MEASUREMENT OF MODULATION CHARACTERISTICS

SECTION 2.1047

MEASUREMENT: 2

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The modulation methods used in "Flexent GSM 1900 Transceiver" is called GMSK Gaussian Minimum Shift Keying are completely different from those used in FM Analog system. An optional slow frequency hopping is used in which operating frequency within the band changes only once for every TDMA frame. The methods used in evaluating modulation characteristics of the TRX19 are described in the Draft GSM 05.05 European Standard (Telecommunication Series): "Digital Cellular Telecommunications System (Phase 2+); Radio Transmission and reception (GSM 05.05 Version 8.0.0 Released 1999)".

1.0 Modulation Accuracy Section 4.6.1 of GSM 05.05

For any 148-bits subsequence of the 511-bits pseudo-random sequence, defined in CCITT Recommendation O.153 fascicle IV.4, the phase error trajectory on the useful part of the burst (including tail bits), shall be measured by computing the difference between the phase of the transmitted waveform and the phase of the expected one. The RMS phase error (difference between the phase error trajectory and its linear regression on the active part of the time slot) shall not be greater than 5° with a maximum peak deviation during the useful part of the burst less than 20°.

1.1 Required Results

TRX19 was tested using CMD54/57/59 of Rohde and Schwarz a RF Test Instrument with Abis control. This equipment complies with test requirements indicated in prI-ETS 300 609-1 "Digital Cellular Telecommunications System (Phase 2); (Base Station (BSS) equipment specification, Part 1. Radio aspects (GSM 11.21 Version 4.13.0)" April 1999. The measured modulation phase error was less than 5 degrees.

2.0 Spectral Characteristics (Spectrum due to Modulation)

Figure A. 6a: PCS 1900 BTS Modulation and Noise Spectrum due to GMSK modulation.

2.1 Measured Results

The results are presented as plots for upper and lower edges and center channel for each Band in attachment Measurement 3: "Measurement of Occupied Bandwidth".

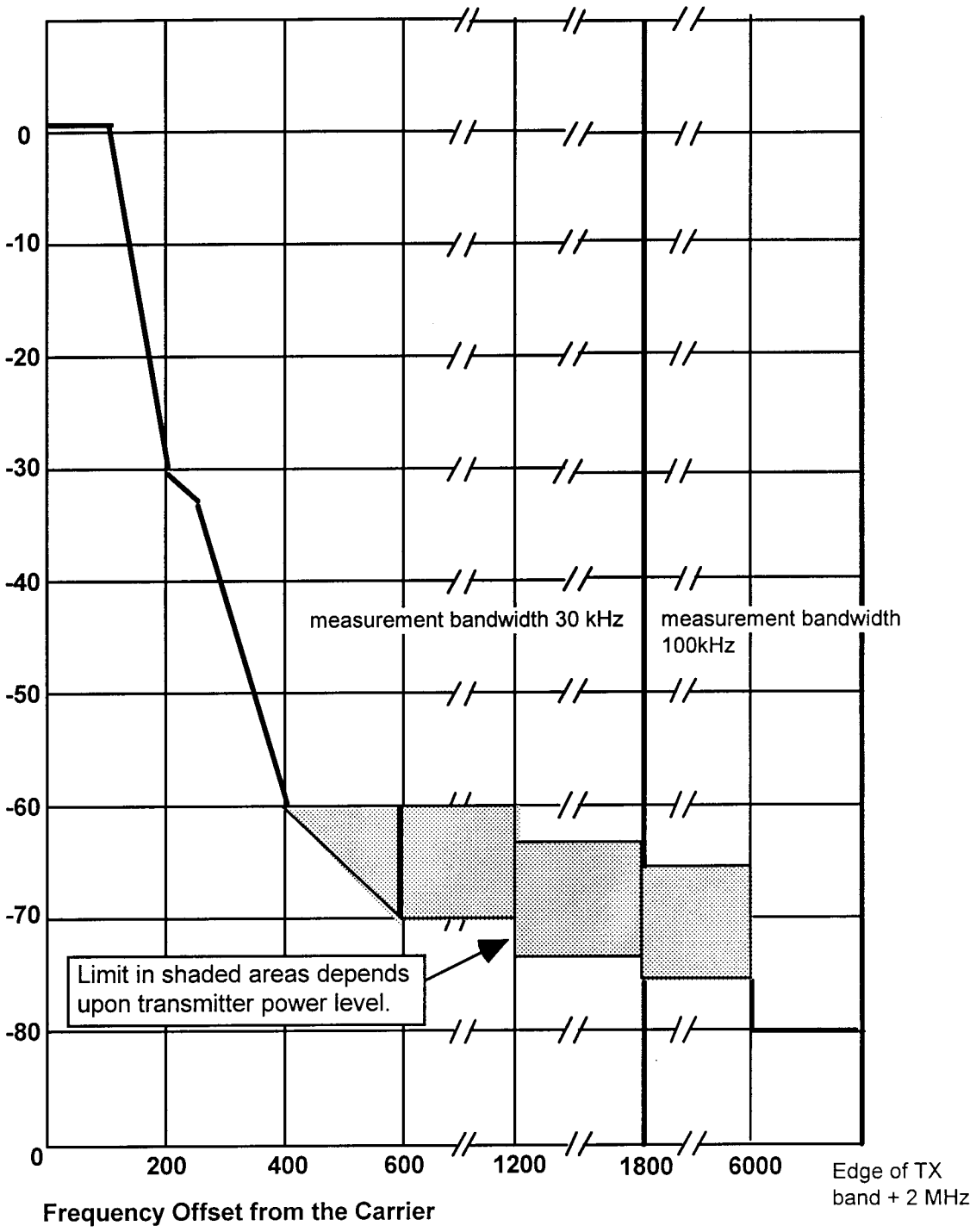

Figure A.6a: PCS 1 900 BTS Modulation & Noise Spectrum Mask due to GMSK modulation