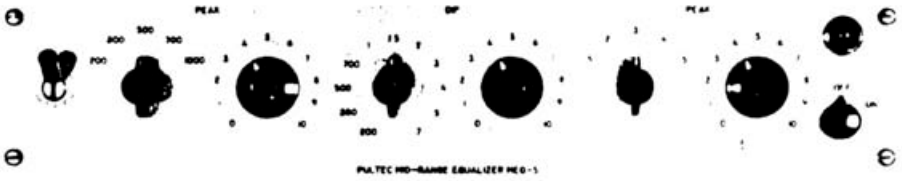
PULTEC® MID-RANGE EQUALIZER

MODEL

MEQ-5



WILL EFFECTIVELY

Three independent sets of controls make it possible to boost on a peak curve at 200, 300, 500, 700 or 1000 Hz while simultaneously boosting on a peak curve at 1.5, 2, 3, 4 or 5 kHz while simultaneously dipping at 200, 300, 500, 700, 1000, 1500, 2000, 3000, 4000, 5000 or 7000 Hz. Thus two selectable peak boost areas and one selectable dip area are available for simultaneous use.

ADD BODY AND PRESENCE to music already thought to be well balanced.

HIGHLIGHT OR SUBDUE a vocalist, where the vocal is already mixed with the orchestra.

ROUND OUT a vocal group, or make it *stand out.*

IMPROVE THE BASIC QUALITY of voices or instruments by altering their fundamental and overtone relationships.

EQUALIZE DIALOGUE

The MEQ-5 provides exacting control of the "power region" in program material, that frequency range from about 300 cps to about 5000 cps in which most of the sound *energy* is concentrated. The ear is especially sensitive to sounds in this region. It is here that pre-emphasis, de-emphasis and cross over networks must blend together smoothly. In this region, even small resonances in studio acoustics and microphone and speaker responses are very evident in their effect on the listenability of the sound.

Specifications

PEAK BOOST: 200, 300, 500, 700, 1000 Hz; 0 to 10 dB.

PEAK BOOST: 1.5, 2, 3, 4, 5 kHz; 0 to 8 dB.

DIP ATTENUATE: 200, 300, 500, 700, 1000 Hz and 1.5, 2, 3, 4, 5, 7 kHz; 0 to 10 dB.

NOISE: Below −75 dBm.

DISTORTION: 0.15% at +10 dBm into 600 ohms.

TUBES: One ECC-83/12AX7 and one 6AQ5.

DIODES: Two 1N1731 silicon diodes.

PANEL SIZE: 3½ x 19 in. Depth behind panel is 7½ in.

PANEL FINISH: Brushed aluminum satintone.

MOUNTING: Standard EIA rack mount.

NET WEIGHT: 12 pounds.

LOSS: None. **Passive equalizer** loss is restored by amplifier. Over-all result is no loss and no gain.

IN-OUT KEY: Switches equalization in and out without clicks.

INPUT LEVEL: −15 dBm provides greater than 60 dB signal to noise ratio. +4 dBm allows generously for signal peaks without clipping.

INPUT TRANSFORMER: 600 ohms, matching. Connections can be changed for 250 or 150 ohms.

OUTPUT TRANSFORMER: Feeds a 600 ohm load. Connections can be changed for 250 or 150 ohms.

AMPLIFIER RESPONSE: 20 Hz to 20 kHz; +0, −1 dB from 1000 Hz reference.

POWER REQUIRED: 117 volts, 50/60 Hz, 20 watts. 234 volts, 50/60 Hz available on order.

Licensed under patents of the Western Electric Company

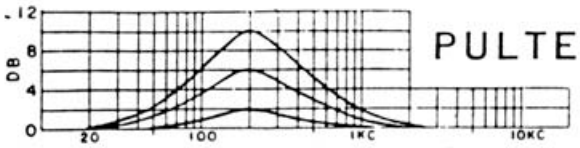
PULSE TECHNIQUES, INC.

1411 PALISADE AVENUE, TEANECK, NEW JERSEY 07666

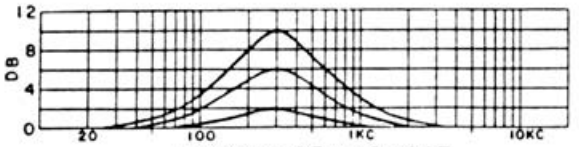
TELEPHONE (201) 837-2575

CABLE ADDRESS: PULTEC, TEANECK, NEW JERSEY

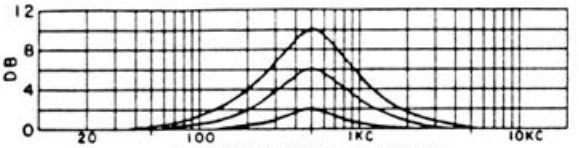
PULTEC MEQ-5



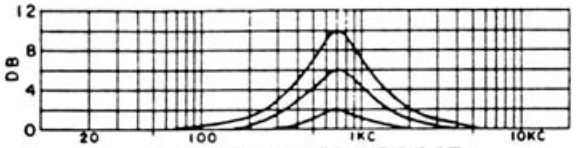
200 CPS PEAK BOOST



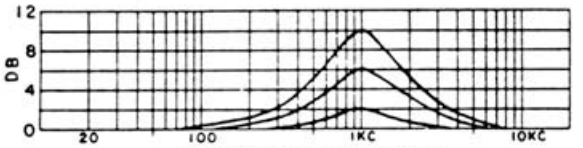
300 CPS PEAK BOOST



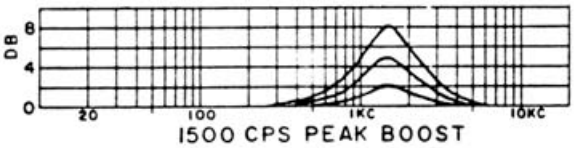
500 CPS PEAK BOOST



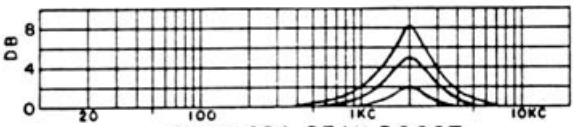
700 CPS PEAK BOOST



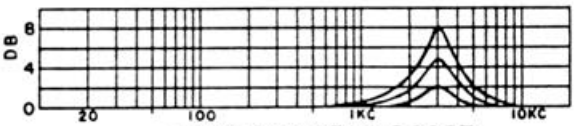
1000 CPS PEAK BOOST



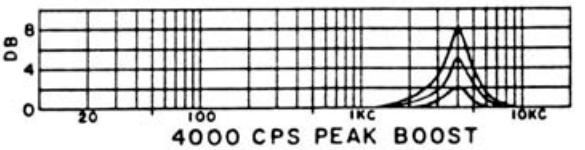
1500 CPS PEAK BOOST



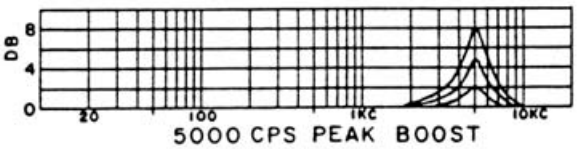
2000 CPS PEAK BOOST



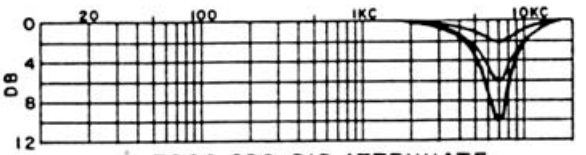
3000 CPS PEAK BOOST



4000 CPS PEAK BOOST

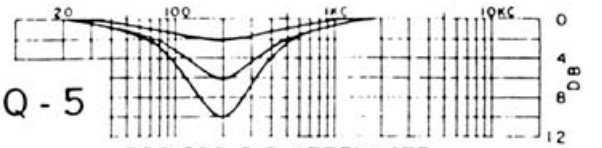


5000 CPS PEAK BOOST

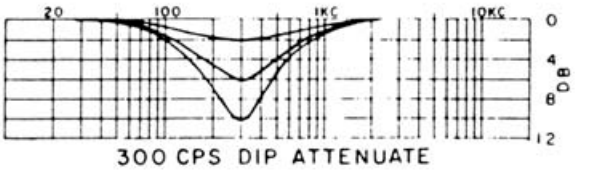


7000 CPS DIP ATTENUATE

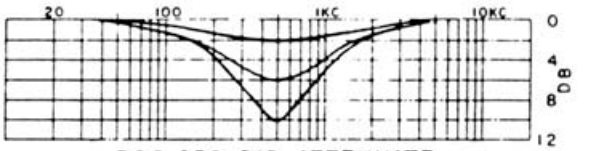
The peak and dip controls are continuously variable.
Therefore, the curves in these families represent typical settings, not steps.



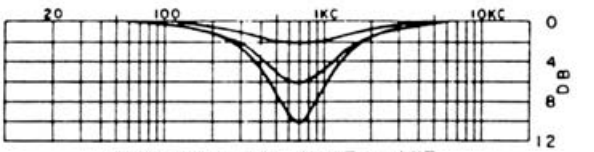
200 CPS DIP ATTENUATE



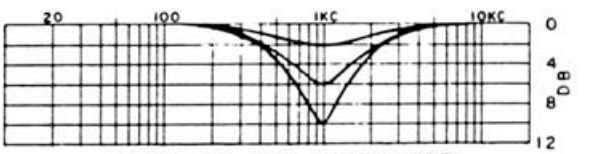
300 CPS DIP ATTENUATE



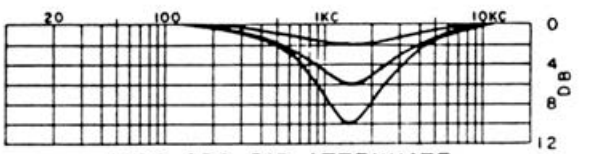
500 CPS DIP ATTENUATE



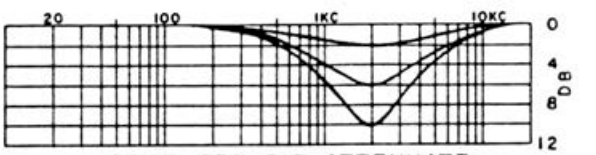
700 CPS DIP ATTENUATE



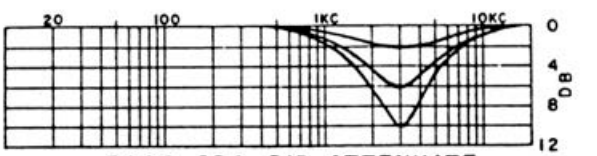
1000 CPS DIP ATTENUATE



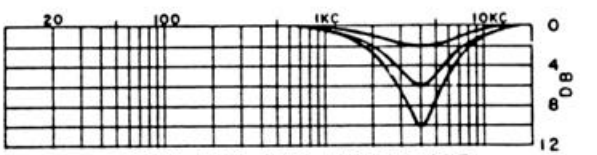
1500 CPS DIP ATTENUATE



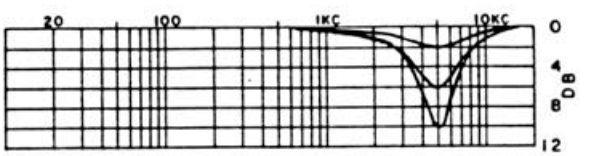
2000 CPS DIP ATTENUATE



3000 CPS DIP ATTENUATE



4000 CPS DIP ATTENUATE



5000 CPS DIP ATTENUATE

INSTALLATION AND OPERATING INSTRUCTIONS
PULTEC MODEL MEQ-5 MID-RANGE EQUALIZER

GENERAL

The PULTEC Model MEQ-5 Mid-Range Equalizer consists of a passive equalizer, an amplifier and self contained power supply. The amplifier restores the insertion loss of the equalizing network, thus providing a no loss, no gain unit.

INSTALLATION

INPUT IMPEDANCE: 600 ohms, matching, transformer input. Can be strapped for 250 or 150 ohms.

OUTPUT IMPEDANCE: Transformer, feeds a 600 ohm load. Can be strapped to feed loads of 250 or 150 ohms.

When installing in an unbalanced circuit, strap one input terminal and one output terminal to the chassis ground terminal.

AVERAGE INPUT LEVEL: Optimum range -10 dbm to +8 dbm.

MAXIMUM PEAK OUTPUT LEVEL: +20 dbm.

POWER SUPPLY: 117 volts, 50/60 cps, 20 watts.

OPERATION

The MEQ-5 contains three "sets" of controls. Each set consists of a selector switch to enable choice of frequency to be affected and a potentiometer to control the amount of peaking or dipping.

The switch and pot on the left are the Low Frequency Peak controls. The switch and pot on the right are the High Frequency Peak controls. The switch and pot in the center are the Dip controls.

All three sets of controls can be used simultaneously. Thus it is possible to peak (boost) at a low <u>and</u> at a high mid-range frequency while at the same time dipping (attenuating) at any one of the eleven frequencies on the dip selector switch.

Operating the key switch away from the "IN" position is equivalent to returning ALL peak and dip controls to their zero positions. The amplifier remains in the circuit.

TUBES & POTENTIOMETERS IN PULTEC EQUALIZERS

The Types ECC-82 and ECC-83 tubes are equivalent to the 12AU7 and 12AX7 respectively. The manufacturers of these tubes claim, and our experience confirms, that the ECC series average substantially lower hum and microphonics than the 12AU7 and 12AX7.

MODEL EQP-1A
MODEL EQP-1A3

The Low Boost control is Allen-Bradley Type JA-1031. This is a 10,000 ohm potentiometer with "Audio" or Logarithmic taper.

The Low Attenuate control is Allen-Bradley Type JA-1041 or Ohmite Type CA-1041. This is a 100,000 ohm potentiometer with "Audio" or Logarithmic taper.

The High Boost control is Allen-Bradley Type JU-1031 or Ohmite Type CU-1031. This is a 10,000 ohm potentiometer with "Linear" taper.

The High Attenuate control is Allen-Bradley Type JU-1021 or Ohmite Type CU-1021. This is a 1000 ohm potentiometer with "Linear" taper.

The Bandwidth control is Allen-Bradley Type JU-2521 or Ohmite Type CU-2521. This is a 2500 ohm potentiometer with "Linear" taper.

MODEL EQH-2

The Low Boost control is Allen-Bradley Type JA-5031. This is a 50,000 ohm potentiometer with "Audio" or Logarithmic taper.

The Low Attenuate control is Allen-Bradley Type JA-2541 or Ohmite Type CA-2541. This is a 250,000 ohm potentiometer with "Audio" or Logarithmic taper.

The High Boost control is Allen-Bradley Type JU-5031 or Ohmite Type CU-5031. This is a 50,000 ohm potentiometer with "Linear" taper.

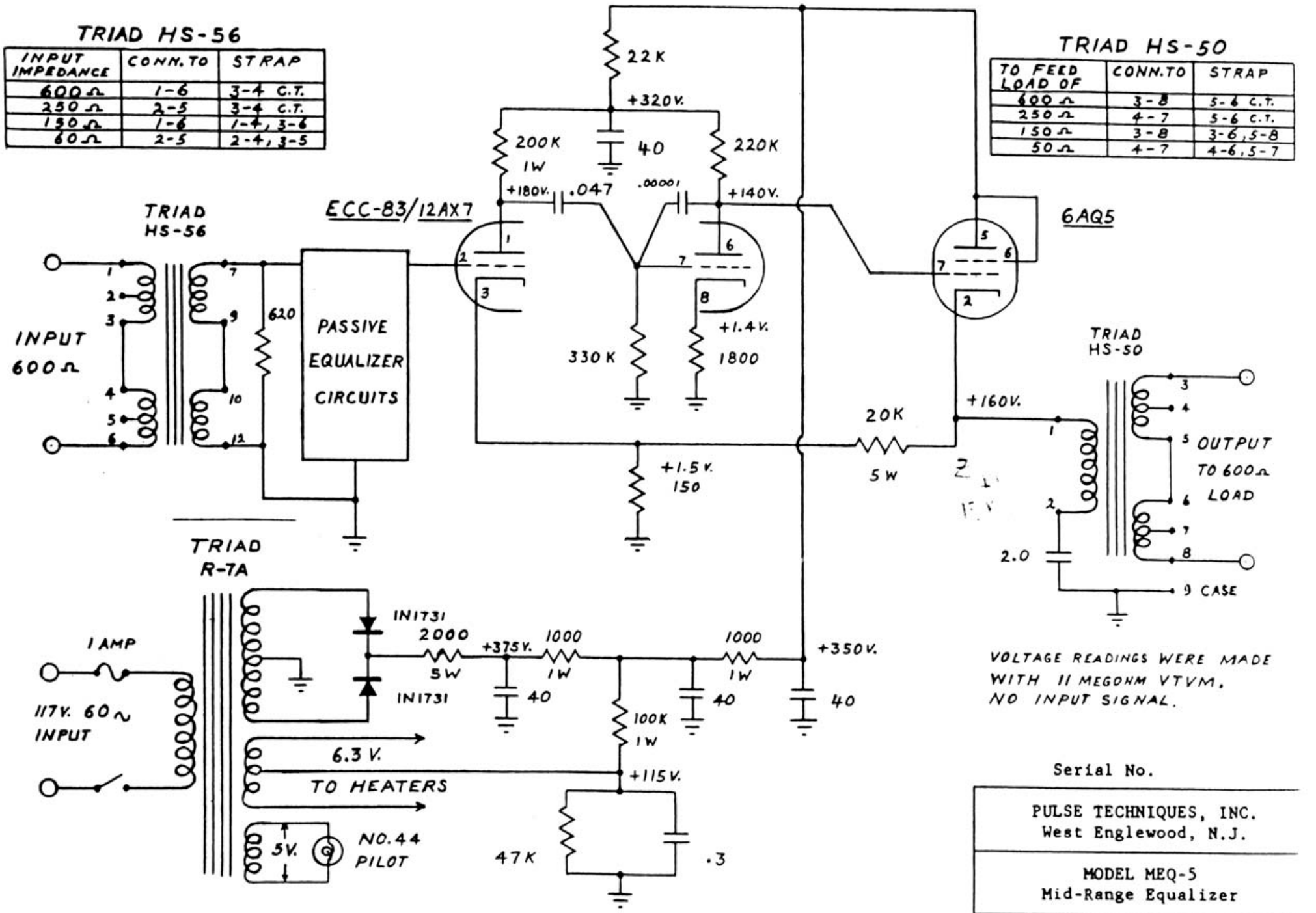
The High Attenuate control is Allen-Bradley Type JU-5021 or Ohmite Type CU-5021. This is a 5000 ohm potentiometer with "Linear" taper.

MODEL MEQ-5

The Low Peak control is Allen-Bradley Type JU-2521 or Ohmite Type CU-2521. This is a 2500 ohm potentiometer with "Linear" taper.

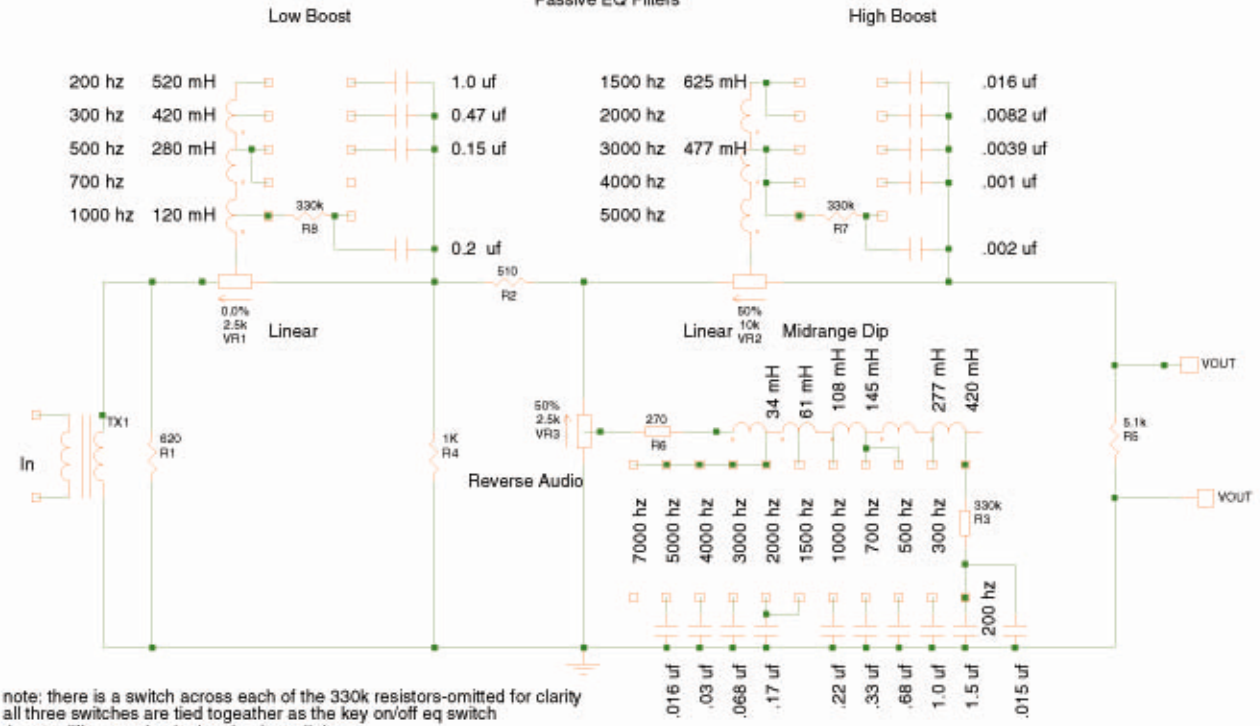
The High Peak control is Allen-Bradley Type JU-1031 or Ohmite Type CU-1031. This is a 10,000 ohm potentiometer with "Linear" taper.

The Dip control is Allen-Bradley Type CB-2521. This is a 2500 ohm potentiometer with counter clockwise Logarithmic taper.


TRIAD HS-56
INPUT IMPEDANCE | CONN. TO | STRAP
600Ω | 1-6 | 3-4 C.T.
250Ω | 2-5 | 3-4 C.T.
150Ω | 1-6 | 1-4, 3-6
60Ω | 2-5 | 2-4, 3-5
TRIAD HS-50
TO FEED LOAD OF | CONN. TO | STRAP
600Ω | 3-8 | 5-6 C.T.
250Ω | 4-7 | 5-6 C.T.
150Ω | 3-8 | 3-6, 5-8
50Ω | 4-7 | 4-6, 5-7
22K
+320V.
200K 1W
40
220K
+180V.
.047
.00001
+140V.
ECC-83/12AX7
6AQ5
TRIAD HS-56
INPUT 600Ω
620
PASSIVE EQUALIZER CIRCUITS
330K
+1.4V.
1800
+1.5V.
150
20K
5W
+160V.
TRIAD HS-50
OUTPUT TO 600Ω LOAD
2.0
CASE
TRIAD R-7A
1AMP
117V. 60~ INPUT
IN1731
2000
5W
+375V.
1000
1W
1000
1W
+350V.
40
100K 1W
+115V.
6.3V.
TO HEATERS
5V.
NO.44 PILOT
47K
.3
VOLTAGE READINGS WERE MADE WITH 11 MEGOHM VTVM. NO INPUT SIGNAL.
Serial No.
PULSE TECHNIQUES, INC.
West Englewood, N.J.
MODEL MEQ-5
Mid-Range Equalizer
DWG. E-301,461-1

Pultec MEQ-5

Passive EQ Filters



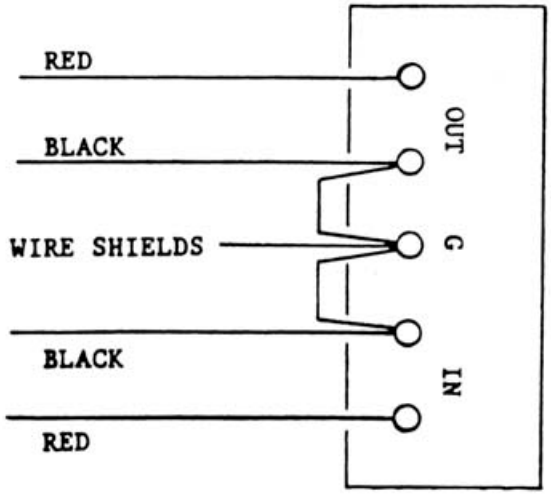
note: there is a switch across each of the 330k resistors-omitted for clarity
all three switches are tied togeather as the key on/off eq switch
the amplifier remains in the circuit at all times

C:\Program Files\SIMetrixIntro\Work\Pultec MEQ-5.gif - Friday, January 26, 2001

PHASE CONNECTIONS

PULTEC MODELS EQP-1A3 EQH-2 MEQ-5

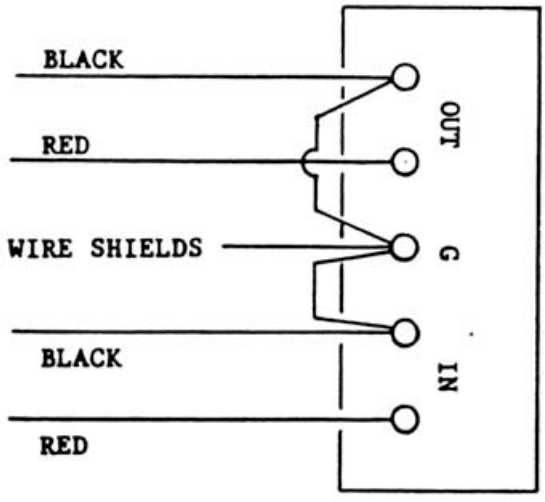
(FOR MODEL EQP-1A SEE NOTE BELOW)



OUTPUT IS IN SAME PHASE AS INPUT

FOR UNGROUNDED OPERATION OMIT JUMPERS

CONNECTION #1

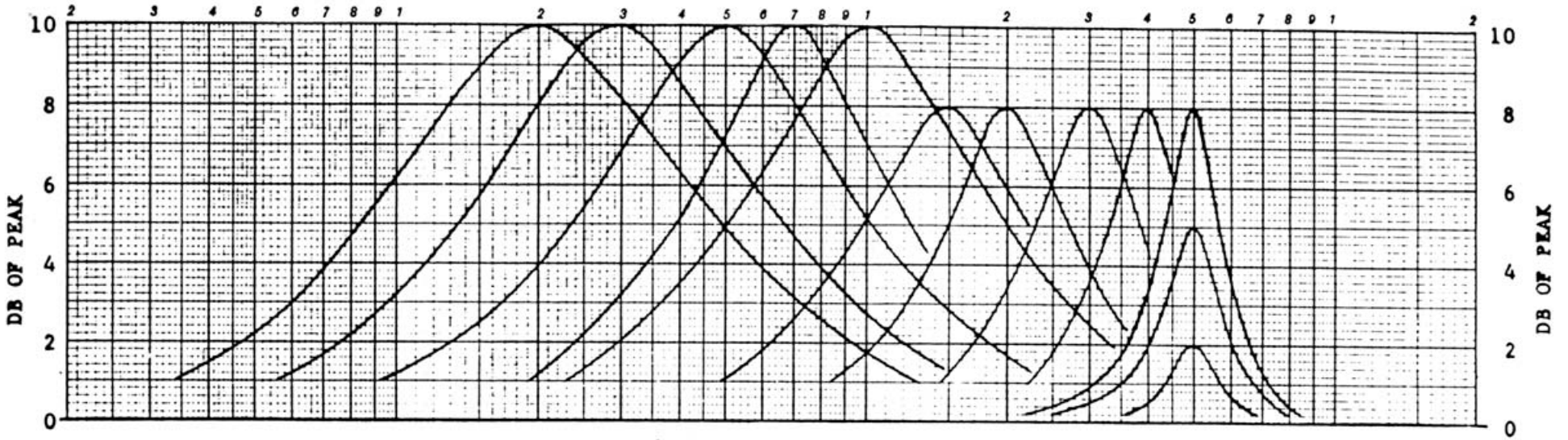


OUTPUT IS IN REVERSE PHASE FROM INPUT

FOR UNGROUNDED OPERATION OMIT JUMPERS

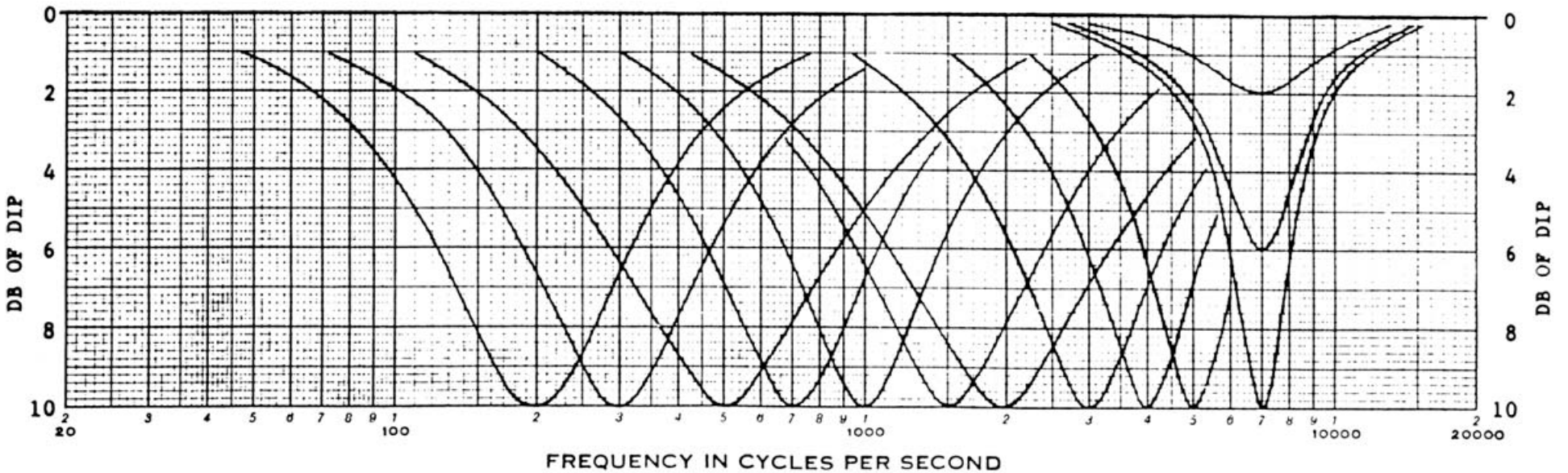
CONNECTION #2

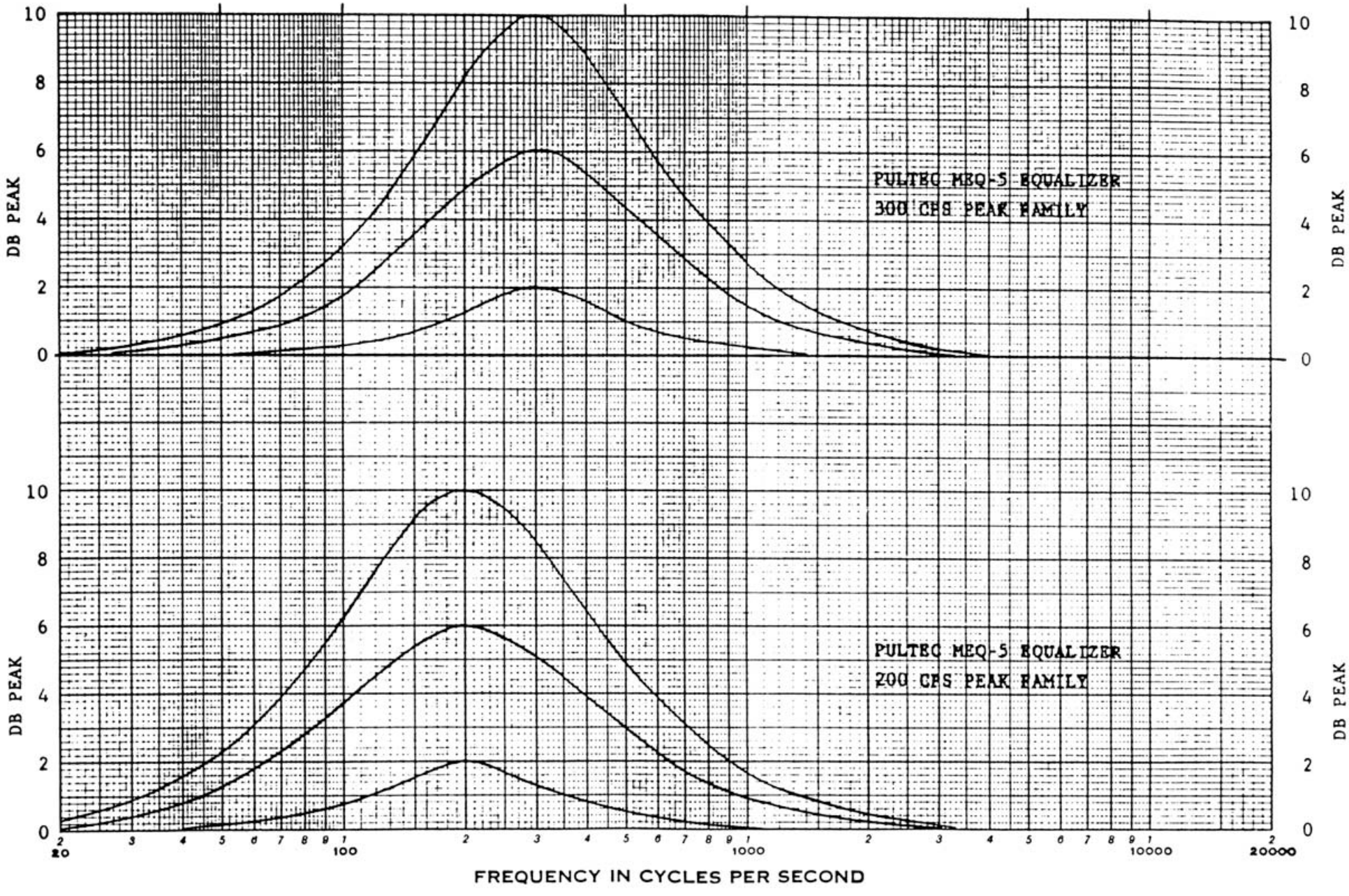
NOTE: For Model EQP-1A (now replaced by EQP-1A3) Connection #1 gives output in reverse phase from input. Connection #2 gives output in same phase as input.

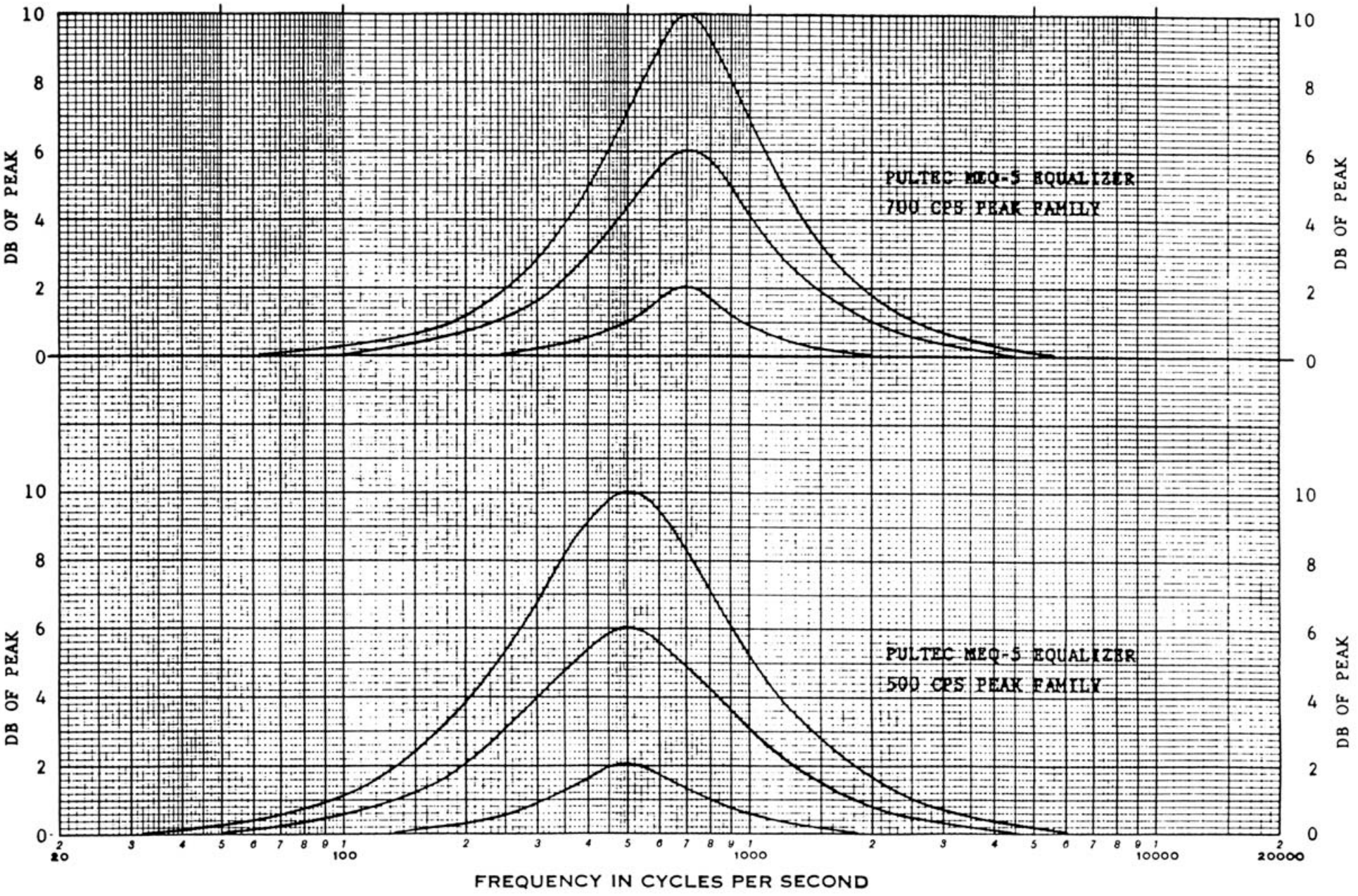


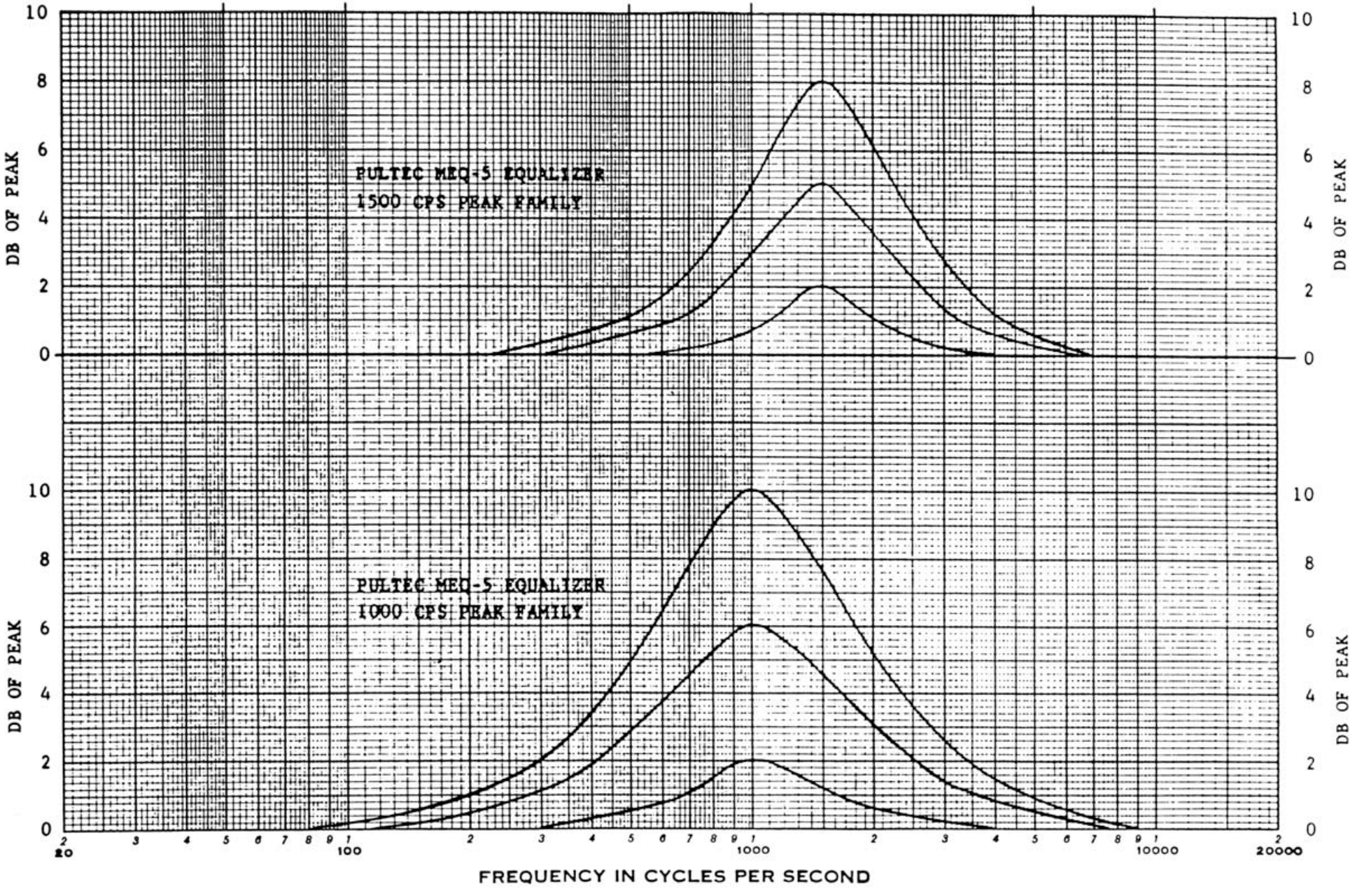
Frequency Coverage of the PULTEC MEQ-5 Mid-Range Equalizer

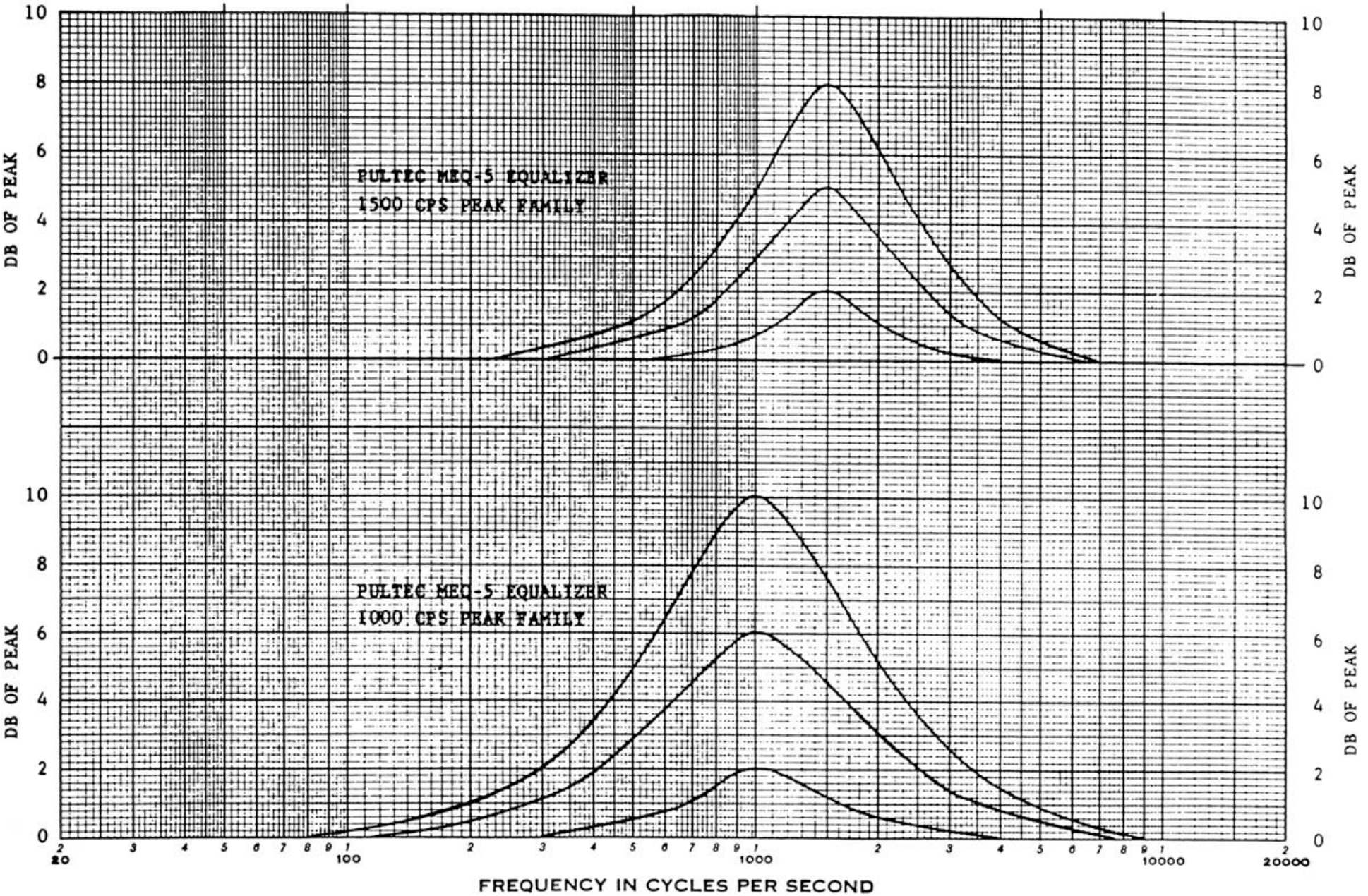
These are the maximum amplitude curves for each frequency selection available on the MEQ-5. At 5 kc Peak and 7 kc Dip three curves are drawn to show the operation of the continuously variable amplitude controls. These controls are effective on every frequency selection.

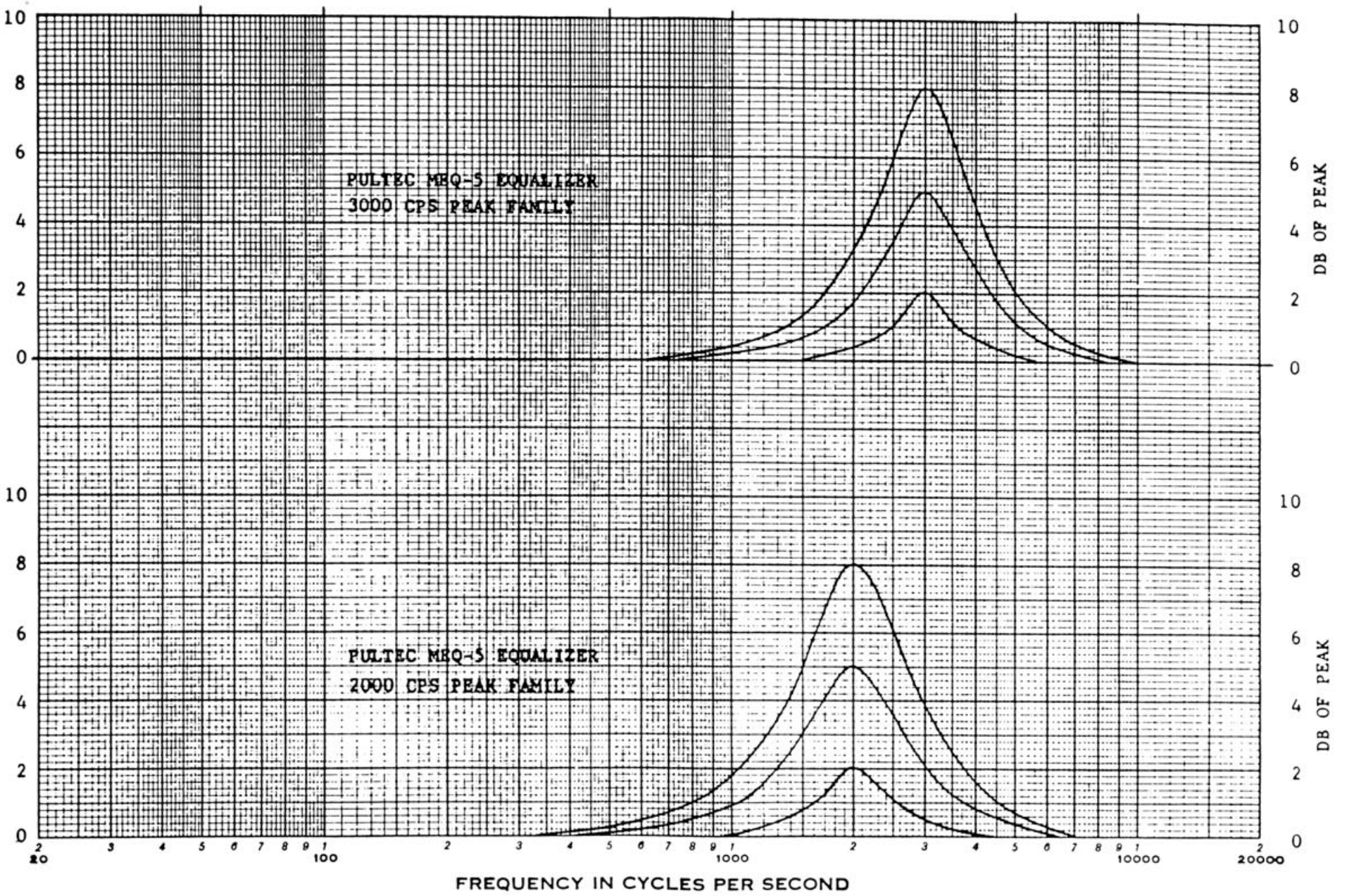


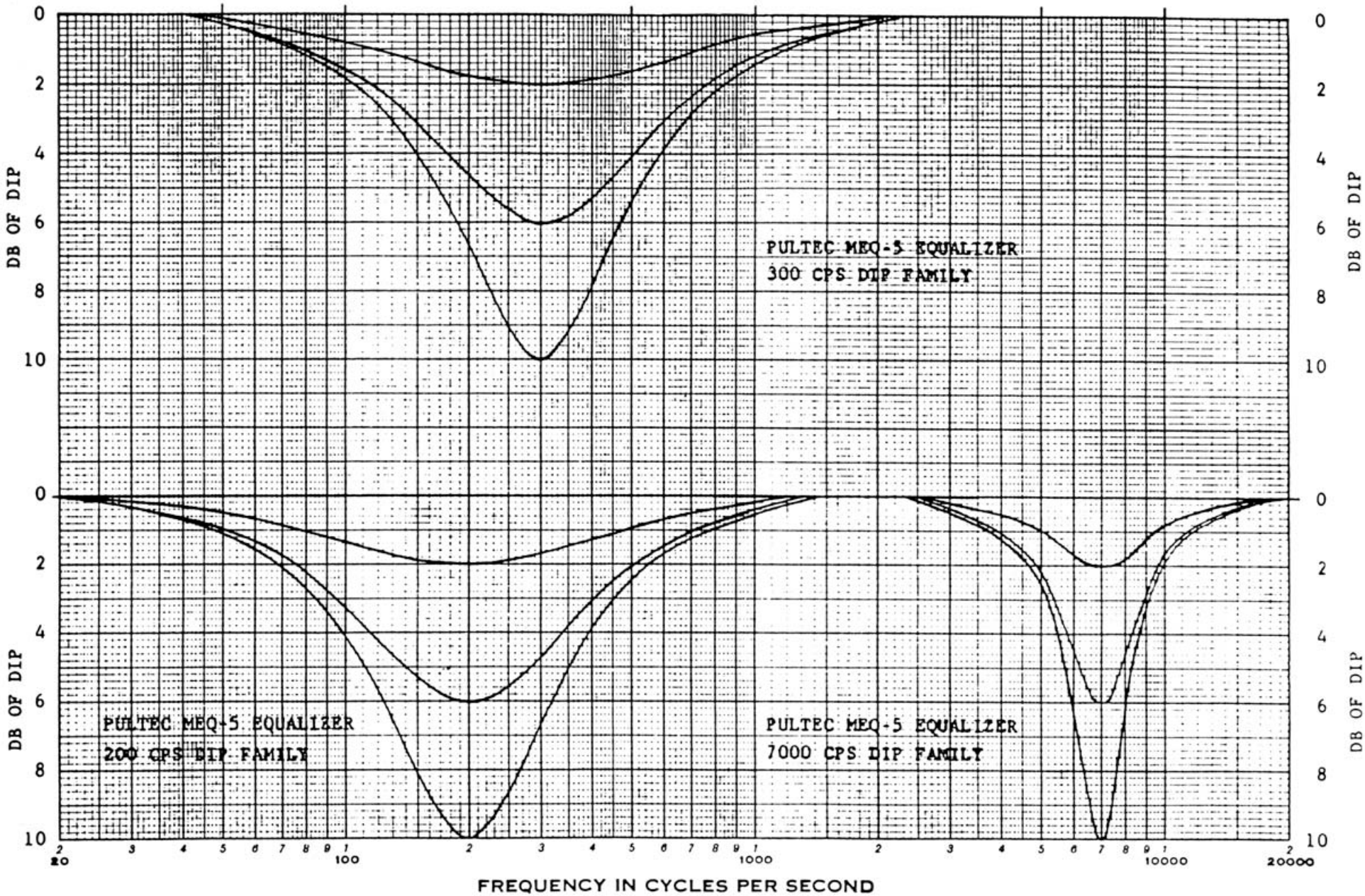

PULTEC MEQ-5 EQUALIZER
300 CPS PEAK FAMILY
PULTEC MEQ-5 EQUALIZER
200 CPS PEAK FAMILY
DB PEAK
10
8
6
4
2
0
20
100
1000
10000
20000
FREQUENCY IN CYCLES PER SECOND

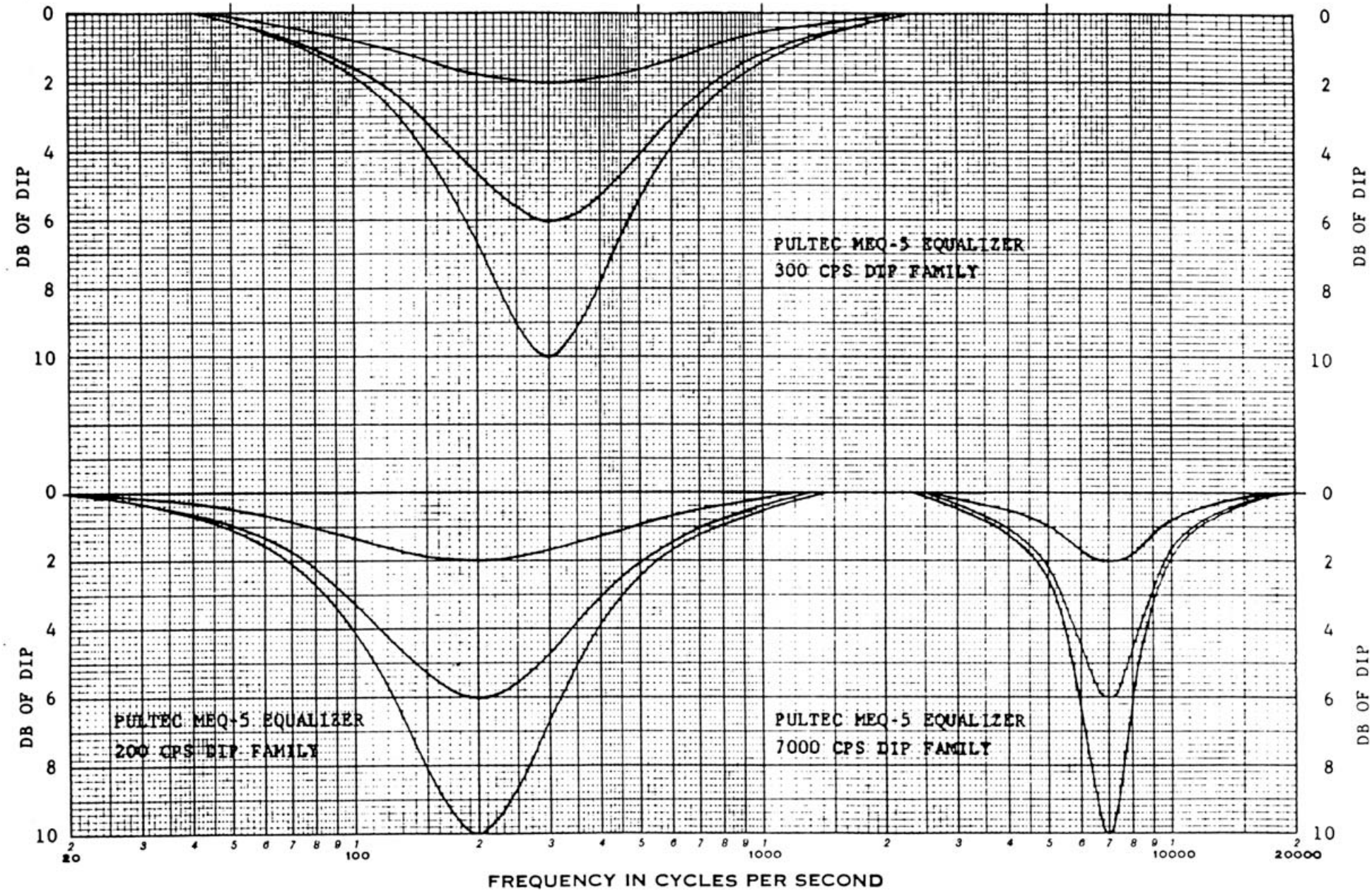

PULTEC MEQ-5 EQUALIZER
700 CPS PEAK FAMILY
PULTEC MEQ-5 EQUALIZER
500 CPS PEAK FAMILY
DB OF PEAK
DB OF PEAK
DB OF PEAK
DB OF PEAK
10
8
6
4
2
0
20
100
1000
10000
20000
FREQUENCY IN CYCLES PER SECOND


PULTEC MEQ-5 EQUALIZER
1500 CPS PEAK FAMILY
PULTEC MEQ-5 EQUALIZER
1000 CPS PEAK FAMILY
DB OF PEAK
DB OF PEAK
DB OF PEAK
DB OF PEAK
10
8
6
4
2
0
20
100
1000
10000
20000
FREQUENCY IN CYCLES PER SECOND


PULTEC MEQ-5 EQUALIZER
1500 CPS PEAK FAMILY
PULTEC MEQ-5 EQUALIZER
1000 CPS PEAK FAMILY
DB OF PEAK
10
8
6
4
2
0
20
100
1000
10000
20000
FREQUENCY IN CYCLES PER SECOND


PULTEC MEQ-5 EQUALIZER
3000 CPS PEAK FAMILY
PULTEC MEQ-5 EQUALIZER
2000 CPS PEAK FAMILY
DB OF PEAK
DB OF PEAK
10
8
6
4
2
0
20
100
1000
10000
20000
FREQUENCY IN CYCLES PER SECOND


PULTEC MEQ-5 EQUALIZER
300 CPS DIP FAMILY
PULTEC MEQ-5 EQUALIZER
200 CPS DIP FAMILY
PULTEC MEQ-5 EQUALIZER
7000 CPS DIP FAMILY
DB OF DIP
0
2
4
6
8
10
20
100
1000
10000
20000
FREQUENCY IN CYCLES PER SECOND


PULTEC MEQ-5 EQUALIZER
300 CPS DIP FAMILY
PULTEC MEQ-5 EQUALIZER
200 CPS DIP FAMILY
PULTEC MEQ-5 EQUALIZER
7000 CPS DIP FAMILY
DB OF DIP
0
2
4
6
8
10
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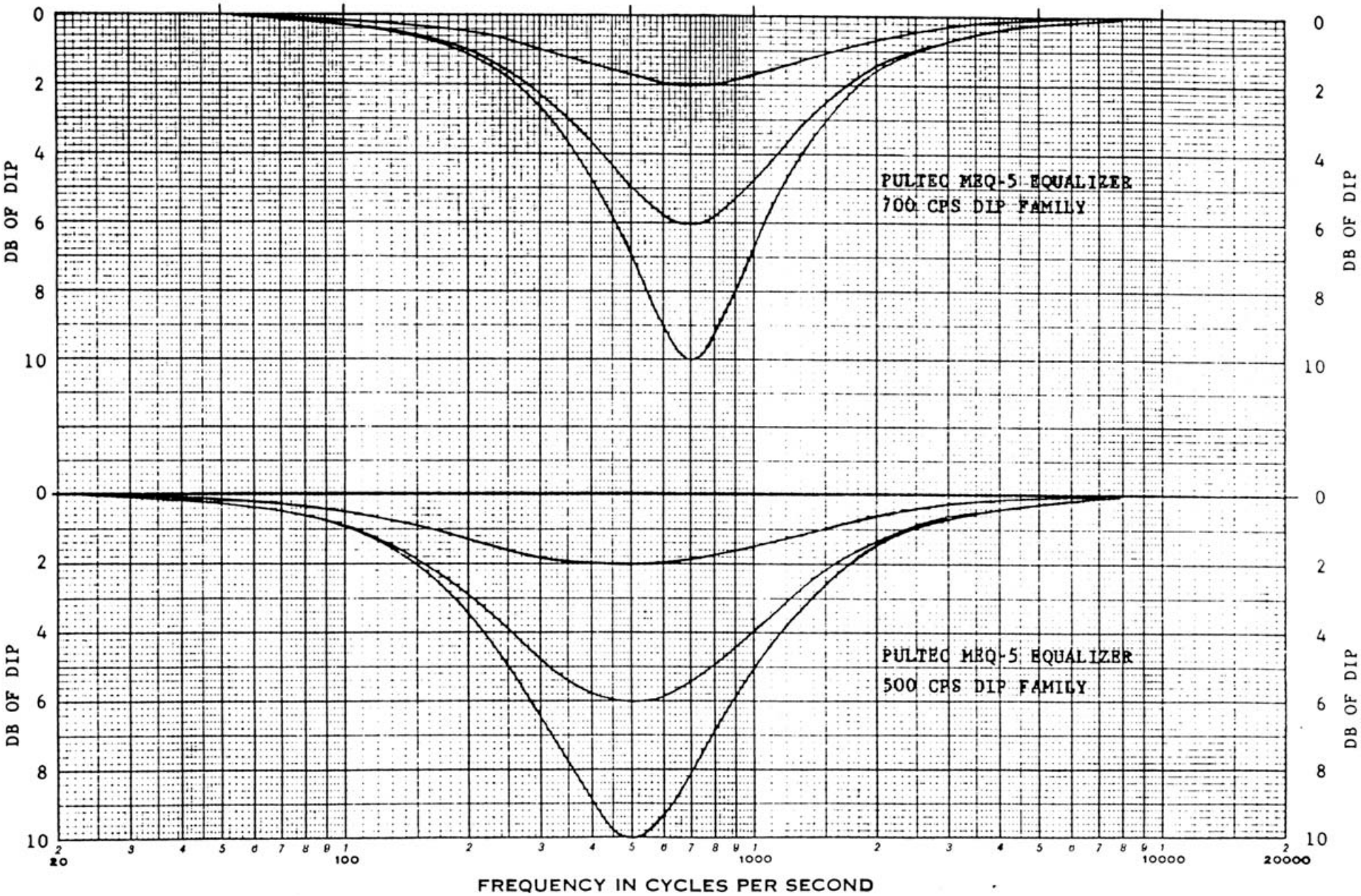
FREQUENCY IN CYCLES PER SECOND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500 CPS DIP FAMILY
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4
6
8
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20
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1000
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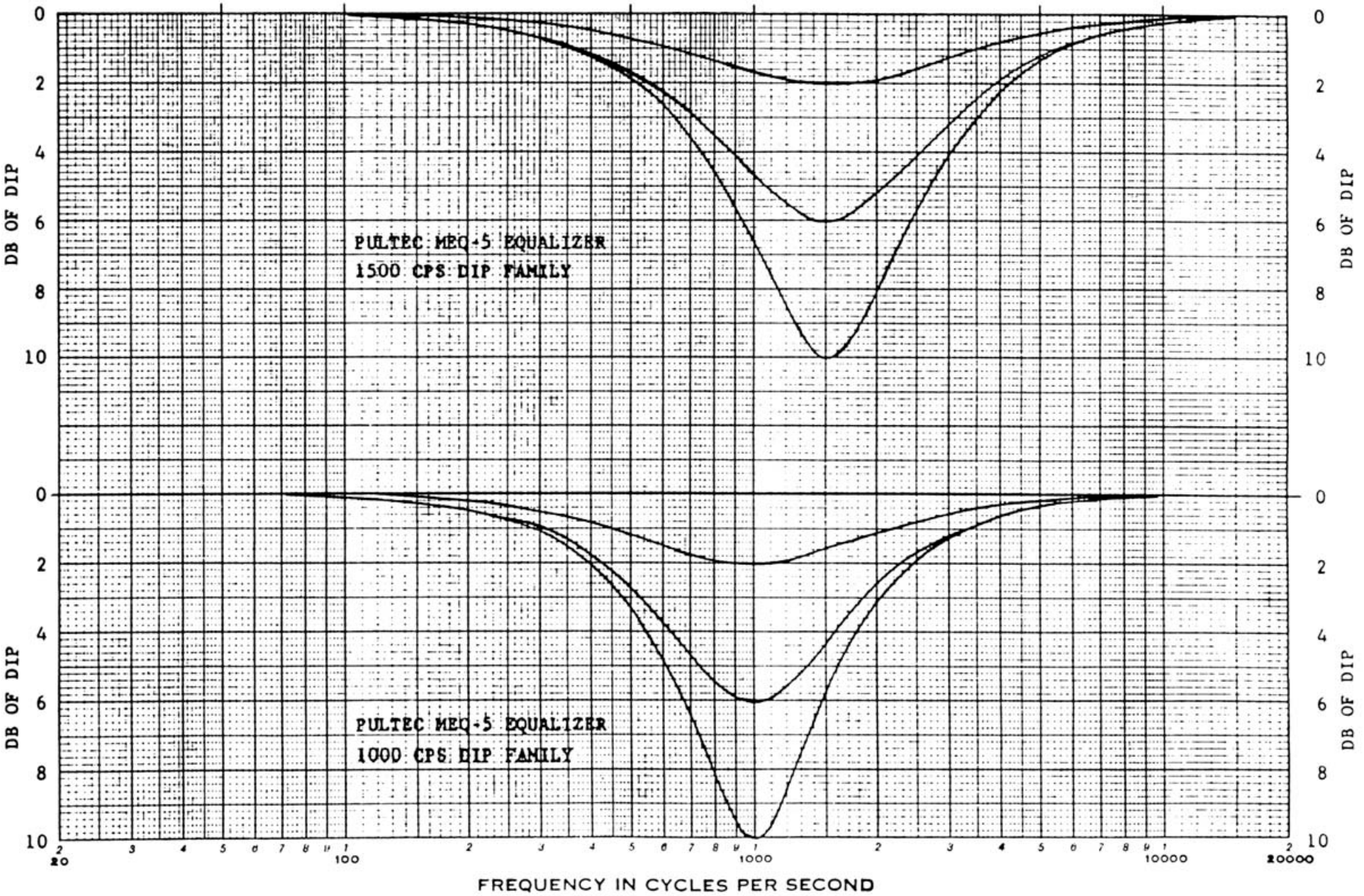
FREQUENCY IN CYCLES PER SECOND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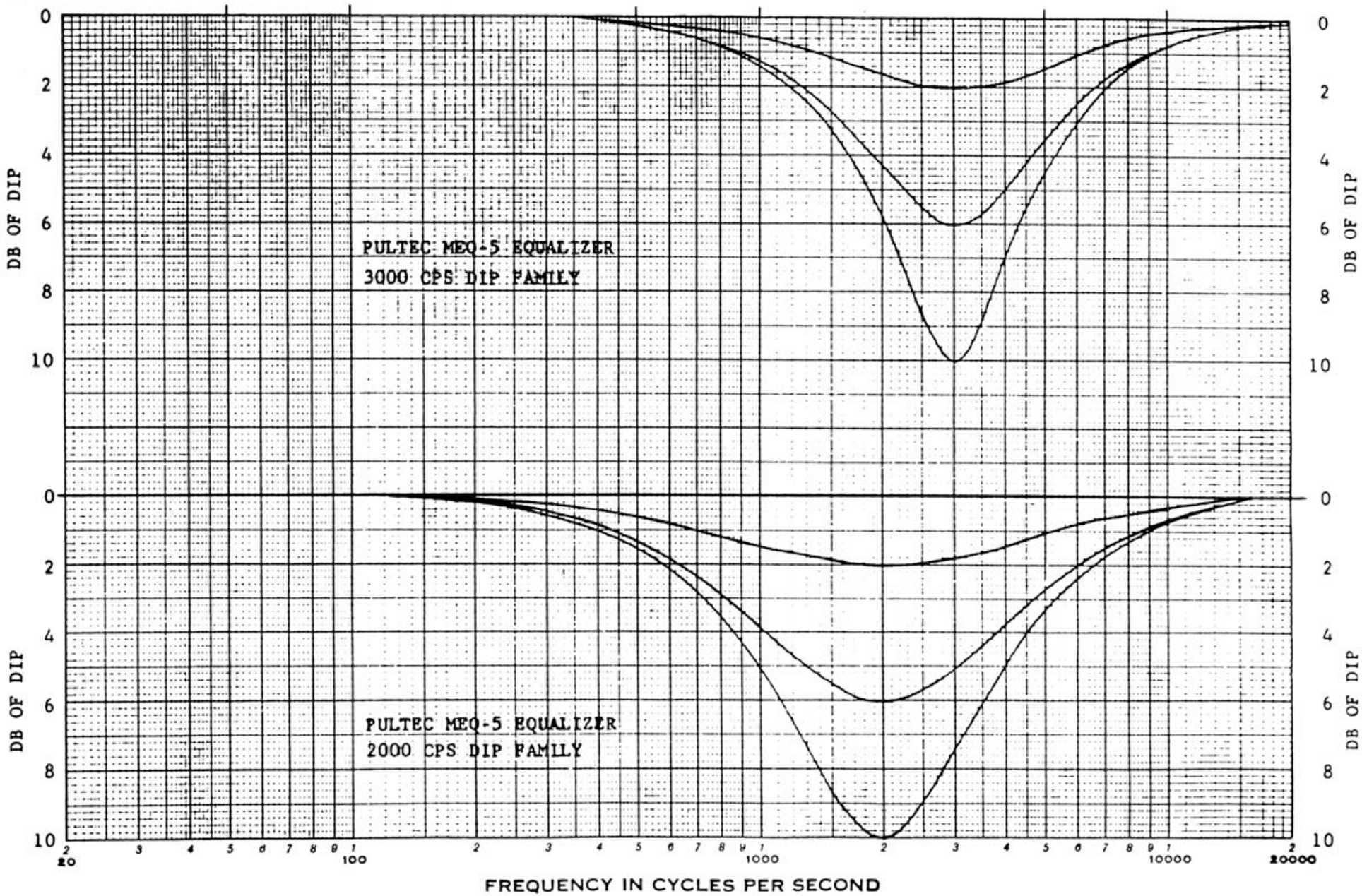
FREQUENCY IN CYCLES PER SECOND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PULTEC MEQ-5 EQUALIZER
2000 CPS DIP FAMILY
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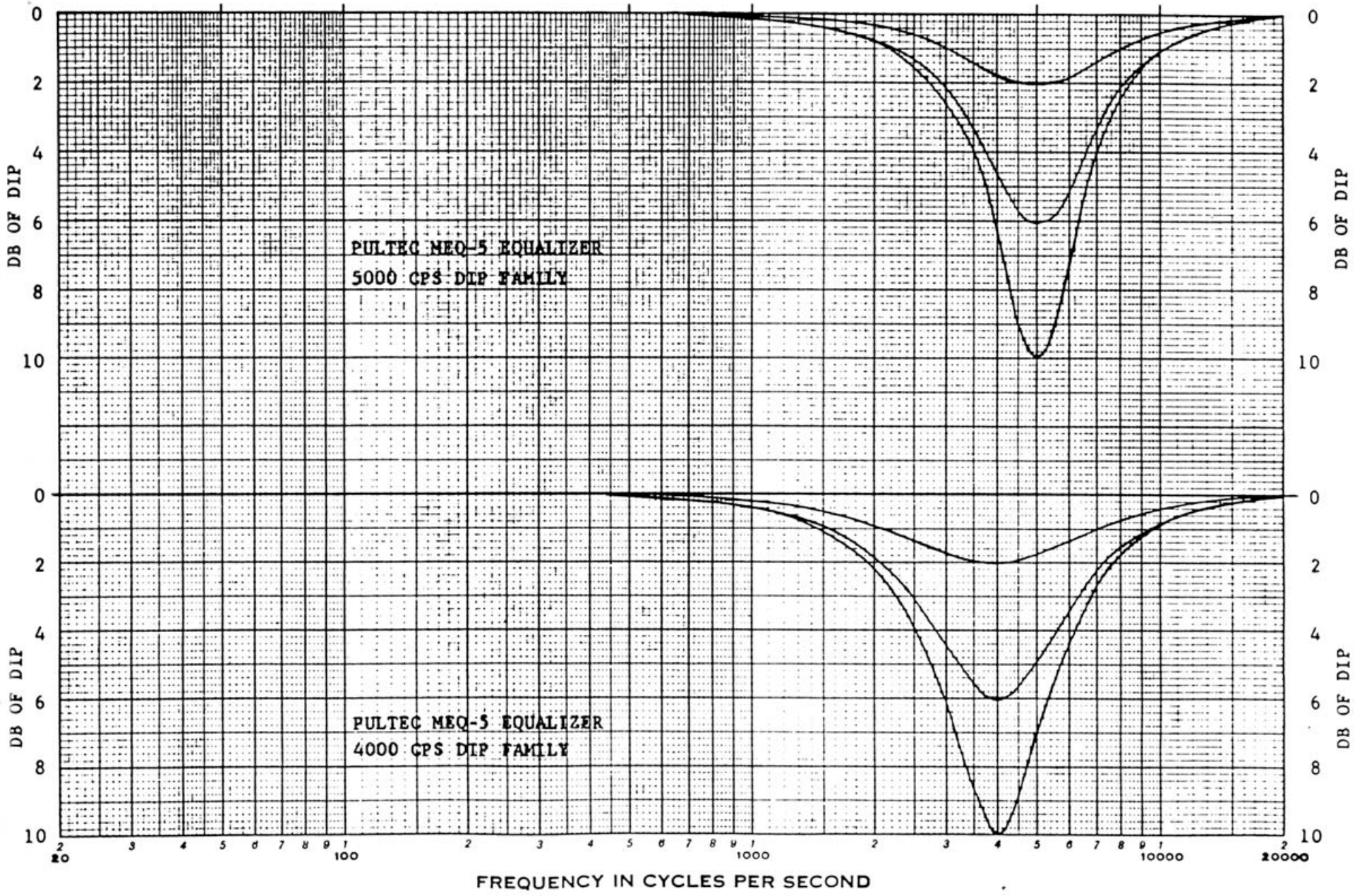
FREQUENCY IN CYCLES PER SECOND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5000 CPS DIP FAMILY
PULTEC MEQ-5 EQUALIZER
4000 CPS DIP FAMILY
DB OF DIP
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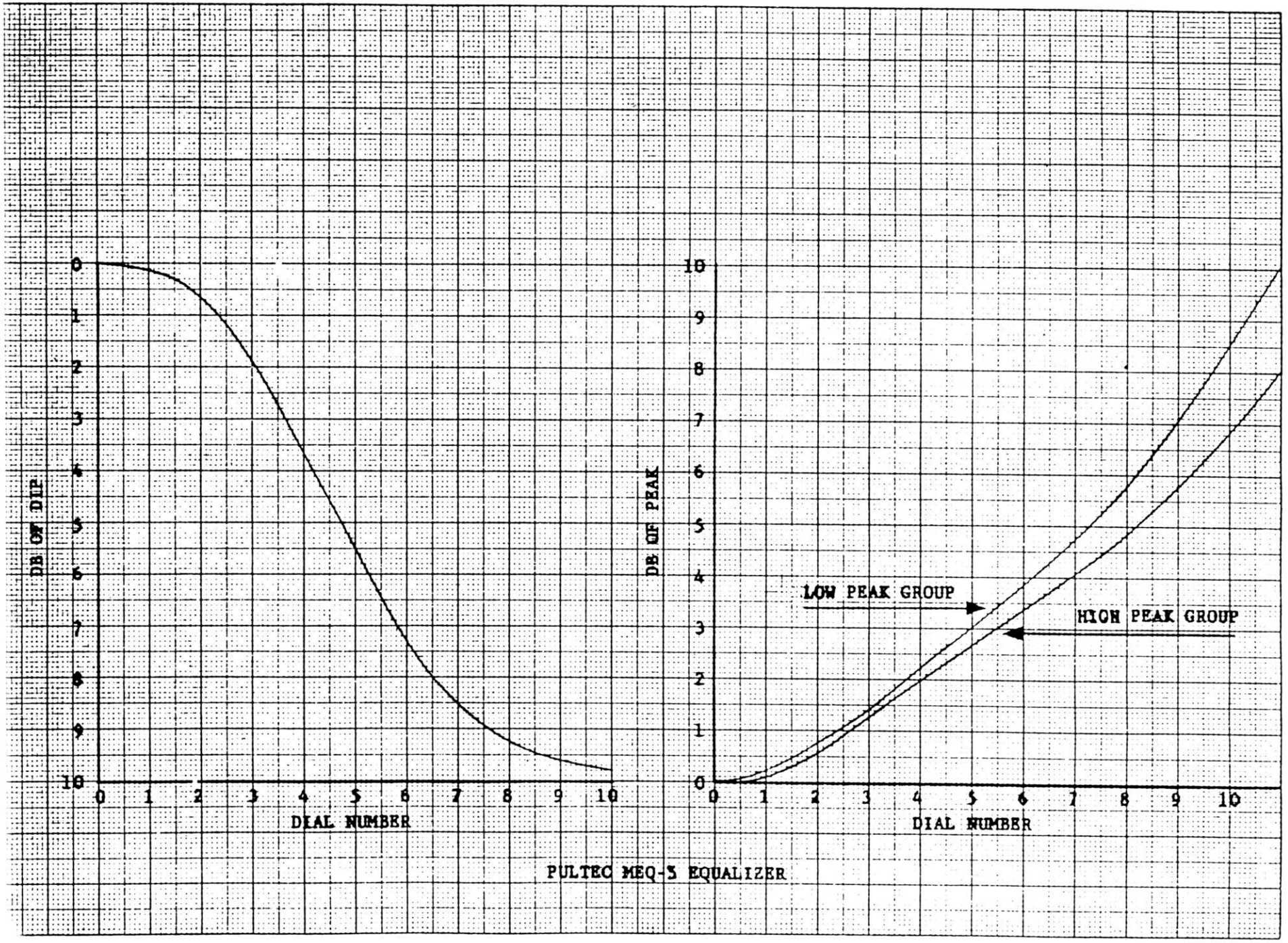
FREQUENCY IN CYCLES PER SECOND



PULTEC MEQ-5 EQUALIZER