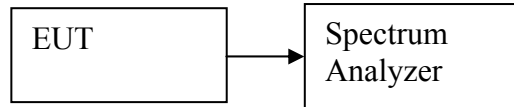


1. 99% BANDWIDTH

TEST SETUP



TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99% bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled.

RESULTS

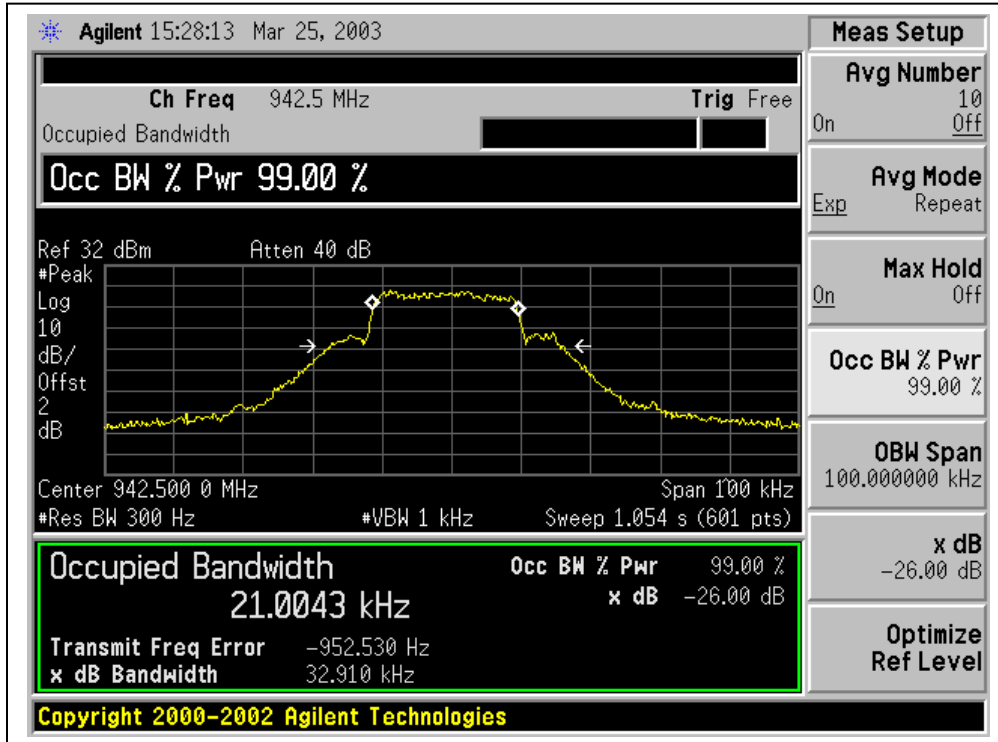
No non-compliance noted:

900MHz EGSM

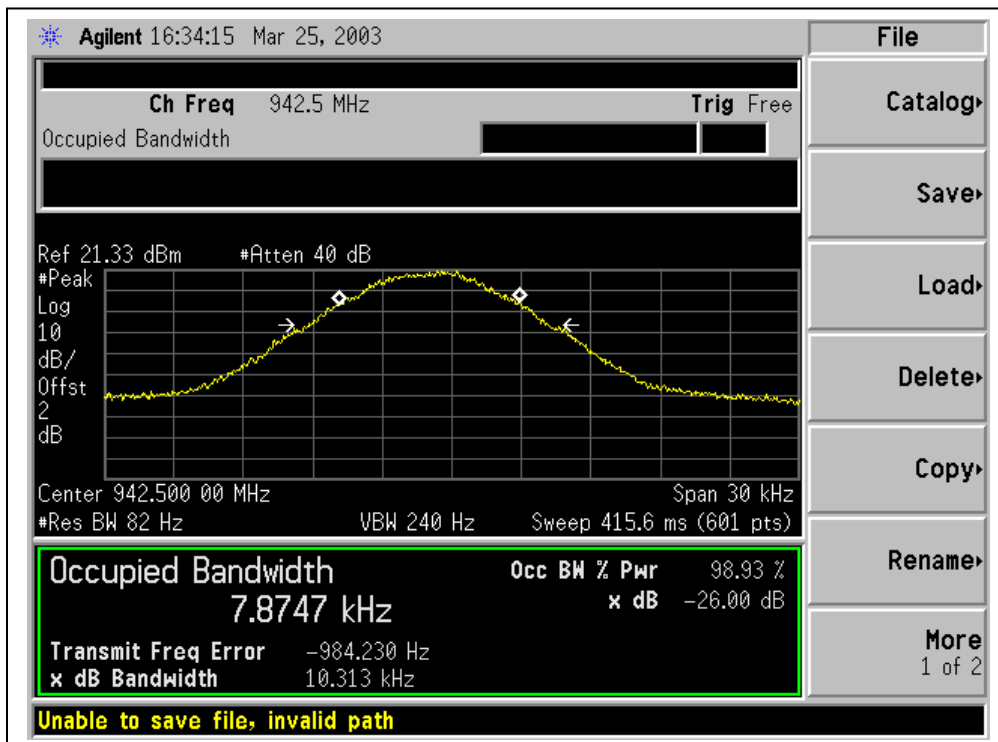
Modulation	Frequency (MHz)	99% BW (KHz)
AMPC	942.5	21.00
C4FM	942.5	7.875
CPQSK	942.5	4.888
MOBITEX	942.5	7.114
REFLEX	942.5	9.333

EMISSION BANDWIDTH PLOTS:

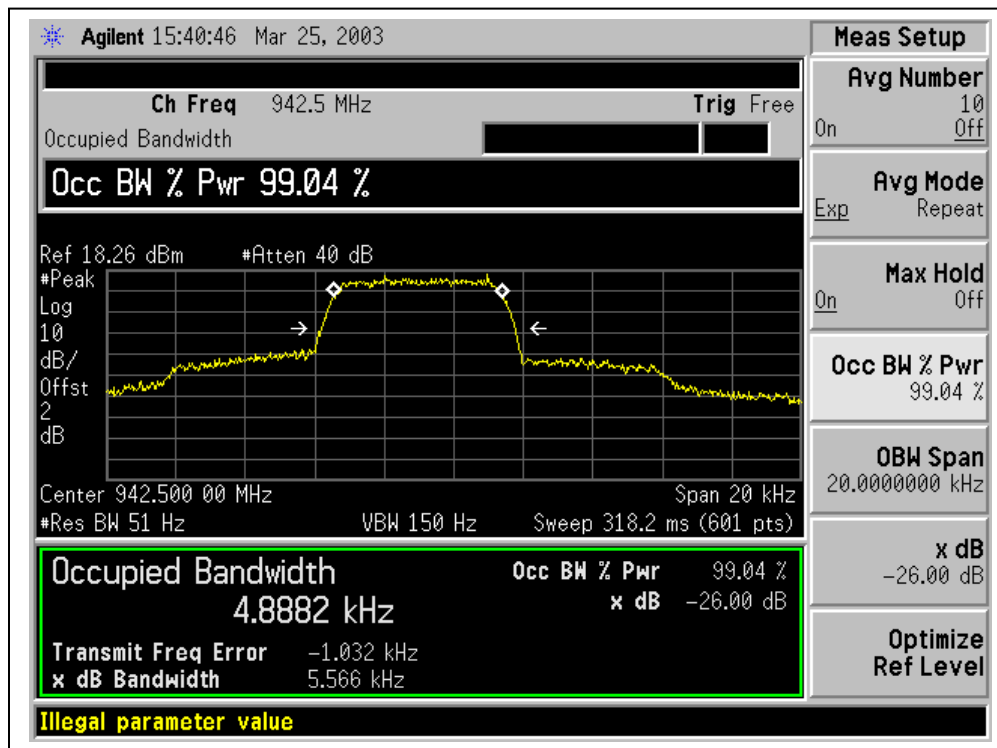
EGSM 900MHz :



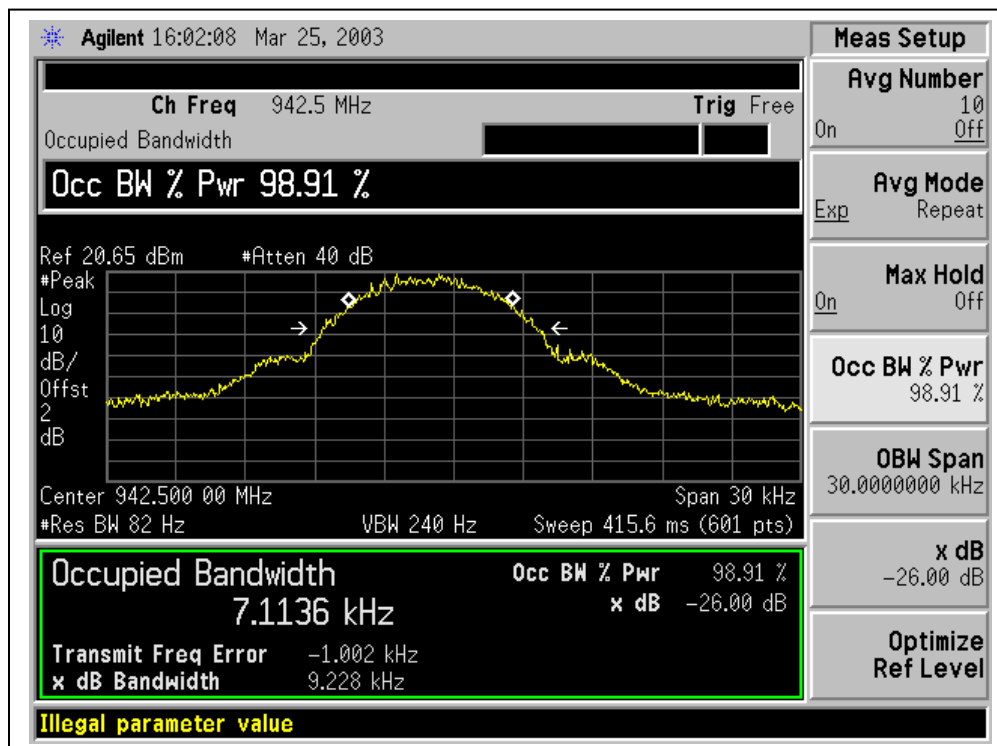
AMPC



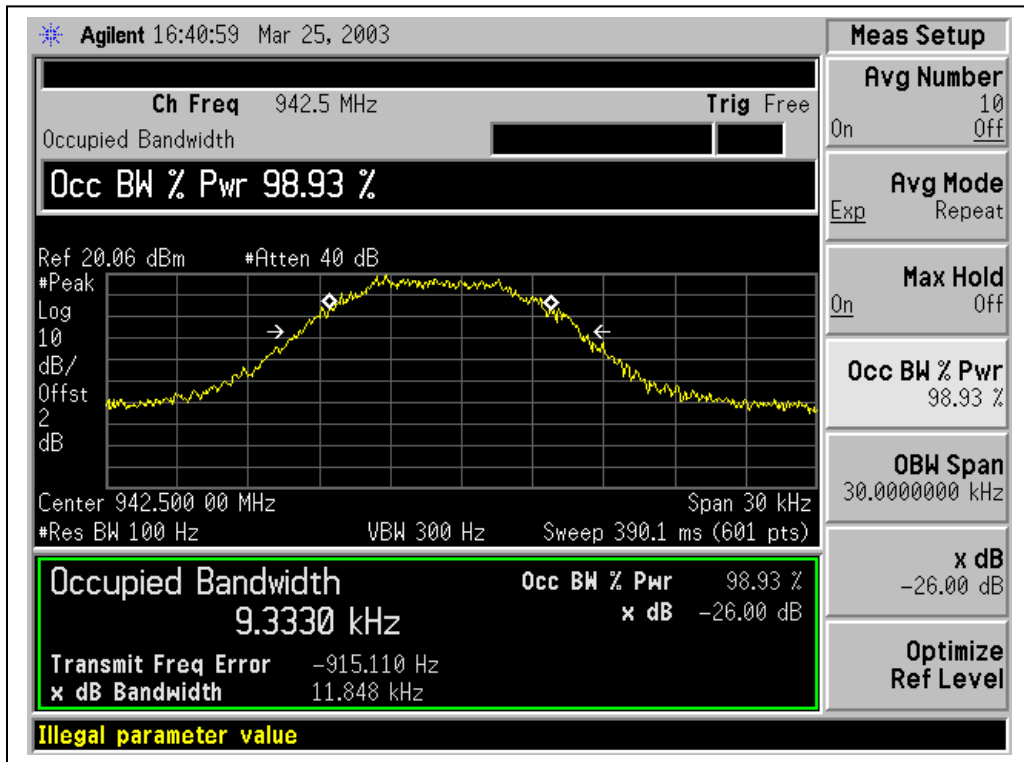
C4FM



CQPSK



MOBITEX



REFLEX

2. FREQUENCY STABILITY

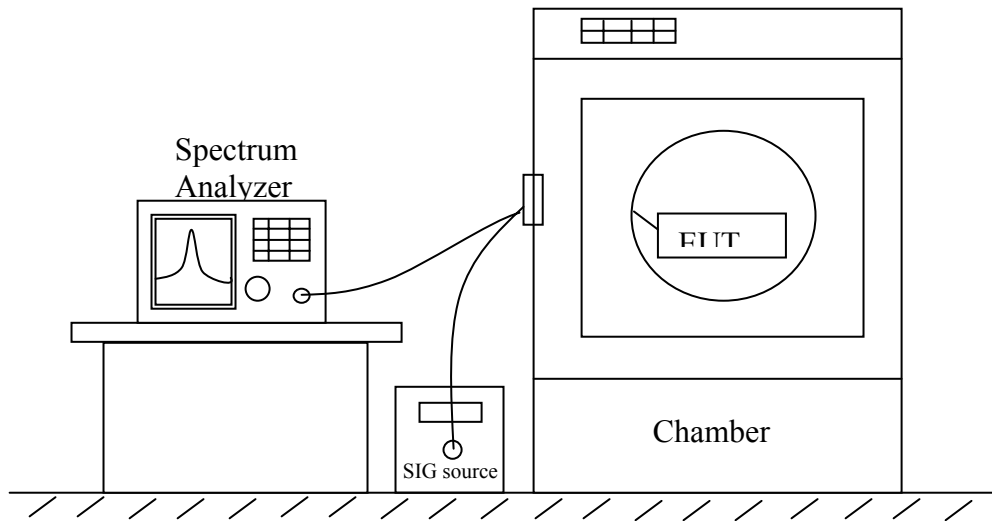
INSTRUMENTS LIST

EQUIPMENT	MANUFACTURE	MODEL NO.	CAL. DUE DATE
EMI Receiver	HP	8593EM	6/11/03
Environmental Chamber	Thermotron	SE 600-10-10	4/26/03

Detector Function Setting of Test Receiver

Frequency Range (MHz)	Detector Function	Resolution Bandwidth	Video Bandwidth
Above 1000	Peak	300 Hz	300 Hz

TEST SETUP



TEST PROCEDURE

- **Frequency stability versus environmental temperature**

- 1). Setup the configuration per figure 6 for frequencies measurement inside the environmental chamber. Set the temperature of the chamber to 25°C. Set SA Resolution Bandwidth low enough to obtain the desired frequency resolution and measure the EUT 25°C operating frequency as reference frequency.
- 2). Turn EUT off and set Chamber temperature to -30°C.
- 3). Allow sufficient time (approximately 20 to 30 minus after chamber reach the assigned temperature) for EUT to stabilize. Turn on EUT and measure the EUT operating frequency. Turn off EUT after the measurement.
- 4). Repeat step 3 with a 10°C increased per stage until the highest temperature of +50°C reached, record all measured frequencies on each temperature step.

- **Frequency stability versus AC input voltage**

- 1). Setup the configuration below and set chamber temperature to 25°C. Use a variable AC power supply to power the EUT and set AC output voltage to EUT nominal input AC voltage. Set SA Resolution Bandwidth low enough to obtain the desired frequency resolution and measure the EUT 25°C operating frequency as reference frequency.
- 2). Slowly reduce the EUT input voltage to specified extreme voltage variation ($\pm 15\%$) and record the maximum frequency change.

RESULT

Reference Frequency: GSM Mid Channel 942.499924MHz @ 25°C				
Limit: to stay ± 1.5 ppm = 1413.750 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
36.00	50	942.499921	0.005	± 1.5
36.00	40	942.499922	0.004	± 1.5
36.00	30	942.499921	0.005	± 1.5
36.00	25	942.499924	0	
36.00	20	942.499932	-0.014	± 1.5
36.00	10	942.499929	-0.009	± 1.5
36.00	0	942.499932	-0.014	± 1.5
36.00	-10	942.499927	-0.005	± 1.5
36.00	-20	942.499929	-0.009	± 1.5
36.00	-30	942.499926	-0.004	± 1.5
102Vac	25	942.499924	0.000	± 1.5
138Vac	25	942.499924	0.000	± 1.5