

A hand is shown reaching upwards towards a bright sun, creating a lens flare effect. The background is a warm, golden-yellow color, suggesting a sunrise or sunset. The hand is positioned in the center-right of the frame, with fingers spread. The sun is located in the upper right quadrant, partially obscured by the hand's fingers.

SAMSUNG

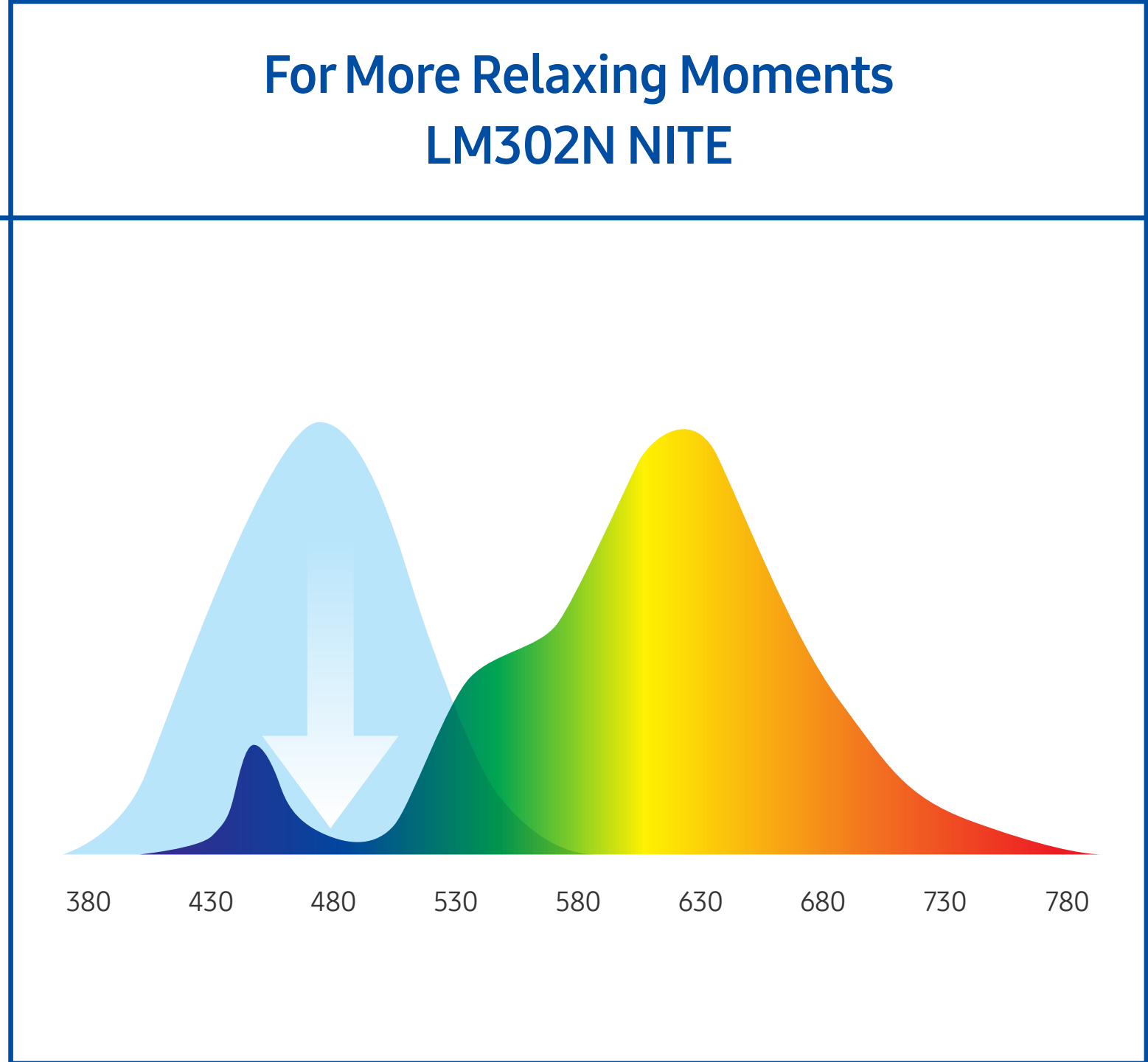
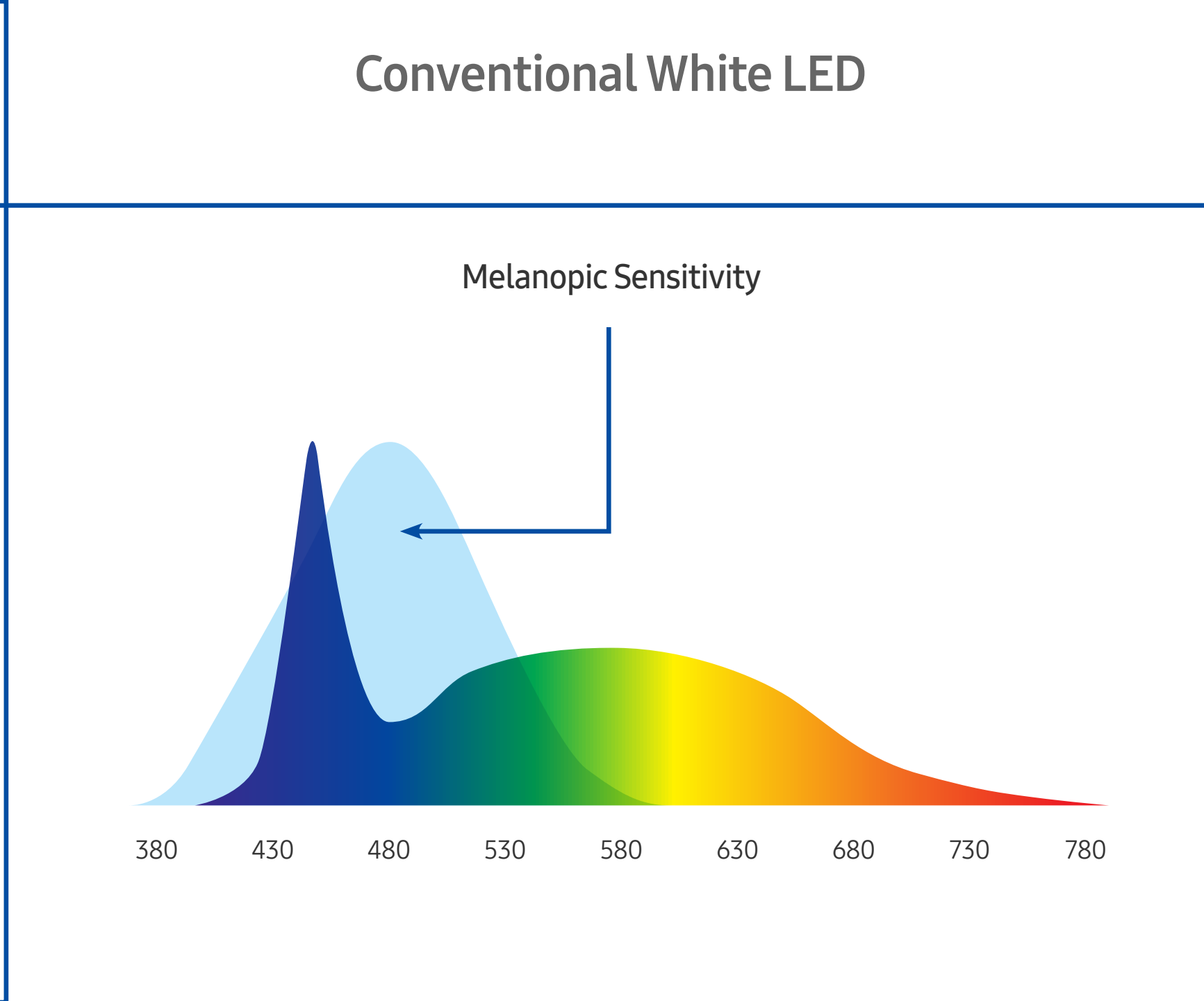
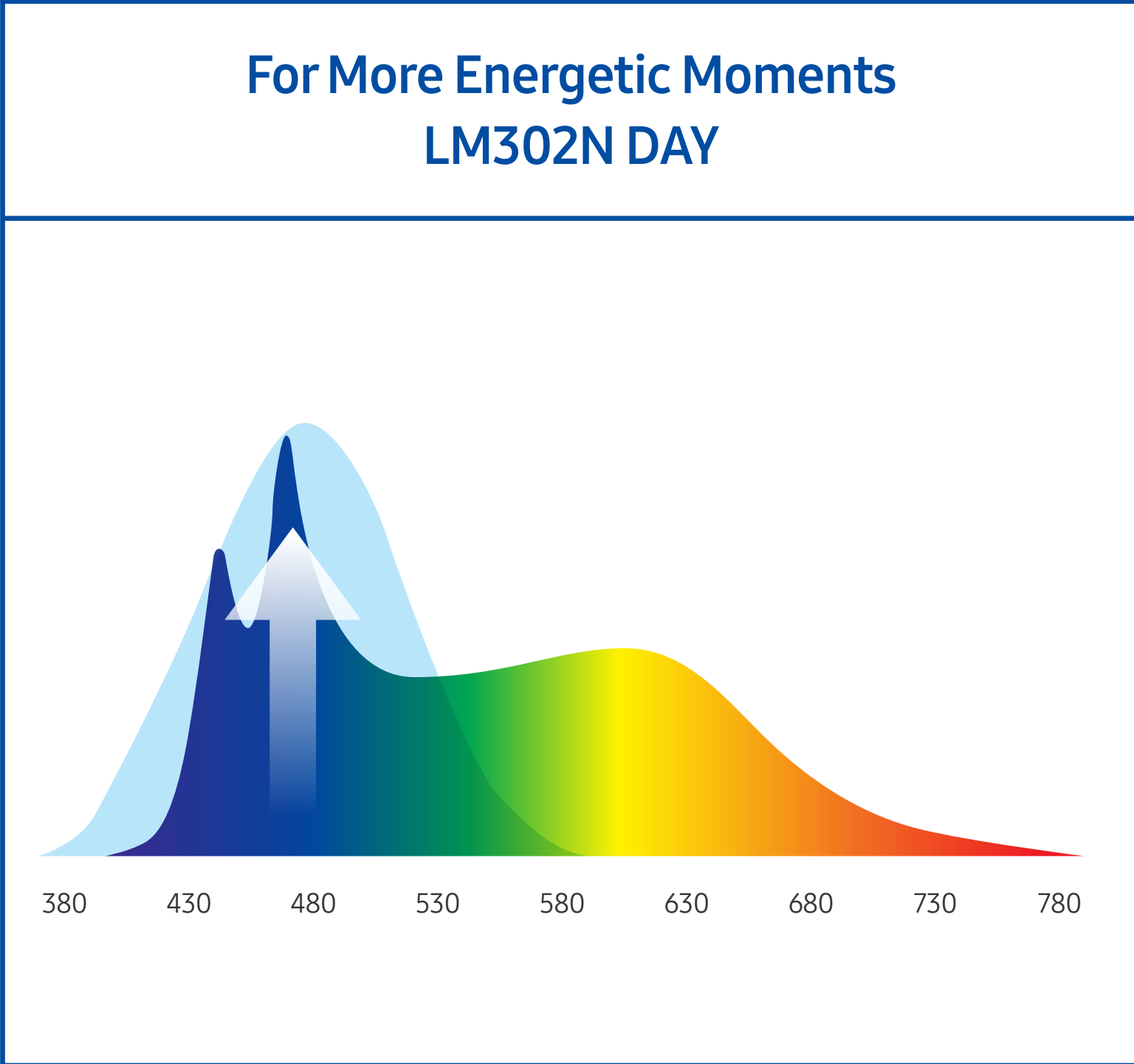
Specialty Lighting

Human-centric Lighting Solutions

2020 H2 v1

Samsung's Human-centric Lighting Solutions

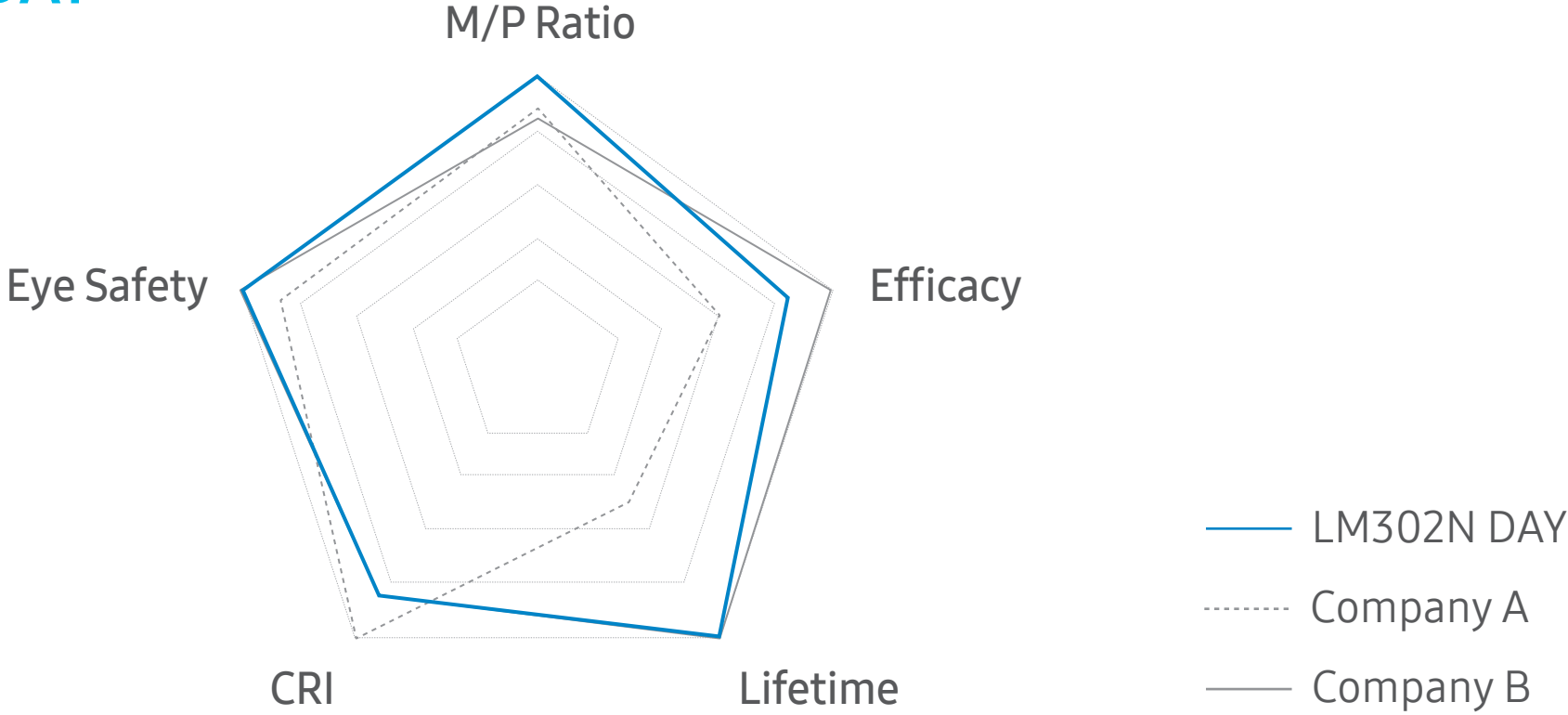
Samsung's Fine-tuned Spectra with Optimized Melanopic Sensitivity



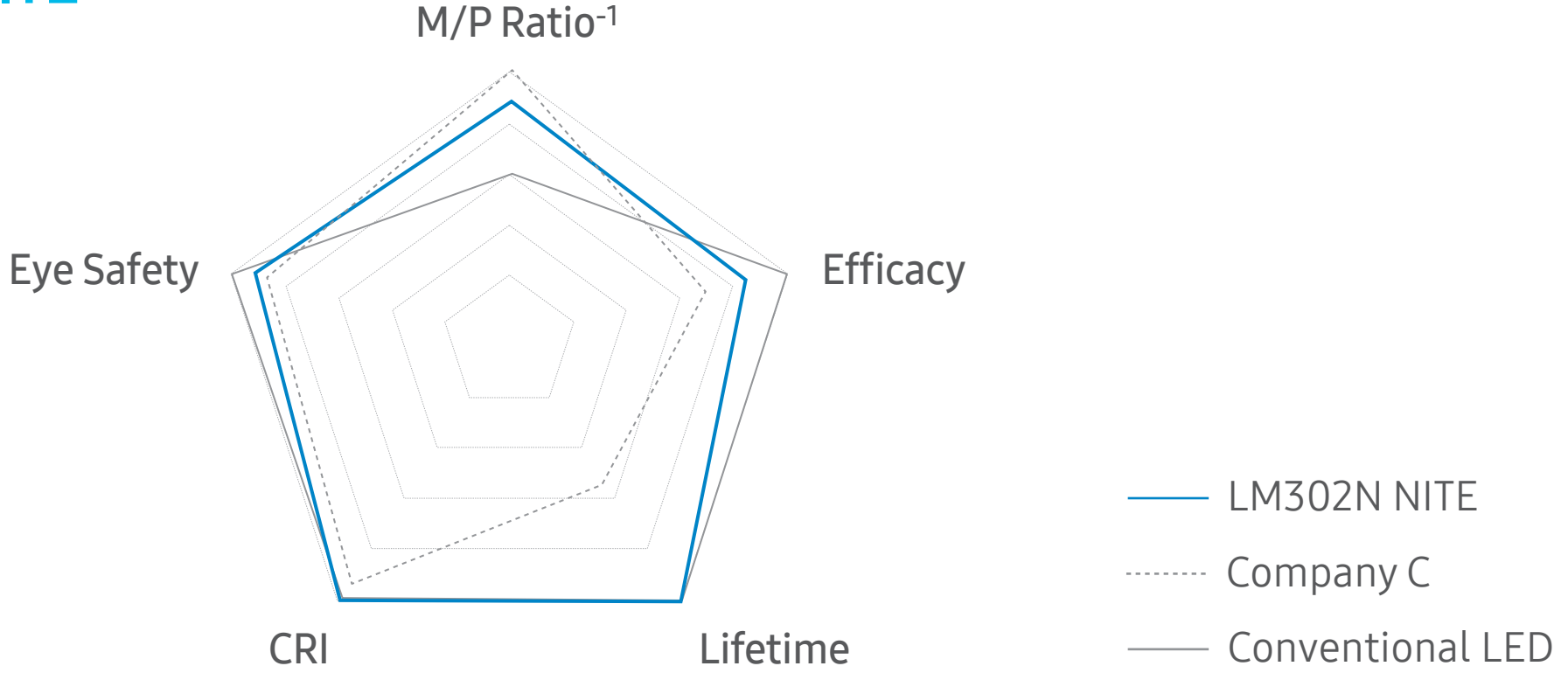
Samsung's Human-centric Lighting Solutions

- Well Balanced Lighting Performances

LM302N DAY

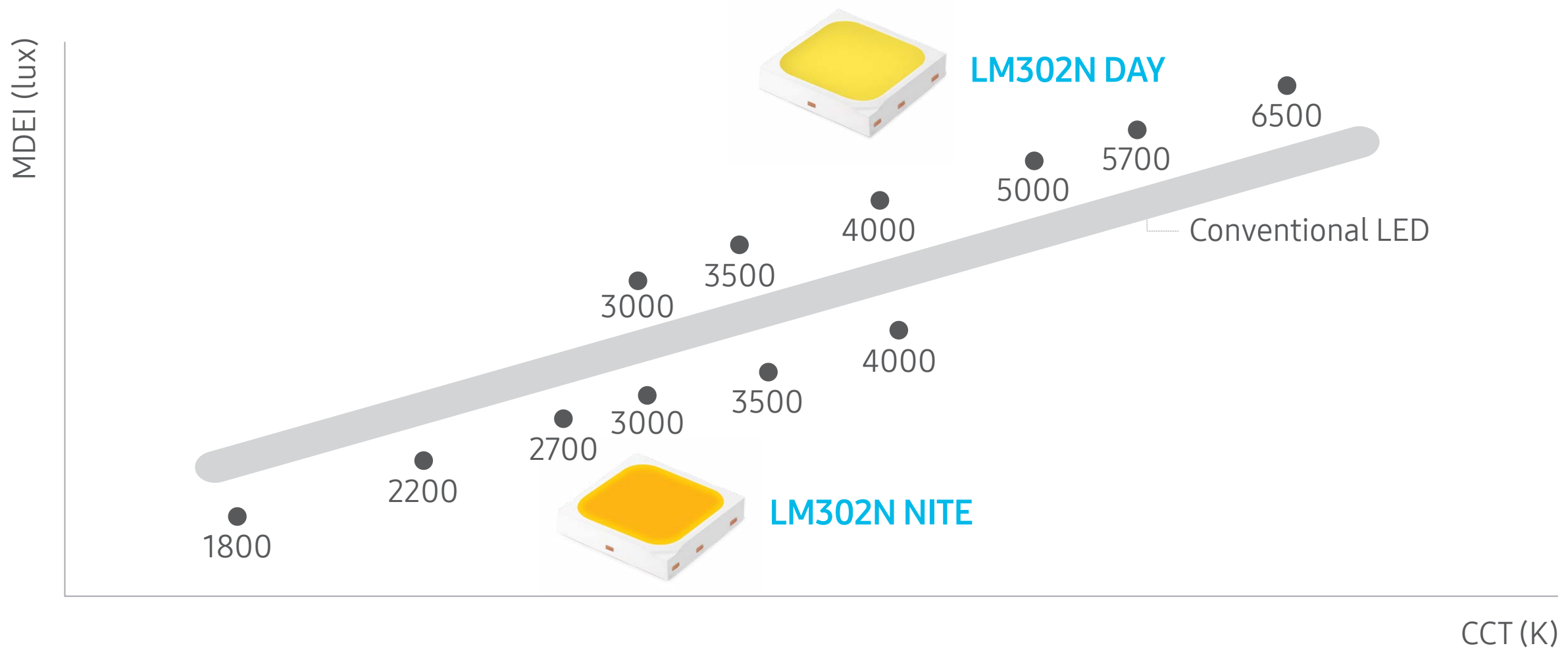


LM302N NITE



* M/P Ratio: Melanopic/Photopic Ratio

- A Wide Range of Color Temperatures



* MDEI: Melanopic Daylight Equivalent Illuminance

LM302N DAY

Fine-tuned Spectrum for More Energetic Moments



Specifications

[150mA, 25°C]

CRI	CCT (K)	Part Number	Luminous Flux (lm)		M/P Ratio	MDER*
			Bin	Range		
80+	3000	SPMWH3326FC5FBV☆S0	S0	110-125	0.65	0.59
	3500	SPMWH3326FC5FBU☆S0	S0	110-125	0.74	0.67
	4000	SPMWH3326FC5FBT☆S0	S0	115-125	0.84	0.76
	5000	SPMWH3326FC5FBR☆S0	S0	115-130	1.03	0.93
	5700	SPMWH3326FC5FBQ☆S0	S0	115-130	1.14	1.03
	6500	SPMWH3326FC5FBP☆S0	S0	115-130	1.24	1.12

※ ☆ can be "0" (MacAdam 5 step), "3" (MacAdam 3 step), "Y" (Kitting)

* MDER: Melanopic Daylight Efficacy Ratio

Maximization of Energizing Effects

A wide range of color temperature options from 3000K warm white to 6500K cool white



Education



Office



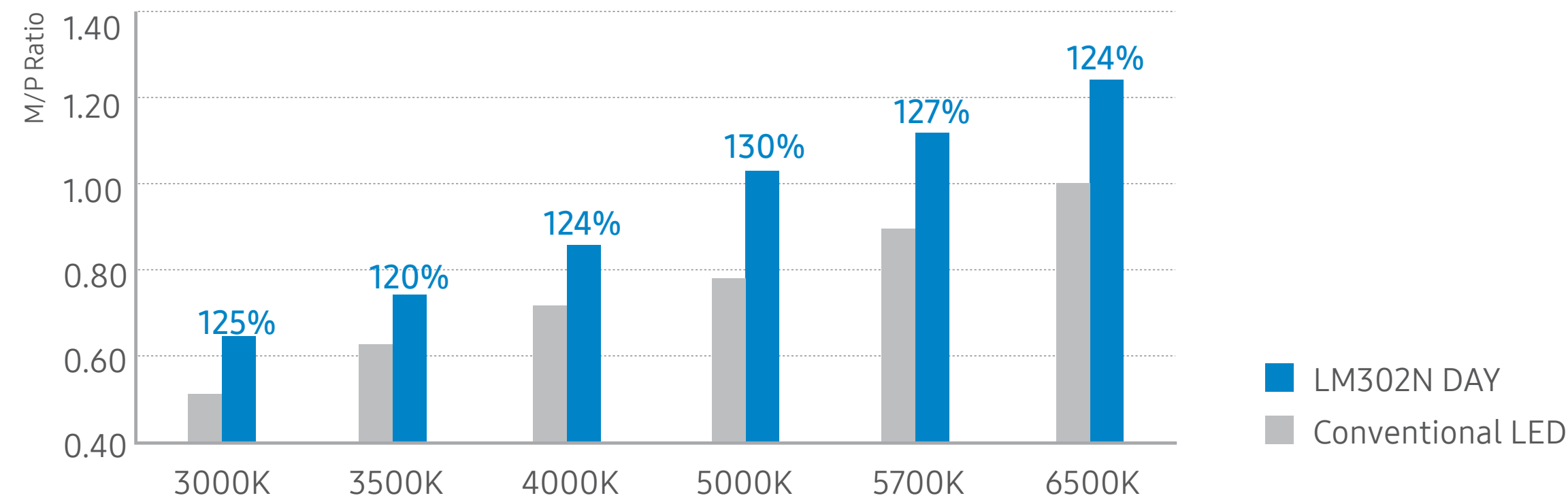
Factory



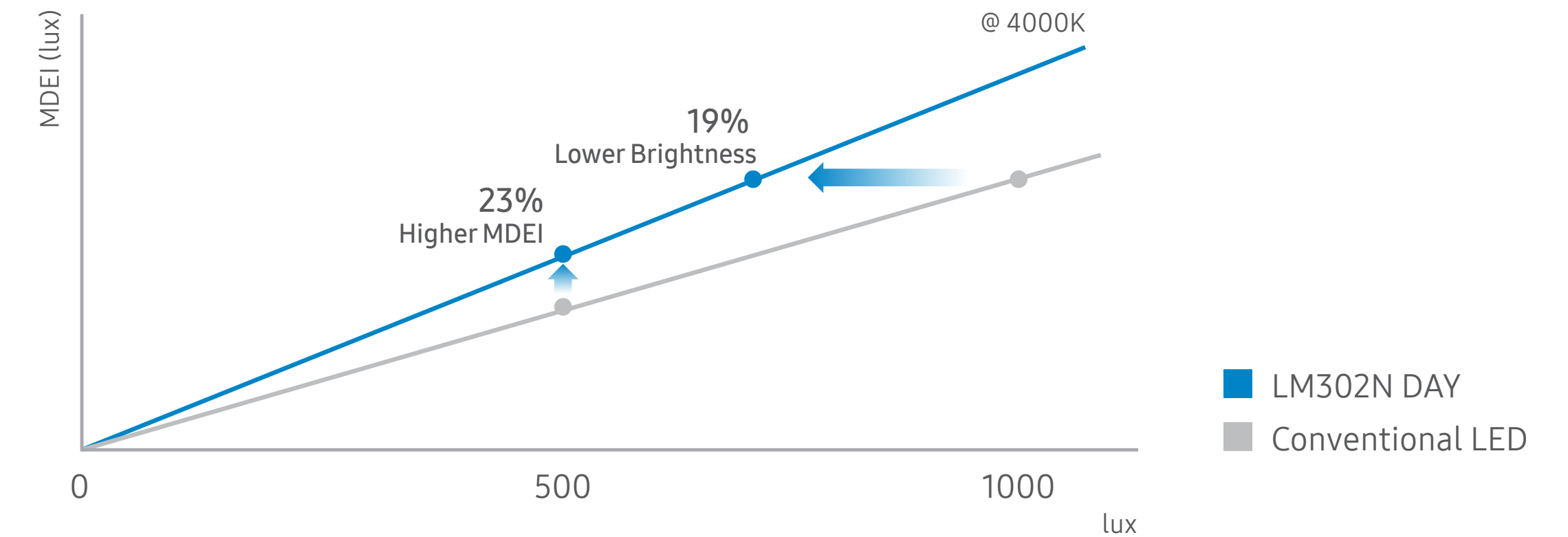
Gym

The Higher M/P Ratio, the Higher MDEI

Higher M/P ratio due to direct control of cyan enhances melatonin suppression levels

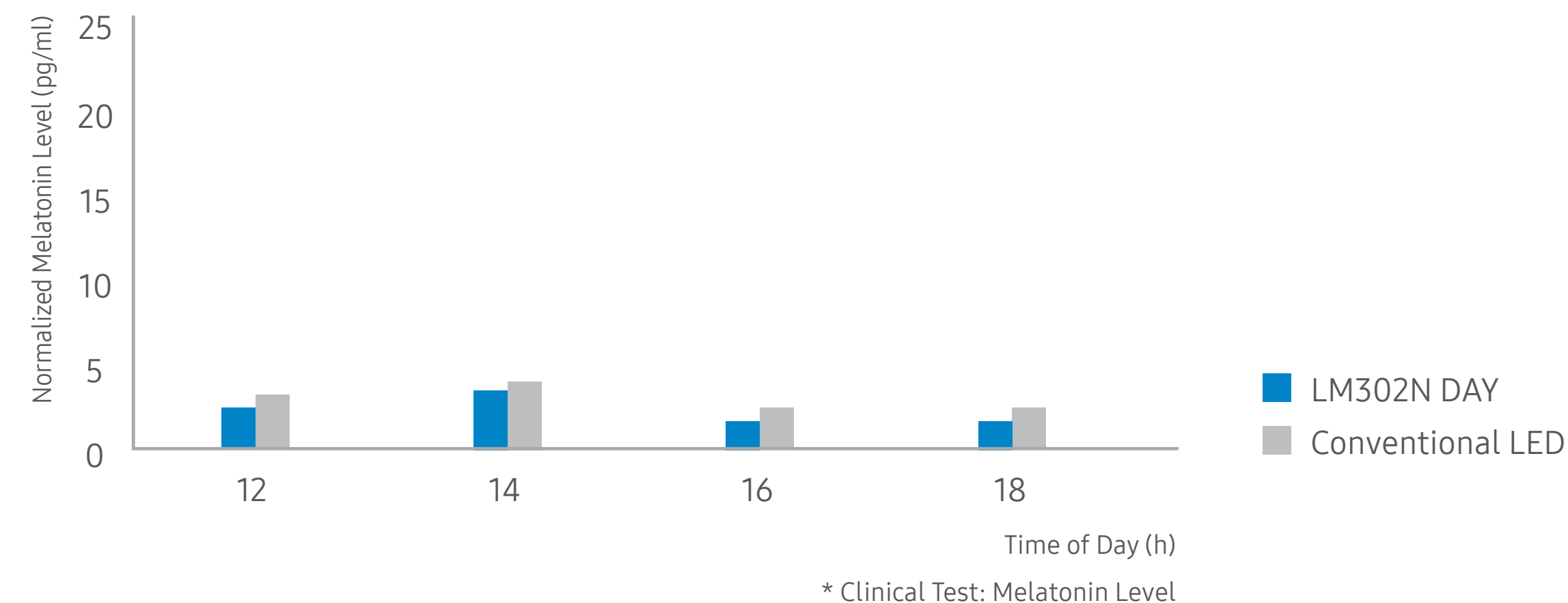


The higher M/P ratio, the higher MDEI and more energizing effects even under the lower brightness

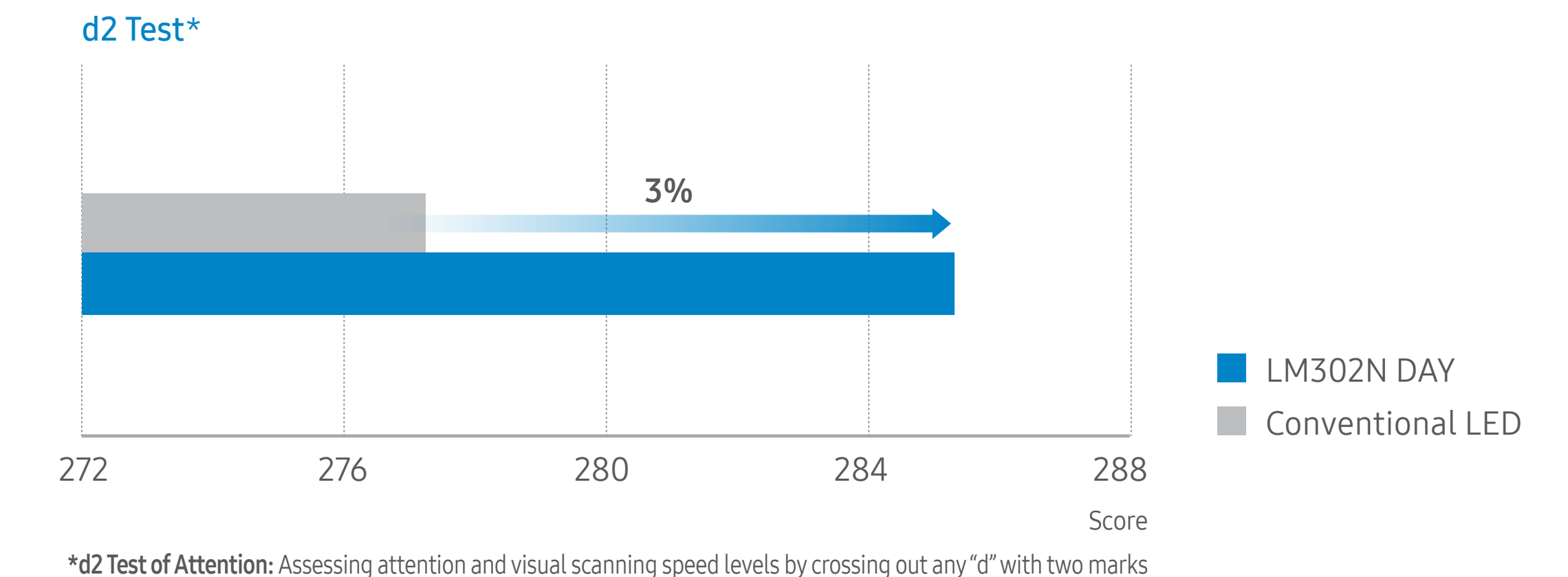


Proven Effects of Energization

18% more suppressed melatonin compared to conventional LED lighting

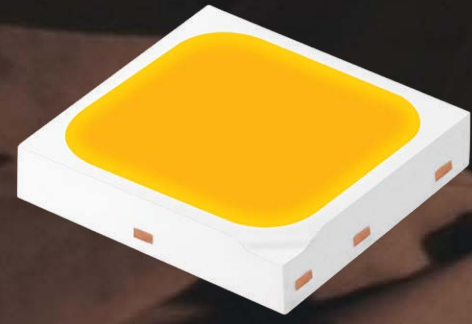


Higher melatonin suppression leads to better focus levels



LM302N NITE

Fine-tuned Spectrum for More Relaxing Moments



Specifications

[150mA, 25°C]

CRI	CCT (K)	Part Number	Luminous Flux (lm)		M/P Ratio	MDER*
			Bin	Range		
80+	1800	SPMWH3326FN5FBA☆S0	S0	80-95	0.20	0.18
	2200	SPMWH3326FN5FBY☆S0	S0	90-105	0.28	0.25
	2700	SPMWH3326FN5FBW☆S0	S0	95-110	0.37	0.34
	3000	SPMWH3326FN5FBV☆S0	S0	105-120	0.48	0.43
	3500	SPMWH3326FN5FBU☆S0	S0	110-125	0.56	0.51
	4000	SPMWH3326FN5FBT☆S0	S0	110-125	0.64	0.58

※ ☆ can be "0" (MacAdam 5 step), "3" (MacAdam 3 step), "Y" (Kitting)

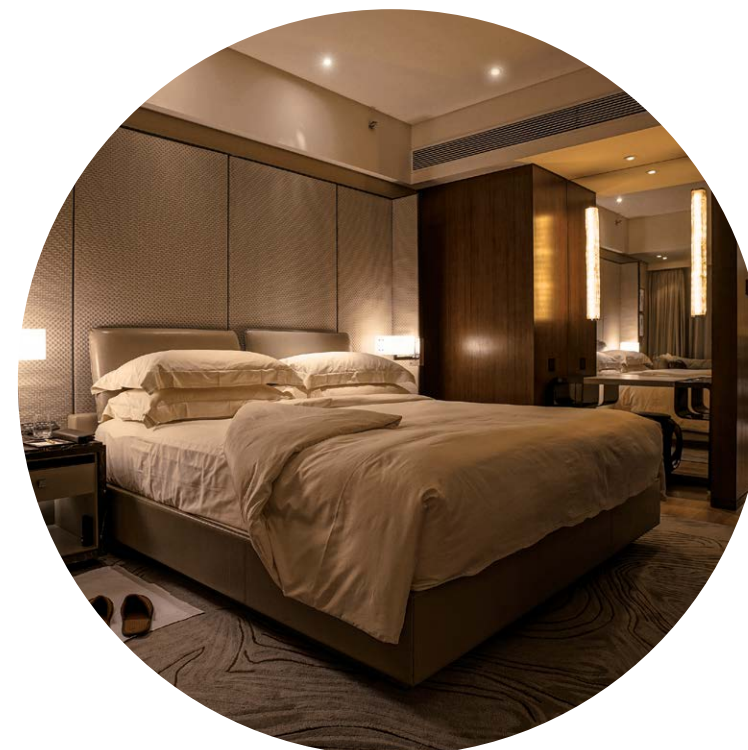
* MDER: Melanopic Daylight Efficacy Ratio

Maximization of Relaxing Effects

A wide range of color temperature options from 1800K warm white to 4000K cool white



Home



Accommodation

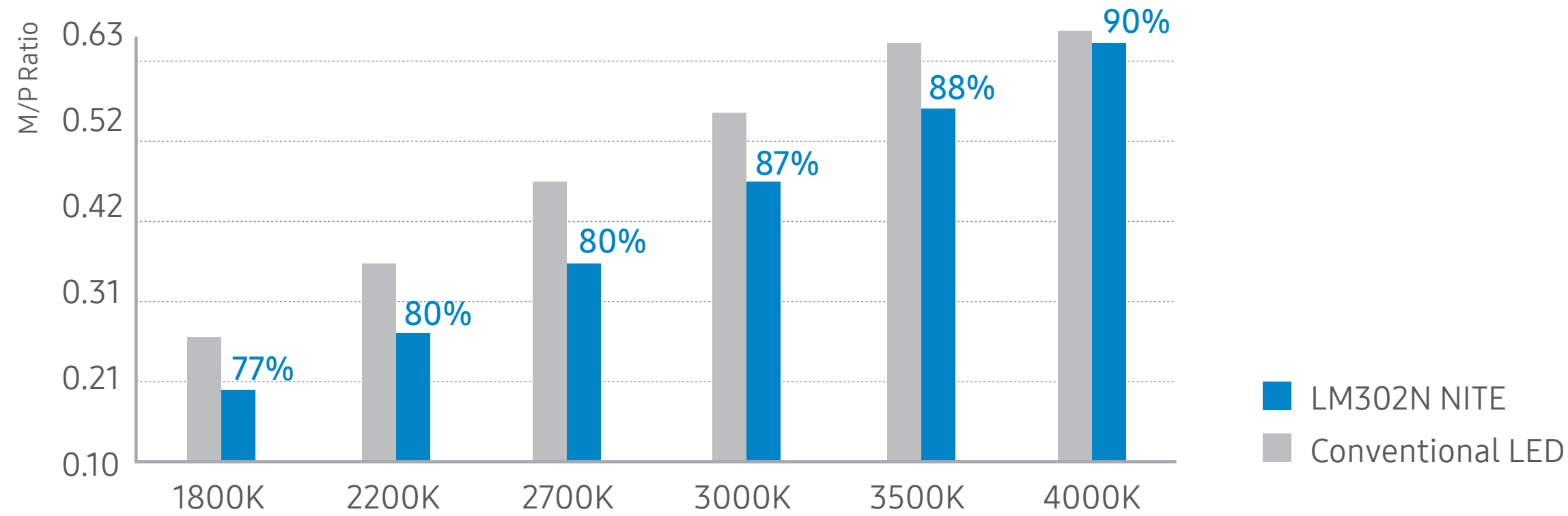


Yoga Studio

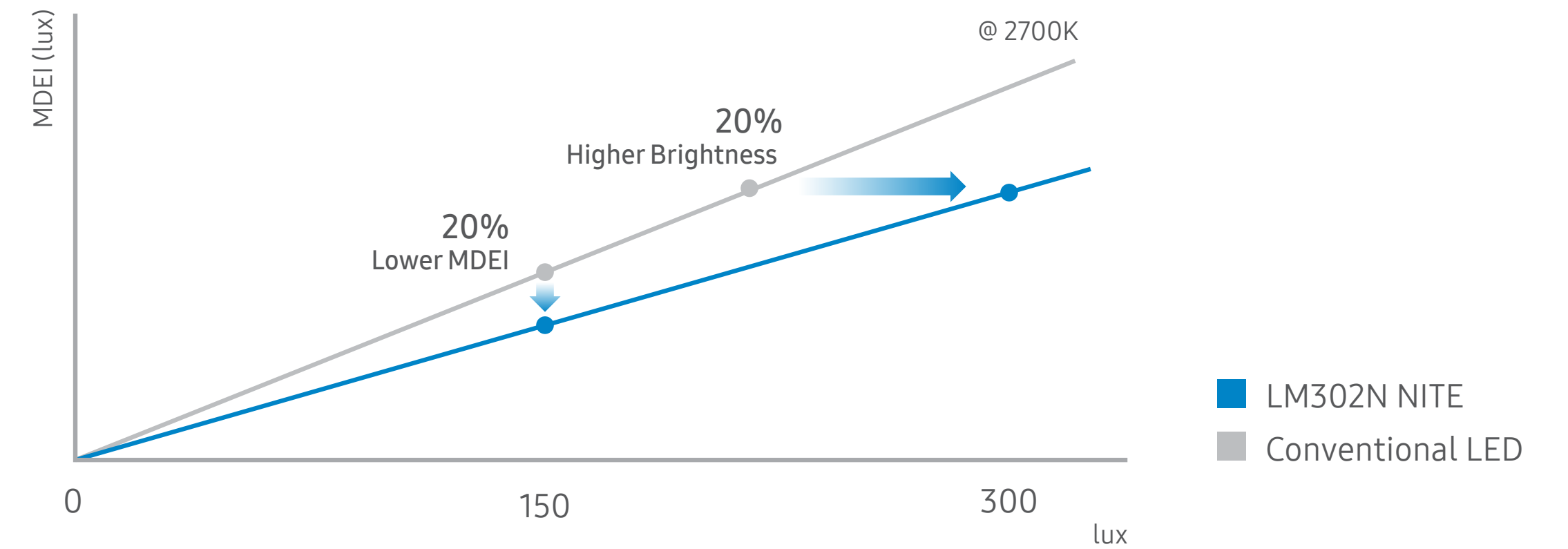
LM302N NITE

I The Lower M/P Ratio, the Lower MDEI

Lower M/P ratio due to direct control of cyan enhances melatonin secretion levels

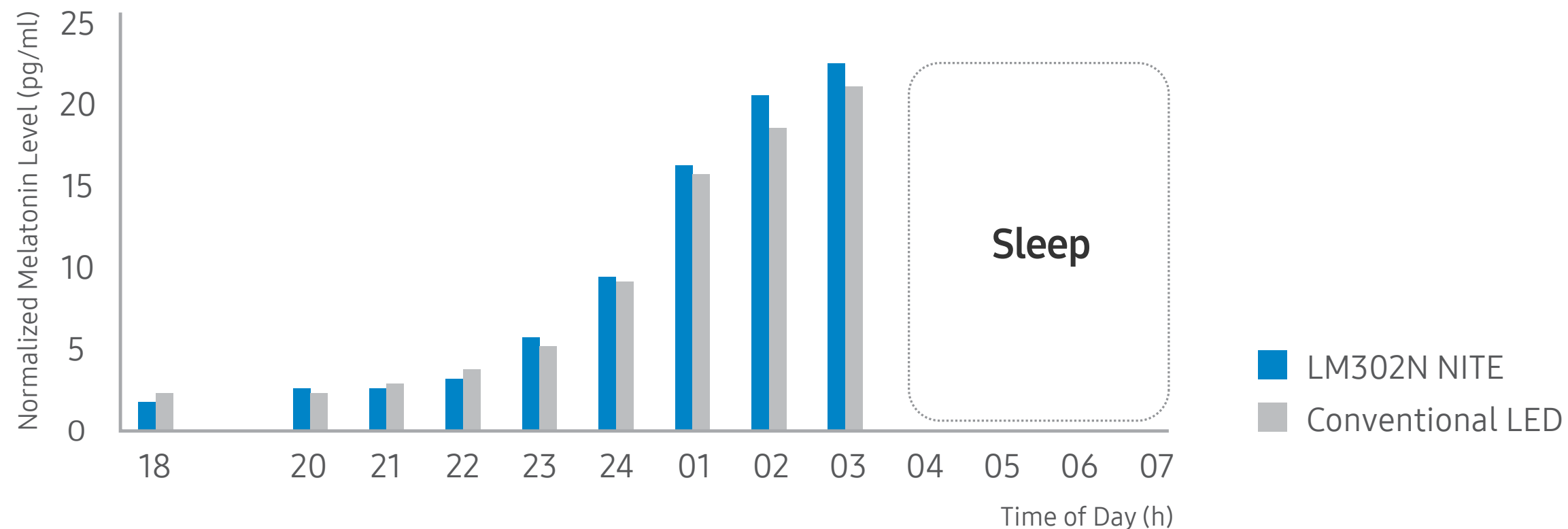


The lower M/P ratio, the lower MDEI and more relaxing effects even under the higher brightness

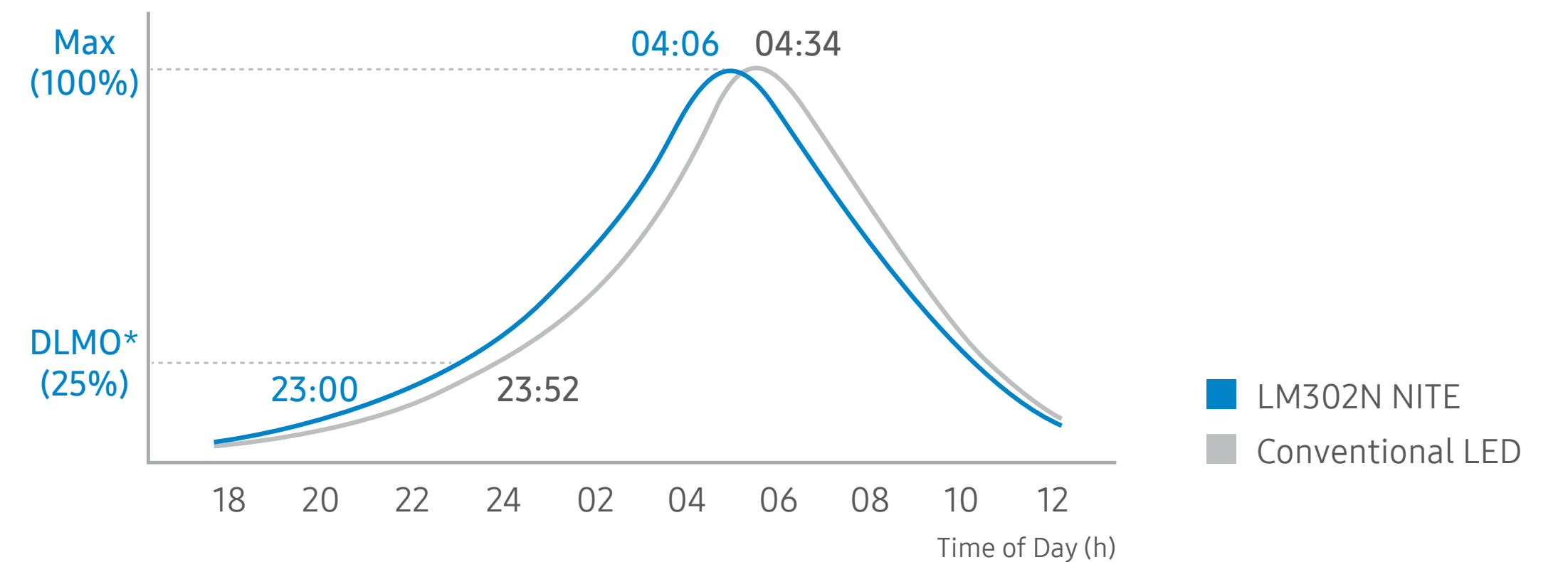


I Proven Effects of Relaxation

5% more stimulated melatonin compared to conventional LED lighting



Higher melatonin secretion leads to 52-min faster time to deep sleep



* Clinical Test: Melatonin Level

* DLMO: Dim Light Melatonin Onset (25% of maximum melatonin)

Samsung's Human-centric Lighting Solutions

Clinical Test for the Effects on Melatonin Production Levels

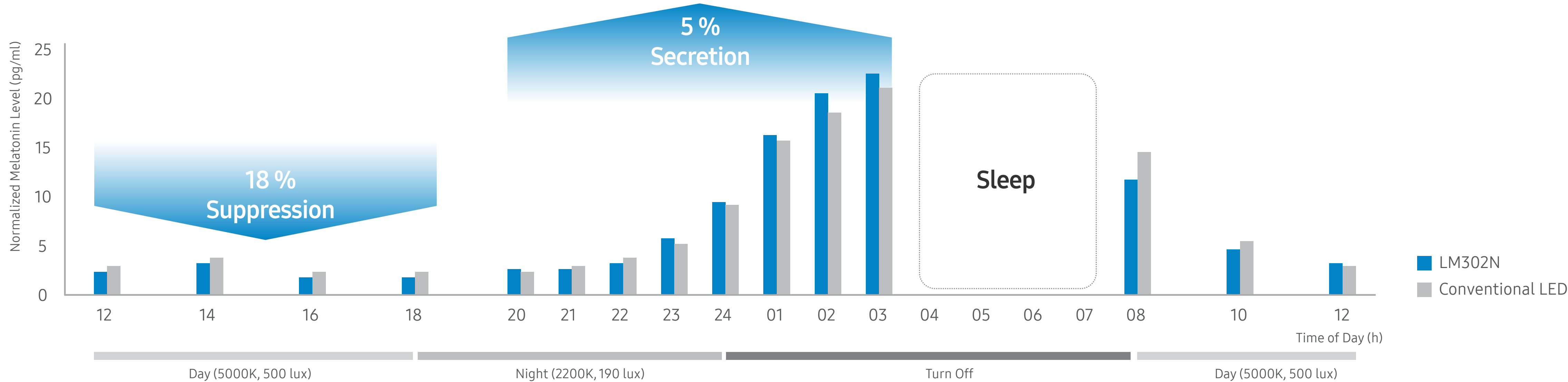
[PLAY VIDEO](#)



- Subjects: 30 people aged from 20s to 50s
- Period: Apr. 2019 - Feb. 2020
- Conditions: 3 days and 2 nights under each lighting *
daytime (5000K, 500 lux), nighttime (2200K, 190 lux)
- Test: saliva, heart rate, brainwave, survey, d2 test

* Performed under human-centric lighting and conventional lighting in random order

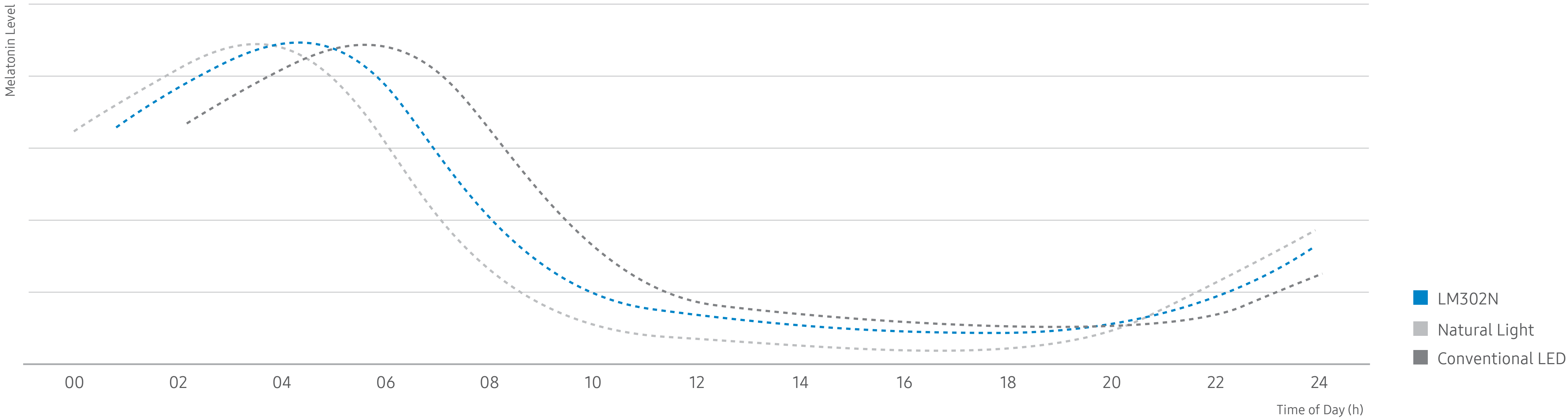
18% Lower Melatonin Levels During the Day and 5% Higher at Night



Samsung's Human-centric Lighting Solutions

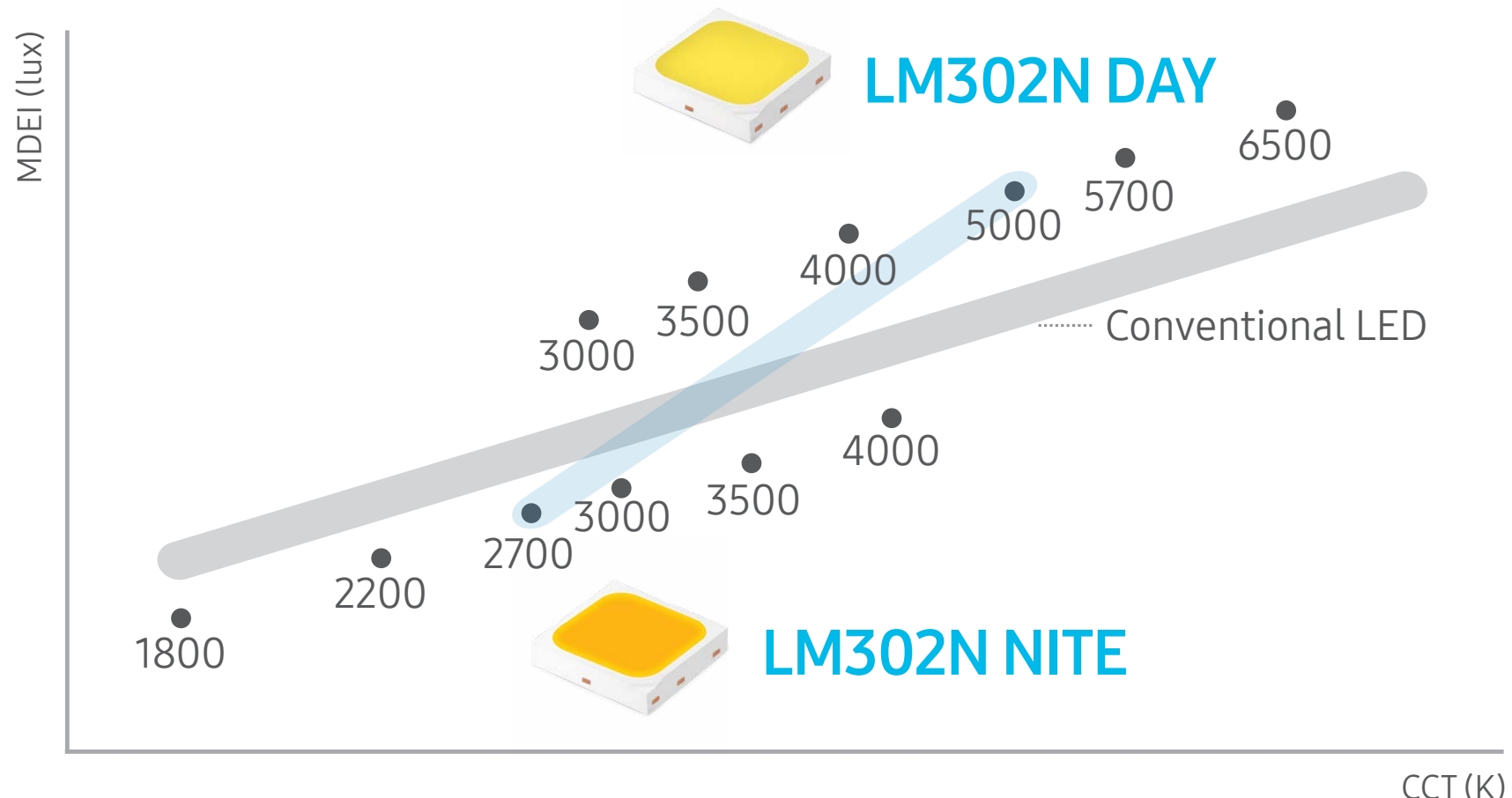
Samsung LM302N DAY & LM302N NITE

Designed with melanopic spectra, combining LM302N DAY and LM302N NITE can support maintaining a circadian rhythm most similar to being under natural light

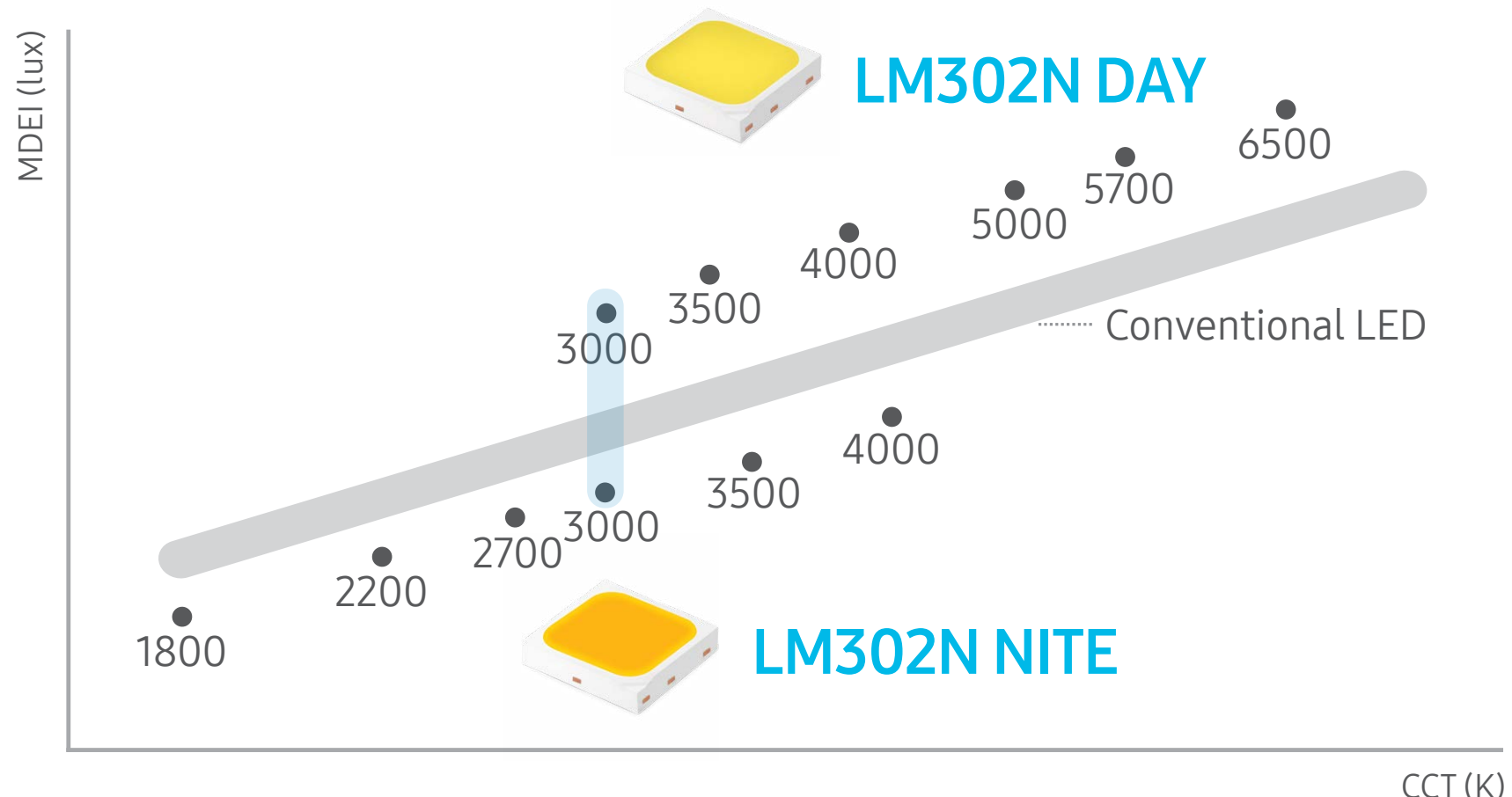


Samsung's Human-centric Lighting Solutions

Applications with Various CCT



Healthcare Institutions
LM302N DAY (5000K) + LM302N NITE (2700K)



Residences
LM302N DAY (3000K) + LM302N NITE (3000K)