

Test Band = LTE Band 4
 Test Mode = 16QAM /TM5
 Bandwidth=10MHz
 Test Channel = LCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3430	-10.44	4.1	9.41	39	-44.13	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
 Test Mode = 16QAM /TM5
 Bandwidth=10MHz
 Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3465	-8.77	4.1	9.41	39	-42.46	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
 Test Mode = Q16QAM /TM5
 Bandwidth=10MHz
 Test Channel = HCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3500	-11.38	4.1	9.41	39	-45.07	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
 Test Mode = QPSK /TM4
 Bandwidth=15MHz
 Test Channel = LCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3435	-11.84	4.1	9.41	39	-45.53	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
 Test Mode = QPSK /TM4
 Bandwidth=15MHz
 Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3465	-11.95	4.1	9.41	39	-45.64	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
 Test Mode = QPSK /TM4
 Bandwidth=15MHz
 Test Channel = HCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3495	-12.95	4.1	9.41	39	-46.64	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
 Test Mode = 16QAM /TM5
 Bandwidth=15MHz
 Test Channel = LCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3435	-6.84	4.1	9.41	39	-40.53	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
 Test Mode = 16QAM /TM5
 Bandwidth=15MHz
 Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3465	-9.92	4.1	9.41	39	-43.61	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
 Test Mode = Q16QAM /TM5
 Bandwidth=15MHz
 Test Channel = HCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3495	-7.7	4.1	9.41	39	-41.39	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
 Test Mode = QPSK /TM4
 Bandwidth=20MHz
 Test Channel = LCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3440	-5.5	4.1	9.41	39	-39.19	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
 Test Mode = QPSK /TM4
 Bandwidth=20MHz
 Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3465	-3.35	4.1	9.41	39	-37.04	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
 Test Mode = QPSK /TM4
 Bandwidth=20MHz
 Test Channel = HCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (EIRP) [dBm]		[dBm]
3490	-6.85	4.1	9.41	39	-40.54	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
 Test Mode = 16QAM /TM5
 Bandwidth=20MHz
 Test Channel = LCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (ERP) [dBm]		[dBm]
3440	-11.15	4.1	9.41	39	-44.84	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
 Test Mode = 16QAM /TM5
 Bandwidth=20MHz
 Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (ERP) [dBm]		[dBm]
3465	-10.02	4.1	9.41	39	-43.71	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 4
 Test Mode = Q16QAM /TM5
 Bandwidth=20MHz
 Test Channel = HCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBi]	dB	Level (ERP) [dBm]		[dBm]
3490	-12.63	4.1	9.41	39	-46.32	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 17
 Test Mode = QPSK /TM4
 Bandwidth=5MHz
 Test Channel = LCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBd]	dB	Level (ERP) [dBm]		[dBm]
1413	-7.32	0.9	6.49	40.6	-42.33	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 17
 Test Mode = QPSK /TM4
 Bandwidth=5MHz
 Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBd]	dB	Level (ERP) [dBm]		[dBm]
1420	-9.64	0.9	6.49	40.6	-44.65	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 17
 Test Mode = QPSK /TM4
 Bandwidth=5MHz
 Test Channel = HCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBd]	dB	Level (ERP) [dBm]		[dBm]
1427	-6.36	0.9	6.49	40.6	-41.37	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 17
 Test Mode = 16QAM /TM5
 Bandwidth=5MHz
 Test Channel = LCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBd]	dB	Level (ERP) [dBm]		[dBm]
1413	-9.57	0.9	6.49	40.6	-44.58	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 17
 Test Mode = 16QAM /TM5
 Bandwidth=5MHz
 Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBd]	dB	Level (ERP) [dBm]		[dBm]
1420	-7.71	0.9	6.49	40.6	-42.72	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 17
 Test Mode = Q16QAM /TM5
 Bandwidth=5MHz
 Test Channel = HCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBd]	dB	Level (ERP) [dBm]		[dBm]
1427	-6.08	0.9	6.49	40.6	-41.09	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 17
 Test Mode = QPSK /TM4
 Bandwidth=10MHz
 Test Channel = LCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBd]	dB	Level (ERP) [dBm]		[dBm]
1418	-5.92	0.9	6.49	40.6	-40.93	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 17
 Test Mode = QPSK /TM4
 Bandwidth=10MHz
 Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBd]	dB	Level (ERP) [dBm]		[dBm]
1420	-9.22	0.9	6.49	40.6	-44.23	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 17
 Test Mode = QPSK /TM4
 Bandwidth=10MHz
 Test Channel = HCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBd]	dB	Level (ERP) [dBm]		[dBm]
1422	-7.38	0.9	6.49	40.6	-42.39	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 17
 Test Mode = 16QAM /TM5
 Bandwidth=10MHz
 Test Channel = LCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBd]	dB	Level (ERP) [dBm]		[dBm]
1418	-9.25	0.9	6.49	40.6	-44.26	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 17
 Test Mode = 16QAM /TM5
 Bandwidth=10MHz
 Test Channel = MCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBd]	dB	Level (ERP) [dBm]		[dBm]
1420	-6.64	0.9	6.49	40.6	-41.65	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Test Band = LTE Band 17
 Test Mode = Q16QAM /TM5
 Bandwidth=10MHz
 Test Channel = HCH

Freq.	SG. Level	Cable Loss	Antenna Gain	Preamp	Substitution	polarization	Limit
[MHz]	[dBm]	[dB]	[dBd]	dB	Level (ERP) [dBm]		[dBm]
1422	-8.73	0.9	6.49	40.6	-43.74	Vertical	-13

The emissions don't show in above result tables are more than 20dB below the limits
 Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

4.6. Frequency Stability

4.6.1. Test Standard

CFR 47 (FCC) part 2.1055, 22.355 , 24.235 and 27.54

4.6.2. Test Limit

According to part 22.355, from 821MHz to 896MHz, for mobile device, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances 2.5ppm.

4.6.3. Test Procedure

GSM/WCDMA

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a “call mode”. This is accomplished with the use of R&S CMU 200 Universal Radio Communication Tester.

1. Measure the carrier frequency at room temperature.
2. Subject the EUT to overnight soak at -30 °C.
3. With the EUT, powered via nominal voltage, connected to the CMU 200 and in a simulated call on mid channel (190 for GSM 850 & 4183 for WCDMA 850 & 661 for PCS1900 & 9400 for WCDMA 1900& 1413 for WCDMA 1700), measure the carrier frequency. These measurements should be made within 2 minutes of powering up the EUT, to prevent significant self-warming.
4. Repeat the above measurements at 10 °C increments from -30 °C to +50 °C. Allow at least 1 1/2 hours at each temperature, un-powered, before making measurements.
5. Re-measure carrier frequency at room temperature with nominal voltage. Re-measure carrier frequency at low and high voltage. Pause at nominal voltage for 1 1/2 hours un-powered, to allow any self-heating to stabilize, before continuing.
6. Subject the EUT to overnight soak at +50 °C.
7. With the EUT, powered via nominal voltage, connected to the CMU 200 and in a simulated call on mid channel (190 for GSM 850 & 4183 for WCDMA 850 & 661 for PCS1900 & 9400 for WCDMA 1900 & 1413 for WCDMA 1700), measure the carrier frequency. These measurements should be made within 2 minutes of powering up the EUT, to prevent significant self-warming.
8. Repeat the above measurements at 10 °C increments from +50 °C to -30 °C. Allow at least 1 1/2 hours at each temperature, un-powered, before making measurements.
9. At all temperature levels hold the temperature to +/- 0.5 °C during the measurement procedure.

LTE

1. The transmitter output (antenna port) was connected to the BS Simulator.
2. The BS simulator was used to set the TX channel and power level and modulate the TX signal with different bit patterns.
3. BS simulator used the frequency error function and measured the peak frequency error. Power must be removed when changing from one temperature to another or one voltage to another voltage. Power warm up is at least 15 min and power applied should perform before recording frequency error. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.
4. EUT is connected the external power supply to control the DC input power. The

various Volts from the minimum 3.5 Volts to 4.2 Volts. Each step shall be record the frequency error rate.

5. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.

6. Extreme temperature rule is-30°C~50°C.

4.6.4. Test Setup

Connect the EUT to the Wireless Communication test set CMU200 or CMW 500 via the connector. Then measure the frequency error by the Wireless Communication test set CMU200/CMW 500. The EUT's output is matched with a 50 Ω load.

4.6.5. Test Data

Measurement Results vs. Variation of Temperature—GSM850

Temperature	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
-30 °C	836.6	5.74	Pass
-20 °C	836.6	1.78	Pass
-10 °C	836.6	5.23	Pass
0 °C	836.6	2.21	Pass
+10 °C	836.6	1.52	Pass
+20 °C	836.6	-1.59	Pass
+30 °C	836.6	-0.11	Pass
+40 °C	836.6	0.59	Pass
+50 °C	836.6	4.44	Pass

Measurement Results vs. Variation of Voltage—GSM850

Voltage	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
3.5 V	836.6	3.88	Pass
3.7 V	836.6	-0.09	Pass
4.2 V	836.6	2.51	Pass

Measurement Results vs. Variation of Temperature—EDGE850

Temperature	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
-30 °C	836.6	2.45	Pass
-20 °C	836.6	2.12	Pass
-10 °C	836.6	1.92	Pass
0 °C	836.6	2.30	Pass
+10 °C	836.6	2.48	Pass
+20 °C	836.6	1.78	Pass
+30 °C	836.6	2.70	Pass
+40 °C	836.6	2.05	Pass
+50 °C	836.6	1.82	Pass

Measurement Results vs. Variation of Voltage—EDGE850

Voltage	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
3.5 V	836.6	2.37	Pass
3.7 V	836.6	2.35	Pass
4.2 V	836.6	2.17	Pass

Measurement Results vs. Variation of Temperature—WCDMA850

Temperature	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
-30 °C	836.6	-0.48	Pass
-20 °C	836.6	-0.88	Pass
-10 °C	836.6	0.12	Pass
0 °C	836.6	-0.39	Pass
+10 °C	836.6	0.99	Pass
+20 °C	836.6	-1.23	Pass
+30 °C	836.6	-0.99	Pass
+40 °C	836.6	-0.28	Pass
+50 °C	836.6	0.45	Pass

Measurement Results vs. Variation of Voltage—WCDMA850

Voltage	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
3.5 V	836.6	0.63	Pass
3.7 V	836.6	-2.48	Pass
4.2 V	836.6	0.24	Pass

Measurement Results vs. Variation of Temperature—GSM1900

Temperature	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
-30 °C	1880.0	2.99	Pass
-20 °C	1880.0	5.04	Pass
-10 °C	1880.0	7.44	Pass
0 °C	1880.0	5.65	Pass
+10 °C	1880.0	6.12	Pass
+20 °C	1880.0	5.09	Pass
+30 °C	1880.0	9.39	Pass
+40 °C	1880.0	5.15	Pass
+50 °C	1880.0	8.33	Pass

Measurement Results vs. Variation of Voltage—GSM1900

Voltage	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
3.5 V	1880.0	2.31	Pass
3.7 V	1880.0	5.04	Pass
4.2 V	1880.0	4.20	Pass

Measurement Results vs. Variation of Temperature—EDGE1900

Temperature	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
-30 °C	1880.0	4.10	Pass
-20 °C	1880.0	4.35	Pass
-10 °C	1880.0	4.60	Pass
0 °C	1880.0	4.00	Pass
+10 °C	1880.0	4.20	Pass
+20 °C	1880.0	4.80	Pass
+30 °C	1880.0	4.50	Pass
+40 °C	1880.0	3.75	Pass
+50 °C	1880.0	5.50	Pass

Measurement Results vs. Variation of Voltage—EDGE1900

Voltage	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
3.5 V	1880.0	5.05	Pass
3.7 V	1880.0	3.75	Pass
4.2 V	1880.0	3.95	Pass

Measurement Results vs. Variation of Temperature—WCDMA1900

Temperature	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
-30 °C	1880.0	0.43	Pass
-20 °C	1880.0	-0.85	Pass
-10 °C	1880.0	-0.29	Pass
0 °C	1880.0	0.13	Pass
+10 °C	1880.0	-0.02	Pass
+20 °C	1880.0	-0.46	Pass
+30 °C	1880.0	-0.44	Pass
+40 °C	1880.0	0.28	Pass
+50 °C	1880.0	0.19	Pass

Measurement Results vs. Variation of Voltage—WCDMA1900

Voltage	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
3.5 V	1880.0	-2.00	Pass
3.7 V	1880.0	0.84	Pass
4.2 V	1880.0	-0.25	Pass

Measurement Results vs. Variation of Voltage—LTE Band 4(1.4MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	3.5	5.12	PASS
		3.7	-1.77	PASS
		4.2	1.62	PASS
16QAM	1732.5	3.5	4.62	PASS
		3.7	-0.87	PASS
		4.2	2.85	PASS

Measurement Results vs. Variation of Temperature—LTE Band 4(1.4MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	-30 °C	-1.06	PASS
		-20 °C	-0.47	PASS
		-10 °C	-0.21	PASS
		0 °C	-0.82	PASS
		+10 °C	2.83	PASS
		+20 °C	-2.20	PASS
		+30 °C	-0.26	PASS
		+40 °C	-1.00	PASS
		+50 °C	-0.93	PASS
16QAM	1732.5	-30 °C	4.75	PASS
		-20 °C	2.46	PASS
		-10 °C	3.39	PASS
		0 °C	-3.09	PASS
		+10 °C	1.90	PASS
		+20 °C	-0.14	PASS
		+30 °C	-0.92	PASS
		+40 °C	-1.39	PASS
		+50 °C	-2.43	PASS

Measurement Results vs. Variation of Voltage—LTE Band 4(3MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	3.5	1.97	PASS
		3.7	1.40	PASS
		4.2	-0.43	PASS
16QAM	1732.5	3.5	-1.24	PASS
		3.7	0.51	PASS
		4.2	-0.83	PASS

Measurement Results vs. Variation of Temperature—LTE Band 4(3MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	-30 °C	0.36	PASS
		-20 °C	2.05	PASS
		-10 °C	-0.26	PASS
		0 °C	2.06	PASS
		+10 °C	4.86	PASS
		+20 °C	0.93	PASS
		+30 °C	-1.82	PASS
		+40 °C	-0.51	PASS
		+50 °C	3.55	PASS
16QAM	1732.5	-30 °C	2.33	PASS
		-20 °C	-2.56	PASS
		-10 °C	1.52	PASS
		0 °C	2.02	PASS
		+10 °C	-2.15	PASS
		+20 °C	1.00	PASS
		+30 °C	2.80	PASS
		+40 °C	1.76	PASS
		+50 °C	1.00	PASS

Measurement Results vs. Variation of Voltage—LTE Band 4(5MHz)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	3.5	0.72	PASS
		3.7	-2.39	PASS
		4.2	-0.93	PASS
16QAM	1732.5	3.5	0.03	PASS
		3.7	-2.57	PASS
		4.2	1.09	PASS

Measurement Results vs. Variation of Temperature—LTE Band 4(5MHz)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	-30 °C	-1.52	PASS
		-20 °C	0.64	PASS
		-10 °C	1.57	PASS
		0 °C	0.89	PASS
		+10 °C	4.96	PASS
		+20 °C	2.92	PASS
		+30 °C	0.24	PASS
		+40 °C	-1.85	PASS
		+50 °C	1.83	PASS
16QAM	1732.5	-30 °C	-1.65	PASS
		-20 °C	1.12	PASS
		-10 °C	-0.70	PASS
		0 °C	-2.29	PASS
		+10 °C	0.23	PASS
		+20 °C	-2.09	PASS
		+30 °C	3.18	PASS
		+40 °C	-0.47	PASS
		+50 °C	-0.26	PASS

Measurement Results vs. Variation of Voltage—LTE Band 4(10MHz)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	3.5	0.17	PASS
		3.7	0.51	PASS
		4.2	-0.01	PASS
16QAM	1732.5	3.5	-0.37	PASS
		3.7	0.59	PASS
		4.2	0.26	PASS

Measurement Results vs. Variation of Temperature—LTE Band 4(10MHz)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	-30 °C	0.36	PASS
		-20 °C	0.11	PASS
		-10 °C	0.40	PASS
		0 °C	0.01	PASS
		+10 °C	1.46	PASS
		+20 °C	-0.11	PASS
		+30 °C	1.16	PASS
		+40 °C	0.47	PASS
		+50 °C	1.52	PASS
16QAM	1732.5	-30 °C	0.82	PASS
		-20 °C	0.10	PASS
		-10 °C	0.92	PASS
		0 °C	1.20	PASS
		+10 °C	-0.60	PASS
		+20 °C	-0.07	PASS
		+30 °C	-0.13	PASS
		+40 °C	0.60	PASS
		+50 °C	1.77	PASS

Measurement Results vs. Variation of Voltage—LTE Band 4(15MHz)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	3.5	1.44	PASS
		3.7	1.12	PASS
		4.2	0.56	PASS
16QAM	1732.5	3.5	0.73	PASS
		3.7	0.82	PASS
		4.2	-0.43	PASS

Measurement Results vs. Variation of Temperature—LTE Band 4(15MHz)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	-30 °C	0.10	PASS
		-20 °C	0.49	PASS
		-10 °C	-0.06	PASS
		0 °C	0.70	PASS
		+10 °C	0.59	PASS
		+20 °C	0.56	PASS
		+30 °C	0.72	PASS
		+40 °C	1.62	PASS
		+50 °C	-0.41	PASS
16QAM	1732.5	-30 °C	1.09	PASS
		-20 °C	0.31	PASS
		-10 °C	0.31	PASS
		0 °C	-0.56	PASS
		+10 °C	0.07	PASS
		+20 °C	0.43	PASS
		+30 °C	1.20	PASS
		+40 °C	0.76	PASS
		+50 °C	1.56	PASS

Measurement Results vs. Variation of Voltage—LTE Band 4(20MHz)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	3.5	0.10	PASS
		3.7	-0.46	PASS
		4.2	0.41	PASS
16QAM	1732.5	3.5	-0.36	PASS
		3.7	0.24	PASS
		4.2	-1.12	PASS

Measurement Results vs. Variation of Temperature—LTE Band 4(20MHz)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	1732.5	-30 °C	0.70	PASS
		-20 °C	0.90	PASS
		-10 °C	0.87	PASS
		0 °C	-0.11	PASS
		+10 °C	1.76	PASS
		+20 °C	-0.11	PASS
		+30 °C	0.41	PASS
		+40 °C	-0.03	PASS
		+50 °C	0.86	PASS
16QAM	1732.5	-30 °C	0.13	PASS
		-20 °C	-0.72	PASS
		-10 °C	0.53	PASS
		0 °C	0.14	PASS
		+10 °C	0.60	PASS
		+20 °C	0.21	PASS
		+30 °C	0.16	PASS
		+40 °C	0.89	PASS
		+50 °C	1.36	PASS

Measurement Results vs. Variation of Voltage—LTE Band 17(5MHz)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	710	3.5	0.07	PASS
		3.7	1.36	PASS
		4.2	1.60	PASS
16QAM	710	3.5	-0.56	PASS
		3.7	1.46	PASS
		4.2	1.65	PASS

Measurement Results vs. Variation of Temperature—LTE Band 17(5MHz)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	710	-30 °C	1.12	PASS
		-20 °C	-0.11	PASS
		-10 °C	1.07	PASS
		0 °C	1.70	PASS
		+10 °C	-0.82	PASS
		+20 °C	-0.43	PASS
		+30 °C	1.69	PASS
		+40 °C	0.60	PASS
		+50 °C	-2.20	PASS
16QAM	710	-30 °C	-0.09	PASS
		-20 °C	0.29	PASS
		-10 °C	-0.10	PASS
		0 °C	0.39	PASS
		+10 °C	1.70	PASS
		+20 °C	2.55	PASS
		+30 °C	-0.50	PASS
		+40 °C	1.62	PASS
		+50 °C	2.06	PASS

Measurement Results vs. Variation of Voltage—LTE Band 17(10MHZ)

Modulation	Nominal Frequency (MHz)	Voltage [Vdc]	Measured Frequency Error(Hz)	Verdict
QPSK	710	3.5	-2.40	PASS
		3.7	-0.92	PASS
		4.2	1.85	PASS
16QAM	710	3.5	1.30	PASS
		3.7	-2.05	PASS
		4.2	-2.13	PASS

Measurement Results vs. Variation of Temperature—LTE Band 17(10MHZ)

Modulation	Nominal Frequency (MHz)	Temperature	Measured Frequency Error(Hz)	Verdict
QPSK	710	-30 °C	0.97	PASS
		-20 °C	-0.31	PASS
		-10 °C	1.04	PASS
		0 °C	1.59	PASS
		+10 °C	-0.98	PASS
		+20 °C	-0.52	PASS
		+30 °C	1.55	PASS
		+40 °C	0.48	PASS
		+50 °C	-2.20	PASS
16QAM	710	-30 °C	-0.19	PASS
		-20 °C	0.16	PASS
		-10 °C	-0.20	PASS
		0 °C	0.25	PASS
		+10 °C	1.56	PASS
		+20 °C	2.39	PASS
		+30 °C	-0.67	PASS
		+40 °C	1.57	PASS
		+50 °C	1.91	PASS