

AVM 20 v2.2x ADDENDUM

This addendum contains operating information for surround modes in software version 2.2x.

For the remaining operating instructions, see AVM 20 Operating Manual v2.1x.

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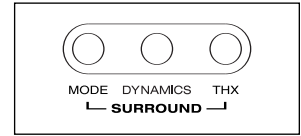
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5. FRONT PANEL OPERATION continued ...

5.8 SURROUND MODES

A surround mode is signal processing that enhances original source material. There are two main types of surround modes – those that apply to **stereo** source material and those that pertain to **5.1-channel** source material.



Factory defaults for Surround Modes are set so that all of your surround speakers are used with any type of source material. To change these defaults, see Mode Presets in section 7.4.5.

Stereo Source Material:

This includes both analog stereo and digital stereo (stereo PCM or Dolby Digital 2.0) source material. Various surround modes can be applied to provide up to 7.1 channels of output. These are described in depth throughout this section. Each Source memorizes its own Mode setting, so you can, for example, set VCR to 'AnthemLogic-Cinema', and then set CD to 'AnthemLogic-Music' – when you change Source, the respective Modes are remembered.

Surround modes are not available for inputs set to Anlg-Dir (see section 7.4.5).

Regarding analog VCR input: With analog, there is no way for any processor to detect Dolby Surround encoded material. Dolby Pro Logic must therefore be turned on manually by selecting it in the Mode options.

5.1- and 6.1-Channel Source Material:

The AVM 20 detects the digital format that you select in the DVD menu (Dolby Digital or DTS) and automatically engages decoding for the selected format. Alternatively, you can select the format on-the-fly after pressing the player's remote control 'Audio' button. Note that only one format is sent over the digital connection at a time – the AVM 20 displays and decodes the one that is selected in the player.

As soon as the AVM 20's display shows the format, you can select additional processing, described throughout this section – there is usually plenty of time to do so when the film studio's logos are played at the beginning of a movie. Your selections are memorized by format and by Source as well.

Make sure your DVD player setup menu is set to leave Dolby Digital and DTS unchanged ("Bitstream"), otherwise it will have 2.0-channel PCM at the digital output instead of the 5.1 channels on the disc.

5. FRONT PANEL OPERATION continued ...

Various surround modes produce 6.1 or 7.1 channels of output. If you are using a 5.1 system and have Rears set to 'None' (Speaker Configuration menu – section 7.4.2), Rear channel information is not lost, but remains in the L/R Surround speakers.

5.8.1 AnthemLogic™



These are proprietary surround modes developed by Anthem that offer outstanding surround performance and can be applied to any 2-channel source material:

AnthemLogic-Music™

AnthemLogic-Music™ enhances the stereo listening experience without detracting from the stereo soundstage. Through extensive listening tests a very effective design was developed. This is a minimalist design that uses no echo or reverberation effects which could negatively affect the purity of the sound.



Depending on your speaker configuration, up to 6.1 channels of output are provided – L/R Fronts, L/R Surrounds, L/R Rears and Subwoofer. AnthemLogic-Music™ does not utilize the Center Channel, to ensure that the purity of the stereo music soundstage will in no way be compromised when you're sitting in the 'sweet spot' and listening to your favorite stereo recordings.

AnthemLogic-Music™ is very effective in creating an expansive musical soundstage that psychoacoustically helps to remove the barrier of the listening room itself, and it does so in a completely non-intrusive, natural and very compelling way. This is the factory default 2-channel Mode for CD, 2-Ch BAL, TAPE, and FM•AM.

AnthemLogic-Cinema™

AnthemLogic-Cinema™ provides a large, enveloping and dynamic movie listening experience that makes 2-channel movies sound more like what is experienced in a state-of-the art movie theater. Again through extensive listening tests a very effective design was developed. This is also a minimalist design that avoids the use of echo effects, which could otherwise negatively affect the purity of the sound.



AnthemLogic-Cinema™ uses the rear speakers to provide up to 7.1 channels of output, depending on your speaker configuration.

AnthemLogic-Cinema™ provides the missing link that lets you experience 7.1 channels of output for full impact home theater sound, from any 2-channel stereo analog source such as VCR or TV, or any Dolby Digital 2-channel source, such as DVD or satellite. This is the factory default Mode for DVD, TV, SAT, VCR, and AUX.

5.8.2 DOLBY DIGITAL 2.0



Dolby Digital 2.0 soundtracks with surround encoding contain a flag that can be used to automatically activate Pro Logic IIx Movie mode. The AVM 20 can be set to either use this flag or to override it.

To find out if the Dolby Digital 2.0 material being played has the surround flag, press **MODE**. If flagged, the first line of the display says 'DOLBY D 2.0 SUR AUTO' and if not flagged, it says 'MODE FOR 2 CH INPUT'.

The Modes in the next section may be selected separately for flagged and unflagged stereo source material.

Note: Movies with mono (single-channel) soundtracks use either the Left/Right channels or the Center channel depending on how they're encoded. The Mode changes to Mono if the soundtrack only uses the Center channel – you can switch it to Mono-Academy or All Channel Mono afterwards.

5. FRONT PANEL OPERATION continued ...

5.8.3 SURROUND MODES FOR 2.0-CHANNEL SOURCE MATERIAL

Number of output channels for each Mode is indicated below in bold type – ‘.1’ refers to a subwoofer signal derived through bass management, not a separate channel (see section 7.4.2). Press **MODE**, then rotate the Master Control Knob or use North/South arrows on the remote control, to cycle through the following:

THX must be Off for all Modes to be available (see section 5.8.6).

Stereo:	No surround mode is applied.
AnthemLogic-Music:	6.1 – One of Anthem’s proprietary surround modes, specifically designed to expand the stereo soundstage of stereo music in a very natural way without any loss of soundstage integrity or image focus. The Center channel is not used.
AnthemLogic-Cinema:	7.1 – Another proprietary mode from Anthem, designed to provide the impact of a large theater experience from 2-channel movies and TV programs.
Pro Logic IIx Music:	7.1 – Created for use with stereo music material. The following three parameters can be adjusted by pressing the MODE button one, two, or three times while in Pro Logic IIx Music, and rotating the Master Control Knob: Center Width is adjustable from 0 to 7 – ‘0’ places all Center sound in the Center speaker, while ‘7’ places it equally in the Left and Right channels. Dimension helps achieve the desired front-to-back balance by providing seven steps of adjustment between the Surround and Center channels. Panorama is effective for recordings with strong left or right channel elements. When ‘On’, it extends the front stereo image to include the Surround channels.
Pro Logic IIx Movie:	7.1 – Dolby Surround decoder for 2-channel movies and TV programs.
Pro Logic IIx Matrix:	7.1 – A matrix decoder that does not steer the image from one speaker to another.
Pro Logic IIx Game:	7.1 – Bass from surround effects in video games is optimized for visceral impact.
Dolby Pro Logic:	4.1 – In case there’s a desire to hear it “as it used to be” (Surrounds are mono).
Neo:6 Music:	6.1 – Can be used with stereo music material to create 6.1 output channels. The center image can be adjusted by pressing MODE while in Neo:6 Music, and rotating the Master Control Knob: Center Image is adjustable from 0 to 5 – increasing the number gives more center channel prominence.
Neo:6 Cinema:	6.1 – A matrix decoder that can be used with any matrix-encoded movie. Separation is created by allowing various sounds to be placed at different points in the sound field simultaneously.
All Channel Stereo:	7.1 – The Left and Right channels are also sent to the Surround and Rear channels, while the Center channel and Subwoofer receive a combination of both. Some processing is used to retain image clarity. Useful for playing music at parties so that it can be heard with equal loudness in all parts of the room.
All Channel Mono:	7.1 – Combines the Left and Right channels and sends the signal to all speakers.
Mono:	1.1 – Combines the Left and Right channels and sends them to the Center speaker.
Mono-Academy:	1.1 – Gives a presentation closer to the original on movies made from the 1930s to the 1960s, which relied on high-frequency rolloff for sound balance and to mask inherent hiss. Use with old mono movies that sound overly noisy. Can also be useful with DVDs of some TV shows if high-pitched noise leakage from a CRT (cathode ray tube) monitor is audible in the recording.

5. FRONT PANEL OPERATION continued ...

5.8.4 DOLBY DIGITAL EX / PRO LOGIC IIx FOR 5.1 SOURCES



Dolby Digital EX and Pro Logic IIx can be used to decode DVDs encoded in Dolby Digital Surround EX by extracting Rear channel information from the two Surround channels. Dolby Digital EX creates a mono Rear signal, whereas with Pro Logic IIx, the two Rear channels play a stereo signal. Either one of these Modes can be applied to any other 5.1-channel material. The Rear channels may or may not be pleasing depending on the soundtrack.

A list of movies encoded in Dolby Digital Surround EX can be found on the Dolby web site at www.dolby.com and on the THX web site at www.thx.com. Newer titles contain a flag that can automatically engage Dolby Digital EX / Pro Logic IIx, whereas older titles do not. Press **MODE** when a movie starts playing and use the Master Control Knob to select the Mode that sounds best – the display says 'DOLBY D 5.1 INPUT' if the soundtrack is unflagged, and 'DOLBY D EX AUTO' if it is flagged.

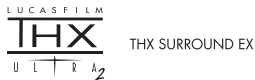
5.8.5 DTS-ES



There are two ways that Rear channel information is encoded in DTS-ES – Matrix and Discrete:

- **Matrix** – DTS-ES Matrix movies contain a matrixed Rear channel. The AVM 20 automatically engages Neo:6 to decode DTS-ES Matrix. Neo:6 can also be turned on manually and applied to any other 5.1-channel material – when a movie starts playing, press **MODE** and use the Master Control Knob to select. A mono Rear channel is derived from the Left and Right Surround channels. This Rear channel may or may not be pleasing depending on the soundtrack.
- **Discrete** – DTS-ES Discrete soundtracks contain 6.1 channels with an independent Rear channel. The AVM 20 automatically engages DTS-ES Discrete decoding.

5.8.6 THX ULTRA2 / THX SURROUND EX



THX is an exclusive set of standards and technologies established by the world-renowned film production company, Lucasfilm Ltd. THX grew from George Lucas' personal desire to make your experience of the film soundtrack, both in movie theaters and in your home theater, as faithful as possible to what the director intended. Movie soundtracks are mixed in special movie theaters called dubbing stages and are designed to be played back in movie theaters with similar equipment and conditions. This same soundtrack is very often transferred to DVD, Laserdisc, VHS tape, etc. without any adjustments for playback in the smaller home theater environment. THX engineers developed patented technologies to accurately translate the sound from the movie theater environment into the home, restoring proper tonal and spatial balance.

Each THX mode includes a specific combination of the following:

- **Re-Equalization** – De-emphasizes high frequencies in the front channels, and in THX Surround EX, the rear channels as well. Soundtracks commonly have pre-emphasized treble because they are mixed for movie theaters where high frequencies are usually absorbed. They can then sound overly bright when played back in the home. Re-Equalization restores the correct tonal balance for watching a movie soundtrack in a home theater environment. Some TV shows that are broadcast in Dolby Surround also benefit from Re-Equalization, whereas some movies on DVD have already been re-adjusted and do not require Re-EQ. To enable or disable Re-EQ, press **THX** twice to display "THX RE-EQUALIZATION", then select On or Off. **Re-EQ may also be applied when THX is Off** – this may be useful if the high-pitched noise produced by standard CRT monitors accidentally leaked into the audio while it was being recorded, and you would like to filter it out.
- **Timbre Matching** – The human ear changes our perception of a sound depending on the direction from which the sound is coming. In a movie theatre, there is an array of surround speakers so that the surround information is all around you. In a home theatre, you use only two speakers located to the side of your head. Timbre Matching, which includes Re-EQ, filters the information going to the surround speakers so that they more closely match the tonal characteristics of the sound coming from the front speakers. This ensures seamless panning between the front and surround speakers.

5. FRONT PANEL OPERATION continued ...

- **Adaptive Decorrelation** – In a movie theatre, a large number of surround speakers help create an enveloping surround sound experience, but in a home theatre there are usually only two speakers. Unless you are using properly positioned dipoles, surround speakers can sound like headphones that lack spaciousness and envelopment – they will also collapse into the closest speaker as you move away from the middle seating position. Adaptive Decorrelation senses the presence of identical surround channels (mono) and slightly changes one surround channel's time and phase relationship with respect to the other. This expands the listening position and creates – with only two speakers – the same spacious surround experience found in a movie theatre. Adaptive Decorrelation does not operate when the surround channels are different, as is often the case in discrete multichannel source material.
- **ASA (Advanced Speaker Array)** – ASA is a proprietary THX technology that processes the sound fed to the two surround and two rear speakers to provide an optimal surround sound experience. When you set up your home theater system using all 7.1 speaker outputs (L-Front, Center, R-Front, R-Surround, R-Rear, L-Rear, L-Surround, Subwoofer), placing the two Rear speakers close together will provide the largest sweet spot. If for practical reasons you have to place the Rear speakers further apart, you will have to go to the Listener Position menu (section 7.4.3) and choose the setting that most closely corresponds to the speaker spacing to re-optimize the surround soundfield.

Depending on source material and speaker configuration, THX processing is available as follows:

THX Cinema:	5.1 to 7.1 output with 2.0- and 5.1-channel movies (see overview that follows) Processing: Re-Equalization, Timbre Matching, Adaptive Decorrelation (if applicable) When THX Cinema is selected, Dolby Pro Logic IIx Movie is automatically engaged. Alternatively, Dolby Pro Logic or DTS Neo:6 Cinema may be selected. Other Surround Modes are not available and do not appear when pressing MODE.
THX Ultra2 Cinema:	7.1 output with 5.1-channel movies Processing: Re-Equalization, Timbre Matching, Adaptive Decorrelation, ASA (Cinema) THX Ultra2 Cinema mode plays 5.1 movies using all 7.1 speakers giving you the best possible THX movie watching experience with 5.1 program material. In this mode, ASA processing blends the L/R-Surround speakers and L/R-Rear speakers providing the optimal mix of ambient and directional surround sounds.
THX MusicMode:	7.1 output with 5.1-channel music (including DVD-Audio, multichannel SACD) Processing: Timbre Matching, Adaptive Decorrelation, ASA (Music) THX MusicMode can be selected when playing multi-channel music. In this mode THX ASA processing is applied to the surround channels of all 5.1 channel encoded music sources to provide a wide stable rear soundstage.
THX Games Mode:	7.1 output with 2.0- and 5.1-channel games Processing: Timbre Matching, ASA (Games) Game audio is mixed and monitored in a different environment than that of music and movies. The interactive nature of the audio requires a playback system which can provide 360 degree panning while preserving the ambient nature of background sound elements. When playing back 5.1 games, THX Games Mode may be engaged. Suitable sources are Dolby Digital 5.1 and DTS 5.1 game sources. If THX Games Mode is engaged with 2.0 input, the source is first converted to 5.1 via Pro Logic IIx Game mode.

5. FRONT PANEL OPERATION continued ...

THX Surround EX:

6.1 output with **Dolby Digital Surround EX**

Processing: Re-Equalization, Timbre Matching

THX Surround EX – Dolby Digital Surround EX is a joint development of Dolby Laboratories and the THX division of Lucasfilm Ltd.

In a movie theater, film soundtracks that have been encoded with Dolby Digital Surround EX technology are able to reproduce an extra channel which has been added during the mixing of the program. This channel (called Surround Back, but named Rear in the AVM 20), places sounds behind the listener in addition to the currently available L-Front, Center, R-Front, R-Surround, L-Surround and Subwoofer channels. This additional channel provides the opportunity for more detailed imaging behind the listener and brings more depth, spacious ambience, and sound localization than ever before.

Movies that were created using the Dolby Digital Surround EX technology may exhibit wording to that effect on the packaging when released on DVD. A list of movies created using this technology can be found on the Dolby web site at www.dolby.com. A list of DVD titles encoded with this technology can be found on the THX web site at www.thx.com.

Bearing the THX Surround EX logo, the AVM 20 will faithfully reproduce this technology in the home when in THX Surround EX mode.

The AVM 20 also allows you to engage THX Surround EX while playing 5.1-channel material that is not encoded with Dolby Digital Surround EX. The information delivered to the Rear channel will be program dependent and may or may not be pleasing depending on the soundtrack and your listening tastes.

In compliance with THX requirements, Bass/Treble, Surround Mode Level, and Balance adjustments are **reset to +0.0 dB** whenever a THX mode is selected, after which you can make adjustments with THX engaged if you wish to do so. When THX is turned 'Off', previous settings are restored, except for Balance (see sections 5.6 and 5.7). Also note that due to the nature of digital bitstreams, adjustments made while THX is engaged will be reset to +0.0 dB if the program is paused for longer than 3 seconds.

Outputs indicated are the number of output channels as follows:

6.1 = L-Front, Center, R-Front, R-Surround, Rear*, L-Surround, LFE/Subwoofer

7.1 = L-Front, Center, R-Front, R-Surround, R-Rear, L-Rear, L-Surround, LFE/Subwoofer

* If two rear speakers are used, the same Rear channel information goes to both.

5. FRONT PANEL OPERATION continued ...

THX Ultra2 Overview

Key:	Re-EQ	– De-emphasizes treble. May be turned on or off at any time after pressing THX twice.
	Timbre	– Matches the sound character, or timbre, of the surround channels to the front channels.
	Adp-Decor	– When content of L/R-Surrounds is mono, adjusts time and phase to restore spaciousness.
	ASA	– Surround and Rear channels are processed to provide a wide rear soundstage.

<u>Program</u>	<u>Decoding / Processing</u>	<u>THX Available</u>	<u>Outputs</u>	<u>THX Processing</u>
Stereo	Selected Mode	Off	up to 7.1	Off
	PLIIx Movie [†]	THX Cinema	7.1	Re-EQ, Timbre
	PLIIx Games	THX Games Mode	7.1	Timbre, ASA (Gam)
	Dolby Pro Logic	THX Cinema	5.1	Re-EQ, Timbre, Adp-Decor
	Neo:6 Cinema	THX Cinema	6.1	Re-EQ, Timbre
Dolby Digital 5.1	Dolby Digital	Off	5.1	Off
	Dolby Digital	THX Cinema	5.1	Re-EQ, Timbre, Adp-Decor
	Dolby D 5.1+PLIIx Movie	THX Cinema	7.1	Re-EQ, Timbre
	Dolby Digital	THX Ultra2 Cinema	7.1	Re-EQ, Timbre, Adp-Decor, ASA (Cin)
	Dolby Digital	THX MusicMode	7.1	Timbre, Adp-Decor, ASA (Mus)
	Dolby Digital	THX Games Mode	7.1	Timbre, ASA (Gam)
	Dolby Digital EX [*]	THX Surround EX	6.1	Re-EQ, Timbre
	Dolby D 5.1+Neo:6	THX Cinema	6.1	Re-EQ, Timbre
DTS 5.1	DTS	Off	5.1	Off
	DTS	THX Cinema	5.1	Re-EQ, Timbre, Adp-Decor
	DTS+Neo:6	THX Cinema	6.1	Re-EQ, Timbre
	DTS	THX Ultra2 Cinema	7.1	Re-EQ, Timbre, Adp-Decor, ASA (Cin)
	DTS	THX MusicMode	7.1	Timbre, Adp-Decor, ASA (Mus)
	DTS	THX Games Mode	7.1	Timbre, ASA (Gam)
	DTS+PLIIx Movie	THX Cinema	7.1	Re-EQ, Timbre
DTS-ES Matrix[§]	DTS+Neo:6	Off	6.1	Off
	DTS+Neo:6	THX Cinema	6.1	Re-EQ, Timbre
	DTS+PLIIx Movie	THX Cinema	7.1	Re-EQ, Timbre
DTS-ES Discrete[§]	DTS-ES Discrete	Off	6.1	Off
	DTS-ES Discrete	THX Cinema	6.1	Re-EQ, Timbre

[†] DVDs with Dolby Digital 2.0 Surround may be flagged for auto-detection.

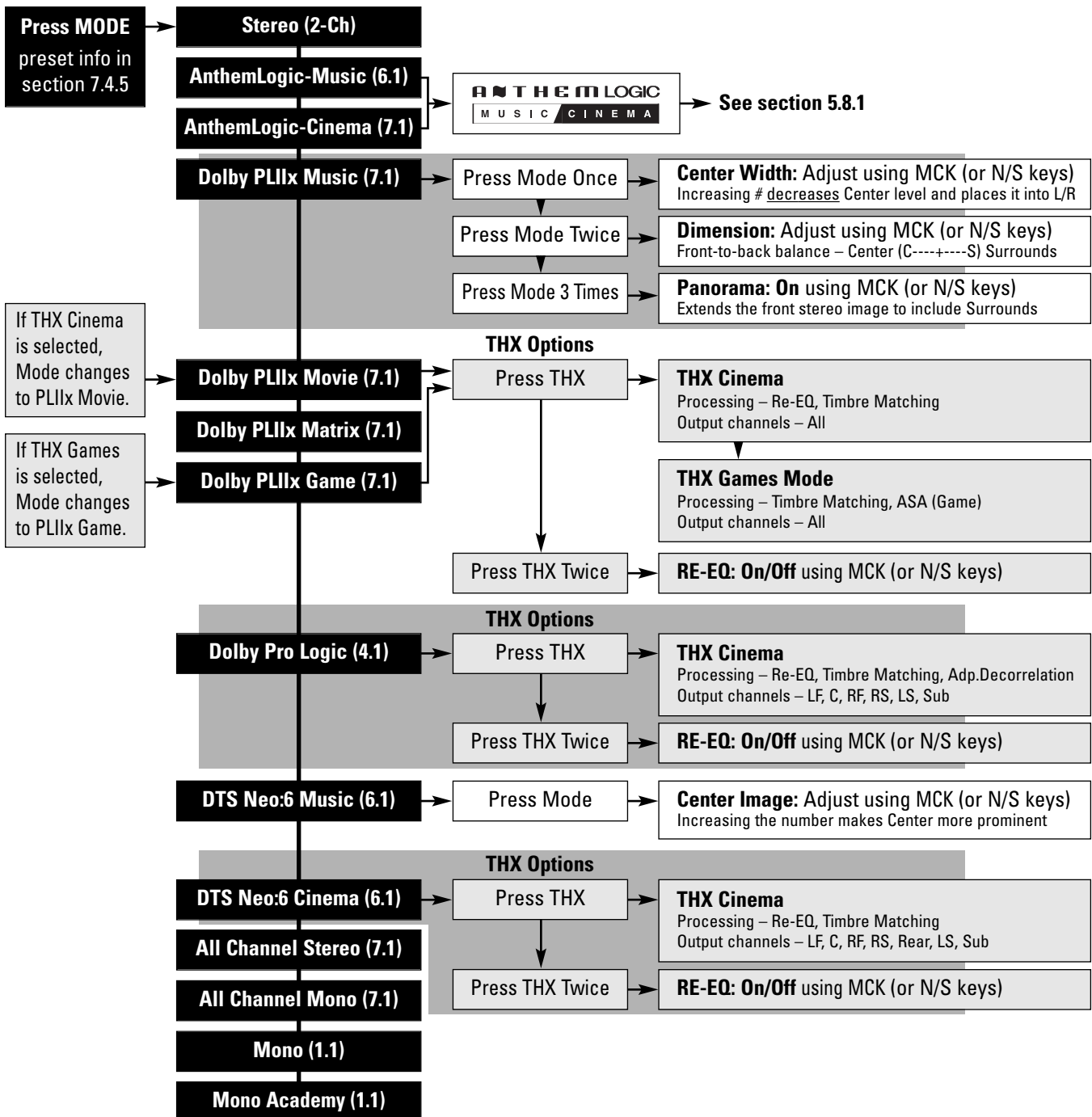
^{*} DVDs with Dolby Digital Surround EX may be flagged for auto-detection.

[§] DVDs with DTS-ES Matrix and DTS-ES Discrete are flagged for auto-detection.

5. FRONT PANEL OPERATION continued ...

5.8.7 Mode and THX Operation for Stereo Program Material – To make all Modes available, turn THX Off.

Cycle through Modes and THX using Master Control Knob (or North/South keys on remote control – see section 6).



Selections are memorized separately for each Source and for Dolby Digital Surround 2.0-flagged vs. unflagged material.

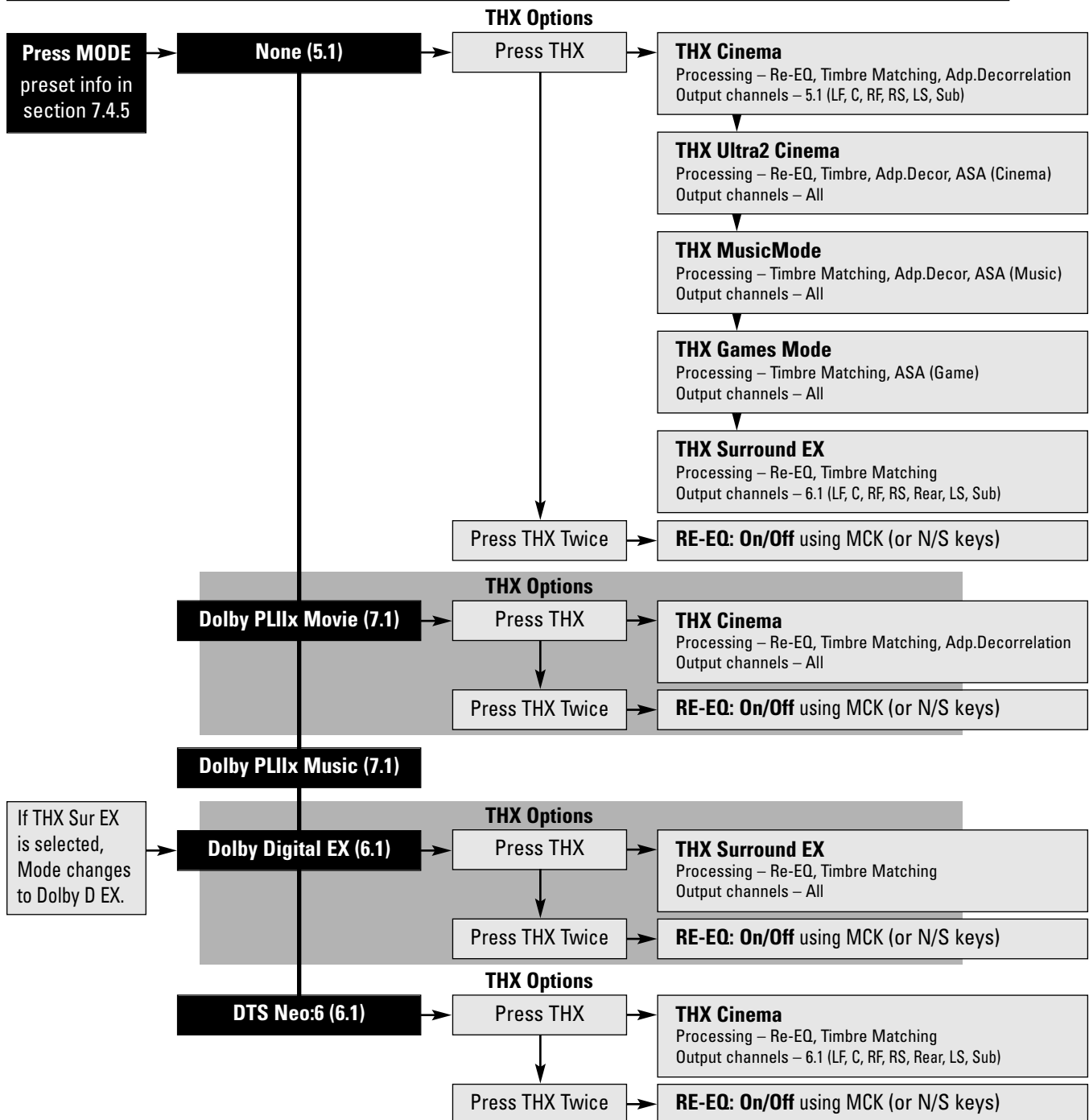
THX Processing (for complete descriptions see section 5.8.6):

- **Re-Equalization** – De-emphasizes treble. Not applicable to THX Games Mode.
- **Timbre Matching** – Matches the sound character, or timbre, of the surround channels to the front channels.
- **Adaptive Decorrelation** – When content of L/R Surrounds is mono, adjusts time and phase to restore spaciousness.
- **ASA** – Surround and Rear channels are processed to provide a wide rear soundstage.

5. FRONT PANEL OPERATION continued ...

5.8.8 Mode and THX Operation for Dolby Digital 5.1 and 6-Ch S/E – To make all Modes available, turn THX Off.

Cycle through Modes and THX using Master Control Knob (or North/South keys on remote control – see section 6).



Selections are memorized separately for each Source and for Dolby Digital Surround EX-flagged vs. unflagged material.

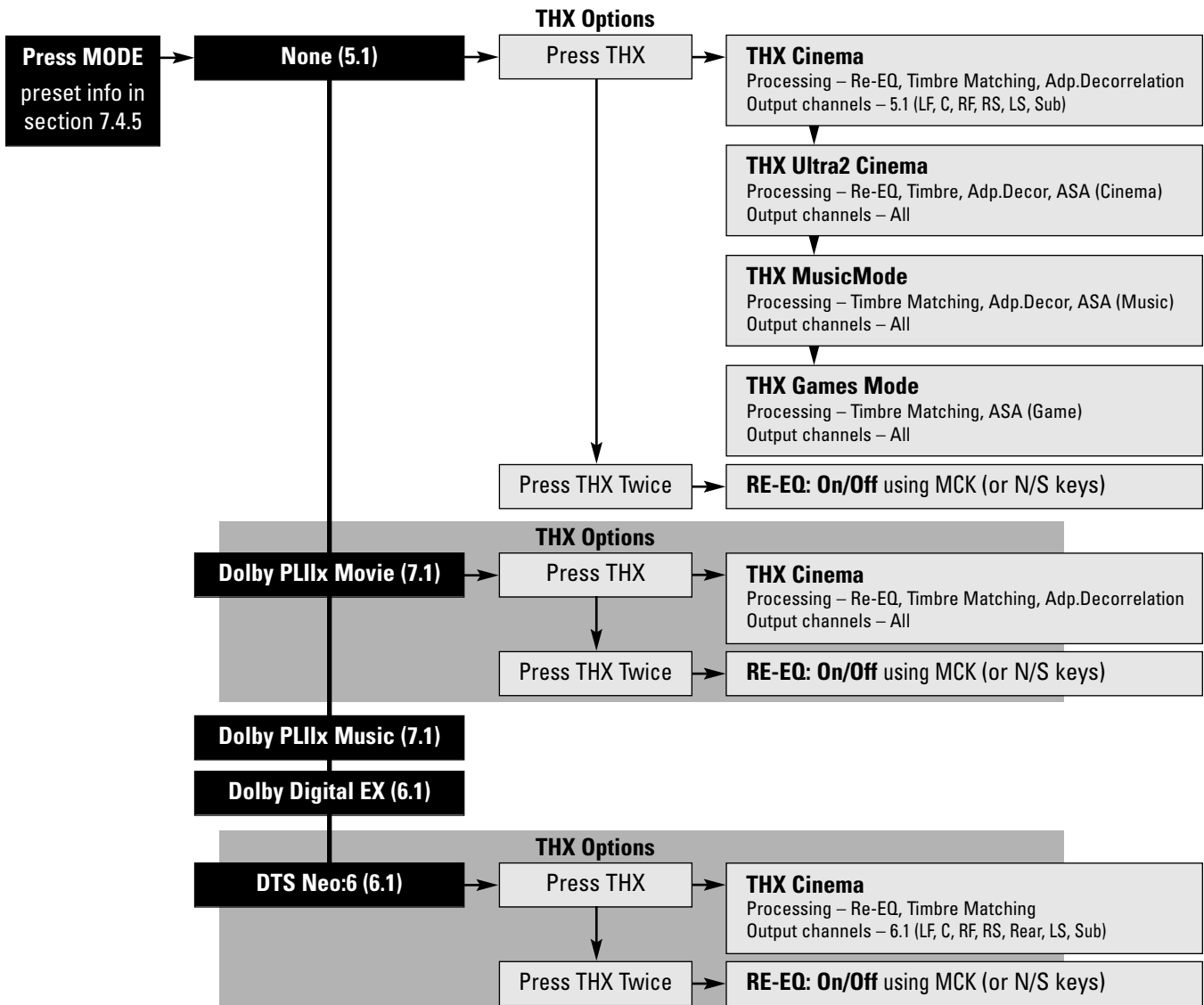
THX Processing (for complete descriptions see section 5.8.6):

- **Re-Equalization** – De-emphasizes treble. Not applicable to THX MusicMode and THX Games Mode.
- **Timbre Matching** – Matches the sound character, or timbre, of the surround channels to the front channels.
- **Adaptive Decorrelation** – When content of L/R Surrounds is mono, adjusts time and phase to restore spaciousness.
- **ASA** – Surround and Rear channels are processed to provide a wide rear soundstage.

5. FRONT PANEL OPERATION continued ...

5.8.9 Mode and THX Operation for DTS Program Material – To make all Modes available, turn THX Off.

Cycle through Modes and THX using Master Control Knob (or North/South keys on remote control – see section 6).



Selections are memorized separately for each Source and for DTS vs. DTS-ES.

DTS-ES Discrete: The only applicable selection is THX Cinema (6.1, Re-EQ, Timbre Matching).

DTS 96/24: Dolby Pro Logic IIx, Dolby Digital EX, and DTS Neo:6 can not be applied.

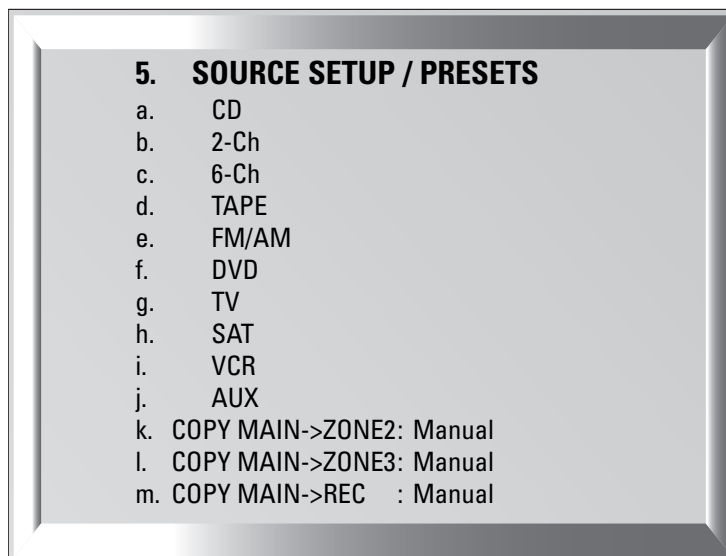
THX Processing (for complete descriptions see section 5.8.6):

- **Re-Equalization** – De-emphasizes treble. Not applicable to THX MusicMode and THX Games Mode.
- **Timbre Matching** – Matches the sound character, or timbre, of the surround channels to the front channels.
- **Adaptive Decorrelation** – When content of L/R Surrounds is mono, adjusts time and phase to restore spaciousness.
- **ASA** – Surround and Rear channels are processed to provide a wide rear soundstage.

7. SETUP MENU continued ...

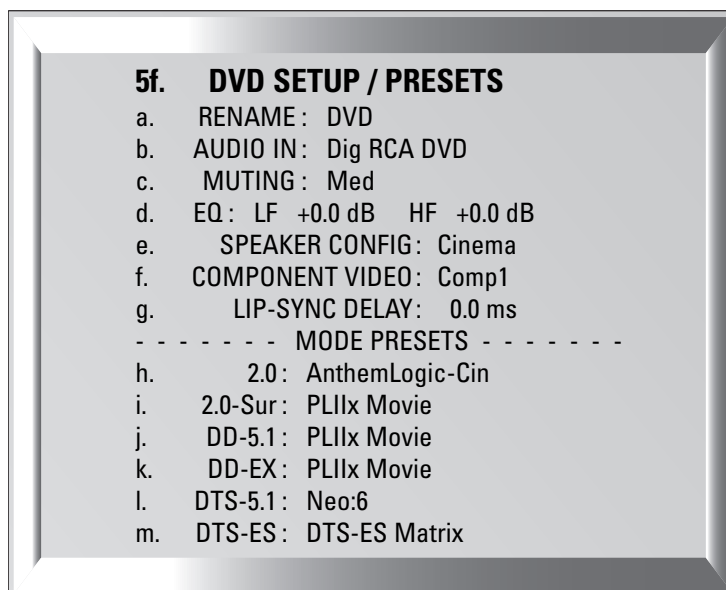
7.4.5 SOURCE SETUP / PRESETS

For each Source, you can change the name and, where applicable, assign digital audio and component video input, assign speaker configuration, adjust equalization, and set lip-sync delay. You can also pre-select surround modes that take effect for each Source when the AVM 20 is turned on, or a Source is selected. This is particularly useful when you have changed Mode settings for a particular program. When another member of your family uses the AVM 20, presets are recalled, ensuring trouble-free operation.



If you want any Path to always be in Copy mode (see section 5.2.1), change 'Manual' to 'Always'. This is recommended when you want a Source that has digital-only connection to be used in ZONE2, ZONE3, and/or REC without having to turn MAIN on, and if you want the Paths that are set to 'Always' plus MAIN to change Source together with the single push of a Source button in any of these Paths. Always Copy is not recommended if you want all Paths to have independent Source selection – in this case, make sure that your source components are connected to both the Analog and Digital jacks (see sections 4.2.1 and 4.2.2).

For the following example, highlighting 'f. DVD' in menu 5 and then pressing **SELECT** displays this menu:



7. SETUP MENU continued ...

Rename Source:

The factory assigned Source names that appear on the Front Panel Display and the On-Screen Display can be changed to another name, up to six characters long. The following characters are available:

A, B, C....Z, a, b, c....z, blank, dash (–), period (.), slash (/), **0, 1, 2....9**.

After highlighting the RENAME line, press **SELECT** and use the ◀ ▶ buttons to move from character to character, then use the ▲ ▼ buttons or rotate the Master Control Knob to change the character. It is also possible to rename 'ZONE2', 'ZONE3', and 'RECORD' – see section 7.4.8.

Audio In (applies to MAIN only):

There are four input formats to choose from – Digital, Analog-DSP, Analog-Direct, or Auto. After highlighting 'AUDIO IN' use the ◀ ▶ buttons to select an input format.

- **Dig** (Digital – not applicable to 6-Ch S/E, 2-Ch BAL, or FM•AM): Use this setting for any source component that has a digital output, especially the DVD player – Dolby Digital and DTS are transmitted only through the digital connection.
- **Anlg-DSP** (Analog with Digital Signal Processing): If you want your subwoofer to play from an analog L/R input, use this setting. Analog input is converted to digital through the AVM 20's high-end A/D converters to enable bass management, time alignment, Mode, Bass/Treble, Lip-Sync Delay, and THX. These are also available for the **6-Ch S/E** input, since it can also be set to Anlg-DSP. With the bass management and time alignment that this provides, the resulting sound quality from DVD-Audio or multichannel SACD is far better than setting the 6-Ch input to Anlg-Dir. If your player has bass management and time alignment, you can defeat it by setting all channels 'large' and to the same distance. This is necessary when using Anlg-DSP, otherwise the processing occurs twice.
- **Anlg-Dir** (Analog-Direct – not applicable to FM•AM): A/D conversion and Digital Signal Processing are bypassed, only leaving Volume, surround mode level, Balance, and Mute functional. Other than the subwoofer channel of the 6-Ch S/E input, there is no subwoofer output in Anlg-Dir.
- **Auto**: The AVM 20 automatically switches between Digital and Analog-DSP. When it senses a digital bitstream, the Digital input is used. At all other times, it switches to the Analog L/R input. This feature is especially useful with a digital cable box since some channels are broadcast digitally while others are analog – the AVM 20 switches automatically while you change channels.

Once you have set a Source to 'Digital' or 'Auto', press **SELECT** and then use the ▲ ▼ buttons to choose between any digital RCA connector, TOS1, TOS2, TOS3, or AES/EBU. Digital input connectors can be assigned to multiple 'Digital' Sources – this allows, for example, two unique Setup/Presets settings for the same DVD player, one for DVDs using the DVD Source, and the other for CD music using the CD Source.

Muting (applies to MAIN only):

This eliminates 'popping' sounds that may occur with some digital source components during a bitstream change. If popping is heard when changing chapter on a DVD or channel on a digital satellite receiver or cable box, use Max setting. However, if the beginning of a track is cut off when playing a CD, use Min setting.

EQ (applies to MAIN only):

For Sources set to Digital or Anlg-DSP, you can preset low and high frequency levels. This is useful for source components that have frequency irregularities. After highlighting the EQ line, press **SELECT** and use the ◀ ▶ buttons to select LF (low frequency) or HF (high frequency), then use the ▲ ▼ buttons to adjust. In the FM/AM Setup/Presets menu, FM and AM can be adjusted separately. The EQ settings in this menu and the 'on-the-fly' BASS / TREBLE adjustments do not affect each other (see section 5.7).

7. SETUP MENU continued ...

Speaker Configuration (applies to MAIN only):

Choose between Cinema (menu 2a.) or Music (menu 2b.) configuration – see section 7.4.2.

A third and unique choice is also available: Auto-LFE. When selected, the AVM 20 automatically uses the Cinema configuration if there is LFE in the source material, and changes to the Music configuration at all other times. Highly recommended when using the same player for DVDs and CDs, and separate Cinema and Music configurations. Dolby Digital 2.0 falls under Music configuration since there are no issues with LFE.

Composite Video, S-Video, Component Video:

Assign which video input (or 'None') is used when the Source is selected. For example, if you want the satellite picture always available when you select the FM•AM Tuner, assign the video inputs in the FM/AM menu to the same ones being used in the SAT menu. All video inputs can be assigned to multiple Sources.

Lip-Sync Delay (applies to MAIN only):

Using line doublers, quadruplers, or scalers causes the video to be delayed, which means that you will hear sound slightly ahead of seeing the video picture. This can also occur with HDTV and satellite broadcasts. To compensate, Lip-Sync Delay can delay the sound of all channels simultaneously by up to 85 milliseconds – please check the owner's manual for your doubler, quadrupler, or scaler for recommended delay settings. If you do not know how much delay is in the video, you can also set Lip-Sync Delay 'on-the-fly' as described in section 6.7 – this allows you to see the picture as you make adjustments.

Mode Presets (applies to MAIN only):

You can pre-select the Mode and THX preference that will be applied when a Source is selected or MAIN power is turned on. Each type of program material has a separate setting. Presets do not apply to Sources set to Anlg-Dir. **To disable a preset, set it to 'Last Used' and make new Mode selection after exiting Setup.**

For complete descriptions of surround modes and when to use them, refer to section 5.8.

Program	Preset Selections
----------------	--------------------------

- | | |
|--------------|---|
| • 2.0 | For stereo input, select any Mode in section 5.8.3, THX Games Mode, or Last Used. Dolby Pro Logic, Pro Logic IIx Movie, and Neo:6 Cinema can be set with or without THX Cinema. |
|--------------|---|

The following presets apply to Digital inputs only:

- | | |
|------------------|--|
| • 2.0-Sur | Separate setting especially for surround-flagged Dolby Digital 2.0 material (section 5.8.2), normally PLIIx Movie but any setting that applies to regular stereo input can also be used. |
| • DD-5.1 | Select your playback preference for Dolby Digital 5.1 material: PLIIx Movie (either with or without THX Cinema), PLIIx Music, Dolby D EX, THX Surround EX, THX Cinema, THX Ultra2 Cinema, THX MusicMode, THX Games Mode, Neo:6 (either with or without THX Cinema), Last Used, or None (see sections 5.8.4 and 5.8.6). |
| • DD-EX | For material encoded in Dolby Digital Surround EX: PLIIx Movie (either with or without THX Cinema), PLIIx Music, Dolby D EX, THX Surround EX, Neo:6 (either with or without THX Cinema), Same as DD-5.1, Last Used, or None (see sections 5.8.4 and 5.8.6) |
| • DTS-5.1 | For DTS material: Neo:6 (with or without THX Cinema), PLIIx Movie (either with or without THX Cinema), PLIIx Music, Dolby D EX, THX Cinema, THX Ultra2 Cinema, THX MusicMode, THX Games Mode, Last Used, or None (sections 5.8.5 and 5.8.6). |
| • DTS-ES | For DTS-ES: DTS-ES Matrix (with or without THX Cinema), PLIIx Movie (with or without THX Cinema), PLIIx Music, Dolby D EX, Same as DTS, Last Used, or None (see sections 5.8.5 and 5.8.6). Note that for ES Discrete, this setting is overridden and playback is in 6.1. |

Use the ▲ ▼ buttons to highlight one of the lines above in the menu, then use the ◀ ▶ buttons to scroll through the selections.

7. SETUP MENU continued ...

SOURCE SETUP/PRESET EXAMPLES

Example 1: Rename AUX to 'GAME'.

- Enter the Setup (section 7.1). Go to '5. SOURCE SETUP / PRESETS' and press **SELECT**.
- Press the ▼ button until you reach 'j. AUX' and press **SELECT**.
- 'a. RENAME: AUX' will be highlighted in red.
- Press **SELECT**. The first character 'A' will be highlighted in red.
- Use the Master Control Knob or the ▲ ▼ buttons to change characters. Change the first one to 'G'.
- Press the ► button to move to the next character. Change it to 'A'.
- Use the ◀ ► buttons to move to each remaining character. Change to 'M' and 'E'.
- Press **BACK** to leave the submenu and return to the main menu.

Example 2: Change SAT Digital Input from 'RCA' to 'Toslink1' (TOS1).

- Make sure satellite receiver is connected to TOS1 and playing.
- Enter the Setup (section 7.1). Go to '5. SOURCE SETUP / PRESETS' and press **SELECT**.
- Press the ▼ button until you reach 'h. SAT' and press **SELECT**.
- Press the ▼ button until you reach 'b. AUDIO IN: Dig RCA DVD' and press **SELECT**.
- 'RCA DVD' will be highlighted. Use the ▲ ▼ buttons to change to 'TOS1' (sound will now be heard).
- Press **BACK** to leave the submenu and return to the main menu.

Example 3: Adjust TAPE Source Equalization.

- Make sure TAPE source component is connected to Analog Inputs and playing.
- Enter the Setup (section 7.1). Go to '5. SOURCE SETUP / PRESETS' and press **SELECT**.
- Press the ▼ button until you reach 'd. TAPE' and press **SELECT**.
- Press the ▼ button until you reach 'c. EQ' and press **SELECT**.
- Use the ◀ ► buttons to move to 'LF' or 'HF'. Use the ▲ ▼ buttons to adjust.
- Press **BACK** to leave the submenu and return to the main menu.

Example 4: Set SAT Lip-Sync Delay to 60 milliseconds.

- Enter the Setup (section 7.1). Go to '5. SOURCE SETUP / PRESETS' and press **SELECT**.
- Press the ▼ button until you reach 'h. SAT' and press **SELECT**.
- Press the ▼ button until you reach 'f. LIP-SYNC DELAY' and press **SELECT**.
- Use the ◀ ► buttons to move from digit to digit and the ▲ ▼ buttons to adjust to '60 ms'.
- Press **BACK** to leave the submenu and return to the main menu.

APPENDIX A – IR MACROS

Using the factory remote control's IR codes for MAIN Path, the following 3-key sequences can be programmed into macro-capable remotes for direct access to Modes and tuner banks:

For Stereo sources:

MODE, 0, 1 – Stereo
MODE, 0, 2 – AnthemLogic-Music
MODE, 0, 3 – AnthemLogic-Cinema
MODE, 0, 4 – Pro Logic IIx Music
MODE, 0, 5 – Pro Logic IIx Movie
MODE, 0, 6 – Dolby Pro Logic
MODE, 0, 7 – DTS Neo:6 Music
MODE, 0, 8 – DTS Neo:6 Cinema
MODE, 0, 9 – All Channel Stereo
MODE, 1, 0 – All Channel Mono
MODE, 1, 1 – Mono
MODE, 1, 2 – Mono-Academy
MODE, 1, 3 – Pro Logic IIx Matrix
MODE, 1, 4 – Pro Logic IIx Game
THX, 0, 1 – THX Off
THX, 0, 2 – THX Cinema
THX, 0, 3 – THX Games Mode

For Surround-flagged Dolby Digital 2.0 sources:

MODE, 2, 1 – Stereo
MODE, 2, 2 – AnthemLogic-Music
MODE, 2, 3 – AnthemLogic-Cinema
MODE, 2, 4 – Pro Logic IIx Music
MODE, 2, 5 – Pro Logic IIx Movie
MODE, 2, 6 – Dolby Pro Logic
MODE, 2, 7 – DTS Neo:6 Music
MODE, 2, 8 – DTS Neo:6 Cinema
MODE, 2, 9 – All Channel Stereo
MODE, 3, 0 – All Channel Mono
MODE, 3, 1 – Mono
MODE, 3, 2 – Mono-Academy
MODE, 3, 3 – Pro Logic IIx Matrix
MODE, 3, 4 – Pro Logic IIx Game
THX, 0, 4 – THX Off
THX, 0, 5 – THX Cinema
THX, 0, 6 – THX Games Mode

Pro Logic IIx Music adjustment:

MODE, 4, 1 – Center Width display
MODE, 4, 2 – Dimension display
MODE, 4, 3 – Panorama Off
MODE, 4, 4 – Panorama On

Neo:6 Music adjustment:

MODE, 4, 5 – Center Image display

For Dolby Digital 5.1 sources and 6-Ch input:

THX, 1, 0 – None
THX, 1, 1 – THX Cinema
THX, 1, 2 – THX Ultra2 Cinema
THX, 1, 3 – THX MusicMode
THX, 1, 4 – THX Surround EX
THX, 1, 5 – THX Games Mode
THX, 1, 6 – PLIIx Movie
THX, 1, 7 – PLIIx Movie+THX Cinema
THX, 1, 8 – PLIIx Music
THX, 1, 9 – Dolby Digital EX
THX, 2, 0 – Neo:6
THX, 2, 1 – Neo:6+THX Cinema

For Dolby Digital Surround EX-flagged sources:

MODE, 5, 1 – None
MODE, 5, 2 – Dolby Digital EX
MODE, 5, 3 – THX Surround EX
MODE, 5, 4 – PLIIx Movie
MODE, 5, 5 – PLIIx Movie+THX Cinema
MODE, 5, 6 – PLIIx Music
MODE, 5, 7 – Neo:6
MODE, 5, 8 – Neo:6+THX Cinema

For DTS sources:

THX, 4, 0 – None
THX, 4, 1 – THX Cinema
THX, 4, 2 – THX Ultra2 Cinema
THX, 4, 3 – THX MusicMode
THX, 4, 4 – Neo:6+THX Cinema
THX, 4, 5 – THX Games Mode
THX, 4, 6 – PLIIx Movie
THX, 4, 7 – PLIIx Movie+THX Cinema
THX, 4, 8 – PLIIx Music
THX, 4, 9 – Dolby Digital EX
THX, 5, 0 – Neo:6

For DTS-ES sources:

MODE, 6, 1 – None
MODE, 6, 2 – DTS-ES Matrix
MODE, 6, 3 – DTS-ES+THX Cinema
MODE, 6, 4 – PLIIx Movie
MODE, 6, 5 – PLIIx Movie+THX Cinema
MODE, 6, 6 – PLIIx Music
MODE, 6, 7 – Dolby Digital EX

THX Re-EQ:

THX, 3, 0 – Re-EQ Off when THX is on
THX, 3, 1 – Re-EQ On when THX is on
THX, 3, 2 – Re-EQ Off when THX is off
THX, 3, 3 – Re-EQ On when THX is off

FM•AM Banks (ZONE2/3/REC codes also work):

MODE, 9, 0 – AM
MODE, 9, 1 – FM1
MODE, 9, 2 – FM2
MODE, 9, 3 – FM3

Some tips if you're using a macro-capable remote control:

- If you do not want separate Mode selection according to flagged vs. unflagged source material, you can program macros as a 6-key sequence, for example MODE, 0, 1, MODE, 2, 1 and flag will make no difference to selection.
- You can program your source selection keys with the power-on command preceding each source-select command. This way, when a Source is selected, the AVM 20 will turn on at the same time if it is off, similar to Front Panel operation.
- If your source components also have discrete commands for power-on and power-off, you can take the above idea even further, for example, program the TV button with the following sequence: Power-on the AVM 20, select TV Source in the AVM 20, power-on the satellite receiver / cable box, power-on the TV. This way, when the entire system is off and you or a family member wants to watch TV, 'just push TV'.