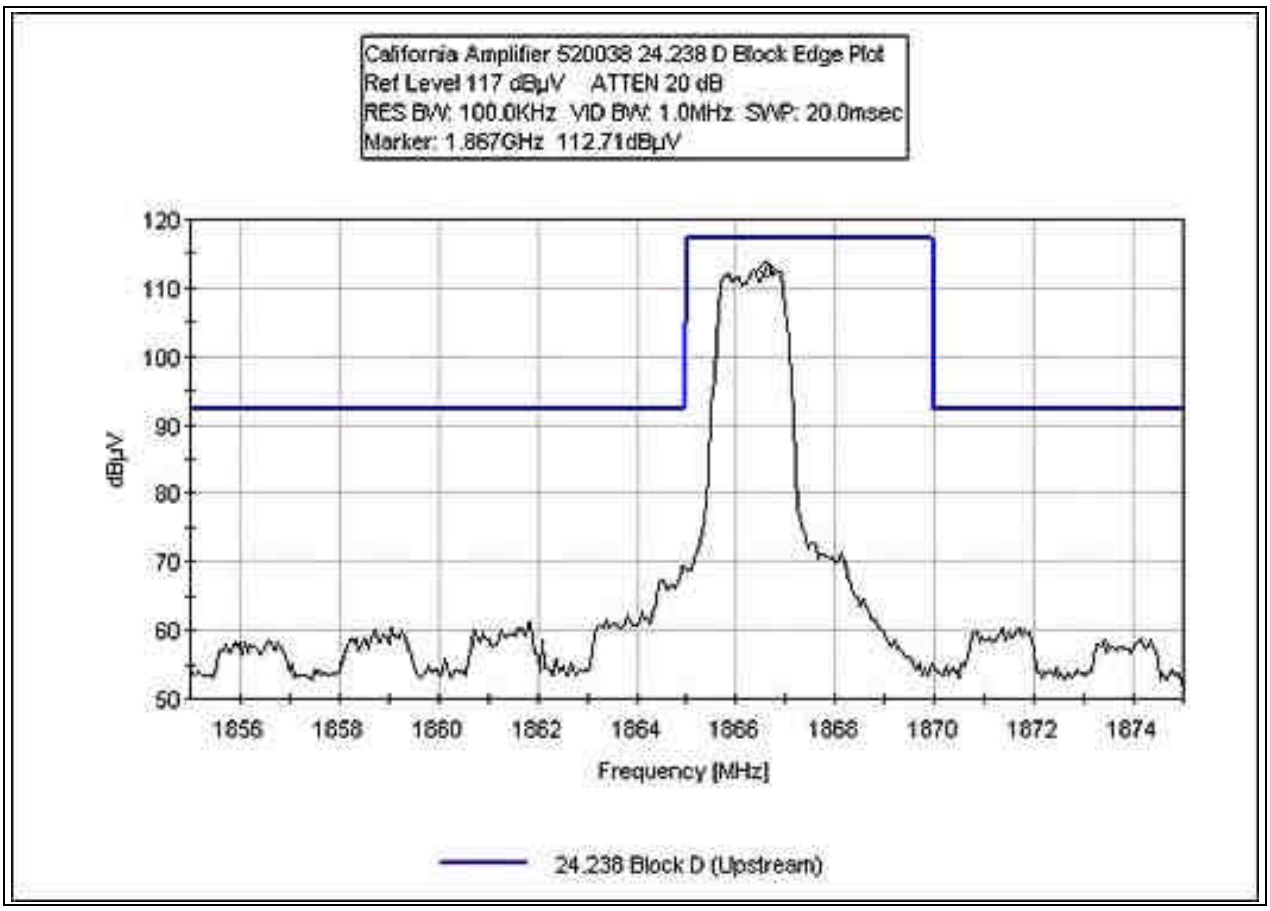
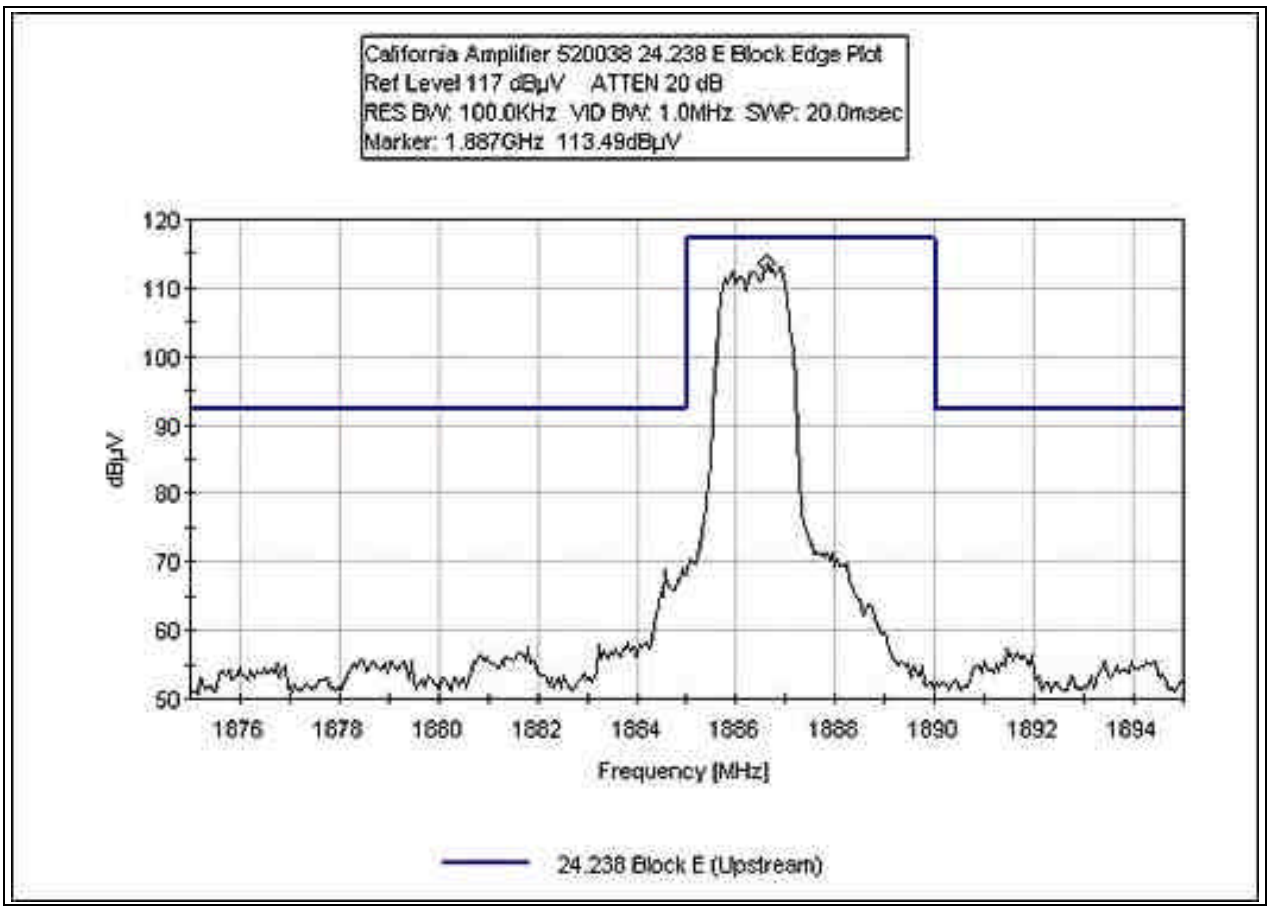
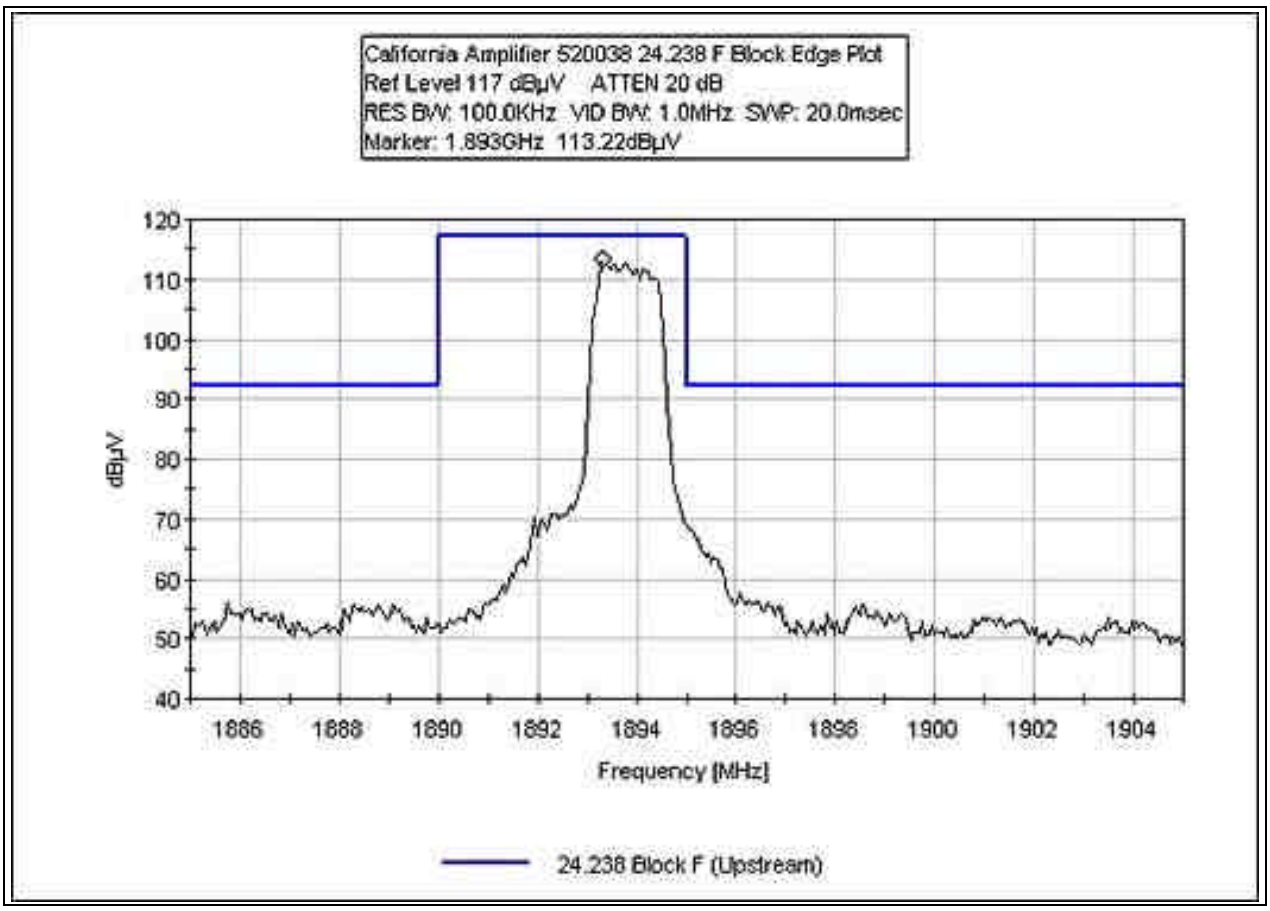
BLOCK EDGE PLOT - UPSTREAM CDMA D LOW



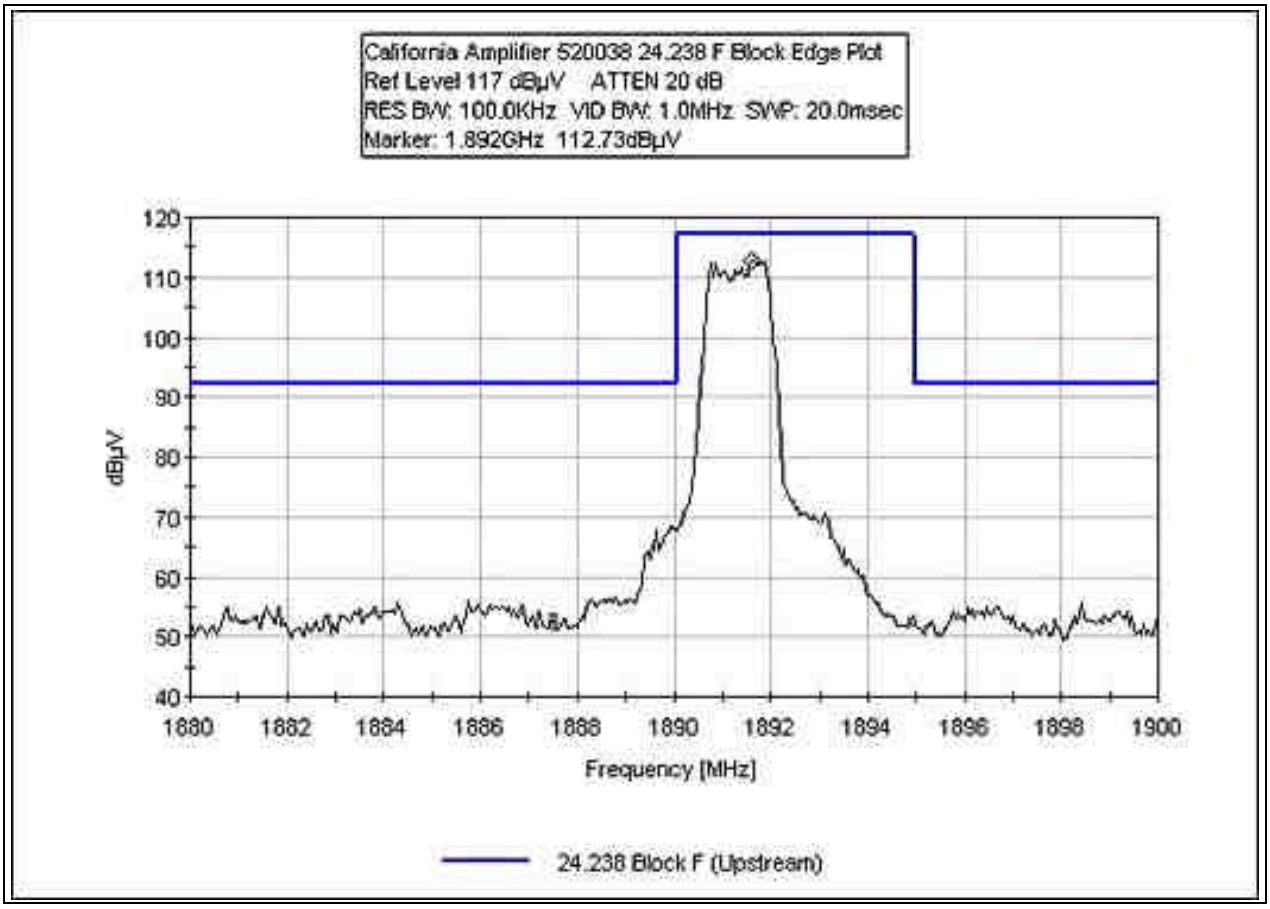
BLOCK EDGE PLOT - UPSTREAM CDMA E LOW



BLOCK EDGE PLOT - UPSTREAM CDMA F HIGH

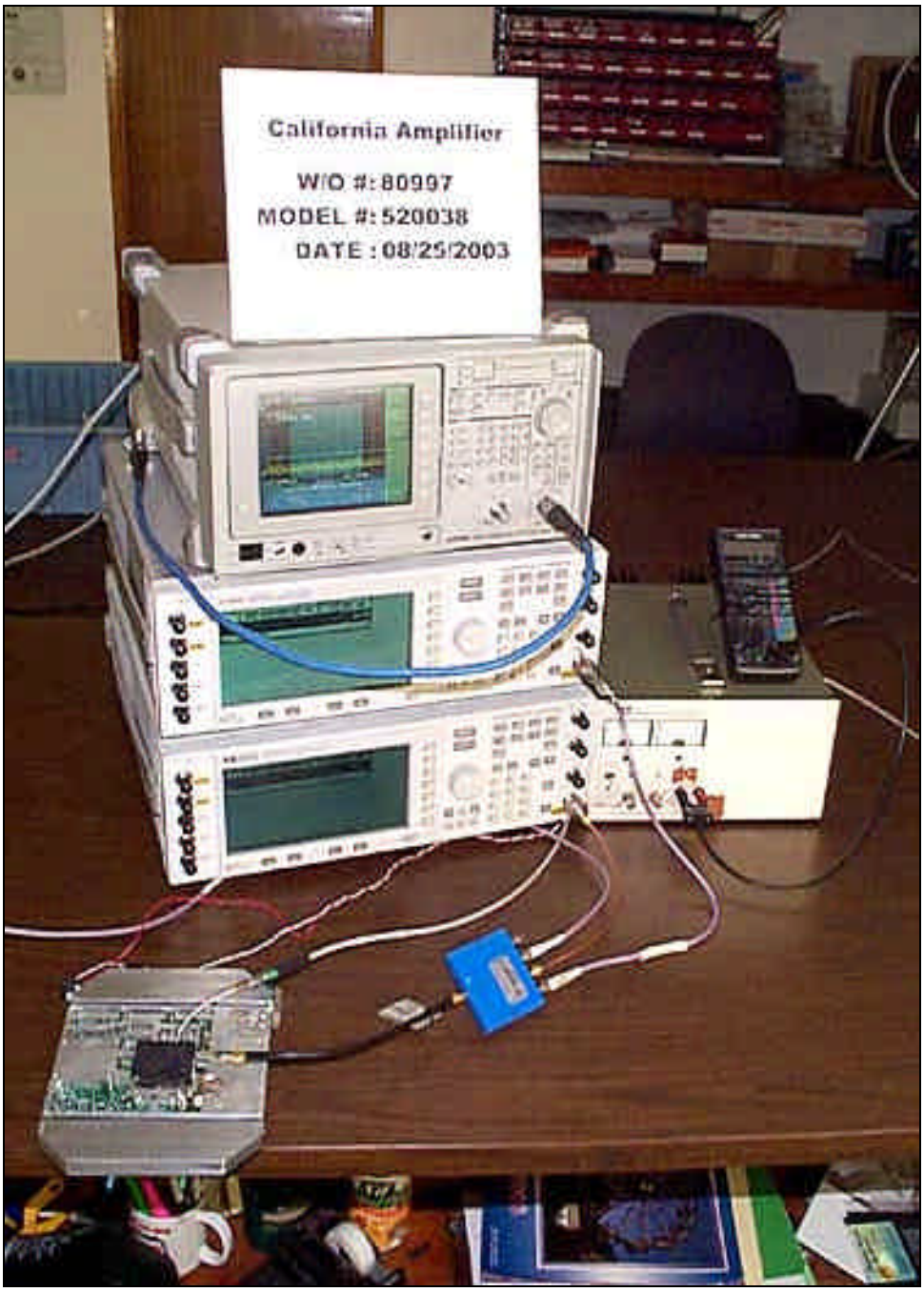


BLOCK EDGE PLOT - UPSTREAM CDMA F LOW



Test Equipment

Description	*Asset #*	*Manufacturer*	*Model #*	*Serial #*	*Cal Date*	*Cal Due*
Spectrum Analyzer, 9kHz to 26.5 GHz	02111	HP	8593EM	3624A00159	5/12/03	5/11/05
Cable-HF	P01403	Semiflex	58758-23	0038	1/21/03	1/21/04



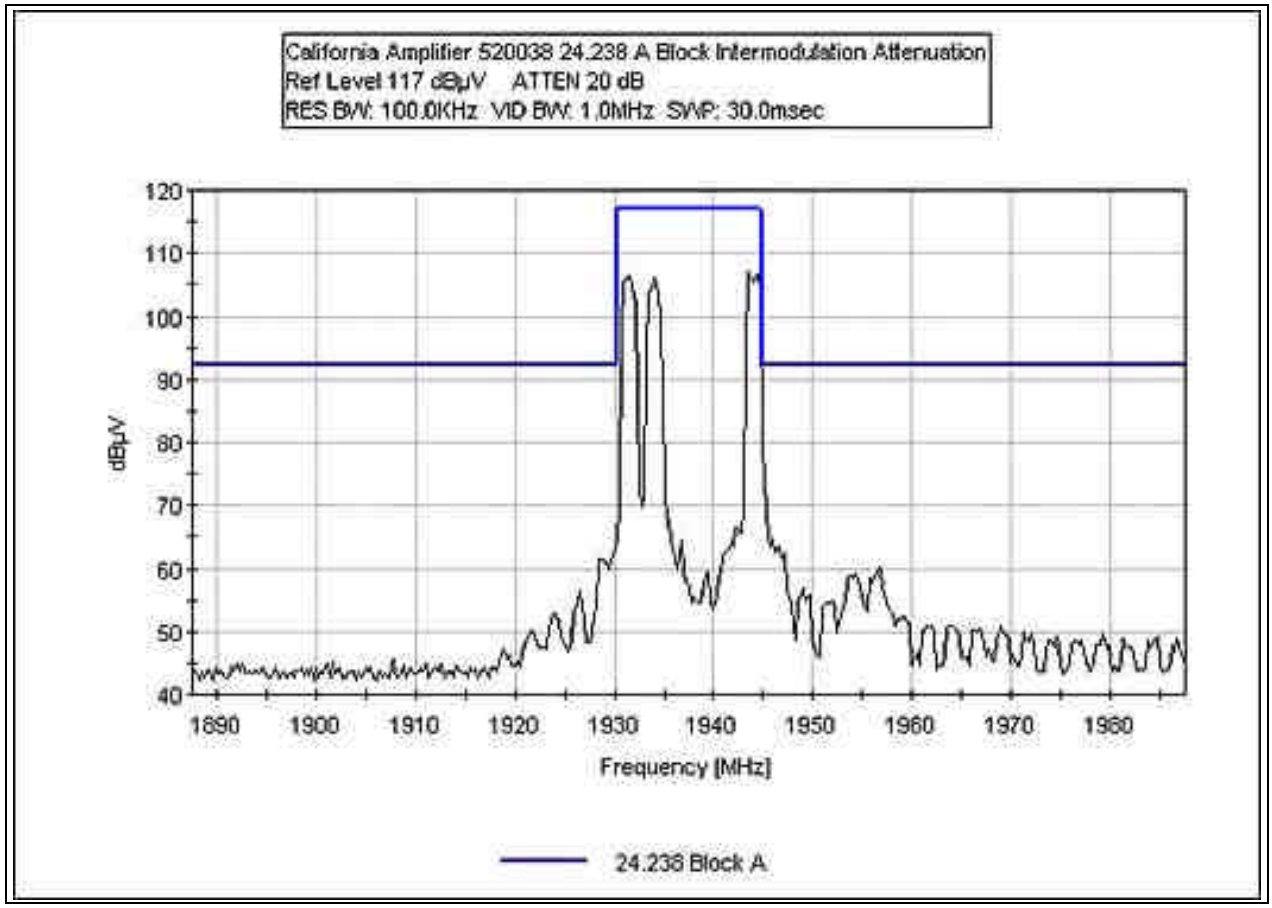
Direct Connect

FCC 2.1051/2.1053/24.238 - INTERMODULATION ATTENUATION - DOWNSTREAM CDMA A

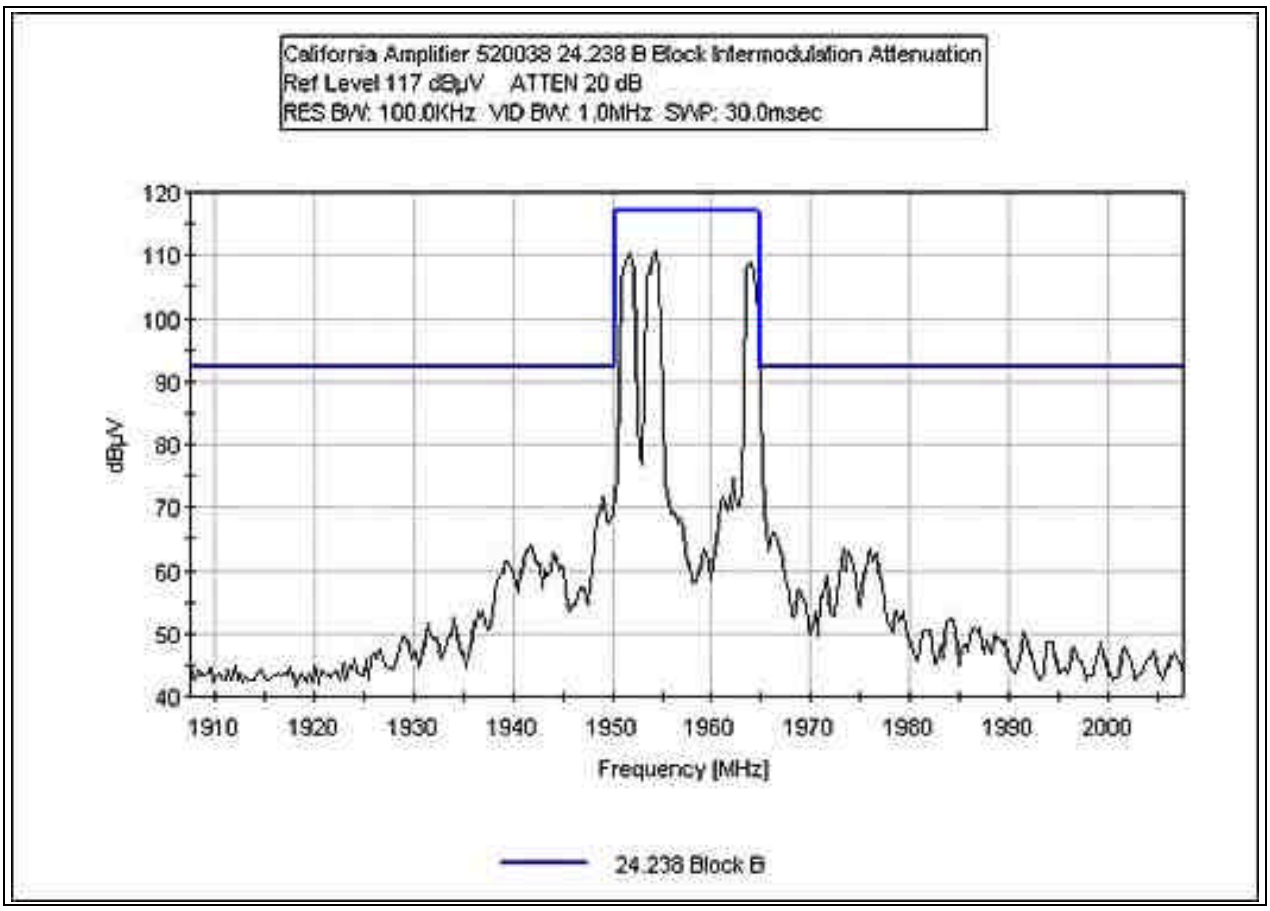
Intermodulation Attenuation Test (3 Signal Method)
Blocks Tested: A-F Upstream and Downstream
Input Frequency Range: 1850-1910 MHz (Upstream) and 1930-1990 MHz (Downstream)
Modulation Tested: CDMA (representative of worst case emissions)
Frequency Range Tested: 20MHz to 20GHz

RBW=1MHz and VBW=1MHz except in the 1MHz bandwidth outside of the assigned block where RBW=100kHz and VBW=1MHz

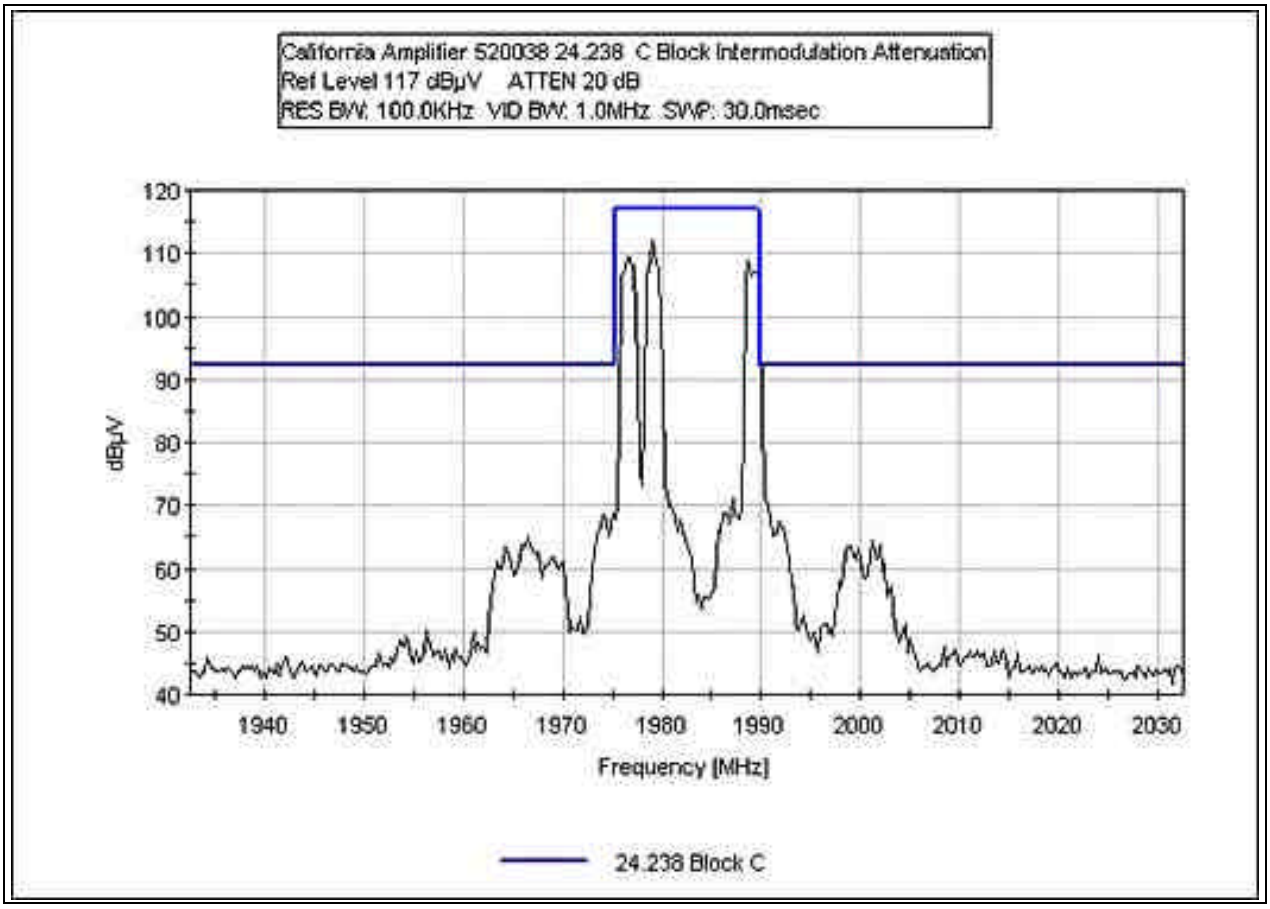
Three input signals are chosen such that in the 15MHz channel blocks the lowest and highest channels are selected in addition to the third lowest channel. In the 5 MHz channel blocks the lowest and highest channels are selected in addition to the second lowest channel.



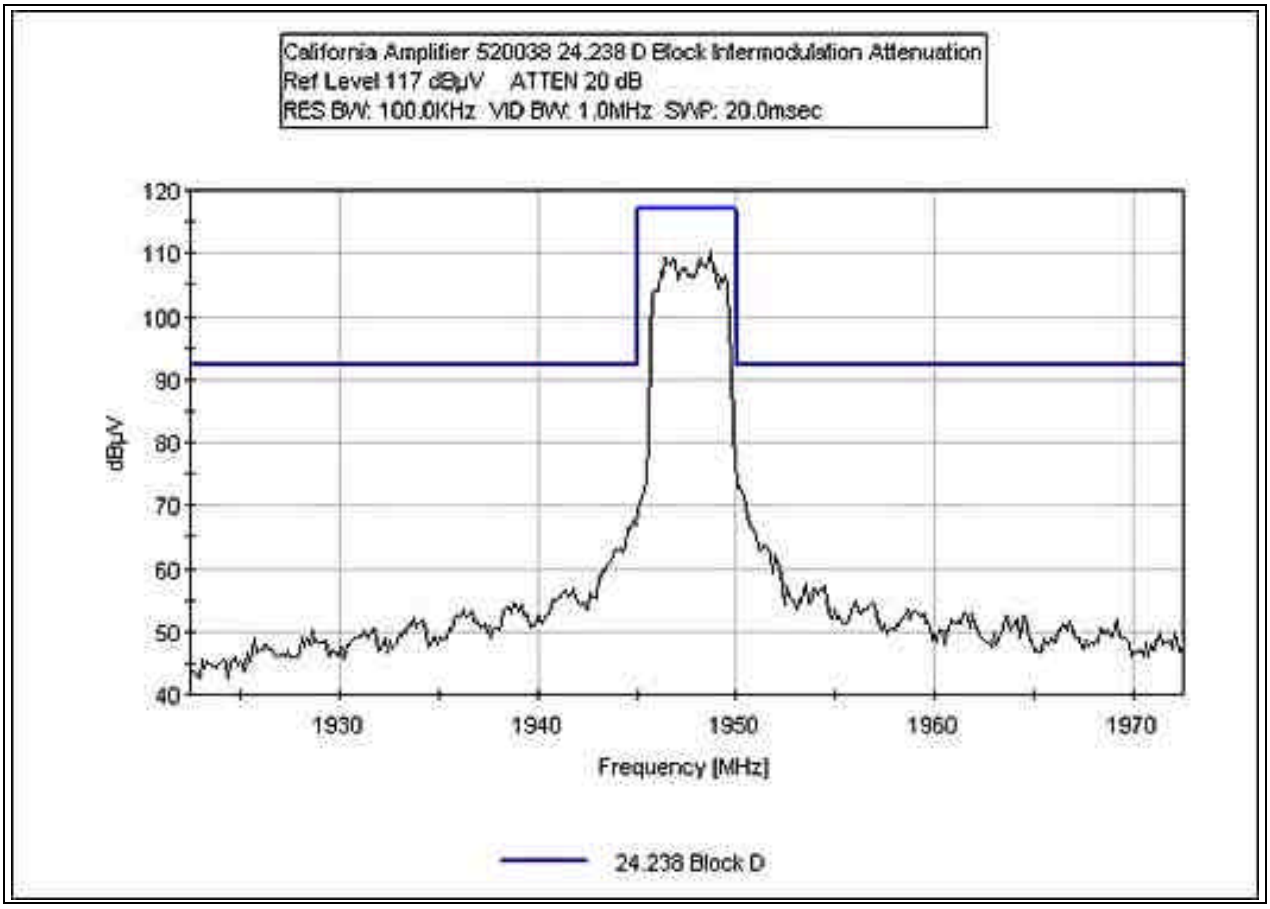
INTERMODULATION ATTENUATION - DOWNSTREAM CDMA B



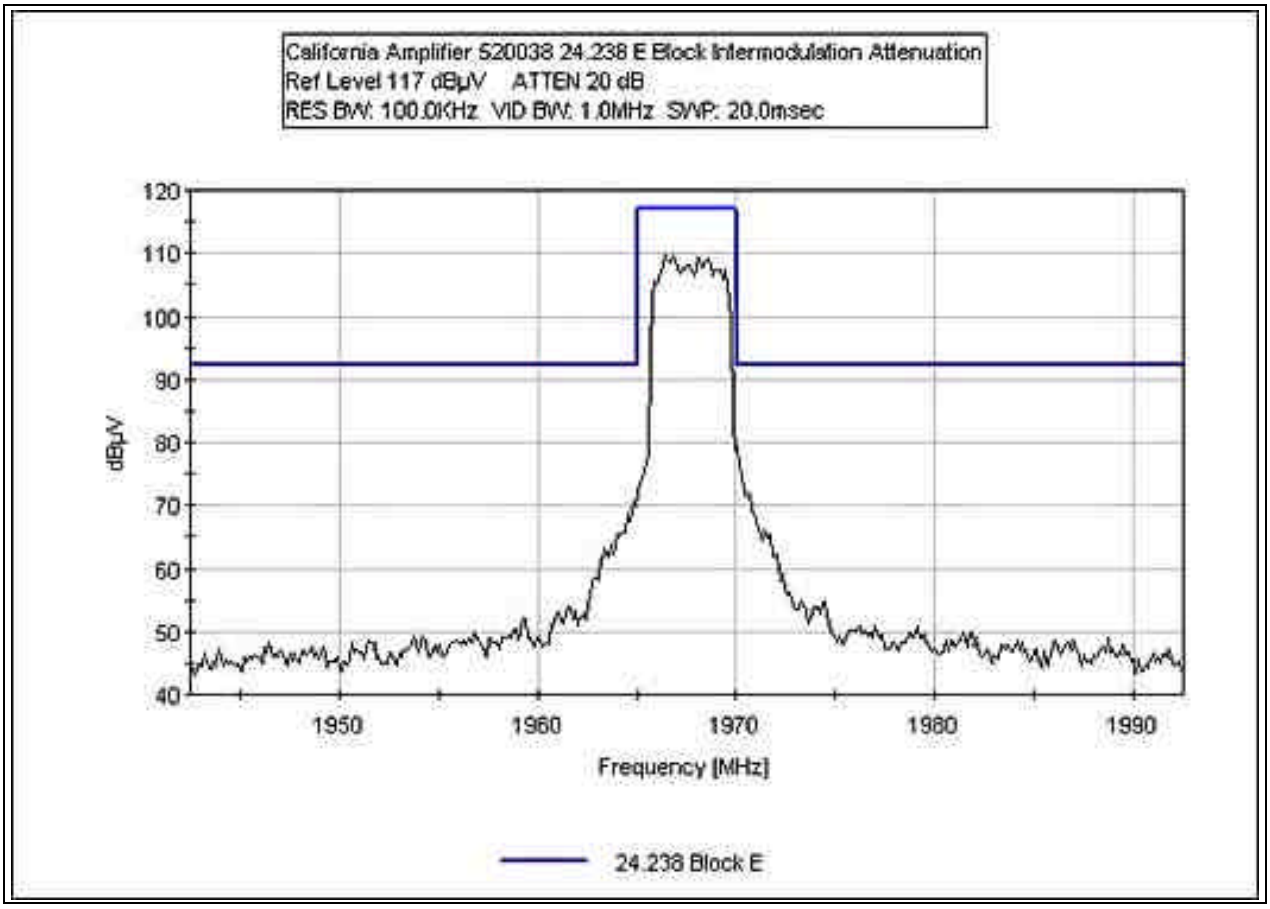
INTERMODULATION ATTENUATION - DOWNSTREAM CDMA C



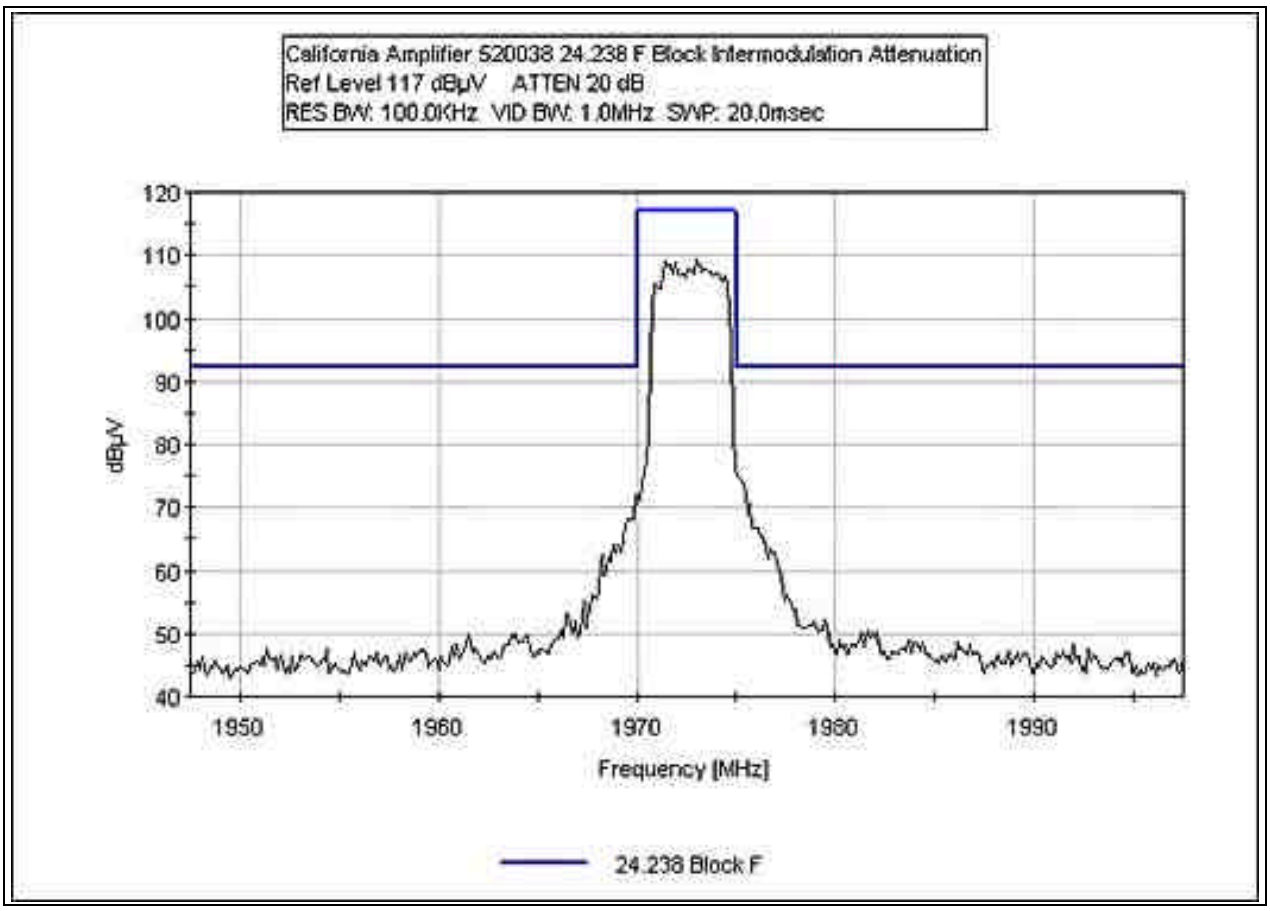
INTERMODULATION ATTENUATION - DOWNSTREAM CDMA D



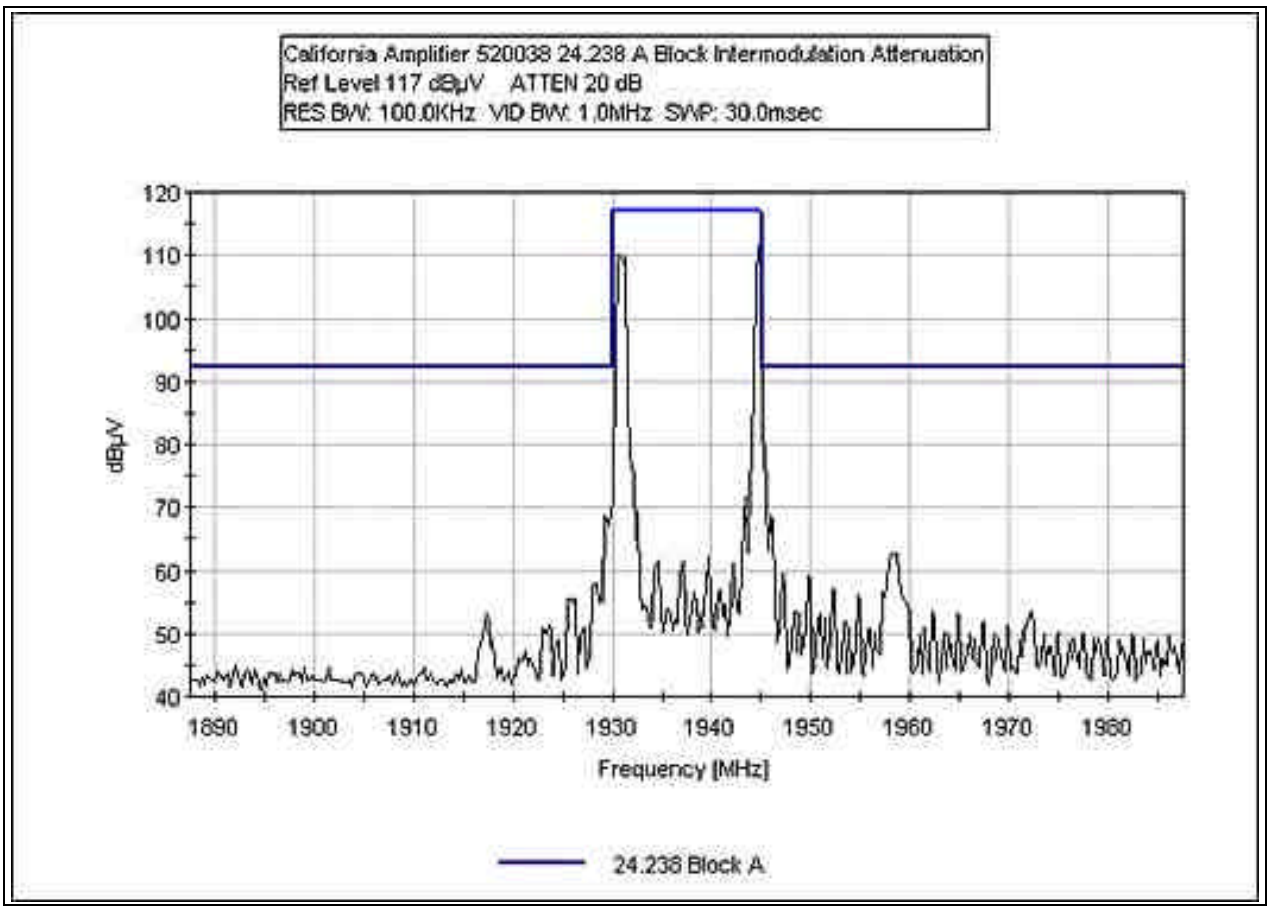
INTERMODULATION ATTENUATION - DOWNSTREAM CDMA E



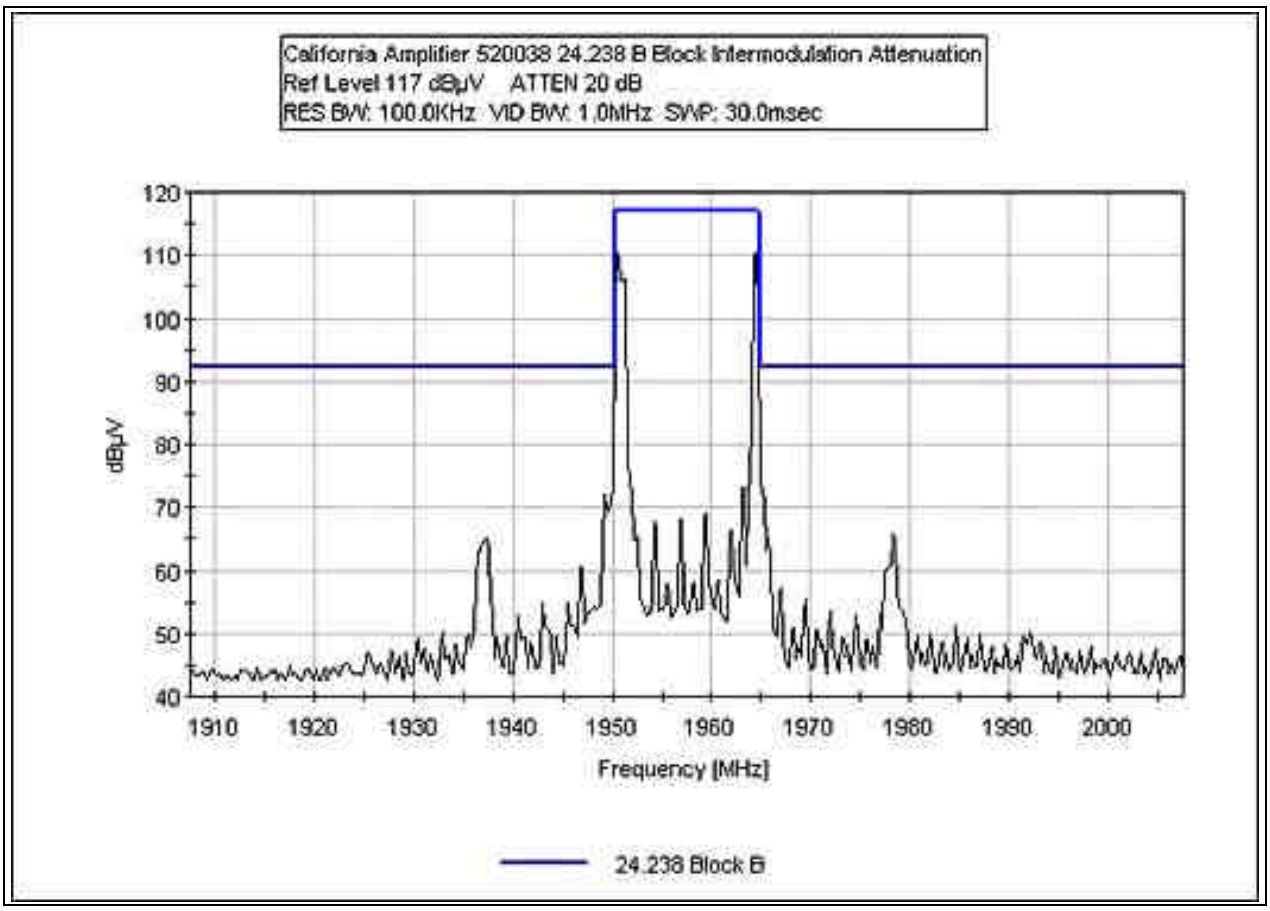
INTERMODULATION ATTENUATION - DOWNSTREAM CDMA F



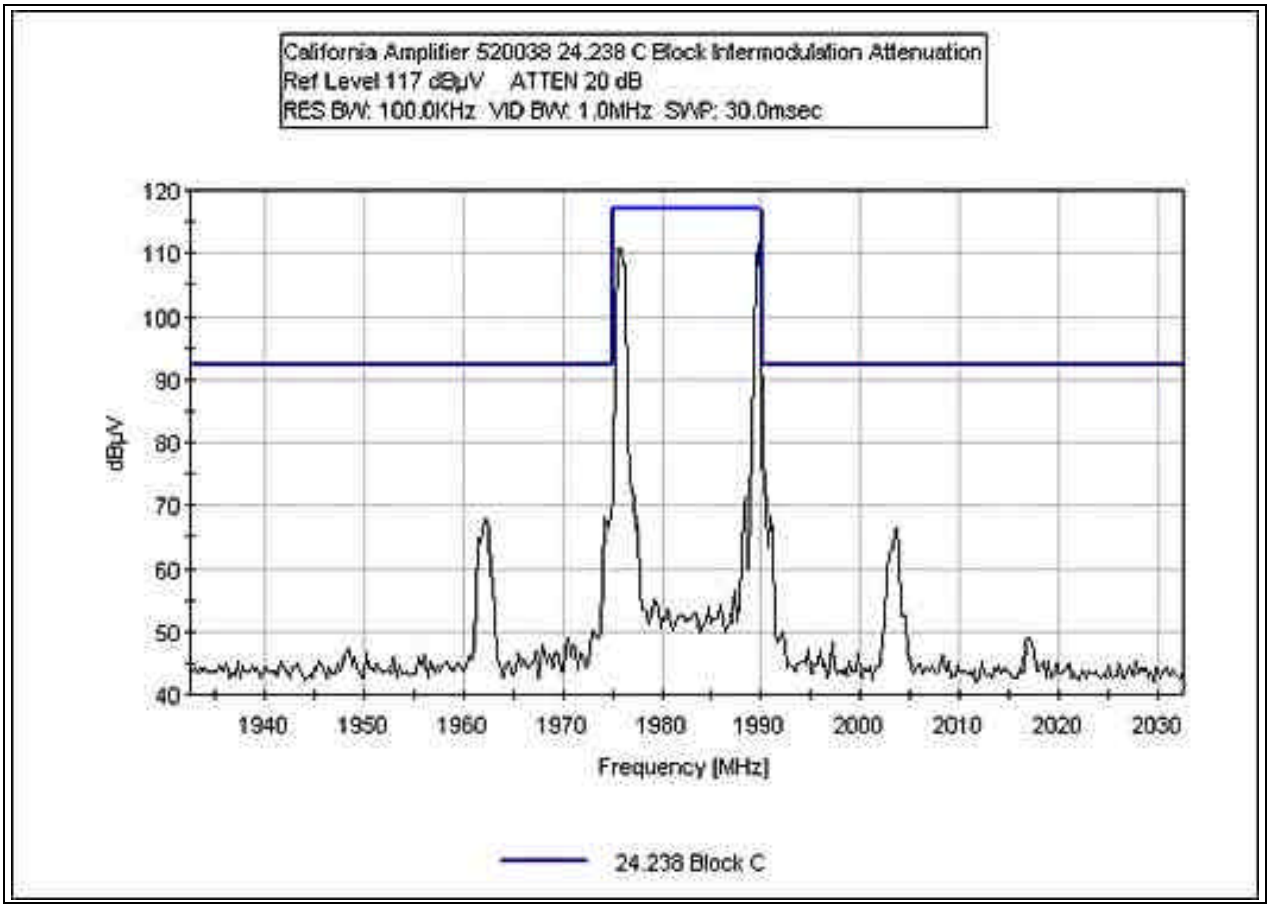
INTERMODULATION ATTENUATION - DOWNSTREAM GSM A



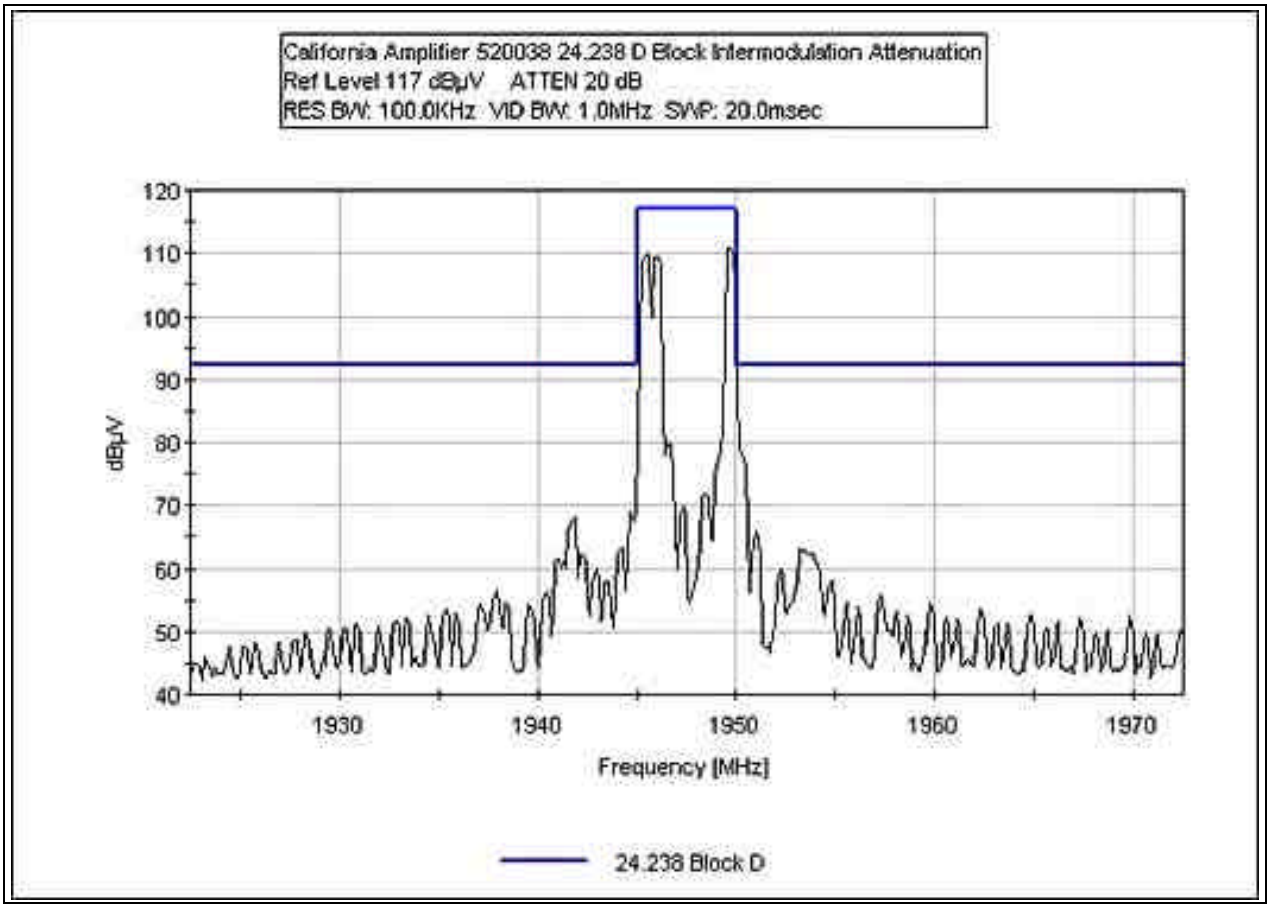
INTERMODULATION ATTENUATION - DOWNSTREAM GSM B



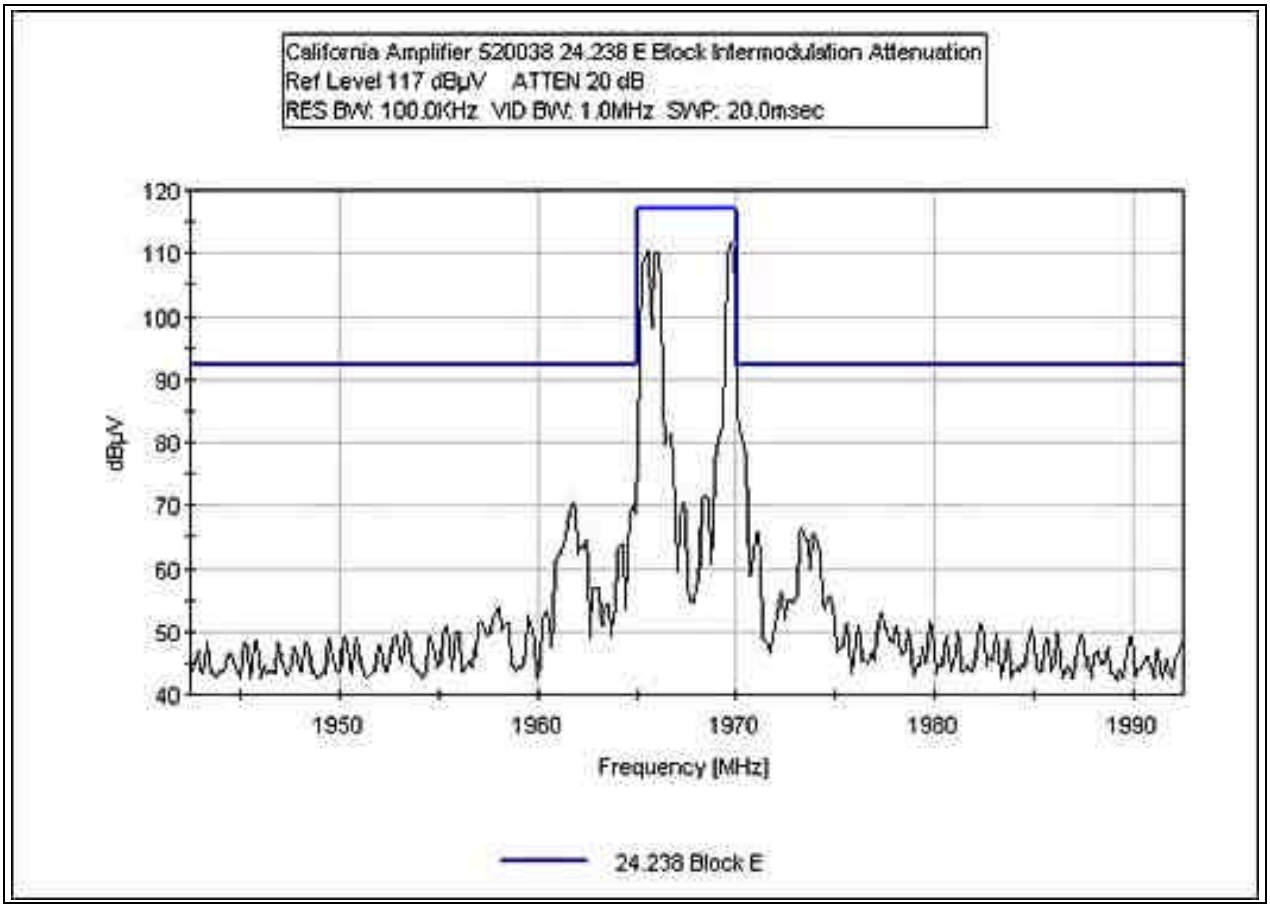
INTERMODULATION ATTENUATION - DOWNSTREAM GSM C



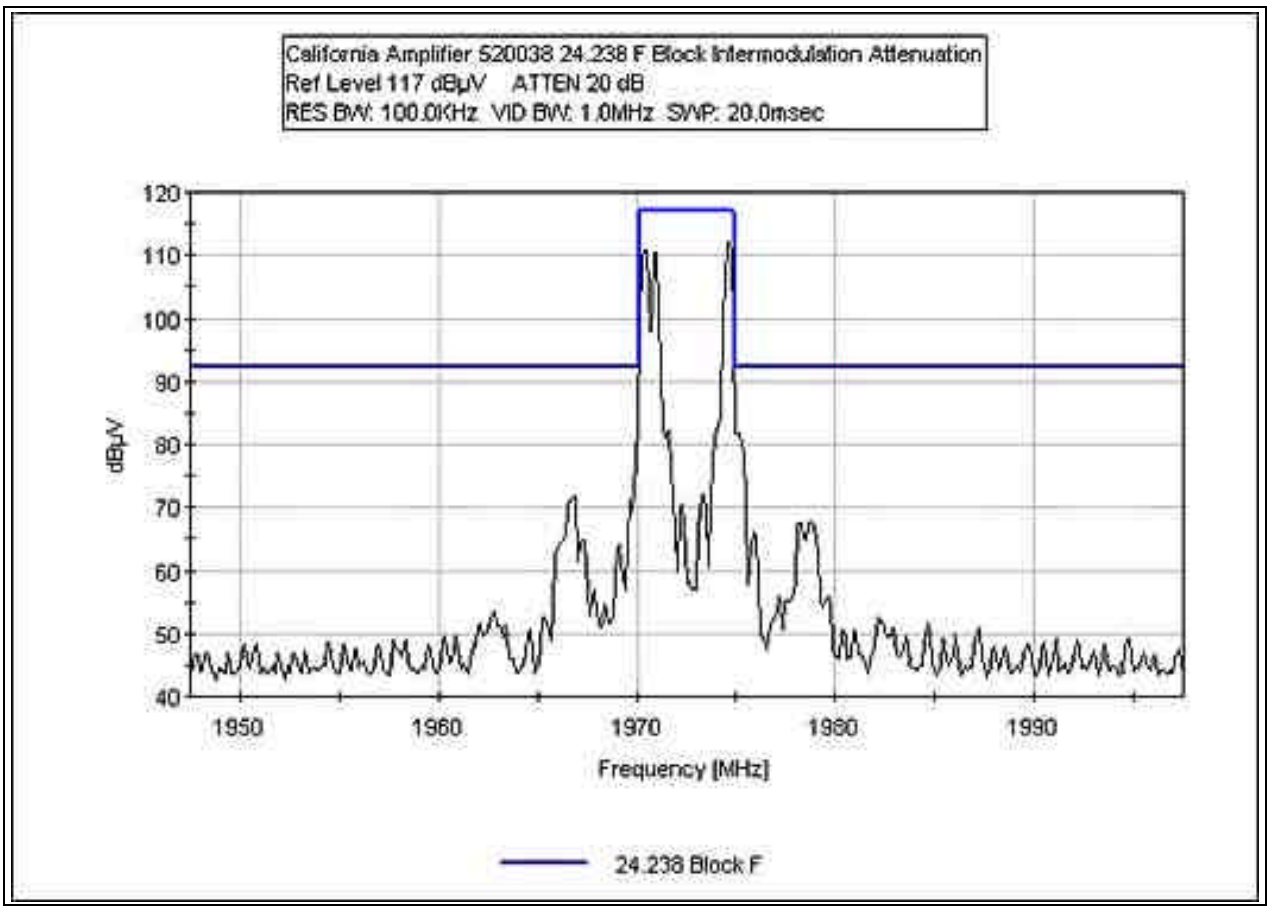
INTERMODULATION ATTENUATION - DOWNSTREAM GSM D



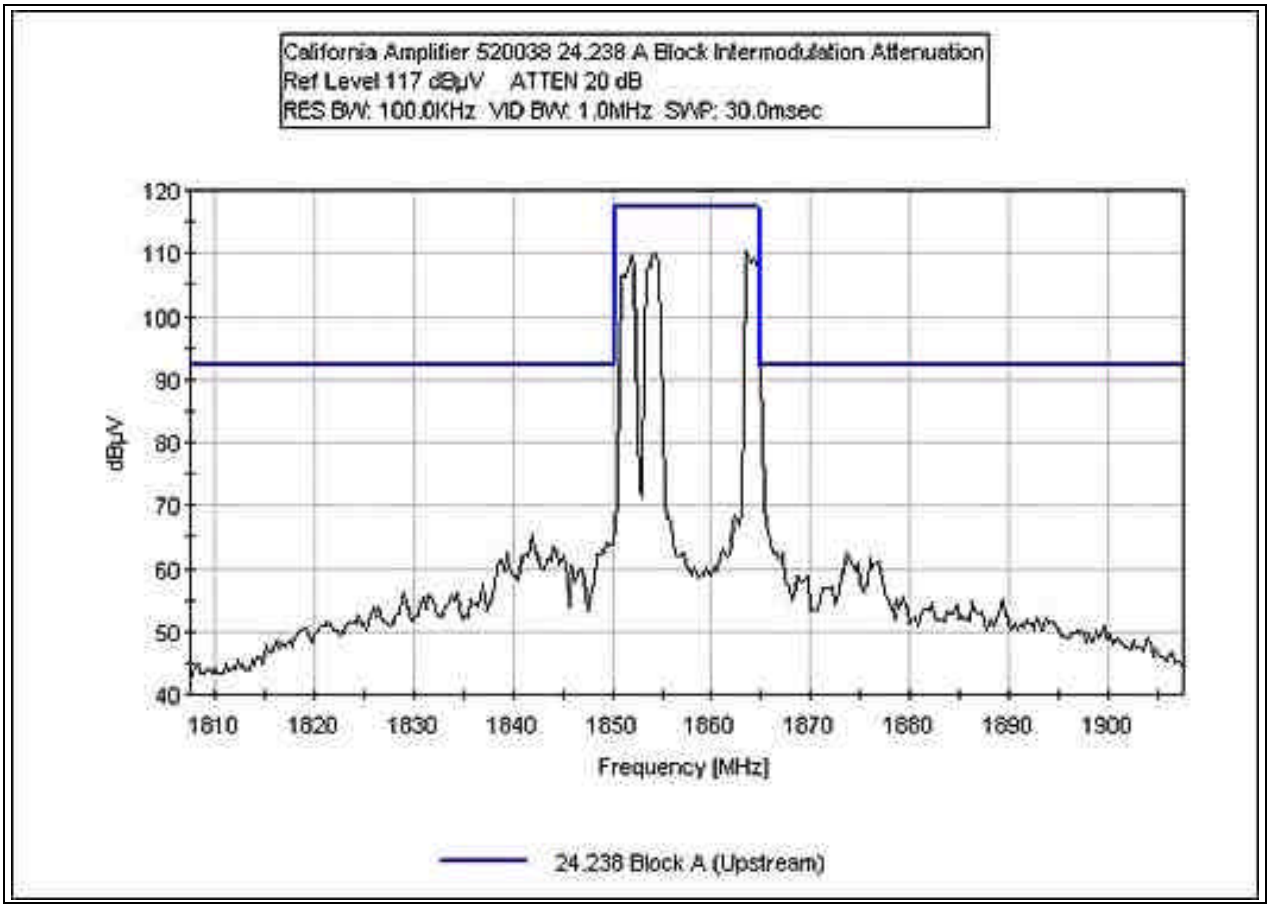
INTERMODULATION ATTENUATION - DOWNSTREAM GSM E



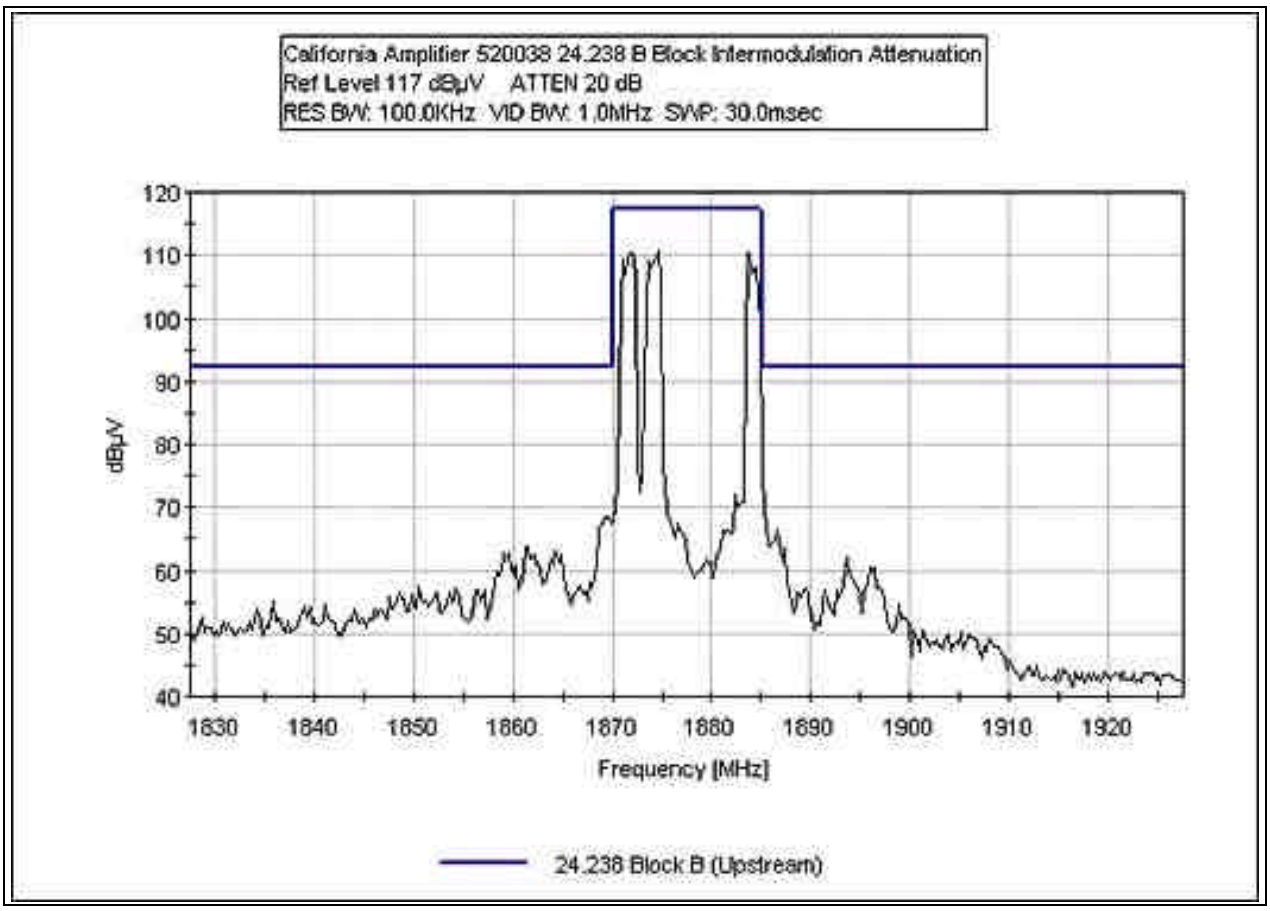
INTERMODULATION ATTENUATION - DOWNSTREAM GSM F



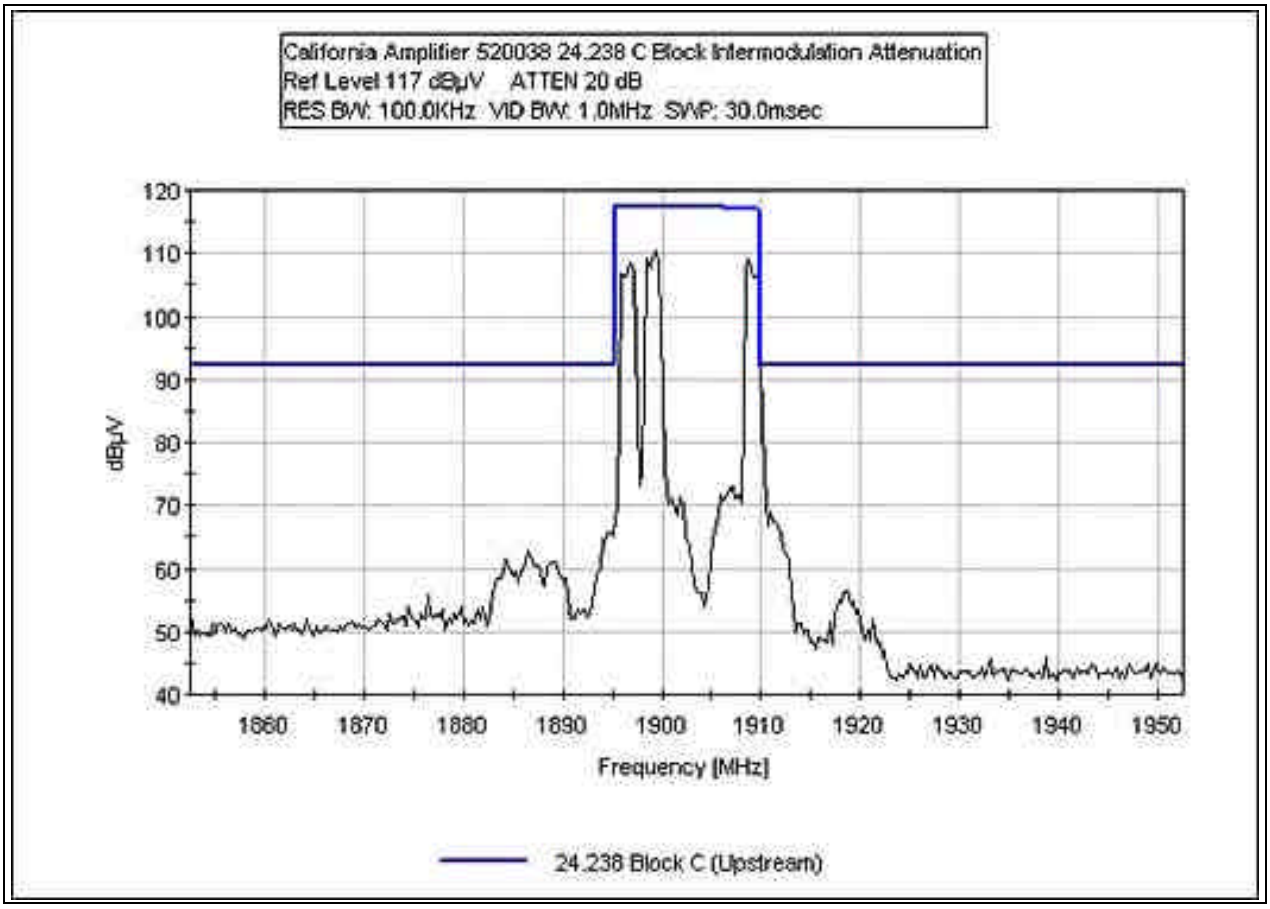
INTERMODULATION ATTENUATION - UPSTREAM CDMA A



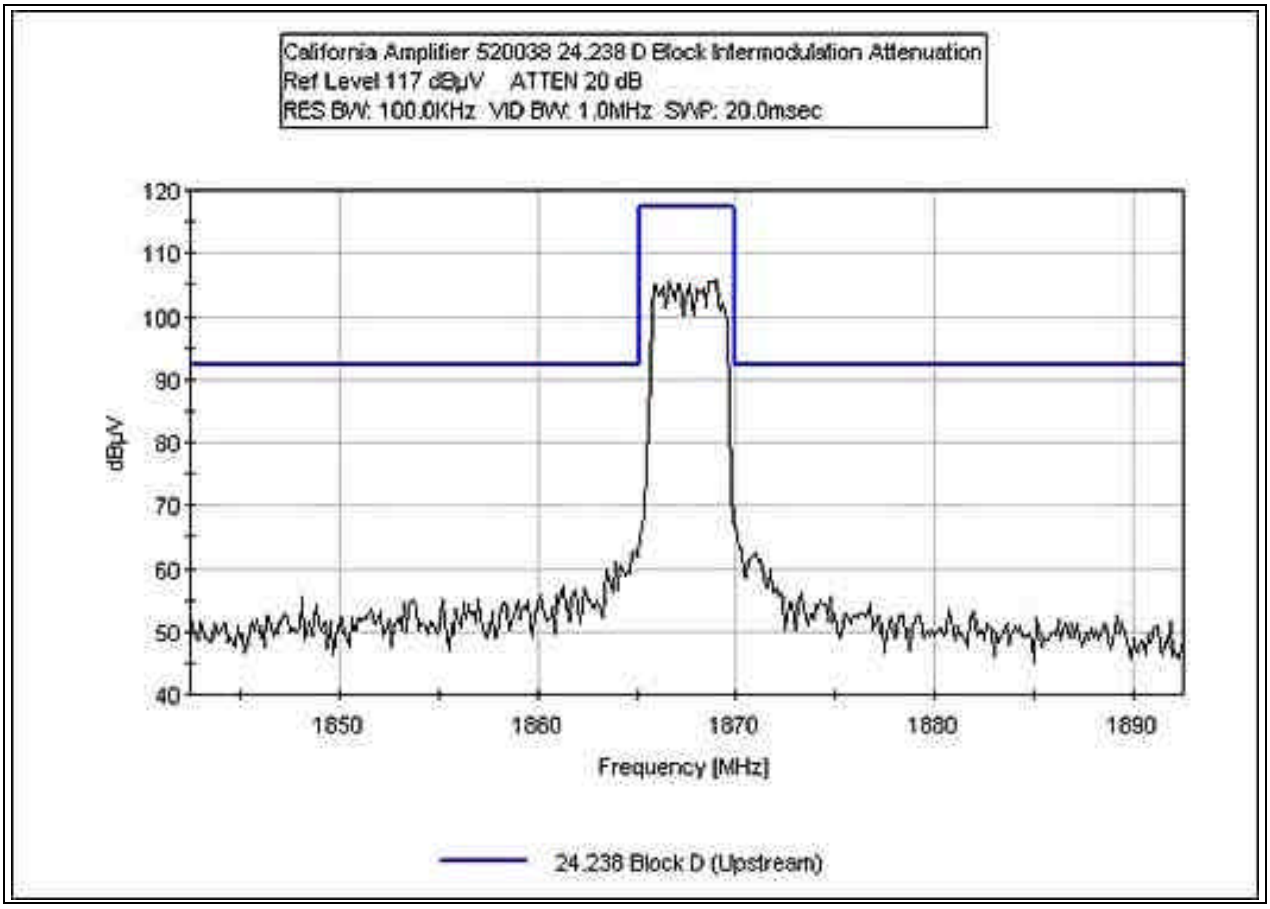
INTERMODULATION ATTENUATION - UPSTREAM CDMA B



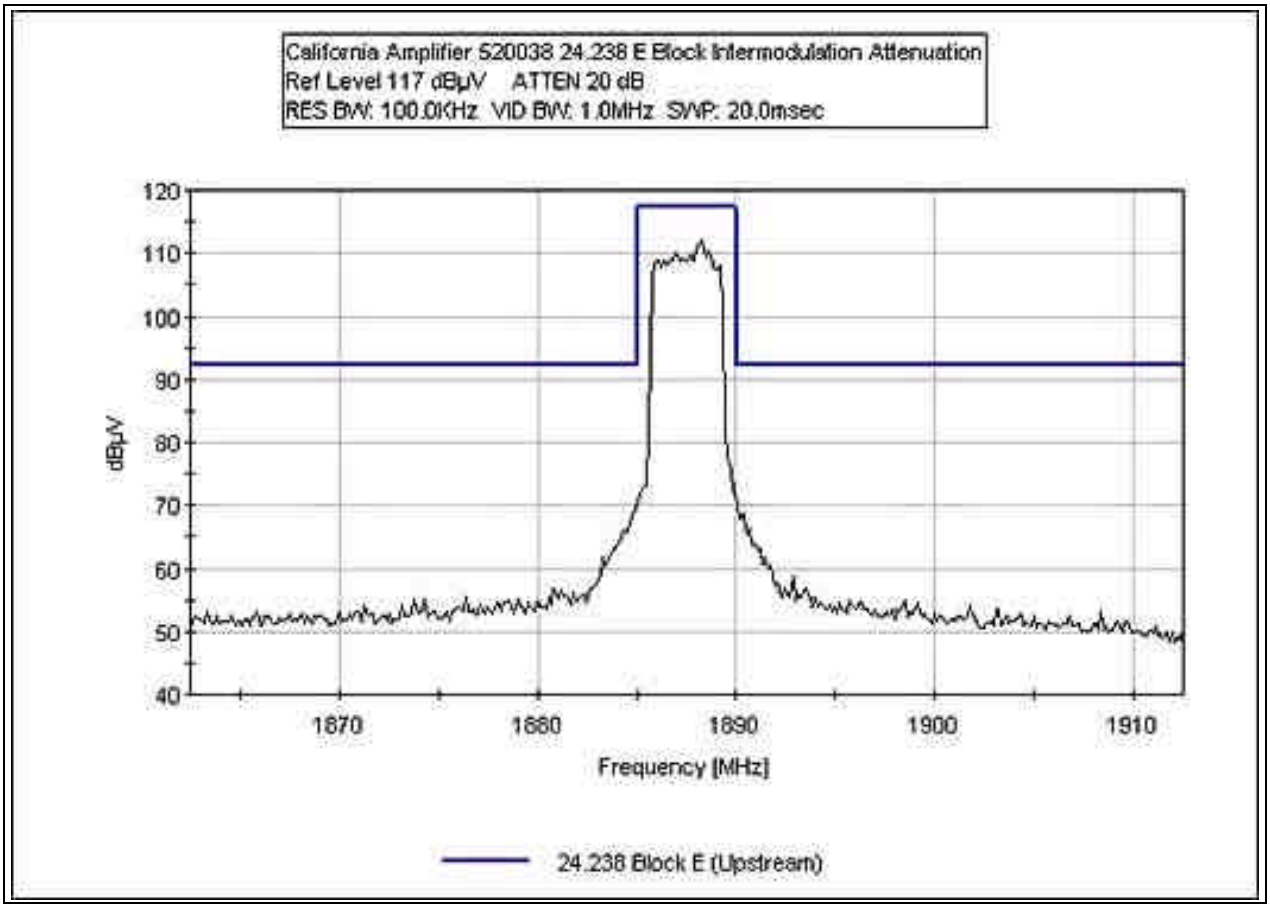
INTERMODULATION ATTENUATION - UPSTREAM CDMA C



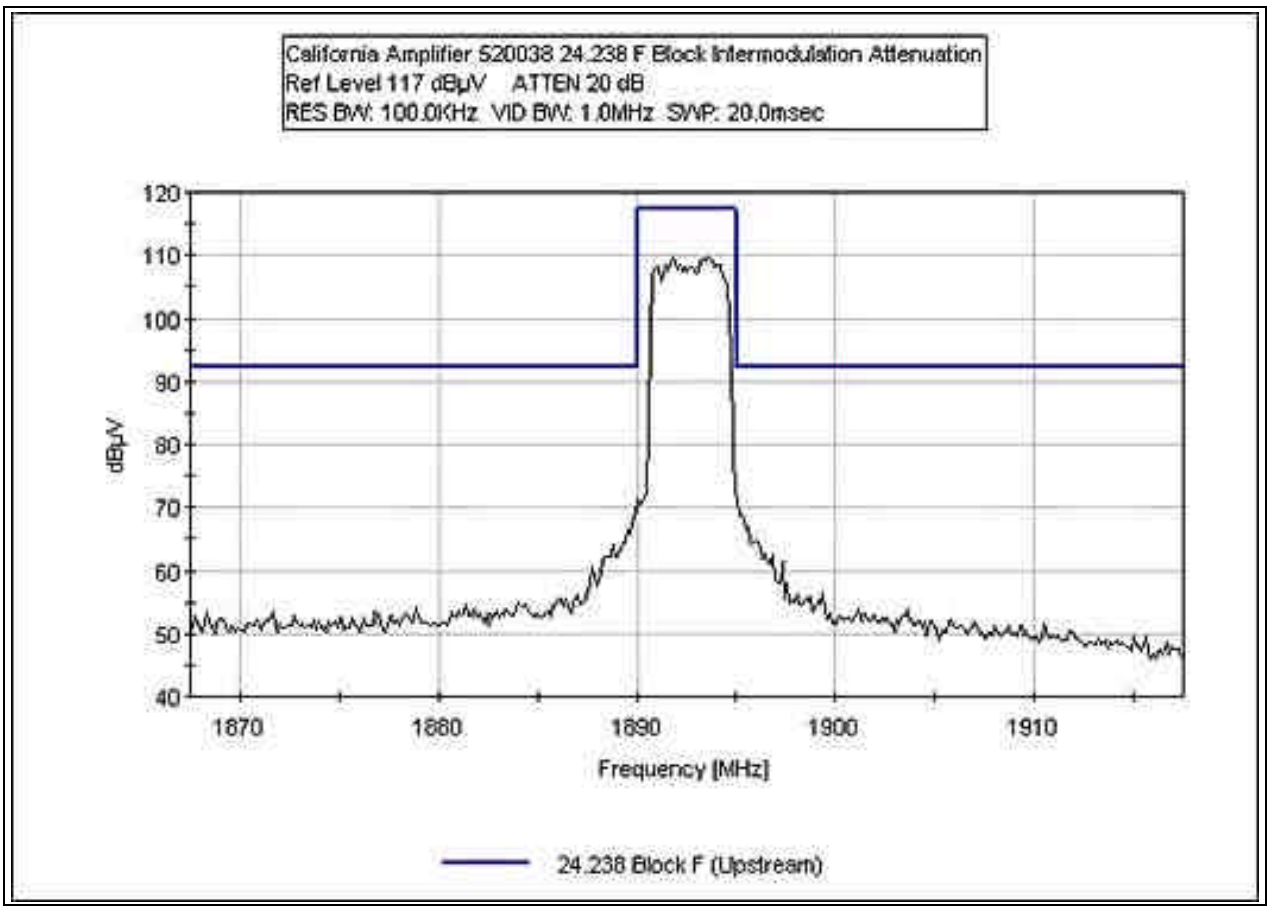
INTERMODULATION ATTENUATION - UPSTREAM CDMA D



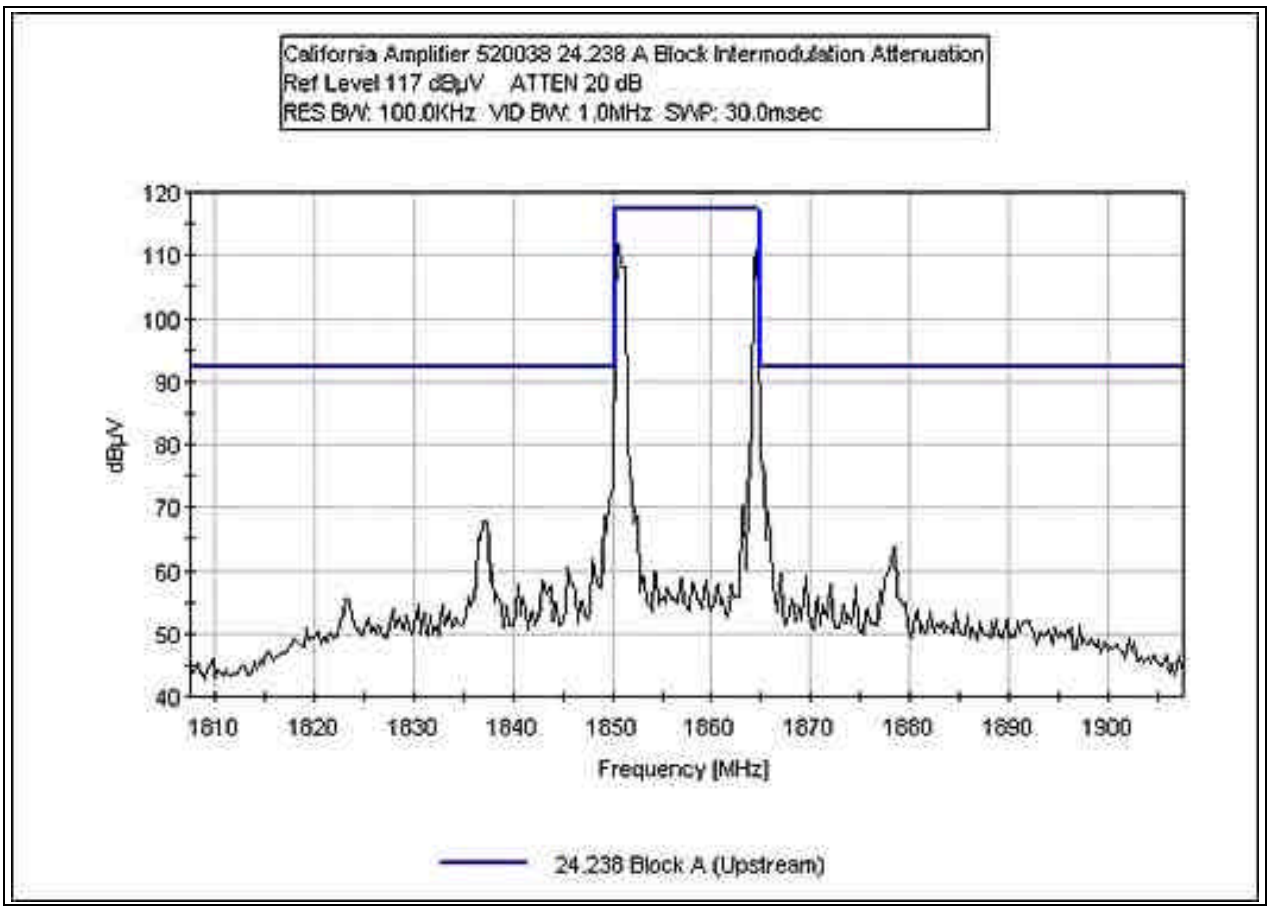
INTERMODULATION ATTENUATION - UPSTREAM CDMA E



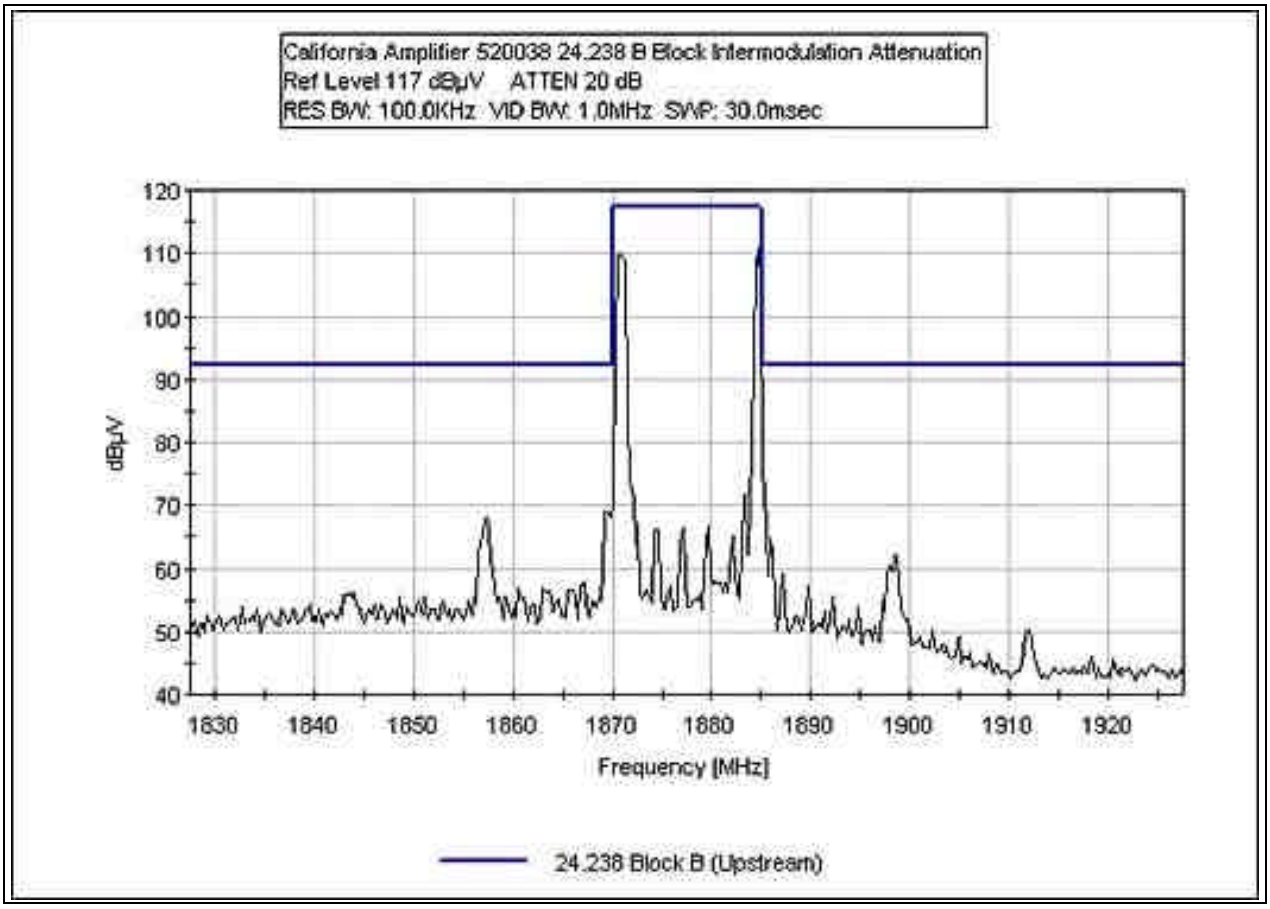
INTERMODULATION ATTENUATION - UPSTREAM CDMA F



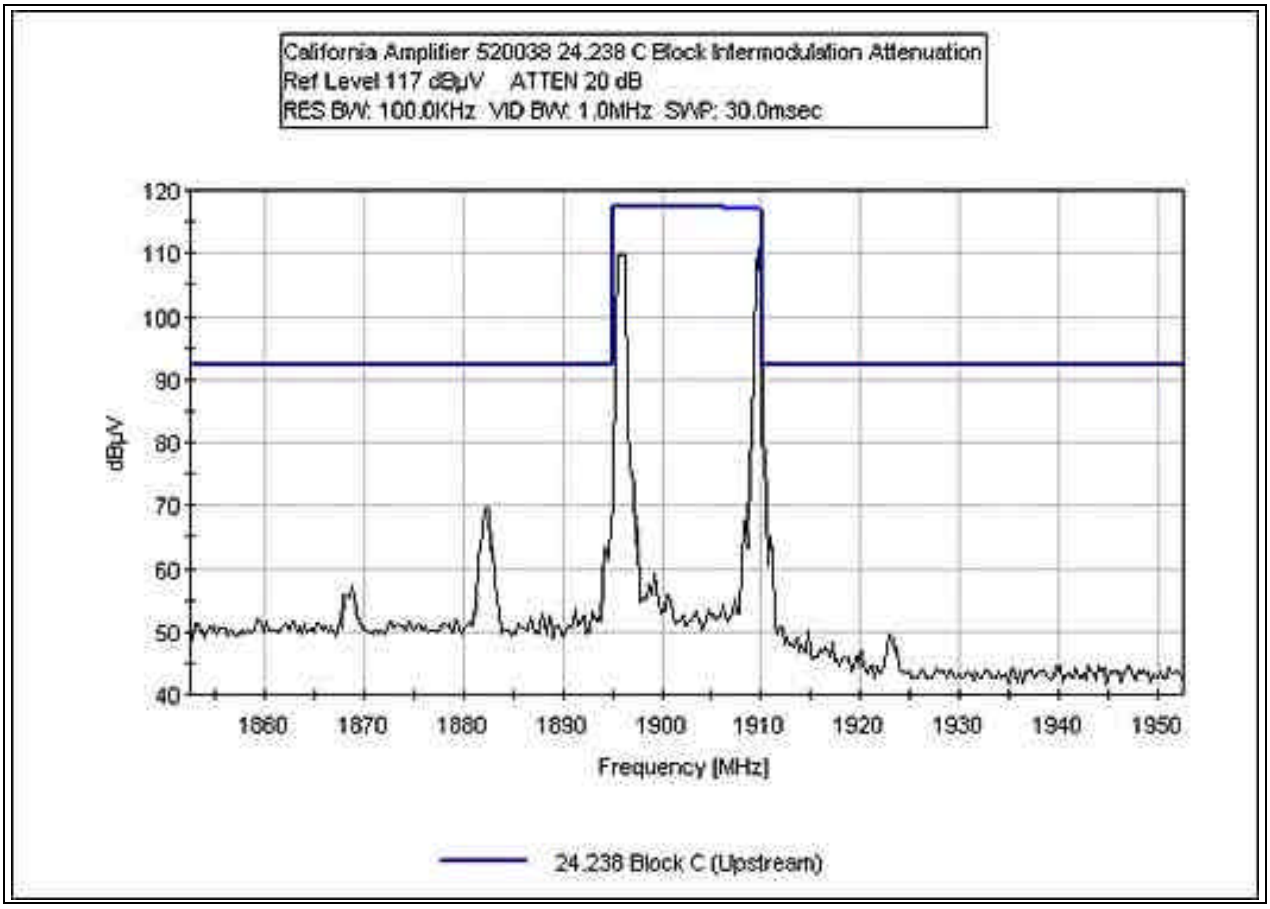
INTERMODULATION ATTENUATION - UPSTREAM GSM A



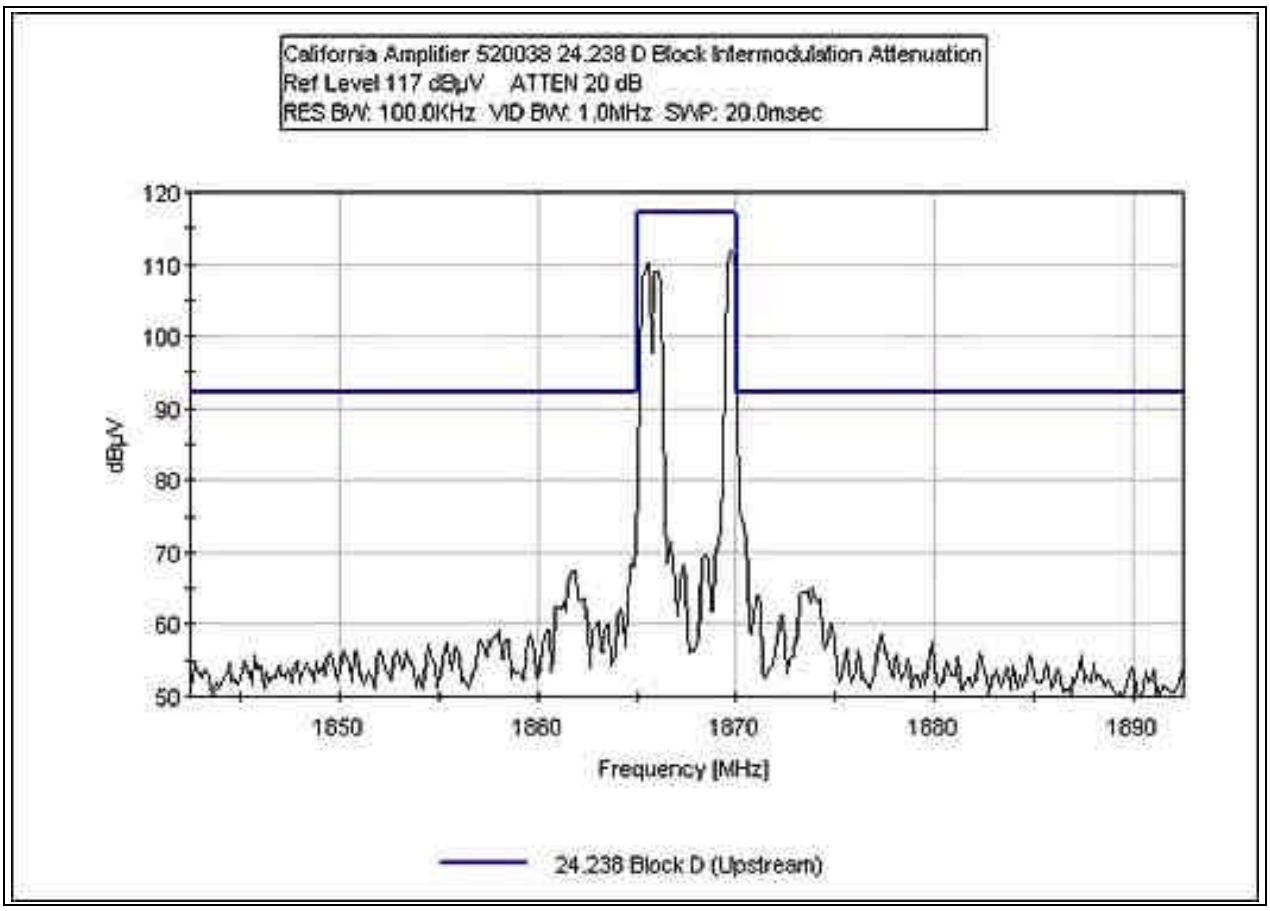
INTERMODULATION ATTENUATION - UPSTREAM GSM B



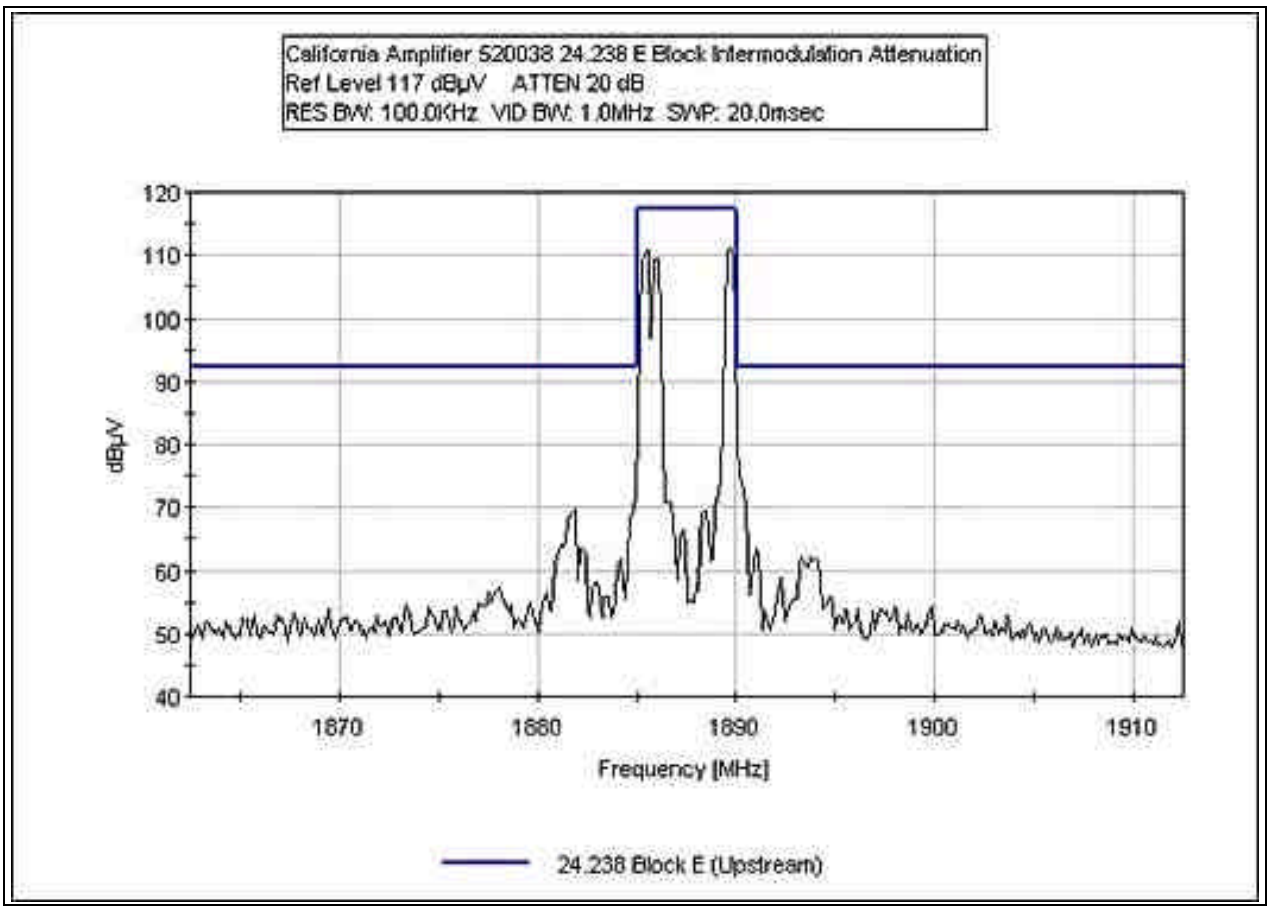
INTERMODULATION ATTENUATION - UPSTREAM GSM C



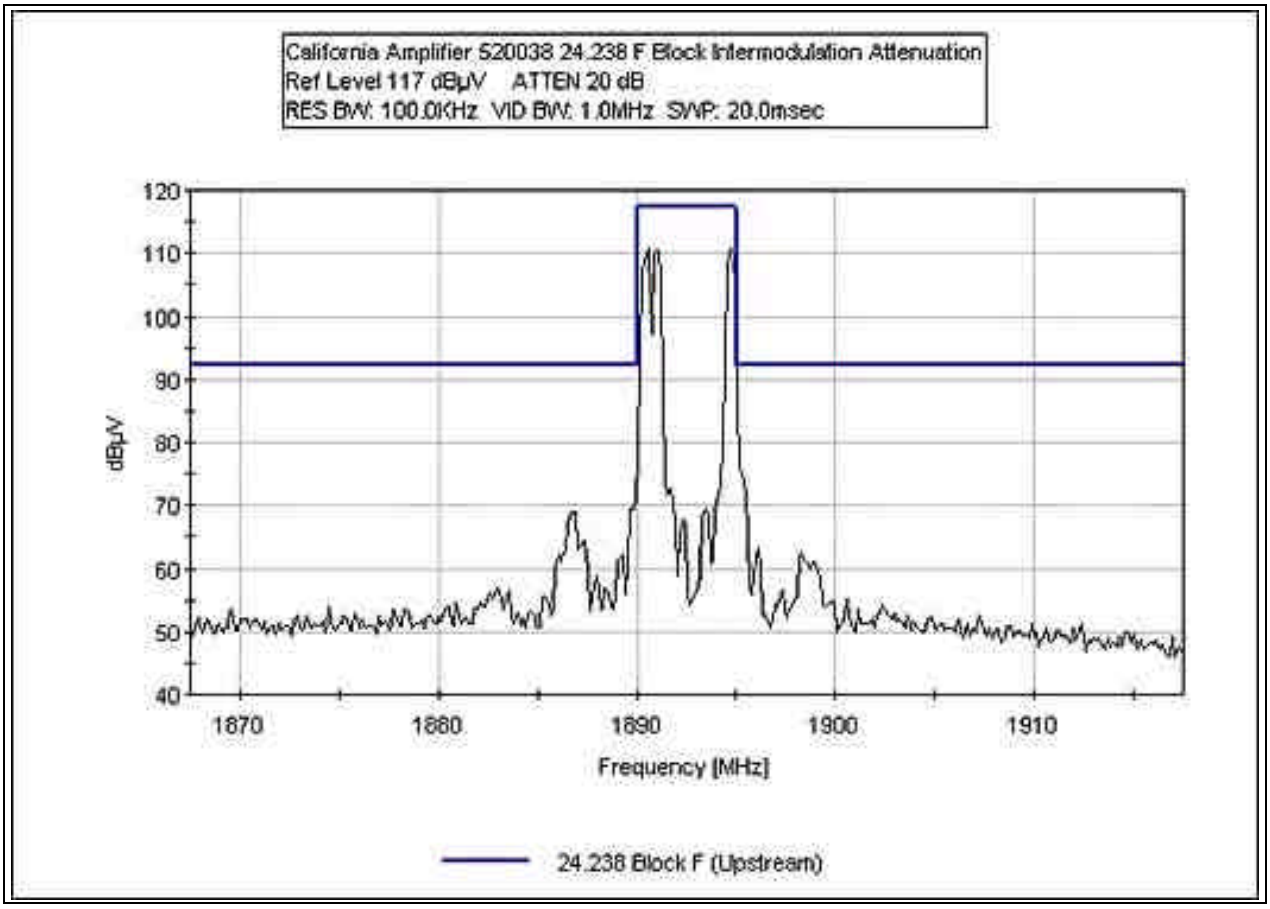
INTERMODULATION ATTENUATION - UPSTREAM GSM D



INTERMODULATION ATTENUATION - UPSTREAM GSM E

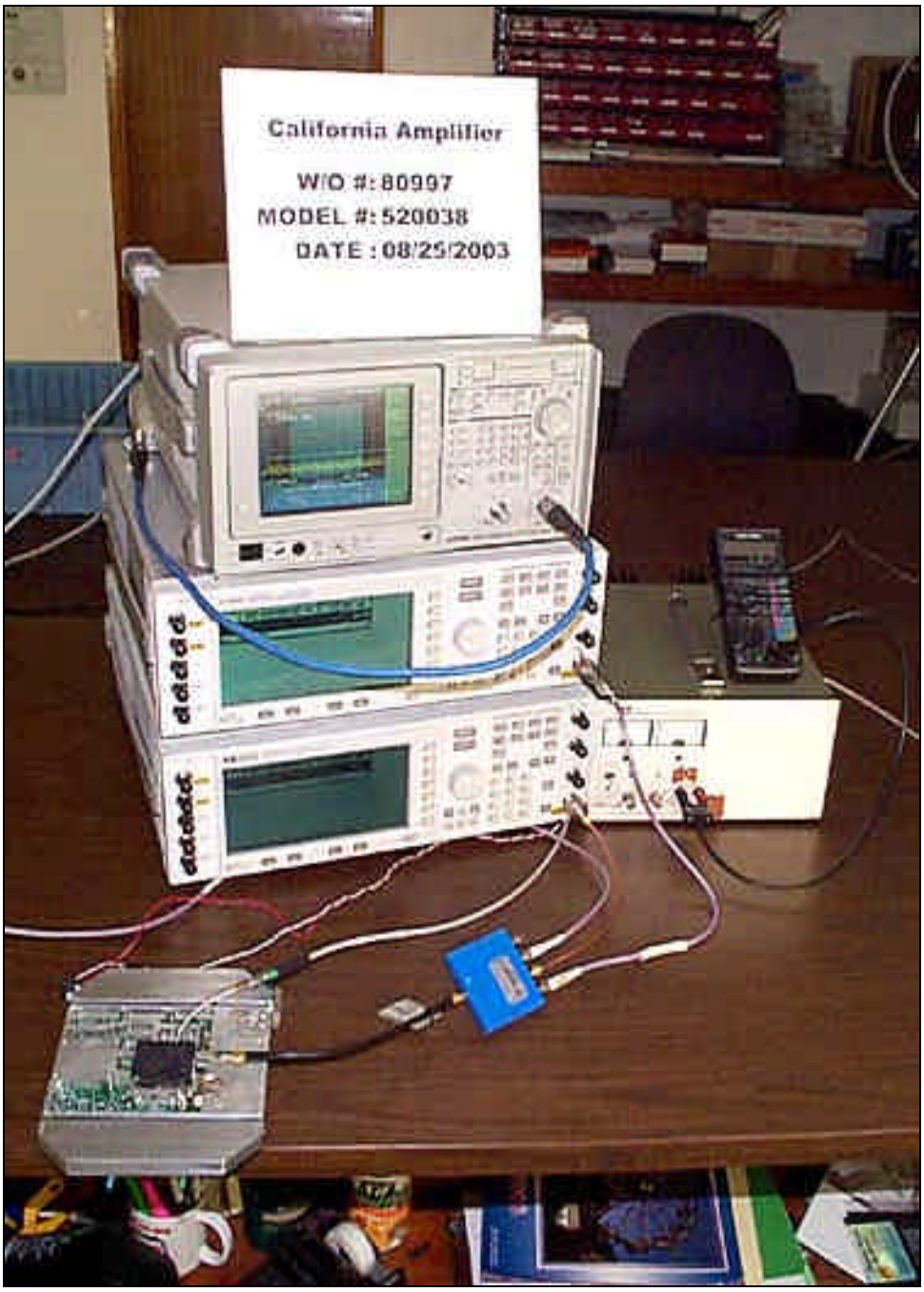


INTERMODULATION ATTENUATION - UPSTREAM GSM F



Test Equipment

Description	*Asset #*	*Manufacturer*	*Model #*	*Serial #*	*Cal Date*	*Cal Due*
Spectrum Analyzer, 9kHz to 26.5 GHz	02111	HP	8593EM	3624A00159	5/12/03	5/11/05
Cable-HF	P01403	Semiflex	58758-23	0038	1/21/03	1/21/04



Direct Connect

FCC 2.1033(c)(14)/2.1053/24.238 - FIELD STRENGTH OF SPURIOUS RADIATION

Test Conditions: Equipment is a bi-directional amplifier repeater for broadband PCS. The signal input is connected to the signal generators through a power divider. The output terminals of the transmitter are terminated into a resistive load. The amplifier is tested in two configurations in power representing the minimum and maximum power output. For the minimum power output, the input to the amplifier is terminated. For the maximum power output, the input to the amplifier is set such that the maximum power output is achieved at the customer supplied antenna connectors. Minimum Power Output is less than 10nW. Maximum Allowable Power Output is 19dBm.

Intermodulation Attenuation Test (3 Signal Method)
Blocks Tested: A-F Upstream and Downstream
Input Frequency Range: 1850-1910 MHz (Upstream) and 1930-1990 MHz (Downstream)
Modulation Tested: CDMA (representative of worst case emissions)
Frequency Range Tested: 20MHz to 20GHz

RBW=1MHz and VBW=1MHz except in the 1MHz bandwidth outside of the assigned block where RBW=100kHz and VBW=1MHz

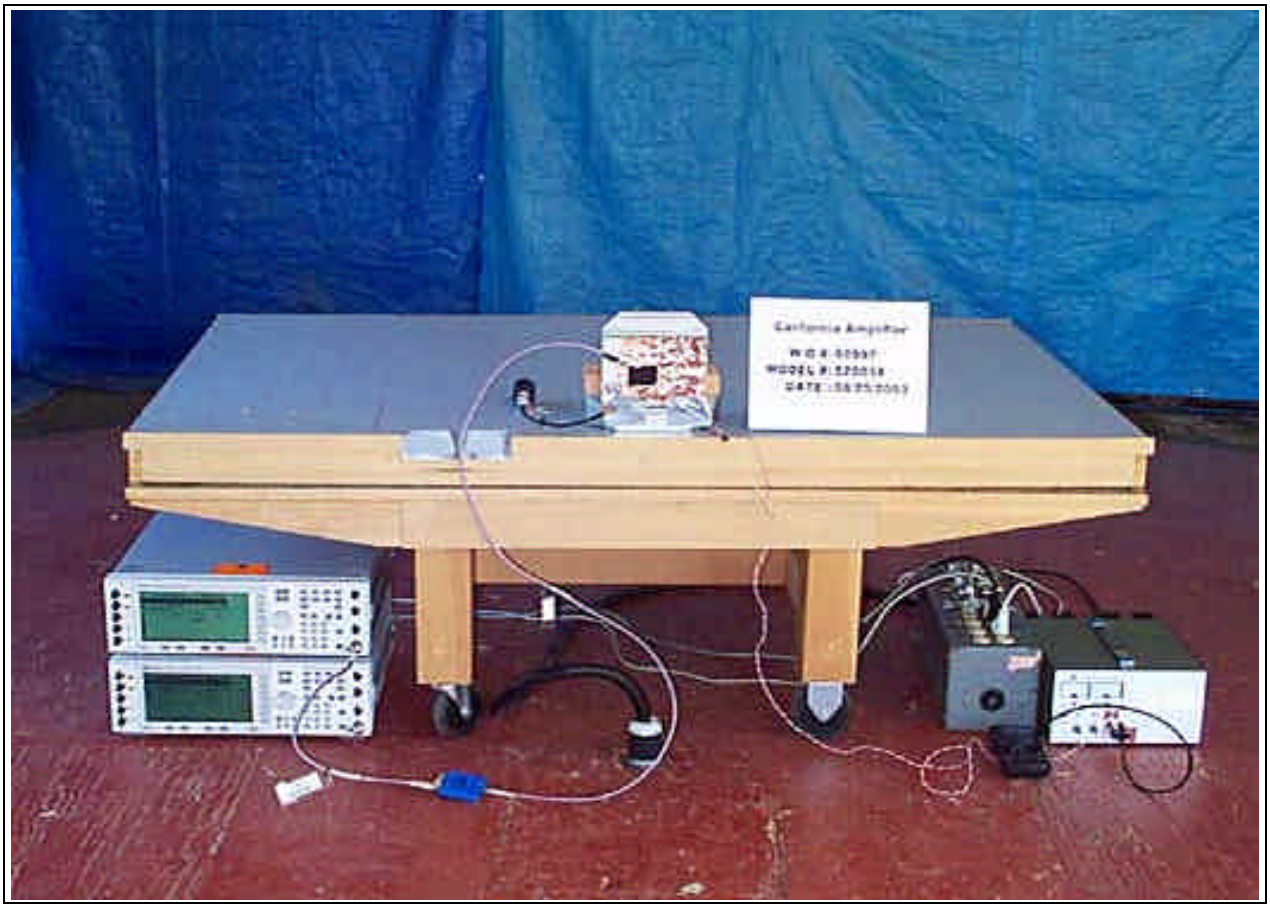
Three input signals are chosen such that in the 15MHz channel blocks the lowest and highest channels are selected in addition to the third lowest channel. In the 5 MHz channel blocks the lowest and highest channels are selected in addition to the second lowest channel.

Operating Frequency: 1850-1910 MHz Upstream and 1930-1990 MHz Downstream
Channels: Low, middle and high For Blocks A, B, C, D, E & F
Highest Measured Output Power: 27.50 ERP(dBm)= 0.562 EIRP(Watts)
Distance: 3 meters
Limit: 43+10Log(P) 40.50 dBc

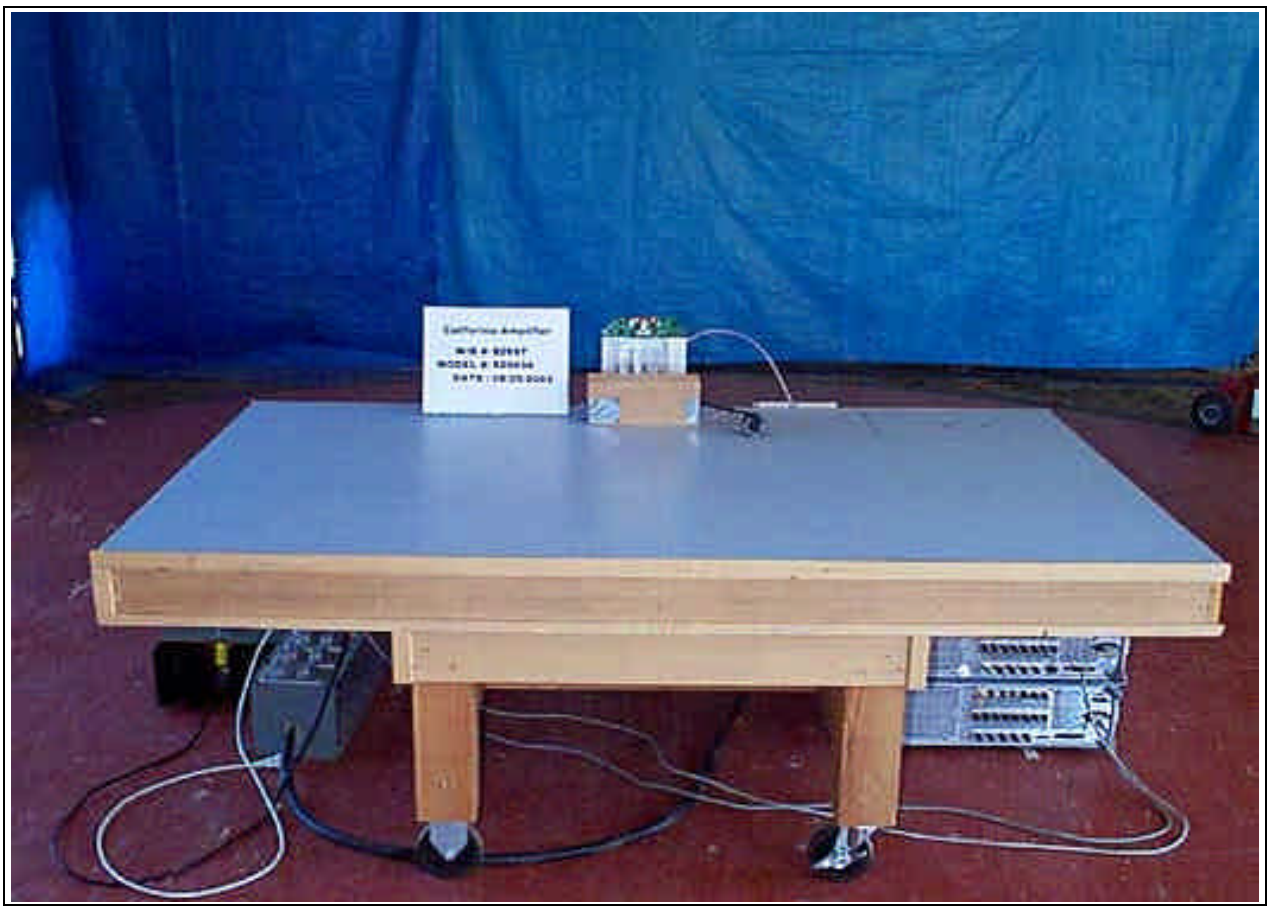
Freq. (MHz)	Reference Level (dBm)	Antenna Polarity (H/V)	dBc
1,494.98	-27.1	Horiz	54.60
1,507.48	-29.30	Vert	56.80
1,507.48	-29.40	Horiz	56.90
1,512.43	-30.30	Horiz	57.80
1,487.55	-30.60	Horiz	58.10
1,512.43	-31.10	Vert	58.60
1,487.48	-31.10	Vert	58.60
1,477.48	-31.70	Horiz	59.20
1,522.50	-32.20	Horiz	59.70
1,494.93	-32.70	Vert	60.20
4,537.35	-34.70	Vert	62.20
4,522.43	-35.00	Vert	62.50
1,477.48	-35.70	Vert	63.20
5,950.13	-36.00	Vert	63.50
1,522.55	-36.00	Vert	63.50
4,537.50	-37.40	Horiz	64.90
4,484.88	-38.00	Vert	65.50
5,979.80	-38.00	Vert	65.50
4,462.43	-38.30	Horiz	65.80
5,909.90	-40.30	Vert	67.80
4,567.45	-42.90	Vert	70.40
3,014.78	-43.80	Horiz	71.30
3,014.95	-44.10	Vert	71.60
4,567.60	-45.60	Horiz	73.10
4,432.43	-46.00	Vert	73.50
2,989.95	-49.70	Horiz	77.20

***Test Equipment*:**

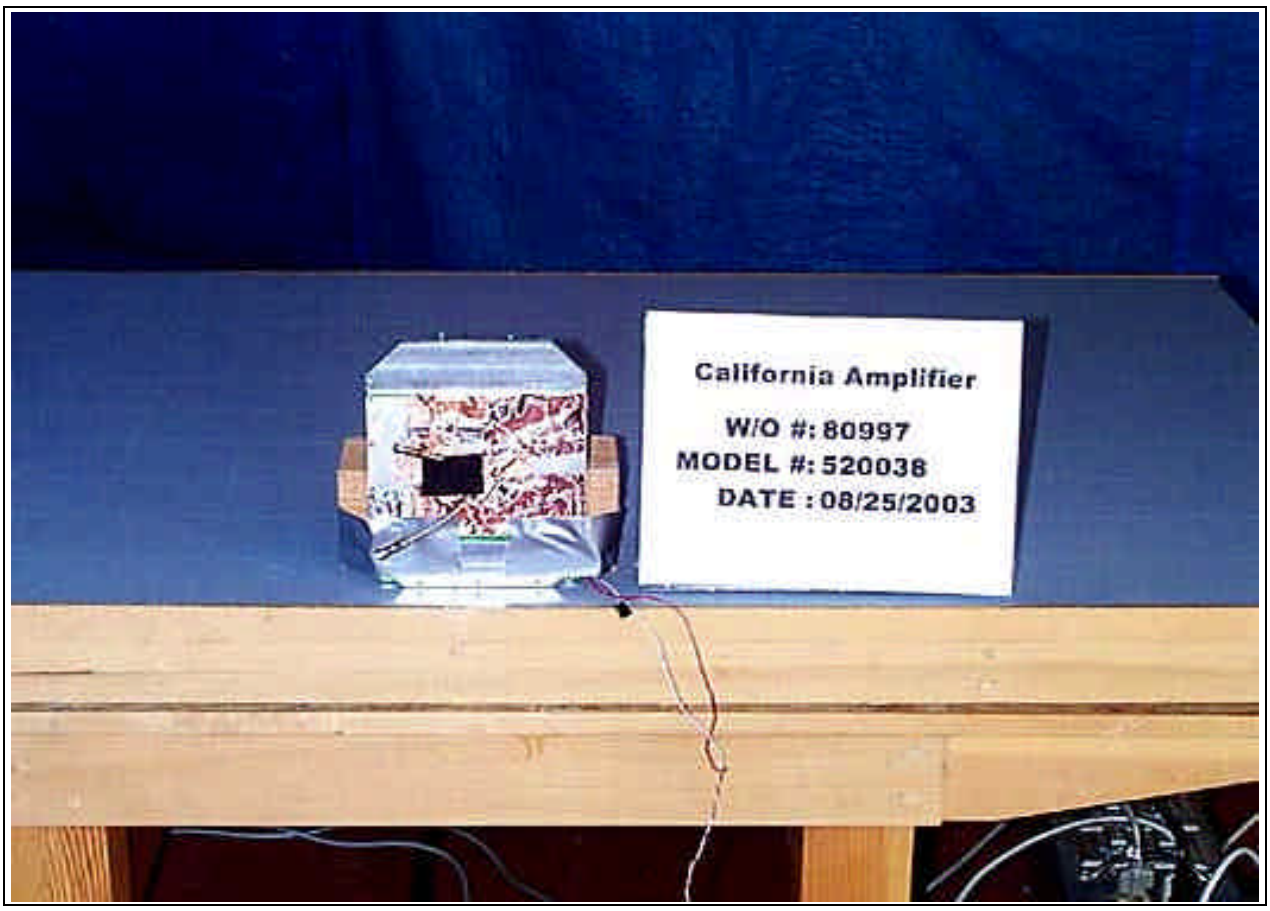
Function	S/N	Calibration Date	Cal Due Date	Asset #
HP 8593EM Spectrum Analyzer	3624A00159	05/12/2003	05/12/2005	2111
EMCO Loop Antenna	2078	06/05/2002	06/05/2003	432
Chase CBL6111C Bilog	2456	12/13/2002	12/13/2004	1991
EMCO 3115 Horn Antenna	9006-3413	11/25/2002	11/25/2003	327
ARA MWH-1826/B Horn Antenna	1005	07/01/2003	07/01/2004	2046
HP 8449B Preamp	3008A00301	10/21/2002	10/18/2003	2010
HP 8447D Preamp	1937A02604	03/07/2003	03/07/2004	99
Cable H&S 35'	90148402	01/21/2003	01/21/2004	0
Cable H&S 25'	90148405	01/21/2003	01/21/2004	0
Cable, SemiFlex	58758-23	01/21/2003	01/21/2004	0
Cable, Site B		11/18/2002	11/18/2003	0



Radiated Emissions - Maximum Power Front View



Radiated Emissions - Maximum Power Back View



Radiated Emissions - Minimum Power Front View

FCC 2.1033(c)(14)/2.1055/24.235- FREQUENCY STABILITY

Not applicable to this unit.

FCC 2.1091 – MPE CALCULATIONS

Maximum Permissible Exposure Calculations

Date of Report: August 28, 2003

Calculations prepared for:

California Amplifier
460 Calle San Pablo
Camarillo, CA 93012

Calculations prepared by:

Randal Clark
CKC Laboratories, Inc.
5473A Clouds Rest Road
Mariposa, CA 95338

Model Number: 520038
FCC Identification: J26520038

Fundamental Operating Frequency: 1850 – 1910 MHz and 1930 – 1990 MHz

Maximum Rated Output Power: 562.3 mW EIRP
Measured Output Power: 562.3 mW EIRP

MPE Limit in accordance with 1.1310(b): Limits for general population/uncontrolled exposure

MPE Limit = 1 mW/cm^2

EIRP (mW)	Distance (cm)	Power Density (mW/cm^2)	Result
562.3	**6.69**	**1**	**Pass**

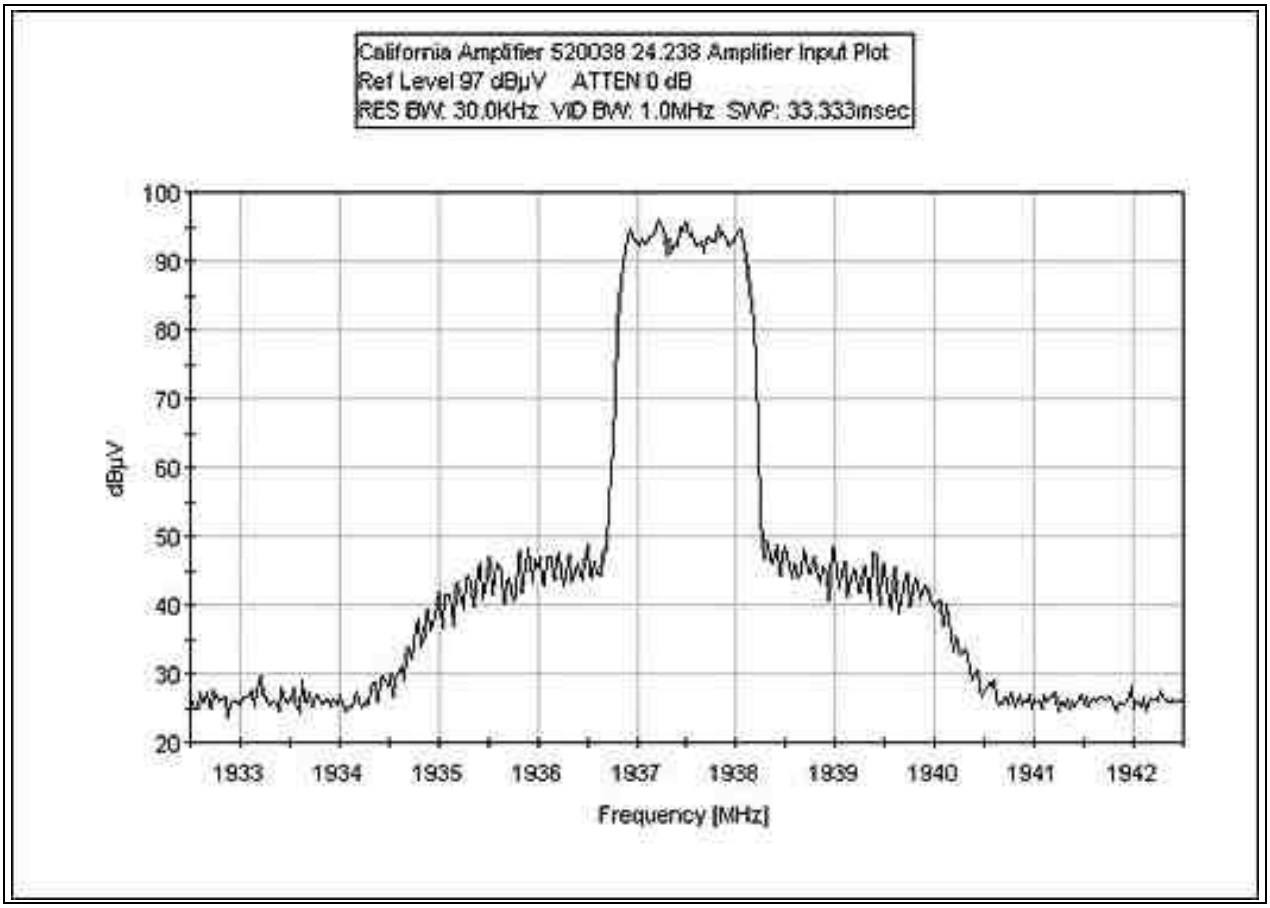
$$Power Density(mW/cm^2) = \frac{EIRP}{4pd^2}$$ Given: **EIRP** in *mW* and **d** in *cm*

As can be seen from the MPE results, this device passes the limits specified in 1.1310 at a distance of 6.69cm and at an output power of 562.3mW.

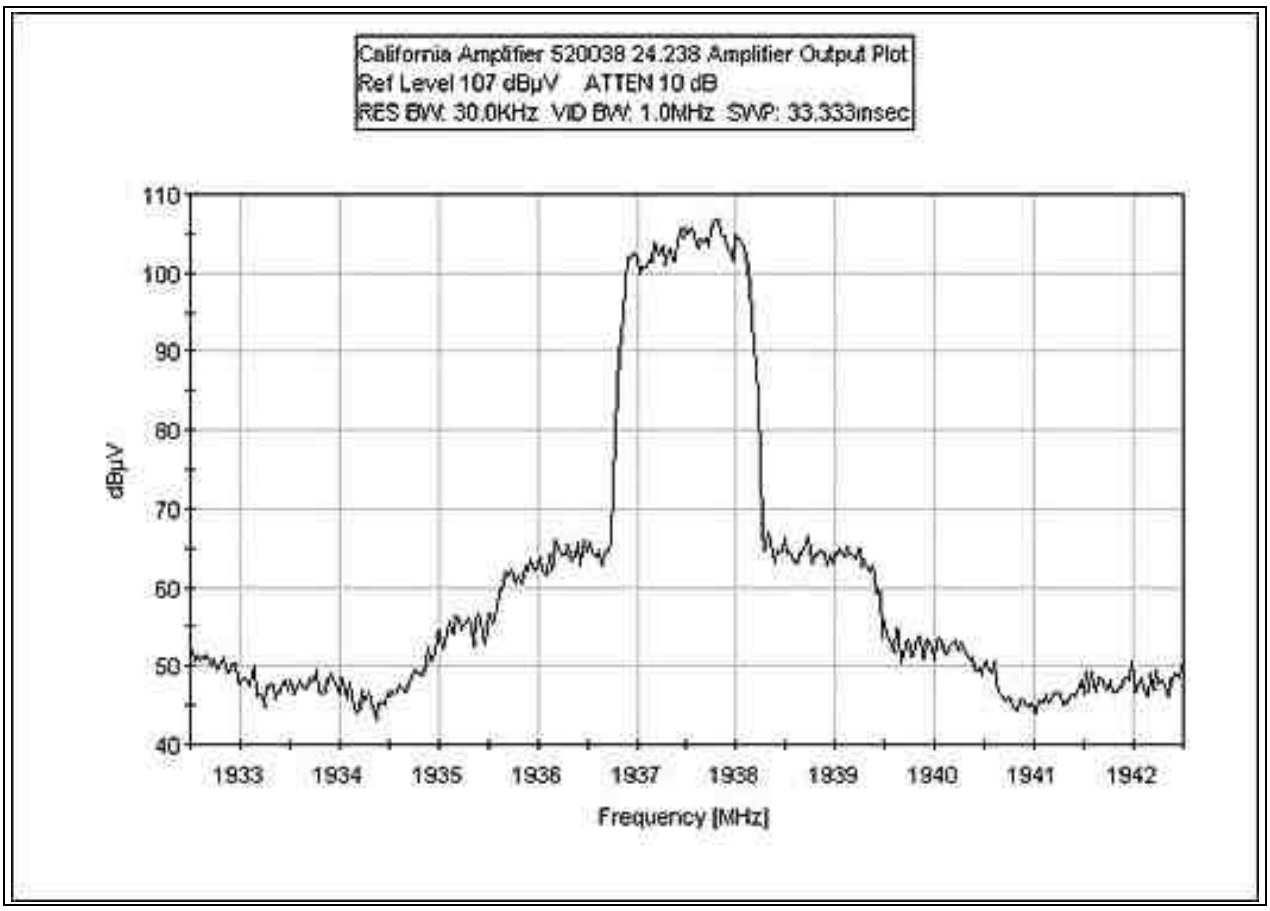
INPUT PLOT - DOWNSTREAM CDMA

Test Setup: Equipment is a bi-directional amplifier repeater for broadband PCS. The signal input is connected to the signal generators through a power divider. The input to the amplifier is set such that the maximum power output is achieved at the customer supplied antenna connectors. Maximum Allowable Power Output is 19dBm.

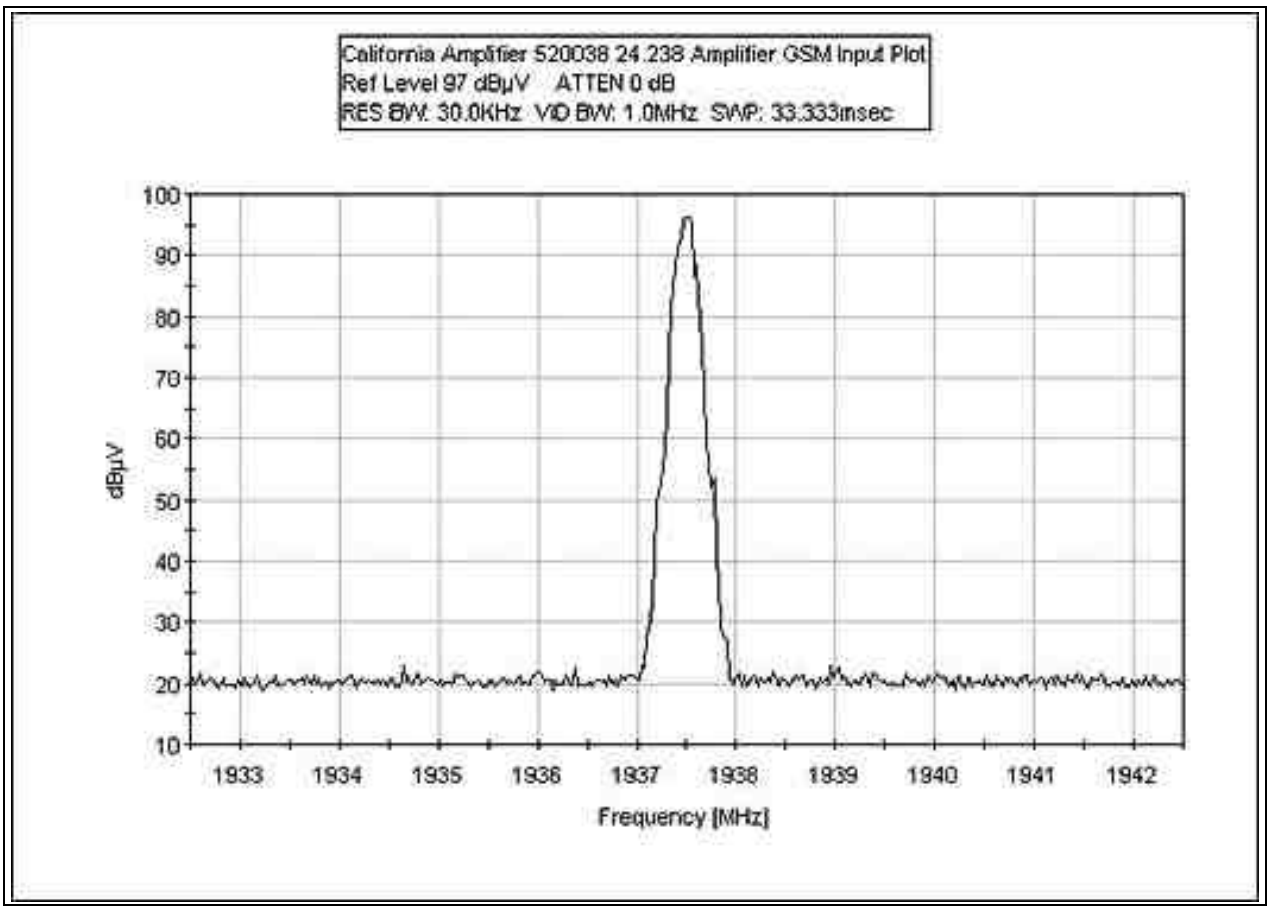
The channel chosen is the frequency in the center of block A for both the upstream and the downstream blocks. Output plots are shown as the final output at the maximum power rating. In order to show the waveform of the input signal, input plots are shown that differ from the original input signal level to the amplifier.



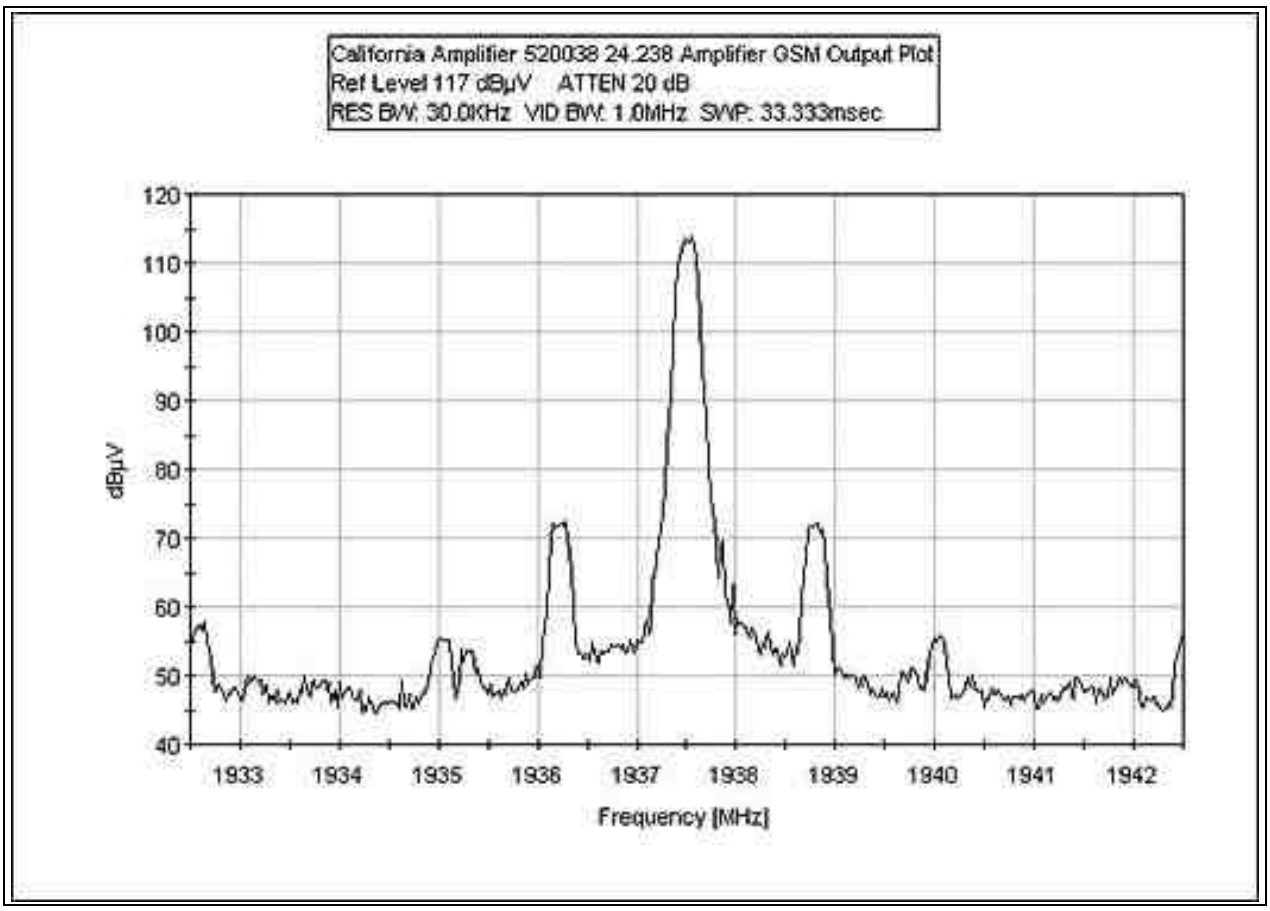
OUTPUT PLOT - DOWNSTREAM CDMA



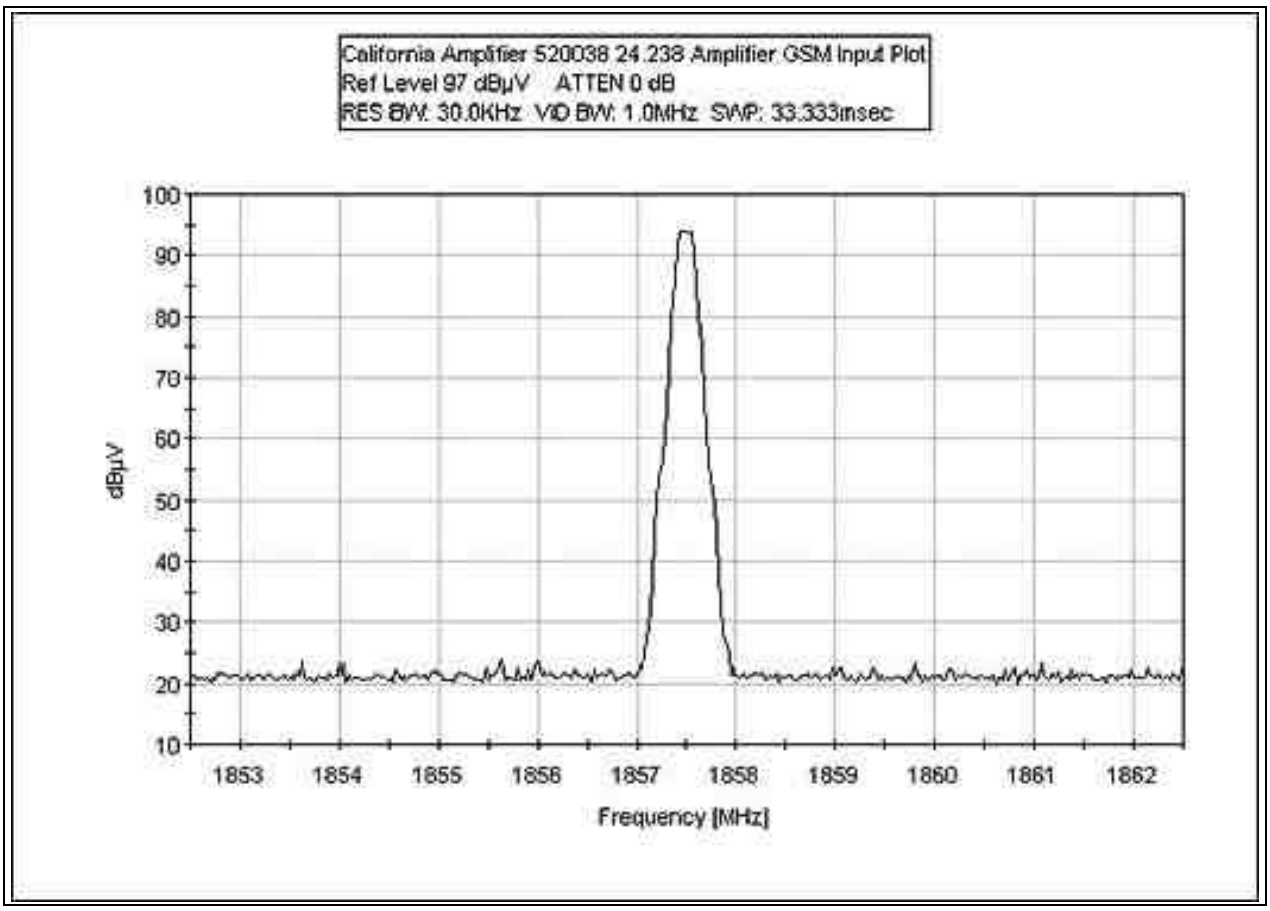
INPUT PLOT - DOWNSTREAM GSM



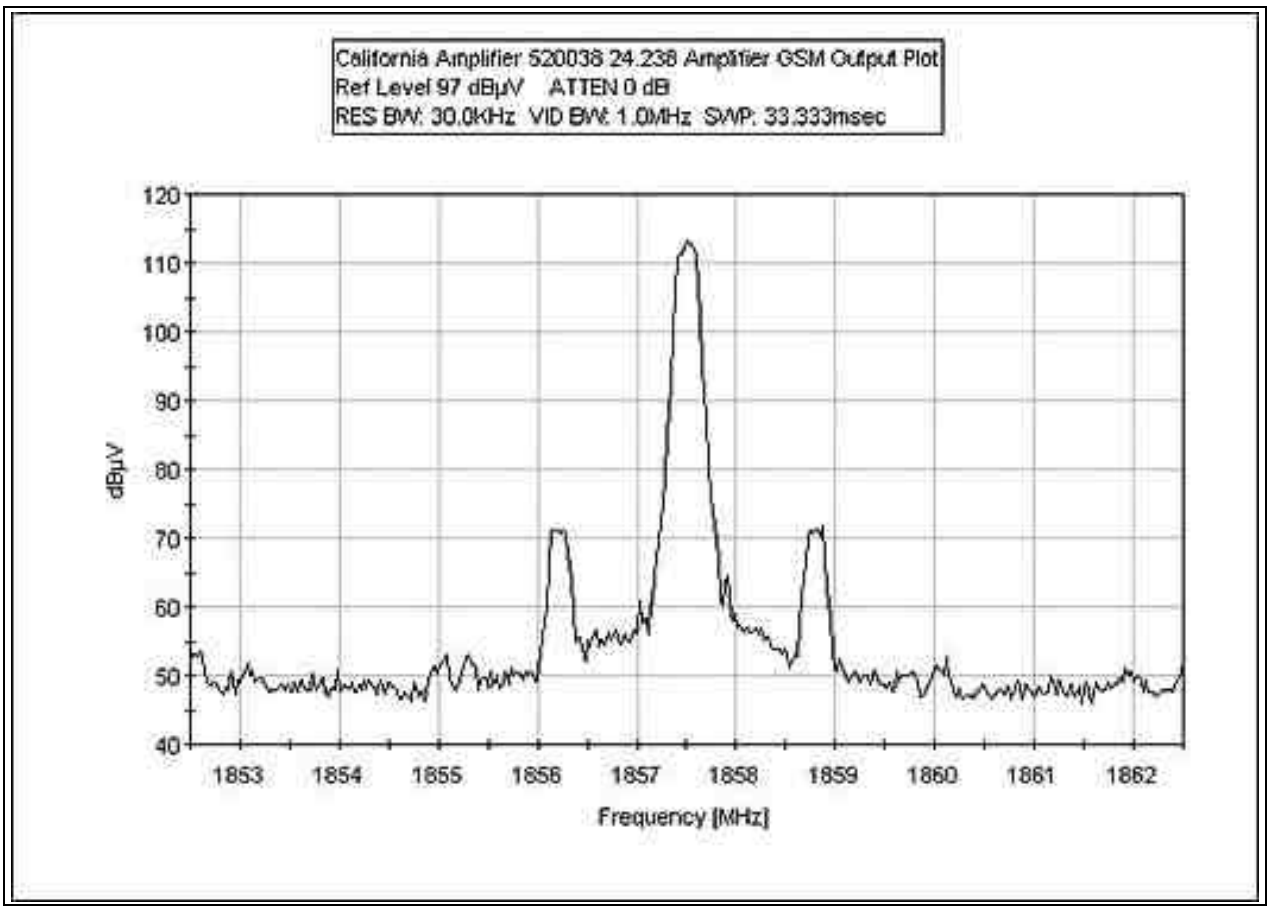
OUTPUT PLOT - DOWNSTREAM GSM



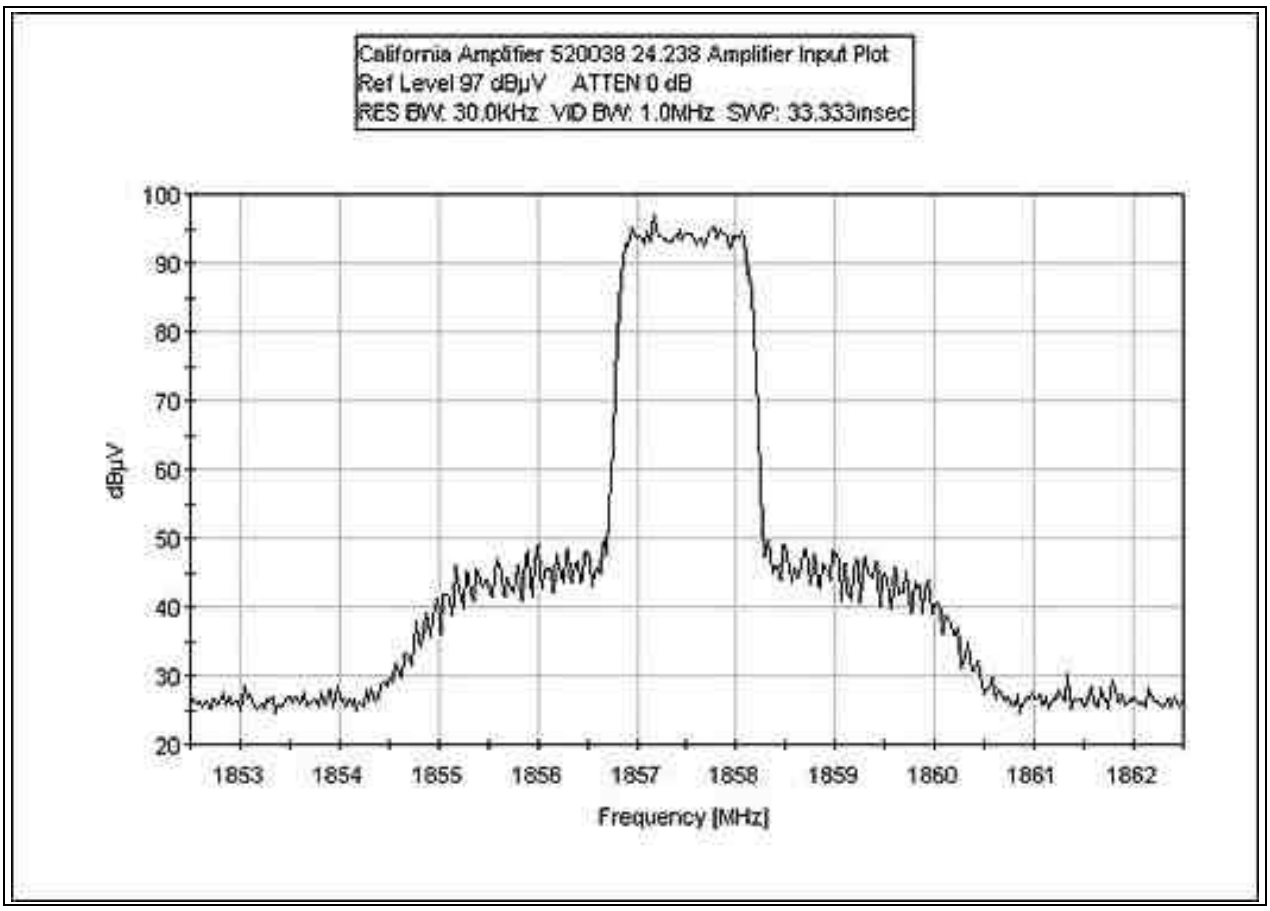
INPUT PLOT - UPSTREAM GSM



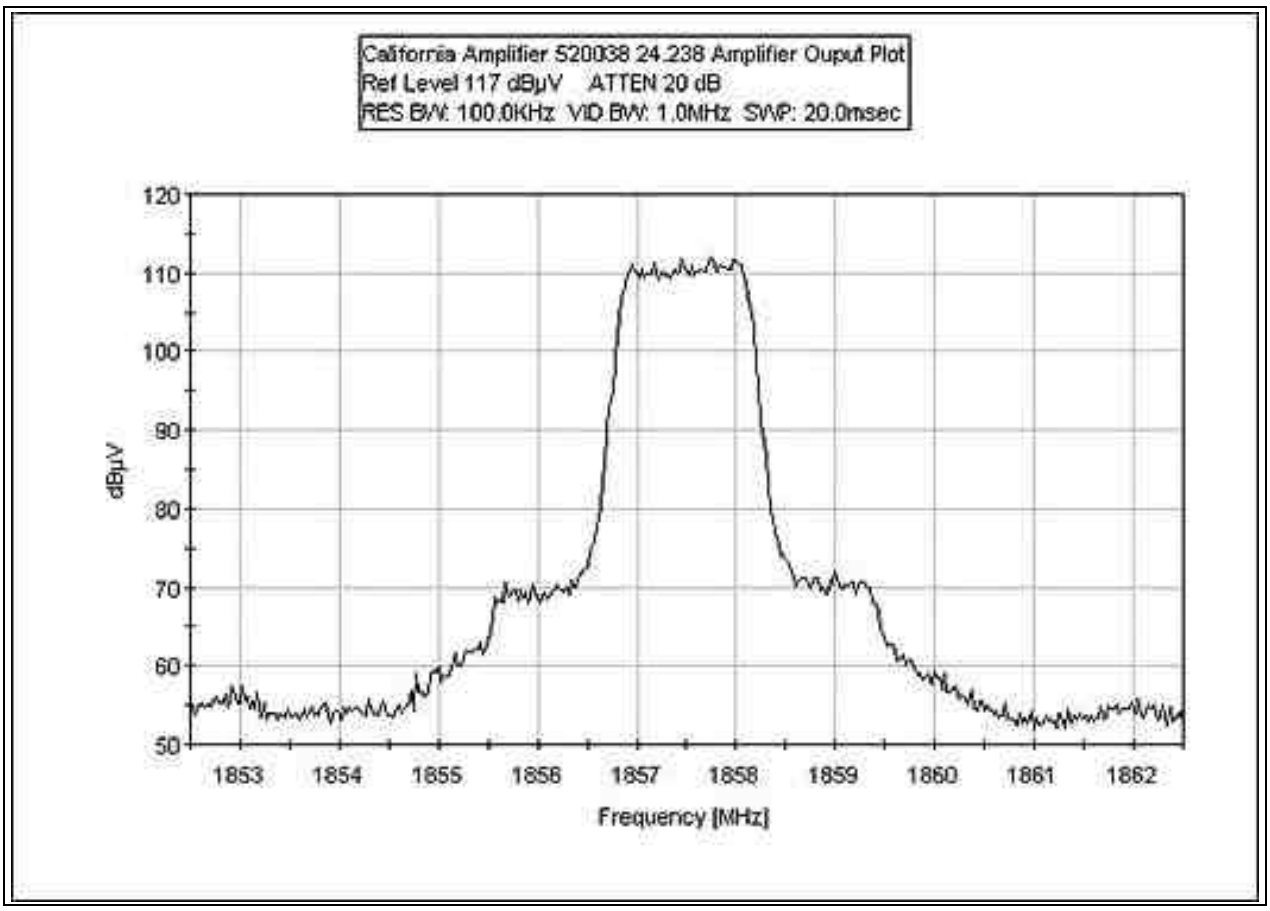
OUTPUT PLOT - UPSTREAM GSM



INPUT PLOT - UPSTREAM

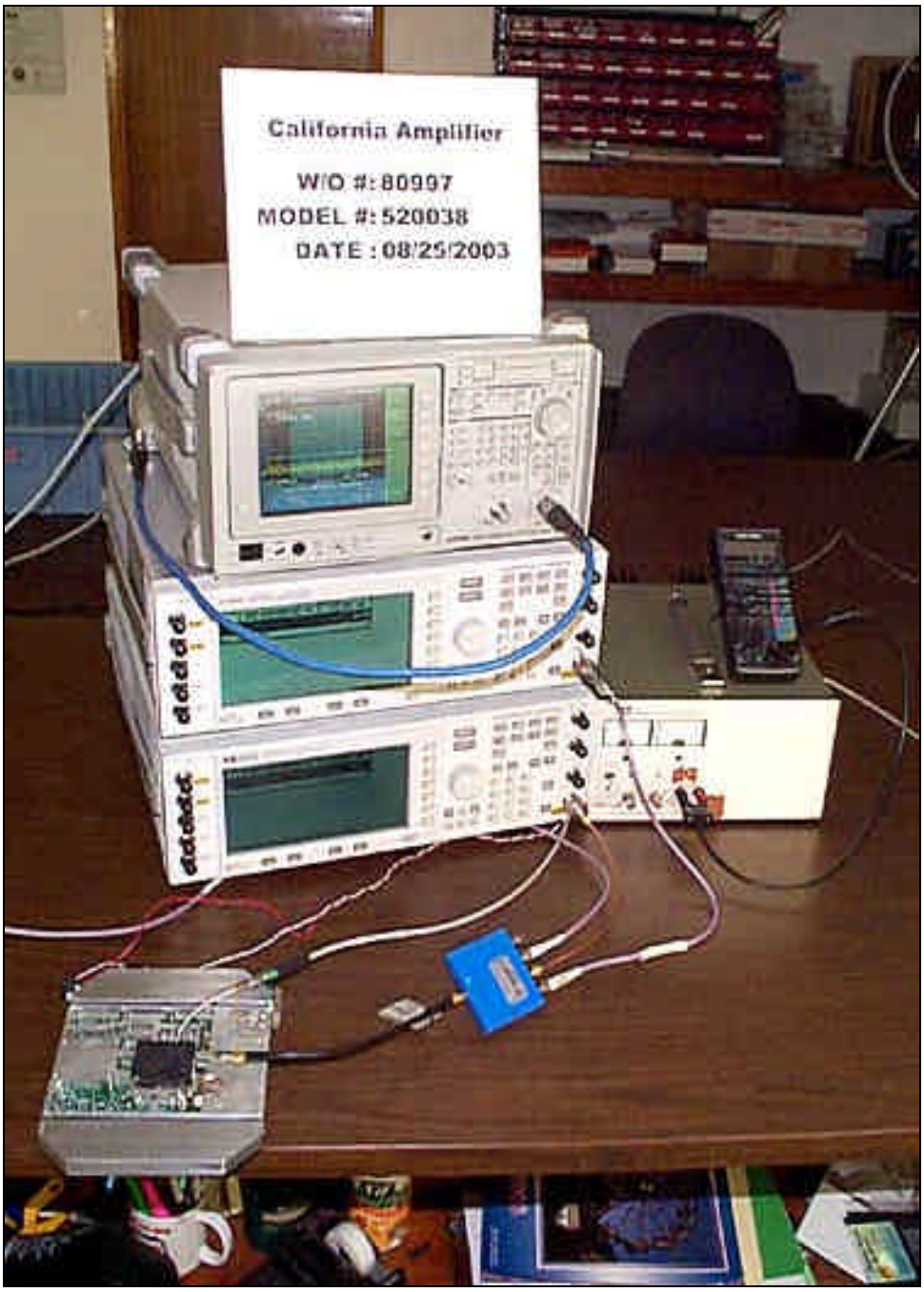


OUTPUT PLOT - UPSTREAM



Test Equipment

Description	*Asset #*	*Manufacturer*	*Model #*	*Serial #*	*Cal Date*	*Cal Due*
Spectrum Analyzer, 9kHz to 26.5 GHz	02111	HP	8593EM	3624A00159	5/12/03	5/11/05
Cable-HF	P01403	Semiflex	58758-23	0038	1/21/03	1/21/04



Direct Connect