MX800 BASE STATION SPECIFICATIONS

Minimum performance to exceed the following for 30MHz to 960MHz*:

AS4295-1995,
R&TTE EC Directive 1995/05/EC,
EN300 086 –1,2 (2001- 03),
EN 300 113, EN 301 489 – 1,5 (2002 – 08),
EN 60950 (2000),
RFS25, RFS26, RFS32,
TIA/EIA-603,
FCC CFR47 Parts 2, 15, 22, 74, 90, 80.475,
MIL-STD-810E (Parts thereof),
Industry Canada - RS119, RS182

∗Conforms but not all bands approved.

GENERAL

Frequency Range:

Coverage 30-960 MHz.

Band A2	30-39 MHz	Band O2	435-470 MHz
Band A3	39-50 MHz	Band P	455-490 MHz
Band A	66-80 MHz	Band P2°	450-485 MHz
Band B°	70-88 MHz	Band Q°	485-520 MHz
Band C	135-160 MHz	Band Q2	500-532 MHz
Band D3°	148-174 MHz	Band R2	746-764 MHz
Band E	177-207 MHz	Band R3	776-794 MHz
Band F	195-225 MHz	Band R	805-825 MHz
Band H	245-275 MHz	Band S	824-849 MHz
Band J	295-325 MHz	Band T	850-870 MHz
Band J2	300-337 MHz	Band U	870-905 MHz
Band K	320-350 MHz	Band V	890-915 MHz
Band L	345-375 MHz	Band V2	900-925 MHz
Band M	370-400 MHz	Band W	917-950 MHz
Band N2°	400-435 MHz	Band X	925-960 MHz

Notes:

1. Band, Q2, R3 are RX only; R2, V2 are TX only.
2. ° Standard Preferred Frequency Band.

For more information, contact your authorized representative:

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MX800 BASE STATION SPECIFICATIONS

Synthesis Method:	Non-mixing PLL. Fractional N synthesizer.
Modulation:	Direct FM two-point method.
System Deviation:	+/-5.0kHz max (WB), +/-2.5kHz max (NB)
Channel Spacing:	Programmable 25kHz/12.5kHz, Special on request.
Synthesizer Step Size:	12.5kHz, 10kHz, 6.25kHz or 5kHz.
Channels:	255 Software or switch selectable, 0-99 BCD or 255 Binary parallel selection.
Supply Voltage:	13.8 +/- 20%.
Power Consumption:	<500 mA receive, typ 460mA. 220mA opt. <10A for 50W TX RF output. <17A for 100W TX RF output D3 band.
Operating Temperature:	-30 to +60C (-22º to 140ºF), -30 or -40C test option.
MX800 Size:	2RU Case, 325mm deep including fan.
Weight:	<9Kg
Standard LED indicators:	POWER, RX, TX, CTCSS, AUX, ALARM.

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MX800 BASE STATION SPECIFICATIONS

TRANSMITTER

MEASURED IN ACCORDANCE WITH TIA/EIA-603 STANDARDS

RF Power Output:	1W to 50W variable. 1W opt. 1W nominal UHF PA opt, 100W opt. 1W to 100W 39-47MHz & 148-174MHz.
Frequency Stability:	1.5PPM std, UHF. 2.5PPM VHF 20PPM VHF-Low. 1.0PPM opt 800MHz.
Audio Response:	Flat within +1,-3dB across BW.
Audio Bandwidth:	DC to 3400Hz (DC FM input). 300Hz to 3400Hz (VF input).
Modulation Distortion:	Less than 2% @ 60% deviation.
Modulation Limiting:	12.5 kHz channel ±2.5kHz 20 kHz channel ±4kHz or ±5kHz 25 kHz channel ±5kHz
S/N Ratio below 700MHz:	Better than 50dB (WB), 45dB (NB).
S/N Ratio 700-900MHz:	Better than 50dB (WB), 44dB (NB).
S/N Ratio above 900MHz:	Better than 47dB (WB), 41dB (NB).
Spurii and Harmonics:	More than 100dB below carrier.
RF Switching Bandwidth Exciter:	Same as band allocation.
RF Switching Bandwidth PA:	Same or greater than band allocation.
Duty Cycle:	100% for 50W RF output.
RF Rise Time:	4mS with continuous VCO selected.
Typical Supply current (470MHz):	50W:8.6A, 25W:6.2A, 15W:5A, 10W:4.3A, 5W:3.3A, 1W:2.1A.
Typical Supply current for 100W output:	15A. 148 -174MHz. 13A. 39-47MHz
VCO Conducted Emissions:	Less than -70dBm with TX off.
VCO Radiated Emissions:	Less than 1uV/m @ 3m.
Adjacent Channel Power:	78dB (WB), 72dB (NB)
Transmitter IM conversion loss:	Better than 40dB
Automatic VSWR foldback:	Trips at nominal VSWR >3:1
Output Load Impedance:	50 Ohms nominal (VSWR <2:1)
Antenna connector:	N-Type Female
Emission Designators**:**	16K0F3E (Analog) 16K0F3D (Data) 11K0F3E (Analog) 11K0F3D (Data) 11K0F9W (Composite system Data & Analogue) 16K0F9W (Composite system Data & Analogue)

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MX800 BASE STATION SPECIFICATIONS

RECEIVER

MEASURED IN ACCORDANCE WITH TIA/EIA-603 STANDARDS

Sensitivity for 12dB SINAD:	Better than -117dBm (0.32uV).
Sensitivity for 20dB SINAD:	Better than -115dBm (0.40uV)
Selectivity 30-50MHz:	More than 90dB for 25kHz adj channel, more than 80dB for 12.5kHz adj channel.
Selectivity 66-88MHz:	More than 85dB for 25kHz adj channel, more than 75dB for 12.5kHz adj channel.
Selectivity 135-520MHz:	More than 82dB for 25kHz adj channel, more than 75dB for 12.5kHz adj channel. 90dB option available on special request.
Selectivity 700-900MHz:	More than 80dB for 25kHz adj channel, more than 70dB for 12.5kHz adj channel.
Selectivity 900-960MHz:	More than 75dB for 25kHz adj channel, more than 65dB for 12.5kHz adj channel.
Audio Bandwidth VF output:	300Hz to 3000Hz (+1,-3dB).
Discriminator Output Bandwidth:	DC to 3400Hz (-3dB).
Spurious Response Immunity:	Better than 90dB.
Intermodulation Immunity:	Better than 82dB (WB), 80dB (NB).
Blocking Rejection:	Better than 110dB at +/- 1MHz point.
Distortion:	Less than 2% @ 60% deviation.
S/N Ratio below 700MHz:	Better than 50dB (WB). Better than 45dB (NB).
S/N Ratio 700-900MHz:	Better than 50dB (WB), 45dB (NB).
S/N Ratio above 900MHz:	Better than 46dB (WB), 41dB (NB).
Co-Channel Rejection:	Better than 5dB.
RF Switching Bandwidth:	Equal to band allocation.
Receiver Front End BW:	Equal to band allocation, no retuning.
VCO Conducted Emissions:	Less than -70dBm.
VCO Radiated Emissions:	Less than 1uV/m @ 3m.
Input Load Impedance:	50 Ohms nominal (VSWR <2:1)
RF Input protection:	No damage at input +20dBm
Antenna connector:	BNC Female, N-Type Female option.
Receiver type:	Double Conversion Superheterodyne.
IF Frequency:	90MHz first, 455kHz second 70MHz first for band A3, 45MHz first for band A&B
Local oscillator Injection:	Low side above 400MHz, High side below 400MHz.

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MX800 BASE STATION SPECIFICATIONS

ANCILLARIES

Tx Timer:	Programmable, on/off selectable.
VF Level to Line:	+6 to -15dBm, 600 ohms unbalanced or differential.
VF Level from Line:	+6 to -15dBm, 600 ohms unbalanced.
De / Pre-Emphasis Accuracy:	Within +/-1dB of 6dB per octave curve.
VF Compressor Range:	>30dB for line input.
Control Outputs:	1K ohm 5V source/sink available.
Alarm Output:	Open collector.
PTT Input:	Logic CMOS/TTL compatible.
Channel Select:	8 way Dip switch or RS232 or BCD/ Binary.
Repeater Tail Timer:	Programmable.
Audio Output:	1Watt for speaker, -10dBm standard for line.
Audio Input:	-10dBm standard from line.

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MX800 APCO P25 BASE STATION SPECIFICATIONS

GENERAL

SUPPLEMENTARY OPTION T80, T81 APCO P25 DIGITAL RADIO SPECIFICATIONS

Conforms to Standards:	TIA-102
P25 Options Includes Fitted Default options:	T03 Programmable DCS / CTCSS full duplex encoder and decoder. T13 Local speaker and Microphone socket. T14 Local channel change on front panel (100 channels). T15 Rx input fitted with N-type connector T32 Front Panel adjustable Line I/O levels and Front panel RS232 port (in parallel with rear port).
DC Power Consumption:	Additional <100mA standby.
Front Panel Controls:	
LED's:	DRPT, DRX, DTX, SECURE, LINK, ERROR
Switch:	Firmware define Mode switch.
RS232:	Provide easy Base Station programming when fitted in 19" rack.
Thumb Switches:	Selectable Channel Change 0-99.
Channel Spacing	
P25 Digital:	12.5 kHz.
Analog:	Programmable 25/12.5 kHz.
Repeater Throughput Delay	
P25 Digital:	< 80ms
Protocol:	Project 25-CAI
P25 Voice Coder:	7200 bps IMBE™ Enhanced Vocoder (opt.T81 only)
Frame Re-sync Interval:	180 ms
Signalling Rate:	9.6 kbps
Digital ID Capacity:	10,000,000 Conventional
Digital Network Access Codes:	4,096 network site addresses
Digital User Group Addresses :	4,096 network site addresses
P25 User Group Addresses:	65,536
Error Correction Techniques:	Golay, BCH, Reed-Solomon codes, TIA 102

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MX800 APCO P25 BASE STATION SPECIFICATIONS

TRANSMITTER

Modulation
- P25 Digital: Continuous 4 levels FM (C4FM)
- Analog: Direct FM two point modulation method.

Modulation Fidelity
- P25 Digital: Better than 3% (typ 1.5%)
- Analog Dist: Less than 2% @ 60% deviation

Symbol Deviation
- P25 Digital: 1.8 kHz

RECEIVER

Reference Sensitivity
- P25 Digital: Better than -117dBm for 5% BER (typ -120dBm.)
- Analog: Better than -117dBm for 12dB SINAD. (typ -120dBm.)

RX Audio Processing Delay (Removes mute/squelch "crash" characteristics)
- P25 Digital: TIA 102 CAI
- Analog: 40ms

APCO P25 FEATURES

P25 REPEATER OPTION BOARD (opt.T80):

Transparent mode:

- Repeats P25 transmissions.
- Repeats analogue transmissions.
- Automatically switch to P25 mode on reception of P25 carrier.
- Passes P25 NAC unchanged.
- Passes P25 private call and group call.
- Passes P25 clear or encrypted.
- Front panel indicators show P25 status.
- Benefits of Digital Audio Performance.
- Design based around proven MX800 architecture.
- RF Specs in Digital mode are the same as Analog mode.
- 255 channel capacity.
- Flash based software design allows future upgrades for new features.

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MX800 APCO P25 BASE STATION SPECIFICATIONS

P25 BASE / REPEATER OPTION BOARD (opt. T81):
(Firmware dependant upgrade from T80)

- Includes T80 features as standard.
- Programmable External PTT mode (P25 or Analogue)
- 7200 bps IMBE™ Enhanced Vocoder (opt.T81 only)
- P25 Digital audio to speaker & line.
- P25 Digital audio from Mic socket & line.

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Due to ongoing development we reserve the right to alter specifications without notice.

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