

TM8100 Mobile Radios TM8200 Mobile Radios

Specifications Manual

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1 Introduction

This manual lists some of the regulatory requirements and industry standards that the TM8100/TN8200 series of mobile radios satisfy, and explains how the radio specifications were derived. Separate chapters compare the performance of the receiver ([Section 2](#)) and of the transmitter ([Section 3](#)) with requirements specified by the European Telecommunications Standards Institute (ETSI) and the Telecommunications Industry Association (TIA). [Section 4](#) provides general radio specifications.

Notice The specifications in this manual are typical performance figures that are intended only to provide guidance. They are subject to change without notice and shall not form part of any contract. To establish whether the radio meets the regulatory requirements that apply to you, contact your regional Tait office.

Notice For known issues and limitations that may cause a radio to perform outside the specifications listed here, see the software release notes for the TM8100/TM8200. Software release notes are on the Tait Support website, <http://support.taitradio.com>.

Regulatory Requirements and Industry Standards

Regulatory Requirements

radios meet and exceed the following **regulatory requirements** (where applicable):

- CFR 47
- AS4295-2004
- EN 300 086-1¹
- EN 300 113-1¹
- EN 300 219-1¹
- EN 301 489-1¹
- EN 62368¹
- RSS-119
- GB/T 15844.1 - 1995 (RF compliance, China)

¹ A regulatory requirement issued by ETSI. ETSI requirements do not apply to radios operating in the 700/800/900MHz frequency bands.

Industry Standards

radios also meet and exceed **industry standards** that include:

- Relevant sections of TIA-603-D (Land Mobile FM or PM Communications Equipment Measurement and Performance Standards)
- MIL-STD 810 F (Environmental Engineering Considerations and Laboratory Tests, see also ["Environmental" on page 28](#))

TIA standards are adopted by TIA in accordance with the American National Standards Institute (ANSI) patent policy.

For applicable Ingress Protection (IP) ratings and military standards, as well as details of the applicable Electrostatic Discharge (ESD) standard, see ["Environmental" on page 28](#).

Quality Assurance

Tait is an ISO9001:2000 and ISO14001:2004 certified supplier.

Performance Figures

specifications were derived by measuring **typical performance** and then averaging that measurement across multiple points in each RF band.

In contrast, all figures quoted as regulatory requirements are **guaranteed minimum performance** figures. Unless stated otherwise, figures are for equipment operated at standard room temperature, +71.6°F to +82.4°F (+22°C to +28°C) and standard test voltage (13.8 VDC).

Performance figures quoted as “typical” are generally better than performance figures quoted as “guaranteed minimum”.

Definition of NB, MB, and WB

The terms “narrow bandwidth”, “mid bandwidth”, and “wide bandwidth” are used as follows:

Term	Abbreviation	Channel spacing	Modulation 100% deviation
Narrow bandwidth	NB	12.5kHz	±2.5kHz
Mid bandwidth	MB	20kHz	±4 kHz
Wide bandwidth	WB	25kHz	±5.0kHz

Frequency Bands

Tait uses a unique alpha-numeric code to represent each frequency band. Frequency codes currently used with the TM8100/TM8200 series of radios include:

Frequency code	Frequency range
A4	66MHz to 88MHz
B1	136MHz to 174MHz
C0	174MHz to 225MHz
D1	216MHz to 266MHz
G2	350MHz to 400MHz
H5	400MHz to 470MHz ^a
H6	450MHz to 530MHz
H7	450MHz to 520MHz
K5	762MHz to 870MHz (transmit) 762MHz to 776MHz and 850MHz to 870MHz (receive)
L3	896-941 MHz (transmit) 935-941 MHz (receive)

a. H5-band radios are also approved for operation on the Australia and New Zealand Citizens Band frequencies (476.425 to 477.4125MHz).

These codes are used throughout the manual.

For more information, see ["Frequencies and Channels" on page 29](#).

Australia and New Zealand Citizens Band

AS/NZS 4365 deals with the use of frequencies in the 476.425 to 477.4125MHz band. Products capable of operating in this band have been approved for operation in the UHF Citizens Band Radio Service which is licensed in Australia by the ACMA Radiocommunications (Citizens Band Radio Stations) Class Licence and in New Zealand by the MBIE General User Radio Licence for Citizens Band Radio. Operation is subject to conditions contained within those licences.

Repeaters operate by receiving a transmission on one channel and re-transmitting it on another. Operators are required to avoid using local repeater input channels, which will be in the range of 31 to 38 (and 71 to 78 when authorized), unless it is intended to use the repeater facility, and to avoid using local repeater output channels, which will be in the range 1 to 8 (and 41 to 48 when authorized), at any time. Operators must always listen in on a channel (or observe a channel-busy indicator) to ensure it is not already being used before transmitting.

No voice transmissions are permitted on data channels 22 and 23. Equipment meeting this standard will inhibit voice operation on channels 22 and 23.

Operators must be aware of the consequences of narrowband (2.5 kHz deviation) transmissions being received on older wideband equipment, and wideband (5.0 kHz deviation) transmissions being received on newer narrowband equipment. They should also be aware of the possibility of interference due to older equipment being operated on channels adjacent to new narrowband channels. The list of currently authorized channels can be obtained from the ACMA website in Australia and the MBIE website in New Zealand.

In Australia:

- Except in an emergency, a CB transmitter must not be operated on UHF channels 5 and 35.
- Channel 11 is the customary calling channel for establishing communications.
- Channel 40 is the customary road vehicle channel.

FCC Narrowbanding Regulations

The following information applies to all radios, not just to those sold in countries where FCC regulations apply.

From 1 January 2013 it is an FCC requirement that land mobile radio systems must not operate channels with a bandwidth greater than 12.5 kHz in the 150–174 MHz and 421–470 MHz frequency bands. From this date all radios will be supplied with firmware that requires a software feature license to operate a medium or wide bandwidth channel in these frequency bands.

The 20/25 kHz Unrestricted Wideband feature license is available to any customer who is not subject to the relevant FCC regulations, or who has an FCC waiver. Note that this feature license is also required to operate a medium or wide bandwidth channel on the spot frequencies which are exempt from the FCC requirement:

- 152.0075, 157.450, 152.480, 157.740 and 158.460 MHz in the 150–174 MHz frequency band
- 462.750, 462.775, 462.800, 462.825, 462.850, 462.875, 462.900, 462.925, and 465 MHz in the 421–470 MHz frequency band.

To obtain the feature license, or for more information about it, contact your regional Tait office.

RF Output Power

radios are available with >25 W and 25 W RF output power. The two RF output power options are implemented by different main boards in the radio body and mechanically different radio bodies. The control heads are identical for all RF output power options.

The >25 W radio is available in the following frequency bands:

- B1 (50 W)
- G2 (40 W)
- H5 (40 W)
- H7 (40 W)
- K5 (35 W/30 W)
- L3 (30 W)

The 25 W radio is available in the following frequency bands:

- A4
- B1
- C0
- D1
- H5¹
- H6

Product Codes

The product code (TMAx) printed on a radio label identifies both the radio model and the configuration of that particular radio. For a detailed explanation of product codes and how to interpret them, please refer to the TM8100/TM8200 Service Manual (MMA-00005-xx).

For an explanation of product codes, refer to the TM8100/TM8200 Service Manual (MMA-00005-xx).

1. Radios approved for operation on the Australia and New Zealand Citizens Band have a maximum RF output power of 5 W.

Associated Documentation

The following documents are provided on the TM8100/TM8200 Service CD, product code TMAA20-01:

Title	Part Number ^a
Safety and Compliance Information	MTA-00011-xx
TM8100 User's Guide	MMA-00002-xx
TM8200 User's Guide	MMA-00003-xx
TM8235 User's Guide	MMA-00051-xx
TM8260 User's Guide	MMA-00040-xx
TM8100/TM8200 Installation Guide	MMA-00028-xx
TM8100/TM8200 Service Manual	MMA-00005-xx

The following manuals are mainly used by third-party developers. The manuals are supplied on the 3DK (third-party developer's kit) resource CD:

Title	IPN/Item code
TM8100/TM8200 3DK Hardware Developer's Kit Application Manual	MMA-00011-xx
TMAA30-02 TM8000 3DK Application Board Software Programmer's Manual	MMA-00014-xx
TMAA30-02 TM8000 3DK Application Board Service Manual	MMA-00013-xx
TM8100/TM8200 Computer-controlled Data Interface Protocol Manual	MMA-00038-xx

Always get the latest issue of a manual from the Tait Support website. Also available on the website are software release notes, and technical notes (TNs) which provide technical details not yet in the manuals, or solve any problems that may have arisen.

Document Conventions

Please follow exactly any instruction that appears in the text as an ‘alert’. An alert provides necessary safety information as well as instruction in the proper use of the product. This manual uses the following types of alert:

Notice This alert is used to highlight information that is required to ensure procedures are performed correctly. Incorrectly performed procedures could result in equipment damage or malfunction.



This icon is used to draw your attention to information that may improve your understanding of the equipment or procedure.

Publication Record

Issue	Date	Description
1	November 2008	First release
2	July 2015	Corrected duty cycles. Added mechanical drawings to " General Specifications ". General updates.

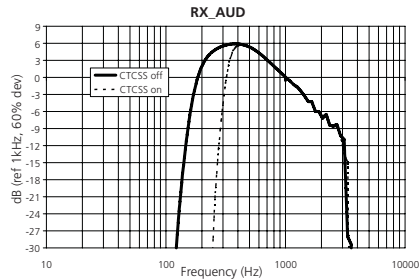
2 Receiver Specifications

This chapter compares the performance of the receiver in a TM8100/TM8200 radio with receiver requirements specified by ETSI and TIA.

Where an ANSI/TIA or ETSI EN 300 113 test method was used to measure TM8100/TM8200 performance, this is indicated in parentheses. Where the ETSI test method EN 300 086-1 was used, no test method is named. Please see also the footnotes to the tables.

Notice The TM8100/TM8200 specifications in this manual are typical performance figures that are intended only to provide guidance. They are subject to change without notice and shall not form part of any contract. To establish whether the radio meets the regulatory requirements that apply to you, contact your local Tait CSO.

For important information about how radio performance figures were derived, see [Chapter 1 Introduction](#).

Parameter	Compliance limit	Measured performance		
	All bands ^a	A4 B1 C0 D1	G2 H5 H6 H7	K5 L3
Adjacent channel selectivity				
NB channel ^b	> 60dB	69dB	68dB	n/a ^c
MB channel	> 70dB	78dB	75dB	
WB channel	> 70dB	80dB	77dB	
Adjacent channel selectivity (TIA/EIA603 one-tone test method)				
NB channel ^b	> 45dB	69dB	68dB	66dB
MB channel	> 65dB	78dB	75dB	75dB
WB channel	> 75dB	80dB	77dB	78dB
Audio distortion at rated audio ^d				
	±10%	1–1.5%		
Audio bandwidth				
		300–3000 Hz (flat or with de-emphasis)		
Audio response ^d				
	+1dB, –3dB 6dB per octave de-emphasis curve, over the range 300–3000Hz			
Blocking				
	> 84dB	97dB	96.5dB	n/a
Co-channel rejection				
NB channel ^b	> -12dB	-5.7dB	6.5dB	n/a ^c
MB channel	> -8dB	-3.2dB	-2.7dB	
WB channel	> -8dB	-2.7dB	-2.5dB	
FM hum and noise (TIA-603-D)				
NB channel ^b	> 34dB	42dB	40dB	44dB
MB channel	> 38dB	46dB	44dB	47dB
WB channel	> 40dB	47dB	46dB	49dB

Parameter	Compliance limit	Measured performance (continued)		
	All bands ^a	A4 B1 C0 D1	G2 H5 H6 H7	K5 L3
Frequency stability (TIA-603-D)				
	±1.5ppm (-30°C to +60°C)	±1ppm (+25°C at time of manufacture)		
Intermodulation rejection				
NB channel WB channel	> 65dB > 65dB	69dB	69dB	n/a ^c
Intermodulation rejection (TIA-603-D)				
NB channel WB channel	> 70dB > 70dB	77.5dB	77dB	81dB
Mute opening point (RSSI mute)				
Country City Hard	-115dBm -113dBm -107dBm			
Mute opening point (Squelch mute)				
Country City Hard	8dB SINAD 12dB SINAD 20dB SINAD			
Rated audio ^d				
	3W into 16Ω load			
RSSI				
	-115 to -50dBm			
Sensitivity ^e (TIA-603-D)				
NB channel ^b MB channel WB channel	< -117dBm ^f < -117dBm < -117dBm	-121dBm -120dBm -119dBm	-121dBm -121dBm -121dBm	-122dBm -121dBm -122dBm
Sensitivity ^g				
NB channel ^b MB channel WB channel	< -107dBm < -107dBm < -107dBm	-111dBm -113dBm -113dBm	-111dBm -113dBm -113dBm	n/a ^c

Parameter	Compliance limit	Measured performance (continued)		
	All bands ^a	A4 B1 C0 D1	G2 H5 H6 H7	K5 L3
Signal displacement bandwidth (TIA-603-D)				
NB channel ^b	> 40 %	126–130 %	105–121 %	99–103 %
MB channel	> 40 %	80–104 %	86–109 %	57–62 %
WB channel	> 40 %	63–97 %	67–80 %	65–73 %
Spurious response rejection				
At IF frequency	> 70 dB	A4: 94.9 dB B1: 91.0 dB C0: 83.2 dB D1: 81.3 dB	H5: 80.0 dB H6: 75.7 dB	K5 (762–776): 90.6 dB K5 (850–870): 84.7 dB
At ½ IF frequency	> 70 dB ^h	A4: 83.2 dB C0: 81.3 dB D1: 84.9 dB		K5 (762–776): 90.0 dB K5 (850–870): 89.3 dB

a. See ["Frequency Bands" on page 7](#).

b. See ["Definition of NB, MB, and WB" on page 6](#).

c. Not applicable.

d. EN 300 086-1, TIA-603-D and TIA-102 test methods.

e. 12 dB SINAD.

f. 6.0 dB μ VEmpf.

g. 20 dB SINAD phosphometric weighting.

h. Except K5 band: 762–766 MHz (69 dB), and 866–870 MHz (66 dB).



Sensitivity, distortion, and signal-to-noise figures are for standard operating conditions that include audio de-emphasis.

3 Transmitter Specifications

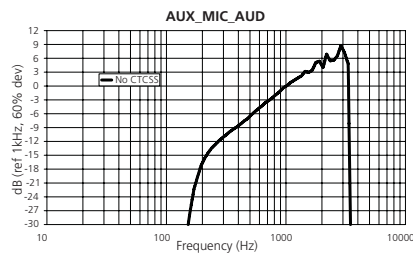
This chapter compares the performance of the transmitter in a TM8100/TM8200 radio with transmitter requirements specified by ETSI and TIA.

The TM8100/TM8200 satisfies the Electronics Industries Alliance (EIA) requirements for F3E and F2D emissions.

Notice The specifications in this manual are typical performance figures that are intended only to provide guidance. They are subject to change without notice and shall not form part of any contract. To establish whether the radio meets the regulatory requirements that apply to you, contact your regional Tait office.

For important information about how radio performance figures were derived, see [Chapter 1 Introduction](#).

Minimum Requirements / Measured Performance

Parameter	Compliance limit	Measured performance				
	All bands ^a	A4 B1 C0 D1		G2 H5 H6 H7		K5 L3
		25W	50W	25W	40W	30/35W
Audio distortion at 1 kHz with 60% modulation ^b						
	< 3%	0.3–1.2%	0.9%	0.2–0.4%	1–1.2%	1.4%
Conducted emissions (nominal voltage and temperature)						
< 1GHz > 1GHz	< –36dBm < –30dBm	-44.7dBm -44.5dBm	-42.4dBm -46.0dBm	-45.7dBm -45.6dBm	-44.8dBm -46.0dBm	n/a
Conducted emissions (voltage and temperature extremes)						
< 1GHz > 1GHz	< –36dBm < –30dBm	-44.6dBm -44.5dBm	-42.7dBm -46.0dBm	-44.3dBm -40.3dBm	-44.0dBm -46.0dBm	n/a
FM hum and noise (TIA-603-D)						
NB channel ^c MB channel WB channel	> 34dB > 38dB > 40dB	44.5dB 45.6dB 47.4dB	[TBD] [TBD] [TBD]	37.7dB 41.8dB 43.6dB	37.8dB 41.3dB 42.5dB	34.6dB 38.5dB 40.5dB
Modulation						
		Analog FM, CP4GFSK, FFSK				
Modulation frequency response ^b						
	+1, -3dB from 6dB per octave pre-emphasis curve, over the range 300–3000Hz	AUX_MIC_AUD 				
Modulation limiting ^b						
NB channel ^c MB channel WB channel	±2.5kHz ±4.0kHz ±5.0kHz	±2.5kHz ±4.0kHz ±5.0kHz				

Parameter	Compliance limit	Measured performance				
	All bands ^a	A4 B1 C0 D1		G2 H5 H6 H7		K5 L3
		25W	50W	25W	40W	30/35W
RF power output ^b						
High		25 W	50W	25W	40W	30/35W ^d
Medium		12 W	25W	12W	20W	15W
Low		5 W	15W	5W	15W	5W
Very low		1 W	10W	1W	10W	2W
Transmit rise time ^e						
TM8100		<10ms				
TM8200		<20ms				
Transmit timer						
		Programmable. 1 to 250 seconds, or 0 (no timer)				
Duty cycle						
25W radios at 25W ^f (+60°C ambient temperature)		33% ^g	20%	33% ^g	20%	20%
25W radios at 5W ^h (+40°C ambient temperature)		100% ⁱ	n/a	100% ⁱ	n/a	n/a
> 25W radios at rated output power ^f (+60°C ambient temperature)		n/a	20% ^j	n/a	20% ^j	20% ^j

a. See ["Frequency Bands" on page 7](#).

b. EN 300 086-1 and TIA-603-D test methods.

c. See ["Definition of NB, MB, and WB" on page 6](#).

d. 30W for the L3 band and K5 762-806MHz sub-band, 35W for the K5 806-870MHz sub-band.

e. External PTT to 80% (-1dB) power output.

f. At 16V.

g. 2min Tx, 4min Rx.

h. At 13.8V.

i. Continuous Tx.

j. 1min Tx, 4min Rx.

4 General Specifications

This chapter provides general radio specifications for the TM8100/ TM8200 series of mobile radio bodies and control heads.

- For radio compliance specifications, see "[Regulatory Requirements and Industry Standards](#)" on page 5.
- For receiver performance specifications, see "[Receiver Specifications](#)" on page 12.
- For transmitter performance specifications, see "[Transmitter Specifications](#)" on page 16.

 The product code printed on the radio label identifies both the radio model and the configuration of that particular radio. For an explanation of product codes, refer to the TM8100/ TM8200 Service Manual (MMA-00005-xx).

Radio Controls, Connectors and Dimensions

Figure 4.1 User interfaces (TM8200 shown)

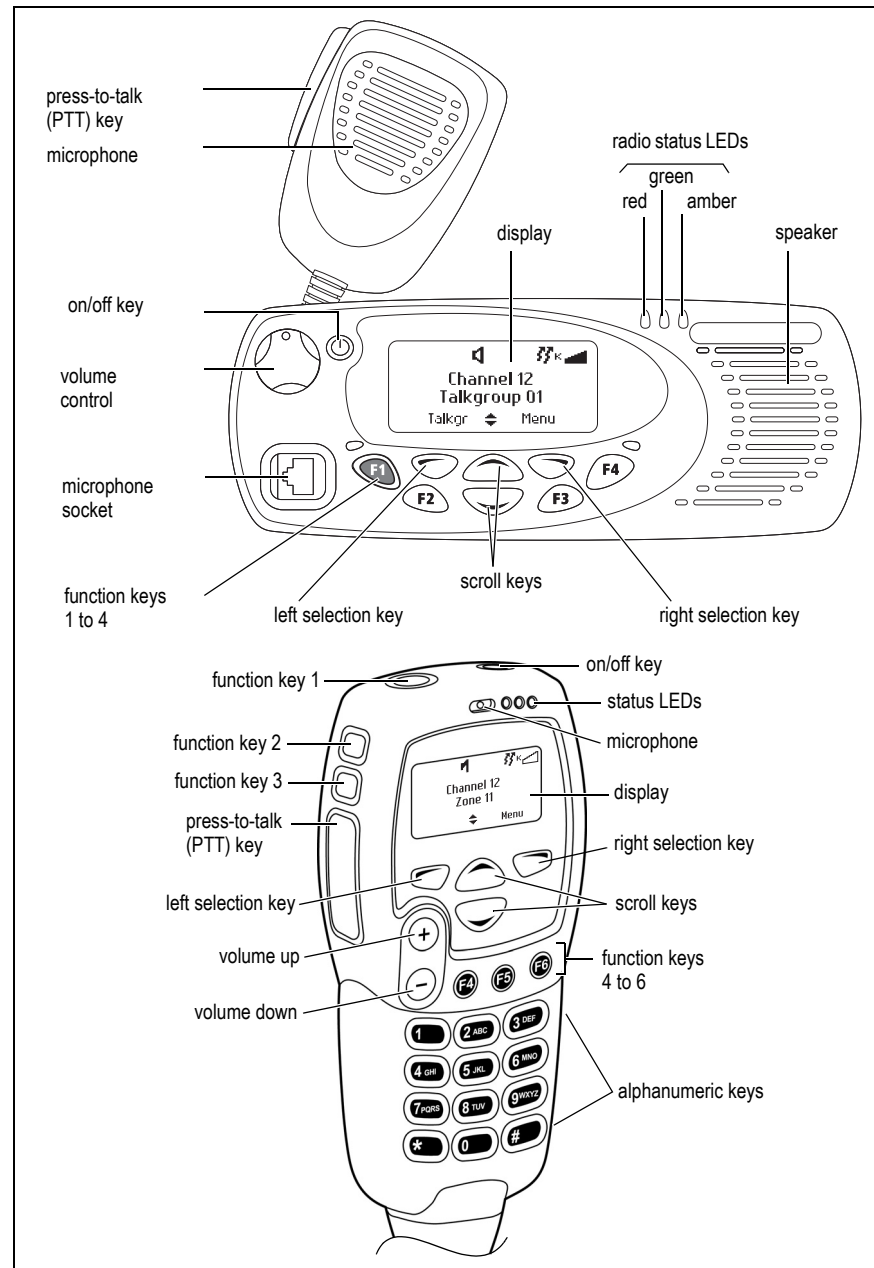
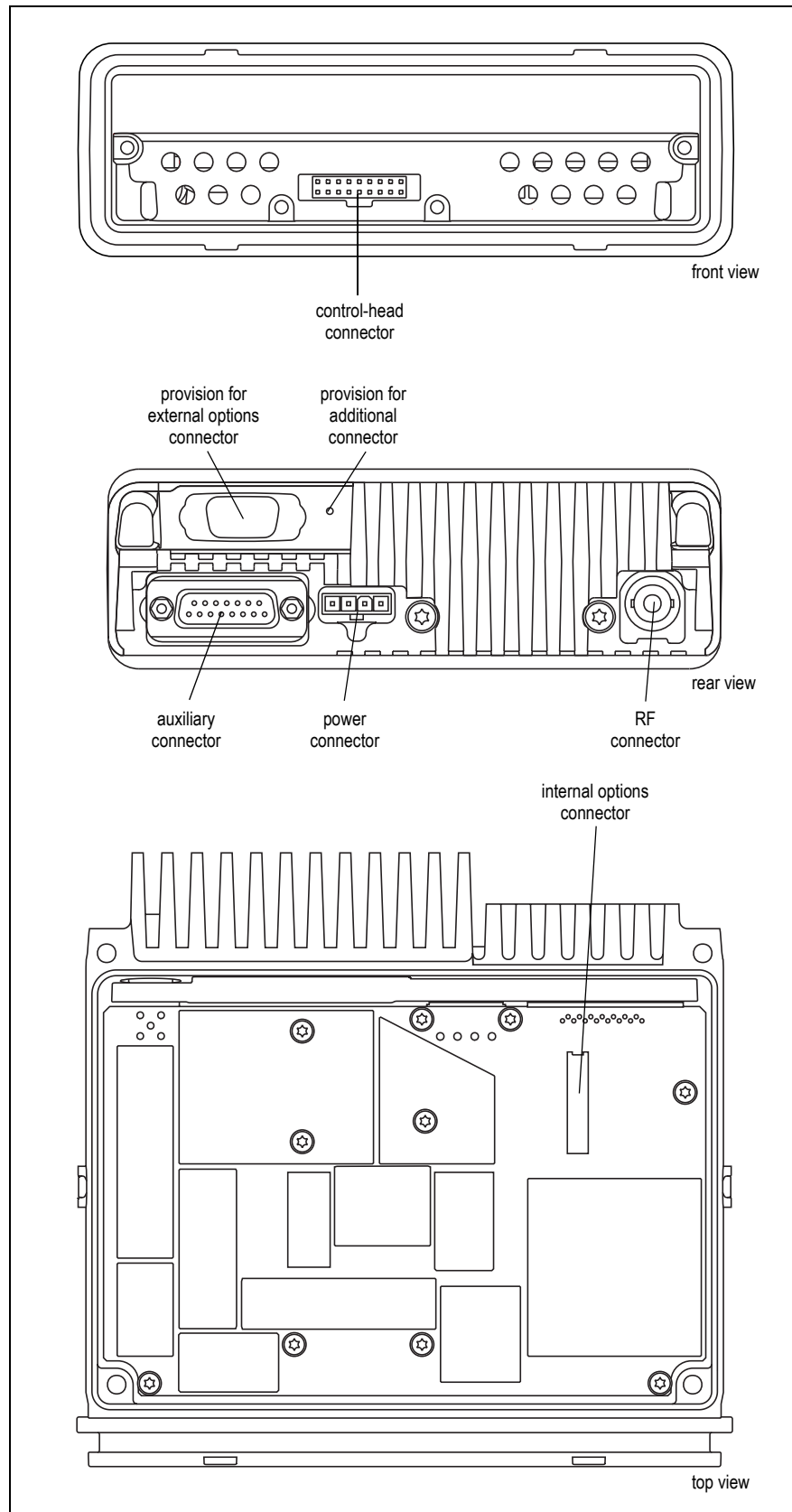


Figure 4.2 Connectors of the radio body (25W radio shown)



**Figure 4.3 Dimensions of U-bracket installation of radio with 1/2/3-digit control head
(25W radio shown)**

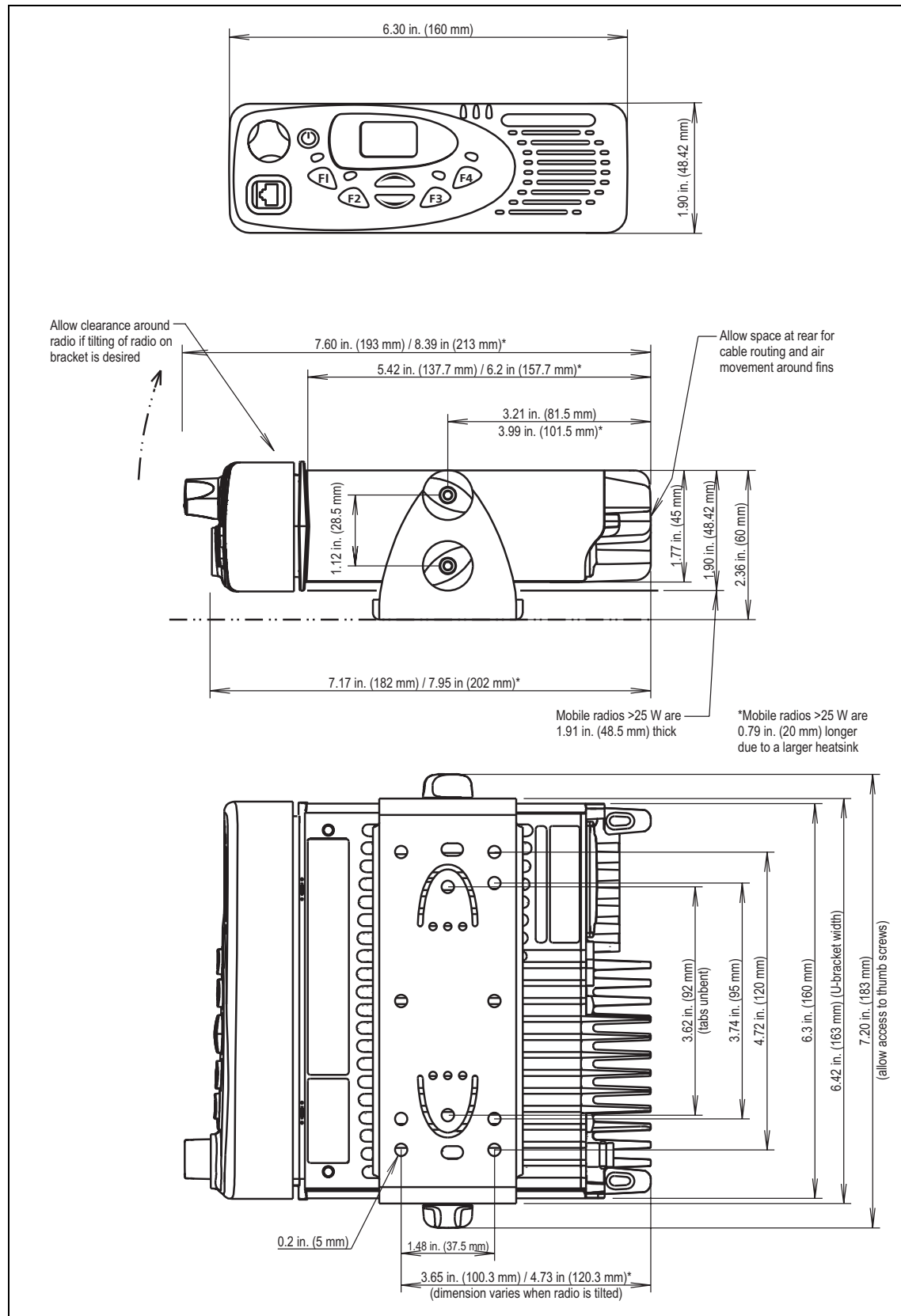


Figure 4.4 Dimensions of U-bracket installation of radio with graphical control head (25W radio shown)

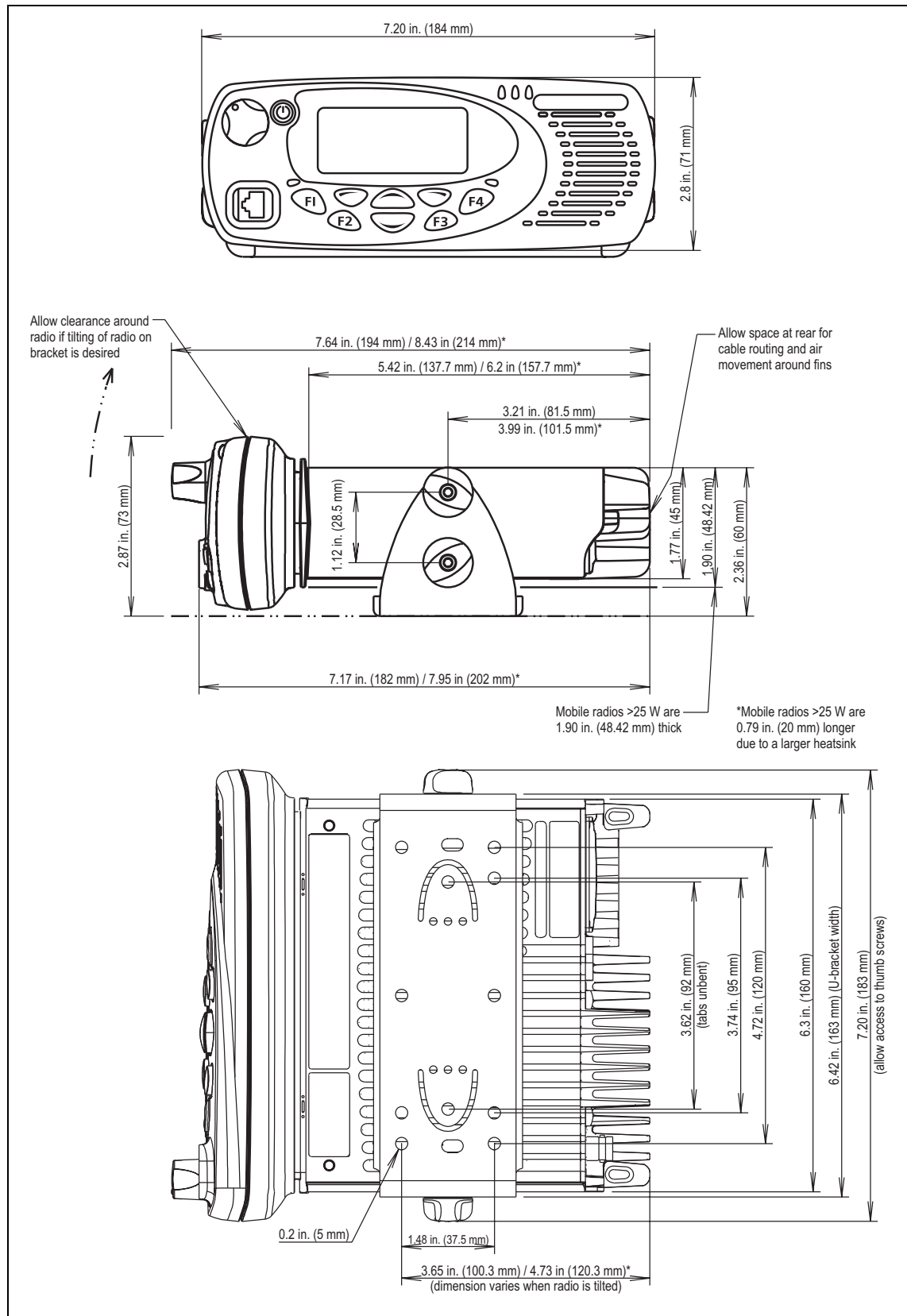


Figure 4.5 Dimensions of remote control head installation (graphical control head only)

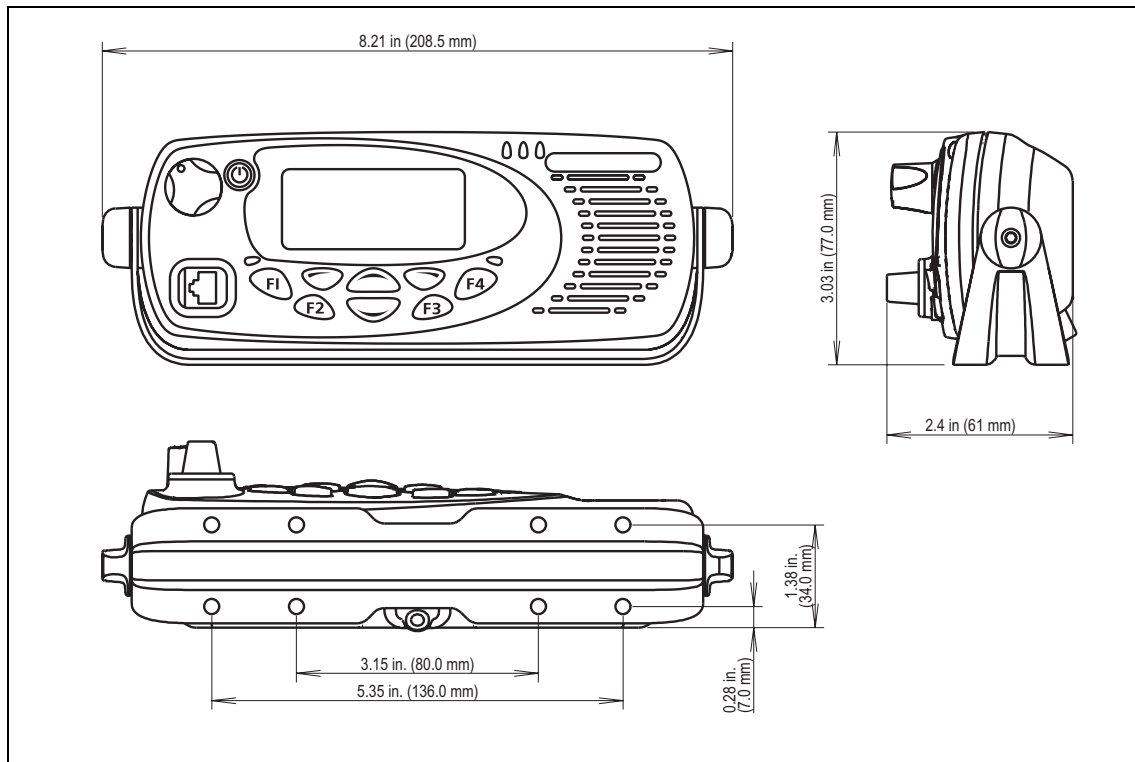
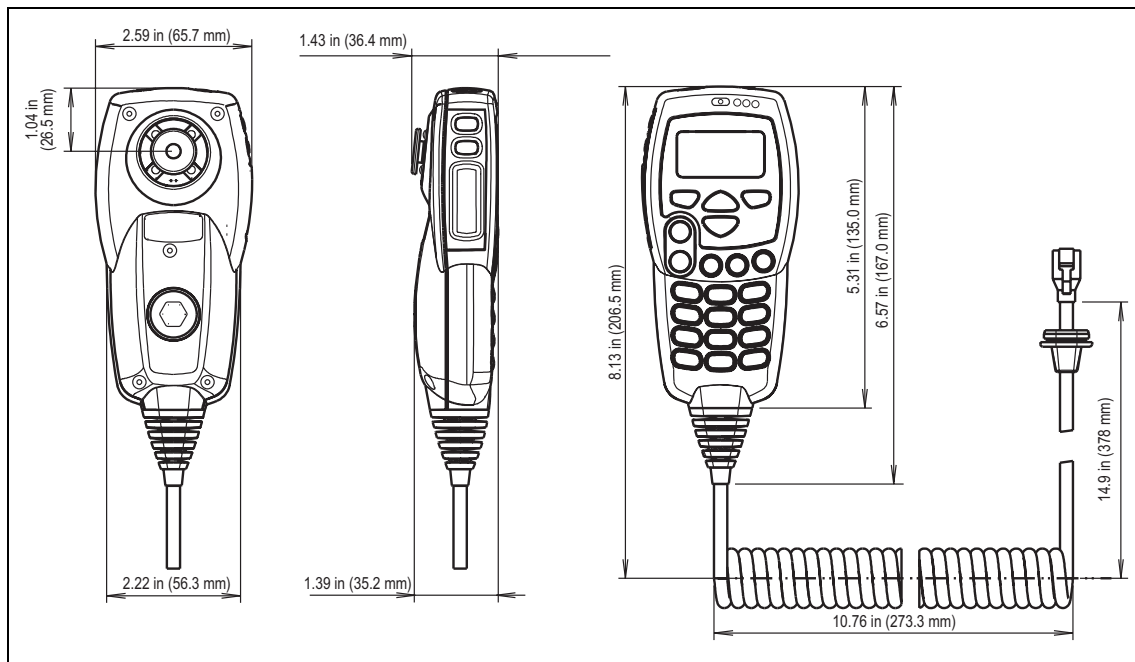


Figure 4.6 Dimensions of hand-held control head



User Interface

Control Head

	TM8105 data radio	TM8110 1-digit display	TM8115 2-digit display	TM8235 3-digit display	TM8250/ TM8255 graphical display	TM8252 data radio	TM8254 hand- held control head
Display	None	1 x 7-segment	2 x 7-segments	3 x 7-segments	4-line graphical (160 x 64 pixels)	None	4-line graphical (96 x 62 pixels)
Connectors	9-pin D-range	1x 8-way RJ45 (microphone/programming)				1x 8-way RJ45	2x 8-way RJ45 (program- ming)
Function keys	None	4	4	2	4	None	6
Keypad							
Function keys		✓	✓	✓	✓		✓
Scroll keys		✓	✓	✓	✓		✓
Shift key				✓			
Clear key				✓			
Selection keys					✓		✓
Volume keys							✓
Alphanumeric keys		Via keypad microphone (if connected)					✓
LED status indicators							
Status LED	None	3	3	3	3	1	3
Function key LED	None	4	4	4	2	None	None
Push-to-talk (PTT) button	None	Via connected microphone				None	On left side
Hookswitch and hanger plate	None	Included with microphone				None	Included with con- trol head
Speaker	None	Internal, 16Ω impedance, >3W				None	None
Microphone	None	Via connected microphone, optional covert microphone (internal)				None	Internal
Volume	None	Rotary control				None	Volume keys
On-off	None	On-off key				None	On-off key

Radio Body

Connectors	
RF	50 Ω BNC or mini-UHF
Power	Between 10.8 and 16V DC, negative ground
Auxiliary	15-way D-range ^a
Internal options	18-pin Micro-MaTch connector ^b
Speaker	Optional external (using power connector), maximum power 10W into 4 Ω , balanced load configuration
Microphone	Optional auxiliary (e.g. handsfree)
On-off	Optional external (e.g. ignition sense)

a. Includes 1 serial, 3 input, 4 I/O, 1 audio tap in, 1 audio tap out.

b. Includes 1 serial, 7 I/O, 1 audio tap in, 1 audio tap out.

Radio Size, Weight, and Finish

	Body (25W)	Body (>25W)	Local head (TM8110/ TM8115/ TM8235)	Local head with no volume (TM8105/ TM8252)	Local head (TM8250/ TM8255)	Remote head with backing (TM8250/ TM8255)	Hand- held control head (TM8254)
Dimensions							
Depth	5.51 in (140mm)	6.3 in (160mm)	1.65 in ^a (42mm)	1.46 in ^b (37mm)	1.18 in (30mm)	2.36 in (60mm)	1.38 in (35mm)
Width	6.26 in (159mm)	6.26 in (159mm)	6.3 in (160mm)	6.3 in (160mm)	7.09 in (180mm)	7.09 in (180mm)	2.56 in (65mm)
Height	1.77 in (45mm)	1.9 in (48.5mm)	2.05 in (52mm)	2.05 in (52mm)	2.76 in (70mm)	2.76 in (70mm)	5.31 in ^c (135mm)
Weight (radio body and control heads)	37.1 oz (1050g)	44.9 oz (1270g)	6.7 oz (190g)	3.9 oz (110g)	12 oz (340g)	14.1 oz (400g)	10.2 oz (289g)
Weight (accessories)	7 oz (200g) 7.5 oz (212g) 4.6 oz (130g)						
Finish	Plastic: black, with coarse texture. Keys and keypads: silicon rubber. Aluminium: diecast						

a. Depth measured to the edge of the volume control.

b. Depth measured to connector edge with bung.

c. Height measured to top of curly cord connector.

Environmental

Operating temperature range	–22 °F to +140 °F (–30 °C to +60 °C)		
Dust and immersion	The radio body and control head, when installed correctly with seals and socket bungs, is IP54 rated. This includes the standard and keypad microphones, and hand-held control head. Ingress Protection (IP) rating is used by the European Committee for Electro-Technical Standardization. “5” indicates complete protection from contact, and protection from dust. Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment. “4” indicates splashing water. Water splashing against the enclosure from any direction shall have no harmful effect.		
Durability: Military standards	MIL-STD-810F^a	Method	Procedure
	Low pressure	500.4	2
	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, 3
	Humidity	507.4	1
	Salt fog	509.4	1
	Dust	510.4	1
	Vibration	514.5	1
	Shock	516.5	1, 6

a. The radio also meets the equivalent superseded standards MIL-STD-810C, D, and E.

See also ["Regulatory Requirements and Industry Standards" on page 5.](#)

Frequencies and Channels

		A4 B1 C0 D1		G2 H5 H6 H7		K5 L3
		25W	50W	25W	40W	30/35W
Frequency increments						
		2.5kHz, 3.125kHz, 5kHz, 6.25kHz				
Channel spacing						
NB channel		12.5 kHz				
MB channels		20 kHz				
WB channel		25kHz				
Frequency range, see "Frequency Bands" on page 7^a .						
Frequency stability, see Chapter 2 Receiver Specifications						
IF bandwidth						
NB channel		7.5kHz				
MB channels		12.0kHz				
WB channel		15kHz				
RF power output ^a						
High	25W	50W	25W	40W	30/35W ^b	
Medium	12.5W	25W	12.5W	25W	15W	
Low	5W	15W	5W	15W	5W	
Very low	1W	10W	1W	10W	2W	

a. H5-band radios are also approved for operation on the Australia and New Zealand Citizens Band frequencies (476.425 to 477.4125MHz) with a maximum RF output power of 5W.

b. 30W for 762–806MHz, 35W for 806–870MHz.

Number of Zones, Channels, Groups and Networks

	Min.	Max. (TM8110)	Max. (TM8105/ TM8115)	Max. (TM8235)	Max. (TM8250)	Max. (TM8252/ TM8254/ TM8255)
Zones	1	n/a	n/a	1	26	26
Channels ^a	1	10 ^b	100 ^c	100 ^c	1500	1500
Conventional networks	1	4	4	26 ^d	26	26
MPT networks	1	n/a	n/a	4	n/a	4
Scan/vote groups	0	1	10 ^c	10 ^c	300	300
Channels per group	2	24	24	50	50	50

a. Simplex or semi-duplex.

b. If group is added, the maximum number of channels is 9.

c. The maximum combined total of channels and groups is 100 (e.g. 94 channels and 6 groups).

d. Non-signalling networks.

Operational Features

	TM8110	TM8105/ TM8115	TM8235	TM8250	TM8252/ TM8254/ TM8255
Channels: simplex or semi duplex, with repeater talkaround option	✓	✓	✓	✓	✓
CTCSS signalling format	38 TIA/EIA standard tone frequencies and 12 non-standard tones configurable for encode and decode on a per channel basis				
Continuous wave identification (CWID)	✓	✓			
DCS signalling format	106 codes configurable for encode and decode on a per channel basis				
DTMF signalling format	Encode	Encode	Direct entry encode only ^a	Encode	Encode
Economy mode	✓	✓			

	TM8110	TM8105/ TM8115	TM8235	TM8250	TM8252/ TM8254/ TM8255
GPS	Direct connect (send and receive position reports)	Direct connect (send and receive position reports)	Direct connect (send and receive position reports)	Direct connect (send and receive position reports), GPS display	Direct connect (send and receive position reports), GPS display (TM8254/ TM8255 only)
MDC1200 signalling format	Encode	Encode		Encode	Encode
Messaging capabilities ^b				Receive and display 1 message up to 127 chars	Conventional mode: receive and display 1 message up to 127 chars. Trunked mode: Send pre-defined or user-entered ^c messages up to 100 chars. Receive and display up to 8 messages in the call queue (depending on the type of message).
Predefined status messaging	✓	✓	✓	✓	✓
MPT 1327 signalling format			✓		✓
Selcall signalling format	✓	✓		✓	✓
Single in-band tone signalling format	✓	✓	✓	✓	✓
TAITAX / E-Trunk	✓	✓			
Two-tone signalling format	Decode	Decode		Decode	Decode
Voting/scanning	✓	✓	✓	✓	✓

a. With a tone-generating microphone attached.

b. All radios can send and receive messages using CCDI (conventional radios) or MAP27 (trunked radios) while connected to additional equipment such as a PC.

c. With a keypad microphone attached.

Current Consumption

Current consumption was tested using conventional radios equipped with the latest radio hardware. All measurements were made in the middle frequencies of each band. Battery voltage was 13.8V, and radios transmitted into a 50Ω load.

Radio Body When Off or Receiving

	TM8100	TM8200
Radio off (no links fitted)	0.4mA	2.2mA
Radio off (links LK1, LK2, LK3 fitted) (using ignition control to switch radio on and off)	1.4mA	3.3mA
Radio on stand-by (links LK1, LK2, LK3 fitted) (using ON/OFF key on control head to switch radio on and off)	27.1mA	52.0mA
Receiver idle (not scanning)	76mA	104mA
Receiver active, mute on	136mA	158mA
Receiver active, 3 W audio into 16Ω	480mA	585mA
Receiver active, 10 W audio into 4Ω	1510mA	1600mA

Radio Body When Transmitting

	A4	B1 (25W)	B1 (50W)	C0	D1	G2
Power output						
High	4.8A	4.3A	8.5A	5.1A	4.4A	6.9A
Medium	2.9A	2.9A	5.5A	3.3A	2.8A	4.5A
Low	2.0A	1.9A	4.5A	2.2A	2.0A	3.9A
Very low	1.1A	1.0A	3.8A	1.2A	1.0A	3.2A

	H5 (25W)	H5 (40W)	H6	H7	K5	L3
Power output						
High	5.2A	7.5A	5.4A	7.2A	8.2A	6.1A
Medium	3.2A	4.6A	3.4A	4.3A	4.7A	4.2A
Low	2.3A	3.7A	2.3A	3.7A	2.8A	2.5A
Very low	1.2A	3.5A	1.2A	3.3A	1.9A	1.8A

Control Head Only

Notice The standard control head configurations assume the use of a standard microphone. If the keypad microphone is used, add 60mA to the figures listed below.

	TM8110/ TM8115/ TM8235	TM8250/ TM8255	TM8254
No backlighting, no LEDs	0.2mA	13.3mA	13.1mA
Maximum backlighting, no LEDs	10.3mA	99.9mA	17.6mA
Maximum backlighting and LEDs on	22.4mA	102mA	25.8mA