Explanation of motorcycle AFS

AFS : Adaptive Front-lighting System

**Purpose**

This system improves the visibility of motorcycle which is cornering at the nighttime.

**Functions**

This system changes the illumination area of headlamp automatically in according with the bank angle of motorcycle.
Explanation of motorcycle AFS

How to calculate bank angle

$\delta$ : bank angle
(equal to headlamp horizontal inclination adjustment angle)

$\gamma$ : Headlamp adjustment angle

$\omega$ : yaw rate

$\omega_0$ : yaw rate

$v$ : vehicle speed

$f$ : centrifugal force

$Mg$ : weight
Explanation of motorcycle AFS

System construction diagram
Explanation of motorcycle AFS

Illumination area of conventional headlamp

Illumination area of AFS headlamp

Expanded illumination area
Demonstration course

We demonstrate how the AFS works when the motorcycle runs along these corners.