

TEST REPORT

FCC Sub6 n66 Test for SM-S931U
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2410-FC037-R1

DATE OF ISSUE
October 31, 2024

Tested by
Jin Woo Yu

유준우

Technical Manager
Jong Seok Lee

이정석

HCT CO., LTD.
Bongjai Huh
BongJai Huh / CEO

**HCT CO.,LTD.**

2-6, 73, 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea
Tel. +82 31 645 6300 Fax. +82 31 645 6401

TEST REPORT

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Additional Model

SM-S931U1

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

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

Product Name

Mobile Phone

Model Name

SM-S931U

Date of Test

August 26, 2024 ~ October 31, 2024

FCC ID

A3LSMS931U

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	October 29, 2024	Initial Release
1	October 31, 2024	Revised the EIRP Result (Main 1 ANT)

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).

CONTENTS

1. GENERAL INFORMATION	5
1.1. MAXIMUM OUTPUT POWER	6
2. INTRODUCTION	8
2.1. DESCRIPTION OF EUT	8
2.2. MEASURING INSTRUMENT CALIBRATION	8
2.3. TEST FACILITY	8
3. DESCRIPTION OF TESTS	9
3.1 TEST PROCEDURE	9
3.2 RADIATED POWER	10
3.3 RADIATED SPURIOUS EMISSIONS	11
3.4 PEAK- TO- AVERAGE RATIO	12
3.5 OCCUPIED BANDWIDTH.	14
3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL	15
3.7 BAND EDGE	16
3.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE	18
3.9 WORST CASE(RADIATED TEST)	19
3.10 WORST CASE(CONDUCTED TEST)	20
4. LIST OF TEST EQUIPMENT	21
5. MEASUREMENT UNCERTAINTY	22
6. SUMMARY OF TEST RESULTS	23
7. SAMPLE CALCULATION	24
8. TEST DATA (Main 1 ANT)	26
8.1 EQUIVALENT ISOTROPIC RADIATED POWER	26
8.2 RADIATED SPURIOUS EMISSIONS	34
8.3 PEAK-TO-AVERAGE RATIO	35
8.4 OCCUPIED BANDWIDTH	36
8.5 CONDUCTED SPURIOUS EMISSIONS	37
8.6 BAND EDGE	37
8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE	38
8.8 UPLINK CARRIER AGGREGATION	46
8.8.1 RADIATED SPURIOUS EMISSIONS	46
9. TEST DATA (Sub 2 ANT)	47
9.1 EQUIVALENT ISOTROPIC RADIATED POWER	47
9.2 RADIATED SPURIOUS EMISSIONS	55
9.3 PEAK-TO-AVERAGE RATIO	56
9.4 OCCUPIED BANDWIDTH	57
9.5 CONDUCTED SPURIOUS EMISSIONS	58
9.6 BAND EDGE	58
9.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE	59
10. TEST PLOTS (Main 1 ANT)	67
11. TEST PLOTS (Sub 2 ANT)	244
12. ANNEX A_ TEST SETUP PHOTO	421

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:	A3LSMS931U
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§ 27
EUT Type:	Mobile phone
Model(s):	SM-S931U
Additional Model(s)	SM-S931U1
SCS(kHz):	15
Bandwidth(MHz):	5, 10, 15, 20, 25, 30, 35, 40
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:	August 26, 2024 ~ October 31, 2024
Serial number:	Radiated: R3CXA0930CK (Main1ANT), R3CXA0930CK(Sub 2 ANT) Conducted : R3CX70H9JQN UPLINK CARRIER AGGREGATION : R3CX80PK55X

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	4M57G7D	PI/2 BPSK	0.290	24.62
		4M61G7D	QPSK	0.286	24.57
		4M59W7D	16QAM	0.229	23.59
		4M65W7D	64QAM	0.159	22.02
		4M63W7D	256QAM	0.098	19.90
Sub6 n66 (10)	1715.0 – 1775.0	8M94G7D	PI/2 BPSK	0.277	24.42
		8M99G7D	QPSK	0.274	24.38
		8M97W7D	16QAM	0.215	23.33
		8M97W7D	64QAM	0.156	21.93
		8M96W7D	256QAM	0.094	19.72
Sub6 n66 (15)	1717.5 – 1772.5	13M5G7D	PI/2 BPSK	0.284	24.53
		13M5G7D	QPSK	0.279	24.45
		13M4W7D	16QAM	0.211	23.25
		13M5W7D	64QAM	0.154	21.88
		13M5W7D	256QAM	0.096	19.82
Sub6 n66 (20)	1720.0 – 1770.0	17M9G7D	PI/2 BPSK	0.283	24.52
		17M9G7D	QPSK	0.276	24.41
		17M9W7D	16QAM	0.213	23.28
		17M9W7D	64QAM	0.153	21.86
		17M9W7D	256QAM	0.096	19.83
Sub6 n66 (25)	1722.5 – 1767.5	22M9G7D	PI/2 BPSK	0.294	24.68
		23M0G7D	QPSK	0.283	24.52
		22M9W7D	16QAM	0.222	23.46
		23M0W7D	64QAM	0.159	22.02
		23M0W7D	256QAM	0.098	19.93
Sub6 n66 (30)	1725.0 – 1765.0	28M7G7D	PI/2 BPSK	0.288	24.60
		28M7G7D	QPSK	0.282	24.51
		28M7W7D	16QAM	0.215	23.33
		28M6W7D	64QAM	0.154	21.88
		28M7W7D	256QAM	0.096	19.83
Sub6 n66 (35)	1727.5 – 1762.5	32M2G7D	PI/2 BPSK	0.303	24.82
		32M2G7D	QPSK	0.298	24.74
		32M2W7D	16QAM	0.224	23.50
		32M2W7D	64QAM	0.163	22.12
		32M2W7D	256QAM	0.102	20.07
Sub6 n66 (40)	1730.0 – 1760.0	38M7G7D	PI/2 BPSK	0.290	24.62
		38M7G7D	QPSK	0.283	24.52
		38M6W7D	16QAM	0.220	23.43
		38M6W7D	64QAM	0.157	21.97
		38M8W7D	256QAM	0.099	19.96

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	0.289	24.61
		4M50G7D	QPSK	0.286	24.56
		4M50W7D	16QAM	0.216	23.35
		4M52W7D	64QAM	0.161	22.08
		4M50W7D	256QAM	0.089	19.50
Sub6 n66 (10)	1715.0 – 1775.0	8M98G7D	PI/2 BPSK	0.292	24.65
		8M96G7D	QPSK	0.288	24.60
		8M97W7D	16QAM	0.223	23.49
		8M98W7D	64QAM	0.163	22.13
		8M97W7D	256QAM	0.091	19.59
Sub6 n66 (15)	1717.5 – 1772.5	13M4G7D	PI/2 BPSK	0.298	24.74
		13M5G7D	QPSK	0.286	24.57
		13M4W7D	16QAM	0.228	23.57
		13M5W7D	64QAM	0.169	22.28
		13M5W7D	256QAM	0.093	19.69
Sub6 n66 (20)	1720.0 – 1770.0	17M9G7D	PI/2 BPSK	0.302	24.80
		17M9G7D	QPSK	0.287	24.58
		17M9W7D	16QAM	0.231	23.64
		17M9W7D	64QAM	0.170	22.31
		17M9W7D	256QAM	0.093	19.70
Sub6 n66 (25)	1722.5 – 1767.5	23M0G7D	PI/2 BPSK	0.323	25.09
		22M9G7D	QPSK	0.314	24.97
		23M0W7D	16QAM	0.244	23.87
		22M9W7D	64QAM	0.182	22.61
		22M9W7D	256QAM	0.101	20.06
Sub6 n66 (30)	1725.0 – 1765.0	28M6G7D	PI/2 BPSK	0.316	24.99
		28M6G7D	QPSK	0.315	24.98
		28M6W7D	16QAM	0.241	23.82
		28M6W7D	64QAM	0.181	22.57
		28M6W7D	256QAM	0.102	20.07
Sub6 n66 (35)	1727.5 – 1762.5	32M3G7D	PI/2 BPSK	0.323	25.09
		32M4G7D	QPSK	0.318	25.02
		32M2W7D	16QAM	0.248	23.95
		32M2W7D	64QAM	0.191	22.82
		32M1W7D	256QAM	0.100	20.01
Sub6 n66 (40)	1730.0 – 1760.0	38M6G7D	PI/2 BPSK	0.333	25.22
		38M6G7D	QPSK	0.321	25.07
		38M6W7D	16QAM	0.254	24.05
		38M6W7D	64QAM	0.188	22.75
		38M6W7D	256QAM	0.102	20.08

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/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;

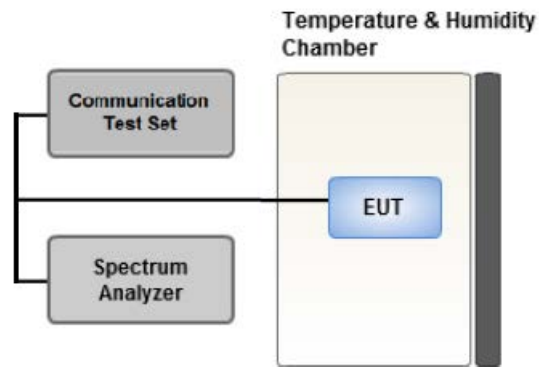
$$\text{Result}_{(\text{dBm})} = P_g_{(\text{dBm})} - \text{cable loss}_{(\text{dB})} + \text{antenna gain}_{(\text{dBi})}$$

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)

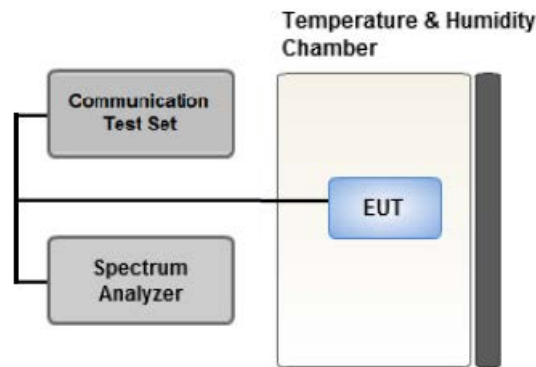
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW $\geq 3 \times$ RBW.

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.

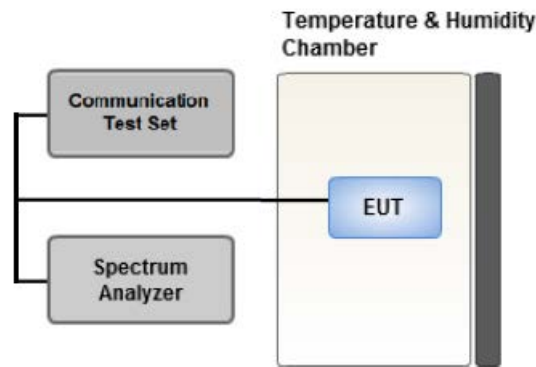
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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

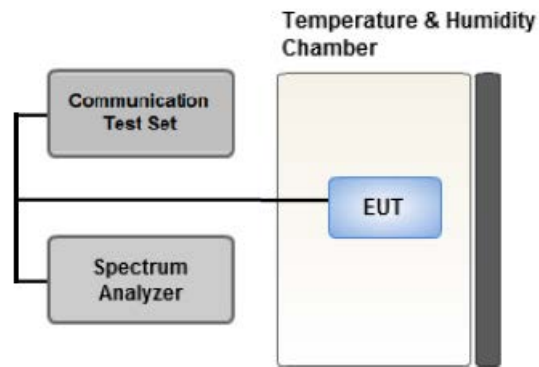
Test Overview

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

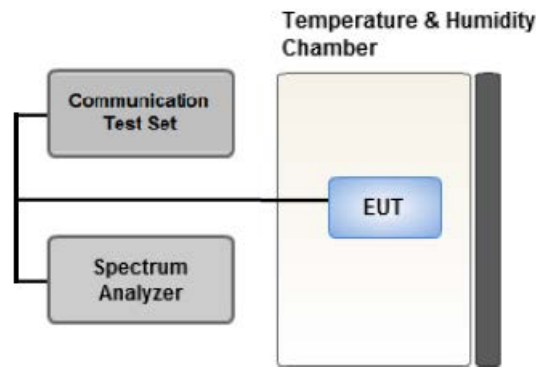
According to FCC 22.917, 24.238, 27.53 specified that power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. In the 1 MHz bands immediately outside and adjacent to the frequency block 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: SA, NSA
Worst case: SA
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 : 35 MHz(Main 1 ANT), 40 MHz(Sub 2 ANT))
- SM-S931U & additional models were tested and the worst case results are reported.
(Worst case : SM-S931U)

[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		Z
Radiated Spurious and Harmonic Emissions	PI/2 BPSK	See Section 9.2		X

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: SA, NSA
Worst case: SA
- All RB sizes, offsets of operation were investigated and the worst case configuration results are reported.
Please refer to the table below.
- SM-S931U & additional models were tested and the worst case results are reported.
(Worst case : SM-S931U)

[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	11/17/2024	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)	$< 43 + 10\log_{10}(P[\text{Watts}])$ 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)	$< 13 \text{ dB}$	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)	$< 1 \text{ Watts max. EIRP}$	PASS
Radiated Spurious and Harmonic Emissions	§ 2.1053, § 27.53(h)	$< 43 + 10\log_{10}(P[\text{Watts}])$ for all out-of band emissions	PASS

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	-17.12	15.96	10.12	2.06	V	< 1.00	0.252	24.02	12	7
		QPSK	-17.20	15.88	10.12	2.06	V		0.248	23.94		
		16-QAM	-18.23	14.85	10.12	2.06	V		0.195	22.91		
		64-QAM	-19.70	13.38	10.12	2.06	V		0.139	21.44		
		256-QAM	-21.92	11.16	10.12	2.06	V		0.084	19.22		
1745.0		PI/2 BPSK	-17.11	16.26	10.43	2.07	V		0.290	24.62	12	7
		QPSK	-17.16	16.21	10.43	2.07	V		0.286	24.57		
		16-QAM	-18.14	15.23	10.43	2.07	V		0.229	23.59		
		64-QAM	-19.71	13.66	10.43	2.07	V		0.159	22.02		
		256-QAM	-21.83	11.54	10.43	2.07	V		0.098	19.90		
1777.5		PI/2 BPSK	-17.79	15.57	10.50	2.09	V		0.250	23.98	12	7
		QPSK	-17.90	15.46	10.50	2.09	V		0.244	23.87		
		16-QAM	-18.92	14.44	10.50	2.09	V		0.193	22.85		
		64-QAM	-20.31	13.05	10.50	2.09	V		0.140	21.46		
		256-QAM	-22.57	10.79	10.50	2.09	V		0.083	19.20		

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	-17.39	15.69	10.12	2.06	V	< 1.00	0.237	23.75	25	14
		QPSK	-17.41	15.67	10.12	2.06	V		0.236	23.73		
		16-QAM	-18.41	14.67	10.12	2.06	V		0.188	22.73		
		64-QAM	-19.82	13.26	10.12	2.06	V		0.136	21.32		
		256-QAM	-21.94	11.14	10.12	2.06	V		0.083	19.20		
1745.0		PI/2 BPSK	-17.31	16.06	10.43	2.07	V		0.277	24.42	25	14
		QPSK	-17.35	16.02	10.43	2.07	V		0.274	24.38		
		16-QAM	-18.40	14.97	10.43	2.07	V		0.215	23.33		
		64-QAM	-19.80	13.57	10.43	2.07	V		0.156	21.93		
		256-QAM	-22.01	11.36	10.43	2.07	V		0.094	19.72		
1775.0		PI/2 BPSK	-17.92	15.48	10.49	2.09	V	0.244	23.88	25	14	
		QPSK	-18.01	15.39	10.49	2.09	V	0.239	23.79			
		16-QAM	-19.04	14.36	10.49	2.09	V	0.189	22.76			
		64-QAM	-20.60	12.80	10.49	2.09	V	0.132	21.20			
		256-QAM	-22.70	10.70	10.49	2.09	V	0.081	19.10			

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
1717.5	Sub6 n66/ 15 MHz [15 kHz]	PI/2 BPSK	-17.33	15.83	10.18	2.06	V	< 1.00	0.248	23.95	36	22
		QPSK	-17.41	15.75	10.18	2.06	V		0.244	23.87		
		16-QAM	-18.59	14.57	10.18	2.06	V		0.186	22.69		
		64-QAM	-19.95	13.21	10.18	2.06	V		0.136	21.33		
		256-QAM	-22.03	11.13	10.18	2.06	V		0.084	19.25		
1745.0		PI/2 BPSK	-17.20	16.17	10.43	2.07	V		0.284	24.53	36	22
		QPSK	-17.28	16.09	10.43	2.07	V		0.279	24.45		
		16-QAM	-18.48	14.89	10.43	2.07	V		0.211	23.25		
		64-QAM	-19.85	13.52	10.43	2.07	V		0.154	21.88		
		256-QAM	-21.91	11.46	10.43	2.07	V		0.096	19.82		
1772.5		PI/2 BPSK	-17.80	15.60	10.49	2.09	V	0.251	24.00	36	22	
		QPSK	-17.91	15.49	10.49	2.09	V	0.245	23.89			
		16-QAM	-19.18	14.22	10.49	2.09	V	0.183	22.62			
		64-QAM	-20.51	12.89	10.49	2.09	V	0.135	21.29			
		256-QAM	-22.63	10.77	10.49	2.09	V	0.083	19.17			

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	-17.25	15.91	10.18	2.06	V	< 1.00	0.253	24.03	50	28
		QPSK	-17.38	15.78	10.18	2.06	V		0.246	23.90		
		16-QAM	-18.53	14.63	10.18	2.06	V		0.188	22.75		
		64-QAM	-20.01	13.15	10.18	2.06	V		0.134	21.27		
		256-QAM	-21.95	11.21	10.18	2.06	V		0.086	19.33		
1745.0		PI/2 BPSK	-17.21	16.16	10.43	2.07	V		0.283	24.52	50	28
		QPSK	-17.32	16.05	10.43	2.07	V		0.276	24.41		
		16-QAM	-18.45	14.92	10.43	2.07	V		0.213	23.28		
		64-QAM	-19.87	13.50	10.43	2.07	V		0.154	21.86		
		256-QAM	-21.90	11.47	10.43	2.07	V		0.096	19.83		
1770.0		PI/2 BPSK	-17.76	15.66	10.49	2.09	V	0.255	24.06	50	28	
		QPSK	-17.91	15.51	10.49	2.09	V	0.246	23.91			
		16-QAM	-19.04	14.38	10.49	2.09	V	0.190	22.78			
		64-QAM	-20.34	13.08	10.49	2.09	V	0.141	21.48			
		256-QAM	-22.67	10.75	10.49	2.09	V	0.082	19.15			

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	-17.11	16.17	10.23	2.07	V	< 1.00	0.271	24.33	64	35
		QPSK	-17.24	16.04	10.23	2.07	V		0.263	24.20		
		16-QAM	-18.42	14.86	10.23	2.07	V		0.200	23.02		
		64-QAM	-19.77	13.51	10.23	2.07	V		0.147	21.67		
		256-QAM	-21.86	11.42	10.23	2.07	V		0.091	19.58		
1745.0		PI/2 BPSK	-17.05	16.32	10.43	2.07	V		0.294	24.68	64	35
		QPSK	-17.21	16.16	10.43	2.07	V		0.283	24.52		
		16-QAM	-18.27	15.10	10.43	2.07	V		0.222	23.46		
		64-QAM	-19.71	13.66	10.43	2.07	V		0.159	22.02		
		256-QAM	-21.80	11.57	10.43	2.07	V		0.098	19.93		
1767.5		PI/2 BPSK	-17.64	15.78	10.49	2.09	V	0.262	24.18	64	35	
		QPSK	-17.89	15.53	10.49	2.09	V	0.247	23.93			
		16-QAM	-18.96	14.46	10.49	2.09	V	0.193	22.86			
		64-QAM	-20.31	13.11	10.49	2.09	V	0.142	21.51			
		256-QAM	-22.47	10.95	10.49	2.09	V	0.086	19.35			

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	-17.21	16.07	10.23	2.07	V	< 1.00	0.265	24.23	80	40
		QPSK	-17.26	16.02	10.23	2.07	V		0.262	24.18		
		16-QAM	-18.46	14.82	10.23	2.07	V		0.199	22.98		
		64-QAM	-19.79	13.49	10.23	2.07	V		0.146	21.65		
		256-QAM	-21.90	11.38	10.23	2.07	V		0.090	19.54		
1745.0		PI/2 BPSK	-17.13	16.24	10.43	2.07	V		0.288	24.60	80	40
		QPSK	-17.22	16.15	10.43	2.07	V		0.283	24.51		
		16-QAM	-18.40	14.97	10.43	2.07	V		0.215	23.33		
		64-QAM	-19.85	13.52	10.43	2.07	V		0.154	21.88		
		256-QAM	-21.90	11.47	10.43	2.07	V		0.096	19.83		
1765.0		PI/2 BPSK	-17.98	15.35	10.48	2.09	V	0.237	23.74	80	40	
		QPSK	-18.01	15.32	10.48	2.09	V	0.235	23.71			
		16-QAM	-19.23	14.10	10.48	2.09	V	0.177	22.49			
		64-QAM	-20.60	12.73	10.48	2.09	V	0.129	21.12			
		256-QAM	-22.62	10.71	10.48	2.09	V	0.081	19.10			

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
1727.5	Sub6 n66/ 35 MHz [15 kHz]	PI/2 BPSK	-16.96	16.44	10.29	2.08	V	< 1.00	0.292	24.65	90	45
		QPSK	-17.04	16.36	10.29	2.08	V		0.286	24.57		
		16-QAM	-18.17	15.23	10.29	2.08	V		0.221	23.44		
		64-QAM	-19.67	13.73	10.29	2.08	V		0.156	21.94		
		256-QAM	-21.70	11.70	10.29	2.08	V		0.098	19.91		
1745.0		PI/2 BPSK	-16.91	16.46	10.43	2.07	V		0.303	24.82	90	45
		QPSK	-16.99	16.38	10.43	2.07	V		0.298	24.74		
		16-QAM	-18.23	15.14	10.43	2.07	V		0.224	23.50		
		64-QAM	-19.61	13.76	10.43	2.07	V		0.163	22.12		
		256-QAM	-21.66	11.71	10.43	2.07	V		0.102	20.07		
1762.5		PI/2 BPSK	-17.86	15.47	10.48	2.09	V	0.243	23.86	90	45	
		QPSK	-17.91	15.42	10.48	2.09	V	0.240	23.81			
		16-QAM	-19.08	14.25	10.48	2.09	V	0.184	22.64			
		64-QAM	-20.51	12.82	10.48	2.09	V	0.132	21.21			
		256-QAM	-22.54	10.79	10.48	2.09	V	0.083	19.18			

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
1730.0	Sub6 n66/ 40 MHz [15 kHz]	PI/2 BPSK	-17.02	16.38	10.29	2.08	V	< 1.00	0.288	24.59	108	54
		QPSK	-17.15	16.25	10.29	2.08	V		0.279	24.46		
		16-QAM	-18.18	15.22	10.29	2.08	V		0.220	23.43		
		64-QAM	-19.64	13.76	10.29	2.08	V		0.157	21.97		
		256-QAM	-21.65	11.75	10.29	2.08	V		0.099	19.96		
1745.0		PI/2 BPSK	-17.11	16.26	10.43	2.07	V		0.290	24.62	108	54
		QPSK	-17.21	16.16	10.43	2.07	V		0.283	24.52		
		16-QAM	-18.38	14.99	10.43	2.07	V		0.216	23.35		
		64-QAM	-19.77	13.60	10.43	2.07	V		0.157	21.96		
		256-QAM	-21.87	11.50	10.43	2.07	V		0.097	19.86		
1760.0		PI/2 BPSK	-17.78	15.44	10.48	2.09	V	0.242	23.83	108	54	
		QPSK	-17.90	15.32	10.48	2.09	V	0.235	23.71			
		16-QAM	-18.95	14.27	10.48	2.09	V	0.185	22.66			
		64-QAM	-20.36	12.86	10.48	2.09	V	0.133	21.25			
		256-QAM	-22.49	10.73	10.48	2.09	V	0.082	19.12			

8.2 RADIATED SPURIOUS EMISSIONS

NR Band:	<u>N66</u>
Bandwidth:	<u>35 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
345500 (1727.5)	3 455.00	-60.92	11.96	-62.00	3.04	V	-53.08	-13.00	1	94
	5 182.50	-62.22	11.61	-56.34	3.80	V	-48.53	-13.00		
	6 910.00	-64.93	11.16	-52.49	4.39	V	-45.72	-13.00		
349000 (1745.0)	3 490.00	-61.44	12.04	-62.18	3.04	V	-53.18	-13.00	1	1
	5 235.00	-62.48	11.76	-57.15	3.78	V	-49.17	-13.00		
	6 980.00	-64.51	11.16	-51.73	4.48	V	-45.05	-13.00		
352500 (1762.5)	3 525.00	-59.55	12.04	-61.29	3.04	V	-52.29	-13.00	1	1
	5 287.50	-62.75	11.89	-57.26	3.83	V	-49.20	-13.00		
	7 050.00	-63.46	10.98	-49.43	4.48	V	-42.93	-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	4.13
			QPSK			4.62
			16-QAM			5.62
			64-QAM			6.07
			256-QAM			6.40
	10 MHz		BPSK	50		4.33
			QPSK			4.99
			16-QAM			5.53
			64-QAM			6.12
			256-QAM			6.44
	15 MHz		BPSK	75		3.93
			QPSK			4.48
			16-QAM			5.55
			64-QAM			6.09
			256-QAM			6.63
	20 MHz		BPSK	100		4.14
			QPSK			4.42
			16-QAM			5.69
			64-QAM			6.17
			256-QAM			6.62
	25 MHz		BPSK	128		4.21
			QPSK			4.99
			16-QAM			6.03
			64-QAM			6.13
			256-QAM			6.60
	30 MHz		BPSK	160		4.06
			QPSK			4.79
			16-QAM			5.86
			64-QAM			6.35
			256-QAM			6.62
	35 MHz		BPSK	187		4.26
			QPSK			4.97
			16-QAM			5.96
			64-QAM			6.06
			256-QAM			6.61
	40 MHz		BPSK	216		4.01
			QPSK			4.77
			16-QAM			5.84
			64-QAM			5.91
			256-QAM			6.58

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 68 ~ 107.

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	4.5703
			QPSK			4.6075
			16-QAM			4.5892
			64-QAM			4.6457
			256-QAM			4.6290
	10 MHz		BPSK	50		8.9413
			QPSK			8.9925
			16-QAM			8.9655
			64-QAM			8.9695
			256-QAM			8.9570
	15 MHz		BPSK	75		13.446
			QPSK			13.454
			16-QAM			13.386
			64-QAM			13.463
			256-QAM			13.462
	20 MHz		BPSK	100		17.879
			QPSK			17.915
			16-QAM			17.941
			64-QAM			17.900
			256-QAM			17.929
	25 MHz		BPSK	128		22.919
			QPSK			22.953
			16-QAM			22.880
			64-QAM			22.948
			256-QAM			22.959
	30 MHz		BPSK	160		28.714
			QPSK			28.744
			16-QAM			28.647
			64-QAM			28.628
			256-QAM			28.684
	35 MHz		BPSK	187		32.179
			QPSK			32.197
			16-QAM			32.223
			64-QAM			32.189
			256-QAM			32.228
	40 MHz		BPSK	216		38.697
			QPSK			38.695
			16-QAM			38.574
			64-QAM			38.619
			256-QAM			38.754

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 108 ~ 147.

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	5.1825	30.815	-71.150	-40.335	-13.00
		1745.0	8.3011	30.815	-70.759	-39.944	
		1777.5	8.3216	30.815	-70.933	-40.118	
	10	1715.0	3.2608	30.200	-69.517	-39.317	
		1745.0	3.9821	30.200	-70.851	-40.651	
		1775.0	4.0030	30.200	-70.892	-40.692	
	15	1717.5	5.2154	30.815	-70.174	-39.359	
		1745.0	7.4876	30.815	-69.925	-39.110	
		1772.5	9.7901	30.815	-70.913	-40.098	
	20	1720.0	8.2956	30.815	-70.565	-39.750	
		1745.0	9.9506	30.815	-69.763	-38.948	
		1770.0	8.2767	30.815	-70.546	-39.731	
	25	1722.5	4.9158	30.200	-69.955	-39.755	
		1745.0	4.0669	30.200	-70.353	-40.153	
		1767.5	8.8490	30.815	-70.861	-40.046	
	30	1725.0	3.7867	30.200	-70.617	-40.417	
		1745.0	3.7707	30.200	-70.272	-40.072	
		1765.0	9.1580	30.815	-70.212	-39.397	
	35	1727.5	3.7443	30.200	-70.327	-40.127	
		1745.0	4.0639	30.200	-70.765	-40.565	
		1762.5	5.4891	30.815	-71.227	-40.412	
	40	1730.0	5.4811	30.200	-71.118	-40.918	
		1745.0	9.9497	30.200	-70.870	-40.670	
		1760.0	3.7598	30.815	-70.969	-40.154	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 148 ~ 195.
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 196 ~ 243.

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 500 000	0.0	0.000 000	0.000
	100 %	-30	1712 499 999	-0.9	0.000 000	-0.001
	100 %	-20	1712 500 000	0.5	0.000 000	0.000
	100 %	-10	1712 499 999	-0.6	0.000 000	0.000
	100 %	0	1712 499 999	-1.2	0.000 000	-0.001
	100 %	+10	1712 499 999	-0.8	0.000 000	0.000
	100 %	+30	1712 500 000	0.6	0.000 000	0.000
	100 %	+40	1712 499 997	-2.7	0.000 000	-0.002
	100 %	+50	1712 499 999	-0.3	0.000 000	0.000
	Batt. Endpoint	+20	1712 499 998	-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	2.1	0.000 000	0.001
	100 %	-20	1777 500 002	0.5	0.000 000	0.000
	100 %	-10	1777 500 002	0.5	0.000 000	0.000
	100 %	0	1777 500 003	1.1	0.000 000	0.001
	100 %	+10	1777 500 002	0.7	0.000 000	0.000
	100 %	+30	1777 500 002	0.2	0.000 000	0.000
	100 %	+40	1777 500 003	1.1	0.000 000	0.001
	100 %	+50	1777 500 003	1.7	0.000 000	0.001
	Batt. Endpoint	+20	1777 500 002	0.3	0.000 000	0.000

- ▣ 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	-1.0	0.000 000	-0.001
	100 %	-20	1715 000 000	0.5	0.000 000	0.000
	100 %	-10	1715 000 001	1.6	0.000 000	0.001
	100 %	0	1715 000 001	1.4	0.000 000	0.001
	100 %	+10	1714 999 997	-1.9	0.000 000	-0.001
	100 %	+30	1714 999 999	0.1	0.000 000	0.000
	100 %	+40	1715 000 000	0.2	0.000 000	0.000
	100 %	+50	1714 999 999	-0.2	0.000 000	0.000
	Batt. Endpoint	+20	1714 999 999	-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	-0.2	0.000 000	0.000
	100 %	-20	1774 999 997	-1.8	0.000 000	-0.001
	100 %	-10	1774 999 999	-0.1	0.000 000	0.000
	100 %	0	1774 999 998	-0.6	0.000 000	0.000
	100 %	+10	1774 999 998	-1.2	0.000 000	-0.001
	100 %	+30	1774 999 997	-1.3	0.000 000	-0.001
	100 %	+40	1774 999 998	-0.9	0.000 000	-0.001
	100 %	+50	1774 999 999	0.0	0.000 000	0.000
	Batt. Endpoint	+20	1774 999 998	-0.2	0.000 000	0.000

- ▣ 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 500 002	0.8	0.000 000	0.000
	100 %	-20	1717 500 004	2.8	0.000 000	0.002
	100 %	-10	1717 500 004	3.5	0.000 000	0.002
	100 %	0	1717 500 003	1.8	0.000 000	0.001
	100 %	+10	1717 500 002	1.1	0.000 000	0.001
	100 %	+30	1717 500 003	1.8	0.000 000	0.001
	100 %	+40	1717 500 002	0.8	0.000 000	0.000
	100 %	+50	1717 500 003	2.5	0.000 000	0.001
	Batt. Endpoint	+20	1717 500 002	1.0	0.000 000	0.001
1772.5	100 %	+20(Ref)	1772 499 997	0.0	0.000 000	0.000
	100 %	-30	1772 499 995	-2.3	0.000 000	-0.001
	100 %	-20	1772 499 995	-2.4	0.000 000	-0.001
	100 %	-10	1772 499 996	-1.4	0.000 000	-0.001
	100 %	0	1772 499 995	-2.1	0.000 000	-0.001
	100 %	+10	1772 499 994	-2.7	0.000 000	-0.002
	100 %	+30	1772 499 996	-0.5	0.000 000	0.000
	100 %	+40	1772 499 995	-1.6	0.000 000	-0.001
	100 %	+50	1772 499 995	-1.4	0.000 000	-0.001
	Batt. Endpoint	+20	1772 499 994	-2.9	0.000 000	-0.002

- ▣ 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 999 997	0.0	0.000 000	0.000
	100 %	-30	1719 999 995	-1.9	0.000 000	-0.001
	100 %	-20	1719 999 995	-2.3	0.000 000	-0.001
	100 %	-10	1719 999 997	0.0	0.000 000	0.000
	100 %	0	1719 999 994	-3.2	0.000 000	-0.002
	100 %	+10	1719 999 997	0.0	0.000 000	0.000
	100 %	+30	1719 999 997	-0.7	0.000 000	0.000
	100 %	+40	1719 999 995	-2.5	0.000 000	-0.001
	100 %	+50	1719 999 995	-2.4	0.000 000	-0.001
	Batt. Endpoint	+20	1719 999 995	-2.4	0.000 000	-0.001
1770.0	100 %	+20(Ref)	1770 000 000	0.0	0.000 000	0.000
	100 %	-30	1770 000 000	0.0	0.000 000	0.000
	100 %	-20	1770 000 001	1.6	0.000 000	0.001
	100 %	-10	1770 000 001	0.8	0.000 000	0.000
	100 %	0	1770 000 003	2.8	0.000 000	0.002
	100 %	+10	1770 000 001	1.5	0.000 000	0.001
	100 %	+30	1770 000 000	0.4	0.000 000	0.000
	100 %	+40	1769 999 999	-0.3	0.000 000	0.000
	100 %	+50	1770 000 000	0.1	0.000 000	0.000
	Batt. Endpoint	+20	1770 000 001	1.2	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 500 000	0.0	0.000 000	0.000
	100 %	-30	1722 500 002	1.4	0.000 000	0.001
	100 %	-20	1722 500 000	-0.7	0.000 000	0.000
	100 %	-10	1722 499 999	-1.4	0.000 000	-0.001
	100 %	0	1722 500 000	-0.5	0.000 000	0.000
	100 %	+10	1722 500 002	1.2	0.000 000	0.001
	100 %	+30	1722 499 999	-1.3	0.000 000	-0.001
	100 %	+40	1722 500 000	-0.2	0.000 000	0.000
	100 %	+50	1722 499 999	-1.7	0.000 000	-0.001
	Batt. Endpoint	+20	1722 499 999	-1.7	0.000 000	-0.001
1767.5	100 %	+20(Ref)	1767 500 000	0.0	0.000 000	0.000
	100 %	-30	1767 500 001	0.7	0.000 000	0.000
	100 %	-20	1767 500 000	0.0	0.000 000	0.000
	100 %	-10	1767 500 000	-0.4	0.000 000	0.000
	100 %	0	1767 500 002	2.0	0.000 000	0.001
	100 %	+10	1767 499 999	-1.4	0.000 000	-0.001
	100 %	+30	1767 500 000	0.2	0.000 000	0.000
	100 %	+40	1767 500 002	1.4	0.000 000	0.001
	100 %	+50	1767 500 000	-0.3	0.000 000	0.000
	Batt. Endpoint	+20	1767 500 002	2.2	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 000 006	0.0	0.000 000	0.000
	100 %	-30	1725 000 013	7.2	0.000 000	0.004
	100 %	-20	1725 000 013	6.9	0.000 000	0.004
	100 %	-10	1725 000 012	6.4	0.000 000	0.004
	100 %	0	1725 000 011	5.5	0.000 000	0.003
	100 %	+10	1725 000 012	6.6	0.000 000	0.004
	100 %	+30	1725 000 012	6.6	0.000 000	0.004
	100 %	+40	1725 000 012	6.1	0.000 000	0.004
	100 %	+50	1725 000 013	7.6	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 000 009	4.7	0.000 000	0.003
	100 %	-20	1765 000 009	4.0	0.000 000	0.002
	100 %	-10	1765 000 007	2.4	0.000 000	0.001
	100 %	0	1765 000 010	5.6	0.000 000	0.003
	100 %	+10	1765 000 007	2.6	0.000 000	0.001
	100 %	+30	1765 000 010	5.5	0.000 000	0.003
	100 %	+40	1765 000 008	3.8	0.000 000	0.002
	100 %	+50	1765 000 010	5.5	0.000 000	0.003
	Batt. Endpoint	+20	1765 000 009	4.4	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 000 005	0.0	0.000 000	0.000
	100 %	-30	1727 000 009	4.9	0.000 000	0.003
	100 %	-20	1727 000 009	4.8	0.000 000	0.003
	100 %	-10	1727 000 007	2.7	0.000 000	0.002
	100 %	0	1727 000 007	2.7	0.000 000	0.002
	100 %	+10	1727 000 007	2.8	0.000 000	0.002
	100 %	+30	1727 000 008	3.6	0.000 000	0.002
	100 %	+40	1727 000 009	4.1	0.000 000	0.002
	100 %	+50	1727 000 010	5.1	0.000 000	0.003
	Batt. Endpoint	+20	1727 000 010	5.9	0.000 000	0.003
1762.5	100 %	+20(Ref)	1762 500 010	0.0	0.000 000	0.000
	100 %	-30	1762 500 022	12.3	0.000 001	0.007
	100 %	-20	1762 500 020	10.1	0.000 001	0.006
	100 %	-10	1762 500 021	11.1	0.000 001	0.006
	100 %	0	1762 500 020	10.4	0.000 001	0.006
	100 %	+10	1762 500 019	9.6	0.000 001	0.005
	100 %	+30	1762 500 018	8.7	0.000 000	0.005
	100 %	+40	1762 500 021	11.6	0.000 001	0.007
	100 %	+50	1762 500 021	11.6	0.000 001	0.007
	Batt. Endpoint	+20	1762 500 021	11.2	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)	1729 999 962	0.0	0.000 000	0.000
	100 %	-30	1729 999 968	6.4	0.000 000	0.004
	100 %	-20	1729 999 968	6.3	0.000 000	0.004
	100 %	-10	1729 999 969	7.3	0.000 000	0.004
	100 %	0	1729 999 967	5.6	0.000 000	0.003
	100 %	+10	1729 999 969	7.1	0.000 000	0.004
	100 %	+30	1729 999 968	6.2	0.000 000	0.004
	100 %	+40	1729 999 968	6.1	0.000 000	0.004
	100 %	+50	1729 999 970	8.7	0.000 001	0.005
	Batt. Endpoint	+20	1729 999 969	7.1	0.000 000	0.004
1760.0	100 %	+20(Ref)	1760 000 009	0.0	0.000 000	0.000
	100 %	-30	1760 000 015	6.0	0.000 000	0.003
	100 %	-20	1760 000 018	8.7	0.000 000	0.005
	100 %	-10	1760 000 016	7.3	0.000 000	0.004
	100 %	0	1760 000 015	5.6	0.000 000	0.003
	100 %	+10	1760 000 014	5.0	0.000 000	0.003
	100 %	+30	1760 000 016	7.4	0.000 000	0.004
	100 %	+40	1760 000 015	5.8	0.000 000	0.003
	100 %	+50	1760 000 016	6.6	0.000 000	0.004
	Batt. Endpoint	+20	1760 000 015	5.7	0.000 000	0.003

8.8 UPLINK CARRIER AGGREGATION

Test Note

1. All tests were evaluated for the two bands using various combinations of RB size, RB offset, modulation, and channel bandwidth.
2. All modes of operation were investigated and the worst case configuration results are reported in this section. Please refer to the table below.
3. The worst case is reported with the modulations, RB sizes and offsets.
- N66A(Main 1)-N71A(Main 1)
(PCC - Modulation: BPSK, RB: 1, RB Offset: 1, SCC - Modulation: BPSK, RB: 1, RB Offset: 39)

Radiated Spurious Emissions

PCC	SCC	PCC		SCC	
		BW(MHz)	Channel	BW(MHz)	Channel
N66A(Main1)	N71A(Main1)	40	349000	15	138100

8.8.1 RADIATED SPURIOUS EMISSIONS

N66A (Main 1) (PCC)- N71A (Main 1) (SCC)

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)	Limit (dBm)
3,490.00	-60.13	12.04	-60.87	3.04	V	-51.87	-13.00
5,235.00	-62.85	11.76	-57.52	3.78	V	-49.54	-13.00
6,980.00	-64.45	11.16	-51.67	4.48	V	-44.99	-13.00

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)	Limit (dBm)
1,381.00	-58.12	7.44	-64.68	1.87	V	-59.11	-13.00
2,071.50	-58.69	9.30	-64.53	2.29	V	-57.52	-13.00
2,762.00	-60.01	11.06	-63.63	2.71	V	-55.28	-13.00

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	-16.53	16.55	10.12	2.06	V	< 1.00	0.289	24.61	1	12
		QPSK	-16.58	16.50	10.12	2.06	V		0.286	24.56		
		16-QAM	-17.79	15.29	10.12	2.06	V		0.216	23.35		
		64-QAM	-19.06	14.02	10.12	2.06	V		0.161	22.08		
		256-QAM	-21.64	11.44	10.12	2.06	V		0.089	19.50		
1745.0		PI/2 BPSK	-18.08	15.29	10.43	2.07	V		0.232	23.65	1	1
		QPSK	-18.28	15.09	10.43	2.07	V		0.221	23.45		
		16-QAM	-19.29	14.08	10.43	2.07	V		0.175	22.44		
		64-QAM	-20.60	12.77	10.43	2.07	V		0.130	21.13		
		256-QAM	-23.07	10.30	10.43	2.07	V		0.074	18.66		
1777.5		PI/2 BPSK	-18.95	14.41	10.50	2.09	V		0.191	22.82	1	12
		QPSK	-19.02	14.34	10.50	2.09	V		0.188	22.75		
		16-QAM	-20.08	13.28	10.50	2.09	V		0.148	21.69		
		64-QAM	-21.51	11.85	10.50	2.09	V		0.106	20.26		
		256-QAM	-24.11	9.25	10.50	2.09	V		0.058	17.66		

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	-16.49	16.59	10.12	2.06	V	< 1.00	0.292	24.65	1	1
		QPSK	-16.54	16.54	10.12	2.06	V		0.288	24.60		
		16-QAM	-17.65	15.43	10.12	2.06	V		0.223	23.49		
		64-QAM	-19.01	14.07	10.12	2.06	V		0.163	22.13		
		256-QAM	-21.55	11.53	10.12	2.06	V		0.091	19.59		
1745.0		PI/2 BPSK	-17.69	15.68	10.43	2.07	V		0.254	24.04	1	1
		QPSK	-18.13	15.24	10.43	2.07	V		0.229	23.60		
		16-QAM	-19.06	14.31	10.43	2.07	V		0.185	22.67		
		64-QAM	-20.31	13.06	10.43	2.07	V		0.139	21.42		
		256-QAM	-22.59	10.78	10.43	2.07	V		0.082	19.14		
1775.0		PI/2 BPSK	-18.64	14.76	10.49	2.09	V	0.207	23.16	1	1	
		QPSK	-19.56	13.84	10.49	2.09	V	0.168	22.24			
		16-QAM	-20.23	13.17	10.49	2.09	V	0.144	21.57			
		64-QAM	-21.67	11.73	10.49	2.09	V	0.103	20.13			
		256-QAM	-23.79	9.61	10.49	2.09	V	0.063	18.01			

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	-16.54	16.62	10.18	2.06	V	< 1.00	0.298	24.74	1	1
		QPSK	-16.71	16.45	10.18	2.06	V		0.286	24.57		
		16-QAM	-17.71	15.45	10.18	2.06	V		0.228	23.57		
		64-QAM	-19.00	14.16	10.18	2.06	V		0.169	22.28		
		256-QAM	-21.59	11.57	10.18	2.06	V		0.093	19.69		
1745.0		PI/2 BPSK	-17.57	15.80	10.43	2.07	V		0.261	24.16	1	1
		QPSK	-18.42	14.95	10.43	2.07	V		0.214	23.31		
		16-QAM	-19.14	14.23	10.43	2.07	V		0.182	22.59		
		64-QAM	-20.52	12.85	10.43	2.07	V		0.132	21.21		
		256-QAM	-22.74	10.63	10.43	2.07	V		0.079	18.99		
1772.5		PI/2 BPSK	-18.41	14.99	10.49	2.09	V		0.218	23.39	1	1
		QPSK	-19.17	14.23	10.49	2.09	V		0.183	22.63		
		16-QAM	-20.11	13.29	10.49	2.09	V		0.148	21.69		
		64-QAM	-21.45	11.95	10.49	2.09	V		0.108	20.35		
		256-QAM	-23.72	9.68	10.49	2.09	V		0.064	18.08		

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	-16.48	16.68	10.18	2.06	V	< 1.00	0.302	24.80	1	1
		QPSK	-16.70	16.46	10.18	2.06	V		0.287	24.58		
		16-QAM	-17.64	15.52	10.18	2.06	V		0.231	23.64		
		64-QAM	-18.97	14.19	10.18	2.06	V		0.170	22.31		
		256-QAM	-21.58	11.58	10.18	2.06	V		0.093	19.70		
1745.0		PI/2 BPSK	-17.63	15.74	10.43	2.07	V		0.257	24.10	1	1
		QPSK	-18.39	14.98	10.43	2.07	V		0.216	23.34		
		16-QAM	-19.20	14.17	10.43	2.07	V		0.179	22.53		
		64-QAM	-20.53	12.84	10.43	2.07	V		0.132	21.20		
		256-QAM	-22.71	10.66	10.43	2.07	V		0.080	19.02		
1770.0		PI/2 BPSK	-18.64	14.78	10.49	2.09	V	0.208	23.18	1	1	
		QPSK	-18.66	14.76	10.49	2.09	V	0.207	23.16			
		16-QAM	-19.85	13.57	10.49	2.09	V	0.157	21.97			
		64-QAM	-21.12	12.30	10.49	2.09	V	0.118	20.70			
		256-QAM	-23.74	9.68	10.49	2.09	V	0.064	18.08			

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	-16.35	16.93	10.23	2.07	V	< 1.00	0.323	25.09	1	1
		QPSK	-16.47	16.81	10.23	2.07	V		0.314	24.97		
		16-QAM	-17.57	15.71	10.23	2.07	V		0.244	23.87		
		64-QAM	-18.83	14.45	10.23	2.07	V		0.182	22.61		
		256-QAM	-21.38	11.90	10.23	2.07	V		0.101	20.06		
1745.0		PI/2 BPSK	-17.56	15.81	10.43	2.07	V		0.261	24.17	1	1
		QPSK	-18.39	14.98	10.43	2.07	V		0.216	23.34		
		16-QAM	-19.14	14.23	10.43	2.07	V		0.182	22.59		
		64-QAM	-20.49	12.88	10.43	2.07	V		0.133	21.24		
		256-QAM	-22.63	10.74	10.43	2.07	V		0.081	19.10		
1767.5		PI/2 BPSK	-18.10	15.32	10.49	2.09	V		0.236	23.72	1	1
		QPSK	-18.15	15.27	10.49	2.09	V		0.233	23.67		
		16-QAM	-19.22	14.20	10.49	2.09	V		0.182	22.60		
		64-QAM	-20.52	12.90	10.49	2.09	V		0.135	21.30		
		256-QAM	-23.18	10.24	10.49	2.09	V		0.073	18.64		

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	-16.45	16.83	10.23	2.07	V	< 1.00	0.316	24.99	1	1
		QPSK	-16.46	16.82	10.23	2.07	V		0.315	24.98		
		16-QAM	-17.62	15.66	10.23	2.07	V		0.241	23.82		
		64-QAM	-18.87	14.41	10.23	2.07	V		0.181	22.57		
		256-QAM	-21.37	11.91	10.23	2.07	V		0.102	20.07		
1745.0		PI/2 BPSK	-17.42	15.95	10.43	2.07	V		0.270	24.31	1	1
		QPSK	-18.34	15.03	10.43	2.07	V		0.218	23.39		
		16-QAM	-19.24	14.13	10.43	2.07	V		0.177	22.49		
		64-QAM	-20.57	12.80	10.43	2.07	V		0.131	21.16		
		256-QAM	-22.47	10.90	10.43	2.07	V		0.084	19.26		
1765.0		PI/2 BPSK	-17.84	15.49	10.48	2.09	V	0.244	23.88	1	1	
		QPSK	-17.90	15.43	10.48	2.09	V	0.241	23.82			
		16-QAM	-19.05	14.28	10.48	2.09	V	0.185	22.67			
		64-QAM	-20.48	12.85	10.48	2.09	V	0.133	21.24			
		256-QAM	-23.09	10.24	10.48	2.09	V	0.073	18.63			

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	-16.52	16.88	10.29	2.08	V	< 1.00	0.323	25.09	1	1
		QPSK	-16.59	16.81	10.29	2.08	V		0.318	25.02		
		16-QAM	-17.66	15.74	10.29	2.08	V		0.248	23.95		
		64-QAM	-18.79	14.61	10.29	2.08	V		0.191	22.82		
		256-QAM	-21.60	11.80	10.29	2.08	V		0.100	20.01		
1745.0		PI/2 BPSK	-17.30	16.07	10.43	2.07	V		0.277	24.43	1	1
		QPSK	-18.32	15.05	10.43	2.07	V		0.219	23.41		
		16-QAM	-19.09	14.28	10.43	2.07	V		0.184	22.64		
		64-QAM	-20.48	12.89	10.43	2.07	V		0.133	21.25		
		256-QAM	-22.49	10.88	10.43	2.07	V		0.084	19.24		
1762.5		PI/2 BPSK	-17.93	15.40	10.48	2.09	V	0.239	23.79	1	1	
		QPSK	-18.05	15.28	10.48	2.09	V	0.233	23.67			
		16-QAM	-19.08	14.25	10.48	2.09	V	0.184	22.64			
		64-QAM	-20.41	12.92	10.48	2.09	V	0.135	21.31			
		256-QAM	-22.96	10.37	10.48	2.09	V	0.075	18.76			

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	-16.39	17.01	10.29	2.08	V	< 1.00	0.333	25.22	1	1
		QPSK	-16.54	16.86	10.29	2.08	V		0.321	25.07		
		16-QAM	-17.56	15.84	10.29	2.08	V		0.254	24.05		
		64-QAM	-18.86	14.54	10.29	2.08	V		0.188	22.75		
		256-QAM	-21.53	11.87	10.29	2.08	V		0.102	20.08		
1745.0		PI/2 BPSK	-16.70	16.67	10.43	2.07	V		0.318	25.03	1	1
		QPSK	-17.80	15.57	10.43	2.07	V		0.247	23.93		
		16-QAM	-18.57	14.80	10.43	2.07	V		0.207	23.16		
		64-QAM	-19.90	13.47	10.43	2.07	V		0.152	21.83		
		256-QAM	-22.04	11.33	10.43	2.07	V		0.093	19.69		
1760.0		PI/2 BPSK	-17.46	15.76	10.48	2.09	V	0.260	24.15	1	1	
		QPSK	-17.95	15.27	10.48	2.09	V	0.232	23.66			
		16-QAM	-18.93	14.29	10.48	2.09	V	0.185	22.68			
		64-QAM	-20.22	13.00	10.48	2.09	V	0.138	21.39			
		256-QAM	-22.69	10.53	10.48	2.09	V	0.078	18.92			

9.2 RADIATED SPURIOUS EMISSIONS

■ NR Band:	<u>N66</u>
■ Bandwidth:	<u>40 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
346000 (1730.0)	3 460.00	-61.48	12.00	-62.70	3.04	V	-53.74	-13.00	1	1
	5 190.00	-61.97	11.63	-55.93	3.80	V	-48.10	-13.00		
	6 920.00	-62.88	11.16	-50.68	4.39	V	-43.91	-13.00		
349000 (1745.0)	3 490.00	-61.13	12.04	-61.87	3.04	V	-52.87	-13.00	1	1
	5 235.00	-62.47	11.76	-57.14	3.78	V	-49.16	-13.00		
	6 980.00	-63.02	11.16	-50.24	4.48	V	-43.56	-13.00		
352000 (1760.0)	3 520.00	-60.70	12.04	-62.42	3.04	V	-53.42	-13.00	1	1
	5 280.00	-61.99	11.88	-56.69	3.80	V	-48.61	-13.00		
	7 040.00	-62.34	11.01	-48.74	4.45	V	-42.18	-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	3.71
			QPSK			4.63
			16-QAM			5.51
			64-QAM			5.74
			256-QAM			6.28
	10 MHz		BPSK	50		3.45
			QPSK			4.48
			16-QAM			5.21
			64-QAM			5.61
			256-QAM			6.03
	15 MHz		BPSK	75		3.71
			QPSK			4.55
			16-QAM			5.26
			64-QAM			5.58
			256-QAM			6.28
	20 MHz		BPSK	100		3.54
			QPSK			4.49
			16-QAM			5.23
			64-QAM			5.58
			256-QAM			6.17
	25 MHz		BPSK	128		3.72
			QPSK			4.76
			16-QAM			5.38
			64-QAM			5.72
			256-QAM			6.32
	30 MHz		BPSK	160		3.88
			QPSK			4.74
			16-QAM			5.40
			64-QAM			5.67
			256-QAM			6.28
	35 MHz		BPSK	187		3.78
			QPSK			4.67
			16-QAM			5.42
			64-QAM			5.69
			256-QAM			6.28
	40 MHz		BPSK	216		3.74
			QPSK			4.63
			16-QAM			5.49
			64-QAM			5.78
			256-QAM			6.33

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 245 ~ 284.

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	4.4960
			QPSK			4.5012
			16-QAM			4.4978
			64-QAM			4.5237
			256-QAM			4.5043
	10 MHz		BPSK	50		8.9763
			QPSK			8.9620
			16-QAM			8.9712
			64-QAM			8.9792
			256-QAM			8.9658
	15 MHz		BPSK	75		13.439
			QPSK			13.478
			16-QAM			13.404
			64-QAM			13.497
			256-QAM			13.468
	20 MHz		BPSK	100		17.896
			QPSK			17.897
			16-QAM			17.885
			64-QAM			17.910
			256-QAM			17.866
	25 MHz		BPSK	128		22.950
			QPSK			22.938
			16-QAM			22.960
			64-QAM			22.900
			256-QAM			22.846
	30 MHz		BPSK	160		28.574
			QPSK			28.591
			16-QAM			28.600
			64-QAM			28.630
			256-QAM			28.561
	35 MHz		BPSK	187		32.324
			QPSK			32.354
			16-QAM			32.180
			64-QAM			32.193
			256-QAM			32.120
	40 MHz		BPSK	216		38.597
			QPSK			38.592
			16-QAM			38.606
			64-QAM			38.575
			256-QAM			38.599

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 285 ~ 324.

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	9.4118	30.815	-70.757	-39.942	-13.00
		1745.0	8.8544	30.815	-71.015	-40.200	
		1777.5	8.8988	30.815	-70.615	-39.800	
	10	1715.0	3.7722	30.200	-70.096	-39.896	
		1745.0	9.9307	30.815	-70.716	-39.901	
		1775.0	4.9781	30.200	-69.776	-39.576	
	15	1717.5	9.1894	30.815	-70.080	-39.265	
		1745.0	3.7812	30.200	-70.699	-40.499	
		1772.5	8.8719	30.815	-70.547	-39.732	
	20	1720.0	8.8918	30.815	-70.374	-39.559	
		1745.0	9.1241	30.815	-70.065	-39.250	
		1770.0	3.7782	30.200	-70.675	-40.475	
	25	1722.5	4.0614	30.200	-69.581	-39.381	
		1745.0	4.0295	30.200	-70.809	-40.609	
		1767.5	8.2553	30.815	-70.000	-39.185	
	30	1725.0	6.0564	30.815	-70.432	-39.617	
		1745.0	9.1112	30.815	-69.553	-38.738	
		1765.0	4.0499	30.200	-70.421	-40.221	
	35	1727.5	9.9691	30.815	-70.669	-39.854	
		1745.0	8.8819	30.815	-69.973	-39.158	
		1762.5	9.4362	30.815	-70.369	-39.554	
	40	1730.0	5.5120	30.815	-70.624	-39.809	
		1745.0	9.7139	30.815	-70.726	-39.911	
		1760.0	4.9577	30.200	-70.603	-40.403	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 325 ~ 372.
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 373 ~ 420.

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 500 000	0.0	0.000 000	0.000
	100 %	-30	1712 499 998	-2.1	0.000 000	-0.001
	100 %	-20	1712 499 999	-0.8	0.000 000	0.000
	100 %	-10	1712 499 998	-2.2	0.000 000	-0.001
	100 %	0	1712 499 998	-2.2	0.000 000	-0.001
	100 %	+10	1712 500 000	-0.5	0.000 000	0.000
	100 %	+30	1712 500 000	0.2	0.000 000	0.000
	100 %	+40	1712 499 999	-1.4	0.000 000	-0.001
	100 %	+50	1712 500 001	0.6	0.000 000	0.000
	Batt. Endpoint	+20	1712 500 001	1.0	0.000 000	0.001
1777.5	100 %	+20(Ref)	1777 500 001	0.0	0.000 000	0.000
	100 %	-30	1777 500 001	0.4	0.000 000	0.000
	100 %	-20	1777 500 001	0.5	0.000 000	0.000
	100 %	-10	1777 500 001	0.2	0.000 000	0.000
	100 %	0	1777 500 003	1.7	0.000 000	0.001
	100 %	+10	1777 500 002	0.8	0.000 000	0.000
	100 %	+30	1777 500 002	1.5	0.000 000	0.001
	100 %	+40	1777 500 002	1.3	0.000 000	0.001
	100 %	+50	1777 500 002	1.0	0.000 000	0.001
	Batt. Endpoint	+20	1777 500 001	-0.4	0.000 000	0.000

- ▣ 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 000 002	1.2	0.000 000	0.001
	100 %	-20	1714 999 999	-1.7	0.000 000	-0.001
	100 %	-10	1715 000 000	0.0	0.000 000	0.000
	100 %	0	1715 000 001	0.1	0.000 000	0.000
	100 %	+10	1715 000 000	-0.2	0.000 000	0.000
	100 %	+30	1715 000 000	-0.4	0.000 000	0.000
	100 %	+40	1715 000 000	-0.4	0.000 000	0.000
	100 %	+50	1715 000 000	-0.2	0.000 000	0.000
	Batt. Endpoint	+20	1714 999 998	-2.2	0.000 000	-0.001
1775.0	100 %	+20(Ref)	1774 999 999	0.0	0.000 000	0.000
	100 %	-30	1774 999 998	-1.2	0.000 000	-0.001
	100 %	-20	1774 999 998	-0.7	0.000 000	0.000
	100 %	-10	1774 999 997	-1.9	0.000 000	-0.001
	100 %	0	1774 999 998	-1.1	0.000 000	-0.001
	100 %	+10	1774 999 998	-0.3	0.000 000	0.000
	100 %	+30	1774 999 997	-1.4	0.000 000	-0.001
	100 %	+40	1774 999 998	-0.8	0.000 000	0.000
	100 %	+50	1774 999 996	-2.4	0.000 000	-0.001
	Batt. Endpoint	+20	1774 999 999	0.1	0.000 000	0.000

- ▣ 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 500 005	2.1	0.000 000	0.001
	100 %	-20	1717 500 006	3.2	0.000 000	0.002
	100 %	-10	1717 500 006	3.4	0.000 000	0.002
	100 %	0	1717 500 004	1.2	0.000 000	0.001
	100 %	+10	1717 500 004	1.5	0.000 000	0.001
	100 %	+30	1717 500 006	3.4	0.000 000	0.002
	100 %	+40	1717 500 006	4.0	0.000 000	0.002
	100 %	+50	1717 500 004	2.0	0.000 000	0.001
	Batt. Endpoint	+20	1717 500 004	1.2	0.000 000	0.001
1772.5	100 %	+20(Ref)	1772 500 000	0.0	0.000 000	0.000
	100 %	-30	1772 499 999	-1.1	0.000 000	-0.001
	100 %	-20	1772 499 997	-2.9	0.000 000	-0.002
	100 %	-10	1772 500 000	-0.1	0.000 000	0.000
	100 %	0	1772 499 996	-3.4	0.000 000	-0.002
	100 %	+10	1772 500 001	0.9	0.000 000	0.000
	100 %	+30	1772 499 998	-2.0	0.000 000	-0.001
	100 %	+40	1772 499 998	-1.5	0.000 000	-0.001
	100 %	+50	1772 499 997	-3.2	0.000 000	-0.002
	Batt. Endpoint	+20	1772 499 999	-1.1	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)	1720 000 002	0.0	0.000 000	0.000
	100 %	-30	1720 000 002	0.0	0.000 000	0.000
	100 %	-20	1720 000 002	0.3	0.000 000	0.000
	100 %	-10	1720 000 003	0.7	0.000 000	0.000
	100 %	0	1720 000 004	2.5	0.000 000	0.001
	100 %	+10	1720 000 004	2.1	0.000 000	0.001
	100 %	+30	1720 000 003	1.0	0.000 000	0.001
	100 %	+40	1720 000 003	1.2	0.000 000	0.001
	100 %	+50	1720 000 004	2.1	0.000 000	0.001
	Batt. Endpoint	+20	1720 000 001	-0.5	0.000 000	0.000
1770.0	100 %	+20(Ref)	1770 000 004	0.0	0.000 000	0.000
	100 %	-30	1770 000 003	-0.9	0.000 000	-0.001
	100 %	-20	1770 000 005	0.8	0.000 000	0.000
	100 %	-10	1770 000 008	3.9	0.000 000	0.002
	100 %	0	1770 000 006	2.2	0.000 000	0.001
	100 %	+10	1770 000 008	3.8	0.000 000	0.002
	100 %	+30	1770 000 004	0.3	0.000 000	0.000
	100 %	+40	1770 000 007	2.6	0.000 000	0.001
	100 %	+50	1770 000 005	1.1	0.000 000	0.001
	Batt. Endpoint	+20	1770 000 006	2.2	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 499 999	0.0	0.000 000	0.000
	100 %	-30	1722 499 999	0.5	0.000 000	0.000
	100 %	-20	1722 499 996	-2.6	0.000 000	-0.002
	100 %	-10	1722 499 998	-0.5	0.000 000	0.000
	100 %	0	1722 499 998	-1.2	0.000 000	-0.001
	100 %	+10	1722 499 997	-1.9	0.000 000	-0.001
	100 %	+30	1722 499 998	-0.4	0.000 000	0.000
	100 %	+40	1722 500 000	1.2	0.000 000	0.001
	100 %	+50	1722 499 999	0.1	0.000 000	0.000
	Batt. Endpoint	+20	1722 499 998	-1.0	0.000 000	-0.001
1767.5	100 %	+20(Ref)	1767 500 001	0.0	0.000 000	0.000
	100 %	-30	1767 500 000	-1.0	0.000 000	-0.001
	100 %	-20	1767 500 000	-1.4	0.000 000	-0.001
	100 %	-10	1767 500 003	1.3	0.000 000	0.001
	100 %	0	1767 500 001	0.0	0.000 000	0.000
	100 %	+10	1767 500 002	0.7	0.000 000	0.000
	100 %	+30	1767 500 002	1.1	0.000 000	0.001
	100 %	+40	1767 500 002	1.2	0.000 000	0.001
	100 %	+50	1767 500 002	0.4	0.000 000	0.000
	Batt. Endpoint	+20	1767 500 001	-0.3	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 000 006	0.0	0.000 000	0.000
	100 %	-30	1725 000 011	5.4	0.000 000	0.003
	100 %	-20	1725 000 014	8.1	0.000 000	0.005
	100 %	-10	1725 000 012	6.6	0.000 000	0.004
	100 %	0	1725 000 012	6.0	0.000 000	0.003
	100 %	+10	1725 000 014	7.9	0.000 000	0.005
	100 %	+30	1725 000 012	6.1	0.000 000	0.004
	100 %	+40	1725 000 014	7.9	0.000 000	0.005
	100 %	+50	1725 000 014	7.7	0.000 000	0.004
	Batt. Endpoint	+20	1725 000 012	5.8	0.000 000	0.003
1765.0	100 %	+20(Ref)	1765 000 004	0.0	0.000 000	0.000
	100 %	-30	1765 000 007	3.7	0.000 000	0.002
	100 %	-20	1765 000 007	3.7	0.000 000	0.002
	100 %	-10	1765 000 007	3.7	0.000 000	0.002
	100 %	0	1765 000 007	3.7	0.000 000	0.002
	100 %	+10	1765 000 007	3.7	0.000 000	0.002
	100 %	+30	1765 000 007	3.7	0.000 000	0.002
	100 %	+40	1765 000 007	3.7	0.000 000	0.002
	100 %	+50	1765 000 007	3.7	0.000 000	0.002
	Batt. Endpoint	+20	1765 000 007	3.7	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 500 003	0.0	0.000 000	0.000
	100 %	-30	1727 500 007	4.3	0.000 000	0.002
	100 %	-20	1727 500 010	6.6	0.000 000	0.004
	100 %	-10	1727 500 008	4.6	0.000 000	0.003
	100 %	0	1727 500 008	4.7	0.000 000	0.003
	100 %	+10	1727 500 009	5.8	0.000 000	0.003
	100 %	+30	1727 500 008	5.0	0.000 000	0.003
	100 %	+40	1727 500 009	5.7	0.000 000	0.003
	100 %	+50	1727 500 008	5.2	0.000 000	0.003
	Batt. Endpoint	+20	1727 500 007	4.2	0.000 000	0.002
1762.5	100 %	+20(Ref)	1762 500 010	0.0	0.000 000	0.000
	100 %	-30	1762 500 022	12.2	0.000 001	0.007
	100 %	-20	1762 500 021	11.1	0.000 001	0.006
	100 %	-10	1762 500 021	11.4	0.000 001	0.006
	100 %	0	1762 500 021	11.3	0.000 001	0.006
	100 %	+10	1762 500 022	12.4	0.000 001	0.007
	100 %	+30	1762 500 019	9.4	0.000 001	0.005
	100 %	+40	1762 500 021	11.2	0.000 001	0.006
	100 %	+50	1762 500 021	11.1	0.000 001	0.006
	Batt. Endpoint	+20	1762 500 024	14.9	0.000 001	0.008

- ▣ 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 000 005	0.0	0.000 000	0.000
	100 %	-30	1730 000 014	8.2	0.000 000	0.005
	100 %	-20	1730 000 012	6.6	0.000 000	0.004
	100 %	-10	1730 000 010	4.8	0.000 000	0.003
	100 %	0	1730 000 010	4.7	0.000 000	0.003
	100 %	+10	1730 000 010	5.0	0.000 000	0.003
	100 %	+30	1730 000 011	5.8	0.000 000	0.003
	100 %	+40	1730 000 010	4.9	0.000 000	0.003
	100 %	+50	1730 000 011	5.8	0.000 000	0.003
	Batt. Endpoint	+20	1730 000 011	5.3	0.000 000	0.003
1760.0	100 %	+20(Ref)	1760 000 007	0.0	0.000 000	0.000
	100 %	-30	1760 000 013	5.5	0.000 000	0.003
	100 %	-20	1760 000 013	5.8	0.000 000	0.003
	100 %	-10	1760 000 013	5.7	0.000 000	0.003
	100 %	0	1760 000 013	5.5	0.000 000	0.003
	100 %	+10	1760 000 015	7.7	0.000 000	0.004
	100 %	+30	1760 000 014	6.5	0.000 000	0.004
	100 %	+40	1760 000 003	-3.8	0.000 000	-0.002
	100 %	+50	1760 000 013	5.6	0.000 000	0.003
	Batt. Endpoint	+20	1760 000 015	8.3	0.000 000	0.005

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



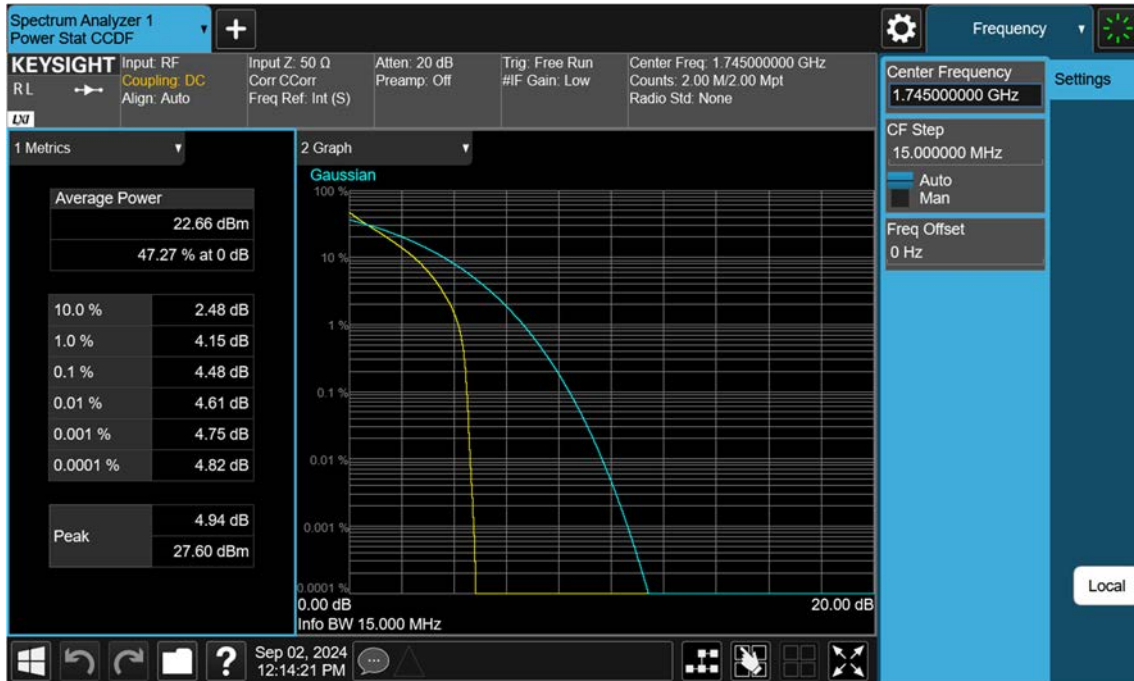
NR66_10 M_PAR_Mid_256QAM_FullRB



NR66_15 M_PAR_Mid_BPSK_FullRB



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



NR66_25 M_PAR_Mid_256QAM_FullRB



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



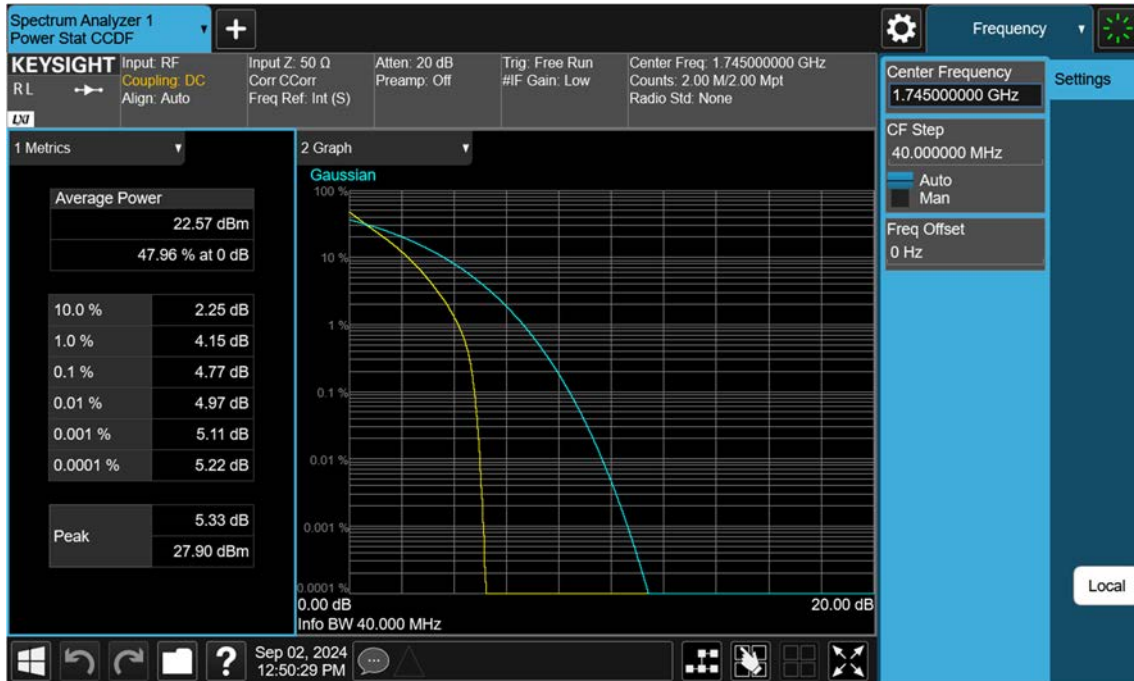
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NR66_40 M_PAR_Mid_BPSK_FullRB



NR66_40 M_PAR_Mid_QPSK_FullRB



NR66_40 M_PAR_Mid_16QAM_FullRB



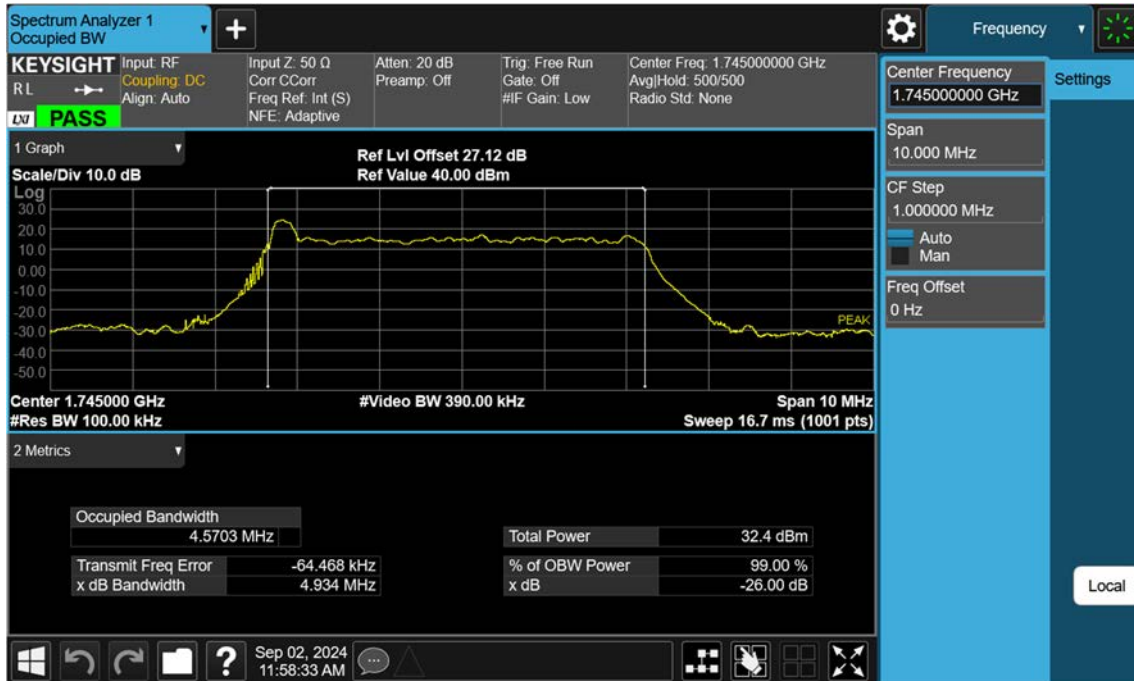
NR66_40 M_PAR_Mid_64QAM_FullRB



NR66_40 M_PAR_Mid_256QAM_FullRB



NR66_5 M_OBW_Mid_BPSK_FullRB



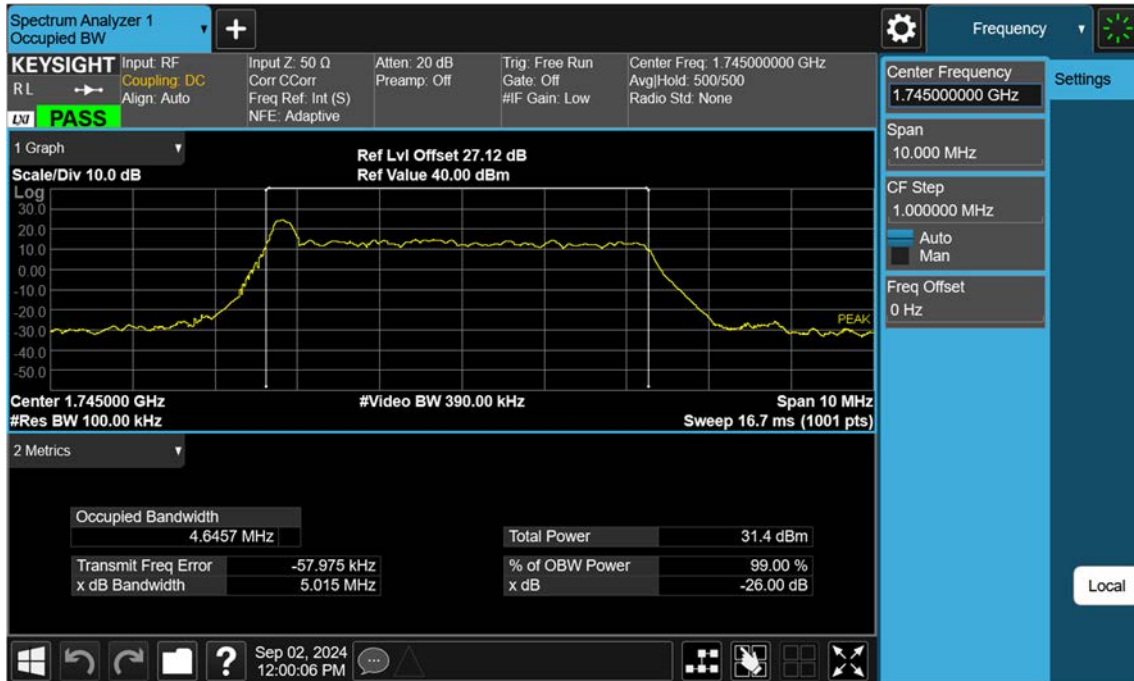
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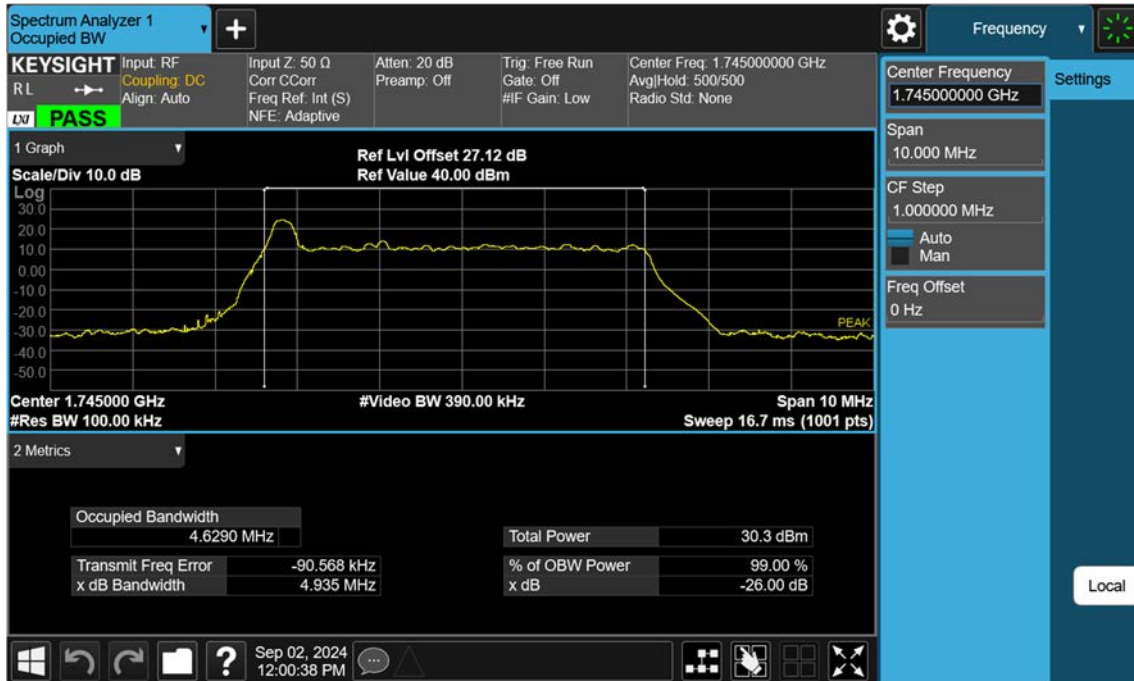
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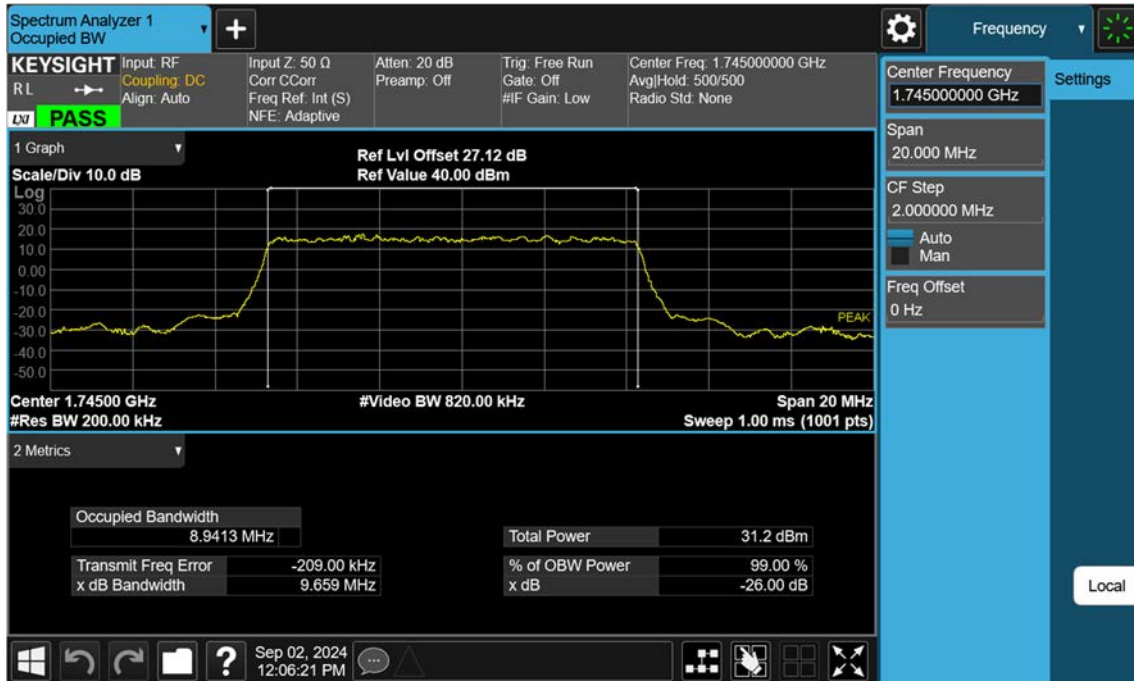
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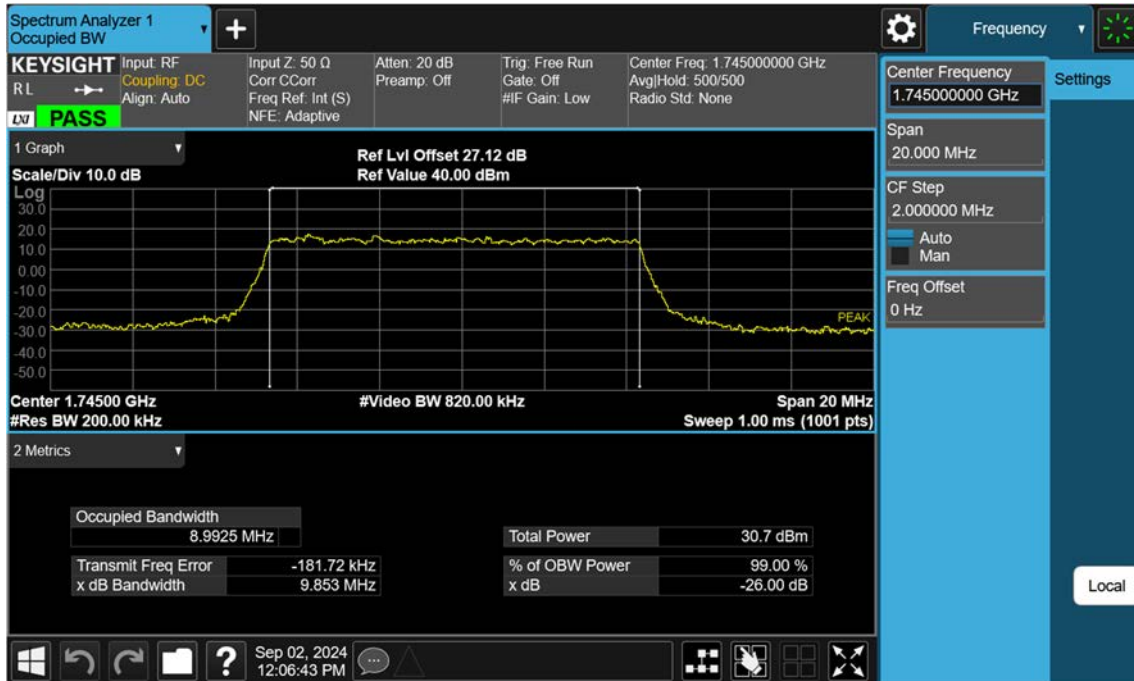
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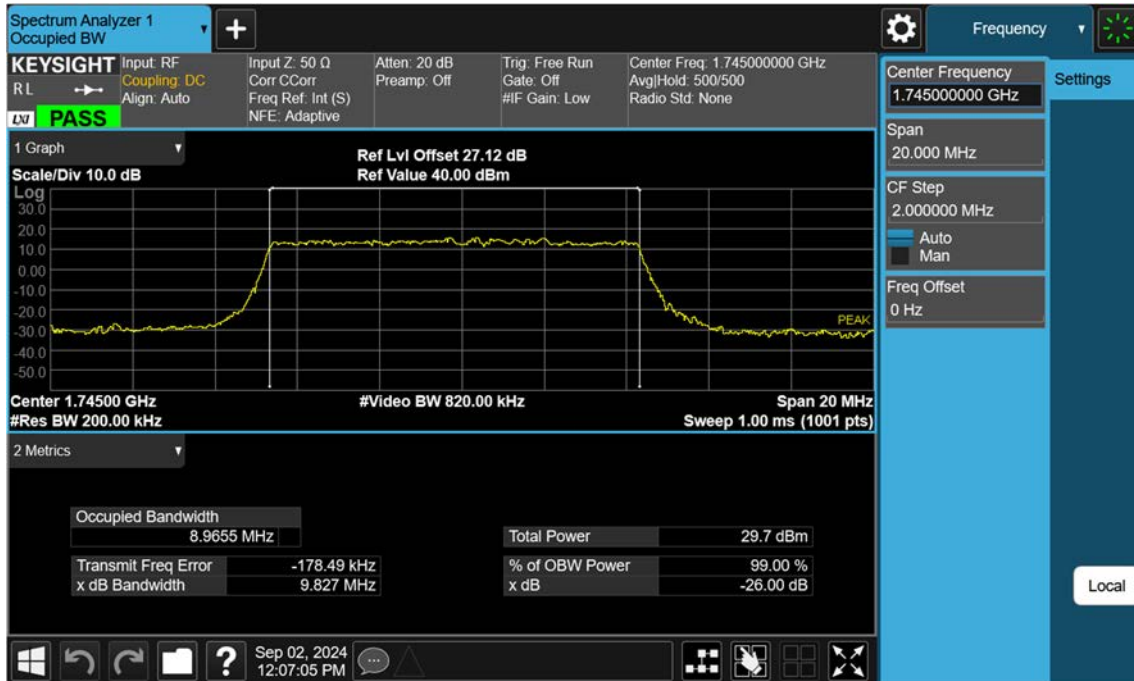
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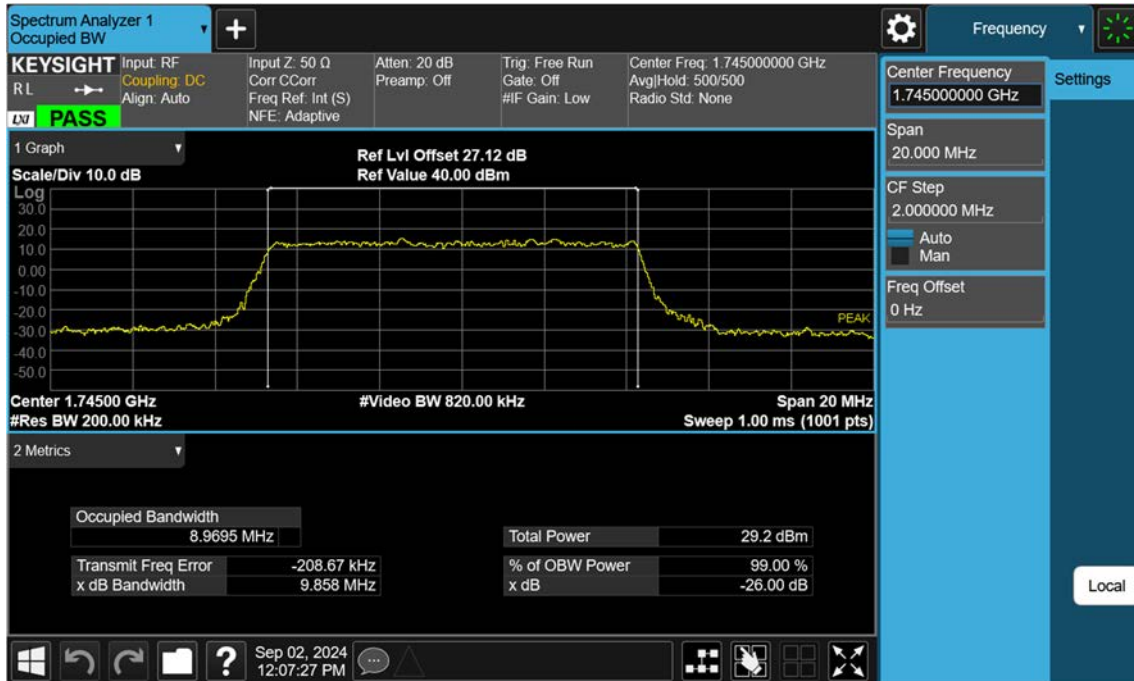
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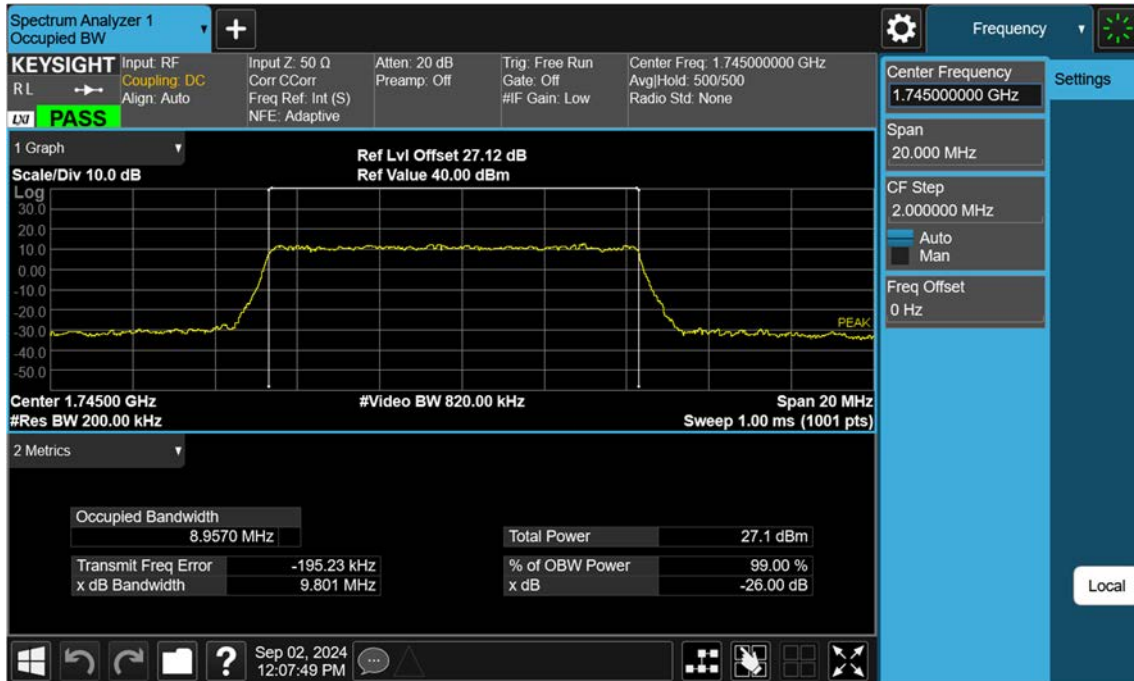
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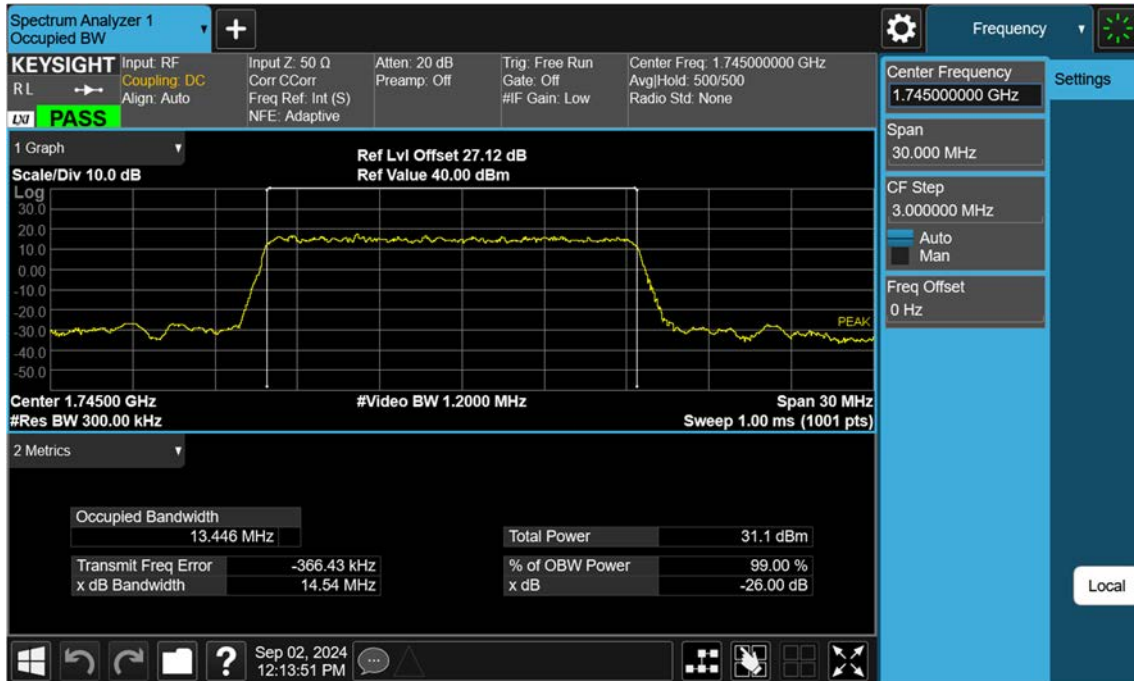
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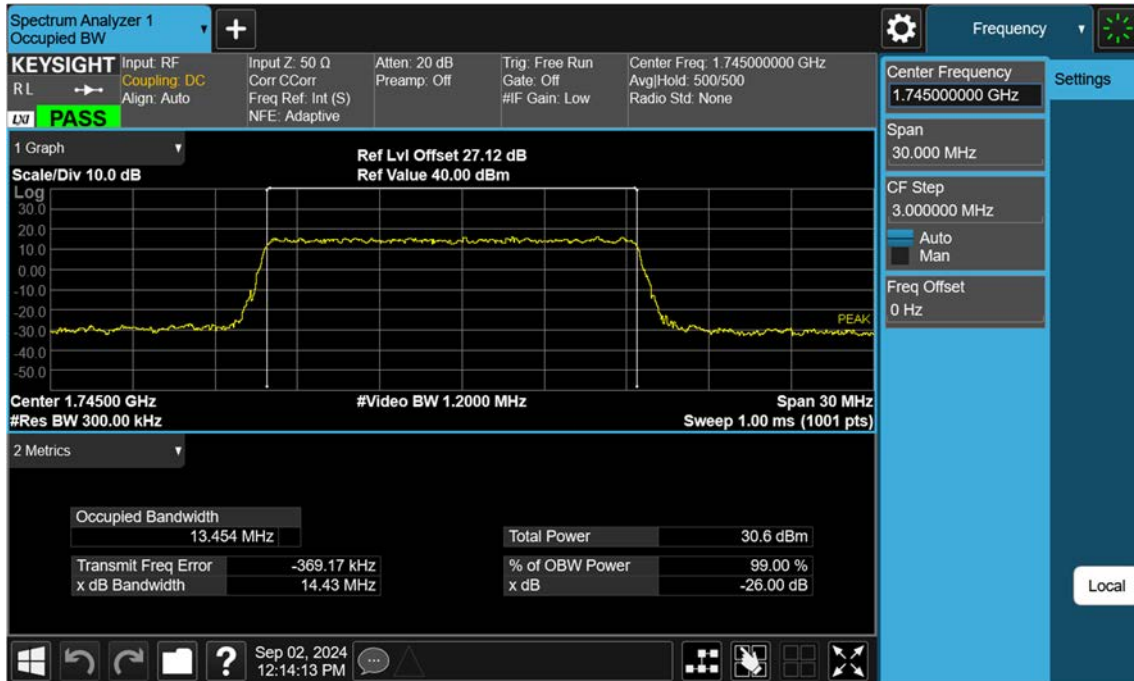
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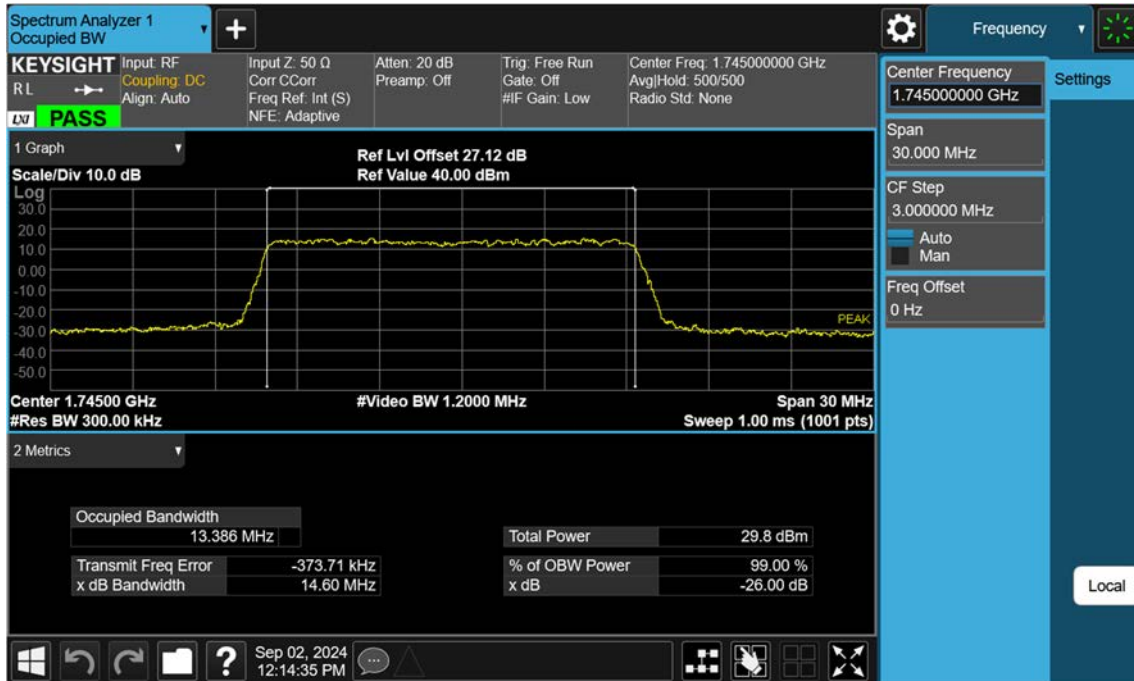
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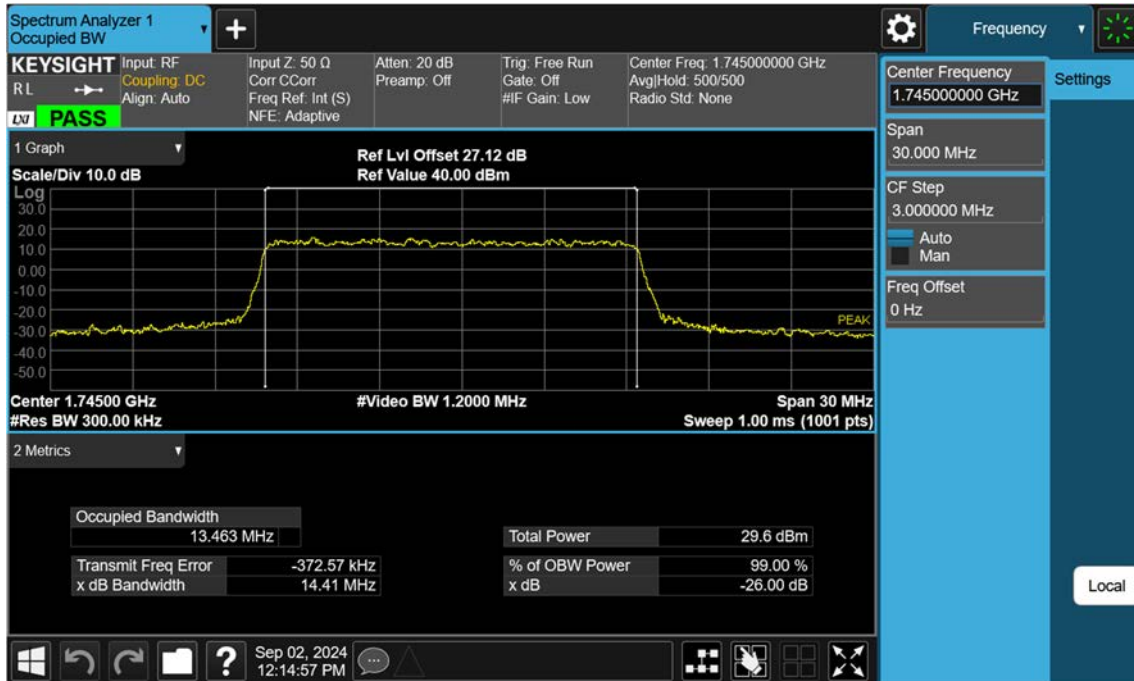
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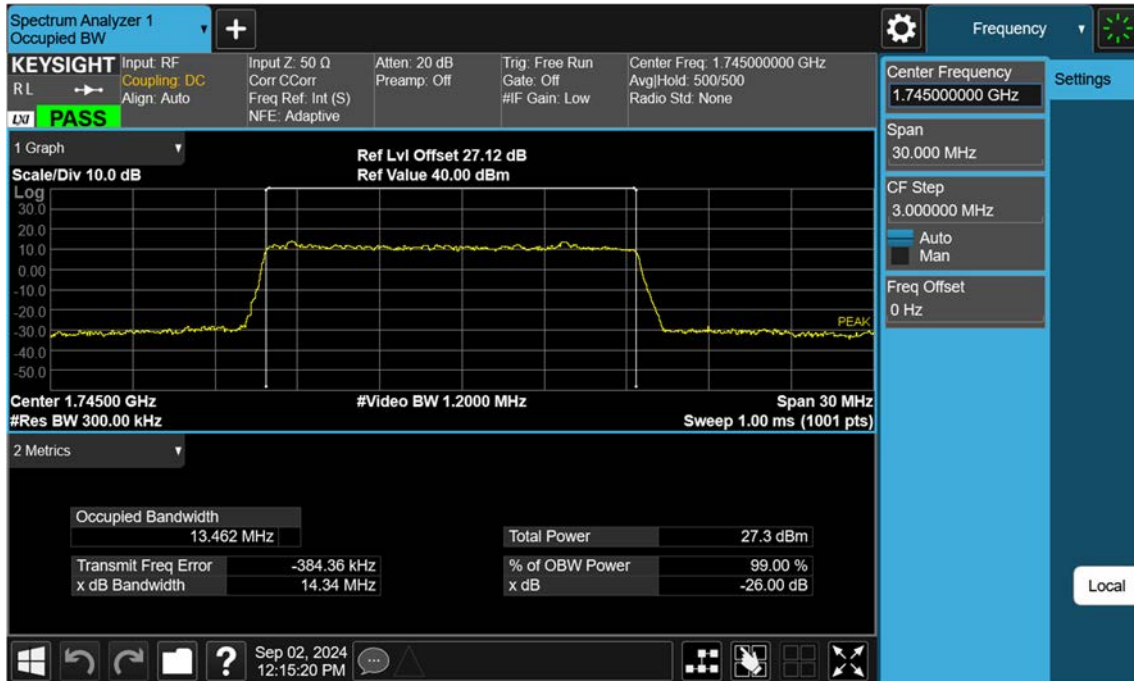
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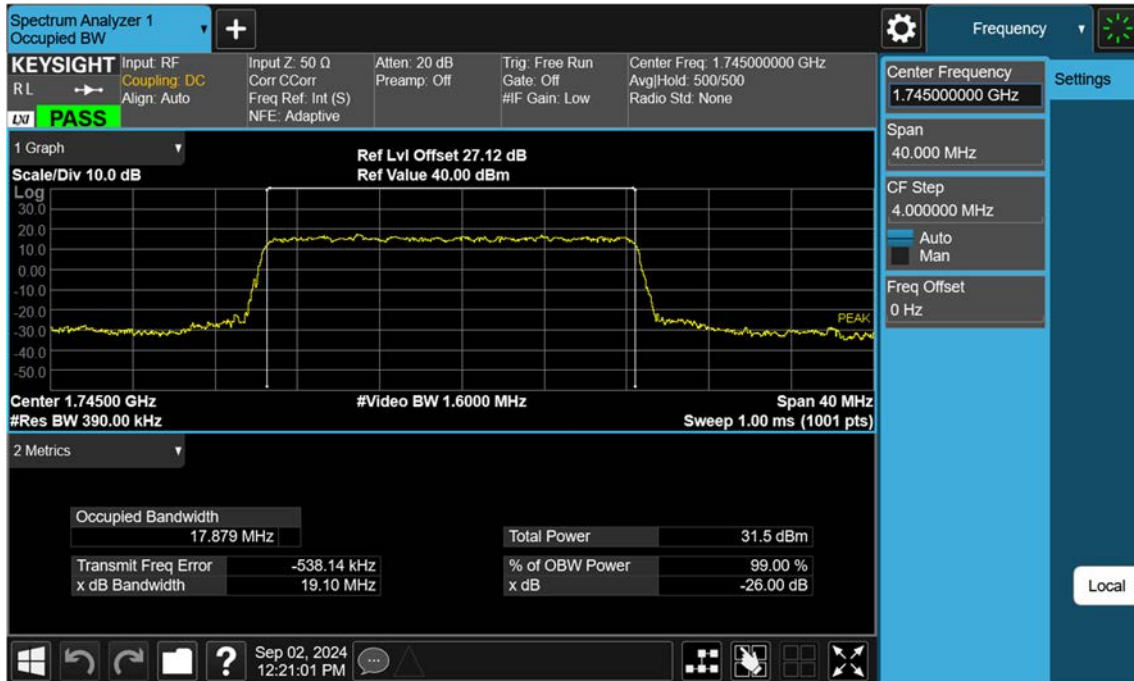
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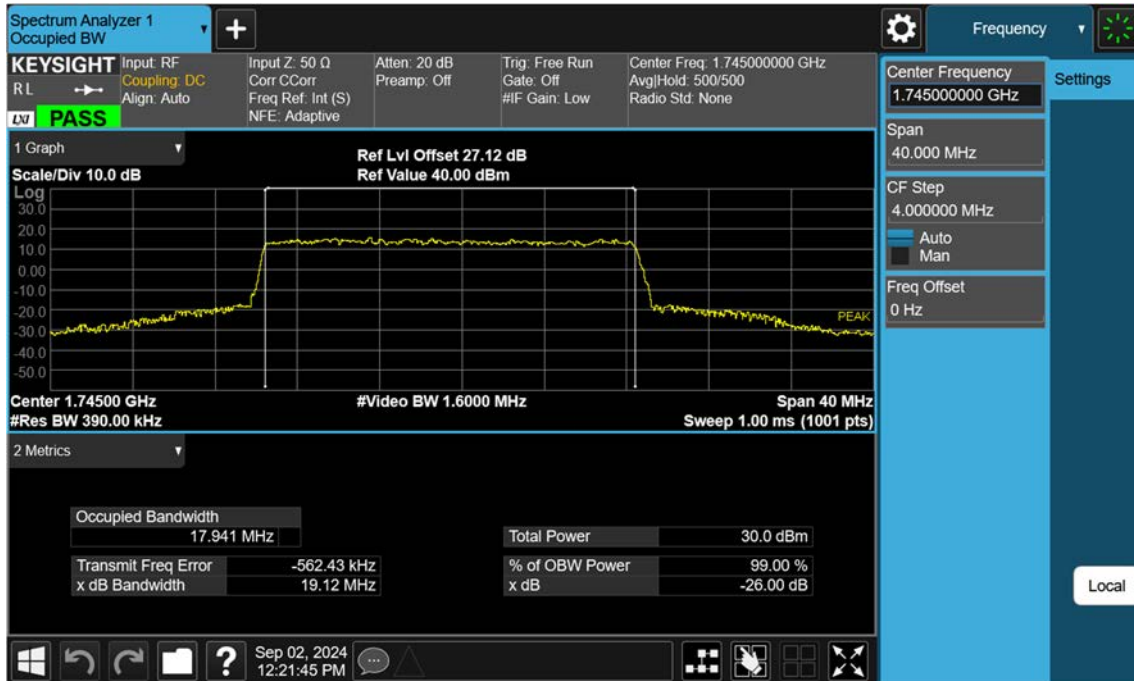
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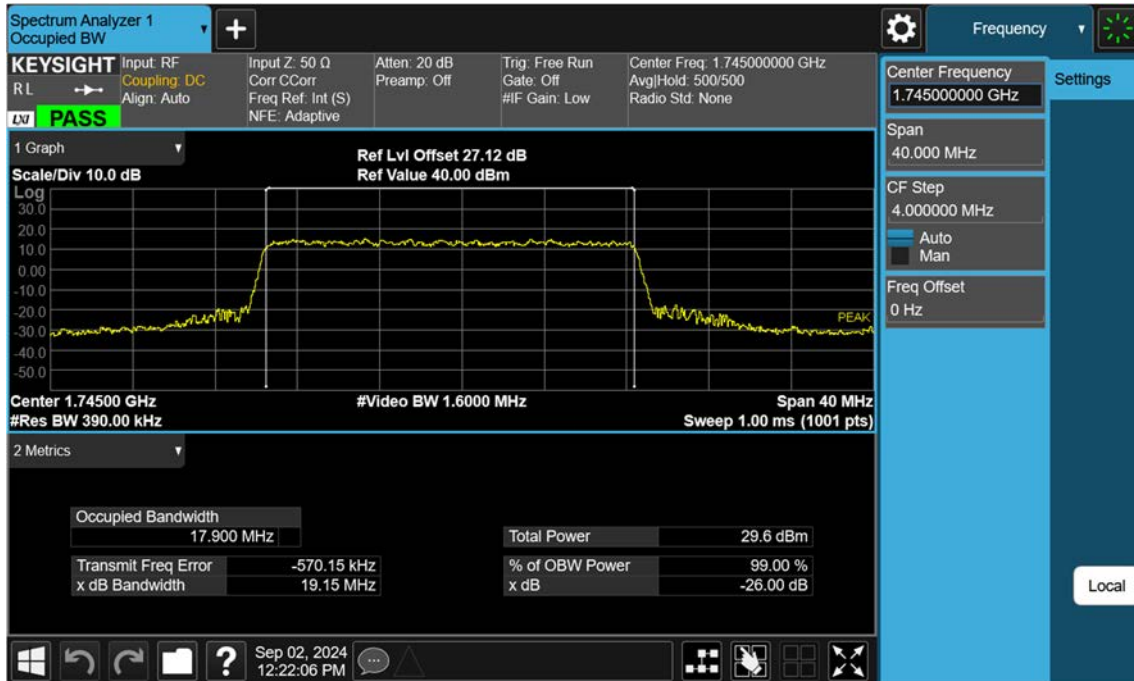
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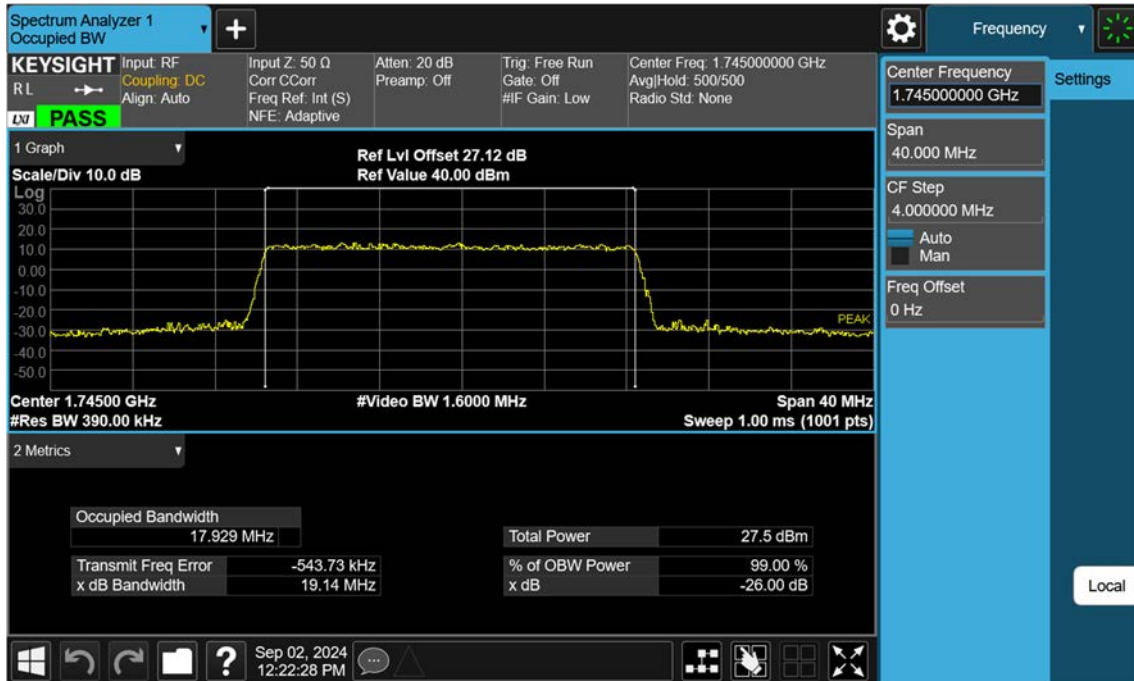
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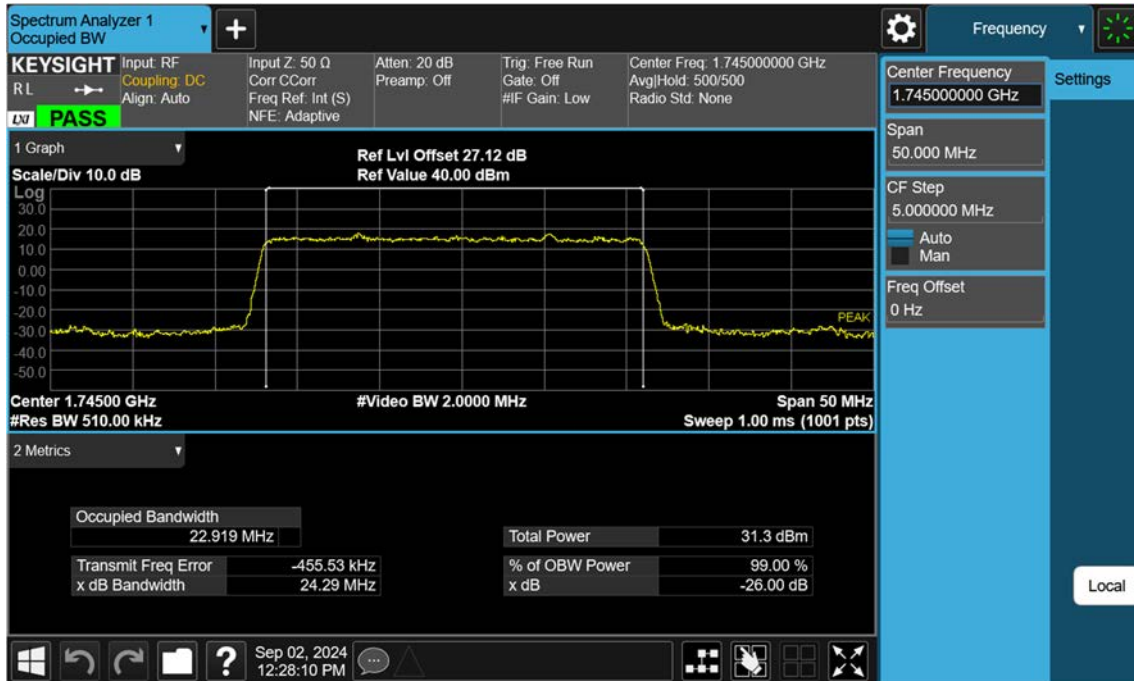
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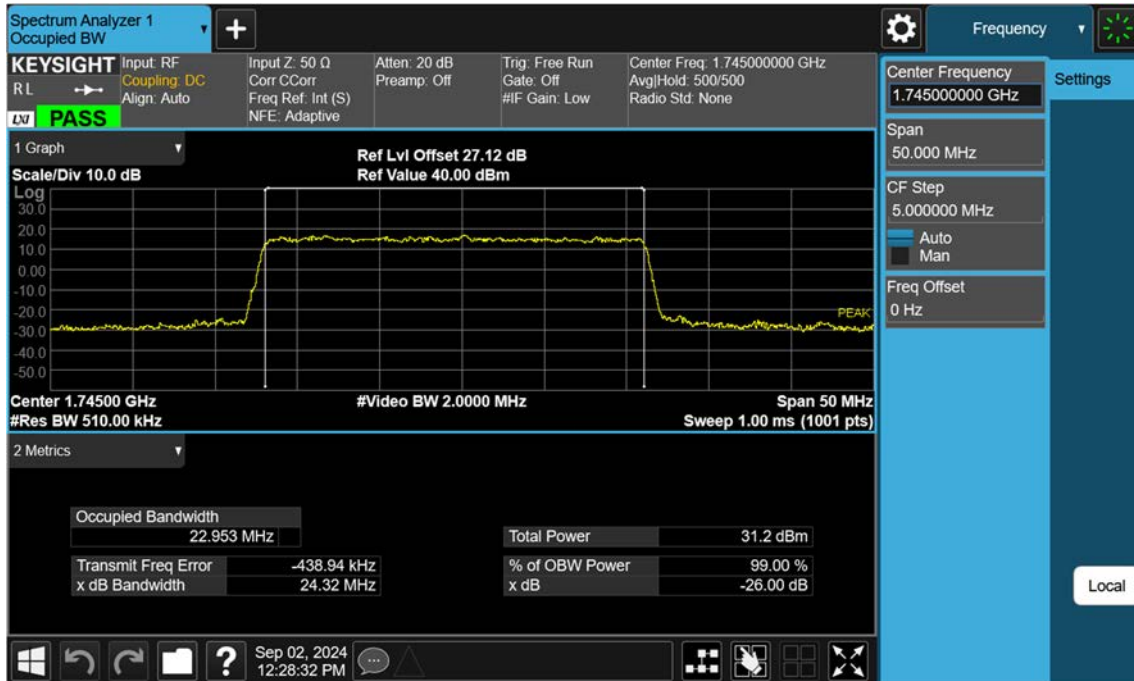
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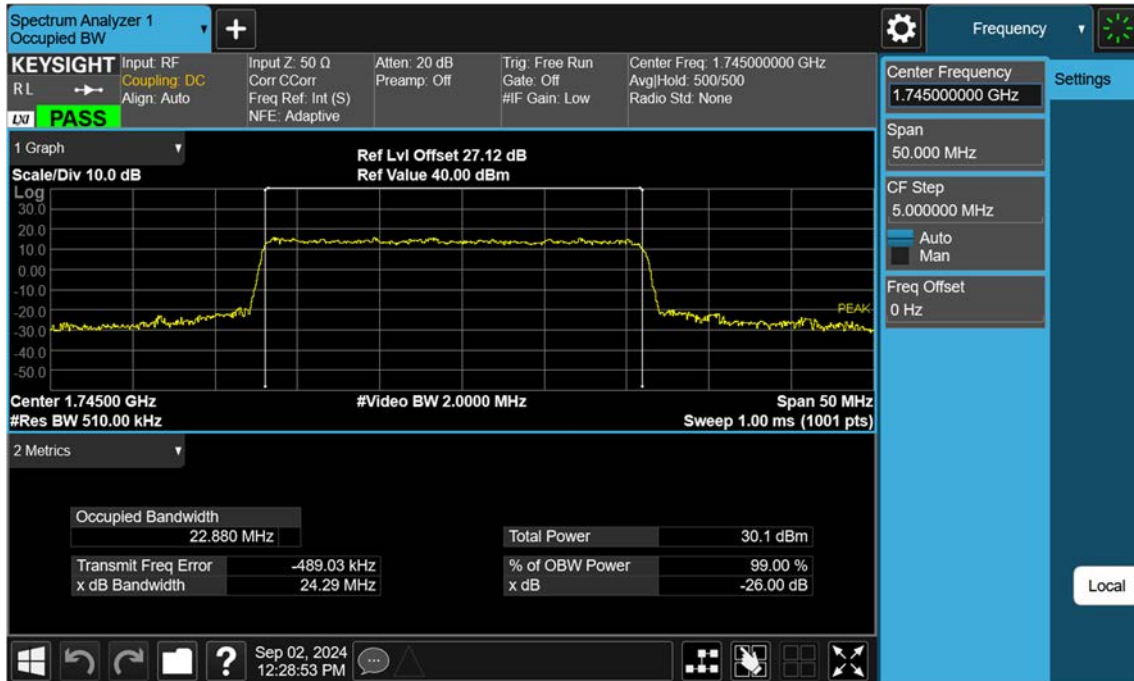
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NR66_25 M_OBW_Mid_QPSK_FullRB



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