TEST REPORT

FCC CA_48C Test for SM-F761U
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2505-FC001

DATE OF ISSUE
May 8, 2025

Tested by
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TEST REPORT

REPORT NO.
HCT-RF-2505-FC001

DATE OF ISSUE
May 08, 2025

Additional Model
SM-761U1

Applicant	**SAMSUNG Electronics Co., Ltd.** 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Product Name Model Name	Mobile Phone SM-761U
Date of Test	February 26, 2025 ~ May 08, 2025
FCC ID	A3LSM761U
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

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REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	May 08, 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:	A3LSM761U
Application Type:	Certification
FCC Classification:	Citizens Band End User Devices (CBE)
FCC Rule Part(s):	§ 96
EUT Type:	Mobile phone
Model(s):	SM-761U
Additional Model(s)	SM-761U1
Tx Frequency:	3553.3 - 3690.0: 5 MHz+20 MHz 3555.5 - 3690.0: 10 MHz+20 MHz 3557.8 - 3690.0: 15 MHz+20 MHz 3560.0 - 3696.7: 20 MHz+5 MHz 3560.0 - 3694.5: 20 MHz+10 MHz 3560.0 - 3692.2: 20 MHz+15 MHz 3560.0 - 3690.0: 20 MHz+20 MHz
Date(s) of Tests:	February 26, 2025 ~ May 08, 2025
Serial number:	Radiated : 8caddb945b3a7ece Conducted : R3CY30RM49B
LTE CA :	CA 48C (Uplink)

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1.1. MAXIMUM OUTPUT POWER

Mode (PCC+SCC)	Tx Frequency (MHz)	Modulation	Emission Designator	EIRP	
				Max. Power (dBm)	Max. Power (W)
5 MHz+20 MHz	3553.3 - 3690.0	QPSK	22M8G7D	16.63	0.046
		16QAM	22M6W7D	17.15	0.052
		64QAM	22M8W7D	17.09	0.051
		256QAM	22M4W7D	16.93	0.049
10 MHz+20 MHz	3555.5 - 3690.0	QPSK	27M7G7D	16.56	0.045
		16QAM	27M6W7D	17.29	0.054
		64QAM	27M7W7D	17.16	0.052
		256QAM	27M5W7D	17.01	0.050
15 MHz+20 MHz	3557.8 - 3690.0	QPSK	32M5G7D	17.31	0.054
		16QAM	32M6W7D	17.54	0.057
		64QAM	32M5W7D	17.41	0.055
		256QAM	32M6W7D	16.96	0.050
20 MHz+5 MHz	3560.0 - 3696.7	QPSK	22M9G7D	17.41	0.055
		16QAM	23M0W7D	18.21	0.066
		64QAM	22M8W7D	18.00	0.063
		256QAM	22M9W7D	17.84	0.061
20 MHz+10 MHz	3560.0 - 3694.5	QPSK	27M7G7D	16.76	0.047
		16QAM	27M9W7D	17.31	0.054
		64QAM	27M8W7D	16.95	0.050
		256QAM	27M7W7D	16.81	0.048
20 MHz+15 MHz	3560.0 - 3692.2	QPSK	32M8G7D	16.77	0.048
		16QAM	32M7W7D	17.09	0.051
		64QAM	32M8W7D	16.91	0.049
		256QAM	32M5W7D	16.67	0.046
20 MHz+20 MHz	3560.0 - 3690.0	QPSK	37M6G7D	17.11	0.051
		16QAM	37M3W7D	17.18	0.052
		64QAM	37M4W7D	17.08	0.051
		256QAM	37M3W7D	16.79	0.048

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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**

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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

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3.2 RADIATED POWER

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.
The equipment under test is placed on a non-conductive table 3-meters away from the receive antenna.

Test Settings

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

Test Note

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

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

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

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3.3 RADIATED SPURIOUS EMISSIONS

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

Radiated Spurious Emission Measurements at 3 meters by Substitution Method.

Test Settings

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

Test Note

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

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

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

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

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

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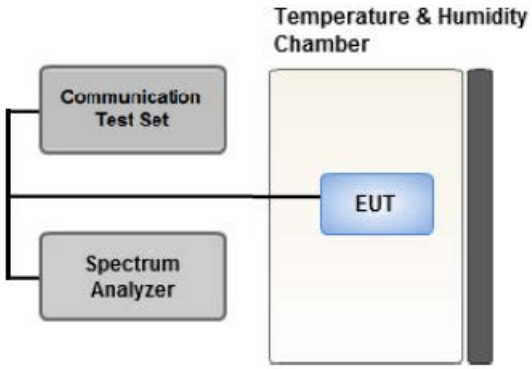
3.4 PEAK- TO- AVERAGE RATIO



Test setup

① CCDF Procedure for PAPR

Test Settings

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

② Alternate Procedure for PAPR

Use one of the procedures presented in 5.2(ANSI C63.26-2015) to measure the total peak power and record as as P_{Pk}.

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

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

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Test Settings(Peak Power)

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

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

Test Settings(Average Power)

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

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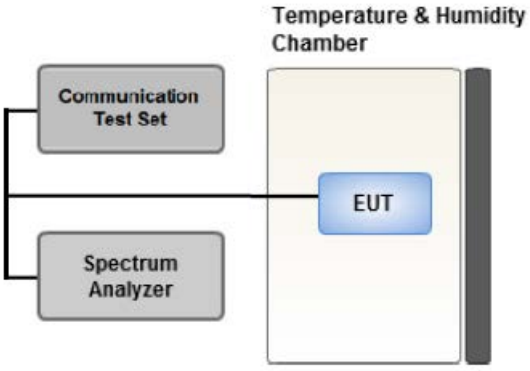
3.5 OCCUPIED BANDWIDTH.



Test setup

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.
The EUT makes a call to the communication simulator.
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth

Test Settings

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

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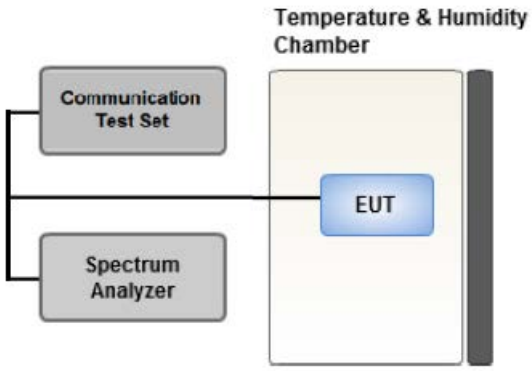
3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL



Test setup

Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic.

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

All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Settings

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

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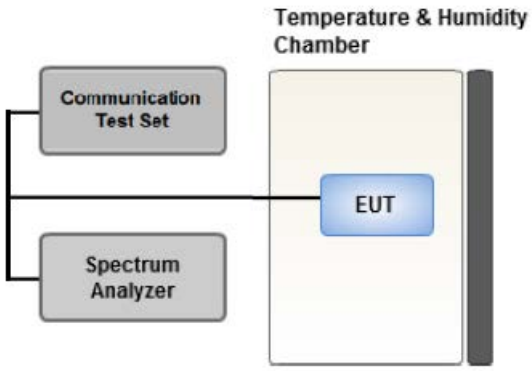
3.7 BAND EDGE



Test setup

Test Overview

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

Test Settings

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

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

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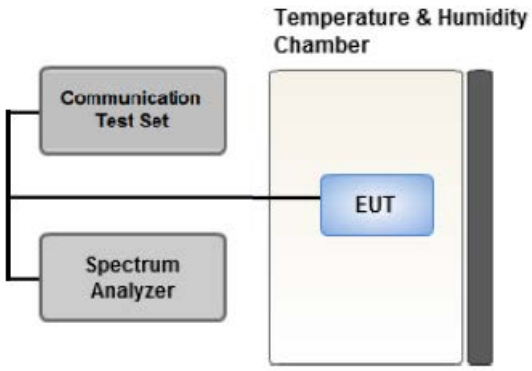
3.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE



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.

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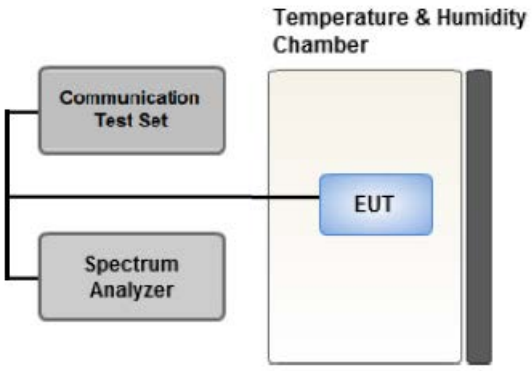
3.9 Adjacent Channel Leakage Ratio



Test setup

Test Settings

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

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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	02/19/2026	Annual
Power Splitter(DC ~ 26.5 GHz)	11667B	Hewlett Packard	5001	04/10/2026	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	02/11/2026	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	03/23/2027	Biennial
Signal Analyzer(10 Hz ~ 26.5 GHz)	N9020A	Agilent	MY52090906	04/14/2026	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/10/2026	Annual
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	REOHDE & SCHWARZ	100931	08/06/2025	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/05/2025	Annual
Loop Antenna(9 kHz ~ 30 MHz)	FMZB1513	Schwarzbeck	1513-333	03/07/2026	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	895	08/28/2026	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	1135	08/19/2026	Biennial
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262094331	11/13/2025	Annual
Radio Communication Test Station	MT8000A	Anritsu Corp.	6272613402	08/28/2025	Annual
SIGNAL GENERATOR (100 kHz ~ 40 GHz)	SMB100A	REOHDE & SCHWARZ	177633	07/26/2025	Annual
Signal Analyzer(5 Hz ~ 40.0 GHz)	N9030B	KEYSIGHT	MY55480167	05/17/2025	Annual
Signal & Spectrum Analyzer (2 Hz~67 GHz)	FSW67	REOHDE & SCHWARZ	101736	05/23/2025	Annual
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.	-	-	-

Note:

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

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5. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4:2014.

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

Parameter	Expanded Uncertainty (±kHz)
Occupied Bandwidth	95 (Confidence level about 95 %, k=2)
Frequency stability	28 (Confidence level about 95 %, k=2)

Parameter	Expanded Uncertainty (±dB)
Block Edge	0.70 (Confidence level about 95 %, k=2)
Conducted Spurious Emissions	1.18 (Confidence level about 95 %, k=2)
Peak- to- Average Ratio	0.68 (Confidence level about 95 %, k=2)
Radiated Power	4.74 (Confidence level about 95 %, k=2)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.36 (Confidence level about 95 %, k=2)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.68 (Confidence level about 95 %, k=2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.75 (Confidence level about 95 %, k=2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.82 (Confidence level about 95 %, k=2)
Radiated Disturbance (Above 40 GHz)	5.58 (Confidence level about 95 %, k=2)

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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

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

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7. SAMPLE CALCULATION

7.1 ERP Sample Calculation

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

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

1) The EUT mounted on a non-conductive turntable is 2.5 meter above test site ground level.
2) During the test, the turn table is rotated until the maximum signal is found.
3) Record the field strength meter's level.
4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
5) Increase the signal generator output till the field strength meter's level is equal to the item (3).
6) The signal generator output level with Ant. Gain and cable loss are the rating of effective radiated power.

7.2 EIRP Sample Calculation

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

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

1) The EUT mounted on a non-conductive turntable is 2.5 meter above test site ground level.
2) During the test, the turn table is rotated until the maximum signal is found.
3) Record the field strength meter's level.
4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
5) Increase the signal generator output till the field strength meter's level is equal to the item (3).
6) The signal generator output level with Ant. Gain and cable loss are the rating of equivalent isotropic radiated power.

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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

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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

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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)
   : 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. The EUT was tested in three modes(Open, Half-open, Closed), the worst case configuration results are reported.
   (Worst case: Open mode)
6. 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.
7. All 3 channels(low/mid/high) of conducted power and radiated power were investigated
   and the worst case channel results are reported.

[Worst case]

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	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	5	3571.7	55457	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

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[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

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8.1 Conducted Power

Operating frequency	PCC					SCC					Conducted. Power [dBm]
	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	
Low	5	3553.3	55273	1	24	20	3565.0	55390	1	0	16.62
	10	3555.5	55295	1	49	20	3569.9	55439	1	0	16.45
	15	3557.8	55318	1	74	20	3574.9	55489	1	0	16.73
	20	3560.0	55340	1	99	5	3571.7	55457	1	0	17.94
	20	3560.0	55340	1	99	10	3574.4	55484	1	0	16.98
	20	3560.0	55340	1	99	15	3577.1	55511	1	0	16.95
	20	***3560.0***	***55340***	***1***	***99***	***20***	***3579.8***	***55538***	***1***	***0***	***18.52***
Mid	5	3615.8	55898	1	24	20	3627.5	56015	1	0	17.44
	10	3615.6	55896	1	49	20	3630.0	56040	1	0	16.96
	15	3615.3	55893	1	74	20	3632.4	56064	1	0	16.91
	20	3622.5	55965	1	99	5	3634.2	56082	1	0	17.83
	20	3620.1	55941	1	99	10	3634.5	56085	1	0	16.85
	20	3617.6	55916	1	99	15	3634.7	56087	1	0	16.89
	20	***3615.1***	***55891***	***1***	***99***	***20***	***3634.9***	***56089***	***1***	***0***	***18.34***
High	5	3678.3	56523	1	24	20	3690.0	56640	1	0	17.32
	10	3675.6	56496	1	49	20	3690.0	56640	1	0	16.81
	15	3672.9	56469	1	74	20	3690.0	56640	1	0	16.89
	20	3685.0	56590	1	99	5	3696.7	56707	1	0	18.01
	20	3680.1	56541	1	99	10	3694.5	56685	1	0	16.97
	20	3675.1	56491	1	99	15	3692.2	56662	1	0	16.93
	20	***3670.2***	***56442***	***1***	***99***	***20***	***3690.0***	***56640***	***1***	***0***	***18.41***

Note:

Modulation : QPSK(1RB)

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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	10.19
	10	3555.5	55295	50	0	20	3569.9	55439	100	0	11.37
	15	3557.8	55318	75	0	20	3574.9	55489	100	0	11.58
	20	3560.0	55340	100	0	5	3571.7	55457	25	0	10.79
	20	3560.0	55340	100	0	10	3574.4	55484	50	0	11.81
	20	3560.0	55340	100	0	15	3577.1	55511	75	0	11.81
	20	***3560.0***	***55340***	***100***	***0***	***20***	***3579.8***	***55538***	***100***	***0***	***11.82***
Mid	5	3615.8	55898	25	0	20	3627.5	56015	100	0	10.94
	10	3615.6	55896	50	0	20	3630.0	56040	100	0	12.06
	15	3615.3	55893	75	0	20	3632.4	56064	100	0	12.01
	20	3622.5	55965	100	0	5	3634.2	56082	25	0	10.95
	20	3620.1	55941	100	0	10	3634.5	56085	50	0	11.96
	20	3617.6	55916	100	0	15	3634.7	56087	75	0	11.91
	20	***3615.1***	***55891***	***100***	***0***	***20***	***3634.9***	***56089***	***100***	***0***	***12.12***
High	5	3678.3	56523	25	0	20	3690.0	56640	100	0	10.95
	10	3675.6	56496	50	0	20	3690.0	56640	100	0	11.94
	15	3672.9	56469	75	0	20	3690.0	56640	100	0	11.91
	20	3685.0	56590	100	0	5	3696.7	56707	25	0	11.08
	20	3680.1	56541	100	0	10	3694.5	56685	50	0	12.07
	20	3675.1	56491	100	0	15	3692.2	56662	75	0	12.07
	20	***3670.2***	***56442***	***100***	***0***	***20***	***3690.0***	***56640***	***100***	***0***	***12.09***

Note:

Modulation : QPSK(Full RB)

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Operating frequency	PCC					SCC					Conducted. Power [dBm]
	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	
Low	20	3560.0	55340	1	99	20	3579.8	55538	1	0	19.03
Mid	20	3615.1	55891	1	99	20	3634.9	56089	1	0	18.93
High	20	3670.2	56442	1	99	20	3690.0	56640	1	0	18.95
Low	20	3560.0	55340	100	0	20	3579.8	55538	100	0	11.84
Mid	20	3615.1	55891	100	0	20	3634.9	56089	100	0	12.13
High	20	3670.2	56442	100	0	20	3690.0	56640	100	0	12.10

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	18.60
Mid	20	3615.1	55891	1	99	20	3634.9	56089	1	0	18.47
High	20	3670.2	56442	1	99	20	3690.0	56640	1	0	18.53
Low	20	3560.0	55340	100	0	20	3579.8	55538	100	0	11.83
Mid	20	3615.1	55891	100	0	20	3634.9	56089	100	0	12.04
High	20	3670.2	56442	100	0	20	3690.0	56640	100	0	11.90

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	18.28
Mid	20	3615.1	55891	1	99	20	3634.9	56089	1	0	17.94
High	20	3670.2	56442	1	99	20	3690.0	56640	1	0	18.58
Low	20	3560.0	55340	100	0	20	3579.8	55538	100	0	11.80
Mid	20	3615.1	55891	100	0	20	3634.9	56089	100	0	12.05
High	20	3670.2	56442	100	0	20	3690.0	56640	100	0	11.94

Note:

Modulation : 256QAM

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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	-31.73	7.34	12.38	3.09	H	0.046	16.63
	10	55295	1/49	20	55439	1/0	-31.80	7.27	12.38	3.09	H	0.045	16.56
	15	55318	1/74	20	55489	1/0	-31.10	8.03	12.37	3.09	H	0.054	17.31
	20	55340	1/99	5	55457	1/0	-31.00	8.13	12.37	3.09	H	0.055	17.41
	20	55340	1/99	10	55484	1/0	-31.65	7.48	12.37	3.09	H	0.047	16.76
	20	55340	1/99	15	55511	1/0	-31.70	7.50	12.36	3.09	H	0.047	16.77
	20	55340	1/99	20	55538	1/0	-31.48	7.72	12.36	3.09	H	0.050	16.99
Mid	5	55898	1/24	20	56015	1/0	-32.85	6.49	12.26	3.14	H	0.036	15.61
	10	55896	1/49	20	56040	1/0	-33.08	6.26	12.26	3.14	H	0.035	15.38
	15	55893	1/74	20	56064	1/0	-33.00	6.36	12.25	3.13	H	0.035	15.48
	20	55965	1/99	5	56082	1/0	-31.99	7.37	12.25	3.13	H	0.045	16.49
	20	55941	1/99	10	56085	1/0	-33.08	6.28	12.25	3.13	H	0.035	15.40
	20	55916	1/99	15	56087	1/0	-32.53	6.83	12.25	3.13	H	0.039	15.95
	20	55891	1/99	20	56089	1/0	-31.37	7.99	12.25	3.13	H	0.051	17.11
High	5	56523	1/24	20	56640	1/0	-33.35	6.10	12.27	3.10	H	0.034	15.28
	10	56496	1/49	20	56640	1/0	-33.57	5.88	12.27	3.10	H	0.032	15.06
	15	56469	1/74	20	56640	1/0	-33.65	5.86	12.26	3.11	H	0.032	15.01
	20	56590	1/99	5	56707	1/0	-33.17	6.23	12.28	3.08	H	0.035	15.43
	20	56541	1/99	10	56685	1/0	-33.96	5.49	12.27	3.10	H	0.029	14.67
	20	56491	1/99	15	56662	1/0	-34.17	5.28	12.27	3.10	H	0.028	14.46
	20	56442	1/99	20	56640	1/0	-32.57	6.94	12.26	3.11	H	0.041	16.09

Note:

1. Modulation : QPSK

2. Limit : < 23 dBm

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	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	-31.21	7.86	12.38	3.09	H	0.052	17.15
	10	55295	1/49	20	55439	1/0	-31.07	8.00	12.38	3.09	H	0.054	17.29
	15	55318	1/74	20	55489	1/0	-30.87	8.26	12.37	3.09	H	0.057	17.54
	20	55340	1/99	5	55457	1/0	-30.20	8.93	12.37	3.09	H	0.066	18.21
	20	55340	1/99	10	55484	1/0	-31.10	8.03	12.37	3.09	H	0.054	17.31
	20	55340	1/99	15	55511	1/0	-31.38	7.82	12.36	3.09	H	0.051	17.09
	20	55340	1/99	20	55538	1/0	-31.32	7.88	12.36	3.09	H	0.052	17.15
Mid	5	55898	1/24	20	56015	1/0	-32.60	6.74	12.26	3.14	H	0.039	15.86
	10	55896	1/49	20	56040	1/0	-32.80	6.54	12.26	3.14	H	0.037	15.66
	15	55893	1/74	20	56064	1/0	-32.90	6.46	12.25	3.13	H	0.036	15.58
	20	55965	1/99	5	56082	1/0	-31.68	7.68	12.25	3.13	H	0.048	16.80
	20	55941	1/99	10	56085	1/0	-32.44	6.92	12.25	3.13	H	0.040	16.04
	20	55916	1/99	15	56087	1/0	-32.33	7.03	12.25	3.13	H	0.041	16.15
	20	55891	1/99	20	56089	1/0	-31.30	8.06	12.25	3.13	H	0.052	17.18
High	5	56523	1/24	20	56640	1/0	-32.91	6.54	12.27	3.10	H	0.037	15.72
	10	56496	1/49	20	56640	1/0	-33.05	6.40	12.27	3.10	H	0.036	15.58
	15	56469	1/74	20	56640	1/0	-33.43	6.08	12.26	3.11	H	0.033	15.23
	20	56590	1/99	5	56707	1/0	-33.02	6.37	12.28	3.08	H	0.036	15.58
	20	56541	1/99	10	56685	1/0	-33.83	5.62	12.27	3.10	H	0.030	14.80
	20	56491	1/99	15	56662	1/0	-34.01	5.44	12.27	3.10	H	0.029	14.62
	20	56442	1/99	20	56640	1/0	-32.25	7.26	12.26	3.11	H	0.044	16.41

Note:

1. Modulation : 16QAM

2. Limit : < 23 dBm

The report shall not be (partly) reproduced except in full without approval of the laboratory.

PCC			SCC			Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol.	E.I.R.P	
BW [MHz]	Channel	RB/ Offset	BW [MHz]	Channel	RB/ Offset						W	dBm
5	55273	1/24	20	55390	1/0	-31.27	7.80	12.38	3.09	H	0.051	17.09
10	55295	1/49	20	55439	1/0	-31.20	7.87	12.38	3.09	H	0.052	17.16
15	55318	1/74	20	55489	1/0	-31.00	8.13	12.37	3.09	H	0.055	17.41
20	55340	1/99	5	55457	1/0	-30.41	8.72	12.37	3.09	H	0.063	18.00
20	55340	1/99	10	55484	1/0	-31.46	7.67	12.37	3.09	H	0.050	16.95
20	55340	1/99	15	55511	1/0	-31.56	7.64	12.36	3.09	H	0.049	16.91
20	55340	1/99	20	55538	1/0	-31.53	7.67	12.36	3.09	H	0.049	16.94
20	55891	1/99	20	56089	1/0	-31.40	7.96	12.25	3.13	H	0.051	17.08
20	56442	1/99	20	56640	1/0	-32.27	7.24	12.26	3.11	H	0.044	16.39

Note:

1. Modulation : 64QAM

2. Limit : < 23 dBm

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PCC			SCC			Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol.	E.I.R.P	
BW [MHz]	Channel	RB/ Offset	BW [MHz]	Channel	RB/ Offset						W	dBm
5	55273	1/24	20	55390	1/0	-31.43	7.64	12.38	3.09	H	0.049	16.93
10	55295	1/49	20	55439	1/0	-31.35	7.72	12.38	3.09	H	0.050	17.01
15	55318	1/74	20	55489	1/0	-31.45	7.68	12.37	3.09	H	0.050	16.96
20	55340	1/99	5	55457	1/0	-30.57	8.56	12.37	3.09	H	0.061	17.84
20	55340	1/99	10	55484	1/0	-31.60	7.53	12.37	3.09	H	0.048	16.81
20	55340	1/99	15	55511	1/0	-31.80	7.40	12.36	3.09	H	0.046	16.67
20	55340	1/99	20	55538	1/0	-31.90	7.30	12.36	3.09	H	0.045	16.57
20	55891	1/99	20	56089	1/0	-31.69	7.67	12.25	3.13	H	0.048	16.79
20	56442	1/99	20	56640	1/0	-32.45	7.06	12.26	3.11	H	0.042	16.21

Note:

1. Modulation : 256QAM
2. Limit : < 23 dBm

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8.3 Conducted Spurious Emissions

Operating frequency	PCC				SCC				Measurement Maximum Frequency (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)
	BW [MHz]	Ch.	Freq. (MHz)	RB/ Offset	BW [MHz]	Ch.	Freq. (MHz)	RB/ Offset				
Low	20	55340	3560.0	1/99	20	55538	3579.8	1/0	3.4462	31.955	-83.959	-52.004
Mid	20	55891	3615.1	1/99	20	56089	3634.9	1/0	8.2692	32.570	-86.157	-53.587
High	20	56442	3670.2	1/99	20	56640	3690.0	1/0	3.8017	31.955	-84.341	-52.386
Low	20	55340	3560.0	1/0	20	55538	3579.8	1/99	3.4657	31.955	-82.577	-50.622
Mid	20	55891	3615.1	1/0	20	56089	3634.9	1/99	3.4836	31.955	-82.121	-50.166
High	20	56442	3670.2	1/0	20	56640	3690.0	1/99	3.8221	31.955	-85.327	-53.372
Low	20	55340	3560.0	100/0	20	55538	3579.8	100/0	3.4652	31.955	-75.220	-43.265
Mid	20	55891	3615.1	100/0	20	56089	3634.9	100/0	3.4846	31.955	-82.973	-51.018
High	20	56442	3670.2	100/0	20	56640	3690.0	100/0	3.8191	31.955	-85.415	-53.460

Note:

1. Modulation : 16QAM
2. Duty Cycle factor already applied on the factor.
   - Duty Cycle factor(dB) = 3.979
3. Result (dBm) = Measurement Maximum Data (dBm) + Factor (dB) + Duty Cycle factor(dB)
4. Factor (dB) = Cable Loss + Attenuator + Power Splitter

Frequency Range (GHz)	Factor [dB]
0.03 – 1	29.249
1 – 5	31.955
5 – 10	32.570
10 – 15	33.095
15 – 20	33.468
Above 20(26.5)	34.110

5. Limit : -40.0 dBm

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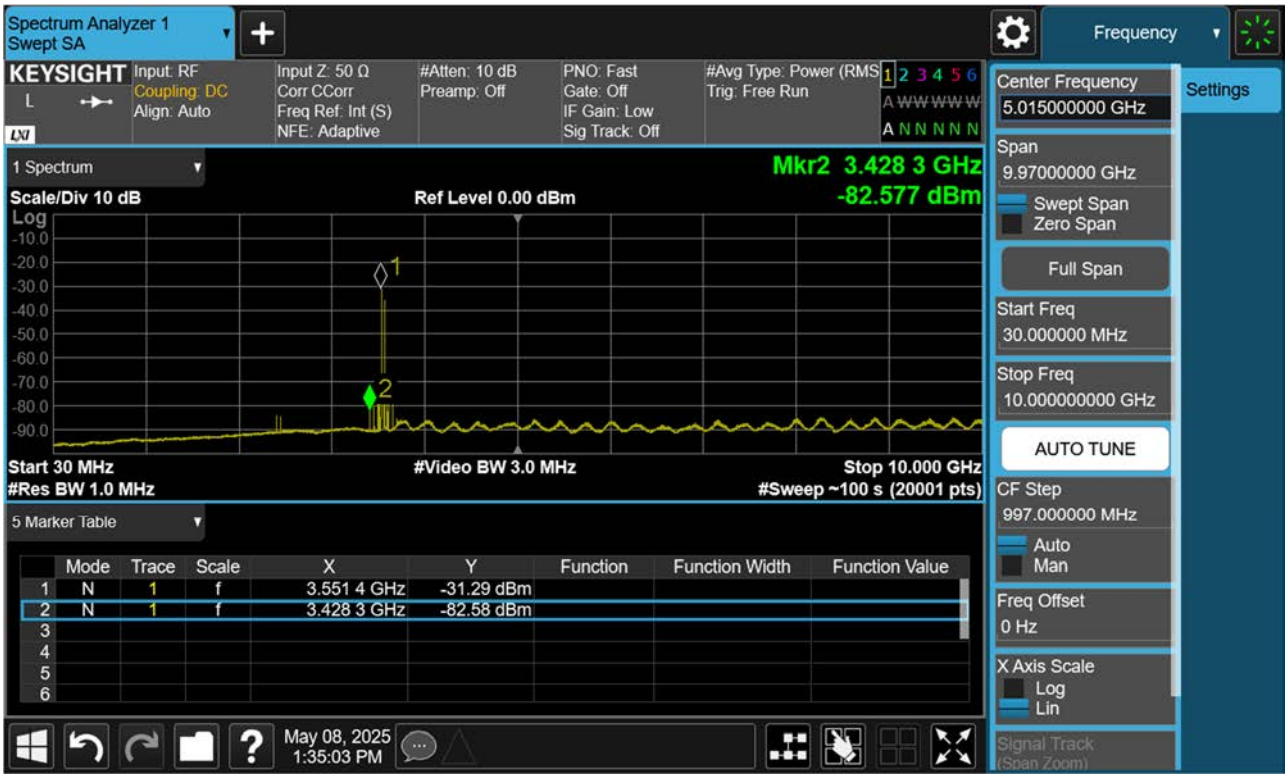
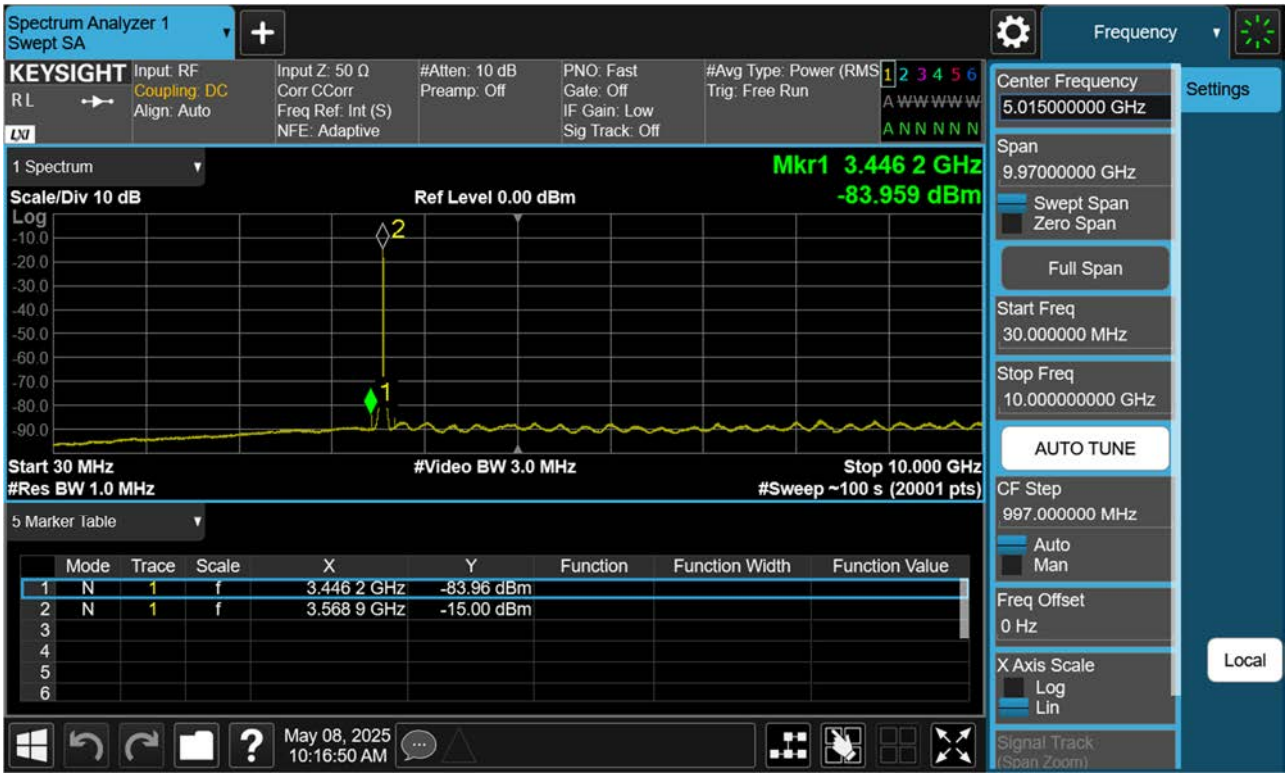
Frequency Range : 30 MHz ~ 10 GHz

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



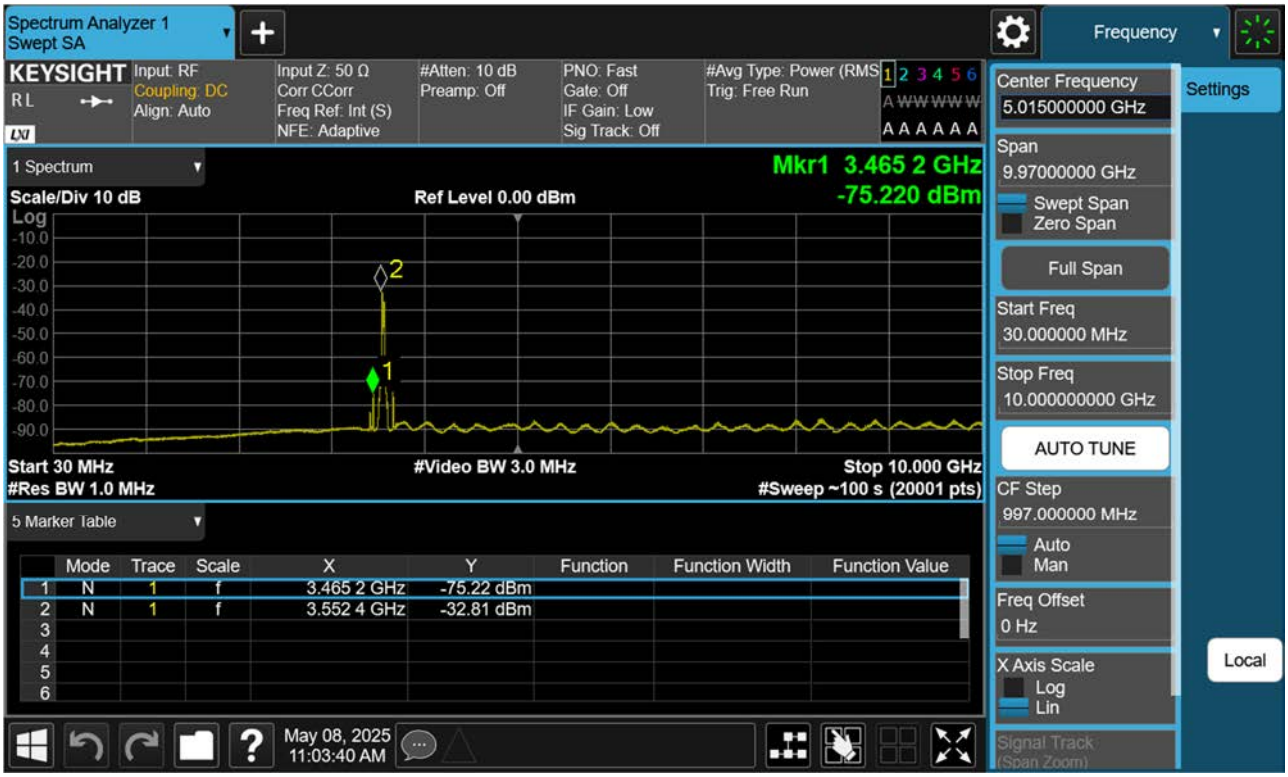
The report shall not be (partly) reproduced except in full without approval of the laboratory.

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



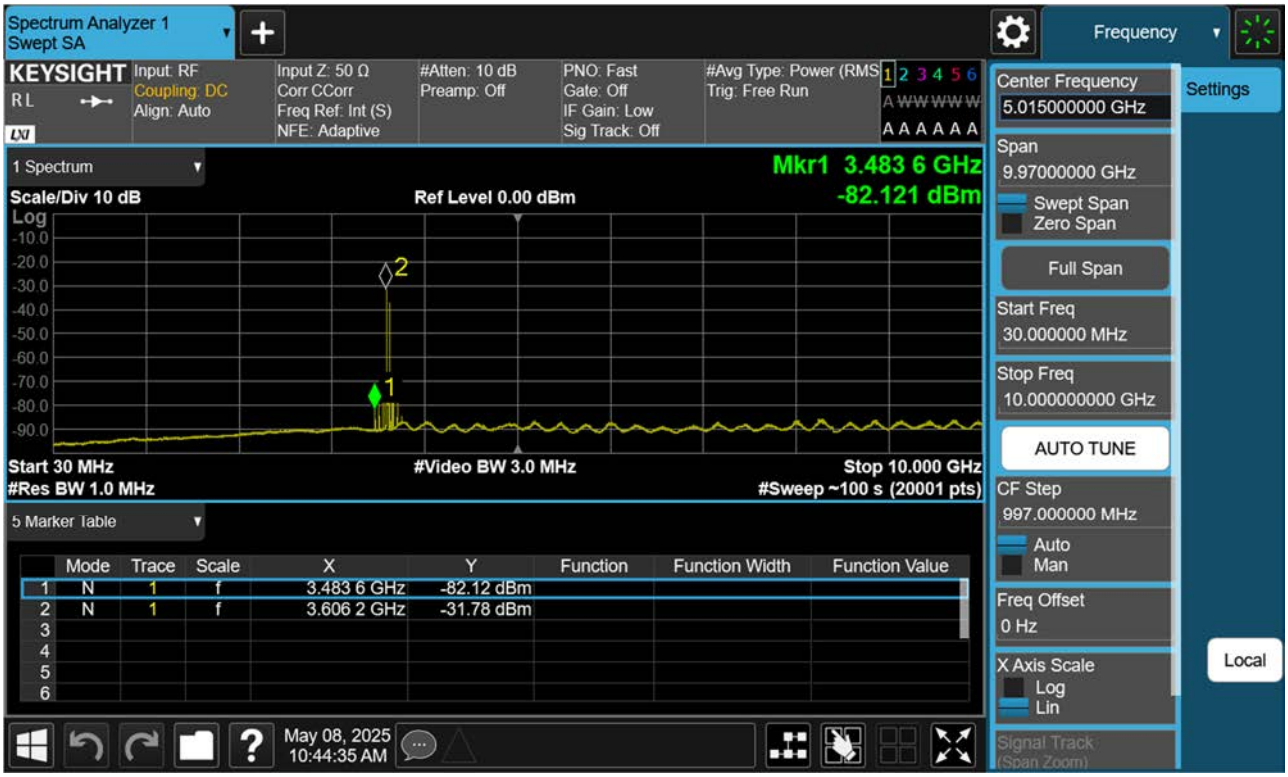
The report shall not be (partly) reproduced except in full without approval of the laboratory.

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



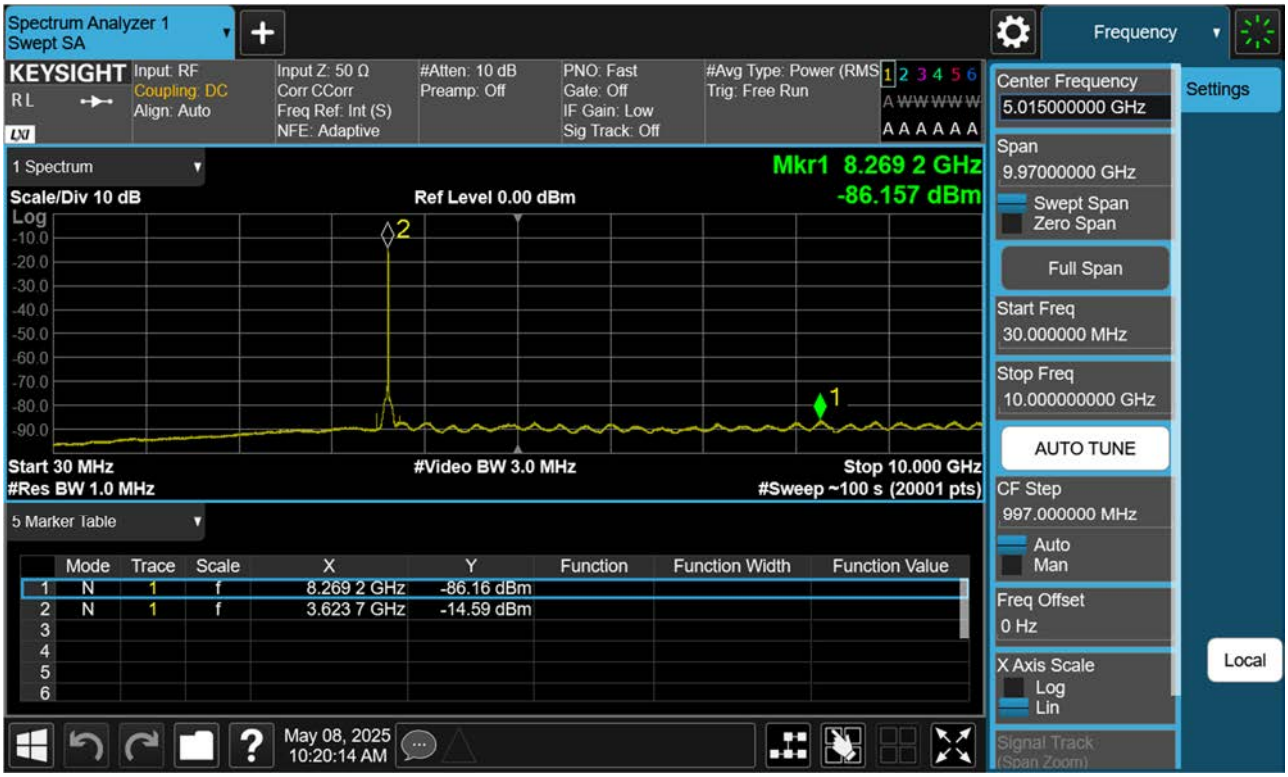
The report shall not be (partly) reproduced except in full without approval of the laboratory.

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



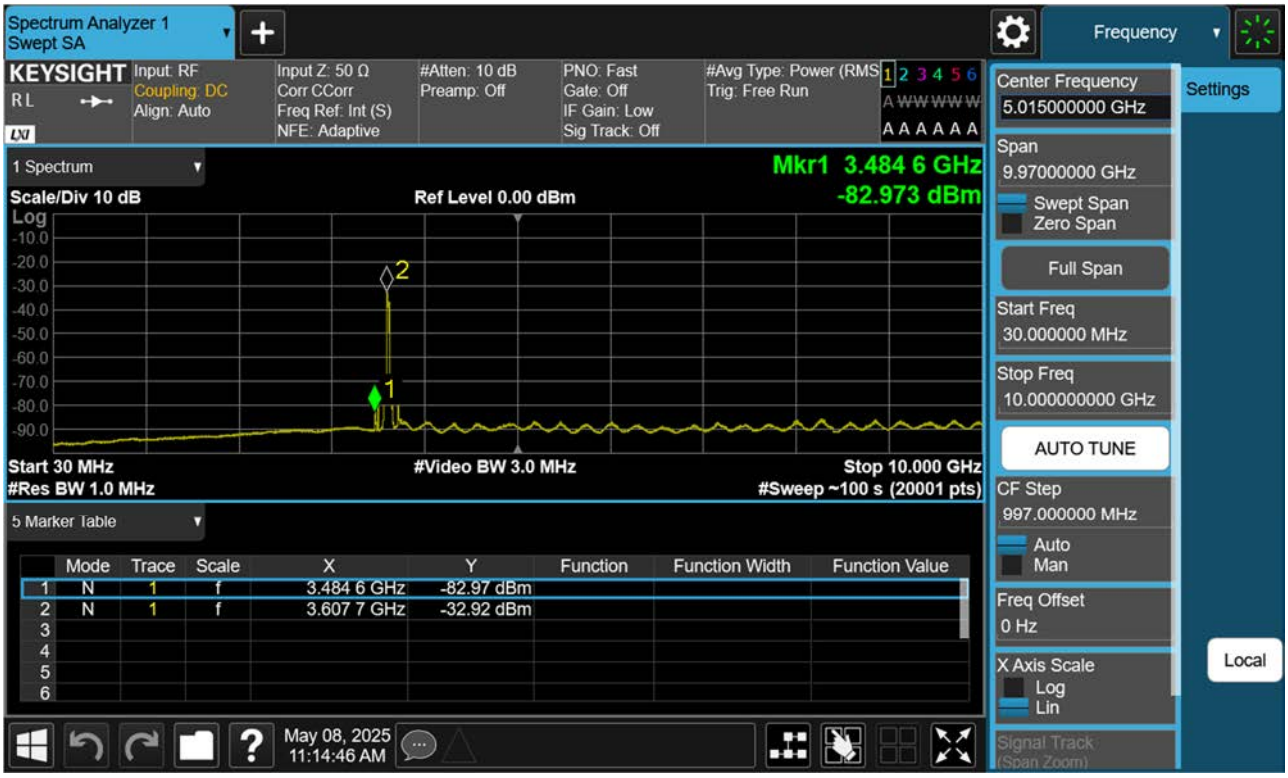
The report shall not be (partly) reproduced except in full without approval of the laboratory.

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



The report shall not be (partly) reproduced except in full without approval of the laboratory.

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



The report shall not be (partly) reproduced except in full without approval of the laboratory.

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

The report shall not be (partly) reproduced except in full without approval of the laboratory.

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

The report shall not be (partly) reproduced except in full without approval of the laboratory.

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

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Frequency Range : 10 GHz ~ 37 GHz

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

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

The report shall not be (partly) reproduced except in full without approval of the laboratory.

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

The report shall not be (partly) reproduced except in full without approval of the laboratory.

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

The report shall not be (partly) reproduced except in full without approval of the laboratory.

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

The report shall not be (partly) reproduced except in full without approval of the laboratory.

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

The report shall not be (partly) reproduced except in full without approval of the laboratory.

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

The report shall not be (partly) reproduced except in full without approval of the laboratory.

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

The report shall not be (partly) reproduced except in full without approval of the laboratory.

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

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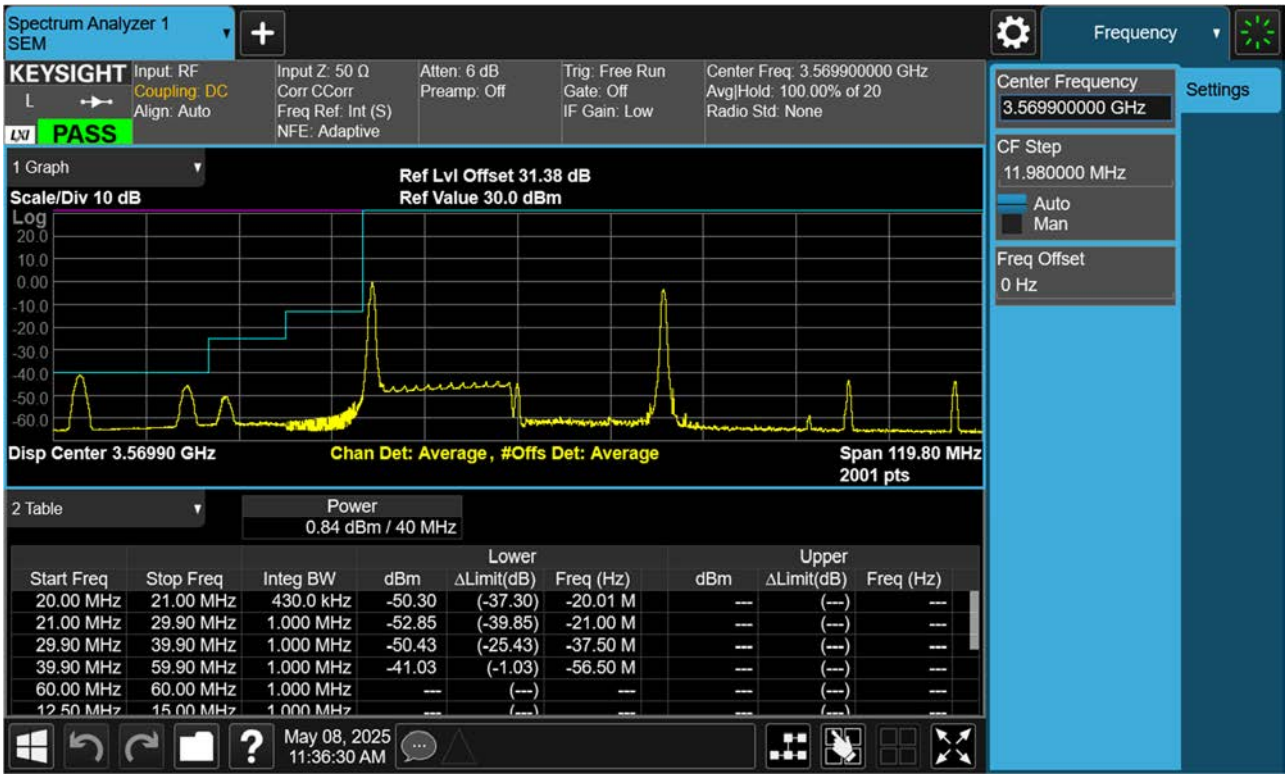
8.4 Channel Edge

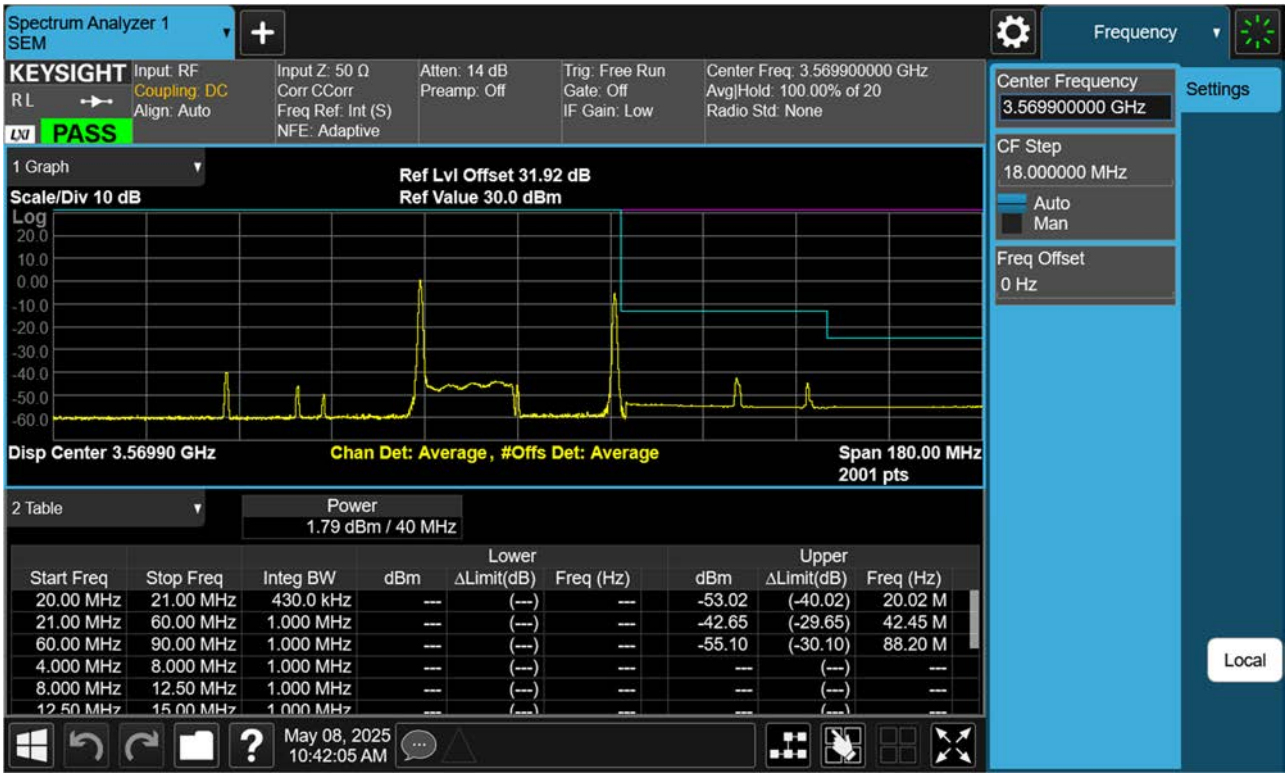
PCC 20MHz Ch55340 RB1 Offset0, SCC 20MHz Ch55538 RB1 Offset99-1



			Lower			Upper		
Start Freq	Stop Freq	Integ BW	dBm	ΔLimit(dB)	Freq (Hz)	dBm	ΔLimit(dB)	Freq (Hz)
20.00 MHz	21.00 MHz	430.0 kHz	-50.30	(-37.30)	-20.01 M	---	(---)	---
21.00 MHz	29.90 MHz	1.000 MHz	-52.85	(-39.85)	-21.00 M	---	(---)	---
29.90 MHz	39.90 MHz	1.000 MHz	-50.43	(-25.43)	-37.50 M	---	(---)	---
39.90 MHz	59.90 MHz	1.000 MHz	-41.03	(-1.03)	-56.50 M	---	(---)	---
60.00 MHz	60.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

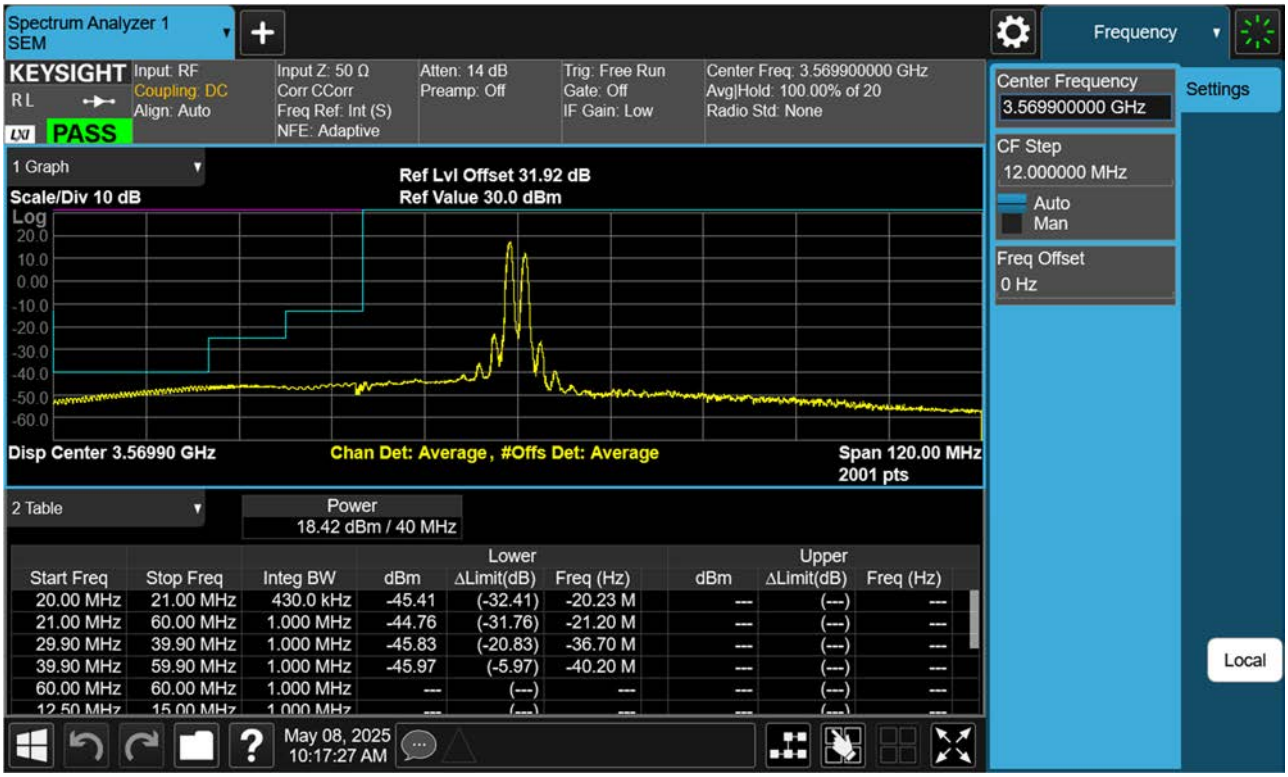
The report shall not be (partly) reproduced except in full without approval of the laboratory.

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



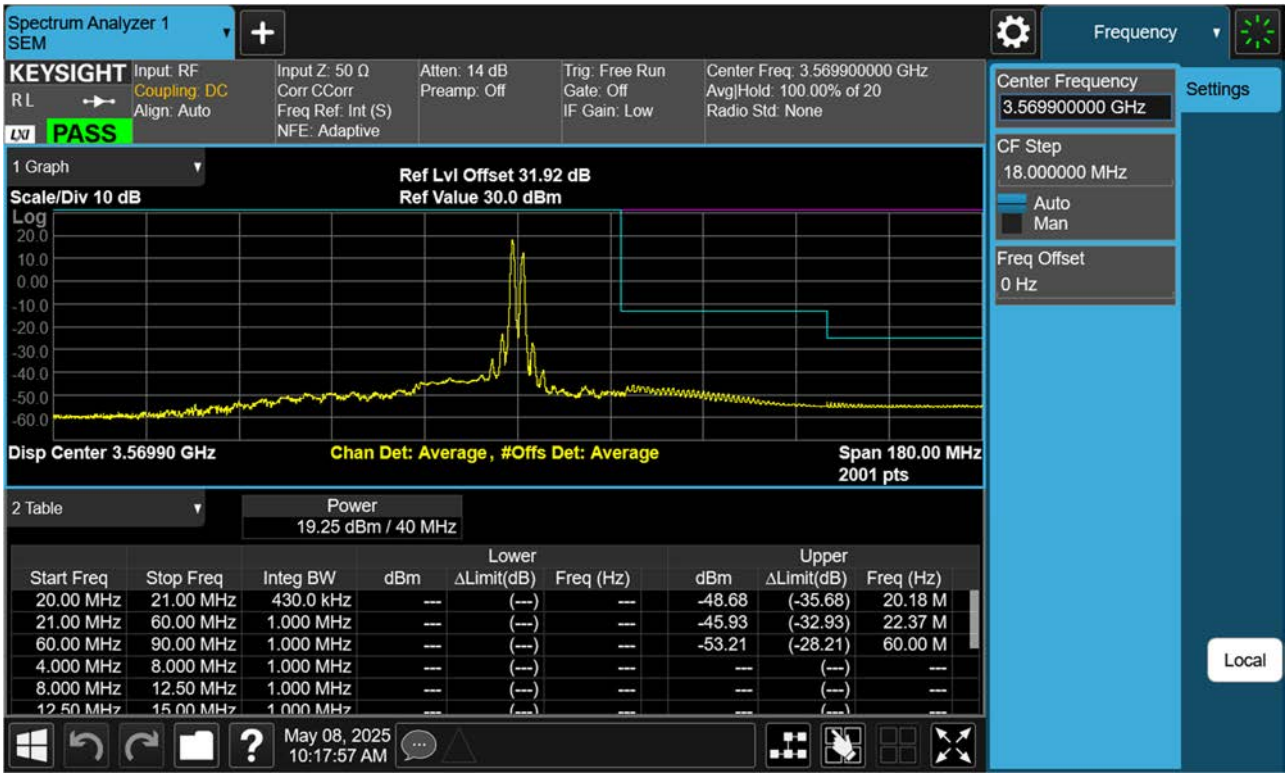
The report shall not be (partly) reproduced except in full without approval of the laboratory.

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



The report shall not be (partly) reproduced except in full without approval of the laboratory.

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



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

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

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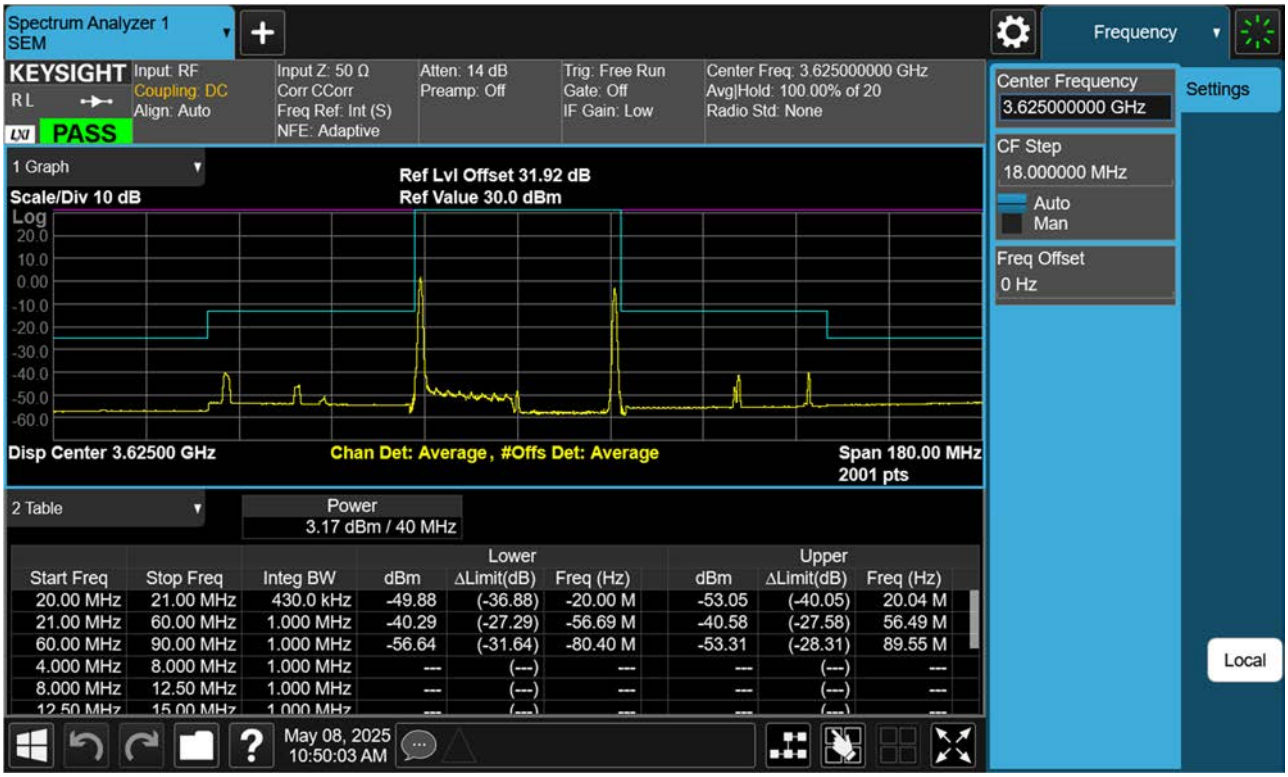
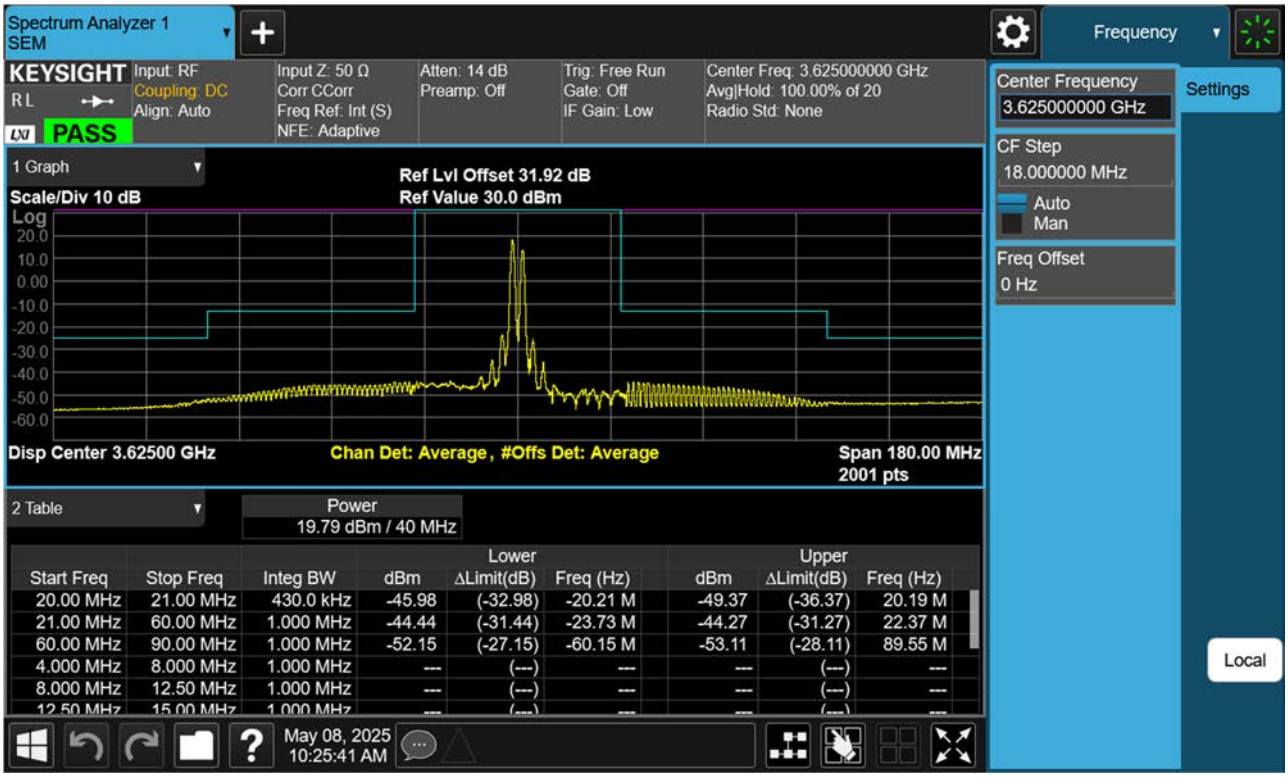
PCC 20MHz Ch55891 RB1 Offset0, SCC 20MHz Ch56089 RB1 Offset99



The report shall not be (partly) reproduced except in full without approval of the laboratory.

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

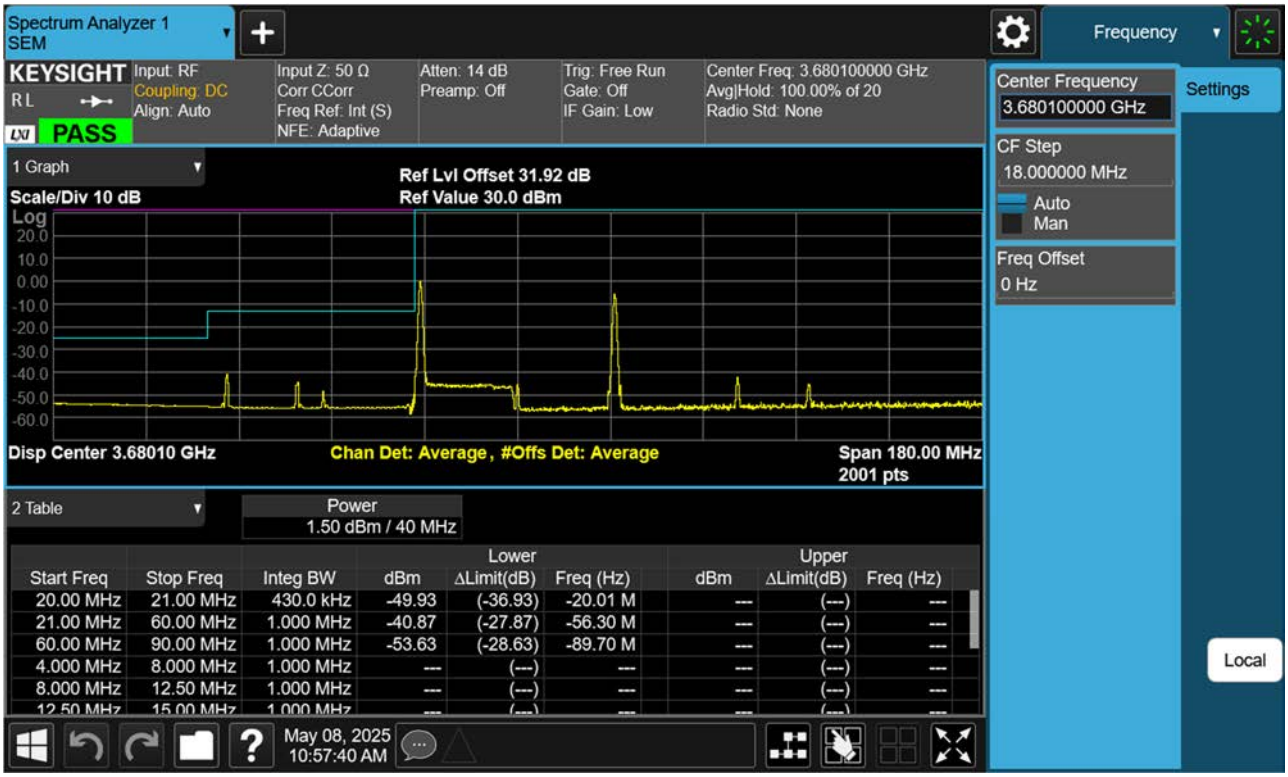


The report shall not be (partly) reproduced except in full without approval of the laboratory.

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

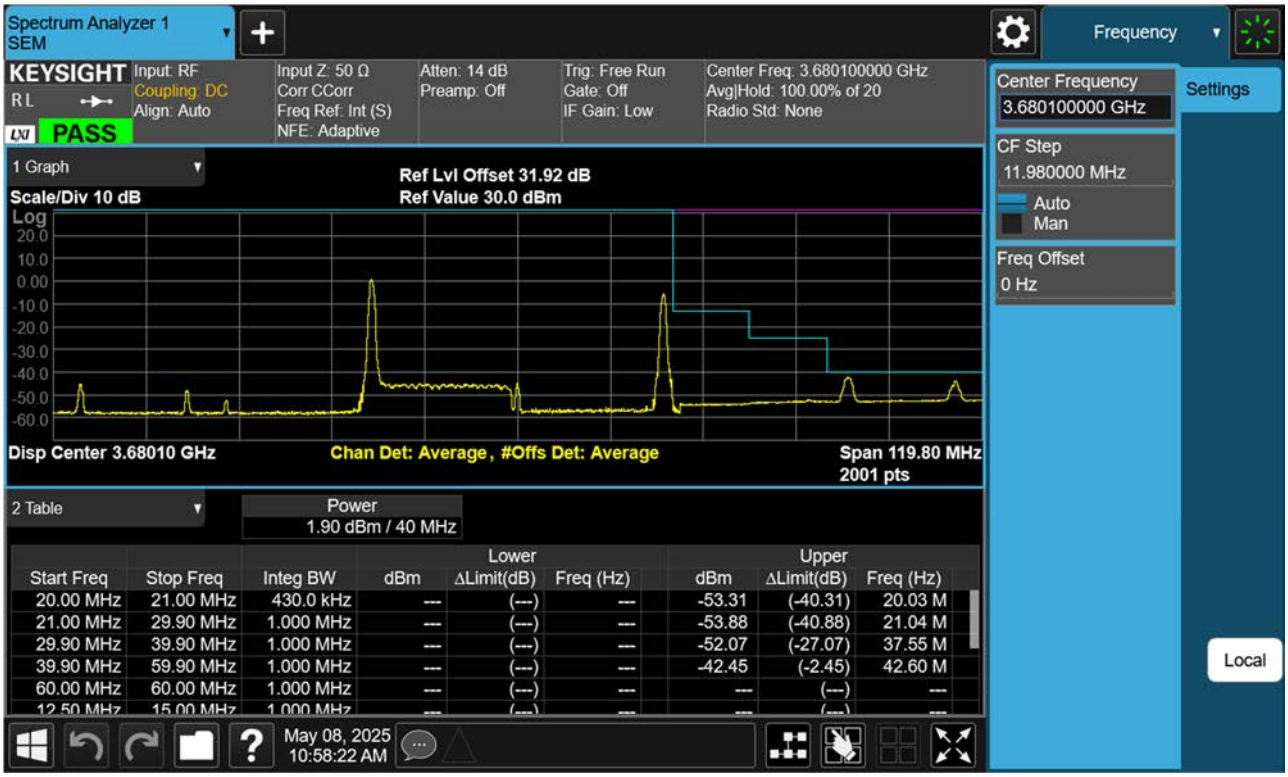
The report shall not be (partly) reproduced except in full without approval of the laboratory.

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



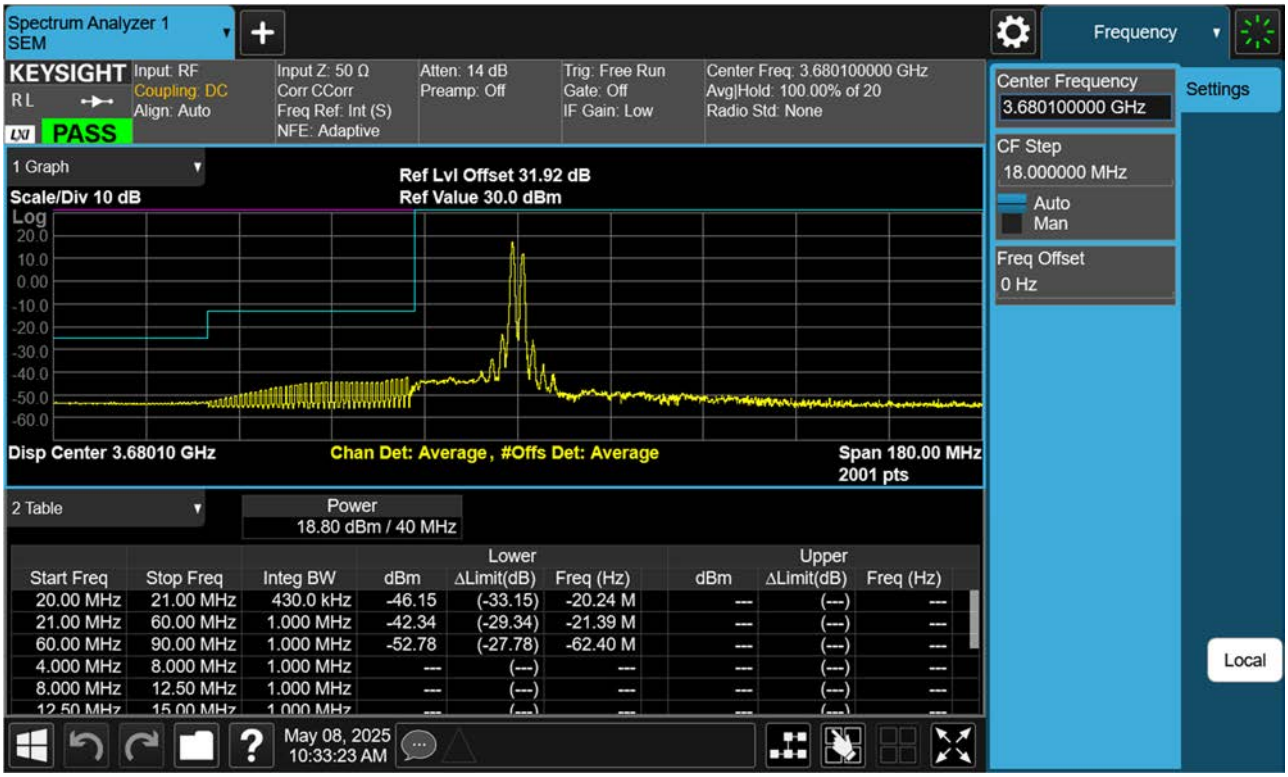
The report shall not be (partly) reproduced except in full without approval of the laboratory.

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



The report shall not be (partly) reproduced except in full without approval of the laboratory.

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

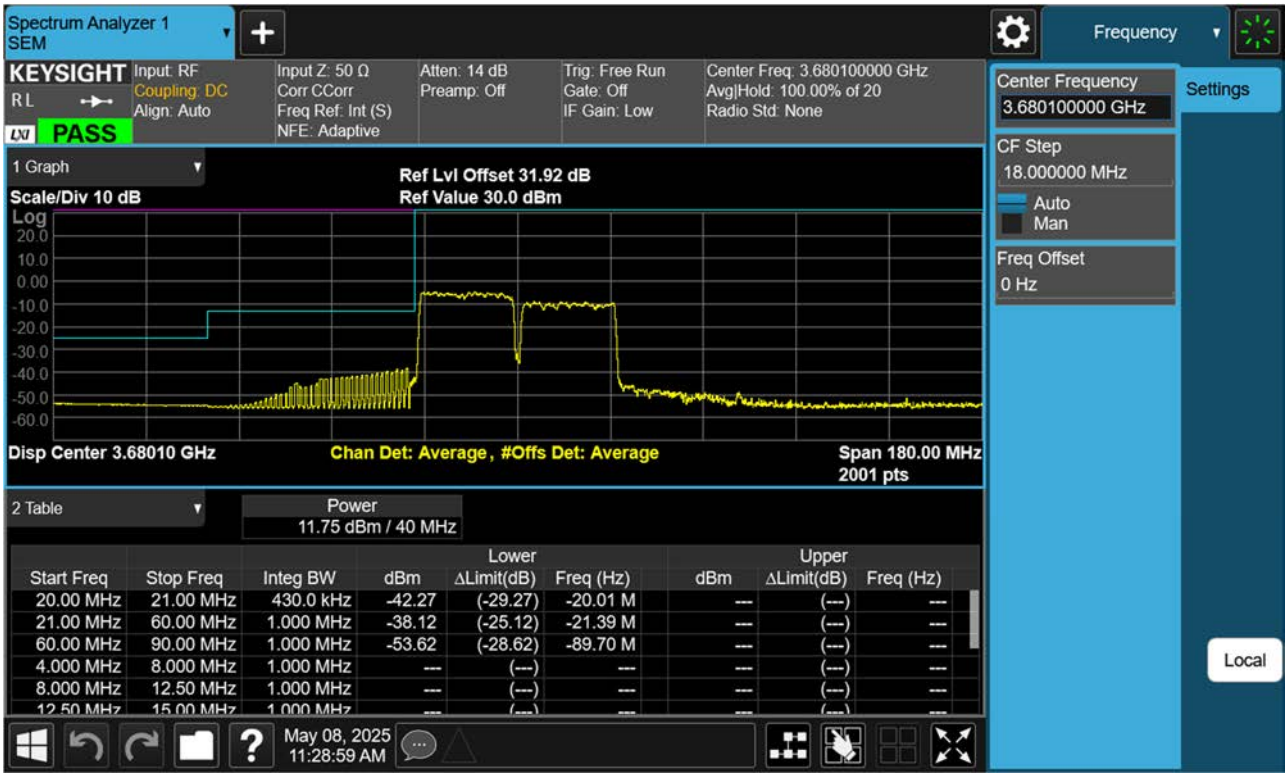


The report shall not be (partly) reproduced except in full without approval of the laboratory.

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

The report shall not be (partly) reproduced except in full without approval of the laboratory.

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



The report shall not be (partly) reproduced except in full without approval of the laboratory.

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

The report shall not be (partly) reproduced except in full without approval of the laboratory.

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)	0.0003	-0.0100	3553.29974	3565.00996
100 %		-30	-0.0036	-0.0051	3553.30365	3565.00509
100 %		-20	-0.0058	-0.0066	3553.30581	3565.00665
100 %		-10	-0.0015	-0.0116	3553.30146	3565.01155
100 %		0	-0.0011	0.0014	3553.30112	3564.99860
100 %		10	-0.0082	-0.0079	3553.30824	3565.00787
100 %		30	-0.0104	-0.0031	3553.31037	3565.00312
100 %		40	-0.0042	-0.0016	3553.30416	3565.00158
100 %		50	-0.0090	-0.0086	3553.30904	3565.00859
Batt. Endpoint	3.300	20	-0.0053	-0.0038	3553.30528	3565.00383

The report shall not be (partly) reproduced except in full without approval of the laboratory.

- ▣ 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. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	0.0009	-0.0087	3555.49914	3569.90866
100 %		-30	-0.0012	-0.0069	3555.50125	3569.90689
100 %		-20	-0.0009	-0.0102	3555.50091	3569.91025
100 %		-10	0.0004	-0.0087	3555.49956	3569.90865
100 %		0	-0.0035	-0.0071	3555.50352	3569.90710
100 %		10	-0.0086	-0.0076	3555.50864	3569.90757
100 %		30	-0.0059	-0.0034	3555.50587	3569.90342
100 %		40	-0.0081	-0.0061	3555.50806	3569.90608
100 %		50	-0.0105	-0.0028	3555.51054	3569.90279
Batt. Endpoint	3.300	20	-0.0077	-0.0041	3555.50768	3569.90413

The report shall not be (partly) reproduced except in full without approval of the laboratory.

▣ 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. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.0040	-0.0027	3557.80404	3574.90266
100 %		-30	-0.0045	-0.0032	3557.80455	3574.90319
100 %		-20	-0.0013	-0.0087	3557.80131	3574.90875
100 %		-10	-0.0028	-0.0051	3557.80276	3574.90505
100 %		0	-0.0030	-0.0011	3557.80302	3574.90110
100 %		10	-0.0053	-0.0061	3557.80534	3574.90607
100 %		30	-0.0086	-0.0026	3557.80857	3574.90262
100 %		40	-0.0027	0.0007	3557.80266	3574.89928
100 %		50	-0.0052	-0.0074	3557.80524	3574.90739
Batt. Endpoint	3.300	20	-0.0023	-0.0085	3557.80228	3574.90853

The report shall not be (partly) reproduced except in full without approval of the laboratory.

▣ 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. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.0004	-0.0006	3560.00044	3579.80056
100 %		-30	0.0013	-0.0042	3559.99875	3579.80419
100 %		-20	-0.0021	-0.0019	3560.00211	3579.80195
100 %		-10	-0.0033	-0.0065	3560.00326	3579.80645
100 %		0	-0.0043	-0.0042	3560.00432	3579.80420
100 %		10	-0.0102	-0.0056	3560.01024	3579.80557
100 %		30	-0.0099	-0.0029	3560.00987	3579.80292
100 %		40	0.0003	-0.0041	3559.99966	3579.80408
100 %		50	-0.0051	-0.0036	3560.00514	3579.80359
Batt. Endpoint	3.300	20	-0.0066	-0.0017	3560.00658	3579.80173

The report shall not be (partly) reproduced except in full without approval of the laboratory.

▣ 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. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.0057	-0.0066	3678.30574	3690.00656
100 %		-30	-0.0066	-0.0087	3678.30665	3690.00869
100 %		-20	-0.0004	-0.0070	3678.30041	3690.00705
100 %		-10	-0.0077	-0.0081	3678.30766	3690.00805
100 %		0	-0.0077	-0.0067	3678.30772	3690.00670
100 %		10	-0.0034	-0.0039	3678.30344	3690.00387
100 %		30	-0.0051	-0.0086	3678.30507	3690.00862
100 %		40	-0.0087	-0.0031	3678.30866	3690.00308
100 %		50	-0.0075	-0.0047	3678.30754	3690.00469
Batt. Endpoint	3.300	20	-0.0039	-0.0046	3678.30388	3690.00463

The report shall not be (partly) reproduced except in full without approval of the laboratory.

▣ 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. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.0029	-0.0072	3675.60294	3690.00716
100 %		-30	0.0007	-0.0106	3675.59935	3690.01059
100 %		-20	-0.0045	-0.0033	3675.60451	3690.00335
100 %		-10	-0.0045	-0.0118	3675.60446	3690.01175
100 %		0	-0.0032	0.0008	3675.60322	3689.99920
100 %		10	-0.0057	-0.0059	3675.60574	3690.00587
100 %		30	-0.0047	-0.0035	3675.60467	3690.00352
100 %		40	-0.0033	-0.0012	3675.60326	3690.00118
100 %		50	-0.0070	-0.0077	3675.60704	3690.00769
Batt. Endpoint	3.300	20	-0.0035	-0.0080	3675.60348	3690.00803

The report shall not be (partly) reproduced except in full without approval of the laboratory.

▣ 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. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.0035	-0.0098	3672.90354	3690.00976
100 %		-30	0.0017	-0.0098	3672.89835	3690.00979
100 %		-20	-0.0088	-0.0051	3672.90881	3690.00515
100 %		-10	-0.0008	-0.0106	3672.90076	3690.01055
100 %		0	-0.0026	0.0003	3672.90262	3689.99970
100 %		10	-0.0022	-0.0059	3672.90224	3690.00587
100 %		30	-0.0096	-0.0016	3672.90957	3690.00162
100 %		40	-0.0077	-0.0086	3672.90766	3690.00858
100 %		50	-0.0085	-0.0016	3672.90854	3690.00159
Batt. Endpoint	3.300	20	-0.0039	-0.0068	3672.90388	3690.00683

The report shall not be (partly) reproduced except in full without approval of the laboratory.

▣ 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. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.880	+20(Ref)	-0.0078	-0.0006	3670.20784	3690.00056
100 %		-30	-0.0018	-0.0021	3670.20185	3690.00209
100 %		-20	-0.0056	-0.0094	3670.20561	3690.00945
100 %		-10	0.0003	-0.0055	3670.19966	3690.00545
100 %		0	-0.0088	-0.0066	3670.20882	3690.00660
100 %		10	-0.0089	-0.0127	3670.20894	3690.01267
100 %		30	-0.0050	-0.0075	3670.20497	3690.00752
100 %		40	-0.0082	0.0000	3670.20816	3689.99998
100 %		50	-0.0021	-0.0089	3670.20214	3690.00889
Batt. Endpoint	3.300	20	-0.0080	-0.0088	3670.20798	3690.00883

The report shall not be (partly) reproduced except in full without approval of the laboratory.

8.6 Radiated Spurious Emissions

- ▣ PCC Channel : 55340 (3560.0 MHz)
- ▣ PCC BW(MHz) : 20
- ▣ PCC RB/ RB Offset : 1/ 99
- ▣ SCC Channel : 55457 (3571.7 MHz)
- ▣ SCC BW(MHz) : 5
- ▣ 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)
7 131.70	-44.31	11.07	-59.08	4.46	V	-52.47
10 697.55	-44.29	10.67	-52.96	5.67	V	-47.96
14 263.40	-44.83	11.59	-48.74	6.53	H	-43.68

The report shall not be (partly) reproduced except in full without approval of the laboratory.

▣ PCC Channel : 55891 (3615.1 MHz)

▣ PCC BW(MHz) : 20

▣ PCC RB/ RB Offset : 1/ 99

▣ SCC Channel : 56089 (3634.9 MHz)

▣ SCC BW(MHz) : 20

▣ SCC RB/ RB Offset : 1/ 0

▣ DISTANCE: 1 meters

▣ LIMIT: -40.0 dBm

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)
7 250.00	-40.81	10.99	-57.41	4.53	H	-50.95
10 875.00	-45.65	10.43	-54.04	5.82	H	-49.43
14 500.00	-45.32	11.52	-49.72	6.69	V	-44.89

The report shall not be (partly) reproduced except in full without approval of the laboratory.

▣ 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	-41.67	10.94	-57.84	4.59	H	-51.49
11 040.30	-42.89	10.61	-51.16	5.73	V	-46.28
14 720.40	-46.04	11.56	-51.73	6.71	V	-46.88

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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	22.795
10	55896	3615.6	QPSK	50/0	20	56040	3630	QPSK	100/0	27.659
15	55893	3615.3	QPSK	75/0	20	56064	3632.4	QPSK	100/0	32.483
20	55965	3622.5	QPSK	100/0	5	56082	3634.2	QPSK	25/0	22.937
20	55941	3620.1	QPSK	100/0	10	56085	3634.5	QPSK	50/0	27.675
20	55916	3617.6	QPSK	100/0	15	56087	3634.7	QPSK	75/0	32.795
20	55891	3615.1	QPSK	100/0	20	56089	3634.9	QPSK	100/0	37.630

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	22.600
10	55896	3615.6	16QAM	50/0	20	56040	3630	16QAM	100/0	27.548
15	55893	3615.3	16QAM	75/0	20	56064	3632.4	16QAM	100/0	32.553
20	55965	3622.5	16QAM	100/0	5	56082	3634.2	16QAM	25/0	22.959
20	55941	3620.1	16QAM	100/0	10	56085	3634.5	16QAM	50/0	27.898
20	55916	3617.6	16QAM	100/0	15	56087	3634.7	16QAM	75/0	32.723
20	55891	3615.1	16QAM	100/0	20	56089	3634.9	16QAM	100/0	37.264

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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	22.825
10	55896	3615.6	64QAM	50/0	20	56040	3630	64QAM	100/0	27.712
15	55893	3615.3	64QAM	75/0	20	56064	3632.4	64QAM	100/0	32.525
20	55965	3622.5	64QAM	100/0	5	56082	3634.2	64QAM	25/0	22.787
20	55941	3620.1	64QAM	100/0	10	56085	3634.5	64QAM	50/0	27.795
20	55916	3617.6	64QAM	100/0	15	56087	3634.7	64QAM	75/0	32.756
20	55891	3615.1	64QAM	100/0	20	56089	3634.9	64QAM	100/0	37.390

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	22.421
10	55896	3615.6	256QAM	50/0	20	56040	3630	256QAM	100/0	27.500
15	55893	3615.3	256QAM	75/0	20	56064	3632.4	256QAM	100/0	32.597
20	55965	3622.5	256QAM	100/0	5	56082	3634.2	256QAM	25/0	22.934
20	55941	3620.1	256QAM	100/0	10	56085	3634.5	256QAM	50/0	27.730
20	55916	3617.6	256QAM	100/0	15	56087	3634.7	256QAM	75/0	32.481
20	55891	3615.1	256QAM	100/0	20	56089	3634.9	256QAM	100/0	37.245

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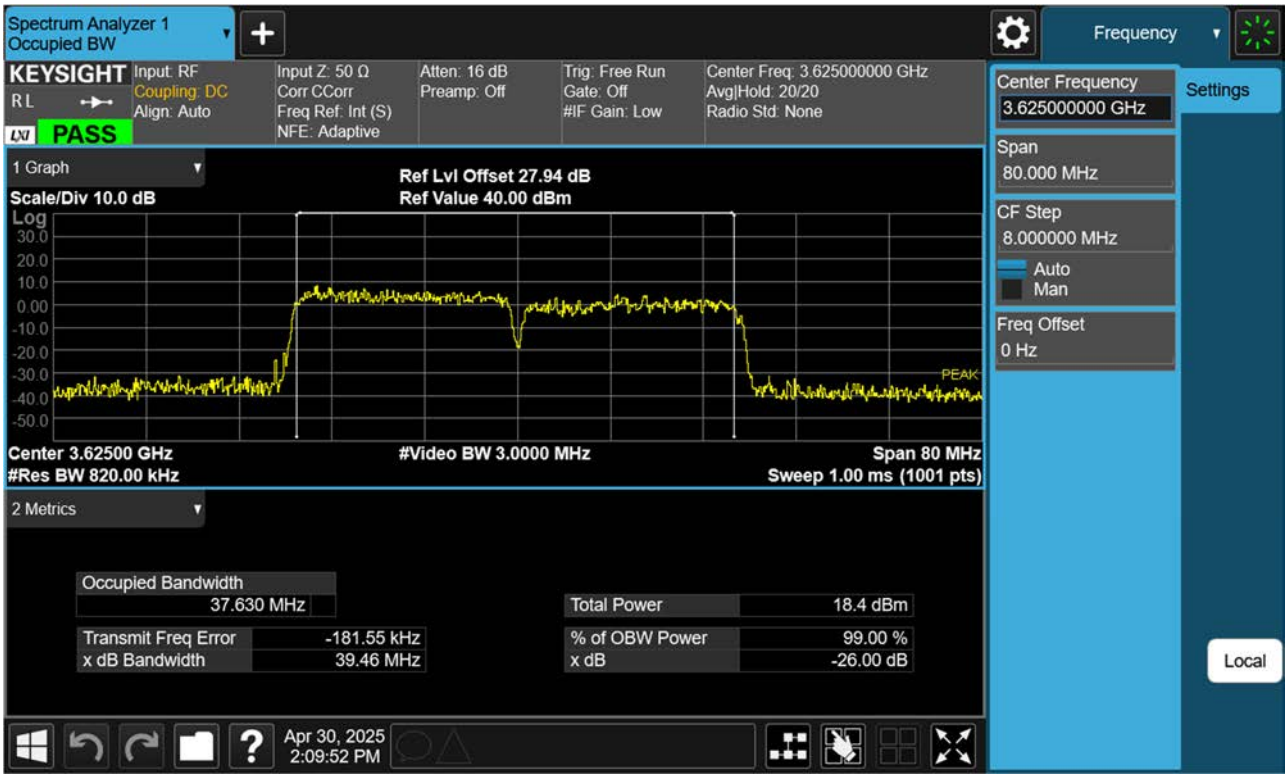
Note:

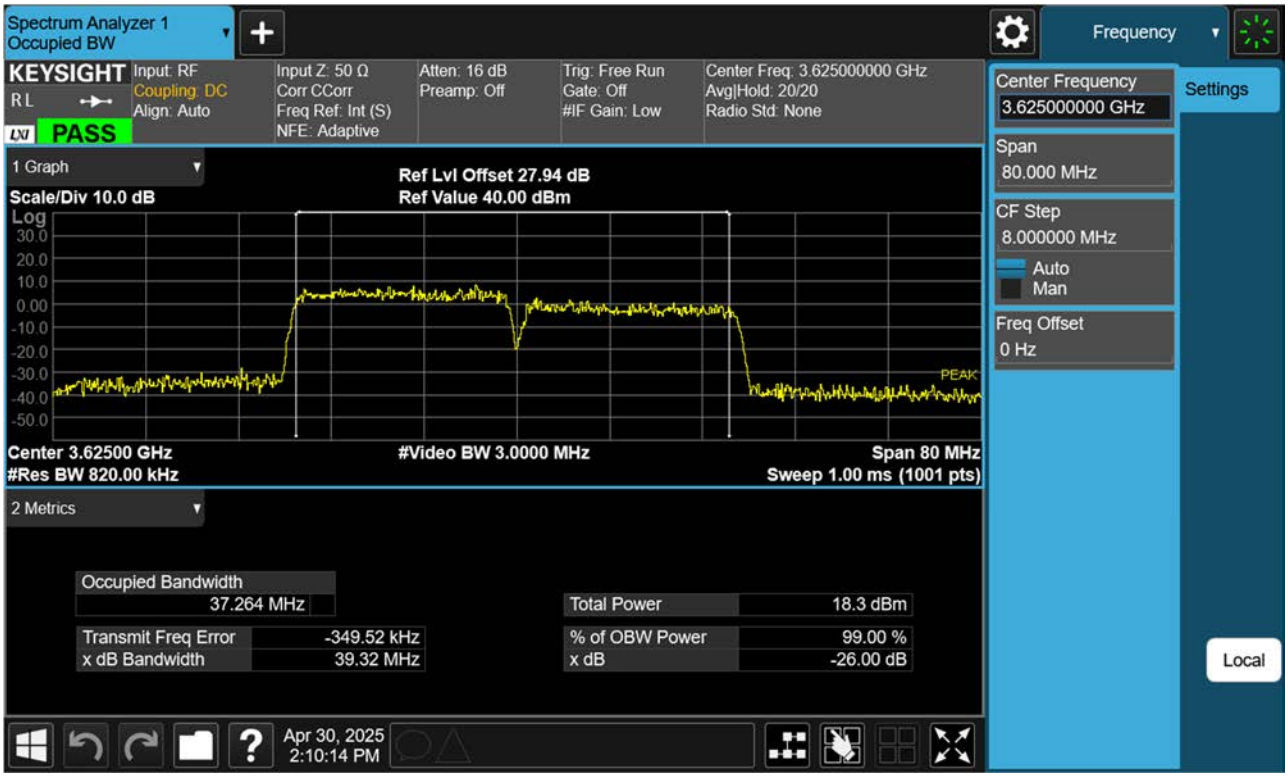
In order to simplify the report, attached plots were only Max.Bandwidth(20+20)

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



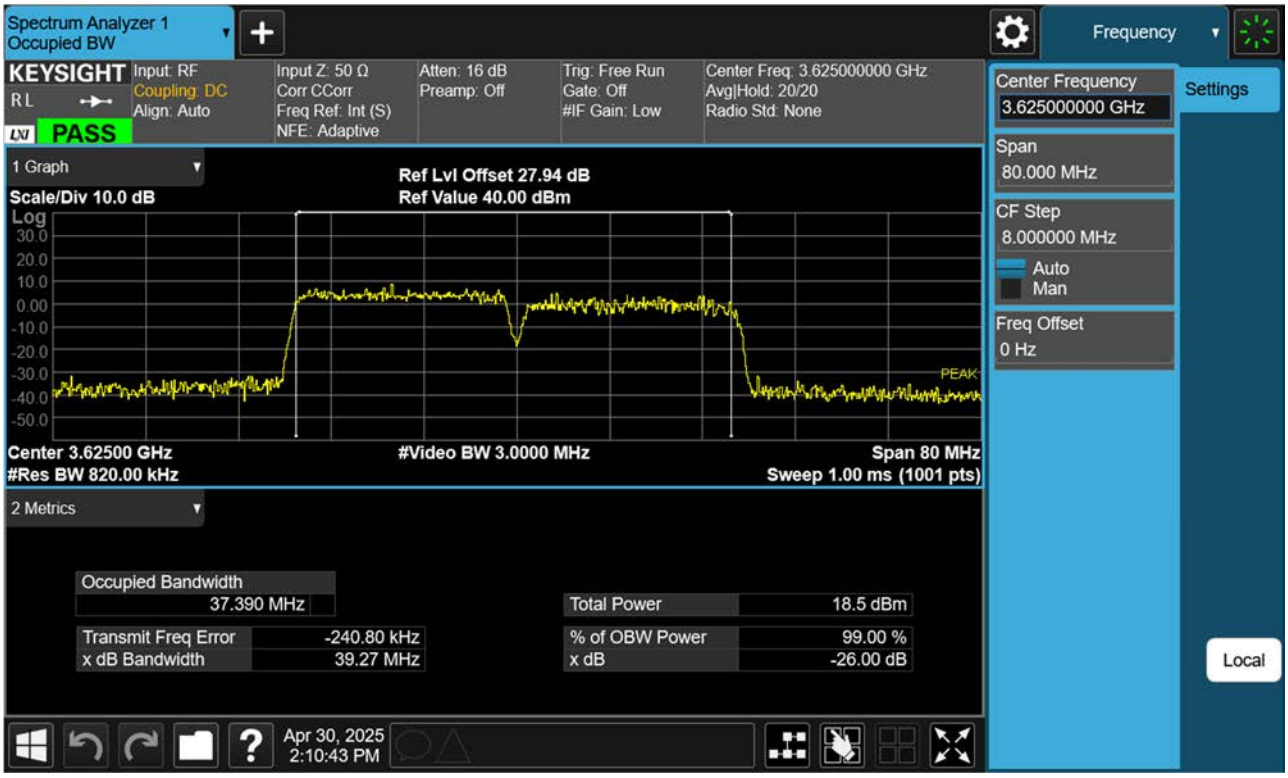
The report shall not be (partly) reproduced except in full without approval of the laboratory.

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



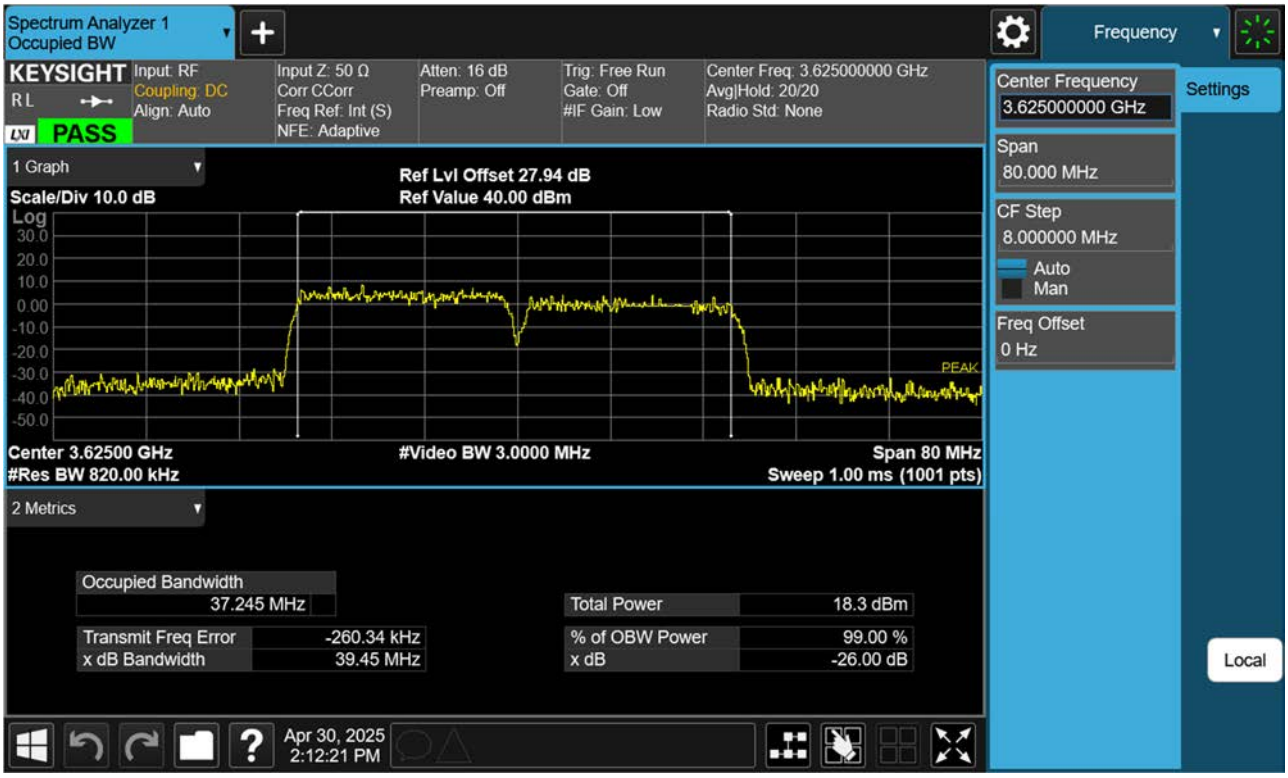
The report shall not be (partly) reproduced except in full without approval of the laboratory.

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



The report shall not be (partly) reproduced except in full without approval of the laboratory.

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



The report shall not be (partly) reproduced except in full without approval of the laboratory.

8.8 Peak- to- Average Ratio

PCC					SCC					Data (dB)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	55898	3615.8	QPSK	25/0	20	56015	3627.5	QPSK	100/0	6.92
10	55896	3615.6	QPSK	50/0	20	56040	3630	QPSK	100/0	6.72
15	55893	3615.3	QPSK	75/0	20	56064	3632.4	QPSK	100/0	6.58
20	55965	3622.5	QPSK	100/0	5	56082	3634.2	QPSK	25/0	6.71
20	55941	3620.1	QPSK	100/0	10	56085	3634.5	QPSK	50/0	6.32
20	55916	3617.6	QPSK	100/0	15	56087	3634.7	QPSK	75/0	6.35
20	55891	3615.1	QPSK	100/0	20	56089	3634.9	QPSK	100/0	7.06

PCC					SCC					Data (dB)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	55898	3615.8	16QAM	25/0	20	56015	3627.5	16QAM	100/0	7.28
10	55896	3615.6	16QAM	50/0	20	56040	3630	16QAM	100/0	7.32
15	55893	3615.3	16QAM	75/0	20	56064	3632.4	16QAM	100/0	7.37
20	55965	3622.5	16QAM	100/0	5	56082	3634.2	16QAM	25/0	7.36
20	55941	3620.1	16QAM	100/0	10	56085	3634.5	16QAM	50/0	7.20
20	55916	3617.6	16QAM	100/0	15	56087	3634.7	16QAM	75/0	7.55
20	55891	3615.1	16QAM	100/0	20	56089	3634.9	16QAM	100/0	8.31

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PCC					SCC					Data (dB)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	55898	3615.8	64QAM	25/0	20	56015	3627.5	64QAM	100/0	7.31
10	55896	3615.6	64QAM	50/0	20	56040	3630	64QAM	100/0	7.12
15	55893	3615.3	64QAM	75/0	20	56064	3632.4	64QAM	100/0	7.49
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	7.01
20	55916	3617.6	64QAM	100/0	15	56087	3634.7	64QAM	75/0	7.41
20	55891	3615.1	64QAM	100/0	20	56089	3634.9	64QAM	100/0	7.35

PCC					SCC					Data (dB)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	55898	3615.8	256QAM	25/0	20	56015	3627.5	256QAM	100/0	7.63
10	55896	3615.6	256QAM	50/0	20	56040	3630	256QAM	100/0	7.54
15	55893	3615.3	256QAM	75/0	20	56064	3632.4	256QAM	100/0	7.21
20	55965	3622.5	256QAM	100/0	5	56082	3634.2	256QAM	25/0	7.47
20	55941	3620.1	256QAM	100/0	10	56085	3634.5	256QAM	50/0	7.35
20	55916	3617.6	256QAM	100/0	15	56087	3634.7	256QAM	75/0	7.31
20	55891	3615.1	256QAM	100/0	20	56089	3634.9	256QAM	100/0	8.35

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Note:

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

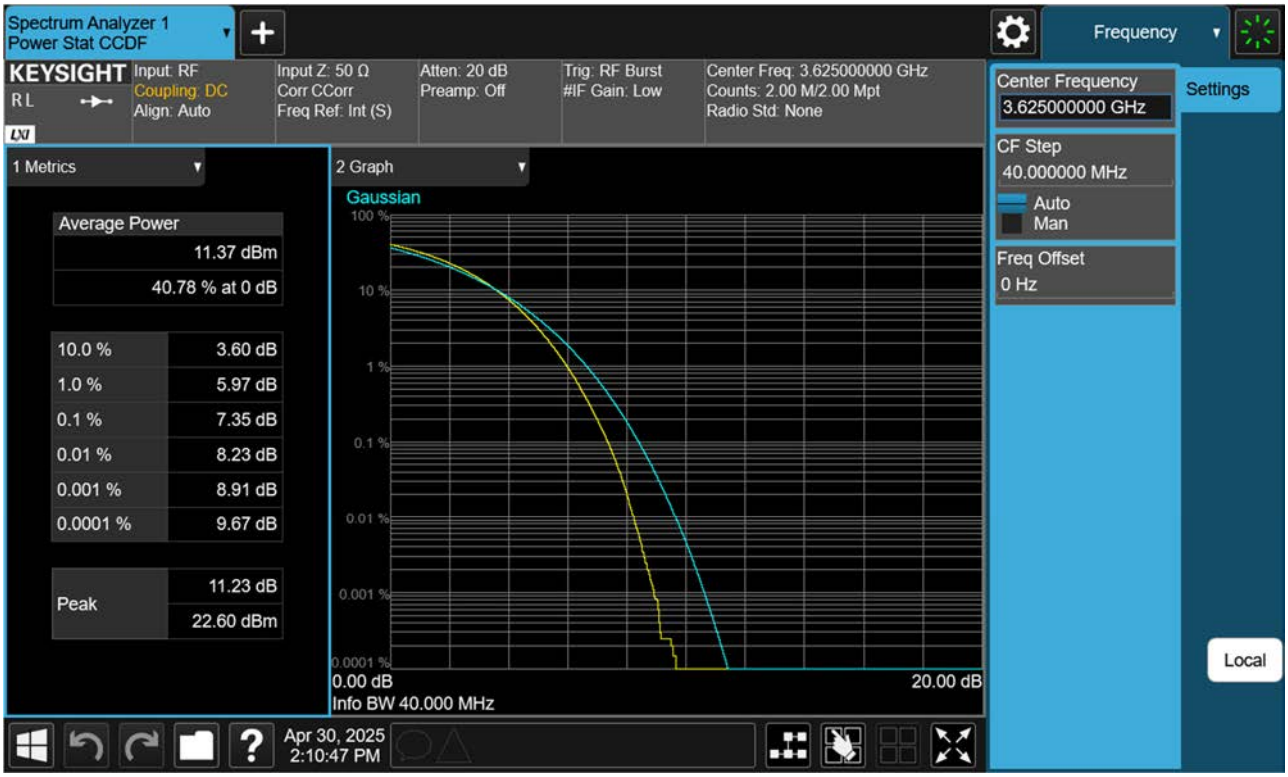
PCC 20 MHz Ch55891 RB100 Offset0, SCC 20 MHz Ch56089 RB100 Offset0_(QPSK)

The report shall not be (partly) reproduced except in full without approval of the laboratory.

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

The report shall not be (partly) reproduced except in full without approval of the laboratory.

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



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

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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	20	55340	3560.0	1/99	20	55538	3579.8	1/0	36.82	39.84
Mid	20	55891	3615.1	1/99	20	56089	3634.9	1/0	36.66	39.70
High	20	56442	3670.2	1/99	20	56640	3690.0	1/0	39.81	41.92
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

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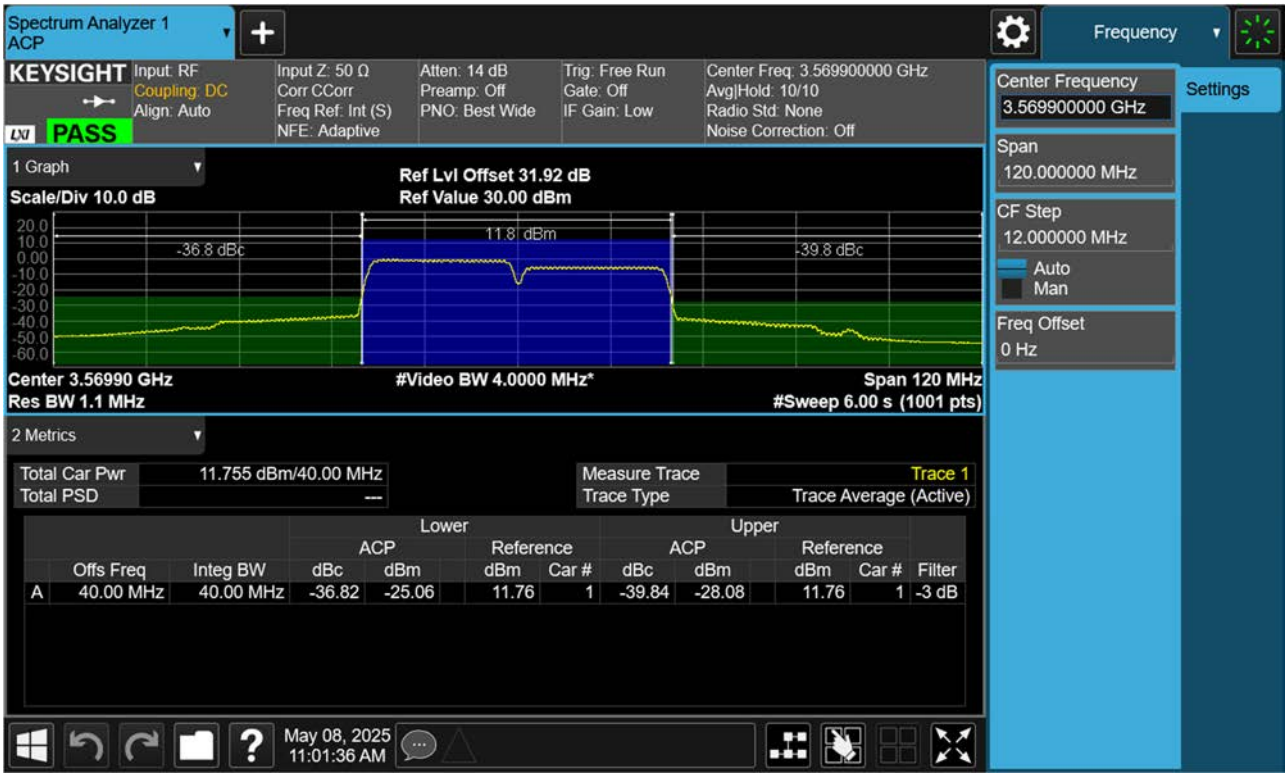
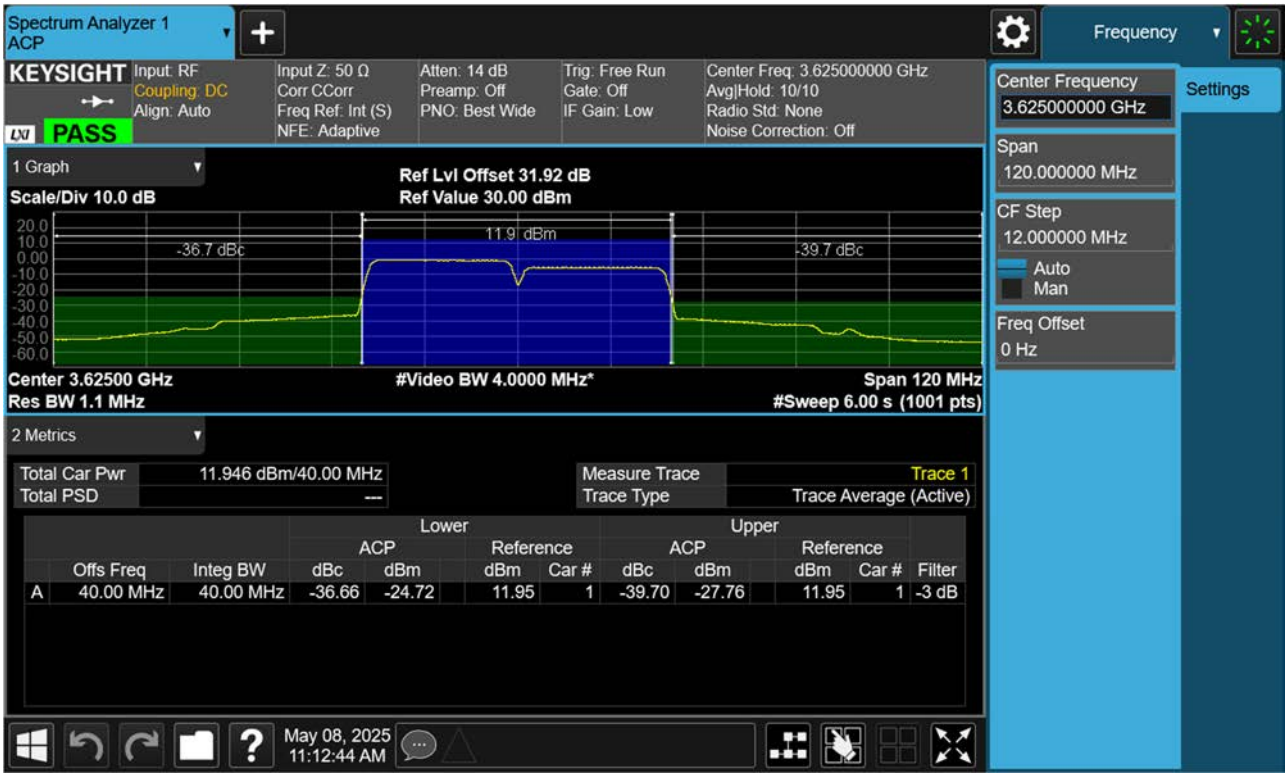
PCC 20MHz Ch55340 RB100 Offset0, SCC 20MHz Ch55538 RB100 Offset0



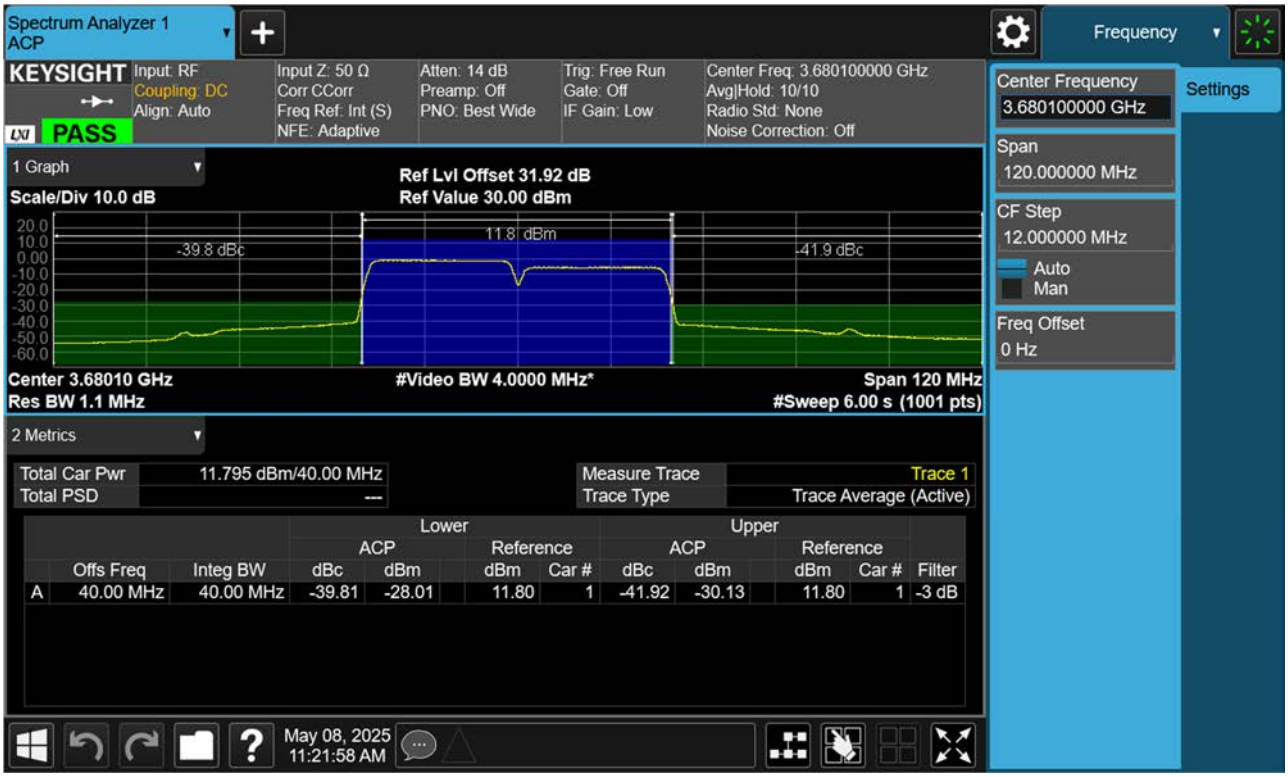
The report shall not be (partly) reproduced except in full without approval of the laboratory.

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



The report shall not be (partly) reproduced except in full without approval of the laboratory.

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



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9. ANNEX A_ TEST SETUP PHOTO

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

No.	Description
1	HCT-RF-2505-FC001-P

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