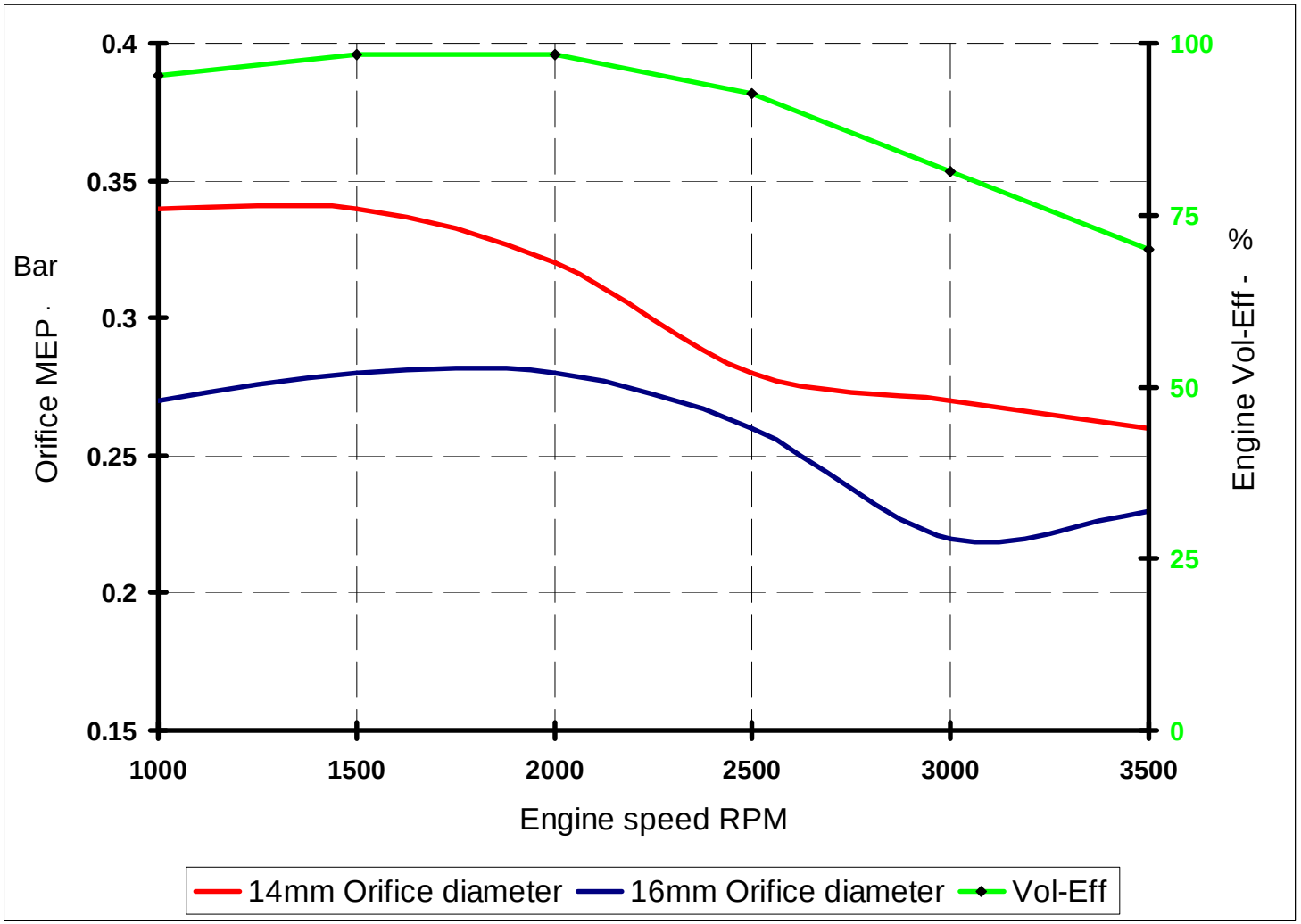
Music Test Results

Contents

- Orifice pumping losses
- Throttling pumping losses
- Part load single cylinder – Stratified charge

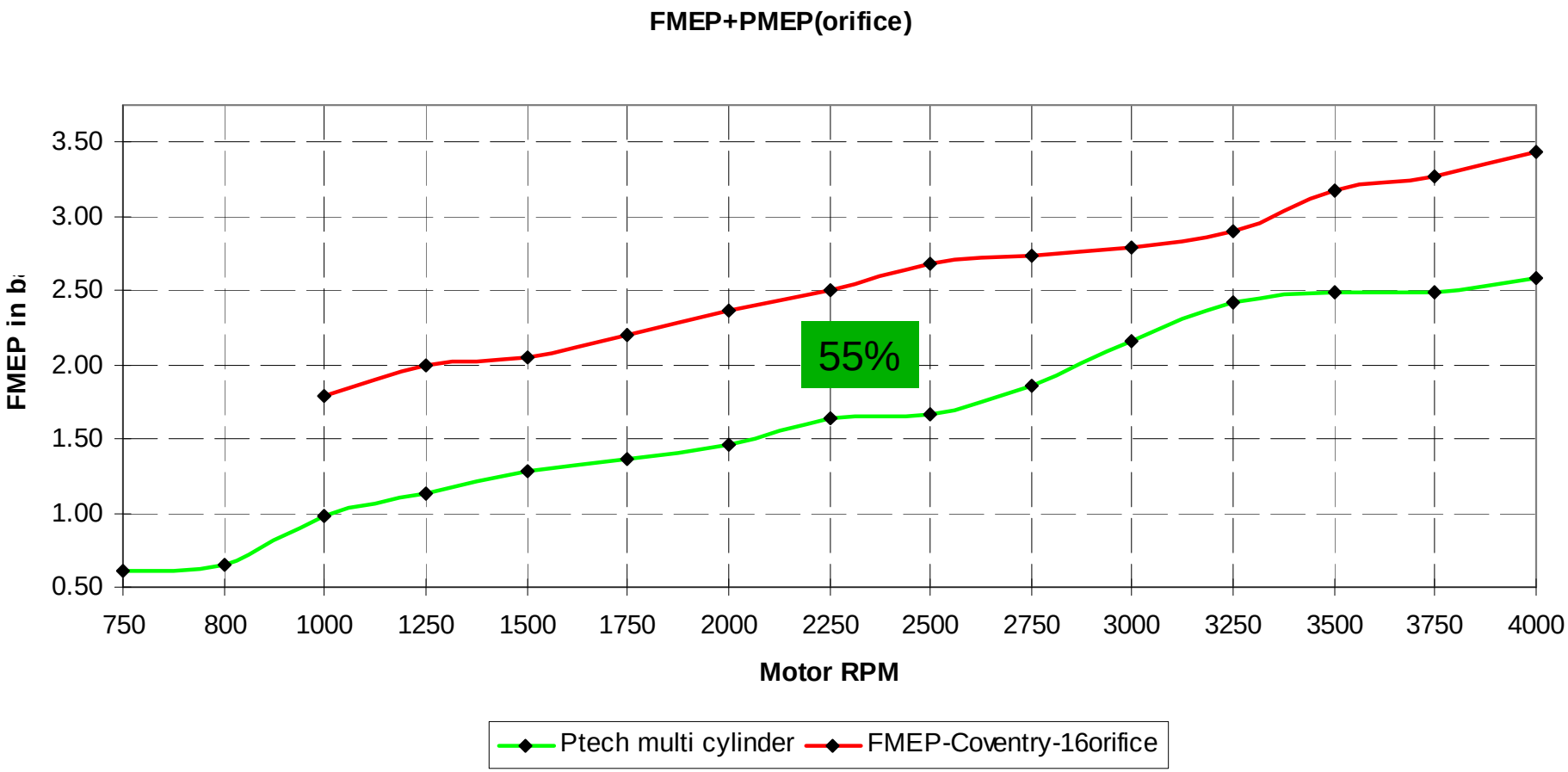
Orifice pumping losses

- CR- 11.8:1 – 70/30 split volume
- Average orifice PMEP for 14mm – 0.30bar / 16mm – 0.25bar



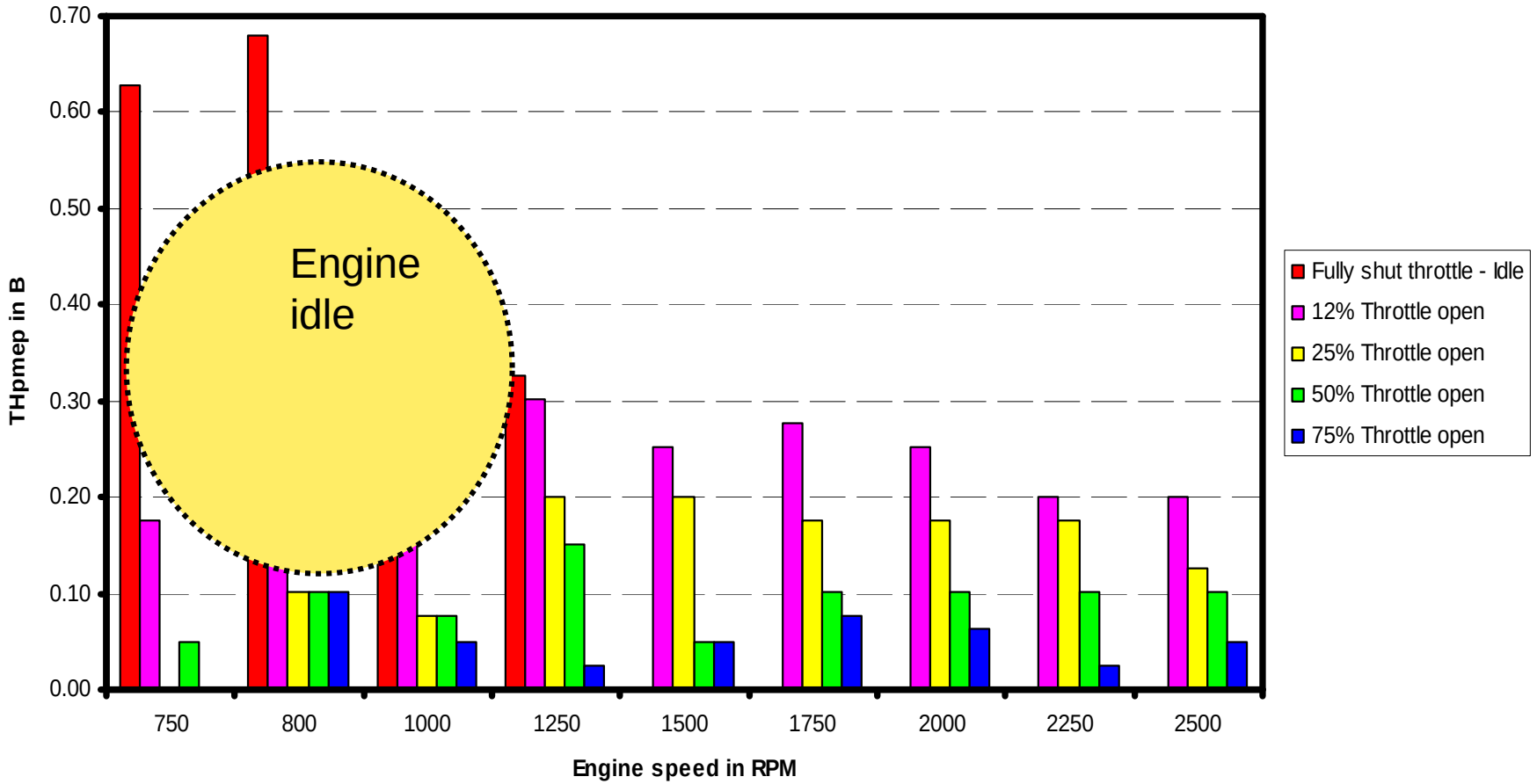
Single Cyl – 4 Cyl Friction

- Music single cylinder engine - 557.5cc - 2.23 L
- Music 4 Cyl 2.0

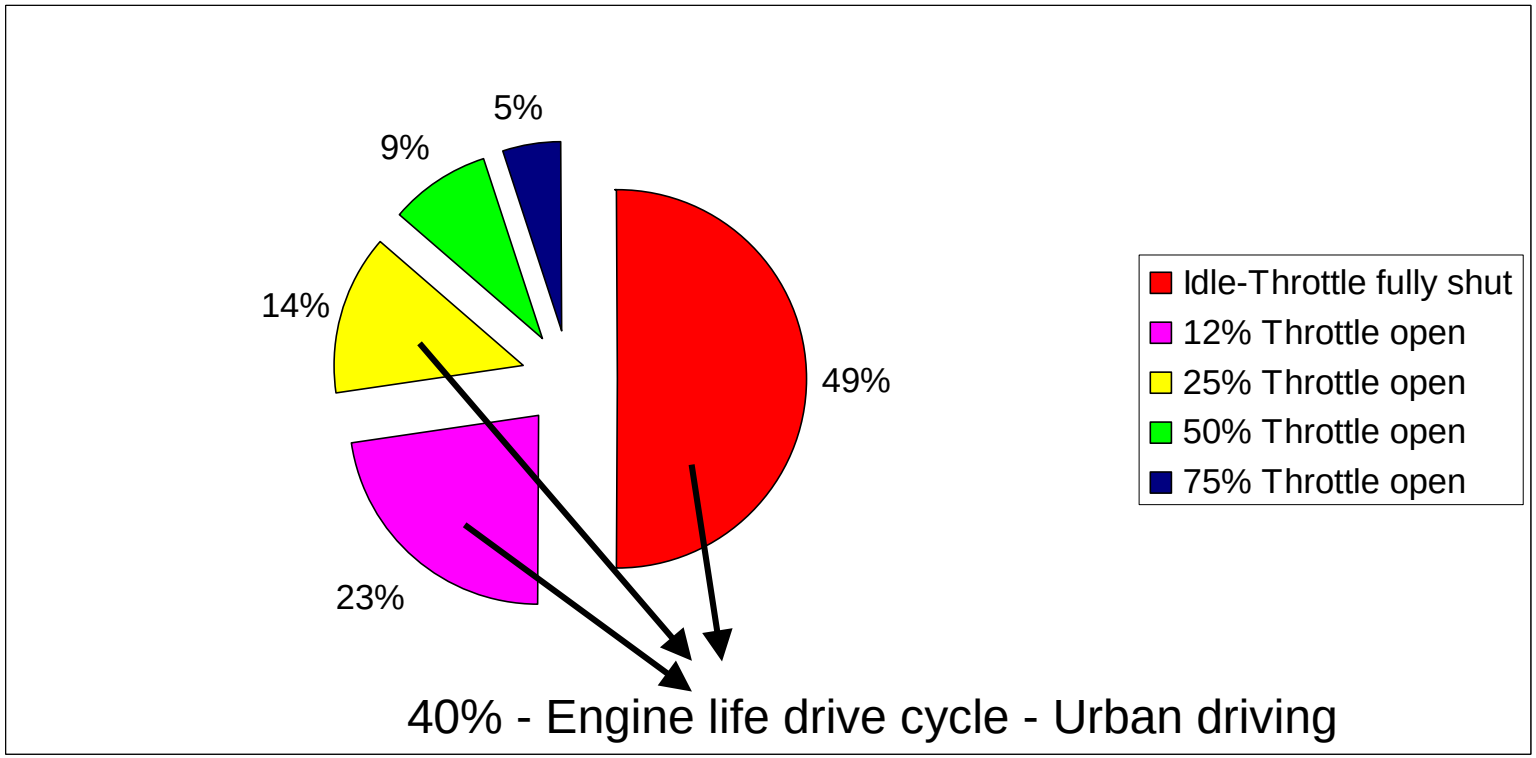


Throttle pumping losses at different throttle angle

- Engine idle – 50 % losses (750 to 1250 rpm- cold start)
- Part load - different throttle open angle – (800 to 2500 rpm)



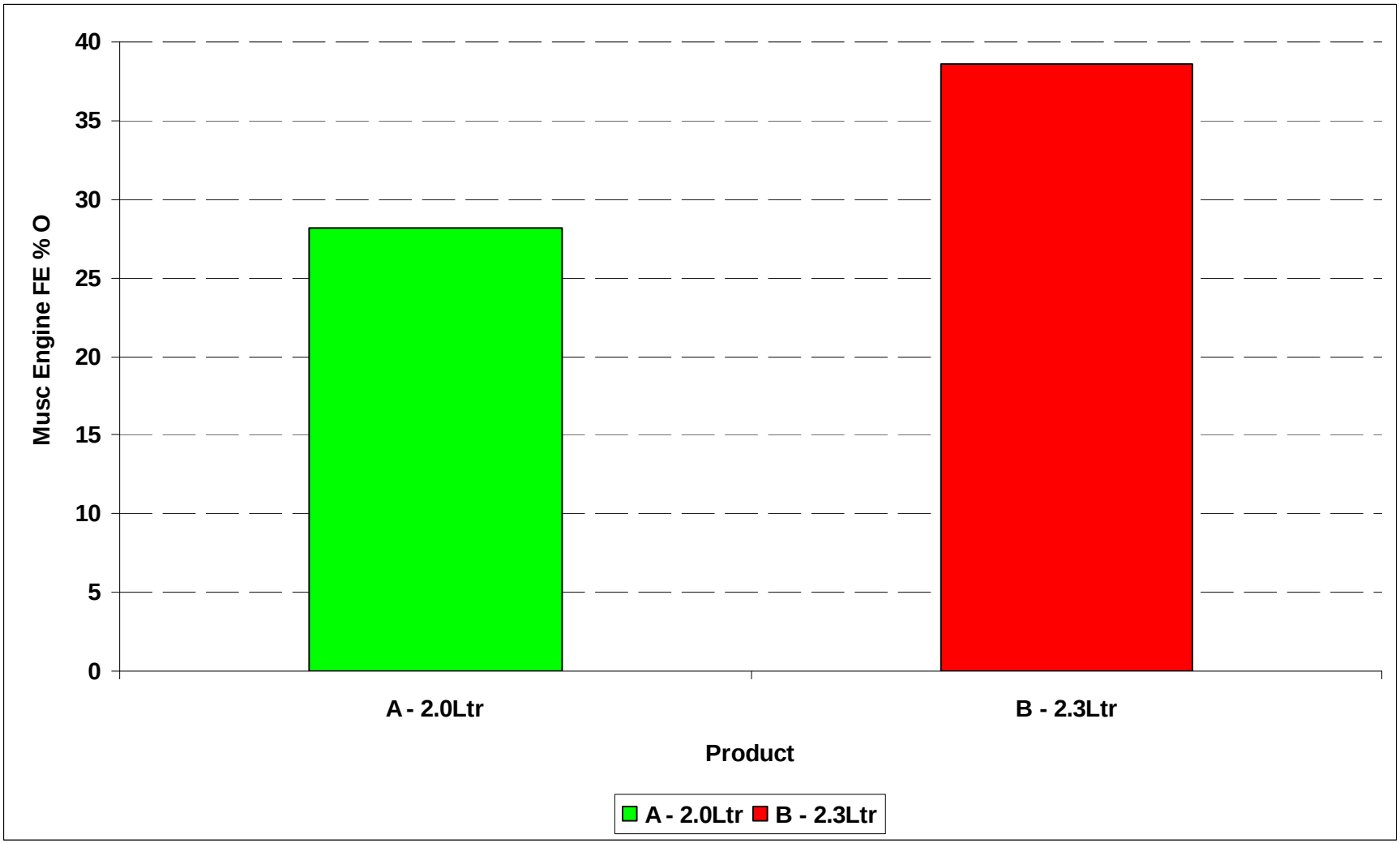
Total throttled pumping losses at different throttle position



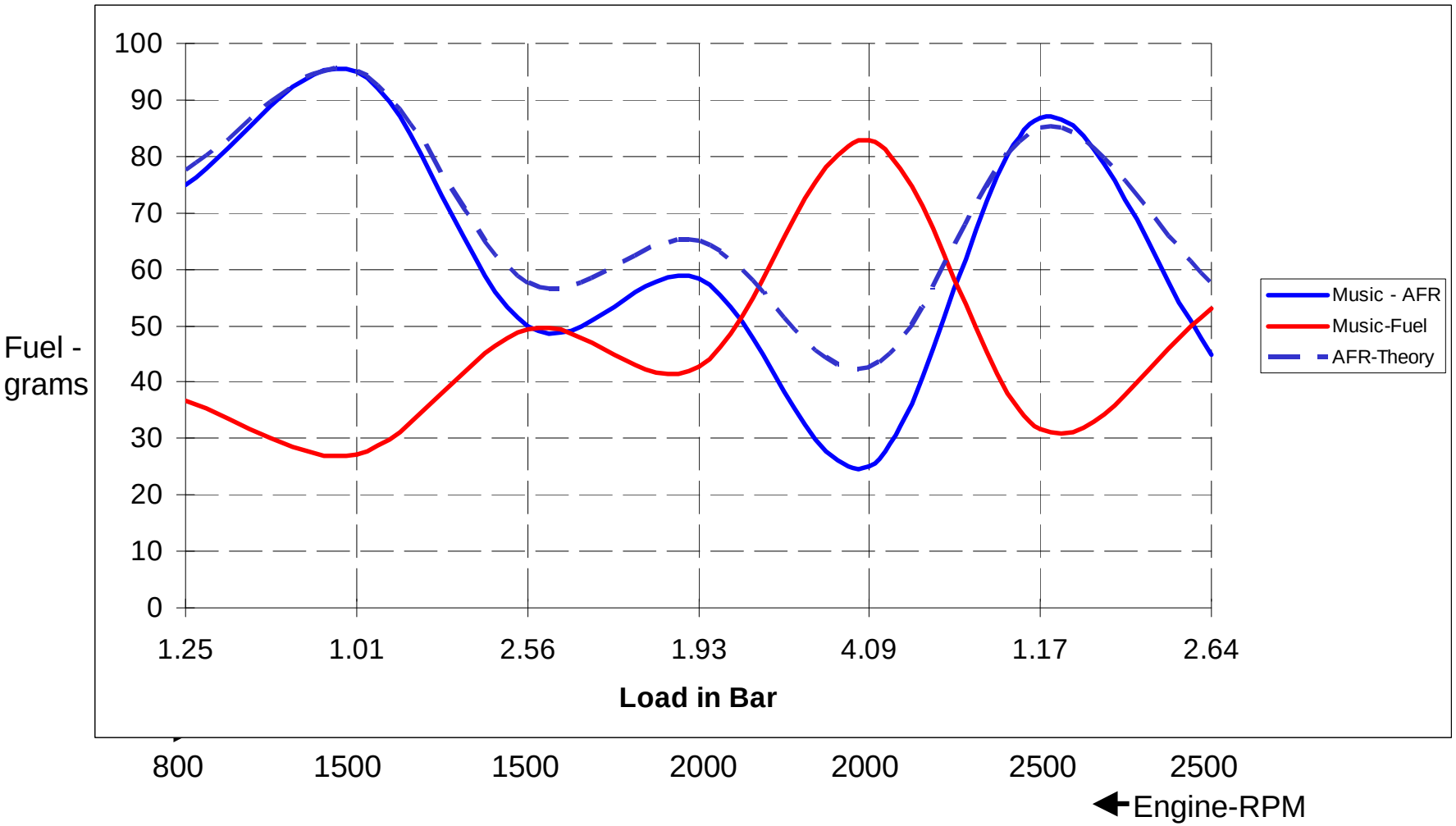
Part load fuel efficiency mini map – Single cylinder engine

Speed	BMEP Mini-map	Music	A-2.0Ltr	B-2.3Ltr	Music
RPM	Bar	Grams	AFR(14.7:1)	AFR(14.7:1)	AFR
800	0.70	36.68	49.94	64.17	74
1500	1.00	27.13	36.24	74.40	95
1500	2.62	49.26	39.44	54.65	50
[illegible]					
2500	1.00	31.63	157.68	169.50	87
2500	2.62	53.05	98.93	75.02	45
Hot grams/test		323.32	450.19	526.73	
Fuel Economy (l/100km)		4.0	5.5	6.5	

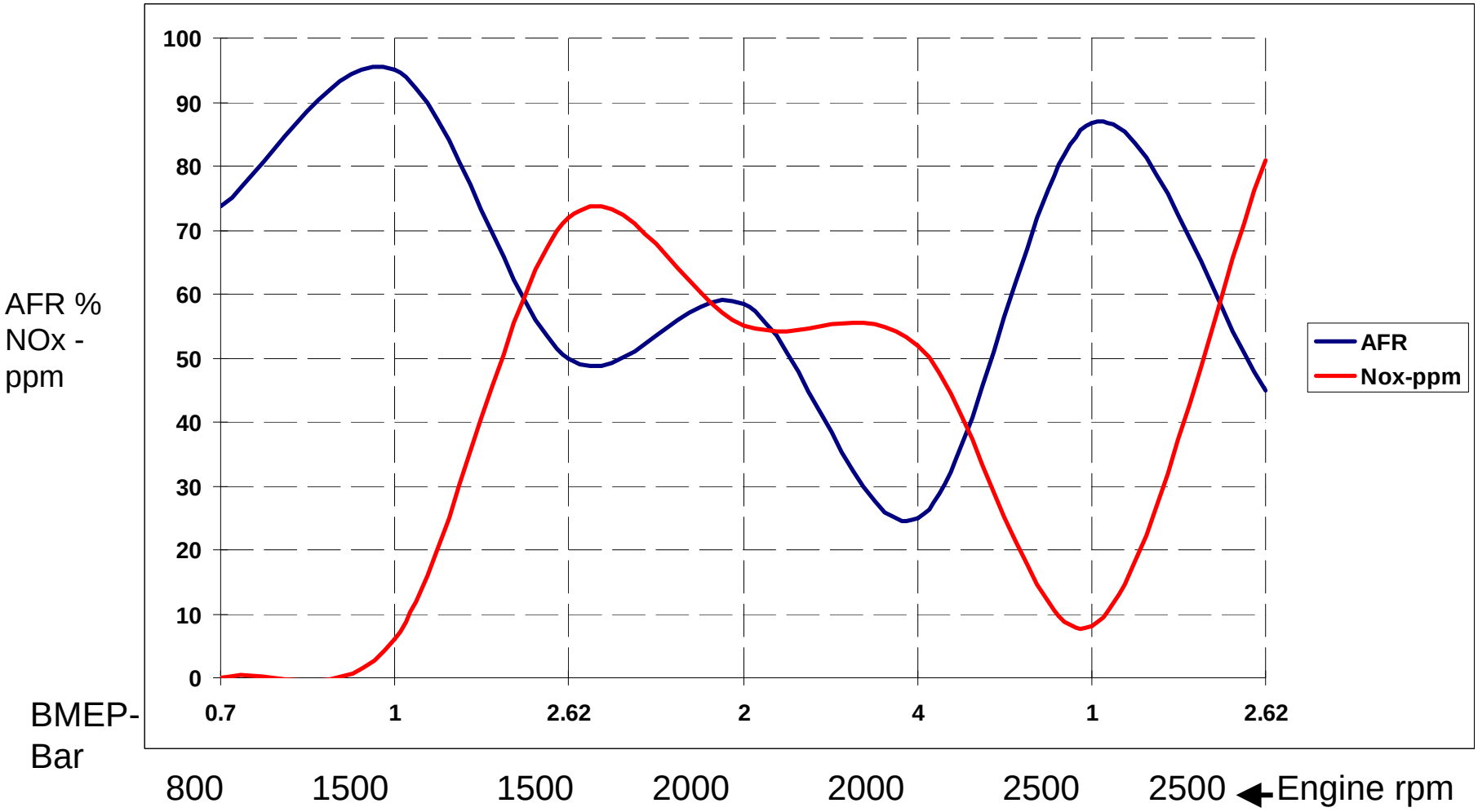
Music fuel economy benefit at part load – Mini map



Part load fuel efficiency – mini map



Part load emission – mini map



Conclusion

- Advantages with Music engine:-
  1. Throttling pumping losses is fully eliminated.
  2. Part load fuel economy better than 30% improved.
  3. Significant improvement in emissions
     NOx, HC – 40% reduction.

- Future work:-
  1. Optimised injector & injection system development
  2. In vehicle driveability
  3. Durability

Thank you