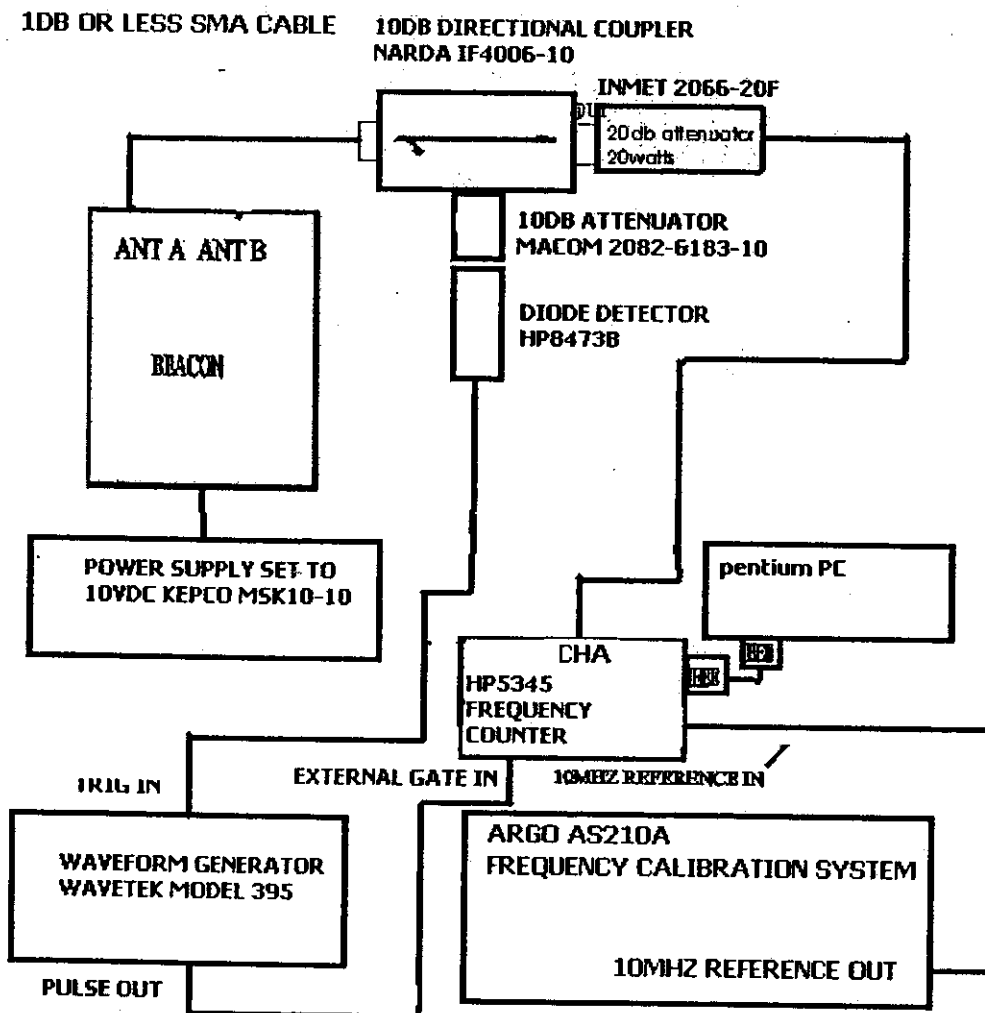


Attachment S
Long Term Frequency Drift Test Results

DO204 Long Term Frequency Drift Test 2.4.2.1.4

- 1) OBTAIN DO-204 document FOR REFERENCE AND SET UP.
- 2) Connect equipment up as shown here in this attachment called "Long Term Frequency Drift" using a power supply to power the beacon.
- 3) Set up the Wavetek 395 as follows: external trigger input set to -1.0 Volt; output delay set to 12 ms., period set to 200ms and pulse width set to 110ms. Output pulse low set to 0vdc and high set to -1.0 Volt.
- 4) Set the Frequency Counter HP5345 as follows: external GATE CONTROL SWITCH to "EX Gate". Frequency Standard INT-EXT switch to external. Function selector to Freq A Gate time to Min. Display position to AUTO. Sample rate fully counterclockwise. Slope A to +. Level to preset. Coupling to DC and 50 ohms. Attenuation to X1. input control to SEPARATE.
- 5) Power the beacon up with the power supply and all the test equipment let stabilize for 48 hours.
- 6) After the 48 hours stabilization Initiate PC software called STABILITY_TEST.VI
- 7) The test software will collect a frequency measurement from the beacon every 6 bursts or approximately every 5 minutes and write each frequency measurement to a file with the measurement number and time/date. It will accumulate the data for a 12 hour period and write it to a file starting at "test10000.txt" and incrementing every 12 hour period. This is done so the file can be downloaded off the PC and "stitched" together to check the drift progress.
- 8) Let the program continue for more than 30 days up to 40 as described by DO-204 2.4.2.1.4. Don't turn beacon off till the data is all collected and verified to meet specification.
- 9) Copy the "test10000.txt" through "test10XXX.txt" files to a working directory elsewhere on the hard drive or another PC.
- 10) "Stitch" together the "test100XXX.txt" files and import the resulting 30-40day file into an Excel spreadsheet.
- 11) Plot the results using the "least squares trend line" with the show formula function of the slope and y intercept.
- 12) Verify the 30 day drift slope is less than 300 Hz and the frequency stays within 406.028 ± 0.001 MHZ.

LONG TERM FREQUENCY DRIFT



LONG TERM STABILITY

DO204-2.4.2.1.4

TEST DATA SHEETS
RF BEACON ASSEMBLY
A3-07-1032

Y1-02-1053 Rev. -
September 30, 2002

NO BATTERY USED

Tested By:

[Signature]

DATE:

10/11/02 - 11/20/02 9/11/2011

RF PCB

(A3-07-0039) Serial Number:

0008

DIGITAL PCB (A3-07-0038) Serial Number:

0008

Test Equipment	Model	Serial No. or Control No.	Cal. Due
FREQ CAL SYSTEM	ARGO-AS-210A-X	OR3042	9/30/03
FREQ COUNTER	HP5345A	OR2008	9/10/03
WAVEFORM GEN	WAVETEK 395	011983	12/24/02

Do-204 long term frequency drift test. Paragraph 2.4.2.1.4

total frequency drift for 30 days is 121.62 Hz [f(30)-fstart]= +/-300 Hz limit

calculation is $-0.01401539405 \times 8678 \text{ points} = 121.62 \text{ hz negative drift}$

frequency tolerance= 406.028MHZ +/- 0.001 MHZ

frequency at start =406.027830 E+6

frequency at end =406.027710 E+6

Notes :data for graph is point 1 to point 8678 (data collected every 5 minutes)

data taken from beacon SN2011 using software modified to operate beyond 24hrs with no 406 modulation

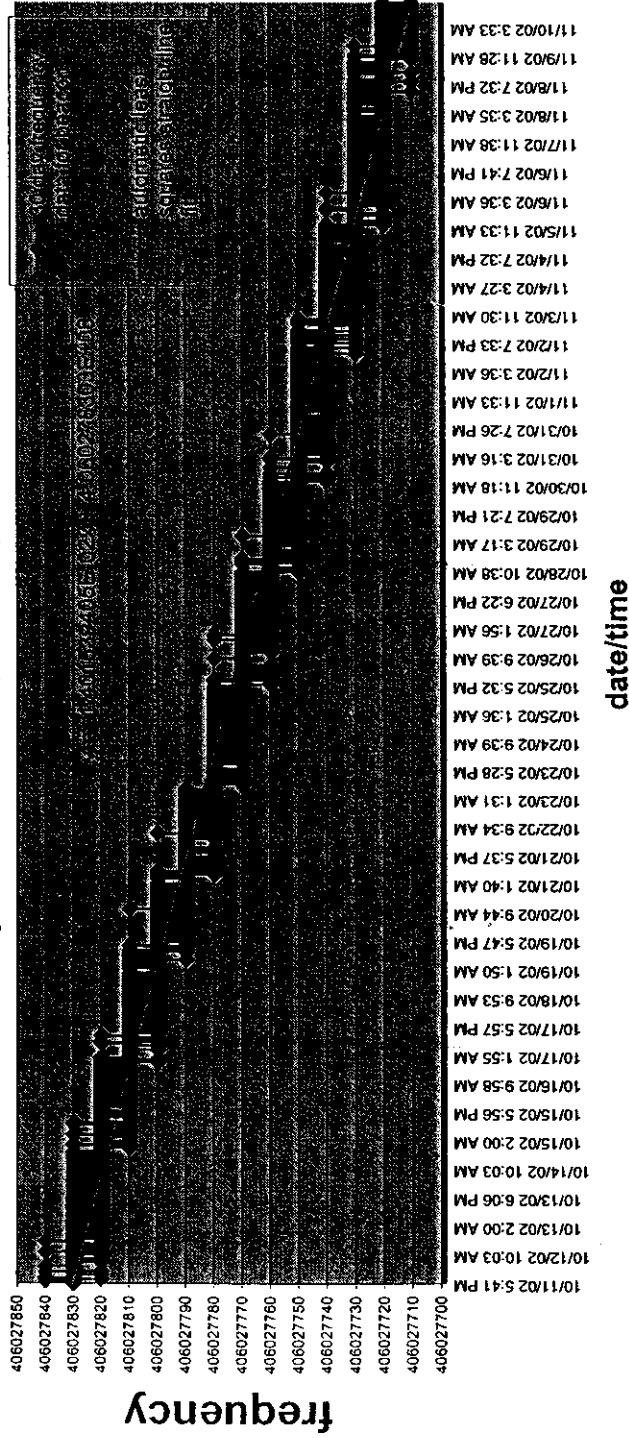
unit powered by a PS set to 10 VDC

pass

pass

pass

406 long term frequency stability for first 30 days



1

10/11/02 17:41

406027830

2

10/11/02 17:46

406027830