Narrowband Test Report

For Class 2 Permissive change

VYTEK Model PTX-150

FCC ID MNT-PTX-150

DATE OF REPORT

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Prepared By:

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Purpose

The purpose of this report is to present results from testing of the PTX-150 in each of it's narrowband modes and to show that it is compliant with FCC part 22 and part 90 requirements for 11K0F1D modulation. This report supplements the original MNT-PTX-150 grant in support of a class 2 permissive change, which will add the 11K0F1D designator to the existing grant. All measurements required to be made with modulation have been taken with the PTX-150 factory set for narrowband operation.

EQUIPMENT CHANGES

No hardware changes have been made to the design of the PTX-150 since the original grant under FCC ID MNT-PTX-150. The only changes, which have been made are to the values of modulation coefficients stored in non-volatile memory in units designated for narrowband operation with 11K0F1D type modulation. These factory changes are as follows:

Memory Location In EEPROM	Original Value 16K0F1D	New Narrowband Value 11K0F1D
62h	07h	03h
63h	AEh	D7h
64h	14h	0Ah
6Ah	08h	03h
6Bh	31h	D7h
6Ch	26h	0Ah

STANDARD TEST CONDITIONS and ENGINEERING PRACTICES

Except as noted herein, the following conditions and procedures were observed during the testing:

ROOM TEMPERATURE = 25 ±5°C
ROOM HUMIDITY = 20-50%
A.C. SUPPLY VOLTAGE, VAC = 120VAC

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. There are no external gain controls on this unit.

Measurement results, unless otherwise noted, are worst case measurements.

NECESSARY BANDWIDTH CALCULATION (12.5kHz channel spacing, data) :

MAXIMUM MODULATION (M) , kHz = 1.2
MAXIMUM DEVIATION (D), kHz = 2.25
CONSTANT FACTOR (K) = 1.91
NECESSARY BANDWIDTH (Bn), kHz = (2 x M) + (2 x D x K)= 11.0

Regarding the value of M, D and K for the maximum modulation frequency. These values were chosen for the following reasons:

1) 2.4kbps is the highest modulation data rate this product has. By 47 CFR 2.202, M=B/2.

2) The deviation in the type of paging system this transmitter will be used is set to 4.5KHz. Therefore D=4.5

3) The occupied bandwidth of this signal is approximately 11kHz. K must equal 1.91 in this case.

OCCUPIED BANDWIDTH

GUIDE: EIA STANDARD RS 603,
TEST CONDITIONS: S. T. & H.
TEST EQUIPMENT AS PER ATTACHED PAGE

MEASUREMENT PROCEDURE

1. The EUT and test equipment were set up as shown on the following page, with the Spectrum Analyzer connected.

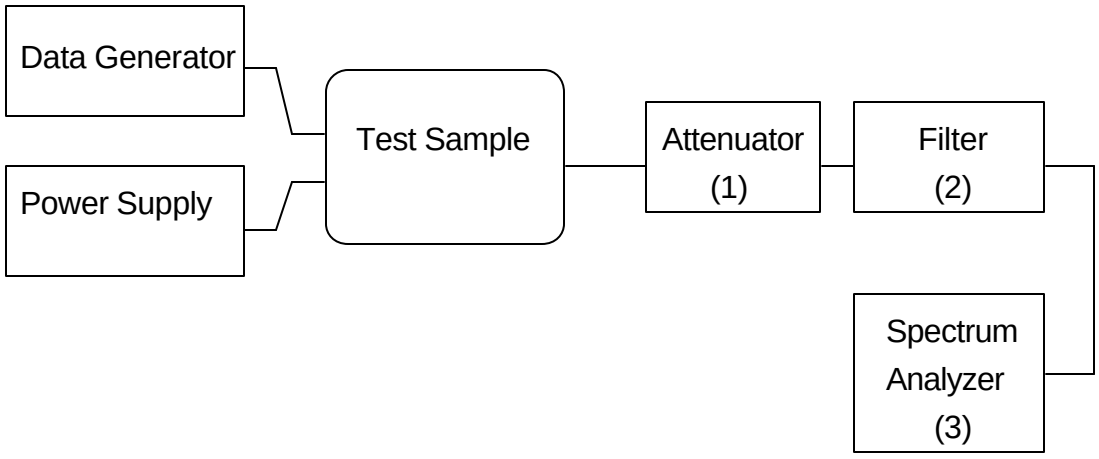
2. A paging Terminal or a data generator were connected as required to the data input(s) of the EUT .

3. The total power was measured on the spectrum analyzer using a 100kHz RBW. It was noted that the total channel power was -0.2dBm at the input of the spectrum analyzer. See plot of channel power in this report. The display was normalized with the total channel power level as the reference level.

4. The RBW was changed to 100Hz and the spectrum analyzer swept on peak-hold over a 50kHz span. The plots are shown and the limits noted on them.

OCCUPIED BANDWIDTH SETUP

OCCUPIED BANDWIDTH (IN-BAND SPURIOUS)



1. COAXIAL ATTENUATORS: NARDA 771-30

   Weinschel Engineering 9803-20-34

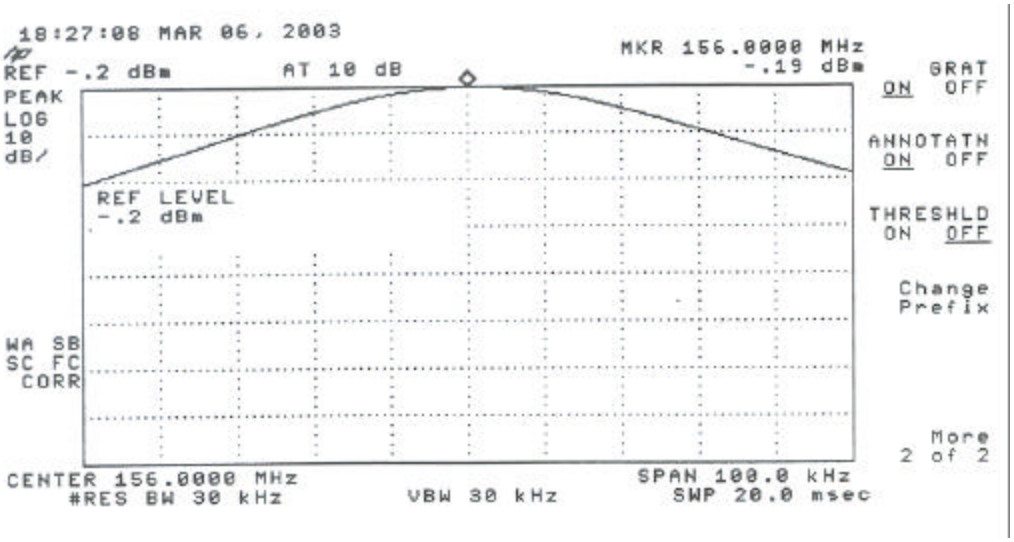
2. FILTERS: Custom HPF not used for this test.

3. SPECTRUM ANALYZER: HP 8594E

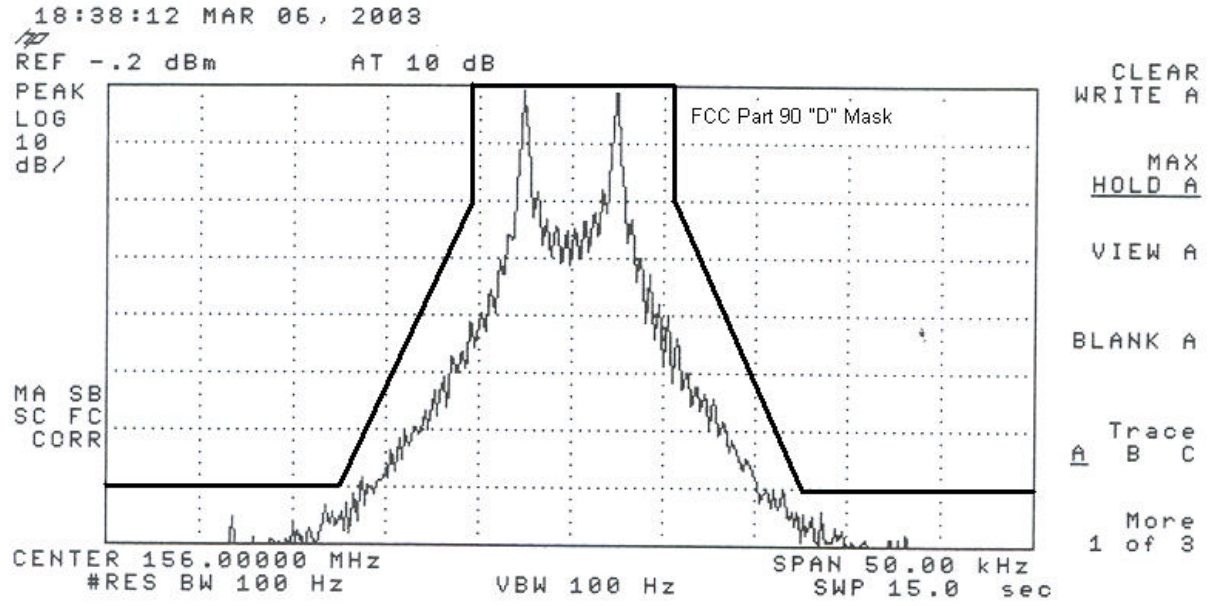
4. Data Generators: HP 1645A

   ZETRON 901-9573

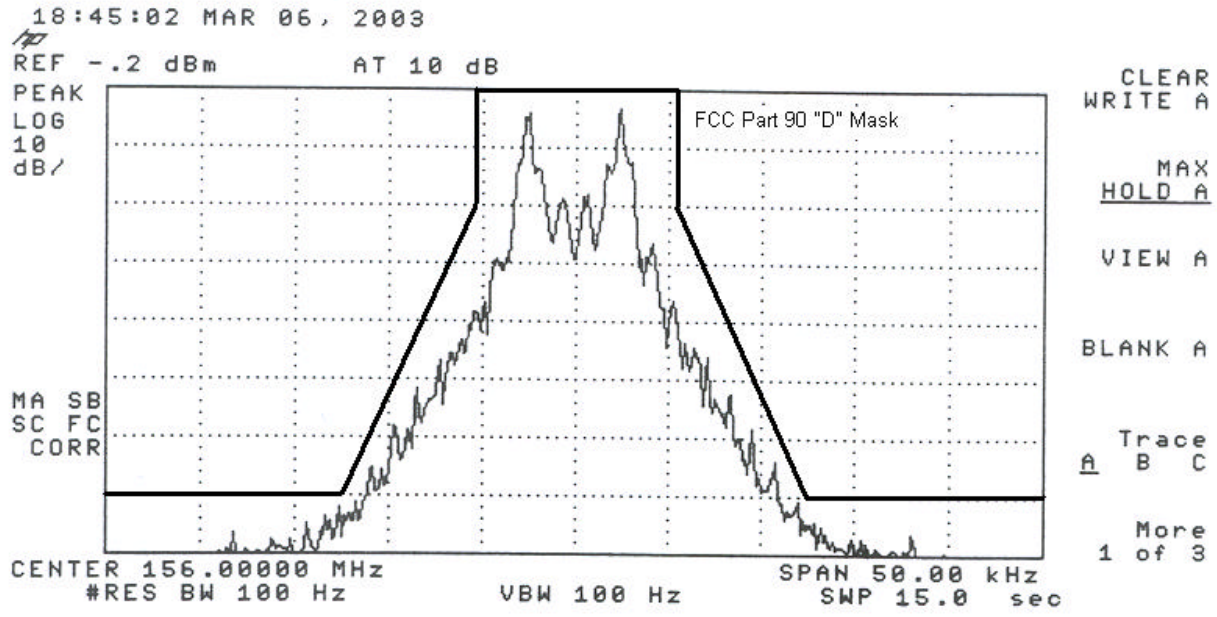
Total Channel Power



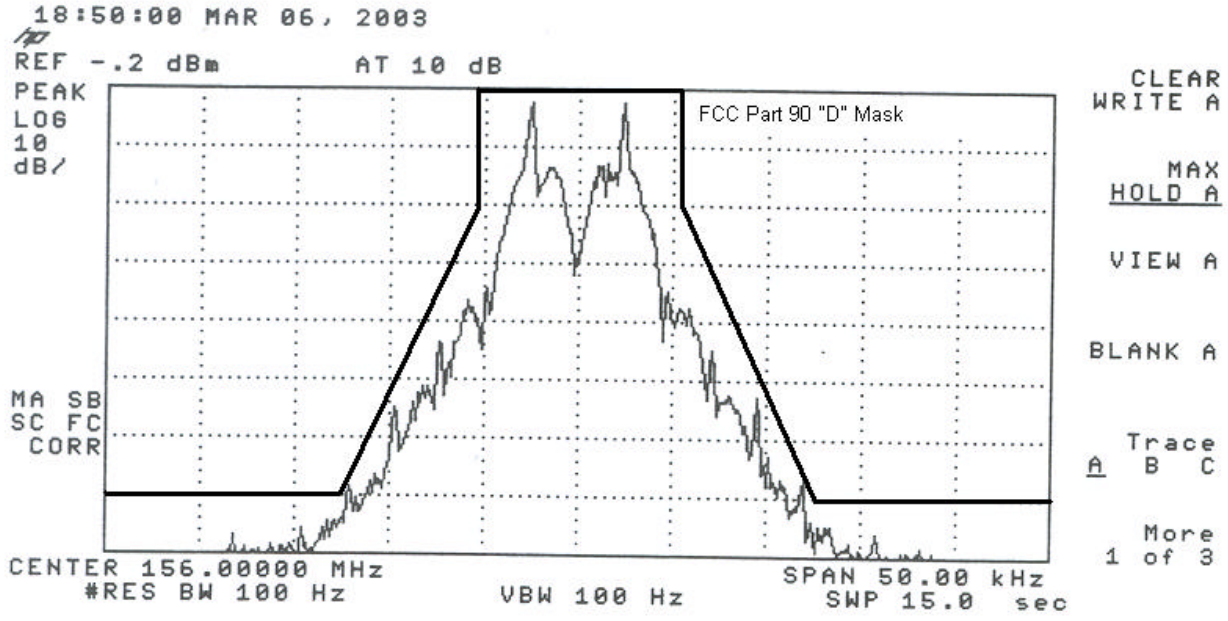
Occupied bandwidth,512 BAUD, POCSAG MODE, Narrowband



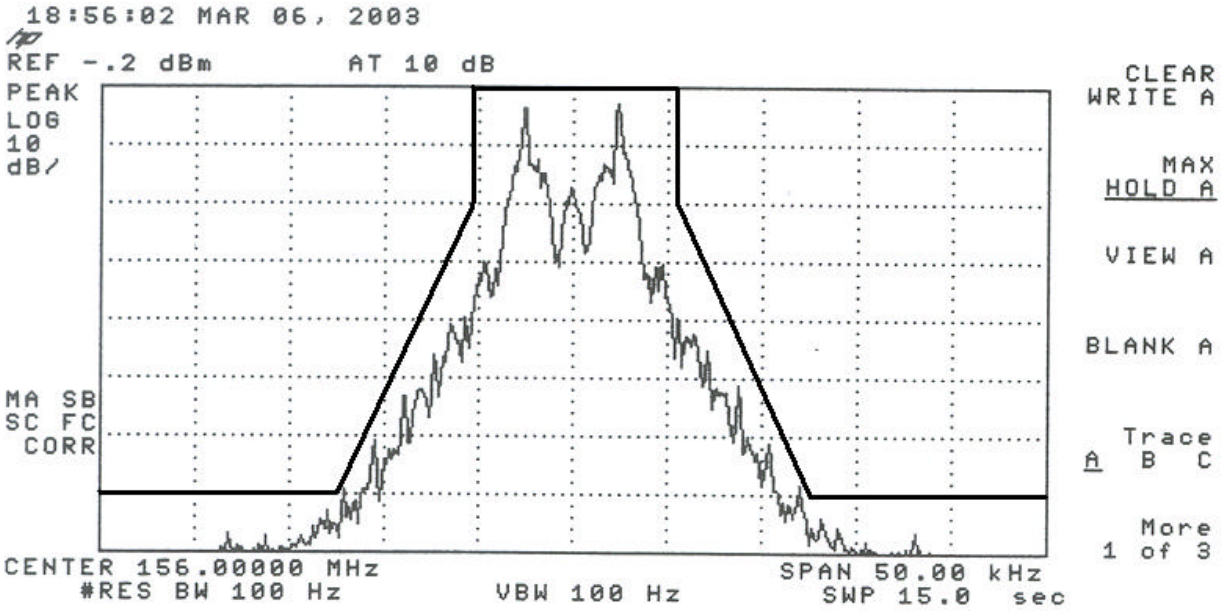
Occupied Bandwidth,1200 BAUD, POCSAG MODE, Narrowband



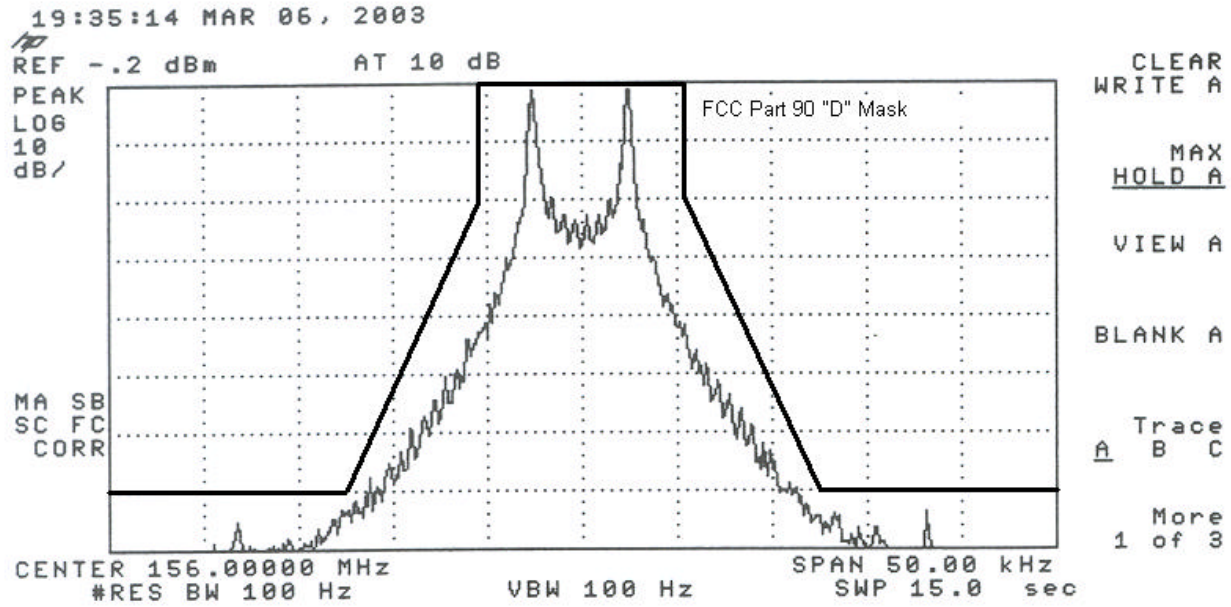
Occupied Channel Bandwidth 2400 BAUD,POCSAG MODE, Narrowband



Occupied Bandwidth,1600 baud 2 Level FLEX MODE, Narrowband



Occupied Channel Bandwidth, 600 BAUD, GOLAY (POCSAG MODE), Narrowband



Conclusion

As shown above, the PTX-150 meets the occupied bandwidth requirements for 12.5 KHz channel spacing when factory configured for 11K0F1D modulation and is compliant with FCC part 22 and part 90.

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