

# **TEST REPORT**

FCC LTE B5 Test for SM-F741B Certification

APPLICANT SAMSUNG Electronics Co., Ltd.

REPORT NO. HCT-RF-2405-FC003

DATE OF ISSUE May 3, 2024

> **Tested by** Jae Mun Do

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F-TP22-03(Rev.06)

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T E S T R E P O R T	REPORT NO. HCT-RF-2405-FC003 DATE OF ISSUE May 03, 2024 Additional Model
Applicant	<b>SAMSUNG Electronics Co., Ltd.</b> 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Product Name Model Name	Mobile phone SM-F741B
Date of Test	March 12, 2024 ~ April 29, 2024
FCC ID	A3LSMF741B
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)
FCC Rule Part(s):	§ 22





# **REVISION HISTORY**

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

Revision No.	Date of Issue	Description
0	May 03, 2024	Initial Release

## Notice

#### Content

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

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

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

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

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	
2.1. DESCRIPTION OF EUT	
2.2. MEASURING INSTRUMENT CALIBRATION	7
2.3. TEST FACILITY	
3. DESCRIPTION OF TESTS	
3.1 TEST PROCEDURE	
3.2 RADIATED POWER	
3.3 RADIATED SPURIOUS EMISSIONS	
3.4 PEAK- TO- AVERAGE RATIO	
3.5 OCCUPIED BANDWIDTH	
3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL	
3.7 BAND EDGE	
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	
5. MEASUREMENT UNCERTAINTY	
6. SUMMARY OF TEST RESULTS	
7. SAMPLE CALCULATION	
8. TEST DATA	
8.1 EFFECTIVE RADIATED POWER	
8.2 RADIATED SPURIOUS EMISSIONS	
8.3 PEAK-TO-AVERAGE RATIO	
8.4 OCCUPIED BANDWIDTH	
8.5 CONDUCTED SPURIOUS EMISSIONS	
8.6 BAND EDGE	
8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE	
8.8 UPLINK CARRIER AGGREGATION	
8.8.1 RADIATED SPURIOUS EMISSIONS	
9. TEST PLOTS	
10. ANNEX A_ TEST SETUP PHOTO1	.06



# **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:	A3LSMF741B				
Application Type:	Certification				
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)				
FCC Rule Part(s):	§ 22				
EUT Type:	Mobile phone				
Model(s):	SM-F741B				
Additional Model(s)	-				
	824.7 MHz – 848.3 MHz (LTE – Band 5 (1.4 MHz))				
T.: Free arrest arr	825.5 MHz – 847.5 MHz (LTE – Band 5 (3 MHz))				
Tx Frequency:	826.5 MHz – 846.5 MHz (LTE – Band 5 (5 MHz))				
	829.0 MHz – 844.0 MHz (LTE – Band 5 (10 MHz))				
Date(s) of Tests:	March 12, 2024 ~ April 29, 2024				
Coriol number	Radiated : R3CX20CZ00N				
Serial number:	Conducted : R3CX30N96FZ				



# **1.1. MAXIMUM OUTPUT POWER**

Mode		Emission		ERP		
(MHz)			Modulation Modulation	Max. Power (W)	Max. Power (dBm)	
		1M10G7D	QPSK	0.107	20.30	
LTE Double (1.4)	0247 0402	1M10W7D	16QAM	0.088	19.45	
LTE – Band5 (1.4)	824.7 - 848.3	1M09W7D	64QAM	0.070	18.48	
		1M10W7D	256QAM	0.034	15.36	
		2M71G7D	QPSK	0.107	20.28	
ITE Bande (2)	825.5 - 847.5	2M72W7D	16QAM	0.089	19.50	
LTE – Band5 (3)		2M71W7D	64QAM	0.070	18.43	
		2M71W7D	256QAM	0.034	15.35	
	826.5 – 846.5 -	4M53G7D	QPSK	0.107	20.30	
LTE – Band5 (5)		4M50W7D	16QAM	0.088	19.45	
		4M52W7D	64QAM	0.071	18.49	
		4M52W7D	256QAM	0.034	15.33	
LTE – Band5 (10)		9M00G7D	QPSK	0.101	20.04	
	829.0 - 844.0	8M99W7D	16QAM	0.084	19.25	
	029.0 - 844.0	9M03W7D	64QAM	0.066	18.20	
		9M01W7D	256QAM	0.032	15.07	





# 2. INTRODUCTION

# **2.1. DESCRIPTION OF EUT**

The EUT was a Mobile Phone with GSM/GPRS/EGPRS/UMTS and LTE, Sub 6. It also supports IEEE 802.11 a/b/g/n/ac/ax (20/40/80/160 MHz), Bluetooth(iPA, ePA), BT LE(iPA, ePA), NFC, WPT, WIFI 6E.

# 2.2. MEASURING INSTRUMENT CALIBRATION

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

# 2.3. TEST FACILITY

The Fully-anechoic chamber and conducted measurement facility used to collect the radiated data are located at the **74**, **Seoicheon-ro 578beon-gil**, **Majang-myeon**, **Icheon-si**, **Gyeonggi-do**, **17383**, **Rep. of KOREA**.





# **3. DESCRIPTION OF TESTS**

# **3.1 TEST PROCEDURE**

Test Description	Test Procedure Used
Occupied Bandwidth	- KDB 971168 D01 v03r01 – Section 4.3 - ANSI C63.26-2015 – Section 5.4.4
Band Edge	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Spurious and Harmonic Emissions at Antenna Terminal	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Conducted Output Power	- 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;

 $P_{d}$  (dBm) = Pg (dBm) - cable loss (dB) + antenna gain (dB)

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

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

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

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





# **3.3 RADIATED SPURIOUS EMISSIONS**

#### **Test Overview**

Radiated tests are performed in the Fully-anechoic chamber.

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

#### **Test Settings**

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

## Test Note

- Measurements value show only up to 3 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 2. The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.

The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the test data

3. For spurious emissions above 1 GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated.

The spurious emissions is calculated by the following formula;

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

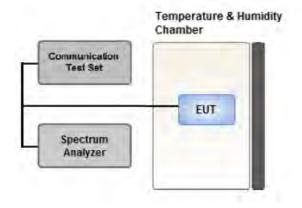
Where:  $\mathsf{P}_{\mathsf{g}}$  is the generator output power into the substitution antenna.

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

EIRP (dBm) = ERP (dBm) + 2.15



# 3.4 PEAK- TO- AVERAGE RATIO



## Test setup

# 1 CCDF Procedure for PAPR

#### **Test Settings**

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

## **②** Alternate Procedure for PAPR

Use one of the procedures presented in 5.2(ANSI C63.26-2015) to measure the total peak power and record as as P  $_{\rm Pk}$ .

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

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



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

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

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

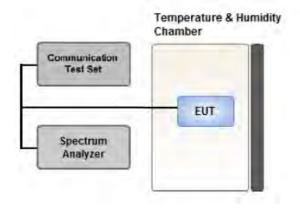
Set  $\geq$  [10 × (number of points in sweep) × (transmission period)] for single sweep

(automation-compatible) measurement. The transmission period is the (on + off) time.

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



# 3.5 OCCUPIED BANDWIDTH.



#### Test setup

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

The EUT makes a call to the communication simulator.

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

The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency.

Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth

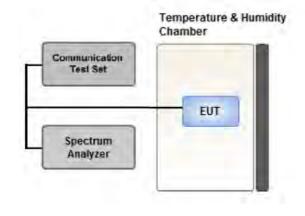
## **Test Settings**

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**

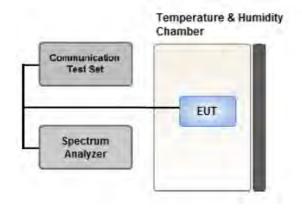
The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured 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  $\geq 2 \times \text{Span} / \text{RBW}$



# 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 >  $3 \times RBW$
- 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



# **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

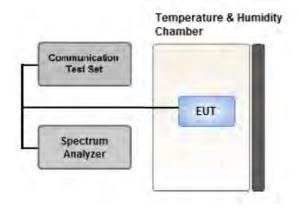
the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

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.



# 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)

- 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 : Stand alone, Stand alone + External accessories (Earphone, AC adapter, etc)
   Worst case : Stand alone
- We were performed the RSE test in condition of co-location.
- Mode : Stand alone, Simultaneous transmission scenarios
- Worst case : Stand alone
- In the case of radiated spurious emissions, all bandwidth of operation were investigated and the worst case bandwidth results are reported. (Worst case :1.4 MHz)
- The EUT was tested in three modes (Open, Half-open, Closed), the worst case configuration results are reported.

Worst case: Open mode.

- The worst case is reported with the EUT positioning, modulations, and paging service configurations shown in the test data.

[ Worst case ]					
Test Description	Modulation	RB size	RB offset	Axis	
	QPSK,	See Section 8.1		х	
Effective Redicted Rewer	16 QAM,				
Effective Radiated Power	64 QAM,				
	256 QAM				
Radiated Spurious and Harmonic Emissions	QPSK	See Sec	ction 8.2	х	

[Worst case]	
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# 3.10 WORST CASE(CONDUCTED TEST)

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

[ Worst case ]						
Test Description	Modulation	Bandwidth (MHz)	Frequency	RB size	RB offset	
Occupied Bandwidth	QPSK, 16 QAM, 64 QAM, 256 QAM	1.4, 3, 5, 10	Mid	Full RB	0	
Peak-To-Average Ratio	QPSK, 16 QAM, 64 QAM, 256 QAM	1.4, 3, 5, 10	Mid	Full RB	0	
	QPSK	1.4	Low	1	0	
		3	High Low	1	5 0	
Band Edge		5	High Low	1	14 0	
		10	High Low High	1 1 1	24 0 49	
		1.4, 3, 5, 10	Low, High	Full RB	0	
Spurious and Harmonic Emissions at Antenna Terminal	QPSK	1.4, 3, 5, 10	Low, Mid, High	1	0	

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

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
RF Switching System	FBSR-02B(1.2G HPF+LNA)	T&M SYSTEM	F1L1	12/11/2024	Annual
RF Switching System	FBSR-02B(3.3G HPF+LNA)	T&M SYSTEM	F1L2	12/11/2024	Annual
Power Splitter(DC ~ 26.5 GHz)	11667B	Hewlett Packard	5001	04/17/2025	Annual
DC Power Supply	E3632A	Agilent	MY40010147	06/23/2024	Annual
Dipole Antenna	UHAP	Schwarzbeck	557	03/09/2025	Biennial
Dipole Antenna	UHAP	Schwarzbeck	558	03/09/2025	Biennial
Chamber	SU-642	ESPEC	93008124	02/19/2025	Annual
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	147	08/17/2025	Biennial
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	9120D-1298	09/11/2025	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	09/29/2024	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	03/28/2025	Biennial
Signal Analyzer(10 Hz ~ 26.5 GHz)	N9020A	Agilent	MY52090906	04/19/2025	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/17/2025	Annual
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	REOHDE & SCHWARZ	100931	08/17/2024	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/10/2024	Annual
Loop Antenna(9 kHz ~ 30 MHz)	FMZB1513	Schwarzbeck	1513-333	03/07/2026	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	895	09/16/2024	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	1135	09/16/2024	Biennial
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262094331	11/17/2024	Annual
Wideband Radio Communication Tester	MT8820C	Anritsu Corp.	6201026545	12/11/2024	Annual
SIGNAL GENERATOR (100 kHz ~ 40 GHz)	SMB100A	REOHDE & SCHWARZ	177633	06/22/2024	Annual
Signal Analyzer(5 Hz ~ 40.0 GHz)	N9030B	KEYSIGHT	MY55480167	05/24/2024	Annual
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.,	-	-	-

# Note:

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

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





# **5. MEASUREMENT UNCERTAINTY**

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

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

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



# **6. SUMMARY OF TEST RESULTS**

6.1 Test Condition : Conducted Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Occupied Bandwidth	§ 2.1049	N/A	PASS
Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§ 2.1051, § 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
Peak- to- Average Ratio	§ 22.913(d)	< 13 dB	PASS
Frequency stability / variation of ambient temperature	§ 2.1055, § 22.355	< 2.5 ppm	PASS

# Note:

1. See SAR Report

## 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	§ 2.1053,	<43 + 10log10 (P[Watts]) for	DACC
Harmonic Emissions	§ 22.917(a)	all out-of band emissions	PASS



# 7. SAMPLE CALCULATION

#### 7.1 ERP Sample Calculation

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

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

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

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

- 3) Record the field strength meter's level.
- 4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
- 5) Increase the signal generator output till the field strength meter's level is equal to the item (3).
- 6) The signal generator output level with Ant. Gain and cable loss are the rating of equivalent isotropic radiated power.



7.3. Emission Designator

#### **GSM Emission Designator**

Emission Designator = 249KGXW GSM BW = 249 kHz G = Phase Modulation X = Cases not otherwise covered W = Combination (Audio/Data)

#### **EDGE Emission Designator**

Emission Designator = 249KG7W GSM BW = 249 kHz G = Phase Modulation 7 = Quantized/Digital Info W = Combination (Audio/Data)

#### WCDMA Emission Designator

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

#### **QPSK Modulation**

Emission Designator = 4M48G7D LTE BW = 4.48 MHz G = Phase Modulation 7 = Quantized/Digital Info D = Data transmission; telemetry; telecommand

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

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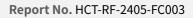


# 8. TEST DATA

# **8.1 EFFECTIVE RADIATED POWER**

Freq	Mod/	Modulatio	Measured	Substit ute	Ant.		_	Limit	El	RP		RB
(MHz)	Bandwidth	n	Level (dBm)	Level (dBm)	Gain (dBd)	C.L	Pol	W	w	dBm	Size	Offset
		QPSK	-30.59	30.31	-10.05	1.38	Н		0.077	18.88		
824.7		16-QAM	-31.42	29.48	-10.05	1.38	Н	-	0.064	18.05	1	5
024.1		64-QAM	-32.48	28.42	-10.05	1.38	Н		0.050	16.99		
		256-QAM	-35.56	25.34	-10.05	1.38	Н		0.025	13.91		
	LTE B5/	QPSK	-30.24	31.05	-10.05	1.40	Н	- <7.00	0.091	19.60		5
836.5		16-QAM	-31.13	30.16	-10.05	1.40	Н		0.074	18.71	- 1	
630.5	1.4 MHz	64-QAM	-32.16	29.13	-10.05	1.40	Н		0.059	17.68		
		256-QAM	-35.23	26.06	-10.05	1.40	Н		0.029	14.61		
		QPSK	-29.86	31.76	-10.05	1.41	Н		0.107	20.30		
040.2		16-QAM	-30.71	30.91	-10.05	1.41	Н		0.088	19.45	1.	_
848.3		64-QAM	-31.68	29.94	-10.05	1.41	Н	Н 0.070	18.48	1	5	
		256-QAM	-34.80	26.82	-10.05	1.41	Н		0.034	15.36		

Freq	Mod/	Modulatio	Measured	Substit ute	Ant.			Limit	El	RP	RB	
(MHz)	Bandwidth	n	Level (dBm)	Level (dBm)	Gain (dBd)	C.L	Pol	w	w	dBm	Size	Offset
		QPSK	-30.60	30.31	-10.05	1.39	Н		0.077	18.87		
07E E		16-QAM	-31.31	29.60	-10.05	1.39	Н		0.066	18.16	1	
823.3	825.5	64-QAM	-32.36	28.55	-10.05	1.39	Н		0.051	17.11	1	14
	256-QAM	-35.55	25.36	-10.05	1.39	Н		0.025	13.92			
	LTE B5/	QPSK	-30.26	31.03	-10.05	1.40	Н	<pre>0.091 0.076 0.059</pre>	0.091	19.58		
02C E		16-QAM	-31.05	30.24	-10.05	1.40	Н		18.79	1	14	
836.5	3 MHz	64-QAM	-32.16	29.13	-10.05	1.40	Н		0.059	17.68	_	14
		256-QAM	-35.23	26.06	-10.05	1.40	Н		0.029	14.61		
		QPSK	-29.89	31.74	-10.05	1.41	Н		0.107	20.28		
847.5		16-QAM	-30.67	30.96	-10.05	1.41	Н		0.089	19.50		14
		64-QAM	-31.74	29.89	-10.05	1.41	Н		18.43	1	14	
		256-QAM	-34.82	26.81	-10.05	1.41	Н		0.034	15.35		





Freq	Mod/	Modulatio	Measured	Substit ute	Ant.		_	Limit	El	RP		RB
(MHz)	Bandwidth	n	Level (dBm)	Level (dBm)	Gain (dBd)	C.L	Pol	w	w	dBm	Size	Offset
		QPSK	-30.56	30.34	-10.05	1.39	Н		0.078	18.90		
826.5		16-QAM	-31.36	29.54	-10.05	1.39	Н		0.065	18.10	1	24
020.5	26.5	64-QAM	-32.45	28.45	-10.05	1.39	Н		0.050	17.01		24
	256-QAM	-35.55	25.35	-10.05	1.39	Н		0.025	13.91			
	LTE B5/	QPSK	-30.27	31.02	-10.05	1.40	Н	< 7.00	0.091	19.57	- 1 24	
836.5		16-QAM	-31.02	30.27	-10.05	1.40	Н		0.076	18.82		24
630.3	5 MHz	64-QAM	-32.14	29.15	-10.05	1.40	Н		0.059	17.70		24
		256-QAM	-35.19	26.10	-10.05	1.40	Н		0.029	14.65		
		QPSK	-29.92	31.76	-10.05	1.41	Н		0.107	20.30		
046 5		16-QAM	-30.77	30.91	-10.05	1.41	Н		0.088	19.45		24
846.5		64-QAM	-31.73	29.95	-10.05	1.41	Н		0.071 1	18.49	1	24
		256-QAM	-34.89	26.79	-10.05	1.41	Н		0.034	15.33		

Freq	Mod/	Modulatio	Measured	Substit ute	Ant.			Limit	El	RP		RB
(MHz)	Bandwidth	n	Level (dBm)	Level (dBm)	Gain (dBd)	C.L	Pol	W	w	dBm	Size	Offset
		QPSK	-30.53	30.49	-10.05	1.39	Н		0.080	19.05		
829.0		16-QAM	-31.25	29.77	-10.05	1.39	Н		0.068	18.33	1 3	49
829.0		64-QAM	-32.45	28.57	-10.05	1.39	Н		0.052	17.13		49
		256-QAM	-35.44	25.58	-10.05	1.39	Н		0.026	14.14		
	LTE B5/	QPSK	-30.15	31.14	-10.05	1.40	Н	_	0.093	19.69	- 1	49
836.5		16-QAM	-30.96	30.33	-10.05	1.40	Н		0.077	18.88		
630.3	10 MHz	64-QAM	-31.95	29.34	-10.05	1.40	Н	< 7.00	0.062	17.89	T	49
		256-QAM	-35.10	26.19	-10.05	1.40	Н		0.030	14.74	-	
		QPSK	-29.98	31.50	-10.05	1.41	Н		0.101	20.04		
844.0		16-QAM	-30.77	30.71	-10.05	1.41	Н		0.084	19.25	1	40
		64-QAM	-31.82	29.66	-10.05	1.41	Н		0.066	18.20	1	49
		256-QAM	-34.95	26.53	-10.05	1.41	Н	0.032	0.032	15.07		



# **8.2 RADIATED SPURIOUS EMISSIONS**

MODE:	LTE B5
MODULATION SIGNAL:	1.4 MHz QPSK

DISTANCE:

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit
	1 649.40	-57.57	9.20	-66.56	2.02	V	-59.38	-13.00
	2 474.10	-60.31	10.20	-64.00	2.47	V	-56.27	-13.00
20407 (824.7)	3 298.80	-61.40	10.90	-63.62	2.92	V	-55.64	-13.00
(024.1)	4 123.50	-60.97	11.30	-60.26	3.22	V	-52.18	-13.00
	4 948.20	-62.97	10.90	-58.32	3.59	V	-51.01	-13.00
	1 673.00	-58.45	9.20	-67.63	2.03	V	-60.46	-13.00
	2 509.50	-59.87	10.30	-64.40	2.50	V	-56.60	-13.00
20525 (836.5)	3 346.00	-60.92	10.95	-63.81	2.89	V	-55.75	-13.00
(000.5)	4 182.50	-61.76	11.30	-61.61	3.30	V	-53.61	-13.00
	5 019.00	-63.10	10.70	-58.04	3.55	V	-50.89	-13.00
	1 696.60	-57.50	9.40	-66.12	2.00	V	-58.72	-13.00
	2 544.90	-60.91	10.25	-65.63	2.54	V	-57.92	-13.00
20643 (848.3)	3 393.20	-61.61	11.00	-64.32	2.94	V	-56.26	-13.00
(0-10.0)	4 241.50	-62.21	11.20	-61.64	3.29	V	-53.73	-13.00
	5 089.80	-62.83	10.70	-57.85	3.64	V	-50.79	-13.00

3 meters



# 8.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
			QPSK			4.70
	1 4 1411		16-QAM	- 6		5.83
	1.4 MHz		64-QAM			6.37
			256-QAM			6.62
		MHz 836.5	QPSK			4.70
	2 1411		16-QAM	- 15		5.92
3	3 MHZ		64-QAM			6.42
_			256-QAM		_	6.58
5			QPSK	-	0	4.77
			16-QAM			5.73
	5 MHz		64-QAM	25		6.36
			256-QAM			6.57
			QPSK			4.86
	10.141		16-QAM	50		5.79
	10 MHz		64-QAM	50		6.36
			256-QAM			6.55

# Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 78  $\sim$  93.

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# 8.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
			QPSK			1.0974
	1 4 1411		16-QAM	- 6		1.0976
	1.4 MHz		64-QAM			1.0934
			256-QAM			1.1018
3 N			QPSK	- 15		2.7093
	2 1411		16-QAM			2.7145
	3 MHz		64-QAM			2.7083
_			256-QAM			2.7090
5		836.5	QPSK	-	0 -	4.5247
			16-QAM			4.5023
	5 MHz		64-QAM	25		4.5154
			256-QAM			4.5151
			QPSK			9.0040
	10.141		16-QAM	50		8.9903
	10 MHz		64-QAM	50		9.0306
			256-QAM			9.0093

# Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 62 ~ 77.

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Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
		824.7	3.6825	27.976	-67.032	-39.056	
	1.4	836.5	3.7094	27.976	-67.173	-39.197	
		848.3	3.7005	27.976	-66.992	-39.016	
	3	825.5	3.7069	27.976	-66.793	-38.817	
		3	836.5	3.6780	27.976	-66.932	-38.956
F		847.5	3.7005	27.976	-67.061	-39.085	12.00
5		826.5	3.6830	27.976	-66.934	-38.958	-13.00
	5	836.5	3.7149	27.976	-67.205	-39.229	
		846.5	3.6930	27.976	-66.751	-38.775	
		829.0	3.6895	27.976	-67.352	-39.376	
	10	836.5	3.6935	27.976	-66.887	-38.911	
		844.0	3.7094	27.976	-67.180	-39.204	

# **8.5 CONDUCTED SPURIOUS EMISSIONS**

#### Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 94 ~ 105.

2. Conducted Spurious Emissions was Tested QPSK Modulation, Resource Block Size 1 and Resource Block Offset 0

3. Result (dBm) = Measurement Maximum Data (dBm) + Factor (dB)

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

# 8.6 BAND EDGE

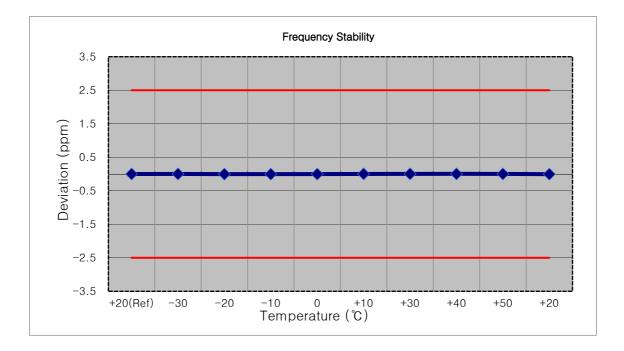
- Plots of the EUT's Band Edge are shown Page 38 ~ 61.



# 8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

MODE:	LTE B5
OPERATING FREQUENCY:	836,500,000 Hz
CHANNEL:	20525 (1.4 MHz)
REFERENCE VOLTAGE:	3.880 VDC
DEVIATION LIMIT:	$\pm~$ 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	D. Frequency Frequency Deviation			
(%)	(VDC)	(°C)	(Hz)	Error (Hz)	(%)	- ppm
100 %		+20(Ref)	836 500 002	0.0	0.000 000	0.000
100 %		-30	836 500 003	1.6	0.000 000	0.002
100 %	3.880	-20	836 499 999	-2.7	0.000 000	-0.003
100 %		-10	836 499 998	-3.9	0.000 000	-0.005
100 %		0	836 500 000	-2.0	0.000 000	-0.002
100 %		+10	836 500 005	3.0	0.000 000	0.004
100 %		+30	836 500 005	3.4	0.000 000	0.004
100 %	-	+40	836 500 004	2.6	0.000 000	0.003
100 %		+50	836 500 004	2.3	0.000 000	0.003
Batt. Endpoint	3.300	+20	836 499 998	-4.1	0.000 000	-0.005



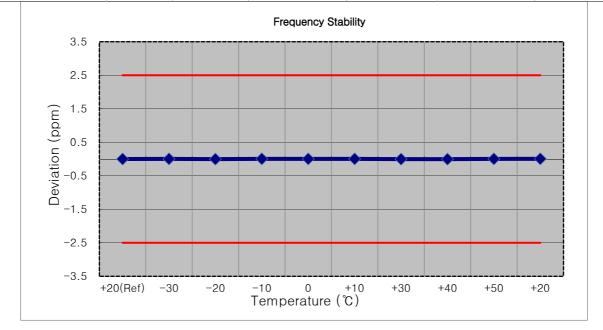
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MODE:	LTE B5
OPERATING FREQUENCY:	836,500,000 Hz
CHANNEL:	18900(3 MHz)
REFERENCE VOLTAGE:	3.880 VDC
DEVIATION LIMIT:	$\pm$ 0.000 25 % or 2.5 ppm

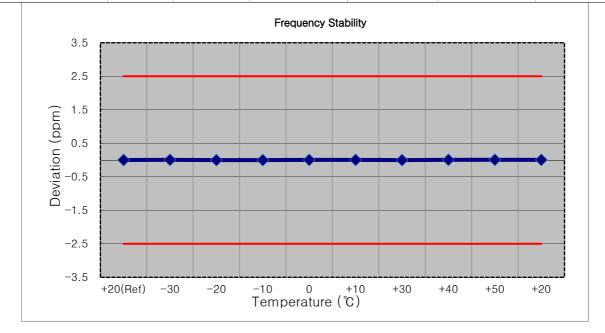
Voltage	Power	Temp.	Frequency	Frequency	Deviation	
(%)	(VDC)	(°C)	(Hz)	Error (Hz)	(%)	- ppm
100 %		+20(Ref)	836 499 996	0.0	0.000 000	0.000
100 %		-30	836 499 999	2.8	0.000 000	0.003
100 %	3.880	-20	836 499 993	-2.7	0.000 000	-0.003
100 %		-10	836 500 000	3.8	0.000 000	0.005
100 %		0	836 499 999	3.0	0.000 000	0.004
100 %		+10	836 499 999	2.7	0.000 000	0.003
100 %		+30	836 499 993	-2.8	0.000 000	-0.003
100 %		+40	836 499 993	-3.3	0.000 000	-0.004
100 %		+50	836 499 999	2.8	0.000 000	0.003
Batt. Endpoint	3.300	+20	836 500 001	4.6	0.000 001	0.005





MODE:	LTE B5
OPERATING FREQUENCY:	836,500,000 Hz
CHANNEL:	18900(5 MHz)
REFERENCE VOLTAGE:	3.880 VDC
DEVIATION LIMIT:	$\pm$ 0.000 25 % or 2.5 ppm

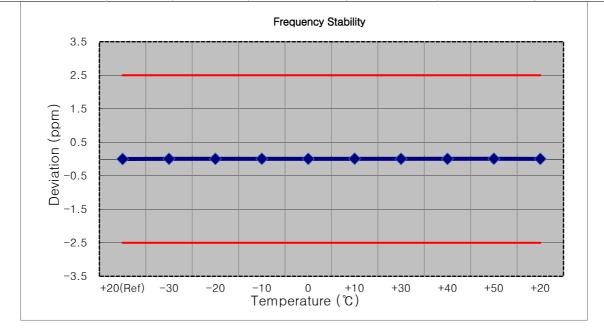
Voltage	Power	Temp.	Frequency	Frequency	Deviation	
(%)	(VDC)	(°C)	(Hz)	Error (Hz)	(%)	- ppm
100 %		+20(Ref)	836 499 996	0.0	0.000 000	0.000
100 %		-30	836 500 000	4.2	0.000 001	0.005
100 %	3.880	-20	836 499 994	-2.5	0.000 000	-0.003
100 %		-10	836 499 994	-2.0	0.000 000	-0.002
100 %		0	836 499 999	3.1	0.000 000	0.004
100 %		+10	836 499 999	3.2	0.000 000	0.004
100 %		+30	836 499 994	-2.2	0.000 000	-0.003
100 %		+40	836 500 000	4.1	0.000 000	0.005
100 %		+50	836 500 002	5.6	0.000 001	0.007
Batt. Endpoint	3.300	+20	836 500 000	4.0	0.000 000	0.005





MODE:	LTE B5
OPERATING FREQUENCY:	836,500,000 Hz
CHANNEL:	18900(10 MHz)
REFERENCE VOLTAGE:	3.880 VDC
DEVIATION LIMIT:	$\pm$ 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency	Deviation	
(%)	(VDC)	(°C)	(Hz)	Error (Hz)	(%)	ppm
100 %		+20(Ref)	836 500 006	0.0	0.000 000	0.000
100 %		-30	836 500 011	4.9	0.000 001	0.006
100 %	3.880	-20	836 500 009	3.6	0.000 000	0.004
100 %		-10	836 500 011	5.2	0.000 001	0.006
100 %		0	836 500 010	4.5	0.000 001	0.005
100 %		+10	836 500 013	7.4	0.000 001	0.009
100 %		+30	836 500 010	3.9	0.000 000	0.005
100 %		+40	836 500 010	3.9	0.000 000	0.005
100 %		+50	836 500 012	6.6	0.000 001	0.008
Batt. Endpoint	3.300	+20	836 500 009	3.1	0.000 000	0.004





# 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.
  - 5A(ANT A)-4A(ANT A)

(PCC - Modulation: QPSK, RB: 1, RB Offset: 24, SCC - Modulation: QPSK, RB: 1, RB Offset: 0)

- 5A(ANT A)-66A(ANT A)

(PCC - Modulation: QPSK, RB: 1, RB Offset: 24, SCC - Modulation: QPSK, RB: 1, RB Offset: 0)

# Radiated Spurious Emissions

DCC	PCC SCC		CC	SCC		
PCC	SCC	BW(MHz)	Channel	BW(MHz)	Channel	
5A(ANT A)	4A(ANT A)	5	20625	15	20325	
5A(ANT A)	66A(ANT A)	5	20625	15	132322	



# **8.8.1 RADIATED SPURIOUS EMISSIONS**

# 5A(ANT A)(PCC)- 4A(ANT A)(SCC)

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)	Limit (dBm)
1 693.00	-54.52	9.82	-64.78	2.18	Н	-57.14	-13.00
2 539.50	-56.90	10.67	-60.33	2.63	Н	-52.29	-13.00
3 386.00	-60.53	3.05	-42.70	12.53	Н	-52.18	-13.00

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)	Limit (dBm)
3 495.00	-55.06	12.34	-61.13	3.09	н	-51.88	-13.00
5 242.50	-56.94	12.87	-56.09	3.95	Н	-47.17	-13.00
6 990.00	-58.70	11.36	-50.49	4.58	Н	-43.71	-13.00

#### 5A(ANT A)(PCC)- 66A(ANT A)(SCC)

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)	Limit (dBm)
1 693.00	-53.50	9.82	-63.76	2.18	н	-56.12	-13.00
2 539.50	-58.20	10.67	-61.63	2.63	Н	-53.59	-13.00
3 386.00	-60.76	3.05	-42.93	12.53	Н	-52.41	-13.00

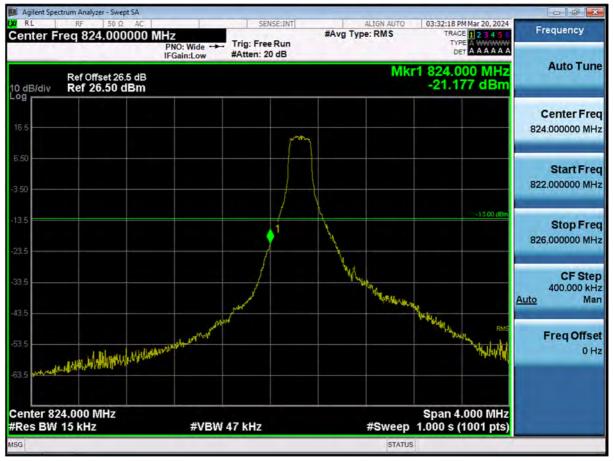
Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)	Limit (dBm)
3 490.00	-57.00	12.34	-63.01	3.08	Н	-53.75	-13.00
5 235.00	-57.97	12.84	-57.05	3.95	Н	-48.16	-13.00
6 980.00	-57.68	11.40	-50.07	4.56	Н	-43.23	-13.00



Report No. HCT-RF-2405-FC003

# 9. TEST PLOTS





#### SM-F741B\_LTE5\_1.4 M\_BandEdge\_Low\_QPSK\_1RB

F-TP22-03 (Rev. 05)



Agilent Spectrum Analyzer - Swept SA					- 6 ×
RL RF 50Ω AC Center Freq 824.000000 M		SENSE:INT	#Avg Type: RMS	03:31:34 PM Mar 20, 2024 TRACE 1 2 3 4 5 5 TYPE A 4 4 4 4 A	Frequency
Ref Offset 26.5 dB 10 dB/div Ref 26.50 dBm	IFGain:Low	#Atten: 20 dB	Mk	r1 824.000 MHz -26.473 dBm	Auto Tune
16.5					Center Freq 824.000000 MHz
3.50		prove and a second	geographic second and an and an and an and an and an		Start Freq 822.000000 MHz
23.5				-13.00 dBin	Stop Freq 826.000000 MHz
43.5		North Contraction of the Contrac		RMS RMS	CF Step 400.000 kHz Auto Mar
53,5	and the second second				Freq Offset 0 Hz
-63.5 Center 824.000 MHz #Res BW 15 kHz	#VBW	47 kHz	#Sween	Span 4.000 MHz 1.000 s (1001 pts)	
MSG	# * DV		STATUS		

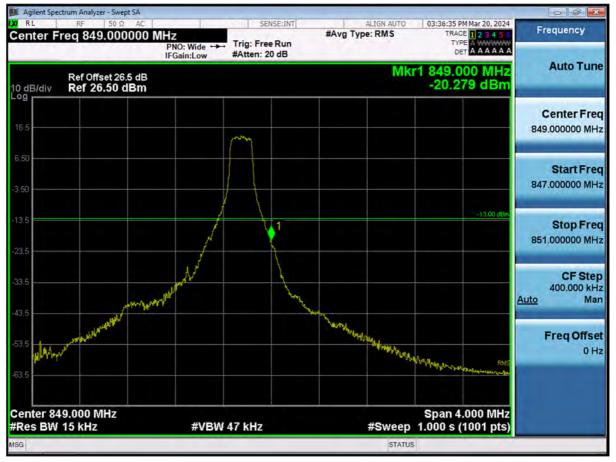
## SM-F741B\_LTE5\_1.4 M\_BandEdge\_Low\_QPSK\_FullRB



- 6 ×				Agilent Spectrum Analyzer - Swept SA
Frequency	03:31:53 PM Mar 20, 2024 TRACE 1 2 3 4 5 6 TYPE A WAYNAW DET A A A A A A	#Avg Type: RMS	Trig: Free Run #Atten: 20 dB	Z RL RF 50Ω AC Center Freq 821.0000000 MHz PNO: Wide ↔ IFGain:Low
Auto Tune	1 823.000 MHz -39.831 dBm	Mkı	writen. 20 ab	Ref Offset 26.5 dB 10 dB/div Ref 26.50 dBm
Center Freq 821.000000 MHz				16.5
Start Freq 819.000000 MHz				3.50
Stop Freq 823.000000 MHz	-13.00 dBm			23.5
CF Step 400.000 kHz Auto Mar	1 RM			43.5
Freq Offset 0 Hz			and the second	53,5
	Span 4.000 MHz 1.000 s (1001 pts)	#Sween	V 300 kHz	-63.5 Center 821.000 MHz #Res BW 100 kHz #VBW
		STATUS		

#### SM-F741B\_LTE5\_1.4 M\_Extended Band Edge\_Low\_QPSK\_FullRB





#### SM-F741B\_LTE5\_1.4 M\_BandEdge\_High\_QPSK\_1RB





#### SM-F741B\_LTE5\_1.4 M\_BandEdge\_High\_QPSK\_FullRB



Agilent Spectrum Analyzer - Swept SA				- 6 ×
Center Freq 852.000000 N	PNO: Wide +++ IFGain:Low #Atten: 20 dB	ALIGN AUTO #Avg Type: RMS	03:36:06 PM Mar 20, 2024 TRACE 1 2 3 4 5 6 TYPE A WAAAAAA DET A A A A A A A	Frequency
Ref Offset 26.5 dB 0 dB/div Ref 26.50 dBm	In Gam. Low Witten 20 CD	Mk	r1 850.004 MHz -34.024 dBm	Auto Tune
16.5				Center Free 852.000000 MH
3.50				Start Fre 850.000000 MH
23.5			-13.00 dBm	Stop Free 854.000000 MH
13.5				CF Ste 400.000 kH <u>Auto</u> Ma
33.5		a the set of the second devices of the second devices of the second devices of the second devices of the second	A	Freq Offse 0 H
Center 852.000 MHz #Res BW 100 kHz	#VBW 300 kHz	#Sweep	Span 4.000 MHz 1.000 s (1001 pts)	
SG		STATU	S	

#### SM-F741B\_LTE5\_1.4 M\_Extended Band Edge \_High\_QPSK\_FullRB





- 8 ×								nalyzer - Swep		
Frequency	03:38:03 PM Mar 20, 2024 TRACE 1 2 3 4 5 0 TYPE A WWWWWW	ALIGN AUTO	1	ense:INT	1	Z NO: Wide	AC 000 MH	50 Ω 824.000	er Freq	Cent
Auto Tune	1 824.000 MHz -21.874 dBm	Mkr			#Atten: 2	FGain:Low	dB	<sup>f</sup> Offset 26. f <b>26.50</b> d		10 dB Log r
Center Freq 824.000000 MHz			7	ſ						16.5 -
Start Freq 822.000000 MHz										5.60 - -3.50 -
Stop Freq 826.000000 MHz	-13.00 dBm		Á	1						-13.5 -
CF Step 400.000 kHz Auto Man		holon Markander			-					-33.5 -
Freq Offset 0 Hz	and have been and					and and a start of the start of	$\wedge$	تستعدله مقدله	er ang te langer gang ang	-43.5 -53.5 -
	Span 4.000 MHz 1.000 s (1001 pts)	#Sween			91 kHz	#VBW		0 MHz	er 824.00 BW 30 k	-63.5 Cent
		STATUS			5 T KH2	WV DVV		1112	DW JU N	VISG

#### SM-F741B\_LTE5\_3 M\_BandEdge\_Low\_QPSK\_1RB





Agilent Spectrum Analyzer - Swept SA					- 6 ×
RL RF 50 Ω AC Center Freq 824.000000 M	PNO: Wide -	rig: Free Run Atten: 20 dB	#Avg Type: RMS	03:37:19 PM Mar 20, 2024 TRACE 2 3 4 5 5 TYPE A MARA A A	Frequency
Ref Offset 26.5 dB 10 dB/div Ref 26.50 dBm	IFGain:Low #	Atten. 20 00	Mk	r1 824.000 MHz -25.176 dBm	Auto Tune
16.5					Center Freq 824.000000 MHz
-3.50				RMS	Start Freq 822.000000 MHz
-13.5				-13.00 dBm	Stop Freq 826.000000 MHz
-33.5	and a start of the start of the				CF Step 400.000 kHz <u>Auto</u> Man
-43.5 					Freq Offset 0 Hz
-63.5 Center 824.000 MHz #Res BW 30 kHz	#VBW 91	kH7	#Sween	Span 4.000 MHz 1.000 s (1001 pts)	
NSG	<i>"•</i> <b>• • •</b> • •		STATU	1	

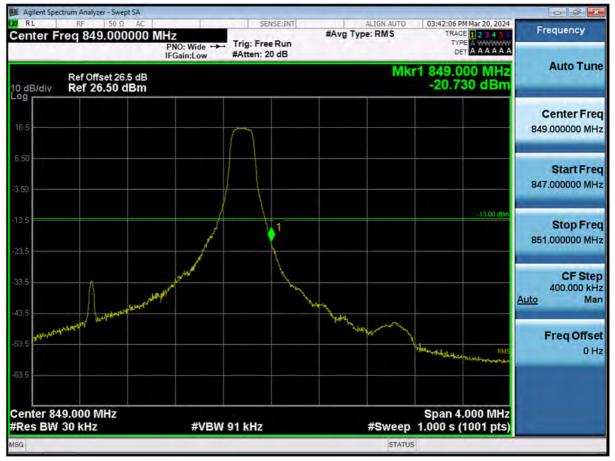
#### SM-F741B\_LTE5\_3 M\_BandEdge\_Low\_QPSK\_FullRB



- 6 ×				rum Analyzer - Swept SA	
Frequency	03:37:38 PM Mar 20, 2024 TRACE 1 2 3 4 5 0 TYPE A WWWWW DET A A A A A A A	#Avg Type: RMS	SENSE:INT	RF 50 Ω AC eq 821.000000 MHz PNO: Wide ++	
Auto Tune	1 822.996 MHz -39.505 dBm	Mkr	#Atten: 20 dB	IFGain:Low Ref Offset 26.5 dB Ref 26.50 dBm	
Center Fred 821.000000 MHz					16.5
Start Free 819.000000 MH					3.50
Stop Free 823.000000 MH;	-13.00 dBm				13.5
CF Step 400.000 kH Auto Mar	1. RMA				33.5
Freq Offse 0 Ha					53,5
	Span 4.000 MHz 1.000 s (1001 pts)	#Sween	300 kHz	1.000 MHz	-63.5 Center 821.00 #Res BW 100
-		STATUS			ASG

### SM-F741B\_LTE5\_3 M\_Extended Band Edge\_Low\_QPSK\_FullRB





#### SM-F741B\_LTE5\_3 M\_BandEdge\_High\_QPSK\_1RB





Agilent Spectrum Analyzer - Swept SA					00 8
	PNO: Wide	SENSE:INT Trig: Free Run #Atten: 20 dB	#Avg Type: RMS	03:41:19 PM Mar 20, 2024 TRACE 1 2 3 4 5 5 TYPE A 4 4 A A A A	Frequency
Ref Offset 26.5 dB D dB/div Ref 26.50 dBm	FGain:Low		Mk	r1 849.000 MHz -24.563 dBm	Auto Tune
16.5					Center Freq 849.000000 MHz
1.50		7			Start Freq 847.000000 MHz
3.5		1		-13.00 dBm	Stop Freq 851.000000 MHz
13.5			nited water and the second	RMS	CF Step 400.000 kHz Auto Man
i3.5					Freq Offset 0 Hz
enter 849.000 MHz Res BW 30 kHz	#VBW 9	1 kH7	#Sweep	Span 4.000 MHz 1.000 s (1001 pts)	
IG IG			STATU		

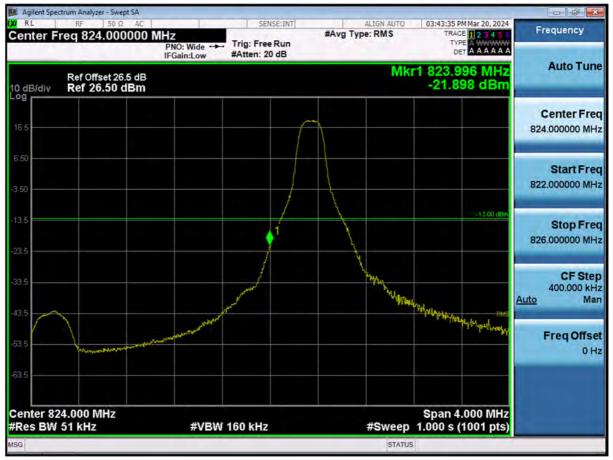
### SM-F741B\_LTE5\_3 M\_BandEdge\_High\_QPSK\_FullRB



Agilent Spectrum Analyzer - Swept SA		and the second second second		- 6 ×
enter Freq 852.000000	MHZ PNO: Wide Trig: Free Run IFGain:Low #Atten: 20 dB	#Avg Type: RMS	03:41:38 PM Mar 20, 2024 TRACE 1 2 3 4 5 6 TYPE A WARANA A	Frequency
Ref Offset 26.5 dB 10 dB/div Ref 26.50 dBm	IFGain:Low #Atten, 20 db	Mk	r1 850.056 MHz -32.114 dBm	Auto Tune
16.5				Center Freq 852.000000 MHz
3.50				Start Fred 850.000000 MHz
23.5			-13.00 dBm	Stop Freq 854.000000 MHz
43.5	warman a state of the state of			CF Step 400.000 kHz Auto Mar
53.5			RMS	Freq Offset 0 Hz
63.5 Center 852.000 MHz #Res BW 100 kHz	#VBW 300 kHz	#Sweep	Span 4.000 MHz 1.000 s (1001 pts)	
ISG		STATU	1	

### SM-F741B\_LTE5\_3 M\_Extended Band Edge\_High\_QPSK\_FullRB





#### SM-F741B\_LTE5\_5 M\_BandEdge\_Low\_QPSK\_1RB





Agilent Spectrum Analyzer - Swept SA					- 6 ×
X RL RF 50Ω AC Center Freq 824.000000 M	PNO: Wide	SENSE:INT Trig: Free Run #Atten: 20 dB	ALIGN AUTO #Avg Type: RMS	03:42:51 PM Mar 20, 2024 TRACE 1 2 3 4 5 6 TYPE A WARNAW DET A A A A A A	Frequency
Ref Offset 26.5 dB 10 dB/div Ref 26.50 dBm			Mk	r1 824.000 MHz -26.831 dBm	Auto Tune
16.5					Center Freq 824.000000 MHz
3.50				RMS	Start Fred 822.000000 MH:
23.5		1		-13.00 dBm	Stop Free 826.000000 MH:
43.5	and determined on the second se				CF Step 400,000 kH <u>Auto</u> Ma
53.5					Freq Offse 0 H
63.5 Center 824.000 MHz #Res BW 51 kHz	#\/B\A	160 kHz	#Sween	Span 4.000 MHz 1.000 s (1001 pts)	
ISG	# V D V V		STATU		

### SM-F741B\_LTE5\_5 M\_BandEdge\_Low\_QPSK\_FullRB

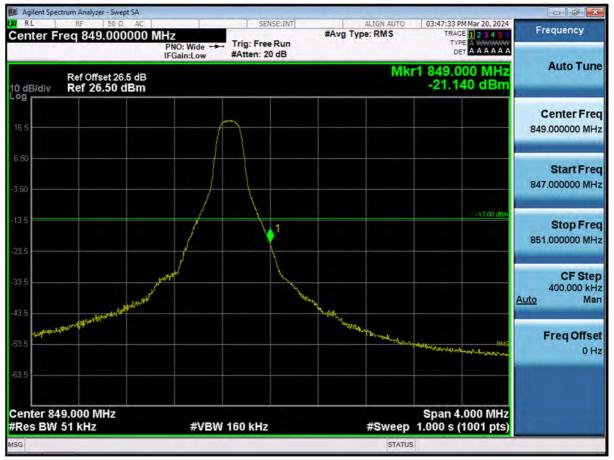
F-TP22-03 (Rev. 05)



- 6 ×	- management			trum Analyzer - Swept SA	
Frequency	03:43:10 PM Mar 20, 2024 TRACE 1 2 3 4 5 5 TYPE A A A A A A A DET A A A A A A A	#Avg Type: RMS	- Trig: Free Run #Atten: 20 dB	RF         50 Ω         AC           req 821.000000 MHz         PNO: Wide         PNO: Wide	X RL Center Fre
Auto Tune	1 822.984 MHz -36.016 dBm	Mki	#Atten: 20 dB	IFGain:Low Ref Offset 26.5 dB Ref 26.50 dBm	10 dB/div
Center Freq 821.000000 MHz					16.5
Start Freq 819.000000 MHz					-3.50
Stop Freq 823.000000 MHz	-13.00 dBm				-13.5
CF Step 400.000 kHz Auto Man	Provent and the second s				-33.5
Freq Offset 0 Hz					-53.5
	Span 4.000 MHz 1.000 s (1001 pts)	#Sweep	300 kHz	21.000 MHz 100 kHz #VBW	-63.5 Center 821 #Res BW 1
		STATUS			ISG

### SM-F741B\_LTE5\_5 M\_BandEdge4M\_Low\_QPSK\_FullRB





#### SM-F741B\_LTE5\_5 M\_BandEdge\_High\_QPSK\_1RB



- 6 ×				trum Analyzer - Swept SA	
Frequency	03:46:44 PM Mar 20, 2024 TRACE 1 2 3 4 5 5 TYPE A 44 A A A A DET A A A A A A	#Avg Type: RMS	SENSE:INT	RF         50 Ω         AC           req 849.000000 MHz         PNO: Wide →	Center Fi
Auto Tune	1 849.000 MHz -26.601 dBm	Mkı	#Atten: 20 dB	IFGain:Low Ref Offset 26.5 dB Ref 26.50 dBm	10 dB/div
Center Freq 849.000000 MHz					16.5
Start Fred 847.000000 MH:					5.50 3,50
Stop Free 851.000000 MH:	-13.00 dBm		11		13.5 <b></b> 23.5 <b></b>
CF Step 400.000 kH: Auto Mar	RMS E	an a			43.5
Freq Offse 0 H					53.5 <b></b>
	Span 4.000 MHz 1.000 s (1001 pts)	#Sweep	160 kHz	9.000 MHz 51 kHz #VBW	Center 84
		STATUS			ISG

### SM-F741B\_LTE5\_5 M\_BandEdge\_High\_QPSK\_FullRB



Agilent Spectrum Analyzer - Swept SA				- 6 ×
Center Freq 852.000000 Ν	PNO: Wide IFGain:Low #Atten: 20 dB	#Avg Type: RMS	03:47:04 PM Mar 20, 2024 TRACE 1 2 3 4 5 6 TYPE A WARANA A	Frequency
Ref Offset 26.5 dB 0 dB/div Ref 26.50 dBm		Mk	r1 850.024 MHz -33.888 dBm	Auto Tune
16.5				Center Freq 852.000000 MHz
3.50				Start Fred 850.000000 MHz
23.5			-13.00 dBm	Stop Fred 854.000000 MH2
13.5	nan man a fa stand an an an a fa fa dao 11 da an			CF Step 400,000 kH: Auto Mar
53,5			RMS	Freq Offset 0 Hz
63.5 Center 852.000 MHz #Res BW 100 kHz	#VBW 300 kHz	#Sweep	Span 4.000 MHz 1.000 s (1001 pts)	
ISG		STATU	S	

### SM-F741B\_LTE5\_5 M\_Extended Band Edge\_High\_QPSK\_FullRB



Agilent Spectrum Analyzer - Swept SA					- 6 ×
RL RF 50 Ω AC Center Freq 824.000000 Γ	PNO: Wide	SENSE:INT	#Avg Type: RMS	03:49:01 PM Mar 20, 202 TRACE 1 2 3 4 5 TYPE A	Frequency
Ref Offset 26.5 dB 10 dB/div Ref 26.50 dBm	IFGain:Low	#Atten: 20 dB	Mk	r1 824.000 MH -30.180 dBr	Auto Tune
16.5					Center Freq 824.000000 MHz
3.50					Start Free 822.000000 MHz
23.5				-13.00 dE	Stop Freq 826.000000 MHz
43.5		and the	, , , , , , , , , , , , , , , , , , ,	Mannahren RI	
53.5	and a start of the				Freq Offset 0 Hz
-63.5 Center 824.000 MHz #Res BW 100 kHz	#VBW 3	300 kHz	#Sween	Span 4.000 MH 0 1.000 s (1001 pts	Z
M5G			STATU		<u> </u>

# SM-F741B\_LTE5\_10 M\_BandEdge\_Low\_QPSK\_1RB

F-TP22-03 (Rev. 05)



Agilent Spectrum Analyzer - Swept SA		-			- 6 ×			
X RL RF 50 Ω AC Center Freq 824.000000		SENSE:INT	#Avg Type: RMS	03:48:17 PM Mar 20, 2024 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A A A A A A	Frequency			
Ref Offset 26.5 dB 10 dB/div Ref 26.50 dBm	IFGain:Low	#Atten: 20 dB	Mk	r1 823.996 MHz -28.059 dBm	Auto Tune			
- <b>og</b> 16.5					Center Freq 824.000000 MHz			
3.50				RME	Start Freq 822.000000 MHz			
23.5		1-1		-13.00 dBm	Stop Freq 826.000000 MHz			
43.5		and and a second and			CF Step 400.000 kHz Auto Mar			
53.5					Freq Offse 0 Ha			
63.5 Center 824.000 MHz #Res BW 100 kHz	#VBW	300 kHz	#Sweep	Span 4.000 MHz 1.000 s (1001 pts)				
15G			STATUS					

## SM-F741B\_LTE5\_10 M\_BandEdge\_Low\_QPSK\_FullRB



Agilent Spectrum Analyzer - Swept SA				- 6 ×		
RL RF 50 Ω AC Center Freq 821.000000	MHz PNO: Wide	#Avg Type: RMS	03:48:36 PM Mar 20, 2024 TRACE 1 2 3 4 5 5 TYPE A XXXXXXX DET A A A A A A	Frequency		
Ref Offset 26.5 dB         Mkr1 822.984 MHz           10 dB/div         Ref 26.50 dBm						
16.5				Center Fred 821.000000 MH:		
3.50				Start Free 819.000000 MH		
13.5			-13.00 dBm	Stop Free 823.000000 MH		
13.5	and working any many many many many many many many	an a	1 RM	CF Ste 400.000 kH Auto Ma		
				Freq Offse 0 H		
©enter 821.000 MHz Res BW 100 kHz	#VBW 300 kHz	#Sweep	Span 4.000 MHz 1.000 s (1001 pts)			
SG		STATU		-		

#### SM-F741B\_LTE5\_10 M\_Extended Band Edge\_Low\_QPSK\_FullRB



Agilent Spectrum A						- 6 ×
Center Freq	F 50 Ω AC 849.000000	MHz PNO: Wide	SENSE:INT Trig: Free Run #Atten: 20 dB	#Avg Type: RMS	03:52:56 PM Mar 20, 2024 TRACE 1 2 3 4 5 5 TYPE A WWWWW DET A A A A A A	Frequency
Ret 10 dB/div Re	Auto Tune					
- <b>09</b> 16.5		$\cap$				Center Freq 849.000000 MHz
3.50						Start Freq 847.000000 MHz
23.5	/	/			13.00 dBm	Stop Fred 851.000000 MH2
33.5 43.5	and a state of the					CF Step 400.000 kHz Auto Mar
53.5				Marybert in the transmitter	RMS	Freq Offset 0 Hz
Center 849.00 #Res BW 100	00 MHz kHz	#VBW	300 kHz	#Swee	Span 4.000 MHz p 1.000 s (1001 pts)	
ASG				STAT		

### SM-F741B\_LTE5\_10 M\_BandEdge\_High\_QPSK\_1RB



- 8 -					trum Analyzer - Swept SA		
Frequency	03:52:08 PM Mar 20, 2024 TRACE 1 2 3 4 5 6 TYPE A WARNAW DET A A A A A A	#Avg Type: RMS	SENSE:INT	O MHz PNO: Wide	RF 50 Ω AC req 849.000000 Ν	Center F	
Auto Tune	1 849.000 MHz -29.968 dBm	Mkı	#Atten: 20 dB	Ref Offset 26.5 dB 10 dB/div Ref 26.50 dBm			
Center Fred 849.000000 MHz						16.5	
Start Free 847.000000 MH						5.50 	
Stop Free 851.000000 MH:	-13.00 dBm					23.5	
CF Stej 400.000 kH Auto Ma	RMS	an fraker and a second and				13.5	
Freq Offse 0 H						3.5	
	Span 4.000 MHz 1.000 s (1001 pts)	#Sweep	300 kHz	#VBW:	9.000 MHz 100 kHz	Center 84	
		STATUS				ISG	

## SM-F741B\_LTE5\_10 M\_BandEdge\_High\_QPSK\_FullRB

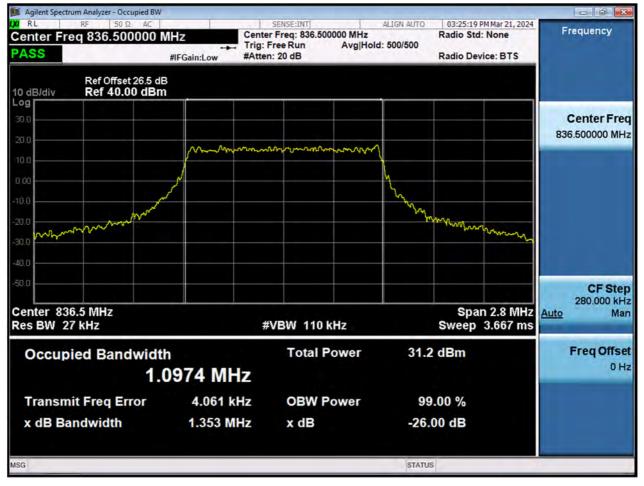


Agilent Spectrum Analyzer - Swept SA				- 5 8		
RL RF 50Ω AC Center Freq 852.000000 Ν	AHZ PNO: Wide	#Avg Type: RMS	03:52:28 PM Mar 20, 2024 TRACE 2 3 4 5 6 TYPE A W444000 DET A A A A A A	Frequency		
Ref Offset 26.5 dB         Mkr1 850.012 MHz           10 dB/div         Ref 26.50 dBm         -35.258 dBm						
16.5				Center Freq 852.000000 MHz		
3.50				Start Fred 850.000000 MH2		
23.5			-13.00 dBm	Stop Fred 854.000000 MHz		
43.5				CF Step 400.000 kH: Auto Mar		
53,6			RMS	Freq Offse 0 H:		
63.5 Center 852.000 MHz #Res BW 100 kHz	#VBW 300 kHz	#Sweep	Span 4.000 MHz 1.000 s (1001 pts)			
ISG		STATU				

### SM-F741B\_LTE5\_10 M\_Extended Band Edge\_High\_QPSK\_FullRB







#### SM-F741B\_LTE5\_1.4 M\_OBW\_Mid Channel\_QPSK\_FullRB



Agilent Spectrum Analyzer - Occupied BW					- 6 ×
RL         RF         50 Ω         AC           Center Freq 836.500000 I         ASS         ASS         ASS	WHZ #IFGain:Low	SENSE:INT Center Freq: 836.500000 Mi Trig: Free Run Avg #Atten: 20 dB	ALIGN AUTO Iz Hold: 500/500	03:24:10 PM Mar 21, 2 Radio Std: None Radio Device: BTS	Frequency
Ref Offset 26.5 dl 0 dB/div Ref 40.00 dBn					
og 30.0					Center Fre 836.500000 MH
10.0	m	munnin	m		
0.00	1ª		North Mar		
20.0			ليسم	Amontonon	m.
0.0					CF Ste
Center 836.5 MHz Res BW 27 kHz		#VBW 110 kHz		Span 2.8 M Sweep 3.667 r	
Occupied Bandwidt		Total Power 30.2 dBm		Freq Offse	
Transmit Freq Error	0976 MH 873		9	9.00 %	
x dB Bandwidth	1.339 M			.00 dB	
SG			STATU	IS	

### SM-F741B\_LTE5\_1.4 M\_OBW\_Mid Channel\_16 QAM\_FullRB



Agilent Spectrum Analyzer - Occupied BW					- # ×
RL         RF         50 Ω         AC           Center Freq 836.500000 M         AC         AC <th< th=""><th>HZ #IFGain:Low</th><th>SENSE:INT Center Freq: 836.500000 f Trig: Free Run Av #Atten: 20 dB</th><th>ALIGN AUTO MHz rg Hold: 500/500</th><th>03:24:40 PM Mar 21, 2 Radio Std: None Radio Device: BTS</th><th>Frequency</th></th<>	HZ #IFGain:Low	SENSE:INT Center Freq: 836.500000 f Trig: Free Run Av #Atten: 20 dB	ALIGN AUTO MHz rg Hold: 500/500	03:24:40 PM Mar 21, 2 Radio Std: None Radio Device: BTS	Frequency
Ref Offset 26.5 dB 0 dB/div Ref 40.00 dBm					
og 30.0 					Center Fre 836.500000 MH
0 q	Jan Marine	mm Mangam Man	mm		
10.0	<i>A</i>		Low May		
20.0 DO on only marked and a second s				Mr.M. Marman	~
0.0					CF Ste 280.000 kH
Center 836.5 MHz Les BW 27 kHz		#VBW 110 kHz		Span 2.8 M Sweep 3.667 r	
Occupied Bandwidth 1.0		Total Power 29.2 dBm			
Transmit Freq Error	3.064 k	Hz OBW Powe	Iz OBW Power 99.00 %		
x dB Bandwidth	1.320 M	Hz x dB	-26	.00 dB	
SG			STATL	JS	

### SM-F741B\_LTE5\_1.4 M\_OBW\_Mid Channel\_64 QAM\_FullRB



Agilent Spectrum Analyzer - Occup	pied BW						- & ×
RL         RF         50 Ω           Center Freq 836.500         ASS	000 MHz	Center Freq: 836. Trig: Free Run #Atten: 20 dB		ALIGN AUTO	Radio Std		Frequency
Ref Offset 2 10 dB/div Ref 40.00							
30.0 20.0							Center Fred 836.500000 MHz
10.0	mm	mmm	- Marria				
10,0	-			h y			
20.0	Jan Mark			"MANNA			
40.0 <b></b>					mm	many	
50.0							CF Step 280.000 kH:
enter 836.5 MHz tes BW 27 kHz		#VBW 11	0 kHz			n 2.8 MHz 3.667 ms	<u>Auto</u> Mar
Occupied Band	width 1.1018 M		Power	27.1	dBm		Freq Offset 0 Ha
Transmit Freq Erro	or 1.424	kHz OBW	OBW Power 99.00 %				
x dB Bandwidth	1.373	MHz x dB		-26.	00 dB		
SG				STATUS	5		

### SM-F741B\_LTE5\_1.4 M\_OBW\_Mid Channel\_256 QAM\_FullRB



Agilent Spectrum Analyzer - Occupied BW				_			
Center Freq 836.500000 I ASS	MHz #IFGain:Low	SENSE:INT Center Freq: 836 Trig: Free Run #Atten: 20 dB		ALIGN AUTO	Radio Der		Frequency
Ref Offset 26.5 dl 0 dB/div Ref 40.00 dBn							
20.0							Center Fre 836.500000 MH
0.0	mm	www.www.	marchen	m			
3.00				h			
20.0 mmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmm					hyport	munt	
0.0							CF Ste 600,000 kH
enter 836.5 MHz Res BW 62 kHz		#VBW 24	l0 kHz		Sp Sweep	oan 6 MHz 1.533 ms	Auto Ma
Occupied Bandwidth 2.7093 MHz			Total Power 31.1 dBm			Freq Offse 0 H	
Transmit Freq Error	4.078	KHz OBV	OBW Power 99.00 %				
x dB Bandwidth	3.057 N	1Hz x dB		-26.	00 dB		
SG				STATU	s		

### SM-F741B\_LTE5\_3 M\_OBW\_Mid Channel\_QPSK\_FullRB



Agilent Spectrum Analyzer - Occupied BW				_			
Center Freq 836.500000 Γ ASS	WHz #IFGain:Low	SENSE:INT Center Freq: 836.50 Trig: Free Run #Atten: 20 dB		IGN AUTO	03:26:27 P Radio Std: Radio Dev		Frequency
Ref Offset 26.5 dl 0 dB/div Ref 40.00 dBn							
20 0							Center Free 836.500000 MH
10.0	monor	mmmmm	man	<b>`</b>			
10.0							
20.0 month month of M				<u></u>	Marin	man	
0.0							CF Stej 600.000 kH
Center 836.5 MHz Res BW 62 kHz		#VBW 240	kHz			an 6 MHz 1.533 ms	Auto Mar
Occupied Bandwidt		Total Power 30.2 dBm				Freq Offset 0 Hz	
Transmit Freq Error	1.437						
x dB Bandwidth	3.061 M	Hz x dB		-26.0	00 dB		
SG				STATUS			

# SM-F741B\_LTE5\_3 M\_OBW\_Mid Channel\_16 QAM\_FullRB



Agilent Spectrum Analyzer - Occupied BW	<u>.</u>						- 6 ×
RL         RF         50 Ω         AC           Center Freq 836.500000         AC         A	MHZ #IFGain:Low	SENSE:INT Center Freq: 83 Trig: Free Run #Atten: 20 dB		ALIGN AUTO	03:26:52 PM Radio Std: I Radio Devic		Frequency
Ref Offset 26.5 dl							
<b>.09</b> 30.0 20.0							Center Free 836.500000 MH
10.0	mm	www.www.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m	-		
0.00				h h			
20.0 30.0 phore rynahalland ar				- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	mmm	mary	
50.0 Center 836.5 MHz							CF Stej 600.000 kH
Res BW 62 kHz		#VBW 2	40 kHz		Sweep 1	n 6 MHz A 1.533 ms	<u>luto</u> Mai
Occupied Bandwidt 2.	<sup>h</sup> 7083 MI		al Power	29.2	2 dBm		Freq Offse 0 Ha
Transmit Freq Error	3.505	Hz OB	OBW Power 99.00 %				
x dB Bandwidth	3.045 N	IHz x di	3	-26.	00 dB		
SG				STATU	s		

# SM-F741B\_LTE5\_3 M\_OBW\_Mid Channel\_64 QAM\_FullRB



Agilent Spectrum Analyzer - Occupied BV	V	-	annen meri			1 00 00 50		
RL         RF         50 Ω         AC           Center Freq 836.500000 MHz         #IFGain:Low			SENSE:INT ALIGN AUTO Center Freq: 836.500000 MHz Trig: Free Run Avg Hold: 500/500 #Atten: 20 dB			Radio Sto		Frequency
Ref Offset 26.5 o 0 dB/div Ref 40.00 dB								
999 90.0 								Center Fre 836.500000 MH
0.0	mann	mm	hand	mm	m			
10.0	/				2			
0.0 Marine Ma						w.h.w.	Ann	
0.0								CF Ste
Center 836.5 MHz Span 6 MHz Res BW 62 kHz \$								600.000 kH <u>Auto</u> Ma
Occupied Bandwid	Hz	Total Power		27.3 dBm			Freq Offse 0 H	
Transmit Freq Error 5.321		Hz OBW Power		99.00 %				
x dB Bandwidth	3.050 N	MHz	x dB		-26	.00 dB		
SG					STATU	IS		

### SM-F741B\_LTE5\_3 M\_OBW\_Mid Channel\_256 QAM\_FullRB



Agilent Spectrum Analyzer - Occupied BW					the second second	- 6 - ×
RL         RF         50 Ω         AC           Center Freq 836.500000         ASS	SENSE:INT ALIGN AUTO Center Freq: 836.500000 MHz Trig: Free Run Avg Hold: 500/500 #Atten: 20 dB			03:29:28 PM Mar 21, 2024 Radio Std: None Radio Device: BTS	Frequency	
Ref Offset 26.5 d 0 dB/div Ref 40.00 dBn						
20.0		man Ann				Center Free 836.500000 MH
0.0	hum	annor and from	www.w	ma		
0.00 10.0				- h		
20.0 whomeware and and					and man	
0.0						CF Ste 1.000000 MH
Center 836.5 MHz Res BW 100 kHz	<u>Auto</u> Ma					
Occupied Bandwidt 4.	т Hz	Total Power		0 dBm	Freq Offse 0 H	
Transmit Freq Error	13.714	kHz O	BW Power	9	9.00 %	
x dB Bandwidth	5.043 N	/Hz x	dB	-26	.00 dB	
					IS	

### SM-F741B\_LTE5\_5 M\_OBW\_Mid Channel\_QPSK\_FullRB



Agilent Spectrum Analyzer - Occupied BV	Page 1		-			- 6 ×		
Center Freq 836.500000 PASS	MHz #IFGain:Low	SENSE:INT Center Freq: 836.5 Trig: Free Run #Atten: 20 dB		ALIGN AUTO 500/500	03:28:32 PM Mar 21, 202 Radio Std: None Radio Device: BTS	<sup>4</sup> Frequency		
Ref Offset 26.5 dB 10 dB/div Ref 40.00 dBm								
<b>.09</b> 30.0 20.0						Center Free 836.500000 MH;		
10.0	- marine	mo my min	mmm	~				
0.00				N.				
20.0 mmmhmmmhhhm				v	www.	2		
10.0 .0.0						CF Step 1.000000 MH		
Center 836.5 MHz Res BW 100 kHz	z <u>Auto</u> Mar s							
Occupied Bandwid	Total	Total Power		dBm	Freq Offse 0 Hi			
Transmit Freq Error	15.999		Power	99	.00 %			
x dB Bandwidth	5.035 N	IHz x dB		-26.	00 dB			
SG				STATUS				

# SM-F741B\_LTE5\_5 M\_OBW\_Mid Channel\_16 QAM\_FullRB



	nalyzer - Occupied BW							- man		
							Frequency			
Ref Offset 26.5 dB 10 dB/div Ref 40.00 dBm										
- <b>og</b> 30.0 20.0									Center Fred 836.500000 MH:	
10.0		mound	mm	m	mm	1				
10.0						hy .				
20.0 30.0 <b>m</b>	www.m.tr					- <sup>7</sup> 7	Mary	www.		
0.0									CF Ster 1.000000 MH	
Center 836.5 MHz Span 10 MHz #Res BW 100 kHz #VBW 390 kHz Sweep 1 ms							eep 1 ms	<u>Auto</u> Mar		
Occupied Bandwidth 4.5154 MHz				Total Power		29.1 dBm			Freq Offse 0 H	
Transmit Freq Error 7.644		7.644	KHz OBW Power		99.00 %					
x dB Bandwidth		5.112 N	IHz x	dB		-26.	00 dB			
SG						STATUS	5			

# SM-F741B\_LTE5\_5 M\_OBW\_Mid Channel\_64 QAM\_FullRB



Agilent Spectrum Analyzer - Occupied BV	Page 1	SENSE:II			-		
Center Freq 836.500000 PASS	enter Freq 836.500000 MHz			ALIGN AUTO	03:44:28 P Radio Std: Radio Devi		Frequency
Ref Offset 26.5 d 0 dB/div Ref 40.00 dBr							
20.0							Center Free 836.500000 MH
10.0 J.óó	from	norman	when man And				
10.0				- Contraction of the second se			
30.0 mmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmm				<u> </u>	human	www	
					0.70		CF Step 1.000000 MH
Center 836.5 MHz Res BW 100 kHz		#VBW	390 kHz			n 10 MHz ep 1 ms	<u>Auto</u> Mar
Occupied Bandwid 4.	т. Н <b>z</b>	Total Power		27.1 dBm		Freq Offset 0 Hz	
Transmit Freq Error	16.199	kHz OE	BW Power	99	.00 %		
x dB Bandwidth	5.109 M	/Hz x d	IB	-26.	00 dB		
SG				STATUS	5		

# SM-F741B\_LTE5\_5 M\_OBW\_Mid Channel\_256 QAM\_FullRB







#### SM-F741B\_LTE5\_10 M\_OBW\_Mid Channel\_QPSK\_FullRB



Agilent Spectrum Analyzer - Occupied BW	54			_	ana har at the	- 6 ×
Center Freq 836.500000 PASS	Center Freq: 836.500000 MHz Radio Std: Non , Trig: Free Run Avg Hold: 500/500			03:30:32 PM Mar 21, 2024 Radio Std: None Radio Device: BTS	Frequency	
Ref Offset 26.5 d 10 dB/div Ref 40.00 dBr						
30.0 20.0						Center Fred 836.500000 MHz
10.0	montion	monor	Mong Marine Marine and			
10.0	<i>f</i>			- Lug	0	
20.0 7					Mapply and Manageria	
50.0						CF Step 2.000000 MH
Center 836.5 MHz #Res BW 200 kHz		#VBW	820 kHz		Span 20 MHz Sweep 1 ms	Auto Mar
Occupied Bandwid	то <b>-1z</b>	tal Power	30.1	dBm	Freq Offset 0 Hz	
Transmit Freq Error	13.506	Hz OE	W Power	99	.00 %	
x dB Bandwidth	9.943 N	IHz x d	В	-26.	00 dB	
SG				STATUS	5	

### SM-F741B\_LTE5\_10 M\_OBW\_Mid Channel\_16 QAM\_FullRB



Agilent Spectrum Analyzer - Occupied BW	5			-			ter states al	
RL         RF         50 Ω         AC           Center Freq 836.500000 Ι         PASS         PASS	Center Trig: F	Center Freq: 836.500000 MHz Radio Std: None				Frequency		
Ref Offset 26.5 dl								
20 0								Center Free 836.500000 MH:
10.0	month	munhovenn	Vannenman	warman	-m h			
0.00	[							
20.0 Aroma Wint for bar Minghe Agard						an hand and and and and and and and and and	mound	
40.0								
Center 836.5 MHz							an 20 MHz	CF Step 2.000000 MH:
Res BW 200 kHz		#\	/BW 820	kHz		Sw	an 20 MHz eep 1 ms	<u>Auto</u> Mar
Occupied Bandwidt			Total	Power	29.	0 dBm		Freq Offse
9.	0306 MI	ΗZ						0 112
Transmit Freq Error	25.579	(Hz	OBW	Power	99	9.00 %		
x dB Bandwidth	10.04 MHz		x dB		-26.00 dB			
SG					STATU	IS		

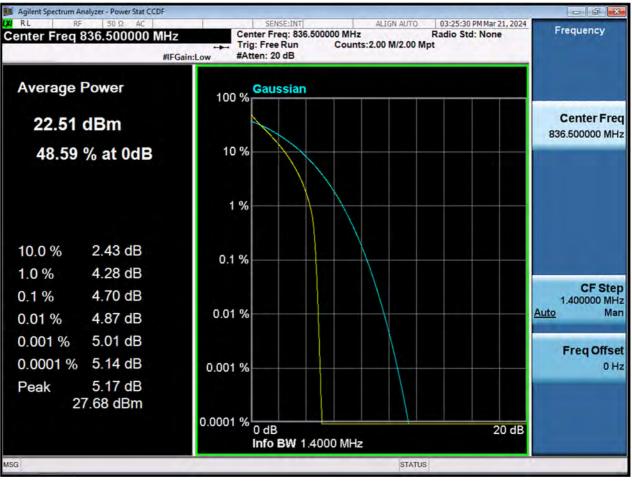
# SM-F741B\_LTE5\_10 M\_OBW\_Mid Channel\_64 QAM\_FullRB



Agilent Spectrum Analyzer - Occupied BW							- & ×
RL         RF         50 Ω         AC           Center Freq 836.500000         A         A         A           ASS         A         A         A         A	nter Freq 836.500000 MHz		SENSE:INT ALIGN AUTO Center Freq: 836.500000 MHz Trig: Free Run Avg Hold: 500/500 #Atten: 20 dB		Radio Std Radio Dev		Frequency
Ref Offset 26.5 dl 0 dB/div Ref 40.00 dBn	B 1						
<b>og</b> 30.0 20.0							Center Fre 836.500000 MH
0.0	monum	honderad	lon appoint which the for	m			
0.00	/						
20.0				h			
30.0 mm. Marken marken and a					tentheman	Ammulla	
50.0							CF Ste
enter 836.5 MHz Res BW 200 kHz		#VBW 8	#VBW 820 kHz			eep 1 ms	
Occupied Bandwidt	h	Tot	al Power	27.2	2 dBm		Freq Offse
9.	0093 M	Hz					UH
Transmit Freq Error	27.655	kHz OB	W Power	99	99.00 %		
x dB Bandwidth	10.01 M	MHz x d	B	-26.	00 dB		
SG				STATU	s		

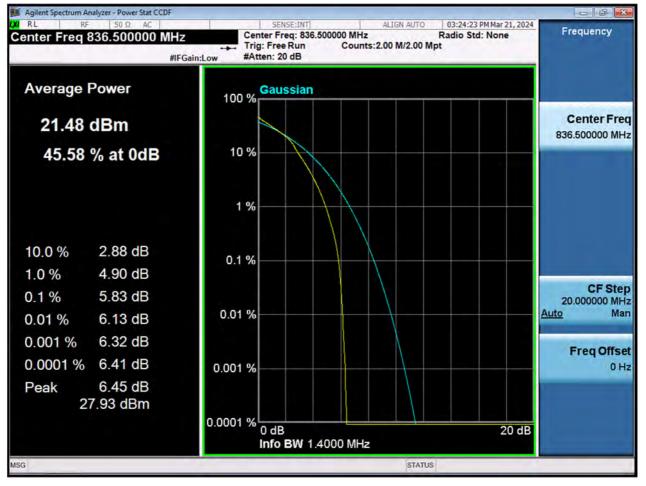
# SM-F741B\_LTE5\_10 M\_OBW\_Mid Channel\_256 QAM\_FullRB





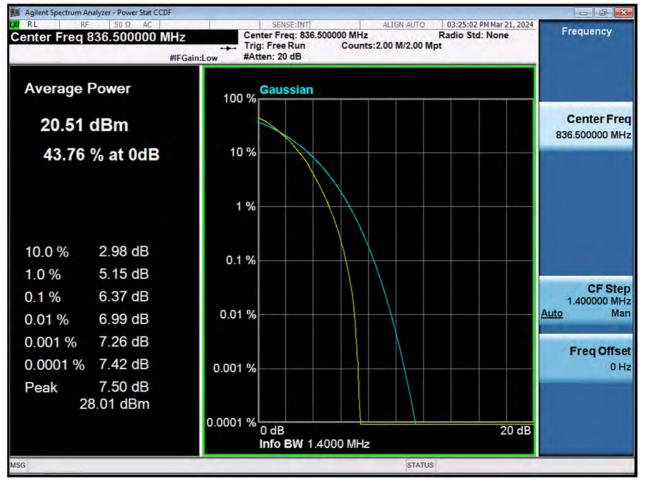
#### SM-F741B\_LTE5\_1.4 M\_PAR\_Mid Channel\_QPSK\_FullRB





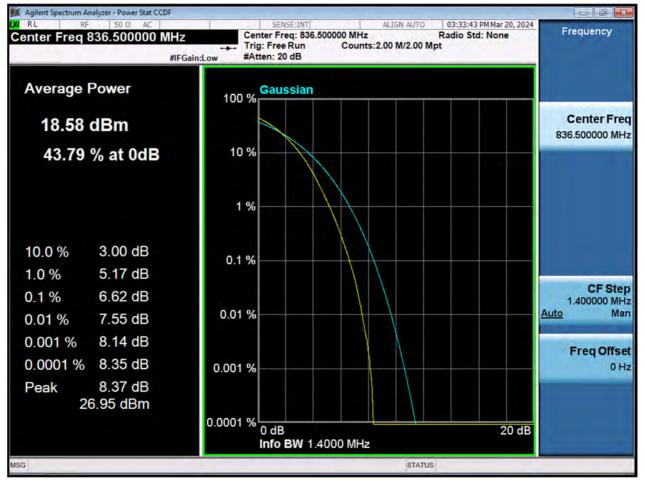
#### SM-F741B\_LTE5\_1.4 M\_PAR\_Mid Channel\_16 QAM\_FullRB





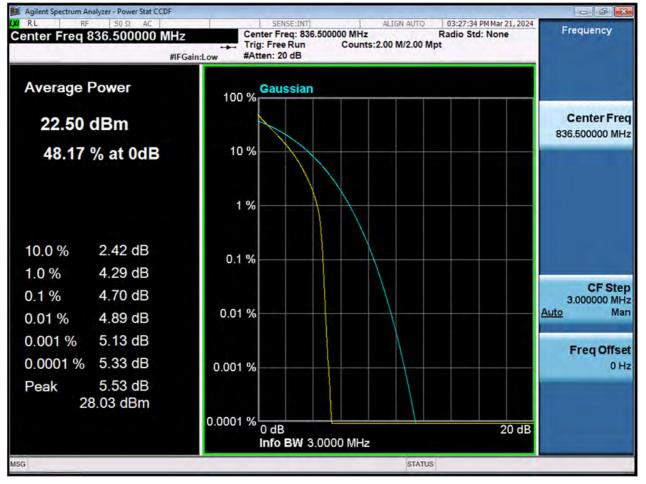
#### SM-F741B\_LTE5\_1.4 M\_PAR\_Mid Channelz\_64 QAM\_FullRB





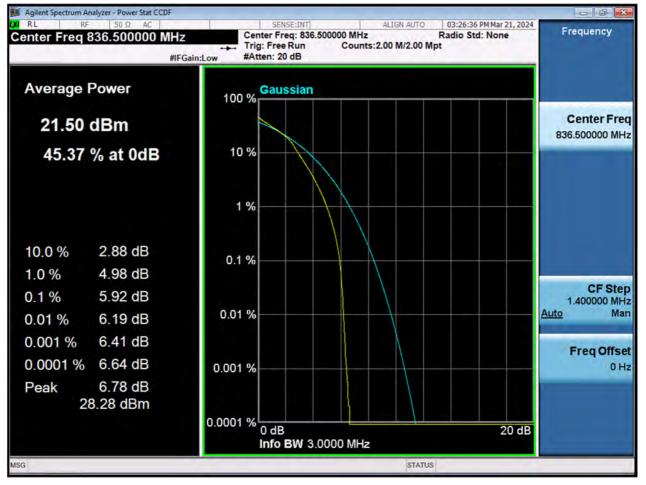
#### SM-F741B\_LTE5\_1.4 M\_PAR\_Mid Channel\_256 QAM\_FullRB





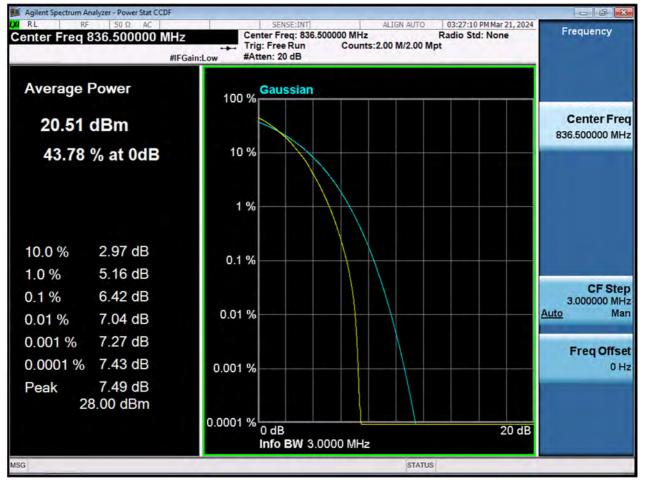
### SM-F741B\_LTE5\_3 M\_PAR\_Mid Channel\_QPSK\_FullRB





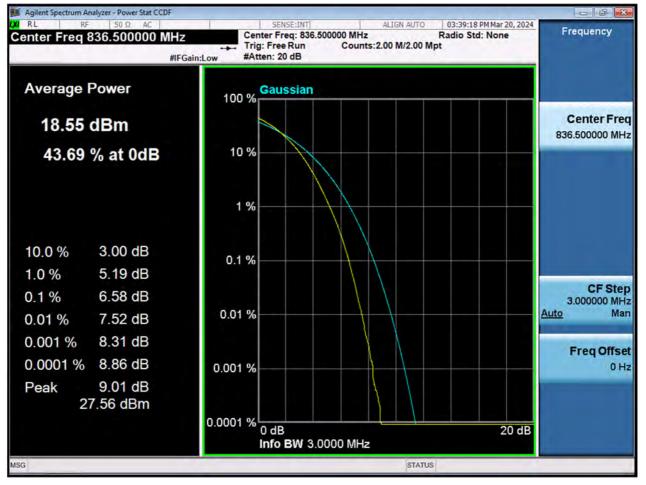
#### SM-F741B\_LTE5\_3 M\_PAR\_Mid Channel\_16 QAM\_FullRB





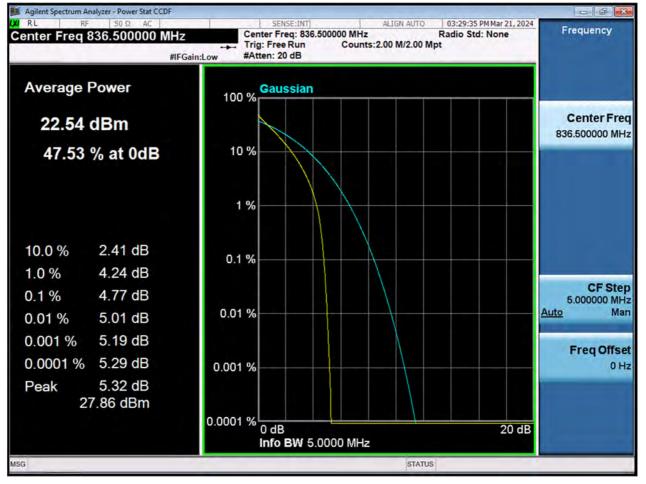
### SM-F741B\_LTE5\_3 M\_PAR\_Mid Channel\_64 QAM\_FullRB





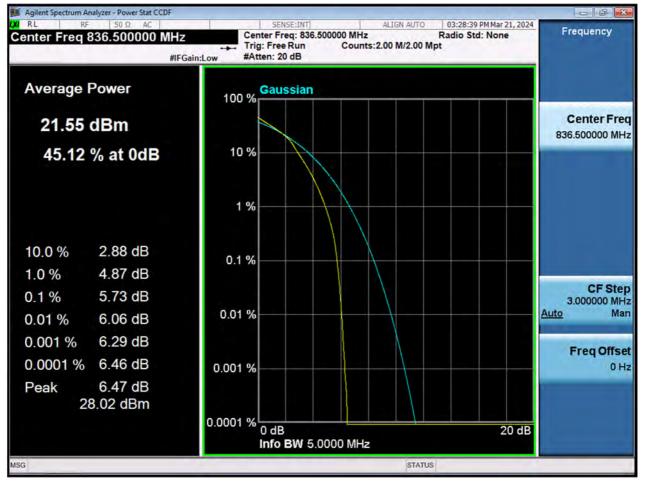
### SM-F741B\_LTE5\_3 M\_PAR\_Mid Channel\_256 QAM\_FullRB





### SM-F741B\_LTE5\_5 M\_PAR\_Mid Channel\_QPSK\_FullRB





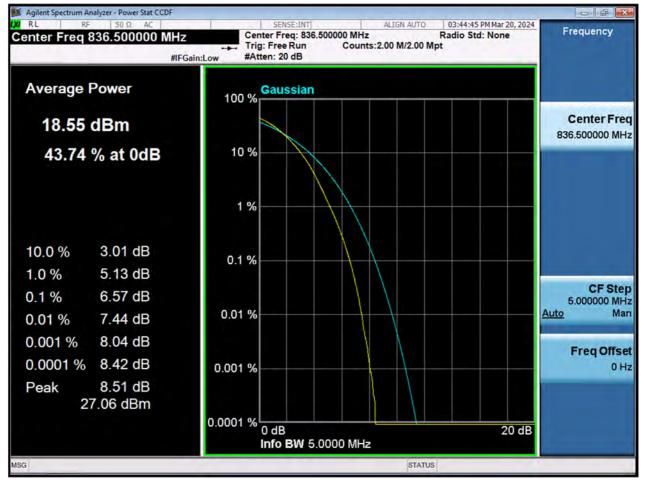
### SM-F741B\_LTE5\_5 M\_PAR\_Mid Channel\_16 QAM\_FullRB





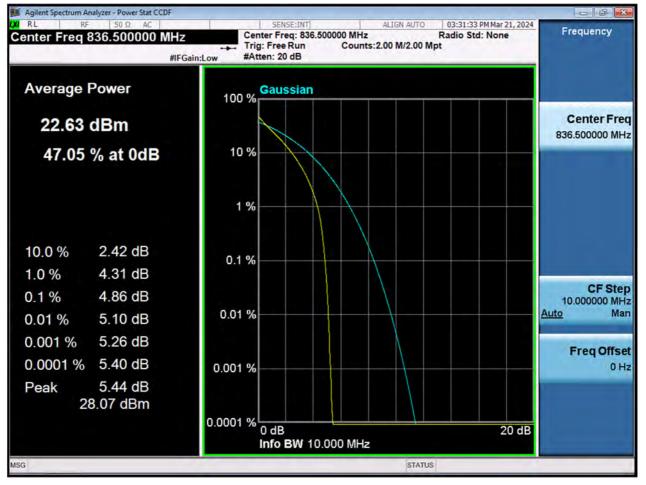
### SM-F741B\_LTE5\_5 M\_PAR\_Mid Channel\_64 QAM\_FullRB





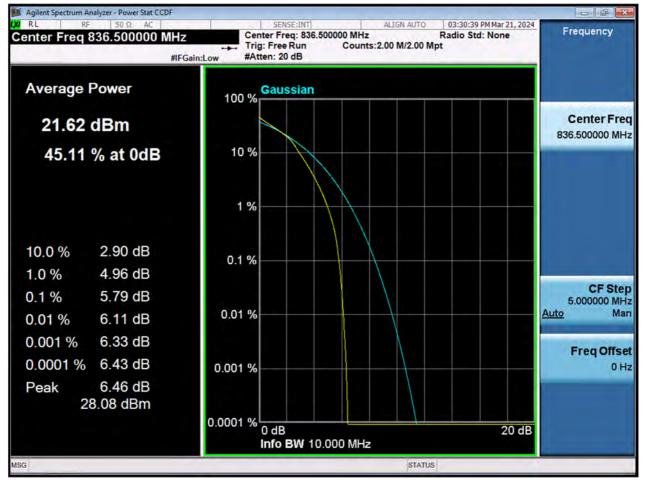
#### SM-F741B\_LTE5\_5 M\_PAR\_Mid Channel\_256 QAM\_FullRB





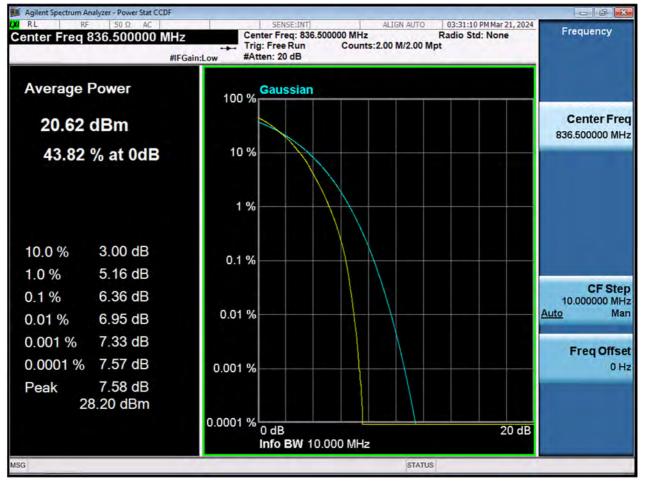
#### SM-F741B\_LTE5\_10 M\_PAR\_Mid Channel\_QPSK\_FullRB





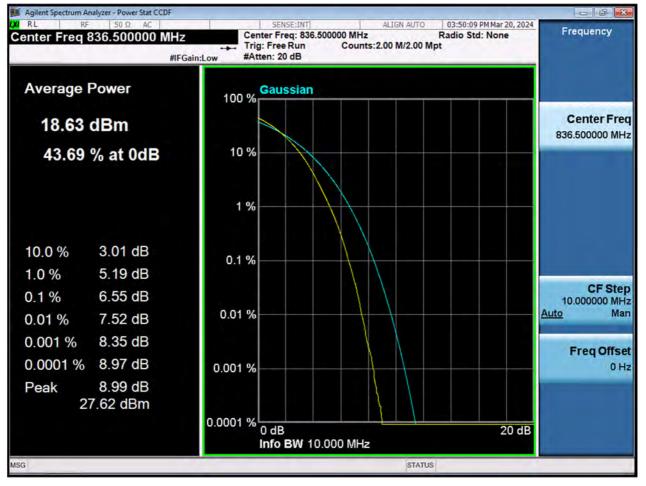
#### SM-F741B\_LTE5\_10 M\_PAR\_Mid Channel\_16 QAM\_FullRB





#### SM-F741B\_LTE5\_10 M\_PAR\_Mid Channel\_64 QAM\_FullRB





#### SM-F741B\_LTE5\_10 M\_PAR\_Mid Channel\_256 QAM\_FullRB



RL	ctrum Analyzer RF	50 Q AC	1	SENSE:INT	ALIGN AUTO	05:47:33 PM Mar 20, 2024	
enter F	req 5.01	500000	0 GHz PNO: Fast ↔ IFGain:Low	- Trig: Free Run #Atten: 20 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE A WARKAWAY DET A A A A A A	Frequency
0 dB/div	Ref 10	.00 dBm			Mk	r1 3.682 5 GHz -67.032 dBm	Auto Tun
og 0.00 10.0							Center Fre 5.015000000 GH
80 0 10.0 50.0							Start Fre 30.000000 M⊦
60.0 70.0 60.0							Stop Fre 10.000000000 GH
	1.0 MHz			V 3.0 MHz		Stop 10.000 GHz 33 ms (20001 pts)	CF Ste 997.000000 MH Auto Ma
1 N 2 N 3 4 5 6	No. A list because	X	3.682 5 GHz 824.6 MHz	Y FU -67.032 dBm -3.714 dBm	INCTION FUNCTION WIDTH	FUNCTION VALUE	Freq Offse 0 ⊢
7 8 9 10 11				m			
G					STATUS		

### SM-F741B\_LTE5\_1.4 M\_CSE(30 M-10 G)\_Lowest Channel\_QPSK\_1RB



0000 GHz PNO: Fast → IFGain:Low	Trig: Free Run #Atten: 20 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A A A A A A	Frequency
Bm		Mk	4 9 700 4 011	
			r1 3.709 4 GHz -67.173 dBm	Auto Tun
				Center Fre 5.015000000 GH
				Start Fre 30.000000 M⊦
				Stop Fre 10.000000000 GH
				CF Ste 997.000000 MH Auto Ma
3.709 4 GHz 836.6 MHz	-67.173 dBm -3.874 dBm		FINCTIONVALUE	FreqOffse 0 ⊦
	m			
	x 3.709 4 GHz	3.709 4 GHz -67.173 dBm 836.6 MHz -3.874 dBm	X Y FUNCTION FUNCTION WIDTH 3.709 4 GHz -67.173 dBm 836.6 MHz -3.874 dBm 	#VBW 3.0 MHz         Sweep         17.33 ms (20001 pts)           X         Y         FUNCTION         FUNCTION WIDTH         FUNCTION VALUE           3.709 4 GHz         -67.173 dBm         -67.173 dBm         FUNCTION WIDTH         FUNCTION VALUE           836.6 MHz         -3.874 dBm         -         -         -         -

## SM-F741B\_LTE5\_1.4 M\_CSE(30 M-10 G)\_Mid Channel\_QPSK\_1RB



RL	RF	50 Q 4			SENSE:	INT	and the second	ALIGN AUTO	05:48:56 PM		- Anna anna
enter F	req 5.0	150000	Р	IZ NO: Fast ↔ Gain:Low	Trig: Free Ru #Atten: 20 df		#Avg Typ	e: RMS	TYPE	1 2 3 4 5 6 A WWWWW A A A A A A A	Frequency
0 dB/div	Ref 10	0.00 dB	m					Mk	r1 3.700 -66.99	5 GHz 2 dBm	Auto Tun
	<sup>2</sup>										Center Fre 5.015000000 GH
80 0 10.0 50.0											Start Fre 30.000000 MH
60.0 70.0 60.0			And the second second			and a state of the				proverting of the	Stop Fre 10.000000000 GH
	1.0 MH	z		#VBW	3.0 MHz		a second s		Stop 10.0 33 ms (20	001 pts)	CF Ste 997.000000 MH Auto Ma
3 4 5 6	A STATE OF A		× 3.700 849.	5 GHz 5 MHz	Y -66.992 dBm -3.817 dBm	FUNC		ICTION WIDTH	FUNCTION	E	Freq Offso 0 ⊦
7 8 9 10 11					111					•	
								STATUS			

### SM-F741B\_LTE5\_1.4 M\_CSE(30 M-10 G)\_Highest Channel\_QPSK\_1RB



RL	RF 50 Ω AC		SENSE:INT	ALIGN AUTO	05:49:33 PM Mar 20, 2024	
enter Fre	q 5.0150000	00 GHz PNO: Fast	Trig: Free Run #Atten: 20 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE A WWWW DET A A A A A A	Frequency
0 dB/div	Ref 10.00 dBn	n		Mk	r1 3.706 9 GHz -66.793 dBm	Auto Tun
0.00	¢ <sup>2</sup>					Center Fre 5.015000000 GH
0 0 0 0 0 0						Start Fre 30.000000 M⊦
50.0 70.0 50.0						Stop Fre 10.000000000 GH
tart 30 MH Res BW 1	.0 MHz	10	3.0 MHz		Stop 10.000 GHz 33 ms (20001 pts)	CF Ste 997.000000 MH Auto Ma
KR MODE TRC 1 N 1 2 N 1 3 4 5 6 7	f	X 3.706 9 GHz 825.1 MHz	Y FU -66.793 dBm -3.973 dBm	NCTION FUNCTION WIDTH	FUNCTION VALUE	Freq Offs 0 ⊦
7 8 9 10 11			TH		-	
G				STATUS		

## SM-F741B\_LTE5\_3 M\_CSE(30 M-10 G)\_Lowest Channel\_QPSK\_1RB



Agilent Spectrum Analyzer - Swept SA				An and the second second	
RL RF 50Ω AC enter Freq 5.015000000	GHz PNO: Fast ↔ IFGain:Low	Trig: Free Run #Atten: 20 dB	#Avg Type: RMS	05:50:27 PM Mar 20, 2024 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A A A A A A A	Frequency
dB/div Ref 10.00 dBm	IP Galli, LOW		Mk	r1 3.678 0 GHz -66.932 dBm	Auto Tune
					Center Fre 5.015000000 GH
					Start Fre 30.000000 MH
00 00 00					Stop Fre 10.000000000 GH
tart 30 MHz Res BW 1.0 MHz	#VBV	∮ 3.0 MHz		Stop 10.000 GHz .33 ms (20001 pts)	CF Ste 997.000000 MH <u>Auto</u> Ma
N         1         f         3           2         N         1         f         3           3         4         5         5         6           6         7         8         8         8	678 0 GHz 836.1 MHz	Y FL -66.932 dBm -4.501 dBm	INCTION FUNCTION WIDTH	FUNCTION VALUE	Freq Offse 0 H
9 <b></b> 10 <b></b> 11 <b></b> 36		m.	STATUS	*	

### SM-F741B\_LTE5\_3 M\_CSE(30 M-10 G)\_Mid Channel\_QPSK\_1RB



Agilent Spectrum Analyzer - Swept SA           RL         RF         50 Ω         AC	SENSE:INT	ALIGN AUTO	05:50:56 PM Mar 20, 2024	
enter Freq 5.01500000		#Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE A WWWW DET A A A A A A A	Frequency
dB/div Ref 10.00 dBm		Mk	r1 3.700 5 GHz -67.061 dBm	Auto Tun
				Center Fre 5.015000000 G⊦
00 00 00				Start Fre 30.000000 M⊦
3.0 3.0 5.0				Stop Fre 10.000000000 GH
art 30 MHz Res BW 1.0 MHz	#VBW 3.0 MHz		Stop 10.000 GHz .33 ms (20001 pts)	CF Ste 997.000000 MH Auto Ma
R         MODE         TRC         SCL         X           1         N         1         f         3           2         N         1         f         3           4         4         4         4           5         5         5         5           6         4         4         4           9         4         4         4	700 5 GHz -67.061 dBm 849.5 MHz -3.691 dBm	FUNCTION FUNCTION WIDTH	FUNCTION VALUE	Freq Offse 0 H
	m			_

## SM-F741B\_LTE5\_3 M\_CSE(30 M-10 G)\_Highest Channel\_QPSK\_1RB



RL	RF 50 Ω AC		SENSE:INT	ALIGN AUTO	05:51:32 PM Mar 20, 2024	Contraction of the local division of the loc
enter Fi	req 5.0150000	PNO: Fast	Trig: Free Run #Atten: 20 dB	#Avg Type: RMS	TYPE A WWWWW DET A A A A A A	Frequency
0 dB/div	Ref 10.00 dBn	1		Mk	r1 3.683 0 GHz -66.934 dBm	Auto Tun
	$\diamond^2$					Center Fre 5.015000000 GH
0.0 0.0 0.0						Start Fre 30.000000 MH
50.0 70.0 80.0						Stop Fre 10.000000000 GH
	1.0 MHz		3.0 MHz		Stop 10.000 GHz .33 ms (20001 pts)	CF Ste 997.000000 MH <u>Auto</u> Ma
KR         MODE         TH           1         N         1           2         N         1           3	f	X 3.583 0 GHz 825.1 MHz	-66.934 dBm -3.769 dBm	NCTION FUNCTION WDTH	FUNCTION VALUE	Freq Offse 0 H
1			in			
SG				STATUS		

## SM-F741B\_LTE5\_5 M\_CSE(30 M-10 G)\_Lowest Channel\_QPSK\_1RB



Agilent Spectrum Analyzer - Swept SA					
RL RF 50Ω AC Center Freq 5.015000000	GHz PNO: Fast ↔ IFGain:Low	Trig: Free Run #Atten: 20 dB	ALIGN AUTO #Avg Type: RMS	05:52:27 PM Mar 20, 2024 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A A A A A A A	Frequency
0 dB/div Ref 10.00 dBm			Mk	r1 3.714 9 GHz -67.205 dBm	Auto Tune
					Center Free 5.015000000 GH
30 0 40 0 50 0					Start Free 30.000000 MH
60.0 70.0 80.0					Stop Free 10.000000000 GH
Start 30 MHz Res BW 1.0 MHz	#VBW	3.0 MHz		Stop 10.000 GHz .33 ms (20001 pts)	CF Step 997.000000 MH Auto Ma
MKR MODE TRC SCL X 1 N 1 f 3. 2 N 1 f 3 4 5 5 6 7 8 9	714 9 GHz 835.1 MHz	Y FU -67.205 dBm -3.451 dBm	NCTION FUNCTION WIDTH	FUNCTION VALUE	Freq Offse 0 H
9 10 11 4		m	STATUS		

## SM-F741B\_LTE5\_5 M\_CSE(30 M-10 G)\_Mid Channel\_QPSK\_1RB



Agilent Spectrum Analyzer - Swept SA RL RF 50 Ω AC		SENSE:INT	ALIGN AUTO	05:52:55 PM Mar 20, 2024	
enter Freq 5.015000000	GHz PNO: Fast ↔ IFGain:Low		#Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A A A A A A	Frequency
0 dB/div Ref 10.00 dBm			Mk	r1 3.693 0 GHz -66.751 dBm	Auto Tun
					Center Fre 5.015000000 GH
00					Start Fre 30.000000 M⊦
50 0 70 0 80 0					Stop Fre 10.000000000 GH
tart 30 MHz Res BW 1.0 MHz	#VBW	3.0 MHz		Stop 10.000 GHz .33 ms (20001 pts)	CF Ste 997.000000 MH Auto Ma
2 N 1 f 3 3 4 4 5 6 7 7 8 8 4 9 9 9	693 0 GHz 849.0 MHz	Y FU -66.751 dBm -3.584 dBm	NCTION FUNCTION WIDTH	FUNCTION VALUE	Freq Offse 0 H
		m			

### SM-F741B\_LTE5\_5 M\_CSE(30 M-10 G)\_Highest Channel\_QPSK\_1RB



Agilent Spectrum Analyzer - Swept SA           RL         RF         50 Ω         AC	1	SENSE:INT	ALIGN AUTO	05:53:32 PM Mar 20, 2024	
enter Freq 5.01500000	PNO: Fast	Trig: Free Run #Atten: 20 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A A A A A A	Frequency
0 dB/div Ref 10.00 dBm			Mk	r1 3.689 5 GHz -67.352 dBm	Auto Tun
					Center Fre 5.015000000 G⊦
					Start Fre 30.000000 M⊦
	1				Stop Fre 10.000000000 GH
tart 30 MHz Res BW 1.0 MHz	#VBW 3			Stop 10.000 GHz 33 ms (20001 pts)	CF Ste 997.000000 M⊦ Auto Ma
KR         MODE         TRC         SCL         X           1         N         1         f         1           2         N         1         f         1           3         -         -         -         -           4         -         -         -         -           5         -         -         -         -           6         -         -         -         -           7         -         -         -         -	3.689 5 GHz -6	Y FU 57.352 dBm -3.258 dBm	NCTION FUNCTION WIDTH	FUNCTION VALUE	FreqOffse 0 ⊦

### SM-F741B\_LTE5\_10 M\_CSE(30 M-10 G)\_Lowest Channel\_QPSK\_1RB



Agilent Spectrum Analyzer - Swept SA	SENSE:INT	ALIGN AUTO	05:54:27 PM Mar 20, 2024	- 6 ×
enter Freq 5.015000000		#Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE A WWWW DET A A A A A A	Frequency
0 dB/div Ref 10.00 dBm		Mk	r1 3.693 5 GHz -66.887 dBm	Auto Tun
				Center Fre 5.015000000 GH
00				Start Fre 30.000000 MH
50 0 70 0 50 0	~~~~^1			Stop Fre 10.000000000 GH
tart 30 MHz Res BW 1.0 MHz	#VBW 3.0 MHz	Sweep 17.	Stop 10.000 GHz 33 ms (20001 pts)	CF Ste 997.000000 MH <u>Auto</u> Ma
1 N 1 f 3.0	693 5 GHz -66.887 dBm 832.6 MHz -4.006 dBm		FUNCTION VALUE	Freq Offse 0 H
9 <b></b> 10 <b></b> 11 <b></b>	m		+	

## SM-F741B\_LTE5\_10 M\_CSE(30 M-10 G)\_Mid Channel\_QPSK\_1RB



RL	RF	50 Q AC			SENSE:INT	A	LIGN AUTO	05:54:55 PM Mar 20	
enter F	req 5.01	50000	00 GHz PNO: Fas IFGain:Lo		Trig: Free Run #Atten: 20 dB	#Avg Type	: RMS	TRACE 1 2 3 TYPE A WW DET A A A	
0 dB/div		.00 dBn	n				Mk	r1 3.709 4 G -67.180 d	Hz Auto Tur Bm
og 0.00 10.0 20.0	2^2								Center Fre 5.015000000 Gi
80.0 10.0 50.0									Start Fre 30.000000 M
60.0 70.0 80.0			and provide states of the stat	<b>*</b>					Stop Fre 10.000000000 GF
	1.0 MHz			/BW :	3.0 MHz	and the second se		Stop 10.000 ( 33 ms (20001	pts) 997.000000 Mi
IKR MODE T 2 N 3 4 5 6	Charles and the second s		× 3.709 4 GHz 849.0 MHz		F -67.180 dBm -3.094 dBm	UNCTION FUNC	CTION WIDTH	FUNCTION VALUE	Freq Offs 01
7 8 9 10 11					11				•

## SM-F741B\_LTE5\_10 M\_CSE(30 M-10 G)\_Highest Channel\_QPSK\_1RB



# **10. ANNEX A\_ TEST SETUP PHOTO**

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

No.	Description					
1	HCT-RF-2405-FC003 -P					