

Frequency Stability Test FCC Type Acceptance 47 CFR Ch.1 Part 2.995

REV A
04/24/2000

Initial Test Date – January 20, 2000

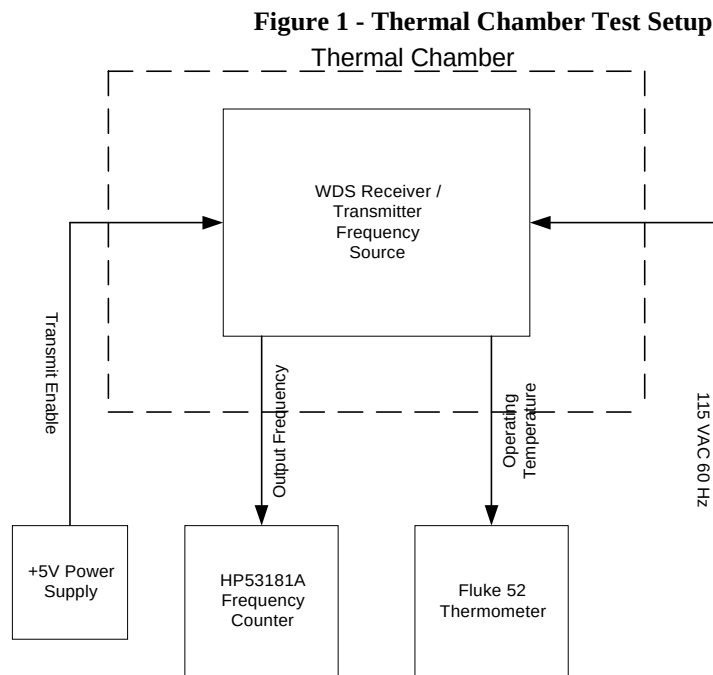
Purpose

The objective of this test is to demonstrate transmitter frequency source stability over a range of ambient operating temperatures as specified in the Federal Communications Commission 47 FCR Ch. 1 Part 2.995 .

Approach

Frequency measurements shall be taken from the transmitter frequency source that is operating in temperature controlled thermal chamber. Frequency and temperature measurement devices and primary power shall reside outside the thermal chamber. Sufficient time shall be provided between each ambient temperature test so that thermal stabilization is achieved.

Test Configuration



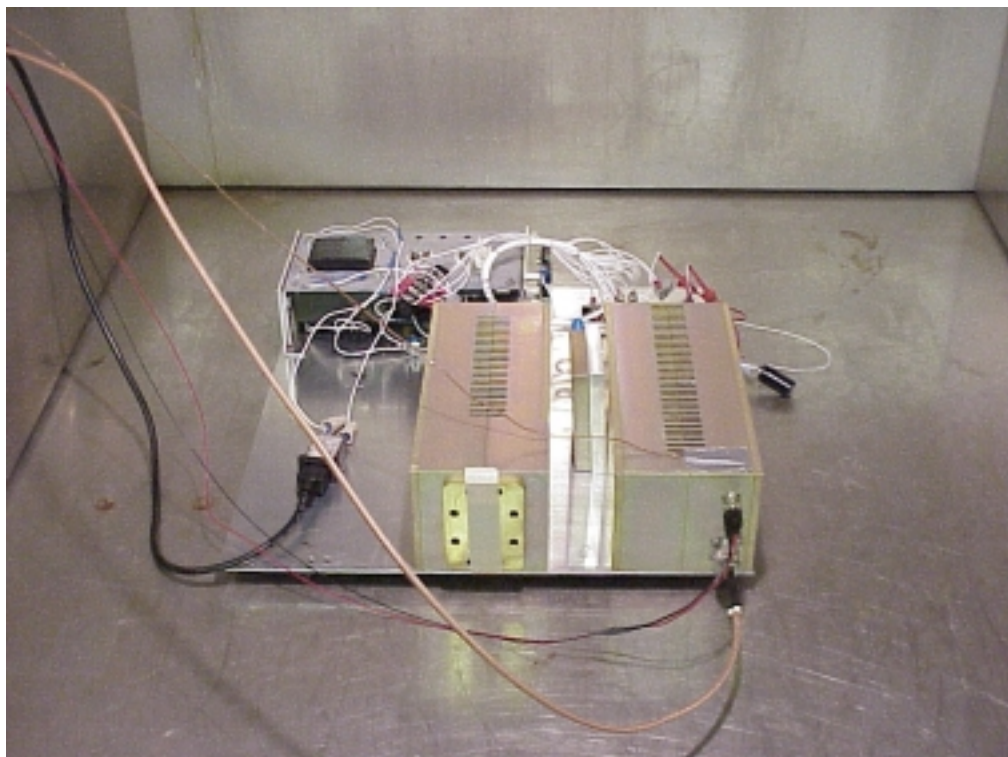


Figure 2 – WDS Receiver/Transmitter Frequency Source Connections

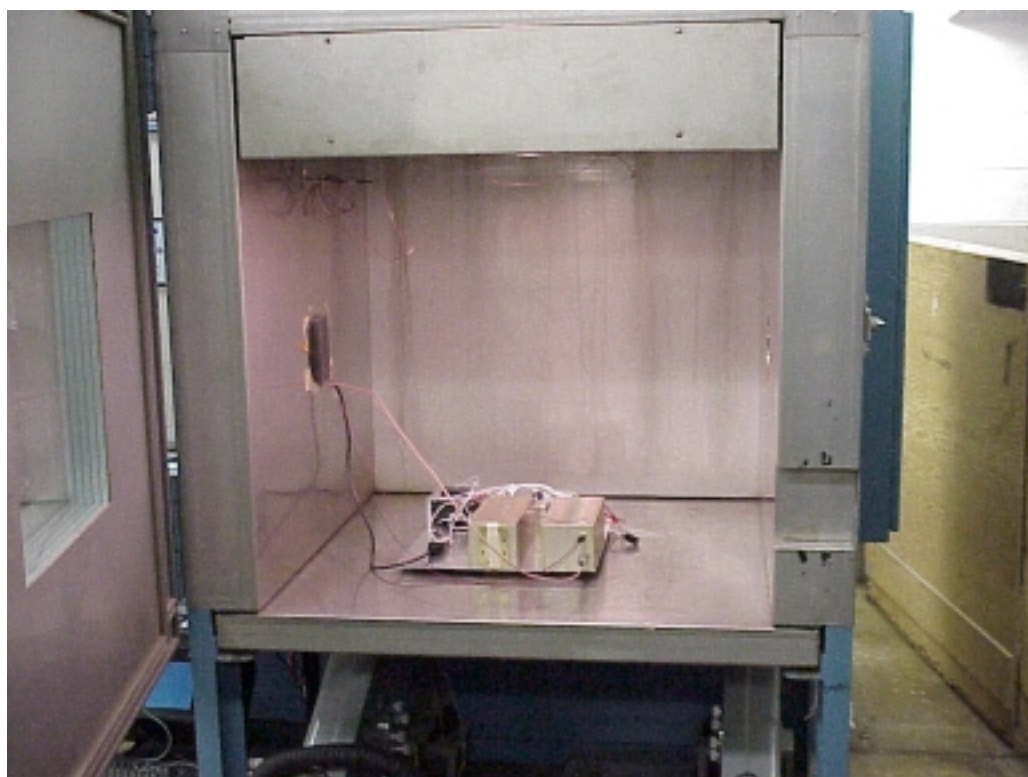


Figure 3 – Thermal Chamber (inside)



Figure 4 – Thermal Chamber (outside)



Figure 5 – Measurement Equipment

Test Equipment

Transmitter Frequency Source – WDS Receiver

Frequency Counter – HP 53181A

Thermometer – Fluke 52

AC Power Source – Standard 115 VAC - 60 Hz Power (from wall outlet)

Frequency Stability vs Ambient Temperature Test

Frequency stability measurements shall be recorded as “average frequency” taken using the HP 53181A. This device has a mode that measures the statistical: mean, standard deviation, high and low of a frequency source over a period of time.

Frequency Stability vs Ambient Temperature Test Results

Elapsed Time	Ambient Temperatures											
	0° C		10° C		20° C		30° C		40° C		50° C	
	Average Measured Frequency (Hz)	Meas Temp (°C)	Average Measured Frequency (Hz)	Meas Temp (°C)	Average Measured Frequency (Hz)	Meas Temp (°C)	Average Measured Frequency (Hz)	Meas Temp (°C)	Average Measured Frequency (Hz)	Meas Temp (°C)	Average Measured Frequency (Hz)	Meas Temp (°C)
0 Min.	5,550,008,960	0.4	5,550,008,389	10.4	5,550,007,255	20.2	5,550,007,255	29.4	5,550,004,526	39.7	5,550,003,627	48.8
1 Min.	5,550,009,023	0.4	5,550,008,402	10.4	5,550,007,267	20.1	5,550,007,267	29.6	5,550,004,627	39.7	5,550,003,687	49.4
2 Min.	5,550,009,042	0.4	5,550,008,426	10.4	5,550,007,281	20.1	5,550,007,281	29.7	5,550,004,690	39.9	5,550,003,718	49.5
3 Min.	5,550,009,007	0.4	5,550,008,380	10.4	5,550,007,289	20.1	5,550,007,289	29.8	5,550,004,736	40.0	5,550,003,757	49.6
4 Min.	5,550,008,939	0.5	5,550,008,392	10.4	5,550,007,298	20.1	5,550,007,298	29.8	5,550,004,794	40.0	5,550,003,781	49.6
5 Min.	5,550,008,882	0.5	5,550,008,373	10.4	5,550,007,299	20.3	5,550,007,299	29.9	5,550,004,801	40.0	5,550,003,798	49.7
6 Min.	5,550,008,868	0.6	5,550,008,349	10.5	5,550,007,294	20.3	5,550,007,294	30.0	5,550,004,849	40.1	5,550,003,848	49.8
7 Min.	5,550,008,855	0.7	5,550,008,316	10.5	5,550,007,292	20.4	5,550,007,292	30.1	5,550,004,880	40.0	5,550,003,857	50.0
8 Min.	5,550,008,846	0.7	5,550,008,316	10.5	5,550,007,292	20.5	5,550,007,292	30.1	5,550,004,908	40.2	5,550,003,893	50.0
9 Min.	5,550,008,849	0.7	5,550,008,293	10.5	5,550,007,297	20.6	5,550,007,297	30.2	5,550,004,942	40.2	5,550,003,914	50.0
10 Min.	5,550,008,823	0.7	5,550,008,276	10.5	5,550,007,294	20.7	5,550,007,294	30.2	5,550,004,946	40.2	5,550,003,922	50.0

Amendment to Previous Frequency Stability vs Ambient Temperature Test Results

Test Date - 4/22/2000

Purpose

The purpose of this test is to provide additional data for the previous frequency stability test (originally performed on 1/20/2000) for the temperature ranges of -10°C, -20°C and -30°C.

Approach

The same approach was used as in the previous frequency stability testing.

Test Configuration

The same test configuration/setup was used as in the previous frequency stability testing.

Test Equipment

The same test equipment was used as in the previous frequency stability testing.

Transmitter Frequency Source

The same device (transmitter frequency source) was used as in the previous frequency stability testing.

Frequency Stability vs Ambient Temperature Test Results

Elapsed Time	Ambient Temperatures					
	-10° C		-20° C		-30° C	
	Average Measured Frequency (Hz)	Meas Temp (°C)	Average Measured Frequency (Hz)	Meas Temp (°C)	Average Measured Frequency (Hz)	Meas Temp (°C)
0 Min.	5,550,011,640	-10.4	5,550,012,389	-20.2	5,550,011,463	-30.2
1 Min.	5,550,011,689	-10.4	5,550,011,402	-20.2	5,550,011,228	-30.1
2 Min.	5,550,011,686	-10.4	5,550,012,426	-20.2	5,550,011,273	-30.1
3 Min.	5,550,011,725	-10.4	5,550,012,380	-20.2	5,550,011,284	-30.1
4 Min.	5,550,011,769	-10.3	5,550,012,392	-20.2	5,550,011,289	-30.1
5 Min.	5,550,011,803	-10.3	5,550,012,373	-20.1	5,550,011,279	-30.0
6 Min.	5,550,011,822	-10.2	5,550,012,349	-20.1	5,550,011,301	-30.1
7 Min.	5,550,011,841	-10.1	5,550,012,316	-20.1	5,550,011,310	-30.1
8 Min.	5,550,011,847	-10.1	5,550,012,316	-20.1	5,550,011,296	-30.0
9 Min.	5,550,011,852	-10.1	5,550,012,293	-20.0	5,550,011,294	-30.0
10 Min.	5,550,011,870	-10.1	5,550,012,276	-20.0	5,550,011,315	-30.0