



**MOTOROLA**  
intelligence everywhere™

## INTRODUCING THE COMMERCIAL SERIES PORTABLE TWO-WAY RADIO – THE CP040

### VALUE AND SIMPLICITY IN THE PALM OF YOUR HAND

Benefiting from a 75 year history in the business of communication, Motorola welcomes you to the future of two-way radio with the Commercial Series. Comprising new portable radios for work-teams that need to keep in touch wherever they are, the family also includes four mobile radios for powerful in-vehicle or fixed site communications.

#### EASY TO USE

Using the CP040 is second nature thanks to the tough and textured buttons, chunky rotary channel, volume knobs and tricolour status LED. In addition, two programmable buttons can be set to give immediate access to the four most often-used features, making communication even simpler.

#### TARGETED COMMUNICATION

With four communication channels, you can use the CP040 to liaise with the whole team or change channel to discuss a more complicated issue one-to-one.

#### KEEP IN TOUCH

The CP040 has a high/low power setting that allows users to extend battery life for up to 19 hours\* from a

single battery charge. This can be done by switching to low power when the user is in close proximity to other users, as the range is reduced and less power is required.

Avoid missed messages with the built-in 'scan' function that searches all four channels for activity.

#### MOTOROLA QUALITY

Designed and built to the gruelling American standard MIL spec 810F and exceeding the exacting IP54 standard for environmental protection, the CP040 has also passed the Motorola Accelerated Life Test which replicates five years of hard use in the field.

#### QUALITY AUDIO

Benefiting from Motorola's market-leading experience in designing and manufacturing two-way radio, the CP040 provides excellent audio quality thanks to Motorola's voice-compression technology, X-Pand™.

#### CUSTOMISABLE

As you would expect from Motorola, the CP040 is supported by a wide range of energy, audio and carry accessories, changing the CP040 into a customised solution.

\*Based on 5:5:90 (transmit:receive:standby) duty cycle, with low power setting and high capacity lithium ion battery in normal operating conditions.



*The Motorola CP040 offers simple radio communication for small and medium-sized organisations at a very competitive price.*

*Designed with small and medium-sized warehousing, agriculture, security, light industry and services customers in mind, the four channel CP040 requires minimal training and keeps team members in touch without distracting them with complicated features. Management can monitor all voice traffic and get a message to the team in seconds, however large the site.*



HLN9701 – Nylon Carry Case



HMN9754 – Two Wire Beige Earpiece with Combined Microphone and PTT



WPLN4139 – Rapid Desktop Charger (Euro)  
WPLN4140 – Rapid Desktop Charger (UK)



HMN9030 – Rugged Remote Speaker Microphone

## TECHNICAL SPECIFICATIONS

General	VHF	UHF1	UHF2	UHF3
Frequency	146 - 174 MHz	403 - 440 MHz	438 - 470 MHz	465 - 495 MHz
Channel Capacity	4 Channels			
Power Supply	7.5 Volts ± 20%			
Dimensions (H x W x D)	130 x 62 x 42mm (with Slim Li-Ion Battery)			
Weight	376g with Slim Li-Ion Battery			
Average Battery Life at Room Temperature (5:5:90 duty cycle)	1 W	5 W	1 W	4 W
Standard Capacity NiMH Battery	13 Hrs	10 Hrs	13 Hrs	10 Hrs
Slim Li-Ion Battery	17 Hrs	12 Hrs	17 Hrs	12 Hrs
High Capacity Li-Ion Battery	19 Hrs	14 Hrs	19 Hrs	14 Hrs

Receiver	VHF		UHF1		UHF2		UHF3	
	12.5 kHz	20/25 kHz	12.5 kHz	20/25 kHz	12.5 kHz	20/25 kHz	12.5 kHz	20/25 kHz
Sensitivity (12 dB EIA SINAD)	0.25 µV (Typical)							
Adjacent Channel Selectivity	-60 dB	-70 dB	-60 dB	-70 dB	-60 dB	-70 dB	-60 dB	-70 dB
Intermodulation	-70 dB							
Frequency Stability (-30°C to +60°C)	0.00025%							
Spurious Rejection	-70 dB							
Audio Output @ < 5% Distortion	500 mW							

Transmitter	VHF		UHF1	UHF2	UHF3
	Low	High	Low	High	High
RF Output: NiMH @ 7.5V	1 W	5 W	1 W	4 W	4 W
Channel Spacing	12.5/20/25 kHz				
Frequency Stability (-30°C to +60°C)	0.00025%				
Spurs/Harmonics	-36 dBm < 1 GHz		-30 dBm > 1 GHz to 4 GHz		
Audio Response (from 6 dB/oct. Pre-emphasis, 300 to 3000 Hz)	+1, -3 dB				
Audio Distortion @ 1000 Hz, 60% Rated Max. Dev.	<3%				
FM Noise	-40 dB (12.5 kHz)		-45 dB (25 kHz)		



### MIL Standard 810F

Applicable MIL-STD	Methods	Procedures
Low Pressure	500.4	1
High Temperature	501.4	1,2
Low Temperature	502.4	1,2
Temperature Shock	503.4	1
Solar Radiation	505.4	1
Rain	506.4	1
Humidity	507.4	3
Salt Fog	509.4	1
Dust	510.4	1
Vibration	514.5	1
Shock	516.5	1

## MODEL NUMBERS

Model Number	Signalling	Channels	Frequency	Power
MDH50KDC9AA1AN	PL	4	146-174 MHz	1-5 W
MDH50QDC9AA1AN	PL	4	403-440 MHz	1-4 W
MDH50RDC9AA1AN	PL	4	438-470 MHz	1-4 W
MDH50SDC9AA1AN	PL	4	465-495 MHz	1-4 W

## ENVIRONMENTAL STANDARDS & SPECIFICATIONS

Operating Temperature	-30 to +60 °C
Storage Temperature	-40 to +85 °C
Thermal Shock	-40 to +80 °C
Dust & Water Intrusion	IP54
Radios meet all applicable regulatory requirements: R&TTE Directive 1999/5/EC	
Applicable Standards EN300 086-2, EN301 489-01, EN301 489-05, EN60950	
ISO 9001 Standard – Compliance with ISO 9001, an international quality system assurance on design, development, production, installation and servicing of a product.	

## ACCESSORIES

All radios are supplied with a slim lithium ion battery for optimal performance. A belt clip and rapid desktop charger are also included to get you started.

### Batteries

NNTN4851	Standard Capacity NiMH Battery
NNTN4970	Slim Li-Ion Battery
NNTN4497	High Capacity Li-Ion Battery

### Chargers

WPLN4139	Rapid Desktop Charger (Euro)
WPLN4140	Rapid Desktop Charger (UK)
WPLN4162	Rapid Multi-Unit Charger (Euro)
WPLN4163	Rapid Multi-Unit Charger (UK)

### Carry

HLN8255	7.5cm Spring Action Belt Clip
HLN9701	Nylon Carry Case with Belt Loop and D Rings
HLN9985	Waterproof Bag
RLN4815	Universal RadioPack
RLN5383	Leather Carry Case with Belt Loop and D Rings
RLN5385	Leather Carry Case with Swivel Belt Loop

### Audio

HMN9030	Rugged Remote Speaker Microphone
HMN9727	Single Wire Beige Earpiece
HMN9754	Two Wire Beige Earpiece with Combined Microphone and PTT
MDPMLN4445	Ultra-Light Earset with In-Line PTT
MDPMLN4442	Earbud with Combined Microphone and PTT
MDPMLN4443	Flexible Ear Receiver with Combined Microphone and PTT
MDPMMN4008	Remote Speaker Microphone
RLN5238	Stadium Headset with In-Line PTT

All specifications are subject to change without notice.

For more information contact your local Motorola authorised two-way radio dealer:



MOTOROLA and the Stylized M Logo are registered in the U.S. Patent & Trademark Office. All other product or service names are the property of their respective owners. © Motorola, Inc. 2003.

www.motorola.com/commercialseries



**MOTOROLA**  
*intelligence everywhere™*



*INTRODUCING THE COMMERCIAL SERIES  
PORTABLE RADIOS – CP140, CP160 AND CP180*



*VALUE AND VERSATILITY  
IN A CLASSIC DESIGN*





*Benefiting from a 75 year history in the business of communication, Motorola welcomes you to the future of two-way radio with the Commercial Series. Comprising three new portable radios to match the needs of workteams that need to keep in touch wherever they are, the family also includes four mobile radios for powerful in-vehicle or fixed site communication.*



## Keep the lines of communication open with the Motorola Commercial Series

### **EASY-TO-USE**

Using the robust Commercial Series is second nature thanks to the tough and textured buttons, chunky rotary channel and on/off volume knobs. In addition, each radio features two programmable buttons (four for CP160 and CP180) that can give immediate access to the most often used features, making communication even simpler.

However noisy the operating environment, a tri-colour LED indicates the radios' operation status.

### **TARGETED COMMUNICATIONS**

With 16, 32 or 64 communication channels, depending upon model, use the Commercial Series to liaise with the whole team, a single workgroup or an individual when a more complicated or sensitive issue occurs.

At the touch of a button the 'repeater talkaround' function allows users to stay in touch should the radio repeater for the area stop working or when users work beyond its range. This is particularly useful when the electricity supply can be unreliable – often when communication is needed most.

Avoid disturbing colleagues by using the 'monitor' function. This allows a channel to be checked for an ongoing conversation before transmission.

### **QUALITY & RELIABILITY**

Designed and built to the gruelling American standard MIL Spec 810F and exceeding the exacting IP54 standard for environmental protection, all Commercial Series radios

### **BUDGET CONSCIOUS**

Not only does the Commercial Series offer a fantastic range of features in a classic and ergonomically-designed package, but users of existing Motorola P-Series, Alpha Series and GP300 radios can re-use many of their existing audio accessories, saving time



have also passed the Motorola Accelerated Life Test which replicates five years of hard use in the field.

Motorola's voice compression technology, called X-Pand™, offers users excellent audio quality at the touch of a button. And when it would be inappropriate or potentially dangerous for users to speak loudly into their radio, the 'whisper' feature means that even the quietest message is received clearly.

Should a radio be dropped, the new battery safety lock keeps the battery attached to the radio and the user in contact with the team.

and money. Thanks to the Commercial Series' enhanced reliability, maintenance costs are negligible.

All radios are supplied with a standard capacity NiMH battery, rapid desktop charger with power supply unit, belt clip and antenna.

### **KEEPING IN TOUCH**

The high/low power setting allows users to extend battery life to up to 13 hours\* from a single battery charge with the included NiMH battery. A battery life of up to 19

hours\* can be achieved with the optional high capacity Li Ion battery. Switch the radio to the 'low power' setting when users are in close proximity as the reduced range requires less power.

Avoid missed messages thanks to 'Escalart™'. When activated, the incoming call alert gradually increases in volume until the call is answered. In addition, the built-in 'scan' and 'priority scan' functions

All radios can receive telephone calls when supported by an interface. The CP160 and CP180 have the additional capability to make outgoing telephone calls, ideal for liaison with desk-based colleagues, customers and suppliers.

#### CUSTOMISABLE

As you would expect from Motorola, the CP140, CP160 and CP180 are supported by a wide range of energy, audio and carry



## Which radio is right for me?

Feature	CP140	CP160	CP180
Channels	16	32	64
Programmable Buttons	2	4	4
Quick Access Features	4	8	8
Option Board Capable	●	●	●
Make Telephone Calls*	○	●	●
Receive Telephone Calls*	●	●	●
Tricolour LED	●	●	●
Keypad	○	Limited	●
Keypad Lock	○	●	●
Contact List	○	●	●
Speed Dials	○	○	●
Backlit 8 Character Display	○	●	●

\*Requires additional interface

that search channels for activity make sure the user gets important messages.

\*Based on 5:5:90 (transmit: receive:standby) duty cycle.

#### COMMUNICATION FLEXIBILITY

The Motorola CP140, CP160 and CP180 are all PROIS option board capable. This means that the radios' features can be expanded by fitting option boards designed by third party Motorola Authorised Application Partners inside the radio. Features include basic encryption, trunking and data applications.

accessories, changing the radios into solutions based upon the requirements of individual users.

And when used with a Motorola VOX-compatible headset, an audio accessory unlocks the power of voice-activated communication, leaving the user's hands free to work on the job in hand.

#### OTHER FEATURES

- Busy Channel Lockout
- Nuisance Channel Delete
- Receive-only Channel
- Variable Time-out Timer

#### CP140

With 16 communication channels, the CP140 is the perfect choice for those working for smaller organisations that need to keep in touch with their colleagues and supervisors economically. Users can change to a side channel to discuss more complicated issues one-to-one.

#### CP160

For supervisors who need to keep in touch with a number of workteams and management, the 32 channel CP160 features an eight character backlit starburst display with ten simple-to-understand icons. Up/down scrolling buttons make accessing menus and contacting teams or individuals even easier. The user knows who is calling from the 'channel alias' shown on the display.

#### CP180

The choice of management and those working for larger organisations, the CP180 has 64 communication channels for maximum flexibility and an eight character backlit starburst display with ten simple-to-understand icons. The full keypad allows instantaneous one-to-one private line calls or group calls and facilitates access to the menu and contact list that acts like an address book. The user knows who is calling from the 'channel alias' shown on the display. The keypad can be configured to allow immediate speed dial-style access to the most often called individuals and groups. A keypad lock prevents accidental radio knocks making calls and changing settings, thus keeping the user in contact.



BDN6720 – Flexible Ear Receiver



RMN4053 – Hard Hat Mount Headset with Passive Ear Defenders (Grey)

# Find your way around the CP180

breakdown... all of these occurrences can be better managed if the team is all fully informed. Motorola provides the tools to do just that with the Commercial Series portable radios.

## SECURITY

A key business across the fast changing and unpredictable world, the security industry has long realised the importance of radio communication. Be it simple back-to-back one-to-one or one-to-many communication across a larger area, the Motorola Commercial Series portable radios keep guards in touch with each other and with base. Accessories help keep hands free without restricting movement, and the easy fasten battery clip stops the battery and radio becoming separated after a fall or knock during a patrol.

## LOCAL GOVERNMENT/ MUNICIPALITY

Town centre management, road and open space maintenance and support services for a town's inhabitants... the demands upon municipal service providers are expanding all the time. To get the myriad jobs done on time and on budget requires a communication tool that is as flexible as the user. This is where the Motorola Commercial Series portable radios come into their own.

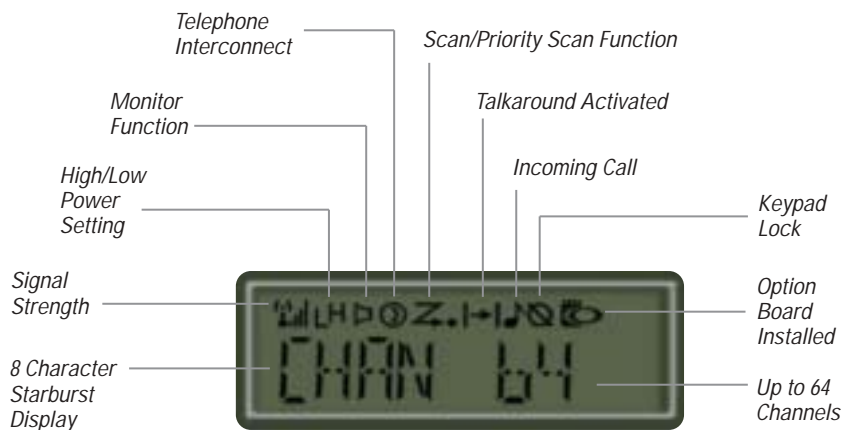
*Designed around the requirements of customers who require an economical solution with a practical feature set, the Motorola Commercial Series portable radios are particularly suitable for organisations in the following markets:*

## AGRICULTURE

Whether it is time to sow, harvest, feed livestock or repair a perimeter fence, the Motorola Commercial Series portable radios are perfectly suited to the demands of small to medium-sized land holdings where workers need to keep in contact over extended geographic areas.

## WAREHOUSING & MANUFACTURING

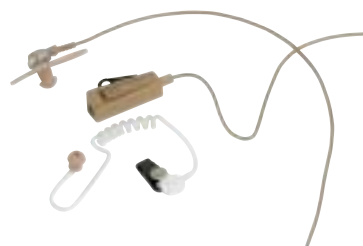
A delayed collection or delivery, an urgent job causes reprioritisation, a production or packing line



Li Ion, NiCd and NiMH Batteries



HLN9701 – Nylon Carry Case with Belt Loop



HMN9754 – 2 Wire Earpiece with Microphone & PTT Combined (Beige), NTN8371 – Standard Acoustic Tube



BDN6646 – Voiceducer with PTT and Standard Earpiece



## ACCESSORIES

All radios are supplied with a standard capacity NiMH battery, a rapid desktop charger with power supply unit, belt clip and antenna.



### Batteries

NNTN4496	Standard Capacity NiCd Battery
NNTN4497	High Capacity Li Ion Battery
NNTN4851	Standard Capacity NiMH Battery
NNTN4970	Slim Standard Capacity Li Ion Battery
NNTN4852	Standard Capacity FM NiMH Battery

### Chargers

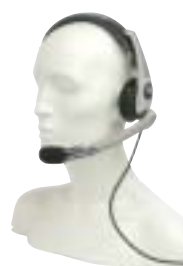
WPLN4138	Rapid Desktop Charger, US plug, 110V
WPLN4139	Rapid Desktop Charger, Euro plug, 230V
WPLN4140	Rapid Desktop Charger, UK plug, 230V
WPLN4161	Rapid Multi Unit Charger, US plug, 110V
WPLN4162	Rapid Multi Unit Charger, Euro plug, 230V
WPLN4163	Rapid Multi Unit Charger, UK plug, 230V

### Carry

NTN5243	Shoulder Carry Strap
HLN9701	Nylon Carry Case with Belt Loop
RLN4815	Universal RadioPack
HLN9985	Waterproof Bag
RLN5383	CP140 Leather Carry Case with Belt Loop
RLN5384	CP140 Leather Carry Case with 6 cm Swivel Belt Loop
RLN5385	CP140 Leather Carry Case with 7.5 cm Swivel Belt Loop
RLN5640	CP160 Hard Leather Carry Case with Belt Loop
RLN5641	CP160 Hard Leather Carry Case with 6 cm Swivel Belt Loop
RLN5642	CP160 Hard Leather Carry Case with 7.5 cm Swivel Belt Loop
RLN5496	CP180 Leather Carry Case with Belt Loop
RLN5497	CP180 Hard Leather Carry Case with 6 cm Swivel Belt Loop
RLN5498	CP180 Hard Leather Carry Case with 7.5 cm Swivel Belt Loop

### Audio

MDPMLN4444	MAG ONE Flexible Earset with Inline PTT/VOX Switch
PMMN4001	MAG ONE Earset with Flexible Boom Microphone
PMLN4294	Earbud with Combined Microphone & PTT
HMN9030	Remote Speaker Microphone
RLN4904	Mic Jacket for HMN9030 Remote Speaker Microphone
HMN9727	1 Wire Earpiece (Beige)
RLN4894	1 Wire Earpiece (Black)
HLN9132	1 Wire Earbud (Black)
HMN9752	1 Wire Earpiece with Volume Control (Beige)
HMN9754	2 Wire Earpiece with Microphone & PTT Combined (Beige)
RLN4895	2 Wire Earpiece with Microphone & PTT Combined (Black)
HMN9036	2 Wire Earbud with Microphone & PTT Combined (Black)
NTN8371	Standard Acoustic Tube
NTN8370	High Noise Acoustic Tube
RLN5198	2 Wire Earpiece and Acoustic Tube with Combined Microphone & PTT (Black)
BDN6720	Flexible Ear Receiver
HMN9013	Lightweight Headset
RMN4016	Lightweight Headset with Inline PTT
RLN5411	Lightweight Behind-the-Head Wire Headset with PTT
RLN5238	Medium Weight Stadium-Style Headset with PTT
HMN9021	Medium Weight Over-the-Head Headset
HMN9022	Medium Weight Behind-the-Head Headset
BDN6647	Medium Weight Single Speaker Headset
BDN6648	Heavy Duty Headset with Noise Cancelling Microphone
RMN5015	Heavy Duty Racing Headset (requires RKN4090 Headset Adapter Cable)
RMN4053	Hard Hat Mount Headset with Passive Ear Defenders (Grey) (Requires RKN4094 Inline PTT Adapter)
RMN4051	Hard Hat Mount Headset with Passive Ear Defenders (Black) (Requires RKN4094 Inline PTT Adapter)
RMN4055	Heavy Duty Over-the-Head Headset with Passive Ear Defenders (Red)
BDN6706	Voiceducer with PTT/VOX Switch and Standard Earpiece
BDN6646	Voiceducer with PTT and Standard Earpiece
0180300E83	Voiceducer Body PTT



RMN5015 – Heavy Duty Racing Headset (requires RKN4090 Headset Adapter Cable)

HMN9030 – Remote Speaker Microphone

RLN5238 – Medium Weight Stadium-Style Headset with PTT

MDPMLN4444 – MAG ONE Flexible Earset with Inline PTT/VOX Switch

## MODEL NUMBERS

Name	Model Number	Signalling	Channels	Frequency	Power
CP140	MDH65KDC9AA2_N	MDC/PL	16	VHF2 146-174 MHz	1-5 W
CP140	MDH65QDC9AA2_N	MDC/PL	16	UHF1 403-440 MHz	1-4 W
CP140	MDH65RDC9AA2_N	MDC/PL	16	UHF2 438-470 MHz	1-4 W
CP140	MDH65SDC9AA2_N	MDC/PL	16	UHF3 465-495 MHz	1-4 W
CP160	MDH65KDF9AA3_N	MDC/PL	32	VHF2 146-174 MHz	1-5 W
CP160	MDH65QDF9AA3_N	MDC/PL	32	UHF1 403-440 MHz	1-4 W
CP160	MDH65RDF9AA3_N	MDC/PL	32	UHF2 438-470 MHz	1-4 W
CP160	MDH65SDF9AA3_N	MDC/PL	32	UHF3 465-495 MHz	1-4 W
CP180	MDH65KDH9AA4_N	MDC/PL	64	VHF2 146-174 MHz	1-5 W
CP180	MDH65QDH9AA4_N	MDC/PL	64	UHF1 403-440 MHz	1-4 W
CP180	MDH65RDH9AA4_N	MDC/PL	64	UHF2 438-470 MHz	1-4 W
CP180	MDH65SDH9AA4_N	MDC/PL	64	UHF3 465-495 MHz	1-4 W



### Accelerated Life Testing

Stringent Motorola Accelerated Life Testing simulates five years of hard use in real life and includes testing resistance to extreme temperatures (see above), shock, vibration, dust and humidity.

**IP54** for dust and water intrusion. Tested for resistance to dust and spray water from all directions.

## TECHNICAL SPECIFICATIONS

General	VHF	UHF1	UHF2	UHF3
Frequency	146 - 174 MHz	403 - 440 MHz	438 - 470 MHz	465 - 495 MHz
Channel Capacity	16 Channels (CP140)		32 Channels (CP160)	64 Channels (CP180)
Power Supply	7.5 Volts ± 20%			
Dimensions (H x W x D)	130.5 x 62 x 42mm (with Slim Li Ion Battery)			
Weight (with Slim Li Ion Battery)	377g (CP140)		397g (CP160/180)	
Average Battery Life at Room Temperature (5:5:90 duty cycle)	1 W	5 W	1 W	4 W
Standard Capacity NiCd Battery	10 Hrs	8 Hrs	10 Hrs	8 Hrs
Standard Capacity FM NiMH Battery	11 Hrs	9 Hrs	11 Hrs	9 Hrs
Standard Capacity NiMH Battery	13 Hrs	10 Hrs	13 Hrs	10 Hrs
Slim Li Ion Battery	17 Hrs	12 Hrs	17 Hrs	12 Hrs
High Capacity Li Ion Battery	19 Hrs	14 Hrs	19 Hrs	14 Hrs

Receiver	VHF		UHF1		UHF2		UHF3	
	12.5 kHz	20/25 kHz	12.5 kHz	20/25 kHz	12.5 kHz	20/25 kHz	12.5 kHz	20/25 kHz
Sensitivity (12 dB EIA SINAD)	0.25 µV (Typical)							
Adjacent Channel Selectivity	-60 dB	-70 dB	-60 dB	-70 dB	-60 dB	-70 dB	-60 dB	-70 dB
Intermodulation	-70 dB							
Frequency Stability (-30°C to +60°C)	0.00025%							
Spurious Rejection	-70 dB							
Audio Output @ < 5% Distortion	500 mW							

Transmitter	VHF		UHF1	UHF2	UHF3
	Low	High	Low	High	High
RF Output: NiMH @ 7.5V	1 W	5 W	1 W	4 W	
Channel Spacing	12.5/20/25 kHz				
Frequency Stability (-30°C to +60°C)	0.00025%				
Spurs/Harmonics	-36 dBm < 1 GHz		-30 dBm > 1 GHz to 4 GHz		
Audio Response (from 6 dB/oct. Pre-emphasis, 300 to 3000 Hz)	+1, -3 dB				
Audio Distortion @ 1000 Hz, 60% Rated Max. Dev.	<3%				
FM Noise	-40 dB (12.5 kHz)		-45 dB (25 kHz)		

All specifications are subject to change without notice.

For more information contact your local Motorola authorised two-way radio dealer:



CP1X0.FB.RE (12/03)



**MOTOROLA**

MOTOROLA and the Stylized M Logo are registered in the U.S. Patent & Trademark Office. All other product or service names are the property of their respective owners. © Motorola, Inc. 2004.

www.motorola.com/commercialseries

Portable MIL Standard 810F		
Applicable MIL-STD	Methods	Procedures
Low Pressure	500.4	1
High Temperature	501.4	1,2
Low Temperature	502.4	1,2
Temperature Shock	503.4	1
Solar Radiation	505.4	1
Rain	506.4	1
Humidity	507.4	3
Salt Fog	509.4	1
Dust	510.4	1
Vibration	514.5	1
Shock	516.5	1

## ENVIRONMENTAL STANDARDS & SPECIFICATIONS

Operating Temperature	-30 to +60 °C
Storage Temperature	-40 to +85 °C
Thermal Shock	-40 to +80 °C
Dust & Water Intrusion	IP54
ISO 9001 Standard - Compliance with ISO 9001, an international quality system assurance on design, development, production, installation and servicing of a product.	