Frequency Stability vs. Temperature / Primary Power Variation

The Data attached with this file shows the Frequency Stability vs. Temperature Variation from start up to unit stabilization at ambient temperatures from $-30^{\circ} \sim +50^{\circ}$ degrees (C).

For this test, the transmitter is set up in the Temperature Chamber. At this point there is no primary power applied to the Radar System. The Chamber Temperature is set to -30° C. After the temperature in the Chamber stabilized, primary power was applied to the unit for Five (5) minutes for system warm-up. The unit was placed into a radiate mode and the frequency was recorded immediately. The frequency is then recorded in time increments shown on the attached data files. A block diagram showing test setup is attached.

For the Voltage Variation Test, a 120VAC Variac was inserted into the primary supply line and set to 115VAC output. After the Radar System warm up period, the radar was placed into a radiate mode and frequency measured. Primary power was raised to 30% (148VAC) above Radar System operating voltage and the frequency was measured. Primary power was then lowered to 30% (82VAC) below Radar System operating voltage and the frequency was measured. No Change in the Radars output Frequency was noted, as all system power supplies are regulated.

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AMBIENT TEMPERATURE -30 C

Time in Minutes	
from Radiate On	Freq (Mhz) (AHZ
0	5.659
1	5.660
2 3 4 5 6 7 8 9	5.659
3	5.659
4	5.659
5	5.659
ő	5.659
7	5 6 5 9
8	5.659
9	5.660
10 15	5.659
15	5.660
20 25	5.459
25	5.440
30	
35	
40	
45	
50 55	
55	
60 65	
65	
70	
75	
80	
85 90	
90	
95	
100	
105	
110	
115	
120	
125	
130	

AMBIENT TEMPERATURE -20 C

Time in Minutes from Radiate On	Freq (Mhz)
0	5.660
1	<u> </u>
2	5.660
3	5,1054
4	5. (0.59
2 3 4 5 6 7 8 9	5,660
6	5 (667
7	5.65%
8	5.1050
9	5,10,01
10	5,663
15.	5,662
20	5.662
25-	5.662
20 25 30 35	5.663
35	5,662
40	5.662
45 50	5.662
50	
55	
60	
65 70	
70	
75	<u> </u>
80	
85 90	
90	
95	
100	
105	.,
110	
115	
120	
125	
130	

AMBIENT TEMPERATURE -10 C

BUVMINIMAX-100C FREQUENCY STABILITY VS TEMPERATURE

Time	in	Minu	tes
from	Ra	diate	On

Freq (Mhz)

0	5.659
0 1 2 3 4 5 6 7 8 9	5.659
2	5.10.60
3	5.660
4	5 659
5	5658
6	5 lele1
7	5.662
8	5661
9	5662
10	5 661
15	5661
20 25 30 35 40 45 50 55 60	5.661
25	5 lele 2
30	5.66
35	5,662
40	5.662
45	5.66
50	5662
00	
65	
65 70	
75	
80	
96	
90 95	
<u>05</u>	
100	-
105	
110	
115	
120	
125	_
130	·•

AMBIENT TEMPERATURE 0 C

Time in Minutes from Radiate On	Freq (Mhz)
<u>0</u>	5 656
	5 4 5 6 5 4 6 0
3	<u> </u>
4	5 k k D
2 3 4 5 6 7	5660
6	5660
7	5660
8 9 10	5 660
9	5660
10	5660
15	5660
20	
25 30	
30	
35	
40	
45	
50	
55 60	
65	
70	
75	
80	
85	
90	
95	
100	
105	
110	
115	
120	
125	
130	

AMBIENT TEMPERATURE +10 C

Time in Minutes	
from Radiate On	Freq (Mhz)
	(···
0 1 2 3 4 5 6 7 8	<u>56 59</u>
1	5659
2	5659
3	5659
4	5659
5	5659
6	5659
7	56 59
8	56 59
9	5459
10	56 59'
15	5659
20	
10 15 20 25 30 35 40 45	
30	
35	
40	<u> </u>
45	
50 55 60 65	
55	
60	
65	
70	·
75	
80	
85 90	
90	
95	
100	
105	
110	
115	
120	
125	
130	

AMBIENT TEMPERATURE +20 C

BUVMINIMAX-100C FREQUENCY STABILITY VS TEMPERATURE

Time in	Minutes	
from Ra	adiate On	

Freq (Mhz)

	• • •
0	5660
1	5/59
2	5659 5660
3	5659
4	5660 5659 5659
5	56.60
6	- / / ~ -
7	<u>5660</u> 5659
8	
9	56 60 56 59
10	5659
15	56.60
20	<u></u>
25	
30	
35	****
40	
45	
50	
55	
60	
65	
70	· · · · · · · · · · · · · · · · · · ·
75	
80	
85	
0 1 2 3 4 5 6 7 8 9 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95	
95	
100	
105	
110	
115	
120	
125	
125 130	· · · · · · · · · · · · · · · · · · ·
130	

AMBIENT TEMPERATURE +30 C

<u>5659</u>	
2 3 5 6 5 8 4 5 6 5 8 5 6 5 8 7 5 6 5 8	
5658	
5658	
565%	
<u>6</u> 5658	
<u>7 565%</u>	
8 <u>5656</u>	
8 5656 9 5659 10 5660	
10 5/060	
15 5 659	
20	
25	
30	
35	
40	
45	
50	
55	
60	
65	
70	
75	
80	
85	
90	
95	
100	
105	
110	
115	
120	
125	
130	

AMBIENT TEMPERATURE +40 C

BUVMINIMAX-100C FREQUENCY STABILITY VS TEMPERATURE

Time in Minutes	
from Radiate On	Freq (Mhz)
	,
-	6
0	5658
1	5659
2 3 4 5 6 7 8 9	5658
3	5659
4	5 6 59
5	<u>5659'</u>
6	5659
7	5659
8	5658
9	5658
10	5659
15	5660
20 25 30 35	
25	
30	
35	
40	
45	
50	
55	
60	
65	_
55 60 65 70 75	
75	
80	
85	71
90	
95	
100	
105	
110	
115	
120	•
105	

125 130

AMBIENT TEMPERATURE +50 C

BUVMINIMAX-100C FREQUENCY STABILITY VS TEMPERATURE

Time in Minutes from Radiate On

Freq (Mhz)

0	5660
	·
2	5660
3	5(060)
1 2 3 4 5 6 7 8 9 10 15 20 25 30 35 40 45 50 55 60 65	5660
5	5660
6	5660
7	5440
8	5659
9	5660
10	5660
15	5660
20	
25	
30	
<u>35</u>	
40	
50	
55	
60	
65	
70	
70 75	
80	
80 85	
90	· · · · · · · · · · · · · · · · · · ·
95	
100	
105	
110	
115	•
120	
125 130	
130	