



Appendix G

Frequency Stability

According to FCC Part 2.1051 & Part 27 Subpart C&L



Frequency Error vs. Temperature:

NOTE: All relevant operation modes have been tested, and the worst case data is included in this report.

Table 1 Measurement Results (LTE) BAND 4

Test Mode	RF Ch.	Volt.	Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM 6(5M)	M	VN	-30 °C	-13	-0.0075	---	±2.5	Pass
			-20 °C	-17	-0.00981	---	±2.5	Pass
			-10 °C	-14	-0.00808	---	±2.5	Pass
			0 °C	-11	-0.00635	---	±2.5	Pass
			10 °C	-14	-0.00808	---	±2.5	Pass
			20 °C	15	0.008658	---	±2.5	Pass
			30 °C	30	0.017316	---	±2.5	Pass
			40 °C	-17	-0.00981	---	±2.5	Pass
TM 6(10M)	M	VN	50 °C	10	0.005772	---	±2.5	Pass
			-30 °C	28	0.016162	---	±2.5	Pass
			-20 °C	18	0.01039	---	±2.5	Pass
			-10 °C	27	0.015584	---	±2.5	Pass
			0 °C	17	0.009812	---	±2.5	Pass
			10 °C	-15	-0.00866	---	±2.5	Pass
			20 °C	-17	-0.00981	---	±2.5	Pass
			30 °C	17	0.009812	---	±2.5	Pass
TM 6(15M)	M	VN	40 °C	27	0.015584	---	±2.5	Pass
			50 °C	12	0.006926	---	±2.5	Pass
			-30 °C	-24	-0.01385	---	±2.5	Pass
			-20 °C	-10	-0.00577	---	±2.5	Pass
			-10 °C	-16	-0.00924	---	±2.5	Pass
			0 °C	20	0.011544	---	±2.5	Pass
			10 °C	26	0.015007	---	±2.5	Pass
			20 °C	-24	-0.01385	---	±2.5	Pass
TM 6(20M)	M	VN	30 °C	24	0.013853	---	±2.5	Pass
			40 °C	-14	-0.00808	---	±2.5	Pass
			50 °C	-15	-0.00866	---	±2.5	Pass
			-30 °C	-10	-0.00577	---	±2.5	Pass
			-20 °C	-23	-0.01328	---	±2.5	Pass
			-10 °C	15	0.008658	---	±2.5	Pass
			0 °C	14	0.008081	---	±2.5	Pass
			10 °C	16	0.009235	---	±2.5	Pass
TM 6(20M)	M	VN	20 °C	27	0.015584	---	±2.5	Pass
			30 °C	11	0.006349	---	±2.5	Pass
			40 °C	15	0.008658	---	±2.5	Pass
			50 °C	-22	-0.0127	---	±2.5	Pass



Table 2 Measurement Results (LTE) BAND 4

Test Mode	RF Ch.	Volt.	Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM7(5M)	M	VN	-30 °C	-15	-0.008658	---	±2.5	Pass
			-20 °C	-14	-0.008081	---	±2.5	Pass
			-10 °C	-13	-0.007504	---	±2.5	Pass
			0 °C	-12	-0.006926	---	±2.5	Pass
			10 °C	13	0.007504	---	±2.5	Pass
			20 °C	12	0.006926	---	±2.5	Pass
			30 °C	25	0.014430	---	±2.5	Pass
			40 °C	-16	-0.009235	---	±2.5	Pass
			50 °C	12	0.006926	---	±2.5	Pass
TM7(10M)	M	VN	-30 °C	22	0.012698	---	±2.5	Pass
			-20 °C	16	0.009235	---	±2.5	Pass
			-10 °C	25	0.014430	---	±2.5	Pass
			0 °C	20	0.011544	---	±2.5	Pass
			10 °C	-17	-0.009812	---	±2.5	Pass
			20 °C	-16	-0.009235	---	±2.5	Pass
			30 °C	14	0.008081	---	±2.5	Pass
			40 °C	26	0.015007	---	±2.5	Pass
			50 °C	-14	-0.008081	---	±2.5	Pass
TM7(15M)	M	VN	-30 °C	-20	-0.011544	---	±2.5	Pass
			-20 °C	-14	-0.008081	---	±2.5	Pass
			-10 °C	-17	-0.009812	---	±2.5	Pass
			0 °C	20	0.011544	---	±2.5	Pass
			10 °C	22	0.012698	---	±2.5	Pass
			20 °C	-21	-0.012121	---	±2.5	Pass
			30 °C	20	0.011544	---	±2.5	Pass
			40 °C	-13	-0.007504	---	±2.5	Pass
			50 °C	-16	-0.009235	---	±2.5	Pass
TM7(20M)	M	VN	-30 °C	-10	-0.005772	---	±2.5	Pass
			-20 °C	16	0.009235	---	±2.5	Pass
			-10 °C	17	0.009812	---	±2.5	Pass
			0 °C	12	0.006926	---	±2.5	Pass
			10 °C	11	0.006349	---	±2.5	Pass
			20 °C	23	0.013276	---	±2.5	Pass
			30 °C	14	0.008081	---	±2.5	Pass
			40 °C	13	0.007504	---	±2.5	Pass
			50 °C	-25	-0.014430	---	±2.5	Pass



Frequency Error vs. Voltage:

Table 3 Measurement Results (LTE) BAND 4

Test Mode	RF Ch.	Temp.	Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM6(5M)	M	20 °C	VL	25	0.01443	---	±2.5	Pass
			VN	13	0.007504	---	±2.5	Pass
			VH	20	0.011544	---	±2.5	Pass
TM6(10M)	M	20 °C	VL	-18	-0.01039	---	±2.5	Pass
			VN	-20	-0.01154	---	±2.5	Pass
			VH	-12	-0.00693	---	±2.5	Pass
TM6(15M)	M	20 °C	VL	30	0.017316	---	±2.5	Pass
			VN	22	0.012698	---	±2.5	Pass
			VH	10	0.005772	---	±2.5	Pass
TM6(20M)	M	20 °C	VL	-19	-0.01097	---	±2.5	Pass
			VN	14	0.008081	---	±2.5	Pass
			VH	20	0.011544	---	±2.5	Pass

Table 4 Measurement Results (LTE) BAND 4

Test Mode	RF Ch.	Temp.	Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM7(5M)	M	20 °C	VL	22	0.012698	---	±2.5	Pass
			VN	14	0.008081	---	±2.5	Pass
			VH	19	0.010967	---	±2.5	Pass
TM7(10M)	M	20 °C	VL	-17	-0.009812	---	±2.5	Pass
			VN	-16	-0.009235	---	±2.5	Pass
			VH	-16	-0.009235	---	±2.5	Pass
TM7(15M)	M	20 °C	VL	24	0.013853	---	±2.5	Pass
			VN	20	0.011544	---	±2.5	Pass
			VH	18	0.010389	---	±2.5	Pass
TM7(20M)	M	20 °C	VL	-16	-0.009235	---	±2.5	Pass
			VN	13	0.007504	---	±2.5	Pass
			VH	-20	-0.011544	---	±2.5	Pass

-----END-----