

# TK-480/481

Built for the Long Run



With today's rapid pace of technology change you want to be sure your investment in an 800/900 MHz LTR® system is going to be maximized over the long term. The new Kenwood TK-480/481 compact portable 800/900 MHz FM transceiver will not only deliver years of reliable performance in the field; its advanced high-capacity design gives you the flexible expansion you need as your system needs evolve over time.

## Elements of a Premium Radio Product

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## Strength & Durability

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A premium radio product requires years of communications equipment experience and a strict adherence to high standards in design, manufacturing and quality assurance. Kenwood facilities are proud to be internationally recognized as ISO-9001 certified and are pleased to bring "practical innovation" for the rigors of the real world by offering the TK-480/481 portables.

### **MIL-STD 810 C/D/E**

The TK-480/481 meet or exceed tough U.S> Department of Defense environmental standards in addition to Kenwood's own technical and industrial standards.

## Die-Cast Chassis and Polycarbonate Case

The monocoque aluminum die-cast chassis-heat sinks borrows a principal from aircraft construction for rigid strength. Surrounding this and forming an integral part of the chassis, is the super-tough polycarbonate case to provide years of durability.



## Weather-Sealed Universal Connector

The universal accessory connector and battery contacts use spring action gold-alloy elements for excellent contact, conductivity and anti-corrosive properties. The universal connector is designed to mate with Kenwood audio accessories such as MIL-STD 810C, D & E.



## Weather-Resistant

Elements like the polyvinyl keypad membrane and speaker cone prevent moisture penetration for confident wet weather use.

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## Performance

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A premium radio product design like the TK-480/481 portables use state-of-the-art surface mount technology, multiple layer epoxy PC boards, high-level integrated circuits and hybrid components to create a symphony of compact, rugged and power efficient performance.

### High Output Audio

The TK-480/481 have an extra large 1.58 inch speaker element and half watt of audio power that provides robust clarity in noisy crowds and industrial environments.

### Extra-Long Battery Life

The KNB-16A 1100 mAh and KNB-17A 1500 mAh batteries deliver better than 8 and 10 hours life respectively on a single charge (5-5-90 duty).

### World Class Performance

Take a look inside and compare! You'll see a culmination of over 50 years of world class design experience that gives the TK-480/481's their excellent receiver and

transmitter characteristics making them equally at home in urban or rural environments. The high stability oscillators, efficient MOS-FET power modules and advanced filtering are only part of what give the TK-480/481 both the protection and power to become the key complement to any well designed radio system.

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## **Easy User Interface**

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A premium radio product must be easy to setup, use and maintain. The TK-480/481 is the latest example of this by combining advanced ergonomic functionality in a lightweight and balanced package.

### **Dot Matrix LCD Display**

The 12 character LCD employs simple easy-to-read alphanumeric and icons for operational and status indications.

### **Ten Character Alphanumeric**

A full 10 character alphanumeric represents each talk group, division, department or site name.

### **Light Control**

Manual and auto-shutoff control of the key back-lighting and LCD lamp facilitates safe nighttime operation without excessive battery drain.

### **Home System/Group**

At the press of a key, the radio unit is instantly reset to a primary trunk site (or channel) and talk group without having to switch system and group controls. This function is extremely useful in multiple system/group programmed radios (fixed revert).

### **Multiple Scanning Functions**

System scan and group scan permit monitoring multiple systems and talk groups for calls. Priority scanning is available within programmed conventional systems. Scan lists can be altered with the Add/Delete features.

### **Key Lock**

Prevents missed calls due to accidental system/group setting changes.

### **MIL-SPEC Speaker Mic With Unique Controls**

When a KMC-25 MIL-SPEC speaker microphone option is attached it forms an integral

part of the radio and meets all the same MIL-STD 810C, D & E specifications as the radio. A screw mount connector provides a secure electrical and mechanical binding and weather-resistant seals, O-rings and bushings keep out moisture, dirt and grime. The KMC-25 has two unique top keys that can be programmed for repetitive user functions such as home select, monitor or high/low power. The recessed orange key is ideally positioned as an auxiliary emergency ANI key since calling in for assistance and emergency are usually related actions.

### **Cellphone Dialing Features.**

DTMF keypad models include dialing features for telephone and/or PBX access such as 32 memory auto-dialer with alpha-tags, store and send, last number re-dial, and more.

### **PC Programming and Tuning**

Radio parameter programming and tuning can be accomplished via the universal accessory connector from a PC-compatible computer without ever having to open the radio saving both time and expense (KPG-35D software and KPG-36 cable options required).



### **Selective Calling**

A built-in feature, DTMF decode allows a supervisor or dispatcher to selectively "page" individuals and groups via numeric codes (millions of codes possible). Even TK-480/481 keypad models can perform this for portable-to-portable selective paging. This feature is economical to implement in any radio system.

### **Over-The-Air Disable**

Another part of the DTMF decode feature is the disable function whereby individual units can have their transmitter or both transmitter and receiver disabled by sending it a pre-programmed disable code. This provides a simple method for rendering lost or stolen portables useless. The unit can be re-activated the same way.

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## Versatility

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A premium radio like the TK-480/481 has the ability to be tailored to the user and the room to expand as system or user needs expand.

### Custom Keys

The TK-480/481 portables offer a choice of twenty-seven programmable feature settings that can be assigned to any one of seven keys allowing the radio to be customized for either simple or elaborate user needs.

### High Capacity Design

The 32 system and flexible group capacity accommodates multiple-site and talk-group organization for any type private system or commercial network.

### Flash ROM Advantage

Planning for the future of system architectural changes and custom needs, the Kenwood TK-480/481 Series portables have main and reserve Flash ROM memory caches to accommodate Kenwood enhanced protocols for networked systems and advanced feature sets.

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## Security

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In today's world, portable communications is as important as any other trade tool. Compromised communications can put life, property and business at risk.

### Encryption Control

Add secure voice communications for law enforcement or private security. An internal port permits addition of optional modules to provide voice scrambling from low level inversion to high level encryption types. The radio's programming provides both automatic and manual control for clear and coded modes.

### Digital ANI and Emergency Control

Unit ID and emergency ANI for computer-aided dispatch operations can be added with optional modules. The recessed orange key is specifically designed for emergency ANI triggering.



## **Radio Password**

Preventing unauthorized use of lost or stolen portables, this feature requires a four digit access code to be entered every time the radio is powered up (DTMF keypad modes only).

## **Anti-Piracy Coded Radio Lock Protection**

Prevents portable cloning and extraction of the radios program information without the proper technician entered six digit password. This data transfer password is a system managers first line of defense against piracy and enhancing system security.

## **Embedded Message**

Deep inside the radio's flash ROM memory, an electronic message can be stored containing owner identification, property I. D. numbers, user and department names, service records, etc. A radio can be electronically identified even if external labels, markings or factory serial numbers have been removed.

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## **Other Features**

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- COMPANDED AUDIO (TK-481)
- CODED SQUELCH (QT/DQT)
- TALK AROUND
- BUSY CHANNEL LOCKOUT
- HIGH/LOW POWER
- TIME-OUT TIMER
- LOW BATTERY ALERT
- TWO COLOR LED
- BUSY LED CONTROL
- ANNUNCIATOR TONES
- MINIMUM VOLUME

# Specifications

	TK-480	TK-481
<b>GENERAL</b>		
Frequency range	RX: 851 ~870 MHz TX: 806 ~825 MHz 851 ~870 MHz (Talk Around)	RX: 935 ~9041 MHz TX: 896 ~902 MHz 935 ~ 941 MHz (Talk Around)
Systems	Max. 32	
Groups	Max. 250 per system	
Conventional Channels	Max. 486 per system	
Channel Spacing	25 kHz (12.5 kHz PLL step)	12.5 kHz (12.5 kHz PLL step)
Battery Voltage	7.5 V DC $\pm$ 20%	
Battery Life	More than 8 hours on 5-5-90 duty cycle	
KNB-16A battery (1100 mAh)	More than 10 hours on 5-5-90 duty cycle	
KNB-17A battery (1500 mAh)		
Operating temperature range	-22°F ~ +140°F (-30°C ~ +60°C)	
Frequency Stability (-22°F ~ +140°F)	$\pm$ 0.00025%	$\pm$ 0.00015%
Dimensions (W x H x D) [Projections not included]	2-5/16 x 5- 5/16 x 1-5/16 in. (58 x 135 x 34 mm) with KNB-16A battery	
Weight (net)	16.2 oz. (460 g) with KNB-16A battery antenna and belt hook	
FCC ID	ALH22961110	ALH22992110
FCC compliance	FCC part 90	

	TK-480	TK-481
<b>RECEIVER</b> (Measurements made per TIA/EIA-603)		
RF Input Impedance	50 $\Omega$	
Sensitivity* (12dB SINAD)	0.30 $\mu$ V	
Selectivity*	70 dB: $\pm$ 25 kHz	63 dB: $\pm$ 12.5 kHz
Intermodulation distortion*	65 dB: $\pm$ 25/50 kHz	60 dB: $\pm$ 12.5/25 kHz
Spurious response*	70 dB (except 1/2 IF)	
Audio output	500 mW at 16 $\Omega$ , with less than 5% distortion	
Channel frequency spread	19 MHz	6 MHz
<b>TRANSMITTER</b> (Measurements made per TIA/EIA-603)		
RF Power Output	HI: 2.5W, LO: 1W	
RF Output Impedance	50 $\Omega$	

<b>Spurious &amp; Harmonics</b>	-60 dB	
<b>Modulation</b>	16KØF3E	11KØF3E
<b>FM noise</b>	-45 dB	-40 dB
<b>Audio Distortion</b>	Less than 5%	
<b>Channel frequency spread</b>	64 MHz	45 MHz

\*Typical specification

Kenwood reserves the right to change specifications and features without prior notice.

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## Applicable MIL-STD

Standard	MIL 810C Methods/Procedures	MIL 810D Methods/Procedures	MIL 810E Methods/Procedures
	500.0/Procedure I	500.2/Procedure I	500.3/Procedure I
Low Pressure	501.1/Procedure I, II	501.2/Procedure I, II	501.3/Procedure I, II
High Temperature			
Low Temperature	502.1/Procedure I	502.2/Procedure I, II	502.3/Procedure I, II
Temperature Shock	503.1/Procedure I	503.2/Procedure I	503.3/Procedure I
Solar Radiation			
	505.1/Procedure I	505.2/Procedure I	505.3/Procedure I
Rain			
Humidity			
Salt Fog	506.1/Procedure I, II	506.2/Procedure I, II	506.3/Procedure I, II
Dust	507.1/Procedure II	507.2/Procedure II	507.3/Procedure II
Vibration	509.1/Procedure I	509.2/Procedure I	509.3/Procedure I
Shock	510.1/Procedure I	510.2/Procedure I	510.3/Procedure I
	514.2/Procedure VIII, X	514.3/Procedure I	514.4/Procedure I
	516.2/Procedure I, II, V	516.3/Procedure I, IV	516.4/Procedure I, IV

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