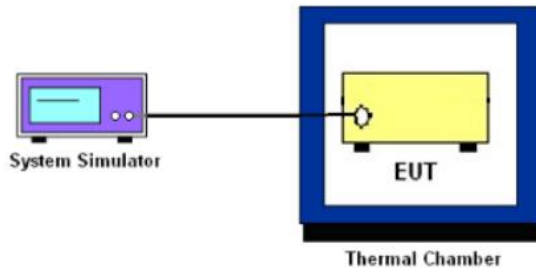


## 6.7. Frequency Stability Measurement

### 6.7.1. Test Specification

<b>Test Requirement:</b>	FCC Part 2.1055 ; FCC Part 22.355 ; FCC Part 24.235
<b>Test Method:</b>	FCC KDB 971168 D01v03r01
<b>Operation mode:</b>	Refer to item 3.1
<b>Limit:</b>	FCC Part 22.355 : $\pm 2.5$ ppm FCC Part 24.235 : The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.
<b>Test Setup:</b>	 <p>The diagram illustrates the test setup. On the left, a 'System Simulator' is represented by a purple box with a screen and buttons. A line connects it to a yellow box labeled 'EUT' (Equipment Under Test). The EUT is placed inside a blue square frame labeled 'Thermal Chamber'.</p>
<b>Test Procedure:</b>	<p><b>Test Procedures for Temperature Variation</b></p> <ol style="list-style-type: none"> <li>1. The testing follows FCC KDB 971168 D01v03r01 Section 9.0.</li> <li>2. The EUT was set up in the thermal chamber and connected with the system simulator.</li> <li>3. With power OFF, the temperature was decreased to <math>-30^{\circ}\text{C}</math> and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.</li> <li>4. With power OFF, the temperature was raised in <math>10^{\circ}\text{C}</math> steps up to <math>50^{\circ}\text{C}</math>. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.</li> </ol> <p><b>Test Procedures for Voltage Variation</b></p> <ol style="list-style-type: none"> <li>1. The testing follows FCC KDB 971168 D01v03r01 Section 9.0.</li> <li>2. The EUT was placed in a temperature chamber at <math>25 \pm 5^{\circ}\text{C}</math> and connected with the system simulator.</li> <li>3. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.</li> <li>4. The variation in frequency was measured for the worst case.</li> </ol>
<b>Test Result:</b>	PASS
<b>Remark:</b>	All three channels of all modulations have been tested, but only the worst channel and the worst modulation show in this test item.

### 6.7.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Date of Cal.	Due Date
Universal Radio Communication Tester	R&S	CMU200	110188	Jun. 26, 2025	Jun. 25, 2026
Programable tempratuce and humidity chamber	JQ	JQ-2000	510101234	Jun. 26, 2025	Jun. 25, 2026
DC power supply	Kingrang	KR3005K	/	Jun. 26, 2025	Jun. 25, 2026
Combiner Box	AT890-RFB	Ascentest	/	/	/

### 6.7.3. Test Data

#### Test Result of Temperature Variation

<b>Band:</b>	<b>GSM 850</b>	<b>Channel:</b>	<b>190</b>
<b>Limit (ppm):</b>	<b>2.5</b>	<b>Frequency:</b>	<b>836.4MHz</b>
<b>Temperature (°C)</b>	<b>Deviation (ppm)</b>	<b>Result</b>	
50	0.021	PASS	
40	0.016		
30	0.018		
20	0.013		
10	0.011		
0	0.015		
-10	0.017		
-20	0.018		
-30	0.022		

<b>Band:</b>	<b>GSM 1900</b>	<b>Channel:</b>	<b>661</b>
<b>Limit (ppm):</b>	<b>Note</b>	<b>Frequency:</b>	<b>1880MHz</b>
<b>Temperature (°C)</b>	<b>Deviation (ppm)</b>	<b>Result</b>	
50	0.021	PASS	
40	0.013		
30	0.017		
20	0.016		
10	0.018		
0	0.011		
-10	0.013		
-20	0.014		
-30	0.019		

**Note:** The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

<b>Band:</b>	<b>WCDMA Band V</b>	<b>Channel:</b>	<b>4182</b>
<b>Limit (ppm):</b>	<b>2.5</b>	<b>Frequency:</b>	<b>836.4MHz</b>
<b>Temperature (°C)</b>	<b>RMC 12.2Kbps Deviation (ppm)</b>	<b>Result</b>	
50	0.021	PASS	
40	0.012		
30	0.013		
20	0.015		
10	0.018		
0	0.016		
-10	0.017		
-20	0.021		
-30	0.020		

<b>Band:</b>	<b>WCDMA Band II</b>	<b>Channel:</b>	<b>9400</b>
<b>Limit (ppm):</b>	<b>Note</b>	<b>Frequency:</b>	<b>1880MHz</b>
<b>Temperature (°C)</b>	<b>RMC 12.2Kbps Deviation (ppm)</b>	<b>Result</b>	
50	0.019	PASS	
40	0.017		
30	0.016		
20	0.013		
10	0.015		
0	0.016		
-10	0.017		
-20	0.018		
-30	0.022		

**Note:** The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

## Test Result of Voltage Variation

Band & Channel	Mode	Voltage (Volt)	Deviation (ppm)	Limit (ppm)	Result
GSM 850 CH190	GSM	16	+0.017	2.5	PASS
		12	+0.018		
		9	+0.016		
GSM 1900 CH661	GSM	16	+0.013	(Note 3.)	
		12	+0.021		
		9	+0.019		
WCDMA Band V CH4182	RMC 12.2Kbps	16	-0.012	2.5	
		12	-0.015		
		9	-0.020		
WCDMA Band II CH9400	RMC 12.2Kbps	16	-0.018	(Note 3.)	
		12	-0.017		
		9	-0.015		

### Note:

1. Normal Voltage = 3.7V.
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

## Appendix B: Photographs of Test Setup

Please refer to document Appendix No.: TCT250807E012-A

## Appendix C: Photographs of EUT

Please refer to document Appendix No.: TCT250807E012-B & TCT250807E012-C

**\*\*\*\*\*END OF REPORT\*\*\*\*\***