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FCC LTE REPORT

Certification

Applicant Name:
SAMSUNG Electronics Co., Ltd.

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

Date of Issue:
January 04, 2022

Location:
HCT CO., LTD.,
74, Seoicheon-ro 578beon-gil, Majang-myeon,
Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA

Report No.: HCT-RF-2201-FC002

FCC ID:	**A3LSMA336M**
APPLICANT:	**SAMSUNG Electronics Co., Ltd.**

Model(s):	SM-A336M/DSN
Additional Model(s):	SM-A336M
EUT Type:	Mobile phone
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§24, §2

Main1 Antenna

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max. Power (W)	Max. Power (dBm)
LTE – Band2 (1.4)	1850.7 - 1909.3	1M10G7D	QPSK	0.095	19.78
		1M10W7D	16QAM	0.077	18.87
		1M11W7D	64QAM	0.061	17.84
		1M11W7D	256QAM	0.030	14.79
LTE – Band2 (3)	1851.5 - 1908.5	2M71G7D	QPSK	0.098	19.92
		2M73W7D	16QAM	0.082	19.13
		2M72W7D	64QAM	0.064	18.09
		2M71W7D	256QAM	0.033	15.15
LTE – Band2 (5)	1852.5 - 1907.5	4M52G7D	QPSK	0.100	20.01
		4M52W7D	16QAM	0.082	19.14
		4M54W7D	64QAM	0.064	18.08
		4M54W7D	256QAM	0.033	15.17
LTE – Band2 (10)	1855.0 - 1905.0	9M03G7D	QPSK	0.087	19.39
		9M04W7D	16QAM	0.074	18.69
		9M02W7D	64QAM	0.059	17.69
		9M02W7D	256QAM	0.029	14.65
LTE – Band2 (15)	1857.5 - 1902.5	13M5G7D	QPSK	0.093	19.69
		13M5W7D	16QAM	0.081	19.10
		13M5W7D	64QAM	0.067	18.28
		13M5W7D	256QAM	0.033	15.24
LTE – Band2 (20)	1860.0 - 1900.0	17M9G7D	QPSK	0.094	19.71
		17M9W7D	16QAM	0.080	19.03
		17M9W7D	64QAM	0.064	18.05
		17M9W7D	256QAM	0.032	15.08

Sub2 Antenna

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max. Power (W)	Max. Power (dBm)
LTE – Band2 (1.4)	1850.7 - 1909.3	1M11G7D	QPSK	0.093	19.69
		1M11W7D	16QAM	0.071	18.50
		1M12W7D	64QAM	0.056	17.48
		1M12W7D	256QAM	0.028	14.54
LTE – Band2 (3)	1851.5 - 1908.5	2M76G7D	QPSK	0.096	19.80
		2M76W7D	16QAM	0.072	18.58
		2M78W7D	64QAM	0.057	17.58
		2M78W7D	256QAM	0.029	14.65
LTE – Band2 (5)	1852.5 - 1907.5	4M52G7D	QPSK	0.096	19.82
		4M55W7D	16QAM	0.074	18.68
		4M56W7D	64QAM	0.058	17.63
		4M53W7D	256QAM	0.029	14.61
LTE – Band2 (10)	1855.0 - 1905.0	9M06G7D	QPSK	0.090	19.55
		9M05W7D	16QAM	0.069	18.36
		9M04W7D	64QAM	0.055	17.43
		9M04W7D	256QAM	0.028	14.41
LTE – Band2 (15)	1857.5 - 1902.5	13M5G7D	QPSK	0.087	19.41
		13M5W7D	16QAM	0.068	18.34
		13M5W7D	64QAM	0.054	17.31
		13M5W7D	256QAM	0.027	14.32
LTE – Band2 (20)	1860.0 - 1900.0	18M0G7D	QPSK	0.089	19.48
		18M0W7D	16QAM	0.067	18.23
		18M1W7D	64QAM	0.053	17.22
		18M0W7D	256QAM	0.026	14.22

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)

REVIEWED BY

Report prepared by : Jae Mun Do
Engineer of Telecommunication Testing Center

Report approved by : Jong Seok Lee
Manager of Telecommunication Testing Center

This test results were applied only to the test methods required by the standard.

This laboratory is not accredited for the test results marked *.
The above Test Report is the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA. (HCT Accreditation No.: KT197)

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2201-FC002	January 04, 2022	- First Approval Report

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.

Table of Contents

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:	A3LSMA336M
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§24, §2
EUT Type:	Mobile phone
Model(s):	SM-A336M/DSN
Additional Model(s):	SM-A336M
Tx Frequency:	1850.7 MHz – 1909.3 MHz (LTE – Band2 (1.4 MHz)) 1851.5 MHz – 1908.5 MHz (LTE – Band2 (3 MHz)) 1852.5 MHz – 1907.5 MHz (LTE – Band2 (5 MHz)) 1855.0 MHz – 1905.0 MHz (LTE – Band2 (10 MHz)) 1857.5 MHz – 1902.5 MHz (LTE – Band2 (15 MHz)) 1860.0 MHz – 1900.0 MHz (LTE – Band2 (20 MHz))
Date(s) of Tests:	November 30, 2021 ~ December 28, 2021
Serial number:	Radiated: R3CRA0TXB9M (Sub2 Ant), R3CRA0TXAKE (Main1 Ant) Conducted: R3CR0TY84R (Sub2 Ant), R3CRA0CJCGV (Main1 Ant)

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

The EUT was a Mobile Phone with GSM/GPRS/EGPRS/UMTS and LTE, Sub6.

It also supports IEEE 802.11 a/b/g/n/ac (20/40/80), Bluetooth, BT LE, NFC.

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 - ANSI C63.26-2015 – Section 5.2.6(only GSM)
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 ≥ 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;

   $$P_{d\ (dBm)} = Pg_{\ (dBm)} - \text{cable loss}_{\ (dB)} + \text{antenna gain}_{\ (dB)}$$

   Where: P_{d} is the dipole equivalent power and P_{g} is the generator output power into the substitution antenna.

   3. The maximum value is calculated by adding the forward power to the calibrated source plus its appropriate gain value. These steps are repeated with the receiving antenna in both vertical and horizontal polarization. the difference between the gain of the horn and an isotropic antenna are taken into consideration
4. The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.
5. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

3.3 RADIATED SPURIOUS EMISSIONS

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

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

Test Settings

1. RBW = 100 kHz for emissions below 1 GHz and 1 MHz for emissions above 1 GHz
2. VBW ≥ 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^{th} harmonics from 9 kHz.

Test Note

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

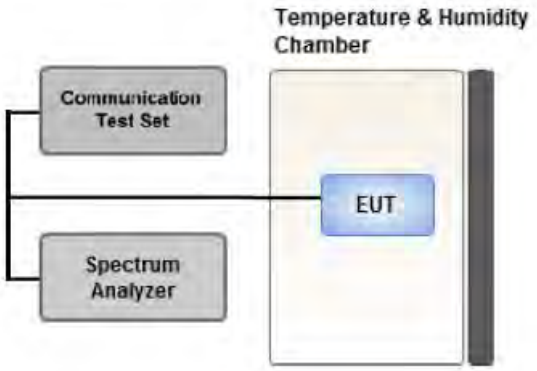
$$\text{Result}_{(dBm)} = Pg_{(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dBi)}$$

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

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

$$EIRP_{(dBm)} = ERP_{(dBm)} + 2.15$$

3.4 PEAK- TO- AVERAGE RATIO



Test setup

① CCDF Procedure for PAPR

Test Settings

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

② **Alternate Procedure for PAPR**

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

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

Test Settings(Peak Power)

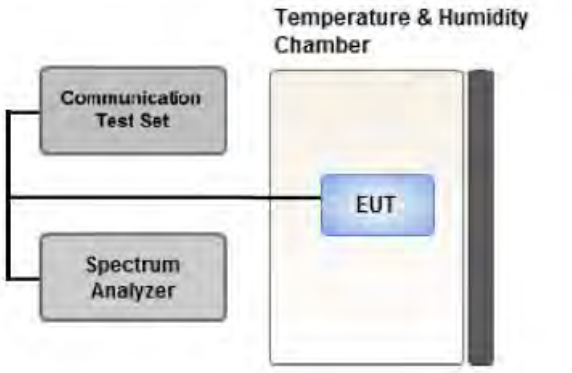
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW ≥ 3 × RBW.

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

Test Settings(Average Power)

1. Set span to 2 × to 3 × the OBW.
2. Set RBW ≥ OBW.
3. Set VBW ≥ 3 × RBW.
4. Set number of measurement points in sweep ≥ 2 × span / RBW.
5. Sweep time:
   Set ≥ [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

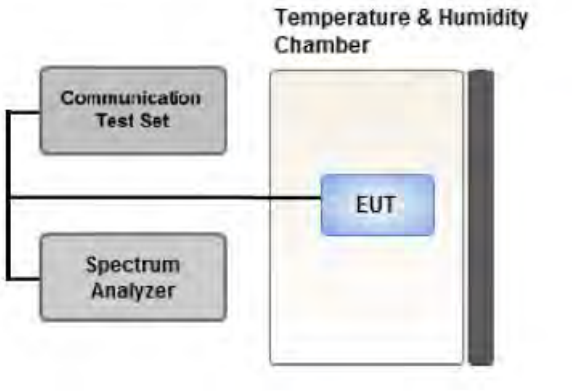
The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

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 ≥ 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

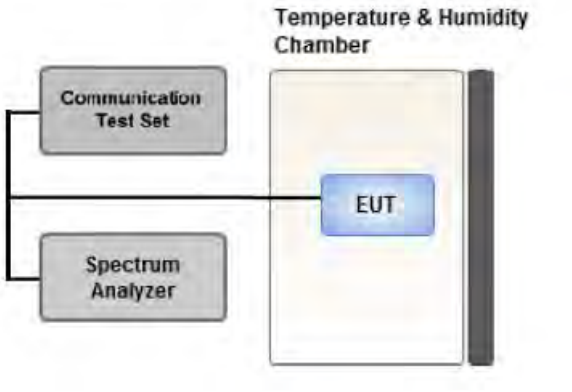
Test Overview

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 ≥ 3 MHz
3. Detector = RMS
4. Trace Mode = Average
5. Sweep time = auto
6. Number of points in sweep ≥ 2 * Span / RBW

3.7 BAND EDGE



Test setup

Test Overview

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

Test Settings

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

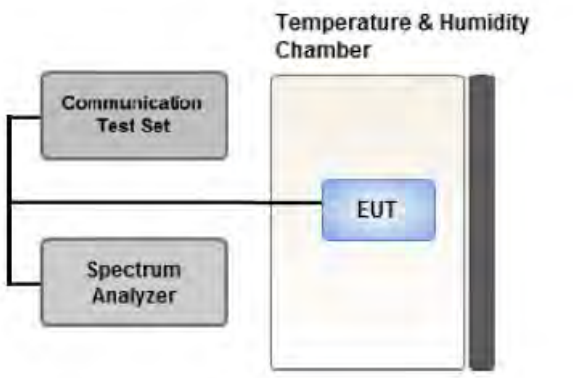
Test Notes

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.

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
- In the case of radiated spurious emissions, all bandwidth of operation were investigated and the worst case bandwidth results are reported. (Worst case : 5 MHz)
- The worst case is reported with the EUT positioning, modulations, and paging service configurations shown in the test data.
- Please refer to the table below.
- SM-A336M/DSN & additional models were tested and the worst case results are reported.

(Worst case : SM-A336M/DSN)

[Main1 Ant Worst case]

Test Description	Modulation	Bandwidth (MHz)	Frequency	RB size	RB offset	Axis
Effective Isotropic Radiated Power	QPSK, 16QAM, 64QAM, 256QAM	1.4	Low	1	5	X
			Mid, High	1	0	
		3	Low	1	14	
			Mid, High	1	0	
		5	Low	1	24	
			Mid, High	1	0	
		10	Low	1	49	
			Mid, High	1	0	
		15	Low	1	74	
			Mid, High	1	0	
		20	Low	1	99	
			Mid, High	1	0	
Radiated Spurious and Harmonic Emissions	QPSK	5	Low	1	74	Y
			Mid, High	1	0	

[Sub2 Ant Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Effective Isotropic Radiated Power	QPSK, 16QAM, 64QAM, 256QAM	1	0	Z
Radiated Spurious and Harmonic Emissions	QPSK	1	0	Y

3.10 WORST CASE(CONDUCTED TEST)

[Worst case]

Test Description	Modulation	Bandwidth (MHz)	Frequency	RB size	RB offset
Occupied Bandwidth	QPSK, 16QAM, 64QAM, 256QAM	1.4, 3, 5, 10, 15, 20	Mid	Full RB	0
Peak-To-Average Ratio	QPSK, 16QAM, 64QAM, 256QAM	1.4, 3, 5, 10, 15, 20	Mid	Full RB	0
Band Edge	QPSK	1.4	Low	1	0
			High	1	5
		3	Low	1	0
			High	1	14
		5	Low	1	0
			High	1	24
		10	Low	1	0
			High	1	49
		15	Low	1	0
			High	1	74
		20	Low	1	0
			High	1	99
		1.4, 3, 5, 10, 15, 20	Low, High	Full RB	0
Spurious and Harmonic Emissions at Antenna Terminal	QPSK	1.4, 3, 5, 10, 15, 20	Low, Mid, High	1	0

- All modes of operation were investigated and the worst case configuration results are reported.
- SM-A336M/DSN & additional models were tested and the worst case results are reported.

(Worst case : SM-A336M/DSN)

4. LIST OF TEST EQUIPMENT

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
H.P.F	FBSR-02B(WHK1.2/15 G-10EF)	T&M SYSTEM	-	03/02/2022	Annual
H.P.F	FBSR-02B(WHK3.3/18 G-10EF)	T&M SYSTEM	-	03/02/2022	Annual
Power Splitter(DC ~ 26.5 GHz)	11667B	Hewlett Packard	11275	04/07/2022	Annual
DC Power Supply	E3632A	Agilent	MY40010147	06/28/2022	Annual
Dipole Antenna	UHAP	Schwarzbeck	557	04/05/2023	Biennial
Dipole Antenna	UHAP	Schwarzbeck	558	04/05/2023	Biennial
Chamber	SU-642	ESPEC	93008124	03/15/2022	Annual
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	147	08/30/2022	Biennial
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	9120D-1298	09/15/2023	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	10/13/2022	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	02/11/2022	Biennial
Signal Analyzer(10 Hz ~ 26.5 GHz)	N9020A	Agilent	MY52090906	05/18/2022	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	06/01/2022	Annual
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	REOHDE & SCHWARZ	100931	09/29/2022	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/18/2022	Annual
Loop Antenna(9 kHz ~ 30 MHz)	FMZB1513	Schwarzbeck	1513-333	03/19/2022	Biennial
Bilog Antenna	VULB9160	Schwarzbeck	3150	03/03/2023	Biennial
Hybrid Antenna	VULB9168	Schwarzbeck	760	02/22/2023	Biennial
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262116770	07/12/2022	Annual
Wideband Radio Communication Tester	MT8820C	Anritsu Corp.	6201026545	01/07/2022	Annual
SIGNAL GENERATOR (100 kHz ~ 40 GHz)	SMB100A	REOHDE & SCHWARZ	177633	07/05/2022	Annual
Signal Analyzer(5 Hz ~ 40.0 GHz)	N9030B	KEYSIGHT	MY55480167	06/02/2022	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)	1.82 (Confidence level about 95 %, k=2)
Radiated Disturbance (9 kHz ~ 30 MHz)	3.40 (Confidence level about 95 %, k=2)
Radiated Disturbance (30 MHz ~ 1 GHz)	4.80 (Confidence level about 95 %, k=2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.70 (Confidence level about 95 %, k=2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.05 (Confidence level about 95 %, k=2)

6. SUMMARY OF TEST RESULTS

6.1 Test Condition : Conducted Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Occupied Bandwidth	§2.1049	N/A	PASS
Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§2.1051, §24.238(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	§24.232(d)	< 13 dB	PASS
Frequency stability / variation of ambient temperature	§24.235	Emission must remain in band	PASS

Note:

1. See SAR Report

6.2 Test Condition : Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Equivalent Isotropic Radiated Power	§24.232(c)	< 2 Watts max. EIRP	PASS
Radiated Spurious and Harmonic Emissions	§2.1053, §24.238(a)	< 43 + 10log10 (P[Watts]) for all out-of band emissions	PASS

7. SAMPLE CALCULATION

7.1 ERP Sample Calculation

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

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

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

QAM Modulation

Emission Designator = 4M48W7D

LTE BW = 4.48 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data transmission; telemetry; telecommand

8. TEST DATA

8.1 EQUIVALENT ISOTROPIC RADIATED POWER

8.1.1 Main1 Ant

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1850.7	LTE B2/ 1.4 MHz	QPSK	-22.73	10.92	10.40	2.11	H	< 2.00	0.083	19.21
		16-QAM	-23.45	10.20	10.40	2.11	H		0.071	18.49
		64-QAM	-24.51	9.14	10.40	2.11	H		0.055	17.43
		256-QAM	-27.39	6.26	10.40	2.11	H		0.029	14.55
1880.0		QPSK	-22.77	11.31	10.40	2.15	H		0.090	19.56
		16-QAM	-23.57	10.51	10.40	2.15	H		0.075	18.76
		64-QAM	-24.56	9.52	10.40	2.15	H		0.060	17.77
		256-QAM	-27.54	6.54	10.40	2.15	H		0.030	14.79
1909.3		QPSK	-22.77	11.53	10.40	2.15	H		0.095	19.78
		16-QAM	-23.68	10.62	10.40	2.15	H		0.077	18.87
		64-QAM	-24.71	9.59	10.40	2.15	H		0.061	17.84
		256-QAM	-27.77	6.53	10.40	2.15	H		0.030	14.78

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1851.5	LTE B2/ 3 MHz	QPSK	-22.92	10.73	10.40	2.11	H	< 2.00	0.080	19.02
		16-QAM	-23.42	10.23	10.40	2.11	H		0.071	18.52
		64-QAM	-24.38	9.27	10.40	2.11	H		0.057	17.56
		256-QAM	-27.20	6.45	10.40	2.11	H		0.030	14.74
1880.0		QPSK	-22.83	11.25	10.40	2.15	H		0.089	19.50
		16-QAM	-23.37	10.71	10.40	2.15	H		0.079	18.96
		64-QAM	-24.47	9.61	10.40	2.15	H		0.061	17.86
		256-QAM	-27.31	6.77	10.40	2.15	H		0.032	15.02
1908.5		QPSK	-22.63	11.67	10.40	2.15	H		0.098	19.92
		16-QAM	-23.42	10.88	10.40	2.15	H		0.082	19.13
		64-QAM	-24.46	9.84	10.40	2.15	H		0.064	18.09
		256-QAM	-27.40	6.90	10.40	2.15	H		0.033	15.15

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1852.5	LTE B2/ 5 MHz	QPSK	-22.73	10.92	10.40	2.11	H	< 2.00	0.083	19.21
		16-QAM	-23.47	10.18	10.40	2.11	H		0.070	18.47
		64-QAM	-24.34	9.31	10.40	2.11	H		0.058	17.60
		256-QAM	-27.25	6.40	10.40	2.11	H		0.030	14.69
1880.0		QPSK	-22.86	11.22	10.40	2.15	H		0.089	19.47
		16-QAM	-23.65	10.43	10.40	2.15	H		0.074	18.68
		64-QAM	-24.42	9.66	10.40	2.15	H		0.062	17.91
		256-QAM	-27.47	6.61	10.40	2.15	H		0.031	14.86
1907.5		QPSK	-22.54	11.76	10.40	2.15	H		0.100	20.01
		16-QAM	-23.41	10.89	10.40	2.15	H		0.082	19.14
		64-QAM	-24.47	9.83	10.40	2.15	H		0.064	18.08
		256-QAM	-27.38	6.92	10.40	2.15	H		0.033	15.17

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1855.0	LTE B2/ 10 MHz	QPSK	-22.77	11.00	10.40	2.12	H	< 2.00	0.085	19.29
		16-QAM	-23.69	10.08	10.40	2.12	H		0.069	18.37
		64-QAM	-24.58	9.19	10.40	2.12	H		0.056	17.48
		256-QAM	-27.59	6.18	10.40	2.12	H		0.028	14.47
1880.0		QPSK	-22.94	11.14	10.40	2.15	H		0.087	19.39
		16-QAM	-23.64	10.44	10.40	2.15	H		0.074	18.69
		64-QAM	-24.64	9.44	10.40	2.15	H		0.059	17.69
		256-QAM	-27.68	6.40	10.40	2.15	H		0.029	14.65
1905.0		QPSK	-23.23	11.00	10.40	2.15	H		0.084	19.25
		16-QAM	-24.09	10.14	10.40	2.15	H		0.069	18.39
		64-QAM	-24.94	9.29	10.40	2.15	H		0.057	17.54
		256-QAM	-27.98	6.25	10.40	2.15	H		0.028	14.50

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1857.5	LTE B2/ 15 MHz	QPSK	-23.01	10.89	10.40	2.12	H	< 2.00	0.083	19.17
		16-QAM	-23.68	10.22	10.40	2.12	H		0.071	18.50
		64-QAM	-24.65	9.25	10.40	2.12	H		0.057	17.53
		256-QAM	-27.46	6.44	10.40	2.12	H		0.030	14.72
1880.0		QPSK	-22.64	11.44	10.40	2.15	H		0.093	19.69
		16-QAM	-23.43	10.65	10.40	2.15	H		0.078	18.90
		64-QAM	-24.48	9.60	10.40	2.15	H		0.061	17.85
		256-QAM	-27.52	6.56	10.40	2.15	H		0.030	14.81
1902.5		QPSK	-22.79	11.37	10.40	2.15	H		0.092	19.62
		16-QAM	-23.31	10.85	10.40	2.15	H		0.081	19.10
		64-QAM	-24.13	10.03	10.40	2.15	H		0.067	18.28
		256-QAM	-27.17	6.99	10.40	2.15	H		0.033	15.24

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1860.0	LTE B2/ 20 MHz	QPSK	-22.96	10.94	10.40	2.12	H	< 2.00	0.084	19.22
		16-QAM	-23.60	10.30	10.40	2.12	H		0.072	18.58
		64-QAM	-24.72	9.18	10.40	2.12	H		0.056	17.46
		256-QAM	-27.66	6.24	10.40	2.12	H		0.028	14.52
1880.0		QPSK	-22.62	11.46	10.40	2.15	H		0.094	19.71
		16-QAM	-23.30	10.78	10.40	2.15	H		0.080	19.03
		64-QAM	-24.31	9.77	10.40	2.15	H		0.063	18.02
		256-QAM	-27.25	6.83	10.40	2.15	H		0.032	15.08
1900.0		QPSK	-22.85	11.31	10.40	2.15	H		0.090	19.56
		16-QAM	-23.45	10.71	10.40	2.15	H		0.079	18.96
		64-QAM	-24.36	9.80	10.40	2.15	H		0.064	18.05
		256-QAM	-27.46	6.70	10.40	2.15	H		0.031	14.95

8.1.2 Sub2 Ant

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1850.7	LTE B2/ 1.4 MHz	QPSK	-21.98	11.74	10.10	2.15	V	< 2.00	0.093	19.69
		16-QAM	-23.17	10.55	10.10	2.15	V		0.071	18.50
		64-QAM	-24.19	9.53	10.10	2.15	V		0.056	17.48
		256-QAM	-27.13	6.59	10.10	2.15	V		0.028	14.54
1880.0		QPSK	-21.53	11.66	9.98	2.25	V		0.087	19.39
		16-QAM	-22.82	10.37	9.98	2.25	V		0.065	18.10
		64-QAM	-23.74	9.45	9.98	2.25	V		0.052	17.18
		256-QAM	-26.77	6.42	9.98	2.25	V		0.026	14.15
1909.3		QPSK	-22.67	11.12	9.88	2.17	V		0.076	18.83
		16-QAM	-23.67	10.12	9.88	2.17	V		0.061	17.83
		64-QAM	-24.94	8.85	9.88	2.17	V		0.045	16.56
		256-QAM	-27.95	5.84	9.88	2.17	V		0.023	13.55

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1851.5	LTE B2/ 3 MHz	QPSK	-21.87	11.85	10.10	2.15	V	< 2.00	0.096	19.80
		16-QAM	-23.09	10.63	10.10	2.15	V		0.072	18.58
		64-QAM	-24.09	9.63	10.10	2.15	V		0.057	17.58
		256-QAM	-27.02	6.70	10.10	2.15	V		0.029	14.65
1880.0		QPSK	-21.58	11.61	9.98	2.25	V		0.086	19.34
		16-QAM	-22.74	10.45	9.98	2.25	V		0.066	18.18
		64-QAM	-23.78	9.41	9.98	2.25	V		0.052	17.14
		256-QAM	-26.75	6.44	9.98	2.25	V		0.026	14.17
1908.5		QPSK	-22.94	10.85	9.88	2.17	V		0.072	18.56
		16-QAM	-24.24	9.55	9.88	2.17	V		0.053	17.26
		64-QAM	-25.28	8.51	9.88	2.17	V		0.042	16.22
		256-QAM	-28.23	5.56	9.88	2.17	V		0.021	13.27

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1852.5	LTE B2/ 5 MHz	QPSK	-21.85	11.87	10.10	2.15	V	< 2.00	0.096	19.82
		16-QAM	-22.99	10.73	10.10	2.15	V		0.074	18.68
		64-QAM	-24.04	9.68	10.10	2.15	V		0.058	17.63
		256-QAM	-27.06	6.66	10.10	2.15	V		0.029	14.61
1880.0		QPSK	-21.57	11.62	9.98	2.25	V		0.086	19.35
		16-QAM	-22.76	10.43	9.98	2.25	V		0.066	18.16
		64-QAM	-23.71	9.48	9.98	2.25	V		0.053	17.21
		256-QAM	-26.69	6.50	9.98	2.25	V		0.027	14.23
1907.5		QPSK	-23.08	10.71	9.88	2.17	V		0.069	18.42
		16-QAM	-24.26	9.53	9.88	2.17	V		0.053	17.24
		64-QAM	-25.30	8.49	9.88	2.17	V		0.042	16.20
		256-QAM	-28.29	5.50	9.88	2.17	V		0.021	13.21

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1855.0	LTE B2/ 10 MHz	QPSK	-21.77	11.64	10.08	2.17	V	< 2.00	0.090	19.55
		16-QAM	-22.96	10.45	10.08	2.17	V		0.069	18.36
		64-QAM	-23.89	9.52	10.08	2.17	V		0.055	17.43
		256-QAM	-26.91	6.50	10.08	2.17	V		0.028	14.41
1880.0		QPSK	-21.55	11.64	9.98	2.25	V		0.086	19.37
		16-QAM	-22.76	10.43	9.98	2.25	V		0.066	18.16
		64-QAM	-23.74	9.45	9.98	2.25	V		0.052	17.18
		256-QAM	-26.68	6.51	9.98	2.25	V		0.027	14.24
1905.0		QPSK	-22.66	11.06	9.89	2.19	V		0.075	18.76
		16-QAM	-23.94	9.78	9.89	2.19	V		0.056	17.48
		64-QAM	-24.99	8.73	9.89	2.19	V		0.044	16.43
		256-QAM	-28.02	5.70	9.89	2.19	V		0.022	13.40

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1857.5	LTE B2/ 15 MHz	QPSK	-21.74	11.51	10.06	2.17	V	< 2.00	0.087	19.40
		16-QAM	-22.80	10.45	10.06	2.17	V		0.068	18.34
		64-QAM	-23.83	9.42	10.06	2.17	V		0.054	17.31
		256-QAM	-26.82	6.43	10.06	2.17	V		0.027	14.32
1880.0		QPSK	-21.51	11.68	9.98	2.25	V		0.087	19.41
		16-QAM	-22.71	10.48	9.98	2.25	V		0.066	18.21
		64-QAM	-23.68	9.51	9.98	2.25	V		0.053	17.24
		256-QAM	-26.66	6.53	9.98	2.25	V		0.027	14.26
1902.5		QPSK	-22.73	10.91	9.90	2.20	V		0.073	18.61
		16-QAM	-23.97	9.67	9.90	2.20	V		0.055	17.37
		64-QAM	-25.00	8.64	9.90	2.20	V		0.043	16.34
		256-QAM	-27.98	5.66	9.90	2.20	V		0.022	13.36

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1860.0	LTE B2/ 20 MHz	QPSK	-21.67	11.42	10.06	2.19	V	< 2.00	0.085	19.29
		16-QAM	-22.75	10.34	10.06	2.19	V		0.066	18.21
		64-QAM	-23.78	9.31	10.06	2.19	V		0.052	17.18
		256-QAM	-26.79	6.30	10.06	2.19	V		0.026	14.17
1880.0		QPSK	-21.44	11.75	9.98	2.25	V		0.089	19.48
		16-QAM	-22.69	10.50	9.98	2.25	V		0.067	18.23
		64-QAM	-23.70	9.49	9.98	2.25	V		0.053	17.22
		256-QAM	-26.70	6.49	9.98	2.25	V		0.026	14.22
1900.0		QPSK	-22.50	11.14	9.90	2.20	V		0.077	18.84
		16-QAM	-23.81	9.83	9.90	2.20	V		0.057	17.53
		64-QAM	-24.75	8.89	9.90	2.20	V		0.046	16.59
		256-QAM	-27.82	5.82	9.90	2.20	V		0.023	13.52

8.2 RADIATED SPURIOUS EMISSIONS

8.2.1 Main1 Ant

▣ OPERATING FREQUENCY: 1907.5 MHz

▣ MEASURED OUTPUT POWER: 20.01 dBm = 0.100 W

▣ MODE: LTE B2

▣ MODULATION SIGNAL: 5 MHz QPSK

▣ DISTANCE: 3 meters

▣ LIMIT: 43 + 10 log10 (W) = 33.01 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	dBc
18625 (1852.5)	3 705.00	-54.78	12.30	-59.49	3.08	V	-50.27	70.27
	5 557.50	-54.81	13.20	-53.02	3.82	H	-43.64	63.65
	7 410.00	-57.05	10.80	-46.56	4.45	H	-40.21	60.21
18900 (1880.0)	3 760.00	-54.11	12.32	-58.43	3.10	H	-49.21	69.21
	5 640.00	-56.38	13.10	-54.19	3.85	H	-44.94	64.94
	7 520.00	-57.64	10.84	-46.79	4.46	V	-40.41	60.42
19175 (1907.5)	3 815.00	-54.71	12.40	-59.48	3.14	H	-50.22	70.22
	5 722.50	-56.51	13.06	-53.48	3.88	H	-44.30	64.31
	7 630.00	-57.02	11.22	-46.18	4.48	V	-39.44	59.44

8.2.2 Sub2 Ant

▣ OPERATING FREQUENCY: 1852.5 MHz

▣ MEASURED OUTPUT POWER: 19.82 dBm = 0.096 W

▣ MODE: LTE B2

▣ MODULATION SIGNAL: 5 MHz QPSK

▣ DISTANCE: 3 meters

▣ LIMIT: 43 + 10 log10 (W) = 32.82 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	dBc
18625 (1852.5)	3 705.00	-54.14	11.70	-54.97	3.14	V	-46.40	66.22
	5 557.50	-45.86	12.08	-40.74	3.88	H	-32.54	52.36
	7 410.00	-64.76	11.24	-49.80	4.41	V	-42.97	62.79
18900 (1880.0)	3 760.00	-55.07	11.64	-55.30	3.16	H	-46.82	66.64
	5 640.00	-42.54	12.00	-36.36	3.93	H	-28.29	48.11
	7 520.00	-60.11	11.54	-45.66	4.51	V	-38.63	58.44
19175 (1907.5)	3 815.00	-53.92	11.34	-53.91	3.17	H	-45.74	65.56
	5 722.50	-43.78	11.76	-38.29	3.94	H	-30.47	50.29
	7 630.00	-60.01	11.60	-45.12	4.55	V	-38.07	57.89

8.3 PEAK-TO-AVERAGE RATIO

8.3.1 Main1 Ant

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
2	1.4 MHz	1880.0	QPSK	6	0	4.85
			16-QAM	6	0	5.14
			64-QAM	6	0	5.36
			256-QAM	6	0	5.50
	3 MHz		QPSK	15	0	5.03
			16-QAM	15	0	5.44
			64-QAM	15	0	5.53
			256-QAM	15	0	5.70
	5 MHz		QPSK	25	0	4.97
			16-QAM	25	0	5.37
			64-QAM	25	0	5.45
			256-QAM	25	0	5.65
	10 MHz		QPSK	50	0	5.04
			16-QAM	50	0	5.39
			64-QAM	50	0	5.49
			256-QAM	50	0	5.79
	15 MHz		QPSK	75	0	4.98
			16-QAM	75	0	5.40
			64-QAM	75	0	5.51
			256-QAM	75	0	5.75
	20 MHz		QPSK	100	0	4.96
			16-QAM	100	0	5.41
			64-QAM	100	0	5.52
			256-QAM	100	0	5.73

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 198 ~ 221.

8.3.2 Sub2 Ant

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
2	1.4 MHz	1880.0	QPSK	6	0	4.67
			16-QAM	6	0	4.96
			64-QAM	6	0	4.88
			256-QAM	6	0	5.50
	3 MHz		QPSK	15	0	4.78
			16-QAM	15	0	5.14
			64-QAM	15	0	5.12
			256-QAM	15	0	5.76
	5 MHz		QPSK	25	0	4.78
			16-QAM	25	0	5.24
			64-QAM	25	0	5.27
			256-QAM	25	0	5.32
	10 MHz		QPSK	50	0	4.82
			16-QAM	50	0	5.29
			64-QAM	50	0	5.30
			256-QAM	50	0	5.40
	15 MHz		QPSK	75	0	4.69
			16-QAM	75	0	5.21
			64-QAM	75	0	5.23
			256-QAM	75	0	5.33
	20 MHz		QPSK	100	0	4.61
			16-QAM	100	0	5.10
			64-QAM	100	0	5.16
			256-QAM	100	0	5.25

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 222 ~ 245.

8.4 OCCUPIED BANDWIDTH

8.4.1 Main1 Ant

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
2	1.4 MHz	1880.0	QPSK	6	0	1.1006
			16-QAM	6	0	1.1035
			64-QAM	6	0	1.1077
			256-QAM	6	0	1.1049
	3 MHz		QPSK	15	0	2.7137
			16-QAM	15	0	2.7297
			64-QAM	15	0	2.7156
			256-QAM	15	0	2.7102
	5 MHz		QPSK	25	0	4.5197
			16-QAM	25	0	4.5196
			64-QAM	25	0	4.5438
			256-QAM	25	0	4.5387
	10 MHz		QPSK	50	0	9.0326
			16-QAM	50	0	9.0421
			64-QAM	50	0	9.0147
			256-QAM	50	0	9.0212
	15 MHz		QPSK	75	0	13.496
			16-QAM	75	0	13.515
			64-QAM	75	0	13.493
			256-QAM	75	0	13.510
	20 MHz		QPSK	100	0	17.891
			16-QAM	100	0	17.913
			64-QAM	100	0	17.934
			256-QAM	100	0	17.912

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 150 ~ 173.

8.4.2 Sub2 Ant

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
2	1.4 MHz	1880.0	QPSK	6	0	1.1104
			16-QAM	6	0	1.1101
			64-QAM	6	0	1.1184
			256-QAM	6	0	1.1173
	3 MHz		QPSK	15	0	2.7639
			16-QAM	15	0	2.7627
			64-QAM	15	0	2.7820
			256-QAM	15	0	2.7755
	5 MHz		QPSK	25	0	4.5205
			16-QAM	25	0	4.5483
			64-QAM	25	0	4.5570
			256-QAM	25	0	4.5254
	10 MHz		QPSK	50	0	9.0619
			16-QAM	50	0	9.0493
			64-QAM	50	0	9.0439
			256-QAM	50	0	9.0373
	15 MHz		QPSK	75	0	13.517
			16-QAM	75	0	13.513
			64-QAM	75	0	13.538
			256-QAM	75	0	13.532
	20 MHz		QPSK	100	0	18.008
			16-QAM	100	0	18.023
			64-QAM	100	0	18.054
			256-QAM	100	0	17.995

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 174 ~ 197.

8.5 CONDUCTED SPURIOUS EMISSIONS

8.5.1 Main1 Ant

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
2	1.4	1850.7	3.7034	27.976	-77.075	-49.099	-13.00
		1880.0	3.7039	27.976	-77.180	-49.204	
		1909.3	3.6845	27.976	-77.220	-49.244	
	3	1851.5	3.7029	27.976	-77.346	-49.370	
		1880.0	3.6975	27.976	-77.290	-49.314	
		1908.5	3.6720	27.976	-77.375	-49.399	
	5	1852.5	3.6930	27.976	-77.117	-49.141	
		1880.0	3.6855	27.976	-77.472	-49.496	
		1907.5	3.7064	27.976	-77.417	-49.441	
	10	1855.0	3.7109	27.976	-77.050	-49.074	
		1880.0	3.6835	27.976	-77.198	-49.222	
		1905.0	3.6815	27.976	-77.431	-49.455	
	15	1857.5	3.7054	27.976	-77.587	-49.611	
		1880.0	3.7184	27.976	-77.348	-49.372	
		1902.5	3.7059	27.976	-76.736	-48.760	
	20	1860.0	3.7109	27.976	-77.453	-49.477	
		1880.0	3.6960	27.976	-77.069	-49.093	
		1900.0	3.7099	27.976	-77.473	-49.497	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 246 ~ 281.
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)
4. Factor (dB) = Cable Loss + Attenuator + Power Splitter

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

8.5.2 Sub2 Ant

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
2	1.4	1850.7	3.7005	27.976	-70.895	-42.919	-13.00
		1880.0	3.7593	27.976	-64.746	-36.770	
		1909.3	3.8196	27.976	-63.351	-35.375	
	3	1851.5	3.7005	27.976	-57.645	-29.669	
		1880.0	3.7573	27.976	-62.927	-34.951	
		1908.5	3.8196	27.976	-53.670	-25.694	
	5	1852.5	3.7005	27.976	-68.545	-40.569	
		1880.0	3.7558	27.976	-55.203	-27.227	
		1907.5	1.9871	27.976	-73.824	-45.848	
	10	1855.0	5.2378	28.591	-80.449	-51.858	
		1880.0	1.9637	27.976	-77.139	-49.163	
		1905.0	1.9871	27.976	-79.142	-51.166	
	15	1857.5	8.2577	28.591	-80.324	-51.733	
		1880.0	1.9612	27.976	-77.498	-49.522	
		1902.5	1.9876	27.976	-78.807	-50.831	
	20	1860.0	8.2378	28.591	-80.317	-51.726	
		1880.0	1.9677	27.976	-76.792	-48.816	
		1900.0	1.9871	27.976	-79.187	-51.211	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 282 ~ 317.
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)
4. Factor (dB) = Cable Loss + Attenuator + Power Splitter

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

8.6.1 Main1 Ant

- Plots of the EUT's Band Edge are shown Page 78 ~ 113.

8.6.2 Sub2 Ant

- Plots of the EUT's Band Edge are shown Page 114 ~ 149.

8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

8.7.1 Main1 Ant

▣ MODE: LTE B2

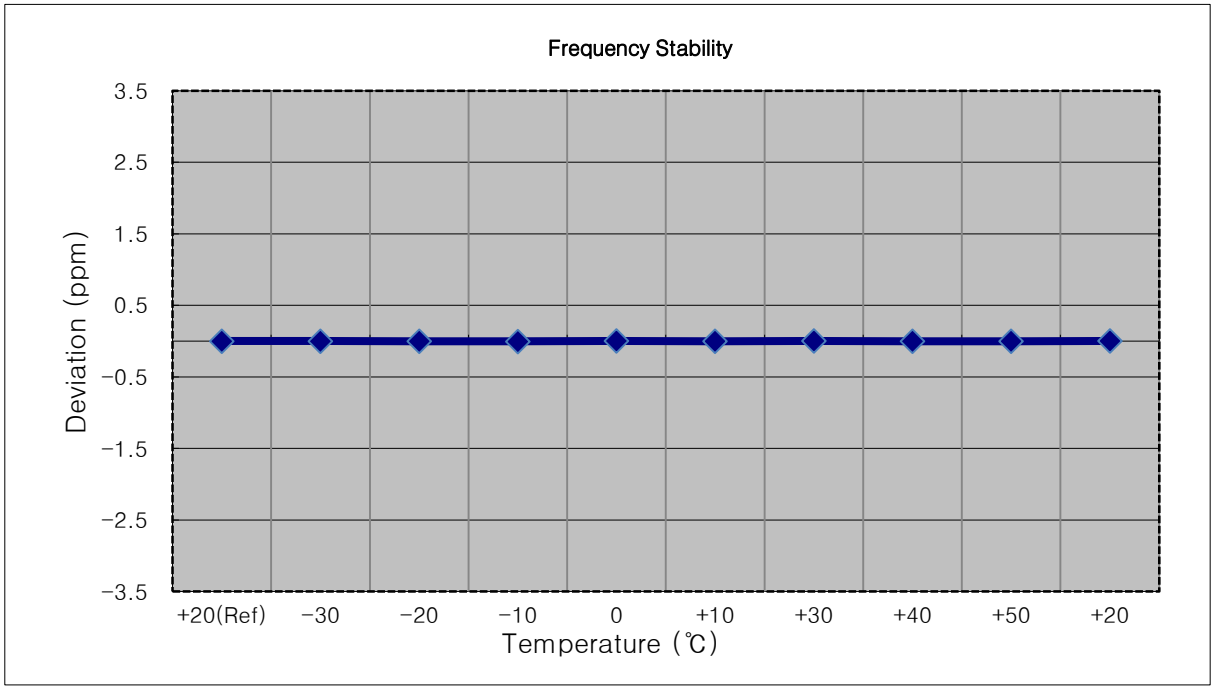
▣ OPERATING FREQUENCY: 1850,700,000 Hz

▣ CHANNEL: 18607 (1.4 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1850 699 996	0.0	0.000 000	0.000
100 %		-30	1850 699 998	2.0	0.000 000	0.001
100 %		-20	1850 699 991	-5.4	0.000 000	-0.003
100 %		-10	1850 699 989	-7.1	0.000 000	-0.004
100 %		0	1850 700 000	3.9	0.000 000	0.002
100 %		+10	1850 699 994	-2.0	0.000 000	-0.001
100 %		+30	1850 700 000	3.6	0.000 000	0.002
100 %		+40	1850 699 993	-3.4	0.000 000	-0.002
100 %		+50	1850 699 992	-3.8	0.000 000	-0.002
Batt. Endpoint	3.400	+20	1850 700 000	3.5	0.000 000	0.002



▣ MODE: LTE B2

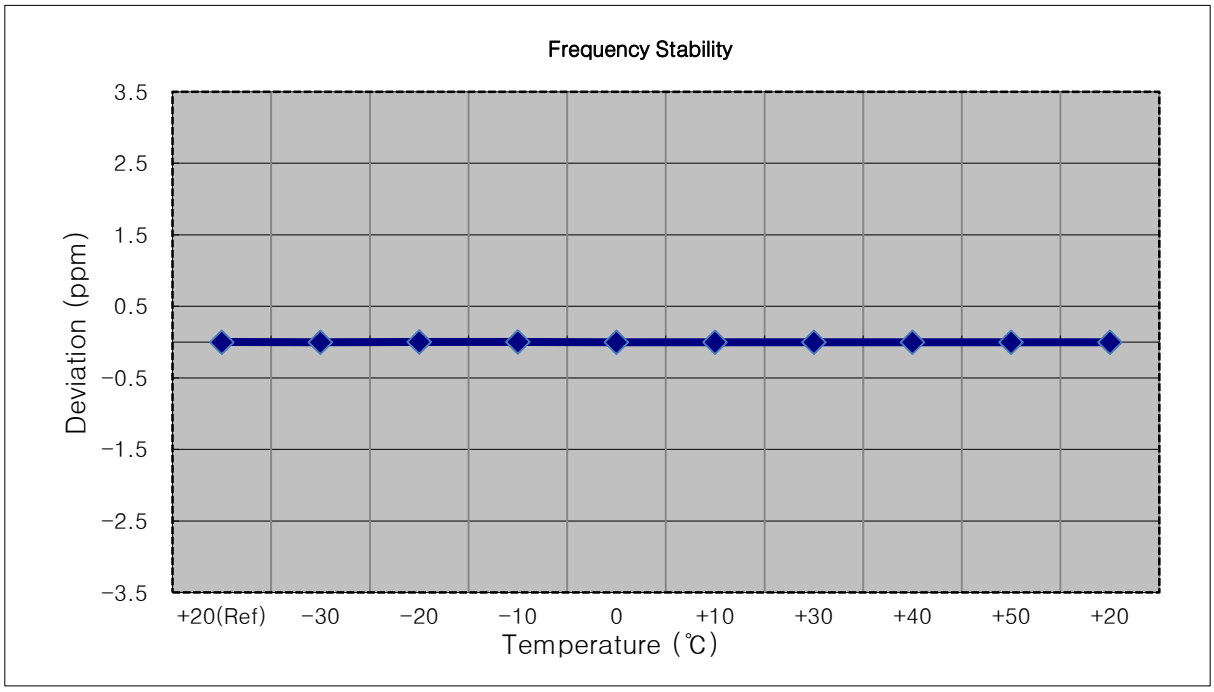
▣ OPERATING FREQUENCY: 1851,500,000 Hz

▣ CHANNEL: 18615 (3 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1851 500 003	0.0	0.000 000	0.000
100 %		-30	1851 500 000	-3.4	0.000 000	-0.002
100 %		-20	1851 500 006	3.3	0.000 000	0.002
100 %		-10	1851 500 006	3.2	0.000 000	0.002
100 %		0	1851 499 999	-4.1	0.000 000	-0.002
100 %		+10	1851 500 001	-2.4	0.000 000	-0.001
100 %		+30	1851 499 999	-4.0	0.000 000	-0.002
100 %		+40	1851 499 999	-4.0	0.000 000	-0.002
100 %		+50	1851 500 000	-3.3	0.000 000	-0.002
Batt. Endpoint	3.400	+20	1851 500 000	-3.5	0.000 000	-0.002



▣ MODE: LTE B2

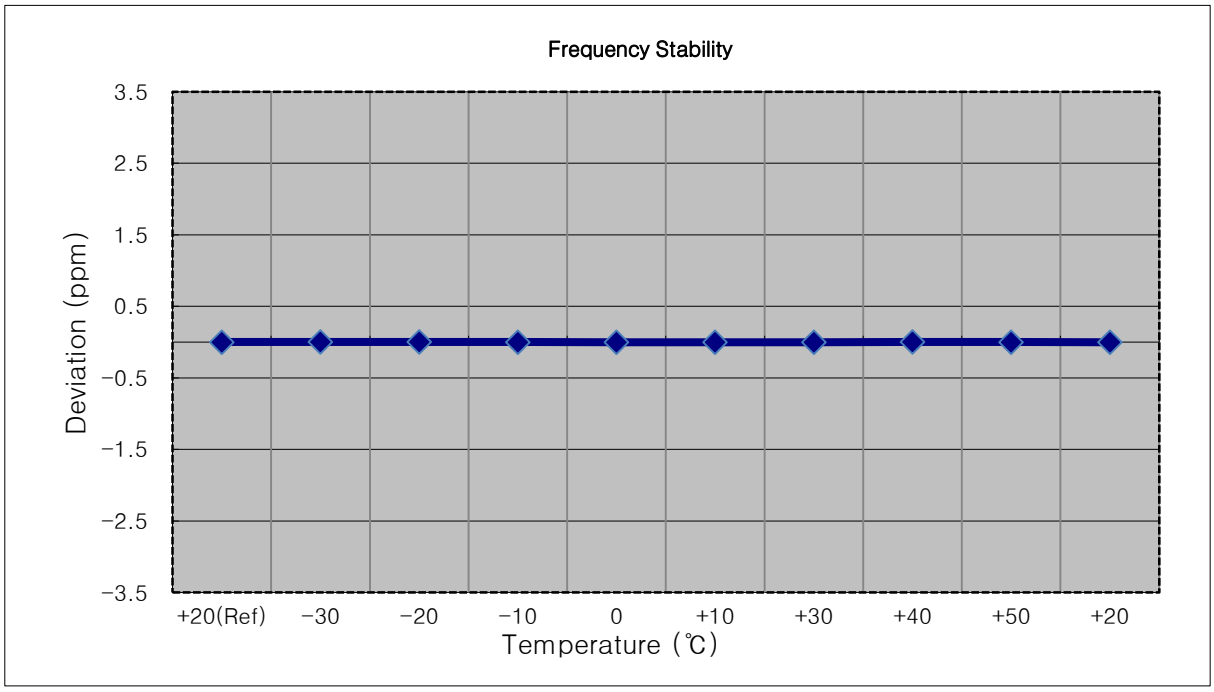
▣ OPERATING FREQUENCY: 1852,500,000 Hz

▣ CHANNEL: 18625 (5 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1852 499 995	0.0	0.000 000	0.000
100 %		-30	1852 499 998	2.9	0.000 000	0.002
100 %		-20	1852 499 999	3.4	0.000 000	0.002
100 %		-10	1852 499 998	2.4	0.000 000	0.001
100 %		0	1852 499 992	-3.8	0.000 000	-0.002
100 %		+10	1852 499 991	-4.5	0.000 000	-0.002
100 %		+30	1852 499 992	-3.4	0.000 000	-0.002
100 %		+40	1852 499 999	3.2	0.000 000	0.002
100 %		+50	1852 499 998	2.1	0.000 000	0.001
Batt. Endpoint	3.400	+20	1852 499 991	-4.1	0.000 000	-0.002



▣ MODE: LTE B2

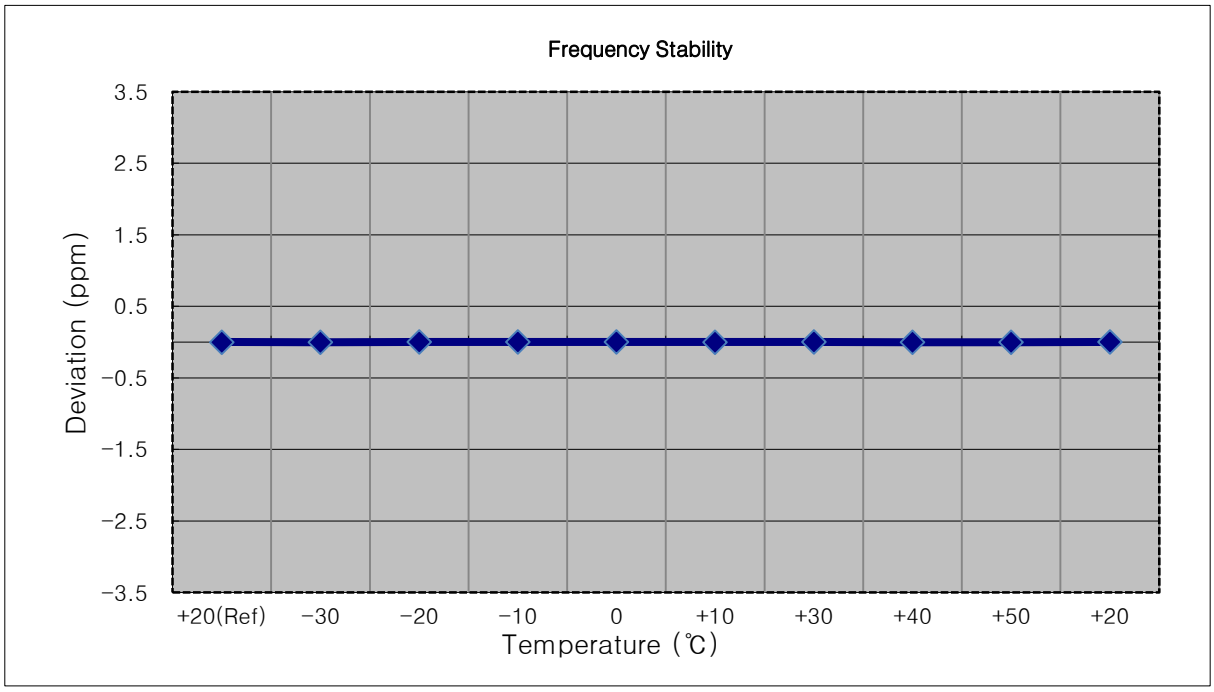
▣ OPERATING FREQUENCY: 1855,000,000 Hz

▣ CHANNEL: 18650 (10 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1855 000 004	0.0	0.000 000	0.000
100 %		-30	1855 000 001	-3.5	0.000 000	-0.002
100 %		-20	1855 000 008	3.9	0.000 000	0.002
100 %		-10	1855 000 008	3.5	0.000 000	0.002
100 %		0	1855 000 008	3.5	0.000 000	0.002
100 %		+10	1855 000 007	2.6	0.000 000	0.001
100 %		+30	1855 000 010	6.2	0.000 000	0.003
100 %		+40	1855 000 001	-2.9	0.000 000	-0.002
100 %		+50	1855 000 001	-2.7	0.000 000	-0.001
Batt. Endpoint	3.400	+20	1855 000 007	3.2	0.000 000	0.002



▣ MODE: LTE B2

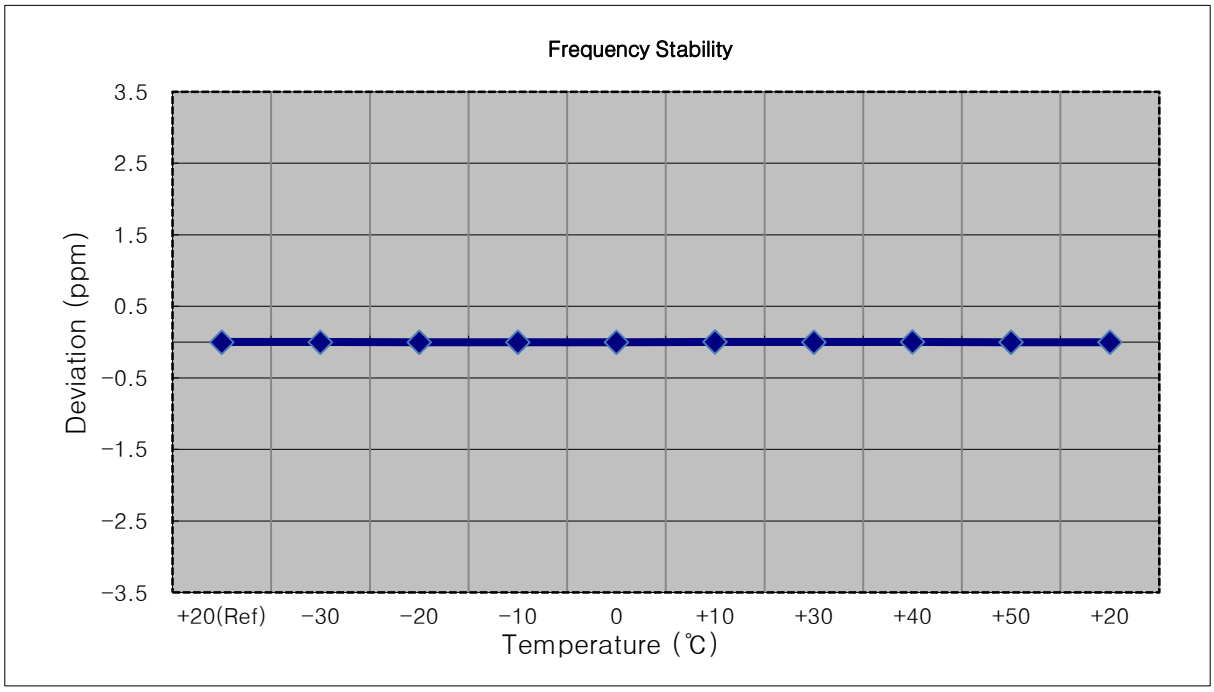
▣ OPERATING FREQUENCY: 1857,500,000 Hz

▣ CHANNEL: 18675 (15 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1857 499 999	0.0	0.000 000	0.000
100 %		-30	1857 500 000	1.3	0.000 000	0.001
100 %		-20	1857 499 995	-4.0	0.000 000	-0.002
100 %		-10	1857 499 996	-2.4	0.000 000	-0.001
100 %		0	1857 499 995	-3.4	0.000 000	-0.002
100 %		+10	1857 500 002	3.5	0.000 000	0.002
100 %		+30	1857 500 001	2.7	0.000 000	0.001
100 %		+40	1857 500 002	3.1	0.000 000	0.002
100 %		+50	1857 499 995	-3.8	0.000 000	-0.002
Batt. Endpoint	3.400	+20	1857 499 993	-5.4	0.000 000	-0.003



▣ MODE: LTE B2

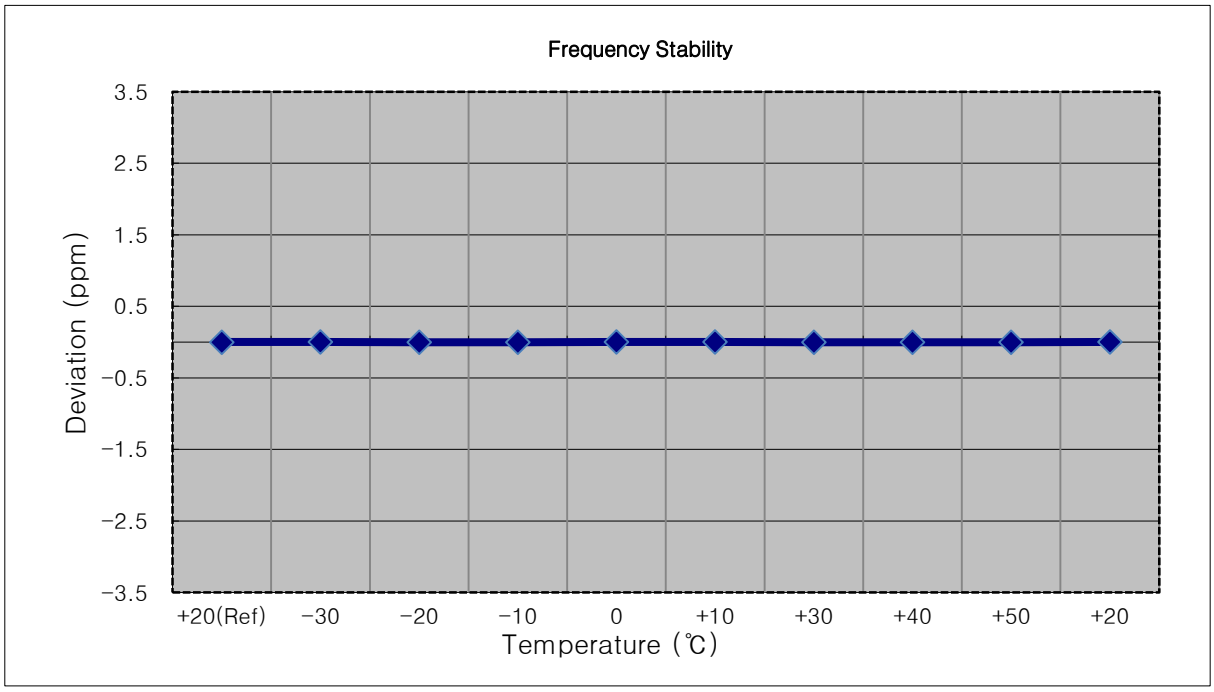
▣ OPERATING FREQUENCY: 1860,000,000 Hz

▣ CHANNEL: 18700 (20 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1859 999 994	0.0	0.000 000	0.000
100 %		-30	1859 999 999	4.6	0.000 000	0.002
100 %		-20	1859 999 992	-2.0	0.000 000	-0.001
100 %		-10	1859 999 991	-3.8	0.000 000	-0.002
100 %		0	1859 999 998	3.3	0.000 000	0.002
100 %		+10	1859 999 998	4.0	0.000 000	0.002
100 %		+30	1859 999 989	-5.0	0.000 000	-0.003
100 %		+40	1859 999 992	-2.4	0.000 000	-0.001
100 %		+50	1859 999 990	-4.5	0.000 000	-0.002
Batt. Endpoint	3.400	+20	1859 999 999	4.2	0.000 000	0.002



▣ MODE: LTE B2

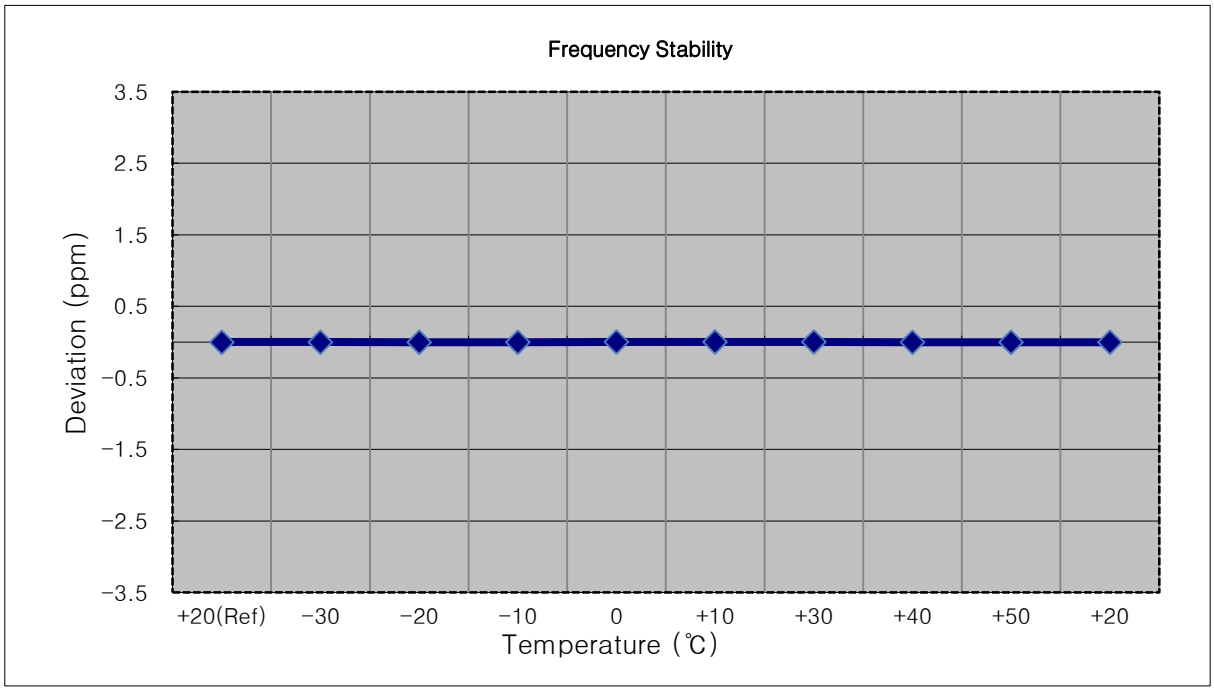
▣ OPERATING FREQUENCY: 1880,000,000 Hz

▣ CHANNEL: 18900 (1.4 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1879 999 996	0.0	0.000 000	0.000
100 %		-30	1879 999 999	2.3	0.000 000	0.001
100 %		-20	1879 999 992	-4.0	0.000 000	-0.002
100 %		-10	1879 999 991	-4.9	0.000 000	-0.003
100 %		0	1879 999 999	2.9	0.000 000	0.002
100 %		+10	1880 000 000	3.2	0.000 000	0.002
100 %		+30	1880 000 001	4.3	0.000 000	0.002
100 %		+40	1879 999 991	-5.5	0.000 000	-0.003
100 %		+50	1879 999 992	-4.1	0.000 000	-0.002
Batt. Endpoint	3.400	+20	1879 999 993	-3.8	0.000 000	-0.002



▣ MODE: LTE B2

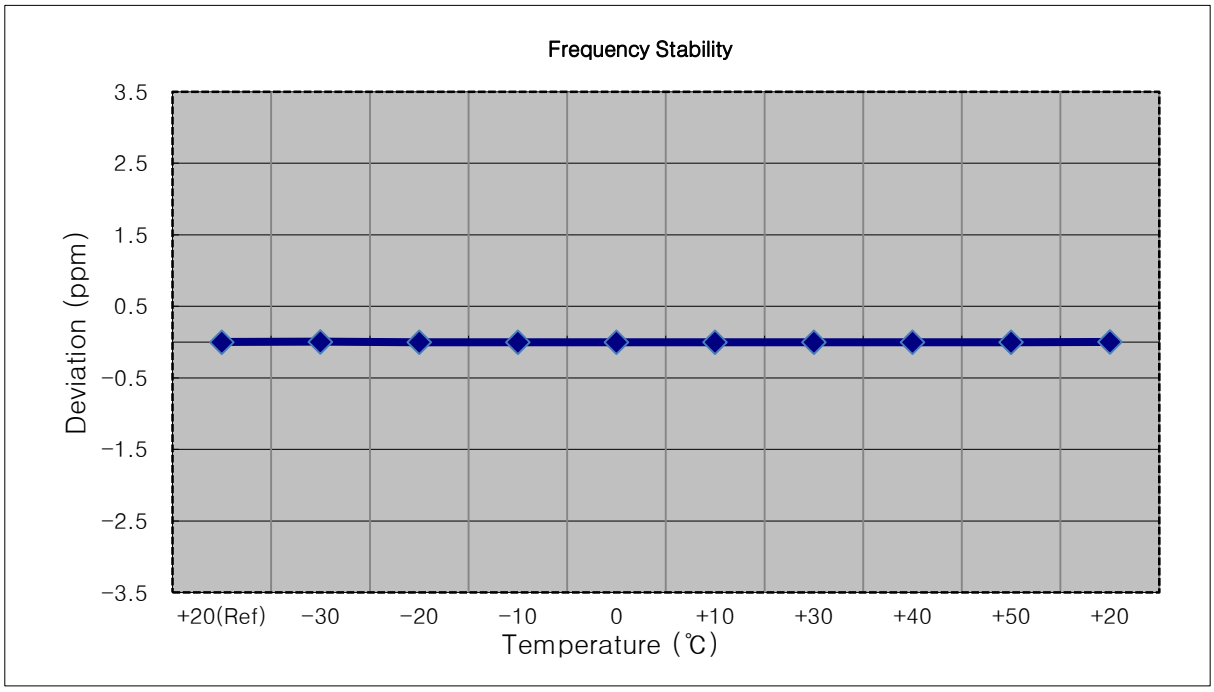
▣ OPERATING FREQUENCY: 1880,000,000 Hz

▣ CHANNEL: 18900 (3 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1879 999 995	0.0	0.000 000	0.000
100 %		-30	1880 000 003	7.4	0.000 000	0.004
100 %		-20	1879 999 991	-4.2	0.000 000	-0.002
100 %		-10	1879 999 992	-3.8	0.000 000	-0.002
100 %		0	1879 999 991	-4.0	0.000 000	-0.002
100 %		+10	1879 999 991	-4.1	0.000 000	-0.002
100 %		+30	1879 999 990	-5.3	0.000 000	-0.003
100 %		+40	1879 999 993	-2.7	0.000 000	-0.001
100 %		+50	1879 999 992	-3.6	0.000 000	-0.002
Batt. Endpoint	3.400	+20	1879 999 999	3.8	0.000 000	0.002



▣ MODE: LTE B2

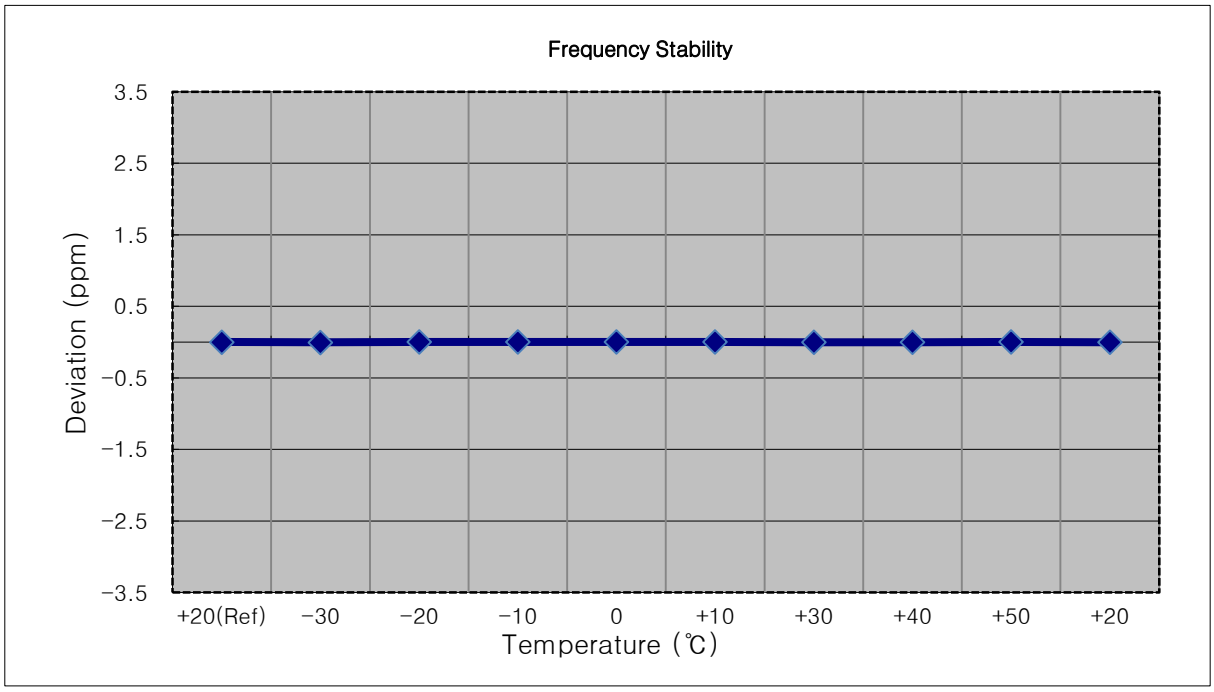
▣ OPERATING FREQUENCY: 1880,000,000 Hz

▣ CHANNEL: 18900 (5 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1879 999 996	0.0	0.000 000	0.000
100 %		-30	1879 999 989	-6.5	0.000 000	-0.003
100 %		-20	1879 999 999	3.4	0.000 000	0.002
100 %		-10	1880 000 000	4.4	0.000 000	0.002
100 %		0	1879 999 999	3.3	0.000 000	0.002
100 %		+10	1879 999 999	3.9	0.000 000	0.002
100 %		+30	1879 999 991	-5.0	0.000 000	-0.003
100 %		+40	1879 999 991	-4.9	0.000 000	-0.003
100 %		+50	1880 000 000	4.6	0.000 000	0.002
Batt. Endpoint	3.400	+20	1879 999 992	-3.6	0.000 000	-0.002



▣ MODE: LTE B2

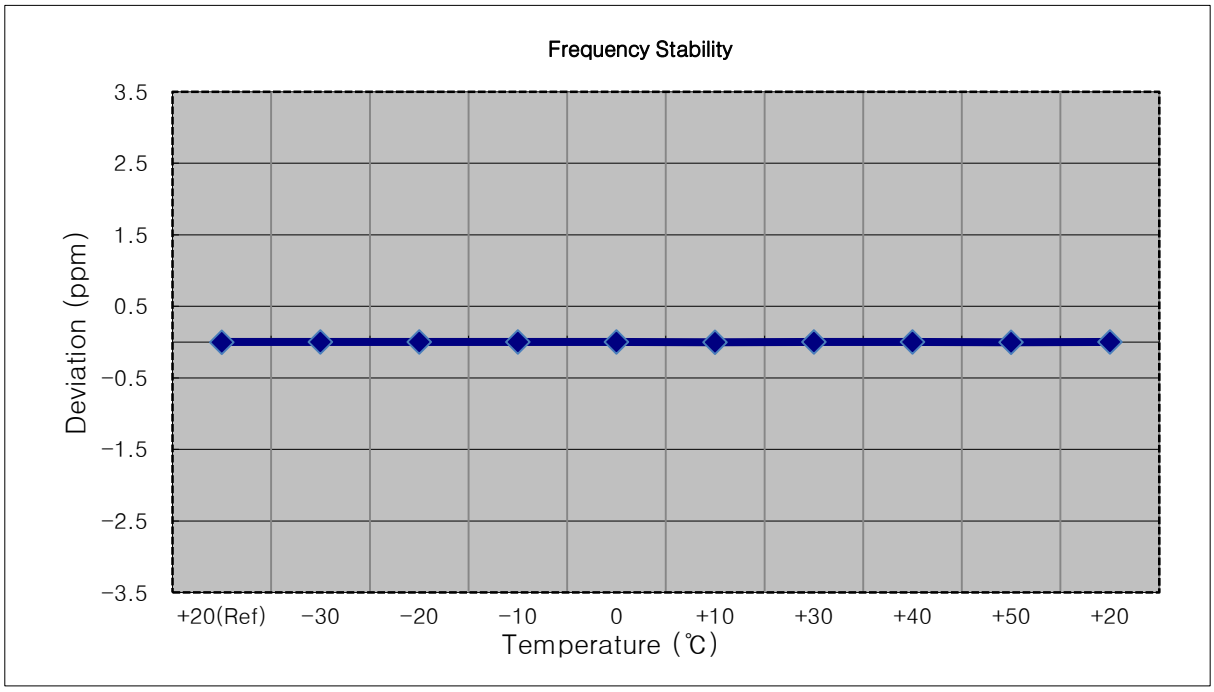
▣ OPERATING FREQUENCY: 1880,000,000 Hz

▣ CHANNEL: 18900 (10 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1879 999 996	0.0	0.000 000	0.000
100 %		-30	1879 999 999	2.8	0.000 000	0.001
100 %		-20	1880 000 000	4.6	0.000 000	0.002
100 %		-10	1880 000 001	4.8	0.000 000	0.003
100 %		0	1880 000 001	5.5	0.000 000	0.003
100 %		+10	1879 999 992	-4.1	0.000 000	-0.002
100 %		+30	1880 000 000	4.0	0.000 000	0.002
100 %		+40	1880 000 001	4.9	0.000 000	0.003
100 %		+50	1879 999 992	-4.0	0.000 000	-0.002
Batt. Endpoint	3.400	+20	1879 999 999	3.4	0.000 000	0.002



▣ MODE: LTE B2

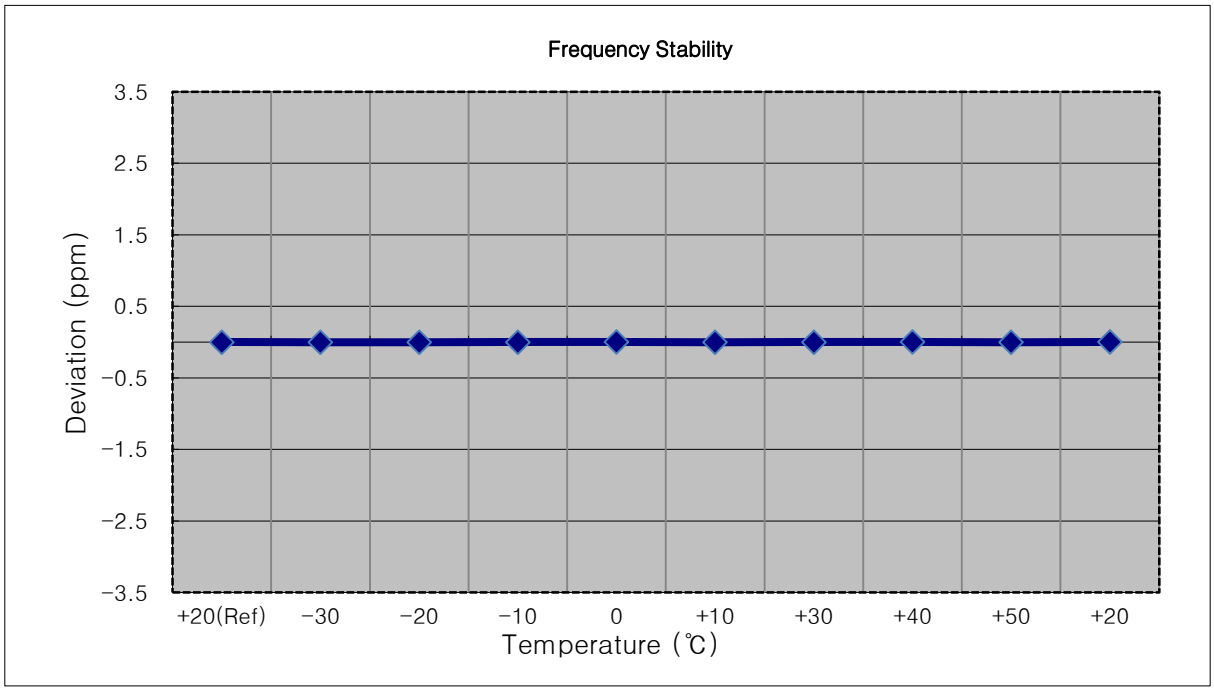
▣ OPERATING FREQUENCY: 1880,000,000 Hz

▣ CHANNEL: 18900 (15 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1879 999 995	0.0	0.000 000	0.000
100 %		-30	1879 999 992	-2.9	0.000 000	-0.002
100 %		-20	1879 999 992	-2.8	0.000 000	-0.001
100 %		-10	1879 999 998	2.3	0.000 000	0.001
100 %		0	1879 999 999	3.7	0.000 000	0.002
100 %		+10	1879 999 992	-3.3	0.000 000	-0.002
100 %		+30	1879 999 997	2.2	0.000 000	0.001
100 %		+40	1879 999 999	3.3	0.000 000	0.002
100 %		+50	1879 999 992	-3.3	0.000 000	-0.002
Batt. Endpoint	3.400	+20	1879 999 999	3.3	0.000 000	0.002



▣ MODE: LTE B2

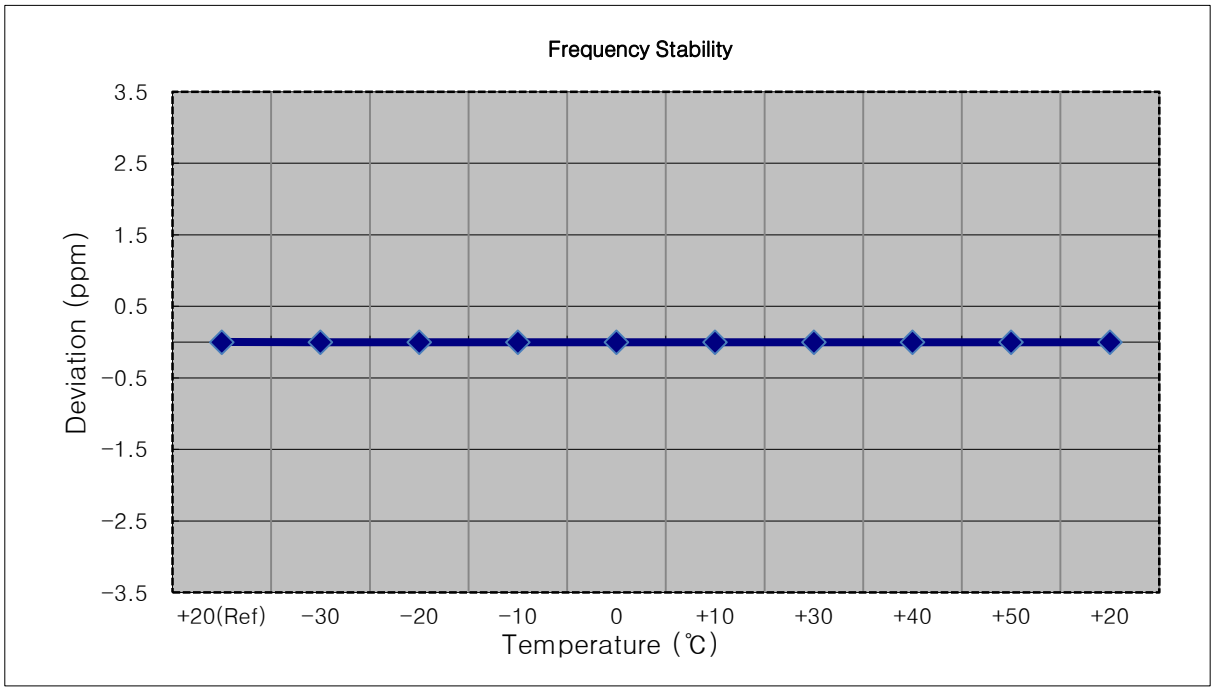
▣ OPERATING FREQUENCY: 1880,000,000 Hz

▣ CHANNEL: 18900 (20 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1879 999 998	0.0	0.000 000	0.000
100 %		-30	1879 999 996	-2.2	0.000 000	-0.001
100 %		-20	1879 999 995	-3.1	0.000 000	-0.002
100 %		-10	1879 999 995	-3.4	0.000 000	-0.002
100 %		0	1879 999 996	-2.0	0.000 000	-0.001
100 %		+10	1879 999 995	-3.0	0.000 000	-0.002
100 %		+30	1879 999 995	-3.1	0.000 000	-0.002
100 %		+40	1879 999 996	-2.5	0.000 000	-0.001
100 %		+50	1879 999 996	-1.8	0.000 000	-0.001
Batt. Endpoint	3.400	+20	1879 999 996	-2.6	0.000 000	-0.001



▣ MODE: LTE B2

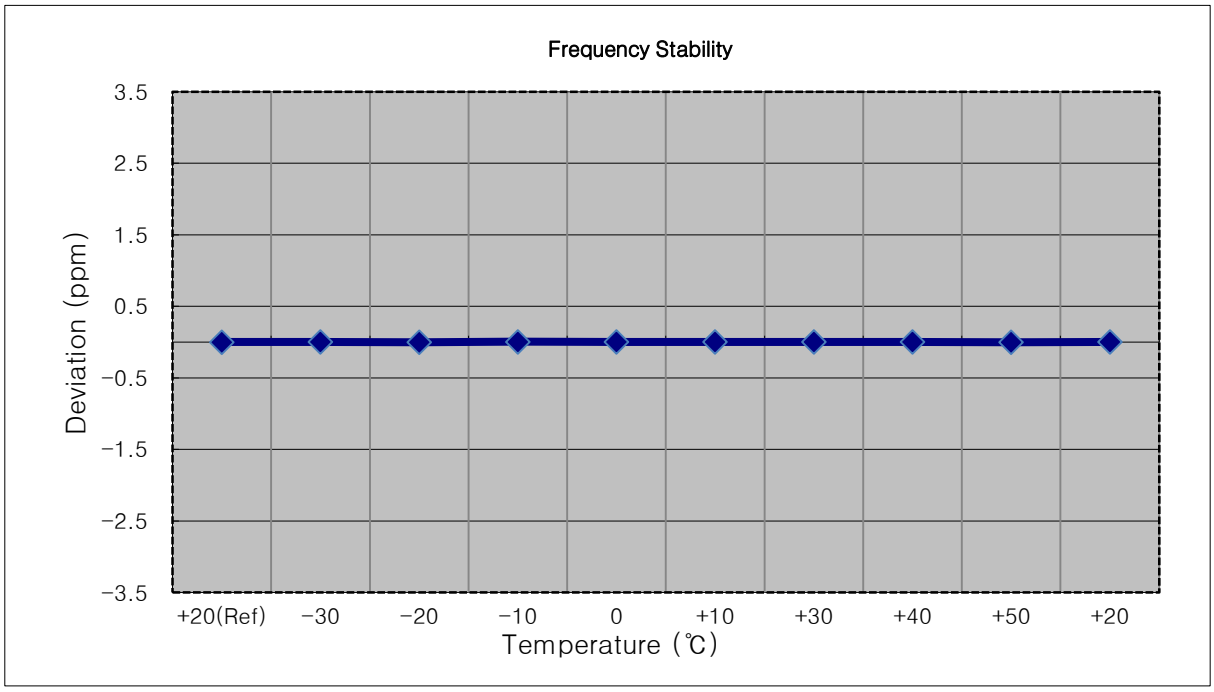
▣ OPERATING FREQUENCY: 1909,300,000 Hz

▣ CHANNEL: 19193 (1.4 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1909 299 994	0.0	0.000 000	0.000
100 %		-30	1909 299 999	5.3	0.000 000	0.003
100 %		-20	1909 299 988	-5.6	0.000 000	-0.003
100 %		-10	1909 300 001	7.6	0.000 000	0.004
100 %		0	1909 299 999	5.1	0.000 000	0.003
100 %		+10	1909 300 000	6.0	0.000 000	0.003
100 %		+30	1909 300 000	6.1	0.000 000	0.003
100 %		+40	1909 299 999	5.4	0.000 000	0.003
100 %		+50	1909 299 989	-4.4	0.000 000	-0.002
Batt. Endpoint	3.400	+20	1909 299 999	5.1	0.000 000	0.003



▣ MODE: LTE B2

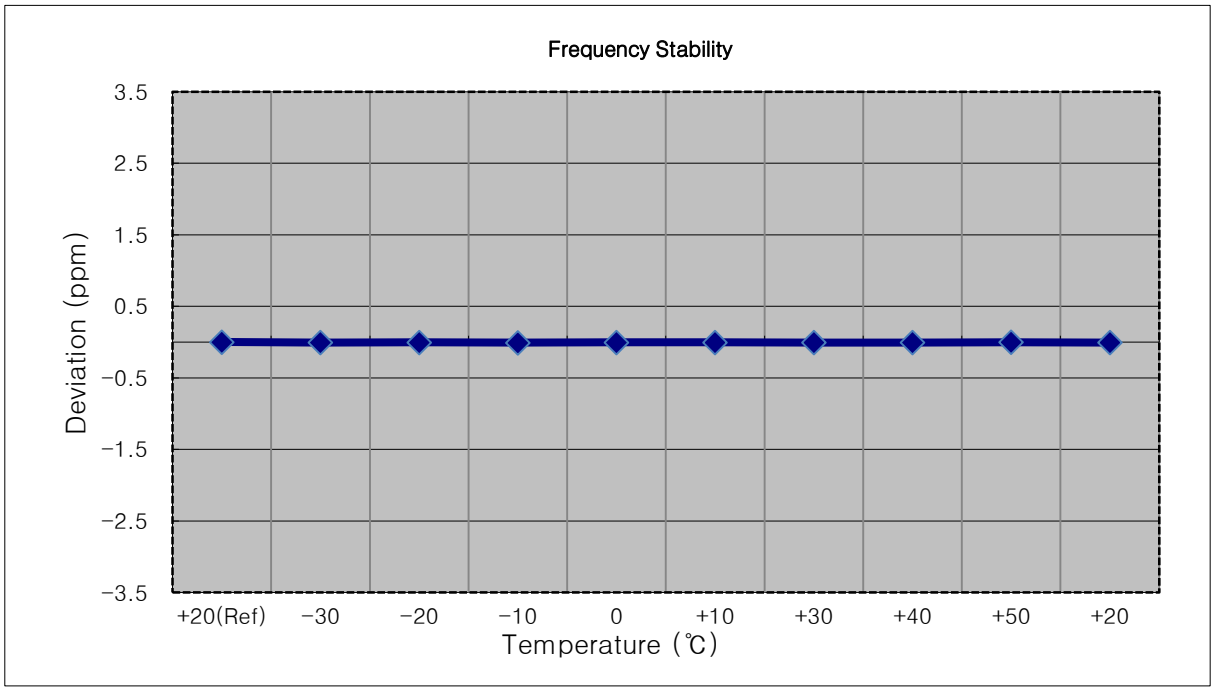
▣ OPERATING FREQUENCY: 1908,500,000 Hz

▣ CHANNEL: 19185 (3 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1908 499 990	0.0	0.000 000	0.000
100 %		-30	1908 499 978	-12.5	-0.000 001	-0.007
100 %		-20	1908 499 984	-6.5	0.000 000	-0.003
100 %		-10	1908 499 975	-15.3	-0.000 001	-0.008
100 %		0	1908 499 982	-8.4	0.000 000	-0.004
100 %		+10	1908 499 982	-8.4	0.000 000	-0.004
100 %		+30	1908 499 978	-11.9	-0.000 001	-0.006
100 %		+40	1908 499 977	-13.5	-0.000 001	-0.007
100 %		+50	1908 499 985	-5.5	0.000 000	-0.003
Batt. Endpoint	3.400	+20	1908 499 979	-11.7	-0.000 001	-0.006



▣ MODE: LTE B2

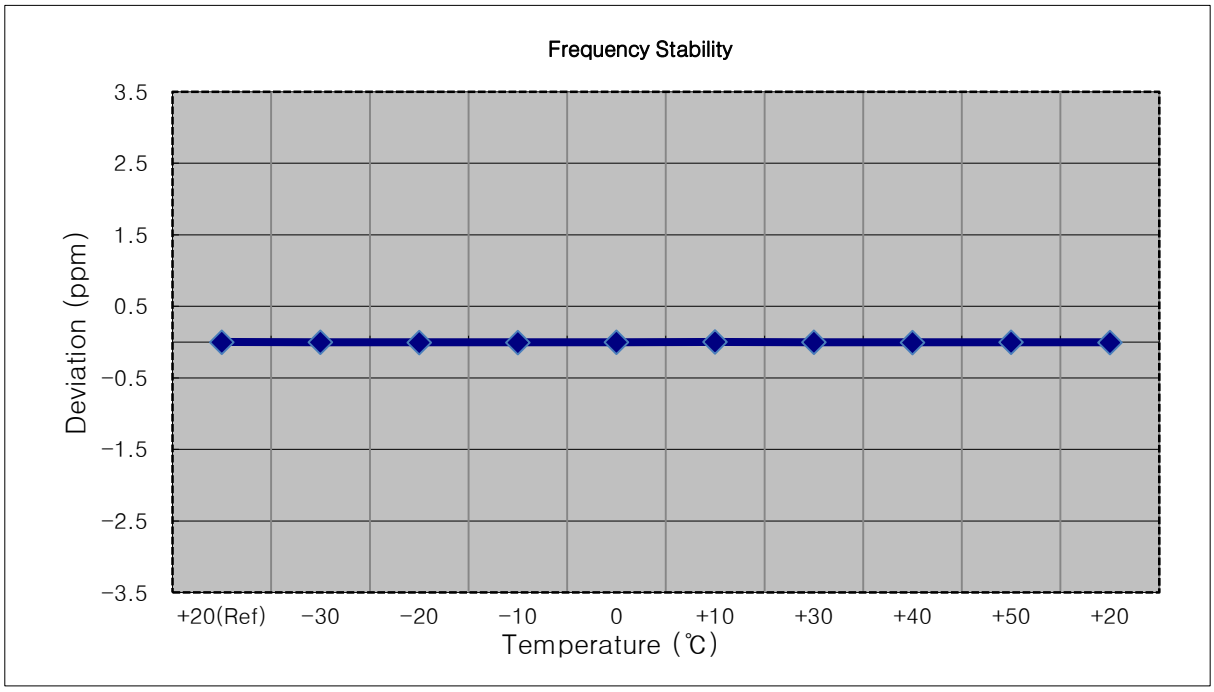
▣ OPERATING FREQUENCY: 1907,500,000 Hz

▣ CHANNEL: 19175 (5 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1907 499 992	0.0	0.000 000	0.000
100 %		-30	1907 499 988	-4.1	0.000 000	-0.002
100 %		-20	1907 499 985	-7.4	0.000 000	-0.004
100 %		-10	1907 499 986	-6.5	0.000 000	-0.003
100 %		0	1907 499 987	-5.3	0.000 000	-0.003
100 %		+10	1907 499 996	4.0	0.000 000	0.002
100 %		+30	1907 499 987	-4.9	0.000 000	-0.003
100 %		+40	1907 499 986	-6.3	0.000 000	-0.003
100 %		+50	1907 499 988	-3.9	0.000 000	-0.002
Batt. Endpoint	3.400	+20	1907 499 986	-5.8	0.000 000	-0.003



▣ MODE: LTE B2

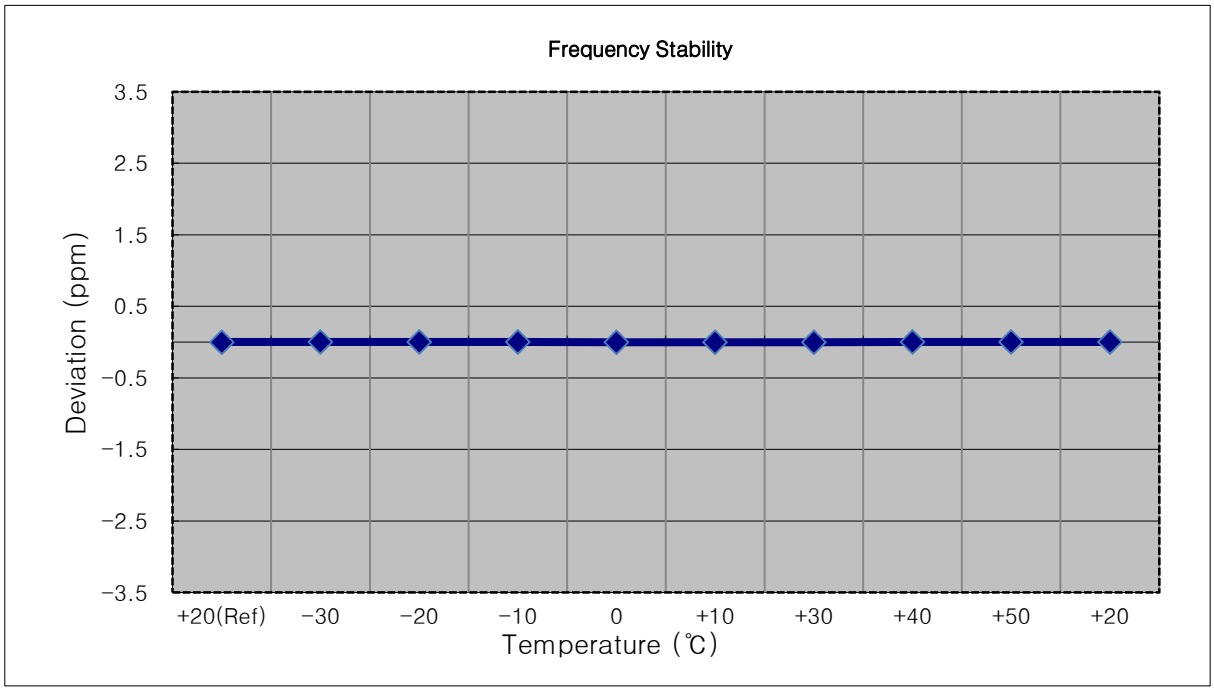
▣ OPERATING FREQUENCY: 1905,000,000 Hz

▣ CHANNEL: 19150 (10 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1904 999 995	0.0	0.000 000	0.000
100 %		-30	1904 999 998	3.2	0.000 000	0.002
100 %		-20	1904 999 999	4.2	0.000 000	0.002
100 %		-10	1904 999 999	4.2	0.000 000	0.002
100 %		0	1904 999 991	-4.1	0.000 000	-0.002
100 %		+10	1904 999 990	-4.5	0.000 000	-0.002
100 %		+30	1904 999 991	-3.6	0.000 000	-0.002
100 %		+40	1905 000 001	6.3	0.000 000	0.003
100 %		+50	1904 999 999	4.4	0.000 000	0.002
Batt. Endpoint	3.400	+20	1904 999 999	3.9	0.000 000	0.002



▣ MODE: LTE B2

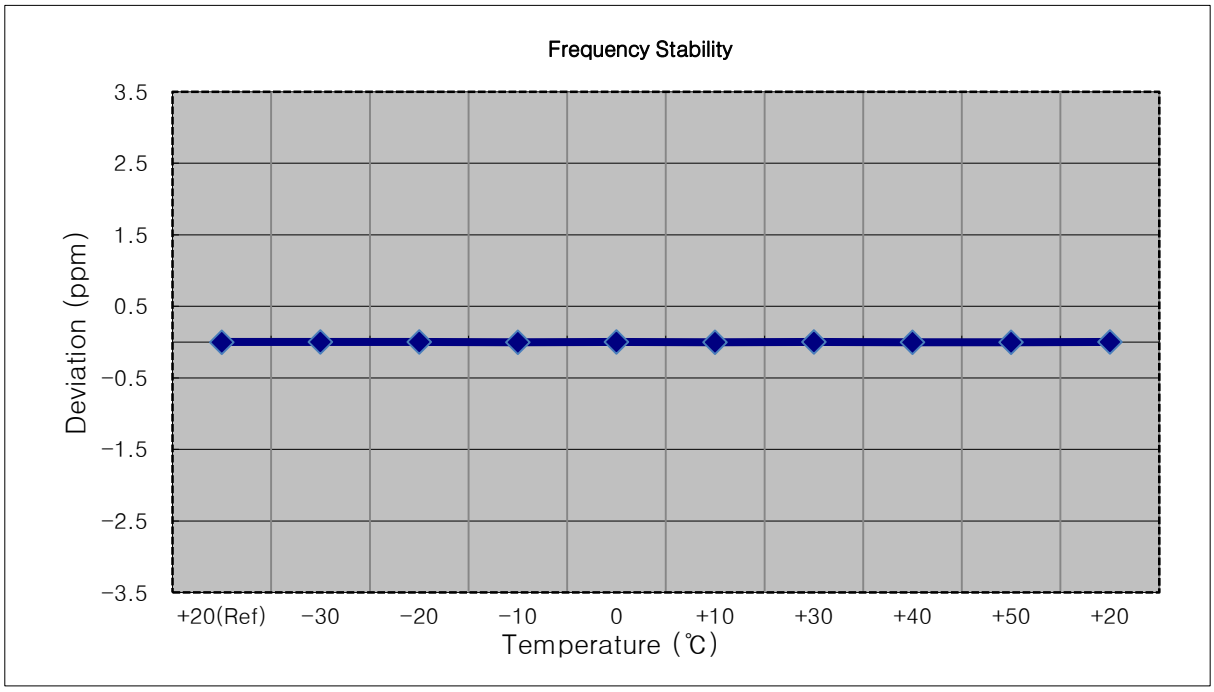
▣ OPERATING FREQUENCY: 1902,500,000 Hz

▣ CHANNEL: 19125 (15 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1902 499 995	0.0	0.000 000	0.000
100 %		-30	1902 500 001	5.2	0.000 000	0.003
100 %		-20	1902 500 000	4.5	0.000 000	0.002
100 %		-10	1902 499 990	-5.1	0.000 000	-0.003
100 %		0	1902 499 999	3.1	0.000 000	0.002
100 %		+10	1902 499 991	-4.9	0.000 000	-0.003
100 %		+30	1902 500 000	4.8	0.000 000	0.003
100 %		+40	1902 499 992	-3.1	0.000 000	-0.002
100 %		+50	1902 499 992	-3.2	0.000 000	-0.002
Batt. Endpoint	3.400	+20	1902 499 999	3.7	0.000 000	0.002



▣ MODE: LTE B2

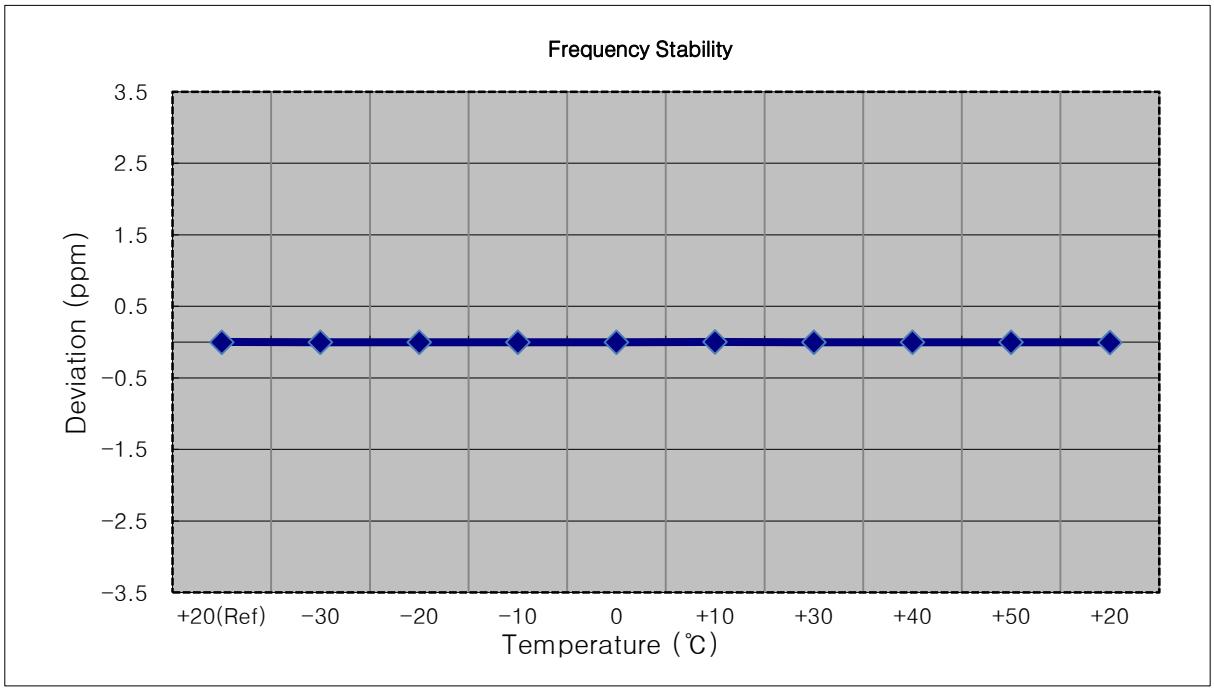
▣ OPERATING FREQUENCY: 1900,000,000 Hz

▣ CHANNEL: 19100 (20 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1900 000 004	0.0	0.000 000	0.000
100 %		-30	1899 999 999	-5.4	0.000 000	-0.003
100 %		-20	1900 000 000	-4.1	0.000 000	-0.002
100 %		-10	1899 999 999	-4.9	0.000 000	-0.003
100 %		0	1900 000 002	-2.5	0.000 000	-0.001
100 %		+10	1900 000 009	4.6	0.000 000	0.002
100 %		+30	1900 000 000	-4.7	0.000 000	-0.002
100 %		+40	1899 999 999	-5.1	0.000 000	-0.003
100 %		+50	1900 000 000	-4.6	0.000 000	-0.002
Batt. Endpoint	3.400	+20	1899 999 998	-6.3	0.000 000	-0.003



8.7.2 Sub2 Ant

▣ MODE: LTE B2

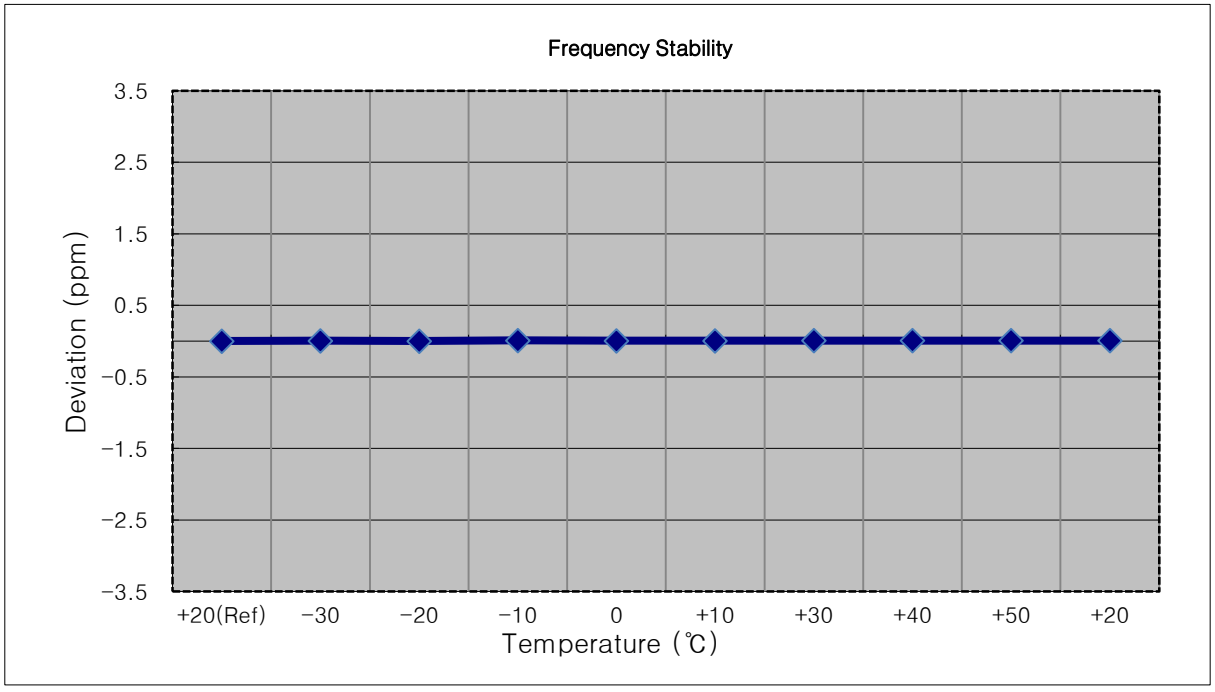
▣ OPERATING FREQUENCY: 1850,700,000 Hz

▣ CHANNEL: 18607 (1.4 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1850 699 999	0.0	0.000 000	0.000
100 %		-30	1850 700 008	8.4	0.000 000	0.005
100 %		-20	1850 700 001	2.2	0.000 000	0.001
100 %		-10	1850 700 016	16.5	0.000 001	0.009
100 %		0	1850 700 009	9.6	0.000 001	0.005
100 %		+10	1850 700 008	8.7	0.000 000	0.005
100 %		+30	1850 700 011	11.8	0.000 001	0.006
100 %		+40	1850 700 011	11.4	0.000 001	0.006
100 %		+50	1850 700 012	13.1	0.000 001	0.007
Batt. Endpoint	3.400	+20	1850 700 013	14.1	0.000 001	0.008



▣ MODE: LTE B2

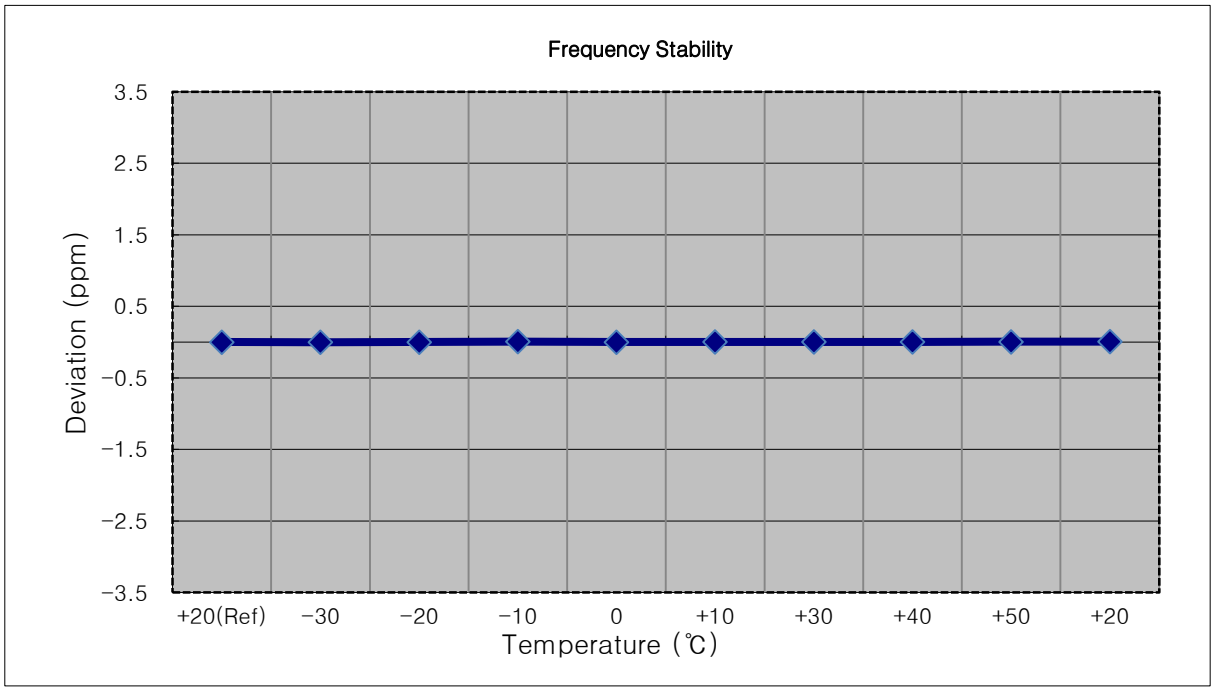
▣ OPERATING FREQUENCY: 1851,500,000 Hz

▣ CHANNEL: 18615 (3 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1851 500 008	0.0	0.000 000	0.000
100 %		-30	1851 500 006	-2.6	0.000 000	-0.001
100 %		-20	1851 500 010	2.2	0.000 000	0.001
100 %		-10	1851 500 020	11.7	0.000 001	0.006
100 %		0	1851 500 010	1.9	0.000 000	0.001
100 %		+10	1851 500 013	4.6	0.000 000	0.002
100 %		+30	1851 500 015	6.7	0.000 000	0.004
100 %		+40	1851 500 011	3.0	0.000 000	0.002
100 %		+50	1851 500 016	8.2	0.000 000	0.004
Batt. Endpoint	3.400	+20	1851 500 023	15.1	0.000 001	0.008



▣ MODE: LTE B2

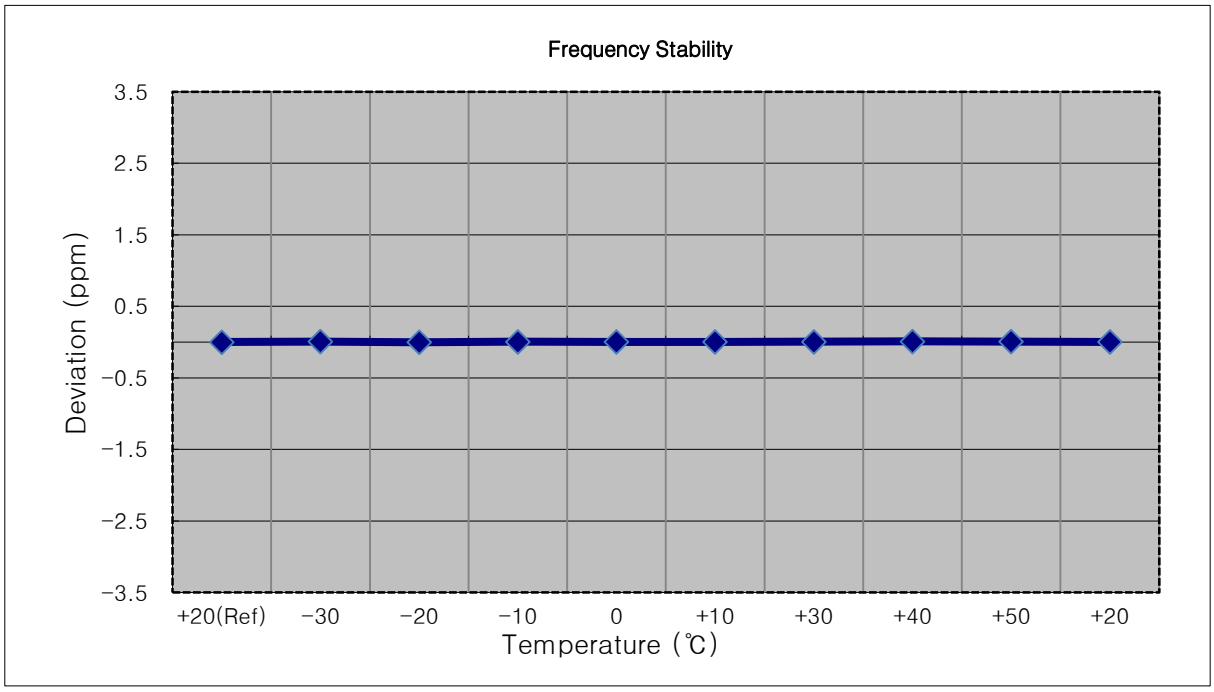
▣ OPERATING FREQUENCY: 1852,500,000 Hz

▣ CHANNEL: 18625 (5 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1852 500 010	0.0	0.000 000	0.000
100 %		-30	1852 500 024	13.9	0.000 001	0.008
100 %		-20	1852 500 008	-2.0	0.000 000	-0.001
100 %		-10	1852 500 021	11.0	0.000 001	0.006
100 %		0	1852 500 016	5.8	0.000 000	0.003
100 %		+10	1852 500 015	5.6	0.000 000	0.003
100 %		+30	1852 500 018	8.4	0.000 000	0.005
100 %		+40	1852 500 025	15.6	0.000 001	0.008
100 %		+50	1852 500 022	12.6	0.000 001	0.007
Batt. Endpoint	3.400	+20	1852 500 016	5.8	0.000 000	0.003



▣ MODE: LTE B2

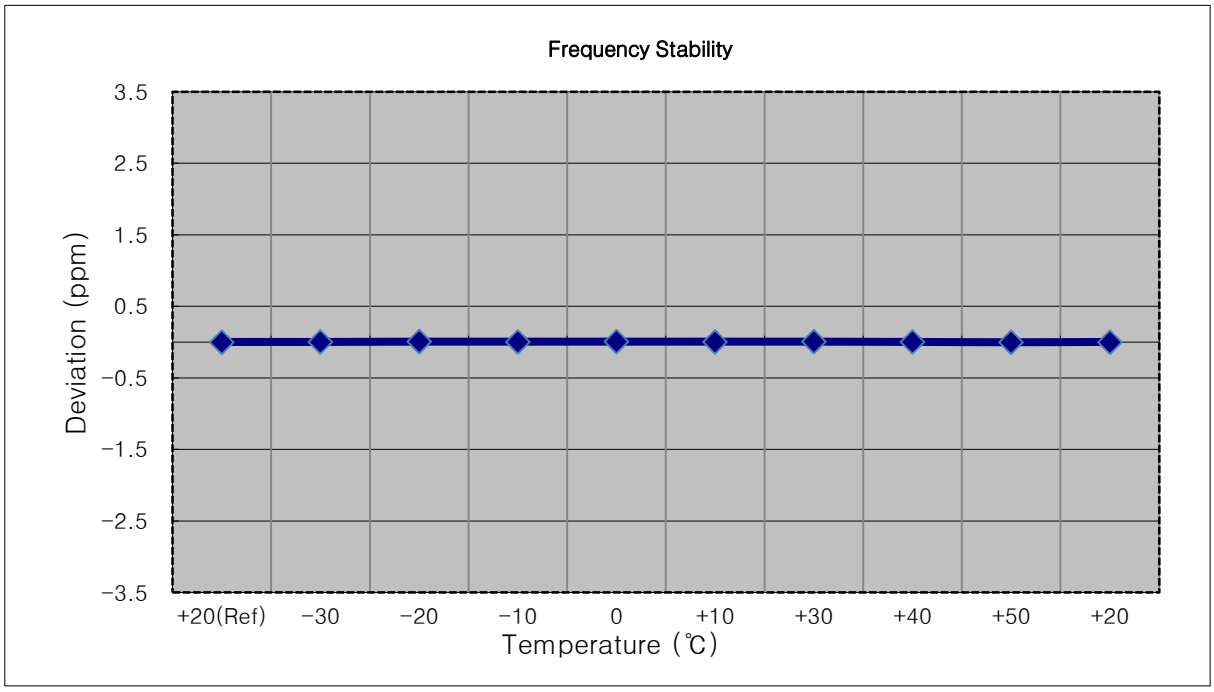
▣ OPERATING FREQUENCY: 1855,000,000 Hz

▣ CHANNEL: 18650 (10 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1855 000 004	0.0	0.000 000	0.000
100 %		-30	1855 000 010	5.7	0.000 000	0.003
100 %		-20	1855 000 018	14.1	0.000 001	0.008
100 %		-10	1855 000 015	10.9	0.000 001	0.006
100 %		0	1855 000 017	13.1	0.000 001	0.007
100 %		+10	1855 000 012	8.3	0.000 000	0.004
100 %		+30	1855 000 018	14.2	0.000 001	0.008
100 %		+40	1855 000 009	5.3	0.000 000	0.003
100 %		+50	1855 000 002	-1.8	0.000 000	-0.001
Batt. Endpoint	3.400	+20	1855 000 003	-1.0	0.000 000	-0.001



▣ MODE: LTE B2

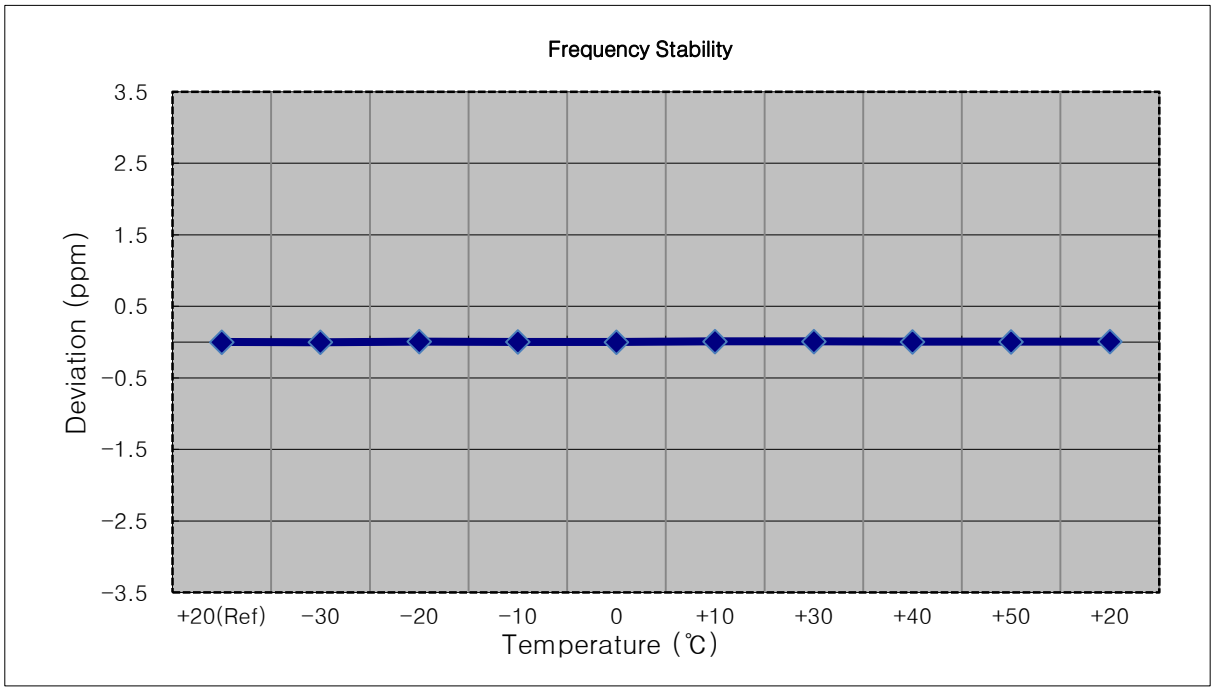
▣ OPERATING FREQUENCY: 1857,500,000 Hz

▣ CHANNEL: 18675 (15 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1857 500 014	0.0	0.000 000	0.000
100 %		-30	1857 500 012	-2.1	0.000 000	-0.001
100 %		-20	1857 500 028	13.9	0.000 001	0.007
100 %		-10	1857 500 020	6.0	0.000 000	0.003
100 %		0	1857 500 015	1.1	0.000 000	0.001
100 %		+10	1857 500 029	15.2	0.000 001	0.008
100 %		+30	1857 500 031	16.8	0.000 001	0.009
100 %		+40	1857 500 022	7.6	0.000 000	0.004
100 %		+50	1857 500 023	8.4	0.000 000	0.005
Batt. Endpoint	3.400	+20	1857 500 025	11.2	0.000 001	0.006



▣ MODE: LTE B2

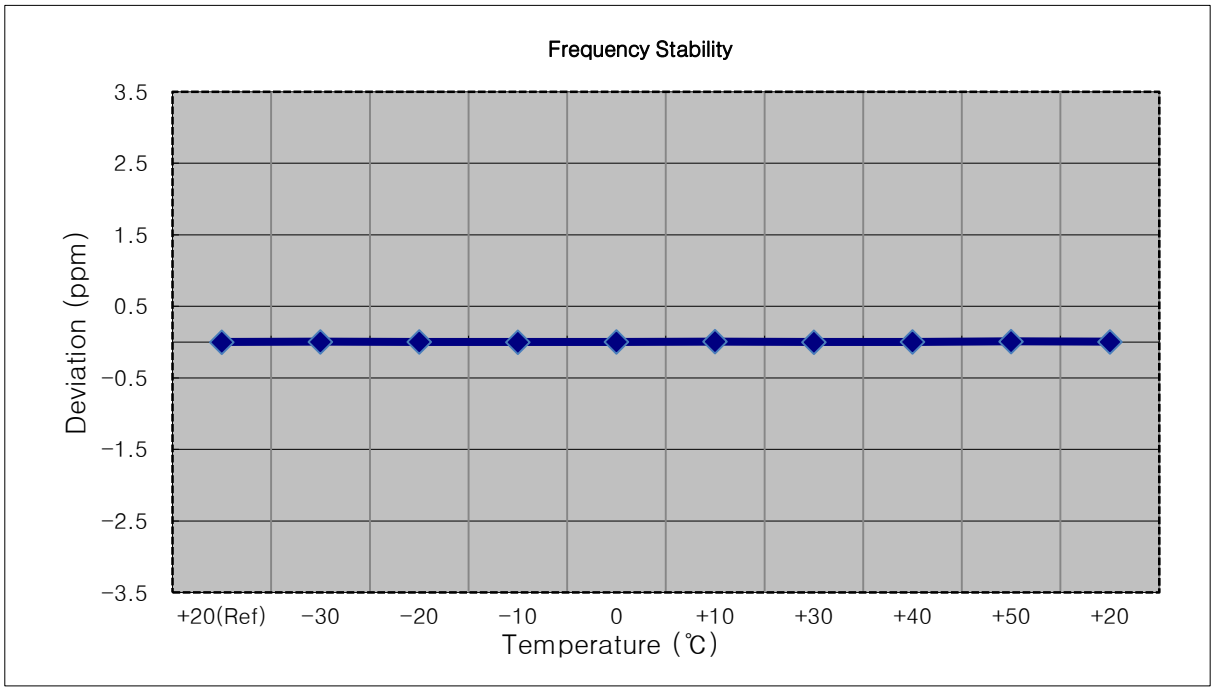
▣ OPERATING FREQUENCY: 1860,000,000 Hz

▣ CHANNEL: 18700 (20 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1860 000 009	0.0	0.000 000	0.000
100 %		-30	1860 000 016	7.4	0.000 000	0.004
100 %		-20	1860 000 015	6.6	0.000 000	0.004
100 %		-10	1860 000 011	2.4	0.000 000	0.001
100 %		0	1860 000 016	6.7	0.000 000	0.004
100 %		+10	1860 000 023	13.6	0.000 001	0.007
100 %		+30	1860 000 011	2.4	0.000 000	0.001
100 %		+40	1860 000 014	4.7	0.000 000	0.003
100 %		+50	1860 000 025	16.0	0.000 001	0.009
Batt. Endpoint	3.400	+20	1860 000 018	9.5	0.000 001	0.005



▣ MODE: LTE B2

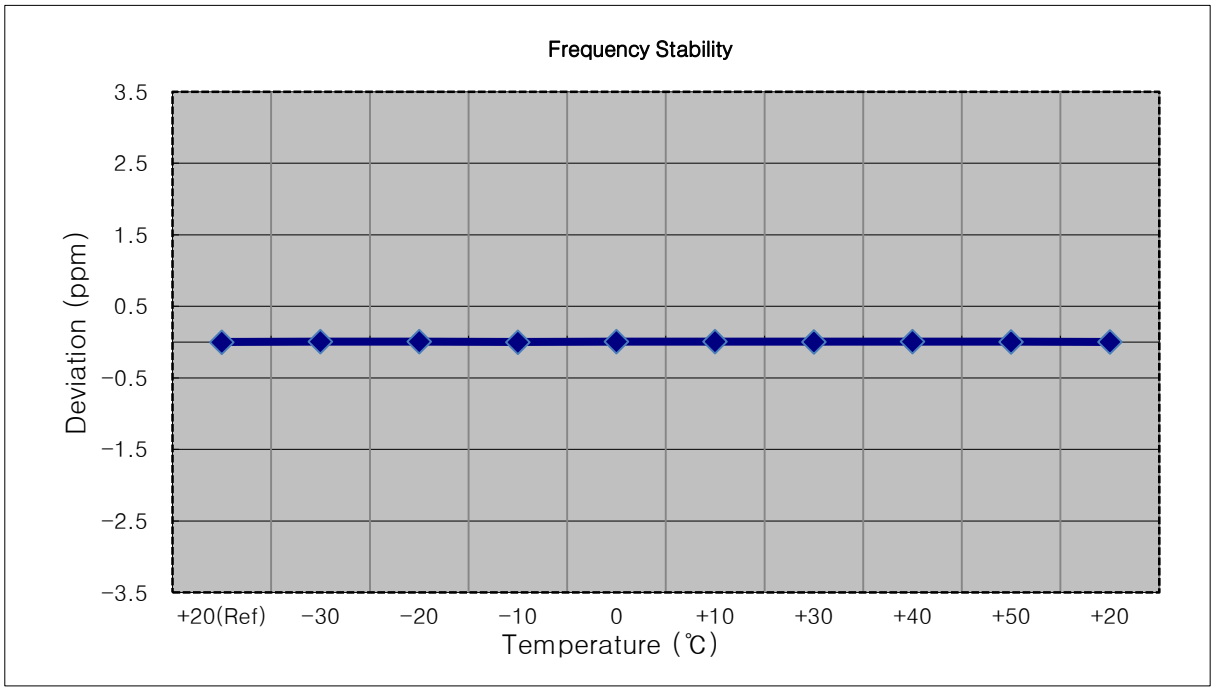
▣ OPERATING FREQUENCY: 1880,000,000 Hz

▣ CHANNEL: 18900 (1.4 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1880 000 010	0.0	0.000 000	0.000
100 %		-30	1880 000 023	13.0	0.000 001	0.007
100 %		-20	1880 000 023	12.7	0.000 001	0.007
100 %		-10	1880 000 012	1.6	0.000 000	0.001
100 %		0	1880 000 023	13.1	0.000 001	0.007
100 %		+10	1880 000 022	11.9	0.000 001	0.006
100 %		+30	1880 000 021	10.9	0.000 001	0.006
100 %		+40	1880 000 022	11.6	0.000 001	0.006
100 %		+50	1880 000 019	9.1	0.000 000	0.005
Batt. Endpoint	3.400	+20	1880 000 015	5.0	0.000 000	0.003



▣ MODE: LTE B2

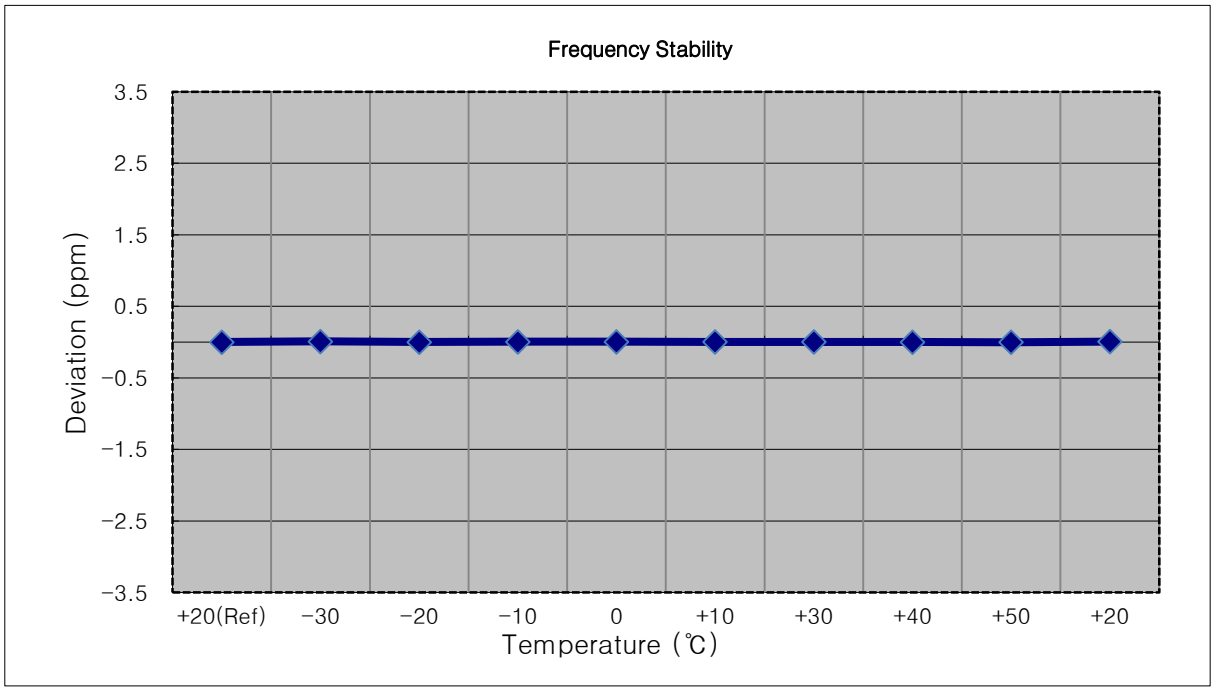
▣ OPERATING FREQUENCY: 1880,000,000 Hz

▣ CHANNEL: 18900 (3 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1879 999 999	0.0	0.000 000	0.000
100 %		-30	1880 000 014	15.6	0.000 001	0.008
100 %		-20	1879 999 998	-1.2	0.000 000	-0.001
100 %		-10	1880 000 006	7.4	0.000 000	0.004
100 %		0	1880 000 006	7.3	0.000 000	0.004
100 %		+10	1880 000 004	5.6	0.000 000	0.003
100 %		+30	1880 000 003	4.5	0.000 000	0.002
100 %		+40	1879 999 998	-0.7	0.000 000	0.000
100 %		+50	1879 999 997	-2.3	0.000 000	-0.001
Batt. Endpoint	3.400	+20	1880 000 011	12.6	0.000 001	0.007



▣ MODE: LTE B2

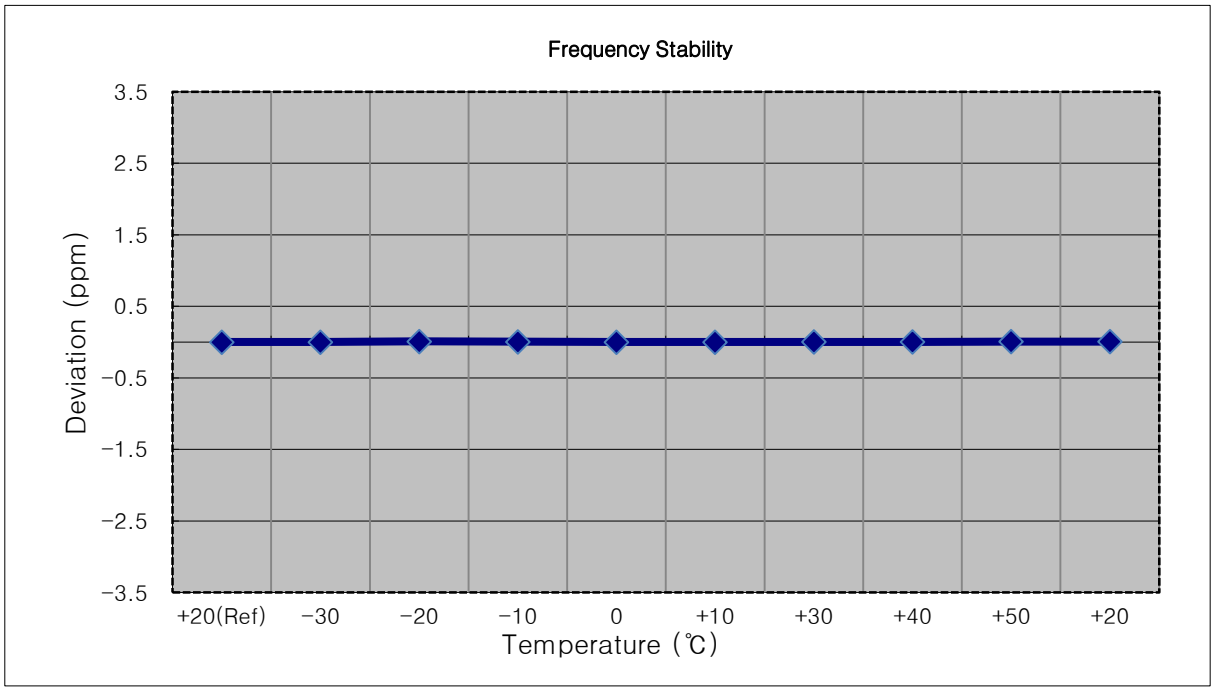
▣ OPERATING FREQUENCY: 1880,000,000 Hz

▣ CHANNEL: 18900 (5 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1880 000 004	0.0	0.000 000	0.000
100 %		-30	1880 000 007	2.4	0.000 000	0.001
100 %		-20	1880 000 020	15.5	0.000 001	0.008
100 %		-10	1880 000 013	8.5	0.000 000	0.005
100 %		0	1880 000 006	1.7	0.000 000	0.001
100 %		+10	1880 000 007	2.5	0.000 000	0.001
100 %		+30	1880 000 008	3.9	0.000 000	0.002
100 %		+40	1880 000 009	4.3	0.000 000	0.002
100 %		+50	1880 000 019	15.0	0.000 001	0.008
Batt. Endpoint	3.400	+20	1880 000 017	12.3	0.000 001	0.007



▣ MODE: LTE B2

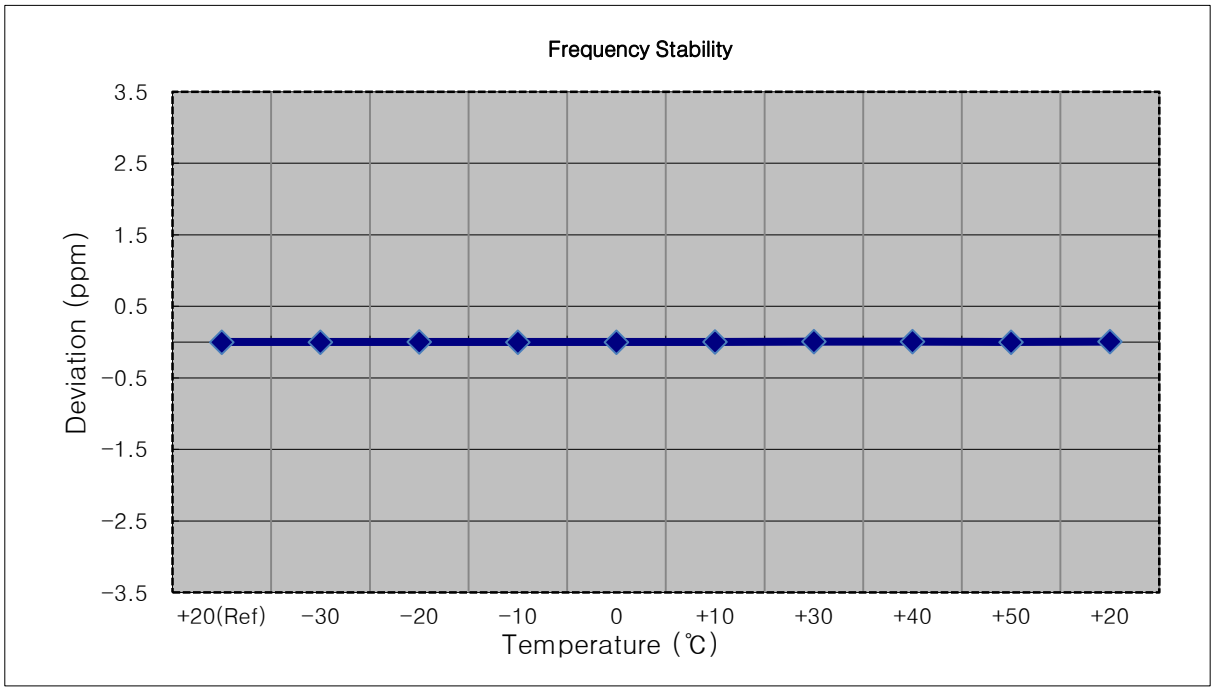
▣ OPERATING FREQUENCY: 1880,000,000 Hz

▣ CHANNEL: 18900 (10 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1880 000 006	0.0	0.000 000	0.000
100 %		-30	1880 000 009	2.5	0.000 000	0.001
100 %		-20	1880 000 012	5.8	0.000 000	0.003
100 %		-10	1880 000 009	2.6	0.000 000	0.001
100 %		0	1880 000 006	0.0	0.000 000	0.000
100 %		+10	1880 000 012	5.6	0.000 000	0.003
100 %		+30	1880 000 020	13.6	0.000 001	0.007
100 %		+40	1880 000 018	11.8	0.000 001	0.006
100 %		+50	1880 000 008	1.9	0.000 000	0.001
Batt. Endpoint	3.400	+20	1880 000 020	14.2	0.000 001	0.008



▣ MODE: LTE B2

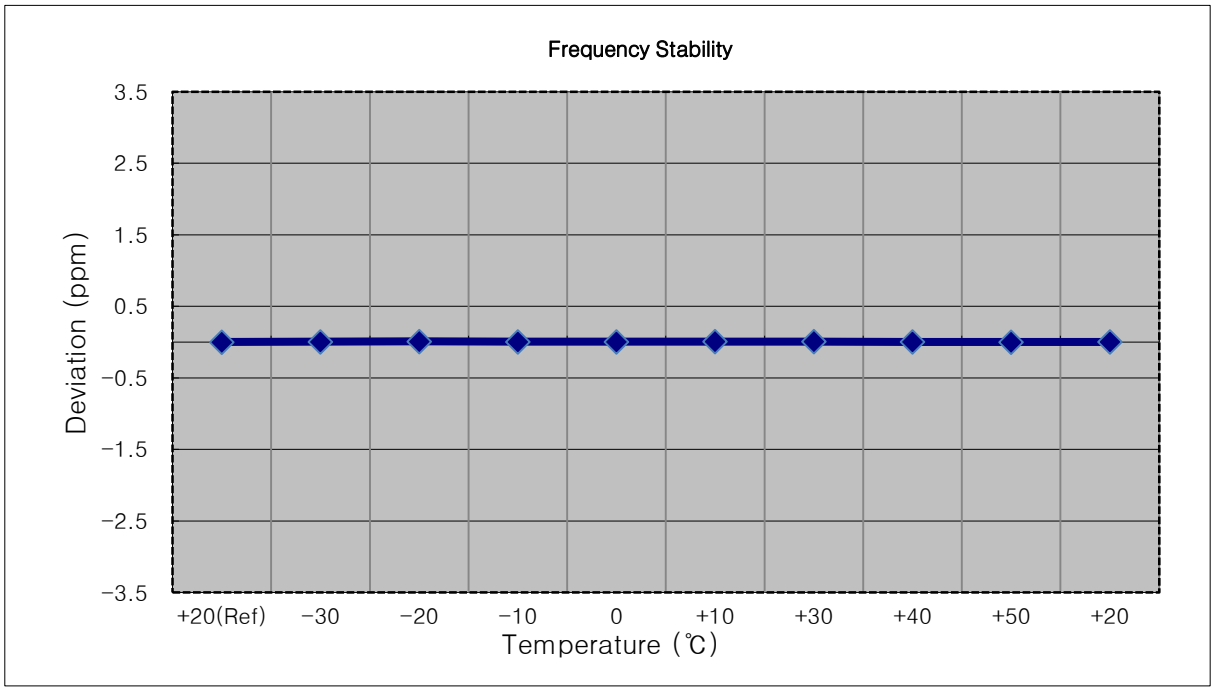
▣ OPERATING FREQUENCY: 1880,000,000 Hz

▣ CHANNEL: 18900 (15 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1880 000 015	0.0	0.000 000	0.000
100 %		-30	1880 000 024	9.2	0.000 000	0.005
100 %		-20	1880 000 031	16.2	0.000 001	0.009
100 %		-10	1880 000 025	10.0	0.000 001	0.005
100 %		0	1880 000 023	8.7	0.000 000	0.005
100 %		+10	1880 000 029	14.8	0.000 001	0.008
100 %		+30	1880 000 027	12.0	0.000 001	0.006
100 %		+40	1880 000 018	3.3	0.000 000	0.002
100 %		+50	1880 000 014	-0.9	0.000 000	-0.001
Batt. Endpoint	3.400	+20	1880 000 020	5.9	0.000 000	0.003



▣ MODE: LTE B2

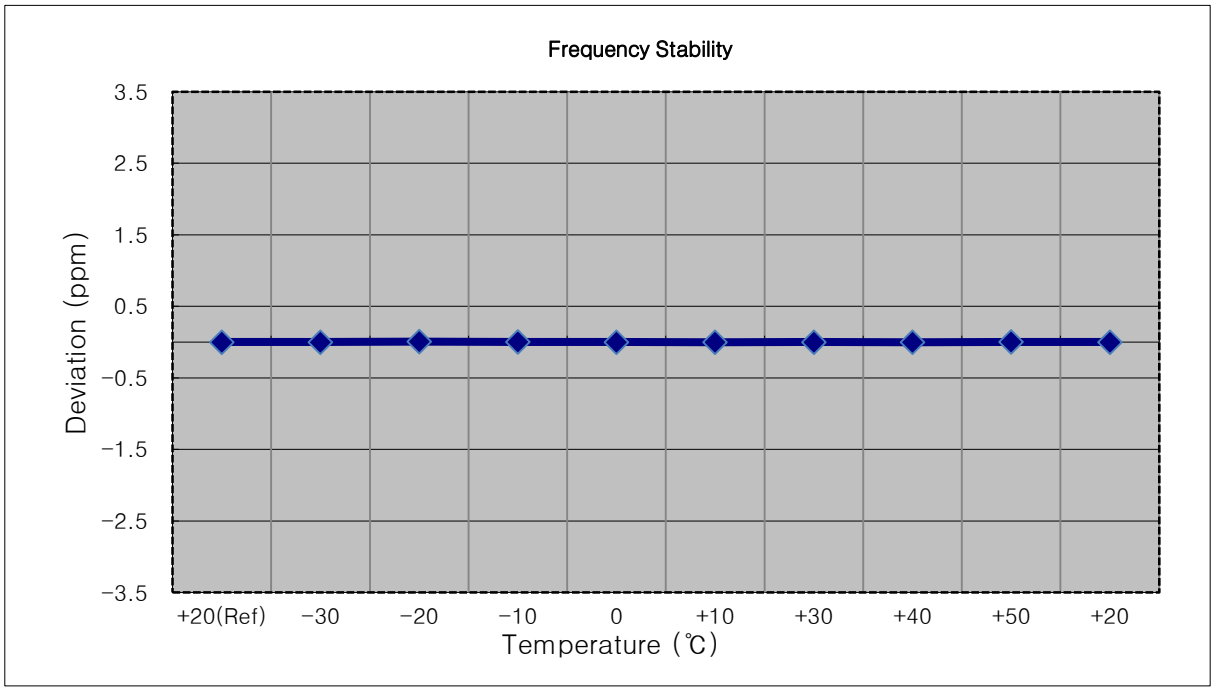
▣ OPERATING FREQUENCY: 1880,000,000 Hz

▣ CHANNEL: 18900 (20 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1879 999 999	0.0	0.000 000	0.000
100 %		-30	1879 999 997	-1.4	0.000 000	-0.001
100 %		-20	1880 000 010	11.6	0.000 001	0.006
100 %		-10	1880 000 002	3.4	0.000 000	0.002
100 %		0	1880 000 001	2.4	0.000 000	0.001
100 %		+10	1879 999 996	-2.2	0.000 000	-0.001
100 %		+30	1879 999 998	-0.7	0.000 000	0.000
100 %		+40	1879 999 997	-1.9	0.000 000	-0.001
100 %		+50	1880 000 003	4.7	0.000 000	0.003
Batt. Endpoint	3.400	+20	1880 000 000	1.1	0.000 000	0.001



▣ MODE: LTE B2

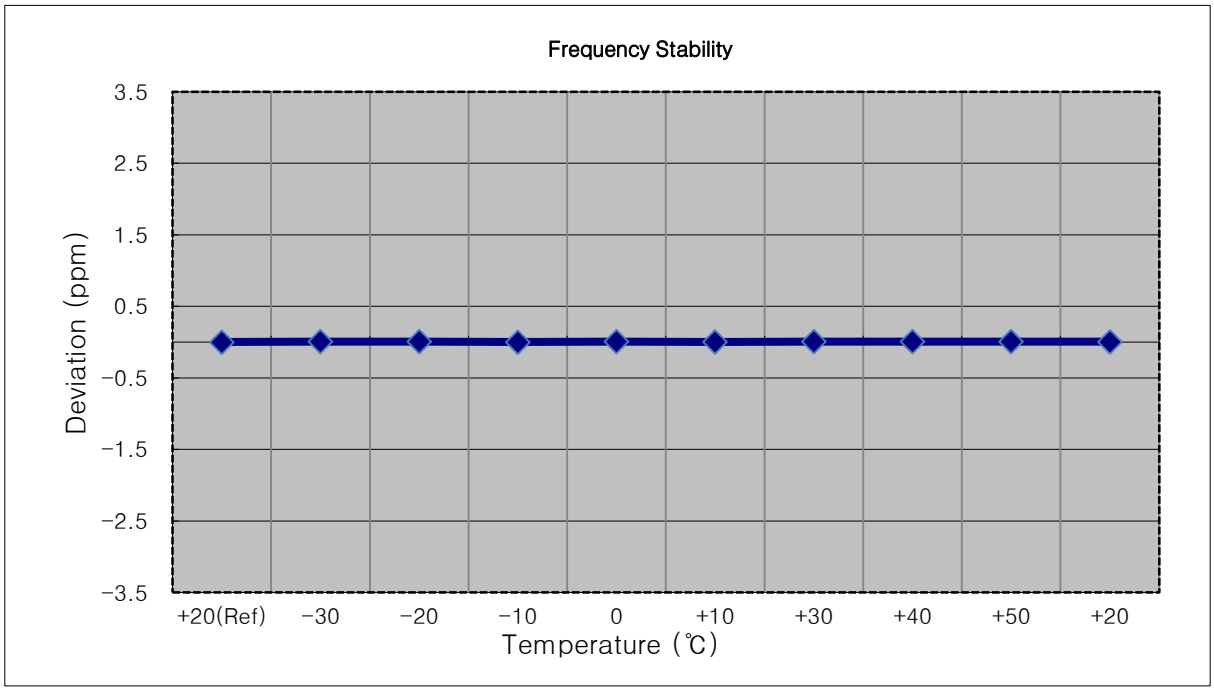
▣ OPERATING FREQUENCY: 1909,300,000 Hz

▣ CHANNEL: 19193 (1.4 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1909 300 002	0.0	0.000 000	0.000
100 %		-30	1909 300 016	13.3	0.000 001	0.007
100 %		-20	1909 300 014	11.7	0.000 001	0.006
100 %		-10	1909 300 001	-0.8	0.000 000	0.000
100 %		0	1909 300 014	12.1	0.000 001	0.006
100 %		+10	1909 300 007	5.0	0.000 000	0.003
100 %		+30	1909 300 017	15.0	0.000 001	0.008
100 %		+40	1909 300 014	11.4	0.000 001	0.006
100 %		+50	1909 300 018	15.3	0.000 001	0.008
Batt. Endpoint	3.400	+20	1909 300 011	8.9	0.000 000	0.005



▣ MODE: LTE B2

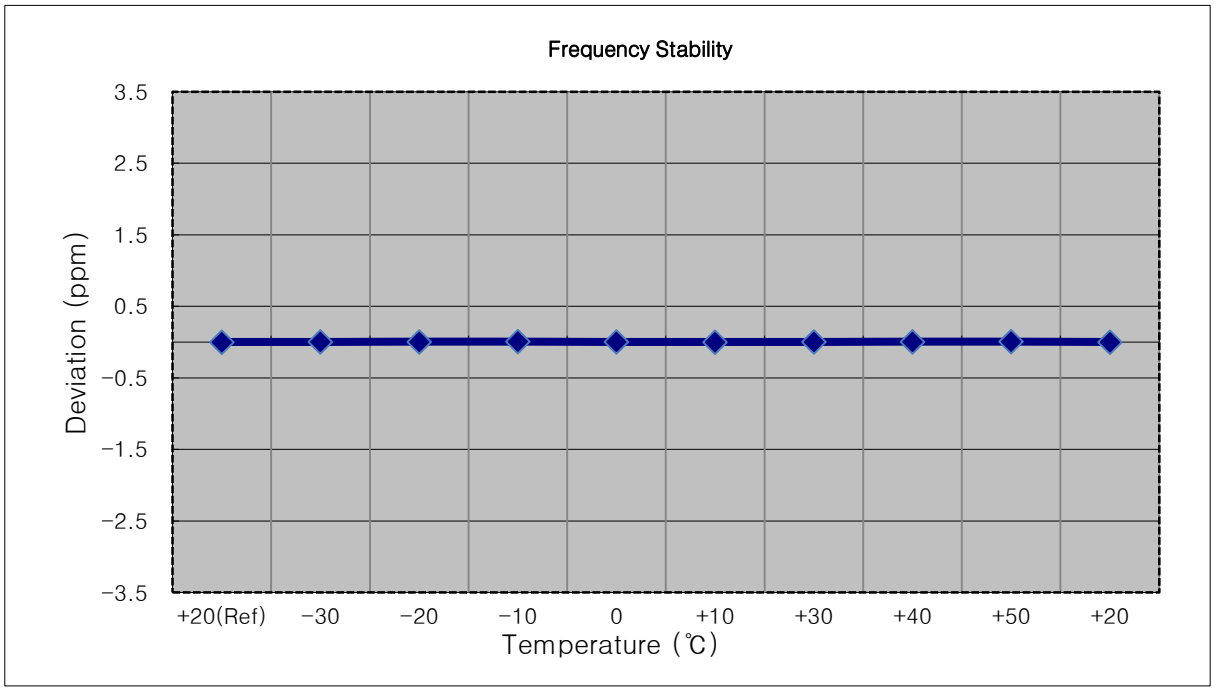
▣ OPERATING FREQUENCY: 1908,500,000 Hz

▣ CHANNEL: 19185 (3 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1908 500 005	0.0	0.000 000	0.000
100 %		-30	1908 500 010	4.4	0.000 000	0.002
100 %		-20	1908 500 013	7.5	0.000 000	0.004
100 %		-10	1908 500 019	13.8	0.000 001	0.007
100 %		0	1908 500 011	5.9	0.000 000	0.003
100 %		+10	1908 500 007	1.5	0.000 000	0.001
100 %		+30	1908 500 012	6.1	0.000 000	0.003
100 %		+40	1908 500 016	10.6	0.000 001	0.006
100 %		+50	1908 500 019	13.4	0.000 001	0.007
Batt. Endpoint	3.400	+20	1908 500 006	0.1	0.000 000	0.000



▣ MODE: LTE B2

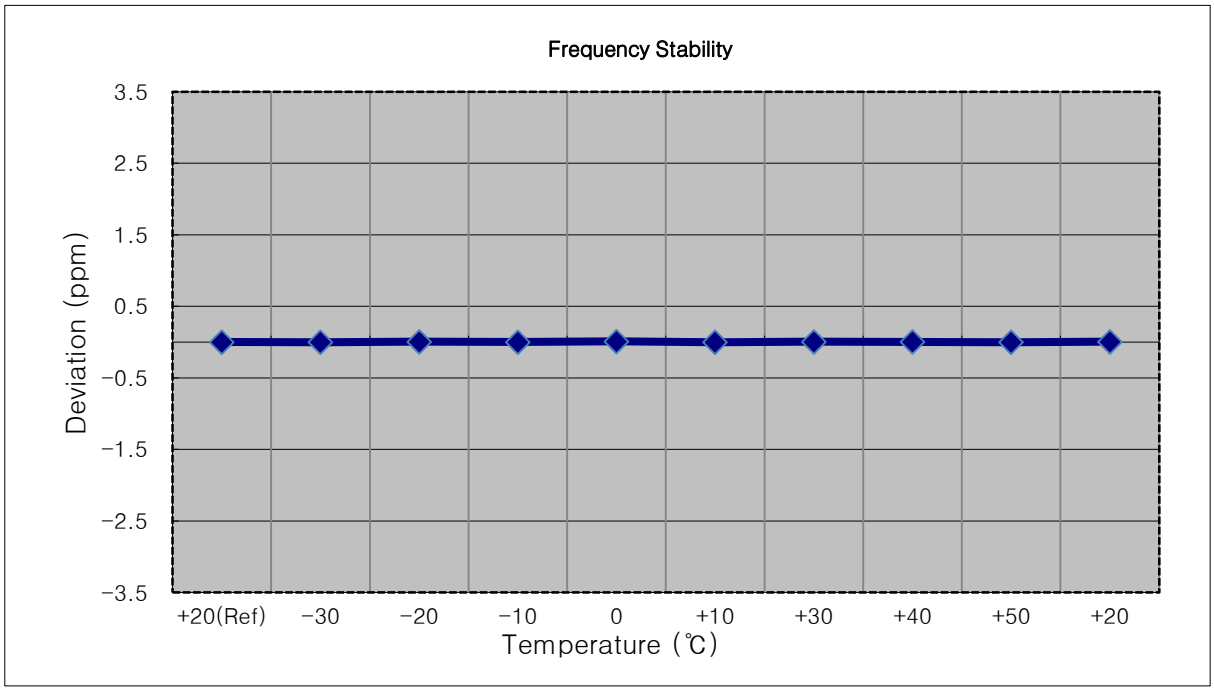
▣ OPERATING FREQUENCY: 1907,500,000 Hz

▣ CHANNEL: 19175 (5 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1907 500 006	0.0	0.000 000	0.000
100 %		-30	1907 500 004	-2.1	0.000 000	-0.001
100 %		-20	1907 500 013	7.4	0.000 000	0.004
100 %		-10	1907 500 005	-0.3	0.000 000	0.000
100 %		0	1907 500 022	16.6	0.000 001	0.009
100 %		+10	1907 500 004	-2.0	0.000 000	-0.001
100 %		+30	1907 500 015	9.5	0.000 000	0.005
100 %		+40	1907 500 012	6.7	0.000 000	0.003
100 %		+50	1907 500 003	-2.7	0.000 000	-0.001
Batt. Endpoint	3.400	+20	1907 500 015	9.8	0.000 001	0.005



▣ MODE: LTE B2

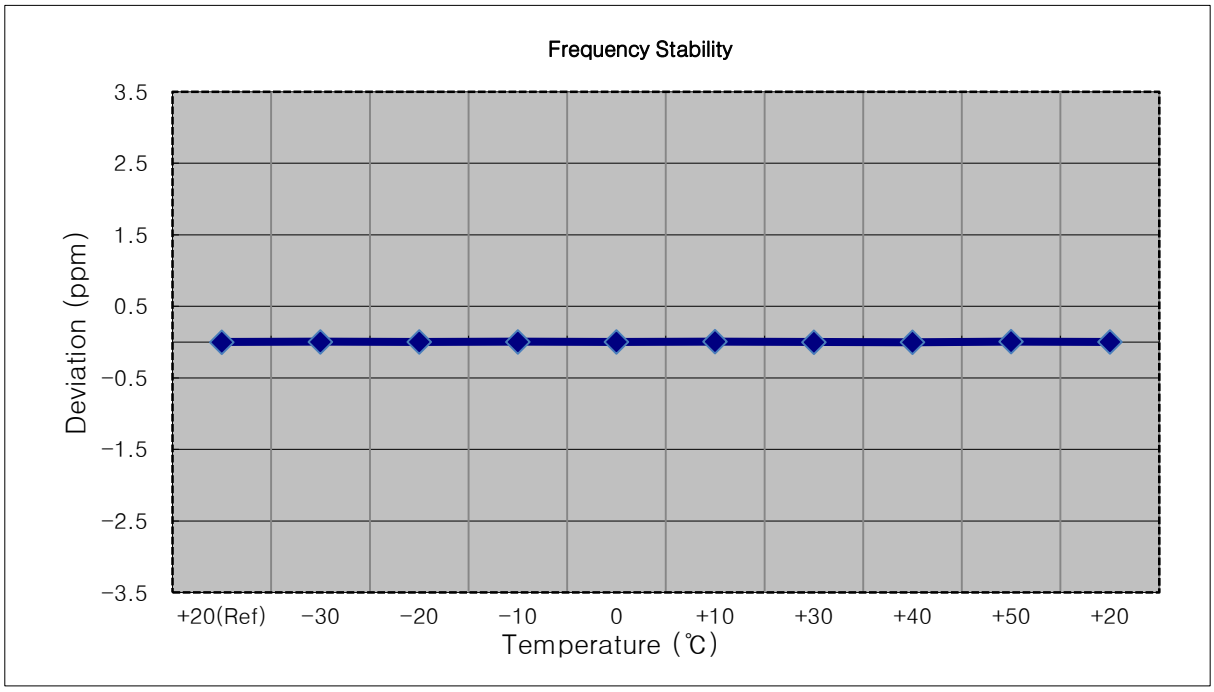
▣ OPERATING FREQUENCY: 1905,000,000 Hz

▣ CHANNEL: 19150 (10 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1905 000 005	0.0	0.000 000	0.000
100 %		-30	1905 000 014	9.1	0.000 000	0.005
100 %		-20	1905 000 011	5.8	0.000 000	0.003
100 %		-10	1905 000 013	7.7	0.000 000	0.004
100 %		0	1905 000 009	4.3	0.000 000	0.002
100 %		+10	1905 000 017	11.4	0.000 001	0.006
100 %		+30	1905 000 005	-0.4	0.000 000	0.000
100 %		+40	1905 000 003	-2.0	0.000 000	-0.001
100 %		+50	1905 000 017	11.6	0.000 001	0.006
Batt. Endpoint	3.400	+20	1905 000 011	6.2	0.000 000	0.003



▣ MODE: LTE B2

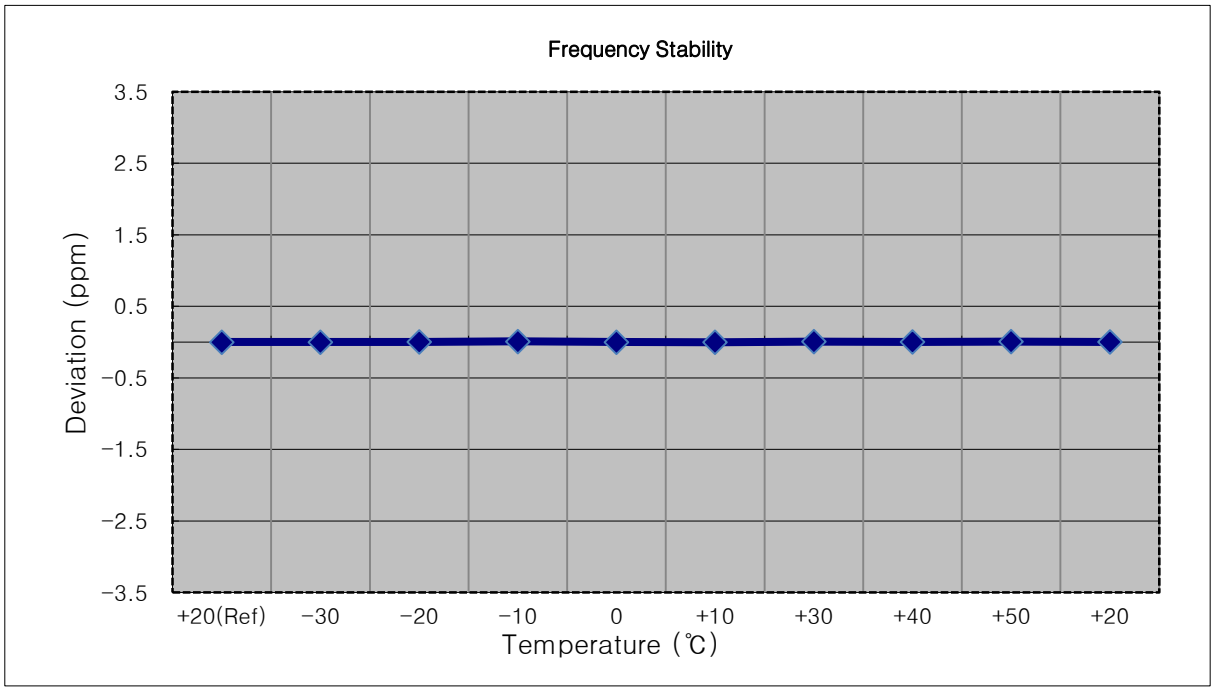
▣ OPERATING FREQUENCY: 1902,500,000 Hz

▣ CHANNEL: 19125 (15 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1902 500 014	0.0	0.000 000	0.000
100 %		-30	1902 500 015	0.2	0.000 000	0.000
100 %		-20	1902 500 019	4.3	0.000 000	0.002
100 %		-10	1902 500 031	16.1	0.000 001	0.008
100 %		0	1902 500 016	1.9	0.000 000	0.001
100 %		+10	1902 500 013	-1.8	0.000 000	-0.001
100 %		+30	1902 500 027	12.1	0.000 001	0.006
100 %		+40	1902 500 019	4.6	0.000 000	0.002
100 %		+50	1902 500 026	12.0	0.000 001	0.006
Batt. Endpoint	3.400	+20	1902 500 019	4.3	0.000 000	0.002



▣ MODE: LTE B2

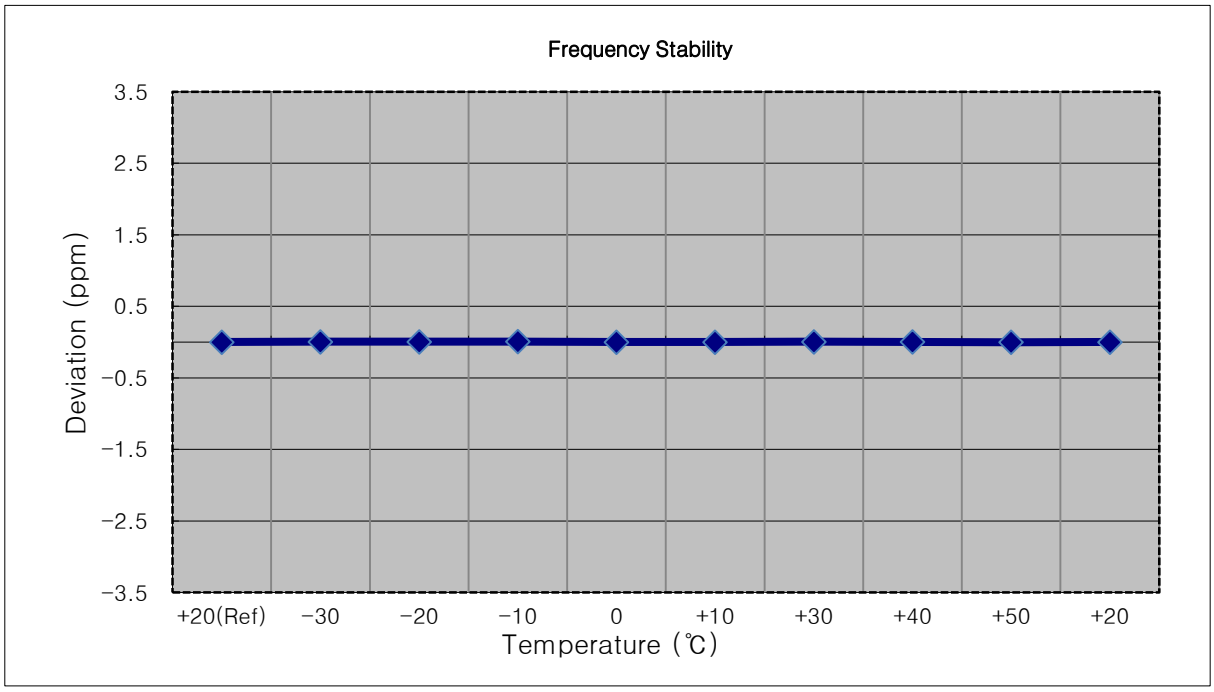
▣ OPERATING FREQUENCY: 1900,000,000 Hz

▣ CHANNEL: 19100 (20 MHz)

▣ REFERENCE VOLTAGE: 3.860 VDC

▣ DEVIATION LIMIT: Emission must remain in band

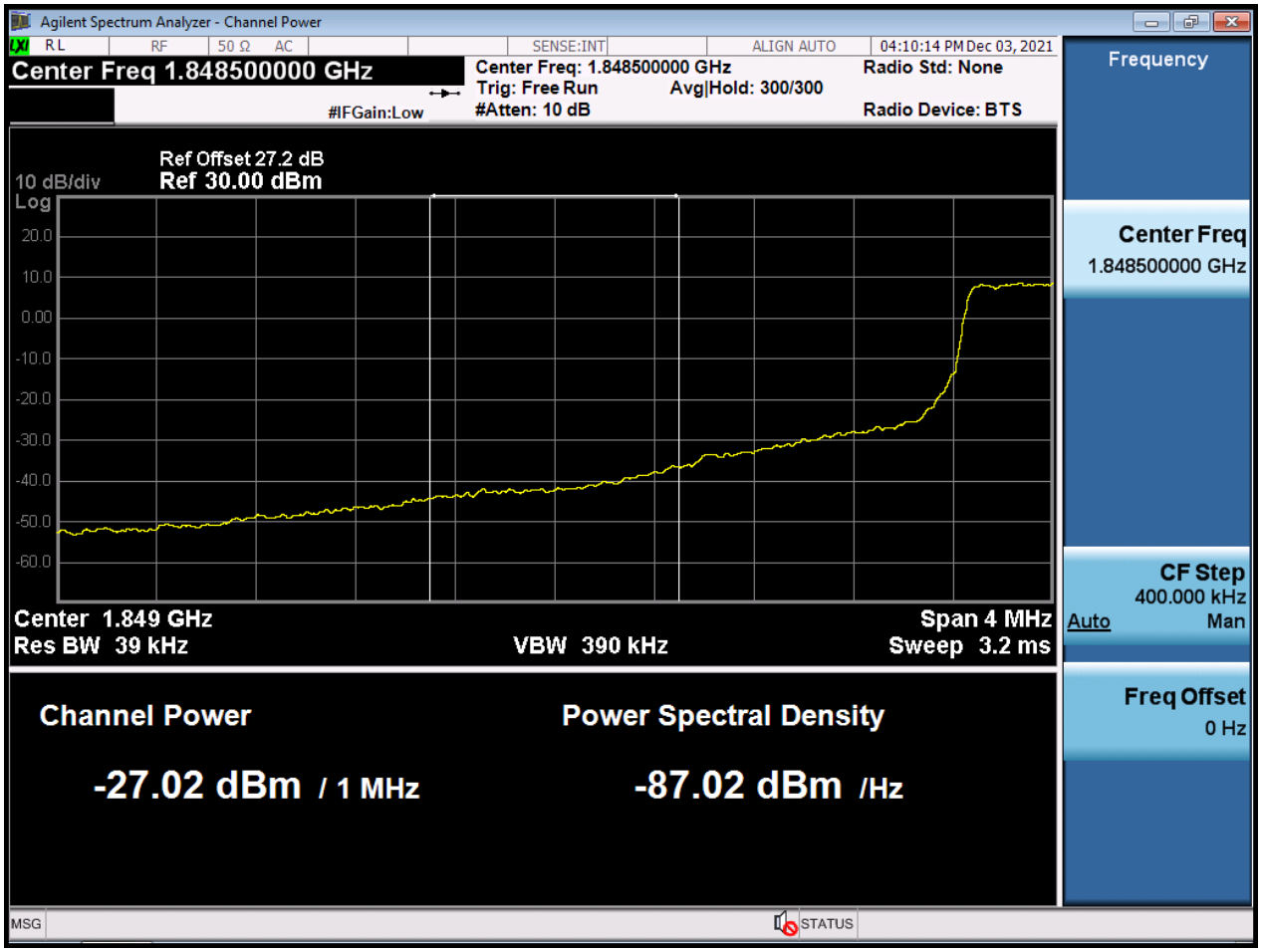
Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.860	+20(Ref)	1900 000 013	0.0	0.000 000	0.000
100 %		-30	1900 000 024	10.8	0.000 001	0.006
100 %		-20	1900 000 023	10.1	0.000 001	0.005
100 %		-10	1900 000 028	15.0	0.000 001	0.008
100 %		0	1900 000 012	-0.8	0.000 000	0.000
100 %		+10	1900 000 015	1.8	0.000 000	0.001
100 %		+30	1900 000 021	7.5	0.000 000	0.004
100 %		+40	1900 000 016	2.8	0.000 000	0.001
100 %		+50	1900 000 011	-2.2	0.000 000	-0.001
Batt. Endpoint	3.400	+20	1900 000 016	2.5	0.000 000	0.001



9. TEST PLOTS

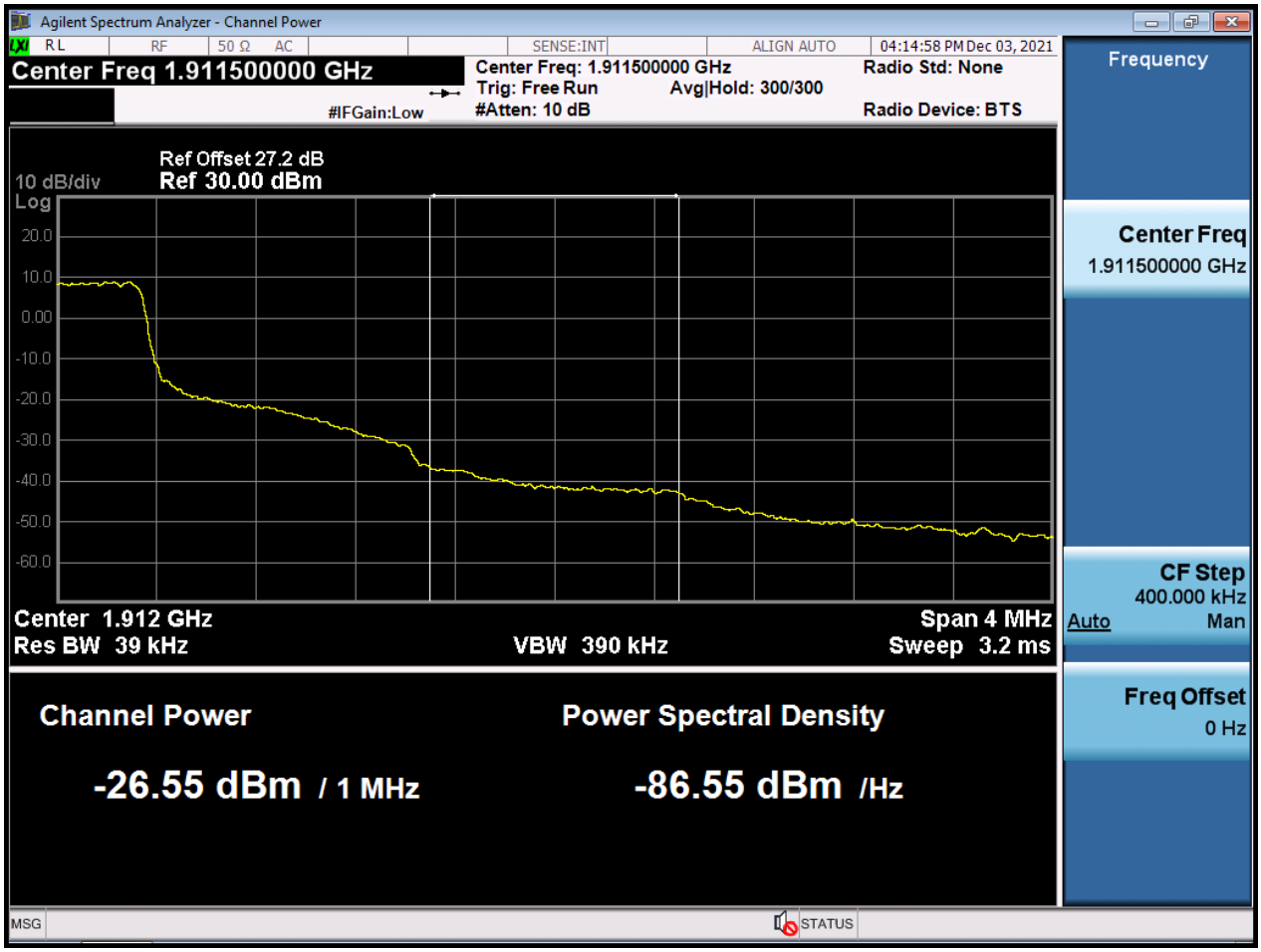
BW1.4 M_BandEdge_Lowest Channel_QPSK_FullRB(1) (Main1 Ant)

BW1.4 M_BandEdge_Lowest Channel_QPSK_FullRB(2) (Main1 Ant)

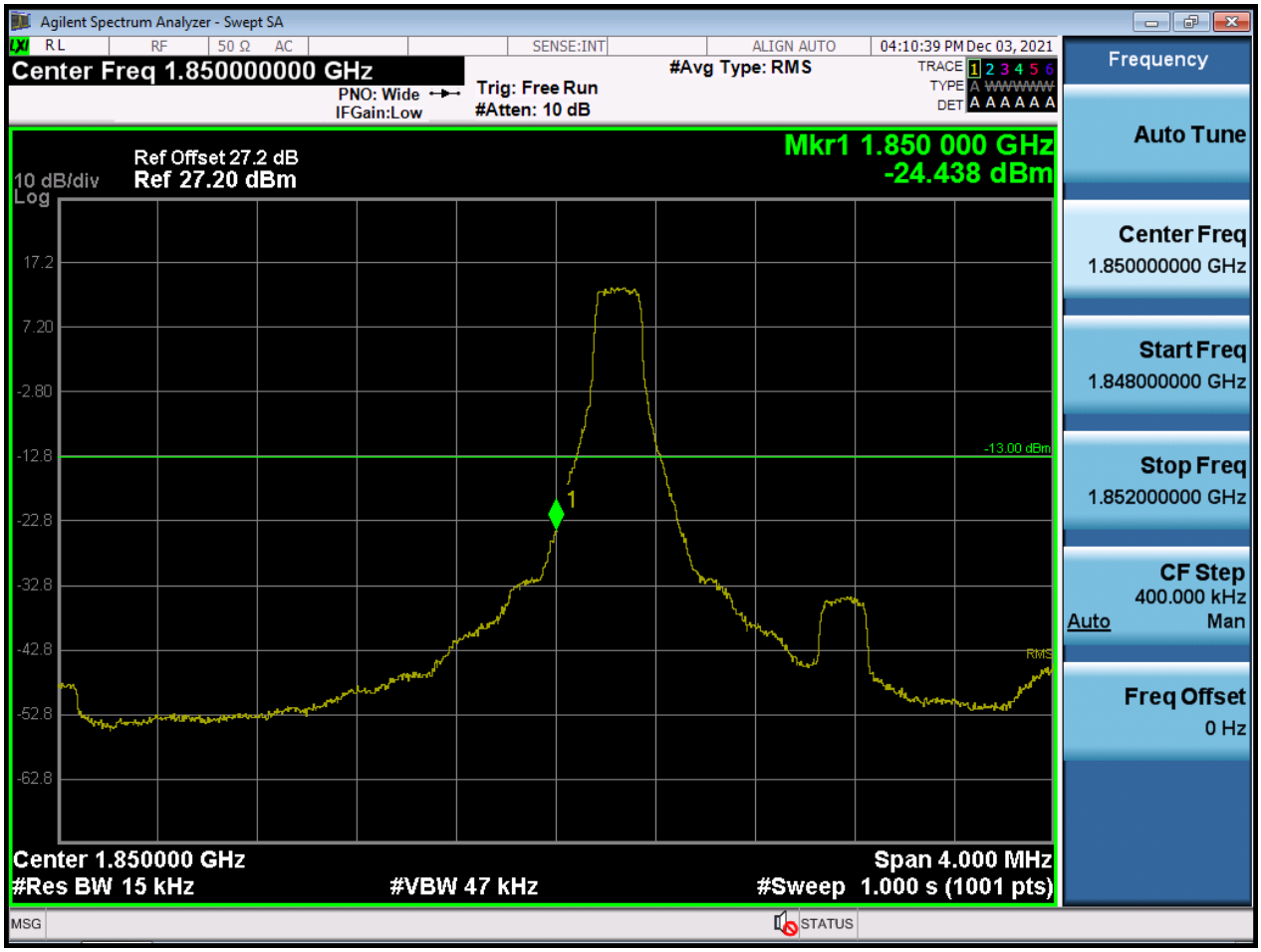


BW1.4 M_BandEdge_Highest Channel_QPSK_FullRB(1) (Main1 Ant)

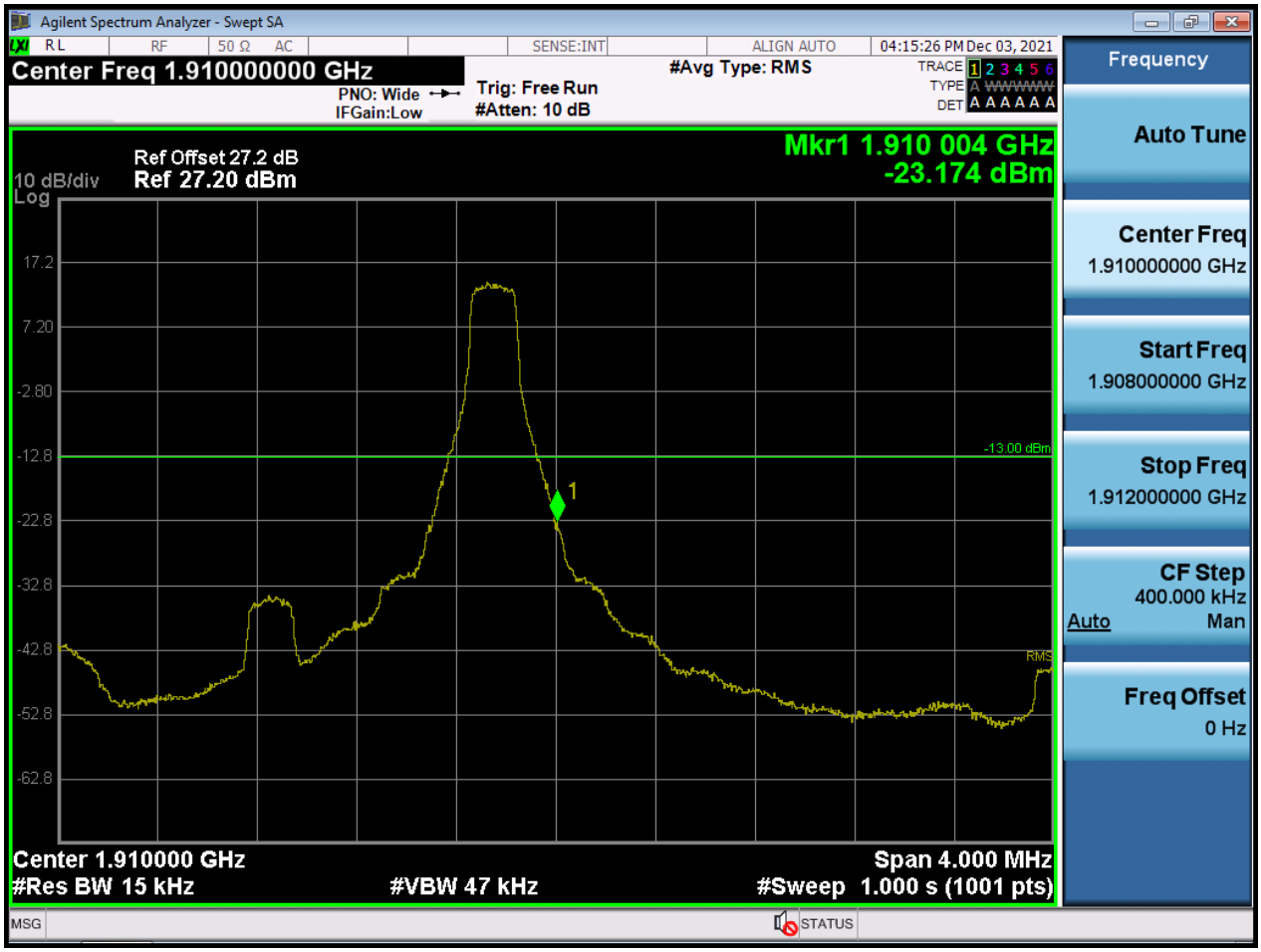
BW1.4 M_BandEdge_Highest Channel_QPSK_FullRB(2) (Main1 Ant)



BW1.4 M_BandEdge_Lowest Channel_QPSK_1RB (Main1 Ant)

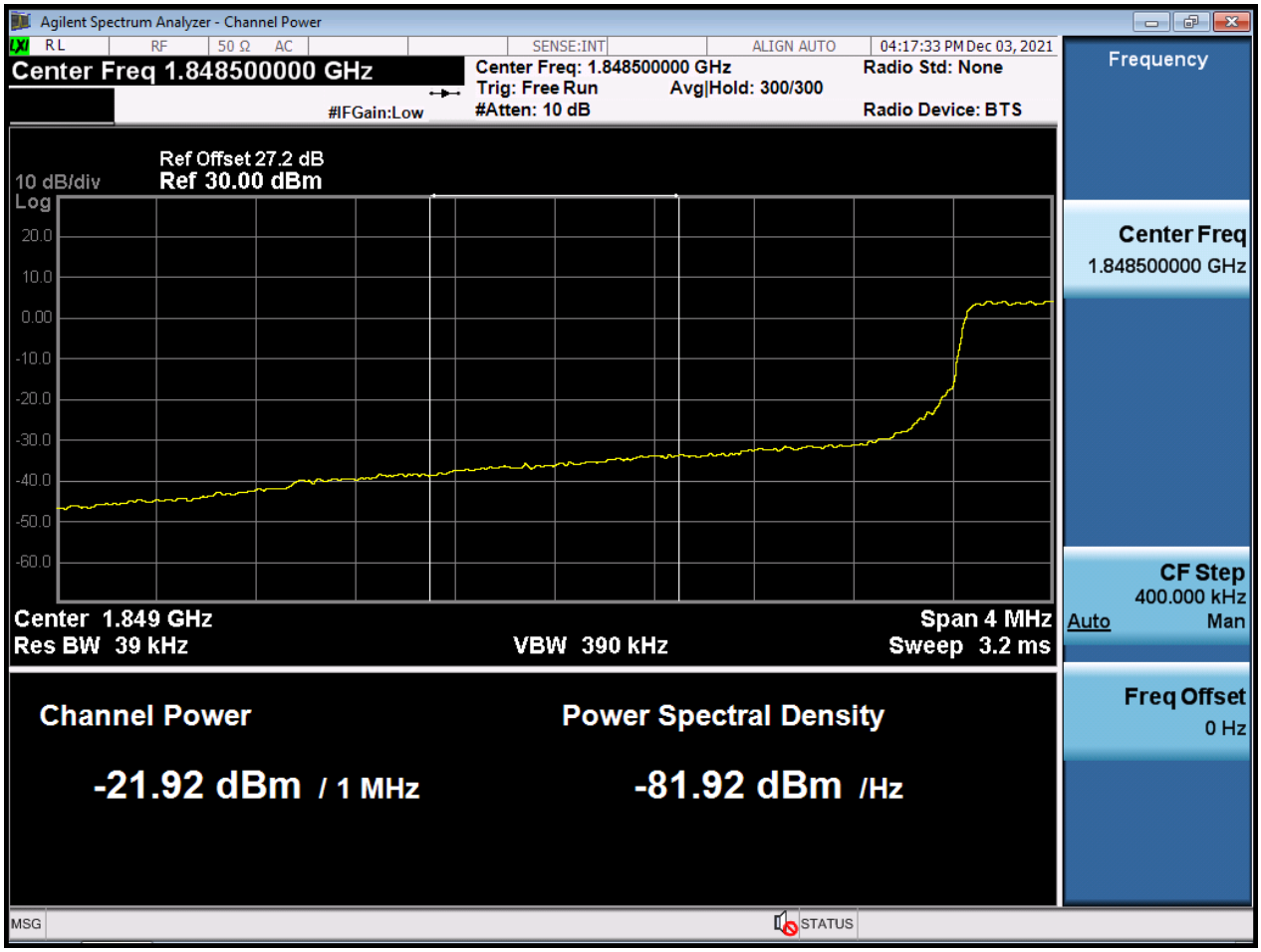


BW1.4 M_BandEdge_Highest Channel_QPSK_1RB (Main1 Ant)



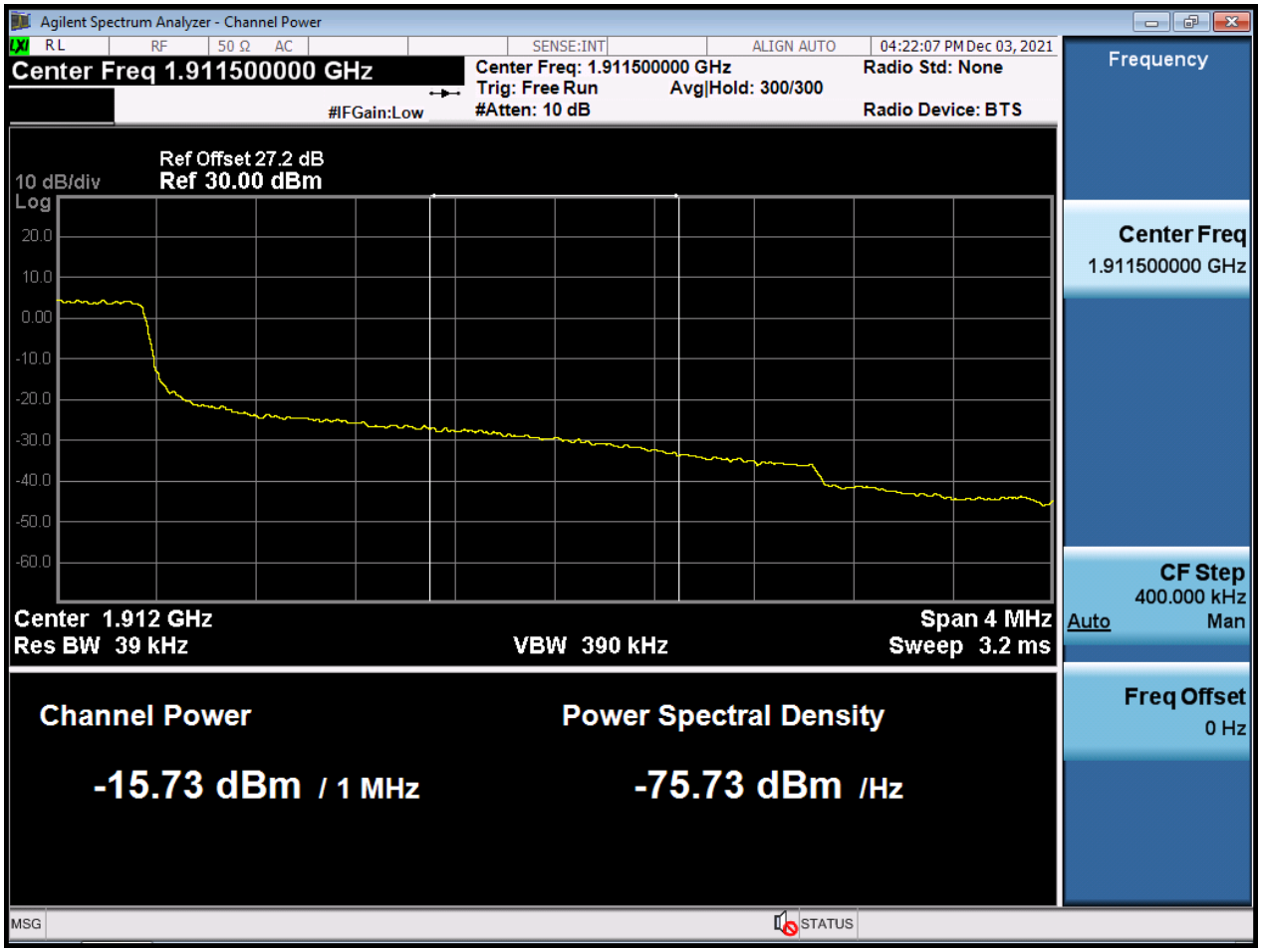
BW3 M_BandEdge_Lowest Channel_QPSK_FullRB(1) (Main1 Ant)

BW3 M_BandEdge_Lowest Channel_QPSK_FullRB(2) (Main1 Ant)

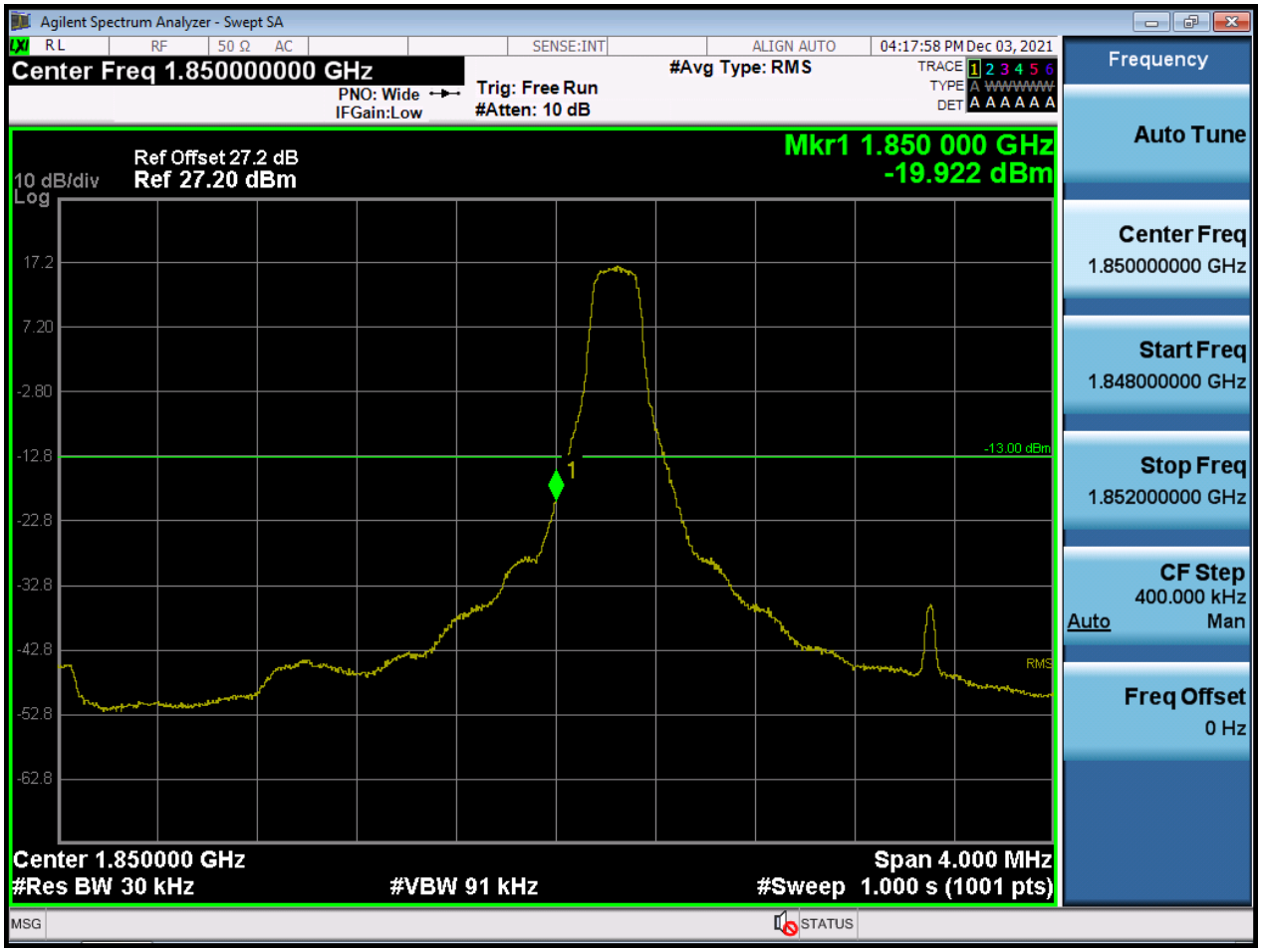


BW3 M_BandEdge_Highest Channel_QPSK_FullRB(1) (Main1 Ant)

BW3 M_BandEdge_Highest Channel_QPSK_FullRB(2) (Main1 Ant)



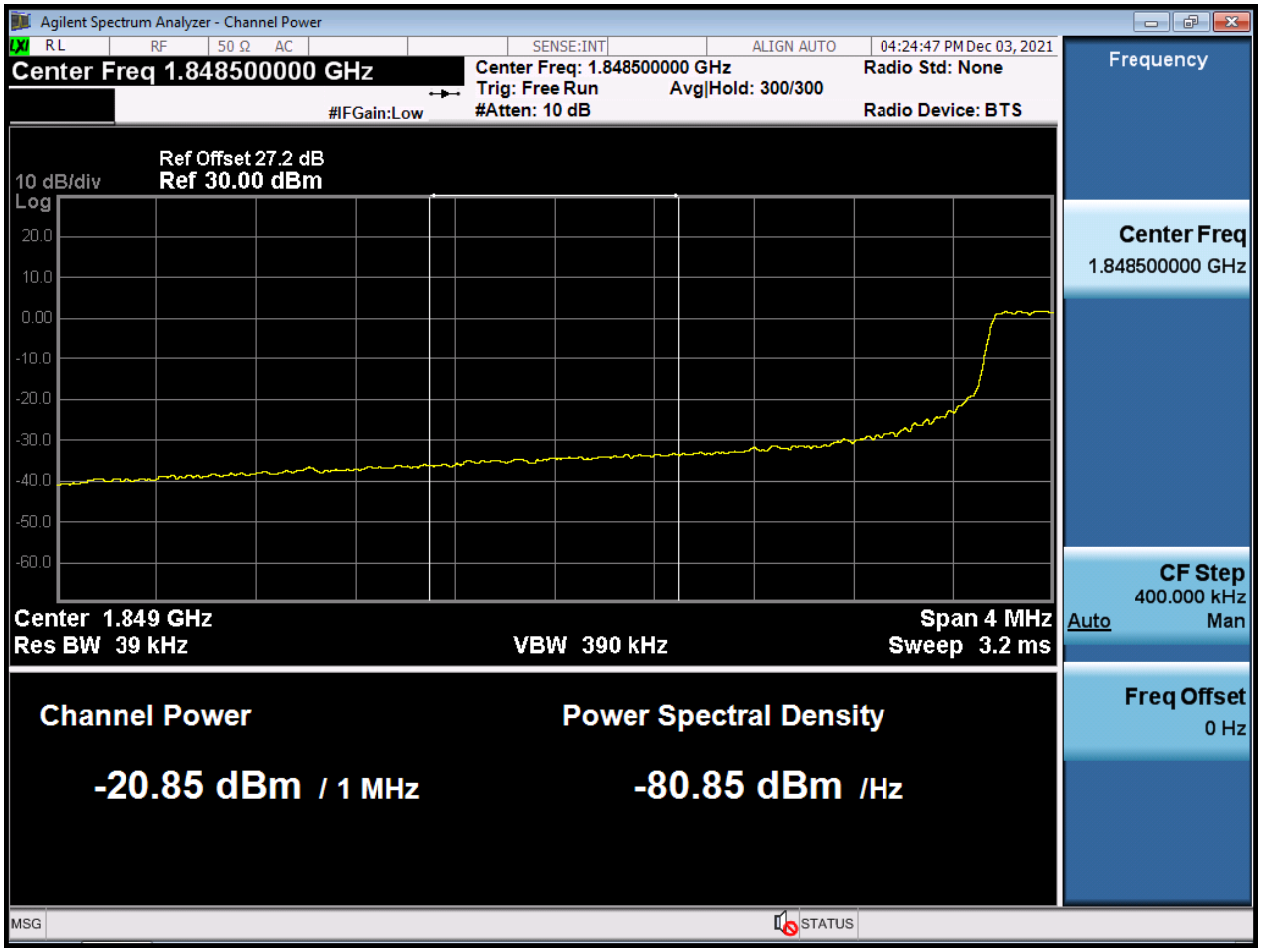
BW3 M_BandEdge_Lowest Channel_QPSK_1RB (Main1 Ant)



BW3 M_BandEdge_Highest Channel_QPSK_1RB (Main1 Ant)

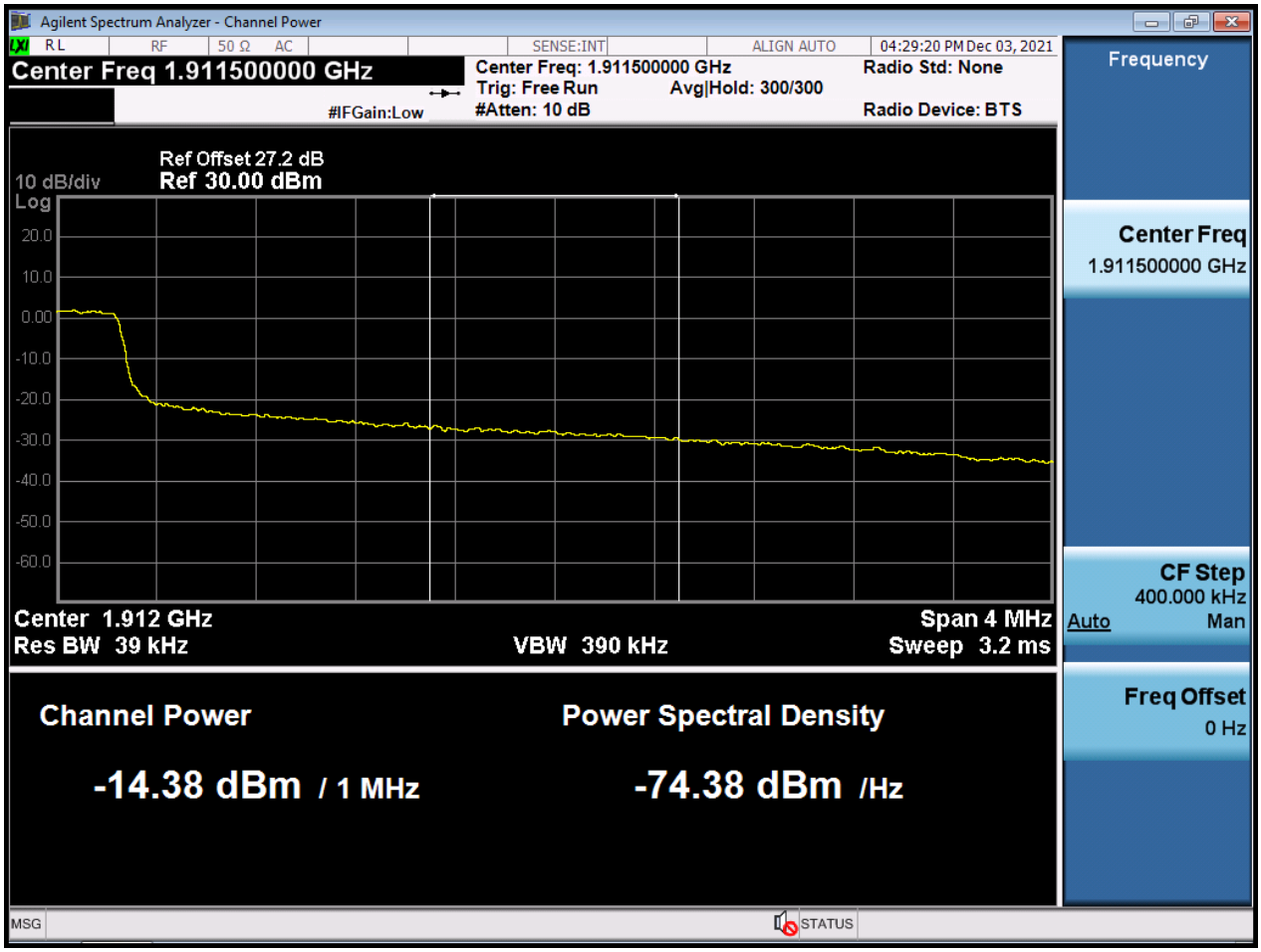
BW5 M_BandEdge_Lowest Channel_QPSK_FullRB(1) (Main1 Ant)

BW5 M_BandEdge_Lowest Channel_QPSK_FullRB(2) (Main1 Ant)

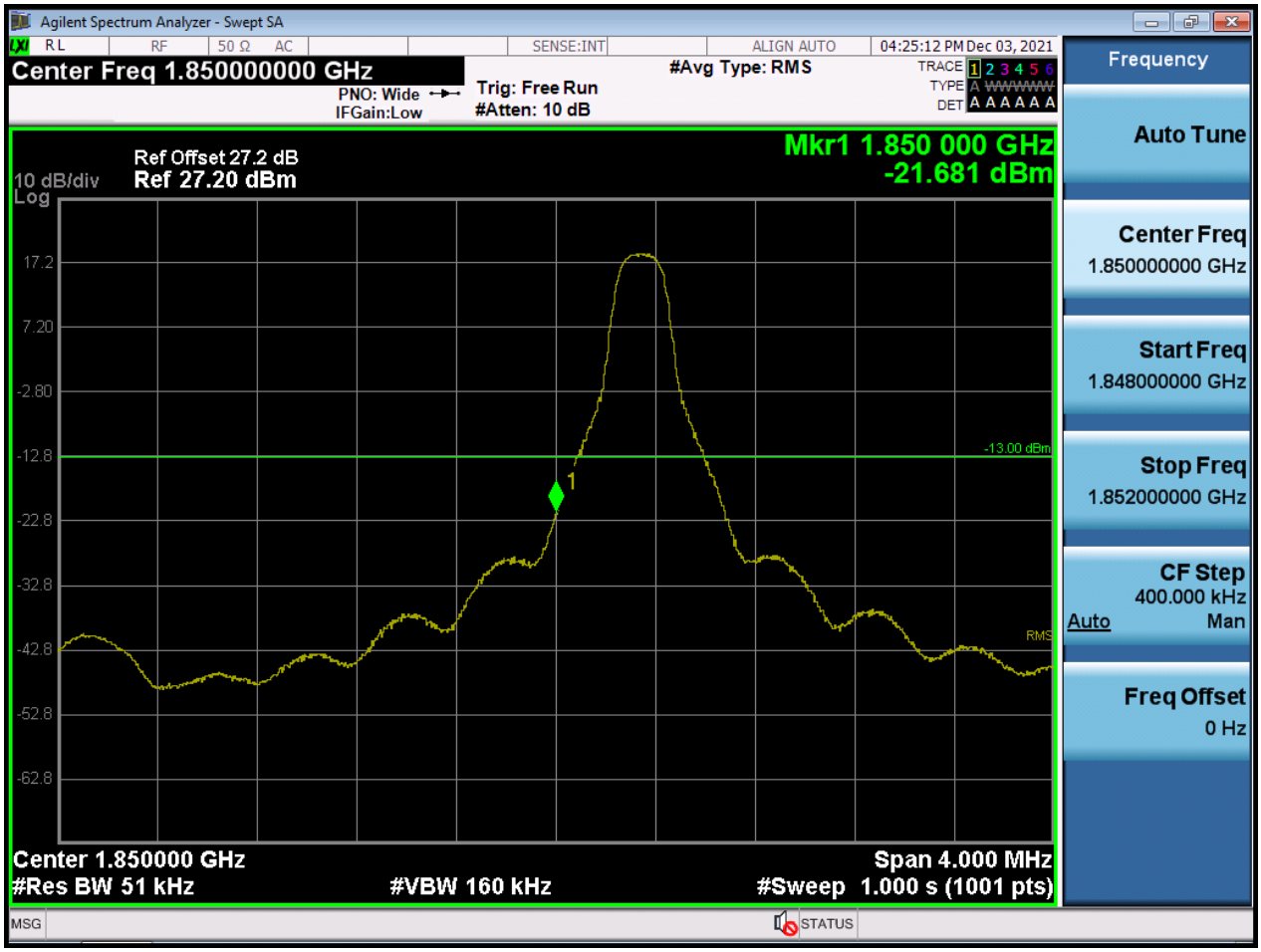


BW5 M_BandEdge_Highest Channel_QPSK_FullRB(1) (Main1 Ant)

BW5 M_BandEdge_Highest Channel_QPSK_FullRB(2) (Main1 Ant)



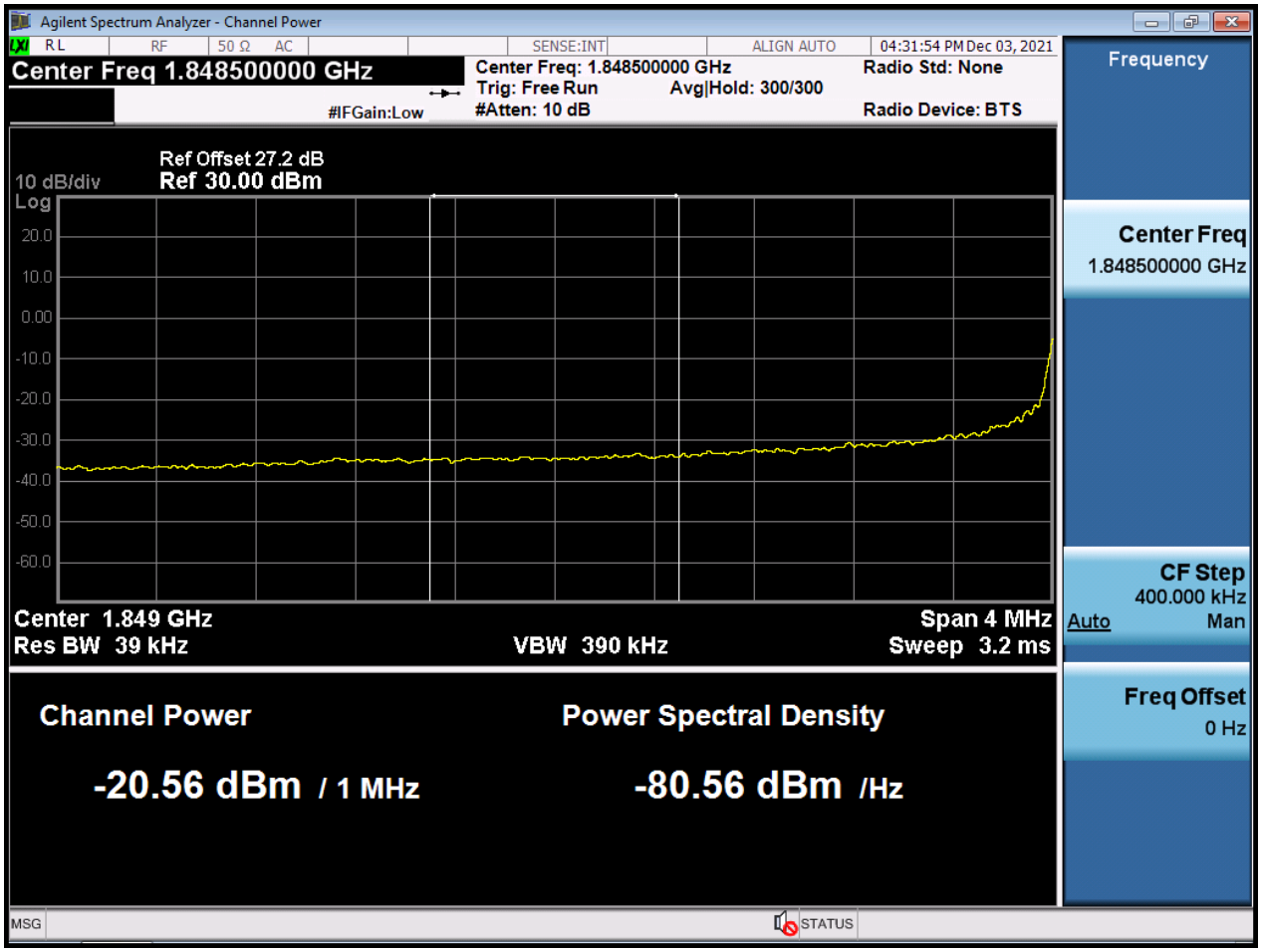
BW5 M_BandEdge_Lowest Channel_QPSK_1RB (Main1 Ant)



BW5 M_BandEdge_Highest Channel_QPSK_1RB (Main1 Ant)

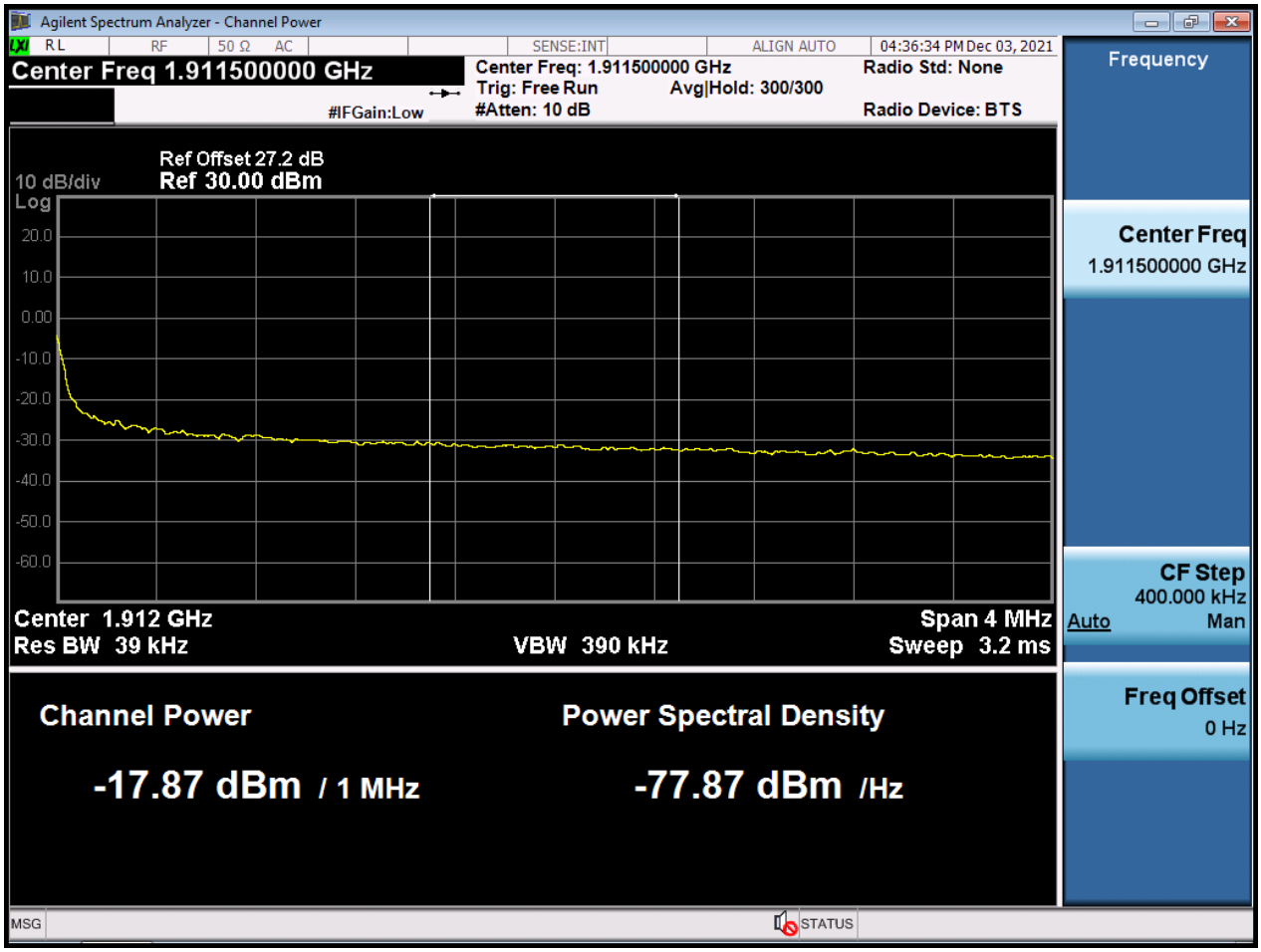
BW10 M_BandEdge_Lowest Channel_QPSK_FullRB(1) (Main1 Ant)

BW10 M_BandEdge_Lowest Channel_QPSK_FullRB(2) (Main1 Ant)



BW10 M_BandEdge_Highest Channel_QPSK_FullRB(1) (Main1 Ant)

BW10 M_BandEdge_Highest Channel_QPSK_FullRB(2) (Main1 Ant)

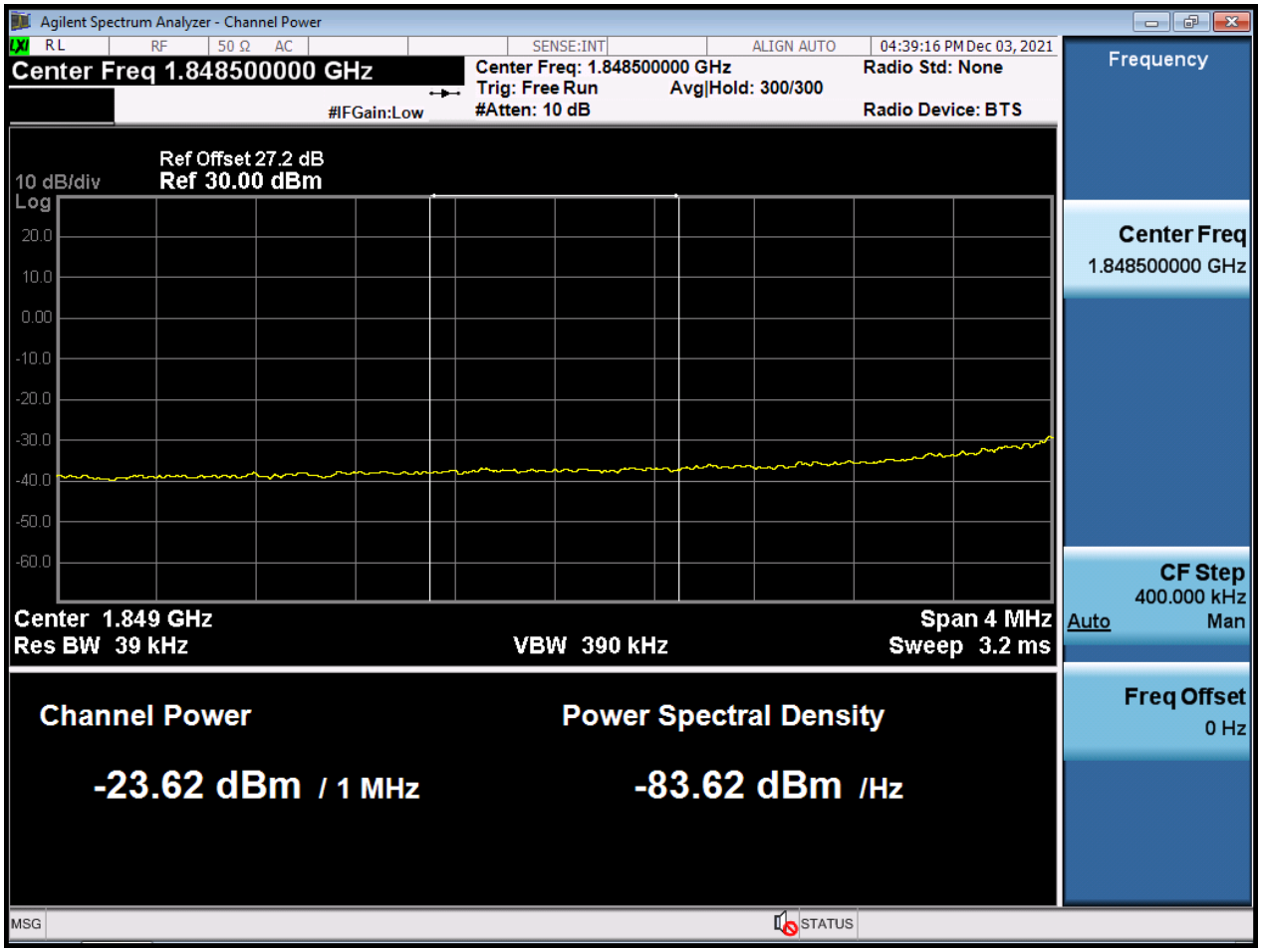


BW10 M_BandEdge_Lowest Channel_QPSK_1RB (Main1 Ant)

BW10 M_BandEdge_Highest Channel_QPSK_1RB (Main1 Ant)

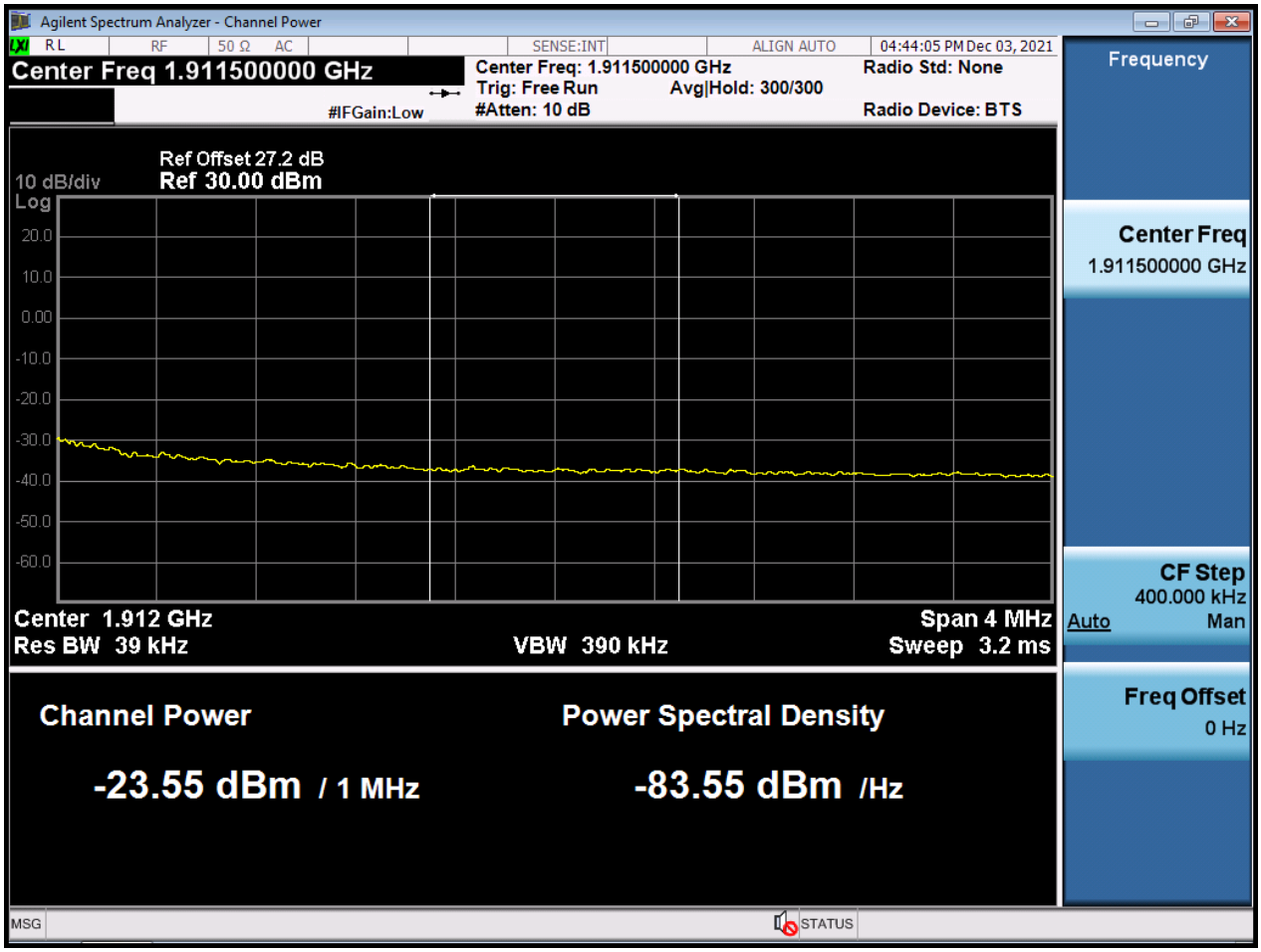
BW15 M_BandEdge_Lowest Channel_QPSK_FullRB(1) (Main1 Ant)

BW15 M_BandEdge_Lowest Channel_QPSK_FullRB(2) (Main1 Ant)



BW15 M_BandEdge_Highest Channel_QPSK_FullRB(1) (Main1 Ant)

BW15 M_BandEdge_Highest Channel_QPSK_FullRB(2) (Main1 Ant)

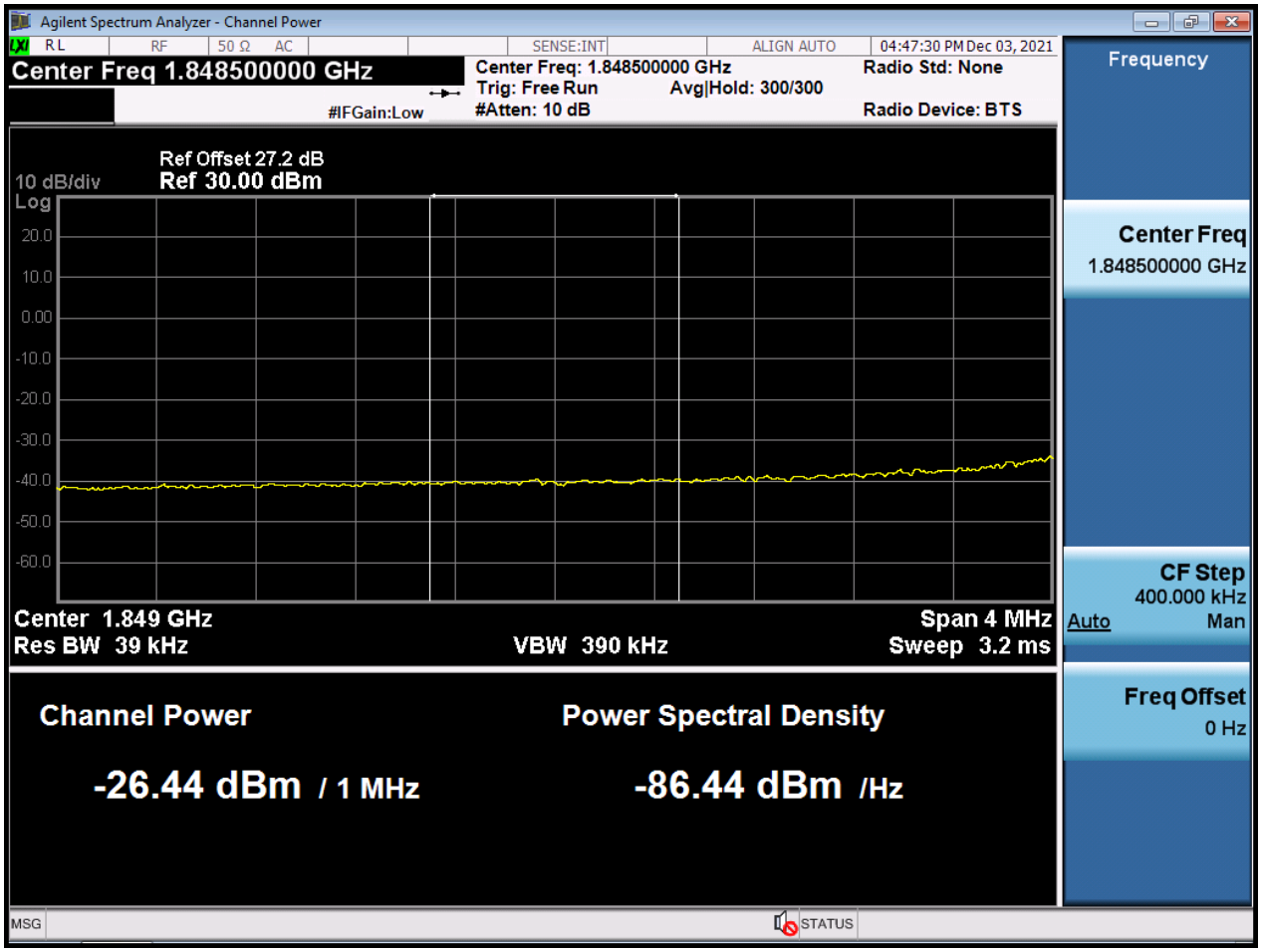


BW15 M_BandEdge_Lowest Channel_QPSK_1RB (Main1 Ant)

BW15 M_BandEdge_Highest Channel_QPSK_1RB (Main1 Ant)

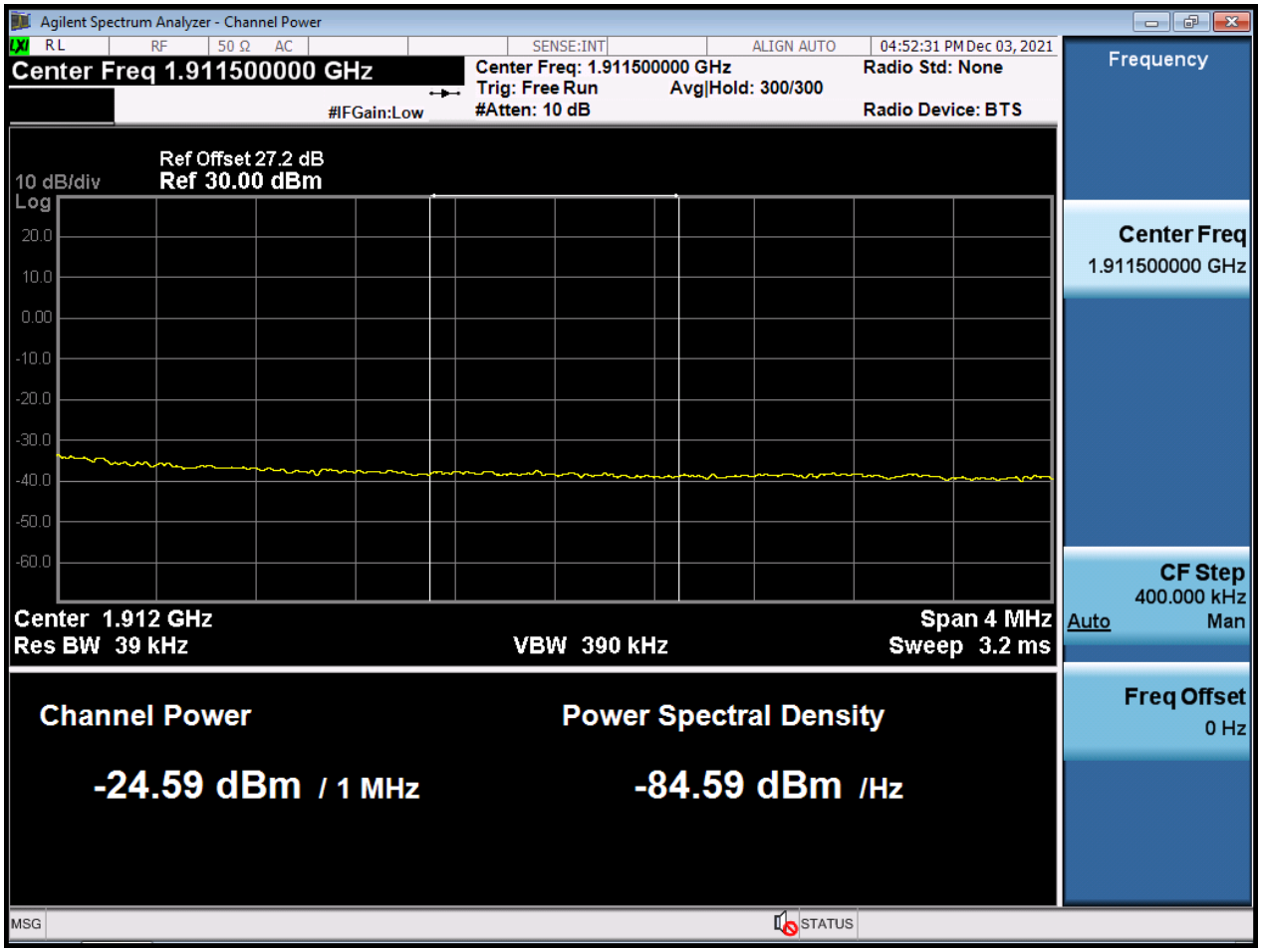
BW20 M_BandEdge_Lowest Channel_QPSK_FullRB(1) (Main1 Ant)

BW20 M_BandEdge_Lowest Channel_QPSK_FullRB(2) (Main1 Ant)



BW20 M_BandEdge_Highest Channel_QPSK_FullRB(1) (Main1 Ant)

BW20 M_BandEdge_Highest Channel_QPSK_FullRB(2) (Main1 Ant)

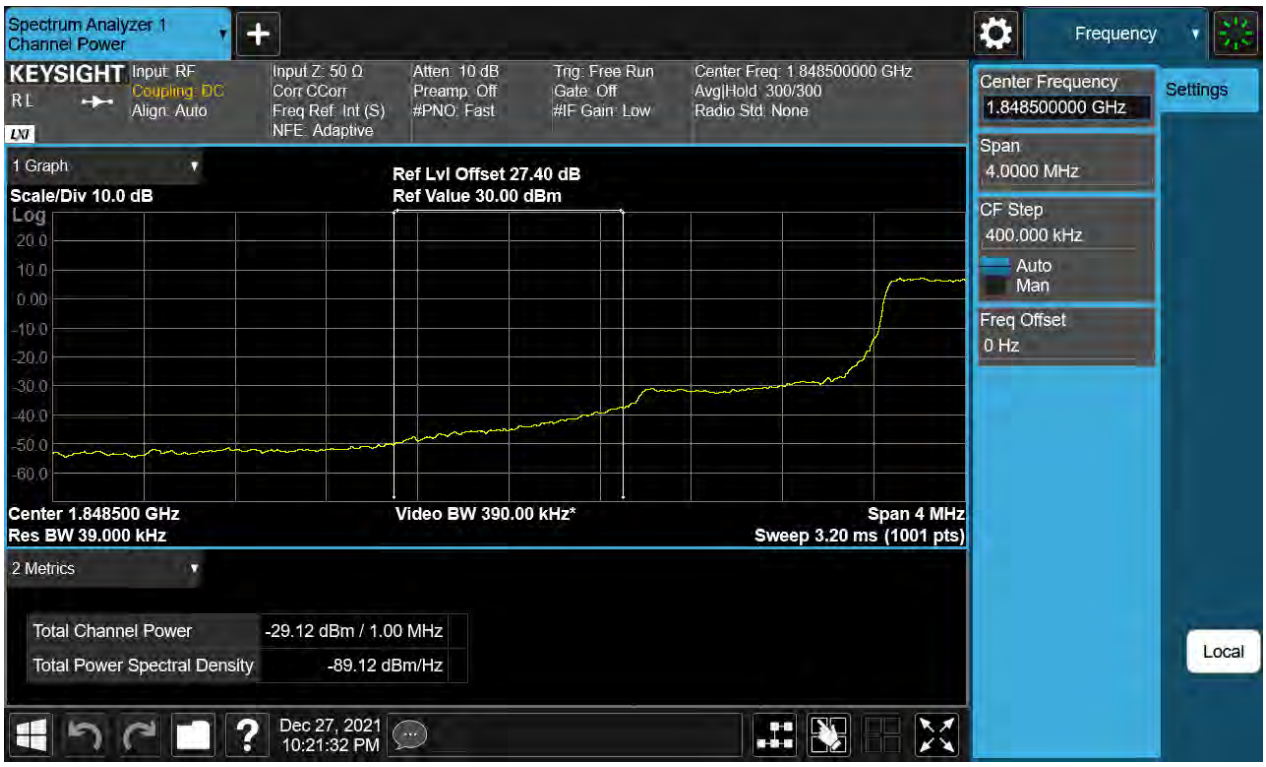


BW20 M_BandEdge_Lowest Channel_QPSK_1RB (Main1 Ant)

BW20 M_BandEdge_Highest Channel_QPSK_1RB (Main1 Ant)

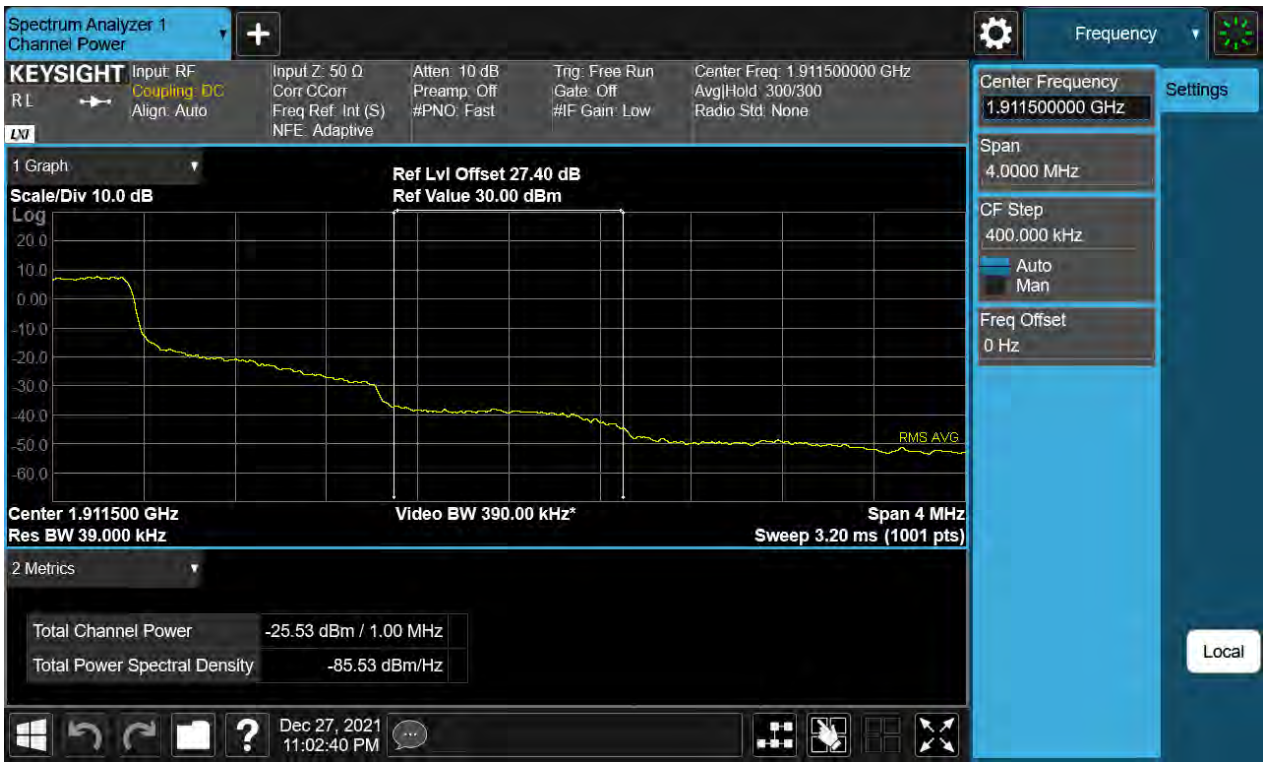
BW1.4 M_BandEdge_Lowest Channel_QPSK_FullRB (1) (Sub2 Ant)

BW1.4 M_BandEdge_Lowest Channel_QPSK_FullRB (2) (Sub2 Ant)

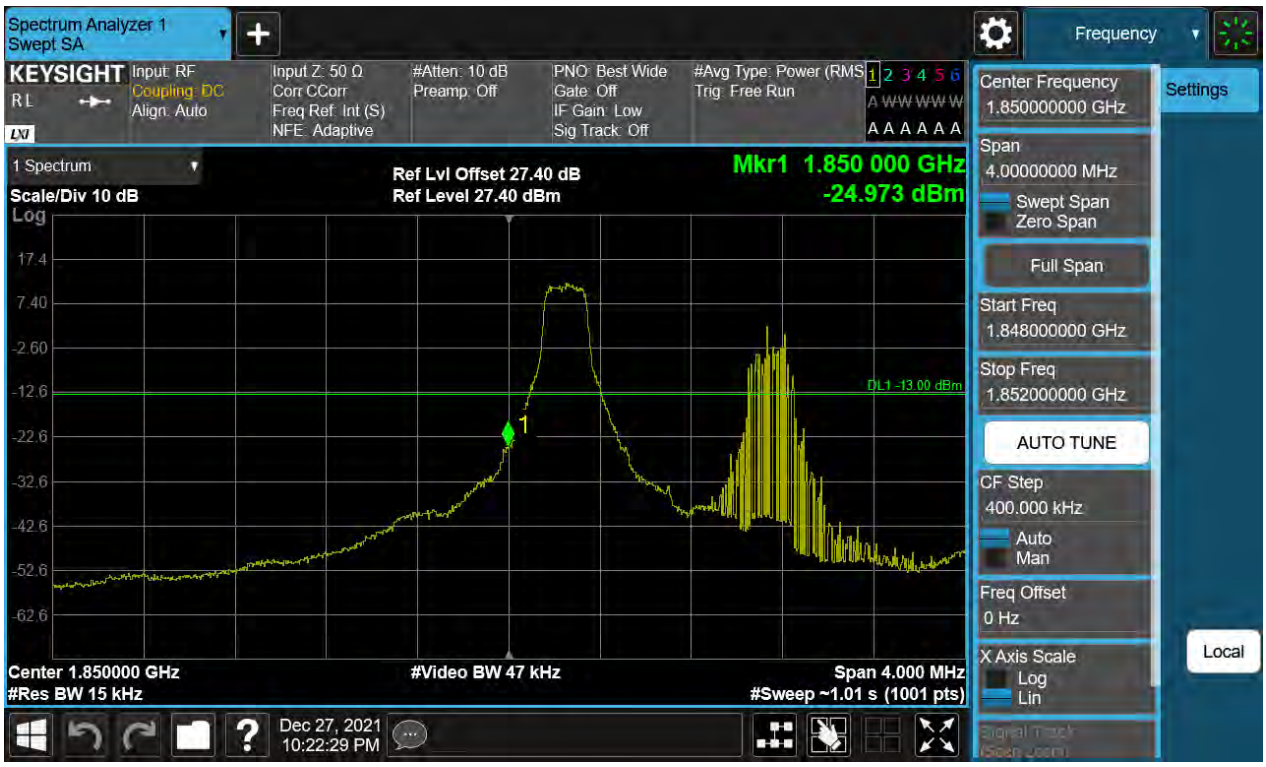


BW1.4 M_BandEdge_Highest Channel_QPSK_FullRB (1) (Sub2 Ant)

BW1.4 M_BandEdge_Highest Channel_QPSK_FullRB (2) (Sub2 Ant)



BW1.4 M_BandEdge_Lowest Channel_QPSK_1RB (Sub2 Ant)



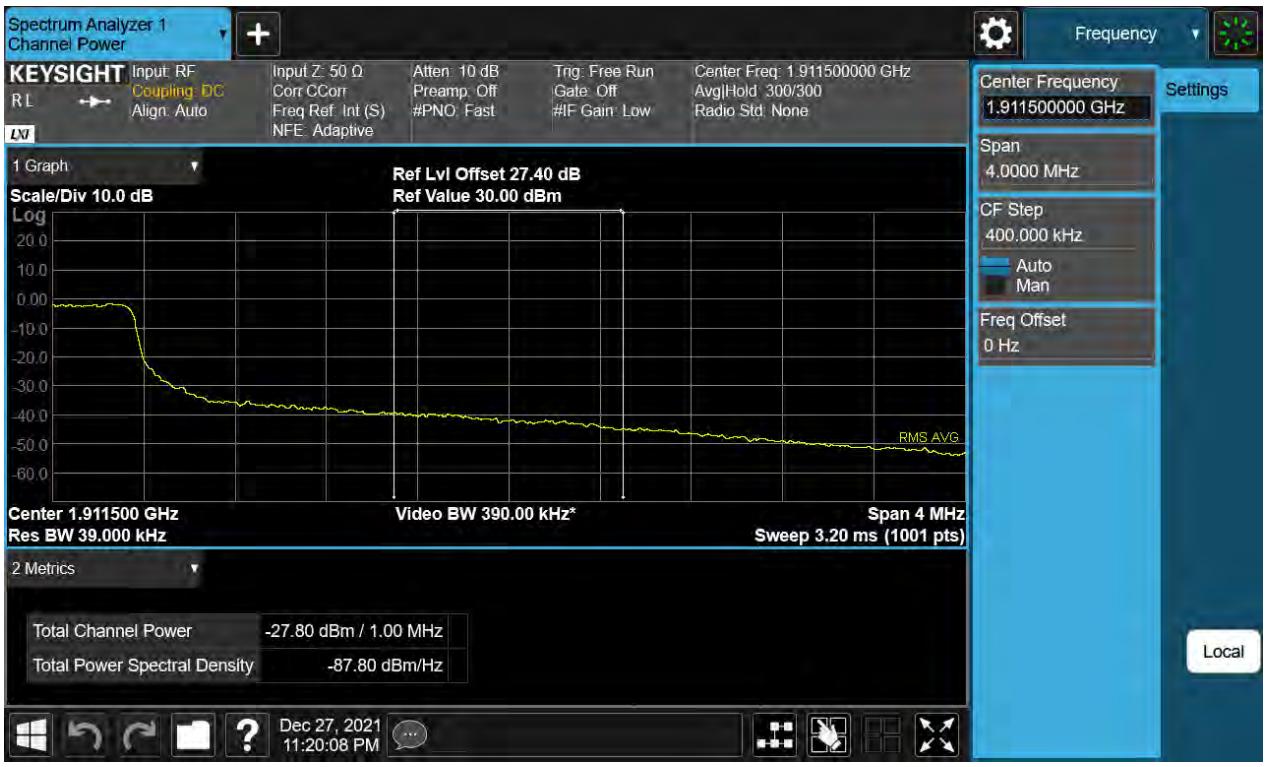
BW1.4 M_BandEdge_Highest Channel_QPSK_1RB (Sub2 Ant)

BW3 M_BandEdge_Lowest Channel_QPSK_FullRB (1) (Sub2 Ant)

BW3 M_BandEdge_Lowest Channel_QPSK_FullRB (2) (Sub2 Ant)

BW3 M_BandEdge_Highest Channel_QPSK_FullRB (1) (Sub2 Ant)

BW3 M_BandEdge_Highest Channel_QPSK_FullRB (2) (Sub2 Ant)

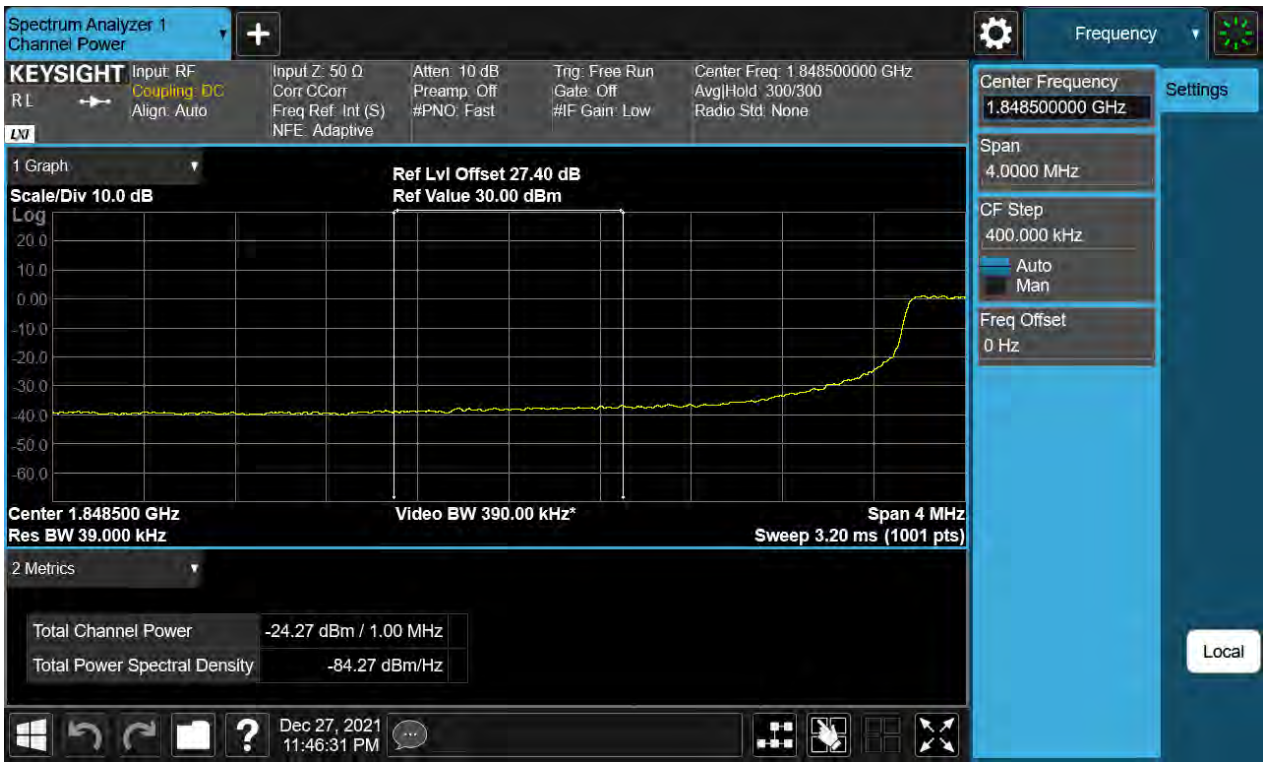


BW3 M_BandEdge_Lowest Channel_QPSK_1RB (Sub2 Ant)

BW3 M_BandEdge_Highest Channel_QPSK_1RB (Sub2 Ant)

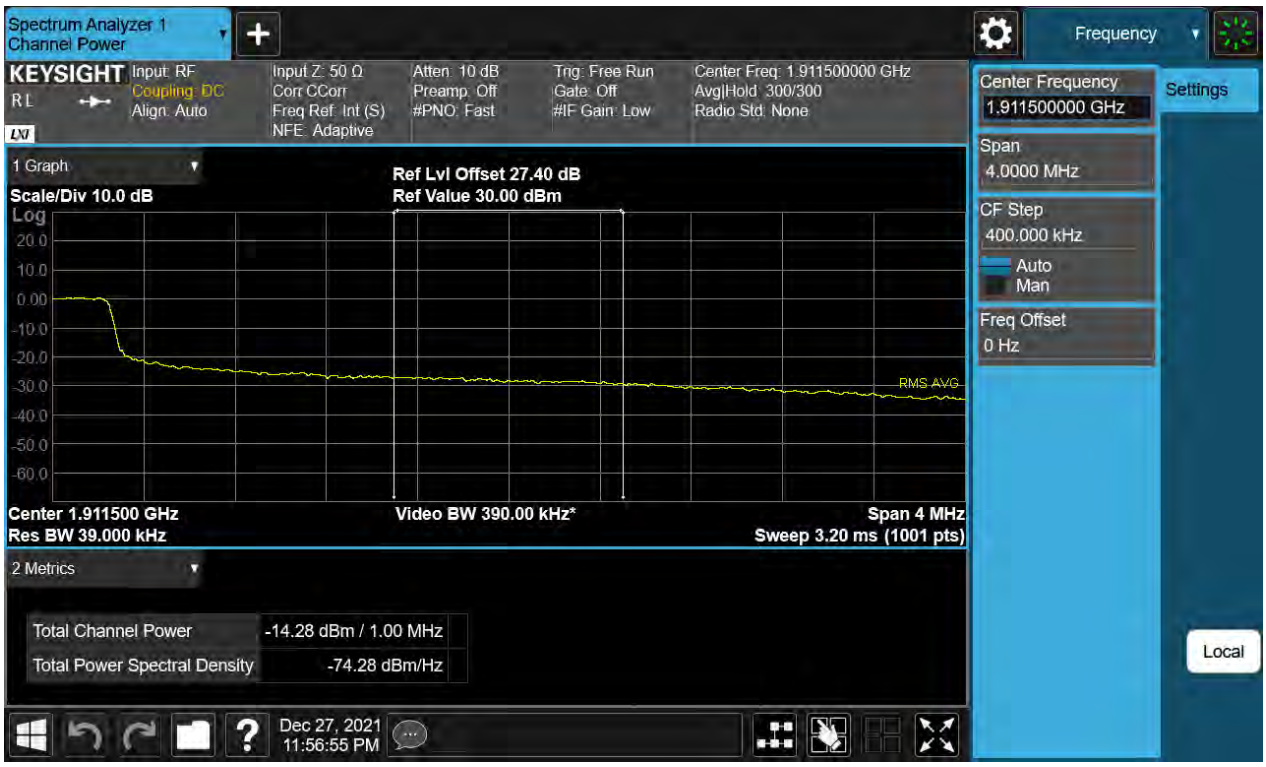
BW5 M_BandEdge_Lowest Channel_QPSK_FullRB (1) (Sub2 Ant)

BW5 M_BandEdge_Lowest Channel_QPSK_FullRB (2) (Sub2 Ant)



BW5 M_BandEdge_Highest Channel_QPSK_FullRB (1) (Sub2 Ant)

BW5 M_BandEdge_Highest Channel_QPSK_FullRB (2) (Sub2 Ant)

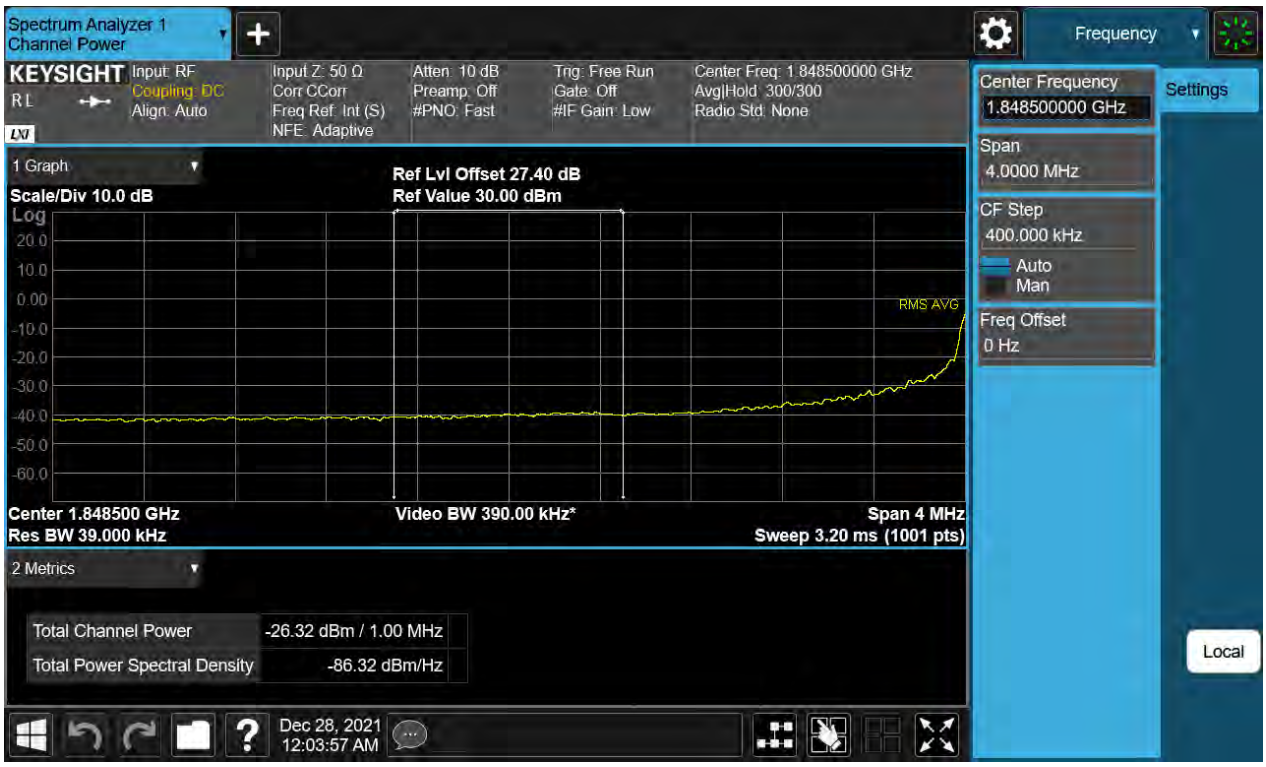


BW5 M_BandEdge_Lowest Channel_QPSK_1RB (Sub2 Ant)

BW5 M_BandEdge_Highest Channel_QPSK_1RB (Sub2 Ant)

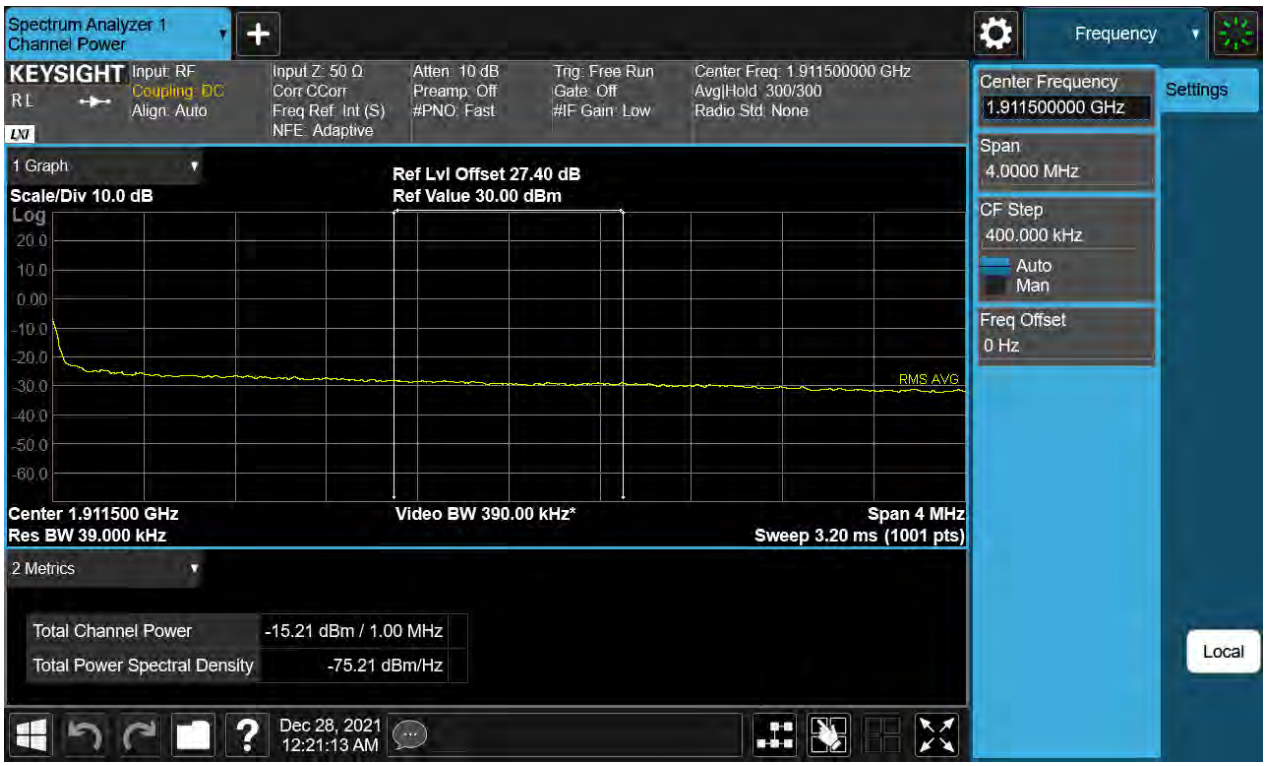
BW10 M_BandEdge_Lowest Channel_QPSK_FullRB (1) (Sub2 Ant)

BW10 M_BandEdge_Lowest Channel_QPSK_FullRB (2) (Sub2 Ant)

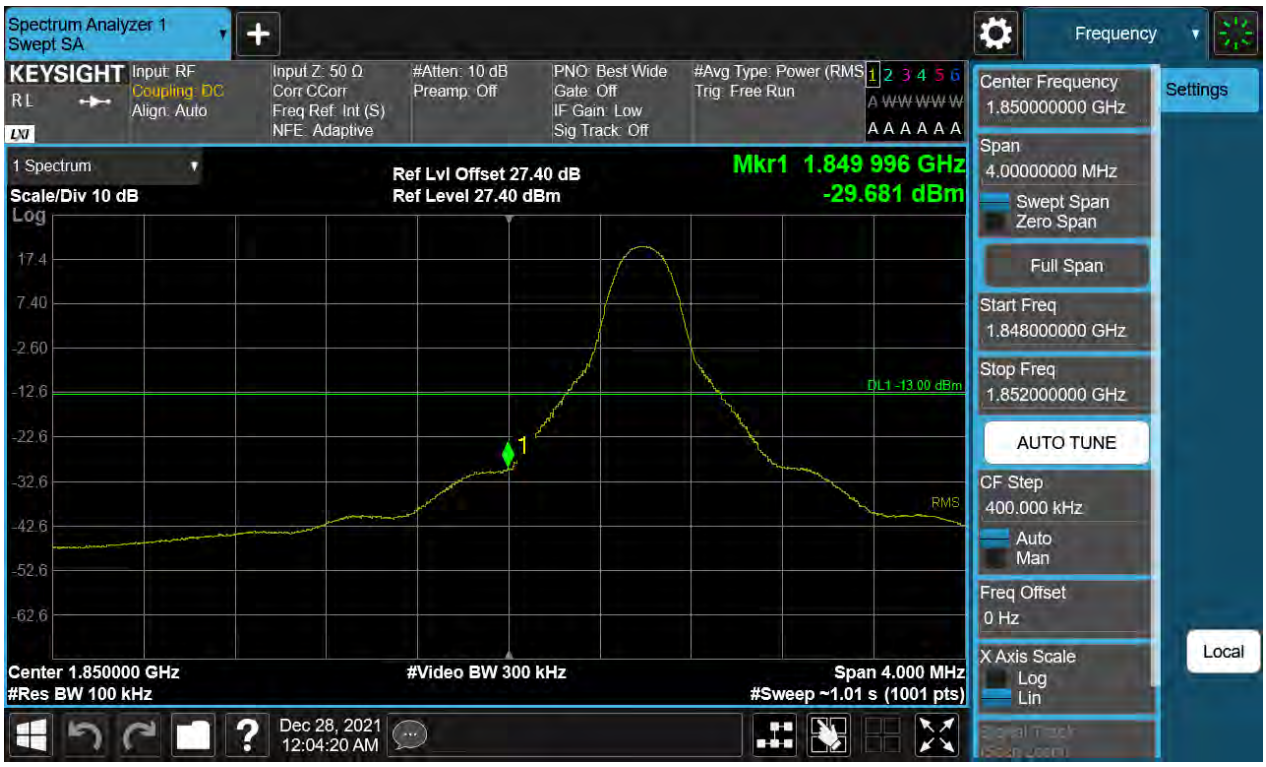


BW10 M_BandEdge_Highest Channel_QPSK_FullRB (1) (Sub2 Ant)

BW10 M_BandEdge_Highest Channel_QPSK_FullRB (2) (Sub2 Ant)



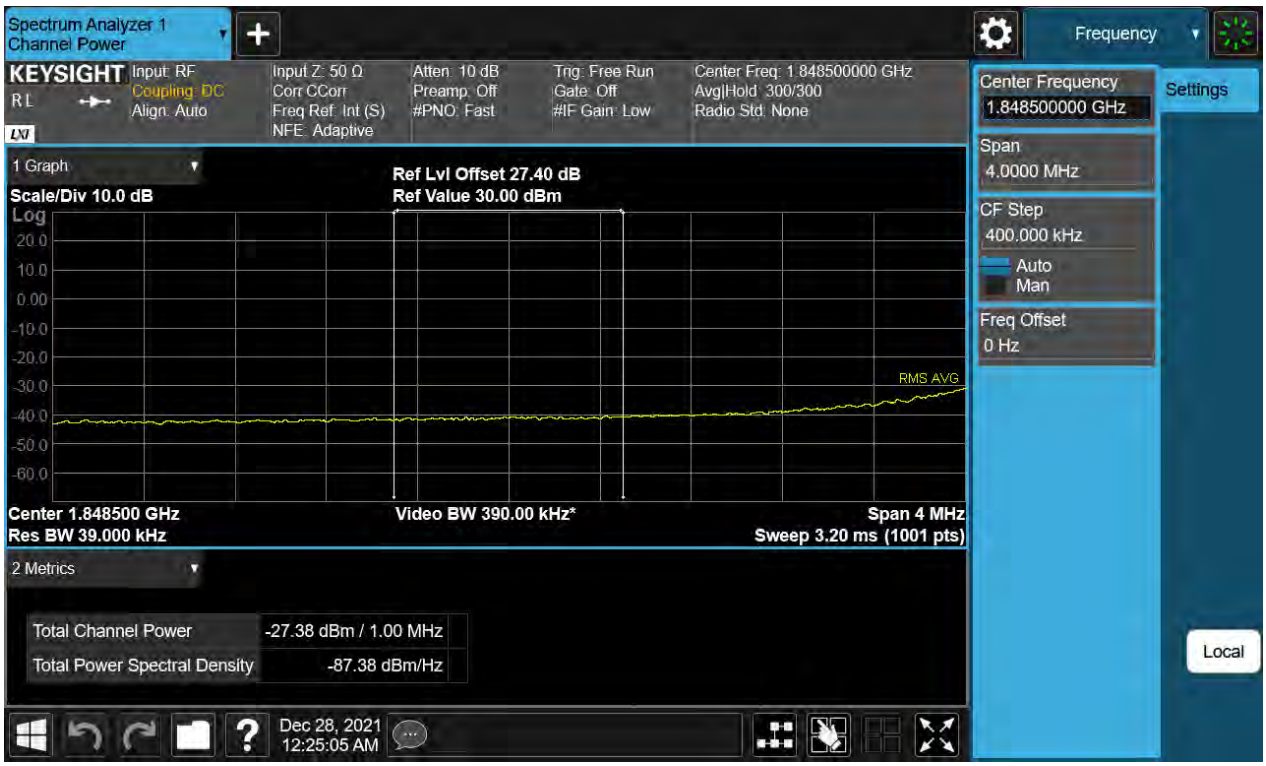
BW10 M_BandEdge_Lowest Channel_QPSK_1RB (Sub2 Ant)



BW10 M_BandEdge_Highest Channel_QPSK_1RB (Sub2 Ant)

BW15 M_BandEdge_Lowest Channel_QPSK_FullRB (1) (Sub2 Ant)

BW15 M_BandEdge_Lowest Channel_QPSK_FullRB (2) (Sub2 Ant)



BW15 M_BandEdge_Highest Channel_QPSK_FullRB (1) (Sub2 Ant)

BW15 M_BandEdge_Highest Channel_QPSK_FullRB (2) (Sub2 Ant)

BW15 M_BandEdge_Lowest Channel_QPSK_1RB (Sub2 Ant)

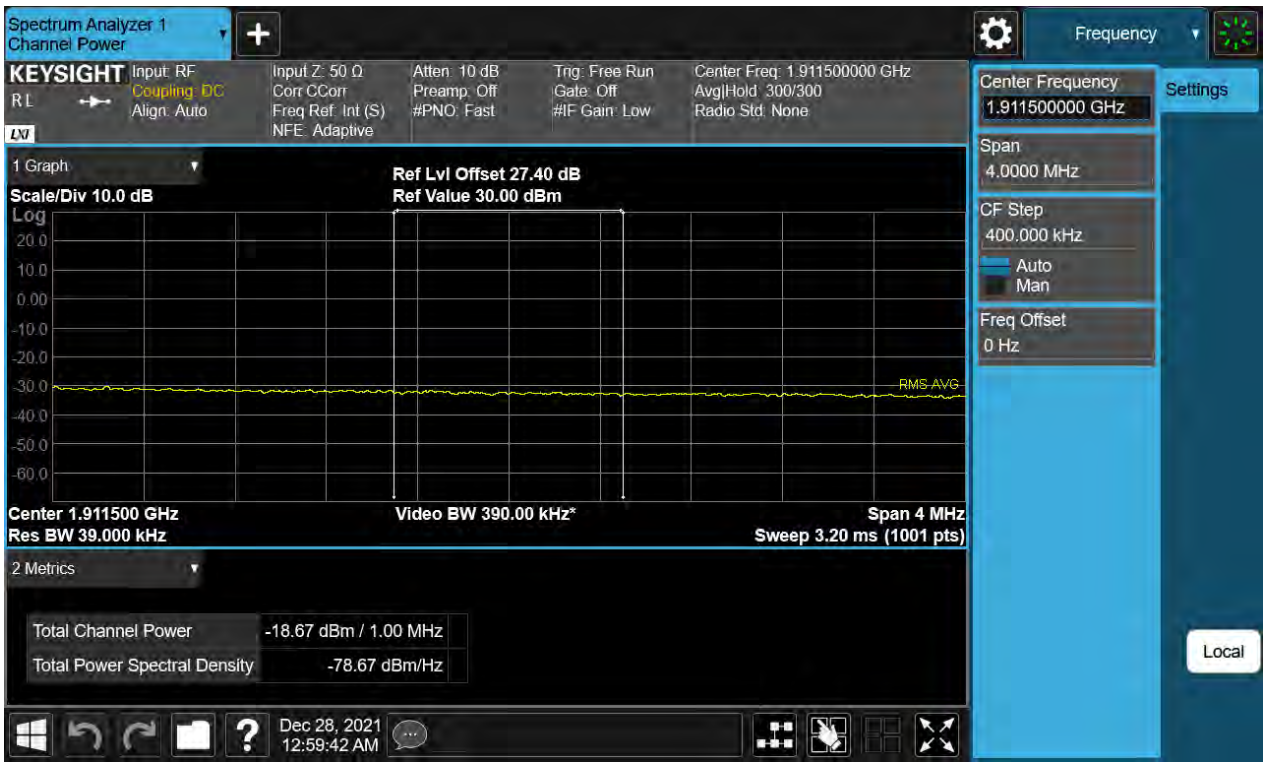
BW15 M_BandEdge_Highest Channel_QPSK_1RB (Sub2 Ant)

BW20 M_BandEdge_Lowest Channel_QPSK_FullRB (1) (Sub2 Ant)

BW20 M_BandEdge_Lowest Channel_QPSK_FullRB (2) (Sub2 Ant)

BW20 M_BandEdge_Highest Channel_QPSK_FullRB (1) (Sub2 Ant)

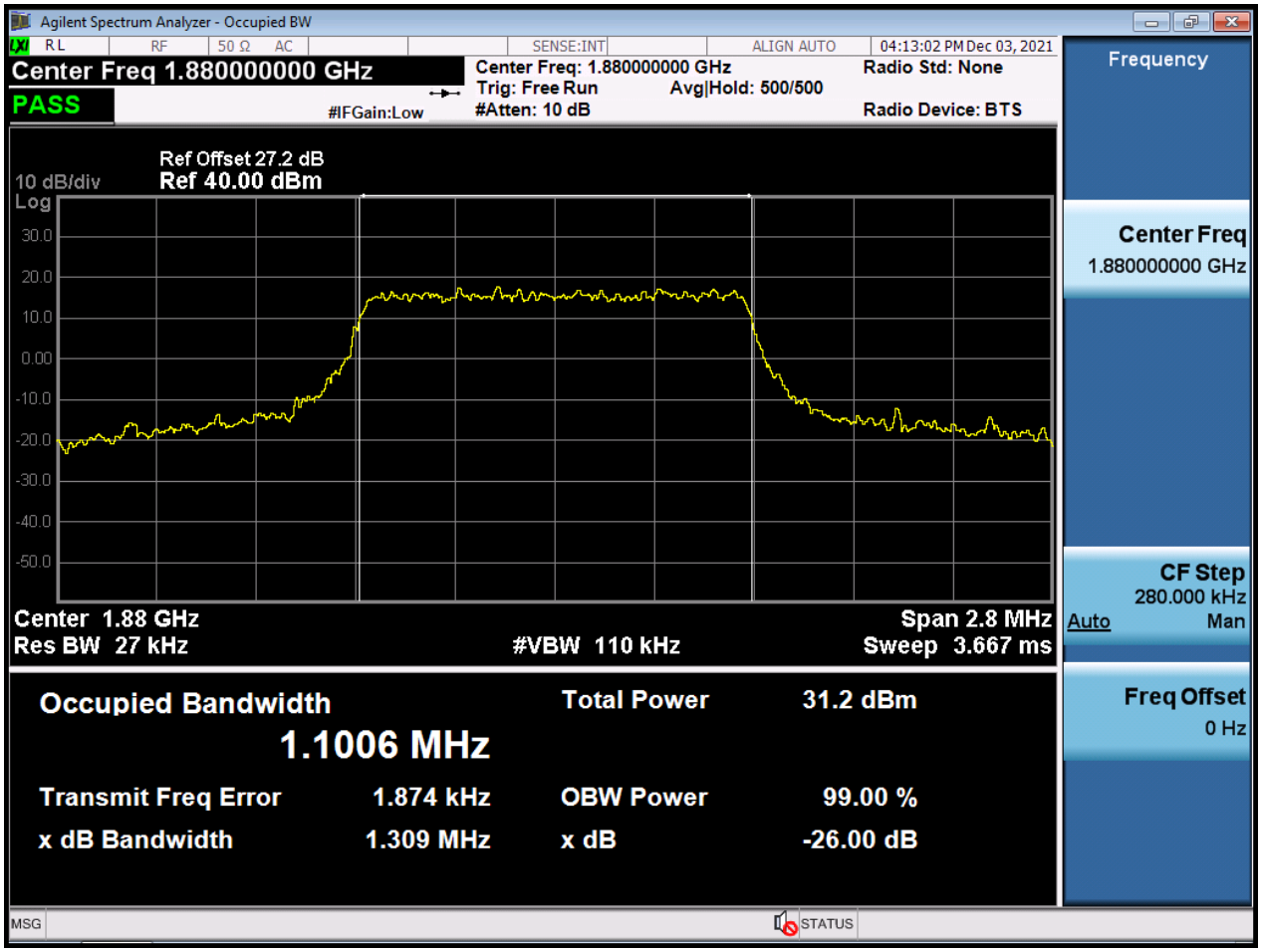
BW20 M_BandEdge_Highest Channel_QPSK_FullRB (2) (Sub2 Ant)



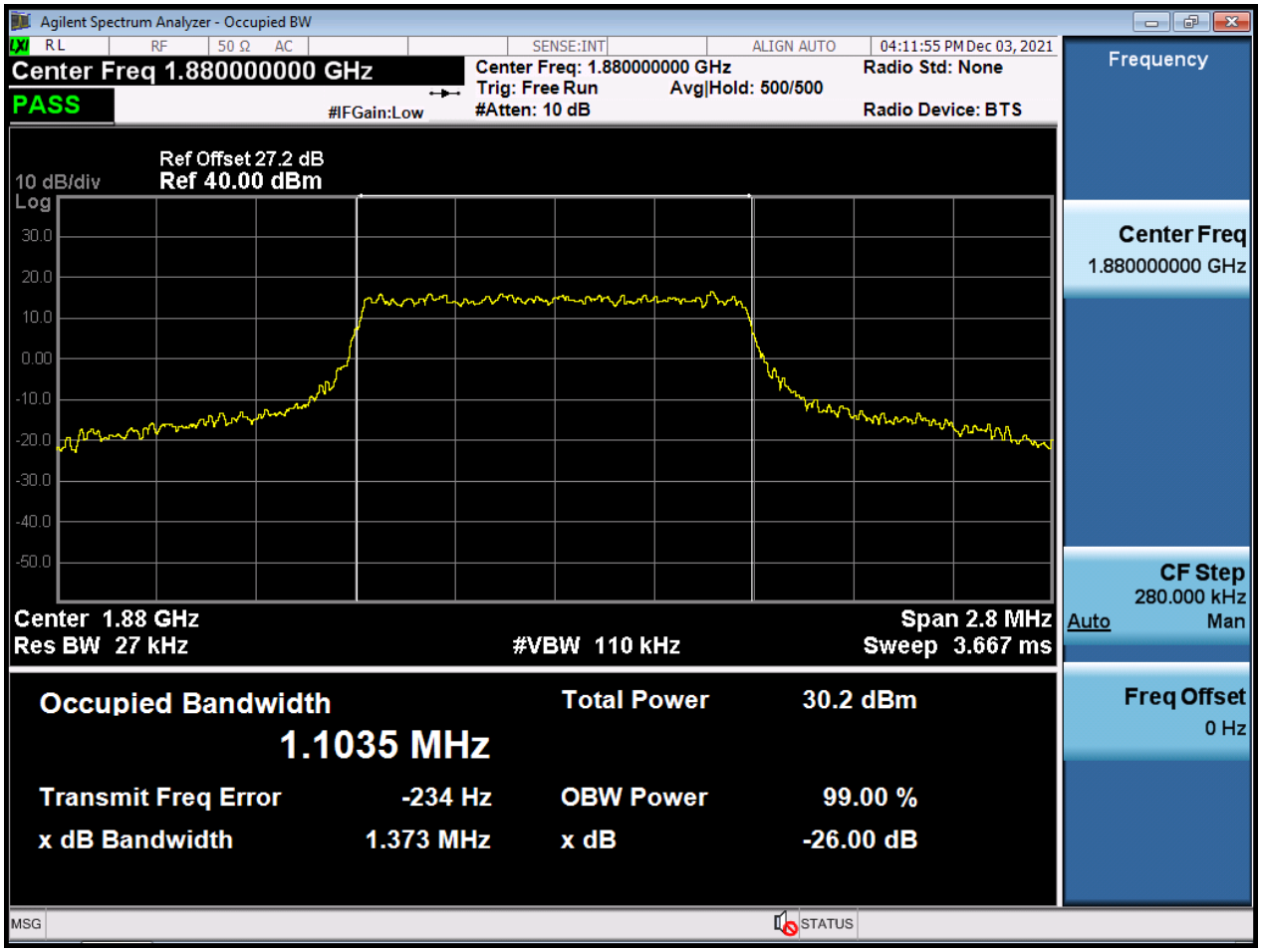
BW20 M_BandEdge_Lowest Channel_QPSK_1RB (Sub2 Ant)

BW20 M_BandEdge_Highest Channel_QPSK_1RB (Sub2 Ant)

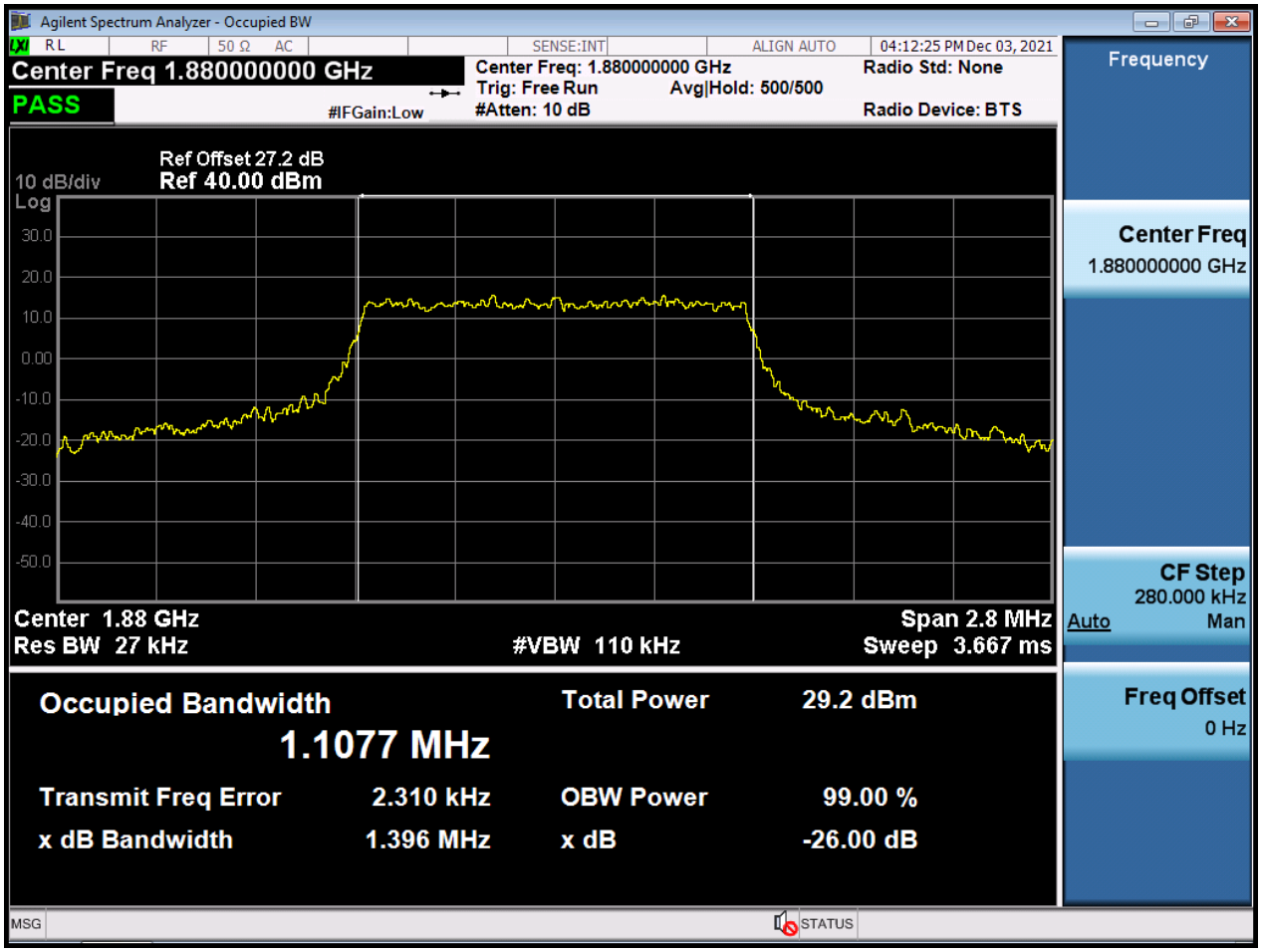
BW1.4 M_OBW_Middle Channel_QPSK_FullRB (Main1 Ant)



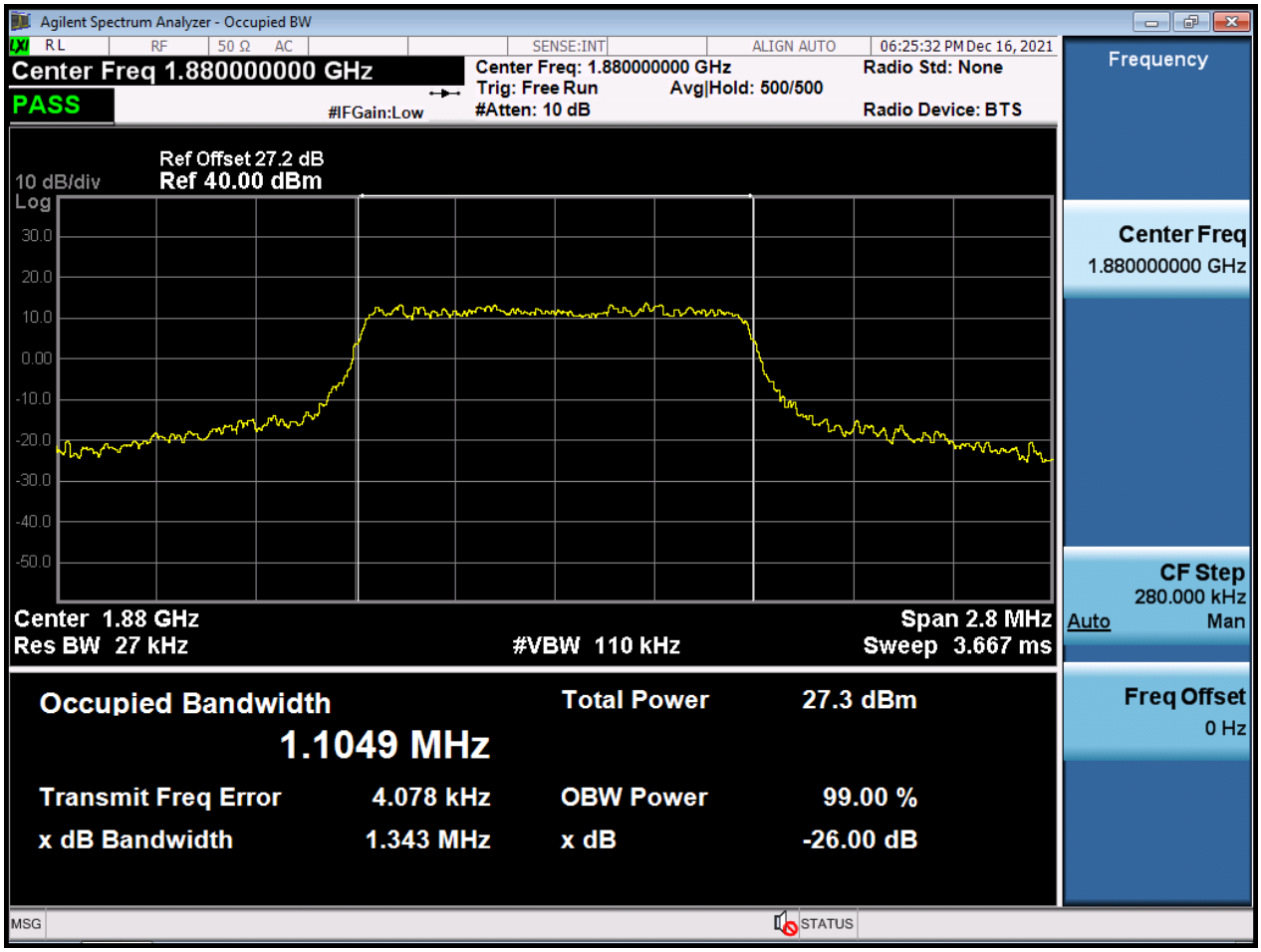
BW1.4 M_OBW_Middle Channel_16QAM_FullRB (Main1 Ant)



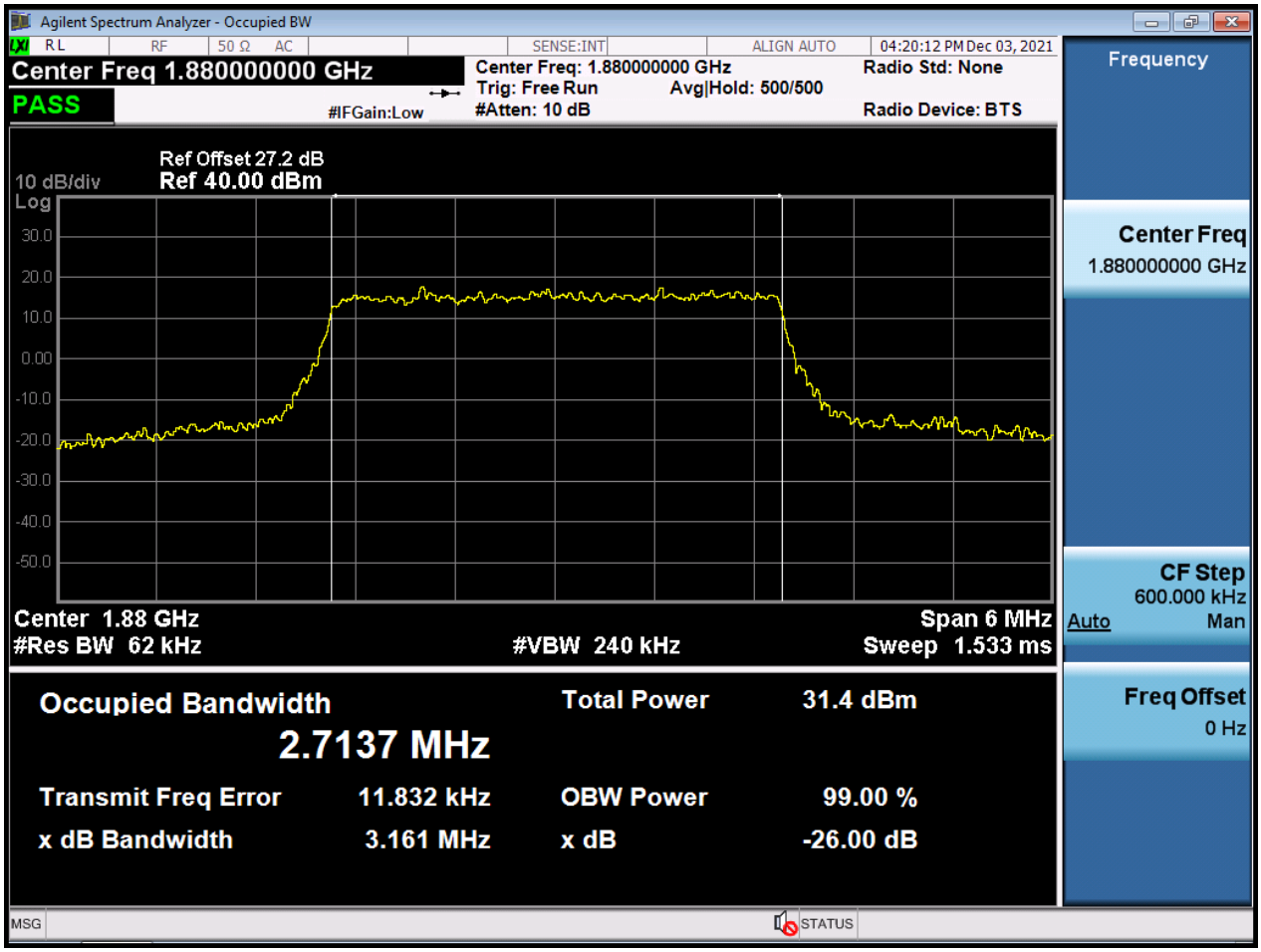
BW1.4 M_OBW_Middle Channel_64QAM_FullRB (Main1 Ant)



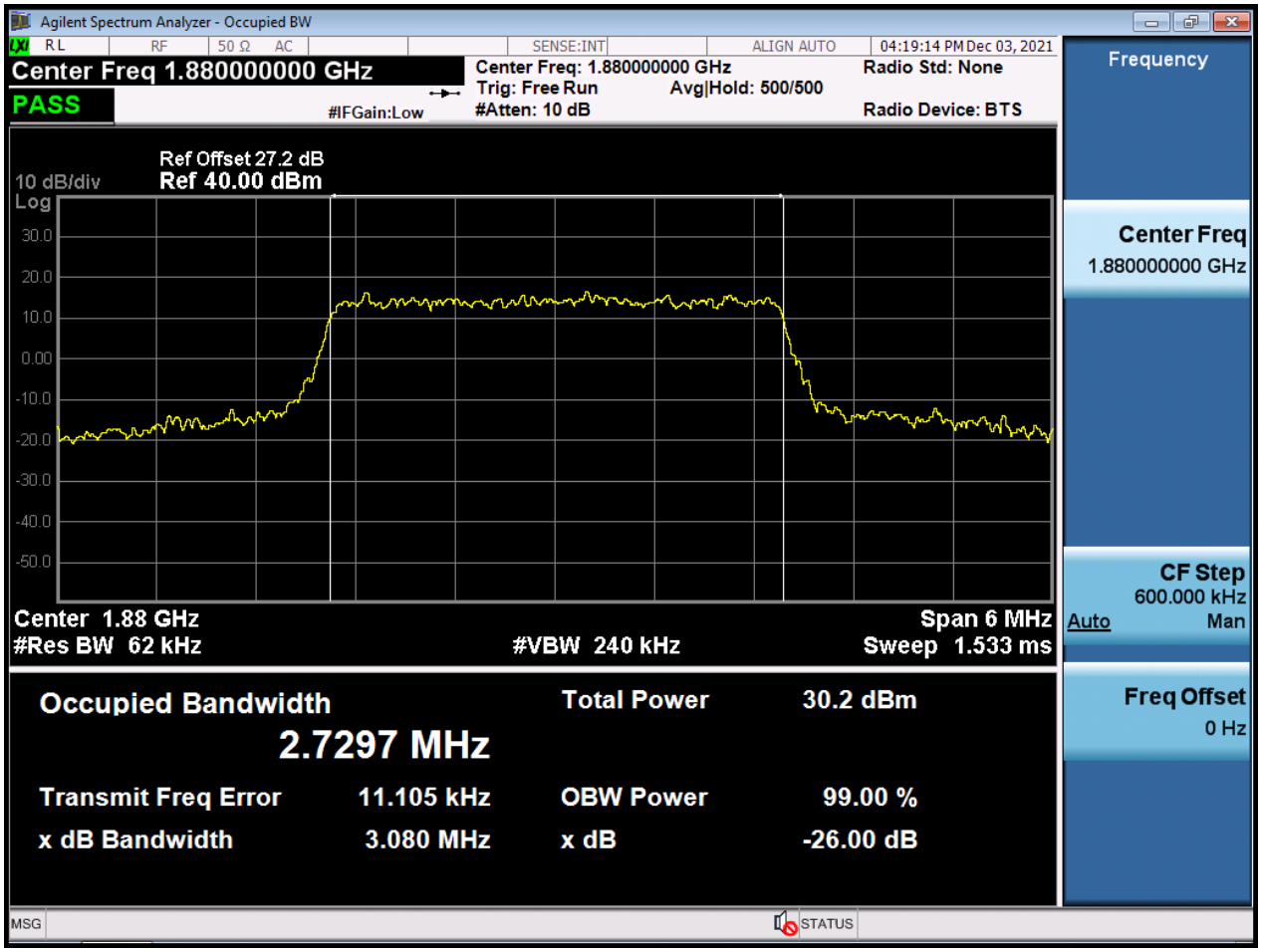
BW1.4 M_OBW_Middle Channel_256QAM_FullRB (Main1 Ant)



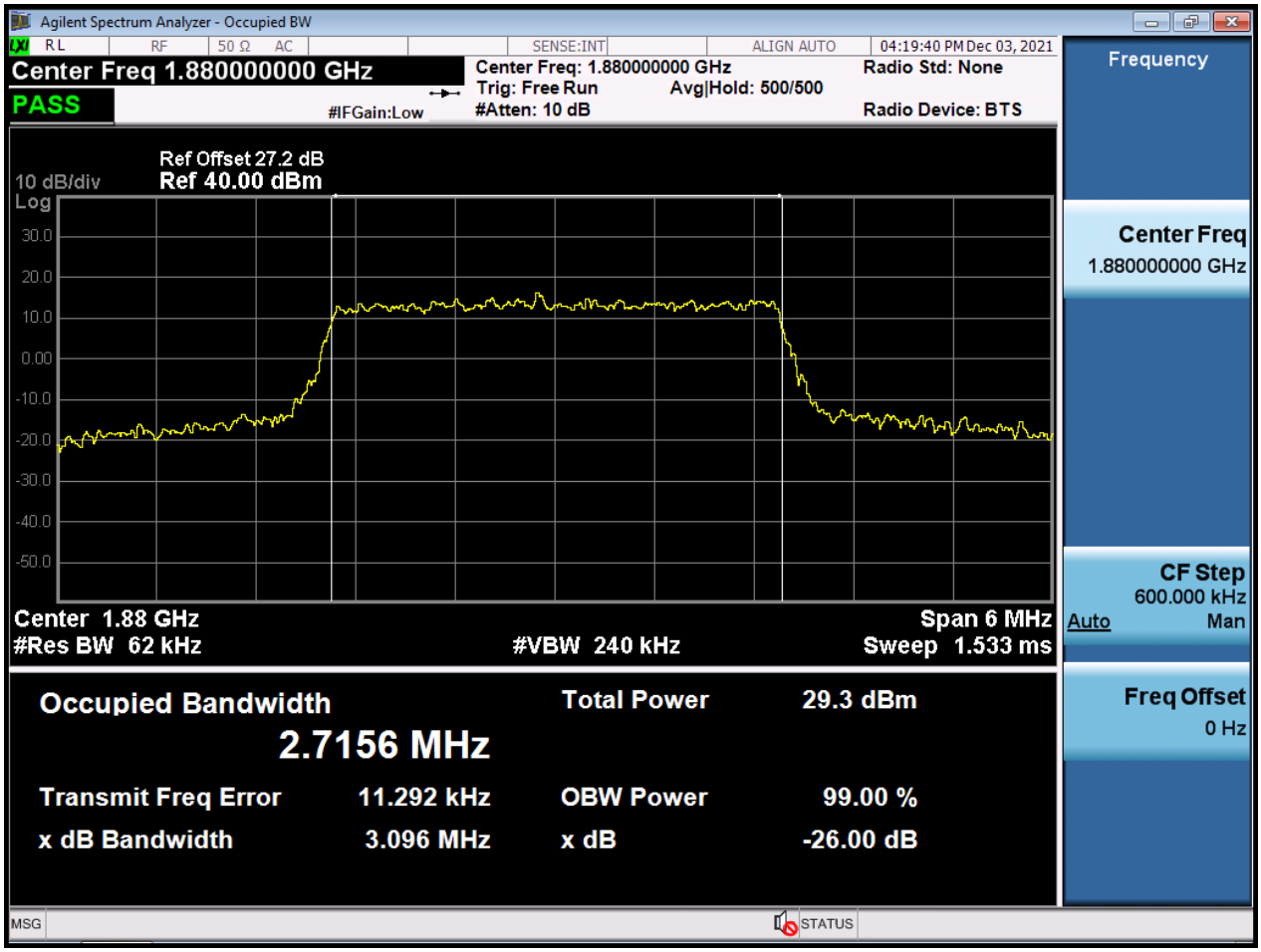
BW3 M_OBW_Middle Channel_QPSK_FullRB (Main1 Ant)



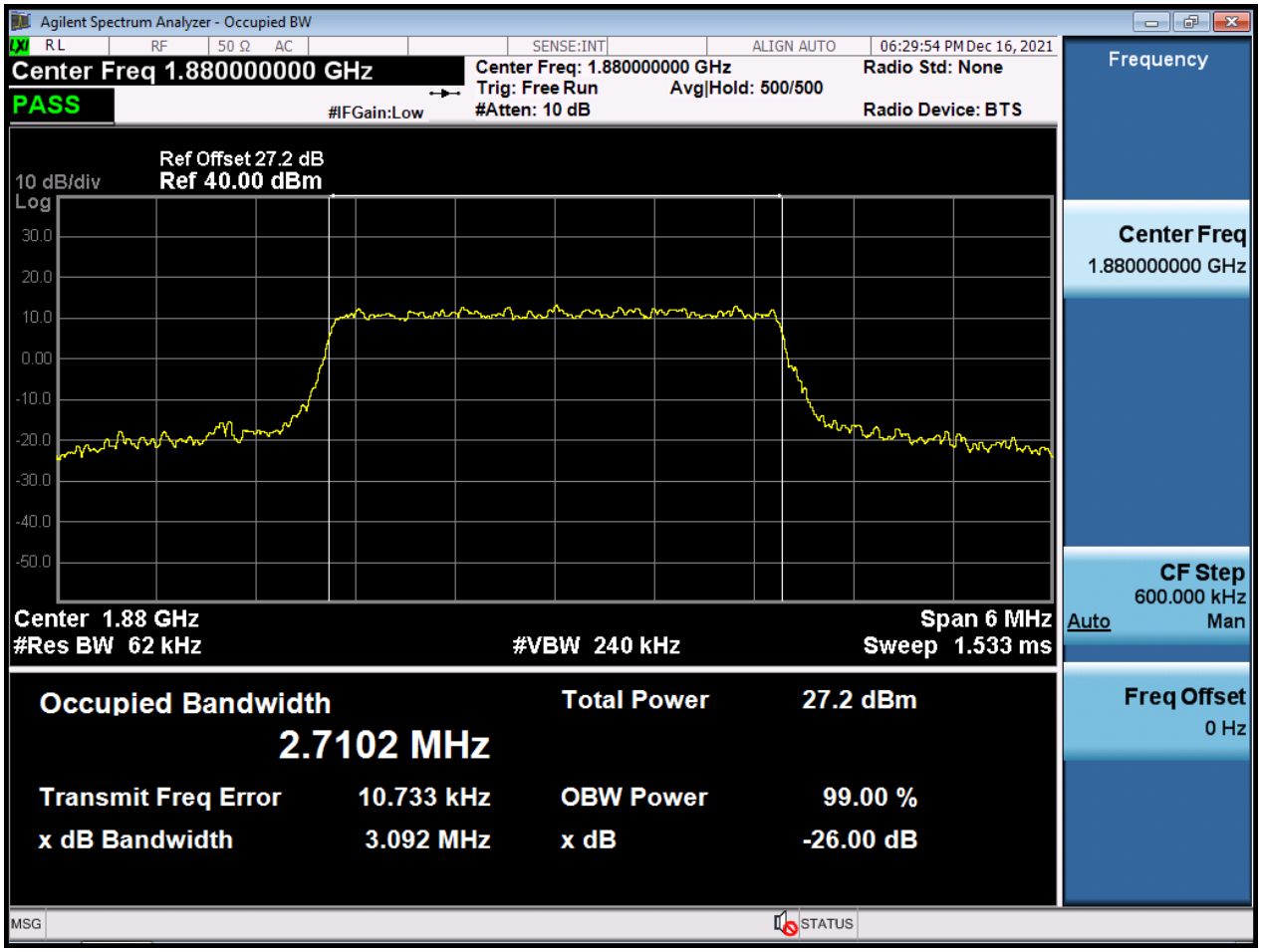
BW3 M_OBW_Middle Channel_16QAM_FullRB (Main1 Ant)



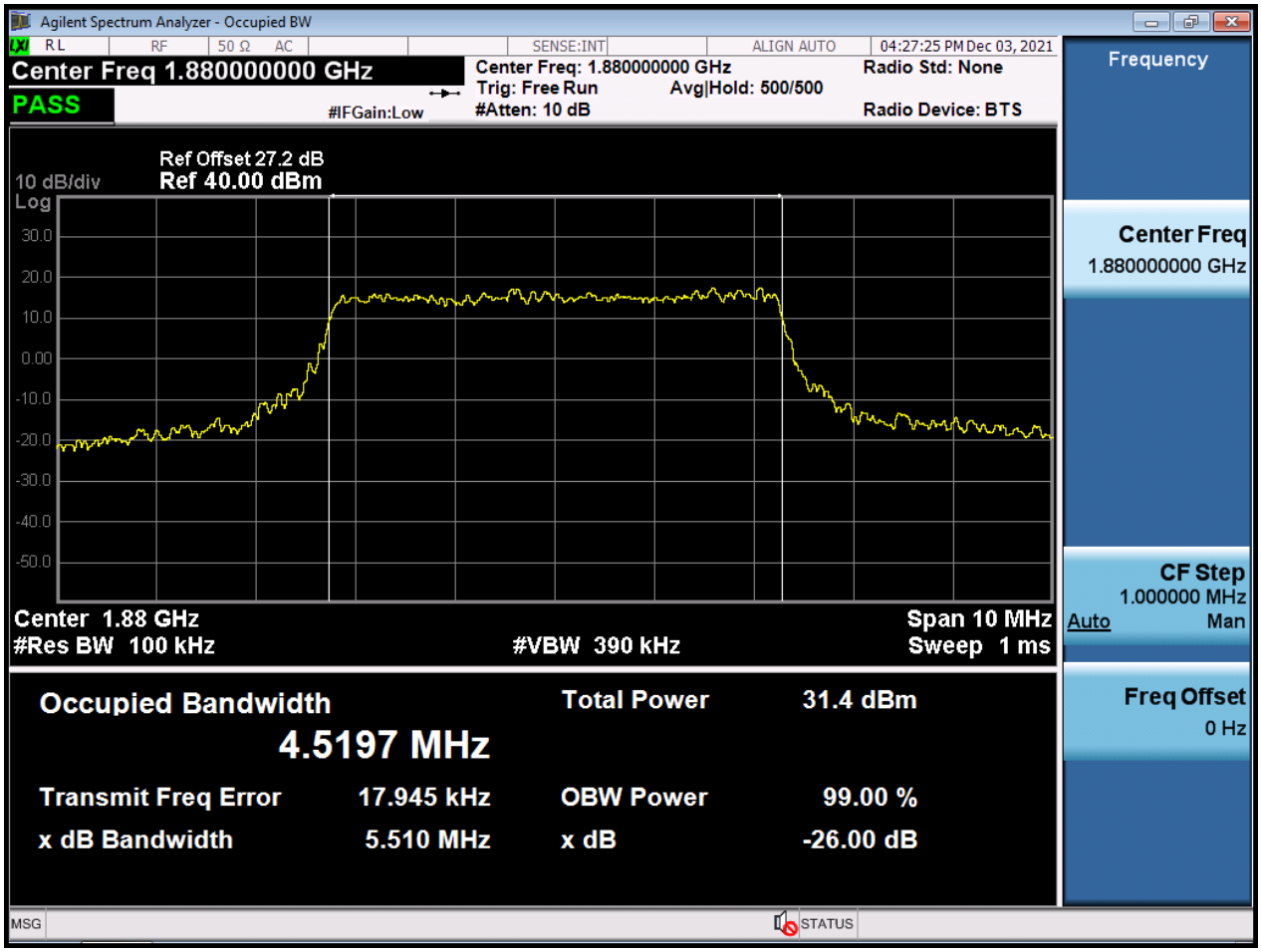
BW3 M_OBW_Middle Channel_64QAM_FullRB (Main1 Ant)



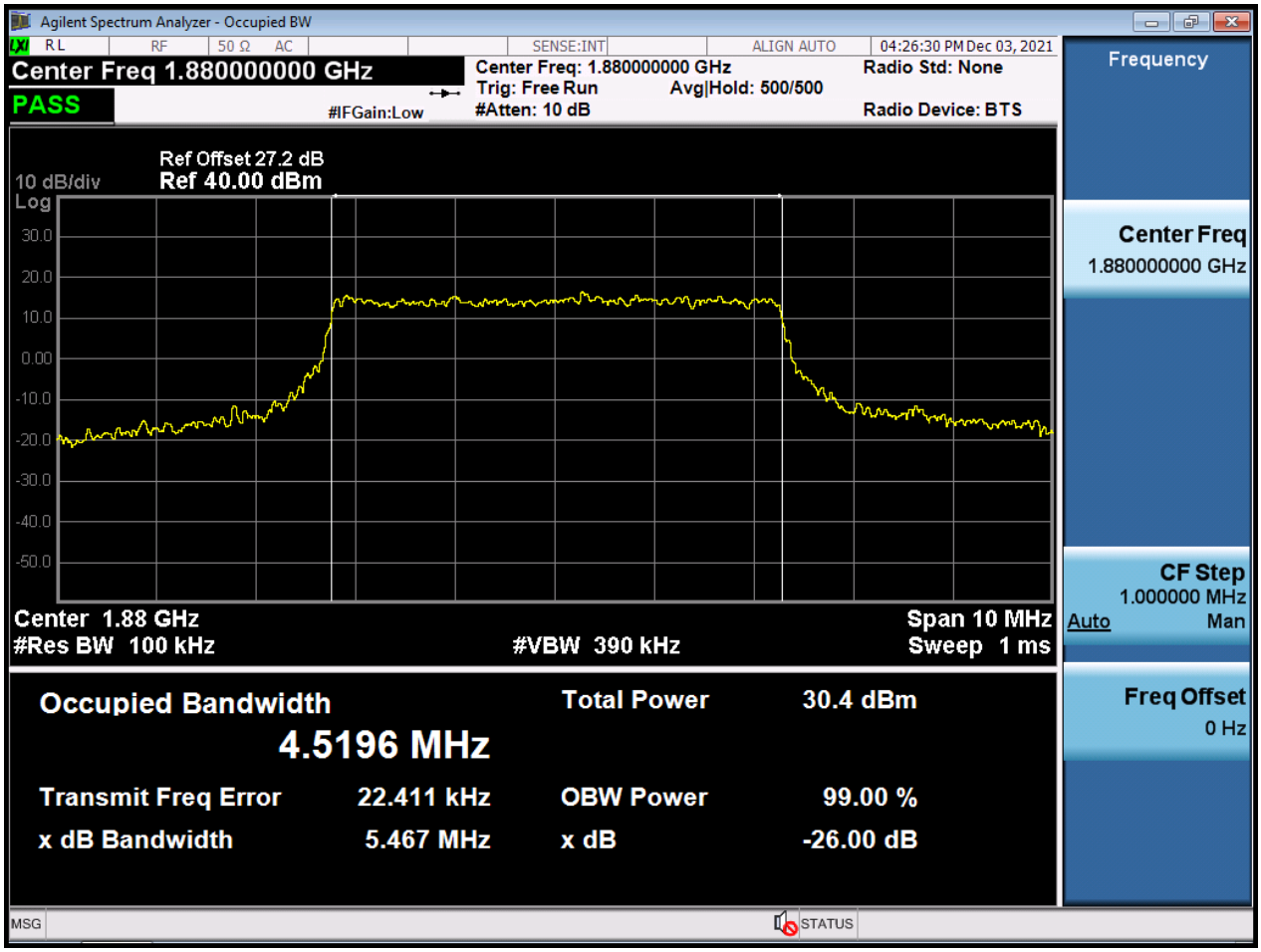
BW3 M_OBW_Middle Channel_256QAM_FullRB (Main1 Ant)



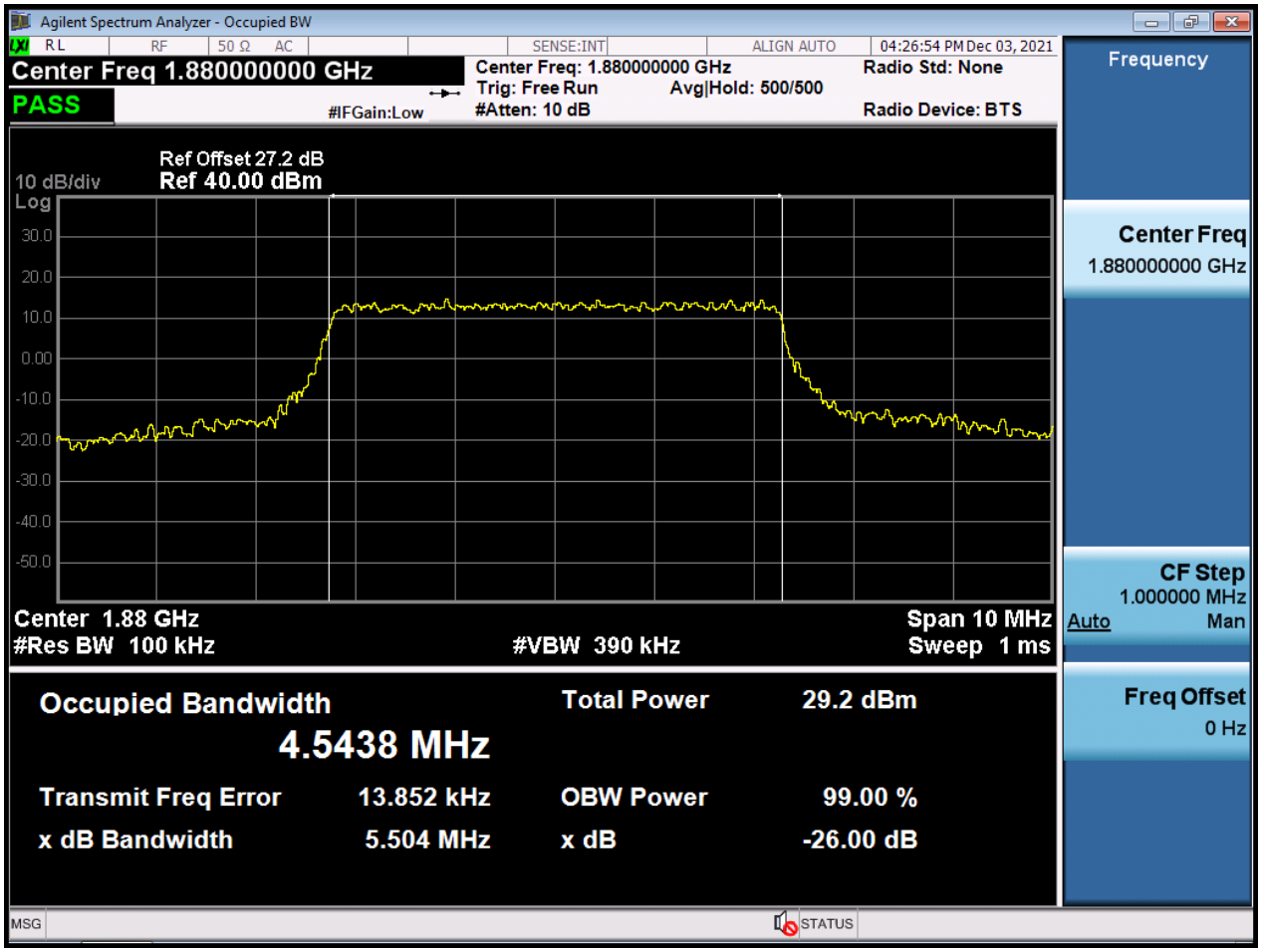
BW5 M_OBW_Middle Channel_QPSK_FullRB (Main1 Ant)



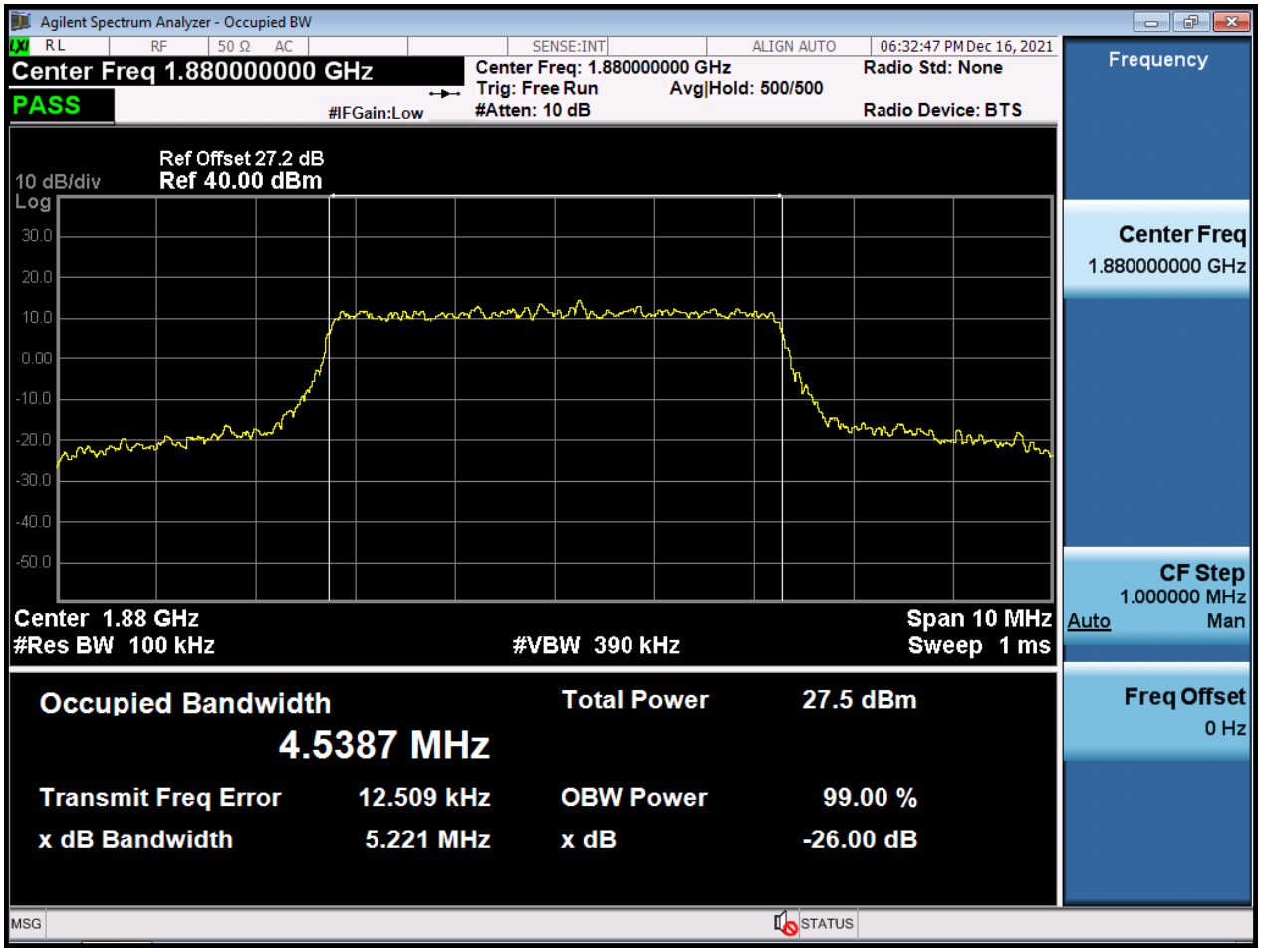
BW5 M_OBW_Middle Channel_16QAM_FullRB (Main1 Ant)



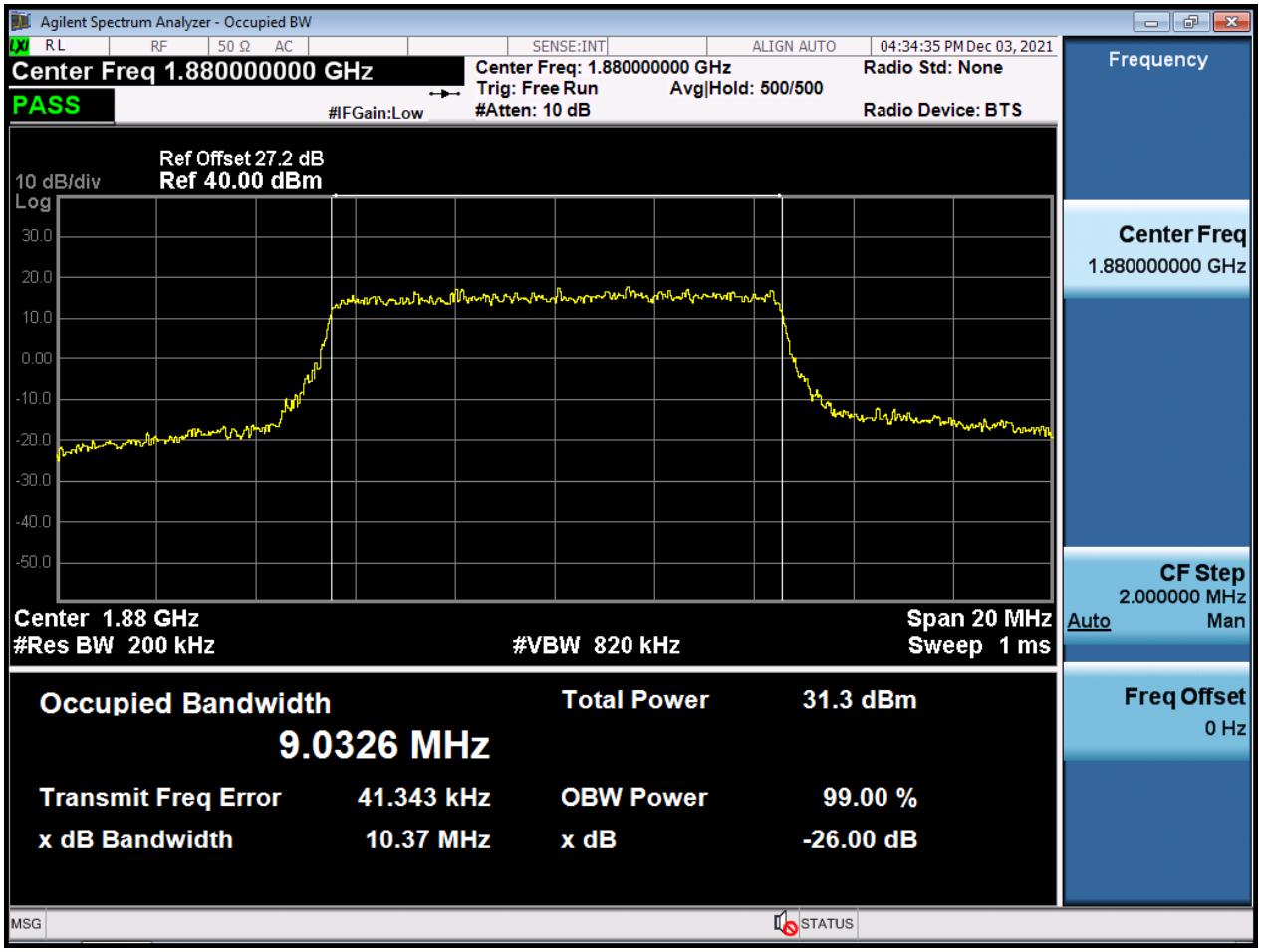
BW5 M_OBW_Middle Channel_64QAM_FullRB (Main1 Ant)



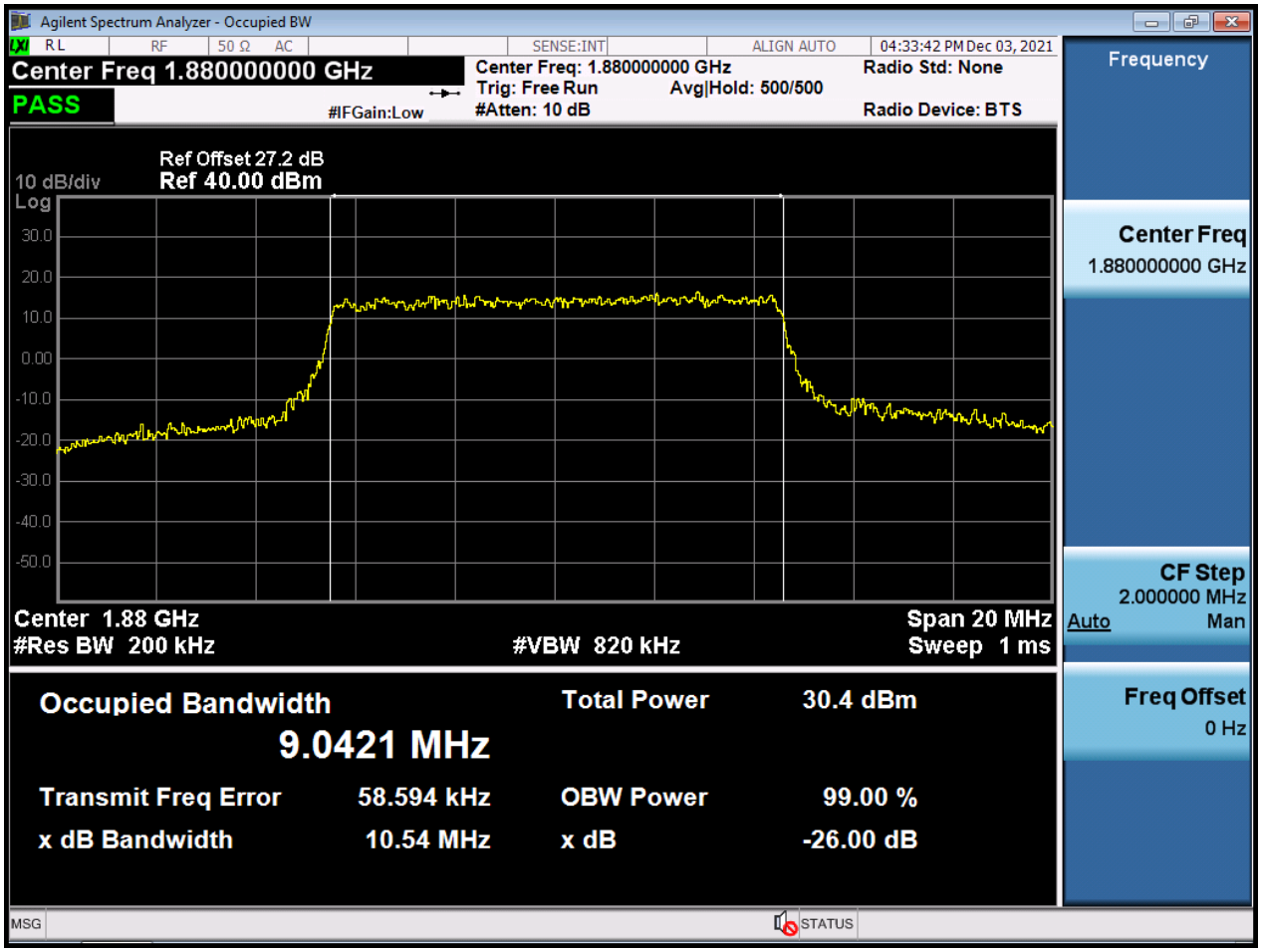
BW5 M_OBW_Middle Channel_256QAM_FullRB (Main1 Ant)



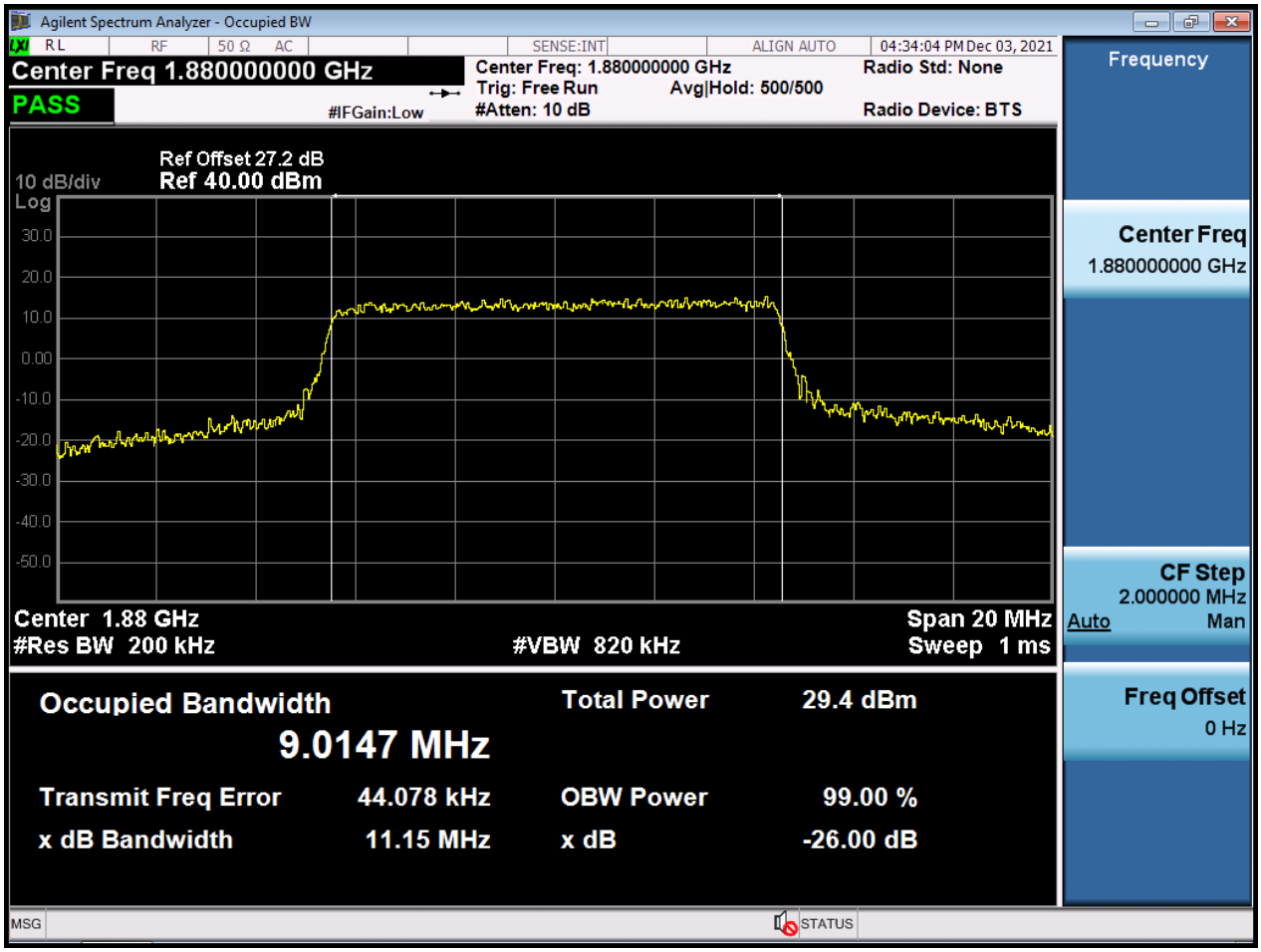
BW10 M_OBW_Middle Channel_QPSK_FullRB (Main1 Ant)



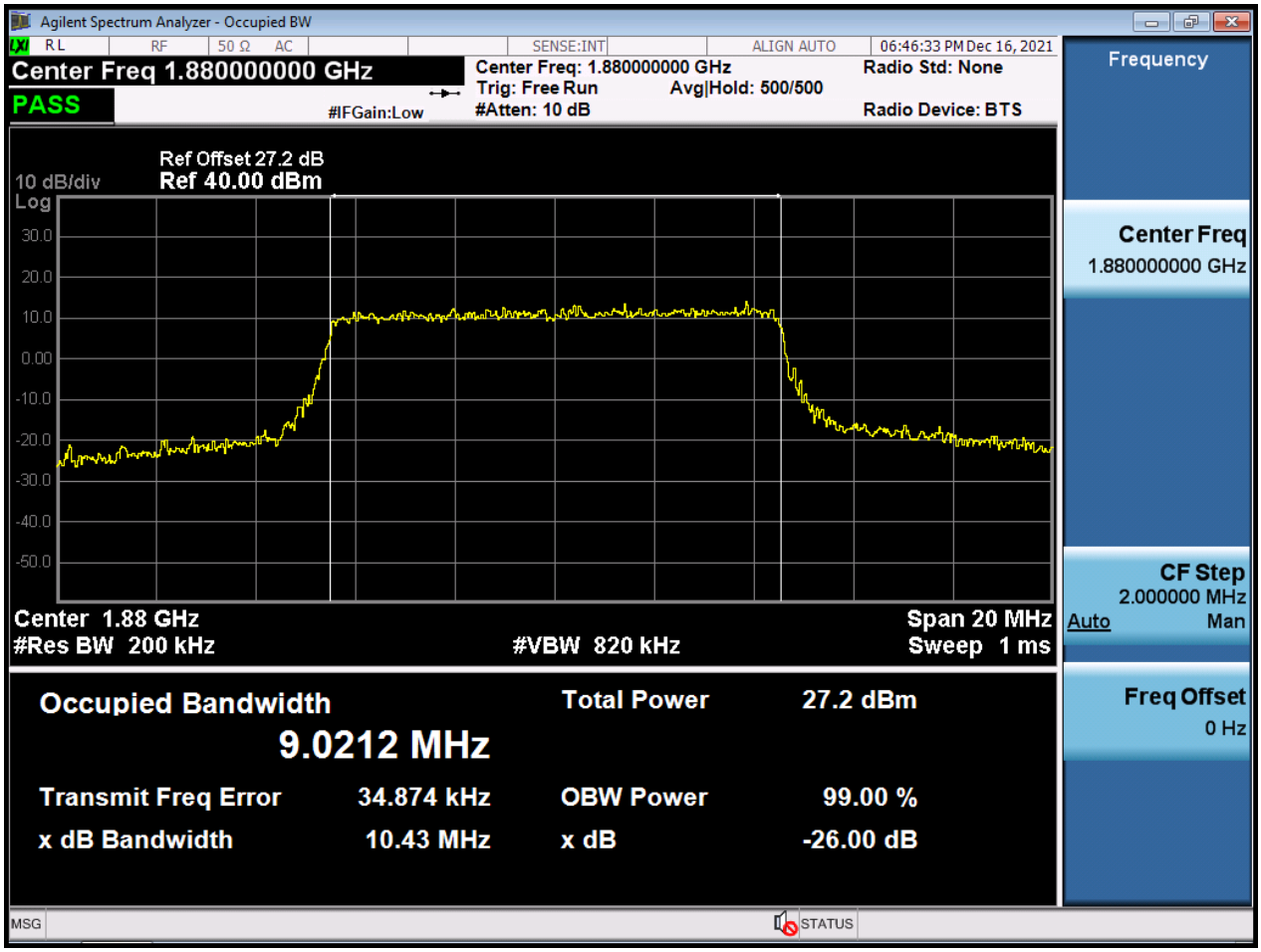
BW10 M_OBW_Middle Channel_16QAM_FullRB (Main1 Ant)



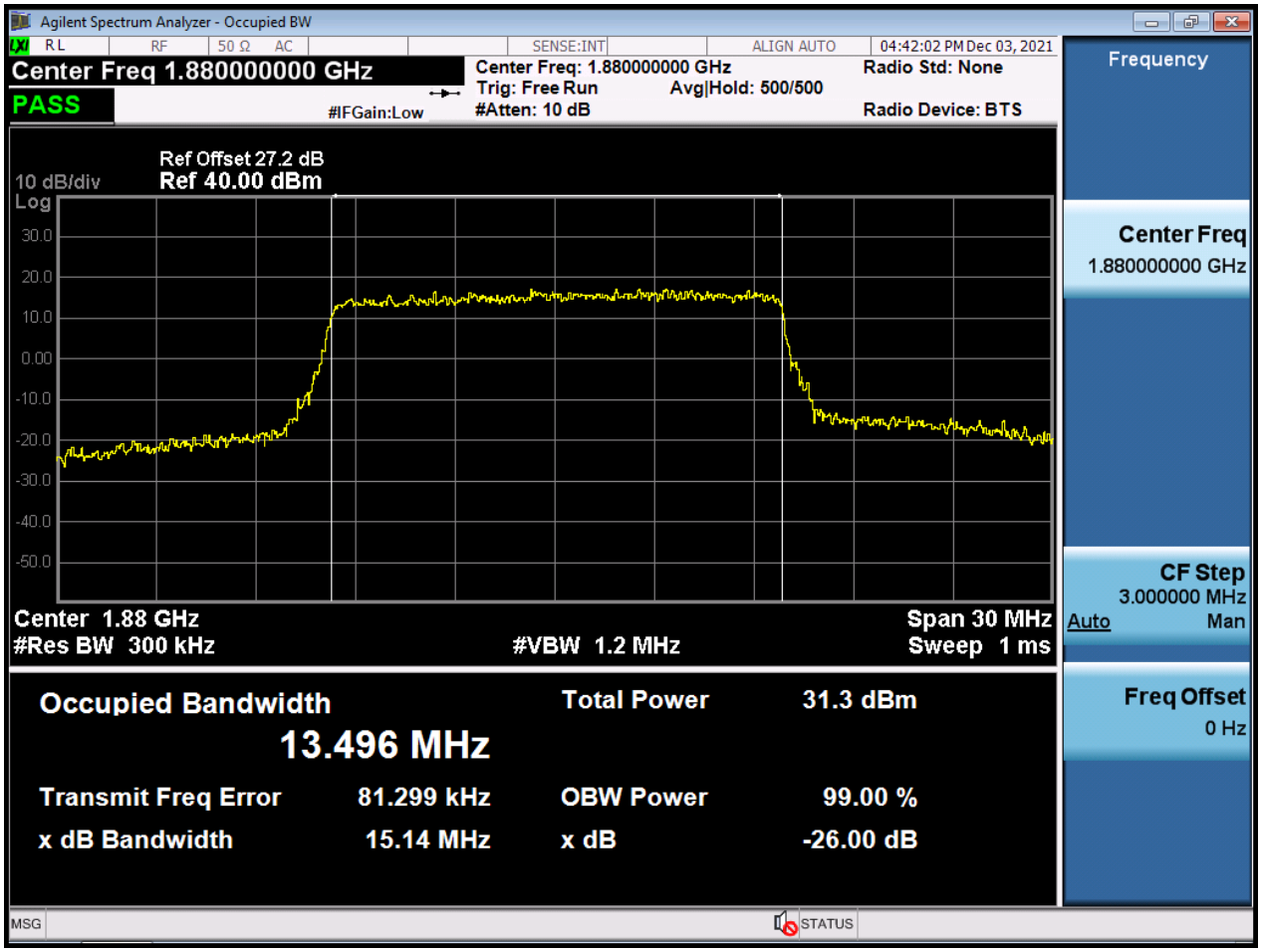
BW10 M_OBW_Middle Channel_64QAM_FullRB (Main1 Ant)



BW10 M_OBW_Middle Channel_256QAM_FullRB (Main1 Ant)



BW15 M_OBW_Middle Channel_QPSK_FullRB (Main1 Ant)



BW15 M_OBW_Middle Channel_16QAM_FullRB (Main1 Ant)