

TEST REPORT

FCC Sub6 n5 Test for SM-A266M/DS

Certification

APPLICANT SAMSUNG Electronics Co., Ltd.

REPORT NO. HCT-RF-2501-FC047

DATE OF ISSUEJanuary 22, 2025

Tested by Jung Ki Lim

Technical ManagerJong Seok Lee

Ar

HCT CO., LTD.

BongJai Huh



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

REPORT NO. HCT-RF-2501-FC047

DATE OF ISSUE January 22, 2025

Additional Model SM-A266M

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-A266M/DS
Date of Test	December 09, 2024 ~ January 17, 2025
FCC ID	A3LSMA266M
Location of Test	■ Permanent Testing Lab □ On Site Testing (Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggido, Republic of Korea)
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
Test Standard Used	FCC Rule Part: § 22
Test Results	PASS

F-TP22-03 (Rev. 06) Page 2 of 114



REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	January 22, 2025	Initial Release

Notice

Content

The measurements shown in this report were made in accordance with the procedures specified in CFR47 section § 2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)

The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated.

The test results have only been applied with the test methods required by the standard(s).

The laboratory is not accredited for the test results marked * .

Information provided by the applicant is marked **.

Test results provided by external providers are marked ***.

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

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

F-TP22-03 (Rev. 06) Page 3 of 114



CONTENTS

1. GENERAL INFORMATION	5
1.1 MAXIMUM OUTPUT POWER	6
2. INTRODUCTION	
2.1 DESCRIPTION OF EUT	
2.2 MEASURING INSTRUMENT CALIBRATION	7
2.3 TEST FACILITY	7
3. DESCRIPTION OF TESTS	8
3.1 TEST PROCEDURE	8
3.2 RADIATED POWER	
3.3 RADIATED SPURIOUS EMISSIONS	10
3.4 PEAK- TO- AVERAGE RATIO	11
3.5 OCCUPIED BANDWIDTH	
3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL	14
3.7 BAND EDGE	15
3.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE	
3.9 WORST CASE(RADIATED TEST)	
3.10 WORST CASE(CONDUCTED TEST)	
4. LIST OF TEST EQUIPMENT	20
5. MEASUREMENT UNCERTAINTY	21
6. SUMMARY OF TEST RESULTS	22
7. SAMPLE CALCULATION	23
8. TEST DATA	25
8.1 EFFECTIVE RADIATED POWER	
8.2 RADIATED SPURIOUS EMISSIONS	29
8.3 PEAK-TO-AVERAGE RATIO	30
8.4 OCCUPIED BANDWIDTH	31
8.5 CONDUCTED SPURIOUS EMISSIONS	32
8.6 BAND EDGE	
8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE	33
9. TEST PLOTS	37
10 ANNEY A TEST SETUD DUOTO	114



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:	A3LSMA266M
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§ 22
EUT Type:	Mobile phone
Model(s):	SM-A266M/DS
Additional Model(s)	SM-A266M
SCS(kHz):	15
Bandwidth(MHz):	5, 10, 15, 20
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:	826.5 MHz – 846.5 MHz (Sub6 n5(5 MHz)) 829.0 MHz – 844.0 MHz (Sub6 n5(10 MHz)) 831.5 MHz – 841.5 MHz (Sub6 n5(15 MHz)) 834.0 MHz – 839.0 MHz (Sub6 n5(20 MHz))
Date(s) of Tests:	December 09, 2024~ January 17, 2025
Serial number:	Radiated: R3CXB0V501F Conducted: 8b3223c57d537ece

F-TP22-03 (Rev. 06) Page 5 of 114



1.1 MAXIMUM OUTPUT POWER

Mode Tx Frequency		Emission	Emission	ERP		
(MHz)	Tx Frequency (MHz)	Designator	Modulation	Max. Power (W)	Max. Power (dBm)	
	4M53G7D	PI/2 BPSK	0.069	18.39		
		4M52G7D	QPSK	0.068	18.34	
Sub6 n5 (5) 826.5 – 846.5	4M52W7D	16QAM	0.055	17.37		
		4M51W7D	64QAM	0.039	15.88	
		4M51W7D	256QAM	0.024	13.85	
		8M96G7D	PI/2 BPSK	0.066	18.22	
		9M01G7D	QPSK	0.066	18.19	
Sub6 n5 (10)	829.0 – 844.0	8M98W7D	16QAM	0.053	17.22	
		8M98W7D	64QAM	0.038	15.79	
		8M95W7D	256QAM	0.024	13.73	
		13M5G7D	PI/2 BPSK	0.067	18.26	
		13M4G7D	QPSK	0.066	18.19	
Sub6 n5 (15)	831.5 – 841.5	13M4W7D	16QAM	0.053	17.26	
		13M4W7D	64QAM	0.037	15.73	
		13M4W7D	256QAM	0.023	13.68	
		17M9G7D	PI/2 BPSK	0.066	18.21	
	17M9G7D	QPSK	0.064	18.06		
Sub6 n5 (20)	834.0 – 839.0	17M9W7D	16QAM	0.053	17.25	
		17M8W7D	64QAM	0.037	15.64	
		17M9W7D	256QAM	0.023	13.65	

F-TP22-03 (Rev. 06) Page 6 of 114



2. INTRODUCTION

2.1 DESCRIPTION OF EUT

Please refer to the [2G3G] Test Report.

2.2 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

2.3 TEST FACILITY

The Fully-anechoic chamber and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea.

F-TP22-03 (Rev. 06) Page 7 of 114



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
Radiated Power	- ANSI C63.26-2015 – Section 5.2.4.4 - KDB 971168 D01 v03r01 – Section 5.8
Radiated Spurious and Harmonic Emissions	- ANSI C63.26-2015 – Section 5.5.3 - KDB 971168 D01 v03r01 – Section 5.8

F-TP22-03 (Rev. 06) Page 8 of 114



3.2 RADIATED POWER

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

The equipment under test is placed on a non-conductive table 3-meters away from the receive antenna.

Test Settings

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

Test Note

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

The power is calculated by the following formula;

$$P_{d}$$
 $_{(dBm)} = Pg_{(dBm)} - cable loss_{(dB)} + antenna gain_{(dB)}$

Where: Pd is the dipole equivalent power and Pg 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.

F-TP22-03 (Rev. 06) Page 9 of 114



3.3 RADIATED SPURIOUS EMISSIONS

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

Radiated Spurious Emission Measurements at 3 meters by Substitution Method.

Test Settings

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

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

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

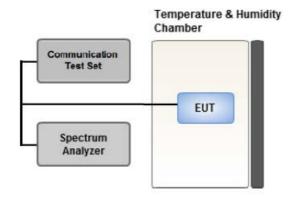
If the fundamental frequency is below 1 GHz, RF output power has been converted to EIRP.

EIRP (dBm) = ERP (dBm) + 2.15

F-TP22-03 (Rev. 06) Page 10 of 114



3.4 PEAK- TO- AVERAGE RATIO



Test setup

① CCDF Procedure for PAPR

Test Settings

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

2 Alternate Procedure for PAPR

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

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

F-TP22-03 (Rev. 06) Page 11 of 114



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 $\geq 10 \times \text{(number of points in sweep)} \times \text{(transmission symbol period)}$.
- 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.

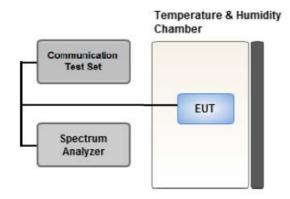
Test Settings(Average Power)

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

F-TP22-03 (Rev. 06) Page 12 of 114



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

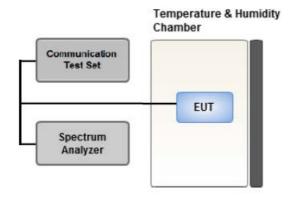
Test Settings

- 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

F-TP22-03 (Rev. 06) Page 13 of 114



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.

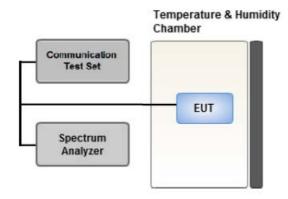
Test Settings

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

F-TP22-03 (Rev. 06) Page 14 of 114



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. $VBW > 3 \times RBW$
- 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

F-TP22-03 (Rev. 06) Page 15 of 114



Test Notes

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

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

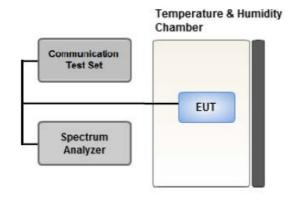
The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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

F-TP22-03 (Rev. 06) Page 16 of 114



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 $^{\circ}$ C to +50 $^{\circ}$ C in 10 $^{\circ}$ 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.

F-TP22-03 (Rev. 06) Page 17 of 114



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, SA 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 : 5 MHz)
- SM-A266M/DS & additional models were tested and the worst case results are reported.

(Worst case: SM-A266M/DS)

[Main 1 ANT Worst case]

Test Description	Modulation	RB size	RB offset	Axis
	PI/2 BPSK,			
	QPSK,			
Effective Radiated Power	16QAM, See Section 8.1 64QAM,		tion 8.1	X
	256QAM			
Radiated Spurious and Harmonic Emissions	PI/2 BPSK	See Sec	tion 8.2	Υ

F-TP22-03 (Rev. 06) Page 18 of 114



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)

 $\hbox{-} \ \mbox{Modulation of operation were investigated and the worst case configuration results} \\$

are reported.

(Worst case: PI/2 BPSK)

- All modes of operation were investigated and the worst case configuration results are reported.

Mode: NSA, SA 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-A266M/DS & additional models were tested and the worst case results are reported.

(Worst case: SM-A266M/DS)

[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	Mid	Full RB	0
		5	Low	1	0
		J -	High	1	24
		10	Low	1	0
			High	1	51
Band Edge	PI/2 BPSK		Low	1	0
Dana Eage	1 1/2 01 310		High	1	78
		20	Low	1	0
			High	1	105
		5, 10, 15, 20	Low, High	Full RB	0
Spurious and Harmonic Emissions at Antenna Terminal	PI/2 BPSK	5, 10, 15, 20	Low, Mid, High	1	1

F-TP22-03 (Rev. 06) Page 19 of 114



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	01/06/2027	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
Signal & Spectrum Analyzer (2 Hz~67 GHz)	FSW67	REOHDE & SCHWARZ	101736	23/05/2025	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:

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

F-TP22-03 (Rev. 06) Page 20 of 114



5. MEASUREMENT UNCERTAINTY

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

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

Parameter	Expanded Uncertainty (±kHz)
Occupied Bandwidth	95 (Confidence level about 95 %, <i>k</i> =2)
Frequency stability	28 (Confidence level about 95 %, <i>k</i> =2)
Parameter	Expanded Uncertainty (±dB)
Block Edge	0.70 (Confidence level about 95 %, <i>k</i> =2)
Conducted Spurious Emissions	1.18 (Confidence level about 95 %, <i>k</i> =2)
Peak- to- Average Ratio	0.68 (Confidence level about 95 %, <i>k</i> =2)
Radiated Power	4.74 (Confidence level about 95 %, <i>k</i> =2)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.36 (Confidence level about 95 %, <i>k</i> =2)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.70 (Confidence level about 95 %, <i>k</i> =2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.52 (Confidence level about 95 %, <i>k</i> =2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.66 (Confidence level about 95 %, <i>k</i> =2)
Radiated Disturbance (Above 40 GHz)	5.58 (Confidence level about 95 %, <i>k</i> =2)

F-TP22-03 (Rev. 06) Page 21 of 114



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, § 22.917(a)	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions	PASS
Conducted Output Power	§ 2.1046	N/A	See Note1
Frequency stability / variation of ambient temperature	§ 2.1055, § 22.355	< 2.5 ppm	PASS

Note:

- 1. See SAR Report
- 2. Conducted tests were tested using 5G Wireless Tester.

6.2 Test Condition: Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Effective Radiated Power	§ 22.913(a)(5)	< 7 Watts max. ERP	PASS
Radiated Spurious and Harmonic Emissions	§ 2.1053, § 22.917(a)	< 43 + 10log10 (P[Watts]) for all out-of band emissions	PASS

Note:

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

F-TP22-03 (Rev. 06) Page 22 of 114



7. SAMPLE CALCULATION

7.1 ERP Sample Calculation

Ch.	/ Freq.	Measured	Substitute	Ant. Gain	CI	Del	El	RP
channel	Freq.(MHz)	Level (dBm)	Level (dBm)	(dBd)	C.L	Pol.	w	dBm
128	824.20	-21.37	38.40	-10.61	0.95	Н	0.483	26.84

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

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

7.2 EIRP Sample Calculation

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

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

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

F-TP22-03 (Rev. 06) Page 23 of 114



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)

WCDMA Emission Designator

Emission Designator = 4M17F9W WCDMA BW = 4.17 MHz F = Frequency Modulation 9 = Composite Digital Info W = Combination (Audio/Data)

QAM Modulation

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

EDGE Emission Designator

Emission Designator = 249KG7W GSM BW = 249 kHz G = Phase Modulation 7 = Quantized/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

F-TP22-03 (Rev. 06) Page 24 of 114



8. TEST DATA

8.1 EFFECTIVE RADIATED POWER

From	Mod/		Measured	Substitute	Ant.			Limit	El	RP	F	RB
Freq (MHz)	Bandwidth [SCS (kHz)]	Modulation	Level (dBm)	Level (dBm)	Gain (dBd)	C.L	Pol	W	W	dBm	Size	Offset
		PI/2 BPSK	-31.92	28.25	-9.90	1.44	Н		0.049	16.91		
		QPSK	-32.03	28.14	-9.90	1.44	Н		0.048	16.80		
826.5		16-QAM	-32.93	27.24	-9.90	1.44	Н		0.039	15.90	1	23
		64-QAM	-34.50	25.67	-9.90	1.44	Н		0.027	14.33		
		256-QAM	-36.42	23.75	-9.90	1.44	Н		0.017	12.41		
		PI/2 BPSK	-31.03	29.19	-9.90	1.45	Н		0.061	17.84		
	Sub6 n5/	QPSK	-31.15	29.07	-9.90	1.45	Н		0.059	17.72		
836.5	5 MHz	16-QAM	-32.07	28.15	-9.90	1.45	Н	< 7.00	0.048	16.80	1	12
	[15 kHz]	64-QAM	-33.52	26.70	-9.90	1.45	Н		0.034	15.35		
		256-QAM	-35.71	24.51	-9.90	1.45	Н		0.021	13.16		
		PI/2 BPSK	-30.73	29.74	-9.90	1.45	Н		0.069	18.39		
		QPSK	-30.78	29.69	-9.90	1.45	Н		0.068	18.34		
846.5		16-QAM	-31.75	28.72	-9.90	1.45	Н		0.055	17.37	1	12
		64-QAM	-33.24	27.23	-9.90	1.45	Н		0.039	15.88		
		256-QAM	-35.27	25.20	-9.90	1.45	Н		0.024	13.85		

F-TP22-03 (Rev. 06) Page 25 of 114



	Mod/		Measured	Substitute	Ant.			Limit	EI	RP	R	RB
Freq (MHz)	Bandwidth [SCS (kHz)]	Modulation	Level (dBm)	Level (dBm)	Gain (dBd)	C.L	Pol	W	w	dBm	Size	Offset
		PI/2 BPSK	-31.65	28.49	-9.90	1.44	Н		0.052	17.15		
	829.0	QPSK	-31.75	28.39	-9.90	1.44	Н		0.051	17.05		
829.0		16-QAM	-32.38	27.76	-9.90	1.44	Н		0.044	16.42	1	50
		64-QAM	-33.91	26.23	-9.90	1.44	Н		0.031	14.89		
		256-QAM	-35.89	24.25	-9.90	1.44	Н		0.020	12.91		
		PI/2 BPSK	-30.84	29.38	-9.90	1.45	Н		0.064	18.03		
	Sub6 n5/	QPSK	-30.89	29.33	-9.90	1.45	Н		0.063	17.98		
836.5	10 MHz	16-QAM	-31.83	28.39	-9.90	1.45	Н	< 7.00	0.051	17.04	1	50
	[15 kHz]	64-QAM	-33.40	26.82	-9.90	1.45	Н		0.035	15.47		
		256-QAM	-35.49	24.73	-9.90	1.45	Н		0.022	13.38		
		PI/2 BPSK	-30.77	29.57	-9.90	1.45	Н		0.066	18.22		
		QPSK	-30.80	29.54	-9.90	1.45	Н		0.066	18.19		
844.0		16-QAM	-31.77	28.57	-9.90	1.45	Н		0.053	17.22	1	26
		64-QAM	-33.20	27.14	-9.90	1.45		15.79				
		256-QAM	-35.26	25.08	-9.90	1.45	Н		0.024	13.73		

F-TP22-03 (Rev. 06) Page 26 of 114



	Mod/		Measured	Substitute	Ant.			Limit	EI	RP	R	RB
Freq (MHz)	Bandwidth [SCS (kHz)]	Modulation	Level (dBm)	Level (dBm)	Gain (dBd)	C.L	Pol	W	w	dBm	Size	Offset
		PI/2 BPSK	-31.05	29.15	-9.90	1.45	Н		0.060	17.80		
	831.5	QPSK	-31.07	29.13	-9.90	1.45	Н		0.060	17.78	1	
831.5		16-QAM	-32.07	28.13	-9.90	1.45	Н		0.048	16.78		77
		64-QAM	-33.68	26.52	-9.90	1.45	Н		0.033	15.17		
		256-QAM	-35.55	24.65	-9.90	1.45	Н		0.021	13.30		
		PI/2 BPSK	-30.80	29.42	-9.90	1.45	Н		0.064	18.07		
	Sub6 n5/	QPSK	-30.83	29.39	-9.90	1.45	Н		0.064	18.04		
836.5	15 MHz	16-QAM	-31.86	28.36	-9.90	1.45	Н	< 7.00	0.050	17.01	1	77
	[15 kHz]	64-QAM	-33.48	26.74	-9.90	1.45	Н		0.035	15.39		
		256-QAM	-35.36	24.86	-9.90	1.45	Н		0.022	13.51		
		PI/2 BPSK	-30.76	29.61	-9.90	1.45	Н		0.067	18.26		
		QPSK	-30.83	29.54	-9.90	1.45	Н		0.066	18.19		
841.5	841.5	16-QAM	-31.76	28.61	-9.90	1.45	Н		0.053	17.26	1	39
		64-QAM	-33.29	27.08	-9.90	1.45		15.73	3			
		256-QAM	-35.34	25.03	-9.90	1.45	Н		0.023	13.68		

F-TP22-03 (Rev. 06) Page 27 of 114



F===	Mod/		Measured	Substitute	Ant.			Limit	El	RP	F	RB
Freq (MHz)	Bandwidth [SCS (kHz)]	Modulation	Level (dBm)	Level (dBm)	Gain (dBd)	C.L	Pol	W	W	dBm	Size	Offset
		PI/2 BPSK	-30.87	29.45	-9.90	1.45	Н		0.065	18.10		
	4.0	QPSK	-30.91	29.41	-9.90	1.45	Н		0.064	18.06		
834.0		16-QAM	-31.82	28.50	-9.90	1.45	Н		0.052	17.15	1	104
		64-QAM	-33.44	26.88	-9.90	1.45	Н		0.036	15.53		
		256-QAM	-35.51	24.81	-9.90	1.45	Н		0.022	13.46		
		PI/2 BPSK	-31.02	29.20	-9.90	1.45	Н		0.061	17.85	1	
	Sub6 n5/	QPSK	-31.08	29.14	-9.90	1.45	Н		0.060	17.79		53
836.5	20 MHz	16-QAM	-32.04	28.18	-9.90	1.45	Н	< 7.00	0.048	16.83		
	[15 kHz]	64-QAM	-33.63	26.59	-9.90	1.45	Н		0.033	15.24		
		256-QAM	-35.64	24.58	-9.90	1.45	Н		0.021	13.23		
		PI/2 BPSK	-30.81	29.56	-9.90	1.45	Н		0.066	18.21		
		QPSK	-30.96	29.41	-9.90	1.45	Н		0.064	18.06		
839.0	839.0	16-QAM	-31.77	28.60	-9.90	1.45	Н		0.053	17.25	1	53
		64-QAM	-33.38	26.99	-9.90	1.45	Н		0.037	15.64		
		256-QAM	-35.37	25.00	-9.90	1.45	Н		0.023	13.65		

F-TP22-03 (Rev. 06) Page 28 of 114



8.2 RADIATED SPURIOUS EMISSIONS

■ NR Band: <u>N5</u>

■ Bandwidth: <u>5 MHz</u>

■ Modulation: PI/2 BPSK

■ Distance: <u>3 meters</u>

■ SCS: <u>15 kHz</u>

Ch	Freq	Measured	Ant. Gain	Substitute	6.1	D-I	Result	Limit	R	В
Ch	(MHz)	Level (dBm)	(dBi)	Level (dBm)	C.L	Pol	(dBm)	(dBm)	Size	Offset
	1 653.00	-41.73	9.49	-50.64	2.02	V	-43.17	-13.00		
165300 (826.5)	2 479.50	-56.47	10.74	-60.16	2.55	Н	-51.97	-13.00	1	23
(02010)	3 306.00	-60.97	11.61	-63.14	2.97	Н	-54.50	-13.00		
	1 673.00	-43.60	9.69	-52.98	2.05	Н	-45.34	-13.00		
167300 (836.5)	2 509.50	-56.55	10.55	-61.28	2.51	Н	-53.24	-13.00	1	12
(000.0)	3 346.00	-58.70	11.53	-61.22	2.96	V	-52.65	-13.00		
	1 693.00	-39.33	9.91	-48.12	2.07	Н	-40.28	-13.00		
169300 (846.5)	2 539.50	-56.04	10.62	-60.67	2.53	Н	-52.58	-13.00	1	12
(5.0.0)	3 386.00	-59.92	11.50	-61.95	2.99	Н	-53.44	-13.00		

F-TP22-03 (Rev. 06) Page 29 of 114



8.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
			BPSK			4.82
			QPSK			5.37
	5 MHz		16-QAM	25		5.84
			64-QAM			6.08
			256-QAM			6.47
		000.5	BPSK	50		5.11
			QPSK			5.26
	10 MHz		16-QAM			5.64
			64-QAM			5.99
6 1 6 5			256-QAM		0	6.38
Sub6 n5		836.5	BPSK		0	4.06
			QPSK			5.12
	15 MHz		16-QAM	75		5.67
			64-QAM			5.91
			256-QAM			6.23
-			BPSK			5.47
			QPSK			5.53
	20 MHz		16-QAM	100		5.85
			64-QAM			6.01
			256-QAM			6.37

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 38 \sim 57.

F-TP22-03 (Rev. 06) Page 30 of 114



8.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
			BPSK			4.5245
			QPSK			4.5238
	5 MHz		16-QAM	25		4.5151
			64-QAM			4.5096
			256-QAM			4.5073
			BPSK	50		8.9614
			QPSK			9.0119
	10 MHz		16-QAM			8.9767
			64-QAM			8.9774
6 1 6 5			256-QAM		•	8.9537
Sub6 n5		836.5	BPSK		0	13.453
			QPSK			13.410
	15 MHz		16-QAM	75		13.419
			64-QAM			13.407
			256-QAM			13.425
			BPSK			17.908
			QPSK			17.910
	20 MHz		16-QAM	100		17.869
			64-QAM			17.842
			256-QAM			17.926

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 58 ~ 77.

F-TP22-03 (Rev. 06) Page 31 of 114



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)
		826.5	4.0180	30.200	-62.176	-31.976	
	5	836.5	7.2084	30.815	-62.881	-32.066	
		846.5	3.7388	30.200	-62.142	-31.942	
		829.0	3.9881	30.200	-62.182	-31.982	
	10	836.5	3.8086	30.200	-63.326	-33.126	12.00
C l- C E		844.0	6.2712	30.815	-63.291	-32.476	
Sub6 n5		831.5	3.9881	30.200	-63.098	-32.898	-13.00
	15	836.5	3.9881	30.200	-62.859	-32.659	
		841.5	7.9462	30.815	-62.422	-31.607	
		834.0	8.2353	30.815	-61.557	-30.742	
	20	836.5	4.0579	30.200	-63.243	-33.043	1
		839.0	3.3500	30.200	-63.235	-33.035	

Note:

- 1. Plots of the EUT's Conducted Spurious Emissions are shown Page 78 ~ 89.
- 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 90 ~ 113.

F-TP22-03 (Rev. 06) Page 32 of 114



8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

■ BandWidth: <u>5 MHz</u>

■ Voltage(100 %): 4.200 VDC

■ Batt. Endpoint: 3.400 VDC

■ Deviation Limit: $\pm 0.000 25 \%$ or 2.5 ppm

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
	100 %	+20(Ref)	836 500 000	0.0	0.000 000	0.000
	100 %	-30	836 500 000	-0.2	0.000 000	0.000
	100 %	-20	836 500 000	-0.3	0.000 000	0.000
	100 %	-10	836 500 000	-0.2	0.000 000	0.000
020 5	100 %	0	836 500 000	-0.1	0.000 000	0.000
836.5	100 %	+10	836 500 000	-0.1	0.000 000	0.000
	100 %	+30	836 499 999	-1.4	0.000 000	-0.002
	100 %	+40	836 500 000	-0.3	0.000 000	0.000
	100 %	+50	836 500 000	-0.3	0.000 000	0.000
	Batt. Endpoint	+20	836 499 999	-0.7	0.000 000	-0.001

F-TP22-03 (Rev. 06) Page 33 of 114



■ BandWidth: <u>10 MHz</u>

■ Voltage(100 %): 4.200 VDC

■ Batt. Endpoint: 3.400 VDC

■ Deviation Limit: $\pm 0.000 25 \%$ or 2.5 ppm

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
836.5	100 %	+20(Ref)	836 500 000	0.0	0.000 000	0.000
	100 %	-30	836 500 000	0.0	0.000 000	0.000
	100 %	-20	836 500 001	0.8	0.000 000	0.001
	100 %	-10	836 500 000	0.1	0.000 000	0.000
	100 %	0	836 500 000	0.0	0.000 000	0.000
	100 %	+10	836 500 000	0.1	0.000 000	0.000
	100 %	+30	836 500 001	0.8	0.000 000	0.001
	100 %	+40	836 500 000	-0.1	0.000 000	0.000
	100 %	+50	836 500 000	-0.2	0.000 000	0.000
	Batt. Endpoint	+20	836 500 000	-0.3	0.000 000	0.000

F-TP22-03 (Rev. 06) Page 34 of 114



■ BandWidth: <u>15 MHz</u>

■ Voltage(100 %): 4.200 VDC

■ Batt. Endpoint: 3.400 VDC

■ Deviation Limit: $\pm 0.000 25 \%$ or 2.5 ppm

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
836.5	100 %	+20(Ref)	836 500 000	0.0	0.000 000	0.000
	100 %	-30	836 499 999	-0.6	0.000 000	-0.001
	100 %	-20	836 499 999	-0.3	0.000 000	0.000
	100 %	-10	836 500 000	0.8	0.000 000	0.001
	100 %	0	836 500 000	0.0	0.000 000	0.000
	100 %	+10	836 500 000	0.5	0.000 000	0.001
	100 %	+30	836 500 000	0.7	0.000 000	0.001
	100 %	+40	836 500 000	0.6	0.000 000	0.001
	100 %	+50	836 500 000	0.6	0.000 000	0.001
	Batt. Endpoint	+20	836 500 000	0.4	0.000 000	0.000

F-TP22-03 (Rev. 06) Page 35 of 114



■ BandWidth: <u>20 MHz</u>

■ Voltage(100 %): 4.200 VDC

■ Batt. Endpoint: 3.400 VDC

■ Deviation Limit: $\pm 0.000 25 \%$ or 2.5 ppm

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
836.5	100 %	+20(Ref)	836 499 999	0.0	0.000 000	0.000
	100 %	-30	836 499 999	-0.7	0.000 000	-0.001
	100 %	-20	836 500 000	0.6	0.000 000	0.001
	100 %	-10	836 499 999	-0.5	0.000 000	-0.001
	100 %	0	836 499 999	0.0	0.000 000	0.000
	100 %	+10	836 499 999	-0.6	0.000 000	-0.001
	100 %	+30	836 499 998	-0.9	0.000 000	-0.001
	100 %	+40	836 499 999	-0.7	0.000 000	-0.001
	100 %	+50	836 499 998	-1.0	0.000 000	-0.001
	Batt. Endpoint	+20	836 499 999	0.1	0.000 000	0.000

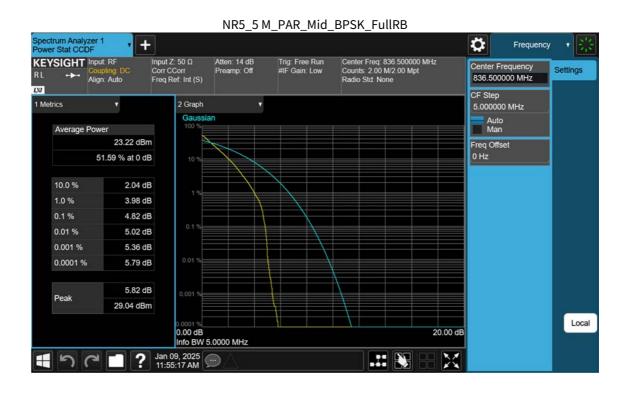
F-TP22-03 (Rev. 06) Page 36 of 114



9. TEST PLOTS

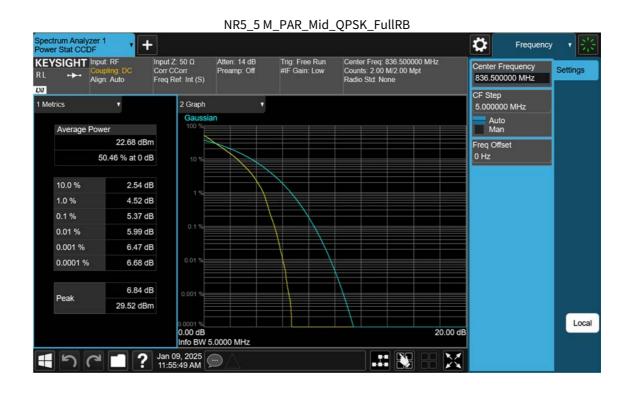
F-TP22-03 (Rev. 06) Page 37 of 114





F-TP22-03 (Rev. 06) Page 38 of 114





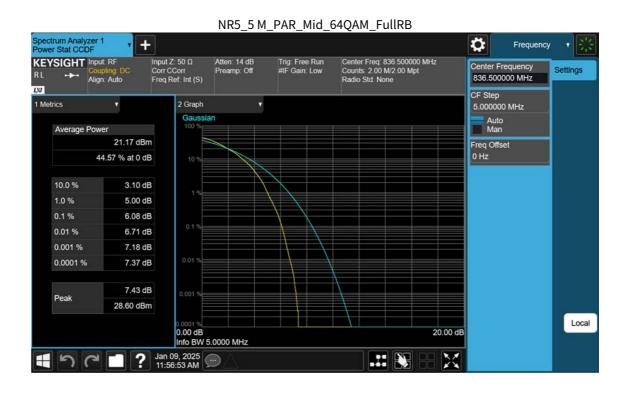
F-TP22-03 (Rev. 06) Page 39 of 114





F-TP22-03 (Rev. 06) Page 40 of 114





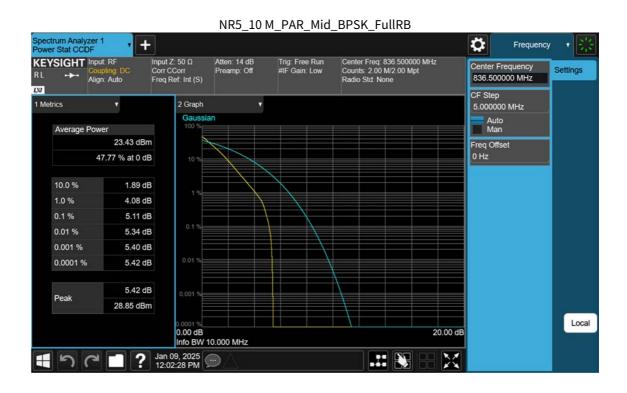
F-TP22-03 (Rev. 06) Page 41 of 114





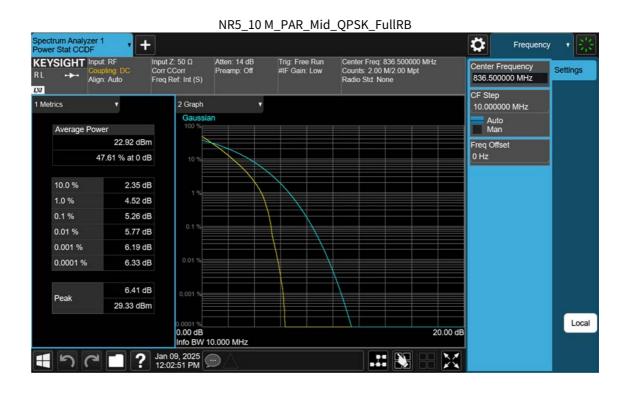
F-TP22-03 (Rev. 06) Page 42 of 114





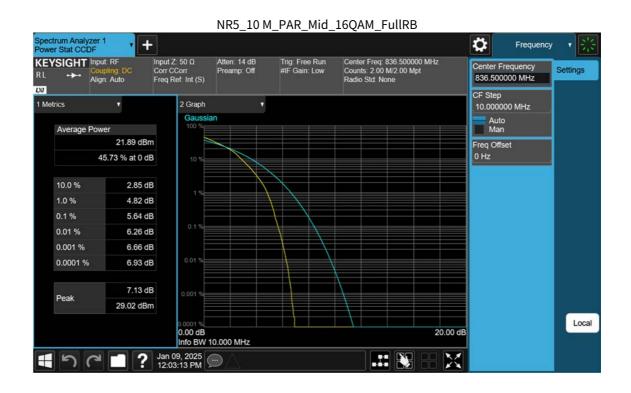
F-TP22-03 (Rev. 06) Page 43 of 114





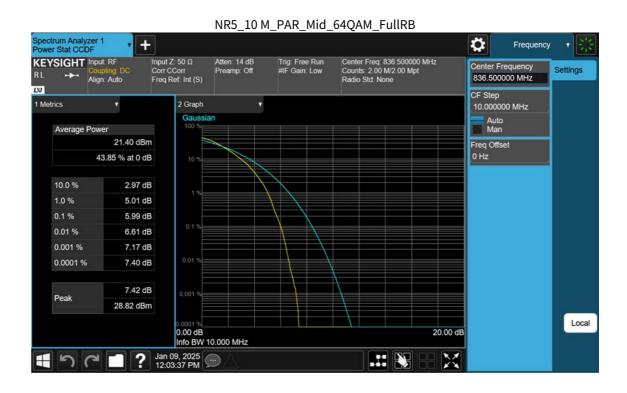
F-TP22-03 (Rev. 06) Page 44 of 114





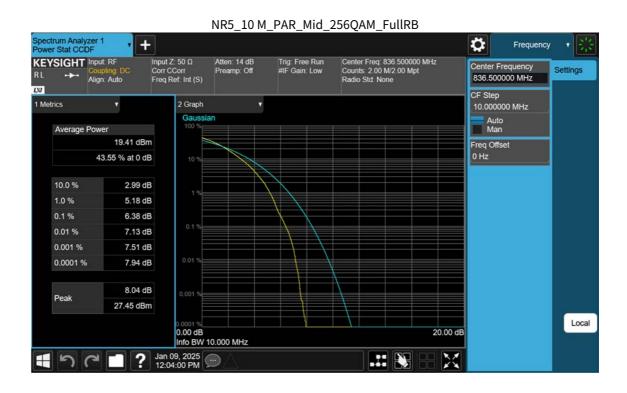
F-TP22-03 (Rev. 06) Page 45 of 114





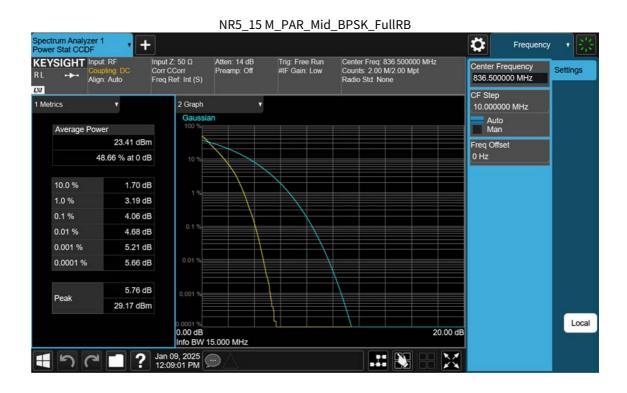
F-TP22-03 (Rev. 06) Page 46 of 114





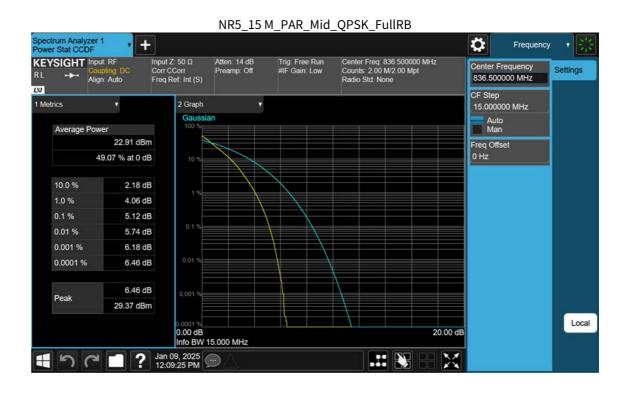
F-TP22-03 (Rev. 06) Page 47 of 114





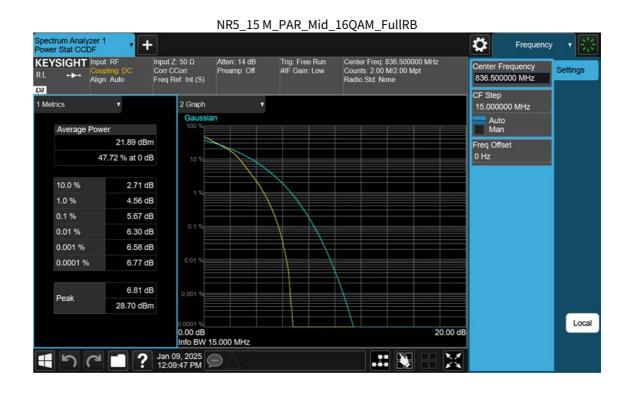
F-TP22-03 (Rev. 06) Page 48 of 114





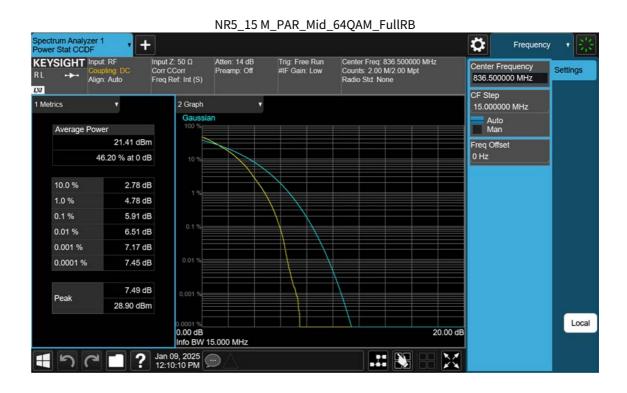
F-TP22-03 (Rev. 06) Page 49 of 114





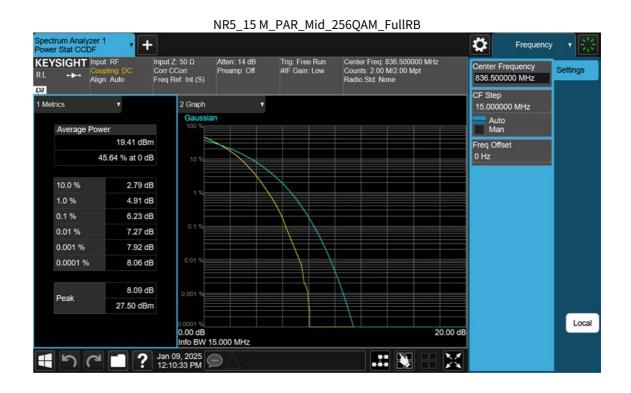
F-TP22-03 (Rev. 06) Page 50 of 114





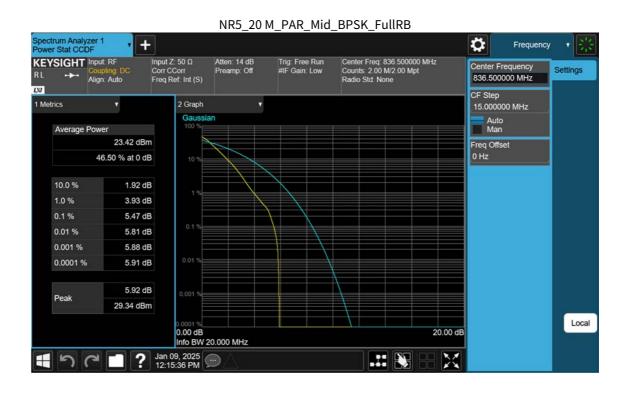
F-TP22-03 (Rev. 06) Page 51 of 114





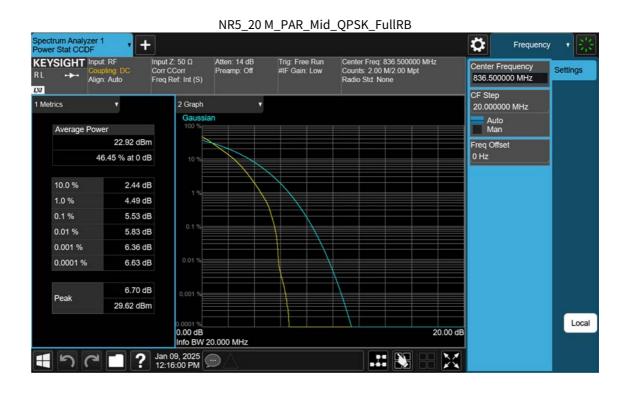
F-TP22-03 (Rev. 06) Page 52 of 114





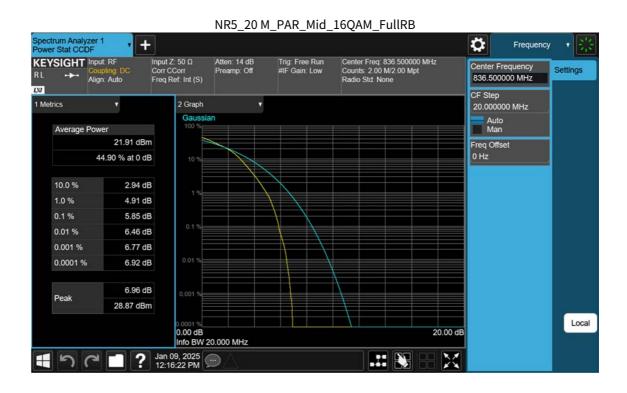
F-TP22-03 (Rev. 06) Page 53 of 114





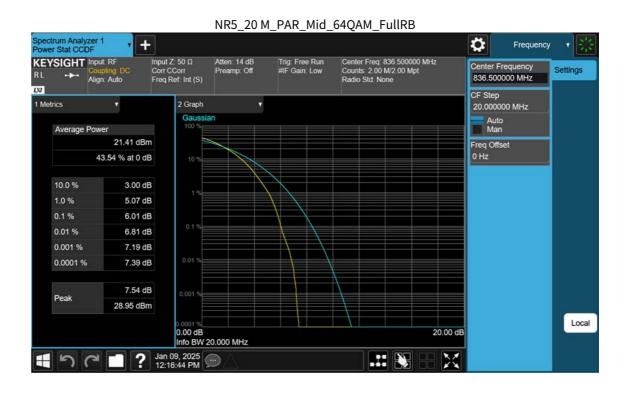
F-TP22-03 (Rev. 06) Page 54 of 114





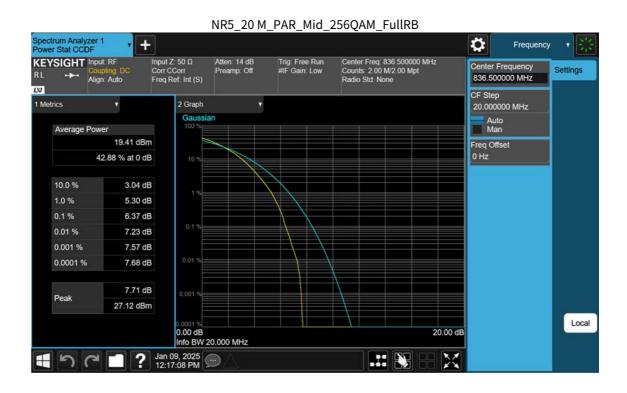
F-TP22-03 (Rev. 06) Page 55 of 114





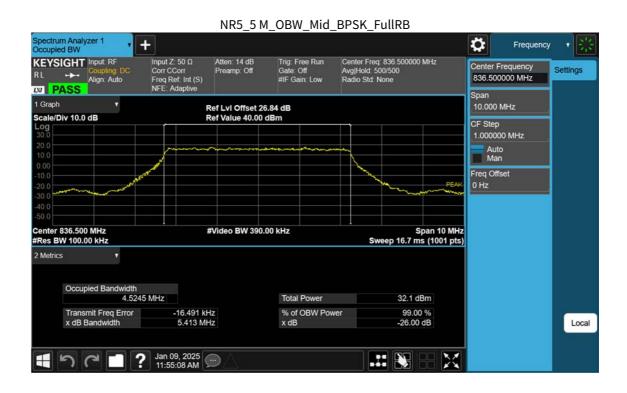
F-TP22-03 (Rev. 06) Page 56 of 114





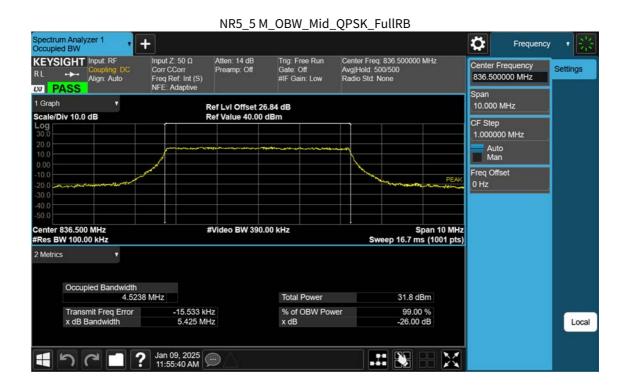
F-TP22-03 (Rev. 06) Page 57 of 114





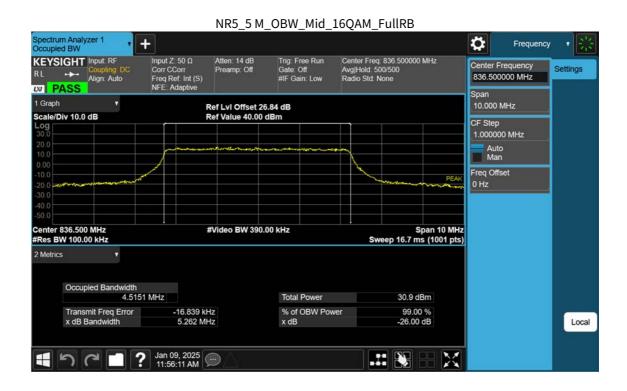
F-TP22-03 (Rev. 06) Page 58 of 114





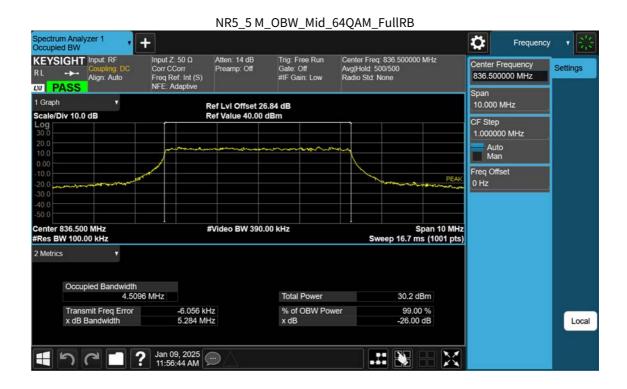
F-TP22-03 (Rev. 06) Page 59 of 114





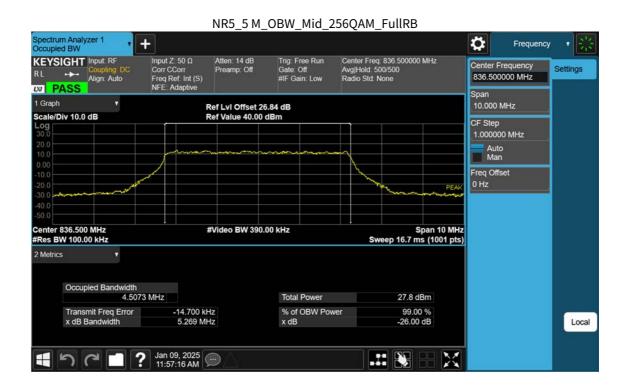
F-TP22-03 (Rev. 06) Page 60 of 114





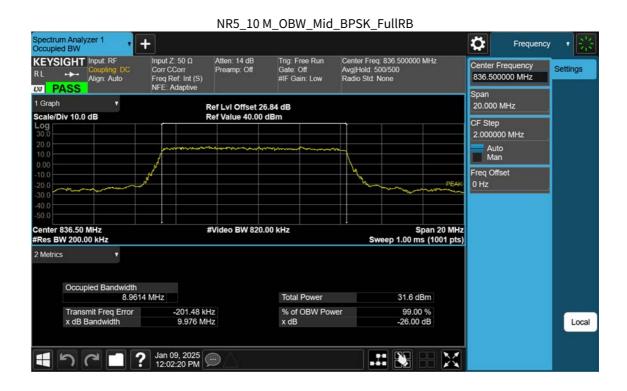
F-TP22-03 (Rev. 06) Page 61 of 114





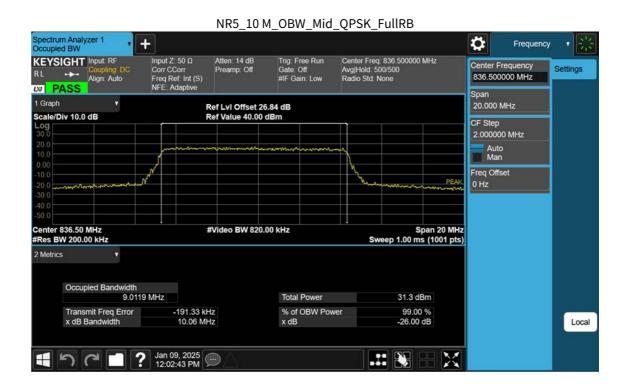
F-TP22-03 (Rev. 06) Page 62 of 114





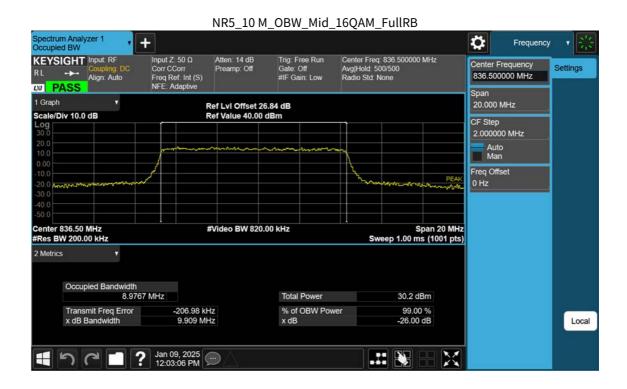
F-TP22-03 (Rev. 06) Page 63 of 114





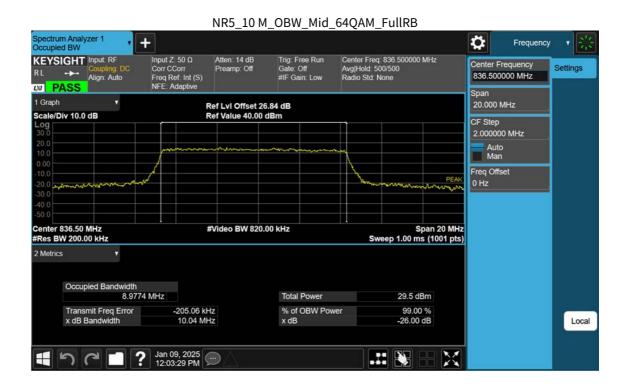
F-TP22-03 (Rev. 06) Page 64 of 114





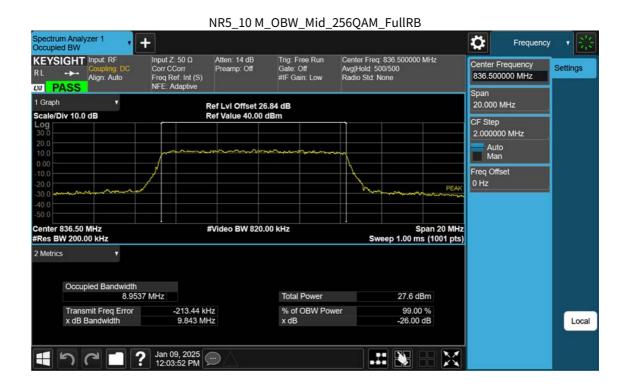
F-TP22-03 (Rev. 06) Page 65 of 114





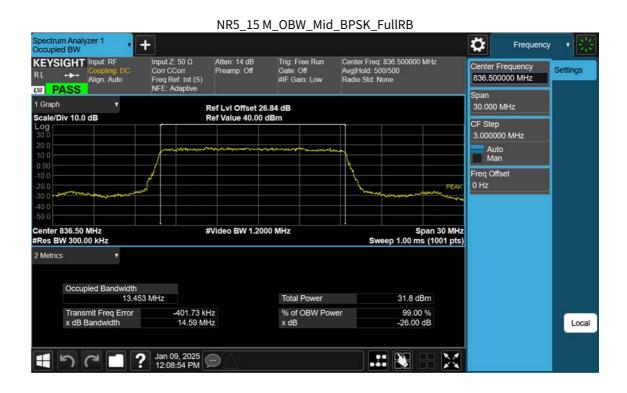
F-TP22-03 (Rev. 06) Page 66 of 114





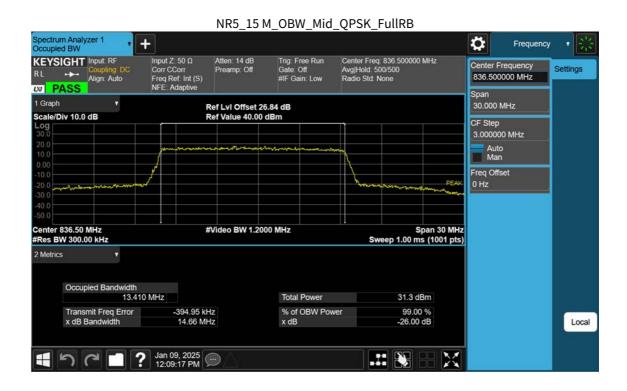
F-TP22-03 (Rev. 06) Page 67 of 114





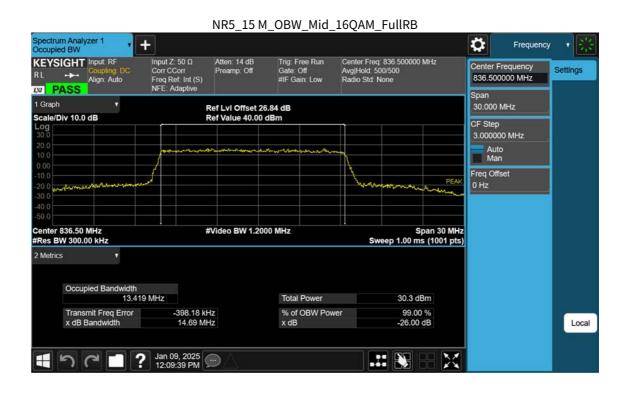
F-TP22-03 (Rev. 06) Page 68 of 114





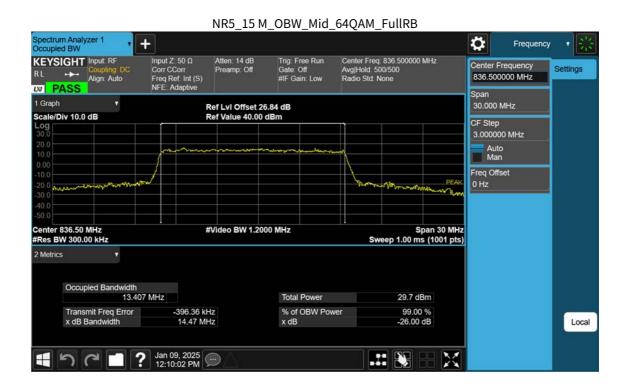
F-TP22-03 (Rev. 06) Page 69 of 114





F-TP22-03 (Rev. 06) Page 70 of 114





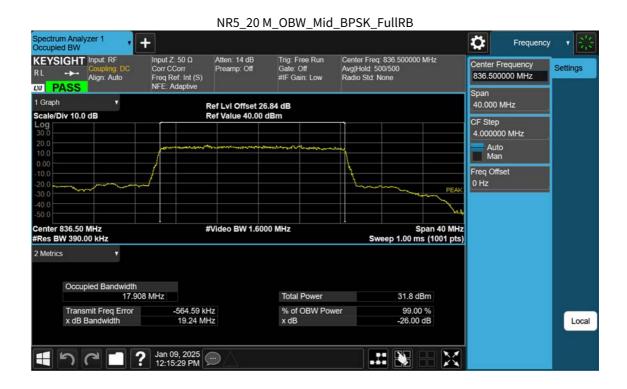
F-TP22-03 (Rev. 06) Page 71 of 114





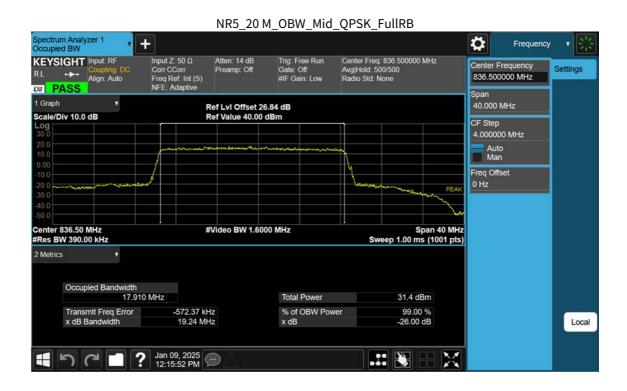
F-TP22-03 (Rev. 06) Page 72 of 114





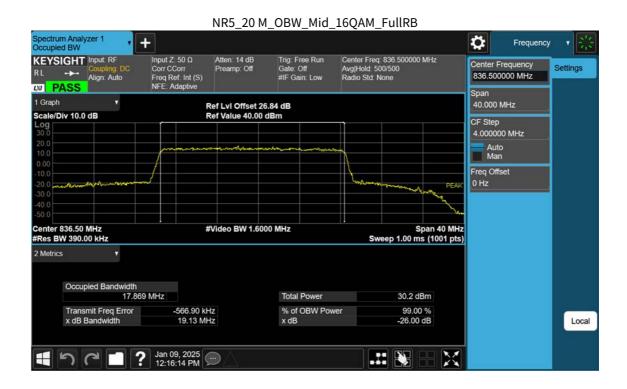
F-TP22-03 (Rev. 06) Page 73 of 114





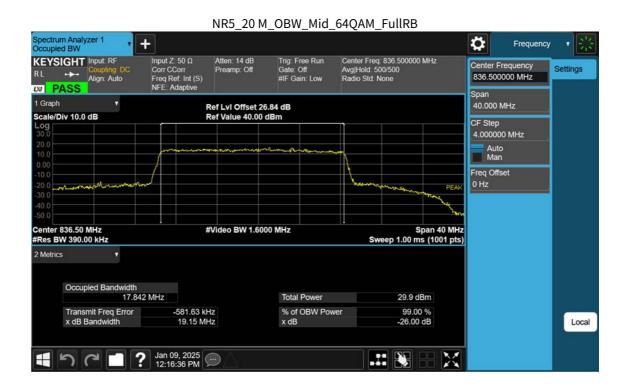
F-TP22-03 (Rev. 06) Page 74 of 114





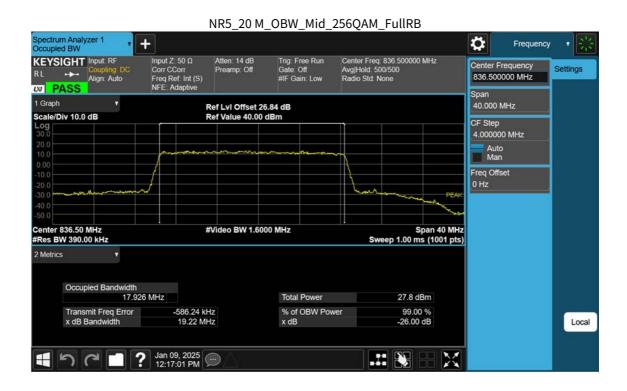
F-TP22-03 (Rev. 06) Page 75 of 114





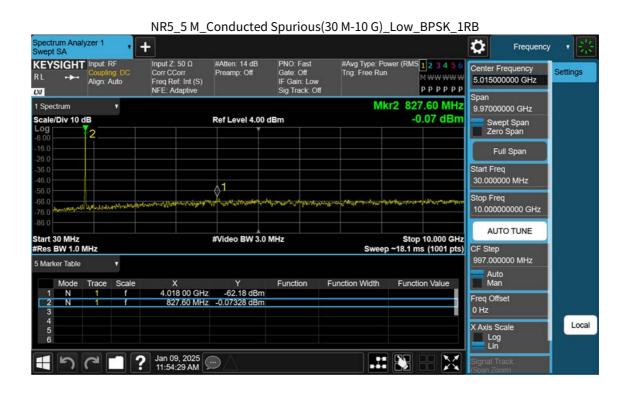
F-TP22-03 (Rev. 06) Page 76 of 114





F-TP22-03 (Rev. 06) Page 77 of 114





F-TP22-03 (Rev. 06) Page 78 of 114





F-TP22-03 (Rev. 06) Page 79 of 114





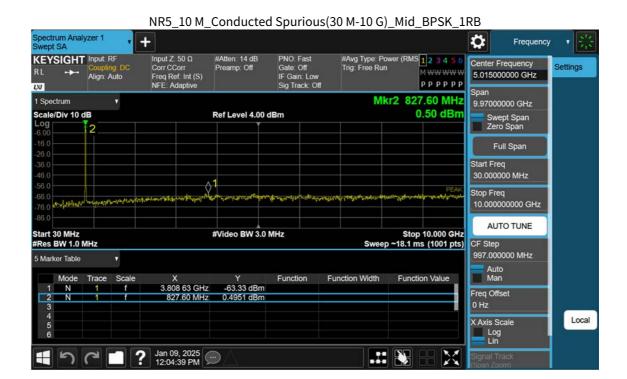
F-TP22-03 (Rev. 06) Page 80 of 114





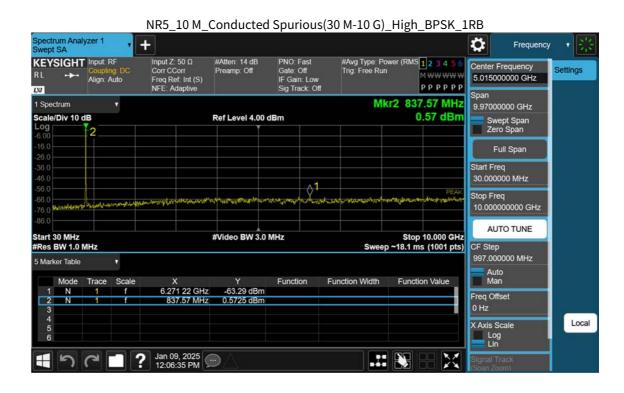
F-TP22-03 (Rev. 06) Page 81 of 114





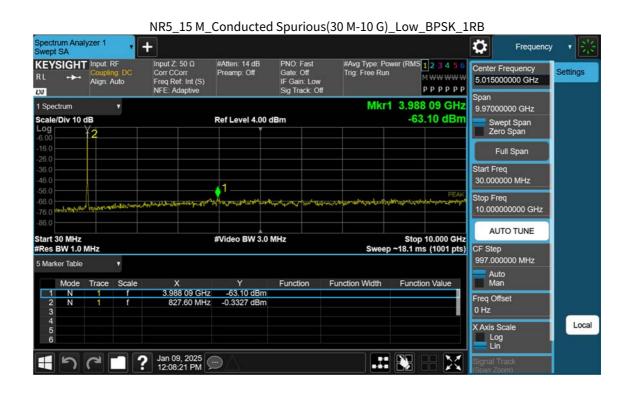
F-TP22-03 (Rev. 06) Page 82 of 114





F-TP22-03 (Rev. 06) Page 83 of 114





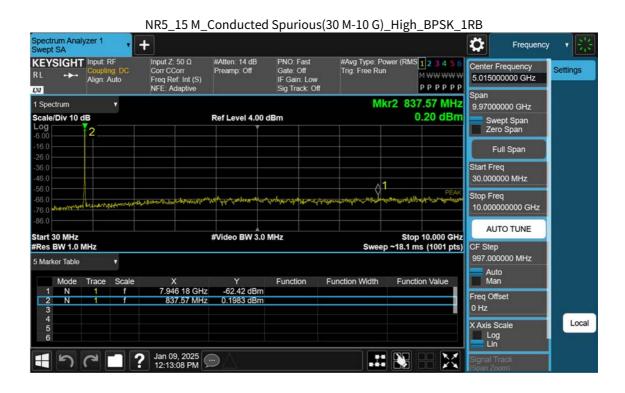
F-TP22-03 (Rev. 06) Page 84 of 114





F-TP22-03 (Rev. 06) Page 85 of 114





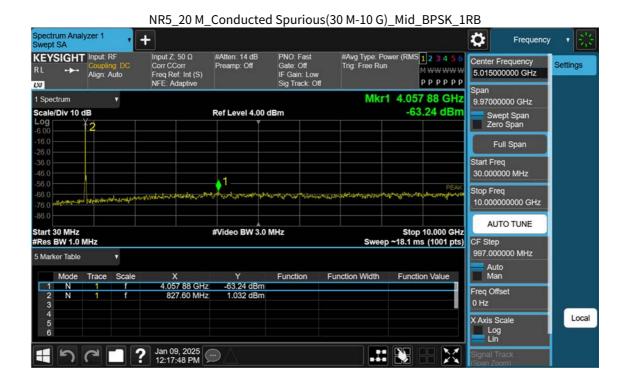
F-TP22-03 (Rev. 06) Page 86 of 114





F-TP22-03 (Rev. 06) Page 87 of 114





F-TP22-03 (Rev. 06) Page 88 of 114





F-TP22-03 (Rev. 06) Page 89 of 114





F-TP22-03 (Rev. 06) Page 90 of 114





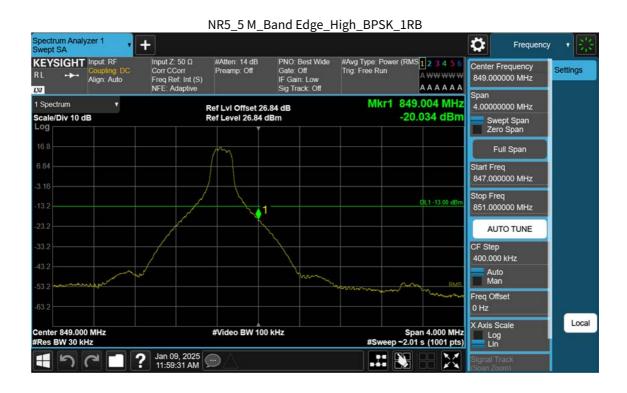
F-TP22-03 (Rev. 06) Page 91 of 114





F-TP22-03 (Rev. 06) Page 92 of 114





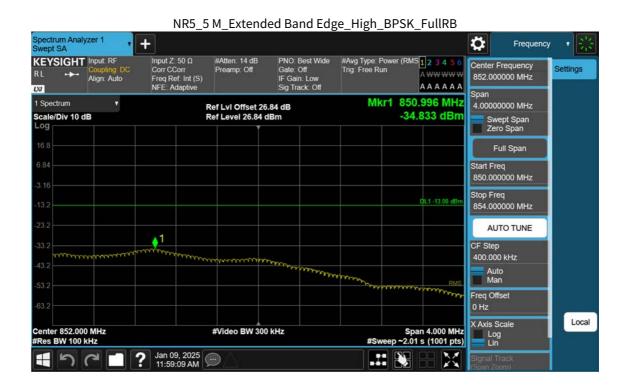
F-TP22-03 (Rev. 06) Page 93 of 114





F-TP22-03 (Rev. 06) Page 94 of 114





F-TP22-03 (Rev. 06) Page 95 of 114





F-TP22-03 (Rev. 06) Page 96 of 114





F-TP22-03 (Rev. 06) Page 97 of 114





F-TP22-03 (Rev. 06) Page 98 of 114





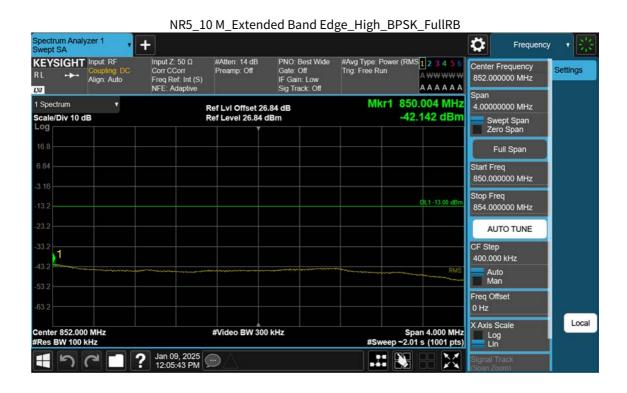
F-TP22-03 (Rev. 06) Page 99 of 114





F-TP22-03 (Rev. 06) Page 100 of 114





F-TP22-03 (Rev. 06) Page 101 of 114





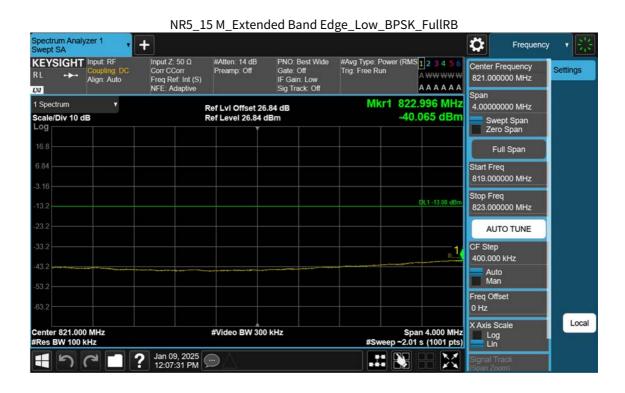
F-TP22-03 (Rev. 06) Page 102 of 114





F-TP22-03 (Rev. 06) Page 103 of 114





F-TP22-03 (Rev. 06) Page 104 of 114





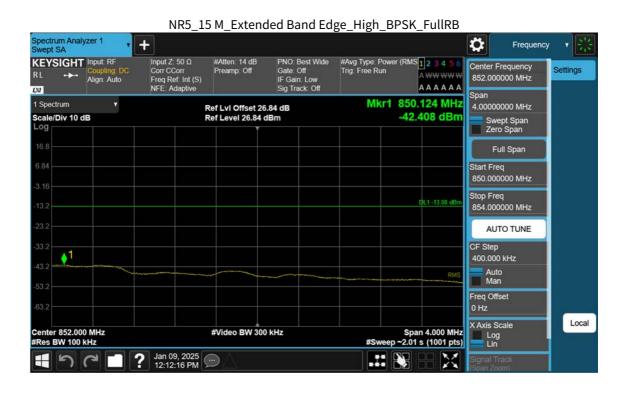
F-TP22-03 (Rev. 06) Page 105 of 114





F-TP22-03 (Rev. 06) Page 106 of 114





F-TP22-03 (Rev. 06) Page 107 of 114