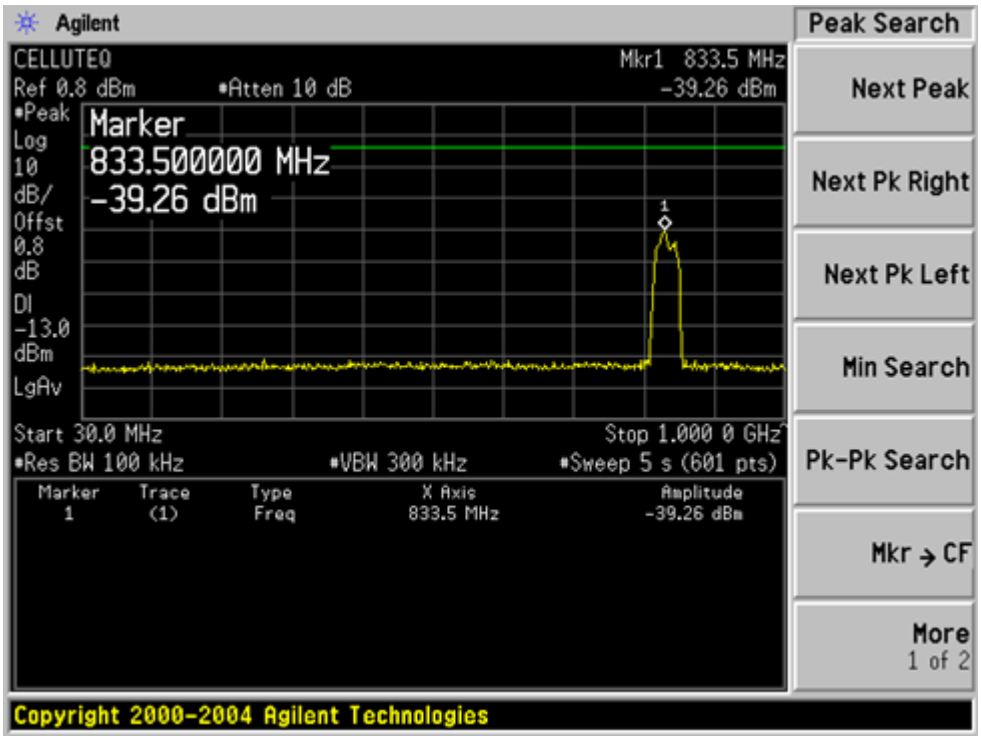
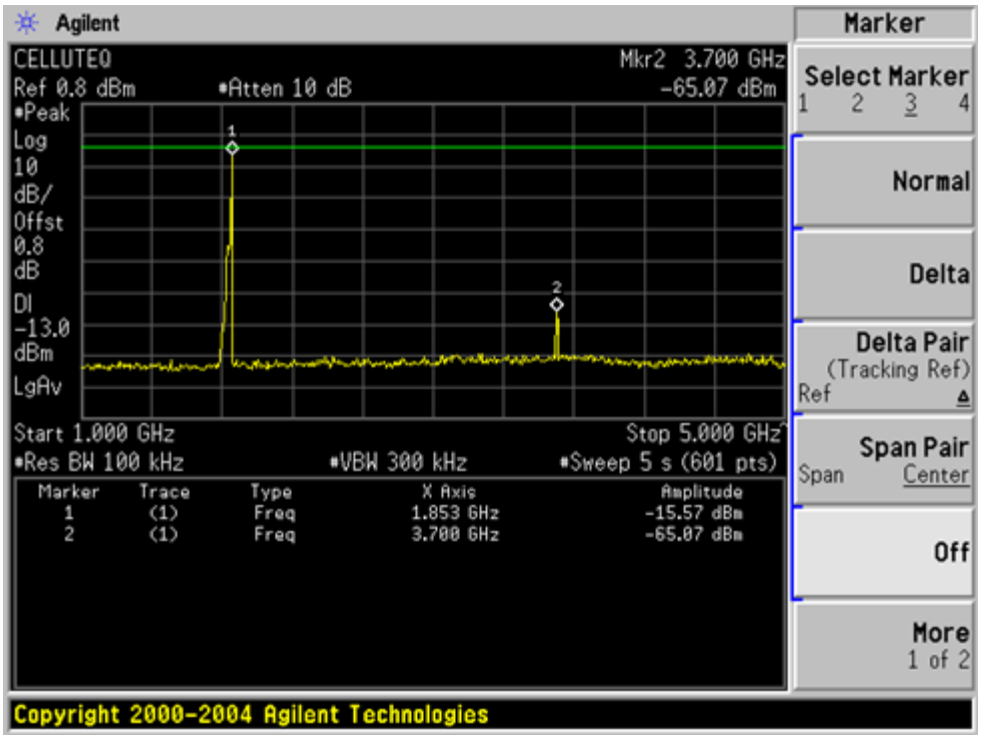
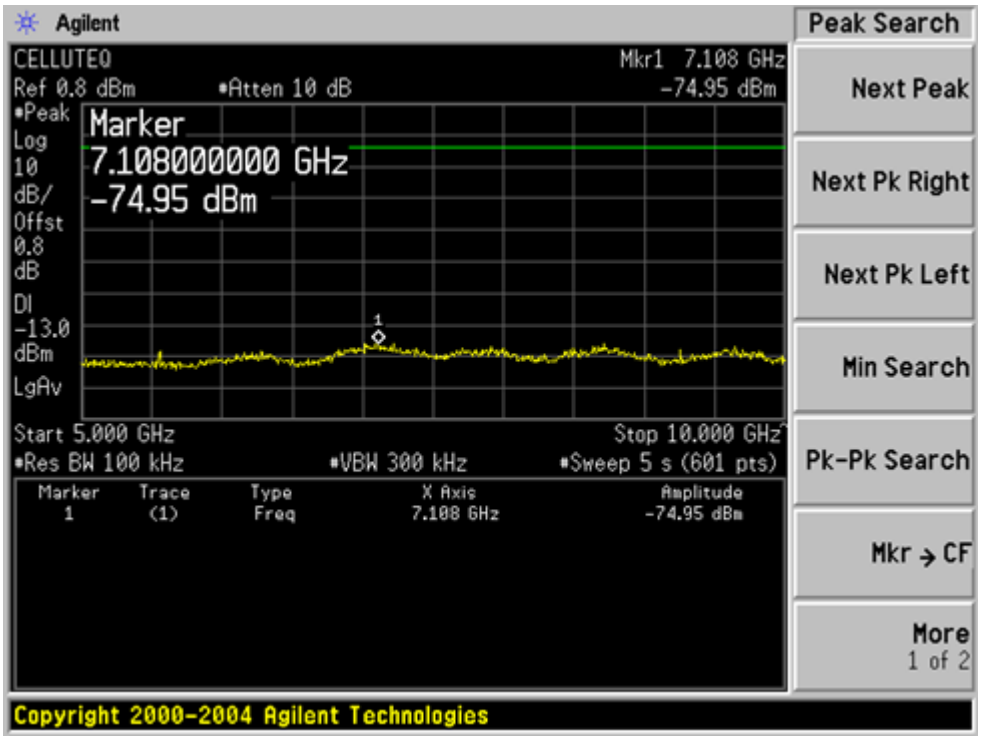
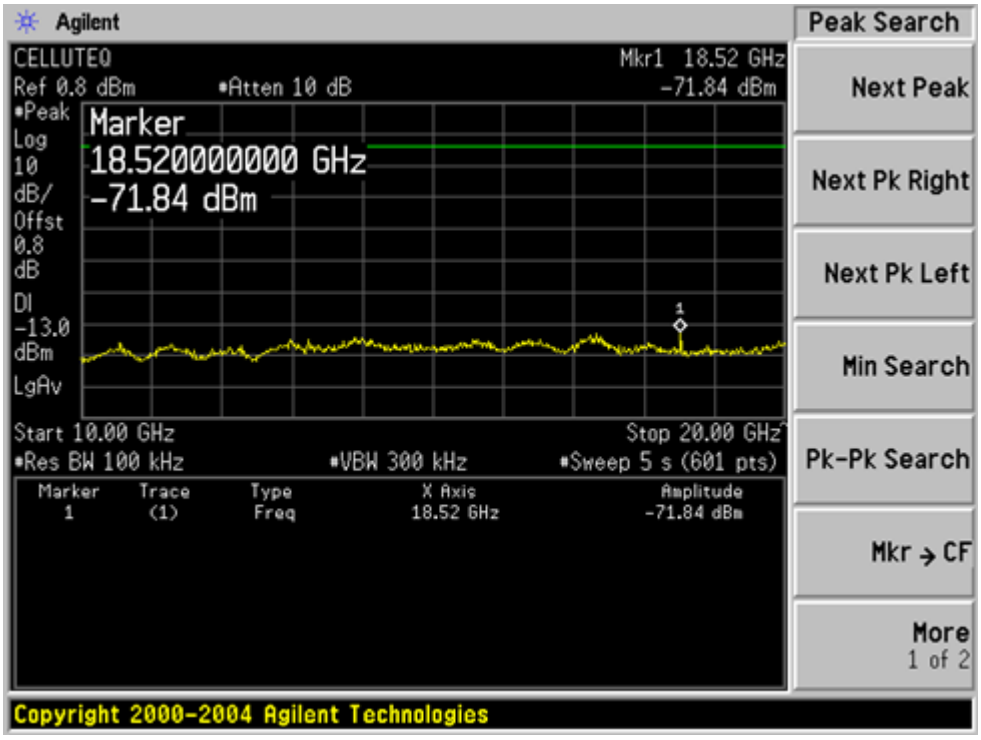
8.5.32 CDMA 1900MHz : Reverse (Uplink): Middle Channel






Agilent
CELLUTEQ
Mkr1 7.108 GHz
Ref 0.8 dBm
#Atten 10 dB
-74.95 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Marker
7.108000000 GHz
-74.95 dBm
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 -74.95 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
Mkr1 18.52 GHz
Ref 0.8 dBm
#Atten 10 dB
-71.84 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Marker
18.520000000 GHz
-71.84 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 18.52 GHz -71.84 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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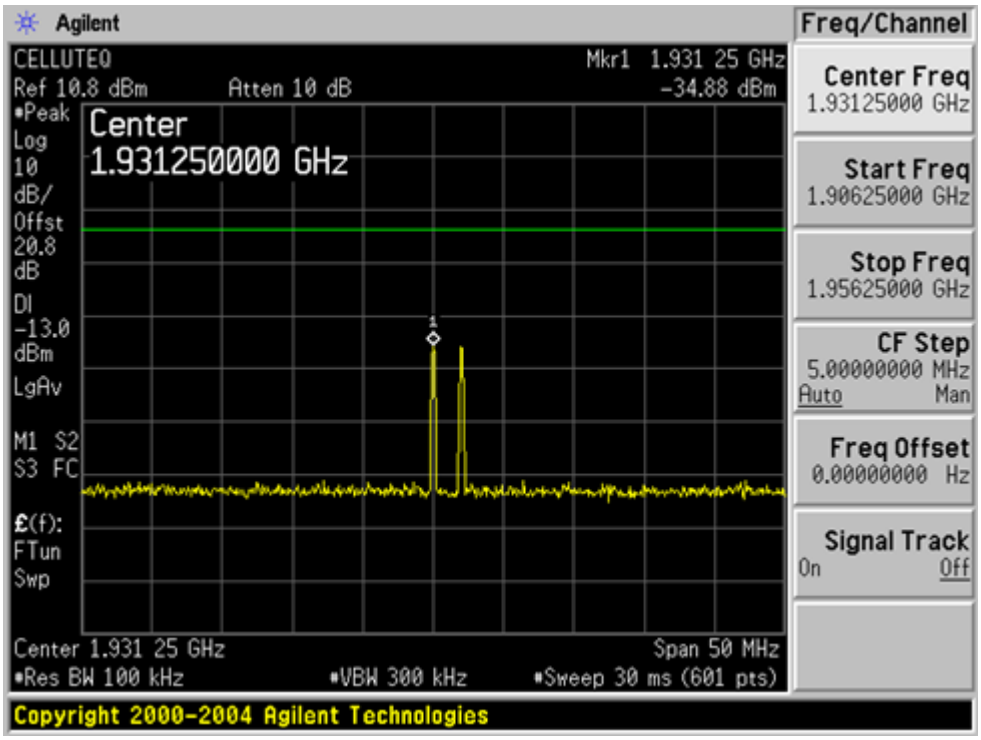
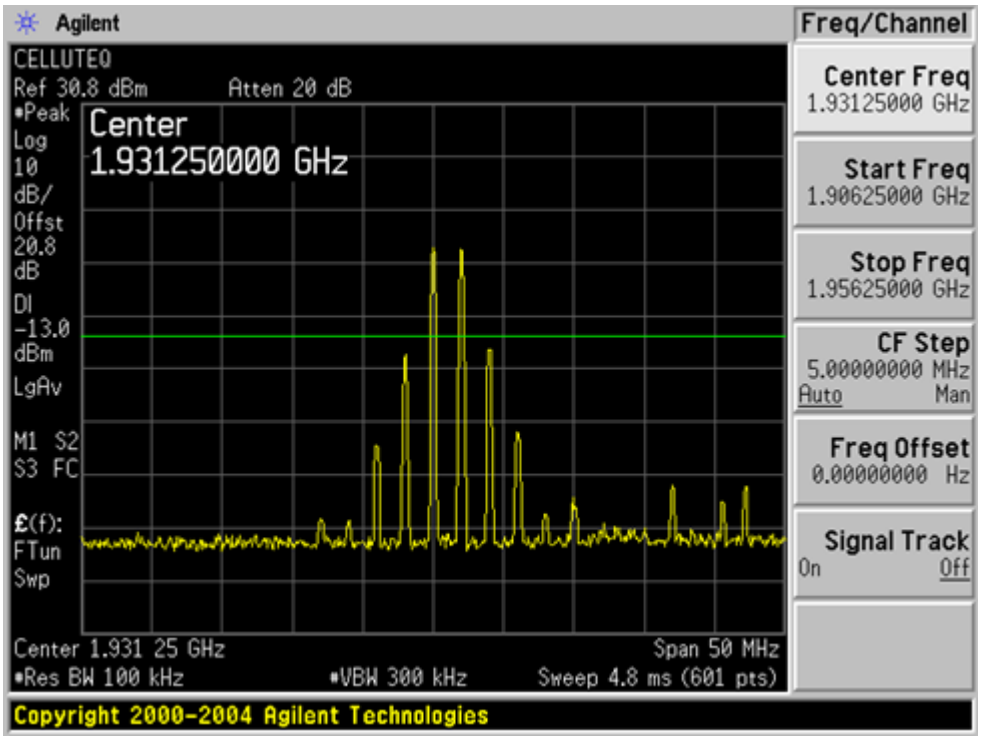
Inter-Modulation Testing:

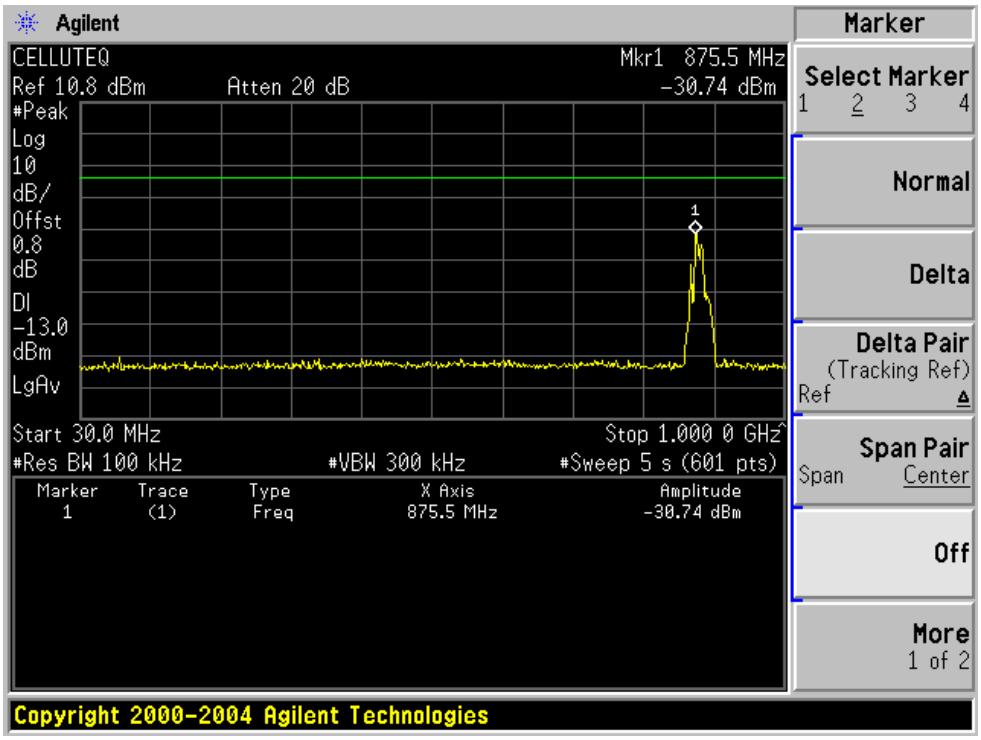
8.5.33 CDMA 1900MHz : Forward (Downlink) Low Channel

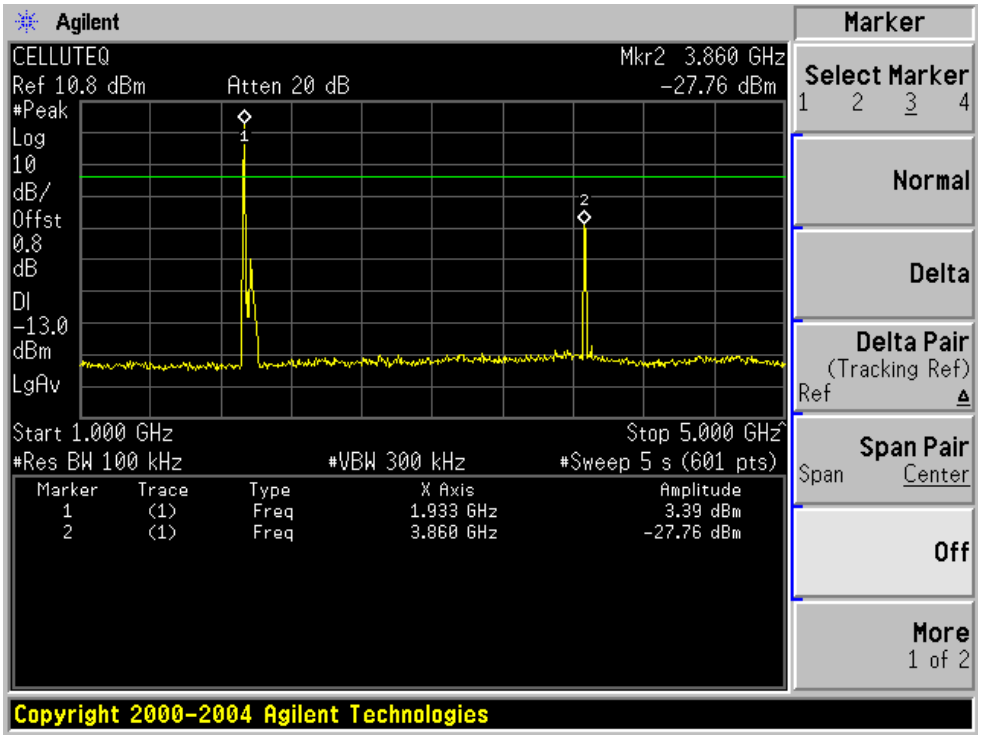
Input

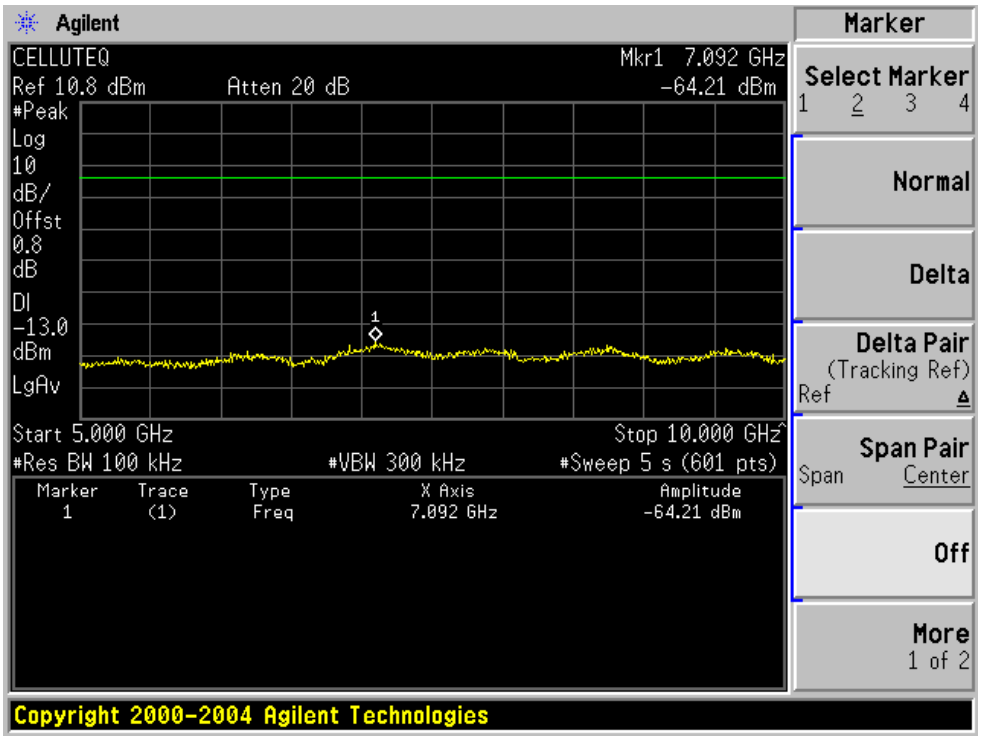


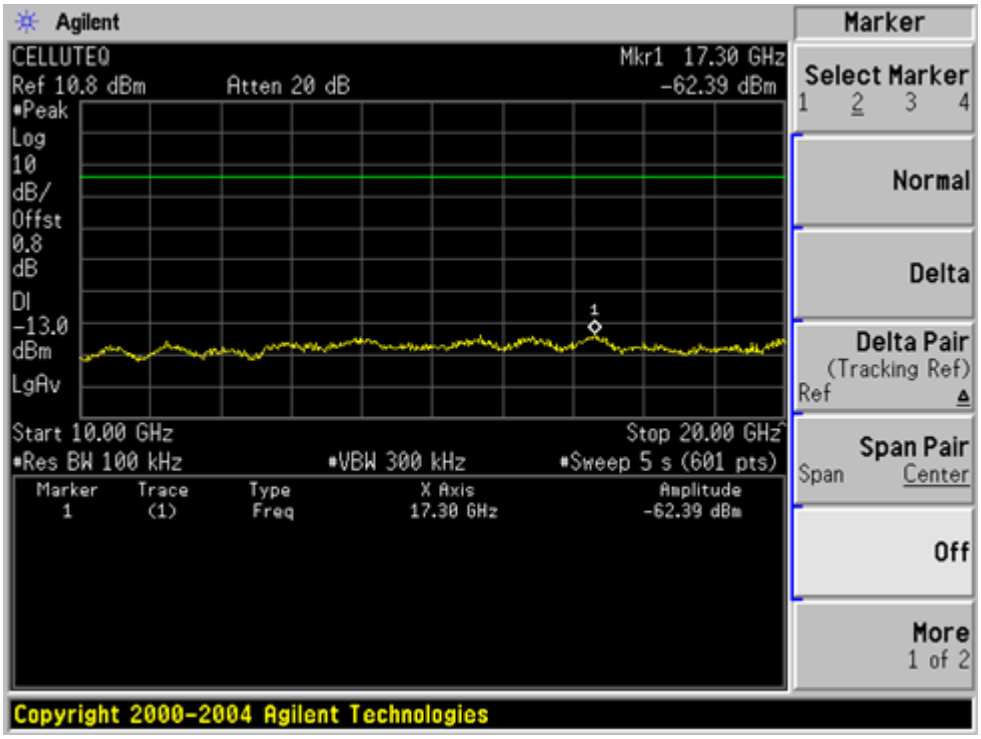
Output




Agilent
CELLUTEQ
Mkr1 875.5 MHz
Ref 10.8 dBm
Atten 20 dB
-30.74 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 875.5 MHz -30.74 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

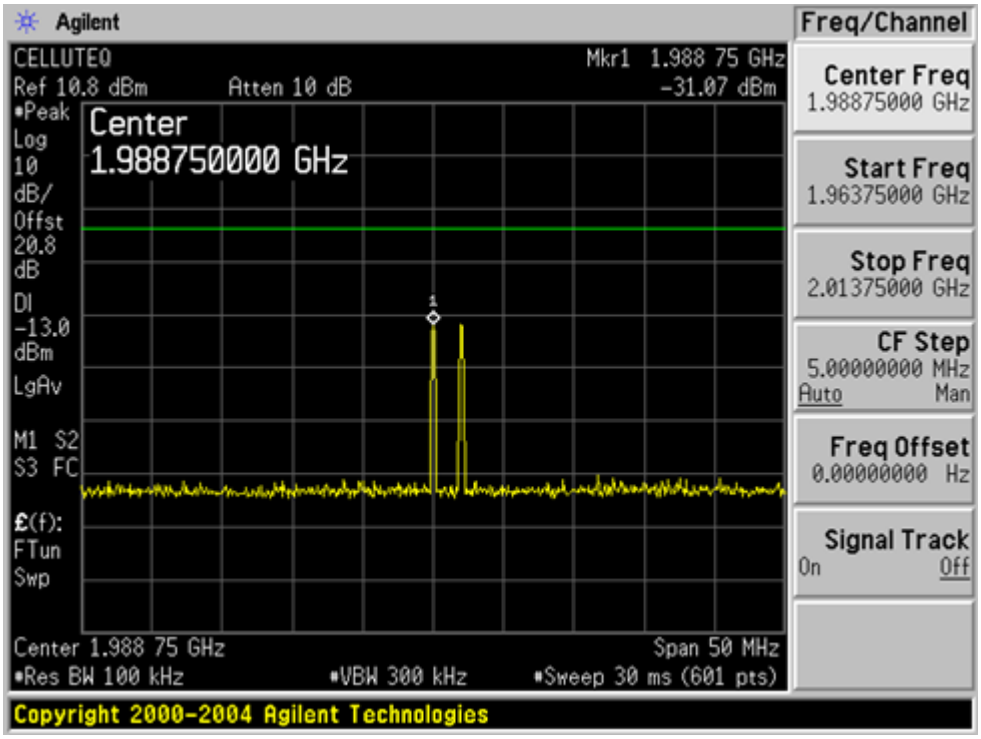

Agilent
CELLUTEQ
Mkr2 3.860 GHz
Ref 10.8 dBm
Atten 20 dB
-27.76 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Start 1.000 GHz
Stop 5.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 1.933 GHz 3.39 dBm
2 (1) Freq 3.860 GHz -27.76 dBm
Marker
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
Marker
CELLUTEQ
Mkr1 7.092 GHz
Ref 10.8 dBm
Atten 20 dB
-64.21 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 7.092 GHz -64.21 dBm
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

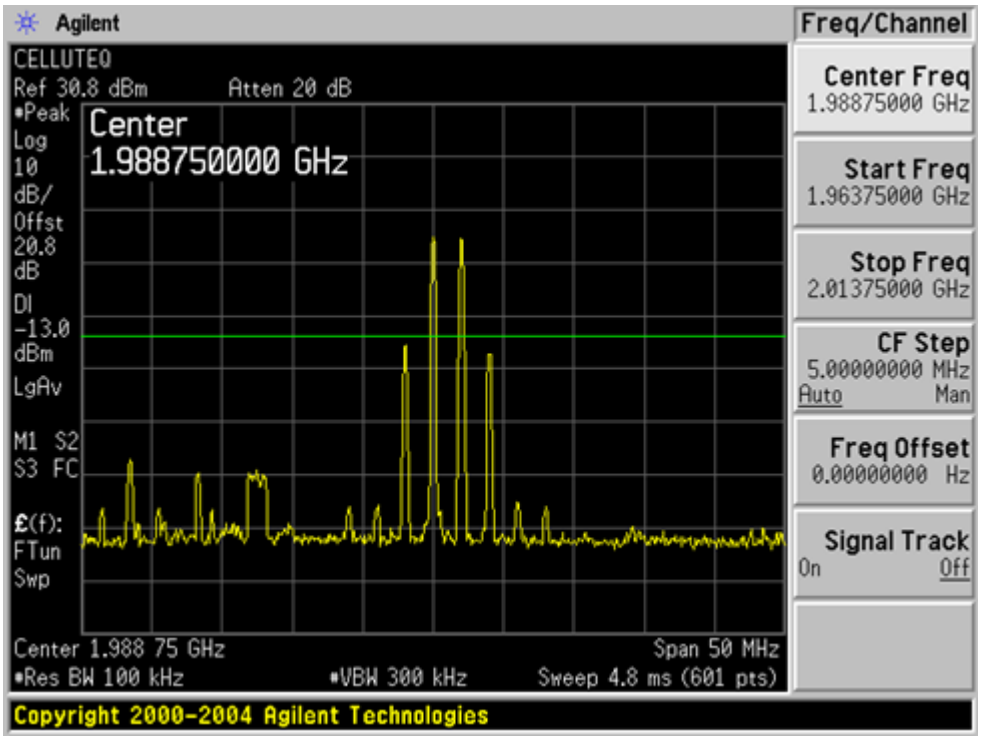

Agilent
Marker
CELLUTEQ
Mkr1 17.30 GHz
Ref 10.8 dBm
Atten 20 dB
-62.39 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Start 10.00 GHz
Stop 20.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 17.30 GHz -62.39 dBm
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2004 Agilent Technologies

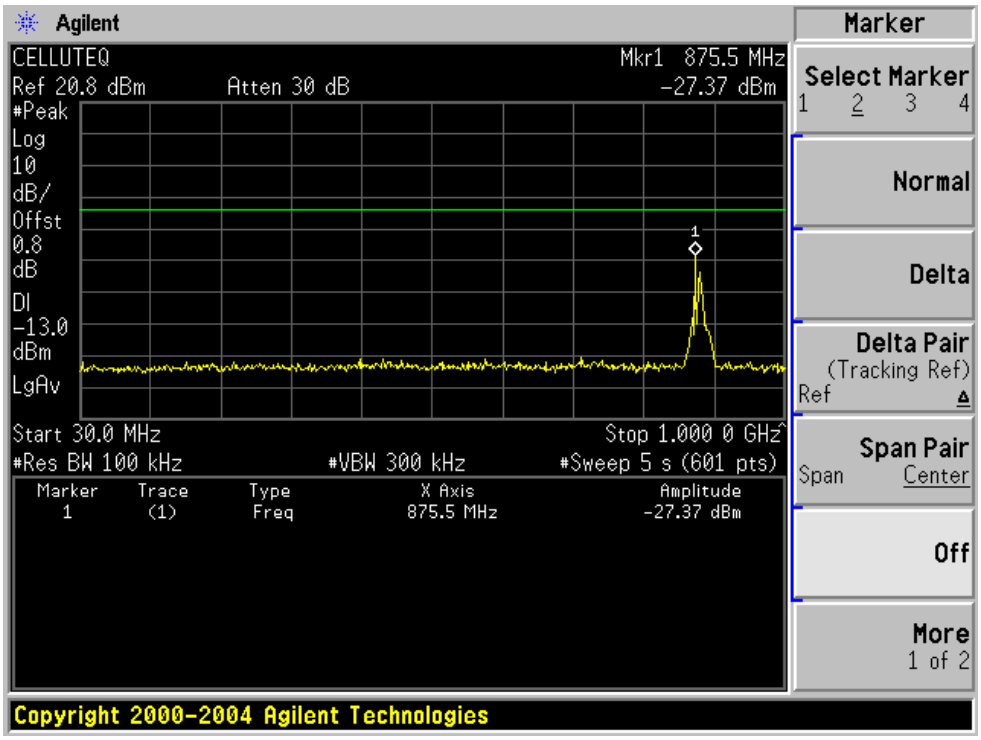
8.5.34 CDMA 1900MHz: Forward (Downlink) High Channel

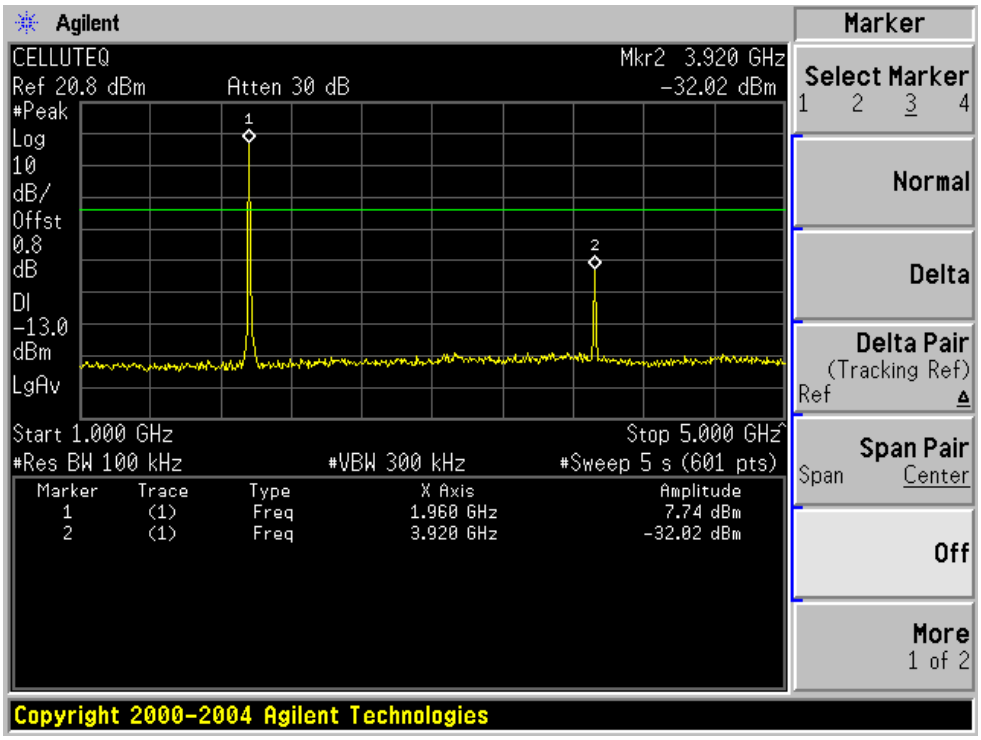
Input

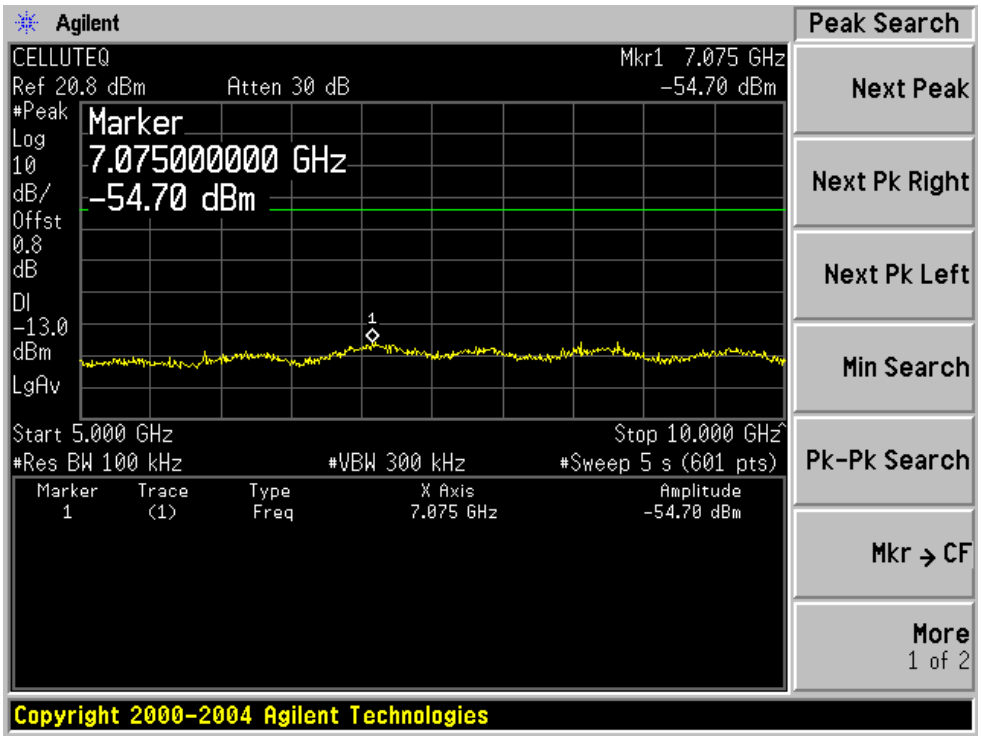


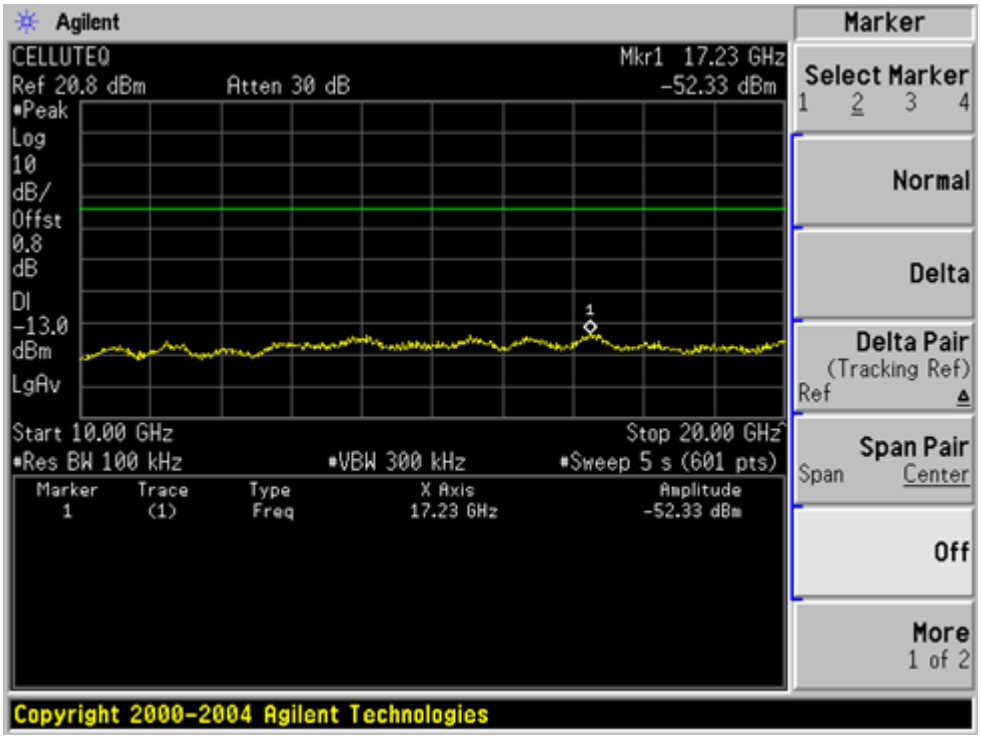
Output




Agilent
CELLUTEQ
Mkr1 875.5 MHz
Ref 20.8 dBm
Atten 30 dB
-27.37 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 875.5 MHz -27.37 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 3.920 GHz
Ref 20.8 dBm
Atten 30 dB
-32.02 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 1.960 GHz 7.74 dBm
2 (1) Freq 3.920 GHz -32.02 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

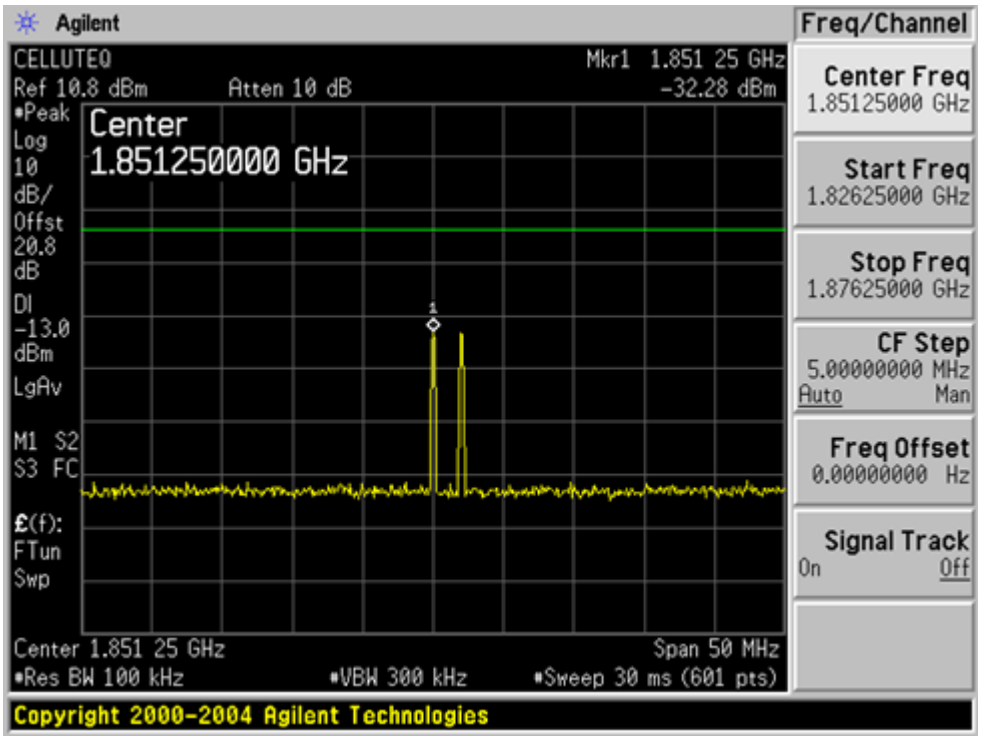

Agilent
CELLUTEQ
Mkr1 7.075 GHz
Ref 20.8 dBm
Atten 30 dB
-54.70 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Marker
7.075000000 GHz
-54.70 dBm
Start 5.000 GHz
Stop 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 7.075 GHz -54.70 dBm
Peak 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
Mkr1 17.23 GHz
Ref 20.8 dBm
Atten 30 dB
-52.33 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 -52.33 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

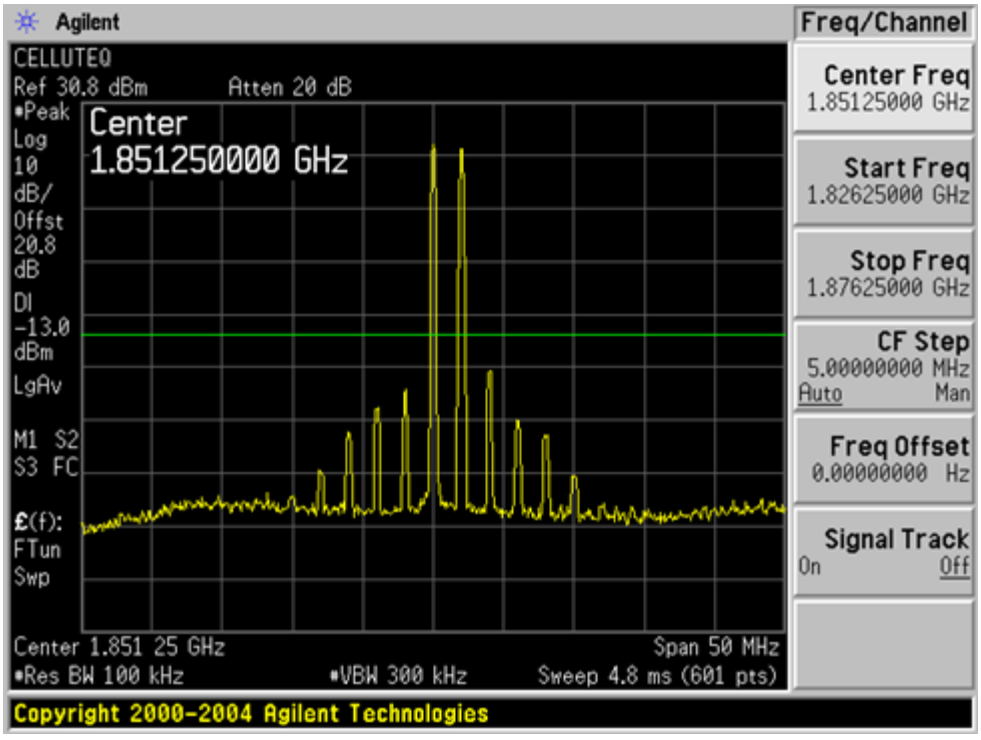
Inter-Modulation Testing:

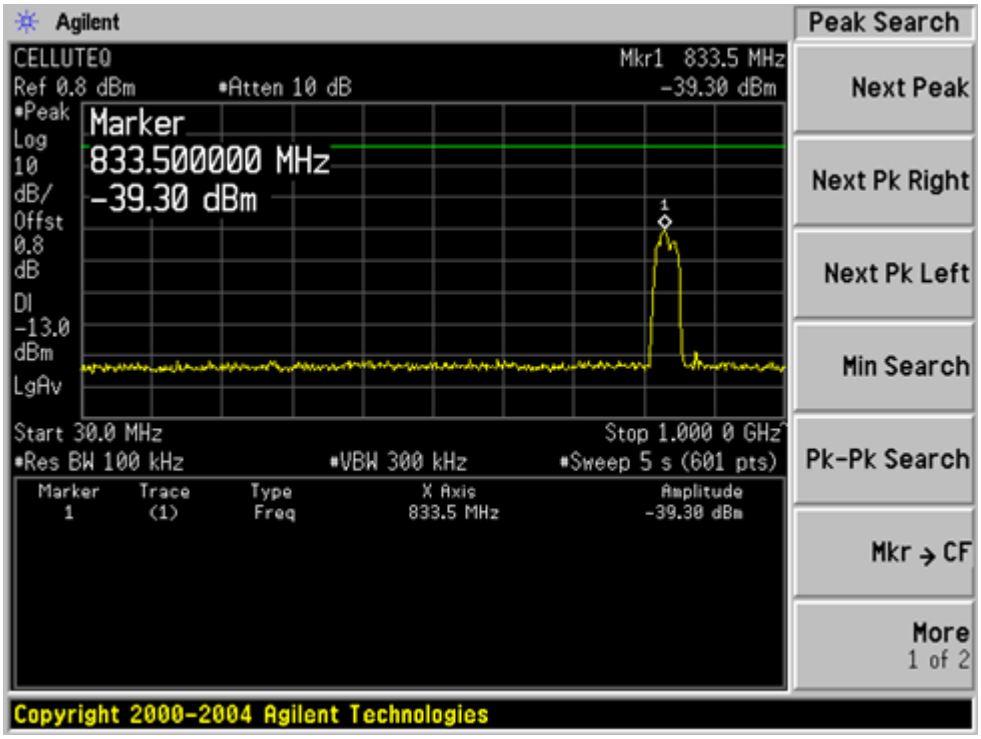
8.5.35 CDMA 1900MHz: Reverse (Uplink) Low Channel

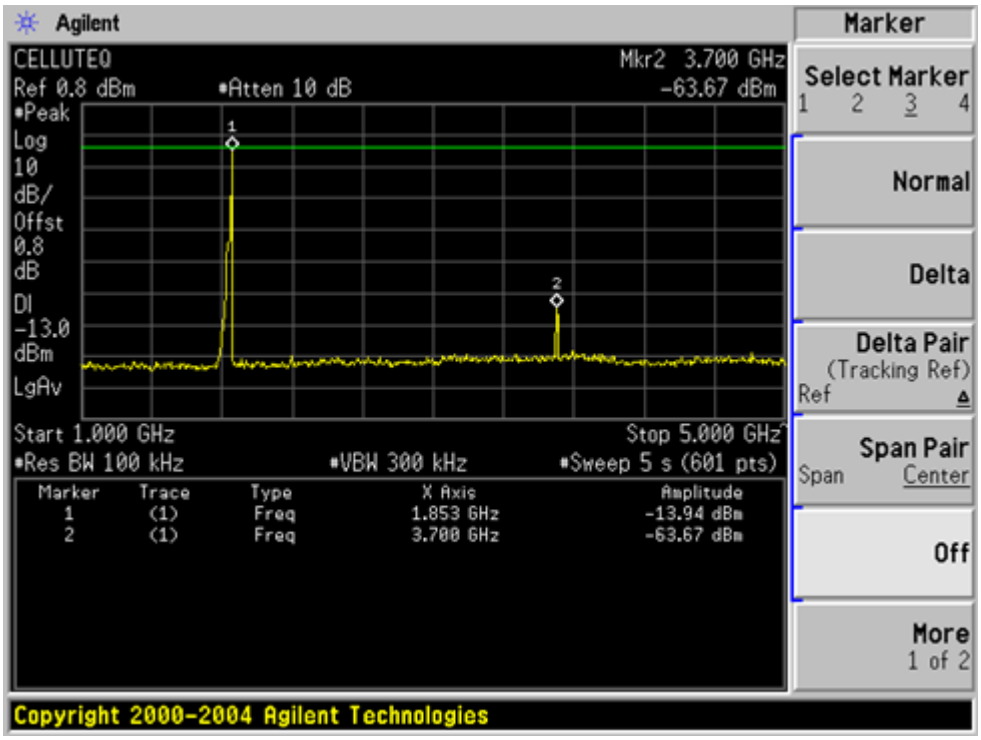
Input

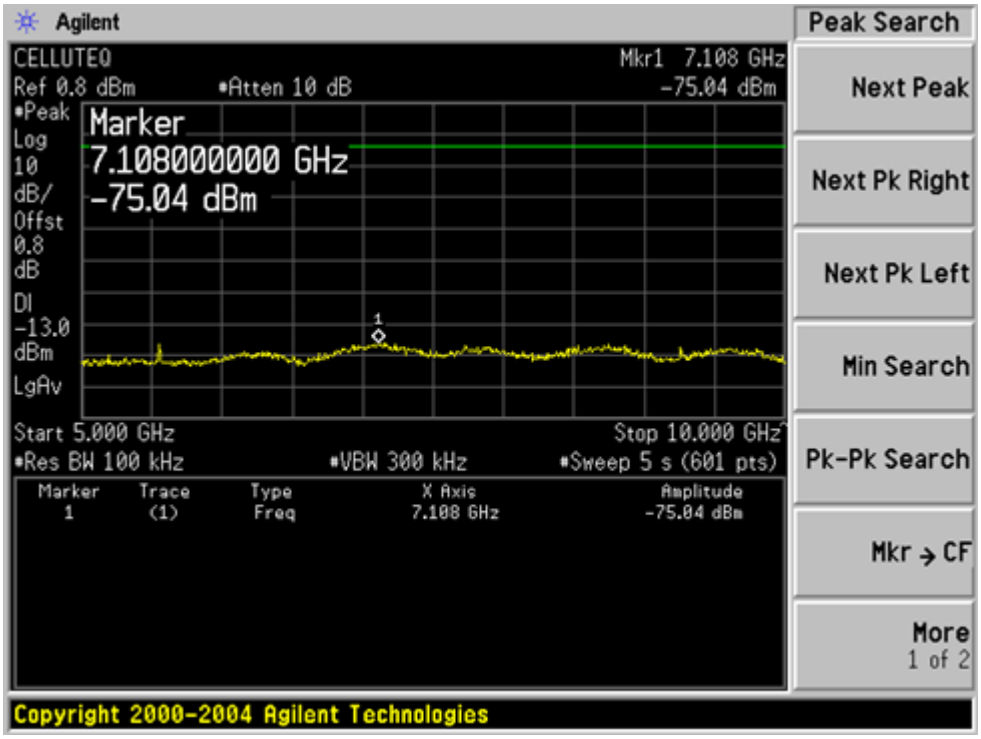


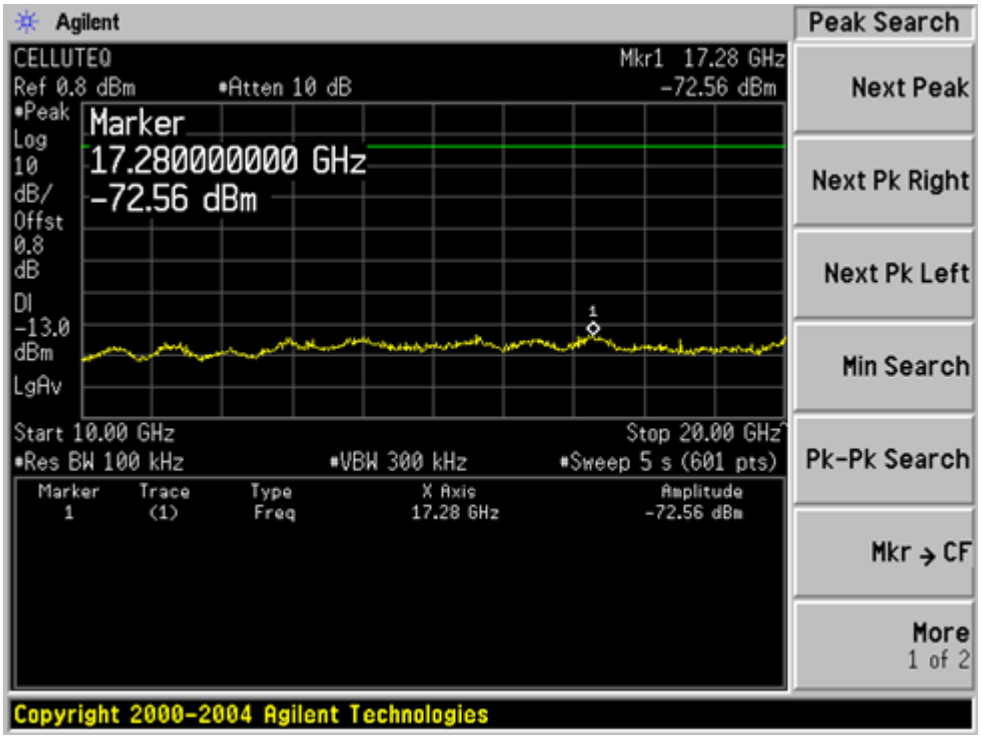
Output




Agilent
Peak Search
CELLUTEQ
Mkr1 833.5 MHz
Ref 0.8 dBm
#Atten 10 dB
-39.30 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Marker
833.500000 MHz
-39.30 dBm
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
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 833.5 MHz -39.30 dBm
Copyright 2000-2004 Agilent Technologies

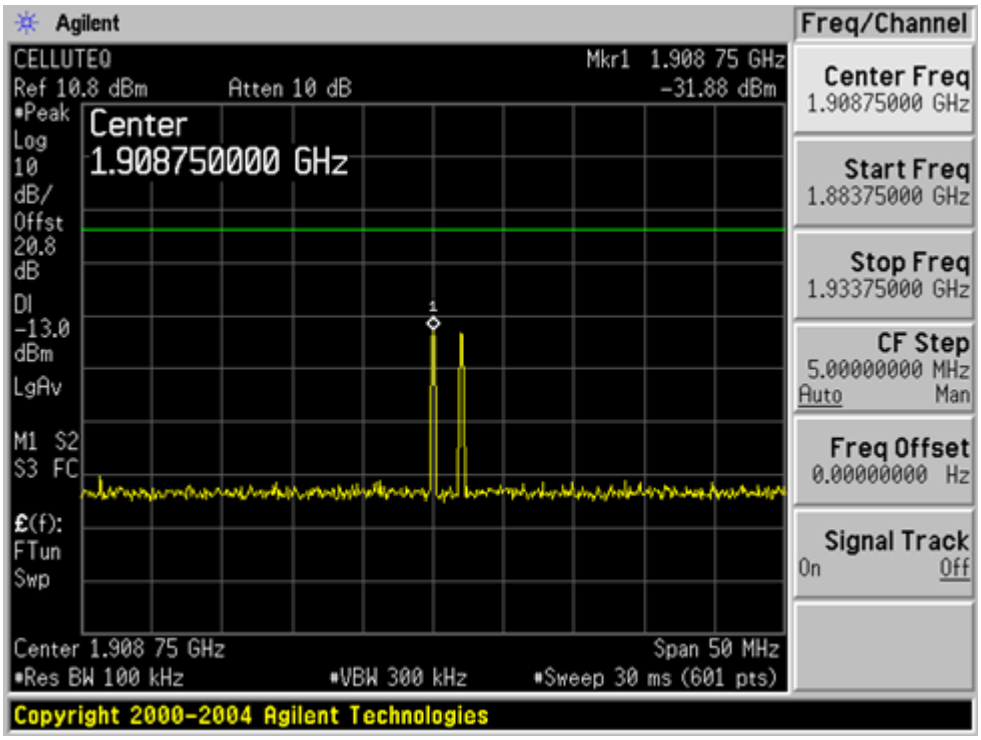

Agilent
Marker
CELLUTEQ
Mkr2 3.700 GHz
Ref 0.8 dBm
#Atten 10 dB
-63.67 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Start 1.000 GHz
Stop 5.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 1.853 GHz -13.94 dBm
2 (1) Freq 3.700 GHz -63.67 dBm
Copyright 2000-2004 Agilent Technologies


Agilent
Peak Search
CELLUTEQ
Mkr1 7.108 GHz
Ref 0.8 dBm
#Atten 10 dB
-75.04 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Marker
7.108000000 GHz
-75.04 dBm
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
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 -75.04 dBm
Copyright 2000-2004 Agilent Technologies

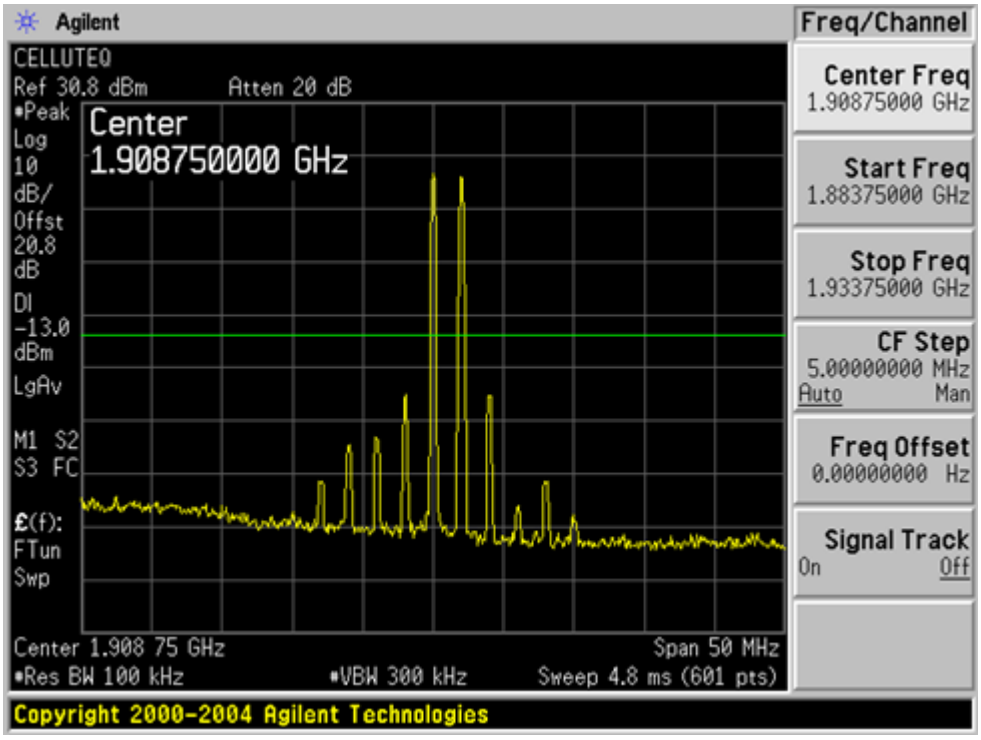

Agilent
Peak Search
CELLUTEQ
Mkr1 17.28 GHz
Ref 0.8 dBm
#Atten 10 dB
-72.56 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Marker
17.280000000 GHz
-72.56 dBm
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2
Start 10.00 GHz
Stop 20.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 17.28 GHz -72.56 dBm
Copyright 2000-2004 Agilent Technologies

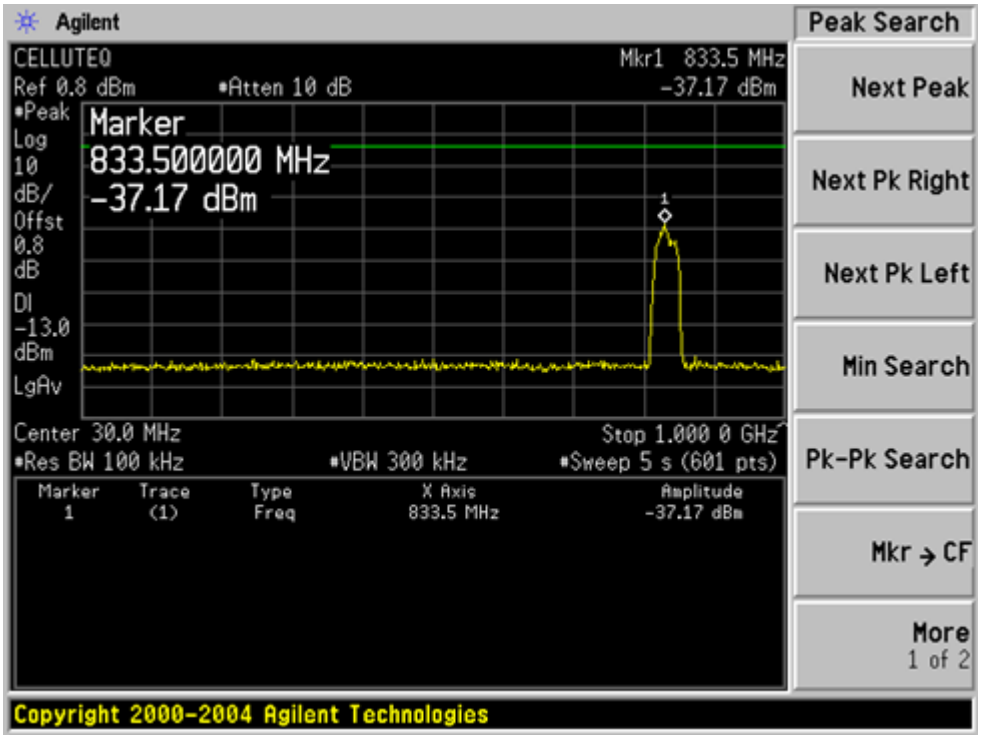
8.5.36 GSM 1900MHz: Reverse (Uplink) High Channel

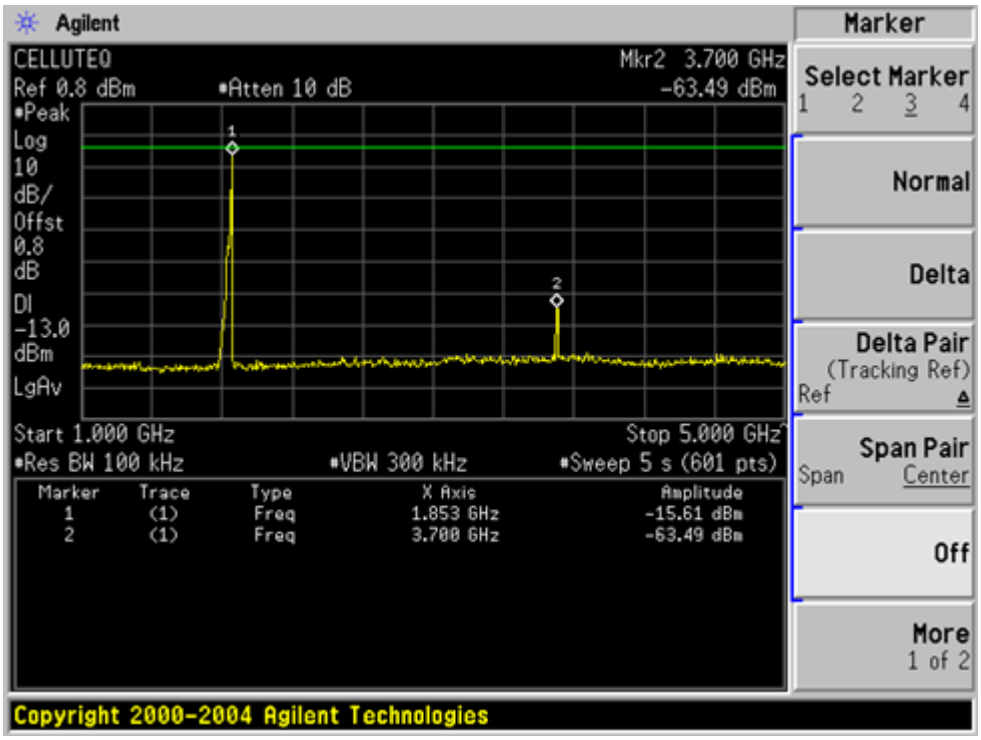
Input

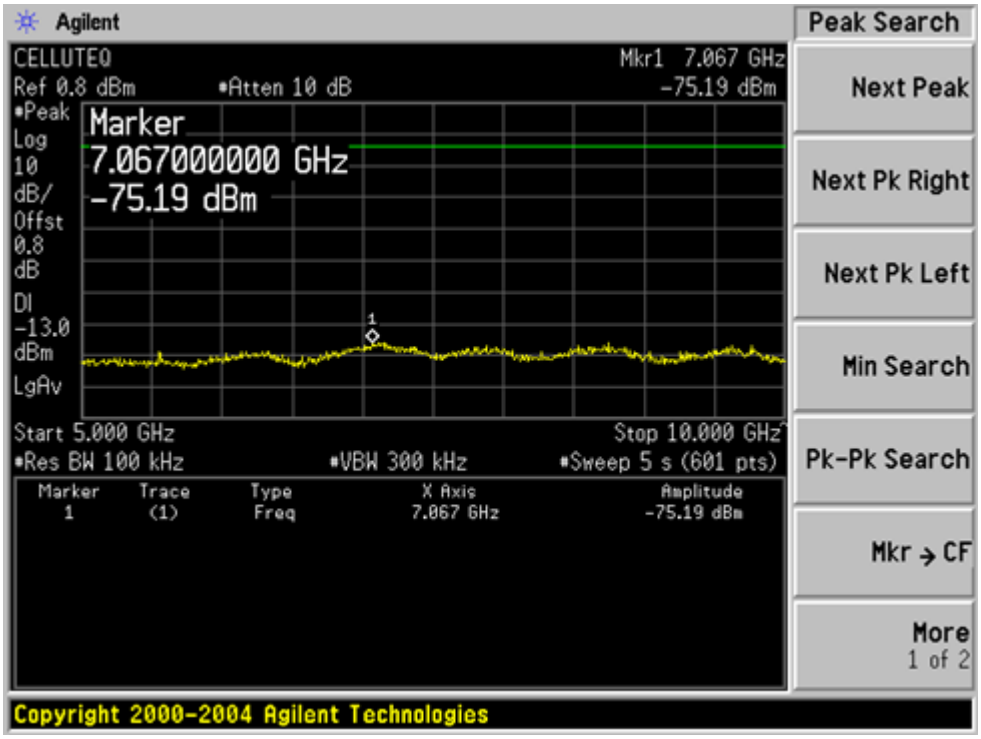


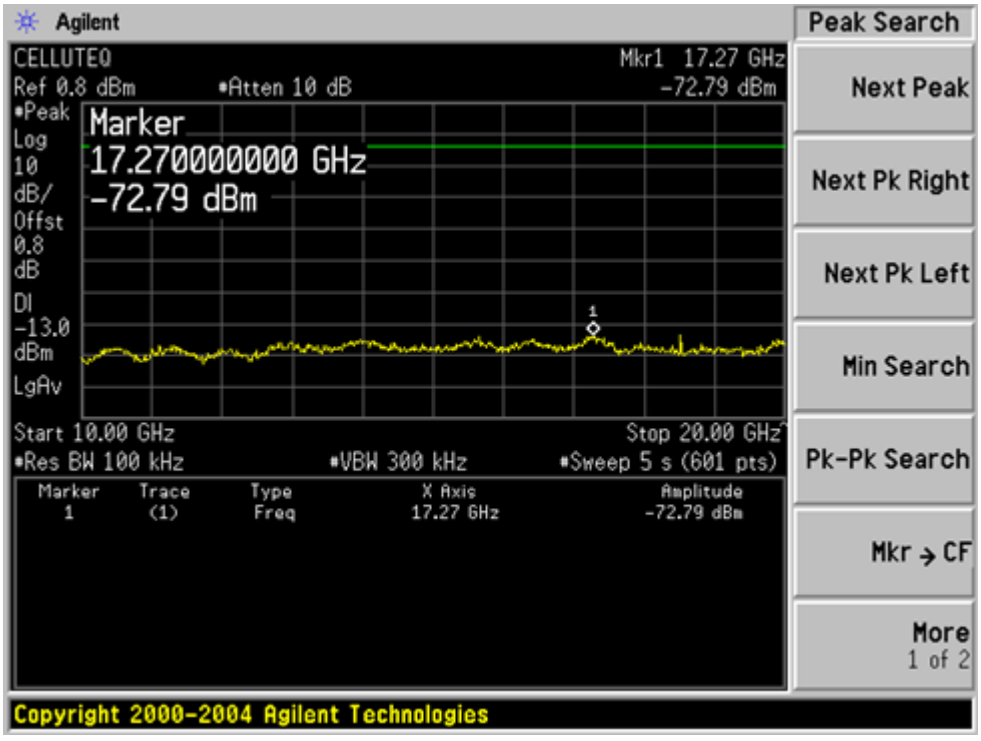
Output




Agilent
CELLUTEQ
Mkr1 833.5 MHz
Ref 0.8 dBm
#Atten 10 dB
-37.17 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Marker
833.500000 MHz
-37.17 dBm
Center 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 833.5 MHz -37.17 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
Mkr2 3.700 GHz
Ref 0.8 dBm
#Atten 10 dB
-63.49 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 1.853 GHz -15.61 dBm
2 (1) Freq 3.700 GHz -63.49 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
Ref 0.8 dBm
#Atten 10 dB
Mkr1 7.067 GHz
-75.19 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Marker
7.067000000 GHz
-75.19 dBm
Start 5.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 10.000 GHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 7.067 GHz -75.19 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
Mkr1 17.27 GHz
-72.79 dBm
#Peak
Log
10
dB/
Offst
0.8
dB
Dl
-13.0
dBm
LgAv
Marker
17.270000000 GHz
-72.79 dBm
Start 10.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 20.00 GHz
#Sweep 5 s (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 17.27 GHz -72.79 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

9 FCC §22.917, §24.238 & RSS-131 §6.4 – BAND EDGES

9.1 Applicable Standard

FCC §22.917; §24.238
IC RSS-131 §6.4

9.2 Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency, RBW set to 10 kHz.

9.3 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.*

9.4 Test Equipment List and Details

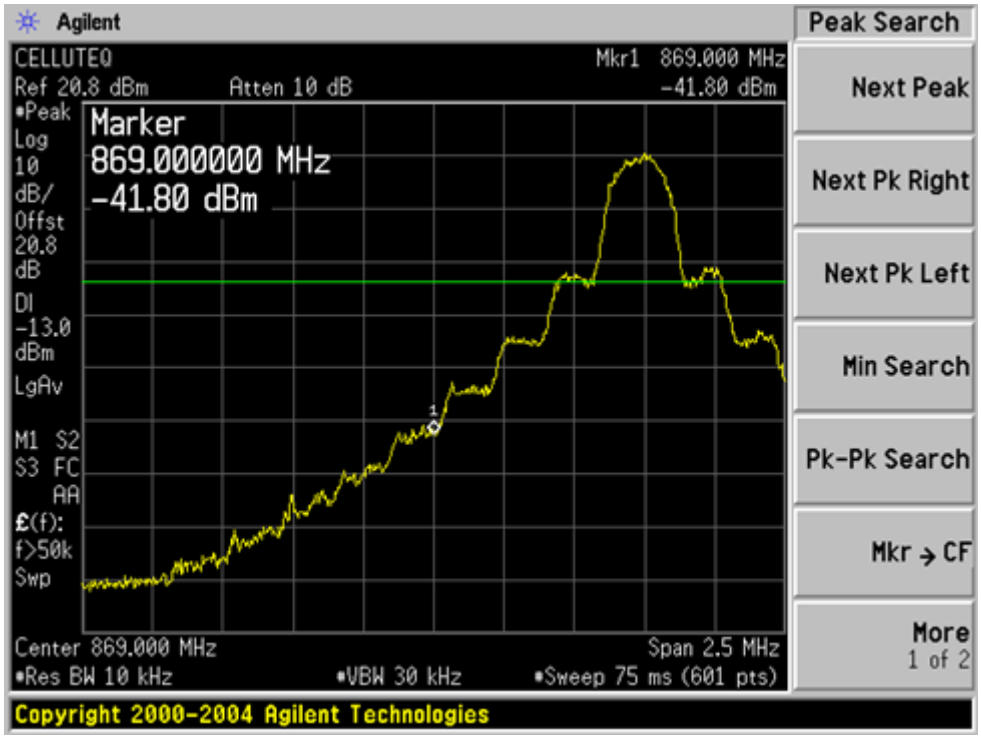
Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	2007-04-26
Rohde & Schwarz	Signal Generator	SMIQ03	849192/0085	2006-10-18

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

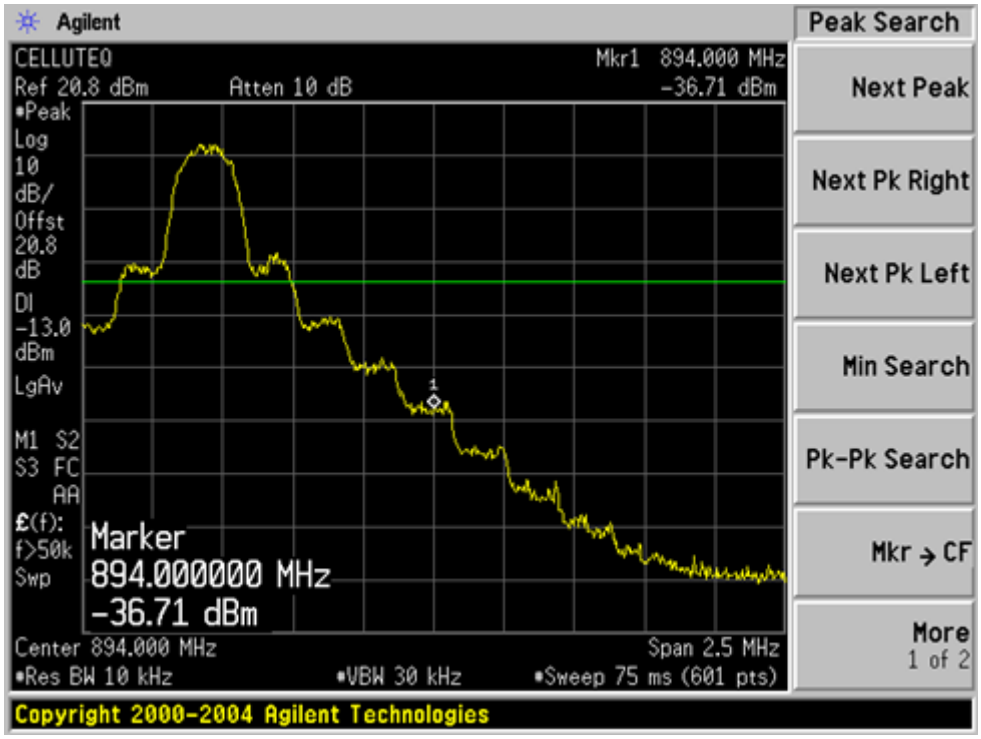
9.5 Test Results

Please refer to the following plots.

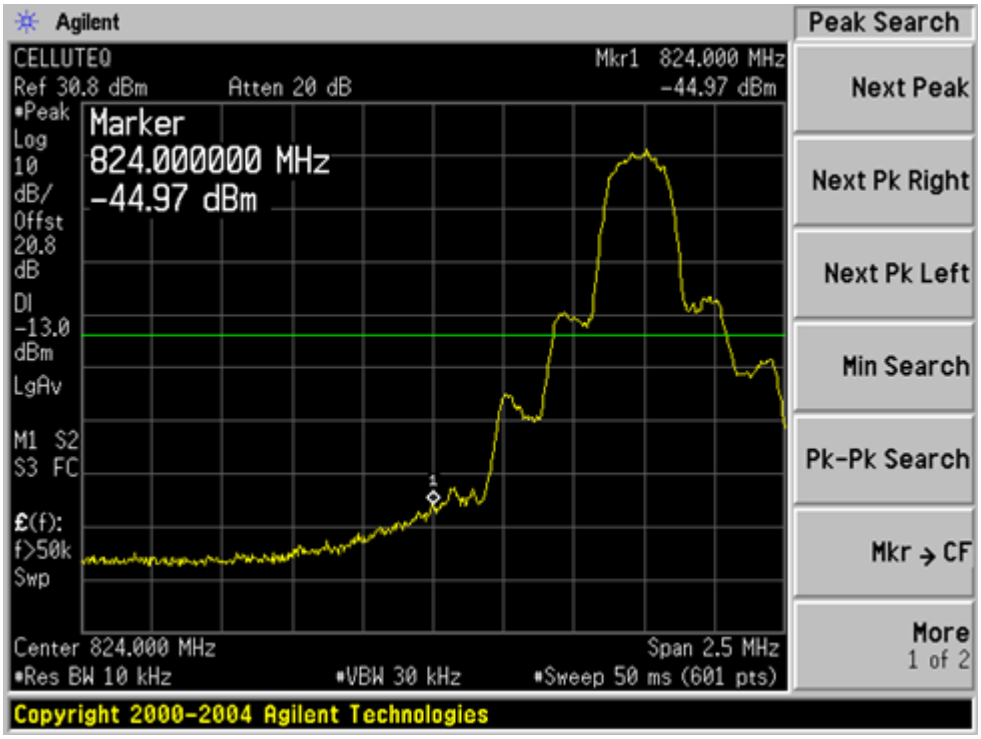
9.5.1 AMPS: Forward (Downlink): Lowest Channel



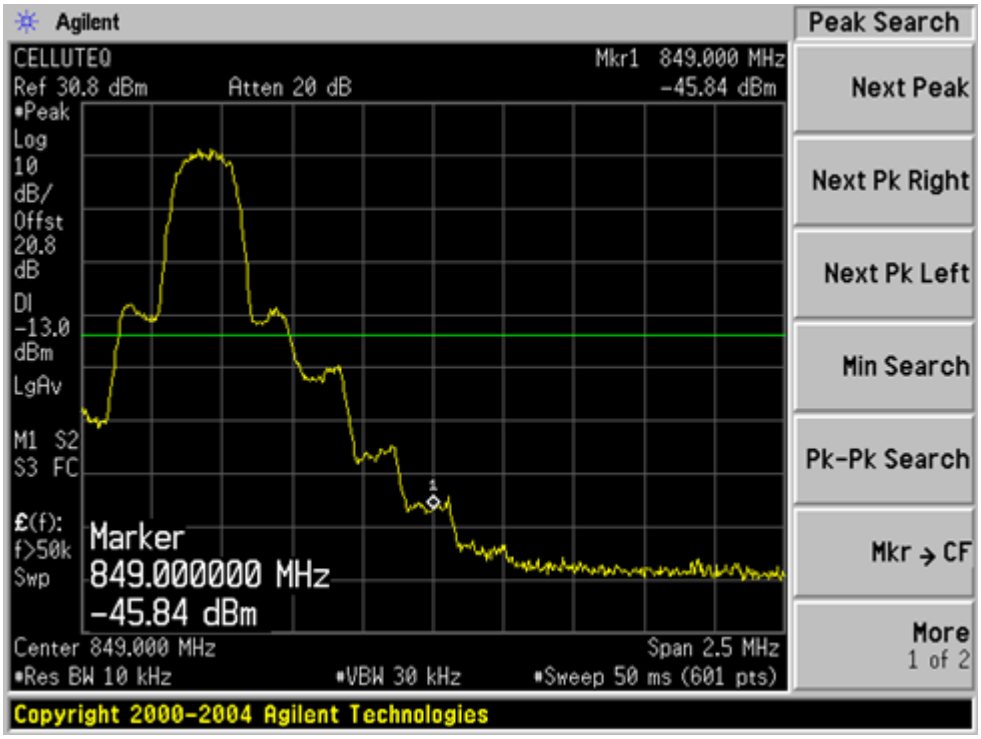
9.5.2 AMPS: Forward (Downlink): Highest Channel



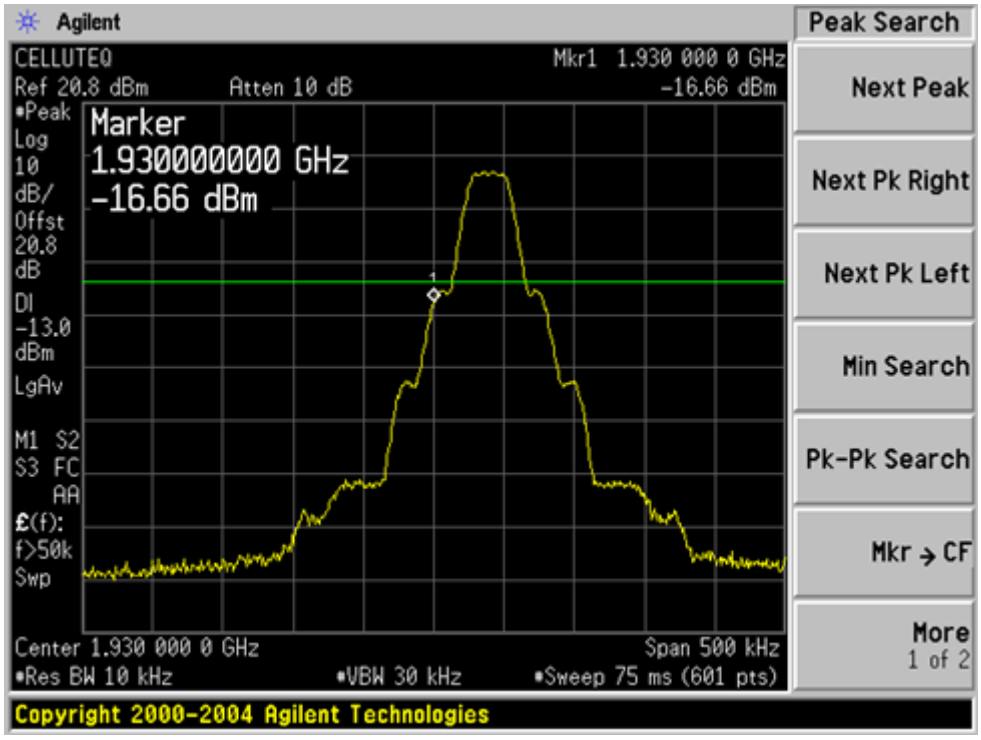
9.5.3 AMPS: Reverse (Uplink): Lowest Channel



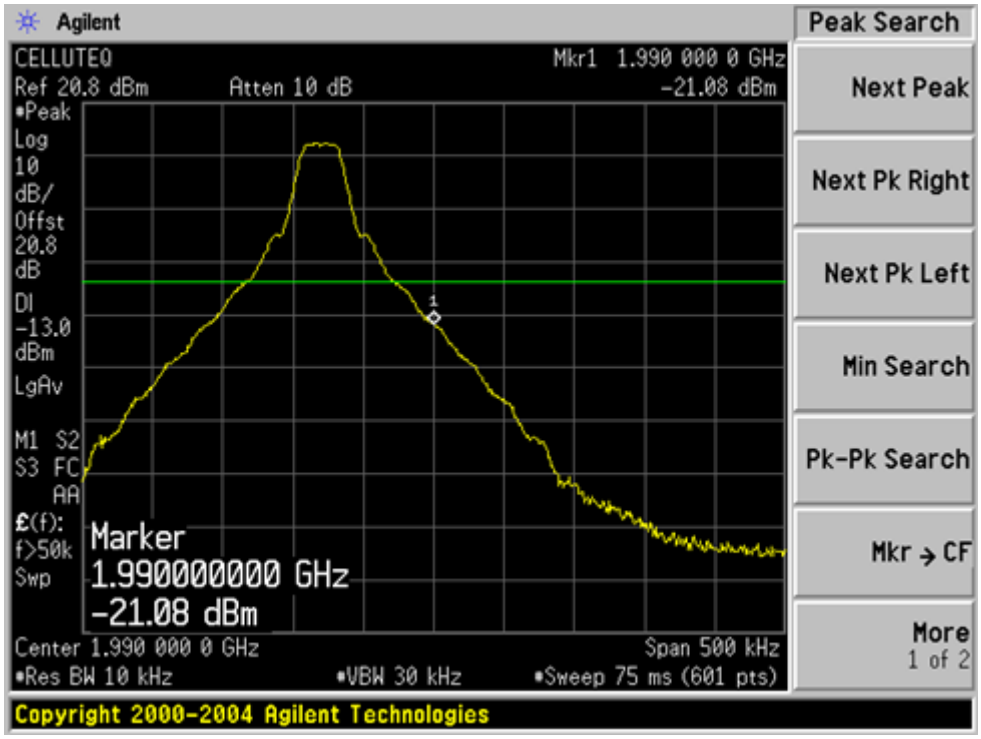
9.5.4 AMPS: Reverse (Uplink): Highest Channel



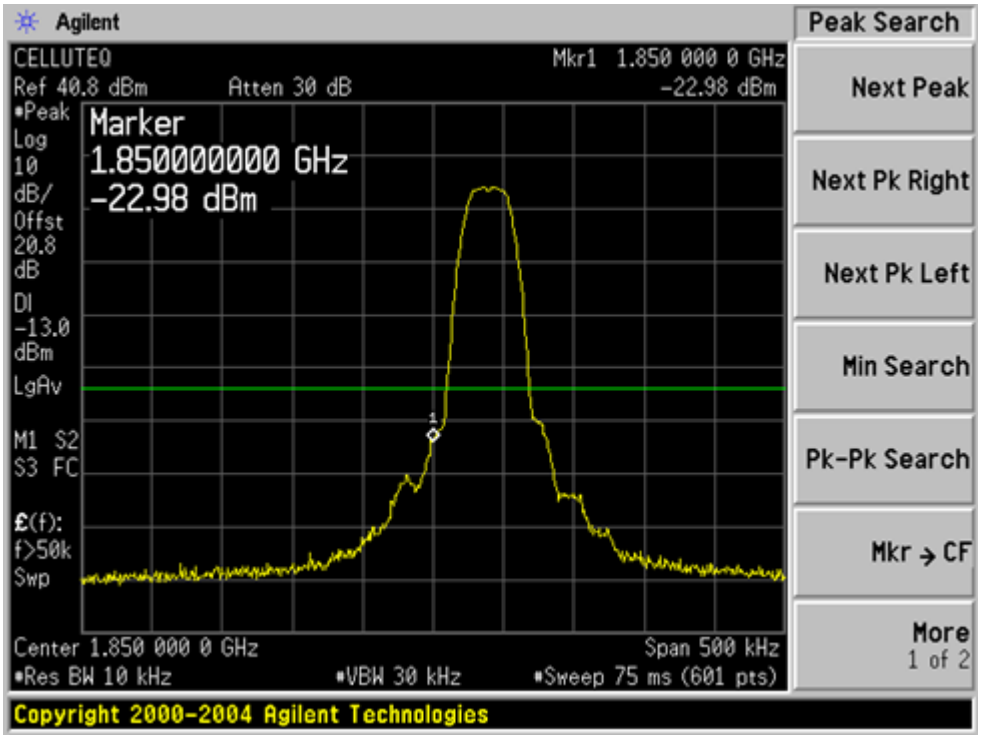
9.5.5 TDMA: Forward (Downlink): Lowest Channel



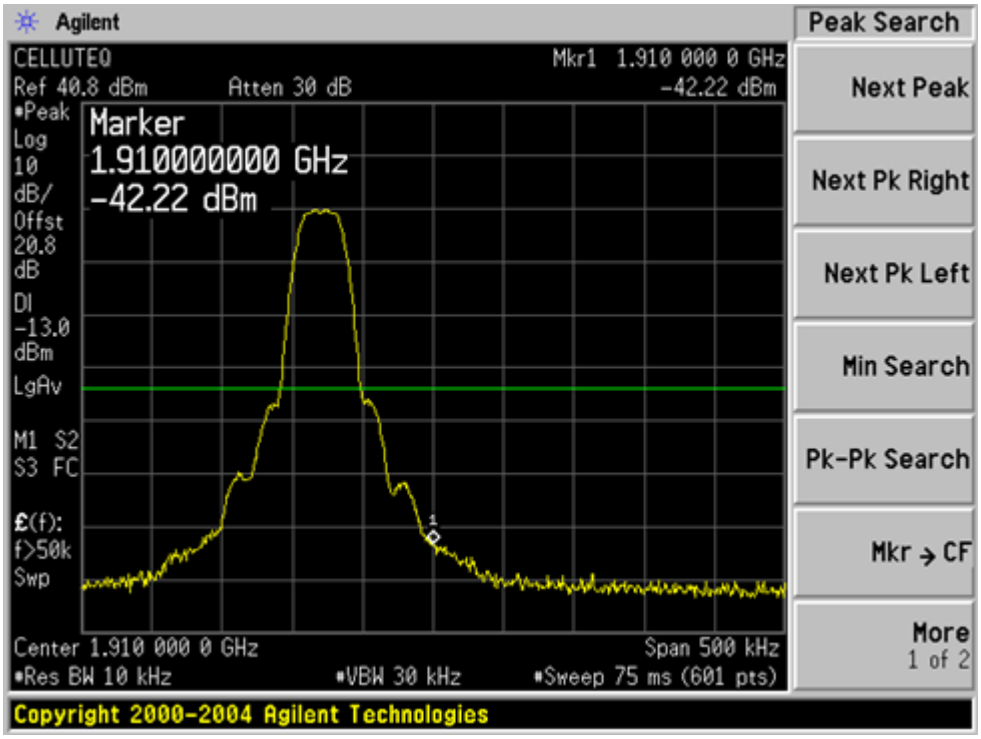
9.5.6 TDMA: Forward (Downlink): Highest Channel



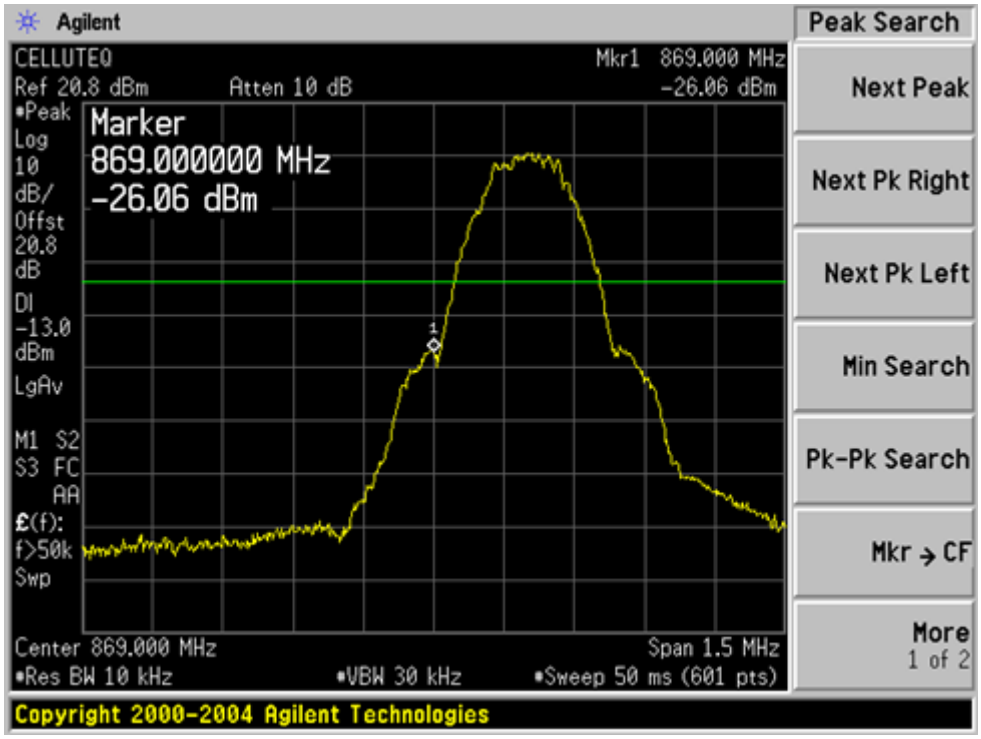
9.5.7 TDMA: Reverse (Uplink): Lowest Channel



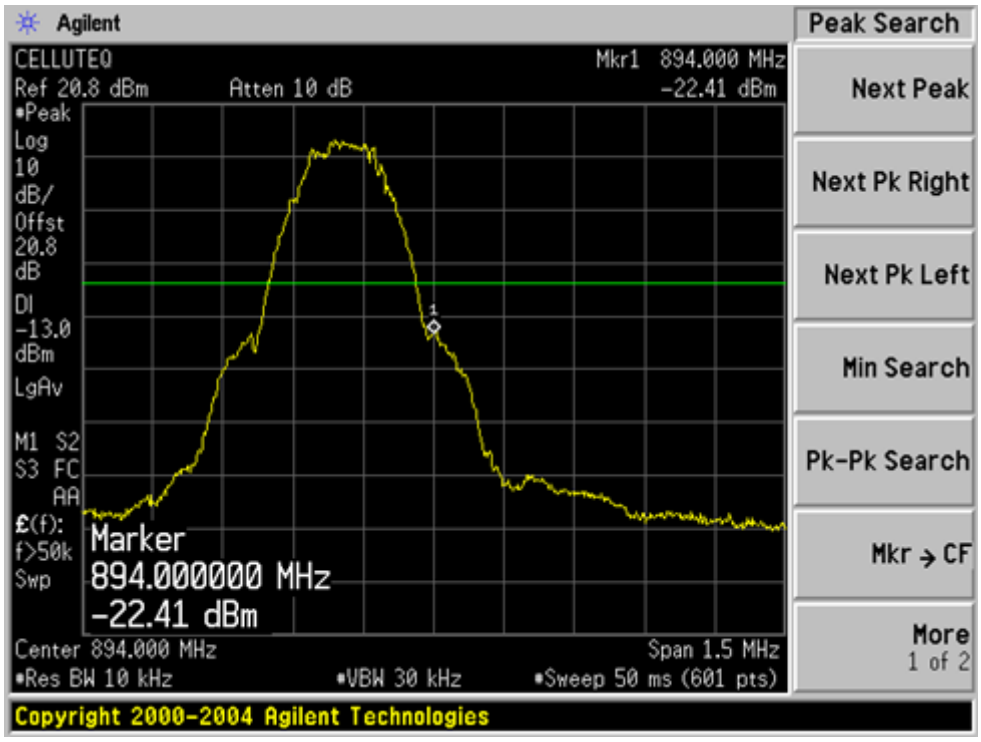
9.5.8 TDMA: Reverse (Uplink): Highest Channel



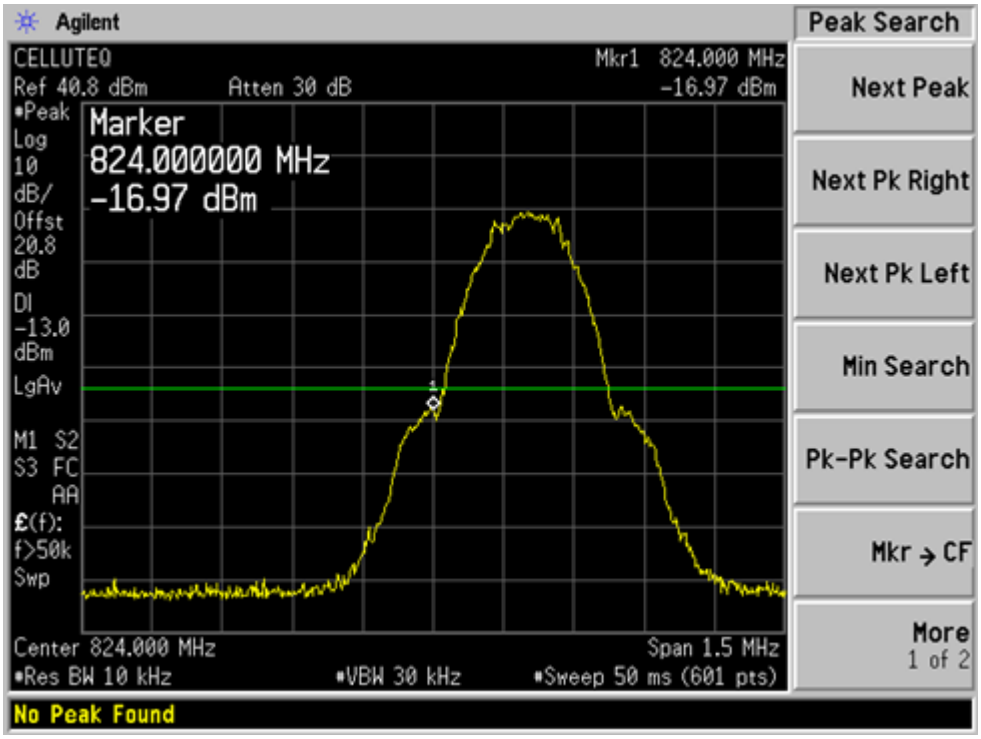
9.5.9 GSM 800MHz: Forward (Downlink): Lowest Channel



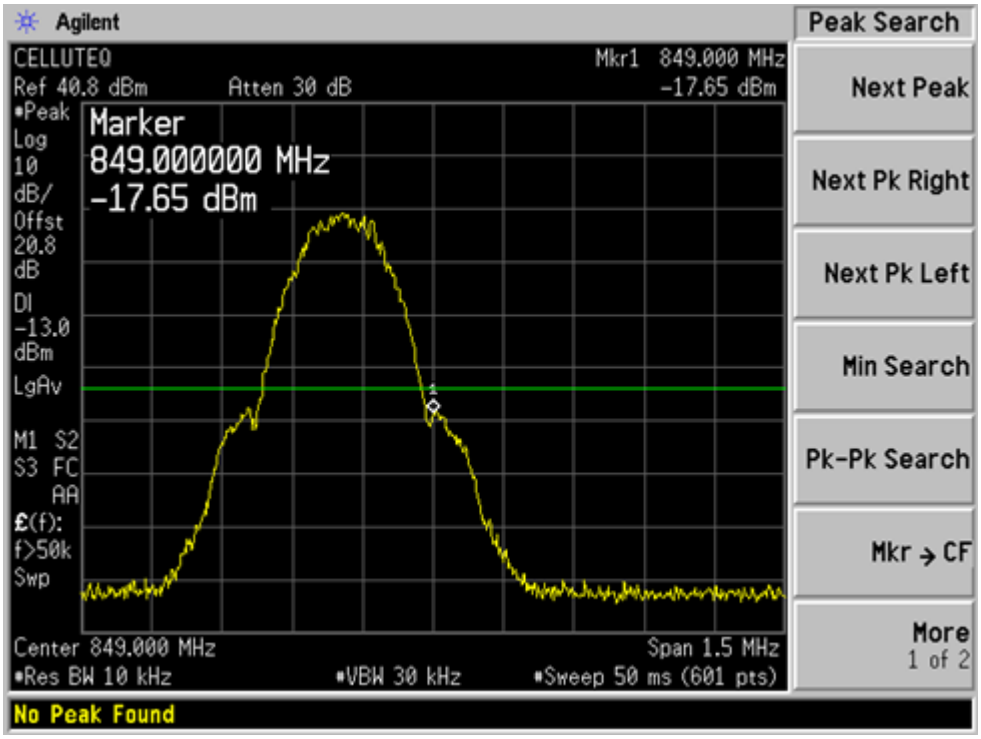
9.5.10 GSM 800MHz: Forward (Downlink): Highest Channel



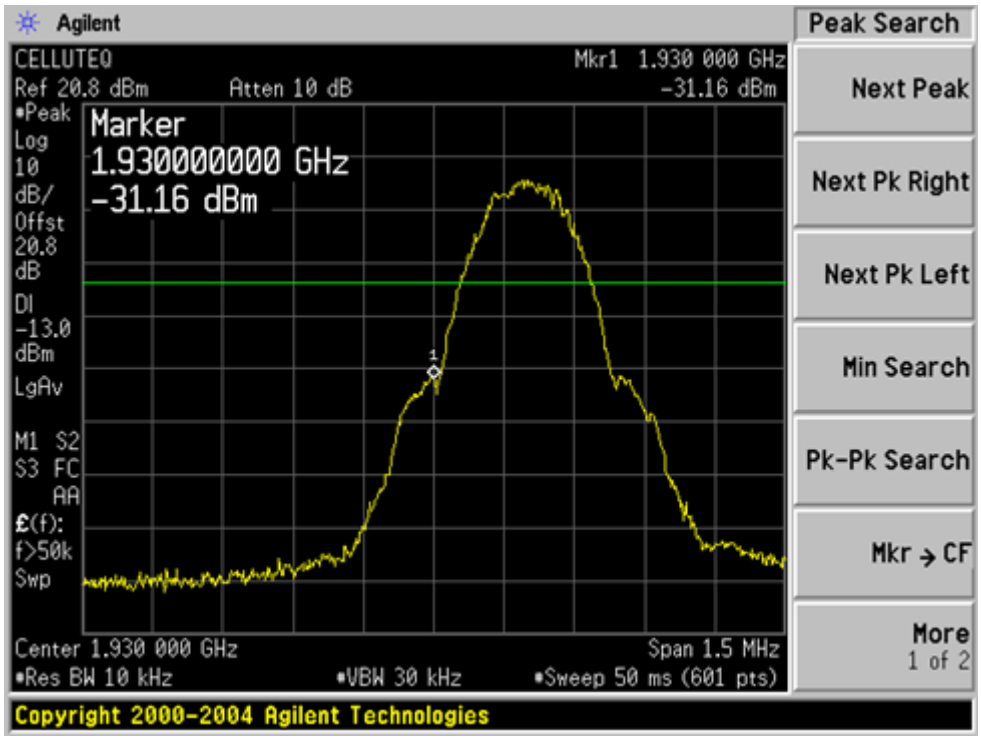
9.5.11 GSM 800MHz: Reverse (Uplink): Lowest Channel



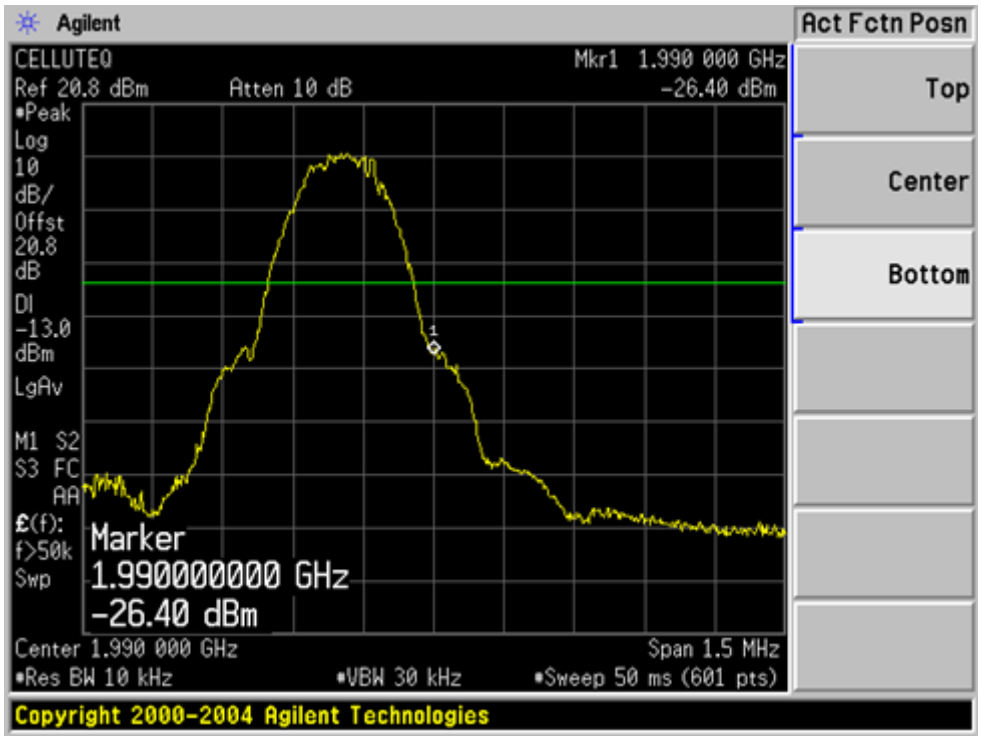
9.5.12 GSM 800MHz: Reverse (Uplink): Highest Channel



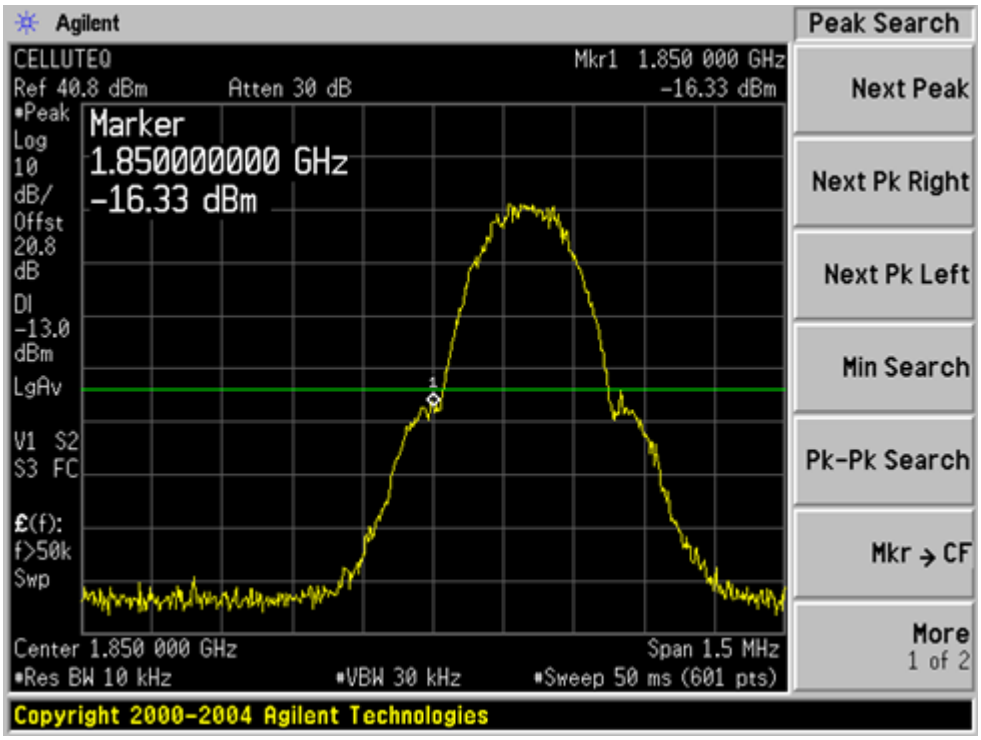
9.5.13 GSM 1900MHz: Forward (Downlink): Lowest Channel



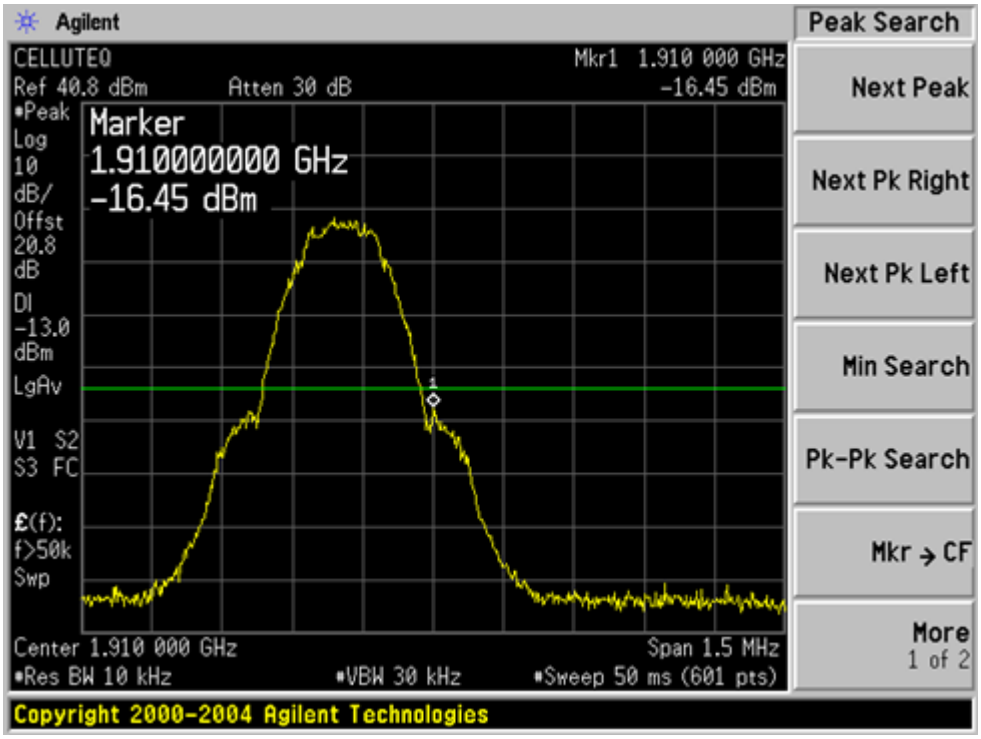
9.5.14 GSM 1900MHz: Forward (Downlink): Highest Channel



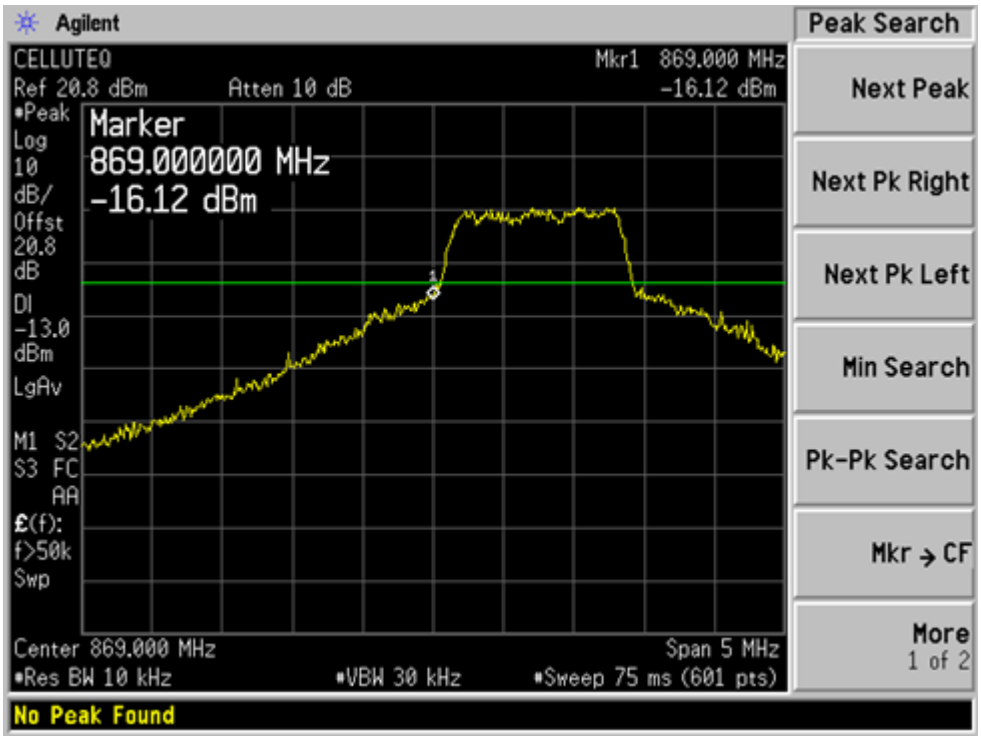
9.5.15 GSM 1900MHz: Reverse (Uplink): Lowest Channel



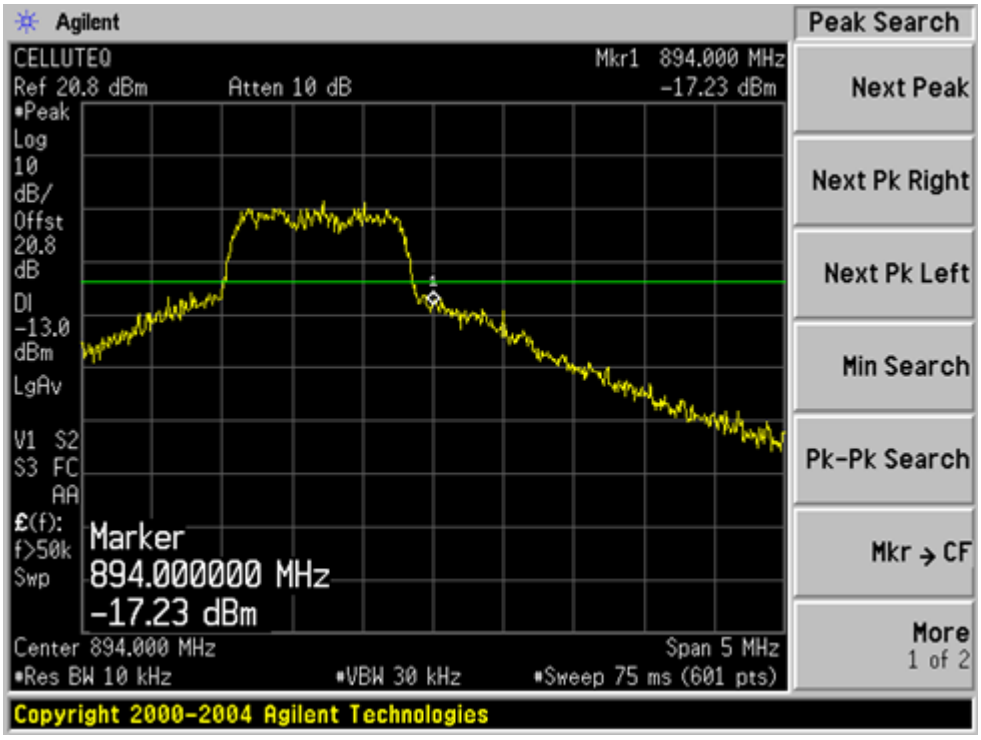
9.5.16 GSM 1900MHz : Reverse (Uplink): Highest Channel



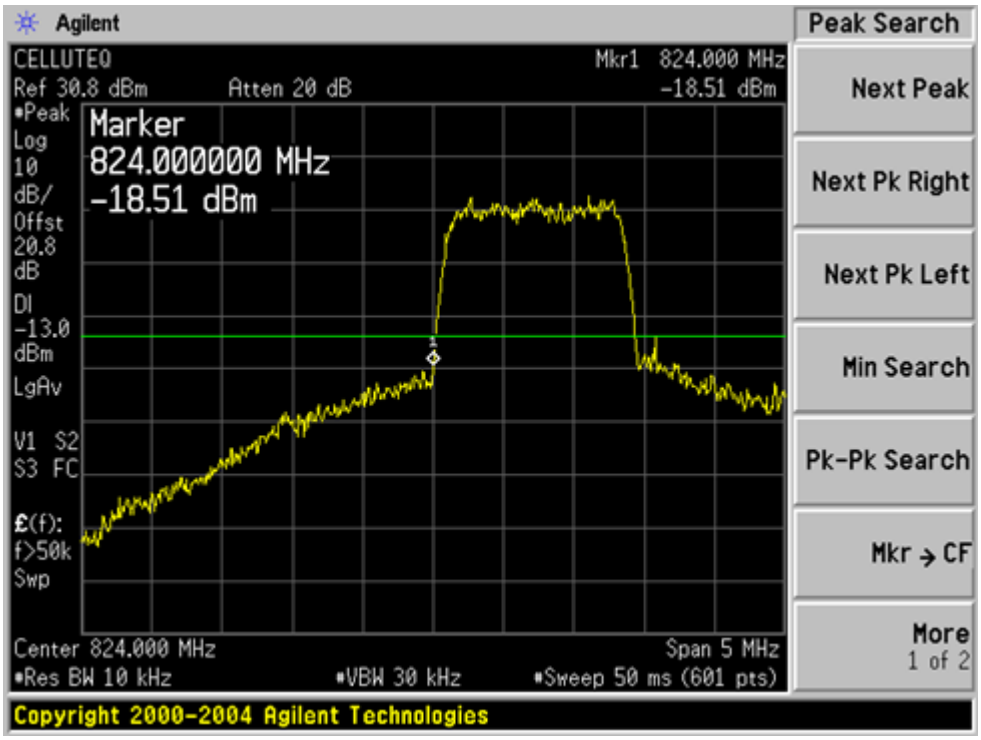
9.5.17 CDMA 800MHz: Forward (Downlink): Lowest Channel



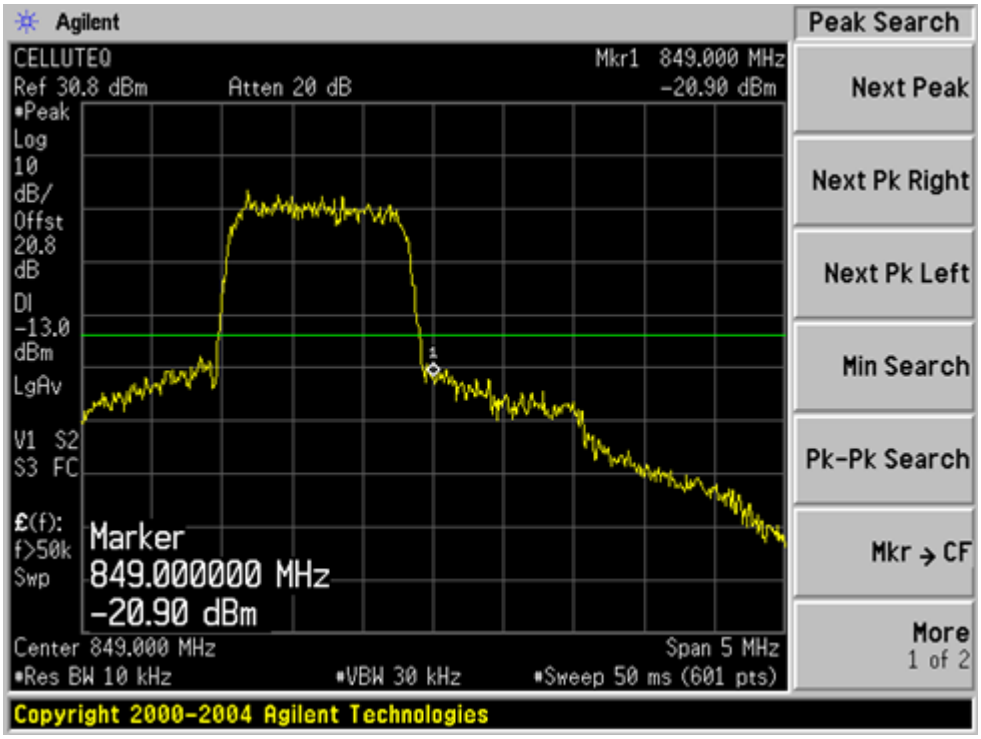
9.5.18 CDMA 800MHz: Forward (Downlink): Highest Channel



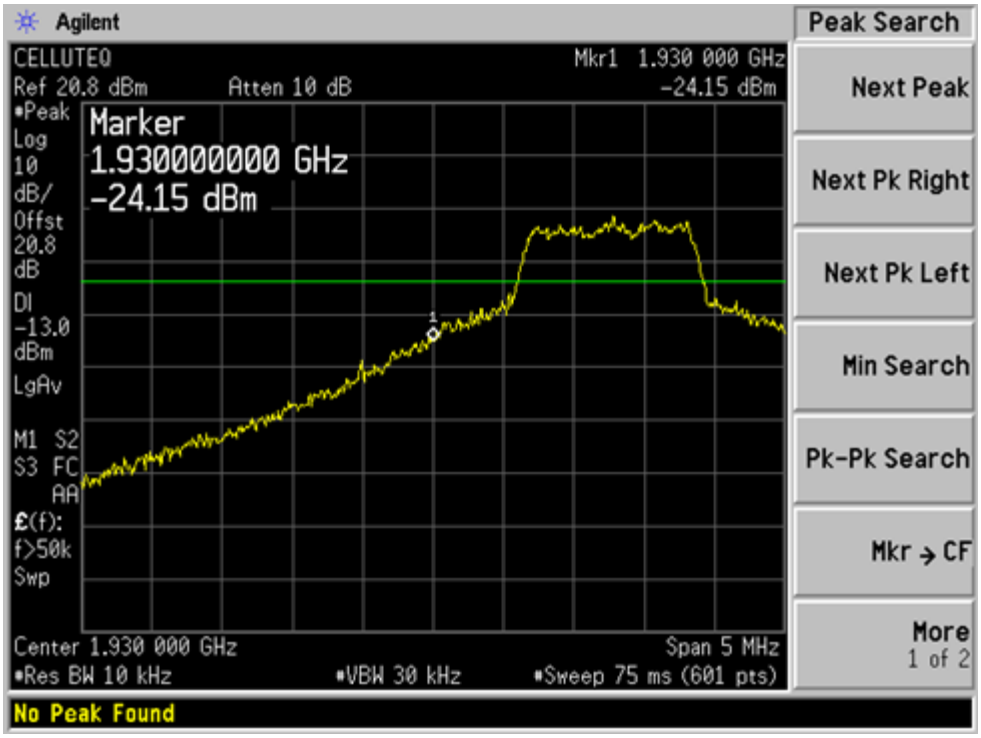
9.5.19 CDMA 800MHz: Reverse (Uplink): Lowest Channel



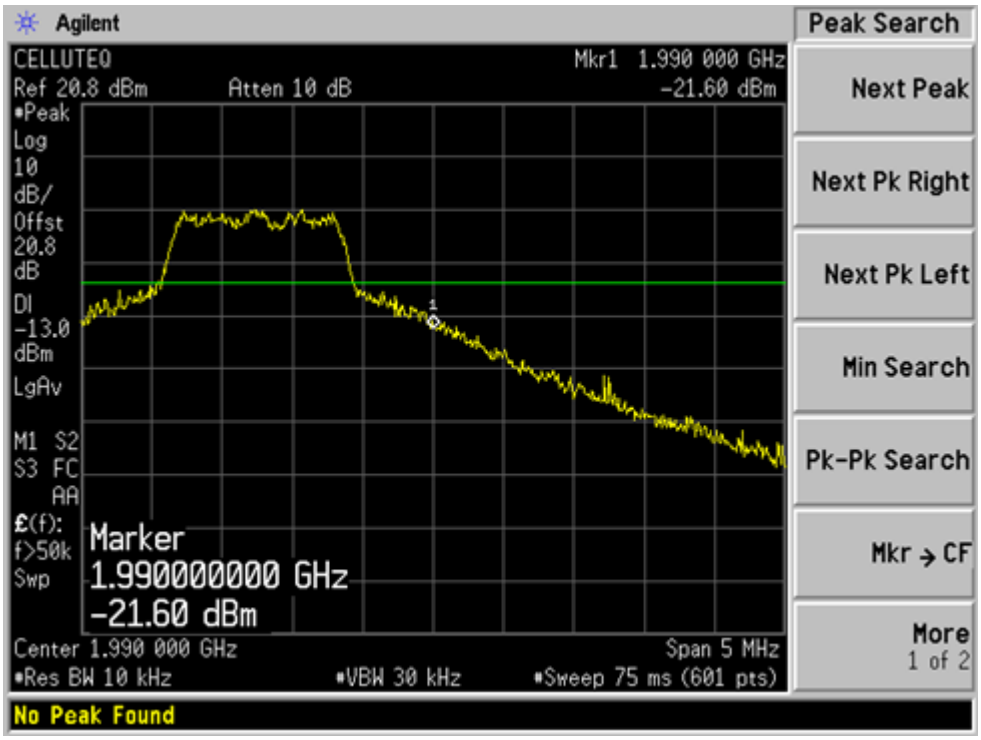
9.5.20 CDMA 800MHz: Reverse (Uplink): Highest Channel



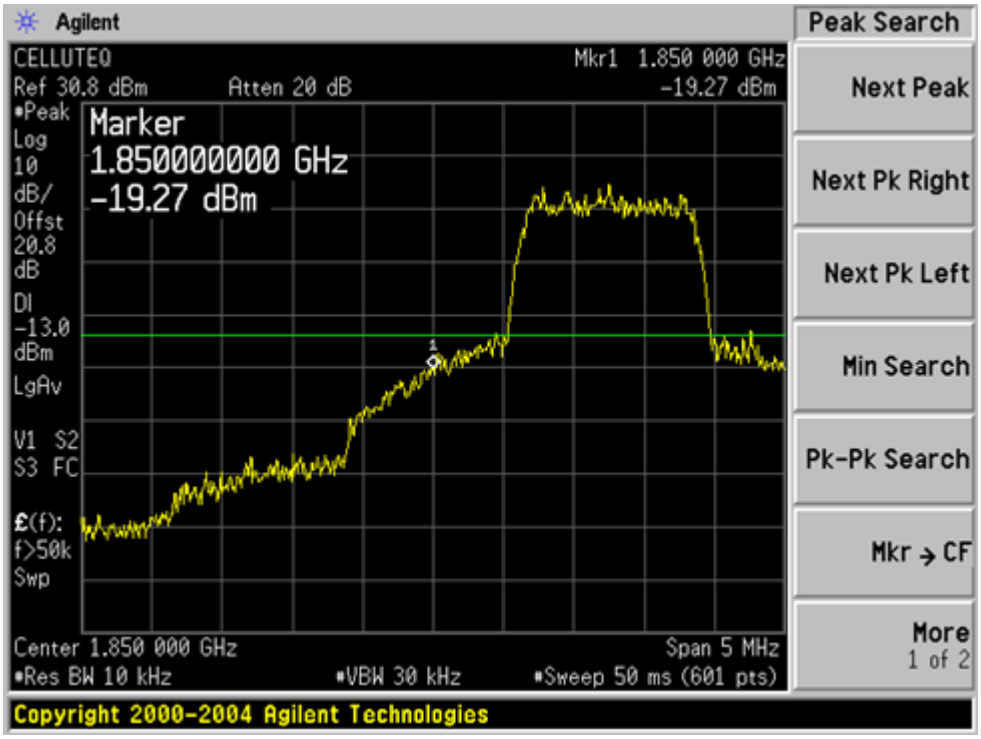
9.5.21 CDMA 1900MHz: Forward (Downlink): Lowest Channel



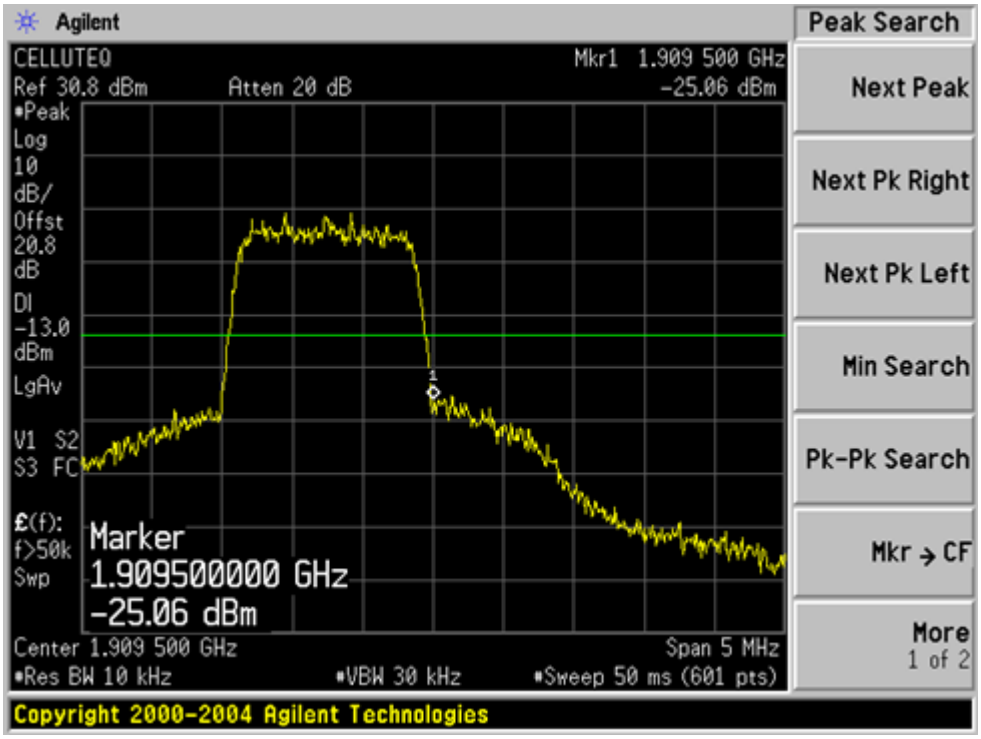
9.5.22 CDMA 1900MHz: Forward (Downlink): Highest Channel



9.5.23 CDMA 1900MHz: Reverse (Uplink): Lowest Channel



9.5.24 CDMA 1900MHz: Reverse (Uplink): Highest Channel



10 IC RSS-131 §6.1 – Amplifier Gain and Bandwidth

10.1 Applicable Standard

IC RSS-131 §6.1

10.2 Test Procedure

The EUT is connected to the network analyzer port 1 and port 2, capture the plots.

9.3 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.*

10.3 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	2007-04-26
HP	Network Analyzer	8753D	3410A04346	2007-01-31

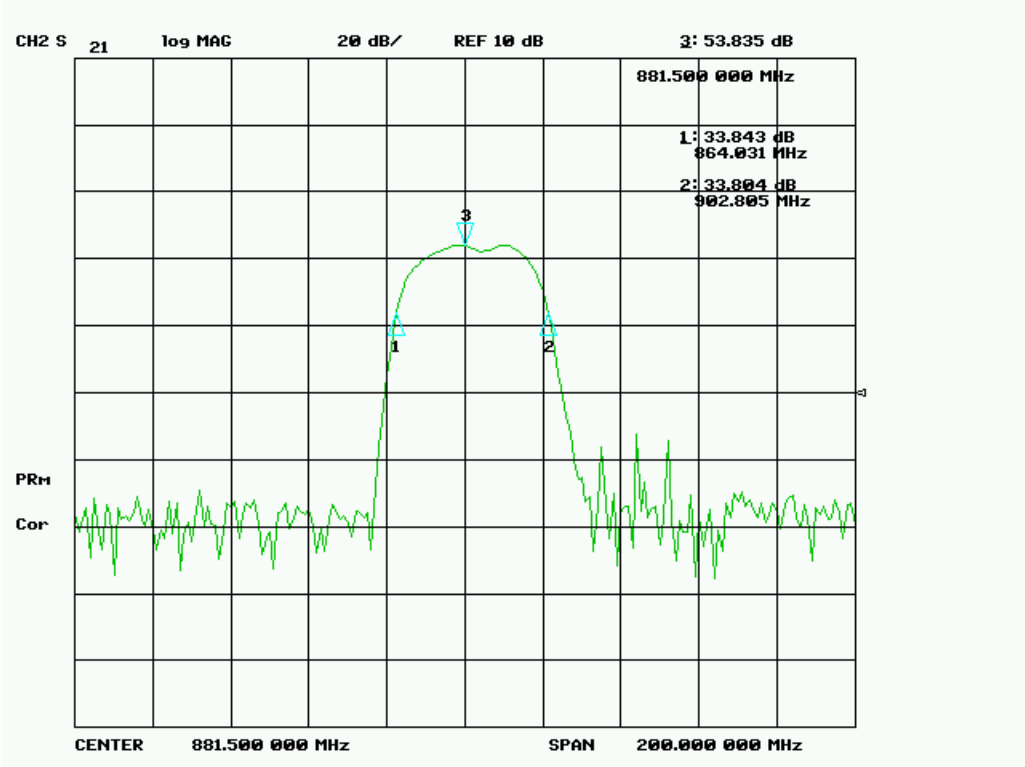
*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

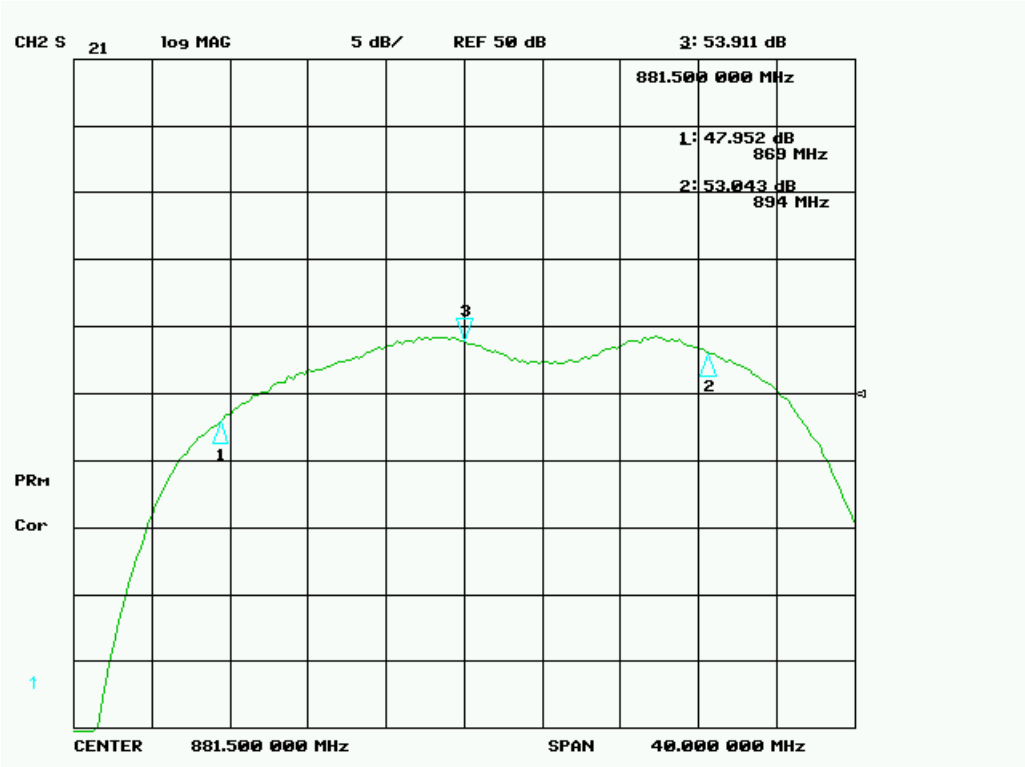
10.4 Test Results

Please refer to the following plots.

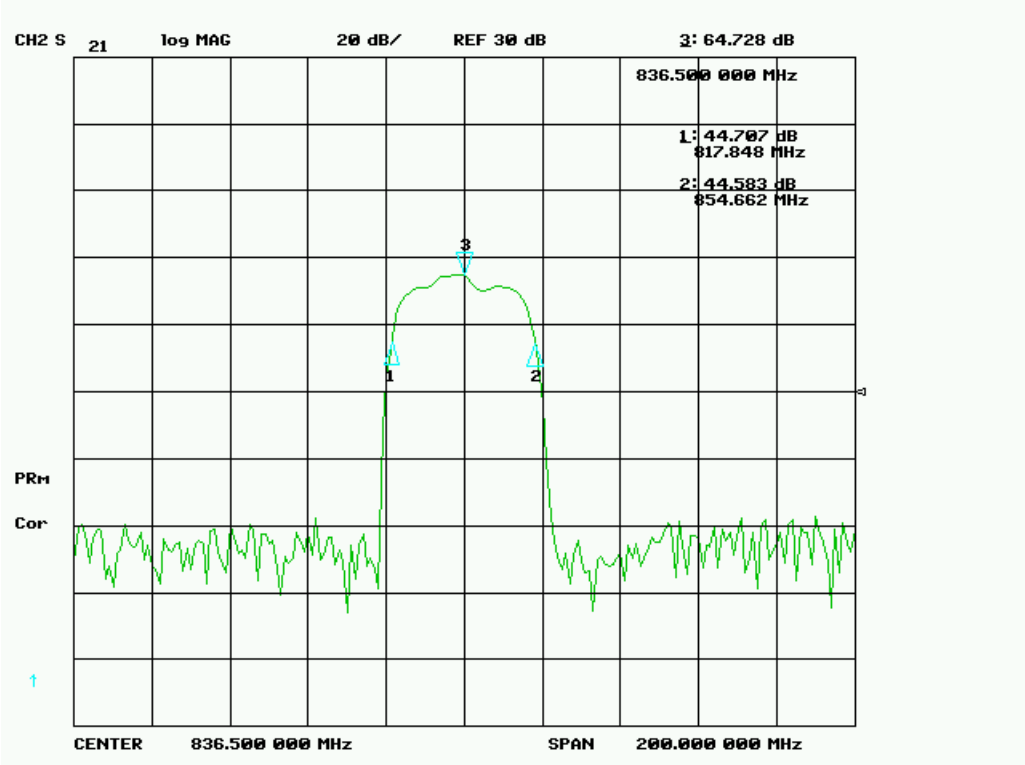
Cellular Band

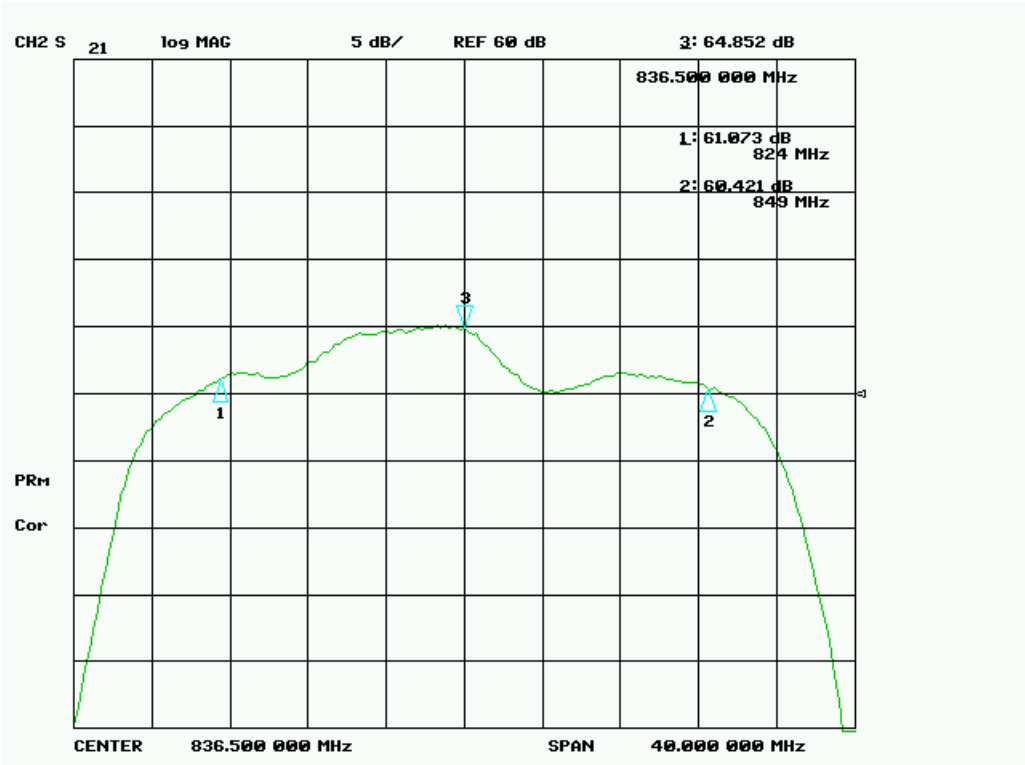
Downlink:





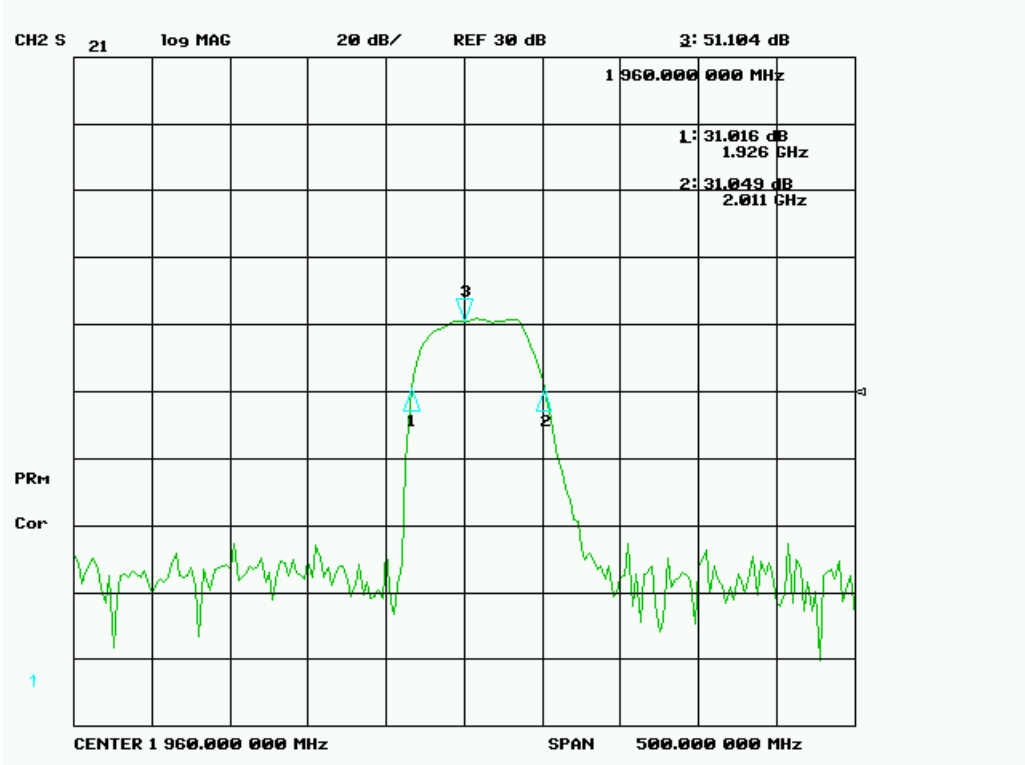
Uplink:

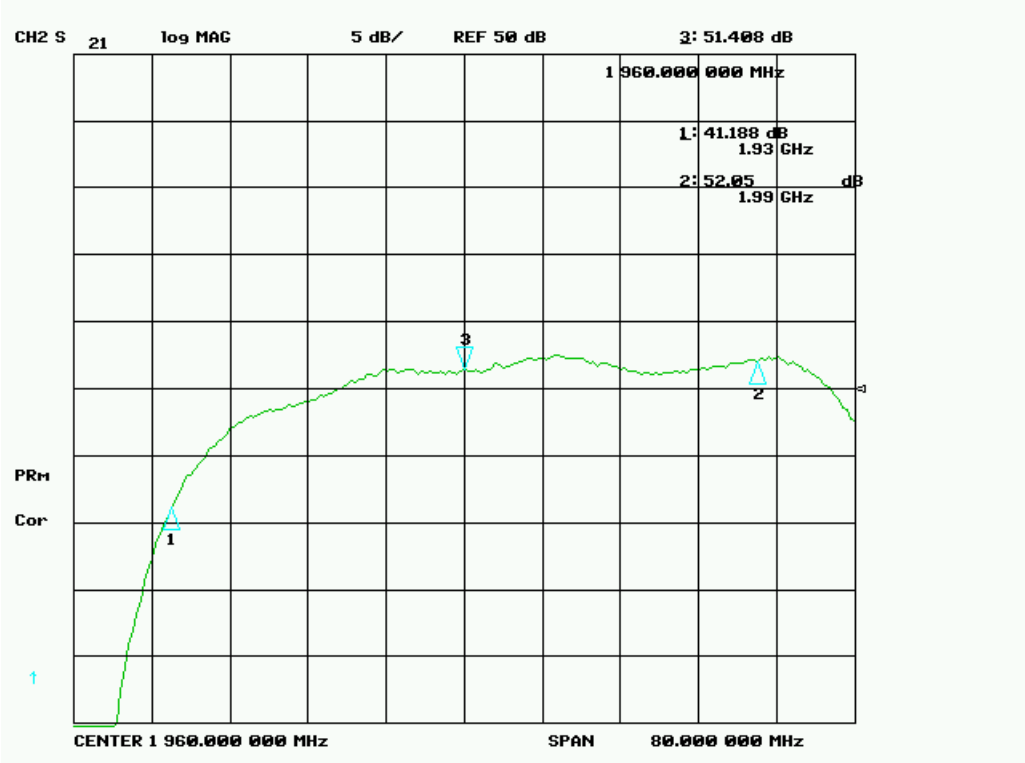

CH2 S 21 log MAG 20 dB/ REF 30 dB
3: 64.728 dB
836.500 000 MHz
1: 44.707 dB
817.848 MHz
2: 44.583 dB
854.662 MHz
PRm
Cor
CENTER 836.500 000 MHz
SPAN 200.000 000 MHz


CH2 S 21 log MAG 5 dB/ REF 60 dB
3: 64.852 dB
836.500 000 MHz
1: 61.073 dB
824 MHz
2: 60.421 dB
849 MHz
PRm
Cor
CENTER 836.500 000 MHz
SPAN 40.000 000 MHz

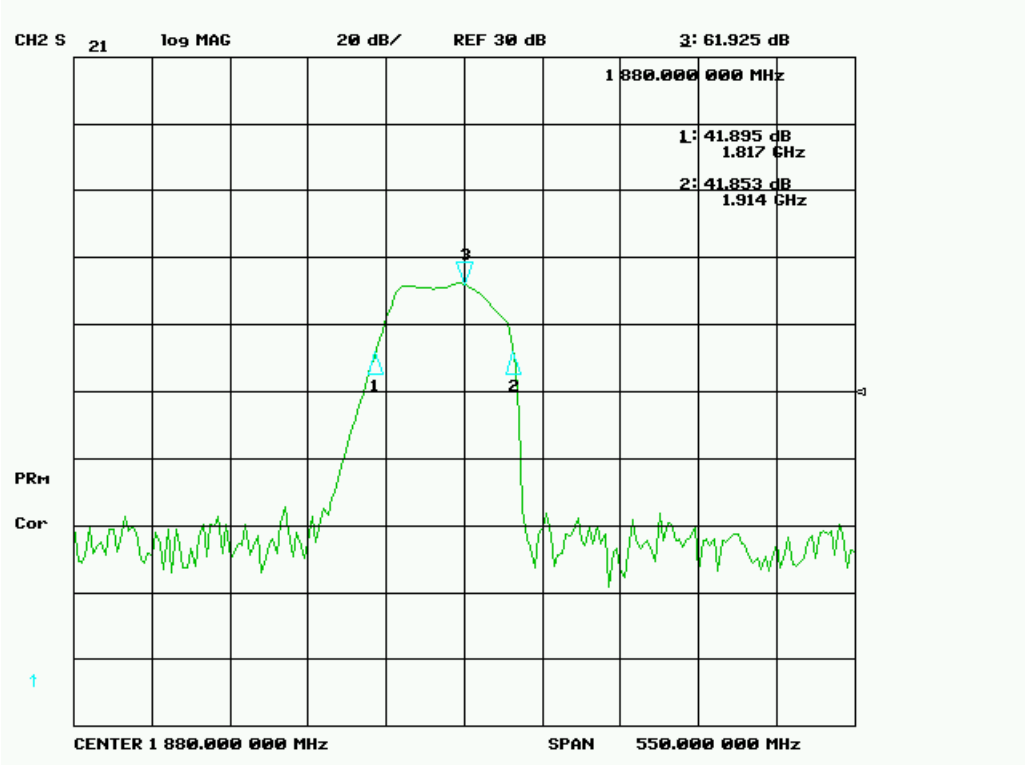
PCS Band

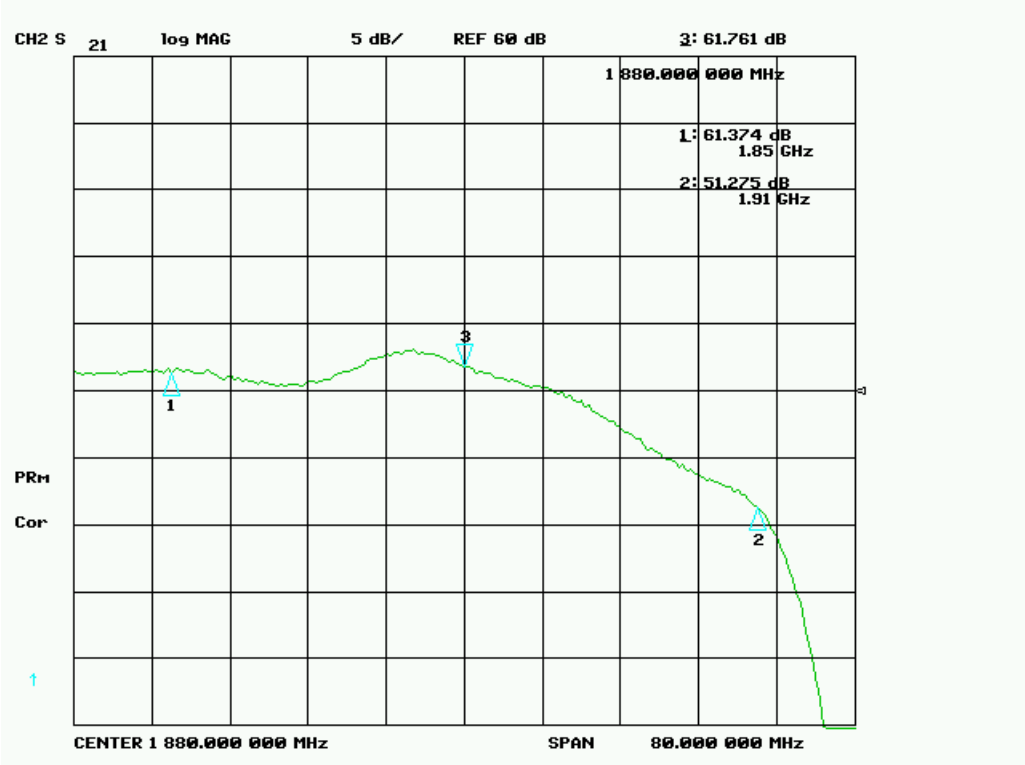
Downlink:





Uplink:


CH2 S 21 log MAG 20 dB/ REF 30 dB 3: 61.925 dB
1 880.000 000 MHz
1: 41.895 dB
1.817 GHz
2: 41.853 dB
1.914 GHz
PRM
Cor
CENTER 1 880.000 000 MHz SPAN 550.000 000 MHz


CH2 S 21 log MAG 5 dB/ REF 60 dB 3: 61.761 dB
1 880.000 000 MHz
1: 61.374 dB
1.85 GHz
2: 51.275 dB
1.91 GHz
PRM
Cor
CENTER 1 880.000 000 MHz SPAN 80.000 000 MHz