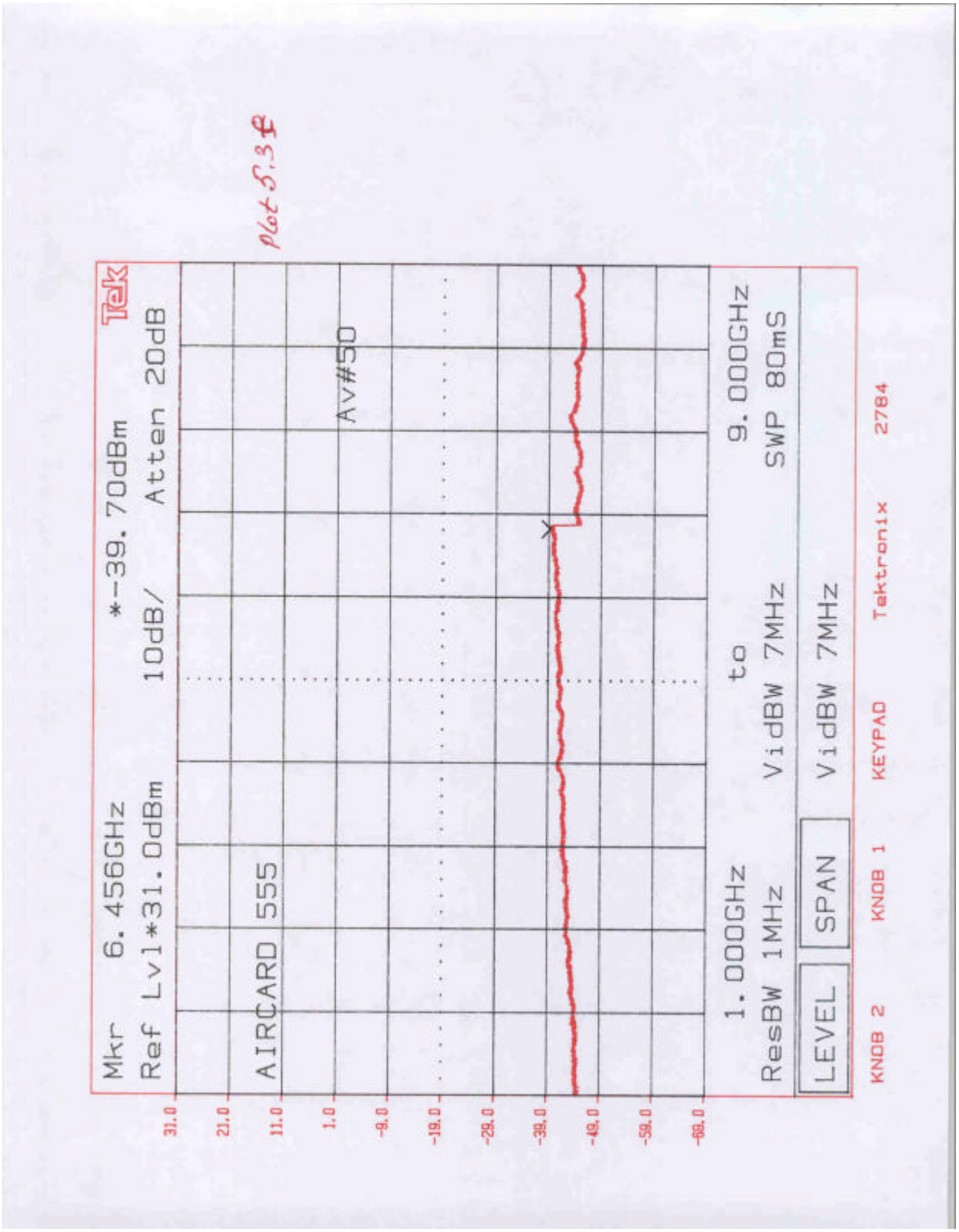
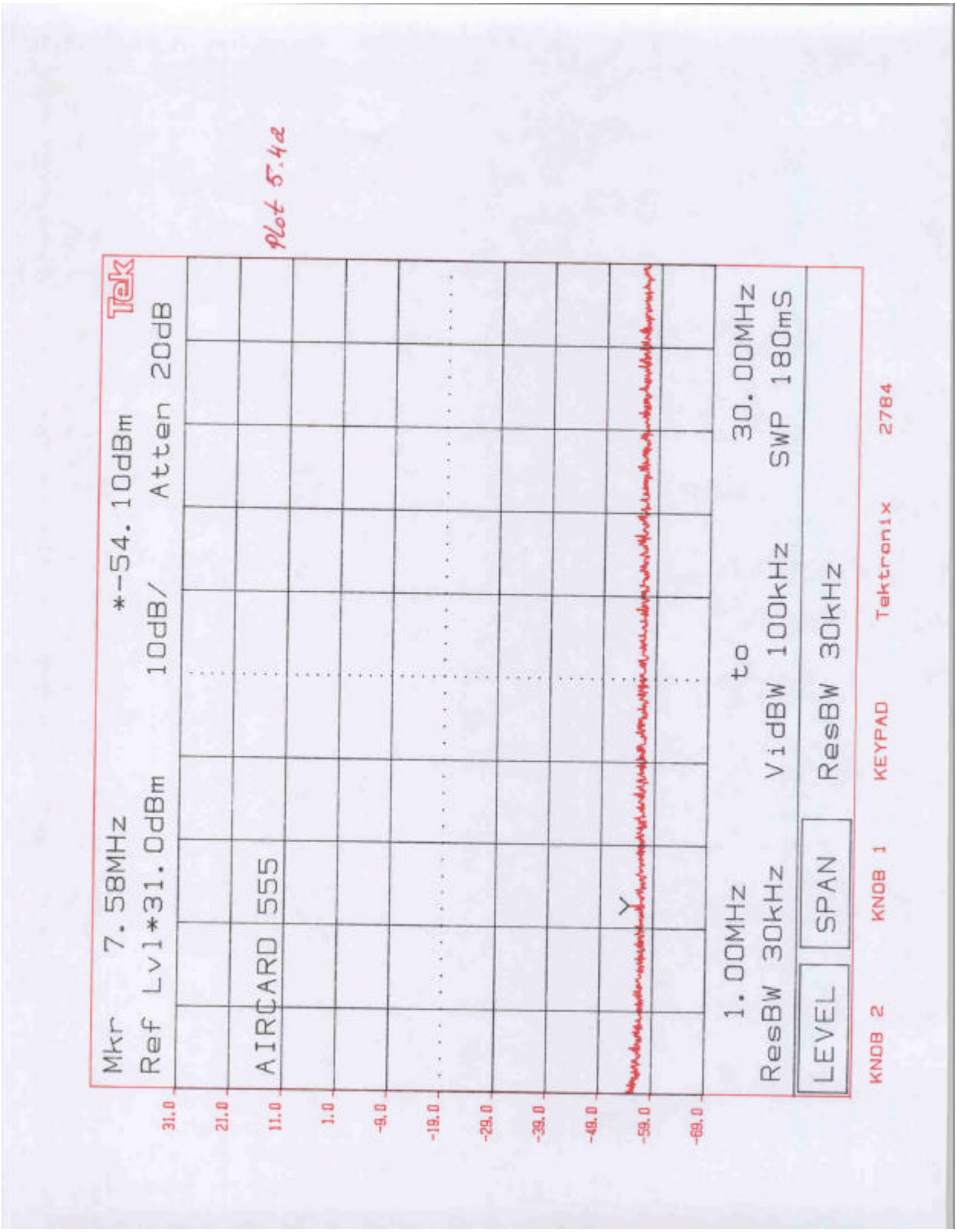
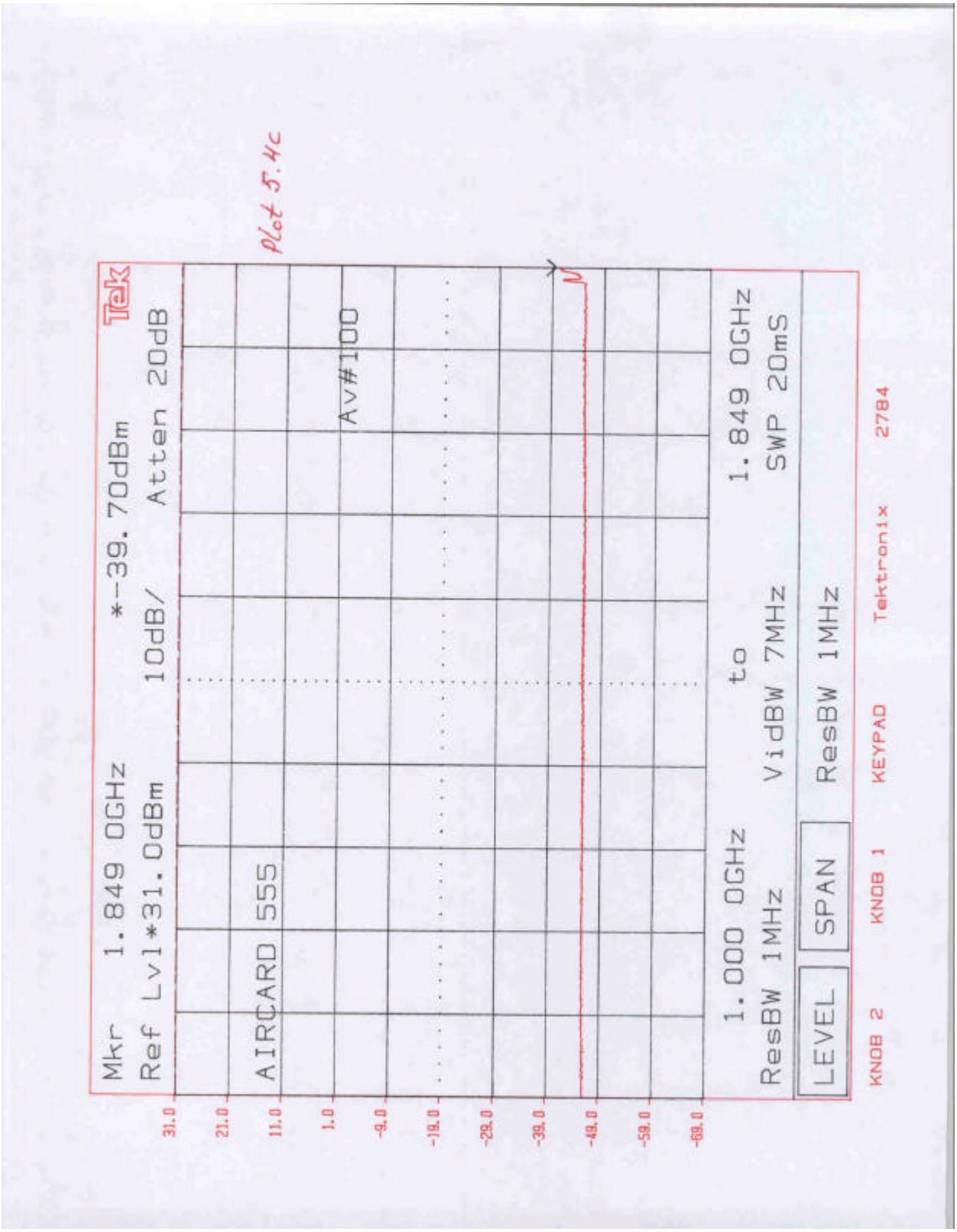
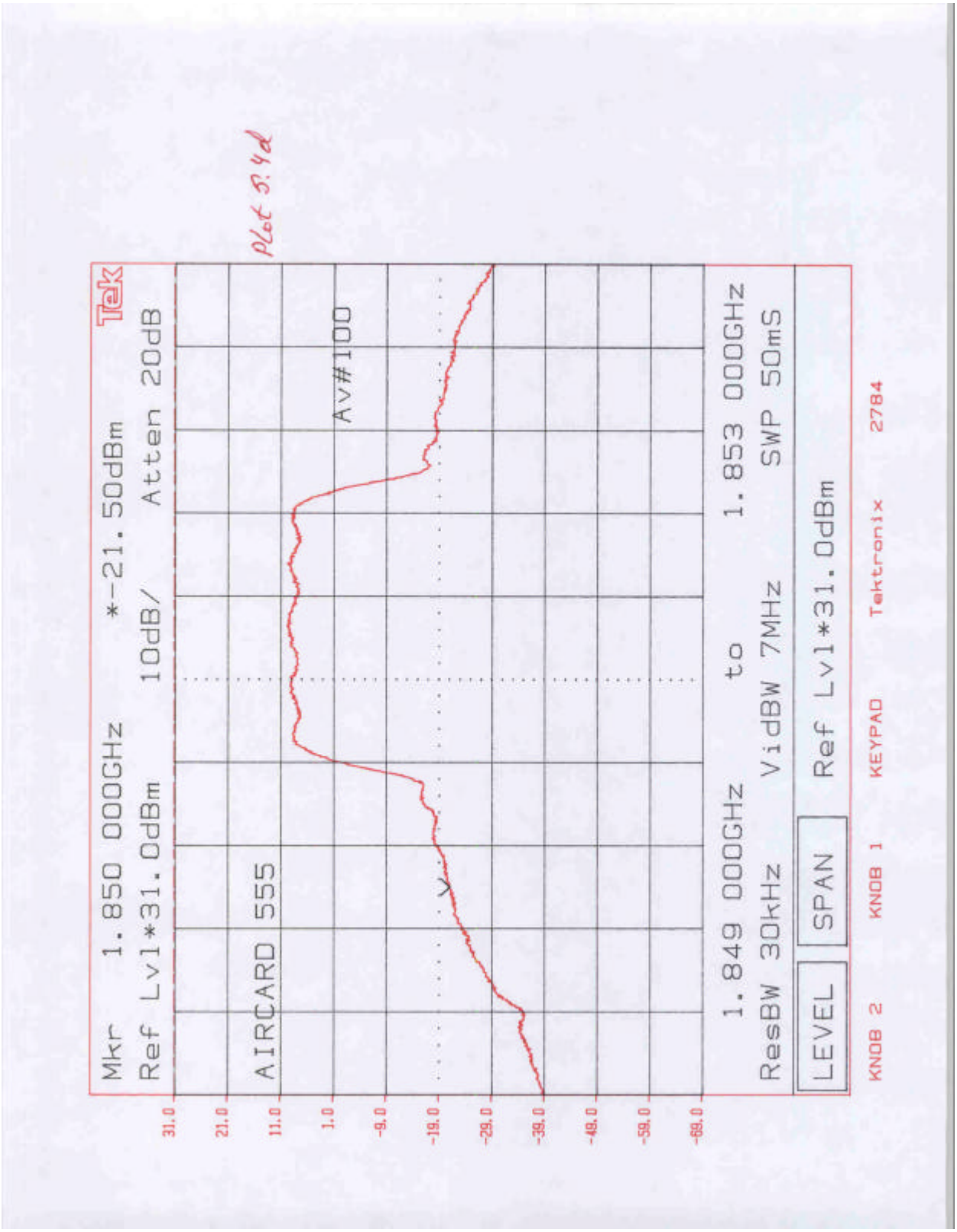
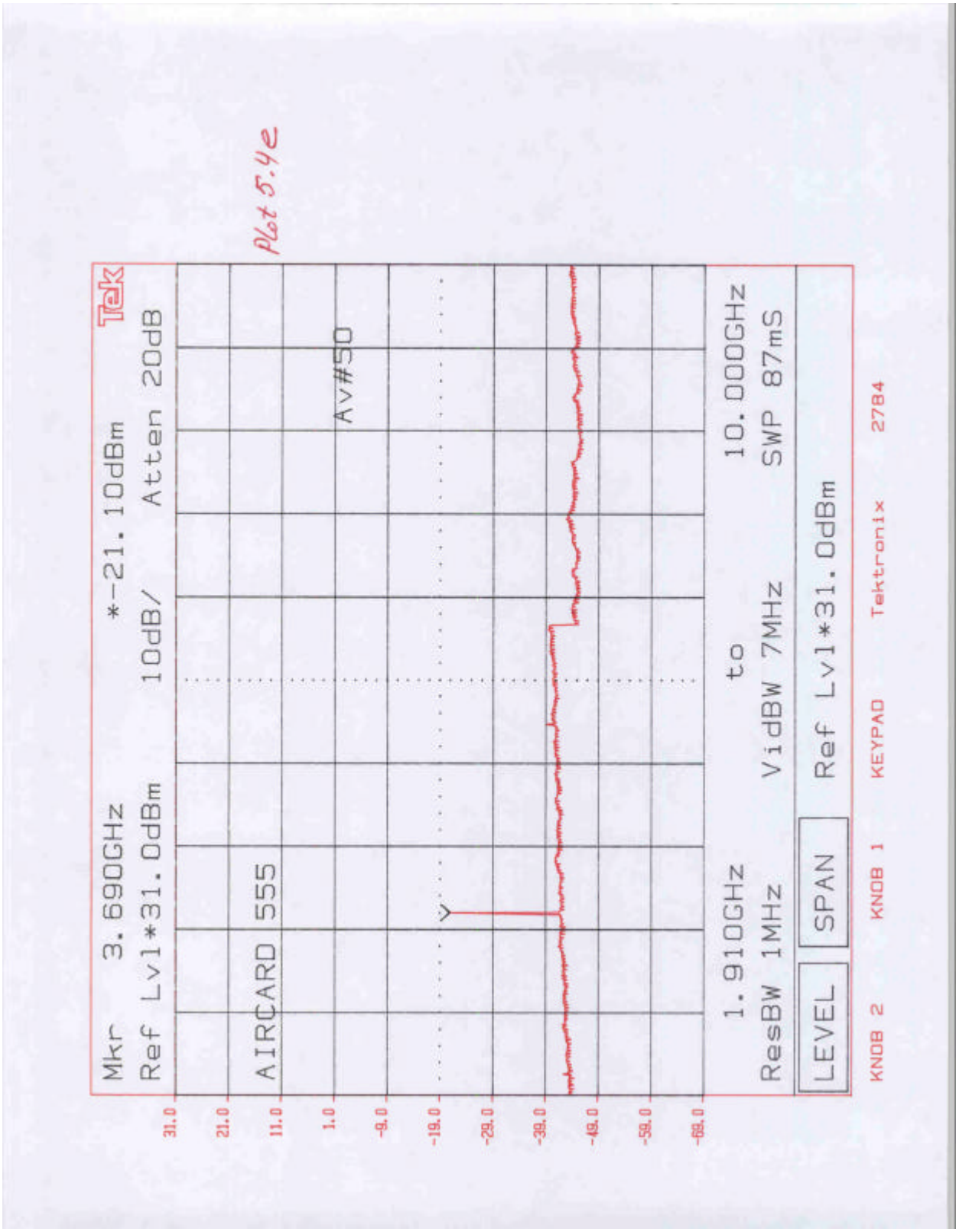
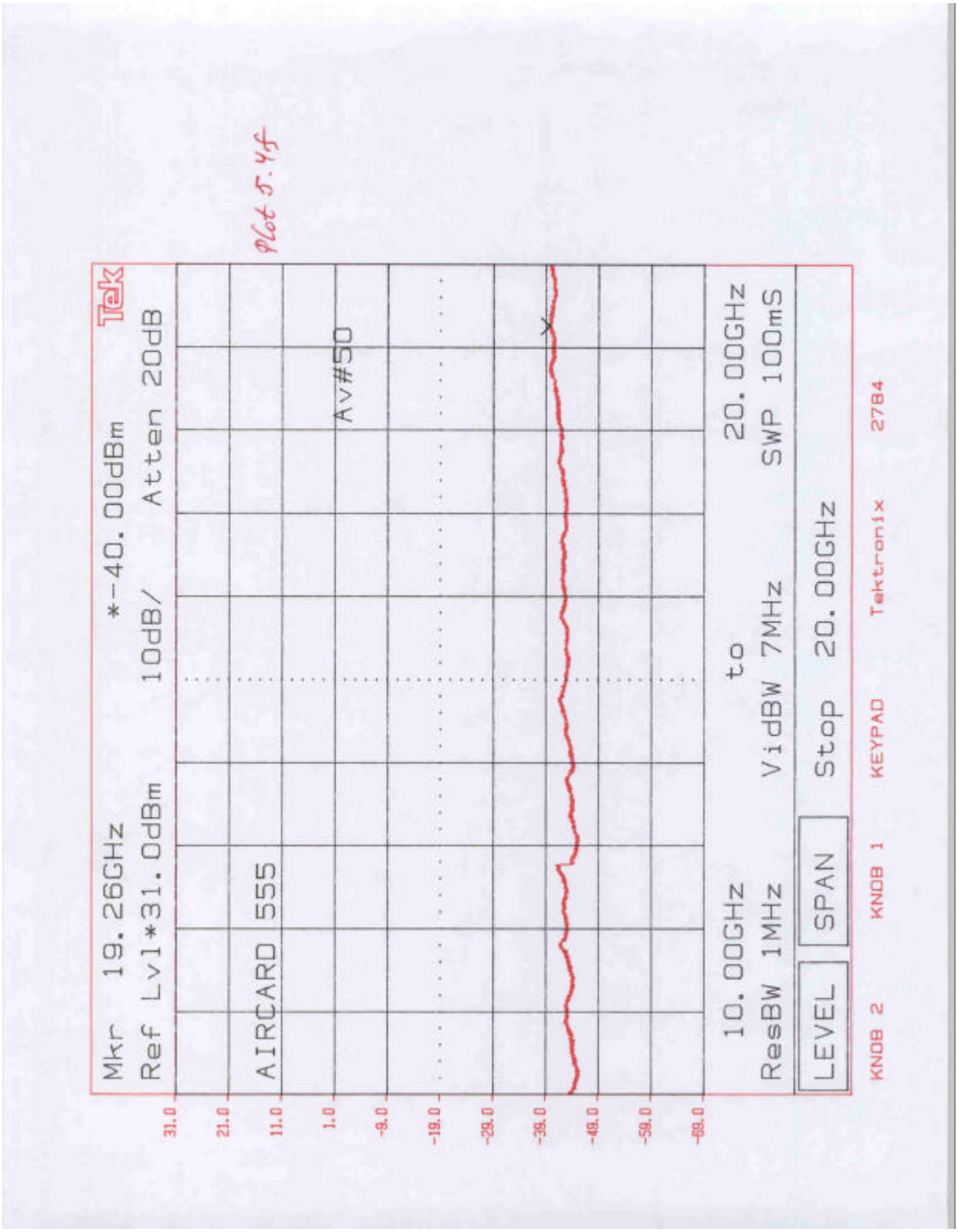

Plot 5.3E
Tek
Mkr 6.456GHz *-39.70dBm
Ref Lvl*31.0dBm 10dB/ Atten 20dB
AIRCARD 555
Av#50
31.0
21.0
11.0
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
1.000GHz to 9.000GHz
ResBW 1MHz VidBW 7MHz SWP 80mS
LEVEL SPAN VidBW 7MHz
KNOB 2 KNOB 1 KEYPAD Tektronix 2784

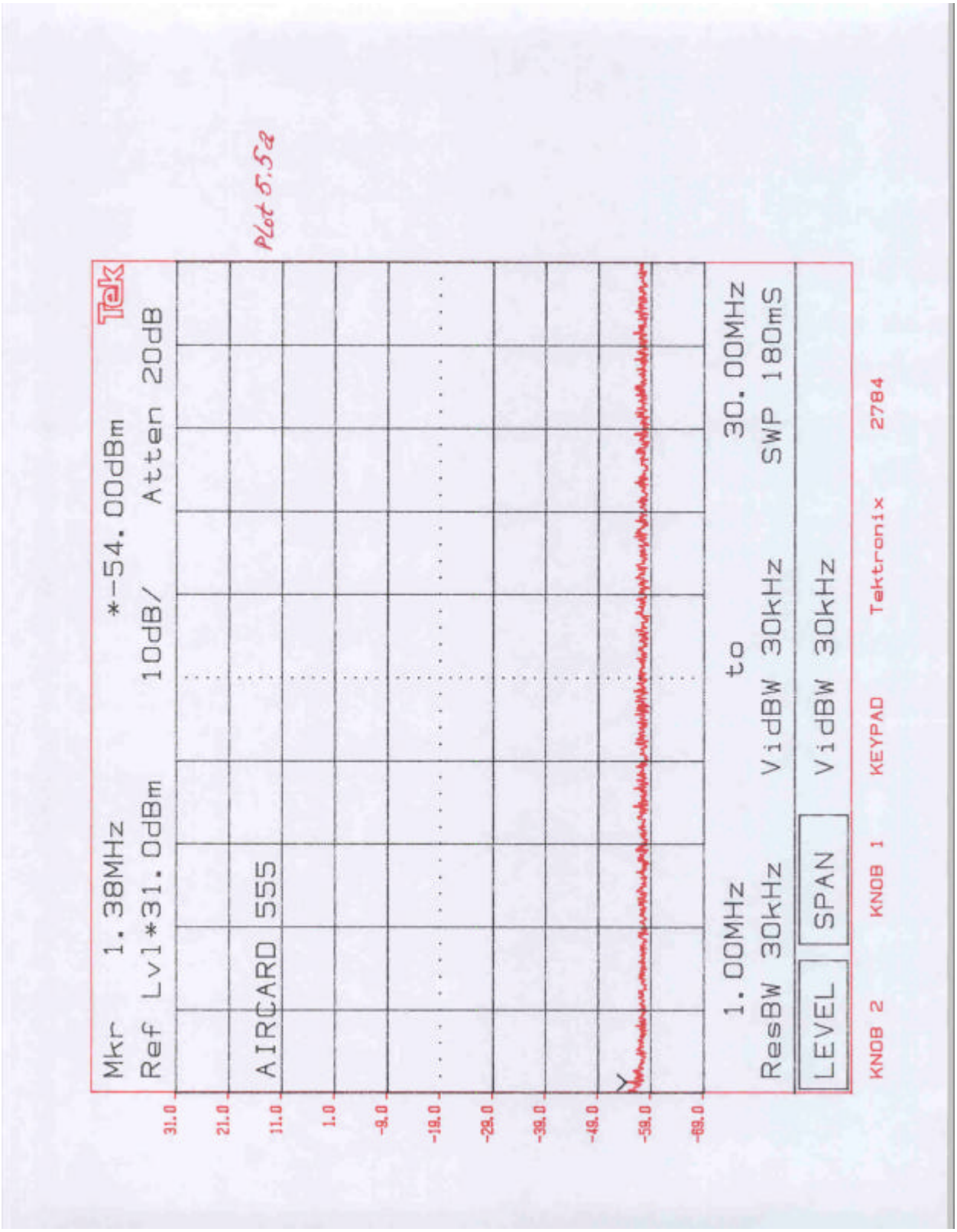

Plot 5.4a
Tek
Mkr 7.58MHz
Ref Lvl*31.0dBm
*-54.10dBm
10dB/
Atten 20dB
AIRCARD 555
31.0
21.0
11.0
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
1.00MHz
ResBW 30kHz
to
VidBW 100kHz
30.00MHz
SWP 180mS
LEVEL
SPAN
ResBW 30kHz
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784

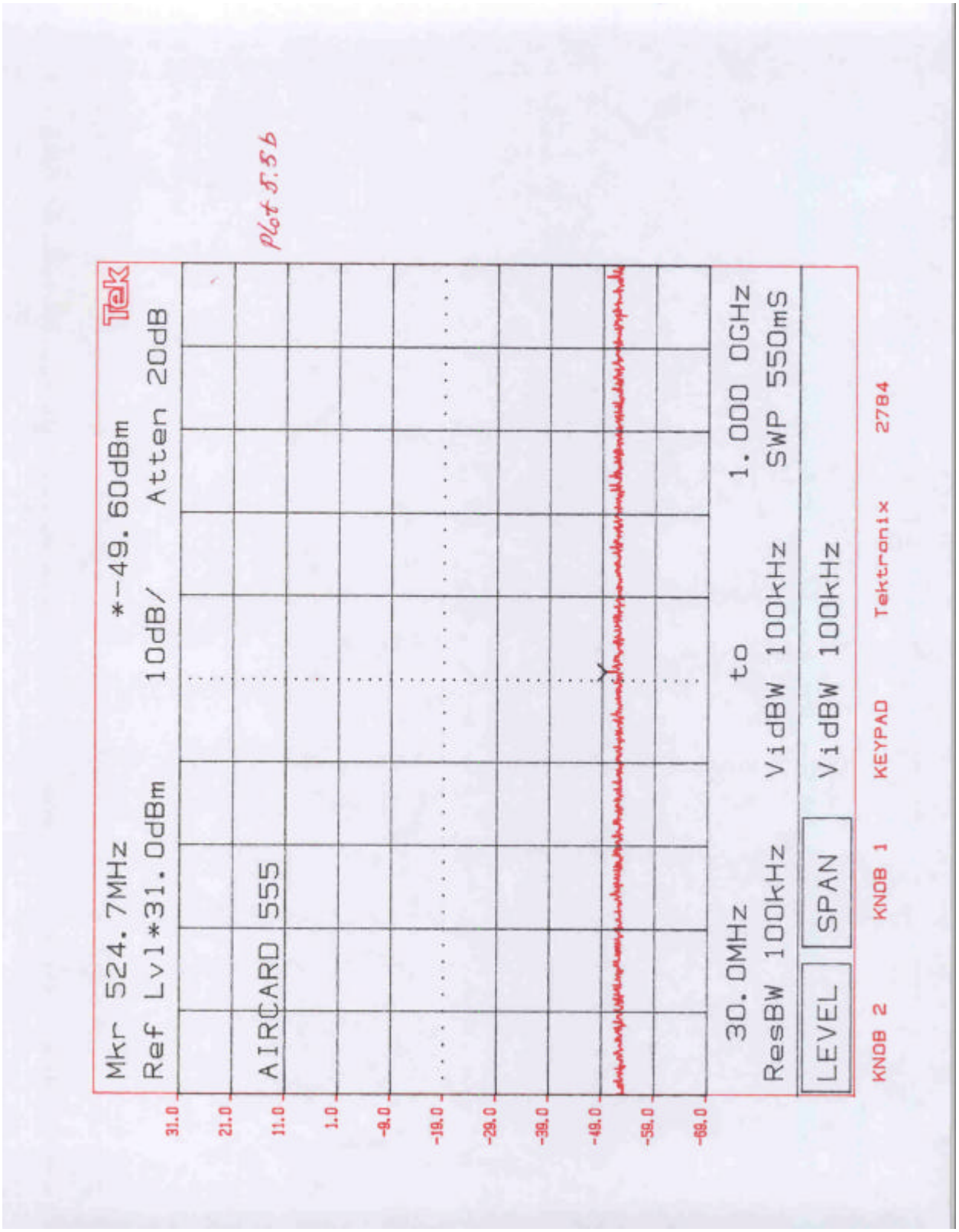

Plot 5.4c
Mkr 1.849 0GHz *-39.70dBm Tek
Ref Lvl*31.0dBm 10dB/ Atten 20dB
AIRCARD 555
Av#100
31.0
21.0
11.0
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
1.000 0GHz to 1.849 0GHz
ResBW 1MHz VidBW 7MHz SWP 20mS
LEVEL SPAN ResBW 1MHz
KNOB 2 KNOB 1 KEYPAD Tektronix 2784

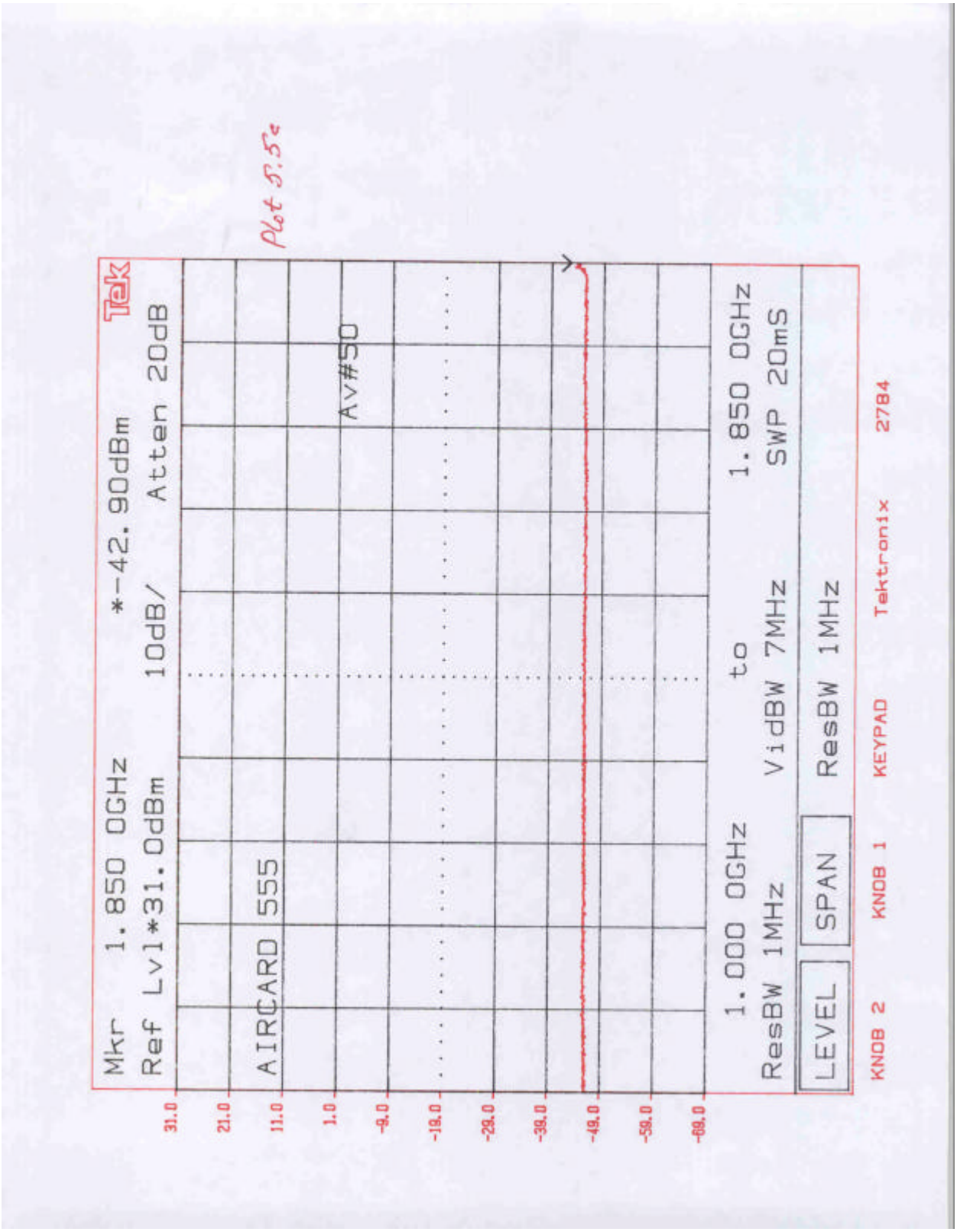

Plot 5.4d
Tek
Mkr 1.850 000GHz *-21.50dBm
Ref Lvl*31.0dBm 10dB/ Atten 20dB
AIRCARD 555
Av#100
31.0
21.0
11.0
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
1.849 000GHz to 1.853 000GHz
ResBW 30kHz VidBW 7MHz SWP 50mS
LEVEL SPAN Ref Lvl*31.0dBm
KNOB 2 KNOB 1 KEYPAD Tektronix 2784

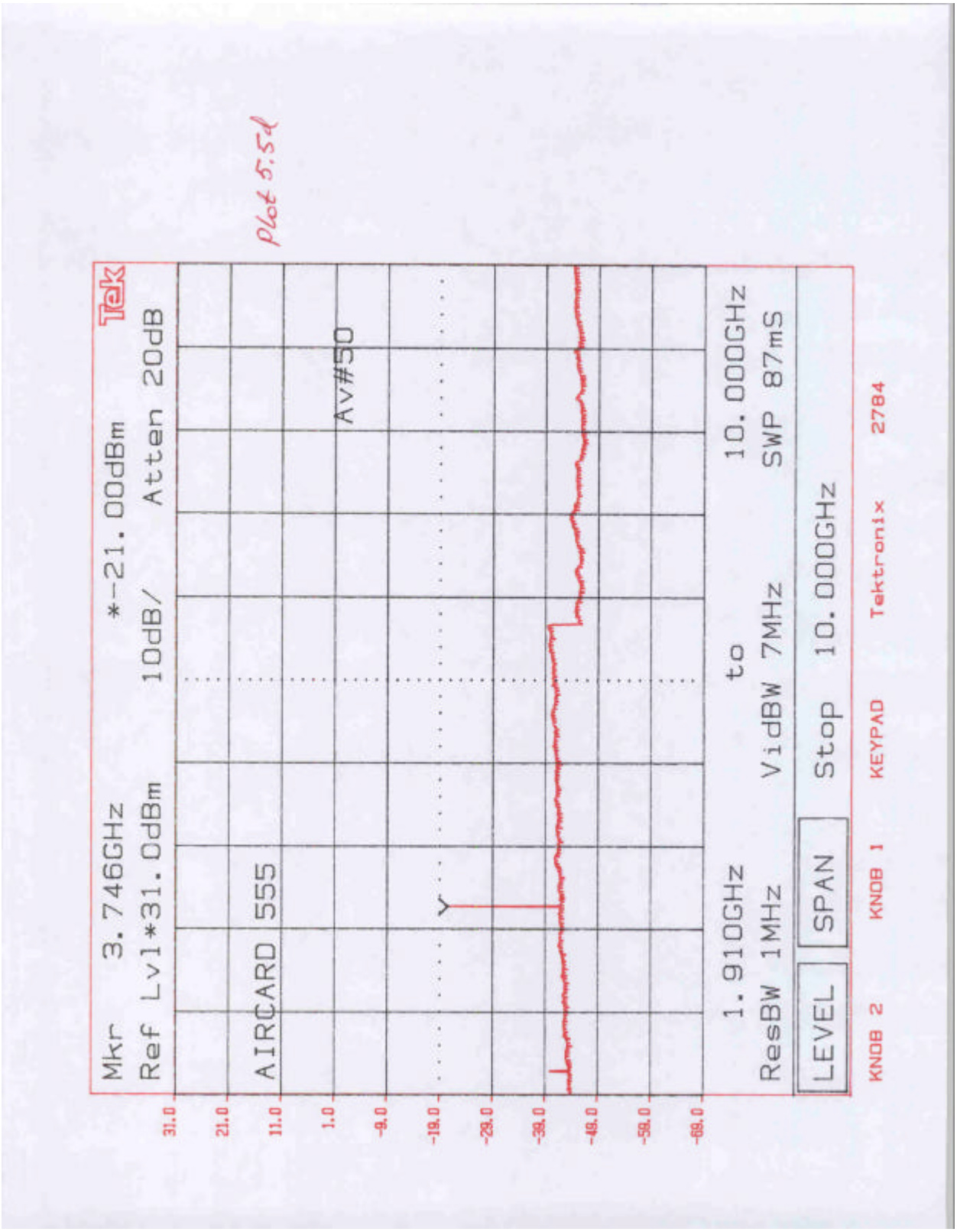

Plot 5.4e
Tek
Mkr 3.690GHz *-21.10dBm
Ref Lvl*31.0dBm 10dB/ Atten 20dB
AIRCARD 555
Av#50
31.0
21.0
11.0
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
1.910GHz to 10.000GHz
ResBW 1MHz VidBW 7MHz SWP 87mS
LEVEL SPAN Ref Lvl*31.0dBm
KNOB 2 KNOB 1 KEYPAD Tektronix 2784

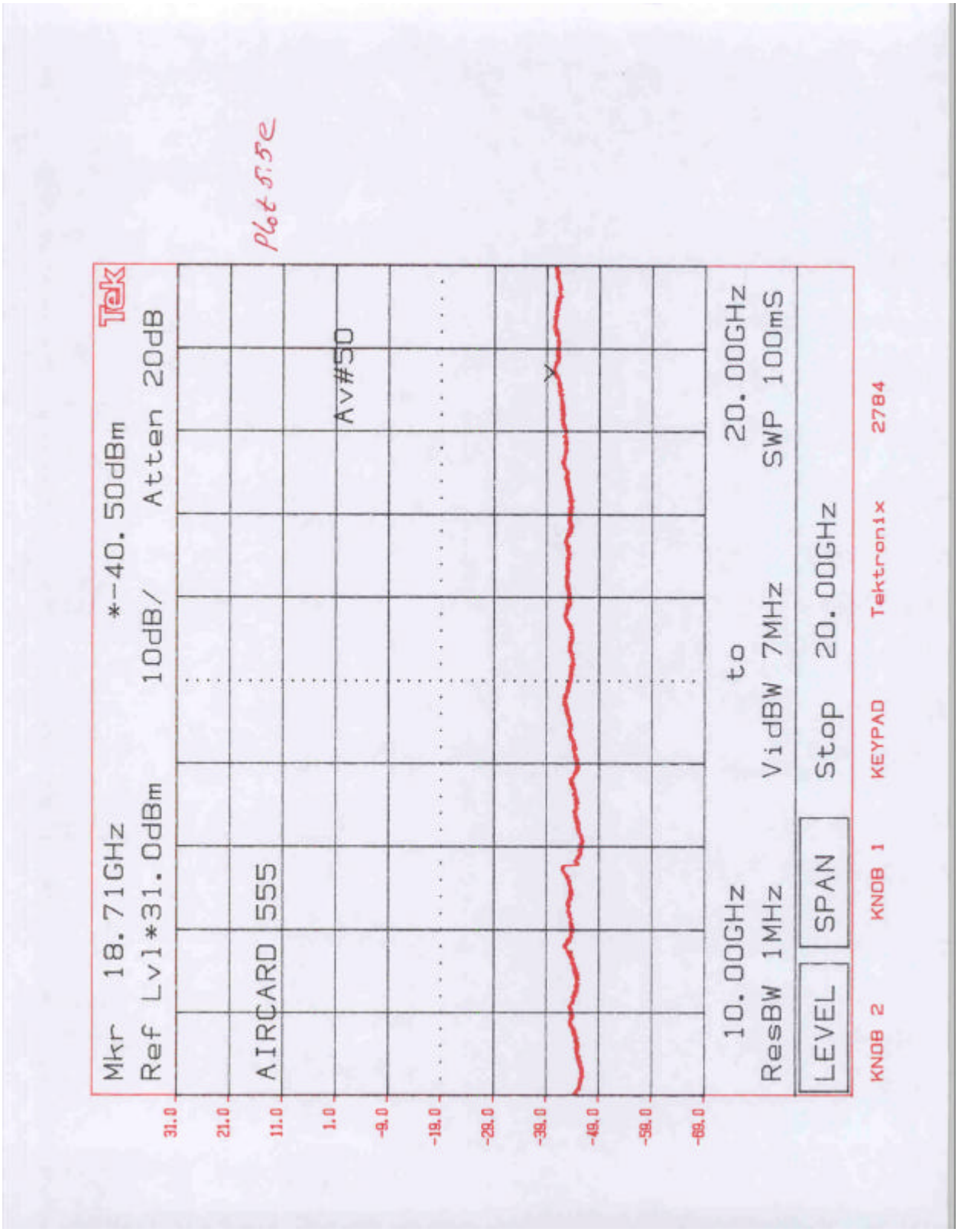

Plot 5.4f
Tek
Mkr 19.26GHz *-40.00dBm
Ref Lvl*31.0dBm 10dB/ Atten 20dB
AIRCARD 555
Av#50
31.0
21.0
11.0
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
10.00GHz to 20.00GHz
ResBW 1MHz VidBW 7MHz SWP 100mS
LEVEL SPAN Stop 20.00GHz
KNOB 2 KNOB 1 KEYPAD Tektronix 2784

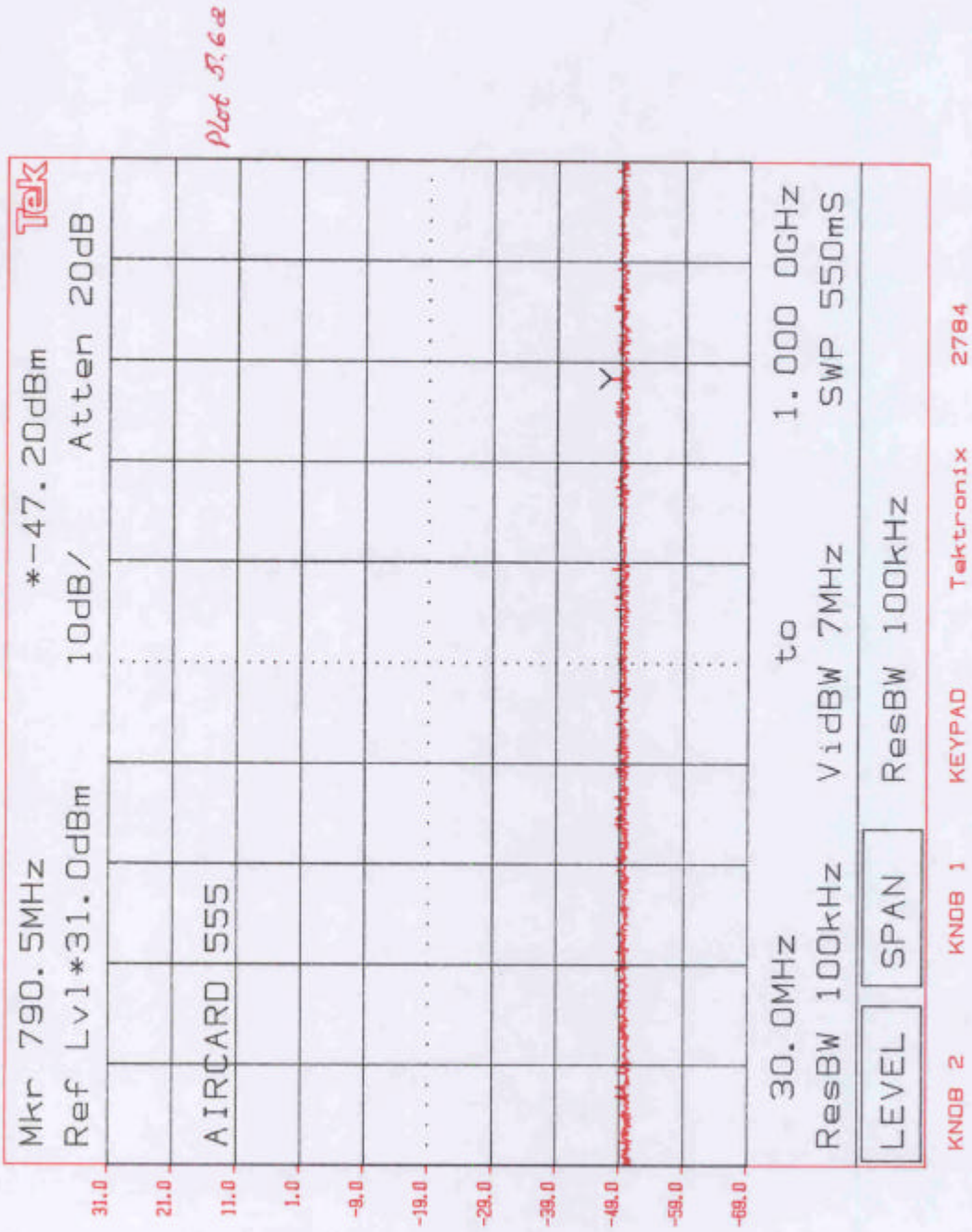

Plot 5.5a
Tek
Mkr 1.38MHz *-54.00dBm
Ref Lvl*31.0dBm 10dB/ Atten 20dB
AIRCARD 555
31.0
21.0
11.0
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
1.00MHz to 30.00MHz
ResBW 30kHz VidBW 30kHz SWP 180mS
LEVEL SPAN VidBW 30kHz
KNOB 2 KNOB 1 KEYPAD Tektronix 2784

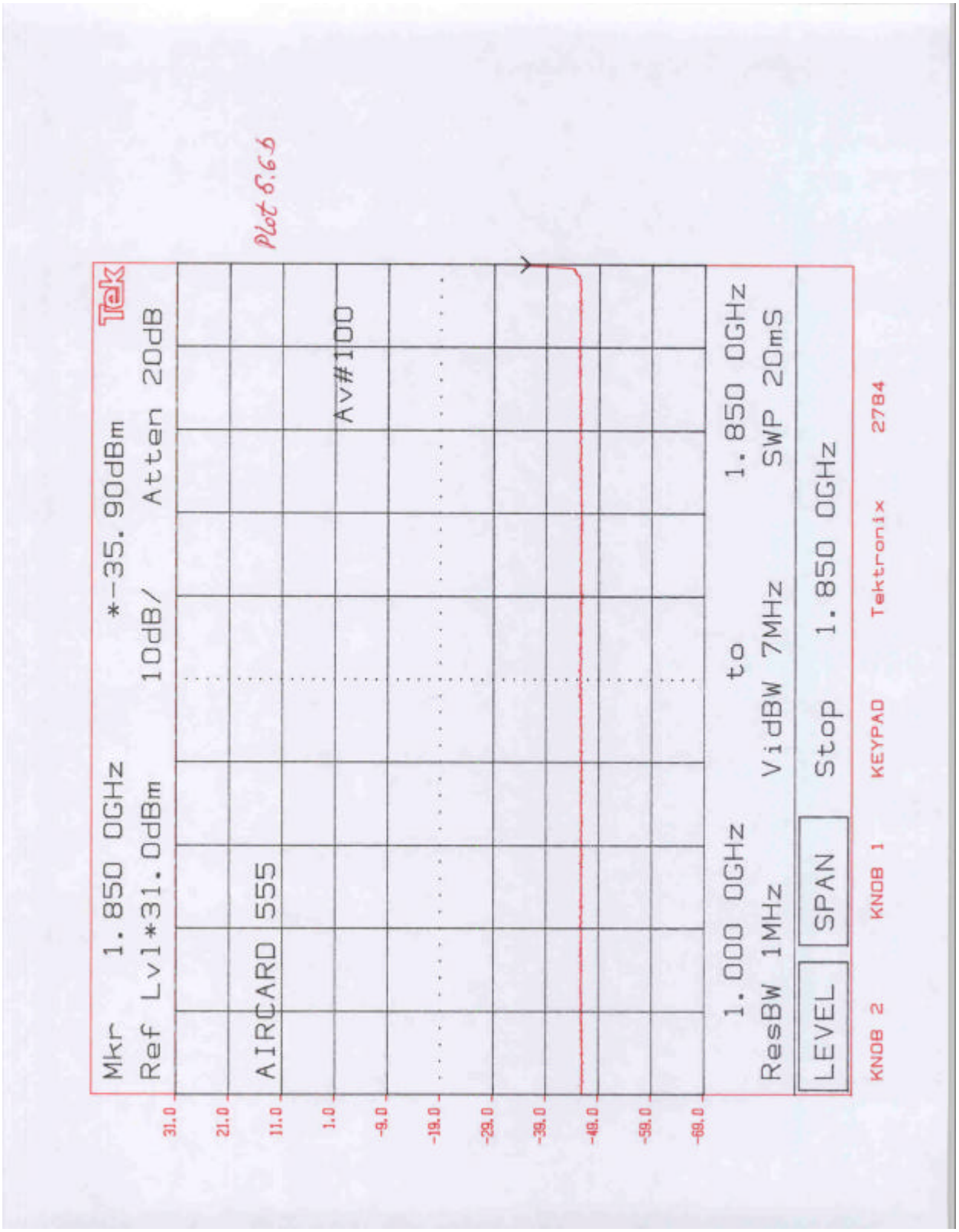

Plot 5.5b
Tek
Mkr 524.7MHz
Ref Lvl*31.0dBm
*-49.60dBm
10dB/
Atten 20dB
AIRCARD 555
31.0
21.0
11.0
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
30.0MHz
ResBW 100kHz
to
VidBW 100kHz
1.000 0GHz
SWP 550mS
LEVEL
SPAN
VidBW 100kHz
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784

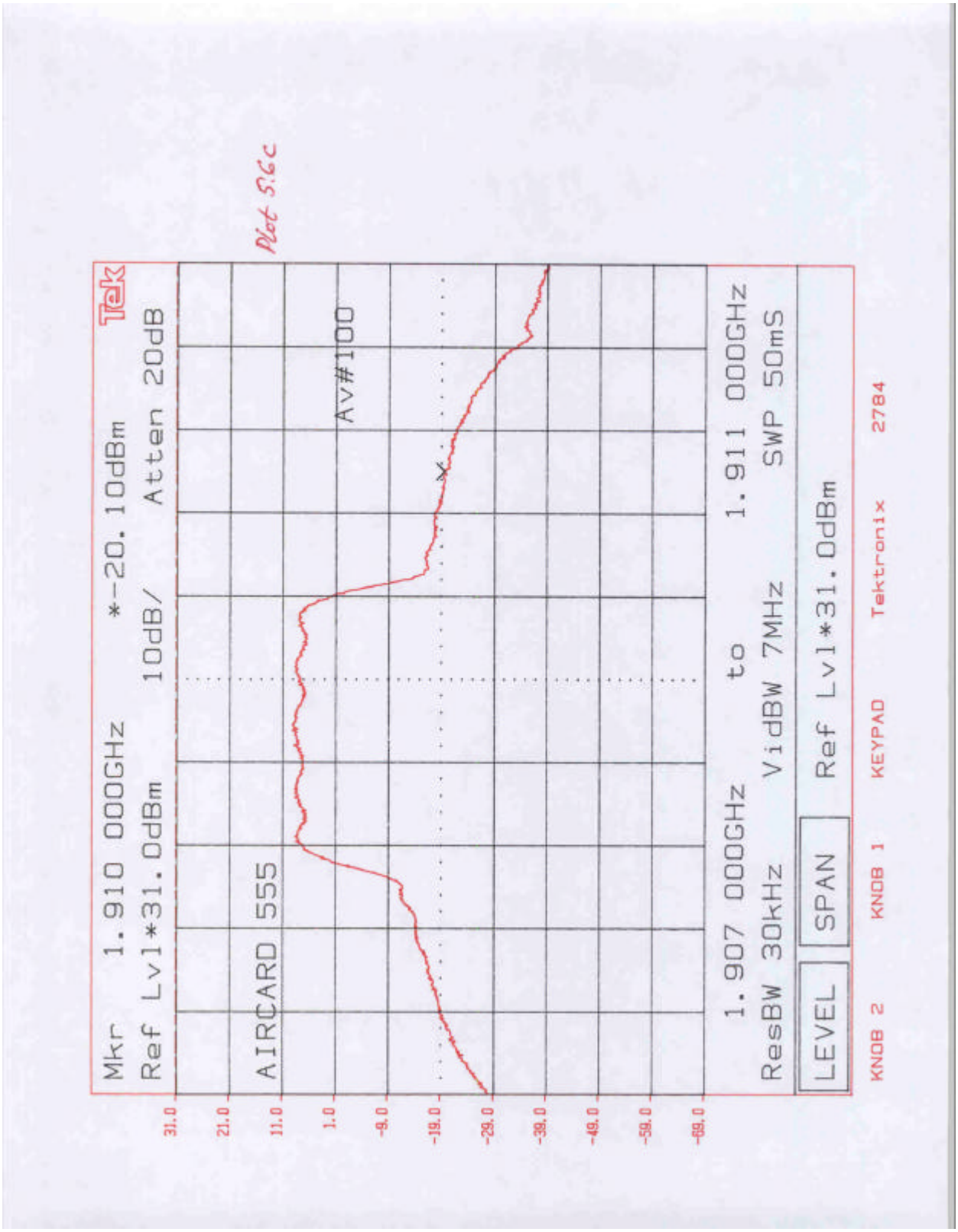

Plot 5.5c
Tek
Mkr 1.850 0GHz *-42.90dBm
Ref Lvl*31.0dBm 10dB/ Atten 20dB
AIRCARD 555
Av#50
31.0
21.0
11.0
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
1.000 0GHz to 1.850 0GHz
ResBW 1MHz VidBW 7MHz SWP 20mS
LEVEL SPAN ResBW 1MHz
KNOB 2 KNOB 1 KEYPAD Tektronix 2784


Plot 5.5d
Tek
Mkr 3.746GHz *-21.00dBm
Ref Lvl*31.0dBm 10dB/ Atten 20dB
AIRCARD 555
Av#50
31.0
21.0
11.0
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
1.910GHz to 10.000GHz
ResBW 1MHz VidBW 7MHz SWP 87mS
LEVEL SPAN Stop 10.000GHz
KNOB 2 KNOB 1 KEYPAD Tektronix 2784

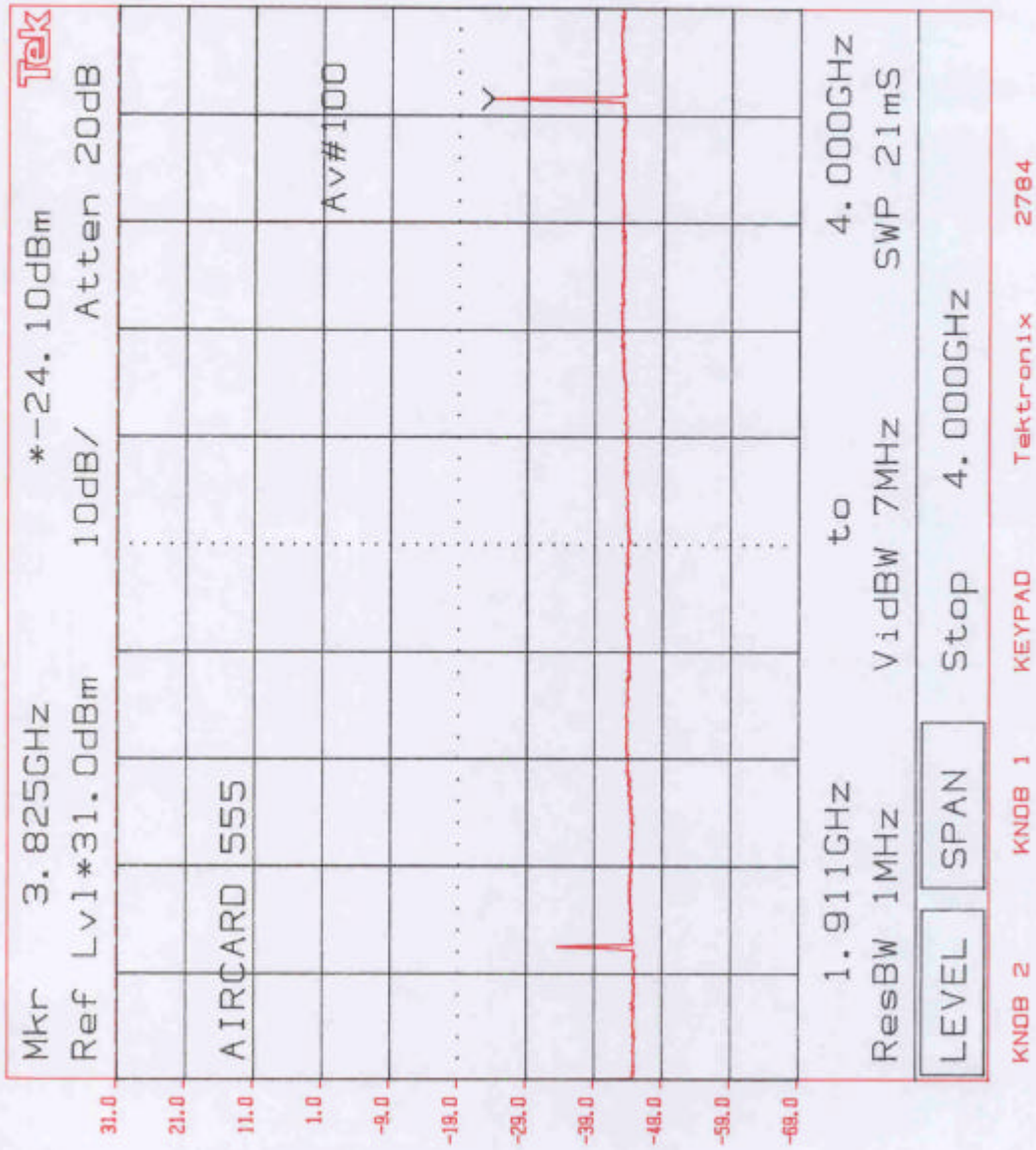

Plot 5.5e
Tek
Mkr 18.71GHz
Ref Lvl*31.0dBm
*-40.50dBm
10dB/
Atten 20dB
AIRCARD 555
Av#50
31.0
21.0
11.0
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
10.00GHz
ResBW 1MHz
to
VidBW 7MHz
20.00GHz
SWP 100mS
LEVEL
SPAN
Stop 20.00GHz
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784

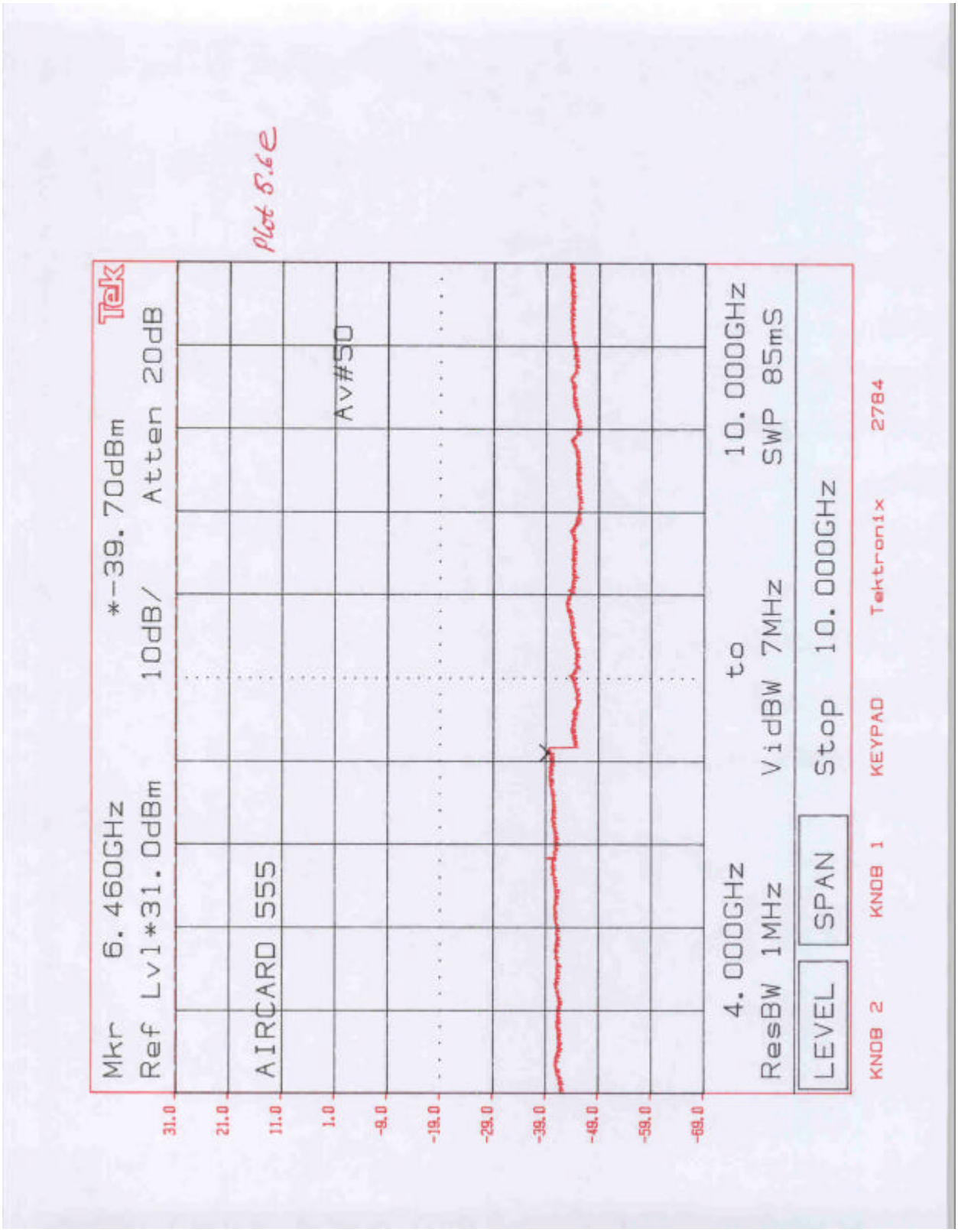

Plot 57.6a
Tek
Mkr 790.5MHz
Ref Lvl*31.0dBm
*-47.20dBm
10dB/
Atten 20dB
AIRCARD 555
31.0
21.0
11.0
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
30.0MHz
ResBW 100kHz
to
VidBW 7MHz
1.000 0GHz
SWP 550mS
LEVEL
SPAN
ResBW 100kHz
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784

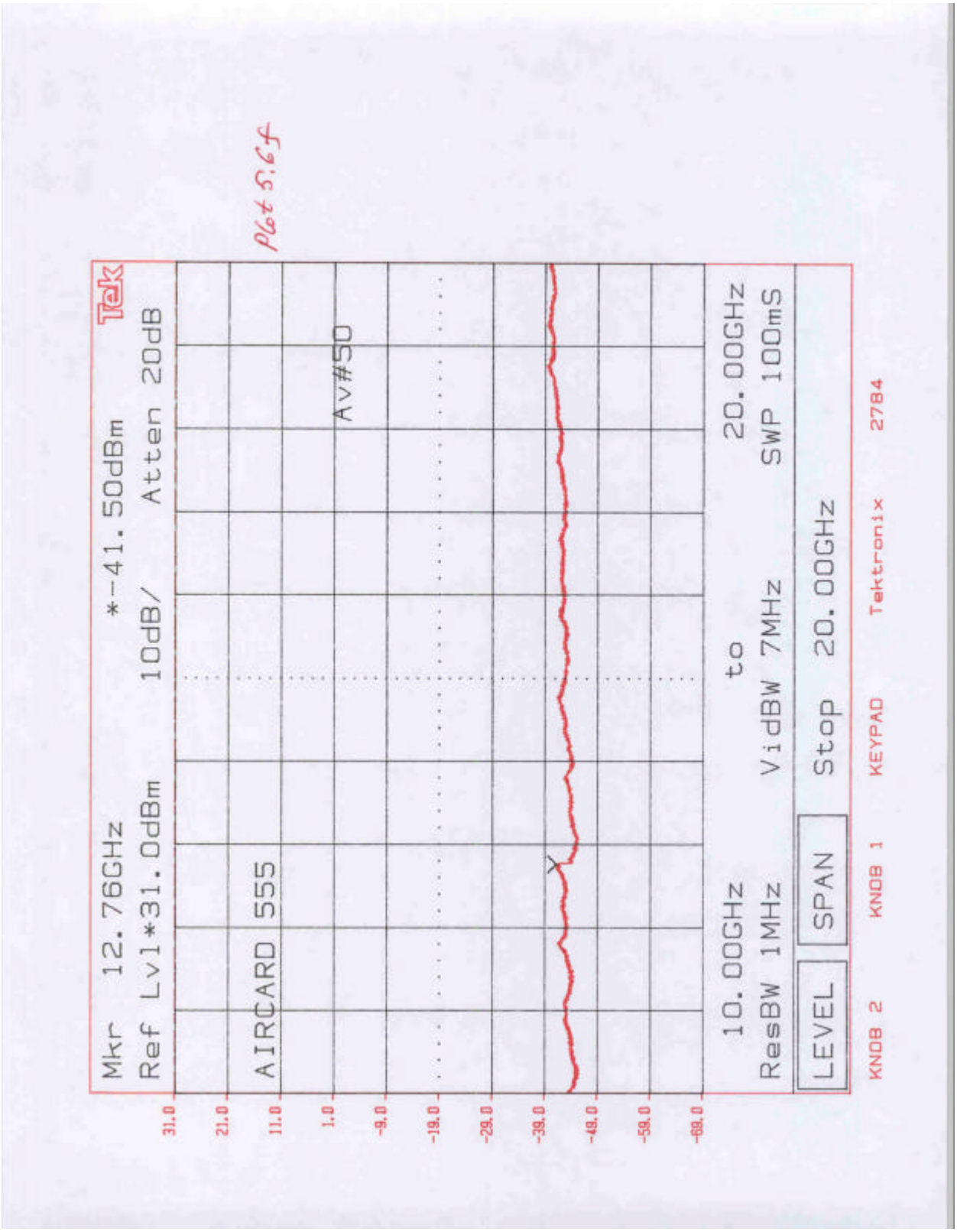

Plot 8.6.b
Tek
Mkr 1.850 0GHz *-35.90dBm
Ref Lvl*31.0dBm 10dB/ Atten 20dB
AIRCARD 555
Av#100
31.0
21.0
11.0
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
1.000 0GHz to 1.850 0GHz
ResBW 1MHz VidBW 7MHz SWP 20mS
LEVEL SPAN Stop 1.850 0GHz
KNOB 2 KNOB 1 KEYPAD Tektronix 2784

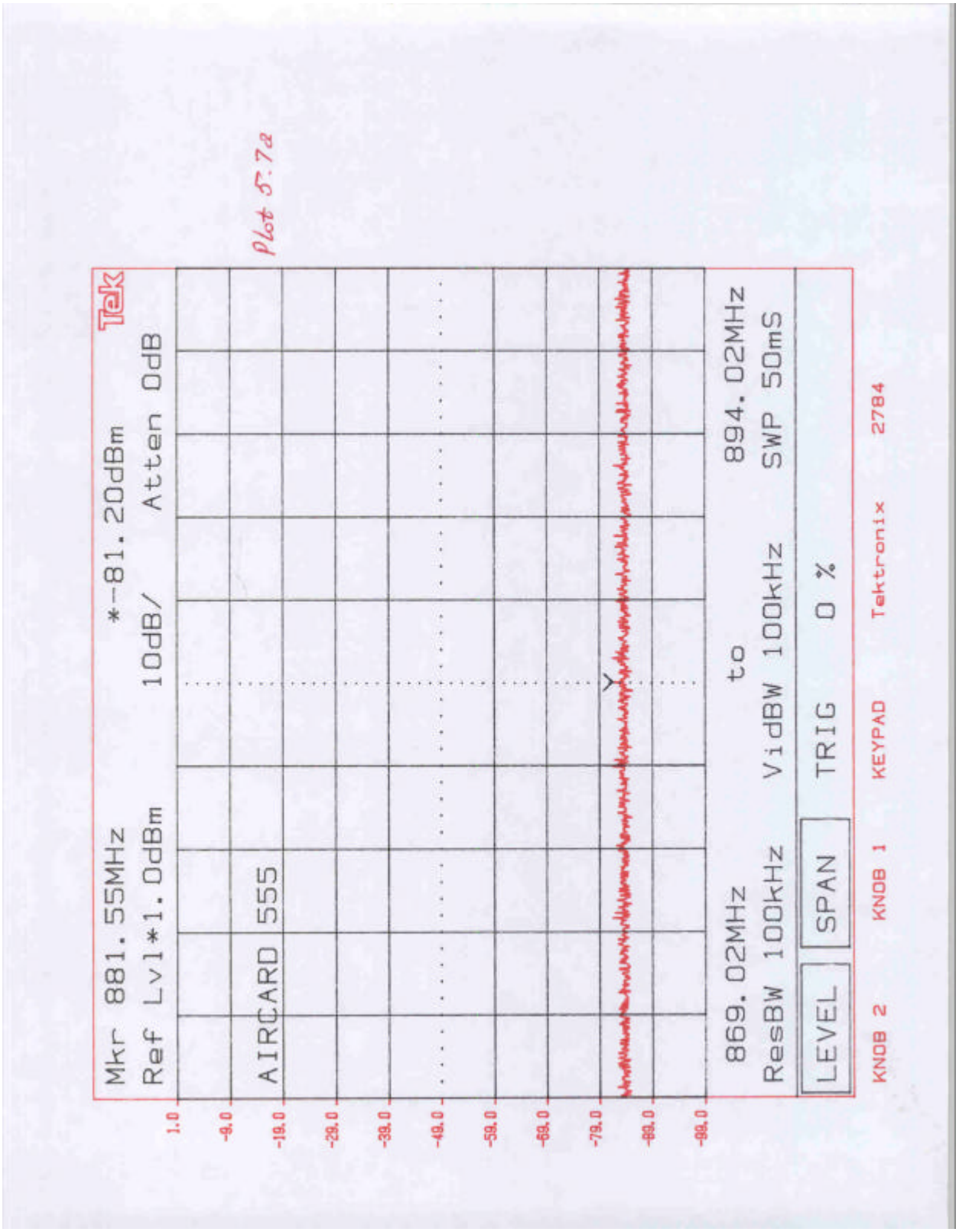

Plot 5.6c
Tek
Mkr 1.910 000GHz *-20.10dBm
Ref Lvl*31.0dBm 10dB/ Atten 20dB
AIRCARD 555
Av#100
31.0
21.0
11.0
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
1.907 000GHz to 1.911 000GHz
ResBW 30kHz VidBW 7MHz SWP 50mS
LEVEL SPAN Ref Lvl*31.0dBm
KNOB 2 KNOB 1 KEYPAD Tektronix 2784

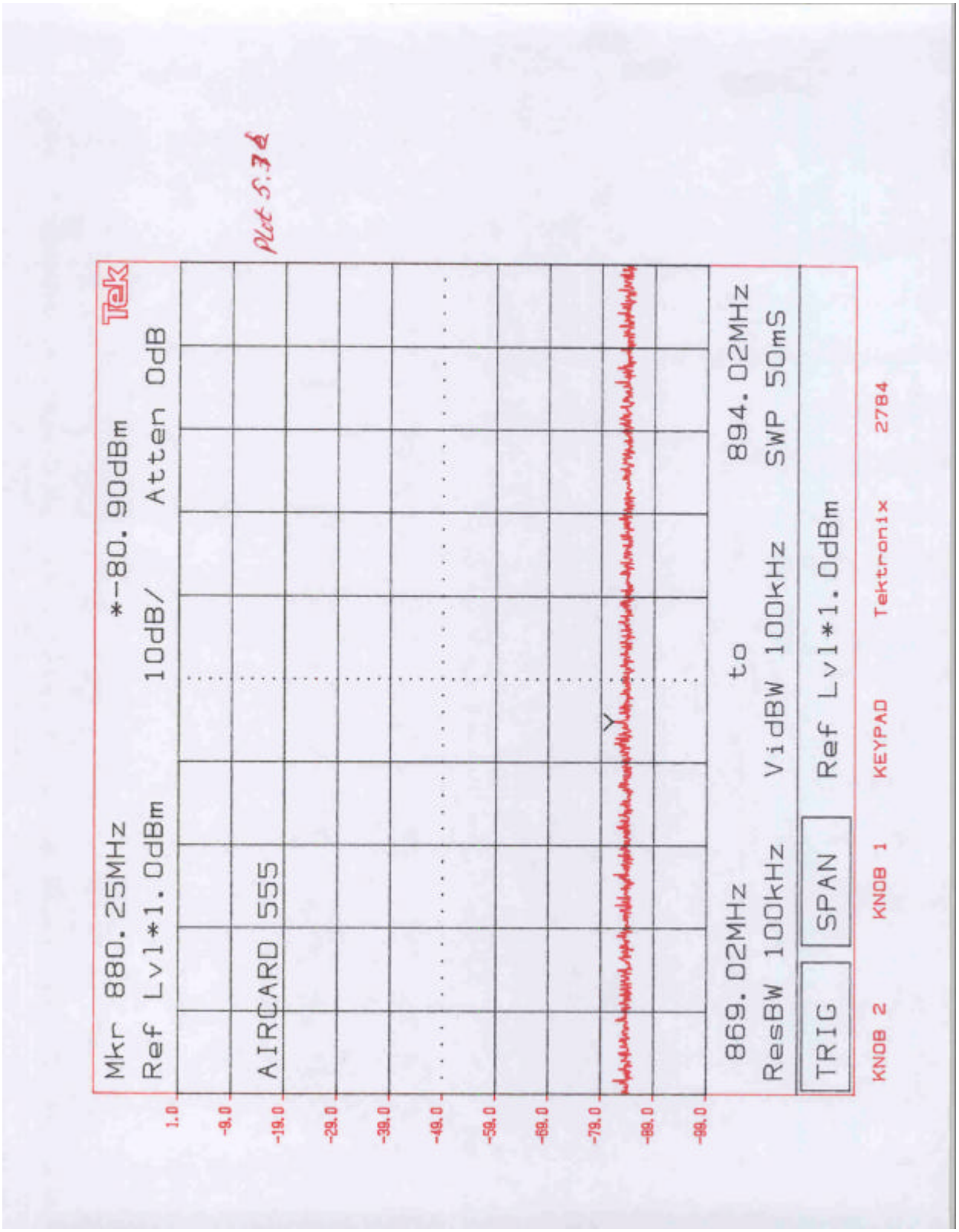
Plot 5.6d

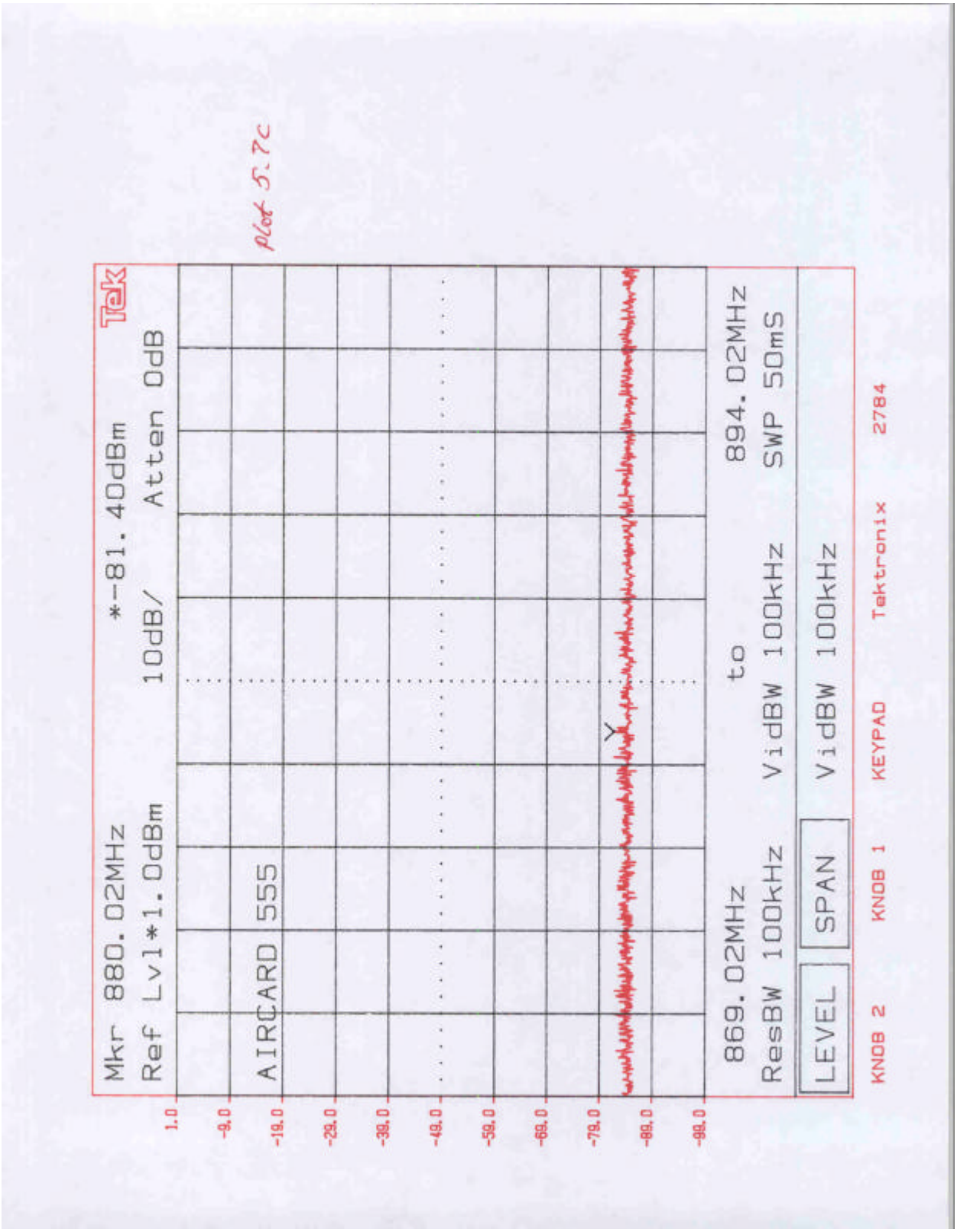

Tek
Mkr 3.825GHz *-24.10dBm
Ref Lvl*31.0dBm 10dB/ Atten 20dB
AIRCARD 555
Av#100
31.0
21.0
11.0
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
1.911GHz to 4.000GHz
ResBW 1MHz VidBW 7MHz SWP 21mS
LEVEL SPAN Stop 4.000GHz
KNOB 2 KNOB 1 KEYPAD Tektronix 2784


Plot 5.6e
Tek
Mkr 6.460GHz *-39.70dBm
Ref Lvl*31.0dBm 10dB/ Atten 20dB
AIRCARD 555
Av#50
31.0
21.0
11.0
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
4.000GHz to 10.000GHz
ResBW 1MHz VidBW 7MHz SWP 85mS
LEVEL SPAN Stop 10.000GHz
KNOB 2 KNOB 1 KEYPAD Tektronix 2784


Plot 5.6f
Tek
Mkr 12.76GHz *-41.50dBm
Ref Lvl*31.0dBm 10dB/ Atten 20dB
AIRCARD 555
Av#50
31.0
21.0
11.0
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
10.00GHz to 20.00GHz
ResBW 1MHz VidBW 7MHz SWP 100mS
LEVEL SPAN Stop 20.00GHz
KNOB 2 KNOB 1 KEYPAD Tektronix 2784


Plot 5.7a
Tek
Mkr 881.55MHz
Ref Lvl*1.0dBm
*-81.20dBm
10dB/
Atten 0dB
AIRCARD 555
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
-79.0
-89.0
-99.0
869.02MHz
ResBW 100kHz
to
VidBW 100kHz
894.02MHz
SWP 50mS
LEVEL
SPAN
TRIG
0 %
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784


Plot 5.34
Tek
Mkr 880.25MHz
Ref Lvl*1.0dBm
*-80.90dBm
10dB/
Atten 0dB
AIRCARD 555
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
-79.0
-89.0
-99.0
869.02MHz
ResBW 100kHz
to
VidBW 100kHz
894.02MHz
SWP 50mS
TRIG
SPAN
Ref Lvl*1.0dBm
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784


plot 5.7c
Tek
Mkr 880.02MHz
Ref Lvl*1.0dBm
*-81.40dBm
10dB/
Atten 0dB
AIRCARD 555
1.0
-9.0
-19.0
-29.0
-39.0
-49.0
-59.0
-69.0
-79.0
-89.0
-99.0
869.02MHz
ResBW 100kHz
to
VidBW 100kHz
894.02MHz
SWP 50mS
LEVEL
SPAN
VidBW 100kHz
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784

## 6.0 Field Strength of Spurious Radiation

FCC 2.1053, 22.901(d), 24.238(a)

### 6.1 Test Procedure

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT.

The frequency range up to tenth harmonic of each of the three fundamental frequency (low, middle, and high channels) for each band (cellular and PCS) was investigated. The tests were performed with the Radio Card installed in Laptop and PDA for both polarization of the transmitter's antenna (antenna in vertical and horizontal position). The worst case of emissions was reported.

For spurious emissions attenuation, the substitution method was used. On each frequency where the Field Strength was found above 63.4 dBuV/m (which corresponds to ERP = -33 dBm), the EUT was substituted by a reference antenna (half-wave dipole - below 1 GHz, or Horn antenna - above 1GHz), connected to a signal generator. The signal generator output was adjusted to obtain the same reading as from EUT. The ERP/EIRP at the spurious emissions frequency was calculated as in section 3. The spurious emissions attenuation was calculated as the difference between ERP/EIRP at the fundamental frequency (see section 3) and at the spurious emissions frequency.

### 6.2 Test Equipment

EMCO 3115 Horn Antennas
HP 8566B Spectrum Analyzer
Tektronix 2784 Spectrum Analyzer
Low Pass Filter
Preamplifiers

## 6.3 Test Results

| | |
|---|---|
| Test Result: | Complies, refer to the attached data sheets |

***Radiated Emissions Test Data***

| | | | |
|---|---|---|---|
| **Company:** | Sierra Wireless | **Model #:** | AIRCARD 555 |
| **EUT:** | PCMCIA Card | **FCC #:** | **N7NACRD555** |
| **Project #:** | J20054479 | **Test Date:** | July 19. 2001 |
| **Test Mode:** | Tx @ 825.25 MHz | **Engineer:** | D. Chernomordik |

| | Antenna Used | | | Pre-Amp Used | | | Cable Used | |
|---|---|---|---|---|---|---|---|---|
| **Number:** | 8 | 11 | 21 | 12 | 8 | 10 | 12 | 0 |
| **Model:** | EMCO 3115 | LPB-2520A | 3160-9 | ACO/180 | CDI_P1000 | AFT18855 | NPS366 | None |

| **Frequency** | **Reading** | **Detector** | **Ant** | **Amp** | **Ant. Pol.** | **Ant. Factor** | **Pre-Amp** | **Insert. Loss** | **Net** |
|---|---|---|---|---|---|---|---|---|---|
| MHz | dB(µV) | P/A/Q | # | # | H/V | dB(1/m) | dB | dB | dB(µV/m) |
| 1650.50 | 57.5 | Peak | 8 | 8 | H | 26.7 | 29.5 | 2.3 | 57.0 |
| 2475.75 | 63.8 | Peak | 8 | 8 | H | 29.1 | 28.5 | 3.0 | 69.3 |
| 3301.00 | 48.0 | Peak | 8 | 8 | H | 31.3 | 27.9 | 3.7 | 55.1 |
| 4126.25 | 41.6 | Peak | 8 | 8 | H | 34.5 | 27.9 | 4.0 | 52.6 |
| 4951.50 | 40.3 * | Peak | 8 | 8 | V/H | 34.0 | 28.1 | 4.3 | 52.0 |
| 5776.75 | 38.5 * | Peak | 8 | 8 | V/H | 36.6 | 28.3 | 4.9 | 51.7 |
| 6602.00 | 37.3 * | Peak | 8 | 8 | V/H | 36.6 | 28.0 | 5.3 | 51.2 |
| 7427.25 | 38.2 * | Peak | 8 | 8 | V/H | 36.8 | 28.0 | 5.5 | 54.3 |
| 8252.50 | 39.0 * | Peak | 8 | 8 | V/H | 37.2 | 27.2 | 6.1 | 55.1 |

a) Insert. Loss = Cable A + Cable B + Cable C + Transducer.
b) Net = Reading + Antenna Factor - Pre-Amp + Insert. Loss.
c) * Noise floor
d) All other emissions not reported at least 10 dB below the limit
e) Test was performed at 3 m

***Radiated Emissions Test Data***

| | | | |
|---|---|---|---|
| **Company** | Sierra Wireless | **Model #:** | AIRCARD 555 |
| **EUT:** | PCMCIA Card | **FCC #:** | **N7NACRD555** |
| **Project #:** | J20054479 | **Test Date:** | July 19. 2001 |
| **Test Mode:** | Tx @ 836.5 MHz | **Engineer:** | D. Chernomordik |

| | Antenna Used | | | Pre-Amp Used | | | Cable Used | |
|---|---|---|---|---|---|---|---|---|
| **Number:** | 8 | 11 | 21 | 12 | 8 | 10 | 12 | 0 |
| **Model:** | EMCO 3115 | LPB-2520A | 3160-9 | ACO/180 | CDI_P1000 | AFT18855 | NPS366 | None |

| **Frequency** | **Reading** | **Detector** | **Ant** | **Amp** | **Ant. Pol.** | **Ant. Factor** | **Pre-Amp** | **Insert. Loss** | **Net** |
|---|---|---|---|---|---|---|---|---|---|
| MHz | dB(µV) | P/A/Q | # | # | H/V | dB(1/m) | dB | dB | dB(µV/m) |
| 1673.00 | 59.0 | Peak | 8 | 8 | H | 26.7 | 29.5 | 2.3 | 58.5 |
| 2509.60 | 63.0 | Peak | 8 | 8 | H | 30.6 | 28.5 | 3.4 | 68.5 |
| 3364.12 | 46.0 | Peak | 8 | 8 | H | 31.3 | 27.9 | 3.7 | 53.1 |
| 4182.65 | 41.2 | Peak | 8 | 8 | H | 34.5 | 27.9 | 4.0 | 51.8 |
| 5018.18 | 40.0 * | Peak | 8 | 8 | V/H | 35.4 | 28.3 | 4.6 | 51.7 |
| 5855.71 | 38.5 * | Peak | 8 | 8 | V/H | 36.6 | 28.3 | 4.9 | 51.7 |
| 6692.22 | 37.0 * | Peak | 8 | 8 | V/H | 36.6 | 28.0 | 5.3 | 50.9 |
| 7528.76 | 38.0 * | Peak | 8 | 8 | V/H | 38.3 | 28.0 | 5.8 | 54.1 |
| 8365.20 | 39.0 * | Peak | 8 | 8 | V/H | 37.2 | 27.2 | 6.1 | 55.1 |

***Notes:***
a) Insert. Loss = Cable A + Cable B + Cable C + Transducer.
b) Net = Reading + Antenna Factor - Pre-Amp + Insert. Loss.
c) * Noise floor
d) All other emissions not reported at least 10 dB below the limit
e) Test was performed at 3 m

***Radiated Emissions Test Data***

| | | | |
|---|---|---|---|
| **Company:** | Sierra Wireless | **Model #:** | AIRCARD 555 |
| **EUT:** | PCMCIA Card | **FCC #:** | **N7NACRD555** |
| **Project #:** | J20054479 | **Test Date:** | July 19. 2001 |
| **Test Mode:** | Tx @ 847.75 MHz | **Engineer:** | D. Chernomordik |

| | Antenna Used | | | Pre-Amp Used | | | Cable Used | |
|---|---|---|---|---|---|---|---|---|
| **Number:** | 8 | 11 | 21 | 12 | 8 | 10 | 12 | 0 |
| **Model:** | EMCO 3115 | LPB-2520A | 3160-9 | ACO/180 | CDI_P1000 | AFT18855 | NPS366 | None |

| **Frequency** | **Reading** | **Detector** | **Ant** | **Amp** | **Ant. Pol.** | **Ant. Factor** | **Pre-Amp** | **Insert. Loss** | **Net** |
|---|---|---|---|---|---|---|---|---|---|
| MHz | dB(µV) | P/A/Q | # | # | H/V | dB(1/m) | dB | dB | dB(µV/m) |
| 1695.5 | 59.5 | Peak | 8 | 8 | H | 26.7 | 29.5 | 2.3 | 59.0 |
| 2543.3 | 62.0 | Peak | 8 | 8 | H | 30.6 | 28.5 | 3.4 | 67.5 |
| 3391.0 | 45.3 | Peak | 8 | 8 | H | 31.3 | 27.9 | 3.7 | 52.4 |
| 4238.8 | 40.4 | Peak | 8 | 8 | H | 34.5 | 27.9 | 4.0 | 51.0 |
| 5086.5 | 40.1 * | Peak | 8 | 8 | V/H | 35.4 | 28.3 | 4.6 | 51.8 |
| 5934.3 | 38.3 * | Peak | 8 | 8 | V/H | 36.6 | 28.3 | 4.9 | 51.5 |
| 6782.0 | 37.2 * | Peak | 8 | 8 | V/H | 36.6 | 28.0 | 5.3 | 51.1 |
| 7629.8 | 38.3 * | Peak | 8 | 8 | V/H | 38.3 | 27.8 | 5.8 | 54.4 |
| 8477.5 | 39.0 * | Peak | 8 | 8 | V/H | 37.2 | 27.1 | 6.1 | 55.1 |

***Notes:***
a) Insert. Loss = Cable A + Cable B + Cable C + Transducer.
b) Net = Reading + Antenna Factor - Pre-Amp + Insert. Loss.
c) * Noise floor
d) All other emissions not reported at least 10 dB below the limit
e) Test was performed at 3 m

***Radiated Emissions Test Data***

| | | | |
|---|---|---|---|
| **Company:** | Sierra Wireless | **Model #:** | AIRCARD 555 |
| **EUT:** | PCMCIA Card | **FCC #:** | **N7NACRD555** |
| **Project #:** | J20054479 | **Test Date:** | July 20. 2001 |
| **Test Mode:** | Tx @ 1851.25 MHz | **Engineer:** | D. Chernomordik. |

| | Antenna Used | | | Pre-Amp Used | | | Cable Used | |
|---|---|---|---|---|---|---|---|---|
| **Number:** | 8 | 11 | 12 | 0 | 8 | 10 | 12 | 0 |
| **Model:** | EMCO 3115 | LPB-2520A | EMCO 3104 | None | CDI_P1000 | AFT18855 | NPS366 | None |

| **Frequency** | **Reading** | **Detector** | **Ant** | **Amp** | **Ant. Pol.** | **Ant. Factor** | **Pre-Amp** | **Insert. Loss** | **Net** |
|---|---|---|---|---|---|---|---|---|---|
| MHz | dB(µV) | P/A/Q | # | # | H/V | dB(1/m) | dB | dB | dB(µV/m) |
| 3702.50 | 62.1 | Peak | 8 | 8 | H | 32.8 | 27.9 | 3.8 | 70.8 |
| 5553.75 | 41.8 | Peak | 8 | 8 | V | 36.6 | 28.3 | 4.9 | 55.0 |
| 7405.00 | 40.5 | Peak | 8 | 8 | V | 37.0 | 28.0 | 5.5 | 55.0 |
| 9256.25 | 37.7 * | Peak | 8 | 8 | V | 39.7 | 27.0 | 6.6 | 57.0 |
| 11107.5 | 43.8 * | Peak | 8 | 10 | V | 40.2 | 39.9 | 7.2 | 51.3 |
| 12958.8 | 41.4 * | Peak | 8 | 10 | V | 41.6 | 39.1 | 7.8 | 51.7 |
| 14810.0 | 44.7 * | Peak | 8 | 10 | H | 41.1 | 37.4 | 8.4 | 56.8 |
| 16661.3 | 41.0 * | Peak | 8 | 10 | H | 40.8 | 39.4 | 9.0 | 51.4 |
| 18512.5 | 40.2 * | Peak | 21 | 12 | H | 40.2 | 32.2 | 9.6 | 57.8 |

***Notes:***
a) Insert. Loss = Cable A + Cable B + Cable C + Transducer.
b) Net = Reading + Antenna Factor - Pre-Amp + Insert. Loss.
c) * Noise floor
d) All other emissions not reported at least 10 dB below the limit
e) Test was performed at 3 m

***Radiated Emissions Test Data***

| | | | |
|---|---|---|---|
| **Company:** | Sierra Wireless | **Model #:** | AIRCARD 555 |
| **EUT:** | PCMCIA Card | **FCC #:** | **N7NACRD555** |
| **Project #:** | J20054479 | **Test Date:** | July 20. 2001 |
| **Test Mode:** | Tx @ 1880 MHz | **Engineer:** | D. Chernomordik. |

| | Antenna Used | | | Pre-Amp Used | | | Cable Used | |
|---|---|---|---|---|---|---|---|---|
| **Number:** | 8 | 11 | 21 | 12 | 8 | 10 | 12 | 0 |
| **Model:** | EMCO 3115 | LPB-2520A | 3160-9 | ACO/180 | CDI_P1000 | AFT18855 | NPS366 | None |

| **Frequency** | **Reading** | **Detector** | **Ant** | **Amp** | **Ant. Pol.** | **Ant. Factor** | **Pre-Amp** | **Insert. Loss** | **Net** |
|---|---|---|---|---|---|---|---|---|---|
| MHz | dB(µV) | P/A/Q | # | # | H/V | dB(1/m) | dB | dB | dB(µV/m) |
| 3760.00 | 61.4 | Peak | 8 | 8 | H | 32.8 | 28.0 | 3.8 | 70.0 |
| 5640.00 | 40.0 | Peak | 8 | 8 | V | 36.6 | 28.3 | 4.9 | 53.2 |
| 7520.00 | 38.8 | Peak | 8 | 8 | V | 37.8 | 28.0 | 5.8 | 54.4 |
| 9400.00 | 37.5 * | Peak | 8 | 8 | V | 39.7 | 27.0 | 6.6 | 56.8 |
| 11280.0 | 43.5 * | Peak | 8 | 10 | V | 40.2 | 39.9 | 7.2 | 51.0 |
| 13160.0 | 41.5 * | Peak | 8 | 10 | V | 41.5 | 39.2 | 7.9 | 51.7 |
| 15040.0 | 44.5 * | Peak | 8 | 10 | H | 41.3 | 38.3 | 8.5 | 56.0 |
| 16920.0 | 40.3 * | Peak | 8 | 10 | H | 40.8 | 39.4 | 9.0 | 50.7 |
| 18800.0 | 40.0 * | Peak | 21 | 12 | H | 40.2 | 32.2 | 9.6 | 57.6 |

***Notes:***
a) Insert. Loss = Cable A + Cable B + Cable C + Transducer.
b) Net = Reading + Antenna Factor - Pre-Amp + Insert. Loss.
c) * Noise floor
d) All other emissions not reported at least 10 dB below the limit
e) Test was performed at 3 m

***Radiated Emissions Test Data***

| | | | |
|---|---|---|---|
| **Company:** | Sierra Wireless | **Model #:** | AIRCARD 555 |
| **EUT:** | PCMCIA Card | **FCC #:** | **N7NACRD555** |
| **Project #:** | J20054479 | **Test Date:** | July 20. 2001 |
| **Test Mode:** | Tx @ 1908.75 MHz | **Engineer:** | D. Chernomordik. |

| | Antenna Used | | | Pre-Amp Used | | | Cable Used | |
|---|---|---|---|---|---|---|---|---|
| **Number:** | 8 | 11 | 21 | 12 | 8 | 10 | 12 | 0 |
| **Model:** | EMCO 3115 | LPB-2520A | 3160-9 | ACO/180 | CDI_P1000 | AFT18855 | NPS366 | None |

| **Frequency** | **Reading** | **Detector** | **Ant** | **Amp** | **Ant. Pol.** | **Ant. Factor** | **Pre-Amp** | **Insert. Loss** | **Net** |
|---|---|---|---|---|---|---|---|---|---|
| MHz | dB(µV) | P/A/Q | # | # | H/V | dB(1/m) | dB | dB | dB(µV/m) |
| 3817.50 | 60.5 | Peak | 8 | 8 | H | 32.8 | 28.0 | 3.8 | 69.1 |
| 5726.25 | 39.8 | Peak | 8 | 8 | V | 36.6 | 28.3 | 4.9 | 53.0 |
| 7635.00 | 38.5 | Peak | 8 | 8 | V | 37.8 | 27.8 | 5.8 | 54.3 |
| 9543.75 | 37.4 * | Peak | 8 | 8 | V | 38.5 | 27.3 | 6.7 | 55.3 |
| 11452.5 | 43.4 * | Peak | 8 | 10 | V | 40.2 | 39.9 | 7.2 | 50.9 |
| 13361.3 | 41.7 * | Peak | 8 | 10 | V | 41.5 | 39.2 | 7.9 | 51.9 |
| 15270.0 | 44.6 * | Peak | 8 | 10 | H | 41.3 | 38.3 | 8.5 | 56.1 |
| 17178.8 | 40.5 * | Peak | 8 | 10 | H | 41.2 | 38.8 | 9.2 | 52.1 |
| 19087.5 | 40.2 * | Peak | 21 | 12 | H | 40.2 | 32.2 | 9.8 | 58.0 |

***Notes:***
a) Insert. Loss = Cable A + Cable B + Cable C + Transducer.
b) Net = Reading + Antenna Factor - Pre-Amp + Insert. Loss.
c) * Noise floor
d) All other emissions not reported at least 10 dB below the limit
e) Test was performed at 3 m

## Spurious Emissions Attenuation measured by Substitution Method

| Frequency MHz | Field Strength generated by the EUT dBuv/m | Signal Generator Level required to generate same field as EUT; dBm | ERP dBm | Attenuation dB | Attenuation Limit dB | Margin dB |
|---|---|---|---|---|---|---|
| 825.25 | - | - | 26.6 | - | - | - |
| 1650.5 | 57.0 | -48.5 | -43.5 | 70.1 | 40.4 | -29.7 |
| 2475.75 | 69.3 | -38.0 | -33.0 | 59.6 | 40.4 | -19.2 |

| Frequency MHz | Field Strength generated by the EUT dBuv/m | Signal Generator Level required to generate same field as EUT; dBm | ERP dBm | Attenuation dB | Attenuation Limit dB | Margin dB |
|---|---|---|---|---|---|---|
| 836.5 | - | - | 26.6 | - | - | - |
| 1673.0 | 58.5 | -47.8 | -42.8 | 69.4 | 40.4 | -29.0 |
| 2509.6 | 68.5 | -39.1 | -34.1 | 60.7 | 40.4 | -20.3 |

| Frequency MHz | Field Strength generated by the EUT dBuv/m | Signal Generator Level required to generate same field as EUT; dBm | ERP dBm | Attenuation dB | Attenuation Limit dB | Margin dB |
|---|---|---|---|---|---|---|
| 847.75 | - | - | 26.5 | - | - | - |
| 1695.5 | 59.0 | -47.0 | -42.0 | 68.5 | 40.4 | -28.1 |
| 2543.3 | 67.5 | -40.3 | -35.3 | 61.8 | 40.4 | -21.4 |

## Spurious Emissions Attenuation measured by Substitution Method

| Frequency MHz | Field Strength generated by the EUT dBuv/m | Signal Generator Level required to generate same field as EUT; dBm | EIRP dBm | Attenuation dB | Attenuation Limit dB | Margin dB |
|---|---|---|---|---|---|---|
| 1851.25 | - | - | 28.2 | - | - | - |
| 3702.50 | 70.8 | -45.8 | -38.8 | 67.0 | 40.4 | -26.6 |

| Frequency MHz | Field Strength generated by the EUT dBuv/m | Signal Generator Level required to generate same field as EUT; dBm | EIRP dBm | Attenuation dB | Attenuation Limit dB | Margin dB |
|---|---|---|---|---|---|---|
| 1880.0 | - | - | 28.0 | - | - | - |
| 3760.0 | 70.0 | -46.9 | -39.9 | 67.9 | 40.4 | -27.5 |

| Frequency MHz | Field Strength generated by the EUT dBuv/m | Signal Generator Level required to generate same field as EUT; dBm | EIRP dBm | Attenuation dB | Attenuation Limit dB | Margin dB |
|---|---|---|---|---|---|---|
| 1908.75 | - | - | 26.4 | - | - | - |
| 3817.50 | 69.1 | -48.0 | -41.0 | 67.4 | 40.4 | -27.0 |

## 7.0 Line Conducted Emissions

FCC 15.107

### 7.1 Test Procedure

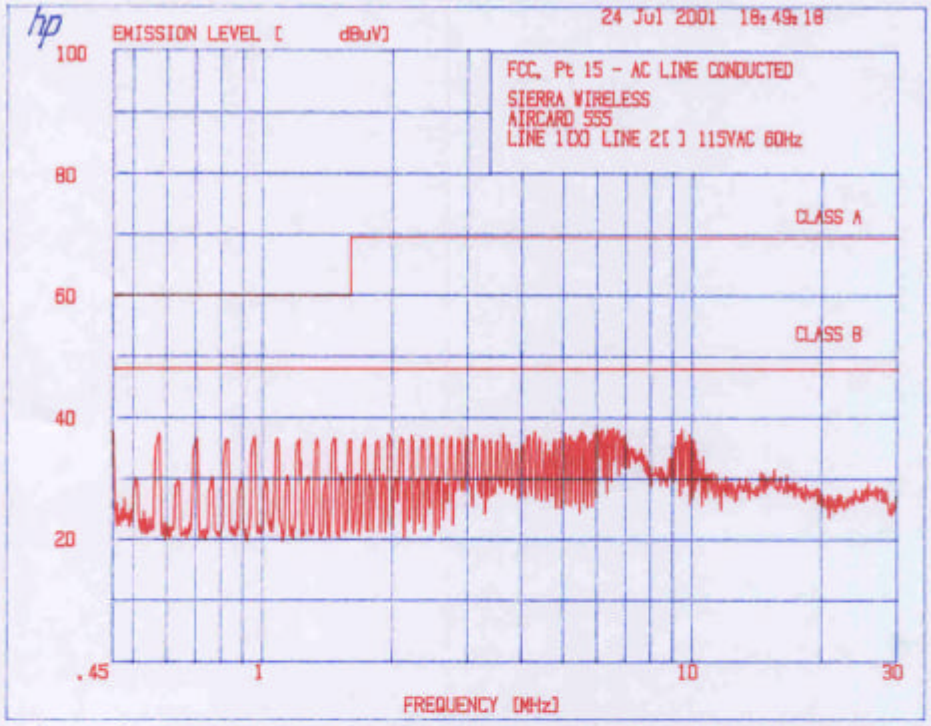
Test procedure described in the ANSI C63.4 Standard was employed. The Laptop was connected to the AC line through the LISNs. Both HOT and NEUTRAL leads were tested.

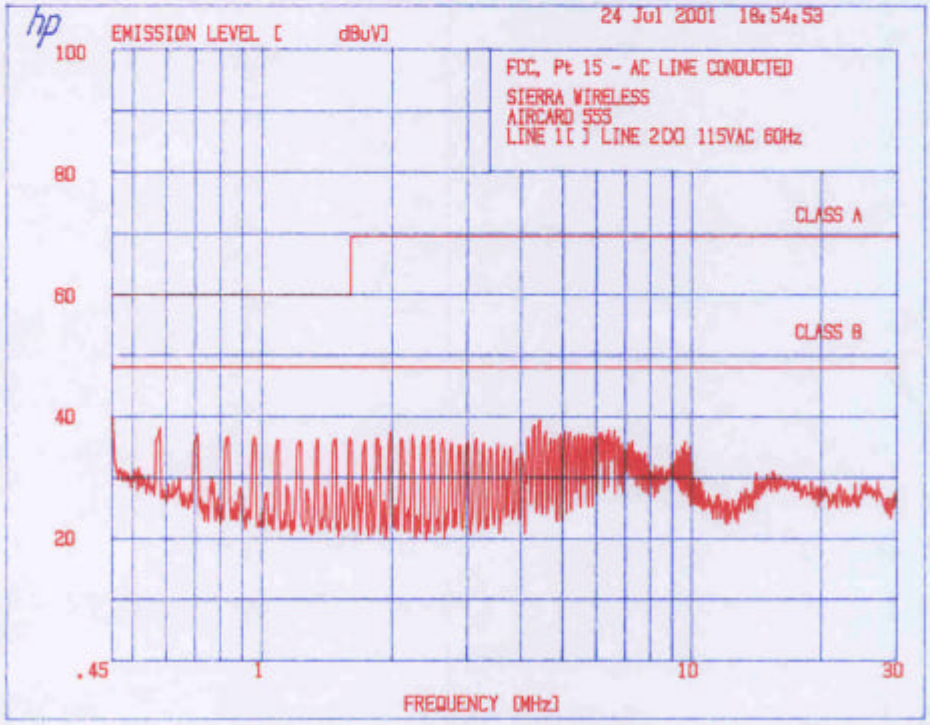
### 7.2 Test Equipment

HP8568A Spectrum Analyzer with 85650 Quasi-peak adapter
Solar Electronics 8028-50-TS-24-BNC LISNs

### 7.3 Test Results

See attached plot.

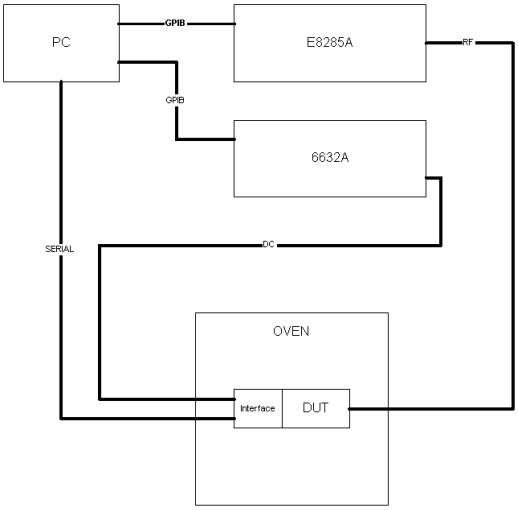

hp
EMISSION LEVEL [ dBuV]
24 Jul 2001 18:49:18
FCC, Pt 15 - AC LINE CONDUCTED
SIERRA WIRELESS
AIRCARD 555
LINE 1[X] LINE 2[ ] 115VAC 60Hz
CLASS A
CLASS B
100
80
60
40
20
.45
1
10
30
FREQUENCY [MHz]


hp
EMISSION LEVEL [ dBuV]
24 Jul 2001 18:54:53
FCC, Pt 15 - AC LINE CONDUCTED
SIERRA WIRELESS
AIRCARD 555
LINE 1[ ] LINE 2[X] 115VAC 60Hz
CLASS A
CLASS B
100
80
60
40
20
.45
1
10
30
FREQUENCY [MHz]

## 8.0 Frequency Stability vs Temperature

FCC 2.1055

### 8.1 Test Procedure




**Test setup block diagram**

The AIRCARD 555 was placed inside the temperature chamber. After the temperature stabilized for approximately 20 minutes, the transmitting frequency was recorded.

### 8.2 Test Equipment

Aglient e8285A CDMA Mobile Station Test Set
HP 6632A DC Power Supply

### 8.3 Test Results

| | |
|---|---|
| Test Result: | Complies. Emission attenuation on the band-edges frequencies of the frequency block is not affected by the measured frequency instability. |

Transmitting Frequency: 1880 MHz

| Temperature (°C) | Frequency (MHz) | Difference (Hz) |
|---|---|---|
| -30 | 1880.000002 | 2.43 |
| -20 | 1879.999995 | -5.02 |
| -10 | 1879.999991 | -9.32 |
| 0 | 1880.000007 | 7.50 |
| 10 | 1879.999997 | -2.69 |
| 20 | 1880.000008 | 8.29 |
| 30 | 1880.000003 | 2.63 |
| 40 | 1879.999996 | -3.55 |
| 50 | 1880.000002 | 1.59 |

Note: The measured frequency stability vs. temperature for the Cellular band is identical (% difference) to the above table since the transmitting frequency is locked to the same oscillator.

## 9.0 Frequency Stability vs Voltage

FCC 2.1055

### 9.1 Test Procedure

For the test setup block diagram, refer to sec. 8.
The Aircard 555 was connected to a DC Power Supply. The voltage was set to 115% of the nominal value and was then decreased to 85% of the nominal value. The output frequency was recorded for each voltage setting.

### 9.2 Test Equipment

Aglient e8285A CDMA Mobile Station Test Set
HP 6632A DC Power Supply

### 9.3 Test Results.

| | |
|---|---|
| Test Result: | Complies. Emission attenuation on the band-edges frequencies of the frequency block is not affected by the measured frequency instability. |

Transmitting Frequency: 837 MHz

| Vcc, Volts | Frequency (MHz) | Difference ( Hz) |
|---|---|---|
| 4.0 | 836.999995 | -5.08 |
| 6.0 | 837.000006 | 6.23 |

Transmitting Frequency: 1880 MHz

| Vcc, Volts | Frequency (MHz) | Difference ( Hz) |
|---|---|---|
| 4.0 | 1880.000003 | 3.31 |
| 6.0 | 1880.000002 | 2.39 |

## 10.0 Miscellaneous Comments

For setup photos see separate file “Set Up Photos”