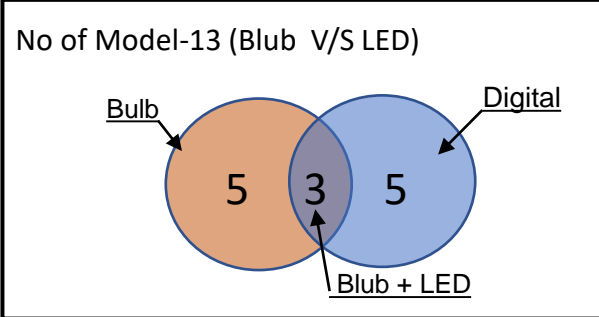
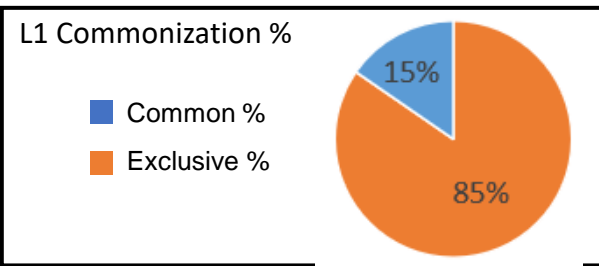
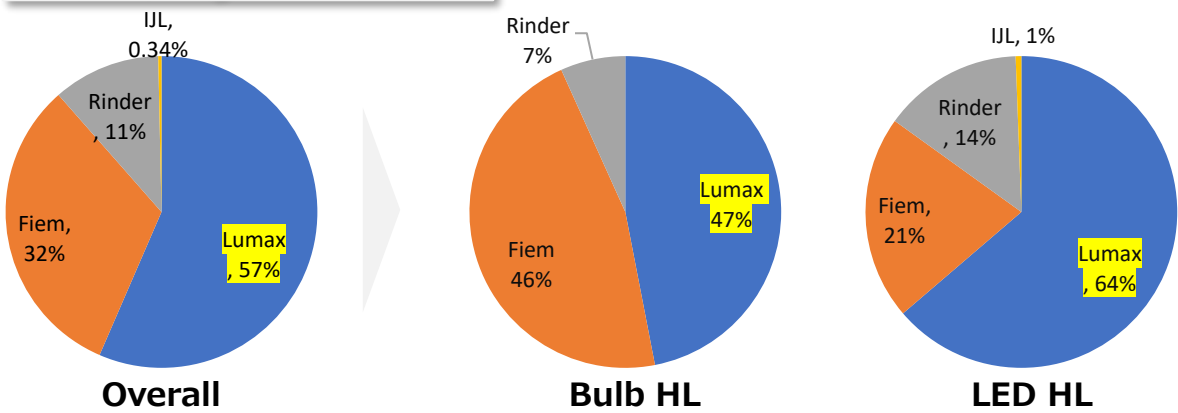


< Till 190 CC Model Current situation >

< Till 190 CC Model Current situation >			Scooter							Motorcycle									
PART NAME	Details		110				125			K3CA	100		125		160		190		
			K0P MP =K0PH		K0Y MP =K0YG		K0L MP =K0LG		K1JG MP ≠ KIJH		K1E MP =K1EG	K1C MP =K1CG	K0V MP= K0VG	K0N MP ≠ K0NG	K1K MP =K1KF	K0E MP ≠ K0EG	K1L MP =K1LG	K1P MP =K1PF	
			Std	Dlx	Std	Dlx	Std	Dlx											
LIGHT ASSY,HEAD	Type	LED		●(2)		●(1)		●(1)	●(0)					●(1)		●(1)	●(1)	●	
		Blub	●(2)		●(1)		●(1)			●(1)	●(1)	●(1)	●(2)		●(1)				
	Maker	LUMAX [ Stanley]	●	●									●	●	●	●			
		FIEM [ Panasonic ]	●	●	●						●	●	●						
		MINDA RINDER [Panasonic]				●	●	●	← (K0Y)	●									
		IJL (India Japan Lighting)																● ←	



HMSI Headlight Maker SOB%



HL Maker Supply to other OEM's

HL Maker		Lumax	Fiem		Minda Rinder		IJL
PCB Designer	OEM	Stanley	Panasonic	Self	Panasonic	Self	Koito
	HMSI	B,L	B,L		B,L		L
	Hero	B,L				B,L	
	TVS	B,L		B,L		B,L	
	Yamaha			B,L			
	Suzuki			B,L			
	Bajaj					B,L	
	BMW					L	

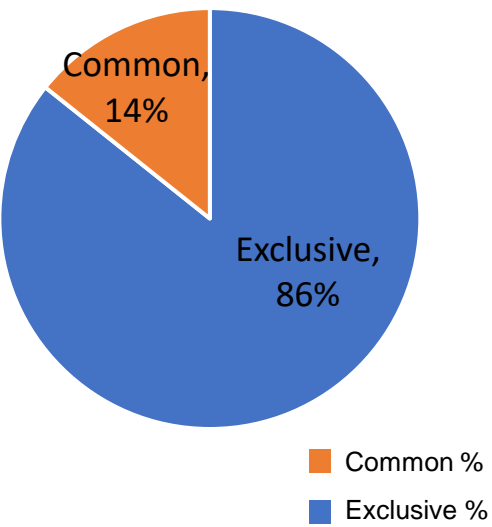
100% HMSI Supply based on Stanley & Panasonic Technology, Where as Competitor using Local Technology

**Current Situation:** 1) L1 Commonization current situation→ 15% . 2)- Out of 13 model, 5→Bulb HL, 5→LED & 3→ Both. 3) No Local Technology used in LED Headlights

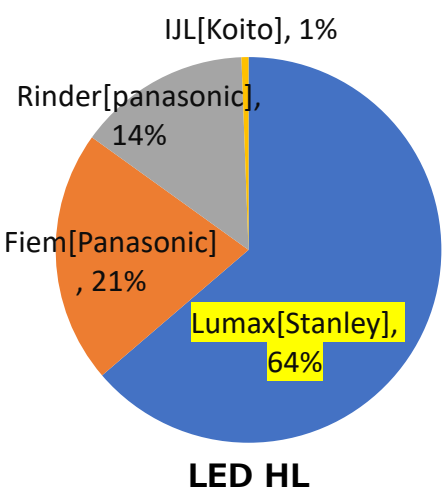
< Till 190 CC Model Current situation >

Maker	Technical Support		Scooter Models				Motor Cycle Models			
			110		125		125	160	190	
	HMSI Supply	Other Indian OEM's	K0P MP =K0PH	K0Y MP =K0YG	K0L MP =K0LG	K1JG MP ≠ KIJH	K0N MP ≠ K0NG	K0E MP ≠ K0EG	K1L MP =K1LG	K1P MP =K1PF
			Dlx	Dlx	Dlx					
LUMAX	Stanley	←	●①←PCB Board Type#				●②	●③		
FIEM	Panasonic	Self	●④							
MINDA RINDER	Panasonic	Self		●⑤	●④	← (K0Y)				
India Japan Lighting	Koito	←							●⑥	←

PCB Commonization



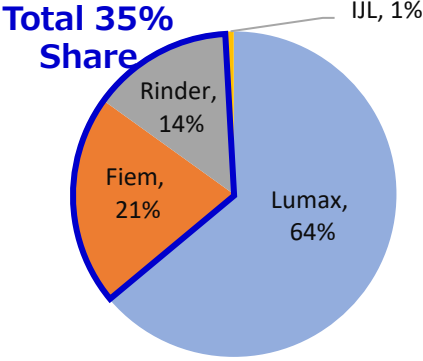
Present SOB



- ❑ 100% HMSI Supply based on Stanley & Panasonic Technology
- ❑ In MC, Complete Dominance of Lumax Supplier
- ❑ No Local Technology used in HMSI HL

< LED HL - Maker SOB >

Maker	PCB Designer		LED HL SOB%
	HMSI	Other Indian OEM's	
Lumax	Stanley	←	64%
Fiem	Panasonic	Self	21%
Minda Rinder	Panasonic	Self	14%
IJL	Koito	←	<1%



- Lumax : 64% SOB , Stanley PCB design, Still expensive.
  - Minda Rinder : 14% SOB
  - Fiem : 21 % SOB
- PCB Designed & supplied by Panasonic, making them less cost competitive (Supplying own design to competitors)

< Future Anticipated Situation >

New Future Regulations in Headlights

- Class Change B → A (More Light Output)
- Position light Addition

LED HL Trend is Increasing in Indian Market

For Example, in KOP : 72% Volume is of LED HL Variant

Impact

Increase in overall Cost of HL

Impact

Increase in use of LED HL across HMSI Models

- ❑ Need to Adopt Cost Competitive Strategy & Capitalize on Local Available Suppliers
- ❑ Good Opportunity to Use Design Capability of Local Supplier (Similar to Competitor)
- ❑ ~50 Rs CR Expected in using local Design( Equivalent to 45 Mill Rs/Annum)
- ❑ CR will increase further if SOB of Minda Rinder & Fiem is increased after localization

< Minda Rinder >

Have Inhouse Design, Test & Manufacturing Capabilities

Design tools availability	
CAD Tools	CATIA, NX, AUTODESK, 3D-Tool
Optical Design Tools	SPOT, OPTIS, LucidShape
Electronics Design Tools	UGS, OICAD, Altium
CAE Tools	ANSYS, M, HyperMesh

Testing Facilities	
Environment Testing	✓
Vibration Testing	✓
Photometric Testing	✓
Basic Electronics Testing	✓
EMI-EMC Testing	✓

LED HL : Own PCB design to all OEM (Except Honda)

Hero: Maestro 125, Passion Xtec, Pleasure Xtec

TVS: Jupiter 125, I-CUBE

BAJAJ: Pulsar, Chetak

LED T/L : Own PCB design to all OEM (Including Honda)

Honda: X-Blade, Hornet, Unicorn160

SUZUKI: Burgman, Duke

KTM: Duke

TRIUMPH: Street twin, Meteor

< Fiem >

Have Inhouse Design, Test & Manufacturing Capabilities

- In house Government Approved Lab Facility

Catia	UG	Lucid Shape
Flow EFD	Ansys	Orchard
Siemen NX	Auto Desk	Dip Trace

- Testing Facilities Available
  - Environment
  - Photometric
  - Vibration & others

LED HL : Own PCB design to all OEM (Except Honda)

TVS: Apache, Ronin, Raider

SUZUKI: Burgman, Gixer

YAMAHA: FZ-S, S1 Pro

LED T/L : Own PCB design to all OEM (Including Honda)

Honda: Dio, Hornet, H'ness

SUZUKI: Burgman, S1 Pro

OLA: S1 Pro

TVS: NTorq, Raider

- ❑ Minda Rinder & Fiem are Supplying Local PCB design in Mass Selling Models of India OEM Competitors like Hero, TVS, Bajaj, Yamaha, Suzuki, OLA etc
- ❑ Lumax is using Stanley (JV) PCB design, comparatively expensive & have major SOB (~64%). Potential available to improve other makers competitiveness
- ❑ Considering Regulation, change in 25 Yr models, there is good opportunity to adopt Local PCB design for CR (~ Rs 45 Mil) & Constitution improvement

## Impact of Regulation in 25YM :

S.No	Part No.	Regulation	
1	33100K1E DA10M1	AIS010(Part 2) :2010	-
2	33100K1C DC10M1	AIS010(Part 2) :2010	Class B
3	33100K0V AC10M1	AIS010 , AIS037	UN R113-01 Class B
4	33100K0V AD11M1	AIS010 , AIS037	UN R113-01 Class B
5	33100K0N D810M1	AIS010(Part 2) :2010	UN R113-02 Class C
6	33100K1K D013M1	AIS010	Class B
7	33100K0E D014M1	AIS010	UN R113-01 Class B
8	33100K1L D013M1	AIS010	UN R113-01 Class B
9	33100K0P 6012M1	AIS010	UN R113 Class B
10	33100K0P D011M1	AIS010	UN R113 Class B
11	33100K0P 6111M1	AIS010(Part 2)	UN R113 Class B
12	33100K0P D112M1	AIS010(Part 2)	UN R113 Class B
13	33100K0Y D011M1	AIS010	UN R112 Class A
14	33100K0Y D113M1	AIS010	UN R113 Class B
15	33100K0L D013M1	AIS010	UNR 113 Class B
16	33100K0L D113M1	AIS010	UN R113 CLASS B
17	33100K1J D011M1	AIS010	UN R113 01 Class B

### Current Regulation

Component Approval			
Headlight	International	Indian	Indian
	UNR112	AIS010(Part 1)	Asymmetrical
	UNR113	AIS010(Part 2)	Symmetrical

### Installation level

Vehicle Level	AIS009	Revision 1	Amendment 3
<= 125		B,C,D,E	
> 125		B,D,E	

### Future Regulation Change

#### 1. Elimination of Class B

#### 2. Addition of Position Lamp

## Anticipated Impact of Regulation in 25YM :

S.No	Part No.	Regulation	
1	33100K1E DA10M1	AIS010(Part 2) :2010	-
2	33100K1C DC10M1	AIS010(Part 2) :2010	Class B
3	33100K0V AC10M1	AIS010 , AIS037	UN R113-01 Class B
4	33100K0V AD11M1	AIS010 , AIS037	UN R113-01 Class B
5	33100K0N D810M1	AIS010(Part 2) :2010	UN R113-02 Class C
6	33100K1K D013M1	AIS010	Class B
7	33100K0E D014M1	AIS010	UN R113-01 Class B
8	33100K1L D013M1	AIS010	UN R113-01 Class B
9	33100K0P 6012M1	AIS010	UN R113 Class B
10	33100K0P D011M1	AIS010	UN R113 Class B
11	33100K0P 6111M1	AIS010(Part 2)	UN R113 Class B
12	33100K0P D112M1	AIS010(Part 2)	UN R113 Class B
13	33100K0Y D011M1	AIS010	UN R112 Class A
14	33100K0Y D113M1	AIS010	UN R113 Class B
15	33100K0L D013M1	AIS010	UNR 113 Class B
16	33100K0L D113M1	AIS010	UN R113 CLASS B
17	33100K1J D011M1	AIS010	UN R113 01 Class B

### Current Regulation

Component Approval			
Headlight	International	Indian	Indian
	UNR112	AIS010(Part 1)	Asymmetrical
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Installation level			
Vehicle Level	AIS009	Revision 1	Amendment 3
<= 125		B,C,D,E	
> 125		B,D,E	

### Future Regulation Change

#### 1. Elimination of Class B

#### 2. Addition of Position Lamp

- ❑ In Minda Rinder(K0L,K0Y) & Fiem (K0P) Supplied LED HL → Change is Expected
- ❑ 25yr Regulation change is Good Opportunity to Localize PCB
- ❑ Considering CR, Maker Layout of Other Models LED HL can be Change