

TEST REPORT

FCC Sub6 n66 Test for SC-51F
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2412-FC012

DATE OF ISSUE
December 3, 2024

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TEST REPORT

REPORT NO.

HCT-RF-2412-FC012

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December 3, 2024

Additional Model

SCG31

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

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

Product Name

Mobile Phone

Model Name

SC-51F

Date of Test

October 10, 2024 ~ December 02, 2024

FCC ID

A3LSMS931JPN

Location of Test

☒ Permanent Testing Lab ☐ On Site Testing

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

FCC Classification:

PCS Licensed Transmitter 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	December 3, 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 ***.

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

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

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MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	SAMSUNG Electronics Co., Ltd.
Address:	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
FCC ID:	A3LSMS931JPN
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§ 27
EUT Type:	Mobile phone
Model(s):	SC-51F
Additional Model(s)	SCG31
SCS(kHz):	15
Bandwidth(MHz):	5, 10, 15, 20, 25, 30, 35, 40,45
Waveform:	CP-OFDM, DFT-S-OFDM
Modulation:	DFT-S-OFDM: PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM
Tx Frequency:	1712.5 MHz – 1777.5 MHz (Sub6 n66(5 MHz)) 1715.0 MHz – 1775.0 MHz (Sub6 n66(10 MHz)) 1717.5 MHz – 1772.5 MHz (Sub6 n66(15 MHz)) 1720.0 MHz – 1770.0 MHz (Sub6 n66(20 MHz)) 1722.5 MHz – 1767.5 MHz (Sub6 n66(25 MHz)) 1725.0 MHz – 1765.0 MHz (Sub6 n66(30 MHz)) 1727.5 MHz – 1762.5 MHz (Sub6 n66(35 MHz)) 1730.0 MHz – 1760.0 MHz (Sub6 n66(40 MHz))
Date(s) of Tests:	October 10, 2024 ~ December 02, 2024
Serial number:	Radiated : R3CX90KCF3Y Conducted : R3CX9061K3J

1.1. MAXIMUM OUTPUT POWER

Main 1 ANT

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max. Power (W)	Max. Power (dBm)
Sub6 n66 (5)	1712.5 – 1777.5	4M53G7D	PI/2 BPSK	0.142	21.51
		4M52G7D	QPSK	0.140	21.47
		4M51W7D	16QAM	0.110	20.43
		4M51W7D	64QAM	0.074	18.69
		4M51W7D	256QAM	0.046	16.60
Sub6 n66 (10)	1715.0 – 1775.0	8M98G7D	PI/2 BPSK	0.144	21.57
		8M98G7D	QPSK	0.137	21.38
		8M96W7D	16QAM	0.109	20.39
		9M01W7D	64QAM	0.076	18.79
		9M04W7D	256QAM	0.047	16.72
Sub6 n66 (15)	1717.5 – 1772.5	13M4G7D	PI/2 BPSK	0.150	21.75
		13M5G7D	QPSK	0.147	21.66
		13M4W7D	16QAM	0.115	20.60
		13M5W7D	64QAM	0.077	18.88
		13M5W7D	256QAM	0.048	16.78
Sub6 n66 (20)	1720.0 – 1770.0	17M9G7D	PI/2 BPSK	0.151	21.79
		18M0G7D	QPSK	0.148	21.70
		17M9W7D	16QAM	0.119	20.75
		17M9W7D	64QAM	0.078	18.93
		17M9W7D	256QAM	0.049	16.93
Sub6 n66 (25)	1722.5 – 1767.5	23M0G7D	PI/2 BPSK	0.150	21.77
		22M9G7D	QPSK	0.143	21.56
		23M0W7D	16QAM	0.113	20.53
		23M0W7D	64QAM	0.078	18.91
		23M0W7D	256QAM	0.049	16.87
Sub6 n66 (30)	1725.0 – 1765.0	28M6G7D	PI/2 BPSK	0.142	21.51
		28M6G7D	QPSK	0.139	21.43
		28M7W7D	16QAM	0.113	20.52
		28M7W7D	64QAM	0.075	18.74
		28M7W7D	256QAM	0.047	16.73
Sub6 n66 (35)	1727.5 – 1762.5	32M4G7D	PI/2 BPSK	0.149	21.74
		32M4G7D	QPSK	0.145	21.60
		32M2W7D	16QAM	0.112	20.51
		32M2W7D	64QAM	0.076	18.81
		32M2W7D	256QAM	0.046	16.65
Sub6 n66 (40)	1730.0 – 1760.0	38M6G7D	PI/2 BPSK	0.148	21.71
		38M8G7D	QPSK	0.141	21.48
		38M6W7D	16QAM	0.111	20.45
		38M7W7D	64QAM	0.076	18.80
		38M7W7D	256QAM	0.048	16.83

Sub 2 ANT

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max. Power (W)	Max. Power (dBm)
Sub6 n66 (5)	1712.5 – 1777.5	4M50G7D	PI/2 BPSK	0.049	16.92
		4M51G7D	QPSK	0.049	16.86
		4M51W7D	16QAM	0.039	15.86
		4M57W7D	64QAM	0.026	14.17
		4M53W7D	256QAM	0.015	11.84
Sub6 n66 (10)	1715.0 – 1775.0	8M98G7D	PI/2 BPSK	0.056	17.47
		9M02G7D	QPSK	0.055	17.41
		9M02W7D	16QAM	0.044	16.47
		8M96W7D	64QAM	0.030	14.84
		8M98W7D	256QAM	0.018	12.48
Sub6 n66 (15)	1717.5 – 1772.5	13M4G7D	PI/2 BPSK	0.053	17.23
		13M4G7D	QPSK	0.052	17.17
		13M4W7D	16QAM	0.042	16.23
		13M5W7D	64QAM	0.028	14.43
		13M4W7D	256QAM	0.017	12.21
Sub6 n66 (20)	1720.0 – 1770.0	17M8G7D	PI/2 BPSK	0.053	17.21
		17M9G7D	QPSK	0.052	17.17
		17M9W7D	16QAM	0.041	16.18
		17M9W7D	64QAM	0.028	14.45
		17M9W7D	256QAM	0.017	12.22
Sub6 n66 (25)	1722.5 – 1767.5	22M8G7D	PI/2 BPSK	0.057	17.55
		22M9G7D	QPSK	0.055	17.38
		22M9W7D	16QAM	0.044	16.43
		22M9W7D	64QAM	0.030	14.75
		22M9W7D	256QAM	0.018	12.45
Sub6 n66 (30)	1725.0 – 1765.0	28M5G7D	PI/2 BPSK	0.054	17.35
		28M5G7D	QPSK	0.054	17.29
		28M6W7D	16QAM	0.043	16.30
		28M5W7D	64QAM	0.028	14.53
		28M5W7D	256QAM	0.017	12.37
Sub6 n66 (35)	1727.5 – 1762.5	32M1G7D	PI/2 BPSK	0.053	17.25
		32M1G7D	QPSK	0.052	17.20
		32M1W7D	16QAM	0.044	16.40
		32M1W7D	64QAM	0.030	14.71
		32M2W7D	256QAM	0.017	12.35
Sub6 n66 (40)	1730.0 – 1760.0	38M5G7D	PI/2 BPSK	0.056	17.51
		38M4G7D	QPSK	0.055	17.44
		38M5W7D	16QAM	0.044	16.48
		38M5W7D	64QAM	0.030	14.71
		38M5W7D	256QAM	0.017	12.36

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

The EUT was a Mobile Phone with GSM/GPRS/EGPRS/UMTS and LTE, Sub 6.

It also supports IEEE 802.11 a/b/g/n/ac/ax/be (20/40/80/160/320 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, Republic of Korea.

3. DESCRIPTION OF TESTS

3.1 TEST PROCEDURE

Test Description	Test Procedure Used
Occupied Bandwidth	- KDB 971168 D01 v03r01 – Section 4.3 - ANSI C63.26-2015 – Section 5.4.4
Band Edge	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Spurious and Harmonic Emissions at Antenna Terminal	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Conducted Output Power	- N/A (See SAR Report)
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/ 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 $\geq$ 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points > 2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

Test Note

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

The power is calculated by the following formula;

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

Where: P_d is the dipole equivalent power and P_g is the generator output power into the substitution antenna.

3. The maximum value is calculated by adding the forward power to the calibrated source plus its appropriate gain value.

These steps are repeated with the receiving antenna in both vertical and horizontal polarization. the difference between the gain of the horn and an isotropic antenna are taken into consideration

4. The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.
5. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

3.3 RADIATED SPURIOUS EMISSIONS

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

Radiated Spurious Emission Measurements at 3 meters by Substitution Method 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 $\geq 3 \times$ RBW
3. Span = 1.5 times the OBW
4. No. of sweep points $> 2 \times$ span / RBW
5. Detector = Peak
6. Trace mode = Max Hold
7. The trace was allowed to stabilize
8. Test channel : Low/ Middle/ High
9. Frequency range : We are performed all frequency to 10th harmonics from 9 kHz.

Test Note

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

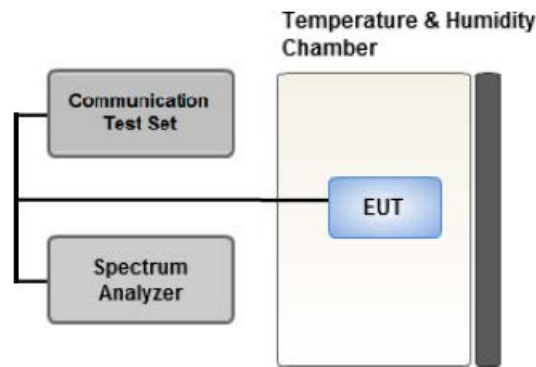
$$\text{Result}_{(\text{dBm})} = P_g_{(\text{dBm})} - \text{cable loss}_{(\text{dB})} + \text{antenna gain}_{(\text{dBi})}$$

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

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

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

3.4 PEAK- TO- AVERAGE RATIO



Test setup

① CCDF Procedure for PAPR

Test Settings

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

② Alternate Procedure for PAPR

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

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

Test Settings(Peak Power)

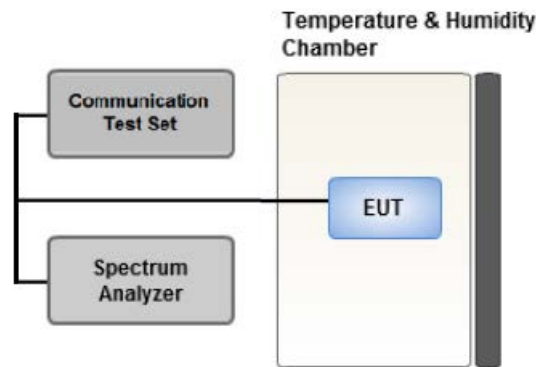
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW $\geq 3 \times$ RBW.

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

Test Settings(Average Power)

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

3.5 OCCUPIED BANDWIDTH.



Test setup

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

The EUT makes a call to the communication simulator.

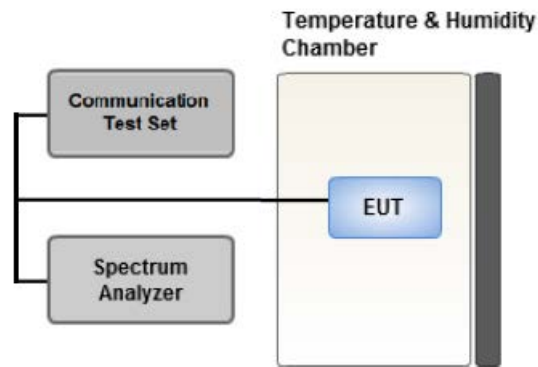
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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

Test Settings

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

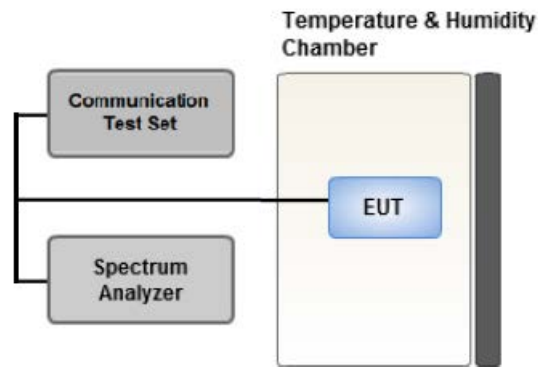
Test Overview

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 $\geq$ 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.

Test Settings

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

Test Notes

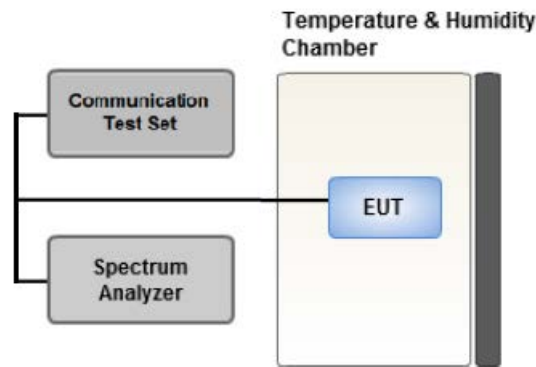
According to FCC 22.917, 24.238, 27.53 specified that power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

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

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

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

3.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE



Test setup

Test Overview

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015.

The frequency stability of the transmitter is measured by:

1. Temperature:

The temperature is varied from -30 °C to +50 °C in 10 °C increments using an environmental chamber.

2. Primary Supply Voltage:

- .- Unless otherwise specified, vary primary supply voltage from 85 % to 115 % of the nominal value for other than hand carried battery equipment.
- .- For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.

Test Settings

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

3.9 WORST CASE(RADIATED TEST)

- Waveform : All Waveform of operation were investigated and the worst case configuration results are reported.
(Worst case: DFT-S-OFDM)
- The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.
- All modes of operation were investigated and the worst case configuration results are reported.
Mode: NSA Only
Worst case: Main 1 Ant(13A-n66A), Sub 2 Ant(13A-n66A)
Mode : Stand alone, Stand alone + External accessories (Earphone, AC adapter, etc)
Worst case : Stand alone
- 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.
- Radiated Spurious emissions are measured while operating in EN-DC mode with Sub 6 NR carrier as well as an LTE carrier (anchor).
All EN-DC mode of operation (=anchor) were investigated and the test results were measured No Peak Found.
The test results which are attenuated more than 20 dB below the permissible value, so it was not reported.
- All RB sizes, offsets of operation were investigated and the worst case configuration results are reported.
Please refer to the table below.
- In the case of radiated spurious emissions, all bandwidth of operation was investigated and the worst case bandwidth results are reported. (Worst case : 20 MHz(Main 1 ANT), 25 MHz(Sub 2 ANT))
- SC-51F & additional models were tested and the worst case results are reported.
(Worst case : SC-51F)

[Main 1 ANT Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Equivalent Isotropic Radiated Power	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	See Section 8.1		Z
Radiated Spurious and Harmonic Emissions	PI/2 BPSK	See Section 8.2		Z

[Sub 2 ANT Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Equivalent Isotropic Radiated Power	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	See Section 9.1		Y
Radiated Spurious and Harmonic Emissions	PI/2 BPSK	See Section 9.2		Y

3.10 WORST CASE(CONDUCTED TEST)

- Waveform : All Waveform of operation were investigated and the worst case configuration results are reported.
(Worst case: DFT-S-OFDM)
- Modulation : All Modulation of operation were investigated and the worst case configuration results are reported.
(Worst case: PI/2 BPSK)
- All modes of operation were investigated and the worst case configuration results are reported.
Mode: NSA Only
Worst case: Main 1 Ant(13A-n66A), Sub 2 Ant(13A-n66A)
- All RB sizes, offsets of operation were investigated and the worst case configuration results are reported.
Please refer to the table below.
- SC-51F & additional models were tested and the worst case results are reported.
(Worst case : SC-51F)

[Worst case]

Test Description	Modulation	Bandwidth (MHz)	Frequency	RB size	RB offset
Occupied Bandwidth, Peak-To-Average Ratio	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	5, 10, 15, 20, 25, 30, 35, 40	Mid	Full RB	0
Band Edge	PI/2 BPSK	5	Low	1	0
			High	1	24
		10	Low	1	0
			High	1	51
		15	Low	1	0
			High	1	78
		20	Low	1	0
			High	1	105
		25	Low	1	0
			High	1	132
		30	Low	1	0
			High	1	159
		35	Low	1	0
			High	1	187
		40	Low	1	0
			High	1	215
		5, 10, 15, 20, 25, 30, 35, 40	Low, High	Full RB	0
Spurious and Harmonic Emissions at Antenna Terminal	PI/2 BPSK	5, 10, 15, 20, 25, 30, 35, 40	Low, Mid, High	1	1

4. LIST OF TEST EQUIPMENT

Equipment	Model	Manufacture	Serial No.	Due to Calibration	Calibration Interval
Precision Dipole Antenna	UHAP	Schwarzbeck	01273	03/10/2026	Biennial
Precision Dipole Antenna	UHAP	Schwarzbeck	01274	03/10/2026	Biennial
Horn Antenna(1~18 GHz)	BBHA 9120D	Schwarzbeck	02289	02/14/2026	Biennial
Horn Antenna(1~18 GHz)	BBHA 9120D	Schwarzbeck	9120D-1299	04/27/2025	Biennial
Horn Antenna(15~40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	09/20/2026	Biennial
Horn Antenna(15~40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	03/28/2025	Biennial
Loop Antenna(9 kHz~30 MHz)	FMZB1513	Rohde & Schwarz	1513-175	01/16/2025	Biennial
Bilog Antenna	VULB9160	Schwarzbeck	3150	03/09/2025	Biennial
Hybrid Antenna	VULB9160	Schwarzbeck	760	02/24/2025	Biennial
RF Switching System	FBSR-06B (1G HPF + LNA)	T&M SYSTEM	F3L1	05/14/2025	Annual
RF Switching System	FBSR-06B (3G HPF + LNA)	T&M SYSTEM	F3L2	05/14/2025	Annual
RF Switching System	FBSR-06B (6G HPF + LNA)	T&M SYSTEM	F3L3	05/14/2025	Annual
RF Switching System	FBSR-06B (LNA)	T&M SYSTEM	F3L4	05/14/2025	Annual
Power Amplifier	CBL18265035	CERNEX	22966	11/07/2025	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/26/2025	Annual
DC Power Supply	E3632A	Hewlett Packard	MY40004427	08/22/2025	Annual
Power Splitter(DC~26.5 GHz)	11667B	Hewlett Packard	11275	02/29/2025	Annual
Chamber	SU-642	ESPEC	93008124	02/19/2025	Annual
Signal Analyzer(10 Hz~26.5 GHz)	N9020A	Agilent	MY51110063	04/04/2025	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/17/2025	Annual
Spectrum Analyzer(10 Hz~40 GHz)	FSV40	REOHDE & SCHWARZ	101436	02/13/2025	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/05/2025	Annual
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262287701	05/16/2025	Annual
Wideband Radio Communication Tester	MT8000A	Anritsu Corp.	6262302511	05/14/2025	Annual
Signal Analyzer(5 Hz~40.0 GHz)	N9030B	KEYSIGHT	MY55480167	05/17/2025	Annual
4-Way Divider	ZC4PD-K1844+	Mini-Circuits	942907	09/10/2025	Annual
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.,	-	-	-

Note:

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

5. MEASUREMENT UNCERTAINTY

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

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

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

6. SUMMARY OF TEST RESULTS

6.1 Test Condition: Conducted Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Occupied Bandwidth	§ 2.1049	N/A	PASS
Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§ 2.1051, § 27.53(h)	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions	PASS
Conducted Output Power	§ 2.1046	N/A	<u>See Note1</u>
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

Note:

1. See SAR Report
2. All conducted tests were tested using 5G Wireless Tester.

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 Harmonic Emissions	§ 2.1053, § 27.53(h)	< 43 + 10log10 (P[Watts]) for all out-of band emissions	PASS

Note:

1. Radiated tests were tested using 5G Wireless Tester.

7. SAMPLE CALCULATION

7.1 ERP Sample Calculation

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

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

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

7.2 EIRP Sample Calculation

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

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

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

7.3. Emission Designator

GSM Emission Designator

Emission Designator = 249KGXW

GSM BW = 249 kHz

G = Phase Modulation

X = Cases not otherwise covered

W = Combination (Audio/Data)

EDGE Emission Designator

Emission Designator = 249KG7W

GSM BW = 249 kHz

G = Phase Modulation

7 = Quantized/Digital Info

W = Combination (Audio/Data)

WCDMA Emission Designator

Emission Designator = 4M17F9W

WCDMA BW = 4.17 MHz

F = Frequency Modulation

9 = Composite Digital Info

W = Combination (Audio/Data)

QPSK Modulation

Emission Designator = 4M48G7D

LTE BW = 4.48 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data transmission; telemetry; telecommand

QAM Modulation

Emission Designator = 4M48W7D

LTE BW = 4.48 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data transmission; telemetry; telecommand

8. TEST DATA (Main 1 ANT)

8.1 EQUIVALENT ISOTROPIC RADIATED POWER

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1712.5	Sub6 n66/ 5 MHz [15 kHz]	PI/2 BPSK	-20.11	12.97	10.12	2.06	V	< 1.00	0.127	21.03	1	23
		QPSK	-20.26	12.82	10.12	2.06	V		0.123	20.88		
		16-QAM	-21.29	11.79	10.12	2.06	V		0.097	19.85		
		64-QAM	-22.93	10.15	10.12	2.06	V		0.066	18.21		
		256-QAM	-25.15	7.93	10.12	2.06	V		0.040	15.99		
1745.0		PI/2 BPSK	-20.22	13.15	10.43	2.07	V		0.142	21.51	1	1
		QPSK	-20.26	13.11	10.43	2.07	V		0.140	21.47		
		16-QAM	-21.30	12.07	10.43	2.07	V		0.110	20.43		
		64-QAM	-23.04	10.33	10.43	2.07	V		0.074	18.69		
		256-QAM	-25.13	8.24	10.43	2.07	V		0.046	16.60		
1777.5		PI/2 BPSK	-20.95	12.41	10.50	2.09	V		0.121	20.82	1	12
		QPSK	-21.12	12.24	10.50	2.09	V		0.116	20.65		
		16-QAM	-22.23	11.13	10.50	2.09	V		0.090	19.54		
		64-QAM	-23.98	9.38	10.50	2.09	V		0.060	17.79		
		256-QAM	-25.99	7.37	10.50	2.09	V		0.038	15.78		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1715.0	Sub6 n66/ 10 MHz [15 kHz]	PI/2 BPSK	-19.95	13.13	10.12	2.06	V	< 1.00	0.132	21.19	1	50
		QPSK	-20.07	13.01	10.12	2.06	V		0.128	21.07		
		16-QAM	-21.11	11.97	10.12	2.06	V		0.101	20.03		
		64-QAM	-22.81	10.27	10.12	2.06	V		0.068	18.33		
		256-QAM	-24.96	8.12	10.12	2.06	V		0.042	16.18		
1745.0		PI/2 BPSK	-20.16	13.21	10.43	2.07	V		0.144	21.57	1	1
		QPSK	-20.35	13.02	10.43	2.07	V		0.137	21.38		
		16-QAM	-21.34	12.03	10.43	2.07	V		0.109	20.39		
		64-QAM	-22.94	10.43	10.43	2.07	V		0.076	18.79		
		256-QAM	-25.01	8.36	10.43	2.07	V		0.047	16.72		
1775.0		PI/2 BPSK	-20.82	12.58	10.49	2.09	V	0.125	20.98	1	1	
		QPSK	-20.92	12.48	10.49	2.09	V	0.123	20.88			
		16-QAM	-21.98	11.42	10.49	2.09	V	0.096	19.82			
		64-QAM	-23.67	9.73	10.49	2.09	V	0.065	18.13			
		256-QAM	-25.82	7.58	10.49	2.09	V	0.040	15.98			

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1717.5	Sub6 n66/ 15 MHz [15 kHz]	PI/2 BPSK	-19.91	13.25	10.18	2.06	V	< 1.00	0.137	21.37	1	77
		QPSK	-20.03	13.13	10.18	2.06	V		0.133	21.25		
		16-QAM	-21.07	12.09	10.18	2.06	V		0.105	20.21		
		64-QAM	-22.80	10.36	10.18	2.06	V		0.071	18.48		
		256-QAM	-24.95	8.21	10.18	2.06	V		0.043	16.33		
1745.0		PI/2 BPSK	-19.98	13.39	10.43	2.07	V		0.150	21.75	1	1
		QPSK	-20.07	13.30	10.43	2.07	V		0.147	21.66		
		16-QAM	-21.13	12.24	10.43	2.07	V		0.115	20.60		
		64-QAM	-22.85	10.52	10.43	2.07	V		0.077	18.88		
		256-QAM	-24.95	8.42	10.43	2.07	V		0.048	16.78		
1772.5		PI/2 BPSK	-20.47	12.93	10.49	2.09	V	0.136	21.33	1	39	
		QPSK	-20.66	12.74	10.49	2.09	V	0.130	21.14			
		16-QAM	-21.78	11.62	10.49	2.09	V	0.101	20.02			
		64-QAM	-23.37	10.03	10.49	2.09	V	0.070	18.43			
		256-QAM	-25.84	7.56	10.49	2.09	V	0.039	15.96			

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1720.0	Sub6 n66/ 20 MHz [15 kHz]	PI/2 BPSK	-19.93	13.23	10.18	2.06	V	< 1.00	0.137	21.35	1	53
		QPSK	-20.09	13.07	10.18	2.06	V		0.132	21.19		
		16-QAM	-21.09	12.07	10.18	2.06	V		0.105	20.19		
		64-QAM	-22.81	10.35	10.18	2.06	V		0.070	18.47		
		256-QAM	-24.97	8.19	10.18	2.06	V		0.043	16.31		
1745.0		PI/2 BPSK	-19.94	13.43	10.43	2.07	V		0.151	21.79	1	1
		QPSK	-20.03	13.34	10.43	2.07	V		0.148	21.70		
		16-QAM	-20.98	12.39	10.43	2.07	V		0.119	20.75		
		64-QAM	-22.80	10.57	10.43	2.07	V		0.078	18.93		
		256-QAM	-24.80	8.57	10.43	2.07	V		0.049	16.93		
1770.0		PI/2 BPSK	-20.37	13.05	10.49	2.09	V	0.140	21.45	1	53	
		QPSK	-20.60	12.82	10.49	2.09	V	0.132	21.22			
		16-QAM	-21.65	11.77	10.49	2.09	V	0.104	20.17			
		64-QAM	-23.25	10.17	10.49	2.09	V	0.072	18.57			
		256-QAM	-25.32	8.10	10.49	2.09	V	0.045	16.50			

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1722.5	Sub6 n66/ 25 MHz [15 kHz]	PI/2 BPSK	-19.89	13.39	10.23	2.07	V	< 1.00	0.143	21.55	1	66
		QPSK	-20.02	13.26	10.23	2.07	V		0.139	21.42		
		16-QAM	-21.19	12.09	10.23	2.07	V		0.106	20.25		
		64-QAM	-22.81	10.47	10.23	2.07	V		0.073	18.63		
		256-QAM	-24.92	8.36	10.23	2.07	V		0.045	16.52		
1745.0		PI/2 BPSK	-19.96	13.41	10.43	2.07	V		0.150	21.77	1	1
		QPSK	-20.17	13.20	10.43	2.07	V		0.143	21.56		
		16-QAM	-21.20	12.17	10.43	2.07	V		0.113	20.53		
		64-QAM	-22.82	10.55	10.43	2.07	V		0.078	18.91		
		256-QAM	-24.86	8.51	10.43	2.07	V		0.049	16.87		
1767.5		PI/2 BPSK	-20.52	12.90	10.49	2.09	V	0.135	21.30	1	1	
		QPSK	-20.61	12.81	10.49	2.09	V	0.132	21.21			
		16-QAM	-21.54	11.88	10.49	2.09	V	0.107	20.28			
		64-QAM	-23.20	10.22	10.49	2.09	V	0.073	18.62			
		256-QAM	-25.37	8.05	10.49	2.09	V	0.044	16.45			

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1725.0	Sub6 n66/ 30 MHz [15 kHz]	PI/2 BPSK	-19.93	13.35	10.23	2.07	V	< 1.00	0.142	21.51	1	80
		QPSK	-20.15	13.13	10.23	2.07	V		0.135	21.29		
		16-QAM	-21.11	12.17	10.23	2.07	V		0.108	20.33		
		64-QAM	-22.77	10.51	10.23	2.07	V		0.074	18.67		
		256-QAM	-24.91	8.37	10.23	2.07	V		0.045	16.53		
1745.0		PI/2 BPSK	-20.24	13.13	10.43	2.07	V		0.141	21.49	1	1
		QPSK	-20.30	13.07	10.43	2.07	V		0.139	21.43		
		16-QAM	-21.21	12.16	10.43	2.07	V		0.113	20.52		
		64-QAM	-22.99	10.38	10.43	2.07	V		0.075	18.74		
		256-QAM	-25.00	8.37	10.43	2.07	V		0.047	16.73		
1765.0		PI/2 BPSK	-20.55	12.78	10.48	2.09	V	0.131	21.17	1	1	
		QPSK	-20.65	12.68	10.48	2.09	V	0.128	21.07			
		16-QAM	-21.64	11.69	10.48	2.09	V	0.102	20.08			
		64-QAM	-23.38	9.95	10.48	2.09	V	0.068	18.34			
		256-QAM	-25.48	7.85	10.48	2.09	V	0.042	16.24			

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1727.5	Sub6 n66/ 35 MHz [15 kHz]	PI/2 BPSK	-19.87	13.53	10.29	2.08	V	< 1.00	0.149	21.74	1	94
		QPSK	-20.01	13.39	10.29	2.08	V		0.145	21.60		
		16-QAM	-21.12	12.28	10.29	2.08	V		0.112	20.49		
		64-QAM	-22.84	10.56	10.29	2.08	V		0.075	18.77		
		256-QAM	-24.96	8.44	10.29	2.08	V		0.046	16.65		
1745.0		PI/2 BPSK	-20.09	13.28	10.43	2.07	V		0.146	21.64	1	1
		QPSK	-20.19	13.18	10.43	2.07	V		0.143	21.54		
		16-QAM	-21.22	12.15	10.43	2.07	V		0.113	20.51		
		64-QAM	-22.92	10.45	10.43	2.07	V		0.076	18.81		
		256-QAM	-25.13	8.24	10.43	2.07	V		0.046	16.60		
1762.5		PI/2 BPSK	-20.39	12.94	10.48	2.09	V		0.136	21.33	1	1
		QPSK	-20.51	12.82	10.48	2.09	V		0.132	21.21		
		16-QAM	-21.52	11.81	10.48	2.09	V		0.105	20.20		
		64-QAM	-23.25	10.08	10.48	2.09	V		0.070	18.47		
		256-QAM	-25.47	7.86	10.48	2.09	V		0.042	16.25		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1730.0	Sub6 n66/ 40 MHz [15 kHz]	PI/2 BPSK	-20.09	13.31	10.29	2.08	V	< 1.00	0.142	21.52	1	108
		QPSK	-20.23	13.17	10.29	2.08	V		0.137	21.38		
		16-QAM	-21.24	12.16	10.29	2.08	V		0.109	20.37		
		64-QAM	-22.87	10.53	10.29	2.08	V		0.075	18.74		
		256-QAM	-25.09	8.31	10.29	2.08	V		0.045	16.52		
1745.0		PI/2 BPSK	-20.02	13.35	10.43	2.07	V		0.148	21.71	1	1
		QPSK	-20.25	13.12	10.43	2.07	V		0.141	21.48		
		16-QAM	-21.30	12.07	10.43	2.07	V		0.110	20.43		
		64-QAM	-22.95	10.42	10.43	2.07	V		0.076	18.78		
		256-QAM	-24.90	8.47	10.43	2.07	V		0.048	16.83		
1760.0		PI/2 BPSK	-20.08	13.14	10.48	2.09	V	0.142	21.53	1	1	
		QPSK	-20.19	13.03	10.48	2.09	V	0.139	21.42			
		16-QAM	-21.16	12.06	10.48	2.09	V	0.111	20.45			
		64-QAM	-22.81	10.41	10.48	2.09	V	0.076	18.80			
		256-QAM	-25.05	8.17	10.48	2.09	V	0.045	16.56			

8.2 RADIATED SPURIOUS EMISSIONS

NR Band:	<u>N66</u>
Bandwidth:	<u>20 MHz</u>
Modulation:	<u>PI/2 BPSK</u>
Distance:	<u>3 meters</u>
SCS:	<u>15 kHz</u>

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
344000 (1720.0)	3 440.00	-60.59	11.86	-61.32	3.04	V	-52.50	-13.00	1	53
	5 160.00	-61.29	11.52	-55.54	3.76	V	-47.78	-13.00		
	6 880.00	-64.78	11.11	-52.88	4.44	V	-46.21	-13.00		
349000 (1745.0)	3 490.00	-60.74	12.04	-61.48	3.04	V	-52.48	-13.00	1	1
	5 235.00	-62.14	11.76	-56.81	3.78	V	-48.83	-13.00		
	6 980.00	-64.12	11.16	-51.34	4.48	V	-44.66	-13.00		
354000 (1770.0)	3 540.00	-60.03	12.04	-61.37	3.06	V	-52.39	-13.00	1	53
	5 310.00	-61.77	11.91	-55.88	3.82	V	-47.79	-13.00		
	7 080.00	-62.78	10.89	-48.55	4.49	V	-42.15	-13.00		

8.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
Sub6 n66	5 MHz	1745.0	BPSK	25	0	4.10
			QPSK			4.63
			16-QAM			5.51
			64-QAM			6.15
			256-QAM			6.72
	10 MHz		BPSK	50		3.85
			QPSK			4.42
			16-QAM			5.46
			64-QAM			5.82
			256-QAM			6.58
	15 MHz		BPSK	75		3.80
			QPSK			4.36
			16-QAM			5.32
			64-QAM			5.86
			256-QAM			6.57
	20 MHz		BPSK	100		3.94
			QPSK			4.38
			16-QAM			5.31
			64-QAM			5.74
			256-QAM			6.64
	25 MHz		BPSK	128		3.93
			QPSK			4.61
			16-QAM			5.70
			64-QAM			5.96
			256-QAM			6.59
	30 MHz		BPSK	160		3.85
			QPSK			4.35
			16-QAM			5.32
			64-QAM			5.91
			256-QAM			6.65
	35 MHz		BPSK	187		3.89
			QPSK			4.38
			16-QAM			5.32
			64-QAM			5.87
			256-QAM			6.49
	40 MHz		BPSK	216		3.92
			QPSK			4.42
			16-QAM			5.39
			64-QAM			5.85
			256-QAM			6.60

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 67 ~ 106.

8.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Sub6 n66	5 MHz	1745.0	BPSK	25	0	4.5263
			QPSK			4.5151
			16-QAM			4.5091
			64-QAM			4.5114
			256-QAM			4.5109
	10 MHz		BPSK	50		8.9844
			QPSK			8.9842
			16-QAM			8.9605
			64-QAM			9.0048
			256-QAM			9.0363
	15 MHz		BPSK	75		13.441
			QPSK			13.489
			16-QAM			13.403
			64-QAM			13.472
			256-QAM			13.486
	20 MHz		BPSK	100		17.943
			QPSK			17.972
			16-QAM			17.893
			64-QAM			17.883
			256-QAM			17.937
	25 MHz		BPSK	128		22.973
			QPSK			22.916
			16-QAM			22.957
			64-QAM			22.962
			256-QAM			22.964
	30 MHz		BPSK	160		28.623
			QPSK			28.615
			16-QAM			28.676
			64-QAM			28.704
			256-QAM			28.691
	35 MHz		BPSK	187		32.361
			QPSK			32.411
			16-QAM			32.232
			64-QAM			32.192
			256-QAM			32.176
	40 MHz		BPSK	216		38.613
			QPSK			38.785
			16-QAM			38.631
			64-QAM			38.682
			256-QAM			38.685

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 107 ~ 146.

8.5 CONDUCTED SPURIOUS EMISSIONS

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
Sub6 n66	5	1712.5	9.1590	30.815	-76.909	-46.094	-13.00
		1745.0	8.9427	30.815	-76.633	-45.818	
		1777.5	8.2353	30.815	-76.583	-45.768	
	10	1715.0	8.6067	30.815	-76.332	-45.517	
		1745.0	8.2996	30.815	-76.393	-45.578	
		1775.0	5.1900	30.815	-76.799	-45.984	
	15	1717.5	4.0270	30.200	-76.710	-46.510	
		1745.0	3.7289	30.200	-76.798	-46.598	
		1772.5	4.0240	30.200	-76.932	-46.732	
	20	1720.0	5.1989	30.815	-76.720	-45.905	
		1745.0	5.2383	30.815	-77.168	-46.353	
		1770.0	4.9467	30.200	-76.805	-46.605	
	25	1722.5	3.8026	30.200	-76.285	-46.085	
		1745.0	6.0260	30.815	-76.557	-45.742	
		1767.5	8.2622	30.815	-76.132	-45.317	
	30	1725.0	9.4143	30.815	-76.285	-45.470	
		1745.0	4.0439	30.200	-76.278	-46.078	
		1765.0	3.7967	30.200	-76.169	-45.969	
	35	1727.5	9.1077	30.815	-75.883	-45.068	
		1745.0	6.0265	30.815	-75.723	-44.908	
		1762.5	9.1630	30.815	-76.283	-45.468	
	40	1730.0	8.2463	30.815	-76.329	-45.514	
		1745.0	8.5972	30.200	-75.939	-45.739	
		1760.0	8.2602	30.200	-76.497	-46.297	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 147 ~ 194.
2. Result (dBm) = Measurement Maximum Data (dBm) + Factor (dB)
3. Factor(dB) = Cable Loss + Ext. Attenuator + Power Splitter

Frequency Range (GHz)	Factor [dB]
0.03 – 1	27.494
1 – 5	30.200
5 – 10	30.815
10 – 15	31.340
15 – 20	31.713
Above 20	32.355

8.6 BAND EDGE

- Plots of the EUT's Band Edge are shown Page 195 ~ 242.

8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

- ▣ BandWidth: 5 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1712.5	100 %	+20(Ref)	1712 499 997	0.0	0.000 000	0.000
	100 %	-30	1712 499 995	-2.3	0.000 000	-0.001
	100 %	-20	1712 499 994	-3.0	0.000 000	-0.002
	100 %	-10	1712 499 994	-3.1	0.000 000	-0.002
	100 %	0	1712 499 992	-4.9	0.000 000	-0.003
	100 %	+10	1712 499 996	-0.9	0.000 000	-0.001
	100 %	+30	1712 499 996	-1.7	0.000 000	-0.001
	100 %	+40	1712 499 997	-0.8	0.000 000	0.000
	100 %	+50	1712 499 996	-1.4	0.000 000	-0.001
	Batt. Endpoint	+20	1712 499 995	-2.3	0.000 000	-0.001
1777.5	100 %	+20(Ref)	1777 499 999	0.0	0.000 000	0.000
	100 %	-30	1777 499 998	-1.0	0.000 000	-0.001
	100 %	-20	1777 499 999	0.4	0.000 000	0.000
	100 %	-10	1777 500 000	0.8	0.000 000	0.000
	100 %	0	1777 499 999	0.7	0.000 000	0.000
	100 %	+10	1777 499 999	-0.3	0.000 000	0.000
	100 %	+30	1777 499 999	0.2	0.000 000	0.000
	100 %	+40	1777 499 997	-1.5	0.000 000	-0.001
	100 %	+50	1777 499 997	-1.9	0.000 000	-0.001
	Batt. Endpoint	+20	1777 499 997	-1.6	0.000 000	-0.001

- ▣ BandWidth: 10 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1715.0	100 %	+20(Ref)	1715 000 000	0.0	0.000 000	0.000
	100 %	-30	1715 000 000	0.2	0.000 000	0.000
	100 %	-20	1715 000 001	1.2	0.000 000	0.001
	100 %	-10	1714 999 997	-2.4	0.000 000	-0.001
	100 %	0	1714 999 998	-1.5	0.000 000	-0.001
	100 %	+10	1714 999 999	-1.3	0.000 000	-0.001
	100 %	+30	1714 999 999	-1.3	0.000 000	-0.001
	100 %	+40	1714 999 999	-0.9	0.000 000	-0.001
	100 %	+50	1714 999 999	-0.5	0.000 000	0.000
	Batt. Endpoint	+20	1715 000 000	0.3	0.000 000	0.000
1775.0	100 %	+20(Ref)	1774 999 999	0.0	0.000 000	0.000
	100 %	-30	1774 999 998	-1.0	0.000 000	-0.001
	100 %	-20	1774 999 997	-1.5	0.000 000	-0.001
	100 %	-10	1774 999 997	-1.4	0.000 000	-0.001
	100 %	0	1774 999 997	-1.4	0.000 000	-0.001
	100 %	+10	1774 999 998	-0.2	0.000 000	0.000
	100 %	+30	1774 999 997	-1.2	0.000 000	-0.001
	100 %	+40	1774 999 997	-1.2	0.000 000	-0.001
	100 %	+50	1774 999 999	0.5	0.000 000	0.000
	Batt. Endpoint	+20	1774 999 996	-2.5	0.000 000	-0.001

- ▣ BandWidth: 15 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1717.5	100 %	+20(Ref)	1717 500 001	0.0	0.000 000	0.000
	100 %	-30	1717 500 003	1.8	0.000 000	0.001
	100 %	-20	1717 500 002	0.7	0.000 000	0.000
	100 %	-10	1717 500 002	0.7	0.000 000	0.000
	100 %	0	1717 500 002	0.3	0.000 000	0.000
	100 %	+10	1717 500 002	0.3	0.000 000	0.000
	100 %	+30	1717 500 002	0.2	0.000 000	0.000
	100 %	+40	1717 500 002	0.2	0.000 000	0.000
	100 %	+50	1717 500 001	-0.3	0.000 000	0.000
	Batt. Endpoint	+20	1717 500 001	-0.5	0.000 000	0.000
1772.5	100 %	+20(Ref)	1772 499 999	0.0	0.000 000	0.000
	100 %	-30	1772 499 997	-2.7	0.000 000	-0.002
	100 %	-20	1772 499 997	-2.4	0.000 000	-0.001
	100 %	-10	1772 499 998	-1.8	0.000 000	-0.001
	100 %	0	1772 499 998	-1.8	0.000 000	-0.001
	100 %	+10	1772 499 999	-0.7	0.000 000	0.000
	100 %	+30	1772 499 997	-2.8	0.000 000	-0.002
	100 %	+40	1772 499 997	-2.0	0.000 000	-0.001
	100 %	+50	1772 499 999	-0.5	0.000 000	0.000
	Batt. Endpoint	+20	1772 499 998	-1.4	0.000 000	-0.001

- ▣ BandWidth: 20 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1720.0	100 %	+20(Ref)	1719 999 999	0.0	0.000 000	0.000
	100 %	-30	1719 999 997	-1.7	0.000 000	-0.001
	100 %	-20	1719 999 997	-1.6	0.000 000	-0.001
	100 %	-10	1719 999 998	-0.9	0.000 000	-0.001
	100 %	0	1719 999 997	-1.3	0.000 000	-0.001
	100 %	+10	1719 999 998	-0.8	0.000 000	0.000
	100 %	+30	1719 999 998	-1.0	0.000 000	-0.001
	100 %	+40	1719 999 999	0.3	0.000 000	0.000
	100 %	+50	1719 999 996	-2.8	0.000 000	-0.002
	Batt. Endpoint	+20	1719 999 996	-2.6	0.000 000	-0.002
1770.0	100 %	+20(Ref)	1770 000 003	0.0	0.000 000	0.000
	100 %	-30	1770 000 002	-0.7	0.000 000	0.000
	100 %	-20	1770 000 003	-0.3	0.000 000	0.000
	100 %	-10	1770 000 003	-0.4	0.000 000	0.000
	100 %	0	1770 000 003	-0.4	0.000 000	0.000
	100 %	+10	1770 000 004	0.5	0.000 000	0.000
	100 %	+30	1770 000 006	3.1	0.000 000	0.002
	100 %	+40	1770 000 007	4.1	0.000 000	0.002
	100 %	+50	1770 000 003	0.4	0.000 000	0.000
	Batt. Endpoint	+20	1770 000 007	3.6	0.000 000	0.002

- ▣ BandWidth: 25 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1722.5	100 %	+20(Ref)	1722 500 001	0.0	0.000 000	0.000
	100 %	-30	1722 500 002	1.2	0.000 000	0.001
	100 %	-20	1722 500 002	1.1	0.000 000	0.001
	100 %	-10	1722 500 001	-0.1	0.000 000	0.000
	100 %	0	1722 500 001	0.3	0.000 000	0.000
	100 %	+10	1722 500 002	1.2	0.000 000	0.001
	100 %	+30	1722 499 999	-1.6	0.000 000	-0.001
	100 %	+40	1722 500 000	-0.7	0.000 000	0.000
	100 %	+50	1722 500 000	-0.9	0.000 000	-0.001
	Batt. Endpoint	+20	1722 500 001	0.4	0.000 000	0.000
1767.5	100 %	+20(Ref)	1767 500 001	0.0	0.000 000	0.000
	100 %	-30	1767 500 004	2.6	0.000 000	0.001
	100 %	-20	1767 500 000	-0.9	0.000 000	-0.001
	100 %	-10	1767 500 001	-0.8	0.000 000	0.000
	100 %	0	1767 500 005	3.3	0.000 000	0.002
	100 %	+10	1767 500 001	0.0	0.000 000	0.000
	100 %	+30	1767 500 002	0.5	0.000 000	0.000
	100 %	+40	1767 500 003	1.3	0.000 000	0.001
	100 %	+50	1767 500 001	-0.8	0.000 000	0.000
	Batt. Endpoint	+20	1767 500 001	0.0	0.000 000	0.000

- ▣ BandWidth: 30 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1725.0	100 %	+20(Ref)	1725 000 005	0.0	0.000 000	0.000
	100 %	-30	1725 000 011	6.1	0.000 000	0.004
	100 %	-20	1725 000 012	6.3	0.000 000	0.004
	100 %	-10	1725 000 012	6.3	0.000 000	0.004
	100 %	0	1725 000 012	6.5	0.000 000	0.004
	100 %	+10	1725 000 012	6.7	0.000 000	0.004
	100 %	+30	1725 000 012	7.1	0.000 000	0.004
	100 %	+40	1725 000 012	6.8	0.000 000	0.004
	100 %	+50	1725 000 012	6.5	0.000 000	0.004
	Batt. Endpoint	+20	1725 000 012	6.6	0.000 000	0.004
1765.0	100 %	+20(Ref)	1765 000 004	0.0	0.000 000	0.000
	100 %	-30	1765 000 008	4.2	0.000 000	0.002
	100 %	-20	1765 000 009	5.0	0.000 000	0.003
	100 %	-10	1765 000 007	2.9	0.000 000	0.002
	100 %	0	1765 000 007	3.5	0.000 000	0.002
	100 %	+10	1765 000 008	4.5	0.000 000	0.003
	100 %	+30	1765 000 009	5.0	0.000 000	0.003
	100 %	+40	1765 000 010	5.9	0.000 000	0.003
	100 %	+50	1765 000 007	3.1	0.000 000	0.002
	Batt. Endpoint	+20	1765 000 007	3.2	0.000 000	0.002

- ▣ BandWidth: 35 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1727.5	100 %	+20(Ref)	1727 500 004	0.0	0.000 000	0.000
	100 %	-30	1727 500 008	3.9	0.000 000	0.002
	100 %	-20	1727 500 009	5.1	0.000 000	0.003
	100 %	-10	1727 500 008	4.1	0.000 000	0.002
	100 %	0	1727 500 006	2.5	0.000 000	0.001
	100 %	+10	1727 500 007	3.5	0.000 000	0.002
	100 %	+30	1727 500 007	3.0	0.000 000	0.002
	100 %	+40	1727 500 008	4.1	0.000 000	0.002
	100 %	+50	1727 500 008	4.2	0.000 000	0.002
	Batt. Endpoint	+20	1727 500 008	4.4	0.000 000	0.003
1762.5	100 %	+20(Ref)	1762 500 011	0.0	0.000 000	0.000
	100 %	-30	1762 500 022	10.8	0.000 001	0.006
	100 %	-20	1762 500 022	11.0	0.000 001	0.006
	100 %	-10	1762 500 022	11.2	0.000 001	0.006
	100 %	0	1762 500 023	11.4	0.000 001	0.006
	100 %	+10	1762 500 023	11.9	0.000 001	0.007
	100 %	+30	1762 500 020	9.2	0.000 001	0.005
	100 %	+40	1762 500 024	12.9	0.000 001	0.007
	100 %	+50	1762 500 021	9.7	0.000 001	0.005
	Batt. Endpoint	+20	1762 500 022	10.6	0.000 001	0.006

- ▣ BandWidth: 40 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1730.0	100 %	+20(Ref)	1730 000 007	0.0	0.000 000	0.000
	100 %	-30	1730 000 012	5.3	0.000 000	0.003
	100 %	-20	1730 000 014	7.2	0.000 000	0.004
	100 %	-10	1730 000 014	7.4	0.000 000	0.004
	100 %	0	1730 000 012	5.3	0.000 000	0.003
	100 %	+10	1730 000 012	5.0	0.000 000	0.003
	100 %	+30	1730 000 015	8.4	0.000 000	0.005
	100 %	+40	1730 000 012	5.0	0.000 000	0.003
	100 %	+50	1730 000 013	5.9	0.000 000	0.003
	Batt. Endpoint	+20	1730 000 013	5.9	0.000 000	0.003
1760.0	100 %	+20(Ref)	1760 000 006	0.0	0.000 000	0.000
	100 %	-30	1760 000 013	6.8	0.000 000	0.004
	100 %	-20	1760 000 013	6.9	0.000 000	0.004
	100 %	-10	1760 000 013	6.8	0.000 000	0.004
	100 %	0	1760 000 013	6.8	0.000 000	0.004
	100 %	+10	1760 000 012	6.3	0.000 000	0.004
	100 %	+30	1760 000 012	5.8	0.000 000	0.003
	100 %	+40	1760 000 012	5.7	0.000 000	0.003
	100 %	+50	1760 000 012	6.3	0.000 000	0.004
	Batt. Endpoint	+20	1760 000 013	6.4	0.000 000	0.004

9. TEST DATA(Sub 2 ANT)

9.1 EQUIVALENT ISOTROPIC RADIATED POWER

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1712.5	Sub6 n66/ 5 MHz [15 kHz]	PI/2 BPSK	-24.43	8.65	10.12	2.06	H	< 1.00	0.047	16.71	1	12
		QPSK	-24.47	8.61	10.12	2.06	H		0.047	16.67		
		16-QAM	-25.41	7.67	10.12	2.06	H		0.037	15.73		
		64-QAM	-27.24	5.84	10.12	2.06	H		0.025	13.90		
		256-QAM	-29.42	3.66	10.12	2.06	H		0.015	11.72		
1745.0		PI/2 BPSK	-24.81	8.56	10.43	2.07	H		0.049	16.92	1	12
		QPSK	-24.87	8.50	10.43	2.07	H		0.049	16.86		
		16-QAM	-25.87	7.50	10.43	2.07	H		0.039	15.86		
		64-QAM	-27.56	5.81	10.43	2.07	H		0.026	14.17		
		256-QAM	-29.89	3.48	10.43	2.07	H		0.015	11.84		
1777.5		PI/2 BPSK	-25.16	8.20	10.50	2.09	H		0.046	16.61	1	12
		QPSK	-25.18	8.18	10.50	2.09	H		0.046	16.59		
		16-QAM	-26.30	7.06	10.50	2.09	H		0.035	15.47		
		64-QAM	-27.87	5.49	10.50	2.09	H		0.025	13.90		
		256-QAM	-30.16	3.20	10.50	2.09	H		0.015	11.61		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1715.0	Sub6 n66/ 10 MHz [15 kHz]	PI/2 BPSK	-24.23	8.85	10.12	2.06	H	< 1.00	0.049	16.91	1	1
		QPSK	-24.26	8.82	10.12	2.06	H		0.049	16.88		
		16-QAM	-25.07	8.01	10.12	2.06	H		0.041	16.07		
		64-QAM	-26.91	6.17	10.12	2.06	H		0.027	14.23		
		256-QAM	-29.11	3.97	10.12	2.06	H		0.016	12.03		
1745.0		PI/2 BPSK	-24.26	9.11	10.43	2.07	H		0.056	17.47	1	1
		QPSK	-24.32	9.05	10.43	2.07	H		0.055	17.41		
		16-QAM	-25.26	8.11	10.43	2.07	H		0.044	16.47		
		64-QAM	-26.89	6.48	10.43	2.07	H		0.031	14.84		
		256-QAM	-29.25	4.12	10.43	2.07	H		0.018	12.48		
1775.0		PI/2 BPSK	-24.76	8.64	10.49	2.09	H	0.051	17.04	1	1	
		QPSK	-24.82	8.58	10.49	2.09	H	0.050	16.98			
		16-QAM	-25.83	7.57	10.49	2.09	H	0.040	15.97			
		64-QAM	-27.59	5.81	10.49	2.09	H	0.026	14.21			
		256-QAM	-29.69	3.71	10.49	2.09	H	0.016	12.11			

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1717.5	Sub6 n66/ 15 MHz [15 kHz]	PI/2 BPSK	-24.40	8.76	10.18	2.06	H	< 1.00	0.049	16.88	1	1
		QPSK	-24.43	8.73	10.18	2.06	H		0.048	16.85		
		16-QAM	-25.28	7.88	10.18	2.06	H		0.040	16.00		
		64-QAM	-27.10	6.06	10.18	2.06	H		0.026	14.18		
		256-QAM	-29.26	3.90	10.18	2.06	H		0.016	12.02		
1745.0		PI/2 BPSK	-24.50	8.87	10.43	2.07	H		0.053	17.23	1	1
		QPSK	-24.56	8.81	10.43	2.07	H		0.052	17.17		
		16-QAM	-25.50	7.87	10.43	2.07	H		0.042	16.23		
		64-QAM	-27.30	6.07	10.43	2.07	H		0.028	14.43		
		256-QAM	-29.59	3.78	10.43	2.07	H		0.016	12.14		
1772.5		PI/2 BPSK	-24.68	8.72	10.49	2.09	H	0.052	17.12	1	1	
		QPSK	-24.74	8.66	10.49	2.09	H	0.051	17.06			
		16-QAM	-25.85	7.55	10.49	2.09	H	0.039	15.95			
		64-QAM	-27.39	6.01	10.49	2.09	H	0.028	14.41			
		256-QAM	-29.59	3.81	10.49	2.09	H	0.017	12.21			

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1720.0	Sub6 n66/ 20 MHz [15 kHz]	PI/2 BPSK	-24.50	8.66	10.18	2.06	H	< 1.00	0.048	16.78	1	1
		QPSK	-24.55	8.61	10.18	2.06	H		0.047	16.73		
		16-QAM	-25.40	7.76	10.18	2.06	H		0.039	15.88		
		64-QAM	-27.22	5.94	10.18	2.06	H		0.026	14.06		
		256-QAM	-29.38	3.78	10.18	2.06	H		0.016	11.90		
1745.0		PI/2 BPSK	-24.52	8.85	10.43	2.07	H		0.053	17.21	1	1
		QPSK	-24.56	8.81	10.43	2.07	H		0.052	17.17		
		16-QAM	-25.55	7.82	10.43	2.07	H		0.042	16.18		
		64-QAM	-27.32	6.05	10.43	2.07	H		0.028	14.41		
		256-QAM	-29.51	3.86	10.43	2.07	H		0.017	12.22		
1770.0		PI/2 BPSK	-24.80	8.62	10.49	2.09	H	0.050	17.02	1	53	
		QPSK	-24.87	8.55	10.49	2.09	H	0.050	16.95			
		16-QAM	-25.85	7.57	10.49	2.09	H	0.040	15.97			
		64-QAM	-27.37	6.05	10.49	2.09	H	0.028	14.45			
		256-QAM	-29.77	3.65	10.49	2.09	H	0.016	12.05			

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1722.5	Sub6 n66/ 25 MHz [15 kHz]	PI/2 BPSK	-24.26	9.02	10.23	2.07	H	< 1.00	0.052	17.18	1	1
		QPSK	-24.30	8.98	10.23	2.07	H		0.052	17.14		
		16-QAM	-25.18	8.10	10.23	2.07	H		0.042	16.26		
		64-QAM	-26.96	6.32	10.23	2.07	H		0.028	14.48		
		256-QAM	-29.08	4.20	10.23	2.07	H		0.017	12.36		
1745.0		PI/2 BPSK	-24.18	9.19	10.43	2.07	H		0.057	17.55	1	1
		QPSK	-24.36	9.01	10.43	2.07	H		0.055	17.37		
		16-QAM	-25.30	8.07	10.43	2.07	H		0.044	16.43		
		64-QAM	-26.98	6.39	10.43	2.07	H		0.030	14.75		
		256-QAM	-29.30	4.07	10.43	2.07	H		0.018	12.43		
1767.5		PI/2 BPSK	-24.41	9.01	10.49	2.09	H	0.055	17.41	1	1	
		QPSK	-24.44	8.98	10.49	2.09	H	0.055	17.38			
		16-QAM	-25.47	7.95	10.49	2.09	H	0.043	16.35			
		64-QAM	-27.26	6.16	10.49	2.09	H	0.029	14.56			
		256-QAM	-29.37	4.05	10.49	2.09	H	0.018	12.45			

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit		EIRP		RB	
								W		W	dBm	Size	Offset
1725.0		PI/2 BPSK	-24.27	9.01	10.23	2.07	H	< 1.00		0.052	17.17	1	1
		QPSK	-24.37	8.91	10.23	2.07	H			0.051	17.07		
		16-QAM	-25.14	8.14	10.23	2.07	H			0.043	16.30		
		64-QAM	-26.93	6.35	10.23	2.07	H			0.028	14.51		
		256-QAM	-29.08	4.20	10.23	2.07	H			0.017	12.36		
1745.0	Sub6 n66/ 30 MHz [15 kHz]	PI/2 BPSK	-24.38	8.99	10.43	2.07	H	< 1.00		0.054	17.35	1	1
		QPSK	-24.44	8.93	10.43	2.07	H			0.054	17.29		
		16-QAM	-25.54	7.83	10.43	2.07	H			0.042	16.19		
		64-QAM	-27.20	6.17	10.43	2.07	H			0.028	14.53		
		256-QAM	-29.36	4.01	10.43	2.07	H			0.017	12.37		
1765.0		PI/2 BPSK	-24.59	8.74	10.48	2.09	H	< 1.00		0.052	17.13	1	80
		QPSK	-24.62	8.71	10.48	2.09	H			0.051	17.10		
		16-QAM	-25.58	7.75	10.48	2.09	H			0.041	16.14		
		64-QAM	-27.27	6.06	10.48	2.09	H			0.028	14.45		
		256-QAM	-29.54	3.79	10.48	2.09	H			0.017	12.18		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1727.5	Sub6 n66/ 35 MHz [15 kHz]	PI/2 BPSK	-24.37	9.03	10.29	2.08	H	< 1.00	0.053	17.24	1	1
		QPSK	-24.42	8.98	10.29	2.08	H		0.052	17.19		
		16-QAM	-25.21	8.19	10.29	2.08	H		0.044	16.40		
		64-QAM	-26.90	6.50	10.29	2.08	H		0.030	14.71		
		256-QAM	-29.30	4.10	10.29	2.08	H		0.017	12.31		
1745.0		PI/2 BPSK	-24.49	8.88	10.43	2.07	H		0.053	17.24	1	1
		QPSK	-24.75	8.62	10.43	2.07	H		0.050	16.98		
		16-QAM	-25.55	7.82	10.43	2.07	H		0.042	16.18		
		64-QAM	-27.30	6.07	10.43	2.07	H		0.028	14.43		
		256-QAM	-29.38	3.99	10.43	2.07	H		0.017	12.35		
1762.5		PI/2 BPSK	-24.47	8.86	10.48	2.09	H		0.053	17.25	1	94
		QPSK	-24.52	8.81	10.48	2.09	H		0.053	17.20		
		16-QAM	-25.63	7.70	10.48	2.09	H		0.041	16.09		
		64-QAM	-27.32	6.01	10.48	2.09	H		0.028	14.40		
		256-QAM	-29.62	3.71	10.48	2.09	H		0.016	12.10		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1730.0	Sub6 n66/ 40 MHz [15 kHz]	PI/2 BPSK	-24.17	9.23	10.29	2.08	H	< 1.00	0.056	17.44	1	1
		QPSK	-24.19	9.21	10.29	2.08	H		0.055	17.42		
		16-QAM	-25.13	8.27	10.29	2.08	H		0.045	16.48		
		64-QAM	-27.00	6.40	10.29	2.08	H		0.029	14.61		
		256-QAM	-29.29	4.11	10.29	2.08	H		0.017	12.32		
1745.0		PI/2 BPSK	-24.37	9.00	10.43	2.07	H		0.055	17.36	1	1
		QPSK	-24.43	8.94	10.43	2.07	H		0.054	17.30		
		16-QAM	-25.48	7.89	10.43	2.07	H		0.042	16.25		
		64-QAM	-27.02	6.35	10.43	2.07	H		0.030	14.71		
		256-QAM	-29.37	4.00	10.43	2.07	H		0.017	12.36		
1760.0		PI/2 BPSK	-24.10	9.12	10.48	2.09	H		0.056	17.51	1	1
		QPSK	-24.17	9.05	10.48	2.09	H		0.056	17.44		
		16-QAM	-25.20	8.02	10.48	2.09	H		0.044	16.41		
		64-QAM	-26.97	6.25	10.48	2.09	H		0.029	14.64		
		256-QAM	-29.33	3.89	10.48	2.09	H		0.017	12.28		

9.2 RADIATED SPURIOUS EMISSIONS

NR Band:	<u>N66</u>
Bandwidth:	<u>25 MHz</u>
Modulation:	<u>PI/2 BPSK</u>
Distance:	<u>3 meters</u>
SCS:	<u>15 kHz</u>

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
244500 (1722.5)	3 445.00	-60.86	11.90	-61.70	3.05	V	-52.85	-13.00	1	1
	5 167.50	-62.55	11.56	-57.01	3.78	V	-49.23	-13.00		
	6 890.00	-63.37	11.13	-51.24	4.42	V	-44.53	-13.00		
349000 (1745.0)	3 490.00	-60.77	12.04	-61.51	3.04	V	-52.51	-13.00	1	1
	5 235.00	-61.38	11.76	-56.05	3.78	V	-48.07	-13.00		
	6 980.00	-65.26	11.16	-52.48	4.48	V	-45.80	-13.00		
353500 (1767.5)	3 535.00	-60.42	12.04	-61.97	3.05	V	-52.98	-13.00	1	1
	5 302.50	-62.97	11.90	-57.09	3.83	V	-49.02	-13.00		
	7 070.00	-63.20	10.92	-48.75	4.50	V	-42.33	-13.00		

9.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
Sub6 n66	5 MHz	1745.0	BPSK	25	0	3.81
			QPSK			4.90
			16-QAM			5.58
			64-QAM			5.82
			256-QAM			6.46
	10 MHz		BPSK	50		4.08
			QPSK			5.05
			16-QAM			5.84
			64-QAM			6.06
			256-QAM			6.69
	15 MHz		BPSK	75		3.97
			QPSK			5.17
			16-QAM			5.86
			64-QAM			6.19
			256-QAM			6.65
	20 MHz		BPSK	100		4.29
			QPSK			5.25
			16-QAM			6.02
			64-QAM			6.21
			256-QAM			6.57
	25 MHz		BPSK	128		3.86
			QPSK			5.14
			16-QAM			5.79
			64-QAM			6.08
			256-QAM			6.47
	30 MHz		BPSK	160		3.92
			QPSK			5.02
			16-QAM			5.83
			64-QAM			6.16
			256-QAM			6.61
	35 MHz		BPSK	187		3.89
			QPSK			5.13
			16-QAM			5.89
			64-QAM			6.18
			256-QAM			6.62
	40 MHz		BPSK	216		3.96
			QPSK			4.95
			16-QAM			5.88
			64-QAM			6.18
			256-QAM			6.51

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 244 ~ 283.

9.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Sub6 n66	5 MHz	1745.0	BPSK	25	0	4.4971
			QPSK			4.5113
			16-QAM			4.5122
			64-QAM			4.5681
			256-QAM			4.5322
	10 MHz		BPSK	50		8.9770
			QPSK			9.0177
			16-QAM			9.0194
			64-QAM			8.9545
			256-QAM			8.9762
	15 MHz		BPSK	75		13.425
			QPSK			13.437
			16-QAM			13.376
			64-QAM			13.465
			256-QAM			13.435
	20 MHz		BPSK	100		17.843
			QPSK			17.859
			16-QAM			17.940
			64-QAM			17.854
			256-QAM			17.901
	25 MHz		BPSK	128		22.827
			QPSK			22.871
			16-QAM			22.846
			64-QAM			22.892
			256-QAM			22.866
	30 MHz		BPSK	160		28.541
			QPSK			28.515
			16-QAM			28.564
			64-QAM			28.490
			256-QAM			28.507
	35 MHz		BPSK	187		32.046
			QPSK			32.124
			16-QAM			32.138
			64-QAM			32.049
			256-QAM			32.230
	40 MHz		BPSK	216		38.502
			QPSK			38.438
			16-QAM			38.462
			64-QAM			38.484
			256-QAM			38.485

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 284 ~ 323.

9.5 CONDUCTED SPURIOUS EMISSIONS

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
Sub6 n66	5	1712.5	7.6895	30.815	-76.942	-46.127	-13.00
		1745.0	3.7807	30.200	-76.003	-45.803	
		1777.5	9.3858	30.815	-76.910	-46.095	
	10	1715.0	3.7573	30.200	-75.795	-45.595	
		1745.0	5.2553	30.815	-76.101	-45.286	
		1775.0	5.9756	30.815	-76.793	-45.978	
	15	1717.5	9.1127	30.815	-75.768	-44.953	
		1745.0	5.7478	30.815	-76.564	-45.749	
		1772.5	8.2931	30.815	-76.303	-45.488	
	20	1720.0	9.1251	30.815	-77.040	-46.225	
		1745.0	3.7802	30.200	-74.431	-44.231	
		1770.0	9.7059	30.815	-77.082	-46.267	
	25	1722.5	8.2712	30.815	-76.182	-45.367	
		1745.0	9.1765	30.815	-76.375	-45.560	
		1767.5	3.7543	30.200	-76.028	-45.828	
	30	1725.0	8.8205	30.815	-76.432	-45.617	
		1745.0	3.7812	30.200	-76.225	-46.025	
		1765.0	4.0544	30.200	-76.086	-45.886	
	35	1727.5	8.8639	30.815	-76.304	-45.489	
		1745.0	8.8639	30.815	-75.992	-45.177	
		1762.5	9.0788	30.815	-76.436	-45.621	
	40	1730.0	8.9013	30.815	-76.605	-45.790	
		1745.0	9.9865	30.200	-76.439	-46.239	
		1760.0	9.6989	30.200	-75.816	-45.616	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 324 ~ 371.
2. Result (dBm) = Measurement Maximum Data (dBm) + Factor (dB)
3. Factor(dB) = Cable Loss + Ext. Attenuator + Power Splitter

Frequency Range (GHz)	Factor [dB]
0.03 – 1	27.494
1 – 5	30.200
5 – 10	30.815
10 – 15	31.340
15 – 20	31.713
Above 20	32.355

9.6 BAND EDGE

- Plots of the EUT's Band Edge are shown Page 372 ~ 419.

9.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

- ▣ BandWidth: 5 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1712.5	100 %	+20(Ref)	1712 499 998	0.0	0.000 000	0.000
	100 %	-30	1712 499 994	-4.0	0.000 000	-0.002
	100 %	-20	1712 499 995	-2.2	0.000 000	-0.001
	100 %	-10	1712 499 993	-5.1	0.000 000	-0.003
	100 %	0	1712 499 992	-5.3	0.000 000	-0.003
	100 %	+10	1712 499 996	-1.4	0.000 000	-0.001
	100 %	+30	1712 499 997	-1.1	0.000 000	-0.001
	100 %	+40	1712 499 993	-5.1	0.000 000	-0.003
	100 %	+50	1712 499 994	-4.1	0.000 000	-0.002
	Batt. Endpoint	+20	1712 499 996	-1.5	0.000 000	-0.001
1777.5	100 %	+20(Ref)	1777 500 002	0.0	0.000 000	0.000
	100 %	-30	1777 500 004	1.6	0.000 000	0.001
	100 %	-20	1777 500 004	1.9	0.000 000	0.001
	100 %	-10	1777 500 004	1.6	0.000 000	0.001
	100 %	0	1777 500 006	3.3	0.000 000	0.002
	100 %	+10	1777 500 003	1.0	0.000 000	0.001
	100 %	+30	1777 500 005	2.7	0.000 000	0.002
	100 %	+40	1777 500 002	-0.3	0.000 000	0.000
	100 %	+50	1777 500 003	1.0	0.000 000	0.001
	Batt. Endpoint	+20	1777 500 004	1.7	0.000 000	0.001

- ▣ BandWidth: 10 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1715.0	100 %	+20(Ref)	1714 999 999	0.0	0.000 000	0.000
	100 %	-30	1714 999 998	-1.9	0.000 000	-0.001
	100 %	-20	1714 999 996	-3.5	0.000 000	-0.002
	100 %	-10	1714 999 997	-2.5	0.000 000	-0.001
	100 %	0	1714 999 997	-2.6	0.000 000	-0.001
	100 %	+10	1714 999 997	-2.9	0.000 000	-0.002
	100 %	+30	1714 999 998	-1.8	0.000 000	-0.001
	100 %	+40	1714 999 997	-2.6	0.000 000	-0.002
	100 %	+50	1714 999 997	-2.4	0.000 000	-0.001
	Batt. Endpoint	+20	1714 999 997	-2.9	0.000 000	-0.002
1775.0	100 %	+20(Ref)	1774 999 998	0.0	0.000 000	0.000
	100 %	-30	1774 999 996	-2.1	0.000 000	-0.001
	100 %	-20	1774 999 996	-2.3	0.000 000	-0.001
	100 %	-10	1774 999 996	-1.8	0.000 000	-0.001
	100 %	0	1774 999 996	-2.0	0.000 000	-0.001
	100 %	+10	1774 999 995	-2.6	0.000 000	-0.001
	100 %	+30	1774 999 994	-3.8	0.000 000	-0.002
	100 %	+40	1774 999 997	-1.3	0.000 000	-0.001
	100 %	+50	1774 999 995	-3.4	0.000 000	-0.002
	Batt. Endpoint	+20	1774 999 992	-5.5	0.000 000	-0.003

- ▣ BandWidth: 15 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1717.5	100 %	+20(Ref)	1717 500 002	0.0	0.000 000	0.000
	100 %	-30	1717 500 004	2.1	0.000 000	0.001
	100 %	-20	1717 500 003	1.9	0.000 000	0.001
	100 %	-10	1717 500 004	2.7	0.000 000	0.002
	100 %	0	1717 500 001	-0.2	0.000 000	0.000
	100 %	+10	1717 500 003	1.5	0.000 000	0.001
	100 %	+30	1717 500 004	2.0	0.000 000	0.001
	100 %	+40	1717 500 001	-0.2	0.000 000	0.000
	100 %	+50	1717 500 002	0.0	0.000 000	0.000
	Batt. Endpoint	+20	1717 500 003	1.4	0.000 000	0.001
1772.5	100 %	+20(Ref)	1772 500 002	0.0	0.000 000	0.000
	100 %	-30	1772 500 001	-1.3	0.000 000	-0.001
	100 %	-20	1772 500 000	-2.0	0.000 000	-0.001
	100 %	-10	1772 500 000	-2.4	0.000 000	-0.001
	100 %	0	1772 500 001	-0.7	0.000 000	0.000
	100 %	+10	1772 500 000	-2.3	0.000 000	-0.001
	100 %	+30	1772 499 998	-4.3	0.000 000	-0.002
	100 %	+40	1772 500 001	-0.9	0.000 000	-0.001
	100 %	+50	1772 500 001	-0.9	0.000 000	-0.001
	Batt. Endpoint	+20	1772 500 001	-1.3	0.000 000	-0.001

- ▣ BandWidth: 20 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1720.0	100 %	+20(Ref)	1719 999 994	0.0	0.000 000	0.000
	100 %	-30	1719 999 990	-4.0	0.000 000	-0.002
	100 %	-20	1719 999 990	-4.6	0.000 000	-0.003
	100 %	-10	1719 999 990	-3.9	0.000 000	-0.002
	100 %	0	1719 999 994	0.1	0.000 000	0.000
	100 %	+10	1719 999 990	-3.8	0.000 000	-0.002
	100 %	+30	1719 999 992	-2.6	0.000 000	-0.002
	100 %	+40	1719 999 993	-0.8	0.000 000	0.000
	100 %	+50	1719 999 993	-1.6	0.000 000	-0.001
	Batt. Endpoint	+20	1719 999 991	-2.8	0.000 000	-0.002
1770.0	100 %	+20(Ref)	1769 999 999	0.0	0.000 000	0.000
	100 %	-30	1769 999 999	-0.3	0.000 000	0.000
	100 %	-20	1770 000 000	0.6	0.000 000	0.000
	100 %	-10	1770 000 001	1.8	0.000 000	0.001
	100 %	0	1770 000 001	1.2	0.000 000	0.001
	100 %	+10	1770 000 002	3.0	0.000 000	0.002
	100 %	+30	1769 999 999	-0.3	0.000 000	0.000
	100 %	+40	1770 000 001	1.3	0.000 000	0.001
	100 %	+50	1770 000 001	1.3	0.000 000	0.001
	Batt. Endpoint	+20	1770 000 002	2.4	0.000 000	0.001

- ▣ BandWidth: 25 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1722.5	100 %	+20(Ref)	1722 499 998	0.0	0.000 000	0.000
	100 %	-30	1722 499 993	-5.1	0.000 000	-0.003
	100 %	-20	1722 499 995	-3.0	0.000 000	-0.002
	100 %	-10	1722 499 994	-4.4	0.000 000	-0.003
	100 %	0	1722 499 995	-3.1	0.000 000	-0.002
	100 %	+10	1722 499 996	-2.2	0.000 000	-0.001
	100 %	+30	1722 499 994	-3.9	0.000 000	-0.002
	100 %	+40	1722 499 996	-1.8	0.000 000	-0.001
	100 %	+50	1722 499 993	-5.2	0.000 000	-0.003
	Batt. Endpoint	+20	1722 499 997	-0.9	0.000 000	-0.001
1767.5	100 %	+20(Ref)	1767 499 999	0.0	0.000 000	0.000
	100 %	-30	1767 499 996	-2.4	0.000 000	-0.001
	100 %	-20	1767 499 998	-0.9	0.000 000	0.000
	100 %	-10	1767 499 994	-4.2	0.000 000	-0.002
	100 %	0	1767 499 995	-3.8	0.000 000	-0.002
	100 %	+10	1767 499 995	-3.1	0.000 000	-0.002
	100 %	+30	1767 499 998	-0.3	0.000 000	0.000
	100 %	+40	1767 499 996	-3.1	0.000 000	-0.002
	100 %	+50	1767 499 997	-1.6	0.000 000	-0.001
	Batt. Endpoint	+20	1767 499 998	-1.1	0.000 000	-0.001

- ▣ BandWidth: 30 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1725.0	100 %	+20(Ref)	1725 000 009	0.0	0.000 000	0.000
	100 %	-30	1725 000 017	8.5	0.000 000	0.005
	100 %	-20	1725 000 018	8.6	0.000 001	0.005
	100 %	-10	1725 000 018	9.4	0.000 001	0.005
	100 %	0	1725 000 018	9.2	0.000 001	0.005
	100 %	+10	1725 000 018	8.6	0.000 000	0.005
	100 %	+30	1725 000 017	7.6	0.000 000	0.004
	100 %	+40	1725 000 016	7.2	0.000 000	0.004
	100 %	+50	1725 000 017	7.6	0.000 000	0.004
	Batt. Endpoint	+20	1725 000 014	5.2	0.000 000	0.003
1765.0	100 %	+20(Ref)	1765 000 004	0.0	0.000 000	0.000
	100 %	-30	1765 000 008	4.0	0.000 000	0.002
	100 %	-20	1765 000 008	4.4	0.000 000	0.003
	100 %	-10	1765 000 010	6.3	0.000 000	0.004
	100 %	0	1765 000 006	1.9	0.000 000	0.001
	100 %	+10	1765 000 006	2.0	0.000 000	0.001
	100 %	+30	1765 000 009	5.3	0.000 000	0.003
	100 %	+40	1765 000 010	6.3	0.000 000	0.004
	100 %	+50	1765 000 008	4.2	0.000 000	0.002
	Batt. Endpoint	+20	1765 000 010	6.1	0.000 000	0.003

- ▣ BandWidth: 35 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1727.5	100 %	+20(Ref)	1727 500 004	0.0	0.000 000	0.000
	100 %	-30	1727 500 007	2.8	0.000 000	0.002
	100 %	-20	1727 500 009	5.1	0.000 000	0.003
	100 %	-10	1727 500 007	3.1	0.000 000	0.002
	100 %	0	1727 500 008	3.7	0.000 000	0.002
	100 %	+10	1727 500 009	4.8	0.000 000	0.003
	100 %	+30	1727 500 007	3.2	0.000 000	0.002
	100 %	+40	1727 500 005	0.8	0.000 000	0.000
	100 %	+50	1727 500 009	4.8	0.000 000	0.003
	Batt. Endpoint	+20	1727 500 006	2.5	0.000 000	0.001
1762.5	100 %	+20(Ref)	1762 500 011	0.0	0.000 000	0.000
	100 %	-30	1762 500 025	14.4	0.000 001	0.008
	100 %	-20	1762 500 023	12.1	0.000 001	0.007
	100 %	-10	1762 500 023	12.1	0.000 001	0.007
	100 %	0	1762 500 021	10.8	0.000 001	0.006
	100 %	+10	1762 500 021	10.3	0.000 001	0.006
	100 %	+30	1762 500 024	13.5	0.000 001	0.008
	100 %	+40	1762 500 022	11.4	0.000 001	0.006
	100 %	+50	1762 500 023	12.2	0.000 001	0.007
	Batt. Endpoint	+20	1762 500 022	11.0	0.000 001	0.006

BandWidth:	40 MHz
Voltage(100 %):	3.880 VDC
Batt. Endpoint:	3.300 VDC
LIMIT:	Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1730.0	100 %	+20(Ref)	1730 000 002	0.0	0.000 000	0.000
	100 %	-30	1730 000 005	2.7	0.000 000	0.002
	100 %	-20	1730 000 006	3.9	0.000 000	0.002
	100 %	-10	1730 000 006	3.6	0.000 000	0.002
	100 %	0	1730 000 006	4.2	0.000 000	0.002
	100 %	+10	1730 000 007	4.6	0.000 000	0.003
	100 %	+30	1730 000 003	1.2	0.000 000	0.001
	100 %	+40	1730 000 006	3.9	0.000 000	0.002
	100 %	+50	1730 000 005	3.1	0.000 000	0.002
	Batt. Endpoint	+20	1730 000 006	3.4	0.000 000	0.002
1760.0	100 %	+20(Ref)	1760 000 007	0.0	0.000 000	0.000
	100 %	-30	1760 000 009	1.6	0.000 000	0.001
	100 %	-20	1760 000 010	2.7	0.000 000	0.002
	100 %	-10	1760 000 009	2.2	0.000 000	0.001
	100 %	0	1760 000 009	2.2	0.000 000	0.001
	100 %	+10	1760 000 013	5.3	0.000 000	0.003
	100 %	+30	1760 000 013	5.6	0.000 000	0.003
	100 %	+40	1760 000 013	5.4	0.000 000	0.003
	100 %	+50	1760 000 011	4.2	0.000 000	0.002
	Batt. Endpoint	+20	1760 000 012	4.4	0.000 000	0.003

10. TEST PLOTS (Main 1 ANT)

NR66_5 M_PAR_Mid_BPSK_FullRB



NR66_5 M_PAR_Mid_QPSK_FullRB



NR66_5 M_PAR_Mid_16QAM_FullRB



NR66_5 M_PAR_Mid_64QAM_FullRB



NR66_5 M_PAR_Mid_256QAM_FullRB



NR66_10 M_PAR_Mid_BPSK_FullIRB



NR66_10 M_PAR_Mid_QPSK_FullRB



NR66_10 M_PAR_Mid_16QAM_FullRB



NR66_10 M_PAR_Mid_64QAM_FullRB



NR66_10 M_PAR_Mid_256QAM_FullRB



NR66_15 M_PAR_Mid_BPSK_FullIRB



NR66_15 M_PAR_Mid_QPSK_FullRB



NR66_15 M_PAR_Mid_16QAM_FullRB



NR66_15 M_PAR_Mid_64QAM_FullRB



NR66_15 M_PAR_Mid_256QAM_FullRB



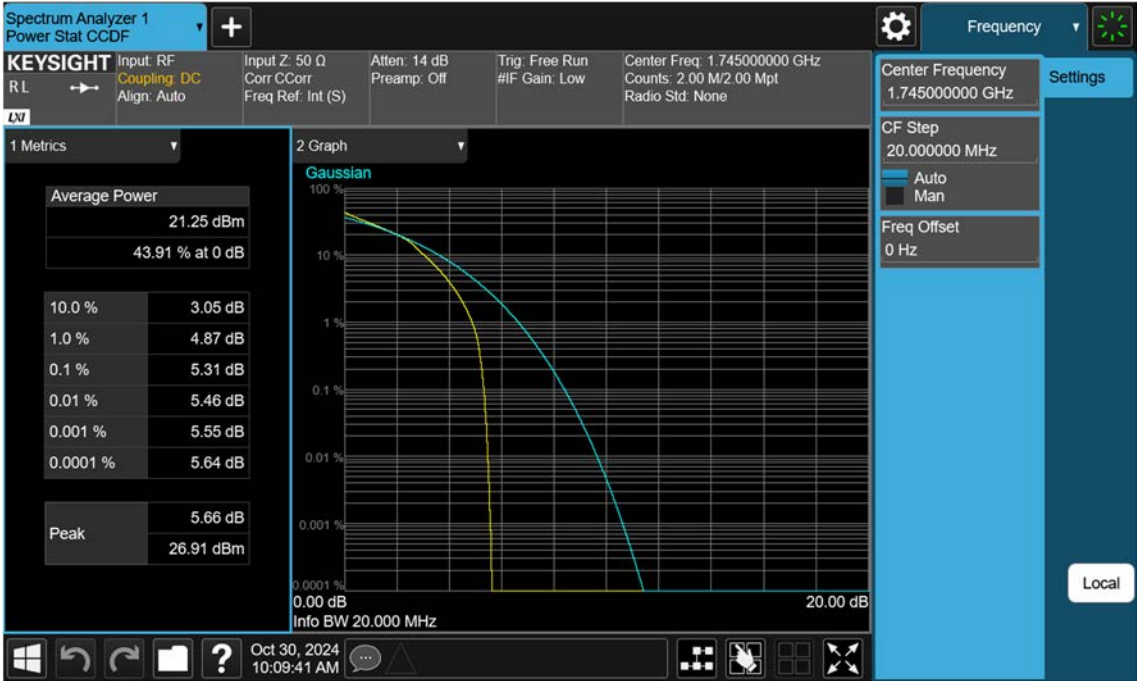
NR66_20 M_PAR_Mid_BPSK_FullRB



NR66_20 M_PAR_Mid_QPSK_FullRB



NR66_20 M_PAR_Mid_16QAM_FullRB



NR66_20 M_PAR_Mid_64QAM_FullRB



NR66_20 M_PAR_Mid_256QAM_FullRB



NR66_25 M_PAR_Mid_BPSK_FullRB



NR66_25 M_PAR_Mid_QPSK_FullRB



NR66_25 M_PAR_Mid_16QAM_FullRB



NR66_25 M_PAR_Mid_64QAM_FullRB



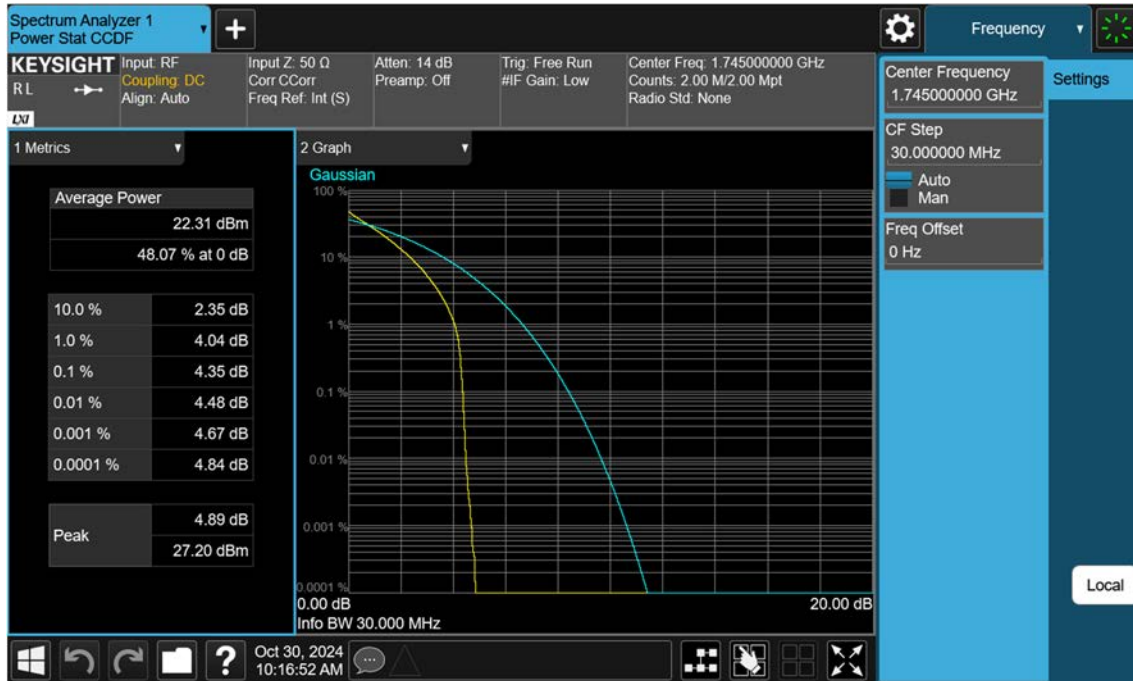
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NR66_30 M_PAR_Mid_BPSK_FullRB



NR66_30 M_PAR_Mid_QPSK_FullRB



NR66_30 M_PAR_Mid_16QAM_FullRB



NR66_30 M_PAR_Mid_64QAM_FullRB



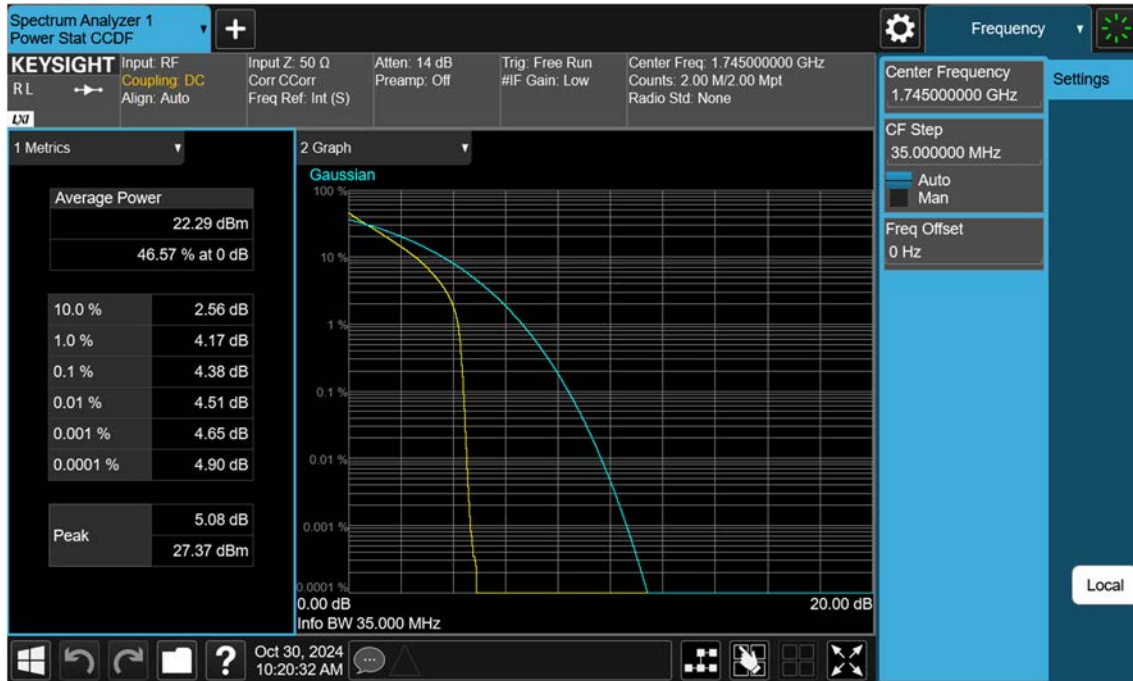
NR66_30 M_PAR_Mid_256QAM_FullRB



NR66_35 M_PAR_Mid_BPSK_FullIRB



NR66_35 M_PAR_Mid_QPSK_FullRB



NR66_35 M_PAR_Mid_16QAM_FullRB



NR66_35 M_PAR_Mid_64QAM_FullRB



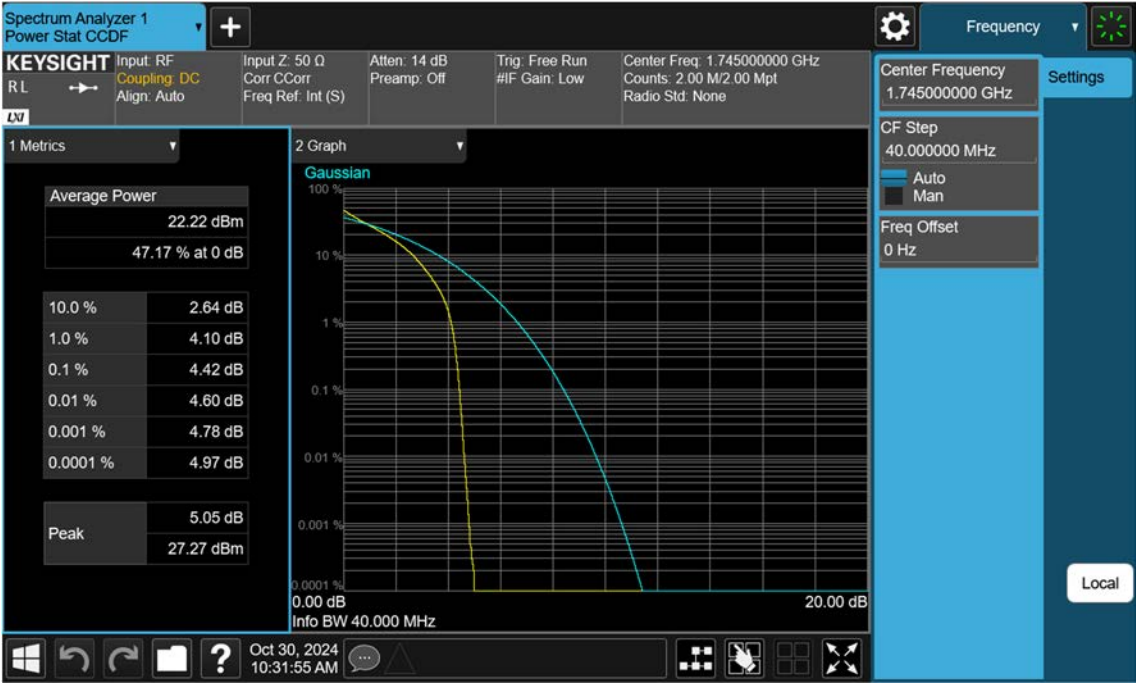
NR66_35 M_PAR_Mid_256QAM_FullRB



NR66_40 M_PAR_Mid_BPSK_FullRB



NR66_40 M_PAR_Mid_QPSK_FullRB



NR66_40 M_PAR_Mid_16QAM_FullRB



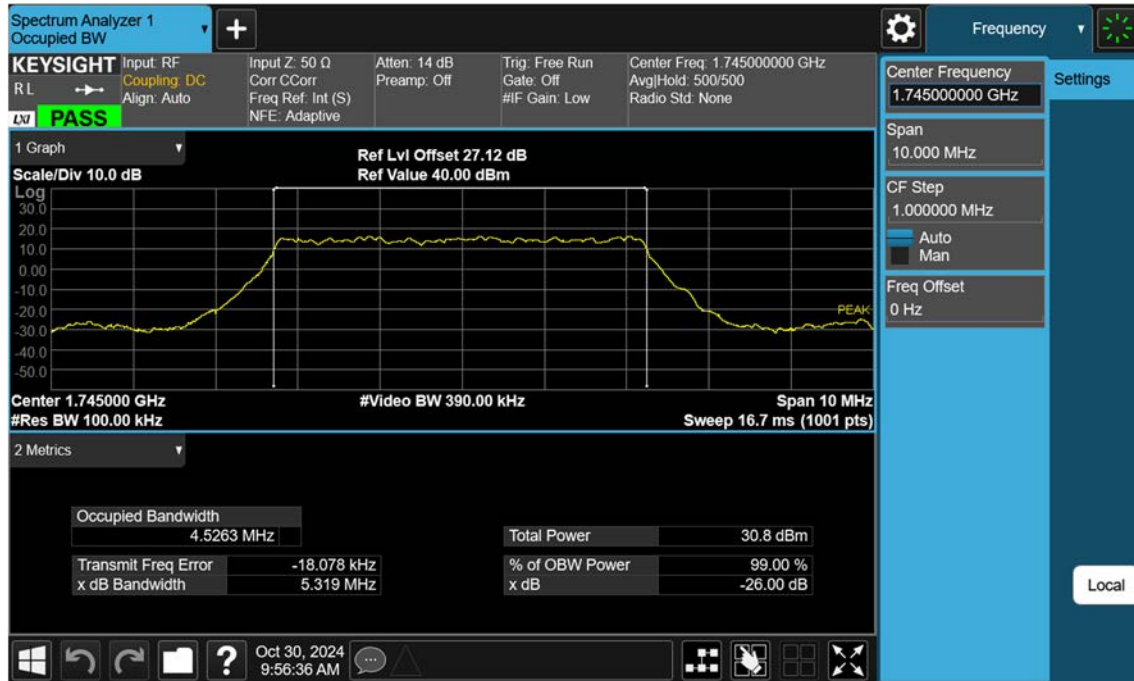
NR66_40 M_PAR_Mid_64QAM_FullRB



NR66_40 M_PAR_Mid_256QAM_FullRB



NR66_5 M_OBW_Mid_BPSK_FullRB



NR66_5 M_OBW_Mid_QPSK_FullRB



Spectrum Analyzer 1
Occupied BW

KEYSIGHT Input: RF
Coupling: DC
Align: Auto

Input Z: 50 Ω
Corr CCorr
Freq Ref: Int (S)
NFE: Adaptive

Atten: 14 dB
Preamp: Off

Trig: Free Run
Gate: Off
#F Gain: Low

Center Freq: 1.74500000 GHz
Avg/Hold: 500/500
Radio Sld: None

Center Frequency
1.745000000 GHz

Span
10.000 MHz

CF Step
1.0000000 MHz

☒ Auto
☐ Man

Freq Offset
0 Hz

1 Graph
Scale/Div 10.0 dB
Log

Ref Lvl Offset 27.12 dB
Ref Value 40.00 dBm

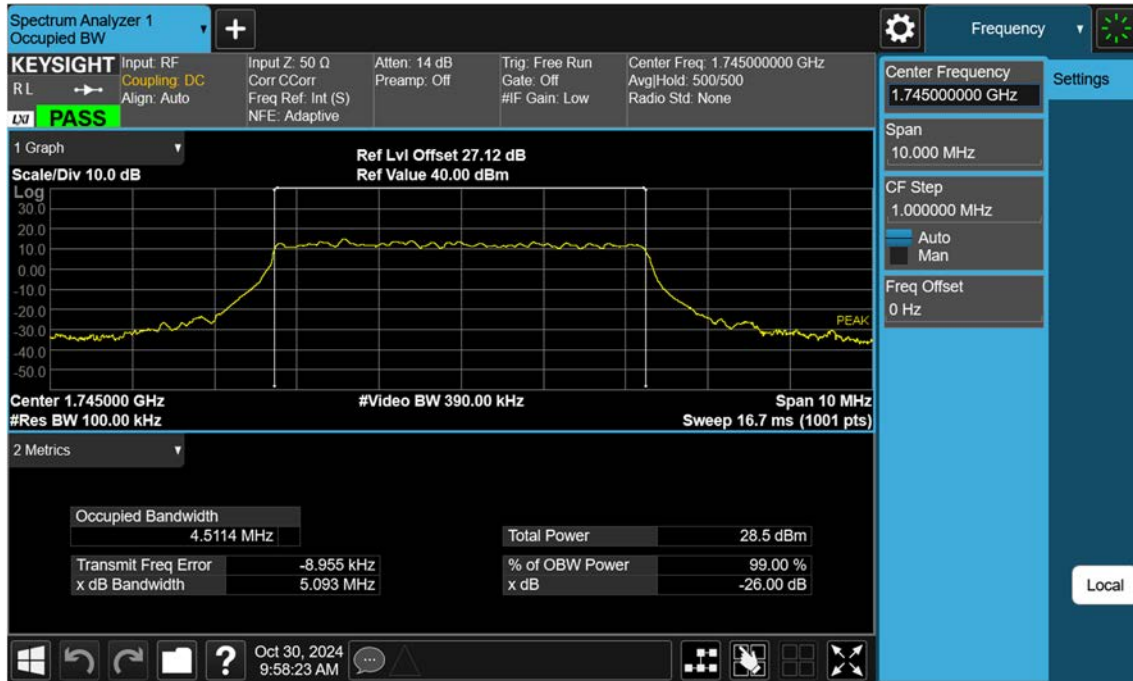
Center 1.745000 GHz
#Res BW 100.00 kHz
#Video BW 390.00 kHz
Span 10 MHz
Sweep 16.7 ms (1001 pts)

2 Metrics

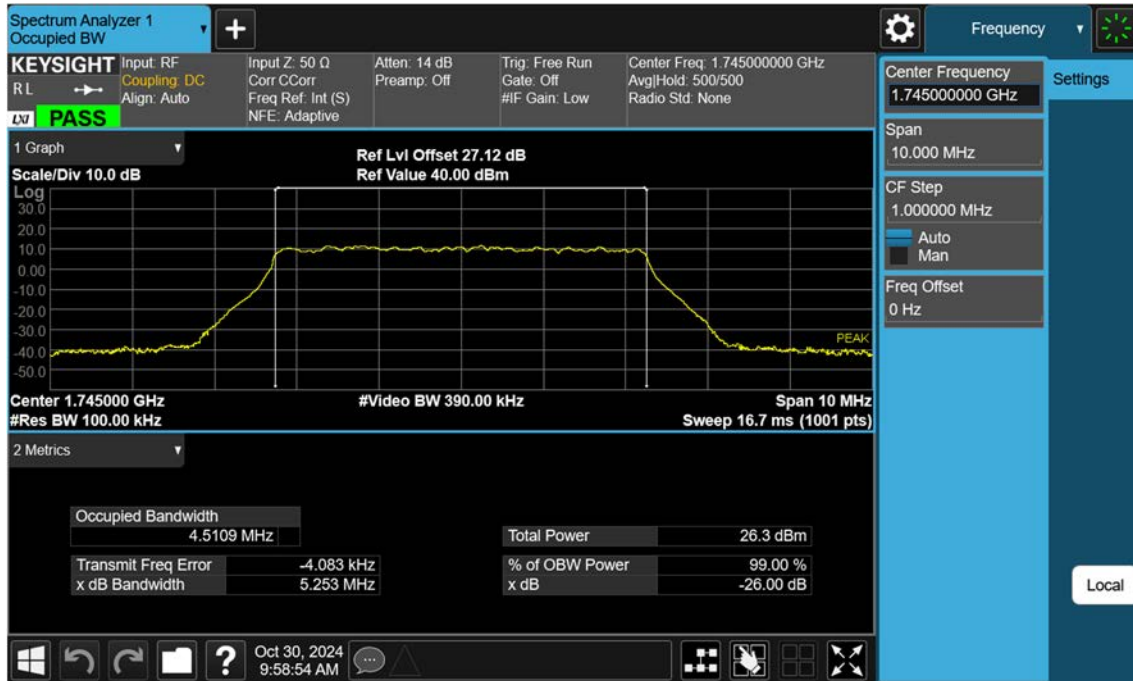
Occupied Bandwidth	4.5091 MHz	Total Power	29.1 dBm
Transmit Freq Error	-8.773 kHz	% of OBW Power	99.00 %
x dB Bandwidth	5.168 MHz	x dB	-26.00 dB

Oct 30, 2024
9:57:53 AM

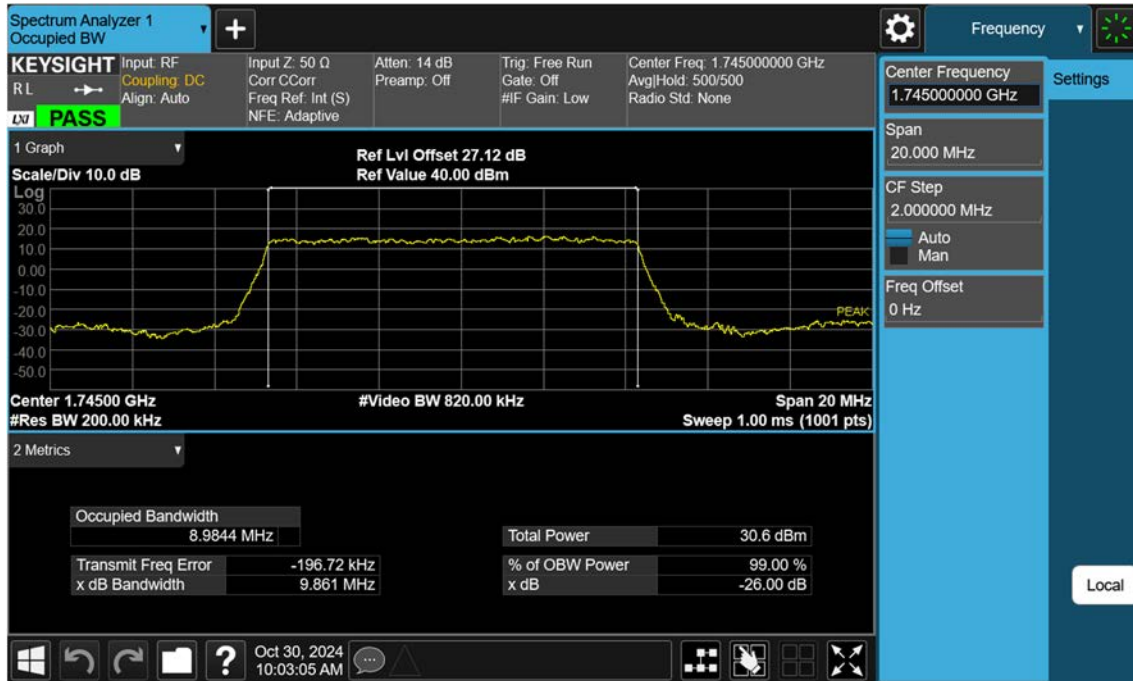
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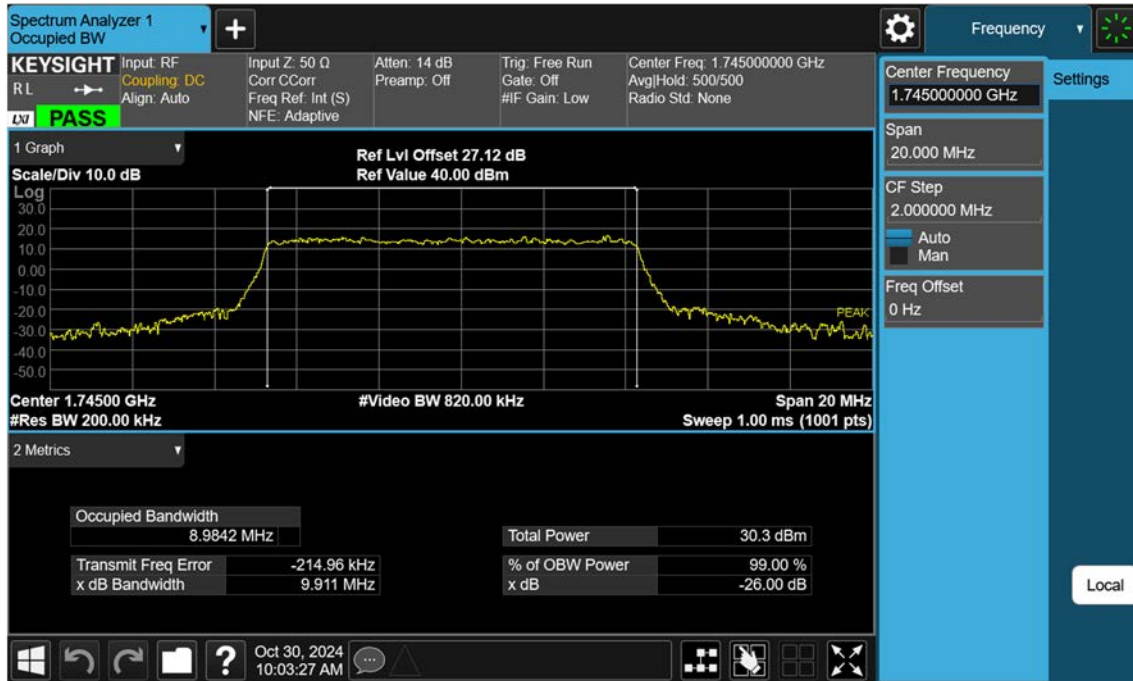
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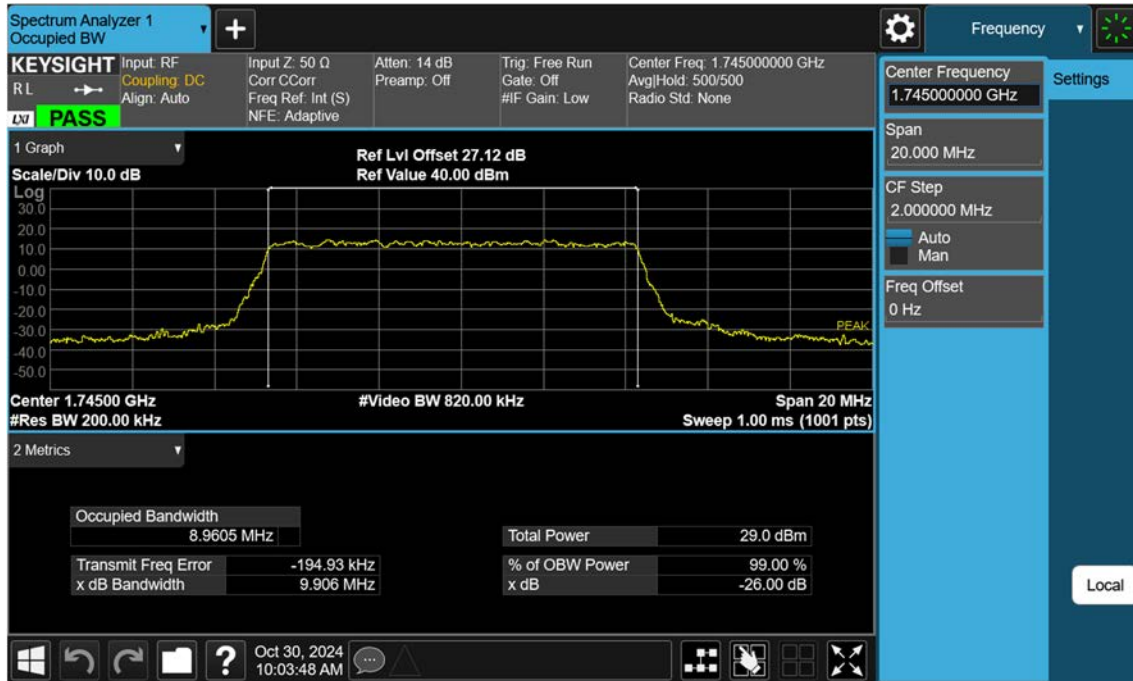
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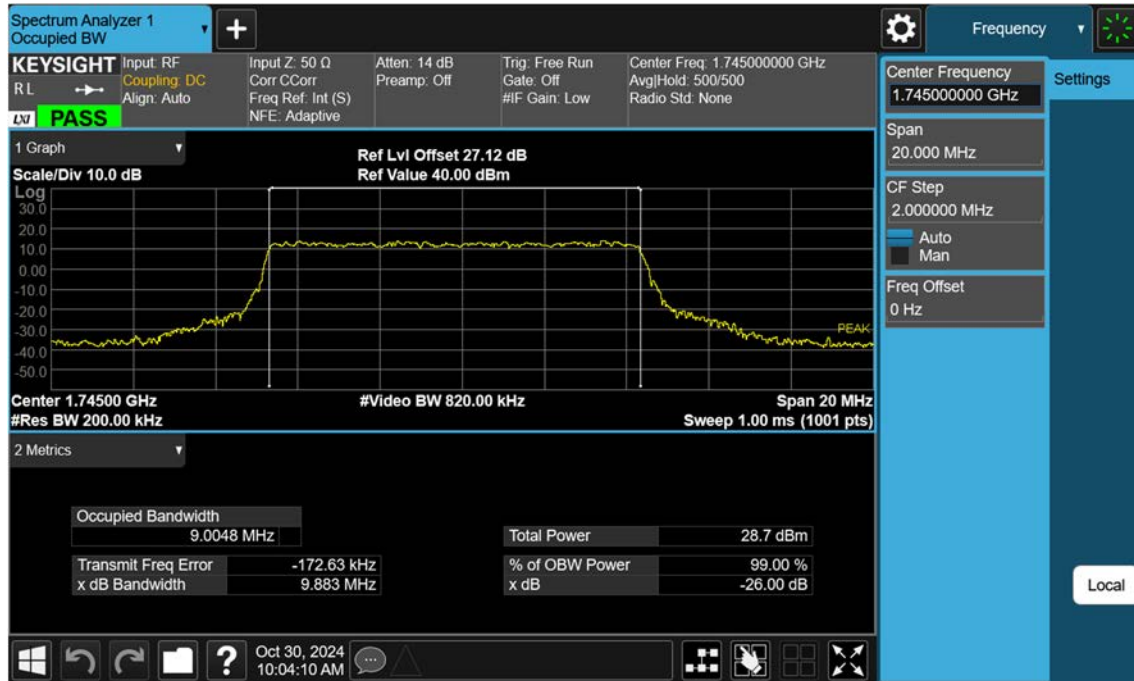
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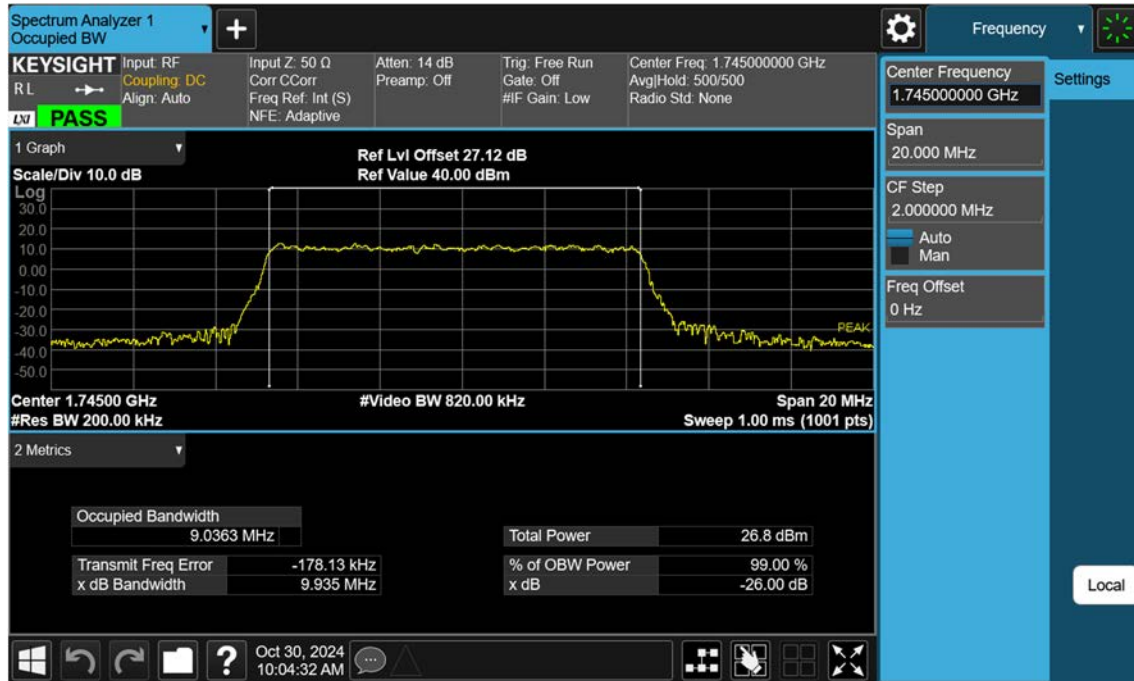
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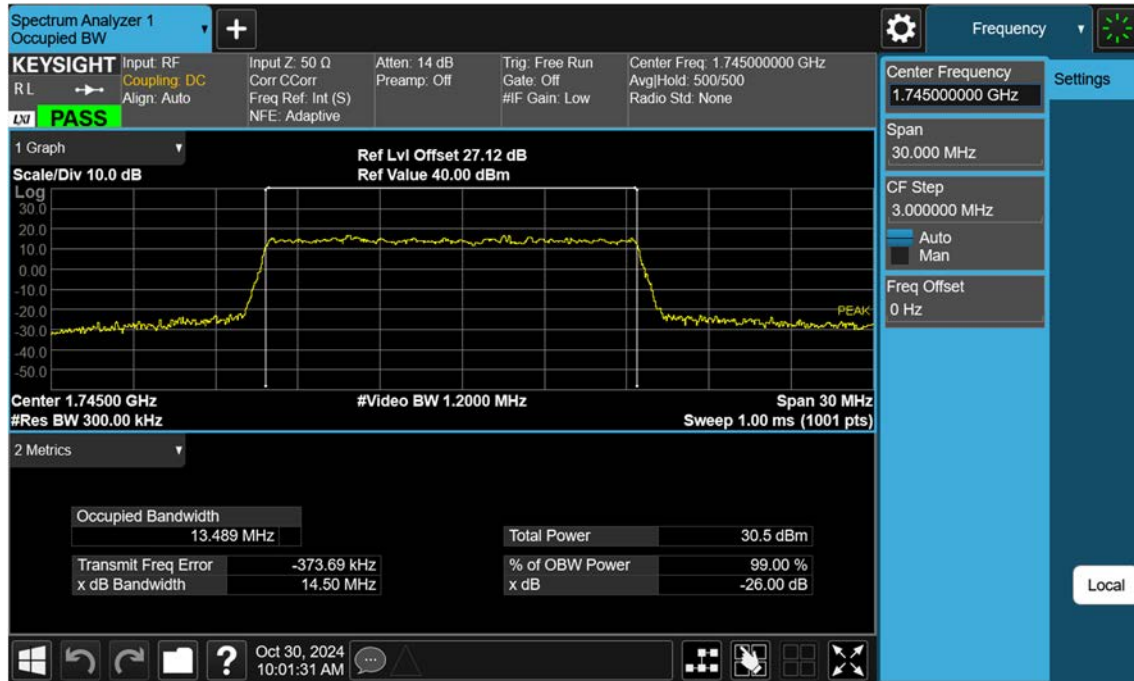
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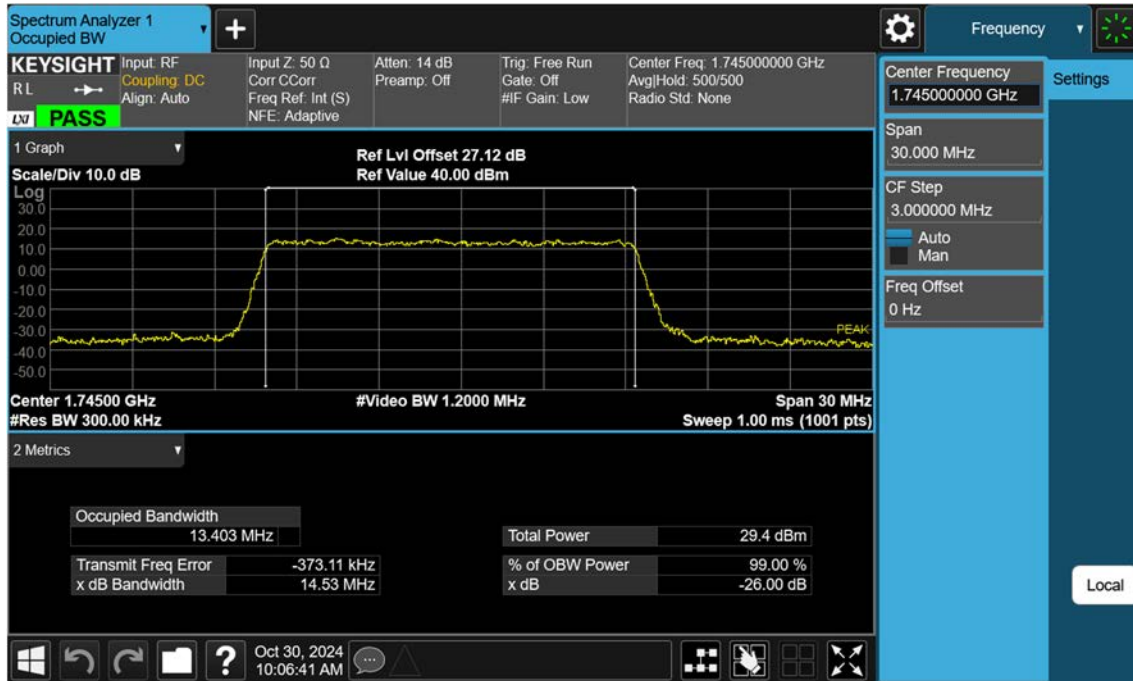
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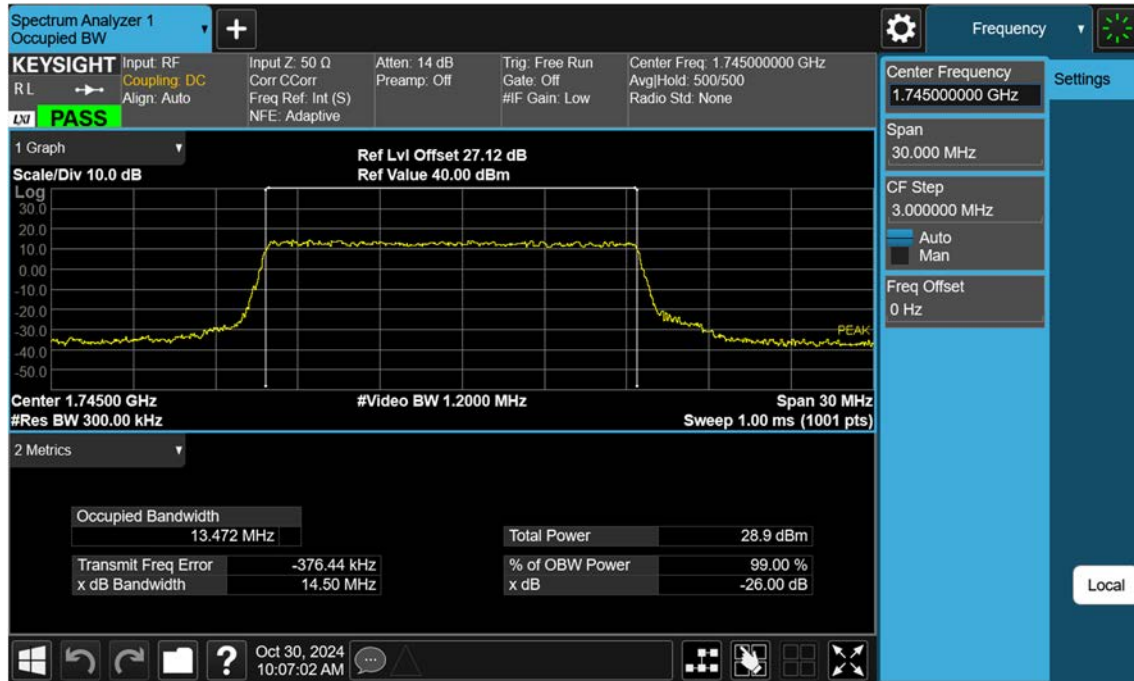
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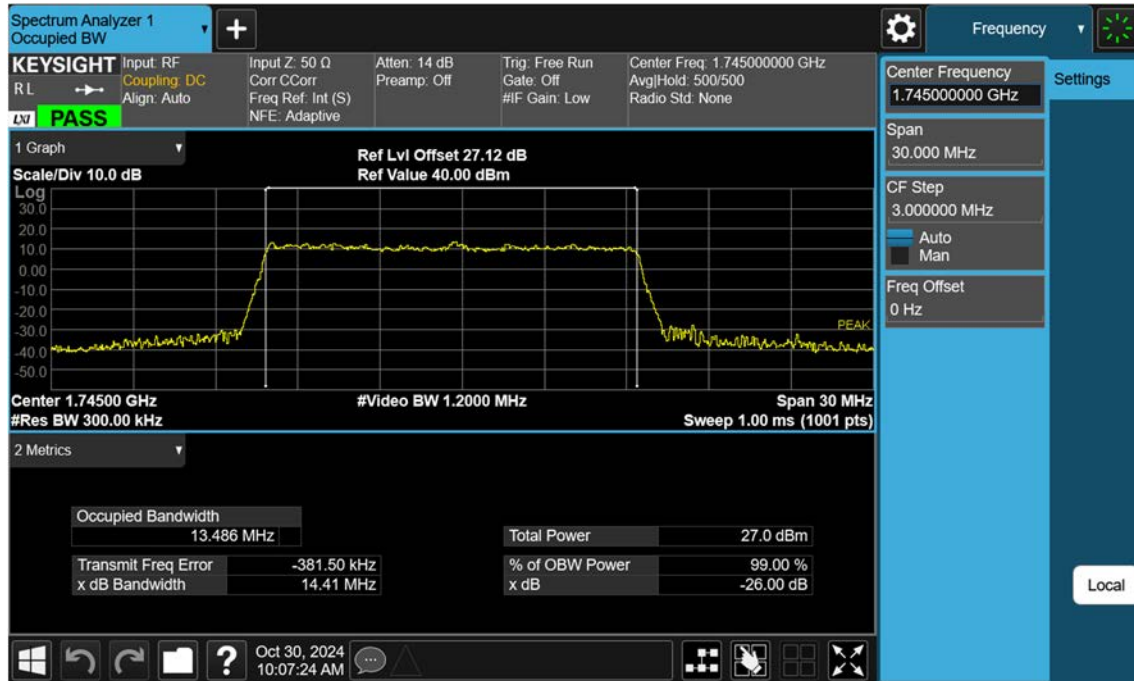
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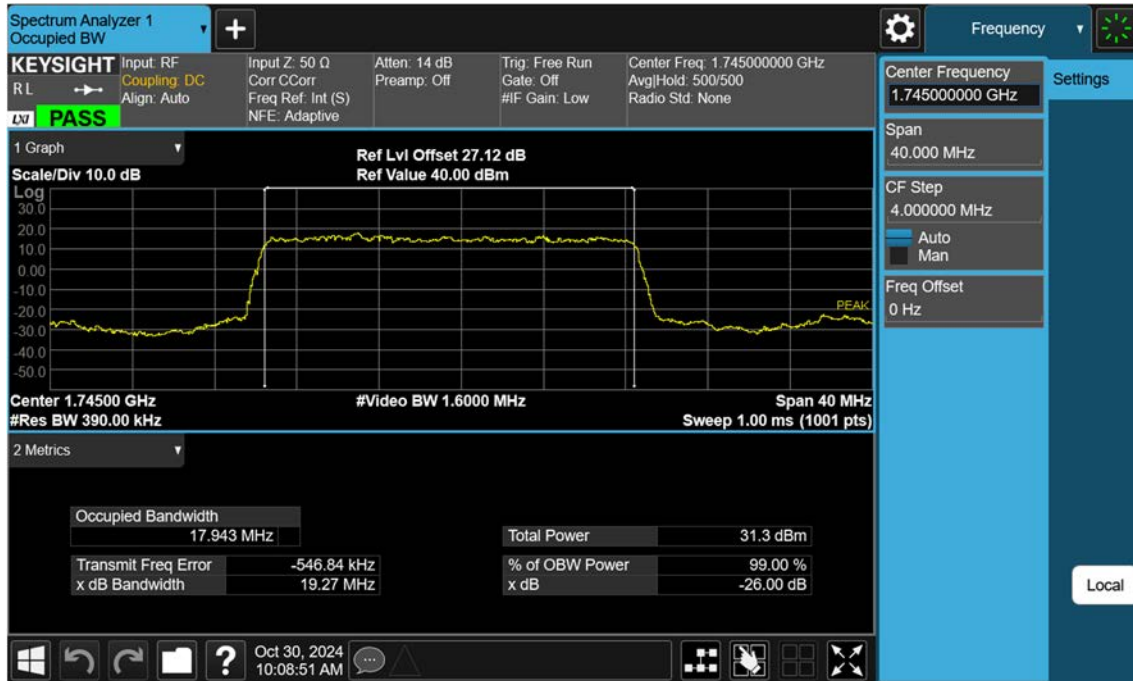
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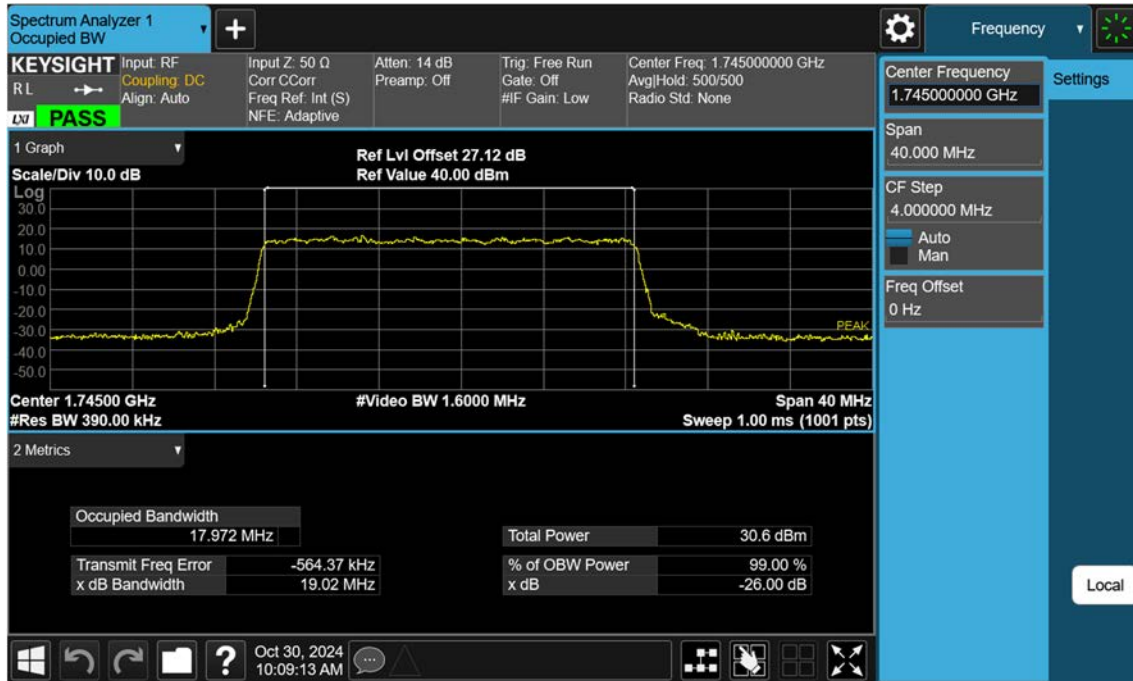
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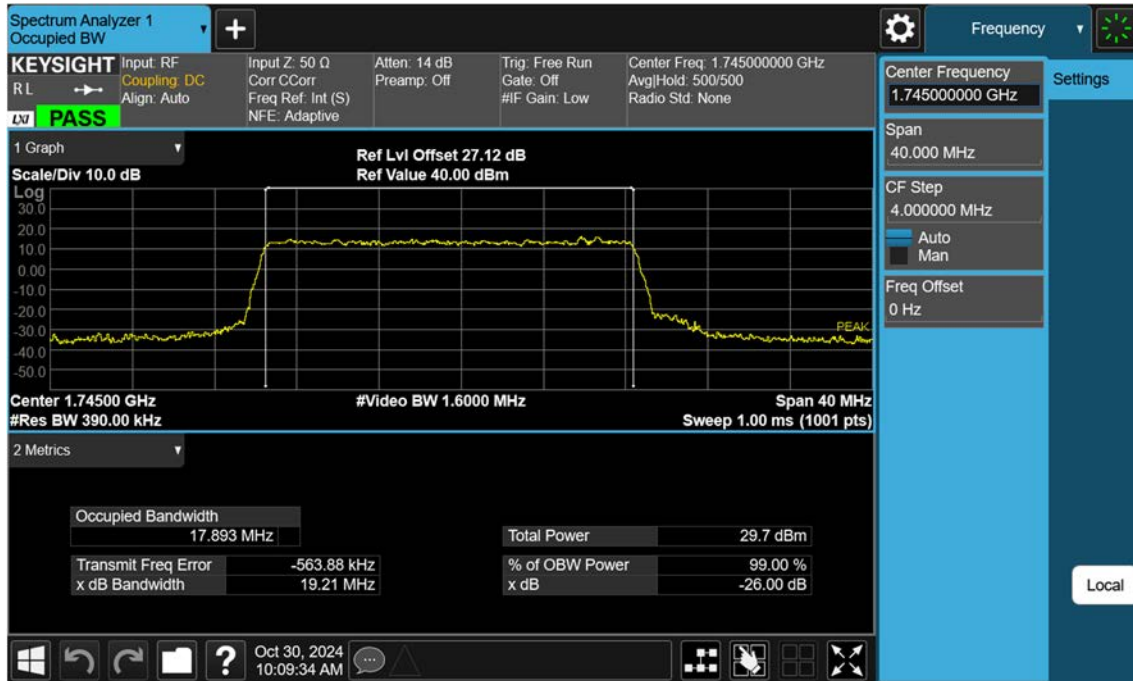
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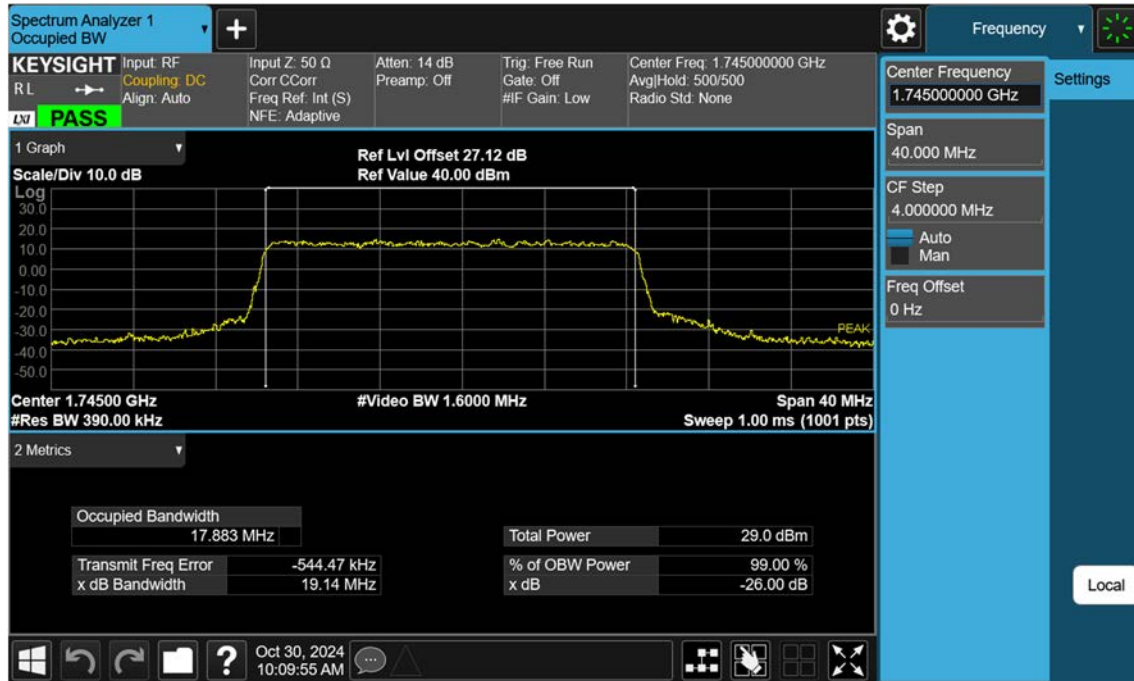
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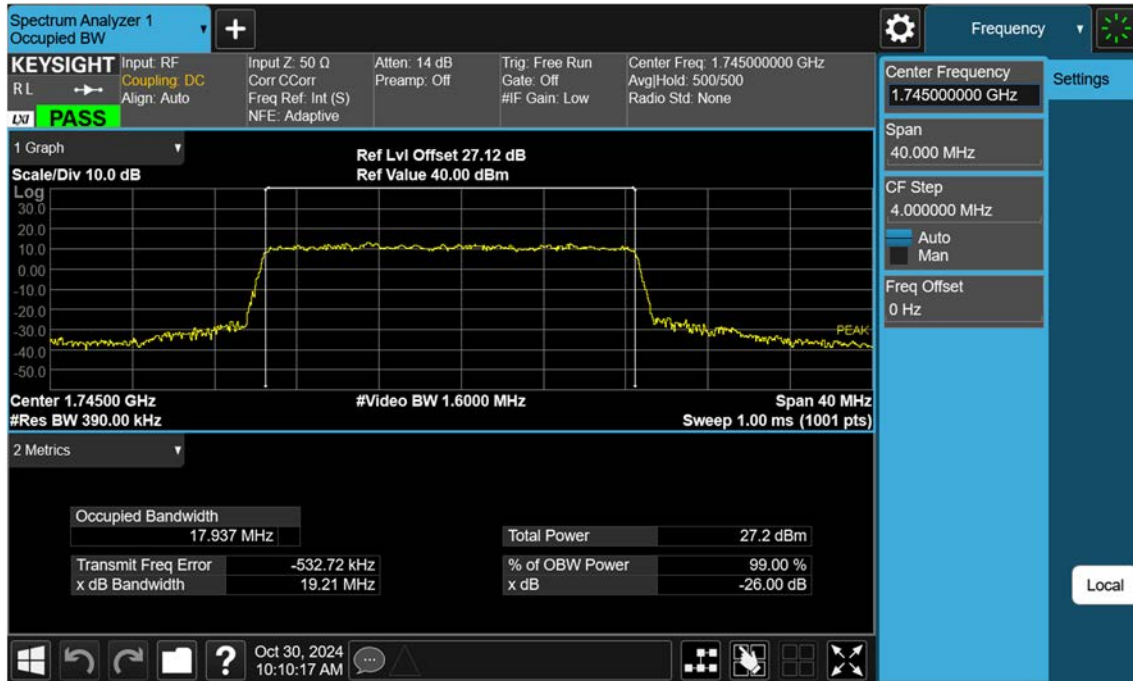
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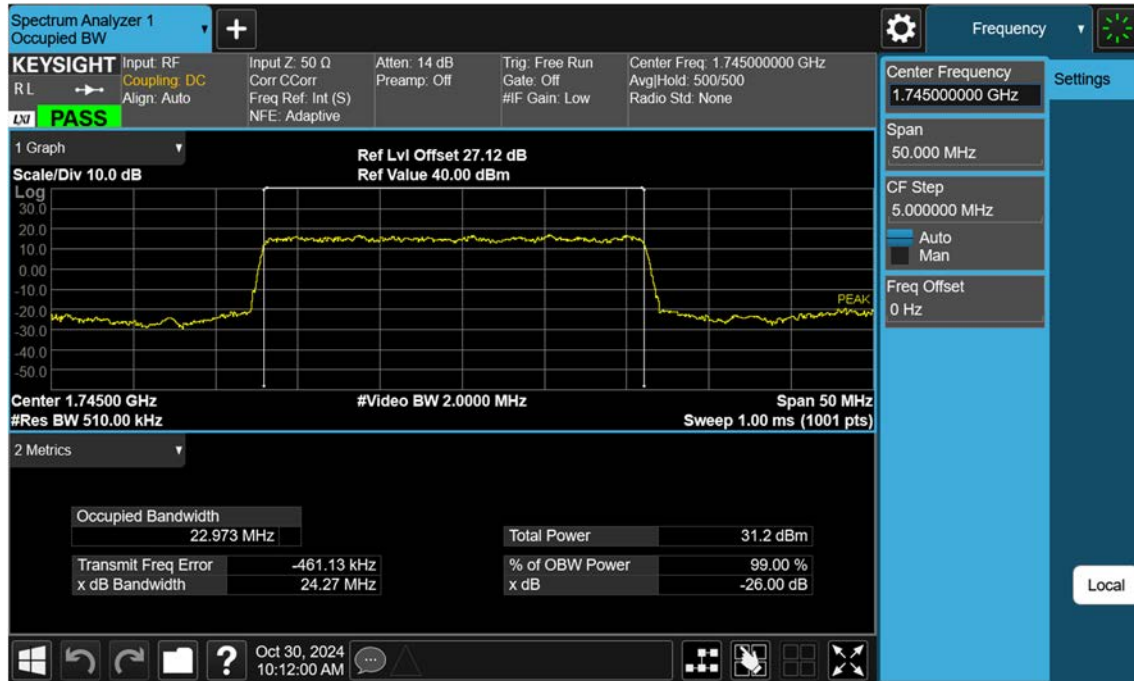
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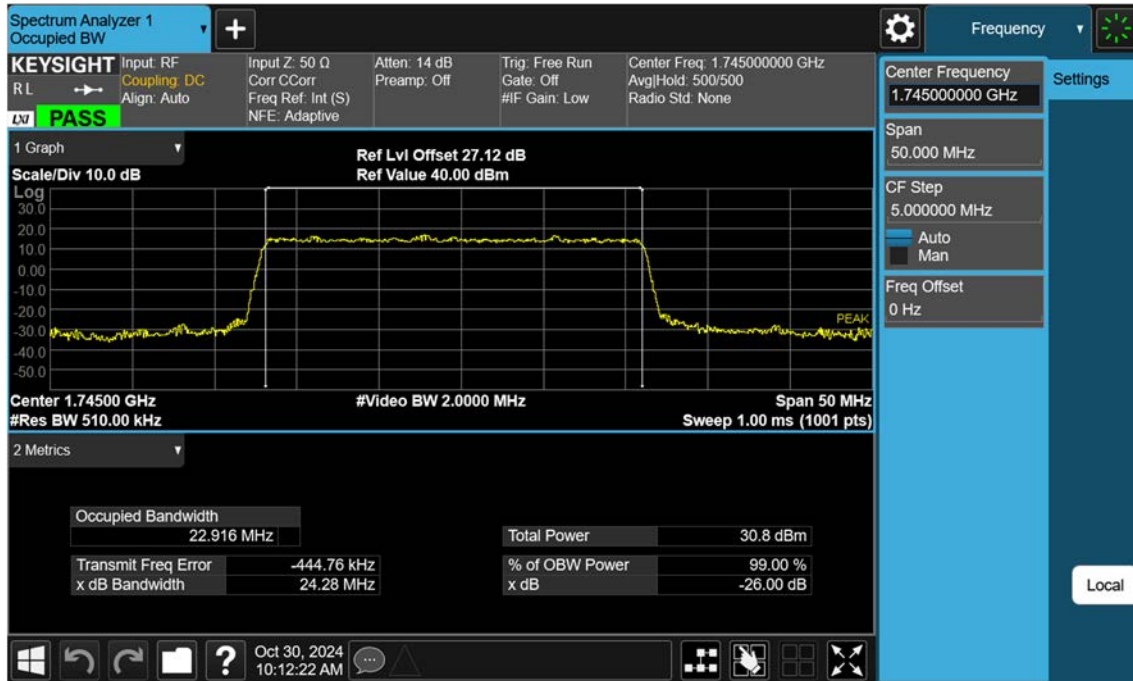
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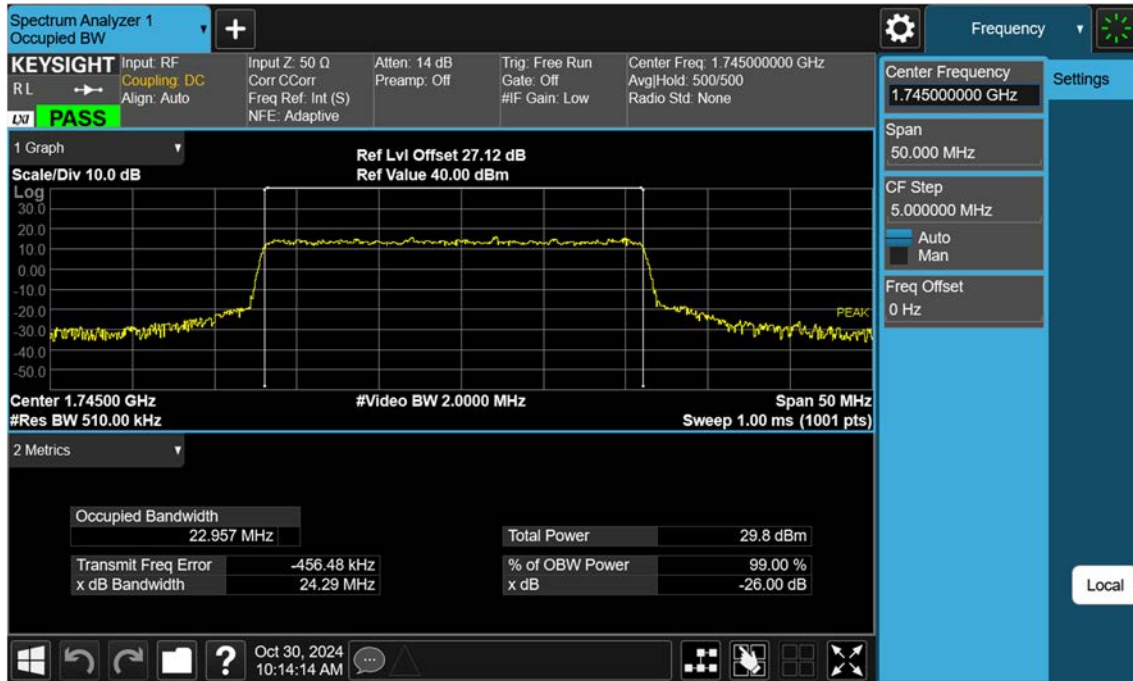
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