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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:
December 03, 2021

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

Report No.: HCT-RF-2111-FC016-R1

FCC ID:	**A3LSMX706B**
APPLICANT:	**SAMSUNG Electronics Co., Ltd.**

Model(s): SM-X706B
EUT Type: Tablet
FCC Classification: PCS Licensed Transmitter (PCB)
FCC Rule Part(s): §27, §2

-Lower Ant-

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max. Power (W)	Max. Power (dBm)
LTE – Band66/4 (1.4)	1710.7 – 1779.3	1M12G7D	QPSK	0.043	16.34
		1M12W7D	16QAM	0.035	15.41
		1M13W7D	64QAM	0.028	14.51
		1M13W7D	256QAM	0.016	12.14
LTE – Band66/4 (3)	1711.5 – 1778.5	2M77G7D	QPSK	0.045	16.49
		2M78W7D	16QAM	0.036	15.59
		2M77W7D	64QAM	0.029	14.68
		2M80W7D	256QAM	0.016	11.89
LTE – Band66/4 (5)	1712.5 – 1777.5	4M52G7D	QPSK	0.042	16.22
		4M52W7D	16QAM	0.034	15.25
		4M51W7D	64QAM	0.027	14.37
		4M51W7D	256QAM	0.015	11.72
LTE – Band66/4 (10)	1715.0 – 1775.0	8M99G7D	QPSK	0.046	16.59
		9M00W7D	16QAM	0.036	15.57
		9M00W7D	64QAM	0.029	14.63
		9M03W7D	256QAM	0.016	12.14
LTE – Band66/4 (15)	1717.5 – 1772.5	13M5G7D	QPSK	0.047	16.69
		13M5W7D	16QAM	0.037	15.64
		13M5W7D	64QAM	0.030	14.74
		13M5W7D	256QAM	0.018	12.54
LTE – Band66/4 (20)	1720.0 – 1770.0	17M9G7D	QPSK	0.044	16.39
		18M0W7D	16QAM	0.035	15.42
		17M9W7D	64QAM	0.028	14.54
		17M9W7D	256QAM	0.017	12.21

-Upper Ant-

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max. Power (W)	Max. Power (dBm)
LTE – Band66/4 (1.4)	1710.7 – 1779.3	1M11G7D	QPSK	0.321	25.06
		1M10W7D	16QAM	0.269	24.30
		1M10W7D	64QAM	0.210	23.22
		1M11W7D	256QAM	0.104	20.16
LTE – Band66/4 (3)	1711.5 – 1778.5	2M71G7D	QPSK	0.331	25.19
		2M72W7D	16QAM	0.275	24.39
		2M72W7D	64QAM	0.216	23.34
		2M72W7D	256QAM	0.107	20.28
LTE – Band66/4 (5)	1712.5 – 1777.5	4M52G7D	QPSK	0.337	25.27
		4M52W7D	16QAM	0.280	24.47
		4M52W7D	64QAM	0.219	23.40
		4M52W7D	256QAM	0.109	20.35
LTE – Band66/4 (10)	1715.0 – 1775.0	9M01G7D	QPSK	0.308	24.89
		8M99W7D	16QAM	0.258	24.12
		9M02W7D	64QAM	0.199	22.98
		9M00W7D	256QAM	0.099	19.95
LTE – Band66/4 (15)	1717.5 – 1772.5	13M5G7D	QPSK	0.313	24.96
		13M5W7D	16QAM	0.258	24.11
		13M5W7D	64QAM	0.204	23.09
		13M5W7D	256QAM	0.098	19.89
LTE – Band66/4 (20)	1720.0 – 1770.0	17M9G7D	QPSK	0.316	24.99
		18M0W7D	16QAM	0.258	24.12
		18M0W7D	64QAM	0.201	23.04
		18M0W7D	256QAM	0.096	19.82

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-2111-FC016	November 24, 2021	- First Approval Report
HCT-RF-2111-FC016-R1	December 03, 2021	- Revised the 3.9 & 3.10 Section. - Revised the 8.1 Section. (Limit)

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:	A3LSMX706B
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§27, §2
EUT Type:	Tablet
Model(s):	SM-X706B
Tx Frequency:	1710.7 MHz – 1779.3 MHz (LTE – Band 66/4 (1.4 MHz)) 1711.5 MHz – 1778.5 MHz (LTE – Band 66/4 (3 MHz)) 1712.5 MHz – 1777.5 MHz (LTE – Band 66/4 (5 MHz)) 1715.0 MHz – 1775.0 MHz (LTE – Band 66/4 (10 MHz)) 1717.5 MHz – 1772.5 MHz (LTE – Band 66/4 (15 MHz)) 1720.0 MHz – 1770.0 MHz (LTE – Band 66/4 (20 MHz))
Date(s) of Tests:	October 13, 2021 ~ November 23, 2021
Serial number:	Radiated: R32R8004GXB (Upper Ant), R32R8004GSL (Lower Ant) Conducted: R32R800560N (Upper Ant), R3CR800560N (Lower Ant)

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

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

It also supports IEEE 802.11 a/b/g/n/ac/ax (20/40/80/160), WIFI 6E, Bluetooth, BT LE, WPC.

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;

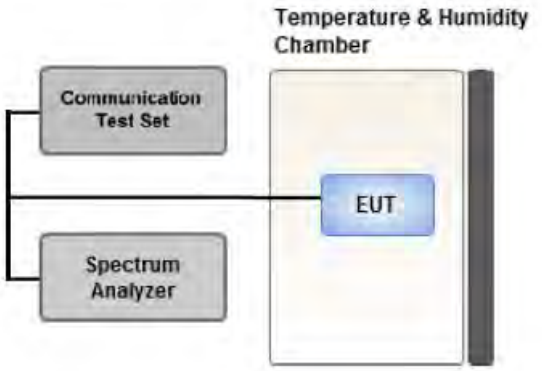
$$\text{Result}_{(dBm)} = \text{Pg}_{(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dBi)}$$

   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.

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

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)

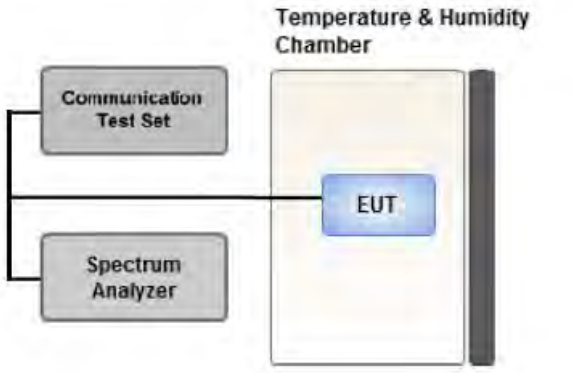
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW ≥ 3 × RBW.

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.

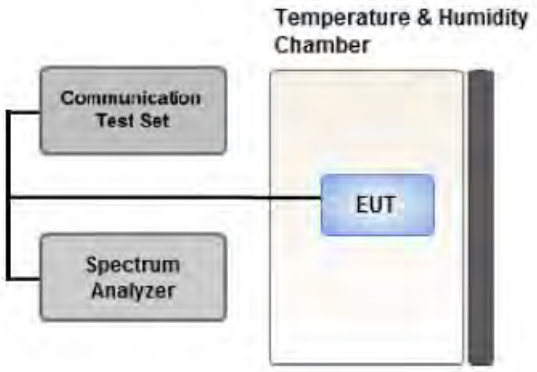
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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

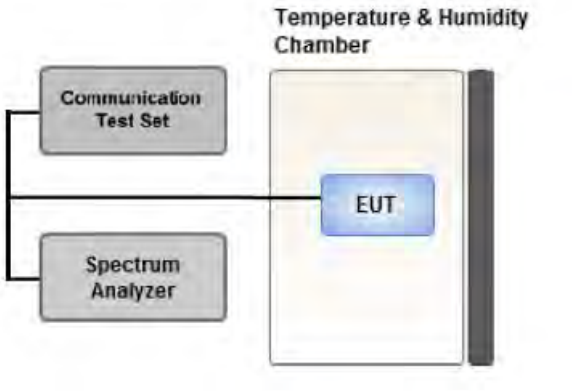
Test Overview

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 x Span / RBW

3.7 BAND EDGE



Test setup

Test Overview

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

Test Settings

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

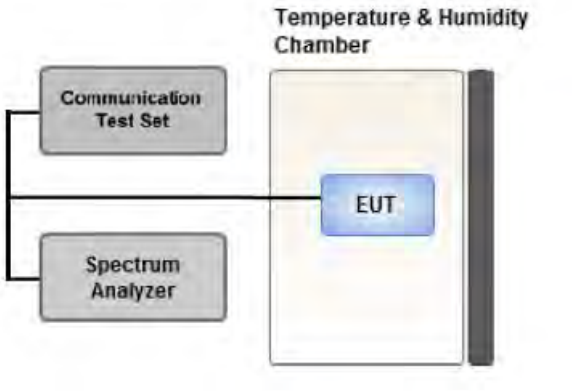
Test Notes

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.
- In the case of radiated spurious emissions, all bandwidth of operation were investigated and the worst case bandwidth results are reported. (Worst case : 15 MHz(Lower Ant),5 MHz(Upper Ant))
- The worst case is reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the test data.
- Please refer to the table below.
- The test results below, the lower antenna is the Sub1 antenna, and the upper antenna is the Main 1 antenna.
- LTE Band 66 (1710 – 1780 MHz) overlaps the entire frequency range of LTE Band 4 (1710 - 1755 MHz) and they have the same Tune-up power.

Therefore, test data provided in this report covers Band 4 as well as Band 66.

- All modes of operation were investigated and the worst case configuration results are reported.
  Mode : Stand alone, Stand alone + External accessories (Earphone, Keyboard, AC adapter, etc)
  Worst case : Stand alone

[Lower 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	X

[Upper Ant Worst case]

Test Description	Modulation	Bandwidth (MHz)	RB size	RB offset	Axis
Effective Isotropic Radiated Power	QPSK, 16QAM, 64QAM, 256QAM	1.4	1	5	X
		3	1	14	
		5	1	24	
		10	1	59	
		15	1	74	
		20	1	99	
Radiated Spurious and Harmonic Emissions	QPSK	5	1	24	Z

3.10 WORST CASE(CONDUCTED TEST)

- All modes of operation were investigated and the worst case configuration results are reported.
- The test results below, the lower antenna is the Sub1 antenna, and the upper antenna is the Main 1 antenna.
- LTE Band 66 (1710 – 1780 MHz) overlaps the entire frequency range of LTE Band 4 (1710 - 1755 MHz) and they have the same Tune-up power.

Therefore, test data provided in this report covers Band 4 as well as Band 66.

[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

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, §27.53(h)	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions	PASS
Conducted Output Power	§2.1046	N/A	**See Note1**
Peak- to- Average Ratio	27.50(d)(5)	< 13 dB	PASS
Frequency stability / variation of ambient temperature	§2.1055, § 27.54	Emission must remain in band	PASS

Note:

1. See SAR Report

6.2 Test Condition : Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Equivalent Isotropic Radiated Power	27.50(d)(4)	< 1 Watts max. EIRP	PASS
Radiated Spurious and Harmonic Emissions	§2.1053, §27.53(h)	< 43 + 10log10 (P[Watts]) for all out-of band emissions	PASS

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
132322	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 Lower Ant

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1710.7	LTE B66/ B4 1.4 MHz	QPSK	-25.31	7.55	9.76	2.08	V	< 1.00	0.033	15.23
		16-QAM	-26.34	6.52	9.76	2.08	V		0.026	14.20
		64-QAM	-27.24	5.62	9.76	2.08	V		0.021	13.30
		256-QAM	-30.19	2.67	9.76	2.08	V		0.011	10.35
1745.0		QPSK	-25.25	7.88	9.97	1.99	V		0.039	15.86
		16-QAM	-26.23	6.90	9.97	1.99	V		0.031	14.88
		64-QAM	-27.14	5.99	9.97	1.99	V		0.025	13.97
		256-QAM	-30.07	3.06	9.97	1.99	V		0.013	11.04
1779.3		QPSK	-24.77	8.37	10.12	2.15	V		0.043	16.34
		16-QAM	-25.70	7.44	10.12	2.15	V		0.035	15.41
		64-QAM	-26.60	6.54	10.12	2.15	V		0.028	14.51
		256-QAM	-28.97	4.17	10.12	2.15	V		0.016	12.14

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1711.5	LTE B66/ B4 3 MHz	QPSK	-25.17	7.69	9.76	2.08	V	< 1.00	0.035	15.37
		16-QAM	-26.10	6.76	9.76	2.08	V		0.028	14.44
		64-QAM	-27.03	5.83	9.76	2.08	V		0.023	13.51
		256-QAM	-29.98	2.88	9.76	2.08	V		0.011	10.56
1745.0		QPSK	-25.22	7.91	9.97	1.99	V		0.039	15.89
		16-QAM	-26.24	6.89	9.97	1.99	V		0.031	14.87
		64-QAM	-27.15	5.98	9.97	1.99	V		0.025	13.96
		256-QAM	-30.04	3.09	9.97	1.99	V		0.013	11.07
1778.5		QPSK	-24.62	8.52	10.12	2.15	V		0.045	16.49
		16-QAM	-25.52	7.62	10.12	2.15	V		0.036	15.59
		64-QAM	-26.43	6.71	10.12	2.15	V		0.029	14.68
		256-QAM	-29.22	3.92	10.12	2.15	V		0.016	11.89

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1712.5	LTE B66/ B4 5 MHz	QPSK	-25.00	7.86	9.76	2.08	V	< 1.00	0.036	15.54
		16-QAM	-26.03	6.83	9.76	2.08	V		0.028	14.51
		64-QAM	-26.95	5.91	9.76	2.08	V		0.023	13.59
		256-QAM	-29.87	2.99	9.76	2.08	V		0.012	10.67
1745.0		QPSK	-25.35	7.78	9.97	1.99	V		0.038	15.76
		16-QAM	-26.31	6.82	9.97	1.99	V		0.030	14.80
		64-QAM	-27.19	5.94	9.97	1.99	V		0.025	13.92
		256-QAM	-29.57	3.56	9.97	1.99	V		0.014	11.54
1777.5		QPSK	-24.89	8.25	10.12	2.15	V		0.042	16.22
		16-QAM	-25.86	7.28	10.12	2.15	V		0.034	15.25
		64-QAM	-26.74	6.40	10.12	2.15	V		0.027	14.37
		256-QAM	-29.39	3.75	10.12	2.15	V		0.015	11.72

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1715.0	LTE B66/ B4 10 MHz	QPSK	-25.27	7.75	9.79	2.07	V	< 1.00	0.035	15.47
		16-QAM	-26.24	6.78	9.79	2.07	V		0.028	14.50
		64-QAM	-27.14	5.88	9.79	2.07	V		0.023	13.60
		256-QAM	-30.08	2.94	9.79	2.07	V		0.012	10.66
1745.0		QPSK	-25.39	7.74	9.97	1.99	V		0.037	15.72
		16-QAM	-26.37	6.76	9.97	1.99	V		0.030	14.74
		64-QAM	-27.28	5.85	9.97	1.99	V		0.024	13.83
		256-QAM	-30.20	2.93	9.97	1.99	V		0.012	10.91
1775.0		QPSK	-24.60	8.63	10.10	2.14	V		0.046	16.59
		16-QAM	-25.62	7.61	10.10	2.14	V		0.036	15.57
		64-QAM	-26.56	6.67	10.10	2.14	V		0.029	14.63
		256-QAM	-29.05	4.18	10.10	2.14	V		0.016	12.14

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1717.5	LTE B66/ B4 15 MHz	QPSK	-25.20	7.79	9.82	2.07	V	< 1.00	0.036	15.54
		16-QAM	-26.34	6.65	9.82	2.07	V		0.028	14.40
		64-QAM	-27.30	5.69	9.82	2.07	V		0.022	13.44
		256-QAM	-30.22	2.77	9.82	2.07	V		0.011	10.52
1745.0		QPSK	-25.55	7.58	9.97	1.99	V		0.036	15.56
		16-QAM	-26.65	6.48	9.97	1.99	V		0.028	14.46
		64-QAM	-27.53	5.60	9.97	1.99	V		0.023	13.58
		256-QAM	-30.02	3.11	9.97	1.99	V		0.013	11.09
1772.5		QPSK	-24.58	8.74	10.08	2.13	V		0.047	16.69
		16-QAM	-25.63	7.69	10.08	2.13	V		0.037	15.64
		64-QAM	-26.53	6.79	10.08	2.13	V		0.030	14.74
		256-QAM	-28.73	4.59	10.08	2.13	V		0.018	12.54

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1720.0	LTE B66/ B4 20 MHz	QPSK	-25.30	7.87	9.82	2.05	V	< 1.00	0.037	15.64
		16-QAM	-26.50	6.67	9.82	2.05	V		0.028	14.44
		64-QAM	-27.38	5.79	9.82	2.05	V		0.023	13.56
		256-QAM	-29.80	3.37	9.82	2.05	V		0.013	11.14
1745.0		QPSK	-25.32	7.81	9.97	1.99	V		0.038	15.79
		16-QAM	-26.35	6.78	9.97	1.99	V		0.030	14.76
		64-QAM	-27.24	5.89	9.97	1.99	V		0.024	13.87
		256-QAM	-29.70	3.43	9.97	1.99	V		0.014	11.41
1770.0		QPSK	-24.88	8.44	10.08	2.13	V		0.044	16.39
		16-QAM	-25.85	7.47	10.08	2.13	V		0.035	15.42
		64-QAM	-26.73	6.59	10.08	2.13	V		0.028	14.54
		256-QAM	-29.06	4.26	10.08	2.13	V		0.017	12.21

8.1.2 Upper Ant

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1710.7	LTE B66/ B4 1.4 MHz	QPSK	-18.94	14.85	10.04	2.05	H	< 1.00	0.192	22.84
		16-QAM	-19.73	14.06	10.04	2.05	H		0.160	22.05
		64-QAM	-20.81	12.98	10.04	2.05	H		0.125	20.97
		256-QAM	-23.89	9.90	10.04	2.05	H		0.062	17.89
1745.0		QPSK	-17.25	16.47	10.18	2.06	H		0.288	24.59
		16-QAM	-18.01	15.71	10.18	2.06	H		0.242	23.83
		64-QAM	-19.10	14.62	10.18	2.06	H		0.188	22.74
		256-QAM	-22.15	11.57	10.18	2.06	H		0.093	19.69
1779.3		QPSK	-16.81	16.87	10.26	2.07	H		0.321	25.06
		16-QAM	-17.57	16.11	10.26	2.07	H		0.269	24.30
		64-QAM	-18.65	15.03	10.26	2.07	H		0.210	23.22
		256-QAM	-21.71	11.97	10.26	2.07	H		0.104	20.16

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1711.5	LTE B66/ B4 3 MHz	QPSK	-18.91	14.88	10.04	2.05	H	< 1.00	0.193	22.87
		16-QAM	-19.63	14.16	10.04	2.05	H		0.164	22.15
		64-QAM	-20.70	13.09	10.04	2.05	H		0.128	21.08
		256-QAM	-23.77	10.02	10.04	2.05	H		0.063	18.01
1745.0		QPSK	-17.17	16.55	10.18	2.06	H		0.293	24.67
		16-QAM	-17.95	15.77	10.18	2.06	H		0.245	23.89
		64-QAM	-19.00	14.72	10.18	2.06	H		0.192	22.84
		256-QAM	-22.07	11.65	10.18	2.06	H		0.095	19.77
1778.5		QPSK	-16.68	17.00	10.26	2.07	H		0.331	25.19
		16-QAM	-17.48	16.20	10.26	2.07	H		0.275	24.39
		64-QAM	-18.53	15.15	10.26	2.07	H		0.216	23.34
		256-QAM	-21.59	12.09	10.26	2.07	H		0.107	20.28

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1712.5	LTE B66/ B4 5 MHz	QPSK	-19.10	14.69	10.04	2.05	H	< 1.00	0.185	22.68
		16-QAM	-19.91	13.88	10.04	2.05	H		0.154	21.87
		64-QAM	-20.97	12.82	10.04	2.05	H		0.120	20.81
		256-QAM	-24.05	9.74	10.04	2.05	H		0.059	17.73
1745.0		QPSK	-17.37	16.35	10.18	2.06	H		0.280	24.47
		16-QAM	-18.16	15.56	10.18	2.06	H		0.233	23.68
		64-QAM	-19.24	14.48	10.18	2.06	H		0.182	22.60
		256-QAM	-22.27	11.45	10.18	2.06	H		0.091	19.57
1777.5		QPSK	-16.60	17.08	10.26	2.07	H		0.337	25.27
		16-QAM	-17.40	16.28	10.26	2.07	H		0.280	24.47
		64-QAM	-18.47	15.21	10.26	2.07	H		0.219	23.40
		256-QAM	-21.52	12.16	10.26	2.07	H		0.109	20.35

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1715.0	LTE B66/ B4 10 MHz	QPSK	-18.58	15.17	10.06	2.05	H	< 1.00	0.208	23.18
		16-QAM	-19.36	14.39	10.06	2.05	H		0.174	22.40
		64-QAM	-20.43	13.32	10.06	2.05	H		0.136	21.33
		256-QAM	-23.52	10.23	10.06	2.05	H		0.067	18.24
1745.0		QPSK	-17.22	16.50	10.18	2.06	H		0.290	24.62
		16-QAM	-18.01	15.71	10.18	2.06	H		0.242	23.83
		64-QAM	-19.11	14.61	10.18	2.06	H		0.187	22.73
		256-QAM	-22.13	11.59	10.18	2.06	H		0.094	19.71
1775.0		QPSK	-16.98	16.71	10.25	2.07	H		0.308	24.89
		16-QAM	-17.75	15.94	10.25	2.07	H		0.258	24.12
		64-QAM	-18.89	14.80	10.25	2.07	H		0.199	22.98
		256-QAM	-21.92	11.77	10.25	2.07	H		0.099	19.95

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1717.5	LTE B66/ B4 15 MHz	QPSK	-18.39	15.32	10.08	2.05	H	< 1.00	0.216	23.35
		16-QAM	-19.23	14.48	10.08	2.05	H		0.178	22.51
		64-QAM	-20.26	13.45	10.08	2.05	H		0.141	21.48
		256-QAM	-23.35	10.36	10.08	2.05	H		0.069	18.39
1745.0		QPSK	-17.14	16.58	10.18	2.06	H		0.295	24.70
		16-QAM	-18.01	15.71	10.18	2.06	H		0.242	23.83
		64-QAM	-19.05	14.67	10.18	2.06	H		0.190	22.79
		256-QAM	-22.04	11.68	10.18	2.06	H		0.095	19.80
1772.5		QPSK	-16.90	16.79	10.24	2.07	H		0.313	24.96
		16-QAM	-17.75	15.94	10.24	2.07	H		0.258	24.11
		64-QAM	-18.77	14.92	10.24	2.07	H		0.204	23.09
		256-QAM	-21.97	11.72	10.24	2.07	H		0.098	19.89

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1720.0	LTE B66/ B4 20 MHz	QPSK	-18.26	15.45	10.08	2.05	H	< 1.00	0.223	23.48
		16-QAM	-19.07	14.64	10.08	2.05	H		0.185	22.67
		64-QAM	-20.11	13.60	10.08	2.05	H		0.146	21.63
		256-QAM	-23.16	10.55	10.08	2.05	H		0.072	18.58
1745.0		QPSK	-17.30	16.42	10.18	2.06	H		0.285	24.54
		16-QAM	-18.15	15.57	10.18	2.06	H		0.234	23.69
		64-QAM	-19.21	14.51	10.18	2.06	H		0.183	22.63
		256-QAM	-22.28	11.44	10.18	2.06	H		0.090	19.56
1770.0		QPSK	-16.87	16.82	10.24	2.07	H		0.316	24.99
		16-QAM	-17.74	15.95	10.24	2.07	H		0.258	24.12
		64-QAM	-18.82	14.87	10.24	2.07	H		0.201	23.04
		256-QAM	-22.04	11.65	10.24	2.07	H		0.096	19.82

8.2 RADIATED SPURIOUS EMISSIONS

8.2.1 Lower Ant

▣ OPERATING FREQUENCY: 1772.5 MHz

▣ MEASURED OUTPUT POWER: 16.69 dBm = 0.047 W

▣ MODE: LTE B66 / B4

▣ MODULATION SIGNAL: 15 MHz QPSK

▣ DISTANCE: 3 meters

▣ LIMIT: 43 + 10 log10 (W) = 29.69 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	dBc
132047 (1717.5)	3 435.00	-53.29	11.30	-54.03	3.05	H	-45.78	62.47
	5 152.50	-50.81	11.40	-46.08	3.66	V	-38.34	55.03
	6 870.00	-60.16	11.16	-48.74	4.50	H	-42.08	58.77
132322 (1745.0)	3 490.00	-60.72	11.46	-62.03	3.05	V	-53.62	70.30
	5 235.00	-58.19	11.57	-52.88	3.79	H	-45.10	61.79
	6 980.00	-64.42	11.16	-52.19	4.51	V	-45.54	62.23
132597 (1772.5)	3 545.00	-59.46	11.68	-61.07	3.08	V	-52.47	69.16
	5 317.50	-62.52	11.74	-57.98	3.80	V	-50.04	66.73
	7 090.00	-64.79	11.04	-50.67	4.46	V	-44.09	60.78

8.2.2 Upper Ant

▣ OPERATING FREQUENCY: 1777.5 MHz

▣ MEASURED OUTPUT POWER: 25.27 dBm = 0.337 W

▣ MODE: LTE B66 / B4

▣ MODULATION SIGNAL: 5 MHz QPSK

▣ DISTANCE: 3 meters

▣ LIMIT: 43 + 10 log10 (W) = 38.27 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	dBc
131997 (1712.5)	3 425.00	-54.54	12.55	-61.13	2.96	V	-51.53	76.80
	5 137.50	-30.12	12.28	-27.44	3.66	H	-18.82	44.09
	6 850.00	-52.53	12.00	-45.80	4.25	H	-38.05	63.32
132322 (1745.0)	3 490.00	-31.22	12.42	-37.32	2.97	H	-27.87	52.93
	5 235.00	-29.97	12.71	-29.17	3.70	H	-20.15	45.21
	6 980.00	-50.92	11.52	-42.74	4.28	H	-35.50	60.56
132647 (1777.5)	3 555.00	-50.92	12.39	-56.71	3.02	V	-47.33	72.60
	5 332.50	-33.20	13.00	-32.50	3.73	V	-23.23	48.50
	7 110.00	-52.28	10.88	-43.13	4.34	V	-36.59	61.86

8.3 PEAK-TO-AVERAGE RATIO

8.3.1 Lower Ant

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
66/4	1.4 MHz	1745.0	QPSK	6	0	5.49
			16-QAM			6.24
			64-QAM			6.66
			256-QAM			7.50
	3 MHz		QPSK	15		5.38
			16-QAM			6.19
			64-QAM			6.61
			256-QAM			7.73
	5 MHz		QPSK	25		5.52
			16-QAM			6.42
			64-QAM			6.82
			256-QAM			7.07
	10 MHz		QPSK	50		5.62
			16-QAM			6.43
			64-QAM			6.81
			256-QAM			7.04
	15 MHz		QPSK	75		5.52
			16-QAM			6.35
			64-QAM			6.79
			256-QAM			7.01
	20 MHz		QPSK	100		5.42
			16-QAM			6.32
			64-QAM			6.77
			256-QAM			6.97

Note:

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

8.3.2 Upper Ant

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
66/4	1.4 MHz	1745.0	QPSK	6	0	5.12
			16-QAM			5.89
			64-QAM			6.42
			256-QAM			6.98
	3 MHz		QPSK	15		5.12
			16-QAM			5.96
			64-QAM			6.47
			256-QAM			6.89
	5 MHz		QPSK	25		5.15
			16-QAM			5.95
			64-QAM			6.43
			256-QAM			6.86
	10 MHz		QPSK	50		5.25
			16-QAM			6.00
			64-QAM			6.45
			256-QAM			6.86
	15 MHz		QPSK	75		5.23
			16-QAM			6.02
			64-QAM			6.48
			256-QAM			6.83
	20 MHz		QPSK	100		5.22
			16-QAM			6.05
			64-QAM			6.49
			256-QAM			6.85

Note:

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

8.4 OCCUPIED BANDWIDTH

8.4.1 Lower Ant

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
66/4	1.4 MHz	1745.0	QPSK	6	0	1.1197
			16-QAM			1.1214
			64-QAM			1.1295
			256-QAM			1.1310
	3 MHz		QPSK	15		2.7686
			16-QAM			2.7801
			64-QAM			2.7740
			256-QAM			2.8037
	5 MHz		QPSK	25		4.5179
			16-QAM			4.5190
			64-QAM			4.5143
			256-QAM			4.5142
	10 MHz		QPSK	50		8.9854
			16-QAM			9.0018
			64-QAM			9.0000
			256-QAM			9.0265
	15 MHz		QPSK	75		13.487
			16-QAM			13.491
			64-QAM			13.483
			256-QAM			13.485
	20 MHz		QPSK	100		17.920
			16-QAM			17.964
			64-QAM			17.916
			256-QAM			17.911

Note:

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

8.4.2 Upper Ant

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
66/4	1.4 MHz	1745.0	QPSK	6	0	1.1054
			16-QAM			1.1004
			64-QAM			1.0980
			256-QAM			1.1065
	3 MHz		QPSK	15		2.7118
			16-QAM			2.7233
			64-QAM			2.7187
			256-QAM			2.7202
	5 MHz		QPSK	25		4.5192
			16-QAM			4.5193
			64-QAM			4.5174
			256-QAM			4.5203
	10 MHz		QPSK	50		9.0052
			16-QAM			8.9935
			64-QAM			9.0145
			256-QAM			8.9963
	15 MHz		QPSK	75		13.498
			16-QAM			13.464
			64-QAM			13.496
			256-QAM			13.459
	20 MHz		QPSK	100		17.907
			16-QAM			17.952
			64-QAM			17.968
			256-QAM			17.954

Note:

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

8.5 CONDUCTED SPURIOUS EMISSIONS

8.5.1 Lower Ant

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
66/4	1.4	1710.7	3.4208	30.200	-71.071	-40.871	-13.00
		1745.0	3.4891	30.200	-71.573	-41.373	
		1779.3	3.5594	30.200	-79.171	-48.971	
	3	1711.5	8.2647	30.815	-80.040	-49.225	
		1745.0	3.4876	30.200	-78.032	-47.832	
		1778.5	8.8629	30.815	-79.644	-48.829	
	5	1712.5	3.4208	30.200	-67.824	-37.624	
		1745.0	3.4856	30.200	-67.243	-37.043	
		1777.5	3.5594	30.200	-78.653	-48.453	
	10	1715.0	3.4213	30.200	-71.115	-40.915	
		1745.0	3.4811	30.200	-65.891	-35.691	
		1775.0	3.5589	30.200	-78.688	-48.488	
	15	1717.5	3.4218	30.200	-70.614	-40.414	
		1745.0	3.4766	30.200	-65.825	-35.625	
		1772.5	6.0564	30.815	-79.196	-48.381	
	20	1720.0	3.4223	30.200	-70.352	-40.152	
		1745.0	3.4721	30.200	-68.608	-38.408	
		1770.0	3.5579	30.200	-78.809	-48.609	

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	27.494
1 – 5	30.200
5 – 10	30.815
10 – 15	31.340
15 – 20	31.713
Above 20(26.5)	32.355

8.5.2 Upper Ant

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
66/4	1.4	1710.7	3.4213	27.976	-73.272	-45.296	-13.00
		1745.0	3.4896	27.976	-74.356	-46.380	
		1779.3	3.5604	27.976	-74.163	-46.187	
	3	1711.5	3.4213	27.976	-73.825	-45.849	
		1745.0	3.4881	27.976	-74.021	-46.045	
		1778.5	3.5604	27.976	-74.345	-46.369	
	5	1712.5	3.4213	27.976	-73.734	-45.758	
		1745.0	3.4866	27.976	-74.540	-46.564	
		1777.5	3.5599	27.976	-75.120	-47.144	
	10	1715.0	3.4218	27.976	-75.055	-47.079	
		1745.0	3.4816	27.976	-74.134	-46.158	
		1775.0	3.5594	27.976	-74.203	-46.227	
	15	1717.5	3.4223	27.976	-73.378	-45.402	
		1745.0	3.4771	27.976	-74.641	-46.665	
		1772.5	3.5589	27.976	-74.722	-46.746	
	20	1720.0	3.4228	27.976	-73.500	-45.524	
		1745.0	3.4726	27.976	-75.611	-47.635	
		1770.0	3.5584	27.976	-74.160	-46.184	

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 Lower Ant

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

8.6.2 Upper Ant

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

8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

8.7.1 Lower Ant

▣ MODE: LTE 66/4

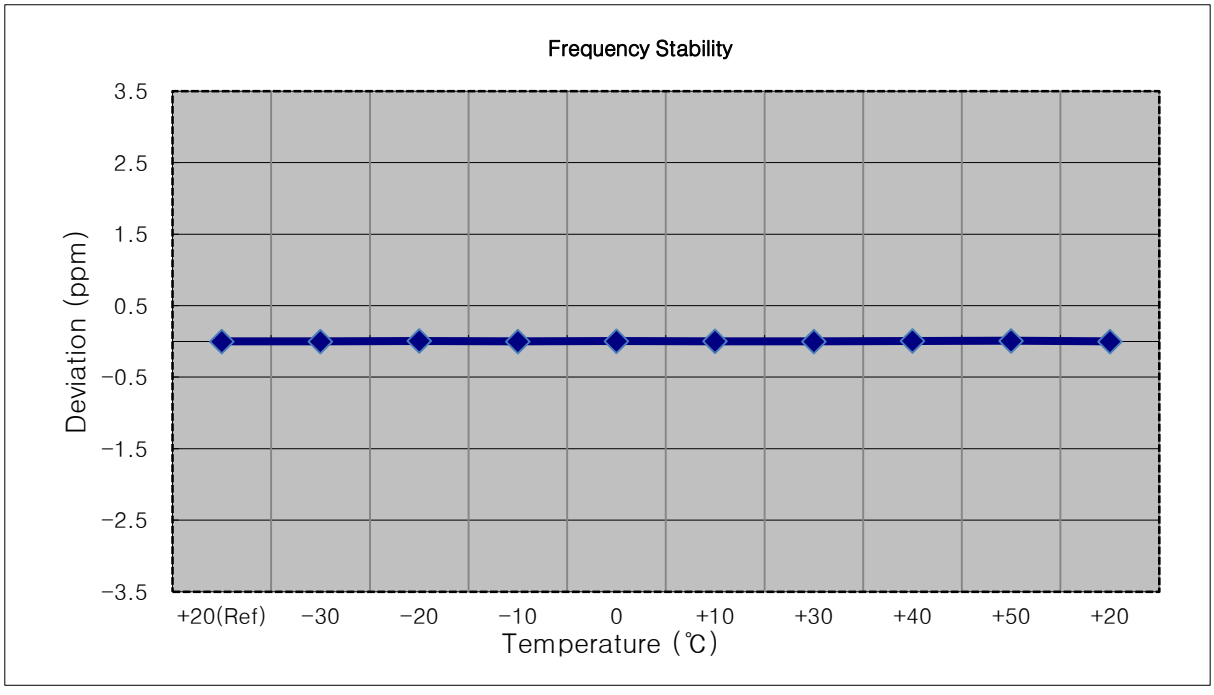
▣ OPERATING FREQUENCY: 1710,700,000 Hz

▣ CHANNEL: 131979 (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)	1710 699 998	0.0	0.000 000	0.000
100 %		-30	1710 699 997	-0.5	0.000 000	0.000
100 %		-20	1710 700 008	10.4	0.000 001	0.006
100 %		-10	1710 699 998	0.4	0.000 000	0.000
100 %		0	1710 700 007	9.5	0.000 001	0.006
100 %		+10	1710 700 001	3.2	0.000 000	0.002
100 %		+30	1710 699 997	-0.7	0.000 000	0.000
100 %		+40	1710 700 011	12.9	0.000 001	0.008
100 %		+50	1710 700 014	16.5	0.000 001	0.010
Batt. Endpoint	3.400	+20	1710 699 997	-0.9	0.000 000	-0.001



▣ MODE: LTE 66/4

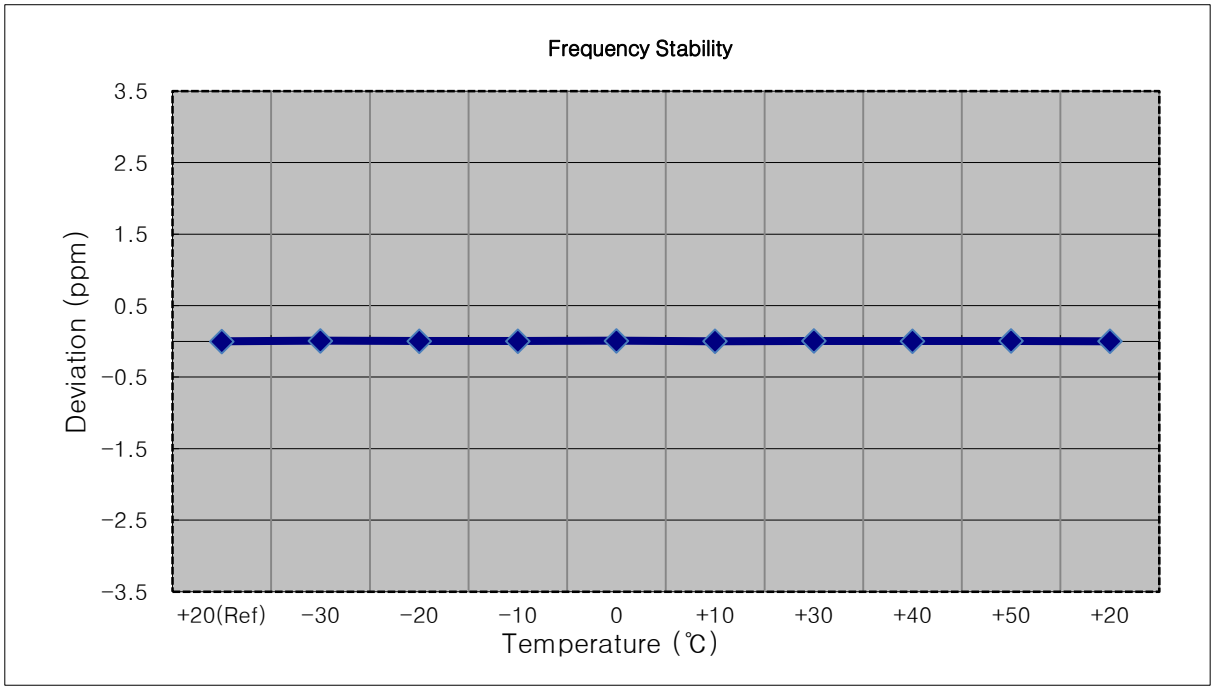
▣ OPERATING FREQUENCY: 1711,500,000 Hz

▣ CHANNEL: 131987 (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)	1711 500 013	0.0	0.000 000	0.000
100 %		-30	1711 500 029	16.0	0.000 001	0.009
100 %		-20	1711 500 020	7.2	0.000 000	0.004
100 %		-10	1711 500 022	9.4	0.000 001	0.006
100 %		0	1711 500 027	14.4	0.000 001	0.008
100 %		+10	1711 500 017	4.0	0.000 000	0.002
100 %		+30	1711 500 024	10.8	0.000 001	0.006
100 %		+40	1711 500 022	8.6	0.000 001	0.005
100 %		+50	1711 500 024	10.6	0.000 001	0.006
Batt. Endpoint	3.400	+20	1711 500 015	2.0	0.000 000	0.001



▣ MODE: LTE 66/4

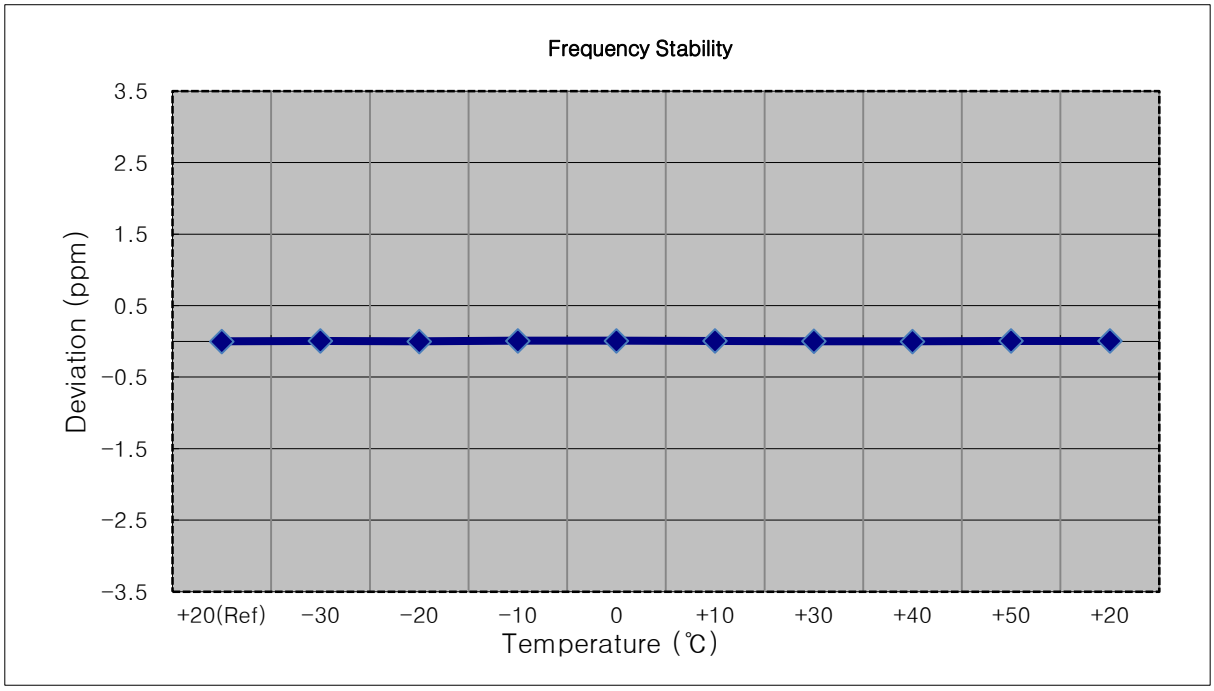
▣ OPERATING FREQUENCY: 1712,500,000 Hz

▣ CHANNEL: 131997 (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)	1712 500 014	0.0	0.000 000	0.000
100 %		-30	1712 500 024	9.9	0.000 001	0.006
100 %		-20	1712 500 015	0.5	0.000 000	0.000
100 %		-10	1712 500 028	14.4	0.000 001	0.008
100 %		0	1712 500 027	13.4	0.000 001	0.008
100 %		+10	1712 500 024	10.5	0.000 001	0.006
100 %		+30	1712 500 019	4.9	0.000 000	0.003
100 %		+40	1712 500 013	-0.8	0.000 000	0.000
100 %		+50	1712 500 027	13.3	0.000 001	0.008
Batt. Endpoint	3.400	+20	1712 500 025	11.4	0.000 001	0.007



▣ MODE: LTE 66/4

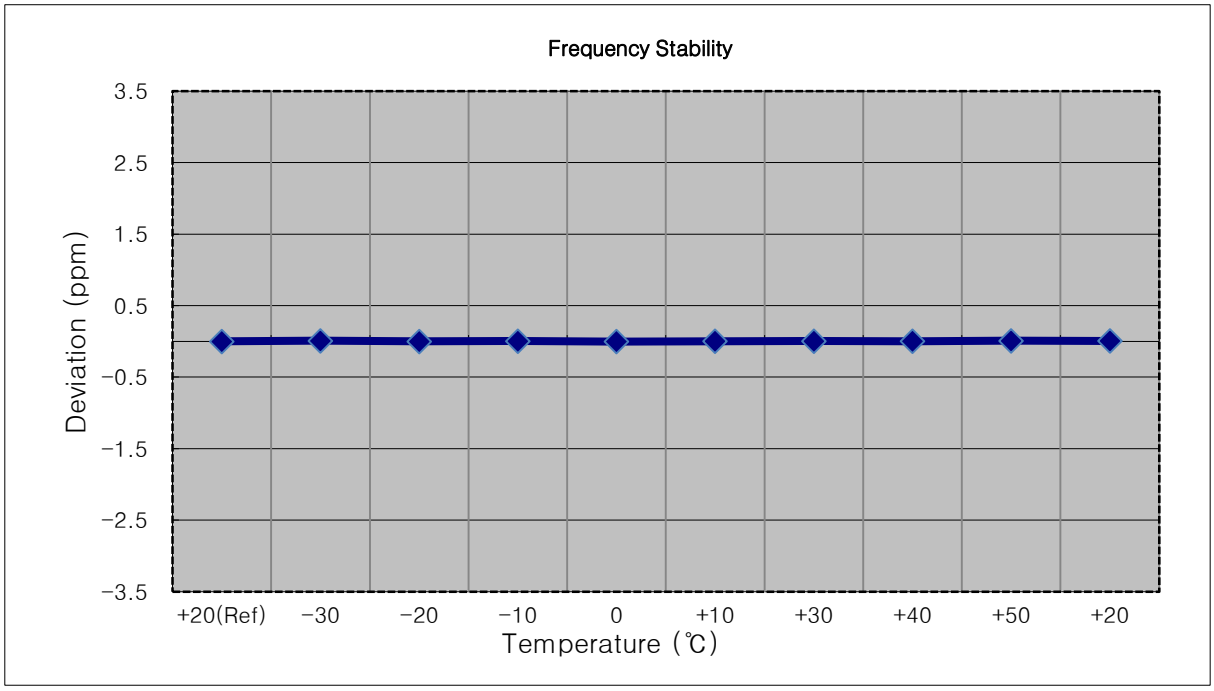
▣ OPERATING FREQUENCY: 1715,000,000 Hz

▣ CHANNEL: 132022 (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)	1715 000 013	0.0	0.000 000	0.000
100 %		-30	1715 000 029	15.4	0.000 001	0.009
100 %		-20	1715 000 012	-1.5	0.000 000	-0.001
100 %		-10	1715 000 021	7.7	0.000 000	0.004
100 %		0	1715 000 011	-2.7	0.000 000	-0.002
100 %		+10	1715 000 016	2.2	0.000 000	0.001
100 %		+30	1715 000 020	6.2	0.000 000	0.004
100 %		+40	1715 000 017	3.2	0.000 000	0.002
100 %		+50	1715 000 028	14.7	0.000 001	0.009
Batt. Endpoint	3.400	+20	1715 000 027	13.4	0.000 001	0.008



▣ MODE: LTE 66/4

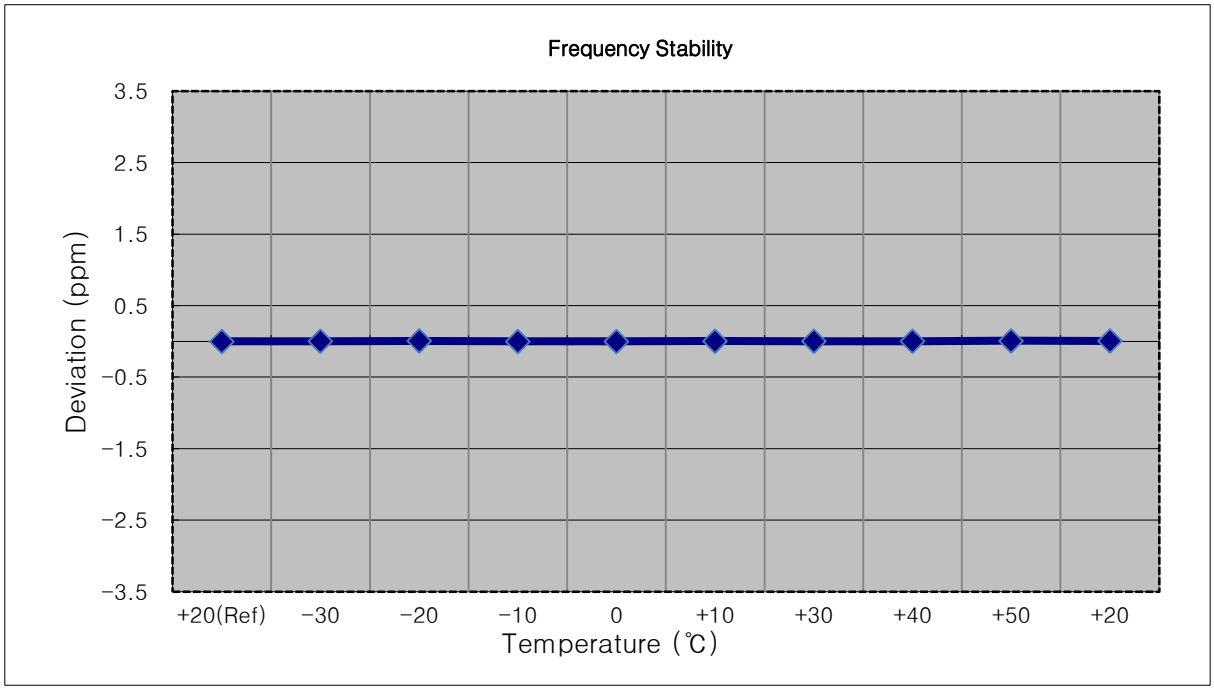
▣ OPERATING FREQUENCY: 1717,500,000 Hz

▣ CHANNEL: 132047 (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)	1717 500 001	0.0	0.000 000	0.000
100 %		-30	1717 500 004	3.0	0.000 000	0.002
100 %		-20	1717 500 013	11.7	0.000 001	0.007
100 %		-10	1717 500 002	1.5	0.000 000	0.001
100 %		0	1717 500 001	0.0	0.000 000	0.000
100 %		+10	1717 500 007	6.4	0.000 000	0.004
100 %		+30	1717 500 004	2.8	0.000 000	0.002
100 %		+40	1717 500 006	4.7	0.000 000	0.003
100 %		+50	1717 500 017	16.4	0.000 001	0.010
Batt. Endpoint	3.400	+20	1717 500 013	12.2	0.000 001	0.007



▣ MODE: LTE 66/4

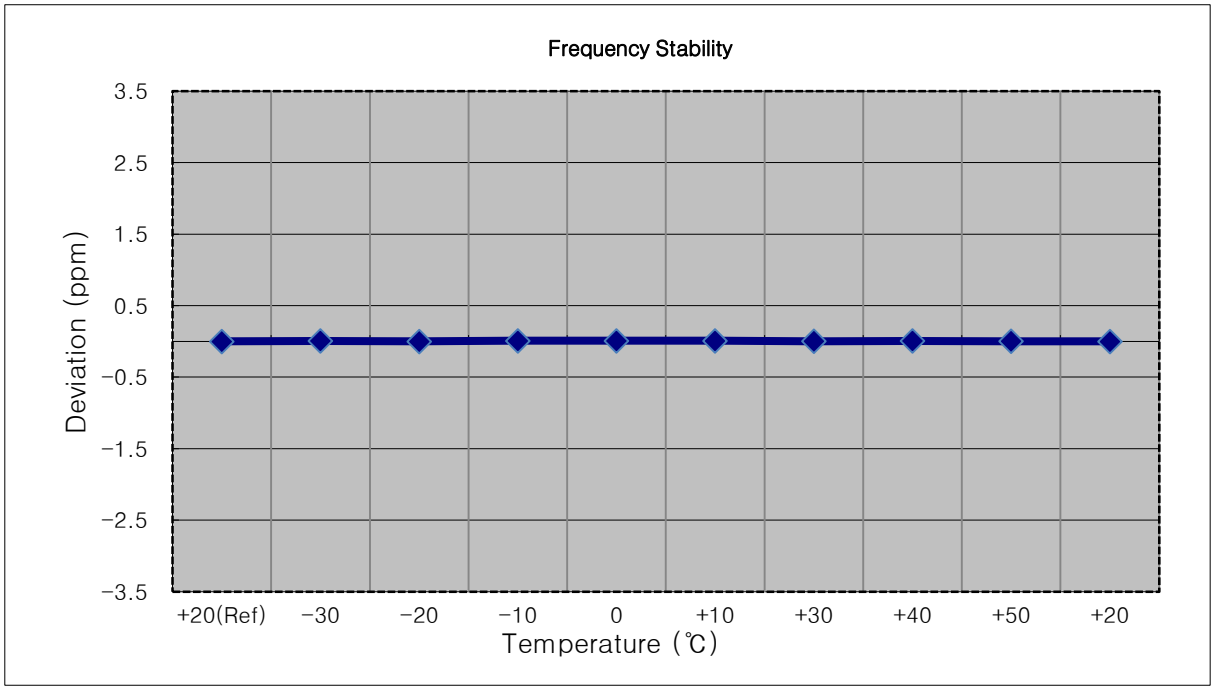
▣ OPERATING FREQUENCY: 1720,000,000 Hz

▣ CHANNEL: 132072 (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)	1720 000 005	0.0	0.000 000	0.000
100 %		-30	1720 000 016	10.7	0.000 001	0.006
100 %		-20	1720 000 006	0.6	0.000 000	0.000
100 %		-10	1720 000 022	16.2	0.000 001	0.009
100 %		0	1720 000 022	16.5	0.000 001	0.010
100 %		+10	1720 000 022	17.0	0.000 001	0.010
100 %		+30	1720 000 009	3.2	0.000 000	0.002
100 %		+40	1720 000 018	12.2	0.000 001	0.007
100 %		+50	1720 000 010	4.4	0.000 000	0.003
Batt. Endpoint	3.400	+20	1720 000 005	-0.8	0.000 000	0.000



▣ MODE: LTE 66/4

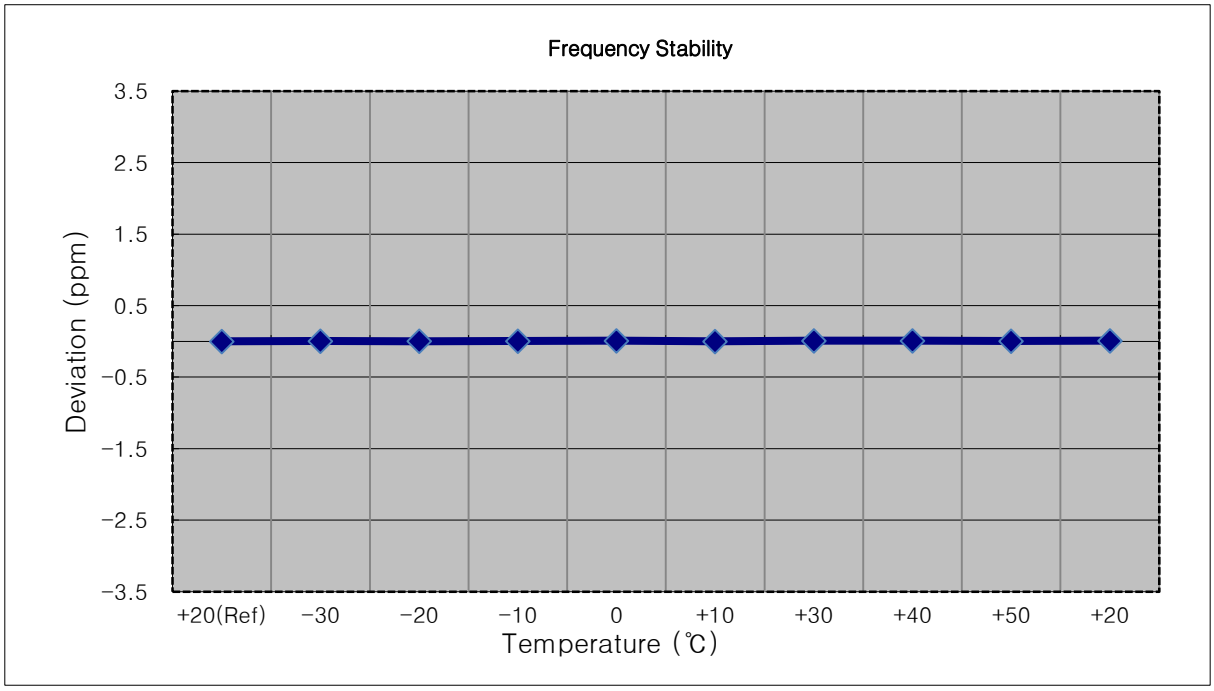
▣ OPERATING FREQUENCY: 1745,000,000 Hz

▣ CHANNEL: 132322 (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)	1745 000 014	0.0	0.000 000	0.000
100 %		-30	1745 000 022	8.8	0.000 001	0.005
100 %		-20	1745 000 016	2.5	0.000 000	0.001
100 %		-10	1745 000 022	8.8	0.000 001	0.005
100 %		0	1745 000 030	16.6	0.000 001	0.010
100 %		+10	1745 000 014	0.7	0.000 000	0.000
100 %		+30	1745 000 029	15.5	0.000 001	0.009
100 %		+40	1745 000 030	16.2	0.000 001	0.009
100 %		+50	1745 000 022	8.1	0.000 000	0.005
Batt. Endpoint	3.400	+20	1745 000 028	13.9	0.000 001	0.008



▣ MODE: LTE 66/4

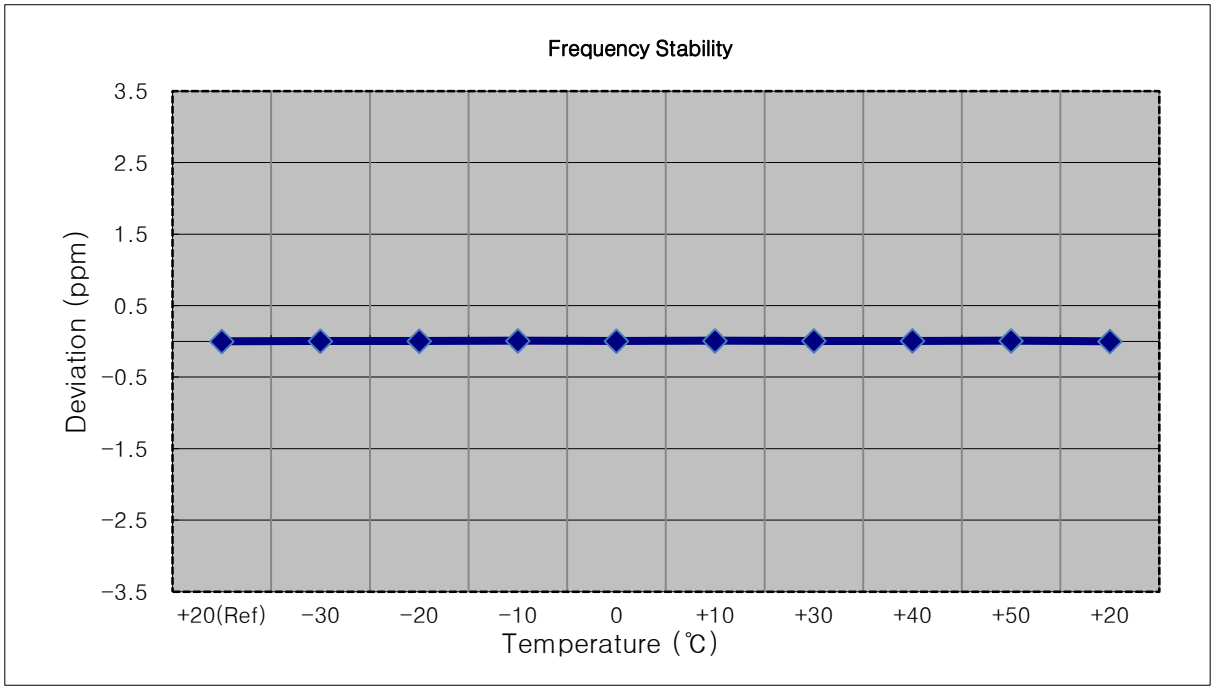
▣ OPERATING FREQUENCY: 1745,000,000 Hz

▣ CHANNEL: 132322 (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)	1745 000 004	0.0	0.000 000	0.000
100 %		-30	1745 000 010	6.0	0.000 000	0.003
100 %		-20	1745 000 013	8.8	0.000 001	0.005
100 %		-10	1745 000 019	14.7	0.000 001	0.008
100 %		0	1745 000 011	6.9	0.000 000	0.004
100 %		+10	1745 000 021	17.0	0.000 001	0.010
100 %		+30	1745 000 014	10.5	0.000 001	0.006
100 %		+40	1745 000 017	12.9	0.000 001	0.007
100 %		+50	1745 000 020	15.8	0.000 001	0.009
Batt. Endpoint	3.400	+20	1745 000 003	-1.0	0.000 000	-0.001



▣ MODE: LTE 66/4

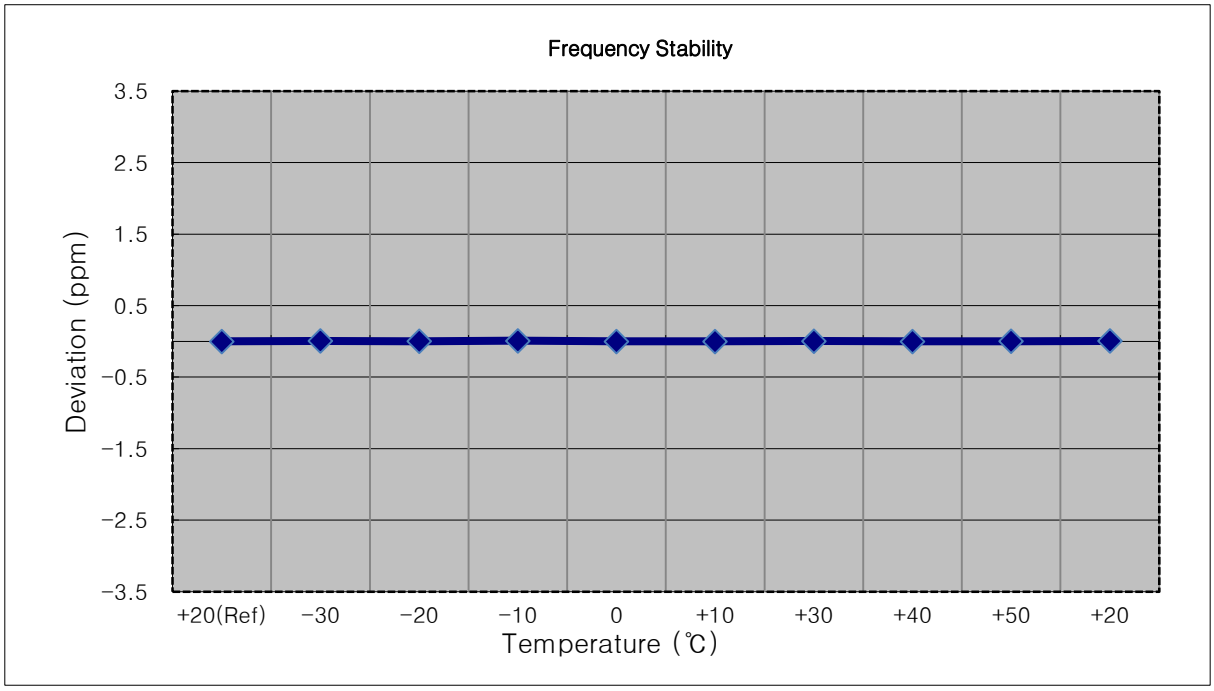
▣ OPERATING FREQUENCY: 1745,000,000 Hz

▣ CHANNEL: 132322 (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)	1745 000 011	0.0	0.000 000	0.000
100 %		-30	1745 000 023	12.1	0.000 001	0.007
100 %		-20	1745 000 015	4.0	0.000 000	0.002
100 %		-10	1745 000 025	13.8	0.000 001	0.008
100 %		0	1745 000 009	-1.3	0.000 000	-0.001
100 %		+10	1745 000 010	-0.4	0.000 000	0.000
100 %		+30	1745 000 020	9.7	0.000 001	0.006
100 %		+40	1745 000 010	-1.2	0.000 000	-0.001
100 %		+50	1745 000 014	3.4	0.000 000	0.002
Batt. Endpoint	3.400	+20	1745 000 021	10.1	0.000 001	0.006



▣ MODE: LTE 66/4

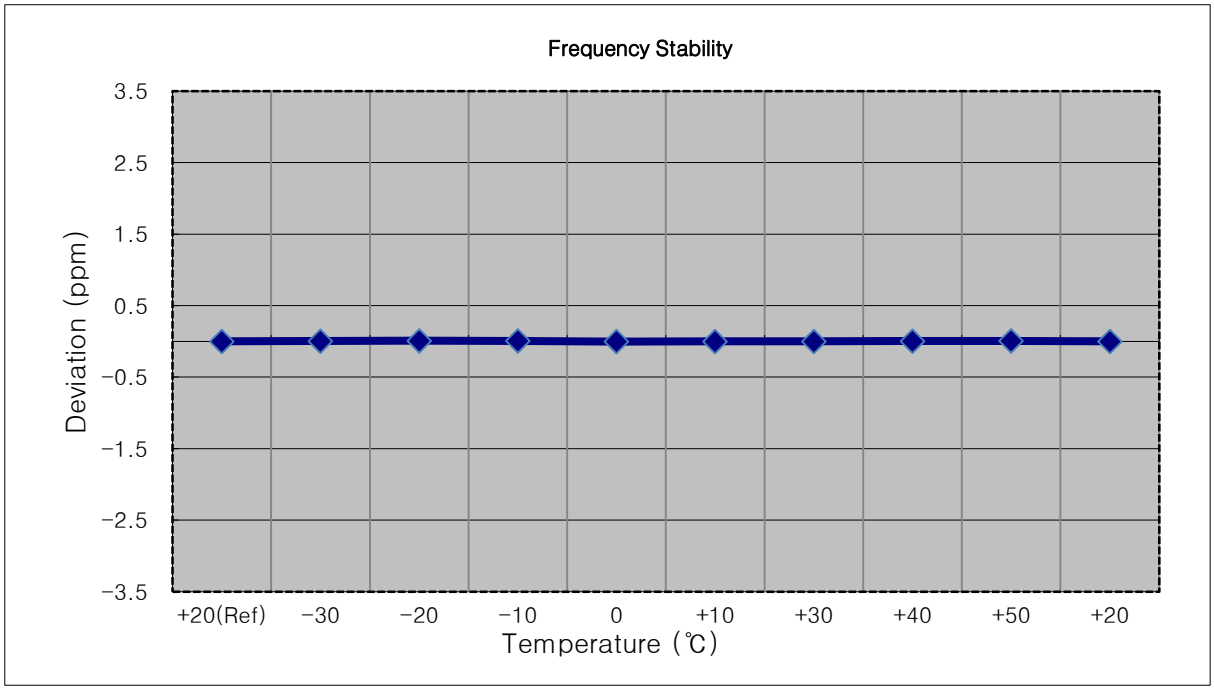
▣ OPERATING FREQUENCY: 1745,000,000 Hz

▣ CHANNEL: 132322 (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)	1745 000 001	0.0	0.000 000	0.000
100 %		-30	1745 000 008	6.6	0.000 000	0.004
100 %		-20	1745 000 017	16.5	0.000 001	0.009
100 %		-10	1745 000 014	13.0	0.000 001	0.007
100 %		0	1744 999 998	-2.8	0.000 000	-0.002
100 %		+10	1745 000 001	0.5	0.000 000	0.000
100 %		+30	1745 000 003	1.7	0.000 000	0.001
100 %		+40	1745 000 010	9.2	0.000 001	0.005
100 %		+50	1745 000 012	11.4	0.000 001	0.007
Batt. Endpoint	3.400	+20	1745 000 003	1.6	0.000 000	0.001



▣ MODE: LTE 66/4

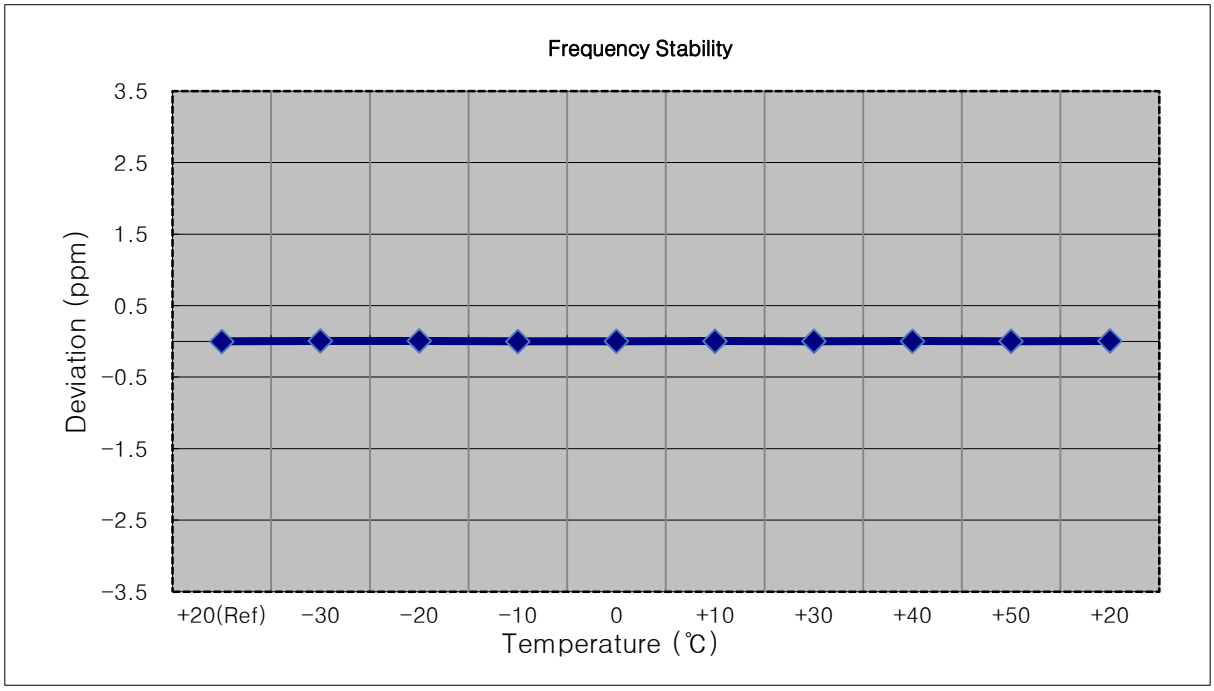
▣ OPERATING FREQUENCY: 1745,000,000 Hz

▣ CHANNEL: 132322 (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)	1745 000 002	0.0	0.000 000	0.000
100 %		-30	1745 000 013	11.2	0.000 001	0.006
100 %		-20	1745 000 015	13.0	0.000 001	0.007
100 %		-10	1745 000 002	-0.6	0.000 000	0.000
100 %		0	1745 000 006	3.7	0.000 000	0.002
100 %		+10	1745 000 012	9.5	0.000 001	0.005
100 %		+30	1745 000 005	2.8	0.000 000	0.002
100 %		+40	1745 000 008	6.1	0.000 000	0.004
100 %		+50	1745 000 006	4.1	0.000 000	0.002
Batt. Endpoint	3.400	+20	1745 000 015	12.6	0.000 001	0.007



▣ MODE: LTE 66/4

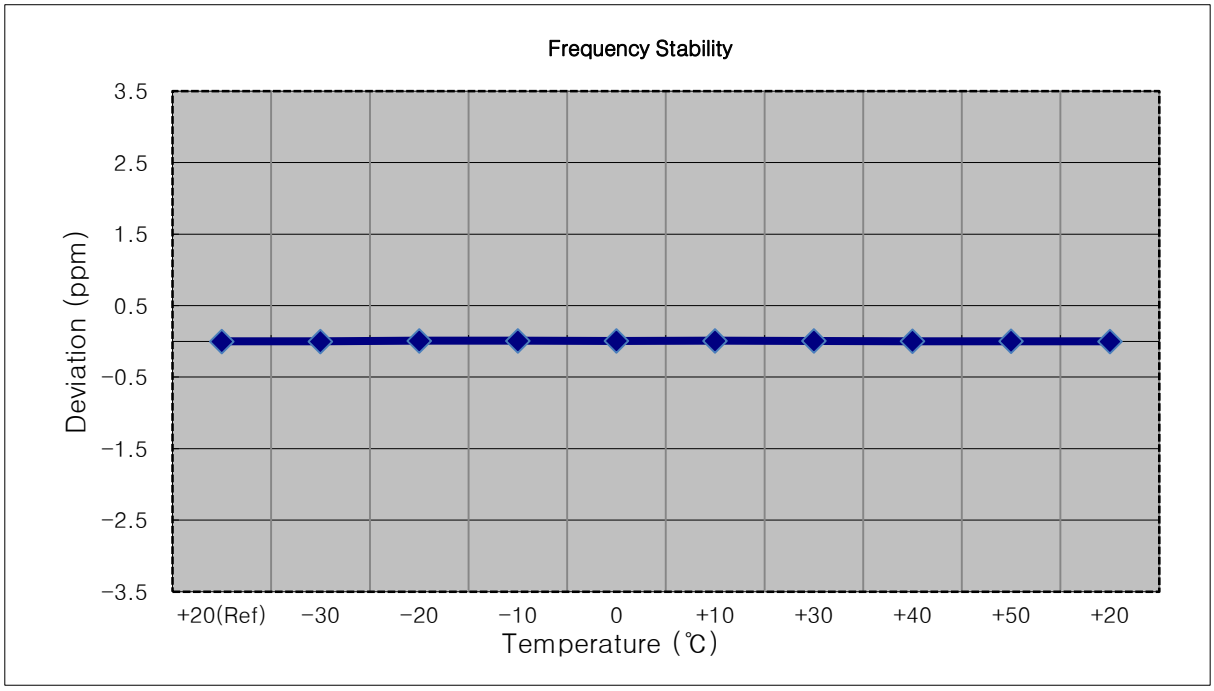
▣ OPERATING FREQUENCY: 1745,000,000 Hz

▣ CHANNEL: 132322 (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)	1745 000 007	0.0	0.000 000	0.000
100 %		-30	1745 000 008	1.2	0.000 000	0.001
100 %		-20	1745 000 022	14.7	0.000 001	0.008
100 %		-10	1745 000 023	16.0	0.000 001	0.009
100 %		0	1745 000 019	12.5	0.000 001	0.007
100 %		+10	1745 000 021	13.8	0.000 001	0.008
100 %		+30	1745 000 019	11.7	0.000 001	0.007
100 %		+40	1745 000 012	5.1	0.000 000	0.003
100 %		+50	1745 000 009	2.6	0.000 000	0.001
Batt. Endpoint	3.400	+20	1745 000 007	-0.2	0.000 000	0.000



▣ MODE: LTE 66/4

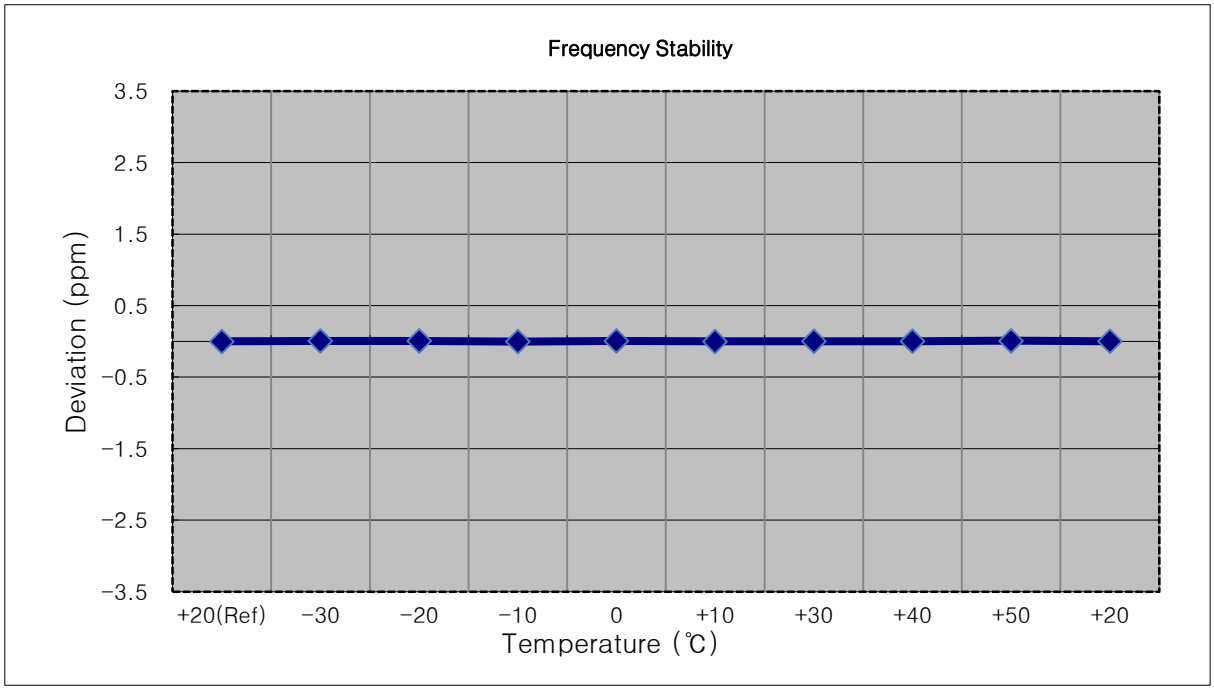
▣ OPERATING FREQUENCY: 1779,300,000 Hz

▣ CHANNEL: 132665 (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)	1779 300 014	0.0	0.000 000	0.000
100 %		-30	1779 300 024	10.1	0.000 001	0.006
100 %		-20	1779 300 025	11.0	0.000 001	0.006
100 %		-10	1779 300 012	-2.6	0.000 000	-0.001
100 %		0	1779 300 025	10.8	0.000 001	0.006
100 %		+10	1779 300 015	0.9	0.000 000	0.000
100 %		+30	1779 300 019	4.9	0.000 000	0.003
100 %		+40	1779 300 017	2.6	0.000 000	0.001
100 %		+50	1779 300 029	15.3	0.000 001	0.009
Batt. Endpoint	3.400	+20	1779 300 018	3.9	0.000 000	0.002



▣ MODE: LTE 66/4

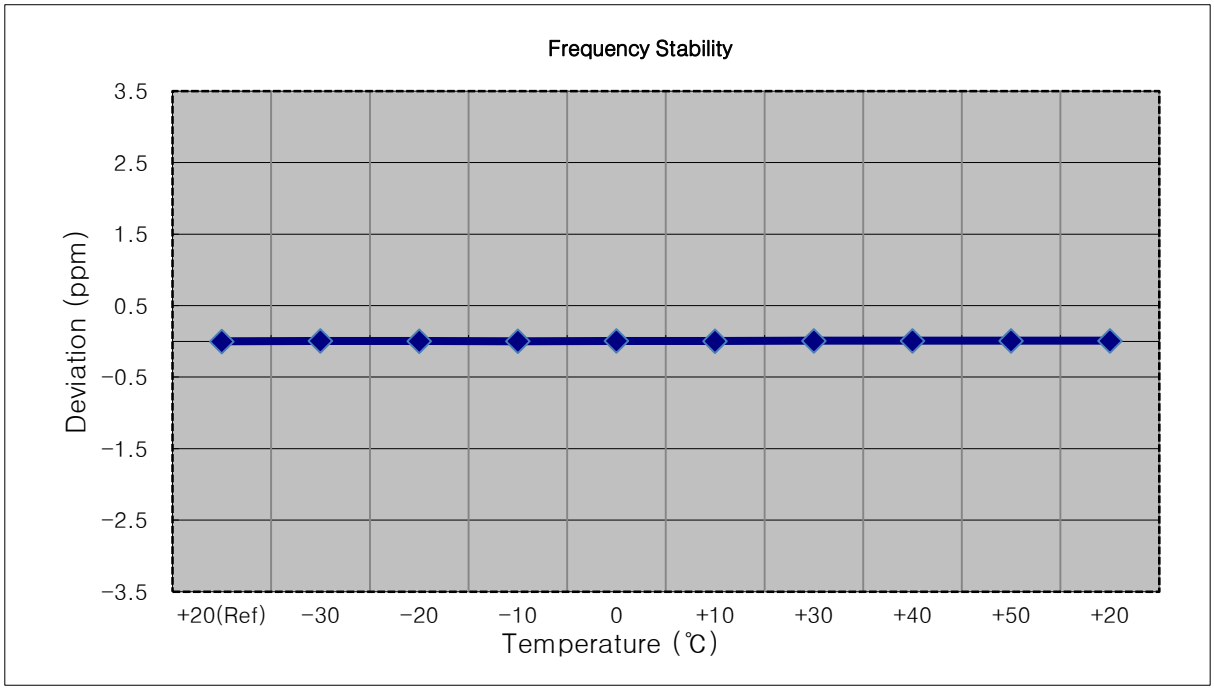
▣ OPERATING FREQUENCY: 1778,500,000 Hz

▣ CHANNEL: 132657 (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)	1778 500 008	0.0	0.000 000	0.000
100 %		-30	1778 500 020	12.1	0.000 001	0.007
100 %		-20	1778 500 017	9.1	0.000 001	0.005
100 %		-10	1778 500 013	5.0	0.000 000	0.003
100 %		0	1778 500 020	11.9	0.000 001	0.007
100 %		+10	1778 500 015	7.5	0.000 000	0.004
100 %		+30	1778 500 024	16.5	0.000 001	0.009
100 %		+40	1778 500 023	15.0	0.000 001	0.008
100 %		+50	1778 500 024	16.6	0.000 001	0.009
Batt. Endpoint	3.400	+20	1778 500 024	16.0	0.000 001	0.009



▣ MODE: LTE 66/4

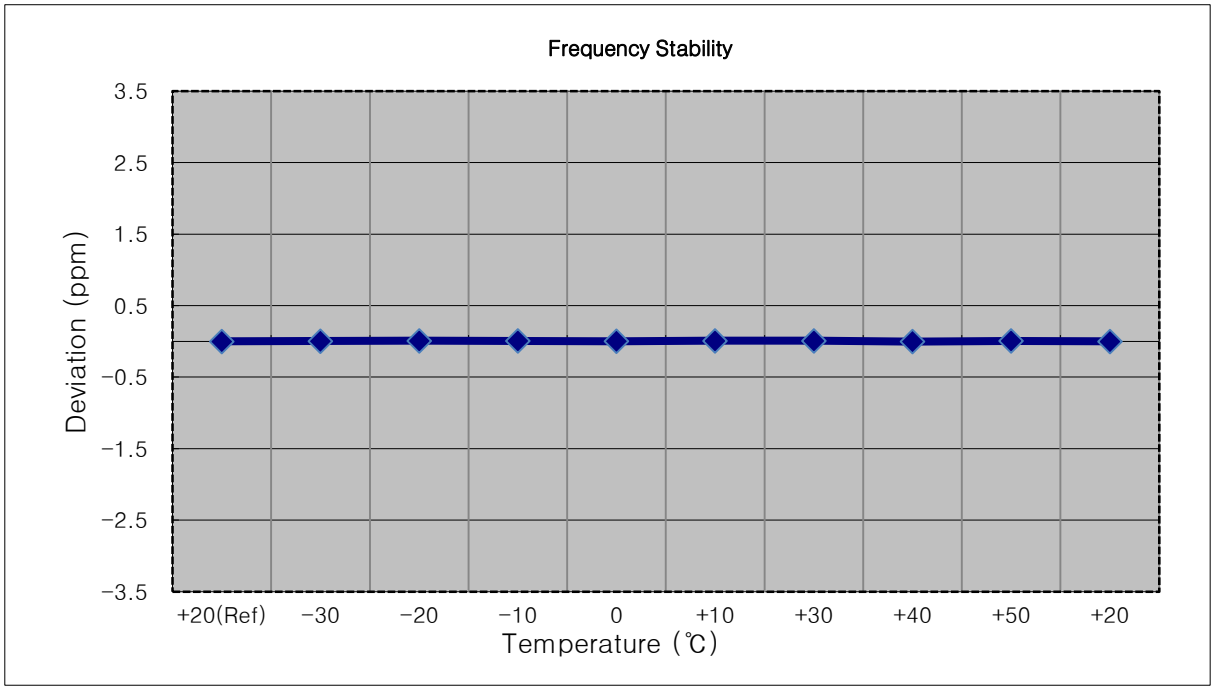
▣ OPERATING FREQUENCY: 1777,500,000 Hz

▣ CHANNEL: 132647 (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)	1777 499 998	0.0	0.000 000	0.000
100 %		-30	1777 500 005	7.2	0.000 000	0.004
100 %		-20	1777 500 014	15.8	0.000 001	0.009
100 %		-10	1777 500 011	13.4	0.000 001	0.008
100 %		0	1777 500 003	5.0	0.000 000	0.003
100 %		+10	1777 500 013	14.8	0.000 001	0.008
100 %		+30	1777 500 014	15.8	0.000 001	0.009
100 %		+40	1777 499 996	-2.1	0.000 000	-0.001
100 %		+50	1777 500 010	12.4	0.000 001	0.007
Batt. Endpoint	3.400	+20	1777 499 998	0.2	0.000 000	0.000



▣ MODE: LTE 66/4

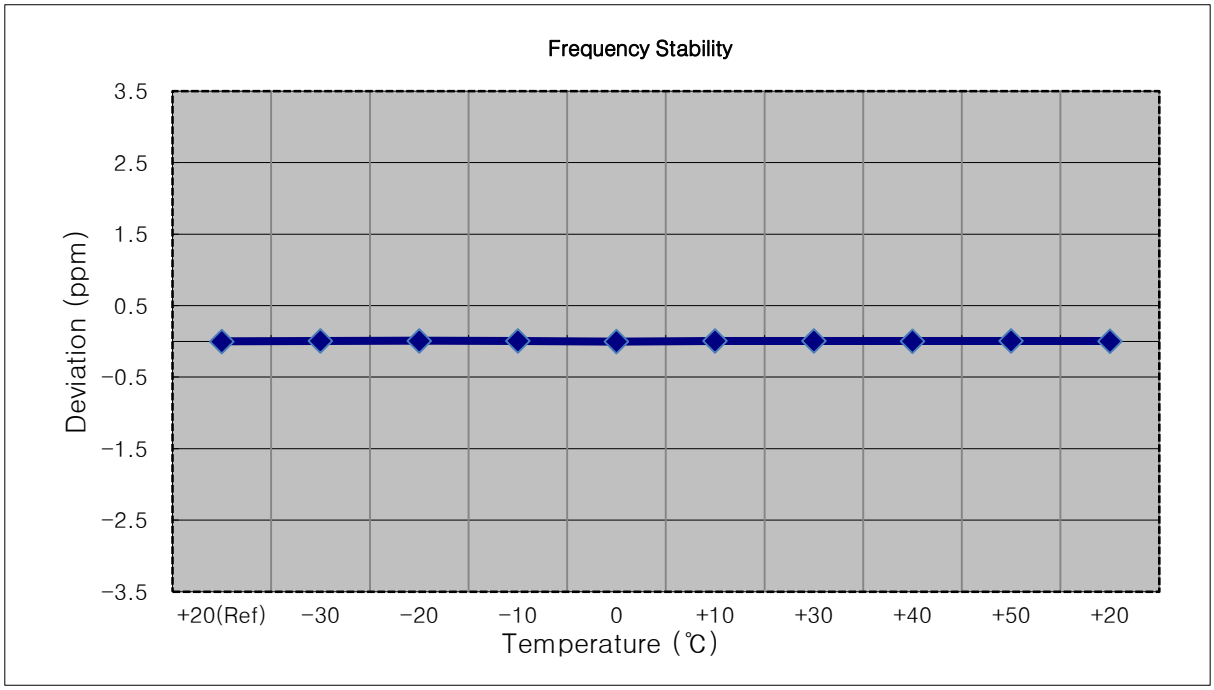
▣ OPERATING FREQUENCY: 1775,000,000 Hz

▣ CHANNEL: 132622 (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)	1775 000 001	0.0	0.000 000	0.000
100 %		-30	1775 000 012	10.7	0.000 001	0.006
100 %		-20	1775 000 017	15.7	0.000 001	0.009
100 %		-10	1775 000 013	12.3	0.000 001	0.007
100 %		0	1774 999 999	-2.1	0.000 000	-0.001
100 %		+10	1775 000 012	10.5	0.000 001	0.006
100 %		+30	1775 000 011	10.0	0.000 001	0.006
100 %		+40	1775 000 009	8.2	0.000 000	0.005
100 %		+50	1775 000 011	10.2	0.000 001	0.006
Batt. Endpoint	3.400	+20	1775 000 008	6.7	0.000 000	0.004



▣ MODE: LTE 66/4

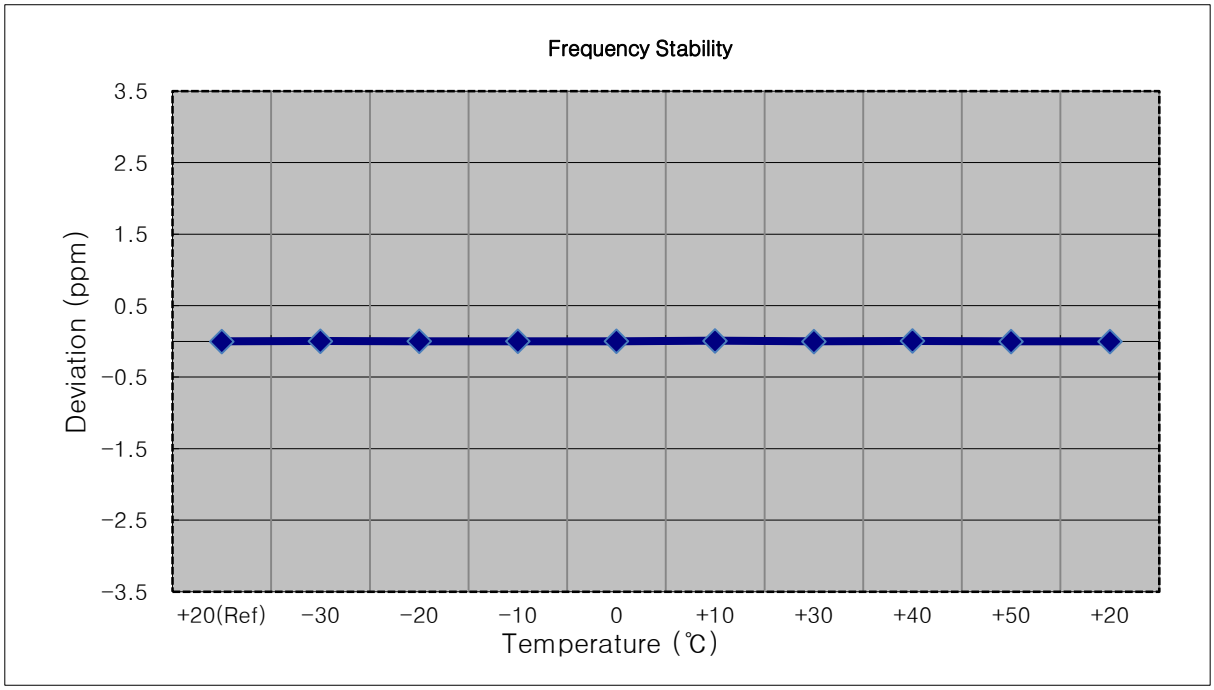
▣ OPERATING FREQUENCY: 1772,500,000 Hz

▣ CHANNEL: 132597 (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)	1772 499 999	0.0	0.000 000	0.000
100 %		-30	1772 500 008	8.7	0.000 000	0.005
100 %		-20	1772 500 003	4.0	0.000 000	0.002
100 %		-10	1772 500 002	3.0	0.000 000	0.002
100 %		0	1772 500 004	5.0	0.000 000	0.003
100 %		+10	1772 500 013	13.9	0.000 001	0.008
100 %		+30	1772 500 000	0.7	0.000 000	0.000
100 %		+40	1772 500 011	12.5	0.000 001	0.007
100 %		+50	1772 499 998	-0.7	0.000 000	0.000
Batt. Endpoint	3.400	+20	1772 499 998	-0.5	0.000 000	0.000



▣ MODE: LTE 66/4

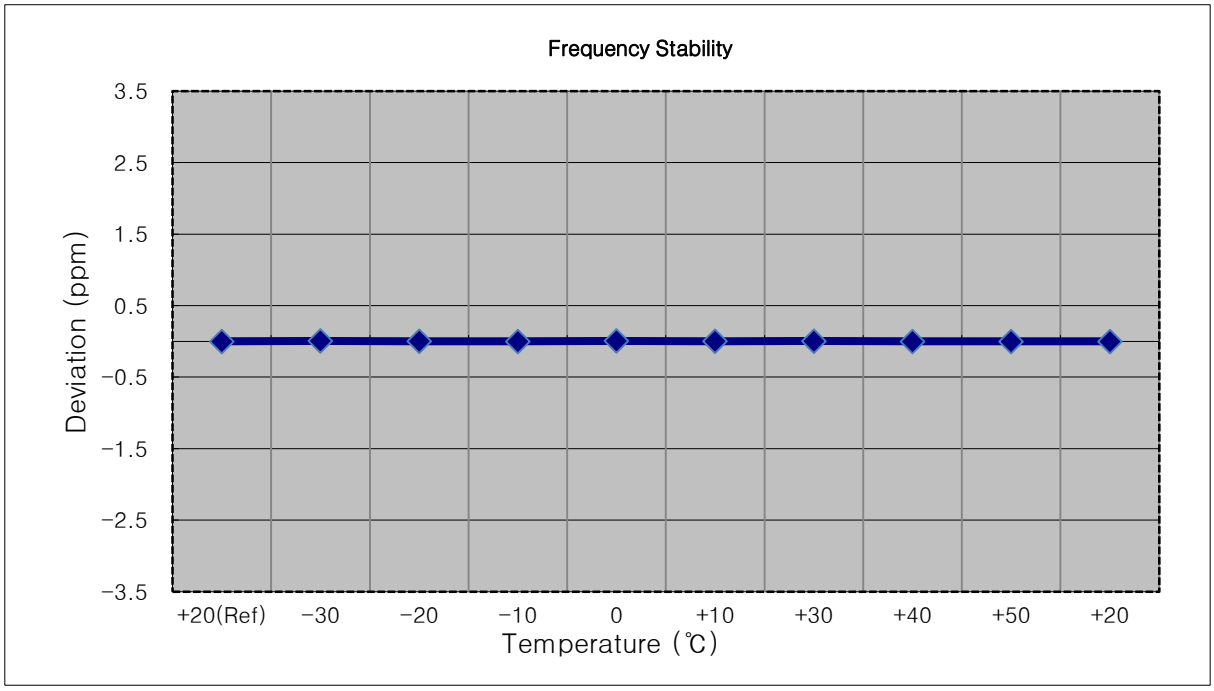
▣ OPERATING FREQUENCY: 1770,000,000 Hz

▣ CHANNEL: 132572 (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)	1770 000 003	0.0	0.000 000	0.000
100 %		-30	1770 000 015	11.8	0.000 001	0.007
100 %		-20	1770 000 009	5.7	0.000 000	0.003
100 %		-10	1770 000 004	1.7	0.000 000	0.001
100 %		0	1770 000 015	12.3	0.000 001	0.007
100 %		+10	1770 000 007	4.2	0.000 000	0.002
100 %		+30	1770 000 011	8.3	0.000 000	0.005
100 %		+40	1770 000 004	1.3	0.000 000	0.001
100 %		+50	1770 000 003	-0.1	0.000 000	0.000
Batt. Endpoint	3.400	+20	1770 000 004	0.8	0.000 000	0.000



8.7.2 Upper Ant

▣ MODE: LTE 66/4

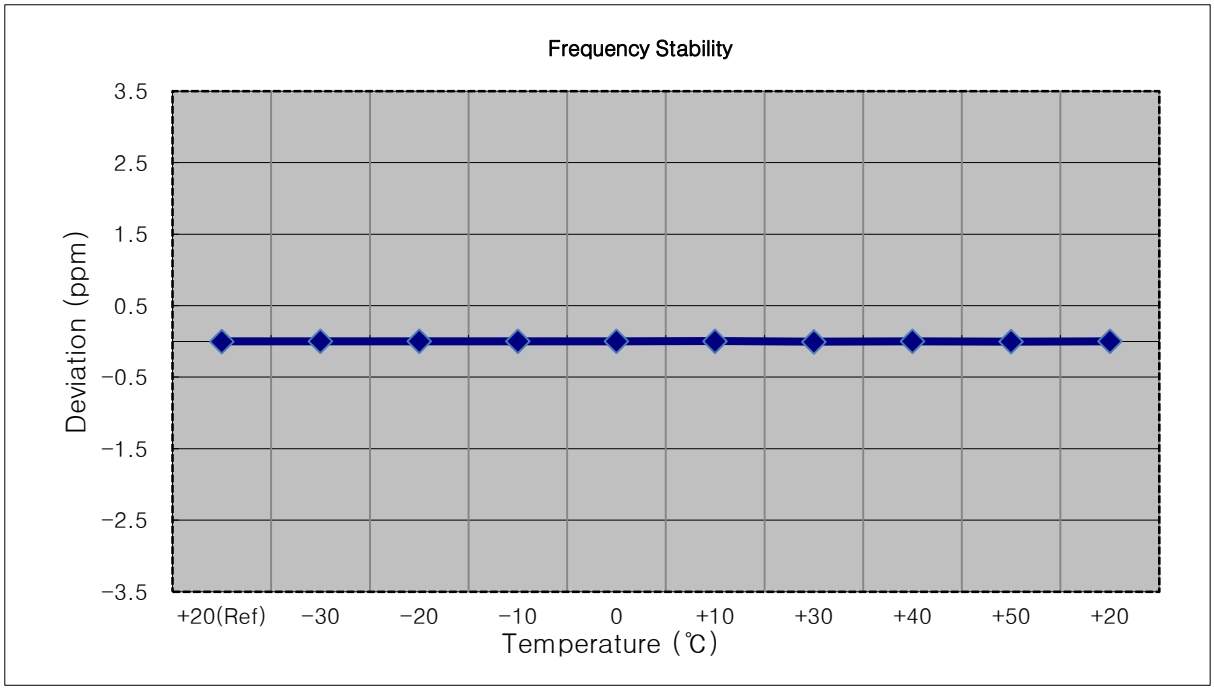
▣ OPERATING FREQUENCY: 1710,700,000 Hz

▣ CHANNEL: 131979 (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)	1710 700 005	0.0	0.000 000	0.000
100 %		-30	1710 700 009	3.3	0.000 000	0.002
100 %		-20	1710 700 010	4.9	0.000 000	0.003
100 %		-10	1710 700 009	3.8	0.000 000	0.002
100 %		0	1710 700 011	5.6	0.000 000	0.003
100 %		+10	1710 700 013	8.0	0.000 000	0.005
100 %		+30	1710 699 999	-5.8	0.000 000	-0.003
100 %		+40	1710 700 009	3.3	0.000 000	0.002
100 %		+50	1710 700 003	-2.3	0.000 000	-0.001
Batt. Endpoint	3.400	+20	1710 700 010	4.9	0.000 000	0.003



▣ MODE: LTE 66/4

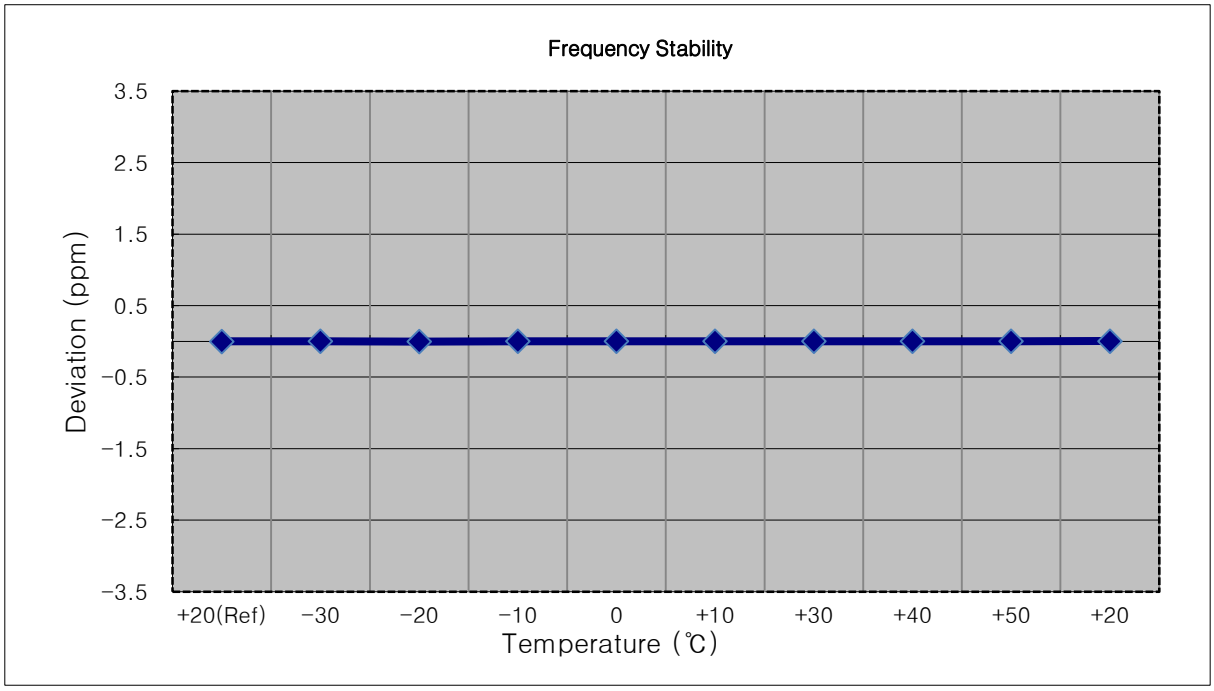
▣ OPERATING FREQUENCY: 1711,500,000 Hz

▣ CHANNEL: 131987 (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)	1711 499 995	0.0	0.000 000	0.000
100 %		-30	1711 499 997	2.2	0.000 000	0.001
100 %		-20	1711 499 992	-3.0	0.000 000	-0.002
100 %		-10	1711 500 000	5.1	0.000 000	0.003
100 %		0	1711 499 998	3.2	0.000 000	0.002
100 %		+10	1711 499 999	4.3	0.000 000	0.003
100 %		+30	1711 499 999	3.5	0.000 000	0.002
100 %		+40	1711 500 000	5.0	0.000 000	0.003
100 %		+50	1711 500 000	4.8	0.000 000	0.003
Batt. Endpoint	3.400	+20	1711 500 001	6.4	0.000 000	0.004



▣ MODE: LTE 66/4

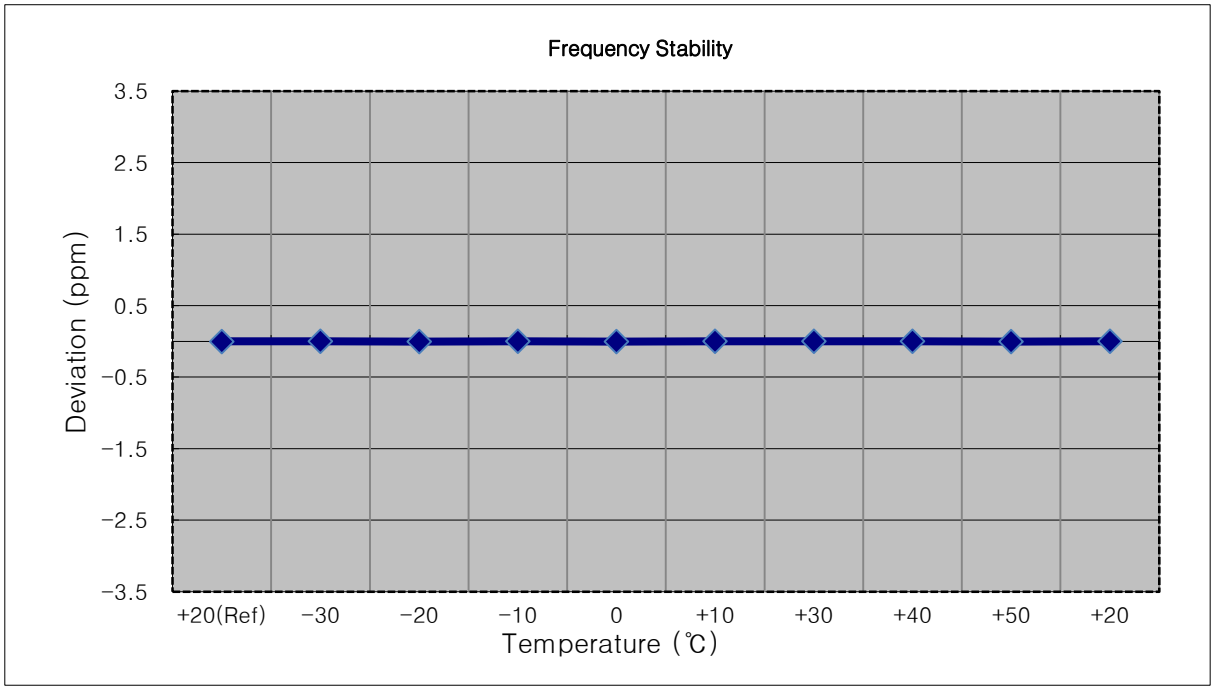
▣ OPERATING FREQUENCY: 1712,500,000 Hz

▣ CHANNEL: 131997 (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)	1712 500 003	0.0	0.000 000	0.000
100 %		-30	1712 500 005	2.0	0.000 000	0.001
100 %		-20	1712 500 000	-3.1	0.000 000	-0.002
100 %		-10	1712 500 006	3.1	0.000 000	0.002
100 %		0	1712 500 000	-2.9	0.000 000	-0.002
100 %		+10	1712 500 006	2.4	0.000 000	0.001
100 %		+30	1712 500 008	4.5	0.000 000	0.003
100 %		+40	1712 500 007	4.1	0.000 000	0.002
100 %		+50	1712 500 001	-2.5	0.000 000	-0.001
Batt. Endpoint	3.400	+20	1712 500 008	4.9	0.000 000	0.003



▣ MODE: LTE 66/4

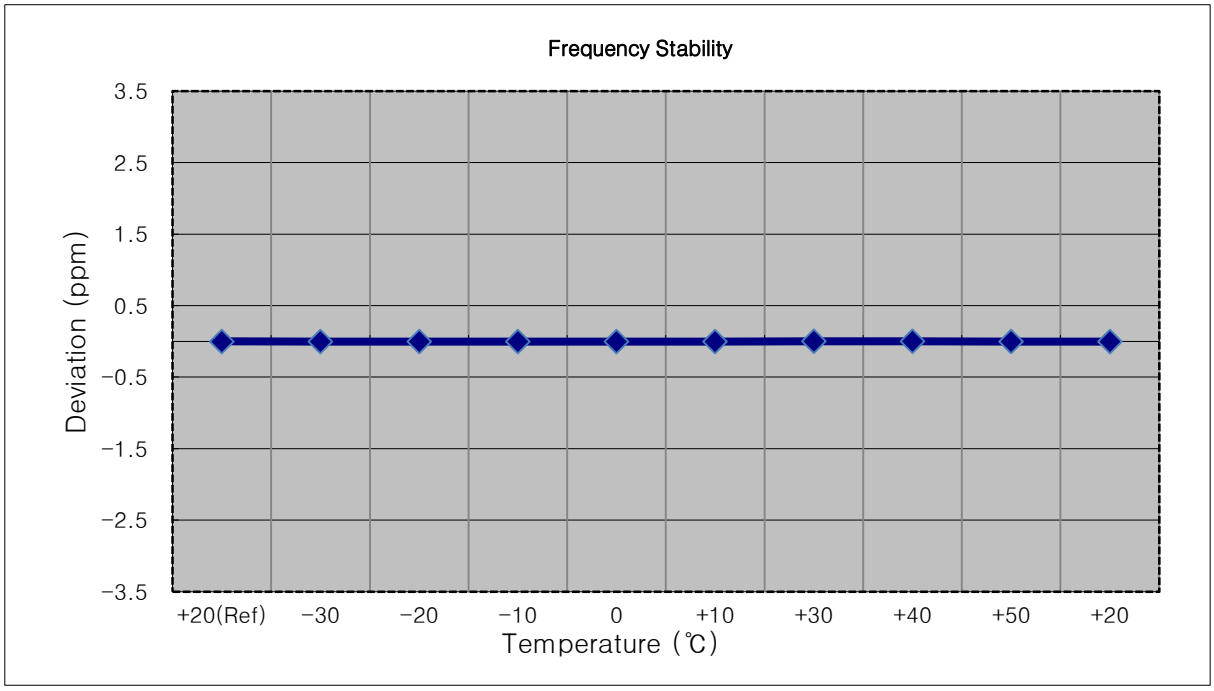
▣ OPERATING FREQUENCY: 1715,000,000 Hz

▣ CHANNEL: 132022 (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)	1714 999 997	0.0	0.000 000	0.000
100 %		-30	1714 999 993	-4.0	0.000 000	-0.002
100 %		-20	1714 999 994	-2.7	0.000 000	-0.002
100 %		-10	1714 999 994	-2.7	0.000 000	-0.002
100 %		0	1714 999 992	-5.4	0.000 000	-0.003
100 %		+10	1714 999 994	-3.4	0.000 000	-0.002
100 %		+30	1715 000 001	3.7	0.000 000	0.002
100 %		+40	1715 000 001	3.7	0.000 000	0.002
100 %		+50	1714 999 992	-4.8	0.000 000	-0.003
Batt. Endpoint	3.400	+20	1714 999 993	-3.9	0.000 000	-0.002



▣ MODE: LTE 66/4

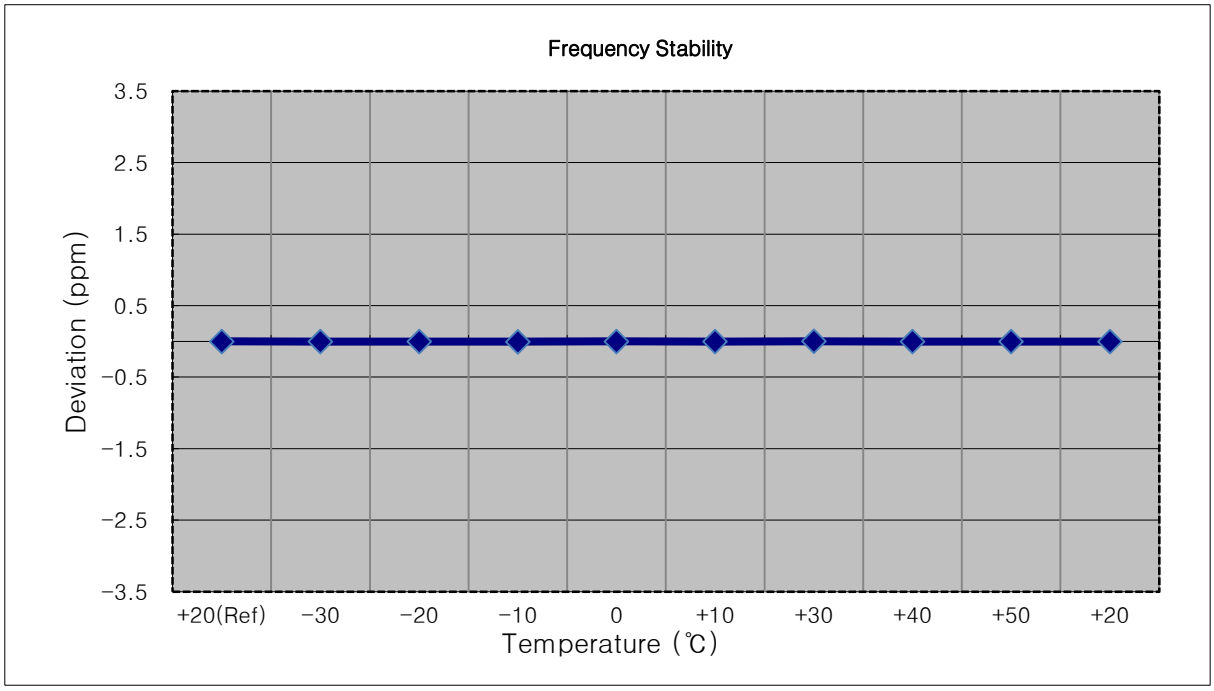
▣ OPERATING FREQUENCY: 1717,500,000 Hz

▣ CHANNEL: 132047 (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)	1717 499 996	0.0	0.000 000	0.000
100 %		-30	1717 499 993	-3.1	0.000 000	-0.002
100 %		-20	1717 499 993	-2.7	0.000 000	-0.002
100 %		-10	1717 499 989	-6.2	0.000 000	-0.004
100 %		0	1717 499 997	1.4	0.000 000	0.001
100 %		+10	1717 499 994	-2.0	0.000 000	-0.001
100 %		+30	1717 500 000	3.9	0.000 000	0.002
100 %		+40	1717 499 990	-5.2	0.000 000	-0.003
100 %		+50	1717 499 993	-2.8	0.000 000	-0.002
Batt. Endpoint	3.400	+20	1717 499 993	-2.9	0.000 000	-0.002



▣ MODE: LTE 66/4

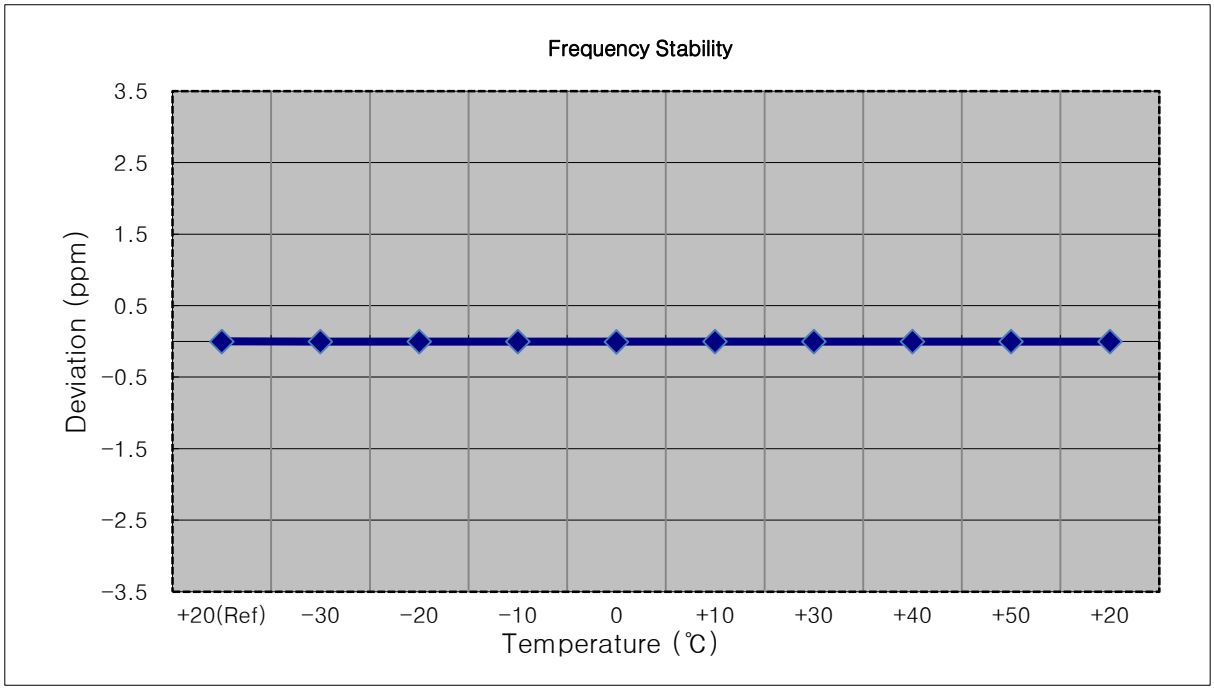
▣ OPERATING FREQUENCY: 1720,000,000 Hz

▣ CHANNEL: 132072 (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)	1719 999 996	0.0	0.000 000	0.000
100 %		-30	1719 999 992	-4.3	0.000 000	-0.003
100 %		-20	1719 999 993	-3.3	0.000 000	-0.002
100 %		-10	1719 999 994	-2.6	0.000 000	-0.002
100 %		0	1719 999 990	-6.5	0.000 000	-0.004
100 %		+10	1719 999 994	-2.3	0.000 000	-0.001
100 %		+30	1719 999 993	-3.1	0.000 000	-0.002
100 %		+40	1719 999 993	-3.4	0.000 000	-0.002
100 %		+50	1719 999 994	-2.7	0.000 000	-0.002
Batt. Endpoint	3.400	+20	1719 999 994	-2.8	0.000 000	-0.002



▣ MODE: LTE 66/4

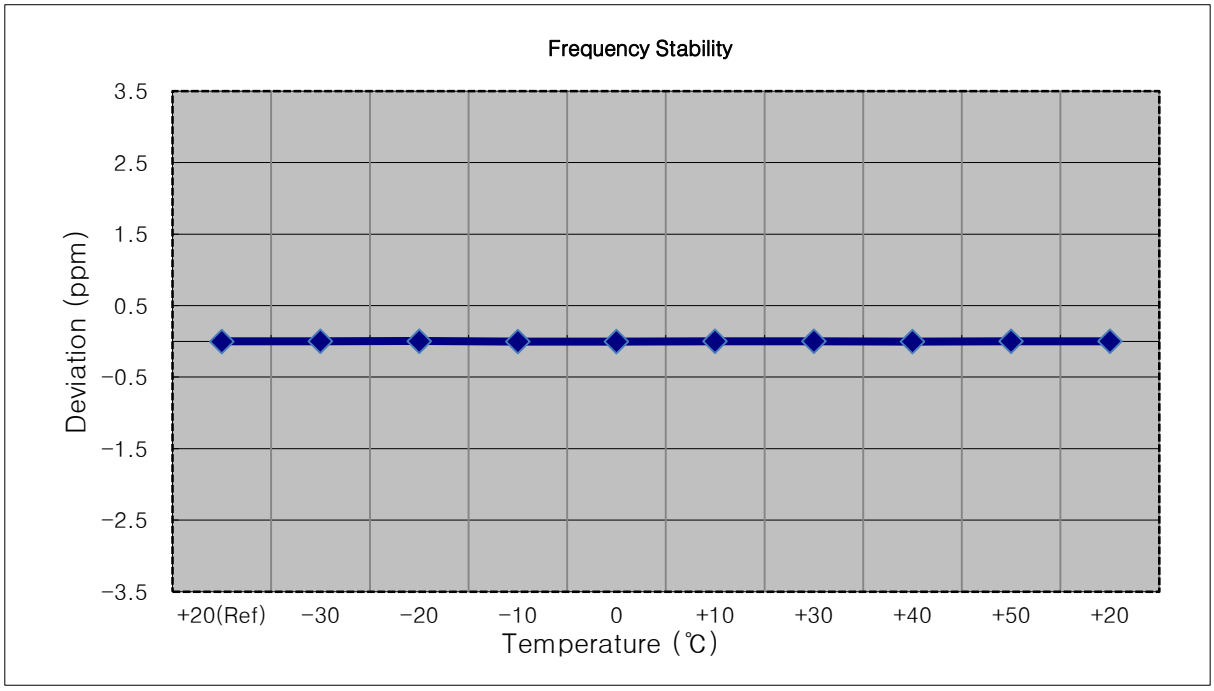
▣ OPERATING FREQUENCY: 1745,000,000 Hz

▣ CHANNEL: 132322 (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)	1745 000 004	0.0	0.000 000	0.000
100 %		-30	1745 000 009	5.4	0.000 000	0.003
100 %		-20	1745 000 010	6.1	0.000 000	0.003
100 %		-10	1745 000 000	-4.3	0.000 000	-0.002
100 %		0	1745 000 001	-2.4	0.000 000	-0.001
100 %		+10	1745 000 006	2.1	0.000 000	0.001
100 %		+30	1745 000 008	3.7	0.000 000	0.002
100 %		+40	1745 000 001	-2.5	0.000 000	-0.001
100 %		+50	1745 000 008	4.1	0.000 000	0.002
Batt. Endpoint	3.400	+20	1745 000 007	2.9	0.000 000	0.002



▣ MODE: LTE 66/4

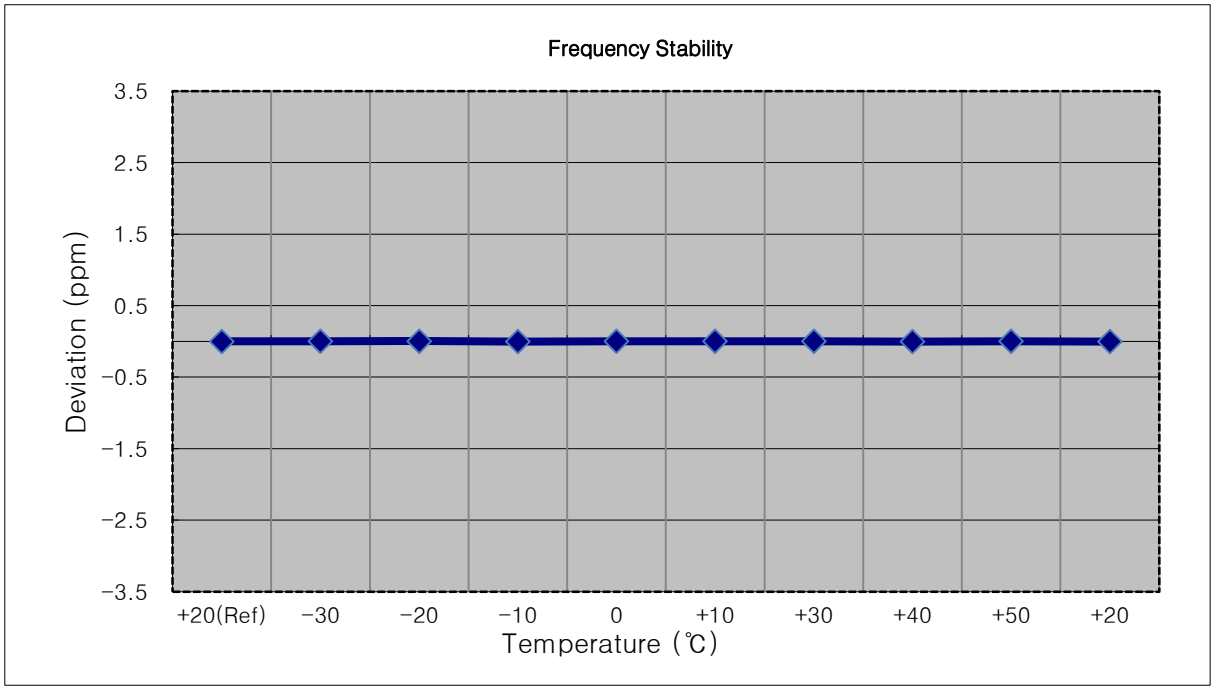
▣ OPERATING FREQUENCY: 1745,000,000 Hz

▣ CHANNEL: 132322 (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)	1745 000 006	0.0	0.000 000	0.000
100 %		-30	1745 000 008	2.7	0.000 000	0.002
100 %		-20	1745 000 012	6.4	0.000 000	0.004
100 %		-10	1745 000 002	-3.6	0.000 000	-0.002
100 %		0	1745 000 009	3.4	0.000 000	0.002
100 %		+10	1745 000 010	4.1	0.000 000	0.002
100 %		+30	1745 000 010	3.9	0.000 000	0.002
100 %		+40	1745 000 002	-3.9	0.000 000	-0.002
100 %		+50	1745 000 010	4.3	0.000 000	0.002
Batt. Endpoint	3.400	+20	1745 000 002	-3.4	0.000 000	-0.002



▣ MODE: LTE 66/4

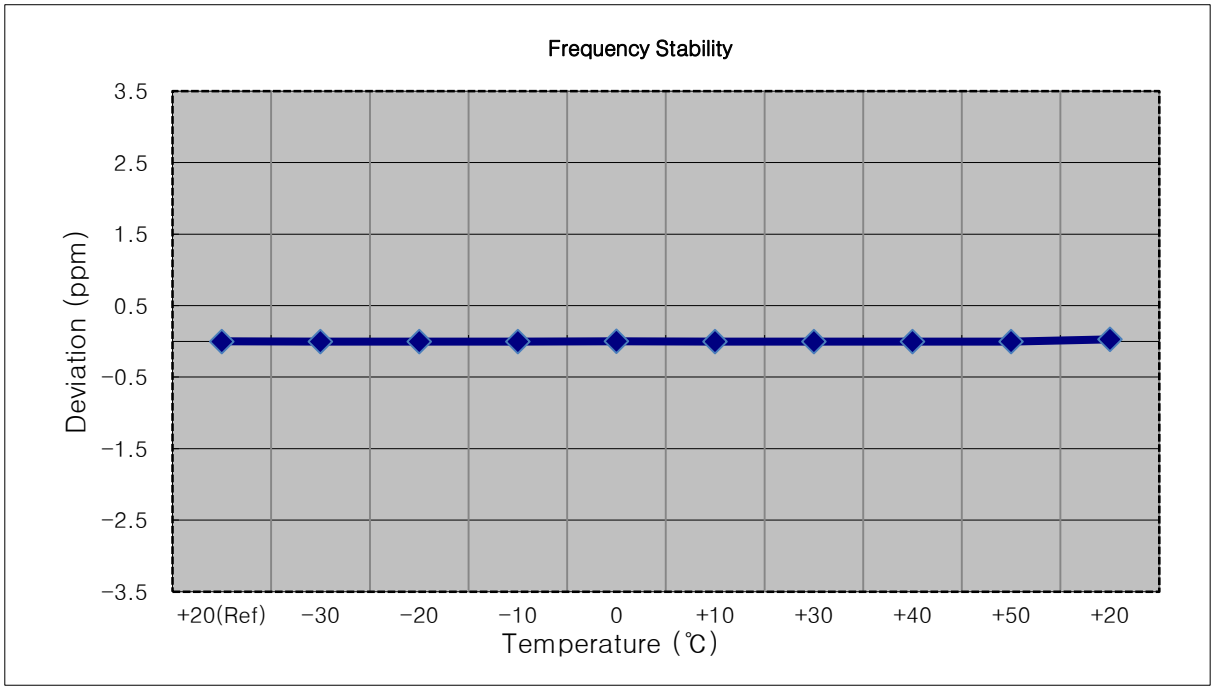
▣ OPERATING FREQUENCY: 1745,000,000 Hz

▣ CHANNEL: 132322 (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)	1745 000 004	0.0	0.000 000	0.000
100 %		-30	1745 000 001	-2.5	0.000 000	-0.001
100 %		-20	1745 000 000	-3.1	0.000 000	-0.002
100 %		-10	1745 000 000	-3.7	0.000 000	-0.002
100 %		0	1745 000 006	2.3	0.000 000	0.001
100 %		+10	1745 000 001	-2.4	0.000 000	-0.001
100 %		+30	1745 000 000	-3.3	0.000 000	-0.002
100 %		+40	1744 999 998	-5.1	0.000 000	-0.003
100 %		+50	1745 000 001	-2.1	0.000 000	-0.001
Batt. Endpoint	3.400	+20	1745 000 056	52.6	0.000 003	0.030



▣ MODE: LTE 66/4

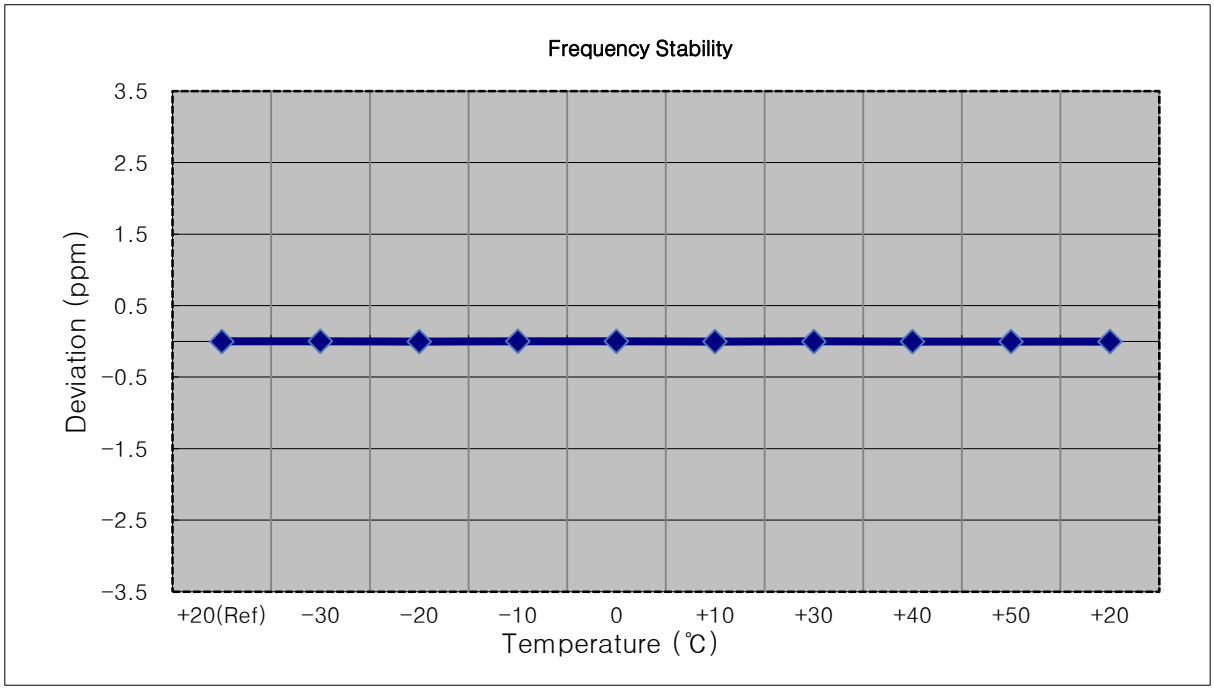
▣ OPERATING FREQUENCY: 1745,000,000 Hz

▣ CHANNEL: 132322 (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)	1744 999 994	0.0	0.000 000	0.000
100 %		-30	1744 999 998	4.0	0.000 000	0.002
100 %		-20	1744 999 991	-3.0	0.000 000	-0.002
100 %		-10	1744 999 997	2.5	0.000 000	0.001
100 %		0	1744 999 997	2.4	0.000 000	0.001
100 %		+10	1744 999 991	-2.9	0.000 000	-0.002
100 %		+30	1744 999 992	-2.0	0.000 000	-0.001
100 %		+40	1744 999 991	-3.6	0.000 000	-0.002
100 %		+50	1744 999 991	-3.2	0.000 000	-0.002
Batt. Endpoint	3.400	+20	1744 999 991	-3.0	0.000 000	-0.002



▣ MODE: LTE 66/4

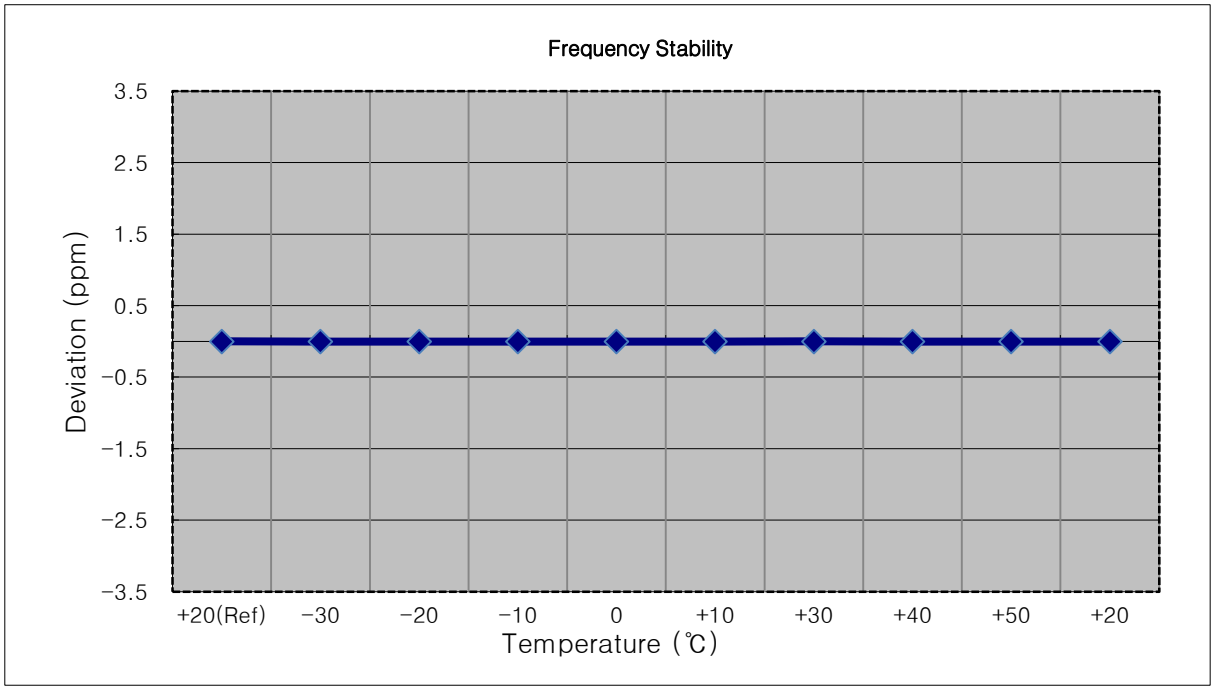
▣ OPERATING FREQUENCY: 1745,000,000 Hz

▣ CHANNEL: 132322 (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)	1744 999 997	0.0	0.000 000	0.000
100 %		-30	1744 999 994	-2.8	0.000 000	-0.002
100 %		-20	1744 999 994	-3.0	0.000 000	-0.002
100 %		-10	1744 999 993	-3.7	0.000 000	-0.002
100 %		0	1744 999 995	-2.3	0.000 000	-0.001
100 %		+10	1744 999 993	-4.3	0.000 000	-0.002
100 %		+30	1744 999 995	-1.8	0.000 000	-0.001
100 %		+40	1744 999 994	-3.1	0.000 000	-0.002
100 %		+50	1744 999 993	-4.2	0.000 000	-0.002
Batt. Endpoint	3.400	+20	1744 999 994	-2.9	0.000 000	-0.002



▣ MODE: LTE 66/4

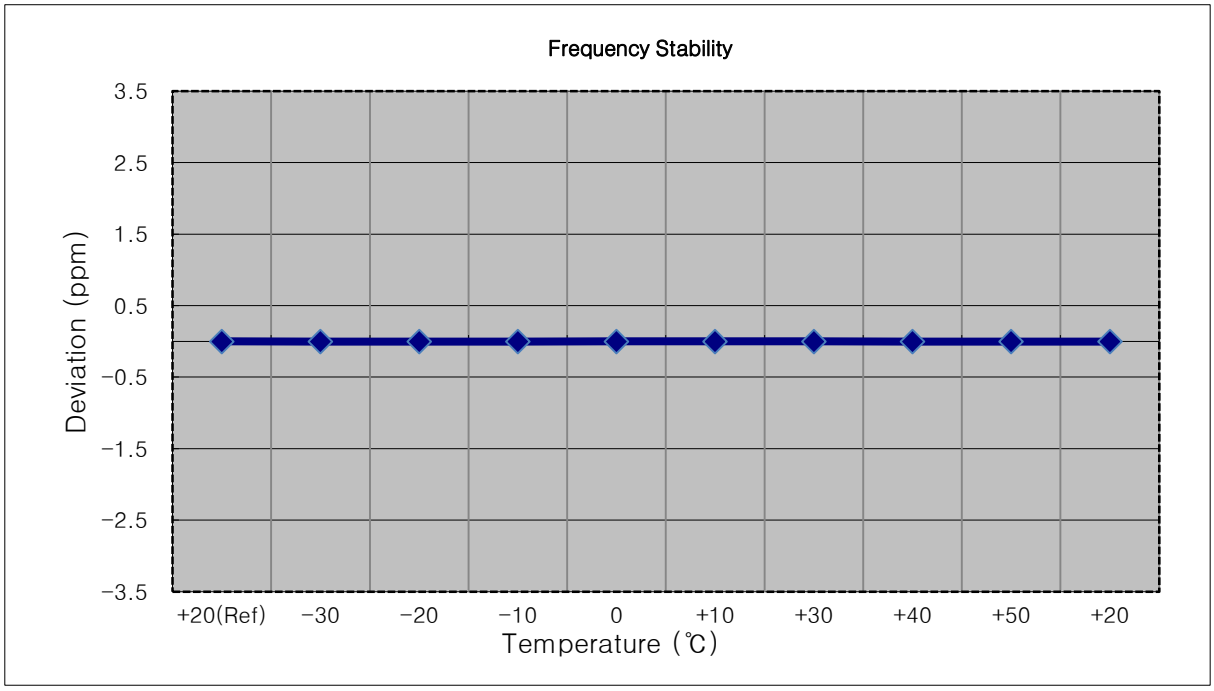
▣ OPERATING FREQUENCY: 1745,000,000 Hz

▣ CHANNEL: 132322 (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)	1744 999 995	0.0	0.000 000	0.000
100 %		-30	1744 999 992	-2.8	0.000 000	-0.002
100 %		-20	1744 999 991	-4.3	0.000 000	-0.002
100 %		-10	1744 999 991	-3.6	0.000 000	-0.002
100 %		0	1744 999 993	-1.9	0.000 000	-0.001
100 %		+10	1744 999 996	1.5	0.000 000	0.001
100 %		+30	1744 999 993	-2.0	0.000 000	-0.001
100 %		+40	1744 999 992	-2.7	0.000 000	-0.002
100 %		+50	1744 999 990	-4.5	0.000 000	-0.003
Batt. Endpoint	3.400	+20	1744 999 991	-3.6	0.000 000	-0.002



▣ MODE: LTE 66/4

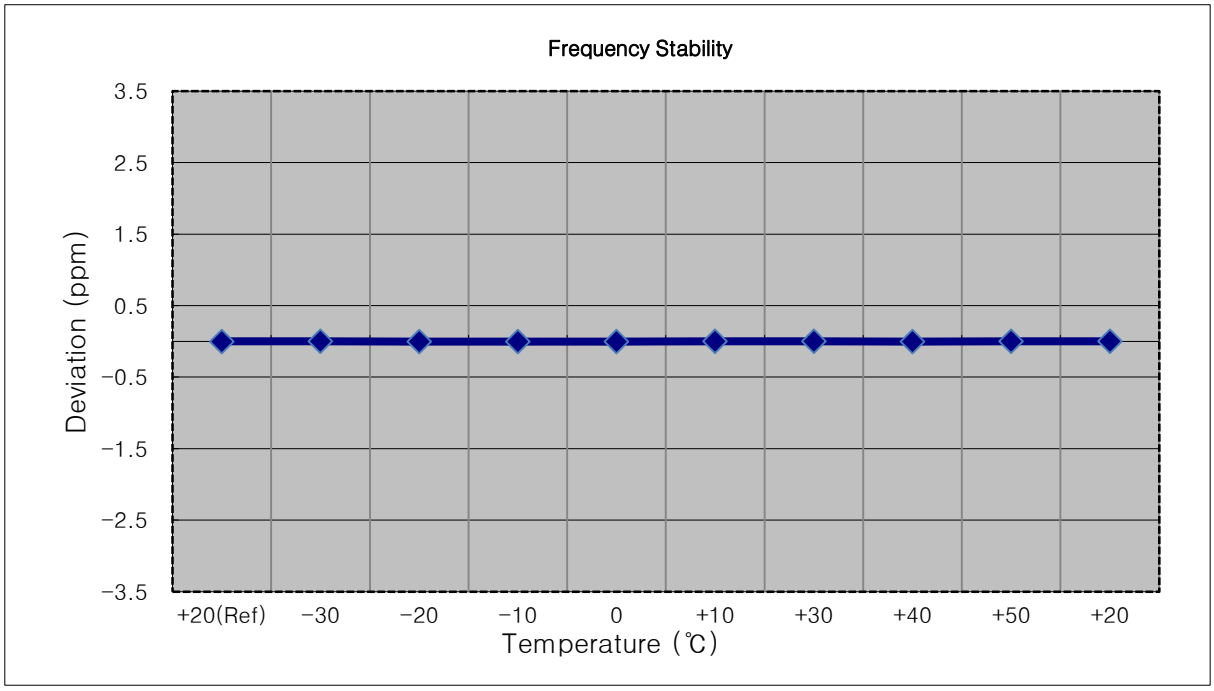
▣ OPERATING FREQUENCY: 1779,300,000 Hz

▣ CHANNEL: 132665 (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)	1779 300 005	0.0	0.000 000	0.000
100 %		-30	1779 300 009	4.1	0.000 000	0.002
100 %		-20	1779 300 002	-3.1	0.000 000	-0.002
100 %		-10	1779 300 000	-4.7	0.000 000	-0.003
100 %		0	1779 300 002	-2.5	0.000 000	-0.001
100 %		+10	1779 300 009	4.2	0.000 000	0.002
100 %		+30	1779 300 010	5.0	0.000 000	0.003
100 %		+40	1779 300 001	-4.0	0.000 000	-0.002
100 %		+50	1779 300 010	4.9	0.000 000	0.003
Batt. Endpoint	3.400	+20	1779 300 009	4.7	0.000 000	0.003



▣ MODE: LTE 66/4

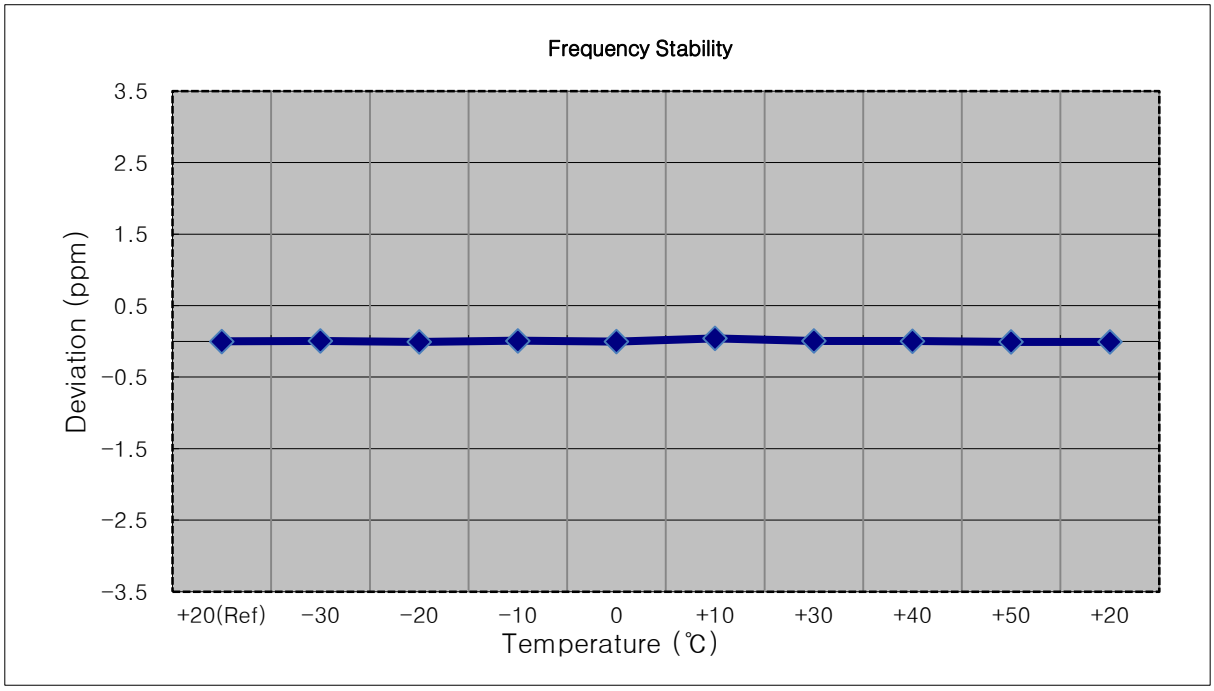
▣ OPERATING FREQUENCY: 1778,500,000 Hz

▣ CHANNEL: 132657 (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)	1778 499 994	0.0	0.000 000	0.000
100 %		-30	1778 500 006	11.8	0.000 001	0.007
100 %		-20	1778 499 982	-11.5	-0.000 001	-0.006
100 %		-10	1778 500 009	14.8	0.000 001	0.008
100 %		0	1778 499 989	-5.1	0.000 000	-0.003
100 %		+10	1778 500 070	75.6	0.000 004	0.043
100 %		+30	1778 500 004	10.0	0.000 001	0.006
100 %		+40	1778 500 001	7.3	0.000 000	0.004
100 %		+50	1778 499 980	-13.9	-0.000 001	-0.008
Batt. Endpoint	3.400	+20	1778 499 980	-13.7	-0.000 001	-0.008



▣ MODE: LTE 66/4

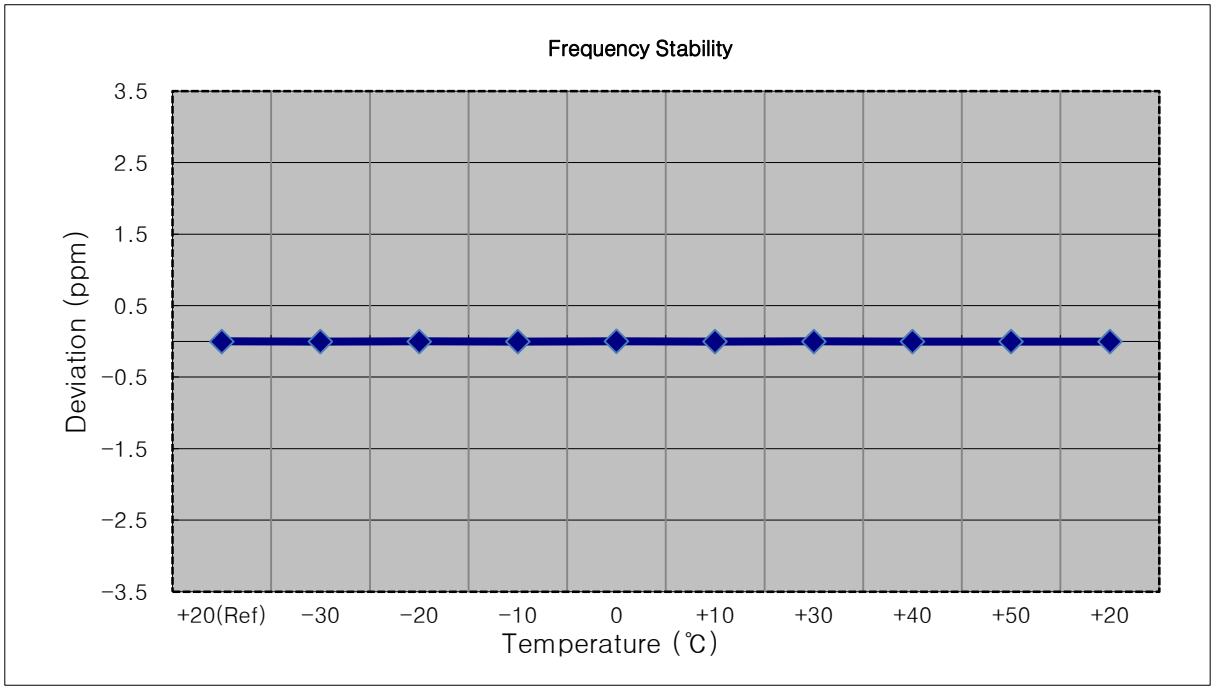
▣ OPERATING FREQUENCY: 1777,500,000 Hz

▣ CHANNEL: 132647 (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)	1777 499 995	0.0	0.000 000	0.000
100 %		-30	1777 499 990	-4.6	0.000 000	-0.003
100 %		-20	1777 499 993	-1.8	0.000 000	-0.001
100 %		-10	1777 499 989	-5.9	0.000 000	-0.003
100 %		0	1777 499 998	2.7	0.000 000	0.002
100 %		+10	1777 499 992	-2.6	0.000 000	-0.001
100 %		+30	1777 499 993	-1.6	0.000 000	-0.001
100 %		+40	1777 499 992	-3.3	0.000 000	-0.002
100 %		+50	1777 499 990	-5.3	0.000 000	-0.003
Batt. Endpoint	3.400	+20	1777 499 992	-2.9	0.000 000	-0.002



▣ MODE: LTE 66/4

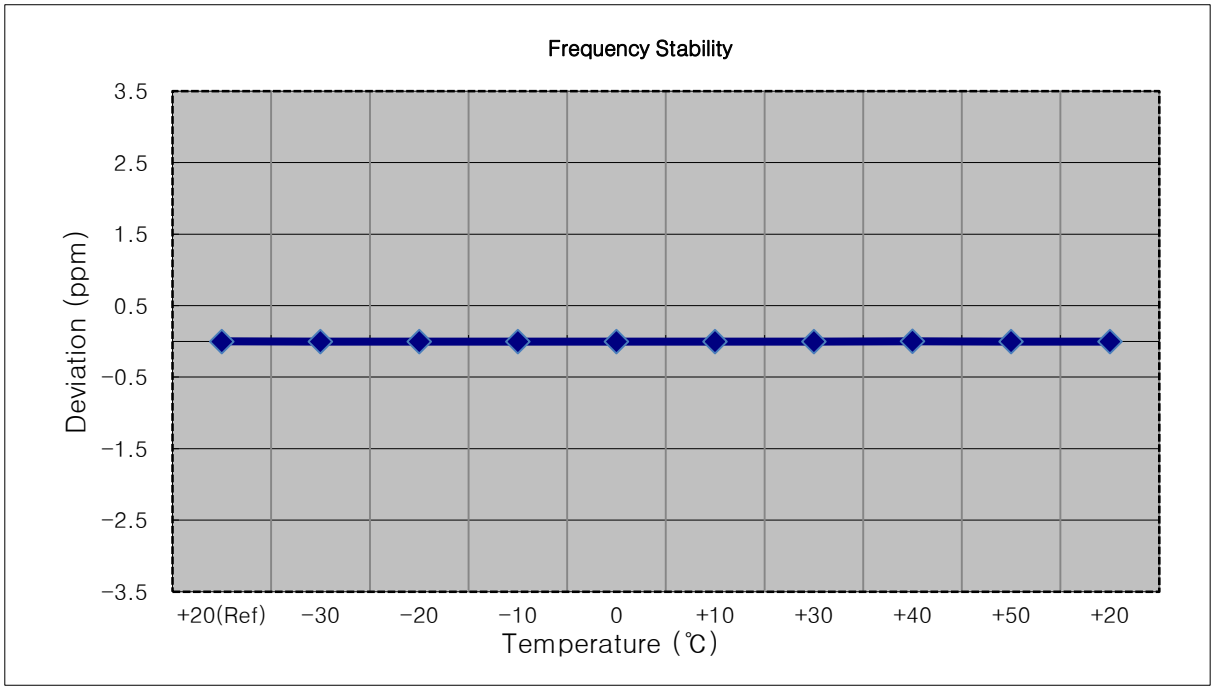
▣ OPERATING FREQUENCY: 1775,000,000 Hz

▣ CHANNEL: 132622 (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)	1774 999 997	0.0	0.000 000	0.000
100 %		-30	1774 999 993	-4.7	0.000 000	-0.003
100 %		-20	1774 999 992	-5.3	0.000 000	-0.003
100 %		-10	1774 999 993	-4.0	0.000 000	-0.002
100 %		0	1774 999 994	-3.0	0.000 000	-0.002
100 %		+10	1774 999 993	-4.8	0.000 000	-0.003
100 %		+30	1774 999 992	-5.0	0.000 000	-0.003
100 %		+40	1775 000 000	2.7	0.000 000	0.002
100 %		+50	1774 999 993	-4.4	0.000 000	-0.002
Batt. Endpoint	3.400	+20	1774 999 994	-3.0	0.000 000	-0.002



▣ MODE: LTE 66/4

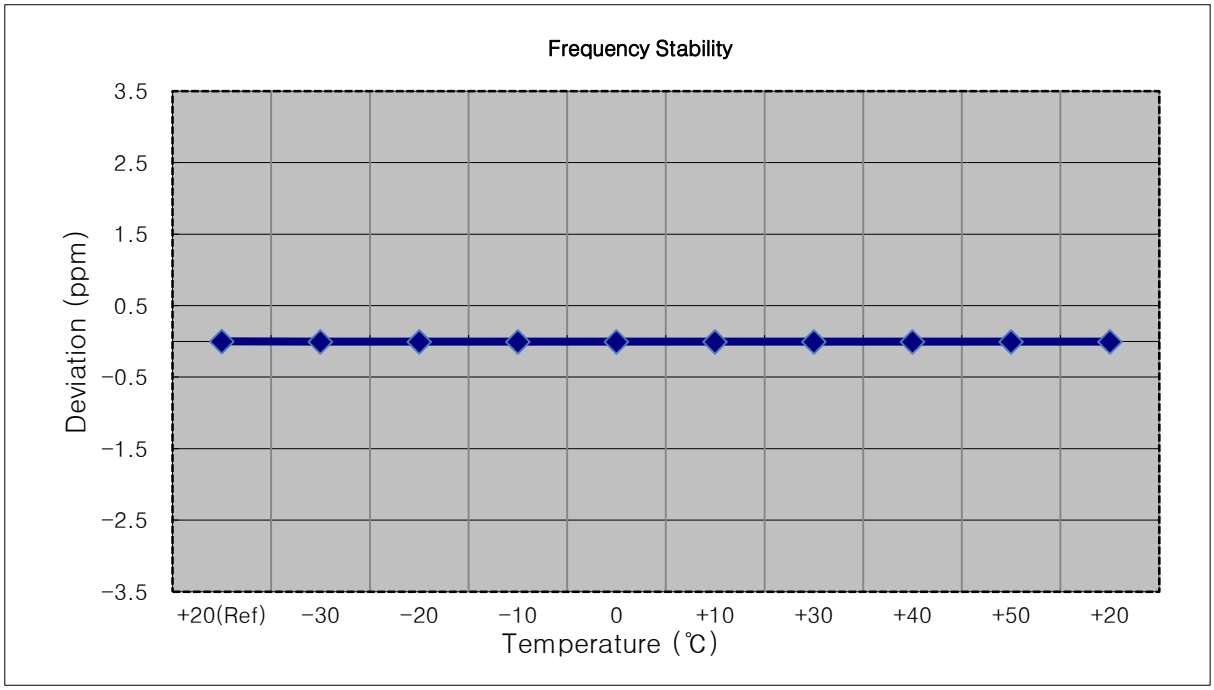
▣ OPERATING FREQUENCY: 1772,500,000 Hz

▣ CHANNEL: 132597 (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)	1772 499 992	0.0	0.000 000	0.000
100 %		-30	1772 499 986	-6.3	0.000 000	-0.004
100 %		-20	1772 499 985	-7.0	0.000 000	-0.004
100 %		-10	1772 499 984	-7.6	0.000 000	-0.004
100 %		0	1772 499 984	-7.8	0.000 000	-0.004
100 %		+10	1772 499 984	-7.7	0.000 000	-0.004
100 %		+30	1772 499 985	-7.4	0.000 000	-0.004
100 %		+40	1772 499 983	-8.7	0.000 000	-0.005
100 %		+50	1772 499 984	-8.0	0.000 000	-0.005
Batt. Endpoint	3.400	+20	1772 499 984	-8.1	0.000 000	-0.005



▣ MODE: LTE 66/4

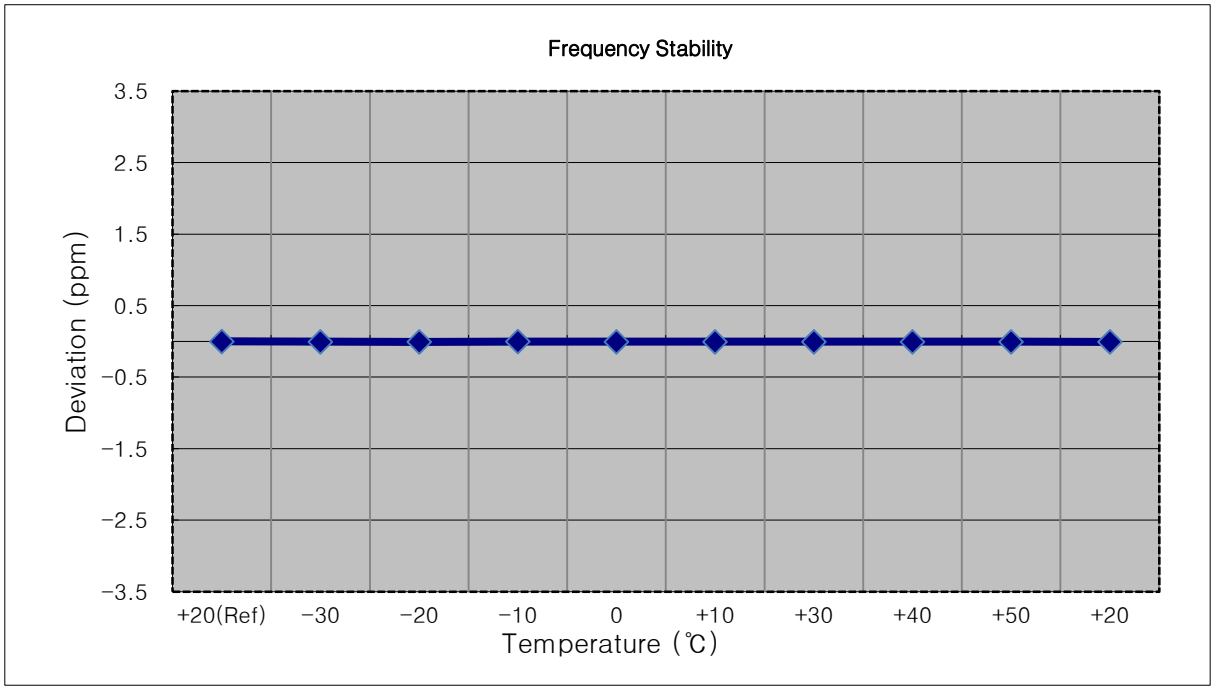
▣ OPERATING FREQUENCY: 1770,000,000 Hz

▣ CHANNEL: 132572 (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)	1769 999 992	0.0	0.000 000	0.000
100 %		-30	1769 999 983	-8.9	-0.000 001	-0.005
100 %		-20	1769 999 982	-10.0	-0.000 001	-0.006
100 %		-10	1769 999 988	-4.3	0.000 000	-0.002
100 %		0	1769 999 983	-8.8	0.000 000	-0.005
100 %		+10	1769 999 984	-7.9	0.000 000	-0.004
100 %		+30	1769 999 986	-6.2	0.000 000	-0.004
100 %		+40	1769 999 984	-8.0	0.000 000	-0.005
100 %		+50	1769 999 985	-7.1	0.000 000	-0.004
Batt. Endpoint	3.400	+20	1769 999 982	-10.1	-0.000 001	-0.006



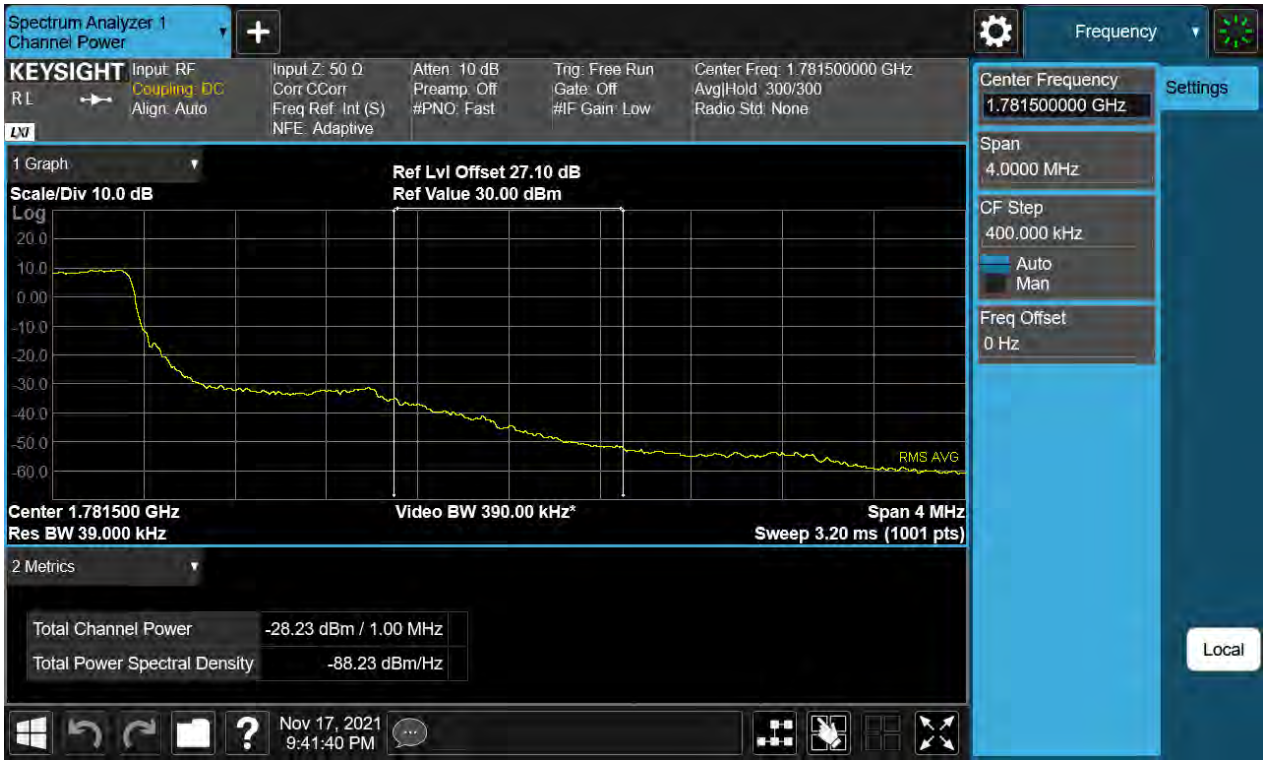
9. TEST PLOTS

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

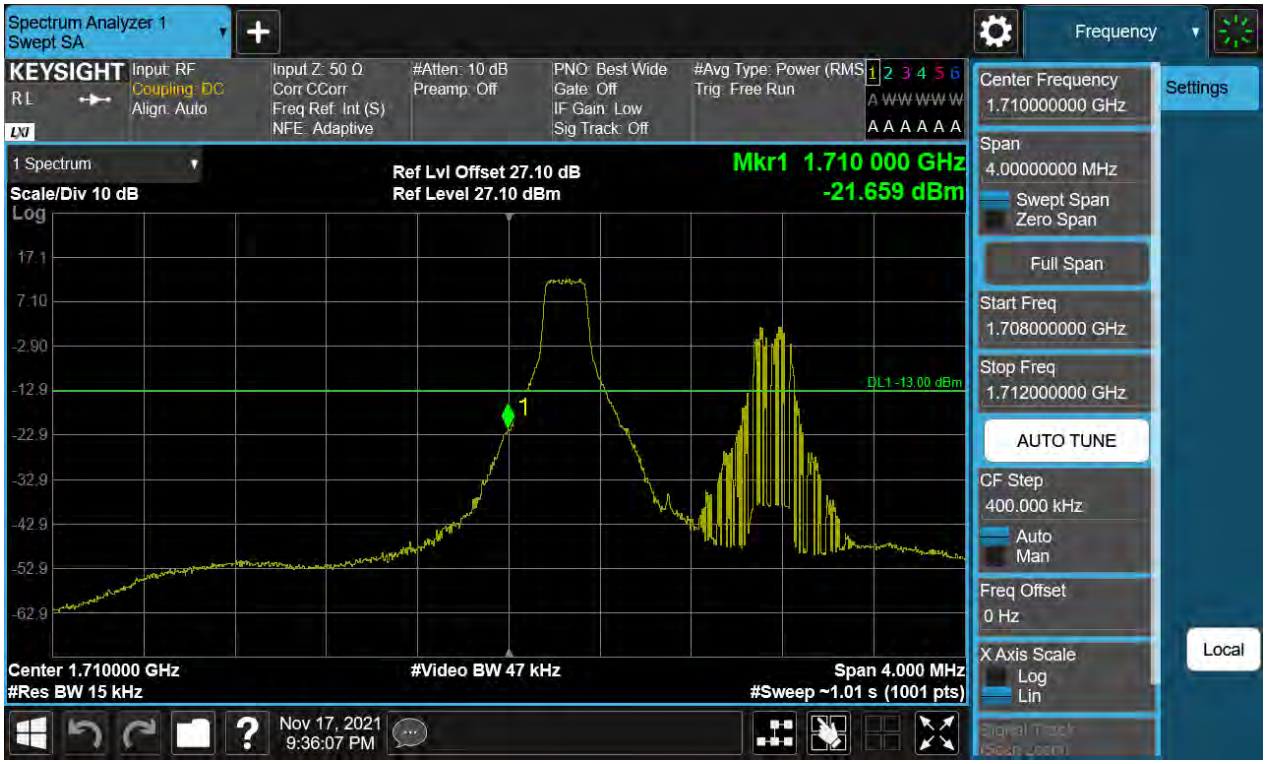
BW1.4 M_BandEdge_Lowest Channel_QPSK_FullRB(2) (Lower Ant)

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

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



BW1.4 M_BandEdge_Lowest Channel_QPSK_1RB(Lower Ant)



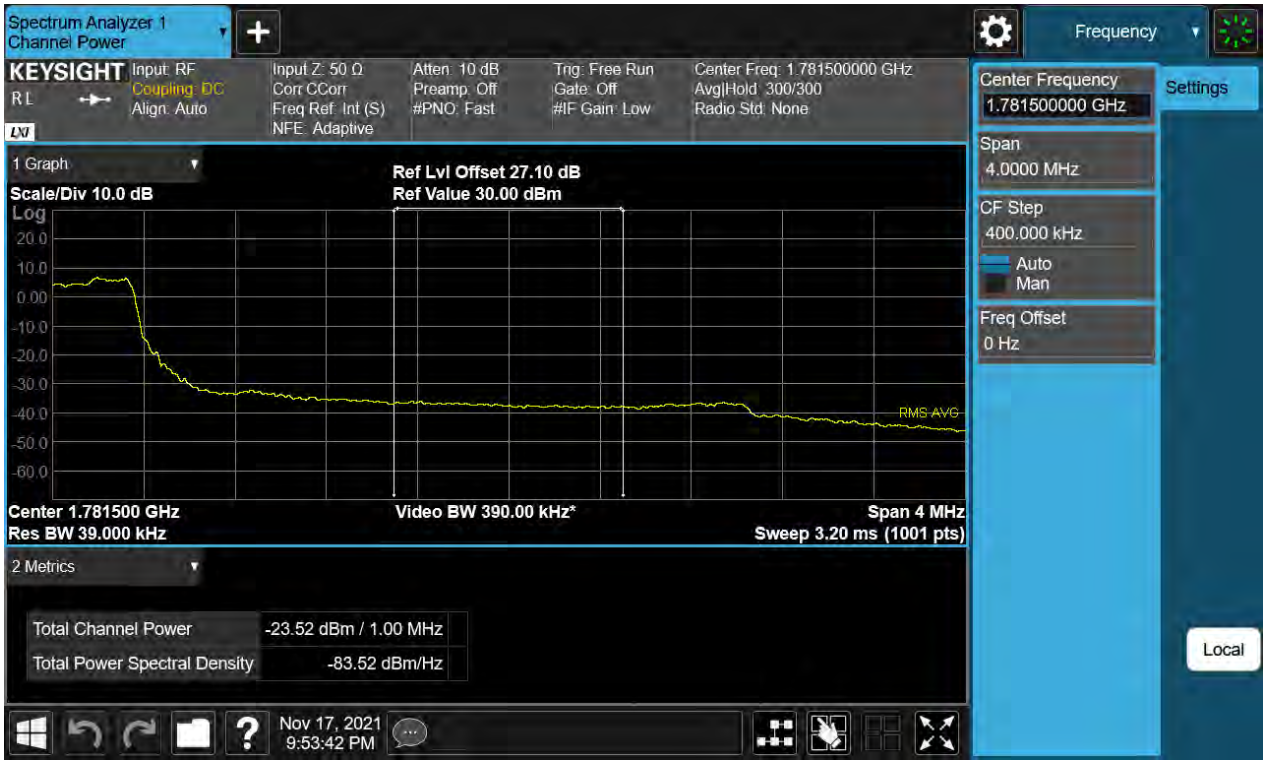
BW1.4 M_BandEdge_Highest Channel_QPSK_1RB(Lower Ant)

BW3 M_BandEdge_Lowest Channel_QPSK_FullRB(1) (Lower Ant)

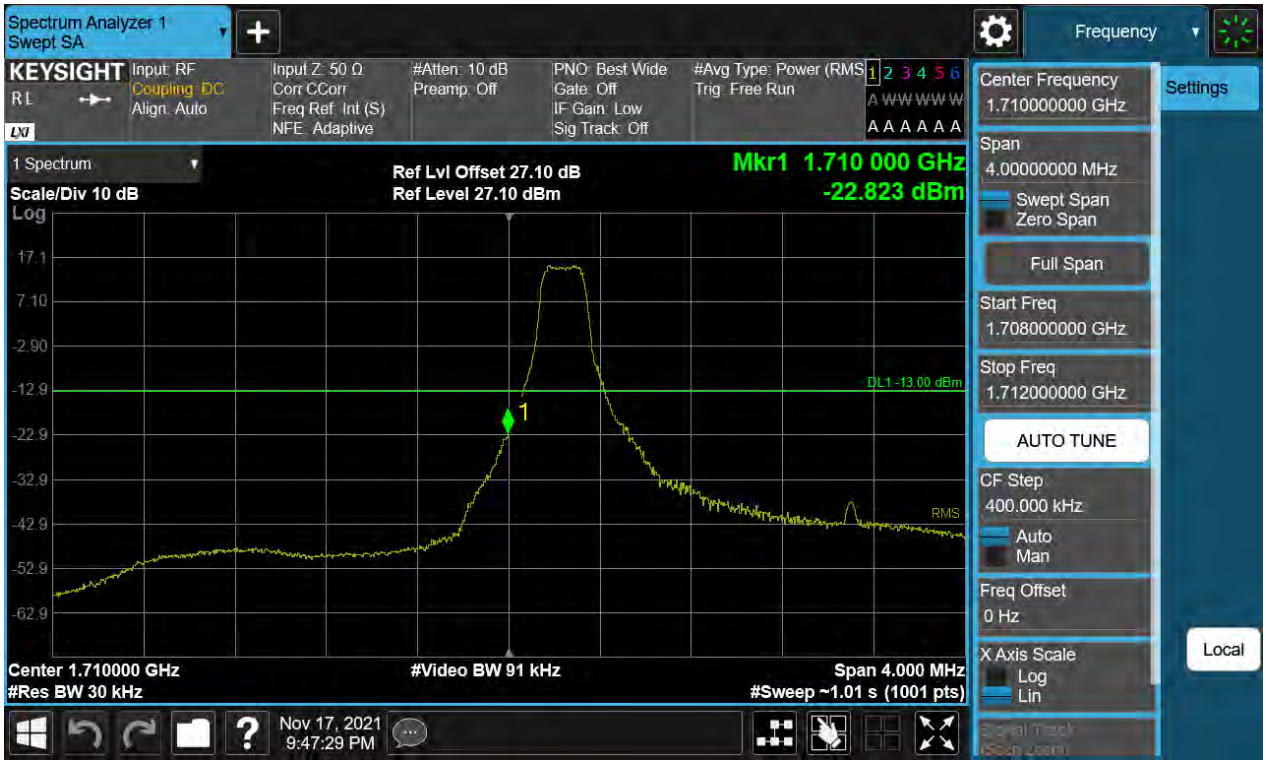
BW3 M_BandEdge_Lowest Channel_QPSK_FullRB(2) (Lower Ant)

BW3 M_BandEdge_Highest Channel_QPSK_FullRB(1) (Lower Ant)

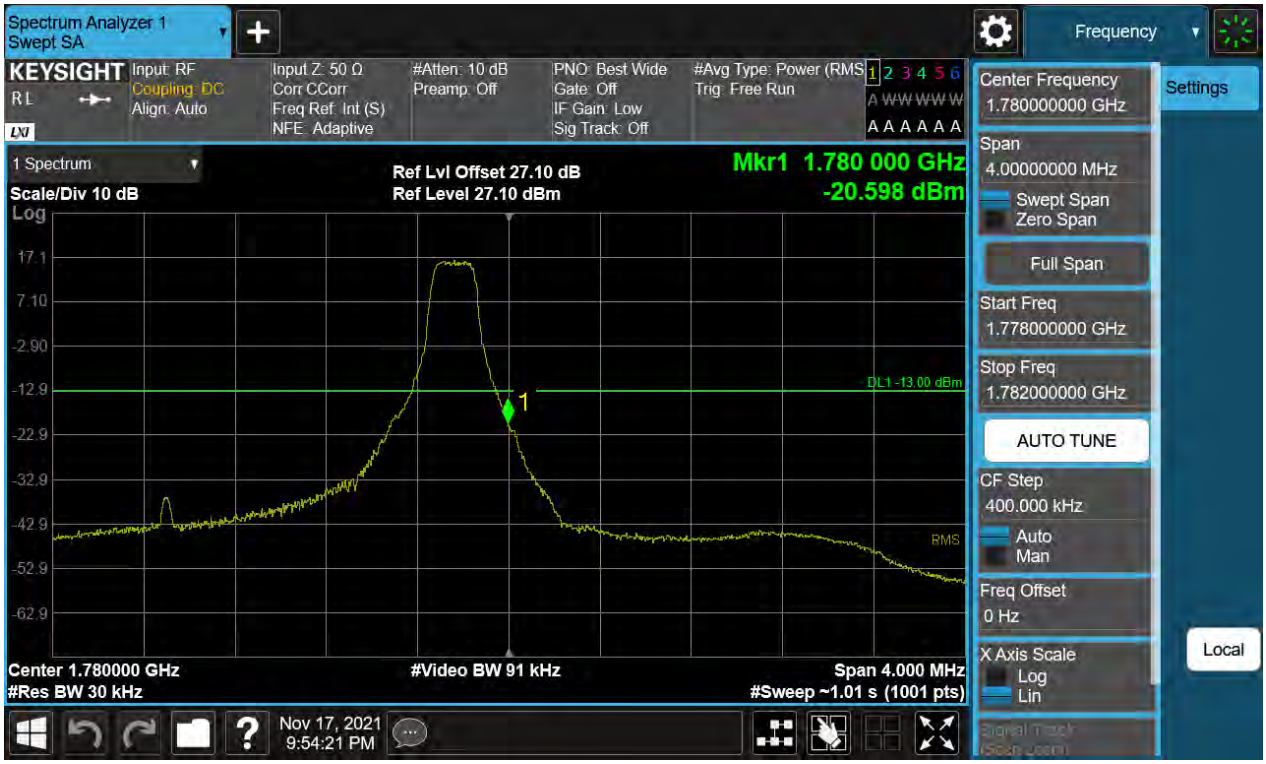
BW3 M_BandEdge_Highest Channel_QPSK_FullRB(2) (Lower Ant)



BW3 M_BandEdge_Lowest Channel_QPSK_1RB(Lower Ant)

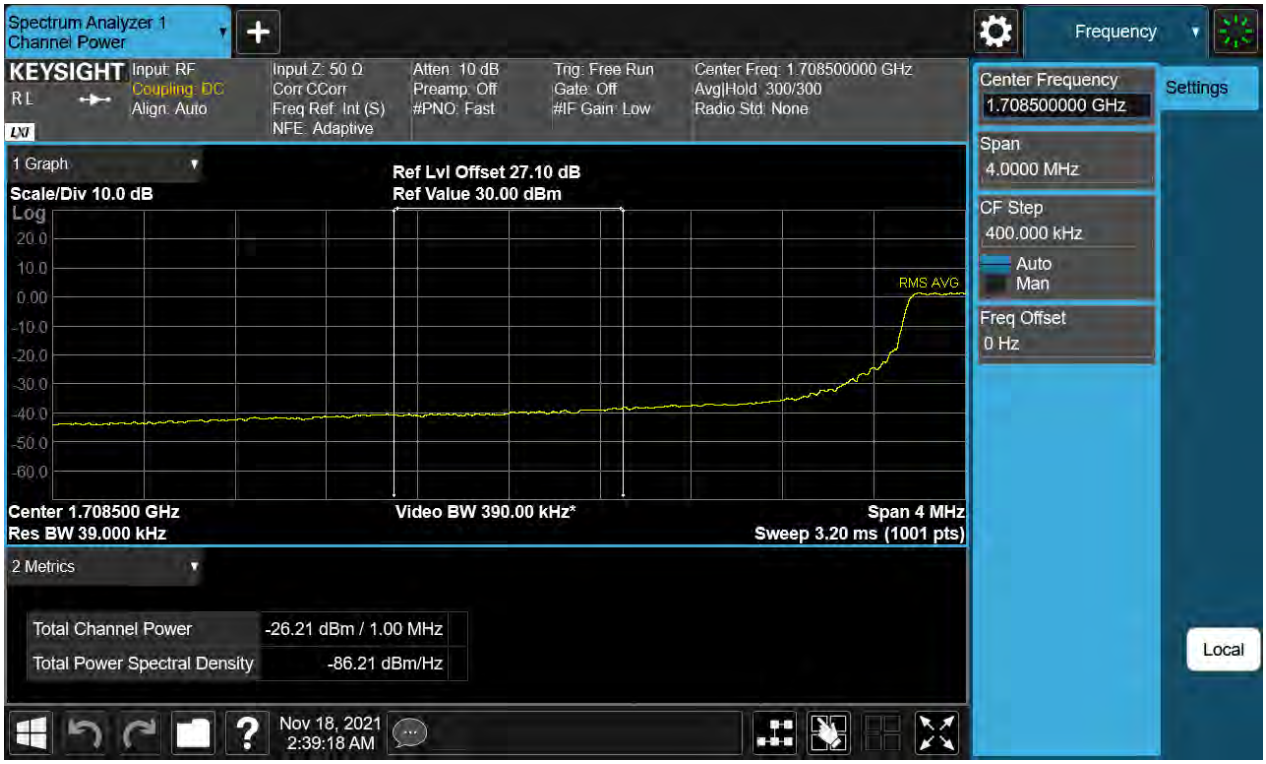


BW3 M_BandEdge_Highest Channel_QPSK_1RB(Lower Ant)



BW5 M_BandEdge_Lowest Channel_QPSK_FullRB(1) (Lower Ant)

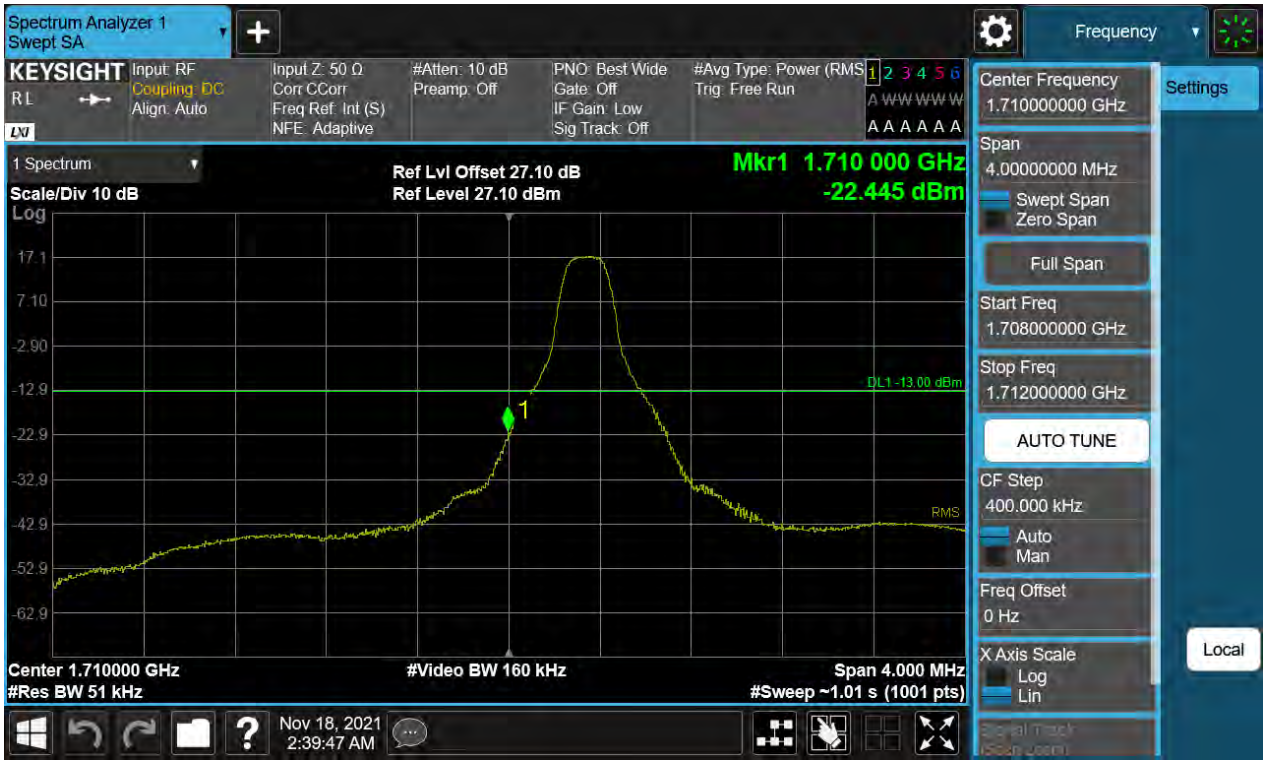
BW5 M_BandEdge_Lowest Channel_QPSK_FullRB(2) (Lower Ant)



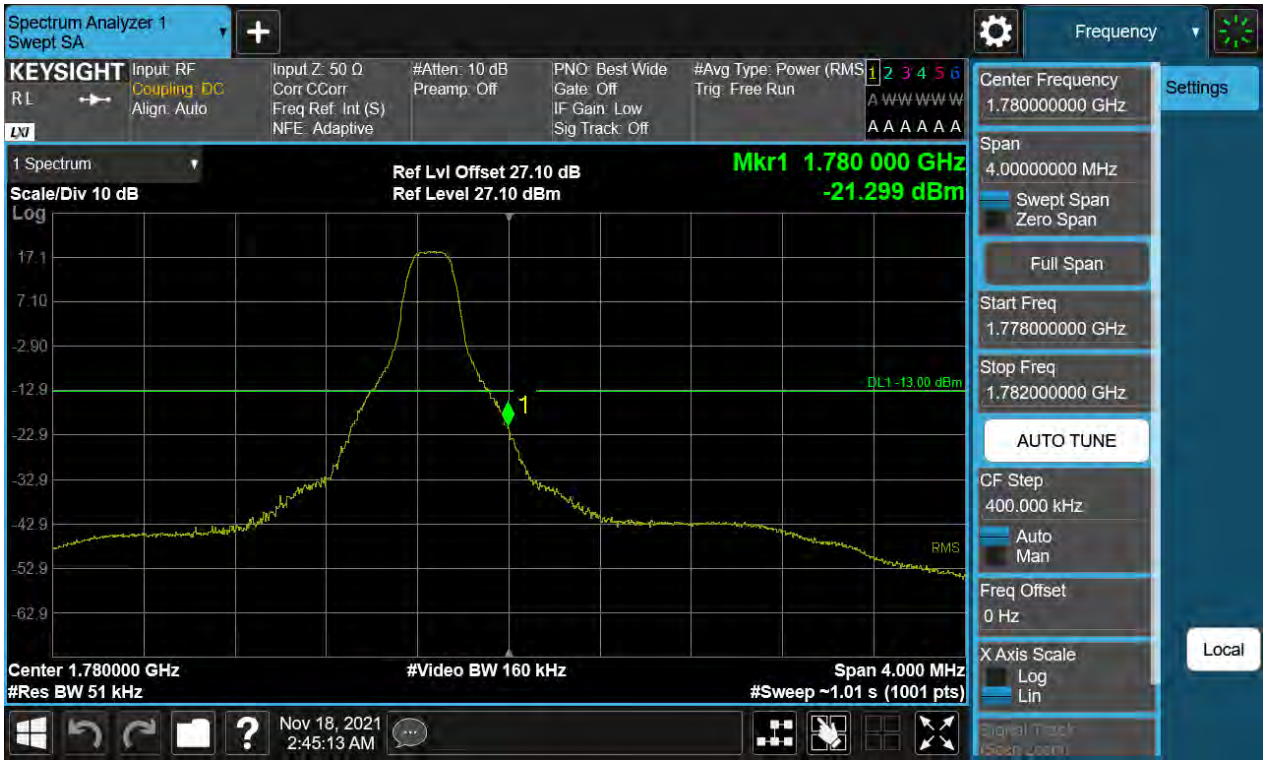
BW5 M_BandEdge_Highest Channel_QPSK_FullRB(1) (Lower Ant)

BW5 M_BandEdge_Highest Channel_QPSK_FullRB(2) (Lower Ant)

BW5 M_BandEdge_Lowest Channel_QPSK_1RB(Lower Ant)

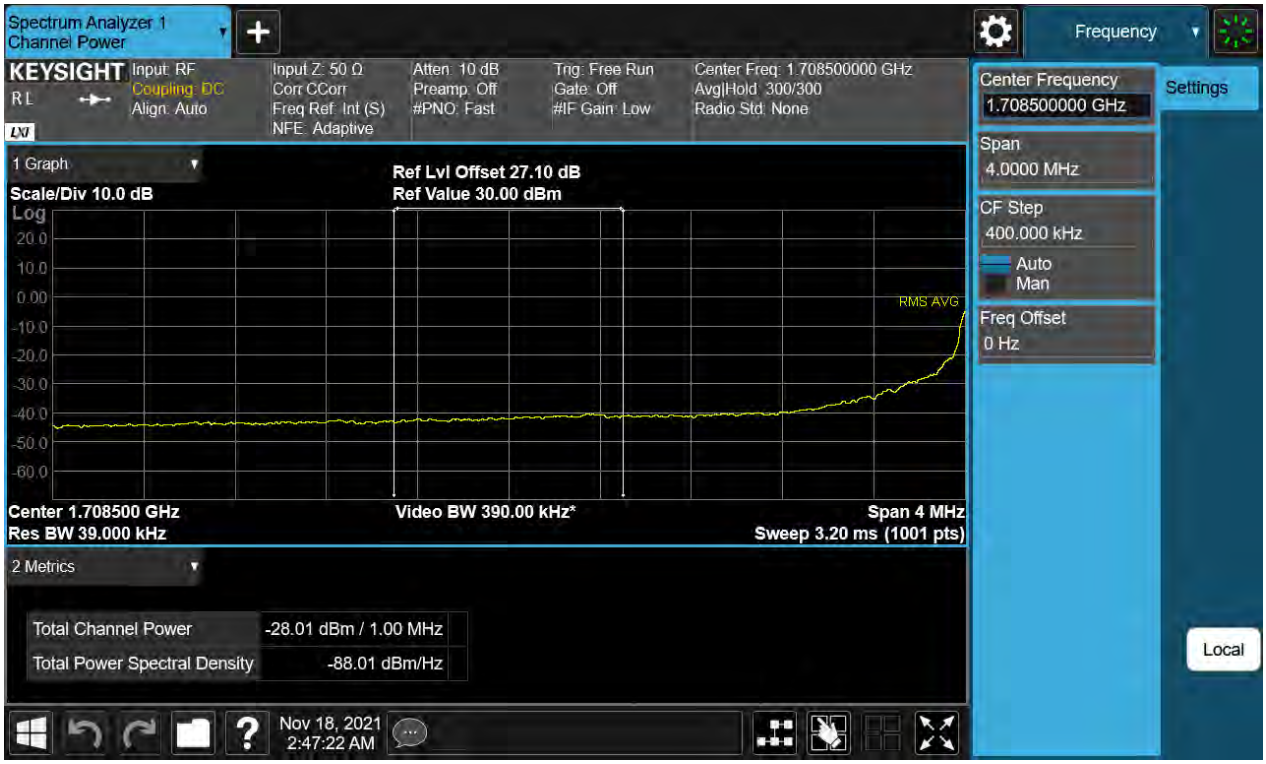


BW5 M_BandEdge_Highest Channel_QPSK_1RB(Lower Ant)



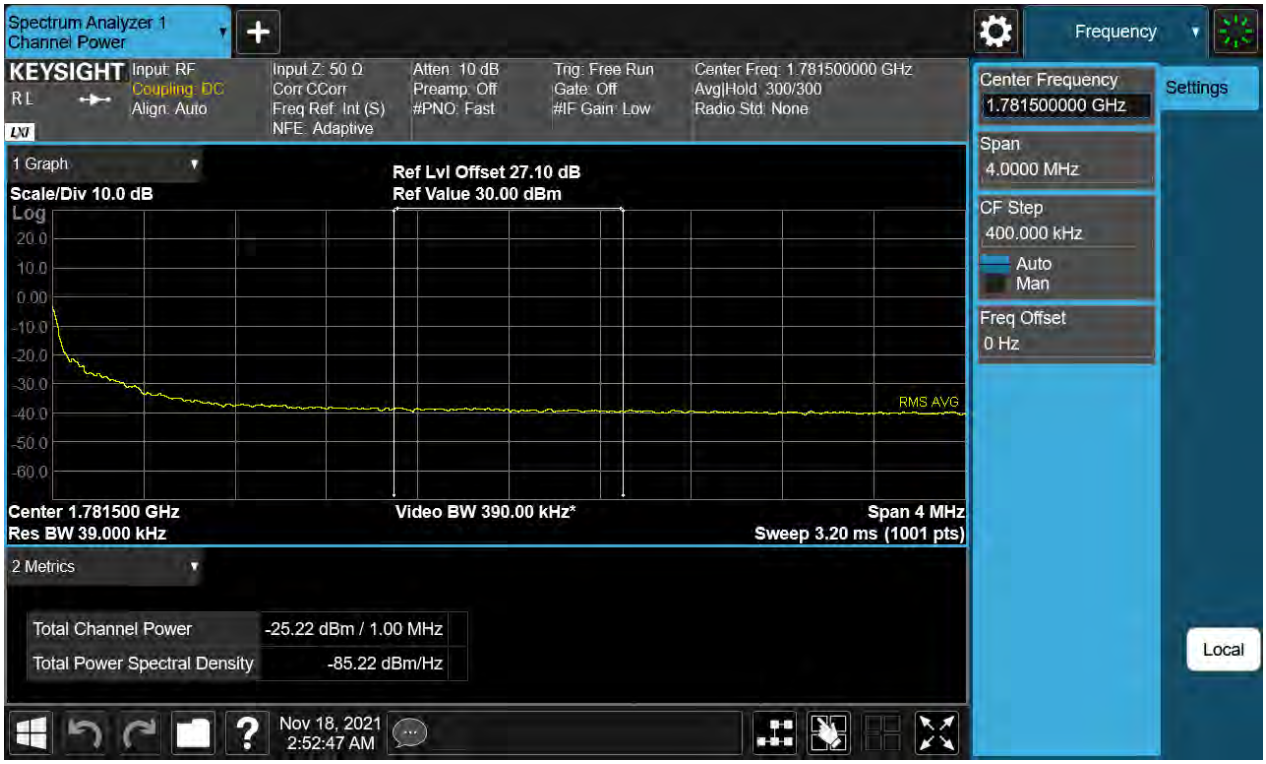
BW10 M_BandEdge_Lowest Channel_QPSK_FullRB(1) (Lower Ant)

BW10 M_BandEdge_Lowest Channel_QPSK_FullRB(2) (Lower Ant)



BW10 M_BandEdge_Highest Channel_QPSK_FullRB(1) (Lower Ant)

BW10 M_BandEdge_Highest Channel_QPSK_FullRB(2) (Lower Ant)

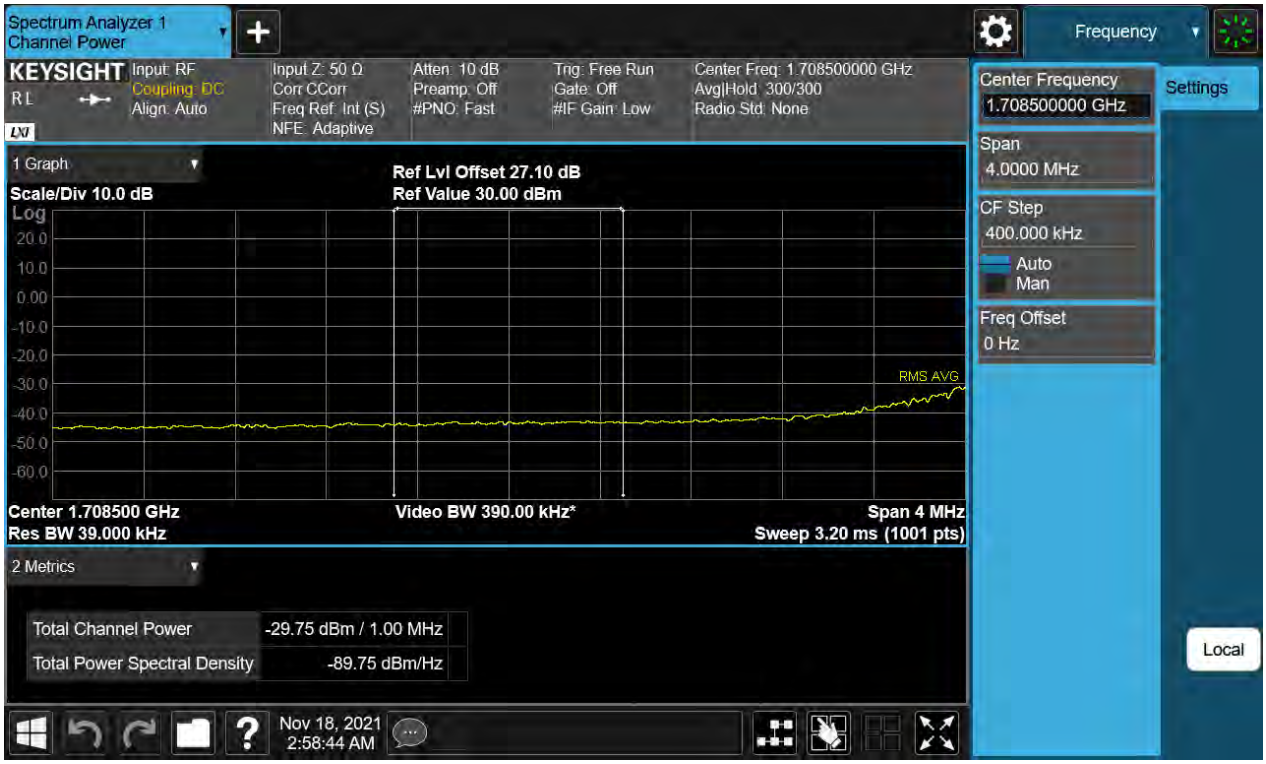


BW10 M_BandEdge_Lowest Channel_QPSK_1RB(Lower Ant)

BW10 M_BandEdge_Highest Channel_QPSK_1RB(Lower Ant)

BW15 M_BandEdge_Lowest Channel_QPSK_FullRB(1) (Lower Ant)

BW15 M_BandEdge_Lowest Channel_QPSK_FullRB(2) (Lower Ant)



BW15 M_BandEdge_Highest Channel_QPSK_FullRB(1) (Lower Ant)

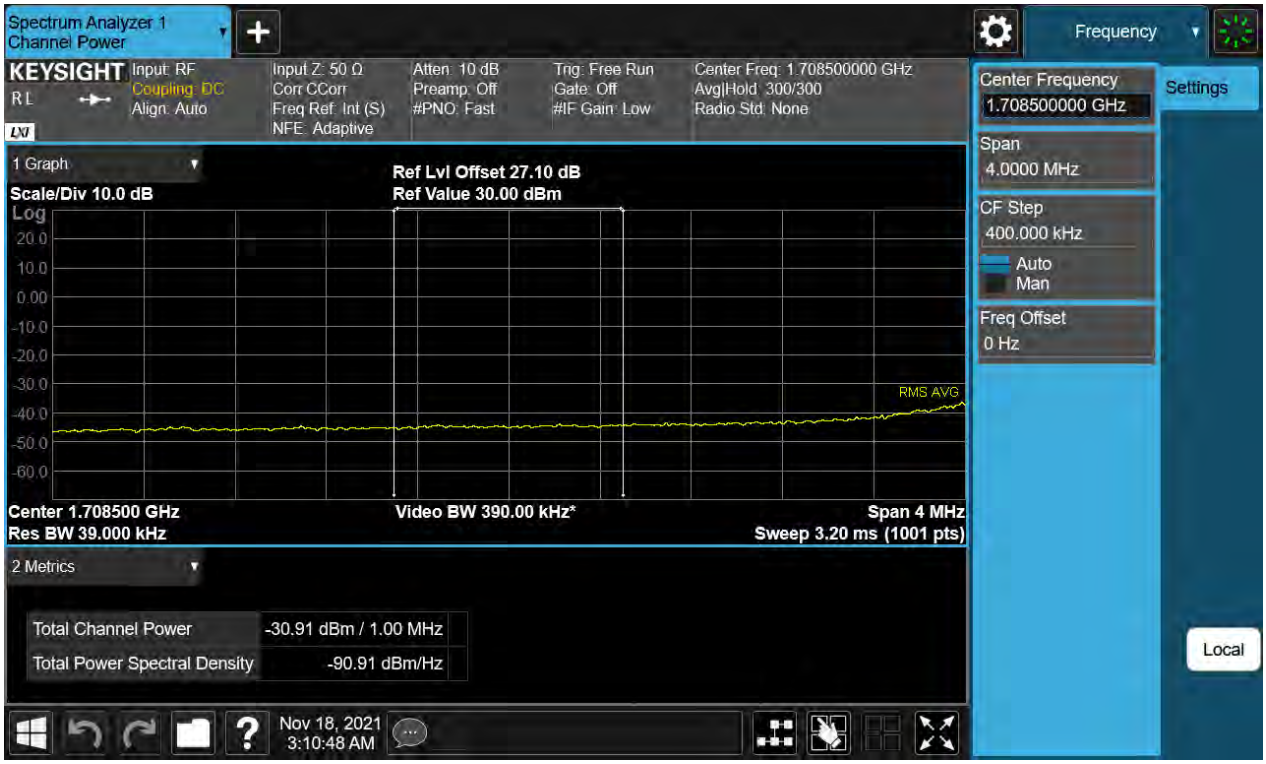
BW15 M_BandEdge_Highest Channel_QPSK_FullRB(2) (Lower Ant)

BW15 M_BandEdge_Lowest Channel_QPSK_1RB(Lower Ant)

BW15 M_BandEdge_Highest Channel_QPSK_1RB(Lower Ant)

BW20 M_BandEdge_Lowest Channel_QPSK_FullRB(1) (Lower Ant)

BW20 M_BandEdge_Lowest Channel_QPSK_FullRB(2) (Lower Ant)



BW20 M_BandEdge_Highest Channel_QPSK_FullRB(1) (Lower Ant)

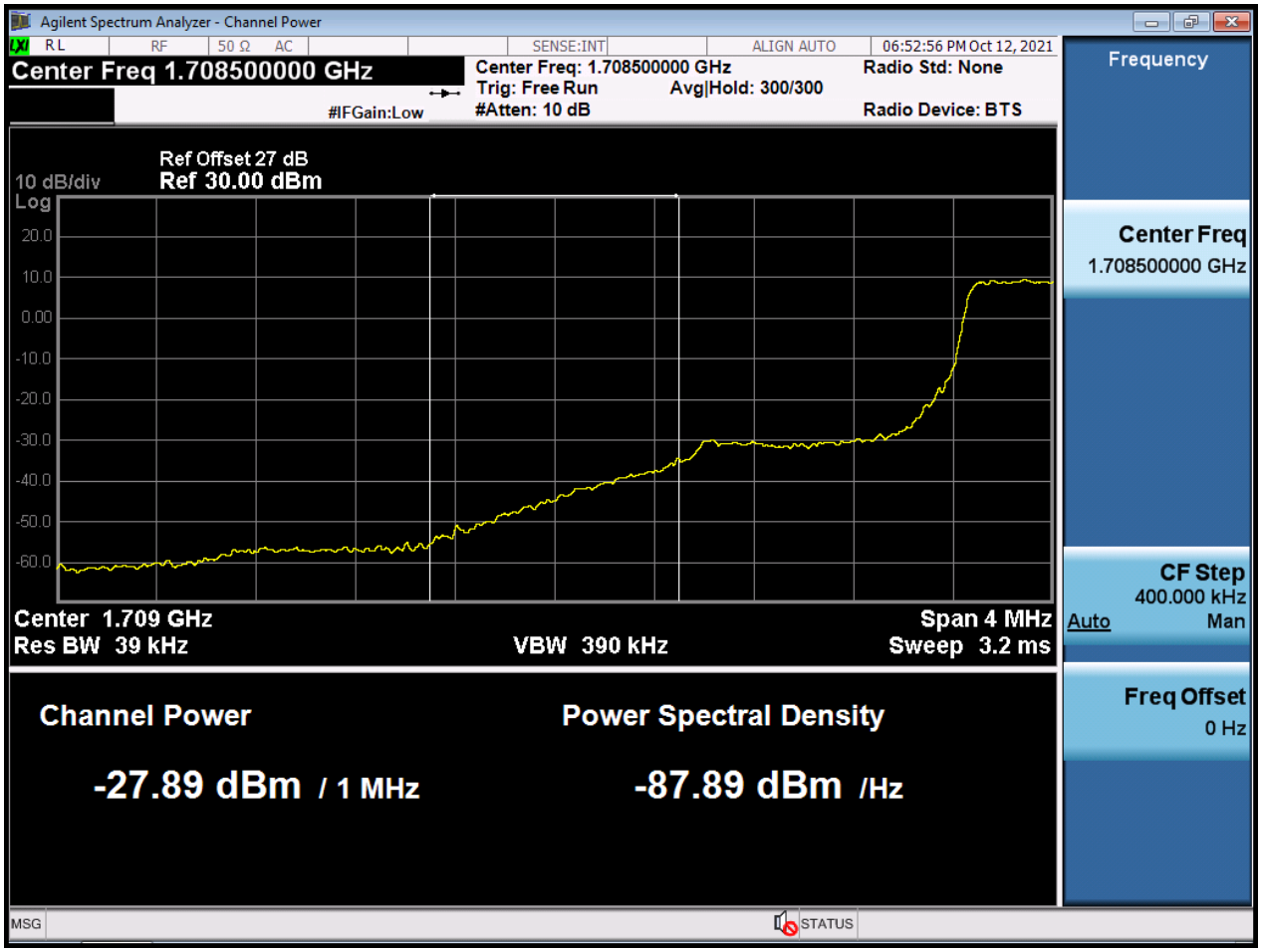
BW20 M_BandEdge_Highest Channel_QPSK_FullRB(2) (Lower Ant)

BW20 M_BandEdge_Lowest Channel_QPSK_1RB(Lower Ant)

BW20 M_BandEdge_Highest Channel_QPSK_1RB(Lower Ant)

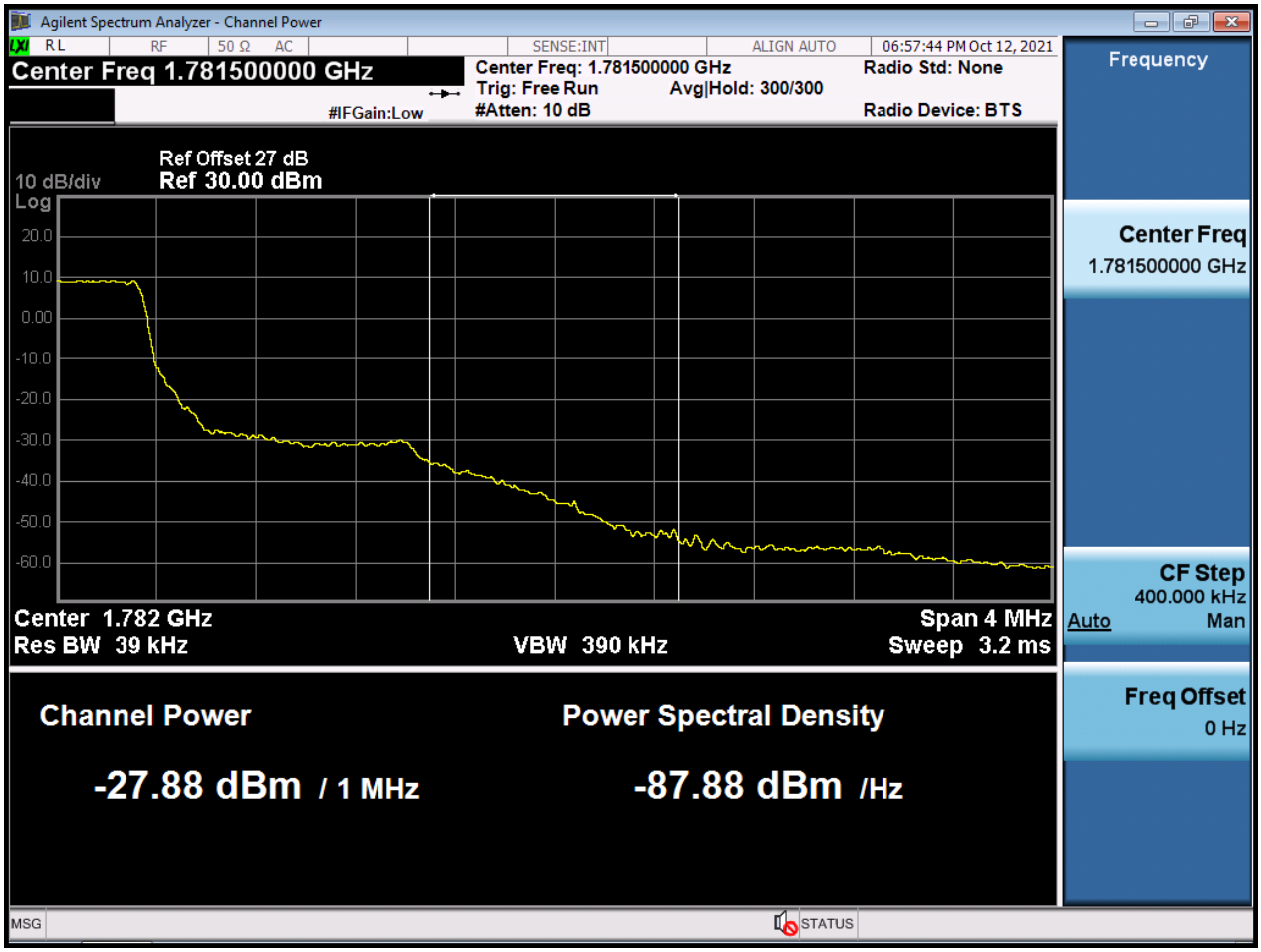
BW1.4 M_BandEdge_Lowest Channel_QPSK_FullRB(1) (Upper Ant)

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

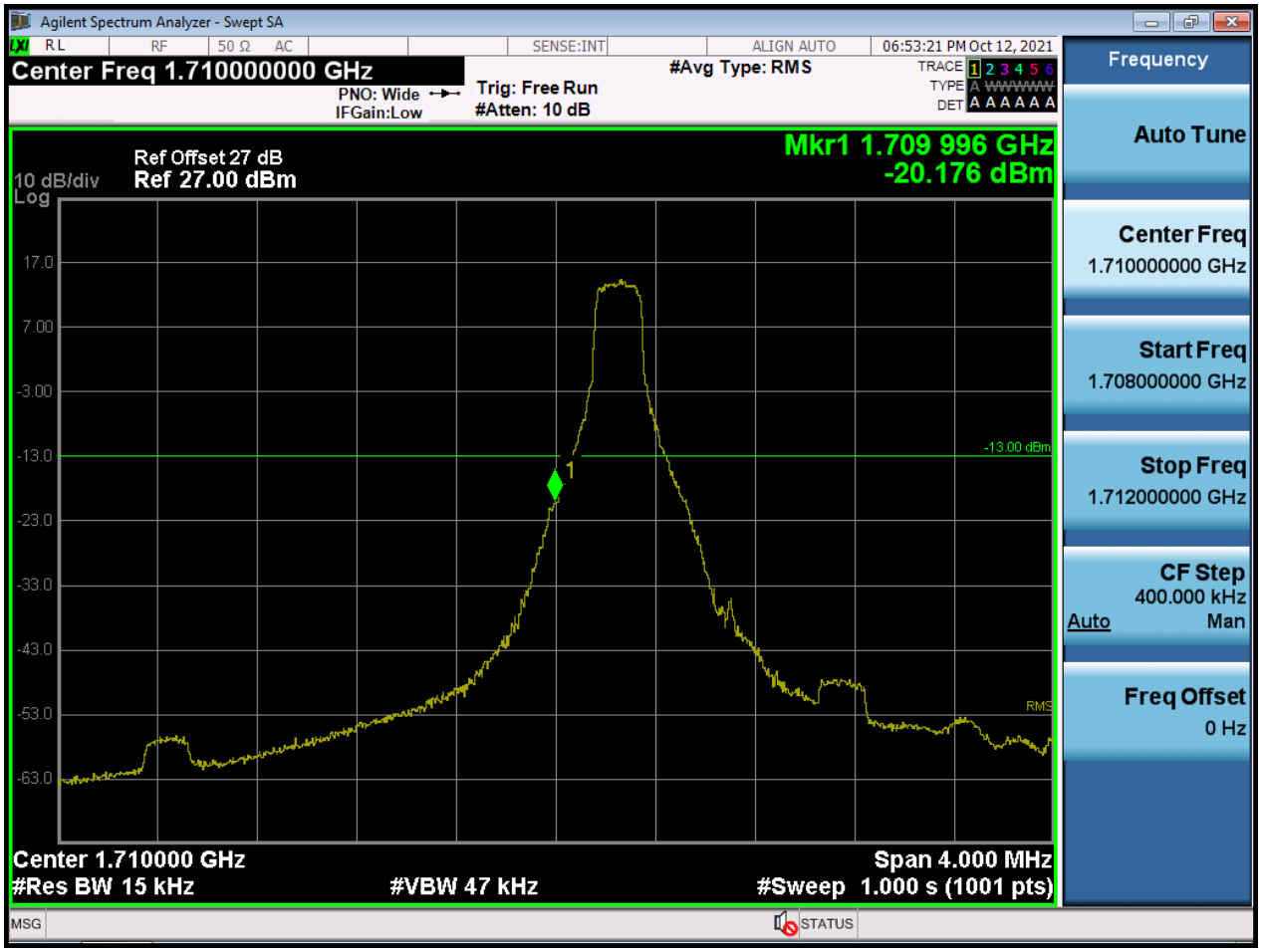


BW1.4 M_BandEdge_Highest Channel_QPSK_FullRB(1) (Upper Ant)

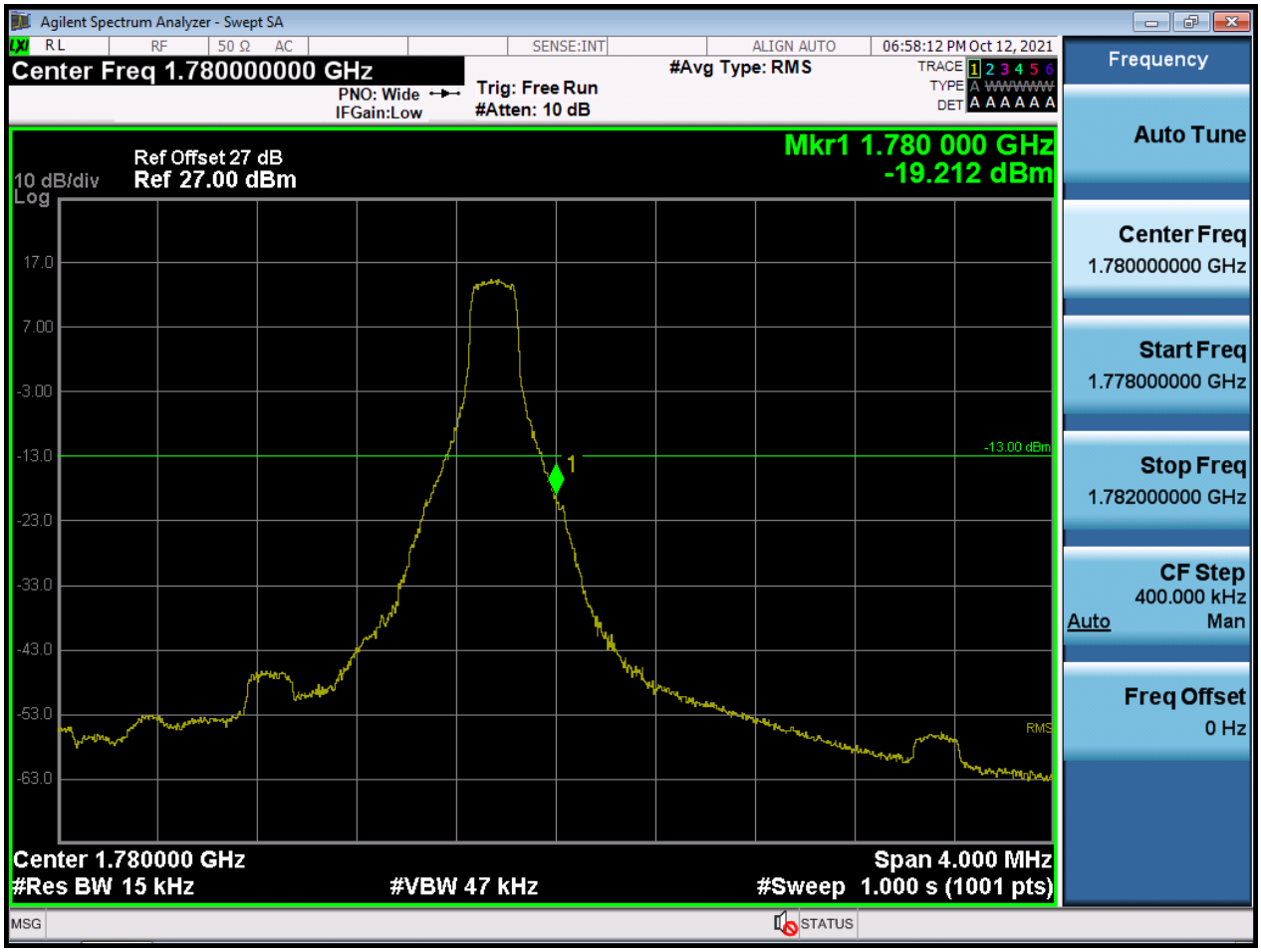
BW1.4 M_BandEdge_Highest Channel_QPSK_FullRB(2) (Upper Ant)



BW1.4 M_BandEdge_Lowest Channel_QPSK_1RB(Upper Ant)

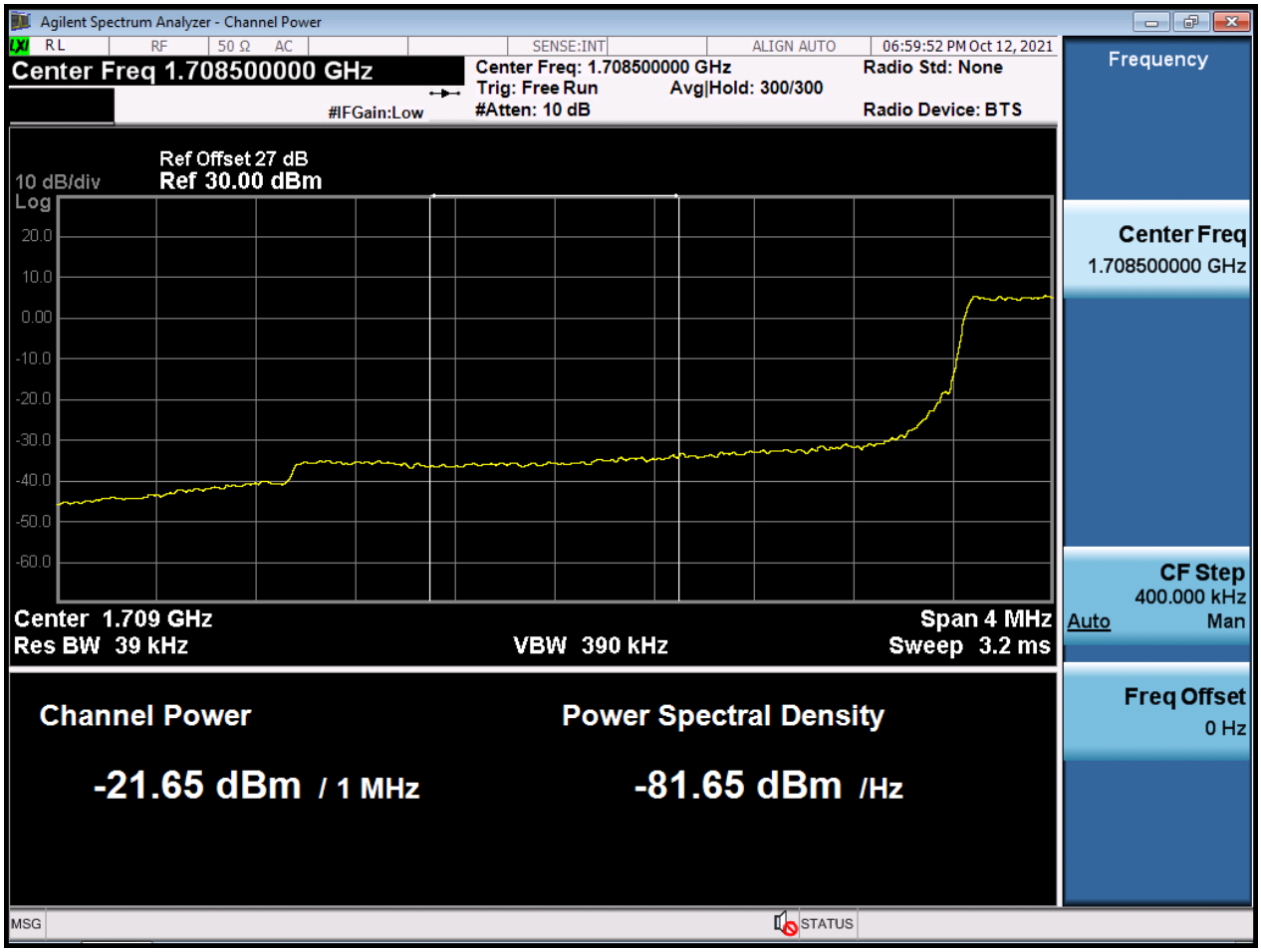


BW1.4 M_BandEdge_Highest Channel_QPSK_1RB(Upper Ant)



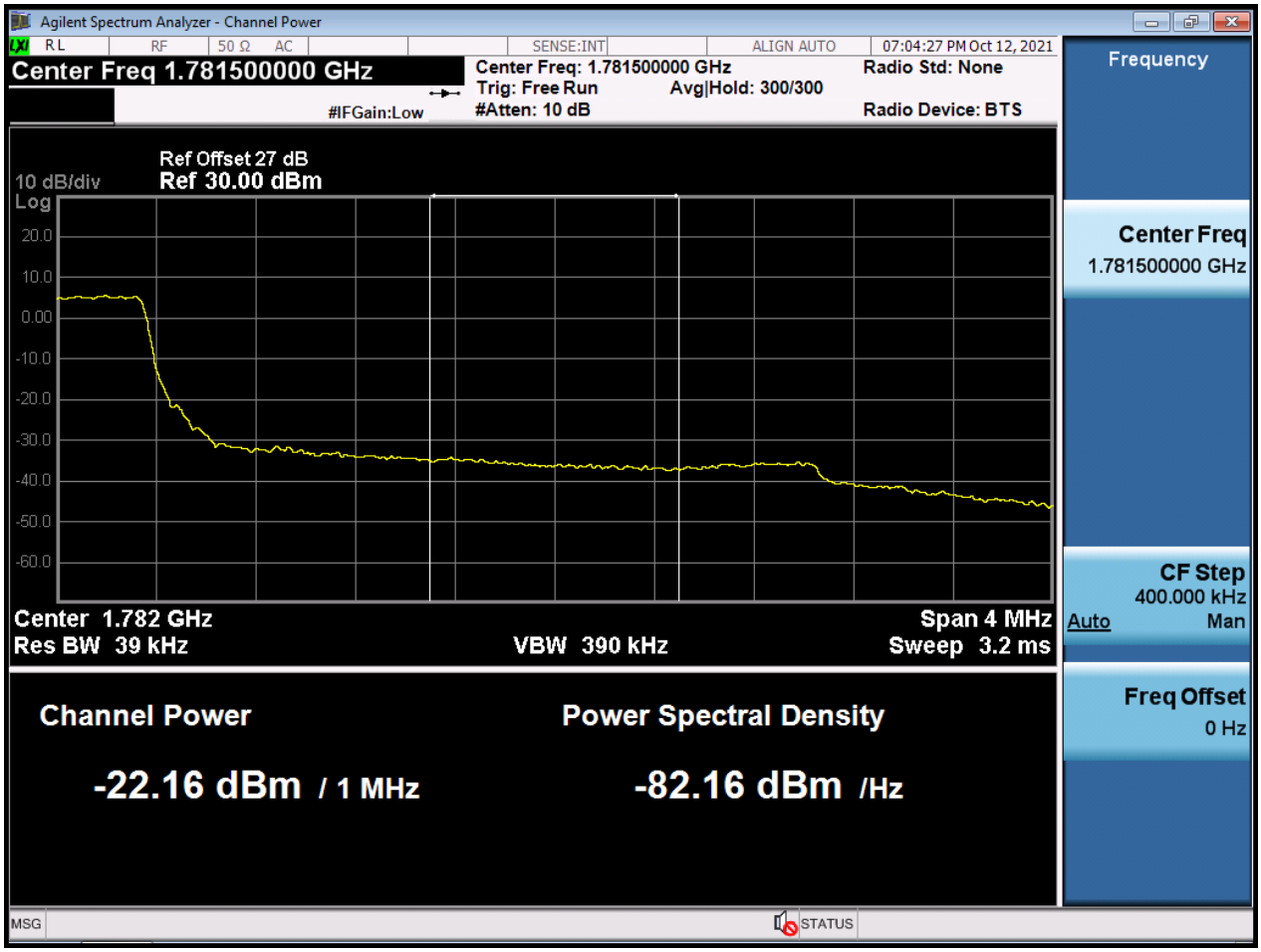
BW3 M_BandEdge_Lowest Channel_QPSK_FullRB(1) (Upper Ant)

BW3 M_BandEdge_Lowest Channel_QPSK_FullRB(2) (Upper Ant)

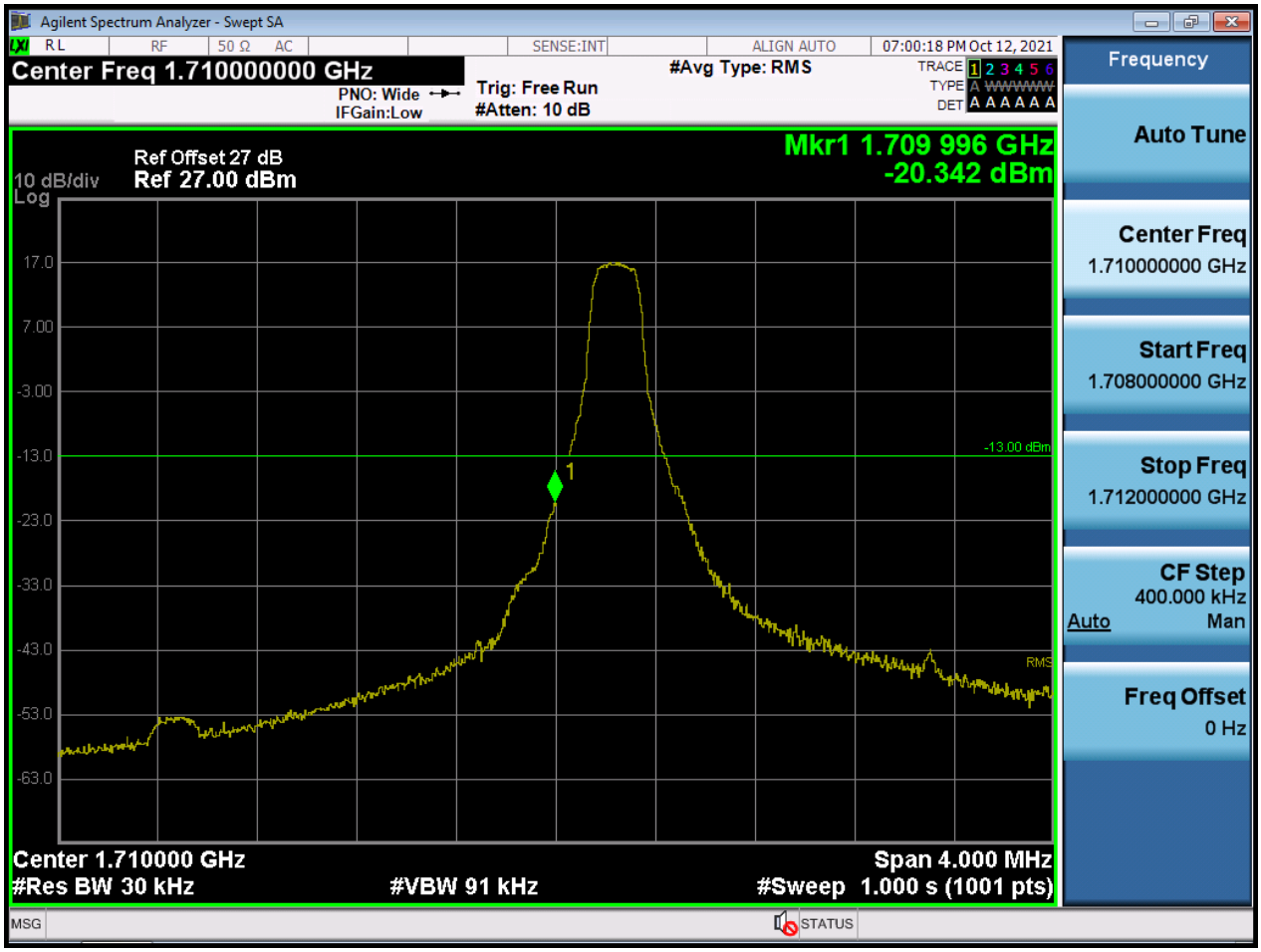


BW3 M_BandEdge_Highest Channel_QPSK_FullRB(1) (Upper Ant)

BW3 M_BandEdge_Highest Channel_QPSK_FullRB(2) (Upper Ant)



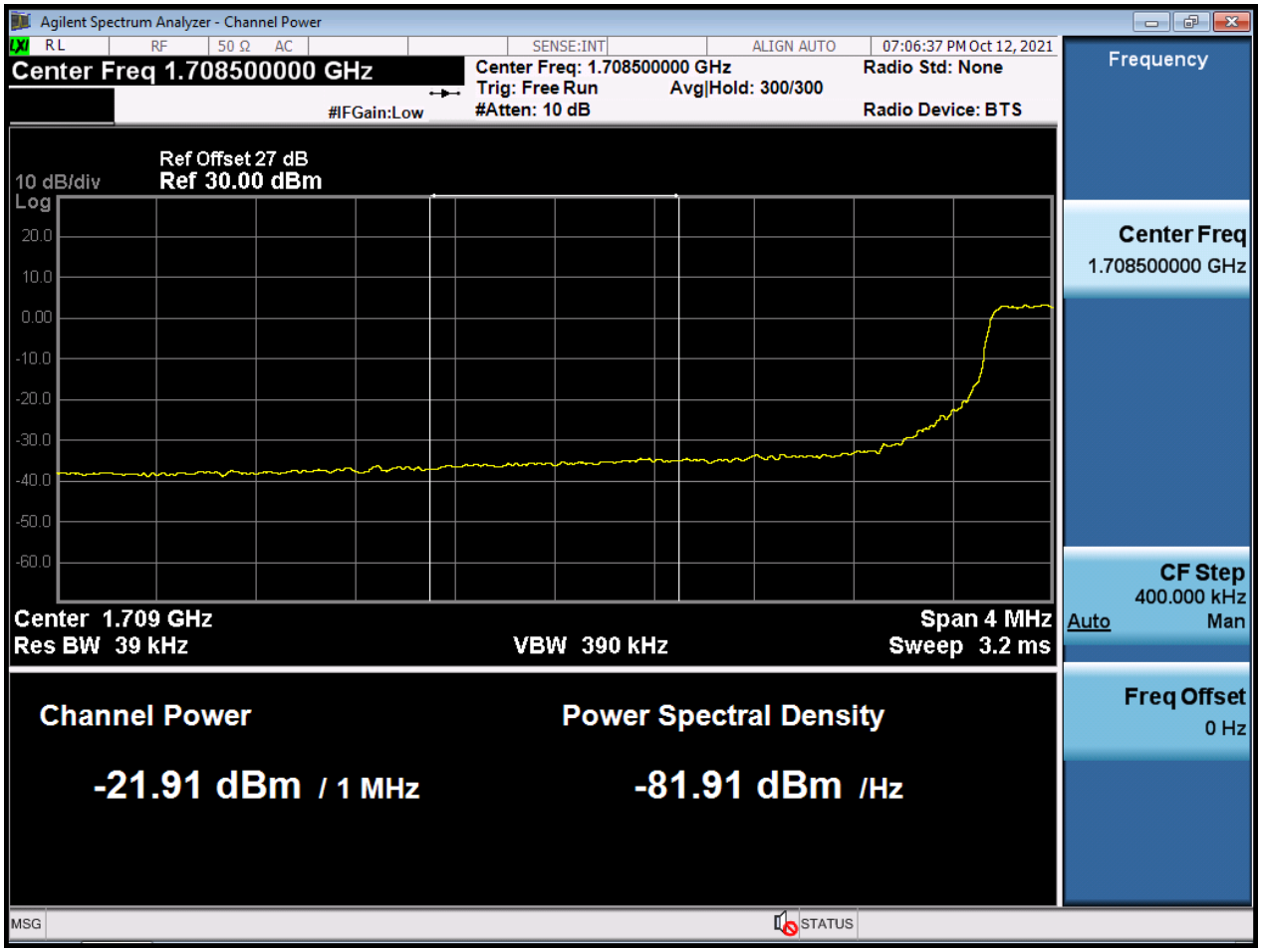
BW3 M_BandEdge_Lowest Channel_QPSK_1RB(Upper Ant)



BW3 M_BandEdge_Highest Channel_QPSK_1RB(Upper Ant)

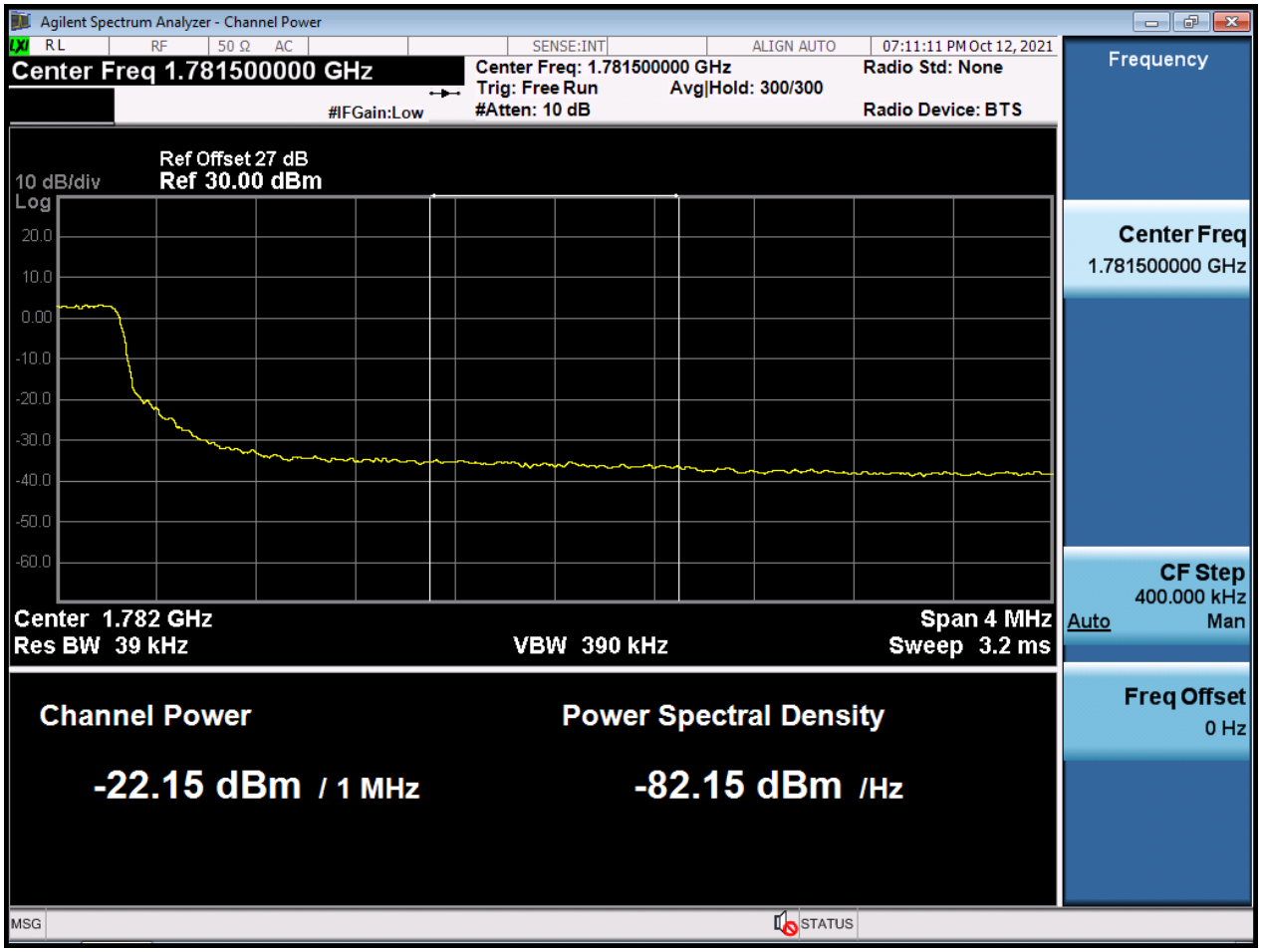
BW5 M_BandEdge_Lowest Channel_QPSK_FullRB(1) (Upper Ant)

BW5 M_BandEdge_Lowest Channel_QPSK_FullRB(2) (Upper Ant)

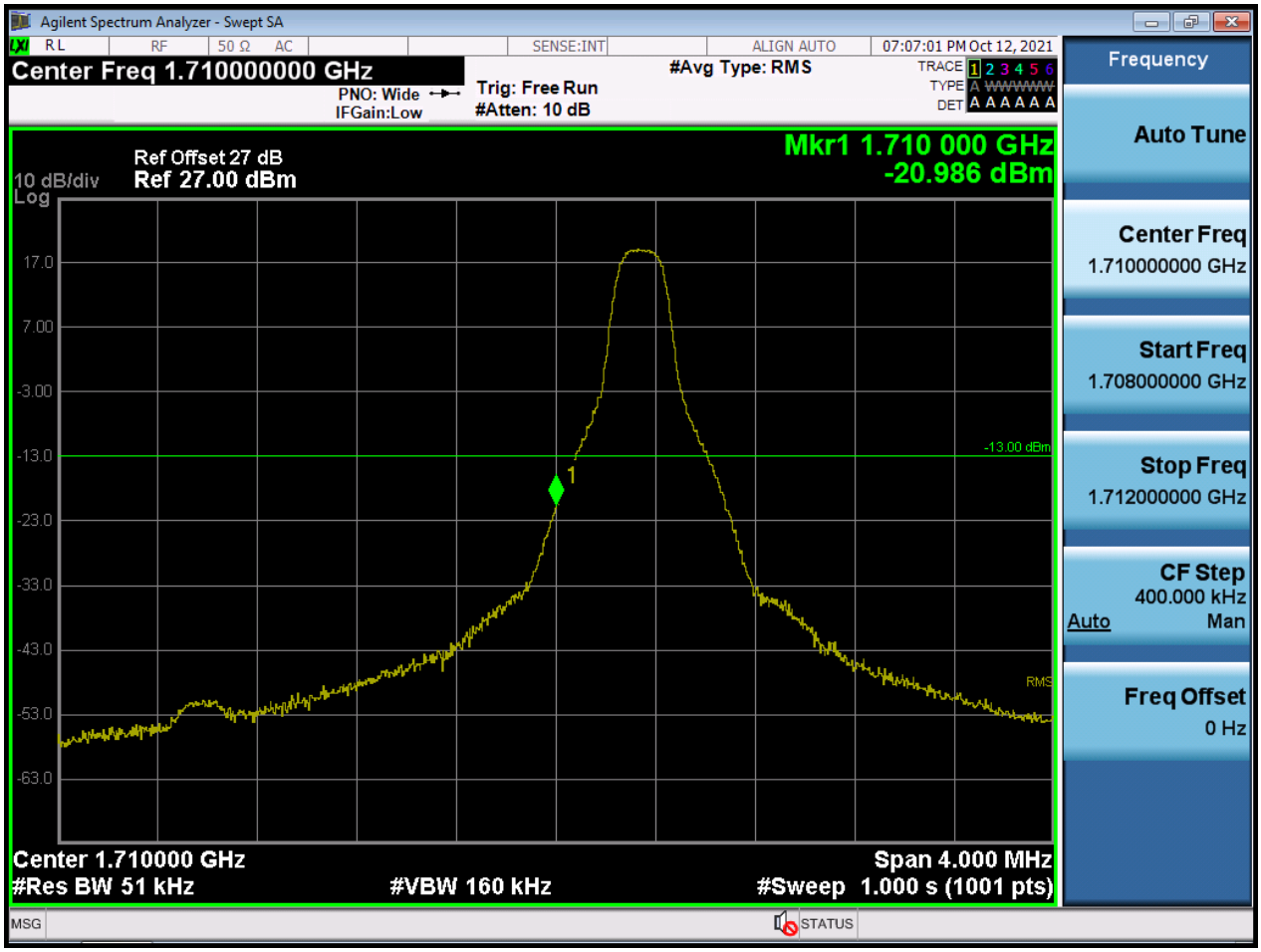


BW5 M_BandEdge_Highest Channel_QPSK_FullRB(1) (Upper Ant)

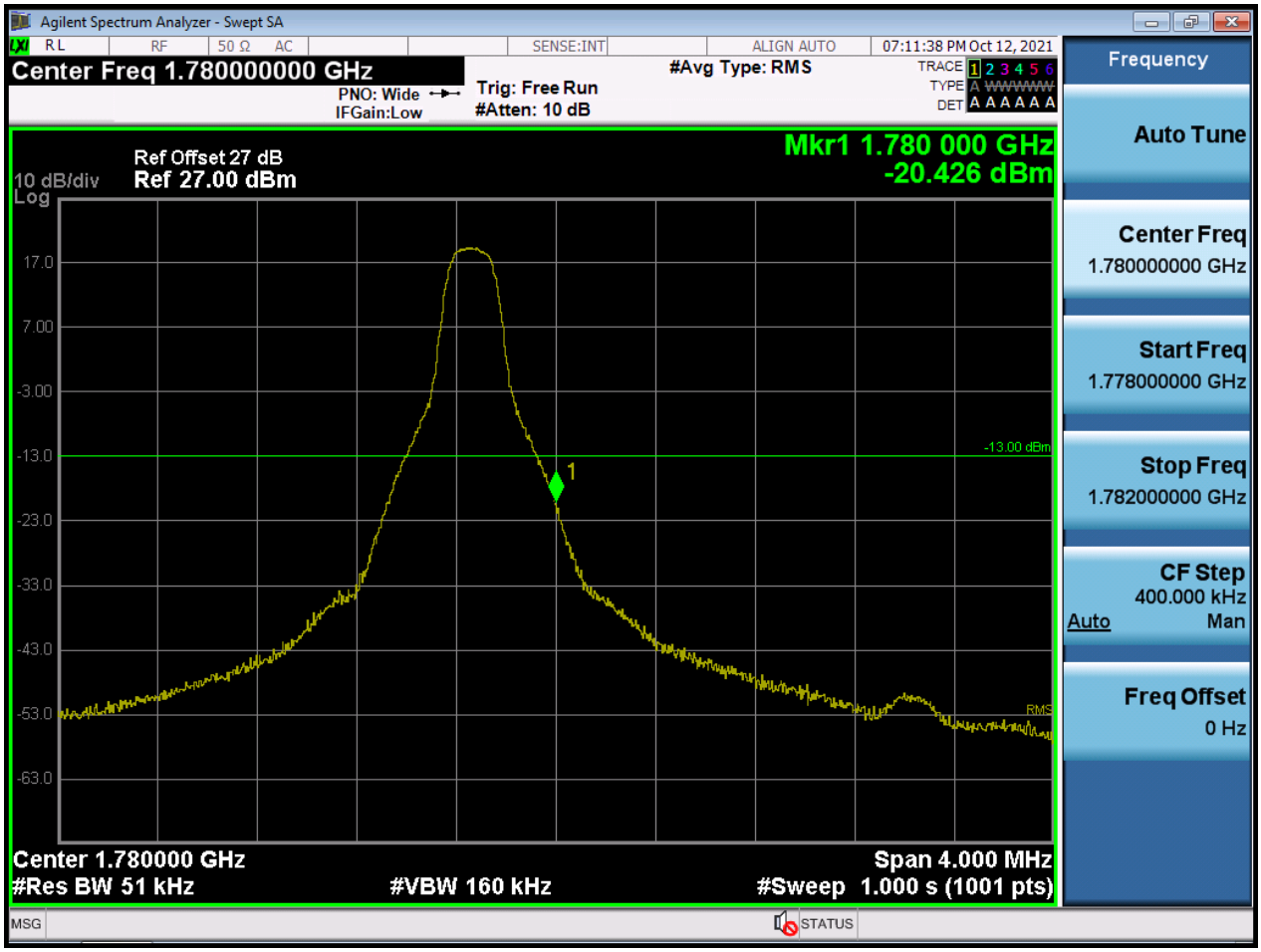
BW5 M_BandEdge_Highest Channel_QPSK_FullRB(2) (Upper Ant)



BW5 M_BandEdge_Lowest Channel_QPSK_1RB(Upper Ant)

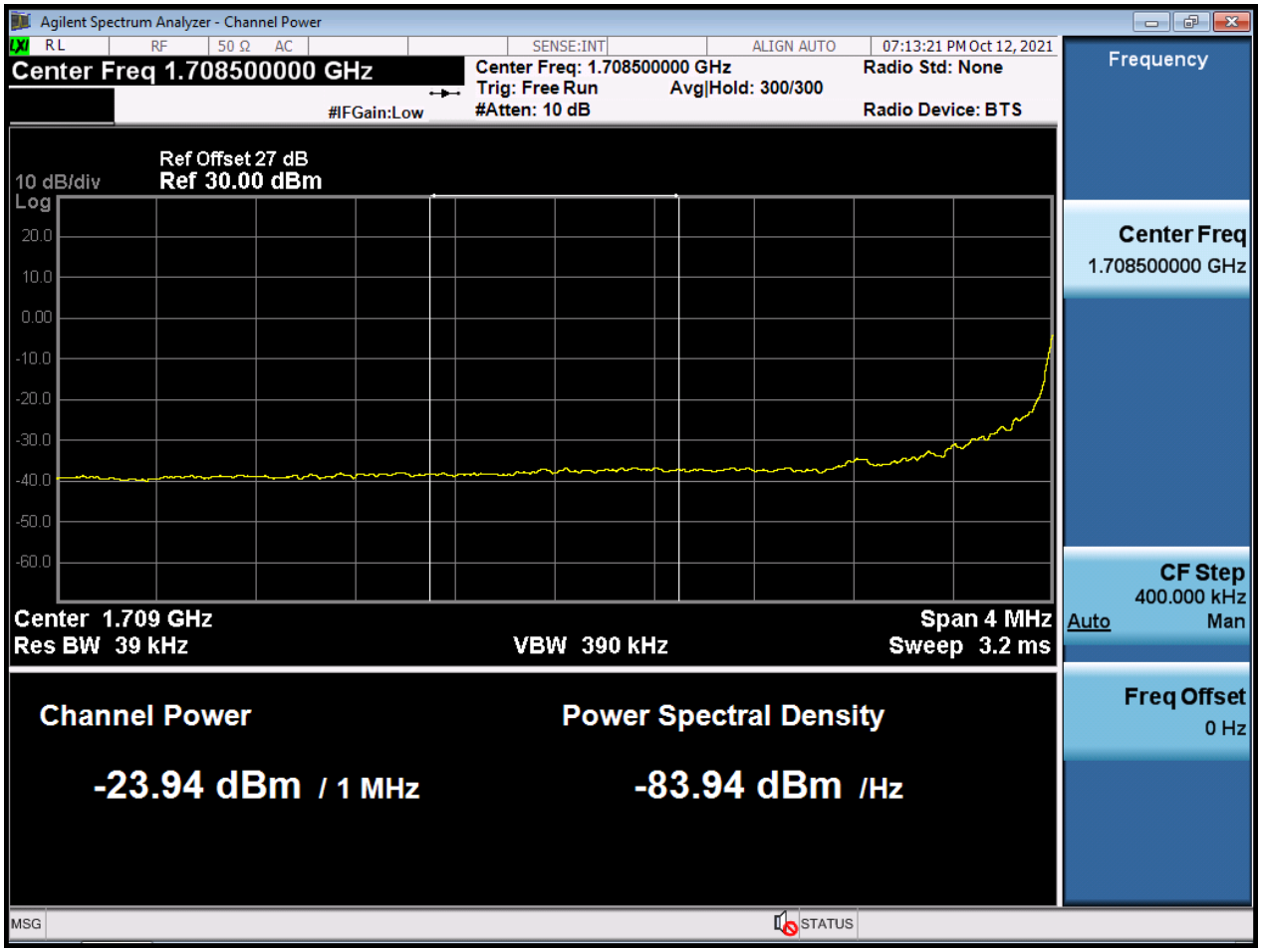


BW5 M_BandEdge_Highest Channel_QPSK_1RB(Upper Ant)



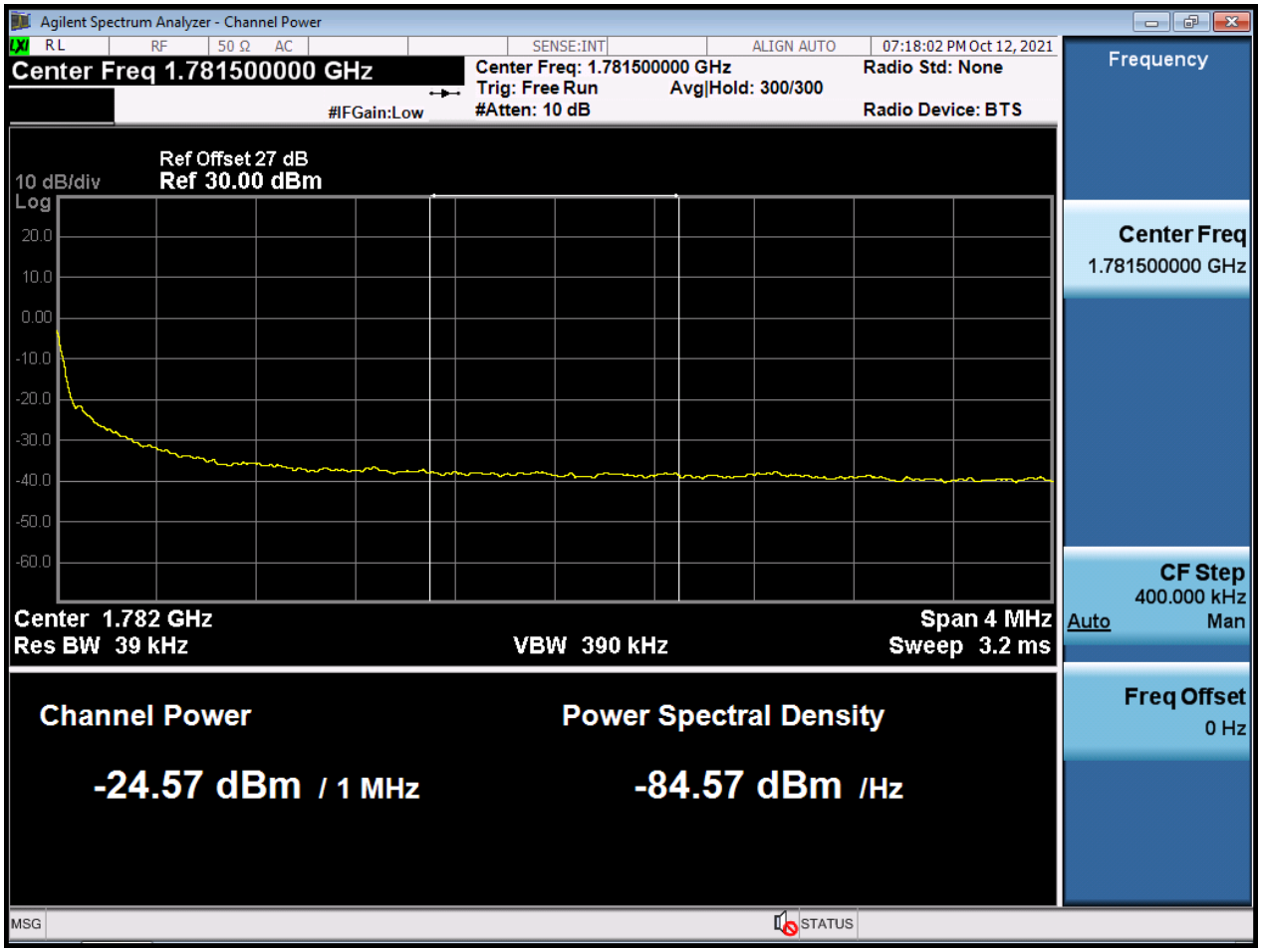
BW10 M_BandEdge_Lowest Channel_QPSK_FullRB(1) (Upper Ant)

BW10 M_BandEdge_Lowest Channel_QPSK_FullRB(2) (Upper Ant)



BW10 M_BandEdge_Highest Channel_QPSK_FullRB(1) (Upper Ant)

BW10 M_BandEdge_Highest Channel_QPSK_FullRB(2) (Upper Ant)

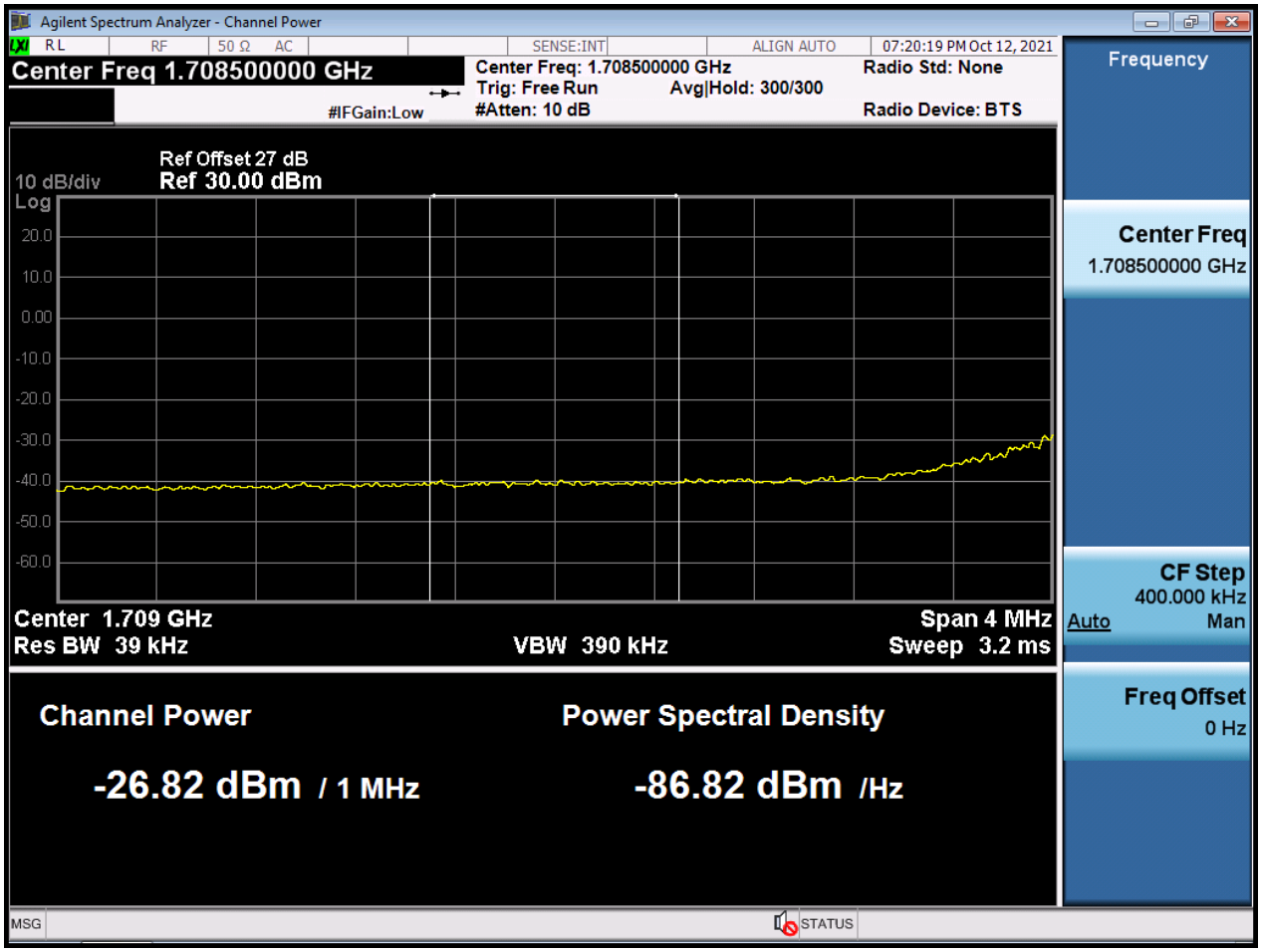


BW10 M_BandEdge_Lowest Channel_QPSK_1RB(Upper Ant)

BW10 M_BandEdge_Highest Channel_QPSK_1RB(Upper Ant)

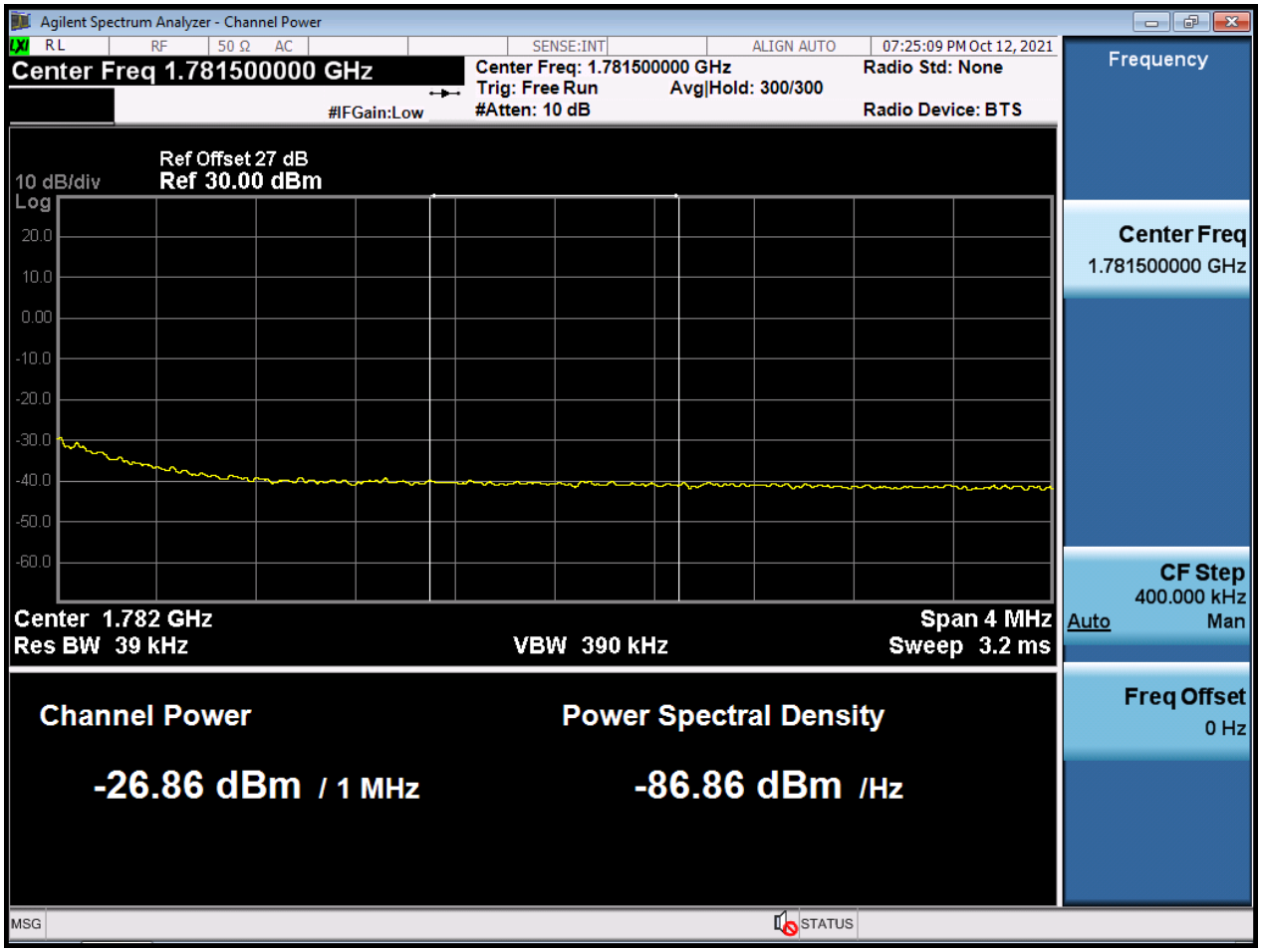
BW15 M_BandEdge_Lowest Channel_QPSK_FullRB(1) (Upper Ant)

BW15 M_BandEdge_Lowest Channel_QPSK_FullRB(2) (Upper Ant)



BW15 M_BandEdge_Highest Channel_QPSK_FullRB(1) (Upper Ant)

BW15 M_BandEdge_Highest Channel_QPSK_FullRB(2) (Upper Ant)

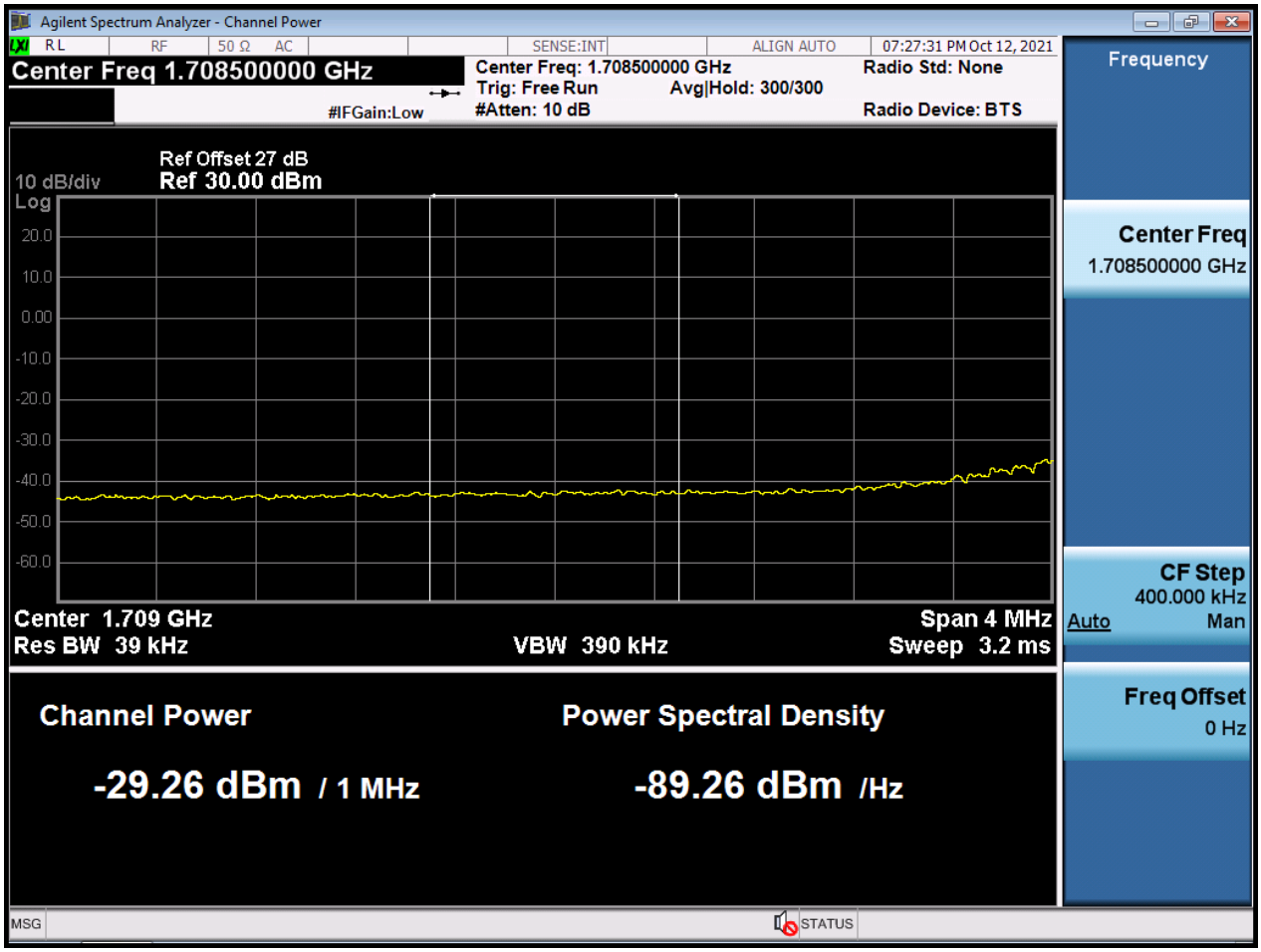


BW15 M_BandEdge_Lowest Channel_QPSK_1RB(Upper Ant)

BW15 M_BandEdge_Highest Channel_QPSK_1RB(Upper Ant)

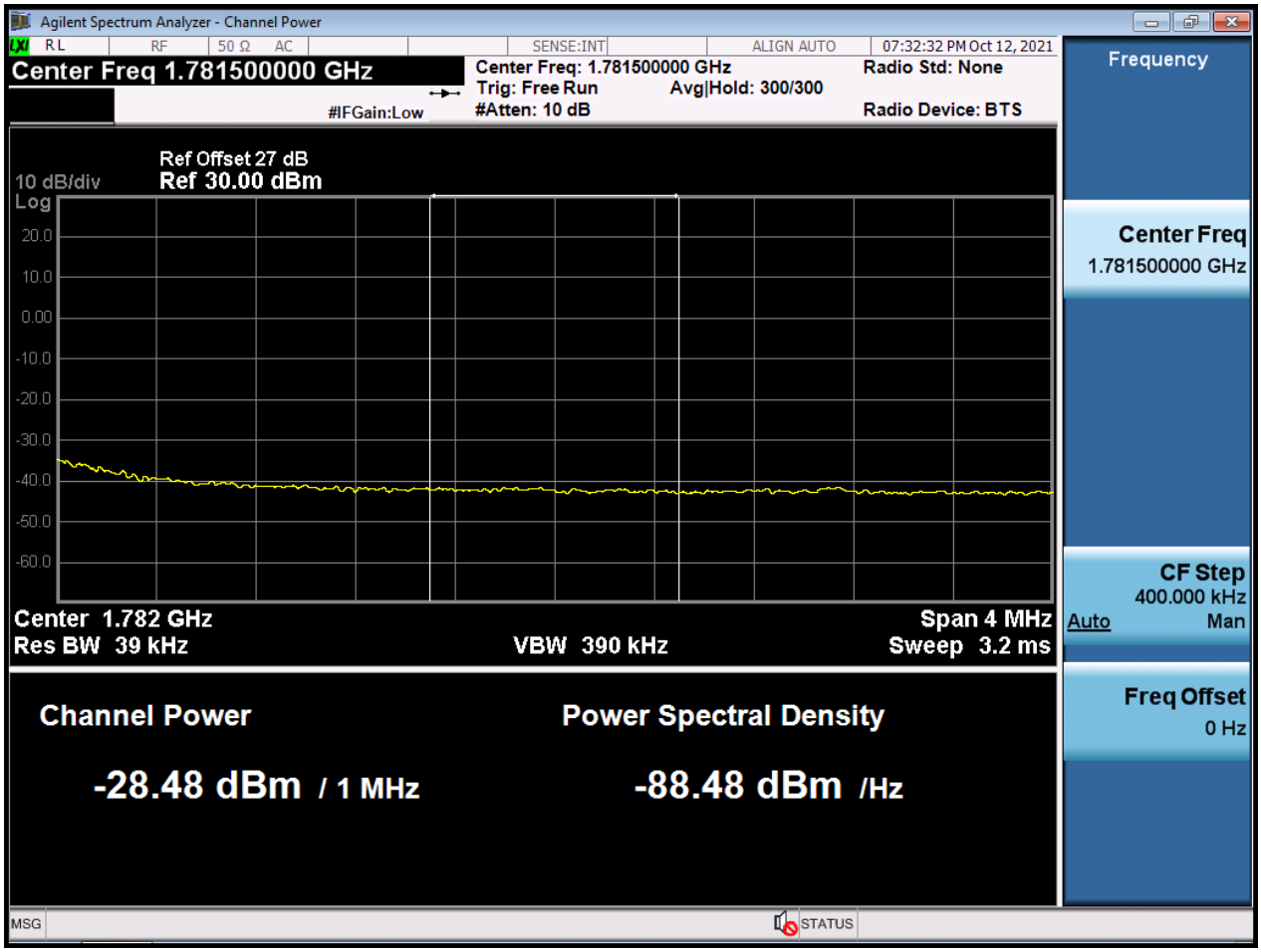
BW20 M_BandEdge_Lowest Channel_QPSK_FullRB(1) (Upper Ant)

BW20 M_BandEdge_Lowest Channel_QPSK_FullRB(2) (Upper Ant)



BW20 M_BandEdge_Highest Channel_QPSK_FullRB(1) (Upper Ant)

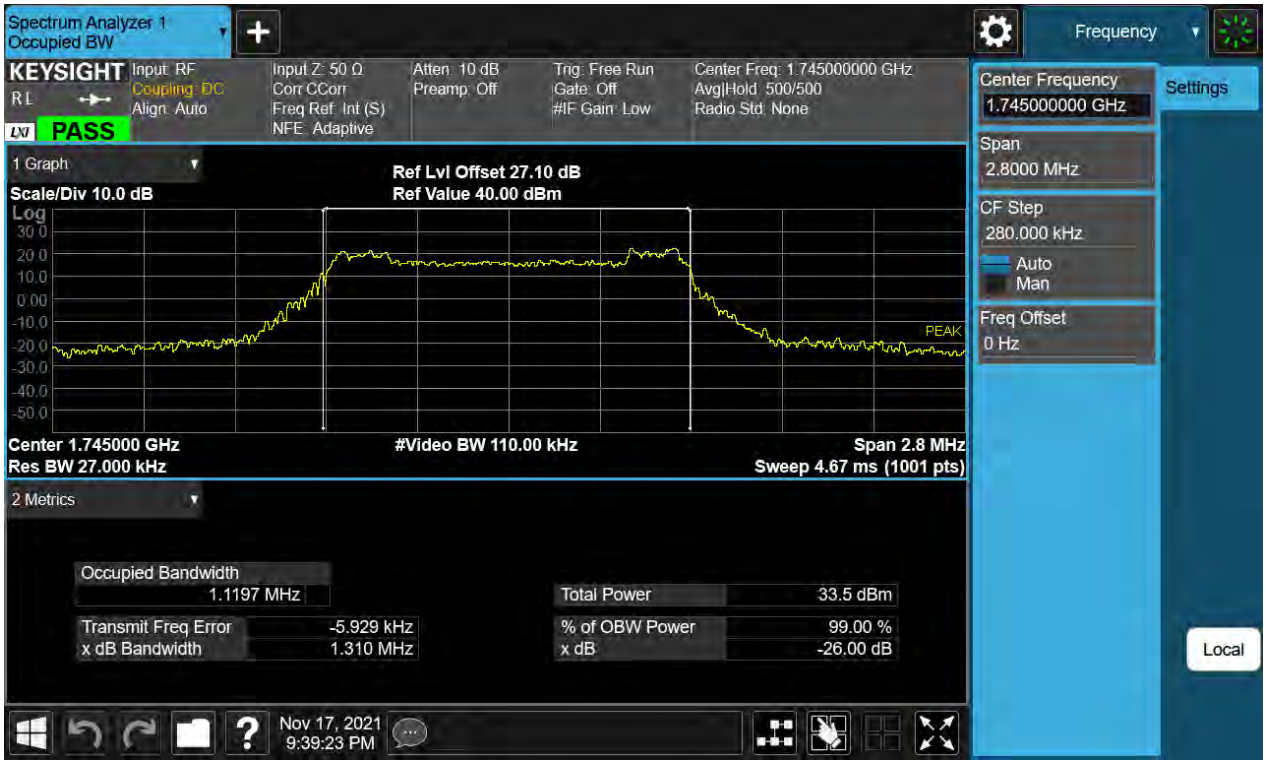
BW20 M_BandEdge_Highest Channel_QPSK_FullRB(2) (Upper Ant)



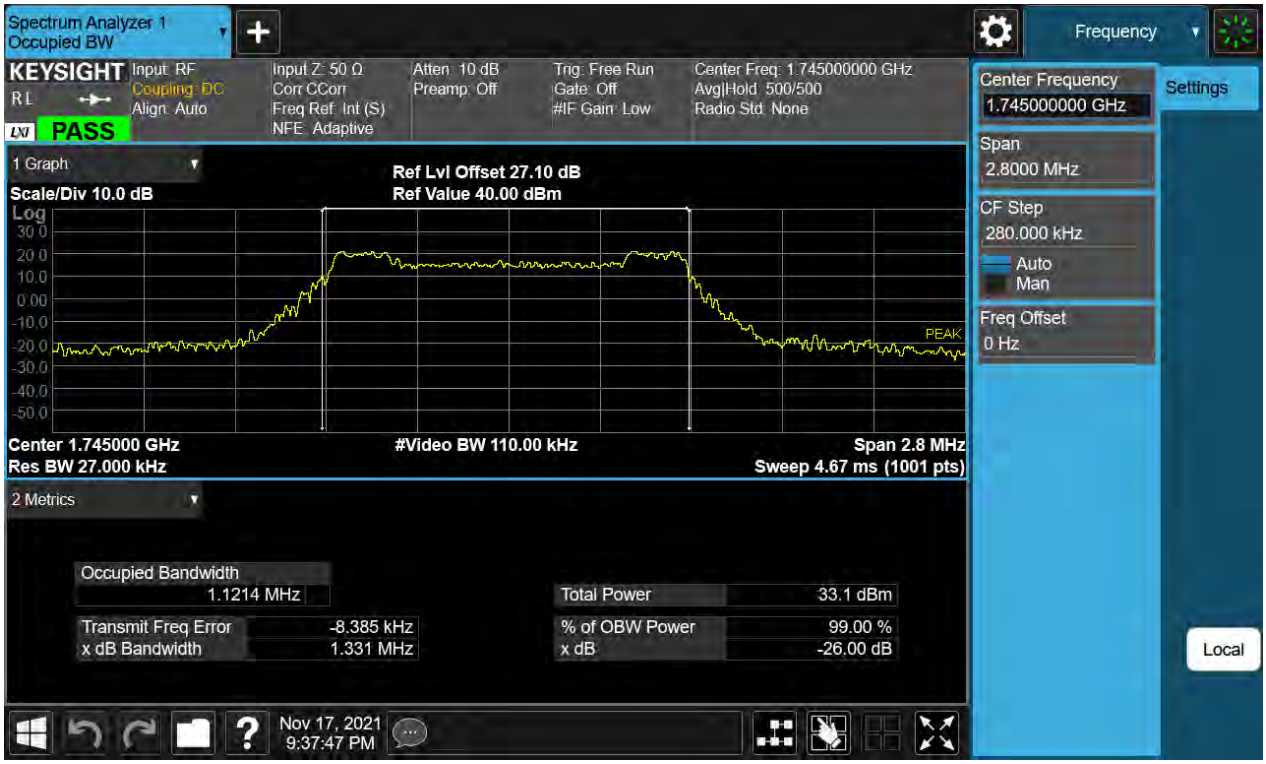
BW20 M_BandEdge_Lowest Channel_QPSK_1RB(Upper Ant)

BW20 M_BandEdge_Highest Channel_QPSK_1RB(Upper Ant)

BW1.4 M_OBW_Middle Channel_QPSK_FullRB(Lower Ant)



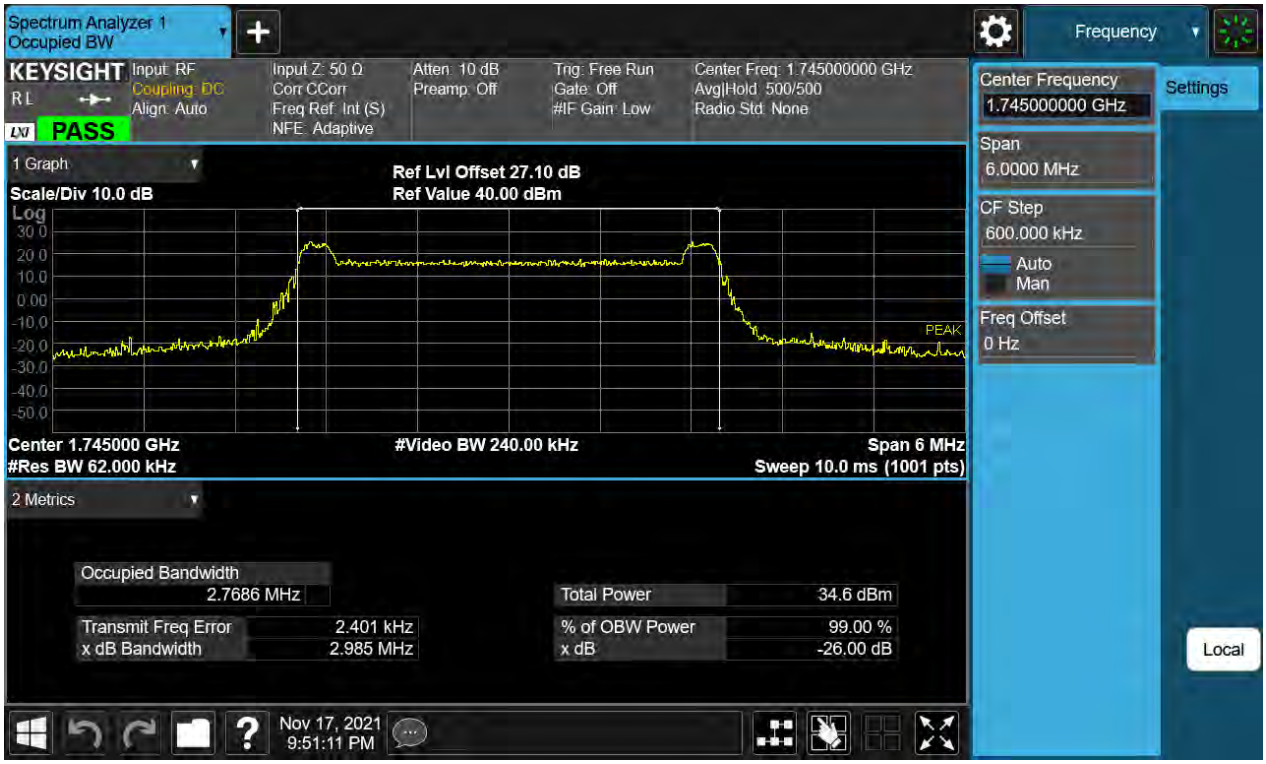
BW1.4 M_OBW_Middle Channel_16QAM_FullRB(Lower Ant)



BW1.4 M_OBW_Middle Channel_64QAM_FullRB(Lower Ant)

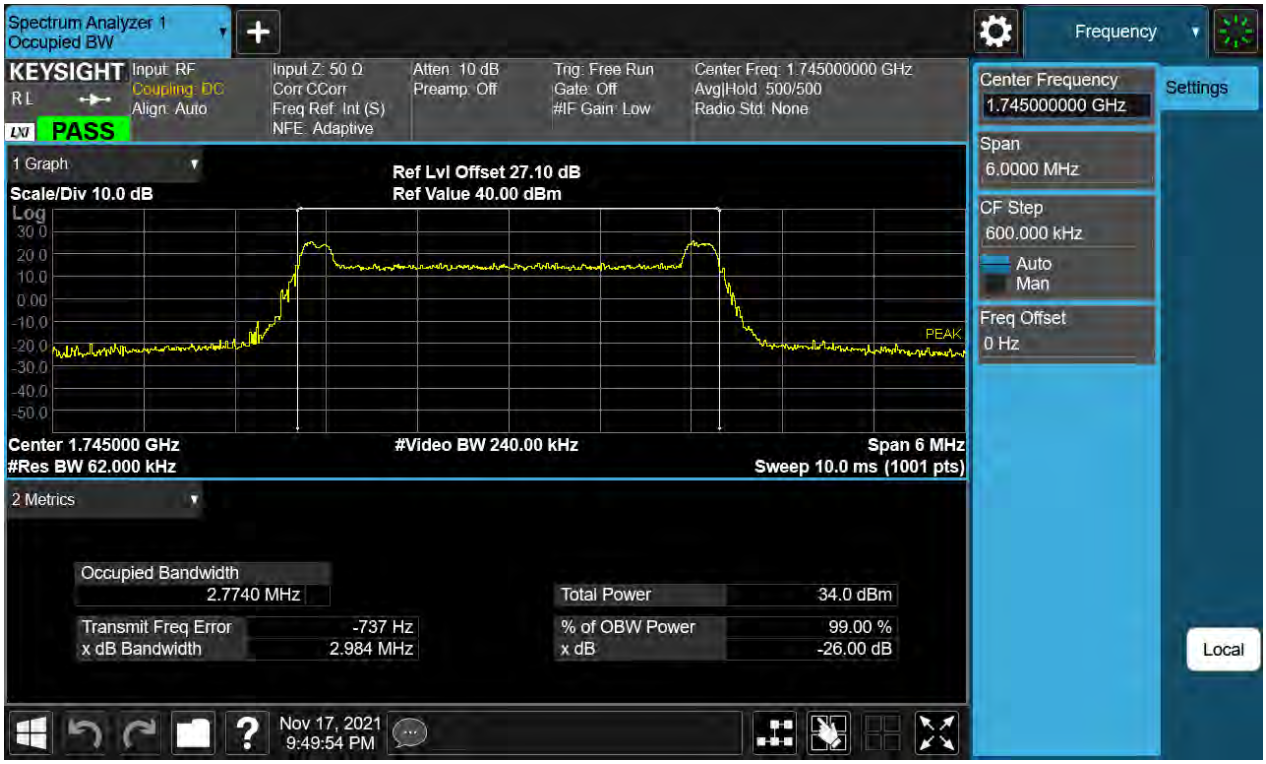
BW1.4 M_OBW_Middle Channel_256QAM_FullRB(Lower Ant)

BW3 M_OBW_Middle Channel_QPSK_FullRB(Lower Ant)



BW3 M_OBW_Middle Channel_16QAM_FullRB(Lower Ant)

BW3 M_OBW_Middle Channel_64QAM_FullRB(Lower Ant)

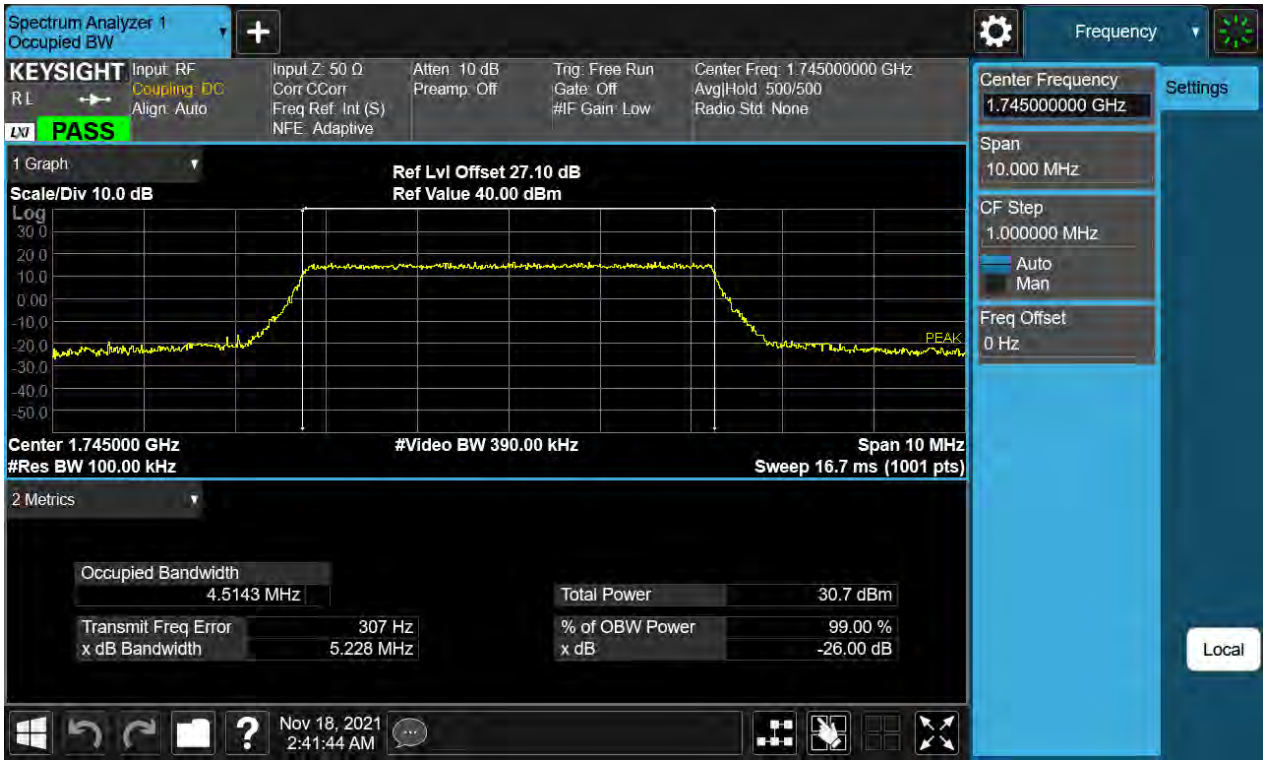


BW3 M_OBW_Middle Channel_256QAM_FullRB(Lower Ant)

BW5 M_OBW_Middle Channel_QPSK_FullRB(Lower Ant)

BW5 M_OBW_Middle Channel_16QAM_FullRB(Lower Ant)

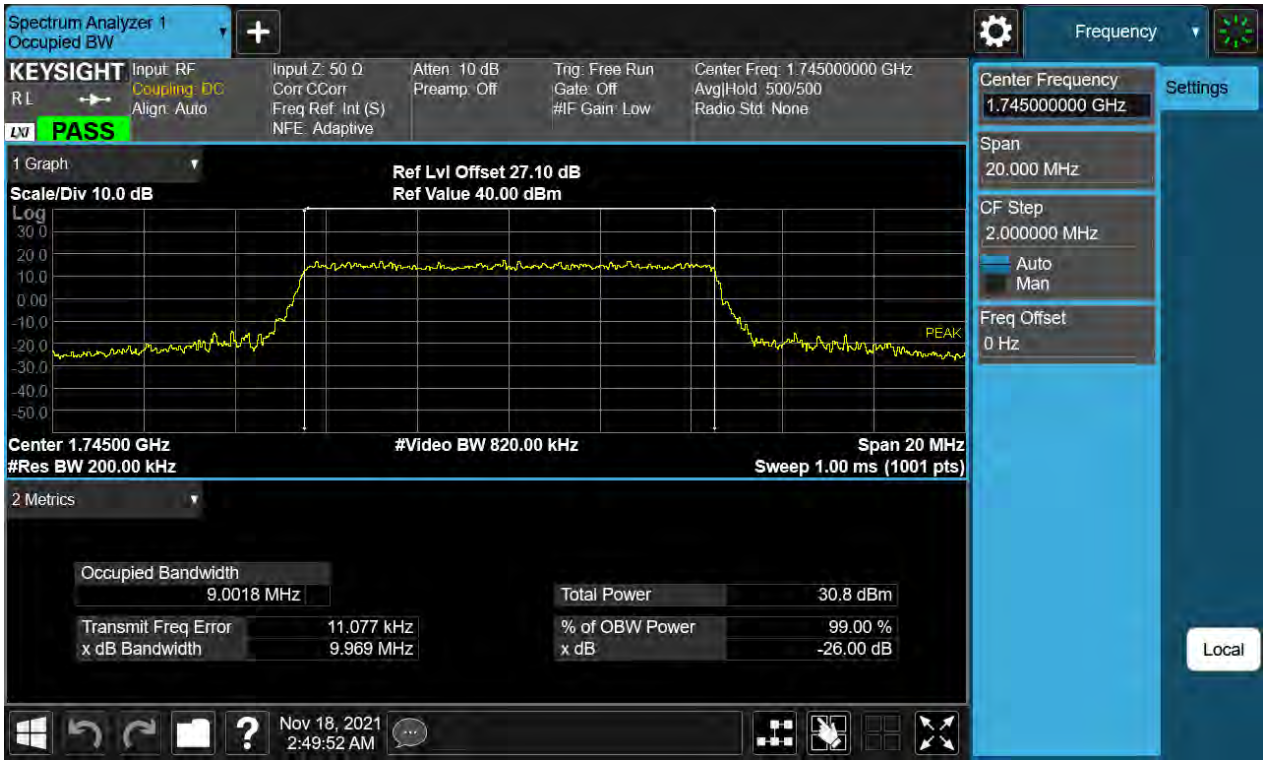
BW5 M_OBW_Middle Channel_64QAM_FullRB(Lower Ant)



BW5 M_OBW_Middle Channel_256QAM_FullRB(Lower Ant)

BW10 M_OBW_Middle Channel_QPSK_FullRB(Lower Ant)

BW10 M_OBW_Middle Channel_16QAM_FullRB(Lower Ant)

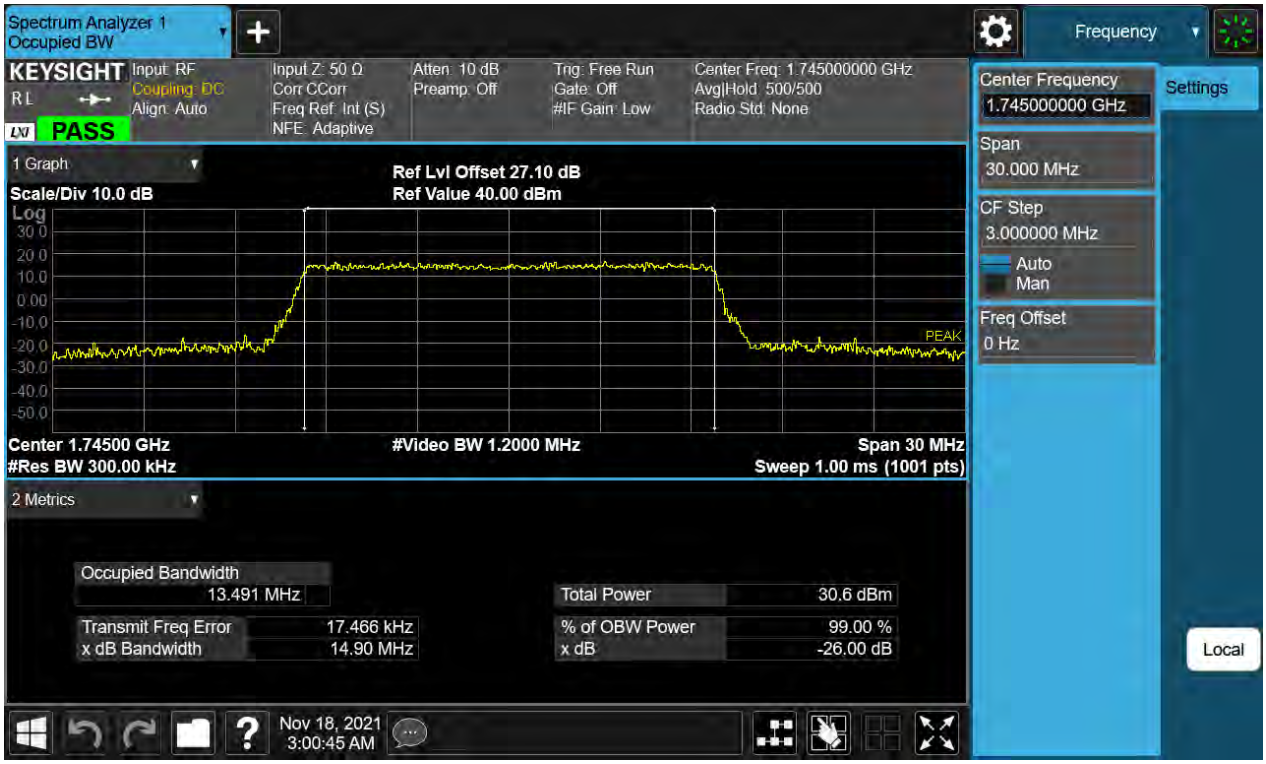


BW10 M_OBW_Middle Channel_64QAM_FullRB(Lower Ant)

BW10 M_OBW_Middle Channel_256QAM_FullRB(Lower Ant)

BW15 M_OBW_Middle Channel_QPSK_FullRB(Lower Ant)

BW15 M_OBW_Middle Channel_16QAM_FullRB(Lower Ant)



BW15 M_OBW_Middle Channel_64QAM_FullRB(Lower Ant)