Suggestion from JASPAR
How to coexist between AUTOSAR and IEEE – sequel -

Japan
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Software
Platform
and
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Background

JASPAR has already shown the differences in the profiles between AUTOSAR and IEEE P802.1DG from the neutral viewpoint and the problems caused by them.
(2022 July and November plenary)

Based on the above discussion, we present a concrete amendment to be added to the draft. Moreover, we will also show one of the problems if the differences still need to be resolved.

Item	802.1AS	P802.1DG	AUTOSAR
Use of BMCA	Yes	**Not used**	**Not used**
Use of Announce message	Yes	**Yes**	**Not used**
Use of Signaling message	Yes	Undefined	Not used
Use of Pdelay message	Yes	Yes	Measurement is optional
Sync message format	2-Step/1-Step	2-Step	2-Step
Multiple time domains	Yes	Yes	Yes (non-Std.)
Use of VLAN and priority	Not used	Undefined	Optional

Propositions from Jaspar

Propositions from JASPAR are the following.
Table 15-2: The Value of DGB3 must be changed to "No."
Table 15-3: Announce Message may be defined as "Option" in an additional ITEM DGE*

Table 15-2—Base profile TSN features

ITEM #	TSN FEATURE DESCRIPTION	REFERENCE	VALUE
	Timing and Synchronization (gPTP) (IEEE Std 802.1AS)		Yes
DGB1	Use External Port Configuration?	Annex G.1.1	Yes
DGB2	Use BMCA?	Annex G.1.1	Not used
DGB3	Send Announce messages whether using BMCA or not?	Annex G.1.1	No
DGB4	Send pDelay messages?	Annex G.1.2	Yes
DGB5	Sync message format?	Annex G.1.3	Two-step
DGB6	Minimum number of Domains	Annex G.2	1
DGB7	Maximum number of Domains?	Annex G.2	Undefined
DGB8	Message rates?	Table 22-4, Annex G.1.4	Default values

Table 15-3—Extended profile TSN features

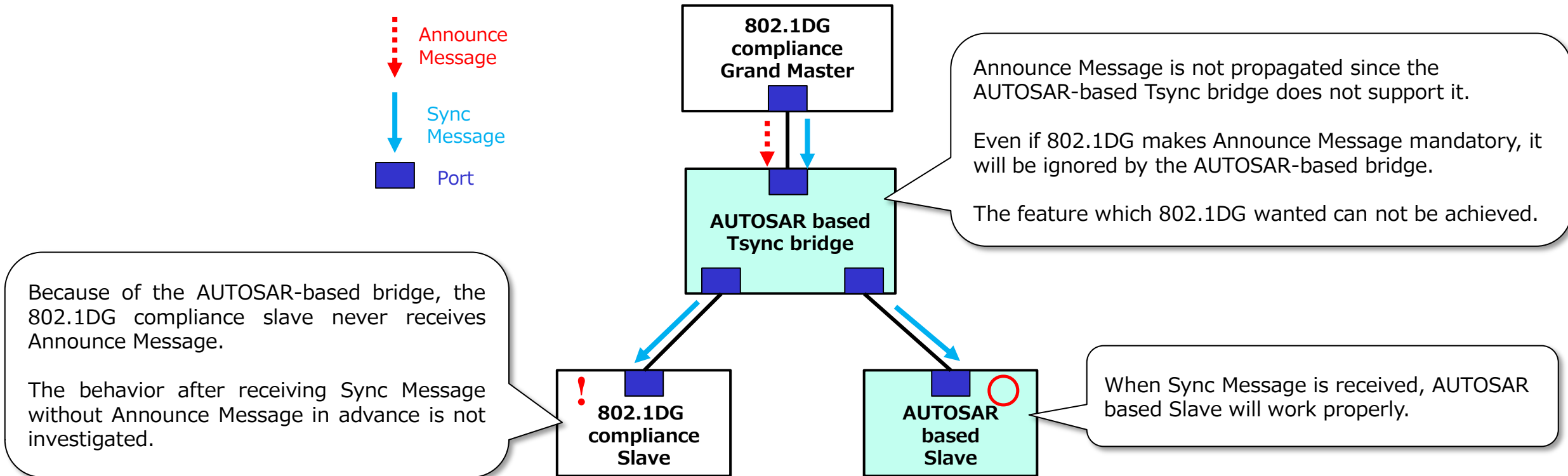| ITEM #	TSN FEATURE DESCRIPTION	REFERENCE	VALUE
	Timing and Synchronization (gPTP) (IEEE Std 802.1AS)		Yes
DGE1	Minimum number of Domains	Annex G.2	2
DGE2	Maximum number of Domains?	Annex G.2	Undefined
DGE3	Configure message rates via Message interval request signaling messages?	Table 22-4, Annex G.1.4	Yes
DGE*	Send Announce Message whether using BMCA or not	Annex G1.1	Option

According to the current automotive use cases, Announce Message is not necessary.
However, considering the new use cases that require Announce Message will appear soon, we propose Announce Message as an Option in the Extended Profile.

The problems cannot be overlooked for OEMs

While AUTOSAR specification CANNOT use Announce Message,
OEMs are urged to select one bridge specification among AUTOSAR or 802.1DG.
⇒ OEMs choose only AUTOSAR if the 802.1DG bridge is not off the shelf.

When profiles of AUTOSAR and 802.1DG are mixed in the same system, the below problem occurs for example.
⇒ OEMs have no choice but to unite into AUTOSAR.　(This means 802.1DG will be prohibited.)

Announce Message

Sync Message

Port

802.1DG compliance Grand Master

AUTOSAR based Tsync bridge

Announce Message is not propagated since the AUTOSAR-based Tsync bridge does not support it.

Even if 802.1DG makes Announce Message mandatory, it will be ignored by the AUTOSAR-based bridge.

The feature which 802.1DG wanted can not be achieved.

Because of the AUTOSAR-based bridge, the 802.1DG compliance slave never receives Announce Message.

The behavior after receiving Sync Message without Announce Message in advance is not investigated.

802.1DG compliance Slave

AUTOSAR based Slave

When Sync Message is received, AUTOSAR based Slave will work properly.

Conclusion

Propositions for Amendment:
① Table 15-2: Announce Message changes "No"
② Table 15-3: Announce Message redefine "Option"

The other description regarding Announce Message, except for the above tables, can be revised by JASPAR.

If 802.1DG Task Force does not accept these propositions,
We, Japanese Automotive Industry, will make a judgement on 802.1DG prohibited.