

TEST REPORT

FCC LTE B66 Test for SM-A276B/DS
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2604-FC048

DATE OF ISSUE
April 27, 2026

Tested by
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TEST REPORT

REPORT NO.

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Additional Model

SM-A276B

Applicant**SAMSUNG Electronics Co., Ltd.**

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

Product Name

Mobile Phone

Model Name

SM-A276B/DS

Date of Test

March 18, 2026 ~ April 24, 2026

FCC ID

A3LSMA276B

Location of Test

☒ Permanent Testing Lab ☐ On Site Testing

(Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea)

FCC Classification:

PCS Licensed Transmitter Held to Ear (PCE)

Test Standard Used

FCC Rule Part: § 27

Test Results

PASS

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	April 27, 2025	Initial Release

Notice

Content

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

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

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

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

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

Information provided by the applicant is marked **.

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

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

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

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MEASUREMENT REPORT

1. GENERAL INFORMATION

Model(s):	SM-A276B/DS
Additional Model(s)	SM-A276B
Tx Frequency:	1710.7 MHz – 1779.3 MHz (LTE – Band 66 (1.4 MHz)) 1711.5 MHz – 1778.5 MHz (LTE – Band 66 (3 MHz)) 1712.5 MHz – 1777.5 MHz (LTE – Band 66 (5 MHz)) 1715.0 MHz – 1775.0 MHz (LTE – Band 66 (10 MHz)) 1717.5 MHz – 1772.5 MHz (LTE – Band 66 (15 MHz)) 1720.0 MHz – 1770.0 MHz (LTE – Band 66 (20 MHz))
Serial number:	Radiated : R37L300SKNE (Main 1 ANT), R3GL30N611F (Sub 2-2 ANT) Conducted : R37L300SGRV Uplink Carrier Aggregation : R3GL30N613N
Antenna Information	Please refer to the Antenna Specification document.

1.1. MAXIMUM OUTPUT POWER

Main 1 ANT

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max. Power (W)	Max. Power (dBm)
LTE – Band66 (1.4)	1710.7 – 1779.3	1M10G7D	QPSK	0.142	21.51
		1M10W7D	16-QAM	0.117	20.67
		1M10W7D	64-QAM	0.093	19.67
		1M10W7D	256-QAM	0.047	16.70
LTE – Band66 (3)	1711.5 – 1778.5	2M72G7D	QPSK	0.162	22.10
		2M72W7D	16-QAM	0.134	21.26
		2M72W7D	64-QAM	0.105	20.21
		2M70W7D	256-QAM	0.052	17.12
LTE – Band66 (5)	1712.5 – 1777.5	4M52G7D	QPSK	0.154	21.88
		4M52W7D	16-QAM	0.130	21.13
		4M52W7D	64-QAM	0.102	20.10
		4M52W7D	256-QAM	0.049	16.93
LTE – Band66 (10)	1715.0 – 1775.0	8M99G7D	QPSK	0.150	21.76
		9M00W7D	16-QAM	0.126	21.00
		9M00W7D	64-QAM	0.101	20.03
		8M99W7D	256-QAM	0.048	16.84
LTE – Band66 (15)	1717.5 – 1772.5	13M5G7D	QPSK	0.146	21.65
		13M4W7D	16-QAM	0.122	20.87
		13M4W7D	64-QAM	0.093	19.70
		13M4W7D	256-QAM	0.046	16.61
LTE – Band66 (20)	1720.0 – 1770.0	17M9G7D	QPSK	0.148	21.70
		17M9W7D	16-QAM	0.120	20.79
		17M9W7D	64-QAM	0.094	19.71
		17M9W7D	256-QAM	0.047	16.71

Sub 2-2 ANT

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max. Power (W)	Max. Power (dBm)
LTE – Band66 (1.4)	1710.7 – 1779.3	1M10G7D	QPSK	0.217	23.37
		1M10W7D	16-QAM	0.183	22.62
		1M10W7D	64-QAM	0.138	21.41
		1M10W7D	256-QAM	0.069	18.38
LTE – Band66 (3)	1711.5 – 1778.5	2M73G7D	QPSK	0.217	23.37
		2M71W7D	16-QAM	0.182	22.61
		2M72W7D	64-QAM	0.141	21.50
		2M71W7D	256-QAM	0.071	18.52
LTE – Band66 (5)	1712.5 – 1777.5	4M52G7D	QPSK	0.218	23.39
		4M52W7D	16-QAM	0.187	22.72
		4M53W7D	64-QAM	0.148	21.69
		4M51W7D	256-QAM	0.070	18.47
LTE – Band66 (10)	1715.0 – 1775.0	9M00G7D	QPSK	0.222	23.47
		9M01W7D	16-QAM	0.189	22.76
		9M00W7D	64-QAM	0.143	21.56
		8M99W7D	256-QAM	0.072	18.58
LTE – Band66 (15)	1717.5 – 1772.5	13M5G7D	QPSK	0.201	23.04
		13M5W7D	16-QAM	0.168	22.26
		13M5W7D	64-QAM	0.129	21.11
		13M5W7D	256-QAM	0.067	18.24
LTE – Band66 (20)	1720.0 – 1770.0	18M0G7D	QPSK	0.201	23.03
		18M0W7D	16-QAM	0.165	22.17
		18M0W7D	64-QAM	0.131	21.18
		18M0W7D	256-QAM	0.067	18.23

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

Please refer to the [2G3G] Test Report.

2.2. MEASURING INSTRUMENT CALIBRATION

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

2.3. TEST FACILITY

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

Detailed description of test facility was submitted to the Commission and accepted dated February 26, 2026 (Registration Number: KR0032).

2.4. EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to ANSI/USEMCSC C63.2-2023, "American National Standard for Specifications of Electromagnetic Interference and Field Strength Measuring Instrumentation in the Frequency Range 9 kHz to 40 GHz".

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	- KDB 971168 D01 v03r01 - Section 5.2.4 - ANSI C63.26-2015 - Section 5.2.1 & 5.2.4.2
Peak- to- Average Ratio	- KDB 971168 D01 v03r01 – Section 5.7 - ANSI C63.26-2015 – Section 5.2.3.4
Frequency stability	- ANSI C63.26-2015 – Section 5.6
Radiated Power	- ANSI C63.26-2015 – Section 5.2.4.4 - KDB 971168 D01 v03r01 – Section 5.8
Radiated Spurious and Harmonic Emissions	- ANSI C63.26-2015 – Section 5.5.3 - KDB 971168 D01 v03r01 – Section 5.8

3.2 RADIATED POWER

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

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

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5 % of the expected OBW, not to exceed 1 MHz
3. VBW $\geq 3 \times$ RBW
4. Span = 1.5 times the OBW
5. No. of sweep points $> 2 \times$ 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;

$$P_d \text{ (dBm)} = P_g \text{ (dBm)} - \text{cable loss (dB)} + \text{antenna gain (dB)}$$

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.

Test Settings

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

Test Note

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

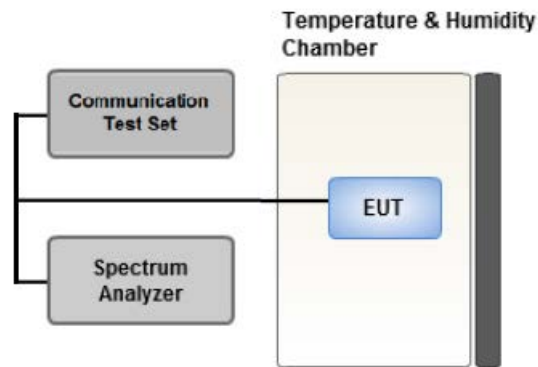
$$\text{Result}_{(\text{dBm})} = P_g_{(\text{dBm})} - \text{cable loss}_{(\text{dB})} + \text{antenna gain}_{(\text{dBi})}$$

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.

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

3.4 PEAK- TO- AVERAGE RATIO



Test setup

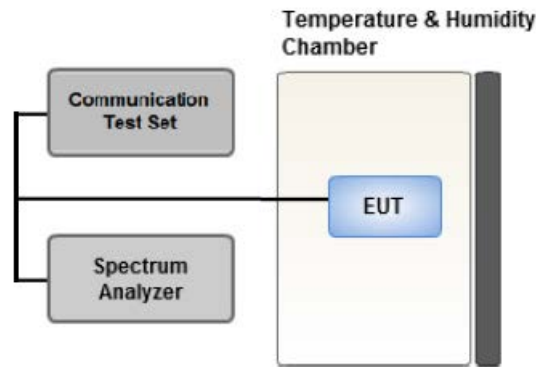
Test Settings

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

Test Notes

1. This test was performed using the spectrum analyzer's CCDF function.

3.5 OCCUPIED BANDWIDTH.



Test setup

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

The EUT makes a call to the communication simulator.

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

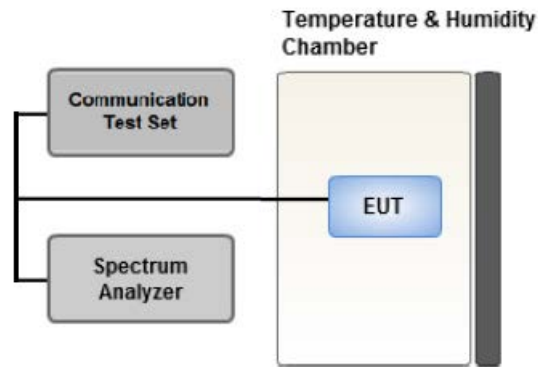
The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency.

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

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99 % occupied bandwidth and the 26 dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5 % of the expected OBW
3. VBW $\geq 3 \times$ RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5 % of the 99 % occupied bandwidth observed in Step 7

3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL



Test setup

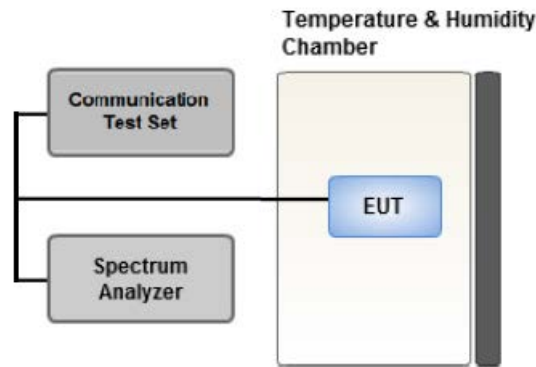
Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Settings

1. RBW = 1 MHz
2. VBW $\geq$ 3 MHz
3. Detector = Peak
4. Trace Mode = max hold
5. Sweep time = auto
6. Number of points in sweep = 1001

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 $\geq 2 \times \text{Span/RBW}$
7. Trace mode = trace average
8. Sweep time > (Number of Points) (Symbol Period)
9. The trace was allowed to stabilize

Test Notes

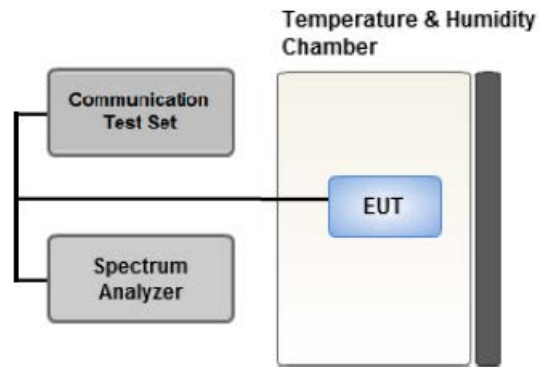
According to FCC 22.917, 24.238, 27.53 specified that power of any emission outside of The authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. In the 1 MHz bands immediately outside and adjacent to the frequency block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

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

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

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

3.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE



Test setup

Test Overview

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015.

The frequency stability of the transmitter is measured by:

1. Temperature:

The temperature is varied from -30 °C to +50 °C in 10 °C increments using an environmental chamber.

2. Primary Supply Voltage:

- .- Unless otherwise specified, vary primary supply voltage from 85 % to 115 % of the nominal value for other than hand carried battery equipment.
- .- For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20 °C to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter.
Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10 °C intervals ranging from -30 °C to +50 °C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

3.9 WORST CASE(RADIATED TEST)

- The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.
- All modes of operation were investigated and the worst case configuration results are reported.
Mode : Stand alone, Stand alone + External accessories (Earphone, AC adapter, etc)
Worst case : Stand alone
- All simultaneous transmission scenarios of operation were investigated, and the test results showed no additional significant emissions relative to the least restrictive limit were observed.
Therefore, only the worst case(stand-alone) results were reported.
- In the case of radiated spurious emissions, all bandwidth of operation were investigated and the worst case bandwidth results are reported. (Worst case : 3 MHz(Main 1 ANT), 10 MHz(Sub 2-2 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.
- SM-A276B/DS & additional models were tested and the worst case results are reported.
(Worst case : SM-A276B/DS)

[Main 1 ANT Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Effective Isotropic Radiated Power	QPSK, 16QAM, 64QAM, 256QAM	See Section 8.1		X
Radiated Spurious and Harmonic Emissions	QPSK	See Section 8.2		Y

[Sub 2-2 ANT Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Effective Isotropic Radiated Power	QPSK, 16QAM, 64QAM, 256QAM	See Section 9.1		X
Radiated Spurious and Harmonic Emissions	QPSK	See Section 9.2		X

3.10 WORST CASE(CONDUCTED TEST)

- All modes of operation were investigated and the worst case configuration results are reported.
 - SM-A276B/DS & additional models were tested and the worst case results are reported.
- (Worst case : SM-A276B/DS)

[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	Manufacture	Serial No.	Due to Calibration	Calibration Interval
RF Switching System	INPUT1 + 1GHz HPF + LNA	HCT CO., LTD.,	F2L2	12/01/2026	Annual
RF Switching System	INPUT1 + 3GHz HPF + LNA	HCT CO., LTD.,	F2L3	12/01/2026	Annual
RF Switching System	INPUT1 + 7GHz HPF + LNA	HCT CO., LTD.,	F2L5	12/01/2026	Annual
RF Switching System	INPUT3 + 6GHz HPF + LNA	HCT CO., LTD.,	F2L14	12/01/2026	Annual
Broadband LNA	CBL18265035	CERNEX	22966	10/21/2026	Annual
Broadband LNA	CBL26405040	CERNEX	25956	02/09/2027	Annual
POWER SPLITTER	11667B	Hewlett Packard	5001	04/01/2027	Annual
DC POWER SUPPLY	E3632A	Agilent	MY40010147	07/29/2026	Annual
Dipole Antenna	UHAP	Schwarzbeck	01274	03/05/2028	Biennial
Dipole Antenna	UHAP	Schwarzbeck	01288	08/07/2026	Biennial
Chamber	SU-642	ESPEC	93008124	02/04/2027	Annual
Horn Antenna	BBHA 9120D	Schwarzbeck	03197	11/28/2026	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	03201	11/28/2026	Biennial
Horn Antenna	BBHA 9170	Schwarzbeck	BBHA9170342	09/20/2026	Biennial
Horn Antenna	BBHA 9170	Schwarzbeck	BBHA9170124	03/23/2027	Biennial
MXA SIGNAL ANALYZER	N9020A	Agilent	MY52090906	04/08/2027	Annual
20dB ATTENUATOR	8493C	HP	15233	12/10/2026	Annual
Signal Analyzer	FSV 40	ROHDE & SCHWARZ	101733	09/17/2026	Annual
Wireless Communications Set	E5515C	Agilent	MY48360800	07/29/2026	Annual
Loop Antenna	FMZB 1513	Schwarzbeck	1513-333	06/23/2027	Biennial
Trilog Broadband Antenna	VULB 9168	Schwarzbeck	00895	08/28/2026	Biennial
Trilog Broadband Antenna	VULB 9168	Schwarzbeck Mess-Elektronik OHG	01135	08/19/2026	Biennial
Radio Communication Test Station	MT8000A	Anritsu	6272613402	08/18/2026	Annual
SIGNAL GENERATOR	SMB100A	ROHDE & SCHWARZ	177633	07/22/2026	Annual
PXA Signal Analyzer	N9030B	Keysight	MY55480167	05/14/2026	Annual
UXM 5G Wireless Test Platform	E7515B	Keysight	MY60101126	01/29/2027	Annual
Automation Software	FCC 2G/3G/4G Conducted	HCT CO., LTD	-	-	-
Automation Software	FCC NR Conducted	HCT CO., LTD	-	-	-
Automation Software	FCC LTE Radiated	HCT CO., LTD	-	-	-
Automation Software	FCC NR Radiated	HCT CO., LTD	-	-	-

Note:

1. Equipment whose calibration due date was updated during the test period was not used between the previous due date and the update. All reported measurements were performed using equipment within valid calibration.
2. Especially, all antenna for measurement is calibrated in accordance with the requirements of ANSI C63.5-2017.

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 ($\pm$ kHz)
Occupied Bandwidth	95 (Confidence level about 95 %, $k=2$)
Frequency stability	28 (Confidence level about 95 %, $k=2$)

Parameter	Expanded Uncertainty ($\pm$ kHz)
Block Edge	0.70 (Confidence level about 95 %, $k=2$)
Conducted Spurious Emissions	1.11 (Confidence level about 95 %, $k=2$)
Peak- to- Average Ratio	0.73 (Confidence level about 95 %, $k=2$)
Radiated Power	4.74 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.54 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.74 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.80 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.86 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (Above 40 GHz)	5.44 (Confidence level about 95 %, $k=2$)

6. SUMMARY OF TEST RESULTS

-. The decision rule applies 'simple acceptance'

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	PASS 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. Refer to the 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

$$\text{ERP} = \text{Substitute LEVEL(dBm)} + \text{Ant. Gain} - \text{CL(Cable Loss)}$$

- 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

$$\text{EIRP} = \text{Substitute LEVEL(dBm)} + \text{Ant. Gain} - \text{CL(Cable Loss)}$$

- 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(Main 1 ANT)

8.1 EQUIVALENT ISOTROPIC RADIATED POWER

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1710.7	LTE B66 (1.4 MHz)	QPSK	-20.96	13.36	9.81	2.06	H	< 1.00	0.129	21.11	1	0
		16-QAM	-21.79	12.53	9.81	2.06	H		0.107	20.28		
		64-QAM	-22.87	11.45	9.81	2.06	H		0.083	19.20		
		256-QAM	-25.89	8.43	9.81	2.06	H		0.041	16.18		
1745		QPSK	-21.04	13.30	9.98	2.07	H		0.132	21.21	1	3
		16-QAM	-21.82	12.52	9.98	2.07	H		0.110	20.43		
		64-QAM	-22.88	11.46	9.98	2.07	H		0.086	19.37		
		256-QAM	-25.98	8.36	9.98	2.07	H		0.042	16.27		
1779.3		QPSK	-20.88	13.53	10.07	2.09	H		0.142	21.51	1	5
		16-QAM	-21.72	12.69	10.07	2.09	H		0.117	20.67		
		64-QAM	-22.72	11.69	10.07	2.09	H		0.093	19.67		
		256-QAM	-25.69	8.72	10.07	2.09	H		0.047	16.70		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1711.5	LTE B66 (3 MHz)	QPSK	-20.43	13.89	9.81	2.06	H	< 1.00	0.146	21.64	1	0
		16-QAM	-21.26	13.06	9.81	2.06	H		0.121	20.81		
		64-QAM	-22.30	12.02	9.81	2.06	H		0.095	19.77		
		256-QAM	-25.26	9.06	9.81	2.06	H		0.048	16.81		
1745		QPSK	-20.52	13.82	9.98	2.07	H		0.149	21.73	1	8
		16-QAM	-21.33	13.01	9.98	2.07	H		0.124	20.92		
		64-QAM	-22.30	12.04	9.98	2.07	H		0.099	19.95		
		256-QAM	-25.38	8.96	9.98	2.07	H		0.049	16.87		
1778.5		QPSK	-20.29	14.12	10.07	2.09	H		0.162	22.10	1	14
		16-QAM	-21.13	13.28	10.07	2.09	H		0.134	21.26		
		64-QAM	-22.18	12.23	10.07	2.09	H		0.105	20.21		
		256-QAM	-25.27	9.14	10.07	2.09	H		0.052	17.12		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1712.5	LTE B66 (5 MHz)	QPSK	-20.58	13.73	9.83	2.06	H	<1.00	0.141	21.50	1	0
		16-QAM	-21.41	12.90	9.83	2.06	H		0.117	20.67		
		64-QAM	-22.46	11.85	9.83	2.06	H		0.092	19.62		
		256-QAM	-25.58	8.73	9.83	2.06	H		0.045	16.50		
1745		QPSK	-20.68	13.66	9.98	2.07	H		0.144	21.57	1	13
		16-QAM	-21.43	12.91	9.98	2.07	H		0.121	20.82		
		64-QAM	-22.45	11.89	9.98	2.07	H		0.095	19.80		
		256-QAM	-25.51	8.83	9.98	2.07	H		0.047	16.74		
1777.5		QPSK	-20.51	13.90	10.07	2.09	H		0.154	21.88	1	0
		16-QAM	-21.26	13.15	10.07	2.09	H		0.130	21.13		
		64-QAM	-22.29	12.12	10.07	2.09	H		0.102	20.10		
		256-QAM	-25.46	8.95	10.07	2.09	H		0.049	16.93		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1715	LTE B66 (10 MHz)	QPSK	-20.67	13.64	9.83	2.06	H	<1.00	0.138	21.41	1	25
		16-QAM	-21.44	12.87	9.83	2.06	H		0.116	20.64		
		64-QAM	-22.60	11.71	9.83	2.06	H		0.089	19.48		
		256-QAM	-25.62	8.69	9.83	2.06	H		0.044	16.46		
1745		QPSK	-20.75	13.59	9.98	2.07	H		0.141	21.50	1	25
		16-QAM	-21.60	12.74	9.98	2.07	H		0.116	20.65		
		64-QAM	-22.70	11.64	9.98	2.07	H		0.090	19.55		
		256-QAM	-25.56	8.78	9.98	2.07	H		0.047	16.69		
1775		QPSK	-20.60	13.79	10.06	2.09	H		0.150	21.76	1	0
		16-QAM	-21.36	13.03	10.06	2.09	H		0.126	21.00		
		64-QAM	-22.33	12.06	10.06	2.09	H		0.101	20.03		
		256-QAM	-25.52	8.87	10.06	2.09	H		0.048	16.84		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1717.5	LTE B66 (15 MHz)	QPSK	-20.89	13.41	9.86	2.06	H	<1.00	0.132	21.21	1	0
		16-QAM	-21.72	12.58	9.86	2.06	H		0.109	20.38		
		64-QAM	-22.83	11.47	9.86	2.06	H		0.085	19.27		
		256-QAM	-25.88	8.42	9.86	2.06	H		0.042	16.22		
1745		QPSK	-20.78	13.56	9.98	2.07	H		0.140	21.47	1	74
		16-QAM	-21.63	12.71	9.98	2.07	H		0.115	20.62		
		64-QAM	-22.73	11.61	9.98	2.07	H		0.090	19.52		
		256-QAM	-25.65	8.69	9.98	2.07	H		0.046	16.60		
1772.5		QPSK	-20.71	13.68	10.06	2.09	H		0.146	21.65	1	0
		16-QAM	-21.49	12.90	10.06	2.09	H		0.122	20.87		
		64-QAM	-22.66	11.73	10.06	2.09	H		0.093	19.70		
		256-QAM	-25.75	8.64	10.06	2.09	H		0.046	16.61		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1720	LTE B66 (20 MHz)	QPSK	-20.87	13.43	9.86	2.06	H	<1.00	0.133	21.23	1	0
		16-QAM	-21.70	12.60	9.86	2.06	H		0.110	20.40		
		64-QAM	-22.79	11.51	9.86	2.06	H		0.085	19.31		
		256-QAM	-25.89	8.41	9.86	2.06	H		0.042	16.21		
1745		QPSK	-20.74	13.60	9.98	2.07	H		0.142	21.51	1	99
		16-QAM	-21.65	12.69	9.98	2.07	H		0.115	20.60		
		64-QAM	-22.73	11.61	9.98	2.07	H		0.090	19.52		
		256-QAM	-25.88	8.46	9.98	2.07	H		0.043	16.37		
1770		QPSK	-20.63	13.74	10.05	2.09	H		0.148	21.70	1	50
		16-QAM	-21.54	12.83	10.05	2.09	H		0.120	20.79		
		64-QAM	-22.62	11.75	10.05	2.09	H		0.094	19.71		
		256-QAM	-25.62	8.75	10.05	2.09	H		0.047	16.71		

8.2 RADIATED SPURIOUS EMISSIONS

MODE: LTE B66
 MODULATION SIGNAL: 3 MHz QPSK
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	RB	
								Size	Offset
131987 (1711.5)	3 423.00	-51.77	11.33	-51.25	11.33	V	-51.25	1	0
		-51.32		-50.80		H	-50.80		
	5 134.50	-52.87	11.25	-47.13	11.25	V	-47.13		
		-53.40		-47.66		H	-47.66		
	6 846.00	-54.34	11.06	-43.60	11.06	V	-43.60		
		-54.30		-43.56		H	-43.56		
132322 (1745.0)	3 490.00	-53.20	11.56	-52.81	11.56	V	-52.81	1	8
		-52.46		-52.07		H	-52.07		
	5 235.00	-51.92	11.53	-46.01	11.53	V	-46.01		
		-52.81		-46.90		H	-46.90		
	6 980.00	-53.17	11.12	-43.14	11.12	V	-43.14		
		-52.59		-42.56		H	-42.56		
132657 (1778.5)	3 557.00	-51.28	11.67	-50.94	11.67	V	-50.94	1	14
		-52.26		-51.92		H	-51.92		
	5 335.50	-53.25	11.72	-47.13	11.72	V	-47.13		
		-52.57		-46.45		H	-46.45		
	7 114.00	-53.84	10.73	-43.42	10.73	V	-43.42		
		-51.57		-41.15		H	-41.15		

8.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)	Limit (dB)
LTE B66	1.4 MHz	1745.0	QPSK	6	0	5.39	13.00
			16-QAM			6.19	
			64-QAM			6.63	
			256-QAM			6.90	
	3 MHz		QPSK	15		5.33	
			16-QAM			6.21	
			64-QAM			6.64	
			256-QAM			6.84	
	5 MHz		QPSK	25		5.37	
			16-QAM			6.21	
			64-QAM			6.61	
			256-QAM			6.83	
	10 MHz		QPSK	50		5.45	
			16-QAM			6.22	
			64-QAM			6.58	
			256-QAM			6.80	
	15 MHz		QPSK	75		5.39	
			16-QAM			6.21	
			64-QAM			6.57	
			256-QAM			6.79	
	20 MHz		QPSK	100		5.32	
			16-QAM			6.18	
			64-QAM			6.57	
			256-QAM			6.76	

8.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
LTE B66	1.4 MHz	1745.0	QPSK	6	0	1.0971
			16-QAM			1.1044
			64-QAM			1.0961
			256-QAM			1.0968
	3 MHz		QPSK	15		2.7237
			16-QAM			2.7163
			64-QAM			2.7152
			256-QAM			2.7018
	5 MHz		QPSK	25		4.5223
			16-QAM			4.5173
			64-QAM			4.5241
			256-QAM			4.5189
	10 MHz		QPSK	50		8.9894
			16-QAM			9.0041
			64-QAM			8.9979
			256-QAM			8.9886
	15 MHz		QPSK	75		13.467
			16-QAM			13.436
			64-QAM			13.440
			256-QAM			13.432
	20 MHz		QPSK	100		17.931
			16-QAM			17.942
			64-QAM			17.910
			256-QAM			17.939

8.5 CONDUCTED SPURIOUS EMISSIONS

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
LTE B66	1.4	1710.70	3.6990	27.976	-62.081	-34.105	-13.00
		1745.00	3.4298	27.976	-62.151	-34.175	
		1779.30	3.6890	27.976	-61.379	-33.403	
	3	1711.50	3.1805	27.976	-62.197	-34.221	
		1745.00	3.6890	27.976	-61.859	-33.883	
		1778.50	3.1805	27.976	-61.440	-33.464	
	5	1712.50	3.7089	27.976	-62.288	-34.312	
		1745.00	3.0709	27.976	-61.718	-33.742	
		1777.50	2.7817	27.976	-61.922	-33.946	
	10	1715.00	3.7189	27.976	-61.448	-33.472	
		1745.00	3.6890	27.976	-61.191	-33.215	
		1775.00	3.1805	27.976	-61.452	-33.476	
	15	1717.50	3.7388	27.976	-60.794	-32.818	
		1745.00	2.5225	27.976	-61.703	-33.727	
		1772.50	3.2005	27.976	-62.252	-34.276	
	20	1720.00	2.6023	27.976	-61.196	-33.220	
		1745.00	2.5026	27.976	-61.490	-33.514	
		1770.00	3.3101	27.976	-61.831	-33.855	

Note:

1. Conducted Spurious Emissions was Tested QPSK Modulation, Resource Block Size 1 and Resource Block Offset 0
2. Result (dBm) = Measurement Maximum Data (dBm) + Factor (dB)
3. 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

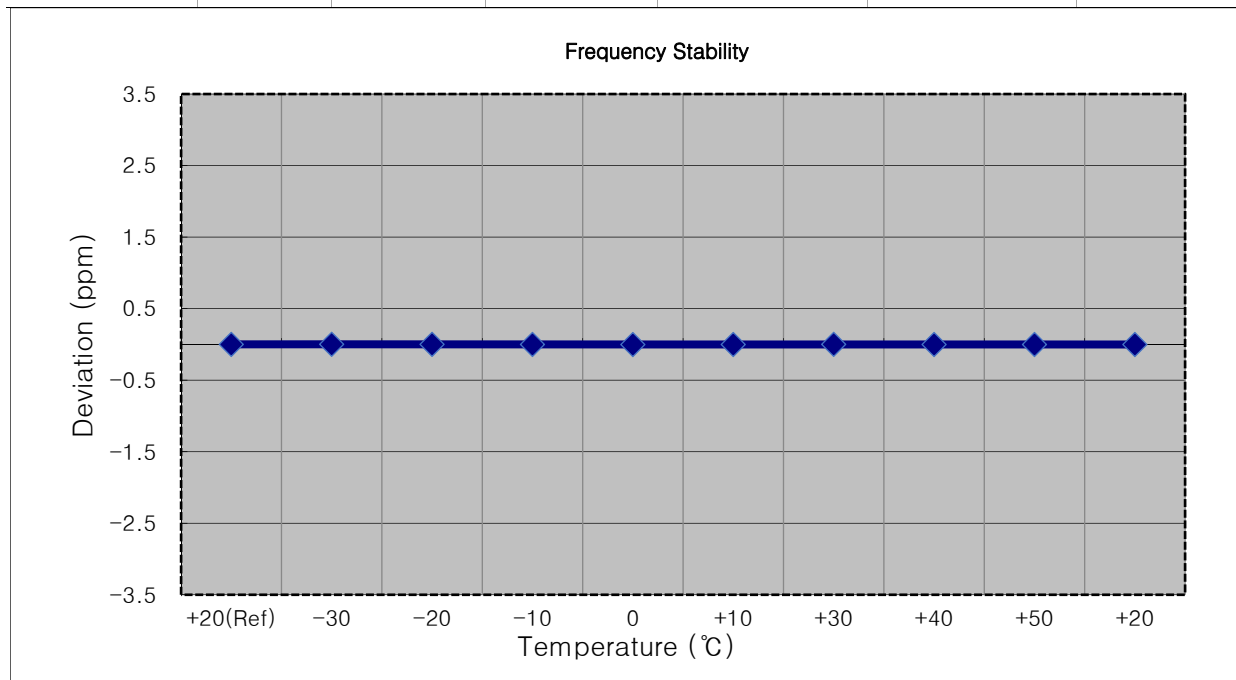
8.6 BAND EDGE

- Plots of the EUT's Band Edge are shown Section 11.4.

8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

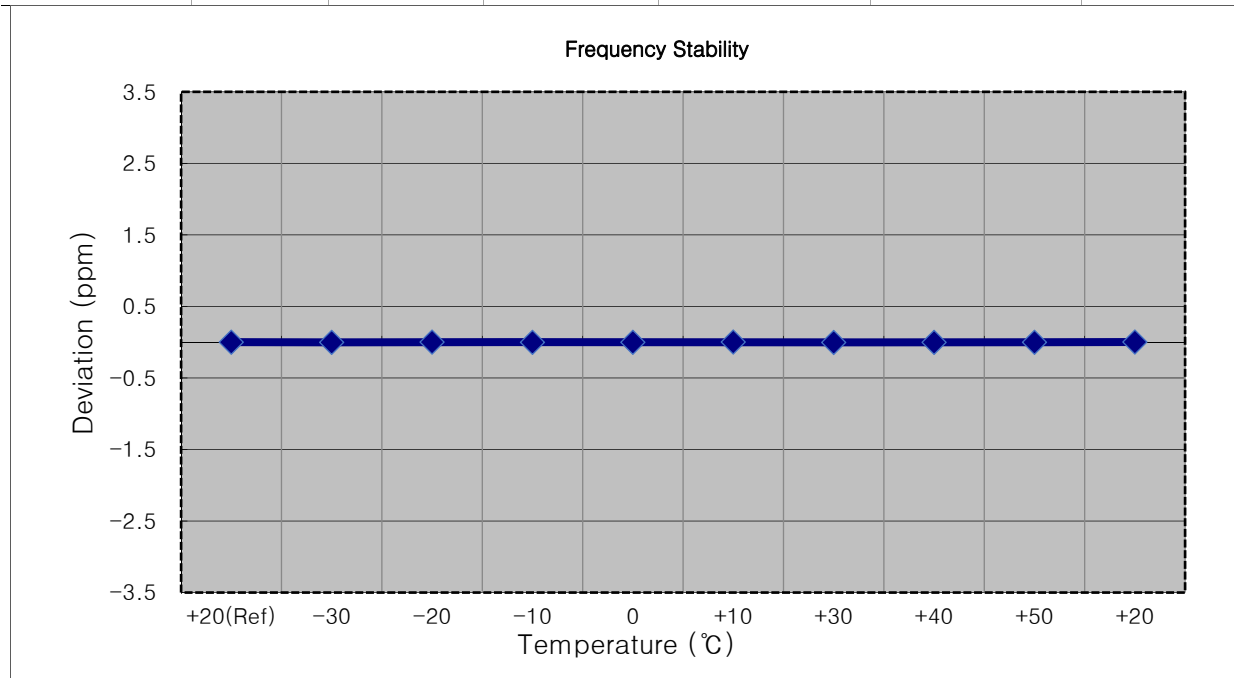
MODE:	<u>LTE B66</u>
OPERATING FREQUENCY:	<u>1710,700,000 Hz</u>
CHANNEL:	<u>131979 (1.4 MHz)</u>
REFERENCE VOLTAGE:	<u>3.880 VDC</u>
DEVIATION LIMIT:	<u>Emission must remain in band</u>

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1710 700 002	0.0	0.000 000	0.000
100 %		-30	1710 700 004	2.1	0.000 000	0.001
100 %		-20	1710 700 004	1.6	0.000 000	0.001
100 %		-10	1710 700 001	-1.8	0.000 000	-0.001
100 %		0	1710 699 999	-3.4	0.000 000	-0.002
100 %		+10	1710 700 000	-2.3	0.000 000	-0.001
100 %		+30	1710 700 004	1.7	0.000 000	0.001
100 %		+40	1710 699 999	-3.0	0.000 000	-0.002
100 %		+50	1710 700 000	-2.4	0.000 000	-0.001
Batt. Endpoint	3.300	+20	1710 700 000	-2.6	0.000 000	-0.002



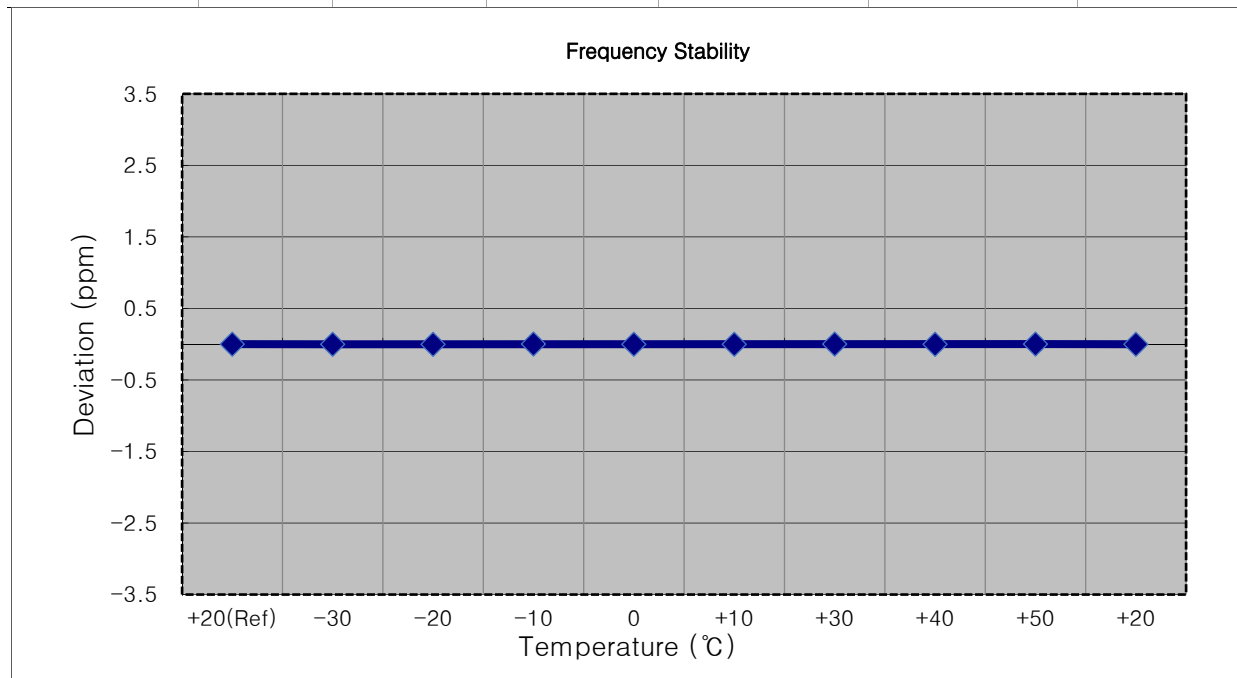
MODE: LTE B66
 OPERATING FREQUENCY: 1711,500,000 Hz
 CHANNEL: 131987 (3 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1711 499 996	0.0	0.000 000	0.000
100 %		-30	1711 499 992	-4.2	0.000 000	-0.002
100 %		-20	1711 499 998	2.3	0.000 000	0.001
100 %		-10	1711 499 992	-3.7	0.000 000	-0.002
100 %		0	1711 499 993	-2.6	0.000 000	-0.002
100 %		+10	1711 499 999	3.4	0.000 000	0.002
100 %		+30	1711 499 990	-6.3	0.000 000	-0.004
100 %		+40	1711 499 992	-4.2	0.000 000	-0.002
100 %		+50	1711 499 994	-2.4	0.000 000	-0.001
Batt. Endpoint	3.300	+20	1711 500 000	3.6	0.000 000	0.002



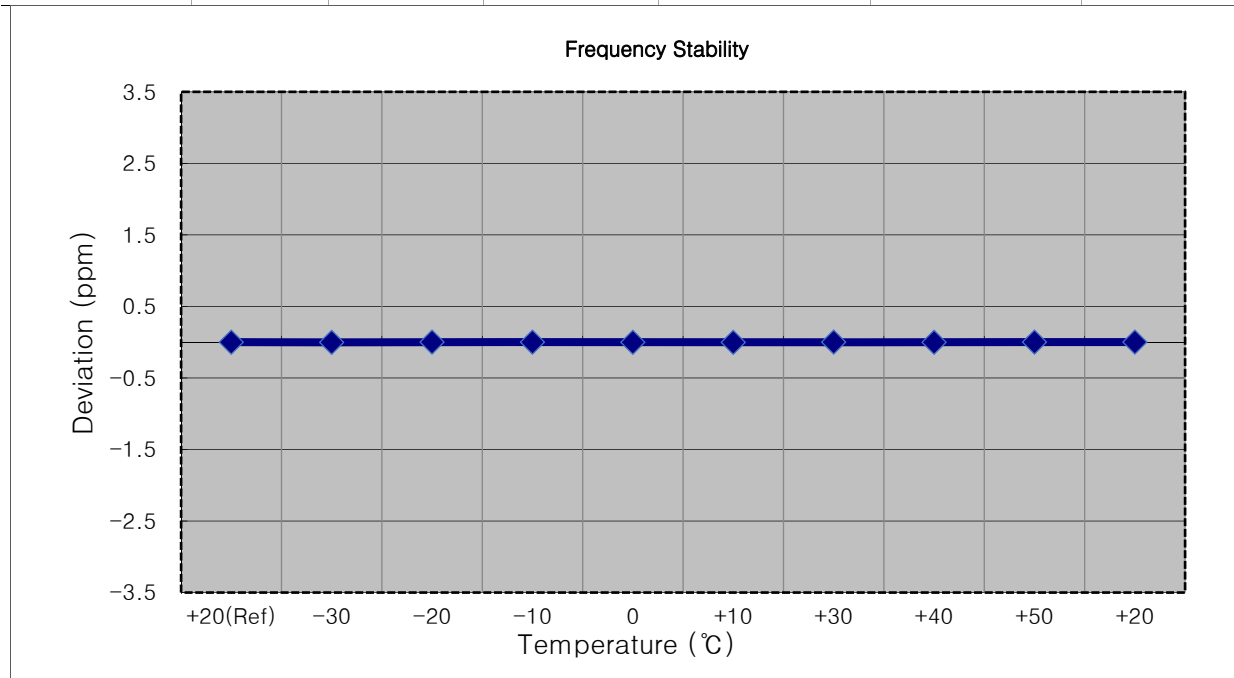
MODE: LTE B66
 OPERATING FREQUENCY: 1712,500,000 Hz
 CHANNEL: 131997 (5 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1712 499 997	0.0	0.000 000	0.000
100 %		-30	1712 499 994	-2.8	0.000 000	-0.002
100 %		-20	1712 499 993	-3.4	0.000 000	-0.002
100 %		-10	1712 500 000	3.8	0.000 000	0.002
100 %		0	1712 499 994	-2.2	0.000 000	-0.001
100 %		+10	1712 499 994	-3.0	0.000 000	-0.002
100 %		+30	1712 499 999	2.8	0.000 000	0.002
100 %		+40	1712 499 993	-3.1	0.000 000	-0.002
100 %		+50	1712 499 999	2.5	0.000 000	0.001
Batt. Endpoint	3.300	+20	1712 499 994	-2.1	0.000 000	-0.001



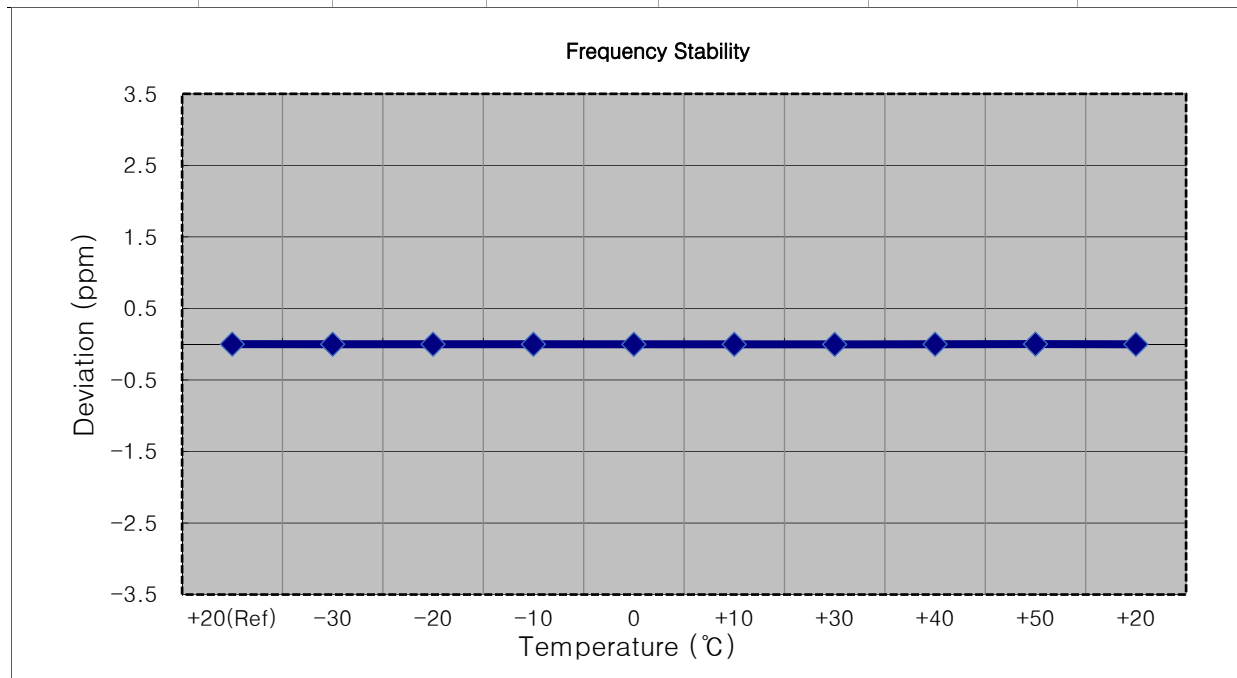
- ▣ MODE: LTE B66
- ▣ OPERATING FREQUENCY: 1715,000,000 Hz
- ▣ CHANNEL: 132022 (10 MHz)
- ▣ REFERENCE VOLTAGE: 3.880 VDC
- ▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1714 999 998	0.0	0.000 000	0.000
100 %		-30	1714 999 994	-4.2	0.000 000	-0.002
100 %		-20	1715 000 001	2.4	0.000 000	0.001
100 %		-10	1715 000 000	1.3	0.000 000	0.001
100 %		0	1714 999 996	-2.3	0.000 000	-0.001
100 %		+10	1714 999 994	-3.8	0.000 000	-0.002
100 %		+30	1715 000 000	1.9	0.000 000	0.001
100 %		+40	1714 999 996	-2.2	0.000 000	-0.001
100 %		+50	1715 000 001	2.5	0.000 000	0.001
Batt. Endpoint	3.300	+20	1715 000 001	2.9	0.000 000	0.002



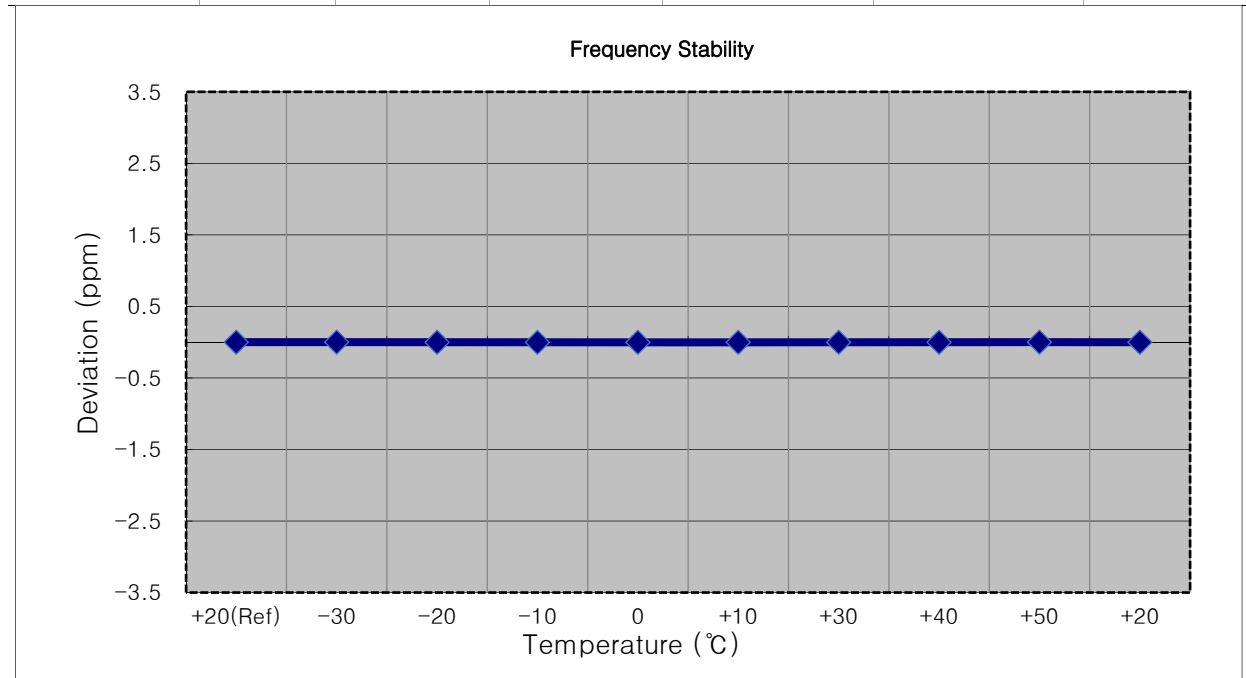
MODE: LTE B66
 OPERATING FREQUENCY: 1717,500,000 Hz
 CHANNEL: 132047 (15 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1717 499 997	0.0	0.000 000	0.000
100 %		-30	1717 499 996	-1.4	0.000 000	-0.001
100 %		-20	1717 499 996	-1.1	0.000 000	-0.001
100 %		-10	1717 499 994	-2.7	0.000 000	-0.002
100 %		0	1717 499 994	-3.3	0.000 000	-0.002
100 %		+10	1717 499 994	-3.3	0.000 000	-0.002
100 %		+30	1717 499 992	-4.8	0.000 000	-0.003
100 %		+40	1717 499 996	-1.5	0.000 000	-0.001
100 %		+50	1717 499 999	2.3	0.000 000	0.001
Batt. Endpoint	3.300	+20	1717 499 994	-3.0	0.000 000	-0.002



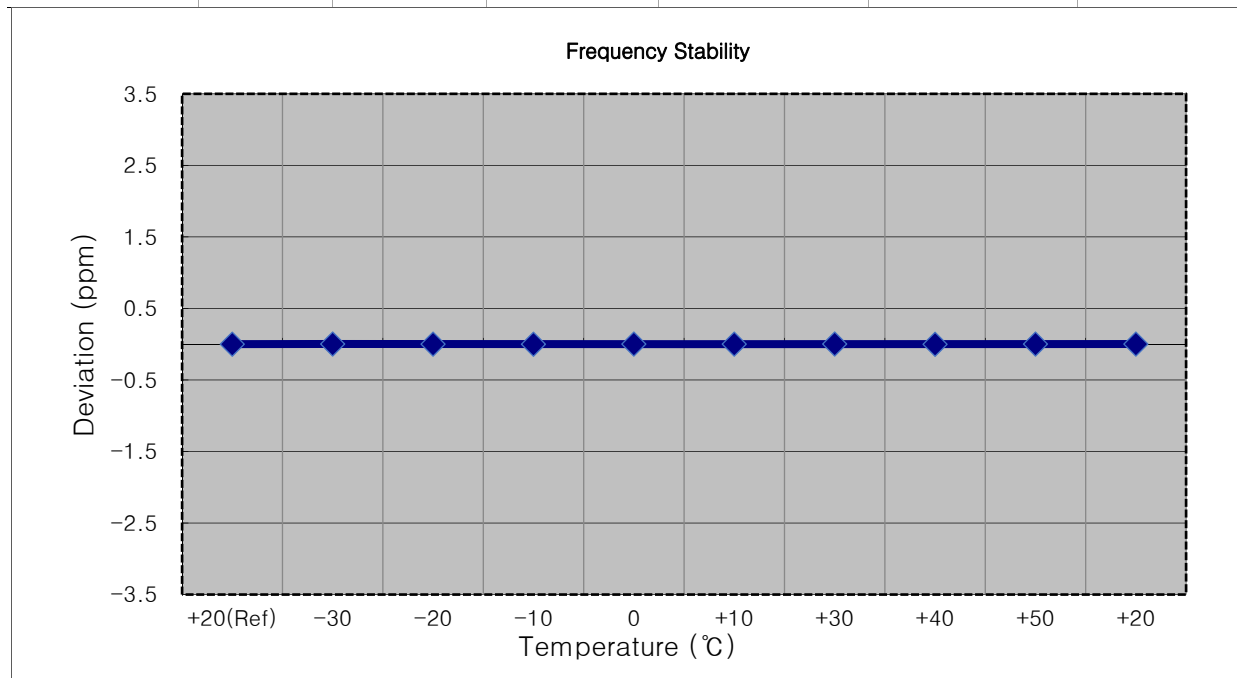
MODE: LTE B66
 OPERATING FREQUENCY: 1720,000,000 Hz
 CHANNEL: 132072 (20 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1719 999 996	0.0	0.000 000	0.000
100 %		-30	1719 999 997	0.9	0.000 000	0.001
100 %		-20	1719 999 993	-2.7	0.000 000	-0.002
100 %		-10	1719 999 992	-4.1	0.000 000	-0.002
100 %		0	1719 999 993	-2.9	0.000 000	-0.002
100 %		+10	1719 999 994	-2.4	0.000 000	-0.001
100 %		+30	1719 999 994	-1.7	0.000 000	-0.001
100 %		+40	1719 999 994	-1.8	0.000 000	-0.001
100 %		+50	1719 999 997	1.4	0.000 000	0.001
Batt. Endpoint	3.300	+20	1719 999 995	-1.5	0.000 000	-0.001



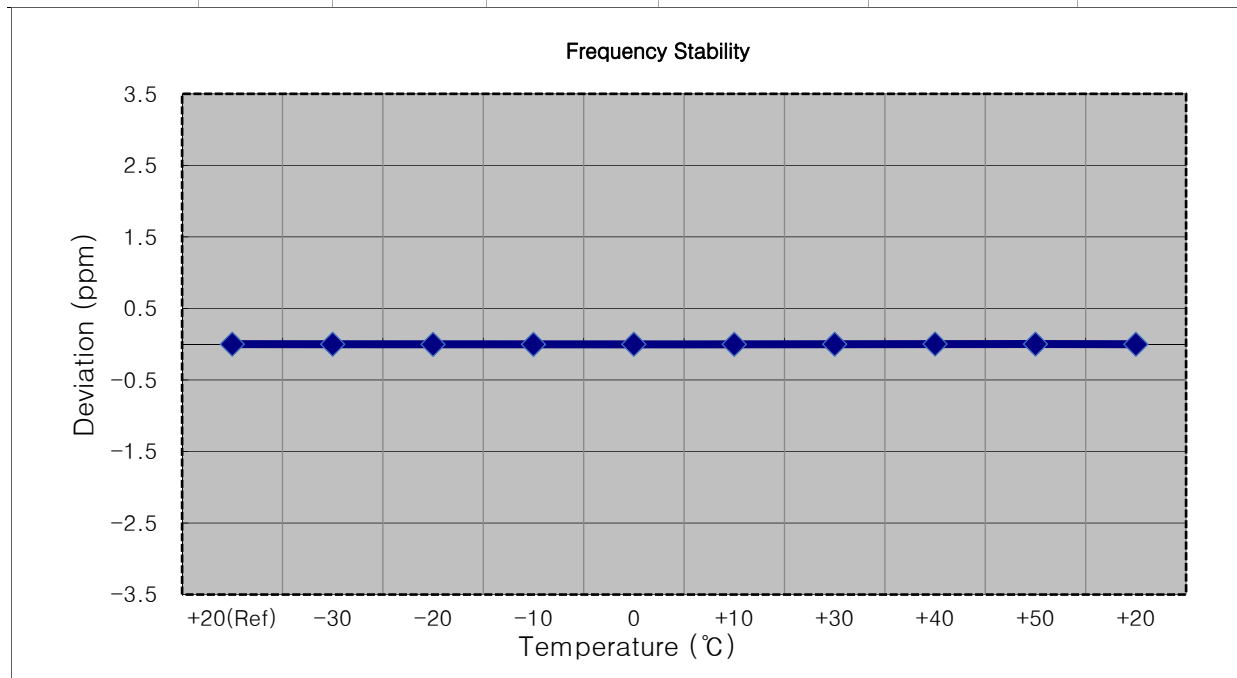
MODE: LTE B66
 OPERATING FREQUENCY: 1745,000,000 Hz
 CHANNEL: 132322 (1.4 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1745 000 002	0.0	0.000 000	0.000
100 %		-30	1745 000 006	3.9	0.000 000	0.002
100 %		-20	1745 000 003	1.8	0.000 000	0.001
100 %		-10	1745 000 000	-1.8	0.000 000	-0.001
100 %		0	1745 000 004	2.7	0.000 000	0.002
100 %		+10	1745 000 004	1.9	0.000 000	0.001
100 %		+30	1745 000 006	4.1	0.000 000	0.002
100 %		+40	1744 999 999	-2.9	0.000 000	-0.002
100 %		+50	1745 000 004	2.5	0.000 000	0.001
Batt. Endpoint	3.300	+20	1745 000 004	2.7	0.000 000	0.002



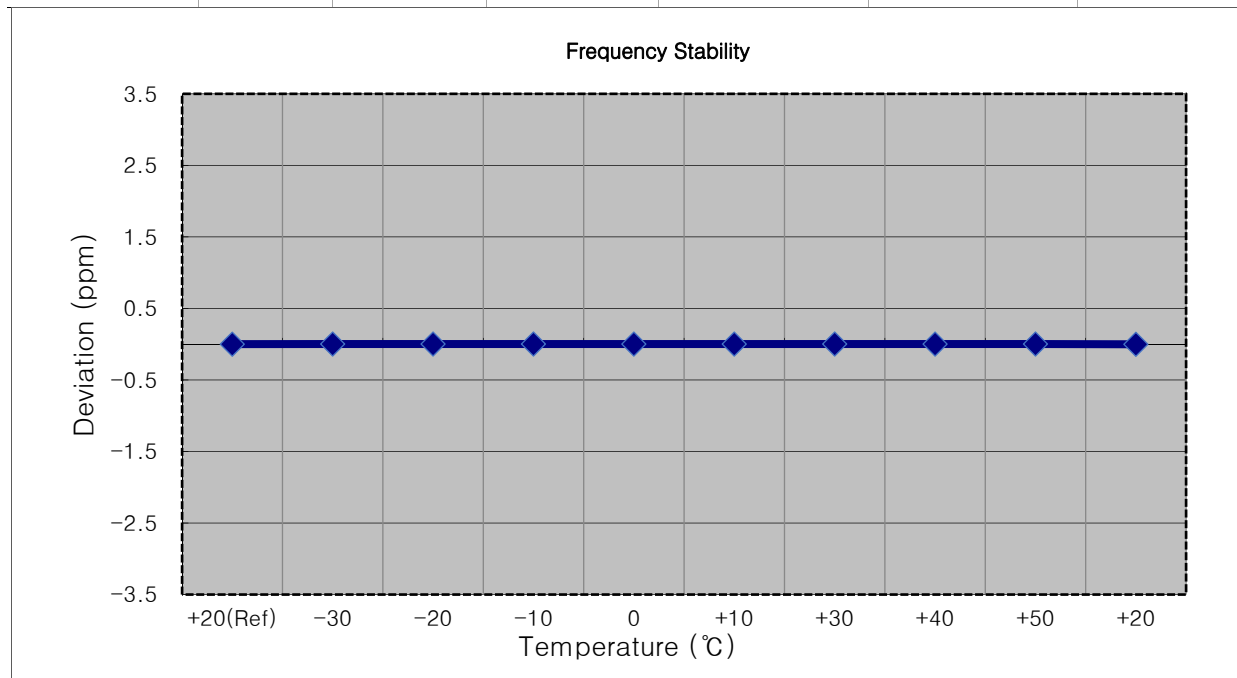
- ▣ MODE: LTE B66
- ▣ OPERATING FREQUENCY: 1745,000,000 Hz
- ▣ CHANNEL: 132322 (3 MHz)
- ▣ REFERENCE VOLTAGE: 3.880 VDC
- ▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1745 000 003	0.0	0.000 000	0.000
100 %		-30	1745 000 001	-1.9	0.000 000	-0.001
100 %		-20	1744 999 998	-5.3	0.000 000	-0.003
100 %		-10	1744 999 998	-5.3	0.000 000	-0.003
100 %		0	1745 000 000	-2.6	0.000 000	-0.001
100 %		+10	1744 999 999	-4.0	0.000 000	-0.002
100 %		+30	1745 000 001	-1.8	0.000 000	-0.001
100 %		+40	1745 000 006	3.4	0.000 000	0.002
100 %		+50	1745 000 006	2.9	0.000 000	0.002
Batt. Endpoint	3.300	+20	1745 000 001	-2.5	0.000 000	-0.001



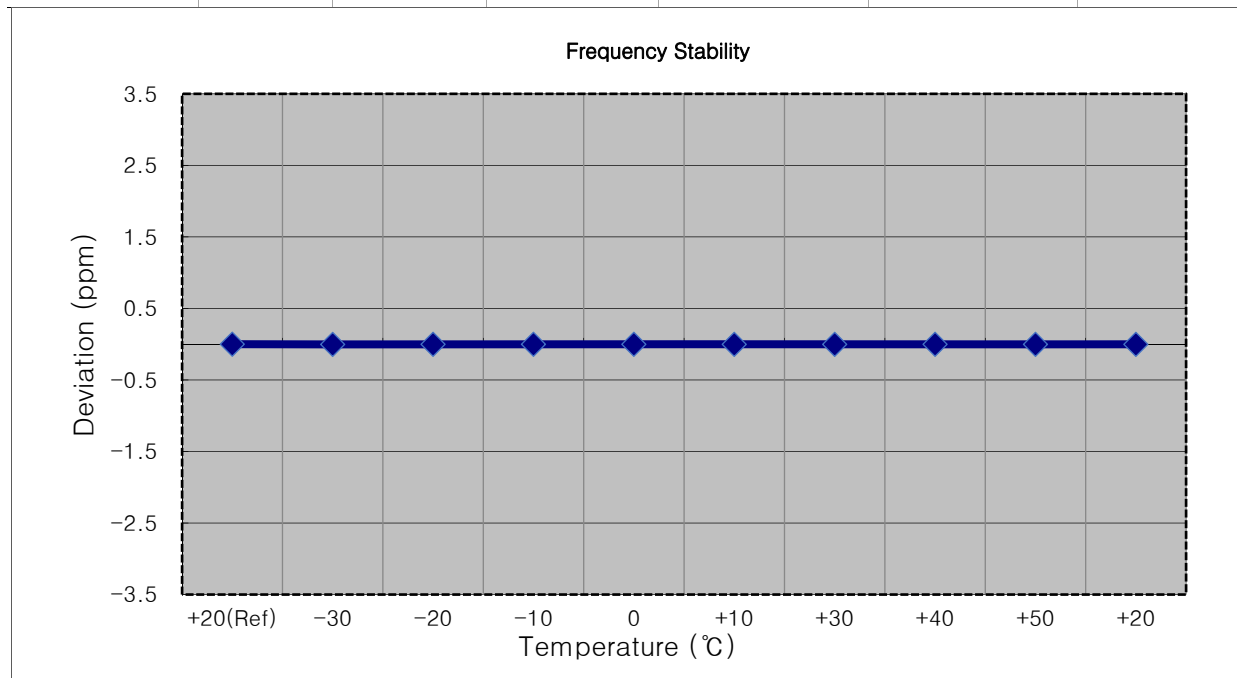
■ MODE: LTE B66
 ■ OPERATING FREQUENCY: 1745,000,000 Hz
 ■ CHANNEL: 132322 (5 MHz)
 ■ REFERENCE VOLTAGE: 3.880 VDC
 ■ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1745 000 005	0.0	0.000 000	0.000
100 %		-30	1745 000 008	3.3	0.000 000	0.002
100 %		-20	1745 000 009	4.1	0.000 000	0.002
100 %		-10	1745 000 008	3.5	0.000 000	0.002
100 %		0	1745 000 008	2.9	0.000 000	0.002
100 %		+10	1745 000 008	3.1	0.000 000	0.002
100 %		+30	1745 000 008	3.3	0.000 000	0.002
100 %		+40	1745 000 007	2.1	0.000 000	0.001
100 %		+50	1745 000 009	4.2	0.000 000	0.002
Batt. Endpoint	3.300	+20	1745 000 002	-2.3	0.000 000	-0.001



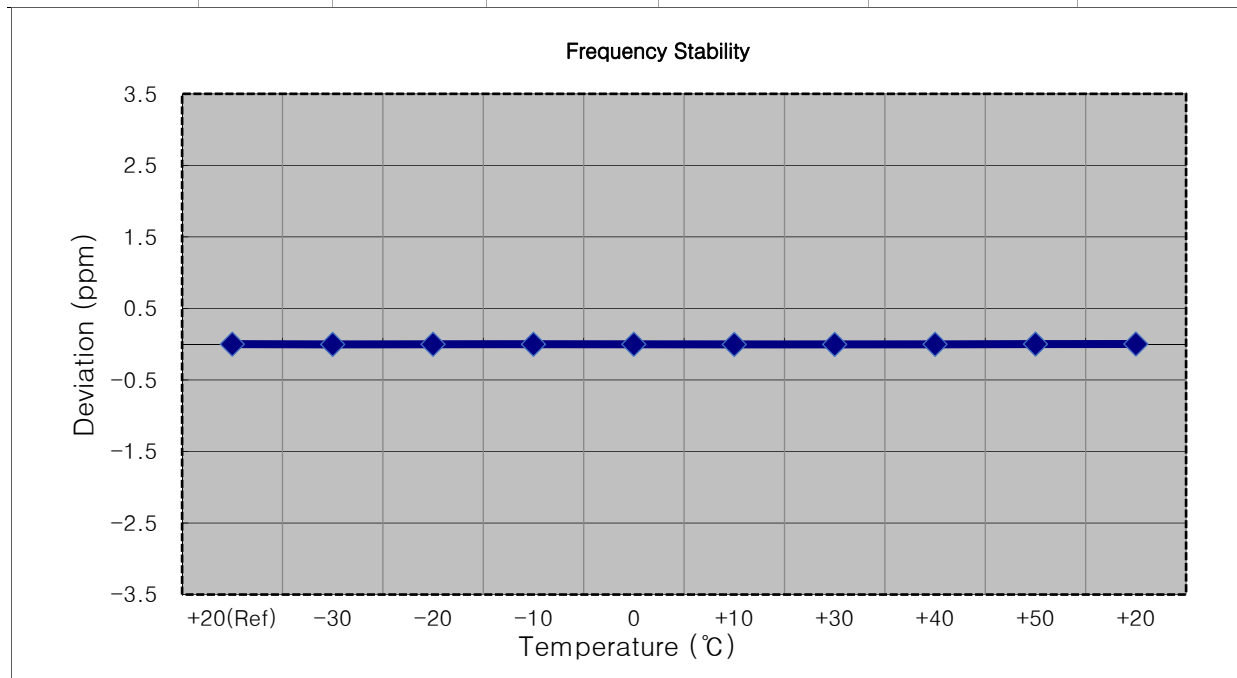
MODE: LTE B66
 OPERATING FREQUENCY: 1745,000,000 Hz
 CHANNEL: 132322 (10 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1744 999 995	0.0	0.000 000	0.000
100 %		-30	1744 999 990	-5.1	0.000 000	-0.003
100 %		-20	1744 999 993	-2.3	0.000 000	-0.001
100 %		-10	1744 999 993	-2.7	0.000 000	-0.002
100 %		0	1744 999 992	-3.2	0.000 000	-0.002
100 %		+10	1744 999 992	-3.9	0.000 000	-0.002
100 %		+30	1744 999 991	-4.2	0.000 000	-0.002
100 %		+40	1744 999 993	-2.5	0.000 000	-0.001
100 %		+50	1744 999 991	-4.2	0.000 000	-0.002
Batt. Endpoint	3.300	+20	1744 999 992	-3.7	0.000 000	-0.002



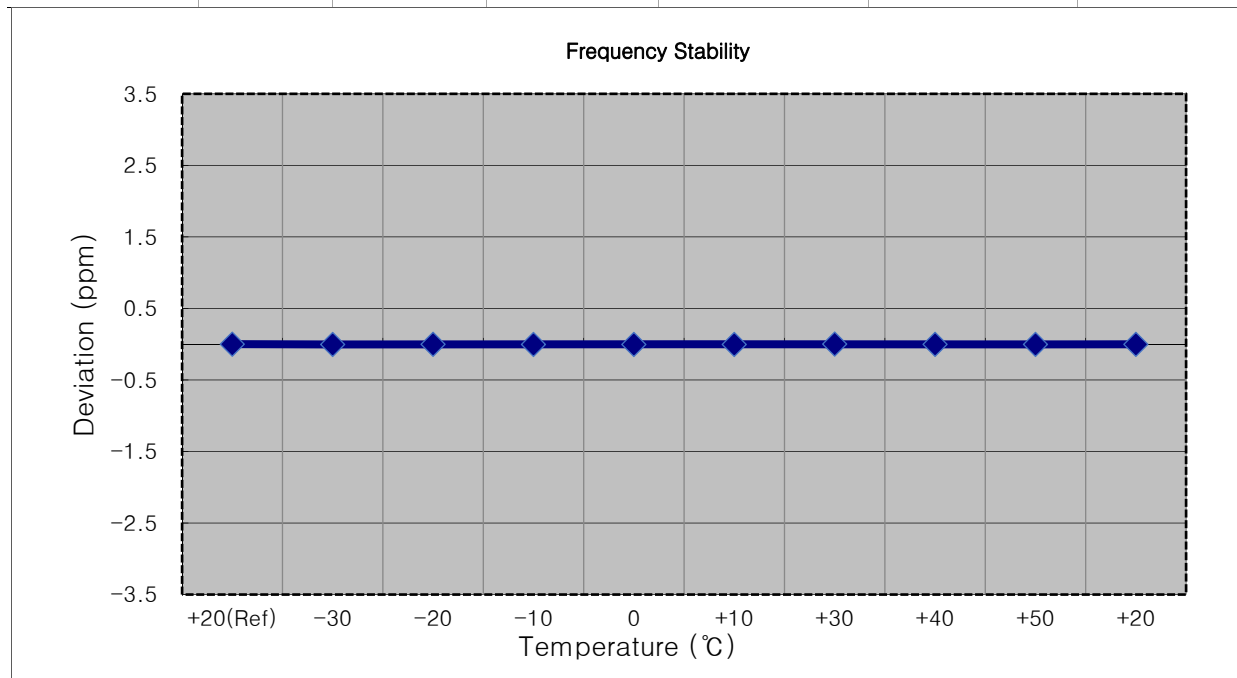
MODE: LTE B66
 OPERATING FREQUENCY: 1745,000,000 Hz
 CHANNEL: 132322 (15 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1744 999 996	0.0	0.000 000	0.000
100 %		-30	1744 999 991	-5.4	0.000 000	-0.003
100 %		-20	1744 999 994	-2.1	0.000 000	-0.001
100 %		-10	1744 999 994	-2.5	0.000 000	-0.001
100 %		0	1744 999 993	-3.1	0.000 000	-0.002
100 %		+10	1744 999 989	-6.9	0.000 000	-0.004
100 %		+30	1744 999 991	-5.6	0.000 000	-0.003
100 %		+40	1744 999 993	-2.8	0.000 000	-0.002
100 %		+50	1744 999 998	2.0	0.000 000	0.001
Batt. Endpoint	3.300	+20	1745 000 000	4.1	0.000 000	0.002



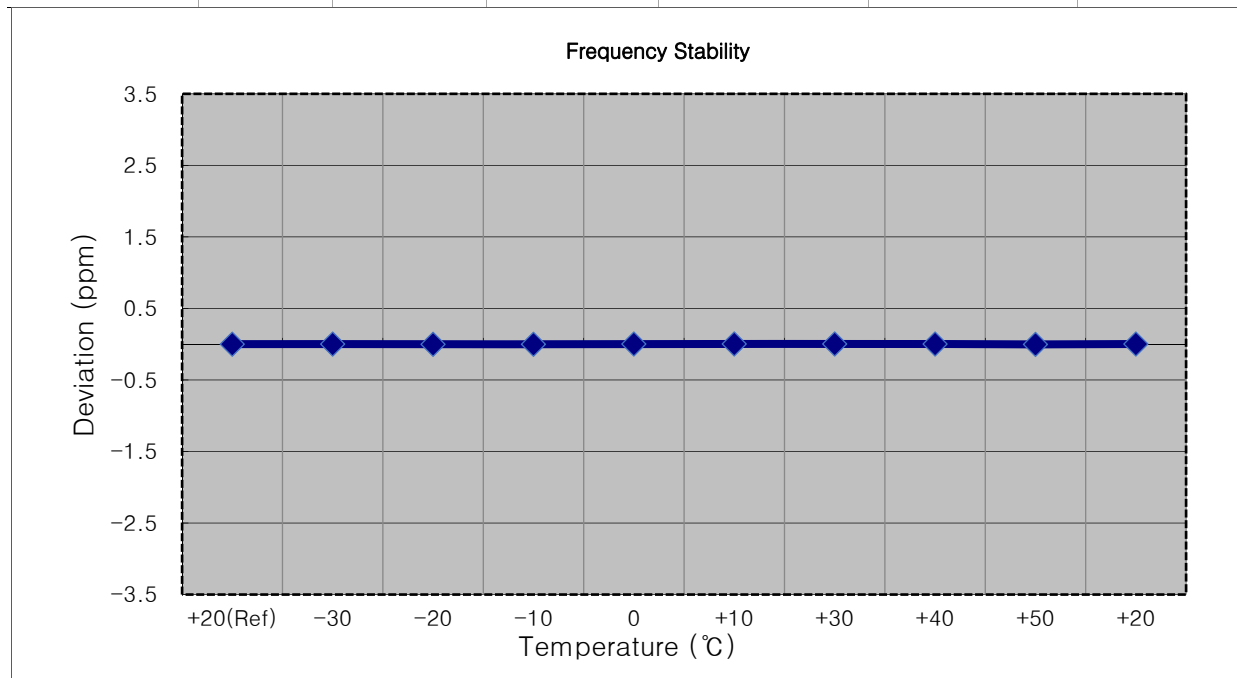
MODE: LTE B66
 OPERATING FREQUENCY: 1745,000,000 Hz
 CHANNEL: 132322 (20 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1744 999 994	0.0	0.000 000	0.000
100 %		-30	1744 999 988	-6.5	0.000 000	-0.004
100 %		-20	1744 999 992	-2.6	0.000 000	-0.001
100 %		-10	1744 999 988	-6.3	0.000 000	-0.004
100 %		0	1744 999 988	-6.4	0.000 000	-0.004
100 %		+10	1744 999 988	-6.3	0.000 000	-0.004
100 %		+30	1744 999 997	2.5	0.000 000	0.001
100 %		+40	1744 999 990	-4.0	0.000 000	-0.002
100 %		+50	1744 999 988	-5.9	0.000 000	-0.003
Batt. Endpoint	3.300	+20	1744 999 990	-3.8	0.000 000	-0.002



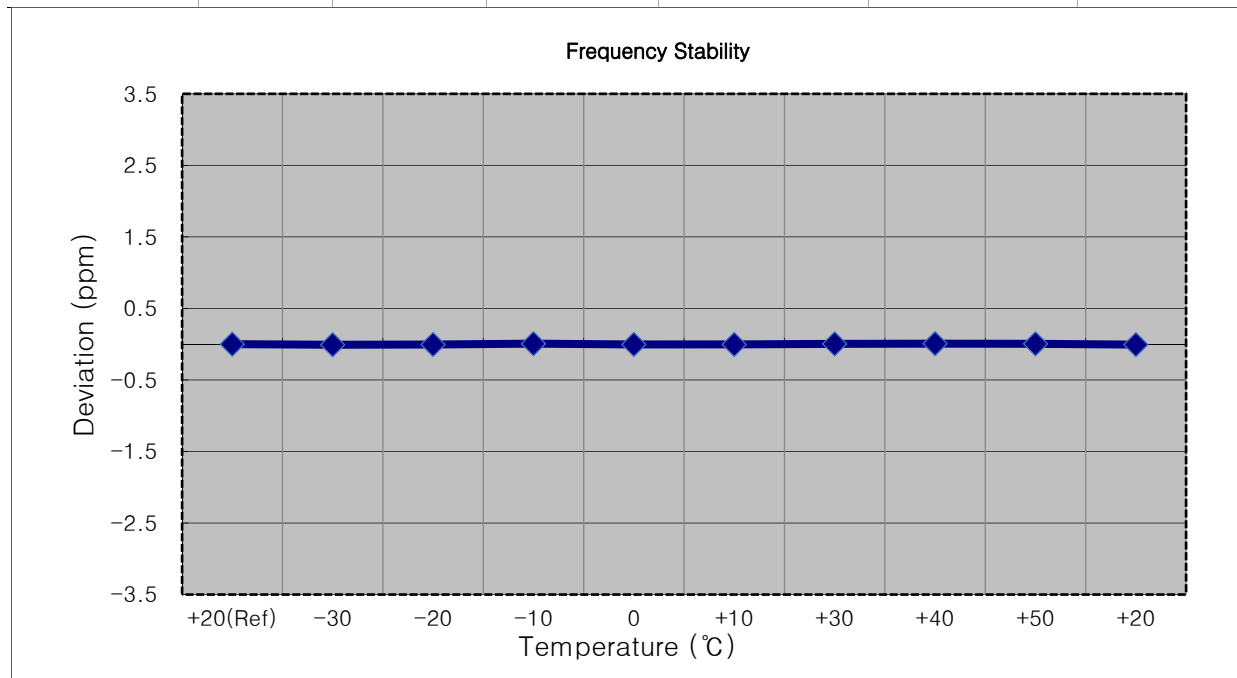
- ▣ MODE: LTE B66
- ▣ OPERATING FREQUENCY: 1779,300,000 Hz
- ▣ CHANNEL: 132665 (1.4 MHz)
- ▣ REFERENCE VOLTAGE: 3.880 VDC
- ▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1779 300 004	0.0	0.000 000	0.000
100 %		-30	1779 300 007	2.5	0.000 000	0.001
100 %		-20	1779 300 002	-2.3	0.000 000	-0.001
100 %		-10	1779 300 001	-2.9	0.000 000	-0.002
100 %		0	1779 300 009	4.3	0.000 000	0.002
100 %		+10	1779 300 009	5.2	0.000 000	0.003
100 %		+30	1779 300 009	4.6	0.000 000	0.003
100 %		+40	1779 300 008	3.8	0.000 000	0.002
100 %		+50	1779 299 999	-5.3	0.000 000	-0.003
Batt. Endpoint	3.300	+20	1779 300 008	3.5	0.000 000	0.002



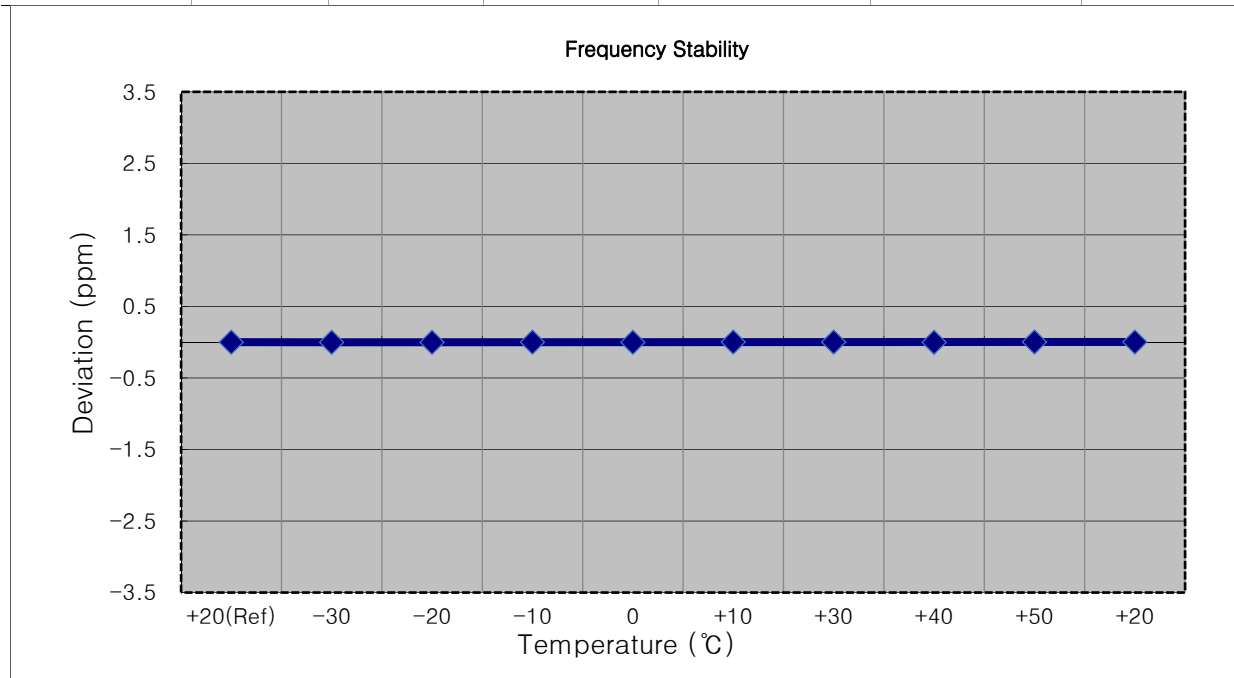
MODE: LTE B66
 OPERATING FREQUENCY: 1778,500,000 Hz
 CHANNEL: 132657 (3 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1778 500 006	0.0	0.000 000	0.000
100 %		-30	1778 499 991	-14.8	-0.000 001	-0.008
100 %		-20	1778 499 998	-8.3	0.000 000	-0.005
100 %		-10	1778 500 019	12.3	0.000 001	0.007
100 %		0	1778 499 999	-7.3	0.000 000	-0.004
100 %		+10	1778 500 000	-6.5	0.000 000	-0.004
100 %		+30	1778 500 014	7.8	0.000 000	0.004
100 %		+40	1778 500 019	13.2	0.000 001	0.007
100 %		+50	1778 500 015	8.9	0.000 001	0.005
Batt. Endpoint	3.300	+20	1778 499 995	-10.8	-0.000 001	-0.006



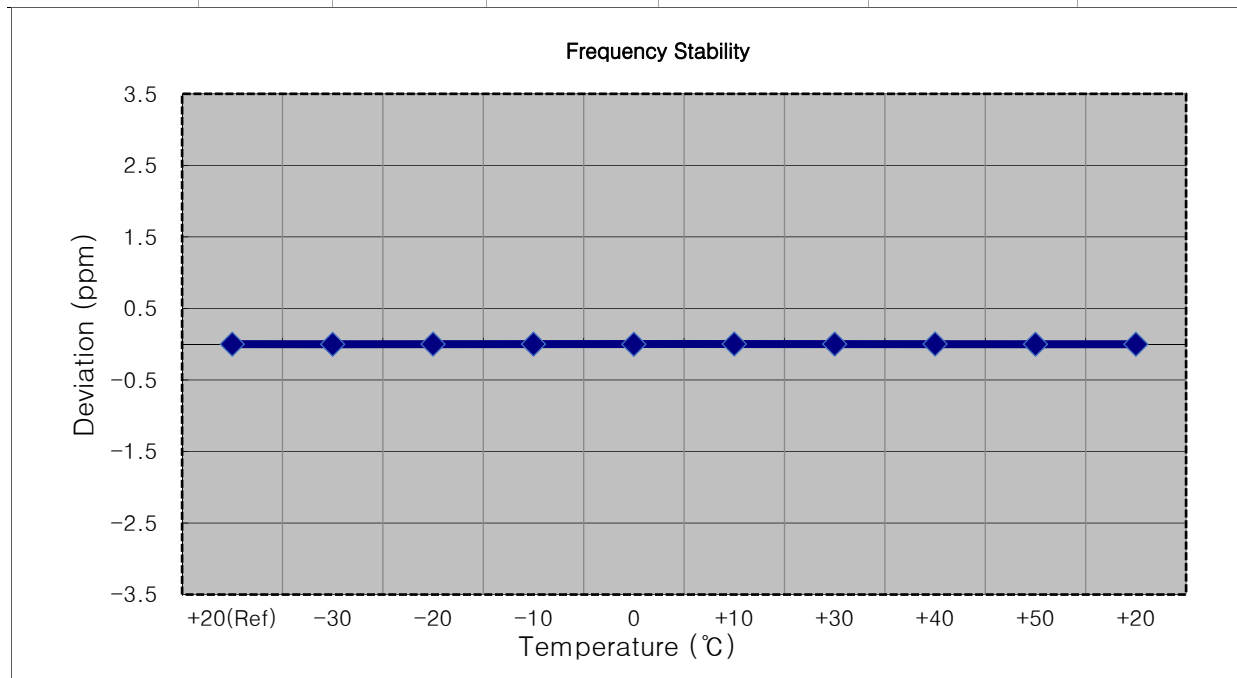
MODE: LTE B66
 OPERATING FREQUENCY: 1777,500,000 Hz
 CHANNEL: 132647 (5 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1777 500 003	0.0	0.000 000	0.000
100 %		-30	1777 500 000	-2.9	0.000 000	-0.002
100 %		-20	1777 500 000	-2.5	0.000 000	-0.001
100 %		-10	1777 500 005	1.9	0.000 000	0.001
100 %		0	1777 500 000	-3.3	0.000 000	-0.002
100 %		+10	1777 500 007	4.0	0.000 000	0.002
100 %		+30	1777 500 005	2.1	0.000 000	0.001
100 %		+40	1777 500 000	-2.4	0.000 000	-0.001
100 %		+50	1777 500 008	5.6	0.000 000	0.003
Batt. Endpoint	3.300	+20	1777 500 007	4.1	0.000 000	0.002



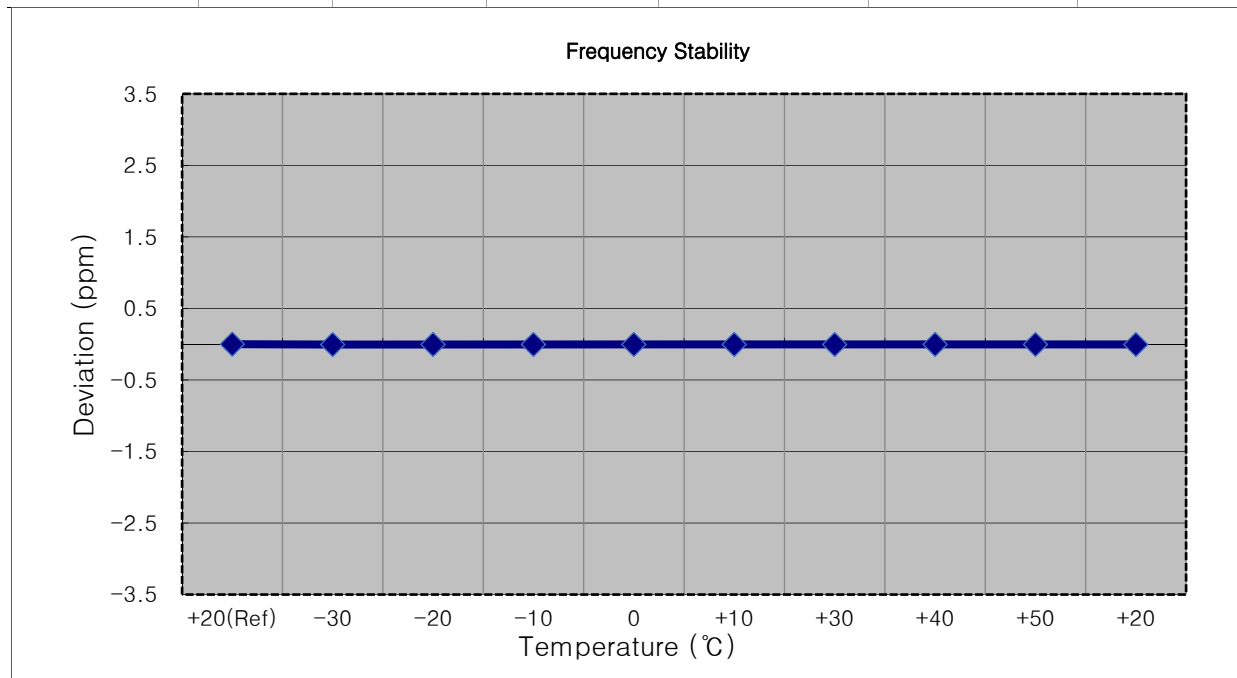
MODE: LTE B66
 OPERATING FREQUENCY: 1775,000,000 Hz
 CHANNEL: 132622 (10 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1774 999 998	0.0	0.000 000	0.000
100 %		-30	1774 999 996	-2.1	0.000 000	-0.001
100 %		-20	1775 000 000	1.8	0.000 000	0.001
100 %		-10	1774 999 999	1.6	0.000 000	0.001
100 %		0	1774 999 995	-2.6	0.000 000	-0.001
100 %		+10	1775 000 002	3.9	0.000 000	0.002
100 %		+30	1775 000 000	2.6	0.000 000	0.001
100 %		+40	1775 000 002	3.8	0.000 000	0.002
100 %		+50	1774 999 996	-1.8	0.000 000	-0.001
Batt. Endpoint	3.300	+20	1774 999 996	-1.8	0.000 000	-0.001



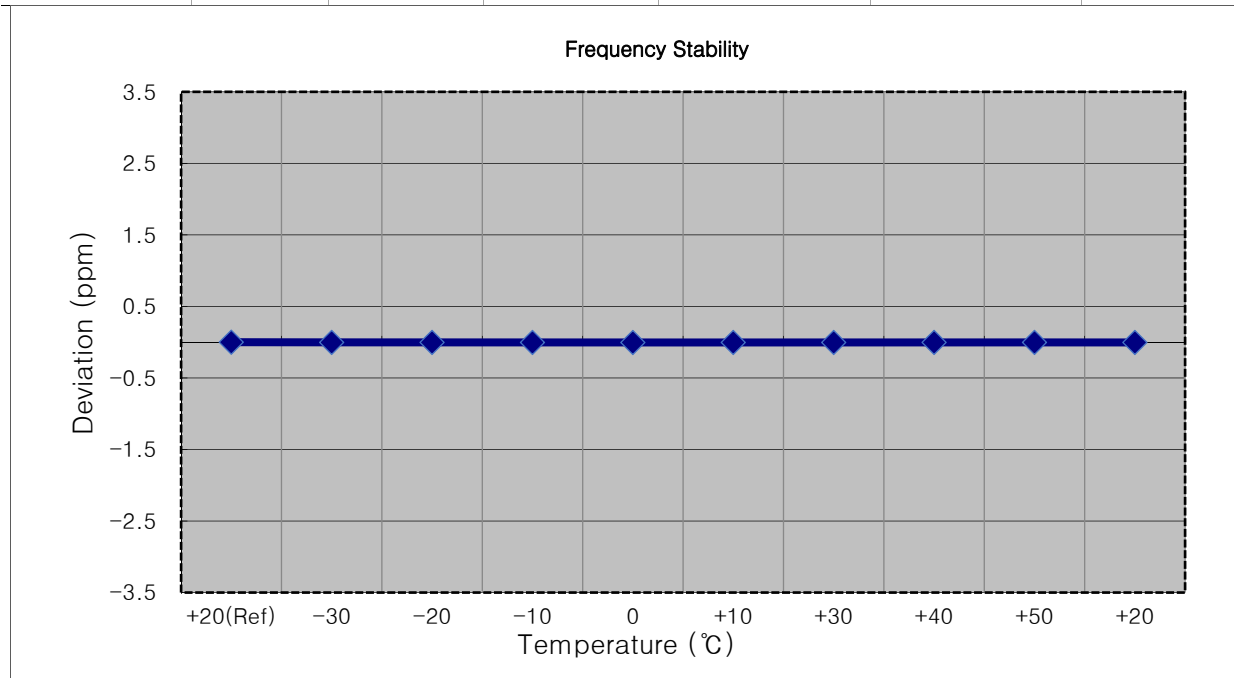
MODE: LTE B66
 OPERATING FREQUENCY: 1772,500,000 Hz
 CHANNEL: 132597 (15 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1772 499 992	0.0	0.000 000	0.000
100 %		-30	1772 499 983	-8.9	-0.000 001	-0.005
100 %		-20	1772 499 985	-7.4	0.000 000	-0.004
100 %		-10	1772 499 986	-6.3	0.000 000	-0.004
100 %		0	1772 499 985	-7.1	0.000 000	-0.004
100 %		+10	1772 499 986	-6.3	0.000 000	-0.004
100 %		+30	1772 499 985	-7.4	0.000 000	-0.004
100 %		+40	1772 499 985	-6.6	0.000 000	-0.004
100 %		+50	1772 499 986	-6.4	0.000 000	-0.004
Batt. Endpoint	3.300	+20	1772 499 984	-7.9	0.000 000	-0.004



MODE: LTE B66
 OPERATING FREQUENCY: 1770,000,000 Hz
 CHANNEL: 132572 (20 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1769 999 993	0.0	0.000 000	0.000
100 %		-30	1769 999 988	-5.3	0.000 000	-0.003
100 %		-20	1769 999 987	-5.7	0.000 000	-0.003
100 %		-10	1769 999 986	-6.9	0.000 000	-0.004
100 %		0	1769 999 985	-8.3	0.000 000	-0.005
100 %		+10	1769 999 986	-6.6	0.000 000	-0.004
100 %		+30	1769 999 986	-6.5	0.000 000	-0.004
100 %		+40	1769 999 987	-5.6	0.000 000	-0.003
100 %		+50	1769 999 987	-5.9	0.000 000	-0.003
Batt. Endpoint	3.300	+20	1769 999 986	-7.2	0.000 000	-0.004



9. TEST DATA(Sub 2-2 ANT)

9.1 EQUIVALENT ISOTROPIC RADIATED POWER

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1710.7	LTE B66 (1.4 MHz)	QPSK	-19.99	14.33	9.81	2.06	H	< 1.00	0.161	22.08	1	5
		16-QAM	-20.77	13.55	9.81	2.06	H		0.135	21.30		
		64-QAM	-21.87	12.45	9.81	2.06	H		0.105	20.20		
		256-QAM	-24.96	9.36	9.81	2.06	H		0.051	17.11		
1745		QPSK	-19.65	14.69	9.98	2.07	H		0.182	22.60	1	5
		16-QAM	-20.26	14.08	9.98	2.07	H		0.158	21.99		
		64-QAM	-21.43	12.91	9.98	2.07	H		0.121	20.82		
		256-QAM	-24.49	9.85	9.98	2.07	H		0.060	17.76		
1779.3		QPSK	-19.02	15.39	10.07	2.09	H		0.217	23.37	1	5
		16-QAM	-19.77	14.64	10.07	2.09	H		0.183	22.62		
		64-QAM	-20.98	13.43	10.07	2.09	H		0.138	21.41		
		256-QAM	-24.01	10.40	10.07	2.09	H		0.069	18.38		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1711.5	LTE B66 (3 MHz)	QPSK	-19.99	14.33	9.81	2.06	H	< 1.00	0.161	22.08	1	0
		16-QAM	-20.86	13.46	9.81	2.06	H		0.132	21.21		
		64-QAM	-21.81	12.51	9.81	2.06	H		0.106	20.26		
		256-QAM	-24.86	9.46	9.81	2.06	H		0.053	17.21		
1745		QPSK	-19.54	14.80	9.98	2.07	H		0.187	22.71	1	8
		16-QAM	-20.24	14.10	9.98	2.07	H		0.159	22.01		
		64-QAM	-21.28	13.06	9.98	2.07	H		0.125	20.97		
		256-QAM	-24.47	9.87	9.98	2.07	H		0.060	17.78		
1778.5		QPSK	-19.02	15.39	10.07	2.09	H		0.217	23.37	1	14
		16-QAM	-19.78	14.63	10.07	2.09	H		0.182	22.61		
		64-QAM	-20.89	13.52	10.07	2.09	H		0.141	21.50		
		256-QAM	-23.87	10.54	10.07	2.09	H		0.071	18.52		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1712.5	LTE B66 (5 MHz)	QPSK	-20.00	14.31	9.83	2.06	H	<1.00	0.161	22.08	1	0
		16-QAM	-20.68	13.63	9.83	2.06	H		0.138	21.40		
		64-QAM	-21.80	12.51	9.83	2.06	H		0.107	20.28		
		256-QAM	-24.90	9.41	9.83	2.06	H		0.052	17.18		
1745		QPSK	-19.59	14.75	9.98	2.07	H		0.185	22.66	1	13
		16-QAM	-20.21	14.13	9.98	2.07	H		0.160	22.04		
		64-QAM	-21.29	13.05	9.98	2.07	H		0.125	20.96		
		256-QAM	-24.45	9.89	9.98	2.07	H		0.060	17.80		
1777.5		QPSK	-19.00	15.41	10.07	2.09	H		0.218	23.39	1	0
		16-QAM	-19.67	14.74	10.07	2.09	H		0.187	22.72		
		64-QAM	-20.70	13.71	10.07	2.09	H		0.148	21.69		
		256-QAM	-23.92	10.49	10.07	2.09	H		0.070	18.47		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1715	LTE B66 (10 MHz)	QPSK	-19.94	14.37	9.83	2.06	H	<1.00	0.164	22.14	1	25
		16-QAM	-20.72	13.59	9.83	2.06	H		0.137	21.36		
		64-QAM	-21.75	12.56	9.83	2.06	H		0.108	20.33		
		256-QAM	-24.81	9.50	9.83	2.06	H		0.053	17.27		
1745		QPSK	-19.58	14.76	9.98	2.07	H		0.185	22.67	1	49
		16-QAM	-20.26	14.08	9.98	2.07	H		0.158	21.99		
		64-QAM	-21.36	12.98	9.98	2.07	H		0.123	20.89		
		256-QAM	-24.44	9.90	9.98	2.07	H		0.060	17.81		
1775		QPSK	-18.89	15.50	10.06	2.09	H		0.222	23.47	1	25
		16-QAM	-19.60	14.79	10.06	2.09	H		0.189	22.76		
		64-QAM	-20.80	13.59	10.06	2.09	H		0.143	21.56		
		256-QAM	-23.78	10.61	10.06	2.09	H		0.072	18.58		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1717.5	LTE B66 (15 MHz)	QPSK	-20.02	14.28	9.86	2.06	H	< 1.00	0.161	22.08	1	74
		16-QAM	-20.93	13.37	9.86	2.06	H		0.131	21.17		
		64-QAM	-21.98	12.32	9.86	2.06	H		0.103	20.12		
		256-QAM	-25.00	9.30	9.86	2.06	H		0.051	17.10		
1745		QPSK	-19.43	14.91	9.98	2.07	H		0.191	22.82	1	74
		16-QAM	-20.45	13.89	9.98	2.07	H		0.151	21.80		
		64-QAM	-21.33	13.01	9.98	2.07	H		0.124	20.92		
		256-QAM	-24.28	10.06	9.98	2.07	H		0.063	17.97		
1772.5		QPSK	-19.32	15.07	10.06	2.09	H		0.201	23.04	1	38
		16-QAM	-20.10	14.29	10.06	2.09	H		0.168	22.26		
		64-QAM	-21.25	13.14	10.06	2.09	H		0.129	21.11		
		256-QAM	-24.12	10.27	10.06	2.09	H		0.067	18.24		

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1720	LTE B66 (20 MHz)	QPSK	-19.94	14.36	9.86	2.06	H	< 1.00	0.164	22.16	1	50
		16-QAM	-20.81	13.49	9.86	2.06	H		0.135	21.29		
		64-QAM	-21.90	12.40	9.86	2.06	H		0.105	20.20		
		256-QAM	-24.96	9.34	9.86	2.06	H		0.052	17.14		
1745		QPSK	-19.35	14.99	9.98	2.07	H		0.195	22.90	1	99
		16-QAM	-20.24	14.10	9.98	2.07	H		0.159	22.01		
		64-QAM	-21.29	13.05	9.98	2.07	H		0.125	20.96		
		256-QAM	-24.35	9.99	9.98	2.07	H		0.062	17.90		
1770		QPSK	-19.30	15.07	10.05	2.09	H		0.201	23.03	1	99
		16-QAM	-20.16	14.21	10.05	2.09	H		0.165	22.17		
		64-QAM	-21.15	13.22	10.05	2.09	H		0.131	21.18		
		256-QAM	-24.10	10.27	10.05	2.09	H		0.067	18.23		

9.2 RADIATED SPURIOUS EMISSIONS

MODE: LTE B66
 MODULATION SIGNAL: 10 MHz QPSK
 DISTANCE: 3 meters
 LIMIT: -13 dBm

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	RB	
								Size	Offset
132022 (1715.0)	3 430.00	-50.04	11.36	-57.90	3.03	V	-49.57	1	25
		-49.22		-57.08		H	-48.75		
	5 145.00	-49.90	11.28	-51.62	3.81	V	-44.15		
		-49.48		-51.20		H	-43.73		
	6 860.00	-55.77	11.08	-51.67	4.49	V	-45.08		
		-55.43		-51.33		H	-44.74		
132322 (1745.0)	3 490.00	-48.41	11.56	-56.54	3.06	V	-48.04	1	49
		-49.03		-57.16		H	-48.66		
	5 235.00	-50.47	11.53	-52.31	3.86	V	-44.64		
		-50.14		-51.98		H	-44.31		
	6 980.00	-54.65	11.12	-51.27	4.55	V	-44.70		
		-54.64		-51.26		H	-44.69		
132622 (1775.0)	3 550.00	-49.58	11.66	-57.76	3.09	V	-49.19	1	25
		-47.90		-56.08		H	-47.51		
	5 325.00	-51.06	11.71	-52.87	3.87	V	-45.03		
		-51.27		-53.08		H	-45.24		
	7 100.00	-54.75	10.77	-50.87	4.60	V	-44.70		
		-55.23		-51.35		H	-45.18		

9.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)	Limit (dB)
LTE B66	1.4 MHz	1745.0	QPSK	6	0	5.54	13.00
			16-QAM			6.28	
			64-QAM			6.66	
			256-QAM			6.87	
	3 MHz		QPSK	15		5.42	
			16-QAM			6.33	
			64-QAM			6.68	
			256-QAM			6.85	
	5 MHz		QPSK	25		5.48	
			16-QAM			6.31	
			64-QAM			6.66	
			256-QAM			6.79	
	10 MHz		QPSK	50		5.58	
			16-QAM			6.34	
			64-QAM			6.70	
			256-QAM			6.83	
	15 MHz		QPSK	75		5.52	
			16-QAM			6.32	
			64-QAM			6.66	
			256-QAM			6.81	
	20 MHz		QPSK	100		5.47	
			16-QAM			6.33	
			64-QAM			6.67	
			256-QAM			6.81	

9.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
LTE B66	1.4 MHz	1745.0	QPSK	6	0	1.1012
			16-QAM			1.1023
			64-QAM			1.1002
			256-QAM			1.1041
	3 MHz		QPSK	15		2.7285
			16-QAM			2.7098
			64-QAM			2.7159
			256-QAM			2.7109
	5 MHz		QPSK	25		4.5231
			16-QAM			4.5229
			64-QAM			4.5302
			256-QAM			4.5125
	10 MHz		QPSK	50		8.9960
			16-QAM			9.0083
			64-QAM			8.9955
			256-QAM			8.9922
	15 MHz		QPSK	75		13.496
			16-QAM			13.480
			64-QAM			13.472
			256-QAM			13.534
	20 MHz		QPSK	100		17.983
			16-QAM			17.978
			64-QAM			17.993
			256-QAM			17.977

9.5 CONDUCTED SPURIOUS EMISSIONS

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
LTE B66	1.4	1710.70	6.4906	28.591	-61.942	-33.351	-13.00
		1745.00	3.6990	27.976	-61.848	-33.872	
		1779.30	3.1706	27.976	-61.620	-33.644	
	3	1711.50	2.6222	27.976	-62.240	-34.264	
		1745.00	6.5304	28.591	-61.876	-33.285	
		1778.50	3.5893	27.976	-61.730	-33.754	
	5	1712.50	5.2842	28.591	-61.535	-32.944	
		1745.00	2.5923	27.976	-61.876	-33.900	
		1777.50	3.6990	27.976	-62.258	-34.282	
	10	1715.00	7.6072	28.591	-62.280	-33.689	
		1745.00	3.6591	27.976	-61.785	-33.809	
		1775.00	2.5823	27.976	-61.371	-33.395	
	15	1717.50	3.1905	27.976	-61.919	-33.943	
		1745.00	2.4527	27.976	-61.940	-33.964	
		1772.50	3.6990	27.976	-60.967	-32.991	
	20	1720.00	3.1805	27.976	-61.419	-33.443	
		1745.00	2.6920	27.976	-60.913	-32.937	
		1770.00	3.6890	27.976	-62.245	-34.269	

Note:

1. Conducted Spurious Emissions was Tested QPSK Modulation, Resource Block Size 1 and Resource Block Offset 0
2. Result (dBm) = Measurement Maximum Data (dBm) + Factor (dB)
3. 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

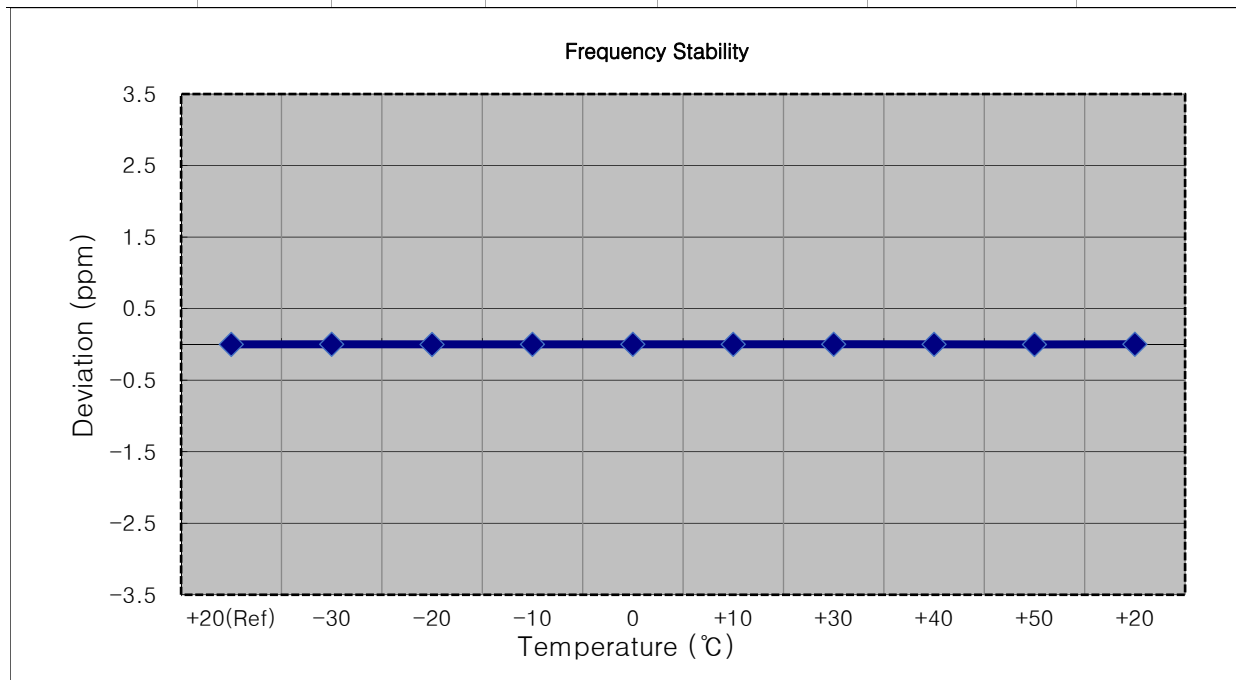
9.6 BAND EDGE

- Plots of the EUT's Band Edge are shown Section 12.4.

9.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

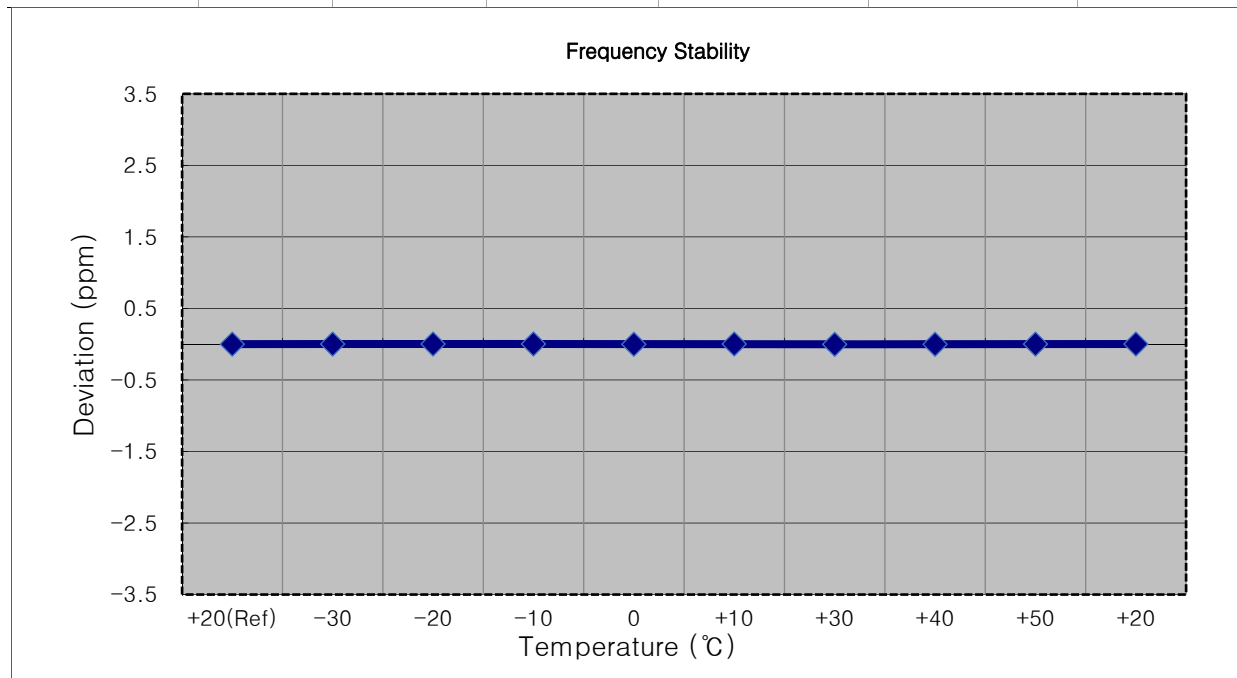
MODE:	<u>LTE B66</u>
OPERATING FREQUENCY:	<u>1710,700,000 Hz</u>
CHANNEL:	<u>131979 (1.4 MHz)</u>
REFERENCE VOLTAGE:	<u>3.880 VDC</u>
DEVIATION LIMIT:	<u>Emission must remain in band</u>

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.880	+20(Ref)	1710 700 002	0.0	0.000 000	0.000
100 %		-30	1710 700 004	2.0	0.000 000	0.001
100 %		-20	1710 700 000	-2.0	0.000 000	-0.001
100 %		-10	1710 700 003	1.3	0.000 000	0.001
100 %		0	1710 700 004	2.8	0.000 000	0.002
100 %		+10	1710 700 003	1.5	0.000 000	0.001
100 %		+30	1710 700 004	2.5	0.000 000	0.001
100 %		+40	1710 700 003	1.4	0.000 000	0.001
100 %		+50	1710 700 000	-2.0	0.000 000	-0.001
Batt. Endpoint	3.300	+20	1710 700 005	3.3	0.000 000	0.002



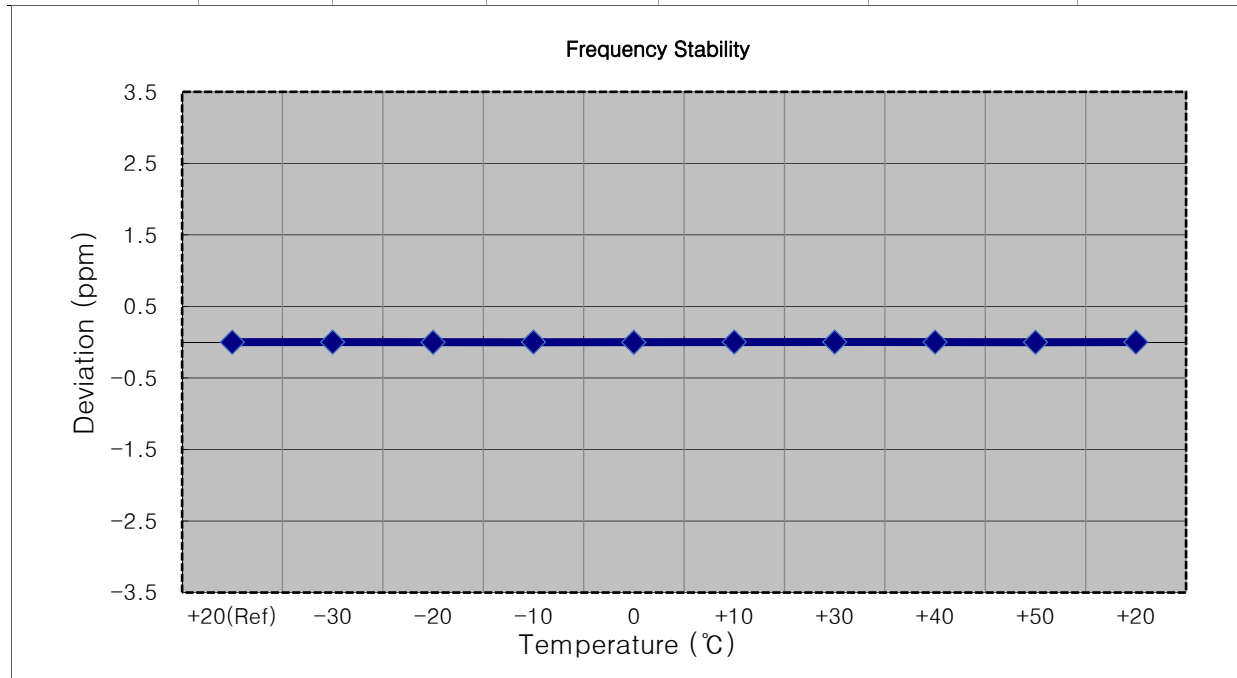
- ▣ MODE: LTE B66
- ▣ OPERATING FREQUENCY: 1711,500,000 Hz
- ▣ CHANNEL: 131987 (3 MHz)
- ▣ REFERENCE VOLTAGE: 3.880 VDC
- ▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1711 500 004	0.0	0.000 000	0.000
100 %		-30	1711 500 007	3.1	0.000 000	0.002
100 %		-20	1711 500 007	3.2	0.000 000	0.002
100 %		-10	1711 500 008	4.6	0.000 000	0.003
100 %		0	1711 500 001	-2.5	0.000 000	-0.001
100 %		+10	1711 500 008	3.9	0.000 000	0.002
100 %		+30	1711 500 000	-3.6	0.000 000	-0.002
100 %		+40	1711 500 002	-2.1	0.000 000	-0.001
100 %		+50	1711 500 006	2.0	0.000 000	0.001
Batt. Endpoint	3.300	+20	1711 500 007	3.5	0.000 000	0.002



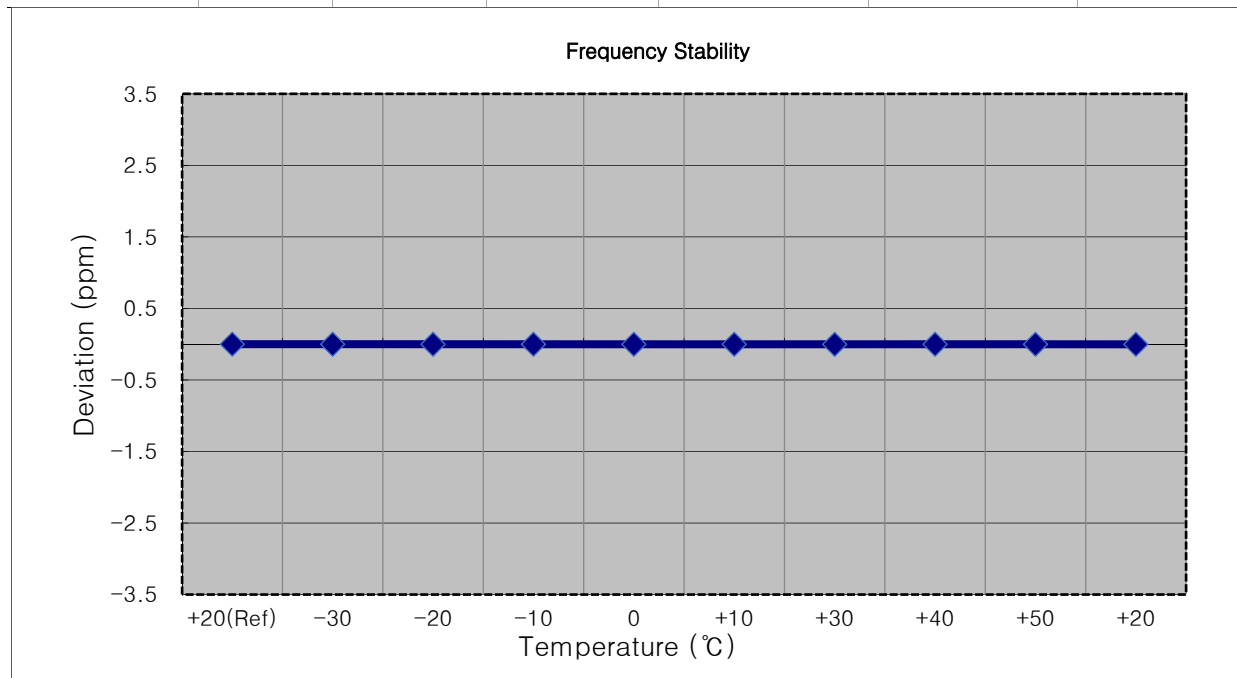
- ▣ MODE: LTE B66
- ▣ OPERATING FREQUENCY: 1712,500,000 Hz
- ▣ CHANNEL: 131997 (5 MHz)
- ▣ REFERENCE VOLTAGE: 3.880 VDC
- ▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1712 500 004	0.0	0.000 000	0.000
100 %		-30	1712 500 006	2.0	0.000 000	0.001
100 %		-20	1712 500 001	-2.9	0.000 000	-0.002
100 %		-10	1712 500 008	3.9	0.000 000	0.002
100 %		0	1712 500 001	-2.9	0.000 000	-0.002
100 %		+10	1712 500 007	3.6	0.000 000	0.002
100 %		+30	1712 500 006	2.2	0.000 000	0.001
100 %		+40	1712 500 006	2.8	0.000 000	0.002
100 %		+50	1712 500 002	-1.5	0.000 000	-0.001
Batt. Endpoint	3.300	+20	1712 500 006	2.5	0.000 000	0.001



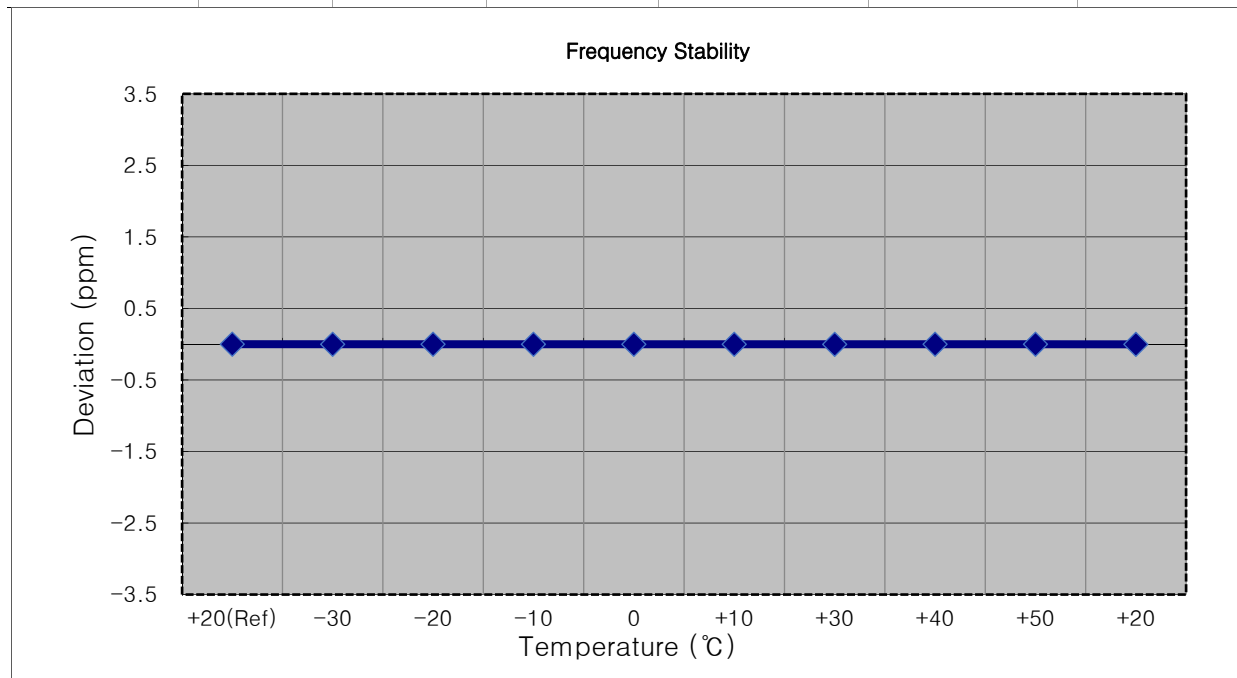
MODE: LTE B66
 OPERATING FREQUENCY: 1715,000,000 Hz
 CHANNEL: 132022 (10 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1715 000 002	0.0	0.000 000	0.000
100 %		-30	1715 000 001	-0.9	0.000 000	-0.001
100 %		-20	1714 999 999	-2.7	0.000 000	-0.002
100 %		-10	1714 999 999	-2.6	0.000 000	-0.002
100 %		0	1714 999 999	-2.2	0.000 000	-0.001
100 %		+10	1714 999 998	-3.2	0.000 000	-0.002
100 %		+30	1714 999 998	-3.4	0.000 000	-0.002
100 %		+40	1714 999 999	-2.6	0.000 000	-0.002
100 %		+50	1715 000 000	-2.0	0.000 000	-0.001
Batt. Endpoint	3.300	+20	1714 999 998	-3.8	0.000 000	-0.002



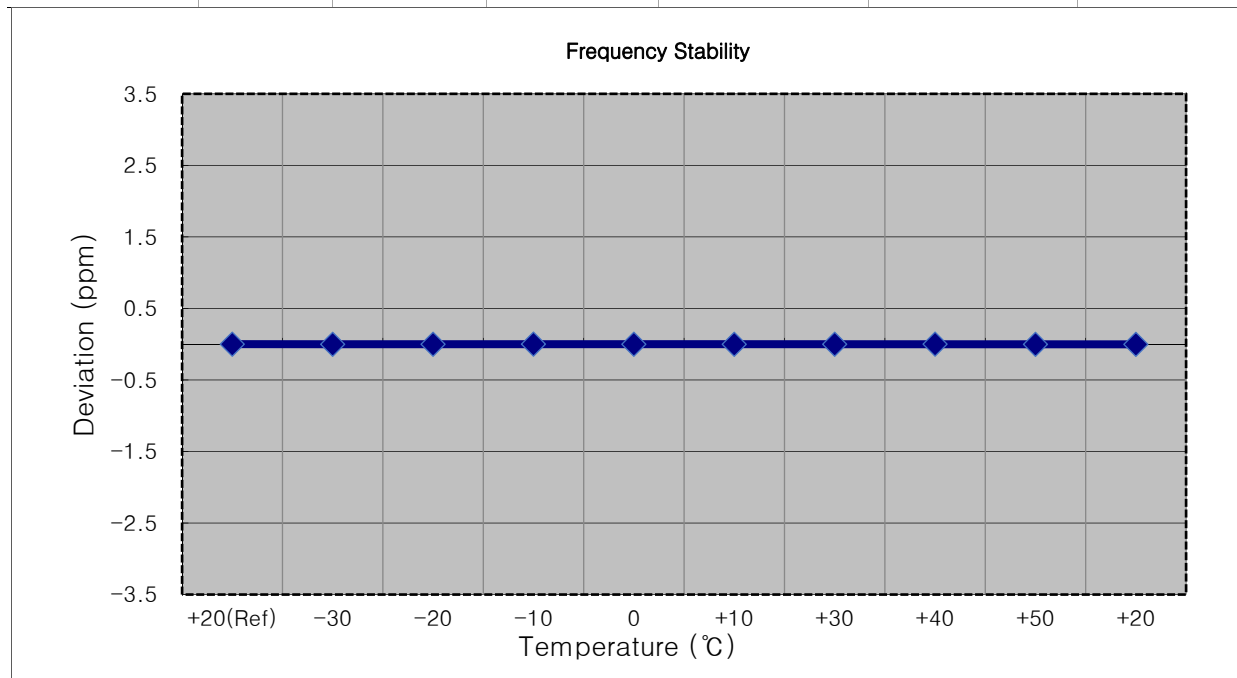
☐ MODE: LTE B66
☐ OPERATING FREQUENCY: 1717,500,000 Hz
☐ CHANNEL: 132047 (15 MHz)
☐ REFERENCE VOLTAGE: 3.880 VDC
☐ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1717 499 997	0.0	0.000 000	0.000
100 %		-30	1717 499 995	-2.0	0.000 000	-0.001
100 %		-20	1717 499 995	-1.7	0.000 000	-0.001
100 %		-10	1717 499 995	-2.4	0.000 000	-0.001
100 %		0	1717 499 995	-2.3	0.000 000	-0.001
100 %		+10	1717 499 994	-2.5	0.000 000	-0.001
100 %		+30	1717 499 993	-3.6	0.000 000	-0.002
100 %		+40	1717 499 996	-0.9	0.000 000	-0.001
100 %		+50	1717 499 995	-1.6	0.000 000	-0.001
Batt. Endpoint	3.300	+20	1717 499 993	-3.6	0.000 000	-0.002



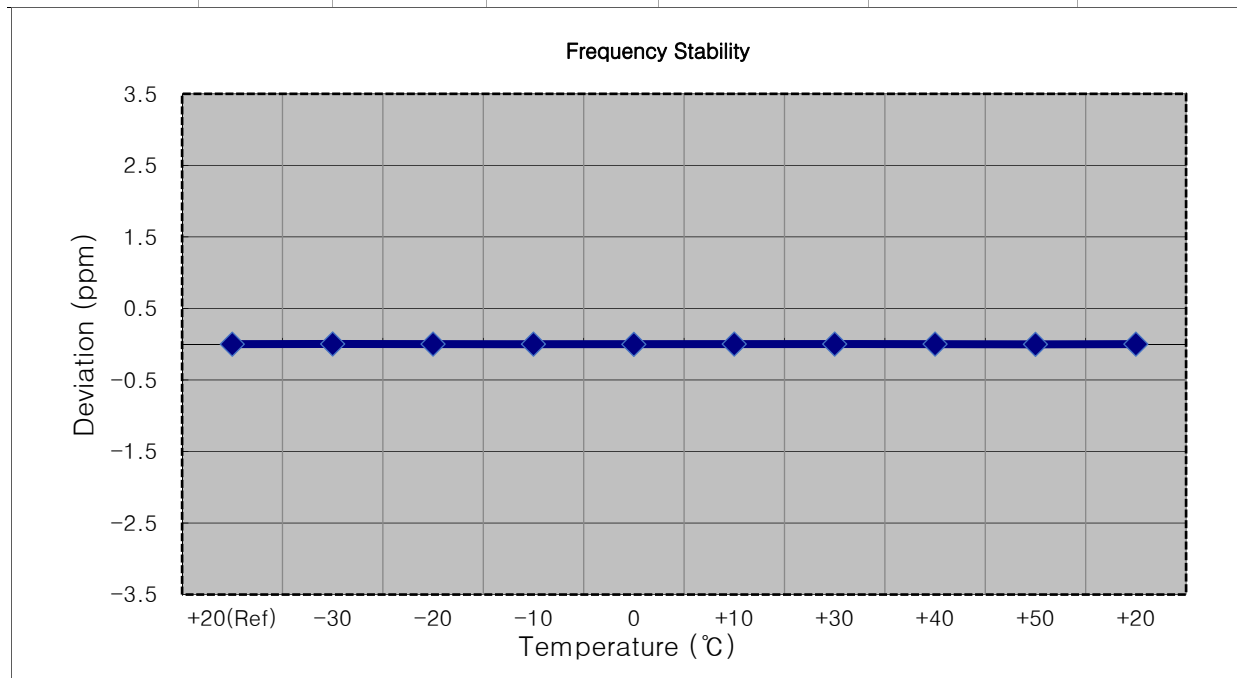
- ▣ MODE: LTE B66
- ▣ OPERATING FREQUENCY: 1720,000,000 Hz
- ▣ CHANNEL: 132072 (20 MHz)
- ▣ REFERENCE VOLTAGE: 3.880 VDC
- ▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1719 999 997	0.0	0.000 000	0.000
100 %		-30	1719 999 994	-2.6	0.000 000	-0.002
100 %		-20	1719 999 995	-1.4	0.000 000	-0.001
100 %		-10	1719 999 998	1.2	0.000 000	0.001
100 %		0	1719 999 995	-1.8	0.000 000	-0.001
100 %		+10	1719 999 994	-2.6	0.000 000	-0.002
100 %		+30	1719 999 995	-1.8	0.000 000	-0.001
100 %		+40	1719 999 998	0.9	0.000 000	0.001
100 %		+50	1719 999 993	-3.3	0.000 000	-0.002
Batt. Endpoint	3.300	+20	1719 999 992	-4.2	0.000 000	-0.002



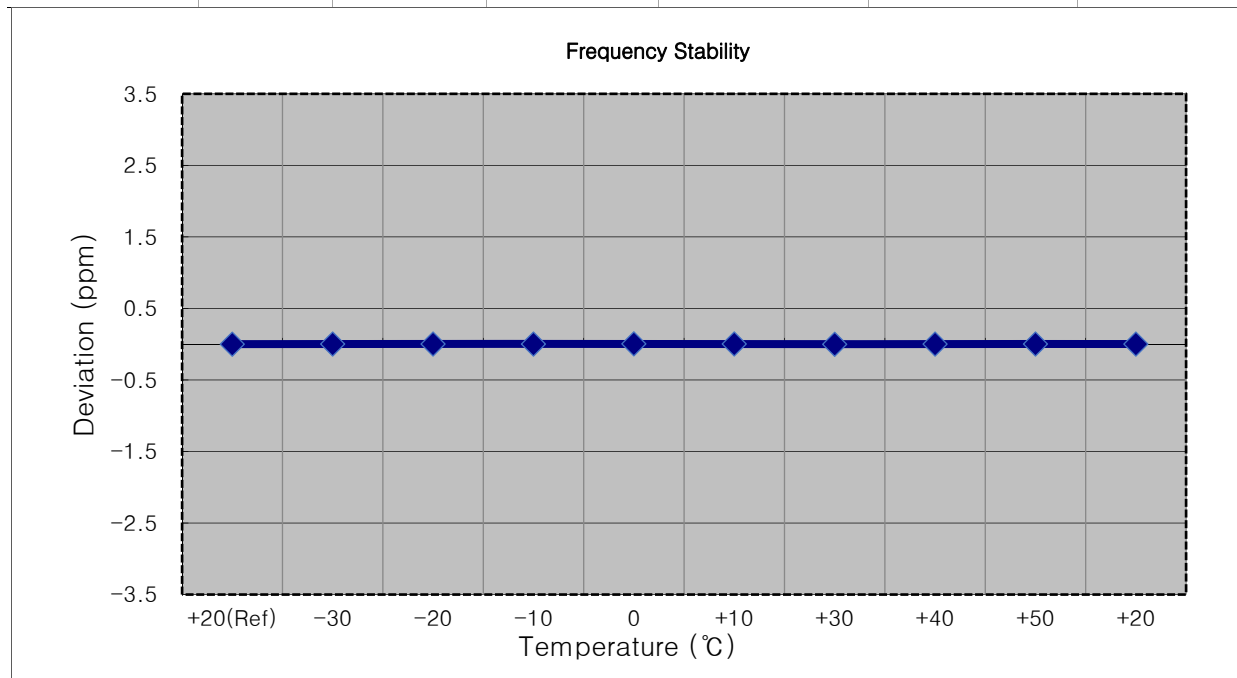
- ▣ MODE: LTE B66
- ▣ OPERATING FREQUENCY: 1745,000,000 Hz
- ▣ CHANNEL: 132322 (1.4 MHz)
- ▣ REFERENCE VOLTAGE: 3.880 VDC
- ▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1745 000 003	0.0	0.000 000	0.000
100 %		-30	1745 000 008	4.8	0.000 000	0.003
100 %		-20	1745 000 005	2.1	0.000 000	0.001
100 %		-10	1745 000 004	1.3	0.000 000	0.001
100 %		0	1744 999 999	-3.4	0.000 000	-0.002
100 %		+10	1745 000 005	2.1	0.000 000	0.001
100 %		+30	1745 000 005	2.1	0.000 000	0.001
100 %		+40	1745 000 005	2.2	0.000 000	0.001
100 %		+50	1744 999 999	-3.9	0.000 000	-0.002
Batt. Endpoint	3.300	+20	1745 000 004	1.2	0.000 000	0.001



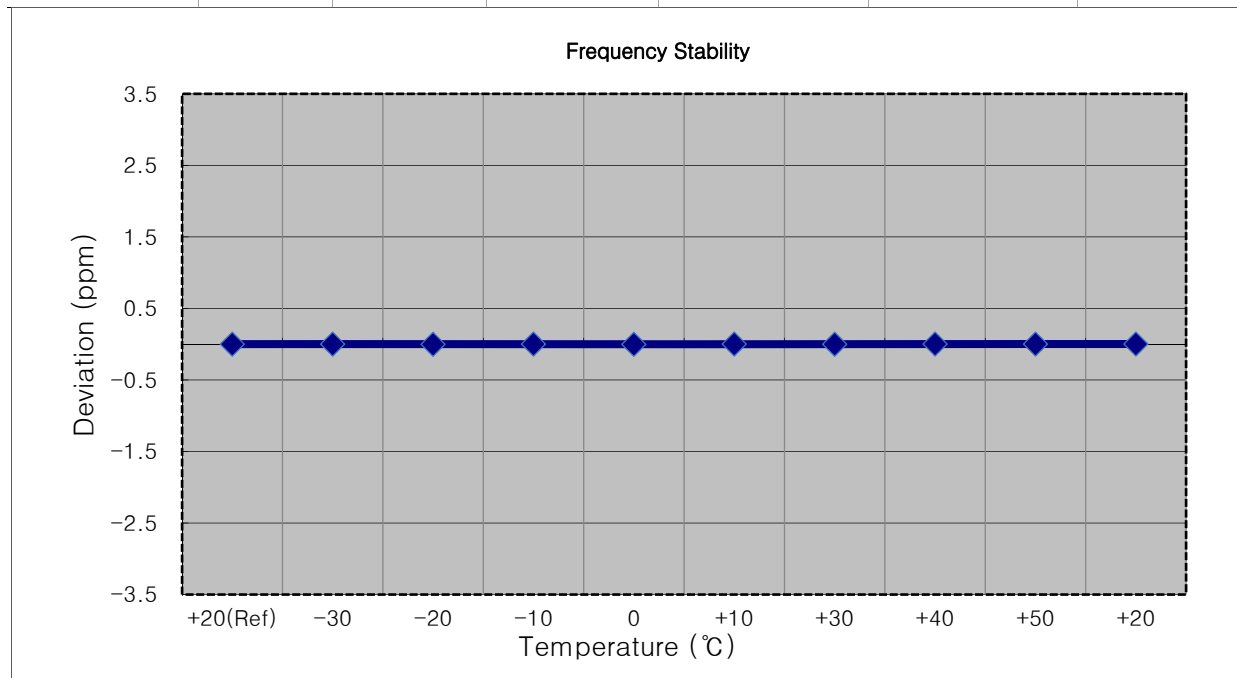
MODE: LTE B66
 OPERATING FREQUENCY: 1745,000,000 Hz
 CHANNEL: 132322 (3 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1745 000 003	0.0	0.000 000	0.000
100 %		-30	1745 000 006	3.4	0.000 000	0.002
100 %		-20	1745 000 007	3.9	0.000 000	0.002
100 %		-10	1745 000 006	3.2	0.000 000	0.002
100 %		0	1745 000 011	7.8	0.000 000	0.004
100 %		+10	1745 000 008	5.4	0.000 000	0.003
100 %		+30	1745 000 001	-2.2	0.000 000	-0.001
100 %		+40	1745 000 005	2.4	0.000 000	0.001
100 %		+50	1745 000 007	4.1	0.000 000	0.002
Batt. Endpoint	3.300	+20	1745 000 006	3.1	0.000 000	0.002



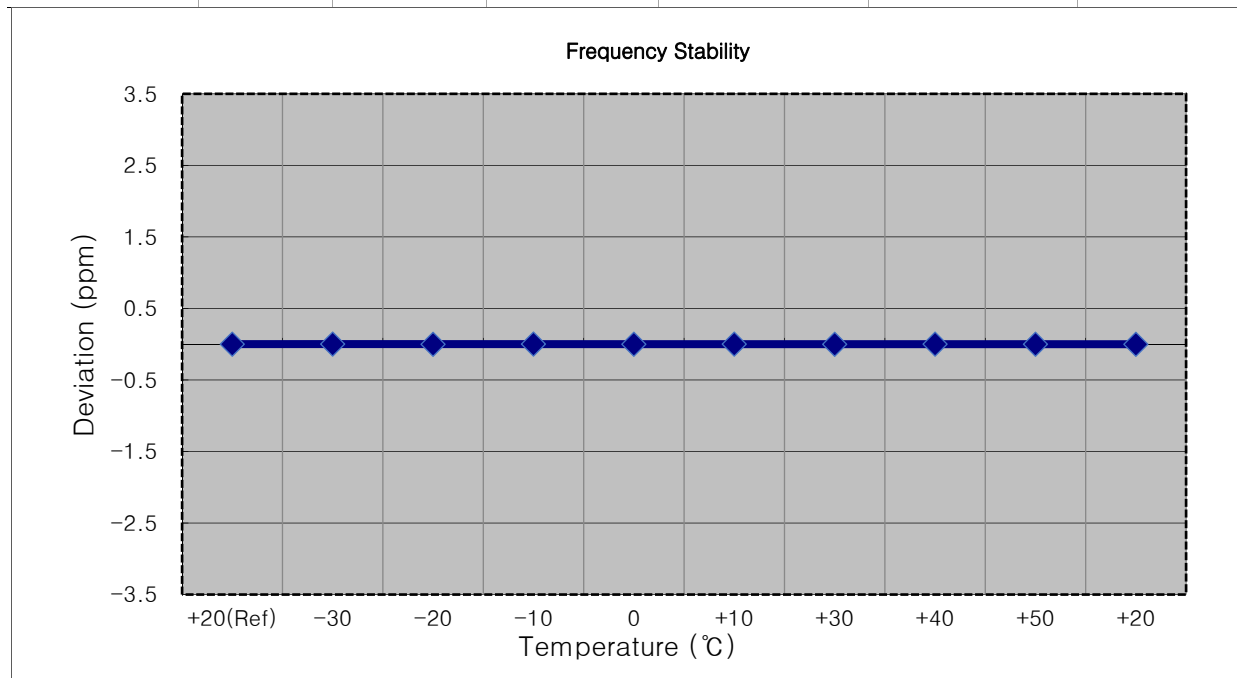
- ▣ MODE: LTE B66
- ▣ OPERATING FREQUENCY: 1745,000,000 Hz
- ▣ CHANNEL: 132322 (5 MHz)
- ▣ REFERENCE VOLTAGE: 3.880 VDC
- ▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1745 000 003	0.0	0.000 000	0.000
100 %		-30	1745 000 005	1.9	0.000 000	0.001
100 %		-20	1745 000 000	-3.1	0.000 000	-0.002
100 %		-10	1745 000 006	2.3	0.000 000	0.001
100 %		0	1744 999 999	-4.0	0.000 000	-0.002
100 %		+10	1745 000 006	3.1	0.000 000	0.002
100 %		+30	1745 000 001	-1.9	0.000 000	-0.001
100 %		+40	1745 000 007	3.7	0.000 000	0.002
100 %		+50	1745 000 006	3.0	0.000 000	0.002
Batt. Endpoint	3.300	+20	1745 000 007	3.4	0.000 000	0.002



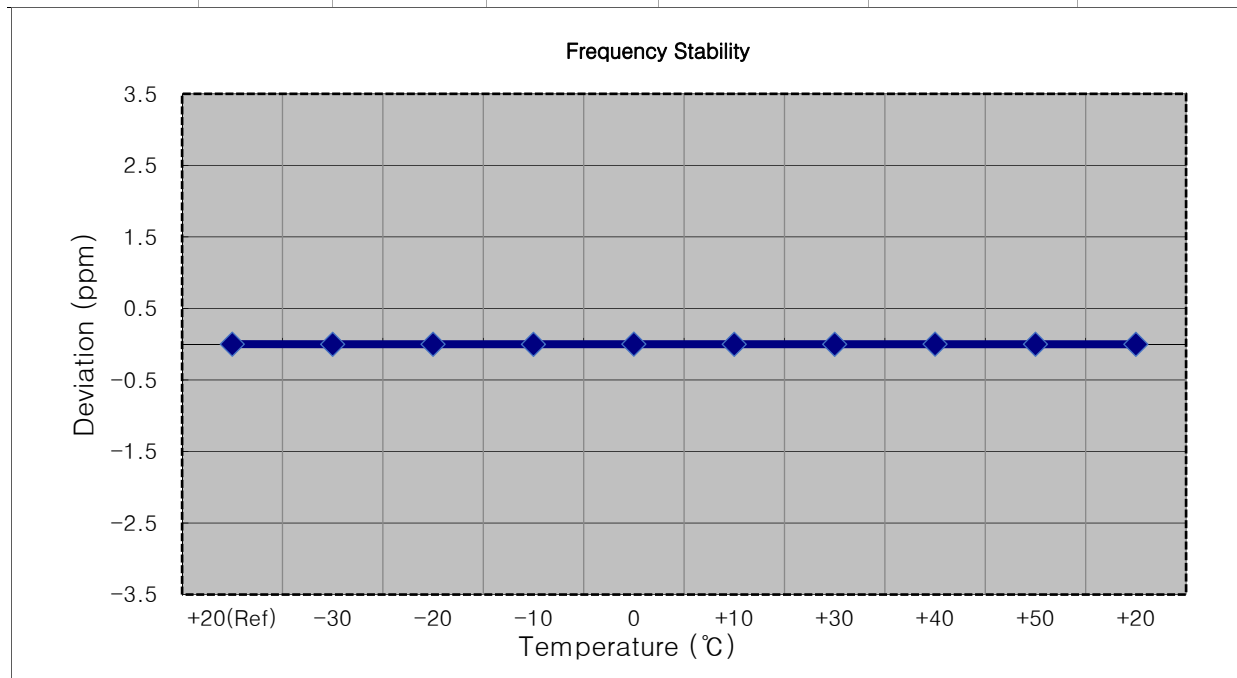
- ▣ MODE: LTE B66
- ▣ OPERATING FREQUENCY: 1745,000,000 Hz
- ▣ CHANNEL: 132322 (10 MHz)
- ▣ REFERENCE VOLTAGE: 3.880 VDC
- ▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1744 999 997	0.0	0.000 000	0.000
100 %		-30	1745 000 000	2.9	0.000 000	0.002
100 %		-20	1744 999 995	-2.2	0.000 000	-0.001
100 %		-10	1745 000 000	2.6	0.000 000	0.001
100 %		0	1744 999 995	-1.8	0.000 000	-0.001
100 %		+10	1744 999 999	1.8	0.000 000	0.001
100 %		+30	1744 999 995	-2.6	0.000 000	-0.001
100 %		+40	1744 999 999	1.7	0.000 000	0.001
100 %		+50	1744 999 996	-1.2	0.000 000	-0.001
Batt. Endpoint	3.300	+20	1744 999 995	-2.4	0.000 000	-0.001



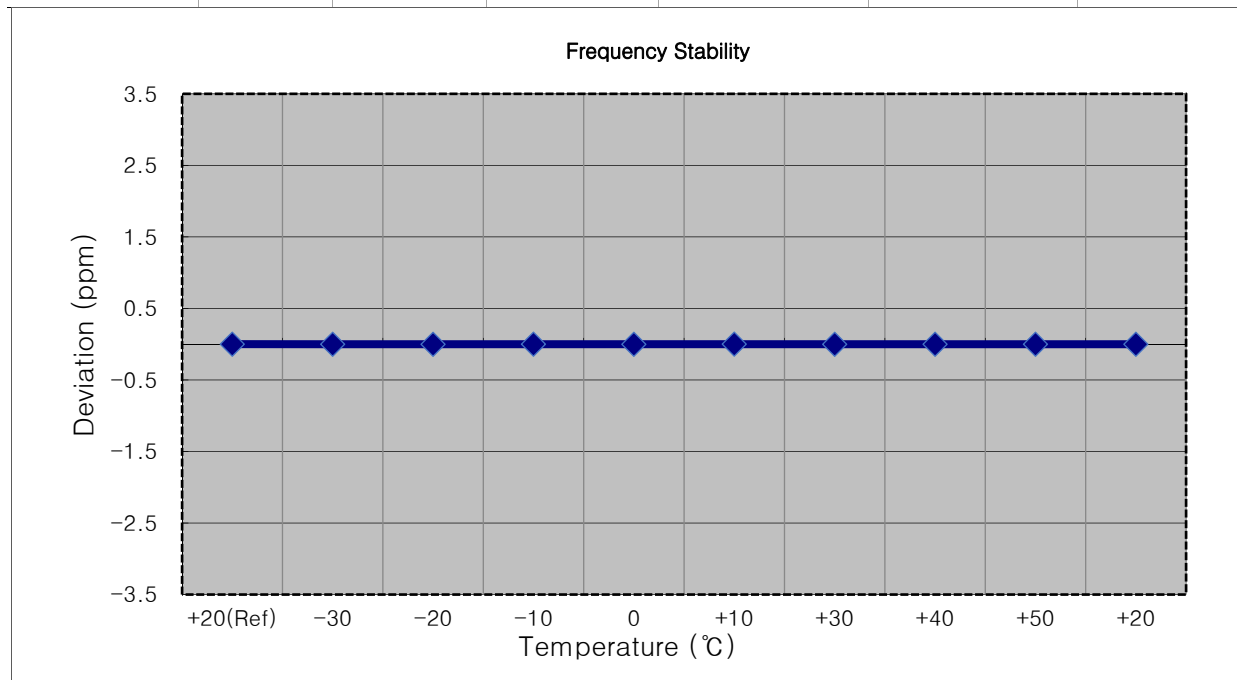
- ▣ MODE: LTE B66
- ▣ OPERATING FREQUENCY: 1745,000,000 Hz
- ▣ CHANNEL: 132322 (15 MHz)
- ▣ REFERENCE VOLTAGE: 3.880 VDC
- ▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1744 999 998	0.0	0.000 000	0.000
100 %		-30	1744 999 996	-2.3	0.000 000	-0.001
100 %		-20	1744 999 997	-1.4	0.000 000	-0.001
100 %		-10	1744 999 995	-3.8	0.000 000	-0.002
100 %		0	1745 000 000	1.4	0.000 000	0.001
100 %		+10	1744 999 996	-2.4	0.000 000	-0.001
100 %		+30	1744 999 995	-3.3	0.000 000	-0.002
100 %		+40	1745 000 000	1.8	0.000 000	0.001
100 %		+50	1744 999 997	-1.6	0.000 000	-0.001
Batt. Endpoint	3.300	+20	1744 999 996	-2.5	0.000 000	-0.001



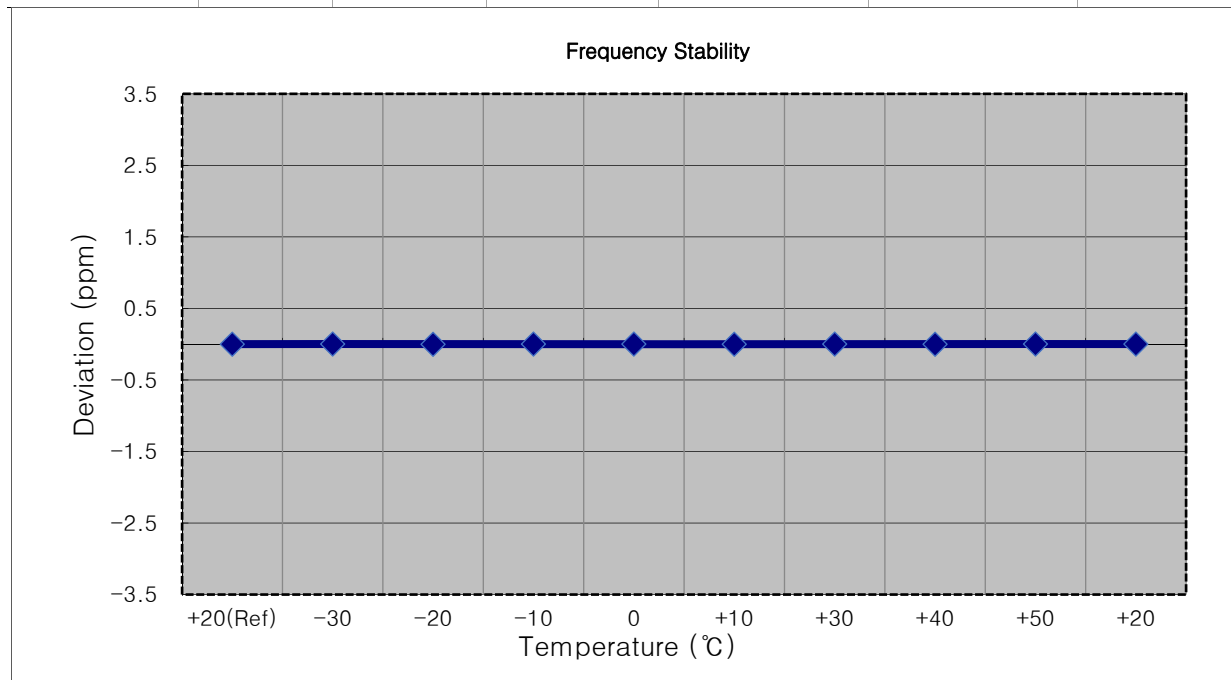
MODE: LTE B66
 OPERATING FREQUENCY: 1745,000,000 Hz
 CHANNEL: 132322 (20 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1744 999 998	0.0	0.000 000	0.000
100 %		-30	1744 999 996	-1.9	0.000 000	-0.001
100 %		-20	1744 999 996	-2.3	0.000 000	-0.001
100 %		-10	1744 999 997	-0.7	0.000 000	0.000
100 %		0	1744 999 995	-3.3	0.000 000	-0.002
100 %		+10	1744 999 999	1.4	0.000 000	0.001
100 %		+30	1744 999 996	-2.2	0.000 000	-0.001
100 %		+40	1744 999 997	-1.4	0.000 000	-0.001
100 %		+50	1744 999 997	-1.4	0.000 000	-0.001
Batt. Endpoint	3.300	+20	1744 999 996	-2.0	0.000 000	-0.001



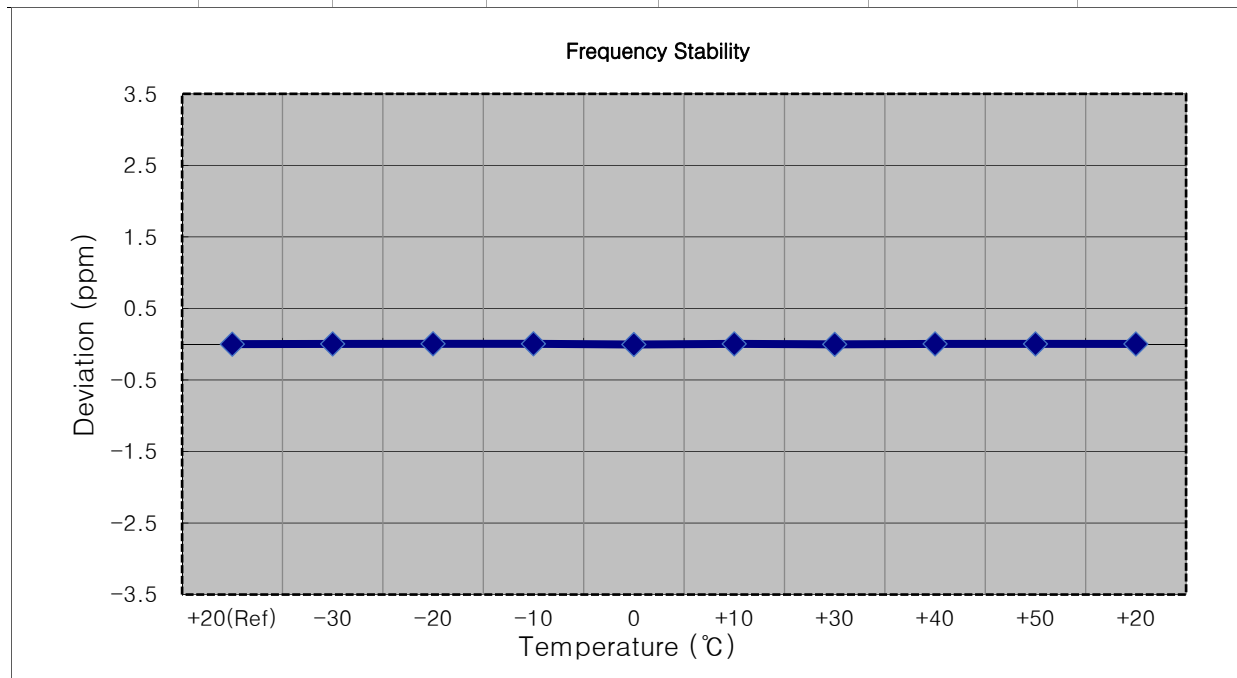
MODE: LTE B66
 OPERATING FREQUENCY: 1779,300,000 Hz
 CHANNEL: 132665 (1.4 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1779 300 002	0.0	0.000 000	0.000
100 %		-30	1779 300 006	3.7	0.000 000	0.002
100 %		-20	1779 300 000	-2.3	0.000 000	-0.001
100 %		-10	1779 300 004	2.3	0.000 000	0.001
100 %		0	1779 300 004	2.2	0.000 000	0.001
100 %		+10	1779 300 000	-1.5	0.000 000	-0.001
100 %		+30	1779 300 004	2.3	0.000 000	0.001
100 %		+40	1779 300 000	-1.5	0.000 000	-0.001
100 %		+50	1779 300 006	3.9	0.000 000	0.002
Batt. Endpoint	3.300	+20	1779 300 004	2.0	0.000 000	0.001



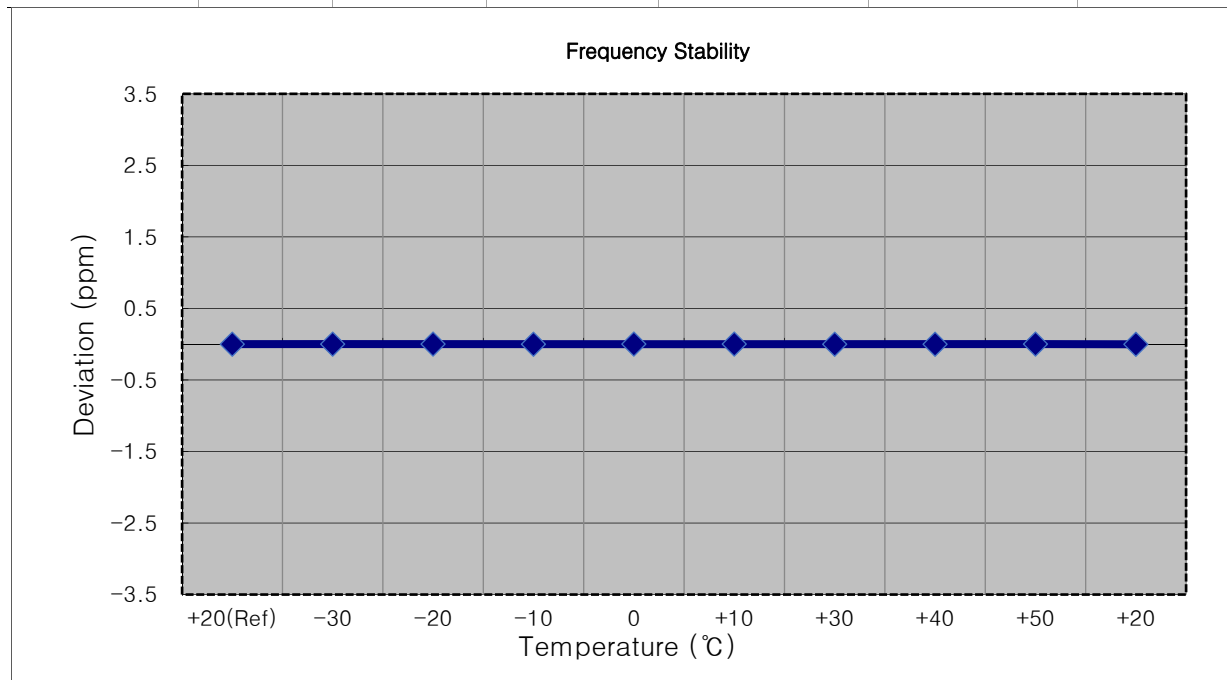
MODE: LTE B66
 OPERATING FREQUENCY: 1778,500,000 Hz
 CHANNEL: 132657 (3 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1778 500 009	0.0	0.000 000	0.000
100 %		-30	1778 500 015	6.1	0.000 000	0.003
100 %		-20	1778 500 018	9.2	0.000 001	0.005
100 %		-10	1778 500 017	8.7	0.000 000	0.005
100 %		0	1778 500 001	-7.9	0.000 000	-0.004
100 %		+10	1778 500 015	6.7	0.000 000	0.004
100 %		+30	1778 500 004	-4.5	0.000 000	-0.003
100 %		+40	1778 500 015	6.5	0.000 000	0.004
100 %		+50	1778 500 016	7.0	0.000 000	0.004
Batt. Endpoint	3.300	+20	1778 500 014	5.5	0.000 000	0.003



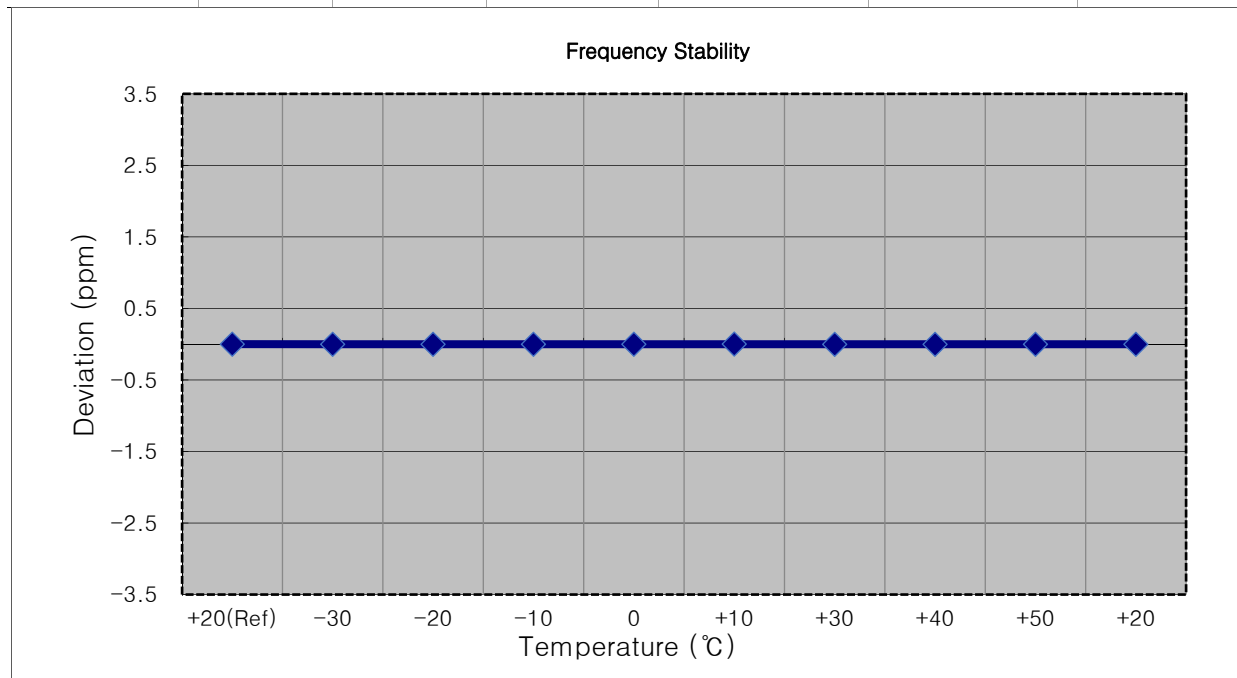
- ▣ MODE: LTE B66
- ▣ OPERATING FREQUENCY: 1777,500,000 Hz
- ▣ CHANNEL: 132647 (5 MHz)
- ▣ REFERENCE VOLTAGE: 3.880 VDC
- ▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1777 499 998	0.0	0.000 000	0.000
100 %		-30	1777 499 999	1.8	0.000 000	0.001
100 %		-20	1777 500 000	2.0	0.000 000	0.001
100 %		-10	1777 499 996	-1.8	0.000 000	-0.001
100 %		0	1777 500 001	3.0	0.000 000	0.002
100 %		+10	1777 500 000	2.3	0.000 000	0.001
100 %		+30	1777 499 996	-2.0	0.000 000	-0.001
100 %		+40	1777 499 996	-1.7	0.000 000	-0.001
100 %		+50	1777 500 000	2.0	0.000 000	0.001
Batt. Endpoint	3.300	+20	1777 499 995	-3.1	0.000 000	-0.002



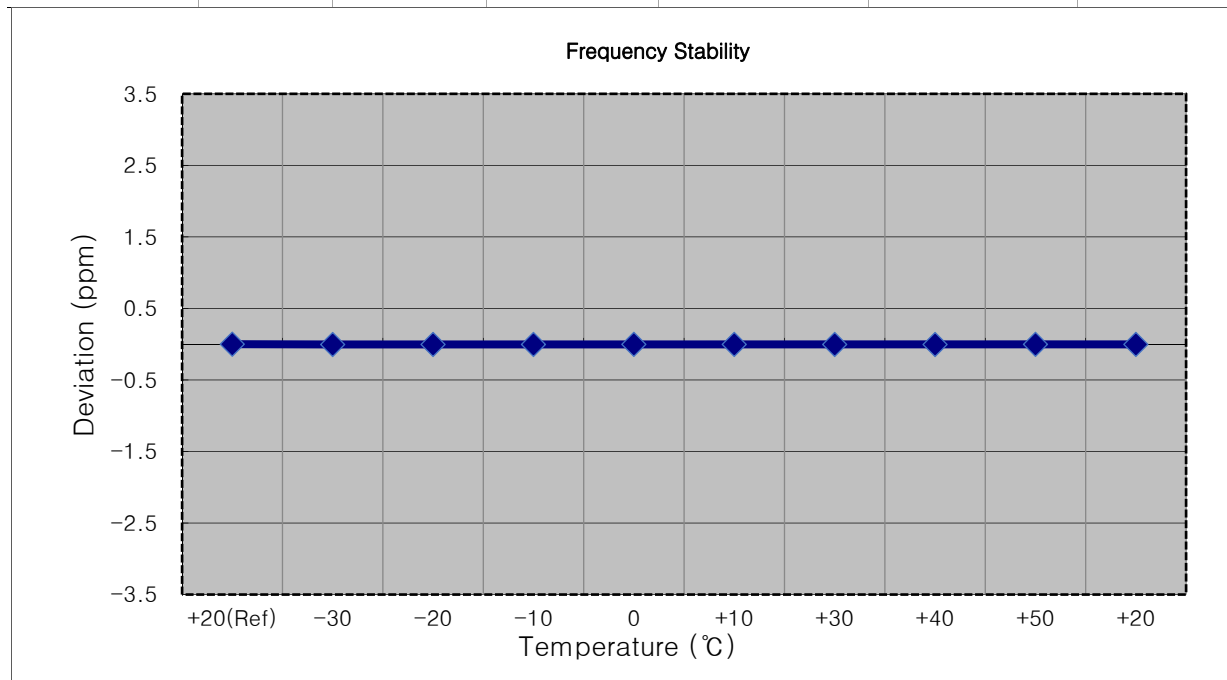
- ▣ MODE: LTE B66
- ▣ OPERATING FREQUENCY: 1775,000,000 Hz
- ▣ CHANNEL: 132622 (10 MHz)
- ▣ REFERENCE VOLTAGE: 3.880 VDC
- ▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1774 999 997	0.0	0.000 000	0.000
100 %		-30	1774 999 995	-2.6	0.000 000	-0.001
100 %		-20	1774 999 994	-3.0	0.000 000	-0.002
100 %		-10	1774 999 995	-2.5	0.000 000	-0.001
100 %		0	1774 999 995	-1.7	0.000 000	-0.001
100 %		+10	1775 000 000	3.0	0.000 000	0.002
100 %		+30	1774 999 993	-4.1	0.000 000	-0.002
100 %		+40	1774 999 994	-3.4	0.000 000	-0.002
100 %		+50	1774 999 995	-2.4	0.000 000	-0.001
Batt. Endpoint	3.300	+20	1774 999 995	-2.5	0.000 000	-0.001



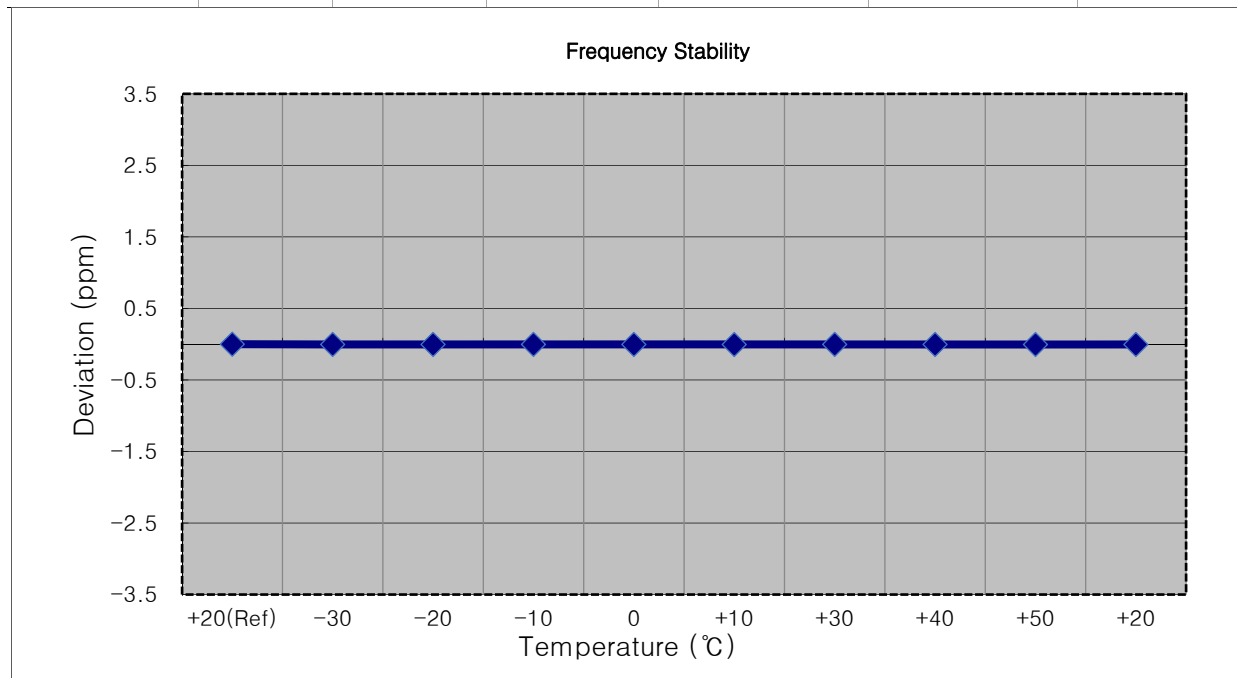
- ▣ MODE: LTE B66
- ▣ OPERATING FREQUENCY: 1772,500,000 Hz
- ▣ CHANNEL: 132597 (15 MHz)
- ▣ REFERENCE VOLTAGE: 3.880 VDC
- ▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1772 499 995	0.0	0.000 000	0.000
100 %		-30	1772 499 987	-7.9	0.000 000	-0.004
100 %		-20	1772 499 988	-7.1	0.000 000	-0.004
100 %		-10	1772 499 988	-6.3	0.000 000	-0.004
100 %		0	1772 499 990	-4.5	0.000 000	-0.003
100 %		+10	1772 499 989	-6.0	0.000 000	-0.003
100 %		+30	1772 499 988	-6.3	0.000 000	-0.004
100 %		+40	1772 499 986	-8.2	0.000 000	-0.005
100 %		+50	1772 499 990	-4.6	0.000 000	-0.003
Batt. Endpoint	3.300	+20	1772 499 989	-5.8	0.000 000	-0.003



MODE: LTE B66
 OPERATING FREQUENCY: 1770,000,000 Hz
 CHANNEL: 132572 (20 MHz)
 REFERENCE VOLTAGE: 3.880 VDC
 DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.880	+20(Ref)	1769 999 993	0.0	0.000 000	0.000
100 %		-30	1769 999 987	-6.7	0.000 000	-0.004
100 %		-20	1769 999 987	-6.3	0.000 000	-0.004
100 %		-10	1769 999 988	-5.5	0.000 000	-0.003
100 %		0	1769 999 987	-6.7	0.000 000	-0.004
100 %		+10	1769 999 986	-7.7	0.000 000	-0.004
100 %		+30	1769 999 988	-5.2	0.000 000	-0.003
100 %		+40	1769 999 986	-7.2	0.000 000	-0.004
100 %		+50	1769 999 986	-7.8	0.000 000	-0.004
Batt. Endpoint	3.300	+20	1769 999 986	-7.4	0.000 000	-0.004



10. TEST DATA

10.1 UPLINK CARRIER AGGREGATION

Test Note

1. All tests were evaluated for the two bands using various combinations of RB size, RB offset, modulation, and channel bandwidth.
2. All modes of operation were investigated and the worst case configuration results are reported in this section.
Please refer to the table below.
3. The worst case is reported with the modulations, RB sizes and offsets.
 - 5A(Main1)-66A(Main1)
(PCC - Modulation: QPSK, RB: 1, RB Offset: 0, SCC - Modulation: QPSK, RB: 1, RB Offset: 0)
 - 12A(Main1)-66A(Main1)
(PCC - Modulation: QPSK, RB: 1, RB Offset: 0, SCC - Modulation: QPSK, RB: 1, RB Offset: 0)

Radiated Spurious Emissions

PCC	SCC	PCC		SCC	
		BW(MHz)	Channel	BW(MHz)	Channel
5A(Main1)	66A(Main1)	5	20425	5	132647
12A(Main1)	66A(Main1)	10	23095	5	132647

10.1.1 RADIATED SPURIOUS EMISSIONS

5A(Main1) (PCC)- 66A(Main1) (SCC)

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)	Limit (dBm)
1 653.00	-42.22	9.58	-66.98	2.02	V	-59.42	-13.00
	-43.63		-68.39		H	-60.83	-13.00
2 479.50	-42.80	10.34	-63.42	2.55	V	-55.63	-13.00
	-42.40		-63.02		H	-55.23	-13.00
3 306.00	-44.14	12.18	-63.19	2.97	V	-53.97	-13.00
	-43.85		-62.90		H	-53.68	-13.00

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)	Limit (dBm)
3 555.00	-44.32	12.34	-61.78	3.09	V	-52.53	-13.00
	-43.35		-60.81		H	-51.56	-13.00
5 332.50	-45.29	13.08	-58.94	3.77	V	-49.63	-13.00
	-44.31		-57.96		H	-48.65	-13.00
7 110.00	-45.17	10.86	-49.81	4.48	V	-43.43	-13.00
	-45.03		-49.67		H	-43.29	-13.00

12A(Main1)(PCC)- 66A(Main1)(SCC)

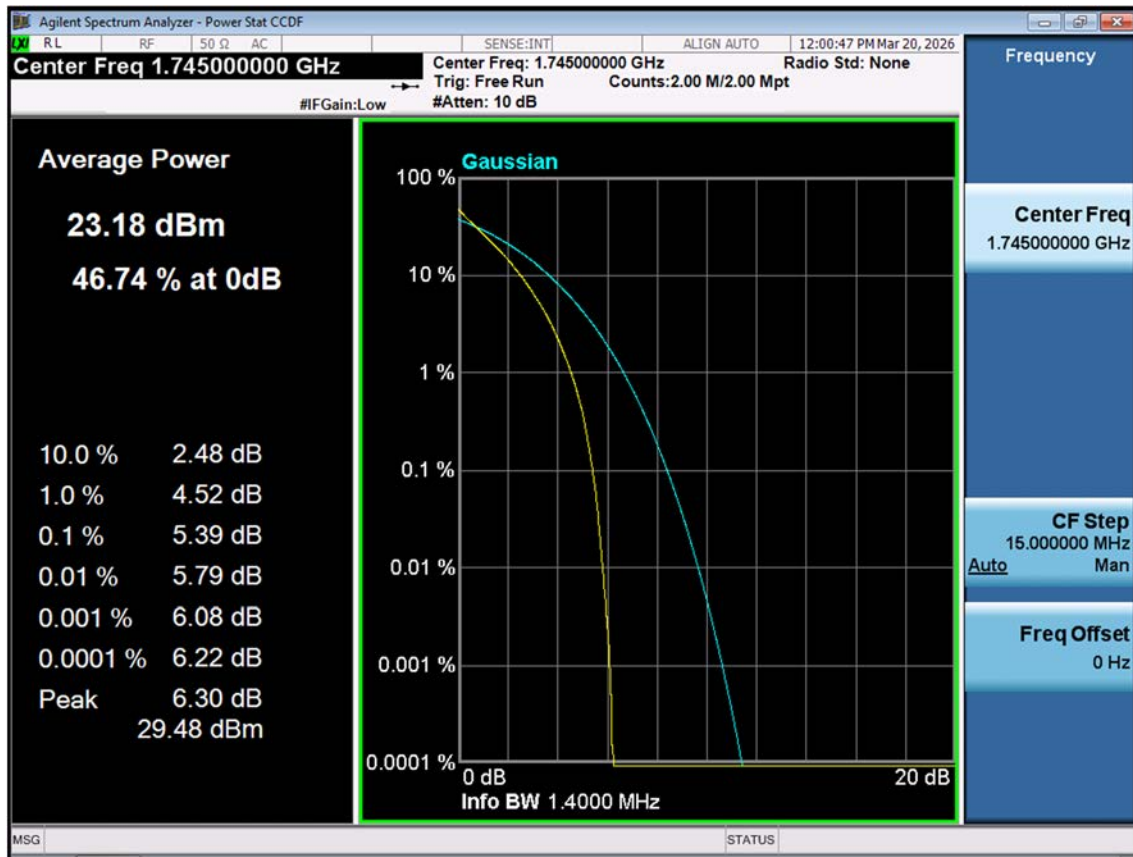
Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)	Limit (dBm)
1 415.00	-39.87	7.71	-62.29	1.87	V	-56.45	-13.00
	-38.52		-60.94		H	-55.10	-13.00
2 122.50	-42.75	9.41	-63.87	2.31	V	-56.77	-13.00
	-41.02		-62.14		H	-55.04	-13.00
2 830.00	-42.82	10.79	-61.57	2.70	V	-53.48	-13.00
	-42.93		-61.68		H	-53.59	-13.00

Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBi)	Substitute Level [dBm]	C.L	Pol.	Result (dBm)	Limit (dBm)
3 555.00	-42.99	12.34	-60.45	3.09	V	-51.20	-13.00
	-43.79		-61.25		H	-52.00	-13.00
5 332.50	-43.78	13.08	-57.43	3.77	V	-48.12	-13.00
	-44.76		-58.41		H	-49.10	-13.00
7 110.00	-45.13	10.86	-49.77	4.48	V	-43.39	-13.00
	-44.83		-49.47		H	-43.09	-13.00

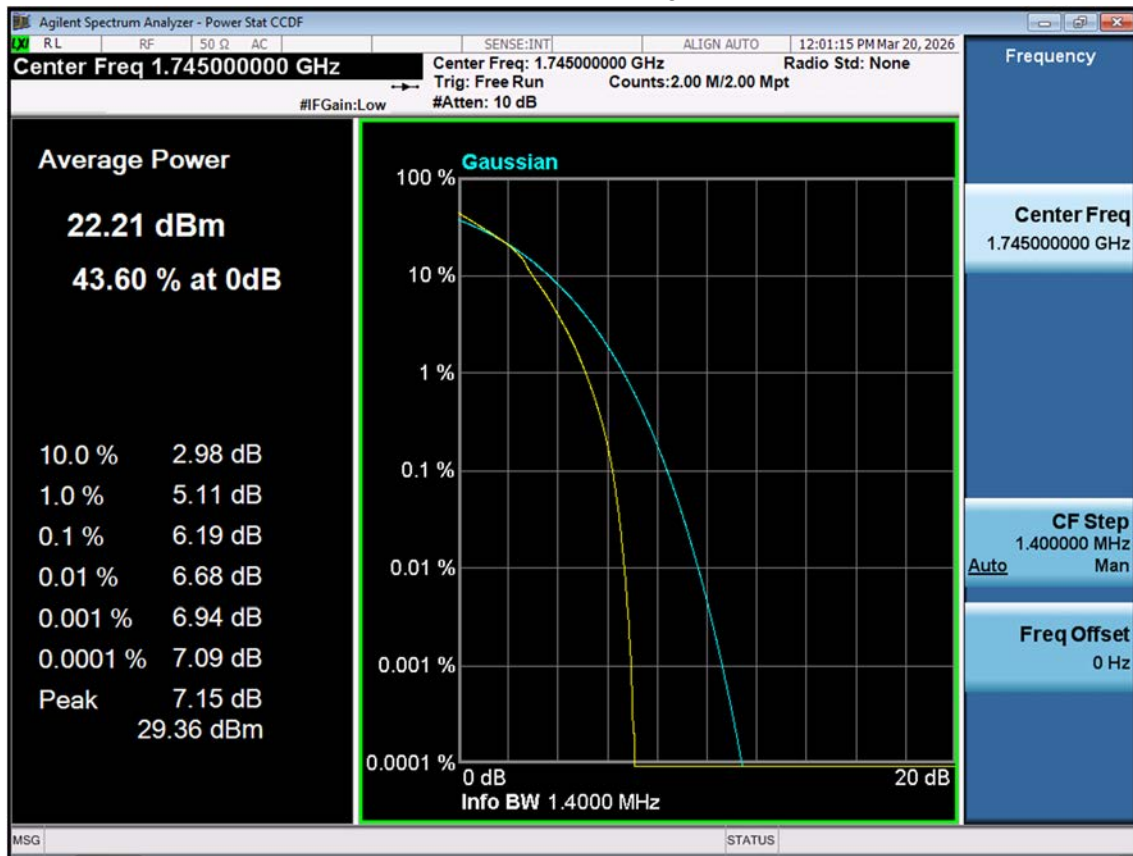
11. TEST PLOTS(Main 1 ANT)

11.1 PEAK-TO-AVERAGE RATIO

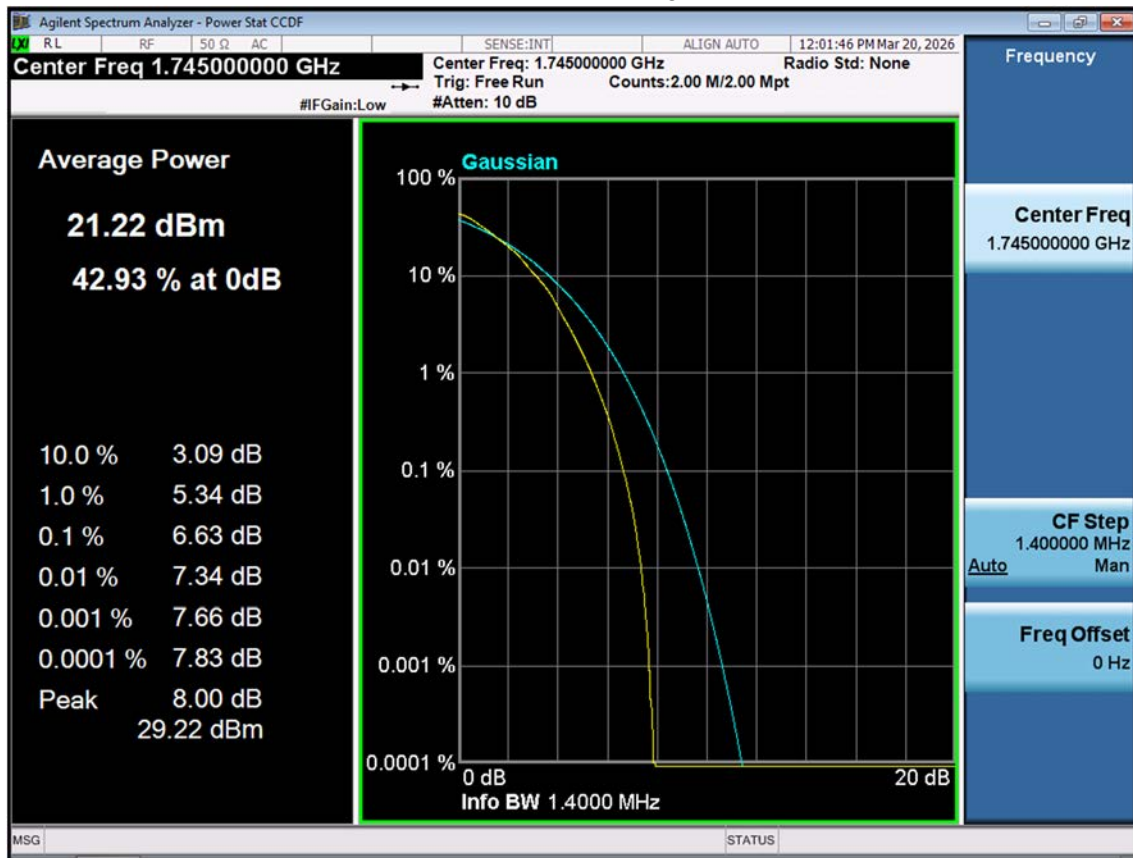
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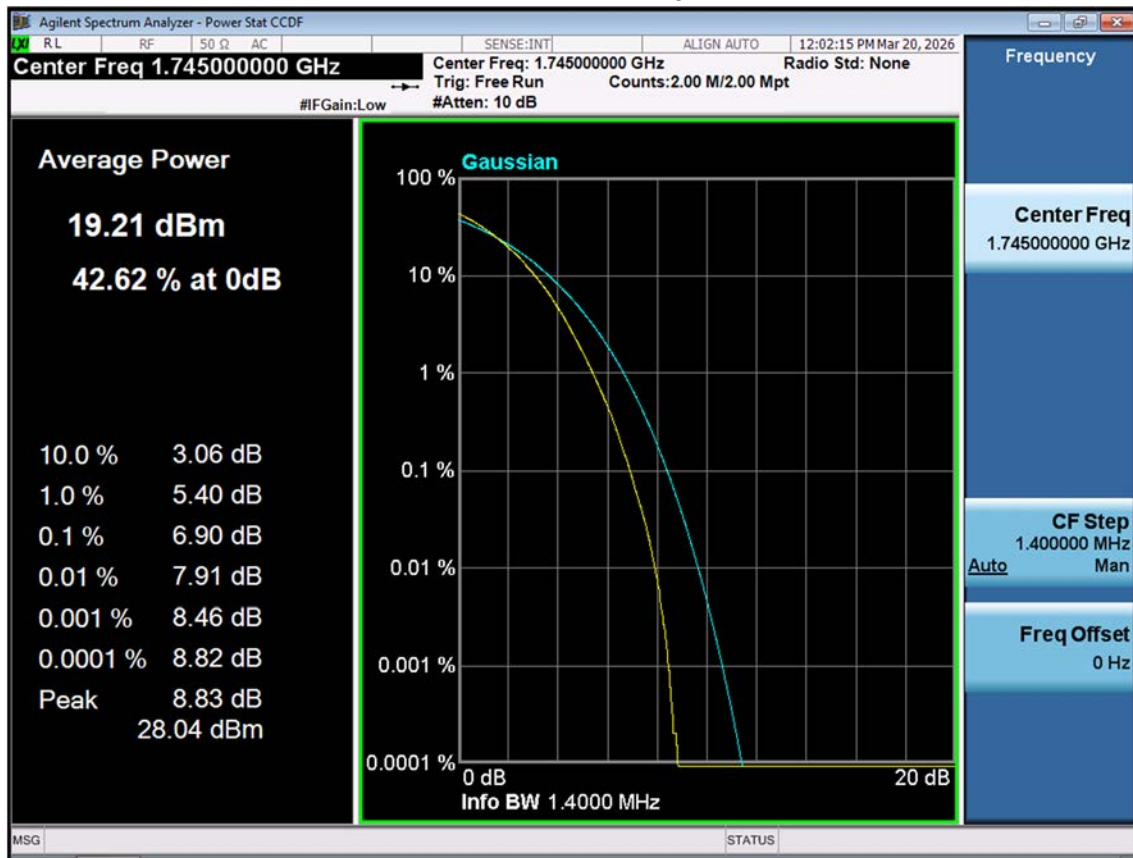
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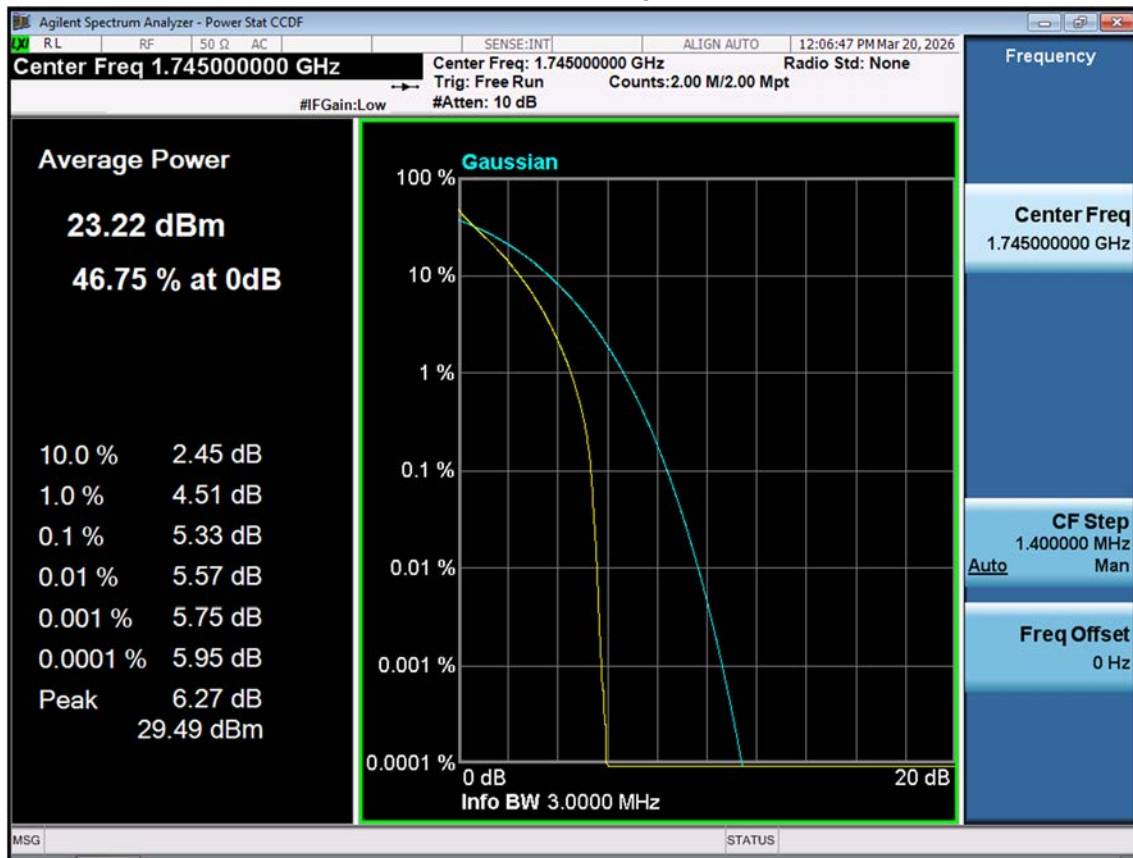
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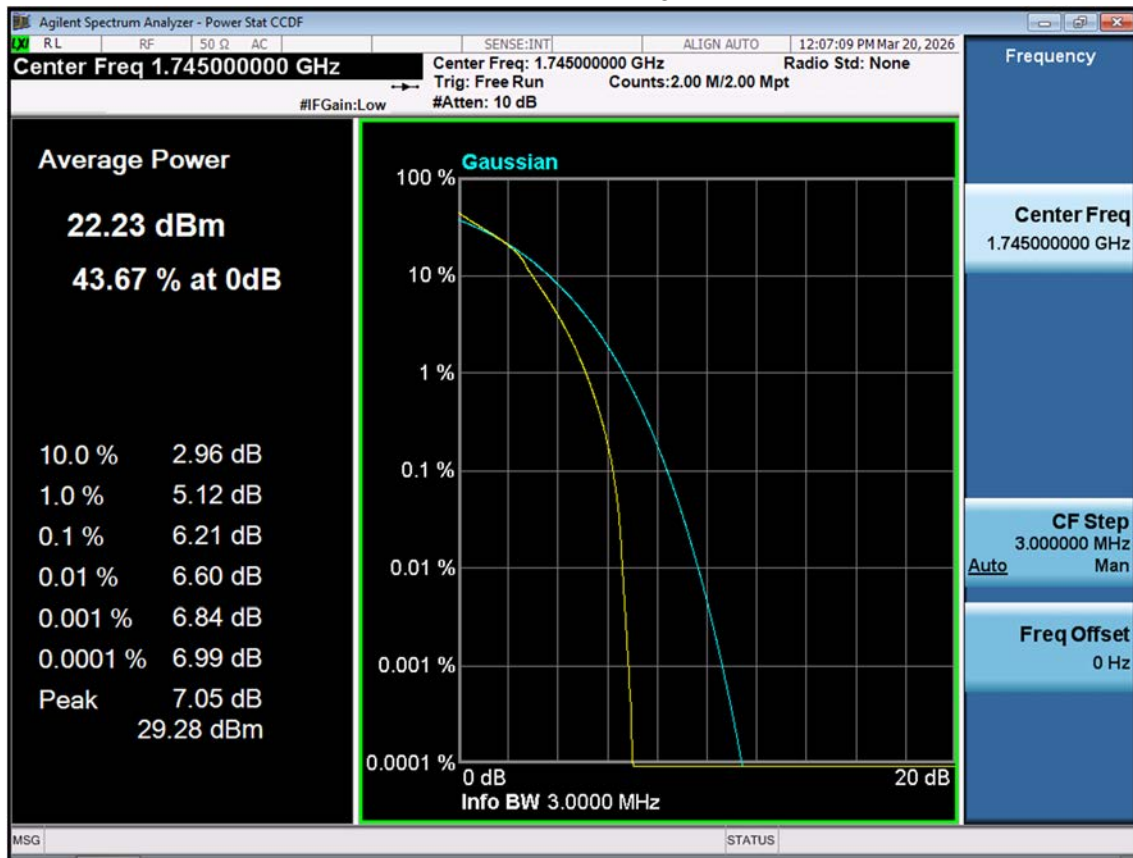
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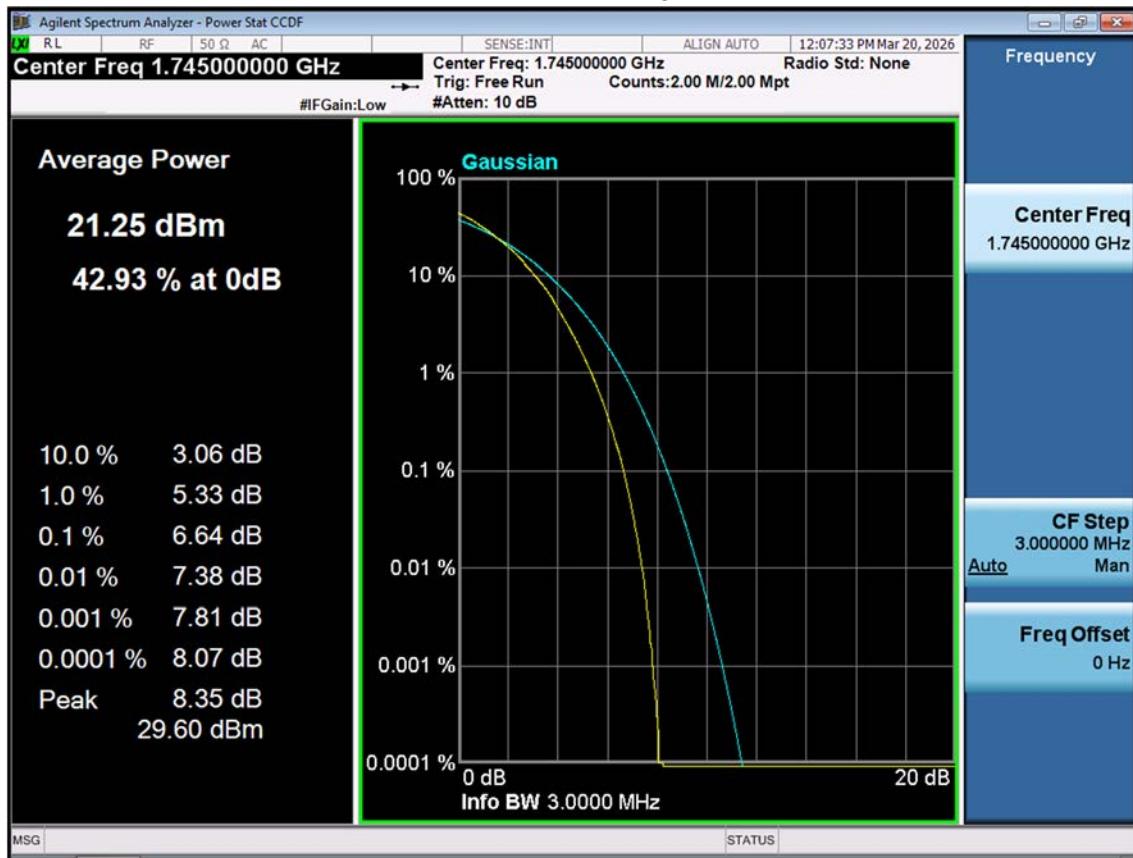
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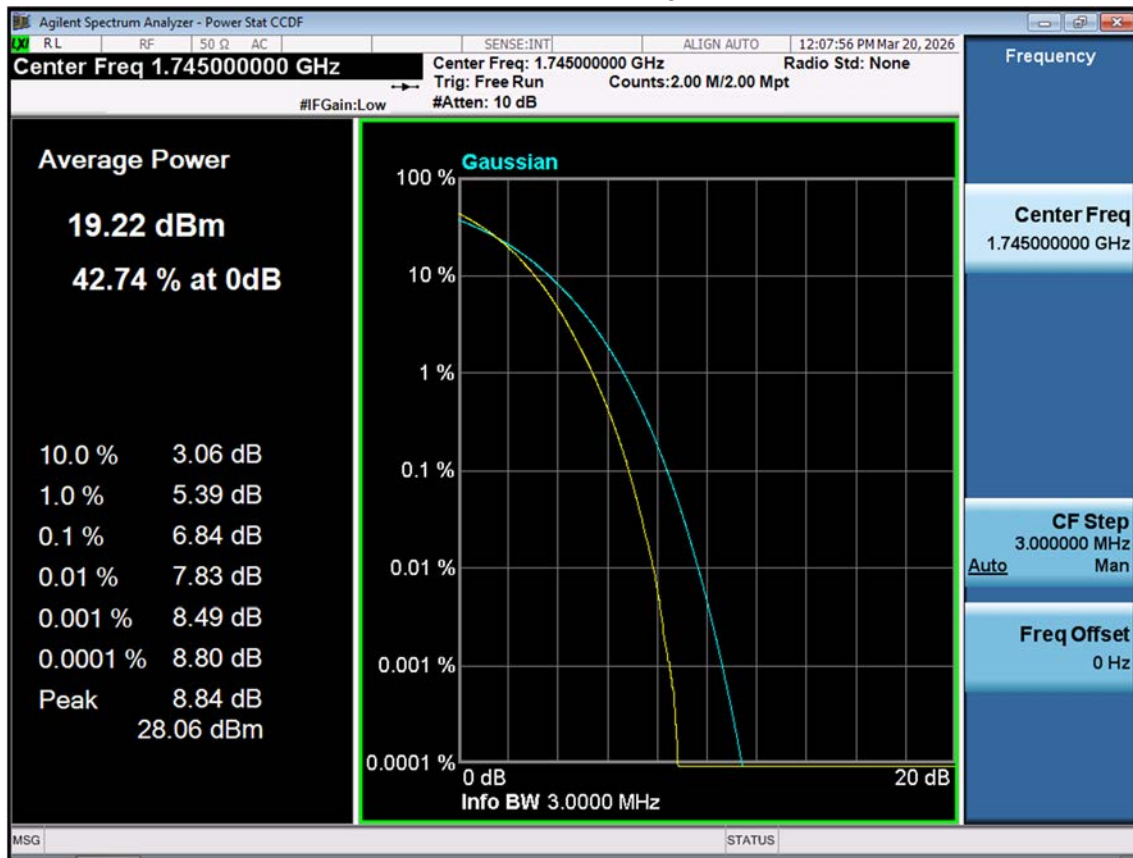
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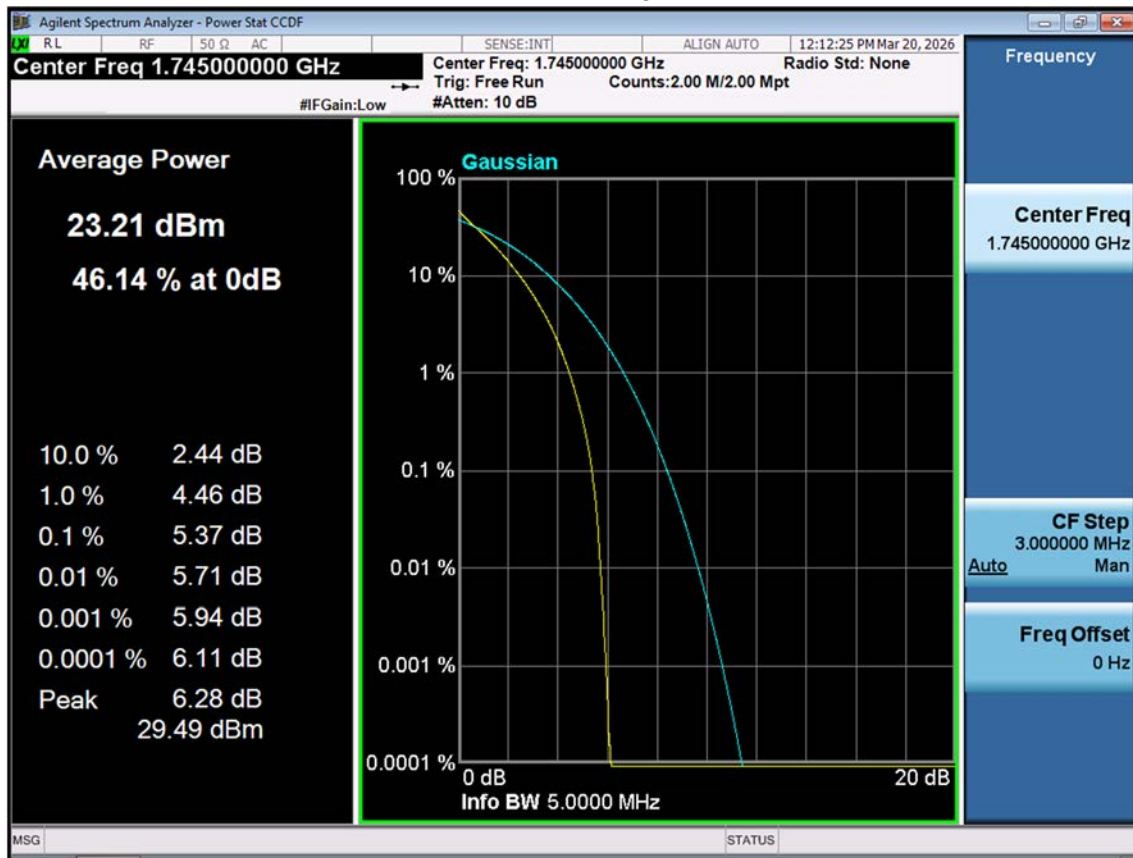
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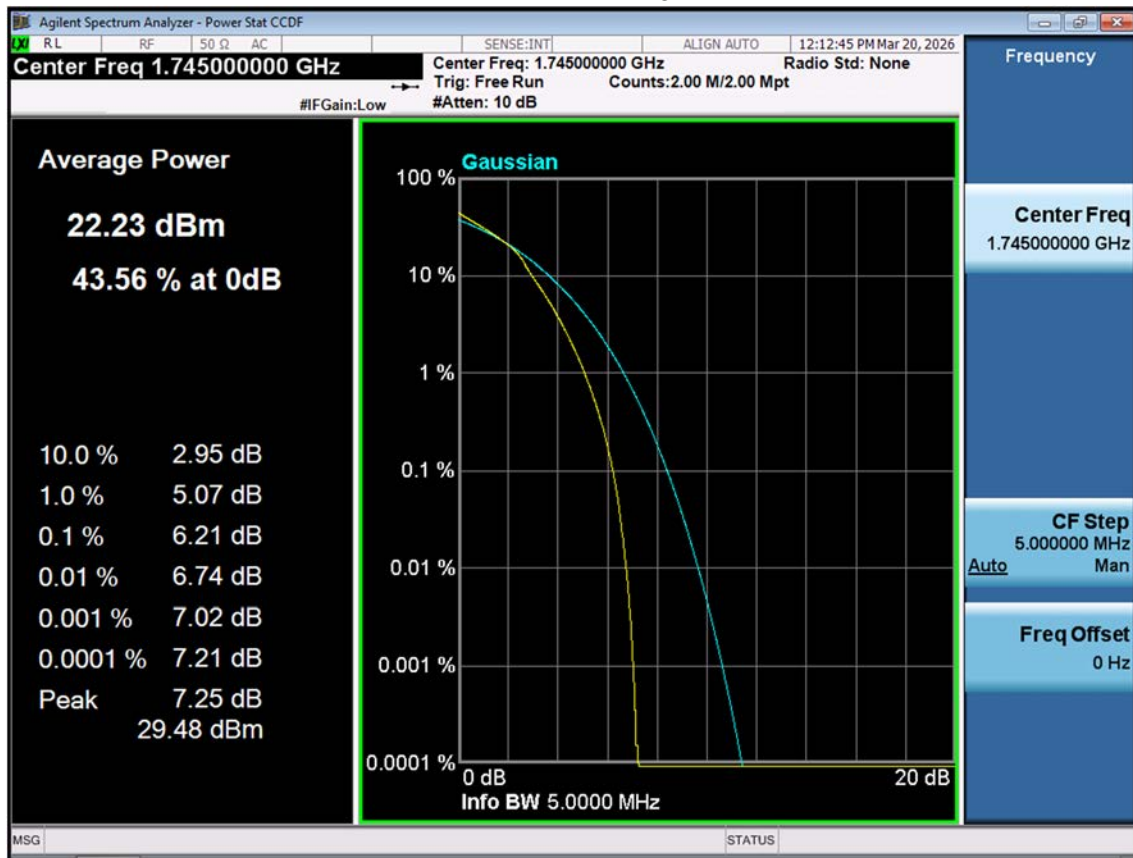
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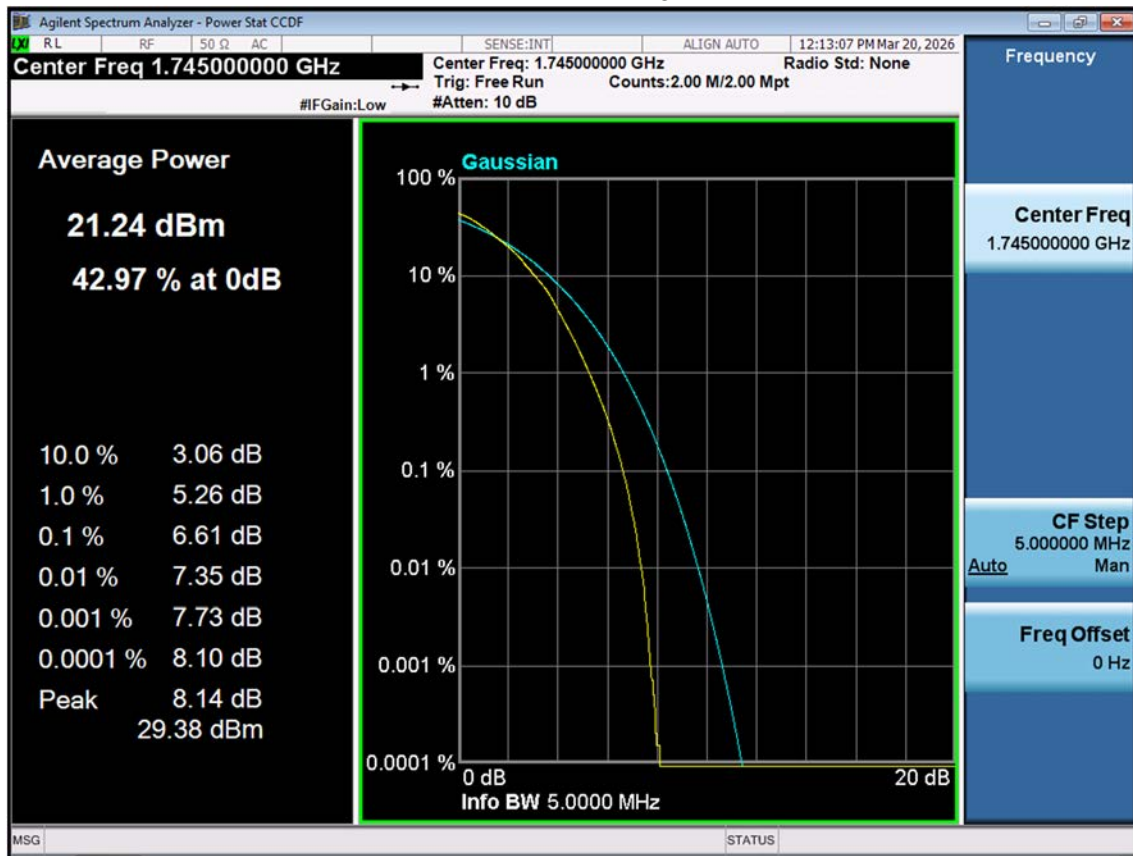
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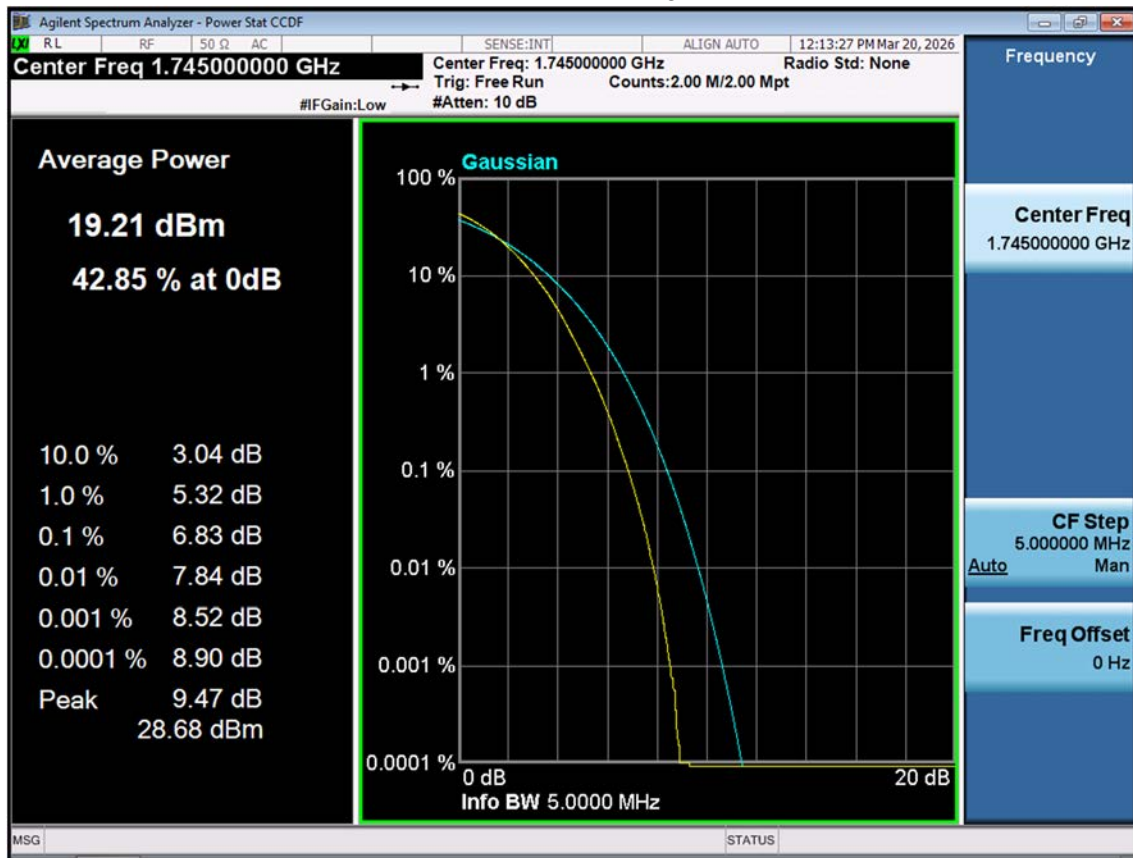
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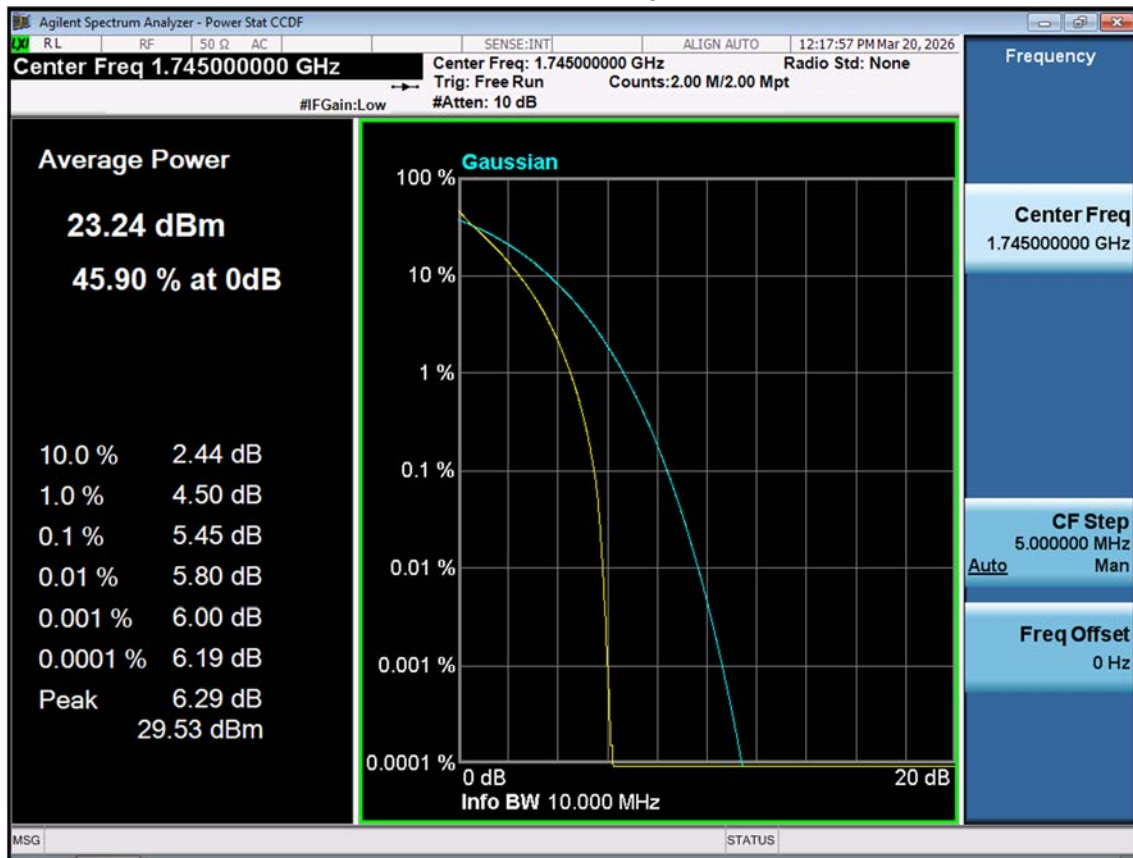
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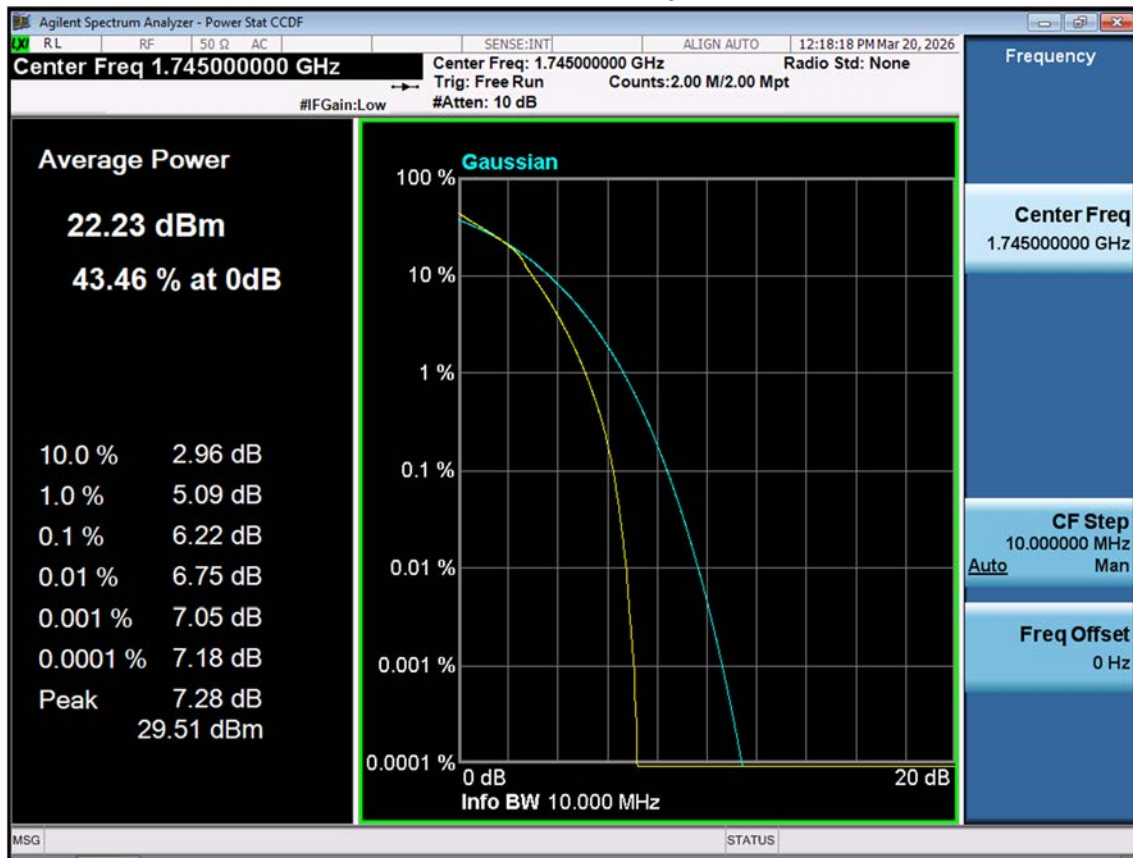
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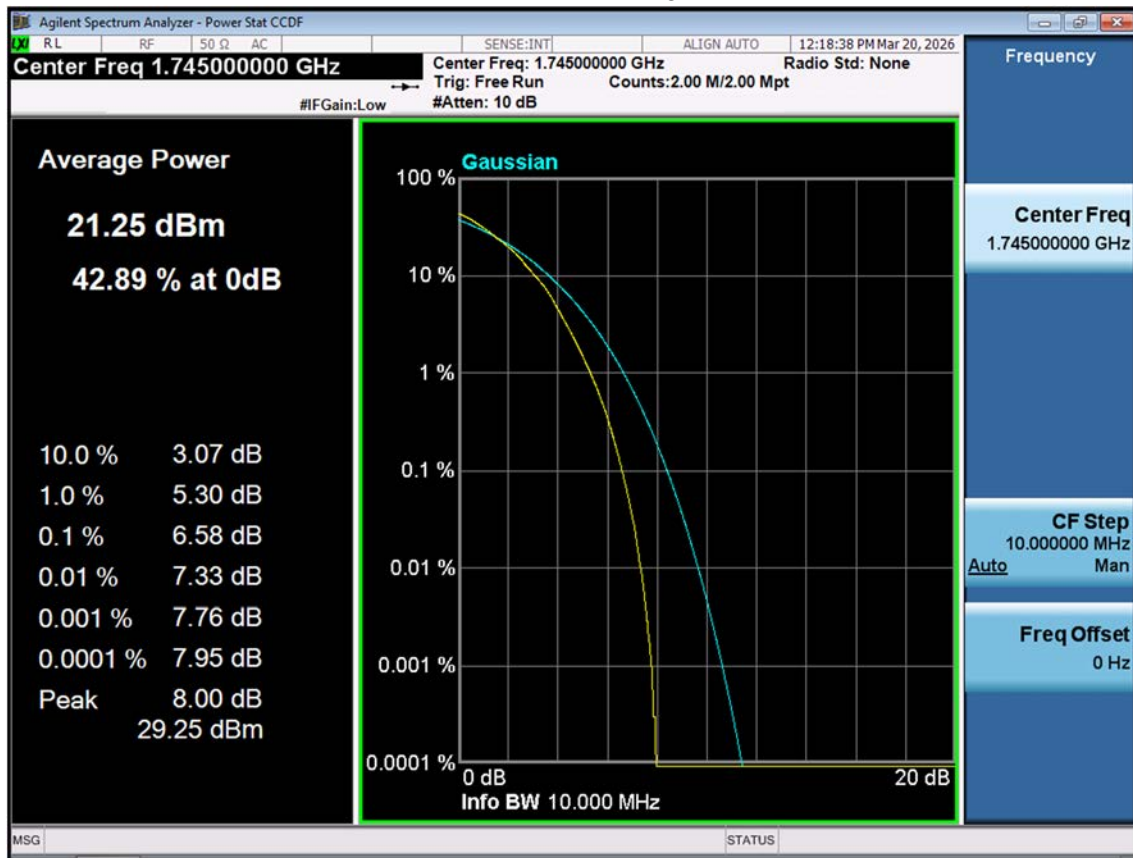
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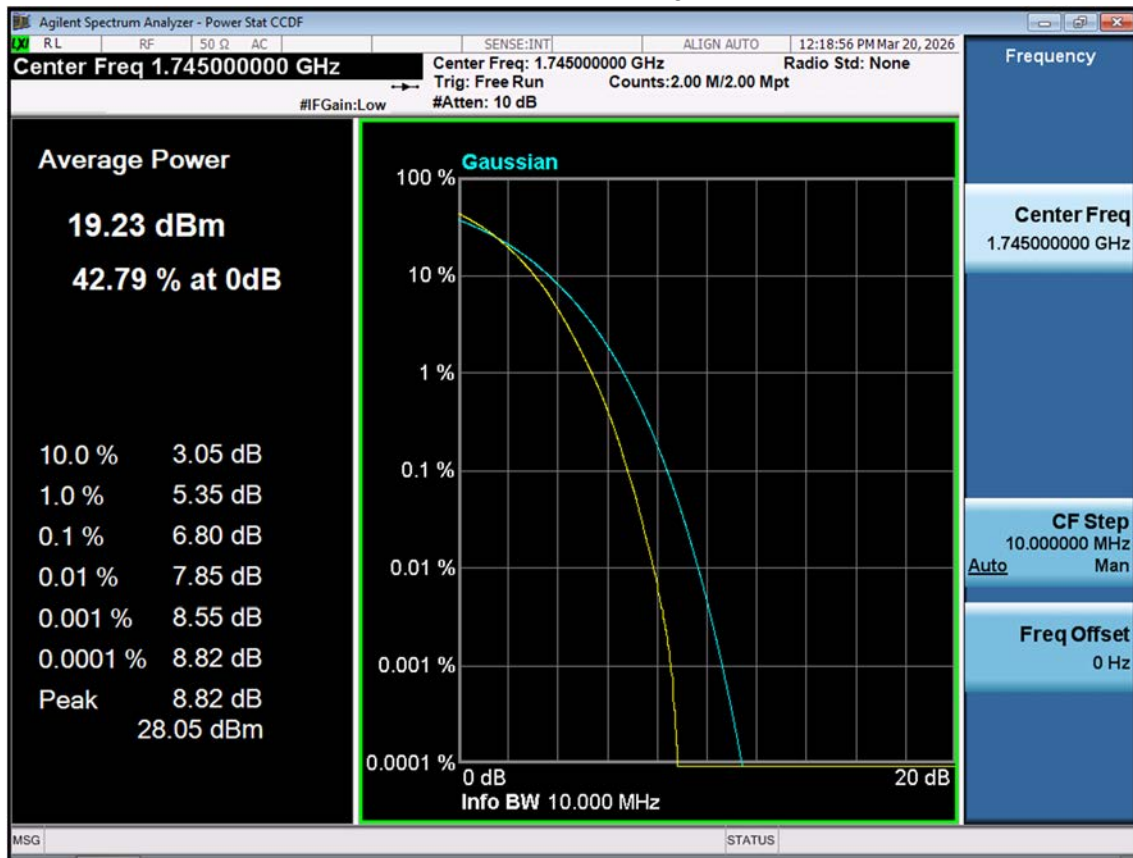
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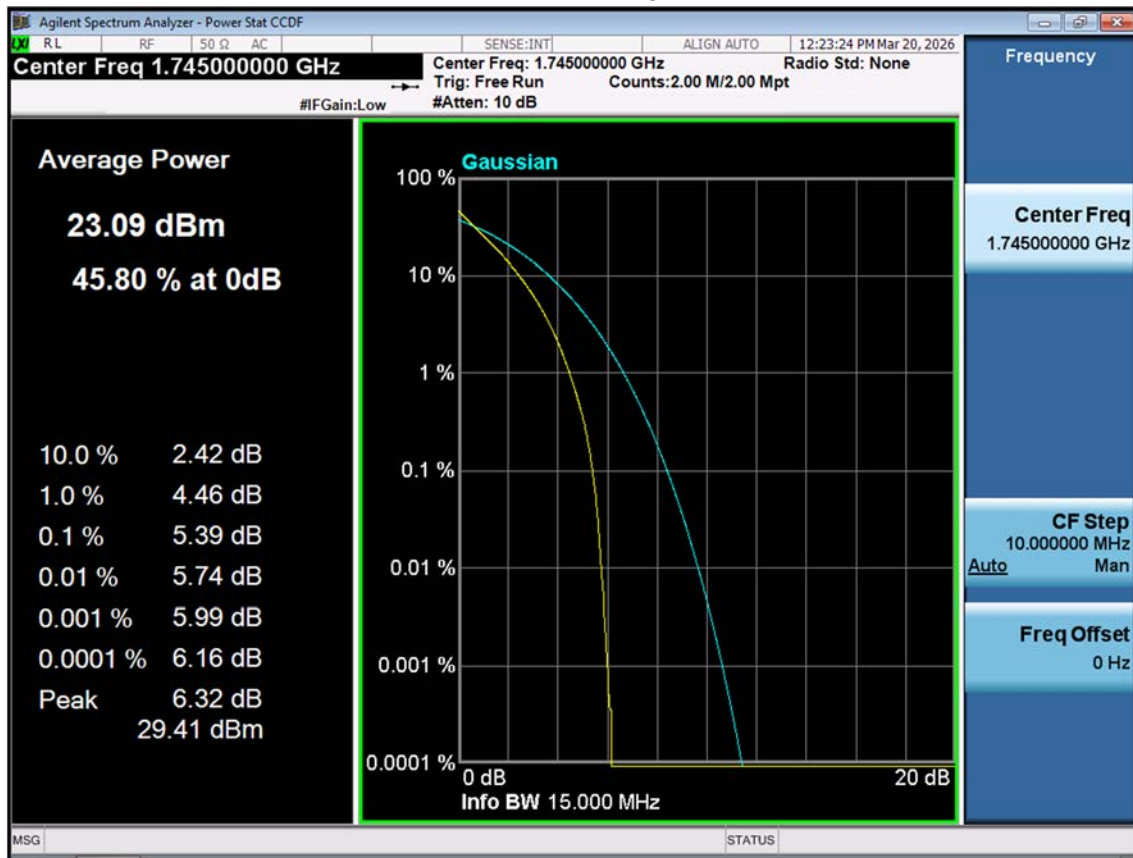
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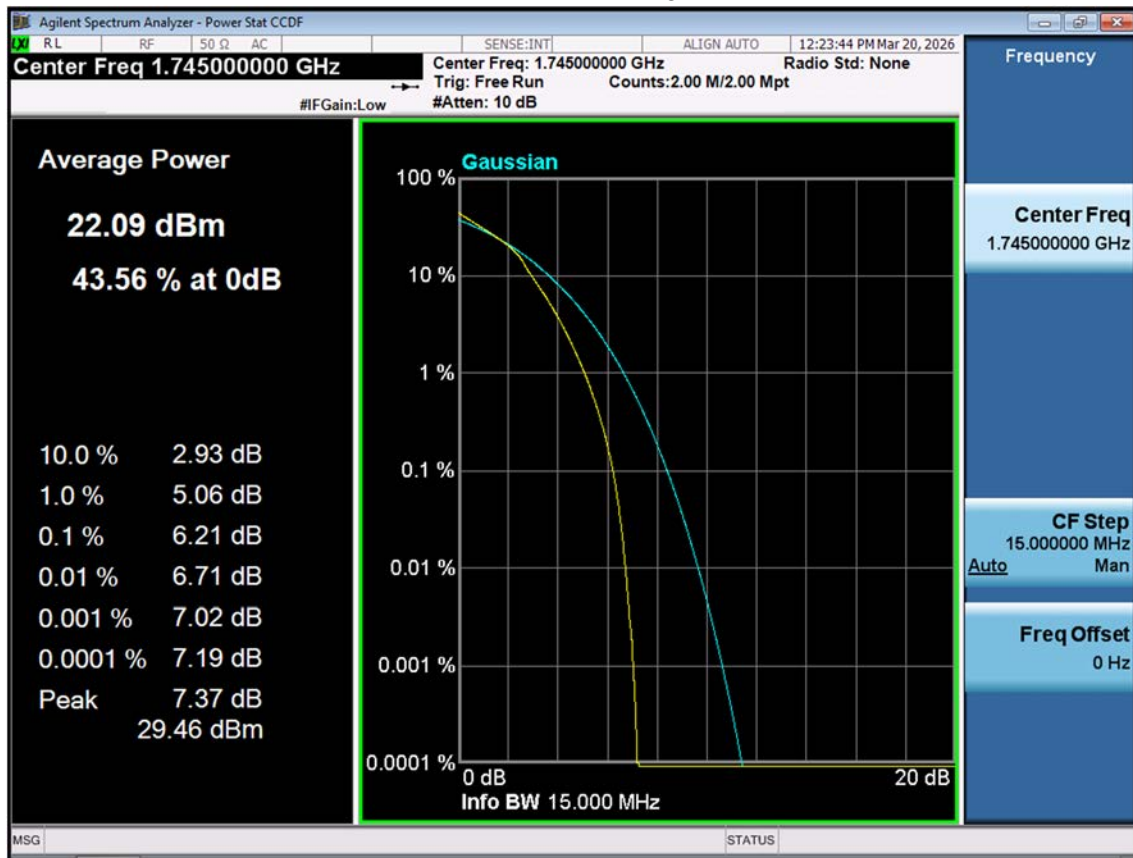
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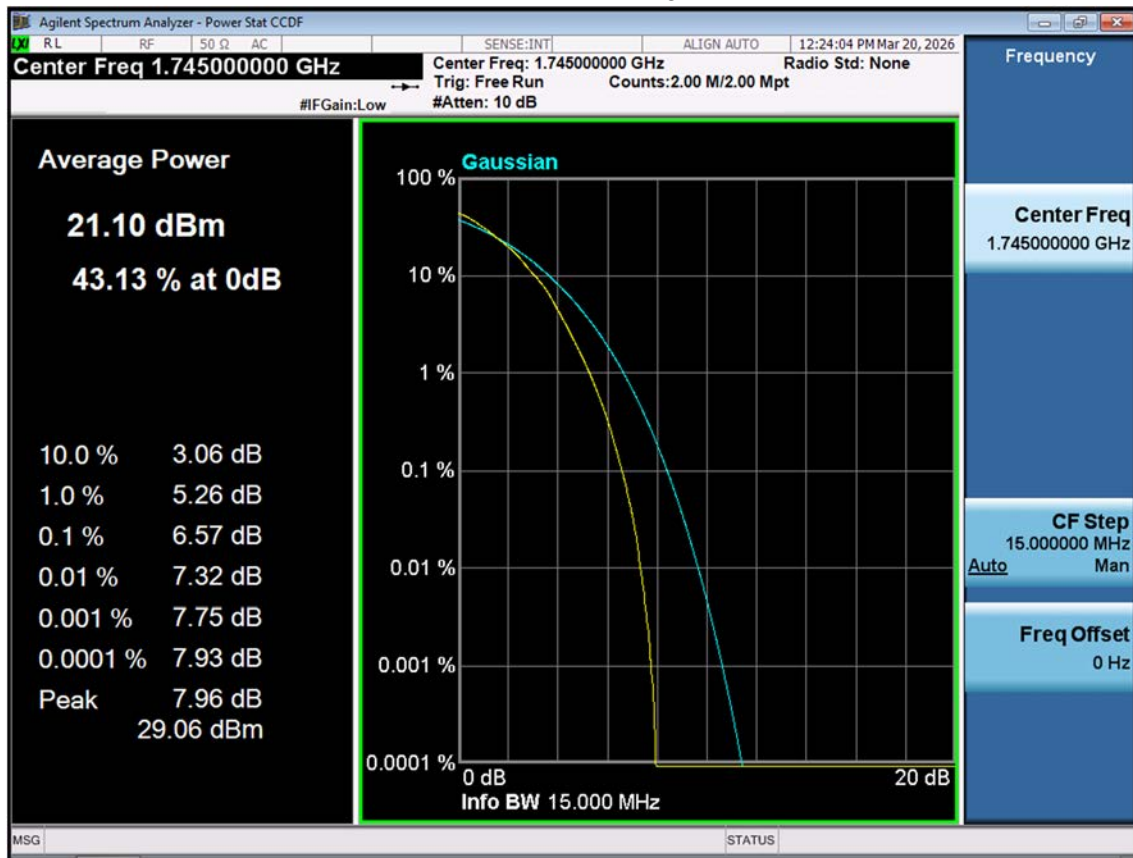
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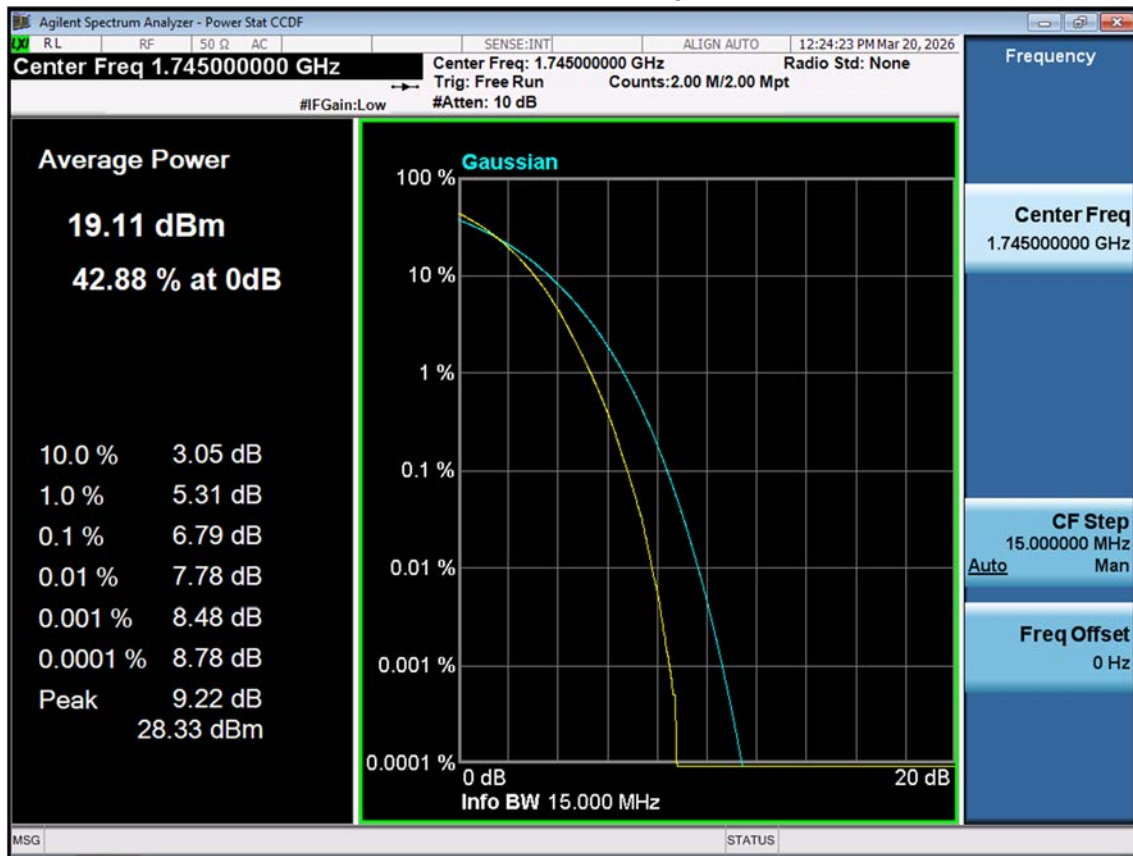
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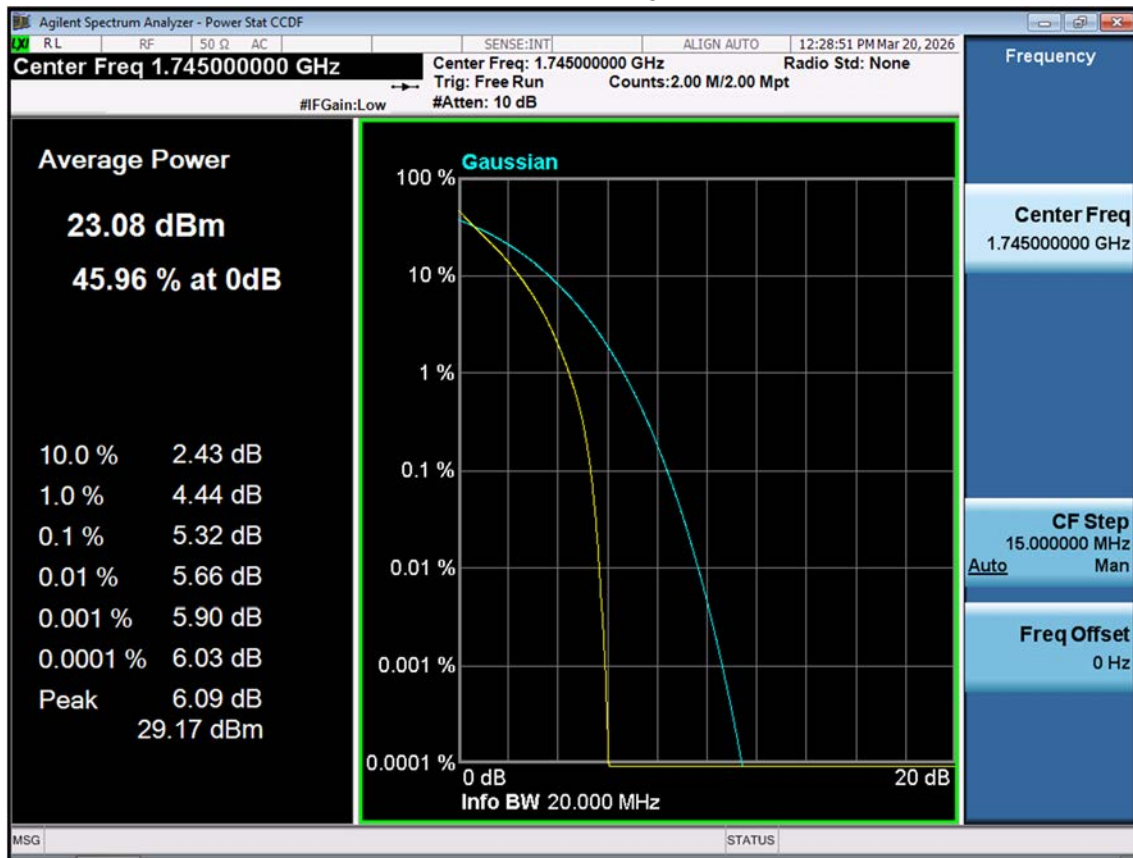
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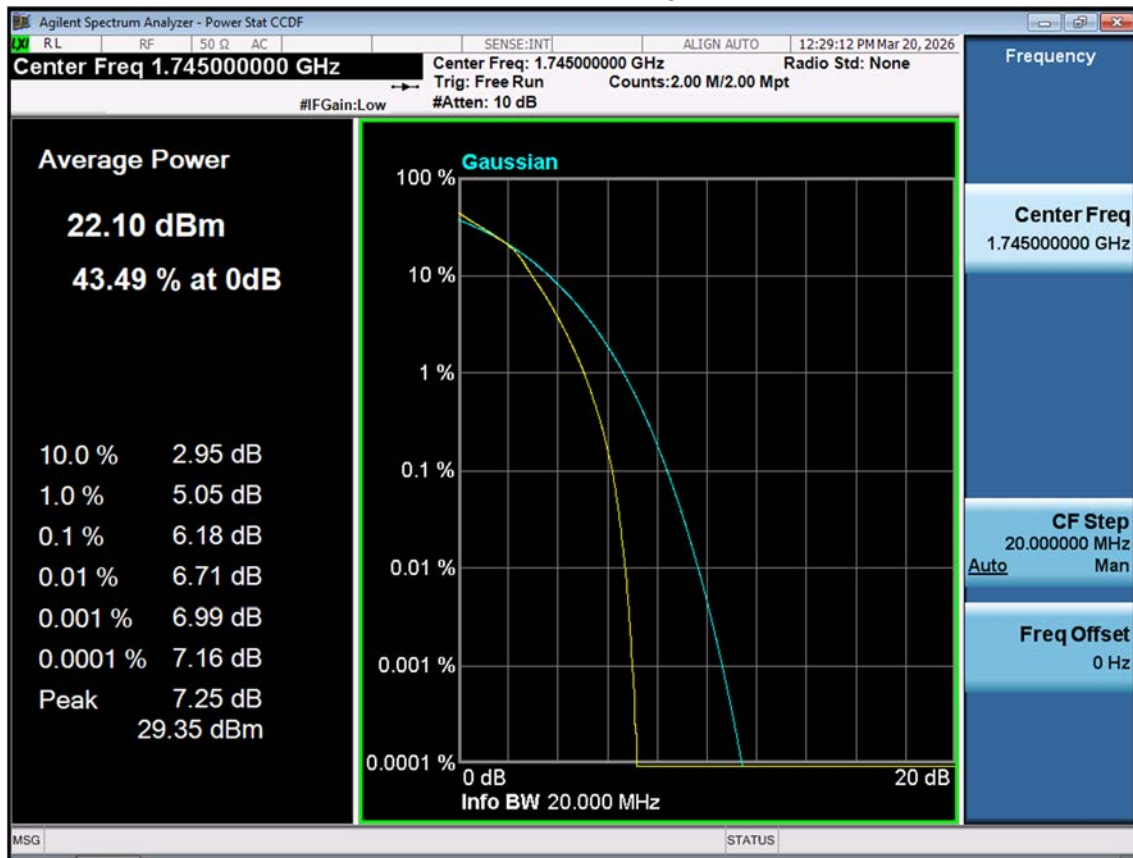
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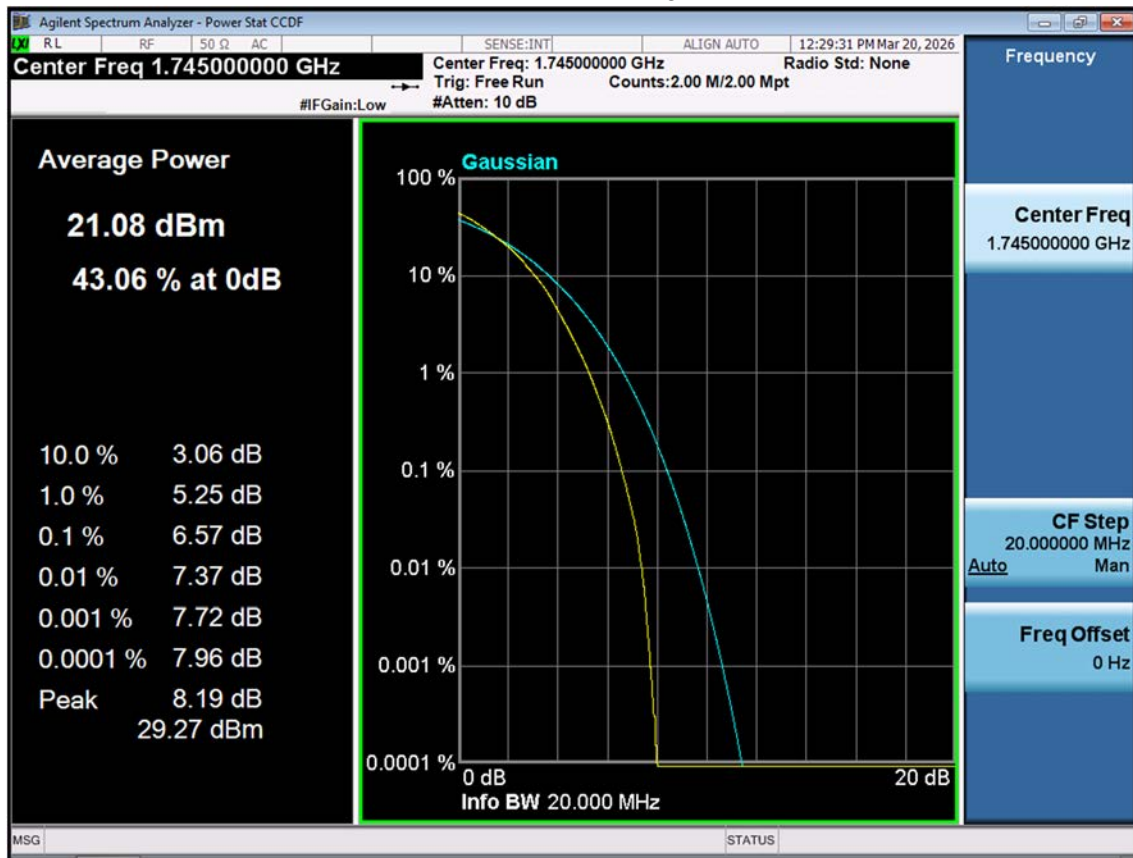
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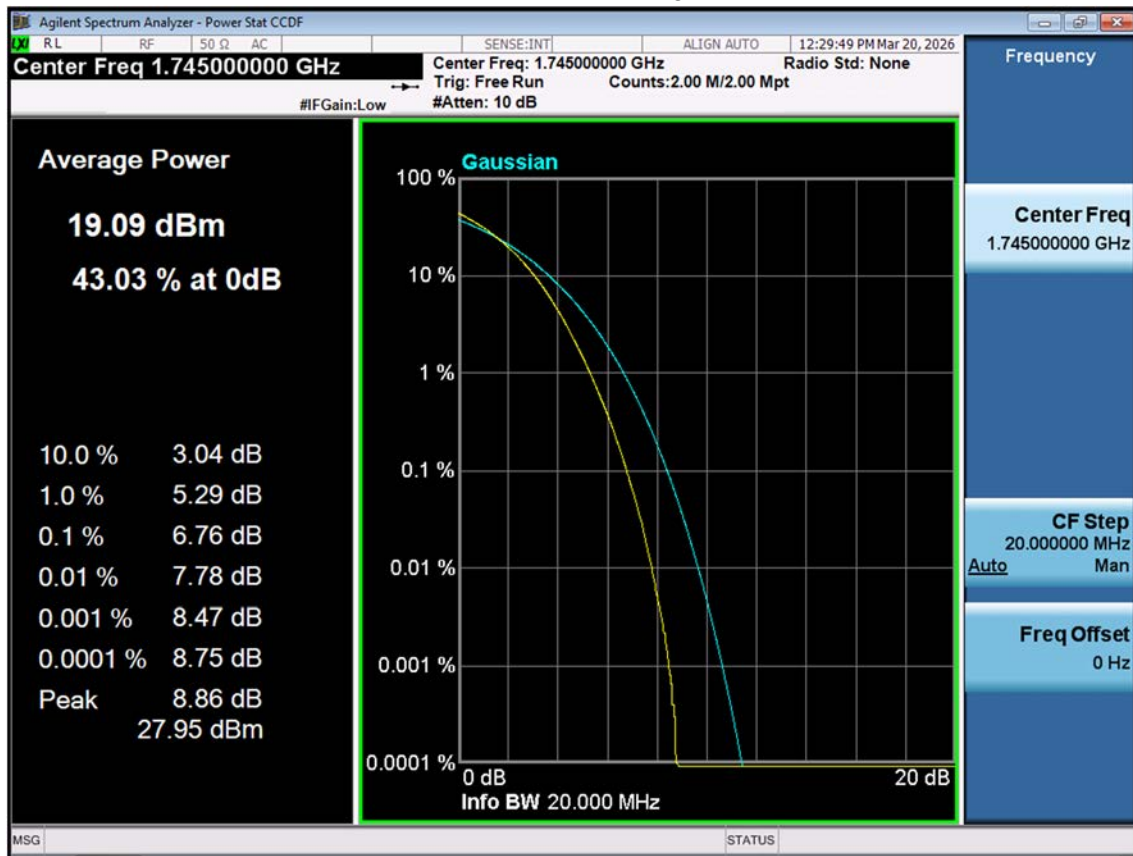
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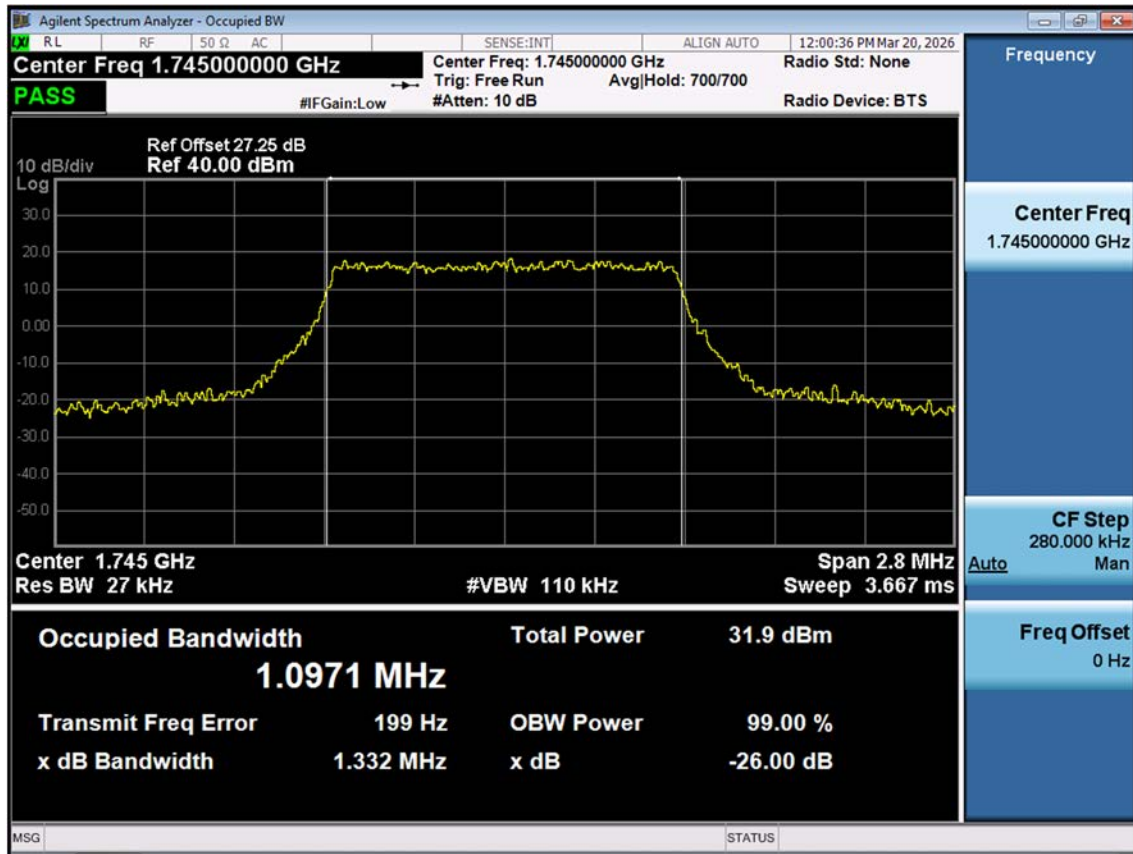


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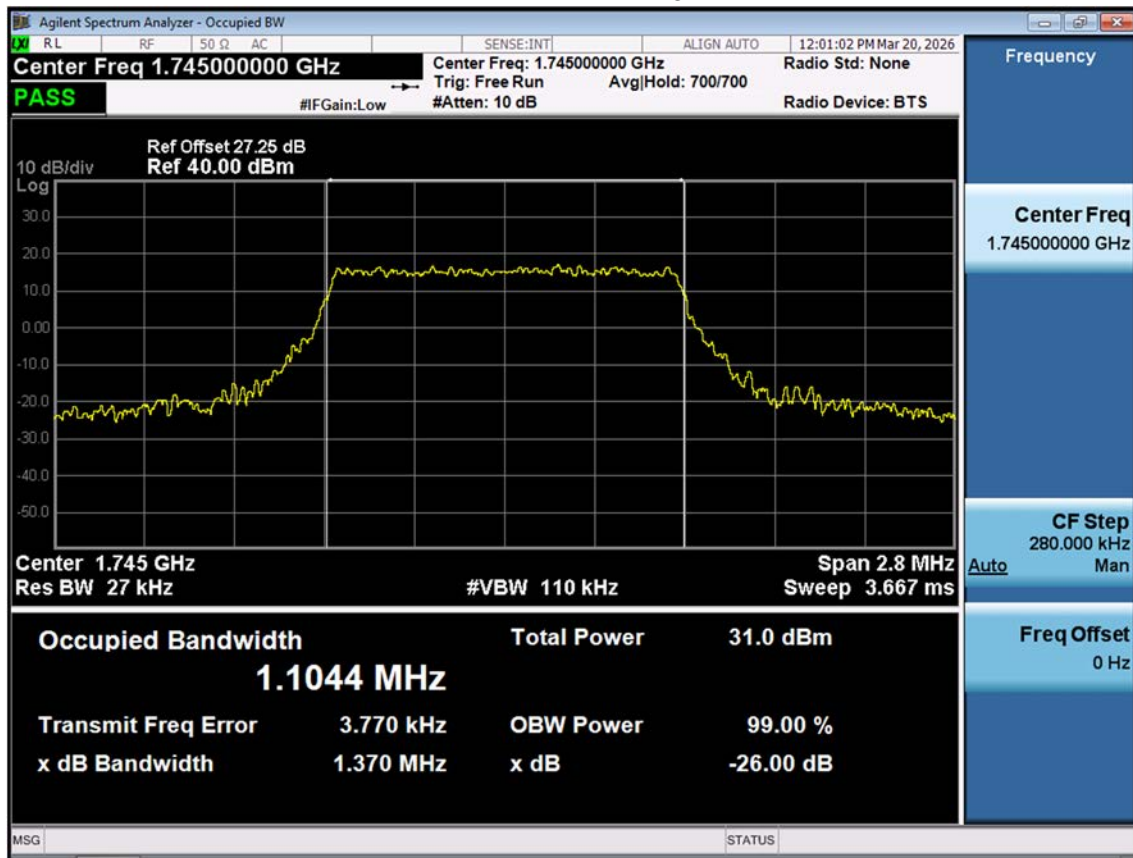


11.2 OCCUPIED BANDWIDTH

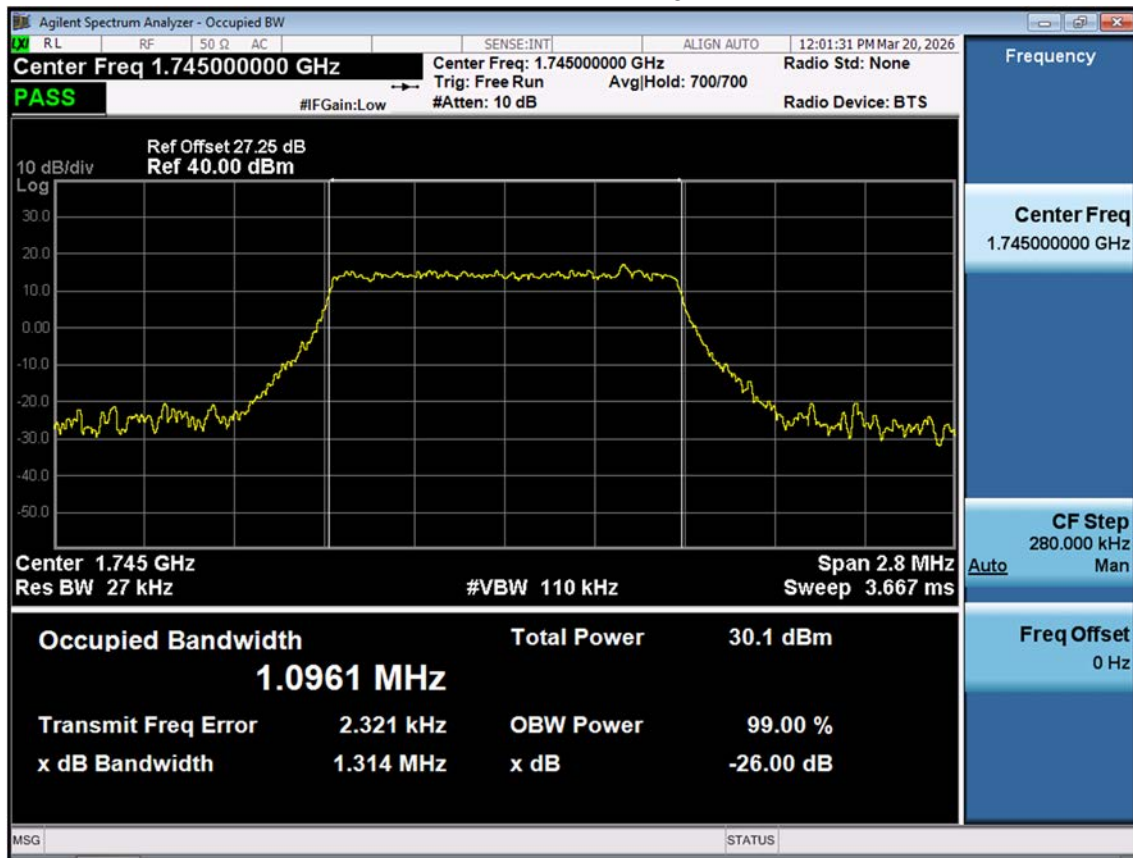
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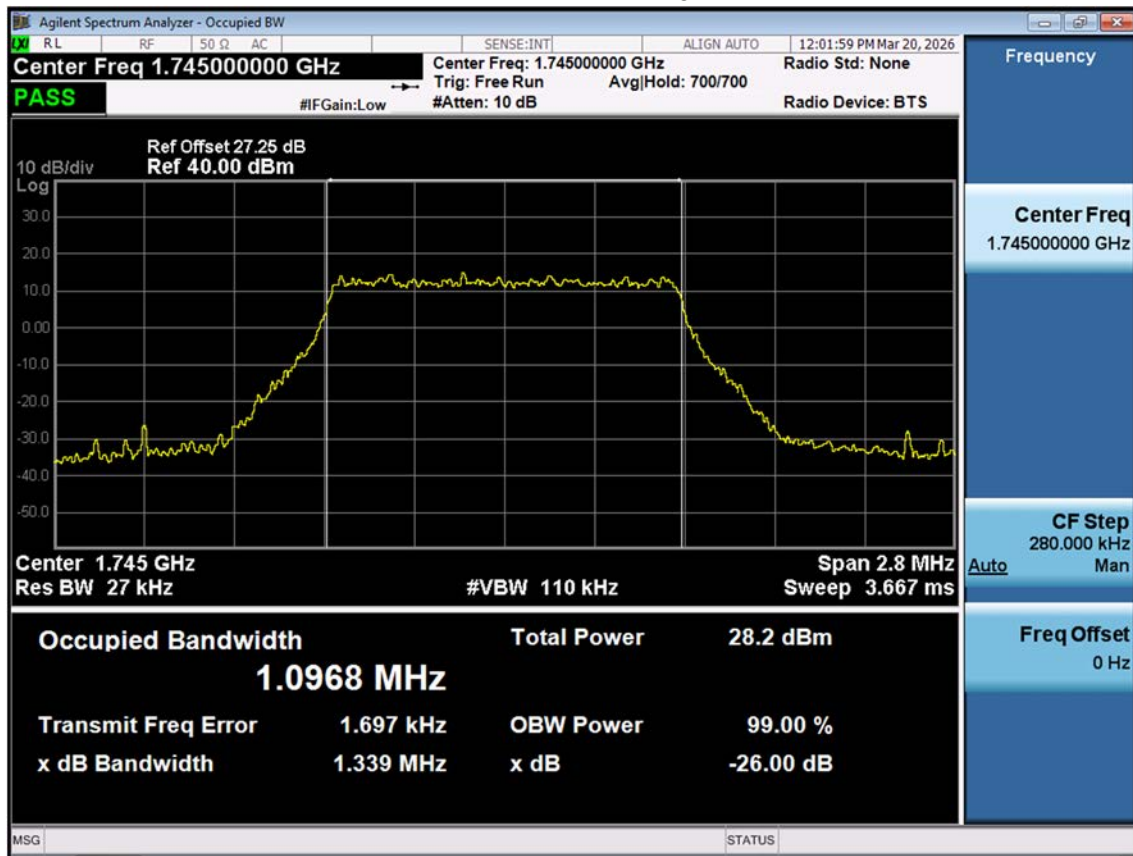
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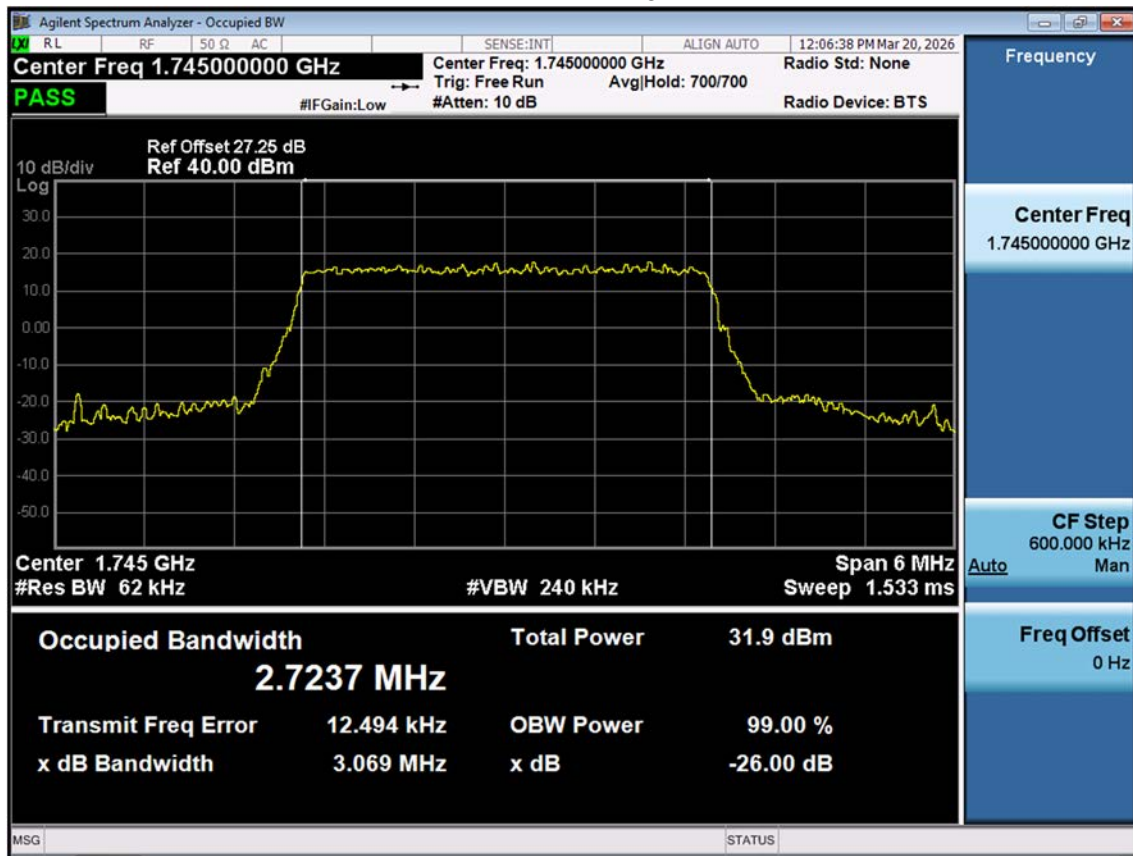
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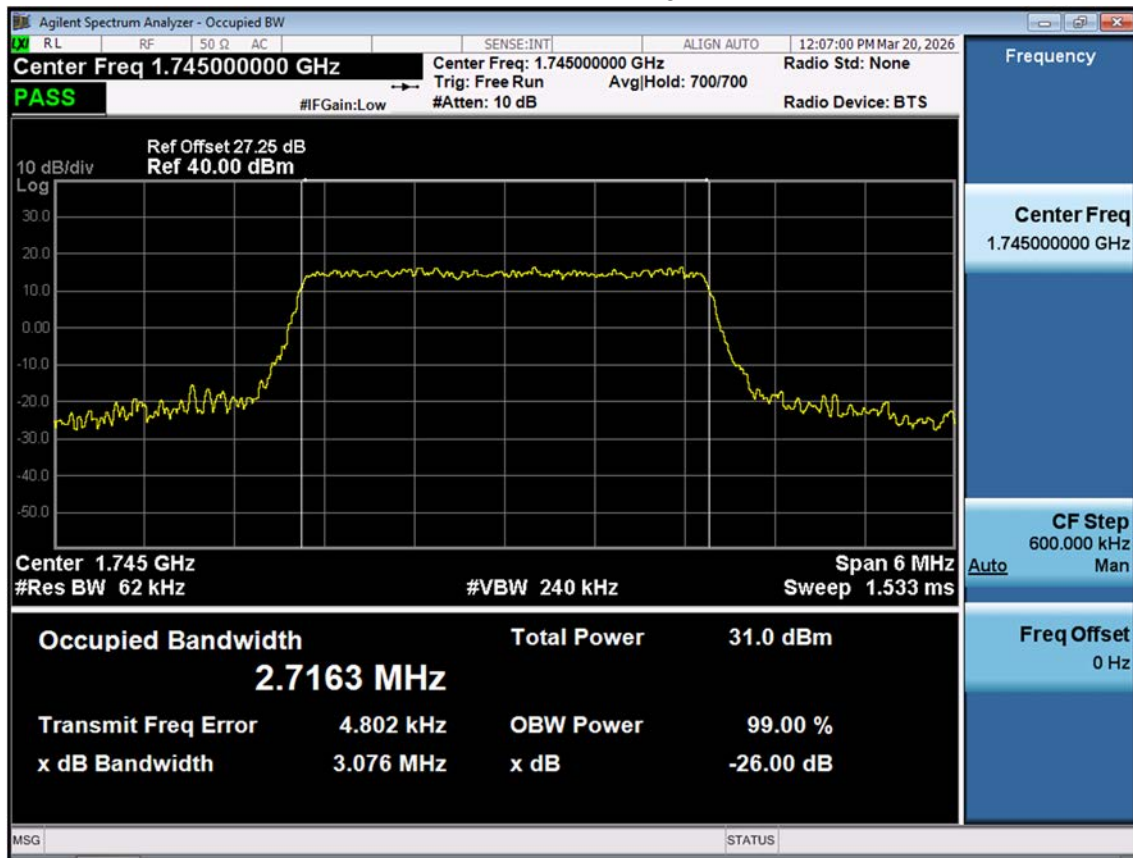
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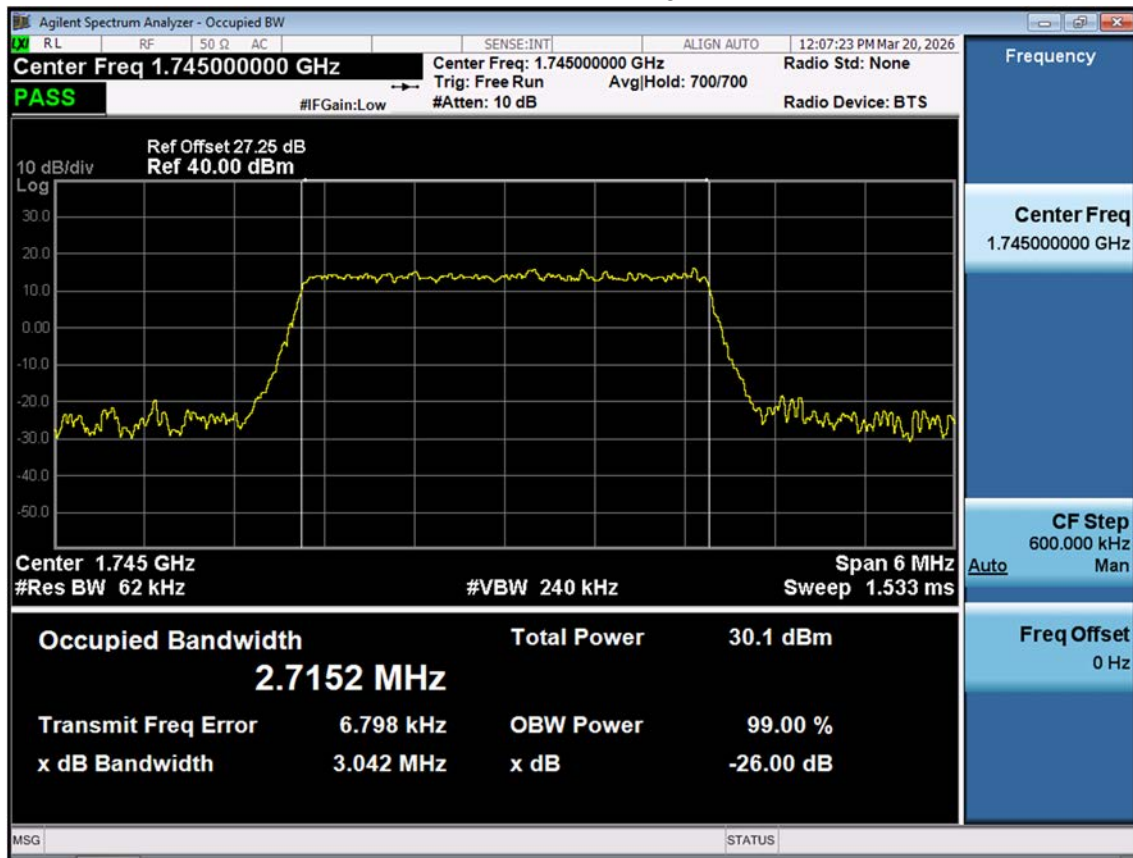
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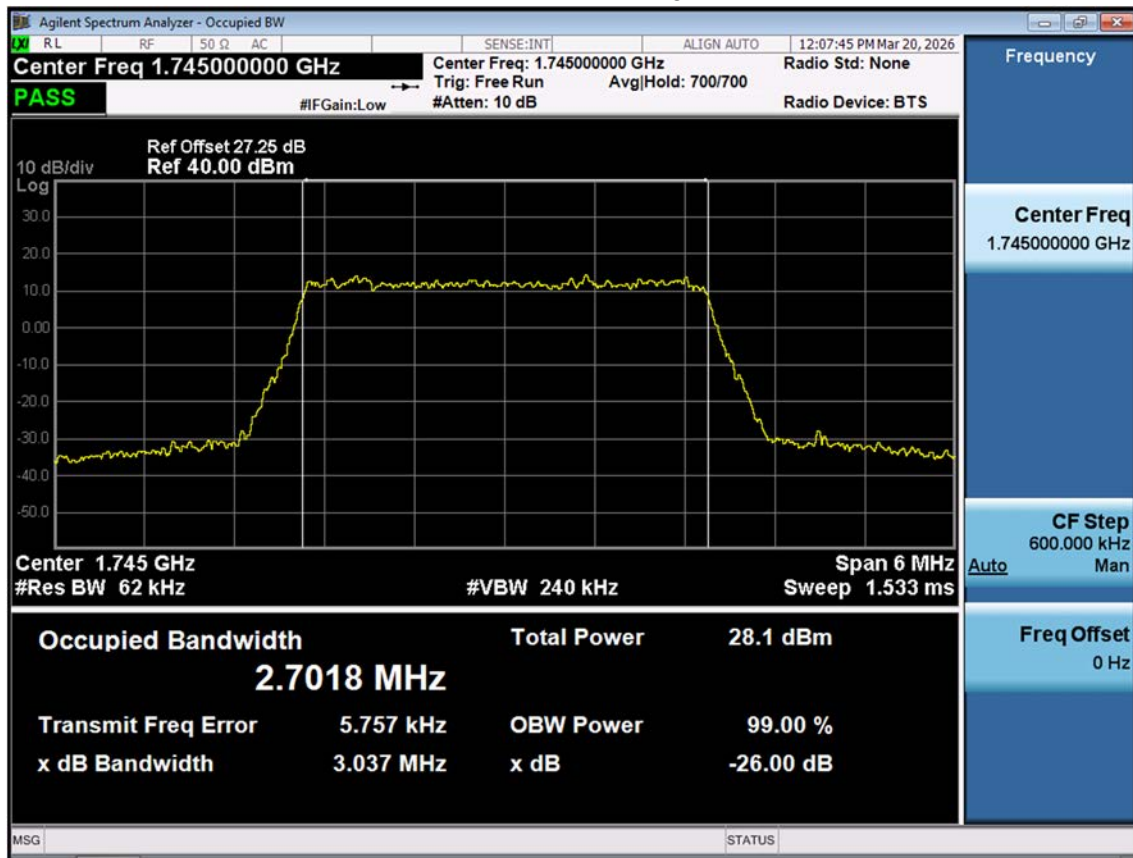
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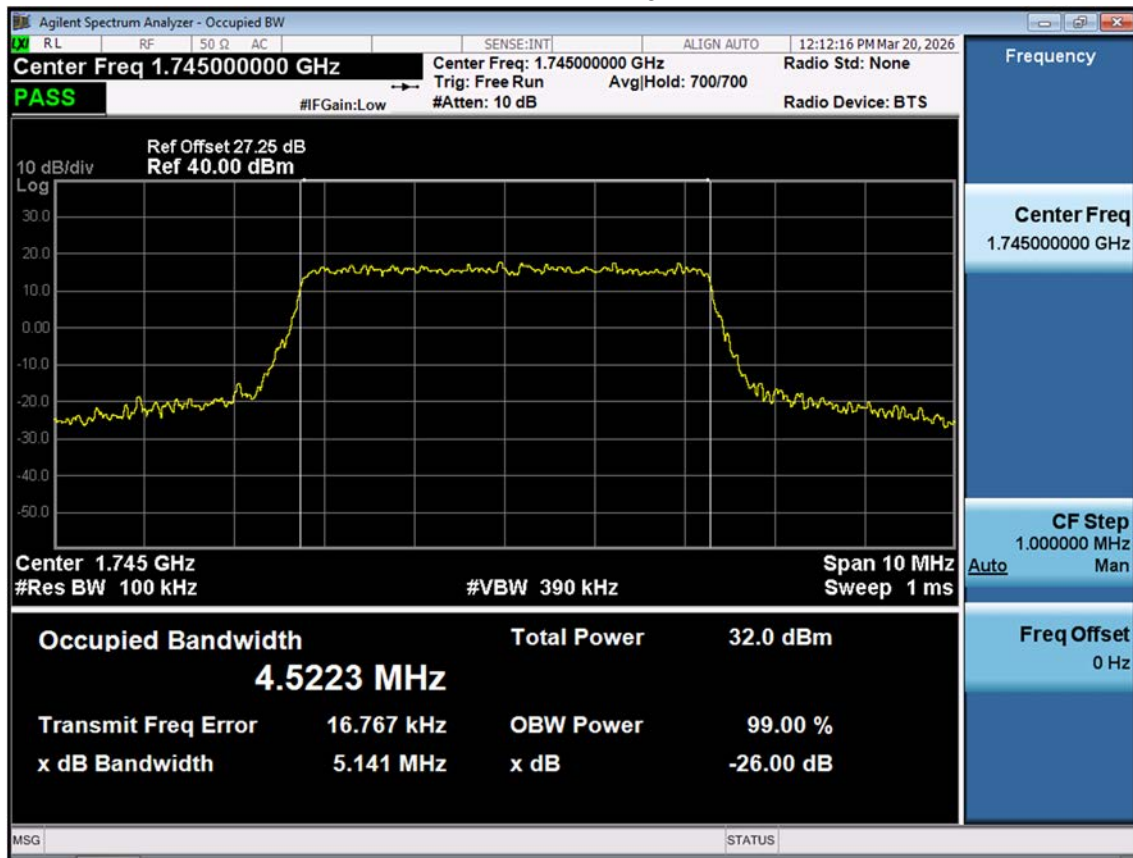
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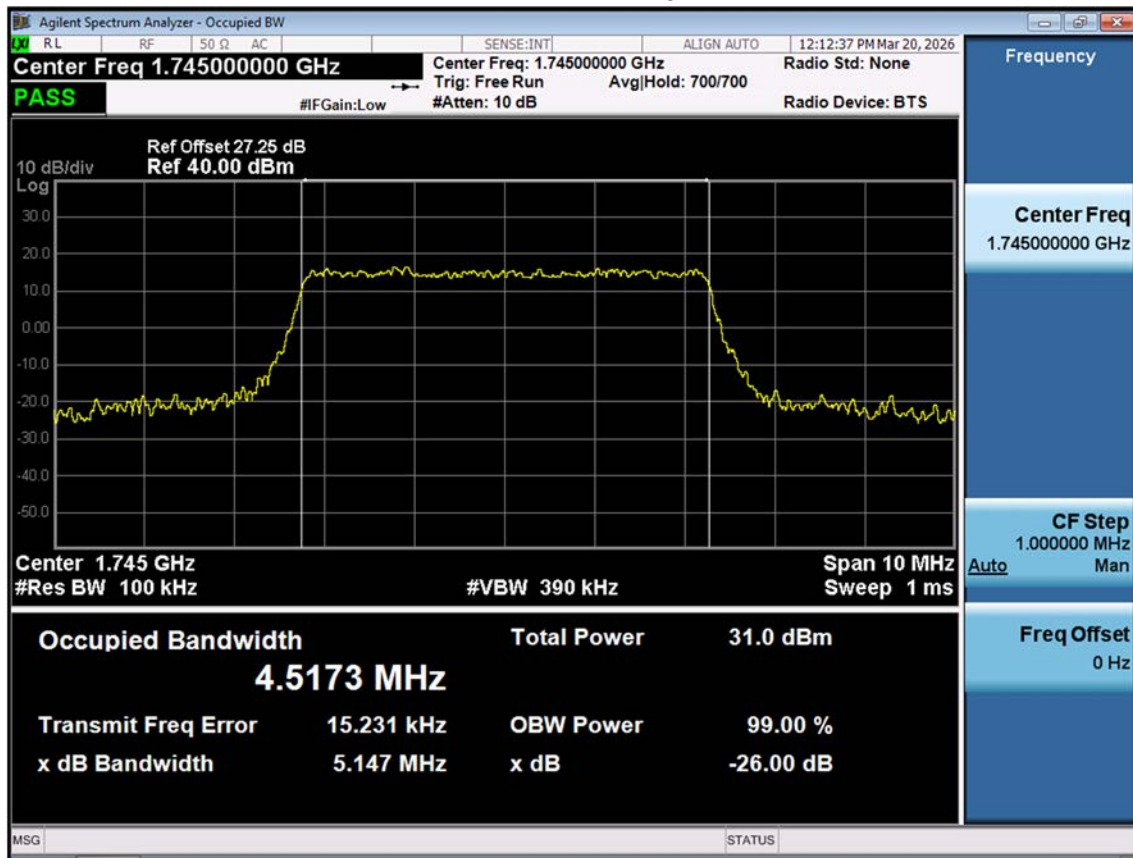
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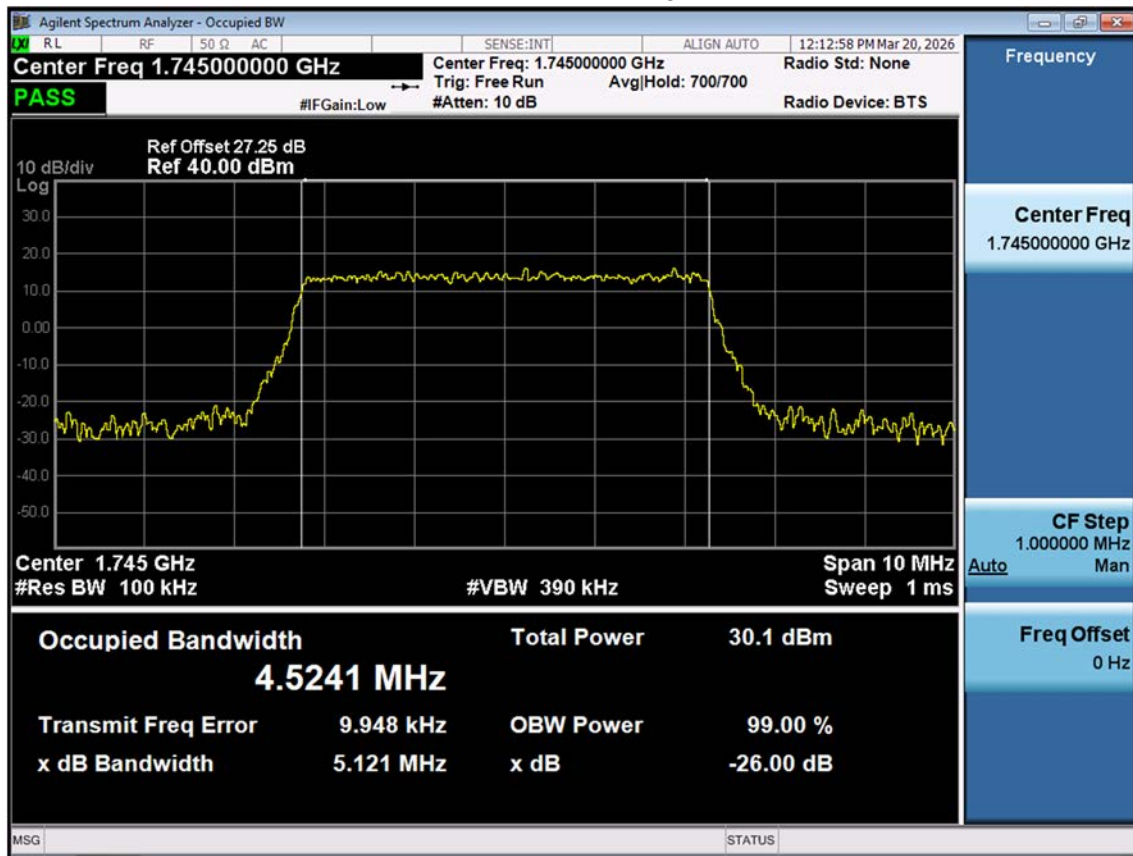
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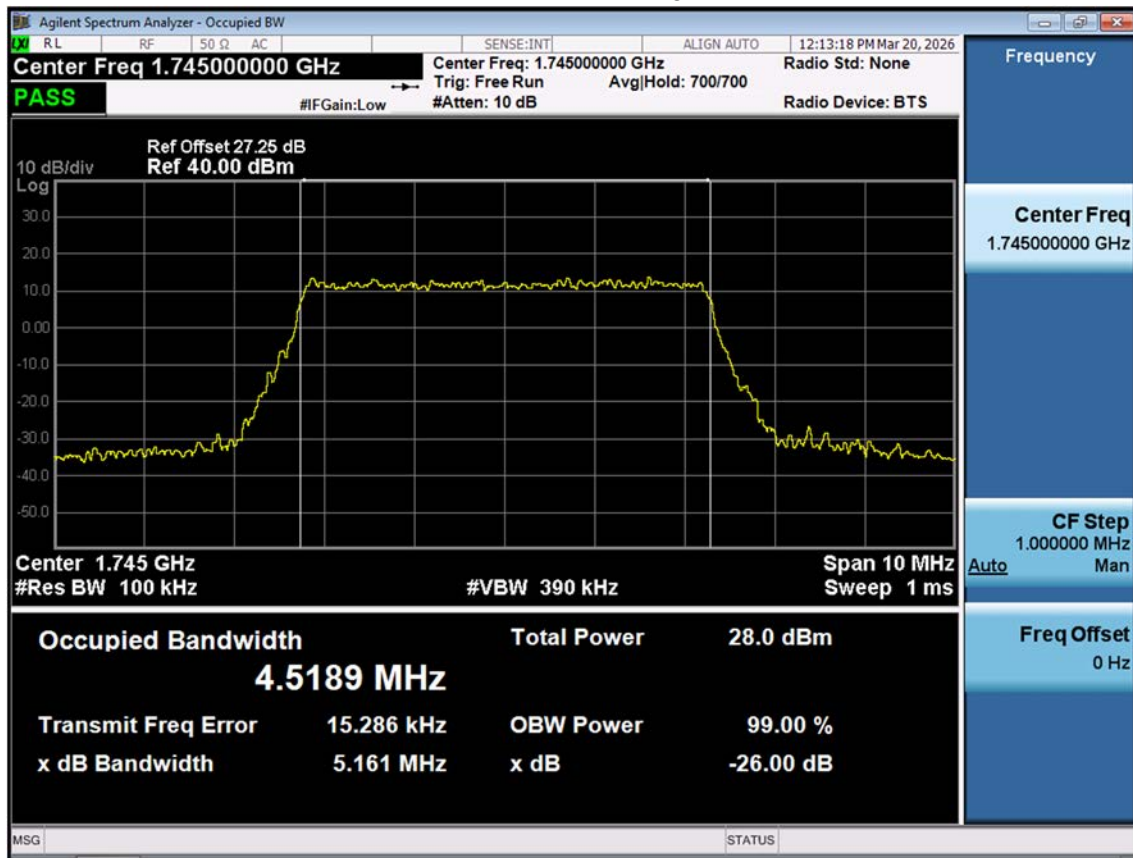
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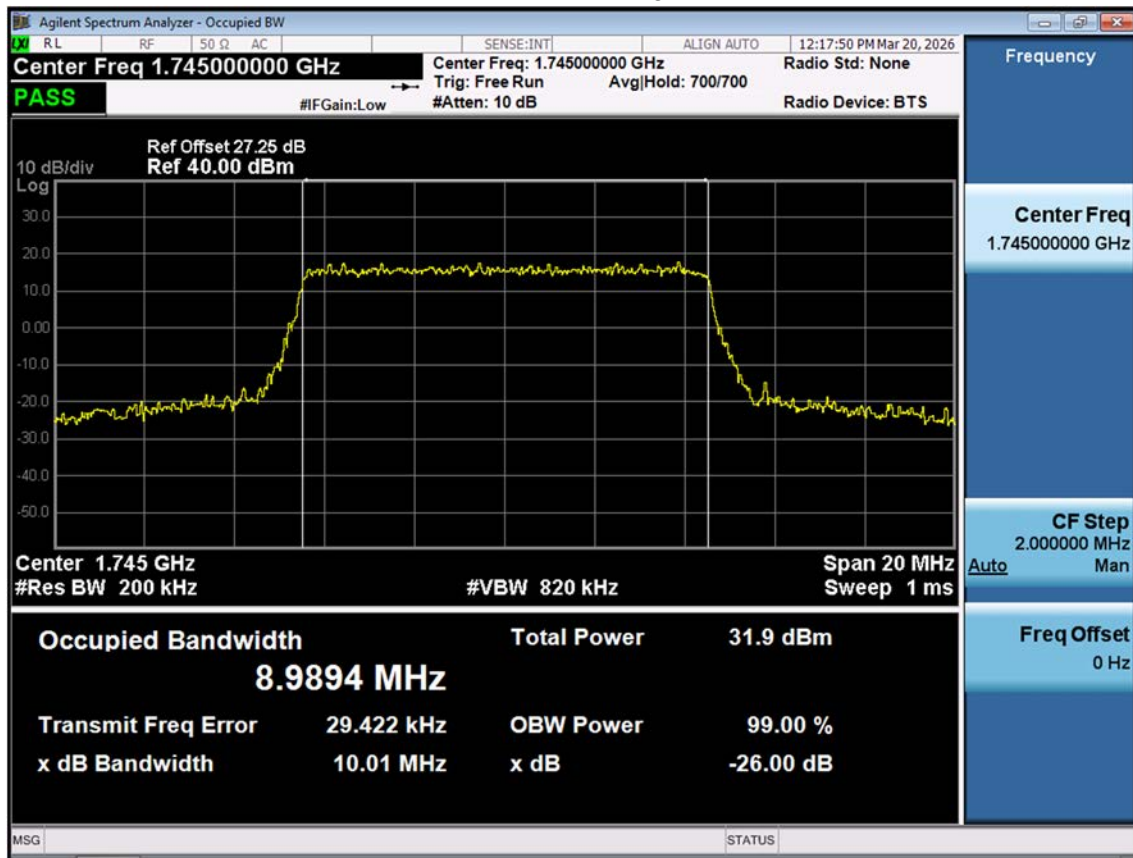
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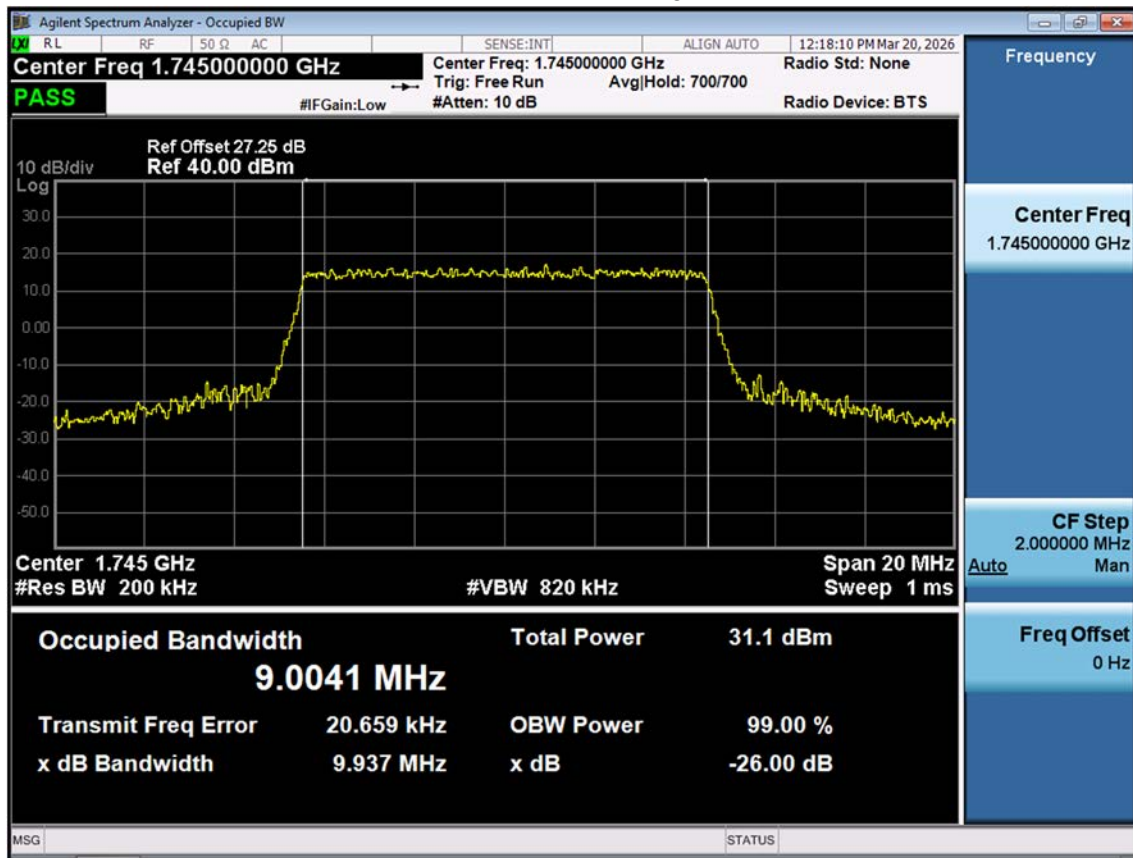
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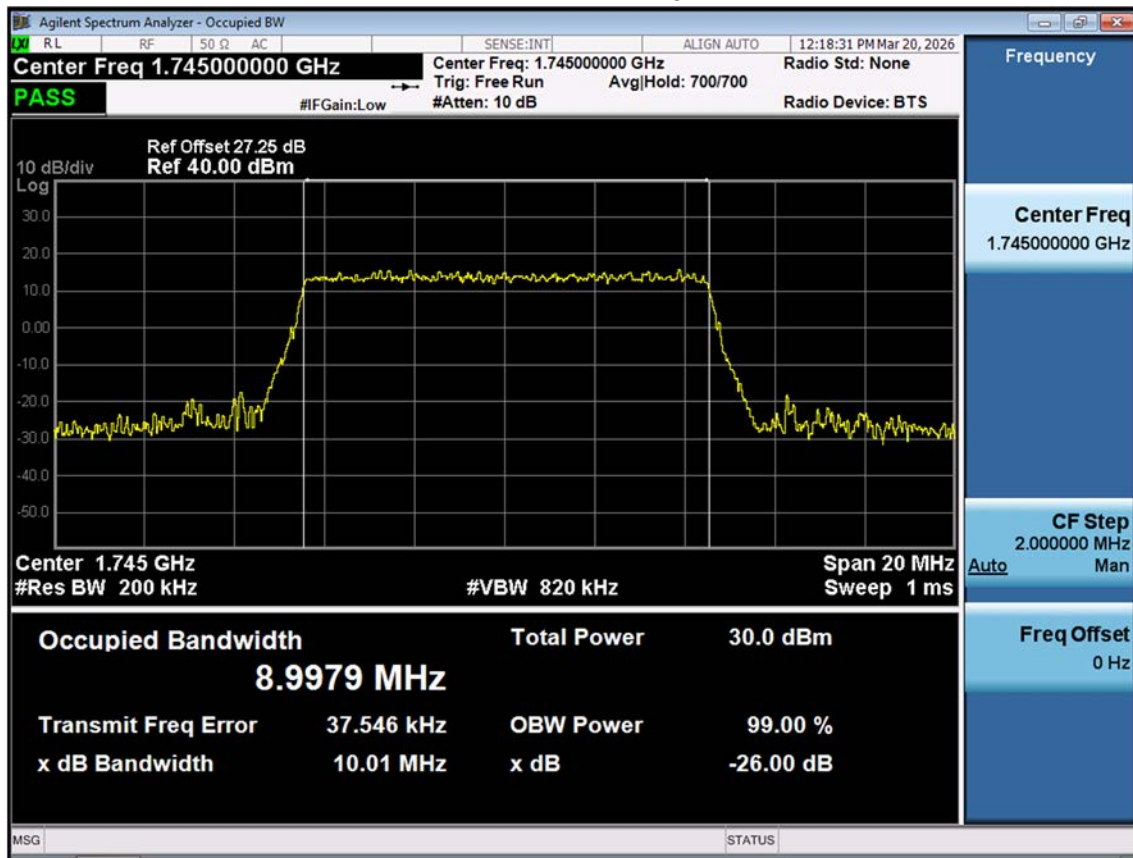
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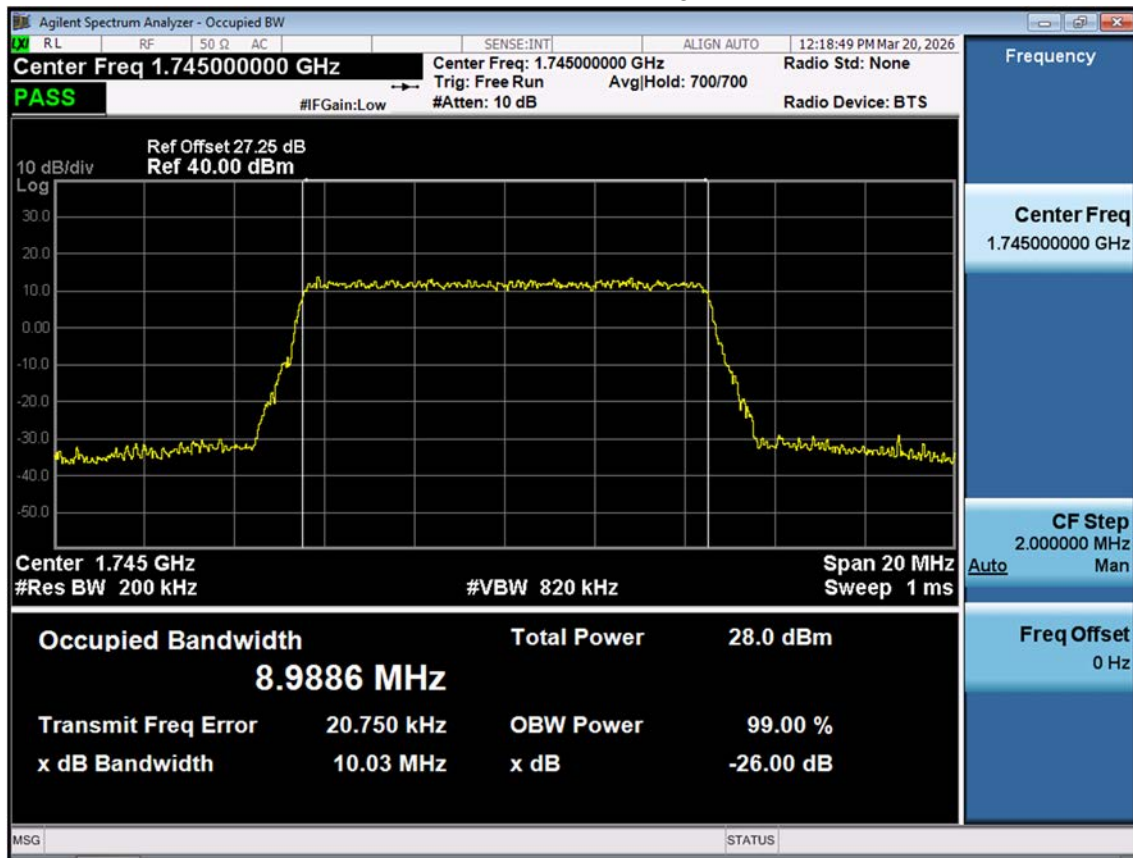
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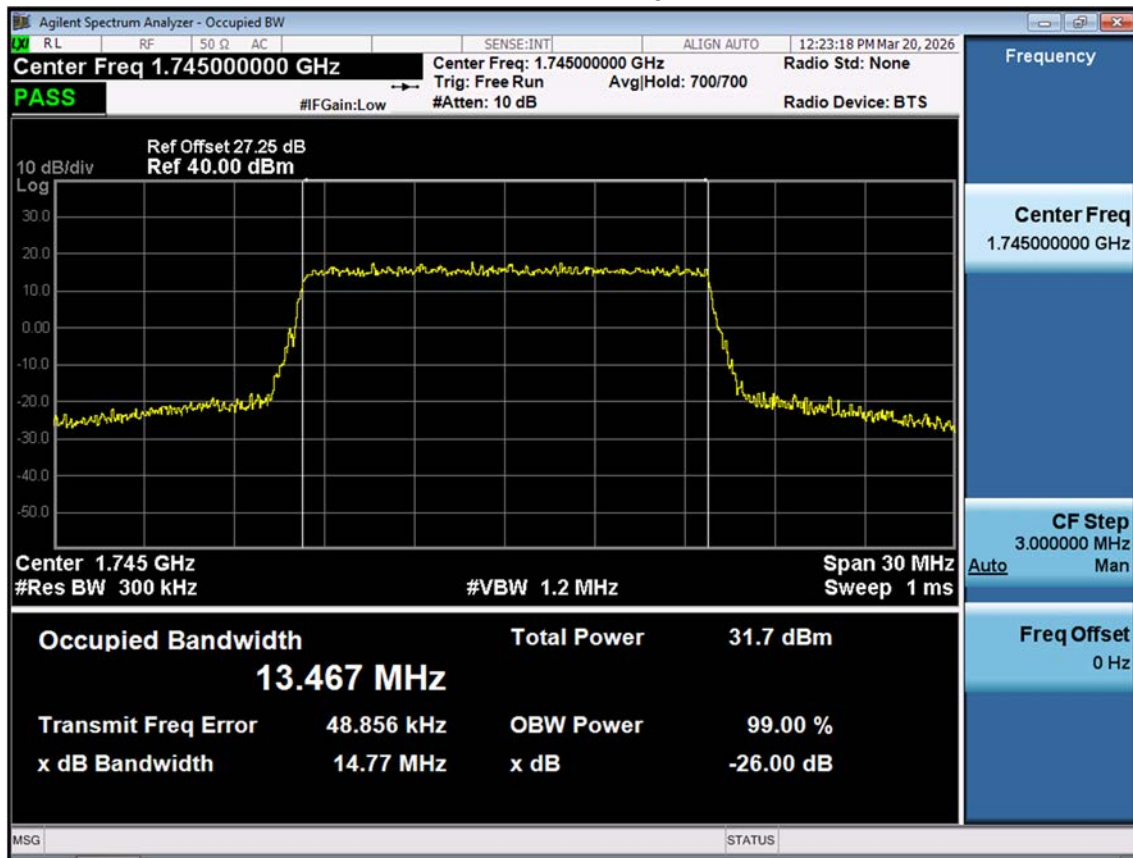
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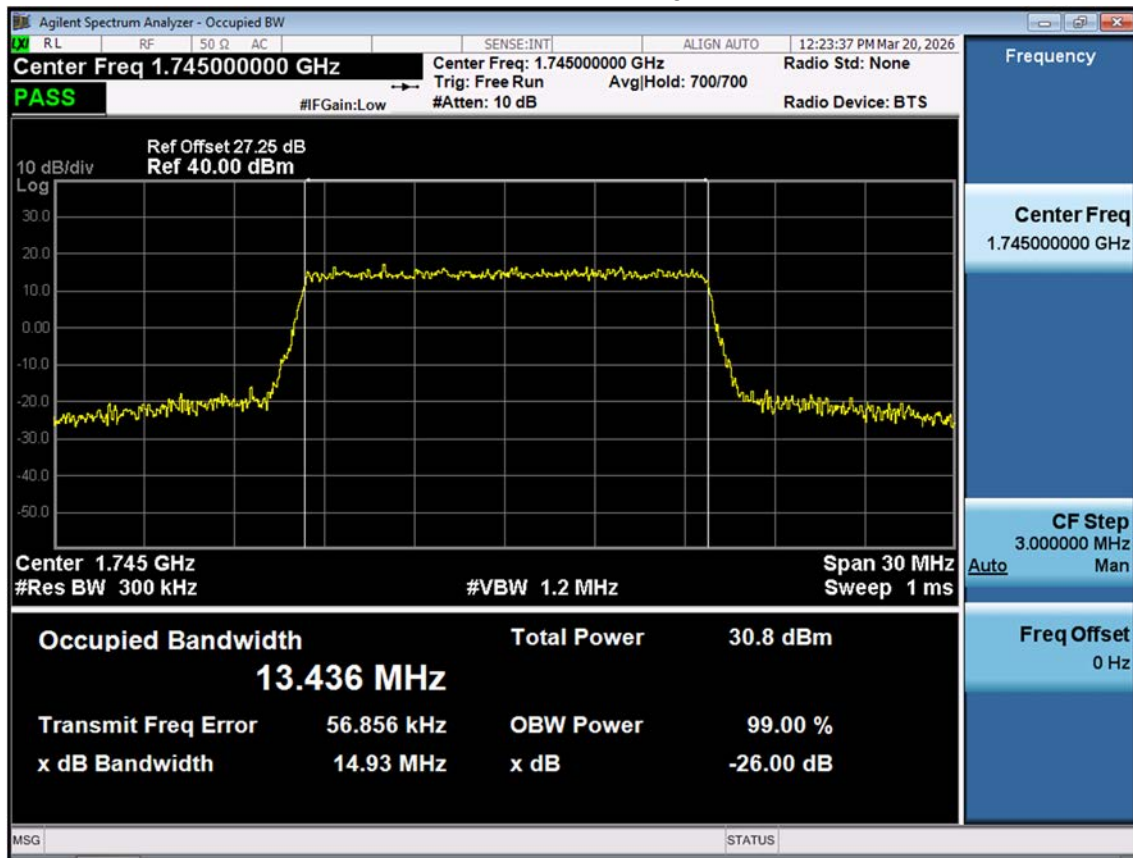
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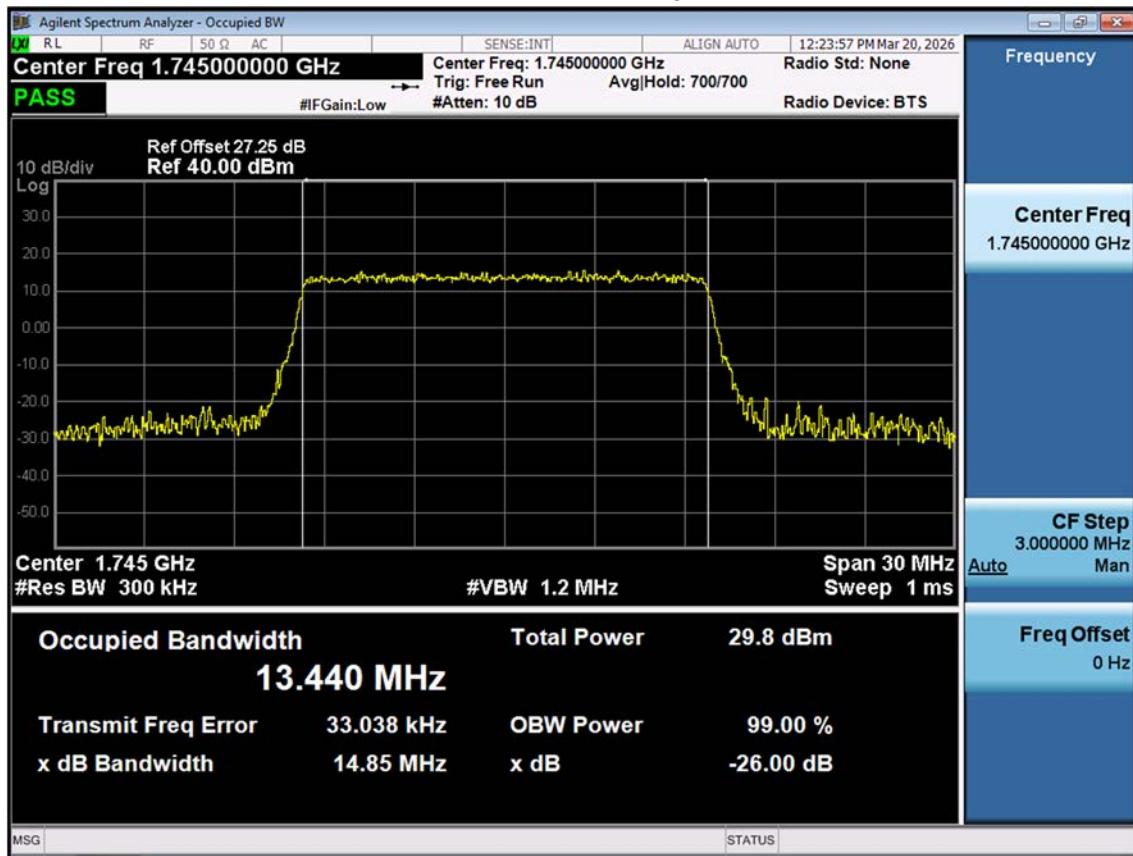
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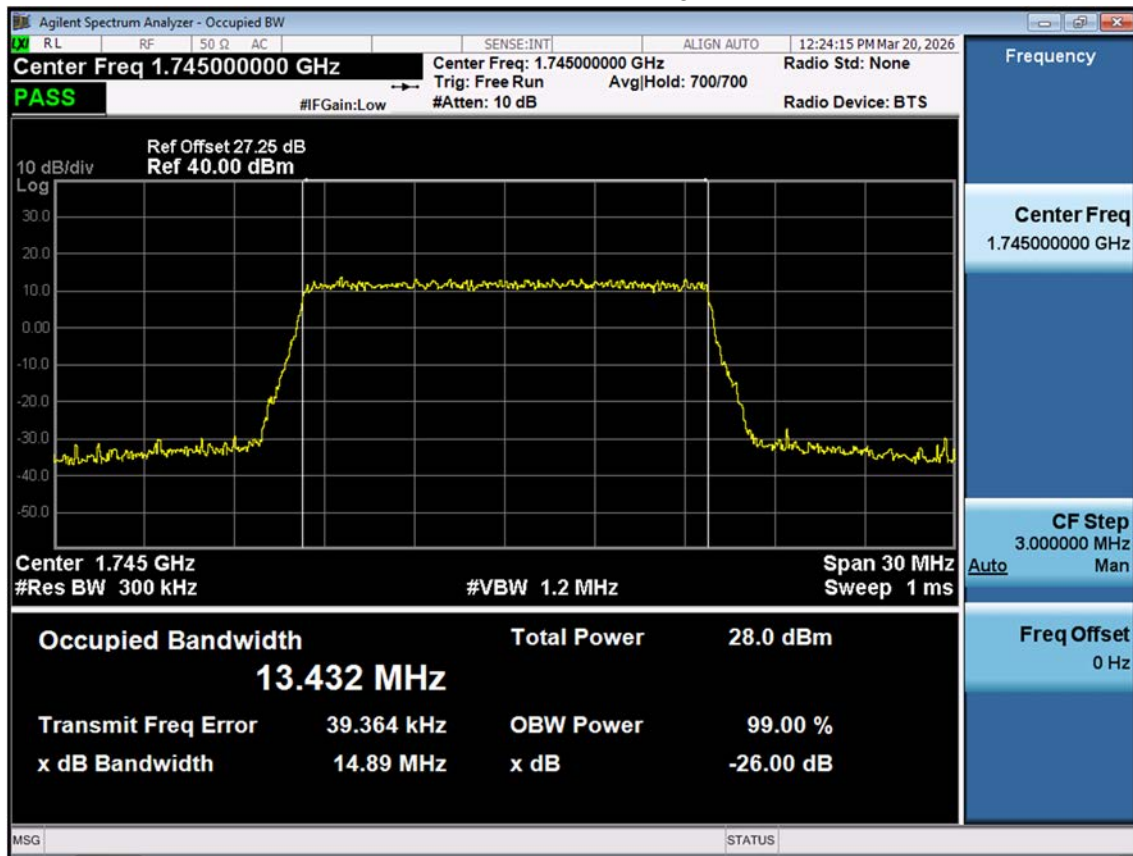
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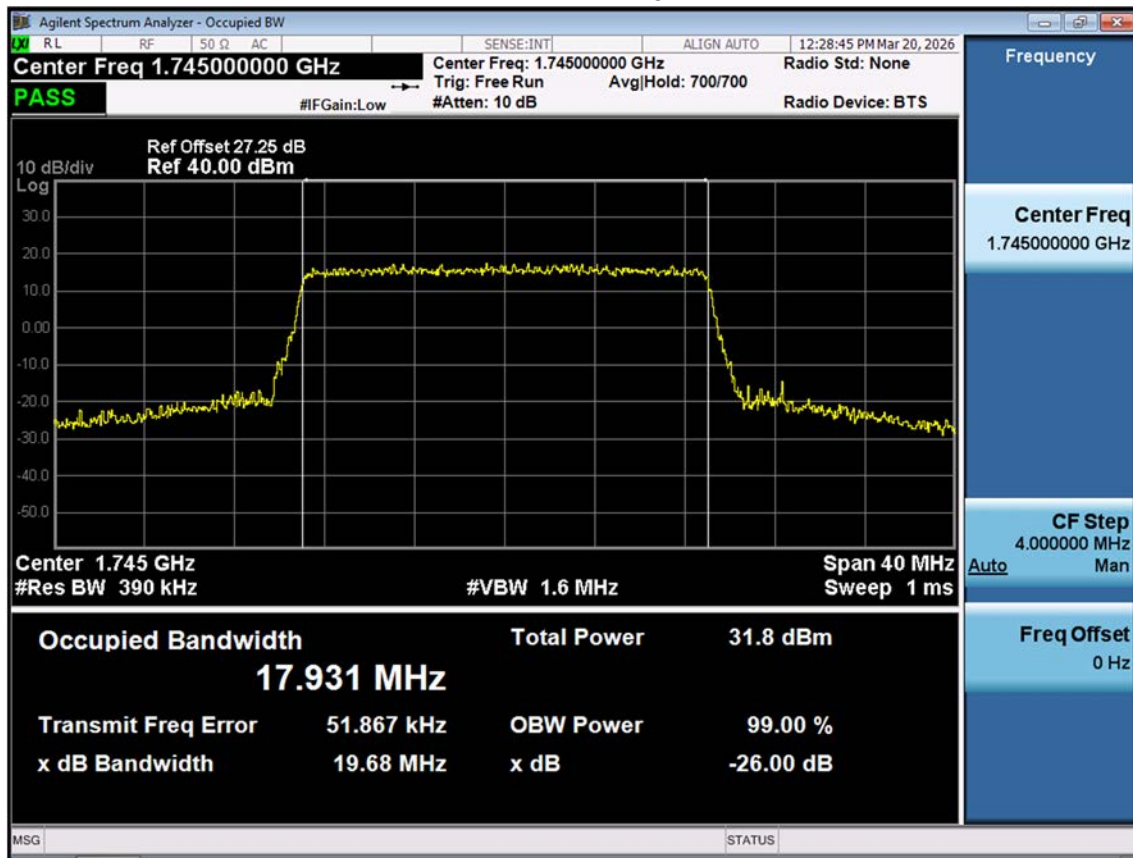
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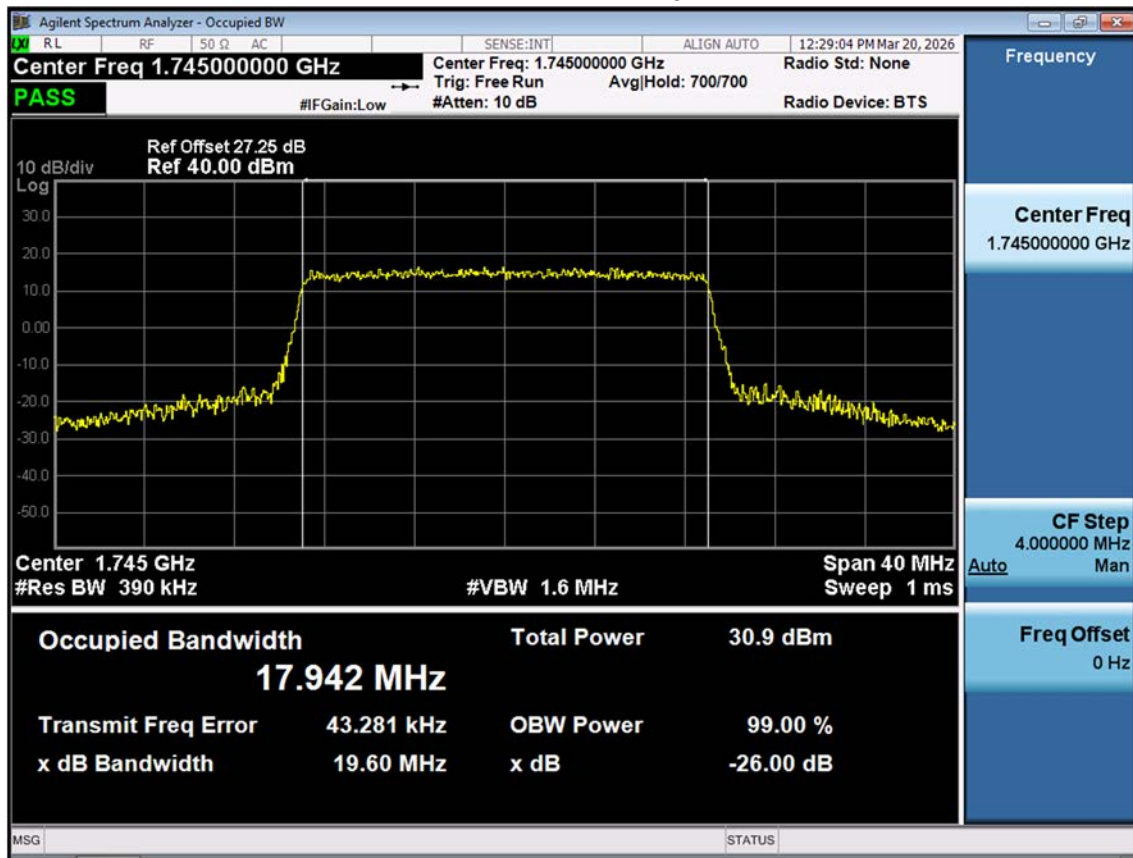
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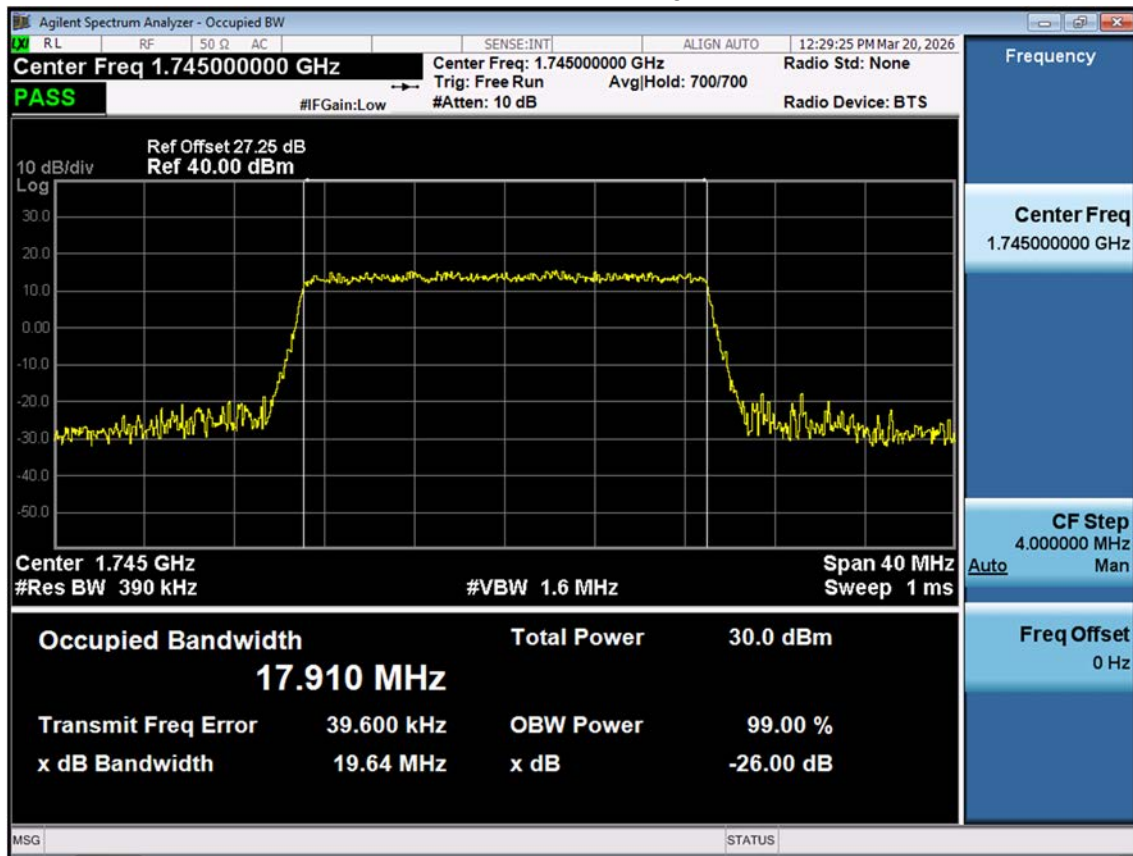
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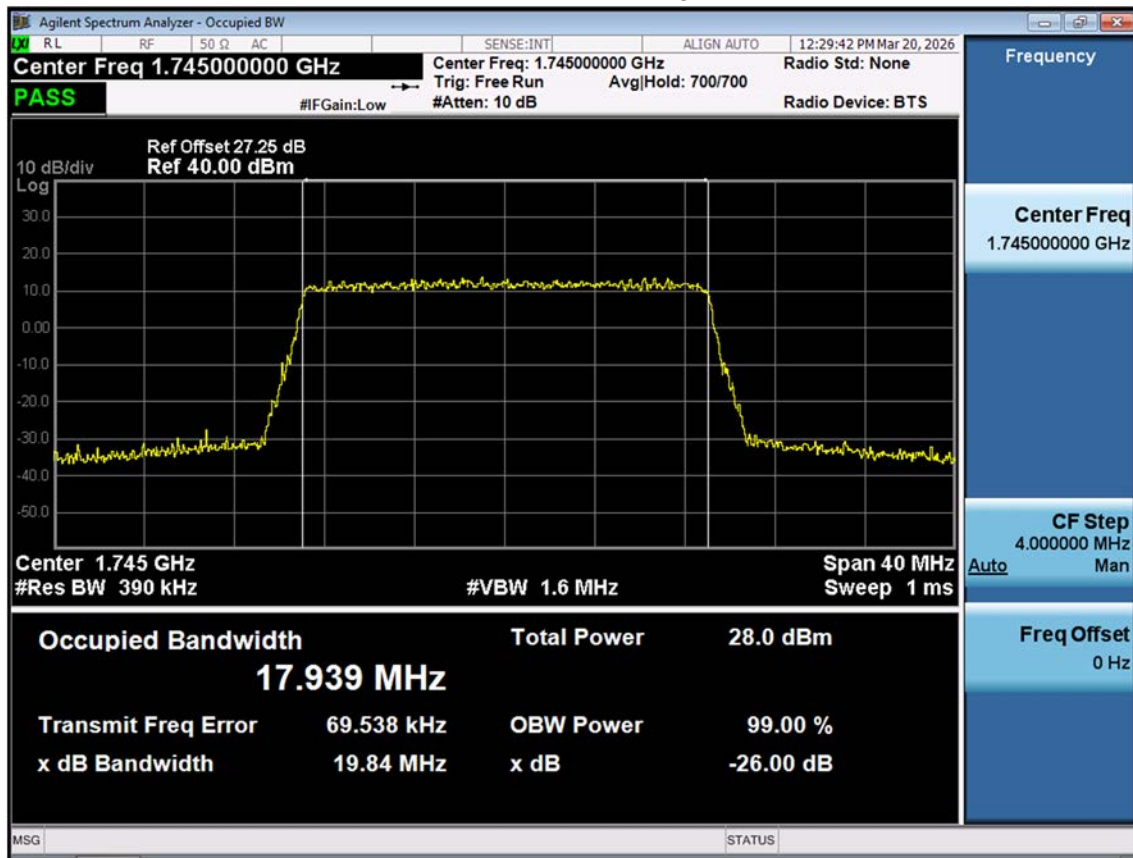
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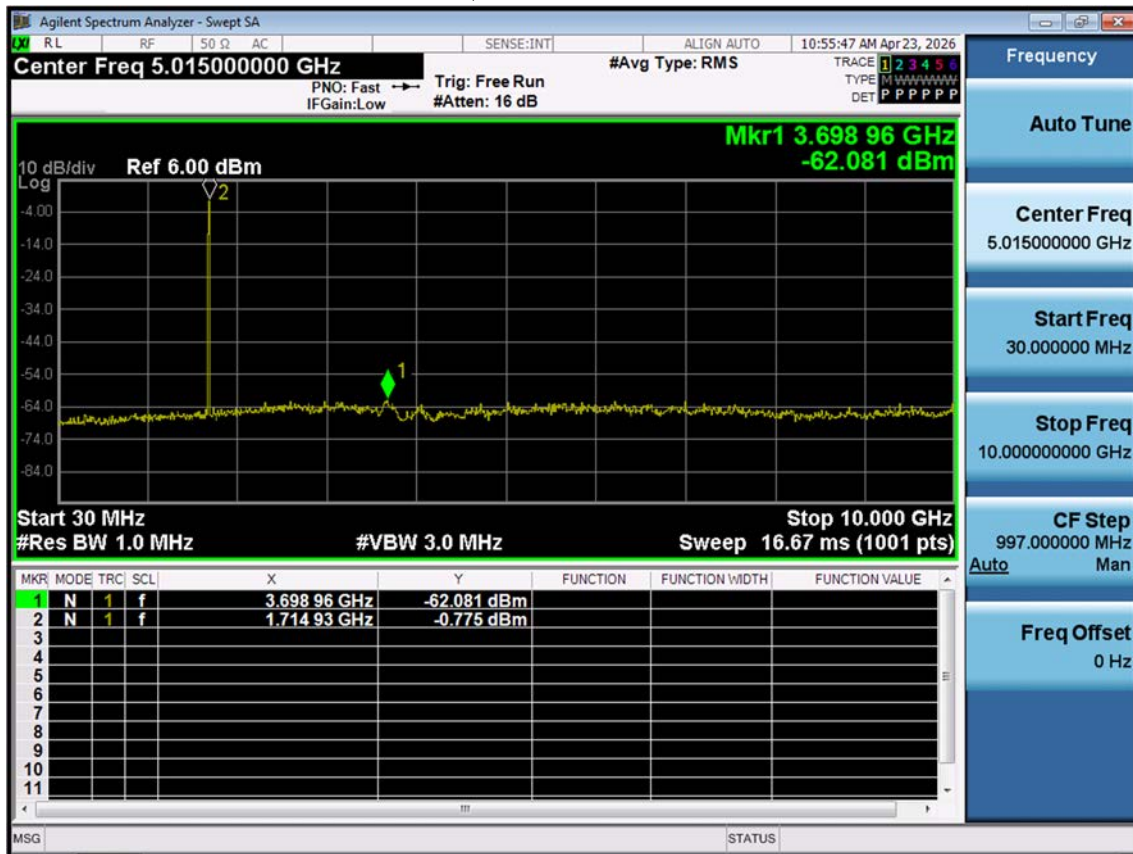


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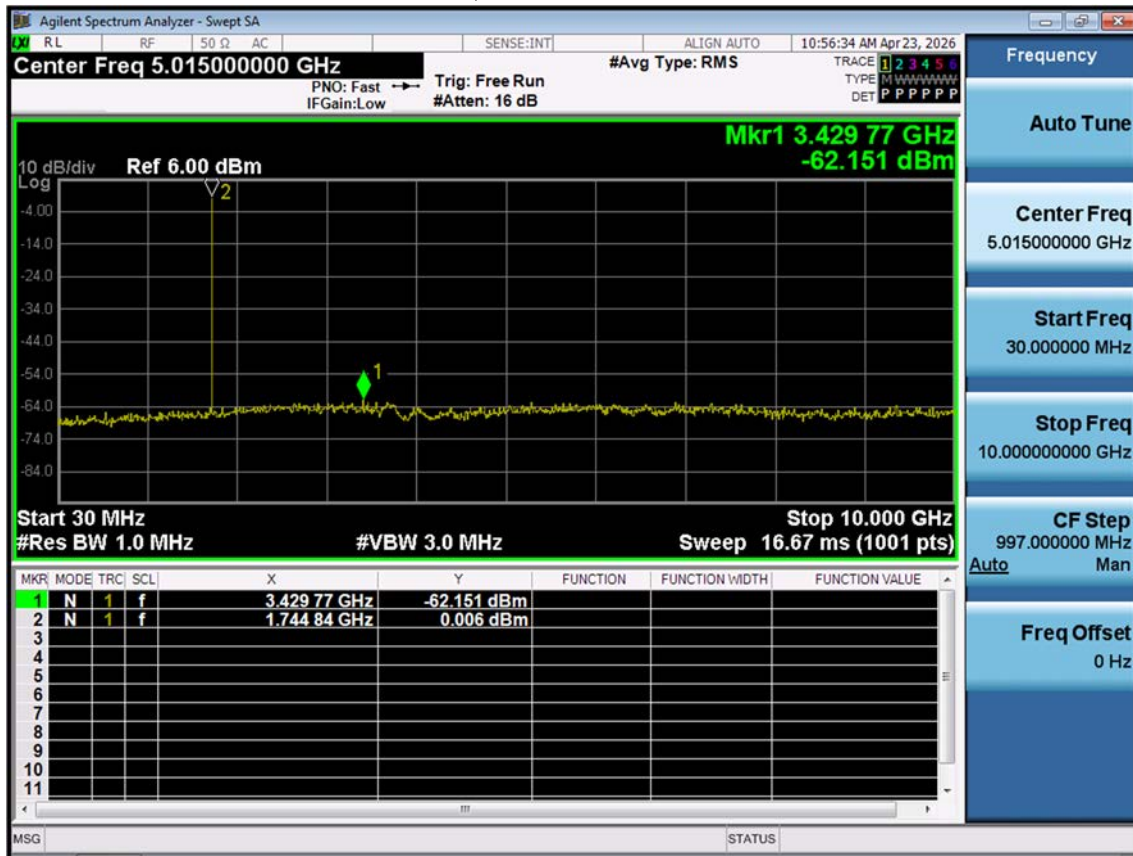


11.3 CONDUCTED SPURIOUS EMISSIONS

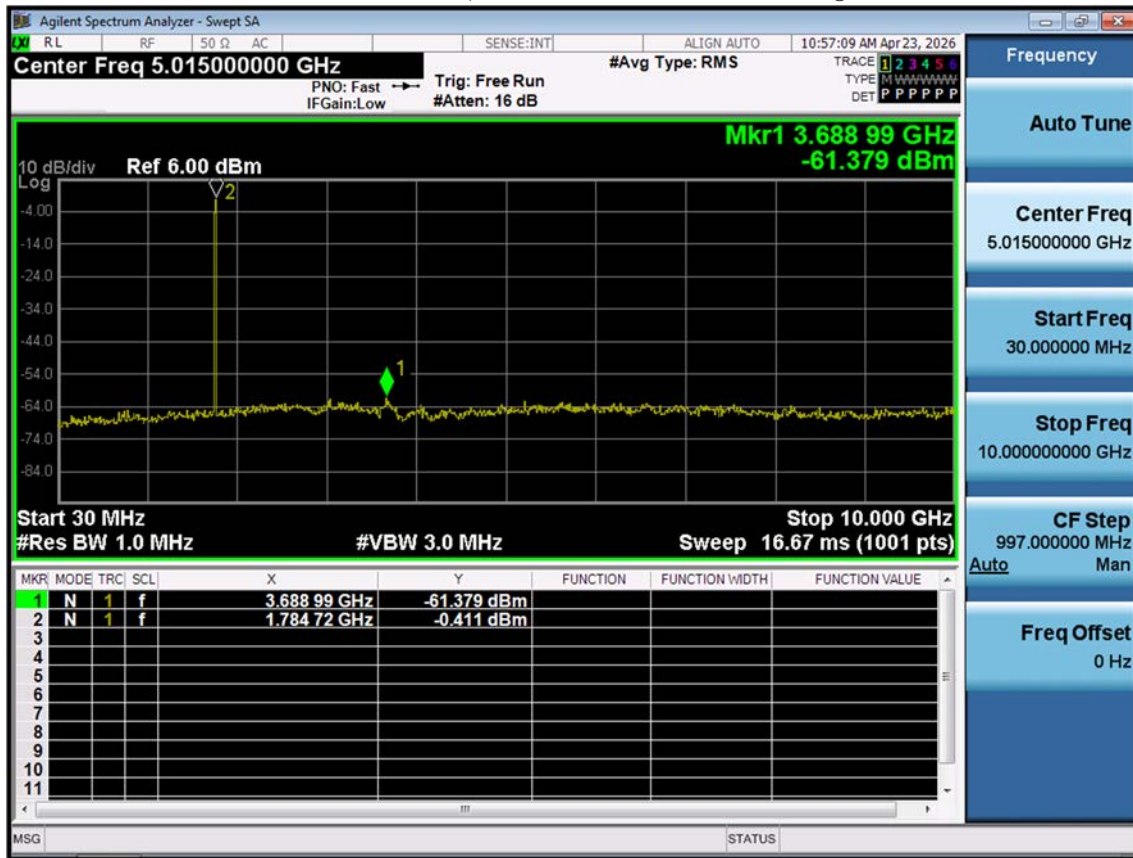
LTE B66_1.4 M_Conducted Spurious Emissions(30 M-10 G)_Low_QPSK_1RB



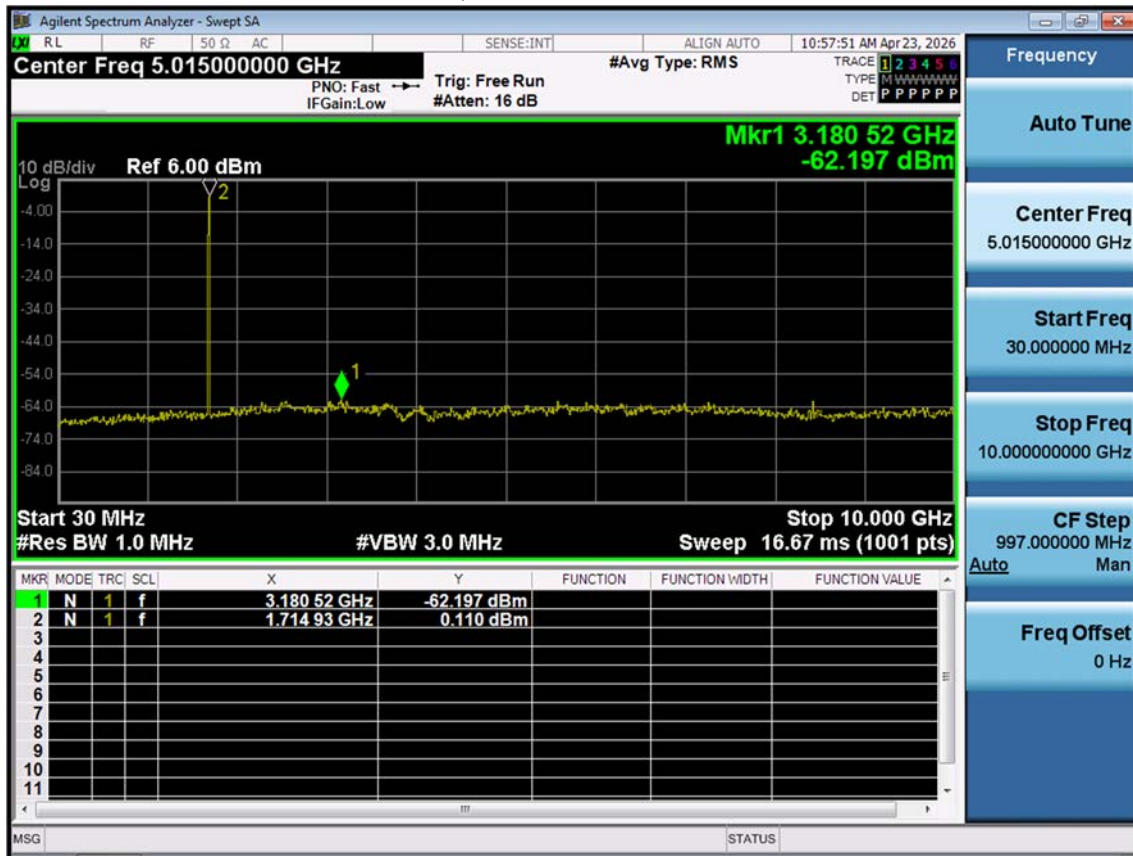
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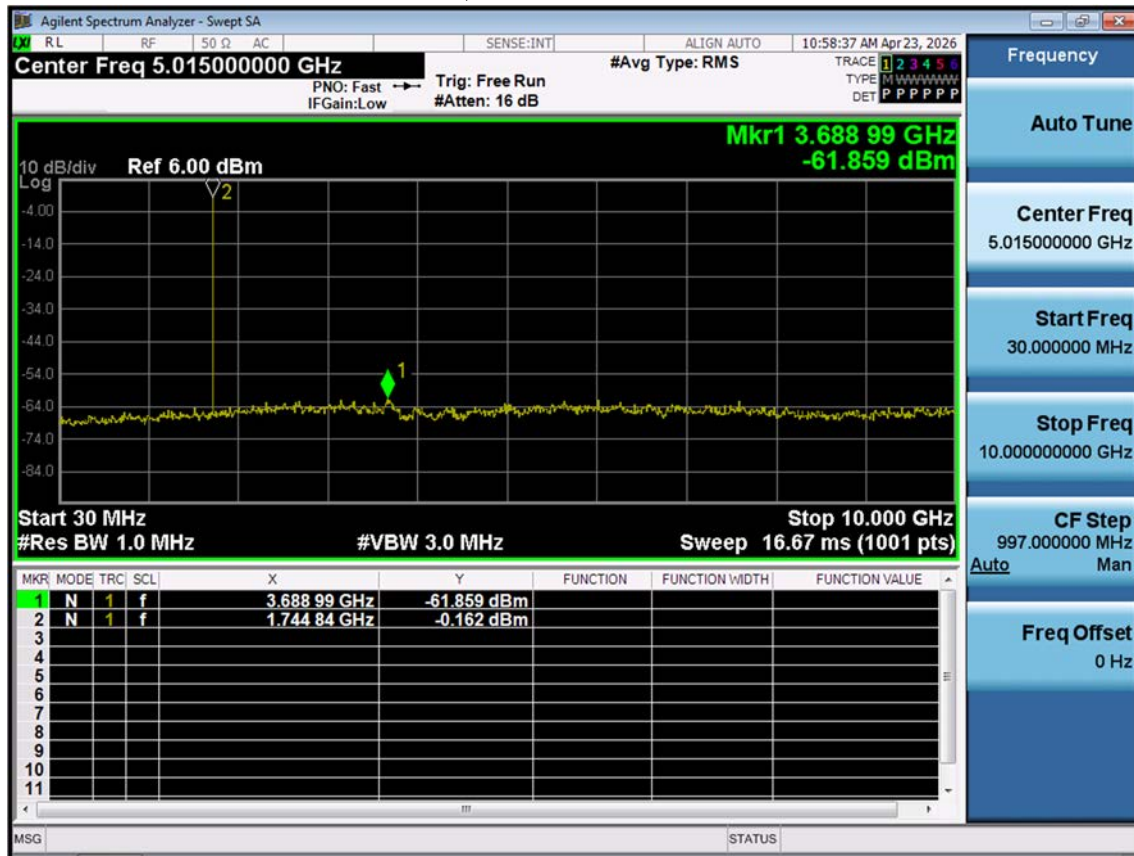
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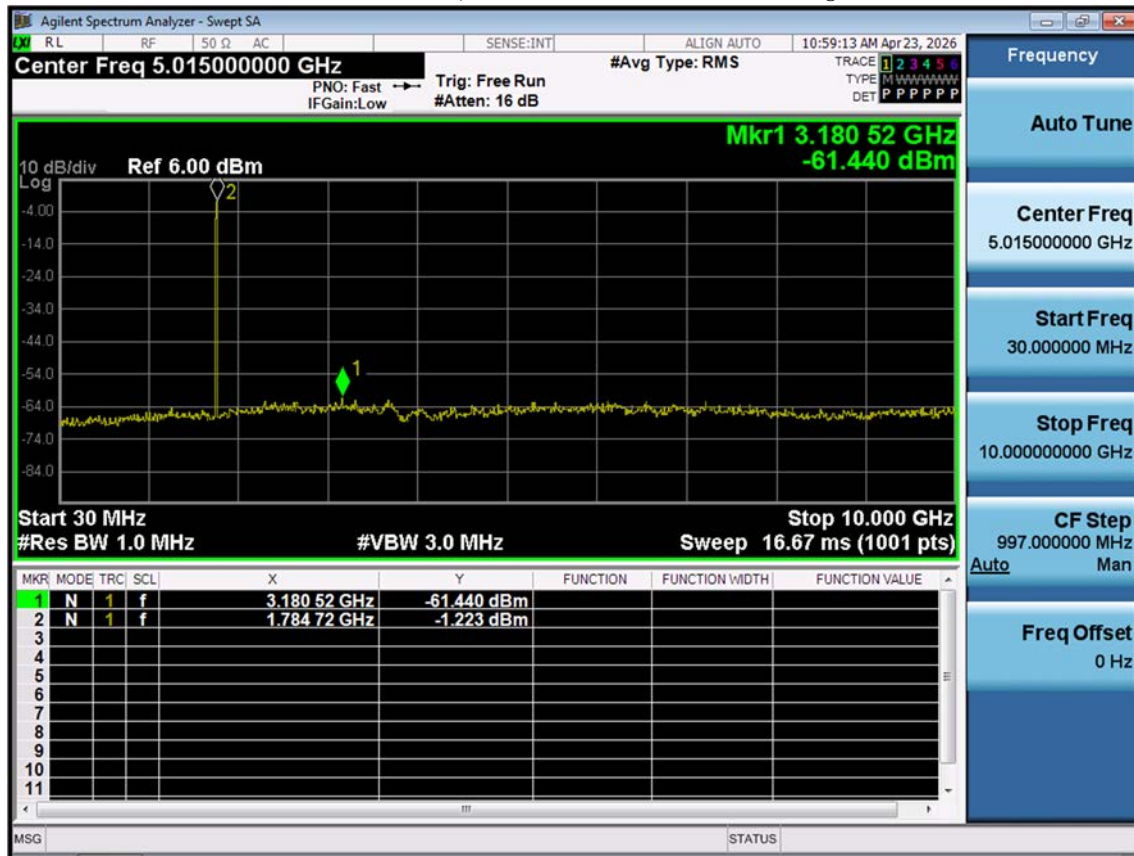
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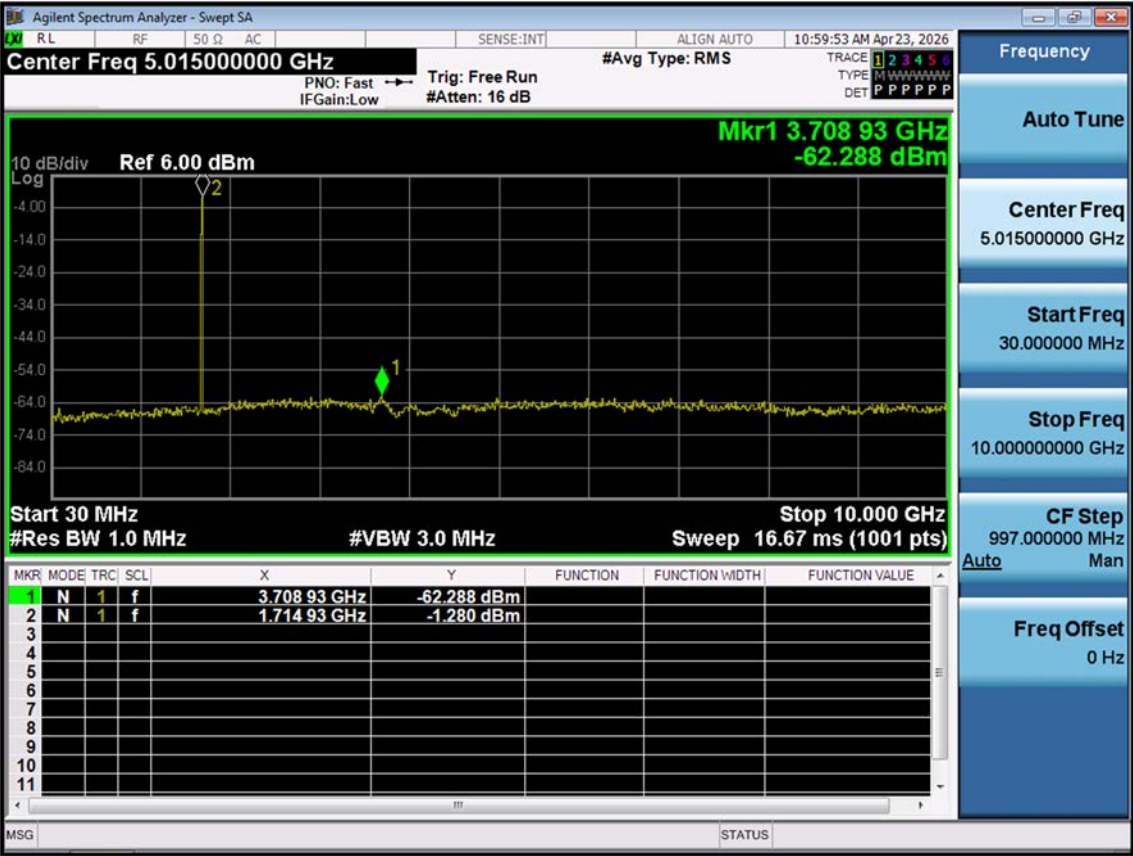
LTE B66_3 M_Conducted Spurious Emissions(30 M-10 G)_Mid_QPSK_1RB



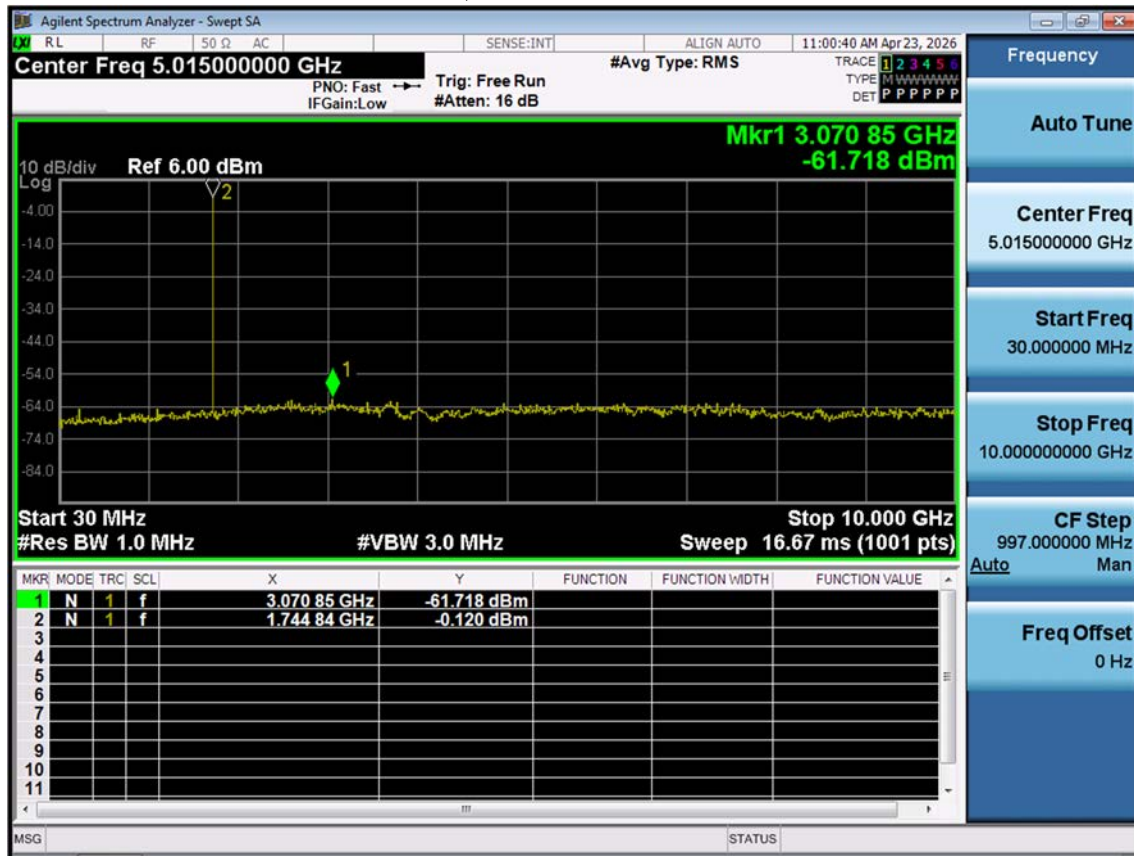
LTE B66_3 M_Conducted Spurious Emissions(30 M-10 G)_High_QPSK_1RB



LTE B66_5 M_Conducted Spurious Emissions(30 M-10 G)_Low_QPSK_1RB



LTE B66_5 M_Conducted Spurious Emissions(30 M-10 G)_Mid_QPSK_1RB



LTE B66_5 M_Conducted Spurious Emissions(30 M-10 G)_High_QPSK_1RB

