TEST REPORT

FCC LTE B48(42) Test for TM18FNNABM0
Certification

APPLICANT
LG Electronics Inc.

REPORT NO.
HCT-RF-2506-FC061

DATE OF ISSUE
June 17, 2025

Tested by
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Technical Manager
Jong Seok Lee

Accredited by KOLAS, Republic of KOREA

HCT CO., LTD.
BongJai Huh / CEO

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Applicant	LG Electronics Inc. 128, Yeoui-daero, Yeongdeungpo-gu, Seoul, Republic of Korea
Product Name Model Name	Telematics TM18FNNABM0
Date of Test	February 08, 2025 ~ June 17, 2025
FCC ID	2BO3LTM18FNNABM0
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:	Citizens Band End User Devices (CBE)
Test Standard Used	FCC Rule Part: § 96
Test Results	PASS

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REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	June 17, 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

Applicant Name:	LG Electronics Inc.
Address:	128, Yeoui-daero, Yeongdeungpo-gu, Seoul, Republic of Korea
FCC ID:	2BO3LTM18FNNABM0
Application Type:	Certification
FCC Classification:	Citizens Band End User Devices (CBE)
FCC Rule Part(s):	§ 96
EUT Type:	Telematics
Model(s):	TM18FNNABM0
Voltage:	4.2V
Tx Frequency:	3552.5 – 3697.5 (LTE – Band 48(42) (5 MHz)) 3555.0 – 3695.0 (LTE – Band 48(42) (10 MHz)) 3557.5 – 3692.5 (LTE – Band 48(42) (15 MHz)) 3560.0 – 3690.0 (LTE – Band 48(42) (20 MHz))
Date(s) of Tests:	February 08, 2025 ~ June 17, 2025
EUT Serial number:	Radiated : BMW ICON-25SF Radiated #1 Conducted : BMW ICON-25SF Conducted #3
Antenna Information	Please refer to the Antenna Specification document.

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1.1. SUPPORTED BANDS PER ANTENNA PORT

Antenna Port	Supported bands
MIMO 1	- WCDMA: B2, 5 - LTE: B2, 4, 5, 7, 12, 13, 17, 25, 66, 26, 38, 42, 48, 71 - NR: n2, 5, 7, 12, 25, 41, 48, 66, 71, 77, 78
MIMO 2	- LTE: B42, 48 - NR: n48, 77, 78
MIMO 3	Only RX
MIMO 4	Only RX
Int. BUA (Back Up Antenna)	- WCDMA: B2, 5 - LTE: B2, 4, 5, 7, 25, 26, 38, 66 - NR: n2, 5, 7, 25, 41, 66

Note:

1. Since the Int. BUA uses the same antenna port as MIMO1, only radiated testing was performed.

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1.2 MAXIMUM OUTPUT POWER

MIMO1

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	Conducted Output Power	
				Max. Power (W)	Max. Power (dBm)
LTE – Band 48(42) (5)	3552.5 – 3697.5	4M48G7D	QPSK	0.169	22.29
		4M49W7D	16QAM	0.146	21.64
		4M49W7D	64QAM	0.107	20.30
		4M45W7D	256QAM	0.058	17.67
LTE – Band 48(42) (10)	3555.0 – 3695.0	8M99G7D	QPSK	0.172	22.35
		8M96W7D	16QAM	0.146	21.63
		8M95W7D	64QAM	0.108	20.32
		8M99W7D	256QAM	0.058	17.67
LTE – Band 48(42) (15)	3557.5 – 3692.5	13M5G7D	QPSK	0.171	22.33
		13M4W7D	16QAM	0.147	21.68
		13M5W7D	64QAM	0.109	20.38
		13M4W7D	256QAM	0.058	17.64
LTE – Band 48(42) (20)	3560.0 – 3690.0	18M0G7D	QPSK	0.181	22.58
		17M9W7D	16QAM	0.157	21.96
		18M0W7D	64QAM	0.117	20.69
		17M9W7D	256QAM	0.063	17.97

MIMO2

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	Conducted Output Power	
				Max. Power (W)	Max. Power (dBm)
LTE – Band 48(42) (5)	3552.5 – 3697.5	4M48G7D	QPSK	0.226	23.55
		4M47W7D	16QAM	0.184	22.65
		4M48W7D	64QAM	0.143	21.55
		4M47W7D	256QAM	0.077	18.87
LTE – Band 48(42) (10)	3555.0 – 3695.0	9M00G7D	QPSK	0.222	23.46
		8M89W7D	16QAM	0.185	22.66
		8M94W7D	64QAM	0.139	21.43
		8M87W7D	256QAM	0.076	18.81
LTE – Band 48(42) (15)	3557.5 – 3692.5	13M4G7D	QPSK	0.226	23.55
		13M5W7D	16QAM	0.187	22.71
		13M5W7D	64QAM	0.143	21.56
		13M4W7D	256QAM	0.076	18.82
LTE – Band 48(42) (20)	3560.0 – 3690.0	17M9G7D	QPSK	0.229	23.59
		17M9W7D	16QAM	0.187	22.72
		17M9W7D	64QAM	0.145	21.61
		17M9W7D	256QAM	0.079	18.98

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2. INTRODUCTION

2.1. DESCRIPTION OF EUT

Please refer to the [3G] 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

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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 - KDB 940660 D01 v01
Channel Edge/ ACLR	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7 - KDB 940660 D01 v01
Spurious and Harmonic Emissions at Antenna Terminal	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7 - KDB 940660 D01 v01
Conducted Output Power	- N/A (See SAR Report)
Peak- to- Average Ratio	- KDB 971168 D01 v03r01 – Section 5.7 - ANSI C63.26-2015 – Section 5.2.3.4 - KDB 940660 D01 v01
Frequency stability	- ANSI C63.26-2015 – Section 5.6 - KDB 940660 D01 v01
Radiated Power	- ANSI C63.26-2015 – Section 5.2.4.4 - KDB 971168 D01 v03r01 – Section 5.8 - KDB 940660 D01 v01
Radiated Spurious and Harmonic Emissions	- ANSI C63.26-2015 – Section 5.5.3 - KDB 971168 D01 v03r01 – Section 5.8 - KDB 940660 D01 v01
End User Device Additional Requirement (CBSD Protocol)	- KDB 940660 D01 v01 - WINNF-TS-0122 V1.0.2

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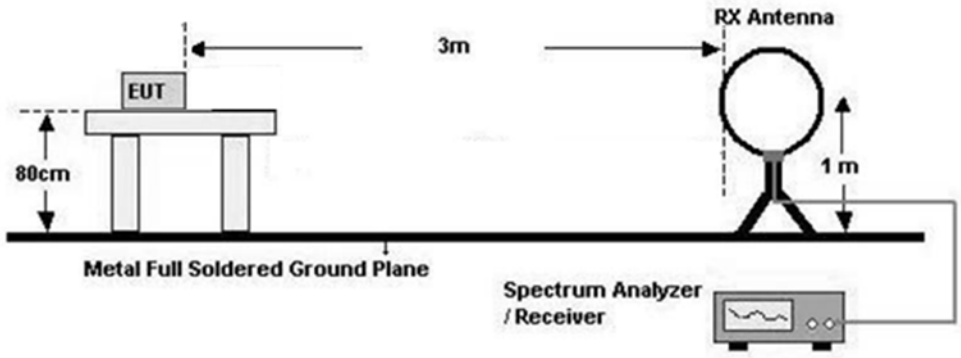
3.2 RADIATED POWER

Test Overview

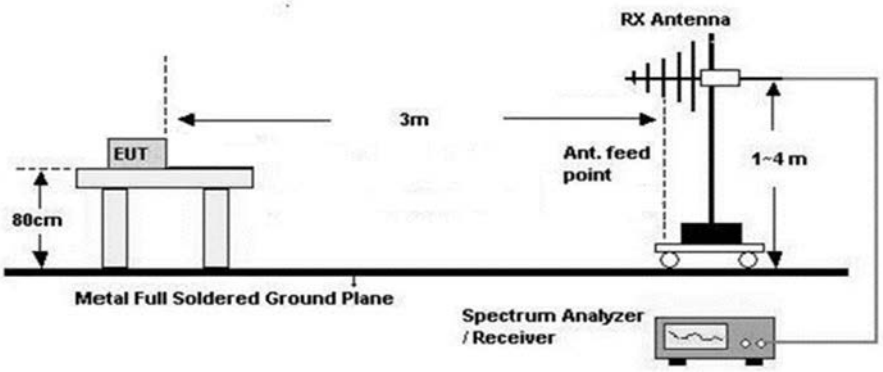
Radiated tests are performed in the semi-anechoic chamber. The equipment under test is placed on a non-conductive table on semi-anechoic chamber.

Test Configuration

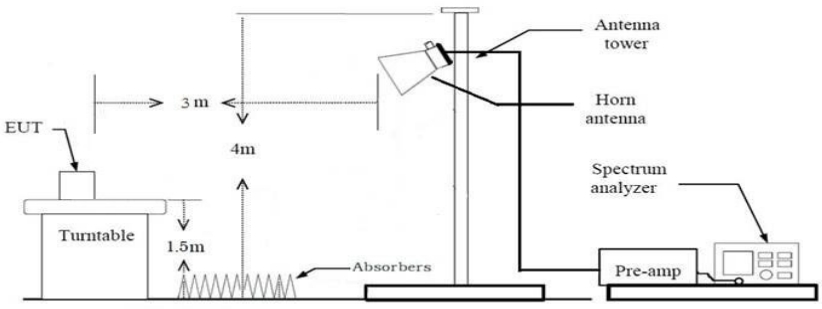
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



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Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5 % of the expected OBW, not to exceed 1 MHz
3. VBW ≥ 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points > 2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

Test Note

1. The EUT is placed on a turntable, which is 0.8 m above ground plane. (Below 1 GHz)
2. The EUT is placed on a turntable, which is 1.5 m above ground plane. (Above 1 GHz)
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
5. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
6. 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.
7. Total(dBμV/m) = Measured Value(dBμV) + Cable Loss(dB) + Antenna Factor(dB/m) + Distance Factor(D.F)
8. EIRP (dBm)
   = Total (dBμV/m) + 20 log D − 104.8 (where D is the measurement distance in meters. D=3)
   = Total (dBμV/m) - 95.2(dB)
9. ERP(dBm) = EIRP(dBm) - 2.15(dB)

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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 ≥ 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points > 2 x span / RBW
5. Detector = Peak
6. Trace mode = Max Hold
7. The trace was allowed to stabilize
8. Test channel : Low/ Middle/ High
9. Frequency range : We are performed all frequency to 10^{th} harmonics from 9 kHz.

Test Note

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

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

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

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

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

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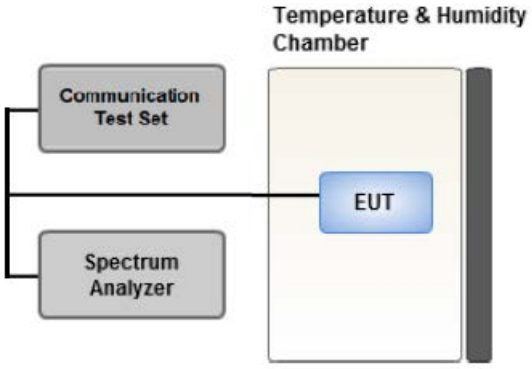
3.4 PEAK- TO- AVERAGE RATIO



Test setup

CCDF Procedure for PAPR

Test Settings

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

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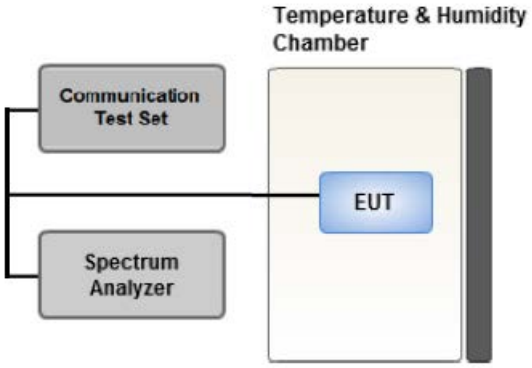
3.5 OCCUPIED BANDWIDTH.



Test setup

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.
The EUT makes a call to the communication simulator.
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency.
Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth

Test Settings

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

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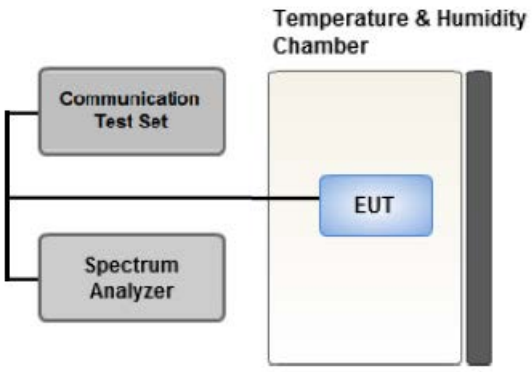
3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL



Test setup

Test Overview

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

Test Settings

1. RBW = 1 MHz
2. VBW ≥ 3 MHz
3. Detector = RMS
4. Number of sweep points ≥ 2 x Span/RBW
5. Trace mode = trace average
6. Sweep time > Number of points in sweep × Symbol period (i.e., the transmit on-time + the off-time)

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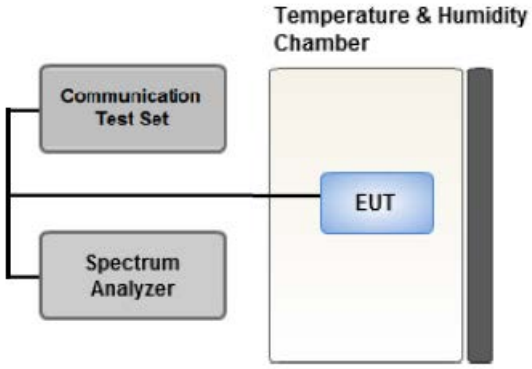
3.7 CHANNEL EDGE



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 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. Within 1MHz of the channel edge the RBW should be 2% of EBW, then 1 MHz after that.
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 > Number of points in sweep × Symbol period (i.e., the transmit on-time + the off-time)
9. The trace was allowed to stabilize

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Test Notes

1. The attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge,
2. 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge.
3. 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge.
4. The attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz.
5. 55 + 10 log (P) dB at or below 2490.5 MHz.
6. X is the greater of 6MHz or the actual emission bandwidth
7. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer

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

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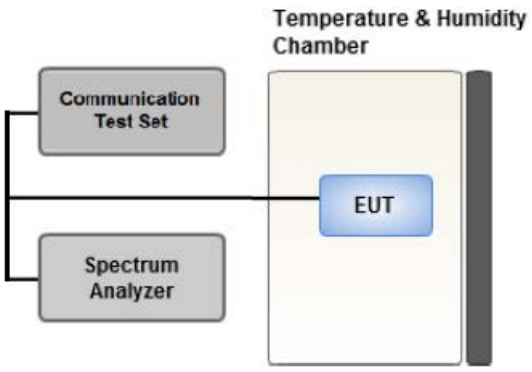
3.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE



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.

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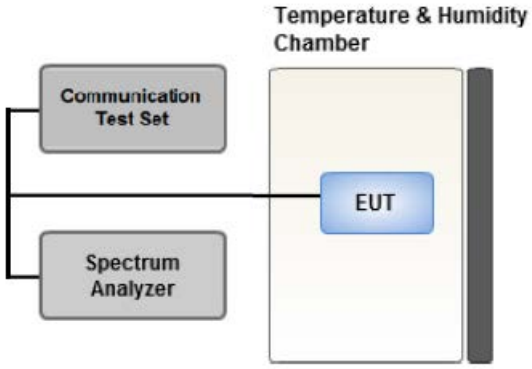
3.9 Adjacent Channel Leakage Ratio



Test setup

Test Settings

1. Use ACP measurement function of Spectrum analyzer to measure adjacent channel leakage ratio
2. Integ BW = Assigned channel bandwidth
5. Detector = RMS
6. Number of sweep points ≥ 2 x Span/RBW
7. Trace mode = trace average
8. Sweep time > Number of points in sweep × Symbol period (i.e., the transmit on-time + the off-time)
9. The trace was allowed to stabilize

Test Notes

the Adjacent Channel Leakage Ratio for End User Devices shall be at least 30 dB.

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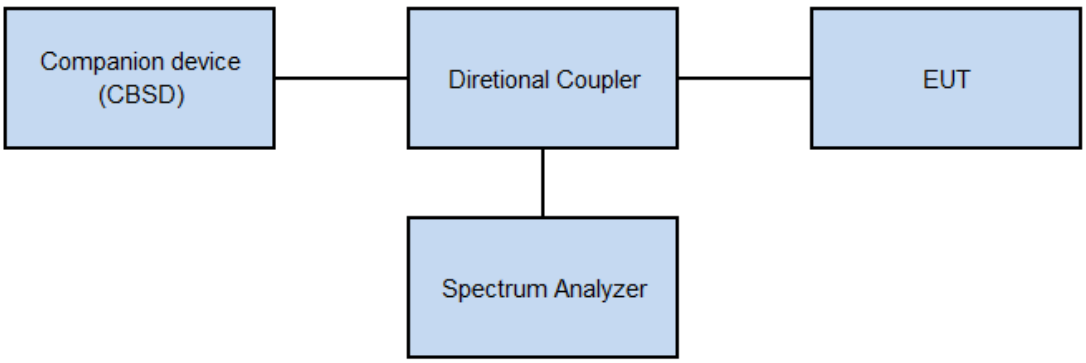
3.10 End User Device Additional Requirement (CBSD Protocol)



Test setup

Test Overview

End user device additional requirements (CBSD Protocol) are tested per the test procedures listed below. During testing, the EUT is connected to a certified CBSD (FCC ID: 2AS48SC-220) as a companion device to show compliance with Part 96.47.

End User Devices may operate only if they can positively receive and decode an authorization signal transmitted by a CBSD, including the frequencies and power limits for their operation.

Test Settings

a. Setup companion device with 3610 MHz(BW 20MHz).

b. Enable AP service from companion device.

c. EUT is connected to a companion device.

c. Check EUT Tx frequency and power.

d. Disable AP service from companion device and check EUT stop transmission within 10 s.

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3.11 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, and paging service configurations shown in the test data. Please refer to the table below.
- LTE B48 (3550 – 3700 MHz, 5/10/15/20 MHz bandwidth) overlaps the entire frequency range of LTE B42 (3550 – 3600 MHz, 5/10/15/20 MHz bandwidth) and they have the same Tune-up power.
- MIMO3 and MIMO4 have three types of Rx antennas. Operating modes were investigated for all Rx antennas, and the worst-case configuration results were reported.
  (Worst-case: HKL antenna(Maximum gain: 5dBi))

[External(MIMO1) Worst case]

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

[External(MIMO2) Worst case]

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

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3.12 WORST CASE(CONDUCTED TEST)

- All modes of operation were investigated and the worst case configuration results are reported.
- LTE B48 (3550 – 3700 MHz, 5/10/15/20 MHz bandwidth) overlaps the entire frequency range of LTE B42 (3550 – 3600 MHz, 5/10/15/20 MHz bandwidth) and they have the same Tune-up power.
- Both 85% and 115% conditions were measured for the Frequency Stability test, and results for the worst-case configuration (85%) were reported.
- In accordance with the customer's specification of 3.7V as the lowest operating voltage, testing was performed at 3.7V instead of 85% (3.57V).

[Worst case]

Test Description	Modulation	Bandwidth (MHz)	Frequency	RB size	RB offset
Occupied Bandwidth	QPSK, 16QAM, 64QAM, 256QAM	5, 10, 15, 20	Mid	Full RB	0
Peak-To-Average Radio	QPSK, 16QAM, 64QAM, 256QAM	5, 10, 15, 20	Mid	Full RB	0
Adjacent Channel Leakage Ratio	QPSK	5, 10, 15, 20	Low Mid High	Full RB	0
Channel Edge	QPSK	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
		5, 10, 15, 20	Low, Mid, High	Full RB	0
Spurious and Harmonic Emissions at Antenna Terminal	QPSK	5, 10, 15, 20	Low, Mid, High	1	0

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4. LIST OF TEST EQUIPMENT

[Radiated]

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
RF Switch System	FBSR-04C(3G HPF+LNA)	TNM System	S4L1	03/12/2026	Annual
RF Switch System	FBSR-04C(7G HPF+LNA)	TNM System	S4L5	03/12/2026	Annual
RF Switch System	FBSR-04C(LNA)	TNM System	S4L4	03/12/2026	Annual
RF Switch System	FBSR-04C(Thru)	TNM System	S4L6	03/12/2026	Annual
Antenna Position Tower	MA4640	Innco systems	S4AM	08/07/2025	Annual
Turn Table	DS2000-S	Innco systems	N/A	N/A	-
Controller (Antenna mast & Turn Table)	CO3000	Innco systems	CO3000/1251/ 48920320/P	N/A	-
Amp & Filter Bank Switch Controller	FBSM-01B	TNM system	TM20090002	N/A	-
RF Switching System	Switch box(1 G HPF+LNA)	HCT CO., LTD.,	F2L2	12/12/2025	Annual
RF Switching System	Switch box(3 G HPF+LNA)	HCT CO., LTD.,	F2L3	12/12/2025	Annual
RF Switching System	Switch box(LNA)	HCT CO., LTD.,	F2L5	12/12/2025	Annual
RF Switching System	Switch box(6 G HPF+LNA)	HCT CO., LTD.,	F2L14	12/12/2025	Annual
HIGHPASS FILTER	WHKX10-900-1000-15000-40SS	WAINWRIGHT INSTRUMENTS	16	07/24/2025	Annual
LOW NOISE AMPLIFIER	310N	SONOMA Instrument	186169	02/05/2026	Annual
LOW NOISE AMPLIFIER	TK-PA1840H	TESTEK	170011-L	10/11/2025	Annual
Power Amplifier	CBL18265035	CERNEX	22966	11/07/2025	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/19/2026	Annual
Power Splitter(DC ~ 26.5 GHz)	11667B	Hewlett Packard	5001	04/10/2026	Annual
DC Power Supply	E3632A	Agilent	MY40010147	08/06/2025	Annual
Dipole Antenna	UHAP	Schwarzbeck	01274	03/10/2026	Biennial
Dipole Antenna	UHAP	Schwarzbeck	01288	08/07/2026	Biennial
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	03197	11/28/2025	Biennial
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	03201	11/28/2025	Biennial
Horn Antenna(1 ~ 18 GHz)	BBHA 9120	Schwarzbeck	937	02/07/2027	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	03/23/2027	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	09/20/2026	Biennial

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Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	ROHDE & SCHWARZ	101733	09/19/2025	Annual
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	REOHDE & SCHWARZ	101436	02/04/2026	Annual
Signal & Spectrum Analyzer (2 Hz~67 GHz)	FSW67	REOHDE & SCHWARZ	101736	05/27/2026	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/05/2025	Annual
Loop Antenna(9 kHz ~ 30 MHz)	FMZB1513	Schwarzbeck	1513-333	03/07/2026	Biennial
Trilog Broadband Antenna	VULB 9168	Schwarzbeck	9168-0895	08/28/2026	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	895	08/28/2026	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	1135	08/19/2026	Biennial
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262287701	05/14/2026	Annual
Wideband Radio Communication Tester	MT8000A	Anritsu Corp.	6272613402	08/28/2025	Annual
SIGNAL GENERATOR (100 kHz ~ 40 GHz)	SMB100A	REOHDE & SCHWARZ	177633	07/26/2025	Annual
Automation Software	FCC LTE Radiated	HCT CO., LTD	-	-	-
Automation Software	FCC NR Radiated	HCT CO., LTD	-	-	-

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[Conducted]

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Power Splitter (DC ~ 26.5 GHz)	11667B	Hewlett Packard	5001	04/10/2026	Annual
DC Power Supply	E3632A	Agilent	MY40010147	08/06/2025	Annual
Chamber	SU-642	ESPEC	93008124	02/11/2026	Annual
ATTENUATOR (20 dB)	8493C	Hewlett Packard	17280	04/10/2026	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/05/2025	Annual
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262094331	11/13/2025	Annual
UXM 5G Wireless Test Platform	E7515B	KEYSIGHT	MY60101126	02/10/2026	Annual
Signal Analyzer (2 Hz ~ 50.0 GHz)	N9030B	KEYSIGHT	MY56320554	02/03/2026	Annual
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.	-	-	-
Automation Software	FCC 2G/3G/4G Conducted	HCT CO., LTD	-	-	-
Automation Software	FCC NR Conducted	HCT CO., LTD	-	-	-

Note:

1. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
2. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2017).

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

Parameter	Expanded Uncertainty (±dB)
Block Edge	0.70 (Confidence level about 95 %, k=2)
Conducted Spurious Emissions	1.18 (Confidence level about 95 %, k=2)
Peak- to- Average Ratio	0.68 (Confidence level about 95 %, k=2)
Radiated Power	4.74 (Confidence level about 95 %, k=2)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.36 (Confidence level about 95 %, k=2)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.68 (Confidence level about 95 %, k=2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.75 (Confidence level about 95 %, k=2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.82 (Confidence level about 95 %, k=2)
Radiated Disturbance (Above 40 GHz)	5.58 (Confidence level about 95 %, k=2)

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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, § 96.41(e)	■ -13 dBm/Mhz at frequencies within 0-10 MHz of channel edge ■ -25 dBm/MHz at frequencies greater than 10 MHz above and below channel edge ■ -40 dBm/MHz at frequencies below 3530 MHz and above 3720 MHz	PASS
Adjacent Channel Leakage Ratio	§ 96.41(e)	At least 30 dB.	PASS
Conducted Output Power	§ 2.1046	N/A	Note[1]
Frequency stability / variation of ambient temperature	§ 2.1055,	Emission must remain in band	PASS
Peak- to- Average Ratio	§ 96.41	< 13 dB	PASS
End User Device Additional Requirements (CBSD Protocol)	§ 96.47	End User Devices may operate only if they can positively receive and decode an authorization signal transmitted by a CBSD, including the frequencies and power limits for their operation. An End User Device must discontinue operations, change frequencies, or change its operational power level within 10 seconds of receiving instructions from its associated CBSD.	PASS

Note:

1. Refer to the SAR report.
2. The EUT is an End User Device

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6.2 Test Condition: Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Equivalent Isotropic Radiated Power	§ 96.41(b)	23 dBm/10 MHz	PASS
Radiated Spurious and Harmonic Emissions	§ 2.1053, § 96.41(e)	-40 dBm/MHz	PASS

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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.

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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

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8. TEST DATA (MIMO1)

8.1 EQUIVALENT ISOTROPIC RADIATED POWER

Freq (MHz)	Bandwidth	Modulation	Measured (dBμV/m)	Ant. Factor + Distance Factor (dB)	C.L + Thru(dB)	Total (dBμV/m)	Pol.	EIRP	Limit	RB	
								dBm/10 MHz		Size	Offset
3552.5	LTE B48(42)/ 5 MHz	QPSK	69.96	31.50	5.52	106.98	V	15.76	23.0	1	12
		16-QAM	69.91	31.50	5.52	106.93	V	15.71			
		64-QAM	69.88	31.50	5.52	106.90	V	15.68			
		256-QAM	69.76	31.50	5.52	106.78	V	15.56			
3625.0		QPSK	71.00	31.40	5.72	108.12	V	16.90		1	0
		16-QAM	70.89	31.40	5.72	108.01	V	16.79			
		64-QAM	70.92	31.40	5.72	108.04	V	16.82			
		256-QAM	70.87	31.40	5.72	107.99	V	16.77			
3697.5		QPSK	68.48	31.40	5.73	105.61	V	14.39		1	12
		16-QAM	68.44	31.40	5.73	105.57	V	14.35			
		64-QAM	68.41	31.40	5.73	105.54	V	14.32			
		256-QAM	68.39	31.40	5.73	105.52	V	14.30			

Freq (MHz)	Bandwidth	Modulation	Measured (dBμV/m)	Ant. Factor + Distance Factor (dB)	C.L + Thru(dB)	Total (dBμV/m)	Pol.	EIRP	Limit	RB	
								dBm/10 MHz		Size	Offset
3555.0	LTE B48(42)/ 10 MHz	QPSK	69.87	31.50	5.52	106.89	V	15.67	23.0	1	0
		16-QAM	69.65	31.50	5.52	106.67	V	15.45			
		64-QAM	69.44	31.50	5.52	106.46	V	15.24			
		256-QAM	69.39	31.50	5.52	106.41	V	15.19			
3625.0		QPSK	70.50	31.40	5.72	107.62	V	16.40		1	49
		16-QAM	70.33	31.40	5.72	107.45	V	16.23			
		64-QAM	70.29	31.40	5.72	107.41	V	16.19			
		256-QAM	70.31	31.40	5.72	107.43	V	16.21			
3695.0		QPSK	68.65	31.40	5.73	105.78	V	14.56		1	49
		16-QAM	68.31	31.40	5.73	105.44	V	14.22			
		64-QAM	68.49	31.40	5.73	105.62	V	14.40			
		256-QAM	68.42	31.40	5.73	105.55	V	14.33			

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Freq (MHz)	Bandwidth	Modulation	Measured (dBμV/m)	Ant. Factor + Distance Factor (dB)	C.L + Thru(dB)	Total (dBμV/m)	Pol.	EIRP	Limit	RB	
								dBm/10 MHz		Size	Offset
3557.5	LTE B48(42)/ 15 MHz	QPSK	69.78	31.50	5.52	106.80	V	15.58	23.0	1	0
		16-QAM	69.55	31.50	5.52	106.57	V	15.35			
		64-QAM	69.69	31.50	5.52	106.71	V	15.49			
		256-QAM	69.42	31.50	5.52	106.44	V	15.22			
3625.0		QPSK	70.34	31.40	5.72	107.46	V	16.24		1	37
		16-QAM	70.21	31.40	5.72	107.33	V	16.11			
		64-QAM	70.29	31.40	5.72	107.41	V	16.19			
		256-QAM	70.11	31.40	5.72	107.23	V	16.01			
3692.5		QPSK	68.51	31.40	5.73	105.64	V	14.42		1	74
		16-QAM	68.34	31.40	5.73	105.47	V	14.25			
		64-QAM	68.49	31.40	5.73	105.62	V	14.40			
		256-QAM	68.26	31.40	5.73	105.39	V	14.17			

Freq (MHz)	Bandwidth	Modulation	Measured (dBμV/m)	Ant. Factor + Distance Factor (dB)	C.L + Thru(dB)	Total (dBμV/m)	Pol.	EIRP	Limit	RB	
								dBm/10 MHz		Size	Offset
3560.0	LTE B48(42)/ 20 MHz	QPSK	69.86	31.50	5.52	106.88	V	15.66	23.0	1	0
		16-QAM	69.77	31.50	5.52	106.79	V	15.57			
		64-QAM	69.54	31.50	5.52	106.56	V	15.34			
		256-QAM	69.68	31.50	5.52	106.70	V	15.48			
3625.0		QPSK	70.33	31.40	5.72	107.45	V	16.23		1	99
		16-QAM	70.21	31.40	5.72	107.33	V	16.11			
		64-QAM	70.16	31.40	5.72	107.28	V	16.06			
		256-QAM	70.17	31.40	5.72	107.29	V	16.07			
3690.0		QPSK	68.21	31.40	5.73	105.34	V	14.12		1	99
		16-QAM	68.01	31.40	5.73	105.14	V	13.92			
		64-QAM	68.16	31.40	5.73	105.29	V	14.07			
		256-QAM	68.12	31.40	5.73	105.25	V	14.03			

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8.2 RADIATED SPURIOUS EMISSIONS

▣ MODE: LTE B48(42)

▣ MODULATION SIGNAL: 5 MHz QPSK

▣ DISTANCE: 1 meters

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
55265 (3552.5)	7 105.00	-53.36	10.84	-55.45	4.48	V	-49.09	-40.00	1	12
	10 657.50	-54.75	11.61	-54.92	5.67	H	-48.98	-40.00		
	14 210.00	-63.59	13.10	-50.30	6.66	V	-43.86	-40.00		
55990 (3625.0)	7 250.00	-53.69	10.62	-54.45	4.53	H	-48.36	-40.00	1	0
	10 875.00	-54.51	11.84	-54.06	5.82	H	-48.04	-40.00		
	14 500.00	-66.28	13.42	-51.02	6.69	V	-44.29	-40.00		
56715 (3697.5)	7 395.00	-53.49	11.12	-55.71	4.59	V	-49.18	-40.00	1	12
	11 092.50	-54.37	12.31	-54.81	5.88	V	-48.38	-40.00		
	14 790.00	-67.28	13.61	-50.06	6.73	V	-43.18	-40.00		

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▣ MODE: LTE B48(42)

▣ MODULATION SIGNAL: 10 MHz QPSK

▣ DISTANCE: 1 meters

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
55290 (3555.0)	7 110.00	-54.73	10.83	-56.69	4.48	H	-50.34	-40.00	1	0
	10 665.00	-55.23	11.61	-55.50	5.68	H	-49.57	-40.00		
	14 220.00	-64.29	13.12	-50.73	6.63	V	-44.24	-40.00		
55990 (3625.0)	7 250.00	-54.21	10.62	-54.97	4.53	V	-48.88	-40.00	1	49
	10 875.00	-55.23	11.84	-54.78	5.82	H	-48.76	-40.00		
	14 500.00	-65.66	13.42	-50.40	6.69	V	-43.67	-40.00		
56690 (3695.0)	7 390.00	-53.37	11.10	-55.56	4.60	V	-49.06	-40.00	1	49
	11 085.00	-54.93	12.31	-55.45	5.85	H	-48.99	-40.00		
	14 780.00	-67.43	13.57	-50.38	6.73	H	-43.54	-40.00		

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▣ MODE: LTE B48(42)

▣ MODULATION SIGNAL: 15 MHz QPSK

▣ DISTANCE: 1 meters

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Size
55315 (3557.5)	7 115.00	-53.97	10.82	-55.98	4.47	H	-49.63	-40.00	1	0
	10 672.50	-54.05	11.61	-54.39	5.70	H	-48.48	-40.00		
	14 230.00	-64.16	13.14	-50.36	6.58	H	-43.80	-40.00		
55990 (3625.0)	7 250.00	-54.40	10.62	-55.16	4.53	H	-49.07	-40.00	1	37
	10 875.00	-55.22	11.84	-54.77	5.82	H	-48.75	-40.00		
	14 500.00	-66.26	13.42	-51.00	6.69	H	-44.27	-40.00		
56665 (3692.5)	7 385.00	-53.75	11.07	-56.01	4.61	H	-49.55	-40.00	1	74
	11 077.50	-55.30	12.31	-55.93	5.84	H	-49.46	-40.00		
	14 770.00	-67.34	13.53	-50.29	6.72	V	-43.48	-40.00		

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▣ MODE: LTE B48(42)

▣ MODULATION SIGNAL: 20 MHz QPSK

▣ DISTANCE: 1 meters

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Size
55340 (3560.0)	7 120.00	-55.59	10.81	-57.66	4.46	V	-51.31	-40.00	1	0
	10 680.00	-55.72	11.61	-56.03	5.71	H	-50.13	-40.00		
	14 240.00	-64.25	13.16	-50.49	6.54	V	-43.87	-40.00		
55990 (3625.0)	7 250.00	-54.93	10.62	-55.69	4.53	H	-49.60	-40.00	1	99
	10 875.00	-54.53	11.84	-54.08	5.82	H	-48.06	-40.00		
	14 500.00	-65.93	13.42	-50.67	6.69	H	-43.94	-40.00		
56640 (3690.0)	7 380.00	-54.39	11.05	-56.75	4.61	V	-50.31	-40.00	1	99
	11 070.00	-55.29	12.31	-55.73	5.79	V	-49.21	-40.00		
	14 760.00	-66.89	13.49	-49.84	6.71	V	-43.06	-40.00		

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8.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
48(42)	5 MHz	3625.0	QPSK	25	0	5.82
			16-QAM			6.53
			64-QAM			6.60
			256-QAM			6.59
	10 MHz		QPSK	50		5.95
			16-QAM			6.55
			64-QAM			6.79
			256-QAM			6.61
	15 MHz		QPSK	75		5.92
			16-QAM			6.52
			64-QAM			6.66
			256-QAM			6.73
	20 MHz		QPSK	100		5.88
			16-QAM			6.49
			64-QAM			6.71
			256-QAM			6.75

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 82 ~ 97.

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8.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
48(42)	5 MHz	3625.0	QPSK	25	0	4.4828
			16-QAM			4.4896
			64-QAM			4.4901
			256-QAM			4.4540
	10 MHz		QPSK	50		8.9923
			16-QAM			8.9573
			64-QAM			8.9530
			256-QAM			8.9876
	15 MHz		QPSK	75		13.468
			16-QAM			13.375
			64-QAM			13.487
			256-QAM			13.422
	20 MHz		QPSK	100		17.978
			16-QAM			17.893
			64-QAM			17.948
			256-QAM			17.860

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 98 ~113.

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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)
48(42)	5	3552.5	4.9502	32.349	-83.929	-51.580	-40.00
		3625.0	7.2459	32.959	-81.583	-48.624	
		3697.5	7.3908	32.959	-81.311	-48.352	
	10	3555.0	3.7500	32.349	-83.953	-51.604	
		3625.0	7.2411	32.959	-81.233	-48.274	
		3695.0	7.3814	32.959	-81.863	-48.904	
	15	3557.5	3.8172	32.349	-83.582	-51.233	
		3625.0	7.2369	32.959	-81.240	-48.281	
		3692.5	7.3715	32.959	-81.391	-48.432	
	20	3560.0	3.8094	32.349	-83.732	-51.383	
		3625.0	7.2321	32.959	-81.155	-48.196	
		3690.0	7.3620	32.959	-81.020	-48.061	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 114 ~ 137.
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) = Duty Cycle factor + Cable Loss + Ext. Attenuator + Power Divider
5. Duty Cycle Factor(dB) = 3.979

Frequency Range (GHz)	Factor [dB]
0.03 – 1	29.649
1 – 5	32.349
5 – 10	32.959
10 – 15	33.499
15 – 20	33.869
Above 20(26.5)	34.509

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8.6 CHANNEL EDGE

BW (MHz)	RB (Size/ Offset)	Freq. (MHz)	Outside of the authorized band (dBm)							
			Lower Side(MHz)				Upper Side(MHz)			
			Below 3530 MHz	-[B]MHz ~ 3530 MHz	-1 MHz ~ -[B]MHz	0 MHz ~ -1 MHz	0 MHz ~ +1 MHz	1 MHz ~ +[B]MHz	+[B]MHz ~ 3720 MHz	Above 3720 MHz
5	25/0	3552.5	-56.98	-37.06	-24.48	-31.05	-30.68	-25.30	-37.77	-
		3625.0	-	-37.50	-24.14	-31.13	-30.80	-24.92	-38.32	-
		3697.5	-	-37.62	-24.05	-30.90	-30.45	-24.63	-38.21	-54.78
10	50/0	3555.0	-51.58	-41.45	-26.62	-33.76	-33.70	-26.99	-41.14	-
		3625.0	-	-42.20	-26.06	-33.56	-33.59	-26.60	-41.64	-
		3695.0	-	-42.58	-26.29	-33.70	-33.49	-26.53	-41.84	-52.49
15	75/0	3557.5	-47.95	-35.72	-28.36	-34.22	-35.00	-29.04	-42.88	-
		3625.0	-	-44.56	-28.25	-34.21	-34.72	-28.47	-43.75	-
		3692.5	-	-44.49	-28.31	-34.35	-34.67	-28.35	-36.66	-48.48
20	100/0	3560.0	-45.20	-33.82	-29.08	-34.89	-35.79	-30.27	-42.47	-
		3625.0	-	-45.16	-28.92	-34.77	-35.32	-29.60	-45.45	-
		3690.0	-	-46.38	-29.09	-34.97	-35.15	-29.36	-34.88	-45.22
Limit (dBm)			-40.00	-25.00	-13.00	-13.00	-13.00	-13.00	-25.00	-40.00

Note:

1. C.E = Channel Edge
2. Duty Cycle factor already applied on the factor.
   - Duty Cycle factor(dB) = 3.979
   - Factor(dB) = Duty Cycle factor + Cable Loss + Ext. Attenuator + Power Splitter
3. Plots of the EUT's Channel Edge are shown Page 150 ~ 193.

The report shall not be (partly) reproduced except in full without approval of the laboratory.

BW (MHz)	RB (Size/ Offset)	Freq. (MHz)	Outside of the authorized band (dBm)							
			Lower Side(MHz)				Upper Side(MHz)			
			Below 3530 MHz	-[B]MHz ~ 3530 MHz	-1 MHz ~ -[B]MHz	0 MHz ~ -1 MHz	0 MHz ~ +1 MHz	1 MHz ~ +[B]MHz	+[B]MHz ~ 3720 MHz	Above 3720 MHz
5	Lower Side: 1/0 Upper Side: 1/24	3552.5	-56.74	-38.54	-26.49	-18.79	-18.95	-25.48	-39.34	-
		3625.0	-	-39.08	-26.64	-19.15	-19.24	-25.89	-39.71	-
		3697.5	-	-39.07	-26.76	-19.27	-19.48	-25.92	-39.92	-54.70
10	Lower Side: 1/0 Upper Side: 1/49	3555.0	-52.54	-45.22	-28.02	-22.15	-22.15	-27.30	-45.31	-
		3625.0	-	-46.13	-28.27	-22.40	-22.28	-27.72	-46.03	-
		3695.0	-	-46.30	-28.46	-22.62	-22.58	-27.96	-46.06	-53.67
15	Lower Side: 1/0 Upper Side: 1/74	3557.5	-47.83	-44.09	-28.44	-23.77	-22.84	-27.90	-46.89	-
		3625.0	-	-47.90	-29.02	-24.22	-23.17	-28.15	-47.54	-
		3692.5	-	-48.08	-29.03	-24.34	-23.41	-28.41	-44.60	-48.08
20	Lower Side: 1/0 Upper Side: 1/99	3560.0	-50.53	-44.22	-29.39	-25.10	-25.34	-28.92	-44.49	-
		3625.0	-	-50.63	-29.99	-25.64	-25.72	-29.22	-51.22	-
		3690.0	-	-51.89	-29.86	-25.66	-25.91	-29.38	-44.42	-51.16
Limit (dBm)			-40.00	-25.00	-13.00	-13.00	-13.00	-13.00	-25.00	-40.00

Note:

1. C.E = Channel Edge
2. Duty Cycle factor already applied on the factor.
   - Duty Cycle factor(dB) = 3.979
   - Factor(dB) = Duty Cycle factor + Cable Loss + Ext. Attenuator + Power Splitter
3. Plots of the EUT's Channel Edge are shown Page 150 ~ 193.

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8.7 Adjacent Channel Leakage Ratio(ACLR)

Band Width	RB (Size/ Offset)	Frequency (MHz)	Adjacent Channel Leakage Ratio(dB)	
			Lower Side	Upper Side
5 MHz	25/0	3552.5	41.65	42.21
		3625.0	41.06	41.47
		3697.5	41.28	41.59
10 MHz	50/0	3555.0	42.25	42.72
		3625.0	41.60	41.90
		3695.0	41.99	42.13
15 MHz	75/0	3557.5	42.32	43.23
		3625.0	41.77	42.33
		3692.5	42.28	42.63
20 MHz	100/0	3560.0	42.37	43.64
		3625.0	41.85	42.65
		3690.0	42.22	42.79
Limit (dB)			ACLR > 30 dB	ACLR > 30 dB

Note:

1. Duty Cycle factor already applied on the factor.
 - Duty Cycle factor(dB) = 3.979
 - Factor(dB) = Duty Cycle factor + Cable Loss + Ext. Attenuator + Power Splitter
2. Plots of the EUT's Adjacent Channel Leakage Ratio(ACLR) are shown Page 138 ~ 149.

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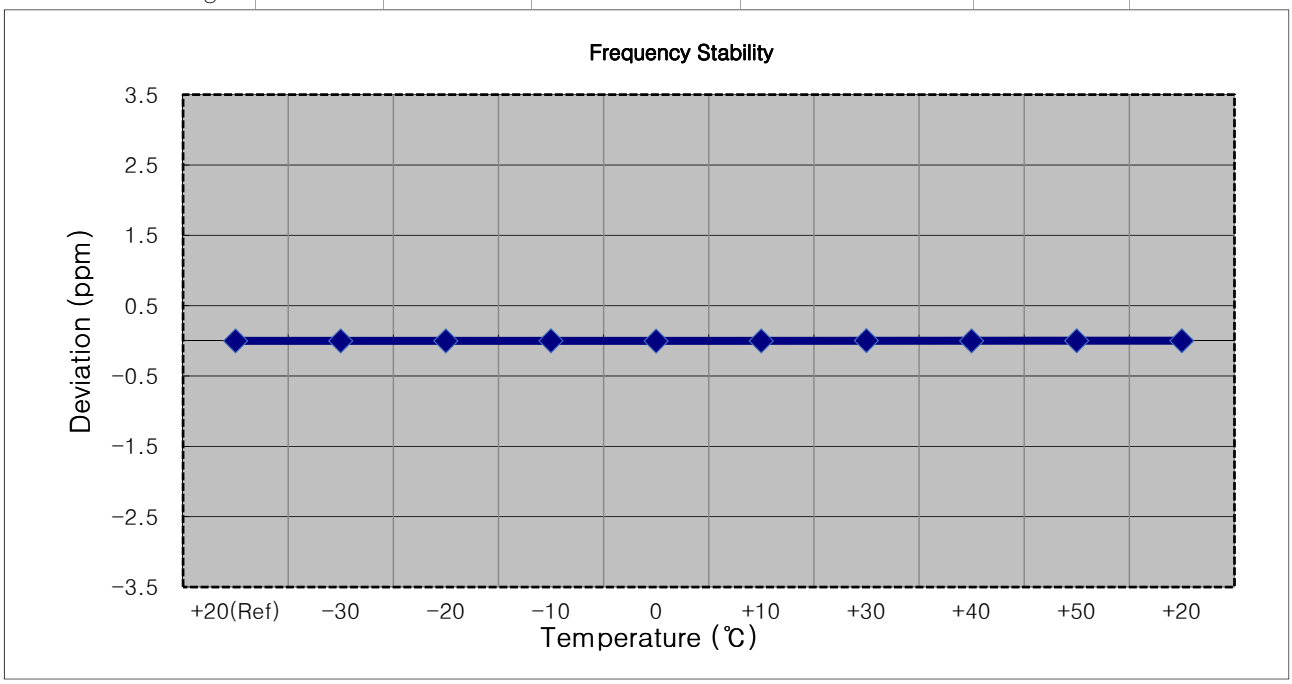
8.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

▣ OPERATING FREQUENCY: 3,552,500,000 Hz
▣ BANDWIDTH: 5 MHz
▣ REFERENCE VOLTAGE: 4.200 VDC
▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(℃)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3552 500 008	0.0	0.000 000	0.000
100 %		-30	3552 500 003	-4.9	0.000 000	-0.001
100 %		-20	3552 500 004	-4.3	0.000 000	-0.001
100 %		-10	3552 500 014	5.5	0.000 000	0.002
100 %		0	3552 499 998	-9.7	0.000 000	-0.003
100 %		+10	3552 500 002	-6.2	0.000 000	-0.002
100 %		+30	3552 500 017	8.7	0.000 000	0.002
100 %		+40	3552 500 002	-5.9	0.000 000	-0.002
100 %		+50	3552 500 012	4.3	0.000 000	0.001
Lowest voltage	3.700	+20	3552 500 014	5.4	0.000 000	0.002



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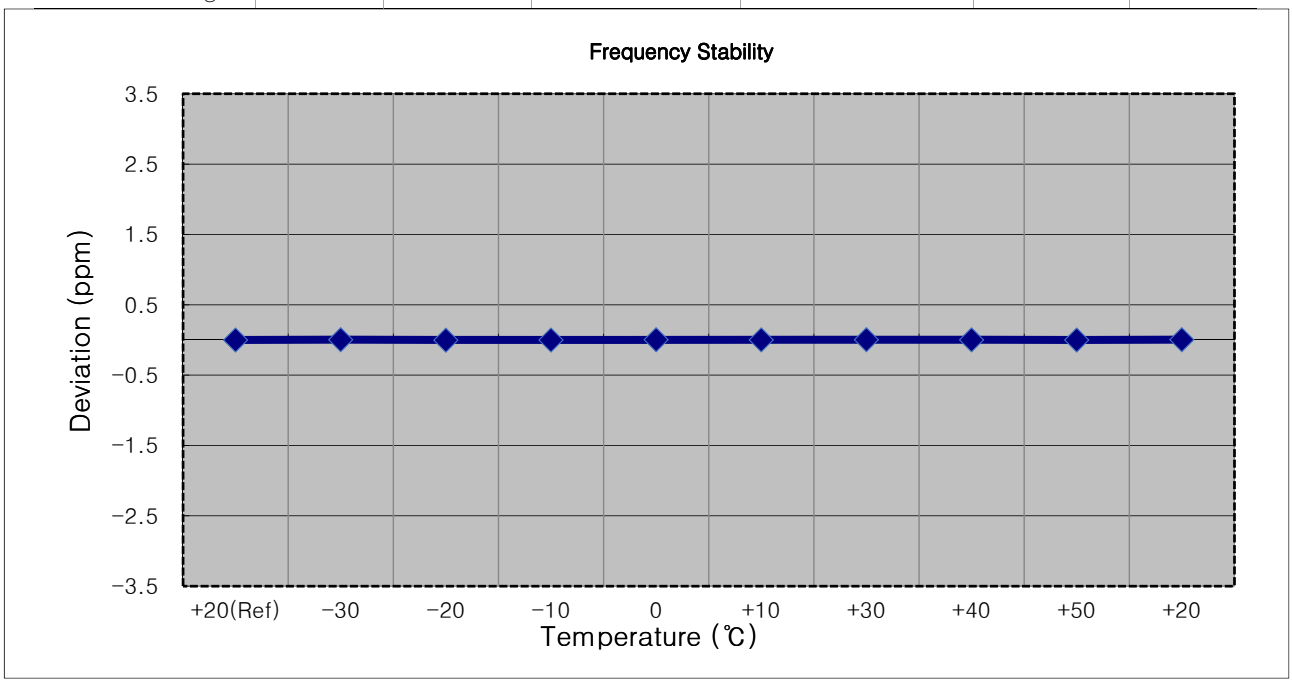
▣ OPERATING FREQUENCY: 3,555,000,000 Hz

▣ BANDWIDTH: 10 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(℃)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3554 999 995	0.0	0.000 000	0.000
100 %		-30	3555 000 003	8.4	0.000 000	0.002
100 %		-20	3554 999 985	-9.5	0.000 000	-0.003
100 %		-10	3554 999 987	-7.6	0.000 000	-0.002
100 %		0	3555 000 004	9.1	0.000 000	0.003
100 %		+10	3555 000 003	8.2	0.000 000	0.002
100 %		+30	3555 000 006	11.4	0.000 000	0.003
100 %		+40	3555 000 000	5.2	0.000 000	0.001
100 %		+50	3554 999 988	-7.0	0.000 000	-0.002
Lowest voltage	3.700	+20	3555 000 006	11.1	0.000 000	0.003



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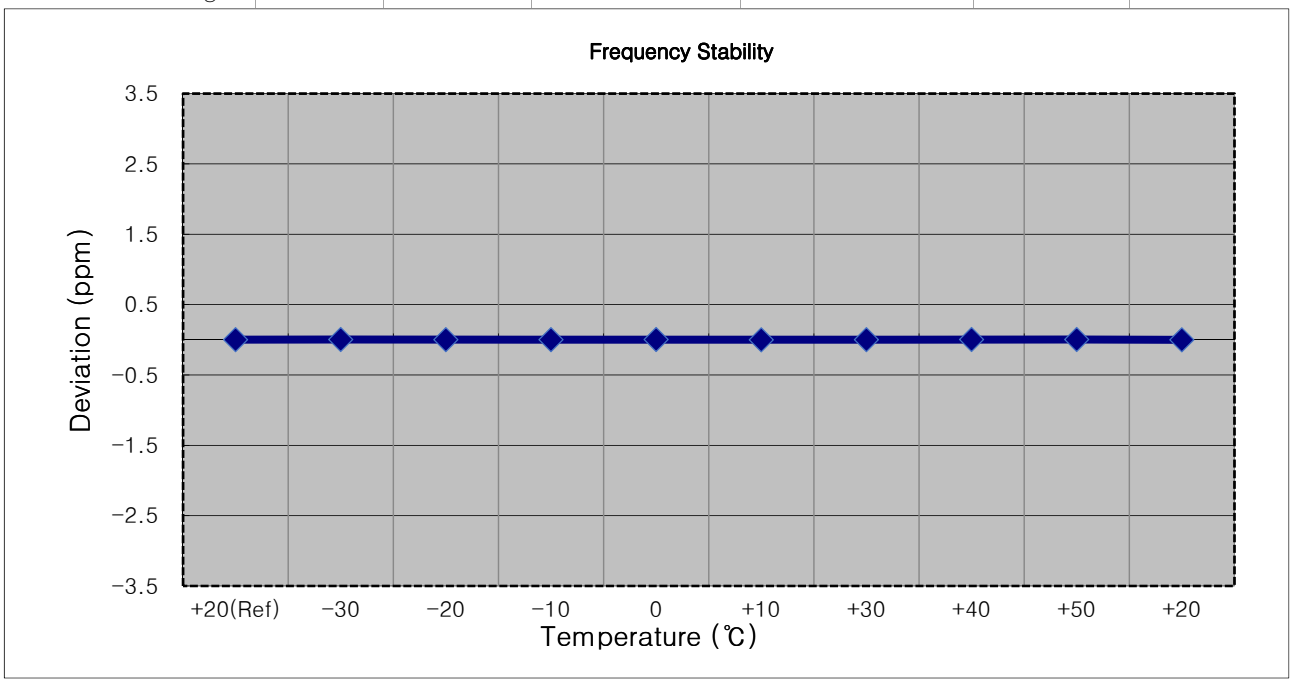
▣ OPERATING FREQUENCY: 3,557,500,000 Hz

▣ BANDWIDTH: 15 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3557 500 006	0.0	0.000 000	0.000
100 %		-30	3557 500 014	7.5	0.000 000	0.002
100 %		-20	3557 500 011	5.0	0.000 000	0.001
100 %		-10	3557 500 012	5.9	0.000 000	0.002
100 %		0	3557 500 014	7.3	0.000 000	0.002
100 %		+10	3557 499 997	-9.1	0.000 000	-0.003
100 %		+30	3557 500 012	5.4	0.000 000	0.002
100 %		+40	3557 500 014	7.6	0.000 000	0.002
100 %		+50	3557 500 019	12.9	0.000 000	0.004
Lowest voltage	3.700	+20	3557 499 999	-7.3	0.000 000	-0.002



The report shall not be (partly) reproduced except in full without approval of the laboratory.

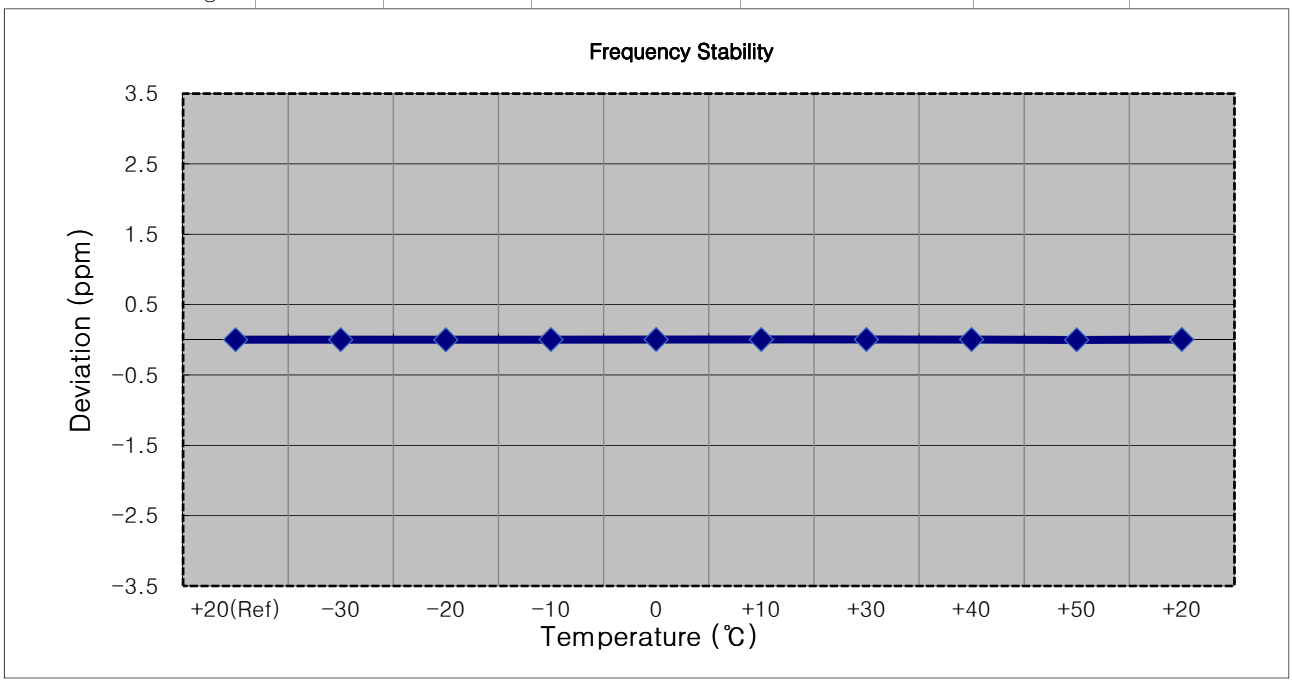
▣ OPERATING FREQUENCY: 3,560,000,000 Hz

▣ BANDWIDTH: 20 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3560 000 010	0.0	0.000 000	0.000
100 %		-30	3560 000 014	4.2	0.000 000	0.001
100 %		-20	3560 000 003	-6.6	0.000 000	-0.002
100 %		-10	3560 000 018	7.8	0.000 000	0.002
100 %		0	3560 000 019	9.3	0.000 000	0.003
100 %		+10	3560 000 023	12.6	0.000 000	0.004
100 %		+30	3560 000 019	9.3	0.000 000	0.003
100 %		+40	3560 000 019	8.9	0.000 000	0.002
100 %		+50	3560 000 001	-9.0	0.000 000	-0.003
Lowest voltage	3.700	+20	3560 000 017	7.0	0.000 000	0.002



The report shall not be (partly) reproduced except in full without approval of the laboratory.

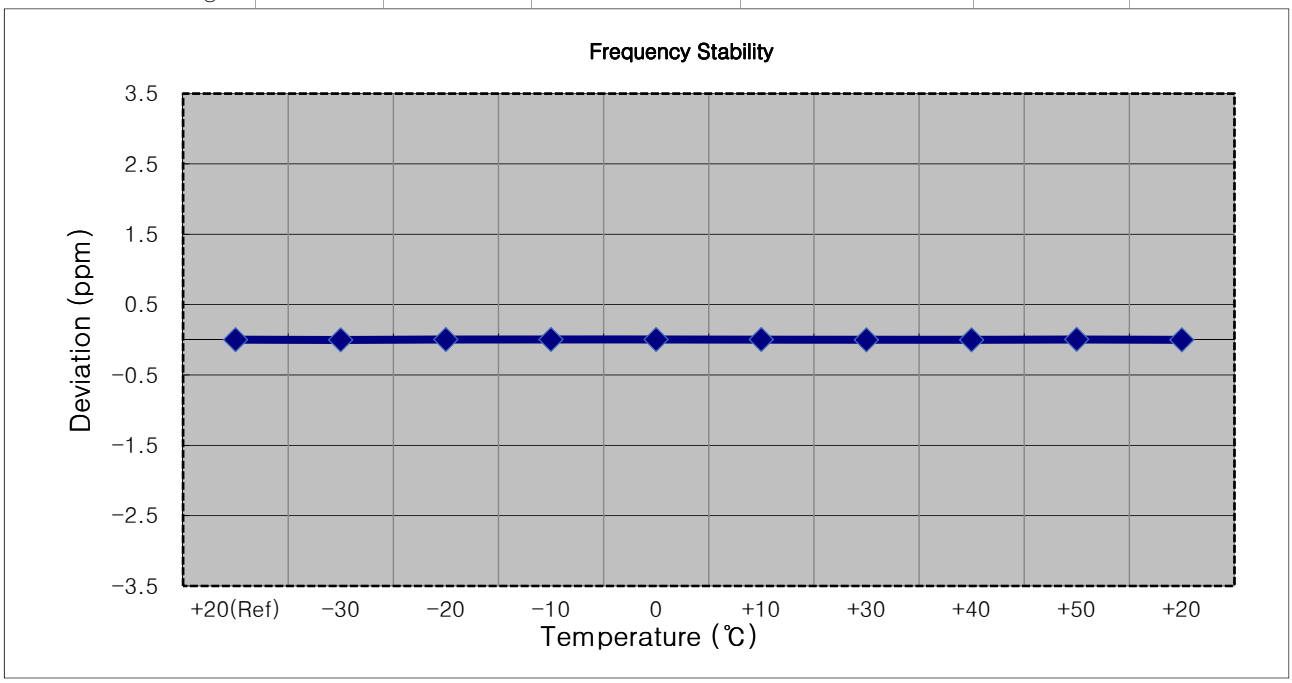
▣ OPERATING FREQUENCY: 3,625,000,000 Hz

▣ BANDWIDTH: 5 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3625 000 017	0.0	0.000 000	0.000
100 %		-30	3625 000 009	-8.6	0.000 000	-0.002
100 %		-20	3625 000 026	8.5	0.000 000	0.002
100 %		-10	3625 000 023	6.3	0.000 000	0.002
100 %		0	3625 000 026	8.5	0.000 000	0.002
100 %		+10	3625 000 026	9.1	0.000 000	0.003
100 %		+30	3625 000 011	-6.2	0.000 000	-0.002
100 %		+40	3625 000 011	-6.6	0.000 000	-0.002
100 %		+50	3625 000 032	15.2	0.000 000	0.004
Lowest voltage	3.700	+20	3625 000 011	-5.8	0.000 000	-0.002



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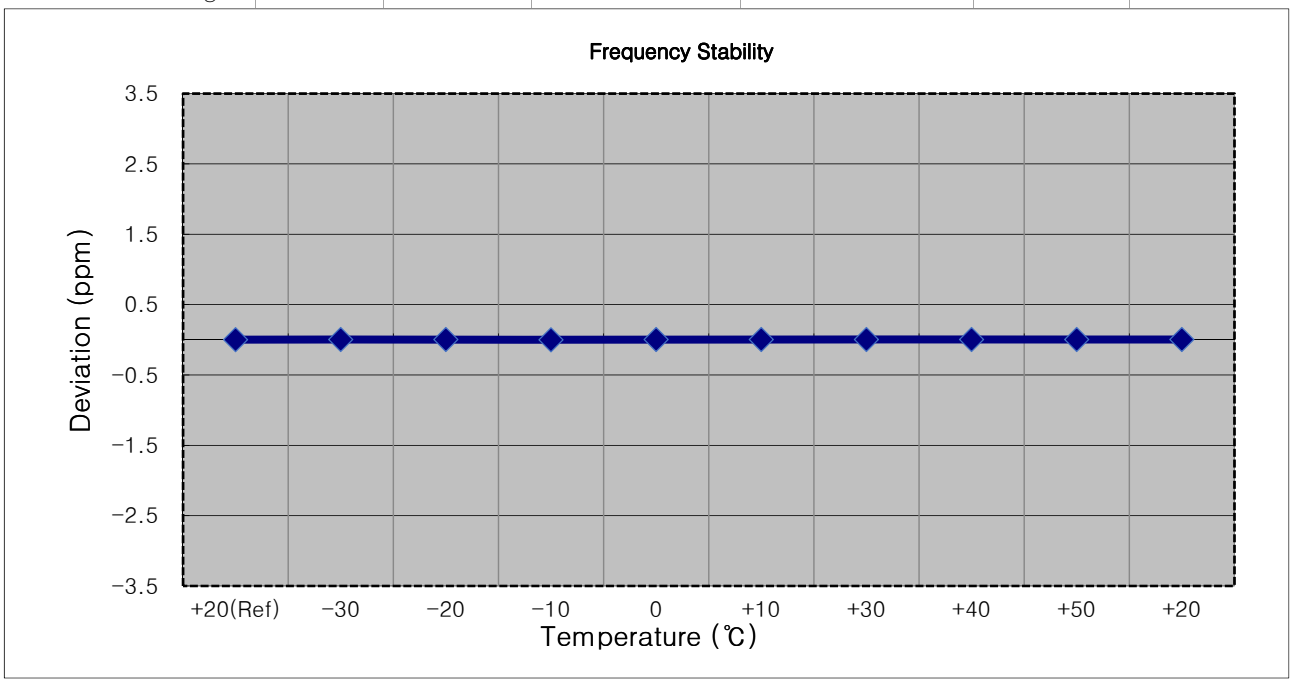
▣ OPERATING FREQUENCY: 3,625,000,000 Hz

▣ BANDWIDTH: 10 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3625 000 014	0.0	0.000 000	0.000
100 %		-30	3625 000 024	10.5	0.000 000	0.003
100 %		-20	3625 000 022	8.1	0.000 000	0.002
100 %		-10	3625 000 005	-8.3	0.000 000	-0.002
100 %		0	3625 000 024	10.2	0.000 000	0.003
100 %		+10	3625 000 022	8.0	0.000 000	0.002
100 %		+30	3625 000 022	7.8	0.000 000	0.002
100 %		+40	3625 000 026	12.5	0.000 000	0.003
100 %		+50	3625 000 021	7.5	0.000 000	0.002
Lowest voltage	3.700	+20	3625 000 021	7.2	0.000 000	0.002



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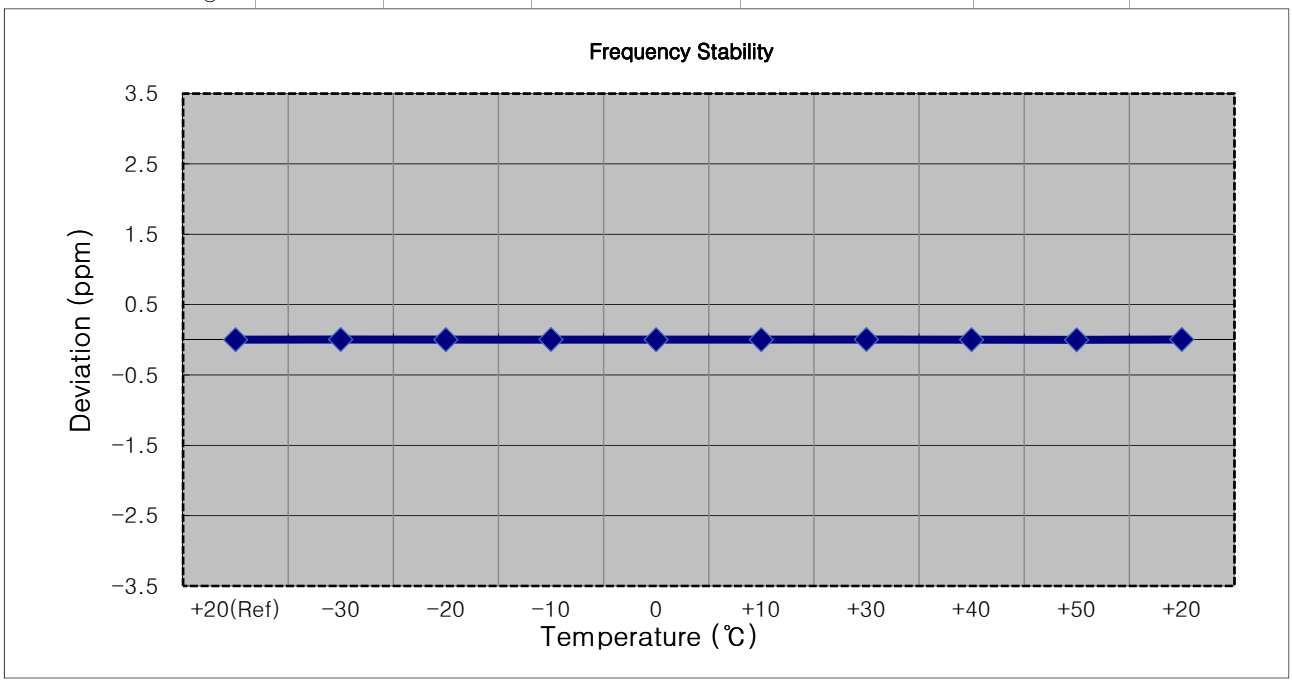
▣ OPERATING FREQUENCY: 3,625,000,000 Hz

▣ BANDWIDTH: 15 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3625 000 005	0.0	0.000 000	0.000
100 %		-30	3625 000 012	6.8	0.000 000	0.002
100 %		-20	3625 000 009	3.7	0.000 000	0.001
100 %		-10	3625 000 016	10.7	0.000 000	0.003
100 %		0	3625 000 010	5.0	0.000 000	0.001
100 %		+10	3625 000 010	4.5	0.000 000	0.001
100 %		+30	3625 000 012	6.5	0.000 000	0.002
100 %		+40	3625 000 011	5.4	0.000 000	0.001
100 %		+50	3624 999 999	-5.7	0.000 000	-0.002
Lowest voltage	3.700	+20	3625 000 012	6.5	0.000 000	0.002



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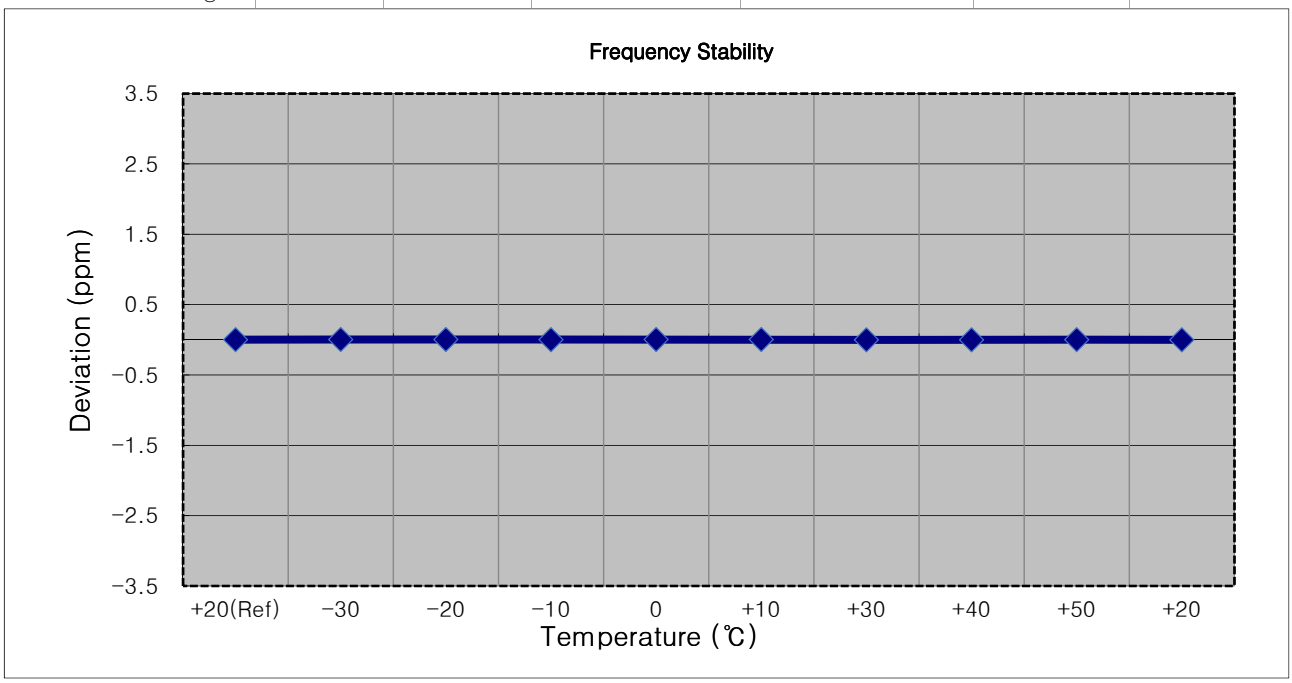
▣ OPERATING FREQUENCY: 3,625,000,000 Hz

▣ BANDWIDTH: 20 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3625 000 009	0.0	0.000 000	0.000
100 %		-30	3625 000 015	6.3	0.000 000	0.002
100 %		-20	3625 000 016	6.6	0.000 000	0.002
100 %		-10	3625 000 015	5.9	0.000 000	0.002
100 %		0	3625 000 016	7.4	0.000 000	0.002
100 %		+10	3625 000 019	9.9	0.000 000	0.003
100 %		+30	3625 000 000	-8.6	0.000 000	-0.002
100 %		+40	3625 000 004	-4.9	0.000 000	-0.001
100 %		+50	3625 000 014	4.9	0.000 000	0.001
Lowest voltage	3.700	+20	3625 000 003	-6.0	0.000 000	-0.002



The report shall not be (partly) reproduced except in full without approval of the laboratory.

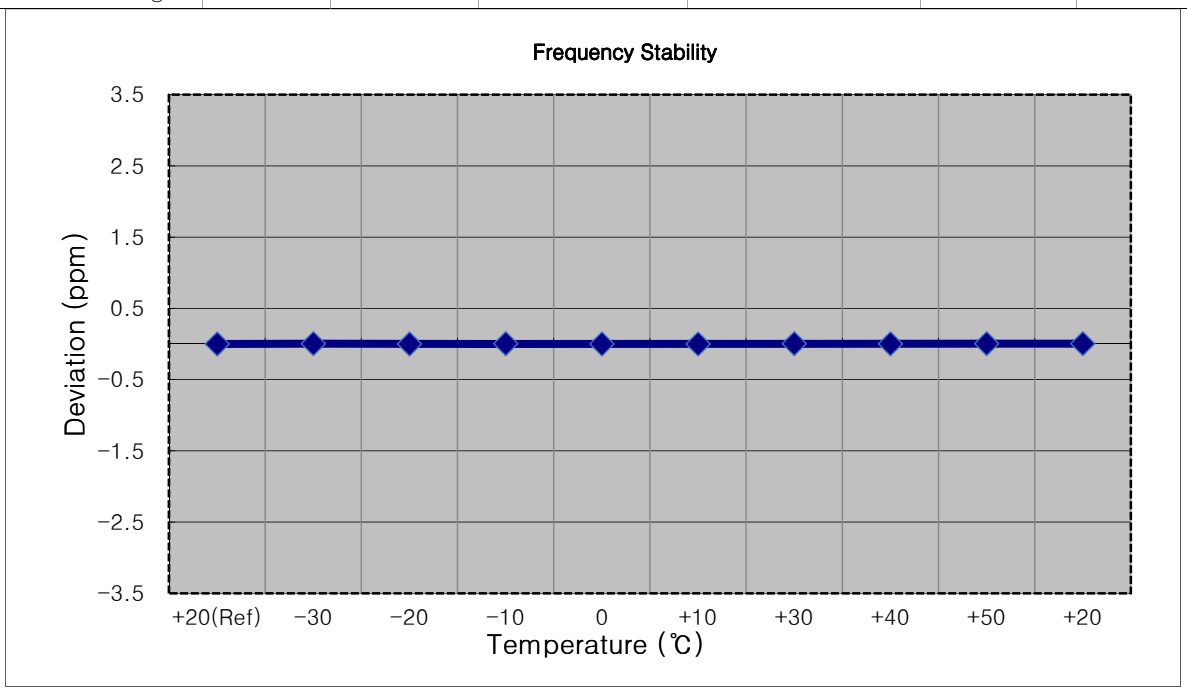
▣ OPERATING FREQUENCY: 3,697,500,000 Hz

▣ BANDWIDTH: 5 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3697 500 008	0.0	0.000 000	0.000
100 %		-30	3697 500 022	13.6	0.000 000	0.004
100 %		-20	3697 500 003	-5.8	0.000 000	-0.002
100 %		-10	3697 500 019	10.6	0.000 000	0.003
100 %		0	3697 500 002	-6.6	0.000 000	-0.002
100 %		+10	3697 500 004	-4.8	0.000 000	-0.001
100 %		+30	3697 500 019	10.8	0.000 000	0.003
100 %		+40	3697 500 015	6.2	0.000 000	0.002
100 %		+50	3697 500 022	13.9	0.000 000	0.004
Lowest voltage	3.700	+20	3697 500 022	13.8	0.000 000	0.004



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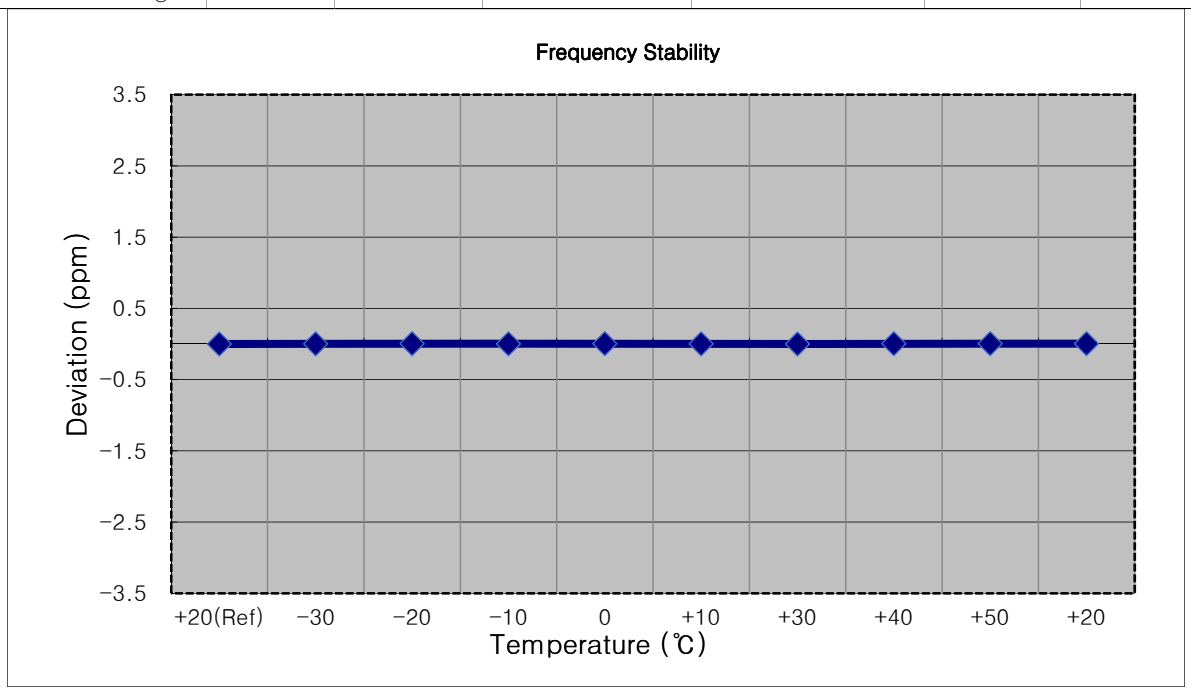
▣ OPERATING FREQUENCY: 3,695,000,000 Hz

▣ BANDWIDTH: 10 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3695 000 006	0.0	0.000 000	0.000
100 %		-30	3695 000 016	9.1	0.000 000	0.002
100 %		-20	3695 000 016	9.3	0.000 000	0.003
100 %		-10	3695 000 014	7.9	0.000 000	0.002
100 %		0	3695 000 017	10.3	0.000 000	0.003
100 %		+10	3695 000 012	6.0	0.000 000	0.002
100 %		+30	3695 000 000	-6.5	0.000 000	-0.002
100 %		+40	3695 000 017	10.7	0.000 000	0.003
100 %		+50	3695 000 017	10.6	0.000 000	0.003
Lowest voltage	3.700	+20	3695 000 022	15.4	0.000 000	0.004



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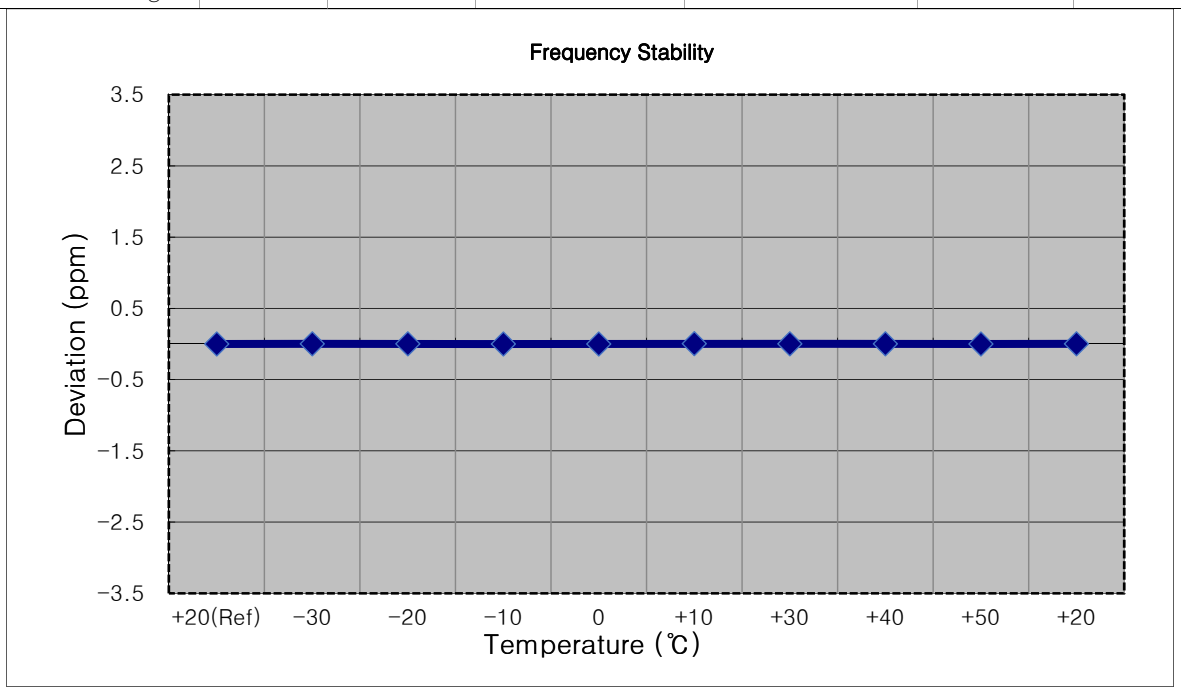
▣ OPERATING FREQUENCY: 3,692,500,000 Hz

▣ BANDWIDTH: 15 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3692 500 005	0.0	0.000 000	0.000
100 %		-30	3692 500 012	7.0	0.000 000	0.002
100 %		-20	3692 500 014	8.3	0.000 000	0.002
100 %		-10	3692 499 999	-5.8	0.000 000	-0.002
100 %		0	3692 499 999	-6.1	0.000 000	-0.002
100 %		+10	3692 500 016	11.0	0.000 000	0.003
100 %		+30	3692 500 014	8.7	0.000 000	0.002
100 %		+40	3692 500 011	6.2	0.000 000	0.002
100 %		+50	3692 500 001	-4.5	0.000 000	-0.001
Lowest voltage	3.700	+20	3692 500 012	6.5	0.000 000	0.002



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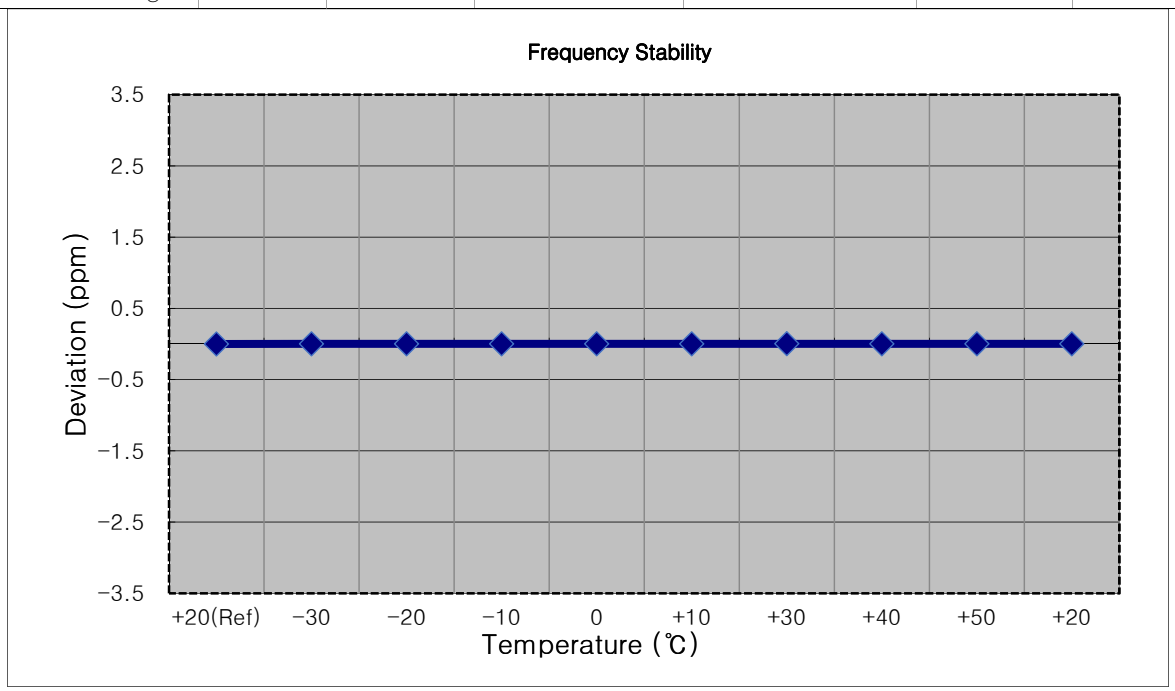
▣ OPERATING FREQUENCY: 3,690,000,000 Hz

▣ BANDWIDTH: 20 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3690 000 010	0.0	0.000 000	0.000
100 %		-30	3690 000 016	6.6	0.000 000	0.002
100 %		-20	3690 000 016	6.5	0.000 000	0.002
100 %		-10	3690 000 016	6.7	0.000 000	0.002
100 %		0	3690 000 017	7.7	0.000 000	0.002
100 %		+10	3690 000 015	5.7	0.000 000	0.002
100 %		+30	3690 000 020	10.8	0.000 000	0.003
100 %		+40	3690 000 016	6.1	0.000 000	0.002
100 %		+50	3690 000 014	4.3	0.000 000	0.001
Lowest voltage	3.700	+20	3690 000 019	9.0	0.000 000	0.002



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9. TEST DATA (MIMO2)

9.1 EQUIVALENT ISOTROPIC RADIATED POWER

Freq (MHz)	Bandwidth	Modulation	Measured (dBμV/m)	Ant. Factor + Distance Factor (dB)	C.L + Thru(dB)	Total (dBμV/m)	Pol.	EIRP	Limit	RB	
								dBm/10 MHz		Size	Offset
3552.5	LTE B48(42)/ 5 MHz	QPSK	69.68	31.50	5.52	106.70	V	15.48	23.0	1	12
		16-QAM	69.61	31.50	5.52	106.63	V	15.41			
		64-QAM	69.42	31.50	5.52	106.44	V	15.22			
		256-QAM	69.47	31.50	5.52	106.49	V	15.27			
3625.0		QPSK	69.59	31.40	5.72	106.71	V	15.49		1	24
		16-QAM	69.47	31.40	5.72	106.59	V	15.37			
		64-QAM	69.52	31.40	5.72	106.64	V	15.42			
		256-QAM	69.44	31.40	5.72	106.56	V	15.34			
3697.5		QPSK	68.47	31.40	5.73	105.60	V	14.38		1	24
		16-QAM	68.32	31.40	5.73	105.45	V	14.23			
		64-QAM	68.39	31.40	5.73	105.52	V	14.30			
		256-QAM	68.16	31.40	5.73	105.29	V	14.07			

Freq (MHz)	Bandwidth	Modulation	Measured (dBμV/m)	Ant. Factor + Distance Factor (dB)	C.L + Thru(dB)	Total (dBμV/m)	Pol.	EIRP	Limit	RB	
								dBm/10 MHz		Size	Offset
3555.0	LTE B48(42)/ 10 MHz	QPSK	69.27	31.50	5.52	106.29	V	15.07	23.0	1	24
		16-QAM	69.11	31.50	5.52	106.13	V	14.91			
		64-QAM	69.07	31.50	5.52	106.09	V	14.87			
		256-QAM	69.15	31.50	5.52	106.17	V	14.95			
3625.0		QPSK	68.56	31.40	5.72	105.68	V	14.46		1	24
		16-QAM	68.44	31.40	5.72	105.56	V	14.34			
		64-QAM	68.49	31.40	5.72	105.61	V	14.39			
		256-QAM	68.27	31.40	5.72	105.39	V	14.17			
3695.0		QPSK	68.35	31.40	5.73	105.48	V	14.26		1	49
		16-QAM	68.31	31.40	5.73	105.44	V	14.22			
		64-QAM	68.26	31.40	5.73	105.39	V	14.17			
		256-QAM	68.27	31.40	5.73	105.40	V	14.18			

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Freq (MHz)	Bandwidth	Modulation	Measured (dBμV/m)	Ant. Factor + Distance Factor (dB)	C.L + Thru(dB)	Total (dBμV/m)	Pol.	EIRP	Limit	RB	
								dBm/10 MHz		Size	Offset
3557.5	LTE B48(42)/ 15 MHz	QPSK	69.18	31.50	5.52	106.20	V	14.98	23.0	1	37
		16-QAM	69.04	31.50	5.52	106.06	V	14.84			
		64-QAM	69.11	31.50	5.52	106.13	V	14.91			
		256-QAM	69.09	31.50	5.52	106.11	V	14.89			
3625.0		QPSK	69.42	31.40	5.72	106.54	V	15.32		1	37
		16-QAM	69.22	31.40	5.72	106.34	V	15.12			
		64-QAM	69.36	31.40	5.72	106.48	V	15.26			
		256-QAM	69.31	31.40	5.72	106.43	V	15.21			
3692.5		QPSK	68.21	31.40	5.73	105.34	V	14.12		1	74
		16-QAM	68.15	31.40	5.73	105.28	V	14.06			
		64-QAM	68.07	31.40	5.73	105.20	V	13.98			
		256-QAM	68.11	31.40	5.73	105.24	V	14.02			

Freq (MHz)	Bandwidth	Modulation	Measured (dBμV/m)	Ant. Factor + Distance Factor (dB)	C.L + Thru(dB)	Total (dBμV/m)	Pol.	EIRP	Limit	RB	
								dBm/10 MHz		Size	Offset
3560.0	LTE B48(42)/ 20 MHz	QPSK	69.54	31.50	5.52	106.56	V	15.34	23.0	1	99
		16-QAM	69.42	31.50	5.52	106.44	V	15.22			
		64-QAM	69.44	31.50	5.52	106.46	V	15.24			
		256-QAM	69.36	31.50	5.52	106.38	V	15.16			
3625.0		QPSK	69.62	31.40	5.72	106.74	V	15.52		1	99
		16-QAM	69.55	31.40	5.72	106.67	V	15.45			
		64-QAM	69.57	31.40	5.72	106.69	V	15.47			
		256-QAM	69.36	31.40	5.72	106.48	V	15.26			
3690.0		QPSK	68.17	31.40	5.73	105.30	V	14.08		1	99
		16-QAM	67.99	31.40	5.73	105.12	V	13.90			
		64-QAM	68.04	31.40	5.73	105.17	V	13.95			
		256-QAM	68.12	31.40	5.73	105.25	V	14.03			

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9.2 RADIATED SPURIOUS EMISSIONS

▣ MODE: LTE B48(42)

▣ MODULATION SIGNAL: 5 MHz QPSK

▣ DISTANCE: 1 meters

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
55265 (3552.5)	7 105.00	-54.07	10.84	-56.16	4.48	V	-49.80	-40.00	1	12
	10 657.50	-55.32	11.61	-55.49	5.67	H	-49.55	-40.00		
	14 210.00	-64.86	13.10	-51.57	6.66	H	-45.13	-40.00		
55990 (3625.0)	7 250.00	-53.14	10.62	-53.90	4.53	H	-47.81	-40.00	1	24
	10 875.00	-54.97	11.84	-54.52	5.82	H	-48.50	-40.00		
	14 500.00	-66.76	13.42	-51.50	6.69	V	-44.77	-40.00		
56715 (3697.5)	7 395.00	-56.06	11.12	-58.28	4.59	H	-51.75	-40.00	1	24
	11 092.50	-53.72	12.31	-54.16	5.88	V	-47.73	-40.00		
	14 790.00	-68.32	13.61	-51.10	6.73	V	-44.22	-40.00		

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▣ MODE: LTE B48(42)

▣ MODULATION SIGNAL: 10 MHz QPSK

▣ DISTANCE: 1 meters

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
55290 (3555.0)	7 110.00	-54.59	10.83	-56.55	4.48	V	-50.20	-40.00	1	24
	10 665.00	-55.70	11.61	-55.97	5.68	H	-50.04	-40.00		
	14 220.00	-65.10	13.12	-51.54	6.63	V	-45.05	-40.00		
55990 (3625.0)	7 250.00	-54.11	10.62	-54.87	4.53	H	-48.78	-40.00	1	24
	10 875.00	-55.28	11.84	-54.83	5.82	V	-48.81	-40.00		
	14 500.00	-66.21	13.42	-50.95	6.69	H	-44.22	-40.00		
56690 (3695.0)	7 390.00	-55.96	11.10	-58.15	4.60	H	-51.65	-40.00	1	49
	11 085.00	-55.29	12.31	-55.81	5.85	V	-49.35	-40.00		
	14 780.00	-68.18	13.57	-51.13	6.73	H	-44.29	-40.00		

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▣ MODE: LTE B48(42)

▣ MODULATION SIGNAL: 15 MHz QPSK

▣ DISTANCE: 1 meters

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Size
55315 (3557.5)	7 115.00	-56.38	10.82	-58.39	4.47	V	-52.04	-40.00	1	37
	10 672.50	-55.92	11.61	-56.26	5.70	H	-50.35	-40.00		
	14 230.00	-65.51	13.14	-51.71	6.58	V	-45.15	-40.00		
55990 (3625.0)	7 250.00	-54.18	10.62	-54.94	4.53	V	-48.85	-40.00	1	37
	10 875.00	-54.60	11.84	-54.15	5.82	V	-48.13	-40.00		
	14 500.00	-66.34	13.42	-51.08	6.69	H	-44.35	-40.00		
56665 (3692.5)	7 385.00	-54.98	11.07	-57.24	4.61	V	-50.78	-40.00	1	74
	11 077.50	-54.52	12.31	-55.15	5.84	V	-48.68	-40.00		
	14 770.00	-67.36	13.53	-50.31	6.72	H	-43.50	-40.00		

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▣ MODE: LTE B48(42)

▣ MODULATION SIGNAL: 20 MHz QPSK

▣ DISTANCE: 1 meters

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Size
55340 (3560.0)	7 120.00	-53.46	10.81	-55.53	4.46	V	-49.18	-40.00	1	99
	10 680.00	-53.43	11.61	-53.74	5.71	V	-47.84	-40.00		
	14 240.00	-64.61	13.16	-50.85	6.54	V	-44.23	-40.00		
55990 (3625.0)	7 250.00	-54.10	10.62	-54.86	4.53	H	-48.77	-40.00	1	99
	10 875.00	-55.41	11.84	-54.96	5.82	V	-48.94	-40.00		
	14 500.00	-65.92	13.42	-50.66	6.69	H	-43.93	-40.00		
56640 (3690.0)	7 380.00	-55.51	11.05	-57.87	4.61	V	-51.43	-40.00	1	99
	11 070.00	-55.02	12.31	-55.46	5.79	H	-48.94	-40.00		
	14 760.00	-67.37	13.49	-50.32	6.71	H	-43.54	-40.00		

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9.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
48(42)	5 MHz	3625.0	QPSK	25	0	5.68
			16-QAM			6.47
			64-QAM			6.86
			256-QAM			6.62
	10 MHz		QPSK	50		5.93
			16-QAM			6.54
			64-QAM			6.74
			256-QAM			6.66
	15 MHz		QPSK	75		5.95
			16-QAM			6.55
			64-QAM			6.68
			256-QAM			6.60
	20 MHz		QPSK	100		5.84
			16-QAM			6.52
			64-QAM			6.72
			256-QAM			6.70

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 195 ~ 210.

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9.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
48(42)	5 MHz	3625.0	QPSK	25	0	4.4787
			16-QAM			4.4706
			64-QAM			4.4765
			256-QAM			4.4740
	10 MHz		QPSK	50		8.9955
			16-QAM			8.8931
			64-QAM			8.9431
			256-QAM			8.8650
	15 MHz		QPSK	75		13.431
			16-QAM			13.475
			64-QAM			13.510
			256-QAM			13.411
	20 MHz		QPSK	100		17.937
			16-QAM			17.940
			64-QAM			17.867
			256-QAM			17.941

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 211 ~ 226.

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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)
48(42)	5	3552.5	4.9193	32.349	-83.449	-51.100	-40.00
		3625.0	6.0306	32.959	-83.766	-50.807	
		3697.5	4.9097	32.349	-83.800	-51.451	
	10	3555.0	3.8123	32.349	-83.426	-51.077	
		3625.0	4.9188	32.349	-83.696	-51.347	
		3695.0	3.8144	32.349	-83.801	-51.452	
	15	3557.5	4.9709	32.349	-83.064	-50.715	
		3625.0	6.0695	32.959	-83.435	-50.476	
		3692.5	3.7926	32.349	-83.584	-51.235	
	20	3560.0	3.8325	32.349	-83.480	-51.131	
		3625.0	3.8065	32.349	-83.663	-51.314	
		3690.0	3.7820	32.349	-83.840	-51.491	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 227 ~ 250.
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) = Duty Cycle factor + Cable Loss + Ext. Attenuator + Power Divider
5. Duty Cycle Factor(dB) = 3.979

Frequency Range (GHz)	Factor [dB]
0.03 – 1	29.649
1 – 5	32.349
5 – 10	32.959
10 – 15	33.499
15 – 20	33.869
Above 20(26.5)	34.509

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9.6 CHANNEL EDGE

BW (MHz)	RB (Size/ Offset)	Freq. (MHz)	Outside of the authorized band (dBm)							
			Lower Side(MHz)				Upper Side(MHz)			
			Below 3530 MHz	-[B]MHz ~ 3530 MHz	-1 MHz ~ -[B]MHz	0 MHz ~ -1 MHz	0 MHz ~ +1 MHz	1 MHz ~ +[B]MHz	+[B]MHz ~ 3720 MHz	Above 3720 MHz
5	25/0	3552.5	-56.71	-37.03	-24.86	-30.52	-30.32	-26.08	-37.94	-
		3625.0	-	-37.22	-24.45	-30.87	-30.46	-25.27	-38.06	-
		3697.5	-	-36.48	-23.88	-30.60	-30.08	-24.47	-37.05	-54.68
10	50/0	3555.0	-50.95	-41.36	-26.92	-33.54	-33.65	-27.71	-40.79	-
		3625.0	-	-41.70	-26.63	-33.76	-33.65	-27.07	-41.65	-
		3695.0	-	-41.15	-25.97	-33.44	-33.11	-26.28	-40.63	-51.79
15	75/0	3557.5	-47.68	-36.17	-28.68	-34.13	-35.08	-29.79	-42.60	-
		3625.0	-	-43.25	-28.47	-34.22	-35.40	-29.62	-43.39	-
		3692.5	-	-42.83	-27.76	-33.85	-34.34	-28.03	-35.43	-47.51
20	100/0	3560.0	-45.05	-34.45	-29.28	-34.91	-36.17	-31.26	-42.40	-
		3625.0	-	-44.95	-29.12	-34.87	-35.75	-30.32	-45.60	-
		3690.0	-	-44.99	-28.76	-34.49	-35.16	-29.71	-35.07	-44.39
Limit (dBm)			-40.00	-25.00	-13.00	-13.00	-13.00	-13.00	-25.00	-40.00

Note:

1. C.E = Channel Edge
2. Duty Cycle factor already applied on the factor.
   - Duty Cycle factor(dB) = 3.979
   - Factor(dB) = Duty Cycle factor + Cable Loss + Ext. Attenuator + Power Splitter
3. Plots of the EUT's Channel Edge are shown Page 263 ~ 306.

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BW (MHz)	RB (Size/ Offset)	Freq. (MHz)	Outside of the authorized band (dBm)							
			Lower Side(MHz)				Upper Side(MHz)			
			Below 3530 MHz	-[B]MHz ~ 3530 MHz	-1 MHz ~ -[B]MHz	0 MHz ~ -1 MHz	0 MHz ~ +1 MHz	1 MHz ~ +[B]MHz	+[B]MHz ~ 3720 MHz	Above 3720 MHz
5	Lower Side: 1/0 Upper Side: 1/24	3552.5	-56.52	-37.81	-25.71	-18.09	-18.25	-25.05	-38.47	-
		3625.0	-	-38.27	-26.17	-18.64	-18.64	-25.26	-39.22	-
		3697.5	-	-38.44	-26.39	-18.82	-19.04	-25.38	-39.17	-54.55
10	Lower Side: 1/0 Upper Side: 1/49	3555.0	-51.76	-44.38	-27.11	-21.19	-21.13	-26.49	-44.50	-
		3625.0	-	-45.18	-27.64	-21.88	-21.64	-26.97	-45.19	-
		3695.0	-	-45.50	-28.07	-22.25	-22.23	-27.33	-45.53	-53.05
15	Lower Side: 1/0 Upper Side: 1/74	3557.5	-46.16	-43.26	-27.70	-22.68	-21.77	-27.00	-46.10	-
		3625.0	-	-46.80	-28.19	-23.35	-22.50	-27.32	-46.92	-
		3692.5	-	-47.25	-28.42	-23.69	-22.73	-27.76	-43.87	-48.62
20	Lower Side: 1/0 Upper Side: 1/99	3560.0	-49.56	-43.21	-28.56	-24.06	-24.34	-27.99	-44.32	-
		3625.0	-	-49.73	-29.15	-24.74	-24.98	-28.38	-50.64	-
		3690.0	-	-51.12	-29.42	-25.10	-25.47	-29.09	-44.09	-50.72
Limit (dBm)			-40.00	-25.00	-13.00	-13.00	-13.00	-13.00	-25.00	-40.00

Note:

1. C.E = Channel Edge
2. Duty Cycle factor already applied on the factor.
   - Duty Cycle factor(dB) = 3.979
   - Factor(dB) = Duty Cycle factor + Cable Loss + Ext. Attenuator + Power Splitter
3. Plots of the EUT's Channel Edge are shown Page 263 ~ 306.

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9.7 Adjacent Channel Leakage Ratio(ACLR)

Band Width	RB (Size/ Offset)	Frequency (MHz)	Adjacent Channel Leakage Ratio(dB)	
			Lower Side	Upper Side
5 MHz	25/0	3552.5	42.71	43.54
		3625.0	41.89	42.45
		3697.5	41.34	41.79
10 MHz	50/0	3555.0	43.45	44.36
		3625.0	42.62	43.10
		3695.0	42.02	42.29
15 MHz	75/0	3557.5	43.63	45.06
		3625.0	42.72	43.63
		3692.5	42.18	42.82
20 MHz	100/0	3560.0	43.76	45.69
		3625.0	42.84	44.31
		3690.0	42.32	43.35
Limit (dB)			ACLR > 30 dB	ACLR > 30 dB

Note:

1. Duty Cycle factor already applied on the factor.
 - Duty Cycle factor(dB) = 3.979
 - Factor(dB) = Duty Cycle factor + Cable Loss + Ext. Attenuator + Power Splitter
2. Plots of the EUT's Adjacent Channel Leakage Ratio(ACLR) are shown Page 251 ~ 262.

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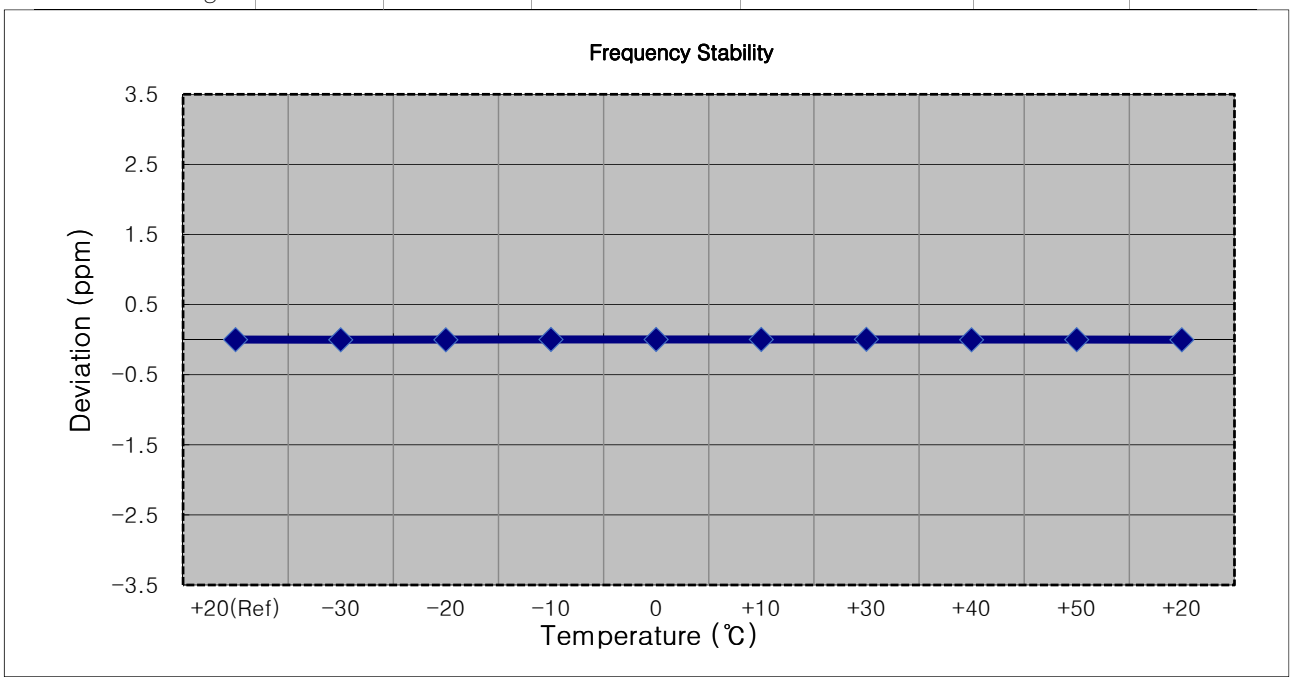
9.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

▣ OPERATING FREQUENCY: 3,552,500,000 Hz
▣ BANDWIDTH: 5 MHz
▣ REFERENCE VOLTAGE: 4.200 VDC
▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(℃)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3552 500 005	0.0	0.000 000	0.000
100 %		-30	3552 500 000	-4.7	0.000 000	-0.001
100 %		-20	3552 500 000	-4.8	0.000 000	-0.001
100 %		-10	3552 500 013	8.0	0.000 000	0.002
100 %		0	3552 500 011	6.1	0.000 000	0.002
100 %		+10	3552 500 011	5.9	0.000 000	0.002
100 %		+30	3552 500 020	15.3	0.000 000	0.004
100 %		+40	3552 499 999	-6.0	0.000 000	-0.002
100 %		+50	3552 500 010	5.1	0.000 000	0.001
Lowest voltage	3.700	+20	3552 500 000	-4.9	0.000 000	-0.001



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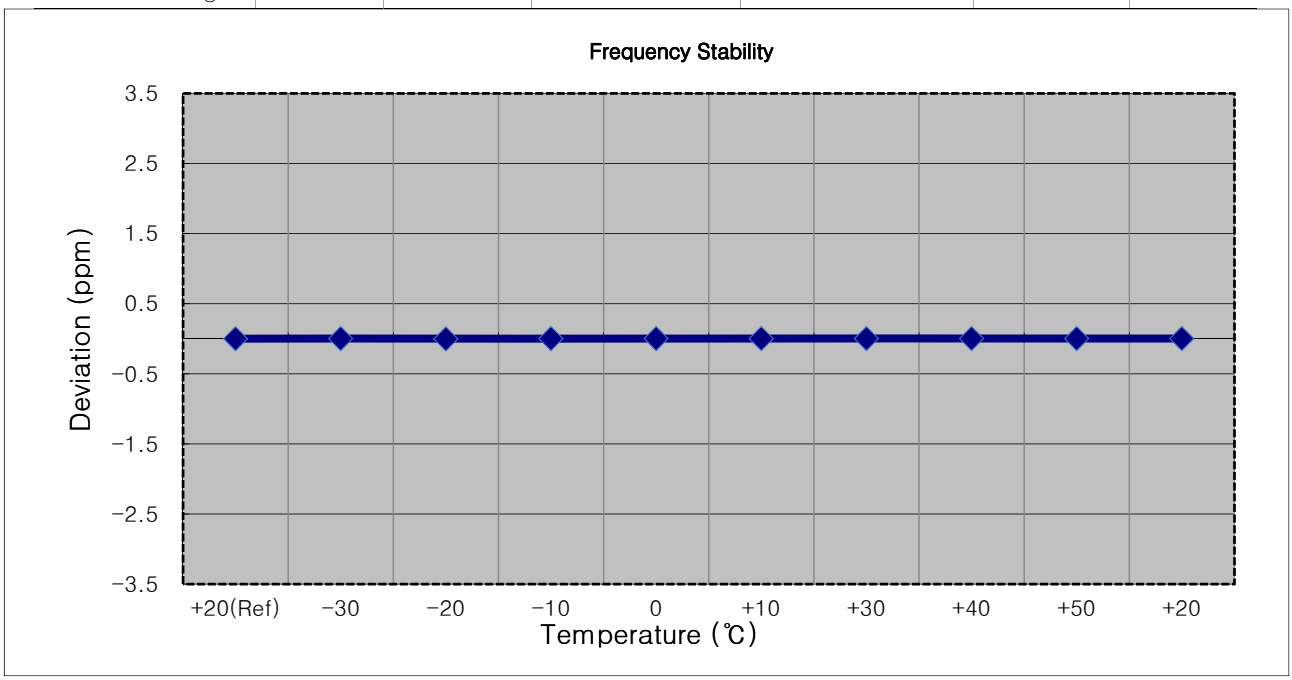
▣ OPERATING FREQUENCY: 3,555,000,000 Hz

▣ BANDWIDTH: 10 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(℃)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3555 000 007	0.0	0.000 000	0.000
100 %		-30	3555 000 013	5.8	0.000 000	0.002
100 %		-20	3555 000 003	-4.6	0.000 000	-0.001
100 %		-10	3555 000 013	5.3	0.000 000	0.001
100 %		0	3555 000 016	8.5	0.000 000	0.002
100 %		+10	3555 000 014	6.6	0.000 000	0.002
100 %		+30	3555 000 014	6.8	0.000 000	0.002
100 %		+40	3555 000 014	6.5	0.000 000	0.002
100 %		+50	3555 000 018	10.4	0.000 000	0.003
Lowest voltage	3.700	+20	3555 000 017	9.8	0.000 000	0.003



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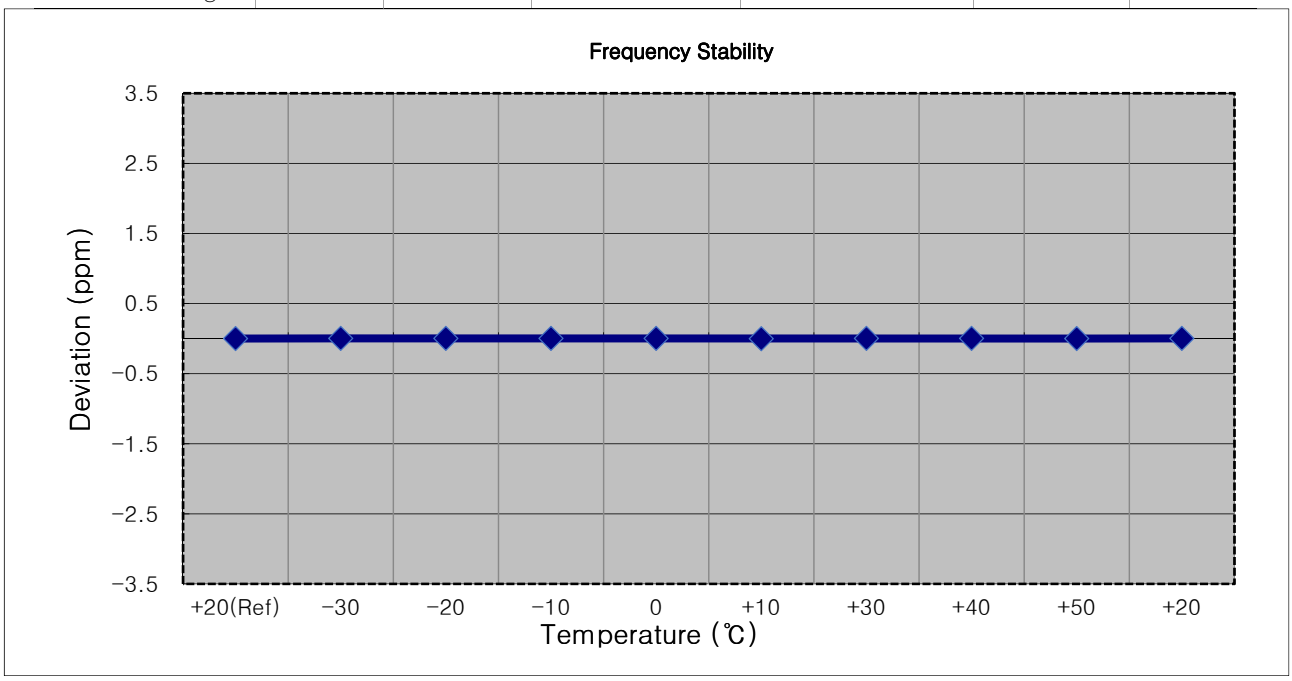
▣ OPERATING FREQUENCY: 3,557,500,000 Hz

▣ BANDWIDTH: 15 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3557 499 996	0.0	0.000 000	0.000
100 %		-30	3557 500 003	7.9	0.000 000	0.002
100 %		-20	3557 500 004	8.1	0.000 000	0.002
100 %		-10	3557 500 003	7.6	0.000 000	0.002
100 %		0	3557 500 006	10.4	0.000 000	0.003
100 %		+10	3557 499 989	-6.6	0.000 000	-0.002
100 %		+30	3557 500 003	7.3	0.000 000	0.002
100 %		+40	3557 500 003	7.9	0.000 000	0.002
100 %		+50	3557 499 991	-4.2	0.000 000	-0.001
Lowest voltage	3.700	+20	3557 500 005	9.8	0.000 000	0.003



The report shall not be (partly) reproduced except in full without approval of the laboratory.

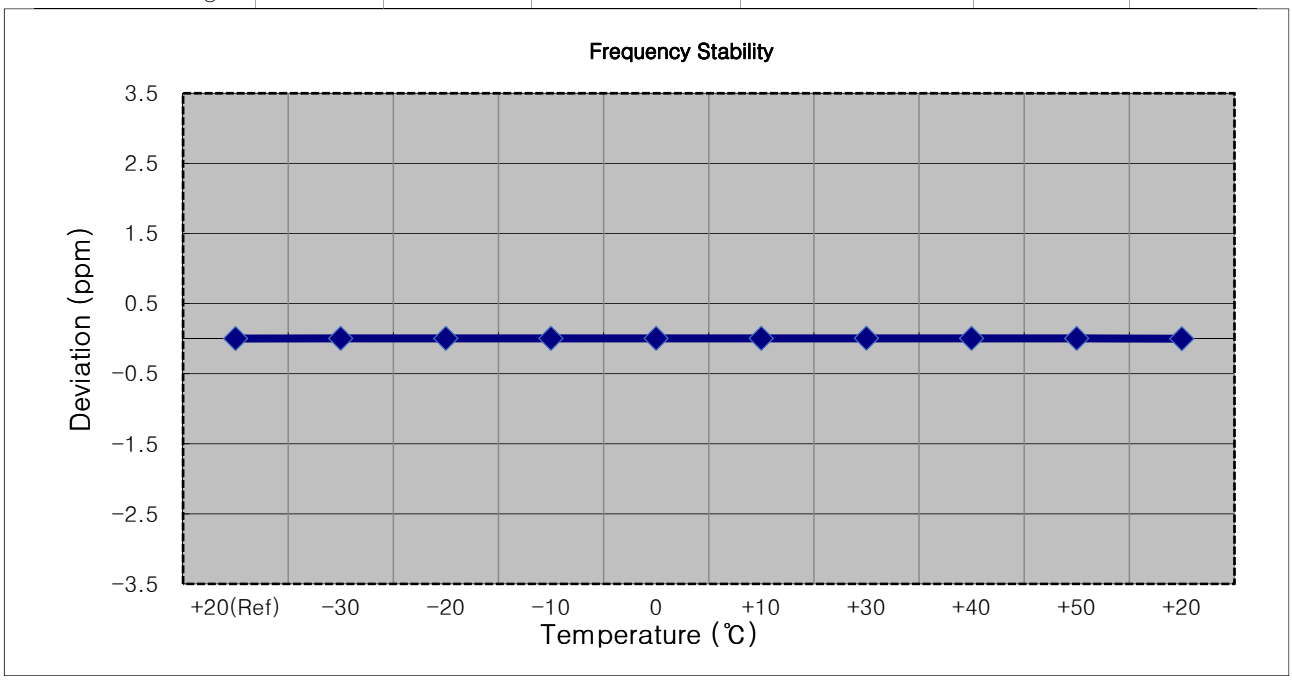
▣ OPERATING FREQUENCY: 3,560,000,000 Hz

▣ BANDWIDTH: 20 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3559 999 995	0.0	0.000 000	0.000
100 %		-30	3560 000 003	8.3	0.000 000	0.002
100 %		-20	3560 000 002	6.7	0.000 000	0.002
100 %		-10	3560 000 004	8.7	0.000 000	0.002
100 %		0	3560 000 005	10.0	0.000 000	0.003
100 %		+10	3560 000 003	7.5	0.000 000	0.002
100 %		+30	3560 000 006	11.3	0.000 000	0.003
100 %		+40	3560 000 002	6.9	0.000 000	0.002
100 %		+50	3560 000 002	6.7	0.000 000	0.002
Lowest voltage	3.700	+20	3559 999 989	-6.6	0.000 000	-0.002



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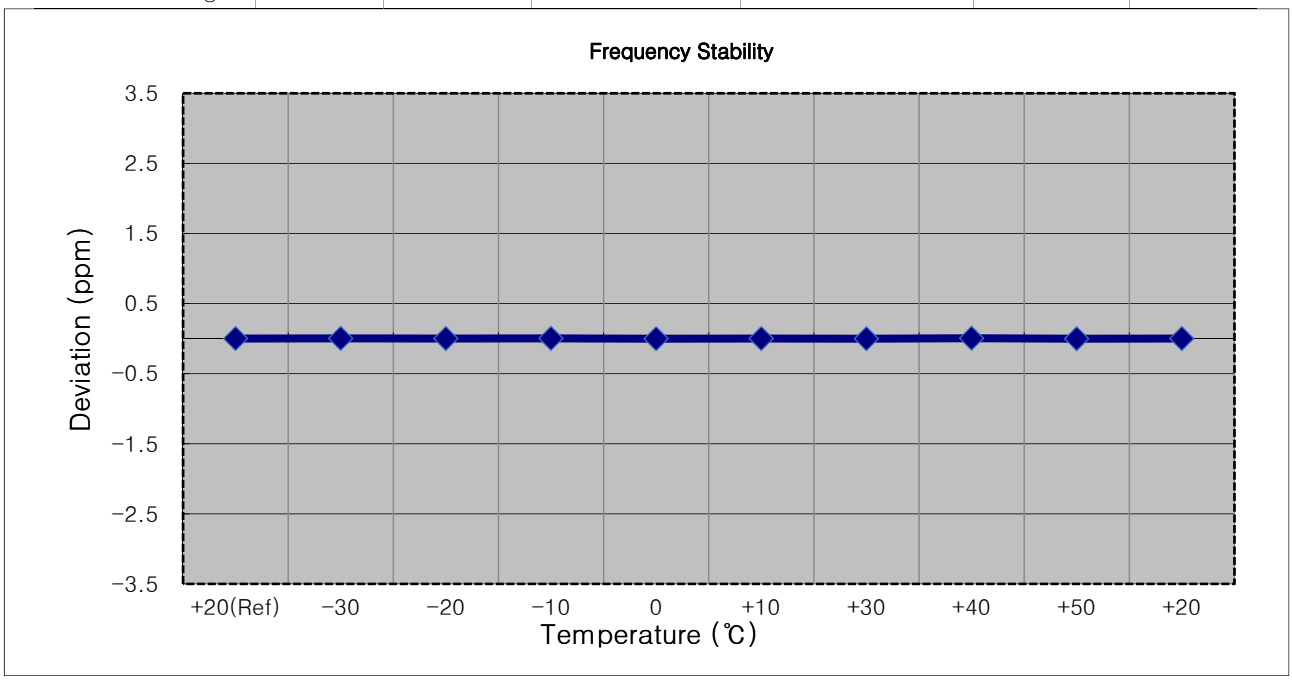
▣ OPERATING FREQUENCY: 3,625,000,000 Hz

▣ BANDWIDTH: 5 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3625 000 007	0.0	0.000 000	0.000
100 %		-30	3625 000 015	8.5	0.000 000	0.002
100 %		-20	3625 000 002	-4.8	0.000 000	-0.001
100 %		-10	3625 000 014	7.1	0.000 000	0.002
100 %		0	3624 999 999	-7.4	0.000 000	-0.002
100 %		+10	3625 000 002	-4.9	0.000 000	-0.001
100 %		+30	3625 000 001	-5.9	0.000 000	-0.002
100 %		+40	3625 000 025	18.3	0.000 001	0.005
100 %		+50	3625 000 001	-6.3	0.000 000	-0.002
Lowest voltage	3.700	+20	3625 000 002	-5.1	0.000 000	-0.001



The report shall not be (partly) reproduced except in full without approval of the laboratory.

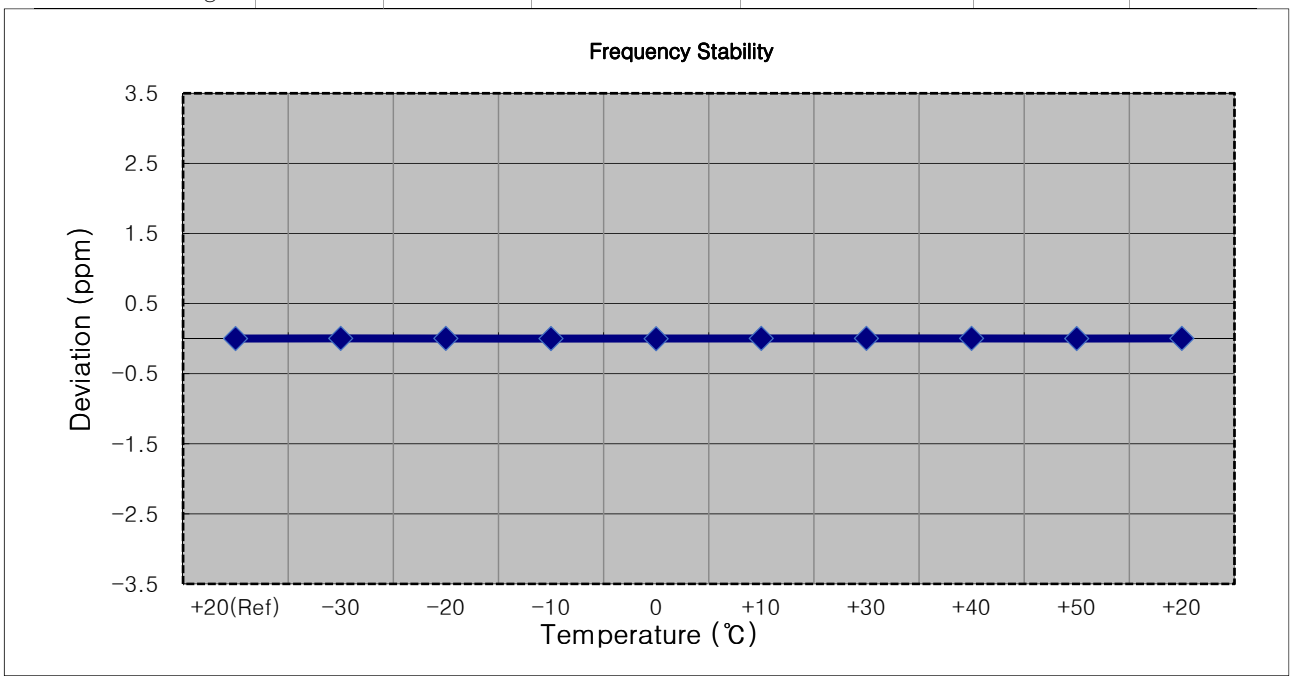
▣ OPERATING FREQUENCY: 3,625,000,000 Hz

▣ BANDWIDTH: 10 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3625 000 005	0.0	0.000 000	0.000
100 %		-30	3625 000 010	4.7	0.000 000	0.001
100 %		-20	3625 000 011	5.9	0.000 000	0.002
100 %		-10	3625 000 001	-4.2	0.000 000	-0.001
100 %		0	3624 999 998	-7.6	0.000 000	-0.002
100 %		+10	3625 000 011	5.9	0.000 000	0.002
100 %		+30	3625 000 012	7.1	0.000 000	0.002
100 %		+40	3625 000 014	8.6	0.000 000	0.002
100 %		+50	3625 000 000	-5.5	0.000 000	-0.002
Lowest voltage	3.700	+20	3625 000 013	8.2	0.000 000	0.002



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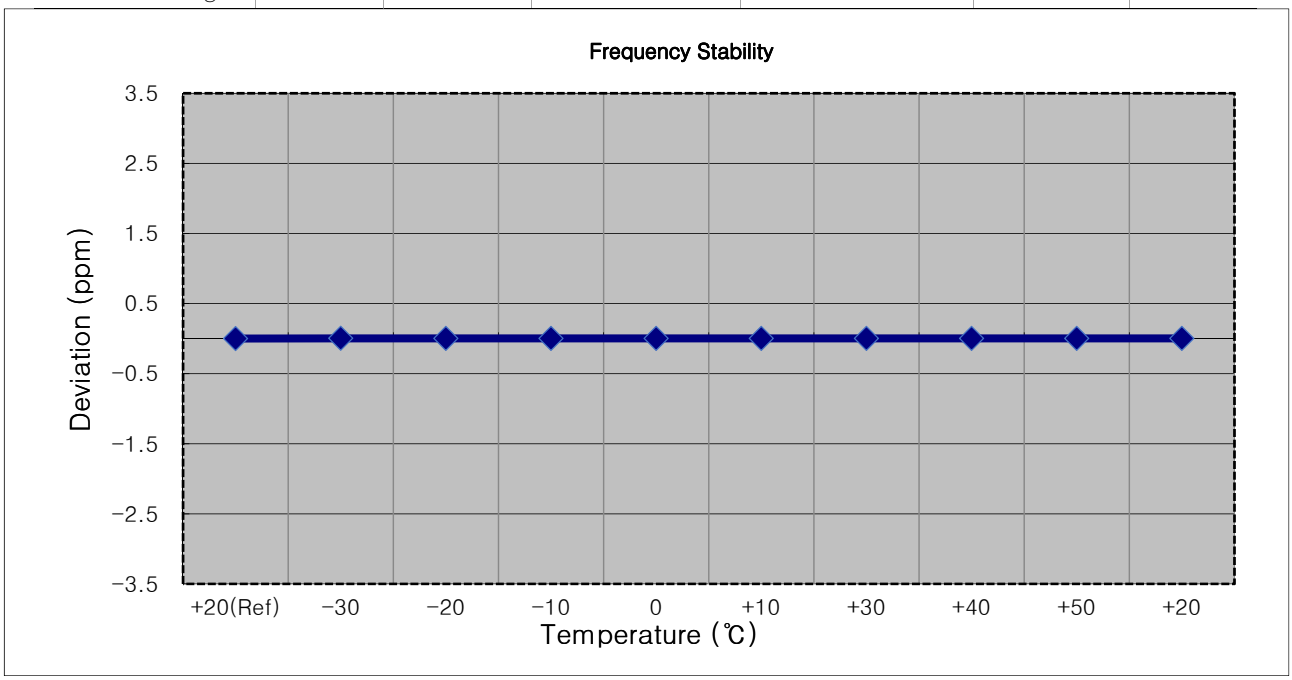
▣ OPERATING FREQUENCY: 3,625,000,000 Hz

▣ BANDWIDTH: 15 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3625 000 007	0.0	0.000 000	0.000
100 %		-30	3625 000 019	11.6	0.000 000	0.003
100 %		-20	3625 000 012	4.6	0.000 000	0.001
100 %		-10	3625 000 014	6.3	0.000 000	0.002
100 %		0	3625 000 013	5.3	0.000 000	0.001
100 %		+10	3625 000 013	5.3	0.000 000	0.001
100 %		+30	3625 000 015	8.1	0.000 000	0.002
100 %		+40	3625 000 016	8.7	0.000 000	0.002
100 %		+50	3625 000 014	6.9	0.000 000	0.002
Lowest voltage	3.700	+20	3625 000 015	7.6	0.000 000	0.002



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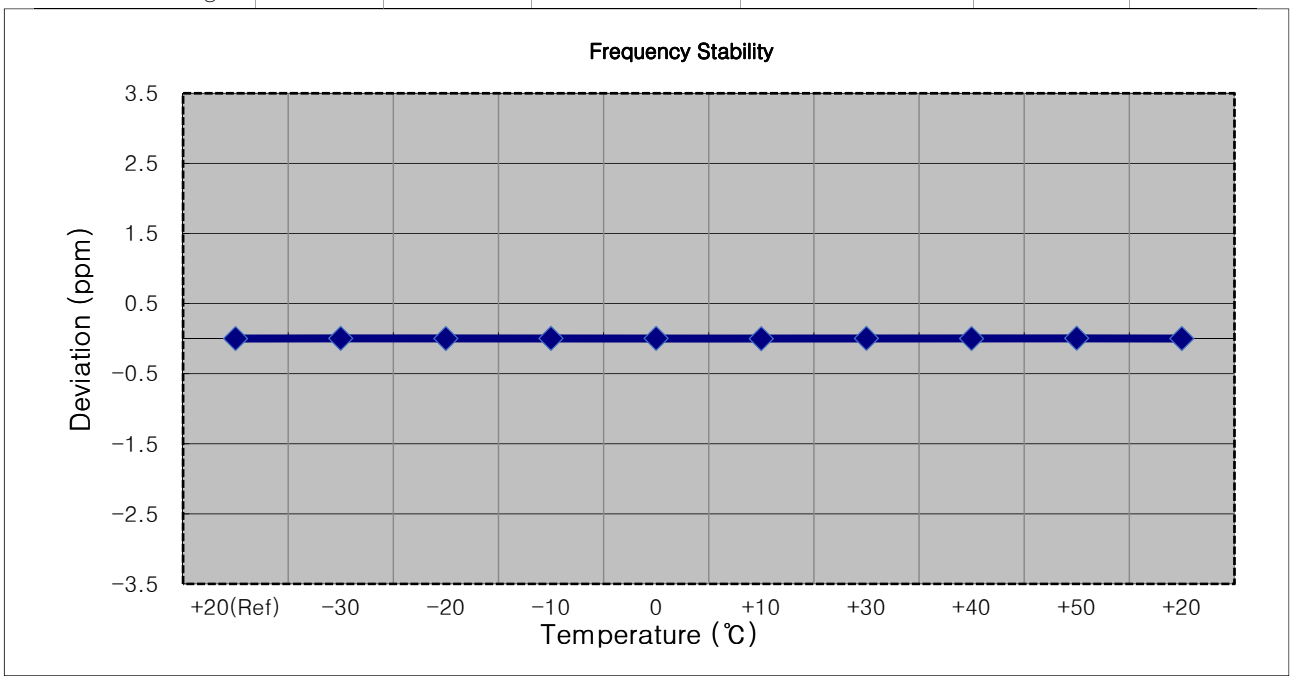
▣ OPERATING FREQUENCY: 3,625,000,000 Hz

▣ BANDWIDTH: 20 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3624 999 995	0.0	0.000 000	0.000
100 %		-30	3625 000 002	6.7	0.000 000	0.002
100 %		-20	3624 999 991	-4.5	0.000 000	-0.001
100 %		-10	3625 000 004	8.6	0.000 000	0.002
100 %		0	3625 000 001	5.8	0.000 000	0.002
100 %		+10	3624 999 988	-7.1	0.000 000	-0.002
100 %		+30	3625 000 000	4.2	0.000 000	0.001
100 %		+40	3624 999 990	-5.6	0.000 000	-0.002
100 %		+50	3625 000 007	11.3	0.000 000	0.003
Lowest voltage	3.700	+20	3624 999 991	-3.9	0.000 000	-0.001



The report shall not be (partly) reproduced except in full without approval of the laboratory.

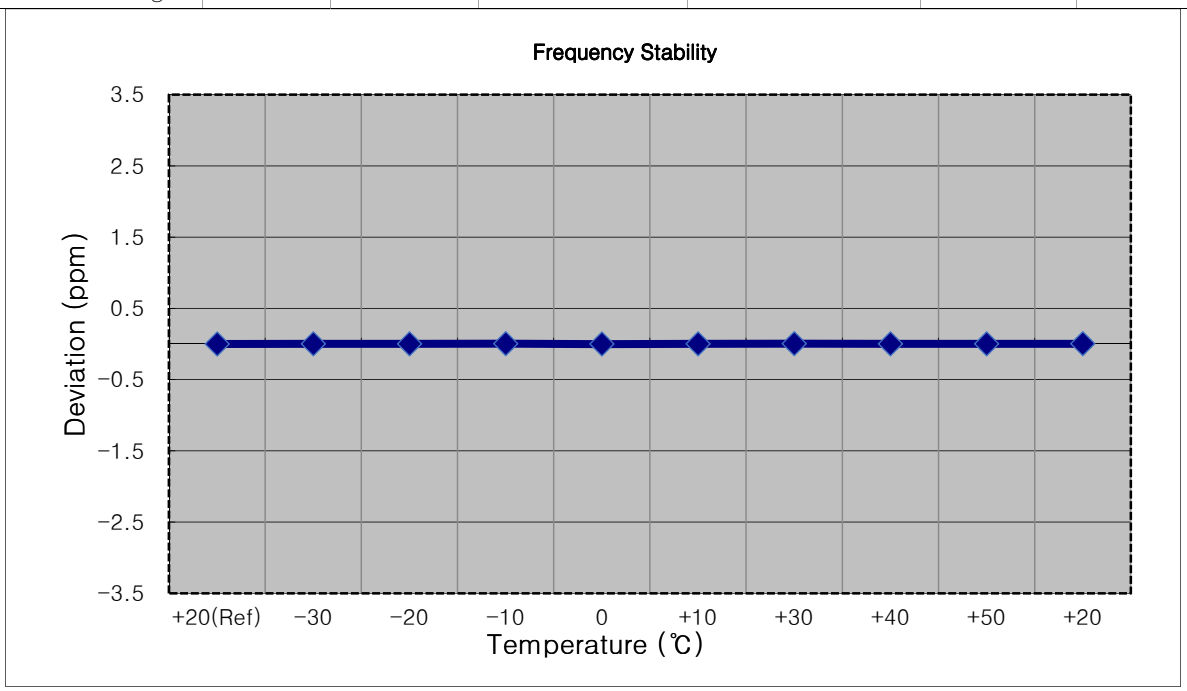
▣ OPERATING FREQUENCY: 3,697,500,000 Hz

▣ BANDWIDTH: 5 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(℃)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3697 500 009	0.0	0.000 000	0.000
100 %		-30	3697 500 017	8.3	0.000 000	0.002
100 %		-20	3697 500 015	6.3	0.000 000	0.002
100 %		-10	3697 500 019	10.3	0.000 000	0.003
100 %		0	3697 500 003	-6.0	0.000 000	-0.002
100 %		+10	3697 500 014	5.5	0.000 000	0.001
100 %		+30	3697 500 019	10.0	0.000 000	0.003
100 %		+40	3697 500 016	7.1	0.000 000	0.002
100 %		+50	3697 500 015	5.8	0.000 000	0.002
Lowest voltage	3.700	+20	3697 500 020	10.8	0.000 000	0.003



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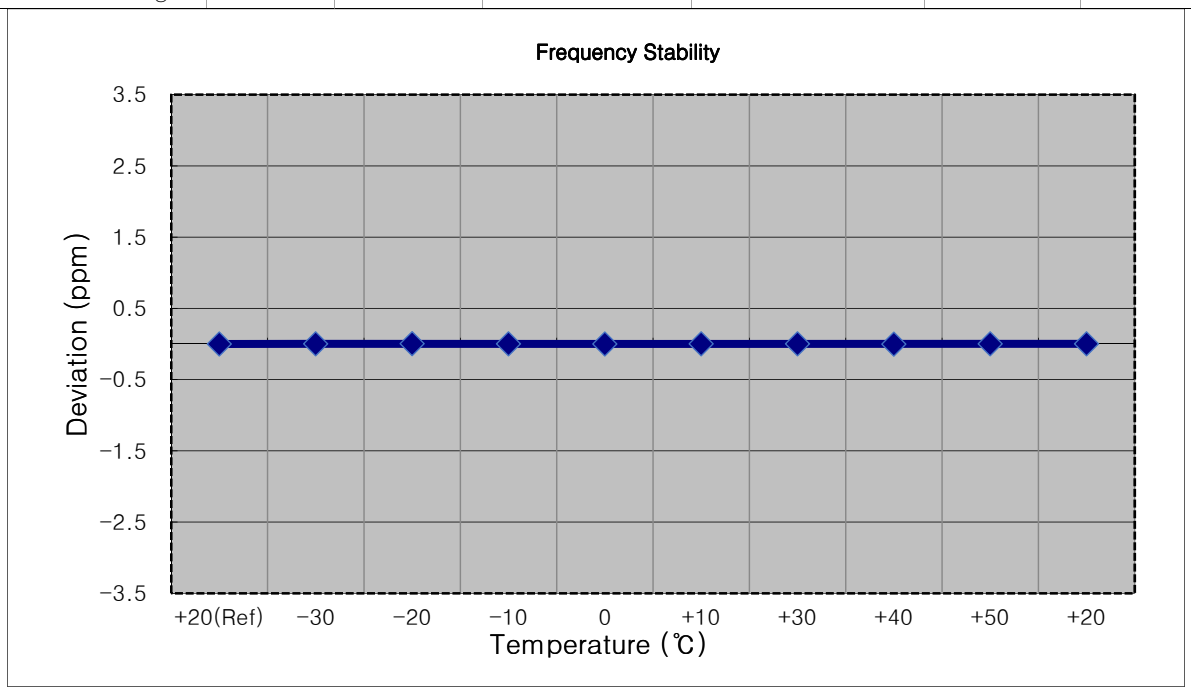
▣ OPERATING FREQUENCY: 3,695,000,000 Hz

▣ BANDWIDTH: 10 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3695 000 013	0.0	0.000 000	0.000
100 %		-30	3695 000 020	7.1	0.000 000	0.002
100 %		-20	3695 000 023	9.7	0.000 000	0.003
100 %		-10	3695 000 020	6.8	0.000 000	0.002
100 %		0	3695 000 009	-4.4	0.000 000	-0.001
100 %		+10	3695 000 019	6.4	0.000 000	0.002
100 %		+30	3695 000 020	7.1	0.000 000	0.002
100 %		+40	3695 000 003	-10.0	0.000 000	-0.003
100 %		+50	3695 000 020	6.9	0.000 000	0.002
Lowest voltage	3.700	+20	3695 000 022	8.5	0.000 000	0.002



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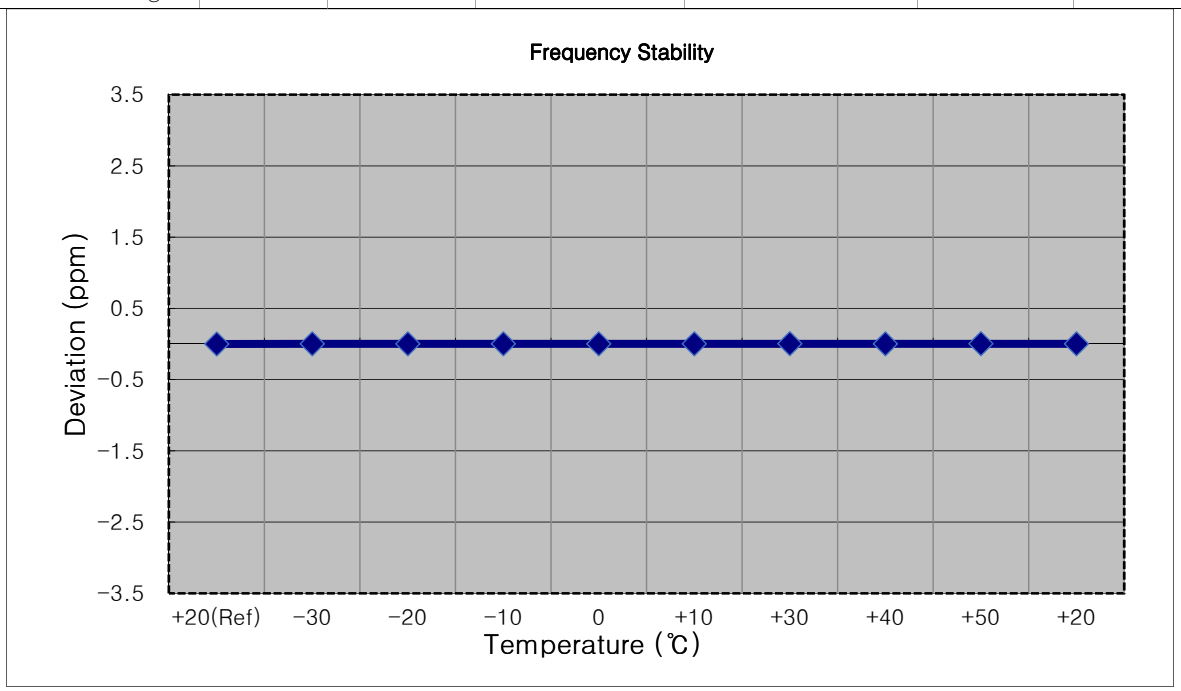
▣ OPERATING FREQUENCY: 3,692,500,000 Hz

▣ BANDWIDTH: 15 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3692 499 995	0.0	0.000 000	0.000
100 %		-30	3692 500 001	6.2	0.000 000	0.002
100 %		-20	3692 500 003	7.6	0.000 000	0.002
100 %		-10	3692 500 002	6.9	0.000 000	0.002
100 %		0	3692 500 003	7.5	0.000 000	0.002
100 %		+10	3692 500 002	6.5	0.000 000	0.002
100 %		+30	3692 500 006	10.9	0.000 000	0.003
100 %		+40	3692 500 000	4.8	0.000 000	0.001
100 %		+50	3692 500 006	10.9	0.000 000	0.003
Lowest voltage	3.700	+20	3692 500 001	6.0	0.000 000	0.002



The report shall not be (partly) reproduced except in full without approval of the laboratory.

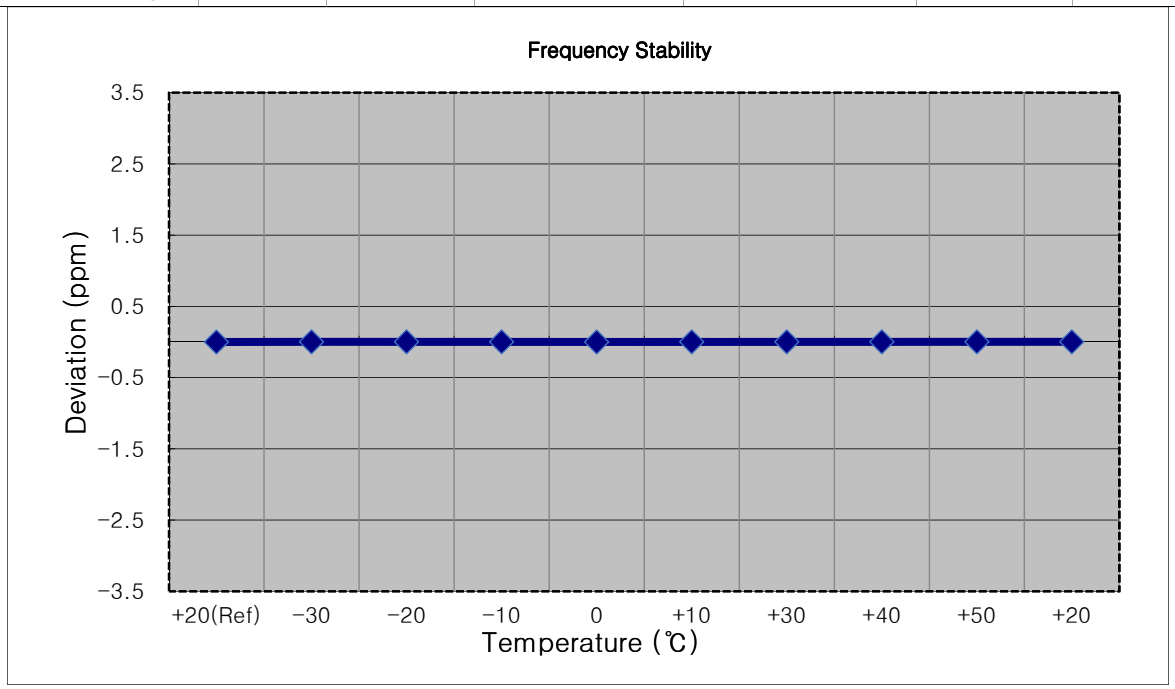
▣ OPERATING FREQUENCY: 3,690,000,000 Hz

▣ BANDWIDTH: 20 MHz

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	4.200	+20(Ref)	3690 000 007	0.0	0.000 000	0.000
100 %		-30	3690 000 015	7.7	0.000 000	0.002
100 %		-20	3690 000 013	5.4	0.000 000	0.001
100 %		-10	3690 000 013	5.8	0.000 000	0.002
100 %		0	3690 000 002	-5.8	0.000 000	-0.002
100 %		+10	3690 000 012	4.6	0.000 000	0.001
100 %		+30	3690 000 013	5.3	0.000 000	0.001
100 %		+40	3690 000 016	8.7	0.000 000	0.002
100 %		+50	3690 000 013	5.6	0.000 000	0.002
Lowest voltage	3.700	+20	3690 000 015	8.1	0.000 000	0.002



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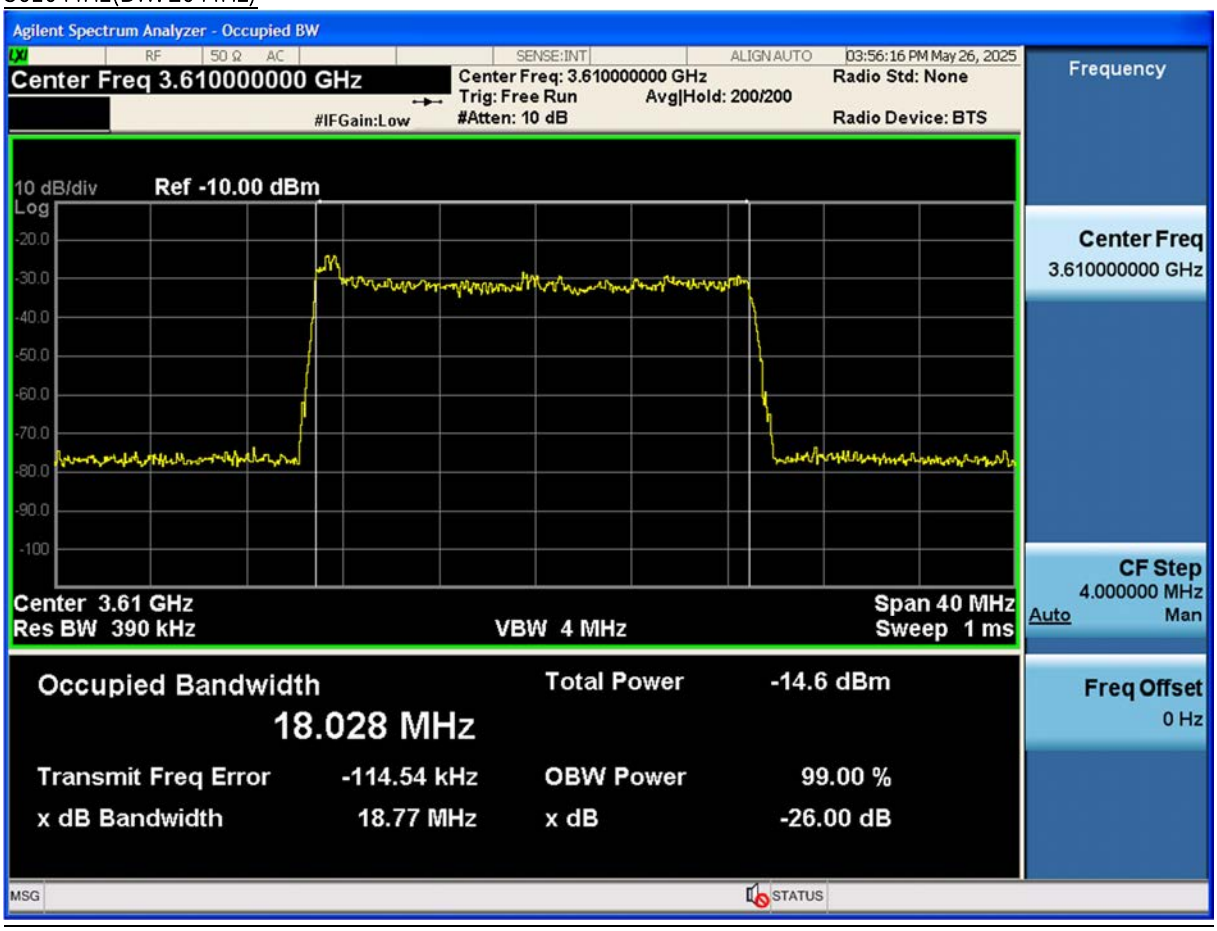
10. End User Device Additional Requirements (CBSD Protocol)

3610 MHz(BW: 20 MHz)



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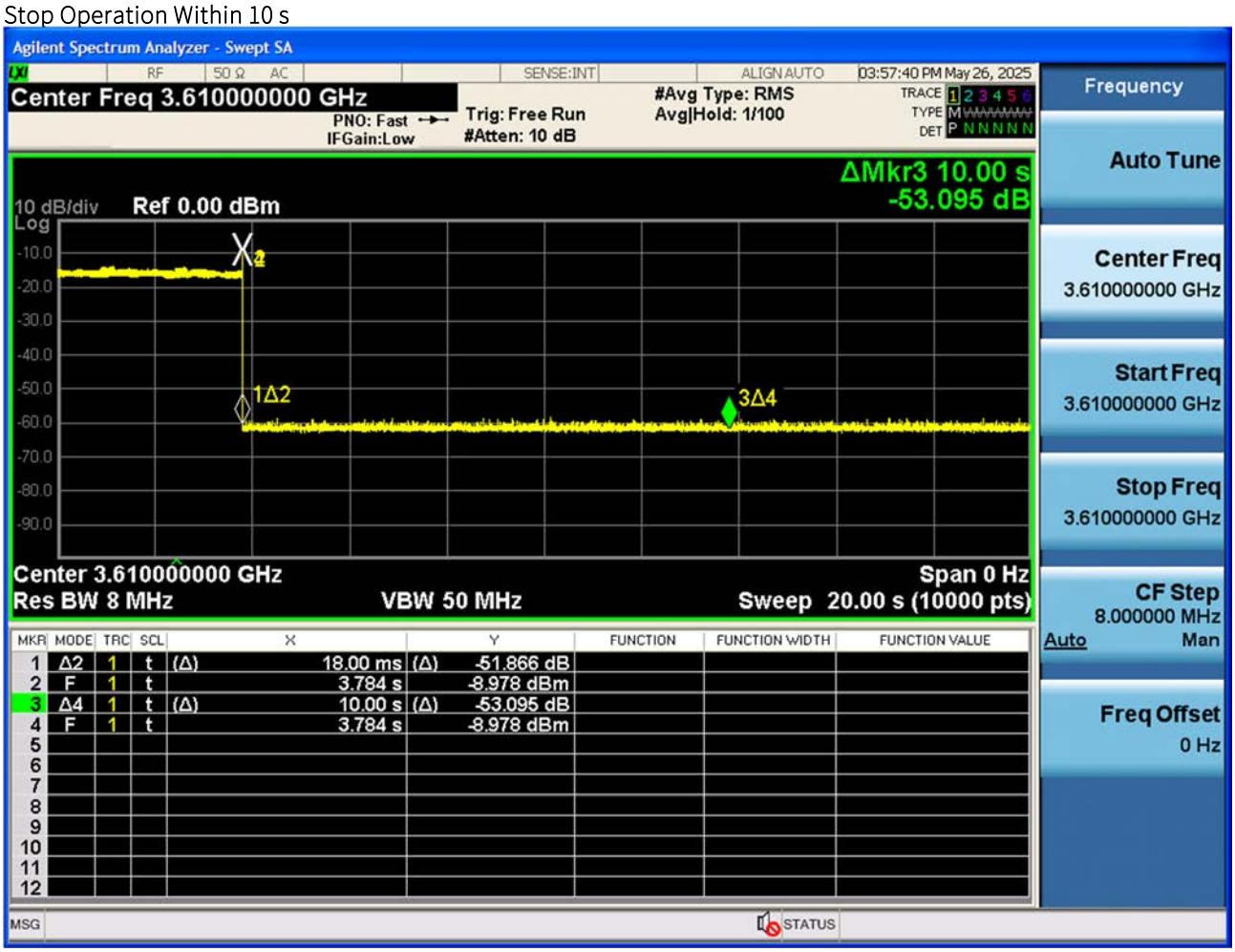
Stop Operation Within 10 s



Note:

Marker 2: CBSD sends instructions to discontinue LTE operations.

Marker 1△2: EUT discontinues operation. (18 ms)

Marker 3△4: 10 seconds elapsed time from CBSD sending instructions to EUT.

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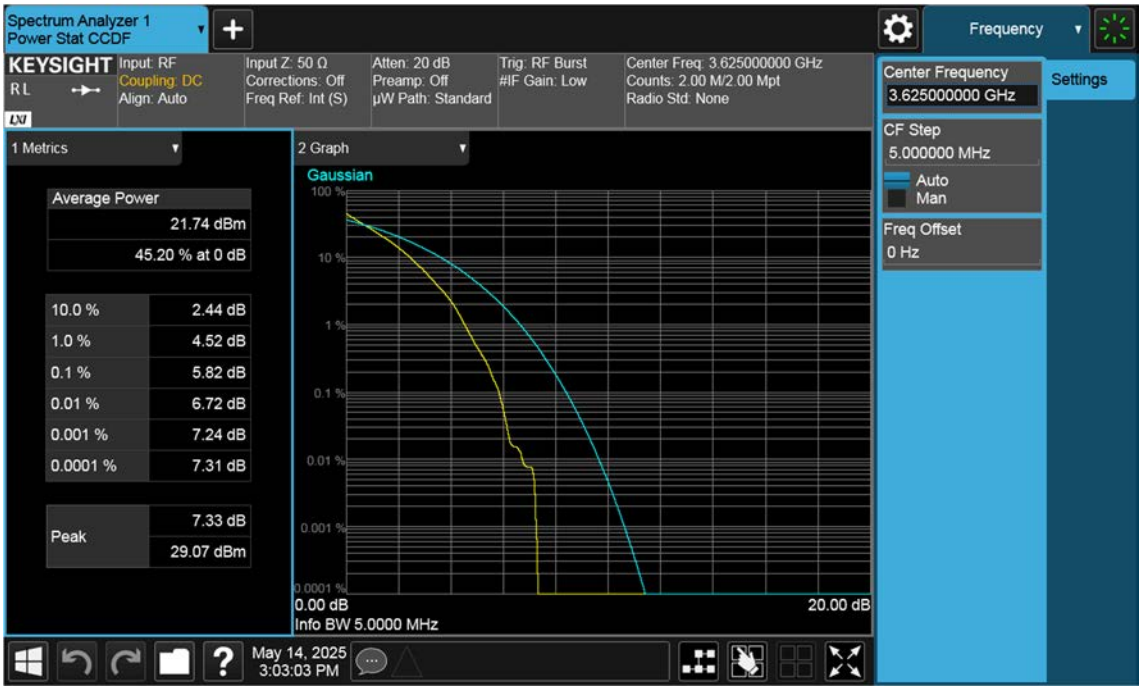
11. TEST PLOTS (MIMO1)

The report shall not be (partly) reproduced except in full without approval of the laboratory.

LTE B48_5 M_PAR_Mid_QPSK_FullRB



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LTE B48_5 M_PAR_Mid_16QAM_FullRB

The report shall not be (partly) reproduced except in full without approval of the laboratory.

LTE B48_5 M_PAR_Mid_64QAM_FullRB

The report shall not be (partly) reproduced except in full without approval of the laboratory.

LTE B48_5 M_PAR_Mid_256QAM_FullRB

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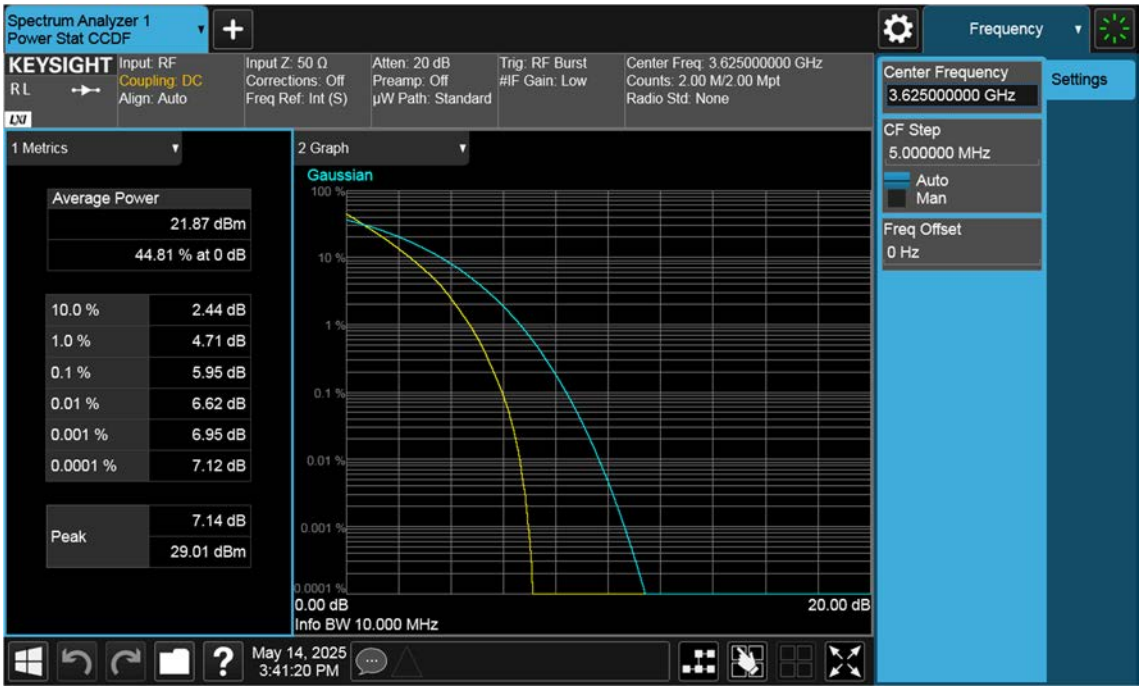
LTE B48_10 M_PAR_Mid_QPSK_FullRB



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LTE B48_10 M_PAR_Mid_16QAM_FullRB

The report shall not be (partly) reproduced except in full without approval of the laboratory.

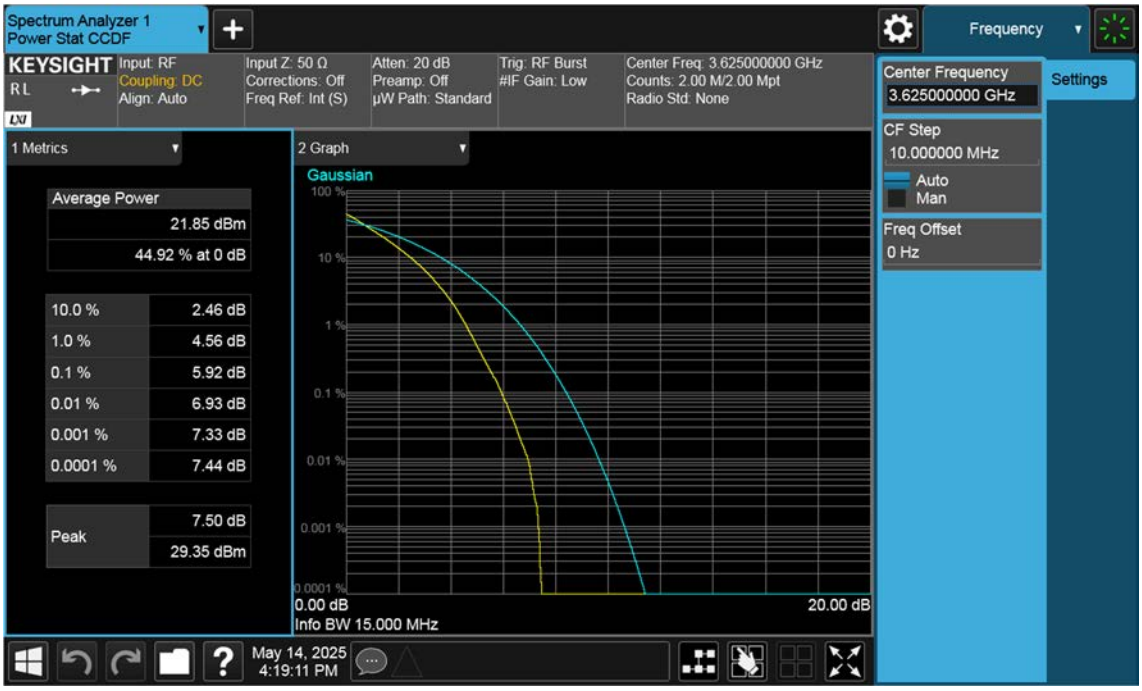
LTE B48_10 M_PAR_Mid_64QAM_FullRB

The report shall not be (partly) reproduced except in full without approval of the laboratory.

LTE B48_10 M_PAR_Mid_256QAM_FullRB

The report shall not be (partly) reproduced except in full without approval of the laboratory.

LTE B48_15 M_PAR_Mid_QPSK_FullRB



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LTE B48_15 M_PAR_Mid_16QAM_FullRB

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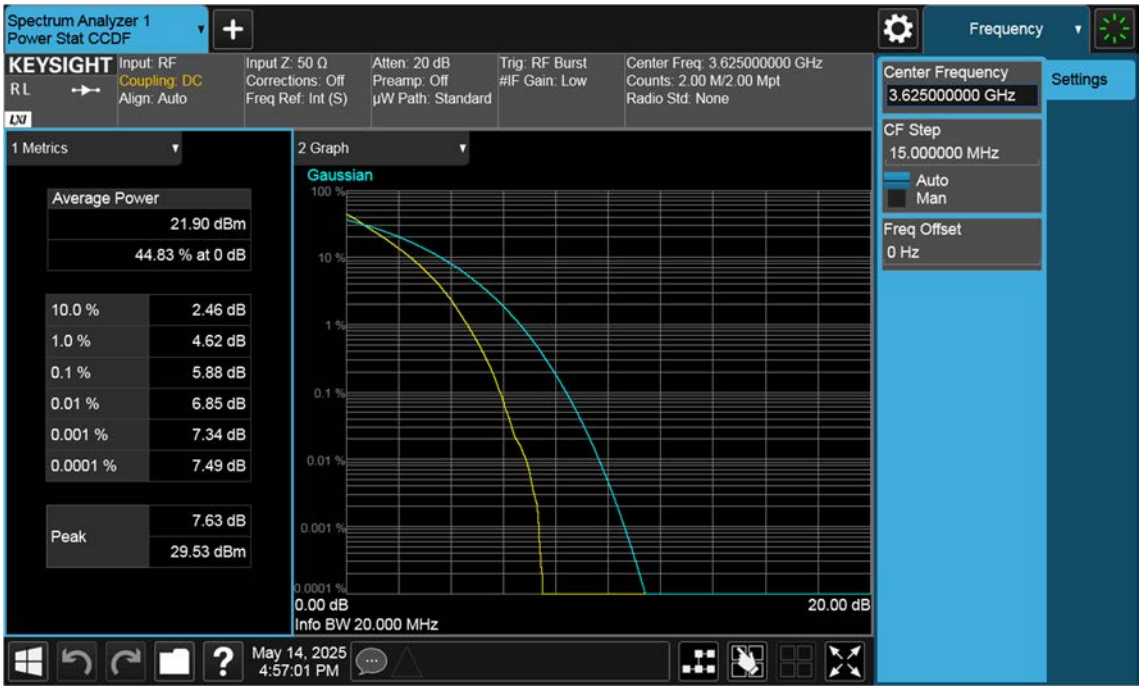
LTE B48_15 M_PAR_Mid_64QAM_FullRB

The report shall not be (partly) reproduced except in full without approval of the laboratory.

LTE B48_15 M_PAR_Mid_256QAM_FullRB

The report shall not be (partly) reproduced except in full without approval of the laboratory.

LTE B48_20 M_PAR_Mid_QPSK_FullRB



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LTE B48_20 M_PAR_Mid_16QAM_FullRB

The report shall not be (partly) reproduced except in full without approval of the laboratory.

LTE B48_20 M_PAR_Mid_64QAM_FullRB

The report shall not be (partly) reproduced except in full without approval of the laboratory.

LTE B48_20 M_PAR_Mid_256QAM_FullRB

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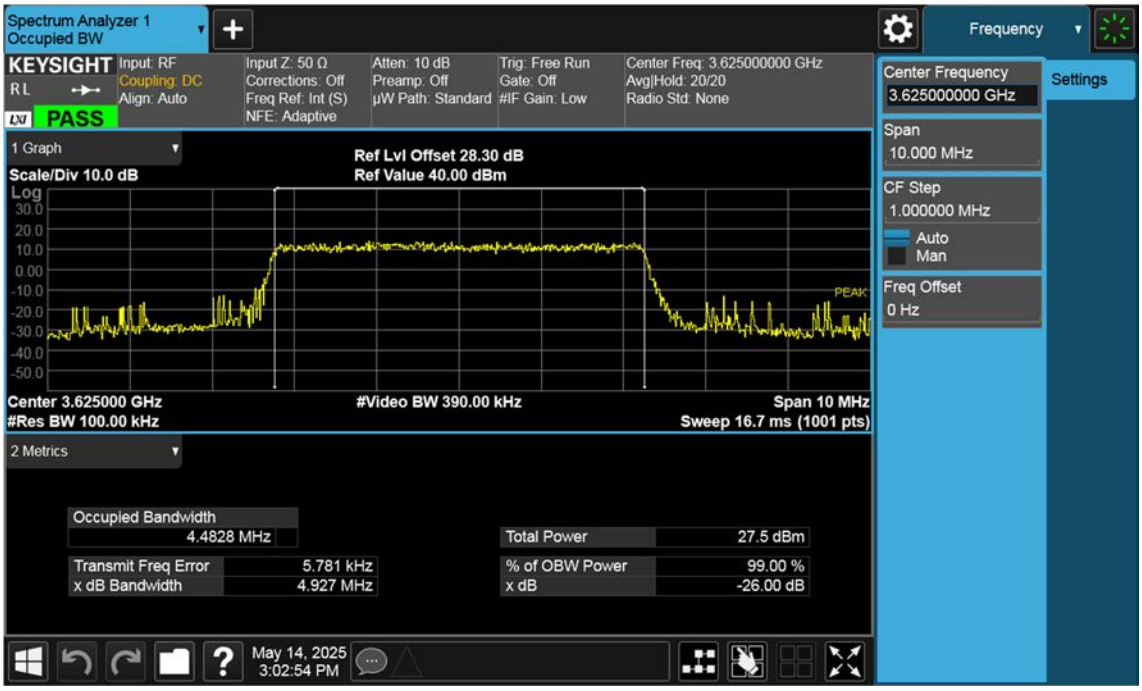
LTE B48_5 M_OBW_Mid_QPSK_FullRB



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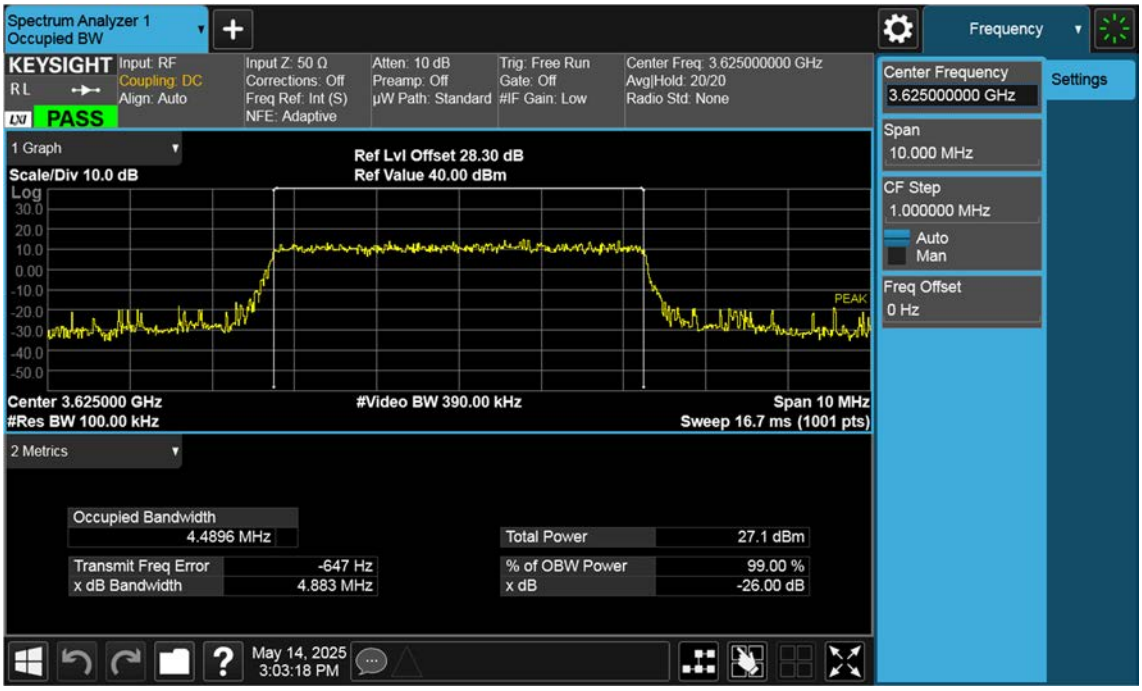
LTE B48_5 M_OBW_Mid_16QAM_FullRB



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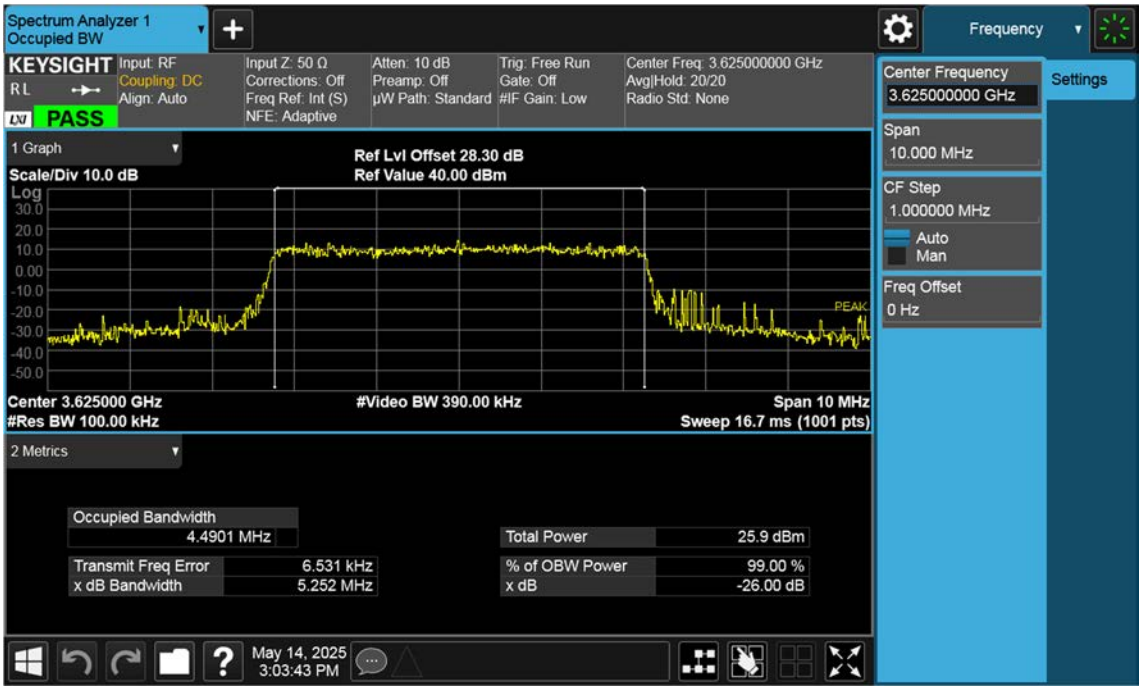

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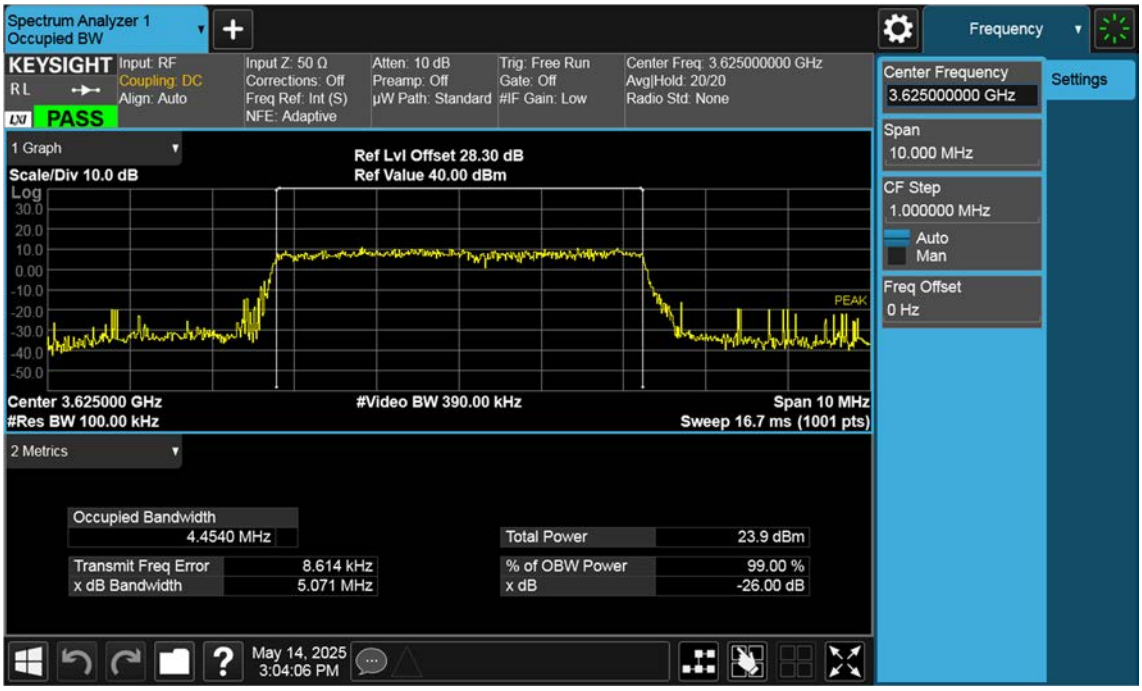

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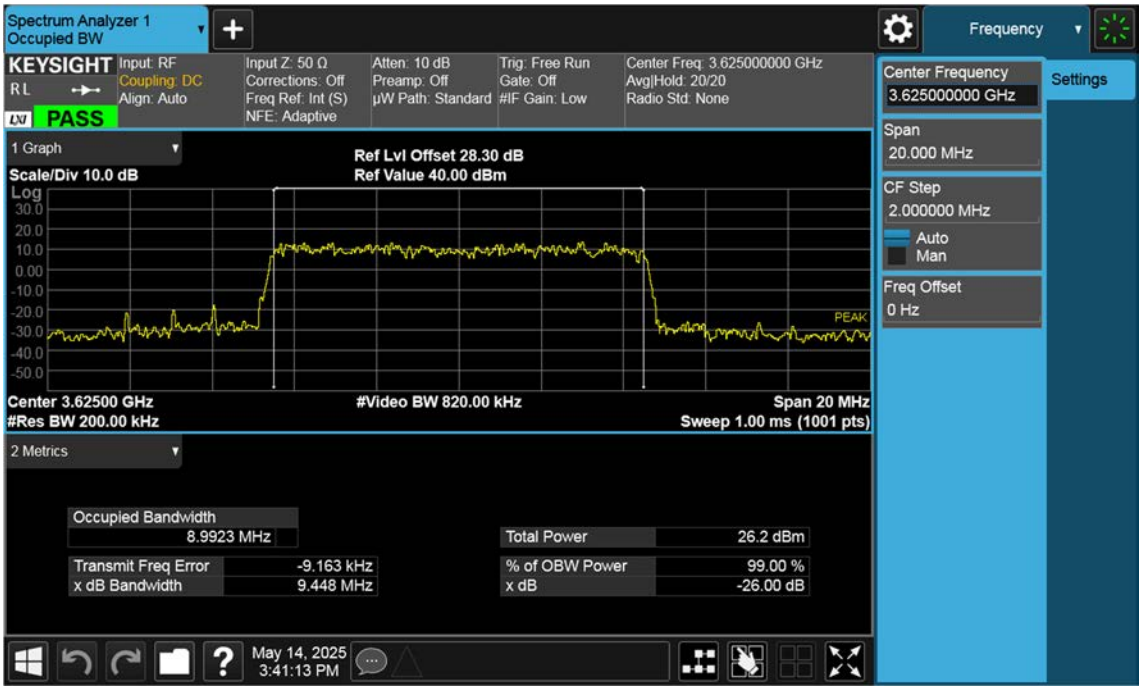
LTE B48_10 M_OBW_Mid_QPSK_FullRB



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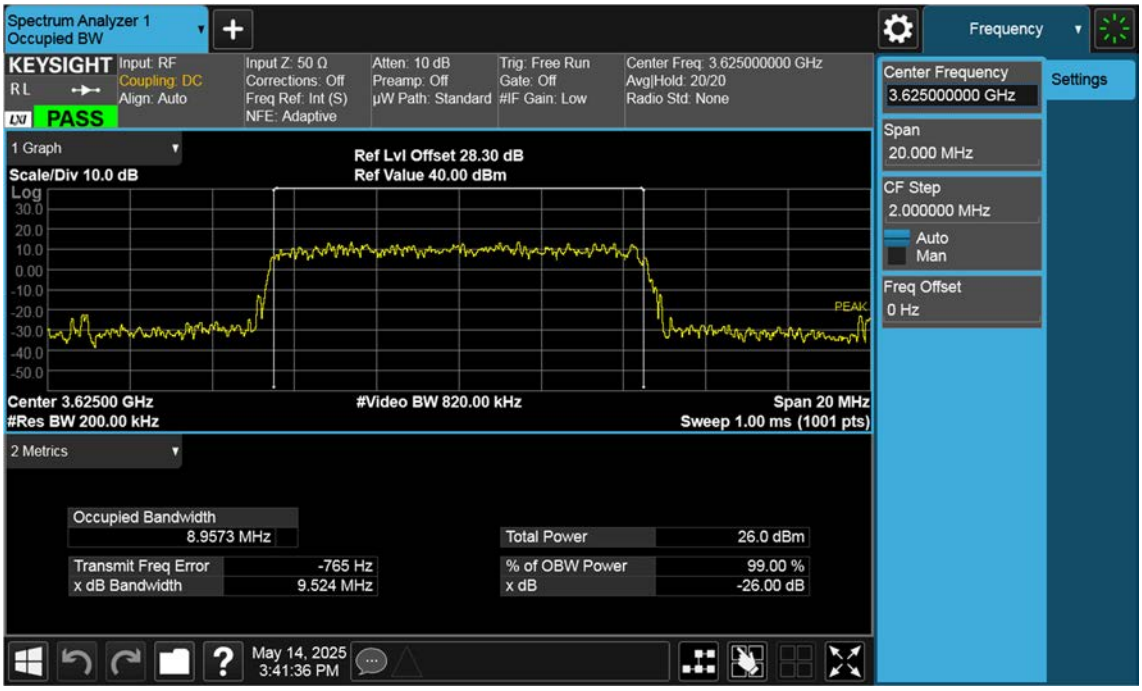

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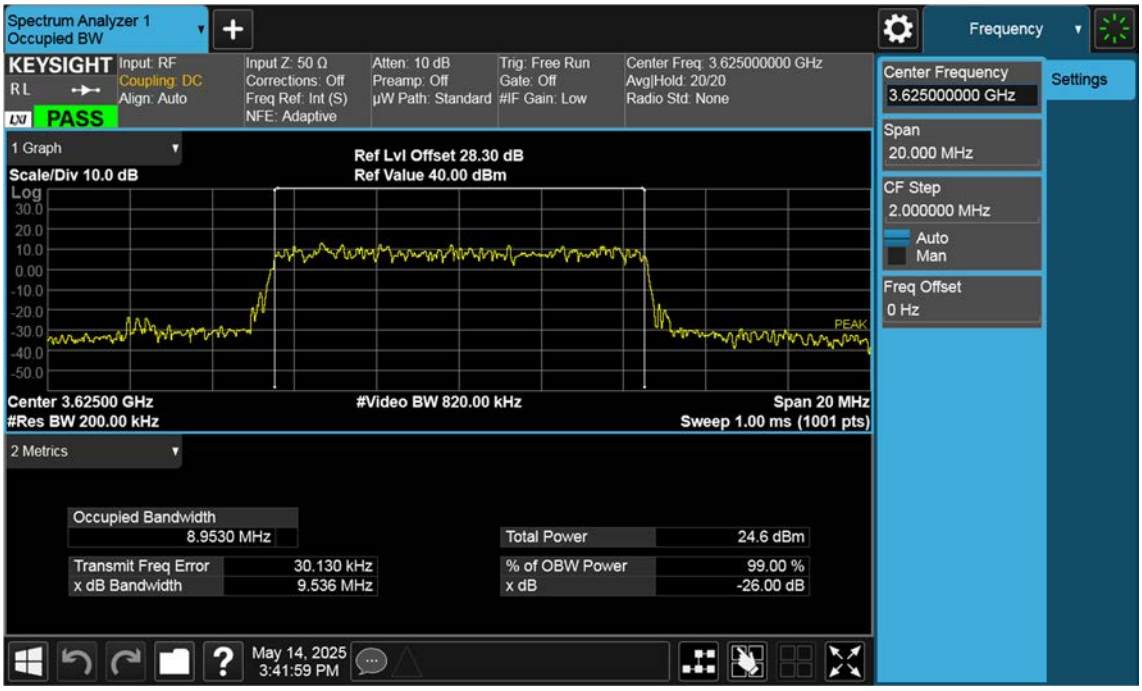

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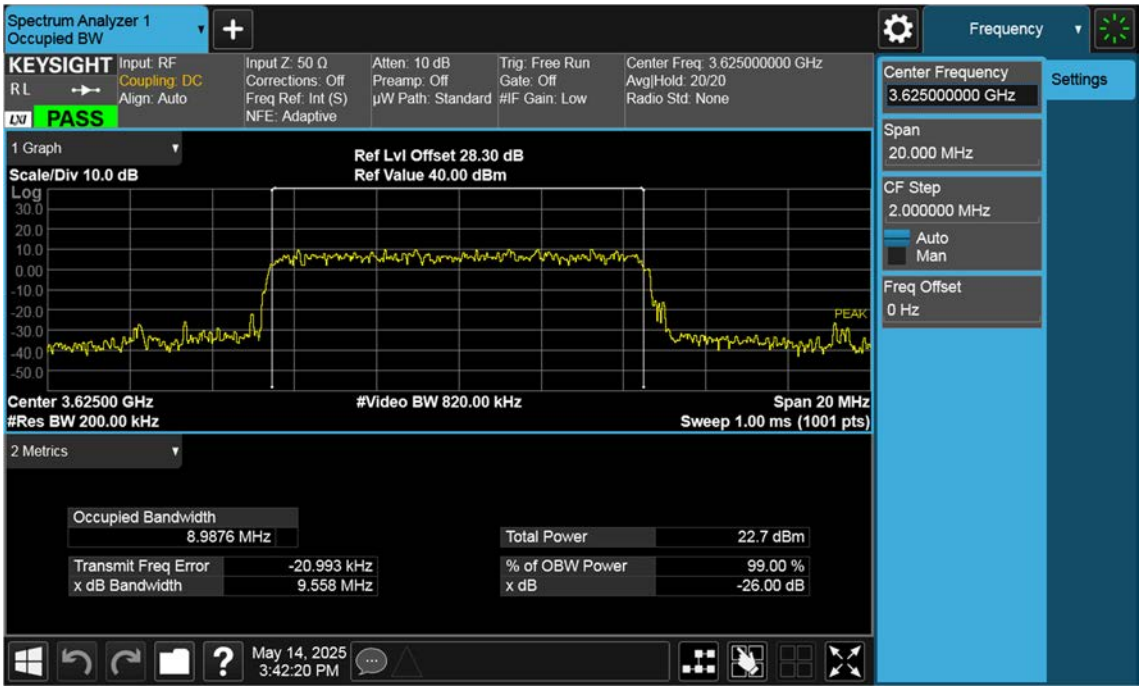
LTE B48_10 M_OBW_Mid_256QAM_FullRB



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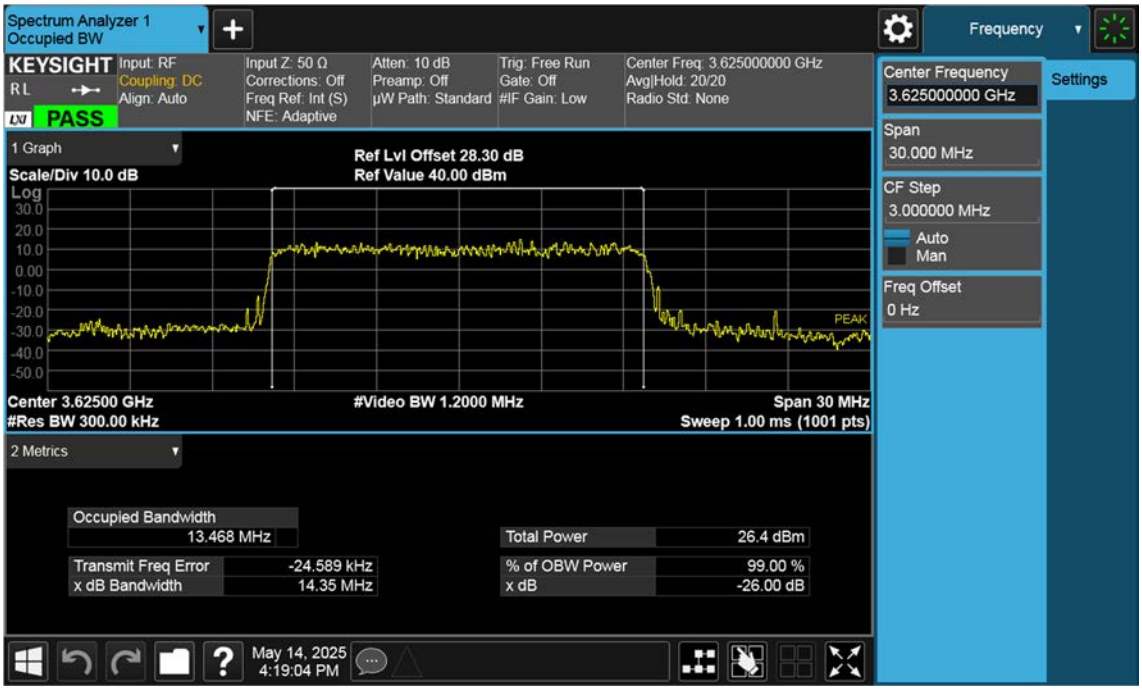
LTE B48_15 M_OBW_Mid_QPSK_FullRB



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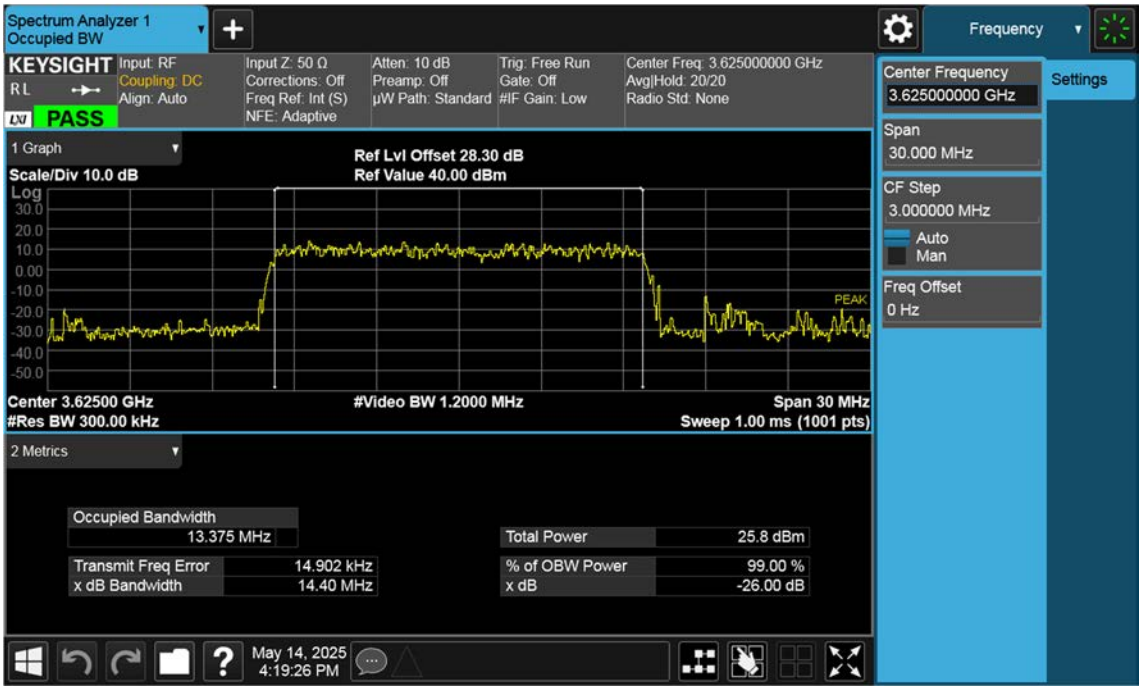

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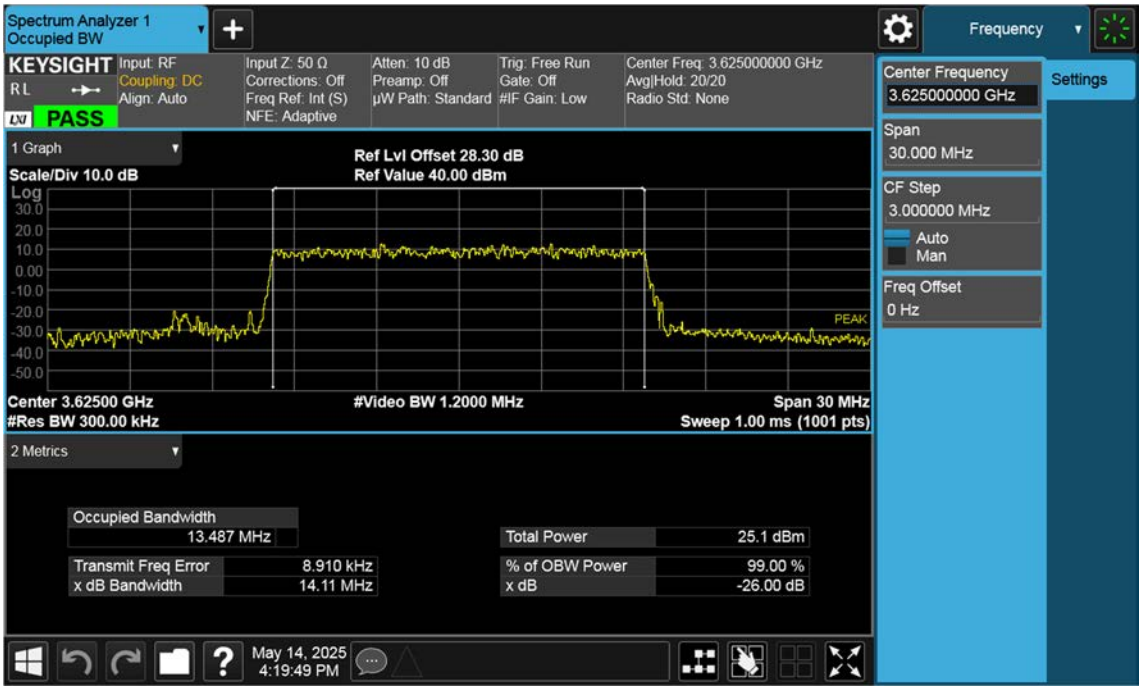

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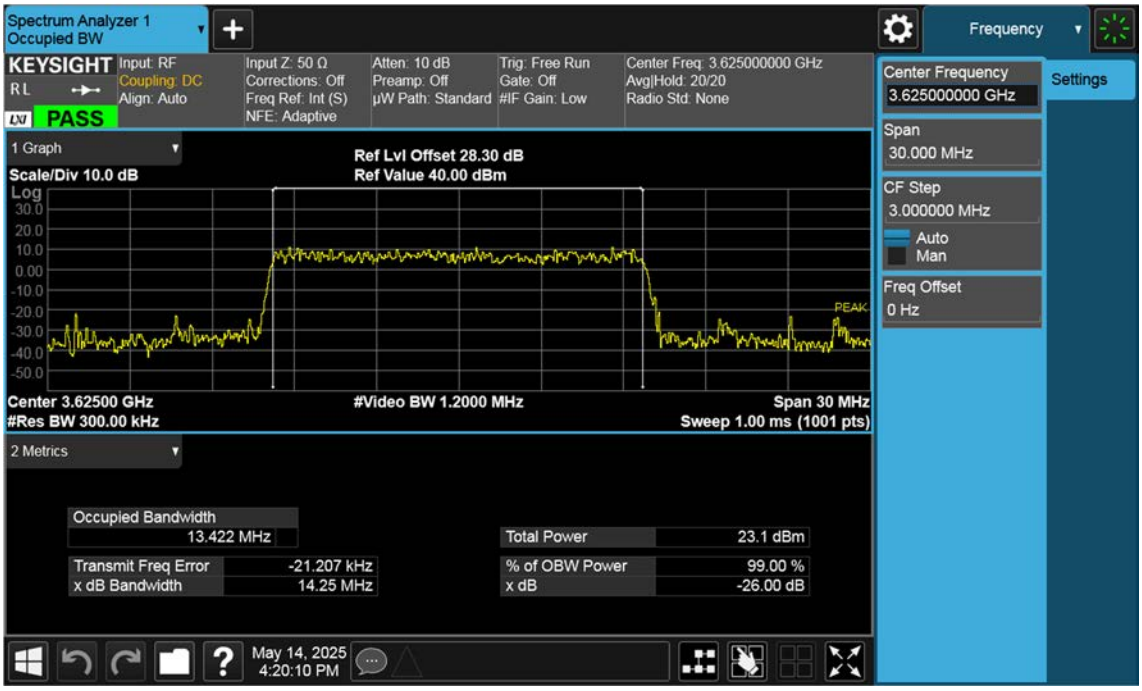
LTE B48_15 M_OBW_Mid_256QAM_FullRB



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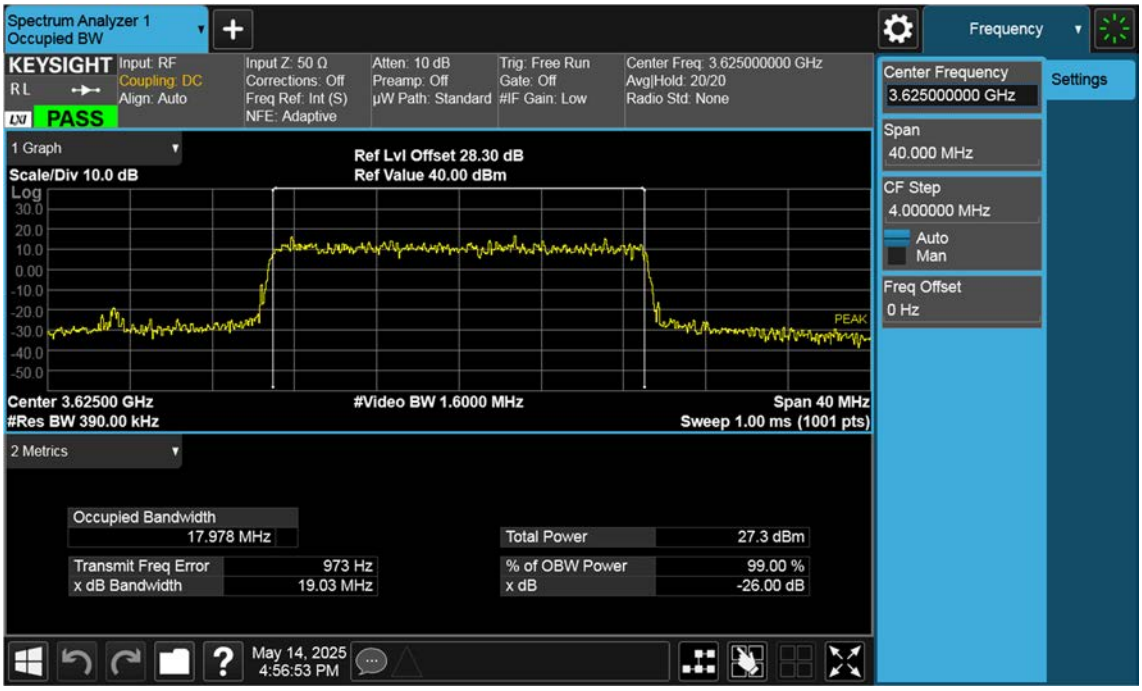
LTE B48_20 M_OBW_Mid_QPSK_FullRB



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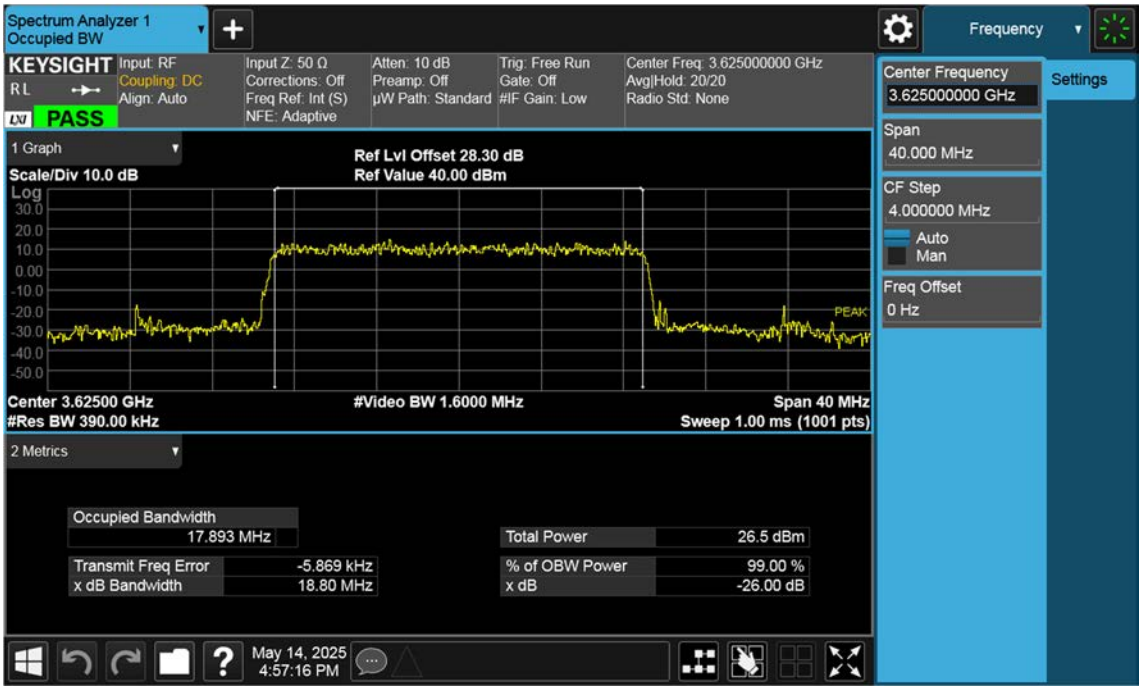

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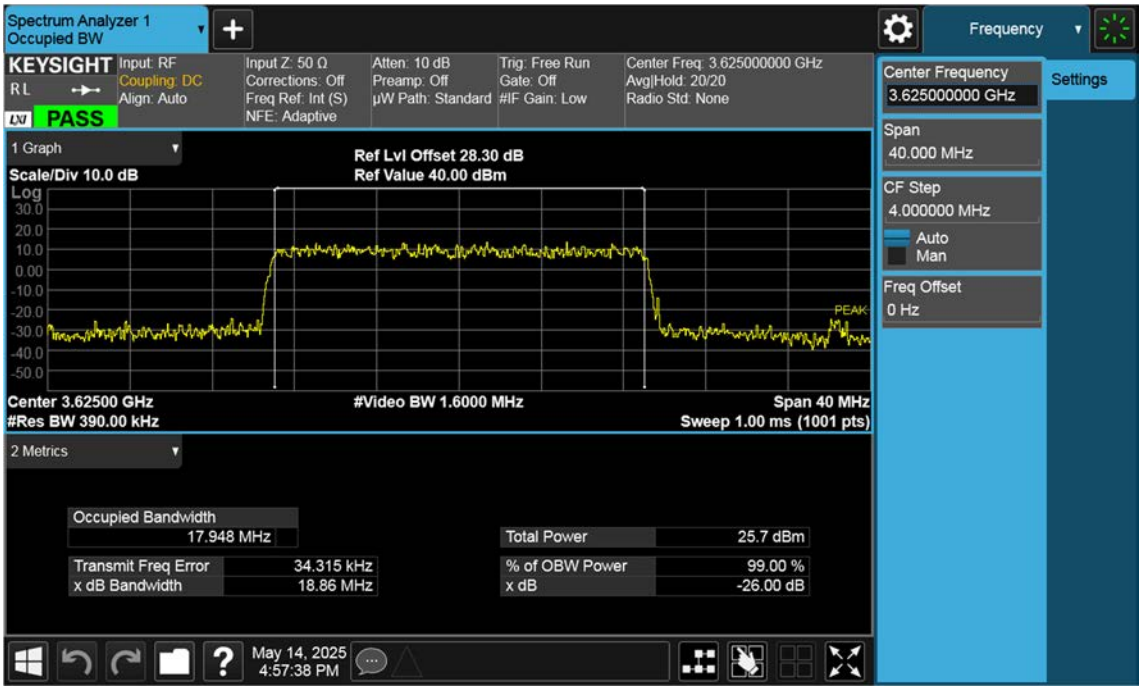
LTE B48_20 M_OBW_Mid_64QAM_FullRB



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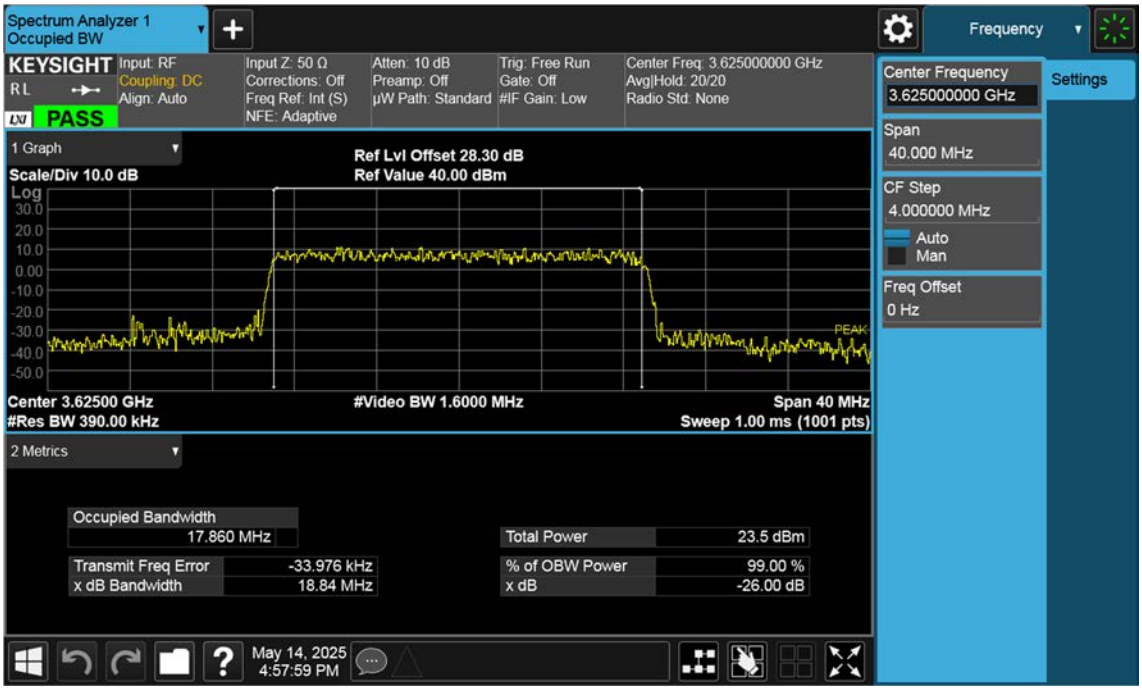
LTE B48_20 M_OBW_Mid_256QAM_FullRB



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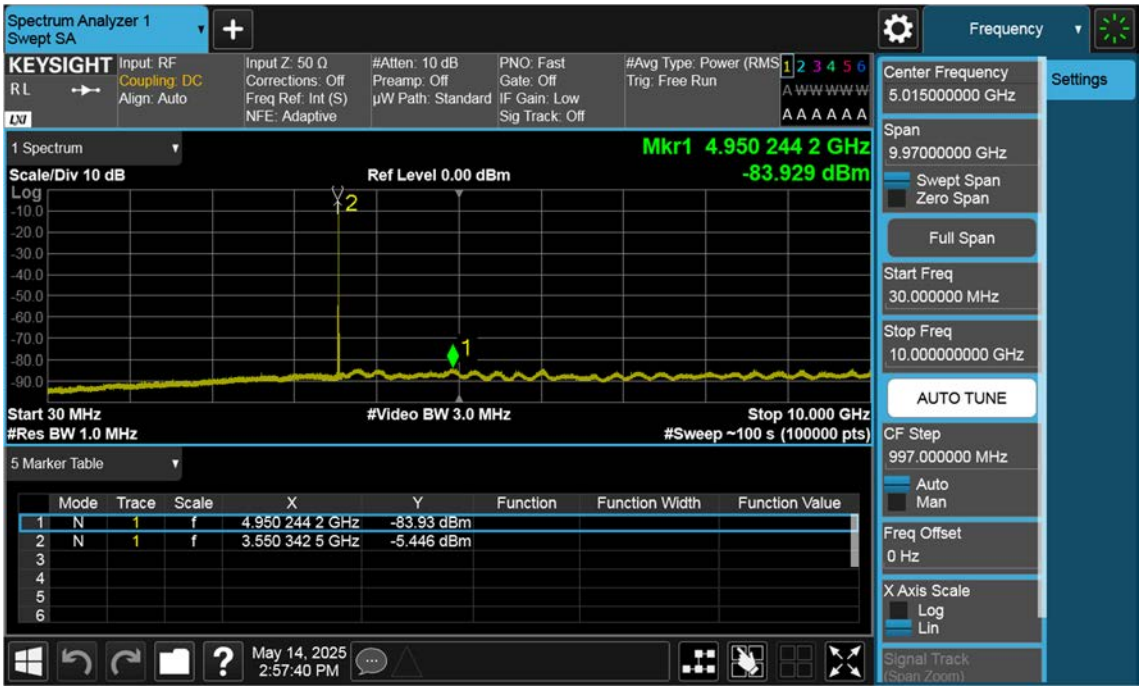
LTE B48_5 M_Conducted Spurious(30 M-10 G)_Low_QPSK_1RB



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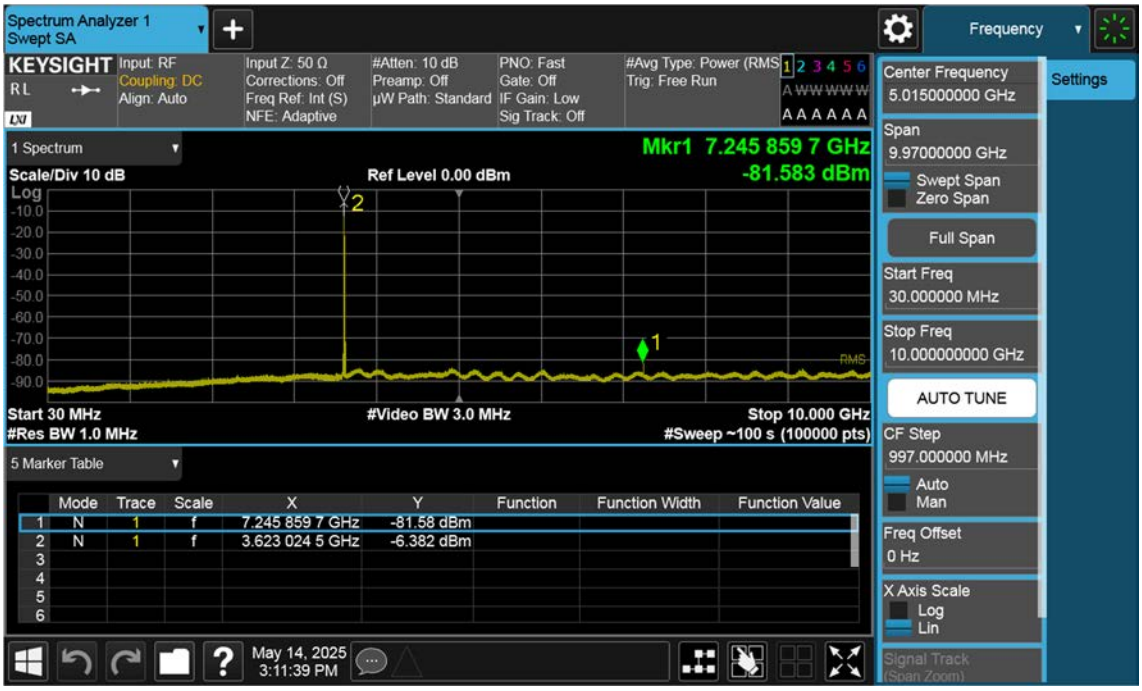
LTE B48_5 M_Conducted Spurious(30 M-10 G)_Mid_QPSK_1RB



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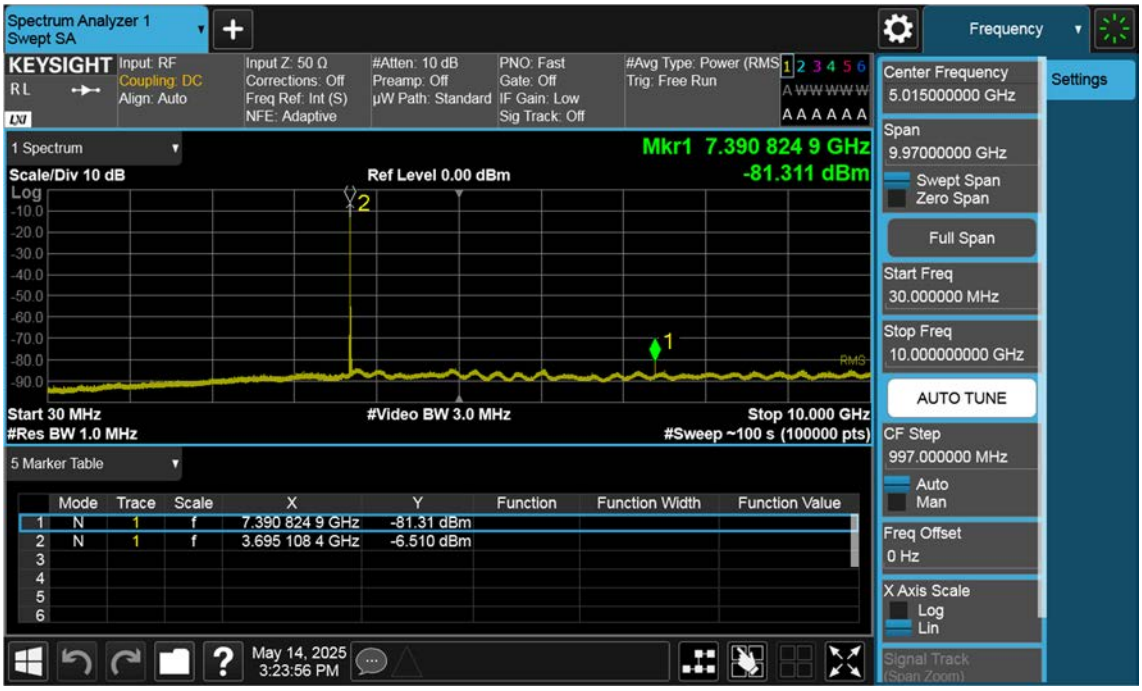
LTE B48_5 M_Conducted Spurious(30 M-10 G)_High_QPSK_1RB



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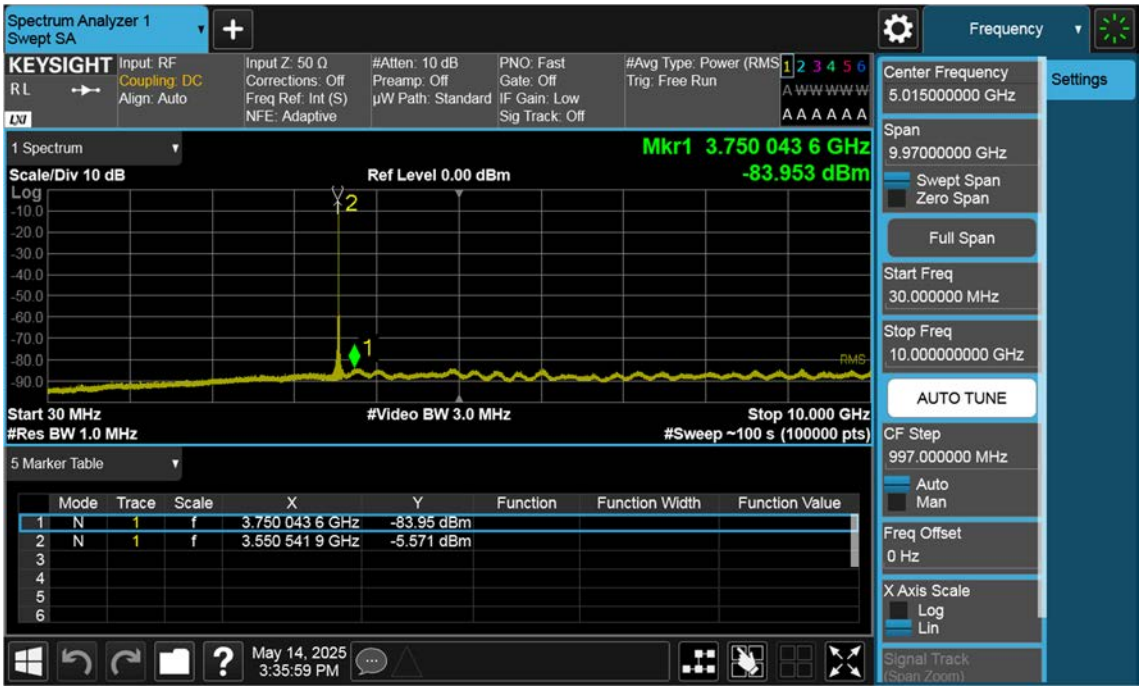
LTE B48_10 M_Conducted Spurious(30 M-10 G)_Low_QPSK_1RB



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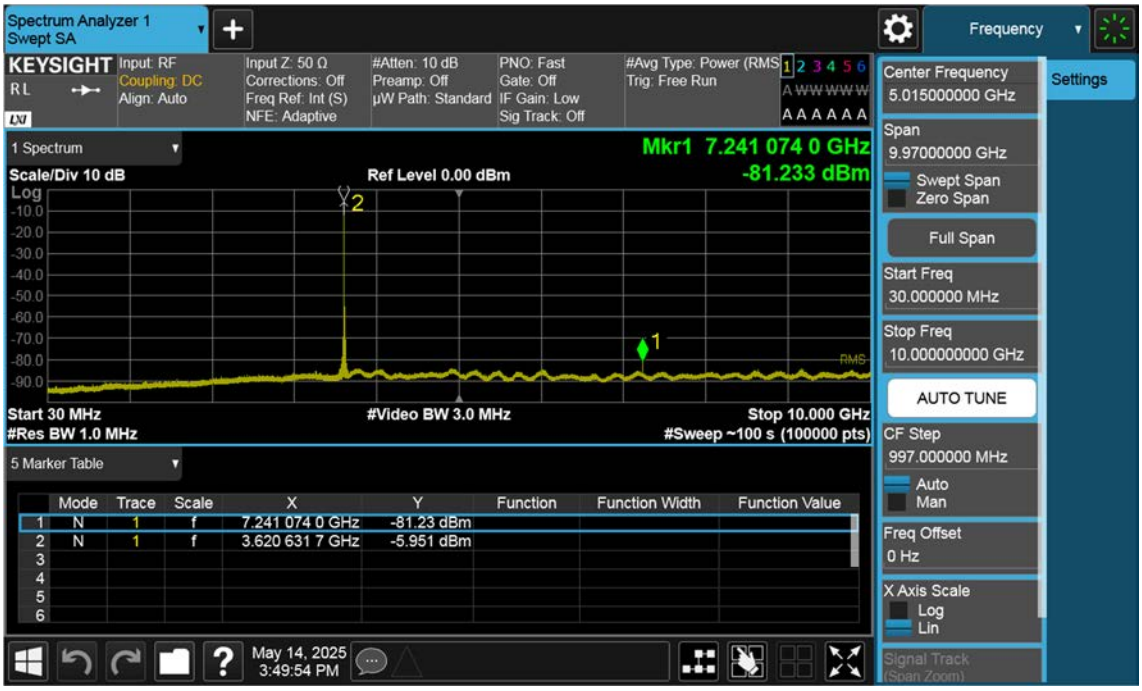
LTE B48_10 M_Conducted Spurious(30 M-10 G)_Mid_QPSK_1RB



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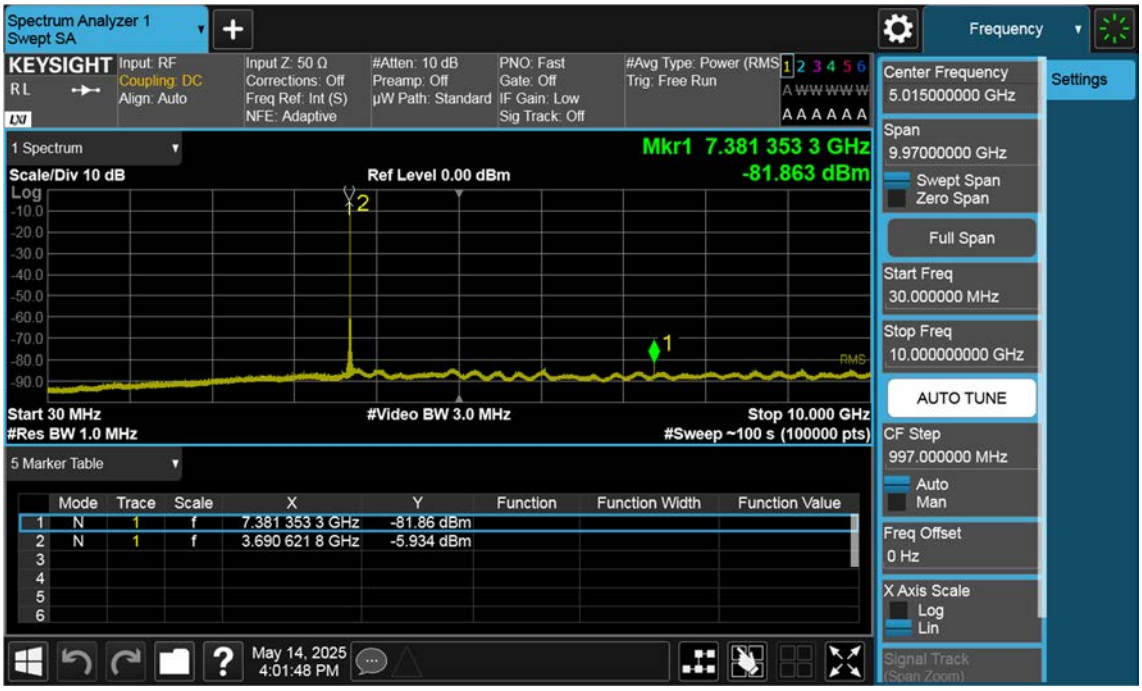
LTE B48_10 M_Conducted Spurious(30 M-10 G)_High_QPSK_1RB



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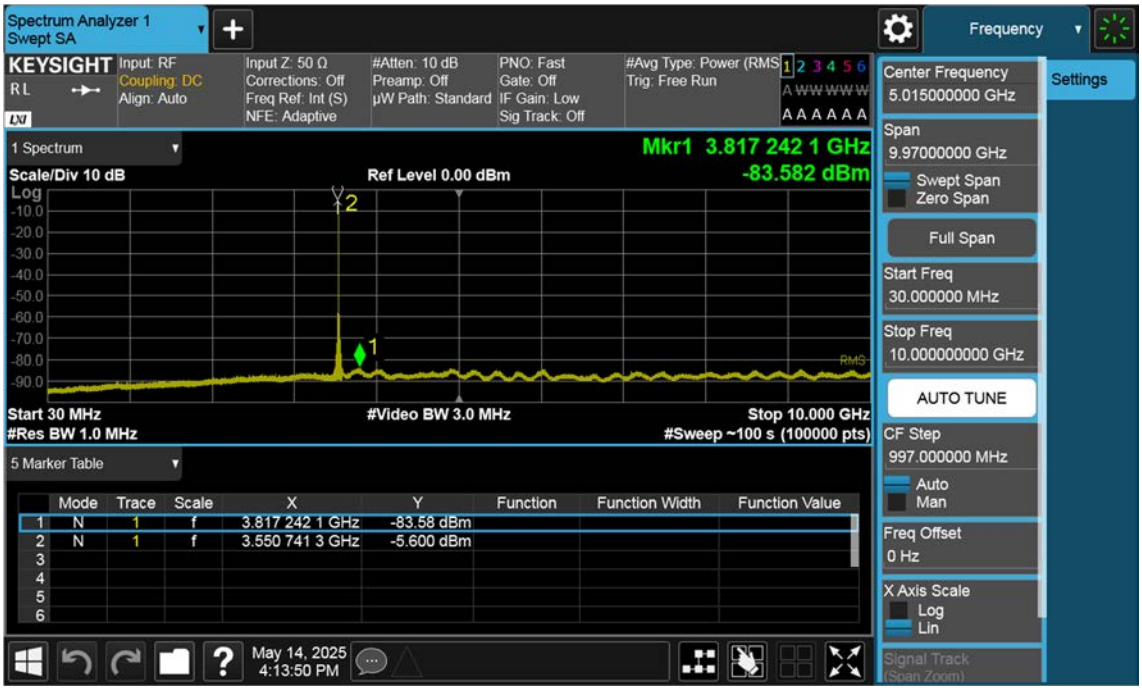
LTE B48_15 M_Conducted Spurious(30 M-10 G)_Low_QPSK_1RB



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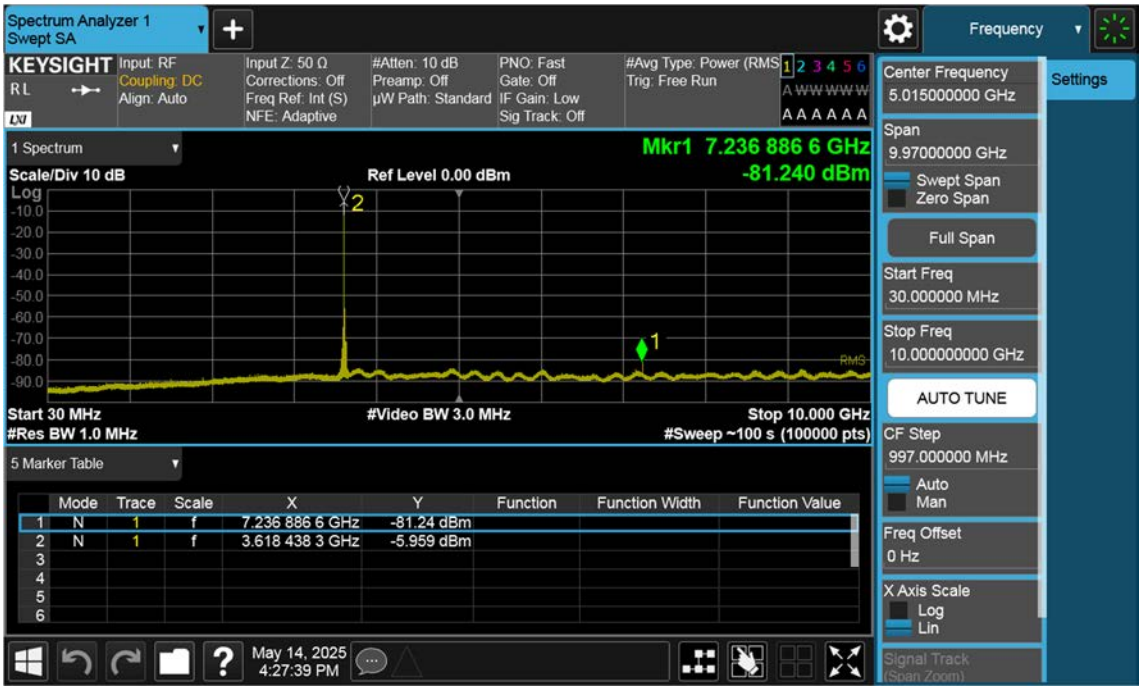
LTE B48_15 M_Conducted Spurious(30 M-10 G)_Mid_QPSK_1RB



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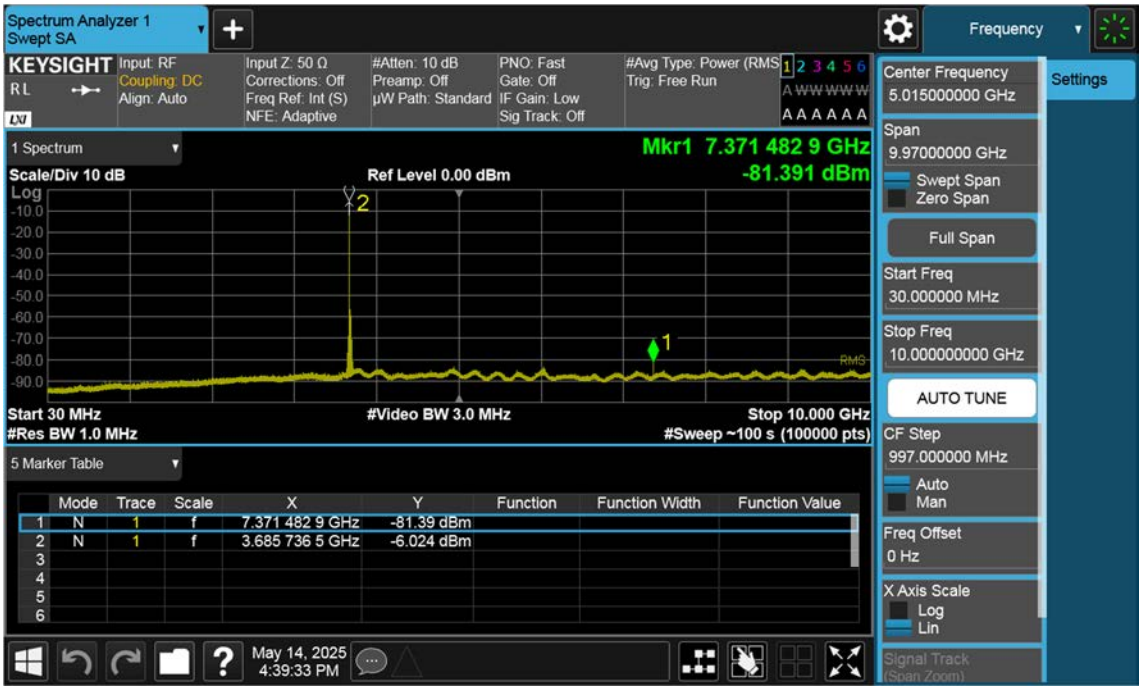
LTE B48_15 M_Conducted Spurious(30 M-10 G)_High_QPSK_1RB



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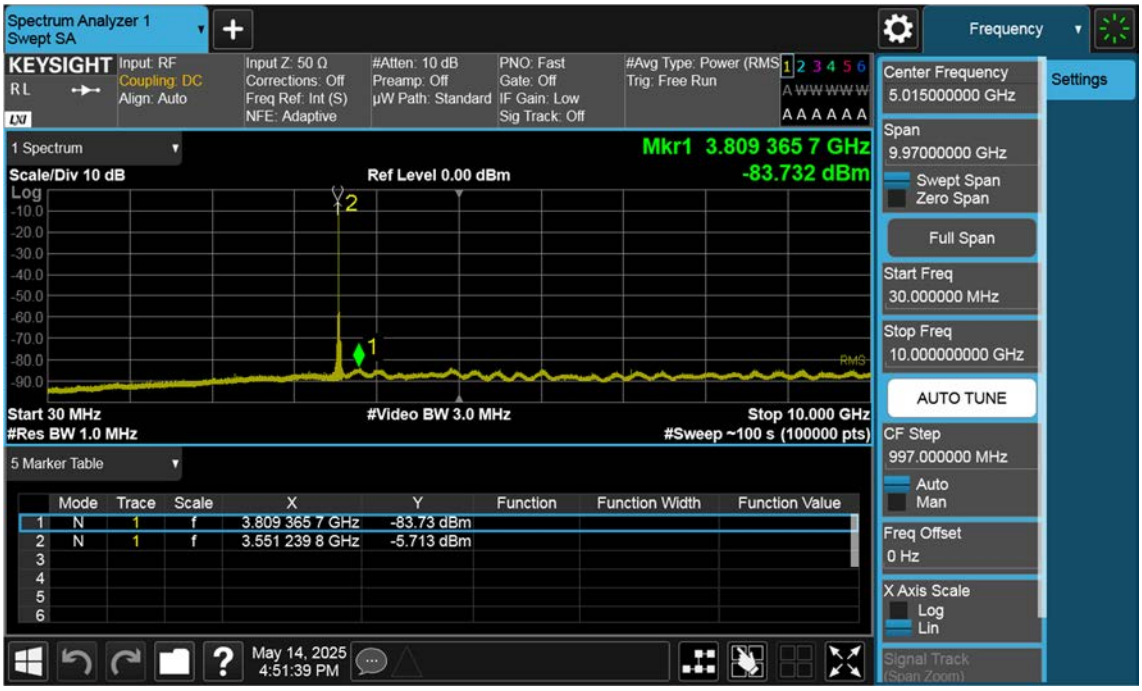
LTE B48_20 M_Conducted Spurious(30 M-10 G)_Low_QPSK_1RB



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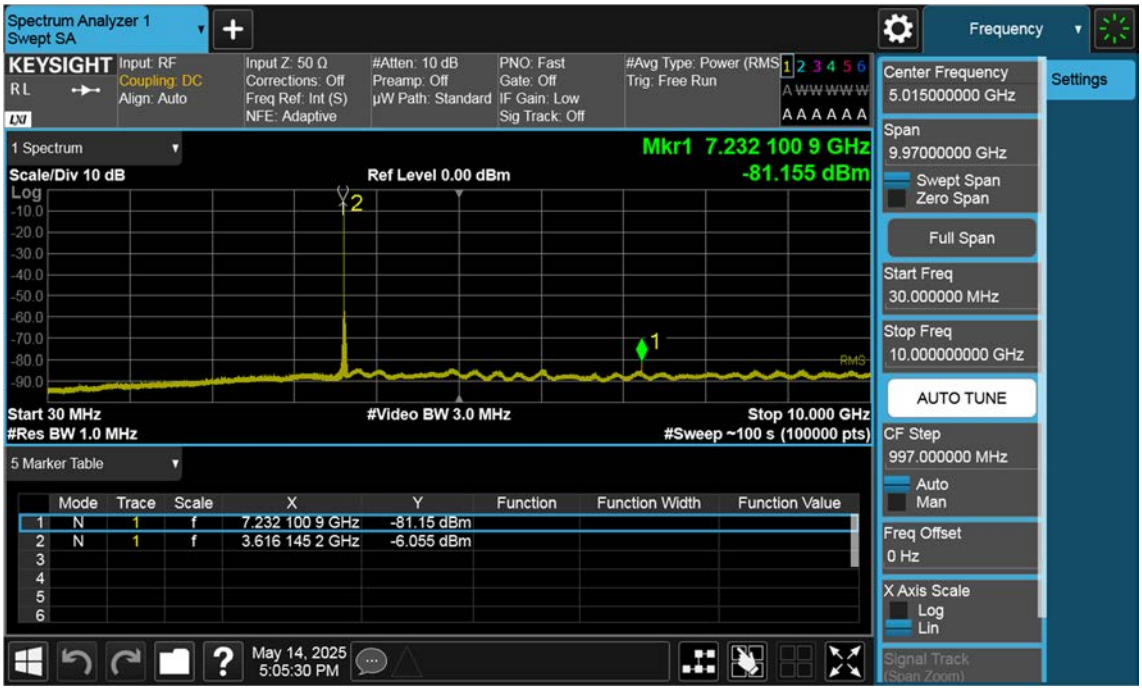
LTE B48_20 M_Conducted Spurious(30 M-10 G)_Mid_QPSK_1RB



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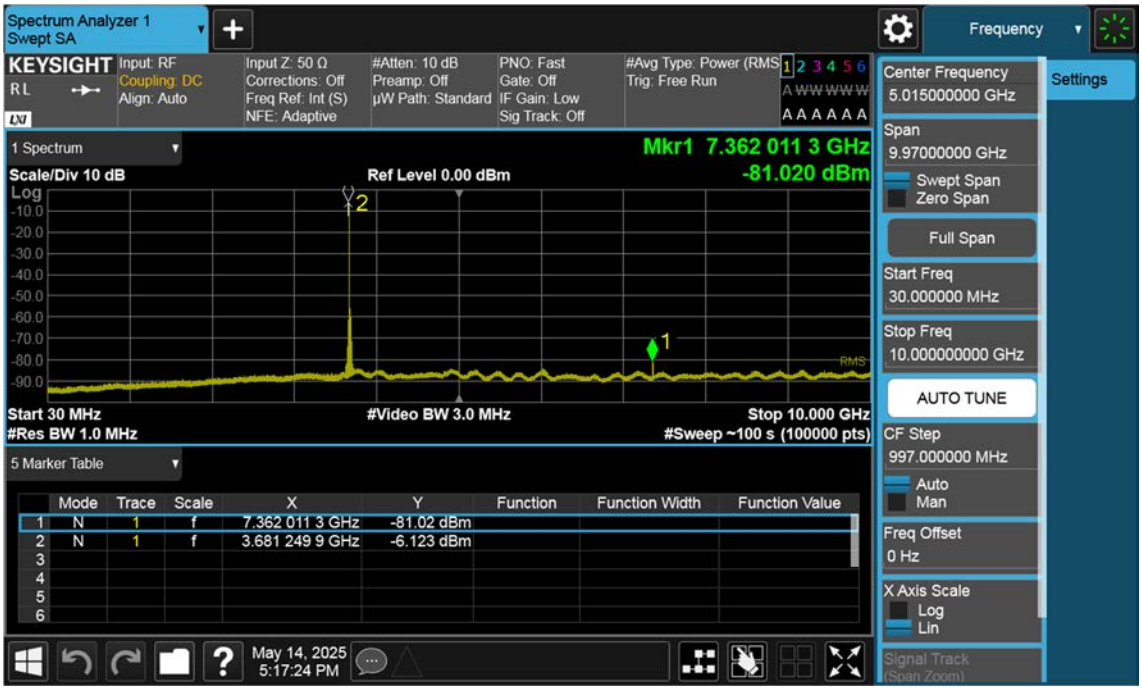
LTE B48_20 M_Conducted Spurious(30 M-10 G)_High_QPSK_1RB



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LTE B48_5 M_Conducted Spurious(Above10 G)_Low_QPSK_1RB

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LTE B48_5 M_Conducted Spurious(Above10 G)_Mid_QPSK_1RB

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LTE B48_5 M_Conducted Spurious(Above10 G)_High_QPSK_1RB

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LTE B48_10 M_Conducted Spurious(Above10 G)_Low_QPSK_1RB

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LTE B48_10 M_Conducted Spurious(Above10 G)_Mid_QPSK_1RB

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LTE B48_10 M_Conducted Spurious(Above10 G)_High_QPSK_1RB

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LTE B48_15 M_Conducted Spurious(Above10 G)_Low_QPSK_1RB

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