



TOA

TOA UHF WIRELESS MICROPHONE SYSTEMS

Improved performance and mobility for more applications.

Delivering a new standard for high performance in complete wireless microphone systems, TOA provides a full range of wireless microphones optimized for general as well as specific applications, including tuner units and ancillary equipment. Offering more versatility than ever, increased coverage area and cost-effectiveness, TOA wireless microphone systems also demonstrate complete reliability for high use, long-term operation in demanding environments. This opens up wireless microphone applications beyond the conventional, allowing use in applications such as aerobics classes and various demonstrations where the user is in constant motion.

A full range of components for configuring an ideal wire

Wireless Microphone Units

TOA has improved on Phase Locked Loop (PLL) synthesis technology for use in its wireless microphone systems, virtually eliminating any frequency oscillation that can sometimes occur with variations in ambient temperatures.

TOA's new line of wireless microphones comprises handheld models WM-4200, WM-4210, and WM-4220, lavalier models WM-4300 and WM-4310, the WM-4310H headset model and the WM-4310A with a dedicated headset for aerobics and other active applications.

• Up to **16 microphones** can be used in the same area without any problems.

• A **wide operating range** allows microphones to be used up to a maximum of 150 meters distance (WM-4200 and WM-4300) from the tuner units.

• **Extended battery life**: provides over 10 hours of continuous use at average temperatures

• **Adjustable input sensitivity** for precise control of input prevents distortion and overloading.



WM-4200

UHF Handheld (Vocal) Wireless Microphone

- Operating range : 3m-150m
- Dynamic cardioid microphone element designed for vocal use
- Four 16-channel banks of circuit frequencies
- Input sensitivity control included
- Maximum input level : 145 dB SPL
- Dynamic range: over 110 dB
- Rubber coating minimizes handling noise.
- ON/OFF switch designed to prevent accidental activation
- LED low battery indicator



WM-4210

UHF Handheld (Vocal) Wireless Microphone

- Operating range: 3m-120m
- Dynamic cardioid microphone element designed for vocal use
- 16 selectable channel frequencies
- Maximum input level: 130 dB SPL
- Dynamic range: over 110dB
- On/Off switch also keeps mic from rolling when put down
- Flashing LED low battery indicator



WM-4220

UHF Handheld (Speech) Wireless Microphone

- Operating range : 3m-120m
- Electret condenser cardioid microphone element for speech use
- 16 selectable channel frequencies.
- Maximum input level: 125 dB SPL
- Dynamic range: over 100dB
- On/Off switch also keeps mic from rolling when put down
- Flashing LED low battery indicator



WM-4300

UHF Lavalier Wireless Microphone

- Operating range: 3m-150m
- Electret condenser cardioid microphone element for speech use
- Four 16-channel banks of circuit frequencies
- Input sensitivity control included
- Maximum input level: 120 dB SPL
- Built-in circuitry designed to minimize the influence from ambient noise
- Belt clip rotatable 360 degrees
- Highly reliable TA-4 mini-cannon microphone plug
- Flashing LED low battery indicator



WM-4310

UHF Lavalier Wireless Microphone

- Operating range : 3m-120m
- Electret condenser cardioid microphone element for speech use
- 16 selectable channel frequencies
- Input sensitivity control included
- Maximum input level : 120 dB SPL
- Built-in circuitry designed to minimize the influence from ambient noise
- Belt clip rotatable 360 degrees
- Locking mini-plug microphone jack
- Flashing LED low battery indicator



WM-4310H

UHF Headset Wireless Microphone

- Operating range : 3m-120m
- Electret condenser cardioid microphone element for speech use
- 16 selectable channel frequencies
- Input sensitivity control included
- Maximum input level : 120 dB SPL
- Built-in circuitry designed to minimize the influence from ambient noise
- Belt clip rotatable 360 degrees
- Lock-equipped mini-plug microphone jack
- Flashing LED low battery indicator
- Headset provides secure and comfortable fit on head

less system.

Tuner Units

All TOA wireless microphone tuners utilize the Phased Lock Loop (PLL) synthesis method to deliver exceptional performance along with stability and reliability, minimizing oscillation frequency variations caused by ambient temperature variations. In addition, overall performance is enhanced by the TOA Space Diversity circuitry and antenna diversity technology that is also incorporated in these units.

The tuner units comprise the WT-4800 and WT-4810 1-station units, models, the WT-4820 2-station unit and the WTU-4800 tuner unit for mounting on the WT-4820 unit. The WT-4800 provides 64 selectable frequencies, the WT-4810 and WT-4820 16 selectable frequencies.

- TOA's proprietary **Space Diversity technology and algorithm** are incorporated in each tuner to provide constant area coverage. Total performance and reliability are also enhanced through TOA's simpler and more effective circuitry compared to conventional diversity tuners.



WT-4800

UHF Wireless Tuner

- Four 16-channel banks of circuit frequencies
- Antenna cascade output function (parallel connection possible for linking three WT-4800 units)
- Auto mixing input function
- Tone squelch function
- TOA Space Diversity technology*
- Usable frequencies scanning channel check function
- 1/4 wave antenna x 2
- Compact 19" rack-mount design
- Microphone sensitivity adjustment function
- Compressor circuit for minimizing ambient noise



WT-4810

UHF Wireless Portable Tuner

- 16 selectable channel frequencies
- Auto mixing input function
- Tone squelch function
- TOA Space Diversity technology*
- Rod antenna x 2
- Squelch function (Carrier, Noise)
- Balanced output (XLR connector) and phone jack output
- Microphone sensitivity adjustment function



WM-4310A

UHF Headset (Aerobics) Wireless Microphone

- Operating range: 3m-120m.
- Electret condenser cardioid microphone element for speech use.
- 16 selectable channel frequencies.
- Input sensitivity control included.
- Maximum input level: 120 dB SPL.
- Built-in circuitry designed to minimize the influence from ambient noise.
- Belt clip rotatable 360 degrees.
- Lock-equipped mini-plug microphone jack.
- Flashing LED low battery indicator.
- Headset securely and comfortably fits on head.
- Sweat-resistant headset microphone.
- Securely fitting belt with pouch.

- **Tone squelch function** (WT-4800 and WT-4810) is useful when the incoming signal strength goes below a settable signal strength level as the output is automatically muted to prevent annoying noise.

- **Microphone sensitivity control** (WT-4800 and WT-4810) allows adjusting the input level to suit the user's voice level and to prevent overloading or distortion.

- **Antenna cascade output function** (WT-4800 and WT-4820) allows connecting an auxiliary tuner unit. This enables system expansion without having to add additional antenna mixers/distributors. Using a parallel connection, up to three WT-4800 units can be linked with a total of 3 mics being used (allow linking two WT-4820 units 4 mics to be used). If a problem should occur, the WD-4800 can be used to distribute the antenna output.

- **Auto mixing input function** makes it possible to connect one unit's AF input to the AF output of another unit so that the unit's demodulated voice signal and the voice signal received from the other unit can be mixed for output.

- **Usable frequencies scanning channel check function** (WT-4800) is incorporated for locating preset frequencies that are free. This built-in scanner prevents interference and problems that may be caused with incorrect settings.



WT-4820
2-Channel UHF Wireless Tuner

- 16 selectable channel frequencies
- Antenna cascade output function (parallel connection possible for linking two WT-4820 units)
- Auto mixing input function
- Tuner unit connections accessible from the front (even if rack mounted, the front panel is easily opened)
- TOA Space Diversity technology*
- Mix output/tuner 1 output (selectable), tuner 2 has 2 outputs
- Rod antenna x 2
- Compact 19" rack-mount design
- External antenna inputs



WTU-4800
UHF Tuner Unit

- PLL synthesis double superheterodyne diversity tuner module
- Designed for use with UHF wireless equipment
- Squelch function mutes output to reduce noise
- Includes compander noise reduction to cut ambient RF noise
- Compact dimensions

* Patents pending for TOA Space Diversity Technology.

Antenna Distributor



WD-4800

Antenna Distributor

- 2 antenna inputs and 4 distributed outputs
- 2 inputs per antenna which are mixed for output (when 2 antennas are set up in a large room)
- Supplies power to the antenna

Antenna

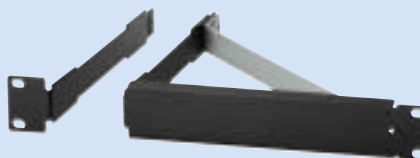


YW-4500

UHF Wireless Antenna

- UHF wireless dipole indoor antenna
- Wall mounted
- Power supplied by tuner unit (WT-4820, WT-4800, WD-4800) through coaxial cable
- Built-in RF signal booster
- Attenuation switch helps minimize noise and any interference

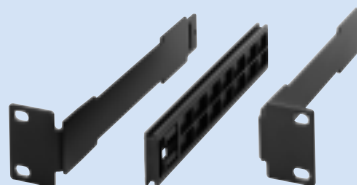
Rack Mount Bracket Kits



MB-WT3

Rack Mount Bracket Kit

- Two type brackets
- For rack-mounting one WT-4800/WT-4820 unit



MB-WT4

Rack Mount Bracket Kit

- Bracket (x2) with connector
- For rack-mounting two WT-4800/WT-4820 units



MB-15B

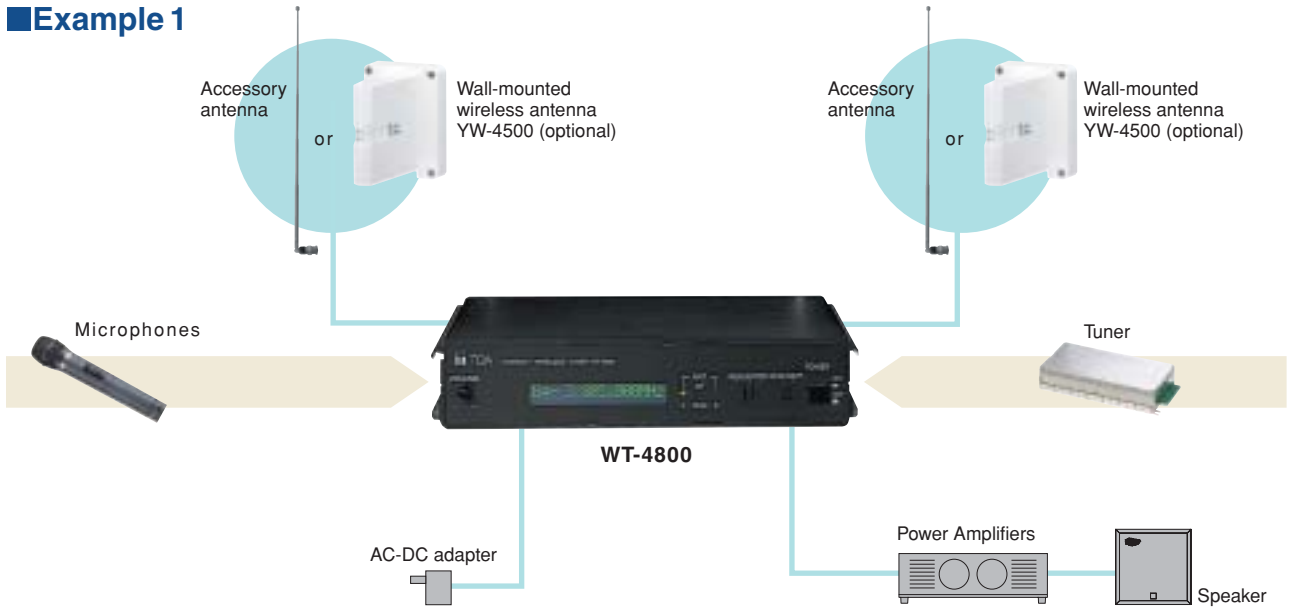
Rack Mount Bracket Kit

- For rack-mounting one WD-4800 unit

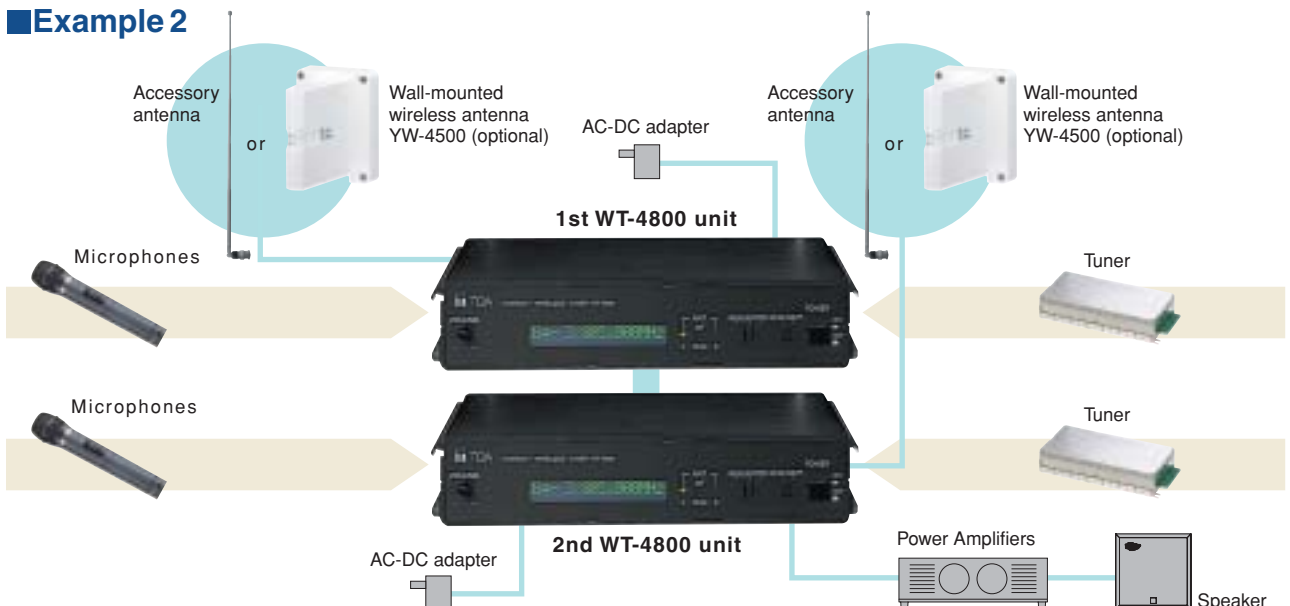
System Connections

Here are some examples of commonly used connections for various applications.

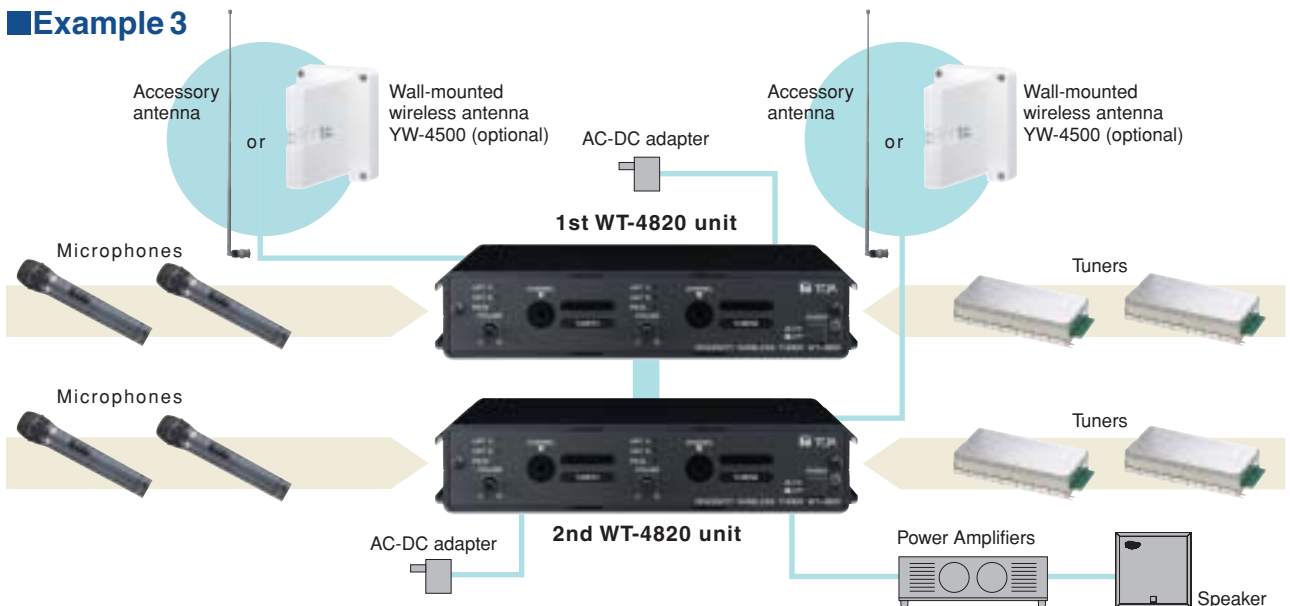
Example 1



Example 2



Example 3



Specifications

Model No.	WM-4200 UHF Hand-held (Vocal) Wireless Microphone	WM-4210 UHF Hand-held (Vocal) Wireless Microphone	WM-4220 UHF Hand-held (Speech) Wireless Microphone
Microphone Element	Dynamic microphone unit: Cardioid		Electret condenser unit: Cardioid
Emission	F3E		
Frequency Range	690–865 MHz, UHF* ¹		
Channel Selectable	64 Selectable frequencies (international may vary)	16 CH	
RF Carrier Power	Less than 50 mW		
Tone Frequency	32.768 kHz		
Modulation System	PLL synthesizer		
Maximum Input Level	145 dB SPL	130 dB SPL	125 dB SPL
Maximum Deviation	±40 kHz		
Battery	6LR61 (9 V × 1)		
Battery Life	10 hours (alkaline)		
Indicator	Power/Battery indicator (common use)		
Antenna	1/4 λ herical antenna	Internal antenna	
Operating Temperature	–10°C to +50°C		
Finish	Resin, coating (change other's)	Resin, coating (change other's)	
Dimensions	ø52.2 × 279.4 mm	ø50 × 235.2 mm	ø45 × 235.2 mm
Weight	300 g (with battery)	250 g (with battery)	
Accessory	Stand adapter × 1, Screw driver × 1, Storage case × 1		

Model No.	WM-4300 UHF Lavalier Wireless Microphone	WM-4310 UHF Lavalier Wireless Microphone	WM-4310H UHF Headset Wireless Microphone	WM-4310A UHF Headset (Aerobics) Wireless Microphone
Transmitter unit				
Emission	F3E			
Frequency Range	690–865 MHz, UHF* ¹			
Channel Selectable	64 Selectable frequencies (international may vary)	16 CH		
RF Carrier Power	Less than 50 mW			
Tone Frequency	32.768 kHz			
Modulation System	PLL synthesizer			
Maximum Input Level	120 dB SPL			
Battery	6LR61 (9 V × 1)			
Battery Life	10 hours (alkaline)			
Indicator	Power/Battery indicator (common use)			
Antenna	1/4 λ herical antenna			
Operating Temperature	–10°C to +50°C			
Finish	Resin, coating			
Dimensions	62(W) × 142(H) × 32(D) mm			
Weight	135 g (with battery)			
Accessory	Screw driver × 1, Storage case × 1	Screw driver × 1	Wash pouch × 1, Screw driver × 1	
Microphone unit				
Microphone	Electret condenser microphone, cardioid			
Power Requirement	DC (supplied from lavalier pack)			
Connector	TA-4 (XLR-type)	ø3.5 plug (EIAJ RC701)		

Model No.	WT-4800 UHF Wireless Tuner	WT-4810 UHF Wireless Potable Tuner	WT-4820 2-Channel UHF Wireless Tuner
Power Requirement	AC mains		
Power Consumption	250 mA (12 V DC)	130 mA (12 V DC)	250 mA (12 V DC when operating with two tuner modules)
Receiving Frequency	690–830 MHz, UHF* ²		690–870 MHz, UHF
Channel Selectable	64 Selectable frequencies	16CH	
Receiving System	Double Super-heterodyne		
Diversity System	Space diversity		
Mixing Output	MIC: –60 dB ³ /LINE: –20 dB ³ , 600Ω		
Mixing Input	–20 dB ³ , 10 kΩ		–20 dB ³ , 10 kΩ, unbalanced, phone jack
Antenna	—	Rod antenna	—
Antenna Input	75 Ω, BNC (phantom powering for antenna) 9 V DC, 30 mA (max.)	—	75 Ω, BNC (phantom powering for antenna) 9 V DC, 30 mA (max.)
Antenna Output	75Ω, BNC (Gain 0dB)	—	75Ω, BNC (Gain 0dB)
Receiving Sensitivity	over 80 dB, S/N ratio (20 dBμV input, 40 kHz deviation)		
Squelch Sensitivity	18–40 dBμV variable		
Squelch System	Using together of noise SQ, carrier SQ and tone SQ	Using together of noise SQ and carrier SQ	—
Tone Frequency	32.768 kHz		
Indicator	Audio (11 step), RF (11 step), ANT A/B, Audio (peak)	—	ANT A/B, Audio (peak), Power
Channel Check	Usable frequencies scanning	—	—
Digital Controlled I/O	Usable frequencies reading, frequencies input	—	—
Audio Output	Mixing/Channel 1 (selectable): –20 dB ³ (+6 dB ³ Max.), 600Ω, unbalanced, phone jack –14 dB ³ (+12 dB ³ Max.), 600Ω, balanced, XLR-3-31 type connector Channel 2: –20 dB ³ (+6 dB ³ Max.), unbalanced, 600Ω, phone jack		
Cascade Input	Phone jack (unbalanced)		
S/N Ratio	Over 110 dB (A-weight, balanced output)	Over 104 dB (A-weight, balanced output)	Over 102 dB (A-weight, balanced output)
Harmonic Distortion	Under 1%		
Frequency Response	100 – 12,000 Hz, ±3 dB		50 – 18,000 Hz, ±3 dB
Other Function	Frequency select by PC, channel		
Operating Temperature	–10°C to +50°C		
Finish	Resin, black		
Dimensions	210(W) × 44.2(H) × 181(D) mm	240(W) × 35(H) × 110(D) mm	210(W) × 44(H) × 181(D) mm
Weight	700 g	390 g	770 g (without tuner module)
Accessory	AC-DC adapter × 1	AC-DC adapter × 1, Driver for channel changing × 1	Rod antenna × 2, Rubber foot × 4
Option	Mounting bracket kit: MB-WT3 (for rack mounting one WT-4800 unit) MB-WT4 (for rack mounting two WT-4800 units)	—	Mounting bracket kit: MB-WT3 (for rack mounting one WT-4820 unit) MB-WT4 (for rack mounting two WT-4820 units)

Model No.	WD-4800 Power/Antenna Distributor
Power Requirement	AC mains
Power Consumption	25W
Frequency Range	VHF/UHF
Antenna Input	2 input (front × 1, rear × 1), 75 Ω, BNC (phantom powering for antenna)
Antenna Output	4 output, 75 Ω, BNC
DC Power Supply	4 output, (each output: 13V DC/250mA)
Indicator	Power
Operating Temperature	–10°C to +50°C
Finish	Steel, coating
Dimensions	420(W) × 44(H) × 305.5(D) mm
Weight	3.5 kg
Accessory	DC cable × 4
Option	Rack mounting bracket: MB-15B

Model No.	YW-4500 UHF Wireless Antenna
Power Requirement	7–12 V DC (supplied from amplifier or tuner)
Current Consumption	Under 24 mA
Receiving Frequency	680–880 MHz, UHF
Dipole Ratio Relative Gain	More than 8 dB (780 MHz)
V.S.W.R	Less than 3.0
Output Impedance	75 Ω
Mounting Hole Pitch	83.5 mm (dimensions for wiring box)
Operating Temperature	–10°C to +50°C
Finish	AES resin, off-white
Dimensions	105(W) × 140(H) × 126(D)mm
Weight	270 g
Accessory	M3.5 screw for wiring box × 2, Tapping screw (M4) for wooden wall × 2, RG-6/U or RG-11/U sleeve × 1

Model No.	WTU-4800 UHF Wireless Tuner Unit
Power Requirement	7–12 V DC
Current Consumption	100 mA
Receiving Frequency	690–830 MHz* ² , UHF
Receiving System	Double super-heterodyne
Receiving Sensitivity	Better than 80 dB, S/N ratio (20 dBμV input, 40 kHz deviation)
Antenna Input Impedance	75 Ω
Diversity System	Space diversity
Channel Selectable	16 CH
Squelch System	Noise SQ
Squelch Sensitivity	18 dBμV
Output	0 dB ³ (maximum deviation, 2.2 kΩ load)
Harmonic Distortion	Less than 1%
Frequency Response	100 –12,000 Hz, ±3 dB
Operating Temperature	–10°C to +50°C
Finish	Steel
Dimensions	60(W) × 25(H) × 139(D)mm
Weight	130 g
Accessory	Driver for channel changing × 1

*¹ Frequency range may vary by area. (between 690 to 865 MHz)

*² Frequency range may vary by area. (between 690 to 830 MHz)

*³ 0dB = 1 V

*Specifications are subject to change without notice.



TOA Corporation

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