1,0



PCC 20 M 132522 RB 100,0 SCC 5 M 132639 RB 25,0



8.4 Channel Edge

Highest Channel_PCC 20 MHz Ch132374 RB100 Offset0 SCC 20 MHz Ch132572 RB100 Offset0(1)



Highest Channel_PCC 20 MHz Ch132374 RB100 Offset0 SCC 20 MHz Ch132572 RB100 Offset0(2)



Highest Channel_PCC 20 MHz Ch132522 RB1 Offset0 SCC 5 MHz Ch132639 RB1 Offset24(1)



Highest Channel_PCC 20 MHz Ch132522 RB1 Offset0 SCC 5 MHz Ch132639 RB1 Offset24(2)



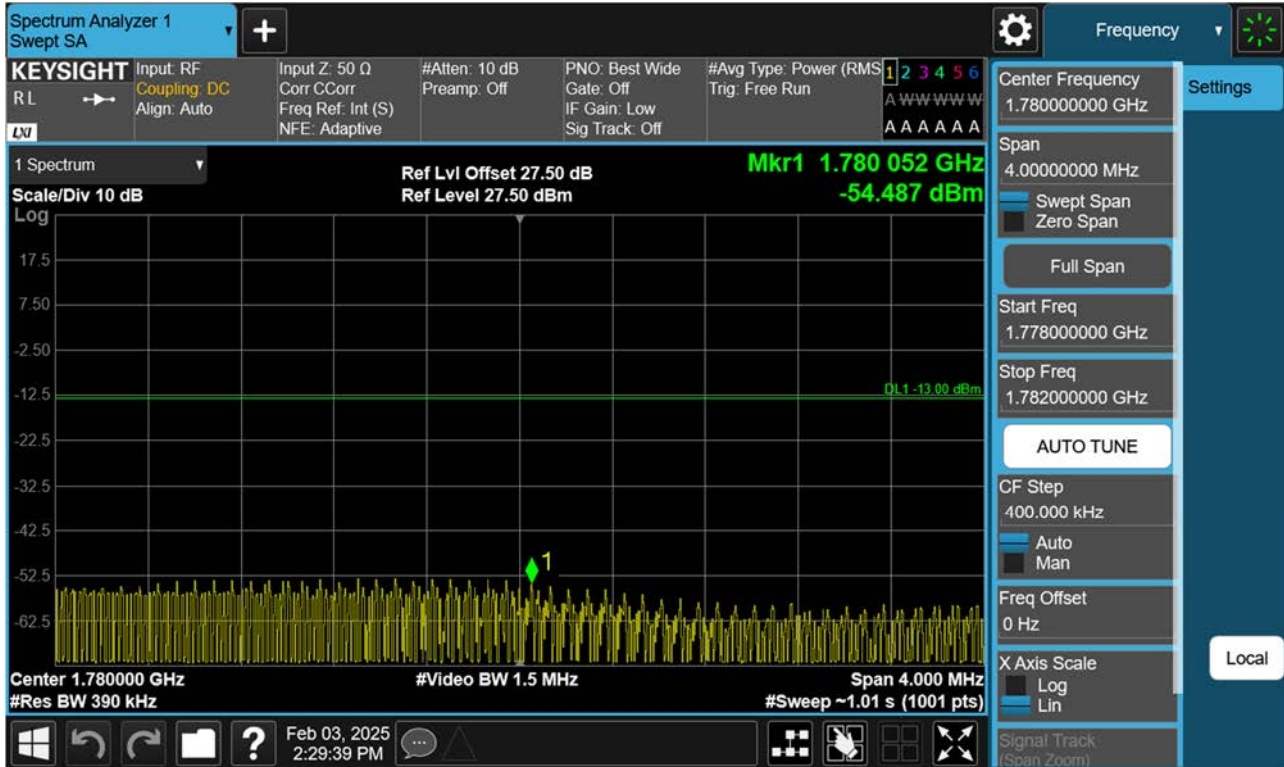
Highest Channel_PCC 20 MHz Ch132522 RB1 Offset99 SCC 5 MHz Ch132639 RB1 Offset0(1)



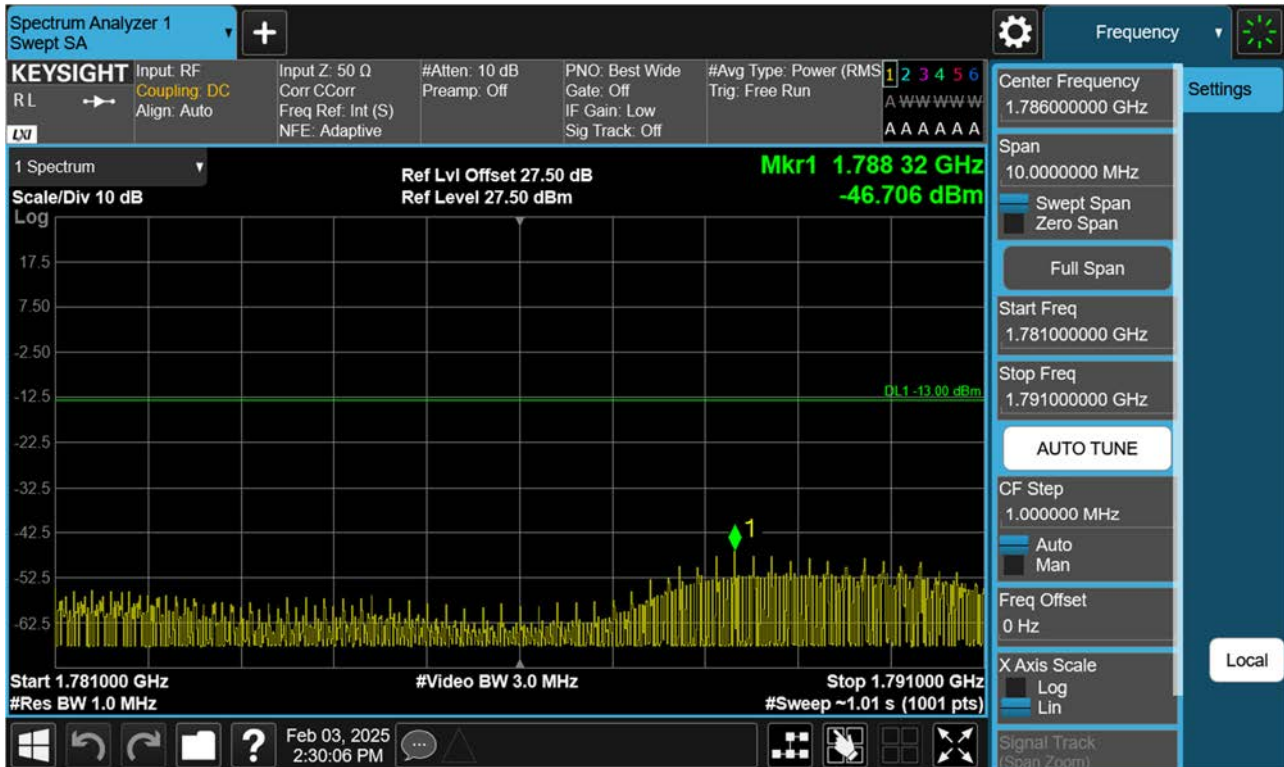
Highest Channel_PCC 20 MHz Ch132522 RB1 Offset99 SCC 5 MHz Ch132639 RB1 Offset0(2)



Highest Channel_PCC 20 MHz Ch132522 RB100 Offset0 SCC 5 MHz Ch132639 RB25 Offset0(1)



Highest Channel_PCC 20 MHz Ch132522 RB100 Offset0 SCC 5 MHz Ch132639 RB25 Offset0(2)



Lowest Channel_PCC 20 MHz Ch132072 RB1 Offset0 SCC 5 MHz Ch132189 RB1 Offset24(1)



Lowest Channel_PCC 20 MHz Ch132072 RB1 Offset0 SCC 5 MHz Ch132189 RB1 Offset24(2)



Lowest Channel_PCC 20 MHz Ch132072 RB1 Offset99 SCC 5 MHz Ch132189 RB1 Offset0(1)



Lowest Channel_PCC 20 MHz Ch132072 RB1 Offset99 SCC 5 MHz Ch132189 RB1 Offset0(2)



Lowest Channel_PCC 20 MHz Ch132072 RB100 Offset0 SCC 5 MHz Ch132189 RB25 Offset0(1)



Lowest Channel_PCC 20 MHz Ch132072 RB100 Offset0 SCC 5 MHz Ch132189 RB25 Offset0(2)



Lowest Channel_PCC 20 MHz Ch132072 RB100 Offset0 SCC 20 MHz Ch132270 RB100 Offset0(1)



Lowest Channel_PCC 20 MHz Ch132072 RB100 Offset0 SCC 20 MHz Ch132270 RB100 Offset0(2)



8.5 Frequency Stability / Variation of Ambient Temperature

▣ PCC Channel:	132005	
▣ PCC Frequency:	1713.3	MHz
▣ PCC BandWidth:	5	MHz
▣ SCC Channel:	132122	
▣ SCC Frequency:	1725.0	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)	-0.0053	-0.0072	1713.30534	1725.00716
100 %		-30	-0.0059	-0.0079	1713.30595	1725.00789
100 %		-20	-0.0029	-0.0060	1713.30291	1725.00605
100 %		-10	0.0003	-0.0117	1713.29966	1725.01165
100 %		0	-0.0036	-0.0016	1713.30362	1725.00160
100 %		10	-0.0084	-0.0095	1713.30844	1725.00947
100 %		30	-0.0072	-0.0045	1713.30717	1725.00452
100 %		40	-0.0061	0.0004	1713.30606	1724.99958
100 %		50	-0.0065	-0.0037	1713.30654	1725.00369
Batt. Endpoint	3.400	20	-0.0088	-0.0023	1713.30878	1725.00233

- ▣ PCC Channel: 132025
- ▣ PCC Frequency: 1715.3 MHz
- ▣ PCC BandWidth: 10 MHz
- ▣ SCC Channel: 132145
- ▣ SCC Frequency: 1727.3 MHz
- ▣ SCC BandWidth: 15 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)	-0.0078	-0.0098	1715.30784	1727.30976
100 %		-30	-0.0047	-0.0088	1715.30475	1727.30879
100 %		-20	-0.0031	-0.0097	1715.30311	1727.30975
100 %		-10	-0.0084	-0.0108	1715.30836	1727.31075
100 %		0	-0.0041	-0.0005	1715.30412	1727.30050
100 %		10	-0.0095	-0.0095	1715.30954	1727.30947
100 %		30	-0.0092	-0.0013	1715.30917	1727.30132
100 %		40	-0.0045	-0.0029	1715.30446	1727.30288
100 %		50	-0.0098	-0.0061	1715.30984	1727.30609
Batt. Endpoint	3.400	20	-0.0010	-0.0051	1715.30098	1727.30513

▣ PCC Channel:	132047	
▣ PCC Frequency:	1717.5	MHz
▣ PCC BandWidth:	15	MHz
▣ SCC Channel:	132167	
▣ SCC Frequency:	1729.5	MHz
▣ SCC BandWidth:	10	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)	-0.0023	-0.0017	1717.50234	1729.50166
100 %		-30	-0.0047	-0.0103	1717.50475	1729.51029
100 %		-20	-0.0057	-0.0064	1717.50571	1729.50645
100 %		-10	-0.0080	-0.0040	1717.50796	1729.50395
100 %		0	-0.0020	-0.0052	1717.50202	1729.50520
100 %		10	-0.0041	-0.0082	1717.50414	1729.50817
100 %		30	-0.0028	-0.0049	1717.50277	1729.50492
100 %		40	-0.0015	-0.0062	1717.50146	1729.50618
100 %		50	-0.0080	-0.0038	1717.50804	1729.50379
Batt. Endpoint	3.400	20	-0.0061	-0.0087	1717.50608	1729.50873

▣ PCC Channel:	132072	
▣ PCC Frequency:	1720.0	MHz
▣ PCC BandWidth:	20	MHz
▣ SCC Channel:	132270	
▣ SCC Frequency:	1739.8	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)	-0.0014	-0.0053	1720.00144	1739.80526
100 %		-30	-0.0059	-0.0079	1720.00595	1739.80789
100 %		-20	-0.0102	-0.0080	1720.01021	1739.80805
100 %		-10	-0.0058	-0.0037	1720.00576	1739.80365
100 %		0	-0.0047	0.0006	1720.00472	1739.79940
100 %		10	-0.0081	-0.0085	1720.00814	1739.80847
100 %		30	-0.0112	-0.0084	1720.01117	1739.80842
100 %		40	-0.0066	-0.0011	1720.00656	1739.80108
100 %		50	-0.0071	0.0005	1720.00714	1739.79949
Batt. Endpoint	3.400	20	0.0005	-0.0026	1719.99948	1739.80263

- ▣ PCC Channel: 132455
- ▣ PCC Frequency: 1758.3 MHz
- ▣ PCC BandWidth: 5 MHz
- ▣ SCC Channel: 132572
- ▣ SCC Frequency: 1770.0 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)	-0.0007	-0.0013	1758.30074	1770.00126
100 %		-30	-0.0034	-0.0055	1758.30345	1770.00549
100 %		-20	-0.0054	-0.0062	1758.30541	1770.00625
100 %		-10	-0.0054	-0.0119	1758.30536	1770.01185
100 %		0	-0.0100	-0.0038	1758.31002	1770.00380
100 %		10	-0.0020	-0.0046	1758.30204	1770.00457
100 %		30	-0.0038	-0.0012	1758.30377	1770.00122
100 %		40	-0.0040	-0.0018	1758.30396	1770.00178
100 %		50	-0.0039	-0.0084	1758.30394	1770.00839
Batt. Endpoint	3.400	20	-0.0021	-0.0064	1758.30208	1770.00643

▣ PCC Channel:	132597	
▣ PCC Frequency:	1772.5	MHz
▣ PCC BandWidth:	10	MHz
▣ SCC Channel:	132717	
▣ SCC Frequency:	1784.5	MHz
▣ SCC BandWidth:	15	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)	-0.0060	-0.0101	1772.50604	1784.51006
100 %		-30	0.0013	-0.0023	1772.49875	1784.50229
100 %		-20	-0.0032	-0.0037	1772.50321	1784.50375
100 %		-10	-0.0038	-0.0073	1772.50376	1784.50725
100 %		0	-0.0015	-0.0010	1772.50152	1784.50100
100 %		10	-0.0061	-0.0109	1772.50614	1784.51087
100 %		30	-0.0091	-0.0074	1772.50907	1784.50742
100 %		40	-0.0084	-0.0001	1772.50836	1784.50008
100 %		50	-0.0054	-0.0079	1772.50544	1784.50789
Batt. Endpoint	3.400	20	-0.0048	-0.0015	1772.50478	1784.50153

▣ PCC Channel:	132499	
▣ PCC Frequency:	1762.7	MHz
▣ PCC BandWidth:	15	MHz
▣ SCC Channel:	132619	
▣ SCC Frequency:	1774.7	MHz
▣ SCC BandWidth:	10	MHz
▣ Voltage :	3.860	VDC
▣ LIMIT:	Emission must remain in band	

Voltage (%)	Power (VDC)	Temp. (°C)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.860	+20(Ref)	0.0001	-0.0018	1762.69994	1774.70176
100 %		-30	-0.0036	-0.0018	1762.70365	1774.70179
100 %		-20	-0.0025	-0.0064	1762.70251	1774.70645
100 %		-10	-0.0023	-0.0059	1762.70226	1774.70585
100 %		0	-0.0075	-0.0049	1762.70752	1774.70490
100 %		10	-0.0057	-0.0085	1762.70574	1774.70847
100 %		30	-0.0024	-0.0074	1762.70237	1774.70742
100 %		40	-0.0076	-0.0063	1762.70756	1774.70628
100 %		50	-0.0070	-0.0011	1762.70704	1774.70109
Batt. Endpoint	3.400	20	-0.0023	-0.0095	1762.70228	1774.70953

▣ PCC Channel:	132374	
▣ PCC Frequency:	1750.2	MHz
▣ PCC BandWidth:	20	MHz
▣ SCC Channel:	132572	
▣ SCC Frequency:	1770.0	MHz
▣ SCC BandWidth:	20	MHz
▣ Voltage :	3.860	MHz
▣ LIMIT:	Emission must remain in band	

Voltage (%)	Power (VDC)	Temp. (°C)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.860	+20(Ref)	-0.0041	-0.0081	1750.20414	1770.00806
100 %		-30	-0.0007	-0.0026	1750.20075	1770.00259
100 %		-20	-0.0102	-0.0071	1750.21021	1770.00715
100 %		-10	-0.0052	-0.0067	1750.20516	1770.00665
100 %		0	-0.0008	-0.0079	1750.20082	1770.00790
100 %		10	-0.0021	-0.0085	1750.20214	1770.00847
100 %		30	-0.0039	-0.0083	1750.20387	1770.00832
100 %		40	-0.0048	-0.0009	1750.20476	1770.00088
100 %		50	-0.0097	-0.0027	1750.20974	1770.00269
Batt. Endpoint	3.400	20	-0.0049	-0.0087	1750.20488	1770.00873

8.6 Radiated Spurious Emissions

▣ PCC Channel :	<u>132027 (1715.5 MHz)</u>
▣ PCC BW(MHz) :	10
▣ PCC RB/ RB Offset :	<u>1/ 49</u>
▣ SCC Channel :	<u>132171 (1729.9 MHz)</u>
▣ SCC BW(MHz) :	20
▣ SCC RB/ RB Offset :	<u>1/ 0</u>
▣ DISTANCE:	<u>3 meters</u>
▣ LIMIT:	<u>-13.0 dBm</u>

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)
3 445.40	-44.98	12.38	-63.52	3.05	V	-54.18
5 168.10	-44.22	12.48	-57.14	3.78	V	-48.44
6 890.80	-44.59	11.80	-51.70	4.42	V	-44.32

☐ PCC Channel : 132328 (1745.6 MHz)
☐ PCC BW(MHz) : 10
☐ PCC RB/ RB Offset : 1/ 49
☐ SCC Channel : 132472 (1760.0 MHz)
☐ SCC BW(MHz) : 20
☐ SCC RB/ RB Offset : 1/ 0
☐ DISTANCE: 3 meters
☐ LIMIT: -13.0 dBm

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)
3 505.60	-43.64	12.34	-61.61	3.05	V	-52.31
5 258.40	-43.74	12.99	-56.11	3.79	V	-46.91
7 011.20	-43.59	11.26	-48.84	4.42	V	-42.00

☐ PCC Channel : 132374 (1750.2 MHz)
☐ PCC BW(MHz) : 20
☐ PCC RB/ RB Offset : 1/ 99
☐ SCC Channel : 132572 (1770.0 MHz)
☐ SCC BW(MHz) : 20
☐ SCC RB/ RB Offset : 1/ 0
☐ DISTANCE: 3 meters
☐ LIMIT: -13.0 dBm

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)
3 520.20	-42.82	12.34	-60.70	3.04	V	-51.40
5 280.30	-44.05	13.06	-56.81	3.80	V	-47.55
7 040.40	-43.20	11.12	-48.12	4.45	V	-41.45

8.7 Occupied Bandwidth

PCC					SCC					Data (MHz)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
10	132351	1747.9	QPSK	50/0	15	132471	1759.9	QPSK	75/0	23.206
15	132373	1750.1	QPSK	75/0	10	132493	1762.1	QPSK	50/0	23.222
10	132328	1745.6	QPSK	50/0	20	132472	1760.0	QPSK	100/0	27.811
20	132373	1750.1	QPSK	100/0	10	132517	1764.5	QPSK	50/0	27.835
15	132347	1747.5	QPSK	75/0	15	132497	1762.5	QPSK	75/0	28.446
15	132325	1745.3	QPSK	75/0	20	132496	1762.4	QPSK	100/0	32.797
20	132348	1747.6	QPSK	100/0	15	132519	1764.7	QPSK	75/0	32.778
20	132397	1752.5	QPSK	100/0	5	132514	1764.2	QPSK	25/0	22.965
5	132330	1745.8	QPSK	25/0	20	132447	1757.5	QPSK	100/0	22.861
20	132323	1745.1	QPSK	100/0	20	132521	1764.9	QPSK	100/0	37.619

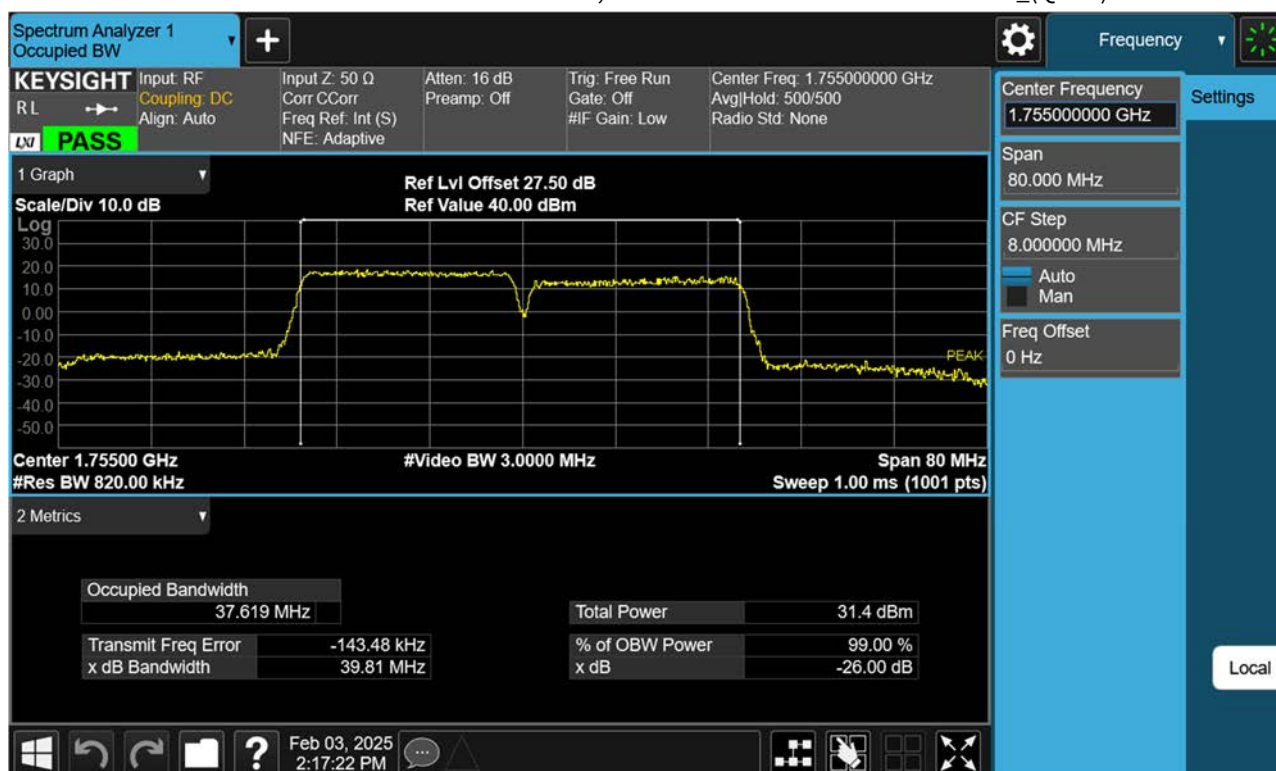
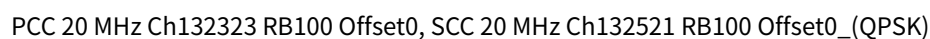
PCC					SCC					Data (MHz)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
10	132351	1747.9	16QAM	50/0	15	132471	1759.9	16QAM	75/0	23.174
15	132373	1750.1	16QAM	75/0	10	132493	1762.1	16QAM	50/0	23.222
10	132328	1745.6	16QAM	50/0	20	132472	1760.0	16QAM	100/0	27.861
20	132373	1750.1	16QAM	100/0	10	132517	1764.5	16QAM	50/0	27.813
15	132347	1747.5	16QAM	75/0	15	132497	1762.5	16QAM	75/0	28.467
15	132325	1745.3	16QAM	75/0	20	132496	1762.4	16QAM	100/0	32.746
20	132348	1747.6	16QAM	100/0	15	132519	1764.7	16QAM	75/0	32.768
20	132397	1752.5	16QAM	100/0	5	132514	1764.2	16QAM	25/0	22.970
5	132330	1745.8	16QAM	25/0	20	132447	1757.5	16QAM	100/0	23.020
20	132323	1745.1	16QAM	100/0	20	132521	1764.9	16QAM	100/0	37.723

PCC					SCC					Data (MHz)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
10	132351	1747.9	64QAM	50/0	15	132471	1759.9	64QAM	75/0	23.145
15	132373	1750.1	64QAM	75/0	10	132493	1762.1	64QAM	50/0	23.114
10	132328	1745.6	64QAM	50/0	20	132472	1760.0	64QAM	100/0	27.743
20	132373	1750.1	64QAM	100/0	10	132517	1764.5	64QAM	50/0	27.837
15	132347	1747.5	64QAM	75/0	15	132497	1762.5	64QAM	75/0	28.379
15	132325	1745.3	64QAM	75/0	20	132496	1762.4	64QAM	100/0	32.676
20	132348	1747.6	64QAM	100/0	15	132519	1764.7	64QAM	75/0	32.702
20	132397	1752.5	64QAM	100/0	5	132514	1764.2	64QAM	25/0	23.001
5	132330	1745.8	64QAM	25/0	20	132447	1757.5	64QAM	100/0	22.816
20	132323	1745.1	64QAM	100/0	20	132521	1764.9	64QAM	100/0	37.651

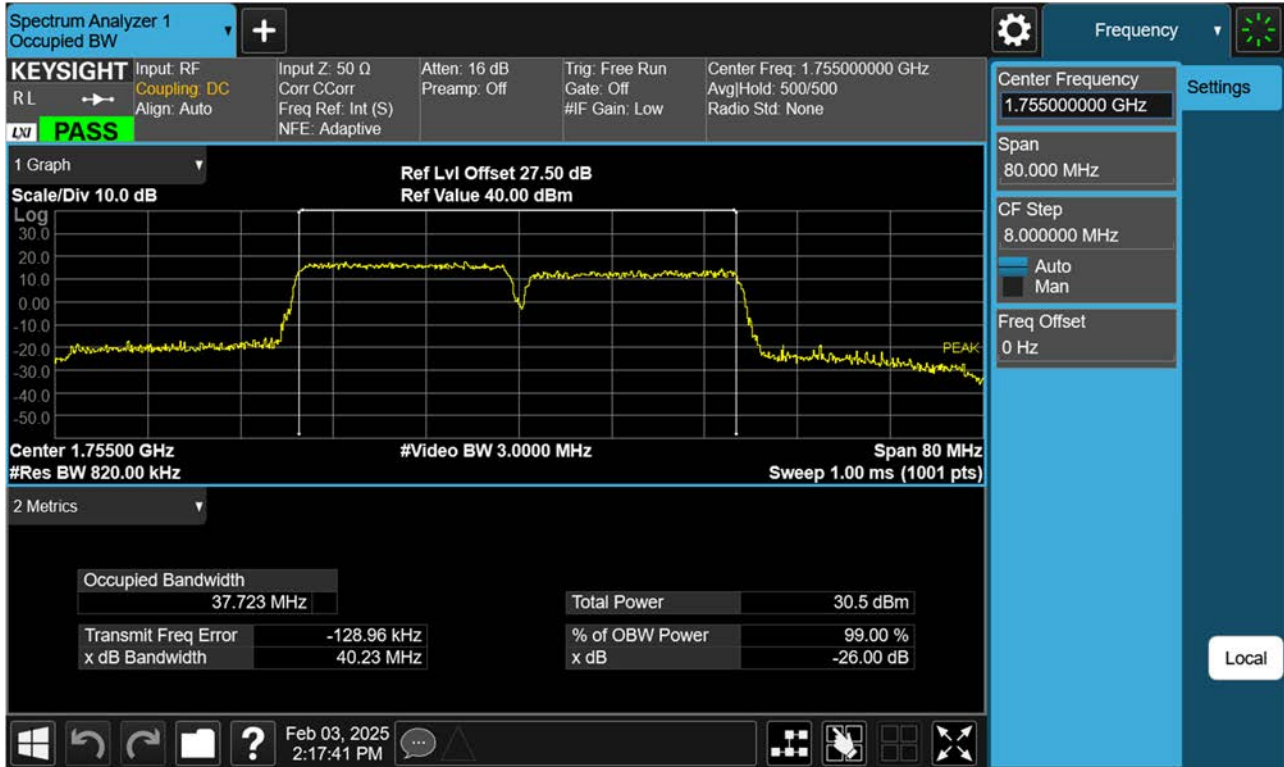
PCC					SCC					Data (MHz)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
10	132351	1747.9	256QAM	50/0	15	132471	1759.9	256QAM	75/0	23.165
15	132373	1750.1	256QAM	75/0	10	132493	1762.1	256QAM	50/0	23.225
10	132328	1745.6	256QAM	50/0	20	132472	1760.0	256QAM	100/0	27.831
20	132373	1750.1	256QAM	100/0	10	132517	1764.5	256QAM	50/0	27.862
15	132347	1747.5	256QAM	75/0	15	132497	1762.5	256QAM	75/0	28.401
15	132325	1745.3	256QAM	75/0	20	132496	1762.4	256QAM	100/0	32.680
20	132348	1747.6	256QAM	100/0	15	132519	1764.7	256QAM	75/0	32.712
20	132397	1752.5	256QAM	100/0	5	132514	1764.2	256QAM	25/0	22.905
5	132330	1745.8	256QAM	25/0	20	132447	1757.5	256QAM	100/0	22.888
20	132323	1745.1	256QAM	100/0	20	132521	1764.9	256QAM	100/0	37.746

Note:

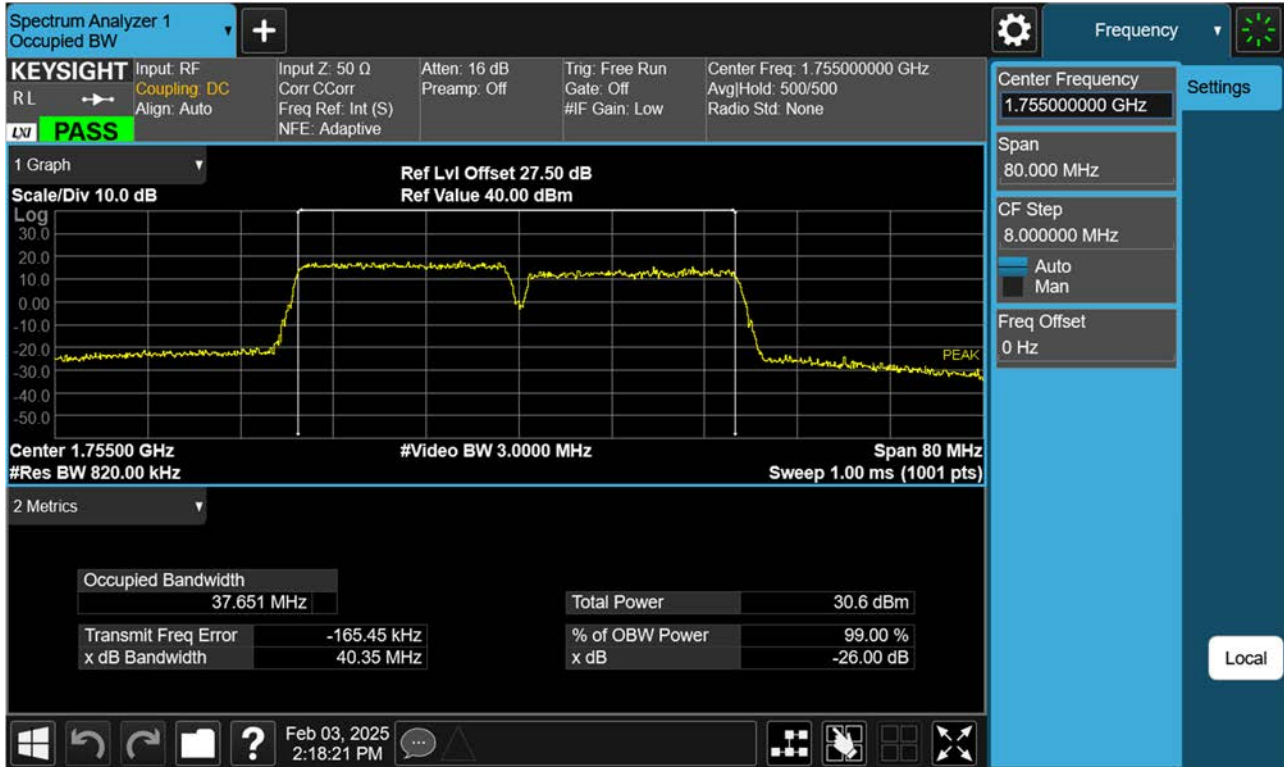
In order to simplify the report, attached plots were only widest bandwidth(20+20).



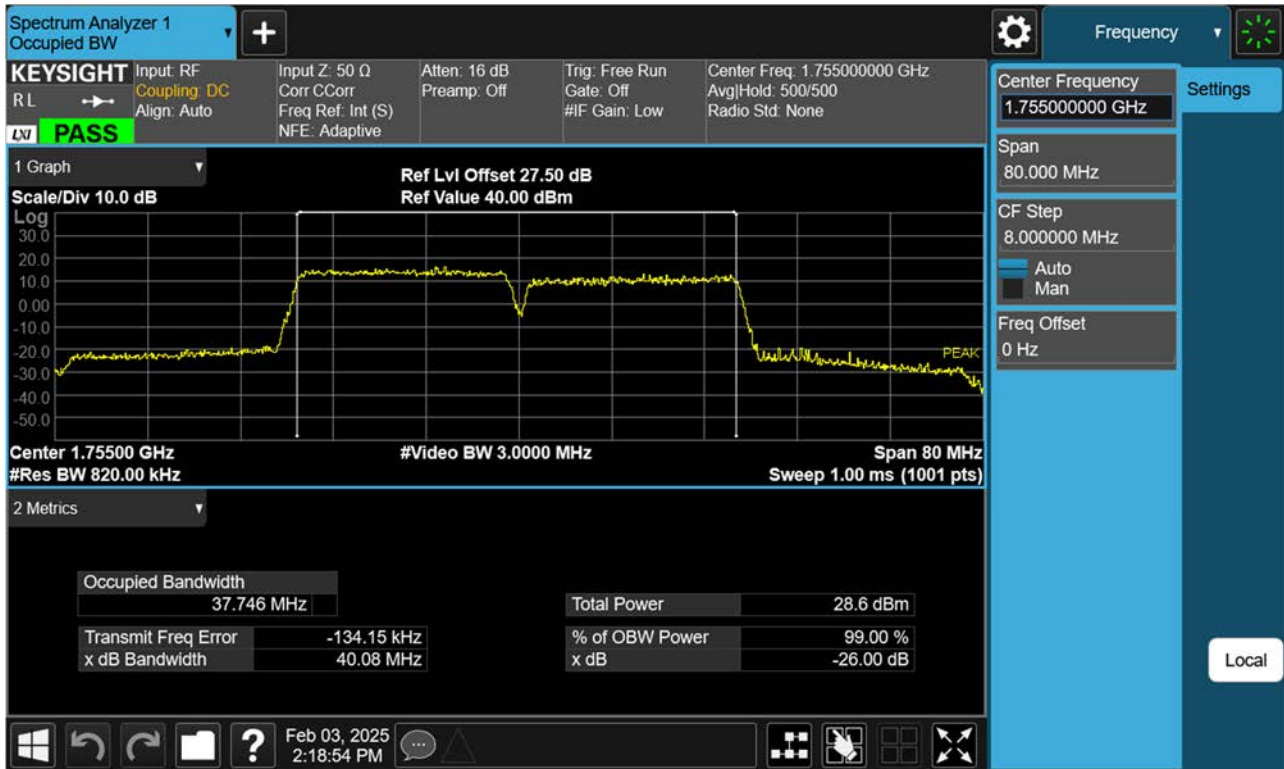
PCC 20 MHz Ch132323 RB100 Offset0, SCC 20 MHz Ch132521 RB100 Offset0_(16QAM)



PCC 20 MHz Ch132323 RB100 Offset0, SCC 20 MHz Ch132521 RB100 Offset0_(64QAM)



PCC 20 MHz Ch132323 RB100 Offset0, SCC 20 MHz Ch132521 RB100 Offset0_(256QAM)



8.8 Peak- to- Average Ratio

PCC					SCC					Data (dBm)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
10	132351	1747.9	QPSK	50/0	15	132471	1759.9	QPSK	75/0	6.37
15	132373	1750.1	QPSK	75/0	10	132493	1762.1	QPSK	50/0	6.37
10	132328	1745.6	QPSK	50/0	20	132472	1760.0	QPSK	100/0	6.34
20	132373	1750.1	QPSK	100/0	10	132517	1764.5	QPSK	50/0	6.38
15	132347	1747.5	QPSK	75/0	15	132497	1762.5	QPSK	75/0	6.47
15	132325	1745.3	QPSK	75/0	20	132496	1762.4	QPSK	100/0	6.32
20	132348	1747.6	QPSK	100/0	15	132519	1764.7	QPSK	75/0	6.36
20	132397	1752.5	QPSK	100/0	5	132514	1764.2	QPSK	25/0	6.35
5	132330	1745.8	QPSK	25/0	20	132447	1757.5	QPSK	100/0	6.27
20	132323	1745.1	QPSK	100/0	20	132521	1764.9	QPSK	100/0	7.05

PCC					SCC					Data (dBm)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
10	132351	1747.9	16QAM	50/0	15	132471	1759.9	16QAM	75/0	6.89
15	132373	1750.1	16QAM	75/0	10	132493	1762.1	16QAM	50/0	6.86
10	132328	1745.6	16QAM	50/0	20	132472	1760.0	16QAM	100/0	6.84
20	132373	1750.1	16QAM	100/0	10	132517	1764.5	16QAM	50/0	6.90
15	132347	1747.5	16QAM	75/0	15	132497	1762.5	16QAM	75/0	7.22
15	132325	1745.3	16QAM	75/0	20	132496	1762.4	16QAM	100/0	6.85
20	132348	1747.6	16QAM	100/0	15	132519	1764.7	16QAM	75/0	6.84
20	132397	1752.5	16QAM	100/0	5	132514	1764.2	16QAM	25/0	6.85
5	132330	1745.8	16QAM	25/0	20	132447	1757.5	16QAM	100/0	6.79
20	132323	1745.1	16QAM	100/0	20	132521	1764.9	16QAM	100/0	7.78

PCC					SCC					Data (dBm)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/Offset	
10	132351	1747.9	64QAM	50/0	15	132471	1759.9	64QAM	75/0	6.85
15	132373	1750.1	64QAM	75/0	10	132493	1762.1	64QAM	50/0	7.15
10	132328	1745.6	64QAM	50/0	20	132472	1760.0	64QAM	100/0	6.80
20	132373	1750.1	64QAM	100/0	10	132517	1764.5	64QAM	50/0	6.88
15	132347	1747.5	64QAM	75/0	15	132497	1762.5	64QAM	75/0	7.04
15	132325	1745.3	64QAM	75/0	20	132496	1762.4	64QAM	100/0	6.86
20	132348	1747.6	64QAM	100/0	15	132519	1764.7	64QAM	75/0	6.87
20	132397	1752.5	64QAM	100/0	5	132514	1764.2	64QAM	25/0	6.88
5	132330	1745.8	64QAM	25/0	20	132447	1757.5	64QAM	100/0	6.75
20	132323	1745.1	64QAM	100/0	20	132521	1764.9	64QAM	100/0	6.82

PCC					SCC					Data (dBm)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/Offset	
10	132351	1747.9	256QAM	50/0	15	132471	1759.9	256QAM	75/0	6.85
15	132373	1750.1	256QAM	75/0	10	132493	1762.1	256QAM	50/0	6.86
10	132328	1745.6	256QAM	50/0	20	132472	1760.0	256QAM	100/0	6.84
20	132373	1750.1	256QAM	100/0	10	132517	1764.5	256QAM	50/0	6.87
15	132347	1747.5	256QAM	75/0	15	132497	1762.5	256QAM	75/0	8.02
15	132325	1745.3	256QAM	75/0	20	132496	1762.4	256QAM	100/0	6.83
20	132348	1747.6	256QAM	100/0	15	132519	1764.7	256QAM	75/0	6.87
20	132397	1752.5	256QAM	100/0	5	132514	1764.2	256QAM	25/0	6.94
5	132330	1745.8	256QAM	25/0	20	132447	1757.5	256QAM	100/0	6.79
20	132323	1745.1	256QAM	100/0	20	132521	1764.9	256QAM	100/0	8.01

Note:

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

PCC 20 MHz Ch132323 RB100 Offset0, SCC 20 MHz Ch132521 RB100 Offset0_(QPSK)



PCC 20 MHz Ch132323 RB100 Offset0, SCC 20 MHz Ch132521 RB100 Offset0_(16QAM)



PCC 20 MHz Ch132323 RB100 Offset0, SCC 20 MHz Ch132521 RB100 Offset0_(64QAM)



PCC 20 MHz Ch132323 RB100 Offset0, SCC 20 MHz Ch132521 RB100 Offset0_(256QAM)



9. ANNEX A_ TEST SETUP PHOTO

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

No.	Description
1	HCT-RF-2502-FC027-P