74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA
TEL: +82-31-645-6300 FAX: +82-31-645-6401

FCC Carrier Aggregation REPORT

Certification

Applicant Name:
SAMSUNG Electronics Co., Ltd.

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

Date of Issue:
May 16, 2022

Location:
HCT CO., LTD.,
74, Seoicheon-ro 578beon-gil, Majang-myeon,
Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA

Report No.: HCT-RF-2205-FC074

FCC ID:	**A3LSMG736U**
APPLICANT:	**SAMSUNG Electronics Co., Ltd.**

Model(s):	SM-G736U
Additional Model(s):	SM-G736U1
EUT Type:	Mobile Phone
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§27, §2

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)

Mode (PCC+SCC)	Tx Frequency (MHz)	Modulation	Emission Designator	EIRP	
				Max. Power (dBm)	Max. Power (W)
5 MHz + 20 MHz (PC2)	2499.3 - 2680.0	QPSK	22M9G7D	26.63	0.460
		16QAM	22M9W7D	25.11	0.324
		64QAM	22M9W7D	24.62	0.290
		256QAM	22M8W7D	22.16	0.164
10 MHz + 15 MHz (PC2)	2501.3 - 2682.5	QPSK	23M1G7D	26.99	0.500
		16QAM	23M1W7D	25.14	0.327
		64QAM	23M1W7D	24.89	0.308
		256QAM	23M1W7D	22.17	0.165
10 MHz + 20 MHz (PC2)	2501.5 - 2680.0	QPSK	27M7G7D	27.05	0.507
		16QAM	27M8W7D	25.35	0.343
		64QAM	27M8W7D	24.96	0.313
		256QAM	27M7W7D	22.18	0.165
15 MHz + 10 MHz (PC2)	2503.5 - 2684.7	QPSK	23M2G7D	26.57	0.454
		16QAM	23M2W7D	24.99	0.316
		64QAM	23M2W7D	24.82	0.303
		256QAM	23M1W7D	21.62	0.145
15 MHz + 15 MHz (PC2)	2503.5 - 2682.5	QPSK	28M3G7D	26.59	0.456
		16QAM	28M3W7D	24.99	0.316
		64QAM	28M3W7D	24.69	0.294
		256QAM	28M4W7D	21.60	0.145
15 MHz + 20 MHz (PC2)	2503.8 - 2680.0	QPSK	32M6G7D	26.50	0.447
		16QAM	32M6W7D	25.04	0.319
		64QAM	32M6W7D	24.57	0.286
		256QAM	32M7W7D	21.68	0.147
20 MHz + 5 MHz (PC2)	2506.0 - 2686.7	QPSK	23M0G7D	26.90	0.490
		16QAM	22M9W7D	25.32	0.340
		64QAM	22M8W7D	25.15	0.327
		256QAM	22M9W7D	21.98	0.158
20 MHz + 10 MHz (PC2)	2506.0 - 2684.5	QPSK	27M9G7D	26.72	0.470
		16QAM	27M8W7D	25.18	0.330
		64QAM	27M8W7D	24.53	0.284
		256QAM	27M8W7D	21.79	0.151
20 MHz + 15 MHz (PC2)	2506.0 - 2682.2	QPSK	32M7G7D	26.70	0.468
		16QAM	32M6W7D	26.38	0.435
		64QAM	32M5W7D	25.27	0.337
		256QAM	32M5W7D	24.58	0.287
20 MHz + 20 MHz (PC2)	2506.0 - 2680.0	QPSK	37M7G7D	26.55	0.452
		16QAM	37M6W7D	25.22	0.333
		64QAM	37M6W7D	24.73	0.297
		256QAM	37M6W7D	21.81	0.152

REVIEWED BY

Report prepared by : Jae Mun Do
Engineer of Telecommunication Testing Center

Report approved by : Jong Seok Lee
Manager of Telecommunication Testing Center

This test results were applied only to the test methods required by the standard.

This laboratory is not accredited for the test results marked *.
The above Test Report is the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA. (HCT Accreditation No.: KT197)

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2205-FC074	May 16, 2022	- First Approval Report

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.

Table of Contents

MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	SAMSUNG Electronics Co., Ltd.
Address:	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
FCC ID:	A3LSMG736U
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§27, §2
EUT Type:	Mobile Phone
Model(s):	SM-G736U
Additional Model(s):	SM-G736U1
Tx Frequency:	2499.3 - 2680.0: 5 MHz+20 MHz 2501.3 - 2682.5: 10 MHz+15 MHz 2501.5 - 2680.0: 10 MHz+20 MHz 2503.5 - 2684.7: 15 MHz+10 MHz 2503.5 - 2682.5: 15 MHz+15 MHz 2503.8 - 2680.0: 15 MHz+20 MHz 2506.0 - 2686.7: 20 MHz+5 MHz 2506.0 - 2684.5: 20 MHz+10 MHz 2506.0 - 2682.2: 20 MHz+15 MHz 2506.0 - 2680.0: 20 MHz+20 MHz
Date(s) of Tests:	April 01, 2022 ~ May 16, 2022
Serial number:	Radiated: R3CT30RXNKH Conducted: R3CT30RXHWD
LTE CA :	CA 41C(Uplink)

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

The EUT was a Mobile Phone with GSM/GPRS/EGPRS/UMTS and LTE, Sub6.

It also supports IEEE 802.11 a/b/g/n/ac/ax (20/40/80/160), Bluetooth, BT LE, NFC, WIFI 6E.

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, 17383, Rep. of KOREA.**

3. DESCRIPTION OF TESTS

3.1 TEST PROCEDURE

Test Description	Test Procedure Used
Occupied Bandwidth	- KDB 971168 D01 v03r01 – Section 4.3 - ANSI C63.26-2015 – Section 5.4.4
Channel Edge	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Spurious and Harmonic Emissions at Antenna Terminal	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Peak- to- Average Ratio	- KDB 971168 D01 v03r01 – Section 5.7 - ANSI C63.26-2015 – Section 5.2.3.4 - ANSI C63.26-2015 – Section 5.2.6(only GSM)
Frequency stability	- ANSI C63.26-2015 – Section 5.6
Effective Radiated Power/ Effective Isotropic Radiated Power	- KDB 971168 D01 v03r01 – Section 5.2 & 5.8 - ANSI/TIA-603-E-2016 – Section 2.2.17
Radiated Spurious and Harmonic Emissions	- KDB 971168 D01 v03r01 – Section 6.2 - ANSI/TIA-603-E-2016 – Section 2.2.12

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 in accordance with ANSI/TIA-603-E-2016 Clause 2.2.17.

Test Settings

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

Test Note

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

   The power is calculated by the following formula;

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

   Where: P_{d} is the dipole equivalent power and P_{g} is the generator output power into the substitution antenna.

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

3.3 RADIATED SPURIOUS EMISSIONS

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

Radiated Spurious Emission Measurements at 3 meters by Substitution Method according to ANSI/TIA-603-E-2016.

Test Settings

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

Test Note

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

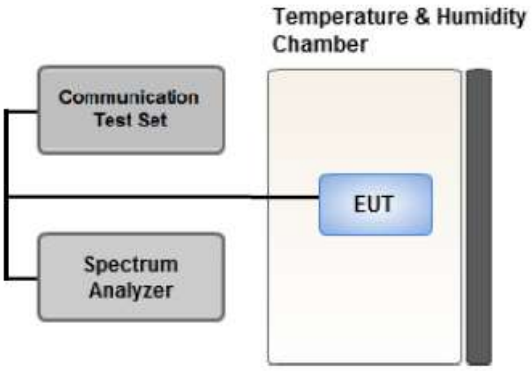
$$\text{Result}_{(dBm)} = \text{Pg}_{(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dBi)}$$

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

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

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

3.4 PEAK- TO- AVERAGE RATIO



Test setup

① CCDF Procedure for PAPR

Test Settings

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

② **Alternate Procedure for PAPR**

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

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

Test Settings(Peak Power)

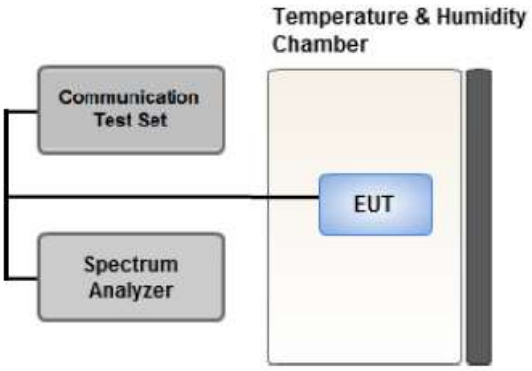
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW ≥ 3 × RBW.

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

Test Settings(Average Power)

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

3.5 OCCUPIED BANDWIDTH.



Test setup

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

The EUT makes a call to the communication simulator.

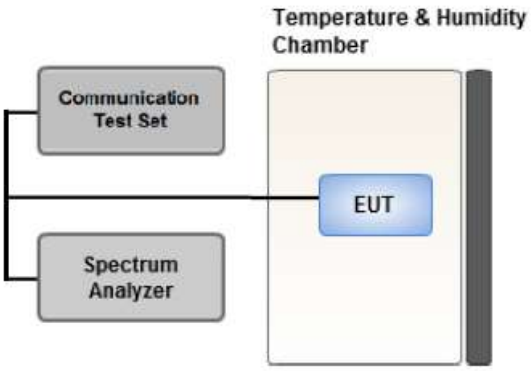
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth

Test Settings

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

3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL



Test setup

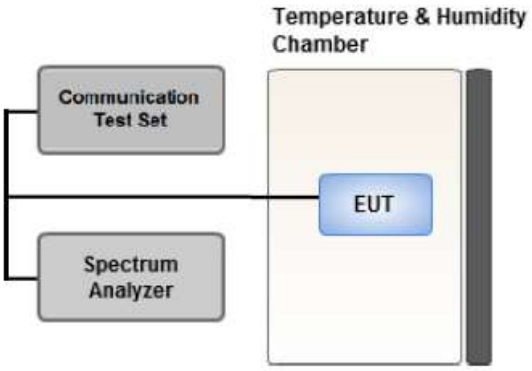
Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Settings

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

3.7 CHANNEL 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.

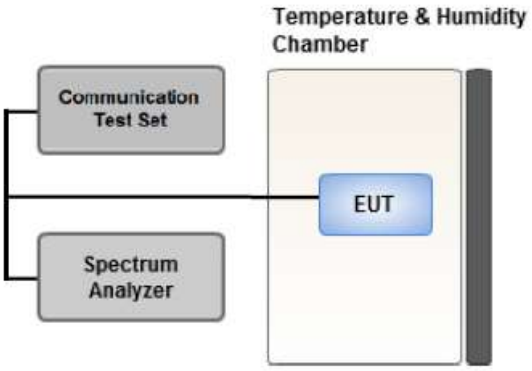
Test Settings

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. Within 1 MHz of the channel edge the RBW should be 2 % of EBW, then 1 MHz after that.
4. VBW > 3 x RBW
5. Detector = RMS
6. Number of sweep points ≥ 2 x Span/RBW
7. Trace mode = trace average
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Test Notes

1. The attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge,
2. 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge.
3. 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge.
4. The attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz.
5. 55 + 10 log (P) dB at or below 2490.5 MHz.
6. X is the greater of 6 MHz or the actual emission bandwidth
7. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer

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
H.P.F	FBSR-02B(WHK1.2/15 G-10EF)	T&M SYSTEM	-	02/18/2023	Annual
H.P.F	FBSR-02B(WHK3.3/18 G-10EF)	T&M SYSTEM	-	02/18/2023	Annual
Power Splitter(DC ~ 26.5 GHz)	11667B	Hewlett Packard	11275	03/11/2023	Annual
DC Power Supply	E3632A	Agilent	MY40010147	06/28/2022	Annual
Dipole Antenna	UHAP	Schwarzbeck	557	04/05/2023	Biennial
Dipole Antenna	UHAP	Schwarzbeck	558	04/05/2023	Biennial
Chamber	SU-642	ESPEC	93008124	03/04/2023	Annual
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	147	08/30/2022	Biennial
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	9120D-1298	09/15/2023	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	10/13/2022	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	04/12/2023	Biennial
Signal Analyzer(10 Hz ~ 26.5 GHz)	N9020A	Agilent	MY52090906	05/18/2022	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	06/01/2022	Annual
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	REOHDE & SCHWARZ	100931	09/29/2022	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/18/2022	Annual
Loop Antenna(9 kHz ~ 30 MHz)	FMZB1513	Schwarzbeck	1513-333	03/17/2024	Biennial
Bilog Antenna	VULB9160	Schwarzbeck	3150	03/03/2023	Biennial
Hybrid Antenna	VULB9168	Schwarzbeck	760	02/22/2023	Biennial
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262116770	07/12/2022	Annual
Wideband Radio Communication Tester	MT8820C	Anritsu Corp.	6200863156	12/29/2022	Annual
SIGNAL GENERATOR (100 kHz ~ 40 GHz)	SMB100A	REOHDE & SCHWARZ	177633	07/05/2022	Annual
Signal Analyzer(5 Hz ~ 40.0 GHz)	N9030B	KEYSIGHT	MY55480167	06/02/2022	Annual
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.,	-	-	-

Note:

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

5. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4:2014. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95 % level of confidence. The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty (±dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	2.00 (Confidence level about 95 %, k=2)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.40 (Confidence level about 95 %, k=2)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.74 (Confidence level about 95 %, k=2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.51 (Confidence level about 95 %, k=2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.92 (Confidence level about 95 %, k=2)
Radiated Disturbance (Above 40 GHz)	5.48 (Confidence level about 95 %, k=2)

6. SUMMARY OF TEST RESULTS

6.1 Test Condition : Conducted Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Occupied Bandwidth	§2.1049	N/A	PASS
Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§2.1051, §27.53(m)(4)	■ < 40 + 10log10 (P[Watts]) at Channel edges ■ < 43 + 10log10 (P[Watts]) between 5 and X MHz from Channel edges ■ < 55 + 10log10 (P[Watts]) beyond X MHz beyond from Channel edges ■ < 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz	PASS
Frequency stability / variation of ambient temperature	§2.1055, §27.54	Emission must remain in band	PASS

6.2 Test Condition : Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Equivalent Isotropic Radiated Power	§27.50(h)(2)	< 2 Watts max. EIRP	PASS
Radiated Spurious and Harmonic Emissions	§2.1053, §27.53(m)(4)	< 55 + 10log10 (P[Watts])	PASS

7. SAMPLE CALCULATION

7.1 ERP Sample Calculation

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

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

1) The EUT mounted on a non-conductive turntable is 2.5 meter above test site ground level.

2) During the test , the turn table is rotated until the maximum signal is found.

3) Record the field strength meter's level.

4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.

5) Increase the signal generator output till the field strength meter's level is equal to the item (3).

6) The signal generator output level with Ant. Gain and cable loss are the rating of effective radiated power.

7.2 EIRP Sample Calculation

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

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

1) The EUT mounted on a non-conductive turntable is 2.5 meter above test site ground level.

2) During the test , the turn table is rotated until the maximum signal is found.

3) Record the field strength meter's level.

4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.

5) Increase the signal generator output till the field strength meter's level is equal to the item (3).

6) The signal generator output level with Ant. Gain and cable loss are the rating of equivalent isotropic radiated power.

7.3. Emission Designator

GSM Emission Designator

Emission Designator = 249KGXW

GSM BW = 249 kHz

G = Phase Modulation

X = Cases not otherwise covered

W = Combination (Audio/Data)

EDGE Emission Designator

Emission Designator = 249KG7W

GSM BW = 249 kHz

G = Phase Modulation

7 = Quantized/Digital Info

W = Combination (Audio/Data)

WCDMA Emission Designator

Emission Designator = 4M17F9W

WCDMA BW = 4.17 MHz

F = Frequency Modulation

9 = Composite Digital Info

W = Combination (Audio/Data)

QPSK Modulation

Emission Designator = 4M48G7D

LTE BW = 4.48 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data transmission; telemetry; telecommand

QAM Modulation

Emission Designator = 4M48W7D

LTE BW = 4.48 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data transmission; telemetry; telecommand

8. TEST DATA

Test Overview

The EUT is set up to transmit two contiguous LTE channels. The power level of both carriers and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Note

1. All tests were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth.
2. Channel bandwidth is shown in the tables below based only on the channel bandwidths that were supported in this device.

Channel Bandwidth (PCC)	Channel Bandwidth (SCC)	Maximum aggregated bandwidth (MHz)
5	20	25
10	15	25
10	20	30
15	10	25
15	15	30
15	20	35
20	5	25
20	10	30
20	15	35
20	20	40

3. All modes of operation were investigated and the worst case configuration results are reported in this section.
   Please refer to the table below.
   - Worst case(Conducted Spurious Emissions, Channel Edge)
     : We have selected higher of the Conduction Output Power.
   - Worst case(Radiated Spurious Emissions) : We have selected higher of the EIRP.
   - Worst case(OBW, PAR, Frequency stability)
     : All modes of operation were investigated and the worst case configuration results are reported.
4. All power classes were tested, and the results were reported for the worst case PC2.
5. All 3 channels(low/mid/high) of conducted power and radiated power were investigated
   and the worst case channel results are reported.

[Worst case_PC2]

Test Description	Mod	Operating frequency	PCC					SCC				
			BW (MHz)	Freq. (MHz)	Ch.	RB	RB Offset	BW (MHz)	Freq. (MHz)	Ch.	RB	RB Offset
Conducted Spurious Emissions/ Channel Edge	QPSK	Low	10	2501.3	39703	1	49	15	2513.3	39823	1	0
		Mid	20	2590.5	40595	1	99	5	2602.2	40712	1	0
		High	20	2675.0	41440	1	99	5	2686.7	41557	1	0
		Low	10	2501.3	39703	1	0	15	2513.3	39823	1	74
		Mid	20	2590.5	40595	1	0	5	2602.2	40712	1	24
		High	20	2675.0	41440	1	0	5	2686.7	41557	1	24
		Low	15	2503.5	39725	75	0	10	2515.5	39845	50	0
		Mid	20	2590.5	40595	100	0	5	2602.2	40712	25	0
		High	20	2670.1	41391	100	0	10	2684.5	41535	50	0
		Low	20	2506.0	39750	100	0	20	2525.8	39948	100	0
		Mid	20	2583.1	40521	100	0	20	2602.9	40719	100	0
		High	20	2660.2	41292	100	0	20	2680.0	41490	100	0
Radiated Spurious Emissions	QPSK	Low	10	2501.5	39705	1	49	20	2515.9	39849	1	0
		Mid	10	2583.6	40526	1	49	20	2598.0	40670	1	0
		High	5	2668.3	41373	1	24	20	2680.0	41490	1	0

[Worst case_PC2]

Test Description	Mod	Operating frequency	PCC					SCC				
			BW (MHz)	Freq. (MHz)	Ch.	RB	RB Offset	BW (MHz)	Freq. (MHz)	Ch.	RB	RB Offset
OBW, PAR	QPSK, 16QAM, 64QAM 256QAM	Mid	5	2583.8	40528	25	0	20	2595.5	40645	100	0
			10	2585.9	40549	50	0	15	2597.9	40669	75	0
			10	2583.6	40526	50	0	20	2598.0	40670	100	0
			15	2588.1	40571	75	0	10	2600.1	40691	50	0
			15	2585.5	40545	75	0	15	2600.5	40695	75	0
			15	2583.3	40523	75	0	20	2600.4	40694	100	0
			20	2590.5	40595	100	0	5	2602.2	40712	25	0
			20	2588.1	40571	100	0	10	2602.5	40715	50	0
			20	2585.6	40546	100	0	15	2602.7	40717	75	0
			20	2583.1	40521	100	0	20	2602.9	40719	100	0
Frequency stability	QPSK	Low	5	2499.3	39683	25	0	20	2511.0	39800	100	0
			10	2501.5	39705	50	0	20	2515.9	39849	100	0
			15	2503.8	39728	75	0	20	2520.9	39899	100	0
			20	2506.0	39750	100	0	20	2525.8	39948	100	0
		High	5	2668.3	41373	25	0	20	2680.0	41490	100	0
			10	2665.6	41346	50	0	20	2680.0	41490	100	0
			15	2662.9	41319	75	0	20	2680.0	41490	100	0
			20	2660.2	41292	100	0	20	2680.0	41490	100	0

8.1 Conducted Power

8.1.1 PC2

Operating frequency	PCC					SCC					Conducted. Power [dBm]
	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	
Low	5	2499.3	39683	1	24	20	2511.0	39800	1	0	21.85
	10	***2501.3***	***39703***	***1***	***49***	***15***	***2513.3***	***39823***	***1***	***0***	***26.82***
	10	2501.5	39705	1	49	20	2515.9	39849	1	0	21.88
	15	2503.5	39725	1	74	10	2515.5	39845	1	0	26.73
	15	2503.5	39725	1	74	15	2518.5	39875	1	0	26.76
	15	2503.8	39728	1	74	20	2520.9	39899	1	0	26.74
	20	2506.0	39750	1	99	5	2517.7	39867	1	0	25.76
	20	2506.0	39750	1	99	10	2520.4	39894	1	0	25.81
	20	2506.0	39750	1	99	15	2523.1	39921	1	0	26.75
	20	2506.0	39750	1	99	20	2525.8	39948	1	0	26.76
Mid	5	2583.8	40528	1	24	20	2595.5	40645	1	0	27.15
	10	2585.9	40549	1	49	15	2597.9	40669	1	0	27.30
	10	2583.6	40526	1	49	20	2598.0	40670	1	0	27.33
	15	2588.1	40571	1	74	10	2600.1	40691	1	0	27.31
	15	2585.5	40545	1	74	15	2600.5	40695	1	0	27.27
	15	2583.3	40523	1	74	20	2600.4	40694	1	0	27.32
	20	***2590.5***	***40595***	***1***	***99***	***5***	***2602.2***	***40712***	***1***	***0***	***27.40***
	20	2588.1	40571	1	99	10	2602.5	40715	1	0	27.36
	20	2585.6	40546	1	99	15	2602.7	40717	1	0	27.31
	20	2583.1	40521	1	99	20	2602.9	40719	1	0	27.27
High	5	2668.3	41373	1	24	20	2680.0	41490	1	0	26.69
	10	2670.5	41395	1	49	15	2682.5	41515	1	0	26.76
	10	2665.6	41346	1	49	20	2680.0	41490	1	0	26.73
	15	2672.7	41417	1	74	10	2684.7	41537	1	0	26.83
	15	2667.5	41365	1	74	15	2682.5	41515	1	0	26.77
	15	2662.9	41319	1	74	20	2680.0	41490	1	0	26.70
	20	***2675.0***	***41440***	***1***	***99***	***5***	***2686.7***	***41557***	***1***	***0***	***26.89***
	20	2670.1	41391	1	99	10	2684.5	41535	1	0	26.83
	20	2665.1	41341	1	99	15	2682.2	41512	1	0	26.74
	20	2660.2	41292	1	99	20	2680.0	41490	1	0	26.64

Note:

Modulation : QPSK(1RB)

Operating frequency	PCC					SCC					Conducted. Power [dBm]
	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	
Low	5	2499.3	39683	25	0	20	2511.0	39800	100	0	21.86
	10	2501.3	39703	50	0	15	2513.3	39823	75	0	21.97
	10	2501.5	39705	50	0	20	2515.9	39849	100	0	21.90
	15	***2503.5***	***39725***	***75***	***0***	***10***	***2515.5***	***39845***	***50***	***0***	***21.99***
	15	2503.5	39725	75	0	15	2518.5	39875	75	0	21.92
	15	2503.8	39728	75	0	20	2520.9	39899	100	0	21.86
	20	2506.0	39750	100	0	5	2517.7	39867	25	0	21.92
	20	2506.0	39750	100	0	10	2520.4	39894	50	0	21.91
	20	2506.0	39750	100	0	15	2523.1	39921	75	0	21.89
	20	2506.0	39750	100	0	20	2525.8	39948	100	0	21.38
Mid	5	2583.8	40528	25	0	20	2595.5	40645	100	0	25.09
	10	2585.9	40549	50	0	15	2597.9	40669	75	0	25.25
	10	2583.6	40526	50	0	20	2598.0	40670	100	0	25.20
	15	2588.1	40571	75	0	10	2600.1	40691	50	0	25.34
	15	2585.5	40545	75	0	15	2600.5	40695	75	0	25.27
	15	2583.3	40523	75	0	20	2600.4	40694	100	0	25.13
	20	***2590.5***	***40595***	***100***	***0***	***5***	***2602.2***	***40712***	***25***	***0***	***25.41***
	20	2588.1	40571	100	0	10	2602.5	40715	50	0	25.25
	20	2585.6	40546	100	0	15	2602.7	40717	75	0	25.26
	20	2583.1	40521	100	0	20	2602.9	40719	100	0	25.15
High	5	2668.3	41373	25	0	20	2680.0	41490	100	0	24.75
	10	2670.5	41395	50	0	15	2682.5	41515	75	0	24.79
	10	2665.6	41346	50	0	20	2680.0	41490	100	0	24.80
	15	2672.7	41417	75	0	10	2684.7	41537	50	0	24.79
	15	2667.5	41365	75	0	15	2682.5	41515	75	0	24.83
	15	2662.9	41319	75	0	20	2680.0	41490	100	0	24.77
	20	2675.0	41440	100	0	5	2686.7	41557	25	0	24.85
	20	***2670.1***	***41391***	***100***	***0***	***10***	***2684.5***	***41535***	***50***	***0***	***24.86***
	20	2665.1	41341	100	0	15	2682.2	41512	75	0	24.78
	20	2660.2	41292	100	0	20	2680.0	41490	100	0	24.70

Note:

Modulation : QPSK(Full RB)

Operating frequency	PCC					SCC					Conducted. Power [dBm]
	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	
Low	10	2501.3	39703	1	49	15	2513.3	39823	1	0	25.99
Mid	20	2590.5	40595	1	99	5	2602.2	40712	1	0	26.56
High	20	2675.0	41440	1	99	5	2686.7	41557	1	0	25.99
Low	15	2503.5	39725	75	0	10	2515.5	39845	50	0	21.93
Mid	20	2590.5	40595	100	0	5	2602.2	40712	25	0	24.45
High	20	2670.1	41391	100	0	10	2684.5	41535	50	0	23.91

Note:

Modulation : 16QAM

Operating frequency	PCC					SCC					Conducted. Power [dBm]
	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	
Low	10	2501.3	39703	1	49	15	2513.3	39823	1	0	25.37
Mid	20	2590.5	40595	1	99	5	2602.2	40712	1	0	25.83
High	20	2675.0	41440	1	99	5	2686.7	41557	1	0	25.49
Low	15	2503.5	39725	75	0	10	2515.5	39845	50	0	21.92
Mid	20	2590.5	40595	100	0	5	2602.2	40712	25	0	24.43
High	20	2670.1	41391	100	0	10	2684.5	41535	50	0	23.89

Note:

Modulation : 64QAM

Operating frequency	PCC					SCC					Conducted. Power [dBm]
	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	
Low	10	2501.3	39703	1	49	15	2513.3	39823	1	0	22.15
Mid	20	2590.5	40595	1	99	5	2602.2	40712	1	0	22.71
High	20	2675.0	41440	1	99	5	2686.7	41557	1	0	22.10
Low	15	2503.5	39725	75	0	10	2515.5	39845	50	0	21.89
Mid	20	2590.5	40595	100	0	5	2602.2	40712	25	0	22.48
High	20	2670.1	41391	100	0	10	2684.5	41535	50	0	21.92

Note:

Modulation : 256QAM

8.2 Equivalent Isotropic Radiated Power

8.2.1 PC2

	PCC			SCC			Measured	Substitute	Ant.			E.I.R.P	
	BW [MHz]	Channel	RB/ Offset	BW [MHz]	Channel	RB/ Offset	Level (dBm)	Level (dBm)	Gain (dBi)	C.L	Pol.	W	dBm
Low	5	39683	25/0	20	39800	100/0	-21.13	15.83	10.70	2.50	H	0.253	24.03
	10	39703	50/0	15	39823	75/0	-18.23	18.79	10.70	2.50	H	0.500	26.99
	10	***39705***	***50/0***	***20***	***39849***	***100/0***	***-18.17***	***18.85***	***10.70***	***2.50***	***H***	***0.507***	***27.05***
	15	39725	75/0	10	39845	50/0	-18.65	18.37	10.70	2.50	H	0.454	26.57
	15	39725	75/0	15	39875	75/0	-18.63	18.39	10.70	2.50	H	0.456	26.59
	15	39728	75/0	20	39899	100/0	-18.72	18.30	10.70	2.50	H	0.447	26.50
	20	39750	100/0	5	39867	25/0	-18.32	18.70	10.70	2.50	H	0.490	26.90
	20	39750	100/0	10	39894	50/0	-18.50	18.52	10.70	2.50	H	0.470	26.72
	20	39750	100/0	15	39921	75/0	-18.53	18.50	10.70	2.50	H	0.468	26.70
	20	39750	100/0	20	39948	100/0	-18.68	18.35	10.70	2.50	H	0.452	26.55
Mid	5	40528	25/0	20	40645	100/0	-18.97	18.35	10.62	2.53	H	0.440	26.44
	10	40549	50/0	15	40669	75/0	-19.07	18.25	10.62	2.53	H	0.430	26.34
	10	***40526***	***50/0***	***20***	***40670***	***100/0***	***-18.87***	***18.45***	***10.62***	***2.53***	***H***	***0.451***	***26.54***
	15	40571	75/0	10	40691	50/0	-18.85	18.39	10.61	2.54	H	0.442	26.46
	15	40545	75/0	15	40695	75/0	-19.50	17.82	10.62	2.53	H	0.390	25.91
	15	40523	75/0	20	40694	100/0	-19.44	17.88	10.62	2.53	H	0.395	25.97
	20	40595	100/0	5	40712	25/0	-19.13	18.11	10.61	2.54	H	0.415	26.18
	20	40571	100/0	10	40715	50/0	-19.20	18.04	10.61	2.54	H	0.408	26.11
	20	40546	100/0	15	40717	75/0	-19.32	17.92	10.61	2.54	H	0.397	25.99
	20	40521	100/0	20	40719	100/0	-19.54	17.78	10.62	2.53	H	0.386	25.87
High	***5***	***41373***	***25/0***	***20***	***41490***	***100/0***	***-19.07***	***18.45***	***10.75***	***2.57***	***H***	***0.460***	***26.63***
	10	41395	50/0	15	41515	75/0	-19.08	18.44	10.75	2.57	H	0.459	26.62
	10	41346	50/0	20	41490	100/0	-19.02	18.32	10.74	2.57	H	0.446	26.49
	15	41417	75/0	10	41537	50/0	-19.47	18.22	10.76	2.57	H	0.438	26.41
	15	41365	75/0	15	41515	75/0	-19.32	18.20	10.75	2.57	H	0.435	26.38
	15	41319	75/0	20	41490	100/0	-19.06	18.28	10.74	2.57	H	0.442	26.45
	20	41440	100/0	5	41557	25/0	-19.32	18.37	10.76	2.57	H	0.453	26.56
	20	41391	100/0	10	41535	50/0	-19.42	18.27	10.76	2.57	H	0.443	26.46
	20	41341	100/0	15	41512	75/0	-19.24	18.10	10.74	2.57	H	0.424	26.27
	20	41292	100/0	20	41490	100/0	-19.10	18.24	10.74	2.57	H	0.438	26.41

Note:

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

PCC			SCC			Measured	Substitute	Ant.			E.I.R.P	
BW [MHz]	Channel	RB/ Offset	BW [MHz]	Channel	RB/ Offset	Level (dBm)	Level (dBm)	Gain (dBi)	C.L	Pol.	W	dBm
5	39683	25/0	20	39800	100/0	-21.43	15.53	10.70	2.50	H	0.236	23.73
10	39703	50/0	15	39823	75/0	-20.08	16.94	10.70	2.50	H	0.327	25.14
10	39705	50/0	20	39849	100/0	-19.87	17.15	10.70	2.50	H	0.343	25.35
15	39725	75/0	10	39845	50/0	-20.23	16.79	10.70	2.50	H	0.316	24.99
15	39725	75/0	15	39875	75/0	-20.23	16.79	10.70	2.50	H	0.316	24.99
15	39728	75/0	20	39899	100/0	-20.18	16.84	10.70	2.50	H	0.319	25.04
20	39750	100/0	5	39867	25/0	-19.90	17.12	10.70	2.50	H	0.340	25.32
20	39750	100/0	10	39894	50/0	-20.04	16.98	10.70	2.50	H	0.330	25.18
20	39750	100/0	15	39921	75/0	-18.85	18.18	10.70	2.50	H	0.435	26.38
20	39750	100/0	20	39948	100/0	-20.01	17.02	10.70	2.50	H	0.333	25.22
10	40526	50/0	20	40670	100/0	-20.74	16.58	10.62	2.53	H	0.293	24.67
5	41373	25/0	20	41490	100/0	-20.59	16.93	10.75	2.57	H	0.324	25.11

Note:

1. Modulation : 16QAM

2. Limit : < 2 Watts

PCC			SCC			Measured	Substitute	Ant.			E.I.R.P	
BW [MHz]	Channel	RB/ Offset	BW [MHz]	Channel	RB/ Offset	Level (dBm)	Level (dBm)	Gain (dBi)	C.L	Pol.	W	dBm
5	39683	25/0	20	39800	100/0	-21.51	15.45	10.70	2.50	H	0.232	23.65
10	39703	50/0	15	39823	75/0	-20.33	16.69	10.70	2.50	H	0.308	24.89
10	39705	50/0	20	39849	100/0	-20.26	16.76	10.70	2.50	H	0.313	24.96
15	39725	75/0	10	39845	50/0	-20.40	16.62	10.70	2.50	H	0.303	24.82
15	39725	75/0	15	39875	75/0	-20.53	16.49	10.70	2.50	H	0.294	24.69
15	39728	75/0	20	39899	100/0	-20.65	16.37	10.70	2.50	H	0.286	24.57
20	39750	100/0	5	39867	25/0	-20.07	16.95	10.70	2.50	H	0.327	25.15
20	39750	100/0	10	39894	50/0	-20.69	16.33	10.70	2.50	H	0.284	24.53
20	39750	100/0	15	39921	75/0	-19.96	17.07	10.70	2.50	H	0.337	25.27
20	39750	100/0	20	39948	100/0	-20.50	16.53	10.70	2.50	H	0.297	24.73
10	40526	50/0	20	40670	100/0	-21.08	16.24	10.62	2.53	H	0.271	24.33
5	41373	25/0	20	41490	100/0	-21.08	16.44	10.75	2.57	H	0.290	24.62

Note:

1. Modulation : 64QAM

2. Limit : < 2 Watts

PCC			SCC			Measured	Substitute	Ant.			E.I.R.P	
BW [MHz]	Channel	RB/ Offset	BW [MHz]	Channel	RB/ Offset	Level (dBm)	Level (dBm)	Gain (dBi)	C.L	Pol.	W	dBm
5	39683	25/0	20	39800	100/0	-23.00	13.96	10.70	2.50	H	0.164	22.16
10	39703	50/0	15	39823	75/0	-23.05	13.97	10.70	2.50	H	0.165	22.17
10	39705	50/0	20	39849	100/0	-23.04	13.98	10.70	2.50	H	0.165	22.18
15	39725	75/0	10	39845	50/0	-23.60	13.42	10.70	2.50	H	0.145	21.62
15	39725	75/0	15	39875	75/0	-23.62	13.40	10.70	2.50	H	0.145	21.60
15	39728	75/0	20	39899	100/0	-23.54	13.48	10.70	2.50	H	0.147	21.68
20	39750	100/0	5	39867	25/0	-23.24	13.78	10.70	2.50	H	0.158	21.98
20	39750	100/0	10	39894	50/0	-23.43	13.59	10.70	2.50	H	0.151	21.79
20	39750	100/0	15	39921	75/0	-20.65	16.38	10.70	2.50	H	0.287	24.58
20	39750	100/0	20	39948	100/0	-23.42	13.61	10.70	2.50	H	0.152	21.81
10	40526	50/0	20	40670	100/0	-24.06	13.26	10.62	2.53	H	0.136	21.35
5	41373	25/0	20	41490	100/0	-24.26	13.26	10.75	2.57	H	0.139	21.44

Note:

1. Modulation : 256QAM

2. Limit : < 2 Watts

8.3 Conducted Spurious Emissions

8.3.1 PC2

Operating frequency	PCC				SCC				Measurement Maximum Frequency (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)
	BW [MHz]	Ch.	Freq. (MHz)	RB/ Offset	BW [MHz]	Ch.	Freq. (MHz)	RB/ Offset				
Low	10	39703	2501.3	1/49	15	39823	2513.3	1/0	3.7947	31.955	-75.34	-43.38
Mid	20	40595	2590.5	1/99	5	40712	2602.2	1/0	2.6745	31.955	-72.46	-40.51
High	20	41440	2675.0	1/99	5	41557	2686.7	1/0	2.7005	31.955	-61.04	-29.09
Low	10	39703	2501.3	1/0	15	39823	2513.3	1/74	4.9587	31.955	-75.28	-43.33
Mid	20	40595	2590.5	1/0	5	40712	2602.2	1/24	2.6725	31.955	-73.53	-41.58
High	20	41440	2675.0	1/0	5	41557	2686.7	1/24	6.0372	32.570	-81.49	-48.92
Low	15	39725	2503.5	75/0	10	39845	2515.5	50/0	5.2159	32.570	-74.31	-41.74
Mid	20	40595	2590.5	100/0	5	40712	2602.2	25/0	4.9078	31.955	-75.47	-43.51
High	20	41391	2670.1	100/0	10	41535	2684.5	50/0	25.5184	34.110	-78.98	-44.87
Low	20	39750	2506.0	100/0	20	39948	2525.8	100/0	8.2562	32.570	-74.48	-41.91
Mid	20	40521	2583.1	100/0	20	40719	2602.9	100/0	9.1286	32.570	-75.20	-42.63
High	20	41292	2660.2	100/0	20	41490	2680.0	100/0	26.6613	34.110	-81.78	-47.67

Note:

1. Modulation : QPSK

2. Duty Cycle factor already applied on the factor.

   - Duty Cycle factor(dB) = 3.979

   - Factor(dB) = Duty Cycle factor + Cable Loss + Ext. Attenuator + Power Splitter

   - Result(dBm) = Measurement Maximum Data (dBm) + Factor

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

3. Limit : -25.0 dBm

Frequency Range : 30 MHz ~ 10 GHz

PCC 10 MHz Ch39703 RB1 Offset0 SCC 15 MHz Ch39823 RB1 Offset74

PCC 10 MHz Ch39703 RB1 Offset49 SCC 15 MHz Ch39823 RB1 Offset0

PCC 15 MHz Ch39725 RB75 Offset0 SCC 10 MHz Ch39845 RB50 Offset0

PCC 20 MHz Ch39750 RB100 Offset0 SCC 20 MHz Ch39948 RB100 Offset0

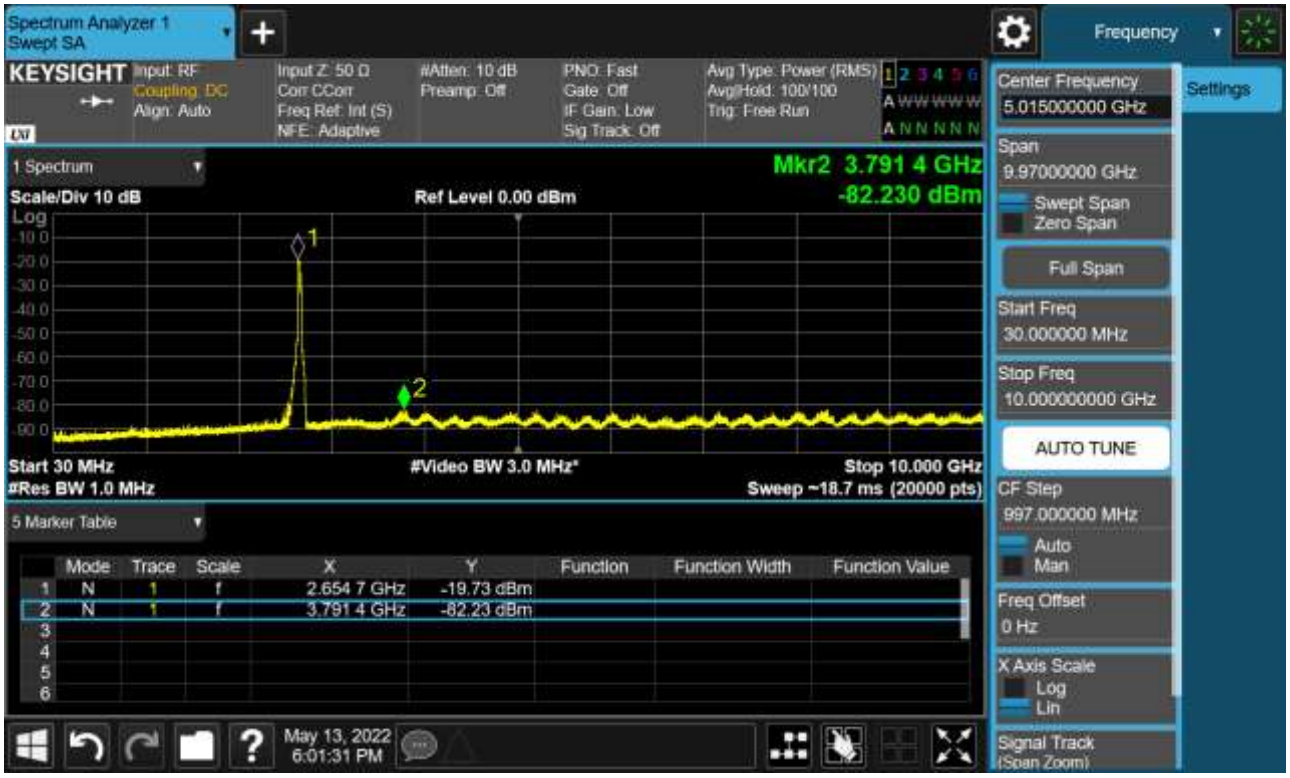
PCC 20 MHz Ch40521 RB100 Offset0 SCC 20 MHz Ch40719 RB100 Offset0

PCC 20 MHz Ch40595 RB1 Offset0 SCC 5 MHz Ch40712 RB1 Offset24

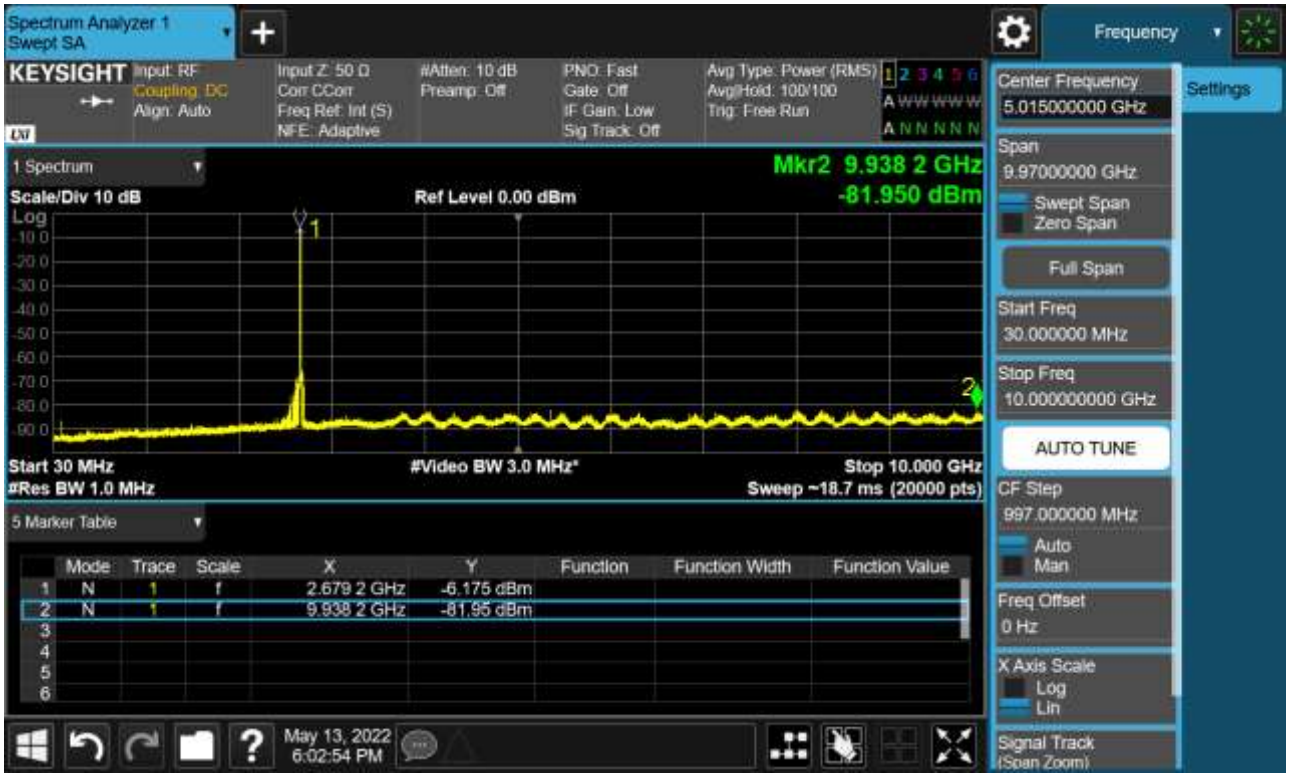
PCC 20 MHz Ch40595 RB1 Offset99 SCC 5 MHz Ch40712 RB1 Offset0

PCC 20 MHz Ch40595 RB100 Offset0 SCC 5 MHz Ch40712 RB25 Offset0

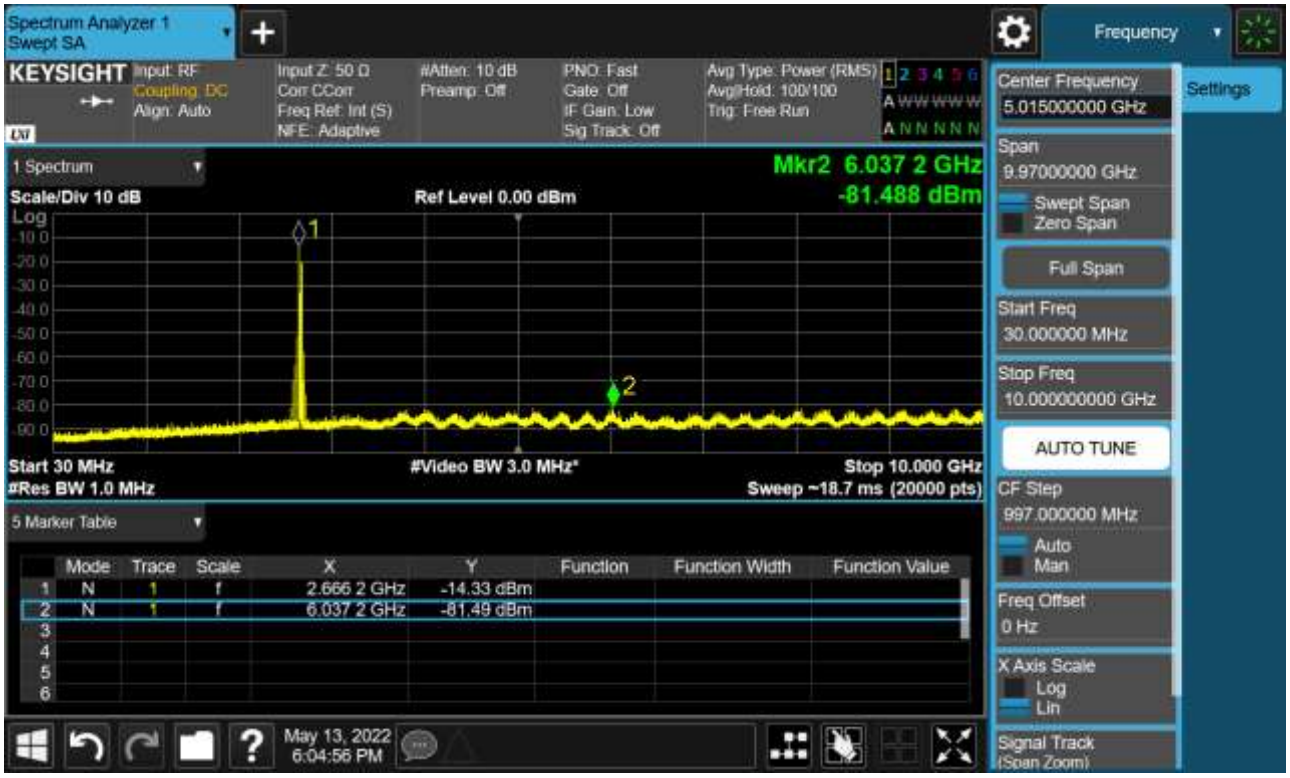
PCC 20 MHz Ch41292 RB100 Offset0 SCC 20 MHz Ch41490 RB100 Offset0



PCC 20 MHz Ch41391 RB100 Offset0 SCC 10 MHz Ch41535 RB50 Offset0



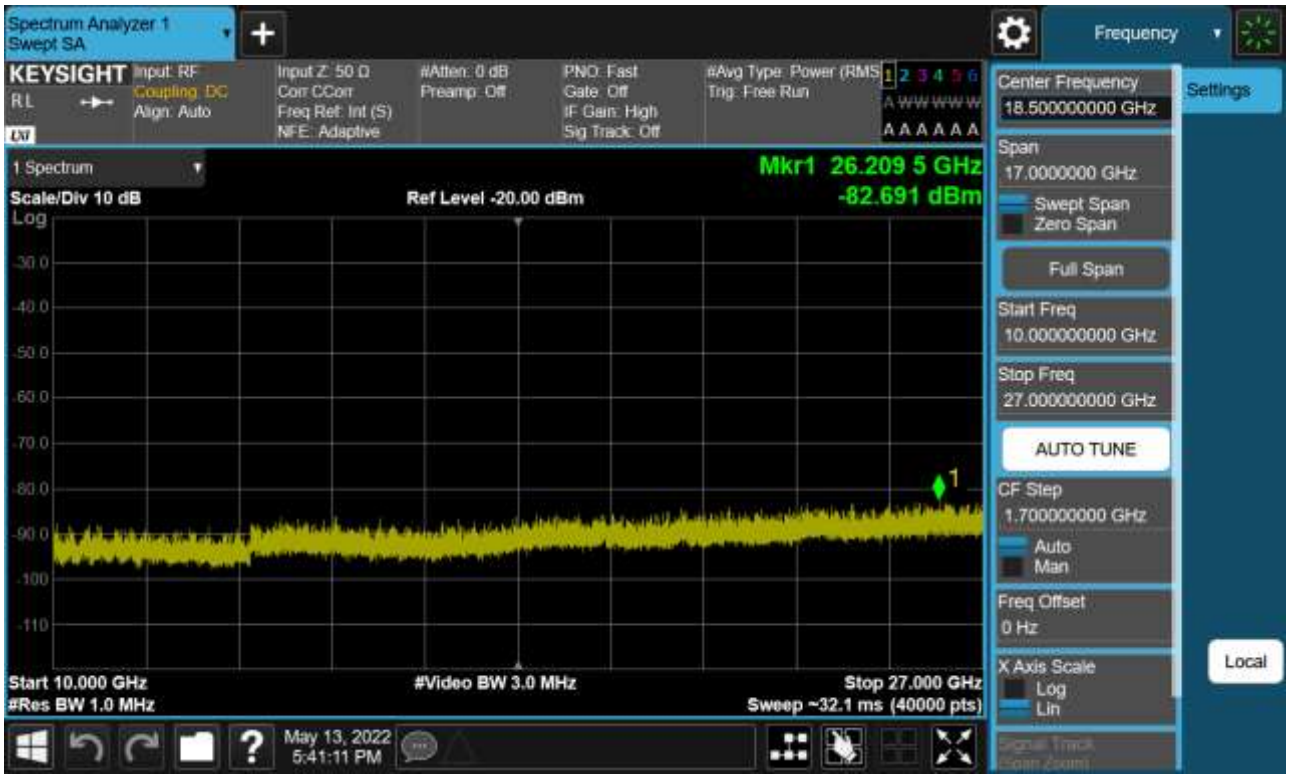
PCC 20 MHz Ch41440 RB1 Offset0 SCC 5 MHz Ch41557 RB1 Offset24



PCC 20 MHz Ch41440 RB1 Offset99 SCC 5 MHz Ch41557 RB1 Offset0

Frequency Range : 10 GHz ~ 26.5 GHz

PCC 10 MHz Ch39703 RB1 Offset0, SCC 15 MHz Ch39823 RB1 Offset74



PCC 10 MHz Ch39703 RB1 Offset49, SCC 15 MHz Ch39823 RB1 Offset0

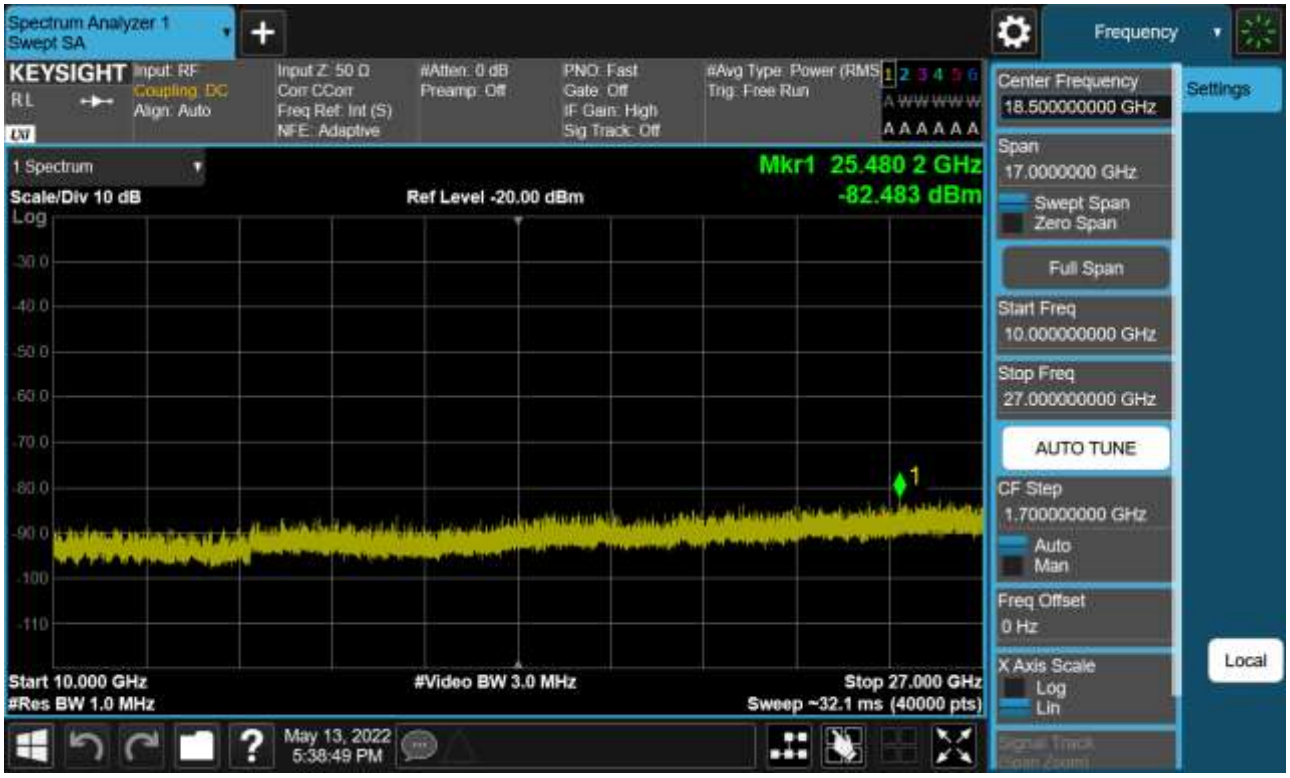
PCC 15 MHz Ch39725 RB75 Offset0, SCC 10 MHz Ch39845 RB50 Offset0

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

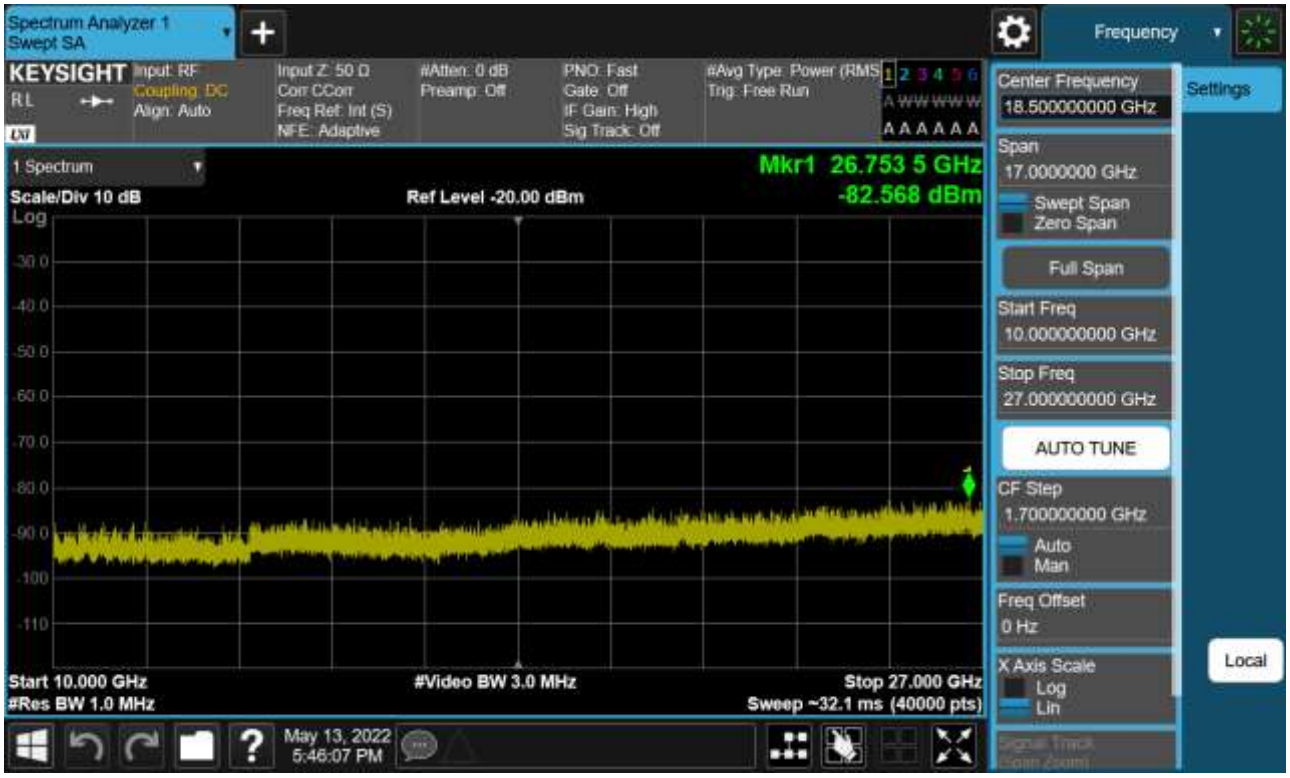
PCC 20 MHz Ch40521 RB100 Offset0, SCC 20 MHz Ch40719 RB100 Offset0

PCC 20 MHz Ch40595 RB1 Offset0, SCC 5 MHz Ch40712 RB1 Offset24

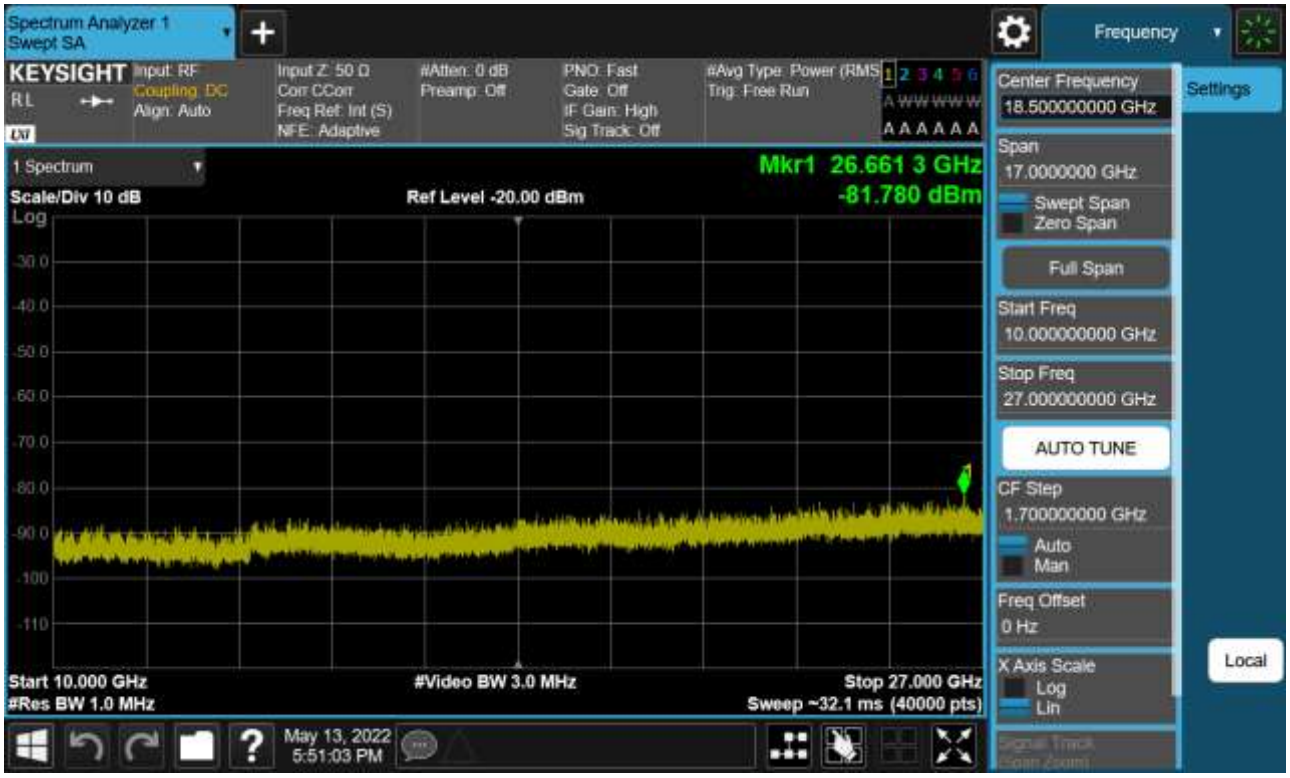
PCC 20 MHz Ch40595 RB1 Offset99, SCC 5 MHz Ch40712 RB1 Offset0



PCC 20 MHz Ch40595 RB100 Offset0, SCC 5 MHz Ch40712 RB25 Offset0



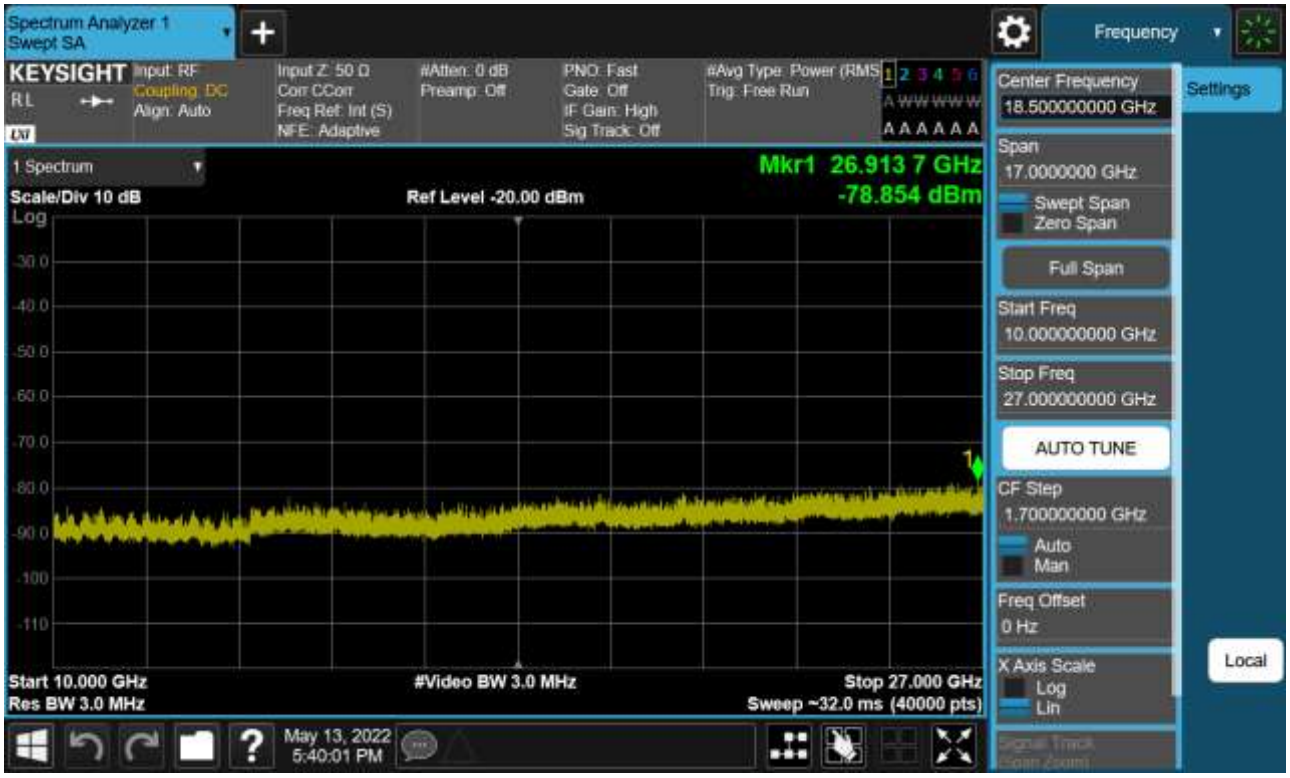
PCC 20 MHz Ch41292 RB100 Offset0, SCC 20 MHz Ch41490 RB100 Offset0



PCC 20 MHz Ch41391 RB100 Offset0, SCC 10 MHz Ch41535 RB50 Offset0

PCC 20 MHz Ch41440 RB1 Offset0, SCC 5 MHz Ch41557 RB1 Offset24

PCC 20 MHz Ch41440 RB1 Offset99, SCC 5 MHz Ch41557 RB1 Offset0

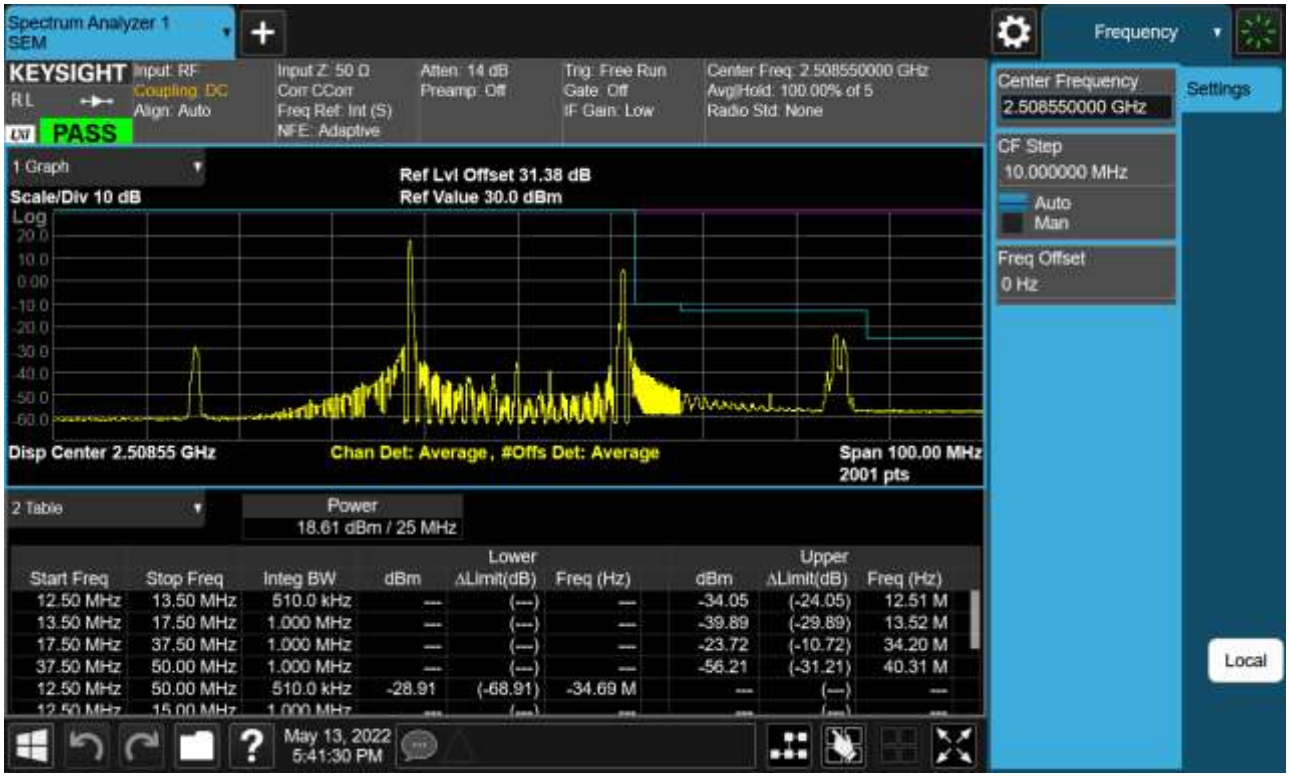


8.4 Channel Edge

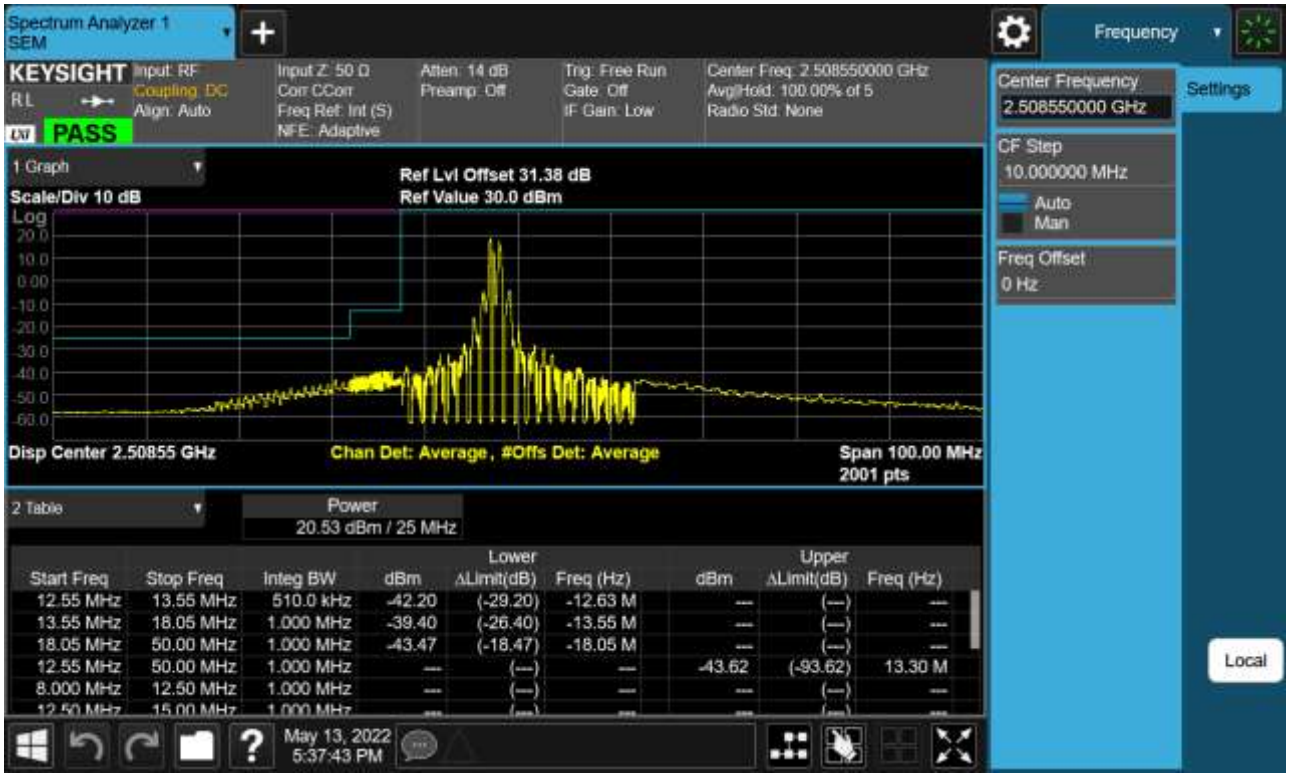
8.4.1 PC2

PCC 10 MHz Ch39703 RB1 Offset0, SCC 15 MHz Ch39823 RB1 Offset74-1

PCC 10 MHz Ch39703 RB1 Offset0, SCC 15 MHz Ch39823 RB1 Offset74-2



PCC 10 MHz Ch39703 RB1 Offset49, SCC 15 MHz Ch39823 RB1 Offset0-1



PCC 10 MHz Ch39703 RB1 Offset49, SCC 15 MHz Ch39823 RB1 Offset0-2

PCC 15 MHz Ch39725 RB75 Offset0, SCC 10 MHz Ch39845 RB50 Offset0-1

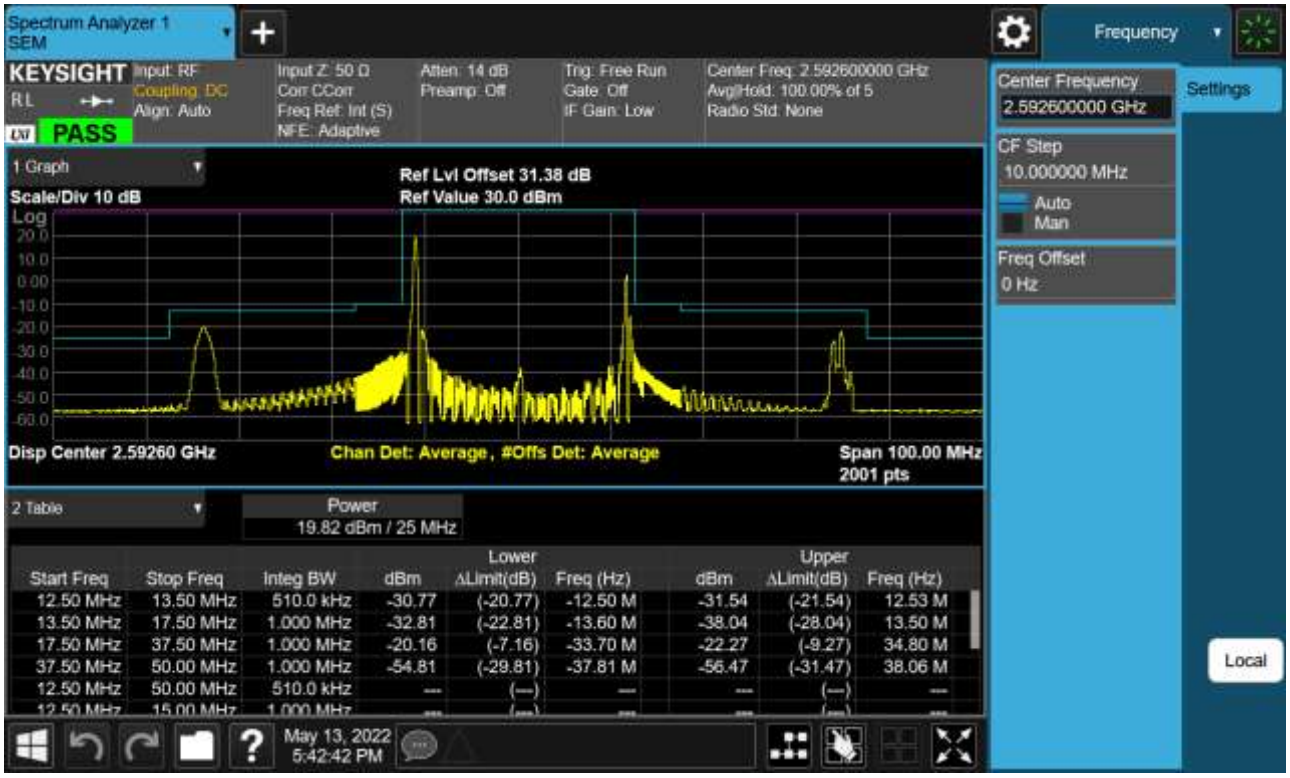
PCC 15 MHz Ch39725 RB75 Offset0, SCC 10 MHz Ch39845 RB50 Offset0-2

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

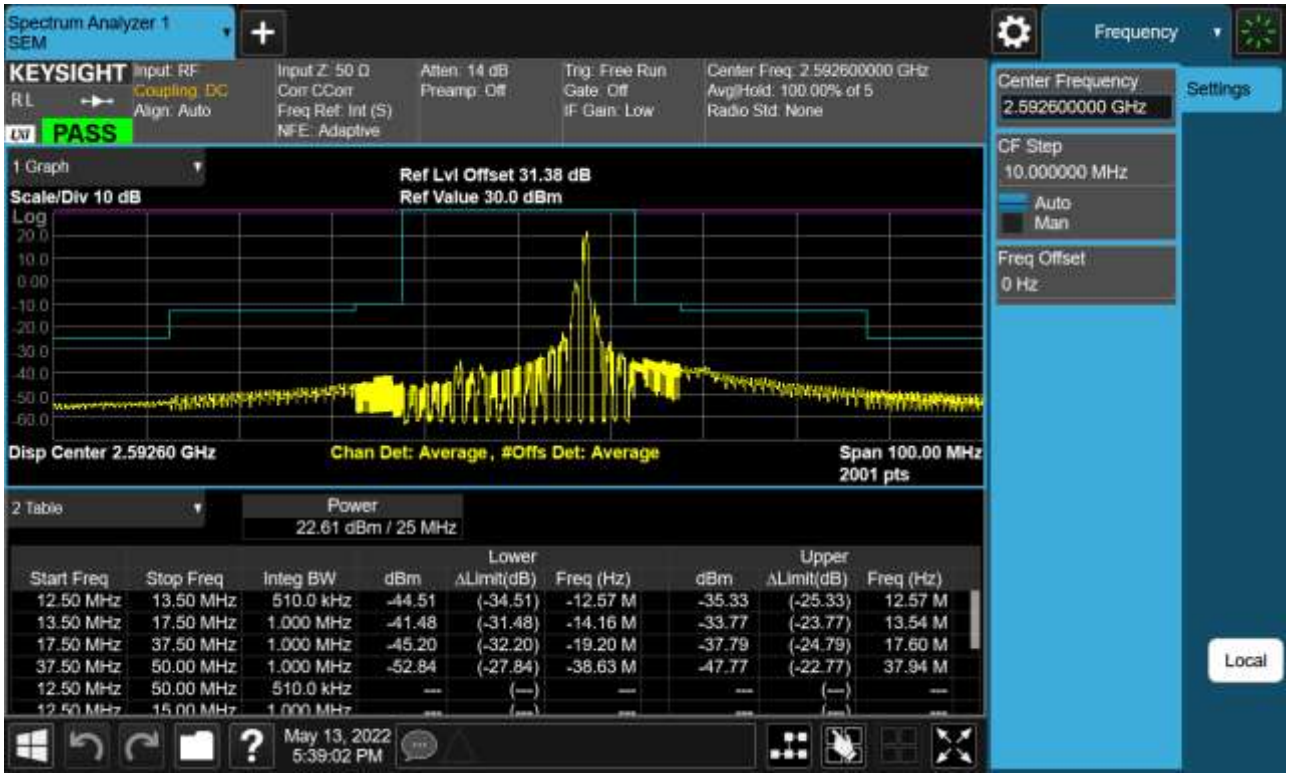
PCC 20 MHz Ch39750 RB100 Offset0, SCC 20 MHz Ch39948 RB100 Offset0-2

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

PCC 20 MHz Ch40595 RB1 Offset0, SCC 5 MHz Ch40712 RB1 Offset24



PCC 20 MHz Ch40595 RB1 Offset99, SCC 5 MHz Ch40712 RB1 Offset0

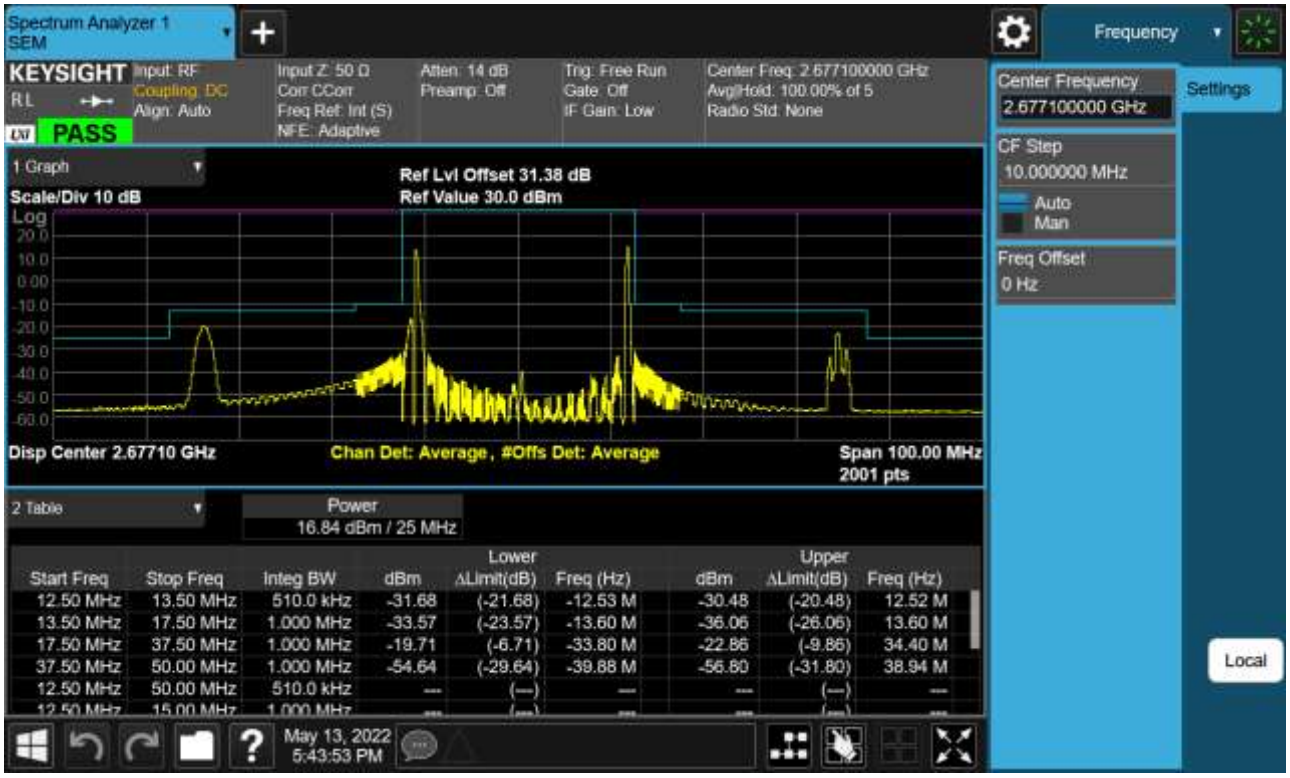


PCC 20 MHz Ch40595 RB100 Offset0, SCC 5 MHz Ch40712 RB25 Offset0

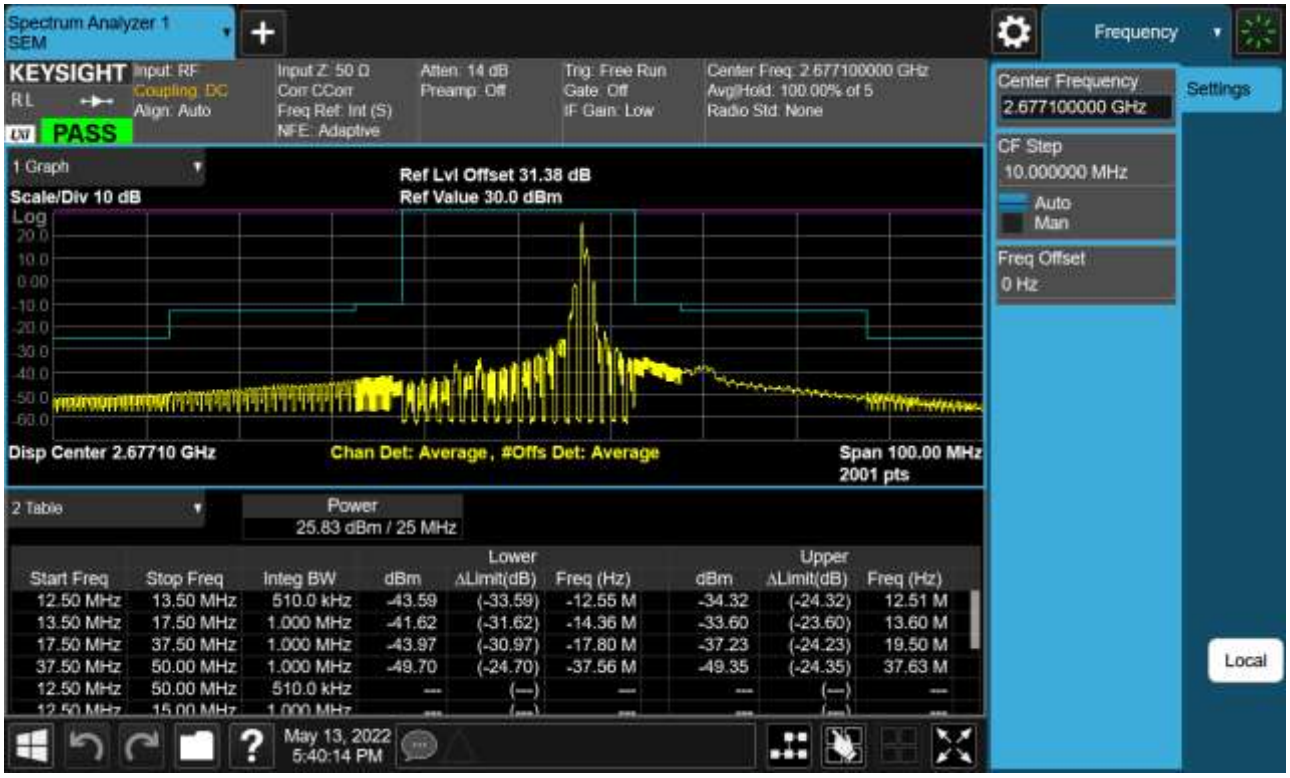
PCC 20 MHz Ch41292 RB100 Offset0, SCC 20 MHz Ch41490 RB100 Offset0

PCC 20 MHz Ch41391 RB100 Offset0, SCC 10 MHz Ch41535 RB50 Offset0

PCC 20 MHz Ch41440 RB1 Offset0, SCC 5 MHz Ch41557 RB1 Offset24



PCC 20 MHz Ch41440 RB1 Offset99, SCC 5 MHz Ch41557 RB1 Offset0



8.5 Frequency Stability / Variation Of Ambient Temperature

8.5.1 PC2

▣ PCC Channel:	39683	
▣ PCC Frequency:	2499.3	MHz
▣ PCC BandWidth:	5	MHz
▣ SCC Channel:	39800	
▣ SCC Frequency:	2511.0	MHz
▣ SCC BandWidth:	20	MHz
▣ Voltage :	3.860	VDC
▣ LIMIT:	Emission must remain in band	

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.860	+20(Ref)	-0.014	-0.014	2499.29992	2510.99982
100 %		-30	-0.012	-0.013	2499.29981	2510.99997
100 %		-20	0.002	-0.002	2499.29991	2510.99988
100 %		-10	-0.022	-0.015	2499.29989	2510.99988
100 %		0	-0.008	-0.014	2499.29995	2510.99988
100 %		10	-0.014	0.002	2499.29995	2510.99997
100 %		30	-0.013	-0.004	2499.29991	2510.99995
100 %		40	-0.012	-0.006	2499.29994	2510.99998
100 %		50	-0.013	-0.008	2499.29991	2510.99988
Batt. Endpoint	3.400	20	-0.004	0.010	2499.29994	2510.99993

▣ PCC Channel: 39705
▣ PCC Frequency: 2501.5 MHz
▣ PCC BandWidth: 10 MHz
▣ SCC Channel: 39849
▣ SCC Frequency: 2515.9 MHz
▣ SCC BandWidth: 20 MHz
▣ Voltage : 3.860 VDC
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.860	+20(Ref)	-0.013	-0.011	2501.49992	2515.89984
100 %		-30	-0.008	0.002	2501.49991	2515.89991
100 %		-20	-0.006	-0.022	2501.49985	2515.89982
100 %		-10	-0.022	-0.010	2501.49981	2515.89990
100 %		0	0.007	-0.005	2501.49992	2515.89989
100 %		10	-0.017	-0.009	2501.49984	2515.89989
100 %		30	-0.019	-0.011	2501.49983	2515.89990
100 %		40	-0.002	-0.005	2501.49995	2515.89988
100 %		50	-0.008	0.006	2501.49990	2515.90000
Batt. Endpoint	3.400	20	-0.011	-0.024	2501.49990	2515.89985

▣ PCC Channel: 39728
▣ PCC Frequency: 2503.8 MHz
▣ PCC BandWidth: 15 MHz
▣ SCC Channel: 39899
▣ SCC Frequency: 2520.9 MHz
▣ SCC BandWidth: 20 MHz
▣ Voltage : 3.860 VDC
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.860	+20(Ref)	-0.010	-0.005	2503.79999	2520.89987
100 %		-30	0.002	0.001	2503.79999	2520.89991
100 %		-20	-0.012	-0.014	2503.79987	2520.89991
100 %		-10	-0.013	-0.003	2503.79988	2520.89987
100 %		0	0.010	-0.002	2503.79993	2520.89990
100 %		10	-0.012	0.005	2503.79985	2520.89992
100 %		30	-0.006	-0.008	2503.79992	2520.89990
100 %		40	0.004	0.009	2503.79992	2520.89999
100 %		50	-0.006	0.000	2503.79993	2520.89992
Batt. Endpoint	3.400	20	-0.014	-0.001	2503.79990	2520.89990

▣ PCC Channel: 39750
▣ PCC Frequency: 2506.0 MHz
▣ PCC BandWidth: 20 MHz
▣ SCC Channel: 39948
▣ SCC Frequency: 2525.8 MHz
▣ SCC BandWidth: 20 MHz
▣ Voltage : 3.860 VDC
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.860	+20(Ref)	-0.013	-0.005	2505.99986	2525.79989
100 %		-30	0.001	-0.022	2506.00000	2525.79980
100 %		-20	-0.016	-0.016	2505.99984	2525.79994
100 %		-10	-0.009	0.002	2505.99982	2525.79994
100 %		0	-0.017	-0.008	2505.99985	2525.79994
100 %		10	-0.013	-0.012	2505.99986	2525.79988
100 %		30	-0.027	-0.014	2505.99987	2525.79995
100 %		40	0.001	-0.008	2505.99994	2525.79989
100 %		50	-0.018	-0.015	2505.99989	2525.79983
Batt. Endpoint	3.400	20	-0.008	-0.017	2505.99994	2525.79992

▣ PCC Channel: 41373
▣ PCC Frequency: 2668.3 MHz
▣ PCC BandWidth: 5 MHz
▣ SCC Channel: 41490
▣ SCC Frequency: 2680.0 MHz
▣ SCC BandWidth: 20 MHz
▣ Voltage : 3.860 VDC
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.860	+20(Ref)	-0.025	-0.008	2668.29990	2679.99986
100 %		-30	-0.011	0.001	2668.29992	2679.99992
100 %		-20	-0.013	0.010	2668.29992	2679.99987
100 %		-10	-0.006	-0.016	2668.29993	2679.99993
100 %		0	-0.014	-0.019	2668.29989	2679.99993
100 %		10	-0.016	0.000	2668.29994	2679.99994
100 %		30	-0.008	-0.003	2668.29991	2679.99988
100 %		40	-0.006	-0.023	2668.29994	2679.99983
100 %		50	-0.002	-0.010	2668.29997	2679.99995
Batt. Endpoint	3.400	20	-0.018	-0.003	2668.29987	2679.99992

▣ PCC Channel: 41346
▣ PCC Frequency: 2665.6 MHz
▣ PCC BandWidth: 10 MHz
▣ SCC Channel: 41490
▣ SCC Frequency: 2680.0 MHz
▣ SCC BandWidth: 20 MHz
▣ Voltage : 3.860 VDC
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.860	+20(Ref)	-0.003	-0.024	2665.59996	2679.99993
100 %		-30	-0.015	-0.002	2665.59994	2679.99991
100 %		-20	-0.018	-0.003	2665.59995	2679.99991
100 %		-10	-0.015	0.009	2665.59993	2679.99988
100 %		0	-0.011	-0.028	2665.59994	2679.99986
100 %		10	-0.018	-0.011	2665.59990	2679.99993
100 %		30	-0.028	-0.018	2665.59987	2679.99989
100 %		40	0.008	0.004	2665.59990	2679.99987
100 %		50	-0.023	-0.018	2665.59982	2679.99987
Batt. Endpoint	3.400	20	0.003	-0.008	2665.59993	2679.99989

▣ PCC Channel: 41319
▣ PCC Frequency: 2662.9 MHz
▣ PCC BandWidth: 15 MHz
▣ SCC Channel: 41490
▣ SCC Frequency: 2680.0 MHz
▣ SCC BandWidth: 20 MHz
▣ Voltage : 3.860 VDC
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.860	+20(Ref)	-0.011	-0.009	2662.89992	2679.99987
100 %		-30	-0.013	-0.002	2662.89995	2679.99990
100 %		-20	-0.005	-0.009	2662.89982	2679.99995
100 %		-10	0.006	-0.010	2662.89997	2679.99987
100 %		0	-0.004	0.010	2662.89988	2679.99995
100 %		10	-0.004	-0.019	2662.89988	2679.99991
100 %		30	-0.004	0.000	2662.89985	2679.99997
100 %		40	-0.009	-0.025	2662.89986	2679.99983
100 %		50	-0.006	-0.004	2662.89995	2679.99983
Batt. Endpoint	3.400	20	-0.013	-0.028	2662.89981	2679.99986

▣ PCC Channel: 41292
▣ PCC Frequency: 2660.2 MHz
▣ PCC BandWidth: 20 MHz
▣ SCC Channel: 41490
▣ SCC Frequency: 2680.0 MHz
▣ SCC BandWidth: 20 MHz
▣ Voltage : 3.860 MHz
▣ LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	PPM		Frequency Error (MHz)	
			PCC	SCC	PCC	SCC
100 %	3.860	+20(Ref)	-0.005	0.000	2660.19988	2679.99992
100 %		-30	0.002	-0.010	2660.19994	2679.99990
100 %		-20	-0.016	-0.007	2660.19992	2679.99988
100 %		-10	-0.001	0.000	2660.19999	2679.99989
100 %		0	-0.015	0.002	2660.19993	2679.99989
100 %		10	-0.004	0.002	2660.19991	2679.99995
100 %		30	-0.001	-0.028	2660.19992	2679.99994
100 %		40	0.005	0.001	2660.19996	2679.99990
100 %		50	-0.006	-0.003	2660.19996	2679.99993
Batt. Endpoint	3.400	20	-0.002	-0.001	2660.20001	2679.99996

8.6 Radiated Spurious Emissions

8.6.1 PC2

▣ PCC Channel : 39705 (2501.5 MHz)

▣ PCC BW(MHz) : 10

▣ PCC RB/ RB Offset : 1/ 49

▣ SCC Channel : 39849 (2515.9 MHz)

▣ SCC BW(MHz) : 20

▣ SCC RB/ RB Offset : 1/ 0

▣ DISTANCE: 1 meters

▣ LIMIT: -25.0 dBm

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)
5 017.40	-52.07	12.56	-62.12	3.60	H	-53.16
7 526.10	-48.08	10.85	-48.42	4.46	V	-42.03
10 034.80	-52.96	11.27	-48.75	5.31	V	-42.79
12 543.50	-50.18	13.20	-46.04	5.93	H	-38.77
15 052.20	-55.56	11.70	-45.86	6.67	H	-40.83

▣ PCC Channel : 40526 (2583.6 MHz)

▣ PCC BW(MHz) : 10

▣ PCC RB/ RB Offset : 1/ 49

▣ SCC Channel : 40670 (2598.0 MHz)

▣ SCC BW(MHz) : 20

▣ SCC RB/ RB Offset : 1/ 0

▣ DISTANCE: 1 meters

▣ LIMIT: -25.0 dBm

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)
5 181.60	-46.24	12.42	-54.42	3.69	V	-45.69
7 772.40	-49.00	11.40	-50.01	4.52	H	-43.13
10 363.20	-46.34	11.40	-41.48	5.44	H	-35.52
12 954.00	-49.43	12.81	-42.93	6.09	H	-36.21

▣ PCC Channel : 41373 (2668.3 MHz)

▣ PCC BW(MHz) : 5

▣ PCC RB/ RB Offset : 1/ 24

▣ SCC Channel : 41490 (2680.0 MHz)

▣ SCC BW(MHz) : 20

▣ SCC RB/ RB Offset : 1/ 0

▣ DISTANCE: 1 meters

▣ LIMIT: -25.0 dBm

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)
5 348.30	-41.92	13.00	-51.32	3.74	H	-42.06
8 022.45	-50.00	10.86	-48.78	4.60	V	-42.52
10 696.60	-47.54	11.29	-43.42	5.52	V	-37.65
13 370.75	-49.40	12.70	-41.24	6.16	V	-34.70
16 044.90	-56.87	15.80	-48.57	6.93	V	-39.70

8.7 Occupied Bandwidth

8.7.1 PC2

PCC					SCC					Data (MHz)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	40528	2583.8	QPSK	25/ 0	20	40645	2595.5	QPSK	100/ 0	22.880
10	40549	2585.9	QPSK	50/ 0	15	40669	2597.9	QPSK	75/ 0	23.073
10	40526	2583.6	QPSK	50/ 0	20	40670	2598.0	QPSK	100/ 0	27.731
15	40571	2588.1	QPSK	75/ 0	10	40691	2600.1	QPSK	50/ 0	23.193
15	40545	2585.5	QPSK	75/ 0	15	40695	2600.5	QPSK	75/ 0	28.317
15	40523	2583.3	QPSK	75/ 0	20	40694	2600.4	QPSK	100/ 0	32.575
20	40595	2590.5	QPSK	100/ 0	5	40712	2602.2	QPSK	25/ 0	23.003
20	40571	2588.1	QPSK	100/ 0	10	40715	2602.5	QPSK	50/ 0	27.851
20	40546	2585.6	QPSK	100/ 0	15	40717	2602.7	QPSK	75/ 0	32.662
20	40521	2583.1	QPSK	100/ 0	20	40719	2602.9	QPSK	100/ 0	37.671

PCC					SCC					Data (MHz)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	40528	2583.8	16QAM	25/ 0	20	40645	2595.5	16QAM	100/ 0	22.881
10	40549	2585.9	16QAM	50/ 0	15	40669	2597.9	16QAM	75/ 0	23.134
10	40526	2583.6	16QAM	50/ 0	20	40670	2598.0	16QAM	100/ 0	27.801
15	40571	2588.1	16QAM	75/ 0	10	40691	2600.1	16QAM	50/ 0	23.205
15	40545	2585.5	16QAM	75/ 0	15	40695	2600.5	16QAM	75/ 0	28.310
15	40523	2583.3	16QAM	75/ 0	20	40694	2600.4	16QAM	100/ 0	32.622
20	40595	2590.5	16QAM	100/ 0	5	40712	2602.2	16QAM	25/ 0	22.900
20	40571	2588.1	16QAM	100/ 0	10	40715	2602.5	16QAM	50/ 0	27.781
20	40546	2585.6	16QAM	100/ 0	15	40717	2602.7	16QAM	75/ 0	32.608
20	40521	2583.1	16QAM	100/ 0	20	40719	2602.9	16QAM	100/ 0	37.603

PCC					SCC					Data (MHz)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	40528	2583.8	64QAM	25/ 0	20	40645	2595.5	64QAM	100/ 0	22.856
10	40549	2585.9	64QAM	50/ 0	15	40669	2597.9	64QAM	75/ 0	23.102
10	40526	2583.6	64QAM	50/ 0	20	40670	2598.0	64QAM	100/ 0	27.834
15	40571	2588.1	64QAM	75/ 0	10	40691	2600.1	64QAM	50/ 0	23.146
15	40545	2585.5	64QAM	75/ 0	15	40695	2600.5	64QAM	75/ 0	28.309
15	40523	2583.3	64QAM	75/ 0	20	40694	2600.4	64QAM	100/ 0	32.598
20	40595	2590.5	64QAM	100/ 0	5	40712	2602.2	64QAM	25/ 0	22.841
20	40571	2588.1	64QAM	100/ 0	10	40715	2602.5	64QAM	50/ 0	27.824
20	40546	2585.6	64QAM	100/ 0	15	40717	2602.7	64QAM	75/ 0	32.508
20	40521	2583.1	64QAM	100/ 0	20	40719	2602.9	64QAM	100/ 0	37.554

PCC					SCC					Data (MHz)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	40528	2583.8	256QAM	25/ 0	20	40645	2595.5	256QAM	100/ 0	22.829
10	40549	2585.9	256QAM	50/ 0	15	40669	2597.9	256QAM	75/ 0	23.083
10	40526	2583.6	256QAM	50/ 0	20	40670	2598.0	256QAM	100/ 0	27.673
15	40571	2588.1	256QAM	75/ 0	10	40691	2600.1	256QAM	50/ 0	23.078
15	40545	2585.5	256QAM	75/ 0	15	40695	2600.5	256QAM	75/ 0	28.406
15	40523	2583.3	256QAM	75/ 0	20	40694	2600.4	256QAM	100/ 0	32.668
20	40595	2590.5	256QAM	100/ 0	5	40712	2602.2	256QAM	25/ 0	22.911
20	40571	2588.1	256QAM	100/ 0	10	40715	2602.5	256QAM	50/ 0	27.755
20	40546	2585.6	256QAM	100/ 0	15	40717	2602.7	256QAM	75/ 0	32.509
20	40521	2583.1	256QAM	100/ 0	20	40719	2602.9	256QAM	100/ 0	37.563

Note:

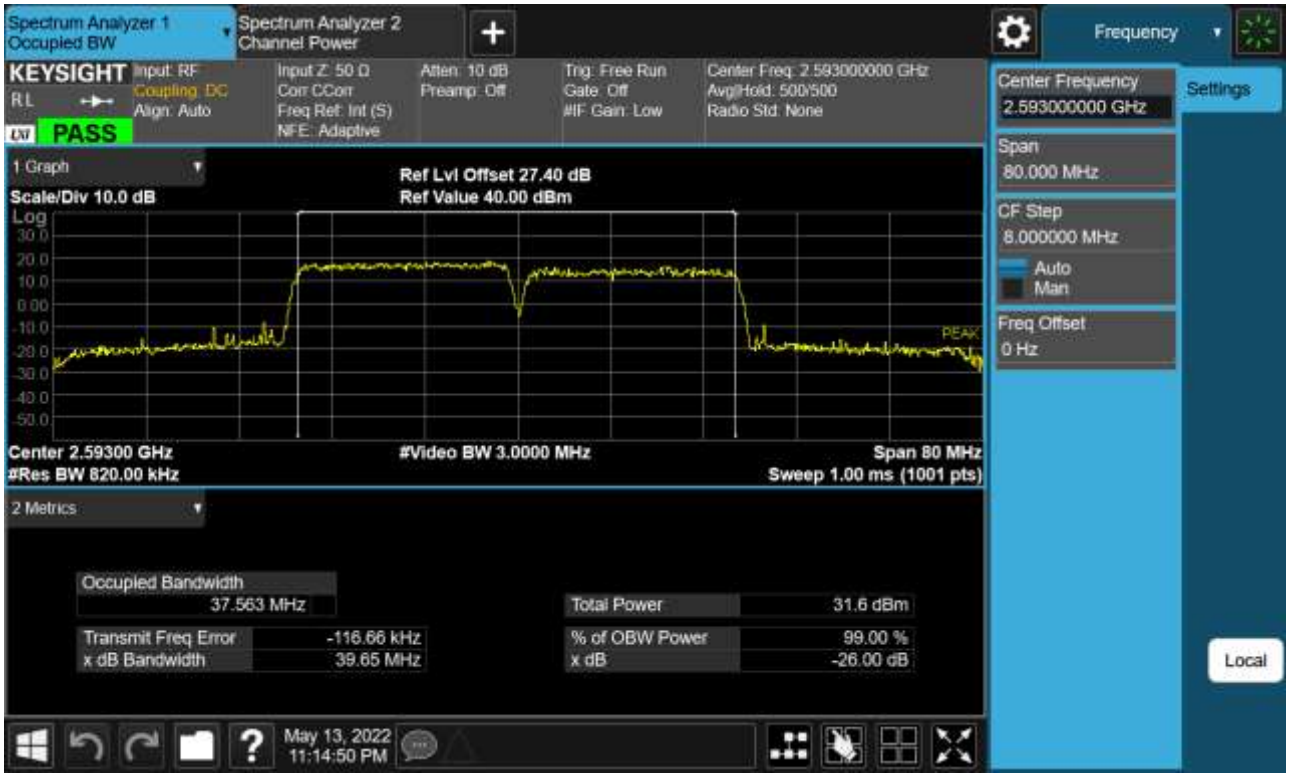
In order to simplify the report, attached plots were only Max.Bandwidth(20+20)

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

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

PCC 20 MHz Ch40521 RB100 Offset0, SCC 20 MHz Ch40719 RB100 Offset0_(64QAM)

PCC 20 MHz Ch40521 RB100 Offset0, SCC 20 MHz Ch40719 RB100 Offset0_(256QAM)



8.8 Peak- to- Average Ratio

8.8.1 PC2

PCC					SCC					Data (dBm)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	40528	2583.8	QPSK	25/ 0	20	40645	2595.5	QPSK	100/ 0	5.74
10	40549	2585.9	QPSK	50/ 0	15	40669	2597.9	QPSK	75/ 0	5.77
10	40526	2583.6	QPSK	50/ 0	20	40670	2598.0	QPSK	100/ 0	5.88
15	40571	2588.1	QPSK	75/ 0	10	40691	2600.1	QPSK	50/ 0	5.73
15	40545	2585.5	QPSK	75/ 0	15	40695	2600.5	QPSK	75/ 0	6.58
15	40523	2583.3	QPSK	75/ 0	20	40694	2600.4	QPSK	100/ 0	5.87
20	40595	2590.5	QPSK	100/ 0	5	40712	2602.2	QPSK	25/ 0	5.90
20	40571	2588.1	QPSK	100/ 0	10	40715	2602.5	QPSK	50/ 0	5.79
20	40546	2585.6	QPSK	100/ 0	15	40717	2602.7	QPSK	75/ 0	5.90
20	40521	2583.1	QPSK	100/ 0	20	40719	2602.9	QPSK	100/ 0	6.73

PCC					SCC					Data (dBm)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	40528	2583.8	16QAM	25/ 0	20	40645	2595.5	16QAM	100/ 0	6.44
10	40549	2585.9	16QAM	50/ 0	15	40669	2597.9	16QAM	75/ 0	6.49
10	40526	2583.6	16QAM	50/ 0	20	40670	2598.0	16QAM	100/ 0	6.59
15	40571	2588.1	16QAM	75/ 0	10	40691	2600.1	16QAM	50/ 0	6.49
15	40545	2585.5	16QAM	75/ 0	15	40695	2600.5	16QAM	75/ 0	7.43
15	40523	2583.3	16QAM	75/ 0	20	40694	2600.4	16QAM	100/ 0	6.60
20	40595	2590.5	16QAM	100/ 0	5	40712	2602.2	16QAM	25/ 0	6.54
20	40571	2588.1	16QAM	100/ 0	10	40715	2602.5	16QAM	50/ 0	6.53
20	40546	2585.6	16QAM	100/ 0	15	40717	2602.7	16QAM	75/ 0	6.56
20	40521	2583.1	16QAM	100/ 0	20	40719	2602.9	16QAM	100/ 0	7.51

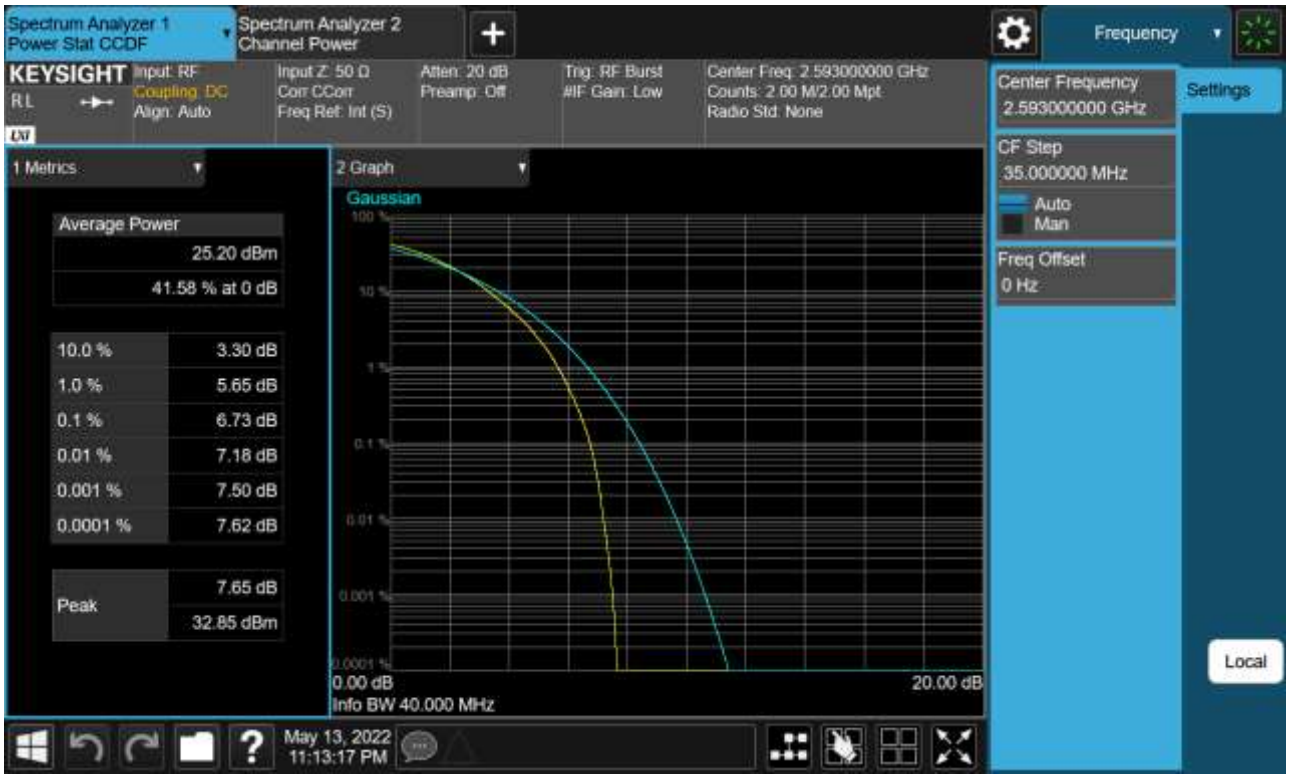
PCC					SCC					Data (dBm)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	40528	2583.8	64QAM	25/ 0	20	40645	2595.5	64QAM	100/ 0	6.78
10	40549	2585.9	64QAM	50/ 0	15	40669	2597.9	64QAM	75/ 0	6.76
10	40526	2583.6	64QAM	50/ 0	20	40670	2598.0	64QAM	100/ 0	6.72
15	40571	2588.1	64QAM	75/ 0	10	40691	2600.1	64QAM	50/ 0	6.72
15	40545	2585.5	64QAM	75/ 0	15	40695	2600.5	64QAM	75/ 0	7.65
15	40523	2583.3	64QAM	75/ 0	20	40694	2600.4	64QAM	100/ 0	6.74
20	40595	2590.5	64QAM	100/ 0	5	40712	2602.2	64QAM	25/ 0	6.70
20	40571	2588.1	64QAM	100/ 0	10	40715	2602.5	64QAM	50/ 0	6.64
20	40546	2585.6	64QAM	100/ 0	15	40717	2602.7	64QAM	75/ 0	6.70
20	40521	2583.1	64QAM	100/ 0	20	40719	2602.9	64QAM	100/ 0	7.64

PCC					SCC					Data (dBm)
BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	BW [MHz]	Ch	Freq [MHz]	Mod	RB/ Offset	
5	40528	2583.8	256QAM	25/ 0	20	40645	2595.5	256QAM	100/ 0	7.15
10	40549	2585.9	256QAM	50/ 0	15	40669	2597.9	256QAM	75/ 0	7.05
10	40526	2583.6	256QAM	50/ 0	20	40670	2598.0	256QAM	100/ 0	7.16
15	40571	2588.1	256QAM	75/ 0	10	40691	2600.1	256QAM	50/ 0	7.13
15	40545	2585.5	256QAM	75/ 0	15	40695	2600.5	256QAM	75/ 0	8.22
15	40523	2583.3	256QAM	75/ 0	20	40694	2600.4	256QAM	100/ 0	7.11
20	40595	2590.5	256QAM	100/ 0	5	40712	2602.2	256QAM	25/ 0	7.10
20	40571	2588.1	256QAM	100/ 0	10	40715	2602.5	256QAM	50/ 0	7.12
20	40546	2585.6	256QAM	100/ 0	15	40717	2602.7	256QAM	75/ 0	7.08
20	40521	2583.1	256QAM	100/ 0	20	40719	2602.9	256QAM	100/ 0	8.38

Note:

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

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



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

PCC 20 MHz Ch40521 RB100 Offset0, SCC 20 MHz Ch40719 RB100 Offset0_(64QAM)

PCC 20 MHz Ch40521 RB100 Offset0, SCC 20 MHz Ch40719 RB100 Offset0_(256QAM)

9. ANNEX A_ TEST SETUP PHOTO

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

No.	Description
1	HCT-RF-2205-FC074-P