Blind Analysis Contest for Full-scale Bridge Seismic Excitation in 2009

Results of the Contest

E-Defense

Contest Categories

➢ Winner is selected for each of the three categories.

☐ Category 1: Isolated bridge experiment analysis

   Prediction of seismic response of bridge column using isolation devices for 30 and 40% input level

☐ Category 2: Failure mode predication analysis

   Prediction of seismic response and failure mode of bridge column without isolation devices for 100% and second 125% input level.

☐ Category 3: Category 1 and Category 2

   Prediction of both Category 1 and 2

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Number of Participants

Table：Number of Participants

Country ＼ Category	Category 1	Category 2	Category 3	TOTAL
Japan	3	4	3	10
U.S.		1	3	4
China		2	3	5
Peru		1		1
TOTAL	3	8	9	20

Category 1 ： Isolated bridge experiment analysis

Category 2 ： Failure mode predication analysis

Category 3 ： Category 1 and Category 2

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Participants

☐ Category 1: Isolated bridge experiment analysis

Group　A
Group　D

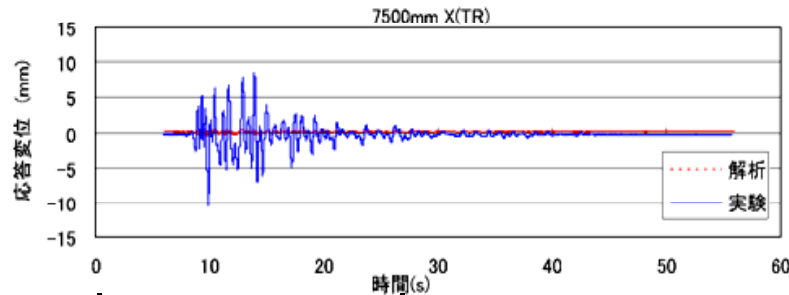☐ Category 2: Failure mode predication analysis

Group　A
Group　B
Group　C
Group　D
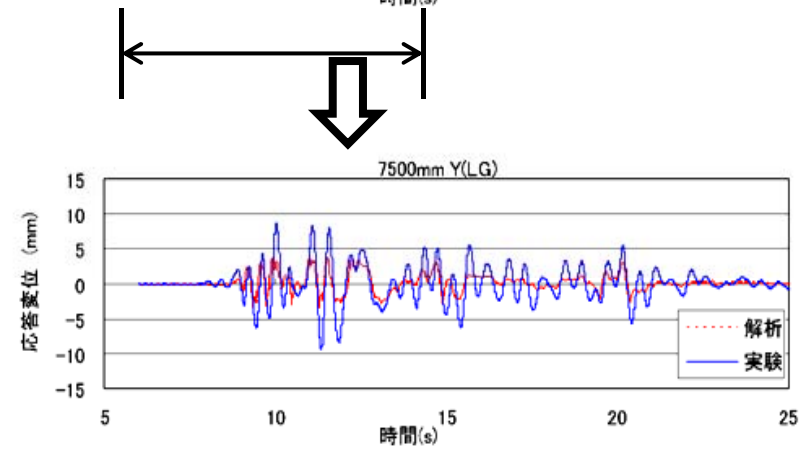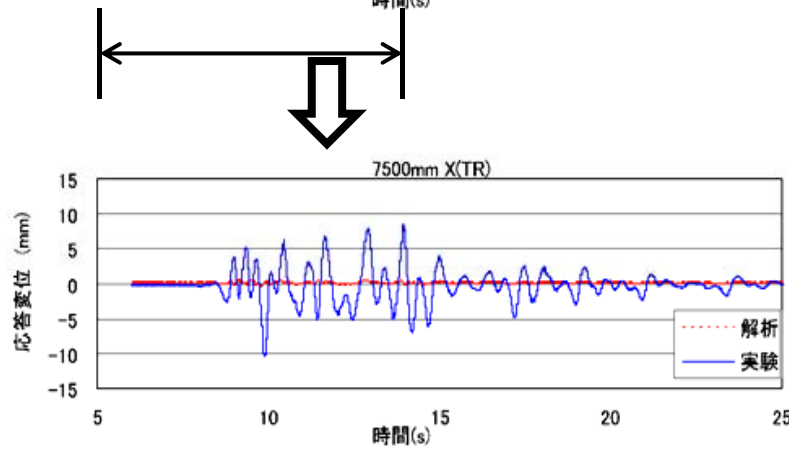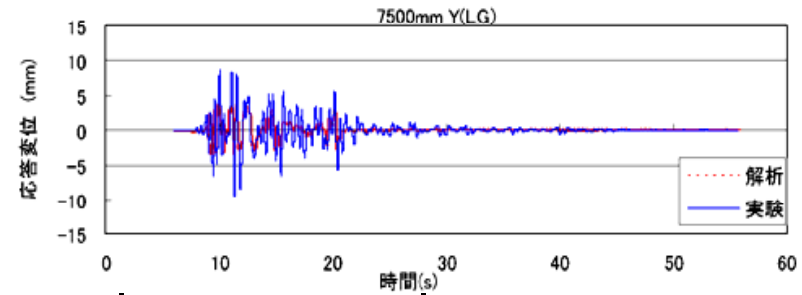
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□ Category 1: Isolated bridge experiment analysis

Group：Ａ　（30%）

X(TR)方向

Y(LG)方向

基部から 7500mm 位置の水平変位（上：全体，下：初期部拡大）
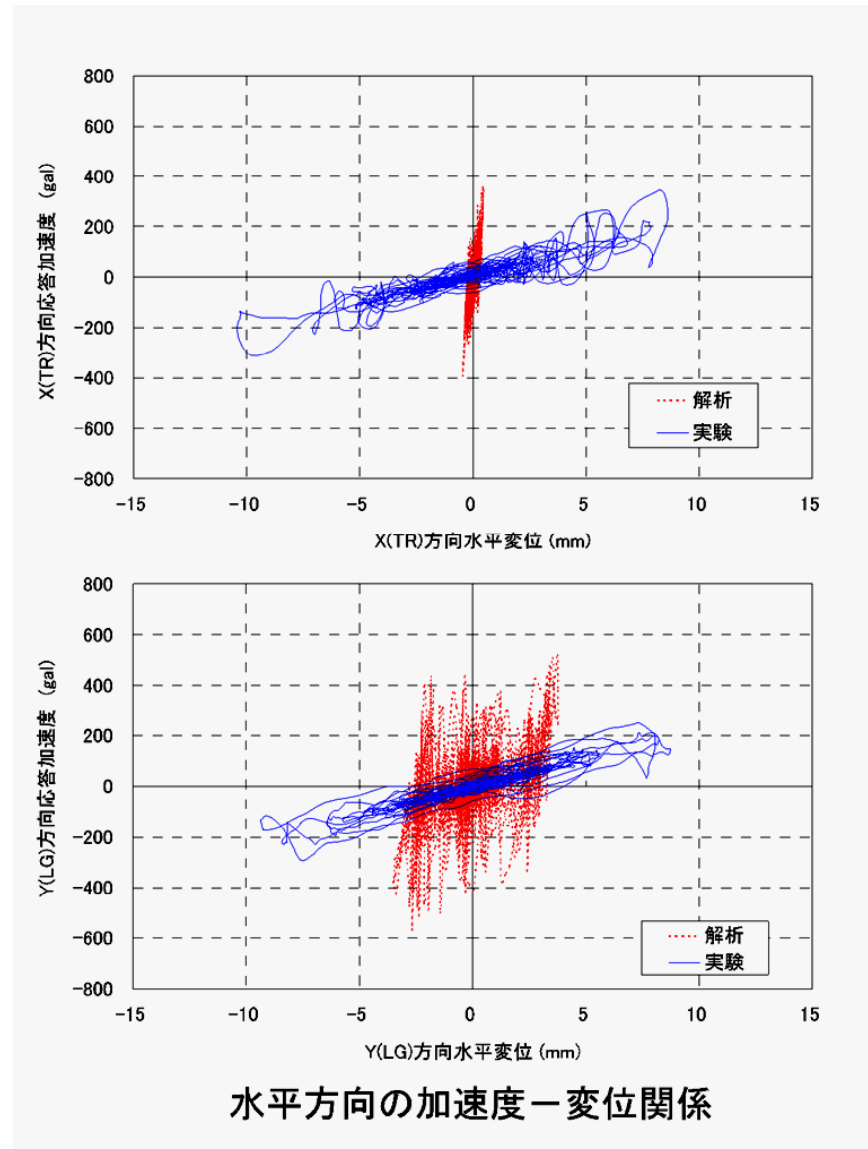
☐　Category 1: Isolated bridge experiment analysis

Group：Ａ　（30%）

橋脚天端の変位オービット図

支承応答

水平方向の加速度ー変位関係

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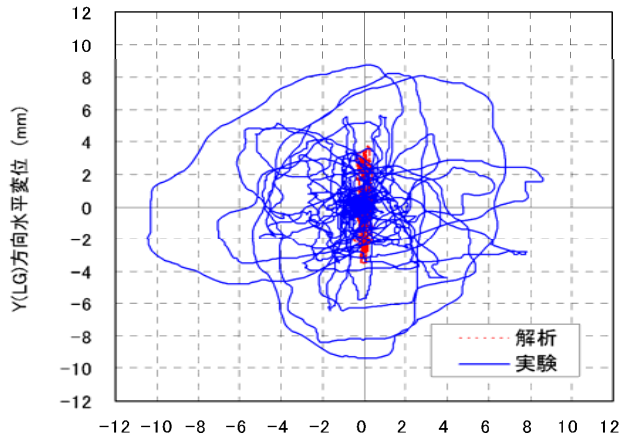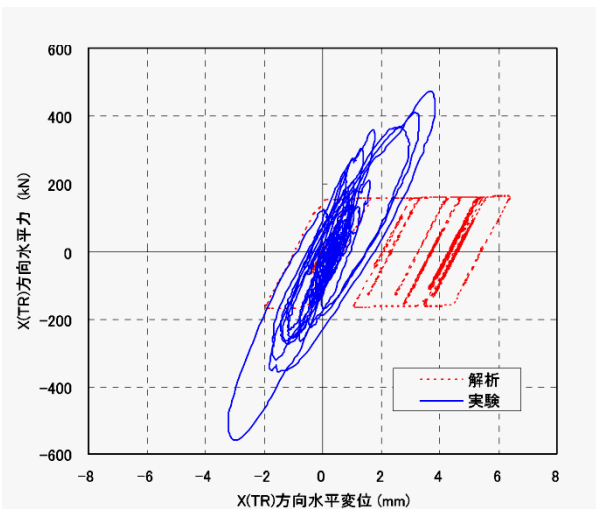
☐ Category 1: Isolated bridge experiment analysis

Group：D （30%）

X（TR）方向　　　　　　　　　　　　　Y（LG）方向

基部から 7500mm 位置の水平変位（上：全体，下：初期部拡大）

E-Defense

□ Category 1: Isolated bridge experiment analysis
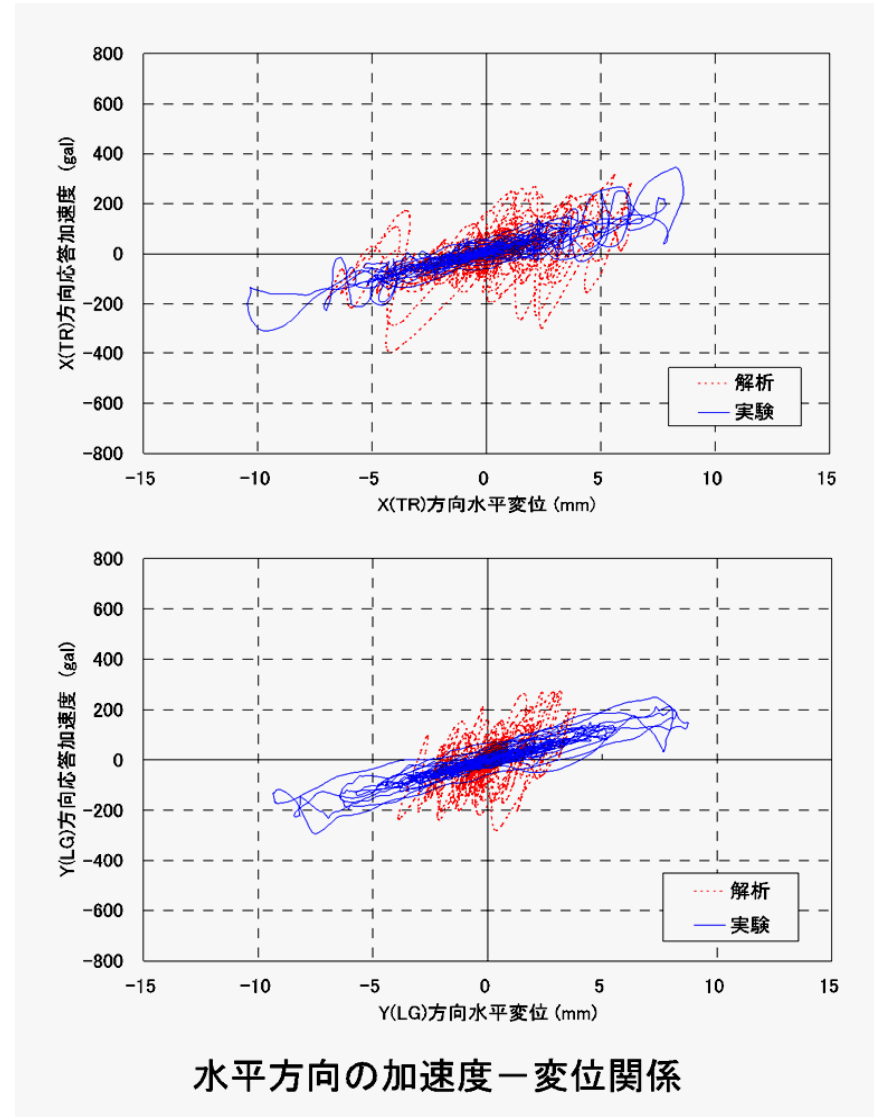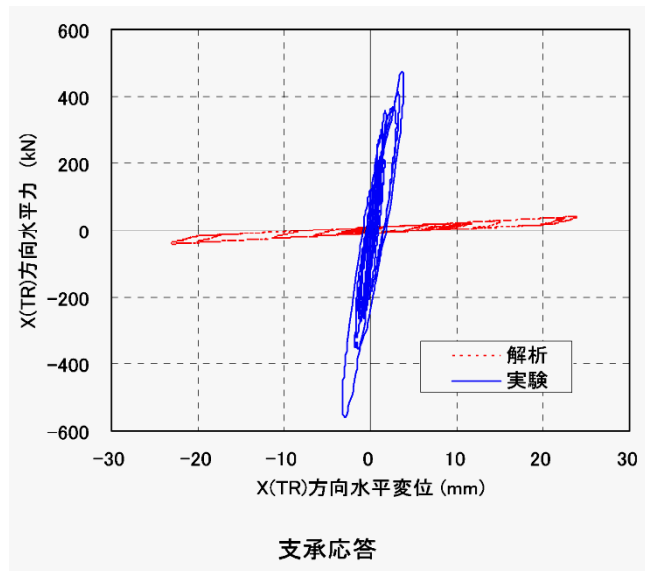
Group：D （30%）

橋脚天端のオービット図

支承応答

水平方向の加速度－変位関係

E-Defense

□　Category 1: Isolated bridge experiment analysis

Group：Ａ　（40%）

X(TR)方向　　　　　　　　　　　　　　　Y(LG)方向

基部から 7500mm 位置の水平変位（上：全体，下：初期部拡大）
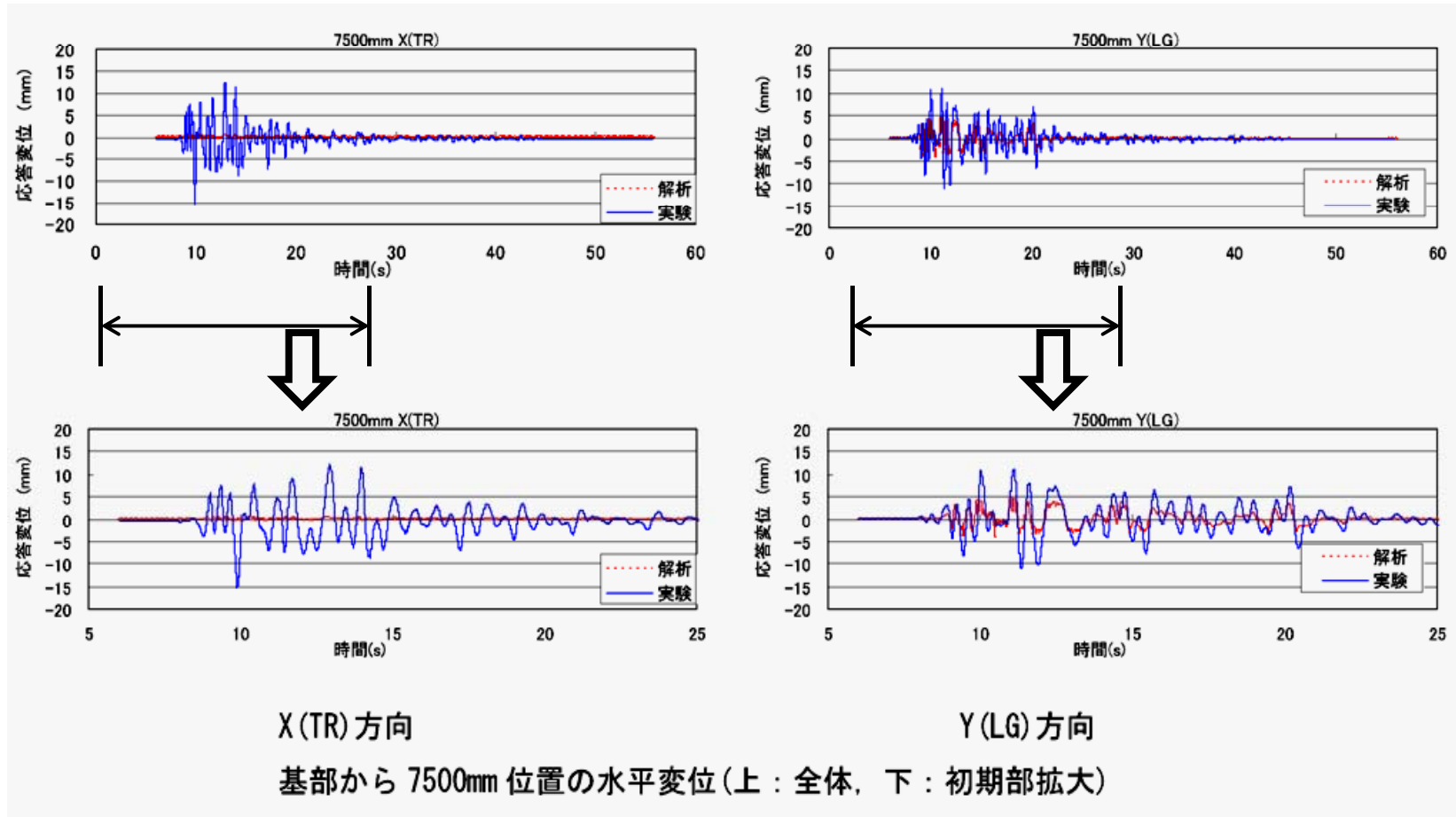
E-Defense
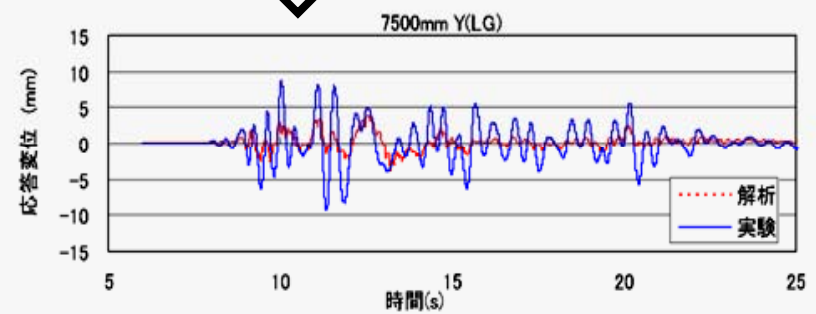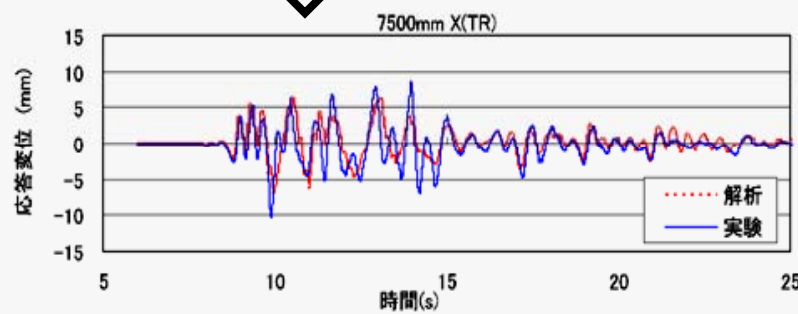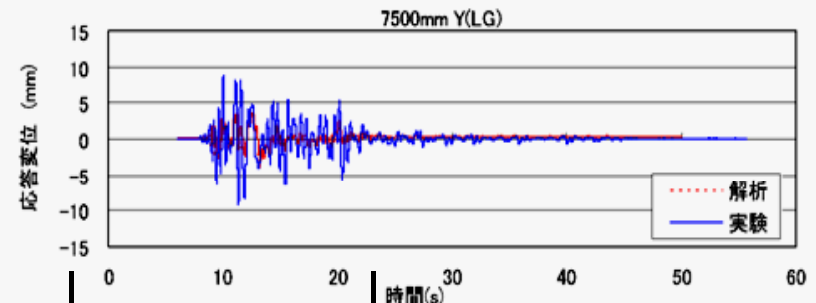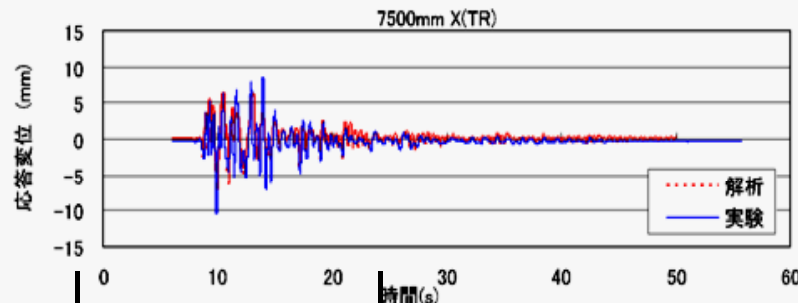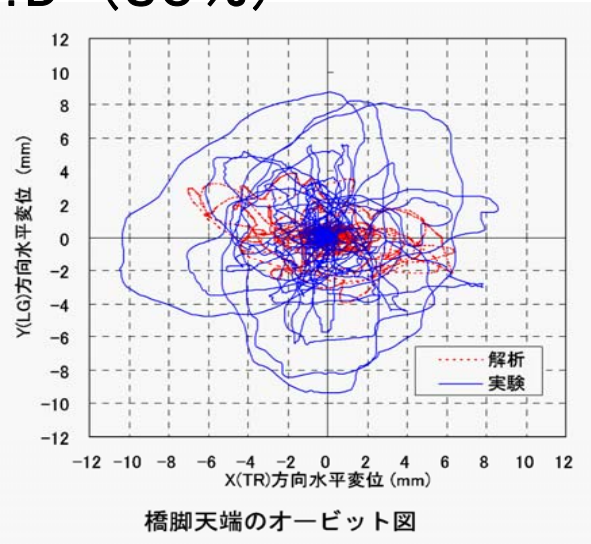
☐　Category 1: Isolated bridge experiment analysis

Group：Ａ　（４０％）

橋脚天端の変位オービット図

支承応答
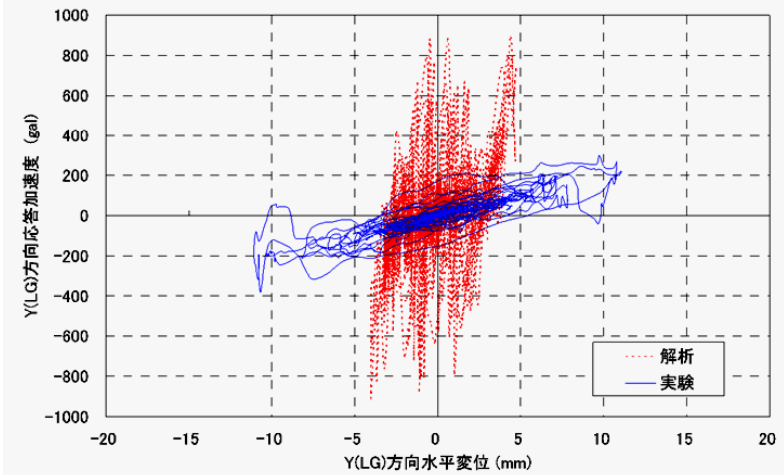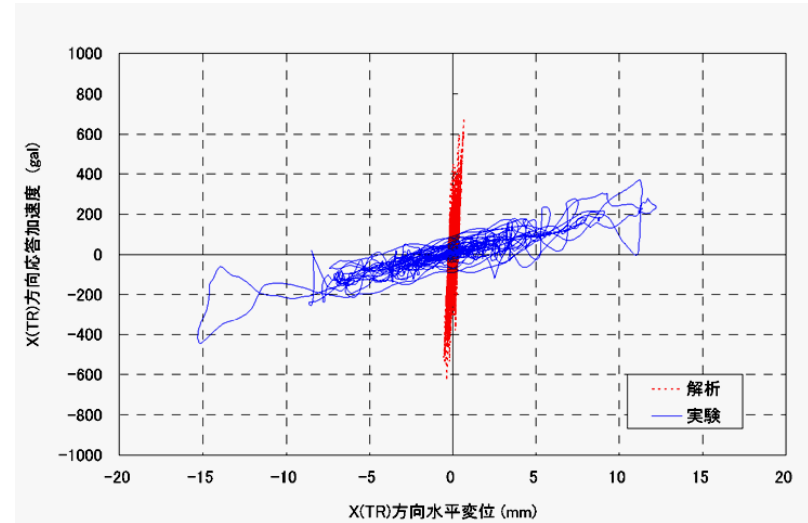
水平方向の加速度－変位関係

E-Defense

□   Category 1: Isolated bridge experiment analysis

Group：D （40%）

X(TR)方向   Y(LG)方向

基部から 7500mm 位置の水平変位（上：全体，下：初期部拡大）

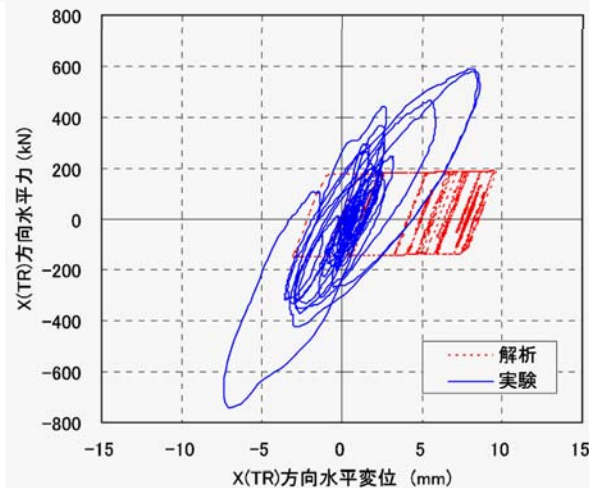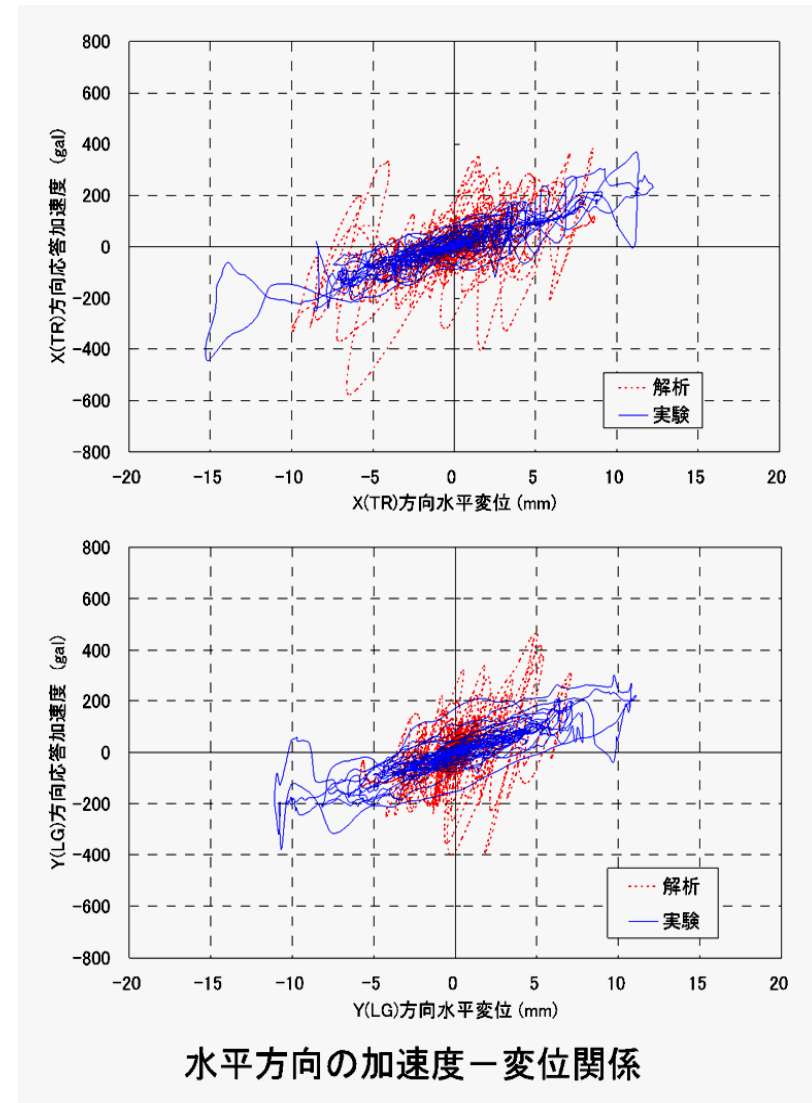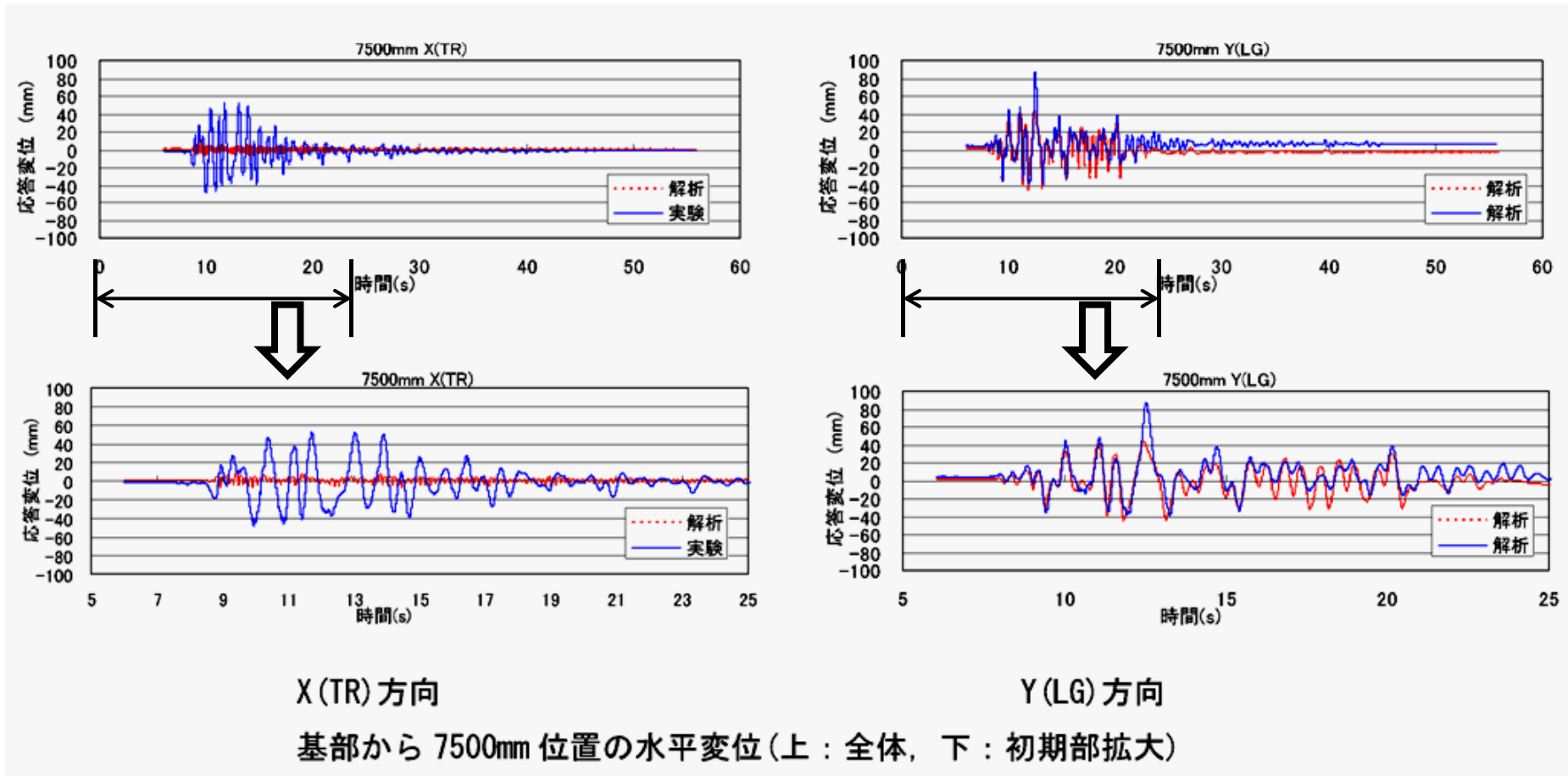# □　Category 1: Isolated bridge experiment analysis

Group：D　（40%）

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□ Category 2: Failure mode predication analysis

Group：A （125%）

X(TR)方向 　　　　　　　　　　Y(LG)方向

基部から 7500mm 位置の水平変位（上：全体，下：初期部拡大）

E-Defense
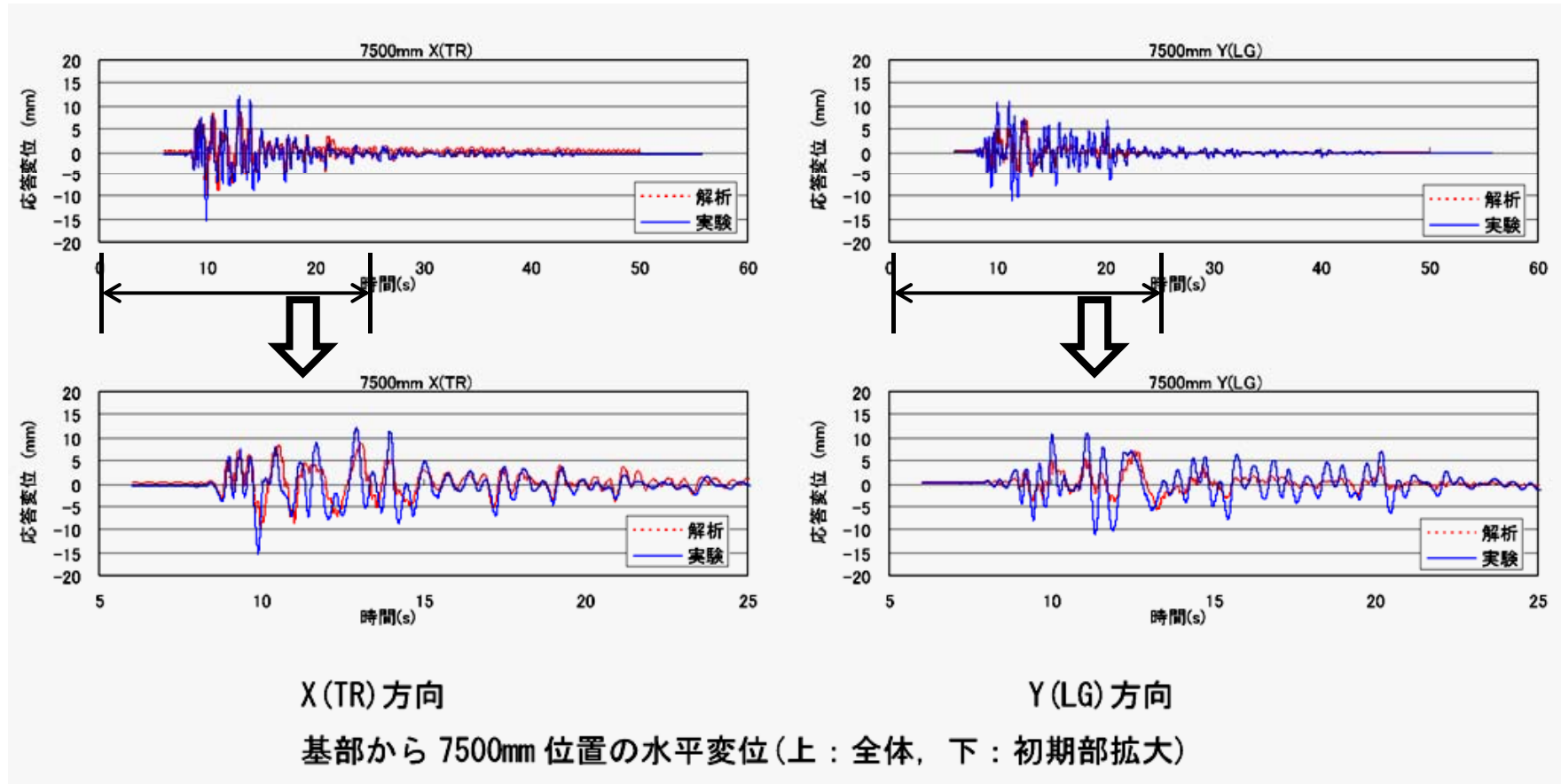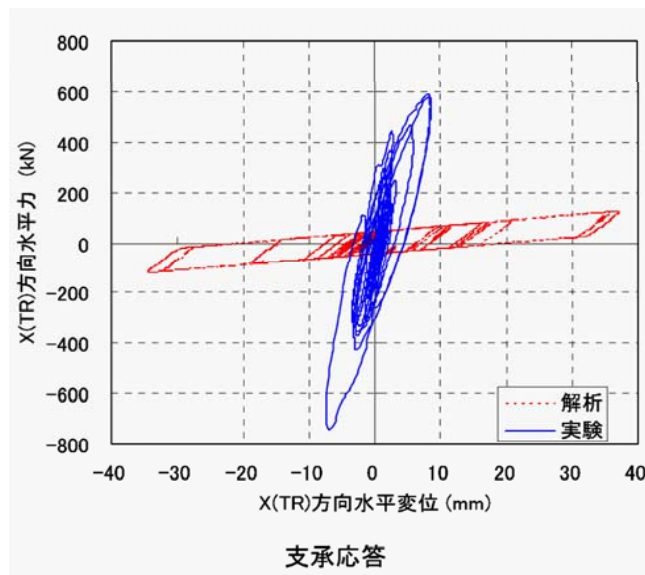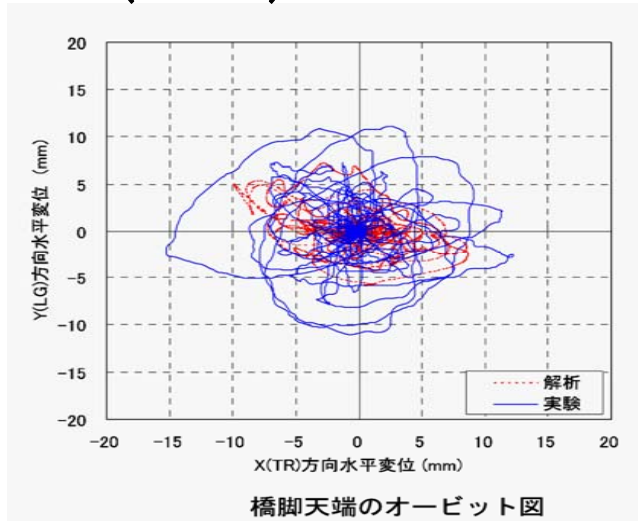
☐　 Category 2: Failure mode predication analysis

Group：Ａ　（125%）

橋脚天端のオービット図

水平変位の最大/最小値の比較(mm)

	X		Y	
	Max.v	Min.v	Max.v	Min.v
実験	189.9	-180.9	356.5	-261.3
解析	47.0	-58.0	64.2	-58.5

水平方向の加速度－変位関係

E-Defense

☐　Category 2: Failure mode predication analysis

Group：B　（125%）

X（TR）方向　　　　　　　　　　　　　　　Y（LG）方向

基部から 7500mm 位置の水平変位（上：全体，下：初期部拡大）

E-Defense
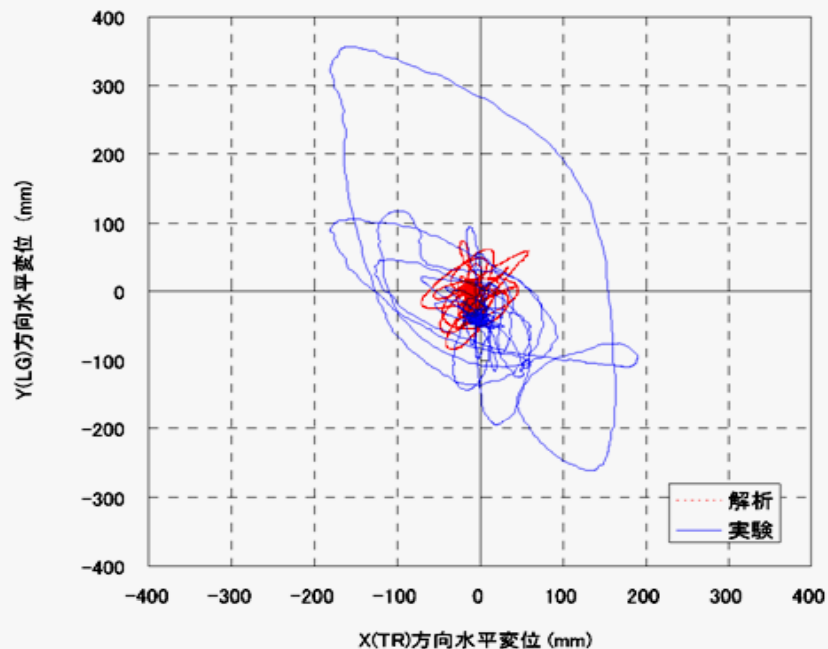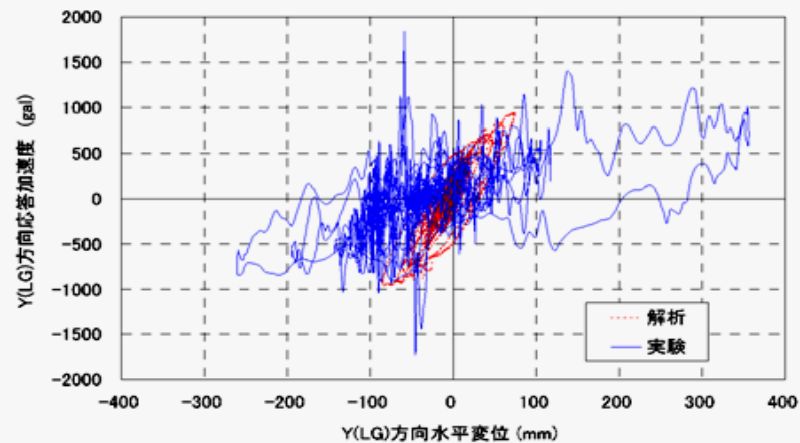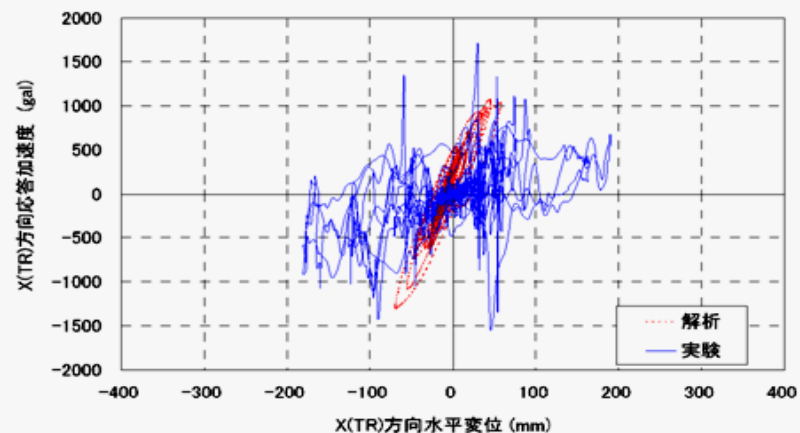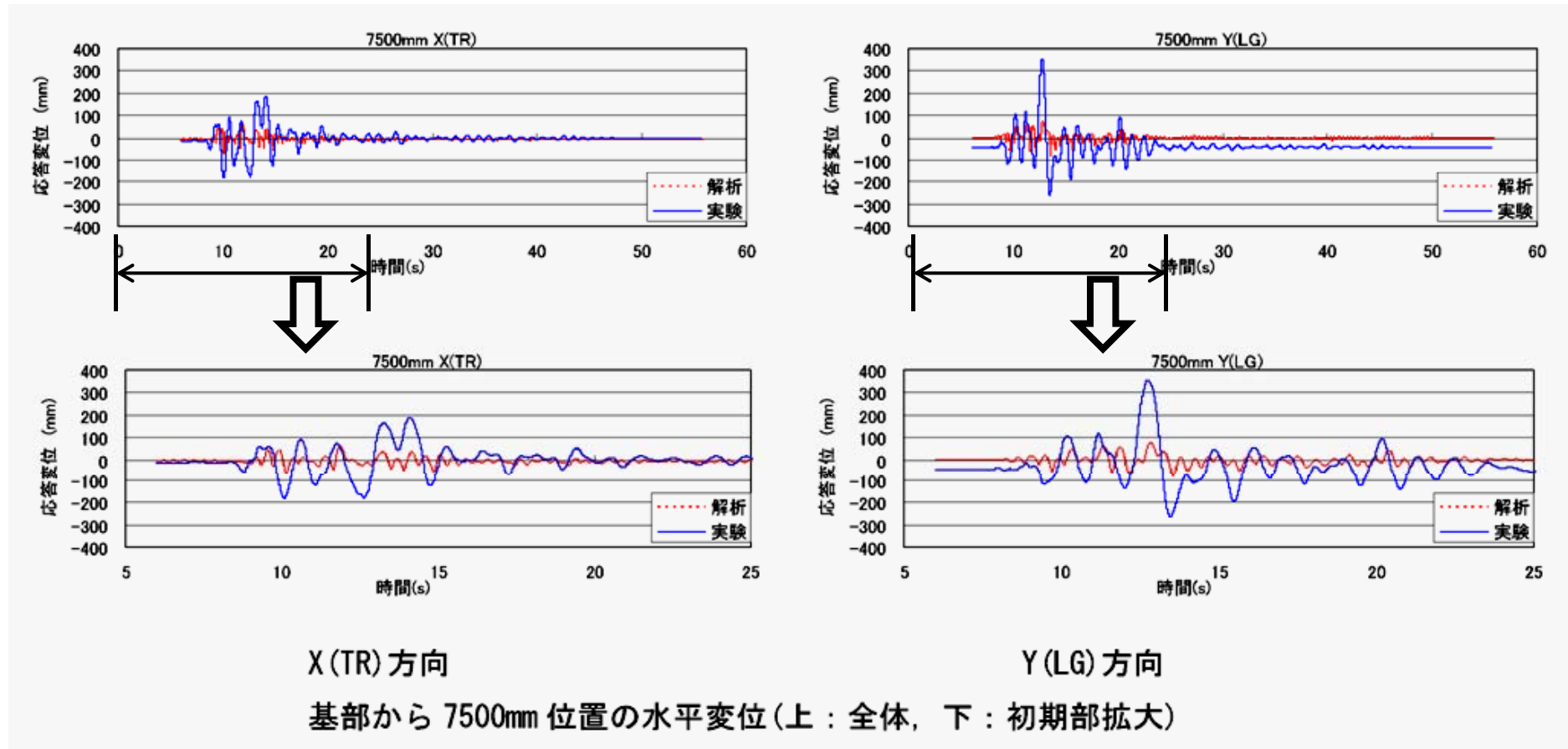
☐   Category 2: Failure mode predication analysis

Group：B （125%）

橋脚天端のオービット図

水平変位の最大/最小値の比較(mm)

	X		Y	
	Max.v	Min.v	Max.v	Min.v
実験	189.9	-180.9	356.5	-261.3
解析	47.0	-58.0	64.2	-58.5

水平方向の加速度－変位関係

E-Defense

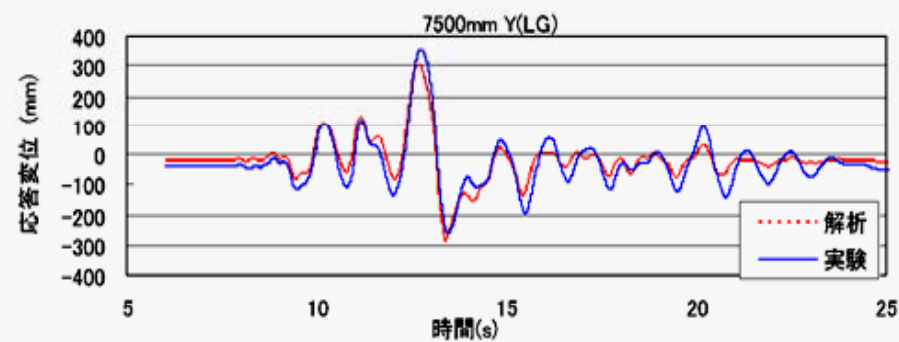# □ Category 2: Failure mode predication analysis

Group：C （**125%**）

X（TR)方向　　　　　　　　　　　　　Y（LG)方向

基部から 7500mm 位置の水平変位（上：全体，下：初期部拡大）

E-Defense
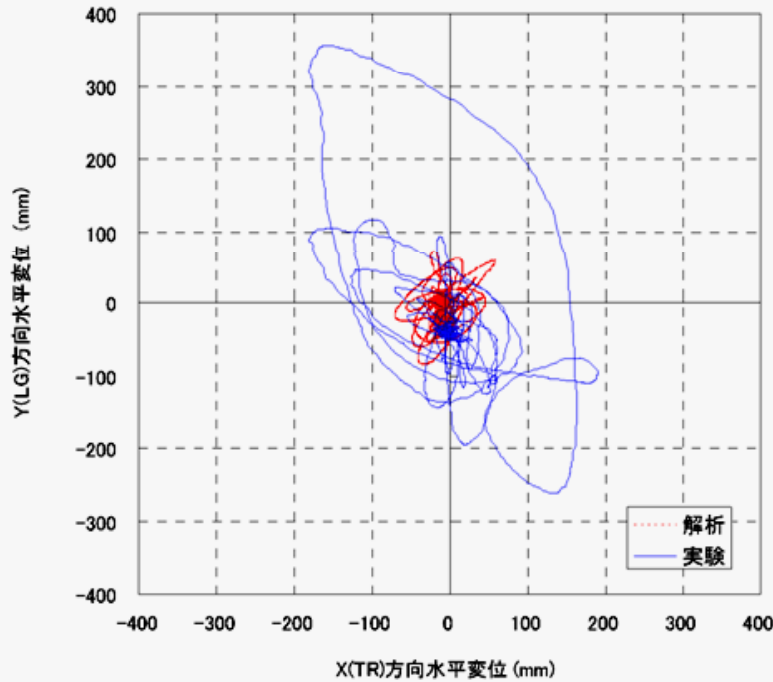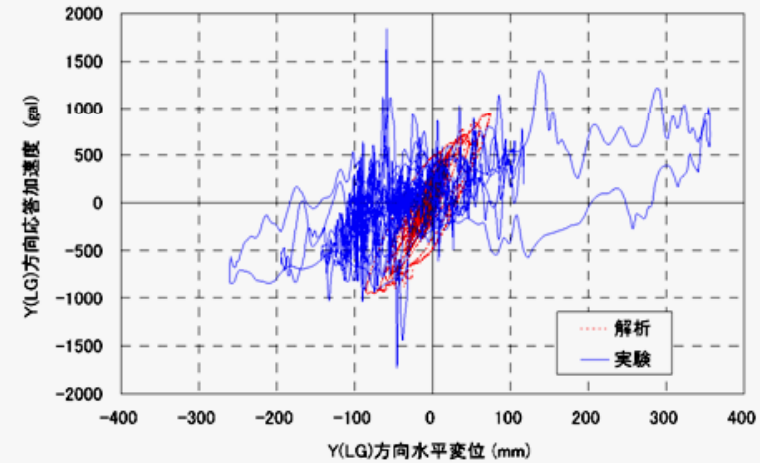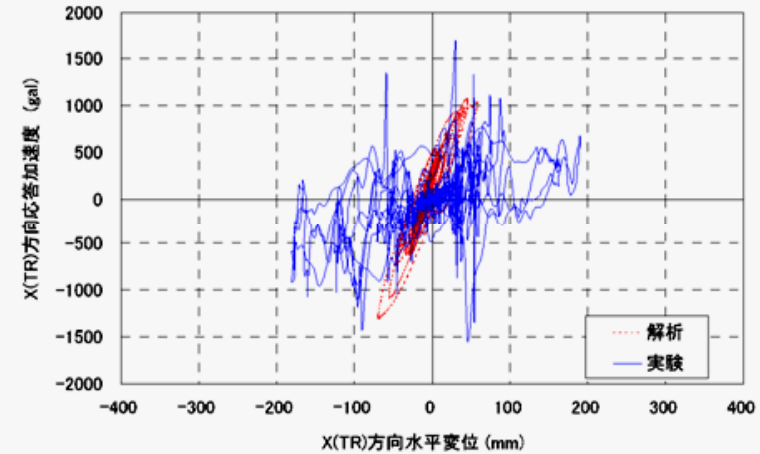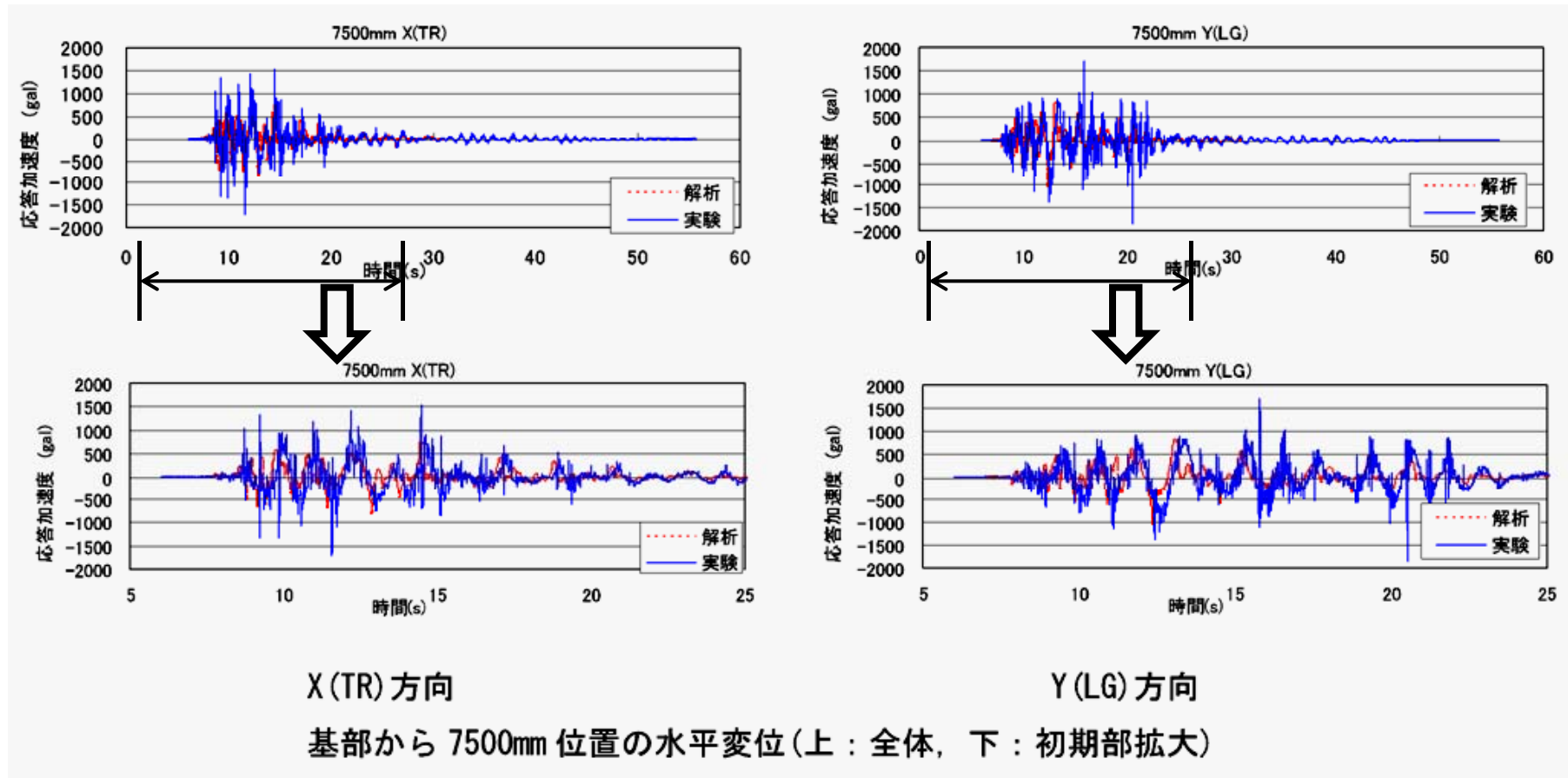
☐　Category 2: Failure mode predication analysis
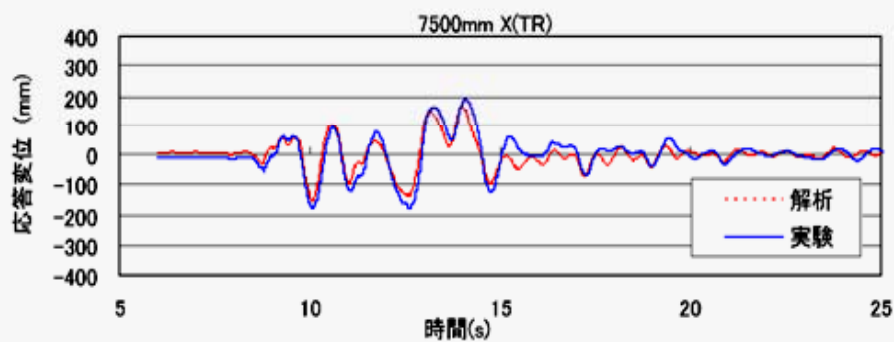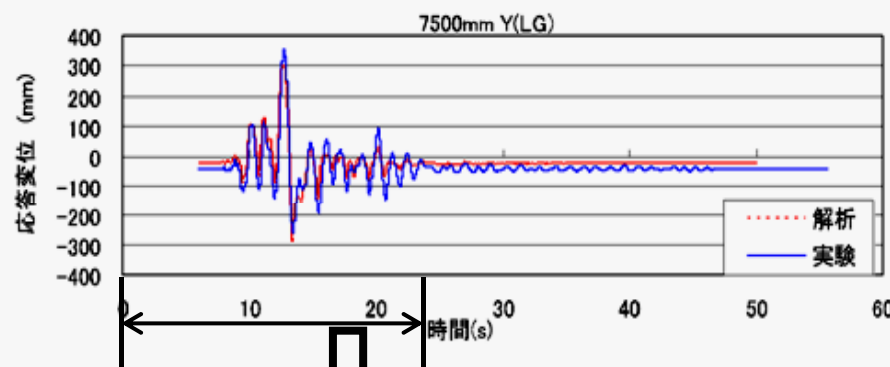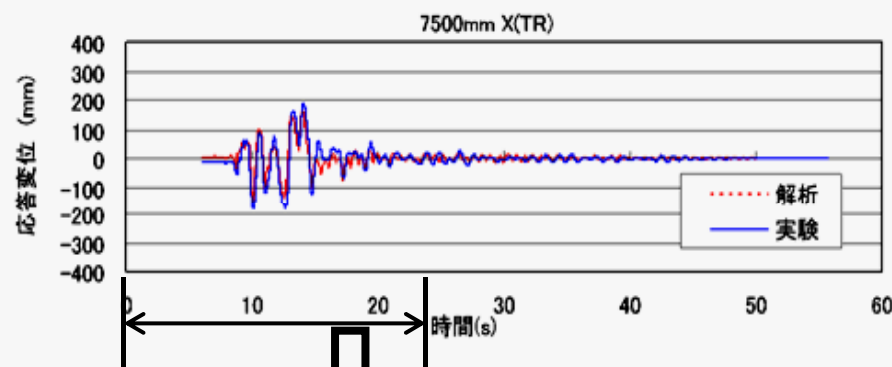
Group：D　（125%）

X(TR)方向　　　　　　　　　Y(LG)方向

基部から 7500mm 位置の水平変位（上：全体，下：初期部拡大）

☐　Category 2: Failure mode predication analysis

Group：D （125%）

橋脚天端のオービット図

水平変位の最大/最小値の比較 (mm)

	X		Y	
	Max.v	Min.v	Max.v	Min.v
実験	189.9	-180.9	356.5	-261.3
解析	162.9	-157.0	303.4	-287.2
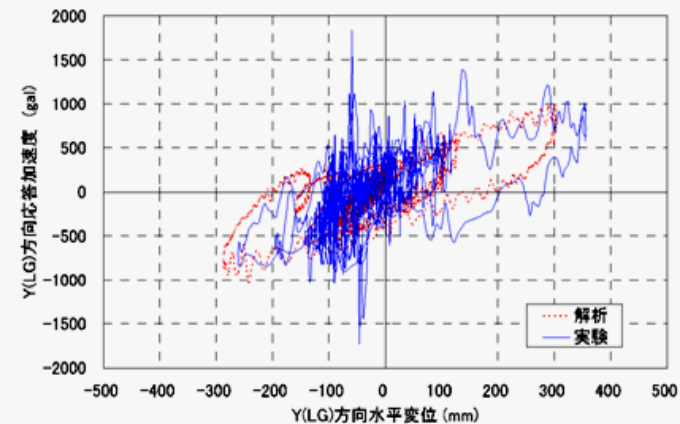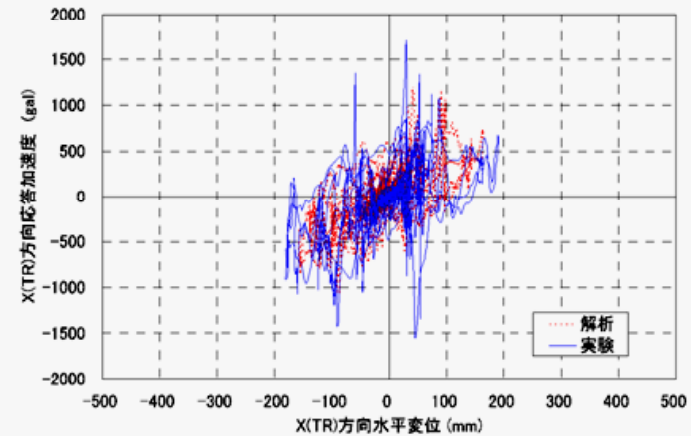
水平方向の加速度－変位関係

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The results of Blind Analysis for Full-scale Bridge Seismic Excitation in 2009
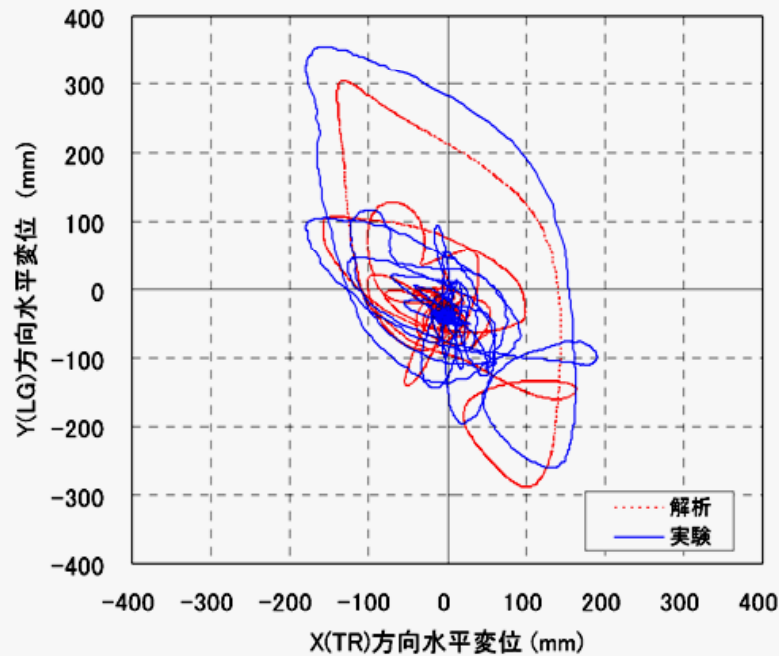
☐ Category 1: Isolated bridge experiment analysis

☐ Category 2: Failure mode predication analysis

   Group D

☐ Category 3: Category 1 and Category 2

E−Defense

The results of Blind Analysis for Full-scale Bridge Seismic Excitation in 2009

☐ Category 2: Failure mode predication analysis

Winners

➢ Mr. Yoshitaka KAI   FORUM8 Co. Ltd.

➢ Mr. Hiroki AOTO   Tokyo City University

➢ Mr.Hiroto MATSUYAMA   FORUM8 Co. Ltd.

➢ Mr. Brent Fleming   FORUM8 Co. Ltd.

➢ Mr. Keiichiro ABE   FORUM8 Co. Ltd.

➢ Dr. Hiromichi YOSHIKAWA   Tokyo City University

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