HCT CO.,LTD.
74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA
TEL: +82-31-645-6300 FAX: +82-31-645-6401

FCC LTE REPORT

Certification

Applicant Name:
Infomark Co.,Ltd.

Address:
3rd Floor, Humaxvillage, 216, Hwangsaeul-ro Bundang-gu Seongnam-Si, Gyonggi-Do, 463-875 South Korea

Date of Issue:
April 08, 2019

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

Report No.: HCT-RF-1903-FC048-R1

FCC ID:	**YCOIFW522T**
APPLICANT:	**Infomark Co.,Ltd.**

Model(s): IF-W522T
EUT Type: Kids Watch
FCC Classification: PCS Licensed Transmitter (PCB)
FCC Rule Part(s): §27, §2

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	ERP	
				Max. Power (W)	Max. Power (dBm)
LTE – Band12 (1.4)	699.7 – 715.3	1M10G7D	QPSK	0.009	9.58
		1M10W7D	16QAM	0.006	7.97
LTE – Band12 (3)	700.5 – 714.5	2M71G7D	QPSK	0.008	9.26
		2M71W7D	16QAM	0.007	8.18
LTE – Band12 (5)	701.5 – 713.5	4M52G7D	QPSK	0.008	9.24
		4M51W7D	16QAM	0.006	7.61
LTE – Band12 (10)	704.0 – 711.0	8M97G7D	QPSK	0.007	8.71
		8M99W7D	16QAM	0.005	7.21

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)

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

Report approved by : Kwon Jeong
Manager of Telecommunication Testing Center

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-1903-FC048	March 26, 2019	- First Approval Report
HCT-RF-1903-FC048-R1	April 08, 2019	- Added the Accessory Infromation on page 5. - Added the note on pages 13, 14.

Table of Contents

MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	Infomark Co.,Ltd.
Address:	3rd Floor, Humaxvillage, 216, Hwangsaeul-ro Bundang-gu Seongnam-Si, Gyonggi-Do, 463-875 South Korea
FCC ID:	YCOIFW522T
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§27, §2
EUT Type:	Kids Watch
Model(s):	W522T
Tx Frequency:	699.7 MHz – 715.3 MHz (LTE – Band 12 (1.4 MHz)) 700.5 MHz – 714.5 MHz (LTE – Band 12 (3 MHz)) 701.5 MHz – 713.5 MHz (LTE – Band 12 (5 MHz)) 704.0 MHz – 711.0 MHz (LTE – Band 12 (10 MHz))
Date(s) of Tests:	March 06, 2019 ~ March 21, 2019

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

The EUT was a Kids Watch with LTE.

It also supports IEEE 802.11 b/g/n, Bluetooth.

The EUT was a Watch with Cradle.

(Cradle - Model : IF-A522T, Manufacture : Infomark)

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)
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 C63.26-2015 – Section 5.2 - 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 1MHz
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 1GHz, 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.

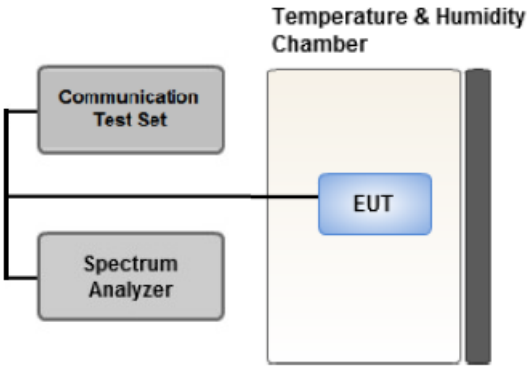
Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
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

3.4 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.

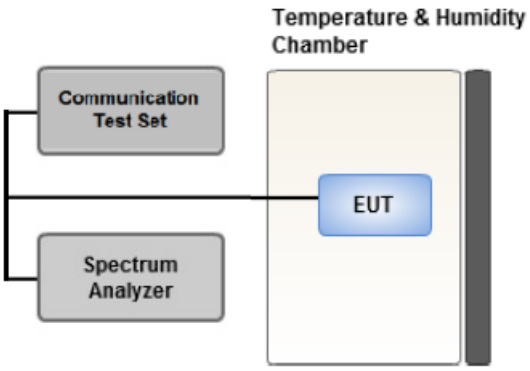
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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 26dB 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

3.5 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL



Test setup

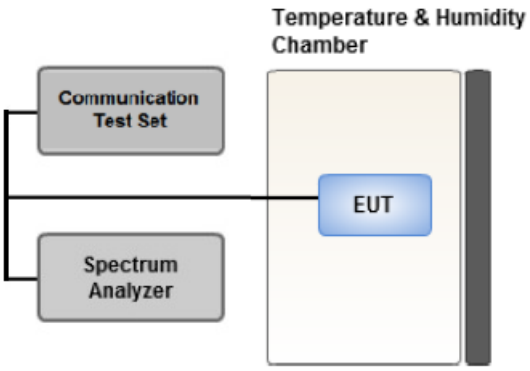
Test Overview

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 = trace average
5. Sweep time = auto
6. Number of points in sweep ≥ 2 * Span / RBW

3.6 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

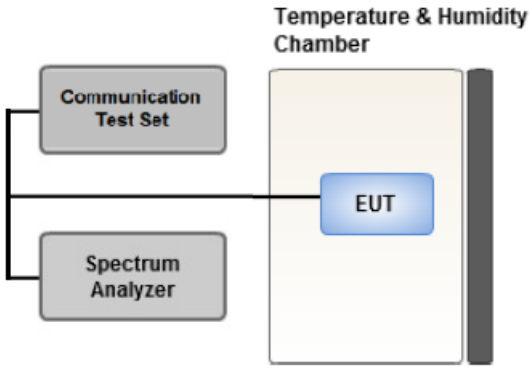
Test Notes

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.

3.7 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.

3.8 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.
- 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.
- LTE Band 12 (698 – 716 MHz, 5/10MHzbandwidth) overlaps the entire frequency range of LTE Band 17 (704 - 716 MHz) and they have the same Tune-up power.
  Therefore, test data provided in this report covers Band 17 as well as Band 12.

[Worst case]

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

Note:

- W522T Stand alone &with Cradle were tested and the worst case results are reported.

(Worst case : Stand alone)

3.9 WORST CASE(CONDUCTED TEST)

- Worst case : Of all modulation, We have tested modulation of the high Conducted Output Power.
  Conducted Output Power value can be confirmed on the SAR report.

[Worst case]

Test Description	Modulation	Bandwidth (MHz)	Frequency	RB size	RB offset
Occupied Bandwidth	QPSK, 16QAM	1.4, 3, 5, 10	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
		1.4, 3, 5, 10	Low, High	Full RB	0
Spurious and Harmonic Emissions at Antenna Terminal	* QPSK	1.4, 3, 5, 10	Low, Mid, High	1	0

Note:

- W522T Stand alone &with Cradle were tested and the worst case results are reported.

(Worst case : Stand alone)

4. LIST OF TEST EQUIPMENT

Manufacture	Model/ Equipment	Serial Number	Calibration Date	Calibration Interval	Calibration Due
REOHDE & SCHWARZ	SCU 18 / AMPLIFIER	10094	04/17/2018	Annual	04/17/2019
Wainwright	WHK1.2/15G-10EF/H.P.F	4	04/04/2018	Annual	04/04/2019
Wainwright	WHK3.3/18G-10EF/H.P.F	2	04/04/2018	Annual	04/04/2019
Hewlett Packard	11667B / Power Splitter(DC~26.5 GHz)	5001	06/07/2018	Annual	06/07/2019
Agilent	E3632A/DC Power Supply	KR75303243	05/09/2018	Annual	05/09/2019
Schwarzbeck	UHAP/ Dipole Antenna	557	03/31/2017	Biennial	03/31/2019
Schwarzbeck	UHAP/ Dipole Antenna	558	03/31/2017	Biennial	03/31/2019
ESPEC	SU-642 / Chamber	93000718	08/07/2018	Annual	08/07/2019
Schwarzbeck	BBHA 9120D/ Horn Antenna(1~18GHz)	147	09/14/2018	Annual	09/14/2019
Schwarzbeck	BBHA 9120D/ Horn Antenna(1~18GHz)	9120D-1298	10/04/2018	Annual	10/04/2019
Schwarzbeck	BBHA 9170/ Horn Antenna(15~40GHz)	BBHA9170342	04/25/2017	Biennial	04/25/2019
Schwarzbeck	BBHA 9170/ Horn Antenna(15~40GHz)	BBHA9170124	04/25/2017	Biennial	04/25/2019
Agilent	N9020A/Signal Analyzer(10Hz~26.5GHz)	MY52090906	06/08/2018	Annual	06/08/2019
Hewlett Packard	8493C/ATTENUATOR(20dB)	17280	06/21/2018	Annual	06/21/2019
REOHDE & SCHWARZ	FSV40/Spectrum Analyzer(10Hz~40GHz)	100931	10/22/2018	Annual	10/22/2019
Agilent	8960 (E5515C)/ Base Station	MY48360800	09/27/2018	Annual	09/27/2019
Schwarzbeck	FMZB1513/ Loop Antenna(9kHz~30MHz)	1513-175	08/23/2018	Biennial	08/23/2020
Schwarzbeck	VULB9160/ Bilog Antenna	9160-3368	08/09/2018	Biennial	08/09/2020
Schwarzbeck	VULB9160/ Hybrid Antenna	760	04/06/2017	Biennial	04/06/2019
Anritsu Corp.	MT8821C/Wideband Radio Communication Tester	6201502997	08/13/2018	Annual	08/13/2019
Anritsu Corp.	MT8820C/Wideband Radio Communication Tester	6201026545	01/30/2019	Annual	01/30/2020
REOHDE & SCHWARZ	SMB100A/ SIGNAL GENERATOR (100kHz~40GHz)	177633	07/19/2018	Annual	07/19/2019
REOHDE & SCHWARZ	ESU40 / EMI TEST RECEIVER	100524	07/27/2018	Annual	07/27/2019
HCT CO., LTD.,	FCC LTE Mobile Conducted RF Automation Test Software	-	-	-	-

Note:

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

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
Radiated Disturbance (9 kHz ~ 30 MHz)	3.40
Radiated Disturbance (30 MHz ~ 1 GHz)	4.80
Radiated Disturbance (1 GHz ~ 18 GHz)	5.70
Radiated Disturbance (18 GHz ~ 40 GHz)	5.71

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(g)	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions	PASS
Conducted Output Power	§2.1046	N/A	**See Note1**
Frequency stability / variation of ambient temperature	§2.1055, §27.54	Emission must remain in band	PASS

Note:

1. See SAR Report
2. The same samples were used for SAR and EMC

6.2 Test Condition : Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Effective Radiated Power	§27.50(c)(10)	< 3 Watts max. ERP	PASS
Radiated Spurious and Harmonic Emissions	§2.1053, §27.53(g)	< 43 + 10log10 (P[Watts]) for all out-of band emissions	PASS

7. SAMPLE CALCULATION

7.1 ERP Sample Calculation

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

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

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

7.2 EIRP Sample Calculation

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

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

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

7.3. Emission Designator

GSM Emission Designator

Emission Designator = 249KGXW

GSM BW = 249 kHz

G = Phase Modulation

X = Cases not otherwise covered

W = Combination (Audio/Data)

EDGE Emission Designator

Emission Designator = 249KG7W

GSM BW = 249 kHz

G = Phase Modulation

7 = Quantized/Digital Info

W = Combination (Audio/Data)

WCDMA Emission Designator

Emission Designator = 4M17F9W

WCDMA BW = 4.17 MHz

F = Frequency Modulation

9 = Composite Digital Info

W = Combination (Audio/Data)

QPSK Modulation

Emission Designator = 4M48G7D

LTE BW = 4.48 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data transmission; telemetry; telecommand

16QAM Modulation

Emission Designator = 4M48W7D

LTE BW = 4.48 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data transmission; telemetry; telecommand

64QAM 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 EFFECTIVE RADIATED POWER

Freq (MHz)	Mod (Bandwidth)	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
699.7	LTE B12 (1.4 MHz)	QPSK	-38.28	19.07	-10.16	0.78	H	< 3.00	0.007	8.13
		16-QAM	-40.35	17.00	-10.16	0.78	H		0.004	6.06
707.5		QPSK	-37.24	20.05	-10.17	0.78	H		0.008	9.10
		16-QAM	-38.43	18.86	-10.17	0.78	H		0.006	7.91
715.3		QPSK	-36.67	20.54	-10.18	0.78	H		0.009	9.58
		16-QAM	-38.27	18.94	-10.18	0.78	H		0.006	7.97

Freq (MHz)	Mod (Bandwidth)	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
700.5	LTE B12 (3 MHz)	QPSK	-38.24	19.13	-10.16	0.78	H	< 3.00	0.007	8.19
		16-QAM	-39.75	17.62	-10.16	0.78	H		0.005	6.68
707.5		QPSK	-37.50	19.79	-10.17	0.78	H		0.008	8.84
		16-QAM	-39.18	18.11	-10.17	0.78	H		0.005	7.16
714.5		QPSK	-36.97	20.22	-10.18	0.78	H		0.008	9.26
		16-QAM	-38.05	19.14	-10.18	0.78	H		0.007	8.18

Freq (MHz)	Mod (Bandwidth)	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
701.5	LTE B12 (5 MHz)	QPSK	-38.30	19.10	-10.16	0.78	H	< 3.00	0.007	8.16
		16-QAM	-40.10	17.30	-10.16	0.78	H		0.004	6.36
707.5		QPSK	-37.94	19.35	-10.17	0.78	H		0.007	8.40
		16-QAM	-39.37	17.92	-10.17	0.78	H		0.005	6.97
713.5		QPSK	-36.98	20.20	-10.18	0.78	H		0.008	9.24
		16-QAM	-38.61	18.57	-10.18	0.78	H		0.006	7.61

Freq (MHz)	Mod (Bandwidth)	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
704.0	LTE B12 (10 MHz)	QPSK	-38.36	19.04	-10.16	0.78	H	< 3.00	0.006	8.10
		16-QAM	-39.96	17.44	-10.16	0.78	H		0.004	6.50
707.5		QPSK	-38.00	19.29	-10.17	0.78	H		0.007	8.34
		16-QAM	-39.50	17.79	-10.17	0.78	H		0.005	6.84
711.0		QPSK	-37.55	19.67	-10.18	0.78	H		0.007	8.71
		16-QAM	-39.05	18.17	-10.18	0.78	H		0.005	7.21

8.3 RADIATED SPURIOUS EMISSIONS

▣ OPERATING FREQUENTY: 715.30 MHz

▣ MEASURED OUTPUT POWER: 9.58 dBm = 0.009 W

▣ MODE: LTE B12

▣ MODULATION SIGNAL: 1.4 MHz QPSK

▣ DISTANCE: 3 meters

▣ LIMIT: 43 + 10 $\log_{10}$ (W) = 22.58 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	dBc
23017 (699.7)	1,399.40	-54.28	5.32	-60.84	1.16	V	-58.83	68.41
	2,099.10	-53.01	7.68	-59.50	1.44	V	-55.41	64.99
	2,798.80	-57.53	9.00	-62.61	1.72	H	-57.48	67.06
23095 (707.5)	1,415.00	-51.62	5.41	-58.04	1.17	H	-55.95	65.52
	2,122.50	-53.18	7.58	-59.09	1.46	H	-55.12	64.69
	2,830.00	-56.46	9.08	-61.67	1.72	V	-56.46	66.03
23173 (715.3)	1,430.60	-48.43	5.55	-55.32	1.17	H	-53.09	62.67
	2,145.90	-55.75	7.32	-61.01	1.47	V	-57.31	66.89
	2,861.20	-56.83	9.16	-61.82	1.74	V	-56.55	66.13

▣ OPERATING FREQUENTY: 714.50 MHz

▣ MEASURED OUTPUT POWER: 9.26 dBm = 0.008 W

▣ MODE: LTE B12

▣ MODULATION SIGNAL: 3 MHz QPSK

▣ DISTANCE: 3 meters

▣ LIMIT: 43 + 10 log_{10} (W) = 22.26 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	dBc
23025 (700.5)	1,401.00	-55.20	5.32	-61.76	1.16	H	-59.75	69.01
	2,101.50	-51.27	7.68	-57.76	1.44	H	-53.67	62.93
	2,802.00	-57.40	9.00	-62.48	1.72	H	-57.35	66.61
23095 (707.5)	1,415.00	-49.52	5.41	-55.94	1.17	H	-53.85	63.10
	2,122.50	-56.10	7.58	-62.01	1.46	H	-58.04	67.30
	2,830.00	-58.13	9.08	-63.34	1.72	H	-58.13	67.38
23165 (714.5)	1,429.00	-49.56	5.55	-56.45	1.17	H	-54.22	63.48
	2,143.50	-57.97	7.32	-63.23	1.47	H	-59.53	68.79
	2,858.00	-57.63	9.16	-62.62	1.74	H	-57.35	66.61
	4,287.00	-51.99	10.75	-55.60	2.25	H	-49.25	58.51

▣ OPERATING FREQUENTY: 713.50 MHz

▣ MEASURED OUTPUT POWER: 9.24 dBm = 0.008 W

▣ MODE: LTE B12

▣ MODULATION SIGNAL: 5 MHz QPSK

▣ DISTANCE: 3 meters

▣ LIMIT: 43 + 10 lo_{g10} (W) = 22.24 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	dBc
23035 (701.5)	1,403.00	-53.68	5.32	-60.24	1.16	H	-58.23	67.47
	2,104.50	-53.37	7.66	-59.60	1.45	H	-55.54	64.78
	2,806.00	-58.47	9.01	-63.55	1.70	H	-58.39	67.63
23095 (707.5)	1,415.00	-51.47	5.41	-57.89	1.17	H	-55.80	65.03
	2,122.50	-55.61	7.58	-61.52	1.46	H	-57.55	66.79
	2,830.00	-55.68	9.08	-60.89	1.72	H	-55.68	64.92
23155 (713.5)	1,427.00	-50.72	5.55	-57.61	1.17	H	-55.38	64.62
	2,140.50	-56.13	7.37	-61.38	1.47	H	-57.63	66.87
	2,854.00	-58.27	9.16	-63.34	1.73	H	-58.06	67.30

▣ OPERATING FREQUENTY: 711.00 MHz

▣ MEASURED OUTPUT POWER: 8.71 dBm = 0.007 W

▣ MODE: LTE B12

▣ MODULATION SIGNAL: 10 MHz QPSK

▣ DISTANCE: 3 meters

▣ LIMIT: 43 + 10 log_{10} (W) = 21.71 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	dBc
23060 (704.0)	1,408.00	-53.11	5.38	-59.44	1.17	H	-57.38	66.09
	2,112.00	-54.27	7.63	-60.24	1.45	H	-56.21	64.92
	2,816.00	-57.66	9.03	-62.86	1.70	H	-57.68	66.38
23095 (707.5)	1,415.00	-53.64	5.41	-60.06	1.17	H	-57.97	66.67
	2,122.50	-56.80	7.58	-62.71	1.46	H	-58.74	67.45
	2,830.00	-57.42	9.08	-62.63	1.72	H	-57.42	66.12
23130 (711.0)	1,422.00	-54.79	5.44	-61.29	1.17	H	-59.17	67.87
	2,133.00	-55.32	7.47	-61.07	1.47	H	-57.22	65.92
	2,844.00	-58.22	9.13	-63.36	1.71	H	-58.09	66.80

8.3 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
12	1.4 MHz	707.5	QPSK	6	0	1.0998
			16-QAM			1.0969
	3 MHz		QPSK	15		2.7129
			16-QAM			2.7061
	5 MHz		QPSK	25		4.5240
			16-QAM			4.5073
	10 MHz		QPSK	50		8.9733
			16-QAM			8.9866

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 41 ~ 48.

8.4 CONDUCTED SPURIOUS EMISSIONS

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
12	1.4	699.7	3.7109	27.976	-66.992	-39.016	-13.00
		707.5	3.6850	27.976	-67.150	-39.174	
		715.3	3.6960	27.976	-66.827	-38.851	
	3	700.5	3.6840	27.976	-67.329	-39.353	
		707.5	3.6920	27.976	-66.958	-38.982	
		714.5	3.6880	27.976	-67.044	-39.068	
	5	701.5	3.6920	27.976	-67.146	-39.170	
		707.5	3.7149	27.976	-67.066	-39.090	
		713.5	3.7010	27.976	-67.100	-39.124	
	10	704.0	3.7044	27.976	-66.823	-38.847	
		707.5	3.6750	27.976	-66.799	-38.823	
		711.0	3.6730	27.976	-67.265	-39.289	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 75 ~ 86.
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	30.131

8.5 BAND EDGE

- Plots of the EUT's Band Edge are shown Page 49 ~ 74.

8.6 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

▣ MODE: LTE B12

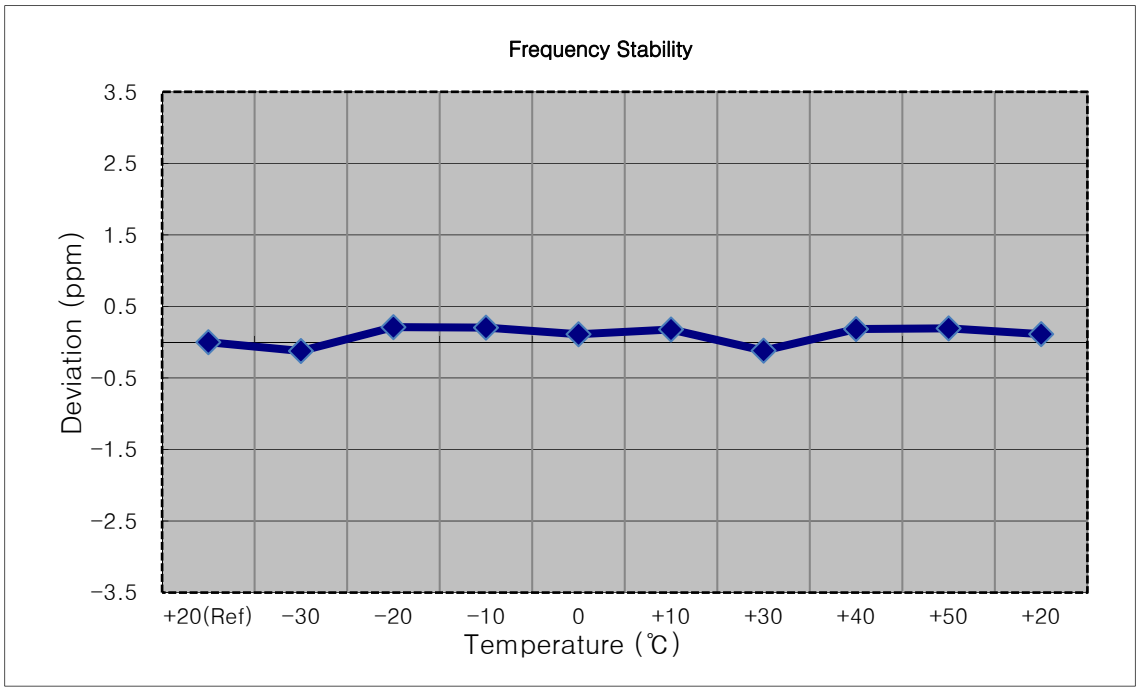
▣ OPERATING FREQUENCY: 699,700,000 Hz

▣ CHANNEL: 23017 (1.4 MHz)

▣ REFERENCE VOLTAGE: 3.85 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.850	+20(Ref)	699 700 115	0.0	0.000 000	0.000
100%		-30	699 700 030	-85.7	-0.000 012	-0.122
100%		-20	699 700 263	147.6	0.000 021	0.211
100%		-10	699 700 258	142.9	0.000 020	0.204
100%		0	699 700 193	78.0	0.000 011	0.111
100%		+10	699 700 240	124.5	0.000 018	0.178
100%		+30	699 700 033	-82.6	-0.000 012	-0.118
100%		+40	699 700 244	128.8	0.000 018	0.184
100%		+50	699 700 251	135.4	0.000 019	0.194
Batt. Endpoint	3.400	+20	699 700 194	78.8	0.000 011	0.113



▣ MODE: LTE B12

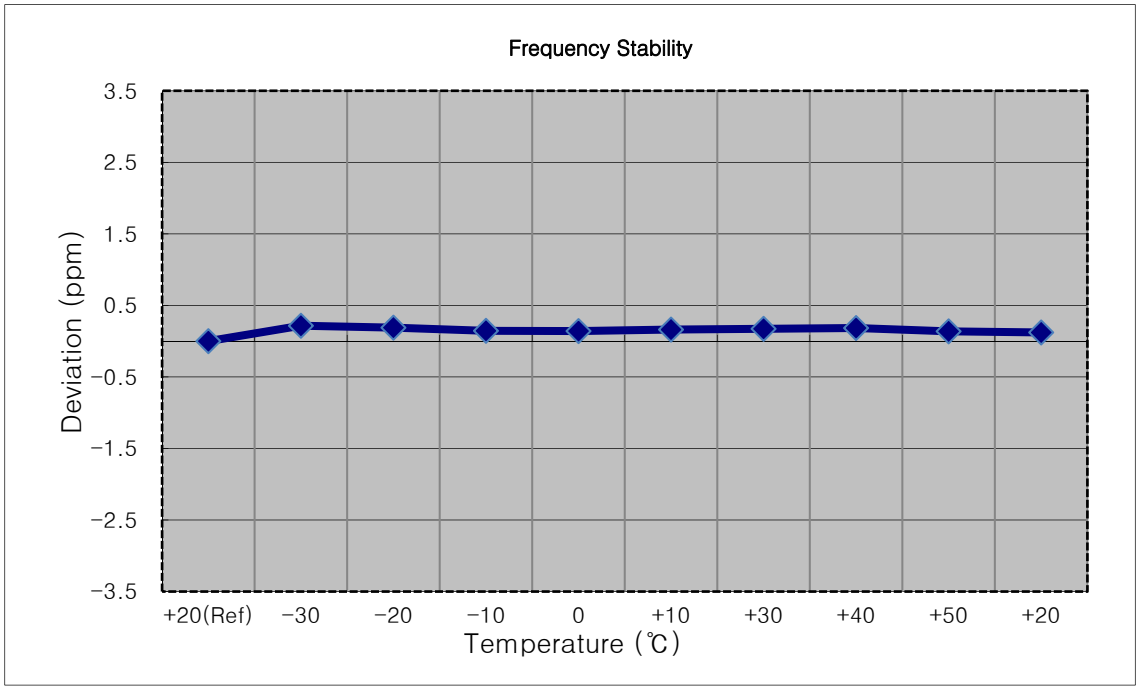
▣ OPERATING FREQUENCY: 700,500,000 Hz

▣ CHANNEL: 23025 (3 MHz)

▣ REFERENCE VOLTAGE: 3.85 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.850	+20(Ref)	700 500 118	0.0	0.000 000	0.000
100%		-30	700 500 269	151.1	0.000 022	0.216
100%		-20	700 500 250	132.5	0.000 019	0.189
100%		-10	700 500 219	101.7	0.000 015	0.145
100%		0	700 500 217	99.1	0.000 014	0.141
100%		+10	700 500 231	113.4	0.000 016	0.162
100%		+30	700 500 239	121.1	0.000 017	0.173
100%		+40	700 500 246	128.7	0.000 018	0.184
100%		+50	700 500 214	96.2	0.000 014	0.137
Batt. Endpoint	3.400	+20	700 500 203	85.2	0.000 012	0.122



▣ MODE: LTE B12

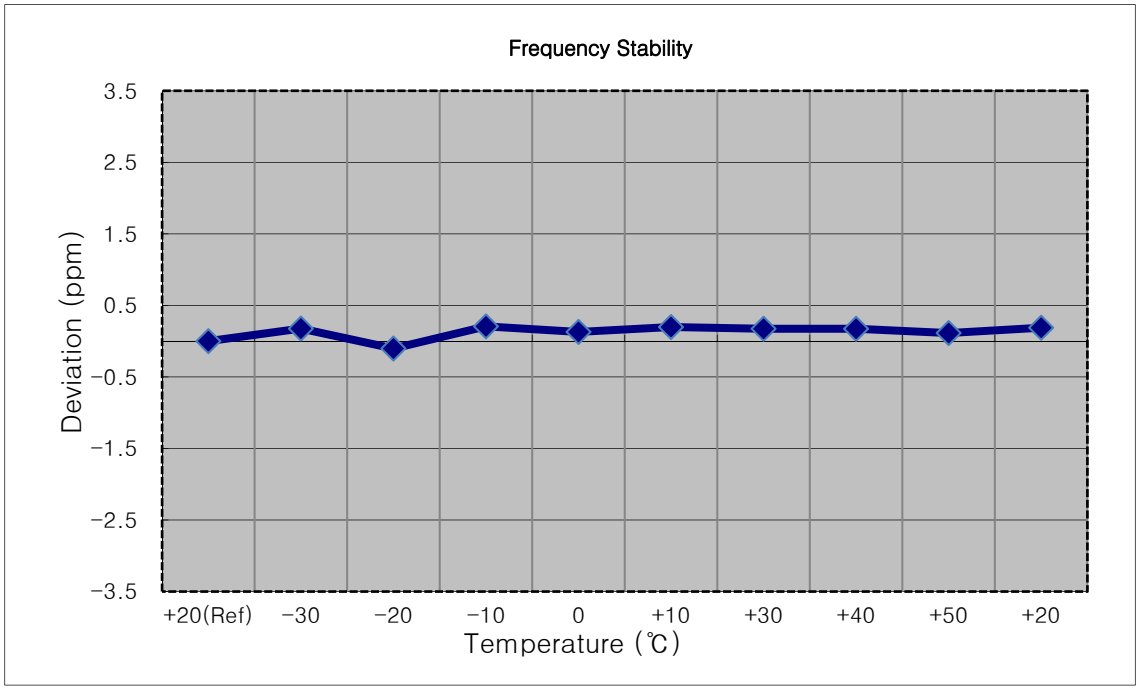
▣ OPERATING FREQUENCY: 701,500,000 Hz

▣ CHANNEL: 23035 (5 MHz)

▣ REFERENCE VOLTAGE: 3.85 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.850	+20(Ref)	701 500 128	0.0	0.000 000	0.000
100%		-30	701 500 252	123.7	0.000 018	0.176
100%		-20	701 500 056	-71.7	-0.000 010	-0.102
100%		-10	701 500 273	145.2	0.000 021	0.207
100%		0	701 500 218	90.5	0.000 013	0.129
100%		+10	701 500 267	139.1	0.000 020	0.198
100%		+30	701 500 249	121.4	0.000 017	0.173
100%		+40	701 500 250	121.8	0.000 017	0.174
100%		+50	701 500 208	79.6	0.000 011	0.113
Batt. Endpoint	3.400	+20	701 500 260	132.0	0.000 019	0.188



▣ MODE: LTE B12

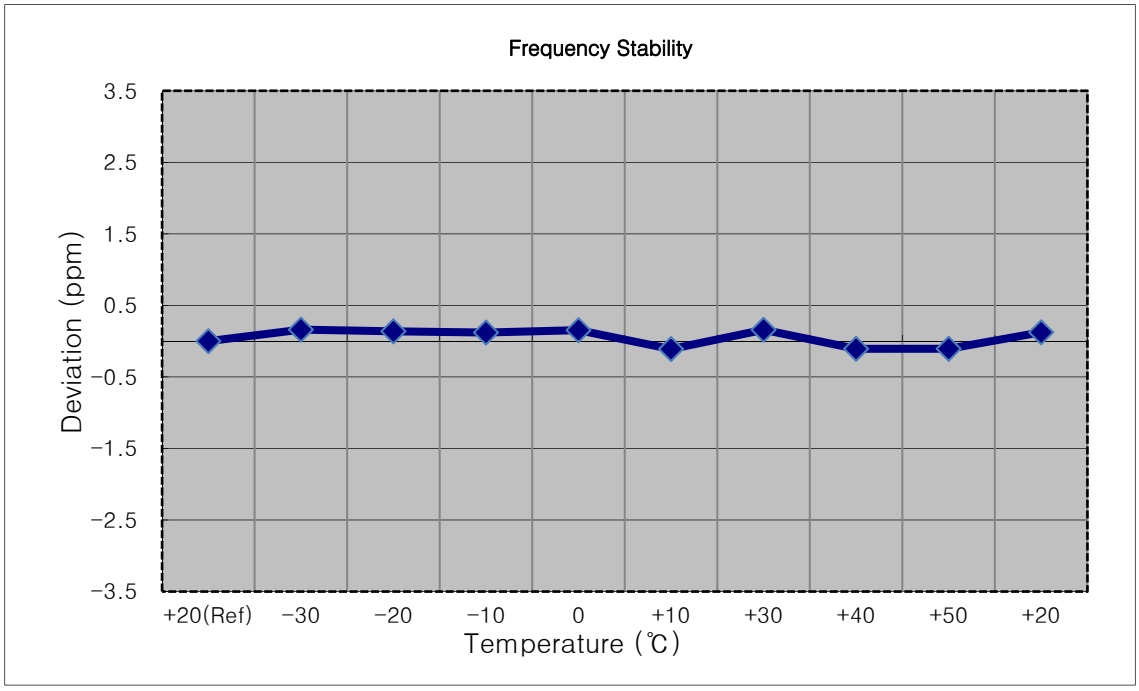
▣ OPERATING FREQUENCY: 704,000,000 Hz

▣ CHANNEL: 23060 (10 MHz)

▣ REFERENCE VOLTAGE: 3.85 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.850	+20(Ref)	704 000 098	0.0	0.000 000	0.000
100%		-30	704 000 212	113.6	0.000 016	0.161
100%		-20	704 000 195	96.9	0.000 014	0.138
100%		-10	704 000 183	85.0	0.000 012	0.121
100%		0	704 000 207	108.3	0.000 015	0.154
100%		+10	704 000 021	-77.7	-0.000 011	-0.110
100%		+30	704 000 210	112.0	0.000 016	0.159
100%		+40	704 000 023	-75.1	-0.000 011	-0.107
100%		+50	704 000 024	-74.8	-0.000 011	-0.106
Batt. Endpoint	3.400	+20	704 000 186	87.2	0.000 012	0.124



▣ MODE: LTE B12

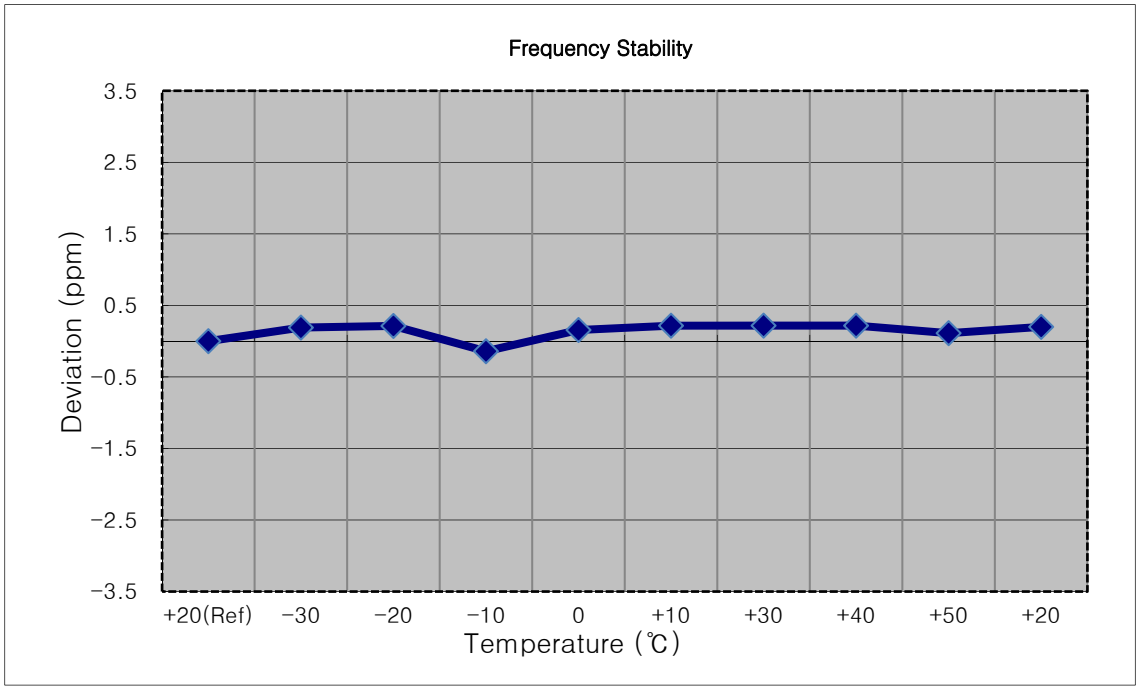
▣ OPERATING FREQUENCY: 707,500,000 Hz

▣ CHANNEL: 23095 (1.4 MHz)

▣ REFERENCE VOLTAGE: 3.85 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.850	+20(Ref)	707 500 103	0.0	0.000 000	0.000
100%		-30	707 500 238	134.9	0.000 019	0.191
100%		-20	707 500 254	150.4	0.000 021	0.213
100%		-10	707 500 004	-99.4	-0.000 014	-0.140
100%		0	707 500 214	110.3	0.000 016	0.156
100%		+10	707 500 256	153.0	0.000 022	0.216
100%		+30	707 500 257	153.8	0.000 022	0.217
100%		+40	707 500 257	154.0	0.000 022	0.218
100%		+50	707 500 183	79.3	0.000 011	0.112
Batt. Endpoint	3.400	+20	707 500 245	141.4	0.000 020	0.200



▣ MODE: LTE B12

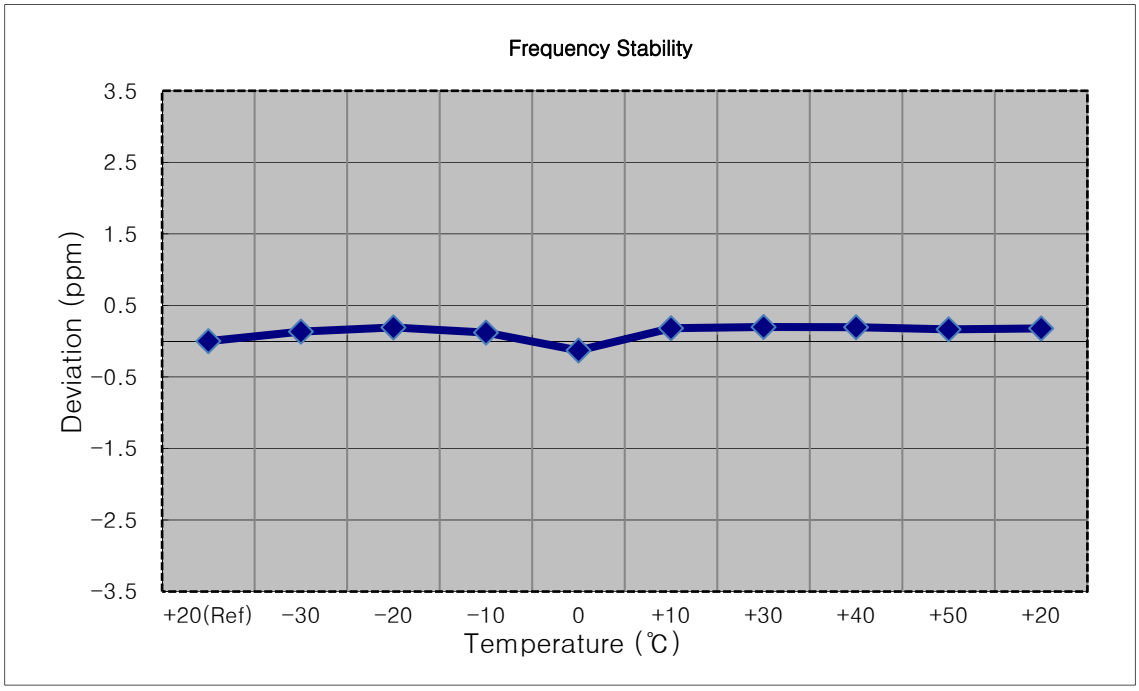
▣ OPERATING FREQUENCY: 707,500,000 Hz

▣ CHANNEL: 23095 (3 MHz)

▣ REFERENCE VOLTAGE: 3.85 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.850	+20(Ref)	707 499 921	0.0	0.000 000	0.000
100%		-30	707 500 016	94.8	0.000 013	0.134
100%		-20	707 500 057	136.0	0.000 019	0.192
100%		-10	707 500 006	85.0	0.000 012	0.120
100%		0	707 499 829	-91.8	-0.000 013	-0.130
100%		+10	707 500 049	128.1	0.000 018	0.181
100%		+30	707 500 061	139.8	0.000 020	0.198
100%		+40	707 500 059	138.2	0.000 020	0.195
100%		+50	707 500 038	116.9	0.000 017	0.165
Batt. Endpoint	3.400	+20	707 500 047	125.7	0.000 018	0.178



▣ MODE: LTE B12

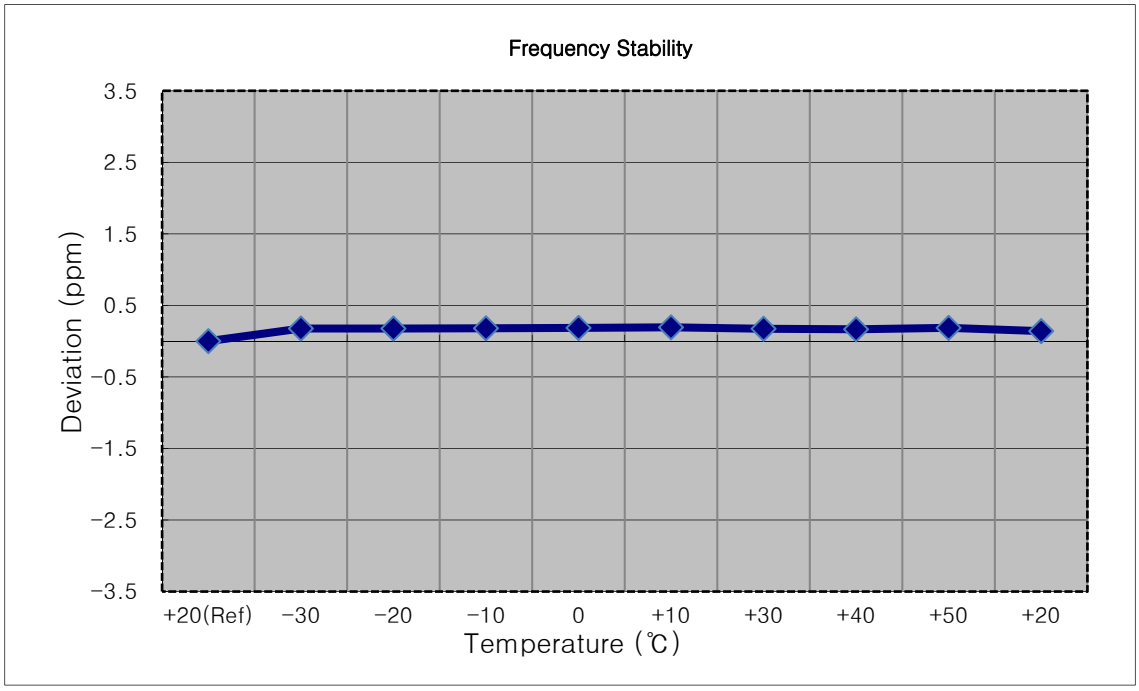
▣ OPERATING FREQUENCY: 707,500,000 Hz

▣ CHANNEL: 23095 (5 MHz)

▣ REFERENCE VOLTAGE: 3.85 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.850	+20(Ref)	707 500 137	0.0	0.000 000	0.000
100%		-30	707 500 263	125.3	0.000 018	0.177
100%		-20	707 500 262	124.7	0.000 018	0.176
100%		-10	707 500 265	127.4	0.000 018	0.180
100%		0	707 500 269	131.2	0.000 019	0.185
100%		+10	707 500 274	137.0	0.000 019	0.194
100%		+30	707 500 260	122.6	0.000 017	0.173
100%		+40	707 500 255	117.6	0.000 017	0.166
100%		+50	707 500 269	131.6	0.000 019	0.186
Batt. Endpoint	3.400	+20	707 500 237	99.3	0.000 014	0.140



▣ MODE: LTE B12

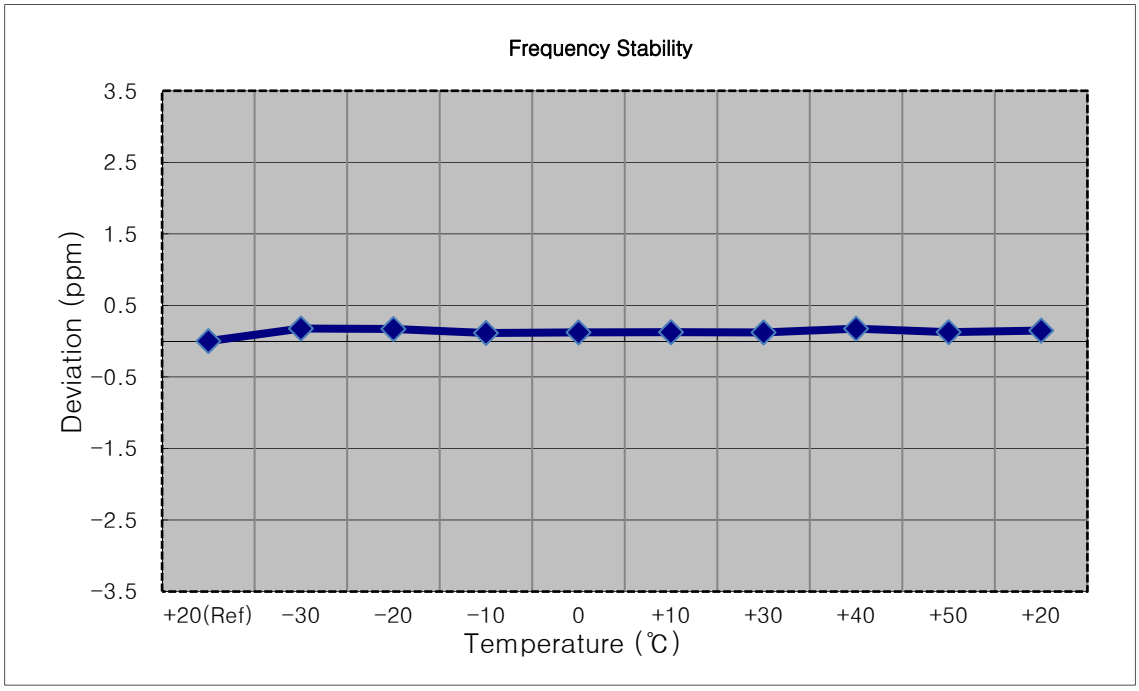
▣ OPERATING FREQUENCY: 707,500,000 Hz

▣ CHANNEL: 23095 (10 MHz)

▣ REFERENCE VOLTAGE: 3.85 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.850	+20(Ref)	707 500 121	0.0	0.000 000	0.000
100%		-30	707 500 247	125.3	0.000 018	0.177
100%		-20	707 500 242	120.5	0.000 017	0.170
100%		-10	707 500 203	81.2	0.000 011	0.115
100%		0	707 500 208	86.7	0.000 012	0.123
100%		+10	707 500 210	88.9	0.000 013	0.126
100%		+30	707 500 208	86.2	0.000 012	0.122
100%		+40	707 500 245	123.5	0.000 017	0.175
100%		+50	707 500 211	89.6	0.000 013	0.127
Batt. Endpoint	3.400	+20	707 500 226	104.9	0.000 015	0.148



▣ MODE: LTE B12

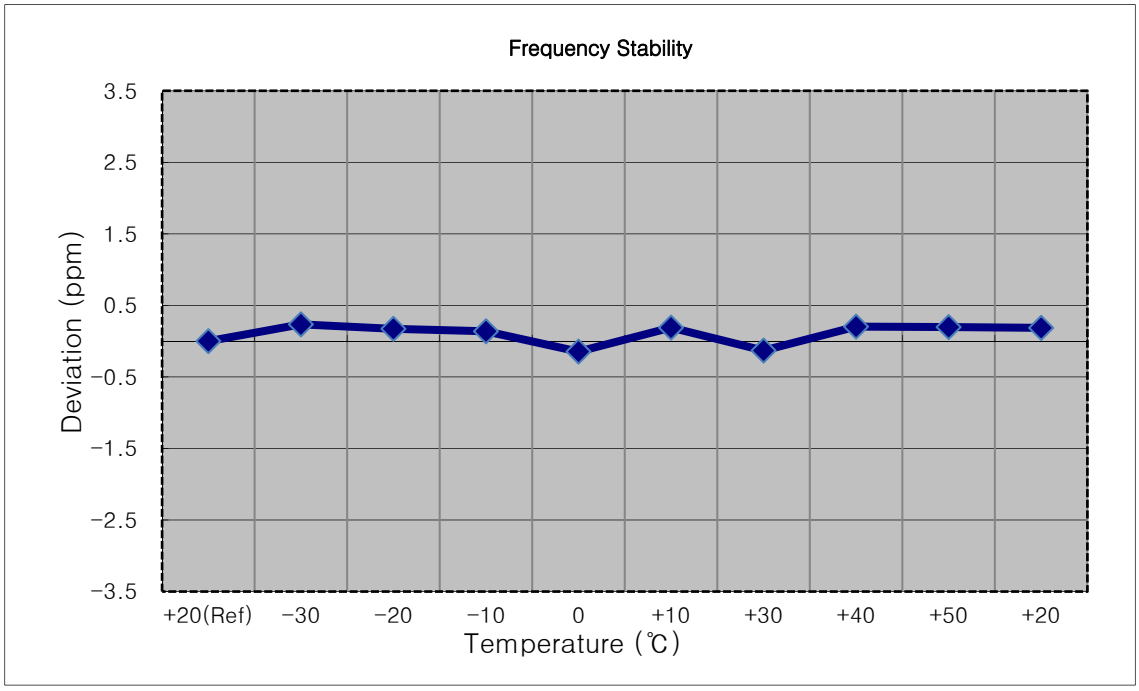
▣ OPERATING FREQUENCY: 715,300,000 Hz

▣ CHANNEL: 23173 (1.4 MHz)

▣ REFERENCE VOLTAGE: 3.85 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.850	+20(Ref)	715 300 095	0.0	0.000 000	0.000
100%		-30	715 300 264	168.3	0.000 024	0.235
100%		-20	715 300 219	123.5	0.000 017	0.173
100%		-10	715 300 194	98.8	0.000 014	0.138
100%		0	715 299 991	-104.1	-0.000 015	-0.146
100%		+10	715 300 231	135.8	0.000 019	0.190
100%		+30	715 300 002	-93.8	-0.000 013	-0.131
100%		+40	715 300 241	145.3	0.000 020	0.203
100%		+50	715 300 237	141.2	0.000 020	0.197
Batt. Endpoint	3.400	+20	715 300 229	133.2	0.000 019	0.186



▣ MODE: LTE B12

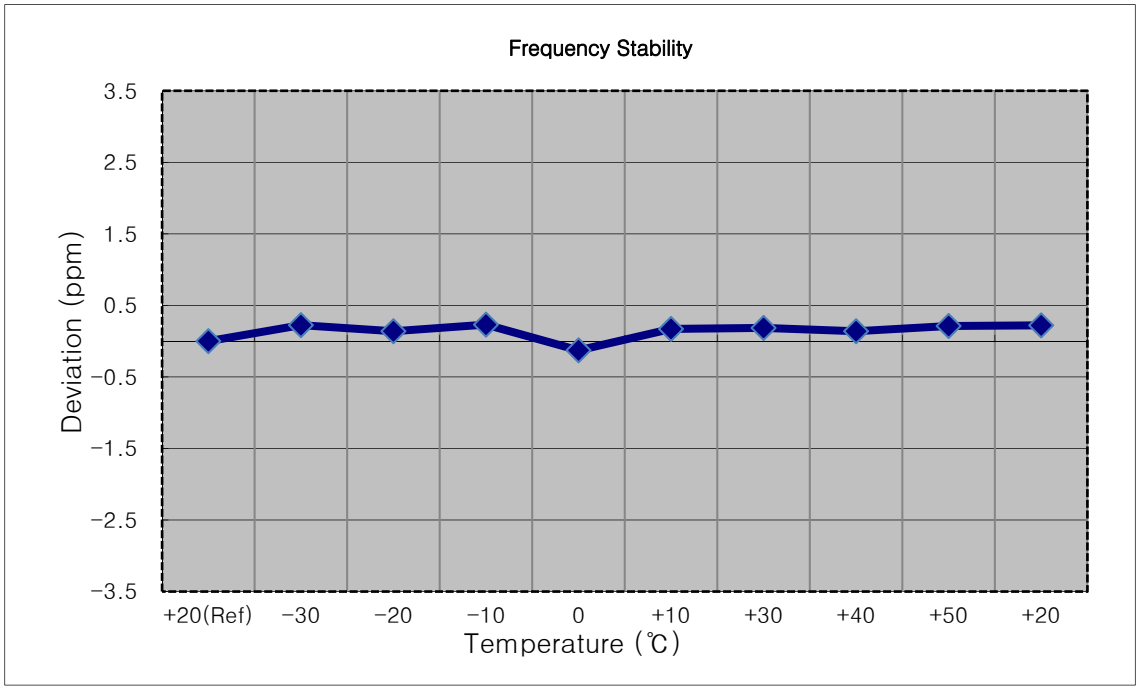
▣ OPERATING FREQUENCY: 714,500,000 Hz

▣ CHANNEL: 23165 (3 MHz)

▣ REFERENCE VOLTAGE: 3.85 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.850	+20(Ref)	714 500 140	0.0	0.000 000	0.000
100%		-30	714 500 300	159.9	0.000 022	0.224
100%		-20	714 500 239	99.3	0.000 014	0.139
100%		-10	714 500 305	165.6	0.000 023	0.232
100%		0	714 500 049	-91.2	-0.000 013	-0.128
100%		+10	714 500 262	122.1	0.000 017	0.171
100%		+30	714 500 272	132.2	0.000 019	0.185
100%		+40	714 500 239	99.3	0.000 014	0.139
100%		+50	714 500 291	151.6	0.000 021	0.212
Batt. Endpoint	3.400	+20	714 500 298	157.7	0.000 022	0.221



▣ MODE: LTE B12

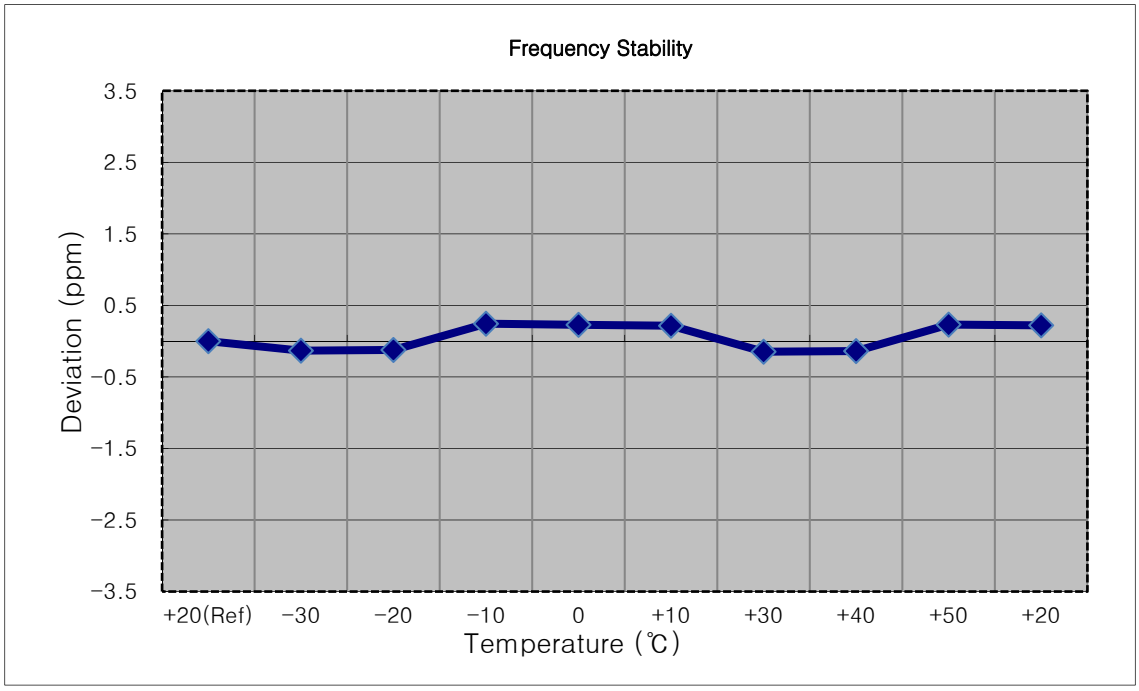
▣ OPERATING FREQUENCY: 713,500,000 Hz

▣ CHANNEL: 23155 (5 MHz)

▣ REFERENCE VOLTAGE: 3.85 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.850	+20(Ref)	713 500 121	0.0	0.000 000	0.000
100%		-30	713 500 026	-94.7	-0.000 013	-0.133
100%		-20	713 500 033	-87.7	-0.000 012	-0.123
100%		-10	713 500 295	174.0	0.000 024	0.244
100%		0	713 500 284	163.2	0.000 023	0.229
100%		+10	713 500 275	153.9	0.000 022	0.216
100%		+30	713 500 015	-105.3	-0.000 015	-0.148
100%		+40	713 500 022	-98.8	-0.000 014	-0.138
100%		+50	713 500 286	165.3	0.000 023	0.232
Batt. Endpoint	3.400	+20	713 500 279	158.0	0.000 022	0.221



▣ MODE: LTE B12

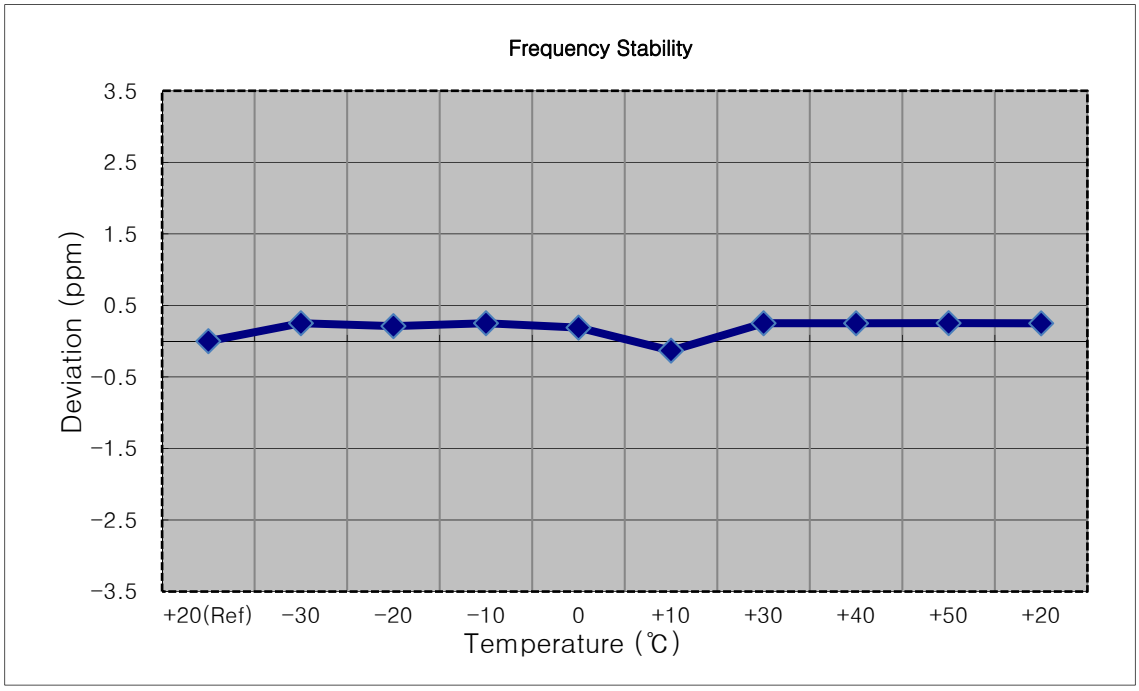
▣ OPERATING FREQUENCY: 711,000,000 Hz

▣ CHANNEL: 23130 (10 MHz)

▣ REFERENCE VOLTAGE: 3.85 VDC

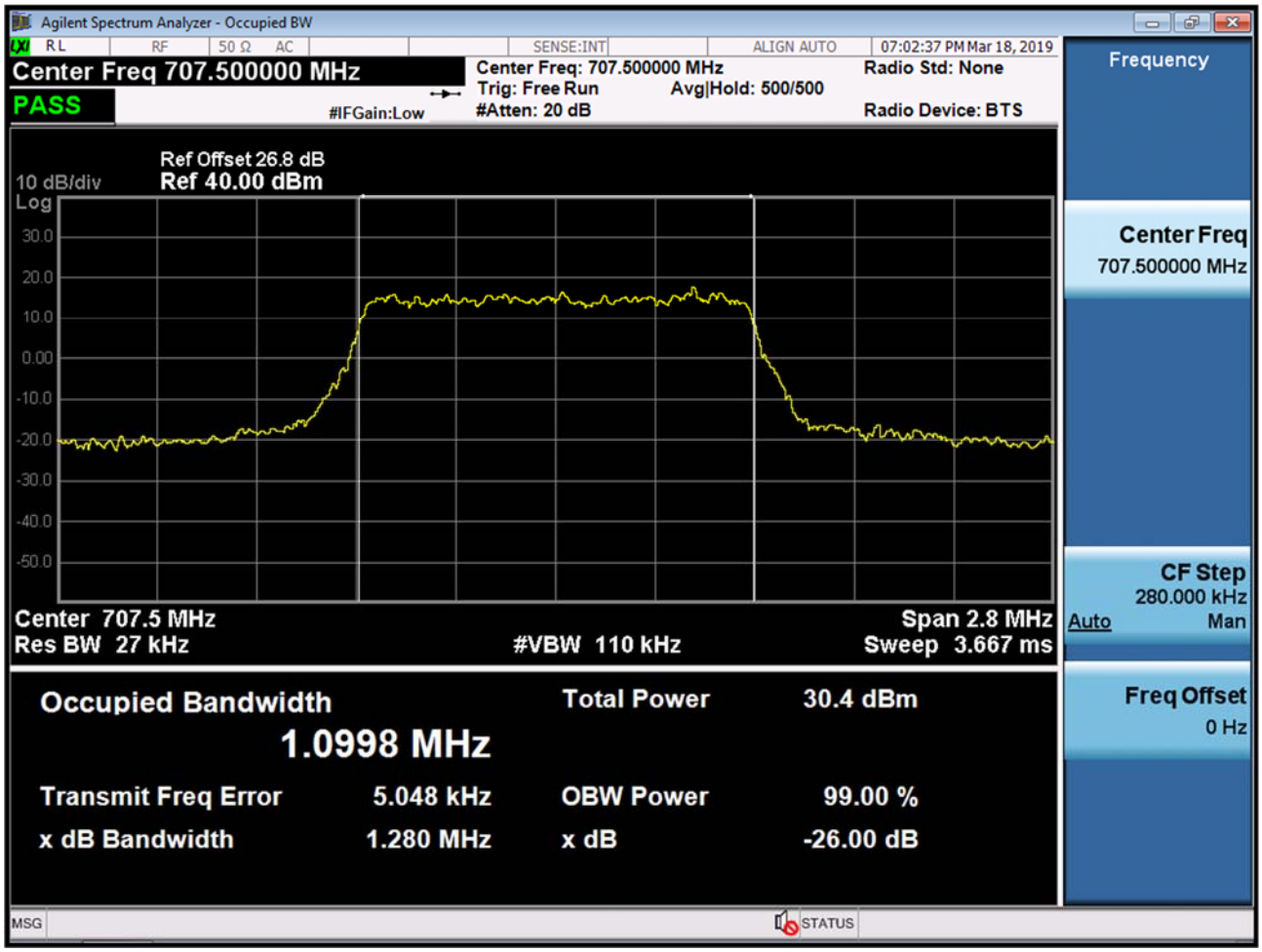
▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.850	+20(Ref)	711 000 167	0.0	0.000 000	0.000
100%		-30	711 000 346	178.3	0.000 025	0.251
100%		-20	711 000 317	149.9	0.000 021	0.211
100%		-10	711 000 346	178.3	0.000 025	0.251
100%		0	711 000 302	135.0	0.000 019	0.190
100%		+10	711 000 074	-93.6	-0.000 013	-0.132
100%		+30	711 000 346	178.3	0.000 025	0.251
100%		+40	711 000 346	178.1	0.000 025	0.250
100%		+50	711 000 347	179.6	0.000 025	0.253
Batt. Endpoint	3.400	+20	711 000 345	177.6	0.000 025	0.250

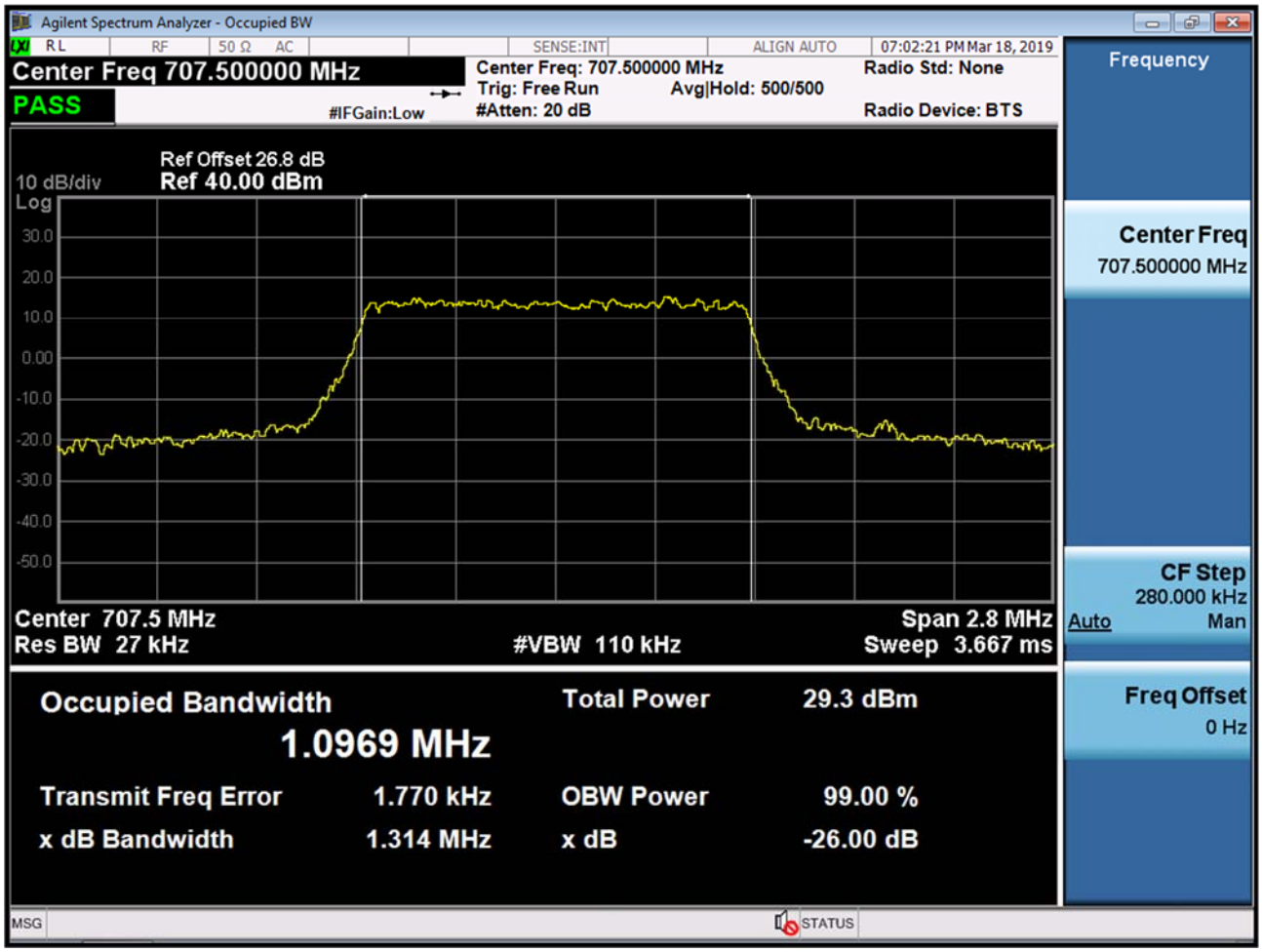


9. TEST PLOTS

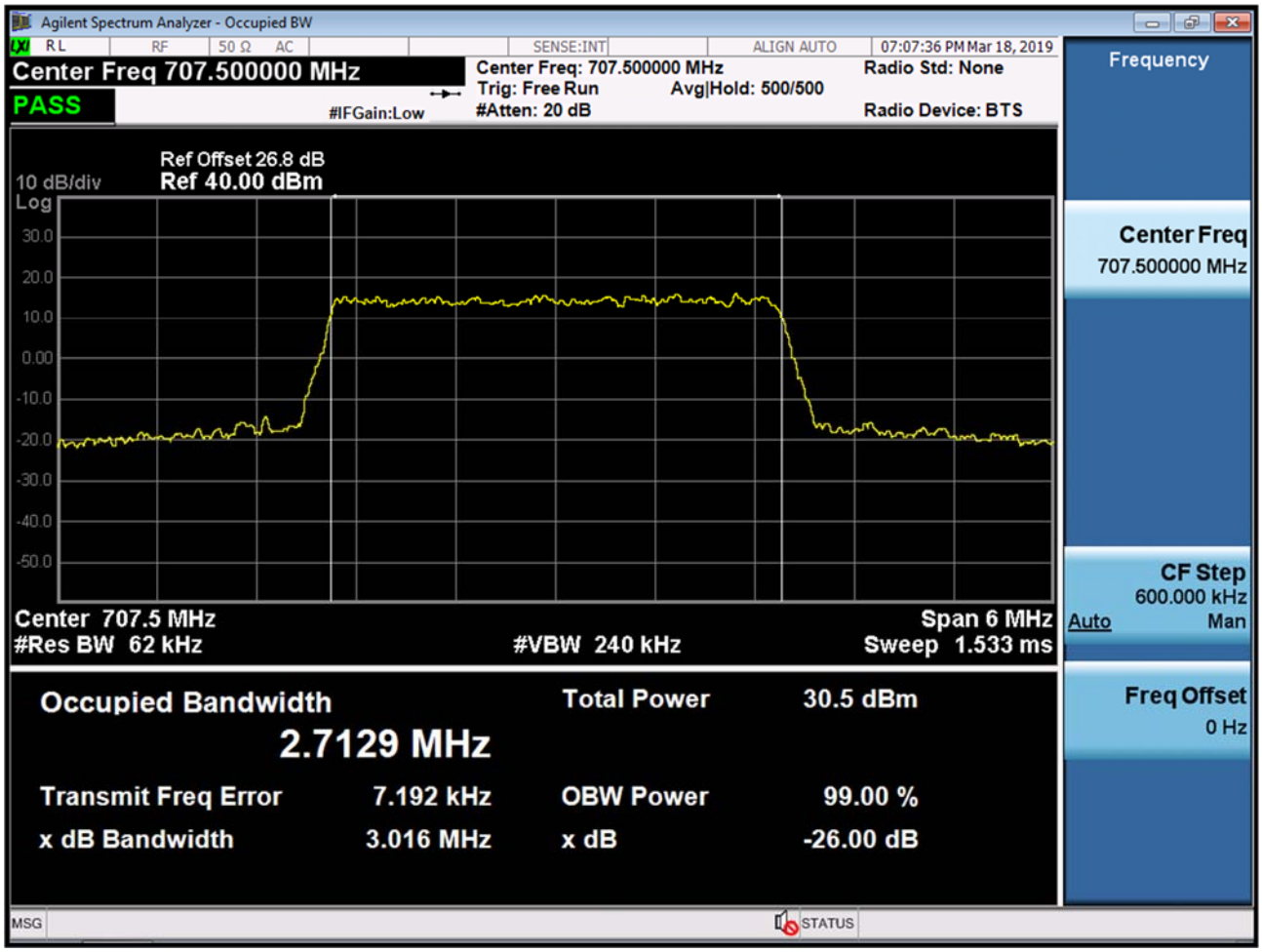
BAND 12. Occupied Bandwidth Plot (1.4M BW Ch.23095 QPSK_RB6_0)



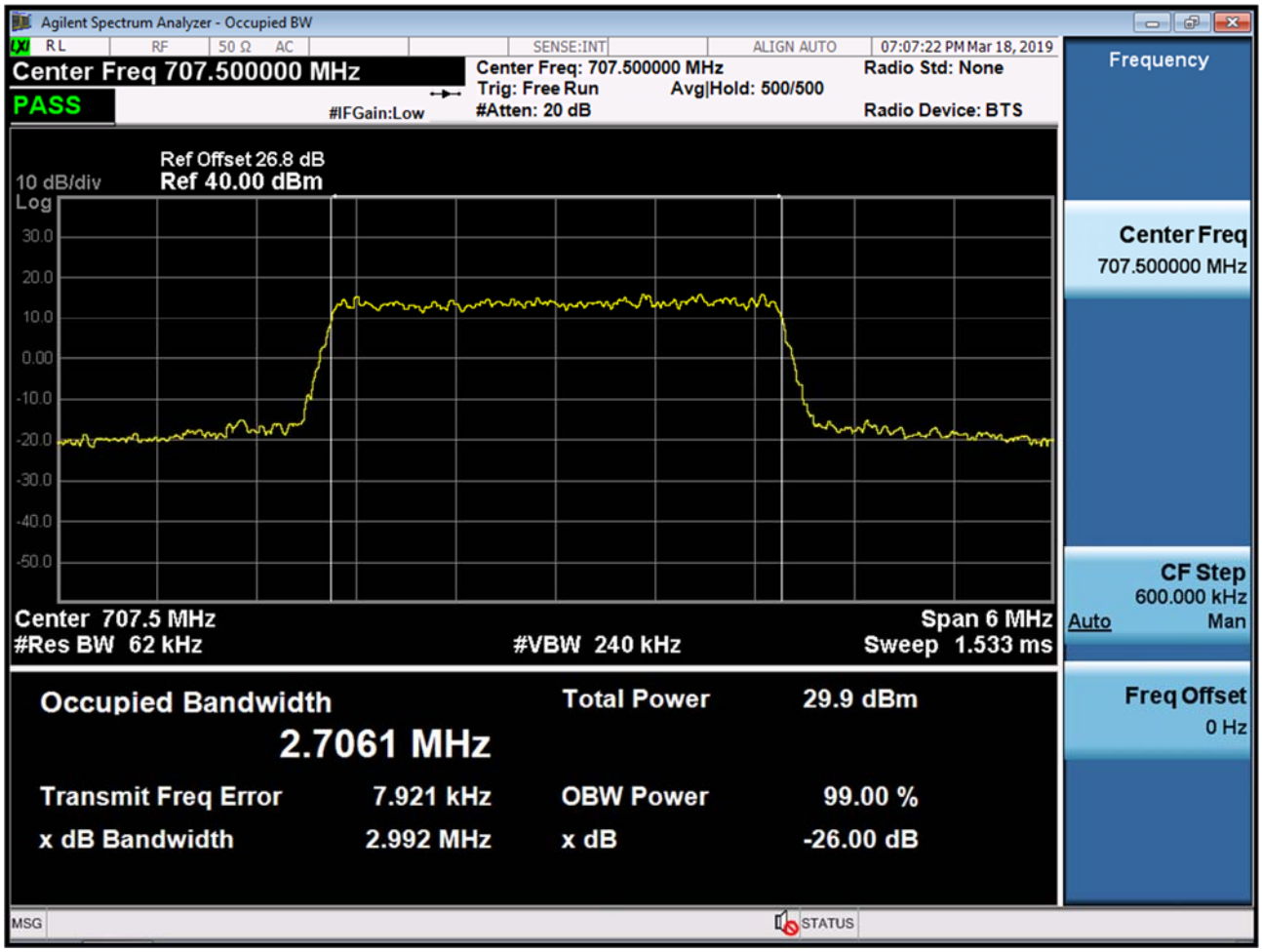
BAND 12. Occupied Bandwidth Plot (1.4M BW Ch.23095 16QAM_RB6_0)



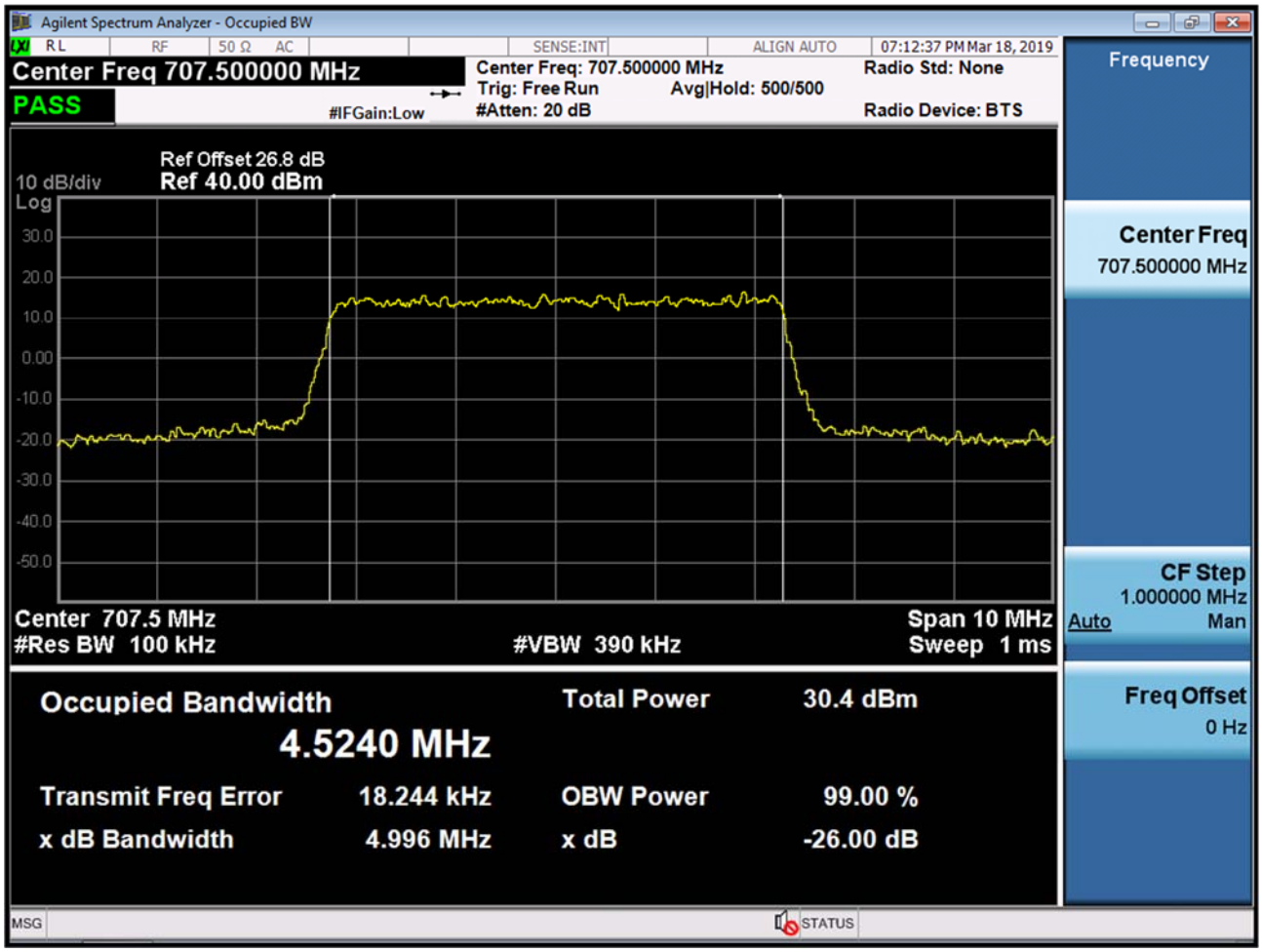
BAND 12. Occupied Bandwidth Plot (3M BW Ch.23095 QPSK_RB15_0)



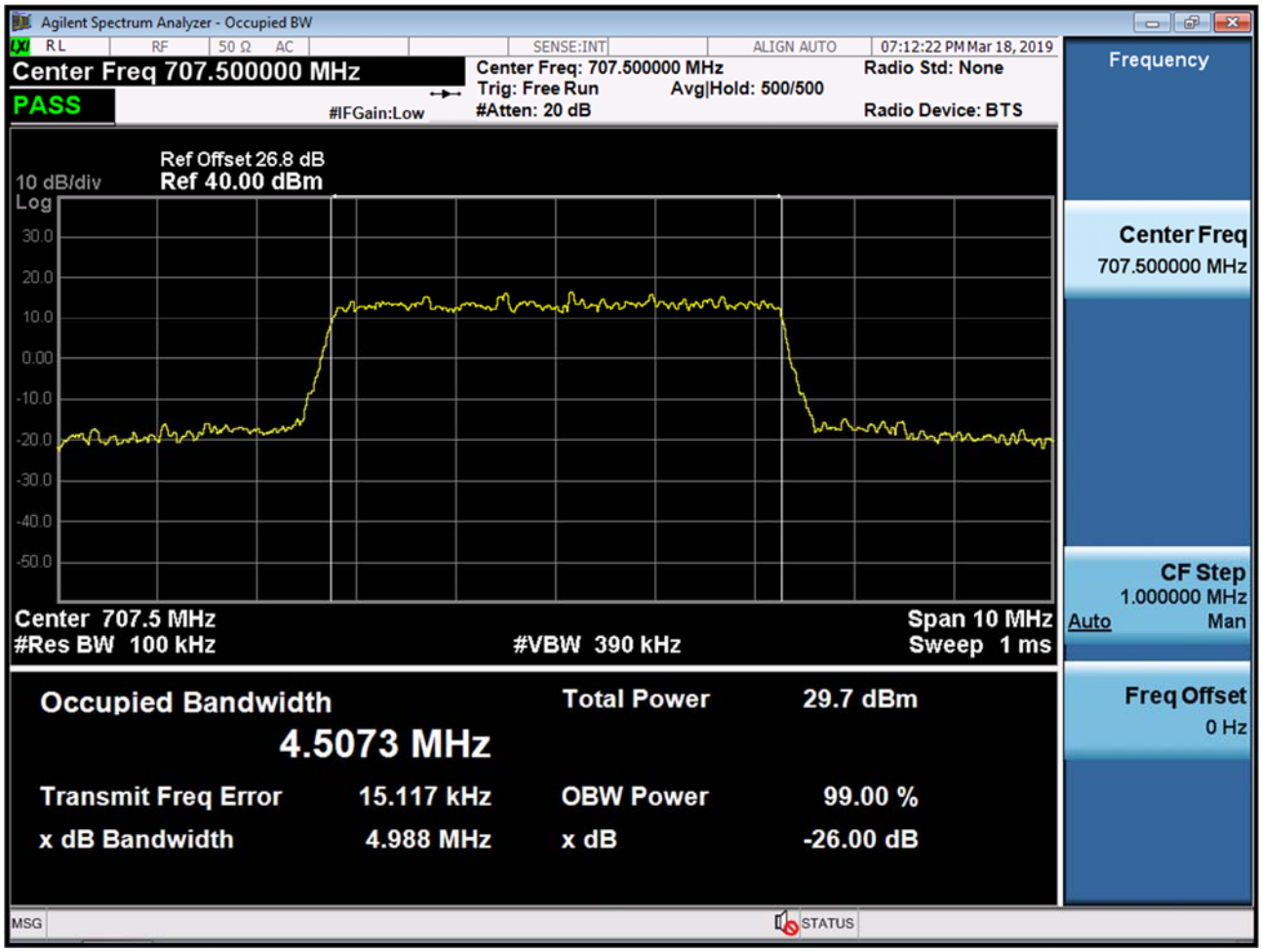
BAND 12. Occupied Bandwidth Plot (3M BW Ch.23095 16QAM_RB15_0)



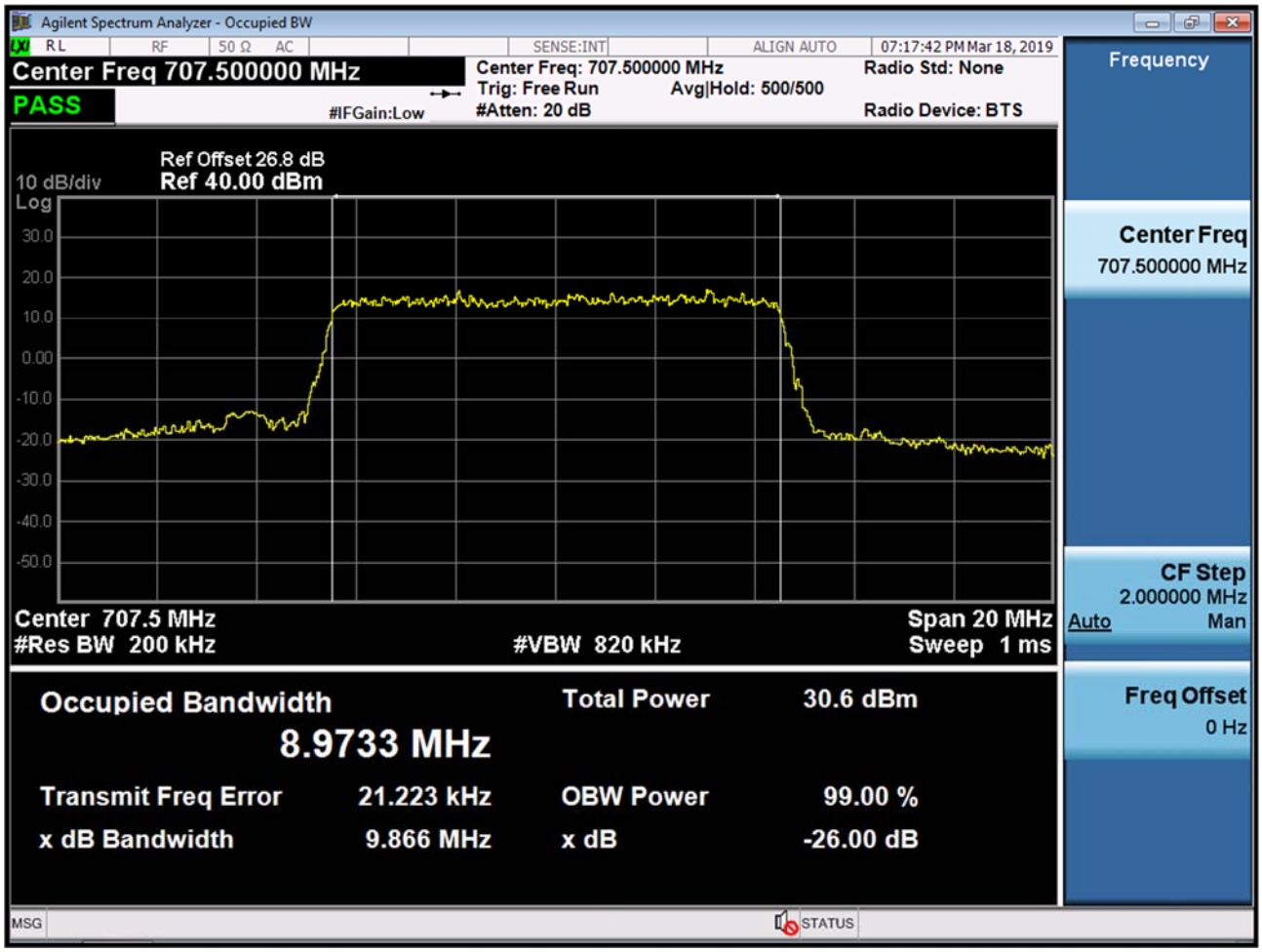
BAND 12. Occupied Bandwidth Plot (5M BW Ch.23095 QPSK_RB25_0)



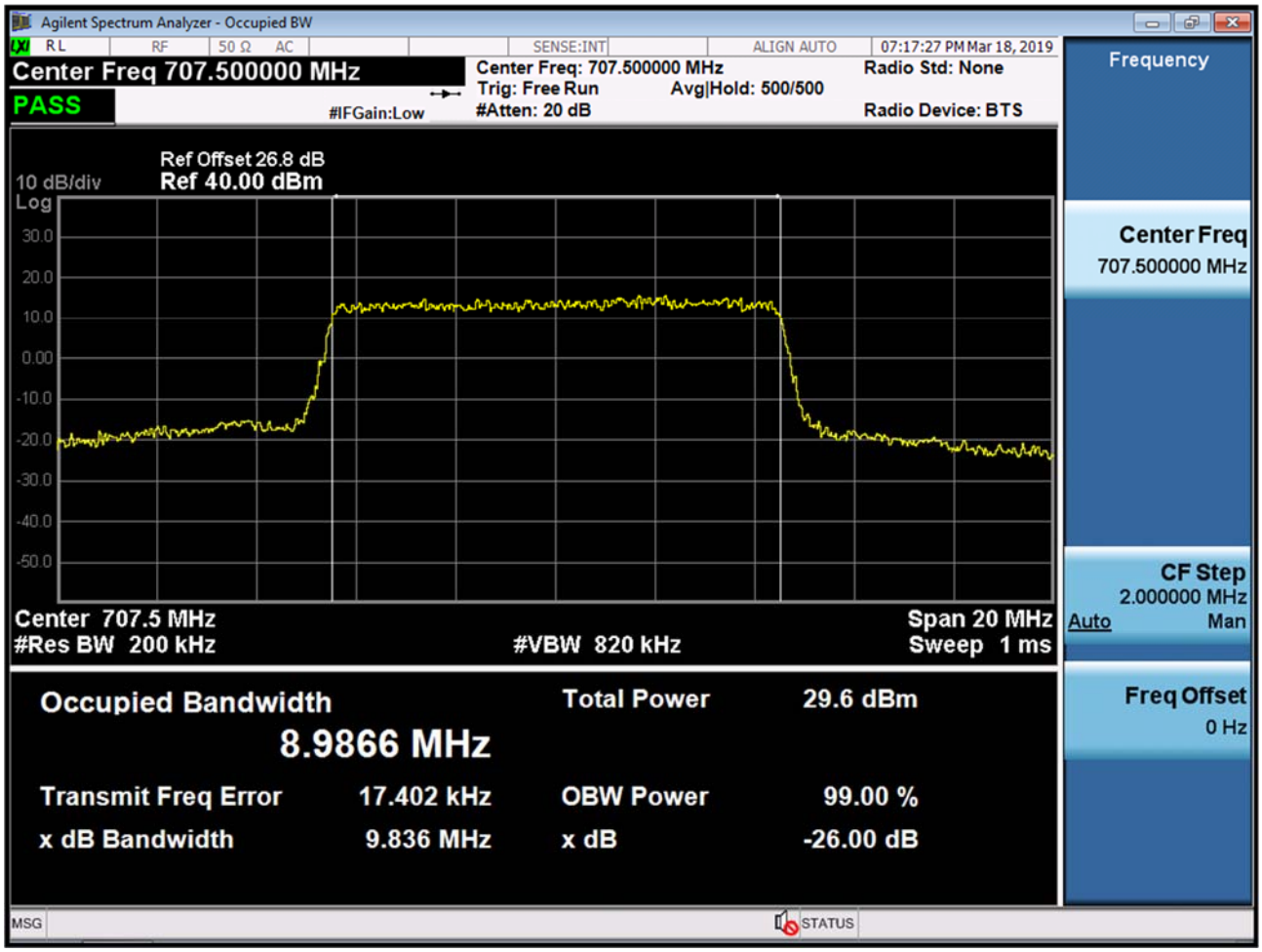
BAND 12. Occupied Bandwidth Plot (5M BW Ch.23095 16QAM_RB25_0)



BAND 12. Occupied Bandwidth Plot (10M BW Ch.23095 QPSK_RB50_0)



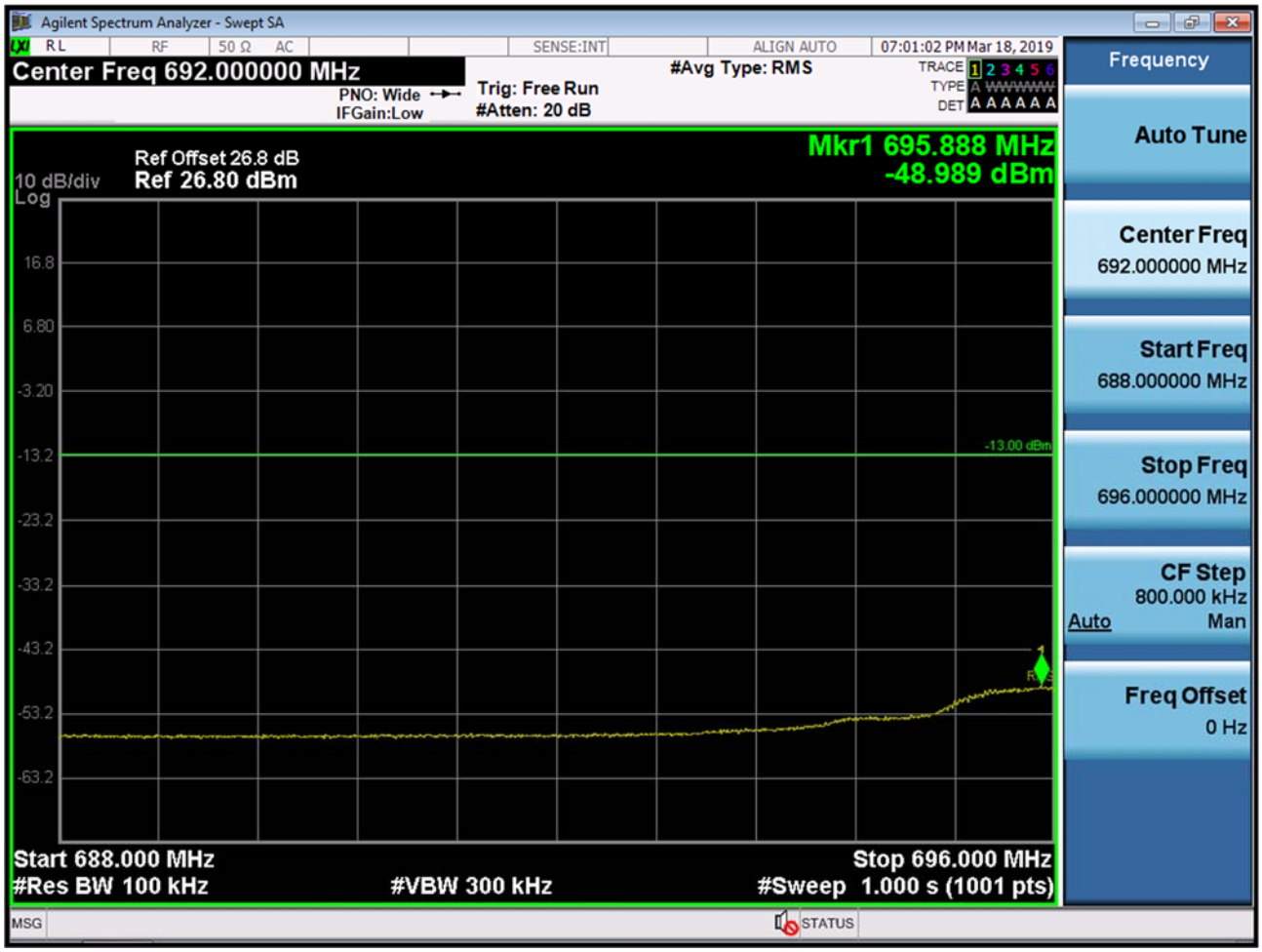
BAND 12. Occupied Bandwidth Plot (10M BW Ch.23095 16QAM_RB50_0)



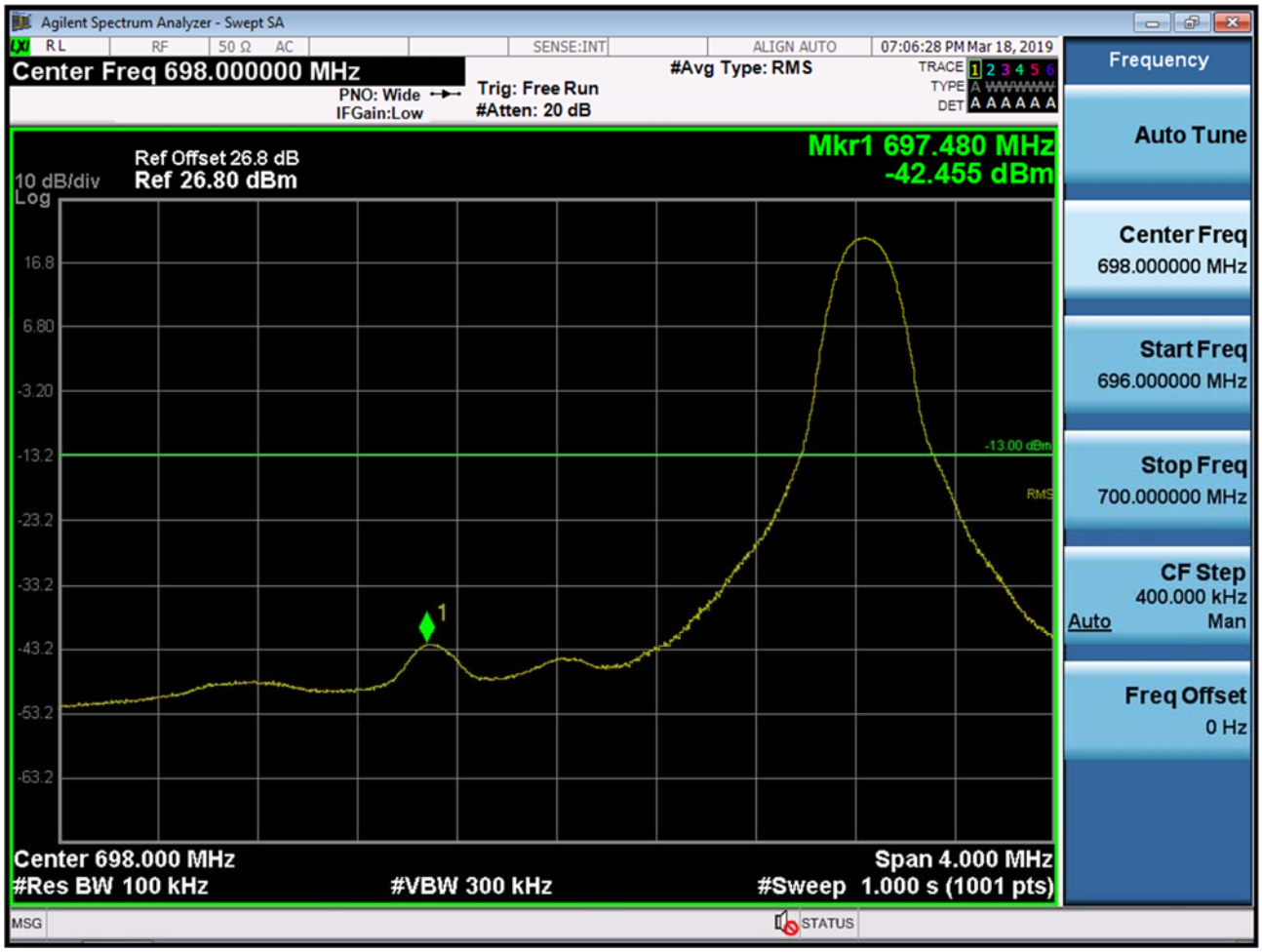
BAND 12. Lower Band Edge Plot (1.4M BW Ch.23017 QPSK_RB1_Offset 0)

BAND 12. Lower Band Edge Plot (1.4M BW Ch.23017 QPSK_RB6_Offset 0)

BAND 12. Lower Extended Band Edge Plot (1.4M BW Ch.23017 QPSK_RB6_0)



BAND 12. Lower Band Edge Plot (3M BW Ch.23025 QPSK_RB1_Offset 0)



BAND 12. Lower Band Edge Plot (3M BW Ch.23025 QPSK_RB15_Offset 0)

BAND 12. Lower Extended Band Edge Plot (3M BW Ch.23025 QPSK_RB15_0)

BAND 12. Lower Band Edge Plot (5M BW Ch.23035 QPSK_RB1_Offset 0)

BAND 12. Lower Band Edge Plot (5M BW Ch.23035 QPSK_RB25_Offset 0)

BAND 12. Lower Extended Band Edge Plot (5M BW Ch.23035 QPSK_RB25_0)

BAND 12. Lower Band Edge Plot (10M BW Ch.23060 QPSK_RB1_Offset 0)

BAND 12. Lower Band Edge Plot (10M BW Ch.23060 QPSK_RB50_Offset 0)

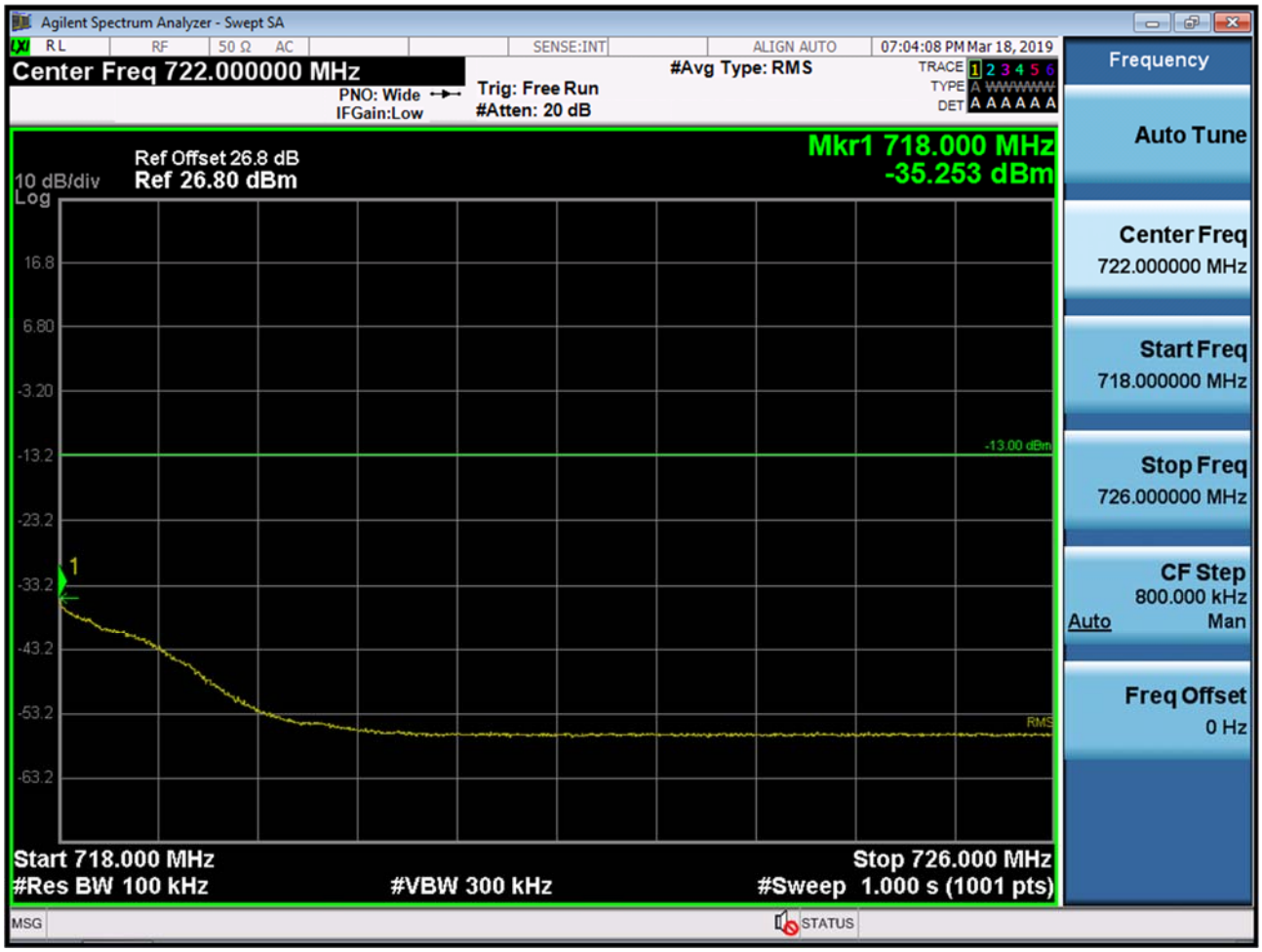
BAND 12. Lower Extended Band Edge Plot (10M BW Ch.23060 QPSK_RB50_0)

BAND 12. Upper Band Edge Plot (1.4M BW Ch.23173 QPSK_RB1_Offset 5)_1

BAND 12. Upper Band Edge Plot (1.4M BW Ch.23173 QPSK_RB1_Offset 5)_2

BAND 12. Upper Band Edge Plot (1.4M BW Ch.23173 QPSK_RB6_Offset 0)

BAND 12. Upper Extended Band Edge Plot (1.4M BW Ch.23173 QPSK_RB6_0)



BAND 12. Upper Band Edge Plot (3M BW Ch.23165 QPSK_RB1_Offset 14)-1

BAND 12. Upper Band Edge Plot (3M BW Ch.23165 QPSK_RB1_Offset 14)-2

BAND 12. Upper Band Edge Plot (3M BW Ch.23165 QPSK_RB15_Offset 0)

BAND 12. Upper Extended Band Edge Plot (3M BW Ch.23165 QPSK_RB15_0)