

EA # 92755

FCC LABORATORY

FAX MESSAGE FROM

HYAK LABORATORIES, INC.  
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Mar 3 11 11 AM '99

DATE: March 2, 1999 TIME \_\_\_\_\_  
TO: Greg Czumak  
COMPANY: FCC/Equipment Authorization Division  
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NO. OF PAGES INCLUDING COVER SHEET 11  
REFERENCE: FCC ID: CKEJHU-1961; Japan Radio; Correspondence #6302

MESSAGE:

Per your request of Feb. 26 referenced above.

1. Table 1, conducted emissions (inexplicably omitted from filing) follows.
2. Maximum number of carriers is 120 (1.07 W/carrier).
3. Three-tone plots as follows:
  - Exhibit 9J - CDMA input signal 2.6 dBm
  - 9K - CDMA output 51.1 dBm
  - 9L - CDMA output 45.1 dBm
  - 9M - TDMA input signal 2.6 dBm
  - 9N - TDMA output 51.1 dBm
  - 9O - TDMA output 45.1 dBm
  - 9P - GSM input signal 2.6 dBm
  - 9Q - GSM output signal 51.1 dBm
  - 9R - GSM output signal 45.1 dBm

Originals follow by express mail for the file. Please call if you have any further questions.

Regards,

RSJ

TABLE 1

TRANSMITTER CONDUCTED SPURIOUS  
1980 MHz, 26 Vdc Input, 32 and 128 watts

	<u>Spurious Frequency MHz</u>	<u>dB Below Carrier Reference</u>
<u>128W</u>		
	3960.000	87
	5940.000	86
	7920.000	>85
	9900.000	>83
	11880.000	>82
	13860.000	>81
	15840.000	>82
	17820.000	>78
	19800.000	>78
	Required: $43+10\text{Log}(P)$	64

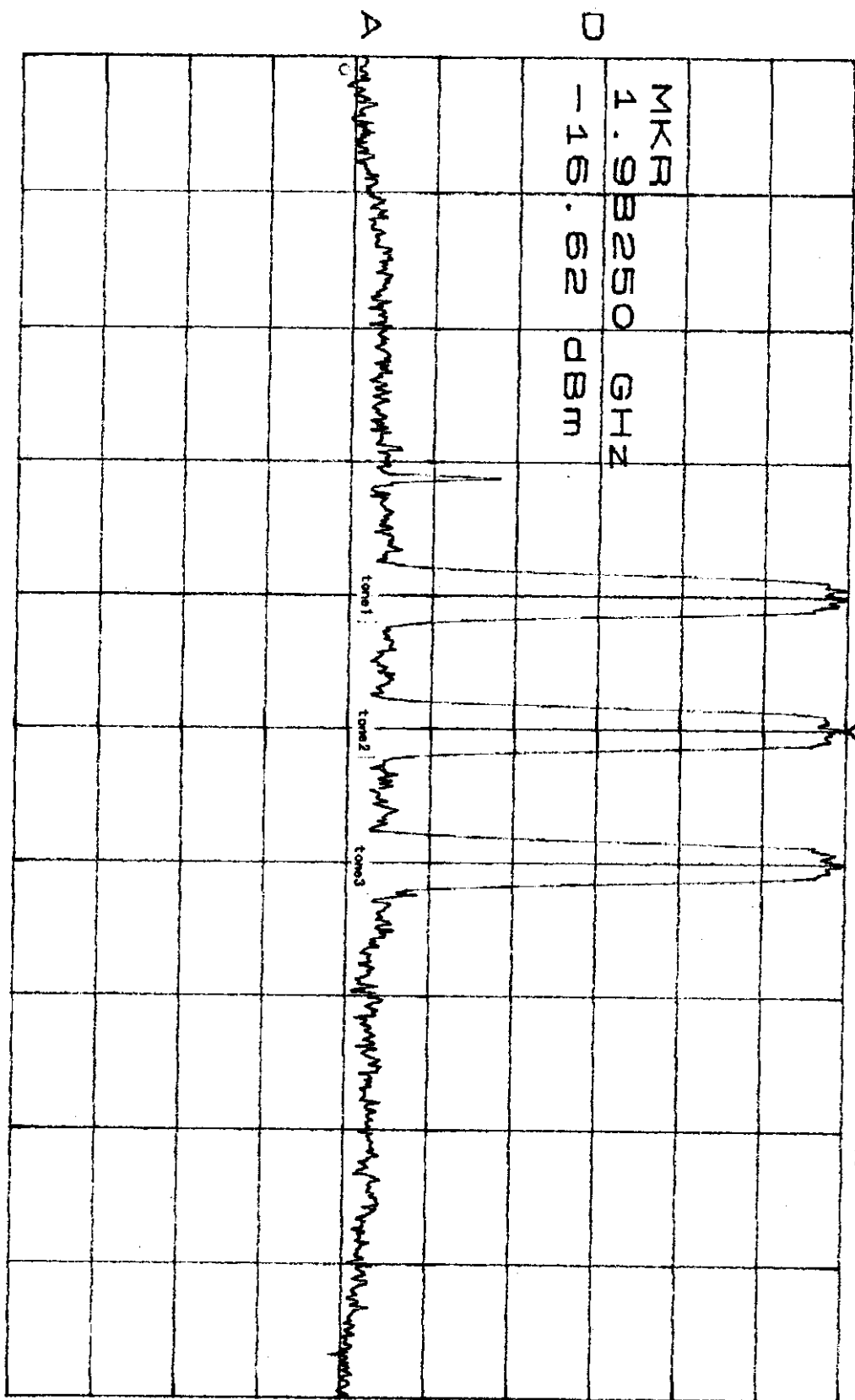
<u>32W</u>		
	3960.000	93
	5940.000	94
	7920.000	>91
	9900.000	>90
	11880.000	>88
	13860.000	>86
	15840.000	>86
	17820.000	>85
	19800.000	>82
	Required: $43+10\text{Log}(P)$	58

All other emissions from 10 MHz to the tenth harmonic were 20 dB or more below FCC limit.

NOTE: Carrier notch filter used to increase dynamic range.

\*ATTEN 20dB VAVG 25 MKR -16.62dBm  
 RL -16.6dBm 10dB/ 1.98250GHz

EXHIBIT 9J  
 FCC ID No. OXE JHU-1961



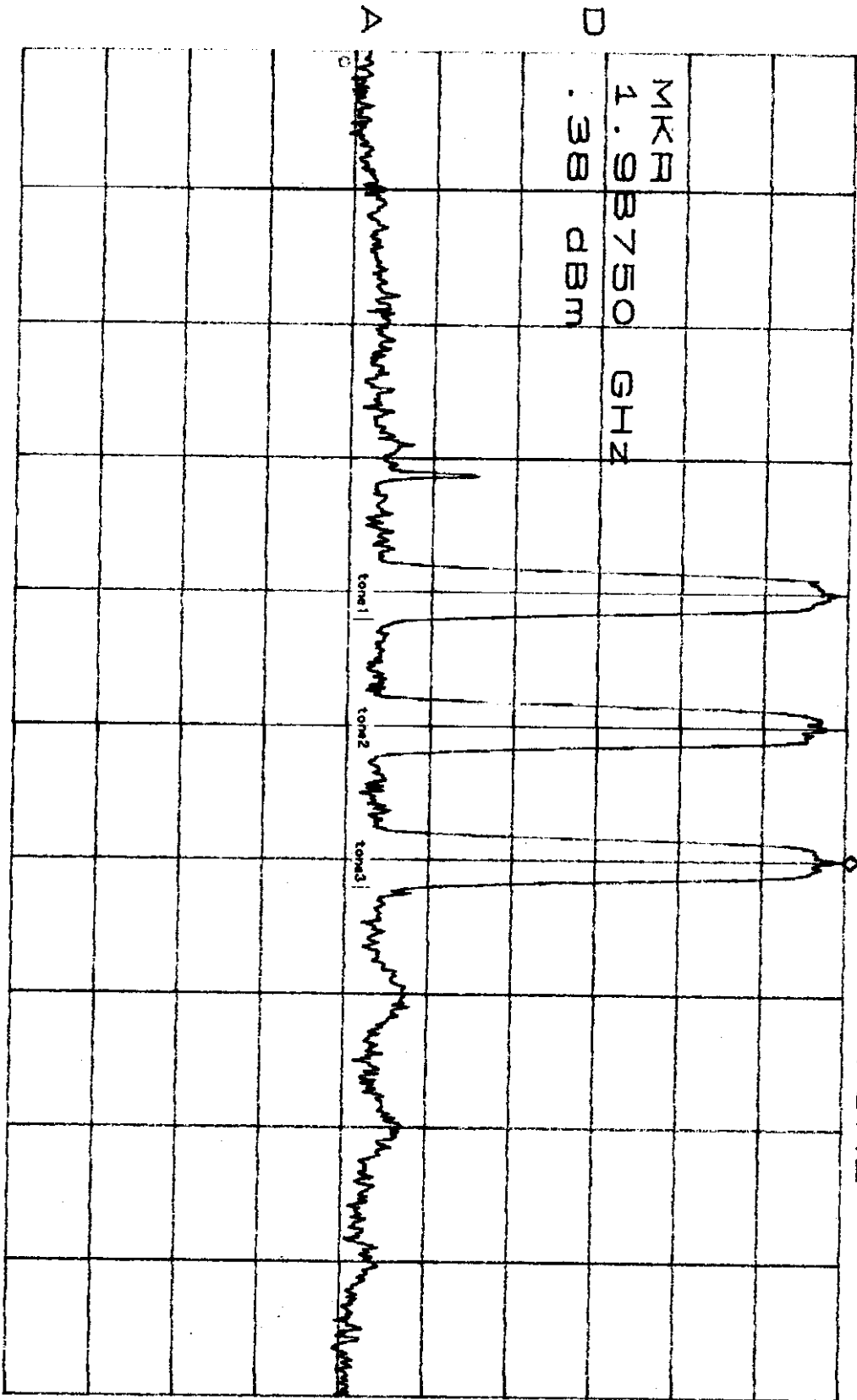
CENTER 1.98250GHz SPAN 50.00MHz  
 \*RBW 100kHz VBW 100kHz SWP 50.00ms

Figure 2-10 CDMA Source HP E2508A1

(note)  
 The signals exist on both sides of  
 the desired CDMA signals are spurious  
 coming from Signal Source

\*ATTEN 40DB VAVG 25 MKR .38DBM  
 RL .7DBM 10DB/ 1.98750GHZ

EXHIBIT 9K  
 FCC ID No. CKE JHU-1961

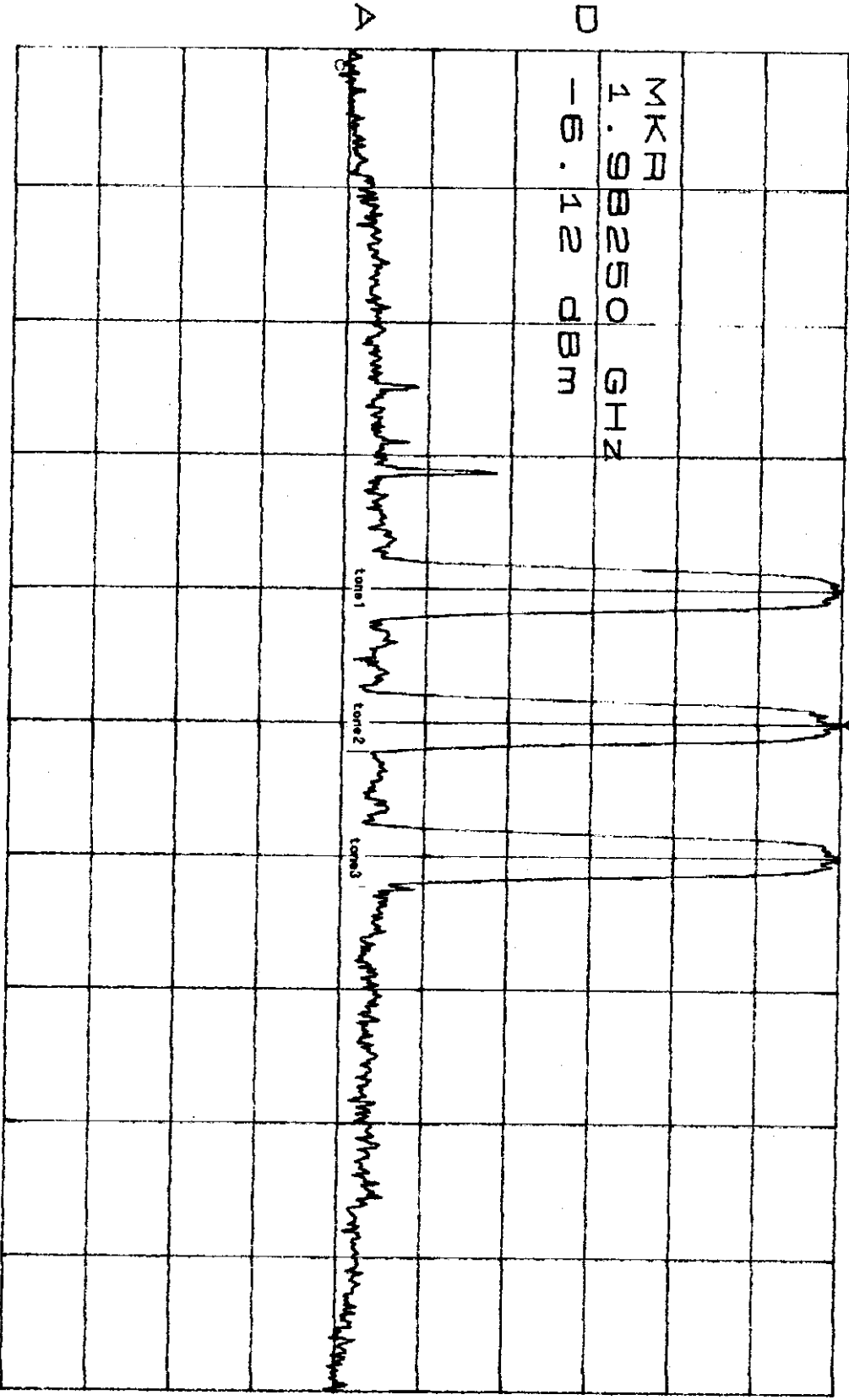


CENTER 1.98250GHZ SPAN 50.00MHZ  
 \*RBW 100KHZ VBW 100KHZ SWP 50.0MS

Figure 2-11 JRC JHU-1961 : Amplifier Output with CDMA Source

(note)  
 The signals exist on both sides of  
 the desired CDMA signals are spurious  
 coming from Signal Source

\*ATTEN 30DB VAVG 25 MKR -6.42DBM  
 RL -6.6DBM 10DB/ 1.98250GHZ



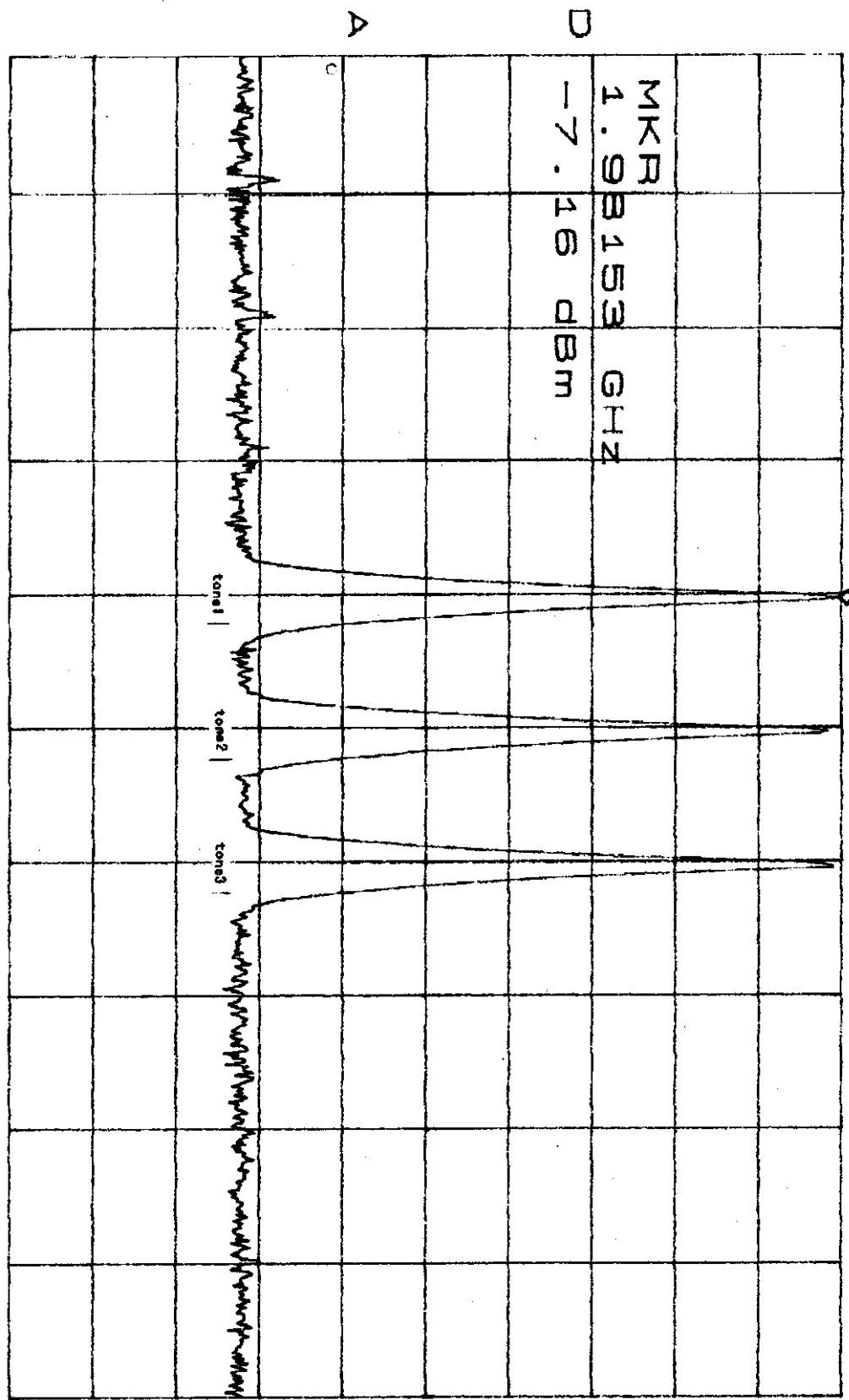
CENTER 1.98250GHZ SPAN 50.00MHZ  
 \*RBW 100KHZ VBW 100KHZ SWP 50.0MS

Figure 2-12 JRC JHU-1961 : Amplifier Output with CDMA Source

(note)  
 The signals exist on both sides of  
 the desired CDMA signals are spurious  
 coming from Signal Source

\*ATTEN 20dB VAVG 25 MKR -7.16dBm  
 PL -6.8dBm 10dB/ 1.98153GHZ

EXHIBIT 9M  
 FCC ID No. OKE JHU-1961



MKR  
 1.98153 GHz  
 D -7.16 dBm

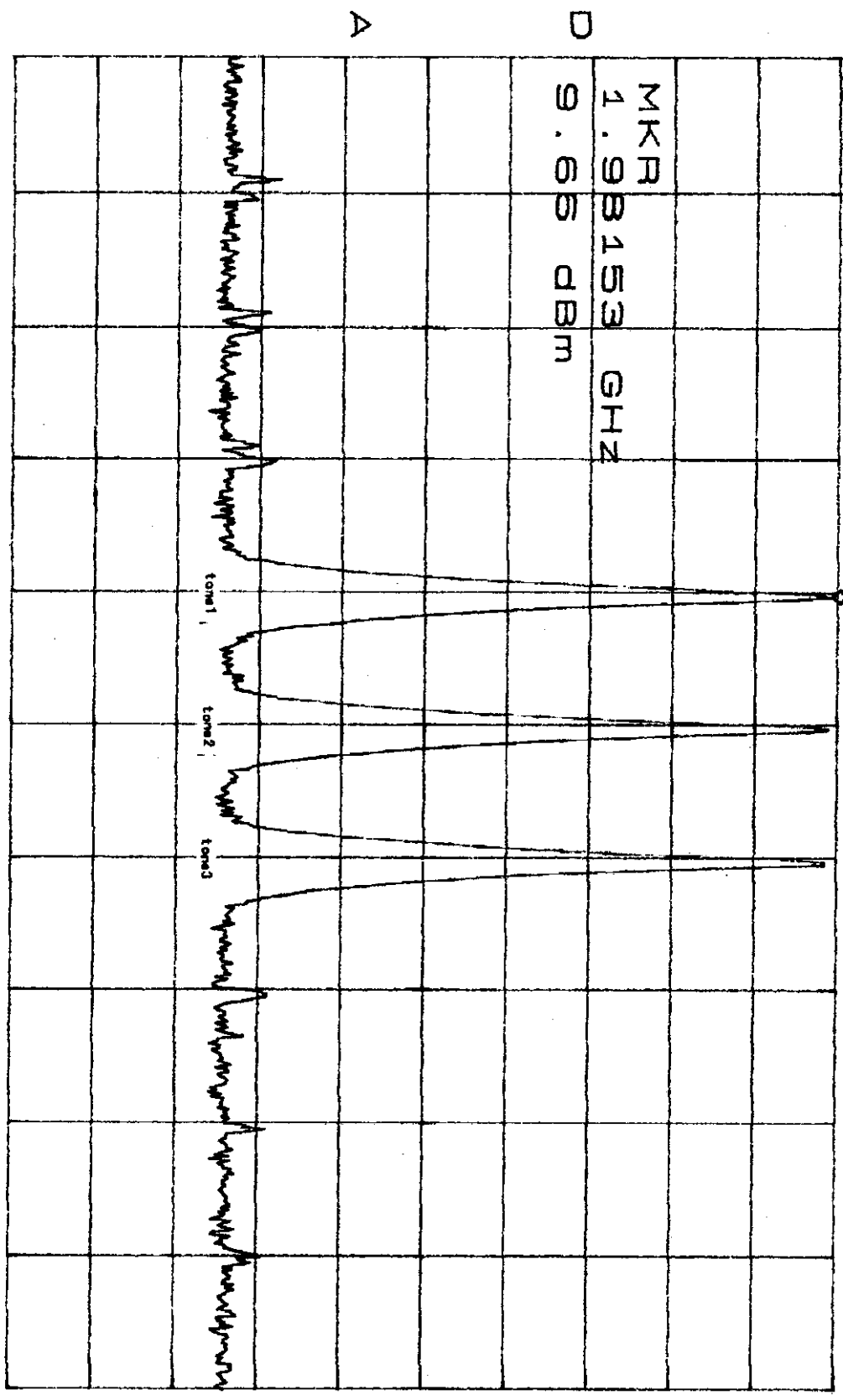
TDMA  
 P<sub>1Tone1</sub>=2.6dBm  
 f<sub>1</sub>=1981.5MHz  
 f<sub>2</sub>=1982.5MHz  
 f<sub>3</sub>=1983.5MHz  
 @25°C  
 3-1-1999

CENTER 1.98250GHZ SPAN 10.00MHZ  
 \*RBW 30KHZ VBW 30KHZ SWP 50.0MS

Figure 2-13 TDMA Source HP E2508A

\*ATTEN 30dB VAVG 25 MKR 9.66dBm  
 RL 10.3dBm 10dB/ 1.98153GHz

EXHIBIT 9N  
 FCC ID No. OKE JHU-1961

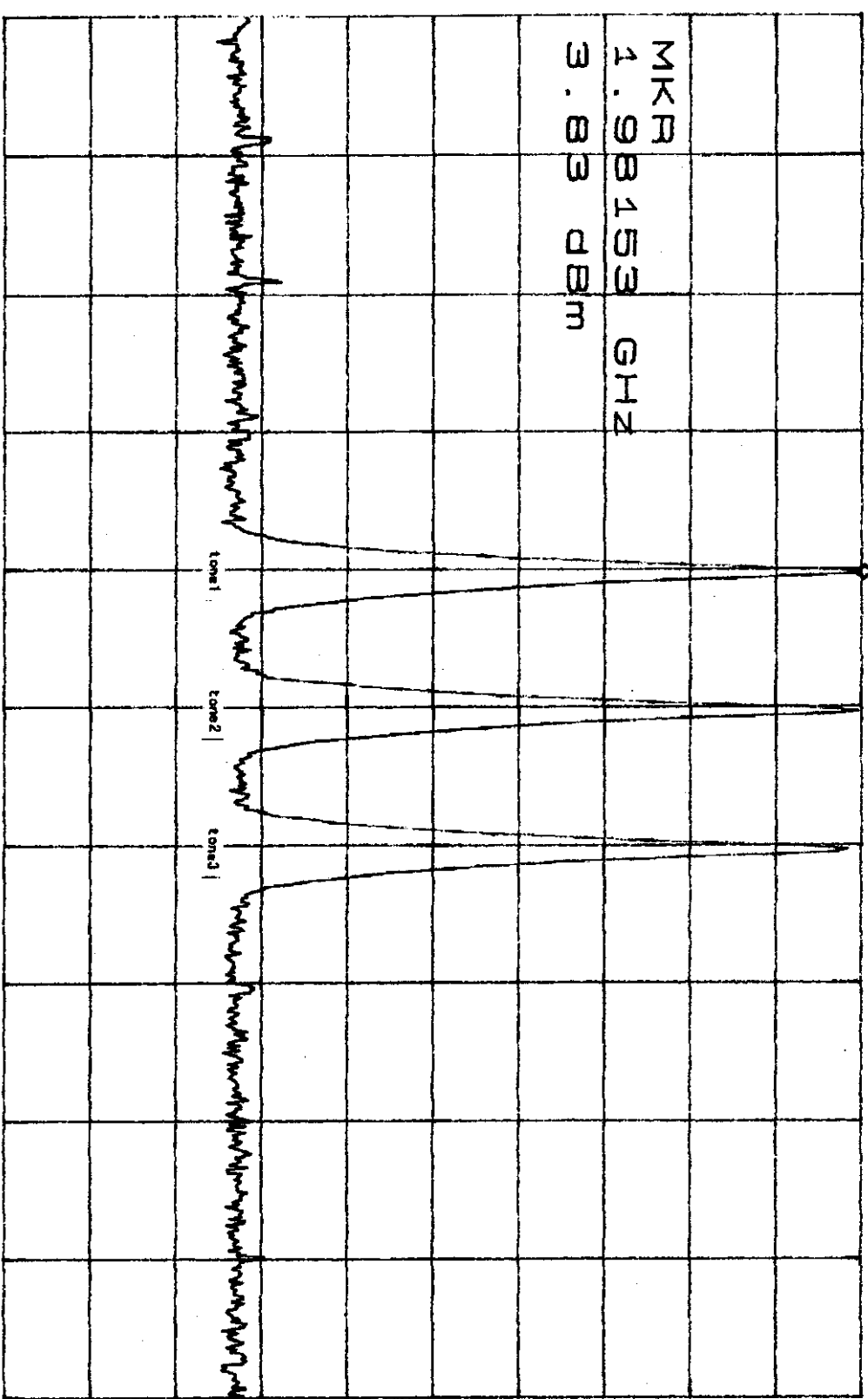


CENTER 1.98250GHZ SPAN 10.00MHZ  
 \*RBW 30KHZ VBW 30KHZ SWP 50.0ms

Figure 2-14 JRC JHU-1961 : Amplifier Output with TDMA Source

TDMA  
 Power=51.1dBm  
 f<sub>1</sub>=1981.5MHz  
 f<sub>2</sub>=1982.5MHz  
 f<sub>3</sub>=1983.5MHz  
 @25°C  
 I=94A (26V)  
 3-1-1999

\*ATTEN 30dB VAVG 25 MKR 3.83dBm  
 RL 4.5dBm 10dB/ 1.98153GHz



CENTER 1.98250GHz SPAN 10.00MHz  
 \*RBW 30kHz VBW 30kHz SWP 50.0ms

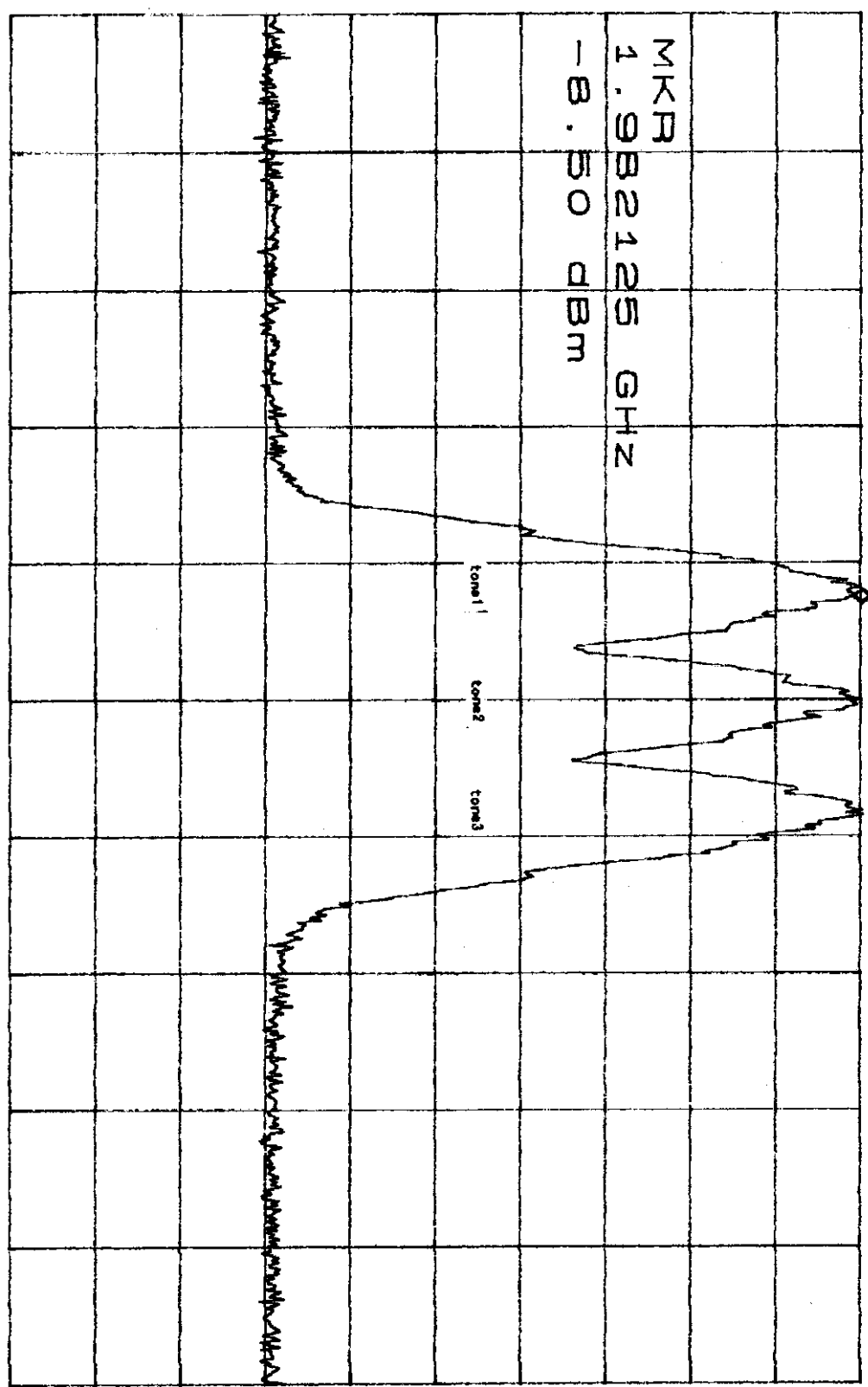
Figure 2-15 JRC JHU-1961 : Amplifier Output with TDMA Source

TDMA  
 Power=45.1dBm  
 f=1981.5MHz  
 f=1982.5MHz  
 f=1983.5MHz  
 @25°C  
 I=60A(26V)  
 3-1-1999

EXHIBIT 90  
 FCC ID No. GKE JHU-1961



\*ATTEN 20DB VAVG 25 MKR -8.50DBM  
 RL -7.7DBM 10DB/ 1.982125GHZ



CENTER 1.982500GHZ SPAN 5.000MHZ  
 RBW 30KHZ VBW 30KHZ SWP 50.0MS

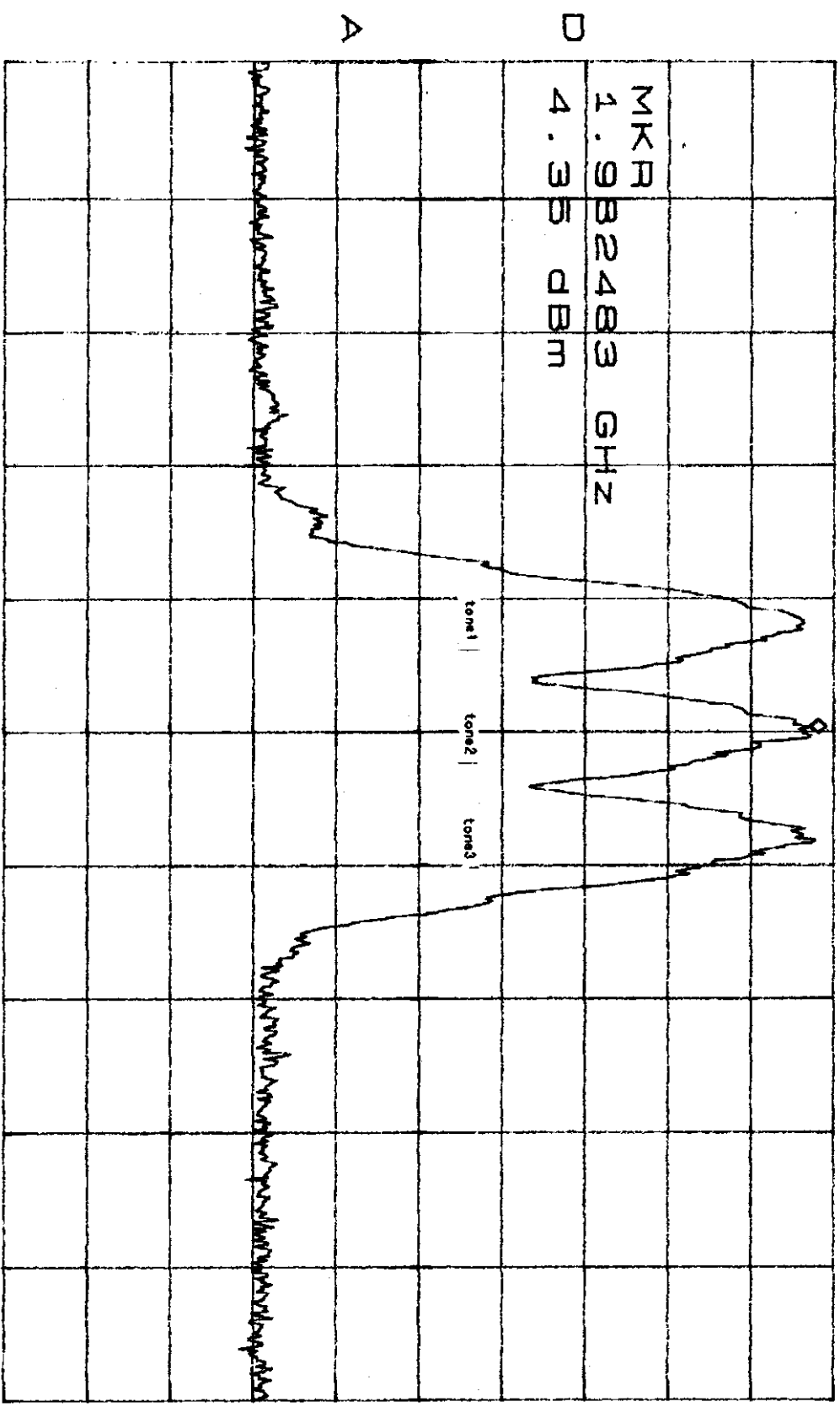
Figure 2-16 GSM Source HP E2508A

EXHIBIT 9P  
 FCC ID No. OKE JHU-1961

GSM  
 P<sub>1</sub> (near) = 2.6dBm  
 f<sub>1</sub> = 1982.1MHz  
 f<sub>2</sub> = 1982.5MHz  
 f<sub>3</sub> = 1982.9MHz  
 025°C  
 3-1-1999

\*ATTEN 40DB VAVG 25 MKR 4.35DBM  
 RL 7.2DBM 10DB/ 1.982483GHZ

EXHIBIT 90  
 FCC ID No. OXE JHU-1961



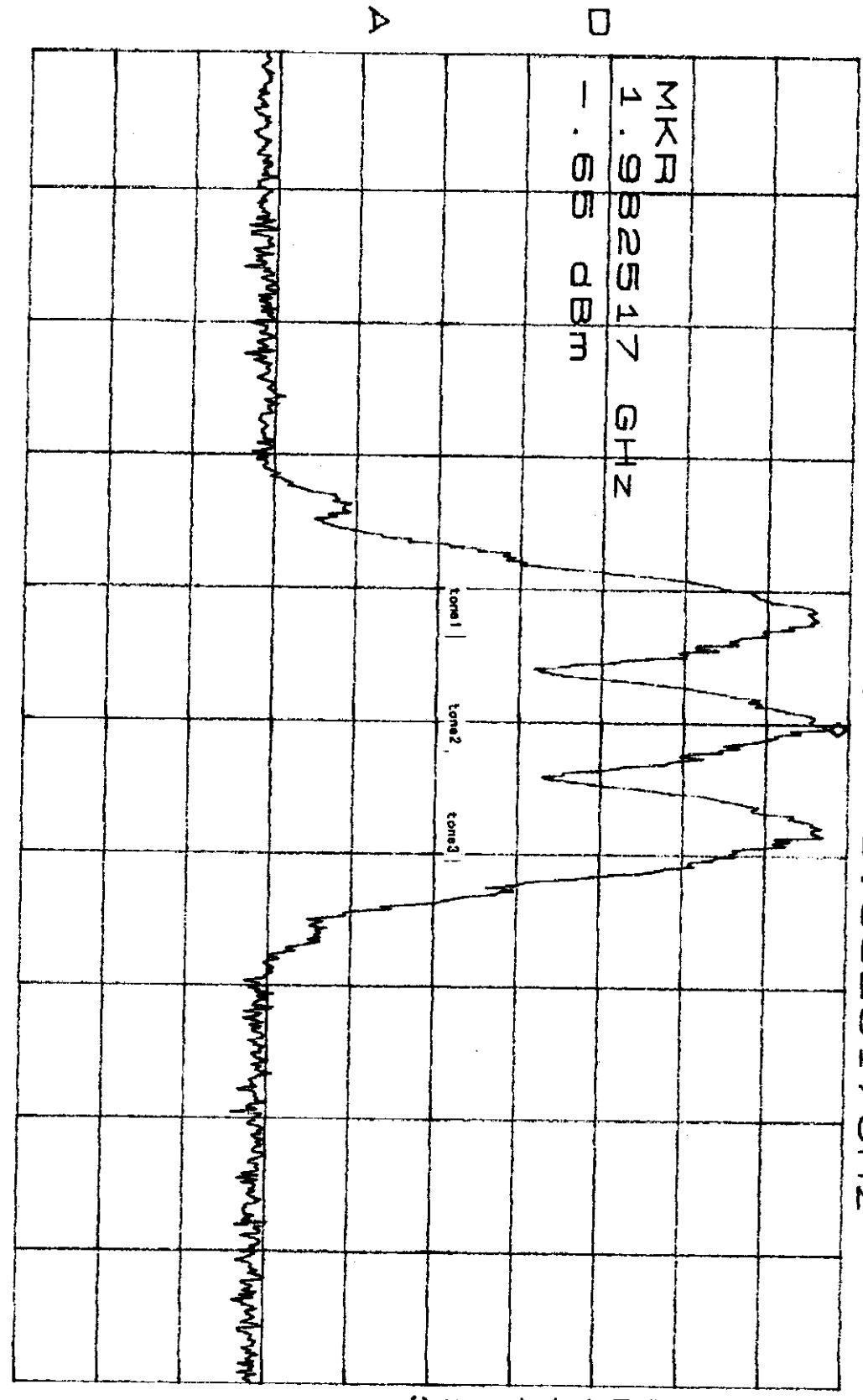
CENTER 1.982500GHZ SPAN 5.000MHZ  
 \*RBW 30KHZ VBW 30KHZ SWP 50.0MS

Figure 2-17 JRC JHU-1961 : Amplifier Output with GSM Source

GSM  
 P<sub>total</sub>=51.1dBm  
 f<sub>1</sub>=1982.1MHz  
 f<sub>2</sub>=1982.5MHz  
 f<sub>3</sub>=1982.9MHz  
 @25°C  
 I=94A (26V)  
 3-1-1999

\*ATTEN 30dB VAVG 25 MKR - .65dBm  
 RL 1.7dBm 10dB/ 1.982517GHz

EXHIBIT 9R  
 FCC ID No. OKE JHU-1961



GSM  
 P<sub>max</sub> = 45.1 dBm  
 f<sub>1</sub> = 1982.1 MHz  
 f<sub>2</sub> = 1982.5 MHz  
 f<sub>s</sub> = 1982.9 MHz  
 @25°C  
 I = 60A (26V)  
 3-1-1999

CENTER 1.982500GHz SPAN 5.000MHz  
 \*RBW 30kHz VBW 30kHz SWP 50.0ms

Figure 2-18 JRC JHU-1961 : Amplifier Output with GSM Source