

WORK STATEMENT
FOR

AL PURPOSE FREQUENCY MEASURING RECEIVER

24 January 1969

HRB-Singer will develop, build, test and deliver a Frequency Measuring Crystal Video Receiver using the multiple filter technique explored under Task 91380-2001 of this contract. This work will be carried out in Laboratory 880 and a single system will be delivered within a 5-month period following the task approval.

Receiver Specifications

1. Frequency Band - Specified under separate cover.
2. Input Impedance - 50 ohms nominal.
3. Input VSWR - Less than 1.5 in band.
4. Antenna Input VSWR - To be furnished by customer within two-months of start of project.
5. Operating Dynamic Range - 20 db at input of receiver.
6. Minimum Operating Sensitivity - -60 dbm. *and (-48) (-40) -60 to -40*
7. Video Bandwidth - Sufficient to handle 0.5-10 microsecond pulse signal.
8. Frequency Determining Accuracy - $\pm 1\%$ of absolute frequency, design goal ± 2 mc.
9. Output Signal - Pulse width modulation, 60 microsecond to 300 microsecond range tentative, to be finalized by mutual agreement two months after start of project.
10. Output Level - Voltage range to be specified one month into project with levels being made compatible with customer's presently used system logic.
11. Operating Temperature Range - -10°C to $+60^{\circ}\text{C}$.
12. Overall package size - 4" x 6" x 8" parallelepiped
13. Receiver Weight - Less than 10 lbs.
14. Receiver Power Requirements - 7.12 watts

+12V	@	400 milliamps
-12V	@	60 milliamps
24V	@	25 milliamps
+5V	@	200 milliamps

Tentative: These estimates to be finalized or revised downward one month in the project following logic selection.

15. Receiver Test Plan will be submitted for Scientific Officer's approval three months after start of the project.

Approved By:

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gram Manager HRB

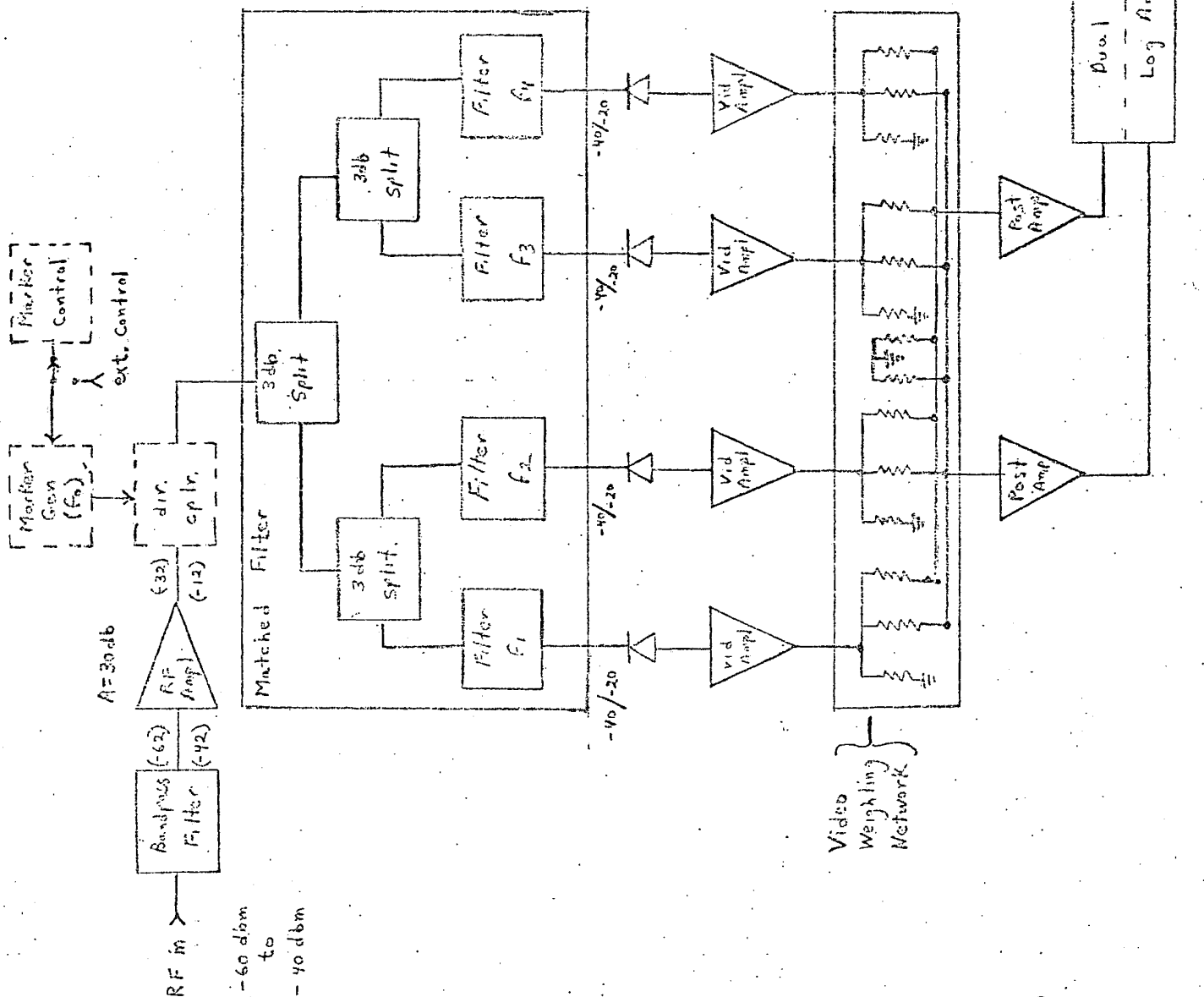
HANDLE VIA
BYEMAN
Lab Director HRB CONTROL S Task Director HRB

SPECIAL PURPOSE FREQUENCY
MEASURING RECEIVER

91320 - 2004 - 261

Notes:

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BYEMAN
SYSTEM



High Level Sense

Low Level Sense

Amplitude/Time Converter

GATE CONTROL

Dual Channel Log Ampl.

Post Amp

Vid Ampl

Vid Ampl

Vid Ampl

Vid Ampl

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~~SECRET~~

Error Curve for Dual Log Amp #004 At -55°C
With Respect To A Straight Line Having
The Equation:

$$E_{out}(mv) = 6.95 mv/dB [E_{in}(dB)] + 540.3 mV$$

CHANNEL A

CHANNEL B

Error
(mv)

$P_{10} = 1 \mu sec$
 $P_{RT} = 5 ms$
 $C_{db} = 10 peak$

~~SECRET~~HANDLE WITH
EXTREME CAUTION

CONTROL SYSTEM ONLY

11/14/67 276

~~SECRET~~

Error Curve For Dual Log Amp #004 At
+25°C With Respect To A Straight Line
Having The Equation:

$$E_{out}(mv) = 6.95 mv/16 [E_{in}(16)] + 540.3 mv$$

RECEIVED
MILITARY
COMMUNICATIONS
SECTION
JAN 1968Error
(mv)RECEIVED
MILITARY
COMMUNICATIONS
SECTION
JAN 1968

PW = 17^{1/2} sec.
PRT = 5ms
Gdb = 10 peak

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HANDLE VIA
BYEM
CONTROL SYSTEM ONLY

~~SECRET~~

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Error Curve For Dual Log Amp #004 At
 +55°C With Respect To A Straight Line
 Having The Equation:

$$E_{out(mv)} = 6.95 \text{ mv/db} [E_{in(db)}] + 540.3 \text{ mv}$$

Error
(mv)

CHANNEL A

CHANNEL B

Pw = 1 μ sec

PRI = 5ms

Cdb = 1V μ sec~~SECRET~~

HANDLE VIA

BYEMAN

CONTROL SYSTEM ONLY