

UHF Synthesized Transmitter

Operating Instructions _____ **US**

Mode d'emploi _____ **FR**

Manual de instrucciones _____ **ES**

Wireless Channel Lists/ Listes des canaux sans fil /

Listas de canales inalámbricos _____

WRT-822A

Owner's Record

The model and serial numbers are located at the rear of the unit. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. WRT-822A Serial No. _____

Notice for customers in the U.S.A.

Use of Sony wireless devices is regulated by the Federal Communications Commission as described in Part 74 subpart H of the FCC regulations and users authorized thereby are required to obtain an appropriate licence.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Notice for customers in Canada:

Use of Sony wireless devices is regulated by the Industry Canada as described in their Radio Standard Specification RSS-123. A licence is normally required. The local district office of Industry Canada should therefore be contacted. When the operation of the device is within the broadcast band, the licence is issued on no-interference, no-protection basis with respect to broadcast signals.

Operation of this device is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Avis pour les clients au Canada:

L'usage des appareils sans-fil Sony est réglé par l'Industrie Canada comme décrit dans leur Cahier des Normes Radioélectriques CNR-123. Une licence est normalement requise. Le bureau de l'Industrie Canada doit être contracté. Lorsque l'opération de l'appareil est dans les limites de la bande de radiodiffusion, la licence est émanée sur la base de non-interférence, non-protection avec les signaux de radiodiffusion.

L'utilisation de cet appareil est soumise aux deux conditions suivantes : (1) cet appareil ne peut causer d'interférences, et (2) cet appareil doit accepter toutes les interférences, y compris les interférences capables de provoquer un fonctionnement indésirable de l'appareil.

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- The unit is designed for use in ambient temperature range of 0°C to 50°C (32°F to 122°F).
- Do not place the unit on or near heat sources, such as lighting equipment, power amplifiers, or in a place subject to direct sunlight or excessive moisture. In such places, the external finish or internal parts of the unit may be damaged.
- If the unit is used in a very humid or dusty place or in a place subject to an active gas, clean its surface as well as the connectors with a dry, soft cloth soon after use. Lengthy use of the unit in such places or not cleaning it after its use in such places may shorten its life.
- When cleaning the unit, never use organic solvents such as thinners or benzine, which will damage the finish of the unit.
- The unit has been factory adjusted precisely. Do not tamper with its internal parts or attempt to repair it.

Overview

The WRT-822A ensures excellent sound quality of the microphone itself and provides the convenience especially for Electronic News Gathering (ENG), live and other Electronic Field Production (EFP) applications. Combining with 800 MHz band Sony UHF wireless microphone system, use this highly reliable transmitter for broadcast and movie production purpose.

Transmitting Channel Band

The transmitter and tuner of the wireless microphone system are classified by frequency band.

A 12-MHz frequency band (or two consecutive-numbered TV channels, such as 68 and 69 of the WRT-822A/68 model) is assigned to each transmitter and tuner model.

In building a UHF wireless microphone system, be sure to combine a transmitter and a tuner having the same TV channel number.

U68 model

A 794-806 MHz frequency band is assigned to the WRT-822A/68 model, permitting it to operate on any of 94 carrier frequencies in 125-kHz steps of Sony original channel plan in the range of TV channels 68 and 69.

For the selectable channels, see wireless channel list on page L-1.

U66 model

A 782-794MHz frequency band is assigned to the WRT-822A/66 model, permitting it to operate on any of 94 carrier frequencies in 125-kHz steps of Sony original channel plan in the range of TV channels 66 and 67.

For the selectable channels, see wireless channel list on page L-2.

U64 model

A 770-782 MHz frequency band is assigned to the WRT-822A/64 model, permitting it to operate on any of 94 carrier frequencies in 125-kHz steps of Sony original channel plan in the range of TV channels 64 and 65.

For the selectable channels, see wireless channel list on page L-3.

Features

Phase Locked Loop (PLL) synthesized system

The WRT-822A has a refined phase locked loop (PLL) synthesizer circuit.

Compact and lightweight

Innovative high-density mounting technology and magnesium case have enabled the creation of this compact and lightweight transmitter, which lets you move anywhere for Electronic News Gathering (ENG) and Electronic Field Production (EFP).

Remote battery alarm on tuner

This transmitter has capability of transmitting "Battery status information" to Sony tuners which support the battery status indication on both transmitter and tuner.

The information is sent to the tuners in approx. one hour advance to battery exhaust so that they can safely replace batteries of the transmitter.

Operation powered by easily available batteries

The built-in high efficiency DC-DC converter allows stable operation, for about 8 hours continuously, with two LR6 (size AA) alkaline batteries.

LCD for coordinated operation control

The built-in CPU controls operation of the unit, including the PLL circuit function. The LCD shows the current

channel number/frequency, the residual battery power, input attenuation setting, AF input level and RF output. An accumulated operation time indication is also provided for simple control of the time of battery use (in one-minute increments).

Saved channel and input attenuation settings

The unit stores the channel and the input attenuation setting when it is turned off. The saved settings are retained even if the batteries are removed. Therefore, when using the unit next time, you need not make the same settings again.

Highly reliable electronic attenuator

The built-in input level attenuator is adjustable in a range of 0 to 21 dB in 3-dB steps. It reduces signal distortion when an excessively strong audio signal is inputted.

Compatibility with Sony lavalier microphone

The transmitter is compatible with Sony lavalier microphones, including the ECM-77BC.

RF carrier with tone signal

The unit transmits the RF carrier accompanied by a tone signal, enabling the tuner with a tone squelch circuit to take out only the target audio signal received.

Wide dynamic range and low noise

The compander (compressor/expander) system enables transmission over a wide dynamic range with minimum noise

Overview

System Configuration

The WRT-822A can be used with the tuners listed below.

Sony 800 MHz band system models

WRT-822A	Frequency band		Model name	
	TV channel	Frequency (MHz)	Transmitter or microphone	Tuner
U64	64	770.125 - 775.875	WRT-805A WRT-807A WRT-808A WRT-810A WRT-820A WRT-822A WRT-830A ^{a)} WRT-860A WRT-867A ^{a)}	WRR-800A
	65	776.125 - 781.875		WRR-801A
U66	66	782.125 - 787.875		WRR-802A
	67	788.125 - 793.875		WRR-805A
U68	68	794.125 - 799.875		WRR-810A
	69	800.125 - 805.875		WRR-820A ^{b)}
				WRR-840A ^{b)}
				WRR-850A ^{b)}
				WRR-855A
				WRR-860A ^{a)}
			MB-806A	

System Configuration

The WRT-822A can be used with the tuners listed below.

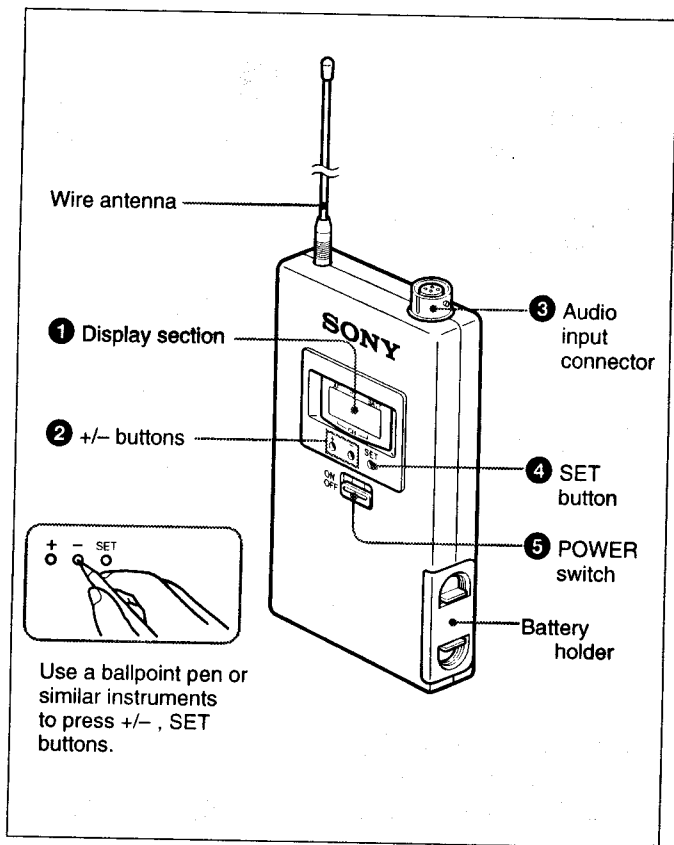
Sony 800 MHz band system models

WRT-822A	Frequency band		Model name	
	TV channel	Frequency (MHz)	Transmitter or microphone	Tuner
U64	64	770.125 - 775.875	WRT-805A WRT-807A WRT-808A WRT-810A WRT-820A WRT-822A WRT-830A ^{a)} WRT-860A WRT-867A ^{a)}	WRR-800A
	65	776.125 - 781.875		WRR-801A
U66	66	782.125 - 787.875		WRR-802A
	67	788.125 - 793.875		WRR-805A
U68	68	794.125 - 799.875		WRR-810A
				WRR-820A ^{b)}
	69	800.125 - 805.875		WRR-840A ^{b)}
				WRR-850A ^{b)}
				WRR-855A
				WRR-860A ^{a)}
			MB-806A	

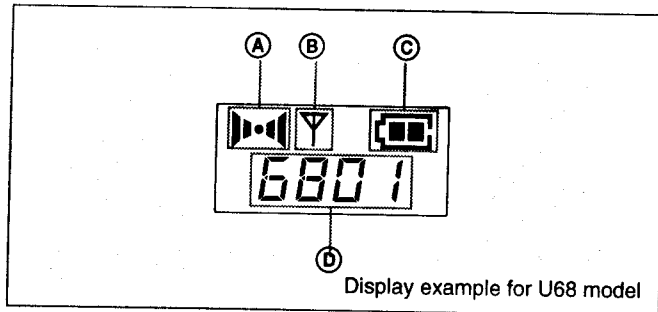
a) These models cover only 68 and 69 channels.

b) For these models, the AN-820A UHF antenna and the WD-820A UHF antenna divider are required.

Parts Identification



1 Display section



A AF (audio input) indication

Lights when an audio signal over the reference level is being supplied.

B RF (antenna output) indication

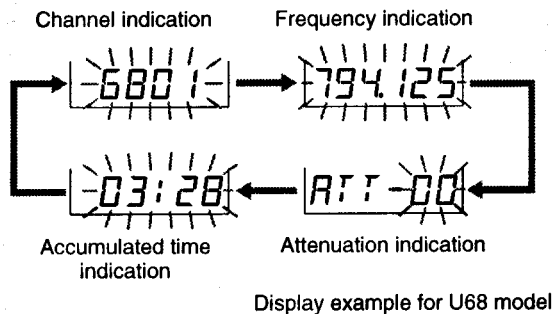
Lights when a signal is being transmitted from the antenna.

C BATT (battery) indication

Displays the status of the batteries.
See "Battery indication" on page 9.

D CH (channel) indication

Displays the transmission channel.
Each time you press the SET button in normal Transmit mode, the channel indication changes to the frequency, input attenuation and accumulated time indications as shown on the next page.



In Attenuation indication mode, it displays the input attenuation setting in dB, which can be changed in a range of 0 to 21 dB in 3-dB steps.

In Accumulated time indication mode, it displays the accumulated time of battery use (in one-minute increments). For adjustments, see "Changing the Transmitting Channel" on page 11, "Changing the Input Attenuation Setting" on page 12 or "Resetting the Accumulated Time Indication" on page 13.

② + (+ selection) / - (- selection/reset) buttons

In setting mode, select the transmission channel, frequency and attenuator level using either of these buttons, or reset the time-of-use indication to "00:00" with the - button.

For Setting mode, see "Settings" on page 11.

③ Audio input connector

Connect the output connector of the following Sony lavalier microphones: ECM-44BC, ECM-55BC, ECM-66BC, ECM-77BC, ECM-166BC, ECM-310BC, ECM-350BC. You can also use your wired microphone by connecting it to this connector with an optional EC-1.5CF microphone cable. See "Connections" on page 10.

④ SET button

In normal Transmit mode, this button changes the indication items of the display section as shown on the left column. In Setting mode, this button selects the item to be set. To initiate the setting mode, set the POWER switch to ON while holding this button down.

For setting the transmit channel, input attenuation or resetting the time-of-use indication in Setting mode, see "Settings" on page 11.

⑤ POWER switch

Turns the power of the transmitter ON or OFF.

When you set this switch to ON without holding any other button, the transmitter is set to normal Transmit mode and transmits the signal of the selected channel.

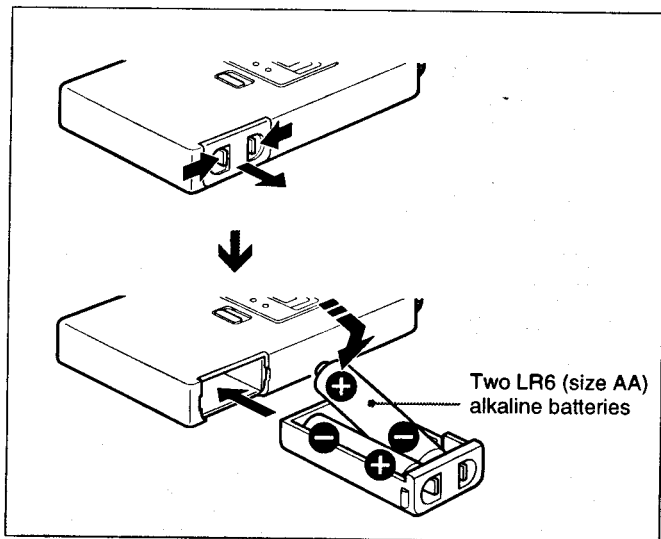
When you set this switch to ON while holding the SET button down, Setting mode is initiated. No signal is transmitted in Setting mode.

Note

Be sure to connect a microphone before turning the power ON.

Power Supply

The transmitter can operate on two LR6 (size AA) alkaline batteries continuously for about 8 hours at 25°C (77°F).






Installing the batteries

- 1 Slide the battery-holder catches inward (in the direction of the arrows \blacktriangleright \blacktriangleleft) to take out the battery holder.
- 2 Match the polarities and insert the batteries.
- 3 Set the battery holder in the original position.

Battery indication

When you turn the power on, the battery status appears in the BATT indication on the display section.

	1	2	3	4
BATT indication	Lights 	Lights 	Flashes 	Goes off
Battery condition	Good	Less than half-charge	Almost exhausted	Completely exhausted

When the batteries reach stage 3 shown in the table, the battery indication on the tuner also starts flashing.

Note

The indication may be incorrect if the batteries are not new when installed. If you plan to use the transmitter for a long period, it is best to replace the batteries with new ones.

Notes on batteries

- Use new alkaline batteries.
- Do not pair different types of batteries.
- Always replace the two batteries together.
- The batteries are not rechargeable.
- Be careful to install the batteries with the correct polarity.
- When not using the transmitter for a long period, remove the batteries to avoid leakage. If the batteries do leak, clean all leakage from the battery holder case and the unit. Leakage left in the holder case and the unit may cause poor battery contact. If there seems to be poor battery contact, consult your Sony dealer.

Connections

Caution

When connecting a microphone to the unit, be sure to turn the unit off.

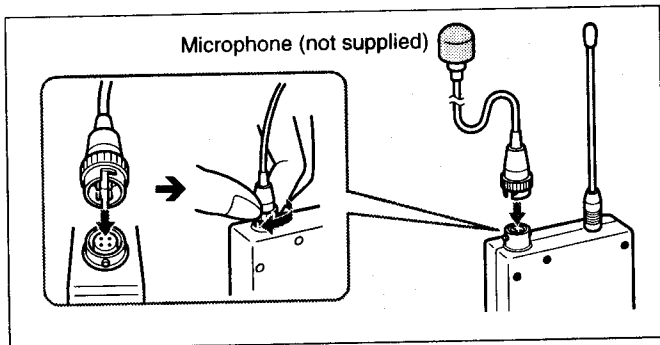
To connect a microphone

The WRT-822A accepts the following Sony lavalier microphones:

ECM-44BC	ECM-55BC	ECM-66BC
ECM-77BC	ECM-166BC	
ECM-310BC	ECM-350BC	

You can also use your wired microphone by connecting it to this connector with an optional EC-1.5CF microphone cable.

To secure the microphone cable connection, be sure to turn and lock the connector cover as illustrated below.



For the input attenuation adjustment, see page 12.

Notes on Microphone System Operation

- To operate with two or more channels, maintain a distance of at least 30 cm (one ft.) between each pair of transmitters. *For details of operation with two or more channels, refer to the Operating Instructions for the tuner which is used with the WRT-822A.*
- Ensure that the tuners set to channels not being used are either turned off or set to the minimum output level.
- When powering the transmitter on or off, to keep the noise to a minimum, set the audio output level from the tuner or mixer to a minimum.
- Powering the transmitter on without checking the channel selection first may interfere with the operation of other microphones/transmitters, if the current setting is already being used.
- To prevent noise generation, keep the transmitters at least 3 m (10 feet) away from the antennas when the system is operated using a group which allows selection of up to 11 channels, and at least 6 m (20 feet) away when using a group which allows selection of 12 channels.

Settings

Initiating Setting Mode

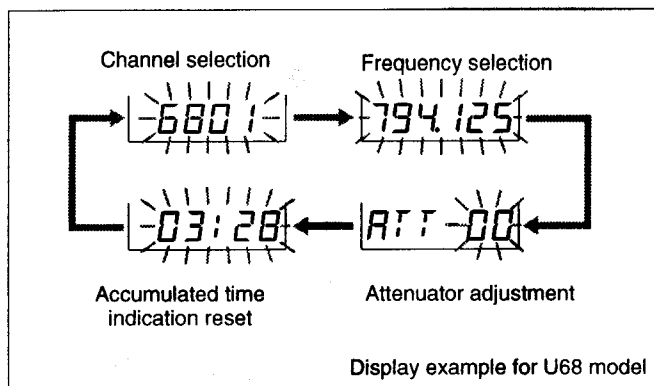
In Setting mode, you can change the transmission channel/frequency and the attenuation level, or reset the accumulated time indication.

To enter Setting mode

While holding down the SET button, set the POWER switch to ON.

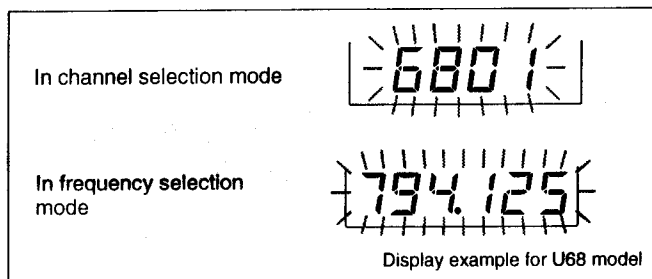
The transmitter enters Setting mode and the indication before the transmitter was previously turned OFF flashes on the display section.

Each time you press the SET button, the setting items are cyclically switched as shown below.

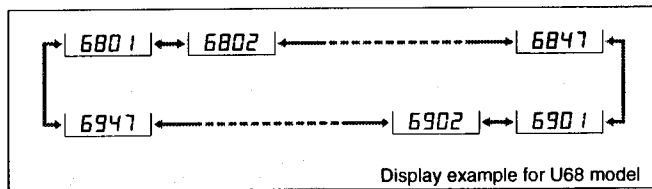


Changing the Transmitting Channel

- 1 Confirm that the channel number flashes on the display. If not, set the unit in Setting mode, and press the SET button so that the channel number flashes. If you want to change the channel in frequency indication, press the SET button one more.



- 2 Press the + or - button to select the channel. Pressing the + button cyclically changes the channel indication in the order shown on pages L-1 to L-3. Pressing the - button changes it in reversed order. If you keep either button pressed, the channel number will be incremented or decremented successively.



Settings

- 3** Once the desired channel number appears, set the POWER switch to OFF to release Setting mode.

Or, press the SET button to continue operations in Setting mode.

The next time you turn on the power only by setting the POWER switch to ON, the transmitter will be set to Transmit mode with the selected channel.

Notes

- The unit cannot transmit in Setting mode.
- Make sure that the channel selected is the same as that selected on the tuner used in the same system.
- Depending on the noise or interference conditions, the selectable channels may not necessarily all be usable. If necessary, you can determine the usable channels by stepping the channel selection through a number of channels on the tuner with the microphone/transmitter set to OFF. Those channels on which the RF indicator of the tuner does not light are usable.
- If there is a TV broadcasting station near by, do not use the station's channel.
- The unit may not operate correctly if it is turned on again immediately after turning off the power while in setting mode. Pause for a few seconds or more before turning on the power again.
- When operating two or more UHF wireless microphone

systems using channels in different groups, ensure that the systems are at least 100 m (330 feet) apart from each other. (The same applies also when using channels in a group if the different UHF wireless microphone systems are installed where they are within sight of each other.)

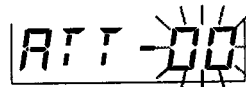
Changing the Input Attenuation Setting

You can change the input attenuation setting in 3-dB steps in a range of 0 to 21 dB. You can change it either in Setting mode or in Transmit mode.

Changing in Setting mode

- 1** Set the unit in Setting mode.
- 2** Press the SET button until the attenuation level indication appears on the display.

Attenuation level indication



- 3** Press the + or – button to select the attenuation level.

If you keep either button pressed, the level will be incremented or decremented successively.

- Once the desired level appears, set the POWER switch to OFF to release Setting mode.
Or, press the SET button to continue operations in Setting mode.

The next time you turn on the power only by setting the POWER switch to ON, the transmitter will be set to Transmit mode with the selected attenuation setting.

Changing in Transmit mode

You can also change the input attenuation level during transmission.

- If the attenuation level is not displayed, press the SET button until the attenuation level indication appears on the display.
- Press the + or – button to select the level.

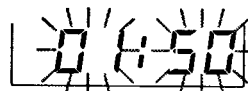
Resetting the Accumulated Time Indication

The time indication accumulates time in hours and minutes when the WRT-822A is on.

Reset the indication to “00:00” whenever you replace the batteries so that it can display the running time of the batteries.

- Set the unit in Setting mode.
- Press the SET button until the accumulated time indication appears on the display.

Accumulated time indication



- Press the – button.
The time indication resets to “00:00.”
While you see “00:00” indication, you can go back to previous value by pressing the + button.
- Set the POWER switch to OFF to release Setting mode.

Error Messages

When a problem occurs, one of the following error messages may appear on the display.

Messages	Contents	Measures
Error 11	An error occurred in backup memory data.	The data was initialized. Set the transmitting channel and the input attenuation again.
Error 21	The PLL synthesized circuit is in trouble.	Contact your Sony dealer.
Error 31	The battery voltage exceeds the allowable value.	Use the specified batteries.
Error 41	Defect of an internal circuit	Contact your Sony dealer.
Error 51	Defect of the A/D converter	
Error 61	Defect of an internal circuit	

Specifications

Transmitter and modulator section

Oscillator	Crystal controlled PLL synthesizer
Type of emission	F3E
Carrier frequencies	
U64 model:	770.125 to 781.875 MHz
U66 model:	782.125 to 793.875 MHz
U68 model:	794.125 to 805.875 MHz
RF power output	10 mW
Frequency stability	Within $\pm 0.005\%$
Tone signal	32.768 kHz
Type of antenna	$\frac{1}{4}$ -wavelength wire
Pre-emphasis	50 μ s
Deviation	± 5 kHz (-60 dBV ¹⁾ , 1 kHz input with 0 dB audio attenuation)
Frequency response	70 to 13,000 Hz
Signal-to-noise ratio	60 dB or more (A-weighted, with reference deviation at WRR-800A/801A/805A/ 810A/820A/840A/850A/855A/860A)
Audio attenuator	0 to 21 dB, variable in 3-dB steps

Power section

Power requirements	3.0 V DC (two LR6/size AA alkaline batteries)
Battery life	Approx. 8 hours at 25°C (77°F) with Sony LR6 alkaline batteries

General

Operating temperature	0°C to +50°C (32°F to 122°F)
Storage temperature	-30°C to +60°C (-22°F to +140°F)
Dimensions	63 × 103 × 17 mm (w/h/d) (2 $\frac{1}{2}$ × 4 $\frac{1}{8}$ × $\frac{11}{16}$ inches)
Mass	Approx. 145 g (5.1 oz) including batteries

Supplied accessories

Operating Instructions (1)
Soft case (1)

Optional accessories

Lavalier microphones	ECM-44BC, ECM-55BC, ECM-66BC, ECM-77BC, ECM-166BC, ECM-310BC, ECM-350BC
Microphone cable	EC-1.5CF

Design and specifications are subject to change without notice.

1) 0 dBV = 1 V_{rms}

Wireless Channel Lists / Listes des canaux sans fil / Listas de canales inalámbricos

For 68-Version Model Using TV Channels 68 and 69 /
Pour le modèle 68 utilisant les canaux de télévision 68 et 69 /
Para modelos de la versión 68 que utilizan los canales de TV 68 y 69

Channel Canal	Frequency(MHz) Fréquence Frecuencia	Channel Canal	Frequency(MHz) Fréquence Frecuencia	Channel Canal	Frequency(MHz) Fréquence Frecuencia	Channel Canal	Frequency(MHz) Fréquence Frecuencia
68-01	794.125	68-25	797.125	69-01	800.125	69-25	803.125
68-02	794.250	68-26	797.250	69-02	800.250	69-26	803.250
68-03	794.375	68-27	797.375	69-03	800.375	69-27	803.375
68-04	794.500	68-28	797.500	69-04	800.500	69-28	803.500
68-05	794.625	68-29	797.625	69-05	800.625	69-29	803.625
68-06	794.750	68-30	797.750	69-06	800.750	69-30	803.750
68-07	794.875	68-31	797.875	69-07	800.875	69-31	803.875
68-08	795.000	68-32	798.000	69-08	801.000	69-32	804.000
68-09	795.125	68-33	798.125	69-09	801.125	69-33	804.125
68-10	795.250	68-34	798.250	69-10	801.250	69-34	804.250
68-11	795.375	68-35	798.375	69-11	801.375	69-35	804.375
68-12	795.500	68-36	798.500	69-12	801.500	69-36	804.500
68-13	795.625	68-37	798.625	69-13	801.625	69-37	804.625
68-14	795.750	68-38	798.750	69-14	801.750	69-38	804.750
68-15	795.875	68-39	798.875	69-15	801.875	69-39	804.875
68-16	796.000	68-40	799.000	69-16	802.000	69-40	805.000
68-17	796.125	68-41	799.125	69-17	802.125	69-41	805.125
68-18	796.250	68-42	799.250	69-18	802.250	69-42	805.250
68-19	796.375	68-43	799.375	69-19	802.375	69-43	805.375
68-20	796.500	68-44	799.500	69-20	802.500	69-44	805.500
68-21	796.625	68-45	799.625	69-21	802.625	69-45	805.625
68-22	796.750	68-46	799.750	69-22	802.750	69-46	805.750
68-23	796.875	68-47	799.875	69-23	802.875	69-47	805.875
68-24	797.000			69-24	803.000		

Wireless Channel Lists / Listes des canaux sans fil / Listas de canales inalámbricos

For 66-Version Model Using TV Channels 66 and 67 /

Pour le modèle 66 utilisant les canaux de télévision 66 et 67 /

Para modelos de la versión 66 que utilizan los canales de TV 66 y 67

Channel Canal	Frequency(MHz) Fréquence Frecuencia	Channel Canal	Frequency(MHz) Fréquence Frecuencia	Channel Canal	Frequency(MHz) Fréquence Frecuencia	Channel Canal	Frequency(MHz) Fréquence Frecuencia
66-01	782.125	66-25	785.125	67-01	788.125	67-25	791.125
66-02	782.250	66-26	785.250	67-02	788.250	67-26	791.250
66-03	782.375	66-27	785.375	67-03	788.375	67-27	791.375
66-04	782.500	66-28	785.500	67-04	788.500	67-28	791.500
66-05	782.625	66-29	785.625	67-05	788.625	67-29	791.625
66-06	782.750	66-30	785.750	67-06	788.750	67-30	791.750
66-07	782.875	66-31	785.875	67-07	788.875	67-31	791.875
66-08	783.000	66-32	786.000	67-08	789.000	67-32	792.000
66-09	783.125	66-33	786.125	67-09	789.125	67-33	792.125
66-10	783.250	66-34	786.250	67-10	789.250	67-34	792.250
66-11	783.375	66-35	786.375	67-11	789.375	67-35	792.375
66-12	783.500	66-36	786.500	67-12	789.500	67-36	792.500
66-13	783.625	66-37	786.625	67-13	789.625	67-37	792.625
66-14	783.750	66-38	786.750	67-14	789.750	67-38	792.750
66-15	783.875	66-39	786.875	67-15	789.875	67-39	792.875
66-16	784.000	66-40	787.000	67-16	790.000	67-40	793.000
66-17	784.125	66-41	787.125	67-17	790.125	67-41	793.125
66-18	784.250	66-42	787.250	67-18	790.250	67-42	793.250
66-19	784.375	66-43	787.375	67-19	790.375	67-43	793.375
66-20	784.500	66-44	787.500	67-20	790.500	67-44	793.500
66-21	784.625	66-45	787.625	67-21	790.625	67-45	793.625
66-22	784.750	66-46	787.750	67-22	790.750	67-46	793.750
66-23	784.875	66-47	787.875	67-23	790.875	67-47	793.875
66-24	785.000			67-24	791.000		

**For 64-Version Model Using TV Channels 64 and 65 /
 Pour le modèle 64 utilisant les canaux de télévision 64 et 65 /
 Para modelos de la versión 64 que utilizan los canales de TV 64 y 65**

Channel Canal	Frequency(MHz) Fréquence Frecuencia	Channel Canal	Frequency(MHz) Fréquence Frecuencia	Channel Canal	Frequency(MHz) Fréquence Frecuencia	Channel Canal	Frequency(MHz) Fréquence Frecuencia
64-01	770.125	64-25	773.125	65-01	776.125	65-25	779.125
64-02	770.250	64-26	773.250	65-02	776.250	65-26	779.250
64-03	770.375	64-27	773.375	65-03	776.375	65-27	779.375
64-04	770.500	64-28	773.500	65-04	776.500	65-28	779.500
64-05	770.625	64-29	773.625	65-05	776.625	65-29	779.625
64-06	770.750	64-30	773.750	65-06	776.750	65-30	779.750
64-07	770.875	64-31	773.875	65-07	776.875	65-31	779.875
64-08	771.000	64-32	774.000	65-08	777.000	65-32	780.000
64-09	771.125	64-33	774.125	65-09	777.125	65-33	780.125
64-10	771.250	64-34	774.250	65-10	777.250	65-34	780.250
64-11	771.375	64-35	774.375	65-11	777.375	65-35	780.375
64-12	771.500	64-36	774.500	65-12	777.500	65-36	780.500
64-13	771.625	64-37	774.625	65-13	777.625	65-37	780.625
64-14	771.750	64-38	774.750	65-14	777.750	65-38	780.750
64-15	771.875	64-39	774.875	65-15	777.875	65-39	780.875
64-16	772.000	64-40	775.000	65-16	778.000	65-40	781.000
64-17	772.125	64-41	775.125	65-17	778.125	65-41	781.125
64-18	772.250	64-42	775.250	65-18	778.250	65-42	781.250
64-19	772.375	64-43	775.375	65-19	778.375	65-43	781.375
64-20	772.500	64-44	775.500	65-20	778.500	65-44	781.500
64-21	772.625	64-45	775.625	65-21	778.625	65-45	781.625
64-22	772.750	64-46	775.750	65-22	778.750	65-46	781.750
64-23	772.875	64-47	775.875	65-23	778.875	65-47	781.875
64-24	773.000			65-24	779.000		