Equipment Authorization Measurements

FCC Identifier: IHET6EQ1
Name of Grantee: Motorola, Inc
Equipment Class: Licensed Non-Broadcast Transmitter
Notes: SC4812ET 1X/1X-EVDO @ 1.9 GHz CDMA BTS

FCC CFR Title 47	Description	Section	Compliant
2.1046	RF Output Power	A	Yes
2.1047	Modulation Characteristics	B	Yes
2.1049	Occupied Bandwidth	C	Yes
2.1051	Spurious Emissions at Antenna Terminals	D	Yes
2.1053	Field Strength of Spurious Radiation	E	Yes
2.1055	Frequency Stability	F	Yes

Measurements Performed by:

Motorola EMC Facility
5555 North Beach Street
Fort Worth, TX 76137
Authorized Testing Laboratory
FCC Test Firm Registration No. 90809

Test Engineer **FCC/Package Coordination**

Global Telecom Solutions Sector, 5555 North Beach Street TX14-7C, Fort Worth, Texas
Telephone (817) 245-6039, Fax (817) 245-6248, Email wlmv00@email.mot.com

SECTION A

RF Output Power - 47CFR2.1046

Channel	Tune Frequency (MHz)	Modulation	Power Level (W)	Power Level (dBm)	Power Level Measured (dBm)	IS-97 Limit (dB)	Pass/Fail
25	1931.25	1X-QPSK	45	46.53	46.12	+2/-4	Pass
25	1931.25	1X-DO-16QAM	45	46.53	46.51	+2/-4	Pass
25	1931.25	1X-DO-8PSK	45	46.53	46.41	+2/-4	Pass
1175	1988.75	1X-QPSK	45	46.53	46.74	+2/-4	Pass
1175	1988.75	1X-DO-16QAM	45	46.53	46.86	+2/-4	Pass
1175	1988.75	1X-DO-8PSK	45	46.53	46.84	+2/-4	Pass
25	1931.25	1X-QPSK	0.45	26.50	26.74	+2/-4	Pass
25	1931.25	1X-DO-16QAM	0.45	26.50	26.66	+2/-4	Pass
25	1931.25	1X-DO-8PSK	0.45	26.50	26.74	+2/-4	Pass
1175	1988.75	1X-QPSK	0.45	26.50	26.68	+2/-4	Pass
1175	1988.75	1X-DO-16QAM	0.45	26.50	26.83	+2/-4	Pass
1175	1988.75	1X-DO-8PSK	0.45	26.50	26.64	+2/-4	Pass

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Summary of Radiated RF Measurements

Worst Case Radiated RF Spur Level

Transmit Channel	Power Level (W)	Spur Freq. (GHz)	Spur Level Measured (dBµV/meter)	Spur Level Measured (dBm*)	FCC Max Limit (dBm)	Pass/Fail
25	45	15.450	72.370	-22.86	-13.0	Pass

Summary of Conducted RF Measurements

Worst Case Conducted RF Spur Level

Transmit Channel	Power Level (W)	Mod Type	Freq. (GHz)	Spur Level Measured (dBm)	FCC Max Limit (dBm)	Pass/Fail
1175	45	16QAM	1.93035	-13.17	-13	Pass

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SECTION B

Modulation Characteristics - 47CFR2.1047

Summary of Modulation Characteristics

Channel	Tune Frequency (MHz)	Modulation	Power Level (W)	RHO Measured	RHO Spec	Pass/Fail
25	1931.25	1X-QPSK	45	0.98184	>0.912	Pass
25	1931.25	1X-DO-16QAM	45	0.99736	>0.985	Pass
25	1931.25	1X-DO-8PSK	45	0.99716	>0.985	Pass
1175	1988.75	1X-QPSK	45	0.98271	>0.912	Pass
1175	1988.75	1X-DO-16QAM	45	0.99807	>0.985	Pass
1175	1988.75	1X-DO-8PSK	45	0.99765	>0.985	Pass
25	1931.25	1X-QPSK	0.45	0.98291	>0.912	Pass
25	1931.25	1X-DO-16QAM	0.45	0.99740	>0.985	Pass
25	1931.25	1X-DO-8PSK	0.45	0.99733	>0.985	Pass
1175	1988.75	1X-QPSK	0.45	0.98299	>0.912	Pass
1175	1988.75	1X-DO-16QAM	0.45	0.99825	>0.985	Pass
1175	1988.75	1X-DO-8PSK	0.45	0.99776	>0.985	Pass

Note: The BTS was configured for maximum power out of 46.53 dBm, and minimum power of 26.5dBm respectively. The output power was set respectively to 45W, and 450mW using a power meter.

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SECTION C

Occupied Bandwidth - 47CFR2.1049

Summary of Occupied Bandwidth

Channel	Frequency (MHz)	Modulation	Power Level (dBm)	Measured (MHz)	FCC Limit (MHz)	Pass/Fail
25	1931.25	1X-QPSK	46.90	1.2118	1.30	Pass
25	1931.25	1X-DO-16QAM	46.81	1.2717	1.30	Pass
25	1931.25	1X-DO-8PSK	46.76	1.2702	1.30	Pass
1175	1988.75	1X-QPSK	46.59	1.2285	1.30	Pass
1175	1988.75	1X-DO-16QAM	46.73	1.2801	1.30	Pass
1175	1988.75	1X-DO-8PSK	46.54	1.2672	1.30	Pass
25	1931.25	1X-QPSK	26.47	1.2150	1.30	Pass
25	1931.25	1X-DO-16QAM	26.71	1.2757	1.30	Pass
25	1931.25	1X-DO-8PSK	26.70	1.2653	1.30	Pass
1175	1988.75	1X-QPSK	26.80	1.2120	1.30	Pass
1175	1988.75	1X-DO-16QAM	26.71	1.2915	1.30	Pass
1175	1988.75	1X-DO-8PSK	26.69	1.2693	1.30	Pass

Note: The BTS was configured for maximum power out of 46.53 dBm, and minimum power of 26.5dBm respectively. The output power was set respectively to 45W, and 450mW using a power meter.

The following formula is used to obtain the correct power reference point from which the OBW of the CDMA signal is obtained. See example calculation below:

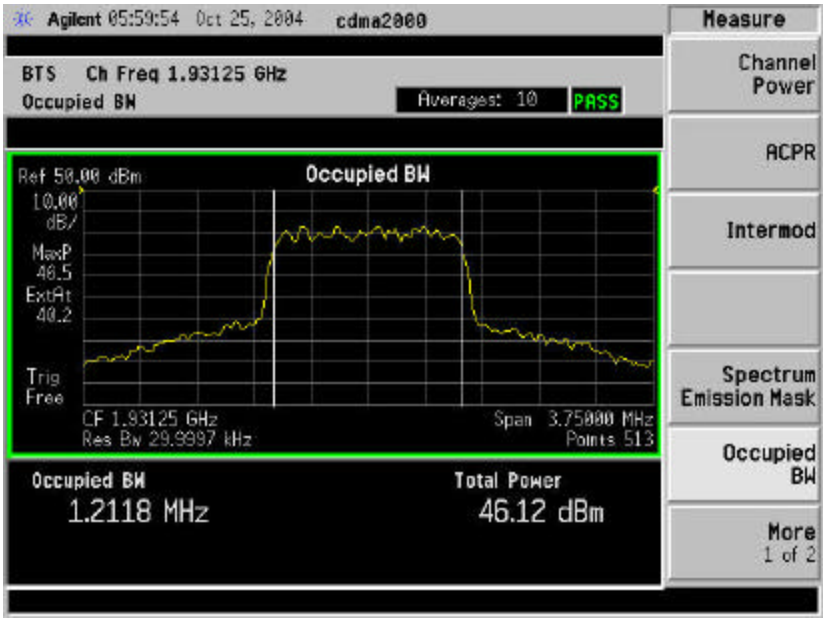
Power (measured in 30kHz bandwidth) + 10 log (1.2288 MHz/30kHz)

The occupied bandwidth is measured in a 30 kHz resolution bandwidth. Results are summarized above.

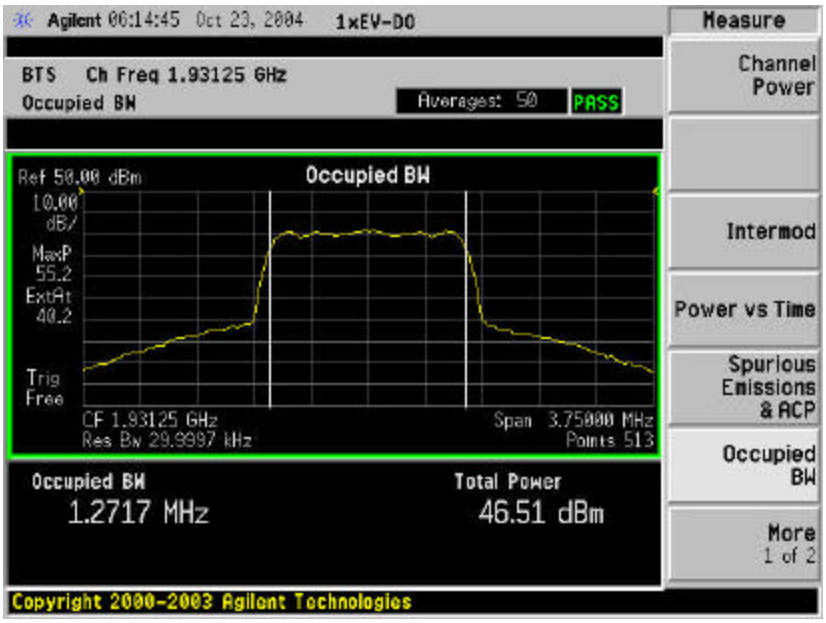
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Occupied Bandwidth – 45W

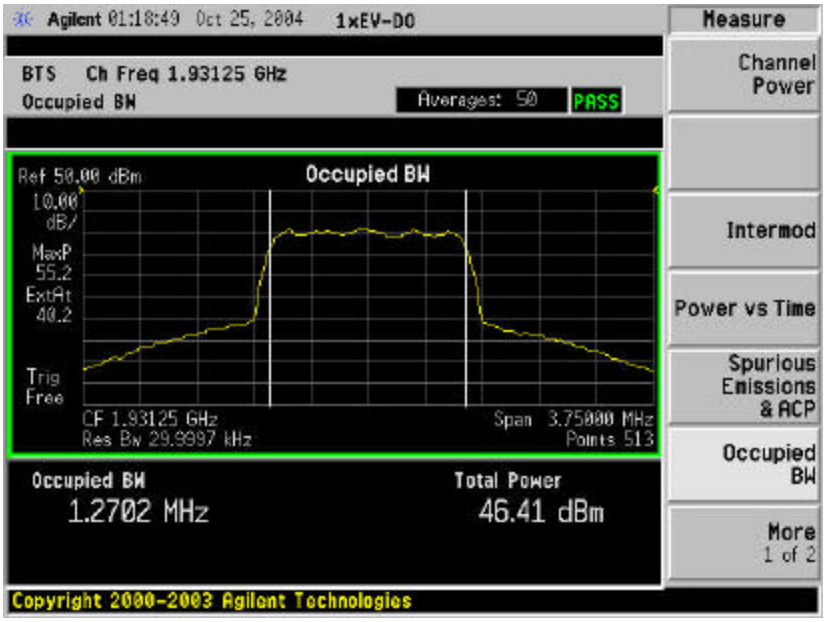


Channel 25 – 1.93125 GHz – QPSK

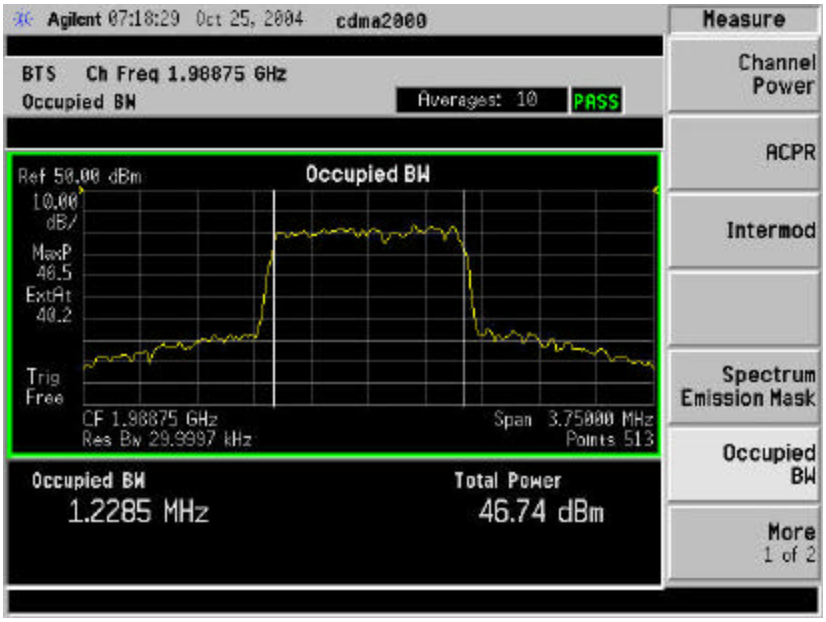


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Channel 25 – 1.93125 GHz – 16QAM

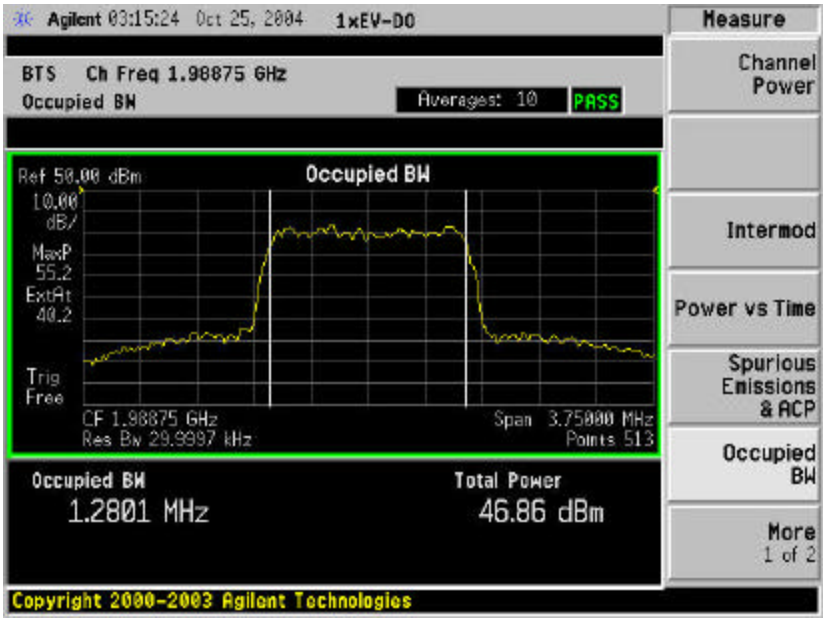


Channel 25 – 1.93125 GHz – 8PSK

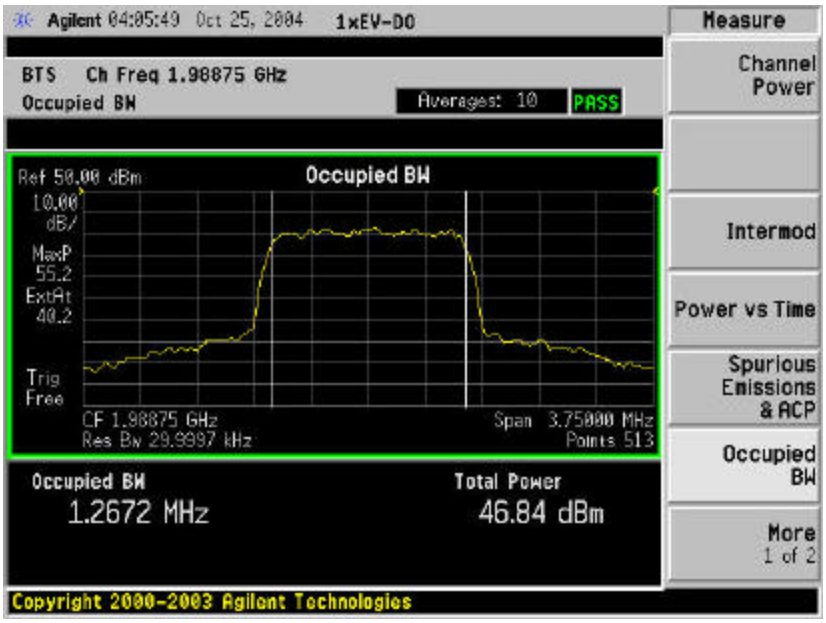


Channel 1175 – 1.98875 GHz – QPSK

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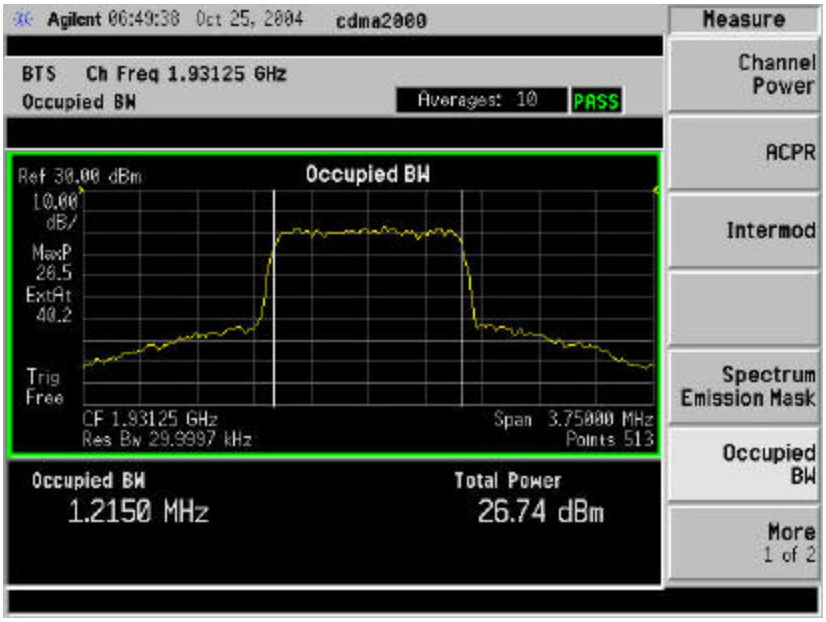
Channel 1175 – 1.98875 GHz – 16QAM



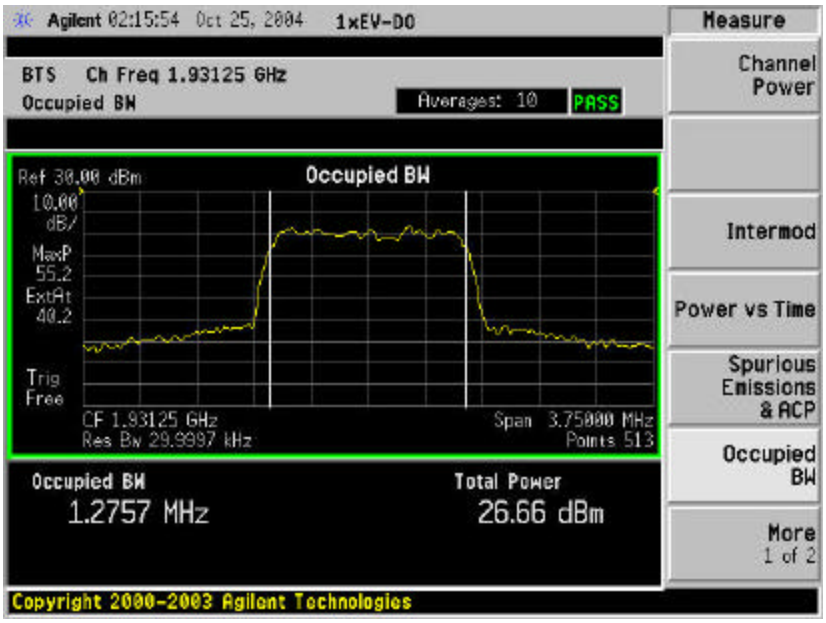
Channel 1175 – 1.98875 GHz – 8PSK

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Occupied Bandwidth – .45W

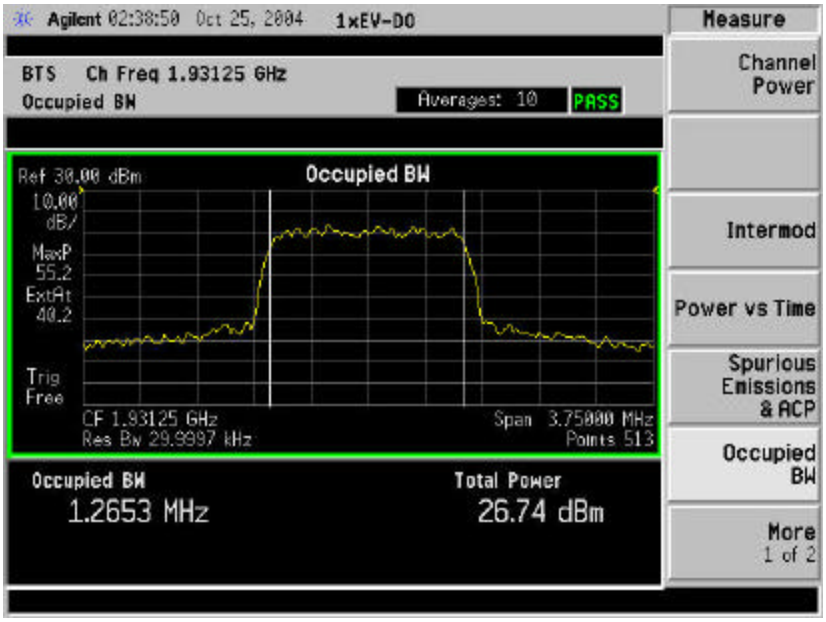


Channel 25 – 1.93125 GHz - QPSK

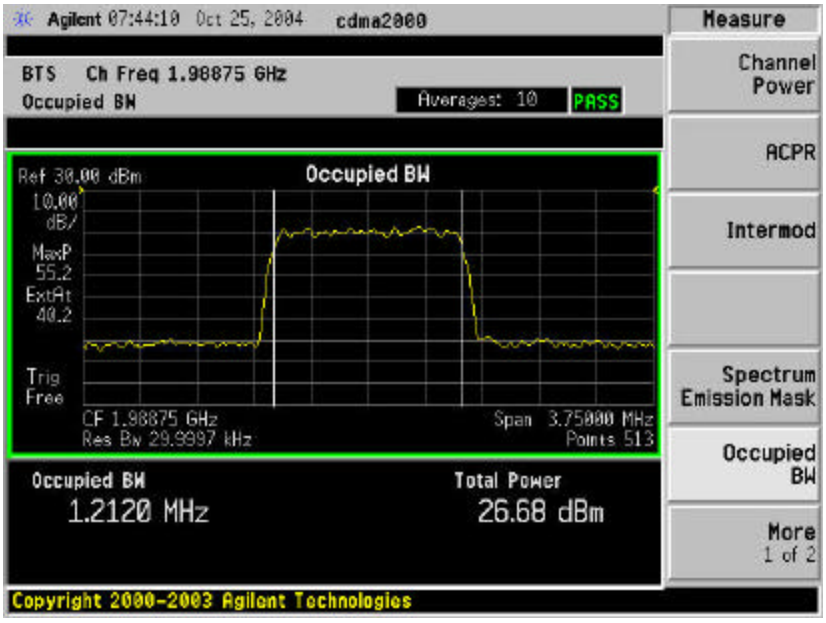


Channel 25 – 1.93125 GHz – 16QAM

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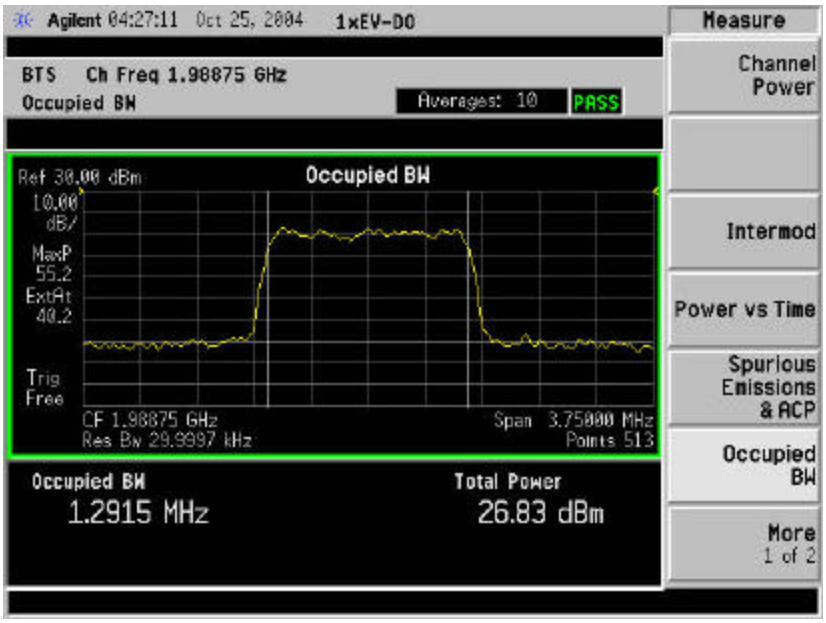


Channel 25 – 1.93125 GHz – 8PSK

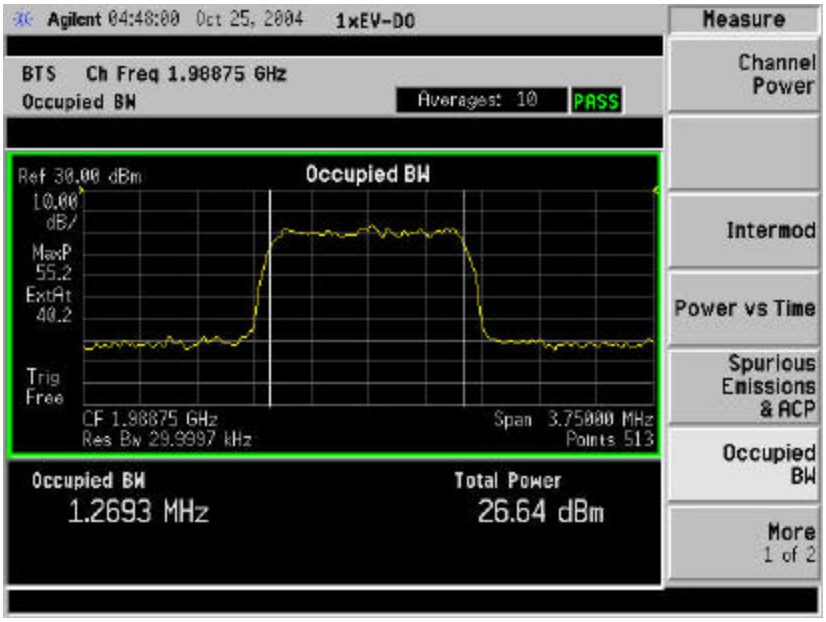


Channel 1175 – 1.98875 GHz – QPSK

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