TIMCO ENGINEERING INC.
849 NW State Road 45
Newberry, Florida 32669
http://www.timcoengr.com
888.472.2424 F 352.472.2030 email: sid@timcoengr.com

FCC Test Report

Product Name:

FCC ID: SUTBST100

Applicant:

Mobile Communications Inc.
360 Industrial Parkway South
Unit 1
Aurora Ontario L4G 3V7
Canada

Date Receipt: JANUARY 27, 2005

Date Tested: FEBRUARY 7, 2005

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TABLE OF CONTENTS LIST

TEST REPORT:

EXHIBITS CONTAINING:

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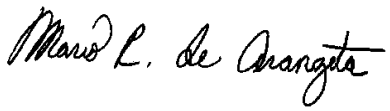
COMPLIANCE STATEMENT:

This equipment has been tested in accordance with the standards identified in this test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report and demonstrate that the equipment complies with the appropriate standards. No modifications were made to the equipment during testing in order to demonstrate compliance with these standards.

I attest that the necessary measurements were made, under my supervision, at TIMCO ENGINEERING, INC. located at 849 N.W. State Road 45, Newberry, Florida 32669.

Authorized Signatory Name: Mario de Aranzeta



Signature:

Date: 02/07/05

Test engineer name: Joe Scoglio

Signature: <on file>

Date: 02/07/05

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GENERAL INFORMATION REQUIRED FOR TYPE ACCEPTANCE

2.1033(c)(1)(2) Mobile Communications Inc. will manufacture the FCCID: SUTBST100 EXTERNAL RF POWER AMPLIFIER in quantity, for use under FCC RULES PART 22H.

Mobile Communications Inc.
360 Industrial Parkway South
Unit 1
Aurora, Ontario L4G 3V7 Canada

2.1033(c) **TECHNICAL DESCRIPTION**

2.1033(c)(3) Instruction book. A draft copy of the instruction manual is included in the exhibits.

2.1033(c) (4) Type of Emission: F9W (CDMA), GXW (GSM), F1D (AMPS), and DXW for (TDMA/NADC)

2.1033(c)(5) Frequency Range: 824 - 849 MHz
869 – 894 MHz

2.1033(c)(6) There are no user power controls.

2.1033(c)(7) Maximum Output Power rating per rules parts:

Part 22.913: Mobile unit max power is 7WERP

2.1033(c)(8) DC Voltages and Current into Final Amplifier:
POWER INPUT:

FINAL AMPLIFIER ONLY
INPUT POWER: (12 VDC)(1 A) = 12 Watts

2.1033(c)(9) Tune-up procedure. The tune-up procedure is included in the exhibits.

2.1033(c)(10) Complete Circuit Diagrams: The circuit diagram and block diagram are included in the exhibits. Description of all circuitry and devices provided for determining and stabilizing frequency is included in the exhibits.

2.1033(c)(11) A photograph or drawing of the equipment identification label is shown in the exhibits.

2.1033(c)(12) Photographs of the equipment of sufficient clarity to reveal equipment construction and layout and label location are shown in the exhibits.

2.1033(c)(13) For equipment employing digital modulation, a detail description of the modulation technique: N/A as this device is an amplifier

2.1033(c)(14) The data required for 2.1046 through 2.1057 is submitted below.

2.1046(a) **RF POWER OUTPUT**

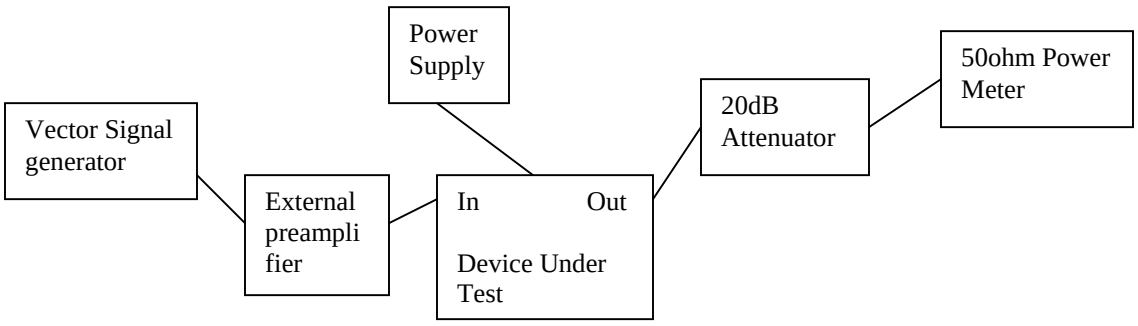
RF power is measured by connecting a 50 ohm, resistive wattmeter to the RF output connector. With a nominal voltage of 12 VDC using a laboratory power supply , and the transmitter properly adjusted the RF output measures:

UPLINK RF OUTPUT POWER: 3 WATTS

Frequency (MHz)	SA Reading (dBm)	Cable Loss (dB)	Attenuation (dB)	Result (dBm)	Output Power (W)	Limit (W) ERP
824	35.04	Corrected	Corrected	35.04	3.2	7
836.5	35.29	Corrected	Corrected	35.29	3.4	7
849	34.75	Corrected	Corrected	34.75	3.0	7

DOWNLINK RF OUTPUT POWER:

Frequency (MHz)	Cable Loss (dB)	Attenuation (dB)	Result (dBm)
869	Corrected	Corrected	6.88
881.5	Corrected	Corrected	9.36
894	Corrected	Corrected	8.95



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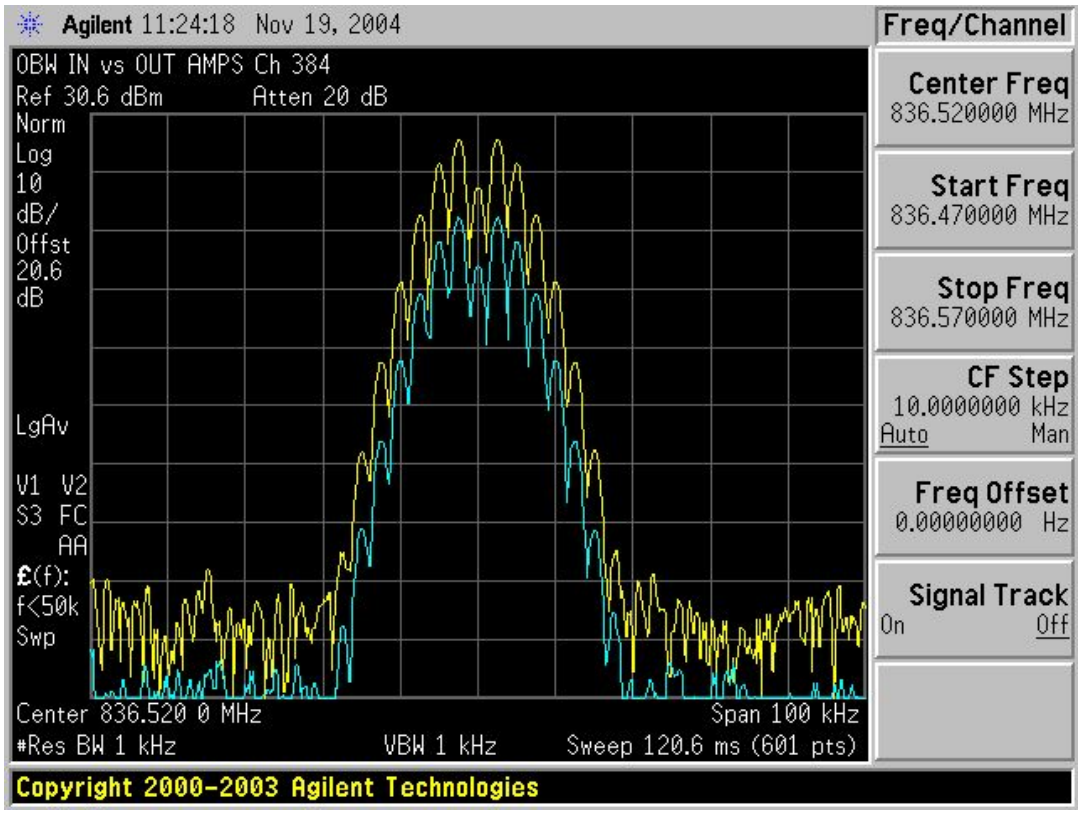
2.1049 **Input/Output modulated amplitude comparison – AMPS band:**

On the following plot, the Reference level was calibrated using a Resolution Bandwidth wider than the emission bandwidth. First the gain was measured for the maximum output power. Then for each frequency and type of modulation, an attenuation equal to the gain of the amplifier was added on the measurement side of the amplifier, as to overlay the input versus output modulated envelope.

AMPS



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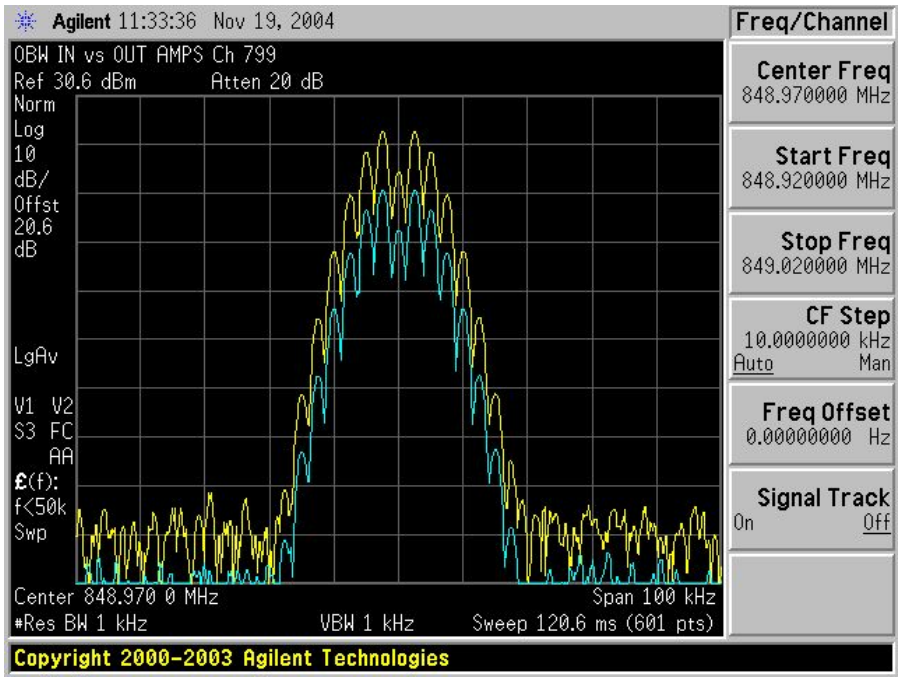
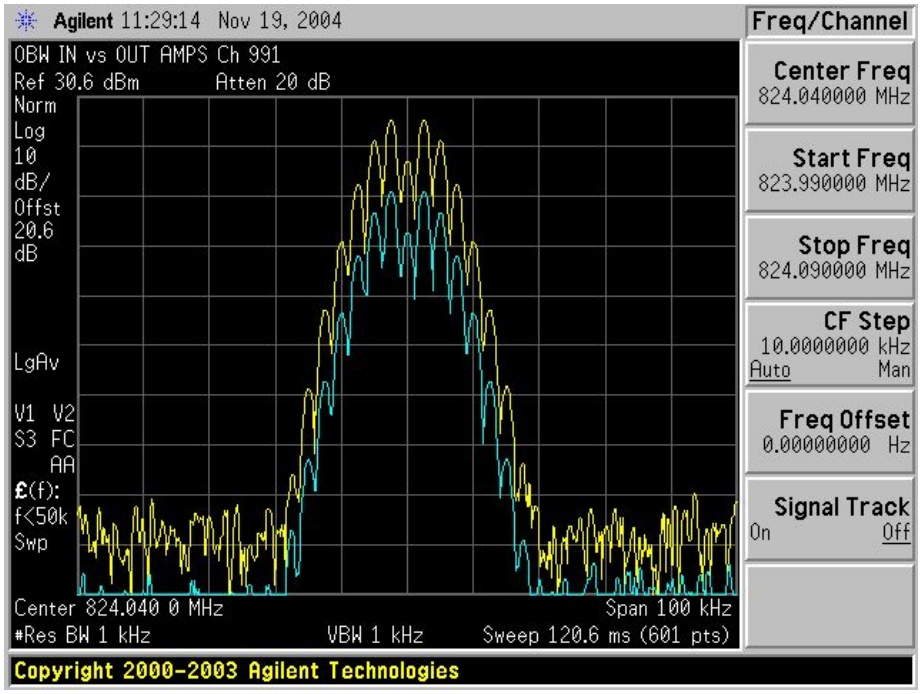
AMPS



AMPS



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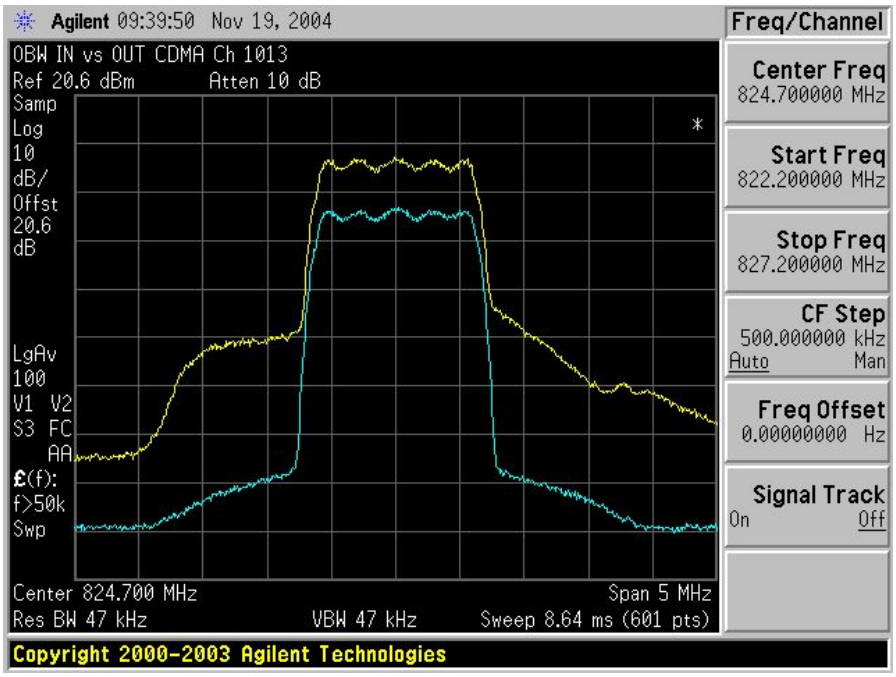
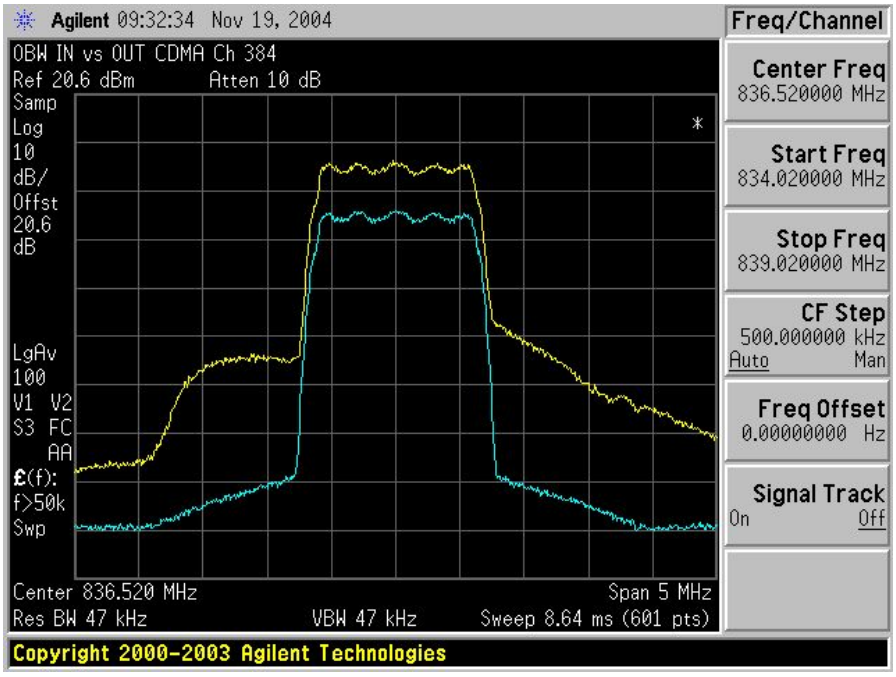
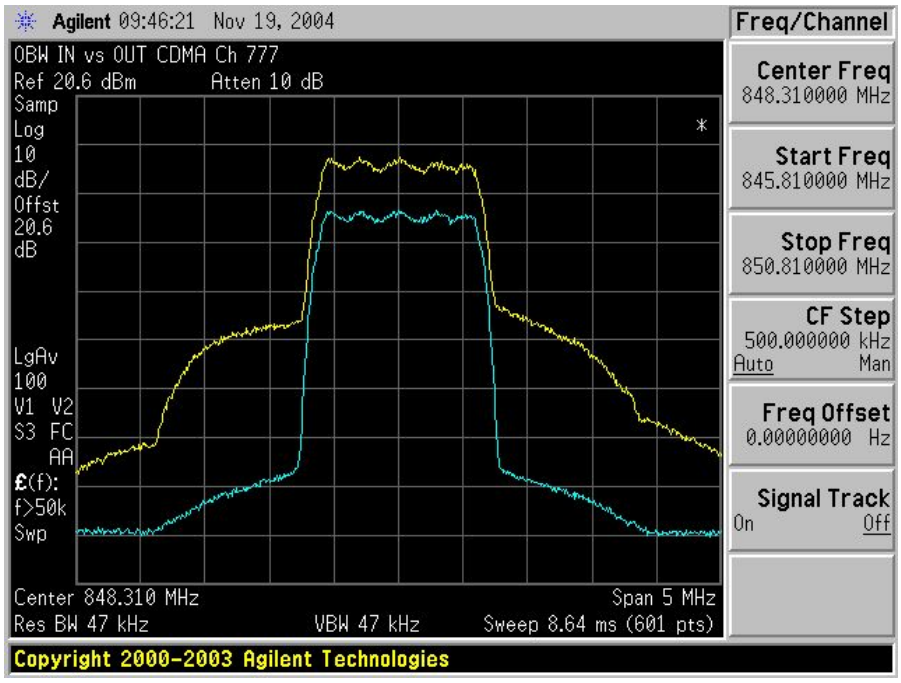
CDMA



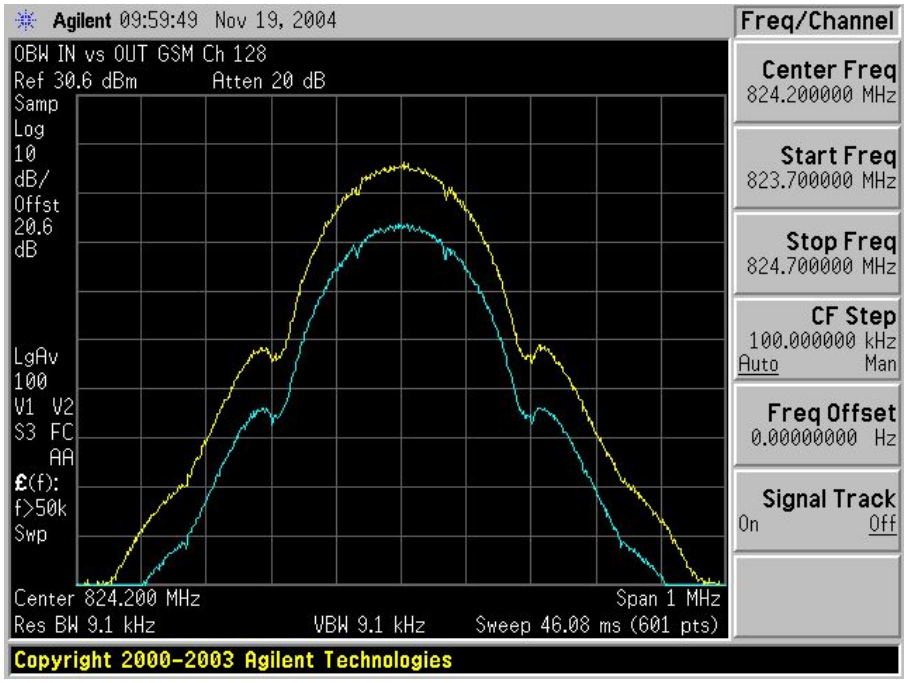
CDMA



CDMA


Agilent 09:46:21 Nov 19, 2004
Freq/Channel
OBW IN vs OUT CDMA Ch 777
Ref 20.6 dBm
Atten 10 dB
Samp
Log
10
dB/
Offst
20.6
dB
LgAv
100
V1 V2
S3 FC
AA
£(f):
f>50k
Swp
Center 848.310 MHz
Span 5 MHz
Res BW 47 kHz
VBW 47 kHz
Sweep 8.64 ms (601 pts)
Center Freq
848.310000 MHz
Start Freq
845.810000 MHz
Stop Freq
850.810000 MHz
CF Step
500.000000 kHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Copyright 2000-2003 Agilent Technologies

GSM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Freq/Channel
OBW IN vs OUT GSM Ch 128
Ref 30.6 dBm
Atten 20 dB
Samp
Log
10
dB/
Offst
20.6
dB
LgAv
100
V1 V2
S3 FC
AA
£(f):
f>50k
Swp
Center 824.200 MHz
Span 1 MHz
Res BW 9.1 kHz
VBW 9.1 kHz
Sweep 46.08 ms (601 pts)
Center Freq
824.200000 MHz
Start Freq
823.700000 MHz
Stop Freq
824.700000 MHz
CF Step
100.000000 kHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
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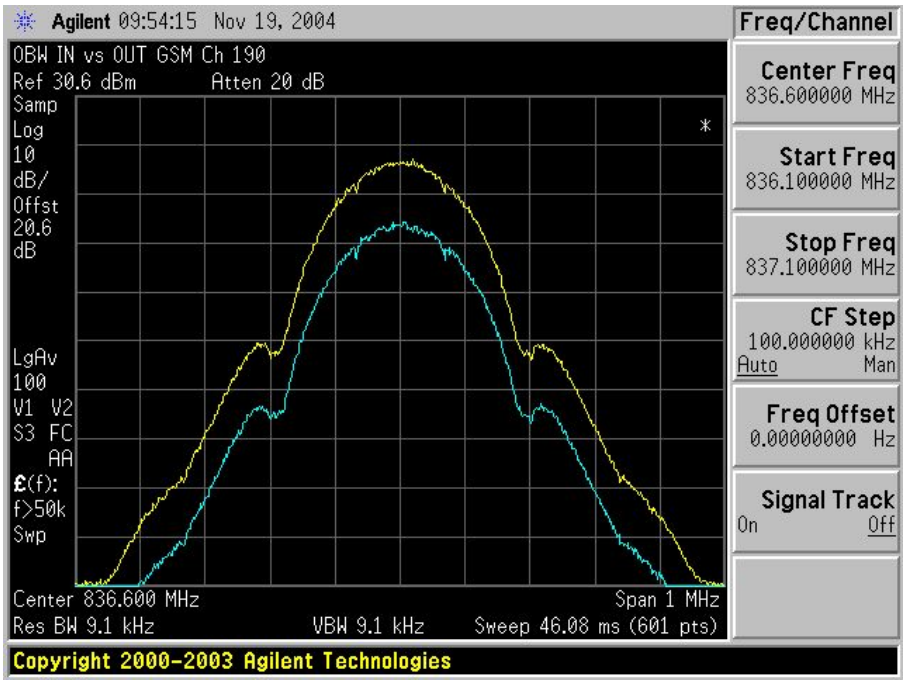
GSM


Agilent 09:54:15 Nov 19, 2004
OBW IN vs OUT GSM Ch 190
Ref 30.6 dBm
Atten 20 dB
Samp
Log
10
dB/
Offst
20.6
dB
LgAv
100
V1 V2
S3 FC
AA
£(f):
f>50k
Swp
Center 836.600 MHz
Span 1 MHz
Res BW 9.1 kHz
VBW 9.1 kHz
Sweep 46.08 ms (601 pts)
Freq/Channel
Center Freq
836.600000 MHz
Start Freq
836.100000 MHz
Stop Freq
837.100000 MHz
CF Step
100.000000 kHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
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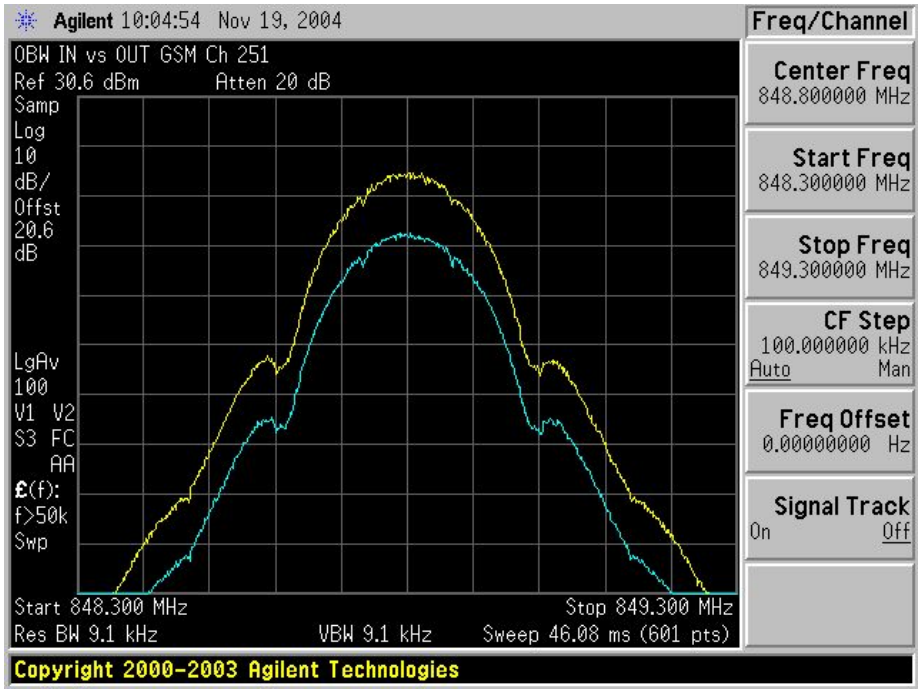
GSM


Agilent 10:04:54 Nov 19, 2004
OBW IN vs OUT GSM Ch 251
Ref 30.6 dBm
Atten 20 dB
Samp
Log
10
dB/
Offst
20.6
dB
LgAv
100
V1 V2
S3 FC
AA
£(f):
f>50k
Swp
Start 848.300 MHz
Stop 849.300 MHz
Res BW 9.1 kHz
VBW 9.1 kHz
Sweep 46.08 ms (601 pts)
Freq/Channel
Center Freq
848.800000 MHz
Start Freq
848.300000 MHz
Stop Freq
849.300000 MHz
CF Step
100.000000 kHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
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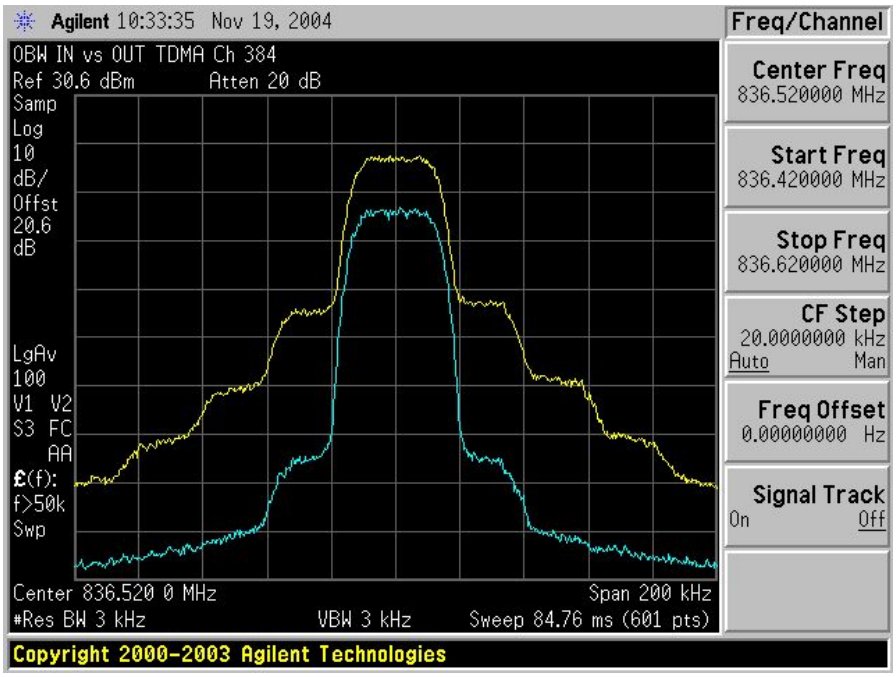
TDMA


Agilent 10:33:35 Nov 19, 2004
Freq/Channel
OBW IN vs OUT TDMA Ch 384
Ref 30.6 dBm
Atten 20 dB
Samp
Log
10
dB/
Offst
20.6
dB
LgAv
100
V1 V2
S3 FC
AA
£(f):
f>50k
Swp
Center 836.520 0 MHz
Span 200 kHz
#Res BW 3 kHz
VBW 3 kHz
Sweep 84.76 ms (601 pts)
Center Freq
836.520000 MHz
Start Freq
836.420000 MHz
Stop Freq
836.620000 MHz
CF Step
20.0000000 kHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
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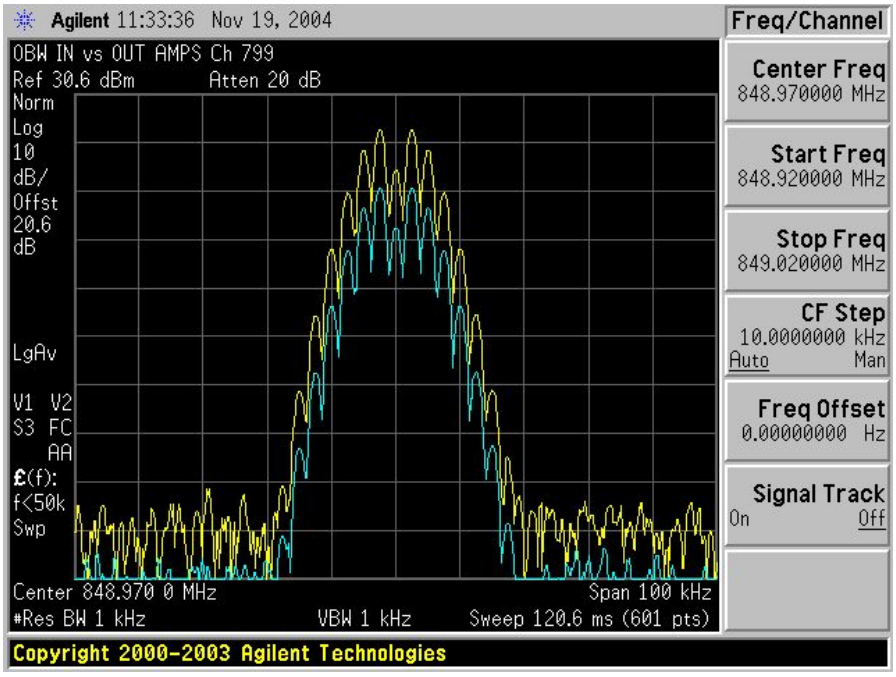
TDMA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Freq/Channel
OBW IN vs OUT AMPS Ch 799
Ref 30.6 dBm
Atten 20 dB
Norm
Log
10
dB/
Offst
20.6
dB
LgAv
V1 V2
S3 FC
AA
£(f):
f<50k
Swp
Center 848.970 0 MHz
Span 100 kHz
#Res BW 1 kHz
VBW 1 kHz
Sweep 120.6 ms (601 pts)
Center Freq
848.970000 MHz
Start Freq
848.920000 MHz
Stop Freq
849.020000 MHz
CF Step
10.0000000 kHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
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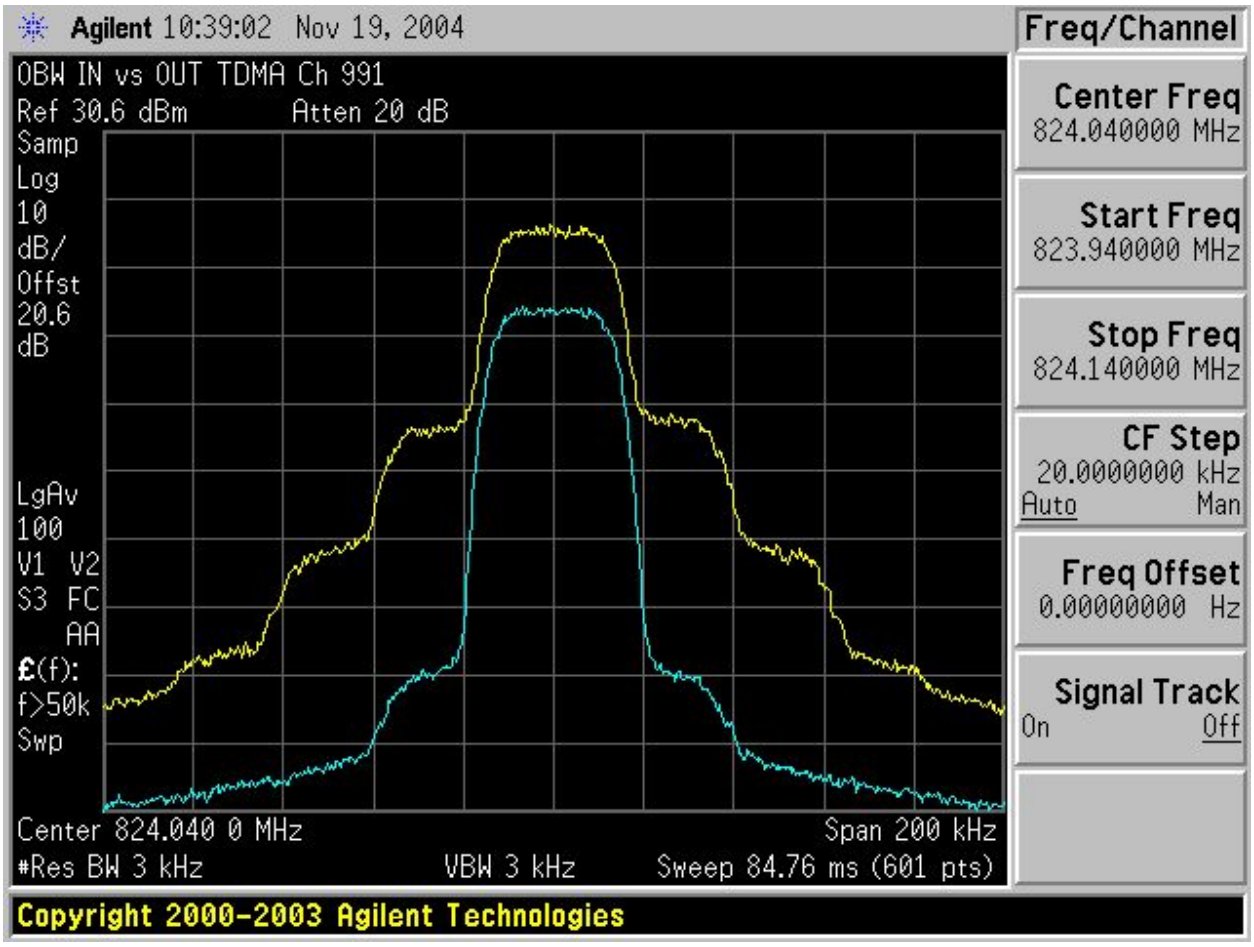
TDMA


Agilent 10:39:02 Nov 19, 2004
OBW IN vs OUT TDMA Ch 991
Ref 30.6 dBm
Atten 20 dB
Samp
Log
10
dB/
Offst
20.6
dB
LgAv
100
V1 V2
S3 FC
AA
£(f):
f>50k
Swp
Center 824.040 0 MHz
#Res BW 3 kHz
VBW 3 kHz
Span 200 kHz
Sweep 84.76 ms (601 pts)
Freq/Channel
Center Freq
824.040000 MHz
Start Freq
823.940000 MHz
Stop Freq
824.140000 MHz
CF Step
20.0000000 kHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
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22.917 (e) **Out of band emissions:**
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least:

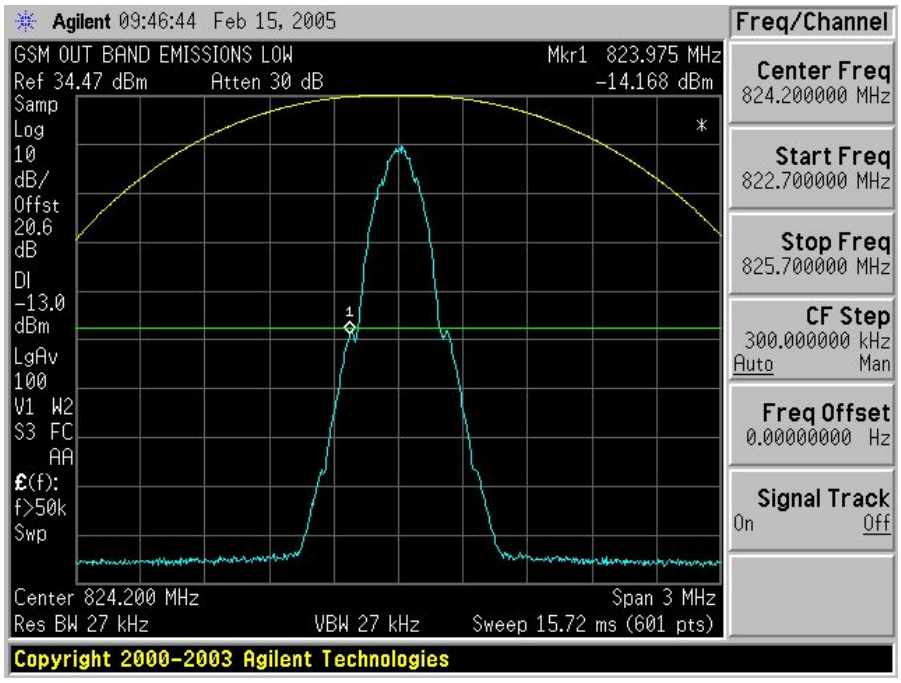
At least 43 + 10log(Po) = dB.

Band-edges compliance:
Measurement were performed in accordance with Part 22.917(E)

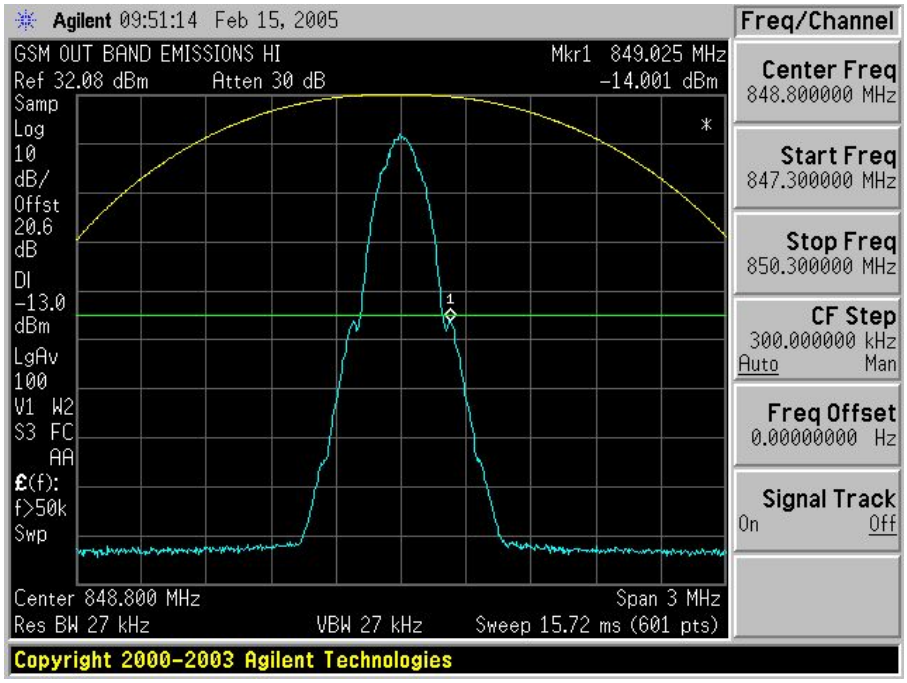
Conducted output power: 33 dBm

The Reference level on the following plots was calibrated using a 3MHz RBW=VBW.

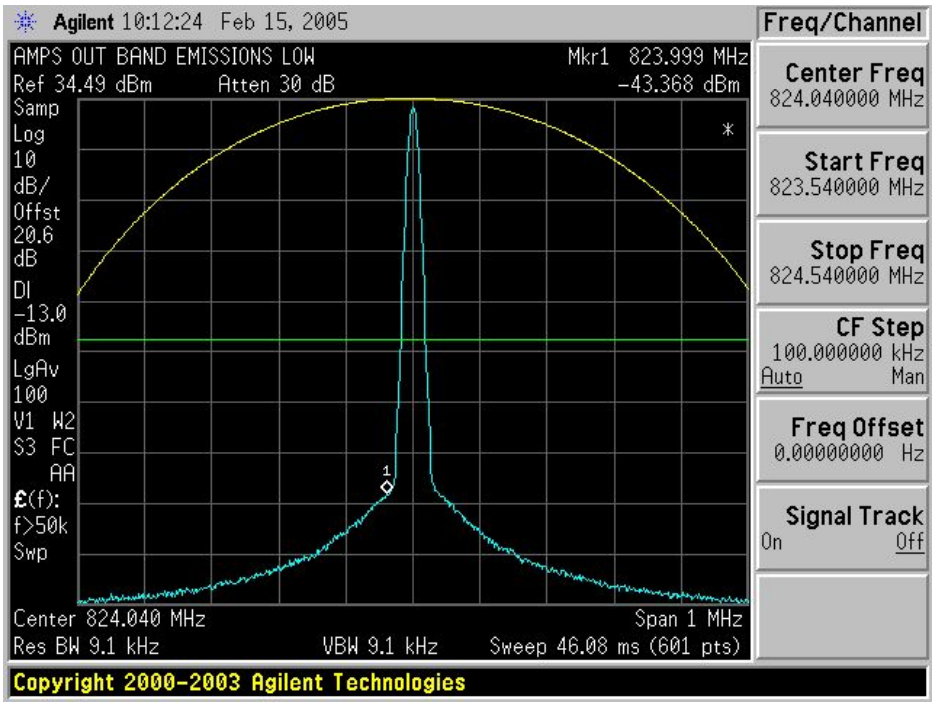
GSM – 824.2 MHz



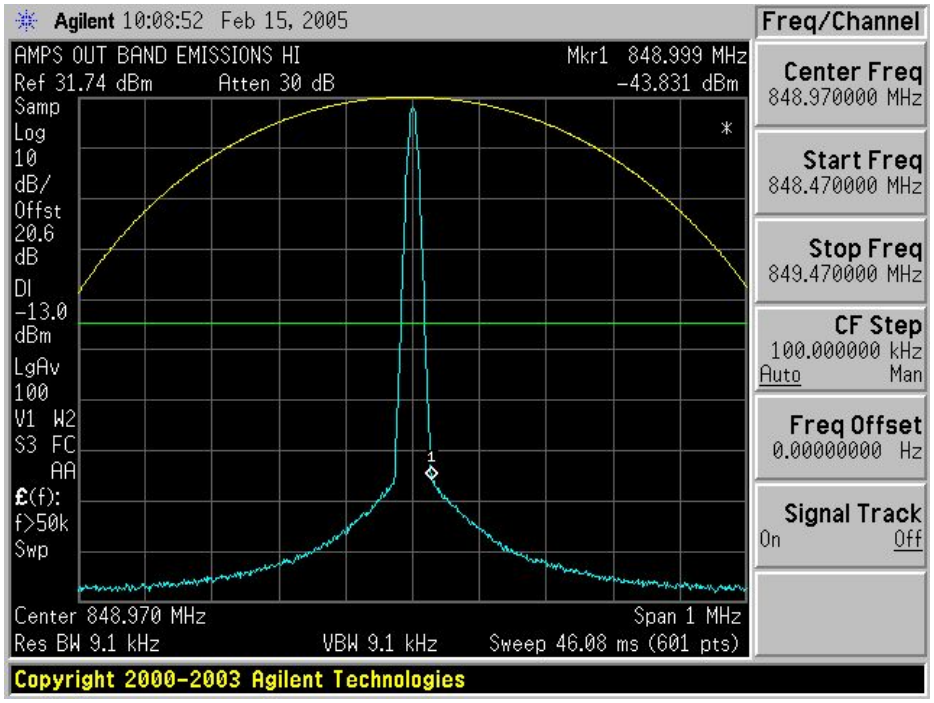
GSM – 848.8 MHz



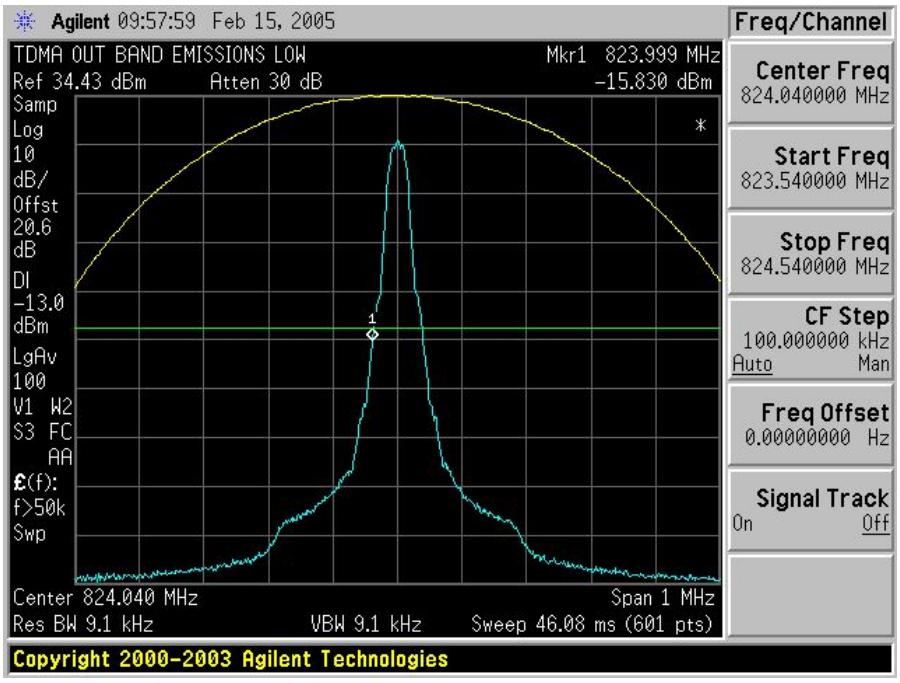
AMPS – 824 MHz



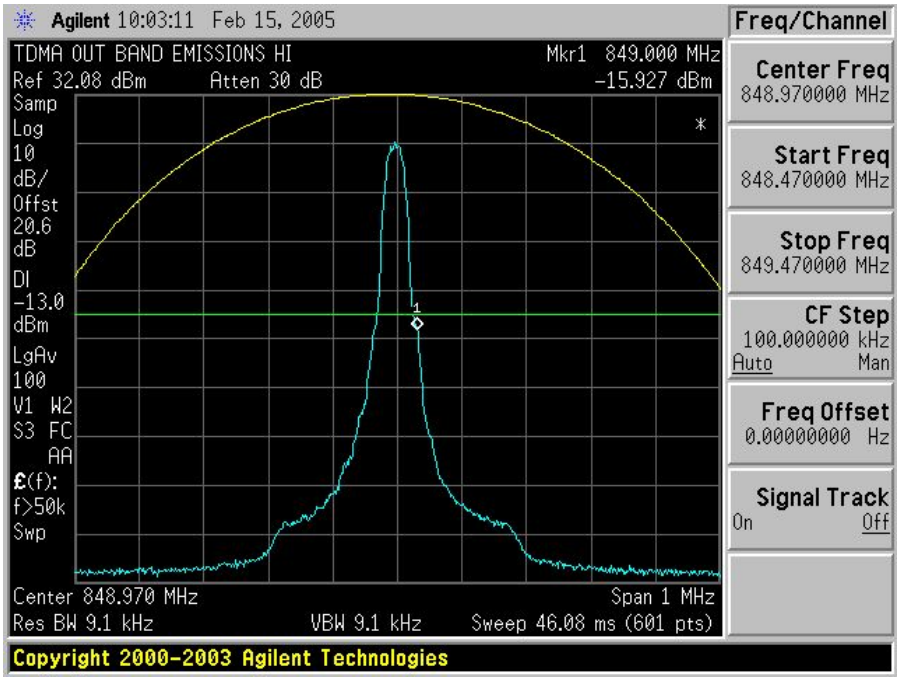
AMPS – 848.9 MHz



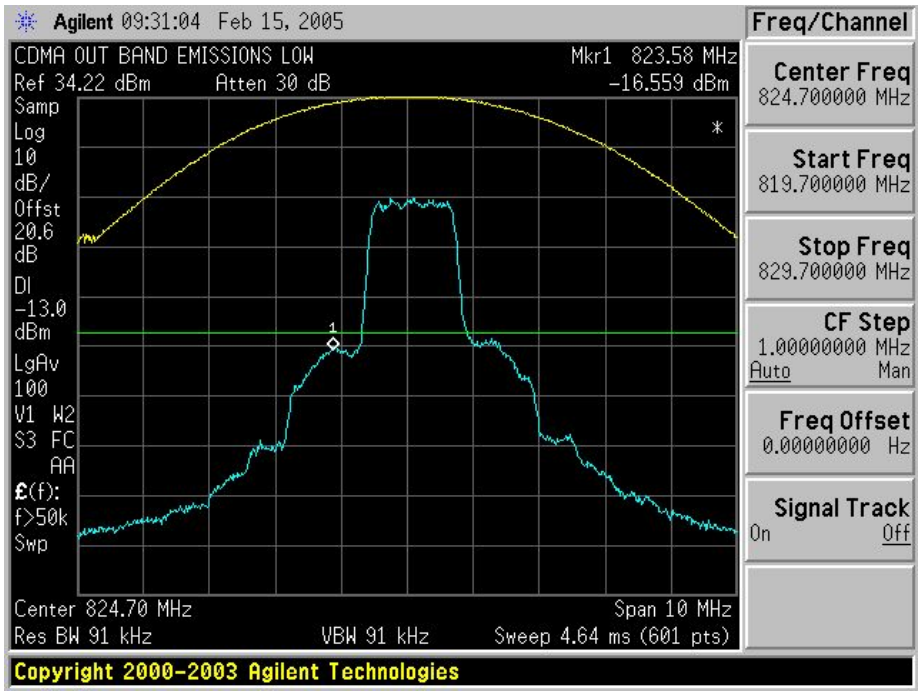
TDMA – 824 MHz



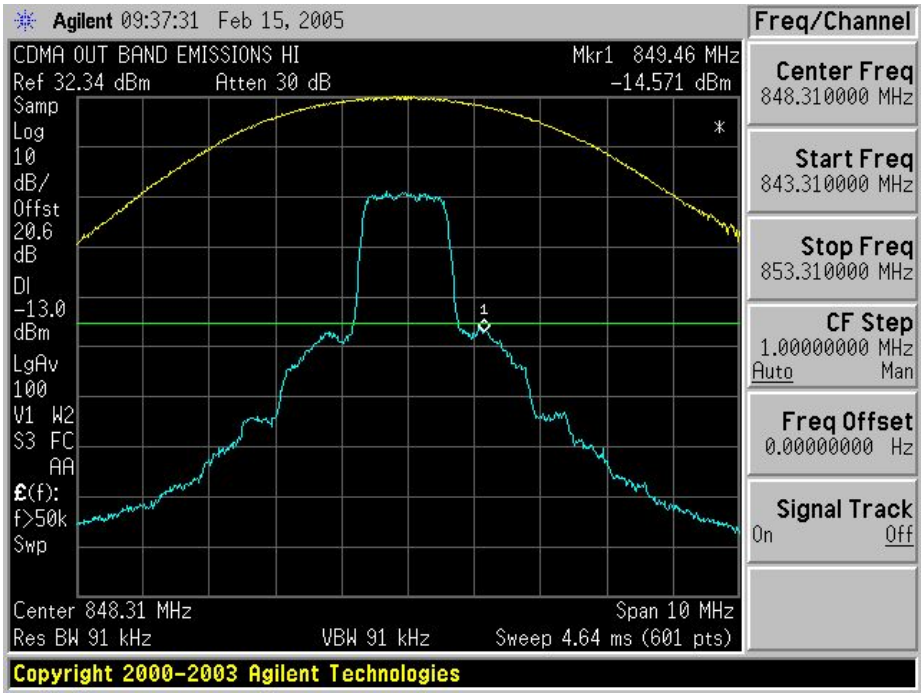
TDMA – 848.9 MHz



CDMA – 824.7 MHz



CDMA – 848.7 MHz



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2.1051 **Spurious emissions at antenna terminals (conducted):**

Data on the following page shows the level of conducted spurious responses. For analog modulation, the carrier was modulated 100% using a 2500 Hz tone. For digital modulation, the carrier is modulated to its maximum extent. The spectrum was scanned from 9kHz to at least the 10th harmonic of the fundamental. The measurements were made in accordance with standard TIA/EIA-603.

The following test equipment was used:
(1) PSA E4440 (Spectrum Analyzer) SN: MY410003101.
(2) ESG E4438C (Signal Generator) SN: MY42080661

TEST DATA:

TF	EF	dB below carrier
824	824	0.0
	1648	76.51
	2472	75.32
	3296	72.91
	4120	74.14
	4944	74.78
	5768	74.94
	6592	75.72
	7416	71.51
	8240	72.45

TF	EF	dB below carrier
836.5	836.5	0.0
	1673.0	76.60
	2509.5	75.98
	3346.0	72.76
	4182.5	75.06
	5019.0	74.54
	5855.5	74.52
	6692.0	73.48
	7528.5	73.06
	8365.0	72.82

TF	EF	dB below carrier
849	849	0.0
	1698	76.62
	2547	75.27
	3396	72.66
	4245	73.91
	5094	74.45
	5943	74.78
	6792	72.62
	7641	71.83
	8490	72.09

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Data on the following page shows the level of conducted spurious responses. For analog modulation, the carrier was modulated 100% using a 2500 Hz tone. For digital modulation, the carrier is modulated to its maximum extent. The spectrum was scanned from 9kHz to at least the 10th harmonic of the fundamental. The measurements were made in accordance with standard TIA/EIA-603.

The following test equipment was used:
(1) PSA E4440 (Spectrum Analyzer) SN: MY410003101.
(2) ESG E4438C (Signal Generator) SN: MY42080661

DOWNLINK TEST DATA:

TF	EF (GHz)	Level dBm
869	3.108	-67.86
881.5	1.761	-69.68
894	1.788	-68.85

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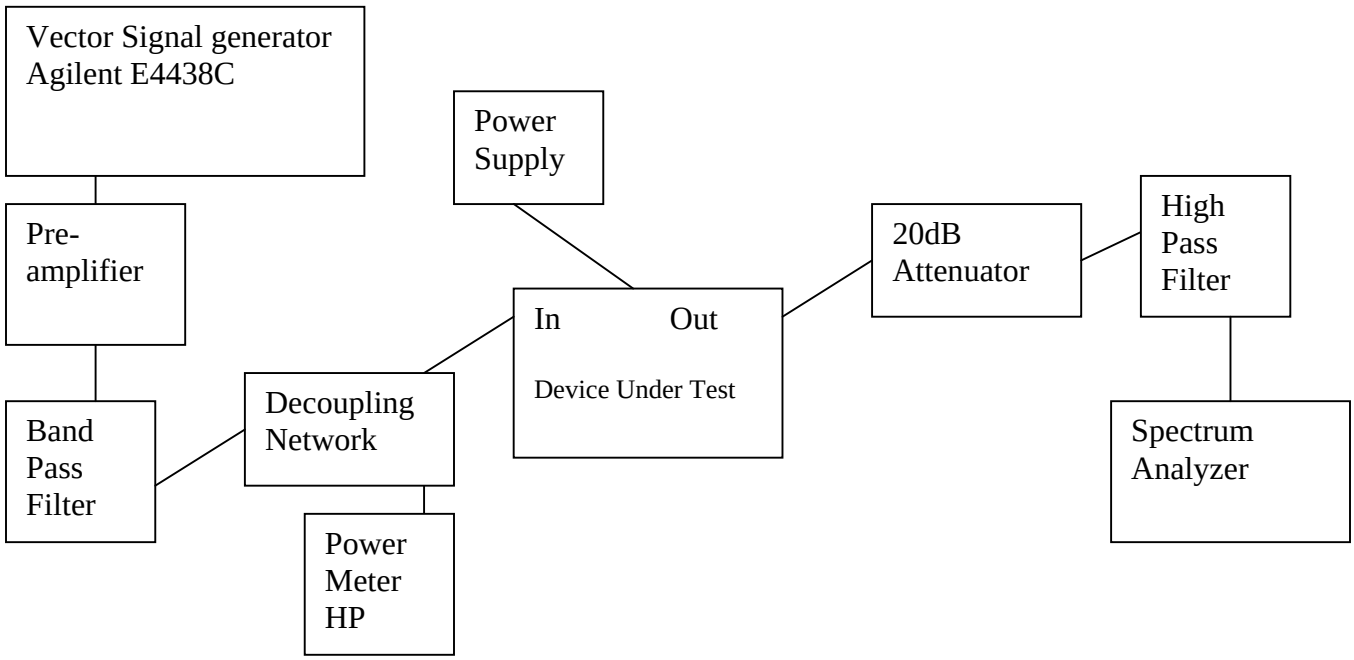
Method of Measuring Conducted Spurious Emissions



METHOD OF MEASUREMENT: The procedure used was TIA/EIA-603 STANDARD. The spectrum was scanned from 9kHz to at least the tenth harmonic of the fundamental using a HP model 8566B spectrum analyzer. The measurements were made using the shielded room located at TIMCO ENGINEERING INC. 849 N.W. State Road 45, Newberry, Florida 32669.

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2.1053 **Field strength of spurious emissions:**

NAME OF TEST: **RADIATED SPURIOUS EMISSIONS (824 MHz)**

REQUIREMENTS: Emissions must be 43 + 10log(Po) dB below the mean power output of the transmitter.

43 + 10log(3) = 47.80 dBc

TEST DATA:

Emission Frequency MHz	Ant. Polarity	Corrected EUT Signal Reading	Coax Loss (dB)	Substitution Antenna (dBd)	dB Below Carrier (dBc)
824.00		34.90	0	0	0
1648.00	H	-24.60	1.13	5.04	55.59
2472.00	H	-32.70	1.29	6.76	62.13
3296.00	V	-33.00	1.38	7.43	61.85
4120.00	V	-35.70	1.46	7.74	64.32
4944.00	H	-50.50	1.59	7.82	79.17
5768.00	V	-38.90	1.81	8.73	66.88
6592.00	H	-47.60	1.96	8.49	75.97
7416.00	V	-45.30	2	8.51	73.69
8240.00	H	-45.80	2.15	7.97	74.88

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2.1053 **Field strength of spurious emissions:**

NAME OF TEST: **RADIATED SPURIOUS EMISSIONS (836.5 MHz)**

REQUIREMENTS: Emissions must be 43 + 10log(Po) dB below the mean power output of the transmitter.

43 + 10log(3) = 47.80 dBc

TEST DATA:

Emission Frequency MHz	Ant. Polarity	Corrected EUT Signal Reading	Coax Loss (dB)	Substitution Antenna (dBd)	dB Below Carrier (dBc)
836.50		34.90	0	0	0
1673.00	H	-25.40	1.13	5.05	56.38
2509.50	H	-34.00	1.3	6.86	63.34
3346.00	H	-34.70	1.38	7.46	63.52
4182.50	V	-27.60	1.47	7.84	56.13
5019.00	V	-38.20	1.6	7.77	66.93
5855.50	V	-48.30	1.84	8.85	76.19
6692.00	H	-50.50	1.97	8.21	79.16
7528.50	H	-44.70	2.01	8.67	72.94
8365.00	V	-47.80	2.17	8.3	76.57

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2.1053 **Field strength of spurious emissions:**

NAME OF TEST: **RADIATED SPURIOUS EMISSIONS (849 MHz)**

REQUIREMENTS: Emissions must be 43 + 10log(Po) dB below the mean power output of the transmitter.

43 + 10log(3) = 47.80 dBc

TEST DATA:

Emission Frequency MHz	Ant. Polarity	Corrected EUT Signal Reading	Coax Loss (dB)	Substitution Antenna (dBd)	dB Below Carrier (dBc)
849.00		34.90	0	0	0
1698.00	H	-27.60	1.14	5.07	58.57
2547.00	H	-33.00	1.3	6.89	62.31
3396.00	H	-35.50	1.39	7.49	64.3
4245.00	H	-31.20	1.47	7.94	59.63
5094.00	V	-44.80	1.62	7.86	73.46
5943.00	V	-50.10	1.88	8.97	77.91
6792.00	H	-45.50	1.98	7.93	74.45
7641.00	H	-45.10	2.03	8.36	73.67
8490.00	H	-45.40	2.2	8.62	73.88

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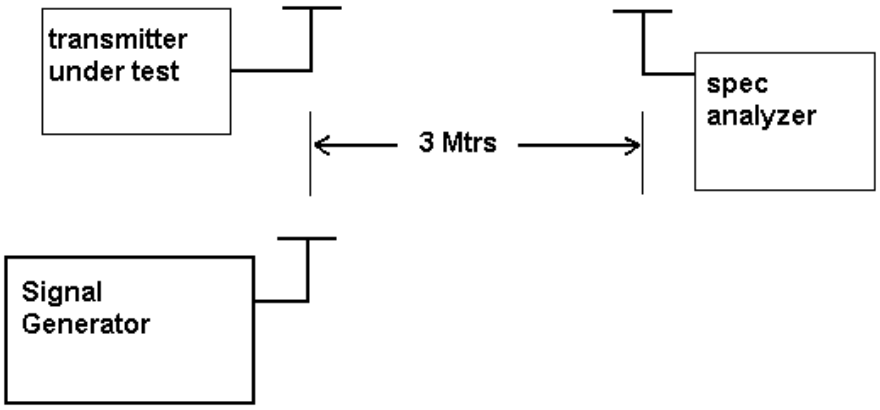
Method of Measuring Radiated Spurious Emissions



METHOD OF MEASUREMENTS: The tabulated data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental. This test was conducted per TIA/EIA STANDARD 603 using the substitution method. Measurements were made at the open field test site of TIMCO ENGINEERING, INC. located at 849 NW State Road 45, Newberry, FL 32669.

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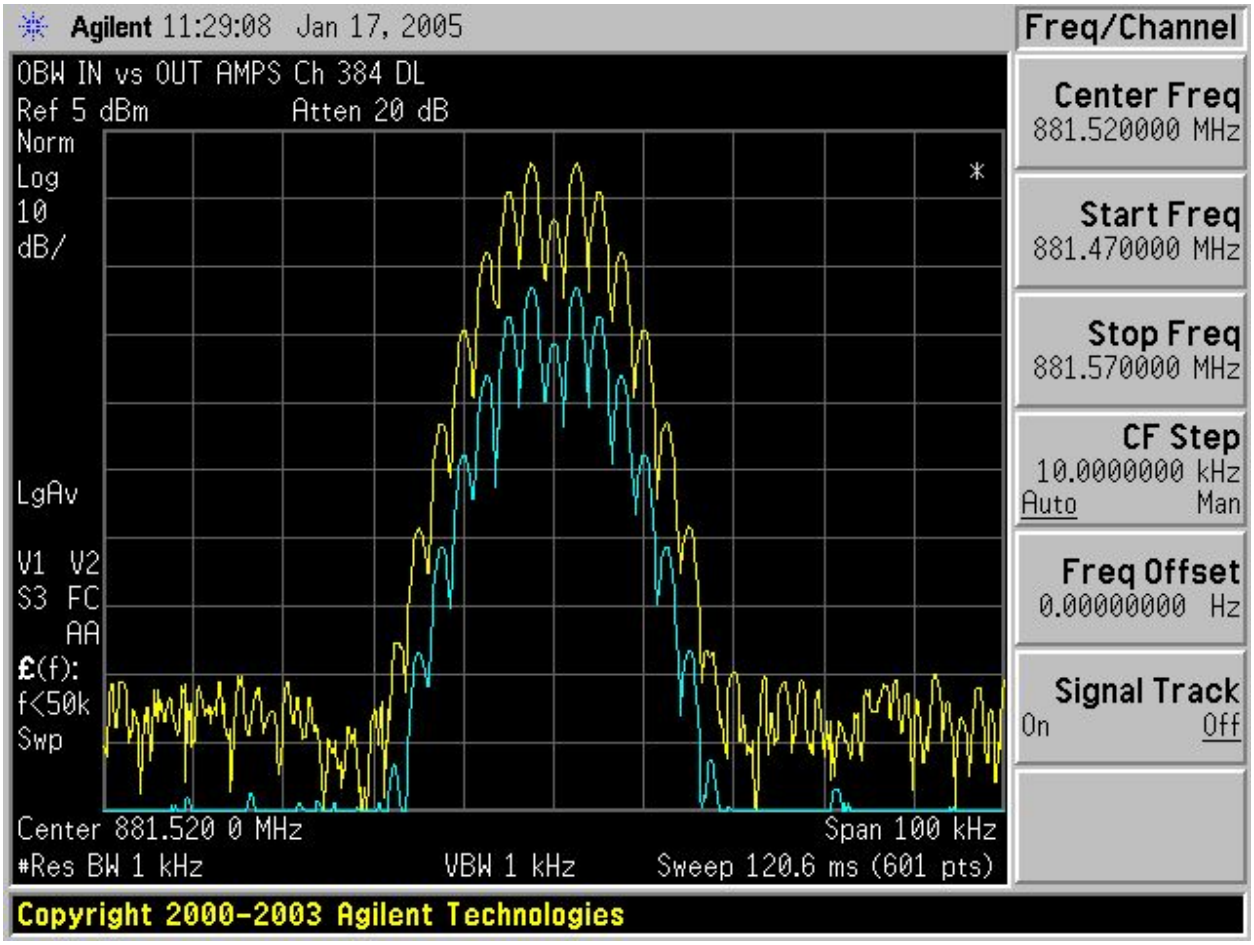
Input/Output modulated amplitude comparison –

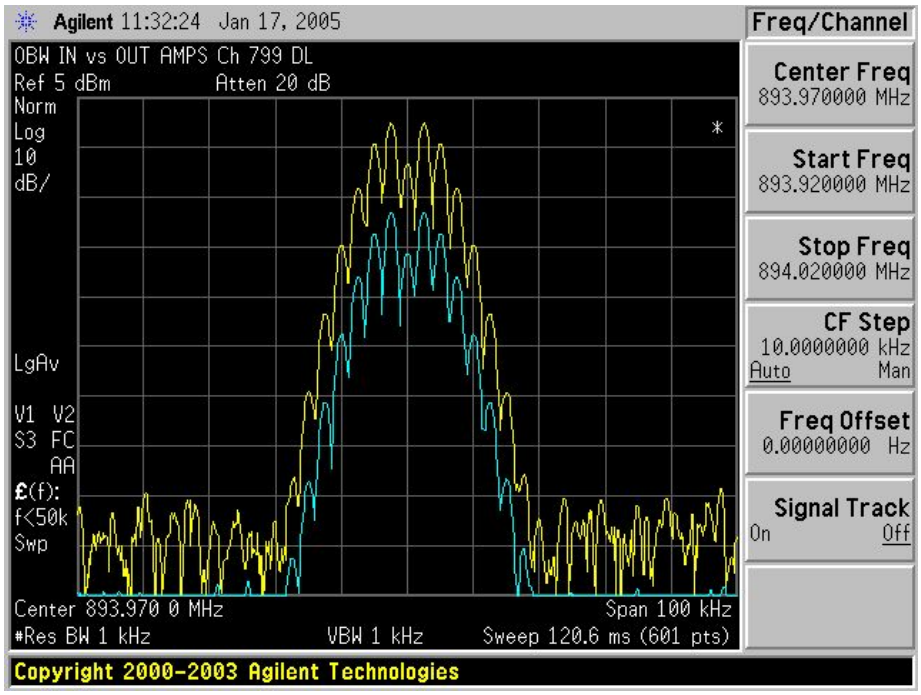
On the following plot, the Reference level was calibrated using a Resolution Bandwidth wider than the emission bandwidth. First the gain was measured for the maximum output power. Then for each frequency and type of modulation, an attenuation equal to the gain of the amplifier was added on the measurement side of the amplifier, as to overlay the input versus output modulated envelope.

Downlink occupied BW:

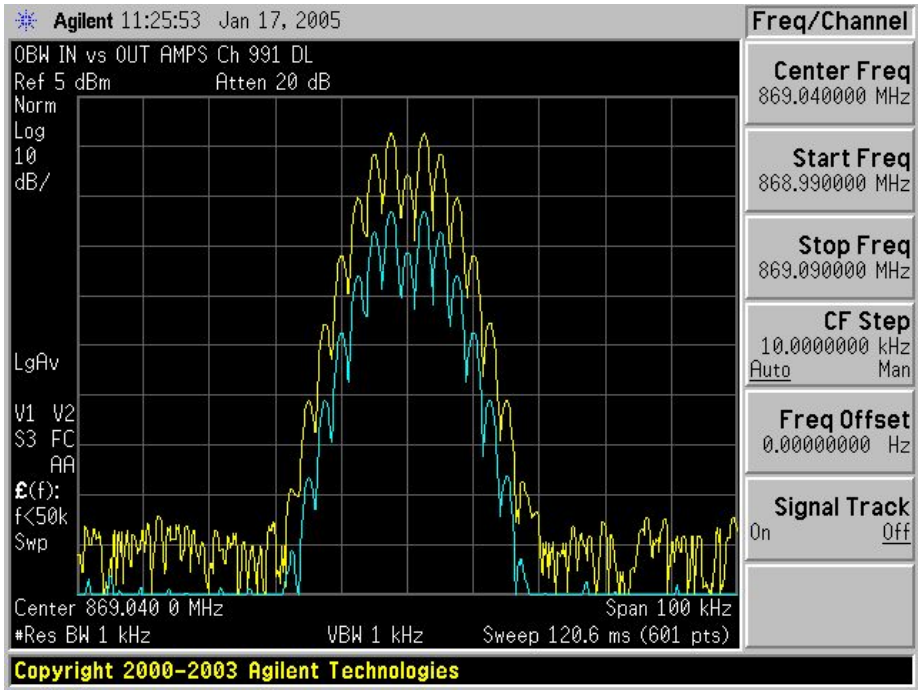
AMPS



AMPS


Agilent 11:32:24 Jan 17, 2005
Freq/Channel
OBW IN vs OUT AMPS Ch 799 DL
Ref 5 dBm
Atten 20 dB
Norm
Log
10
dB/
LgAv
V1 V2
S3 FC
AA
£(f):
f<50k
Swp
Center Freq
893.970000 MHz
Start Freq
893.920000 MHz
Stop Freq
894.020000 MHz
CF Step
10.0000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 893.970 0 MHz
Span 100 kHz
#Res BW 1 kHz
VBW 1 kHz
Sweep 120.6 ms (601 pts)
Copyright 2000-2003 Agilent Technologies

AMPS


Agilent 11:25:53 Jan 17, 2005
Freq/Channel
OBW IN vs OUT AMPS Ch 991 DL
Ref 5 dBm
Atten 20 dB
Norm
Log
10
dB/
LgAv
V1 V2
S3 FC
AA
£(f):
f<50k
Swp
Center Freq
869.040000 MHz
Start Freq
868.990000 MHz
Stop Freq
869.090000 MHz
CF Step
10.0000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 869.040 0 MHz
Span 100 kHz
#Res BW 1 kHz
VBW 1 kHz
Sweep 120.6 ms (601 pts)
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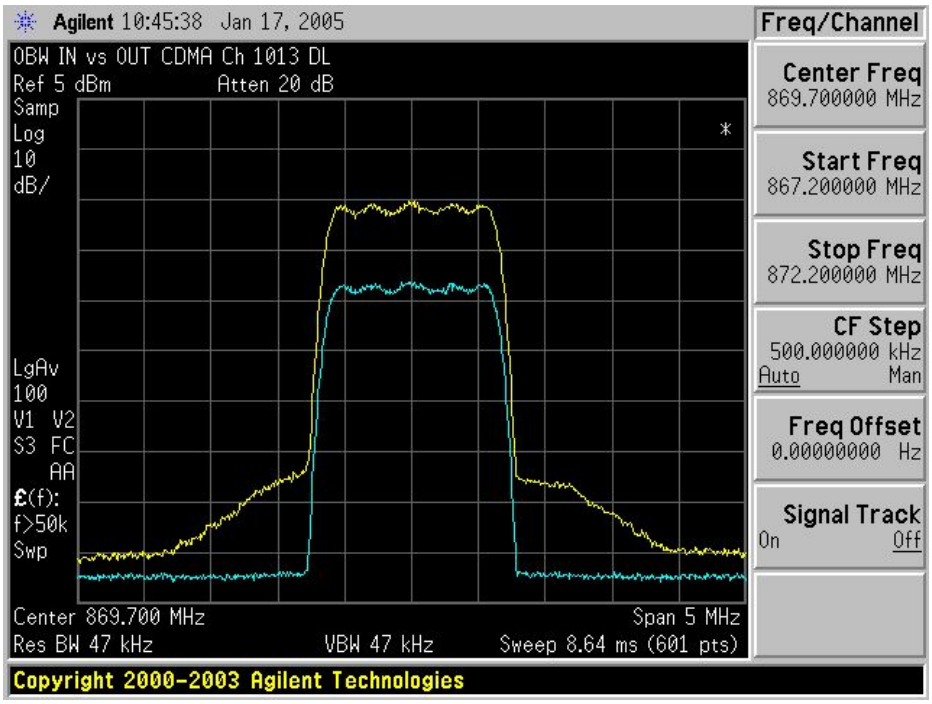
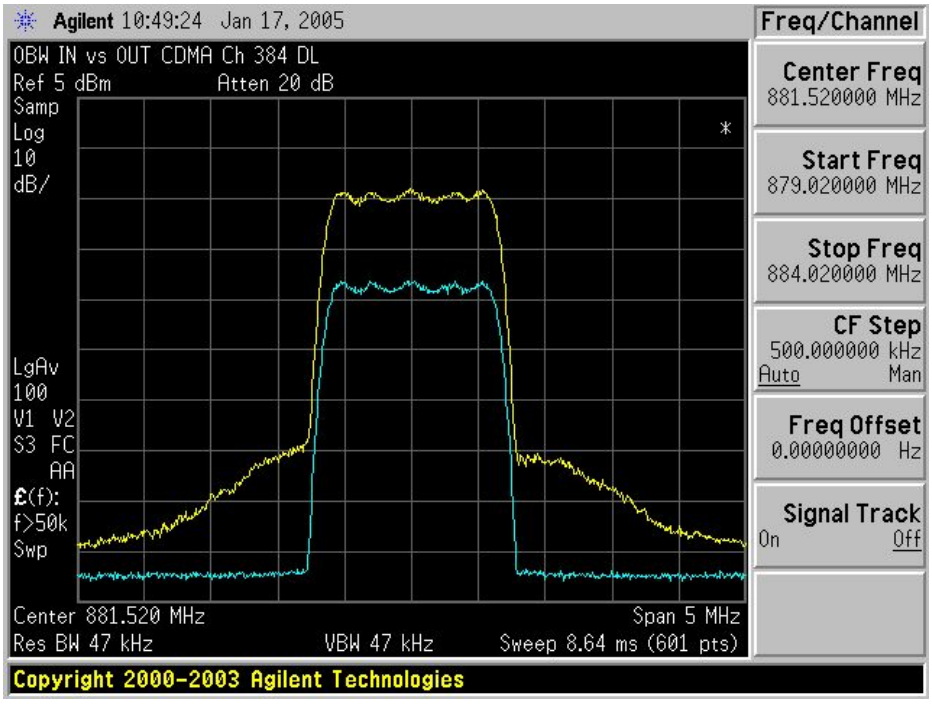
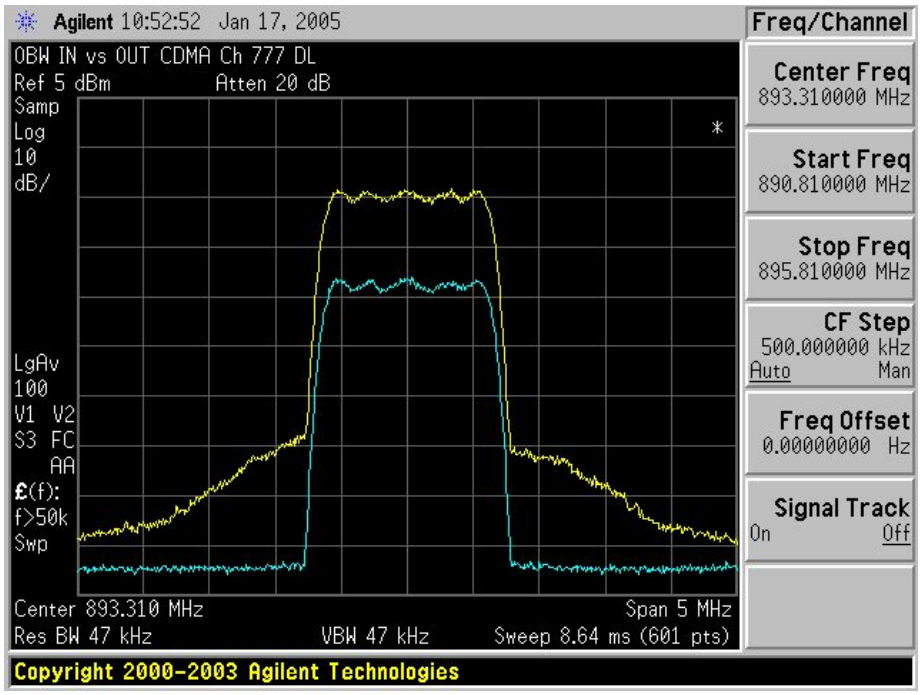
CDMA



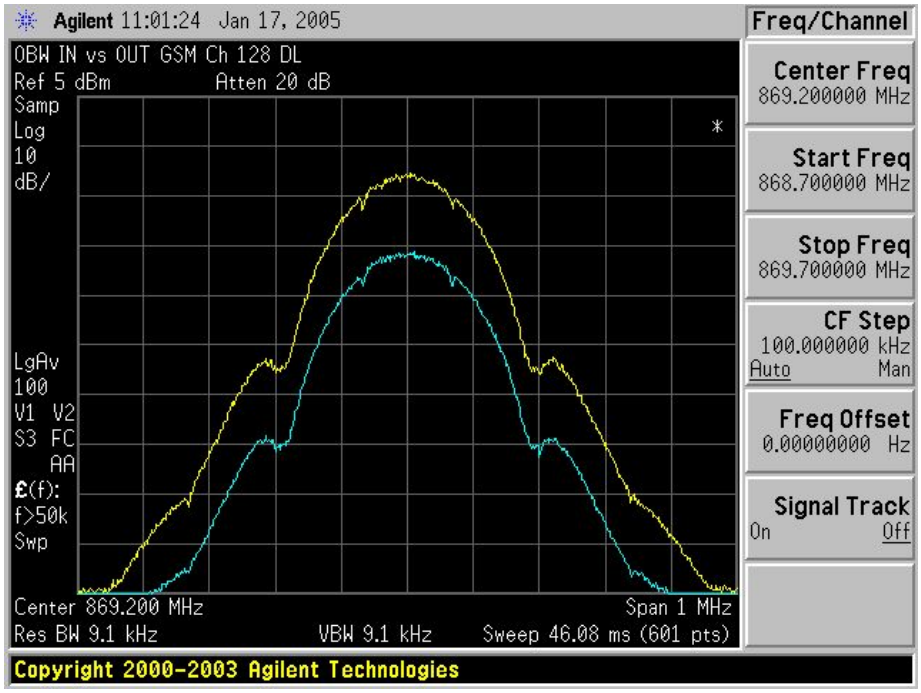
CDMA



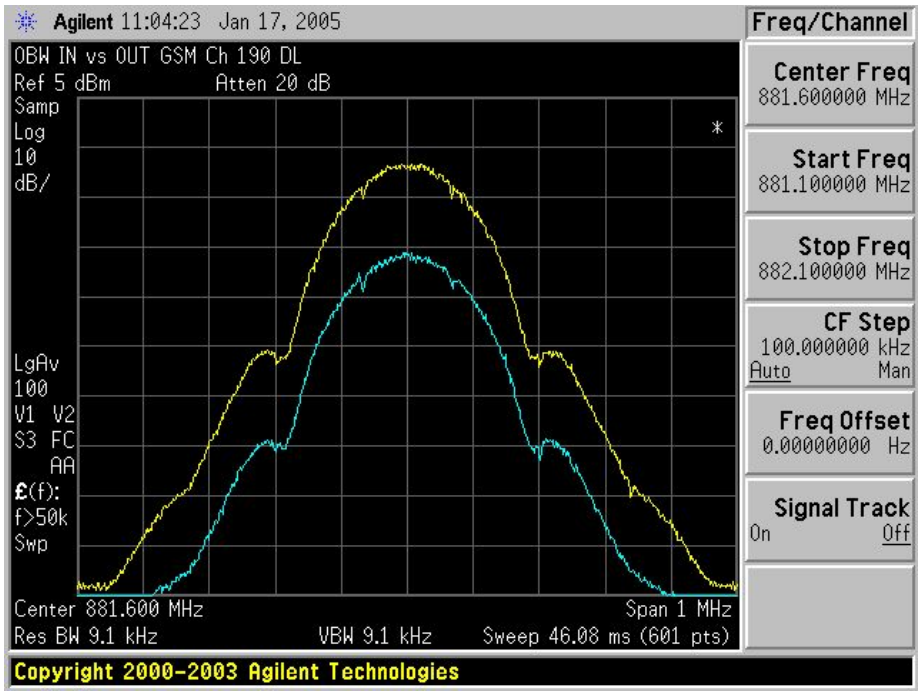
CDMA


Agilent 10:52:52 Jan 17, 2005
Freq/Channel
OBW IN vs OUT CDMA Ch 777 DL
Ref 5 dBm
Atten 20 dB
Samp
Log
10
dB/
LgAv
100
V1 V2
S3 FC
AA
£(f):
f>50k
Swp
Center Freq
893.310000 MHz
Start Freq
890.810000 MHz
Stop Freq
895.810000 MHz
CF Step
500.000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 893.310 MHz
Span 5 MHz
Res BW 47 kHz
VBW 47 kHz
Sweep 8.64 ms (601 pts)
Copyright 2000-2003 Agilent Technologies

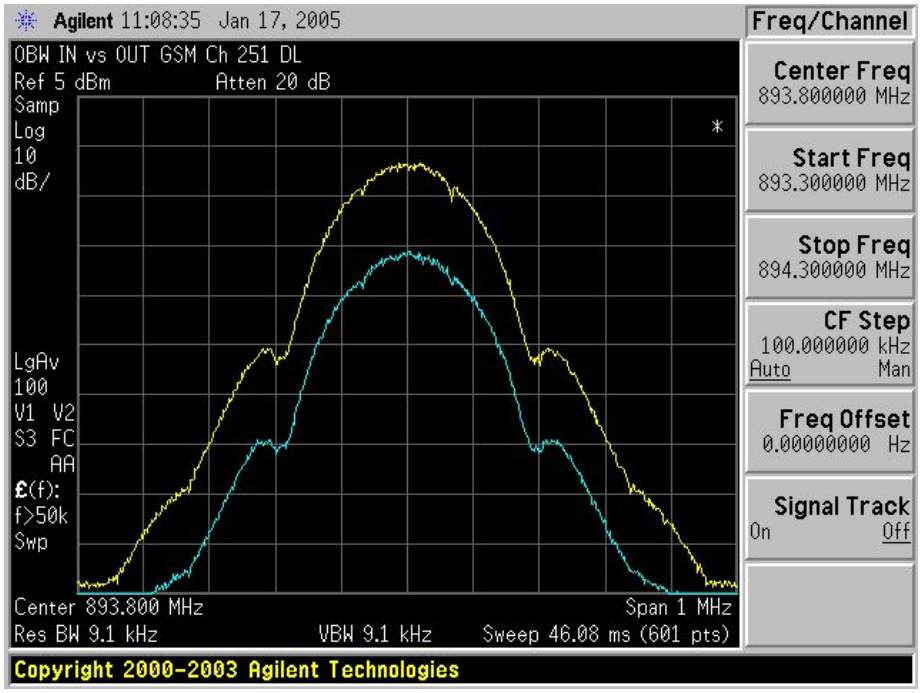
GSM


Agilent 11:01:24 Jan 17, 2005
Freq/Channel
OBW IN vs OUT GSM Ch 128 DL
Ref 5 dBm
Atten 20 dB
Samp
Log
10
dB/
LgAv
100
V1 V2
S3 FC
AA
£(f):
f>50k
Swp
Center Freq
869.200000 MHz
Start Freq
868.700000 MHz
Stop Freq
869.700000 MHz
CF Step
100.000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 869.200 MHz
Span 1 MHz
Res BW 9.1 kHz
VBW 9.1 kHz
Sweep 46.08 ms (601 pts)
Copyright 2000-2003 Agilent Technologies

GSM


Agilent 11:04:23 Jan 17, 2005
Freq/Channel
OBW IN vs OUT GSM Ch 190 DL
Ref 5 dBm
Atten 20 dB
Samp
Log
10
dB/
LgAv
100
V1 V2
S3 FC
AA
£(f):
f>50k
Swp
Center Freq
881.600000 MHz
Start Freq
881.100000 MHz
Stop Freq
882.100000 MHz
CF Step
100.000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 881.600 MHz
Span 1 MHz
Res BW 9.1 kHz
VBW 9.1 kHz
Sweep 46.08 ms (601 pts)
Copyright 2000-2003 Agilent Technologies

GSM


Agilent 11:08:35 Jan 17, 2005
Freq/Channel
OBW IN vs OUT GSM Ch 251 DL
Ref 5 dBm
Atten 20 dB
Samp
Log
10
dB/
LgAv
100
V1 V2
S3 FC
AA
£(f):
f>50k
Swp
Center Freq
893.800000 MHz
Start Freq
893.300000 MHz
Stop Freq
894.300000 MHz
CF Step
100.000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 893.800 MHz
Span 1 MHz
Res BW 9.1 kHz
VBW 9.1 kHz
Sweep 46.08 ms (601 pts)
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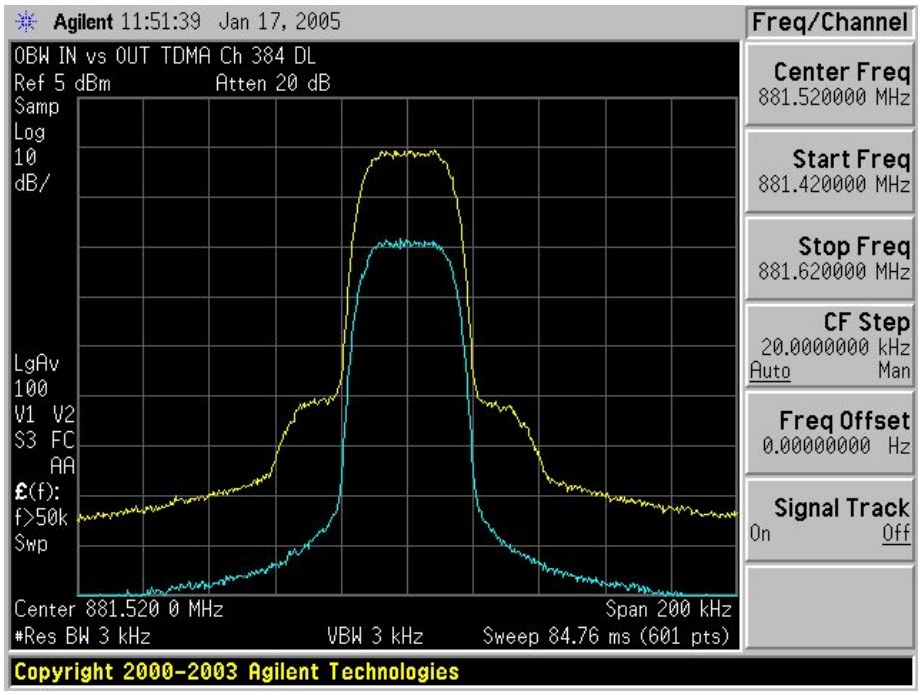
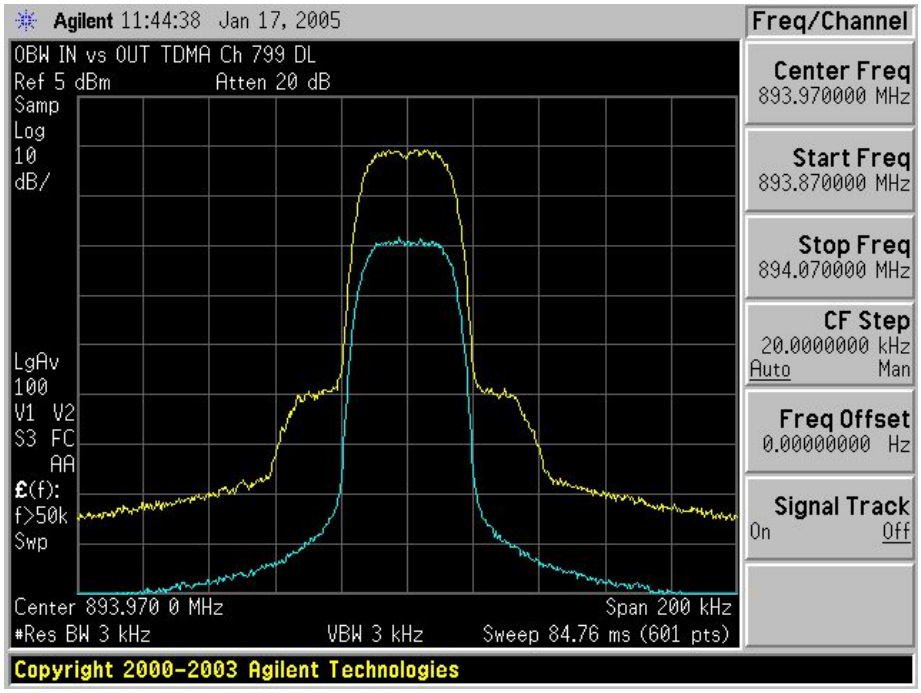
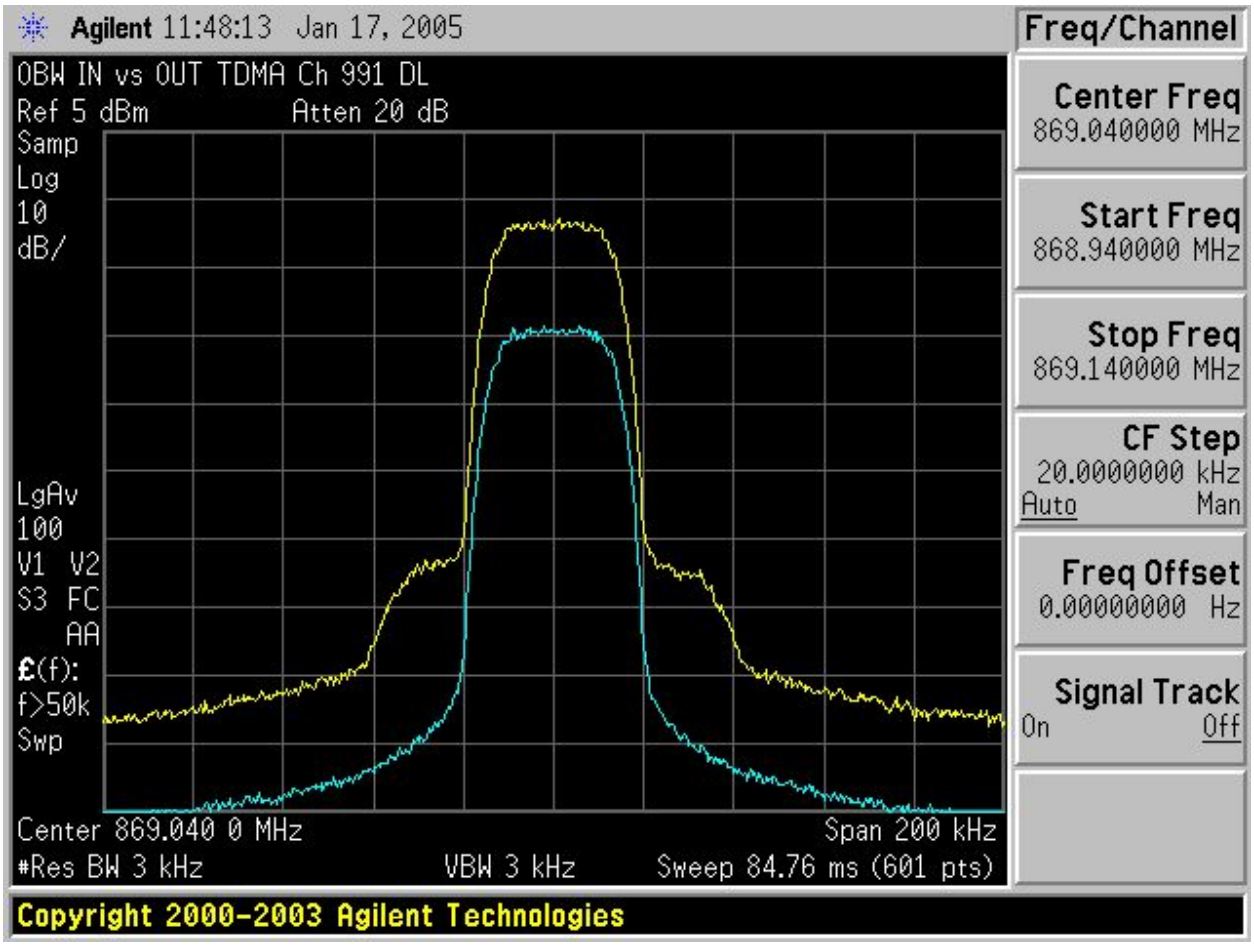
TDMA



TDMA



TDMA


Agilent 11:48:13 Jan 17, 2005
OBW IN vs OUT TDMA Ch 991 DL
Ref 5 dBm
Atten 20 dB
Samp
Log
10
dB/
LgAv
100
V1 V2
S3 FC
AA
£(f):
f>50k
Swp
Center 869.040 0 MHz
#Res BW 3 kHz
VBW 3 kHz
Span 200 kHz
Sweep 84.76 ms (601 pts)
Freq/Channel
Center Freq
869.040000 MHz
Start Freq
868.940000 MHz
Stop Freq
869.140000 MHz
CF Step
20.0000000 kHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Copyright 2000-2003 Agilent Technologies

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EMC Equipment List

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date or Status
3-Meter OATS	TEI	N/A	N/A	Listed 1/13/03	1/12/06
3/10-Meter OATS	TEI	N/A	N/A	Listed 3/27/04	3/26/07
Tan Tower Spectrum Analyzer	HP	8566B Opt 462	3138A07786 3144A20661	CAL 9/23/03	9/23/05
Tan Tower RF Preselector	HP	85685A	3221A01400	CAL 9/23/03	9/23/05
Tan Tower Quasi-Peak Adapter	HP	85650A	3303A01690	CAL 9/23/03	9/23/05
Tan Tower Preamplifier	HP	8449B-H02	3008A00372	CAL 9/23/03	9/23/05
Blue Tower Spectrum Analyzer	HP	8568B	2928A04729 2848A18049	CAL 4/15/03	4/15/05
Blue Tower RF Preselector	HP	85685A	2620A00294	CAL 4/27/04	4/27/06
Blue Tower Quasi-Peak Adapter	HP	85650A	2811A01279	CAL 4/15/03	4/15/05
Silver Tower Spectrum Analyzer	HP	8566B Opt 462	3552A22064 3638A08608	CAL 3/22/04	3/22/06
Silver Tower RF Preselector	HP	85685A	2926A00983	CAL 3/22/04	3/22/06
Silver Tower Quasi-Peak Adapter	HP	85650A	3303A01844	CAL 3/22/04	3/22/06
Silver Tower Preamplifier	HP	8449B	3008A01075	CAL 3/22/04	3/22/06
Biconnical Antenna	Electro-Metrics	BIA-25	1171	CAL 4/26/01	4/26/03
Biconnical Antenna	Eaton	94455-1	1096	CAL 8/17/04	8/17/06
Biconnical Antenna	Eaton	94455-1	1057	CAL 3/18/03	3/18/05
BiconiLog Antenna	EMCO	3143	9409-1043	No Cal Required	
Log-Periodic Antenna	Electro-Metrics	LPA-25	1122	CAL 8/26/04	8/26/06
Log-Periodic Antenna	Electro-Metrics	LPA-30	409	CAL 3/4/03	3/4/05
Log-Periodic Antenna	Eaton	96005	1243	CAL 5/8/03	5/8/05

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date or Status
Dipole Antenna Kit	Electro-Metrics	TDA-30/1-4	152	CAL 3/21/01	3/21/04
Dipole Antenna Kit	Electro-Metrics	TDA-30/1-4	153	CAL 9/26/02	9/26/05
Double-Ridged Horn Antenna	Electro-Metrics	RGA-180	2319	CAL 2/17/03	2/17/05
Horn Antenna *(at 3 meters)	Electro-Metrics	EM-6961	6246	CAL 3/31/03	3/31/05
Horn Antenna *(at 10 meters)	Electro-Metrics	EM-6961	6246	CAL 6/4/03	6/4/05
Passive Loop Antenna	EMC Test Systems	EMCO 6512	9706-1211	CHAR 7/10/01	7/10/03
Harmonic Mixer with Horn Antenna	Oleson Microwave Labs	M08HW/A	F30425-1	CHAR 4/25/03	4/25/05
Harmonic Mixer with Horn Antenna	Oleson Microwave Labs	M12HW/A	E30425-1	CHAR 4/25/03	4/25/05
LISN	Electro-Metrics	ANS-25/2	2604	CAL 8/27/04	8/27/06
LISN	Electro-Metrics	EM-7820	2682	CAL 3/12/03	3/12/05
Termaline Wattmeter	Bird Electronic Corporation	611	16405	CAL 7/16/04	7/16/06
Termaline Wattmeter	Bird Electronic Corporation	6104	1926	CAL 7/16/04	7/16/06
Oscilloscope	Tektronix	2230	300572	CAL 7/3/03	7/3/05
System One	Audio Precision	System One	SYS1-45868	CHAR 4/25/02	4/25/04
Temperature Chamber	Tenney Engineering	TTRC	11717-7	CHAR 1/22/02	1/22/04
AC Voltmeter	HP	400FL	2213A14499	CAL 7/19/04	7/19/06
AC Voltmeter	HP	400FL	2213A14261	CHAR 10/15/01	10/15/03
AC Voltmeter	HP	400FL	2213A14728	CHAR 10/15/01	10/15/03
Digital Multimeter	Fluke	77	35053830	CHAR 1/8/02	1/8/04
Digital Multimeter	Fluke	77	43850817	CHAR 1/8/02	1/8/04
Digital Multimeter	HP	E2377A	2927J05849	CHAR	1/8/04

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date or Status
				1/8/02	
Multimeter	Fluke	FLUKE-77-3	79510405	CHAR 9/26/01	9/26/03
Peak Power Meter	HP	8900C	2131A00545	CAL 7/2/03	7/2/05
Power Sensor	Agilent Technologies	84811A	2551A02705	CAL 7/2/03	7/2/05
Power Meter	HP	432A	1141A07655	CAL 4/15/03	4/15/05
Power Sensor	HP	478A	72129	CAL 4/15/03	4/15/05
Power Meter And Sensor	Bird	4421-107 & 4022	0166 & 0218	CAL 4/16/03	4/16/05
Digital Thermometer	Fluke	2166A	42032	CAL 7/19/04	7/19/06
Thermometer	Traulsen	SK-128		CHAR 1/22/02	1/22/04
Thermometer	Extech	4028	14871-2	CAL 3/7/03	3/7/05
Hygro-Thermometer	Extech	445703	0602	CAL 10/4/02	10/4/04
Frequency Counter	HP	5352B	2632A00165	CAL 8/3/04	8/3/06
Frequency Counter	HP	5385A	2730A03025	CAL 3/7/03	3/7/05
Service Monitor	IFR	FM/AM 500A	5182	CAL 11/22/00	Out of Service
Comm. Serv. Monitor	IFR	FM/AM 1200S	6593	CAL 5/12/02	5/12/04
Signal Generator	HP	8640B	2308A21464	CAL 8/26/04	8/26/06
Sweep Generator	Wiltron	6648	101009	CAL 4/15/03	4/15/05
Sweep Generator	Wiltron	6669M	007005	CAL 3/3/03	3/3/05
Modulation Analyzer	HP	8901A	3435A06868	CAL 9/5/01	9/5/03
Modulation Meter	Boonton	8220	10901AB	CAL 4/15/03	4/15/05
Near Field Probe	HP	HP11940A	2650A02748	CHAR 2/1/01	Out of Service
BandReject Filter	Lorch Microwave	5BR4-2400/60-N	Z1	CHAR 4/17/03	4/17/05

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date or Status
BandReject Filter	Lorch Microwave	6BR6-2442/300-N	Z1	CHAR 4/17/03	4/17/05
BandReject Filter	Lorch Microwave	5BR4-10525/900-S	Z1	CHAR 4/12/03	4/12/05
Notch Filter	Lorch Microwave	5BRX-850/X100-N	AD-1	CHAR 4/17/03	4/17/05
High Pass Filter	Unk	3768(5)-400	041	CHAR 12/17/02	12/17/04
High Pass Filter	Microlab	HA-10N		CHAR 11/17/02	11/17/04
High Pass Filter	Microlab	HA-20N		CHAR 12/17/02	12/17/04
Audio Oscillator	HP	653A	832-00260	CHAR 12/1/02	12/1/04
Audio Generator	B&K Precision	3010	8739686	CHAR 12/1/02	12/1/04
Frequency Counter	HP	5382A	1620A03535	CHAR 3/2/01	Out of Service
Frequency Counter	HP	5385A	3242A07460	CAL 3/7/03	3/7/05
Amplifier	HP	11975A	2738A01969	No Cal Required	
Egg Timer	Unk			CHAR 2/1/02	2/1/04
Measuring Tape-20M	Kraftixx	0631-20		CHAR 2/1/02	2/1/04
Measuring Tape-7.5M	Kraftixx	7.5M PROFI		CHAR 2/1/02	2/1/04
Coaxial Cable #51	Insulated Wire Inc.	NPS 2251-2880	Timco #51	CHAR 1/23/02	1/23/04
Coaxial Cable #64	Semflex Inc.	60637	Timco #64	CHAR 1/24/02	1/24/04
Coaxial Cable #65	General Cable Co.	E9917 RG233/U	Timco #65	CHAR 1/23/02	1/23/04
Coaxial Cable #106	Unknown	Unknown	Timco #106	CHAR 1/23/02	1/23/04
Injection Probe	Fischer Custom Communications	F-120-9A	270	CAL 6/1/01	6/1/03
Power Line Coupling/Decoupling Network	Fischer Custom Communications	FCC-801-M2-16A	01048	CAL 8/29/01	8/29/03
Power Line Coupling/Decoupling	Fischer Custom Communications	FCC-801-M3-16A	01060	CAL 8/29/01	8/29/03

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date or Status
Network					
VHF/UHF Current Probe	Fischer Custom Communications	F-52	130	CAL 8/30/01	8/30/03
Passive Impedance Adapter	Fischer Custom Communications	FCC-801-150-50-CDN	01117 & 01118	CAL 8/29/01	8/29/03
Radiating Field Coil	Fischer Custom Communications	F-1000-4-8/9/10-L-1M	9859	CAL 10/15/98	10/15/00
EMC Immunity Test System	Keytek	CEMASTER	9810210	CAL 2/1/02	2/1/04
Compliance Test System - AC Power Source	California Instruments	1251RP	L05865	CAL 2/25/04	2/25/06
Compliance Test System - PACS-1 Module	California Instruments	PACS-1	X71484	CAL 2/25/04	2/25/06
Isotropic Field Probe	Amplifier Research	FP5000	22839		
Isotropic Field Probe	Amplifier Research	FP5000	300103		
Capacitor Clamp	Keytek	CM-CCL	9811359	No Cal Required	
Amplifier	Amplifier Research	10W1000B	23117	No Cal Required	
Field Monitor	Amplifier Research	FM5004	22288	No Cal Required	
ELF Meter	F. W. Bell	4060	Not Serialized		Out of Service
Standard Gain Horn 1.0-2.4 GHz	Polarad	CA-L	235	No Cal Required	
Standard Gain Horn 2.14-4.34 GHz	Polarad	CA-S	203	No Cal Required	
Standard Gain Horn 3.95-5.85 GHz	Scientific-Atlanta Inc.	11A-3.9	8448CG	No Cal Required	
Standard Gain Horn 8.2-12.5 GHz	Systron Donner	DBG-520-20	Not Serialized	No Cal Required	
Standard Gain Horn 18.0-26.3 GHz	Systron Donner	DBE-520-20	Not Serialized	No Cal Required	
Standard Gain Horn 26.5-40.2 GHz	Systron Donner	DBD-520-20	Not Serialized	No Cal Required	
Standard Gain Horn 40.0-60.0 GHz	ATM	19-443-6R	Not Serialized	No Cal Required	
Double-Ridged Horn Antenna	EMCO	3116	9011-2145		Out of Service

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date or Status
Standard Gain Horn 12.4-18.0 GHz	ATM	62-442-6	D262108-01	No Cal Required	
Standard Gain Horn 5.85-8.2 GHz	ATM	137-442-2	D261908-01	No Cal Required	
AC Voltmeter	HP	400F	0950A05433	CAL 8/13/03	8/13/05
RF Power Amplifier	Ophir RF	5150F	1041 'X1'	No Cal Required	
Electric Field Sensor	Amplifier Research	FP6001	302504		
Electric Field Sensor	Amplifier Research	FP6001	302510	CAL 6/1/04	6/1/06
Surge Generator	Com-Power Corporation	SG-168	25802	CAL 2/27/04	2/27/06
RF Power Amplifier	Ophir RF, Inc.	5150F	1041	CHAR 10/31/03	10/31/05
3-Meter Anechoic Chamber	Panashield	N/A	N/A	Listed 5/12/04	5/11/07
Digital Multimeter	Fluke	77III	79510408	CAL 7/19/04	7/19/06
Open-Frame Tower Spectrum Analyzer	HP	8566B/85662A	2627A03154/2648A14276	CAL 7/9/04	7/9/06
Open-Frame Tower RF Preselector	HP	85685A	3107A01282	CAL 7/9/04	7/9/06
Open-Frame Tower Quasi-Peak Adapter	HP	85650A	2046A00305	CAL 7/9/04	7/9/06
Signal Generator	HP	8648C	3847A04696	CAL 9/27/04	9/27/06