6th WLTP   Technical Detail

OBD / Off Cycle

30 April , 2003
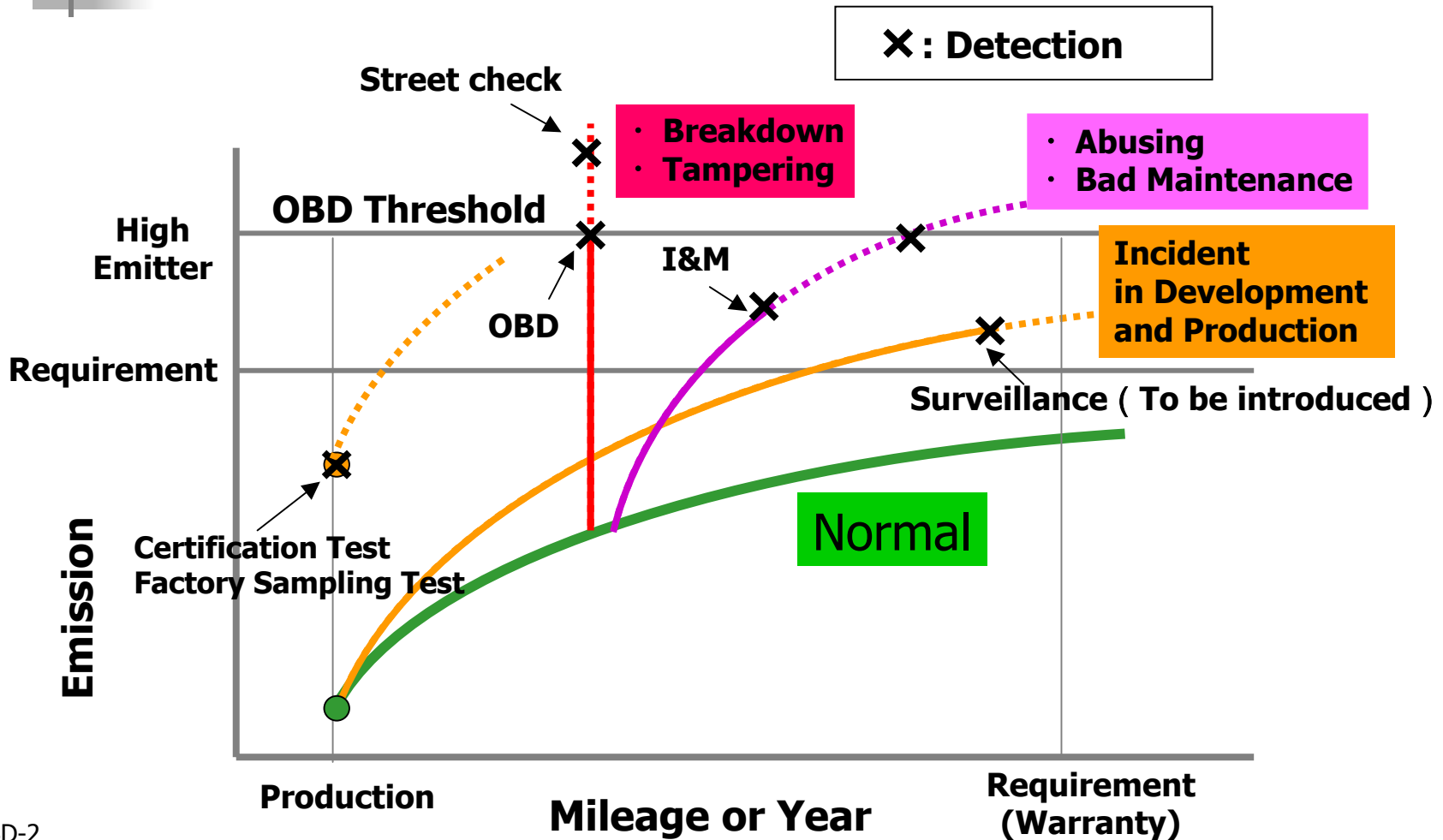## JAMA

OBD : Cause of Emission Deterioration and Detection methodology in Japan

Cause	Detection
Incident in Development phase	Certification test（incl.Durability）Surveillance
Incident in Production phase	Factory Sampling-test 、Surveillance
Bad Maintenance	Inspection & Maintenance、Street check
Tampering	Street check、OBD
Abusing	Inspection & Maintenance 、OBD
Breakdown	OBD

- **Objective of OBD is to detect high-emitter.**
- **OBD Threshold should be "Fixed value" or "Additional value".**

OBD : Cause of Emission Deterioration and Detection methodology in Japan

✗ : Detection

Street check

· **Breakdown**
· **Tampering**

· **Abusing**
· **Bad Maintenance**

OBD Threshold

High Emitter

I&M

OBD

Incident in Development and Production

Requirement

Surveillance (**To be introduced**)

Certification Test
Factory Sampling Test

Normal

Emission

Production

Mileage or Year

Requirement (Warranty)

Off-cycle Condition

Goal of Off-cycle

- Prevent vehicle emission deterioration under driving conditions outside of the test mode
- Reflect "Engine Design Rule"

Procedure for Temperature and Altitude range

Methodologies of Gathering data	Accuracy	Easiness to gather data	
		Altitude	Temperature
Along the Road Multiplied by traffic flow	Real World	Difficult	
Middle City* data		◯	Impossible No weather Bureau
Major City** data	Estimation	Easy	Possible ◯

*) Middle city(671) Population>about 20K,   **)Major city(32): Population>300K

Off-cycle Condition in Japan

Impractical to fulfill all the region,
 and costly to comply with these requirements
Practical to cover more than 90% of the region.

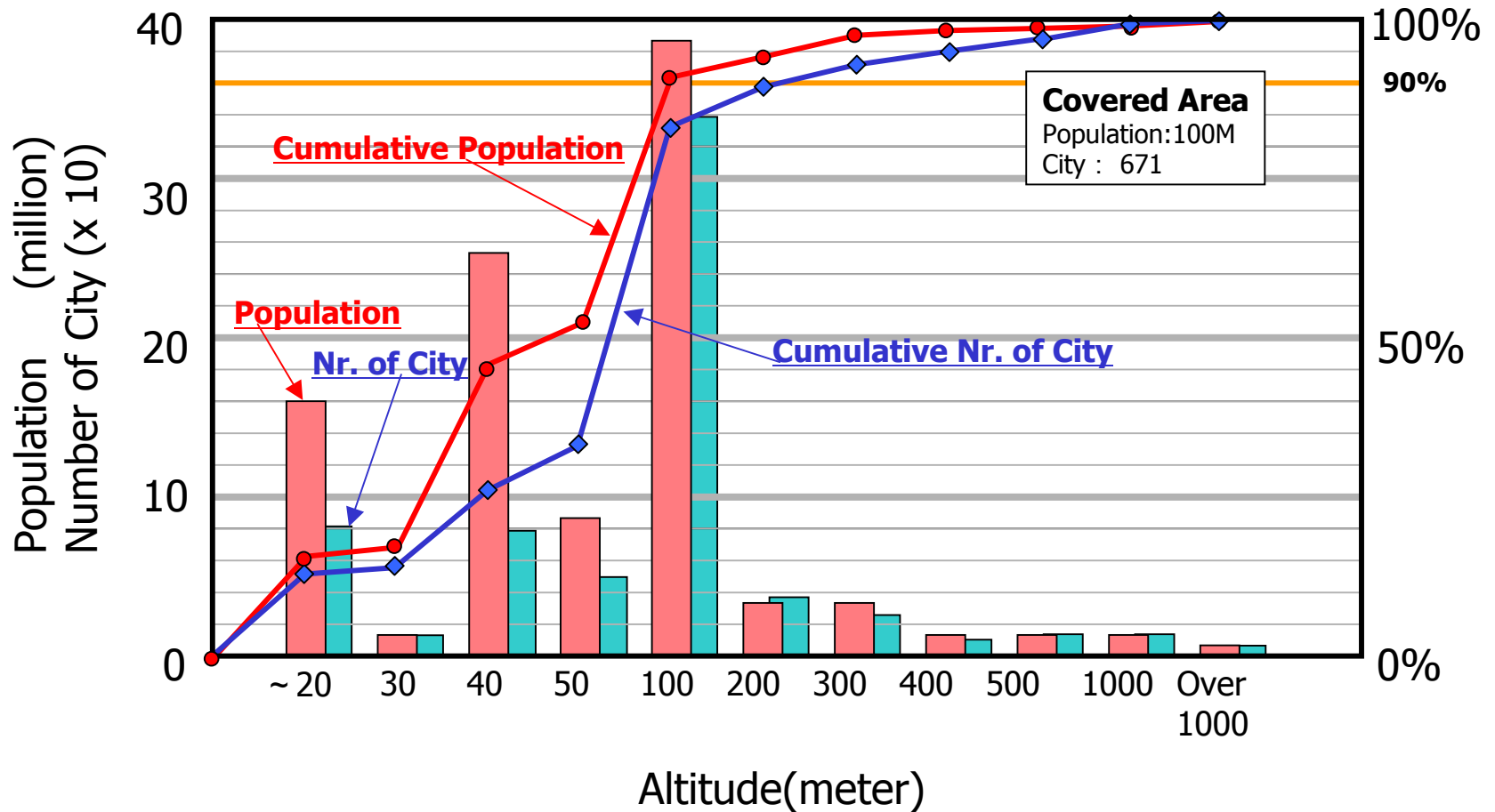| Item	Population		Number of City	
	90%tile	100%	90%tile	100%
Max Temp.	32.9°C	33.0°C	32.4°C	33.0°C
Min Temp.	-2.0°C	-12.6°C	-3.5°C	-12.6°C
Altitude	100m	1600m	400m	1600m

Reference
Temperature: Data base"Rika Nenpyo" Issued by National Astronomical observatory of Japan(2002)
Altitude: Japan Map ; shobunsya
Population: Data base;Japan Association of City Mayors (2000)http://www.mayors.or.jp/info/jinkou/1999.03/data-index4.html
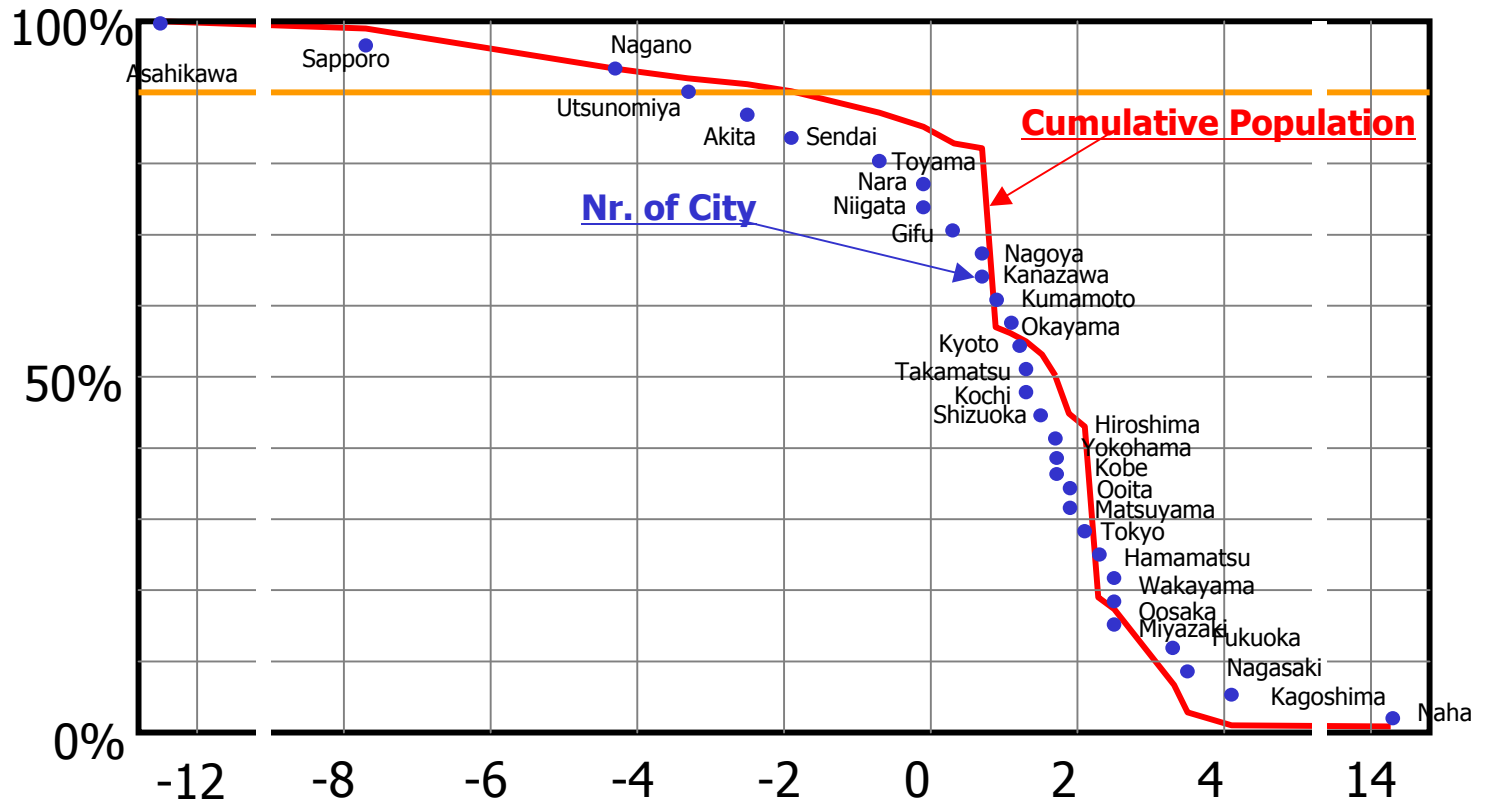
Altitude Distribution

Lowest Temperature

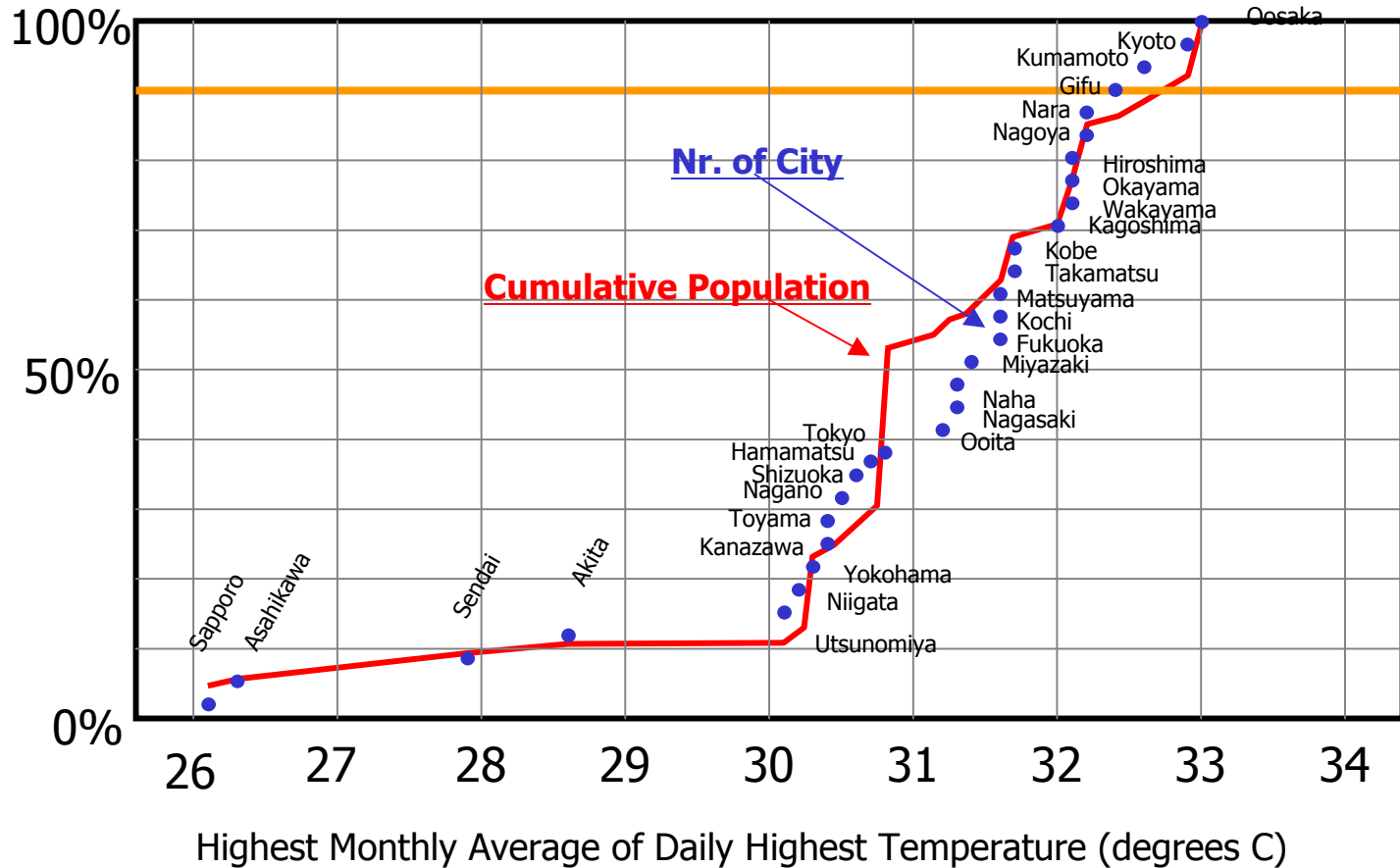**Covered Area**
Population:34M
City : 32(Population > 300,000)

Lowest Monthly Average of Daily Lowest Temperature (degrees C)

日最高温度の月別平均値の最高温度（℃）

Highest Temperature

Covered Area
Population:34M
City：32(Population ＞300,000)

日最高温度の月別平均値の最高温度（℃）

Remaining Issue

- Off-cycle

    Goal of Off-cycle

    Procedure for Temperature, Altitude

- Common Database (Emission Cross Comparison)

    Data submit to DC by end of June

    Data Analysis by DC