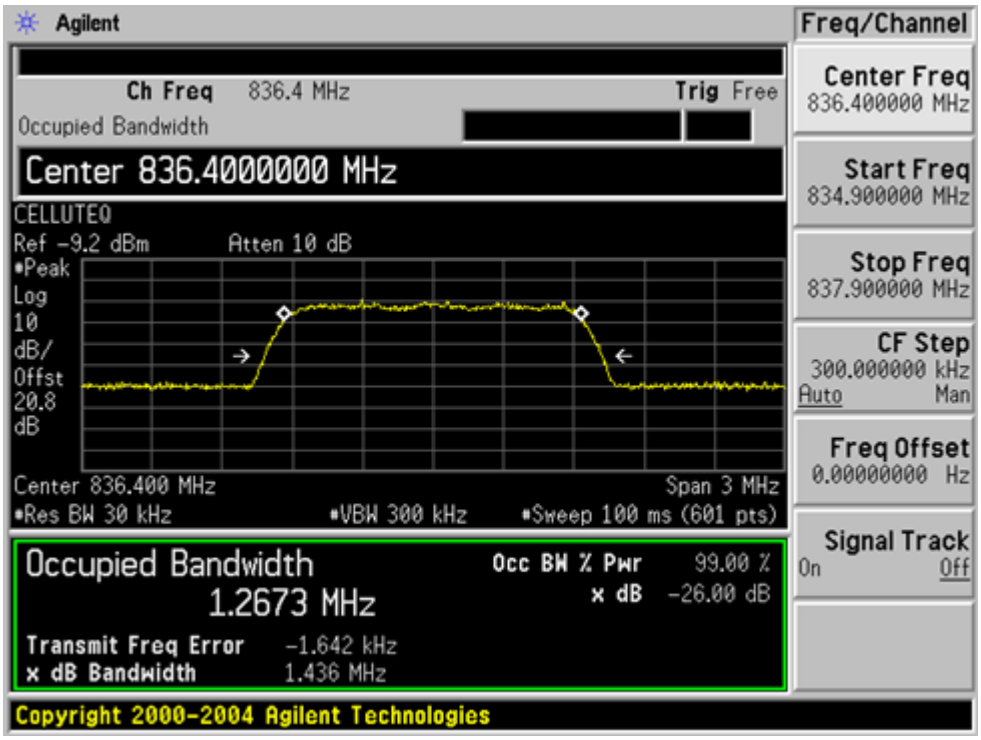
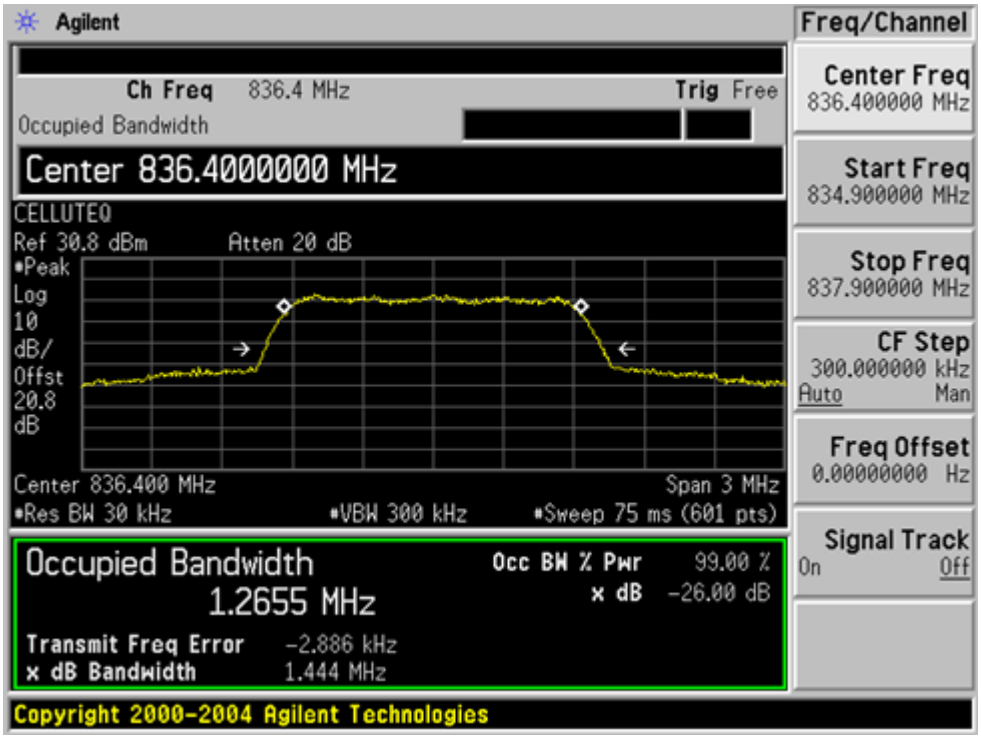
7.6.35 CDMA 800MHz: Reverse (Uplink): Middle Channel

Input

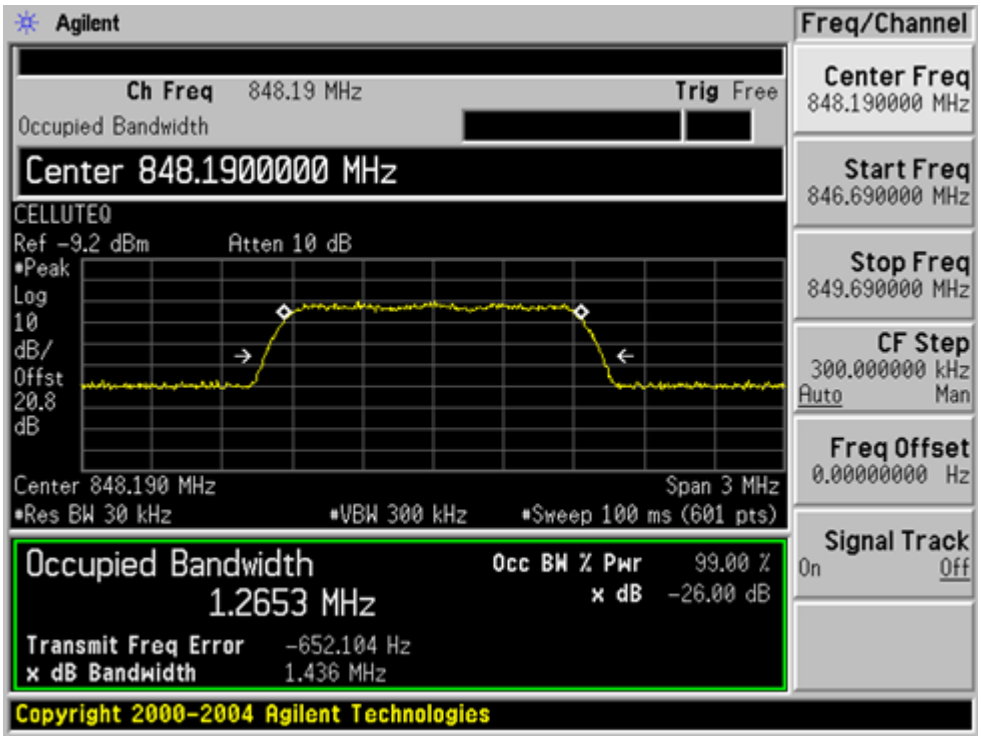


Output

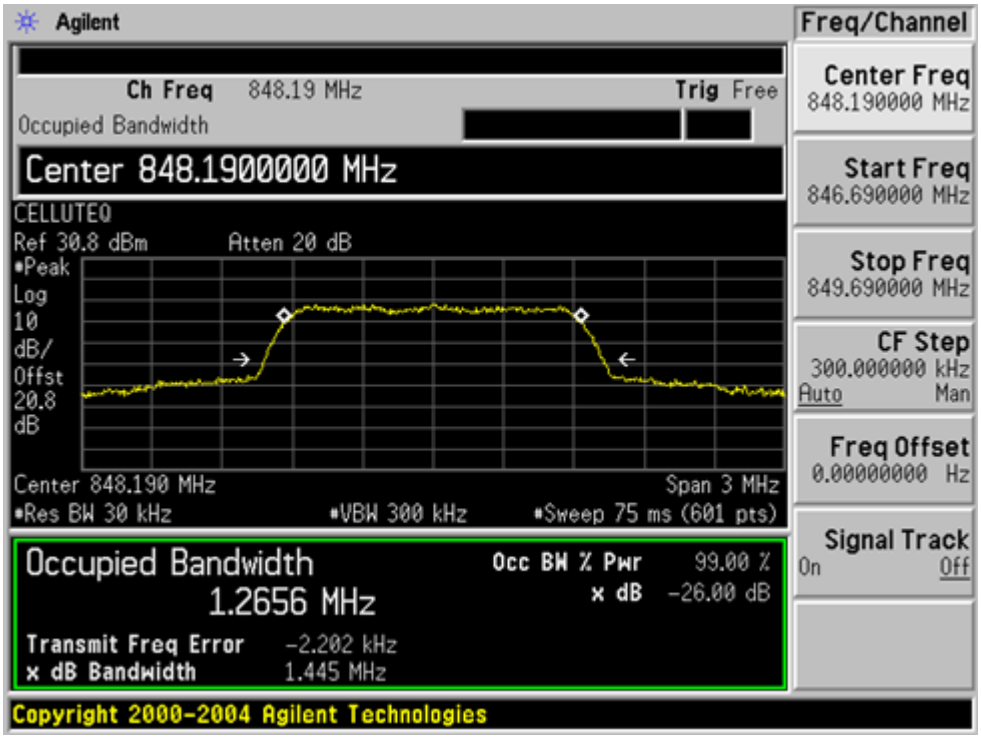


7.6.36 CDMA 800MHz: Reverse (Uplink): High Channel

Input

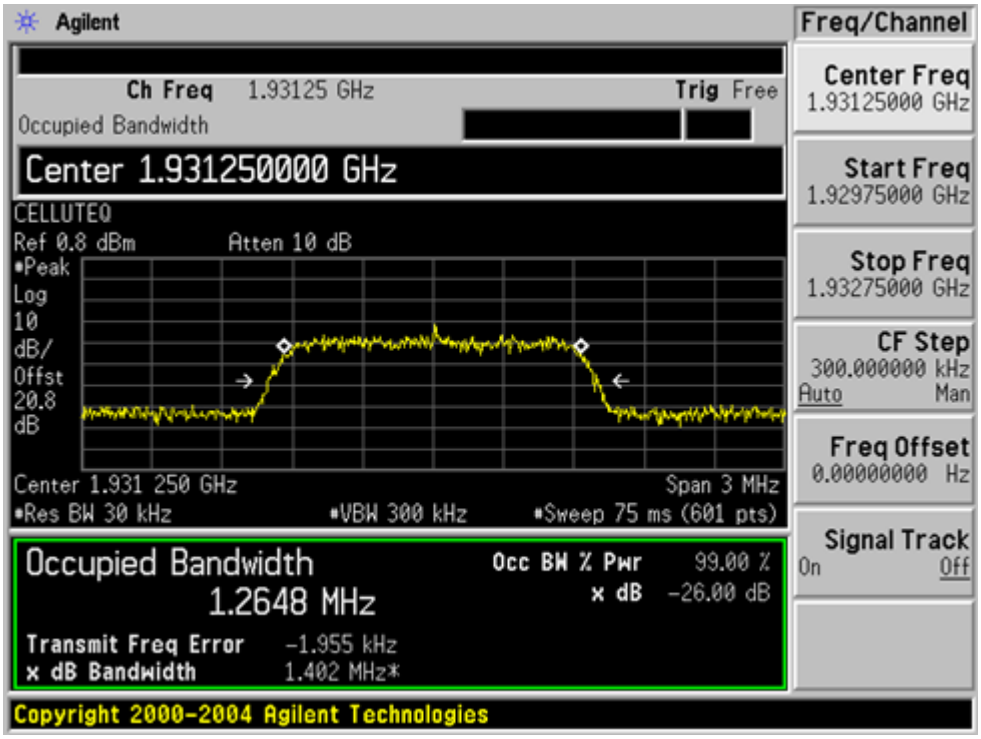


Output

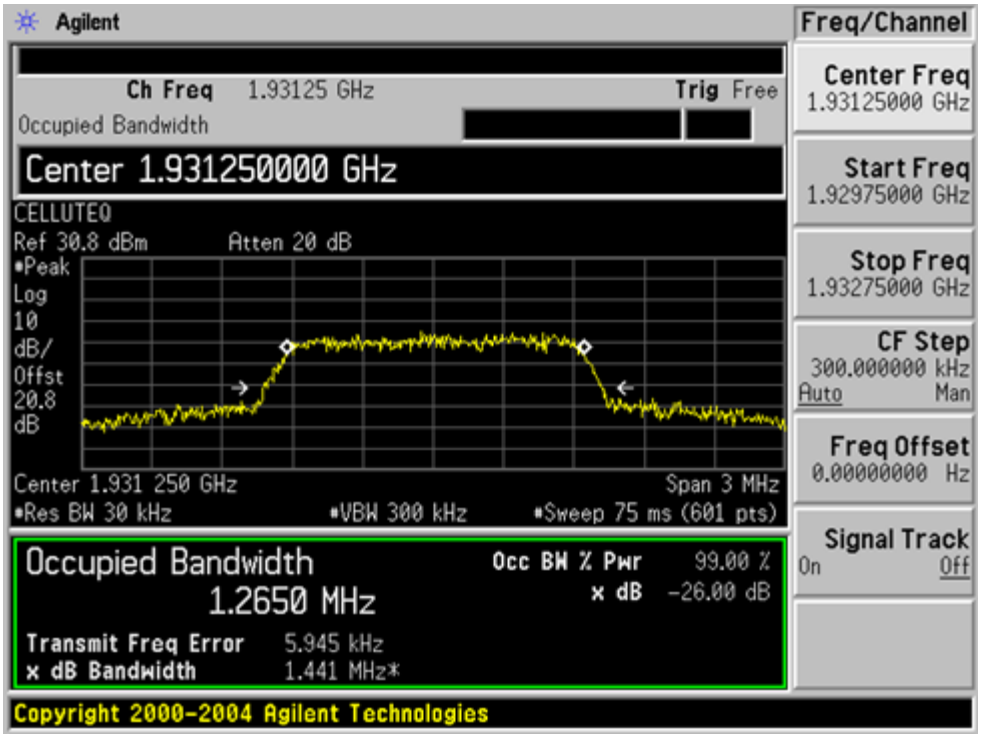


7.6.37 CDMA 1900MHz: Forward (Downlink): Low Channel

Input

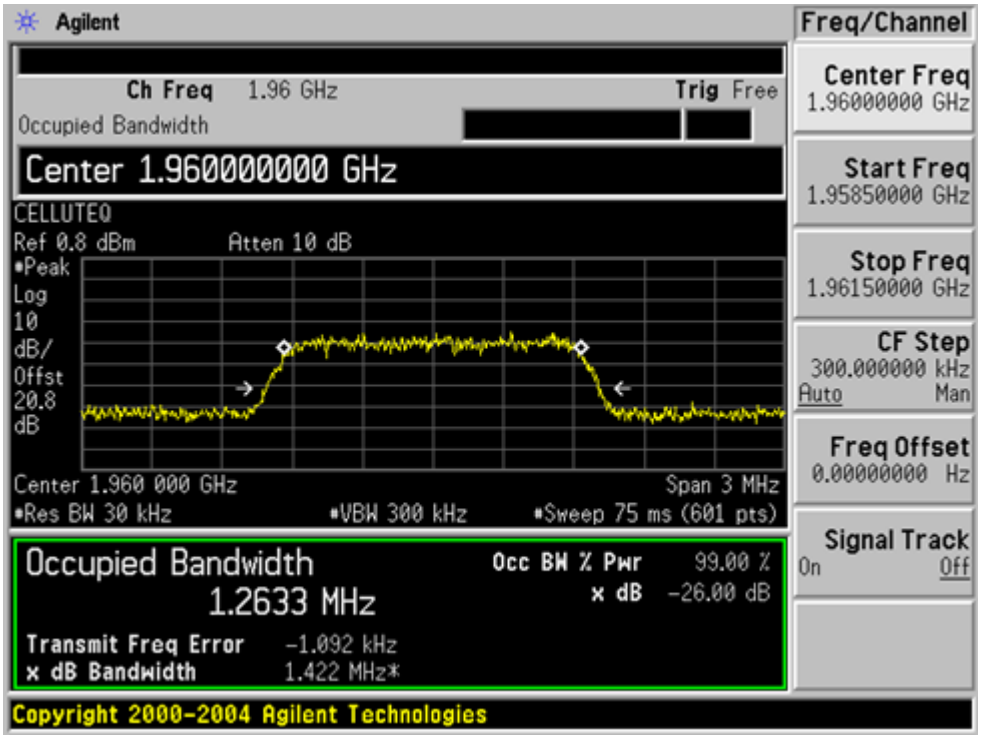


Output

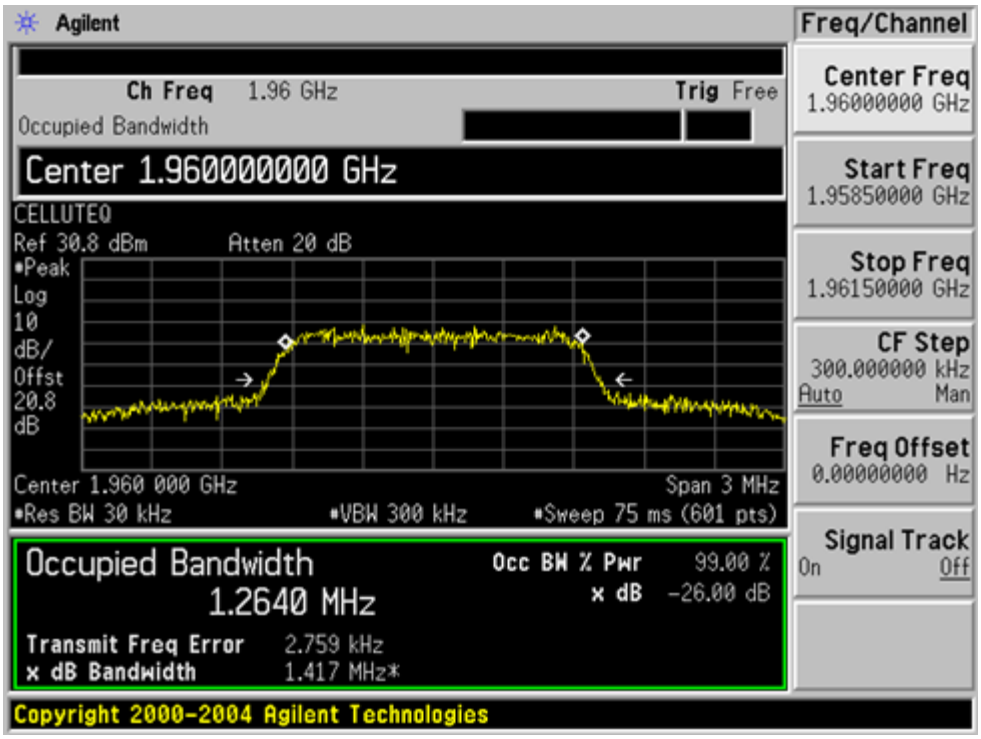


7.6.38 CDMA 1900MHz: Forward (Downlink): Middle Channel

Input

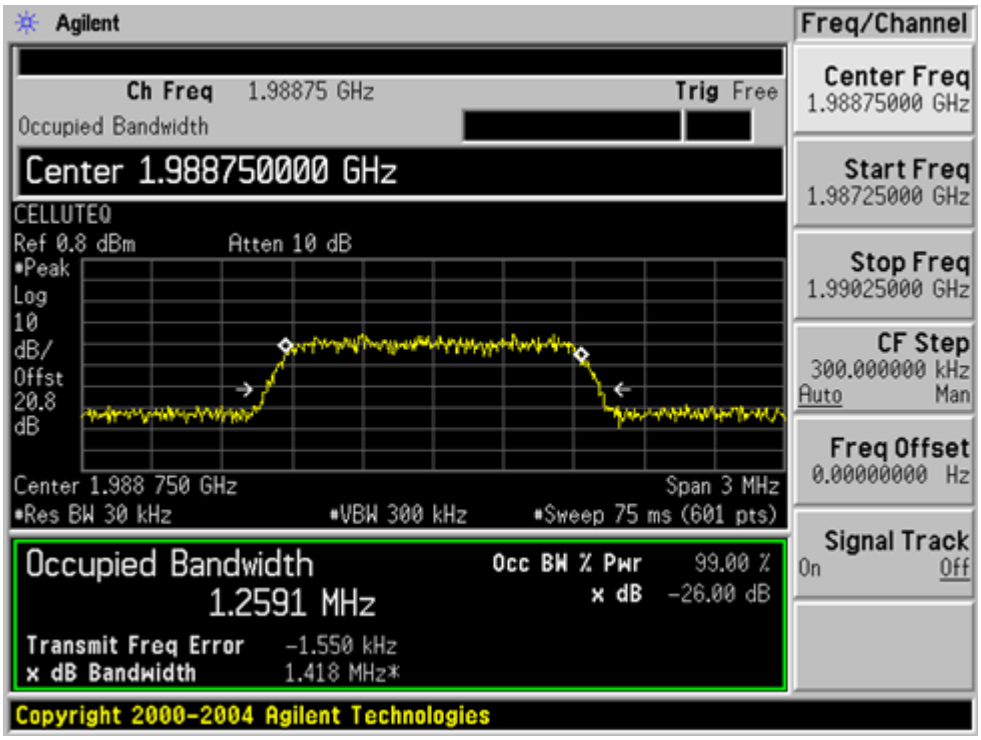


Output

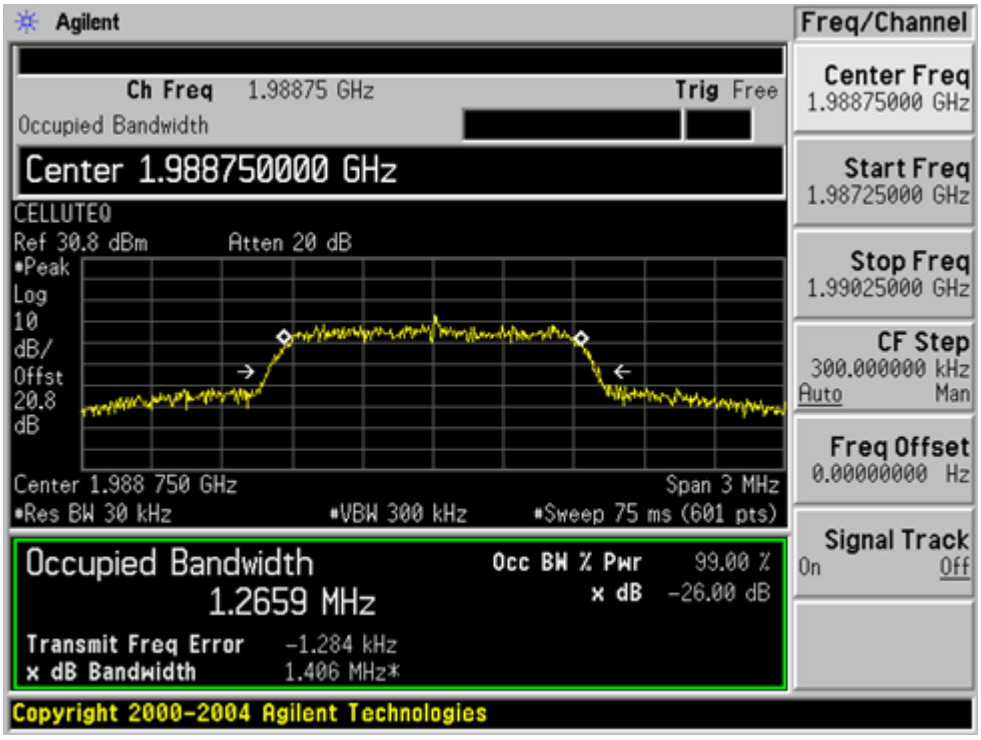


7.6.39 CDMA 1900 MHz: Forward (Downlink): High Channel

Input

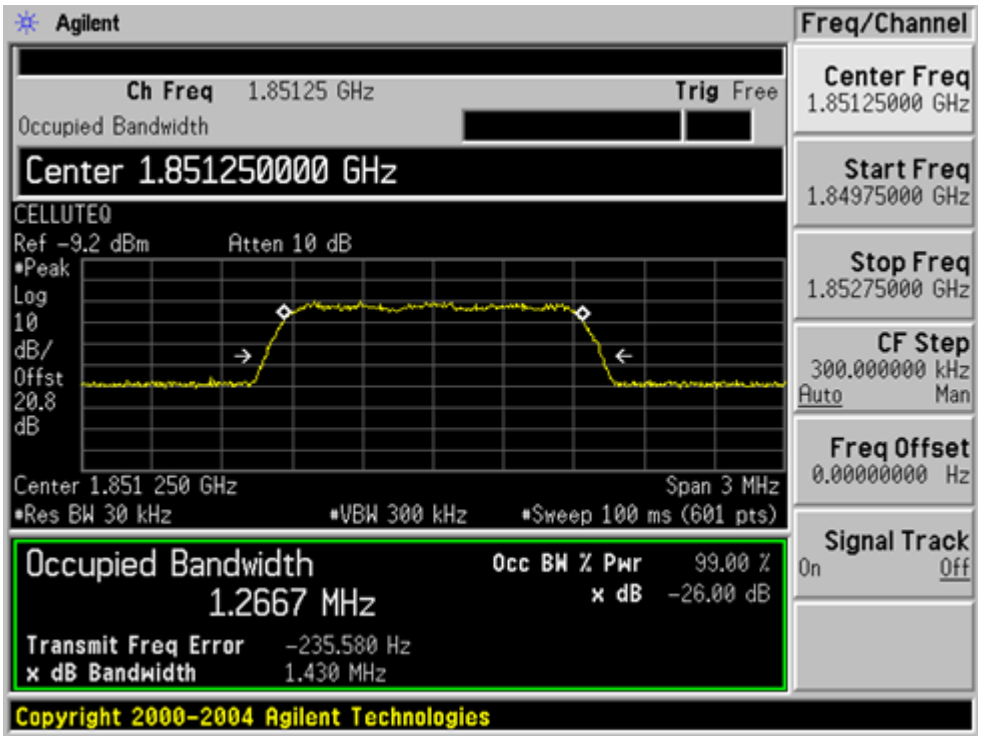


Output

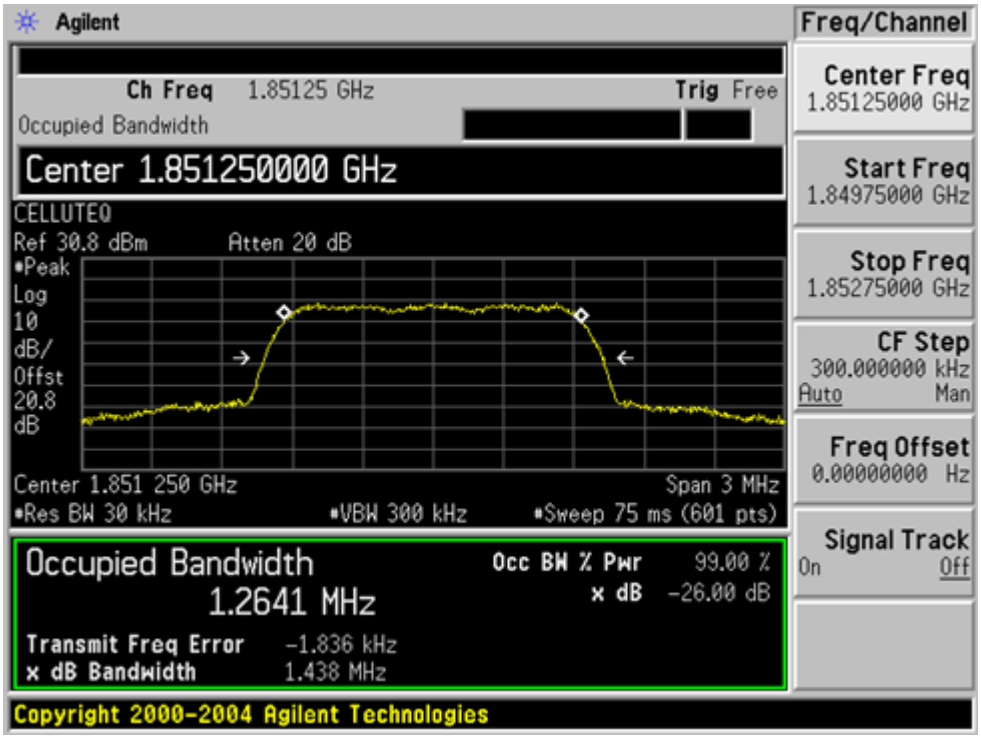


7.6.40 CDMA 1900 MHz: Reverse (Uplink): Low Channel

Input

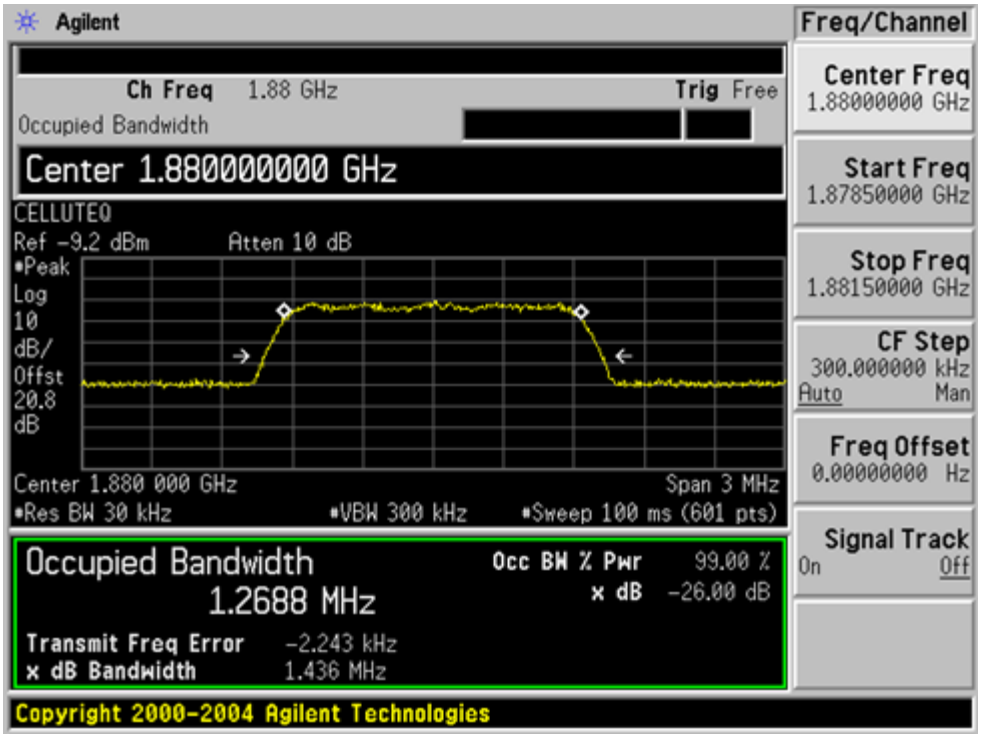


Output

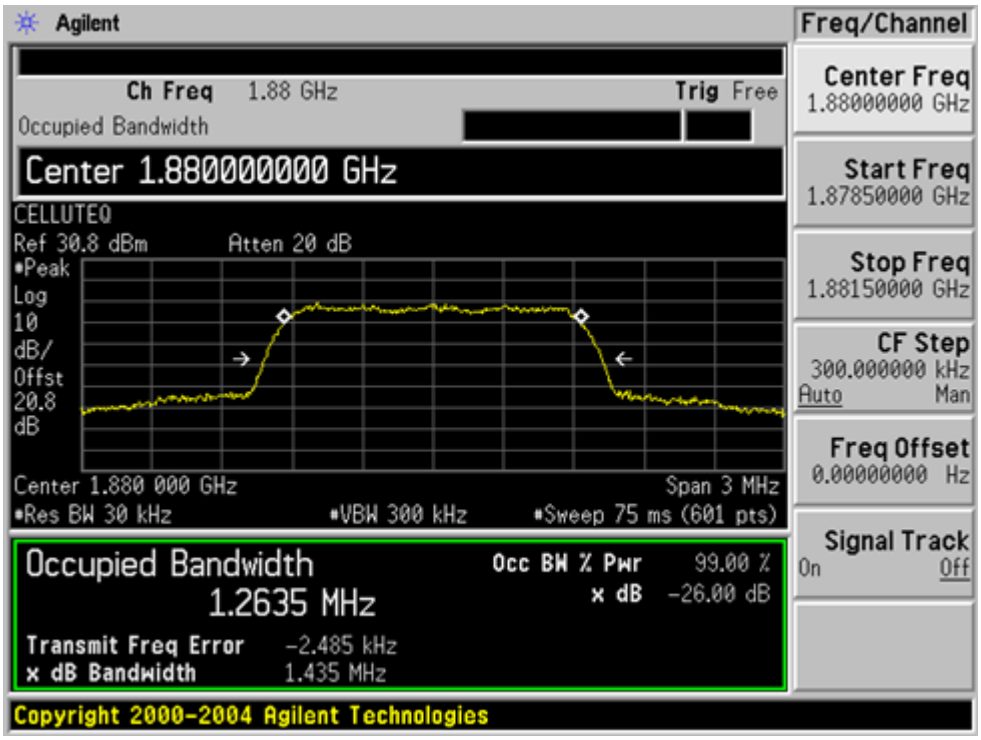


7.6.41 CDMA 1900 MHz: Reverse (Uplink): Middle Channel

Input

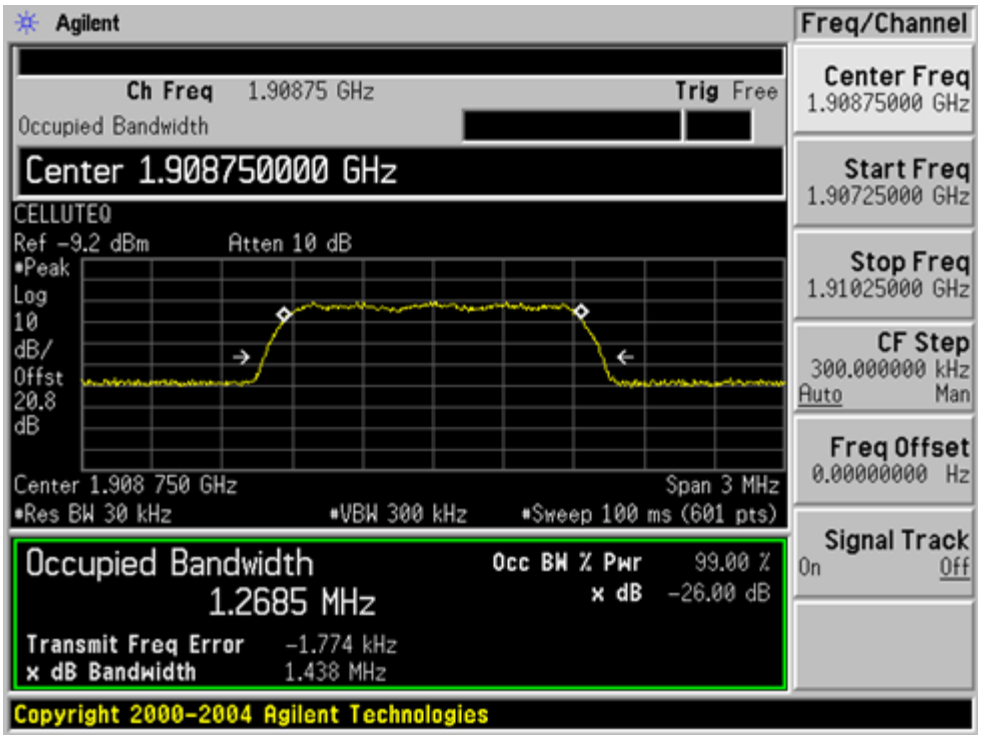


Output

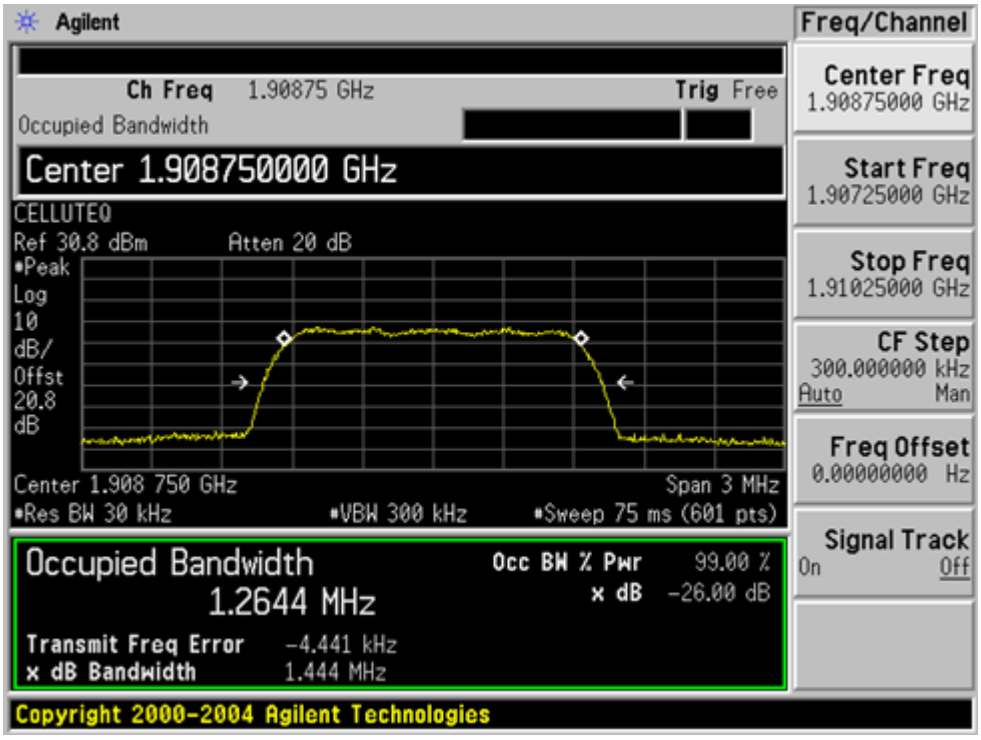


7.6.42 CDMA 1900 MHz: Reverse (Uplink): High Channel

Input



Output



8 FCC §2.1051, §24.238(a) & RSS-131§6.3 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

8.1 Applicable Standard

Requirements: CFR 47, § 2.1051. § 24.238(a)

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1057.

IC RSS-131 §6.3

8.2 Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100 kHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.

8.3 Environmental Conditions

Temperature:	24 °C
Relative Humidity:	58 %
ATM Pressure:	102.2 kPa

** The testing was performed by Dan Coronia on 2007-07-30 to 08-16.*

8.4 Test Equipment List and Details

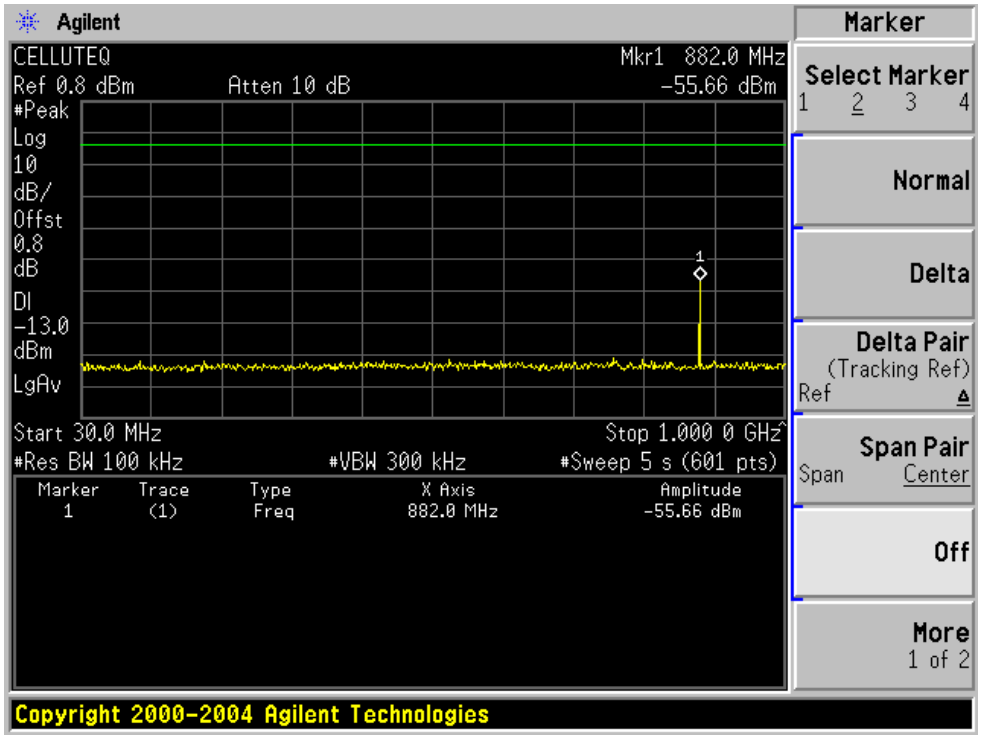
Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	2007-04-26
Rohde & Schwarz	Signal Generator	SMIQ03	849192/0085	2006-10-18

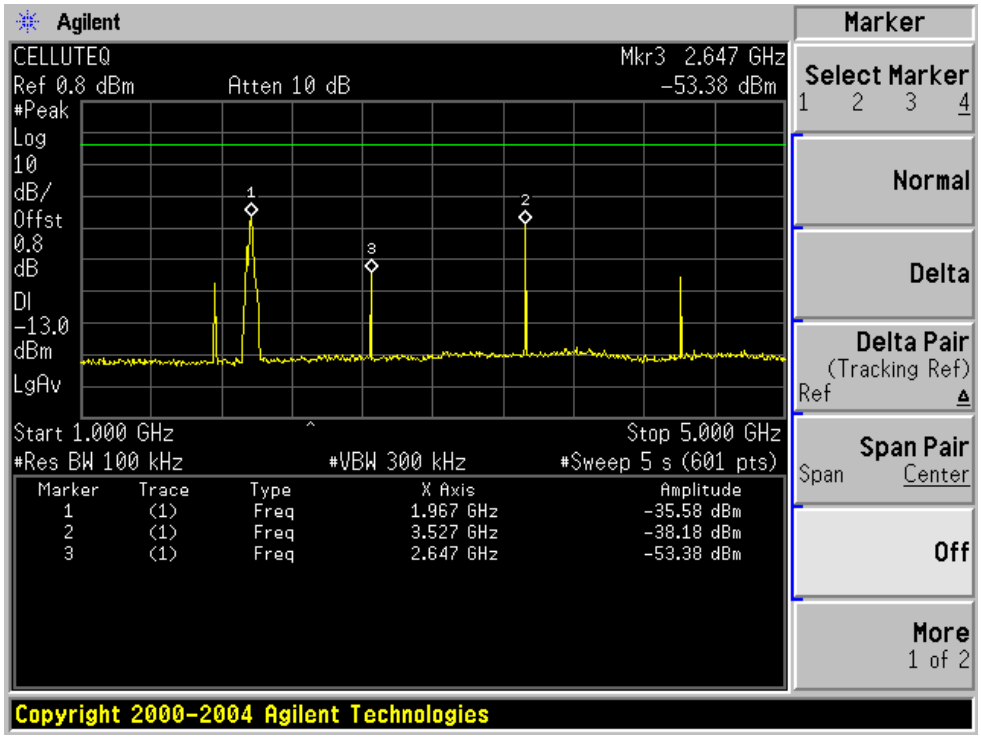
*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

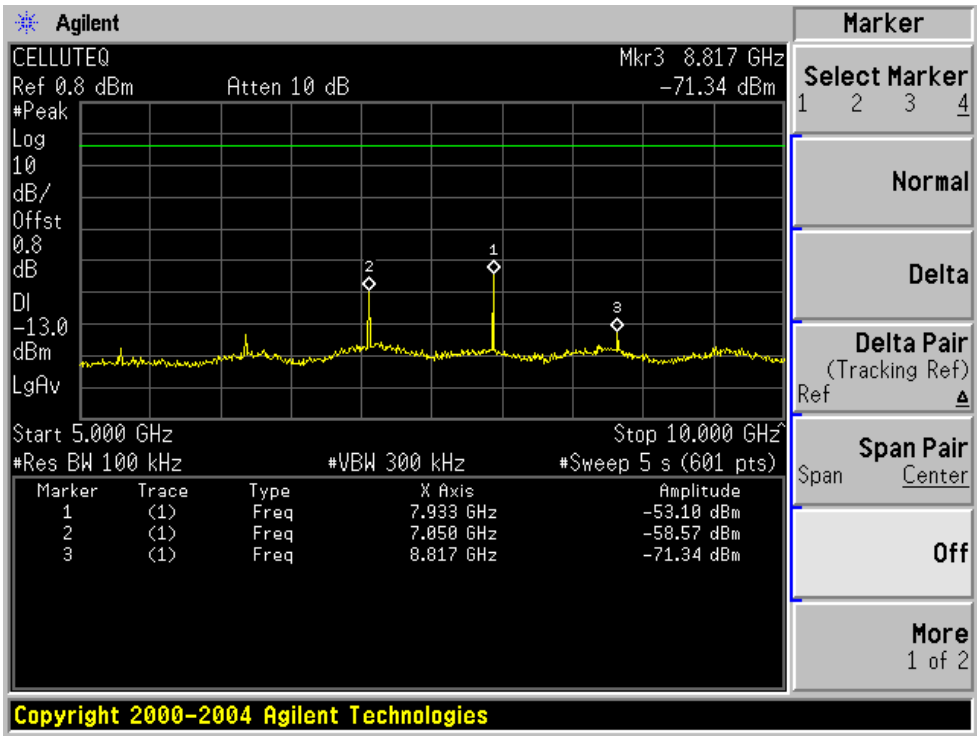
8.5 Test Results

Please refer to the hereinafter plots.

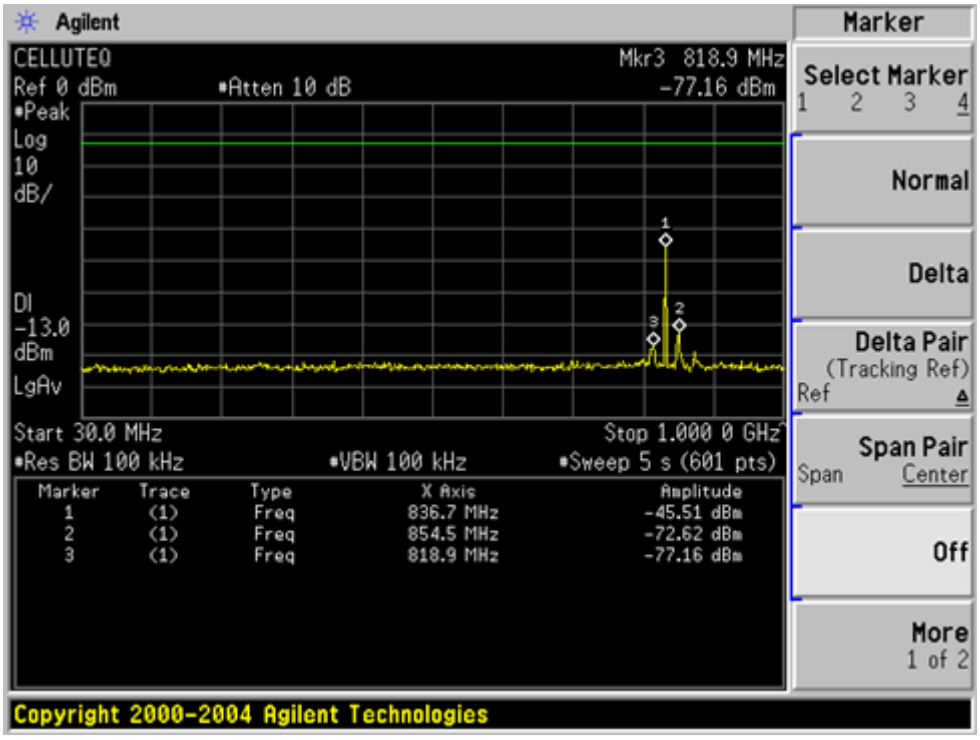
8.5.1 AMPS: Forward (Uplink): Middle Channel

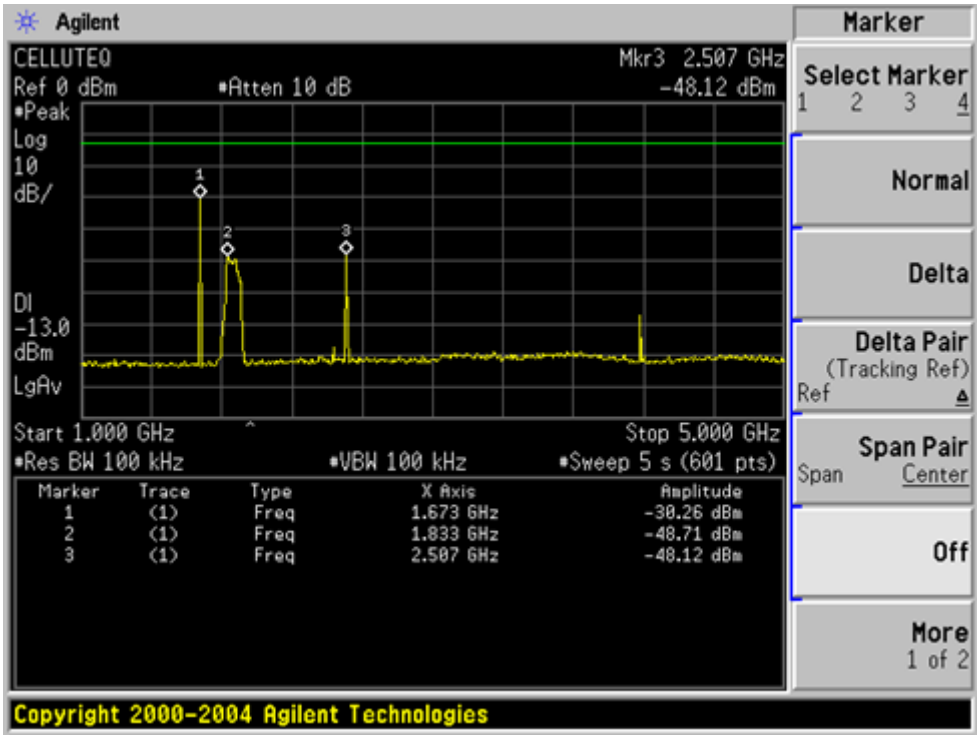


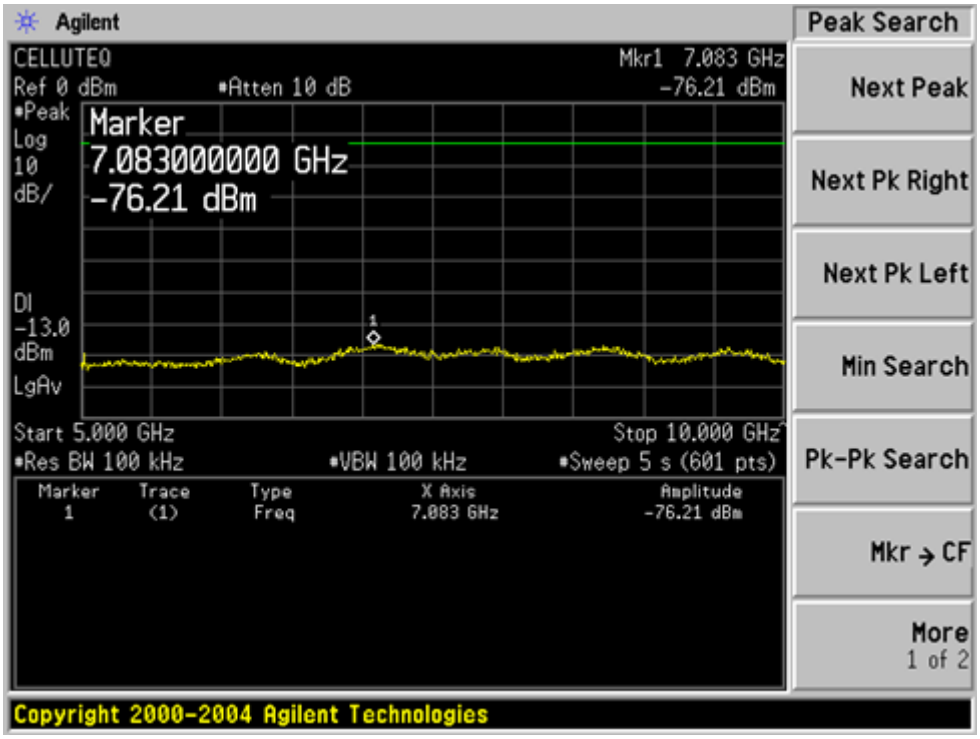




8.5.2 AMPS: Reverse (Uplink): Middle Channel



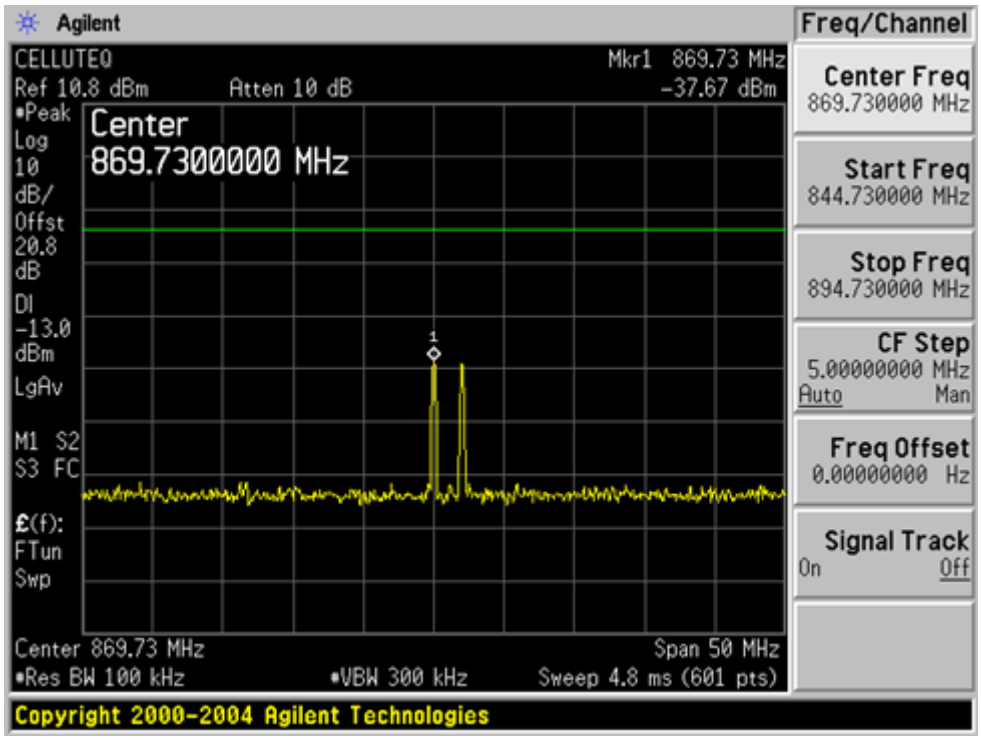

Agilent
CELLUTEQ
Mkr3 2.507 GHz
Ref 0 dBm
#Atten 10 dB
-48.12 dBm
#Peak
Log
10
dB/
DI
-13.0
dBm
LgAv
Start 1.000 GHz
Stop 5.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 1.673 GHz -30.26 dBm
2 (1) Freq 1.833 GHz -48.71 dBm
3 (1) Freq 2.507 GHz -48.12 dBm
Marker
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2004 Agilent Technologies


Agilent
CELLUTEQ
Mkr1 7.083 GHz
Ref 0 dBm
#Atten 10 dB
-76.21 dBm
#Peak
Log
10
dB/
Marker
7.083000000 GHz
-76.21 dBm
DI
-13.0
dBm
LgAv
Start 5.000 GHz
Stop 10.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 7.083 GHz -76.21 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Copyright 2000-2004 Agilent Technologies

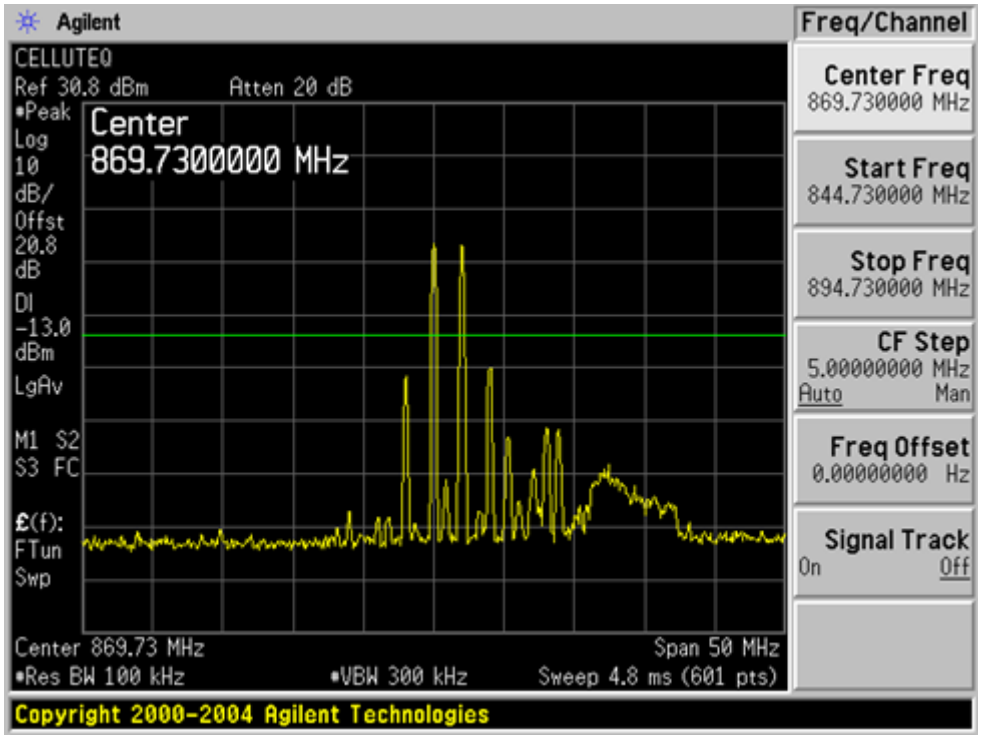
Inter-Modulation Testing:

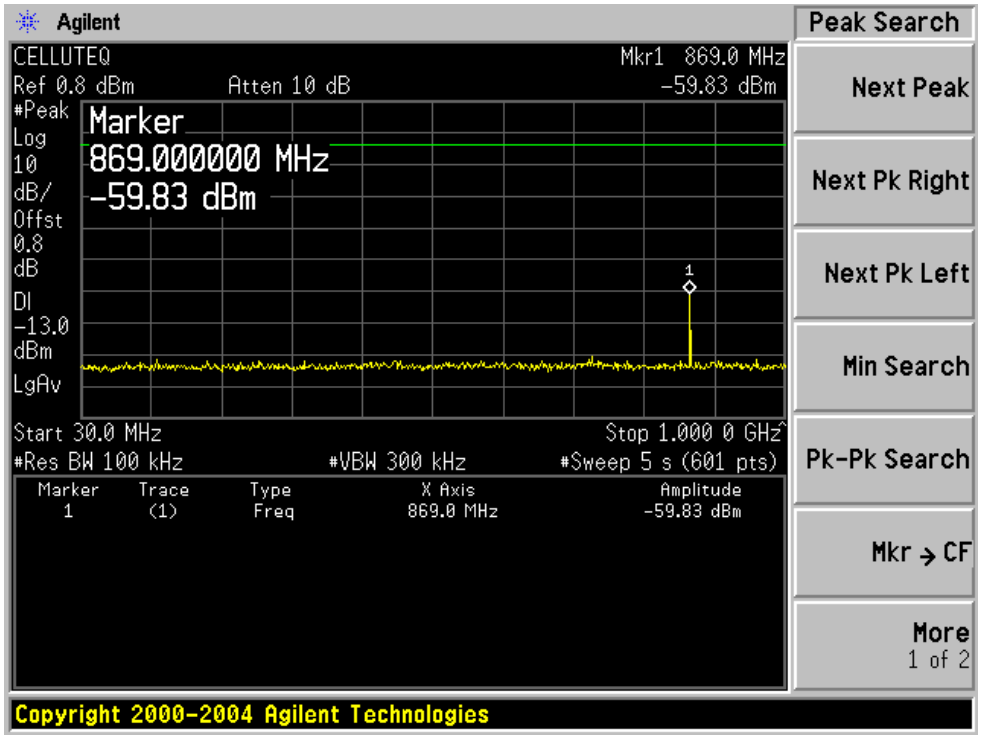
8.5.3 AMPS: Forward (Downlink) Low Channel

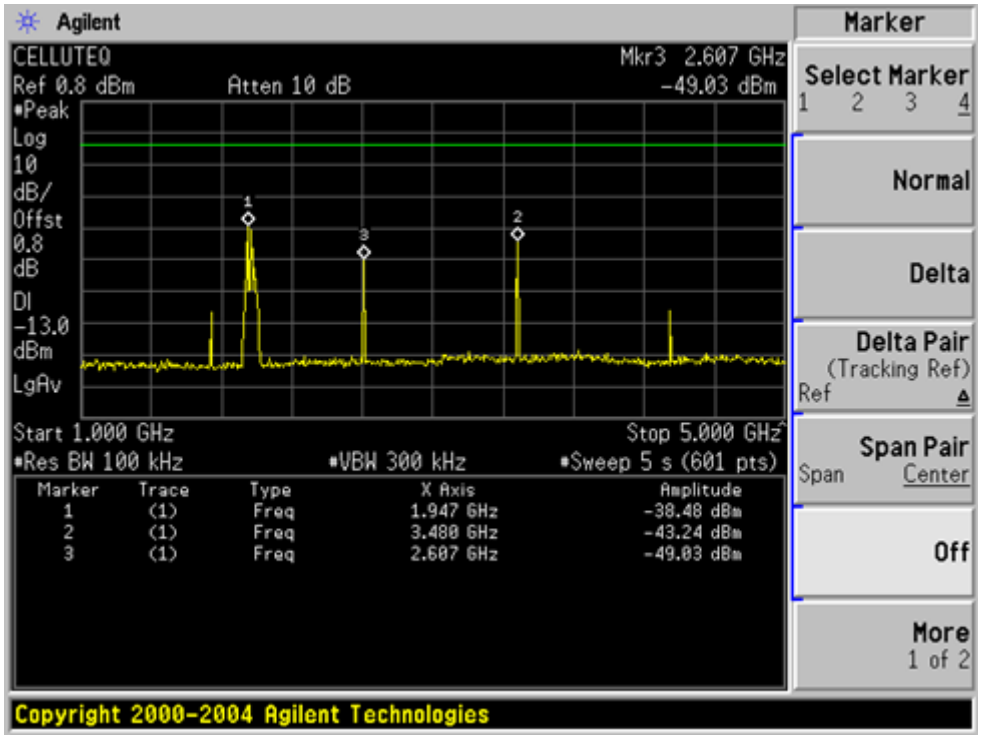
Input

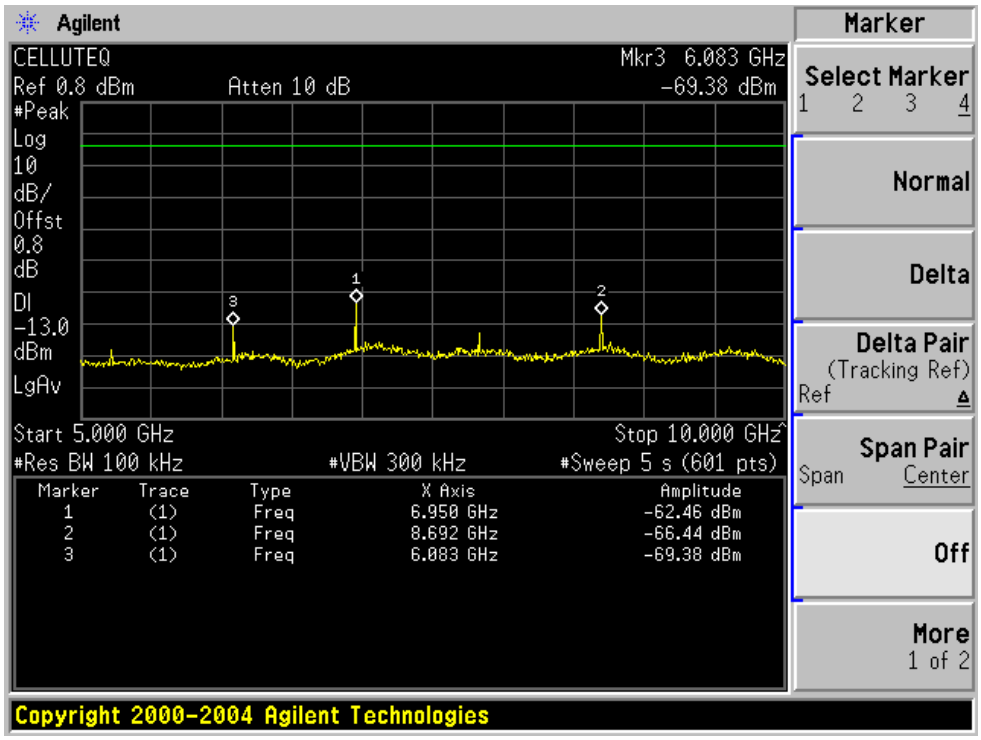


Output



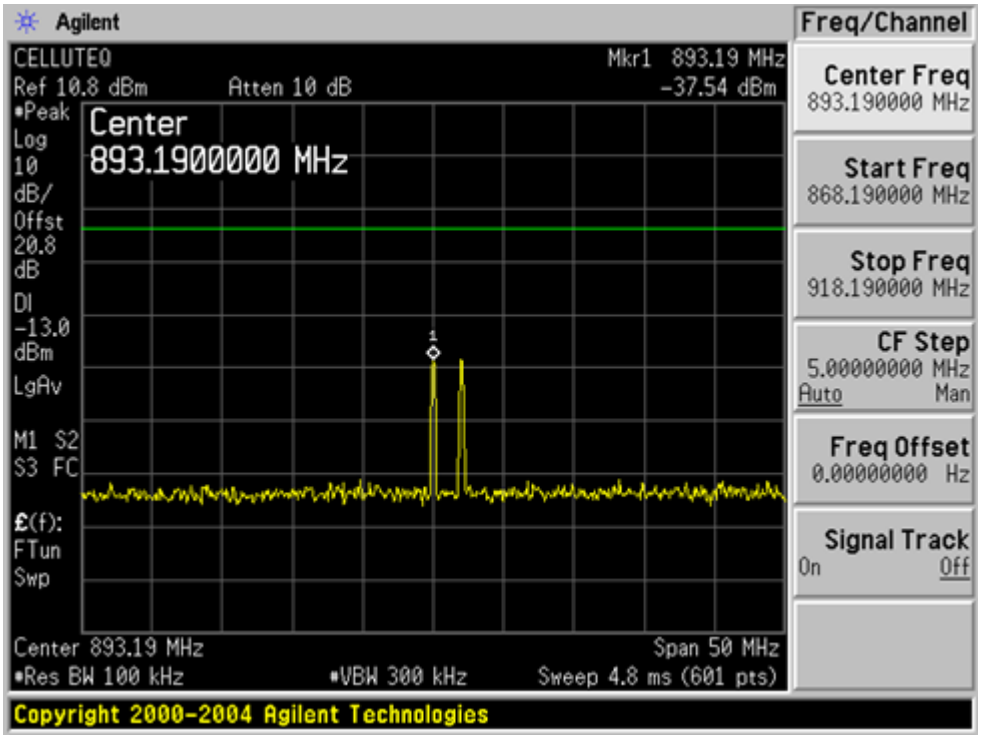

Agilent
CELLUTEQ
Ref 0.8 dBm
Atten 10 dB
Mkr1 869.0 MHz
-59.83 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Marker
869.000000 MHz
-59.83 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.000 0 GHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 869.0 MHz -59.83 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Copyright 2000-2004 Agilent Technologies


Agilent
CELLUTEQ
Ref 0.8 dBm
Atten 10 dB
Mkr3 2.607 GHz
-49.03 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 5.000 GHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 1.947 GHz -38.48 dBm
2 (1) Freq 3.480 GHz -43.24 dBm
3 (1) Freq 2.607 GHz -49.03 dBm
Marker
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2004 Agilent Technologies

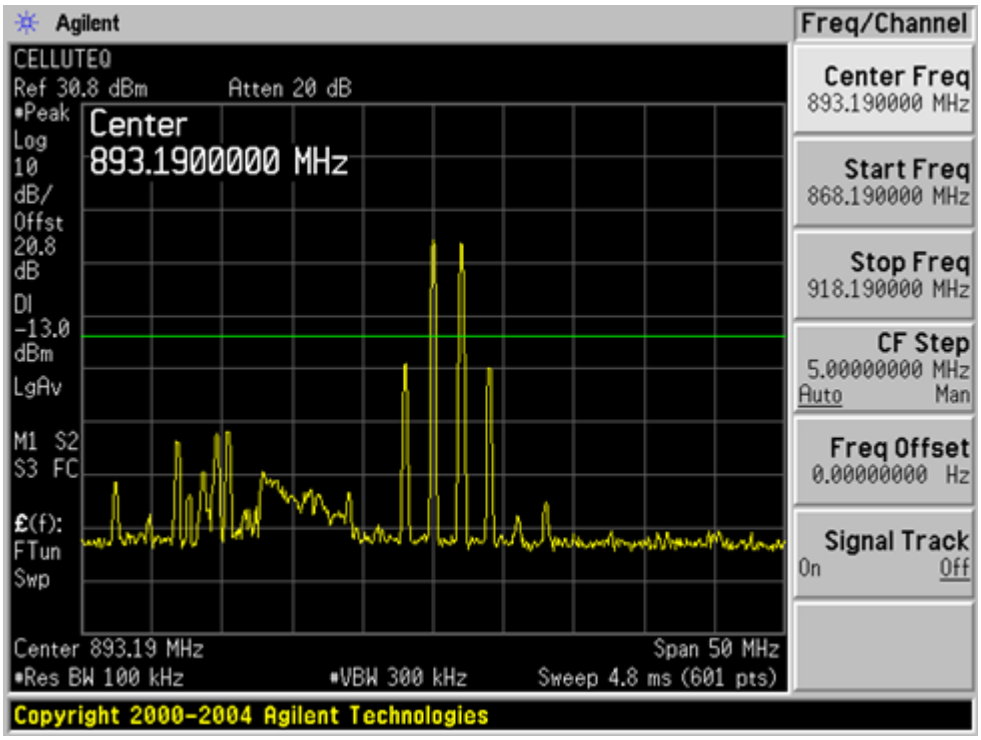

Agilent
CELLUTEQ
Mkr3 6.083 GHz
Ref 0.8 dBm
Atten 10 dB
-69.38 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Start 5.000 GHz
Stop 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 6.950 GHz -62.46 dBm
2 (1) Freq 8.692 GHz -66.44 dBm
3 (1) Freq 6.083 GHz -69.38 dBm
Copyright 2000-2004 Agilent Technologies
Marker
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2

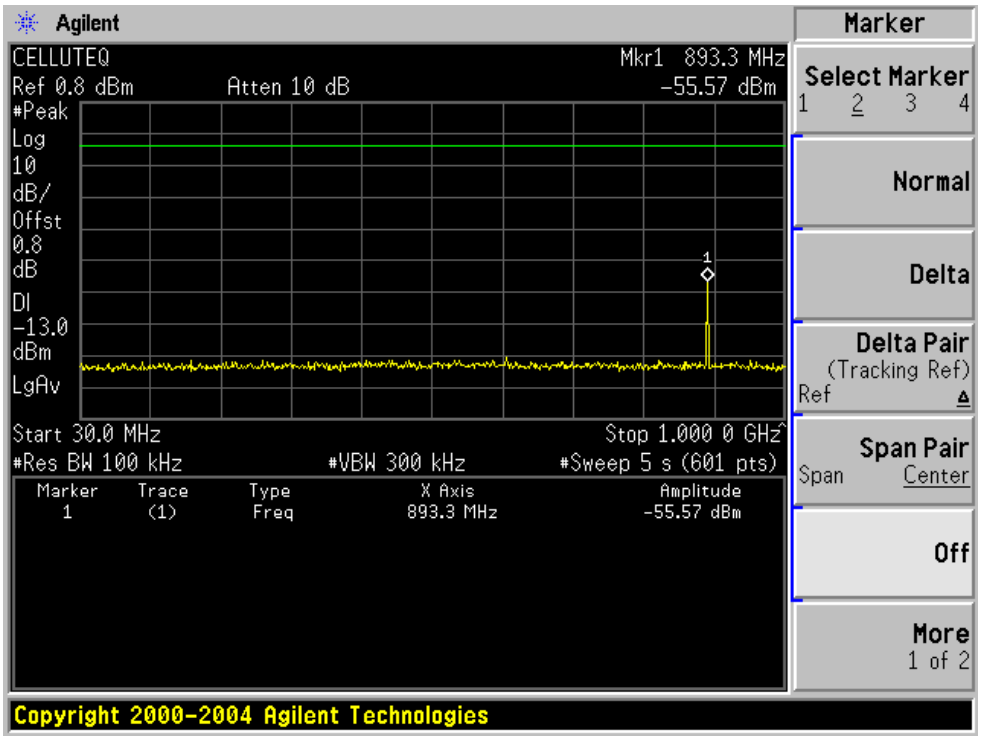
8.5.4 AMPS: Forward (Downlink) High Channel

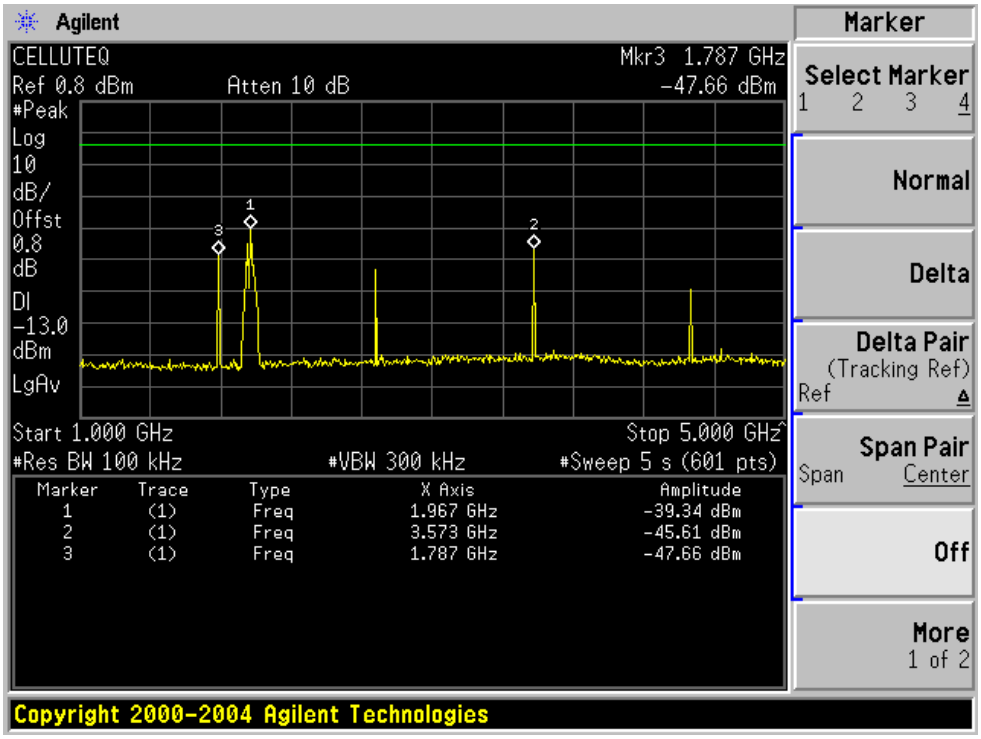
Input

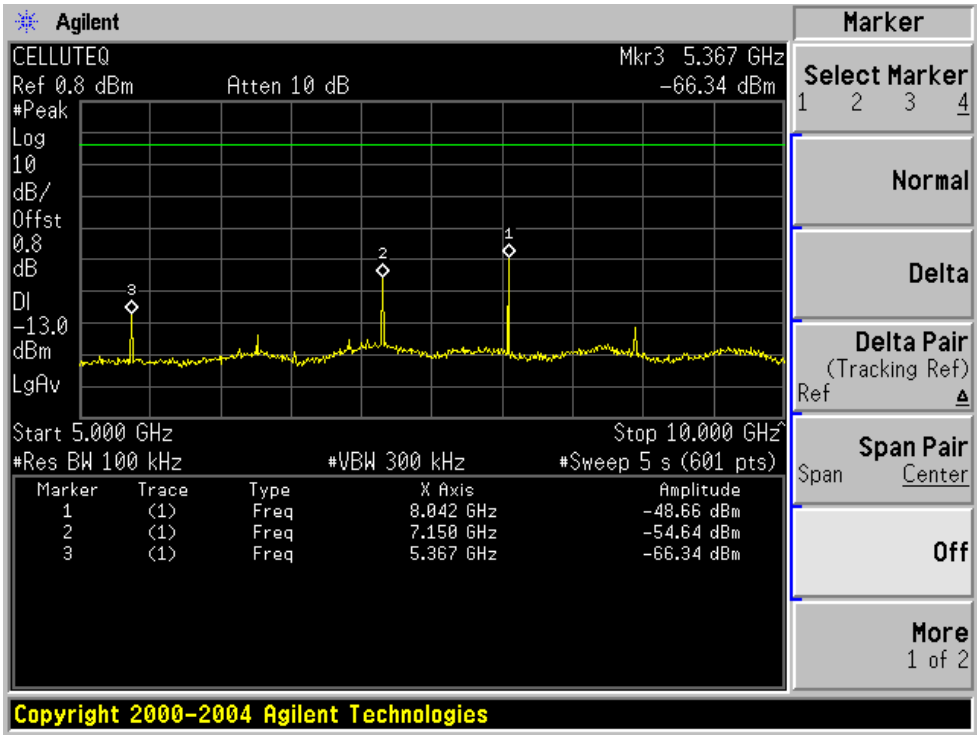


Output



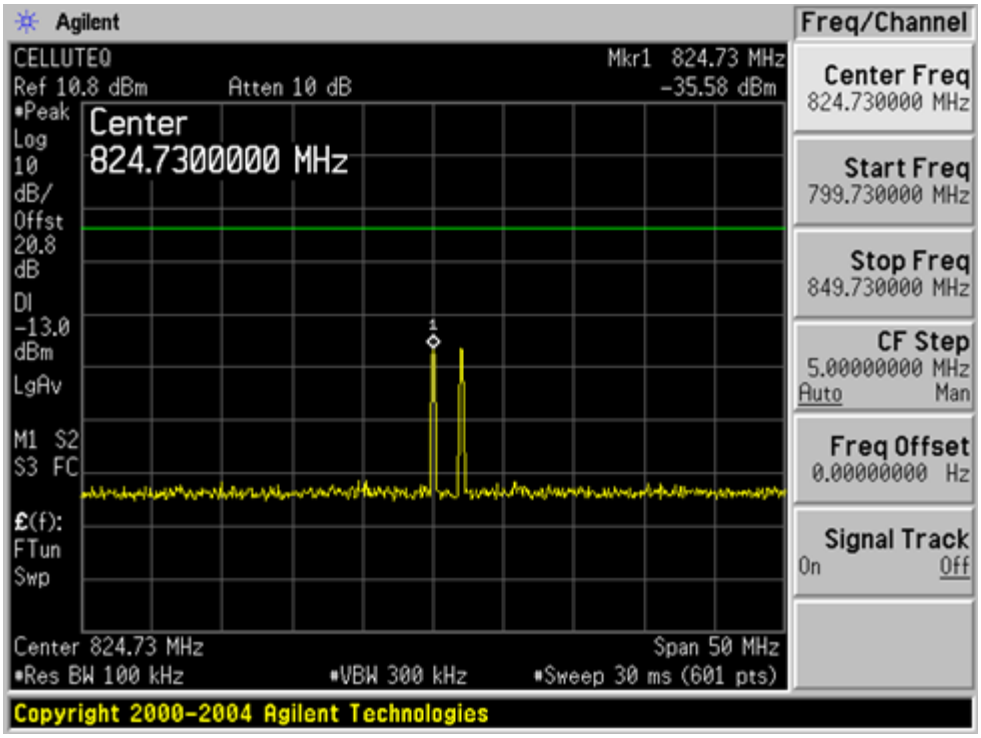

Agilent
CELLUTEQ
Mkr1 893.3 MHz
Ref 0.8 dBm
Atten 10 dB
-55.57 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Start 30.0 MHz
Stop 1.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 893.3 MHz -55.57 dBm
Marker
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2004 Agilent Technologies


Agilent
CELLUTEQ
Mkr3 1.787 GHz
Ref 0.8 dBm
Atten 10 dB
-47.66 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Start 1.000 GHz
Stop 5.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 1.967 GHz -39.34 dBm
2 (1) Freq 3.573 GHz -45.61 dBm
3 (1) Freq 1.787 GHz -47.66 dBm
Marker
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2004 Agilent Technologies

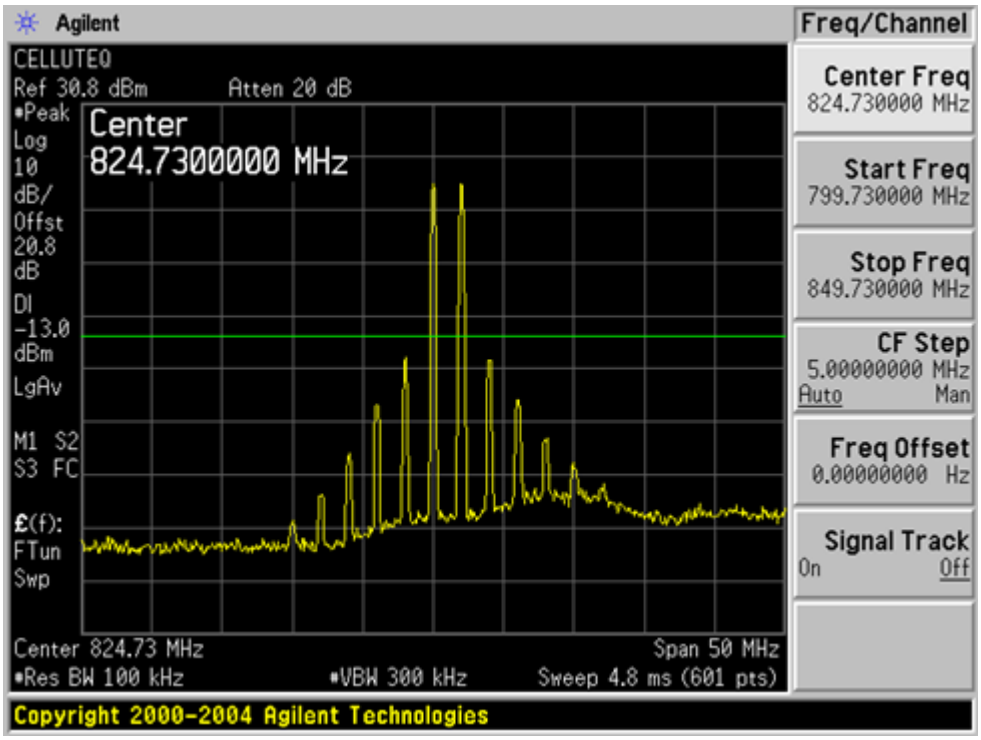

Agilent
CELLUTEQ
Mkr3 5.367 GHz
Ref 0.8 dBm
Atten 10 dB
-66.34 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Start 5.000 GHz
Stop 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 8.042 GHz -48.66 dBm
2 (1) Freq 7.150 GHz -54.64 dBm
3 (1) Freq 5.367 GHz -66.34 dBm
Marker
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2004 Agilent Technologies

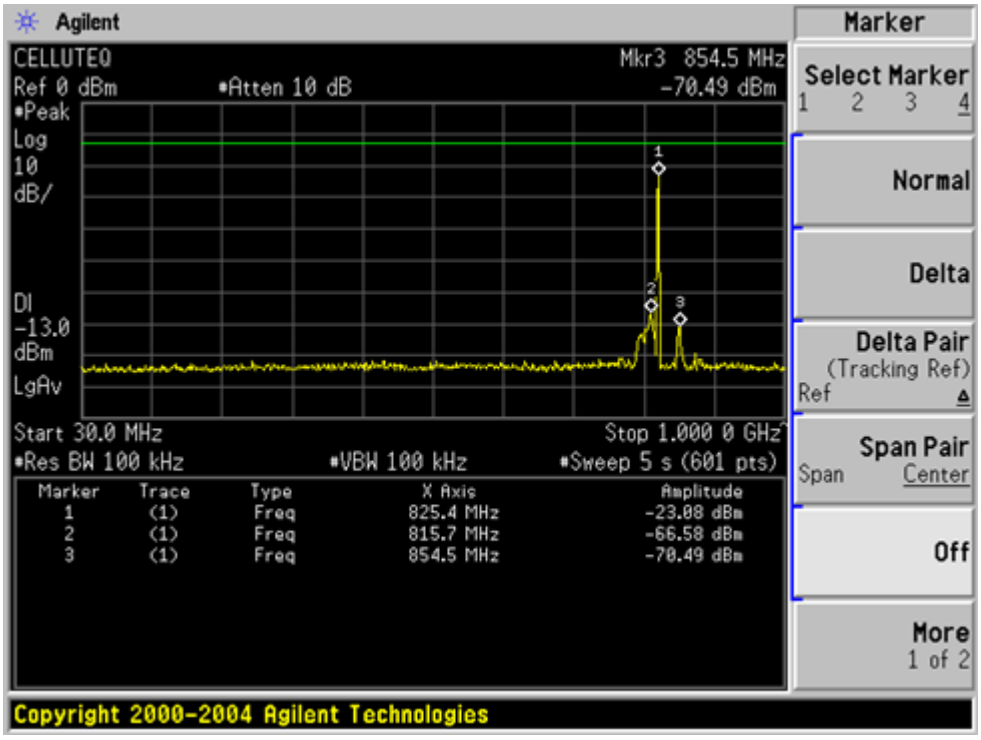
8.5.5 AMPS: Reverse (Uplink) Low Channel

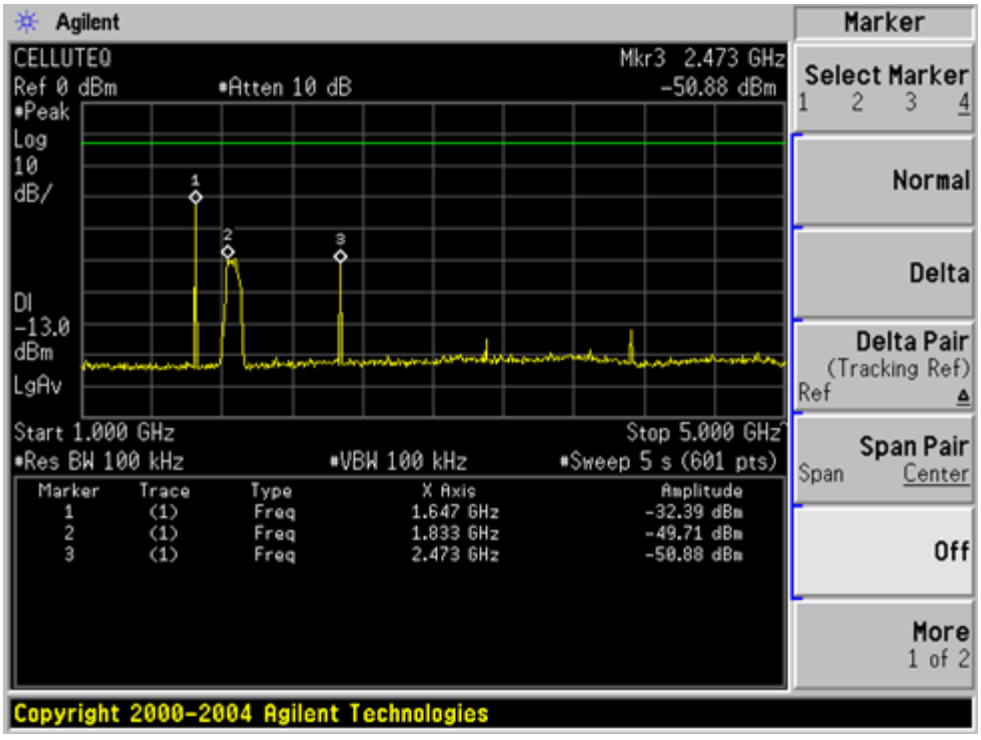
Input



Output




Agilent
CELLUTEQ
Mkr3 854.5 MHz
Ref 0 dBm
•Atten 10 dB
-70.49 dBm
•Peak
Log
10
dB/
Dl
-13.0
dBm
LgAv
Start 30.0 MHz
Stop 1.000 0 GHz
•Res BW 100 kHz
•VBW 100 kHz
•Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 825.4 MHz -23.08 dBm
2 (1) Freq 815.7 MHz -66.58 dBm
3 (1) Freq 854.5 MHz -70.49 dBm
Marker
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2004 Agilent Technologies


Agilent
CELLUTEQ
Mkr3 2.473 GHz
Ref 0 dBm
•Atten 10 dB
-50.88 dBm
•Peak
Log
10
dB/
Dl
-13.0
dBm
LgAv
Start 1.000 GHz
Stop 5.000 GHz
•Res BW 100 kHz
•VBW 100 kHz
•Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 1.647 GHz -32.39 dBm
2 (1) Freq 1.833 GHz -49.71 dBm
3 (1) Freq 2.473 GHz -50.88 dBm
Marker
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
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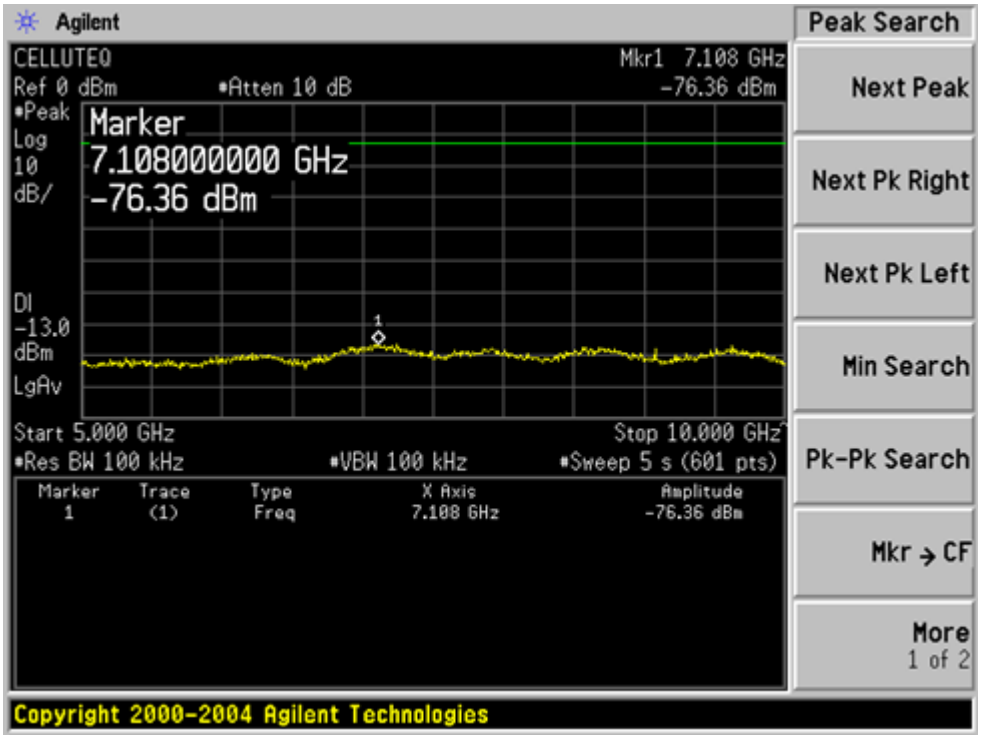
Agilent
CELLUTEQ
Mkr1 7.108 GHz
Ref 0 dBm
#Atten 10 dB
-76.36 dBm
#Peak
Log
10
dB/
Marker
7.108000000 GHz
-76.36 dBm
Dl
-13.0
dBm
LgAv
Start 5.000 GHz
Stop 10.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 7.108 GHz -76.36 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
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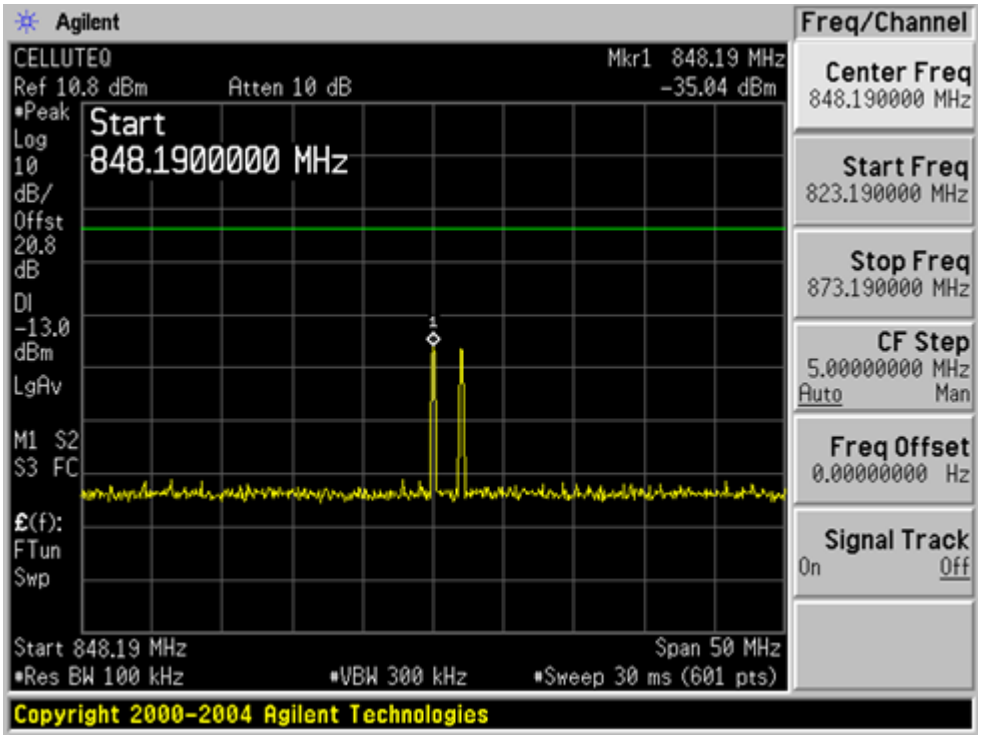
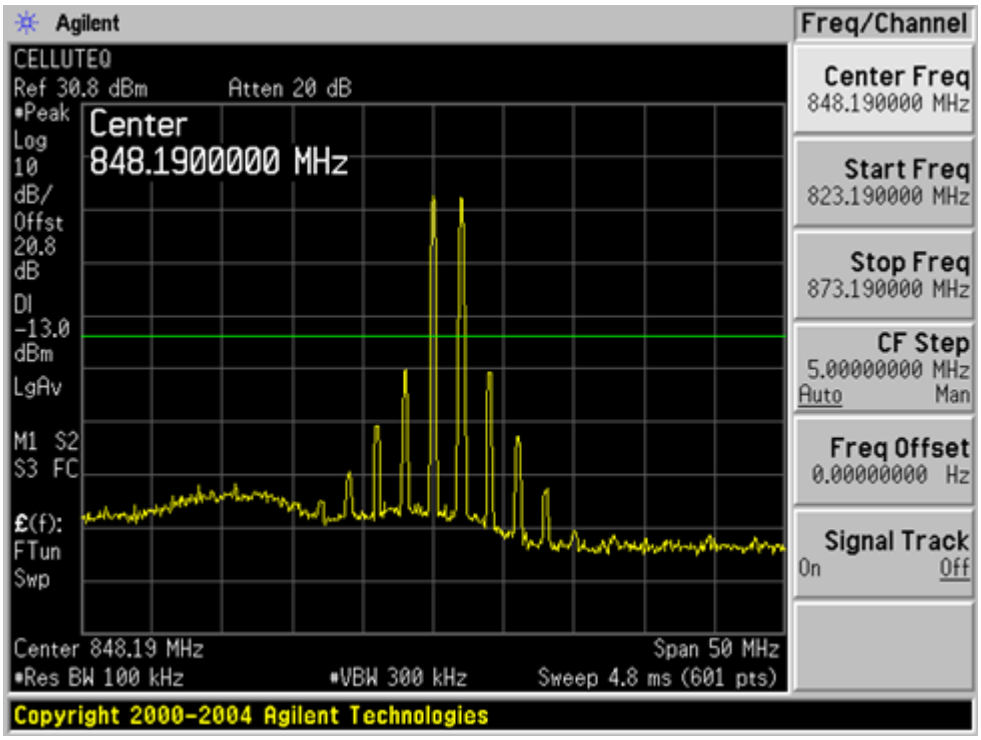
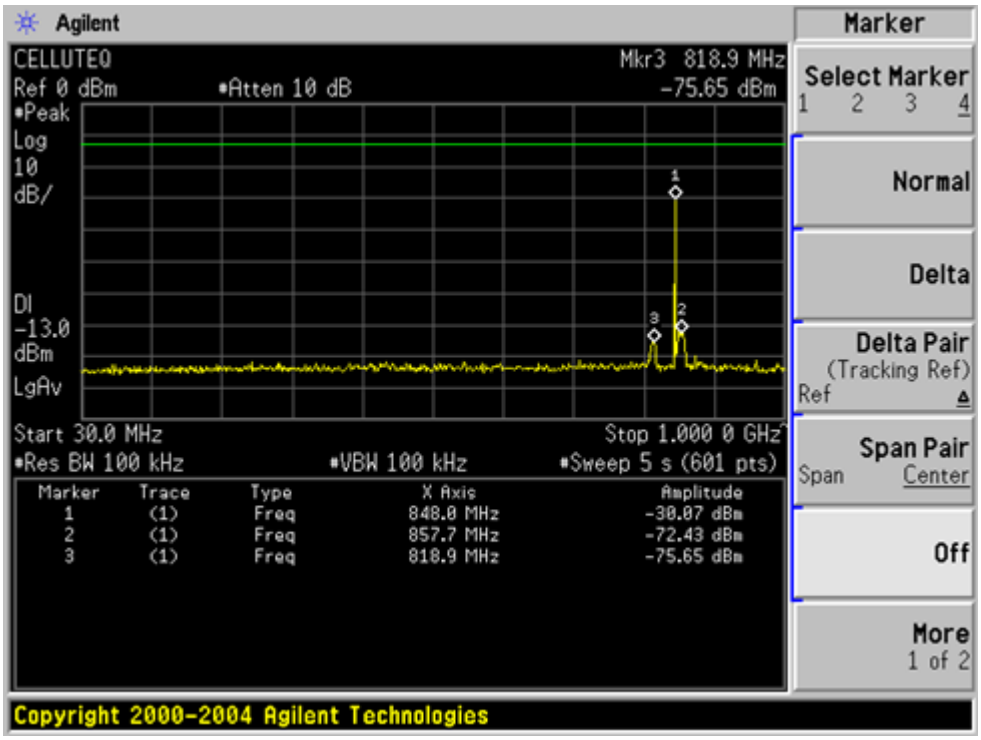
8.5.6 AMPS Reverse (Uplink) High Channel

Input



Output




Agilent
CELLUTEQ
Mkr3 818.9 MHz
Ref 0 dBm
•Atten 10 dB
-75.65 dBm
•Peak
Log
10
dB/
DI
-13.0
dBm
LgAv
Start 30.0 MHz
Stop 1.000 0 GHz
•Res BW 100 kHz
•VBW 100 kHz
•Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 848.0 MHz -30.07 dBm
2 (1) Freq 857.7 MHz -72.43 dBm
3 (1) Freq 818.9 MHz -75.65 dBm
Marker
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
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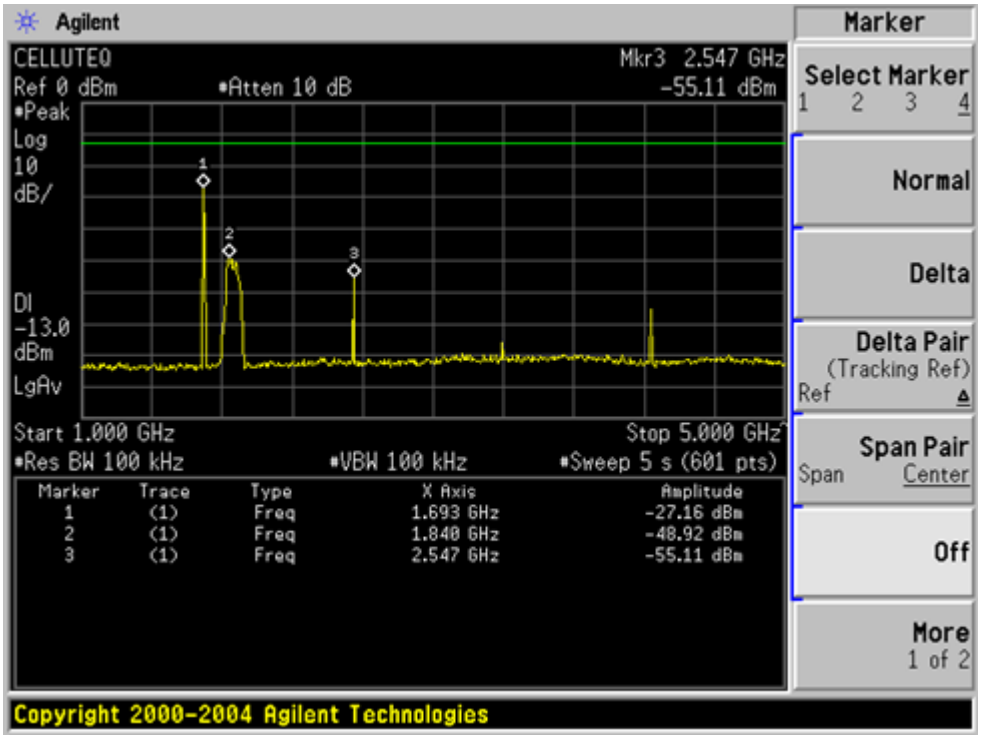
Agilent
CELLUTEQ
Mkr3 2.547 GHz
Ref 0 dBm
•Atten 10 dB
-55.11 dBm
•Peak
Log
10
dB/
DI
-13.0
dBm
LgAv
Start 1.000 GHz
Stop 5.000 GHz
•Res BW 100 kHz
•VBW 100 kHz
•Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 1.693 GHz -27.16 dBm
2 (1) Freq 1.840 GHz -48.92 dBm
3 (1) Freq 2.547 GHz -55.11 dBm
Marker
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
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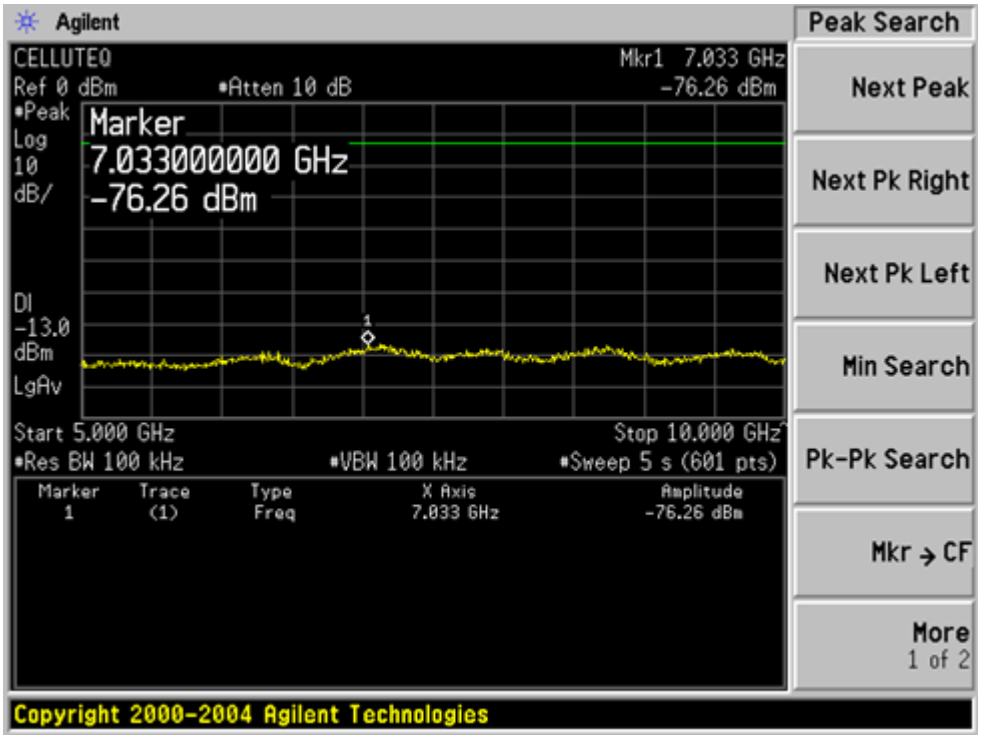
Agilent
CELLUTEQ
Mkr1 7.033 GHz
Ref 0 dBm
#Atten 10 dB
-76.26 dBm
#Peak
Log
10
dB/
Marker
7.033000000 GHz
-76.26 dBm
Dl
-13.0
dBm
LgAv
Start 5.000 GHz
Stop 10.000 GHz
#Res BW 100 kHz
#VBW 100 kHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 7.033 GHz -76.26 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
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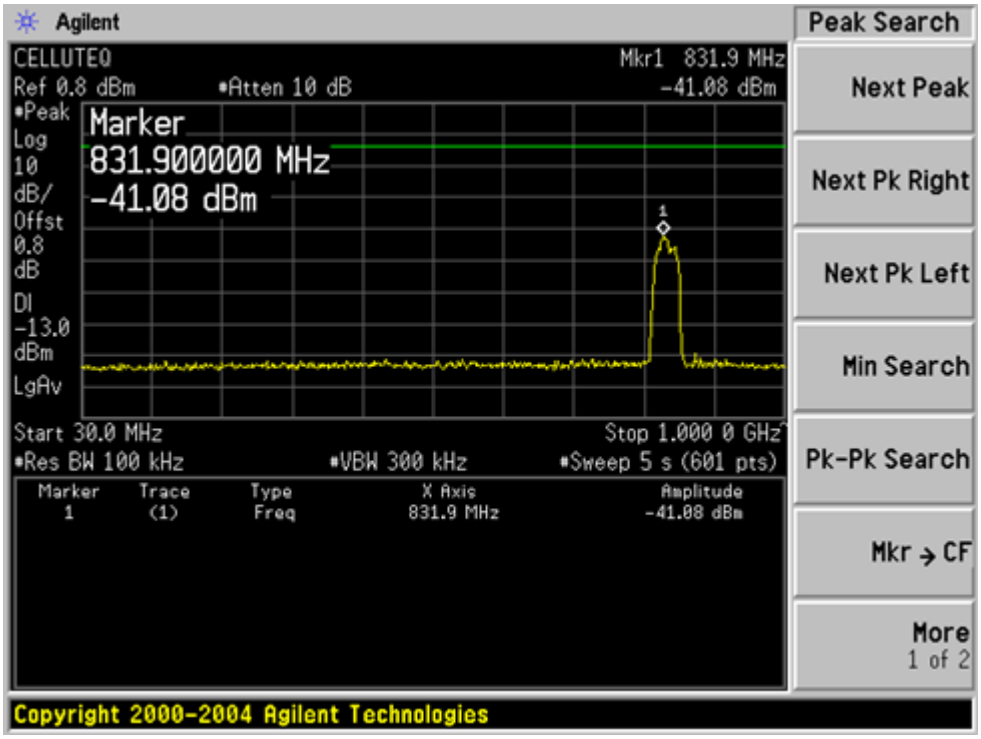
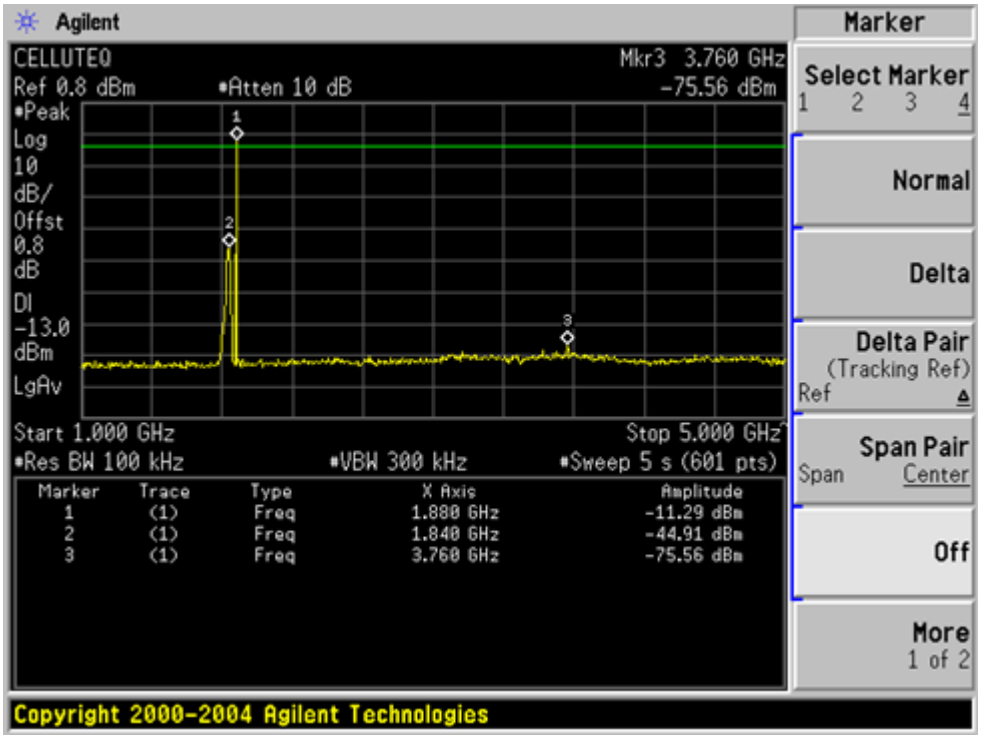
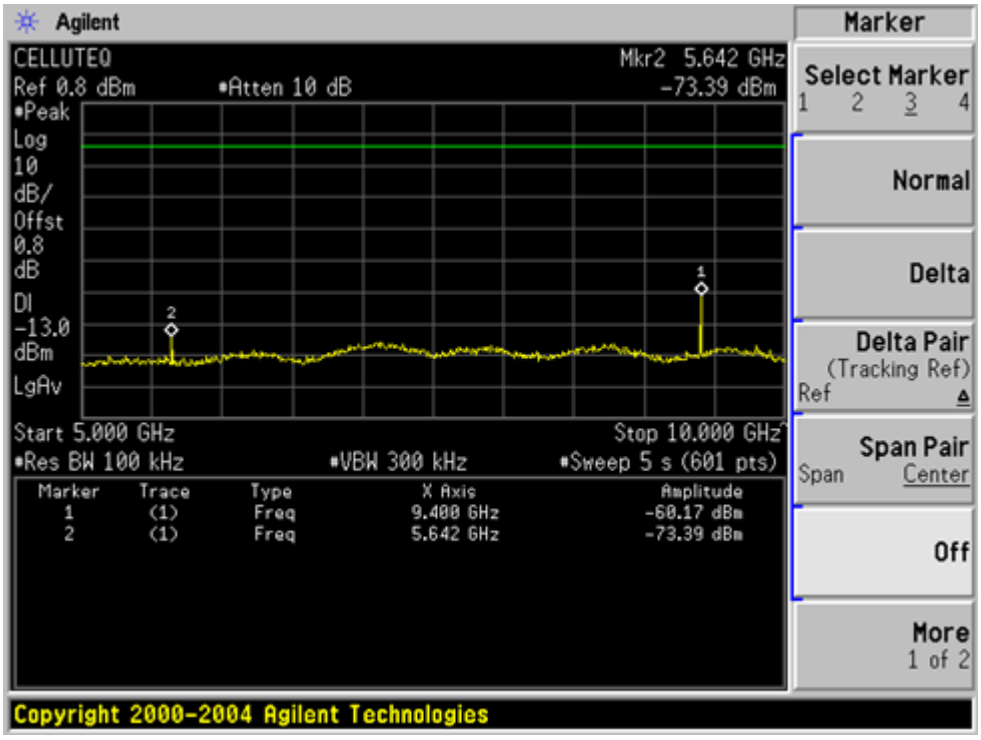
8.5.7 TDMA: Forward (Uplink): Middle Channel






Agilent
CELLUTEQ
Mkr2 5.642 GHz
Ref 0.8 dBm
•Atten 10 dB
-73.39 dBm
•Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Start 5.000 GHz
Stop 10.000 GHz
•Res BW 100 kHz
•VBW 300 kHz
•Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 9.400 GHz -60.17 dBm
2 (1) Freq 5.642 GHz -73.39 dBm
Marker
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
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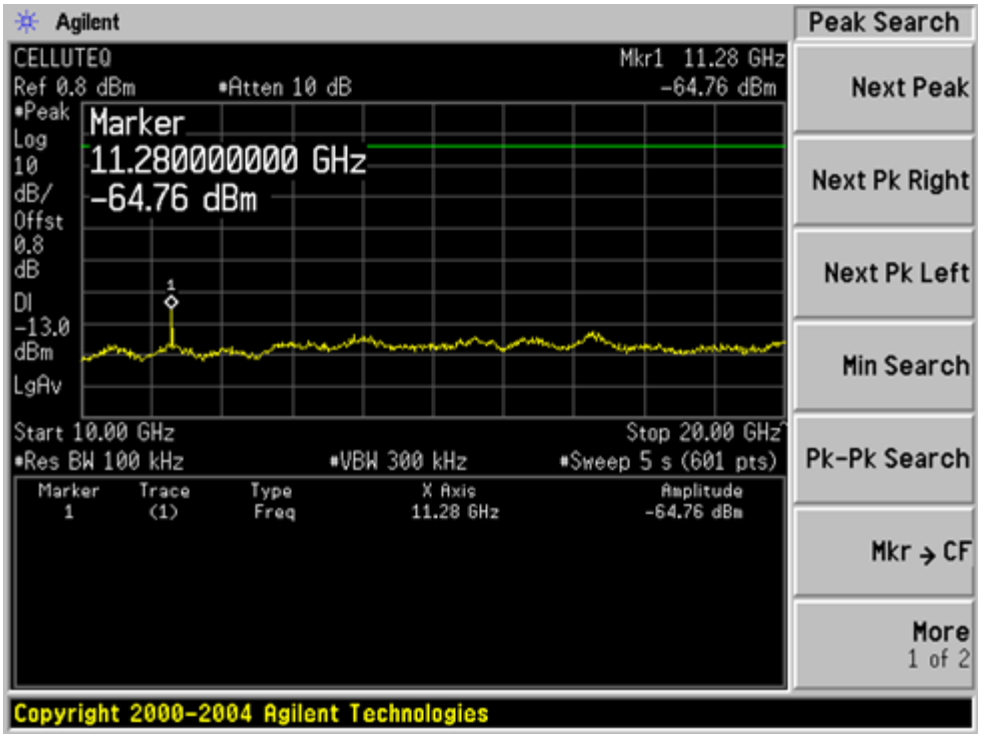
Agilent
CELLUTEQ
Mkr1 11.28 GHz
Ref 0.8 dBm
•Atten 10 dB
-64.76 dBm
•Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Marker
11.280000000 GHz
-64.76 dBm
Start 10.00 GHz
Stop 20.00 GHz
•Res BW 100 kHz
•VBW 300 kHz
•Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 11.28 GHz -64.76 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
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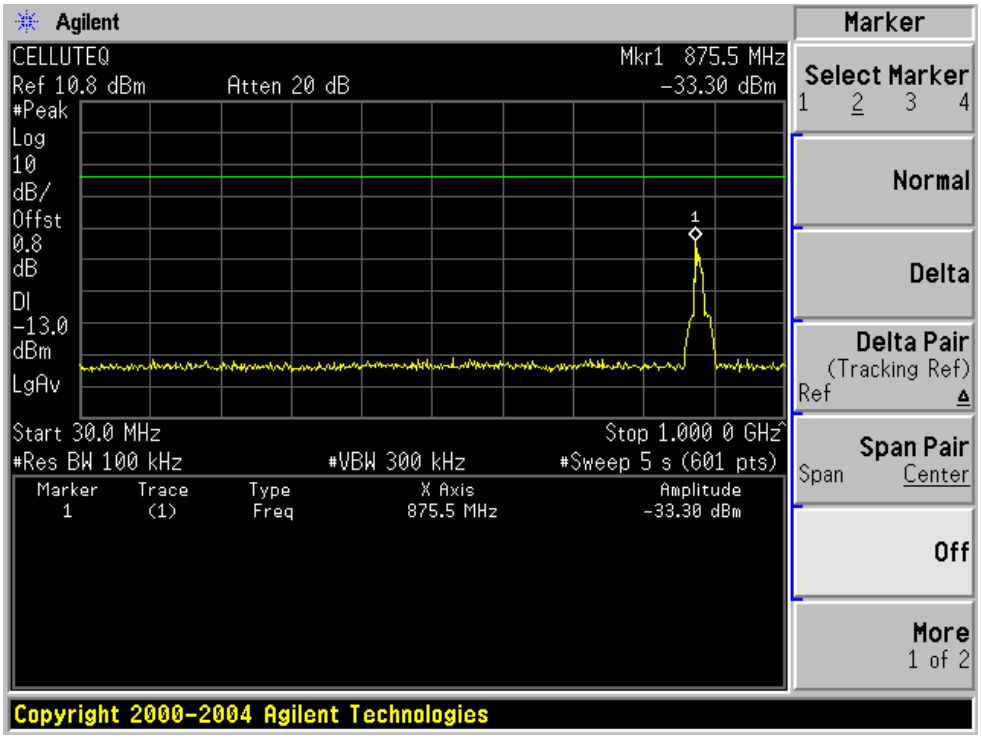
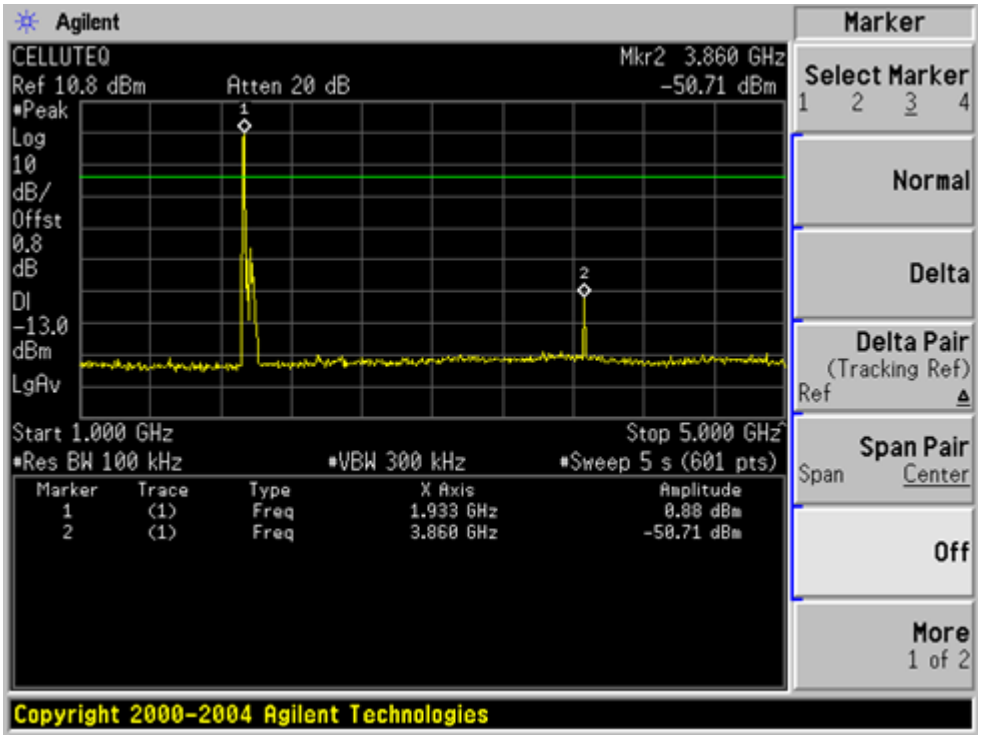
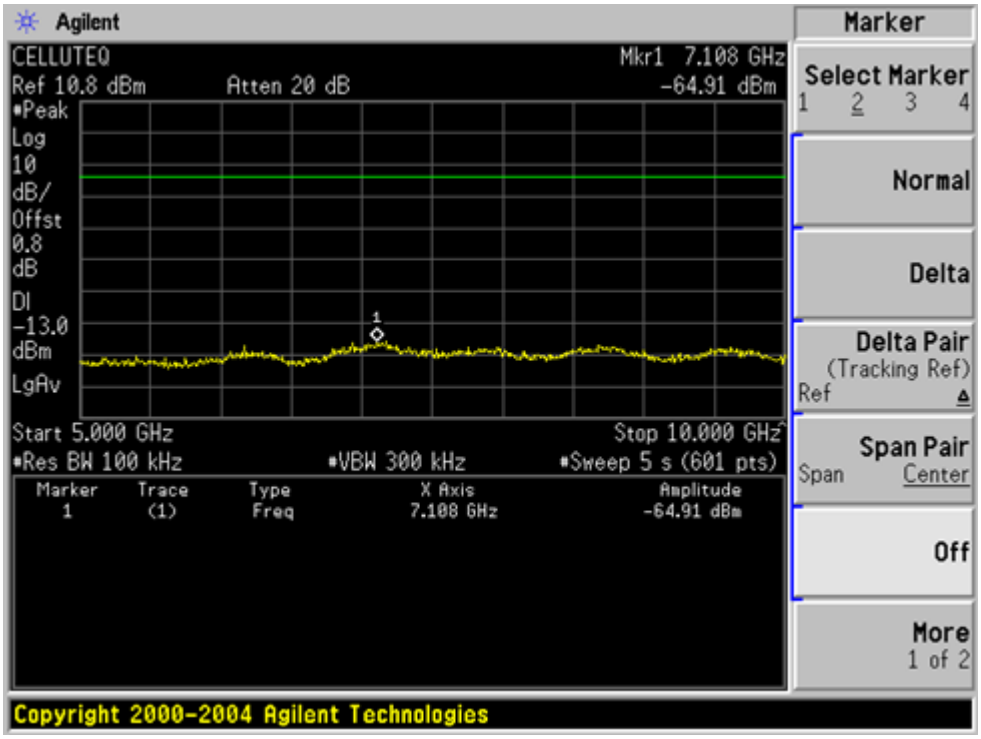
8.5.8 TDMA: Reverse (Uplink): Middle Channel






Agilent
Marker
CELLUTEQ
Mkr1 7.108 GHz
Ref 10.8 dBm
Atten 20 dB
-64.91 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Start 5.000 GHz
Stop 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 7.108 GHz -64.91 dBm
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
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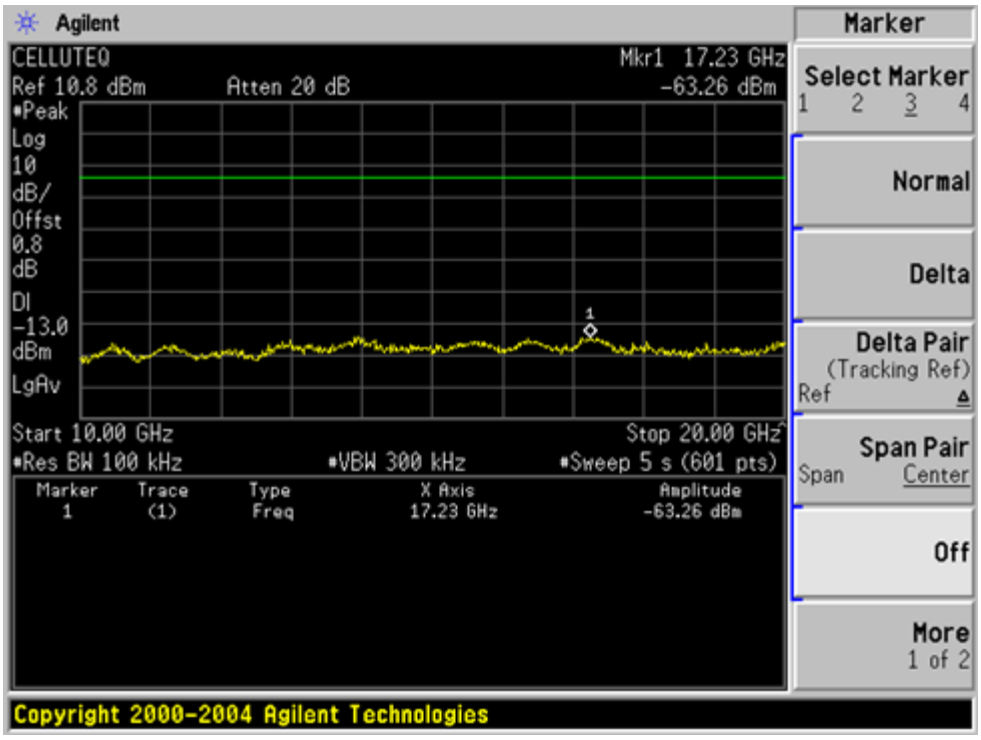
Agilent
Marker
CELLUTEQ
Mkr1 17.23 GHz
Ref 10.8 dBm
Atten 20 dB
-63.26 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Start 10.00 GHz
Stop 20.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 17.23 GHz -63.26 dBm
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
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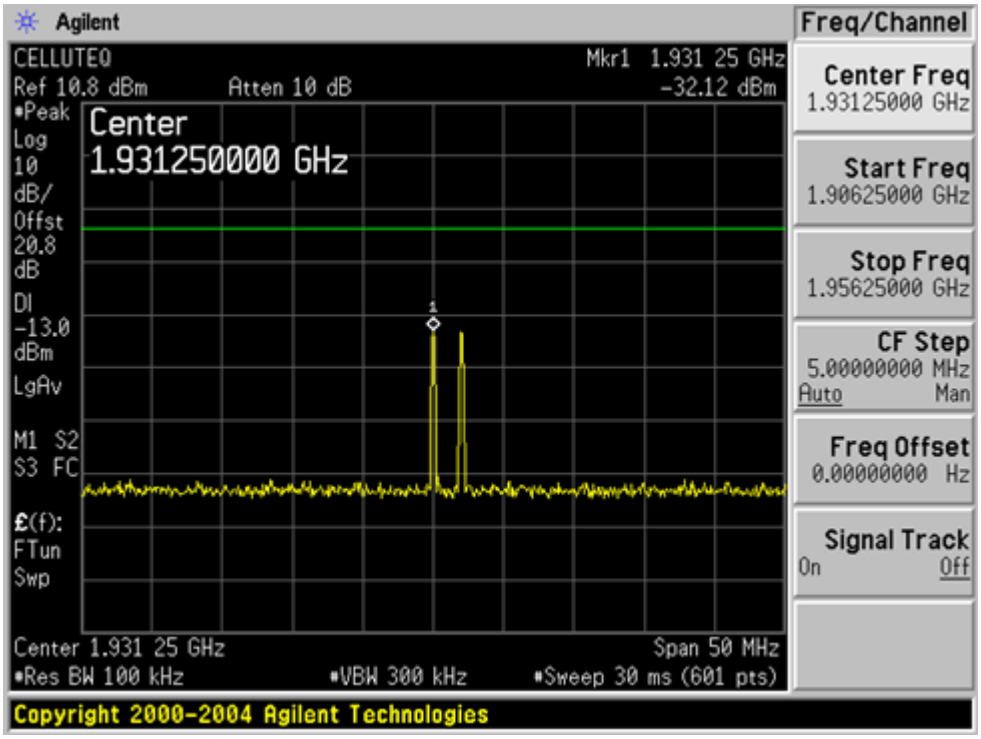
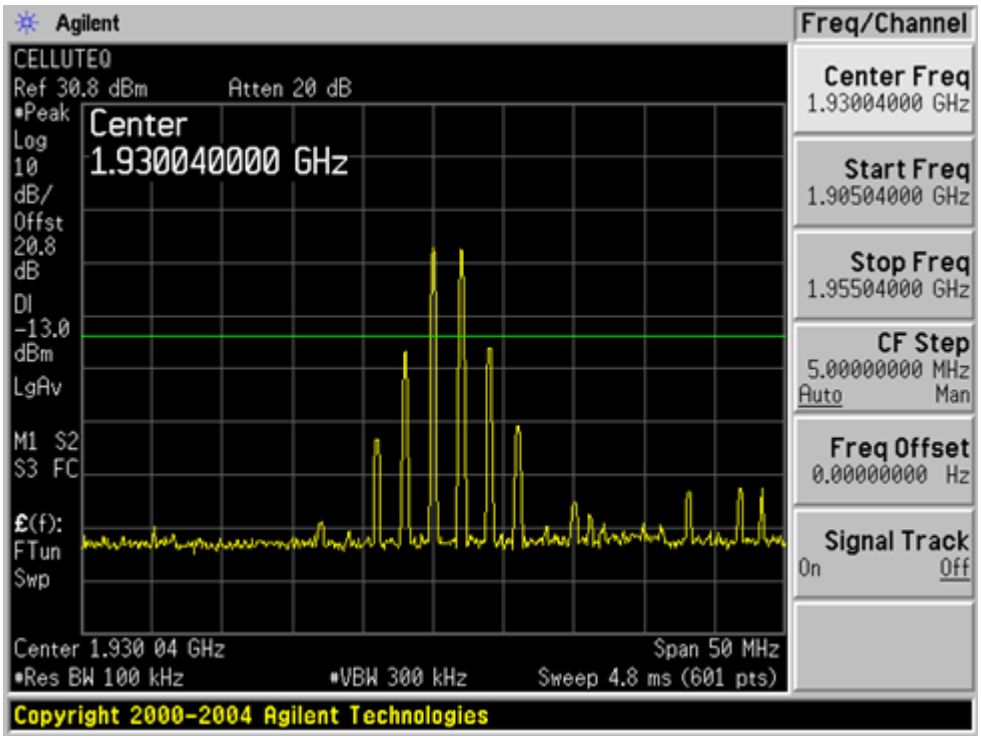
Inter-Modulation Testing:

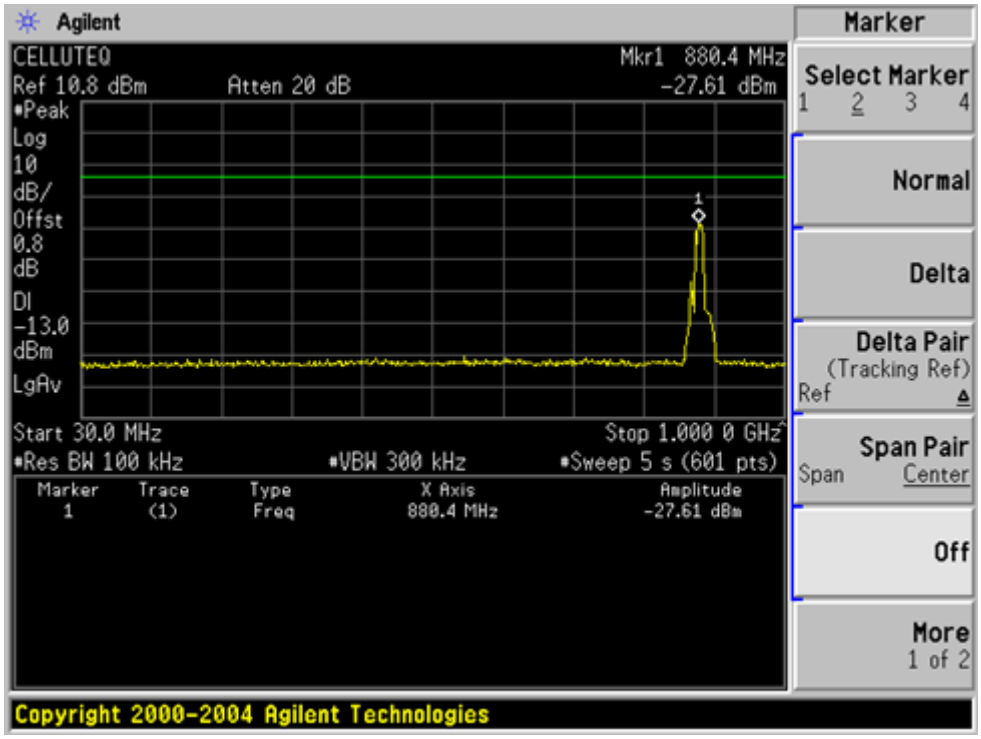
8.5.9 TDMA: Forward (Downlink) Low Channel

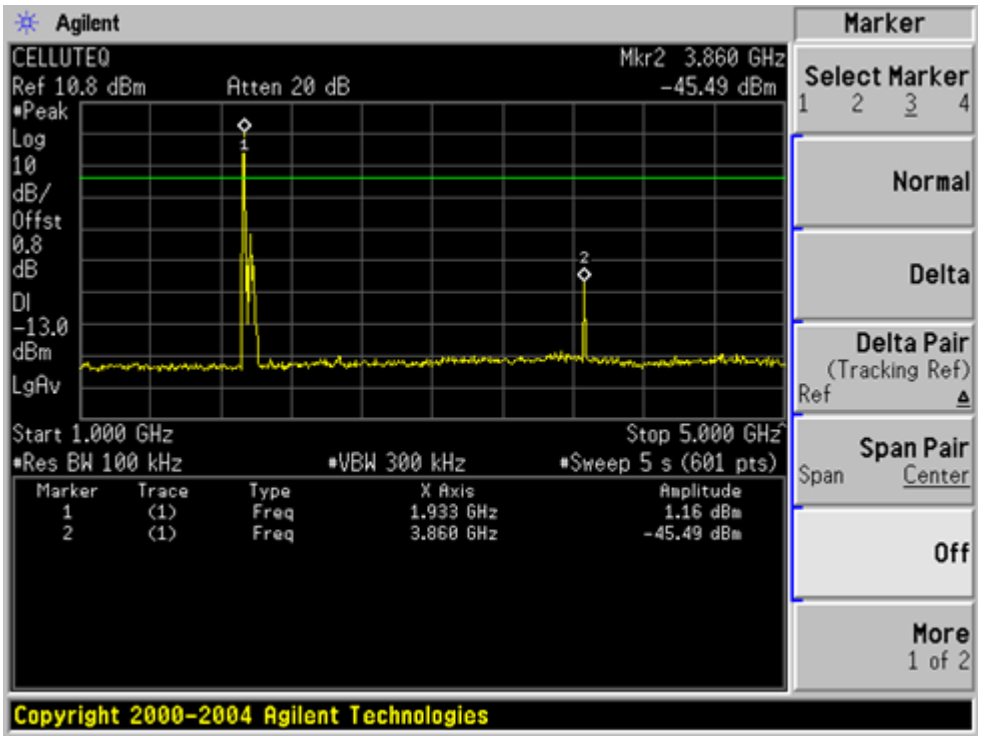
Input



Output




Agilent
CELLUTEQ
Mkr1 880.4 MHz
Ref 10.8 dBm
Atten 20 dB
-27.61 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Start 30.0 MHz
Stop 1.000 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 880.4 MHz -27.61 dBm
Marker
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2004 Agilent Technologies


Agilent
CELLUTEQ
Mkr2 3.860 GHz
Ref 10.8 dBm
Atten 20 dB
-45.49 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Start 1.000 GHz
Stop 5.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 1.933 GHz 1.16 dBm
2 (1) Freq 3.860 GHz -45.49 dBm
Marker
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
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