

## LTE Band 66\_20M Spectrum Plot



## APPENDIX I - FREQUENCY STABILITY

Test Mode	WCDMA Band IV _CH1413
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	3.62	0.002089345	± 2.5
5	2.37	0.001367886	
15	4.55	0.002626111	
25	2.65	0.001529493	
35	1.65	0.000952326	
Max. Deviation (ppm)	4.55	0.002626111	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	2.06	0.001188965	± 2.5
3.87	3.02	0.001743045	
3.50	4.72	0.002724229	
Max. Deviation (ppm)	4.72	0.002724229	

Test Mode	LTE Band 4_CH20175_1.4M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-4.54	-0.002620491	± 2.5
5	-2.46	-0.001419913	
15	2.54	0.001466089	
25	-3.49	-0.00201443	
35	-1.52	-0.000877345	
Max. Deviation (ppm)	-4.54	-0.002620491	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	3.23	0.001864358	± 2.5
3.87	2.02	0.001165945	
3.50	-3.63	-0.002095238	
Max. Deviation (ppm)	-3.63	-0.002095238	

Test Mode	LTE Band 4_CH20175_3M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	1.79	0.001033189	± 2.5
5	6.86	0.003959596	
15	-1.65	-0.000952381	
25	2.19	0.001264069	
35	-4.32	-0.002493506	
Max. Deviation (ppm)	6.86	0.003959596	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-4.84	-0.002793651	± 2.5
3.87	-1.96	-0.001131313	
3.50	-3.55	-0.002049062	
Max. Deviation (ppm)	-4.84	-0.002793651	

Test Mode	LTE Band 4_CH20175_5M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	5.01	0.002891775	±2.5
5	1.55	0.000894661	
15	2.08	0.001200577	
25	-3.83	-0.002210678	
35	-2.06	-0.001189033	
Max. Deviation (ppm)	5.01	0.002891775	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-4.75	-0.002741703	±2.5
3.87	5.08	0.002932179	
3.50	-2.01	-0.001160173	
Max. Deviation (ppm)	5.08	0.002932179	

Test Mode	LTE Band 4_CH20175_10M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	4.51	0.002603175	±2.5
5	2.07	0.001194805	
15	6.88	0.00397114	
25	5.41	0.003122655	
35	-2.67	-0.001541126	
Max. Deviation (ppm)	6.88	0.00397114	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-4.03	-0.002326118	±2.5
3.87	3.08	0.001777778	
3.50	5.19	0.002995671	
Max. Deviation (ppm)	5.19	0.002995671	

Test Mode	LTE Band 4_CH20175_15M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-3.63	-0.002095238	±2.5
5	-3.16	-0.001823954	
15	3.04	0.00175469	
25	1.96	0.001131313	
35	-5.48	-0.003163059	
Max. Deviation (ppm)	-5.48	-0.003163059	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-4.94	-0.002851371	±2.5
3.87	-4.07	-0.002349206	
3.50	-1.37	-0.000790765	
Max. Deviation (ppm)	-4.94	-0.002851371	



Test Mode	LTE Band 4_CH20175_20M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	5.97	0.003445887	±2.5
5	-2.08	-0.001200577	
15	-4.01	-0.002314574	
25	-2.46	-0.001419913	
35	5.01	0.002891775	
Max. Deviation (ppm)	5.97	0.003445887	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	6.98	0.00402886	±2.5
3.87	2.62	0.001512266	
3.50	-3.58	-0.002066378	
Max. Deviation (ppm)	6.98	0.00402886	

Test Mode	LTE Band 7_CH21100_5M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-5.46	-0.002153846	±2.5
5	5.17	0.002039448	
15	-4.21	-0.00166075	
25	-1.79	-0.000706114	
35	4.82	0.001901381	
Max. Deviation (ppm)	-5.46	-0.002153846	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	3.72	0.001467456	±2.5
3.87	2.66	0.00104931	
3.50	-3.43	-0.001353057	
Max. Deviation (ppm)	3.72	0.001467456	

Test Mode	LTE Band 7_CH21100_10M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	1.76	0.00069428	±2.5
5	-2.58	-0.001017751	
15	2.84	0.001120316	
25	-5.76	-0.002272189	
35	1.55	0.00061144	
Max. Deviation (ppm)	-5.76	-0.002272189	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-2.35	-0.000927022	±2.5
3.87	-4.92	-0.001940828	
3.50	1.02	0.000402367	
Max. Deviation (ppm)	-4.92	-0.001940828	

Test Mode	LTE Band 7_CH21100_15M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-3.25	-0.001282051	± 2.5
5	-3.82	-0.001506903	
15	-4.95	-0.001952663	
25	2.78	0.001096647	
35	6.43	0.002536489	
Max. Deviation (ppm)	6.43	0.002536489	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	6.28	0.002477318	± 2.5
3.87	-4.53	-0.001786982	
3.50	-4.97	-0.001960552	
Max. Deviation (ppm)	6.28	0.002477318	

Test Mode	LTE Band 7_CH21100_20M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-2.67	-0.001053254	±2.5
5	5.68	0.002240631	
15	-2.84	-0.001120316	
25	-2.57	-0.001013807	
35	-4.49	-0.001771203	
Max. Deviation (ppm)	5.68	0.002240631	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	3.05	0.001203156	±2.5
3.87	-3.62	-0.001428008	
3.50	-4.06	-0.001601578	
Max. Deviation (ppm)	-4.06	-0.001601578	

Test Mode	LTE Band 12_CH23095_1.4M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	2.56	0.003618375	±2.5
5	-2.59	0.003660777	
15	5.82	0.008226148	
25	-4.32	0.006106007	
35	1.96	0.002770318	
Max. Deviation (ppm)	5.82	0.008226148	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	3.71	0.005243816	±2.5
3.87	5.82	0.008226148	
3.50	3.65	0.005159011	
Max. Deviation (ppm)	5.82	0.008226148	

Test Mode	LTE Band 12_CH23095_3M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-2.38	0.003363958	± 2.5
5	-4.72	0.006671378	
15	-1.86	0.002628975	
25	1.43	0.002021201	
35	3.47	0.004904594	
Max. Deviation (ppm)	-4.72	0.006671378	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	4.68	0.006614841	± 2.5
3.87	-2.85	0.004028269	
3.50	6.76	0.00955477	
Max. Deviation (ppm)	6.76	0.00955477	

Test Mode	LTE Band 12_CH23095_5M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	2.22	0.003137809	± 2.5
5	-1.14	-0.001611307	
15	6.23	0.008805654	
25	-0.75	-0.001060071	
35	-2.06	-0.002911661	
Max. Deviation (ppm)	6.23	0.008805654	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-4.50	-0.006360424	± 2.5
3.87	-4.63	-0.00654417	
3.50	-2.57	-0.003632509	
Max. Deviation (ppm)	-4.63	-0.00654417	



Test Mode	LTE Band 12_CH23095_10M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	5.41	0.007646643	± 2.5
5	-0.97	-0.001371025	
15	-3.65	-0.005159011	
25	5.96	0.008424028	
35	-4.14	-0.00585159	
Max. Deviation (ppm)	5.96	0.008424028	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-1.57	-0.002219081	± 2.5
3.87	3.29	0.004650177	
3.50	-1.92	-0.002713781	
Max. Deviation (ppm)	3.29	0.004650177	

Test Mode	LTE Band 38_CH38000_5M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	2.31	0.000890173	±2.5
5	-4.06	-0.001564547	
15	-4.80	-0.001849711	
25	-2.27	-0.000874759	
35	5.07	0.001953757	
Max. Deviation (ppm)	5.07	0.001953757	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-4.86	-0.001872832	±2.5
3.87	4.36	0.001680154	
3.50	2.17	0.000836224	
Max. Deviation (ppm)	-4.86	-0.001872832	

Test Mode	LTE Band 38_CH38000_10M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-1.67	-0.000643545	± 2.5
5	-2.79	-0.001075145	
15	-4.92	-0.001895954	
25	2.26	0.000870906	
35	-2.29	-0.000882466	
Max. Deviation (ppm)	-4.92	-0.001895954	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-4.60	-0.00177264	± 2.5
3.87	-1.97	-0.000759152	
3.50	5.72	0.002204239	
Max. Deviation (ppm)	5.72	0.002204239	

Test Mode	LTE Band 38_CH38000_15M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-4.65	-0.001791908	± 2.5
5	4.94	0.001903661	
15	6.21	0.002393064	
25	-5.29	-0.002038536	
35	2.25	0.000867052	
Max. Deviation (ppm)	6.21	0.002393064	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	1.93	0.000743738	± 2.5
3.87	-4.25	-0.001637765	
3.50	-4.78	-0.001842004	
Max. Deviation (ppm)	-4.78	-0.001842004	

Test Mode	LTE Band 38_CH38000_20M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	2.42	0.000932563	± 2.5
5	3.18	0.001225434	
15	-4.92	-0.001895954	
25	-2.75	-0.00105973	
35	-4.59	-0.001768786	
Max. Deviation (ppm)	-4.92	-0.001895954	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-2.95	-0.001136802	± 2.5
3.87	5.79	0.002231214	
3.50	1.68	0.000647399	
Max. Deviation (ppm)	5.79	0.002231214	

Test Mode	LTE Band 41_CH40640_5M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	6.55	0.002526032	± 2.5
5	1.44	0.000555341	
15	-1.38	-0.000532202	
25	5.15	0.001986116	
35	-2.24	-0.000863864	
Max. Deviation (ppm)	6.55	0.002526032	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-2.54	-0.00097956	± 2.5
3.87	3.06	0.0011801	
3.50	-4.61	-0.001777863	
Max. Deviation (ppm)	-4.61	-0.001777863	

Test Mode	LTE Band 41_CH40640_10M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-5.05	-0.001947551	± 2.5
5	-0.64	-0.000246818	
15	1.05	0.000404936	
25	-5.45	-0.002101813	
35	4.89	0.001885847	
Max. Deviation (ppm)	-5.45	-0.002101813	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-4.87	-0.001878133	± 2.5
3.87	-2.93	-0.001129965	
3.50	-4.19	-0.001615889	
Max. Deviation (ppm)	-4.87	-0.001878133	

Test Mode	LTE Band 41_CH40640_15M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	4.82	0.001858851	±2.5
5	-3.87	-0.00149248	
15	5.65	0.002178943	
25	-1.66	-0.000640185	
35	-2.04	-0.000786734	
Max. Deviation (ppm)	5.65	0.002178943	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	4.88	0.00188199	±2.5
3.87	5.53	0.002132665	
3.50	1.70	0.000655611	
Max. Deviation (ppm)	5.53	0.002132665	



Test Mode	LTE Band 41_CH40640_20M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	4.77	0.001839568	±2.5
5	-3.36	-0.001295796	
15	-3.07	-0.001183957	
25	-2.99	-0.001153105	
35	1.22	0.000470497	
Max. Deviation (ppm)	4.77	0.001839568	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-2.14	-0.000825299	±2.5
3.85	-1.84	-0.000709603	
3.5	-2.18	-0.000840725	
Max. Deviation (ppm)	-2.18	-0.000840725	

Test Mode	LTE Band 66_CH132322_1.4M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-2.38	-0.001363897	± 2.5
5	2.56	0.001467049	
15	-2.67	-0.001530086	
25	-4.17	-0.002389685	
35	0.24	0.000137536	
Max. Deviation (ppm)	-4.17	-0.002389685	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-5.47	-0.00313467	± 2.5
3.87	-1.18	-0.000676218	
3.50	-2.08	-0.001191977	
Max. Deviation (ppm)	-5.47	-0.00313467	

Test Mode	LTE Band 66_CH132322_3M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	4.83	0.002767908	± 2.5
5	-3.35	-0.001919771	
15	-1.12	-0.000641834	
25	-2.53	-0.001449857	
35	6.96	0.003988539	
Max. Deviation (ppm)	6.96	0.003988539	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-2.48	-0.001421203	± 2.5
3.87	0.37	0.000212034	
3.50	-3.53	-0.002022923	
Max. Deviation (ppm)	-3.53	-0.002022923	

Test Mode	LTE Band 66_CH132322_5M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-4.23	-0.002424069	± 2.5
5	-2.76	-0.001581662	
15	4.63	0.002653295	
25	2.35	0.001346705	
35	3.44	0.001971347	
Max. Deviation (ppm)	4.63	0.002653295	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	1.32	0.000756447	± 2.5
3.87	-2.77	-0.001587393	
3.50	2.91	0.001667622	
Max. Deviation (ppm)	2.91	0.001667622	

Test Mode	LTE Band 66_CH132322_10M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	5.22	0.002991404	±2.5
5	2.13	0.00122063	
15	4.27	0.002446991	
25	3.33	0.001908309	
35	-3.22	-0.001845272	
Max. Deviation (ppm)	5.22	0.002991404	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	4.65	0.002664756	±2.5
3.87	1.56	0.000893983	
3.50	3.91	0.002240688	
Max. Deviation (ppm)	4.65	0.002664756	

Test Mode	LTE Band 66_CH132322_15M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	-4.50	-0.002578797	± 2.5
5	1.45	0.000830946	
15	-2.79	-0.001598854	
25	-1.49	-0.000853868	
35	-4.16	-0.002383954	
Max. Deviation (ppm)	-4.5	-0.002578797	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-3.91	-0.002240688	± 2.5
3.87	6.11	0.003501433	
3.50	-3.05	-0.001747851	
Max. Deviation (ppm)	6.11	0.003501433	

Test Mode	LTE Band 66_CH132322_20M
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**Temperature vs. Frequency Stability**

Temperature(°C)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
0	4.18	0.002395415	±2.5
5	0.57	0.000326648	
15	1.21	0.00069341	
25	-0.70	-0.000401146	
35	-3.72	-0.002131805	
Max. Deviation (ppm)	4.18	0.002395415	

**Voltage vs. Frequency Stability**

Voltage(Volts)	Frequency Error (Hz)	Frequency Error (ppm)	Limit(ppm)
4.45	-2.74	-0.001570201	±2.5
3.87	2.13	0.00122063	
3.50	-5.25	-0.003008596	
Max. Deviation (ppm)	-5.25	-0.003008596	

End of Test Report