B. GENERAL INFORMATION REQUIRED FOR TYPE ACCEPTANCE (cont'd)

k. A description of circuits and devices employed for suppression of spurious radiation in Appendix 8.
l. Not applicable.

5. Data for 2.985 through 2.997 follow this section.

C. RF POWER OUTPUT (Paragraph 2.985(a) of the Rules)

RF power output was measured with a HP 432A/HP478A RF power meter and a Bird 8325 attenuator as a 50 ohm dummy load. Maximum power measured was 128 watts; minimum power was 32 watts. (The amplifier was tuned by the factory according to the procedure of Exhibit 4.) Power output did not change as a function of modulation format.

D. MODULATION CHARACTERISTICS

The JHU-1961 amplifier modulation linearity was tested under several formats, including TDMA, CDMA and GSM.

TDMA, CDMA, and GSM signal source was an HP E2508A Multi-format Communications System Simulator (MCSS).

Resolution, span, center frequency and other bandwidth, analyzer parameters are printed on the plots.

Summary of plots:

Fig. 1-1 1.980 GHz CDMA source, (green pen) (2.6 dBm).
Fig. 1-3 1.980 GHz CDMA output (red pen) 128 W.
Fig. 1-5 1.980 GHz CDMA output (red pen) 32 W.
Fig. 1-7 1.982 GHz TDMA source (green pen) (2.6 dBm).
Fig. 1-9 1.982 GHz TDMA output (red pen) 128 W.
Fig. 1-11 1.982 GHz TDMA output (red pen) 25 W.
Fig. 1-13 1.982 GHz GSM source (green pen) (2.6 dBm).
Fig. 1-15 1.982 GHz GSM output (red pen) 128 W.
Fig. 1-17 1.982 GHz GSM output (red pen) 32 W.

EXHIBIT 8A
FCC ID No. CKE JHU-1961

CDMA
Pin Total=2.6 dBm

f_1=1980 MHz
@25 ℃
11-11-98

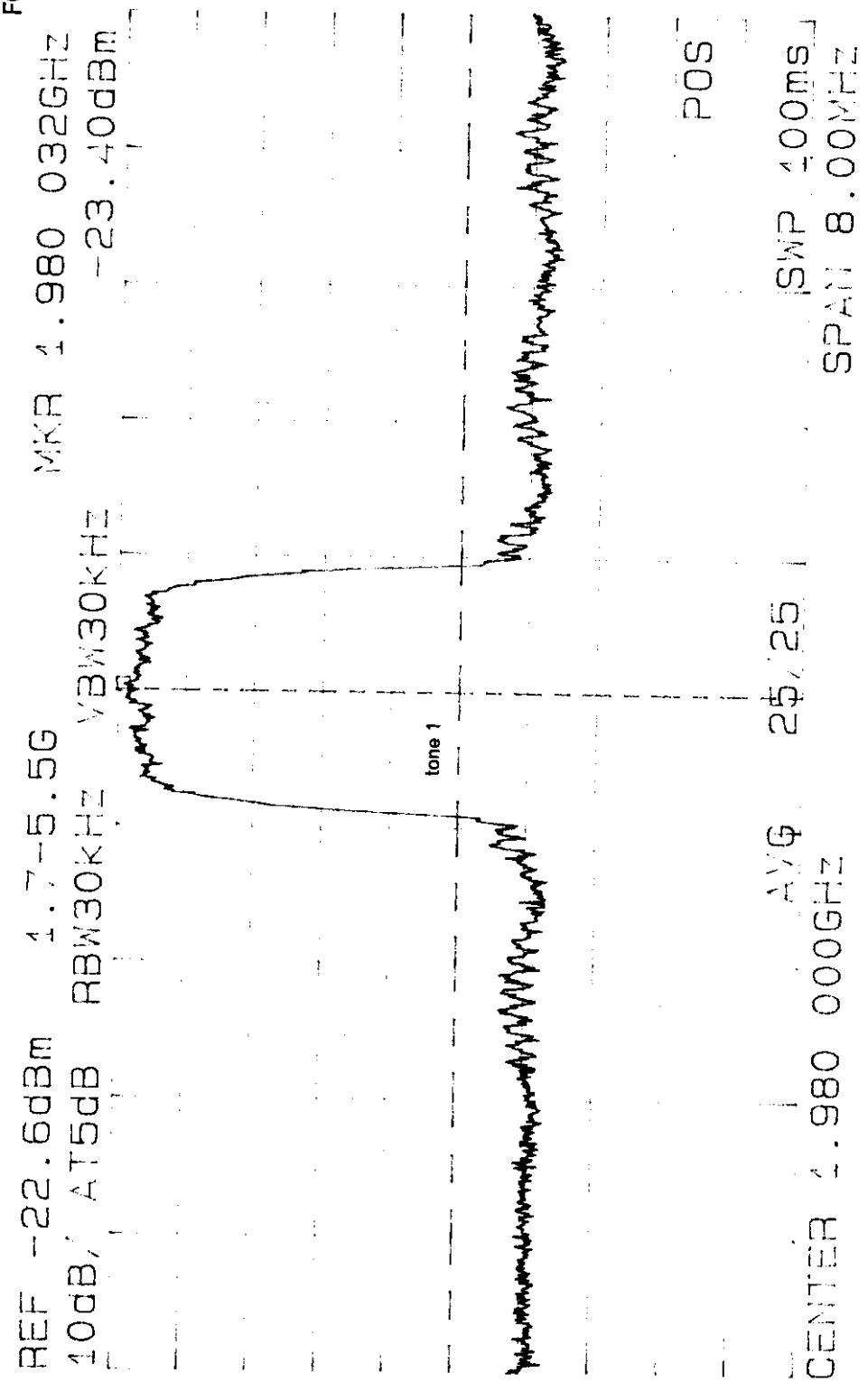


Figure 1-1 CDMA Source HP E2508A

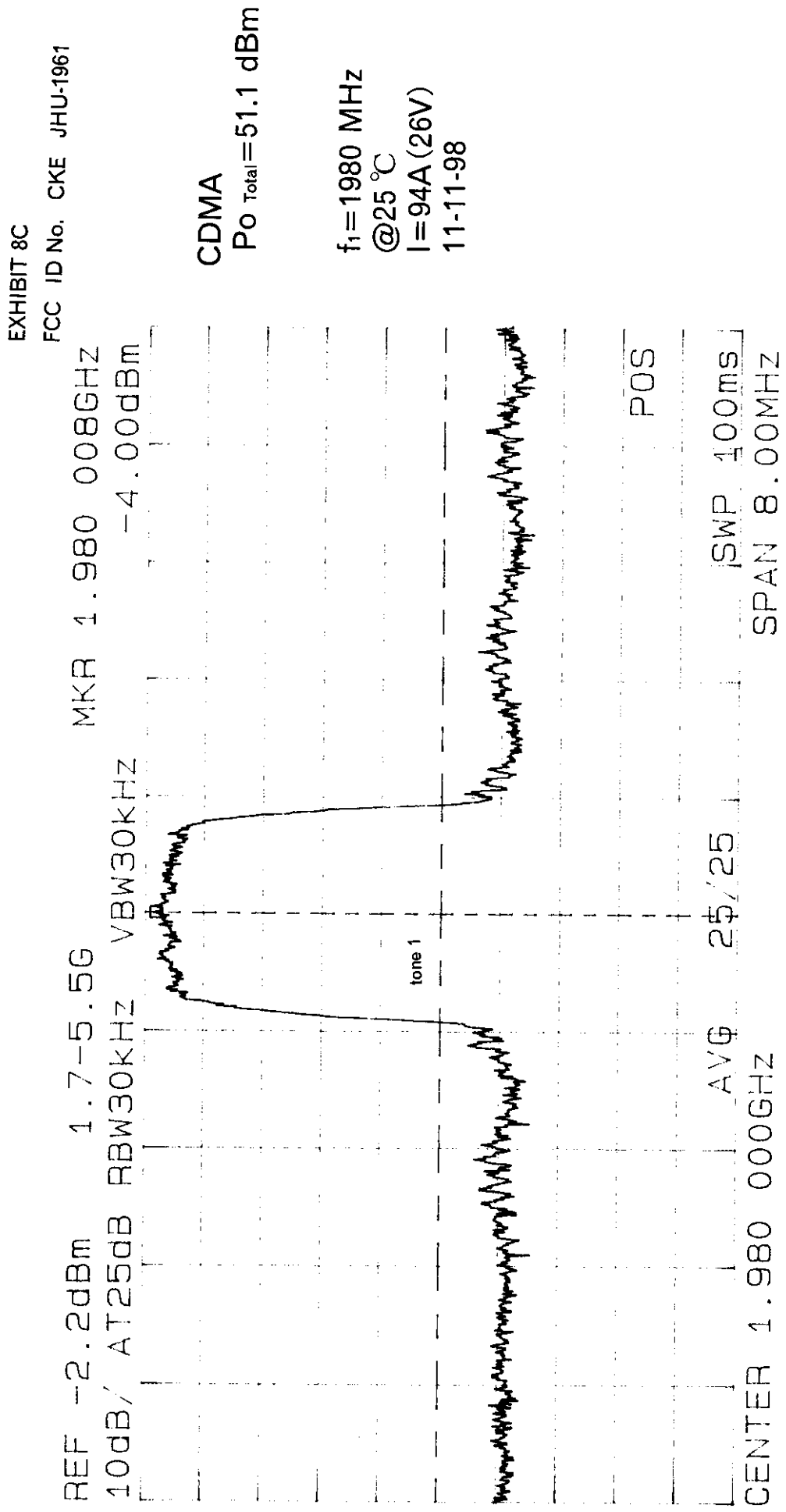


Figure 1-3 J R C JHU-1961: Amplifier Output with CDMA Source

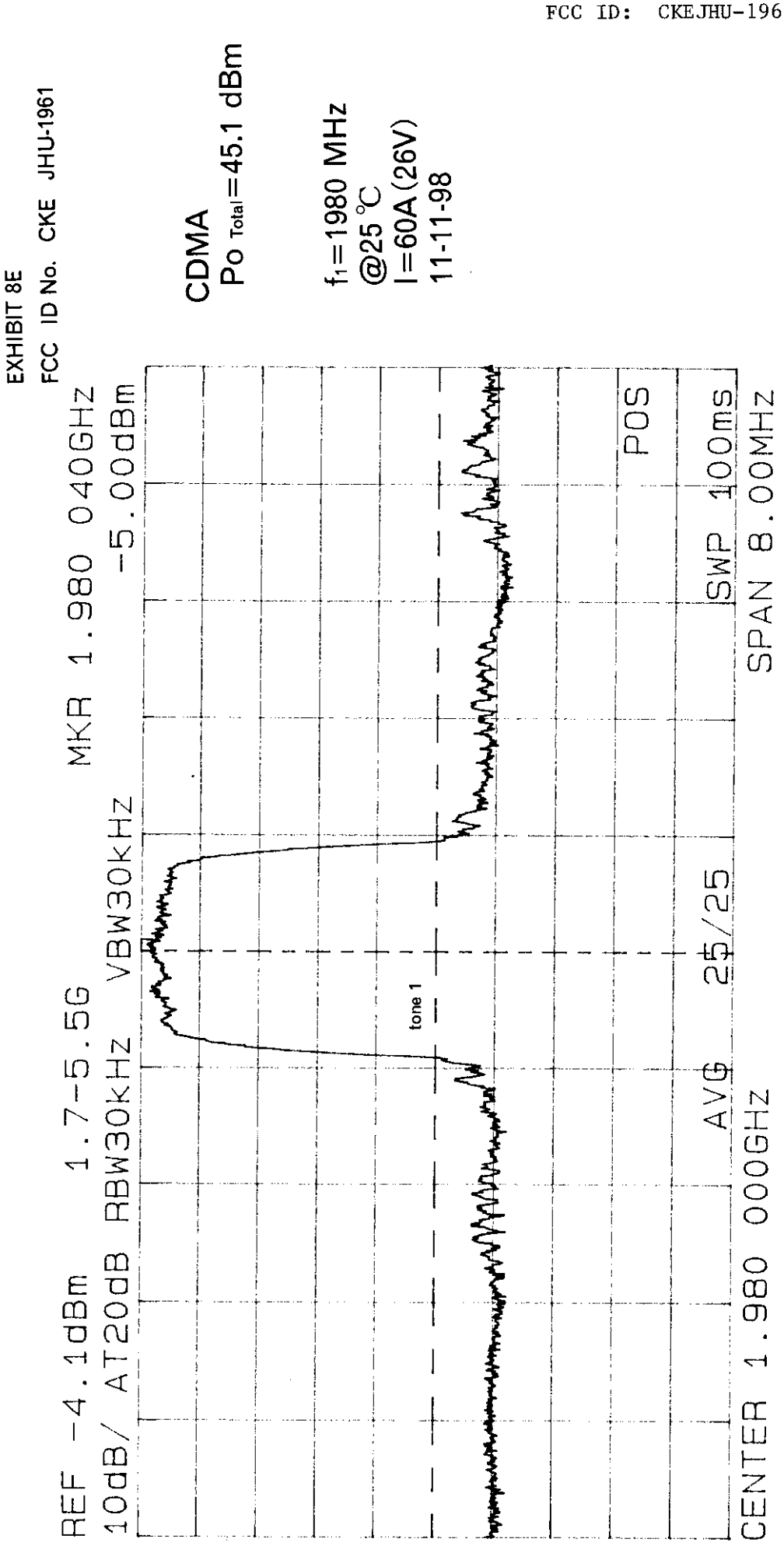
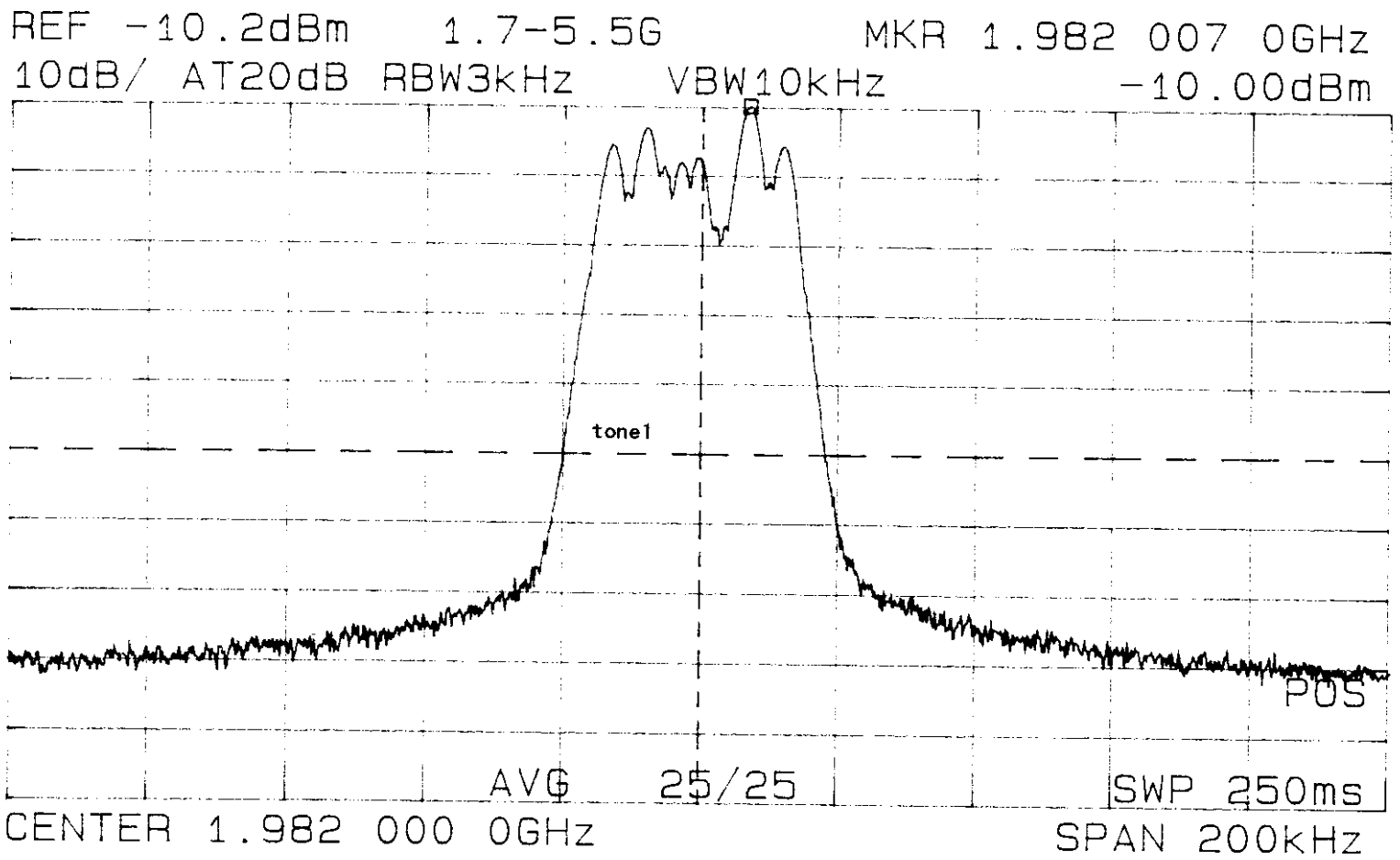


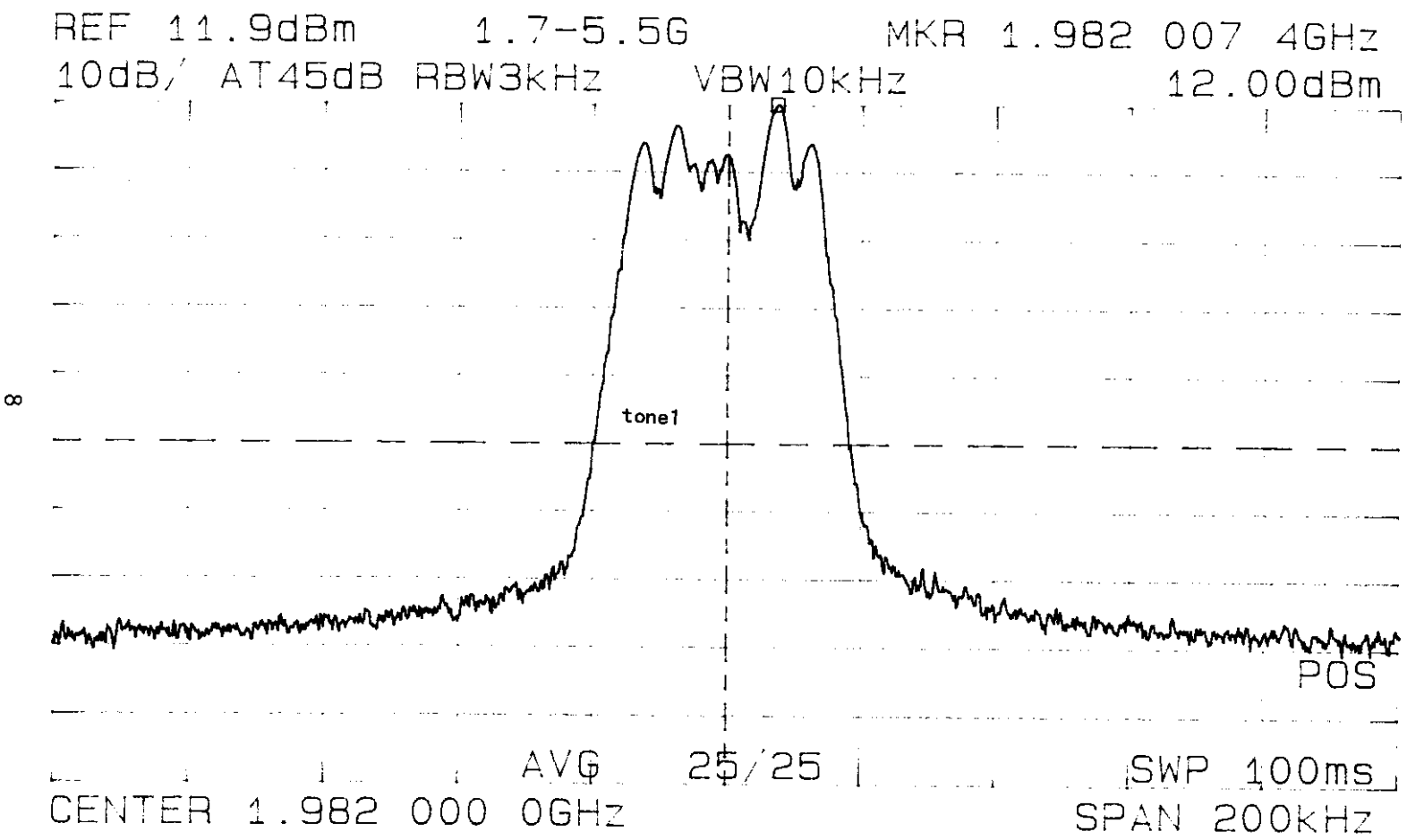
Figure 1-5 J R C JHU-1961: Amplifier Output with CDMA Source



TDMA
Pin $_{Total}$=2.6 dBm

f_1=1982 MHz
@25 ℃
11-11-98

Figure 1-7 TDMA Source HP E2508A



TDMA
Po Total=51.1 dBm

f_1=1982 MHz
@25 ℃
I=94A(26V)
11-11-98

FCC ID: CKEJHU-1961

Figure 1-9 J R C JHU-1961: Amplifier Output with TDMA Source

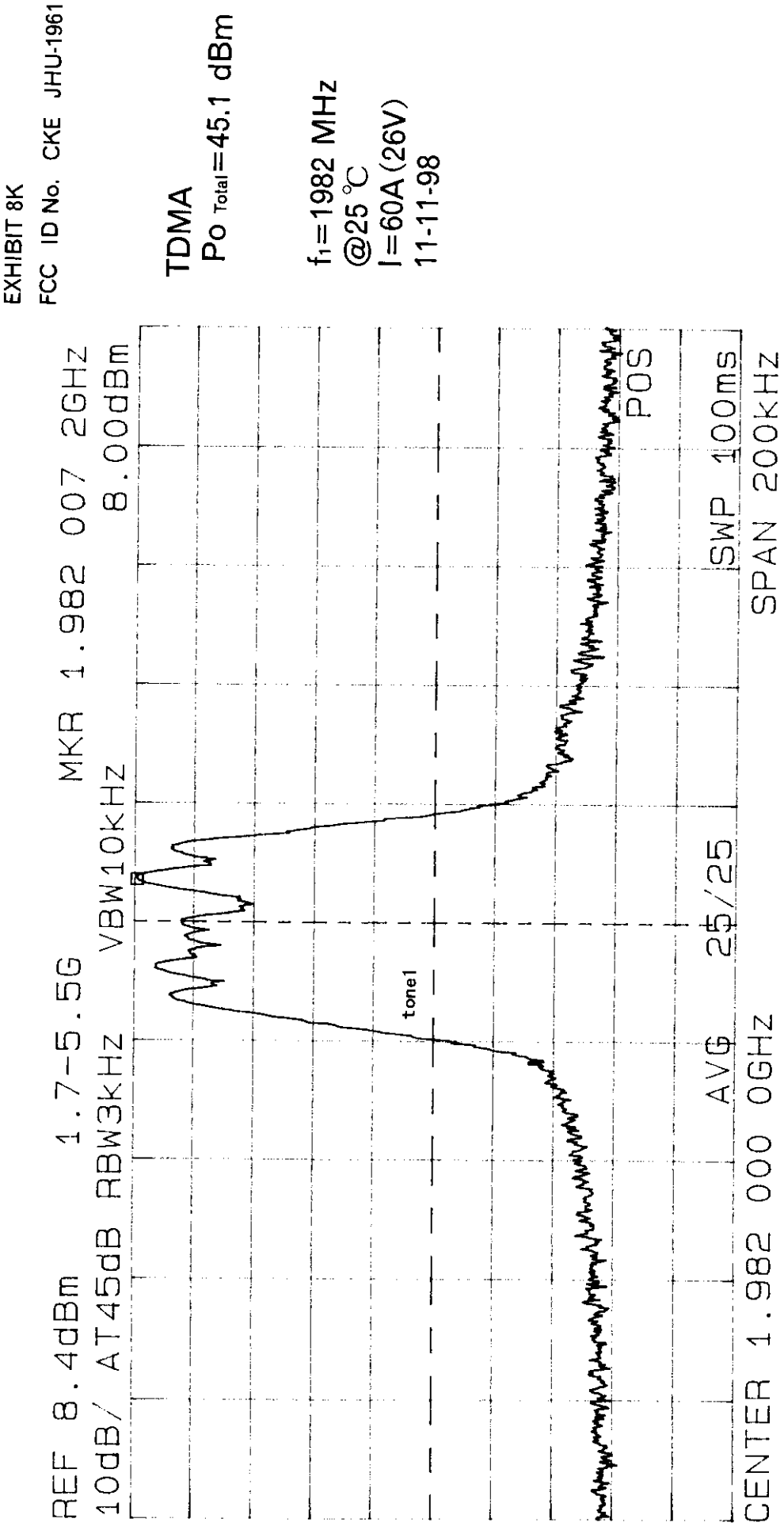
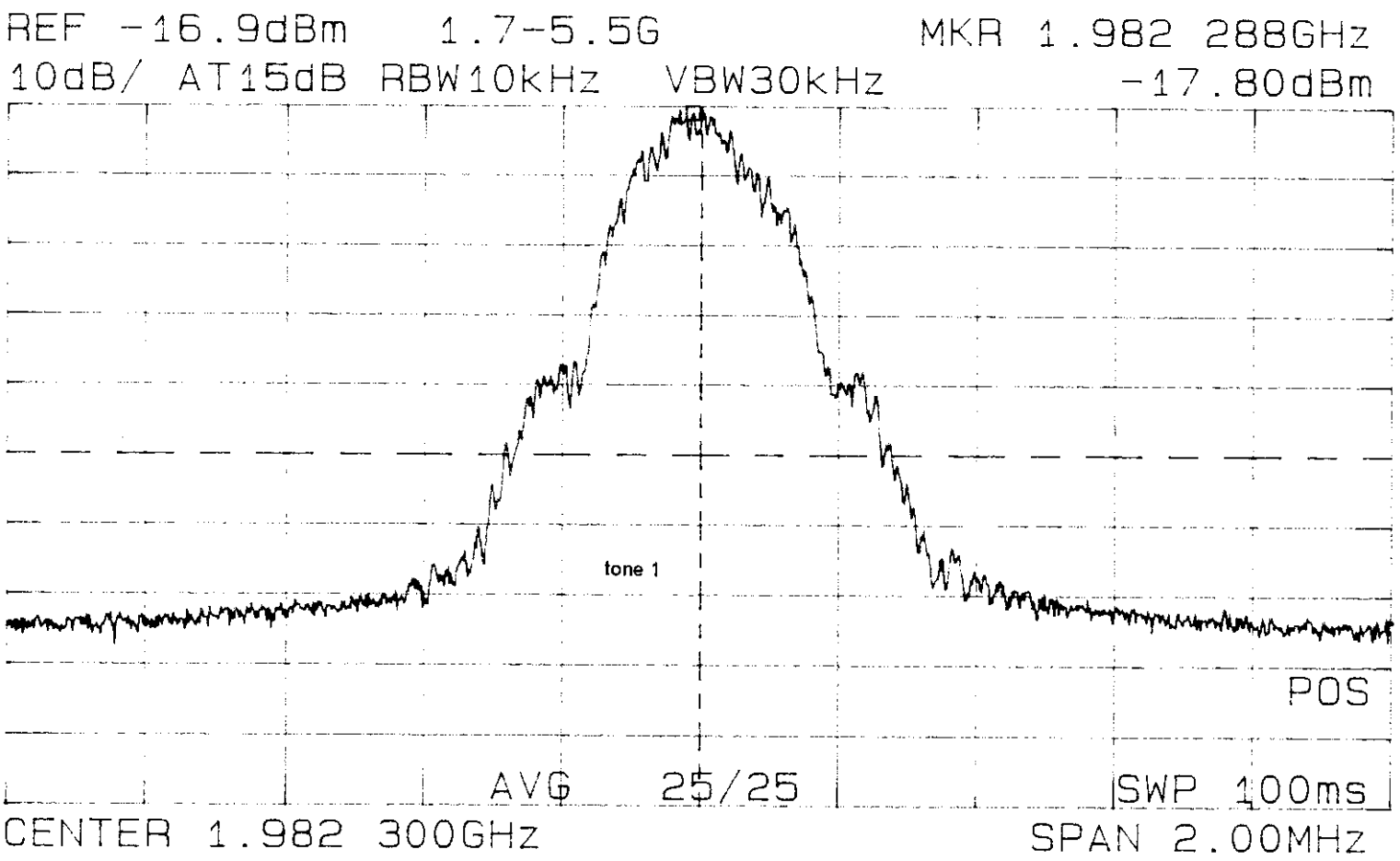


Figure 1-11 J R C JHU-1961: Amplifier Output with TDMA Source

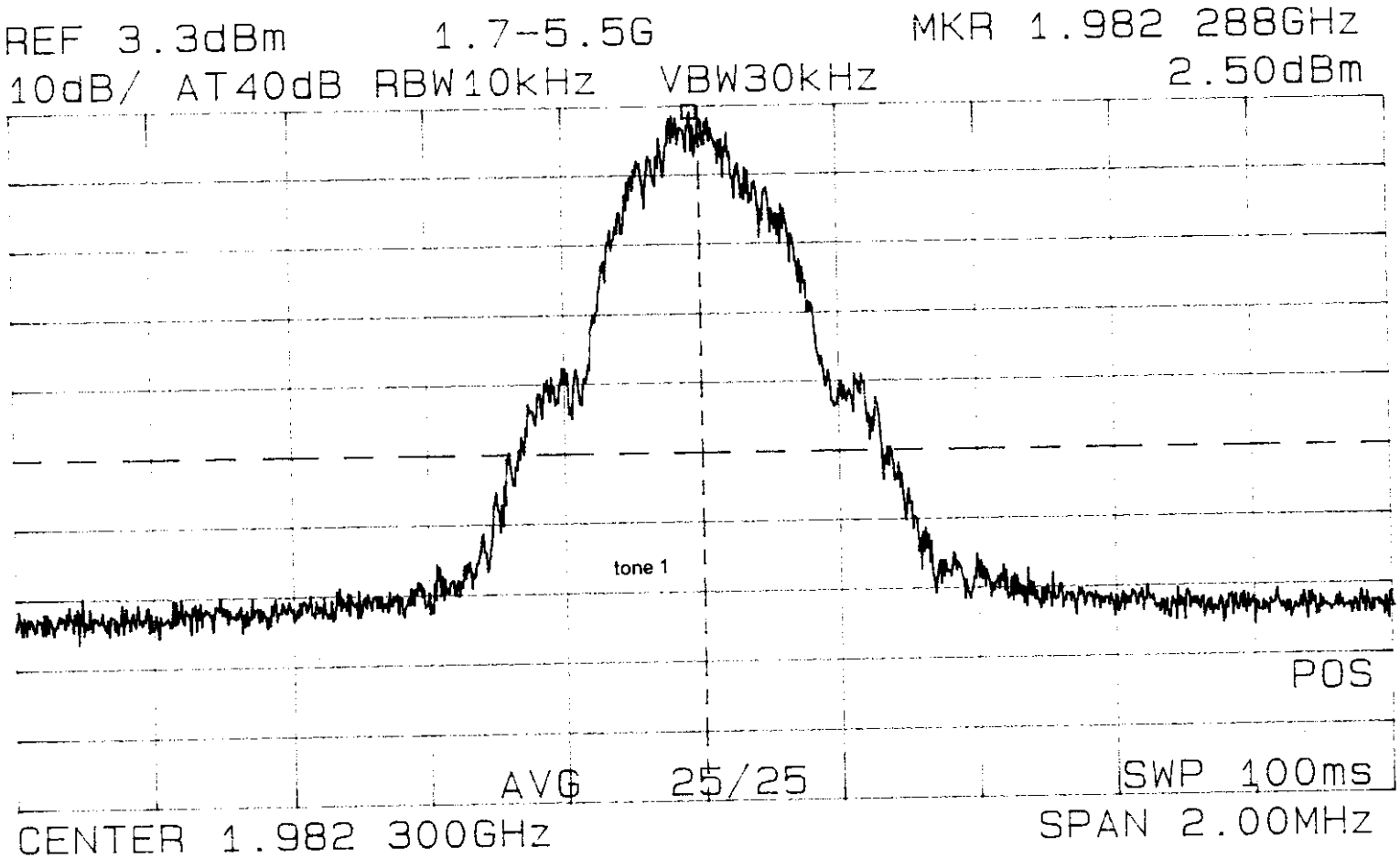


GSM
Pin $_{Total}$=2.6 dBm

f_1=1982.3 MHz
@25 ℃
11-11-98

Figure 1-13 GSM Source HP E2508A

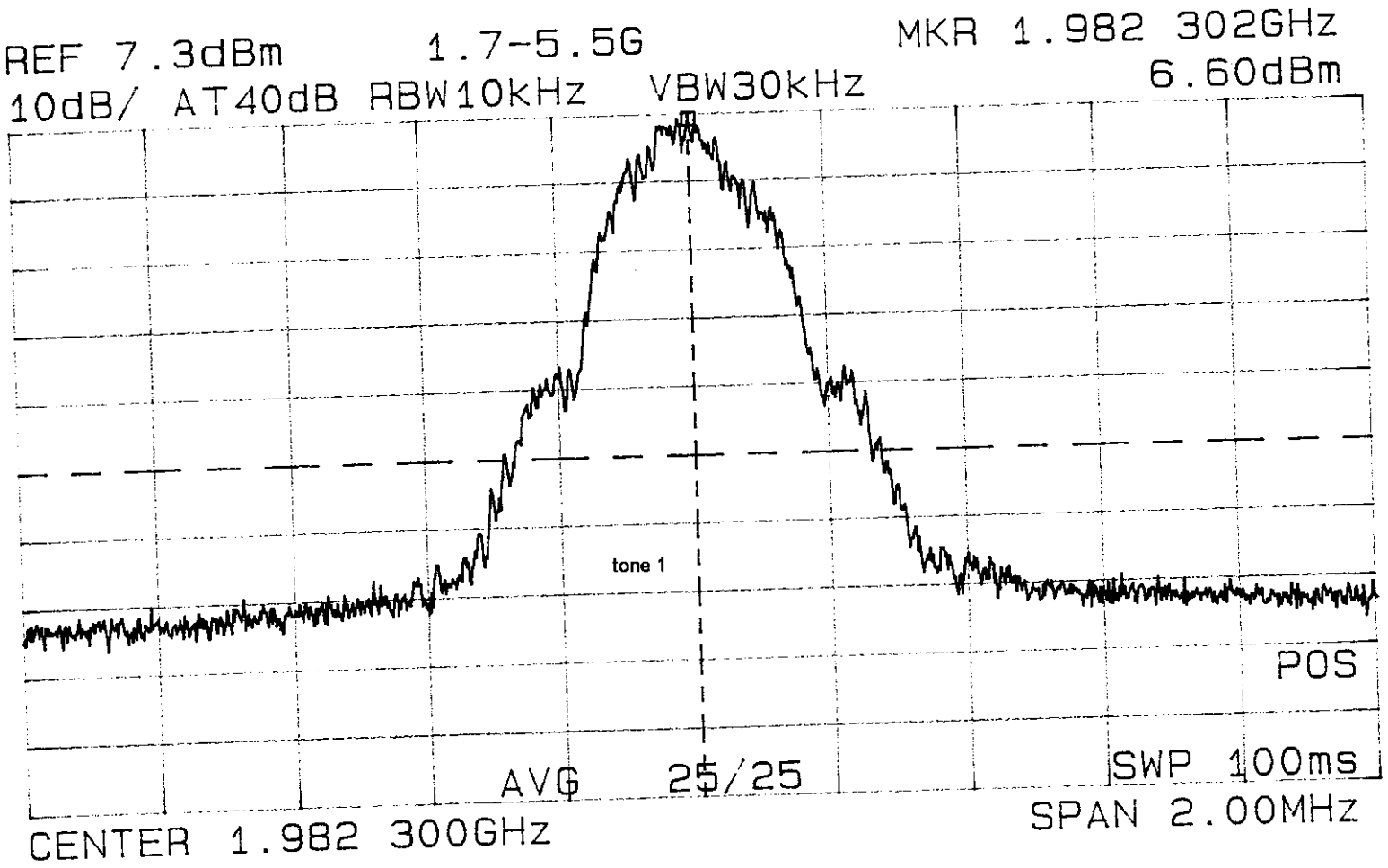
EXHIBIT 8O
FCC ID No. CKE JHU-1961



GSM
Pout $_{Total}$=51.1 dBm

f_1=1982.3 MHz
@25 ℃
I=94A(26V)
11-11-98

Figure 1-15 J R C JHU-1961: Amplifier Output with GSM Source



GSM
Pout $_{Total}$=45.1 dBm

f_1=1982.3 MHz
@25 ℃
I=60A(26V)
11-11-98

Figure 1-17 J R C JHU-1961: Amplifier Output with GSM Source

E. SPURIOUS EMISSIONS AT THE ANTENNA TERMINALS (Paragraph 2.991 of the Rules)

The JHU-1961 amplifier was tested for spurious emissions at the antenna terminals while the equipment was modulated with CDMA, TDMA, or GSM signals at 2.6 dBm.

No significant variation in spurious attenuation was noted.

Measurements were made with Tektronix 494P spectrum analyzer coupled to the transmitter output terminal through a Bird 8325 power attenuator. A notch filter was used to attenuate the carrier.

During the tests, the transmitter was terminated in the 50 ohm attenuator, dc supply was 26 volts throughout the tests.

Spurious emissions were measured at 25 and 75 watts output throughout the RF spectrum from 10 to the tenth harmonic of the carrier.

Any emissions that were between the required attenuation and the noise floor of the spectrum analyzer were recorded. Data are shown in Table 1.

F. DESCRIPTION OF RADIATED SPURIOUS MEASUREMENT FACILITIES

A description of the Hyak Laboratories' radiation test facility is a matter of record with the FCC. The facility was accepted for radiation measurements from 25 to 1000 MHz on October 1, 1976 and is currently listed as an accepted site.

F. FIELD STRENGTH MEASUREMENTS (Continued)

The measurement system was capable of detecting signals 66 dB or more below the reference level. Measurements were made from 10 MHz to 10 times operating frequency. Data after application of antenna factors and line loss corrections are shown in Table 2.

TABLE 2

TRANSMITTER CABINET RADIATED SPURIOUS

1980.00 MHz, 26 Vdc, 128 watts

Spurious Frequency MHz	dB Below Carrier Reference[1]
3960.000	76H
5940.000	72H*
7920.000	>96**
9900.000	>95**
11880.000	>97**
13860.000	>91**
15840.000	>91**
17820.000	>84**
19800.000	>73**

Required: 43+10Log(P) = 64

[1]Worst-case polarization, H-Horizontal, V-Vertical.

* Reference data only, more than 20 dB below FCC limit.

** Measuring system noise floor.

Frequencies > 4 GHz measured at 1 m, extrapolated to 3m.

All other spurious from 10 MHz to 19.6 GHz were 20 dB or more below FCC limit.

A. INTRODUCTION

The following data are submitted in connection with this request for Certification of the JHU-1961 amplifier in accordance with Part 2, Subpart J of the FCC Rules.

The JHU-1961 is the final amplification stage of a PCS base station. RF input is obtained from external transmitters. The amplifier system produces 32 - 128 watts of output power.

B. GENERAL INFORMATION REQUIRED FOR TYPE ACCEPTANCE (Paragraph 2.983 of the Rules)

1. Name of applicant: Japan Radio Co., Ltd.

2. Identification of equipment: CKEJHU-1961

   a. The equipment identification label is shown in Appendix 1.

   b. Photographs of the equipment are included in Appendix 2.

3. Quantity production is planned.

4. Technical description:

   a. FAW, DXW, GXW, (CDMA/TDMA/GSM) emission.
   b. Frequency range: 1930-1990 MHz.
   c. Operating power of amplifier is fixed at the factory at 128 watts and can be reduced to 32 watts.
   d. The JHU-1961 fully complies with applicable power limits under Part 24.
   e. The dc voltage and dc currents at each final amplifier: (Total of 4)

      Collector voltage: 13.0 Vdc
      Collector current: 26.0 A

   f. Function of each active semiconductor device: See Appendix 3.
   g. Complete circuit diagram is included in Appendix 4.
   h. A draft instruction book is submitted as Appendix 5.
   i. The transmitter tune-up procedure is included in Appendix 6.
   j. A description of circuits for stabilizing frequency is included in Appendix 7.