

M/General Instrument

DSR470, DSR410 & DSR305US

Unit Activation Process

for HITS2Home & HITS Quick Take TV System Operators

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Proper De-authorization

For customers leaving digital service, it is important that the units report purchases a final time, after IPPV deauthorization takes place.

- The customer may not have kept the phone line connected continuously.
- They may have made *recent* purchases, that did not yet get reported.

For these security reasons, a final Pay-Per-View report is required by the system *at the time of* deauthorization, or anytime thereafter.

This is an automatic poll request that's included in the "deauthorize IPPV" message.

If the unit was not connected to a phone line at the time of deauthorization, connect the unit to a phone line & a TV or video monitor. (CATV/Satellite Signal connection is not necessary.) & press Options 6-4 & ► (Right Arrow key).

Monitor the "modem status" window. "Reportback successful" indicates completion.

If a unit has been reset (no reportback telephone number "Phone: n/a") *and* was previously authorized under a system outside of your control, Motorola staff can help. Also, if a "9" (or another additional dialing requirement) is needed for outside dialing, Motorola staff can help.

When the post-death reportback is complete, the unit is *immediately* available to be authorized under a new account.

Prepare a DSR3XX/4XX for Activation

- DSR4XX units which are recycled should be Reset to Factory Defaults.

This reset is the best way to erase customers' parental passwords and other personal settings. DSR470 units moved between cable systems with different bandwidth *must* be reset, to gain digital signal lock in the new system.

- Using the remote control, press Options 6-778 & Select "Reset to Factory Defaults."

Press ENTER to confirm reset. The unit will shut down and not allow power-on for about 45 seconds.

Get that Green Light/Digital Lock

The front panel signal indicator (next to the power button) must be green, to activate the unit.

- After Factory Default Reset, the default channel lineup has channels designed to lock to each HITS multiplex. We simply have to learn which channels to use.
- This is also a good way to confirm basic signal integrity *before* authorization.
- These default channels have no relationship with the channel lineup you and your customers will have *after* authorization. DSR470 and DSR410 will always default to channel 255, upon power up after the reset.

For DSR410, use the following channels:

204...HITS 5

205...HITS 6*

206...HITS 11

207...HITS 15*

209...HITS 3*

210...HITS 2

211...HITS 1*

212...HITS 8

217...HITS 9*

218...HITS 10

223...HITS 13*

* Will not lock using stacked LNBS. Stacked LNB map is downloaded after authorization, using Vertical multiplexes. Stacked LNBS are commonly found at sites using DSR410s or 305s as Analog Cable channel “headend” decoders.

Get that Green Light (cont'd)

For DSR470:

Just add 200 to the EIA/CATV output channel set in any of the digital headend trans-modulators.

Motorola calls the digital channel map/template the VCT ID (Virtual Channel Table).

The VCT ID is set in the billing system software, based on the headend configuration used by the system operator.

Examples:

- VCT ID 4471 uses Cable Channels 64 through 78 for QAM/DCII multiplex modulation. DSR470 factory default channels from 264 through 278 will lock to the active carriers.
- VCT ID 4472 uses Cable Channels 103 through 117 for QAM/DCII multiplex modulation. DSR470 factory default channels from 303 through 317 will lock to the active carriers.

Both DSR410 & DSR470 use an analog channel map, which is customized for each and every headend site. The analog map file also contains the data used to customize the digital channel lineup (hide unwanted channels). The analog channel map file is called the Cable System ID.

The process of finding and loading these two channel map files begins once trips are received.

All HITS digital carriers, including all Galaxy 4 Ku, HITS 12, 14, 16 & In-Demand PPV C-Band multiplexes offered, are equally good for receiving activation trips and loading channel map files.

The channel map files are continuously broadcast in the data-stream portion of every HITS signal, in a cycle of about 15-25 minutes. The process of loading channel map files can be monitored, from start-to-finish, using Diagnostics A (Options 6 0 5).

Authorization Reset

Testing performed at the factory and repair site often adds another step or trips will not be received.

It is the need to reset the “Provider ID” by using the feature named: “Authorization Reset.” Authorization Reset is under Options 6 778. (DSR410: Line 5; DSR470: Line 4).

Once performed, a gray background will appear with the following message:

Please wait...

The system is searching for a
new Authorization stream.

Once the above message is displayed, one press of the ► (right arrow) button reverts to the Diagnostics A screen.

Diagnostics A, Line 4, Field 4, tells us the Provider ID. If this 4-digit field reads any other value than 0000 or 1040, the Authorization Reset must be performed. Trips are impossible without it. The reset will always revert the value to 0000.

Note:

If this reset is done to an active/authorized unit, the unit must be tripped to restore digital channel authorizations. Channel maps remain in unit memory, so viewing is restored immediately upon receipt of new trips.

```

400                                     204
000-03201-66542-128  Not In Support Mode  00
0000BA 0000BA 0000BA 0000BA      000000  ID
0012003900000000      0000  2  0000      234  0  0
0000  Off  00000000  00000000  2268CE50  00
139 0 1                15278      4352:00-00  0
0000  0FFA  0FFB  0FF9      1FFF      0FFE  0
      10      0      320      102      110      1335  0

```

DIAGNOSTICS

A

Virtual Channel Number

Unit Address Number: Unique Mediacipher® Security Address

EMM Search State: 0=idle; 1=waiting for PID info; 2=waiting for EMM.

Provider ID: 1000=4dtv SAC; 1020=Starchoice SAC; 1040=HITS SAC

Channel Count: Number of channel defs. loaded into memory;

Options 604/6 modifies, based on “hidden” flag in channel map file.

IPG enable/disable: 1 = Authorized for IPG;

0 = “Guide information not available.”

VCT ID: Digital Channel Map ID; 4352 is ROM/Factory Default map

SAC PID: 0FFA = SAC port 0; 0FFB = SAC port 1 (either is GOOD)

SAC PID Unit-specific message counter: “TRIP COUNTER”

400							204
000-03201-66542-128	Not In Support Mode						00
0000BA 0000BA 0000BA 0000BA				000114			AO
0012003900000000	FED4	0	1040		0	0	1
0000	On	225218AA	235DB92A	2268CE50			0
592 8 1		59272		4450:00-00			00
0000	OFFB	1FFF	1FFF	1FFF	OFFE		1078
10	5	320	102	110	858		0

DIAGNOSTICS

A

Changes After Trip for Activation

Firmware Preamble version and Download Status fields *may* change.

Entitlement Management Message Search State will revert to: 0

The “Provider ID” field, if 0000, will change to:

1040 = HITS, 1020 = Starchoice, 1000 = 4DTV,

The “Number of Channels” field will revert to Zero (see next slide)

IPG enable bit will change from 0 to 1

VCT ID will change from 4352 to the system-specific VCT (BSI s/w sets)

EMM PID OFFA will change to OFFB

EMM PID Counter will increment by 2, or more

```

400 204
000-03201-66542-128 Not In Support Mode 00
0000BA 0000BA 0000BA 0000BA 000114 AO
0012003900000000 FED4 0 1040 159 0 1
0000 On 225218AA 235DB92A 2263CF50 0
592 8 1 59272 4450:00-00 00
0000 OFFB 1FFF 1FFF 1FFF OFFE 1078
10 5 320 102 110 858 0

```

**Digital
Channels
Loaded**

```

400 204
000-03201-66542-128 Not In Support Mode 00
0000BA 0000BA 0000BA 0000BA 000114 AO
0012003900000000 FED4 0 1040 236 0 1
0000 On 225218AA 235DB92A 2263CF50 0
592 8 1 59272 4450:00-00 00
0000 OFFB 1FFF 1FFF 1FFF OFFE 1078
10 5 320 102 110 858 0

```

**Analog & Digital
Channels
Loaded**

Actual numbers will vary.

Instant Pay-Per-View Setup

The following does not apply to those who do not want IPPV.

CREATE A TELEPHONE CONNECTION THAT WILL STAY CONNECTED

If the receiver is authorized to have Instant Pay Per View, the unit will try to dial the toll-free number and make an initial report, immediately upon getting the trips that activate IPPV. (It's good to confirm that the 800 number is listed on Line J, in System Status) If you're using the same phone line to call in the activation, ask the operator to trip the unit, with IPPV authorization included in it's package, after you hang up.

Options 6 4 has a "MODEM STATUS" window. "**Reportback successful**" indicates completion.

The system receiving the report via telephone then triggers new messages to be sent via instant trip, over the satellite, to immediately activate IPPV ordering ability. Surf Pay-Per-View channels, looking for the "WATCH" button, along with program title and purchase price. If you still see "Your receiver is not currently activated for Instant Pay Per View.", here's an explanation of the most common reason.

If an old account's IPPV purchases (They stay in unit memory.) are received in the initial report, IPPV ordering will be delayed, to validate the old purchases (so a PPV bill can be generated for the original customer), before allowing the unit to be authorized on a new account. While tuning any PPV channel, Options 6 4 Line B "Authorization Status" will say I\$(insufficient credit), despite a normal PPV credit limit on the account(in the billing system).

Instant Pay-Per-View Setup, cont'd

For the many system operators who elect to pre-configure or pre-authorize the DSR4XX set-top-box at the cable office or headend site, initial IPPV reporting via the DSR phone jack should be saved for the customer home:

BE SURE THE UNIT PERFORMS A SUCCESSFUL REPORT @ THE CUSTOMER'S HOME, USING *THEIR* PHONE LINE.

If the initial poll is done at the system operator's site, the customer who has a voltage or noise problem with their phone line, preventing reports, will be able to purchase 3 PPV movies or one major event (common PPV limit criteria, but may vary by system), and not get billed. The unit shows up on a non-responder report & an outbound call to connect the phone line or service call to improve quality of the phone connection, must be performed. The same happens when an installer does not make a telephone connection at all (if the unit was polled successfully back at the office).

This can be costly in 3 ways:

- 1) Initially undocumented/unreported purchases
- 2) No ability to make more purchases
- 3) Customer service effort/truck roll

Hide Channels Not Being Offered

If the receiver is **activated** on the **same day** as installation, there is one final step needed to complete the channel-mapping process...

- **Press Options 6 - 0 & Select “Hide Non Preferred Channels”**

This keeps customers from accessing channels which your system has chosen not to offer.

This same step happens automatically, during the first overnight period.

It's time to watch TV! (Customer Education)

DSR470 IPG & QAM system troubleshooting

- The guide data is flushed and reloaded during early morning/overnight hours.
- Immediately following the flush, the next 3 days of listings and descriptions are loaded.
- This *entire* process takes about 1.5 to 2 hours.
- Today's guide (title) listings are available in about 10-15 minutes. These are always loaded and presented first, to minimize the impact on customer viewing.

Diagnostics F holds the key to detecting delays in this refresh process. It tells us the number of minutes since last flush & specific fields log the progress of guide data loading, for each day of the week.

Press Options, 6-0-5 and use the ◀ ▶ arrow buttons to navigate to Diagnostics F.

Press ▲ so the only letter on the top line, reads: n or r, (not d).

n=digital/national channel guide data; r=analog/regional channel guide data

Even with flawless channel reception, a QAM signal that has a mild level of modulation errors or that is too strong @ the set-top-box, will yield an extremely slow guide data refresh rate.

Guidelines for CATV overall Signal Level @ the DSR470 Set Top Box:

ANALOG carriers: -5 to +15 dBmv

DIGITAL carriers: -15 to +5 dBmv

With Diagnostics F displayed, pressing INFO on the remote control immediately flushes the guide data, so one can monitor the refresh rate in real time.

For Cable TV operators without a QAM signal analyzer, this is the next-best way to gauge the integrity of the QAM signal. Analyzers are far better as they can tell, by the nature of the distortion, the likely cause of the signal problem. However, we know from experience that most QAM signal problems isolated to a specific customer or small area are due to cable, splitter, F-connection, tap defects and related installation issues.

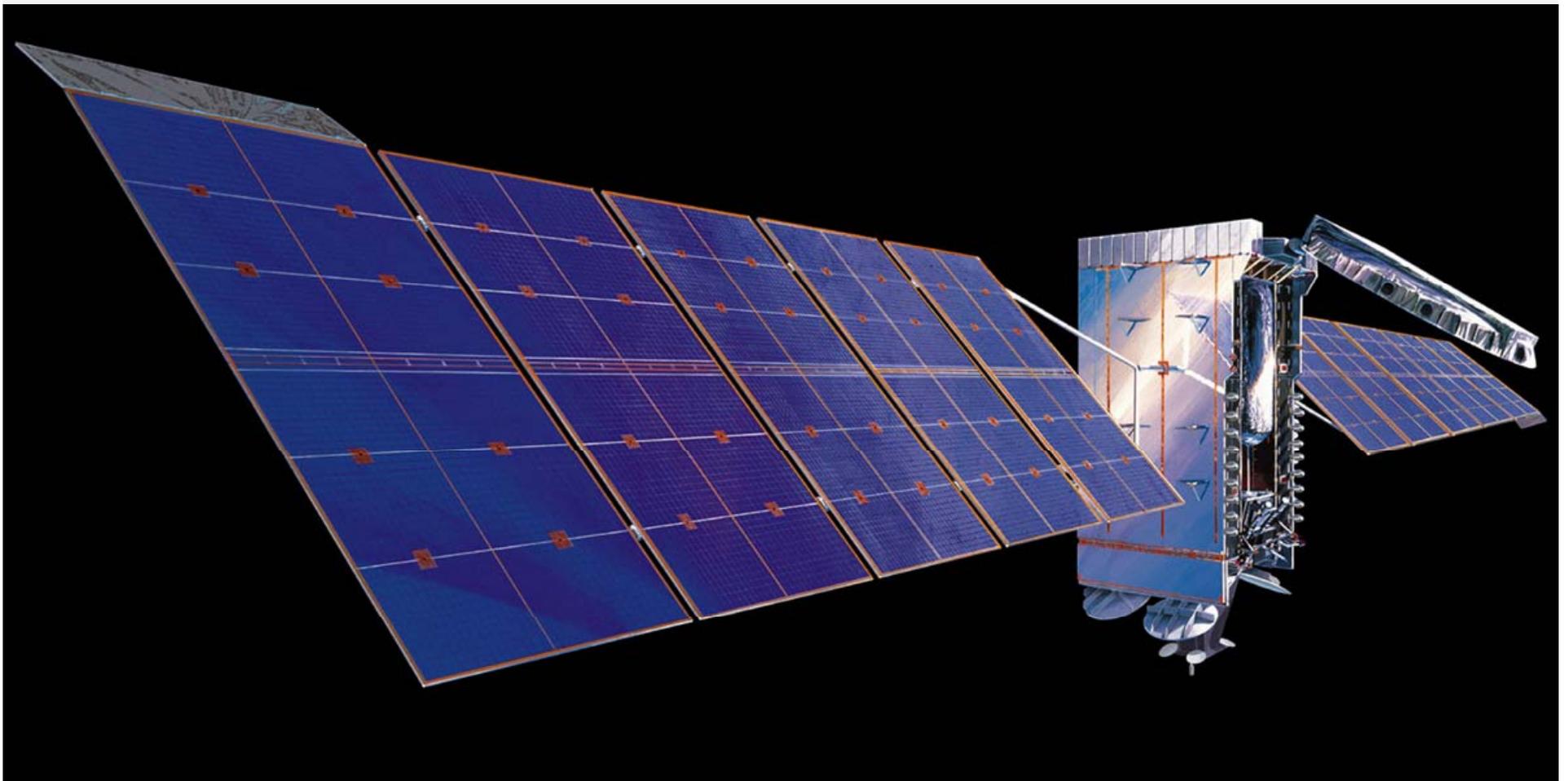
Diagnostics F

49	9	8a48	n:	8-	0	0	0	7	7	7	0	0	316
49	9	8a48		8-	0	0	0	7	7	7	0	0	00 1 7
38	9	8ac8	40	8-	0	0	0	0	0	0	0	0	07:11
10	9	7200	863	8-	0	0	0	0	0	0	0	0	10:05
10	9	7200	0	0	0	0	0000	0000	000				0/0
8	9	7280	0	0	0	0	0000	0000	000				0/0
48	9	7280	0	0	0	0	0000	0000	000				0/0
48	9	7280	0	0	0	0	0000	0000	000				0/0

- IPG data type-Use ▲ to change (n = national, r = regional/analog)
- After “8-” each field represents a day of the week.
- Title loading indicators (3 days, Tues-Thursday, shown)
- Info/Description loading indicators
- 1-6 = partial data loaded for that day; 7 = full 24 hour block loaded
- Hours : Minutes since last Guide Data flush

NOTE: INFO button will flush IPG data immediately

REMOTE CONTROL STEPS



Programming the Master Power Feature

If you wish to control the power on/off function of your satellite receiver, VCR, TV, and all connected equipment with a single press of the POWER key on your remote control, you can enable the remote control's Master Power feature by following these steps:

Press the CBL/SAT key on the remote control for at least three seconds or until the light on the key blinks.

Press the POWER key on the remote. The light will remain on steady. Press the power key a second time, and the light on the remote will blink on and off briefly, which indicates that the remote has accepted the Master Power command.

If you wish to cancel the Master Power feature, just repeat the steps outlined above.

Set Remote Control Address.

This option allows you to control up to four receivers in a centralized area with one or more remote controls. Each receiver requires a separate address.

The default address is 000. On the front panel of your receiver press the Menu button to bring up the Menu screen.

Choose Options.

Choose option 6 (Change System Settings).

Choose option 3 (Installation Settings).

On the Installation Settings menu, choose option 2 (Set Remote Control Address). Now follow the instructions on the Remote Control Address screen.

You may also access & change the current address by pressing the up & down arrow keys on the front-panel, at the same time. A0, A1 A2 or A3 will appear on-screen. Use just one of those same arrow keys to change it, usually back to A0. Press Enter on the remote to lock it in.

If you have four receivers, you will have to change the addresses on three of them: they will have address of 000, 001, 002, and 003.

To program your remote control for each receiver, hold down the SAT key on the remote control until the light flashes. Once the light begins to flash enter the desired address (000, 001, 002, or 003).

Volume Control Crossover

Your remote control unit is programmed from the factory to control the volume of your television set when you are using the remote control in the CBL/SAT mode. You can choose to have the CBL/SAT mode control the volume of your satellite receiver directly, instead.

The AUX mode can also be programmed to control the audio from the TV or CBL/SAT device. To program your remote control for this function:

Enter the programming mode using either the CBL mode key or the AUX mode key. (Press and hold CBL/SAT for 3 full seconds.)

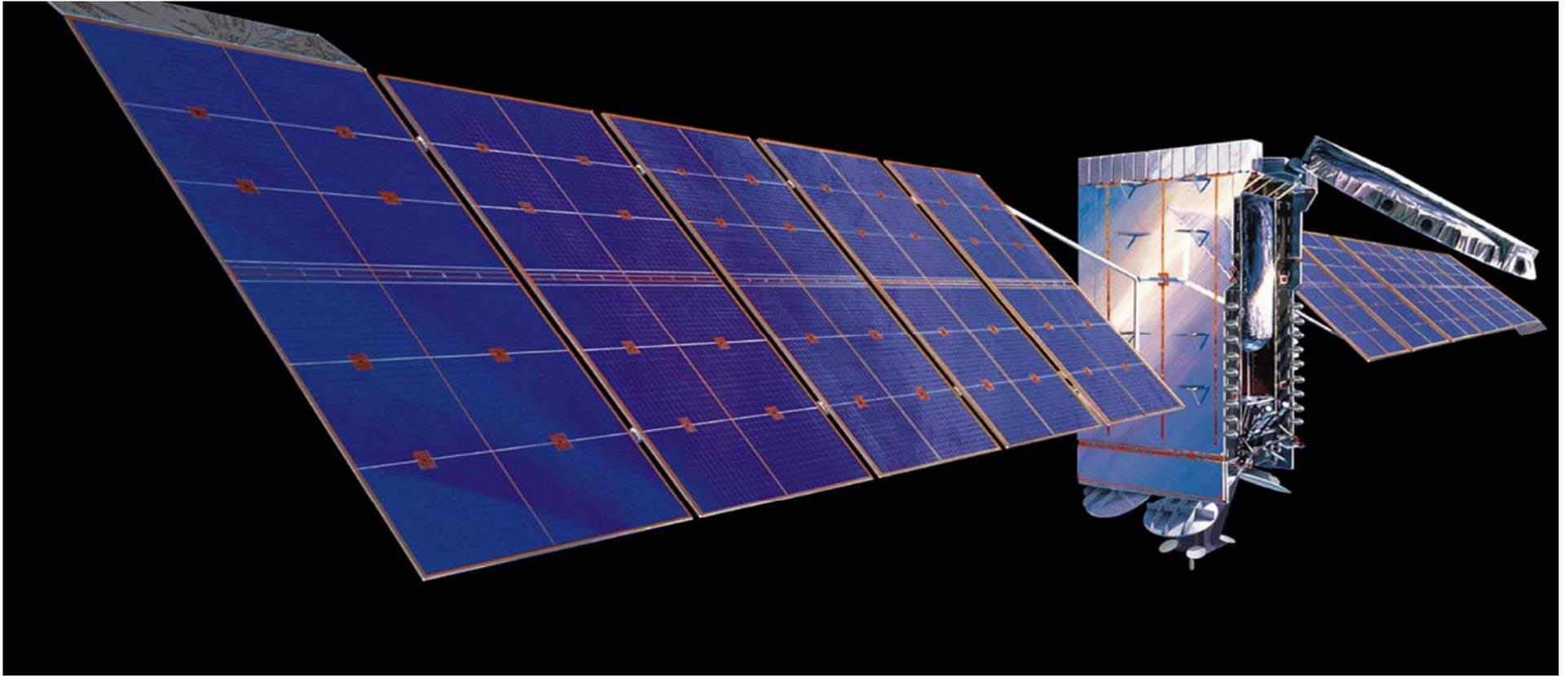
While the CBL/SAT mode key (or AUX mode key) is flashing, press and release the TV mode (or AUX or SAT/CBL) key (depending on which device you want remote volume and mute control while in CBL/SAT mode).

The TV, CBL/SAT, or the AUX mode key will light as you press and release the programming mode key, flash three times rapidly and extinguish.

The remote control will now control the volume of the selected device when in the CBL/SAT mode.

NOTE:

DSR470s do not have internal (CBL) volume control. Leave those remotes in TV mode, for default volume control. (Press & hold CBL for 3 seconds until it blinks. Release and press TV.) In general most viewers prefer this configuration and it also delivers the best sound quality.



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