



JBL VERTEC V4 LAKE CONTOUR / DLP README FILE



Before downloading VerTec V4 preset modules, check for the latest Lake Contour or Dolby Lake Processor firmware and Controller Software on:

http://www.dolby.com/professional/live_sound/support_download/

After downloading and installing Dolby Lake Controller software and upgrading firmware (if necessary), unzip the JBL VerTec V4 Dolby Lake Processor ZIP file and move the 2-way, 3-way, 4-way and 5-way folders (and their contents) to the following directory:

C:\Program Files\Dolby\Dolby Lake Controller V4.2\Data\User\Modules\

After starting the Lake Contour Controller program, perform the following steps:

- 1) Select “Modules” (bottom menu bar)
- 2) Drop and drag a module icon into the Main worksurface area
- 3) Select this module and highlight it
- 4) Select “Module Store / Recall” (bottom menu bar)
- 5) Open the desired \ JBL VerTec V4 \ 2-way, 3-way, 4-way or 5-way folder and navigate to the desired preset module

(refer to the “JBL VerTec V4 DLP PRESET SUMMARY” setup sheet for details on preset modules and channel assignments)

- 6) Highlight the desired preset module
- 7) Select “Recall” (bottom menu bar)
- 8) Select “Home” (bottom menu bar)
- 9) Select the module to open the control interface (gains, delays, EQ, etc)

Please refer to the “JBL VerTec V4 DLP PRESET SUMMARY” sheet to determine the correct preset to use for your configuration.



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Gain structure and limiting have been designed for amplifiers with 26 dB gain

Amplifiers driving all sections (sub, low, mid, high) should be set for 26 dB gain

Disclaimer: VerTec V4 Lake LimiterMax settings are intended to provide a starting point for optimum system performance while ensuring reliable system protection. However, the end user is ultimately responsible for system operation in the field and standard warranty conditions apply in the event of component damage.

1) For I-Tech 4000 and 6000 models it is necessary to change the maximum analog input level from +15 dBu to +21 dBu in order to be able to select 26 dB gain. Using the amplifier's front panel interface, go to the I-Tech Advanced Menu and select +21 dBu as maximum analog input level. This will then allow you to select 26 dB gain using the I-Tech's top level front panel menu.

2) With amplifier gain set to 26 dB, gain structure should provide the following behavior:

Console level 9 dBu (no sub/low limiting)
 12 dBu (approx 3 dB sub/low limiting, program dependent)
 15 dBu (approx 6-9 dB sub/low limiting, program dependent)

If you prefer to run your console hotter, scale all channel output gains (sub,low,mid,hi) down by 3 to 6 dB and leave limiter thresholds as is.

If you prefer to run your console at a lower level, scale all channel output gains (sub,low,mid,hi) up by 3 to 6 dB and leave limiter thresholds as is.

To verify gain structure and limiter functionality, it is recommended that signal flow from console → dsp → amplifiers is checked with loudspeakers disconnected prior to use.

3) For use with amplifiers having gain not equal to 26 dB, individual channel output levels and limiter thresholds (rms and peak) should be adjusted by the difference in amplifier gain for their respective channels.

Example: for amplifiers with 32 dB gain, channel output levels should be lowered by 6 dB; rms and peak thresholds for all channels should also be lowered by 6 dB.

4) Subwoofer sections for all X, 60, 80 presets are pre-time aligned. For flown 4889, 4888 or 4887A/4881A and ground stacked 4881A, 4882, 4880 or 4880A sub configurations, simply add the measured geometric path length difference between flown versus ground stacked (at your reference location of choice) to the pre-aligned delay as a starting point for time alignment measurements and further adjustment.



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**Limiter thresholds are based on 2x 2 Hour RMS power handling specifications
(dBu equivalent calculated based on 26 dB gain amplification):**

2 HOUR POWER HANDLING

ENCLOSURE MODEL	NOM LOAD (ohms)	RMS 2 HR (W)	PEAK POWER (W)	REC'D POWER (W)	dBu EQUIV * (2 x RMS)
VT4887a MID/HI	8	225	900	450	11.8 dBu
VT4887a LOW	8	750	3000	1500	17.0 dBu

ENCLOSURE MODEL	NOM LOAD (ohms)	RMS 2 HR (W)	PEAK POWER (W)	REC'D POWER (W)	dBu EQUIV (2 x RMS)
VT4888 HI	16	70	280	280	9.7 dBu
VT4888 MID	8	400	1600	800	14.3 dBu
VT4888 LOW	2 x 8 ohms	2 x 750 W	2 x 3000 W	2 x 1500 W	17.0 dBu

ENCLOSURE MODEL	NOM LOAD (ohms)	RMS 2 HR (W)	PEAK POWER (W)	REC'D POWER (W)	dBu EQUIV (2 x RMS)
VT4889 HI	16	165	660	660	13.4 dBu
VT4889 MID	8	1800	7200	3600	20.8 dBu
VT4889 LOW	2 x 8 ohms	2 x 690 W	2 x 2760 W	2 x 1380 W	16.6 dBu

ENCLOSURE MODEL	NOM LOAD (ohms)	RMS 2 HR (W)	PEAK POWER (W)	REC'D POWER (W)	dBu EQUIV (2 x RMS)
VT4881A	8	1500	6000	3000	20.0 dBu
VT4882	4	1550	6200	3100	17.1 dBu
VT4880	4	1550	6200	3100	17.1 dBu
VT4880A	4	3000	12000	6000	20.0 dBu

* dBu Equivalent calculated based on 26 dB amplifier gain (20x voltage gain)

In some cases (for example: VT4881A, VT4880A subwoofers and VT4889 mid section), the recommended amplification (= 2x 2 Hour RMS section power handling) exceeds amplifier output capability and limiters are calibrated to prevent RMS / Peak amplifier clip. VT4889 mid section limiter thresholds have been adjusted for optimum headroom relative to the low section. Under hard sub/low/high section limit conditions, the VT4889 mid section threshold may need to be further reduced in order to maintain spectral balance.

In other cases (for example: VT4887A, VT4888, VT4889 HF sections), limiter thresholds are calibrated to 2x 2 Hour RMS power handling. For more dynamic program material with low RMS signal content (for example, classical music) HF section limiter thresholds can be increased by 3 dB (or up to rms or peak amplifier clip - whichever value is lower) to match peak power handling. Conversely, for more demanding applications, limiter thresholds can be lowered by 3 dB to match RMS power handling.



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Default JBL VerTec V4 Lake LimiterMAX RMS / Peak Thresholds and Factory Settings are calibrated for Crown I-Tech 8000 amplification at 26 dB gain:

Lake LimiterMAX Settings (2 HOUR POWER HANDLING)			CROWN I-TECH 8000 (26 dB GAIN = 6.52 Vrms)						
			RMS	PEAK					
FACTORY AMP CLIP			18.5 dBu	21.5 dBu					
FACTORY SETTINGS			LEVEL LIMITS		USER PARAMETERS				
ENCLOSURE MODEL	MaxRMS Level*	MaxPEAK Level **	MaxRMS Upper***	MaxPEAK Upper****	MaxRMS Level	MaxRMS Corner	MaxRMS Attack (ms)	MaxRMS Release (ms)	MaxPEAK Level
VT4887a MID/HI	12.0 dBu	15.0 dBu	3.0 dB	3.0 dB	0.0 dB	0.0 dB	10	10	0.0 dB
VT4887a LOW	17.0 dBu	20.0 dBu	1.5 dB	1.5 dB	0.0 dB	0.0 dB	60	60	0.0 dB
FACTORY SETTINGS			LEVEL LIMITS		USER PARAMETERS				
ENCLOSURE MODEL	MaxRMS Level*	MaxPEAK Level **	MaxRMS Upper***	MaxPEAK Upper****	MaxRMS Level	MaxRMS Corner	MaxRMS Attack (ms)	MaxRMS Release (ms)	MaxPEAK Level
VT4888 HI	9.5 dBu	12.5 dBu	3.0 dB	3.0 dB	0.0 dB	0.0 dB	10	10	0.0 dB
VT4888 MID	14.5 dBu	17.5 dBu	3.0 dB	3.0 dB	0.0 dB	0.0 dB	40	40	0.0 dB
VT4888 LOW	17.0 dBu	20.0 dBu	1.5 dB	1.5 dB	0.0 dB	0.0 dB	80	80	0.0 dB
FACTORY SETTINGS			LEVEL LIMITS		USER PARAMETERS				
ENCLOSURE MODEL	MaxRMS Level*	MaxPEAK Level **	MaxRMS Upper***	MaxPEAK Upper****	MaxRMS Level	MaxRMS Corner	MaxRMS Attack (ms)	MaxRMS Release (ms)	MaxPEAK Level
VT4889 HI	13.5 dBu	16.5 dBu	3.0 dB	3.0 dB	0.0 dB	0.0 dB	10	10	0.0 dB
VT4889 MID	16.5 dBu	19.5 dBu	2.0 dB	2.0 dB	0.0 dB	0.0 dB	40	40	0.0 dB
VT4889 LOW	16.5 dBu	19.5 dBu	2.0 dB	2.0 dB	0.0 dB	0.0 dB	80	80	0.0 dB
FACTORY SETTINGS			LEVEL LIMITS		USER PARAMETERS				
ENCLOSURE MODEL	MaxRMS Level*	MaxPEAK Level **	MaxRMS Upper***	MaxPEAK Upper****	MaxRMS Level	MaxRMS Corner	MaxRMS Attack (ms)	MaxRMS Release (ms)	MaxPEAK Level
VT4881A	18.5 dBu	21.5 dBu	0.0 dB	0.0 dB	0.0 dB	0.0 dB	80	80	0.0 dB
VT4882	17.0 dBu	20.0 dBu	1.5 dB	1.5 dB	0.0 dB	0.0 dB	80	80	0.0 dB
VT4880	17.0 dBu	20.0 dBu	1.5 dB	1.5 dB	0.0 dB	0.0 dB	80	80	0.0 dB
VT4880A	18.5 dBu	21.5 dBu	0.0 dB	0.0 dB	0.0 dB	0.0 dB	80	80	0.0 dB

* calibrated to 2 x 2 Hour RMS power handling or Amp Clip

** calibrated to 2 Hour Peak Power Handling (MaxRMS + 3 dB) or Amp Clip (peak)

*** calibrated to 2 Hour Peak Power Handling (MaxRMS + 3 dB) or Amp Clip (rms)

**** Peak Amp Clip - MaxPEAK Level

Factory Settings: Amp Clip = 18.5 dBu RMS, 21.5 dBu Peak

Level limits have been set to allow for adjustment of RMS and Peak thresholds up to Crown I-Tech 8000 amp clip (RMS = 18.5 dBu and Peak = 21.5 dBu) or to VerTec section peak power handling (i.e., 2x 2 Hour RMS Power Handling + 3 dB = 2 Hour Peak Power Handling), whichever value is lower.



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For use of VerTec V4 DLP presets with Crown amplifiers other than I-T8000, RMS and Peak limiter thresholds should be scaled to account for differences in amplifier input sensitivity:

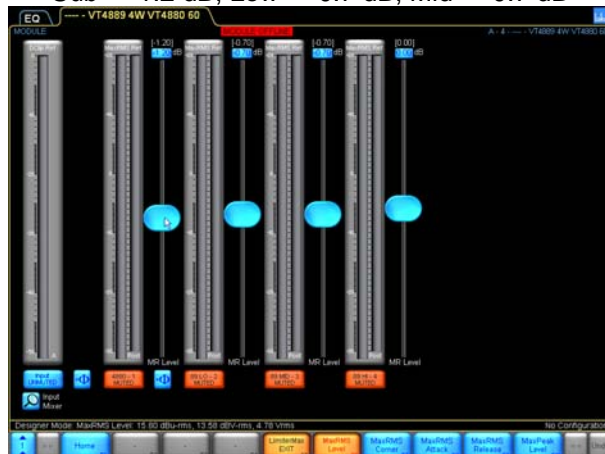
CROWN MODEL	26 dB GAIN INPUT SENSITIVITY		
	VOLTS (rms)	dBu (rms)	dBu (peak)
MA-3600VZ	4.80 Vrms	15.8 dBu	18.8 dBu
MA-5002VZ	4.80 Vrms	15.8 dBu	18.8 dBu
I-T4000	5.01 Vrms	16.2 dBu	19.2 dBu
I-T6000	5.49 Vrms	17.0 dBu	20.0 dBu
I-T8000	6.52 Vrms	18.5 dBu	21.5 dBu

With reference to the tables below, it is recommended that individual VerTec V4 preset modules are loaded and LimiterMax User RMS and Peak levels adjusted on a one-by-one basis. Modules should then be stored following re-calibration and, if desired, the Lake User Locking feature can be employed to prevent unwanted tampering with limiter settings (see Dolby Lake Processor Documentation for further details on User Locking).

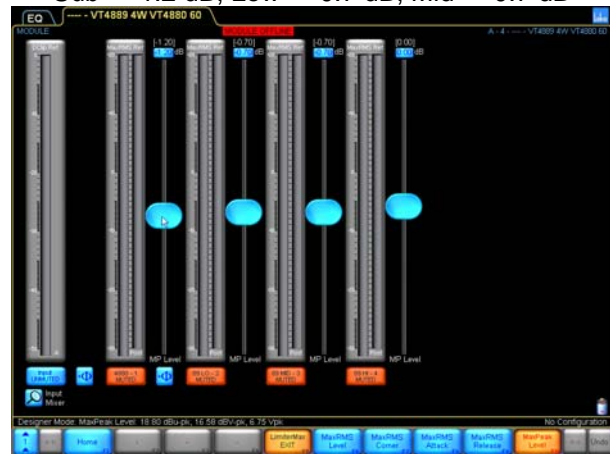
HINT: To verify LimiterMax values, move the cursor over the appropriate fader and the value in dBu is displayed in the lower left corner.

Example: Adjustment of MaxRMS and MaxPeak levels for use with Crown MA5002 Amplification (VT4889 4W VT4880 60 preset)

MaxRMS Adjustment to 15.8 dBu :
Sub = -1.2 dB, Low = -0.7 dB, Mid = -0.7 dB



MaxPeak Adjustment to 18.8 dBu :
Sub = -1.2 dB, Low = -0.7 dB, Mid = -0.7 dB





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CROWN I-TECH 6000 (26 dB GAIN) LIMITERMAX USER PARAMETER ADJUSTMENTS

ENCLOSURE MODEL	LIMITERMAX USER PARAMETERS				
	MaxRMS Level	MaxRMS Corner	MaxRMS Attack (ms)	MaxRMS Release (ms)	MaxPEAK Level
VT4887a MID/HI	0.0 dB	0.0 dB	10	10	0.0 dB
VT4887a LOW	0.0 dB	0.0 dB	60	60	0.0 dB
VT4888 HI	0.0 dB	0.0 dB	10	10	0.0 dB
VT4888 MID	0.0 dB	0.0 dB	40	40	0.0 dB
VT4888 LOW	0.0 dB	0.0 dB	80	80	0.0 dB
VT4889 HI	0.0 dB	0.0 dB	10	10	0.0 dB
VT4889 MID	0.0 dB	0.0 dB	40	40	0.0 dB
VT4889 LOW	0.0 dB	0.0 dB	80	80	0.0 dB
VT4881A	-1.5 dB	0.0 dB	80	80	-1.5 dB
VT4882	0.0 dB	0.0 dB	80	80	0.0 dB
VT4880	0.0 dB	0.0 dB	80	80	0.0 dB
VT4880A	-1.5 dB	0.0 dB	80	80	-1.5 dB

For I-T6000 amplifier gain not equal to 26 dB, channel output levels and limiter thresholds (rms and peak) should be further adjusted by the difference in selected amplifier gain versus 26 dB. For example: for 32 dB amplifier gain, channel output levels should be lowered by 6 dB; rms and peak thresholds for all channels should also be lowered by 6 dB.



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CROWN I-TECH 4000 (26 dB GAIN) LIMITERMAX USER PARAMETER ADJUSTMENTS

ENCLOSURE MODEL	LIMITERMAX USER PARAMETERS				
	MaxRMS Level	MaxRMS Corner	MaxRMS Attack (ms)	MaxRMS Release (ms)	MaxPEAK Level
VT4887a MID/HI	0.0 dB	0.0 dB	10	10	0.0 dB
VT4887a LOW	-0.8 dB	0.0 dB	60	60	-0.8 dB
VT4888 HI	0.0 dB	0.0 dB	10	10	0.0 dB
VT4888 MID	0.0 dB	0.0 dB	40	40	0.0 dB
VT4888 LOW	-0.8 dB	0.0 dB	80	80	-0.8 dB
VT4889 HI	0.0 dB	0.0 dB	10	10	0.0 dB
VT4889 MID	-0.3 dB	0.0 dB	40	40	-0.3 dB
VT4889 LOW	-0.3 dB	0.0 dB	80	80	-0.3 dB
VT4881A	-2.3 dB	0.0 dB	80	80	-2.3 dB
VT4882	-0.8 dB	0.0 dB	80	80	-0.8 dB
VT4880	-0.8 dB	0.0 dB	80	80	-0.8 dB
VT4880A	-2.3 dB	0.0 dB	80	80	-2.3 dB

For I-T4000 amplifier gain not equal to 26 dB, channel output levels and limiter thresholds (rms and peak) should be further adjusted by the difference in selected amplifier gain versus 26 dB. For example: for 32 dB amplifier gain, channel output levels should be lowered by 6 dB; rms and peak thresholds for all channels should also be lowered by 6 dB.



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CROWN MA-5002VZ (26 dB GAIN) LIMITERMAX USER PARAMETER ADJUSTMENTS

ENCLOSURE MODEL	LIMITERMAX USER PARAMETERS				
	MaxRMS Level	MaxRMS Corner	MaxRMS Attack (ms)	MaxRMS Release (ms)	MaxPEAK Level
VT4887a MID/HI	0.0 dB	0.0 dB	10	10	0.0 dB
VT4887a LOW	-1.2 dB	0.0 dB	60	60	-1.2 dB
VT4888 HI	0.0 dB	0.0 dB	10	10	0.0 dB
VT4888 MID	0.0 dB	0.0 dB	40	40	0.0 dB
VT4888 LOW	-1.2 dB	0.0 dB	80	80	-1.2 dB
VT4889 HI	0.0 dB	0.0 dB	10	10	0.0 dB
VT4889 MID	-0.7 dB	0.0 dB	40	40	-0.7 dB
VT4889 LOW	-0.7 dB	0.0 dB	80	80	-0.7 dB
VT4881A	-2.7 dB	0.0 dB	80	80	-2.7 dB
VT4882	-1.2 dB	0.0 dB	80	80	-1.2 dB
VT4880	-1.2 dB	0.0 dB	80	80	-1.2 dB
VT4880A	-2.7 dB	0.0 dB	80	80	-2.7 dB

For Crown MA-5002VZ amplifier gain equal to 36 dB (1.4 Vrms setting), channel output levels should be lowered by 10 dB; rms and peak thresholds for all channels should be lowered 10 dB in addition to the values tabulated above.



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For more conservative protection and, as a result, more conservative system performance, LimiterMAX thresholds can be set to 2x 100 Hour RMS and Peak Power:

100 HOUR POWER HANDLING

ENCLOSURE MODEL	NOM LOAD (ohms)	RMS 100 HR (W)	PEAK POWER (W)	REC'D POWER (W)	dBu EQUIV * (2 x RMS)
VT4887a MID/HI	8	160	640	320	10.3 dBu
VT4887a LOW	8	520	2080	1040	15.4 dBu

ENCLOSURE MODEL	NOM LOAD (ohms)	RMS 100 HR (W)	PEAK POWER (W)	REC'D POWER (W)	dBu EQUIV (2 x RMS)
VT4888 HI	16	50	200	200	8.3 dBu
VT4888 MID	8	260	1040	520	12.4 dBu
VT4888 LOW	2 x 8 ohms	2 x 530 W	2 x 2120 W	2 x 1060 W	15.5 dBu

ENCLOSURE MODEL	NOM LOAD (ohms)	RMS 100 HR (W)	PEAK POWER (W)	REC'D POWER (W)	dBu EQUIV (2 x RMS)
VT4889 HI	16	105	420	420	11.5 dBu
VT4889 MID	8	1260	5040	2520	19.3 dBu
VT4889 LOW	2 x 8 ohms	2 x 450 W	2 x 1800 W	2 x 900 W	14.8 dBu

ENCLOSURE MODEL	NOM LOAD (ohms)	RMS 100 HR (W)	PEAK POWER (W)	REC'D POWER (W)	dBu EQUIV (2 x RMS)
VT4881A	8	900	3600	1800	17.8 dBu
VT4882	4	1090	4360	2180	15.6 dBu
VT4880	4	1230	4920	2460	16.1 dBu
VT4880A	4	1800	7200	3600	17.8 dBu

* dBu Equivalent calculated based on 26 dB amplifier gain (20x voltage gain)



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LimiterMax User Parameters can be adjusted to re-calibrate thresholds to correspond to 100 Hour ratings as follows:

CROWN I-TECH 8000 (26 dB GAIN) LIMITERMAX USER PARAMETER ADJUSTMENTS (TO SCALE FROM 2 HOUR TO 100 HOUR RATINGS)

ENCLOSURE MODEL	LIMITERMAX USER PARAMETERS				
	MaxRMS Level	MaxRMS Corner	MaxRMS Attack (ms)	MaxRMS Release (ms)	MaxPEAK Level
VT4887a MID/HI	-1.5 dB	0.0 dB	10	10	-1.5 dB
VT4887a LOW	-1.5 dB	0.0 dB	60	60	-1.5 dB
VT4888 HI	-1.0 dB	0.0 dB	10	10	-1.0 dB
VT4888 MID	-2.0 dB	0.0 dB	40	40	-2.0 dB
VT4888 LOW	-1.5 dB	0.0 dB	80	80	-1.5 dB
VT4889 HI	-2.0 dB	0.0 dB	10	10	-2.0 dB
VT4889 MID	-1.5 dB	0.0 dB	40	40	-1.5 dB
VT4889 LOW	-1.5 dB	0.0 dB	80	80	-1.5 dB
VT4881A	-0.5 dB	0.0 dB	80	80	-0.5 dB
VT4882	-1.5 dB	0.0 dB	80	80	-1.5 dB
VT4880	-1.0 dB	0.0 dB	80	80	-1.0 dB
VT4880A	-0.5 dB	0.0 dB	80	80	-0.5 dB

For other amplifier models (I-T6000, I-T4000, MA-5002VZ):

To re-calibrate thresholds to correspond to 100 Hour ratings, select whichever value is lower from the table above or the LimiterMax User Parameter Adjustment table corresponding to the amplifier in use given in the preceding pages.