

# **TEST REPORT**

FCC CA\_66C Test for SM-S721U Certification

APPLICANT SAMSUNG Electronics Co., Ltd.

REPORT NO. HCT-RF-2407-FC041

DATE OF ISSUE July 23, 2024

> **Tested by** Jae Ryang Do

Technical Manager Jong Seok Lee



F-TP22-03(Rev.06)

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T E S T R E P O R T	REPORT NO. HCT-RF-2407-FC041 DATE OF ISSUE July 23, 2024 Additional Model SM-S721U1
Applicant	<b>SAMSUNG Electronics Co., Ltd.</b> 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Product Name Model Name	Mobile Phone SM-S721U
Date of Test	May 21, 2024 ~ July 23, 2024
FCC ID	A3LSMS721U
Location of Test	■ Permanent Testing Lab □ On Site Testing (Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi- do, 17383 Republic of Korea)
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
Test Standard Used	FCC Rule Part: § 27
Test Results	PASS



## **REVISION HISTORY**

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

Revision No.	Date of Issue	Description
0	July 23, 2024	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 \*\*\*.

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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:	A3LSMS721U
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§ 27
EUT Type:	Mobile phone
Model(s):	SM-S721U
Additional Model(s)	SM-S721U1
Tx Frequency:	1715.3 - 1772.5: 10 MHz+15 MHz 1717.5 - 1774.7: 15 MHz+10 MHz 1715.5 - 1770.0: 10 MHz+20 MHz 1720.0 - 1774.5: 20 MHz+10 MHz 1717.5 - 1772.5: 15 MHz+15 MHz 1717.8 - 1770.0: 15 MHz+20 MHz 1720.0 - 1772.2: 20 MHz+15 MHz 1720.0 - 1776.7: 20 MHz+5 MHz 1713.3 - 1770.0: 5 MHz+20 MHz 1720.0 - 1770.0: 20 MHz+20 MHz
Date(s) of Tests:	May 21, 2024 ~ July 23, 2024
Serial number:	Radiated : 67d50971e8197ece Conducted : R3CX506LPYM
LTE CA :	CA 66C (Uplink)



## **1.1. MAXIMUM OUTPUT POWER**

#### Main 1 Ant (Antenna A)

Mode	Tx Frequency		Emission	Ell	RP
(PCC+SCC)	(MHz)	Modulation	Designator	Max. Power	Max. Power
(1001000)	(1112)			(dBm)	(W)
		QPSK	23M1G7D	23.31	0.214
10 MHz+15 MHz	1715.3 - 1772.5	16QAM	23M0W7D	22.51	0.178
	1113.3 - 1112.3	64QAM	23M1W7D	20.38	0.109
		256QAM	23M1W7D	18.42	0.070
		QPSK	23M2G7D	23.27	0.212
15 MHz+10 MHz	1717.5 - 1774.7	16QAM	23M1W7D	22.35	0.172
	1111.5 - 1114.1	64QAM	23M1W7D	20.39	0.109
		256QAM	23M2W7D	18.31	0.068
		QPSK	27M7G7D	23.40	0.219
10 MHz+20 MHz	1715.5 - 1770.0	16QAM	27M7W7D	22.48	0.177
	1115.5 - 1110.0	64QAM	27M8W7D	20.47	0.111
		256QAM	27M7W7D	18.61	0.073
		QPSK	27M8G7D	23.23	0.210
20 MUL- 10 MUL-	1720 0 1774 5	16QAM	27M8W7D	22.27	0.169
20 MHz+10 MHz	1720.0 - 1774.5	64QAM	27M8W7D	20.46	0.111
		256QAM	27M8W7D	18.41	0.069
	1717.5 - 1772.5	QPSK	28M4G7D	23.22	0.210
		16QAM	28M4W7D	22.39	0.173
15 MHz+15 MHz		64QAM	28M3W7D	20.43	0.110
		256QAM	28M3W7D	18.23	0.067
		QPSK	32M6G7D	23.43	0.220
15 141	1717 0 1770 0	16QAM	32M5W7D	22.60	0.182
15 MHz+20 MHz	1717.8 - 1770.0	64QAM	32M7W7D	20.41	0.110
		256QAM	32M6W7D	18.46	0.070
		QPSK	32M7G7D	23.21	0.209
	1700 0 1770 0	16QAM	32M7W7D	22.57	0.181
20 MHz+15 MHz	1720.0 - 1772.2	64QAM	32M7W7D	20.45	0.111
		256QAM	32M6W7D	18.38	0.069
		QPSK	23M0G7D	23.13	0.206
201411.51	1700 0 1770 -	16QAM	22M9W7D	22.23	0.167
20 MHz+5 MHz	1720.0 - 1776.7	64QAM	22M9W7D	20.24	0.106
		256QAM	23M0W7D	18.29	0.067
		QPSK	22M9G7D	23.22	0.210
		16QAM	22M8W7D	22.42	0.175
5 MHz+20 MHz	1713.3 - 1770.0	64QAM	22M9W7D	20.44	0.111
		256QAM	22M8W7D	18.21	0.066
		QPSK	37M6G7D	23.35	0.216
		16QAM	37M6W7D	22.39	0.173
20 MHz+20 MHz	1720.0 - 1770.0	64QAM	37M6W7D	20.40	0.110
		256QAM	37M6W7D	18.36	0.069



## Sub 5 Ant (Antenna F)

Mode	Tx Frequency		Emission	EI	RP
(PCC+SCC)	(MHz)	Modulation	Designator	Max. Power	Max. Power
· · ·	,		-	(dBm)	(W)
		QPSK	23M2G7D	22.01	0.159
10 MHz+15 MHz	1715.3 - 1772.5	16QAM	23M3W7D	21.28	0.134
		64QAM	23M2W7D	19.24	0.084
		256QAM	23M1W7D	17.15	0.052
		QPSK	23M2G7D	22.06	0.161
15 MHz+10 MHz	1717.5 - 1774.7	16QAM	23M1W7D	21.26	0.134
10 1012 10 1012	1111.5 1111.1	64QAM	23M2W7D	19.28	0.085
		256QAM	23M1W7D	17.10	0.051
		QPSK	27M8G7D	21.81	0.152
10 MHz+20 MHz	1715.5 - 1770.0	16QAM	27M8W7D	20.99	0.126
	1113.3 - 1110.0	64QAM	27M7W7D	18.90	0.078
		256QAM	27M8W7D	16.94	0.049
		QPSK	27M8G7D	22.08	0.161
20 MHz+10 MHz	1720.0 - 1774.5	16QAM	27M8W7D	21.31	0.135
	1120.0 - 1114.5	64QAM	27M8W7D	19.23	0.084
		256QAM	27M8W7D	17.15	0.052
	1717 5 1773 5	QPSK	28M4G7D	21.97	0.157
		16QAM	28M4W7D	21.26	0.134
15 MHz+15 MHz	1717.5 - 1772.5	64QAM	28M4W7D	19.23	0.084
		256QAM	28M4W7D	17.04	0.051
		QPSK	32M6G7D	21.99	0.158
	1717 0 1770 0	16QAM	32M6W7D	21.22	0.132
15 MHz+20 MHz	1717.8 - 1770.0	64QAM	32M5W7D	19.29	0.085
		256QAM	32M6W7D	17.18	0.052
		QPSK	32M6G7D	22.10	0.162
20 141-115 141-	1700 0 1770 0	16QAM	32M8W7D	21.12	0.129
20 MHz+15 MHz	1720.0 - 1772.2	64QAM	32M6W7D	19.17	0.083
		256QAM	32M6W7D	17.15	0.052
		QPSK	22M9G7D	21.90	0.155
	1700 0 1770 7	16QAM	22M9W7D	21.16	0.131
20 MHz+5 MHz	1720.0 - 1776.7	64QAM	22M9W7D	19.03	0.080
		256QAM	22M9W7D	17.00	0.050
		QPSK	22M9G7D	21.69	0.148
	1710 0 1770 -	16QAM	23M0W7D	21.08	0.128
5 MHz+20 MHz	1713.3 - 1770.0	64QAM	22M9W7D	19.02	0.080
		256QAM	22M9W7D	16.90	0.049
		QPSK	37M6G7D	22.14	0.164
		16QAM	37M6W7D	21.33	0.136
20 MHz+20 MHz	1720.0 - 1770.0	64QAM	37M5W7D	19.27	0.085
		256QAM	37M6W7D	17.14	0.052





## **2. INTRODUCTION**

## 2.1. DESCRIPTION OF EUT

The EUT was a Mobile Phone with GSM/GPRS/EGPRS/UMTS and LTE, Sub 6, mmWave. It also supports IEEE 802.11 a/b/g/n/ac/ax (20/40/80/160 MHz), Bluetooth(iPA, ePA), BT LE(iPA, ePA), NFC, WPT, 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
Band Edge	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Spurious and Harmonic Emissions at Antenna Terminal	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Conducted Output Power	- KDB 971168 D01 v03r01 - Section 5.2.4 - ANSI C63.26-2015 - Section 5.2.1 & 5.2.4.2
Peak- to- Average Ratio	- KDB 971168 D01 v03r01 – Section 5.7 - ANSI C63.26-2015 – Section 5.2.3.4
Frequency stability	- ANSI C63.26-2015 – Section 5.6
Effective Radiated Power/	- KDB 971168 D01 v03r01 – Section 5.2 & 5.8
Effective Isotropic Radiated Power	- 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  $\geq$  3 x RBW
- 4. Span = 1.5 times the OBW
- 5. No. of sweep points > 2 x span / RBW
- 6. Detector = RMS

7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".

8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.

9. Trace mode = trace averaging (RMS) over 100 sweeps

10. The trace was allowed to stabilize

#### Test Note

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

The power is calculated by the following formula;

 $P_{d}$  (dBm) = Pg (dBm) - cable loss (dB) + 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  $\geq$  3 x RBW
- 3. Span = 1.5 times the OBW
- 4. No. of sweep points > 2 x span / RBW
- 5. Detector = Peak
- 6. Trace mode = Max Hold
- 7. The trace was allowed to stabilize
- 8. Test channel : Low/ Middle/ High
- 9. Frequency range : We are performed all frequency to 10<sup>th</sup> harmonics from 9 kHz.

#### Test Note

 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;

Result (dBm) = Pg (dBm) - cable loss (dB) + antenna gain (dBi)

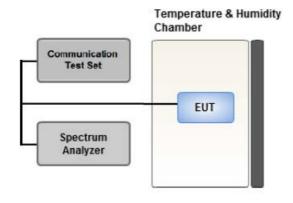
Where:  $P_g$  is the generator output power into the substitution antenna.

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

EIRP (dBm) = ERP (dBm) + 2.15



#### **3.4 PEAK- TO- AVERAGE RATIO**



#### Test setup

#### ① CCDF Procedure for PAPR

#### **Test Settings**

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

#### **②** Alternate Procedure for PAPR

Use one of the procedures presented in 5.2(ANSI C63.26-2015) to measure the total peak power and record as 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) (P Avg = Average Power + Duty cycle Factor)



#### **Test Settings(Peak Power)**

The measurement instrument must have a RBW that is greater than or equal to the OBW of the

signal to be measured and a VBW  $\geq$  3 × RBW.

- 1. Set the RBW  $\geq$  OBW.
- 2. Set VBW  $\geq$  3 × RBW.
- 3. Set span  $\geq$  2 × OBW.
- 4. Sweep time  $\geq$  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  $2 \times to 3 \times the OBW$ .
- 2. Set RBW  $\geq$  OBW.
- 3. Set VBW  $\geq$  3 × RBW.
- 4. Set number of measurement points in sweep  $\geq 2 \times \text{span} / \text{RBW}$ .
- 5. Sweep time:

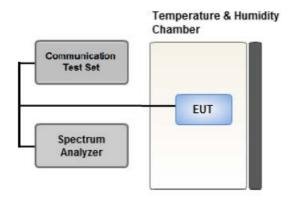
Set  $\geq$  [10 × (number of points in sweep) × (transmission period)] for single sweep

(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

- 1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99 % occupied bandwidth and the 26 dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
- 2. RBW = 1 5 % of the expected OBW
- 3. VBW  $\geq$  3 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



## Communication Test Set EUT Spectrum Analyzer

#### 3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL



#### **Test Overview**

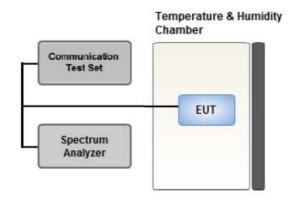
The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic.

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.

- 1. RBW = 1 MHz
- 2. VBW  $\geq$  3 MHz
- 3. Detector = RMS
- 4. Trace Mode = trace average
- 5. Sweep time = auto
- 6. Number of points in sweep  $\geq$  2 x Span / RBW



#### **3.7 BAND EDGE**



#### Test setup

#### **Test Overview**

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

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



#### **Test Notes**

According to FCC 22.917, 24.238, 27.53 specified that power of any emission outside of The authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. All measurements were done at 2 channels(low and high operational frequency range.) The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

Where 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.



## Communication Test Set EUT 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.

- 1. The carrier frequency of the transmitter is measured at room temperature (20 °C to provide a reference).
- 2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
- 3. Frequency measurements are made at 10 °C intervals ranging from -30 °C to +50 °C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.



## **4. LIST OF TEST EQUIPMENT**

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval	
RF Switching System	FBSR-02B(1.2G HPF+LNA)	T&M SYSTEM	F1L1	12/11/2024	Annual	
RF Switching System	FBSR-02B(3.3G HPF+LNA)	T&M SYSTEM	F1L2	12/11/2024	Annual	
Power Splitter(DC ~ 26.5 GHz)	11667B	Hewlett Packard	5001	04/17/2025	Annual	
DC Power Supply	E3632A	Agilent	KR01009150	04/18/2025	Annual	
Dipole Antenna	UHAP	Schwarzbeck	557	03/09/2025	Biennial	
Dipole Antenna	UHAP	Schwarzbeck	558	03/09/2025	Biennial	
Chamber	SU-642	ESPEC	93008124	02/19/2025	Annual	
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	147	08/17/2025	Biennial	
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	9120D-1298	09/11/2025	Biennial	
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	09/29/2024	Biennial	
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	03/28/2025	Biennial	
Signal Analyzer(10 Hz ~ 26.5 GHz)	N9020A	Agilent	MY52090906	04/19/2025	Annual	
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/17/2025	Annual	
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	REOHDE & SCHWARZ	100931	08/17/2024	Annual	
Base Station	8960 (E5515C)	Agilent	MY48360800	08/10/2024	Annual	
Loop Antenna(9 kHz ~ 30 MHz)	FMZB1513	Schwarzbeck	1513-333	03/07/2026	Biennial	
Trilog Broadband Antenna	VULB9168	Schwarzbeck	895	09/16/2024	Biennial	
Trilog Broadband Antenna	VULB9168	Schwarzbeck	1135	09/16/2024	Biennial	
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262094331	11/17/2024	Annual	
Wideband Radio Communication Tester	MT8820C	Anritsu Corp.	6201026545	12/11/2024	Annual	
SIGNAL GENERATOR (100 kHz ~ 40 GHz)	SMW200A	REOHDE & SCHWARZ	100988	02/26/2025	Annual	
Signal Analyzer(5 Hz ~ 40.0 GHz)	N9030B	KEYSIGHT	MY55480167	05/17/2025	Annual	
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.,	-	-	-	

Note:

1. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

2. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2017).



## **5. MEASUREMENT UNCERTAINTY**

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

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

Parameter	Expanded Uncertainty (±dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.98 (Confidence level about 95 %, <i>k</i> =2)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.36 (Confidence level about 95 %, <i>k</i> =2)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.70 (Confidence level about 95 %, <i>k</i> =2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.52 (Confidence level about 95 %, <i>k</i> =2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.66 (Confidence level about 95 %, <i>k</i> =2)
Radiated Disturbance (Above 40 GHz)	5.58 (Confidence level about 95 %, <i>k</i> =2)



## **6. SUMMARY OF TEST RESULTS**

## 6.1 Test Condition: Conducted Test

Test Description	FCC Part Section(s)	Test Limit	Test Result	
Occupied Bandwidth	§ 2.1049	N/A	PASS	
Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§ 2.1051, § 27.53(h)	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions	PASS	
Conducted Output Power	§ 2.1046	N/A	PASS	
Peak- to- Average Ratio	§ 27.50(d)(5)	< 13 dB	PASS	
Frequency stability / variation of ambient temperature	§2.1055, §27.54	Emission must remain in band	PASS	

### 6.2 Test Condition: Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result	
Equivalent Isotropic Radiated Power	§ 27.50(d)(4)	< 1 Watts max. EIRP	PASS	
Radiated Spurious and	§ 2.1053,	< 43 + 10log10 (P[Watts]) for	PASS	
Harmonic Emissions	§ 27.53(h)	all out-of band emissions	FA33	



## 7. SAMPLE CALCULATION

#### 7.1 ERP Sample Calculation

Ch./ Freq.		Measured	Substitute	Ant. Gain	<u> </u>	C.L Pol.	EF	RP
channel	Freq.(MHz)	Level (dBm)	) Level (dBm) (dB		C.L		w	dBm
128	824.20	-21.37	38.40	-10.61	0.95	Н	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	Substitute	Ant. Gain	<b>C</b> 1	Pol.	EI	RP
channel	Freq.(MHz)	Level (dBm)	Level (dBm)	(dBi)	C.L	Pol.	w	dBm
20175	1,732.50	-15.75	18.45	9.90	1.76	Н	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

<u>QAM Modulation</u> Emission Designator = 4M48W7D LTE BW = 4.48 MHz W = Amplitude/Angle Modulated 7 = Quantized/Digital Info D = Data transmission; telemetry; telecommand



## 8. TEST DATA(Main 1 Ant) (ANT A)

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

#### Test Note

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

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



- 3. All modes of operation were investigated and the worst case configuration results are reported in this section. Please refer to the table below.
- Worst case(Conducted Spurious Emissions, Band Edge)
- : We have selected higher of the Conduction Output Power.
- Worst case(Radiated Spurious Emissions) : We have selected higher of the EIRP.
- Worst case(OBW, PAR, Frequency stability)
- : All modes of operation were investigated and the worst case configuration results are reported.
- 4. All modes of operation were investigated and the worst case configuration results are reported.
  Mode : Stand alone, Stand alone + External accessories (Earphone, AC adapter, etc)
  Worst case : Stand alone
- 5. All simultaneous transmission scenarios of operation were investigated, and the test results showed no additional significant emissions relative to the least restrictive limit were observed. Therefore, only the worst case(stand-alone) results were reported
- 6. All 3 channels(low/mid/high) of conducted power and radiated power were investigated and the worst case channel results are reported.

Test		Operating			PCC					SCC		
Description	Mod	Operating frequency	BW (MHz)	Freq. (MHz)	Ch.	RB	RB Offset	BW (MHz)	Freq. (MHz)	Ch.	RB	RB Offset
		Low	10	1715.3	132025	1	49	15	1727.3	132145	1	0
		Mid	20	1750.1	132373	1	99	10	1764.5	132517	1	0
		High	20	1765.0	132522	1	99	5	1776.7	132639	1	0
		Low	10	1715.3	132025	1	0	15	1727.3	132145	1	74
Conducted Spurious		Mid	20	1750.1	132373	1	0	10	1764.5	132517	1	49
	ns/ QPSK	High	20	1765.0	132522	1	0	5	1776.7	132639	1	24
Emissions/ Band		Low	5	1713.3	132005	25	0	20	1725.0	132122	100	0
Edge		Mid	20	1747.6	132348	100	0	15	1764.7	132519	75	0
Ū.		High	20	1760.1	132473	100	0	10	1774.5	132617	50	0
		Low	20	1720.0	132072	100	0	20	1739.8	132270	100	0
		Mid	20	1745.1	132323	100	0	20	1764.9	132521	100	0
		High	20	1750.2	132374	100	0	20	1770.0	132572	100	0
Radiated		Low	10	1715.3	132025	1	49	15	1721.3	132145	1	0
Spurious	QPSK	Mid	15	1745.3	132325	1	74	20	1762.4	132496	1	0
Emissions		High	20	1750.2	132374	1	99	20	1770.0	132572	1	0

[Worst case]



Test		Operating			PCC					SCC		
Test Description	Mod	Operating frequency	BW (MHz)	Freq. (MHz)	Ch.	RB	RB Offset	BW (MHz)	Freq. (MHz)	Ch.	RB	RB Offse
			10	1747.9	132351	50	0	15	1759.9	132471	75	0
			15	1750.1	132373	75	0	10	1762.1	132493	50	0
			10	1745.6	132328	50	0	20	1760.0	132472	100	0
	QPSK,		20	1750.1	132373	100	0	10	1764.5	132517	50	0
OBW,	16QAM,		15	1747.5	132347	75	0	15	1762.5	132497	75	0
PAR	64QAM	Mid	15	1745.3	132325	75	0	20	1762.4	132496	100	0
	256QAM		20	1747.6	132348	100	0	15	1764.7	132519	75	0
			20	1752.5	132397	100	0	5	1764.2	132514	25	0
			5	1745.8	132330	25	0	20	1757.5	132447	100	0
			20	1745.1	132323	100	0	20	1764.9	132521	100	0
			5	1713.3	132005	25	0	20	1725.0	132122	100	0
			10	1715.3	132025	50	0	15	1727.3	132145	75	0
		Low	15	1717.5	132047	75	0	10	1729.5	132167	50	0
Frequency	0.001/		20	1720.0	132072	100	0	20	1739.8	132270	100	0
stability	QPSK		5	1758.3	132455	25	0	20	1770.0	132572	100	0
			10	1772.5	132597	50	0	15	1784.5	132717	75	0
		High	15	1762.7	132499	75	0	10	1774.7	132619	50	0
			20	1750.2	132374	100	0	20	1770.0	132572	100	0

[Worst case]



## 8.1 Conducted Power

			PCC					SCC			Conducted.
Operating frequency	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Power [dBm]
	10	1715.3	132025	1	49	15	1727.3	132145	1	0	24.51
	15	1717.5	132047	1	74	10	1729.5	132167	1	0	24.46
	10	1715.5	132027	1	49	20	1729.9	132171	1	0	24.47
	20	1720.0	132072	1	99	10	1734.4	132216	1	0	23.51
	15	1717.5	132047	1	74	15	1732.5	132197	1	0	24.40
Low	15	1717.8	132050	1	74	20	1734.9	132221	1	0	24.44
	20	1720.0	132072	1	99	15	1737.1	132243	1	0	24.43
	20	1720.0	132072	1	99	5	1731.7	132189	1	0	24.48
	5	1713.3	132005	1	24	20	1725.0	132122	1	0	24.46
	20	1720.0	132072	1	99	20	1739.8	132270	1	0	24.44
	10	1747.9	132351	1	49	15	1759.9	132471	1	0	24.31
	15	1750.1	132373	1	74	10	1762.1	132493	1	0	24.43
_	10	1745.6	132328	1	49	20	1760.0	132472	1	0	24.27
	20	1750.1	132373	1	<i>99</i>	10	1764.5	132517	1	0	24.45
Mid	15	1747.5	132347	1	74	15	1762.5	132497	1	0	24.35
Mid	15	1745.3	132325	1	74	20	1762.4	132496	1	0	24.34
	20	1747.6	132348	1	99	15	1764.7	132519	1	0	24.37
	20	1752.5	132397	1	99	5	1764.2	132514	1	0	24.40
	5	1745.8	132330	1	24	20	1757.5	132447	1	0	24.14
	20	1745.1	132323	1	99	20	1764.9	132521	1	0	23.36
	10	1760.5	132477	1	49	15	1772.5	132597	1	0	23.55
	15	1762.7	132499	1	74	10	1774.7	132619	1	0	24.46
	10	1755.6	132428	1	49	20	1770.0	132572	1	0	24.40
	20	1760.1	132473	1	99	10	1774.5	132617	1	0	24.58
112-6	15	1757.5	132447	1	74	15	1772.5	132597	1	0	24.54
High	15	1752.9	132401	1	74	20	1770.0	132572	1	0	24.40
	20	1755.1	132423	1	99	15	1772.2	132594	1	0	24.50
	20	1765.0	132522	1	99	5	1776.7	132639	1	0	24.65
	5	1758.3	132455	1	24	20	1770.0	132572	1	0	24.34
	20	1750.2	132374	1	99	20	1770.0	132572	1	0	24.40

#### Note:

Modulation : QPSK(1RB)



			PCC					SCC			Conducted.
Operating frequency	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Power [dBm]
	10	1715.3	132025	50	0	15	1727.3	132145	75	0	22.54
	15	1717.5	132047	75	0	10	1729.5	132167	50	0	22.50
	10	1715.5	132027	50	0	20	1729.9	132171	100	0	22.43
	20	1720.0	132072	100	0	10	1734.4	132216	50	0	22.47
Low	15	1717.5	132047	75	0	15	1732.5	132197	75	0	22.45
Low	15	1717.8	132050	75	0	20	1734.9	132221	100	0	22.40
	20	1720.0	132072	100	0	15	1737.1	132243	75	0	22.50
	20	1720.0	132072	100	0	5	1731.7	132189	25	0	22.47
	5	1713.3	132005	25	0	20	1725.0	132122	100	0	22.59
	20	1720.0	132072	100	0	20	1739.8	132270	100	0	22.52
	10	1747.9	132351	50	0	15	1759.9	132471	75	0	22.40
	15	1750.1	132373	75	0	10	1762.1	132493	50	0	22.43
	10	1745.6	132328	50	0	20	1760.0	132472	100	0	22.37
	20	1750.1	132373	100	0	10	1764.5	132517	50	0	22.48
M: 1	15	1747.5	132347	75	0	15	1762.5	132497	75	0	22.39
Mid	15	1745.3	132325	75	0	20	1762.4	132496	100	0	22.28
	20	1747.6	132348	100	0	15	1764.7	132519	75	0	22.48
	20	1752.5	132397	100	0	5	1764.2	132514	25	0	22.47
	5	1745.8	132330	25	0	20	1757.5	132447	100	0	22.21
	20	1745.1	132323	100	0	20	1764.9	132521	100	0	22.47
	10	1760.5	132477	50	0	15	1772.5	132597	75	0	22.48
	15	1762.7	132499	75	0	10	1774.7	132619	50	0	22.50
	10	1755.6	132428	50	0	20	1770.0	132572	100	0	22.47
	20	1760.1	132473	100	0	10	1774.5	132617	50	0	22.61
	15	1757.5	132447	75	0	15	1772.5	132597	75	0	22.02
High	15	1752.9	132401	75	0	20	1770.0	132572	100	0	22.47
	20	1755.1	132423	100	0	15	1772.2	132594	75	0	22.45
	20	1765.0	132522	100	0	5	1776.7	132639	25	0	22.40
	5	1758.3	132455	25	0	20	1770.0	132572	100	0	22.46
	20	1750.2	132374	100	0	20	1770.0	132572	100	0	22.46

Note:

Modulation : QPSK(Full RB)



			PCC					Conducted.			
Operating frequency	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Power [dBm]
Low	10	1715.3	132025	1	49	15	1727.3	132145	1	0	23.65
Mid	20	1750.1	132373	1	99	10	1764.5	132517	1	0	23.76
High	20	1765.0	132522	1	99	5	1776.7	132639	1	0	23.88
Low	5	1713.3	132005	25	0	20	1725.0	132122	100	0	21.63
Mid	20	1747.6	132348	100	0	15	1764.7	132519	75	0	21.53
High	20	1760.1	132473	100	0	10	1774.5	132617	50	0	21.67

Note:

Modulation : 16QAM

			PCC					Conducted.			
Operating frequency	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Power [dBm]
Low	10	1715.3	132025	1	49	15	1727.3	132145	1	0	21.69
Mid	20	1750.1	132373	1	99	10	1764.5	132517	1	0	21.66
High	20	1765.0	132522	1	99	5	1776.7	132639	1	0	21.96
Low	5	1713.3	132005	25	0	20	1725.0	132122	100	0	21.60
Mid	20	1747.6	132348	100	0	15	1764.7	132519	75	0	21.49
High	20	1760.1	132473	100	0	10	1774.5	132617	50	0	21.67

Note:

Modulation : 64QAM

			PCC					Conducted.			
Operating frequency	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Bandwidth [MHz]	Freq. (MHz)	Channel	RB	RB Offset	Power [dBm]
Low	10	1715.3	132025	1	49	15	1727.3	132145	1	0	19.87
Mid	20	1750.1	132373	1	99	10	1764.5	132517	1	0	19.66
High	20	1765.0	132522	1	99	5	1776.7	132639	1	0	19.91
Low	5	1713.3	132005	25	0	20	1725.0	132122	100	0	19.65
Mid	20	1747.6	132348	100	0	15	1764.7	132519	75	0	19.49
High	20	1760.1	132473	100	0	10	1774.5	132617	50	0	19.70

Note:

Modulation : 256QAM



## 8.2 Equivalent Isotropic Radiated Power

		PCC			SCC				Ant.			E.I.	R.P
	BW [MHz]	Channel	RB/ Offset	BW [MHz]	Channel	RB/ Offset	Measured Level (dBm)	Substitute Level (dBm)	Gain (dBi)	C.L	Pol.	w	dBm
	10	132025	1/49	15	132145	1/0	-18.39	<i>15.12</i>	10.01	2.22	Η	0.195	22.91
	15	132047	1/74	10	132167	1/0	-18.66	14.94	10.04	2.20	Н	0.190	22.78
	10	132027	1/49	20	132171	1/0	-18.64	14.87	10.01	2.22	Н	0.184	22.66
	20	132072	1/99	10	132216	1/0	-18.66	15.00	10.07	2.17	Н	0.195	22.90
Low	15	132047	1/74	15	132197	1/0	-18.57	15.03	10.04	2.20	Н	0.194	22.87
LOW	15	132050	1/74	20	132221	1/0	-18.62	14.98	10.04	2.20	Н	0.192	22.82
	20	132072	1/99	15	132243	1/0	-18.67	14.99	10.07	2.17	Н	0.194	22.89
	20	132072	1/99	5	132189	1/0	-18.77	14.83	10.04	2.20	Н	0.185	22.67
	5	132005	1/24	20	132122	1/0	-18.91	14.60	10.01	2.22	Н	0.173	22.39
	20	132072	1/99	20	132270	1/0	-18.75	14.91	10.07	2.17	Н	0.191	22.81
	10	132025	1/49	15	132471	1/0	-18.38	15.30	10.18	2.17	Н	0.214	23.31
	15	132047	1/74	10	132493	1/0	-18.42	15.26	10.18	2.17	Н	0.212	23.27
	10	132027	1/49	20	132472	1/0	-18.33	15.38	10.17	2.15	Н	0.219	23.40
	20	132072	1/99	10	132517	1/0	-18.43	15.22	10.19	2.18	Н	0.210	23.23
Mid	15	132047	1/74	15	132497	1/0	-18.47	15.21	10.18	2.17	н	0.210	23.22
міа	15	132050	1/74	20	132496	1/0	-18.26	<i>15.42</i>	10.18	<i>2.17</i>	Н	0.220	23.43
	20	132072	1/99	15	132519	1/0	-18.48	15.20	10.18	2.17	Н	0.209	23.21
	20	132072	1/99	5	132514	1/0	-18.53	15.12	10.19	2.18	Н	0.206	23.13
	5	132005	1/24	20	132447	1/0	-18.51	15.20	10.17	2.15	Н	0.210	23.22
	20	132072	1/99	20	132521	1/0	-18.34	15.34	10.18	2.17	Н	0.216	23.35
	10	132025	1/49	15	132597	1/0	-18.72	14.91	10.19	2.21	Н	0.195	22.90
	15	132047	1/74	10	132619	1/0	-18.78	14.83	10.20	2.23	Н	0.190	22.80
	10	132027	1/49	20	132572	1/0	-18.62	15.03	10.19	2.18	Н	0.201	23.04
	20	132072	1/99	10	132617	1/0	-18.77	14.84	10.20	2.23	Н	0.191	22.81
	15	132047	1/74	15	132597	1/0	-18.63	15.00	10.19	2.21	Н	0.199	22.99
High	15	132050	1/74	20	132572	1/0	-18.56	15.09	10.19	2.18	Н	0.204	23.10
	20	132072	1/99	15	132594	1/0	-18.58	15.05	10.19	2.21	Н	0.201	23.04
	20	132072	1/99	5	132639	1/0	-18.72	14.89	10.20	2.23	Н	0.193	22.86
	5	132005	1/24	20	132572	1/0	-18.61	15.02	10.19	2.21	Н	0.200	23.01
	20	132072	1/99	20	132572	1/0	-18.46	15.19	10.19	2.18	Н	0.209	23.20

Note:

1. Modulation : QPSK

2. Limit : < 1 Watts



	PCC			SCC				Ant.			E.I.	R.P
BW [MHz]	Channel	RB/ Offset	BW [MHz]	Channel	RB/ Offset	Measured Level (dBm)	Substitute Level (dBm)	Gain (dBi)	C.L	Pol.	w	dBm
10	132025	1/49	15	132145	1/0	-19.25	14.26	10.01	2.22	Н	0.160	22.05
10	132025	1/49	15	132471	1/0	-19.18	14.50	10.18	2.17	Н	0.178	22.51
15	132047	1/74	10	132493	1/0	-19.34	14.34	10.18	2.17	Н	0.172	22.35
10	132027	1/49	20	132472	1/0	-19.25	14.46	10.17	2.15	Н	0.177	22.48
20	132072	1/99	10	132517	1/0	-19.39	14.26	10.19	2.18	Н	0.169	22.27
15	132047	1/74	15	132497	1/0	-19.30	14.38	10.18	2.17	Н	0.173	22.39
15	132050	1/74	20	132496	1/0	-19.09	14.59	10.18	2.17	Η	0.182	22.60
20	132072	1/99	15	132519	1/0	-19.12	14.56	10.18	2.17	Н	0.181	22.57
20	132072	1/99	5	132514	1/0	-19.43	14.22	10.19	2.18	Н	0.167	22.23
5	132005	1/24	20	132447	1/0	-19.31	14.40	10.17	2.15	Н	0.175	22.42
20	132072	1/99	20	132521	1/0	-19.33	14.35	10.18	2.17	Н	0.172	22.36
20	132072	1/99	20	132572	1/0	-19.27	14.38	10.19	2.18	Η	0.173	22.39

Note:

1. Modulation : 16QAM

2. Limit : < 1 Watts

	PCC			SCC		_		Ant.			E.I.	R.P
BW [MHz]	Channel	RB/ Offset	BW [MHz]	Channel	RB/ Offset	Measured Level (dBm)	Substitute Level (dBm)	Gain (dBi)	C.L	Pol.	w	dBm
10	132025	1/49	15	132145	1/0	-21.39	12.12	10.01	2.22	Н	0.098	19.91
10	132025	1/49	15	132471	1/0	-21.31	12.37	10.18	2.17	Н	0.109	20.38
15	132047	1/74	10	132493	1/0	-21.30	12.38	10.18	2.17	Н	0.109	20.39
10	132027	1/49	20	132472	1/0	-21.26	12.45	10.17	2.15	Н	0.111	20.47
20	132072	1/99	10	132517	1/0	-21.20	12.45	10.19	2.18	Н	0.111	20.46
15	132047	1/74	15	132497	1/0	-21.26	12.42	10.18	2.17	Н	0.110	20.43
15	132050	1/74	20	132496	1/0	-21.28	12.40	10.18	2.17	H	0.110	20.41
20	132072	1/99	15	132519	1/0	-21.24	12.44	10.18	2.17	Н	0.111	20.45
20	132072	1/99	5	132514	1/0	-21.42	12.23	10.19	2.18	Н	0.106	20.24
5	132005	1/24	20	132447	1/0	-21.29	12.42	10.17	2.15	Н	0.111	20.44
20	132072	1/99	20	132521	1/0	-21.34	12.34	10.18	2.17	Н	0.108	20.35
20	132072	1/99	20	132572	1/0	-21.26	12.39	10.19	2.18	H	0.110	20.40

Note:

1. Modulation : 64QAM

2. Limit : < 1 Watts



PCC			SCC					Ant.			E.I.R.P	
BW [MHz]	Channel	RB/ Offset	Chanı		RB/ Offset	Measured Level (dBm)	Substitute Level (dBm)	Gain (dBi)	C.L	Pol.	w	dBm
10	132025	1/49	15	132145	1/0	-23.30	10.21	10.01	2.22	Н	0.063	18.00
10	132025	1/49	15	132471	1/0	-23.27	10.41	10.18	2.17	Н	0.070	18.42
15	132047	1/74	10	132493	1/0	-23.38	10.30	10.18	2.17	Н	0.068	18.31
10	132027	1/49	20	132472	1/0	-23.12	10.59	10.17	2.15	Н	0.073	18.61
20	132072	1/99	10	132517	1/0	-23.25	10.40	10.19	2.18	Н	0.069	18.41
15	132047	1/74	15	132497	1/0	-23.46	10.22	10.18	2.17	Н	0.067	18.23
15	132050	1/74	20	132496	1/0	-23.23	10.45	10.18	2.17	Η	0.070	18.46
20	132072	1/99	15	132519	1/0	-23.31	10.37	10.18	2.17	Н	0.069	18.38
20	132072	1/99	5	132514	1/0	-23.37	10.28	10.19	2.18	Н	0.067	18.29
5	132005	1/24	20	132447	1/0	-23.52	10.19	10.17	2.15	Н	0.066	18.21
20	132072	1/99	20	132521	1/0	-23.33	10.35	10.18	2.17	Н	0.069	18.36
20	132072	1/99	20	132572	1/0	-23.38	10.27	10.19	2.18	Н	0.067	18.28

Note:

1. Modulation : 256QAM

2. Limit : < 1 Watts



## 8.3 Conducted Spurious Emissions

Operating frequency	PCC				SCC				Measurement		Measurement	
	BW [MHz]	Ch.	Freq. (MHz)	RB/ Offset	BW [MHz]	Ch. Freq (MHz		RB/ Offset	Maximum Frequency (GHz)	Factor (dB)	Maximum Data (dBm)	Result (dBm)
Low	10	132025	1715.3	1/49	15	132145	1727.3	1/0	9.9711	28.591	-76.61	-48.02
Mid	20	132373	1750.1	1/99	10	132517	1764.5	1/0	8.2523	28.591	-75.93	-47.34
High	20	132522	1765.0	1/99	5	132639	1776.7	1/0	8.8709	28.591	-75.55	-46.96
Low	10	132025	1715.3	1/0	15	132145	1727.3	1/74	3.7782	27.976	-74.89	-46.91
Mid	20	132373	1750.1	1/0	10	132517	1764.5	1/49	8.8724	28.591	-75.91	-47.32
High	20	132522	1765.0	1/0	5	132639	1776.7	1/24	9.7009	28.591	-75.82	-47.23
Low	5	132005	1713.3	25/0	20	132122	1725.0	100/0	4.0564	27.976	-75.49	-47.51
Mid	20	132348	1747.6	100/0	15	132519	1764.7	75/0	8.2891	28.591	-74.25	-45.65
High	20	132473	1760.1	100/0	10	132617	1774.5	50/0	8.2857	28.591	-76.33	-47.74
Low	20	132072	1720.0	100/0	20	132270	1739.8	100/0	9.3390	28.591	-75.79	-47.19
Mid	20	132323	1745.1	100/0	20	132521	1764.9	100/0	9.6899	28.591	-75.59	-47.00
High	20	132374	1750.2	100/0	20	132572	1770.0	100/0	9.1411	28.591	-76.08	-47.49

Note:

1. Modulation : QPSK

2. Factor(dB) = Cable Loss + Ext. Attenuator + Power Splitter

3. Factors for frequency :

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

4. Limit : -13.0 dBm

F-TP22-03 (Rev. 06)



#### Frequency Range : 30 MHz ~ 10 GHz



#### PCC 5MHz Ch132005 RB25 Offset0 SCC 20MHz Ch132122 RB100 Offset0





#### PCC 10MHz Ch132025 RB1 Offset0 SCC 15MHz Ch132145 RB1 Offset74



Spectrum Anal Swept SA	yzer 1	•	+					Frequency	· · · 👫
KEYSIGHT RL ↔→→	- Align: Auto		Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S) NFE: Adaptive	#Atten: 16 dB PNO: Fa Preamp: Off Gate: Of IF Gain: Sig Tracl		#Avg Type: Po Trig: Free Run	wer (RMS <mark>1</mark> 23456 A \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Center Frequency 5.015000000 GHz	Settings
1 Spectrum Scale/Div 10 d	зB	•		Ref Level 6.00	dBm	Mk	r1 9.971 1 GHz -76.609 dBm	Swept Span	
4.00 14.0 24.0		<b>⊘</b> 2						Zero Span Full Span	
34.0 44.0 54.0								Start Freq 30.000000 MHz	
64.0 74.0 84.0			an an a star		ى ئەرىنە ھىرىنە <del>ك</del> ىرىنە كىرىنە كەرىپ	ية المريدية المريدية المريدية المريدية المريدين الم	1 مىلىكى بالارىمى ي	Stop Freq 10.000000000 GHz	
tart 30 MHz Res BW 1.0 I	MHz			#Video BW 3.0	MHz	Sweep	Stop 10.000 GHz ∼18.7 ms (20001 pts)		
Marker Table Mode	Trace	▼ Scale	x	Y	Function	Function Width	Function Value	997.000000 MHz Auto Man	
1 N 2 N 3	1	f	9.971 1 GHz 1.719 9 GHz	-76.61 dBm -3.947 dBm				Freq Offset 0 Hz	
4 5 6								X Axis Scale Log Lin	Loca
<b>1</b> 5	2		Jul 04, 2024 11:20:49 AM					Signal Track (Span Zoom)	

## PCC 10MHz Ch132025 RB1 Offset49 SCC 15MHz Ch132145 RB1 Offset0





# PCC 20MHz Ch132072 RB100 Offset0 SCC 20MHz Ch132270 RB100 Offset0





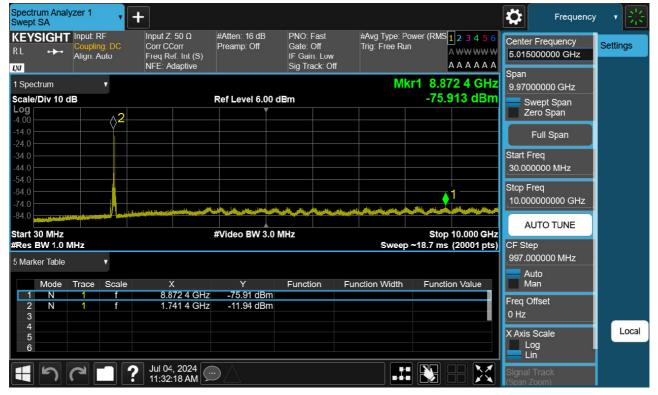
# PCC 20MHz Ch132323 RB100 Offset0 SCC 20MHz Ch132521 RB100 Offset0





#### PCC 20MHz Ch132348 RB100 Offset0 SCC 15MHz Ch132519 RB75 Offset0





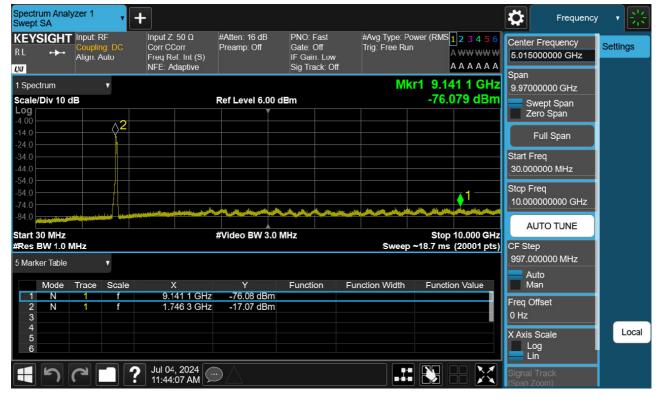
#### PCC 20MHz Ch132373 RB1 Offset0 SCC 10MHz Ch132517 RB1 Offset49





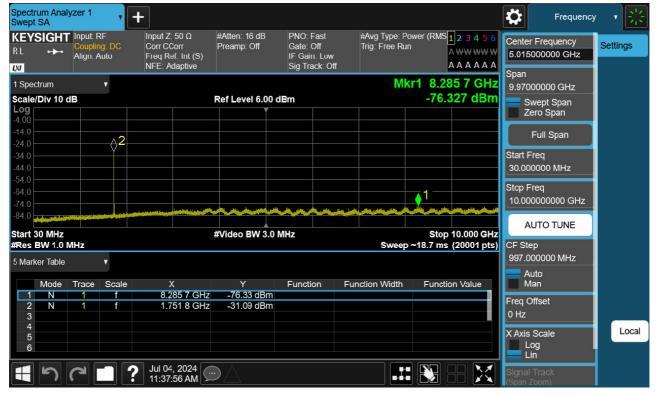
#### PCC 10 MHz Ch132328 RB50 Offset0 SCC 20 MHz Ch132472 RB100 Offset0





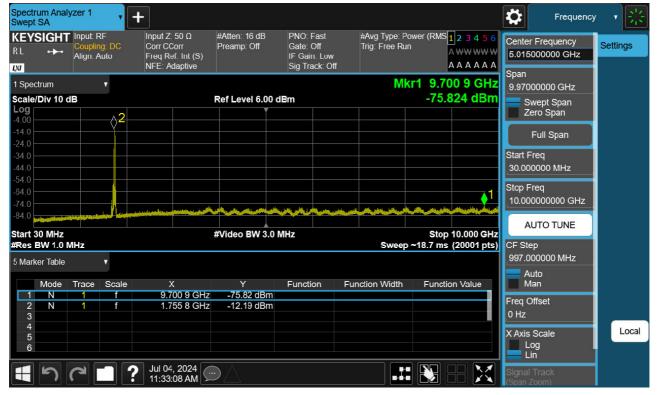
#### PCC 5 MHz Ch132455 RB25 Offset0 SCC 20 MHz Ch132572 RB100 Offset0





#### PCC 20 MHz Ch132323 RB100 Offset0 SCC 20 MHz Ch132521 RB100 Offset0





#### PCC 20 MHz Ch132374 RB100 Offset0 SCC 20 MHz Ch132572 RB100 Offset0





#### PCC 20 MHz Ch132374 RB100 Offset0 SCC 20 MHz Ch132572 RB100 Offset0



### Frequency Range : 10 GHz ~ 26.5GHz

Spect Swep	rum Analy t SA	zer 1 🗸	+	- 14				14 A	₿	Frequency	- * 景
KEY RL LVI	′SIGHT .≁	Input: RF Coupling: DC Align: Auto	Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S) NFE: Adaptive	#Atten: 0 dB Preamp: Off	PNO: Fa Gate: Off IF Gain: Sig Tracl	r II High	Avg Type: Po rig: Free Run	wer (RMS <mark>1</mark> 234 A <del>WWW</del> AAAA	₩₩ A A	r Frequency 00000000 GHz	Settings
100	ctrum ctrum	Ţ		Ref Level -20.(	00 dBm		Mkr1	19.995 25 G -83.931 di		000000 GHz	
Log									0	wept Span ero Span	
-30.0 -40.0									Start F	Full Span	
-50.0									10.00	00000000 GHz	
-60.0									Stop F 20.00	req 00000000 GHz	
-70.0										UTO TUNE	
-80.0 -90.0	nia atrik sabilit. N	1914   1.80 (tr. 1916 at - 1917 - 171	a filmeri (parti gi na j navi jadi na jada ka	, and a short of the state of the	abili ya mana ku a taka da ku a t	h di daha mana dalam da an b		gadadar (dayna) dahadar	CF Store	0000000 GHz	
100			nuntification and a state of the second	and a second	ويترقص وبالالاها والمقالك	ananta da da yangi anya kadi	n half de and descend by	a se su antiden den a chi (a d'ann aim bha bha bha		uto Ian	
-110									Freq C 0 Hz	Offset	
	10.000 GI BW 1.0 N			#Video BW 3.	.0 MHz		Sweep	Stop 20.000 ~20.4 ms (40000	GHZ L	Scale og in	Local
	5		<b>?</b> Jul 04, 2024 11:35:38 AM	$\Box$					Signal	Track Zoom)	

### PCC 20 MHz Ch132072 RB1 Offset99, SCC 15 MHz Ch132243 RB1 Offset0



Spect Swep	rum Analy t SA	zer 1 🔻	+									Frequency	- * 米
KEY RL	′SIGHT .≁	Input: RF Coupling: DC Align. Auto	Input Z Corr CC Freq Re NFE: A	Corr ef. Int (S)	#Atten: 0 dB Preamp: Off			#Avg Type: F Trig: Free Ru	u ,	1 2 3 4 5 6 A WW WW W A A A A A A A		requency 000000 GHz	Settings
	ectrum	٧						Mkr		) 25 GHz		0000 GHz	
Scale Log	e/Div 10 d	B		R	tef Level -20	.00 dBm			-84.0	073 dBm		ept Span o Span	
-30.0											Fi	ull Span	
-40.0 -50.0											Start Fre 10.0000	eq 000000 GHz	
-60.0											Stop Fre 20.0000	q 000000 GHz	
-70.0											AU	TO TUNE	
-80.0	n n takin	al de la compañía de	br. i	1 <b>6</b> 81.a		u valiti i naliti i du rati mu	adatu atala, tandal	a ta ta ta tan balan ka katika kiri	Manager (19) Miles	- and have been particular	CF Step 1.00000	00000 GHz	
-100	and a state of the second s	an a suit a side a side a side a suite	liter and a property of the second	<sup>1</sup> Say Pring and a superior of the superior o	a a the second	andra a billio a dina and	ng pangang na pangang n Pangang na pangang na pa	a and the states of the last	an a	an dia minana jana (dia dan Jawana, Jawa	Auto Mar		
-110											Freq Off: 0 Hz	set	
	10.000 GI BW 1.0 N				#Video BW 3	3.0 MHz		Sweet		20.000 GHz (40000 pts)	X Axis S Log		Local
	5			, 2024 :13 AM							Signal Ti (Span Zoo		

### PCC 5 MHz Ch132330 RB1 Offset24, SCC 20 MHz Ch132447 RB1 Offset0



Spect Swep	rum Analy : SA	vzer 1 🔻	+									Frequency	- 7 😤
KEY RL	SIGHT .≁·	Input: RF Coupling: DC Align. Auto	Input Z: Corr CC Freq R∉ NFE: A	Corr ef. Int (S)	#Atten: 0 dB Preamp: Off			#Avg Type: I Trig: Free Ri	1	1 2 3 4 5 6 A WWWWW A A A A A A A	Contraction of the local division of the loc	Frequency 000000 GHz	Settings
1 Spe	ctrum	•						Mkr		5 73 GHz		0000 GHz	
Scale Log	/Div 10 d	В		F	ef Level -20	.00 dBm			-84.6	655 dBm		ept Span o Span	
-30.0												ull Span	
-40.0 -50.0											Start Fre 10.000	eq 000000 GHz	
-60.0											Stop Fre 20.000	eq 000000 GHz	
-70.0											AU	TO TUNE	
-80.0	a na da a	المشرور ومارضة من مرحور المراري . المراري ومارضة من مرحور المراري .			Maria Maria Mathania	seaturing, uite in	and total and state	والمرابع المرابع	a leafa air dharaanna	1 Istratosta suos	CF Step 1.0000	00000 GHz	
-100	a da antica da caracteria.		i fan seit her it filde de ser					an a statif filman and filmini	a a di basar di Makata di A	udantar dilami usuya di	Aut Ma	n	
-110											Freq Off 0 Hz	fset	
	10.000 GI BW 1.0 N				#Video BW 3	3.0 MHz		Swee		20.000 GHz (40000 pts)	X Axis S Loc Lin	g	Local
	5			, 2024 03 AM							Signal T (Span Zo	rack	

### PCC 5 MHz Ch132455 RB1 Offset24, SCC 20 MHz Ch132572 RB1 Offset0



Swep			+								4	Frequency	- T 😤
<b>ΚΕΥ</b> RL <b>L</b> 27	′SIGHT ↔	Input: RF Coupling: DC Align. Auto	Input Z: 50 Corr CCorr Freq Ref. I NFE: Adap	r Pr Int (S)	Atten: 0 dB reamp: Off	PNO: I Gate: ( IF Gail Sig Tra	Off	#Avg Type: F Trig: Free Ru	4	2 3 4 5 6 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		Frequency 000000 GHz	Settings
1 Spe	ectrum	•						Mkr		23 GHz		0000 GHz	
Scale Log	e/Div 10 d	В		Ref	Level -20.	00 dBm			-84.3	93 dBm		ept Span	
					Ĭ						Zer	o Span	
-30.0											F	ull Span	
-40.0											Start Fre	New york and the second second second	
-50.0											10.000	000000 GHz	
-60.0											Stop Fre	Subtraction and the second	
											20.0000	000000 GHz	
-70.0											AU	TO TUNE	
-80.0										_ <b></b> 1	CF Step		
-90.0	terre finality	walls the block	Angen in the brand state of the	tela de la	and Aughlight Distantion	a the family of the	art fillen fille season and	and the second stated	Alling Designation of Logar	hendullhebsedul		00000 GHz	
-100	The strength of the strength o		i destination in the second second		, ala di kata di kata da di k	والمراجع التراجع الشري	teleforgation for the state of the	الدرينية ويقاده باللام	and printing hitles and hitles in	a linking in the line states	Aut Mai		
-100											Freq Off	set	
-110											0 Hz		
Start	10.000 G	Hz		#V	ideo BW 3	0 MHz			Stop	20.000 GHz	X Axis S		Local
	BW 1.0 N							Swee		(40000 pts)	Log Lin		
H	5		<b>?</b> Jul 04, 2 11:40:03		$\wedge$						Signal T (Span Zo		

# PCC 20 MHz Ch132072 RB1 Offset0, SCC 15 MHz Ch132243 RB1 Offset74



Spect Swep	rum Analy t SA	vzer 1 🔻	+									Frequency	_ <u>*</u> 迷
KEY RL	′SIGHT .≁·	Input: RF Coupling: DC Align. Auto	Input Z: Corr CC Freq R∉ NFE: A	Corr ef. Int (S)	#Atten: 0 dB Preamp: Off			#Avg Type: I Trig: Free Ri	u ,	1 2 3 4 5 6 A WW WW W A A A A A A A	and the second se	Frequency 0000000 GHz	Settings
1 Spe	ectrum	•						Mkr		3 47 GHz		0000 GHz	
Scale Log	e/Div 10 d	В		F	ef Level -20	.00 dBm			-85.6	670 dBm		/ept Span	
-30.0												ro Span	
											Ľ	<sup>-</sup> ull Span	
-40.0											Start Fi	eq 0000000 GHz	
-50.0											L		
-60.0											Stop Fr 20.000	eq 0000000 GHz	
-70.0											AL	JTO TUNE	
-80.0 -90.0	1	hilinge digge <sup>dig</sup> ges friggt		an an aite	hila na kaji kao kaji kaji	landili dan salanda	แม่มีมาณา อา		A Long to the Long of Long	1 Anderstein	CF Ste 1.0000	p 000000 GHz	
	ngeneran anggeler Lander ang		angener og som det som en som en En som en som	do adda and	ner ber ander die ster protected an	an a		a administration of the party	Leader in the second second	المتحاز وبالقرحيا فمعا	Au Ma		
-100											Freq O	ffset	
-110											0 Hz		
Start	10.000 G	Hz			#Video BW 3				Stop	20.000 GHz	X Axis		Local
	BW 1.0 N							Swee		(40000 pts)	Lo Lir		
	5			, 2024 45 AM							Signal <sup>*</sup> (Span Z		

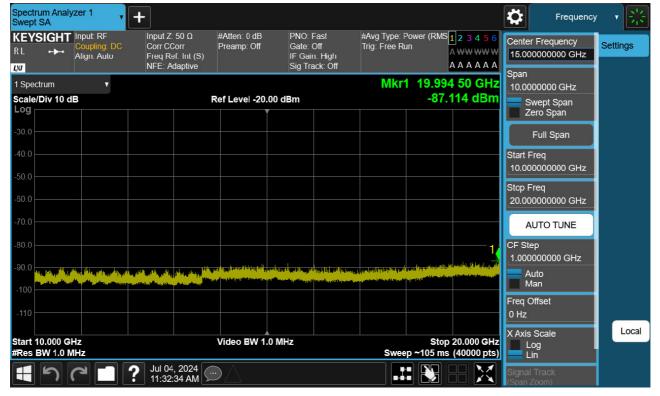
### PCC 5 MHz Ch132330 RB1 Offset0, SCC 20 MHz Ch132447 RB1 Offset99



Spectru Swept	um Analy SA	zer 1 🔻	+									Frequency	- 7 😤
KEYS RL LVT	SIGHT .≁-	Input: RF Coupling: DC Align. Auto	Input Z Corr C0 Freq R NFE: A	Corr ef. Int (S)	#Atten: 0 dB Preamp: Off			#Avg Type: F Trig: Free Ri	4	1 2 3 4 5 6 A WW WW W A N N N N N	Center Fr 15.00000 Span	equency 00000 GHz	Settings
1 Spect		*						Mkr		2 48 GHz	10.0000	000 GHz	
Scale/I	Div 10 d	B		F	Ref Level -20	.00 dBm			-83.8	336 dBm		ot Span Span	
-30.0 —											Ful	l Span	
-40.0											Start Fred 10.00000	 )0000 GHz	
-60.0											Stop Freq 20.00000	00000 GHz	
-70.0											AUT	O TUNE	
-80.0	a as he	nia, alta alta a			. a	nitili tilani mu	and and some at the desired of		wa that the second second	Tran 19 400 Jacob	CF Step 1.000000	0000 GHz	
-90.0 m	an suite airtean	an a	n an		oodatalah teknaloonga		1.4	an had a completion of	a Landa and A Links	a se de la constitución de la const	Auto Man		
-110 —											Freq Offs 0 Hz	et	
	0.000 GI W 1.0 N				#Video BW 3	3.0 MHz		Surea		20.000 GHz	X Axis Sc Log	ale	Local
	<b>5</b> (			, 2024 21 AM				Swee		(40000 pts)	Signal Tra (Span Zool		

### PCC 5 MHz Ch132455 RB1 Offset0, SCC 20 MHz Ch132572 RB1 Offset99





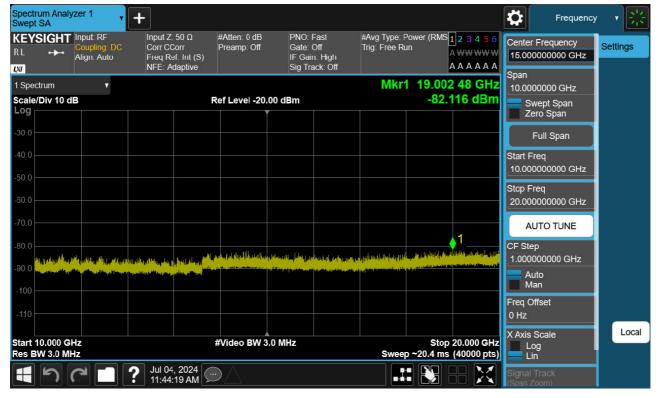
#### PCC 20 MHz Ch132072 RB100 Offset0, SCC 20 MHz Ch132270 RB100 Offset0



Spectrum A Swept SA	nalyzer 1 🔻	+					Frequency	- * 影
KEYSIGI RL ↔	HT Input: RF Coupling: DC Align. Auto	Input Ζ: 50 Ω Corr CCorr Freq Ref. Int (S) NFE: Adaptive	#Atten: 0 dB Preamp: Off	PNO: Fast Gate: Off IF Gain. High Sig Track: Off	#Avg Type: Pov Trig: Free Run	wer (RMS <mark>1</mark> 2 3 4 5 6 A <del>WW WW W</del> A A A A A A	Center Frequency 15.000000000 GHz Span	Settings
1 Spectrum	▼				Mkr1	19.462 24 GHz	10.0000000 GHz	
Scale/Div 1	l0 dB	F	Ref Level -20.00	) dBm		-84.784 dBm	Swept Span Zero Span	
-30.0							Full Span	
-40.0							Start Freq 10.000000000 GHz	
-50.0							Stop Freq 20.000000000 GHz	
-70.0							AUTO TUNE	
-80.0	atas aliada comenciante e comencia			han listalles, mina secondary when	1	1- 1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	CF Step 1.000000000 GHz	
-90.0		engeligt for yn de gegen gewyn a bygel fei yr y <sup>f de b</sup> er Yn a dd feredd for gener a wraitwreid y ger <sup>ydd wr</sup> fer		ang pangang pan Pangang pangang		أولفروها والأرار ومقادا والرومين والمراجع والمراجع والمراجع	Auto Man	
-110							Freq Offset 0 Hz	
Start 10.000 #Res BW 1			#Video BW 3.0	MHz	Swoon	Stop 20.000 GHz ~20.4 ms (40000 pts)	X Axis Scale	Local
		<b>?</b> Jul 04, 2024 11:26:43 AM			Sweep ~		Lin Signal Track (Span Zoom)	

### PCC 10 MHz Ch132328 RB50 Offset0, SCC 20 MHz Ch132472 RB100 Offset0





#### PCC 5 MHz Ch132455 RB25 Offset0, SCC 20 MHz Ch132572 RB100 Offset0



Spect	rum Analy : SA	/zer 1 🔻	+								Frequency	_ x <u>影</u>
KEY RL LNJ	SIGHT .≁	Input: RF Coupling: DC Align. Auto	Input Z: 50 Corr CCorr Freq Ref. I NFE: Adap	Preamp nt (S)	: Off Gate: IF Ga		#Avg Type: F Trig: Free Ri	P	23456 WWWWW AAAAAA		equency 0000 GHz	Settings
1 Spe Scale	ctrum /Div 10 d	T B		Ref Leve	el -20.00 dBm		Mkr	1 19.705 -84.3	49 GHz 22 dBm	Span 10.00000 Swep Zero	ot Span	
-30.0										Full	Span	
-50.0										Stop Freq	0000 GHz	
-60.0 -70.0											0000 GHz D TUNE	
-80.0 -90.0	and the second second	and the second second second	and the second of the second o	for the first	Hanniffenna (Hanniferna) Anniferna (Hanniferna)				1. Pahangkangkang Pangkangkangkang	Auto	000 GHz	
-100 -110		a fili a sendi	i de matilis i brita ( a a ba a porte			and a state of the				Man Freq Offse 0 Hz	et	
	10.000 G BW 1.0 N			#Video	BW 3.0 MHz		Swee		20.000 GHz (40000 pts)	X Axis Sca Log Lin	ale	Local
	ち	2	<b>?</b> Jul 04, 20 11:38:09							Signal Tra (Span Zoor		

### PCC 20 MHz Ch132323 RB100 Offset0, SCC 20 MHz Ch132521 RB100 Offset0



Swept			+									Frequency	- x 迷
KEY RL	SIGHT .≁·	Input: RF Coupling: DC Align. Auto	Input Z: 50 Corr CCorr Freq Ref. I NFE: Adap	r Pr Int (S)	Atten: 0 dB eamp: Off	PNO: I Gate: ( IF Gair Sig Tra	Off ı. High	#Avg Type: F Trig: Free Ri	· · · · · · · · · · · · · · · · · · ·	1 2 3 4 5 6 A WW WW W A A A A A A A		equency 00000 GHz	Settings
1 Spe Scale Log	ctrum / <b>Div 10 d</b>	₹ B		Ref	Level -20.	00 dBm		Mkr		8 23 GHz 582 dBm		000 GHz ot Span Span	
-30.0												l Span	
-40.0 -50.0												00000 GHz	
-60.0											Stop Freq 20.00000	00000 GHz	
-70.0 -80.0										<u>, 1</u>	AUT CF Step	O TUNE	
-90.0	and the second secon	and the state of the	ر بر با اعتمیا با با بر بنداده مخاصر و ا		inger and a second state of the second s			had bar he bir and beith			and the second second second	0000 GHz	
-100	and sold by the later	litter printerski forstilliksen	namatin Antificia Ligga pina b	and and a second se	and, o trop Indept	in a station of the second state of the second	hy a tolking and think and y	u talim talamik kati (pull			Man Freq Offse	et	
-110						0.000					0 Hz X Axis Sc	ale	Local
	10.000 G BW 1.0 N		<b>9</b> Jul 04, 2	024	ideo BW 3	U MHZ		Swee	p~20.4 ms	20.000 GHz (40000 pts)	Log Lin Signal Tra	ick	
			11:33:21	AM							(Span Zoor		

### PCC 20 MHz Ch132374 RB100 Offset0, SCC 20 MHz Ch132572 RB100 Offset0



Spect Swept	rum Analy : SA	/zer 1 🔻	+							Frequency	_ <u> </u>
KEY RL	SIGHT .≁	Input: RF Coupling: DC Align. Auto	Input Ζ: 50 Ω Corr CCorr Freq Ref. Int (S NFE: Adaptive	#Atten: 0 dB Preamp: Off )	PNO: Fast Gate: Off IF Gain. H Sig Track:	igh	ype: Power (RMS ee Run	1 2 3 4 5 6 A \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	15.000	Frequency 000000 GHz	Settings
1 Spe	ctrum /Div 10 d	₹ B		Ref Level -20.	.00 dBm	N	/kr1 19.20 -85.	4 48 GHz 205 dBm	Sw	0000 GHz ept Span o Span	
-30.0									F	ull Span	
-50.0									Stop Fre	2000000 GHz	
-60.0 -70.0										000000 GHZ	
-80.0 -90.0			andre stelgen (j. 1911) om fålgerede stelse	the first state of the state of		han a second a second	فيقتربها المنتد	1 watelinggooulytheri	Au	00000 GHz	
-100 -110			in and the particular sector of the particular sector of the particular sector of the particular sector of the p		All the state of the state of	41119 Parce 14 (2)			Ma Freq Of 0 Hz		
	10.000 G BW 1.0 N			#Video BW 3	.0 MHz	s	Stop sweep ~20.4 ms	20.000 GHz (40000 pts)	X Axis S Lo	g	Local
	5		<b>?</b> Jul 04, 2024 11:27:32 AM	$\bigcirc \triangle$					Signal T (Span Zo		

### PCC 20 MHz Ch132374 RB100 Offset0, SCC 20 MHz Ch132572 RB100 Offset0